Quantar Service Manual

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Service Manual for:

Quantar® Station Products
Quantro® Station Products
DSS-III Station Products
ASTRO-TAC® Comparator
ASTRO-TAC® Receiver

(Includes Schematics, Part Location Details, and Parts Lists)

[redacted]

Service Manual

68P81088E90-G

Volume 1 of 2

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b. the product has been subject to misuse, accident, neglect or damage;

c. unauthorized alterations or repairs have been made, or unapproved parts used in the equipment.

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This warranty applies only within the United States.

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FCC INTERFERENCE WARNING

The FCC Requires that manuals pertaining to Class A and Class B computing devices must contain warnings about possible interference with local residential radio and TV reception. This warning reads as follows:
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or residential environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

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SMR
6816

Manual Revision

Service Manual for:
Quantar™ Station Products
Quantro™ Station Products
DSS-III™ Station Products
ASTRO-TAC™ Comparator
ASTRO-TAC™ Receiver

General

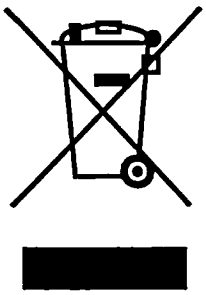
This SMR applies to Volume 1of manual revision 68P81088E90-G, and provides disposal guidelines and updated information on the following control module assemblies:

- CLN7692B EPIC IV Control Board
- CLN7692D EPIC IV Control Board
- CCN4009C, CLN1614D, CLN6686J, CLN6873F, CLN6960F, CLN6961F, CLN7361D, CLN7462D, TTN4093J EPIC II Control Board

Replace the pages in your manual with the corresponding pages included in this SMR.

This SMR supersedes SMR-6807 in its entirety.

Disposal guideline

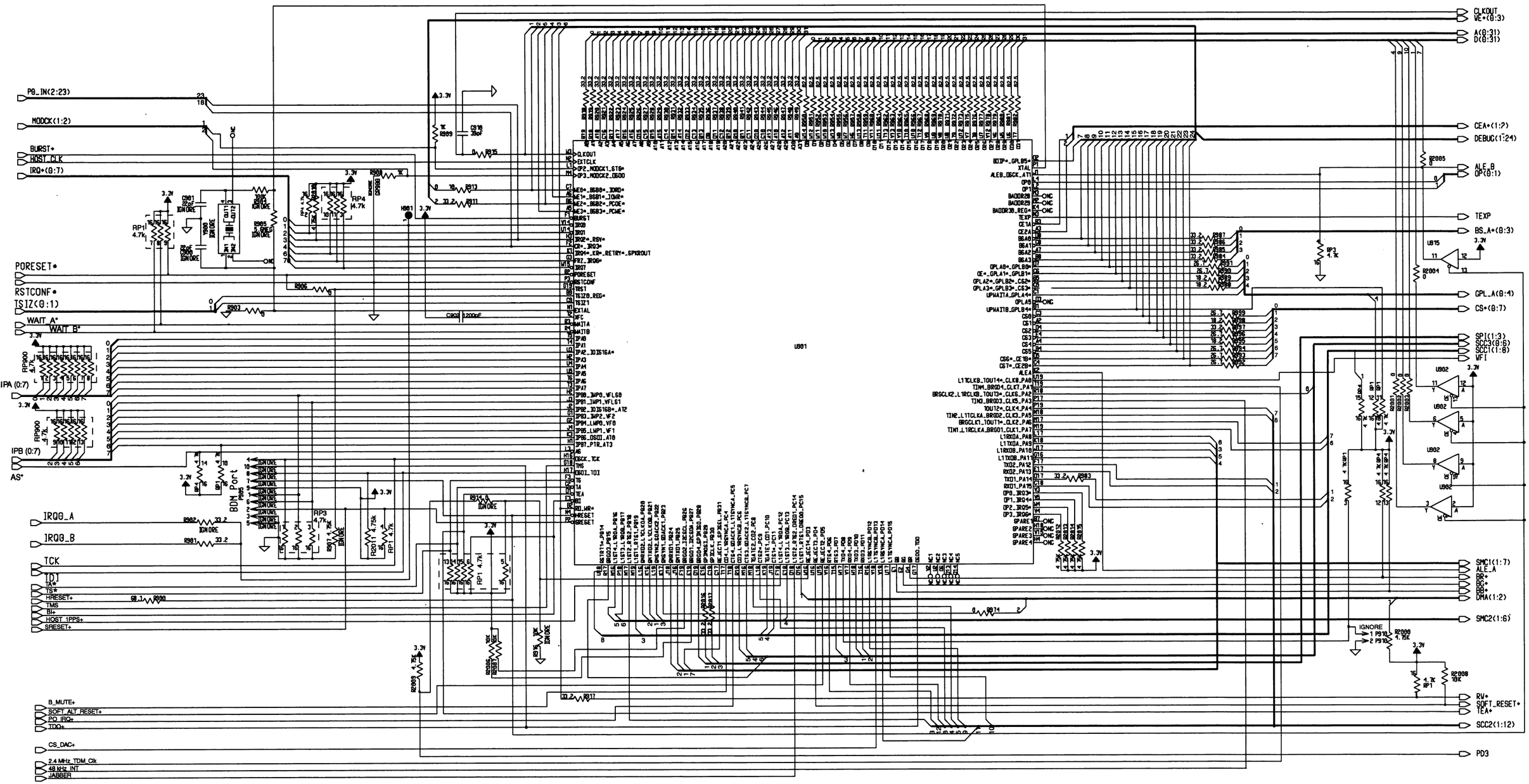


European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive

The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trashbin label on the product (or the package in some cases). As defined by the WEEE directive, this cross-out trashbin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste. Customers or end-users in EU countries should contact their local equipment supplier representative or service centre for information about the waste collection system in their country.

CONTROL BOARD

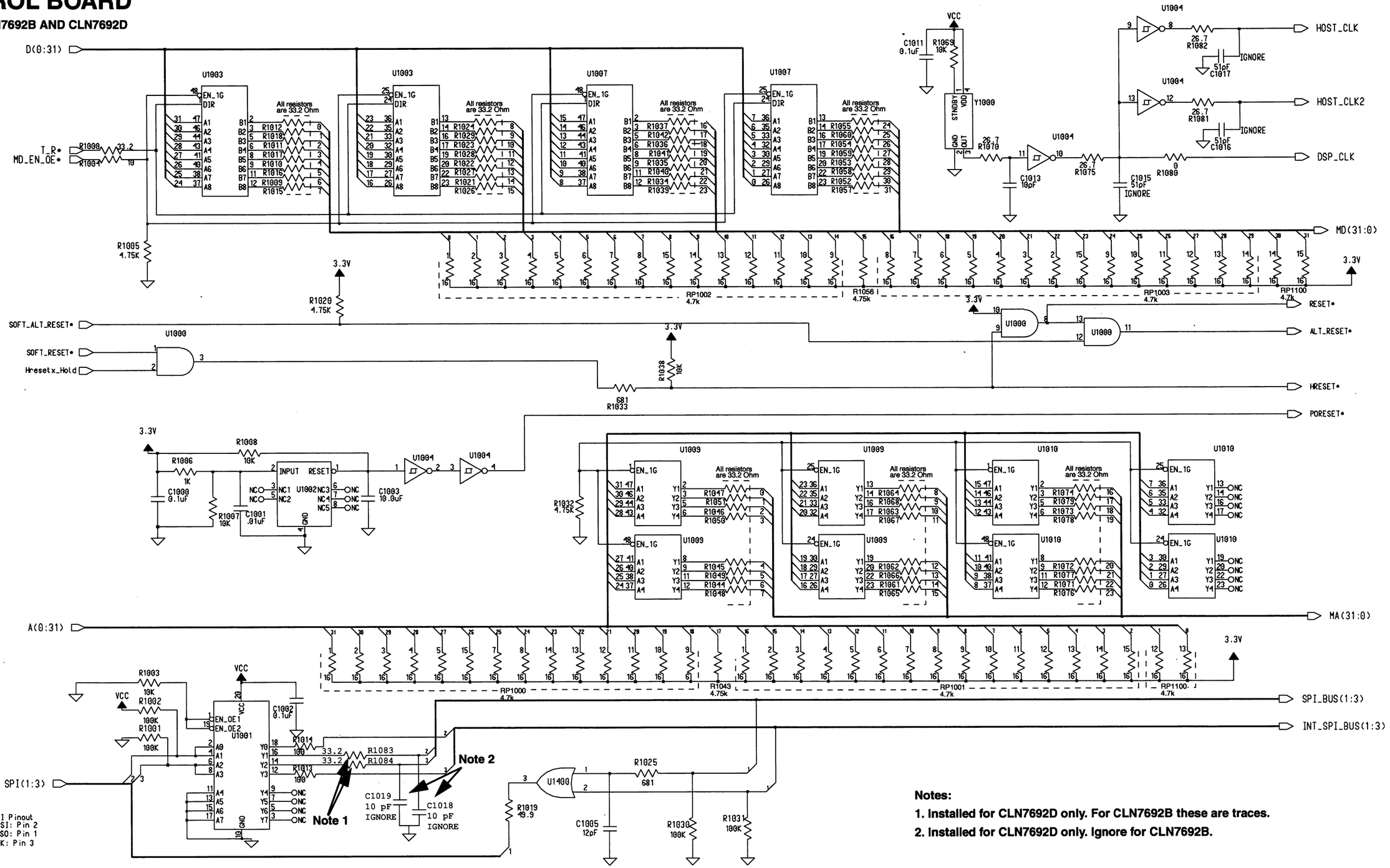
MODELS CLN7692B AND CLN7692D



MICROCONTROLLER

CONTROL BOARD

MODELS CLN7692B AND CLN7692D



Notes:

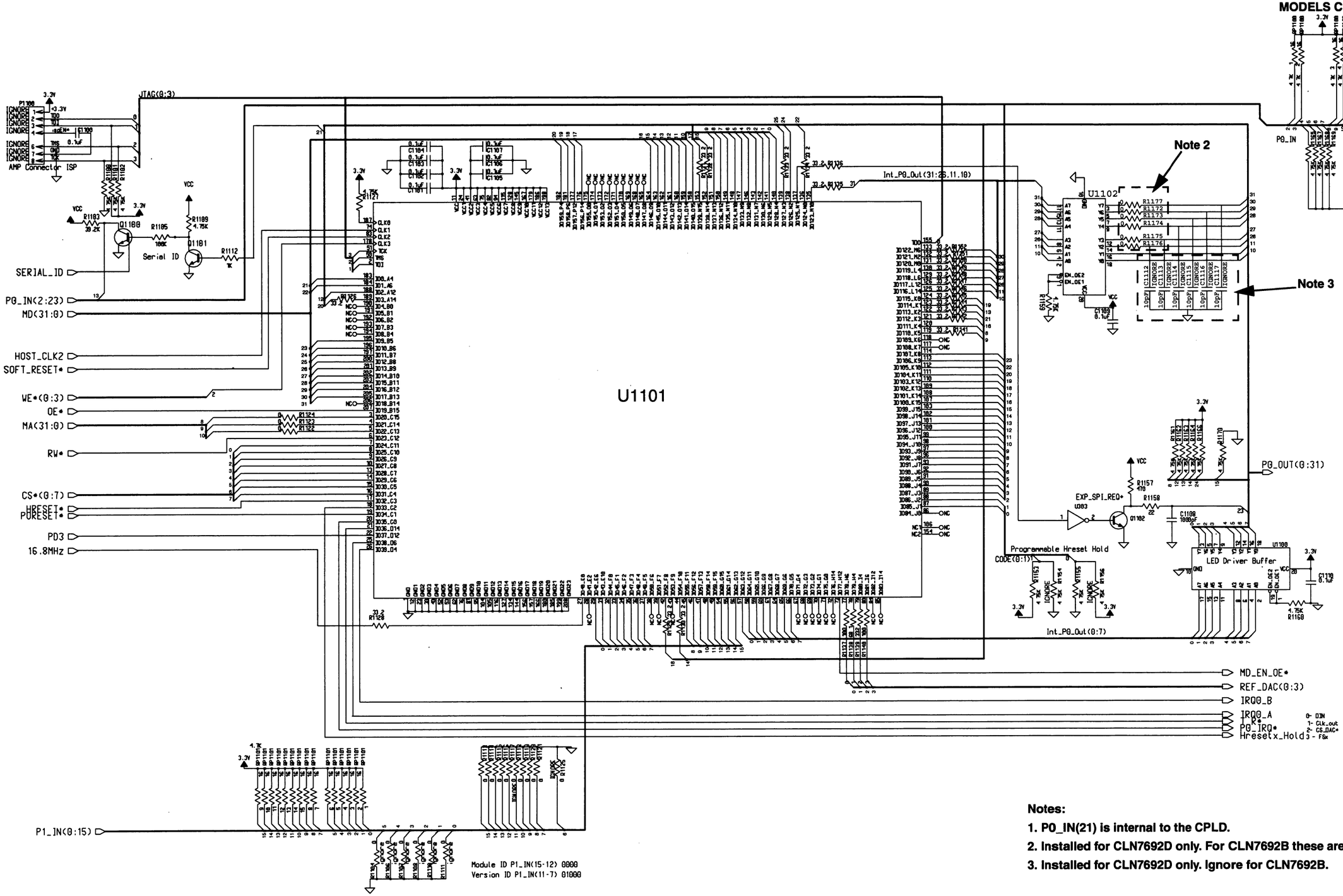
1. Installed for CLN7692D only. For CLN7692B these are traces.

2. Installed for CLN7692D only. Ignore for CLN7692B.

HOST GLUE

CONTROL BOARD

MODELS CLN7692B AND CLN7692D



Notes:

1. **PO_IN(21) is internal to the CPLD.**
2. **Installed for CLN7692D only. For CLN7692B these are traces.**
3. **Installed for CLN7692D only. Ignore for CLN7692B.**

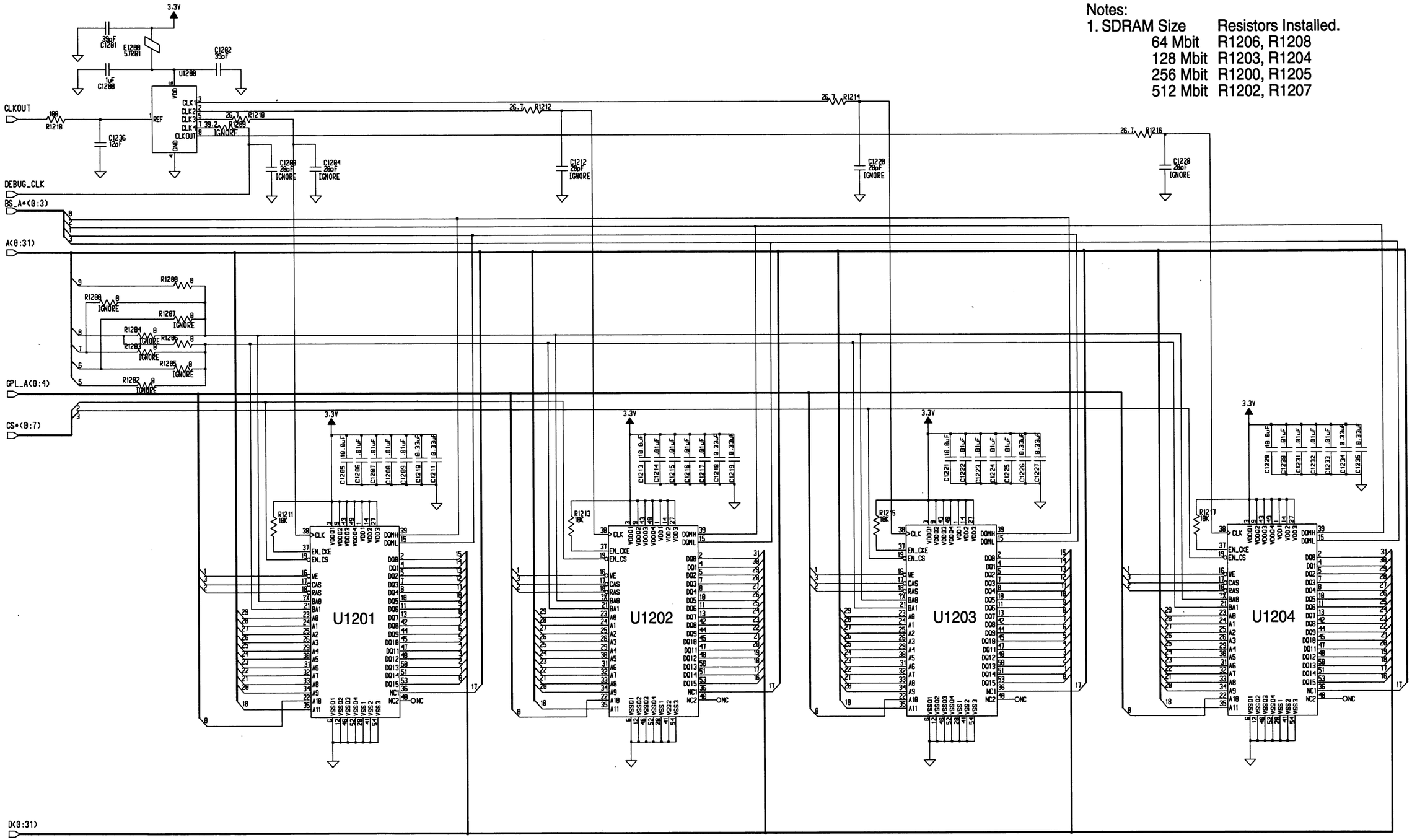
CPLD-HOST INTERFACE

CONTROL BOARD

MODELS CLN7692B AND CLN7692D

Notes:

1. SDRAM Size — Resistors Installed.
   - 64 Mbit — R1206, R1208
   - 128 Mbit — R1203, R1204
   - 256 Mbit — R1200, R1205
   - 512 Mbit — R1202, R1207



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CONTROL BOARD

MODELS CLN7692B AND CLN7692D

SMC2(1:6)

SMC1(1:7)

SCC2(1:12)

RSS_PORT(1:6)

ASYNC_RS232(1:7)

SYNC_RS232(1:12)

U1700

U1701

U1702

U1703

U1704

U1705

U1800

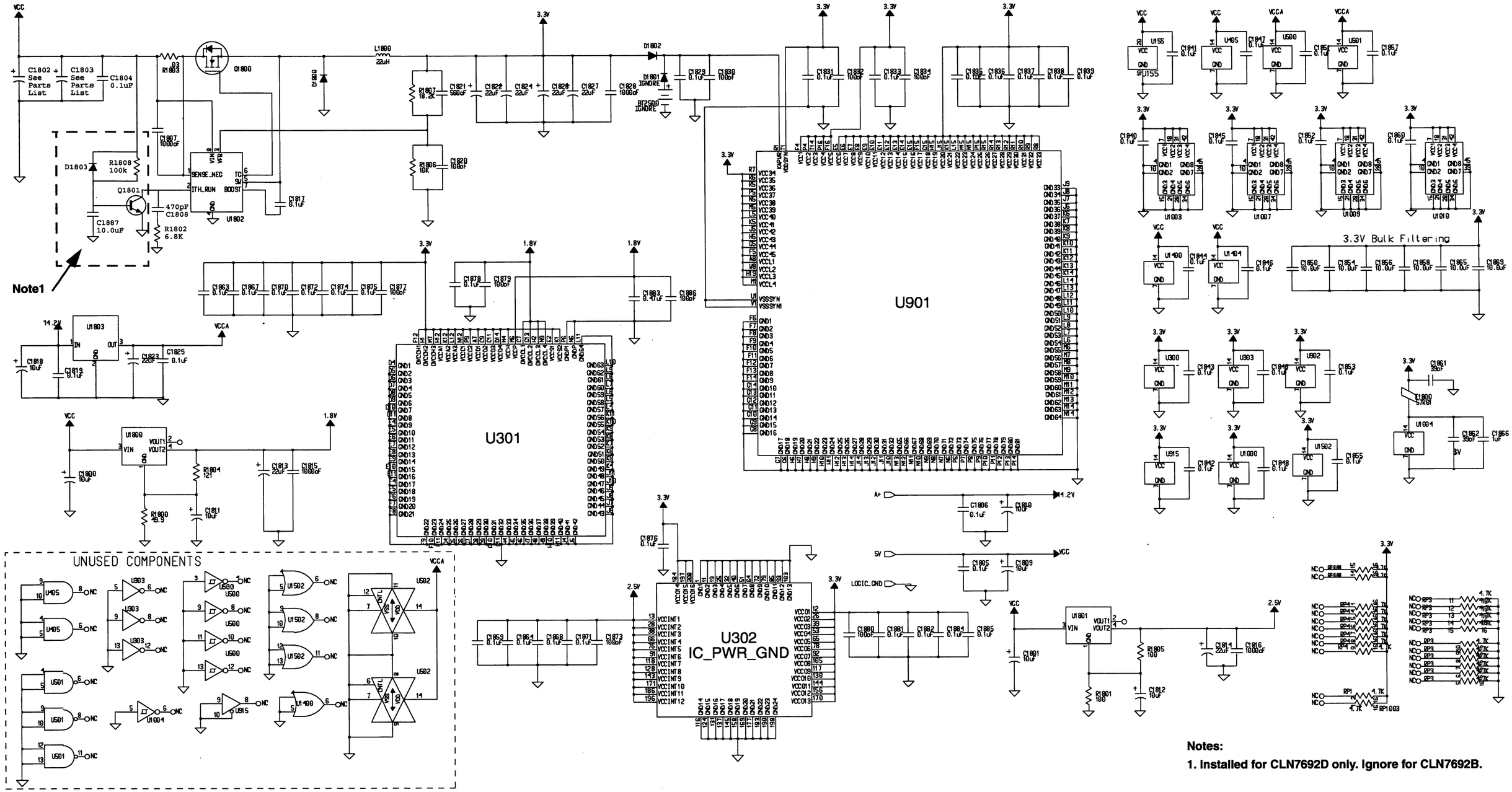
Q1700

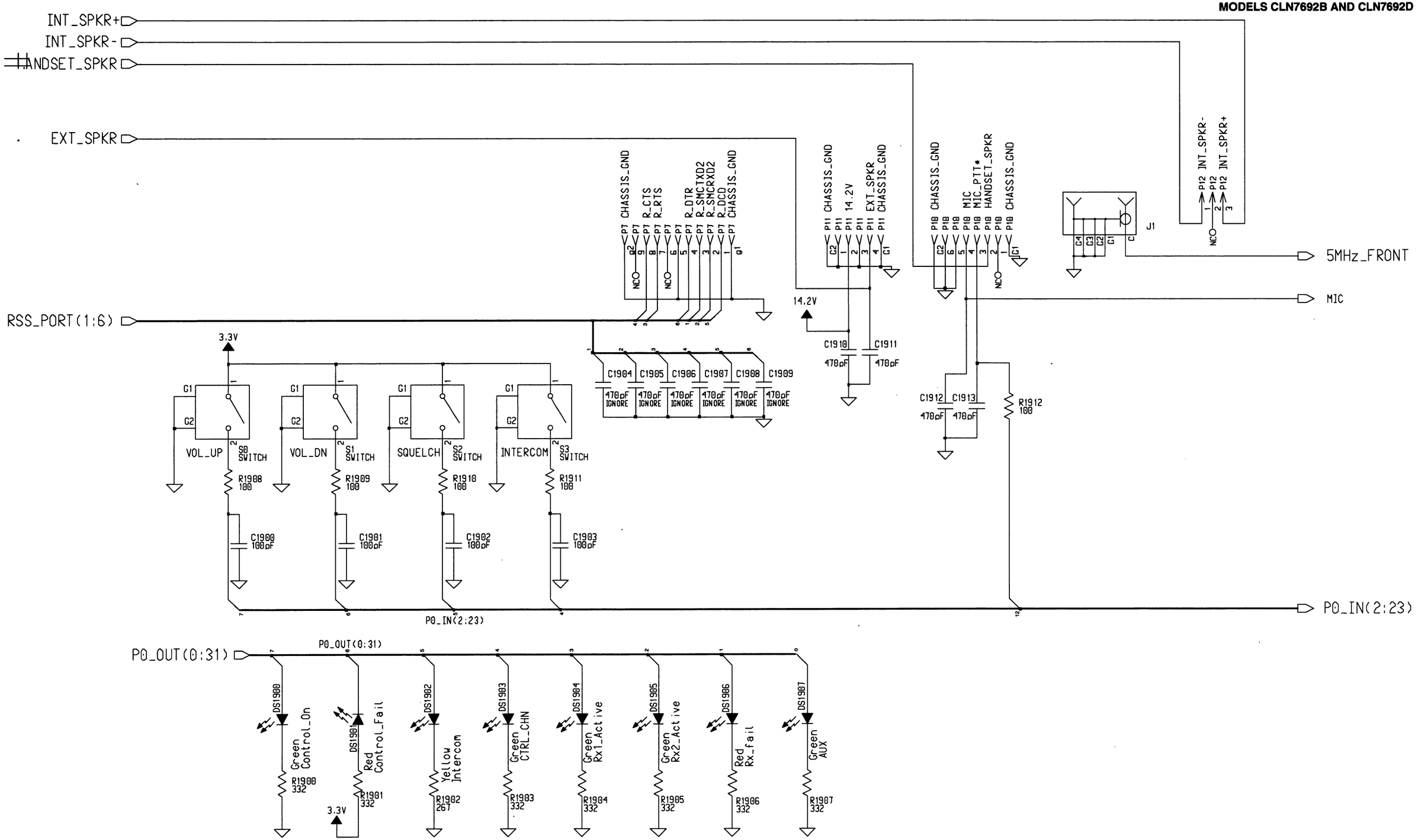
D2200

RS232

CONTROL BOARD

MODELS CLN7692B AND CLN7692D

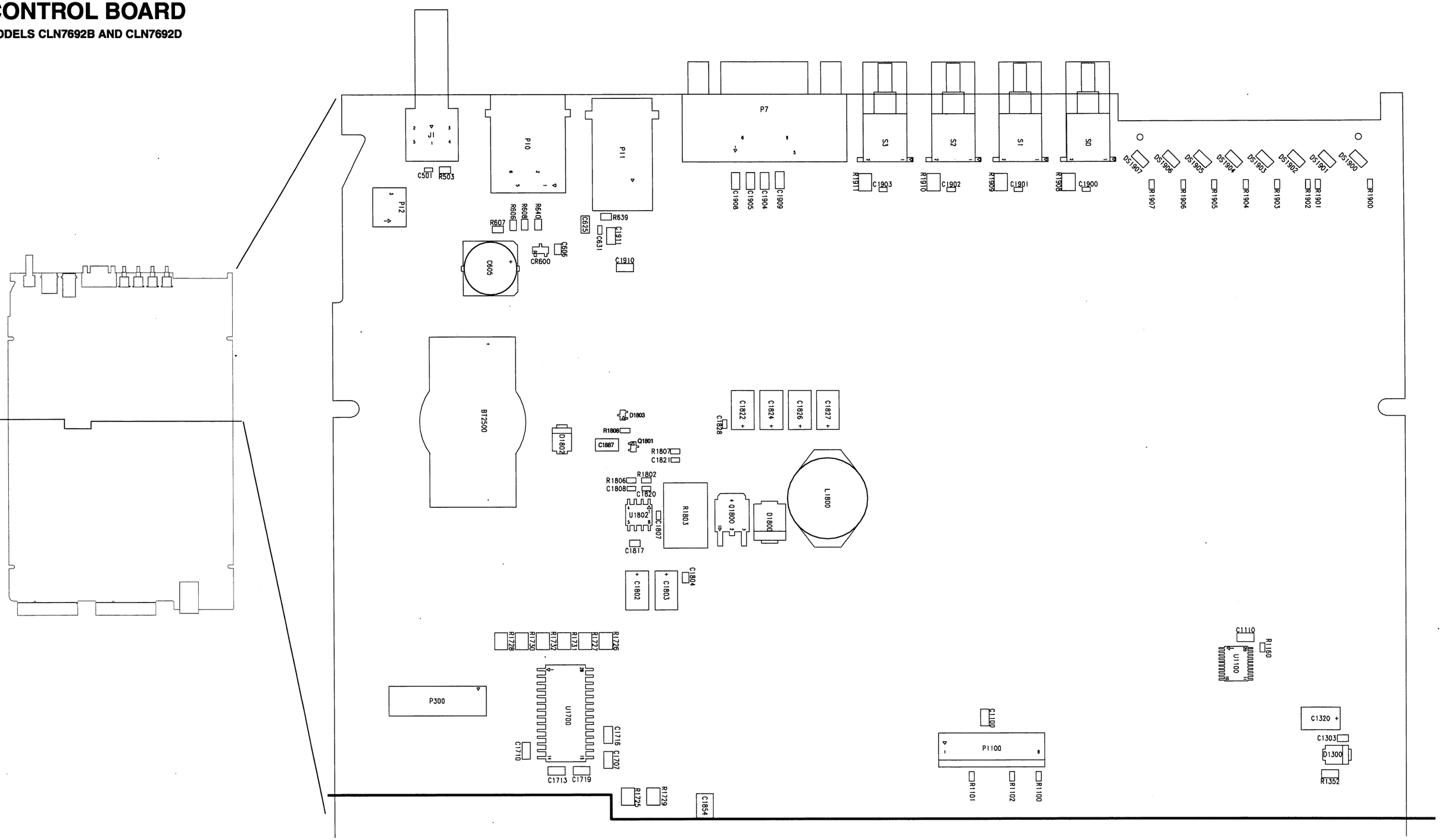




FRONT PANEL INTERFACE

CONTROL BOARD

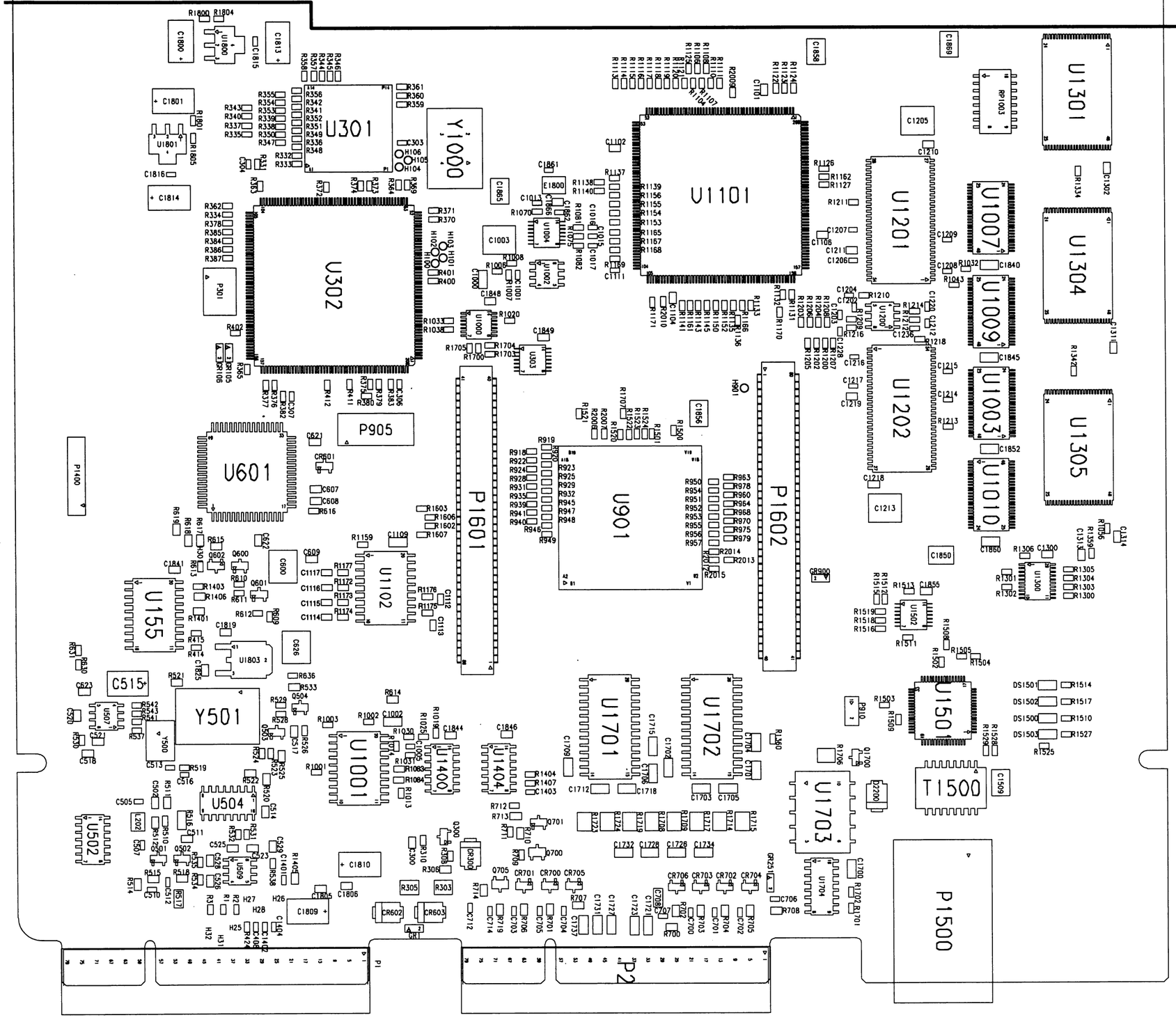
MODELS CLN7692B AND CLN7692D

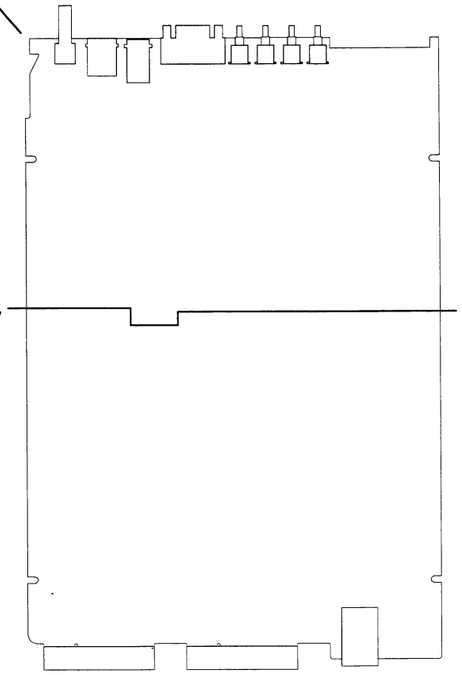


COMPONENT LOCATION - TOP, PART 1 OF 2

CONTROL BOARD

MODELS CLN7692B AND CLN7692D

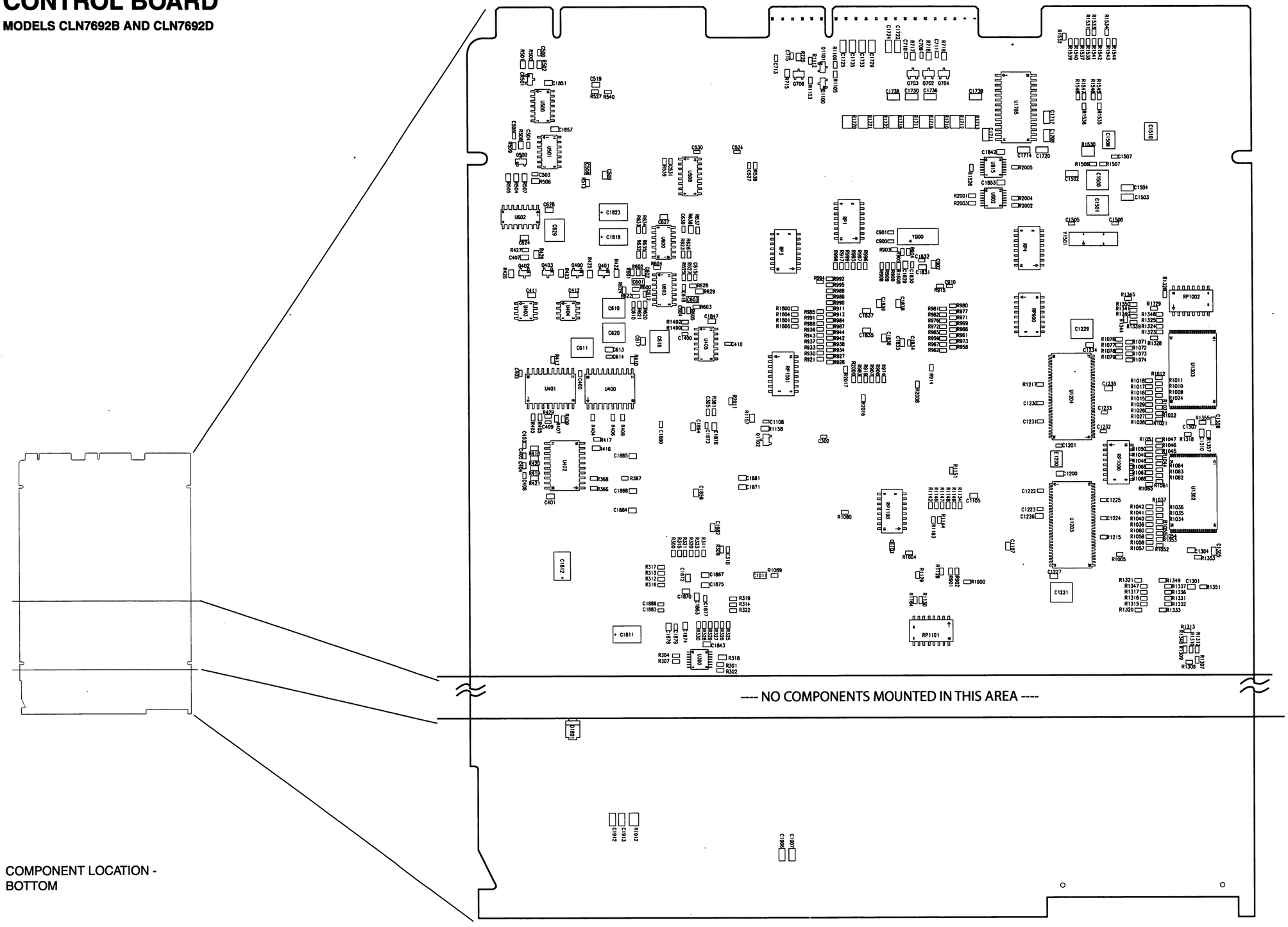




COMPONENT LOCATION - TOP, PART 2 OF 2

CONTROL BOARD

MODELS CLN7692B AND CLN7692D



COMPONENT LOCATION - BOTTOM

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Parts List CLN7692B and CLN7692D Control Board

Reference	Part Number	Description
		SEE NOTE NOTE 3:
		capacitor, fixed:
C300	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C302	2113740F37	CAP CHIP REEL CL1 +/-30 27
C303	2113741F35	CAP CHIP CL2 X7R REEL 2700
C306	2113740F37	CAP CHIP REEL CL1 +/-30 27
C310	2113740F27	CAP CHIP REEL CL1 +/-30 10
C400	2113741F49	CAP CHIP CL2 X7R REEL 10000
C401	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C402	2113741F49	CAP CHIP CL2 X7R REEL 10000
C403 – 406	2113740F37	CAP CHIP REEL CL1 +/-30 27
C407	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C408	2113740F29	CAP CHIP REEL CL1 +/-30 12
C409	2113740F37	CAP CHIP REEL CL1 +/-30 27
C411, 412	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C500, 501	2113741F49	CAP CHIP CL2 X7R REEL 10000
C502	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C503, 504	2113741F49	CAP CHIP CL2 X7R REEL 10000
C506	2113741F49	CAP CHIP CL2 X7R REEL 10000
C507	2113740F51	CAP CHIP REEL CL1 +/-30 100
C509	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C510	2113741F49	CAP CHIP CL2 X7R REEL 10000
C511	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C512	2113741F49	CAP CHIP CL2 X7R REEL 10000
C514	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C515	2311049A45	CAP TANT CHIP 10 10 35
C516	2113741F49	CAP CHIP CL2 X7R REEL 10000
C517 – 519	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C521	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C523	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C524	2113741F49	CAP CHIP CL2 X7R REEL 10000
C525, 526	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C527	2113741F49	CAP CHIP CL2 X7R REEL 10000
C528, 529	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C530, 531	2113741F49	CAP CHIP CL2 X7R REEL 10000
C600	2109822S04	CAP CHIP CER 10UF 35V 2220
C601	2113741B69	CAP CHIP CL2 X7R REEL 100000
C602	2113740F51	CAP CHIP REEL CL1 +/-30 100
C603	2113741B69	CAP CHIP CL2 X7R REEL 100000
C604	2113740F67	CAP CHIP CL1 +/-30 470 5%
C605	2380090M27	CAP ALU 330 20 16V
C606 – 609	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C610	2113740F51	CAP CHIP REEL CL1 +/-30 100
C611	2109822S04	CAP CHIP CER 10UF 35V 2220
C612	2113740F51	CAP CHIP REEL CL1 +/-30 100
C613	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C614	2113741F25	CAP CHIP CL2 X7R REEL 1000
C615	2113740F51	CAP CHIP REEL CL1 +/-30 100
C616	2109822S04	CAP CHIP CER 10UF 35V 2220
C617	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C618	2113740F51	CAP CHIP REEL CL1 +/-30 100
C619, 620	2109822S04	CAP CHIP CER 10UF 35V 2220
C621, 622	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C623	2113946E01	CAP CER CHP 0.68UF 16V 10%
C624	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C625	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C626	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C627, 628	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C629	2109822S04	CAP CHIP CER 10UF 35V 2220
C631	2113740F37	CAP CHIP REEL CL1 +/-30 27
C700 – 705	2113741F25	CAP CHIP CL2 X7R REEL 1000
C706	2113740F55	CAP CHIP REEL CL1 +/-30 150
C707	2113741F25	CAP CHIP CL2 X7R REEL 1000
C708	2113741B69	CAP CHIP CL2 X7R REEL 100000
C709 – 711	2113741F25	CAP CHIP CL2 X7R REEL 1000
C712, 713	2113740F55	CAP CHIP REEL CL1 +/-30 150
C714, 715	2113741F25	CAP CHIP CL2 X7R REEL 1000
C902	2113740A80	CAP CHIP REEL CL1 +/-30 1200
C910	2113740F41	CAP CHIP REEL CL1 +/-30 39
C1000	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1001	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1002	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1003	2109822S04	CAP CHIP CER 10UF 35V 2220
C1005	2113740F29	CAP CHIP REEL CL1 +/-30 12
C1011	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1013	2113740F27	CAP CHIP REEL CL1 +/-30 10
C1100		
	CLN7692B:	
	Not installed	
	CLN7692D:	
	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1101	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1102 – 1107		
	CLN7692B:	
	Not installed	
	CLN7692D:	
	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1108	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1109, 1110	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1111	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1200	2113743A31	CAP CHIP 1.0 UF 10% X7R
C1201, 1202	2113740F41	CAP CHIP REEL CL1 +/-30 39
C1205	2109822S04	CAP CHIP CER 10UF 35V 2220
C1206 – 1209	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1210, 1211	2113743A24	CAP CHIP .330 UF 10% 16V
C1213	2109822S04	CAP CHIP CER 10UF 35V 2220
C1214 – 1217	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1218, 1219	2113743A24	CAP CHIP .330 UF 10% 16V
C1221	2109822S04	CAP CHIP CER 10UF 35V 2220
C1222 – 1225	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1226, 1227	2113743A24	CAP CHIP .330 UF 10% 16V
C1229	2109822S04	CAP CHIP CER 10UF 35V 2220
C1230 – 1233	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1234, 1235	2113743A24	CAP CHIP .330 UF 10% 16V
C1236	2113740F29	CAP CHIP REEL CL1 +/-30 12
C1300 – 1302	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1304, 1305	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1307, 1308	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1310, 1311	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1313, 1314	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1400	2113740F29	CAP CHIP REEL CL1 +/-30 12
C1401	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1500, 1501	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1502 – 1504	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1505, 1506	2113740F35	CAP CHIP REEL CL1 +/-30 22
C1507	2113740F59	CAP CHIP REEL CL1 +/-30 220
C1508 – 1510	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C1700	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1701 – 1720	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1800, 1801	2311049A45	CAP TANT CHIP 10 10 35
C1802, 1803		
	CLN7692B:	
	2382983Y01	CAP TANT CHIP 330UF 6.3V 20%
	CLN7692D:	
	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1804 – 1806	2113741M69	CAP CHIP CLS2 100000PF 50V 10%

Reference	Part Number	Description
C1807	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1808	2113740F67	CAP CHIP CL1 +/-30 470 5%
C1809 – 1812	2311049A45	CAP TANT CHIP 10 10 35
C1813, 1814	2311049A21	CAP TANT CHIP 22 10 20
C1815, 1816	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1817	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1818	2311049A45	CAP TANT CHIP 10 10 35
C1819	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1820	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1821	2113740F69	CAP CHIP CL1 +/-30 560 5%
C1822 – 1824	2311049A21	CAP TANT CHIP 22 10 20
C1825	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1826, 1827	2311049A21	CAP TANT CHIP 22 10 20
C1828	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1829	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1830	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1831	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1832	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1833	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1834	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1835 – 1839	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1840	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1841 – 1844	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1845	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1846 – 1849	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1850	2109822S06	CAP CHIP CER 10UF 16V
C1851	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1852	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1853	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1854	2109822S06	CAP CHIP CER 10UF 16V
C1855	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1856	2109822S06	CAP CHIP CER 10UF 16V
C1857	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1858	2109822S06	CAP CHIP CER 10UF 16V
C1859	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1860	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1861, 1862	2113740F41	CAP CHIP REEL CL1 +/-30 39
C1863, 1864	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1865	2109822S06	CAP CHIP CER 10UF 16V
C1866	2113743A31	CAP CHIP 1.0 UF 10% X7R
C1867, 1868	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1869	2109822S06	CAP CHIP CER 10UF 16V
C1870 – 1872	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1873	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1874 – 1876	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1877	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1878	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1879, 1880	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1881, 1882	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1883	2113743K18	CAP CHIP 0.47 UF +80-20% 16V
C1884, 1885	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1886	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1887		
	CLN7692B: Not installed **CLN7692D:**	
	2109822S06	CAP CHIP CER 10UF 16V
C1900 – 1903	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1910 - 1913	2113918A05	CAP CHIP 470 PF 1000V 10%
		diode (see note 1):
CR300	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR501	4882290T02	DIODE SI HOT CARRIER
CR600	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR601	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR602, 603	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR700 – 706	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
D01800	4813833B02	DIODE SCHOTTKY 3.0A 40V RECT
D01802	4813833B01	DIODE SCHOTTKY 1.0A 40V
D1803		
	CLN7692B: Not installed **CLN7692D:**	
	4813833C10	DIODE GEN PUR 70V MMDB6050
D02200	4813833B01	DIODE SCHOTTKY 1.0A 40V
		light emitting diode (see note):
DS1500	4883288Y03	LED, GREEN, SMT
DS1501 – 1503	4883288Y05	LED, RED, SMT
DS1900	4883288Y03	LED, GREEN, SMT
DS1901	4883288Y05	LED, RED, SMT
DS1902	4883288Y02	LED,YELLOW,SMT
DS1903 – 1905	4883288Y03	LED, GREEN, SMT
DS1906	4883288Y05	LED, RED, SMT
DS1907	4883288Y03	LED, GREEN, SMT
		connector:
J1	0984963T02	BNC JACK PCB RT ANGLE
P7	0984524T12	D SUB, 9PIN RECPT RT ANG
P10	0985237U03	JACK, 6/6 MODULAR, SHIELDED
P11	0985237U01	JACK MOD 4/4
P12	2813922A03	HDR 3 POS STR .1 CTR
P1500	0184028Y01	RECP, MOD JACK 2X1 PORT,8 POS,
		inductor:
L202	2411087A44	COIL CHIP 33 UH 10 A/P
L1800	2485069U06	INDUCTOR FIXED SM 22UH 200KHZ
		transistor (see note 1):
Q300	4813824A10	TSTR NPN 40V .2A GEN PURP
Q400 – 403	4813824A10	TSTR NPN 40V .2A GEN PURP
Q500 – 502	4813824A10	TSTR NPN 40V .2A GEN PURP
Q503	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q504	4813824A10	TSTR NPN 40V .2A GEN PURP
Q600	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q601	4813824A10	TSTR NPN 40V .2A GEN PURP
Q602	4813823A08	XSTR P-CH FET SW MMBFJ175LT1
Q700	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q701	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q702 – 706	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q1100, 1101	4813824A10	TSTR NPN 40V .2A GEN PURP
Q1102	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q1700	4813824A10	TSTR NPN 40V .2A GEN PURP
Q1800	4813821A21	TSTR N-CH 30V 20A
Q1801		
	CLN7692B: Not installed **CLN7692D:**	
	4813824A17	XSTR PNP40V .2A GENP
		resistor, fixed:
R1 – R3	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R300	0662057P10	RES CHIP 10.0K 1% 30X60
R302	0662057P10	RES CHIP 10.0K 1% 30X60
R303	0611072A25	RES CHIP 100 5 1/4
R304	0662057P10	RES CHIP 10.0K 1% 30X60
R305	0611072A25	RES CHIP 100 5 1/4
R306	0611079A26	RES FIXED CHIP 10 5 1/10W
R307	0662057P10	RES CHIP 10.0K 1% 30X60
R308	0662057T68	RES CHIP 1.0K 1% 30*60
R309	0662057T41	CHIP RES 10 OHMS 1%

Reference	Part Number	Description
R310	0662057T68	RES CHIP 1.0K 1% 30*60
R311	0662057T68	RES CHIP 1.0K 1% 30*60
R312 – 317	0662057P10	RES CHIP 10.0K 1% 30X60
R318	0611079A52	RES FIXED CHIP 120 5 1/10W
R319 – 323	0662057P10	RES CHIP 10.0K 1% 30X60
R325 – 330	0662057T43	CHIP RES 33.2 OHMS 1%
R331 – 333	0662057Z46	RES CHIP 26.7 1% 0603
R334	0662057T46	CHIP RES 100 OHMS 1%
R335 – 358	0662057T43	CHIP RES 33.2 OHMS 1%
R359, 360	0662057Z46	RES CHIP 26.7 1% 0603
R361	0662057T43	CHIP RES 33.2 OHMS 1%
R362	0662057P03	RES CHIP 4.75K 1% 30X60
R363	0662057T68	RES CHIP 1.0K 1% 30*60
R364	0662057P03	RES CHIP 4.75K 1% 30X60
R365 – 371	0662057P03	RES CHIP 4.75K 1% 30X60
R372 - 374	0662057P10	RES CHIP 10.0K 1% 30X60
R375	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R376 – 378	0662057P03	RES CHIP 4.75K 1% 30X60
R380	0662057P10	RES CHIP 10.0K 1% 30X60
R381	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R382	0662057T42	CHIP RES 22.1 OHMS 1%
R383	0662057Z47	RES CHIP 39.2 1% 0603
R384 – 387	0662057P10	RES CHIP 10.0K 1% 30X60
R400 – 415	0662057P10	RES CHIP 10.0K 1% 30X60
R416	0611079A40	RES FIXED CHIP 39 5 1/10W
R417	0662057P03	RES CHIP 4.75K 1% 30X60
R418 – 421	0611079A34	RES FIXED CHIP 22 5 1/10W
R422, 423	0611079A62	RES FIXED CHIP 330 5 1/10W
R424	0662057T55	CHIP RES 681 OHMS 1%
R425, 426	0611079A62	RES FIXED CHIP 330 5 1/10W
R427	0662057P49	RES CHIP 2.21K
R428	0611079A84	RES FIXED CHIP 2700 5 1/10
R429	0662057Z47	RES CHIP 39.2 1% 0603
R500	0611079B32	RES FIXED CHIP 240K 5 1/10
R501	0611079B35	RES FIXED CHIP 330K 5 1/10
R502	0611079A52	RES FIXED CHIP 120 5 1/10W
R503	0611079A44	RES FIXED CHIP 56 5 1/10W
R504	0611079A84	RES FIXED CHIP 2700 5 1/10
R505	0611079A84	RES FIXED CHIP 2700 5 1/10
R506	0611079A40	RES FIXED CHIP 39 5 1/10W
R507	0611079A46	RES FIXED CHIP 68 5 1/10W
R508	0611079A52	RES FIXED CHIP 120 5 1/10W
R509	0662057T44	CHIP RES 49.9 OHMS 1%
R510	0662057P66	RES CHIP 5.62K
R511	0611079A84	RES FIXED CHIP 2700 5 1/10
R512	0611079A62	RES FIXED CHIP 330 5 1/10W
R513	0662057P10	RES CHIP 10.0K 1% 30X60
R514	0611079A40	RES FIXED CHIP 39 5 1/10W
R515	0611079A46	RES FIXED CHIP 68 5 1/10W
R516 – 517	0611077A36	RES CHIP 27 5 1/8W
R518	0611079A46	RES FIXED CHIP 68 5 1/10W
R519	0662057T43	CHIP RES 33.2 OHMS 1%
R520	0611079E97	RES CHIP 1.0M 1/10W 1%
R521	0611079B15	RES FIXED CHIP 47K 5 1/10
R522	0611079E97	RES CHIP 1.0M 1/10W 1%
R523, 524	0662057P10	RES CHIP 10.0K 1% 30X60
R525	0611079A84	RES FIXED CHIP 2700 5 1/10
R526	0662057P10	RES CHIP 10.0K 1% 30X60
R527	0662057T73	RES CHIP 33.2K 1% 30*60
R528, 529	0662057P10	RES CHIP 10.0K 1% 30X60
R530	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R531, 532	0662057T46	CHIP RES 100 OHMS 1%
R533	0611079A84	RES FIXED CHIP 2700 5 1/10
R534, 535	0662057T46	CHIP RES 100 OHMS 1%
R536	0662057P03	RES CHIP 4.75K 1% 30X60
R537	0662057T46	CHIP RES 100 OHMS 1%
R538	0662057P10	RES CHIP 10.0K 1% 30X60
R539	0662057P03	RES CHIP 4.75K 1% 30X60
R540	0662057P10	RES CHIP 10.0K 1% 30X60
R541	0662057T45	CHIP RES 68.1 OHMS 1%
R542	0662057T46	CHIP RES 100 OHMS 1%
R543	0662057T52	CHIP RES 332 OHMS 1%
R600	0662057P22	RES CHIP 22.1K 1% 30X60
R601	0662057T64	CHIP RES 47.5K OHMS 1%
R602	0662057T64	CHIP RES 47.5K OHMS 1%
R603	0662057A69	CHIP RES 6800 OHMS 5%
R604	0662057P20	RES CHIP 20.0K 1% 30X60
R605	0662057P10	RES CHIP 10.0K 1% 30X60
R606, 607	0611079A66	RES FIXED CHIP 470 5 1/10W
R608	0611079A52	RES FIXED CHIP 120 5 1/10W
R609	0662057P03	RES CHIP 4.75K 1% 30X60
R610	0662057P10	RES CHIP 10.0K 1% 30X60
R611 – 613	0662057P22	RES CHIP 22.1K 1% 30X60
R614	0611079A52	RES FIXED CHIP 120 5 1/10W
R615	0611079A66	RES FIXED CHIP 470 5 1/10W
R616	0662057P95	RES CHIP 100.0K 1% 30X60
R617	0611079A91	RES FIXED CHIP 5100 5 1/10
R618	0611079A82	RES FIXED CHIP 2200 5 1/10
R619	0611079A88	RES FIXED CHIP 3900 5 1/10
R620	0662057P10	RES CHIP 10.0K 1% 30X60
R621	0662057P20	RES CHIP 20.0K 1% 30X60
R622	0662057T63	CHIP RES 39.2K OHMS 1%
R623	0662057P10	RES CHIP 10.0K 1% 30X60
R624	0662057T64	CHIP RES 47.5K OHMS 1%
R625, 626	0662057P10	RES CHIP 10.0K 1% 30X60
R627	0662057P20	RES CHIP 20.0K 1% 30X60
R628	0662057P18	RES CHIP 18.2K 1% 30X60
R629	0611079E09	RES CHIP 121.0K 1/10W 1%
R630	0662057P02	RES. CHIP 15K 1% 30X60
R631	0662057P22	RES CHIP 22.1K 1% 30X60
R632 – 637	0662057P10	RES CHIP 10.0K 1% 30X60
R638	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R639	0611079A76	RES FIXED CHIP 1200 5 1/10
R640	0611079A80	RES FIXED CHIP 1800 5 1/10
R700	0611079A68	RES FIXED CHIP 560 5 1/10W
R701 – 708	0611079A66	RES FIXED CHIP 470 5 1/10W
R709	0662057P10	RES CHIP 10.0K 1% 30X60
R710	0611079A66	RES FIXED CHIP 470 5 1/10W
R711	0662057P10	RES CHIP 10.0K 1% 30X60
R712	0662057T68	RES CHIP 1.0K 1% 30*60
R713	0611079A52	RES FIXED CHIP 120 5 1/10W
R714	0611079A66	RES FIXED CHIP 470 5 1/10W
R715	0611079A66	RES FIXED CHIP 470 5 1/10W
R716 – 720	0611079A34	RES FIXED CHIP 22 5 1/10W
R900	0662057T45	CHIP RES 68.1 OHMS 1%
R901	0662057T43	CHIP RES 33.2 OHMS 1%
R903	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R906	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R908, 909	0662057A49	CHIP RES 1000 OHMS 5%
R911	0662057T43	CHIP RES 33.2 OHMS 1%
R913	0662057T41	CHIP RES 10 OHMS 1%
R915	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R917 – 949	0662057T43	CHIP RES 33.2 OHMS 1%
R950 – 973	0662057Y06	RES CHIP 82.5 1% 0603
R974	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R975 – 982	0662057Y06	RES CHIP 82.5 1% 0603
R983 – 987	0662057T43	CHIP RES 33.2 OHMS 1%
R988, 989	0662057Y07	RES CHIP 18.2 1% 0603
R990 – 994	0662057Z46	RES CHIP 26.7 1% 0603
R995	0662057Y07	RES CHIP 18.2 1% 0603
R996	0662057Z46	RES CHIP 26.7 1% 0603
R997	0662057T43	CHIP RES 33.2 OHMS 1%
R998	0662057Y07	RES CHIP 18.2 1% 0603
R999	0662057Z46	RES CHIP 26.7 1% 0603
R1000	0662057T43	CHIP RES 33.2 OHMS 1%
R1001, 1002	0662057P95	RES CHIP 100.0K 1% 30X60
R1003	0662057P10	RES CHIP 10.0K 1% 30X60
R1004	0662057T41	CHIP RES 10 OHMS 1%

Reference	Part Number	Description
R1005	0662057P03	RES CHIP 4.75K 1% 30X60
R1006	0662057T68	RES CHIP 1.0K 1% 30*60
R1007, 1008	0662057P10	RES CHIP 10.0K 1% 30X60
R1009 – 1012	0662057T43	CHIP RES 33.2 OHMS 1%
R1013, 1014	0662057T46	CHIP RES 100 OHMS 1%
R1015 – 1018	0662057T43	CHIP RES 33.2 OHMS 1%
R1019	0662057T44	CHIP RES 49.9 OHMS 1%
R1020	0662057P03	RES CHIP 4.75K 1% 30X60
R1021 – 1024	0662057T43	CHIP RES 33.2 OHMS 1%
R1025	0662057T55	CHIP RES 681 OHMS 1%
R1026 – 1029	0662057T43	CHIP RES 33.2 OHMS 1%
R1030, 1031	0662057P95	RES CHIP 100.0K 1% 30X60
R1032	0662057P03	RES CHIP 4.75K 1% 30X60
R1033	0662057T55	CHIP RES 681 OHMS 1%
R1034 – 1037	0662057T43	CHIP RES 33.2 OHMS 1%
R1038	0662057P10	RES CHIP 10.0K 1% 30X60
R1039 – 1042	0662057T43	CHIP RES 33.2 OHMS 1%
R1043	0662057P03	RES CHIP 4.75K 1% 30X60
R1044 – 1055	0662057T43	CHIP RES 33.2 OHMS 1%
R1056	0662057P03	RES CHIP 4.75K 1% 30X60
R1057 – 1068	0662057T43	CHIP RES 33.2 OHMS 1%
R1069	0662057P10	RES CHIP 10.0K 1% 30X60
R1070	0662057Z46	RES CHIP 26.7 1% 0603
R1071 – 1074	0662057T43	CHIP RES 33.2 OHMS 1%
R1075	0662057Z46	RES CHIP 26.7 1% 0603
R1076 – 1079	0662057T43	CHIP RES 33.2 OHMS 1%
R1080	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1081	0662057Z46	RES CHIP 26.7 1% 0603
R1082	0662057Z46	RES CHIP 26.7 1% 0603
R1083, 1084		
	CLN7692B:	
	Not installed	
	CLN7692D:	
	0662057T43	CHIP RES 33.2 OHMS
R1100 – 1102	0662057P03	RES CHIP 4.75K 1% 30X60
R1103	0662057T63	CHIP RES 39.2K OHMS 1%
R1105	0662057P95	RES CHIP 100.0K 1% 30X60
R1109	0662057P03	RES CHIP 4.75K 1% 30X60
R1112	0662057T68	RES CHIP 1.0K 1% 30*60
R1113 – 1117	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1119 – 1124	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1126	0662057T43	CHIP RES 33.2 OHMS 1%
R1127	0662057P03	RES CHIP 4.75K 1% 30X60
R1128 – 1136	0662057T43	CHIP RES 33.2 OHMS 1%
R1137	0662057T46	CHIP RES 100 OHMS 1%
R1138	0662057T45	CHIP RES 68.1 OHMS 1%
R1139	0662057T52	CHIP RES 332 OHMS 1%
R1140	0662057T46	CHIP RES 100 OHMS 1%
R1141	0662057T43	CHIP RES 33.2 OHMS 1%
R1142 – 1152	0662057T43	CHIP RES 33.2 OHMS 1%
R1153	0662057P03	RES CHIP 4.75K 1% 30X60
R1155	0662057P03	RES CHIP 4.75K 1% 30X60
R1157	0611079A66	RES FIXED CHIP 470 5 1/10W
R1158	0611079A34	RES FIXED CHIP 22 5 1/10W
R1159 – 1171	0662057P03	RES CHIP 4.75K 1% 30X60
R1172 – 1177		
	CLN7692B:	
	Not installed	
	CLN7692D:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1206	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1208	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1210	0662057Z46	RES CHIP 26.7 1% 0603
R1211	0662057P10	RES CHIP 10.0K 1% 30X60
R1212	0662057Z46	RES CHIP 26.7 1% 0603
R1213	0662057P10	RES CHIP 10.0K 1% 30X60
R1214	0662057Z46	RES CHIP 26.7 1% 0603
R1215	0662057P10	RES CHIP 10.0K 1% 30X60

Reference	Part Number	Description
R1216	0662057Z46	RES CHIP 26.7 1% 0603
R1217	0662057P10	RES CHIP 10.0K 1% 30X60
R1218	0662057T46	CHIP RES 100 OHMS 1%
R1300 – 1305	0662057T43	CHIP RES 33.2 OHMS 1%
R1306	0662057P10	RES CHIP 10.0K 1% 30X60
R1308	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1310	0662057P10	RES CHIP 10.0K 1% 30X60
R1312	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1316	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1318	0662057P10	RES CHIP 10.0K 1% 30X60
R1320	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1324	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1326	0662057P10	RES CHIP 10.0K 1% 30X60
R1328	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1332	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1334	0662057P10	RES CHIP 10.0K 1% 30X60
R1336	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1340	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1342	0662057P10	RES CHIP 10.0K 1% 30X60
R1344	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1346 – 1350	0662057P10	RES CHIP 10.0K 1% 30X60
R1351	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1353	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1355	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1357	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1359	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1360	0662057P03	RES CHIP 4.75K 1% 30X60
R1400	0662057T55	CHIP RES 681 OHMS 1%
R1401	0611079A40	RES FIXED CHIP 39 5 1/10W
R1402	0662057T68	RES CHIP 1.0K 1% 30*60
R1403	0662057T68	RES CHIP 1.0K 1% 30*60
R1405	0611079A34	RES FIXED CHIP 22 5 1/10W
R1406	0611079A40	RES FIXED CHIP 39 5 1/10W
R1407	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1500	0662057T43	CHIP RES 33.2 OHMS 1%
R1501	0662057T43	CHIP RES 33.2 OHMS 1%
R1502, 1503	0662057P10	RES CHIP 10.0K 1% 30X60
R1505	0662057P10	RES CHIP 10.0K 1% 30X60
R1507, 1508	0662057P10	RES CHIP 10.0K 1% 30X60
R1509	0662057P69	RES CHIP 12.4K
R1510	0662057T52	CHIP RES 332 OHMS 1%
R1512	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1514	0662057T52	CHIP RES 332 OHMS 1%
R1516	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1517	0662057T52	CHIP RES 332 OHMS 1%
R1519	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1520 – 1524	0662057T43	CHIP RES 33.2 OHMS 1%
R1525	0662057P10	RES CHIP 10.0K 1% 30X60
R1526	0662057T43	CHIP RES 33.2 OHMS 1%
R1527	0662057T52	CHIP RES 332 OHMS 1%
R1528, 1529	0683106Y01	RES 11.5 OHM 1% 0603
R1530	0611072A25	RES CHIP 100 5 1/4
R1535 – 1548	0662057T44	CHIP RES 49.9 OHMS 1%
R1604 – 1607	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1700, 1702, 1703	0662057P10	RES CHIP 10.0K 1% 30X60
R1705	0662057P39	RES CHIP 475
R1706	0611072A25	RES CHIP 100 5 1/4
R1707	0662057T43	CHIP RES 33.2 OHMS 1%
R1708 – 1732	0611072A25	RES CHIP 100 5 1/4
R1800	0662057T44	CHIP RES 49.9 OHMS 1%
R1801	0662057T46	CHIP RES 100 OHMS 1%
R1802	0662057A69	CHIP RES 6800 OHMS 5%
R1803	0682089V05	SMT RES 0.1 OHM 5% 2W
R1804	0662057T47	CHIP RES 121 OHMS 1%
R1805	0662057T46	CHIP RES 100 OHMS 1%
R1806	0662057P10	RES CHIP 10.0K 1% 30X60
R1807	0662057P18	RES CHIP 18.2K 1% 30X60

Reference	Part Number	Description
R1808		
	CLN7692B:	
	Not installed	
	CLN7692D:	
	0662057P95	RES CHIP100.0k 1% 30X60
R1900, 1901	0662057T52	CHIP RES 332 OHMS 1%
R1902	0662057Z50	CHIP RESISTOR
R1903 – 1907	0662057T52	CHIP RES 332 OHMS 1%
R1908 – 1912	0611072A25	RES CHIP 100 5 1/4
R2000	0662057P03	RES CHIP 4.75K 1% 30X60
R2001 – 2005	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R2006 – 2008	0662057P10	RES CHIP 10.0K 1% 30X60
R2009 – 2015	0662057P03	RES CHIP 4.75K 1% 30X60
R2016, 2017	0662057T43	CHIP RES 33.2 OHMS 1%
R2018 – 2107	0662057P03	RES CHIP 4.75K 1% 30X60
RP1	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP3, 4	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP900	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP1000 – 1003	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP1100, 1101	5184387T05	RESISTOR NETWORK 10 X 4.7K
		switch:
S0 – S3	4083621T01	SW PB SPST SURFACE MOUNT
		transformer:
T1500	2583083Y01	XFMR 10 BASE-T SINGLE PORT
		integrated circuit (see note 1):
U155	5113805A55	LN DR/RCVR TTLIN OCT N-INV BFR
U300	5113839M04	IC AND QUAD 2-IN
U301	5113803A50	IC DSP 24BIT 150MHZ
U302	5183080Y02	2.5V 208-PIN PQFP FPGA
U303	5113837A03	IC INVERT HEX 14 MC
U400 – 402	5113805A55	LN DR/RCVR TTLIN OCT N-INV BFR
U403, 404	5184288T01	IC BUS XCVR _65176_
U405	5113808A07	IC AND QUAD 2 INP MC74AC08D
U500	5113808A13	IC INV HEX SCHMITT TRIG ACT14
U501	5113805A03	IC QUAD 2INP NAND 74HC03AD
U502	5113805A86	IC QUAD ANALOG MUX/DEMUX
U504	5113812A26	IC PLL FREQ SYNTH
U507	5183084Y01	8-BIT DAC SOIC -40 TO 85C
U508	5113805A89	IC HCM05 MULTIVBRTE DUAL 4538
U509	5113820A02	IC DUAL SING SPLY LO PWR
U600	5184334Y01	IC HIGH PERFORMANCE
U601	5184625T07	IC ASIC EPSILON
U602	5182952X01	IC 1W AUDIO PWR AMP 4860
U603	5184334Y01	IC HIGH PERFORMANCE
U901	5113802B04	IC 50 MHZ ETHERNET PWR QUICC
U902	5113839M09	IC BUFFER QUAD 3-ST NON-INV
U915	5113837A15	IC 3.3V QUAD BUFFER
U1000	5113837A04	IC AND QUAD 2 IN MC
U1001	5113808A39	IC LINE DRVR OCT 3T NON
U1002	5113815A47	IC MICROPWR UNDERVOLT SENSING
U1003	5113837A14	IC 16 BIT XCVR

Reference	Part Number	Description
U1004	5113839M05	IC SCHMITT TRIGGER HEX INVERTER
U1007	5113837A14	IC 16 BIT XCVR
U1009, 1010	5113837A13	IC BUFFER 16 BIT
U1100	5113837A07	IC LINE DRVR OCT3
U1101	5182975Y03	3.3V CPLD 256MCELL 160IO I TMP
U1102	5113808A39	IC LINE DRVR OCT 3T NON
U1200	5182390Y01	IC BFFR ODELAX 3V 2305
U1201 – 1204	5182635Y05	IC SDRAM 64 MBIT
U1300	5113837A07	IC LINE DRVR OCT3
U1301	5191099C01	FLASH 2MX16 3V 100NS 48TSOP (See Note 2)
U1302 – 1305	5191099C02	FLASH 4MX16 3V 100NS 48TSOP (See Note 2)
U1400	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U1404	5113808A17	IC FF DUAL D MC74ACT74D
U1501	5184789T06	IC ETHNT INTFC ADPTR 908
U1502	5113839M06	IC OR QUAD 2-IN
U1700 – 1702	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1703	8013917B01	RELAY SMD 5V 330MM T&R
U1704	5113808A28	IC MUX QUAD 2INP NON INV
U1705	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1800	5182681Y01	ADJ LOW DROPOUT POS REG 800MA
U1802	5182261Y01	C REG SWR H-EFFNT
U1803	5113816A07	REG 5V POS 500MA
		crystal (see note 1):
Y500	5183070Y01	REF OSC MODULE 16.8 MHZ
Y1000	4884830Y09	OSCILLATOR CLOCK 25 MHZ
Y1501	4884450T12	XTAL SM CP12A 20MHZ
		non-referenced items:
	2484657R01	INDUCTOR BEAD CHIP
	2484657R01	INDUCTOR BEAD CHIP
	0784775T01	STIFFNER PC BD EDGE
	0784775T01	STIFFNER PC BD EDGE
	5482006W02	RIBBON THERMAL XFER
	5482006W03	BARCODE LABEL
	6182512W03	LIGHTPIPES (8)
	CLN7692B:	
	8483030Y01	BD CKT, EPIC IV
	CLN7692D:	
	8483030Y03	BD CKT, EPIC IV

NOTE 1: For optimum performance, diodes, transistors, lightpipes and integrated circuits must be ordered by Motorola part number.

NOTE 2: U1301 through 1305 are flash memory chips. Contact Motorola System Support Center (1-800-448-3245) for information on software for these chips.

NOTE 3: Unless otherwise noted, all parts are common to both circuit boards covered in this parts list. Differences between the board configurations are noted where applicable. Components present on one of the boards but not the other are noted as "not installed."

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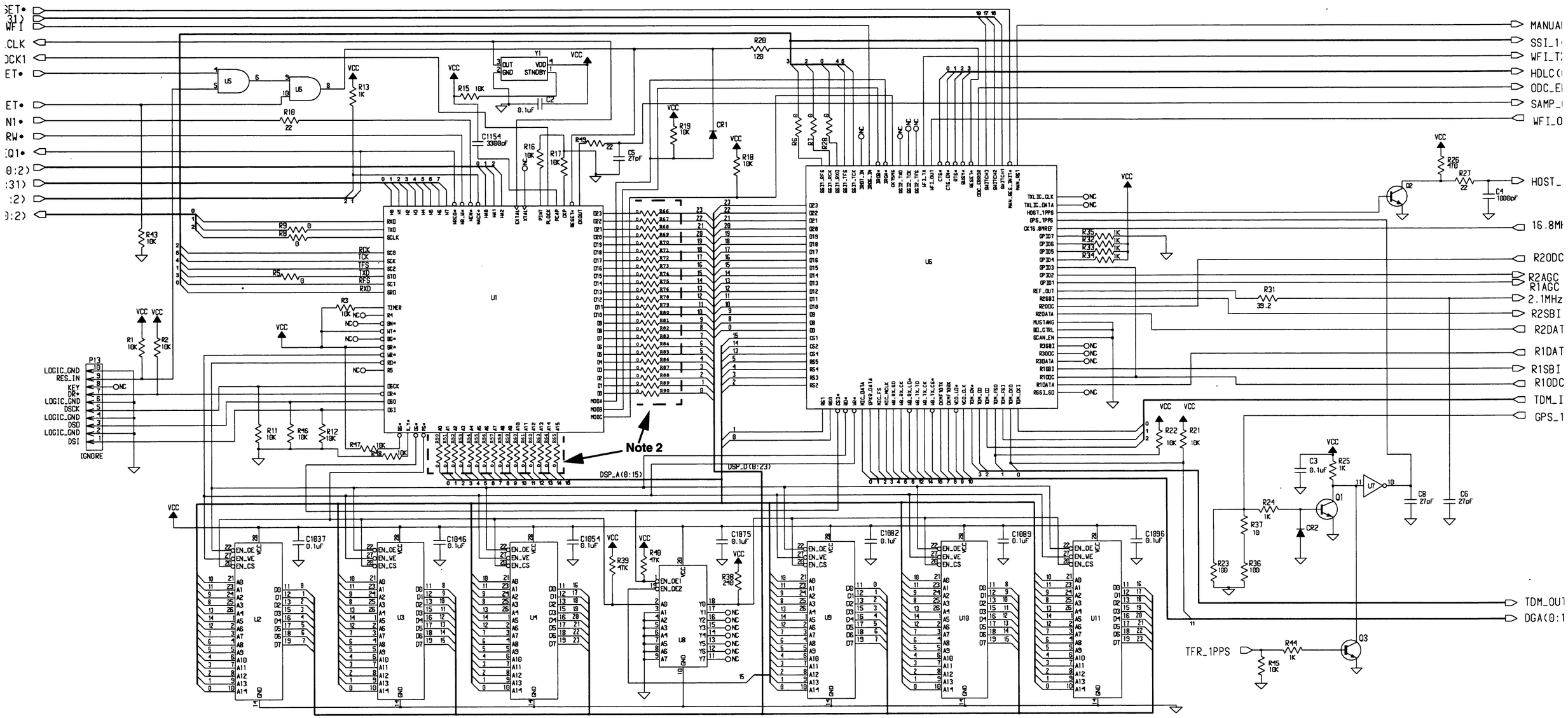
STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



Notes:

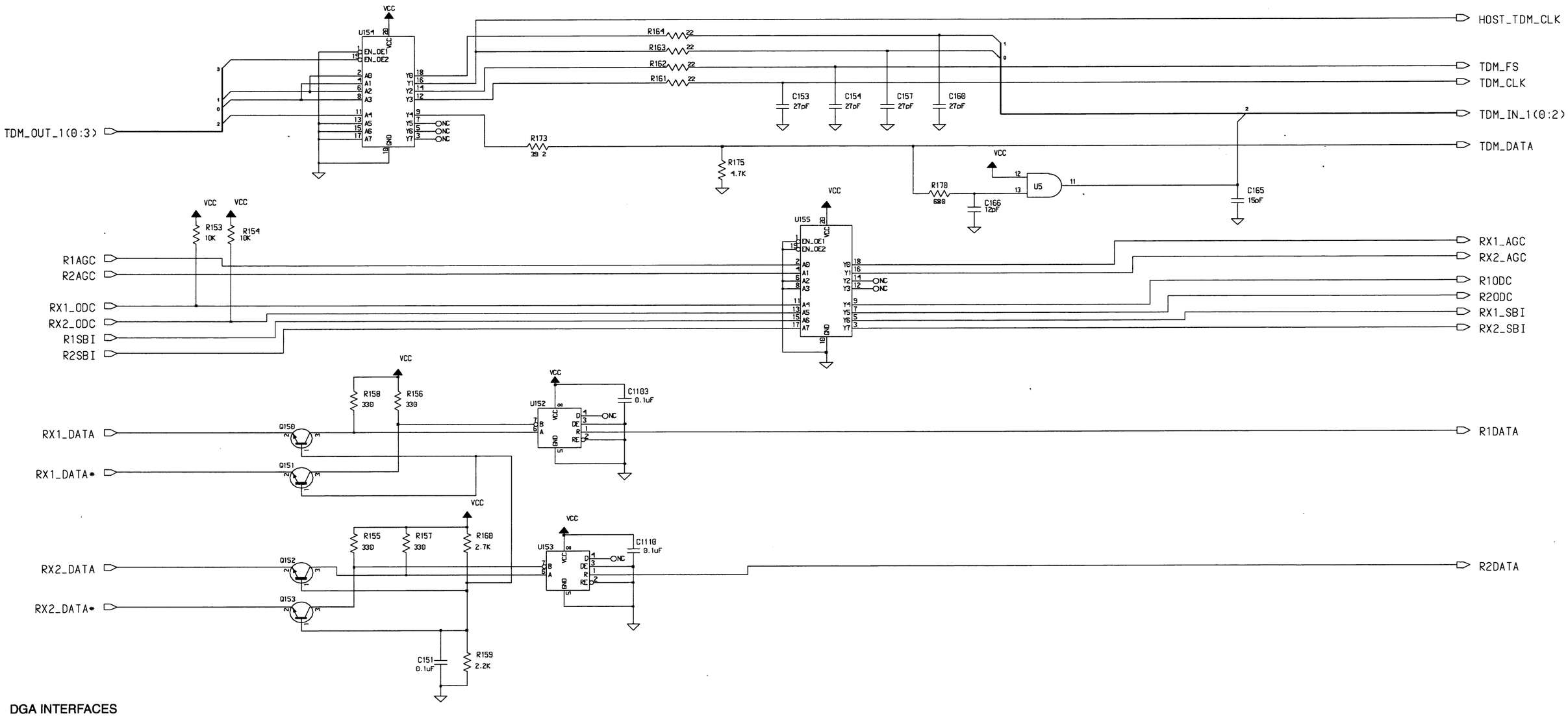
1. Ignore indicates that the part is not installed.

2. Installed for 0180706G95 and 0180706G96. Ignore for 0180706G54 and 0180706G55.

DIGITAL SIGNAL PROCESSOR CIRCUIT
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

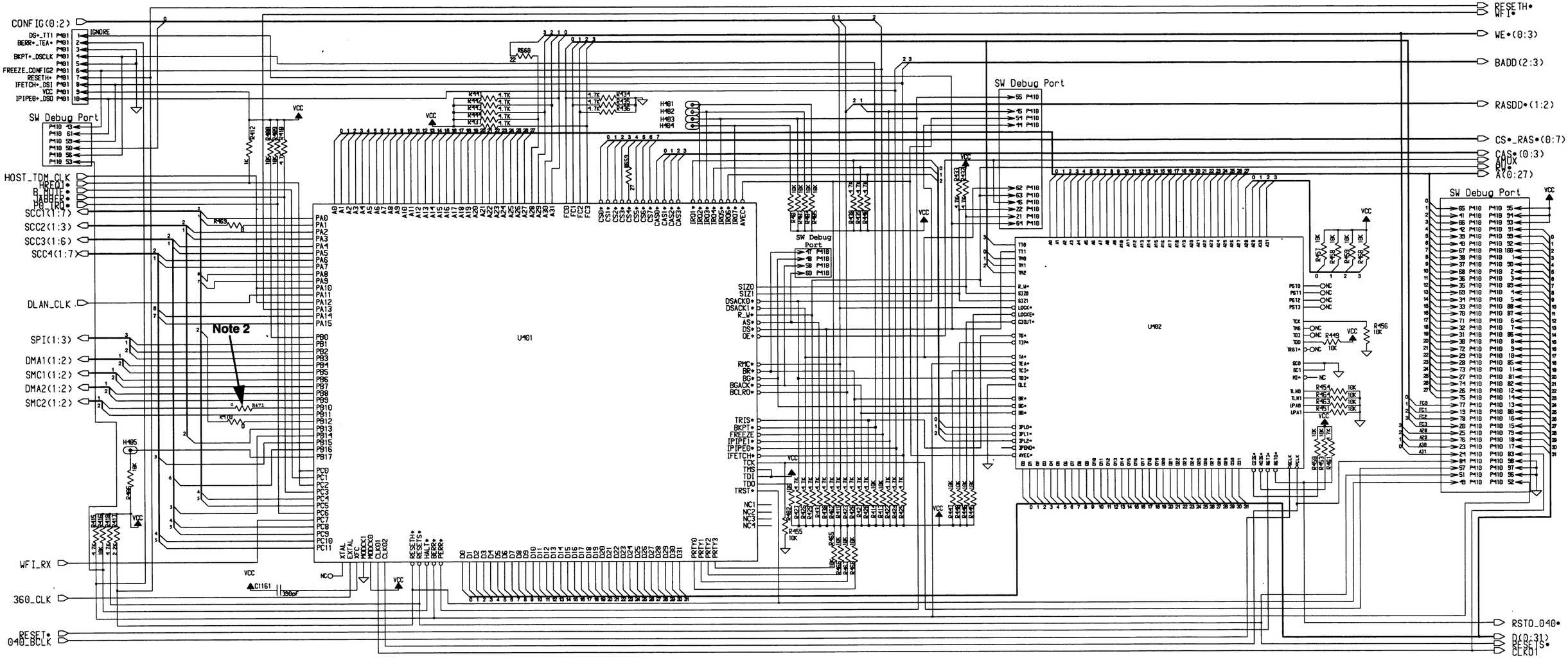
MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



DGA INTERFACES
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CTN7462C/D, TTN4093H/J



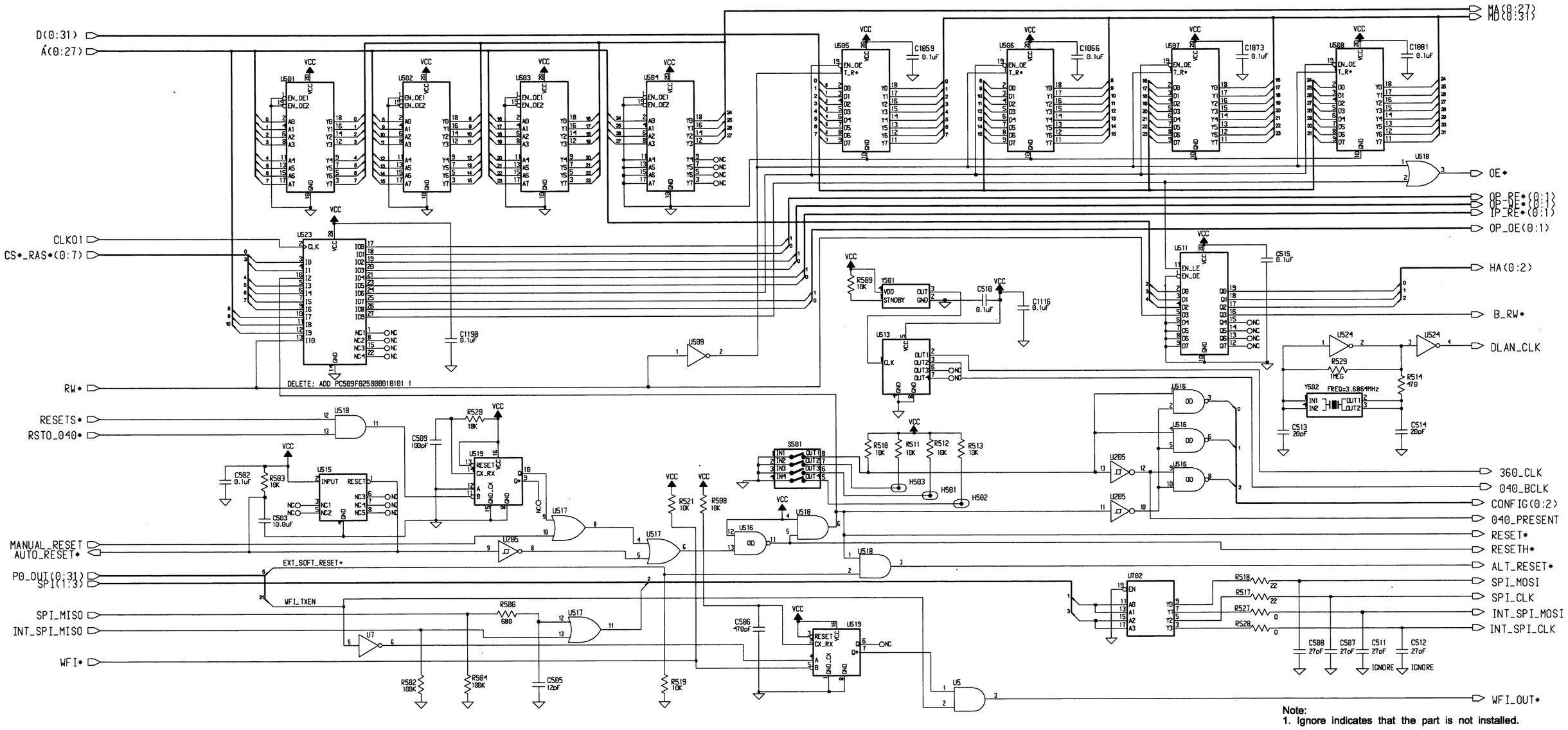
Notes:

1. **Ignore indicates that the part is not installed.**
2. **Installed for 0180706G95 and 0180706G96. Ignore for 0180706G54 and 0180706G55.**

MICROCONTROLLER
SCHEMATIC DIAGRAM

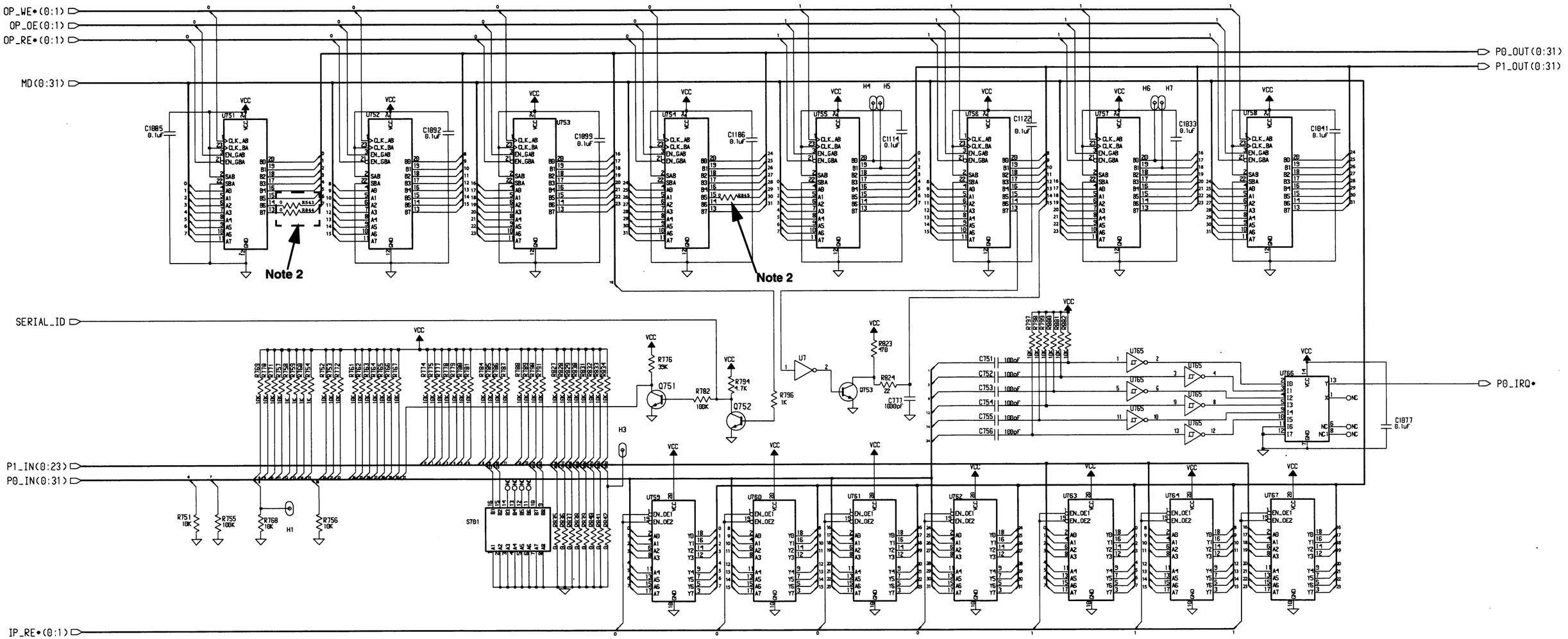
STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



Note:
1. Ignore indicates that the part is not installed.

HOST GLUE SCHEMATIC DIAGRAM



Notes:

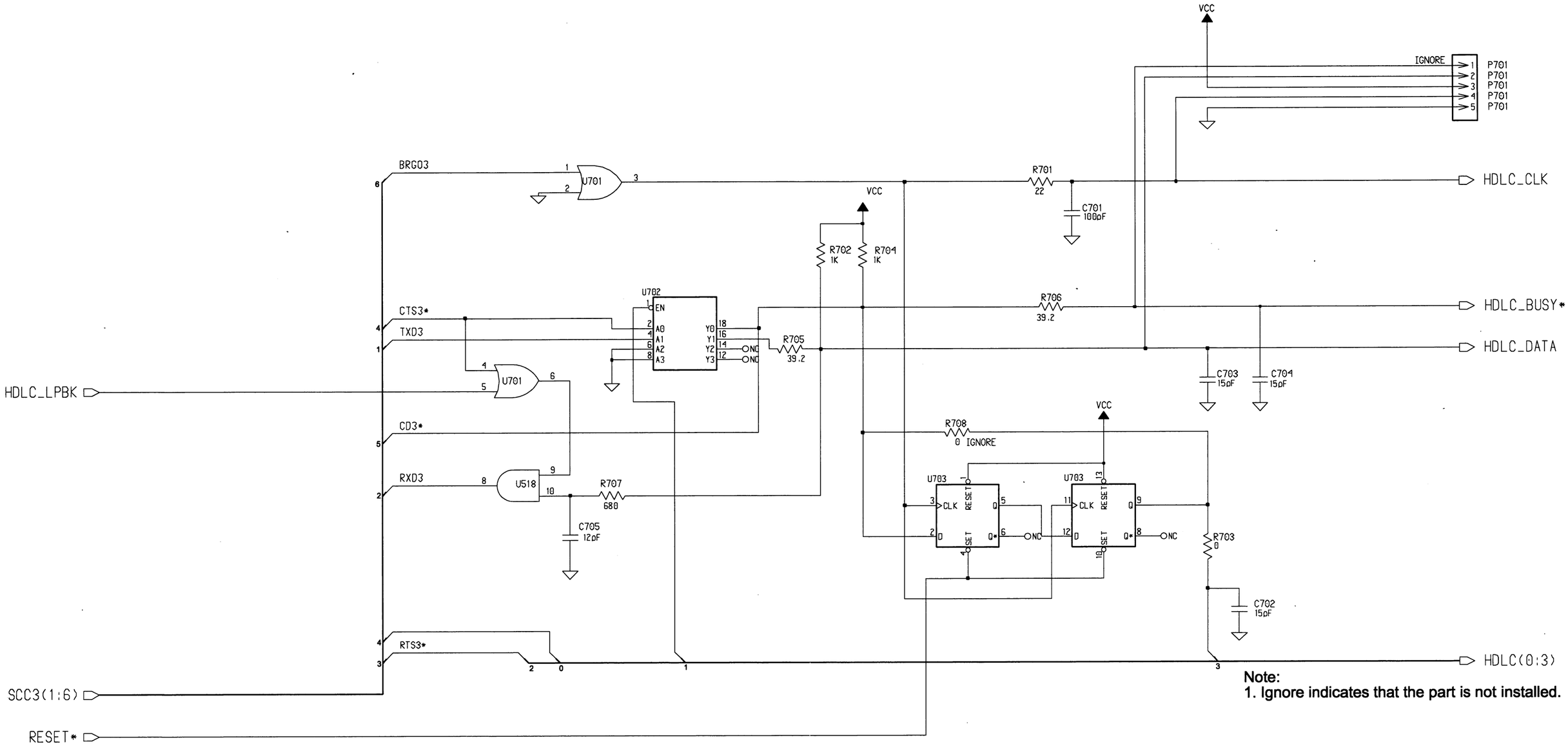
1. Ignore indicates that the part is not installed.

2. Installed for 0180706G95 and 0180706G96. Ignore for 0180706G54 and 0180706G55.

INPUT/OUTPUT PORTS
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J

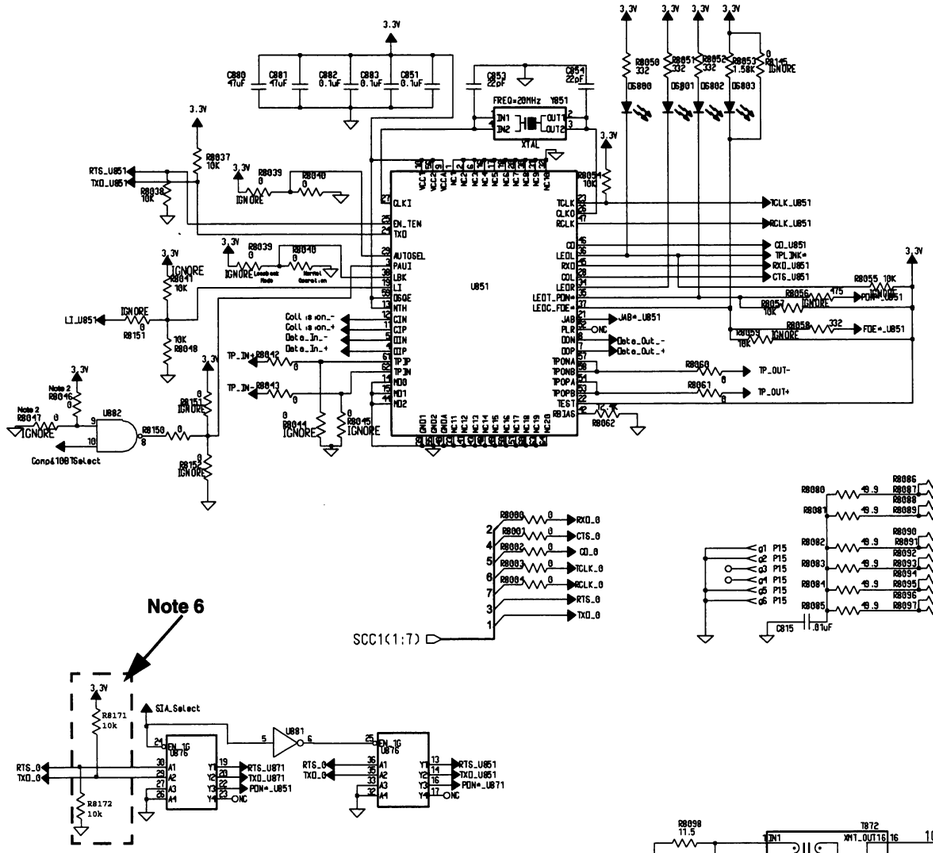


Note:
1. Ignore indicates that the part is not installed.

HDLC SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



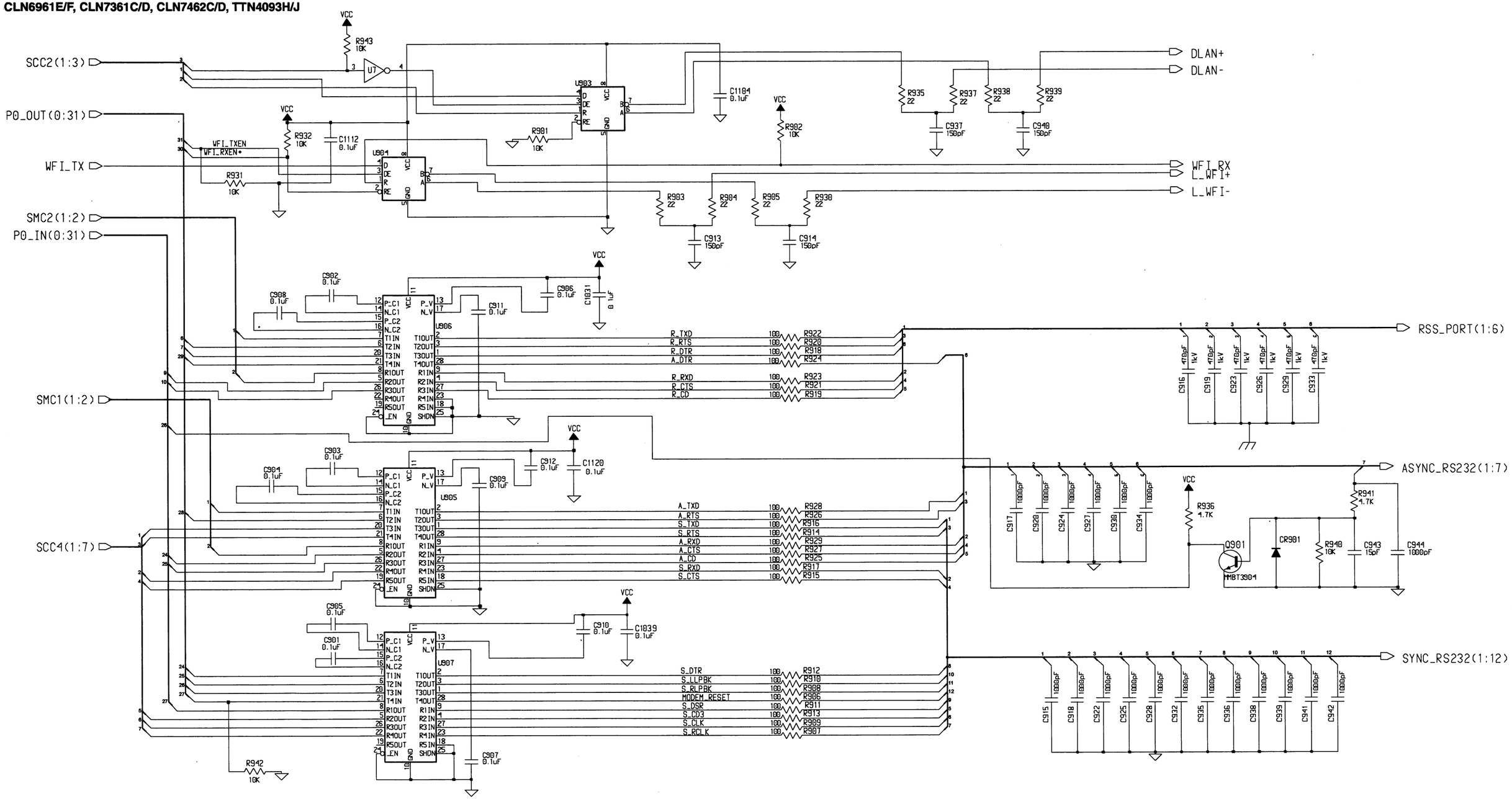
Notes:

1. Ignore indicates that the part is not installed.
2. Place R8046 and remove R8047 if only one SIA is used.
3. Place R8034 and remove R8035 if two SIAs are used.
4. SIA_Select is low if Comp & 10BaseT are selected and jumper resistors are set for two SIAs.
5. Place R8032 and remove R8033 if only one SIA is used.
6. Installed for 0180706G95 and 0180706G96. Ignore for 0180706G54 and 0180706G55.

ETHERNET SCHEMATIC DIAGRAM

STATION CONTROL MODULE

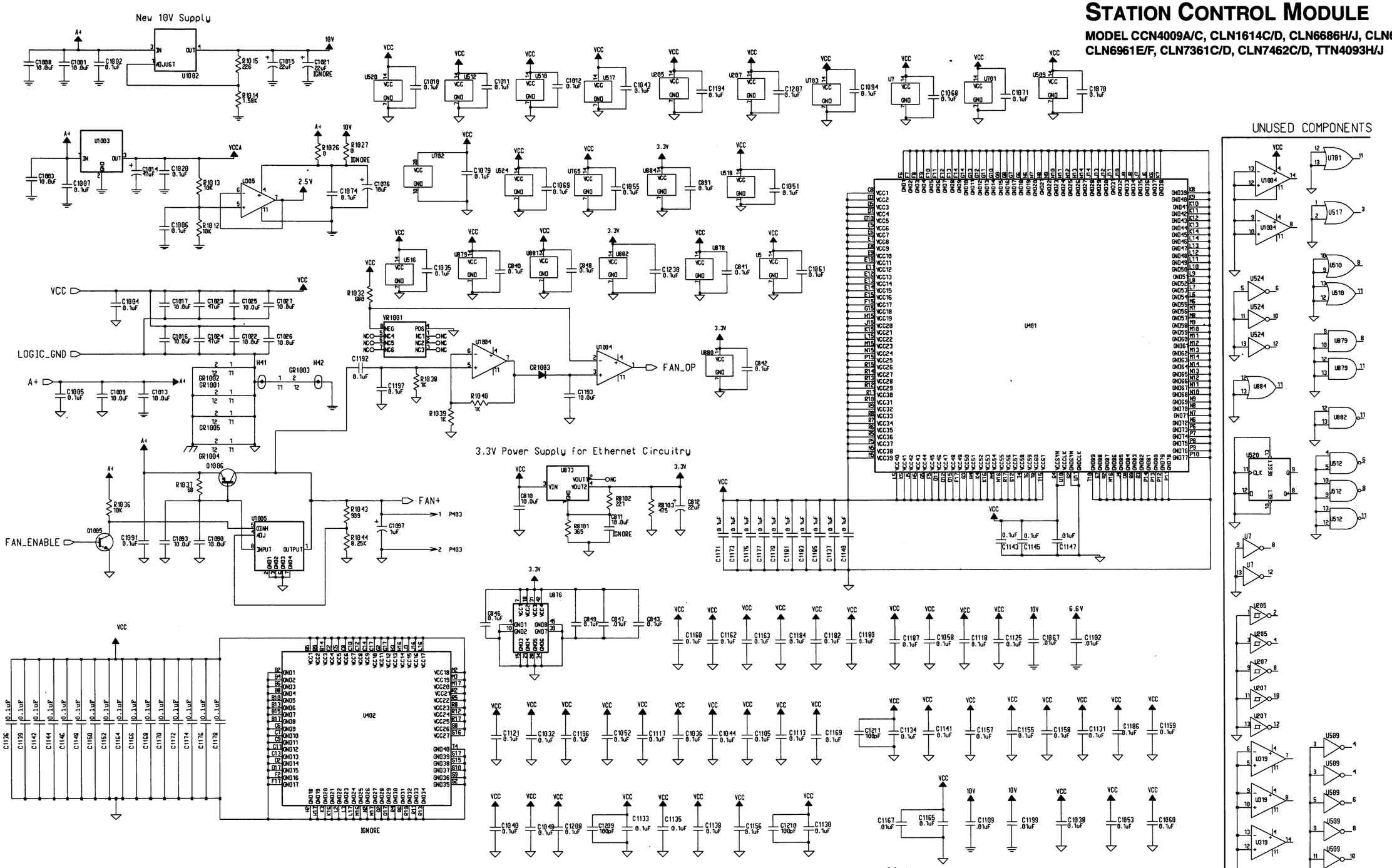
MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



EXTERNAL INTERFACES
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

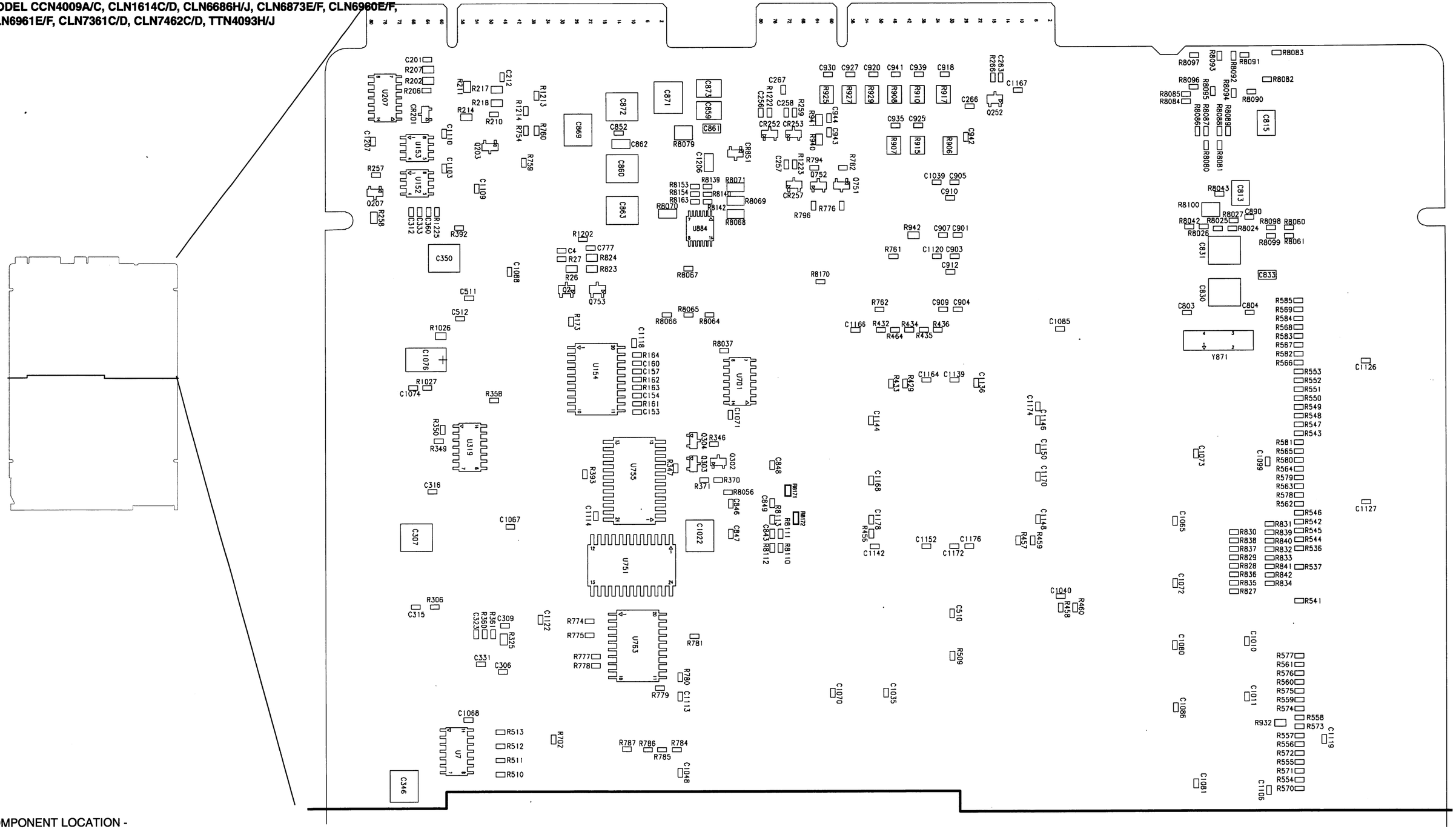
MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



Note:
1. Ignore indicates that the part is not installed.

STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J

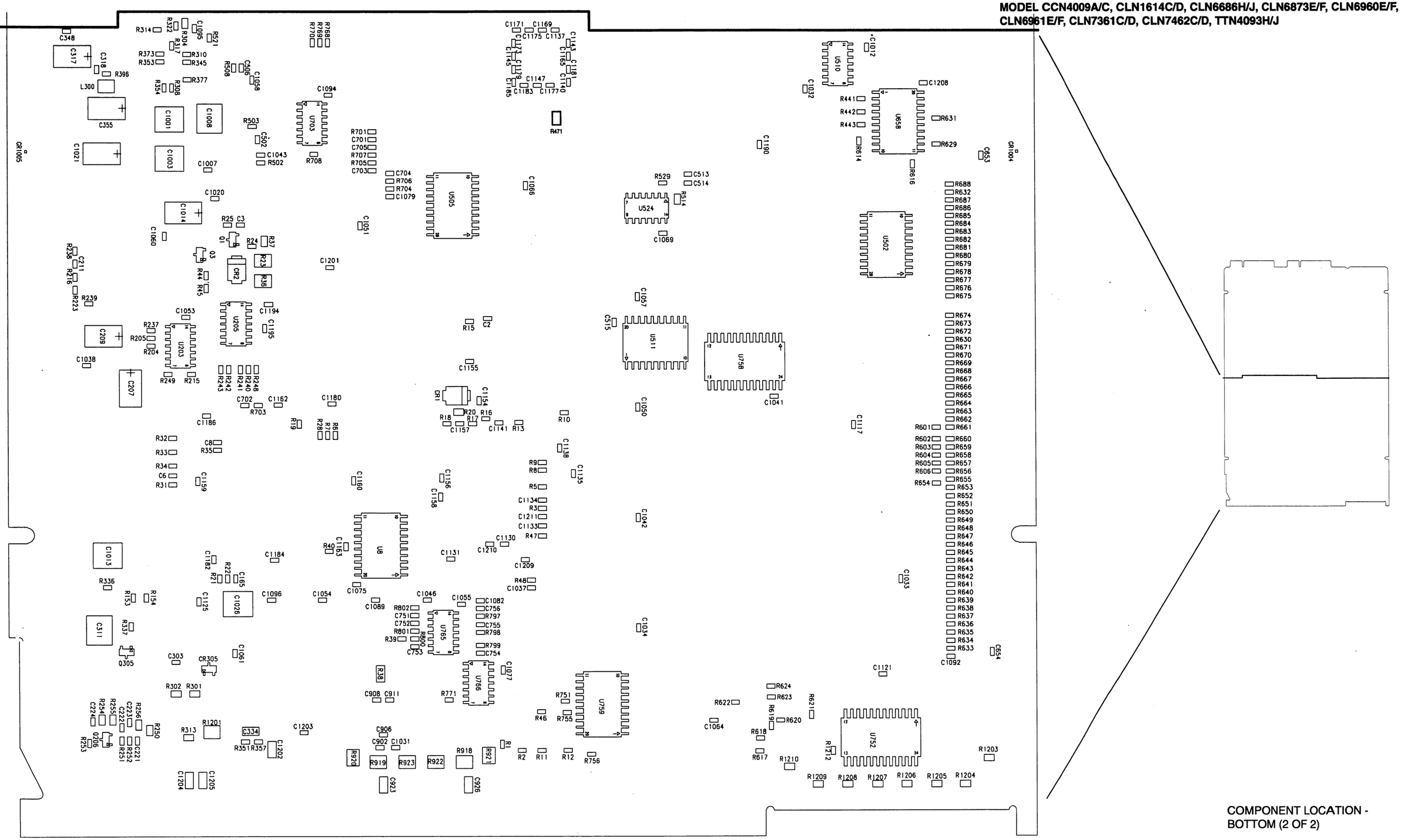


COMPONENT LOCATION - BOTTOM (1 OF 2)

68P81098E08-B
(Sheet 18 of 22)
12/1/2005 SMR-6816

STATION CONTROL MODULE

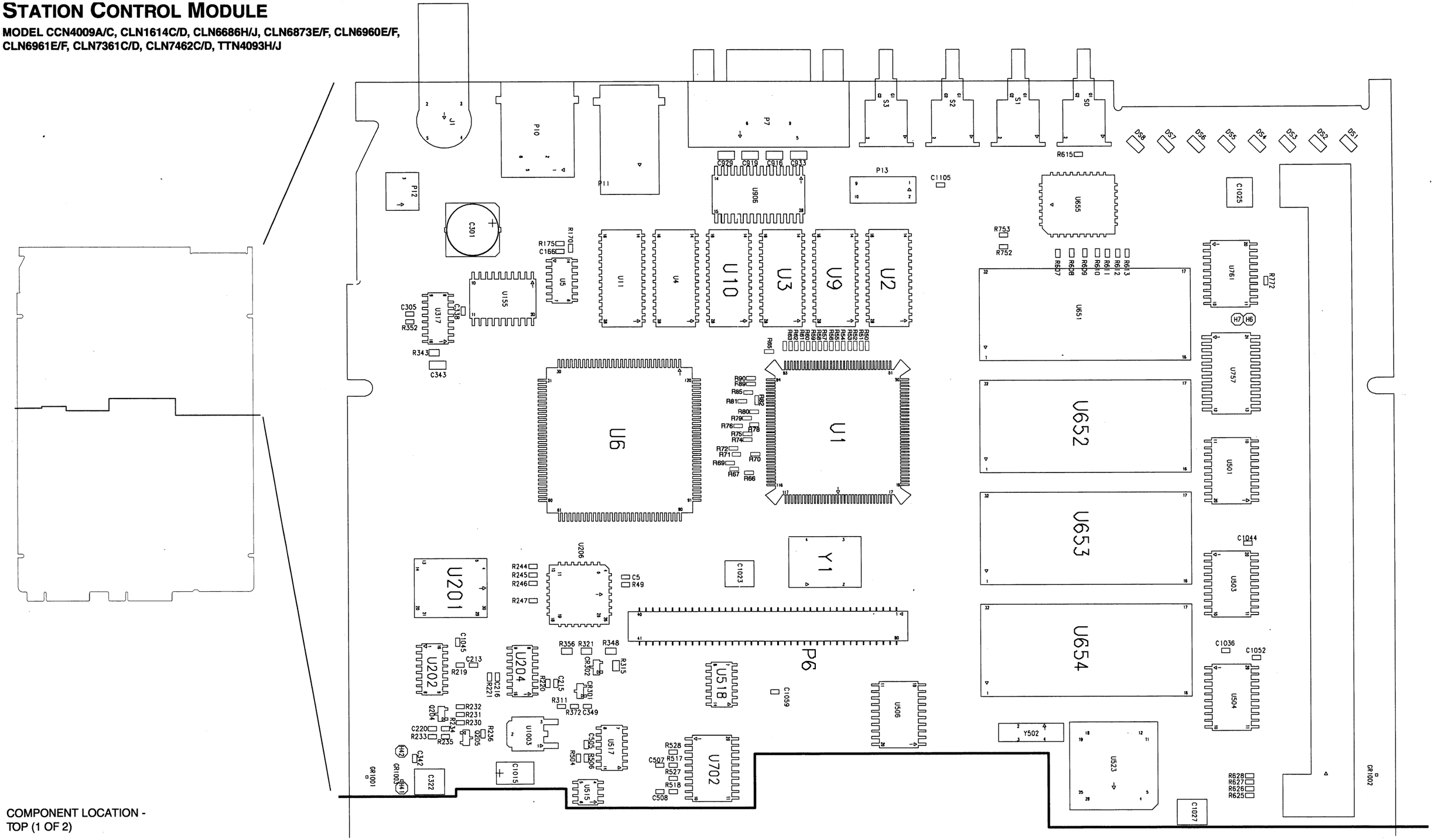
MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



COMPONENT LOCATION - BOTTOM (2 OF 2)

STATION CONTROL MODULE

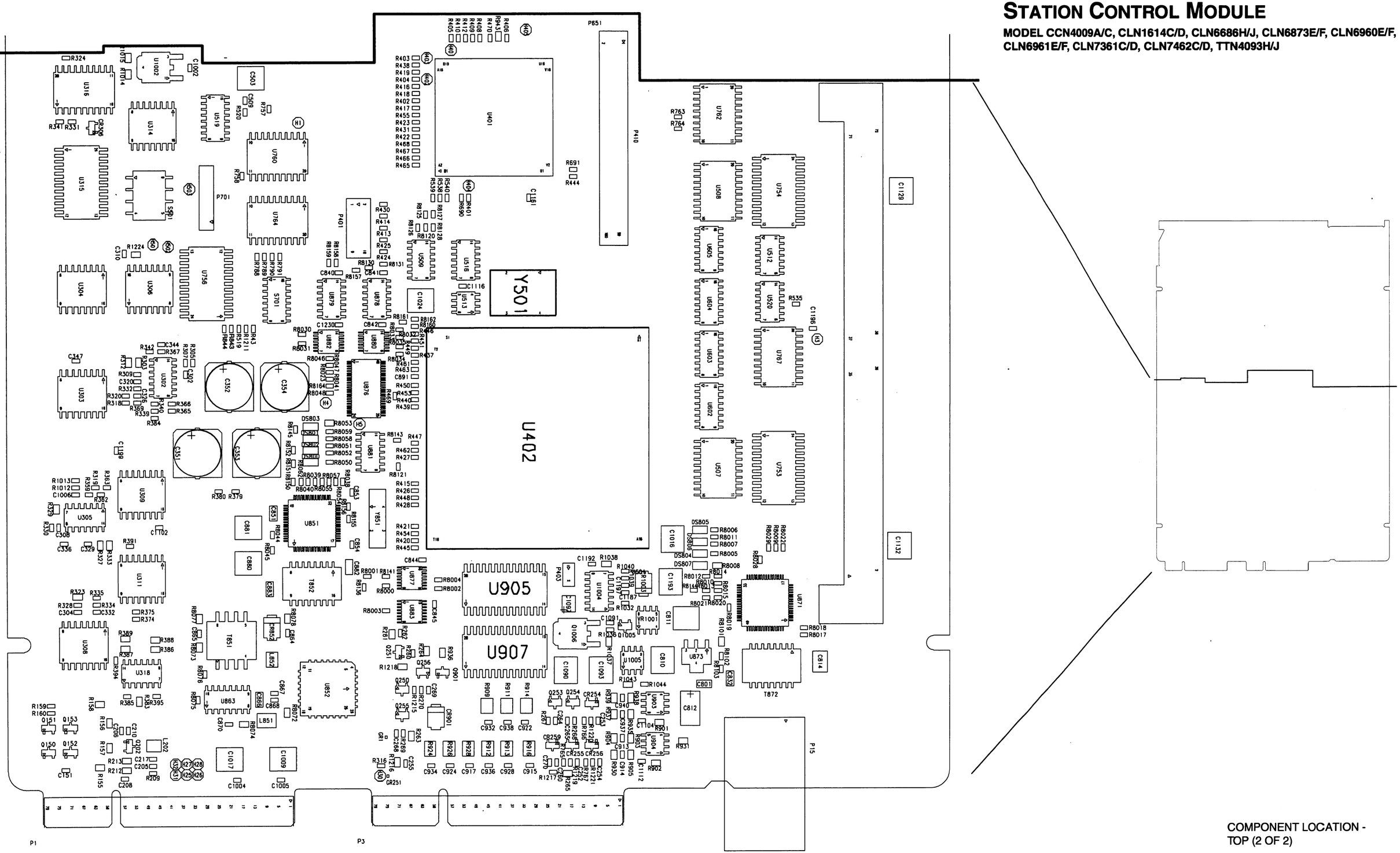
MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J



COMPONENT LOCATION - TOP (1 OF 2)

STATION CONTROL MODULE

MODEL CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J


U402
U905
U907
Y501
P851
P410
P701
P401
P403
P15
P1
P3
U316
U314
U315
U304
U306
U303
U309
U305
U311
U308
U318
U1002
U519
U760
U764
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Q150
Q202
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R1269
R1270

Parts List, EPIC II Board with BGA Processor-out, 0180706G54, 0180706G55, 0180706G95, and 0180706G96

Reference	Part Number	Description
		SEE NOTE 2
		capacitor, fixed:
C2, 3	2113743E20	CAP CHIP .10 UF 10%,
C5, 8	2113740F37	CAP CHIP REEL CL1 +/-30 27
C151	2113743E20	CAP CHIP .10 UF 10%
C153,154, 157,160	2113740F37	CAP CHIP REEL CL1 +/-30 27
C166	2113740F29	CAP CHIP REEL CL1 +/-30 12
C201	2113741F49	CAP CHIP CL2 X7R REEL 10000
C205	2113743E20	CAP CHIP .10 UF 10%
C206	2113740F51	CAP CHIP REEL CL1 +/-30 100
C207	2311049A23	CAP TANT CHIP 47 10 10
C208	2113741F49	CAP CHIP CL2 X7R REEL 10000
C209	2311049A45	CAP TANT CHIP 10 10 35
C210	2113743E20	CAP CHIP .10 UF 10%
C211, 212	2113741F49	CAP CHIP CL2 X7R REEL 10000
C213	2113743E20	CAP CHIP .10 UF 10%
C215, 216	2113741F49	CAP CHIP CL2 X7R REEL 10000
C220	2113743E20	CAP CHIP .10 UF 10%
C221	2113741F49	CAP CHIP CL2 X7R REEL 10000
C222, 223		
C224	2113741F49	CAP CHIP CL2 X7R REEL 10000
C252	2113741F25	CAP CHIP CL2 X7R REEL 1000
C253		
C 254	2113741F25	CAP CHIP CL2 X7R REEL 1000
C255	2113740F55	CAP CHIP REEL CL1 +/-30 150
C256–258	2113741F25	CAP CHIP CL2 X7R REEL 1000
C260	2113741F25	CAP CHIP CL2 X7R REEL 1000
C263–265	2113741F25	CAP CHIP CL2 X7R REEL 1000
C266, 267	2113740F55	CAP CHIP REEL CL1 +/-30 150
C268, 269	2113741F25	CAP CHIP CL2 X7R REEL 1000
C270	2113743E20	CAP CHIP .10 UF 10%
C301	2380090M27	CAP ALU 330 20 16V
C302	2113741F49	CAP CHIP CL2 X7R REEL 10000
C303	2113743E20	CAP CHIP .10 UF 10%
C304	2113740F67	CAP CHIP CL1 +/-30 470 5%
C305, 306	2113743E20	CAP CHIP .10 UF 10%
C307	2109822S04	CAP CHIP CER 10UF 35V 2220
C309	2113740F67	CAP CHIP CL1 +/-30 470 5%
C311	2109822S07	CAP CHIP CER 22UF 16V
C312	2113743E20	CAP CHIP .10 UF 10%
C315, 316	2113743E20	CAP CHIP .10 UF 10%
C317	2311049A23	CAP TANT CHIP 47 10 10
C318, 320	2113741F49	CAP CHIP CL2 X7R REEL 10000
C322	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C323	2113743E20	CAP CHIP .10 UF 10%
C326	2113741F49	CAP CHIP CL2 X7R REEL 10000
C329	2113740F45	CAP CHIP REEL CL1 +/-30 56
C331–333	2113743E20	CAP CHIP .10 UF 10%
C334	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C336	2113740F45	CAP CHIP REEL CL1 +/-30 56
C338	2113741F49	CAP CHIP CL2 X7R REEL 10000
C342	2113743E20	CAP CHIP .10 UF 10%
C343	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C344	2113741F49	CAP CHIP CL2 X7R REEL 10000
C346	2109822S04	CAP CHIP CER 10UF 35V 2220
C347–349	2113743E20	CAP CHIP .10 UF 10%
C350	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C351–354	2380090M27	CAP ALU 330 20 16V
C355		
	0180706G54/0180706G95:	
	Not installed	

Reference	Part Number	Description
	0180706G55/0180706G96:	
	2311049A23	CAP TANT CHIP 47 10 10
C502	2113743E20	CAP CHIP .10 UF 10%
C503	2109822S04	CAP CHIP CER 10UF 35V 2220
C505	2113740F29	CAP CHIP REEL CL1 +/-30 12
C506	2113740F67	CAP CHIP CL1 +/-30 470 5%
C507, 508	2113740F37	CAP CHIP REEL CL1 +/-30 27
C509	2113740F51	CAP CHIP REEL CL1 +/-30 100
C510	2113743E20	CAP CHIP .10 UF 10%
C513, 514	2113740F34	CAP CHIP REEL CL1 +/-30 20
C515	2113743E20	CAP CHIP .10 UF 10%
C653, 654	2113743E20	CAP CHIP .10 UF 10%
C701	2113740F51	CAP CHIP REEL CL1 +/-30 100
C705	2113740F29	CAP CHIP REEL CL1 +/-30 12
C751	2113740F51	CAP CHIP REEL CL1 +/-30 100
C752–756	2113740F51	CAP CHIP REEL CL1 +/-30 100
C777	2113741F25	CAP CHIP CL2 X7R REEL 1000
C801	2113741B69	CAP CHIP CL2 X7R REEL 100000
C803, 804	2113740F35	CAP CHIP REEL CL1 +/-30 22
C810	2109822S04	CAP CHIP CER 10UF 35V 2220
C812	2311049A21	CAP TANT CHIP 22 10 20 A/P
C813–815		
	0180706G54/0180706G95:	
	2113918B09	CAP CHIP 10000pF 1000W 10% X7R
	0180706G55/0180706G96:	
	Not installed	
C830, 831		
	0180706G54/0180706G95:	
	2109822S08	CAP CERAMIC CHIP 47uF 20 16W
	0180706G55/0180706G96:	
	Not installed	
C832, 833	2113741B69	CAP CHIP CL2 X7R REEL 100000
C840–846	2113743E20	CAP CHIP .10 UF 10%
C847	2113741F49	CAP CHIP CL2 X7R REEL 10000
C848, 849	2113743E20	CAP CHIP .10 UF 10%
C851	2113741B69	CAP CHIP CL2 X7R REEL 100000
C852	2113741F49	CAP CHIP CL2 X7R REEL 10000
C853, 854	2113740F35	CAP CHIP REEL CL1 +/-30 22
C859	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C860	2109822S07	CAP CHIP CER 22UF 16V
C861	2113918A05	CAP CHIP 470 PF 1000V 10% X7R
C862	2113741B69	CAP CHIP CL2 X7R REEL 100000
C863	2109822S07	CAP CHIP CER 22UF 16V
C864, 865	2113741F17	CAP CHIP CL2 X7R REEL 470
C866	2113741B69	CAP CHIP CL2 X7R REEL 100000
C867	2113741F17	CAP CHIP CL2 X7R REEL 470
C868	2113741F49	CAP CHIP CL2 X7R REEL 10000
C869	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C870	2113741F25	CAP CHIP CL2 X7R REEL 1000
C871, 872	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C873	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C880, 881	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C882, 883	2113741B69	CAP CHIP CL2 X7R REEL 100000
C890	2113740F59	CAP CHIP REEL CL1 +/-30 220
C891	2113743E20	CAP CHIP .10 UF 10%
C901–912	2113743E20	CAP CHIP .10 UF 10%
C913, 914	2113740F55	CAP CHIP REEL CL1 +/-30 150
C937	2113740F55	CAP CHIP REEL CL1 +/-30 150
C940	2113740F55	CAP CHIP REEL CL1 +/-30 150
C943	2113740F31	CAP CHIP REEL CL1 +/-30 15
C944	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1001	2109822S04	CAP CHIP CER 10UF 35V 2220
C1002	2113743E20	CAP CHIP .10 UF 10%
C1003	2109822S04	CAP CHIP CER 10UF 35V 2220

Parts List, EPIC II Board with BGA Processor-out, 0180706G54, 0180706G55, 0180706G95, and 0180706G96

Reference	Part Number	Description
C1004–1007	2113743E20	CAP CHIP .10 UF 10%
C1008,1009	2109822S04	CAP CHIP CER 10UF 35V 2220
C1010–1012	2113743E20	CAP CHIP .10 UF 10%
C1013	2109822S04	CAP CHIP CER 10UF 35V 2220
C1014	2311049A23	CAP TANT CHIP 47 10 10
C1015	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1016,1017	2109822S04	CAP CHIP CER 10UF 35V 2220
C1020	2113743E20	CAP CHIP .10 UF 10%
C1022	2109822S04	CAP CHIP CER 10UF 35V 2220
C1023, 1024	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1025–1027	2109822S04	CAP CHIP CER 10UF 35V 2220
C1031–1066	2113743E20	CAP CHIP .10 UF 10%
C1067	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1068–1075	2113743E20	CAP CHIP .10 UF 10%
C1076	2311049A45	CAP TANT CHIP 10 10 35
C1077	2113743E20	CAP CHIP .10 UF 10%
C1079–1082	2113743E20	CAP CHIP .10 UF 10%
C1085,1086	2113743E20	CAP CHIP .10 UF 10%
C1088	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1089	2113743E20	CAP CHIP .10 UF 10%
C1090	2109822S04	CAP CHIP CER 10UF 35V 2220
C1091,1092	2113743E20	CAP CHIP .10 UF 10%
C1093	2109822S04	CAP CHIP CER 10UF 35V 2220
C1094	2113743E20	CAP CHIP .10 UF 10%
C1095	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1096	2113743E20	CAP CHIP .10 UF 10%
C1097	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1099	2113743E20	CAP CHIP .10 UF 10%
C1102	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1103–1106	2113743E20	CAP CHIP .10 UF 10%
C1109	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1110	2113743E20	CAP CHIP .10 UF 10%
C1112–1114	2113743E20	CAP CHIP .10 UF 10%
C1116–1122	2113743E20	CAP CHIP .10 UF 10%
C1125–1127	2113743E20	CAP CHIP .10 UF 10%
C1129	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1130,1131	2113743E20	CAP CHIP .10 UF 10%
C1132	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1133–1146	2113743E20	CAP CHIP .10 UF 10%
C1147	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1148,1150	2113743E20	CAP CHIP .10 UF 10%
C1152	2113743E20	CAP CHIP .10 UF 10%
C1154	2113741F37	CAP CHIP CL2 X7R REEL 3300
C1155–1160	2113743E20	CAP CHIP .10 UF 10%
C1161	2113740F65	CAP CHIP CL1 +/-30 390 5%
C1162–1166	2113743E20	CAP CHIP .10 UF 10%
C1167	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1168–1187	2113743E20	CAP CHIP .10 UF 10%
C1190,1192	2113743E20	CAP CHIP .10 UF 10%
C1193	2109822S04	CAP CHIP CER 10UF 35V 2220
C1194–1197	2113743E20	CAP CHIP .10 UF 10%
C1199,1201	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1202	2113918A05	CAP CHIP 470 PF 1000V 10% X7R
C1203	2113740F67	CAP CHIPCL1 +/-30 470 5%
C1204–1206	2113918A05	CAP CHIP 470 PF 1000V 10% X7R
C1207,1208	2113743E20	CAP CHIP .10 UF 10%
C1209–1211	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1230	2113743E20	CAP CHIP .10 UF 10%
		diode (see note 1):
CR2	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR201	4882290T02	DIODE SI HOT CARRIER*HSMS2802*
CR252	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR253–257	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR259	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR301, 302	4813825A05	DIODE 30V HOT CARRIER MMBD301L
CR305, 306	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR851	4813833C10	DIODE GEN PUR 70V MMBD6050
CR852	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR901	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR1003	4813833B01	DIODE SCHOTTKY 1.0A 40V
		light emitting diode:
DS1	4883288Y03	LED, GREEN, SMT
DS2–7	4883288Y05	LED, RED, SMT
DS8	4883288Y03	LED, GREEN, SMT
DS800		**0180706G54/0180706G95:**
	4883288Y03	LED, GREEN, SMT
		0180706G55/0180706G96:
	Not installed	
DS801–803		**0180706G54/0180706G95:**
	4883288Y05	LED, RED, SMT
		0180706G55/0180706G96:
	Not installed	
		connector:
J1	0984963T02	BNC JACK PCB RT ANGLE
P7	0984524T12	D SUB, 9 PIN RECPT RT ANG PCB MOUNT
P10	0985237U03	JACK, 6/6 MODULAR, SHIELDED
P11	0985237U01	JACK MOD
P12	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
P15		**0180706G54/0180706G95:**
	0184028Y01	CONNECTOR ASSY, DUAL ETHERNET
		0180706G55/0180706G96:
	Not installed	
P651	0982286V03	SKT SIMM 22.5 DEGREES 80 POS
		inductor:
L202	2411087A44	COIL CHIP 33 UH 10 A/P
L300		**0180706G54/0180706G95:**
	Not installed	
		0180706G55/0180706G96:
	2411087A51	COIL CHIP 120 UH 10 A/P
L851	2484657R01	INDUCTOR BEAD CHIP
L852	2411087A29	COIL CHIP 1.8 UH 10 A/P
		transformer:
T851	2482074Y01	IND 47UH 20% .98A DCR .13A AM
T852	2582975X03	XFMR 10BASE2 SINGLE PORT (TRPL)
T872		**0180706G54/0180706G95:**
	2583083Y01	XFMR 10BASE-T SINGLE PORT
		0180706G55/0180706G96:
	Not installed	
		transistor (see note 1):
Q1	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q3	4813824A10	TSTR NPN 40V .2A GEN PURP
Q150–153	4813824A10	TSTR NPN 40V .2A GEN PURP
Q202, 203	4813824A10	TSTR NPN 40V .2A GEN PURP
Q204	4813824A17	XSTR PNP 40V .2A GENP B=100-300
Q205, 206	4813824A10	TSTR NPN 40V .2A GEN PURP
Q207	4813823A07	XSTR N-CH TMOS FET 2N7002LT1
Q250	4884955T01	TSTR BIASED 10KOHM NPN -8A-

Reference	Part Number	Description
Q251	4813824A17	XSTR PNP 40V .2A GENP B=100-300
Q252–256	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q302	4813824A17	XSTR PNP 40V .2A GENP B=100-300
Q303	4813824A10	TSTR NPN 40V .2A GEN PURP
Q304	4813823A08	XSTR P-CH FET SW MMBFJ175LT1
Q305	4813824A10	TSTR NPN 40V .2A GEN PURP
Q751, 752	4813824A10	TSTR NPN 40V .2A GEN PURP
Q753	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q901	4813824A10	TSTR NPN 40V .2A GEN PURP
Q1005	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q1006	4813822A16	TSTR PNP 100V 4A MJD253T4
		resistor, fixed:
R1–3	0662057A73	CHIP RES 10K OHMS 5%
R5–9	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R10	0662057A09	CHIP RES 22 OHMS 5%
R11,12	0662057A73	CHIP RES 10K OHMS 5%
R13	0662057A49	CHIP RES 1000 OHMS 5%
R15	0662057A73	CHIP RES 10K OHMS 5%
R16–19	0662057A73	CHIP RES 10K OHMS 5%
R20	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R21, 22	0662057A73	CHIP RES 10K OHMS 5%
R23	0611072A25	RES CHIP 100 5 1/4
R24, 25	0662057A49	CHIP RES 1000 OHMS 5%
R26	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R27	0662057A09	CHIP RES 22 OHMS 5%
R28	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R31	0662057Z47	RES CHIP 39.2 1% 0603
R32–35	0662057A49	CHIP RES 1000 OHMS 5%
R36	0611072A25	RES CHIP 100 5 1/4
R37	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R38	0611077A59	RES CHIP 240 5 1/8W
R39, 40	0662057A89	CHIP RES 47K OHMS 5%
R43	0662057A73	CHIP RES 10K OHMS 5%
R44	0662057A49	CHIP RES 1000 OHMS 5%
R45–48	0662057A73	CHIP RES 10K OHMS 5%
R49	0662057A09	CHIP RES 22 OHMS 5%
R50 – 76		
	0180706G54/0180706G55	
	Not installed	
	0180706G95:/0180706G96:	
	0662057B47	CHIP RES 0 OHMS
R78 – 90		
	0180706G54/0180706G55	
	Not installed	
	0180706G95:/0180706G96:	
	0662057B47	CHIP RES 0 OHMS
R153, 154	0662057A73	CHIP RES 10K OHMS 5%
R155–158	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R159	0662057A57	CHIP RES 2200 OHMS 5%
R160	0662057A59	CHIP RES 2700 OHMS 5%
R161–164	0662057A09	CHIP RES 22 OHMS 5%
R170	0662057A45	CHIP RES 680 OHMS 5%
R173	0662057Z47	RES CHIP 39.2 1% 0603
R175	0662057A65	CHIP RES 4700 OHMS 5%
R202	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R204, 205	0662057A95	CHIP RES 82K OHMS 5%
R206	0662057B10	CHIP RES 330K OHMS 5%
R207	0611079B32	RES FIXED CHIP 240K 5 1/10 A/P
R209	0662057A67	CHIP RES 5600 OHMS 5%
R210	0662057A59	CHIP RES 2700 OHMS 5%
R211	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R212	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R213	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R214	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R215	0662057B47	CHIP RES 0 OHMS +-.050 OHMS

Reference	Part Number	Description
R216	0662057T98	RES CHIP 1.0 MEG
R217	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R218	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R219	0662057A85	CHIP RES 33K OHMS 5%
R220, 221	0662057A65	CHIP RES 4700 OHMS 5%
R223	0662057T98	RES CHIP 1.0 MEG
R230, 231	0662057A73	CHIP RES 10K OHMS 5%
R232	0662057A59	CHIP RES 2700 OHMS 5%
R233–235	0662057A73	CHIP RES 10K OHMS 5%
R236	0662057A59	CHIP RES 2700 OHMS 5%
R237	0662057A89	CHIP RES 47K OHMS 5%
R238, 239	0662057A73	CHIP RES 10K OHMS 5%
R240	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R241–247	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R248, 249	0662057A73	CHIP RES 10K OHMS 5%
R250	0611079A44	RES FIXED CHIP 56 5 1/10W A/P
R251, 252	0662057A59	CHIP RES 2700 OHMS 5%
R253	0662057A73	CHIP RES 10K OHMS 5%
R254	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R255	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R256	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R257	0662057A73	CHIP RES 10K OHMS 5%
R258	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R259	0662057A41	CHIP RES 470 OHMS 5%
R260	0662057A73	CHIP RES 10K OHMS 5%
R261	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R262	0662057A49	CHIP RES 1000 OHMS 5%
R263, 264	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R265	0611079A68	RES FIXED CHIP 560 5 1/10W A/P
R266–270	0662057A09	CHIP RES 22 OHMS 5%
R301, 302	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R303	0611079E09	RES CHIP 121.0K 1/10W 1%
R304	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R305	0662057A85	CHIP RES 33K OHMS 5%
R306	0662057A57	CHIP RES 2200 OHMS 5%
R307	0662057A65	CHIP RES 4700 OHMS 5%
R308	0662057A87	CHIP RES 39K OHMS 5%
R309	0662057A77	CHIP RES 15K OHMS 5%
R310	0662057A87	CHIP RES 39K OHMS 5%
R311	0662057P10	RES CHIP 10.0K 1% 30X60
R312	0611079G18	RES CHIP 15.0K 1/10W 1% 0805
R313	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R314	0662057T63	CHIP RES 39.2K OHMS 1 %
R315	0611079D93	RES CHIP 909.0 1/10W 1%
R316	0662057A41	CHIP RES 470 OHMS 5%
R317	0662057T63	CHIP RES 39.2K OHMS 1 %
R318	0662057A77	CHIP RES 15K OHMS 5%
R320	0662057A63	CHIP RES 3900 OHMS 5%
R321	0611079D69	RES CHIP 511.0 1/10W 1%
R322	0662057A81	CHIP RES 22K OHMS 5%
R323	0611079E09	RES CHIP 121.0K 1/10W 1%
R324	0662057T63	CHIP RES 39.2K OHMS 1 %
R325	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R327	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R328	0662057T63	CHIP RES 39.2K OHMS 1 %
R329	0611079G69	RES CHIP 51.1K 1/10W 1% 0805
R330	0662057P95	RES CHIP 100.0K 1% 30X60
R331	0662057A73	CHIP RES 10K OHMS 5%
R332	0662057A59	CHIP RES 2700 OHMS 5%
R333	0611079E09	RES CHIP 121.0K 1/10W 1%
R334	0662057A59	CHIP RES 2700 OHMS 5%
R335	0662057T62	CHIP RES 8.25K OHMS 1 %
R336	0662057A65	CHIP RES 4700 OHMS 5%
R337	0662057A41	CHIP RES 470 OHMS 5%
R339, 340	0662057A87	CHIP RES 39K OHMS 5%
R341	0662057A77	CHIP RES 15K OHMS 5%
R342	0662057A59	CHIP RES 2700 OHMS 5%
R343	0611079G18	RES CHIP 15.0K 1/10W 1% 0805
R345	0662057A87	CHIP RES 39K OHMS 5%

Parts List, EPIC II Board with BGA Processor-out, 0180706G54, 0180706G55, 0180706G95, and 0180706G96

Reference	Part Number	Description
R346, 347	0662057A81	CHIP RES 22K OHMS 5%
R348	0611079D69	RES CHIP 511.0 1/10W 1%
R349, 350	0662057T68	RES CHIP 1.0K 1% 30*60
R351	0662057A49	CHIP RES 1000 OHMS 5%
R352	0662057P22	RES CHIP 22.1K 1% 30X60
R353	0662057A87	CHIP RES 39K OHMS 5%
R354	0662057A93	CHIP RES 68K OHMS 5%
R356	0611079D93	RES CHIP 909.0 1/10W 1%
R357	0662057A09	CHIP RES 22 OHMS 5%
R360	0662057A59	CHIP RES 2700 OHMS 5%
R361	0662057T62	CHIP RES 8.25K OHMS 1 %
R362, 363	0662057T63	CHIP RES 39.2K OHMS 1 %
R365	0662057P10	RES CHIP 10.0K 1% 30X60
R366	0662057P22	RES CHIP 22.1K 1% 30X60
R367	0662057A59	CHIP RES 2700 OHMS 5%
R369	0662057A79	CHIP RES 18K OHMS 5%
R370	0662057A73	CHIP RES 10K OHMS 5%
R371	0662057A81	CHIP RES 22K OHMS 5%
R372	0662057T63	CHIP RES 39.2K OHMS 1 %
R373, 377	0662057A87	CHIP RES 39K OHMS 5%
R379, 380	0662057A73	CHIP RES 10K OHMS 5%
R383	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R384, 385	0662057A55	CHIP RES 1800 OHMS 5%
R386–389	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R391, 392	0662057A73	CHIP RES 10K OHMS 5%
R393	0662057A65	CHIP RES 4700 OHMS 5%
R395	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R396		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	Not installed	
R401-406	0662057A73	CHIP RES 10K OHMS 5%
R408, 409	0662057A73	CHIP RES 10K OHMS 5%
R410	0662057A65	CHIP RES 4700 OHMS 5%
R412	0662057A49	CHIP RES 1000 OHMS 5%
R413, 414	0662057A73	CHIP RES 10K OHMS 5%
R415	0662057A65	CHIP RES 4700 OHMS 5%
R416	0662057A73	CHIP RES 10K OHMS 5%
R417	0662057A57	CHIP RES 2200 OHMS 5%
R418–444	0662057A65	CHIP RES 4700 OHMS 5%
R445–451		
453–460	0662057A73	CHIP RES 10K OHMS 5%
R461, 462	0662057A65	CHIP RES 4700 OHMS 5%
R463–468	0662057A73	CHIP RES 10K OHMS 5%
R469, 470	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R471		
	0180706G54/0180706G55	
	Not installed	
	0180706G95:/0180706G96:	
	0662057B47	CHIP RES 0 OHMS
R502	0662057P95	RES CHIP 100.0K 1% 30X60
R503	0662057A73	CHIP RES 10K OHMS 5%
R504	0662057P95	RES CHIP 100.0K 1% 30X60
R506	0662057A45	CHIP RES 680 OHMS 5%
R508–513	0662057A73	CHIP RES 10K OHMS 5%
R514	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R517, 518	0662057A09	CHIP RES 22 OHMS 5%
R519	0662057A73	CHIP RES 10K OHMS 5%
R520	0662057A79	CHIP RES 18K OHMS 5%
R521	0662057A73	CHIP RES 10K OHMS 5%
R527, 528	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R529	0662057T98	RES CHIP 1.0 MEG
R535–585	0662057A09	CHIP RES 22 OHMS 5%
R601–613	0662057A11	CHIP RES 27 OHMS 5%
R614		
	0180706G54/0180706G95:	
	0662057A18	CHIP RES 51 OHMS 5%
	0180706G55/0180706G96:	
	0662057A11	CHIP RES 27 OHMS 5%
R615-624	0662057A11	CHIP RES 27 OHMS 5%
R625-628	0662057A09	CHIP RES 22 OHMS 5%
R629-688,690	0662057A11	CHIP RES 27 OHMS 5%
R691		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	0662057A09	CHIP RES 22 OHMS 5%
R701	0662057A09	CHIP RES 22 OHMS 5%
R702	0662057A49	CHIP RES 1000 OHMS 5%
R703	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R704	0662057A49	CHIP RES 1000 OHMS 5%
R705,706	0662057Z47	RES CHIP 39.2 1% 0603
R707	0662057A45	CHIP RES 680 OHMS 5%
R751-753	0662057A73	CHIP RES 10K OHMS 5%
R754	0662057A49	CHIP RES 1000 OHMS 5%
R755	0662057P95	RES CHIP 100.0K 1% 30X60
R756, 757	0662057A73	CHIP RES 10K OHMS 5%
R758–760	0662057A49	CHIP RES 1000 OHMS 5%
R761–768	0662057A73	CHIP RES 10K OHMS 5%
R770–775	0662057A73	CHIP RES 10K OHMS 5%
R776	0662057A87	CHIP RES 39K OHMS 5%
R777-781	0662057A73	CHIP RES 10K OHMS 5%
R782	0662057P95	RES CHIP 100.0K 1% 30X60
R784-791	0662057A73	CHIP RES 10K OHMS 5%
R794	0662057A65	CHIP RES 4700 OHMS 5%
R796	0662057A49	CHIP RES 1000 OHMS 5%
R797-802	0662057A73	CHIP RES 10K OHMS 5%
R823	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R824	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R828	0662057A73	CHIP RES 10K OHMS 5%
R835, 837-842	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R843 – 845		
	0180706G54/0180706G55	
	Not installed	
	0180706G95:/0180706G96:	
	0662057B47	CHIP RES 0 OHMS
R901, 902	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R903–905	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R906–929	0611072A25	RES CHIP 100 5 1/4
R930	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R931, 932	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R935	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R936	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R937–939	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R940	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R941	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R942, 943	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1012, 1013	0662057P10	RES CHIP 10.0K 1% 30X60
R1014	0611079F20	RES CHIP 1.58K 1/10W 1% 0805
R1015	0611079D35	RES CHIP 226.0 1/10W 1%
R1026	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R1032	0662057A45	CHIP RES 680 OHMS 5%
R1036	0662057A73	CHIP RES 10K OHMS 5%
R1037	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R1038	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R1039, 1040	0662057A49	CHIP RES 1000 OHMS 5%
R1043	0611079D93	RES CHIP 909.0 1/10W 1%
R1044	0662057T62	CHIP RES 8.25K OHMS 1 %
R1201	0611072A25	RES CHIP 100 5 1/4
R1202	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1203	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1204		
	0180706G54/0180706G95:	
	0611079D69	RES CHIP 511.0 1/10W 1%
	0180706G55/0180706G96:	
	0611079D55	RES CHIP 365.0 1/10W 1%
R1205–1208	0611079A62	RES FIXED CHIP 330 5 1/10W A/P

Reference	Part Number	Description
R1209		
	0180706G54/0180706G95:	
	0611079D69	RES CHIP 511.0 1/10W 1%
	0180706G55/0180706G96:	
	0611079D55	RES CHIP 365.0 1/10W 1%
R1210	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1211, 1212	0662057A73	CHIP RES 10K OHMS 5%
R1213, 1214	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1215	0662057A73	CHIP RES 10K OHMS 5%
R1216	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R1217	0662057A41	CHIP RES 470 OHMS 5%
R1218	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R1219–1223	0662057A41	CHIP RES470 OHMS 5%
R1224	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1225, 8000-8004	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8009	0662057P10	RES CHIP 10.0K 1% 30X60
R8012	0662057P39	RES CHIP 475
R8013	0662057T52	CHIP RES 332 OHMS 1 %
R8019	0662057P69	RES CHIP 12.4K
R8021	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8023, 8024	0662057P10	RES CHIP 10.0K 1% 30X60
R8028, 8029	0662057P10	RES CHIP 10.0K 1% 30X60
R8030–8032	0662057P10	RES CHIP 10.0K 1% 30X60
R8035	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8037, 8038	0662057P10	RES CHIP 10.0K 1% 30X60
R8040	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8041–8043		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	Not installed	
R8044, 8045		
	0180706G54/0180706G95:	
	Not installed	
	0180706G55/0180706G96:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8046	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8048		
	0180706G54/0180706G95:	
	Not installed	
	0180706G55/0180706G96:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8050–8052	0662057T52	CHIP RES 332 OHMS 1 %
R8053	0611079F20	RES CHIP 1.58K 1/10W 1% 0805
R8054	0662057P10	RES CHIP 10.0K 1% 30X60
R8055, 8057		
	0180706G54/0180706G95:	
	0662057P10	RES CHIP 10 K 1% 30X60
	0180706G55/0180706G96:	
	0662057A73	CHIP RES 10K OHMS 5%
R8058		
	0180706G54/0180706G95:	
	0662057T52	CHIP RES 332 OHM 1%
	0180706G55/0180706G96:	
	Not installed	
R8059		
	0180706G54/0180706G95:	
	Not installed	
	0180706G55/0180706G96:	
	0662057A73	CHIP RES 10K OHMS 5%
R8060, 8061		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	Not installed	
R8062	0662057P69	RES CHIP 12.4K
R8064, 8066, 8067	0662057Y03	RES CHIP 78.7 1% 0603
R8068–8071	0611077F12	RES CHIP 1500 1 1/8W
R8072	0611079F01	RES CHIP 1.00K 1/10W 1% 0805
R8073	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R8074	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R8075	0662057A77	CHIP RES 15K OHMS 5%
R8076	0662057P10	RES CHIP 10.0K 1% 30X60
R8077, 8078	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R8079	0611072B22	RES CHIP 1 MEG 5 1/4
R8080–8097		
	0180706G54/0180706G95:	
	0662057T44	CHIP RES 49.9 OHM 1%
	0180706G55/0180706G96:	
	Not installed	
R8098, 8099	0683106Y01	RES 11.5 OHM 1% 0603
R8100	0611072A25	RES CHIP 100 5 1/4
R8101	0611079D55	RES CHIP 365.0 1/10W 1%
R8102	0662057T49	CHIP RES 221 OHMS 1 %
R8103	0662057P39	RES CHIP 475
R8110–8113	0662057P10	RES CHIP 10.0K 1% 30X60
R8121, 8125, 8131, 8136, 8139		
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8151		
	0180706G54/0180706G95:	
	0662057P10	RES CHIP 10 K 1% 30X60
	0180706G55/0180706G96:	
	0662057B47	CHIP RES 0OHMS +-.050 OHMS
R8152		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	Not installed	
R8153		
	0180706G54/0180706G95:	
	Not installed	
	0180706G55/0180706G96:	
	0662057A73	CHIP RES 10K OHMS 5%
R8155		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	Not installed	
R8156		
	0180706G54/0180706G95:	
	Not installed	
	0180706G55/0180706G96:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8159, 8160	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8163		
	0180706G54/0180706G95:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55/0180706G96:	
	Not installed	
R8170	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8171, 8172		
	0180706G54/0180706G55	
	Not installed	
	0180706G95:/0180706G96:	
	0662057P10	RES CHIP 10.0k 1% 30X60
	switch:	
S0–3	4083621T01	SWPB SPST SURFACE MOUNT
S501	4083706T02	SWITCH 4 POSTN SMT SPST
S701	4082280Y01	SWOT PROGRAMMABLE SHUNT

Parts List, EPIC II Board with BGA Processor-out, 0180706G54, 0180706G55, 0180706G95, and 0180706G96

Reference	Part Number	Description
		integrated circuit (see note 1):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2–4	5184531T09	IC SRAM 32KX8 12NS CY7C199-12VI
U5	5113808A07	IC AND QUAD 2 INP MC74AC08D
U6	5184625T05	IC ASIC DSP GLUE 2 120QFP
U7	5113808A05	IC INV HEX MC74AC04D
U8	5185486U01	IC BFR OCT INV 3-ST 74__T540
U9–11	5184531T09	IC SRAM 32KX8 12NS CY7C199-12VI
U152,153	5184288T01	IC BUS XCVR _65176_
U154	5113808A39	IC LINE DRVR OCT 3T NON INV
U155	5113805A54	IC OCT BFR LINE DRV/RCVR HC244
U201	5184726T02	REFERENCE OSC MODULE
U202	5113812A26	IC PLL FREQ SYNTH
U203	5113805A86	IC QUAD ANALOG MUX/DEMUX
U204	5113805A89	IC HCM05 MULTIVBRTE DUAL 4538
U205, 207	5113808A13	IC INV HEX SCHMITT TRIG ACT14
U302	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U303, 304	5182276R86	IC CMOS 12 BIT SER INP DAC
U305	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U306, 308	5185222U02	IC FLTR 8TH ORD BESSEL _292_
U309	5113805A85	IC TRIP 2 CH ANALOG MUX/DEMUX
U311	5182802R38	IC DIG POT DL 10K _1267SN-10_
U314	5113805A83	IC MUX/DMUX 8-CH ANALOG HC4051
U315	5182276R85	IC SNG SUPPLY 12BIT ADC MAX190
U316	5184743T01	IC CODEC PCM 5V_145480
U317	5182952X01	IC 1W AUDIO PWR AMP 4860
U318, 319	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U401	5113802B03	IC QD COMM CNTRL W/ETHERNET -25MHZ
U402		
	0180706G54/0180706G95:	
	5113801D15	
	0180706G55/0180706G96:	
	0982297V02	SOCKET 18X18 PGA 179 POS
U501–504	5113808A39	IC LINE DRVR OCT 3T NON INV
U505–508	5113808A41	IC LINE DRVR/RCVR OCT 3ST
U509	5113808A05	IC INV HEX MC74AC04D
U510	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U511	5113808A55	IC LATCH TRANSP OCT D 3ST
U512	5113808A02	IC NAND QUAD 2 INP MC74ACT00D
U513	5182046W01	IC CLOCK DRIVER_74CT2524_SM
U515	5113815A02	IC UNDERVOLT SENSING CKT
U516	5113805A03	IC QUAD 2INP NAND 74HC03AD
U517	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U518	5113808A07	IC AND QUAD 2 INP MC74AC08D
U519	5113805A89	IC HCM05 MULTIVBRTE DUAL 4538
U520	5113808A16	IC FF DUAL D MC74AC74D
U523	PC509F025000010101	PROGRAMMED PLD EPIC II
U524	5113805A04	IC INVTR HEX 74HC04AD
U601	0982286V04	SKT SIMM 22.5 DEGREES 72 POS
U602	5113808A26	IC MUX DUAL 4INP MC74ACT153D
U603–605	5113808A28	IC MUX QUAD 2INP NON INV
U651–654		
	0180706G54/0180706G95:	
	Not installed	

Reference	Part Number	Description
	0180706G55/0180706G96:	
	0982451V13	SOCKET,IC 32 PIN SM T & R
U655	5184293T02	IC SM EEPROM 8K X 8 _28C64_
U655	0913900A23	32 POS PLCC SOCKET SMT
U658	5113808A39	IC LINE DRVR OCT 3T NON INV
U701	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U702	5113808A38	IC LINE DRVR OCT 3T NON INV
U703	5113808A16	IC FF DUAL D MC74AC74D
U751–758	5182043W01	IC OCT TRANS/REG AC652 SM
U759–764	5113805A54	IC OCT BFR LINE DRV/RCVR HC244
U765	5113808A13	IC INV HEX SCHMITT TRIG ACT14
U766	5182550Y03	NOR/OR 8#NAME?
U767	5113805A54	IC OCT BFR LINE DRV/RCVR HC244
U851	5184789T06	IC ETHNT INTFC ADPTR 908
U852	5184834T09	IC COAX TRNSCVR INTRFC 8392 IND
U863	5182056Y02	IC RGLTR FLYBK LT 142515
U873	5182681Y01	ADJ LOW DROPOUT POS REG 800MA SOT-2
U876	5113837A13	IC BUFFER 16 BIT
U877	5113837A18	IC MUX QUAD 2-IN NON-INV
U878	5113808A05	IC INV HEX MC74AC04D
U879	5113808A07	IC AND QUAD 2 INP MC74AC08D
U880	5113839M01	IC NAND QUAD 2-IN
U881	5113808A05	IC INV HEX MC74AC04D
U882	5113839M01	IC NAND QUAD 2-IN
U883	5113837A18	IC MUX QUAD 2-IN NON-INV
U884	5113837A05	IC OR QUAD 2 IN MC74LCX32DTR2
U903, 904	5184288T01	IC BUS XCVR _65176_
U905–907	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1002	5113816G14	IC ADJ. POSITIVE REG,500MA
U1003	5113816A07	REG 5V POS 500MA MC78M05BDTRK
U1004	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U1005	5113816A01	IC ADJ. LOW DROPOUT POS,100MA
VR1001	5113815A06	IC MICROPOWER V REF,1.235 V
		crystal (see note 1):
Y1	4882336V02	CRYSTAL OSC SURFACE MOUNT
Y501	4882336V01	OSCILLATOR CLOCK 25 MHZ
Y502	4884450T02	CRYSTAL UNIT 3.6864 MHZ
Y851	4884450T12	XTAL SMCP 12A 20MHZ
		non-referenced items:
	8482985Y03	PCB ,EPIC STA,CTRL W/CER CAP
	0784775T01	STIFFNER PC BD EDGE
	0784775T01	STIFFNER PC BD EDGE
	5482006W03	BARCODE LABEL
	6182512W03	LIGHTPIPES (8)
	5480139S02	LBL THERMAL XFER 2.5

NOTE 1: For optimum performance, diodes, transistors, lightpipes, and integrated circuits must be ordered by Motorola part number.

NOTE 2: Unless otherwise noted, all parts are common to both circuit boards covered in this parts list. Differences between the board configurations are noted where applicable. Components present on one of the boards but not the other are noted as "not installed."

Parts Lists, Station Control Modules: CCN4009A/C, CLN1614C/D, CLN6686H/J, CLN6873E/F, CLN6960E/F, CLN6961E/F, CLN7361C/D, CLN7462C/D, TTN4093H/J

Reference	Part Number	Description
		CCN4009A:
	0180706G54	EPIC II Board with BGA Processor-out (see note 1)
	0180706G10	PROG SIMM COMP 9600 F51
	5184530T08	MODULE DRAM 2MX32 70NS
		CCN4009C:
	0180706G95	EPIC II Board with BGA Processor-out (see note 1)
	0180706G10	PROG SIMM COMP 9600 F51
	5184530T08	MODULE DRAM 2MX32 70NS
		CLN1614C:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U2	5184530T08	MODULE DRAM 2MX32 70NS
		CLN1614D:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U2	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6686H:
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
U651	PC680E102000104013	PRGMD EPROM DBS
U652	PC680E202000104013	PRGMD EPROM DBS
U653	PC680E302000104013	PRGMD EPROM DBS
U654	PC680E402000104013	PRGMD EPROM DBS
		CLN6686J:
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
U651	PC680E102000104013	PRGMD EPROM DBS
U652	PC680E202000104013	PRGMD EPROM DBS
U653	PC680E302000104013	PRGMD EPROM DBS
U654	PC680E402000104013	PRGMD EPROM DBS
		CLN6873E:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6873F:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6960E:
	0180706G06	PROG SIMM QTAR IR 3.5 F51
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6960F:
	0180706G06	PROG SIMM QTAR IR 3.5 F51
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6961E:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6961F:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN7361C:
	0180706G09	PROG SIMM COMP 3.0 F51
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U402	5113801D15	IC 32 BIT HI PERF CNTLR
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN7361D:
	0180706G09	PROG SIMM COMP 3.0 F51
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U402	5113801D15	IC 32 BIT HI PERF CNTLR
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN7462C:
	0180706G12	PROG SIMM QTAR LIM F52
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN7462D:
	0180706G12	PROG SIMM QTAR LIM F52
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		TTN4093H:
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U402	5113801D15	IC 32 BIT HI PERF CNTLR

Reference	Part Number	Description
U601	5184530T08	MODULE DRAM 2MX32 70NS
U651	PC5251101000030508	EPIC CONTROL PRGMD EPROM
U652	PC5251201000030508	EPIC CONTROL PRGMD EPROM
U653	PC5251301000030508	EPIC CONTROL PRGMD EPROM
U654	PC5251401000030508	EPIC CONTROL PGRMD EPROM
	TTN4093J:	
	0180706G96	EPIC II Board with BGA Processor-out (see note 1)
U402	5113801D15	IC 32 BIT HI PERF CNTLR
U601	5184530T08	MODULE DRAM 2MX32 70NS
U651	PC5251101000030508	EPIC CONTROL PRGMD EPROM
U652	PC5251201000030508	EPIC CONTROL PRGMD EPROM
U653	PC5251301000030508	EPIC CONTROL PRGMD EPROM
U654	PC5251401000030508	EPIC CONTROL PGRMD EPROM

NOTE 1: See Parts List, EPIC II Board with BGA Processor-out, 0180706G54, 0180706G55, 0180706G95, and 0180706G96 for the board level components.

Reference	Part Number	Description

MOTOROLA
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Service Manual for:

Quantar®Station Products
Quantro®Station Products
DSS-III Station Products
ASTRO-TAC®Comparator
ASTRO-TAC®Receiver

(Includes Schematics, Part Location Details, and Parts Lists)

Table of Contents (Volume 1)

Commercial Government and Industrial Solutions Center
1301 E. Algonquin Schaumburg, IL 60196

68P81088E90-G
3/31/04—UP

WIRELINE MODULES

POWER SUPPLY MODULES

BACKPLANE

MISCELLANEOUS

1 INTENDED USE OF THIS MANUAL

This manual is intended to be used by experienced Motorola electronics technicians to aid in the troubleshooting and repair of Motorola *Quantar*, *Quantro*, *ASTRO-TAC*, and *Data-TAC® DSS-III* circuit cards returned from the field for repair. Information is provided to allow the technician to troubleshoot and make repairs to the component level.

2 CONTENTS OF MANUAL

Products Covered in this Manual

This manual contains detailed servicing information in the form of schematics, circuit board details, and parts lists for boards found in the following products:

- *Quantar* VHF, UHF, 800 MHz, and 900 MHz Stations
- *Quantro* VHF, UHF, 800 MHz, and 900 MHz Stations
- *Quantar* Data Base Station (DBS) UHF and 800 MHz
- *Data-TAC DSS-III* Data Station UHF, 800 MHz, and 900 MHz
- *ASTRO-TAC* Receiver
- *ASTRO-TAC* Comparators

Functional information (block diagrams, functional theory, system information, etc.) for each of these products may be found in the corresponding functional manual, as follows:

Quantar VHF/UHF/800/900 Functional Manual	68P81095E05
Quantro VHF/UHF/800/900 Functional Manual	68P80800C95
Quantar Data Base Station (DBS) Functional Manual	68P81096E05
ASTRO-TAC Receiver Functional Manual	68P81094E85
ASTRO-TAC Comparator Functional Manual	68P81087E70
ASTRO-TAC 3000 Comparator Functional Manual	68P81098E20
ASTRO-TAC 9600 Comparator (6.0) Functional Manual	68P81131E65
Data-TAC DSS-III Data Station Functional Manual	68P81094E25

Commercial Government and Industrial Solutions Center
1301 E. Algonquin Schaumburg, IL 60196

68P81090E01-G
3/31/04—UP

Description of Contents

The **schematic diagrams** in this manual are designed for left to right signal flow (where possible) and contain theory notes, waveforms, dc voltages, RF levels, IC data tables, and other pertinent information to aid the technician in troubleshooting and servicing the equipment to the component level.

The **circuit board details** in this manual show the location and reference designation for all electrical components. Where applicable, connectors, cables, and other information are shown as troubleshooting aids.

The **parts lists** in this manual provide Motorola part numbers and values for each component shown on the corresponding schematic diagram.

3 HOW TO USE THIS MANUAL

This manual is a two-volume set comprised of diagram packages grouped under ***68P810_ _ _ _ – issue*** control numbers. Each diagram package consists of one or more pullout pages containing schematic diagrams, circuit board details, and parts lists for a particular electrical module. Motorola model numbers (e.g., TLF1234A, TRN4321A, etc.) appear at the top of each page to identify the models covered by each diagram package.

The diagram packages are arranged according to electrical function, such as receiver circuitry, transmitter circuitry, power amplifiers, etc. Divider tabs allow quick and easy access to these major categories (e.g., RECEIVER MODULES, TRANSMITTER MODULES, etc.). Within each major category, sub-tabs are provided for each module (e.g., TLF6900A, TLF6920C, etc.).

The table of contents in the front of each volume provides a contents listing by tab for reference. To further aid in locating information within this manual, Table 1 lists the modules covered in this manual numerically according to the model number of the board, assembly, or module. This table also provides additional information, such as the 68P diagram package number and the Motorola product(s) in which the module is contained.

Example:

To find the diagram package for a Model TRF6551G Receiver Module, look in Table 1 for "6551." The table indicates that servicing information for this module is found in 68P81087E88 behind the major tab RECEIVER MODULES. The diagram package is located behind the sub-tab "TRF6551G."

Table 1 *Numerical Listing of Boards and Modules*

Model Number	Module Name	68P #	Volume	Tab	Used in products
	UHF Power Amplifiers (*Quantro*)	68P81092E84	2	TRANSMITTER MODULES	*Quantro* UHF
CTF1091A	100 W 800 MHz Power Amplifier Module	68P81097E99	2	TRANSMITTER MODULES	*Quantar* 800 MHz *Quantar* 800 MHz Data Base Station *DSS-III* 800 MHz Data Station
CTF1092A	100 W 900 MHz Power Amplifier Module	68P81098E01	2	TRANSMITTER MODULES	*Quantar* 900 MHz *DSS-III* 900 MHz Data Station
CTX1146A	Range 0 Power Amplifier	68P81098E07	2	TRANSMITTER MODULES	*Quantar* UHF

Table 1 *Numerical Listing of Boards and Modules (continued)*

Model Number	Module Name	68P #	Volume	Tab	Used in products
TRN1185B	Power Supply Module (60Hz with Battery Charger)	68P81090E68	1	POWER SUPPLY MODULES	*Quantro* UHF *Quantro* 800 MHz
TPN1186B	Power Supply Module (60Hz without Battery Charger)	68P81090E69	1	POWER SUPPLY MODULES	*Quantro* UHF *Quantro* 800 MHz
TPN1268A	Power Supply Module (50Hz without Battery Charger)	68P81090E67	1	POWER SUPPLY MODULES	*Quantro* UHF *Quantro* 800 MHz
TRN1269A	Power Supply Module (50Hz with Battery Charger)	68P81090E66	1	POWER SUPPLY MODULES	*Quantro* UHF *Quantro* 800 MHz
TTF1440B	75W Power Amplifier Module (Quantro 800 MHz)	68P81090E78	2	TRANSMITTER MODULES	*Quantro* 800 MHz
TTF1460B	150W Power Amplifier Module (Quantro 800 MHz)	68P81090E79	2	TRANSMITTER MODULES	*Quantro* 800 MHz
TTE1521A/ TTE1522A TTE1541 TTE1542	225W Power Amplifier Module	68P81092E84	2	TRANSMITTER MODULES	*Quantro* UHF
TLF1550A	35W Power Amplifier Module (Quantro 800 MHz)	68P81090E77	2	TRANSMITTER MODULES	*Quantro* 800 MHz
CLN1614C	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	ASTRO-TAC Comparator
TTE1741A/ TTE1742A	40W Power Amplifier Module	68P81092E84	2	TRANSMITTER MODULES	*Quantro* UHF
TLF1800B	100W Power Amplifier Module (Quantar 800 MHz)	68P81088E36	2	TRANSMITTER MODULES	*Quantar* 900 MHz *DSS-III* 900 MHz Data Station
TLF1930C	100W Power Amplifier Module (Quantar 800 MHz)	68P81088E77	2	TRANSMITTER MODULES	*Quantar* 800 MHz *Quantar* 800 MHz Data Base Station *DSS-III* 800 MHz Data Station
TLF1940B	20W Power Amplifier Module (Quantar 800 MHz)	68P81092E94	2	TRANSMITTER MODULES	*Quantar* 800 MHz *Quantar* 800 MHz Data Base Station *DSS-III* 800 MHz Data Station
TTE2061A/ 62B/63-64	100/110W Power Amplifier Module (UHF; R1-R4)	68P81092E73	2	TRANSMITTER MODULES	*Quantar* UHF *Quantar* 800 UHF Data Base Station *DSS-III* Data Station
TLE2511A/ TLE2512A TLE2521 TLE2572	110W Power Amplifier Module	68P81092E84	2	TRANSMITTER MODULES	*Quantro* UHF
TLE2731B/ TLE2732B	25W Power Amplifier Module (UHF; R1 and R2)	68P81092E74	2	TRANSMITTER MODULES	*Quantar* UHF *Quantar* 800 UHF Data Base Station *DSS-III* Data Station
TLD3101G/ TLD3102G	125W Power Amplifier Module (VHF; R1 and R2)	68P81090E96	2	TRANSMITTER MODULES	*Quantar* VHF
TLD3110C	25W Power Amplifier Module (VHF; R1 and R2)	68P81090E97	2	TRANSMITTER MODULES	*Quantar* VHF
CLX4000B	Range 0 Exciter	68P81098E04	2	TRANSMITTER MODULES	*Quantar* UHF
CLX4002A	100/110W Power Amplifier Module (UHF; R1-R4)	68P81098E02	2	TRANSMITTER MODULES	*Quantar* UHF *Quantar* 800 UHF Data Base Station *DSS-III* Data Station
PTFD4007A	Low Pass Filter Board (High Power Booster; VHF)	68P81097E64	2	TRANSMITTER MODULES	*Quantar* with High Power Booster
CCN4009A	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	ASTRO-TAC Comparator

Table 1 *Numerical Listing of Boards and Modules (continued)*

Model Number	Module Name	68P #	Volume	Tab	Used in products
TTN4010C	V.24 Interface Assembly	68P81097E98	1	MISCELLANEOUS	ASTRO-TAC Comparator
PTTD4018A	Control Board (High Power Booster; VHF)	68P81097E71	2	TRANSMITTER MODULES	*Quantar* with High Power Booster
PTTD4019A	RF Board (High Power Booster; VHF)	68P81097E72	2	TRANSMITTER MODULES	*Quantar* with High Power Booster
CRX4022B	Range 0 Receiver	68P81098E06	2	RECEIVER MODULES	*Quantar* UHF
TTN4093G	Comparator Control Module	68P81095E87	1	CONTROL MODULES	*ASTRO-TAC* Comparator
TTN4093H	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	*ASTRO-TAC* Comparator
TTN4094C	EPIC Station Control Module	68P81090E02	1	CONTROL MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
TTN5041A	Wireline/Power Supply Module (ASTRO-TAC Receiver)	68P81094E81	1	WIRELINE MODULES	*ASTRO-TAC* Receiver
TTN5061E	Wireline Interface Board (WIB)	68P81095E39	1	WIRELINE MODULES	*ASTRO-TAC* Receiver
TTN5070C	Ultra High Stability Oscillator (UHSO)	68P81095E76	1	MISCELLANEOUS	All *Quantar* Products (except DBS) All *Quantro* Products
TTN5128C	Data Control Module	68P81095E37	1	CONTROL MODULES	*DSS-III* Data Station
TLE5971F–TLE5974F	Exciter Board (UHF)	68P81090E92	2	TRANSMITTER MODULES	*Quantro/Quantar* UHF *Quantar* UHF Data Base Station
TLE5980C	+5V/IPA Module (UHF)	68P81087E87	2	TRANSMITTER MODULES	*Quantro* UHF
CFF6051A	Low Pass Filter Board (High Power Booster; 800 MHz)	68P81097E73	2	TRANSMITTER MODULES	*Quantar* with High Power Booster
CPN6064C	DC-DC Main Board	68P81097E46	1	POWER SUPPLY MODULES	*Quantar* VHF, UHF, 800 MHz, 900 MHz stations
CPN6065D	AC-to-DC Converter Board	68P81095E93	1	POWER SUPPLY MODULES	All Products
CPN6067D	DC-to-DC Converter Board	68P81095E97	1	POWER SUPPLY MODULES	All Products
CPN6068B	DC Output Board	68P81097E47	1	POWER SUPPLY MODULES	*Quantar* VHF, UHF, 800 MHz, 900 MHz stations
CPN6074C	Battery Charger/Revert Board	68P81095E98	1	POWER SUPPLY MODULES	All Products
CPN6079E	DC-to-DC Converter Board	68P81097E77	1	POWER SUPPLY MODULES	All Products
CLE6164A CLE6165A	100/110W Power Amplifier Module (UHF; R1-R4)	68P81098E02	2	TRANSMITTER MODULES	*Quantar* UHF *Quantar* 800 UHF Data Base Station *DSS-III* Data Station
TRE6281–TRE6284G	Receiver Module (UHF)	68P81088E09	2	RECEIVER MODULES	*Quantro/Quantar* UHF *Quantar* UHF Data Base Station
CTF6323A	RF Board (High Power Booster; 800 MHz)	68P81097E76	2	TRANSMITTER MODULES	*Quantar* with High Power Booster
TRD6361D/ TRD6362D	Receiver Module (VHF)	68P81090E64	2	RECEIVER MODULES	*Quantar* VHF
TTE6373A/ TTE6374A	100/110W Power Amplifier Module (UHF; R1-R4)	68P81098E02	2	TRANSMITTER MODULES	*Quantar* UHF *Quantar* 800 UHF Data Base Station *DSS-III* Data Station
TRN6551H	Receiver Module (800 MHz)	68P81087E88	2	RECEIVER MODULES	*Quantro/Quantar* 800 MHz *Quantar* 800 MHz Data Base Station
TRF6552H	Receiver Module (900 MHz)	68P81088E14	2	RECEIVER MODULES	*Quantar* 900 MHz
CLN6651D	Wireline Interface Board (WIB)	68P81095E34	1	WIRELINE MODULES	*ASTRO-TAC* Receiver
CLN6686C	EPIC Station Control Modules	68P81090E02	1	CONTROL MODULES	*Quantar* Data Base Station (DBS)

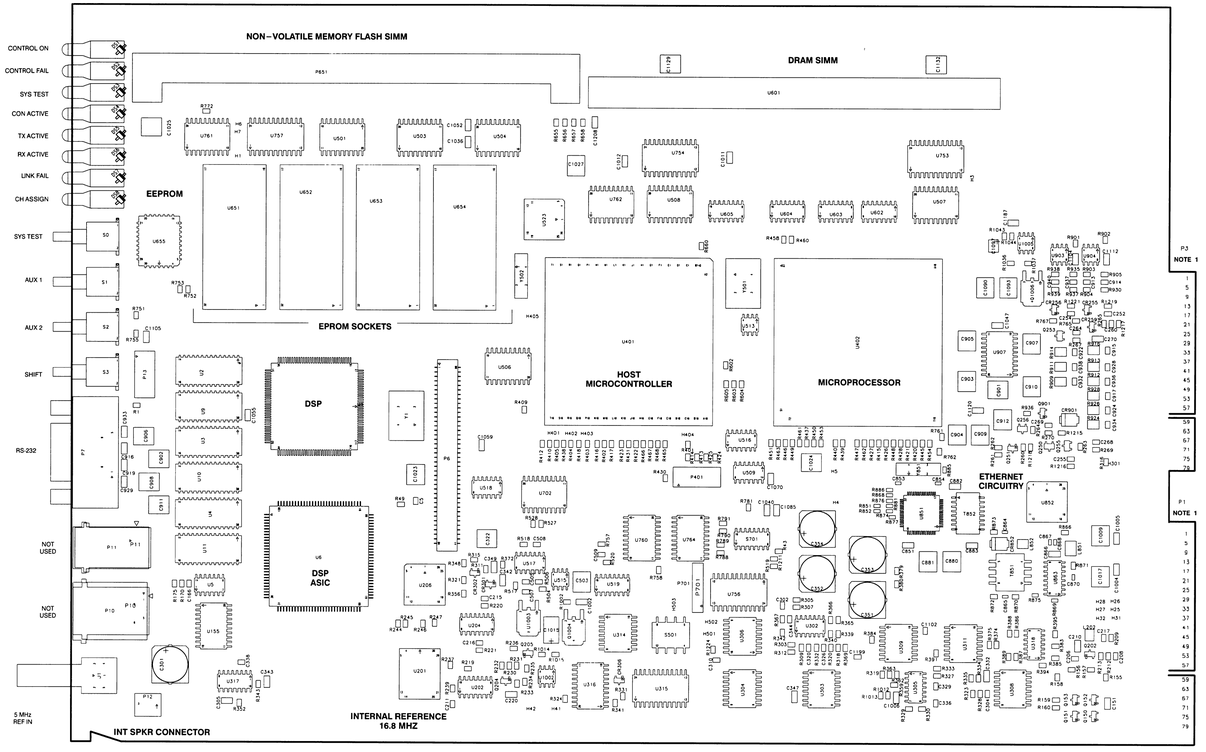
Table 1 *Numerical Listing of Boards and Modules (continued)*

Model Number	Module Name	68P #	Volume	Tab	Used in products
CLN6686G	EPIC Station Control Modules	68P81094E84	1	CONTROL MODULES	*Quantar* Data Base Station (DBS)
CLN6686H	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	*Quantar* Data Base Station (DBS)
CLN6873D	EPIC Control Module	68P81085E13	1	CONTROL MODULES	*ASTRO-TAC* Receiver
CLN6873E	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	*ASTRO-TAC* Receiver
CLN6883B	Wireline Interface Board (8-wire)	68P81094E83	1	WIRELINE MODULES	*ASTRO-TAC* Comparator
TLF6900C	+5V/IPA Module (800 MHz)	68P81087E87	2	TRANSMITTER MODULES	*Quantro* 800 MHz
TLF6920G	Exciter Board (800 MHz)	68P81087E99	2	TRANSMITTER MODULES	*Quantro/Quantar* 800 MHz *Quantar* 800 MHz Data Base Station
TLF6930G	Exciter Module (900 MHz)	68P81088E37	2	TRANSMITTER MODULES	*Quantar* 900 MHz
CLN6955A	Wireline Interface Board (4-wire)	68P81094E82	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6955D	Wireline Interface Board (4-wire)	68P81096E61	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6956A	Wireline Interface Board (8-wire)	68P81094E83	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6956D	Wireline Interface Board (8-wire)	68P81096E62	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6957A	Wireline Interface Board (4-wire)	68P81094E82	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6957D	Wireline Interface Board (4-wire)	68P81096E61	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6958A	Wireline Interface Board (8-wire)	68P81094E83	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6958D	Wireline Interface Board (8-wire)	68P81096E62	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6959B	Wireline/Power Supply Board	68P81094E86	1	WIRELINE MODULES	*ASTRO-TAC* Receiver
CLN6960D	EPIC Control Module	68P81094E84	1	CONTROL MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6960E	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
CLN6961D	EPIC Control Module	68P81094E84	1	CONTROL MODULES	*Quantar* VHF, UHF, 800 MHz, 900 MHz stations
CLN6961E	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	*Quantar* VHF, UHF, 800 MHz, 900 MHz stations
CLN7060A	EPIC III Control Module (Tantalum)	68P81097E09	1	CONTROL MODULES	All *Quantar* Products (except DBS)
CLN7098A	LED Board	68P81096E54	1	CONTROL MODULES	All *Quantar* Products (except DBS)
CLN7343A	Wireline Interface Board (8-wire)	68P81094E83	1	WIRELINE MODULES	*ASTRO-TAC 3000* Comparator *ASTRO-TAC 9600* Comparator

Table 1 *Numerical Listing of Boards and Modules (continued)*

Model Number	Module Name	68P #	Volume	Tab	Used in products
CLN7343D	Wireline Interface Board (8-wire)	68P81096E62	1	WIRELINE MODULES	*ASTRO-TAC 3000* Comparator *ASTRO-TAC 9600* Comparator
CLN7361B	Comparator Control Module	68P81095E87	1	CONTROL MODULES	*ASTRO-TAC 3000* Comparator
CLN7361C	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	*ASTRO-TAC 3000* Comparator
CLN7462C	EPIC II Control Board	68P81098E08	1	CONTROL MODULES	*ASTRO-TAC 3000* Comparator
TRN7475F	Station Control Module	68P81090E87	1	CONTROL MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
TRN7477F	Wireline Interface Board (4-wire)	68P81090E89	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
TRN7480A	Backplane (Quantar)	68P81088E12	1	BACKPLANE	*Quantar* VHF *Quantar* UHF *Quantar* 800 MHz *Quantar* 900 MHz *Quantar* Data Base Station (DBS)
CLN7558A	EPIC III Control Module (Ceramic)	68P81097E09	1	CONTROL MODULES	All *Quantar* Products (except DBS)
CLN7665A	Control Board (800 MHz)	68P81097E74	2	TRANSMITTER MODULES	*Quantar* with High Power Booster
TRN7667F	Wireline Interface Board (8-wire)	68P81090E88	1	WIRELINE MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
TRN7688A	Backplane (Quantro)	68P81090E63	1	BACKPLANE	*Quantro* UHF *Quantro* 800 MHz
CLN7692B	EPIC IV Control Board	68P81098E03	1	CONTROL MODULES	*Quantar* VHF, UHF, 800 MHz, 900 MHz stations
TRN7704F	Comparator Control Module	68P81090E87	1	CONTROL MODULES	*ASTRO-TAC* Comparator
TRN7706F	Wireline Interface Board (8-wire) (EEPROM)	68P81090E88	1	WIRELINE MODULES	*ASTRO-TAC* Comparator
TRN7706G	Wireline Interface Board (8-wire) (FLASH)	68P81094E83	1	WIRELINE MODULES	*ASTRO-TAC* Comparator
CLN7728A	Comparator Control Module	68P81095E87	1	CONTROL MODULES	*ASTRO-TAC* Comparator
TRN7737A	Backplane (ASTRO-TAC Comparator)	68P81090E93	1	BACKPLANE	*ASTRO-TAC* Comparator
TRN7760F	Station Control Module	68P81090E87	1	CONTROL MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
TRN7900C	EPIC Control Modules	68P81090E02	1	CONTROL MODULES	All *Quantar* Products (except DBS) All *Quantro* Products
TLD9831D/ TLD9832D	Exciter Board (VHF)	68P81090E84	2	TRANSMITTER MODULES	*Quantar* VHF

COMPARATOR CONTROL MODULE
MODELS TTN4093G / CLN7361B / CLN7728A



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(1 OF 2)

NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P3 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P2 AND P4 AND HAVE EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P1-1, 3	LOGIC GND	P2-2, 4	LOGIC GND	P3-1	WIDEBAND OUTPUT	P4-2	WIDE BAND INPUT
P1-5, 7	+14.2V	P2-6, 8	+14.2V	P3-5	LOGIC GND	P4-6	LOGIC GND
P1-9, 11, 13, 15, 17, 19, 21	+5V	P2-10, 12, 14, 16, 18, 20, 22	+5V	P3-7	WFI+	P4-8	WFI-
P1-23	LOGIC GND	P2-24	LOGIC GND	P3-9	DLAN1+	P4-10	DLAN1-
P1-25	SPI MISO	P2-26	SPI MOSI	P3-11	FAN +	P4-12	N.C.
P1-27	SPI CLK	P2-28	ALT RESET	P3-13	LOGIC GND	P4-14	LOGIC GND
P1-29	HDLC DATA	P2-30	HDLC BUSY	P3-15	PL STRIP	P4-16	AUX INDICATE
P1-31	HDLC CLK	P2-32	TDM FS	P3-17	MONITOR	P4-18	N.C.
P1-33	TDM DATA	P2-34	TDM CLK	P3-19	N.C.	P4-20	PATCH INH
P1-35	SPARE 1	P2-36	SPARE 2	P3-21	MRTI PTT	P4-22	MRTI RX AUDIO
P1-37	HOST 1PPS	P2-38	EXP SPI REQ	P3-23	MRTI TX AUDIO	P4-24	N.C.
P1-39	EXP SPI GRANT	P2-40	EXP HOST REQ	P3-25	RX CARRIER	P4-26, 28	LOGIC GND
P1-41	SPI A0	P2-42	SPI A1	P3-27, 29, 31	LOGIC GND	P4-30	LOGIC GND
P1-43	TX SPI GRANT	P2-44	SPI A5	P3-33	TXD3	P4-32	MODEM RESET
P1-45	SPI A4	P2-46	SPI A3	P3-35	RTS3	P4-34	RXD3
P1-47	SPI A2	P2-48	TX SPI REQ	P3-37	DSR3	P4-36	CTS3
P1-49	PTT REQ	P2-50	TX HOST REQ	P3-39	DCD3	P4-38	LOGIC GND
P1-51, 53	LOGIC GND	P2-52, 54	LOGIC GND	P3-41	TCLK3	P4-40	LLPBK3
P1-55	RX 2.1 MHz REF	P2-56	TX 2.1 MHz REF	P3-43	DTR3	P4-42	RCLK3
P1-57	LOGIC GND	P2-58	LOGIC GND	P3-45, 47	LOGIC GND	P4-44	RLPBK3
P1-59	REF AUDIO	P2-60	VCO AUDIO	P3-49	N.C.	P4-46, 48	LOGIC GND
P1-61	LOGIC GND	P2-62	LOGIC GND	P3-51	TXD1	P4-50	RXD1
P1-63	TX WB AUDIO	P2-64	5 MHz REF (REAR)	P3-53	RTS1	P4-52	CTS1
P1-65	LOGIC GND	P2-66	LOGIC GND	P3-55	LOGIC GND	P4-54	DCD1
P1-67	RX2 AGC	P2-68	RX2 ODC	P3-57	DTR1	P4-56	DSR1
P1-69	RX2 SBI	P2-70	RX2 DATA	P3-59	TSTAT	P4-58	SERIAL ID
P1-71	RX2 DATA	P2-72	LOGIC GND	P3-61	N.C.	P4-60	TPTT
P1-73	LOGIC GND	P2-74	RX1 AGC	P3-63	RSTAT	P4-62	MUTE
P1-75	RX1 ODC	P2-76	RX1 SBI	P3-65	LOGIC GND	P4-64	CCI
P1-77	RX1 DATA	P2-78	RX1 DATA	P3-67	TX DATA+	P4-66	LOGIC GND
P1-79	LOGIC GND	P2-80	LOGIC GND	P3-69	TX DATA-	P4-68	6809 RX AUDIO
				P3-71, 73, 75,77, 79	LOGIC GND	P4-70, 72	LOGIC GND
						P4-74	GPS 1PPS
						P4-76	ETHERNET GND
						P4-78	ETHERNET SIGNAL
						P4-80	ETHERNET GND

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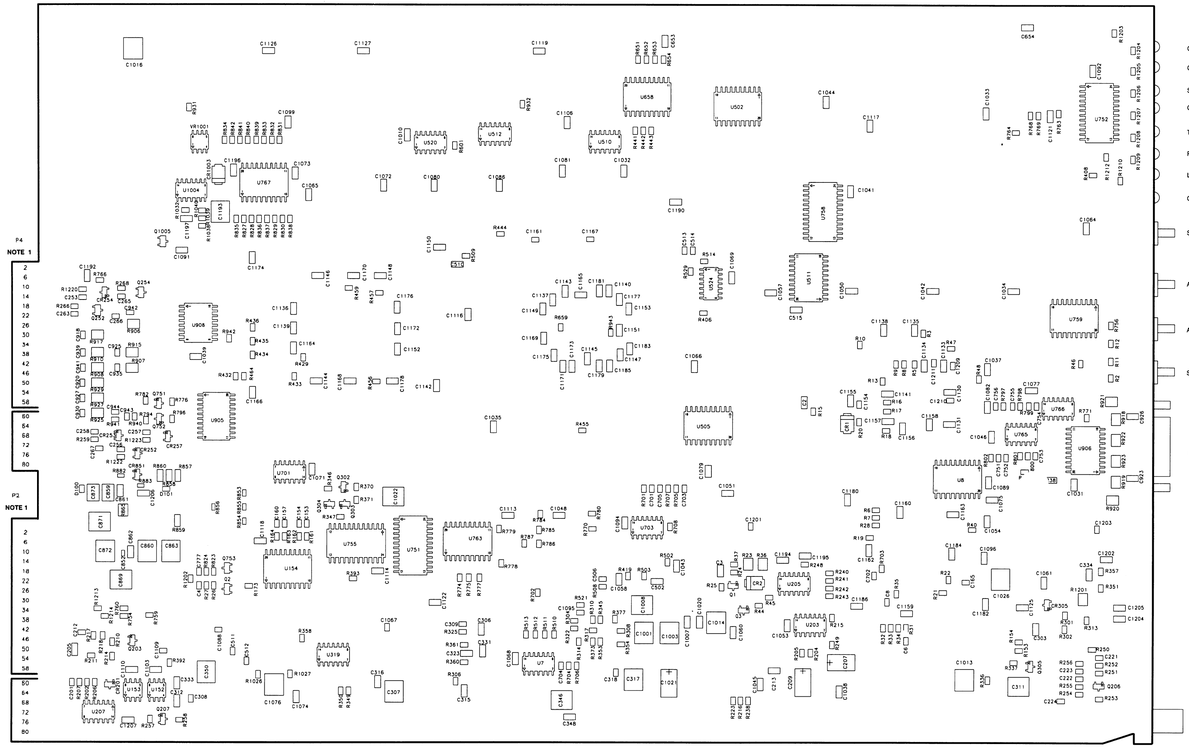
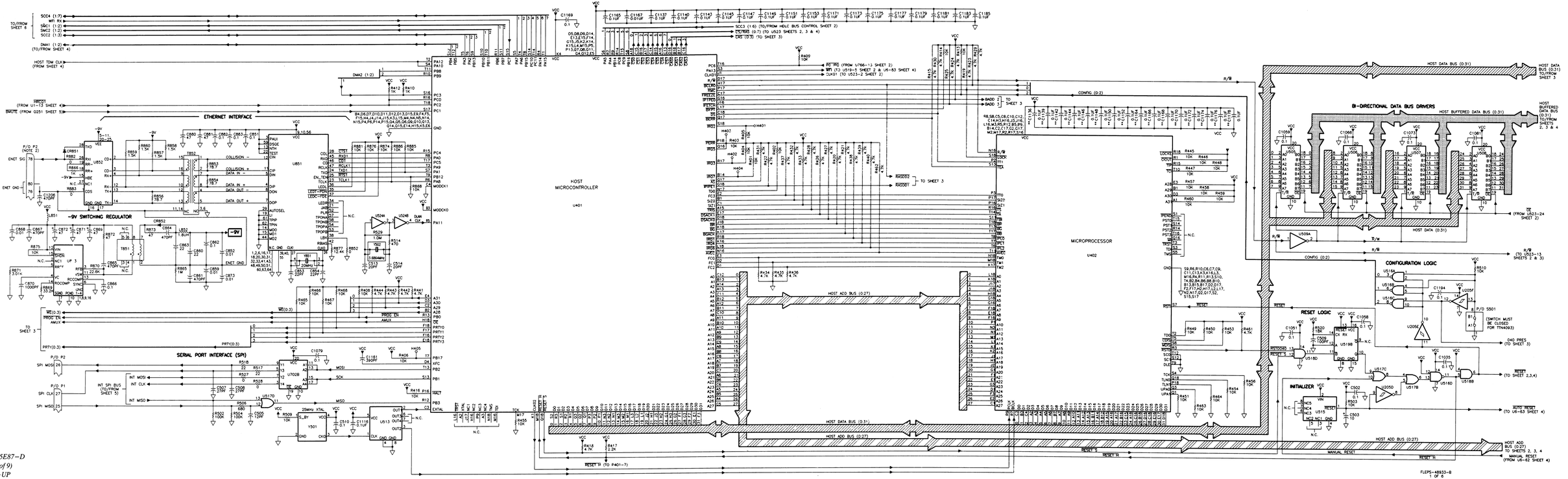
COMPARATOR CONTROL MODULE
MODELS TTN4093G / CLN7361B / CLN7728A

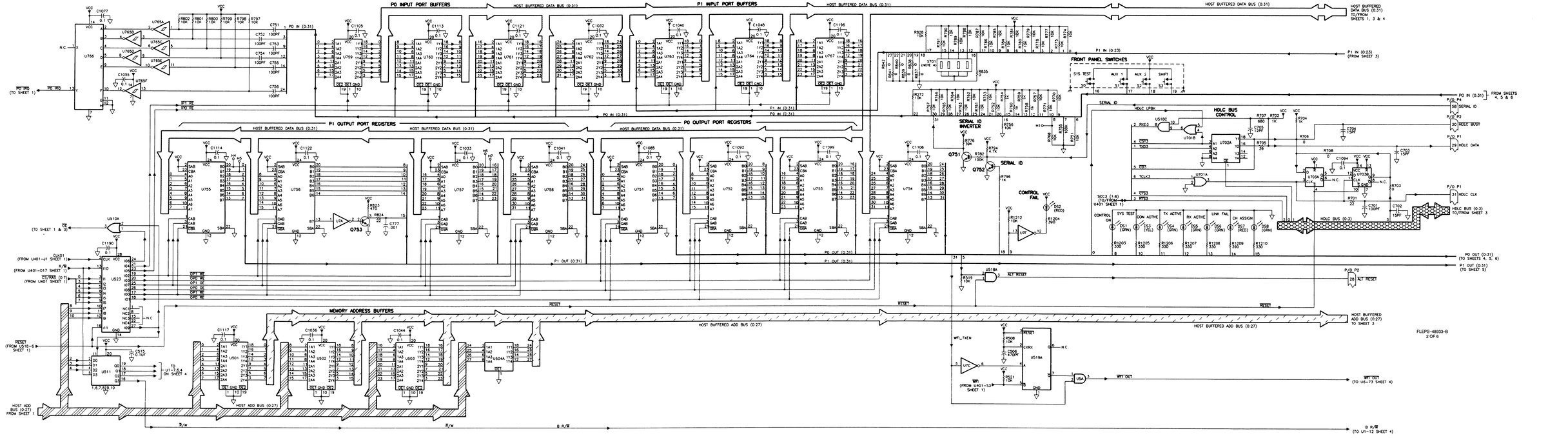


COMPARATOR CONTROL MODULE

MODELS TTN4093G / CLN7361B / CLN7728A



68P81095E87–D
(Sheet 3 of 9)
3/31/02–UP


P0 INPUT PORT BUFFERS
P1 INPUT PORT BUFFERS
HOST BUFFERED DATA BUS (0:31)
P1 OUTPUT PORT REGISTERS
P0 OUTPUT PORT REGISTERS
MEMORY ADDRESS BUFFERS
HOST BUFFERED ADD BUS (0:27)
FRONT PANEL SWITCHES
SERIAL ID
HDLC BUS CONTROL
CONTROL FAIL
ALT RESET
RESET
WFT OUT
HDLC BUS (0:3)
P1 IN (0:23)
P0 IN (0:31)
P1 OUT (0:31)
P0 OUT (0:31)
FLEPS-48033-B
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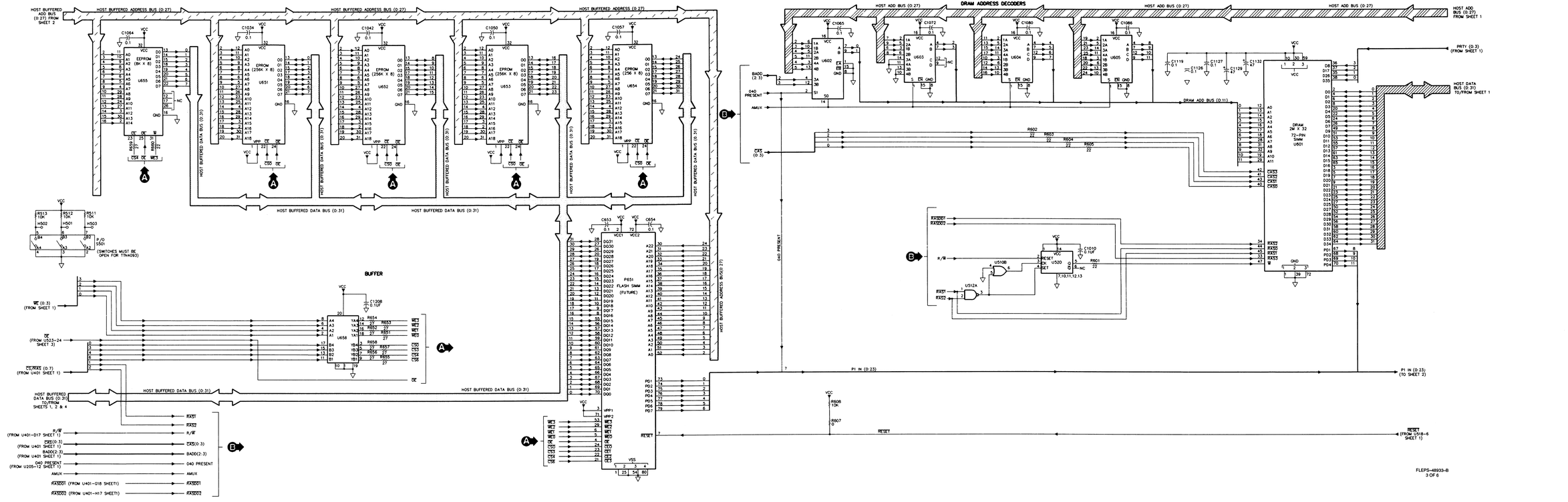
COMPARATOR CONTROL MODULE

MODELS TTN4093G / CLN7361B / CLN7728A



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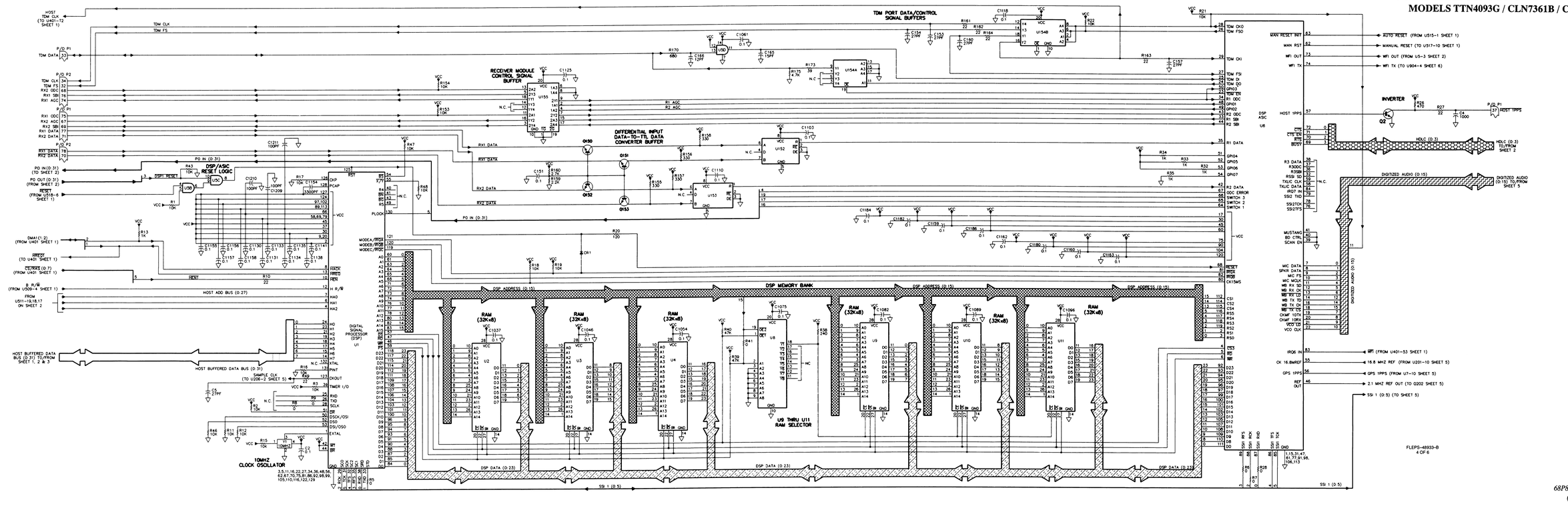
DSP/ASIC RESET LOGIC
DIGITAL SIGNAL PROCESSOR (DSP) U1
DSP MEMORY BANK
RAM (32K x8)
U9 THRU U11 RAM SELECTOR
10MHZ CLOCK OSCILLATOR
RECEIVER MODULE CONTROL SIGNAL BUFFER
DIFFERENTIAL INPUT DATA-TO-TTL DATA CONVERTER BUFFER
TDM PORT DATA/CONTROL SIGNAL BUFFERS
INVERTER
DSP ASIC U6
DSP ADDRESS (0:15)
DSP DATA (0:23)
SSI 1 (0:5)
DIGITIZED AUDIO (0:15)
HDLC (0:3)
HOST BUFFERED DATA BUS (0:31)
HOST ADD BUS (0:27)
PD IN (0:31)
TDM CLK
TDM FS
AUTO RESET (FROM U515-1 SHEET 1)
MANUAL RESET (TO U517-10 SHEET 1)
WF1 OUT (FROM U5-3 SHEET 2)
WF1 TX (TO U904-4 SHEET 6)
HOST 1PPS
HDLC (0:3) TO/FROM SHEET 2
DIGITIZED AUDIO (0:15) TO/FROM SHEET 5
WFT (FROM U401-53 SHEET 1)
16.8 MHZ REF (FROM U201-10 SHEET 5)
GPS 1PPS (FROM U7-10 SHEET 5)
2.1 MHZ REF OUT (TO Q202 SHEET 5)
SSI 1 (0:5) (TO SHEET 5)
FLEPS-48933-B
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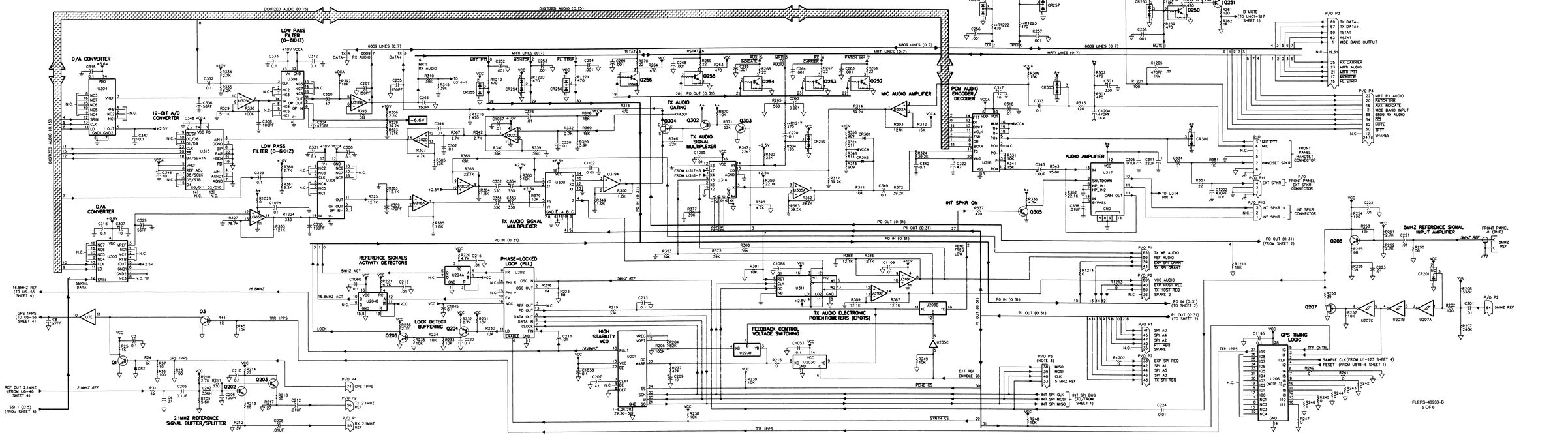
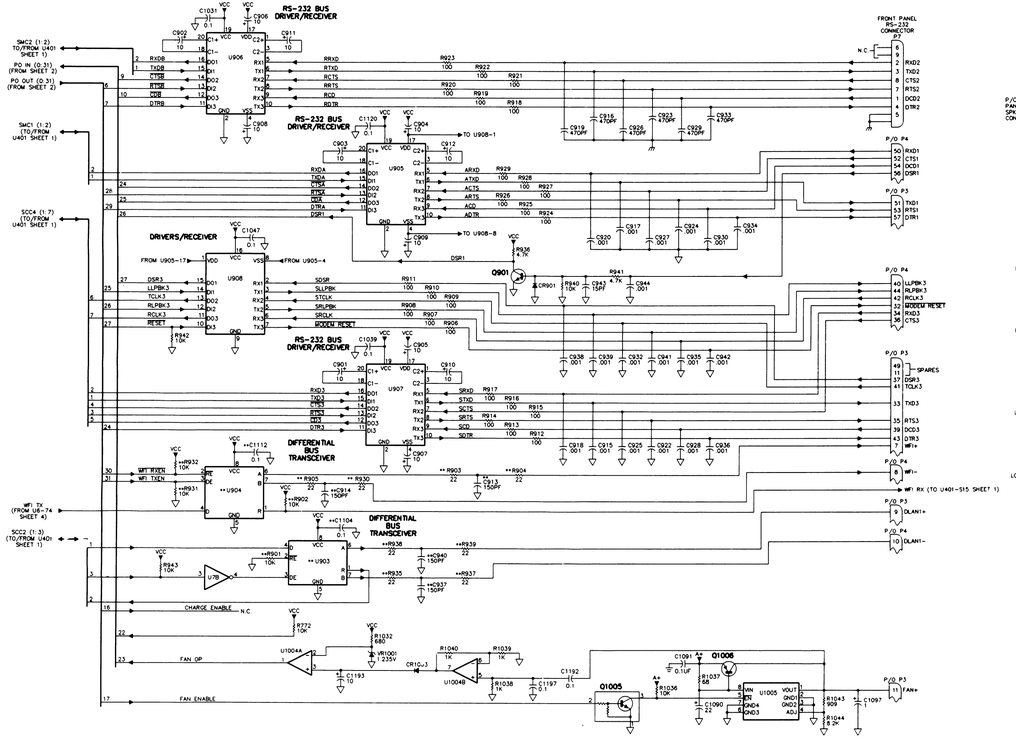
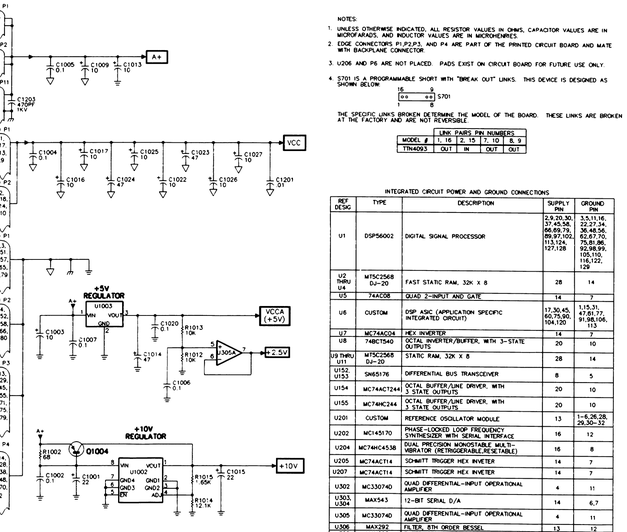
COMPARATOR CONTROL MODULE

MODELS TTN4093G / CLN7361B / CLN7728A



COMPARATOR CONTROL MODULE
MODELS TTN4093G / CLN7361B / CLN7728A





NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. EDGE CONNECTORS P1,P2,P3, AND P4 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. U206 AND P6 ARE NOT PLACED. PADS EXIST ON CIRCUIT BOARD FOR FUTURE USE ONLY.
4. S701 IS A PROGRAMMABLE SHORT WITH "BREAK OUT" LINKS. THIS DEVICE IS DESIGNED AS SHOWN BELOW.

THE SPECIFIC LINKS BROKEN DETERMINE THE MODEL OF THE BOARD. THESE LINKS ARE BROKEN AT THE FACTORY AND ARE NOT REVERSIBLE.

LINK PAIRS PIN NUMBERS				
MODEL #	1, 16	2, 15	7, 10	8, 9
TTN4093	OUT	IN	OUT	OUT

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	DSP56002	DIGITAL SIGNAL PROCESSOR	2,9,20,30, 37,45,58, 66,69,79, 89,97,102, 113,124, 127,128	3,5,11,16, 22,27,34, 36,48,56, 62,67,70, 75,81,86, 92,98,99, 105,110, 116,122, 129
U2 THRU U4	MT5C2568 DJ-20	FAST STATIC RAM, 32K X 8	28	14
U5	74AC08	QUAD 2-INPUT AND GATE	14	7
U6	CUSTOM	DSP ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	17,30,45, 60,75,90, 104,120	1,15,31, 47,61,77, 91,98,106, 113
U7	MC74AC04	HEX INVERTER	14	7
U8	74BCT540	OCTAL INVERTER/BUFFER, WITH 3-STATE OUTPUTS	20	10
U9 THRU U11	MT5C2568 DJ-20	STATIC RAM, 32K X 8	28	14
U152 U153	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U154	MC74AC12244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U155	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U201	CUSTOM	REFERENCE OSCILLATOR MODULE	13	1-6,26,28, 29,30-32
U202	MC145170	PHASE-LOCKED LOOP FREQUENCY SYNTHESIZER WITH SERIAL INTERFACE	16	12
U204	MC74HC4538	DUAL PRECISION MONOSTABLE MULTIVIBRATOR (RETRIGGERABLE,RESETABLE)	16	8
U205	MC74AC114	SCHMITT TRIGGER HEX INVERTER	14	7
U207	MC74AC114	SCHMITT TRIGGER HEX INVERTER	14	7
U302	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U303 U304	MAX543	12-BIT SERIAL D/A	14	6,7
U305	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U306	MAX292	FILTER, 8TH ORDER BESSEL	13	12
U308	MAX292	FILTER, 8TH ORDER BESSEL	13	12
U309	74HC4053	MULTIPLEXER/DEMULTIPLEXER, TRIPLE 2-CHANNEL ANALOG	16	7,8
U311	591287-10	ELECTRONIC POT DIGITAL CONVERTER	16	8
U314	74HC4051	MULTIPLEXER/DEMULTIPLEXER, 1-CHANNEL ANALOG	16	7,8
U315	MAX190	SINGLE SUPPLY 12-BIT A/D CONVERTER	24	2,7,12
U316	MC145480	+5V PCM CODEC/FILTER	6	10
U317	LM4880	1W AUDIO POWER AMPLIFIER	12	1,4,8,9,16
U318	MC330740	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U319	MC33074	QUAD DIFFERENTIAL — INPUT OPERATIONAL AMPLIFIER	4	11
U401	MC68EN360	32-BIT INTEGRATED MULTIPROTOCOL PROCESSOR	D5,D8,D9, D14,D13, E15,F14, G15,J15,K2, K14,K15,L1, L14,M15,P3, P10,Q7,Q8, Q11,Q12, W4,E5	B4,D6,D7, D10,D11, D12,E3, E13,E14, F3,F15,H4, J4-J14,J15, K3,L15,M4, N4,N5,N14, N15,P4,P8, P9,P13, Q4,Q5,Q6, Q9,Q10, Q13,Q14, Q15,E16, H15,K5,E6
U402	MC68EC040	32-BIT MICROPROCESSOR	R8,S8,C5, C8,C10, C12,C14, H3,H16,J3, J16,L16, M3,M16, N3,N6,R14, C2,C17,C2, Q17,M2, M17,R2, R17,S16	S9,R6,R10, C6,C7,C9, C11,C13, K3,K16,L3, M16,R4, R5,R7, R11,T4,T2, B4,B6,B8, B10,B13, B15,B17
U501 THRU U504	MC74AC7244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U505 THRU U508	MC74AC7245	OCTAL BUS TRANSCEIVER, WITH 3-STATE OUTPUTS	20	10
U509	MC74AC04	HEX INVERTER	14	7
U510	MC74AC732	QUAD 2-INPUT OR	14	7
U511	MC74ACT573	OCTAL 3-STATE LATCH	20	10
U512	MC74AC700	QUAD 2-INPUT NAND	14	7
U513	MC74ZT2524	CLOCK DRIVER	5	4,8
U515	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U516	MC74HC03	QUAD 2-INPUT NAND GATE	14	7
U517	MC74AC732	QUAD 2-INPUT OR GATE	14	7
U518	MC74AC708	QUAD 2-INPUT OR	14	7
U519	MC74HC4538	DUAL PRECISION MONOSTABLE MULTIVIBRATOR (RETRIGGERABLE, RESETABLE)	16	1
U520	MC74AC74	DUAL D-TYPE FLIP FLOP	14	7
U523	PAL22V10	PROGRAMMABLE ARRAY LOGIC (PAL)	28	14
U524	MC74HC04AD	HEX INVERTER	14	7
U601	MCM32230	SIMM (SINGLE IN-LINE MEMORY MODULE) DRAM 2M x 32	10,30,59	1,39,72

REF DESG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U602 THRU U605	MC74ACT1530	DUAL 4-INPUT MULTIPLEXER	16	8
U653 THRU U655	MC74ACT157	QUAD 2-INPUT MULTIPLEXER	16	8
U651 THRU U654	27C020	PROGRAMMED FLASH EEPROM, 256K X 8	32	16
U655	28C64	EEPROM, 8192 X 8	32	16
U656	MC74ACT244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	24	12
U701	MC74ACT32	QUAD 2-INPUT OR GATE	14	7
U702	MC74ACT244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U703	MC74AC74	DUAL D-TYPE FLIP-FLOP	14	7
U751 THRU U758	74AC652	OCTAL BUS TRANSCEIVER/REGISTER, WITH 3-STATE	20	10
U759 THRU U764	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	24	12
U765	MC74ACT14	SCHMITT TRIGGER HEX INVERTER	14	7
U766	74HC4078	8-INPUT NOR/OR GATE	14	7
U767	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U851	AM79928		21,23	8,9,18
U852	DP8392CV		5,6,7,8,9, 10,11,20, 21,22,23, 24,25	16,17
U853	2VP5U9	NEGATIVE 5V OUTPUT REGULATOR	1,24	12,13
U903 U904	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U905 THRU U907	MC145407	SINGLE SUPPLY DRIVER/RECEIVER	19	2
U908	MC145406DW	DRIVER/RECEIVER, 3-DRIVERS,3-RECEIVERS	16	9
U1002	LM2931CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U1003	MC7805	+5V VOLTAGE REGULATOR	1	2
U1004	MC330740	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U1005	LM2931CD	LOW DROPOUT,ADJUSTABLE,POSITIVE VOLTAGE REGULATOR	8	2,3,6,7

COMPARATOR CONTROL MODULE
MODELS TTN4093G / CLN7361B / CLN7728A

parts list

TTN4093G / CLN7361B / CLN7728A Comparator Control Board PL–13165–D

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%, 50 V
C5	2113740A39	27 pF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C151	2113741B69	0.1 uF, ±5%, 50 V
C153,154	2113740A39	27 pF, ±5%, 50 V
C157	2113740A39	27 pF, ±5%, 50 V
C160	2113740A39	27 pF, ±5%, 50 V
C166	2113740A31	12 pF, ±5%, 50 V
C201	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311049A23	47 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311049A45	10 uF, ±10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C221 thru 224	2113741A45	0.01 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C256	2113740A59	150 pF, ±5%, 50 V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50 V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2113741B69	0.1 uF, ±5%, 50 V
C301	2380909M27	330 uF, +20%, 16 V
C302	2113741A45	0.01 uF, ±5%, 50 V
C303	2113741B69	0.1 uF, ±5%, 50 V
C304	2113740A71	470 pF, ±5%, 50 V
C305,306	2113741B69	0.1 uF, ±5%, 50 V
C307	2109822S04	CAP CHIP CER 10UF 35V 2220
C309	2113740A71	470 pF, ±5%, 50 V
C311	2109822S07	CAP CHIP CER 22UF 16V
C312	2113741B69	0.1 uF, ±5%, 50 V
C313,316	2113741B69	0.1 uF, ±5%, 50 V
C317	2109822S04	CAP CHIP CER 10UF 35V 2220
C318	2113741A45	0.01 uF, ±5%, 50 V
C320	2113741A45	0.01 uF, ±5%, 50 V
C322	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C323	2113741B69	0.1 uF, ±5%, 50 V
C326	2113741A45	0.01 uF, ±5%, 50 V
C329	2113740A49	56 pF, ±5%, 50V
C331 thru 333	2113741B69	0.1 uF, ±5%, 50 V
C334	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C336	2113740A49	56 pF, ±5%, 50V
C338	2113741A45	0.01 uF, ±5%, 50 V
C342	2113741B69	0.1 uF, ±5%, 50 V
C343	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C344	2113741A45	0.01 uF, ±5%, 50 V
C346	2109822S04	CAP CHIP CER 10UF 35V 2220
C347 thru 349	2113741B69	0.1 uF, ±5%, 50 V
C350	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C351 thru 354	2380909M27	330 uF, +20% 16 V
C502	2113741B69	0.1 uF, ±5%, 50 V
C503	2109822S04	CAP CHIP CER 10UF 35V 2220
C505	2113740A31	12 pF, ±5%, 50 V
C506	2113740A71	470 pF, ±5%, 50 V
C507,508	2113740A39	27 pF, ±5%, 50 V
C509	2113740A55	100 pF, ±5%, 50 V
C510	2113741B69	0.1 uF, ±5%, 50 V
C513,514	2113740A36	20 pF, ±5%, 50V
C515	2113741B69	0.1 uF, ±5%, 50 V
C653,654	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C705	2113740A31	12 pF, ±5%, 50 V
C751 thru 756	2113740A55	100 pF, ±5%, 50 V
C777	2113740A79	1000 pF, ±5%, 50 V
C851	2113741B69	0.1 uF, ±5%, 50 V
C852	2113741F45	0.01 uF, ±5%, 50V
C853,854	2113740F35	22 pF, ±5%, 50V
C859	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C860	2109822S07	CAP CHIP CER 22UF 16V
C861	2113918A05	470 pF, +20%, 1000 V
C862	2113741B69	0.1 uF, ±5%, 50 V
C863	2109822S07	CAP CHIP CER 22UF 16V
C864,865	2113741F17	470 pF, ±5%, 50V
C866	2113741B69	0.1 uF, ±5%, 50 V
C867	2113741F17	470 pF, ±5%, 50V
C868	2113741F49	0.01 uF, ±5%, 50V
C869	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C870	2113741F25	1000 pF, ±5%, 50V
C871,872	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C873	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C880,881	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C882,883	2113741B69	0.1 uF, ±5% 50 V
C901 thru 912	2109822S09	CAP CHIP CER 100UF 35V 2220
C913,914	2113740A59	150 pF, ±5% 50V
C915	2113740A79	1000 pF, ±5% 50 V
C916	2113741B69	0.1 uF, ±5% 50 V
C917,918	2113740A79	1000 pF, ±5% 50 V
C919	2113918A05	470 pF, +20% 1000 V
C920	2113740A79	1000 pF, ±5% 50 V
C922	2113740A79	1000 pF, ±5% 50 V
C923	2113918A05	470 pF, +20% 1000 V
C924,925	2113740A79	1000 pF, ±5% 50 V
C926	2113918A05	470 pF, +20% 1000 V
C927,928	2113740A79	1000 pF, ±5% 50 V
C929	2113918A05	470 pF, +20% 1000 V
C930	2113740A79	1000 pF, ±5% 50 V
C932	2113740A79	1000 pF, ±5% 50 V
C933	2113918A05	470 pF, +20% 1000 V
C934 thru 936	2113740A79	1000 pF, ±5% 50 V
C937	2113740A59	150 pF, ±5% 50V
C938,939	2113740A79	1000 pF, ±5% 50 V
C940	2113740A59	150 pF, ±5% 50V
C941,942	2113741B69	0.1 uF, ±5% 50 V
C943	2113740A33	15 pF, ±5% 50 V
C944	2113740A79	1000 pF, ±5% 50 V
C1001	2109822S04	CAP CHIP CER 10UF 35V 2220
C1002	2113741B69	0.1 uF, ±5% 50 V
C1003	2109822S04	CAP CHIP CER 10UF 35V 2220
C1004 thru 1007	2113741B69	0.1 uF, ±5% 50 V
C1008,1009	2109822S04	CAP CHIP CER 10UF 35V 2220
C1010 thru 1012	2113741B69	0.1 uF, ±5% 50 V
C1013	2109822S04	CAP CHIP CER 10UF 35V 2220
C1014	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1015	2311049A21	22 uF, ±10%, 20 V
C1016,1017	2109822S04	CAP CHIP CER 10UF 35V 2220
C1020	2113741B69	0.1 uF, ±5% 50 V
C1022	2109822S04	CAP CHIP CER 10UF 35V 2220
C1023,1024	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1025 thru 1027	2109822S04	CAP CHIP CER 10UF 35V 2220
C1031 thru 1048	2113741B69	0.1 uF, ±5% 50 V
C1050 thru 1055	2113741B69	0.1 uF, ±5% 50 V
C1057 thru 1061	2113741B69	0.1 uF, ±5% 50 V
C1064 thru 1066	2113741B69	0.1 uF, ±5% 50 V
C1067	2113741A45	0.01 uF, ±5% 50 V
C1068 thru 1075	2113741B69	0.1 uF, ±5% 50 V
C1077	2113741B69	0.1 uF, ±5% 50 V
C1079 thru 1082	2113741B69	0.1 uF, ±5% 50 V
C1085,1086	2113741B69	0.1 uF, ±5% 50 V
C1088	2113741A45	0.01 uF, ±5% 50 V
C1089	2113741B69	0.1 uF, ±5% 50 V
C1090	2109822S04	CAP CHIP CER 10UF 35V 2220
C1091,1092	2113741B69	0.1 uF, ±5% 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1093	2109822S04	CAP CHIP CER 10UF 35V 2220
C1094	2113741B69	0.1 uF, ±5% 50 V
C1095	2113741A45	0.01 uF, ±5% 50 V
C1096	2113741B69	0.1 uF, ±5% 50 V
C1097	2311049A08	1 uF, ±10% 35 V
C1099	2113741B69	0.1 uF, ±5% 50 V
C1102	2113741A45	0.01 uF, ±5% 50 V
C1103 thru 1106	2113741B69	0.1 uF, ±5% 50 V
C1109	2113741A45	0.01 uF, ±5% 50 V
C1110	2113741B69	0.1 uF, ±5% 50 V
C1112 thru 1114	2113741B69	0.1 uF, ±5% 50 V
C1116 thru 1122	2113741B69	0.1 uF, ±5% 50 V
C1125 thru 1127	2113741B69	0.1 uF, ±5% 50 V
C1129	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1130,1131	2113741B69	0.1 uF, ±5% 50 V
C1132	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1133 thru 1153	2113741B69	0.1 uF, ±5% 50 V
C1154	2113741A33	3300 pF, ±5% 50 V
C1155 thru 1160	2113741B69	0.1 uF, ±5% 50 V
C1161	2113740A69	390 pF, ±5% 50V
C1162 thru 1166	2113741B69	0.1 uF, ±5% 50 V
C1167	2113741A45	0.01 uF, ±5% 50 V
C1168 thru 1187	2113741B69	0.1 uF, ±5% 50 V
C1190	2113741B69	0.1 uF, ±5% 50 V
C1192	2113741B69	0.1 uF, ±5% 50 V
C1193	2109822S04	CAP CHIP CER 10UF 35V 2220
C1194 thru 1197	2113741B69	0.1 uF, ±5% 50 V
C1199	2113741A45	0.01 uF, ±5% 50 V
C1201	2113741A45	0.01 uF, ±5% 50 V
C1202	2113918A05	470 pF, +20% 1000 V
C1203	2113740A71	470 pF, ±5% 50 V
C1204 thru 1206	2113918A05	470 pF, +20% 1000 V
C1207,1208	2113741B69	0.1 uF, ±5% 50 V
C1209 thru 1211	2113740A55	100 pF, ±5% 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		diode (see note):
CR2	4813833B01	Schottky type
CR201	4882900T02	DIODE SI HOT CARRIER*HSMS2802*
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813825A05	Hot Carrier
CR305,306	4813833C05	dual 70 V
CR851	4813833B01	5.4A, 70 V
CR852	4813833B01	Schottky type
CR901	4813833B01	Schottky type
CR1003	4813833B01	Schottky type
		light emitting diode (see note):
DS1	4882198T09	SUB MINEATURE LED GRN SM
DS2	4882198T08	SUB MINEATURE LED RED SM
DS3	4882198T10	SUB MINEATURE LED YEL SM
DS4 thru 6	4882198T09	SUB MINEATURE LED GRN SM
DS7	4882198T08	SUB MINEATURE LED RED SM
DS8	4882198T09	SUB MINEATURE LED GRN SM
		connector:
J1	0984963T02	BNC jack
P7	0984524T07	9–pin, right angle
P10	0985233T02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
P651	(NOTE 1)	
		inductor:
L202	2411087A44	33 uH
L851	2484657R01	ferrite bead
L852	2411087A29	1.8 UH
		translator (see note):
Q1	4813824A10	NPN
Q2	4884953T01	NPN
Q3	4813824A10	NPN
Q150 thru 153	4813824A10	NPN
Q202,203	4813824A10	NPN

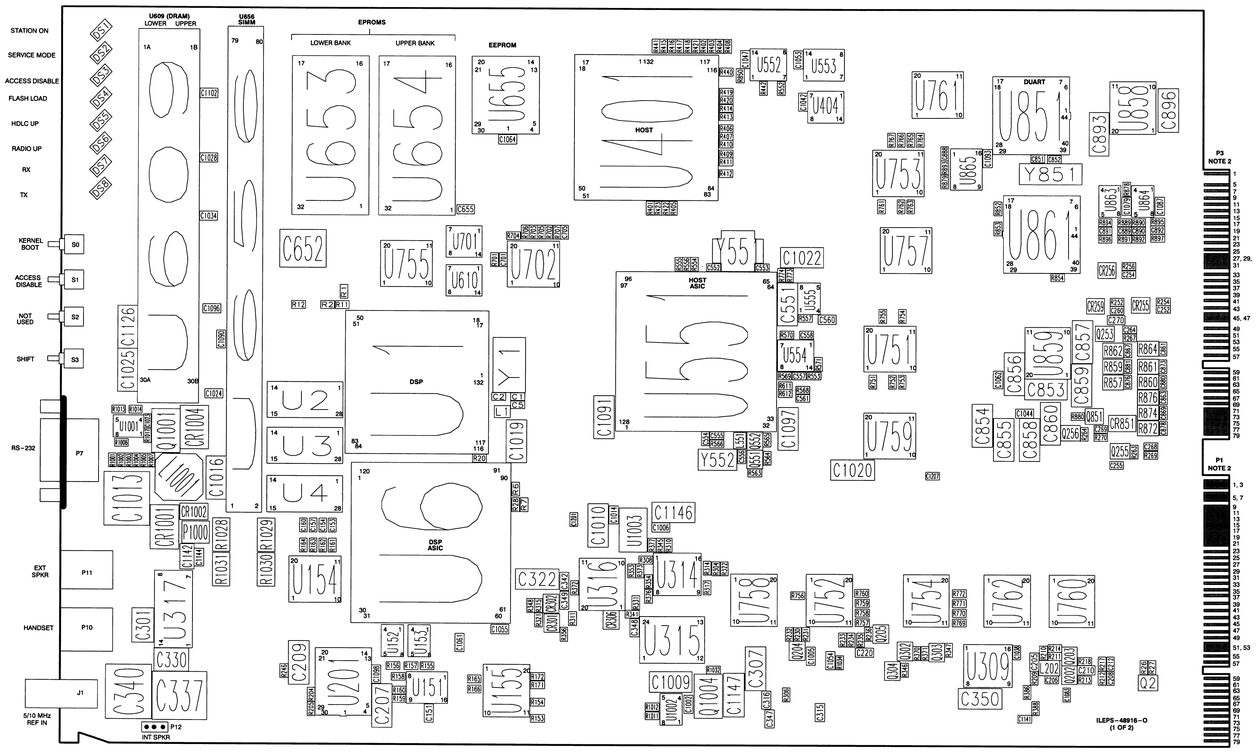
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q207	2N7002LT1	FET
Q250	4884953T01	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A06	P–CH FET type
Q305	4813824A10	NPN
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q851	4813824A10	NPN
Q1004	4813822A09	PNP
Q1005	4884955T01	NPN
Q1006	4813823A16	TSTR PNP 100V 4A MJD253T4
		resistor, fixed:
R1 thru 3	0611079A98	10K, ±5%, 1/10 W
R5 thru 9	0611079A34	O ohms, ±5%, 1/10 W
R10	0611079A34	22 ohms, ±5%, 1/10 W
R11,12	0611079A98	10K, ±5%, 1/10 W
R13	0611079A74	1K, ±5%, 1/10 W
R15 thru 19	0611079A98	10K, ±5%, 1/10 W
R20	0611079A52	120 ohms, ±5%, 1/10 W
R21,22	0611079A98	10K, ±5%, 1/10 W
R23	0611072A25	100 ohms, ±5%, 1/4 W
R24,25	0611079A74	1K, ±5%, 1/10 W
R26	0611079A66	470 ohms, ±5%, 1/10 W
R27	0611079A34	22 ohms, ±5%, 1/10 W
R28	0611079A01	O ohms, ±5%, 1/10 W
R31	0611079A40	39 ohms, ±5%, 1/10 W
R32 thru 35	0611079A74	1K, ±5%, 1/10 W
R36	0611072A58	180 ohms, ±5%, 1/4 W
R37	0611079A26	10 ohms, ±5%, 1/10 W
R38	0611079A59	240 ohms, ±5%, 1/8 W
R39,40	0611079B15	47K, ±5%, 1/10 W
R43	0611079A98	10K, ±5%, 1/10 W
R44	0611079A74	1K, ±5%, 1/10 W
R45 thru 48	0611079A98	10K, ±5%, 1/10 W
R49	0611079A34	22 ohms, ±5%, 1/10 W
R50	0611079G58	Resistor chip 121.0K 1/10 W 1%
R53,154	0611079A98	10K, ±5%, 1/10 W
R155 thru 158	0611079A52	120 ohms, ±5%, 1/10 W
R159	0611079A82	2200 ohms, ±5%, 1/10 W
R160	0611079A84	2700 ohms, ±5%, 1/10 W
R161 thru 164	0611079A34	22 ohms, ±5%, 1/10 W
R170	0611079A70	680 ohms, ±5%, 1/10 W
R173	0611079A40	39 ohms, ±5%, 1/10 W
R175	0611079A90	4700 ohms, ±5%, 1/10 W
R202	0611079A52	120 ohms, ±5%, 1/10 W
R204	0611079B21	15K, ±1%, 1/10 W
R205	0611079E01	100K, 1/10 W, ±1%
R206	0611079B35	330K ±5% 1/10 W
R207	0611079B13	RES FIXED CHIP 340K X 1/10 A/P
R209	0611079A92	5600 ohms, ±5%, 1/10 W
R210	0611079A84	2700 ohms, ±5%, 1/10 W
R211	0611079G18	12.1K, 1/10 W, ±1%
R212	0611079A40	39 ohms, ±5%, 1/10 W
R213	0611079A46	68 ohms, ±5%, 1/10 W
R214	0611079A36	27 ohms, ±5%, 1/10 W
R215	0611079A01	O ohms, ±5%, 1/10 W
R216	0611079E97	RES CHIP 1.0M 1/10W 1%
R217	0611079A36	27 ohms, ±5%, 1/10 W
R218	0611079A46	68 ohms, ±5%, 1/10 W
R219	0611079B11	33K, ±5%, 1/10 W
R220,221	0611079A90	4700 ohms, ±5%, 1/10 W
R223	0611079E97	RES CHIP 1.0M 1/10W 1%
R230,231	0611079A98	10K, ±5%, 1/10 W
R232	0611079A84	2700 ohms, ±5%, 1/10 W
R233 thru 235	0611079A98	10K, ±5%, 1/10 W
R236	0611079A84	2700 ohms, ±5%, 1/10 W
R237	0611079B15	47K, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R238,239	0611079A98	10K, ±5%, 1/10 W
R240 thru 247	0611079A01	O ohms, ±5%, 1/10 W
R248,249	0611079A98	10K, ±5%, 1/10 W
R250	0611079A44	56 ohms, ±5%, 1/10 W
R251,252	0611079A84	2700 ohms, ±5%, 1/10 W
R253	0611079A98	10K, ±5%, 1/10 W
R254	0611079A52	120 ohms, ±5%, 1/10 W
R255	0611079A46	68 ohms, ±5%, 1/10 W
R256	0611079A40	39 ohms, ±5%, 1/10 W
R257	0611079A98	10K, ±5%, 1/10 W
R258	0611079A40	39 ohms, ±5%, 1/10 W
R259	0611079A66	470 ohms, ±5%, 1/10 W
R260	0611079A98	10K, ±5%, 1/10 W
R261	0611079A52	120 ohms, ±5%, 1/10 W
R262	0611079A74	1K, ±5%, 1/10 W
R263,264	0611079A66	470 ohms, ±5%, 1/10 W
R265	0611079E68	560 5 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%, 1/10 W
R301,302	0611079A66	470 ohms, ±5%, 1/10 W
R303	0611079E09	Resistor chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%, 1/10 W
R305	0611079B11	33K, ±5%, 1/10 W
R306	0611079A82	2200 ohms, ±5%, 1/10 W
R307	0611079A90	4700 ohms, ±5%, 1/10 W
R308	0611079B13	39K, ±5%, 1/10 W
R309	0611079B03	15K, ±5%, 1/10 W
R310	0611079B13	39K, ±5%, 1/10 W
R311	0611079A01	O ohms, ±5%, 1/10 W
R312	0611079G18	15K, ±1%, 1/10 W
R313	0611079A98	10K, ±5%, 1/10 W
R314	0611079G58	Resistor chip 39.2K 1/10 W 1%
R315	0611079D93	909 ohms, 1/10 W, ±1%
R316	0611079A66	470 ohms, ±5%, 1/10 W
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079B03	15K, ±5%, 1/10 W
R320	0611079B15	47K, ±5%, 1/10 W
R321	0611079D69	511 ohms, 1/10 W, ±1%
R322	0611079A74	1K, ±5%, 1/10 W
R323	0611079E09	Resistor chip 121.0K 1/10 W 1%
R324	0611079G58	Resistor chip 39.2K 1/10 W 1%
R325	0611079G09	12.1K, 1/10 W, ±1%
R327	0611079A92	5600 ohms, ±5%, 1/10 W
R328	0611079G58	Resistor chip 39.2K 1/10 W 1%
R329	0611079G69	51.1K, ±1%, 1/10 W
R330	0611079E01	100K, 1/10 W, ±1%
R331	0611079A98	10K, ±5%, 1/10 W
R332	0611079A40	39 ohms, ±5%, 1/10 W
R333	0611079E09	Resistor chip 121.0K 1/10 W 1%
R334	0611079A84	2700 ohms, ±5%, 1/10 W
R335	0611079A84	2700 ohms, ±5%, 1/10 W
R336	0611079A90	4700 ohms, ±5%, 1/10 W
R337	0611079A66	470 ohms, ±5%, 1/10 W
R339,340	0611079B13	39K, ±5%, 1/10 W
R341	0611079B03	15K, ±5%, 1/10 W
R342	0611079A84	2700 ohms, ±5%, 1/10 W
R343	0611079G18	12.1K, 1/10 W, ±1%
R345	0611079B13	39K, ±5%, 1/10 W
R346,347	0611079B07	22K, ±5%, 1/10 W
R348	0611079A36	27 ohms, ±5%, 1/10 W
R349,350	0611079F01	1.00K, 1/10 W
R351	0611079A74	1K, ±5%, 1/10 W
R352	0611079A84	2700 ohms, ±5%, 1/10 W
R353	0611079B13	39K, ±5%, 1/10 W
R354	0611079B19	68K, ±5%, 1/10 W
R356	0611079A90	4700 ohms, ±5%, 1/10 W
R357	0611079A34	22 ohms, ±5%, 1/10 W
R360	0611079A84	2700 ohms, ±5%, 1/10 W
R361	0611079A98	10K, ±5%, 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079G01	10K, ±1%, 1/10 W
R366	0611079A94	RES CHIP 22.1K 1/10W 1% 0805

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R367	0611079A84	2700 ohms, ±5%, 1/10 W
R369	0611079B05	18K, ±5%, 1/10 W
R370	0611079A98	10K, ±5%, 1/10 W
R371	0611079B07	22K, ±5%, 1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%, 1/10 W
R377	0611079B13	39K, ±5%, 1/10 W
R379,380	0611079A98	10K, ±5%, 1/10 W
R383	0611079G09	12.1K, 1/10 W, ±1%
R384,385	0611079A90	1800 ohms, ±5%, 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W, ±1%
R391,392	0611079A98	10K, ±5%, 1/10 W
R393	0611079A90	4700 ohms, ±5%, 1/10 W
R395	0611079A01	O ohms, ±5%, 1/10 W
R401 thru 406	0611079A98	10K, ±5%, 1/10 W
R408,409	0611079A98	10K, ±5%, 1/10 W
R410	0611079A74	1K, ±5%, 1/10 W
R412	0611079A74	1K, ±5%, 1/10 W
R413,414	0611079A90	4700 ohms, ±5%, 1/10 W
R415	0611079A90	4700 ohms, ±5%, 1/10 W
R416	0611079A98	10K, ±5%, 1/10 W
R417	0611079A98	10K, ±5%, 1/10 W
R418 thru 444	0611079A90	4700 ohms, ±5%, 1/10 W
R445 thru 451	0611079A98	10K, ±5%, 1/10 W
R453 thru 460	0611079B13	39K, ±5%, 1/10 W
R461,462	0611079A90	4700 ohms, ±5%, 1/10 W
R463 thru 468	0611079A98	10K, ±5%, 1/10 W
R501	0611079E01	100K, 1/10 W, ±1%
R503	0611079G09	12.1K, 1/10 W, ±1%
R504	0611079F22	Resistor chip 1.65K 1/10 W
R506	0611079A70	680 ohms, ±5%, 1/10 W
R508 thru 513	0611079A98	10K, ±5%, 1/10 W
R514	0611079A66	470 ohms, ±5%, 1/10 W
R517,518	0611079A34	22 ohms, ±5%, 1/10 W
R519	0611079A98	10K, ±5%, 1/10 W
R520	0611079B03	15K, ±5%, 1/10 W
R521	0611079A98	10K, ±5%, 1/10 W
R527,528	0611079A01	O ohms, ±5%, 1/10 W
R529	0611079E09	Resistor chip 121.0K 1/10 W 1%
R601 thru 605	0611079A34	22 ohms, ±5%, 1/10 W
R651 thru 654	0611079A36	27 ohms, ±5%, 1/10 W
R655 thru 658	0611079A36	27 ohms, ±5%, 1/10 W
R659	0611079A36	27 ohms, ±5%, 1/10 W
R660	0611079A40	39 ohms, ±5%, 1/10 W
R701	0611079E01	100K, 1/10 W, ±1%
R702	0611079A74	1K, ±5%, 1/10 W
R703	0611079A01	O ohms, ±5%, 1/10 W
R704	0611079A74	1K, ±5%, 1/10 W
R705,706	0611079A40	39 ohms, ±5%, 1/10 W
R707	0611079A98	10K, ±5%, 1/10 W
R751 thru 753	0611079A98	10K, ±5%, 1/10 W
R754	0611079A74	1K, ±5%, 1/10 W
R755	0611079E01	100K, 1/10 W, ±1%
R756,757	0611079A98	10K, ±5%, 1/10 W
R758 thru 760	0611079A74	1K, ±5%, 1/10 W
R761 thru 768	0611079A98	10K, ±5%, 1/10 W
R770 thru 772	0611079A98	10K, ±5%, 1/10 W
R774,775	0611079A98	10K, ±5%, 1/10 W
R776	0611079B13	511 ohms, 1/10 W, ±1%
R777 thru 781	0611079A98	10K, ±5%, 1/10 W
R782	0611079E01	100K, 1/10 W, ±1%
R784 thru 791	0611079A98	10K, ±5%, 1/10 W
R794	0611079A90	4700 ohms, ±5%, 1/10 W
R796	0611079A74	1K, ±5%, 1/10 W
R797 thru 802	0611079A98	10K, ±5%, 1/10 W
R823	0611079A66	470 ohms, ±5%, 1/10 W
R824	0611079A34	22 ohms, ±5%, 1/10 W
R828	0611079A98	10K, ±5%, 1/10 W
R835	0611079A01	O ohms, ±5%, 1/10 W
R837 thru 842	0611079A01	O ohms, ±5%, 1/10 W
R852	0662057B47	CHIP RES 0 OHMS + –.050 OHMS

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R853,854	0662057Y03	RES CHIP 78.7 1% 0603
R856	0662057Y03	RES CHIP 78.7 1% 0603
R857 thru 860	0611077F12	1.5K, ±1%, 1/8 W
R865	0611072B22	RES CHIP 1 MEG 5 1/4
R866	0611079F01	1.00K, 1/10 W
R868	0662057P10	RES CHIP 10.0K 1% 30X60
R869	0662057T73	RES CHIP 33.2K 1% 30*60
R870	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R871	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R874,875	0611079A42	47 ohms, ±5% 1/10 W
R874 thru 876	0662057P83	RES CHIP 10.1K 1% 30X60
R877	0662057P69	RES CHIP 12.4K
R881	0662057P10	RES CHIP 10.0K 1% 30X60
R882,883	0662057B47	CHIP RES 0 OHMS + –.050 OHMS
R885,886	0662057P10	RES CHIP 10.0K 1% 30X60
R901,902	0611079A98	10K, ±5%, 1/10 W
R903 thru 905	0611079A34	22 ohms, ±5%, 1/10 W
R906 thru 929	0611072A25	100 ohms, ±5%, 1/4 W
R930	0611079A34	22 ohms, ±5%, 1/10 W
R931,932	0611079A98	10K, ±5%, 1/10 W
R935	0611079A34	22 ohms, ±5%, 1/10 W
R936	0611079A90	4700 ohms, ±5%, 1/10 W
R937 thru 939	0611079A34	22 ohms, ±5%, 1/10 W
R940	0611079A98	10K, ±5%, 1/10 W
R941	0611079A90	4700 ohms, ±5%, 1/10 W
R942,943	0611079A98	10K, ±5%, 1/10 W
R1002	0611079A46	68 ohms, ±5%, 1/10 W
R1012,1013	0611079G01	10K, ±1%, 1/10 W
R1014	0611079G09	12.1K, 1/10 W, ±1%
R1015	0611079F22	Resistor chip 1.65K 1/10 W
R1026	0611079A01	O ohms, ±5%, 1/10 W
R1032	0611079A70	680 ohms, ±5%, 1/10 W
R1036	0611079A98	10K, ±5%, 1/10 W
R1037	0611079A46	68 ohms, ±5%, 1/10 W
R1038 thru 1040	0611079A74	1K, ±5%, 1/10 W
R1043	0611079E01	100K, 1/10 W, ±1%
R1044	0611079A96	8200 ohms, ±5%, 1/10 W
R1201	0611072A25	100 ohms, ±5%, 1/4 W
R1202	0611079A01	O ohms, ±5%, 1/10 W
R1203	0611079A62	330 ohms, ±5%, 1/10 W
R1204	0611079A64	390 ohms, ±5%, 1/10 W
R1205 thru 1208	0611079A62	330 ohms, ±5%, 1/10 W
R1209	0611079A64	390 ohms, ±5%, 1/10 W
R1210	0611079A62	330 ohms, ±5%, 1/10 W
R1211,1212	0611079A98	10K, ±5%, 1/10 W
R1213,1214	0611079A01	O ohms, ±5%, 1/10 W
R1215	0611079A98	10K, ±5%, 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%, 1/10 W
R1224	0611079A62	330 ohms, ±5%, 1/10 W
		switch:
S0 thru 3	4083621T01	push–button, spst
S501	4083706T02	dip, spst
S701	4082269Y01	SW OT PROGRAMMABLE SHUNT
		transformer:
T851	2482074Y01	IND 470 uH 20% .98A DCR .13A AM
T852	2582066W04	XFMR PULSE 1:1 10 BASE SM
		integrated circuit (see note):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2 thru 4	5184531T09	IC SRAM 32KX8 12NS
U5	5113808A07	Quad 2–Input AND Gate
U6	5184537D34	IC ASIC DSP GLUE 2 120QFP
U7	5113808A05	Hex Inverter
U8	5185486U01	IC BFR OCT INV 3–ST 74__T540
U9 thru 11	5184531T09	IC SRAM 32KX8 12NS
U152,153	5184268T01	Differential Bus Transceiver
U154	5113808A39	IC LINE DRVR OCT NON INV
U155	5113803A04	Octal Buffer Line Driver/Receiver

DATA CONTROL MODULE
MODEL TTN5128C



NOTES:

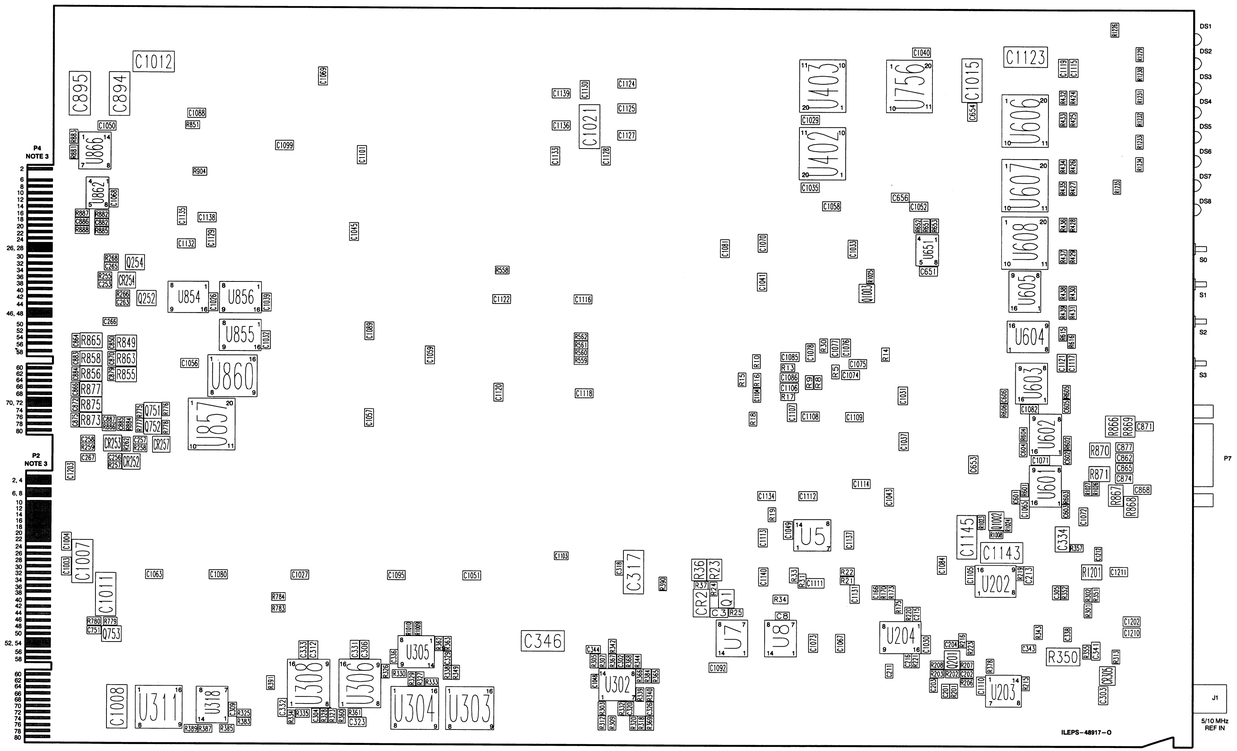
1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P3 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P2 AND P4 AND HAVE EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P1-1, 3	LOGIC GND	P2-2, 4	LOGIC GND	P3-1	MODEM+	P4-2	MODEM-
P1-5, 7	+14.2V	P2-6, 8	+14.2V	P3-5	LOGIC GND	P4-6	LOGIC GND
P1-9, 11, 13, 15, 17, 19, 21	+5V	P2-10, 12, 14, 16, 18, 20, 22	+5V	P3-7	WFI+	P4-8	WFI-
P1-23	LOGIC GND	P2-24	LOGIC GND	P3-9	DLAN1+	P4-10	DLAN1-
P1-25	SPI MISO	P2-26	SPI MOSI	P3-11	DLAN2+	P4-12	DLAN2-
P1-27	SPI CLK	P2-28	XLT RESET	P3-13	LOGIC GND	P4-14	LOGIC GND
P1-29	HDLC DATA	P2-30	HDLC BUSY	P3-15	PL STRIP	P4-16	AUX INDICATE
P1-31	HDLC CLK	P2-32	TDM FS	P3-17	MONITOR	P4-18	N.C.
P1-33	TDM DATA	P2-34	TDM CLK	P3-19	N.C.	P4-20	PATCH INH
P1-35	SPARE 1	P2-36	SPARE 2	P3-21	MRTI PTT	P4-22	MRTI RX AUDIO
P1-37	HOST TPPS	P2-38	SPARE 4	P3-23	MRTI TX AUDIO	P4-24	N.C.
P1-39	SPARE 5	P2-40	SPARE 6	P3-25	RX CARRIER	P4-26, 28	LOGIC GND
P1-41	SPI A0	P2-42	SPI A1	P3-27, 29, 31	LOGIC GND	P4-30	LOGIC GND
P1-43	SPI GRANT	P2-44	SPI A5	P3-33	TXD3	P4-32	MODEM RESET
P1-45	SPI A4	P2-46	SPI A3	P3-35	RTS3	P4-34	RXD3
P1-47	SPI A2	P2-48	TX SPI REQ	P3-37	DSR3	P4-36	CTS3
P1-49	PTT REQ	P2-50	HOST REQ	P3-39	DCD3	P4-38	LOGIC GND
P1-51, 53	LOGIC GND	P2-52, 54	LOGIC GND	P3-41	TCLK3	P4-40	LLPBK3
P1-55	RX 2.1 MHz REF	P2-56	TX 2.1 MHz REF	P3-43	DTR3	P4-42	RCLK3
P1-57	LOGIC GND	P2-58	LOGIC GND	P3-45, 47	LOGIC GND	P4-44	RLPBK3
P1-59	REF AUDIO	P2-60	VCO AUDIO	P3-49	NO CONNECTION	P4-46, 48	LOGIC GND
P1-61	LOGIC GND	P2-62	LOGIC GND	P3-51	TXD1	P4-50	RXD1
P1-63	TX WB AUDIO	P2-64	5 MHz REF	P3-53	RTS1	P4-52	CTS1
P1-65	LOGIC GND	P2-66	LOGIC GND	P3-55	LOGIC GND	P4-54	DCD1
P1-67	RX2 AGC	P2-68	RX2 ODC	P3-57	DTR1	P4-56	DSR1
P1-69	RX2 SBI	P2-70	RX2 DATA	P3-59	TSTAT	P4-58	SERIAL ID
P1-71	RX2 DATA	P2-72	LOGIC GND	P3-61	N.C.	P4-60	TPTT
P1-73	LOGIC GND	P2-74	RX1 AGC	P3-63	RSTAT	P4-62	MUTE
P1-75	RX1 ODC	P2-76	RX1 SBI	P3-65	LOGIC GND	P4-64	CCI
P1-77	RX1 DATA	P2-78	RX1 DATA	P3-67	TX DATA+	P4-66	LOGIC GND
P1-79	LOGIC GND	P2-80	LOGIC GND	P3-69	TX DATA-	P4-68	6809 RX AUDIO
				P3-71, 73, 75,77, 79	LOGIC GND	P4-70, 72	LOGIC GND
						P4-74	GPS 1PPS
						P4-76	ETHERNET GRD
						P4-78	ETHERNET SIGNAL
						P4-80	ETHERNET GRD

ILEPS-48916-O (2 OF 2)

DATA CONTROL MODULE
MODEL TTN5128C



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(Sheet 2 of 7)
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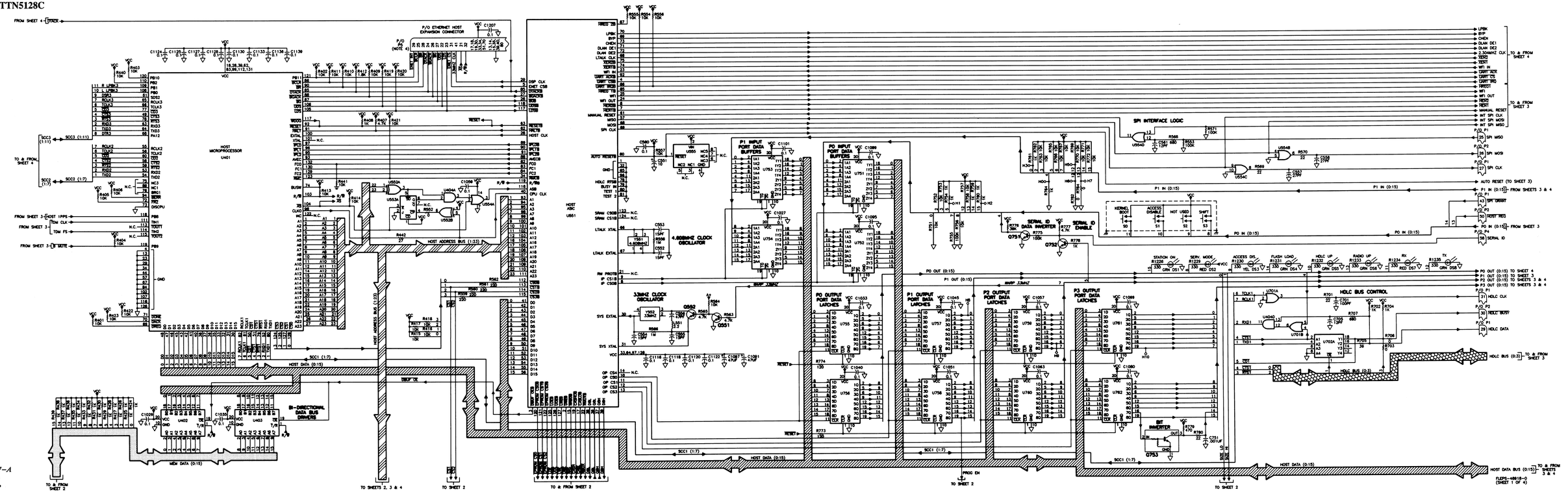
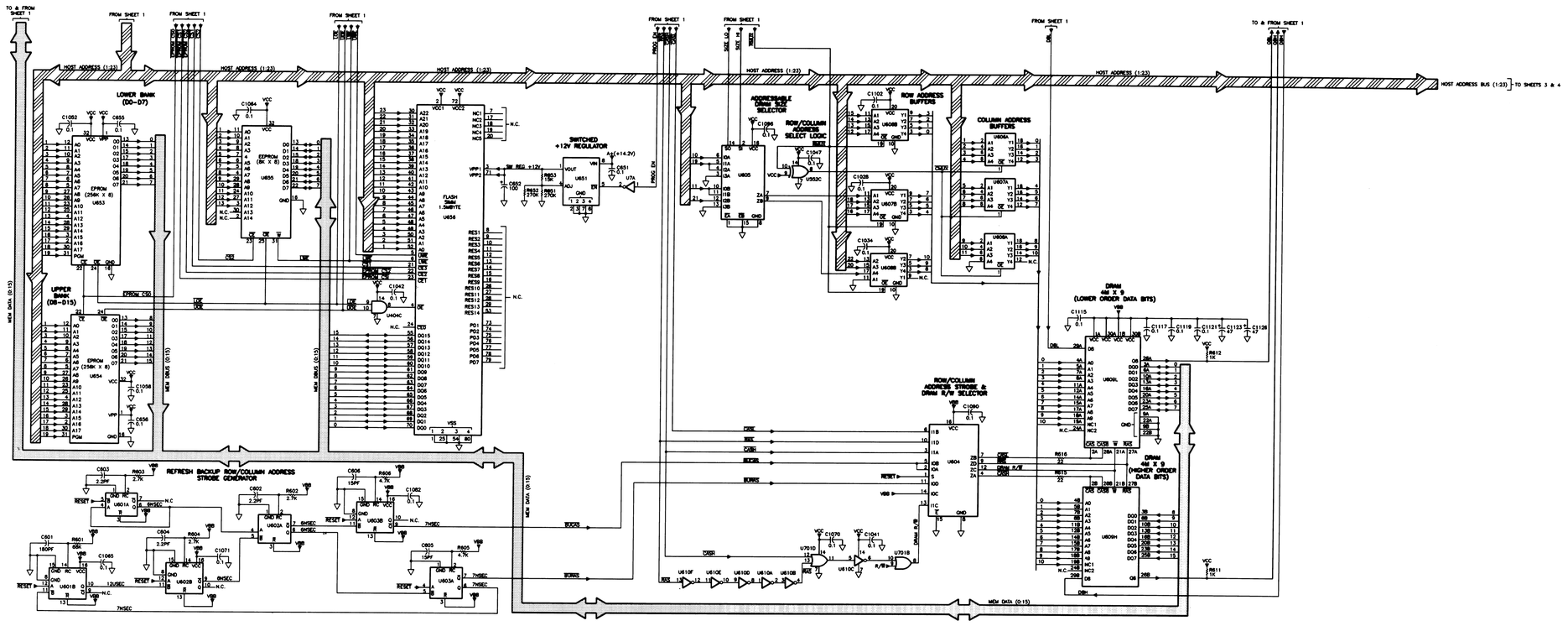
DATA CONTROL MODULE

MODEL TTN5128C





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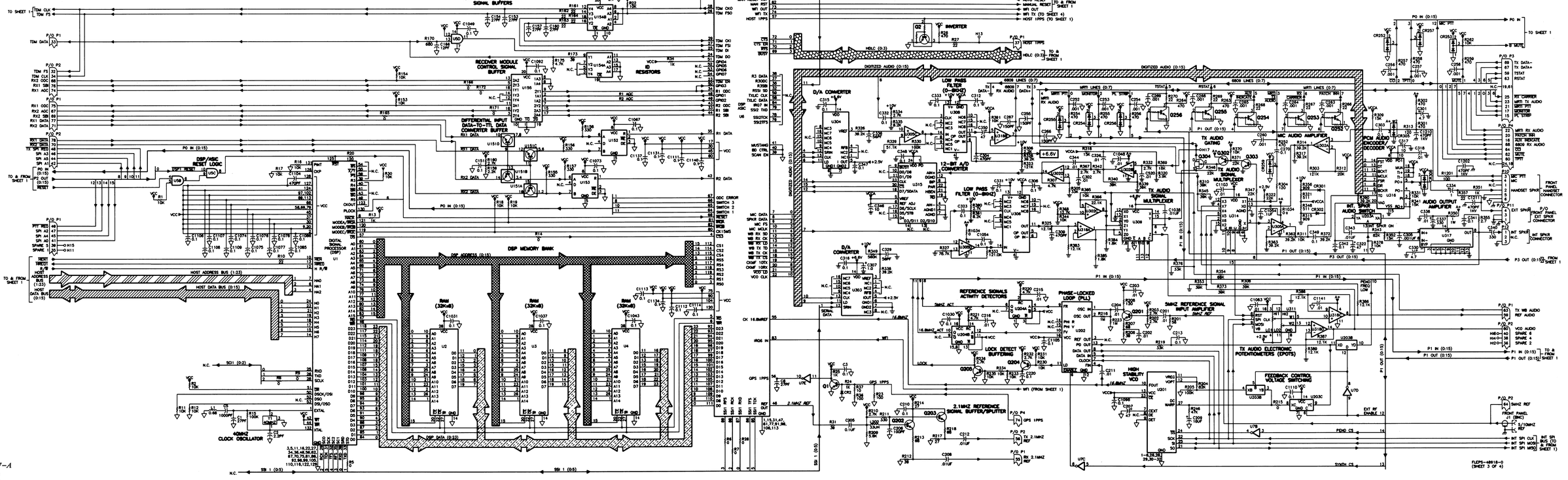
(SHEET 2 OF 4)

DATA CONTROL MODULE

MODEL TTN5128C



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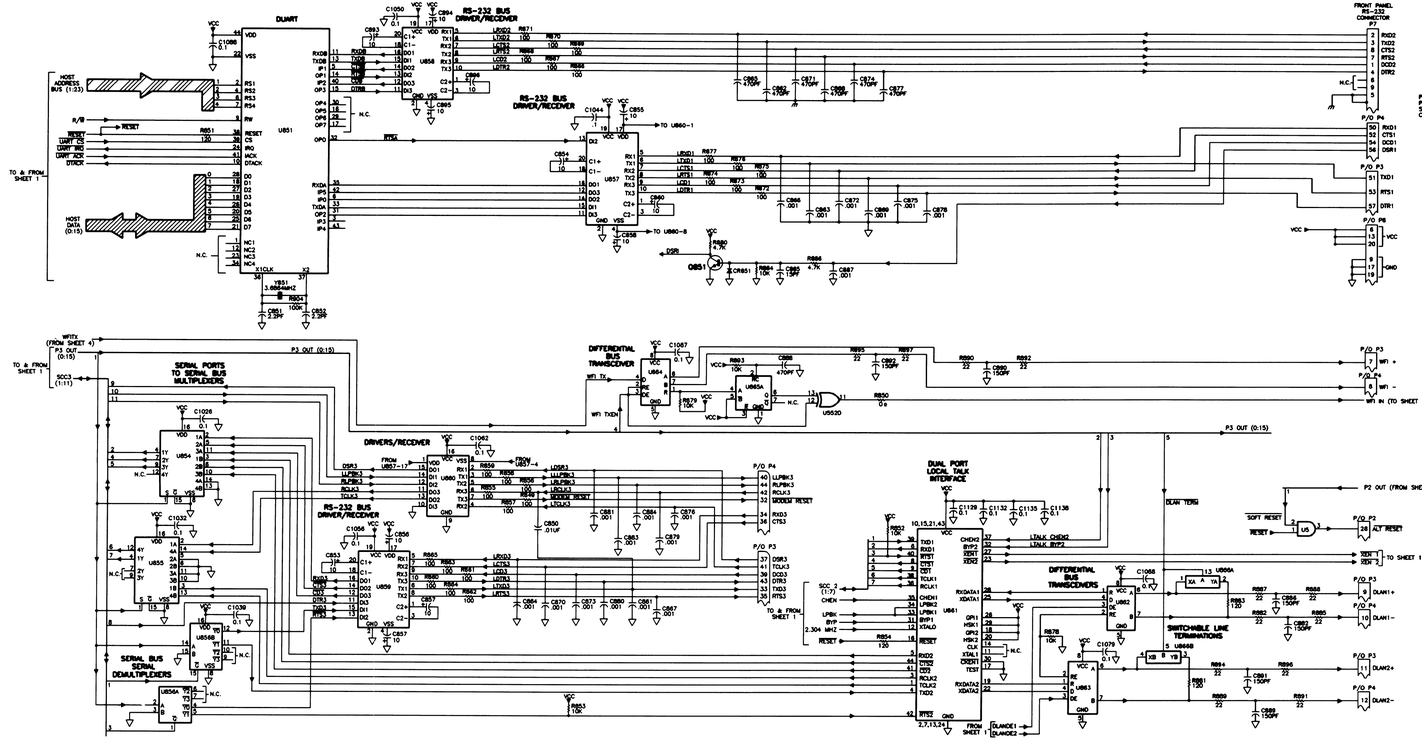
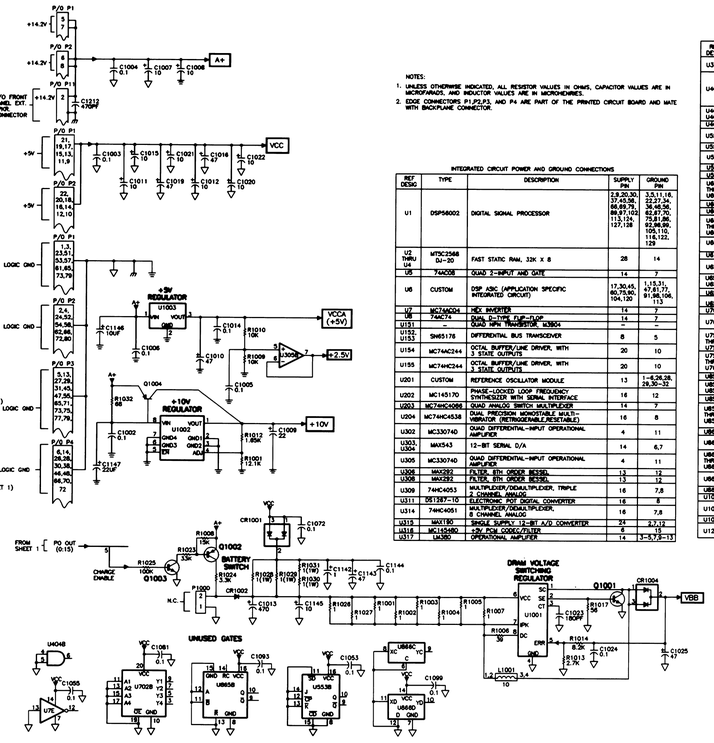




NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. EDGE CONNECTORS P1,P2,P3, AND P4 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	DSP56002	DIGITAL SIGNAL PROCESSOR	2,8,20,30, 37,45,56, 66,75,92, 99,97,103, 113,124, 127,128	3,9,16, 22,27,34, 36,46,56, 62,67,70, 77,81,86, 93,98,99, 105,110, 115,122, 129
U2 THRU U4	MT5C2568 DJ-20	FAST STATIC RAM, 32K X 8	28	14
U5	74AC08	QUAD 2-INPUT AND GATE	14	7
U6	CUSTOM	DSP ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	17,30,45, 60,75,90, 104,120	1,5,31, 47,61,77, 91,96,106, 113
U7	MC74AC04	HEX INVERTER	14	7
U8	74AC74	DUAL D-TYPE FLIP-FLOP	14	7
U151	–	QUAD NPN TRANSISTOR ARRAY	–	–
U152, U153	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U154	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U155	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U201	CUSTOM	REFERENCE OSCILLATOR MODULE	13	1,5,9,38, 29,30-32
U202	MC145170	PHASE-LOCKED LOOP FREQUENCY SYNTHESIZER WITH SERIAL INTERFACE	16	12
U203	MC74HC4066	QUAD ANALOG SWITCH MULTIPLEXER	14	7
U204	MC74HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U302	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U303, U304	MAX543	12-BIT SERIAL D/A	14	6,7
U305	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U306	MAX292	FILTER, 8TH ORDER BESSEL	13	12
U308	MAX292	FILTER, 8TH ORDER BESSEL	13	12
U309	74HC4053	MULTIPLEXER/DEMULTIPLEXER, TRIPLE 2-CHANNEL ANALOG	16	7,8
U311	DS1267-10	ELECTRONIC POT DIGITAL CONVERTER	16	8
U314	74HC4051	MULTIPLEXER/DEMULTIPLEXER, 8 CHANNEL ANALOG	16	7,8
U315	MAX180	SINGLE SUPPLY 12-BIT A/D CONVERTER	24	2,7,12
U316	MC145480	5V PCM CODEC/FILTER	6	3,4
U317	LM360	OPERATIONAL AMPLIFIER	14	3–5,7,8–13
U318	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U401	MC68302	INTEGRATED MULTIPROTOCOL PROCESSOR	18,38,39, 82,83,84, 112,131	4,13,33, 37,57,64, 69,87,97, 108,109, 116,126
U402, U403	MC74AC245	OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3 STATE INPUTS/OUTPUTS	20	10
U404	MC74AC08	QUAD 2-INPUT AND GATE	14	7
U551	CUSTOM	HOST ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	33,64,97, 128	1,32,65,96
U552	MC74AC86	QUAD 2-INPUT EX-OR GATE	14	7
U553	MC74AC11081	DUAL 4-INPUT POSITIVE-AND GATE	16	8
U554	MC74AC32	QUAD 2-INPUT OR GATE	14	7
U555	MC33064	UNDERVOLTAGE SENSING CIRCUIT	3	1
U601 THRU U603	MC74HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U604	MC74AC157	QUAD 2-INPUT MULTIPLEXER	16	8
U605	MC74AC153	DUAL 4-INPUT MULTIPLEXER	16	8
U606 THRU U608	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U609	MCM6206CSJ-20	SINGLE 8K×LINE MEMORY MODULE (SRAM), 64 X 8	1,30	9,22
U610	MC74AC04	HEX INVERTER	14	7
U651	LM2931CD	LOW DROPOUT ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U653, U654	27C040	PROGRAMMED EPROM, 512K X 8	32	16
U655	28C64	EEPROM, 8192 X 8	32	16
U656	28F020	FLASH SRAM 1 MeBYTE	2,72	1,35,54,80
U701	MC74AC32	QUAD 2-INPUT OR GATE	14	7
U702	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U703, U704	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U705 THRU U707	MC74HC273	OCTAL D-TYPE FLIP-FLOP	20	10
U851	SN68681	DUART	44	22
U852, U854	74HC157	QUAD 2-INPUT MULTIPLEXER	16	8
U856	74HC139	DUAL DECODER/DEMULTIPLEXER	16	8
U857 THRU U859	MC145407	SINGLE SUPPLY DRIVER/RECEIVER	19	2
U860	MC1454060W	DRIVER/RECEIVER, 3-DRIVERS, 3-RECEIVERS	16	8
U861	MC68195	DUAL PORT LOCAL TALK INTERFACE	18,30,26, 29	17,30
U862 THRU U864	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U865	MC44HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U866	MC74HC4066	QUAD ANALOG SWITCH MULTIPLEXER	14	7
U1001	MC33063	DC-TO-DC CONVERTER	6	4
U1002	LM2931CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U1003	MC7805	+5V VOLTAGE REGULATOR	1	2
U1201	8392	28-POSITION SOCKET FOR ETHERNET INTERFACE ADAPTER	5–11	16,17

FLEPS-46918-0
(SHEET 4 OF 4)

DATA CONTROL MODULE
MODEL TTN5128C

parts list

TTN5128C Data Control Board — PL–13159–O

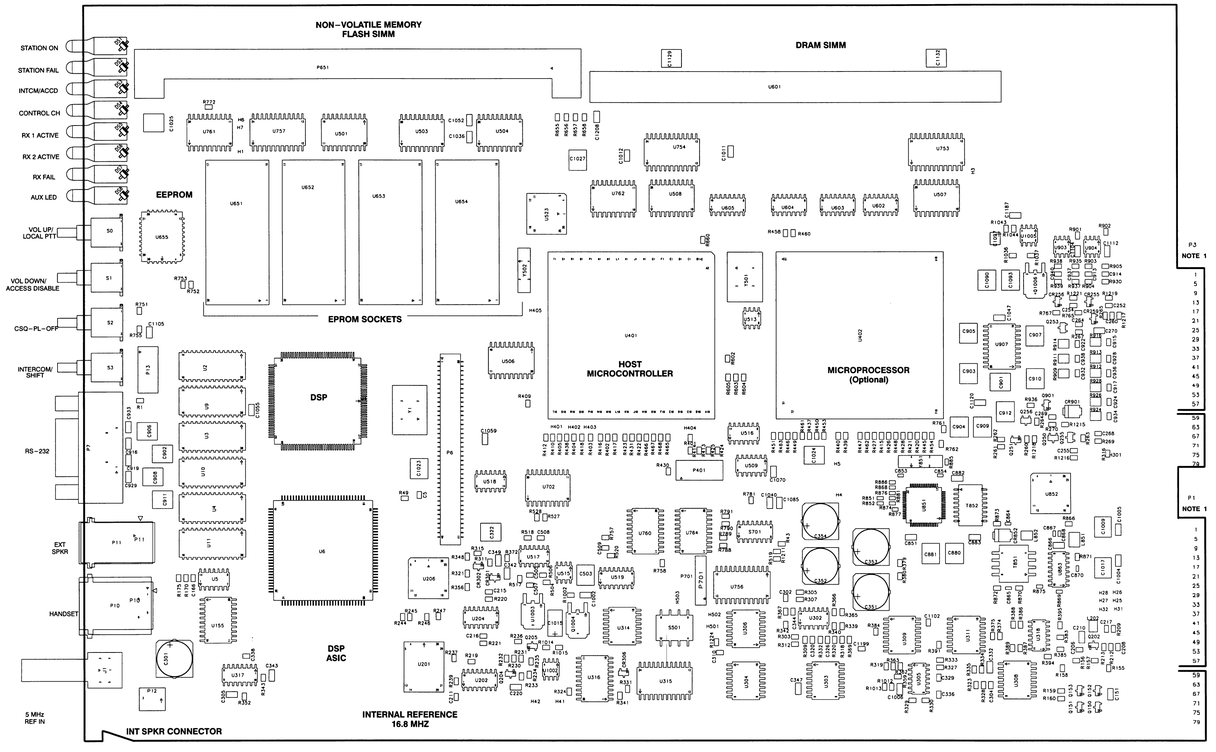
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1	2113740A39	27 pF, ±5%, 50 V
C2	2113740G11	2.2 pF, ±0.1 pF; 50 V
C3	2113740B09	3.0 uF, ±5%, 50 V
C5	2113740A79	1000 pF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C151	2113741B69	0.1 uF, ±5%, 30 V
C153,154	2113740A39	27 pF, ±5%, 50 V
C157	2113740A39	27 pF, ±5%, 50 V
C160	2113740A39	27 pF, ±5%, 50 V
C166	2113740A31	12 pF, ±5%, 50 V
C201 thru 204	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311049A23	47 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311049A45	10 uF, ±10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C255	2113740A59	150 pF, ±5%, 50V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2311049B69	0.1 uF, ±5%, 50 V
C301	2380909M22	4.007 uF, ±20%, 50V
C302	2113741A45	0.01 uF, ±5%, 50 V
C303	2113741B69	0.1 uF, ±5%, 50 V
C304	2113740A71	470 pF, ±5%, 50 V
C305	2113740A79	1000 pF, ±5%, 50 V
C306	2113741B69	0.1 uF, ±5%, 50 V
C307	2311049A45	10 uF, ±10%, 35 V
C309	2113740A71	470 pF, ±5%, 50 V
C312	2113741B69	0.1 uF, ±5%, 50 V
C315,316	2113741B69	0.1 uF, ±5%, 50 V
C317	2311049A45	10 uF, ±10%, 35 V
C318	2113741A45	0.01 uF, ±5%, 50 V
C320	2113741A45	0.01 uF, ±5%, 50 V
C322	2311049A23	47 uF, ±10%, 10 V
C323	2113741B69	0.1 uF, ±5%, 50 V
C326	2113741A45	0.01 uF, ±5%, 50 V
C329	2113740A49	56 pF, ±5%, 50V
C330	2380909M22	4.007 uF, ±20%, 50V
C331 thru 333	2113741B69	0.1 uF, ±5%, 50 V
C334	2311049A08	1 uF, ±10%, 35 V
C336	2113740A49	56 pF, ±5%, 50V
C337	2380909M27	330 uF, ±20%, 16 V
C338	2113741A45	0.01 uF, ±5%, 50 V
C340	2380909M27	330 uF, ±20%, 16 V
C341,342	2113741A45	0.01 uF, ±5%, 50 V
C343,344	2113741A45	0.01 uF, ±5%, 50 V
C346	2311049A45	10 uF, ±10%, 35 V
C347 thru 349	2113741B69	0.1 uF, ±5%, 50 V
C350	2311049A23	47 uF, ±10%, 10 V
C551	2311049A45	10 uF, ±10%, 35 V
C552 thru 555	2113740A33	15 pF, ±5%, 50 V
C556	2113740A46	47 pF, ±5%, 50V
C557,558	2113740A39	27 pF, ±5%, 50 V
C560	2113741B69	0.1 uF, ±5%, 50 V
C561	2113740A31	12 pF, ±5%, 50 V
C601	2113740A61	180 pF, ±5%, 50 V
C602 thru 604	2113740G11	2.2 pF, ±0.1 pF; 50 V
C605,606	2113740A33	15 pF, ±5%, 50 V
C651	2113741B69	0.1 uF, ±5%, 50 V
C652	2380909M25	100 uF, 25 V
C655,656	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V
C705	2113740A31	12 pF, ±5%, 50 V
C751	2113740A79	1000 pF, ±5%, 50 V
C850	2113741A45	0.01 uF, ±5%, 50 V
C851,852	2113740G11	2.2 pF, ±0.1 pF; 50 V
C853 thru 860	2311049A45	10 uF, ±10%, 35 V
C861	2113741A45	0.01 uF, ±5%, 50 V
C862	2113918A05	470 pF, ±20%, 1000 V
C863,864	2113740A79	1000 pF, ±5%, 50 V
C865	2113918A05	470 pF, ±20%, 1000 V
C866,867	2113740A79	1000 pF, ±5%, 50 V
C868	2113918A05	470 pF, ±20%, 1000 V
C869,870	2113740A79	1000 pF, ±5%, 50 V
C871	2113918A05	470 pF, ±20%, 1000 V
C872,873	2113740A79	1000 pF, ±5%, 50 V
C874	2113918A05	470 pF, ±20%, 1000 V
C875,876	2113740A79	1000 pF, ±5%, 50 V
C877	2113918A05	470 pF, ±20%, 1000 V
C878 thru 881	2113740A79	1000 pF, ±5%, 50 V
C882	2113740A59	150 pF, ±5%, 50V
C883,884	2113740A79	1000 pF, ±5%, 50 V
C885	2113740A33	15 pF, ±5%, 50 V
C886	2113740A59	150 pF, ±5%, 50V
C887	2113740A79	1000 pF, ±5%, 50 V
C888	2113740A71	470 pF, ±5%, 50 V
C889 thru 892	2113740A45	82 pF, ±5%, 50V
C893 thru 896	2311049A45	10 uF, ±10%, 35 V
C1002 thru 1006	2311049A45	10 uF, ±10%, 35 V
C1007,1008	2311049A45	10 uF, ±10%, 35 V
C1009	2311049A21	22 uF, ±10%, 20 V
C1010	2311049A23	47 uF, ±10%, 10 V
C1011,1012	2311049A45	10 uF, ±10%, 35 V
C1013	2380909M26	470 uF, ±20%, 63V
C1014	2113741B69	0.1 uF, ±5%, 50 V
C1015	2311049A45	10 uF, ±10%, 35 V
C1016	2311049A23	47 uF, ±10%, 10 V
C1019	2311049A23	47 uF, ±10%, 10 V
C1020 thru 1022	2311049A45	10 uF, ±10%, 35 V
C1023	2113740A61	180 pF, ±5%, 50 V
C1024	2113741B69	0.1 uF, ±5%, 50 V
C1025	2311049A23	47 uF, ±10%, 10 V
C1026 thru 1035	2113741B69	0.1 uF, ±5%, 50 V
C1037	2311049A23	47 uF, ±10%, 10 V
C1038	2113741A45	0.01 uF, ±5%, 50 V
C1039 thru 1045	2113741B69	0.1 uF, ±5%, 50 V
C1047	2113741B69	0.1 uF, ±5%, 50 V
C1048	2113741A45	0.01 uF, ±5%, 50 V
C1049 thru 1059	2113741B69	0.1 uF, ±5%, 50 V
C1061 thru 1065	2113741B69	0.1 uF, ±5%, 50 V
C1067 thru 1082	2113741B69	0.1 uF, ±5%, 50 V
C1083	2113741A45	0.01 uF, ±5%, 50 V
C1084 thru 1090	2113741B69	0.1 uF, ±5%, 50 V
C1091	2311049A23	47 uF, ±10%, 10 V
C1092,1093	2311049A23	47 uF, ±10%, 10 V
C1095,1096	2113741B69	0.1 uF, ±5%, 50 V
C1097	2311049A23	47 uF, ±10%, 10 V
C1098,1099	2113741B69	0.1 uF, ±5%, 50 V
C1101,1102	2113741B69	0.1 uF, ±5%, 50 V
C1103	2113741A45	0.01 uF, ±5%, 50 V
C1104	2113740A71	470 pF, ±5%, 50 V
C1105 thru 1122	2113741B69	0.1 uF, ±5%, 50 V
C1123	2311049A23	47 uF, ±10%, 10 V
C1124,1125	2113741B69	0.1 uF, ±5%, 50 V
C1126	2311049A23	47 uF, ±10%, 10 V
C1127 thru 1140	2113741B69	0.1 uF, ±5%, 50 V
C1141	2113741A45	0.01 uF, ±5%, 50 V
C1142	2311049A08	1 uF, ±10%, 35 V
C1143	2311049A23	47 uF, ±10%, 10 V
C1144	2113741B69	0.1 uF, ±5%, 50 V
C1145,1146	2311049A45	10 uF, ±10%, 35 V
C1147	2311049A21	22 uF, ±10%, 20 V
C1201	2113741A45	0.01 uF, ±5%, 50 V
C1202,1203	2113918A05	470 pF, ±20%, 1000 V
C1207	2113741A45	0.01 uF, ±5%, 50 V
C1210,1211	2113918A05	470 pF, ±20%, 1000 V
C1212	2113740A71	470 pF, ±5%, 50 V
		diode (see note):
CR2	4813833B01	Schottky type
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813835A05	Hot Carrier
CR305,306	4813833C05	dual 70 V
CR851	4813833B01	Schottky type
CR1001	4813833A03	Schottky type
CR1002	4813833B01	Schottky type
CR1004	4813833A03	Schottky type
		light emitting diode (see note):
DS1	4882198T06	SUBMINIATURE LED GRN SM
DS2	4882198T04	SUBMINIATURE LED RED SM
DS3	4882198T05	SUBMINIATURE LED YEL SM
DS4 thru 6	4882198T06	SUBMINIATURE LED GRN SM
DS7	4882198T04	SUBMINIATURE LED RED SM
DS8	4882198T06	SUBMINIATURE LED GRN SM
		connector:
J1	0984863T02	BNC jack
P7	0984524T07	9–pin, right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
P1000	2813922A02	HDR, 2–pos str .1 ctr gld plrd
		inductor:
L1	2462587X64	IND CHIP LO–PRO 680 NH 5%
L202	2411087A44	33 uH
L551	2462587H72	2200 NH, ±5%
L1001	2485069U02	COIL, 10 uH; 2.2AMP
		transistor (see note):
Q1	4813824A10	NPN
Q2	4884955T01	NPN
Q201 thru 203	4813824A10	NPN
Q204	4813824A10	NPN
Q205	4813824A10	NPN
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A06	P–CH FET type
Q551,552	4813824A10	NPN
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q851	4813824A10	NPN
Q1001	4813822A15	NPN
Q1002	4813824A17	PNP
Q1003	4813824A10	NPN
Q1004	4813822A09	PNP
		resistor, fixed:
R1	0611079A98	10K, ±5%, 1/10 W
R2	0611079A01	O ohms, ±5%; 1/10 W
R2	0611079A98	10K, ±5%, 1/10 W
R3	0611079A01	O ohms, ±5%; 1/10 W
R5 thru 9	0611079A01	O ohms, ±5%; 1/10 W
R10	0611079A34	22 ohms, ±5%; 1/10 W
R11,12	0611079A98	10K, ±5%; 1/10 W
R13	0611079A74	1K, ±5%; 1/10 W
R14	0611079A01	O ohms, ±5%; 1/10 W
R15	0611079B23	100K, ±5%; 1/10 W
R16 thru 19	0611079A98	10K, ±5%; 1/10 W
R20	0611079A52	120 ohms, ±5%; 1/10 W
R21,22	0611079A98	10K, ±5%; 1/10 W
R23	0611072A25	100 ohms, ±5%; 1/4 W
R24,25	0611079A74	1K, ±5%; 1/10 W
R26	0611079A46	470 ohms, ±5%; 1/10 W
R27	0611079A34	22 ohms, ±5%; 1/10 W
R28	0611079G69	O ohms, ±5%; 1/10 W
R30	0611079A98	10K, ±5%; 1/10 W
R31	0611079A40	39 ohms, ±5%; 1/10 W
R34	0611079A74	1K, ±5%; 1/10 W
R36	0611072A25	100 ohms, ±5%; 1/4 W
R37	0611079A26	10 ohms, ±5%; 1/10 W
R153,154	0611079A98	10K, ±5%; 1/10 W
R155 thru 158	0611079A52	120 ohms, ±5%; 1/10 W
R159	0611079A82	2200 ohms, ±5%; 1/10 W
R160	0611079A84	2700 ohms, ±5%; 1/10 W
R161 thru 164	0611079A34	22 ohms, ±5%; 1/10 W
R165,166	0611079A01	O ohms, ±5%; 1/10 W
R170	0611079G01	100 ohms, ±1%; 1/10 W
R171,172	0611079A01	O ohms, ±5%; 1/10 W
R173	0611079A40	39 ohms, ±5%; 1/10 W
R175	0611079A90	4700 ohms, ±5%; 1/10 W
R201	0611079A44	56 ohms, ±5%; 1/10 W
R202,203	0611079A84	2700 ohms, ±5%; 1/10 W
R204	0611079B21	82K, ±5%; 1/10 W
R205	0611079A83	2.7 ohms, ±5%; 1/10 W
R206	0611079A40	39 ohms, ±5%; 1/10 W
R207	0611079A98	10K, ±5%; 1/10 W
R208	0611079A52	120 ohms, ±5%; 1/10 W
R209	0611079A92	5600 ohms, ±5%; 1/10 W
R210	0611079A84	2700 ohms, ±5%; 1/10 W
R211	0611079A62	330 ohms, ±5%; 1/10 W
R212	0611079A40	39 ohms, ±5%; 1/10 W
R213	0611079A46	68 ohms, ±5%; 1/10 W
R214	0611079A36	27 ohms, ±5%; 1/10 W
R215	0611079A01	O ohms, ±5%; 1/10 W
R216	0611079B47	1 MEG, ±5%; 1/10 W
R217	0611079A36	27 ohms, ±5%; 1/10 W
R218	0611079A46	68 ohms, ±5%; 1/10 W
R219	0611079B13	33K, ±5%; 1/10 W
R220,221	0611079A90	4700 ohms, ±5%; 1/10 W
R223	0611079B47	1 MEG, ±5%; 1/10 W
R230,231	0611079A98	10K, ±5%; 1/10 W
R232	0611079B11	33K, ±5%; 1/10 W
R233 thru 235	0611079A98	10K, ±5%; 1/10 W
R236	0611079A84	2700 ohms, ±5%; 1/10 W
R238	0611079B15	47K, ±5%; 1/10 W
R252	0611079A90	4700 ohms, ±5%; 1/10 W
R254 thru 259	0611079A66	470 ohms, ±5%; 1/10 W
R262	0611079G58	10K ohms, ±1%; 1/10 W
R263,264	0611079A66	470 ohms, ±5%; 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%; 1/10 W
R301,302	0611079A66	470 ohms, ±5%; 1/10 W
R303	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%; 1/10 W
R305	0611079B11	33K, ±5%; 1/10 W
R306	0611079A92	5600 ohms, ±5%; 1/10 W
R307	0611079A90	4700 ohms, ±5%; 1/10 W
R308	0611079B13	39K, ±5%; 1/10 W
R309	0611079B03	15K, ±5%; 1/10 W
R310	0611079B13	39K, ±5%; 1/10 W
R311	0611079G01	100, ±1%; 1/10 W
R312	0611079G30	20.0K, ±1%; 1/10 W
R313	0611079A52	120 ohms, ±5%; 1/10 W
R314	0611079A58	Resistor chip 39.2K 1/10 W 1%
R315	0611079D93	909 ohms, 1/10 W, ±1%
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079B03	15K, ±5%; 1/10 W
R320	0611079A98	3900 ohms, ±5%; 1/10 W
R321	0611079D69	511 ohms, 1/10 W, ±1%
R322	0611079B07	22K, ±5%; 1/10 W
R323	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R325	0611079G09	12.1K, 1/10 W, ±1%
R326	0611079G58	Resistor chip 39.2K 1/10 W 1%
R327	0611079G87	Resistor chip 78.7K 1/10 W 1%
R328	0611079G58	Resistor chip 39.2K 1/10 W 1%
R329	0611079G69	51.1K, ±1%; 1/10 W
R330	0611079B23	100K, ±5%; 1/10 W
R331	0611079A98	10K, ±5%; 1/10 W
R332	0611079A84	2700 ohms, ±5%; 1/10 W
R333	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R334	0611079A84	2700 ohms, ±5%; 1/10 W
R335	0611079A96	8200 ohms, ±5%; 1/10 W
R338	0611079G58	Resistor chip 39.2K 1/10 W 1%
R339,340	0611079B13	39K, ±5%; 1/10 W
R341	0611079B03	15K, ±5%; 1/10 W
R342	0611079A84	2700 ohms, ±5%; 1/10 W
R343	0611079B21	82K, ±5%; 1/10 W
R344	0611079G01	100, ±1%; 1/10 W
R345	0611079B13	39K, ±5%; 1/10 W
R346,347	0611079B07	22K, ±5%; 1/10 W
R348	0611079D69	511 ohms, 1/10 W, ±1%
R349	0611079B41	Resistor; fixed chip 560K
R350	0683962T01	1 ohm, ±5%; 1 W
R351	0611079A74	1K, ±5%; 1/10 W
R352	0611079B13	39K, ±5%; 1/10 W
R353	0611079B13	39K, ±5%; 1/10 W
R354	0611079A46	68K, ±5%; 1/10 W
R355	0611079A12	2.7 ohms, ±5%; 1/10 W
R356	0611079D93	909 ohms, 1/10 W, ±1%
R357	0611079A34	22 ohms, ±5%; 1/10 W
R360	0611079A84	2700 ohms, ±5%; 1/10 W
R361	0611079A96	8200 ohms, ±5%; 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079G01	100, ±1%; 1/10 W
R366	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R367	0611079A84	2700 ohms, ±5%; 1/10 W
R368	0611079G11	12.7K, 1/10W, ±1%
R369	0611079B05	18K, ±5%; 1/10 W
R370	0611079A98	33K, ±5%; 1/10 W
R371	0611079B07	22K, ±5%; 1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%; 1/10 W
R376	0611079B11	33K, ±5%; 1/10 W
R377	0611079B13	39K, ±5%; 1/10 W
R378	0611079A98	10K, ±5%; 1/10 W
R383	0611079G09	12.1K, 1/10 W, ±1%
R384,385	0611079A90	4700 ohms, ±5%; 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W, ±1%
R390	0611079G58	Resistor chip 39.2K 1/10 W 1%
R391	0611079A98	10K, ±5%; 1/10 W
R401 thru 406	0611079A98	10K, ±5%; 1/10 W
R407	0611079A90	4700 ohms, ±5%; 1/10 W
R408	0611079A74	1K, ±5%; 1/10 W
R409 thru 411	0611079A98	10K, ±5%; 1/10 W
R412	0611079A80	1800 ohms, ±5%; 1/10 W
R413 thru 423	0611079A98	10K, ±5%; 1/10 W
R424 thru 439	0611079A74	1K, ±5%; 1/10 W
R440,441	0611079A98	10K, ±5%; 1/10 W
R442	0611079A36	27 ohms, ±5%; 1/10 W
R552	0611079A01	O ohms, ±5%; 1/10 W
R553	0611079B23	100K, ±5%; 1/10 W
R554 thru 557	0611079A98	10K, ±5%; 1/10 W
R558	0611079B47	1 MEG, ±5%; 1/10 W
R559 thru 562	0611079A58	220 ohms, ±5%; 1/10 W
R563	0611079A90	4700 ohms, ±5%; 1/10 W
R564	0611079A74	1K, ±5%; 1/10 W
R565	0611079A66	470 ohms, ±5%; 1/10 W
R566	0611079B47	1 MEG, ±5%; 1/10 W
R568	0611079A70	680 ohms, ±5%; 1/10 W
R569,570	0611079A34	22 ohms, ±5%; 1/10 W
R571	0611079B23	100K, ±5%; 1/10 W
R601	0611079B19	68K, ±5%; 1/10 W
R602 thru 604	0611079A84	2700 ohms, ±5%; 1/10 W
R605,606	0611079A90	4700 ohms, ±5%; 1/10 W
R611,612	0611079A74	1K, ±5%; 1/10 W
R615,616	0611079A34	22 ohms, ±5%; 1/10 W
R651,652	0611079B23	100K, ±5%; 1/10 W
R653	0611079B03	15K, ±5%; 1/10 W
R701	0611079A34	22 ohms, ±5%; 1/10 W
R702	0611079A74	1K, ±5%; 1/10 W
R703	0611079A01	O ohms, ±5%; 1/10 W
R704	0611079A74	1K, ±5%; 1/10 W
R705	0611079A40	39 ohms, ±5%; 1/10 W
R706	0611079A01	O ohms, ±5%; 1/10 W
R707	0611079A70	680 ohms, ±5%; 1/10 W
R751 thru 753	0611079A98	10K, ±5%; 1/10 W
R754	0611079A74	1K, ±5%; 1/10 W
R755	0611079B23	100K, ±5%; 1/10 W
R756,757	0611079A98	10K, ±5%; 1/10 W
R758 thru 761	0611079A74	1K, ±5%; 1/10 W
R762,763	0611079A98	10K, ±5%; 1/10 W
R764	0611079A74	1K, ±5%; 1/10 W
R765 thru 767	0611079A98	10K, ±5%; 1/10 W
R769 thru 772	0611079A74	1K, ±5%; 1/10 W
R773,774	0611079A52	120 ohms, ±5%; 1/10 W
R775	0611079B23	100K, ±5%; 1/10 W
R776	0611079B19	68K, ±5%; 1/10 W
R777	0611079A90	4700 ohms, ±5%; 1/10 W
R778	0611079A74	1K, ±5%; 1/10 W
R779	0611079A34	22 ohms, ±5%; 1/10 W
R780	0611079A34	22 ohms, ±5%; 1/10 W
R782	0611079A01	O ohms, ±5%; 1/10 W
R784	0611079A01	O ohms, ±5%; 1/10 W
R849	0611072A25	100 ohms, ±5%; 1/4 W
R850	0611079A01	O ohms, ±5%; 1/10 W
R851	0611079A84	2700 ohms, ±5%; 1/10 W
R852,853	0611079A98	10K, ±5%; 1/10 W
R854	0611079A52	120 ohms, ±5%; 1/10 W
R855 thru 877	0611072A25	100 ohms, ±5%; 1/4 W
R878,879	0611079A98	10K, ±5%; 1/10 W
R880	0611079A90	4700 ohms, ±5%; 1/10 W
R881	0611079A52	120 ohms, ±5%; 1/10 W
R882	0611079A34	22 ohms, ±5%; 1/10 W
R883	0611079B13	39K, ±5%; 1/10 W
R884	0611079A98	10K, ±5%; 1/10 W
R885	0611079A34	22 ohms, ±5%; 1/10 W
R886	0611079A90	4700 ohms, ±5%; 1/10 W
R887 thru 892	0611079A34	22 ohms, ±5%; 1/10 W
R893	0611079A98	10K, ±5%; 1/10 W
R894 thru 897	0611079A34	22 ohms, ±5%; 1/10 W
R904	0611079B23	100K, ±5%; 1/10 W
R1001 thru 1005	0611079A02	1 ohm, ±5%; 1/10 W
R1006	0611079A40	39 ohms, ±5%; 1/10 W
R1007	0611079A02	1 ohm, ±5%; 1/10 W
R1008	0611079B03	15K, ±5%; 1/10 W
R1009,1010	0611079G01	10K, ±1%; 1/10 W
R1011	0611079G09	12.1K, 1/10 W, ±1%
R1012	0611079F22	Resistor: chip 1.65K 1/10 W
R1013	0611079A84	2700 ohms, ±5%; 1/10 W
R1014	0611079A96	8200 ohms, ±5%; 1/10 W
R1017	0611079A44	56 ohms, ±5%; 1/10 W
R1023	0611079B11	33K, ±5%; 1/10 W
R1024	0611079A96	3300 ohms, ±5%; 1/10 W
R1025	0611079B23	100K, ±5%; 1/10 W
R1026,1027	0611079A02	1 ohm, ±5%; 1/10 W
R1028 thru 1031	0683962T01	1 ohm, ±5%; 1 W
R1032	0611079A46	68 ohms, ±5%; 1/10 W
R1034	0611079A01	O ohms, ±5%; 1/10 W
R1201	0611072A25	100 ohms, ±5%; 1/4 W
R1226	0611079A62	330 ohms, ±5%; 1/10 W
R1229 thru 1235	0611079A62	330 ohms, ±5%; 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		switch:
S0 thru 3	4083621T01	pushbutton, spst
		integrated circuit (see note):
U1	5185238U01	Digital Signal Processor
U2 thru 4	5184531T07	IC SRAM 256Kb EXT TEMP
U5	5113080A07	Quad 2–Input AND Gate
U6	5184825T05	IC ASIC DSP GLUE 2 120QFP
U7	5113080A05	Hex Inverter
U8	5113080A16	Dual D–type Flip–Flop
U151	5113080A04	Quad NPN General Purpose
U152,153	5184288T01	Differential Bus Transceiver
U154	5113080A38	Octal 3–State Non–Inverter Line Driver
U155	5113080A54	Octal Buffer Line Driver/Receiver
U201	5184726T02	REFERENCE OSC MODULE
U202	5184717T01	Synthesizer with Serial Interface
U203	5113080A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U302	5113818A05	High Performance, Single Supply
U303,304	5182276B96	Complementary Symmetry/oxide Semiconductor
U305	5113818A05	High Performance, Single Supply
U306	5185222U02	IC Filter
U308	5185222U02	IC Filter
U309	5113805A85	Mux/Demux, Trip 2–Channel Analog
U311	5182602P38	Digital Pot Converter
U314	5113805A83	Mux/Demux, 8–Channel Analog
U315	5182276R85	IC SNG SUPPLY 12BIT ADC MAX190
U316	5184743T01	CODEC Pulse Code Modulation
U317	5184621K33	Operational Amplifier
U318	5113818A05	High Performance, Single Supply
U401	5113802A08	Multiprotocol
U402,403	5113808A40	Octal 3–State Non–Inverter Line Driver/Receiver
U404	5113080A07	Quad 2–Input AND Gate
U551	5184625T02	Application Specific Gate Array
U552	5113808A18	EXOR, Quad 2–Input
U553	5113808A19	Flip–Flop, Dual Jack w/Set
U554	5113808A14	Quad 2–Input OR Gate
U555	5113815A02	Under Voltage Sensing Circuit
U601 thru 603	5113805A89	Monostable Multivibrator, Dual Precision
U651	5113808A27	Quad Mux 2–Input
U605	5113808A25	Dual Mux, 4–Input
U606 thru 608	5113808A38	Octal 3–State Non–Inverter Line Driver
U609	5184530T04	Single In–Line Memory Module (2 used)
U610	5113808A05	Hex Inverter
U651	5113818A01	Adjustable Low Dropout, Positive
U653	(NOTE 1)	IC PRGMD EPROM
U654	(NOTE 1)	IC PRGMD EPROM
U655	5184293T03	IC EEPROM 8K X 8 32–byte page
U656	0180705F47	FLASH SIMM
U701	5113808A14	Quad 2–Input OR Gate
U702	5113808A38	Octal 3–State Non–Inverter Line Driver
U751 thru 754	5113805A54	Octal Buffer Line Driver/Receiver
U755 thru 762	5113805A60	Octal D, Flip–Flop
U851	5184523T02	IC DUART 44PLCC SER/BSD
U854,855	5113805A36	Quad 2–Input Non–Inv Multiplexer
U856	5113805A31	Dual Decoder/Demux
U857 thru 859	5113811A11	Single Supply Driver/Reciver
U860	5113811A10	Driver/Receiver, 3–Drivers; 3–Receivers
U861	5184532T01	Adapter, Local
U862 thru 864	5184288T01	Differential Bus Transceiver
U865	5113805A89	Monostable Multivibrator, Dual Precision
U866	5113805A86	Quad Analog Multiplexer/Demultiplexer
U1001	5113815A01	DC to DC Converter
U1002	5113816A01	Adjustable Low Dropout, Positive
U1003	5113816A07	5–Volt Positive Regulator
		crystal (see note):
Y1	4885592U01	40 MHZ
Y551	4884450T05	4.608 MHZ
Y552	4885135U01	33.000 MHZ
Y851	4883793T04	4.096 MHZ
		non–referenced items:
	0784775T01	STIFFNER, PC board edge (2 used)
	0982451V13	Socket, IC; 32–pin (used with U653)
	0982451V13	Socket, IC; 32–pin (used with U654)
	0984527T04	socket, dual (used with U609)
	0984527T05	socket, 80 position (used with U656)
	5482006W01	Label, PCB barcode
	5482006W02	ribbon, thermal transfer
	6182512W03	LIGHTPIPES (8)
	8485311U08	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

Note 1: U653 and U654 contain station operating code. The part number for these two ICs are determined by the particular firmware version. Contact Motorola System Support Center (1–800–448–3245) for current version and corresponding part numbers for U653 and U654.

STATION CONTROL MODULE
MODEL CLN6873D



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(1 OF 2)

NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P3 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P2 AND P4 AND HAVE EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P1–1, 3	LOGIC GND	P2–2, 4	LOGIC GND	P3–1	WIDEBAND OUTPUT	P4–2	WIDE BAND INPUT
P1–5, 7	+14.2V	P2–6, 8	+14.2V	P3–5	LOGIC GND	P4–6	LOGIC GND
P1–9, 11, 13, 15, 17, 19, 21	+5V	P2–10, 12, 14, 16, 18, 20, 22	+5V	P3–7	WR1+	P4–8	WR1–
P1–23	LOGIC GND	P2–24	LOGIC GND	P3–9	DLAN1+	P4–10	DLAN1–
P1–25	SPI MISO	P2–26	SPI MOSI	P3–11	FAN +	P4–12	N.C.
P1–27	SPI CLK	P2–28	ALT RESET	P3–13	LOGIC GND	P4–14	LOGIC GND
P1–29	HDLC DATA	P2–30	HDLC BUSY	P3–15	PL STRIP	P4–16	AUX INDICATE
P1–31	HDLC CLK	P2–32	TDM FS	P3–17	MONITOR	P4–18	N.C.
P1–33	TDM DATA	P2–34	TDM CLK	P3–19	N.C.	P4–20	PATCH INH
P1–35	SPARE 1	P2–36	SPARE 2	P3–21	MRTI PTT	P4–22	MRTI RX AUDIO
P1–37	HOST TPPS	P2–38	EXP SPI REQ	P3–23	MRTI TX AUDIO	P4–24	N.C.
P1–39	EXP SPI GRANT	P2–40	EXP HOST REQ	P3–25	RX CARRIER	P4–26, 28	LOGIC GND
P1–41	SPI A0	P2–42	SPI A1	P3–27, 29, 31	LOGIC GND	P4–30	LOGIC GND
P1–43	TX SPI GRANT	P2–44	SPI A5	P3–33	TXD3	P4–32	MODEM RESET
P1–45	SPI A4	P2–46	SPI A3	P3–35	RTS3	P4–34	RXD3
P1–47	SPI A2	P2–48	TX SPI REQ	P3–37	DSR3	P4–36	CTS3
P1–49	PTT REQ	P2–50	TX HOST REQ	P3–39	DCD3	P4–38	LOGIC GND
P1–51, 53	LOGIC GND	P2–52, 54	LOGIC GND	P3–41	TCLK3	P4–40	LLPBK3
P1–55	RX 2.1 MHz REF	P2–56	TX 2.1 MHz REF	P3–43	DTR3	P4–42	RLPBK3
P1–57	LOGIC GND	P2–58	LOGIC GND	P3–45, 47	LOGIC GND	P4–44	RLPBK3
P1–59	REF AUDIO	P2–60	VCO AUDIO	P3–49	N.C.	P4–46, 48	LOGIC GND
P1–61	LOGIC GND	P2–62	LOGIC GND	P3–51	TXD1	P4–50	RXD1
P1–63	TX WB AUDIO	P2–64	5 MHz REF (REAR)	P3–53	RTS1	P4–52	CTS1
P1–65	LOGIC GND	P2–66	LOGIC GND	P3–55	LOGIC GND	P4–54	DCD1
P1–67	RX2 AGC	P2–68	RX2 ODC	P3–57	DTR1	P4–56	DSR1
P1–69	RX2 SBI	P2–70	RX2 DATA	P3–59	TSTAT	P4–58	SERIAL ID
P1–71	RX2 DATA	P2–72	LOGIC GND	P3–61	N.C.	P4–60	TPTT
P1–73	LOGIC GND	P2–74	RX1 AGC	P3–63	RSTAT	P4–62	MUTE
P1–75	RX1 ODC	P2–76	RX1 SBI	P3–65	LOGIC GND	P4–64	CCI
P1–77	RX1 DATA	P2–78	RX1 DATA	P3–67	TX DATA+	P4–66	LOGIC GND
P1–79	LOGIC GND	P2–80	LOGIC GND	P3–69	TX DATA–	P4–68	6809 RX AUDIO
				P3–71, 73, 75,77, 79	LOGIC GND	P4–70, 72	LOGIC GND
						P4–74	GPS 1PPS
						P4–76	ETHERNET GND
						P4–78	ETHERNET SIGNAL
						P4–80	ETHERNET GND

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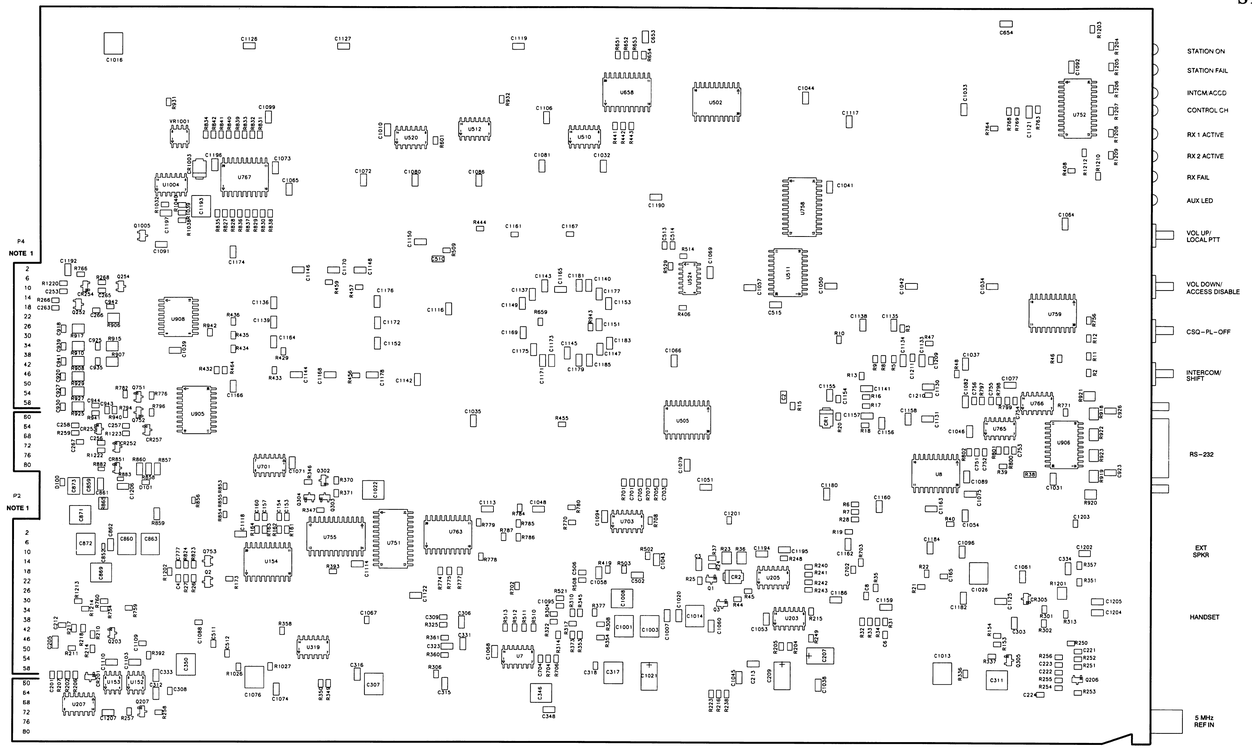
STATION CONTROL MODULE
MODEL CLN6873D



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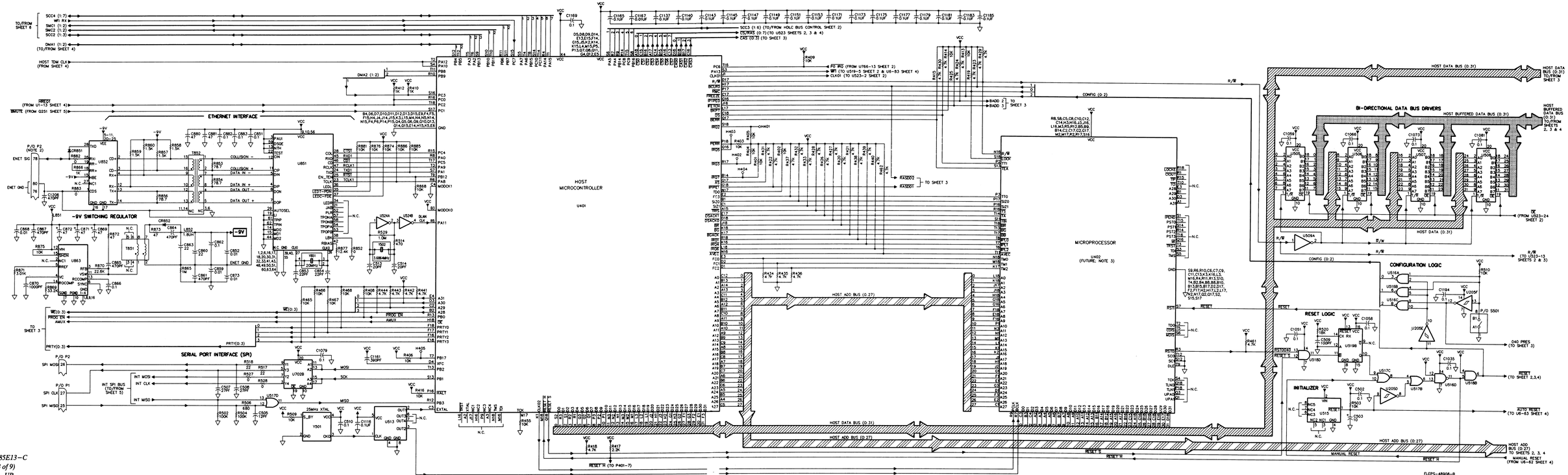
4/15/01–UP

STATION CONTROL MODULE
MODEL CLN6873D



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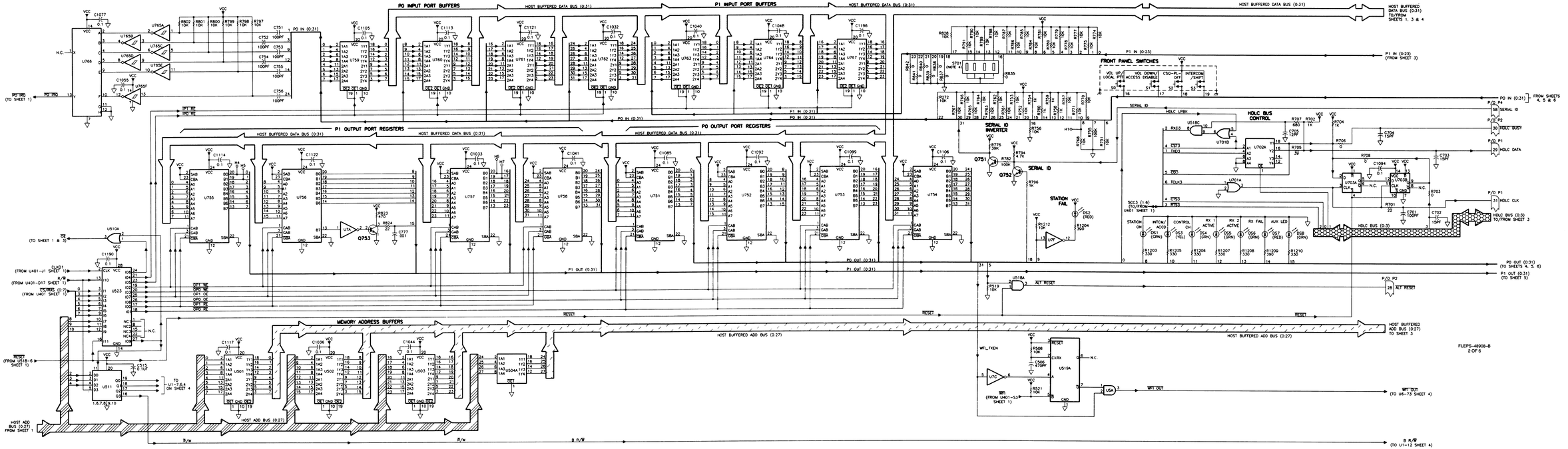
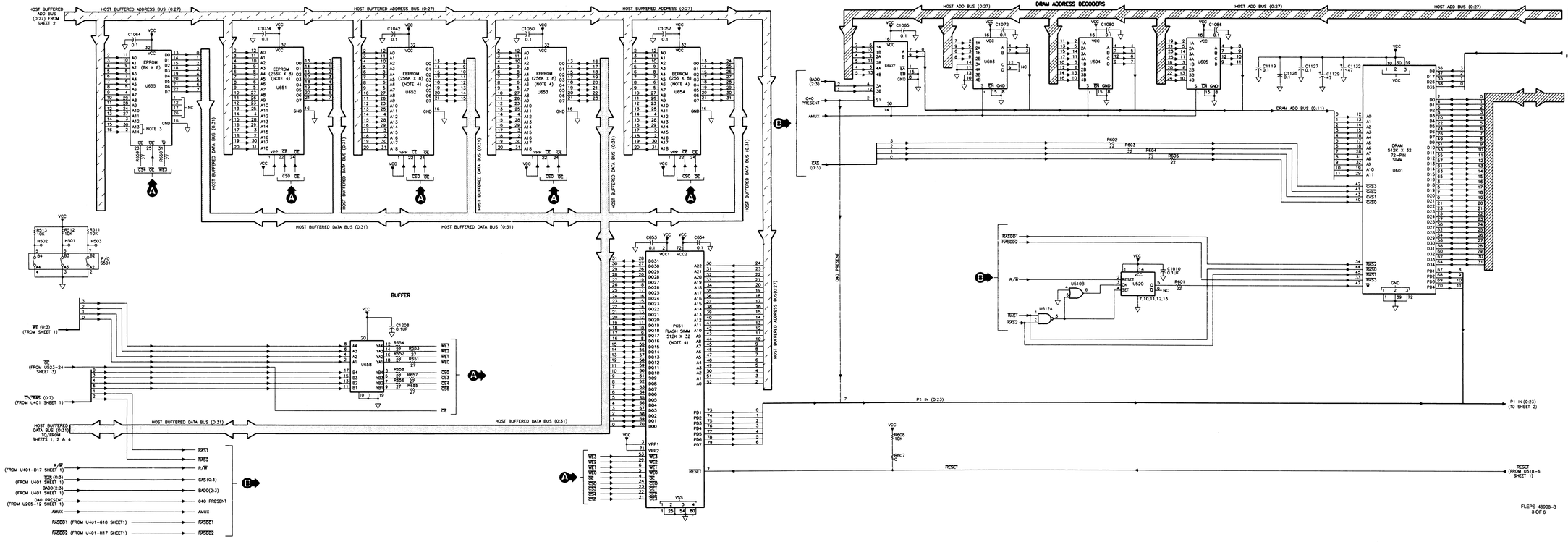
4/15/01–UP



68P81085E13–C
(Sheet 4 of 9)
4/15/01–UP

STATION CONTROL MODULE
MODEL CLN6873D



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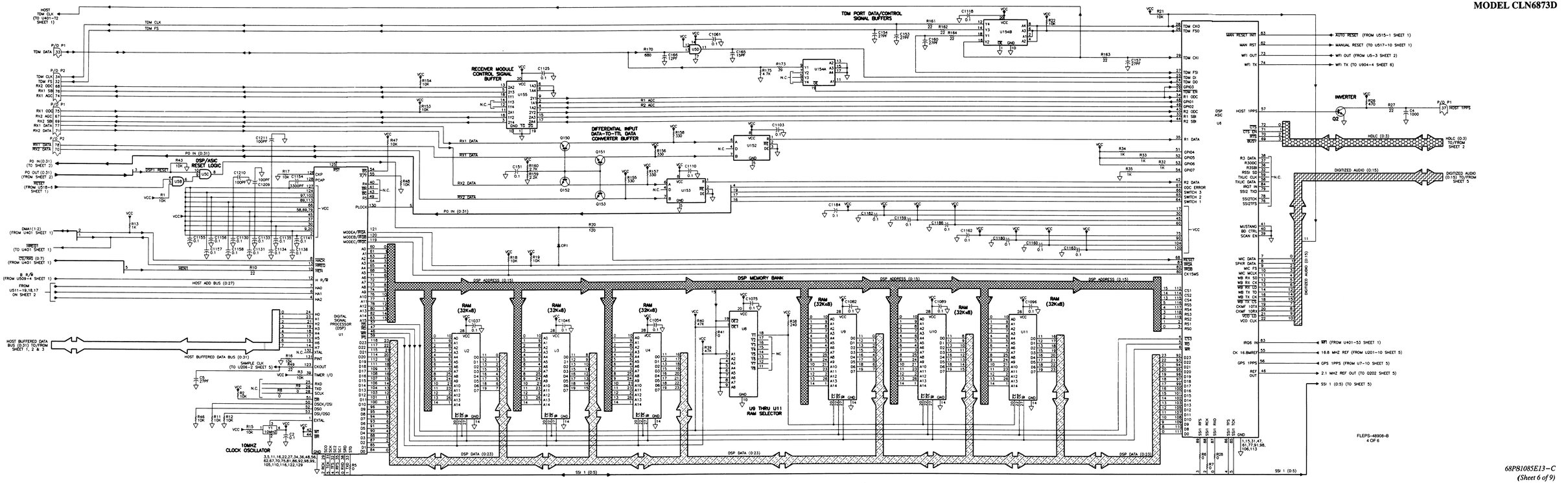
(Sheet 5 of 9)
4/15/01–UP


HOST TDM CLK (TO U401-T2 SHEET 1)
TDM CLK
TDM FS
TDM DATA
P/O P1
P/O P2
RX1 ODC
RX2 ODC
RX1 ADC
RX2 ADC
RX1 SBI
RX2 SBI
RX1 DATA
RX2 DATA
DSP/ASC RESET LOGIC
DSP1 RESET
RESET (FROM U518-5 SHEET 1)
P0 IN (0:31)
P0 IN (0:31) (TO SHEET 2)
P0 OUT (0:31) (FROM SHEET 2)
DMA1(1:2) (FROM U401 SHEET 1)
HBR01 (TO U401 SHEET 1)
DS/HBI (0:7) (FROM U401 SHEET 1)
HENT
B R/W (FROM U509-4 SHEET 1)
FROM U511-19,18,17 ON SHEET 2
HOST ADD BUS (0:27)
HOST BUFFERED DATA BUS (0:31) TO/FROM SHEET 1, 2 & 3
HOST BUFFERED DATA BUS (0:31)
SAMPLE CLK (TO U206-2 SHEET 5)
10MHZ CLOCK OSCILLATOR
3,5,11,16,22,27,34,36,48,58,62,67,70,75,81,86,92,98,99,105,110,116,122,129
DIGITAL SIGNAL PROCESSOR (DSP)
U1
MODEA/IRDA
MODEB/IWDA
MODEC/IRQC
HACK
HBREQ
HREN
H R/W
HA0
HA1
HA2
HD0
HD1
HD2
HD3
HD4
HD5
HD6
HD7
N.C.
XTAL
PINT
CKOUT
TIMER I/O
RXD
TXD
SCLK
DSCK/OSI
DSO
OSI/OSO
EXTAL
WR
RD
TDM PORT DATA/CONTROL SIGNAL BUFFERS
U154A
U154B
TDM CKO
TDM FSO
TDM CKI
TDM FSI
TDM DI
TDM DO
GPO3
TDM TER
R1 ODC
GPO1
GPO2
R2 ODC
R1 SBI
R2 SBI
R1 DATA
GPO4
GPO5
GPO6
GPO7
R2 DATA
SDC ERROR
SWITCH 3
SWITCH 2
SWITCH 1
RESET
WDOG
MRQB
CK15MS
RECEIVER MODULE CONTROL SIGNAL BUFFER
U155
R1 AGC
R2 AGC
DIFFERENTIAL INPUT DATA-TO-TTL DATA CONVERTER BUFFER
Q150
Q151
Q152
Q153
U152
U153
RX1 DATA
RX2 DATA
PLOCK
DSP MEMORY BANK
DSP ADDRESS (0:13)
DSP DATA (0:23)
SSI 1 (0:5)
RAM (32Kx8)
U2
U3
U9
U10
U11
U5 THRU U11 RAM SELECTOR
U8
CS1
CS2
RS3
RS4
RS5
RS1
RS0
WR
RD
DSP ASIC
U6
MAIN RESET INT
MAN RST
WTI OUT
WTI TX
XUTO RESET (FROM U515-1 SHEET 1)
MANUAL RESET (TO U517-10 SHEET 1)
WTI OUT (FROM U5-3 SHEET 2)
WTI TX (TO U904-4 SHEET 6)
INVERTER
Q2
HOST 1PPS
P/O P1
HOST 1PPS
CTS
CTS EN
RTS
BOOT
HDLC (0:3)
HDLC (0:3) TO/FROM SHEET 2
R3 DATA
R300C
R338C
RSSI SD
TXLIC CLK
TXLIC DATA
IROT IN
SSI2 TXD
SSI2TCK
SSI2TFS
DIGITIZED AUDIO (0:15)
DIGITIZED AUDIO (0:15) TO/FROM SHEET 5
MUSTANG
BD CTRL
SCAN EN
MIC DATA
SPKR DATA
MIC FS
MIC MCLK
WB RX SD
WB RX CK
WB RX LD
WB TX TD
WB TX CK
WB TX FS
CHMF 10TX
CHMF 10RX
VCO LD
VCO CLK
IRQ6 IN
CK 16.8MREF
GPS 1PPS
REF OUT
WI1 (FROM U401-53 SHEET 1)
16.8 MHZ REF (FROM U201-10 SHEET 5)
GPS 1PPS (FROM U7-10 SHEET 5)
2.1 MHZ REF OUT (TO 0202 SHEET 5)
SSI 1 (0:5) (TO SHEET 5)
SSI RFS
SSI RCK
SSI RXD
SSI TFS
SSI TCK
SSI 0 (0:5)
FLEPS-46908-B
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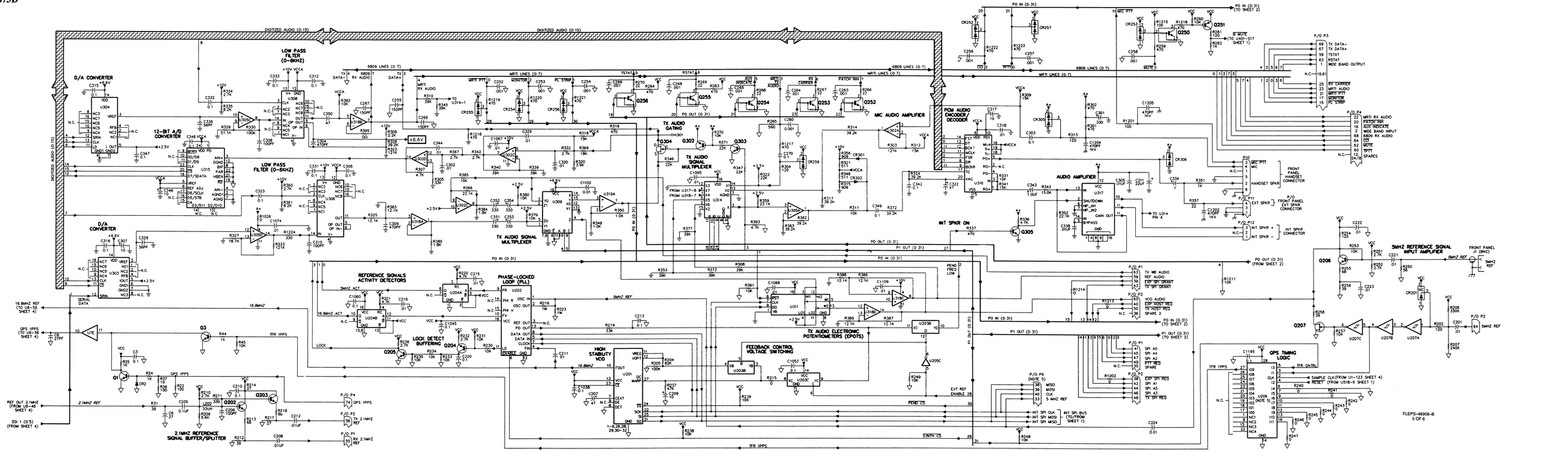
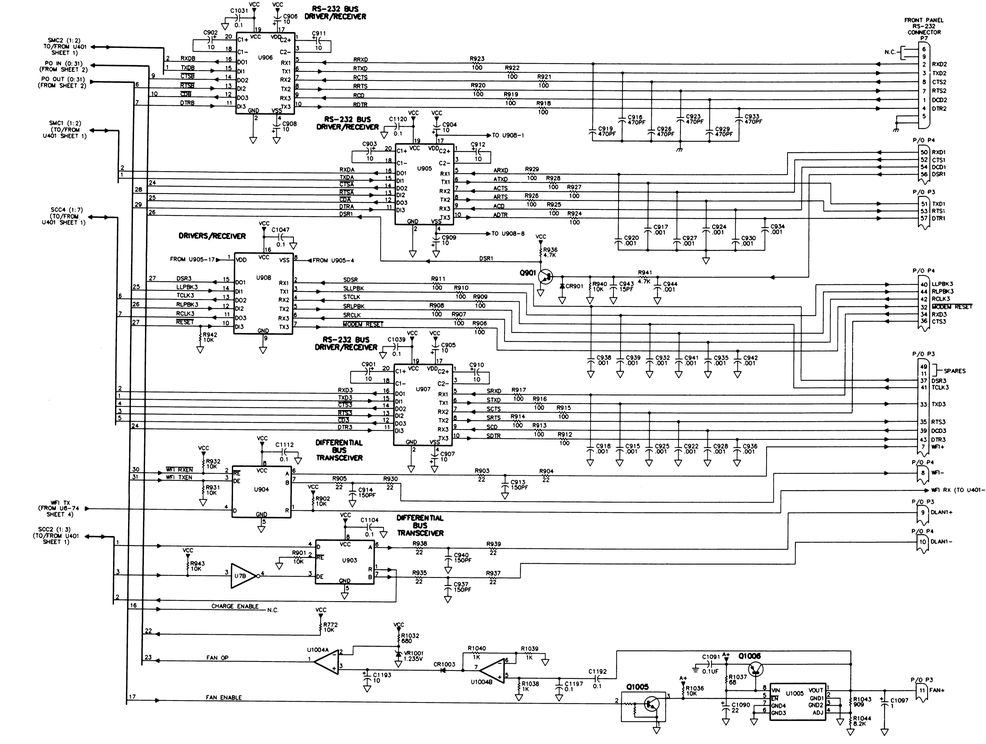
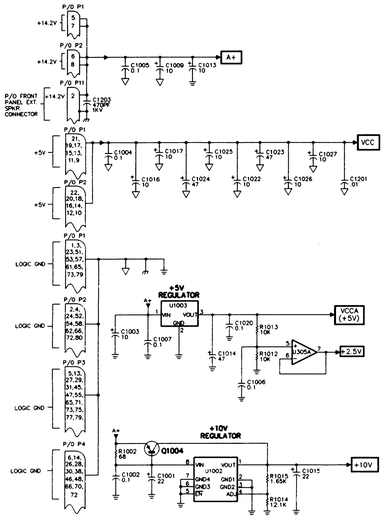
STATION CONTROL MODULE
MODEL CLN6873D



68P81085E13-C
(Sheet 7 of 9)
4/15/01-UP





NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. EDGE CONNECTORS P1,P2,P3, AND P4 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. U402 IS FOR FUTURE USE AND IS NOT INSTALLED.
4. ON SOME EARLY MODELS, SOCKETED EPROMS (U651-U654) ARE PROVIDED TO CONTAIN RECEIVER SOFTWARE. LATER MODELS ELIMINATE THE EPROMS AND SOCKETS AND PROVIDE A FLASH SIMM (P651) TO CONTAIN THE RECEIVER SOFTWARE.
5. U206 AND P6 ARE NOT PLACED. PADS EXIST ON CIRCUIT BOARD FOR FUTURE USE ONLY.
6. ON SOME EARLY MODELS, SOCKETED EPROMS (U651-U654) ARE PROVIDED TO CONTAIN RECEIVER SOFTWARE. LATER MODELS ELIMINATE THE EPROMS AND SOCKETS AND PROVIDE A FLASH SIMM (P651) TO CONTAIN THE RECEIVER SOFTWARE.
7. S701 IS A PROGRAMMABLE SHORT WITH "BREAK OUT" LINKS. THIS DEVICE IS DESIGNED AS SHOWN BELOW.

THE SPECIFIC LINKS BROKEN DETERMINE THE MODEL OF THE BOARD. THESE LINKS ARE BROKEN AT THE FACTORY AND ARE NOT REVERSIBLE.

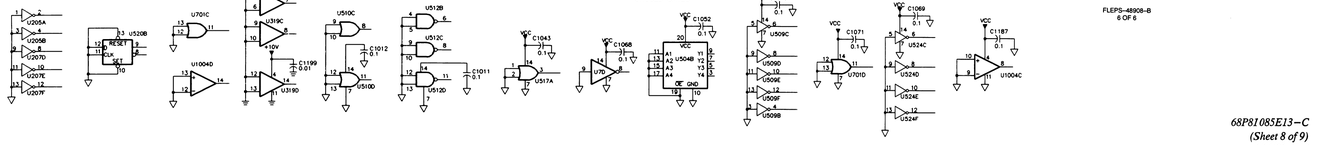
	LINK PAIRS PIN NUMBERS					
MODEL #	1, 16	2, 15	3, 14	4, 13	5, 12	6, 11
CLN6873	IN	IN	OUT	OUT		

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	DSP56002	DIGITAL SIGNAL PROCESSOR	2,9,20,30, 39,45,58, 64,77,86, 95,97,102, 113,124, 127,128	3,5,11,16, 22,27,34, 40,46,52, 62,67,70, 75,81,86, 92,98,99, 105,110, 116,122, 129
U2 THRU U4	M75C256B DJ-20	FAST STATIC RAM, 32K X 8	28	14
U5	74AC08	QUAD 2-INPUT AND GATE	14	7
U6	CUSTOM	DSP ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	17,30,45, 60,75,90, 104,120	1,15,31, 47,61,77, 91,98,106, 113
U7	MC74AC04	HEX INVERTER	14	7
U8	74BCT540	OCTAL INVERTER/BUFFER, WITH 3-STATE OUTPUTS	20	10
U9 THRU U11	M75C256B DJ-20	STATIC RAM, 32K x 8	28	14
U12, U153	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U14	MC74ACT240	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U155	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U201	CUSTOM	REFERENCE OSCILLATOR MODULE	13	1-6,26,28, 29,30-32
U202	MC145170	PHASE-LOCKED LOOP FREQUENCY SYNTHESIZER WITH SERIAL INTERFACE	16	12
U204	MC74HC4538	DUAL PRECISION MONOSTABLE MULTIVIBRATOR (RETRIGGERABLE,RESETABLE)	16	8
U205	MC74AC114	SCHMITT TRIGGER HEX INVERTER	14	7
U206	PAL22V10	PROGRAMMABLE ARRAY LOGIC (PAL)	28	14
U207	MC74AC114	SCHMITT TRIGGER HEX INVERTER	14	7
U302	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U303, U304	MAX543	12-BIT SERIAL D/A	14	6,7
U305	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U306	MAX292	FILTER, 8TH ORDER BESSEL	13	12
U308	MAX292	FILTER, 8TH ORDER BESSEL	13	12

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U309	74HC4053	MULTIPLEXER/DEMULTIPLEXER, TRIPLE 2-CHANNEL ANALOG	16	7,8
U311	DS1267-10	ELECTRONIC POT DIGITAL CONVERTER	16	8
U314	74HC4051	MULTIPLEXER/DEMULTIPLEXER, 8-CHANNEL ANALOG	16	7,8
U315	MAX190	SINGLE SUPPLY 12-BIT A/D CONVERTER	24	2,7,12
U316	MC145480	+5V PCM CODEC/FILTER	8	4
U317	LM4880	1W AUDIO POWER AMPLIFIER	12	1,4,8,9,16
U318	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U319	MC33074	QUAD DIFFERENTIAL — INPUT OPERATIONAL AMPLIFIER	4	11
U401	MC68EC040	32-BIT INTEGRATED MULTIPROTOCOL PROCESSOR	B4,D6,D7, D10,D11, D13,D14, D15,D16,F4, F5,F13,M4, J4,J14,J15, K13,L13,M4, N4,N5,N14, N15,P4,P6, P13,P14, P15,Q5,Q6, Q9,Q10, Q13,Q14, D15,E14, H15,K5,E6	
U402	MC68EC040	32-BIT MICROPROCESSOR (FOR FUTURE USE);NOT SUPPLIED (SEE NOTE 3)	R8,S8,C5, C8,C10, C12,C14, H3,H8,J3, J10,L13, M3,M5,B12, B14,C4,C6, D2,D17,G2, G17,M2, M17,R2, R17,S16	
U651 THRU U654	27C020	PROGRAMMED EPROM, 256K X 8	32	16
U655	28C64	EEPROM, 8192 X 8	32	16
U658	MC74AC7244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	24	12
U701	MC74AC132	QUAD 2-INPUT OR GATE	14	7
U702	MC74AC7244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U703	MC74AC74	DUAL D-TYPE FLIP-FLOP	14	7
U731 THRU U756	74AC652	OCTAL BUS TRANSCEIVER/REGISTER, WITH 3-STATE	20	10
U759 THRU U764	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	24	12
U765	MC74ACT14	SCHMITT TRIGGER HEX INVERTER	14	7
U766	74HC4078	8-INPUT NOR/OR GATE	14	7
U767	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U851	AM7992B		21,23	8,9,18
U852	DP8392CV		5,6,7,8,9, 10,11,20, 21,22,23, 24,25	16,17
U853	2VP5U9	NEGATIVE 9V OUTPUT REGULATOR	1,24	12,13
U903 THRU U904	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U905 THRU U907	MC145407	SINGLE SUPPLY DRIVER/RECEIVER	19	2
U908	MC145406DW	DRIVER/RECEIVER, 3-DRIVERS,3-RECEIVERS	16	9
U1002	LM293CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U1003	MC7805	+5V VOLTAGE REGULATOR	1	2
U1004	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U1005	LM293CD	LOW DROPOUT,ADJUSTABLE,POSITIVE VOLT-AGE REGULATOR	8	2,3,6,7

UNUSED GATES



STATION CONTROL MODULE
MODEL CLN6873D

parts list

CLN6873D EPIC Station Control Module Board PL–13152–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%, 50 V
C5	2113740A39	27 pF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C151	2113741B69	0.1 uF, ±5%, 50 V
C153,154	2113740A39	27 pF, ±5%, 50 V
C157	2113740A39	27 pF, ±5%, 50 V
C160	2113740A39	27 pF, ±5%, 50 V
C166	2113740A39	27 pF, ±5%, 50 V
C201	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311048A23	47 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311048A45	10 uF, ± 10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C221 thru 224	2113741A45	0.01 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C255	2113740A59	150 pF, ±5%, 50V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2113741B69	0.1 uF, ±5%, 50 V
C301	2380090M27	330 uF, ±20%, 16 V
C302	2113741A45	0.01 uF, ±5%, 50 V
C303	2113741B69	0.1 uF, ±5%, 50 V
C304	2113740A71	470 pF, ±5%, 50 V
C305,306	2113741B69	0.1 uF, ±5%, 50 V
C307	2105825S04	CAP CHIP CER 10UF 35V 2220
C309	2113740A71	470 pF, ±5%, 50 V
C311	2106825S07	CAP CHIP CER 22UF 16V
C312	2113741B69	0.1 uF, ±5%, 50 V
C315,316	2113741B69	0.1 uF, ±5%, 50 V
C317	2105825S04	CAP CHIP CER 10UF 35V 2220
C318	2113741A45	0.01 uF, ±5%, 50 V
C320	2113741A45	0.01 uF, ±5%, 50 V
C322	2106825S08	CAP CERAMIC CHIP 47UF 20 16V
C323	2113741B69	0.1 uF, ±5%, 50 V
C326	2113741A45	0.01 uF, ±5%, 50 V
C329	2113740A55	56 pF, ±5%, 50V
C331 thru 333	2113741B69	0.1 uF, ±5%, 50 V
C334	2106922S01	CAP CHIP CER 1.0UF 35V 1206
C336	2113740A49	56 pF, ±5%, 50V
C338	2113741A45	0.01 uF, ±5%, 50 V
C342	2113741B69	0.1 uF, ±5%, 50 V
C343	2106922S01	CAP CHIP CER 1.0UF 35V 1206
C344	2113741A45	0.01 uF, ±5%, 50 V
C346	2106822S04	CAP CHIP CER 10UF 35V 2220
C347 thru 349	2113741B69	0.1 uF, ±5%, 50 V
C350	2106822S08	CAP CERAMIC CHIP 47UF 20 16V
C351 thru 354	2380090M27	330 uF, ±20%, 16 V
C502	2113741B69	0.1 uF, ±5%, 50 V
C503	2106822S04	CAP CHIP CER 10UF 35V 2220
C504	2113740A31	12 pF, ±5%, 50 V
C505	2113740A45	100 pF, ±5%, 50 V
C506,508	2113740A39	27 pF, ±5%, 50 V
C509	2113740A55	100 pF, ±5%, 50 V
C510	2113741B69	0.1 uF, ±5%, 50 V
C513,514	2113740A36	20 pF, ±5%, 50V
C515	2113741B69	0.1 uF, ±5%, 50 V
C653,654	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C705	2113740A31	12 pF, ±5%, 50 V
C751 thru 756	2113740A55	100 pF, ±5%, 50 V
C777	2113740A79	1000 pF, ±5%, 50 V
C851	2113741B69	0.1 uF, ±5%, 50 V
C852	2113741F49	0.01 uF, ±5%, 50V
C853,854	2113740F35	22 pF, ±5%, 50V
C859	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C860	2109822S07	CAP CHIP CER 22UF 16V
C861	2113918A05	470 pF, ±20%, 1000 V
C862	2113741B69	0.1 uF, ±5%, 50 V
C863	2106822S07	CAP CHIP CER 22UF 16V
C864,865	2113741F37	470 pF, ±5%, 50V
C866	2113741B69	0.1 uF, ±5%, 50 V
C867	2113741F17	470 pF, ±5%, 50V
C868	2113741F49	0.01 uF, ±5%, 50V
C869	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C870	2113741F25	1000 pF, ±5%, 50V
C871,872	2109822S06	CAP CERAMIC CHIP 47UF 20 16V
C873	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C880,881	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C882,883	2113741B69	0.1 uF, ±5%, 50 V
C901 thru 912	2109822S04	CAP CHIP CER 10UF 35V 2220
C913,914	2113740A59	150 pF, ±5%, 50V
C915	2113740A79	1000 pF, ±5%, 50 V
C916	2113918A05	470 pF, ±20%, 1000 V
C917,918	2113740A79	1000 pF, ±5%, 50 V
C919	2113918A05	470 pF, ±20%, 1000 V
C920	2113740A79	1000 pF, ±5%, 50 V
C922	2113740A79	1000 pF, ±5%, 50 V
C923	2113918A05	470 pF, ±20%, 1000 V
C924,925	2113740A79	1000 pF, ±5%, 50 V
C926	2113918A05	470 pF, ±20%, 1000 V
C927,928	2113740A79	1000 pF, ±5%, 50 V
C929	2113918A05	470 pF, ±20%, 1000 V
C930	2113740A79	1000 pF, ±5%, 50 V
C932	2113740A71	470 pF, ±5%, 50 V
C933	2113918A05	470 pF, ±20%, 1000 V
C934 thru 936	2113740A79	1000 pF, ±5%, 50 V
C937	2113740A59	150 pF, ±5%, 50V
C938,939	2113740A79	1000 pF, ±5%, 50 V
C940	2113740A59	150 pF, ±5%, 50V
C941,942	2113740A79	1000 pF, ±5%, 50 V
C943	2113740A33	15 pF, ±5%, 50 V
C944	2113740A79	1000 pF, ±5%, 50 V
C1001	2109822S04	CAP CHIP CER 10UF 35V 2220
C1002	2113741B69	0.1 uF, ±5%, 50 V
C1003	2109822S04	CAP CHIP CER 10UF 35V 2220
C1004 thru 1007	2113741B69	0.1 uF, ±5%, 50 V
C1008,1009	2109822S04	CAP CHIP CER 10UF 35V 2220
C1010 thru 1012	2113741B69	0.1 uF, ±5%, 50 V
C1013	2109822S04	CAP CHIP CER 10UF 35V 2220
C1014	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1015	2311048A21	22 uF, ±10%, 20 V
C1016,1017	2109822S04	CAP CHIP CER 10UF 35V 2220
C1020	2113741B69	0.1 uF, ±5%, 50 V
C1022	2109822S04	CAP CHIP CER 10UF 35V 2220
C1023,1024	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1025 thru 1027	2109822S04	CAP CHIP CER 10UF 35V 2220
C1031 thru 1048	2113741B69	0.1 uF, ±5%, 50 V
C1050 thru 1055	2113741B69	0.1 uF, ±5%, 50 V
C1057 thru 1061	2113741B69	0.1 uF, ±5%, 50 V
C1064 thru 1066	2113741B69	0.1 uF, ±5%, 50 V
C1067	2113741A45	0.01 uF, ±5%, 50 V
C1068 thru 1075	2113741B69	0.1 uF, ±5%, 50 V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1079 thru 1082	2113741B69	0.1 uF, ±5%, 50 V
C1085,1086	2113741B69	0.1 uF, ±5%, 50 V
C1088	2113741A45	0.01 uF, ±5%, 50 V
C1089	2113741B69	0.1 uF, ±5%, 50 V
C1090	2109822S04	CAP CHIP CER 10UF 35V 2220
C1091,1092	2113741B69	0.1 uF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1093	2109822S04	CAP CHIP CER 10UF 35V 2220
C1094	2113741B69	0.1 uF, ±5%, 50 V
C1095	2113741A45	0.01 uF, ±5%, 50 V
C1096	2113741B69	0.1 uF, ±5%, 50 V
C1097	2311049A08	1 uF, ±10%, 35 V
C1099	2113741B69	0.1 uF, ±5%, 50 V
C1102	2113741A45	0.01 uF, ±5%, 50 V
C1103 thru 1106	2113741B69	0.1 uF, ±5%, 50 V
C1109	2113741A45	0.01 uF, ±5%, 50 V
C1110	2113741B69	0.1 uF, ±5%, 50 V
C1112 thru 1114	2113741B69	0.1 uF, ±5%, 50 V
C1116 thru 1122	2113741B69	0.1 uF, ±5%, 50 V
C1125 thru 1127	2113741B69	0.1 uF, ±5%, 50 V
C1129	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1130,1131	2113741B69	0.1 uF, ±5%, 50 V
C1132	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1133 thru 1153	2113741B69	0.1 uF, ±5%, 50 V
C1154	2113741A33	3300 pF, ±5%, 50 V
C1155 thru 1160	2113741B69	0.1 uF, ±5%, 50 V
C1161	2113740A69	390 pF, ±5%, 50V
C1162 thru 1166	2113741B69	0.1 uF, ±5%, 50 V
C1167	2113741A45	0.01 uF, ±5%, 50 V
C1168 thru 1187	2113741B69	0.1 uF, ±5%, 50 V
C1190	2113741B69	0.1 uF, ±5%, 50 V
C1192	2113741B69	0.1 uF, ±5%, 50 V
C1193	2109822S04	CAP CHIP CER 10UF 35V 2220
C1194 thru 1197	2113741B69	0.1 uF, ±5%, 50 V
C1199	2113741A45	0.01 uF, ±5%, 50 V
C1201	2113741A45	0.01 uF, ±5%, 50 V
C1202	2113918A05	470 pF, ±20%, 1000 V
C1203	2113740A71	470 pF, ±5%, 50 V
C1204 thru 1206	2113918A05	470 pF, ±20%, 1000 V
C1208,1209	2113741B69	0.1 uF, ±5%, 50 V
C1209 thru 1211	2113740A55	100 pF, ±5%, 50 V
		diode (see note):
CR2	4813833B01	Schottky type
CR201	4882290T02	DIODE SI HOT CARRIER*HSMS2802*
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813825A55	Hot Carrier
CR305,306	4813833C05	dual 70 V
CR851	4813833C10	0.1A, 70 V
CR852	4813833B01	Schottky type
CR901	4813833B01	Schottky type
CR1003	4813833B01	Schottky type
		light emitting diode (see note):
DS1	4882198T09	SUB MINIATURE LED GRN SM
DS2	4882198T08	SUB MINIATURE LED RED SM
DS3	4882198T10	SUB MINIATURE LED YEL SM
DS4 thru 6	4882198T09	SUB MINIATURE LED GRN SM
DS7	4882198T08	SUB MINIATURE LED RED SM
DS8	4882198T09	SUB MINIATURE LED GRN SM
		connector:
J1	0984963T02	BNC jack
P7	0984524T07	9–pin, right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813922A03	HDR 3 POS STR 1 CTR GLD PLTD
P651	(NOTE 1)	
		inductor:
L202	2411087A44	33 uH
L851	2484657R01	ferrite bead
L852	2411087A29	1.8 UH
		translator (see note):
Q1	4813824A10	NPN
Q2	4884955T01	NPN
Q3	4813824A10	NPN
Q150 thru 153	4813824A10	NPN
Q202,203	4813824A10	NPN

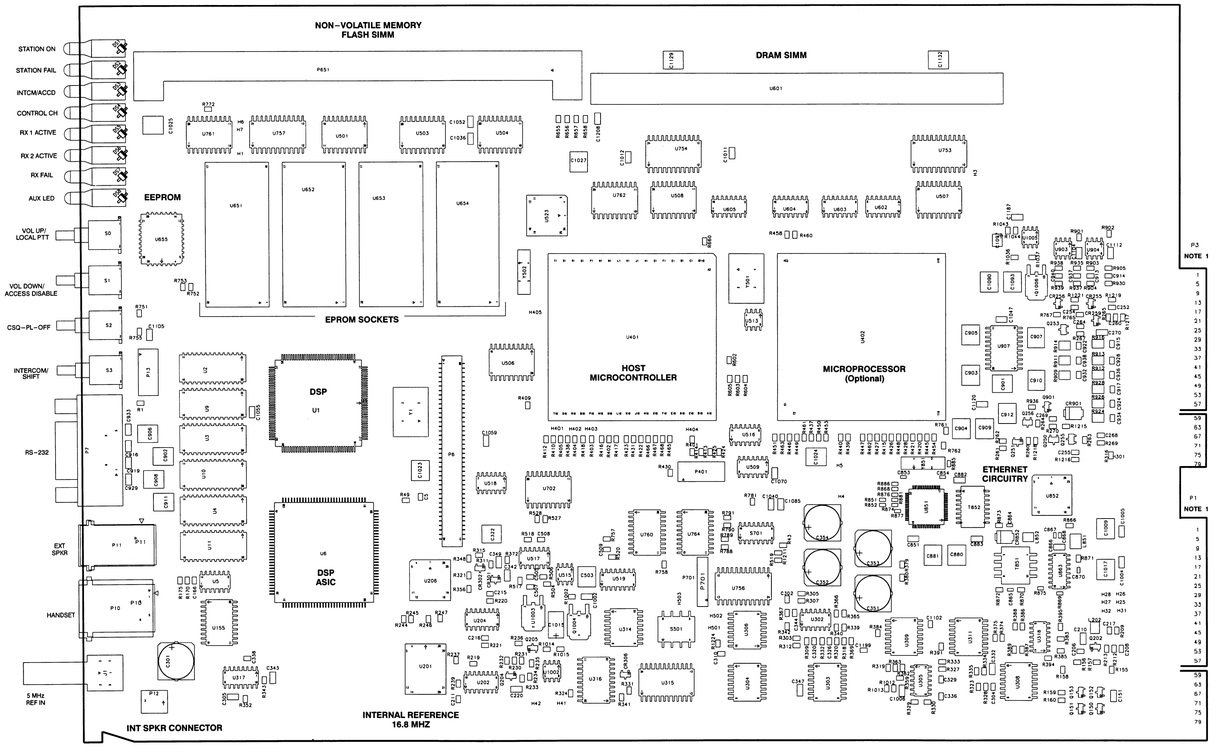
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q207	2N7002LT1	FET
Q250	4884955T01	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813824A17	P–CH FET type
Q305	4813824A10	NPN
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q901	4813824A10	NPN
Q1004	4813822A09	PNP
Q1005	4884955T01	NPN
Q1006	4813822A16	TSTR PNP 100V 4A MJD253T4
		resistor, fixed:
R1 thru 3	0611079A98	10K, ±5%, 1/10 W
R5 thru 9	0611079A01	O ohms, ±5%, 1/10 W
R10	0611079A34	22 ohms, ±5%, 1/10 W
R11,12	0611079A98	10K, ±5%, 1/10 W
R13	0611079A74	1K, ±5%, 1/10 W
R15 thru 19	0611079A98	10K, ±5%, 1/10 W
R20	0611079A98	10K, ±5%, 1/10 W
R21,22	0611079A98	10K, ±5%, 1/10 W
R23	0611072A25	100 ohms, ±5%, 1/4 W
R24,25	0611079A74	1K, ±5%, 1/10 W
R26	0611079A66	470 ohms, ±5%, 1/10 W
R27	0611079A34	22 ohms, ±5%, 1/10 W
R28	0611079A01	O ohms, ±5%, 1/10 W
R31	0611079A40	39 ohms, ±5%, 1/10 W
R32 thru 35	0611079A74	1K, ±5%, 1/10 W
R36	0611072A25	100 ohms, ±5%, 1/4 W
R37	0611079A26	10 ohms, ±5%, 1/10 W
R38	0611077A59	240 ohms, ±5%, 1/8 W
R39,40	0611079A74	1K, ±5%, 1/10 W
R43	0611079A98	10K, ±5%, 1/10 W
R44	0611079A74	1K, ±5%, 1/10 W
R45 thru 48	0611079A98	10K, ±5%, 1/10 W
R49	0611079A34	22 ohms, ±5%, 1/10 W
R153,154	0611079A98	10K, ±5%, 1/10 W
R155 thru 158	0611079A62	330 ohms, ±5%, 1/10 W
R159	0611079A82	2200 ohms, ±5%, 1/10 W
R160	0611079A69	2700 ohms, ±5%, 1/10 W
R161 thru 164	0611079A34	22 ohms, ±5%, 1/10 W
R170	0611079A70	680 ohms, ±5%, 1/10 W
R173	0611079A40	39 ohms, ±5%, 1/10 W
R175	0611079A90	4700 ohms, ±5%, 1/10 W
R202	0611079A52	120 ohms, ±5%, 1/10 W
R204	0611079A06	82K, ±5%, 1/10 W
R205	0611079E01	100K, 1/10 W, ±1%
R206	0611079B35	330K ±5% 1/10 W
R207	0611079B82	RES FIXED CHIP 240K 5 1/10 A/P
R209	0611079A90	4700 ohms, ±5%, 1/10 W
R210	0611079A34	22 ohms, ±5%, 1/10 W
R211	0611079A62	330 ohms, ±5%, 1/10 W
R212	0611079A40	39 ohms, ±5%, 1/10 W
R213	0611079A34	22 ohms, ±5%, 1/10 W
R214	0611079A36	27 ohms, ±5%, 1/10 W
R215	0611079A01	O ohms, ±5%, 1/10 W
R216	0611079E97	RES CHIP 1.0M 1/10W 1%
R217	0611079A36	27 ohms, ±5%, 1/10 W
R218	0611079A46	68 ohms, ±5%, 1/10 W
R219	0611079B11	33K, ±5%, 1/10 W
R220,221	0611079A90	4700 ohms, ±5%, 1/10 W
R223	0611079E97	RES CHIP 1.0M 1/10W 1%
R230,231	0611079A98	10K, ±5%, 1/10 W
R232	0611079A64	2700 ohms, ±5%, 1/10 W
R233 thru 235	0611079A98	10K, ±5%, 1/10 W
R236	0611079A84	2700 ohms, ±5%, 1/10 W
R237	0611079B15	47K, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R238,239	0611079A98	10K, ±5%, 1/10 W
R240 thru 247	0611079A01	O ohms, ±5%, 1/10 W
R248,249	0611079A98	10K, ±5%, 1/10 W
R250	0611079A44	56 ohms, ±5%, 1/10 W
R251,252	0611079A84	2700 ohms, ±5%, 1/10 W
R253	0611079A98	10K, ±5%, 1/10 W
R254	0611079A52	120 ohms, ±5%, 1/10 W
R255	0611079A46	68 ohms, ±5%, 1/10 W
R256	0611079A40	39 ohms, ±5%, 1/10 W
R257	0611079A98	10K, ±5%, 1/10 W
R258,259	0611079A40	39 ohms, ±5%, 1/10 W
R259	0611079A66	470 ohms, ±5%, 1/10 W
R260	0611079A98	10K, ±5%, 1/10 W
R261	0611079A52	120 ohms, ±5%, 1/10 W
R262	0611079A74	1K, ±5%, 1/10 W
R263,264	0611079A66	470 ohms, ±5%, 1/10 W
R265	0611079A68	560 5 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%, 1/10 W
R301,302	0611079A66	470 ohms, ±5%, 1/10 W
R303	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%, 1/10 W
R305	0611079B11	33K, ±5%, 1/10 W
R306	0611079A82	2200 ohms, ±5%, 1/10 W
R307	0611079A52	120 ohms, ±5%, 1/10 W
R308	0611079B13	39K, ±5%, 1/10 W
R309	0611079B03	15K, ±5%, 1/10 W
R310	0611079B13	39K, ±5%, 1/10 W
R311	0611079G01	10k, ±1%, 1/10 W
R312	0611079G18	15K, ±1%, 1/10 W
R313	0611079G01	10k, ±1%, 1/10 W
R314	0611079G58	Resistor chip 39.2K 1/10 W 1%
R315	0611079G93	909 ohms, 1/10 W, ±1%
R316	0611079A66	470 ohms, ±5%, 1/10 W
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079G18	15K, ±1%, 1/10 W
R320	0611079B05	18K, ±5%, 1/10 W
R321	0611079D69	511 ohms, 1/10 W, ±1%
R322	0611079B07	22K, ±5%, 1/10 W
R323	0611079E97	RES CHIP 1.0M 1/10W 1%
R324	0611079G58	Resistor chip 39.2K 1/10 W 1%
R325	0611079G09	Resistor: chip 147K 1/10 W 1%
R327	0611079G87	Resistor chip 78.7K 1/10 W 1%
R328	0611079G58	Resistor chip 39.2K 1/10 W 1%
R329	0611079G69	51.1K, 1/10 W, 1%
R330	0611079E01	100K, 1/10 W, ±1%
R331	0611079A98	10K, ±5%, 1/10 W
R332	0611079A44	56 ohms, ±5%, 1/10 W
R333	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R334	0611079A84	2700 ohms, ±5%, 1/10 W
R335	0611079A06	82K, ±5%, 1/10 W
R336	0611079A90	4700 ohms, ±5%, 1/10 W
R337	0611079A66	470 ohms, ±5%, 1/10 W
R339,340	0611079B13	39K, ±5%, 1/10 W
R341	0611079B03	15K, ±5%, 1/10 W
R342	0611079A84	2700 ohms, ±5%, 1/10 W
R343	0611079G18	15K, ±1%, 1/10 W
R345,347	0611079B13	39K, ±5%, 1/10 W
R346,347	0611079B13	39K, ±5%, 1/10 W
R348	0611079D69	511 ohms, 1/10 W, ±1%
R349,350	0611079F01	1.00K, 1/10 W
R351	0611079E97	RES CHIP 1.0M 1/10W 1%
R352	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R353	0611079B13	39K, ±5%, 1/10 W
R354	0611079B19	68K, ±5%, 1/10 W
R356	0611079D93	909 ohms, 1/10 W, ±1%
R357	0611079A34	22 ohms, ±5%, 1/10 W
R360	0611079A84	2700 ohms, ±5%, 1/10 W
R361	0611079A96	8200 ohms, ±5%, 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079A01	O ohms, ±5%, 1/10 W
R366	0611079G34	RES CHIP 22.1K 1/10W 1% 0805

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R367	0611079A84	2700 ohms, ±5%, 1/10 W
R369	0611079B05	18K, ±5%, 1/10 W
R370	0611079A98	10K, ±5%, 1/10 W
R371	0611079B07	22K, ±5%, 1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%, 1/10 W
R377	0611079B13	39K, ±5%, 1/10 W
R379,380	0611079A98	10K, ±5%, 1/10 W
R383	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R384,385	0611079A80	1800 ohms, ±5%, 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W, ±1%
R391,392	0611079B09	27K, ±5%, 1/10 W
R393	0611079A90	4700 ohms, ±5%, 1/10 W
R395	0611079A01	O ohms, ±5%, 1/10 W
R396	0611079A74	1K, ±5%, 1/10 W
R408,409	0611079A98	10K, ±5%, 1/10 W
R410	0611079A74	1K, ±5%, 1/10 W
R412	0611079A74	1K, ±5%, 1/10 W
R413,414	0611079A98	10K, ±5%, 1/10 W
R415	0611079A90	4700 ohms, ±5%, 1/10 W
R416	0611079A98	10K, ±5%, 1/10 W
R417	0611079A82	2200 ohms, ±5%, 1/10 W
R418 thru 444	0611079A90	4700 ohms, ±5%, 1/10 W
R445 thru 451	0611079A98	10K, ±5%, 1/10 W
R453 thru 460	0611079A98	10K, ±5%, 1/10 W
R461,462	0611079A90	4700 ohms, ±5%, 1/10 W
R463 thru 468	0611079A98	10K, ±5%, 1/10 W
R502	0611079E01	100K, 1/10 W, ±1%
R503	0611079A98	10K, ±5%, 1/10 W
R504	0611079E01	100K, 1/10 W, ±1%
R506	0611079A70	680 ohms, ±5%, 1/10 W
R507	0611079A98	10K, ±5%, 1/10 W
R514	0611079A66	470 ohms, ±5%, 1/10 W
R517,518	0611079A34	22 ohms, ±5%, 1/10 W
R519	0611079A98	10K, ±5%, 1/10 W
R520	0611079B05	18K, ±5%, 1/10 W
R521	0611079A98	10K, ±5%, 1/10 W
R527,528	0611079A01	O ohms, ±5%, 1/10 W
R529	0611079E97	RES CHIP 1.0M 1/10W 1%
R601 thru 605	0611079A34	22 ohms, ±5%, 1/10 W
R651 thru 654	0611079A34	22 ohms, ±5%, 1/10 W
R655 thru 658	0611079A34	22 ohms, ±5%, 1/10 W
R659	0611079A36	27 ohms, ±5%, 1/10 W
R660	0611079A40	39 ohms, ±5%, 1/10 W
R701	0611079A34	22 ohms, ±5%, 1/10 W
R702	0611079A74	1K, ±5%, 1/10 W
R703	0611079A84	2700 ohms, ±5%, 1/10 W
R704	0611079A74	1K, ±5%, 1/10 W
R705,706	0611079A40	39 ohms, ±5%, 1/10 W
R707	0611079A70	680 ohms, ±5%, 1/10 W
R751 thru 753	0611079A98	10K, ±5%, 1/10 W
R754	0611079A74	1K, ±5%, 1/10 W
R755	0611079E01	100K, 1/10 W, ±1%
R756,757	0611079A98	10K, ±5%, 1/10 W
R758 thru 760	0611079A98	10K, ±5%, 1/10 W
R761 thru 768	0611079A98	10K, ±5%, 1/10 W
R770 thru 772	0611079A98	10K, ±5%, 1/10 W
R774,775	0611079A98	10K, ±5%, 1/10 W
R776	0611079B13	39K, ±5%, 1/10 W
R777 thru 781	0611079A98	10K, ±5%, 1/10 W
R782	0611079E01	100K, 1/10 W, ±1%
R784 thru 791	0611079A98	10K, ±5%, 1/10 W
R794	0611079A90	4700 ohms, ±5%, 1/10 W
R796	0611079A74	1K, ±5%, 1/10 W
R797 thru 802	0611079A98	10K, ±5%, 1/10 W
R823	0611079A66	470 ohms, ±5%, 1/10 W
R824	0611079A34	22 ohms, ±5%, 1/10 W
R828	0611079A98	10K, ±5%, 1/10 W
R835	0611079A01	O ohms, ±5%, 1/10 W
R837 thru 842	0611079A01	O ohms, ±5%, 1/10 W
R852	0662057B47	CHIP RES 0 OHMS +– .050 OHMS

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R853,854	0662057Y03	RES CHIP 78.7 1% 0603
R856	0662057Y03	RES CHIP 78.7 1% 0603
R857 thru 860	0611077F12	1.5K, 1%, 1/8 W
R865	0611072B22	RES CHIP 1 MEG 5 1/4
R866	0611079F01	1.00K, 1/10 W
R868	0662057Y10	RES CHIP 10.0K 1% 30X60
R869	0662057T73	RES CHIP 33.2K 1% 30*60
R870	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R871	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R872,873	0611078A42	47 ohms, ±5%, 1/10 W
R874 thru 876	0662057P10	RES CHIP 10.0K 1% 30X60
R877	0662057R69	RES CHIP 12.4K
R881	0662057P10	RES CHIP 10.0K 1% 30X60
R882,883	0662057B47	CHIP RES 0 OHMS + – .050 OHMS
R885,886	0662057P10	RES CHIP 10.0K 1% 30X60
R901,902	0611079A98	10K, ±5%, 1/10 W
R903 thru 905	0611079A34	22 ohms, ±5%, 1/10 W
R906 thru 929	0611072A25	100 ohms, ±5%, 1/4 W
R930	0611079A34	22 ohms, ±5%, 1/10 W
R931,932	0611079A98	10K, ±5%, 1/10 W
R935	0611079A34	22 ohms, ±5%, 1/10 W
R936	0611079A90	4700 ohms, ±5%, 1/10 W
R937 thru 939	0611079A34	22 ohms, ±5%, 1/10 W
R940	0611079A98	10K, ±5%, 1/10 W
R941	0611079A90	4700 ohms, ±5%, 1/10 W
R942,943	0611079A98	10K, ±5%, 1/10 W
R1002	0611079A46	68 ohms, ±5%, 1/10 W
R1012,1013	0611079G01	10k, ±1%, 1/10 W
R1014	0611079G09	12.1K, 1/10 W, ±1%
R1015	0611079F22	Resistor: chip 1.65K 1/10 W
R1026	0611079A01	O ohms, ±5%, 1/10 W
R1032	0611079A98	10K, ±5%, 1/10 W
R1036	0611079A98	10K, ±5%, 1/10 W
R1037	0611079A46	68 ohms, ±5%, 1/10 W
R1038 thru 1040	0611079A98	10K, ±5%, 1/10 W
R1043	0611079D93	909 ohms, 1/10 W, ±1%
R1044	0611079A98	10K, ±5%, 1/10 W
R1201	0611072A25	100 ohms, ±5%, 1/4 W
R1202	0611079A01	O ohms, ±5%, 1/10 W
R1203	0611079A29	330 ohms, ±5%, 1/10 W
R1204	0611079A64	390 ohms, ±5%, 1/10 W
R1205 thru 1208	0611079A62	330 ohms, ±5%, 1/10 W
R1209	0611079A64	390 ohms, ±5%, 1/10 W
R1210	0611079A62	330 ohms, ±5%, 1/10 W
R1211,1212	0611079A98	10K, ±5%, 1/10 W
R1213,1214	0611079A01	O ohms, ±5%, 1/10 W
R1215	0611079A98	10K, ±5%, 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%, 1/10 W
R1224	0611079A62	330 ohms, ±5%, 1/10 W
		switch:
SO thru 3	4063621T01	push–button, spst
S501	4083700T02	dip, spst
S701	4082280T01	SW OT PROGRAMMABLE SHUNT
		transformer:
T851	2482074Y01	IND 47UH 20% .98A DCR .13A AM
T852	2582068V04	XFMR PULSE 1:1:1 10 BASE SM
		integrated circuit (see note):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2 thru 4	5184531T09	IC SRAM 32K08 12NS
U5	5113080A07	IC 8–Input AND Gate
U6	5184625T05	IC ASIC DSP GLUE 2 120GFP
U7	5113080A05	Hex Inverter
U8	5185486U01	IC BFR OCT INV 3–ST 74__TS40
U9 thru 11	5184531T09	IC SRAM 32K08 12NS
U152,153	5184288T01	Differential Bus Transceiver
U154	5113080A39	IC LINE DRVR OCT NON INV
U155	5113805A54	Octal Buffer Line Driver/Receiver
U201	5184720T02	REFERENCE OSC MODULE
U

STATION CONTROL MODULE
MODELS CLN6960D / CLN6961D / CLN6686G



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NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P3 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P2 AND P4 AND HAVE EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P1-1, 3	LOGIC GND	P2-2, 4	LOGIC GND	P3-1	WIDEBAND OUTPUT	P4-2	WIDE BAND INPUT
P1-5, 7	+14.2V	P2-6, 8	+14.2V	P3-5	LOGIC GND	P4-6	LOGIC GND
P1-9, 11, 13, 15, 17, 19, 21	+5V	P2-10, 12, 14, 16, 18, 20, 22	+5V	P3-7	WFI+	P4-8	WFI-
P1-23	LOGIC GND	P2-24	LOGIC GND	P3-9	DLAN1+	P4-10	DLAN1-
P1-25	SPI MISO	P2-26	SPI MOSI	P3-11	FAN +	P4-12	N.C.
P1-27	SPI CLK	P2-28	ALT RESET	P3-13	LOGIC GND	P4-14	LOGIC GND
P1-29	HDLC DATA	P2-30	HDLC BUSY	P3-15	PL STRIP	P4-16	AUX INDICATE
P1-31	HDLC CLK	P2-32	TDM FS	P3-17	MONITOR	P4-18	N.C.
P1-33	TDM DATA	P2-34	TDM CLK	P3-19	N.C.	P4-20	PATCH INH
P1-35	SPARE 1	P2-36	SPARE 2	P3-21	MRTI PTT	P4-22	MRTI RX AUDIO
P1-37	HOST TPPS	P2-38	EXP SPI REQ	P3-23	MRTI TX AUDIO	P4-24	N.C.
P1-39	EXP SPI GRANT	P2-40	EXP HOST REQ	P3-25	RX CARRIER	P4-26, 28	LOGIC GND
P1-41	SPI A0	P2-42	SPI A1	P3-27, 29, 31	LOGIC GND	P4-30	LOGIC GND
P1-43	TX SPI GRANT	P2-44	SPI A5	P3-33	TXD3	P4-32	MODEM RESET
P1-45	SPI A4	P2-46	SPI A3	P3-35	RTS3	P4-34	RXD3
P1-47	SPI A2	P2-48	TX SPI REQ	P3-37	DSR3	P4-36	CTS3
P1-49	PTT REQ	P2-50	TX HOST REQ	P3-39	DCD3	P4-38	LOGIC GND
P1-51, 53	LOGIC GND	P2-52, 54	LOGIC GND	P3-41	TCLK3	P4-40	LLPBK3
P1-55	RX 2.1 MHz REF	P2-56	TX 2.1 MHz REF	P3-43	DTR3	P4-42	RCLK3
P1-57	LOGIC GND	P2-58	LOGIC GND	P3-45, 47	LOGIC GND	P4-44	RLPBK3
P1-59	REF AUDIO	P2-60	VCO AUDIO	P3-49	N.C.	P4-46, 48	LOGIC GND
P1-61	LOGIC GND	P2-62	LOGIC GND	P3-51	TXD1	P4-50	RXD1
P1-63	TX WB AUDIO	P2-64	5 MHz REF (REAR)	P3-53	RTS1	P4-52	CTS1
P1-65	LOGIC GND	P2-66	LOGIC GND	P3-55	LOGIC GND	P4-54	DCD1
P1-67	RX2 AGC	P2-68	RX2 ODC	P3-57	DTR1	P4-56	DSR1
P1-69	RX2 SBI	P2-70	RX2 DATA	P3-59	TSTAT	P4-58	SERIAL ID
P1-71	RX2 DATA	P2-72	LOGIC GND	P3-61	N.C.	P4-60	TPTT
P1-73	LOGIC GND	P2-74	RX1 AGC	P3-63	RSTAT	P4-62	MUTE
P1-75	RX1 ODC	P2-76	RX1 SBI	P3-65	LOGIC GND	P4-64	CCI
P1-77	RX1 DATA	P2-78	RX1 DATA	P3-67	TX DATA+	P4-66	LOGIC GND
P1-79	LOGIC GND	P2-80	LOGIC GND	P3-69	TX DATA-	P4-68	6809 RX AUDIO
				P3-71, 73, 75,77, 79	LOGIC GND	P4-70, 72	LOGIC GND
						P4-74	GPS 1PPS
						P4-76	ETHERNET GND
						P4-78	ETHERNET SIGNAL
						P4-80	ETHERNET GND

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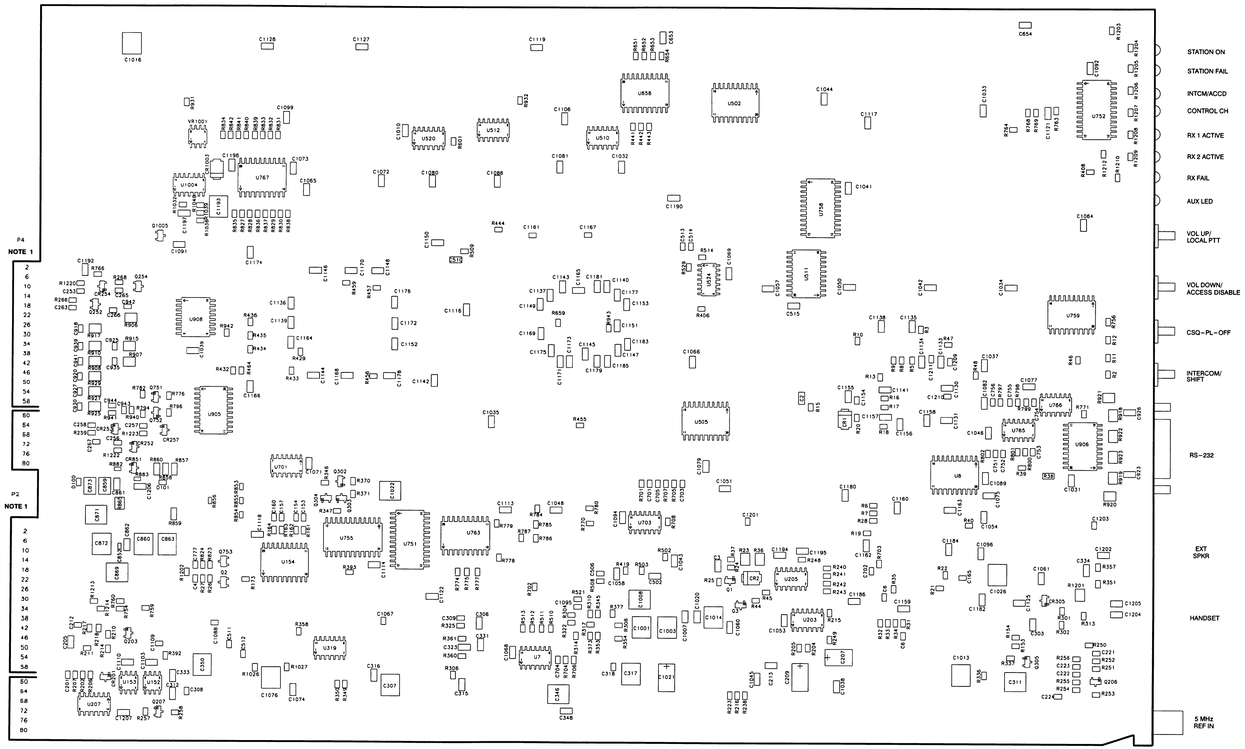
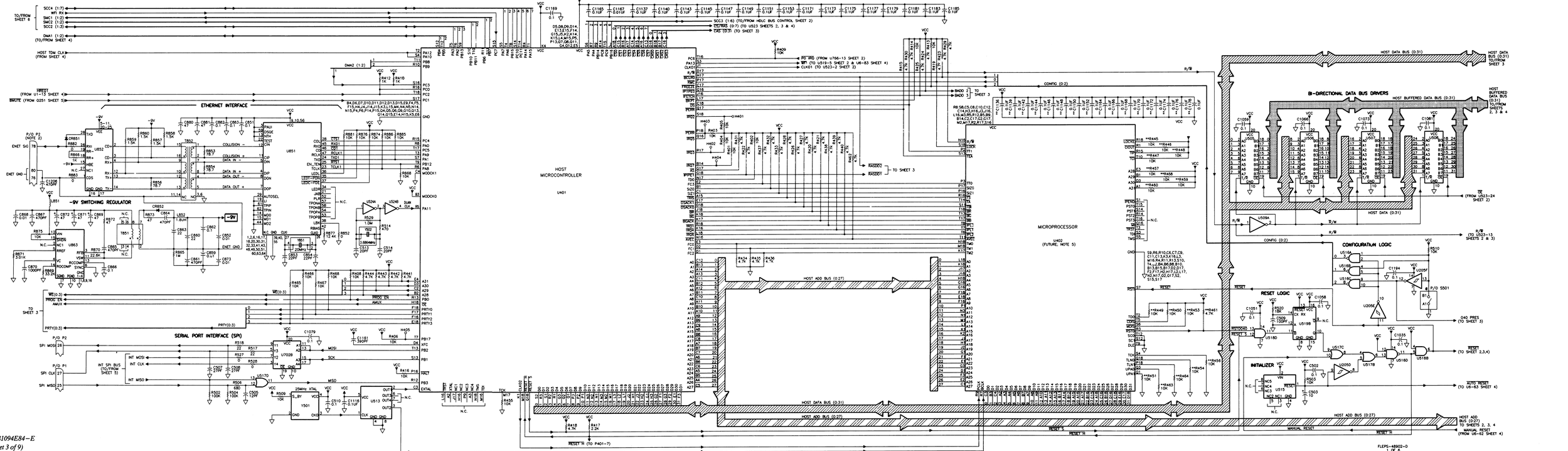
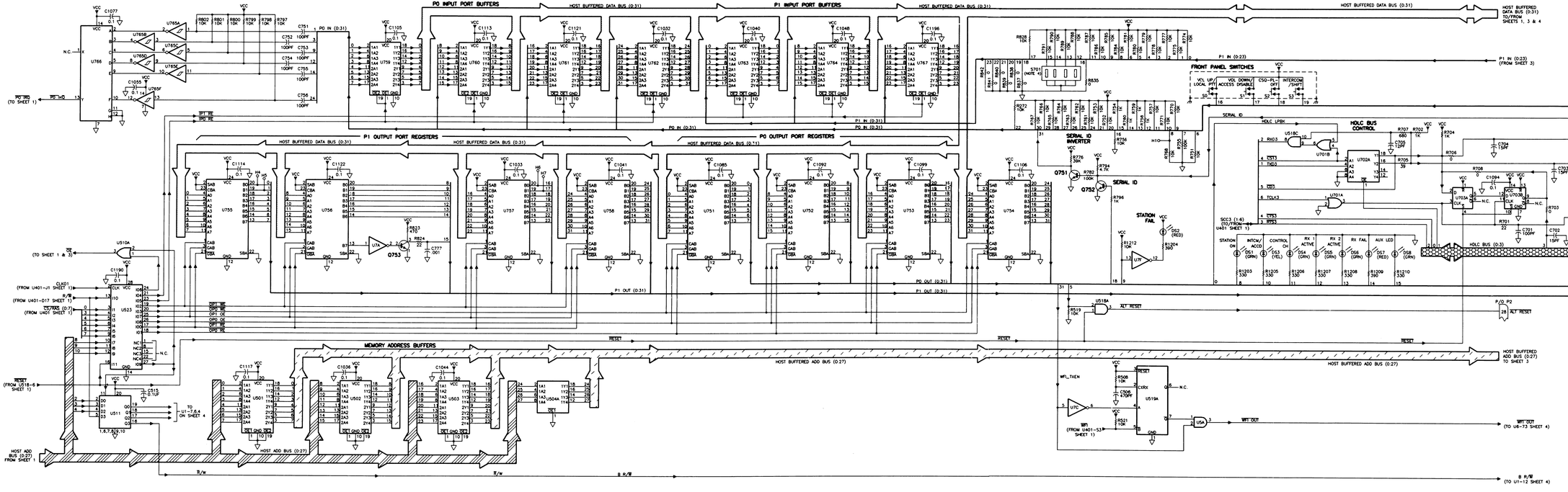
STATION CONTROL MODULE
MODELS CLN6960D / CLN6961D / CLN6686G



STATION CONTROL MODULE

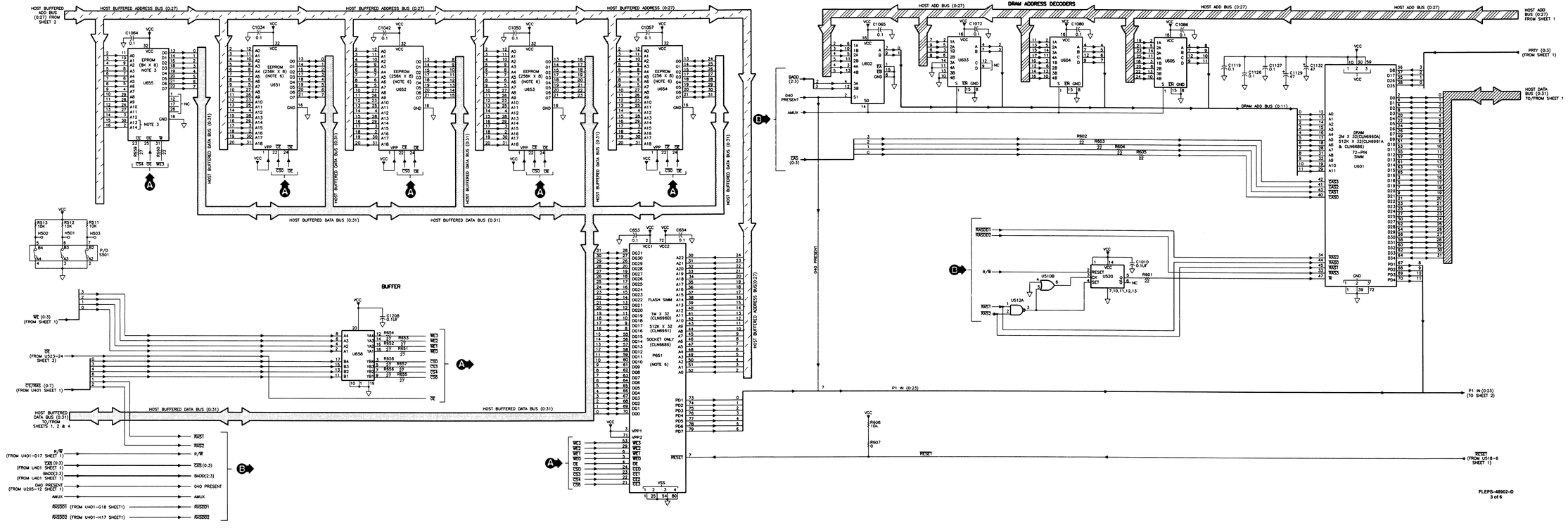
MODELS CLN6960D / CLN6961D / CLN6686G




P0 INPUT PORT BUFFERS
P1 INPUT PORT BUFFERS
HOST BUFFERED DATA BUS (0:31)
P1 OUTPUT PORT REGISTERS
P0 OUTPUT PORT REGISTERS
MEMORY ADDRESS BUFFERS
HOST BUFFERED ADD BUS (0:27)
FRONT PANEL SWITCHES
SERIAL ID
SERIAL ID INVERTER
HDLC BUS CONTROL
STATION FAIL
XLT RESET
WPT OUT
HDLC BUS (0:3)
FLEPS-48902-D
2 of 6
68P81094E84-E
(Sheet 4 of 9)
4/15/01-UP

STATION CONTROL MODULE

MODELS CLN6960D / CLN6961D / CLN6686G


HOST BUFFERED ADD BUS (0:27) FROM SHEET 2
HOST BUFFERED ADDRESS BUS (0:27)
HOST BUFFERED DATA BUS (0:31)
EPROM (8K X 8) NOTE 3
EEPROM (256K X 8) (NOTE 6)
U655
U652
U651
U653
U654
BUFFER
U658
U650
U651
SOCKET ONLY (CLN6686)
(NOTE 6)
FLASH SIMM
1M X 32 (CLN6960)
512K X 32 (CLN6961)
WE (0:3) (FROM SHEET 1)
OE (FROM U523-24 SHEET 3)
CS/RAS (0:7) (FROM U401 SHEET 1)
HOST BUFFERED DATA BUS (0:31) TO/FROM SHEETS 1, 2 & 4
R/W (FROM U401-D17 SHEET 1)
CAS (0:3) (FROM U401 SHEET 1)
BADD(2:3) (FROM U401 SHEET 1)
040 PRESENT (FROM U205-12 SHEET 1)
AMUX
RASD01 (FROM U401-G18 SHEET1)
RASD02 (FROM U401-H17 SHEET1)
RAS1
RAS2
R/W
CAS (0:3)
BADD(2:3)
040 PRESENT
AMUX
RASD01
RASD02
HOST BUFFERED ADDRESS BUS(0:27)
DRAM ADDRESS DECODERS
HOST ADD BUS (0:27)
HOST ADD BUS (0:27) FROM SHEET 1
DRAM ADD BUS (0:11)
DRAM 2M X 32(CLN6960A) 512K X 32(CLN6961A & CLN6686) 72-PIN SIMM
U601
U505
U520
U510B
U512A
P1 IN (0:23)
P1 IN (0:23) (TO SHEET 2)
PRTY (0:3) (FROM SHEET 1)
HOST DATA BUS (0:31) TO/FROM SHEET 1
RESET
RESET (FROM U518-6 SHEET 1)
040 PRESENT
BADD (2:3)
AMUX
CAS (0:3)
R602
R603
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R712
R713
C1064
C1034
C1042
C1050
C1057
C1065
C1072
C1080
C1088
C1119
C1126
C1127
C1129
C1132
C1208
C1010
C653
C654
VCC
GND
NC
S1
P/O S501
H501
H502
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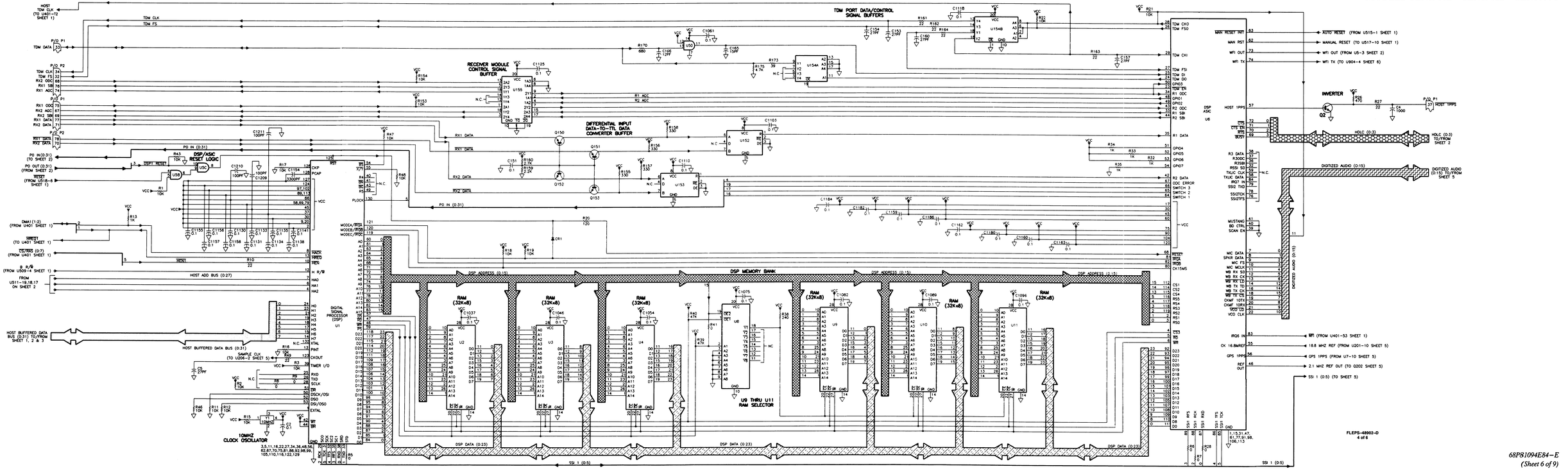
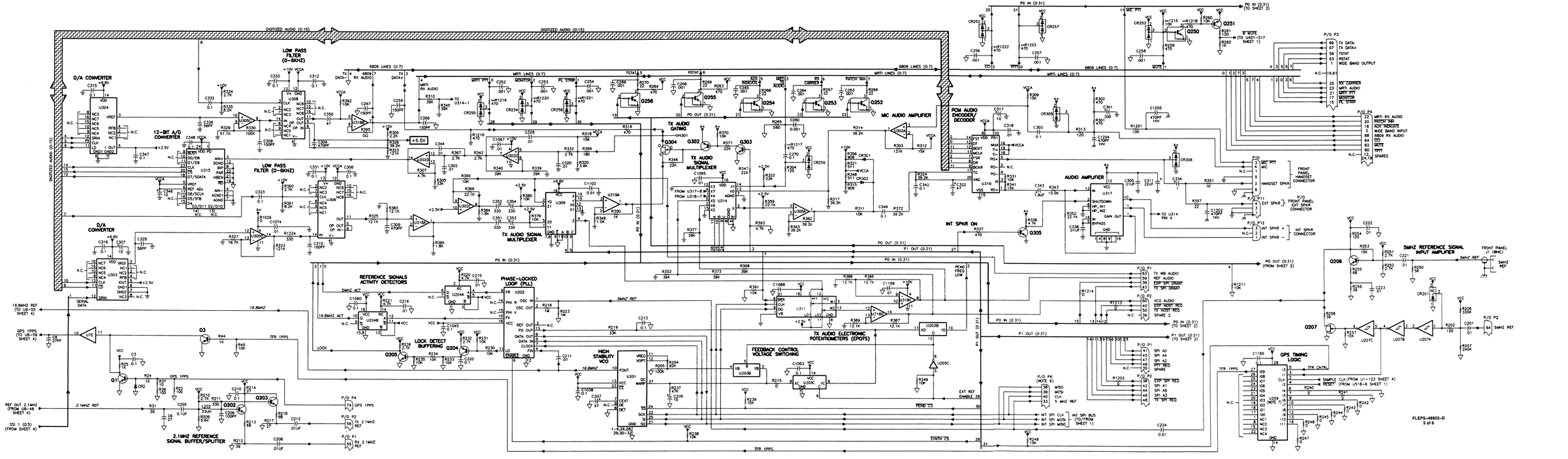
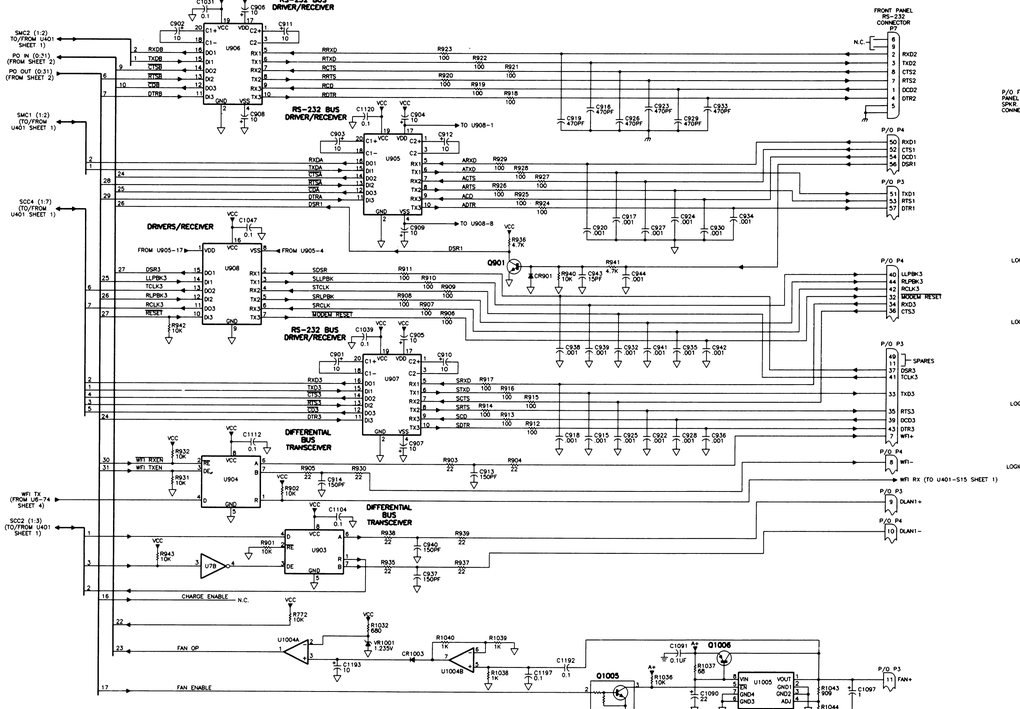
H540


TDM PORT DATA/CONTROL SIGNAL BUFFERS
RECEIVER MODULE CONTROL SIGNAL BUFFER
DIFFERENTIAL INPUT DATA-TO-TTL DATA CONVERTER BUFFER
DSP/ASIC RESET LOGIC
DIGITAL SIGNAL PROCESSOR (DSP) U1
DSP MEMORY BANK
U9 THRU U11 RAM SELECTOR
CLOCK OSCILLATOR
INVERTER
DSP ASIC U6
CK15MS
HOST TDM CLK (TO U401=12 SHEET 1)
TDM CLK
TDM FS
TDM DATA
HOST BUFFERED DATA BUS (0:31) TO/FROM SHEET 1, 2 & 3
HOST ADD BUS (0:27)
DSP ADDRESS (0:15)
DSP DATA (0:23)
SSI 1 (0:5)
XOTO RESET (FROM U515-1 SHEET 1)
MANUAL RESET (TO U517-10 SHEET 1)
WFI OUT (FROM U5-3 SHEET 2)
WFI TX (TO U904-4 SHEET 6)
HOST TPPS
HDLC (0:3) TO/FROM SHEET 2
DIGITIZED AUDIO (0:15) TO/FROM SHEET 5
DIGITIZED AUDIO (0:15)
WFI (FROM U401-53 SHEET 1)
18.8 MHZ REF (FROM U201-10 SHEET 5)
GPS 1PPS (FROM U7-10 SHEET 5)
2.1 MHZ REF OUT (TO Q202 SHEET 5)
SSI 1 (0:5) (TO SHEET 5)
FLEPS-48902-D
4 of 6

STATION CONTROL MODULE

MODELS CLN6960D / CLN6961D / CLN6686G




RS-232 BUS DRIVER/RECEIVER
RS-232 BUS DRIVER/RECEIVER
DRIVERS/RECEIVER
RS-232 BUS DRIVER/RECEIVER
DIFFERENTIAL BUS TRANSCEIVER
DIFFERENTIAL BUS TRANSCEIVER
FRONT PANEL RS-232 CONNECTOR P7
SMC2 (1:2) TO/FROM UA01 SHEET 1)
PO IN (0:31) (FROM SHEET 2)
PO OUT (0:31) (FROM SHEET 2)
SMC1 (1:2) (TO/FROM U401 SHEET 1)
SCC2 (1:7) (TO/FROM U401 SHEET 1)
SCC2 (1:3) (TO/FROM U401 SHEET 1)
WTI TX (FROM U6-74 SHEET 4)
WTI RX (TO U401-S15 SHEET 1)
CHARGE ENABLE
FAN OP
FAN ENABLE
MODEM RESET
Q901
Q1004
Q1005
Q1006
+5V REGULATOR
+10V REGULATOR
U1003
U1002
U1004
U1005
U1006
U1007
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U1038
U1039
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U1041
U1042
U1043

STATION CONTROL MODULE
MODELS CLN6960D / CLN6961D / CLN6686G

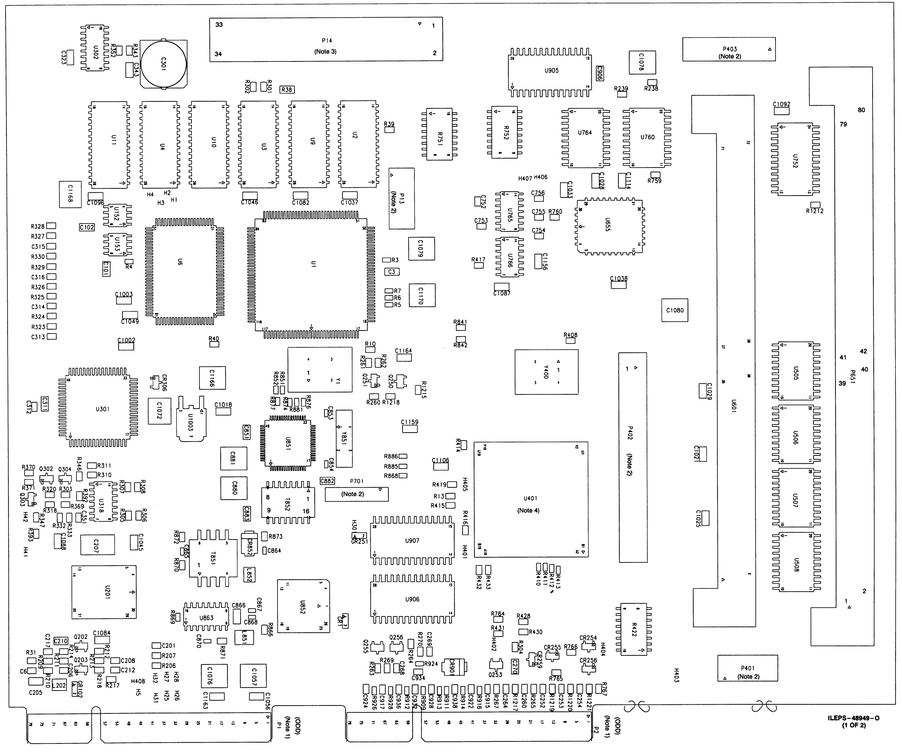
parts list

CLN6960D / CLN6961D / CLN6686G
EPIC Station Control Module Board **PL–13167–A**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%, 50 V
C5	2113740A39	27 pF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%,50 V
C151	2113741B69	0.1 uF, ±5%, 50 V
C153,154	2113740A39	27 pF, ±5% 50 V
C157	2113740A39	27 pF, ±5% 50 V
C160	2113740A39	27 pF, ±5% 50 V
C166	2113740A31	12 pF, ±5% 50 V
C201	2113741A45	0.01 uF, ±5% 50 V
C205	2113741B69	0.1 uF, ±5% 50 V
C206	2113740A55	100 pF, ±5% 50 V
C207	2113046A23	47 uF, ±10% 10 V
C208	2113741A45	0.01 uF, ±5% 50 V
C209	2113049A45	10 uF, ±10% 35 V
C210	2113741B69	0.1 uF, ±5% 50 V
C211,212	2113741A45	0.01 uF, ±5% 50 V
C213	2113741B69	0.1 uF, ±5% 50 V
C215,216	2113741A45	0.01 uF, ±5% 50 V
C220	2113741B69	0.1 uF, ±5% 50 V
C221 thru 224	2113741A45	0.01 uF, ±5% 50 V
C252 thru 254	2113740A79	1000 pF, ±5% 50 V
C255	2113740A59	150 pF, ±5% 50V
C256 thru 258	2113740A79	1000 pF, ±5% 50 V
C260	2113740A79	1000 pF, ±5% 50 V
C263 thru 265	2113740A79	1000 pF, ±5% 50 V
C266,267	2113740A59	150 pF, ±5% 50V
C268,269	2113740A79	1000 pF, ±5% 50 V
C270	2113741B69	0.1 uF, ±5% 50 V
C301	2380909M27	33 uF, ±20% 16 V
C302	2113741A45	0.01 uF, ±5% 50 V
C303	2113741B69	0.1 uF, ±5% 50 V
C304	2113741A45	0.01 uF, ±5% 50 V
C305,306	2113741B69	0.1 uF, ±5% 50 V
C307	2109822504	CAP CHIP CER 100UF 35V 2220
C309	2113740A71	470 pF, ±5% 50 V
C311	2109822507	CAP CHIP CER 22UF 16V
C312	2113741B69	0.1 uF, ±5% 50 V
C315,316	2113741B69	0.1 uF, ±5% 50 V
C317	2109822504	CAP CHIP CER 100F 35V 2220
C318	2113741A45	0.01 uF, ±5% 50 V
C320	2113741A45	0.01 uF, ±5% 50 V
C322	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C323	2113741B69	0.1 uF, ±5% 50 V
C326	2113741A45	0.01 uF, ±5% 50 V
C329	2113740A49	56 pF, ±5% 50V
C331 thru 333	2113741B69	0.1 uF, ±5% 50 V
C334	2109822501	CAP CHIP CER 1.0UF 35V 1206
C336	2113740A49	56 pF, ±5% 50V
C338	2113741A45	0.01 uF, ±5% 50 V
C342	2113741B69	0.1 uF, ±5% 50 V
C343	2109822501	CAP CHIP CER 1.0UF 35V 1206
C344	2113741A45	0.01 uF, ±5% 50 V
C346	2109822504	CAP CHIP CER 100UF 35V 2220
C347 thru 349	2113741B69	0.1 uF, ±5% 50 V
C350	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C351 thru 354	2380090M27	330 uF, ±20% 16 V
C502	2113741B69	0.1 uF, ±5% 50 V
C503	2109822504	CAP CHIP CER 100UF 35V 2220
C505	2113740A31	12 pF, ±5% 50 V
C506	2113740A71	470 pF, ±5% 50 V
C507,508	2113740A39	27 pF, ±5% 50 V
C509	2113740A55	100 pF, ±5% 50 V
C510	2113741B69	0.1 uF, ±5% 50 V
C513,514	2113740A36	20 pF, ±5% 50V
C515	2113741B69	0.1 uF, ±5% 50 V
C653,654	2113741B69	0.1 uF, ±5% 50 V
C701	2113740A55	100 pF, ±5% 50 V
C705	2113740A31	12 pF, ±5% 50 V
C751 thru 756	2113740A55	100 pF, ±5% 50 V
C777	2113740A79	1000 pF, ±5% 50 V
C851	2113741B69	0.1 uF, ±5% 50 V
C852	2113741A49	0.01 uF, ±5% 50V
C853,854	2113740F35	22 pF, ±5% 50V
C859	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C860	2109822507	CAP CHIP CER 22UF 16V
C861	2113918A05	470 pF, ±20% 1000 V
C862	2113741B69	0.1 uF, ±5% 50 V
C863	2109822507	CAP CHIP CER 22UF 16V
C864,865	2113741F17	470 pF, ±5% 50V
C866	2113741B69	0.1 uF, ±5% 50 V
C867	2113741F17	470 pF, ±5% 50V
C868	2113741F49	0.01 uF, ±5% 50V
C869	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C870	2113741F25	1000 pF, ±5% 50V
C871,872	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C873	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C880,881	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C882,883	2113741B69	0.1 uF, ±5% 50 V
C901 thru 912	2109822504	CAP CHIP CER 100UF 35V 2220
C913,914	2113740A59	150 pF, ±5% 50V
C915	2113740A79	1000 pF, ±5% 50 V
C916	2113918A05	470 pF, ±20% 1000 V
C917,918	2113740A79	1000 pF, ±5% 50 V
C919	2113918A05	470 pF, ±20% 1000 V
C920	2113740A79	1000 pF, ±5% 50 V
C922	2113740A79	1000 pF, ±5% 50 V
C923	2113918A05	470 pF, ±20% 1000 V
C924,925	2113740A79	1000 pF, ±5% 50 V
C926	2113918A05	470 pF, ±20% 1000 V
C927,928	2113741B69	0.1 uF, ±5% 50 V
C929	2113918A05	470 pF, ±20% 1000 V
C930	2113740A79	1000 pF, ±5% 50 V
C932	2113740A79	1000 pF, ±5% 50 V
C933	2113918A05	470 pF, ±20% 1000 V
C934 thru 936	2113740A79	1000 pF, ±5% 50 V
C937	2113740A79	1000 pF, ±5% 50 V
C938,939	2113740A79	1000 pF, ±5% 50 V
C940	2113740A59	150 pF, ±5% 50V
C941,942	2113740A79	1000 pF, ±5% 50 V
C943	2113740A33	15 pF, ±5% 50 V
C944	2113740A79	1000 pF, ±5% 50 V
C1001	2109822504	CAP CHIP CER 100UF 35V 2220
C1002	2113741B69	0.1 uF, ±5% 50 V
C1003	2109822504	CAP CHIP CER 100UF 35V 2220
C1004 thru 1007	2113741B69	0.1 uF, ±5% 50 V
C1008,1009	2109822504	CAP CHIP CER 100UF 35V 2220
C1010 thru 1012	2113741B69	0.1 uF, ±5% 50 V
C1013	2109822504	CAP CHIP CER 100UF 35V 2220
C1014	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C1015	2311049A21	22 uF, ±10% 25 V
C1016,1017	2109822504	CAP CHIP CER 100UF 35V 2220
C1020	2113741B69	0.1 uF, ±5% 50 V
C1022	2109822504	CAP CHIP CER 100UF 35V 2220
C1023,1024	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C1025 thru 1027	2109822504	CAP CHIP CER 100UF 35V 2220
C1031 thru 1048	2113741B69	0.1 uF, ±5% 50 V
C1050 thru 1055	2113741B69	0.1 uF, ±5% 50 V
C1057 thru 1061	2113741B69	0.1 uF, ±5% 50 V
C1064 thru 1068	2113741B69	0.1 uF, ±5% 50 V
C1067	2113741A45	0.01 uF, ±5% 50 V
C1068 thru 1075	2113741B69	0.1 uF, ±5% 50 V
C1077	2113741B69	0.1 uF, ±5% 50 V
C1079 thru 1082	2113741B69	0.1 uF, ±5% 50 V
C1085,1086	2113741B69	0.1 uF, ±5% 50 V
C1088	2113741A45	0.01 uF, ±5% 50 V
C1089	2113741B69	0.1 uF, ±5% 50 V
C1090	2109822504	CAP CHIP CER 100UF 35V 2220
C1091,1092	2113741B69	0.1 uF, ±5% 50 V
C1093	2109822504	CAP CHIP CER 100UF 35V 2220
C1094	2113741B69	0.1 uF, ±5% 50 V
C1095	2113741A45	0.01 uF, ±5% 50 V
C1096	2113741B69	0.1 uF, ±5% 50 V
C1097	2311049A08	1 uF, ±10%, 35 V
C1099	2113741B69	0.1 uF, ±5% 50 V
C1102	2113741A45	0.01 uF, ±5% 50 V
C1103 thru 1106	2113741B69	0.1 uF, ±5% 50 V
C1109	2113741A45	0.01 uF, ±5% 50 V
C1110	2113741B69	0.1 uF, ±5% 50 V
C1112 thru 1114	2113741B69	0.1 uF, ±5% 50 V
C1116 thru 1122	2113741B69	0.1 uF, ±5% 50 V
C1125 thru 1127	2113741B69	0.1 uF, ±5% 50 V
C1129	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C1130,1131	2113741B69	0.1 uF, ±5% 50 V
C1132	2109822508	CAP CERAMIC CHIP 47UF 20 16V
C1133 thru 1153	2113741B69	0.1 uF, ±5% 50 V
C1154	2113741A33	3300 pF, ±5% 50 V
C1155 thru 1160	2113741B69	0.1 uF, ±5% 50 V
C1161	2113740A69	390 pF, ±5% 50V
C1162 thru 1166	2113741B69	0.1 uF, ±5% 50 V
C1167	2113741A45	0.01 uF, ±5% 50 V
C1168 thru 1187	2113741B69	0.1 uF, ±5% 50 V
C1190	2113741B69	0.1 uF, ±5% 50 V
C1192	2113741B69	0.1 uF, ±5% 50 V
C1193	2109822504	CAP CHIP CER 100UF 35V 2220
C1194 thru 1197	2113741B69	0.1 uF, ±5% 50 V
C1199	2113741A45	0.01 uF, ±5% 50 V
C1201	2113741A45	0.01 uF, ±5% 50 V
C1202	2113918A05	470 pF, ±20% 1000 V
C1203	2113740A71	470 pF, ±5% 50 V
C1204 thru 1206	2113918A05	470 pF, ±20% 1000 V
C1207,1208	2113741B69	0.1 uF, ±5% 50 V
C1209 thru 1211	2113740A55	100 pF, ±5% 50 V
CR2	4813833B01	**diode (see note):** Schottky type
CR201	4802907D02	DIODE SI HOT CARRIER*HSMS2802*
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813825A05	Si Hot Carrier
CR305,306	4813833C05	dual 70 V
CR651	4813833C10	0.1A, 70 V
CR652	4813833B01	Schottky type
CR901	4813833B01	Schottky type
CR1003	4813833B01	Schottky type
DS1	4862198T09	**light emitting diode (see note):** SUB MINIATURE LED GRN SM
DS2	4862198T08	SUB MINIATURE LED RED SM
DS3	4862198T10	SUB MINIATURE LED YEL SM
DS4 thru 6	4862198T09	SUB MINIATURE LED GRN SM
DS7	4862198T08	SUB MINIATURE LED RED SM
DS8	4862198T09	SUB MINIATURE LED GRN SM
J1	0984963T02	**connector:** BNC jack
P7	0984547D07	7 pin right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813923A03	3 X 3 POS STR .1 CTR GLD PLTD
P651	(NOTE 1)	
L202	2411087A44	**inductor:** 33 uH
L851	2484657B01	ferrite bead
L852	2411087A29	1.8 UH
Q1	4813824A10	**translator (see note):** NPN
Q201	4884955T01	NPN
Q3	4813824A10	NPN
Q150 thru 153	4813824A10	NPN
Q202,203	4813824A10	NPN
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q207	2N7002LT1	FET
Q250	4884955T01	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A08	P–CH FET type
Q305	4813824A10	NPN
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q901	4813824A10	NPN
Q1004	4813823A09	PNP
Q1005	4884955T01	NPN
Q1006	4813822A16	TSTR PNP 100V 4A MJD253T4
R1 thru 3	0611079B66	**resistor, fixed:** 470 ohms, ±5%, 1/10 W
RS thru 9	0611079A01	O ohms, ±5%; 1/10 W
R10	0611079BA34	22 ohms, ±5%; 1/10 W
R11,12	0611079B98	10K ±5%; 1/10 W
R13	0611079A74	1K, ±5%; 1/10 W
R15 thru 19	0611079B98	10K, ±5%; 1/10 W
R20	0611079A52	120 ohms, ±5%; 1/10 W
R21,22	0611079B66	470 ohms, ±5%; 1/10 W
R23	0611072A25	100 ohms, ±5%; 1/4 W
R24,25	0611079A74	1K, ±5%; 1/10 W
R26	0611079A66	470 ohms, ±5%; 1/10 W
R27	0611079A34	22 ohms, ±5%; 1/10 W
R28	0611079A01	O ohms, ±5%; 1/10 W
R31	0611079A40	39 ohms, ±5%; 1/10 W
R32 thru 35	0611079A74	1K, ±5%; 1/10 W
R36	0611079A66	470 ohms, ±5%; 1/4 W
R37	0611079B28	10 ohms, ±5%; 1/10 W
R38	0611077A59	240 ohms, ±5%; 1/8 W
R39,40	0611079B15	47K, ±5%; 1/10 W
R43	0611079A98	10K, ±5%; 1/10 W
R44	0611079A74	1K, ±5%; 1/10 W
R45 thru 48	0611079A03	O ohms, ±5%; 1/10 W
R49	0611079A34	22 ohms, ±5%; 1/10 W
R53,154	0611079A98	10K, ±5%; 1/10 W
R155 thru 158	0611079A52	120 ohms, ±5%; 1/10 W
R159	0611079A82	2200 ohms, ±5%; 1/10 W
R160	0611079A58	270 ohms, ±5%; 1/10 W
R161 thru 164	0611079A34	22 ohms, ±5%; 1/10 W
R170	0611079A70	680 ohms, ±5%; 1/10 W
R173	0611079A40	39 ohms, ±5%; 1/10 W
R175	0611079A90	4700 ohms, ±5%; 1/10 W
R202	0611079A52	120 ohms, ±5%; 1/10 W
R204	0611079B01	100 ohms, ±5%; 1/10 W
R205	0611079E01	100K, 1/10 W; ±1%
R206	0611079B35	330K ±5%; 1/10 W
R207	0611079B32	RES FIXED CHIP 240K 5 1/10 A/P
R209	0611079A92	5600 ohms, ±5%; 1/10 W
R210	0611079A54	2700 ohms, ±5%; 1/10 W
R211	0611079A82	2200 ohms, ±5%; 1/10 W
R212	0611079A40	39 ohms, ±5%; 1/10 W
R213	0611079A46	68 ohms, ±5%; 1/10 W
R214	0611079A46	68 ohms, ±5%; 1/10 W
R215	0611079A01	O ohms, ±5%; 1/10 W
R216	0611079E97	RES CHIP 1.0M 1/10W 1%
R217	0611079A36	27 ohms, ±5%; 1/10 W
R218	0611079A46	68 ohms, ±5%; 1/10 W
R219	0611079B11	33K, ±5%; 1/10 W
R220,221	0611079A90	4700 ohms, ±5%; 1/10 W
R223	0611079E97	RES CHIP 1.0M 1/10W 1%
R230,231	0611079A98	10K, ±5%; 1/10 W
R232	0611079AB4	2700 ohms, ±5%; 1/10 W
R233 thru 235	0611079A98	10K, ±5%; 1/10 W
R236	0611079G01	10K, ±1%; 1/10 W
R237	0611079B15	47K, ±5%; 1/10 W
R238,239	0611079A98	10K, ±5%; 1/10 W
R240 thru 247	0611079A01	O ohms, ±5%; 1/10 W
R248,249	0611079A98	10K, ±5%;1/10 W
R250	0611079A44	56 ohms, ±5%; 1/10 W
R251,252	0611079A84	2700 ohms, ±5%; 1/10 W
R253	0611079B98	10K, ±5%; 1/10 W
R254	0611079A52	120 ohms, ±5%; 1/10 W
R255	0611079A46	68 ohms, ±5%; 1/10 W
R256	0611079A40	39 ohms, ±5%; 1/10 W
R257	0611079A98	10K, ±5%; 1/10 W
R258	0611079A40	39 ohms, ±5%; 1/10 W
R259	0611079A66	470 ohms, ±5%; 1/10 W
R260	0611079A52	120 ohms, ±5%; 1/10 W
R261	0611079A52	120 ohms, ±5%; 1/10 W
R262	0611079A98	10K, ±5%; 1/10 W
R263,264	0611079A66	470 ohms, ±5%; 1/10 W
R265	0611079A56	560 5 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%; 1/10 W
R301,302	0611079A66	470 ohms, ±5%; 1/10 W
R303	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%; 1/10 W
R305	0611079B11	33K, ±5%; 1/10 W
R306	0611079A82	2200 ohms, ±5%; 1/10 W
R307	0611079A90	4700 ohms, ±5%; 1/10 W
R308	0611079B13	39K, ±5%; 1/10 W
R309	0611079B03	15K, ±5%; 1/10 W
R310	0611079B13	39K, ±5%; 1/10 W
R311	0611079G01	10K, ±1%; 1/10 W
R312	0611079G18	15K, ±1%; 1/10 W
R313	0611079A52	120 ohms, ±5%; 1/10 W
R314	0611079G58	Resistor chip 39.2K 1/10 W 1%
R315	0611079D93	909 ohms, 1/10 W; ±1%
R316	0611079A66	470 ohms, ±5%; 1/4 W
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079B03	15K, ±5%; 1/10 W
R320	0611079A88	3300 ohms, ±5%; 1/10 W
R321	0611079D69	511 ohms, 1/10 W; ±1%
R322	0611079B09	22K, ±5%; 1/10 W
R323	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R324	0611079G56	Resistor chip 39.2K 1/10 W 1%
R325	0611079G03	12.1K, 1/10 W; ±1%
R327	0611079G87	Resistor chip 78.7K 1/10 W 1%
R328	0611079G58	Resistor chip 39.2K 1/10 W 1%
R329	0611079G69	511K, 1/10 W; ±1%
R330	0611079E01	100K, 1/10 W; ±1%
R331	0611079A98	10K, ±5%; 1/10 W
R332	0611079A48	2700 ohms, ±5%; 1/10 W
R333	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R334	0611077A84	2700 ohms, ±5%; 1/10 W
R335	0611079B09	22K, ±5%; 1/10 W
R336	0611079A90	4700 ohms, ±5%; 1/10 W
R337	0611079A66	470 ohms, ±5%; 1/10 W
R338	0611079B32	RES FIXED CHIP 240K 5 1/10 A/P
R341	0611079B03	15K, ±5%; 1/10 W
R342	0611079A54	2700 ohms, ±5%; 1/10 W
R343	0611079G18	15K, ±1%; 1/10 W
R345	0611079B13	39K, ±5%; 1/10 W
R346,347	0611079B07	22K, ±5%; 1/10 W
R776	0611079D69	511 ohms, 1/10 W; ±1%
R349,350	0611079F01	1.00K, 1/10 W
R351	0611079A74	1K, ±5%; 1/10 W
R352	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R353	0611079B13	39K, ±5%; 1/10 W
R354	0611079B15	68K, ±5%; 1/10 W
R356	0611079D93	909 ohms, 1/10 W; ±1%
R357	0611079A34	22 ohms, ±5%; 1/10 W
R360	0611079A90	4700 ohms, ±5%; 1/10 W
R361	0611079A66	8200 ohms, ±5%; 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079G01	10K, ±1%; 1/10 W
R366	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R367	0611079A84	2700 ohms, ±5%; 1/10 W
R369	0611079B05	18K, ±5%; 1/10 W
R370	0611079B48	10K, ±5%; 1/10 W
R371	0611079B07	22K, ±5%; 1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%; 1/10 W
R377	0611079B13	39K, ±5%; 1/10 W
R379,380	0611079A98	10K, ±5%; 1/10 W
R381	0611079G09	12.1K, 1/10 W; ±1%
R384,385	0611079A90	4700 ohms, ±5%; 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W; ±1%
R391,392	0611079A98	10K, ±5%; 1/10 W
R393	0611079A90	4700 ohms, ±5%; 1/10 W
R395	0611079A01	O ohms, ±5%; 1/10 W
R401 thru 406	0611079A98	10K, ±5%; 1/10 W
R408,409	0611079A98	10K, ±5%; 1/10 W
R410	0611079A74	1K, ±5%; 1/10 W
R412	0611079A74	1K, ±5%; 1/10 W
R413,414	0611079A98	10K, ±5%; 1/10 W
R415	0611079A90	4700 ohms, ±5%; 1/10 W
R416	0611079A98	10K, ±5%; 1/10 W
R417	0611079A82	2200 ohms, ±5%; 1/10 W
R418 thru 444	0611079A90	4700 ohms, ±5%; 1/10 W
R445 thru 451	0611079A98	10K, ±5%; 1/10 W
R453 thru 460	0611079A98	10K, ±5%; 1/10 W
R461,462	0611079A90	4700 ohms, ±5%; 1/10 W
R463 thru 468	0611079A98	10K, ±5%; 1/10 W
R502	0611079E01	100K, 1/10 W; ±1%
R503	0611079A98	10K, ±5%; 1/10 W
R504	0611079E01	Resistor: chip 100K 1/10W 1%
R506	0611079A70	680 ohms, ±5%; 1/10 W
R508 thru 513	0611079A98	10K, ±5%; 1/10 W
R514	0611079A66	470 ohms, ±5%; 1/10 W
R517,518	0611079A34	22 ohms, ±5%; 1/10 W
R519	0611079A74	1K, ±5%; 1/10 W
R520	0611079B05	18K, ±5%; 1/10 W
R521	0611079A98	10K, ±5%; 1/10 W
R522,528	0611079A01	O ohms, ±5%; 1/10 W
R529	0611079E97	RES CHIP 1.0M 1/10W 1%
R601 thru 605	0611079A74	1K, ±5%; 1/10 W
R631 thru 654	0611079A98	10K, ±5%; 1/10 W
R655 thru 658	0611079A34	22 ohms, ±5%; 1/10 W
R659	0611079A36	27 ohms, ±5%; 1/10 W
R660	0611079A40	39 ohms, ±5%; 1/10 W
R701	0611079A34	22 ohms, ±5%; 1/10 W
R702	0611079A74	1K, ±5%; 1/10 W
R703	0611079A01	O ohms, ±5%; 1/10 W
R704	0611079A74	1K, ±5%; 1/10 W
R705,706	0611079A40	39 ohms, ±5%; 1/10 W
R707	0611079A70	680 ohms, ±5%; 1/10 W
R751 thru 753	0611079A98	10K, ±5%; 1/10 W
R754	0611079A74	1K, ±5%; 1/10 W
R755	0611079B13	39K, ±5%; 1/10 W
R756,757	0611079A98	10K, ±5%; 1/10 W
R758 thru 760	0611079A34	22 ohms, ±5%; 1/10 W
R761 thru 768	0611079A98	10K, ±5%; 1/10 W
R770 thru 772	0611079A98	10K, ±5%; 1/10 W
R774,775	0611079B07	22K, ±5%; 1/10 W
R776	0611079B13	39K, ±5%; 1/10 W
R777 thru 781	0611079A98	10K, ±5%; 1/10 W
R782	0611079A98	10K, ±5%; 1/10 W
R784 thru 791	0611079A98	10K, ±5%; 1/10 W
R794	0611079A90	4700 ohms, ±5%; 1/10 W
R796	0611079A74	1K, ±5%; 1/10 W
R797 thru 802	0611079A98	10K, ±5%; 1/10 W
R823	0611079A66	470 ohms, ±5%; 1/10 W
R824	0611079A34	22 ohms, ±5%; 1/10 W
R828	0611079A98	10K, ±5%; 1/10 W
R835	0611079A01	O ohms, ±5%; 1/10 W
R837 thru 842	0611079A01	O ohms, ±5%; 1/10 W
R852	0662057B47	CHIP RES 0 OHMS +– .050 OHMS
R853,854	0662057D03	RES CHIP 78.7 1% 0603
R856	0662057D03	RES CHIP 78.7 1% 0603
R857 thru 860	0611077F12	1.5K, ±1%; 1/8 W
R865	0611072B22	RES CHIP 1 MEG 5 1/4
R866	0611079F01	1.00K, 1/10 W
R868	0662057P10	RES CHIP 10.0K 1% 30X60
R869	0662057T73	RES CHIP 33.2K 1% 30*60
R870	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R871	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R872,873	0611079A40	39 ohms, ±5%; 1/10 W
R874 thru 876	0662057P10	RES CHIP 10.0K 1% 30X60
R877	0662057P69	RES CHIP 12.4K
R881	0662057P10	RES CHIP 10.0K 1% 30X60
R882,883	0662057B47	CHIP RES 0 OHMS +– .050 OHMS
R885,886	0662057P10	RES CHIP 10.0K 1% 30X60
R901,902	0611079A98	10K, ±5%; 1/10 W
R903 thru 905	0611079A34	22 ohms, ±5%; 1/10 W
R906 thru 929	0611072A25	100 ohms, ±5%; 1/4 W
R930	0611079A34	22 ohms, ±5%; 1/10 W
R931,932	0611079A98	10K, ±5%; 1/10 W
R935	0611079A34	22 ohms, ±5%; 1/10 W
R936	0611079A90	4700 ohms, ±5%; 1/10 W
R937 thru 939	0611079A34	22 ohms, ±5%; 1/10 W
R940	0611079A98	10K, ±5%; 1/10 W
R941	0611079A90	4700 ohms, ±5%; 1/10 W
R942,943	0611079A98	10K, ±5%; 1/10 W
R1002	0611077A84	68 ohms, ±5%; 1/10 W
R1012,1013	0611079G01	10K, ±1%; 1/10 W
R1014	0611079G09	12.1K, 1/10 W; ±1%
R1015	0611079F22	Resistor: chip 1.65K 1/10 W
R1026	0611079A01	O ohms, ±5%; 1/10 W
R1032	0611079A70	680 ohms, ±5%; 1/10 W
R1036	0611079A98	10K, ±5%; 1/10 W
R1037	0611079A46	68 ohms, ±5%; 1/10 W
R1038 thru 1040	0611079A74	1K, ±5%; 1/10 W
R1043	0611079D93	909 ohms, 1/10 W; ±1%
R1044	0611079A96	8200 ohms, ±5%; 1/10 W
R1201	0611072A25	100 ohms, ±5%; 1/4 W
R1202	0611079A01	O ohms, ±5%; 1/10 W
R1203	0611079A92	330 ohms, ±5%; 1/10 W
R1204	0611079A92	330 ohms, ±5%; 1/10 W
R1205 thru 1208	0611079A92	330 ohms, ±5%; 1/10 W
R1209	0611079A94	390 ohms, ±5%; 1/10 W
R1210	0611079A92	330 ohms, ±5%; 1/10 W
R1211,1212	0611079A98	10K, ±5%; 1/10 W
R1213,1214	0611079A01	O ohms, ±5%; 1/10 W
R1215	0611079A66	470 ohms, ±5%; 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%; 1/10 W
R1224	0611079A62	330 ohms, ±5%; 1/10 W
S0 thru 3	4083621T01	push–button, spst
S501	4083706T02	dip, spst
S701	4082280Y01	SW OT PROGRAMMABLE SHUNT
T851	2482074Y01	**transformer:** IND 47UH 20% .98A DCR .13A AM
T852	2582066V04	XFMR PULSE 1:1:1 10 BASE SM
U1	5113803A13	**integrated circuit (see note):** 68302 DSP 66MHZ CLK
U thru 4	5184531T09	IC SRAM 32KX8 12NS
U5	5113803A07	Quad 2–Input AND Gate
U6	5184625T05	IC ASIC DSP GLUE 2 120QFP
U7	5113803A05	Hex Inverter
U8	5185486L01	IC BFR OCT INV 3–ST 74__T540
U9 thru 11	5184531T09	IC SRAM 32KX8 12NS
U152,153	5184298T01	Differential Bus Transceiver
U154	5113808A39	IC LINE DRVR OCT NON INV
U155	5113805A54	Octal Buffer Line Driver/Receiver
U201	5184726T02	REFERENCE OSC MODULE
U202	5113812A26	IC PLL FREQ SYNTH
U203	5113805A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U205	5113808A13	Hex Inverter Schmitt Trigger
U207	5113808A13	Hex Inverter Schmitt Trigger
U302	5113818A05	High Performance, Single Supply
U303,304	5182276R86	Complementary Symmetry/oxide Semiconductor
U305	5113818A05	High Performance, Single Supply
U306	5185222U02	IC Filter
U402	5185222U02	IC Filter
U309	5113805A85	Mux/Demux, Trip 2–Channel Analog
U311	5182682R38	Digital Pot Converter
U314	5113805A83	Mux/Demux, 8–Channel Analog
U315	5182276R85	IC SNG SUPPLY 12BIT ADC MAX190
U316	5184

CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)



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CLN7558A Control Board (Ceramic Capacitors)

BASING DETAILS

TRANSISTORS

Q1, Q100–103, Q202–206, Q251, Q302, Q303, Q751, Q752, Q901

Q2, Q250, Q252–256, Q753

Q304

DIODES

CR201, CR252–257, CR259, CR305, CR306

CR851

CR2, CR852, CR901

NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P2 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P1 AND P2 AND HAVE EVEN NUMBERED CONTACTS. SEE THE TABLE BELOW FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.
2. P13, P401–P403, AND P701 ARE USED FOR FACTORY TEST AND DEBUG PURPOSES.
3. P14 CONNECTS TO P1 ON THE LED BOARD VIA A 34-CONDUCTOR RIBBON CABLE.
4. U401 HAS 338 PINS ARRANGED IN ROWS. THERE ARE 19 ROWS ALPHABETICALLY LABELED A–H, J–N, P, R–V. EACH ROW, EXCEPT A AND V, HAS PINS NUMBERED 1–19. ROWS A AND V EACH HAVE PINS NUMBERED 2–18.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P1–1, 3	LOGIC GND	P1–2, 4	LOGIC GND	P2–1	WIDEBAND OUTPUT	P2–2	WIDE BAND INPUT
P1–5, 7	+14.2V	P1–6, 8	+14.2V	P2–5	LOGIC GND	P2–6	LOGIC GND
P1–9, 11, 13, 15, 17, 19, 21	+5V	P1–10, 12, 14, 16, 18, 20, 22	+5V	P2–7	N.C.	P2–8	N.C.
P1–23	LOGIC GND	P1–24	LOGIC GND	P2–9	N.C.	P2–8	N.C.
P1–25	SPI MISO	P1–26	SPI MOSI	P2–11	N.C.	P2–8	N.C.
P1–27	SPI CLK	P1–28	ALT RESET	P2–13	LOGIC GND	P2–14	LOGIC GND
P1–29	HDLC DATA	P1–30	HDLC BUSY	P2–15	PL STRIP	P2–16	XLIX INDICATE
P1–31	HDLC CLK	P1–32	TDM FS	P2–17	MONITOR	P2–18	N.C.
P1–33	TDM DATA	P1–34	TDM CLK	P2–19	N.C.	P2–20	PATCH INH
P1–35	SPARE 1	P1–36	SPARE 2	P2–21	MRTI PTT	P2–22	MRTI RX AUDIO
P1–37	HOST 1PPS	P1–38	EXP SPI REQ	P2–23	MRTI TX AUDIO	P2–24	N.C.
P1–39	EXP SPI GRANT	P1–40	EXP HOST REQ	P2–25	RX CARRIER	P2–26, 28	LOGIC GND
P1–41	SPI A0	P1–42	SPI A1	P2–27, 29, 31	LOGIC GND	P2–30	LOGIC GND
P1–43	TX SPI GRANT	P1–44	SPI A5	P2–33	TXD3	P2–32	MODEM RESET
P1–45	SPI A4	P1–46	SPI A3	P2–35	RTS3	P2–34	RXD3
P1–47	SPI A2	P1–48	TX SPI REQ	P2–37	DSR3	P2–36	CTS3
P1–49	PTT REQ	P1–50	TX HOST REQ	P2–39	DCD3	P2–38	LOGIC GND
P1–51, 53	LOGIC GND	P1–52, 54	LOGIC GND	P2–41	TCLK3	P2–40	LLPBK3
P1–55	RX 2.1 MHz REF	P1–56	TX 2.1 MHz REF	P2–43	DTR3	P2–42	RCLK3
P1–57	LOGIC GND	P1–58	LOGIC GND	P2–45, 47	LOGIC GND	P2–44	RLPBK3
P1–59	REF AUDIO	P1–60	VCO AUDIO	P2–49	N.C.	P2–46, 48	LOGIC GND
P1–61	LOGIC GND	P1–62	LOGIC GND	P2–51	TXD1	P2–50	RXD1
P1–63	TX WB AUDIO	P1–64	5 MHz REF (REAR)	P2–53	RTS1	P2–52	CTS1
P1–65	LOGIC GND	P1–66	LOGIC GND	P2–55	LOGIC GND	P2–54	DCD1
P1–67	RX2 AGC	P1–68	RX2 ODC	P2–57	DTR1	P2–56	DSR1
P1–69	RX2 SBI	P1–70	RX2 DATA	P2–59	TSTAT	P2–58	SERIAL ID
P1–71	RX2 DATA	P1–72	LOGIC GND	P2–61	VCO AUDIO	P2–60	TPTT
P1–73	LOGIC GND	P1–74	RX1 AGC	P2–63	RSTAT	P2–62	MUTE
P1–75	RX1 ODC	P1–76	RX1 SBI	P2–65	LOGIC GND	P2–64	CCI
P1–77	RX1 DATA	P1–78	RX1 DATA	P2–67	TX DATA+	P2–66	LOGIC GND
P1–79	LOGIC GND	P1–80	LOGIC GND	P2–69	TX DATA–	P2–68	6809 RX AUDIO
				P2–71, 73, 75,77, 79	LOGIC GND	P2–70, 72	LOGIC GND
						P2–74	GPS 1PPS
						P2–76	ETHERNET GND
						P2–78	ETHERNET SIGNAL
						P2–80	ETHERNET GND

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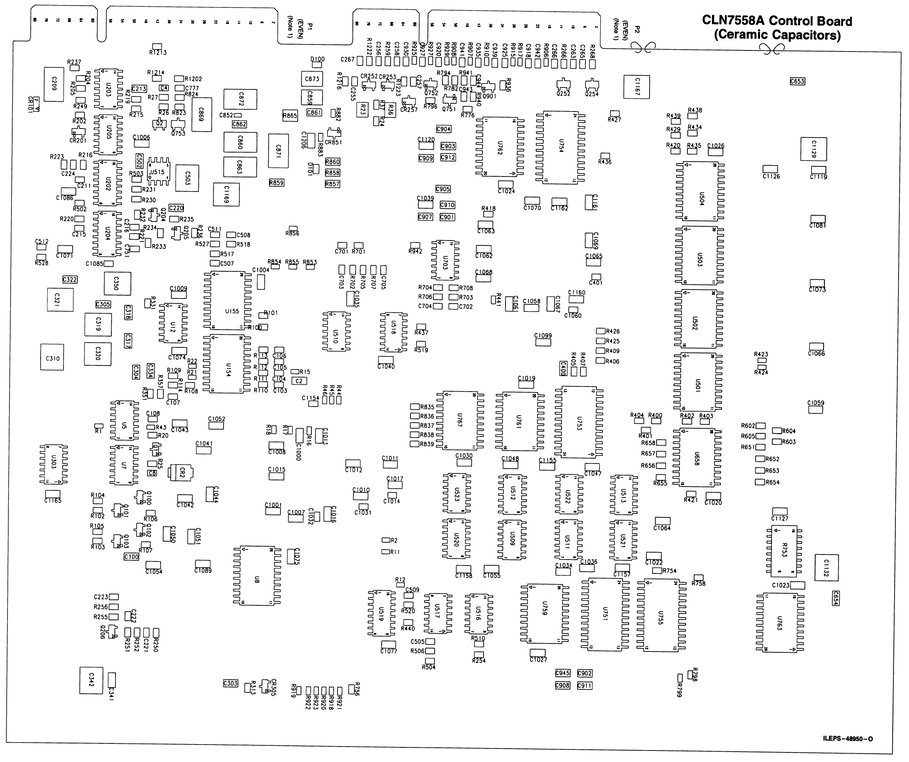
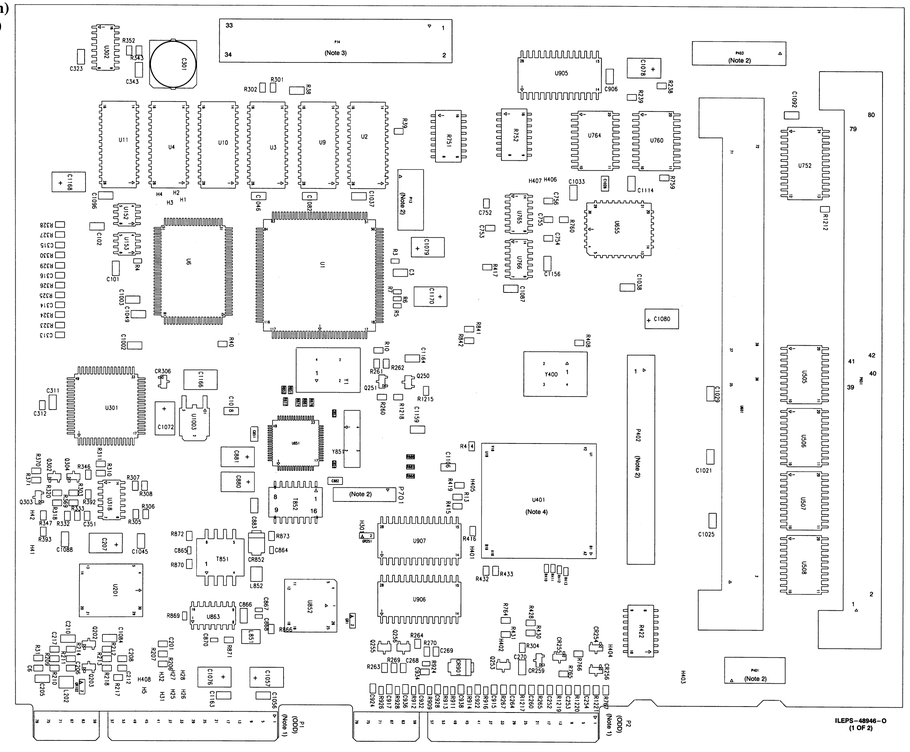
CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)



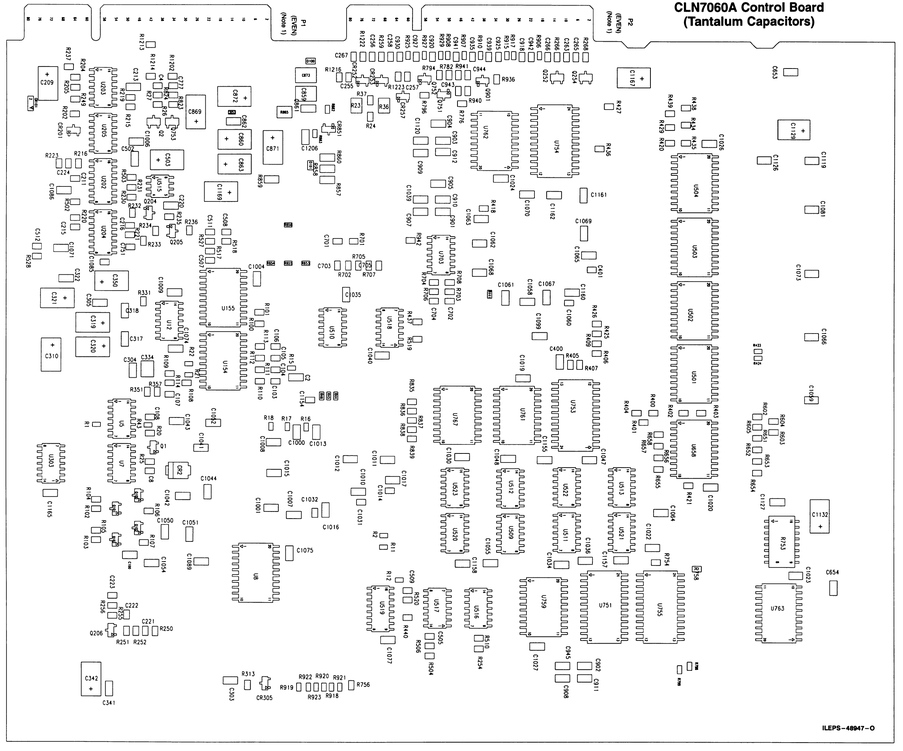
CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)



CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)



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(Sheet 4 of 12)
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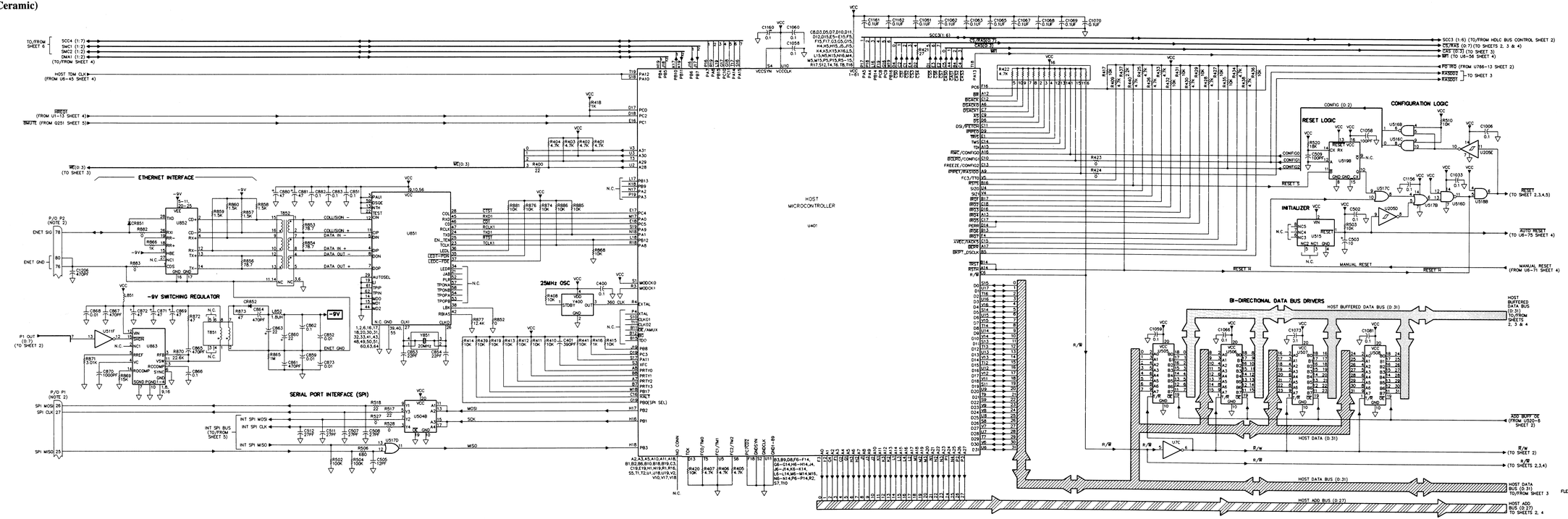
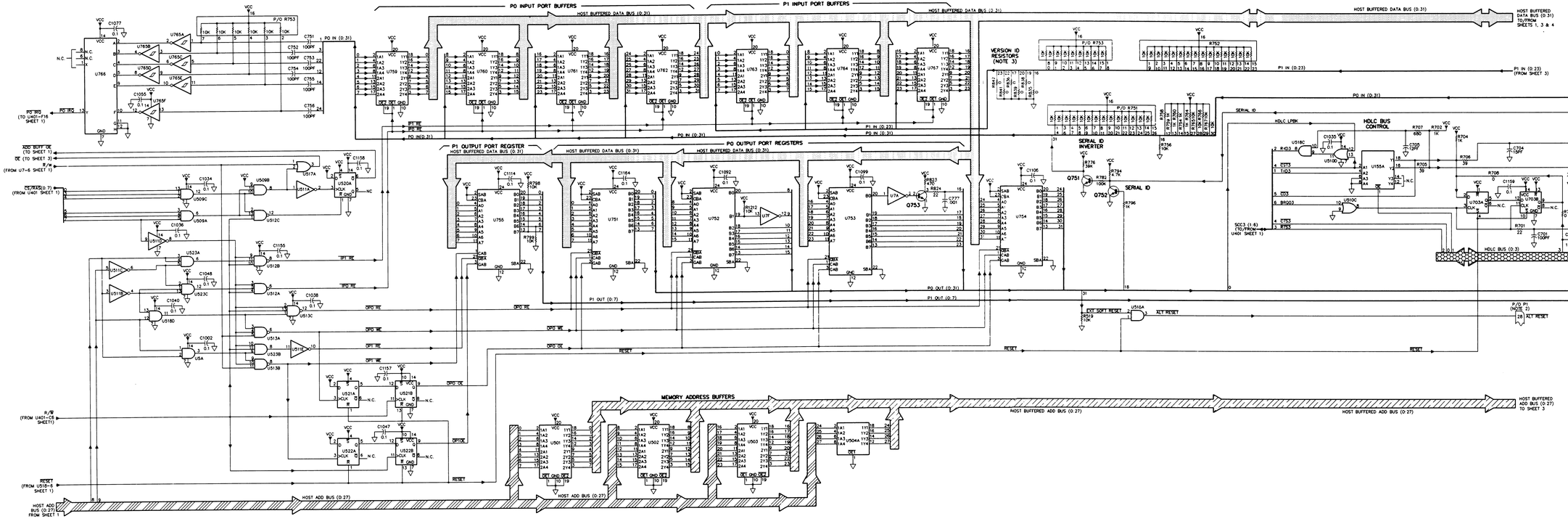
CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)





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(Sheet 6 of 12)
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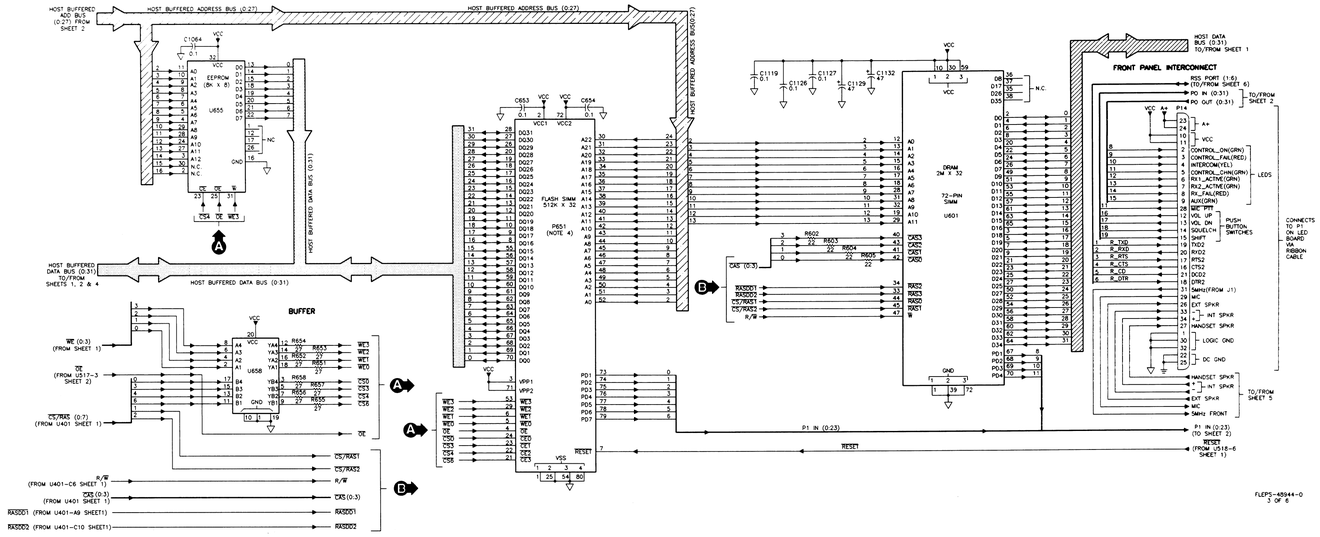
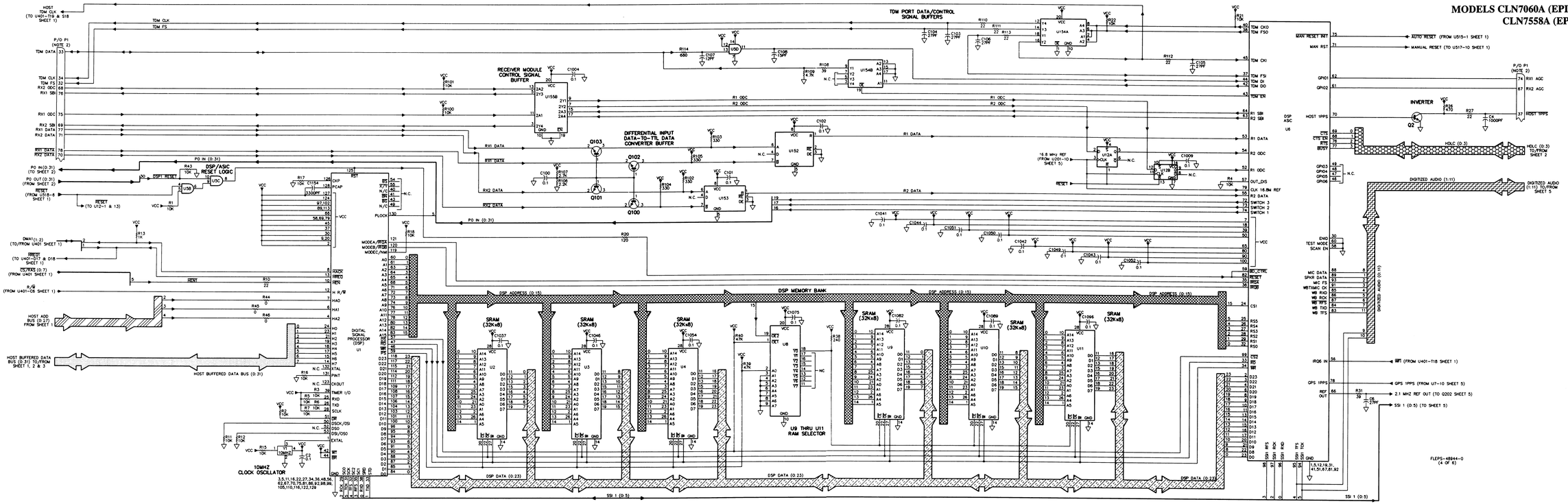
CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)



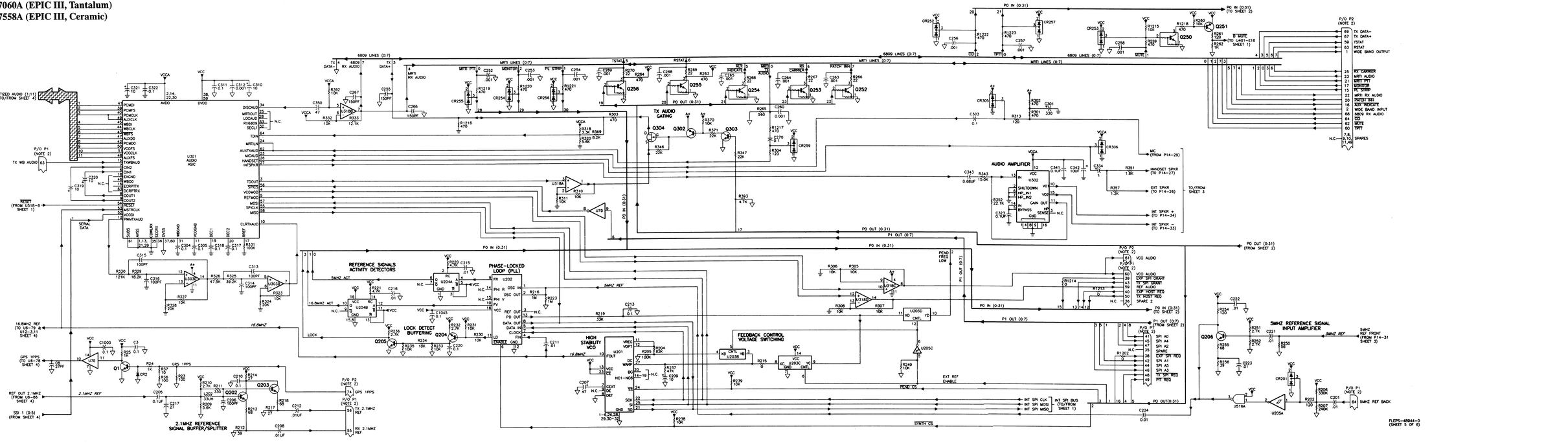
CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)



CONTROL BOARD

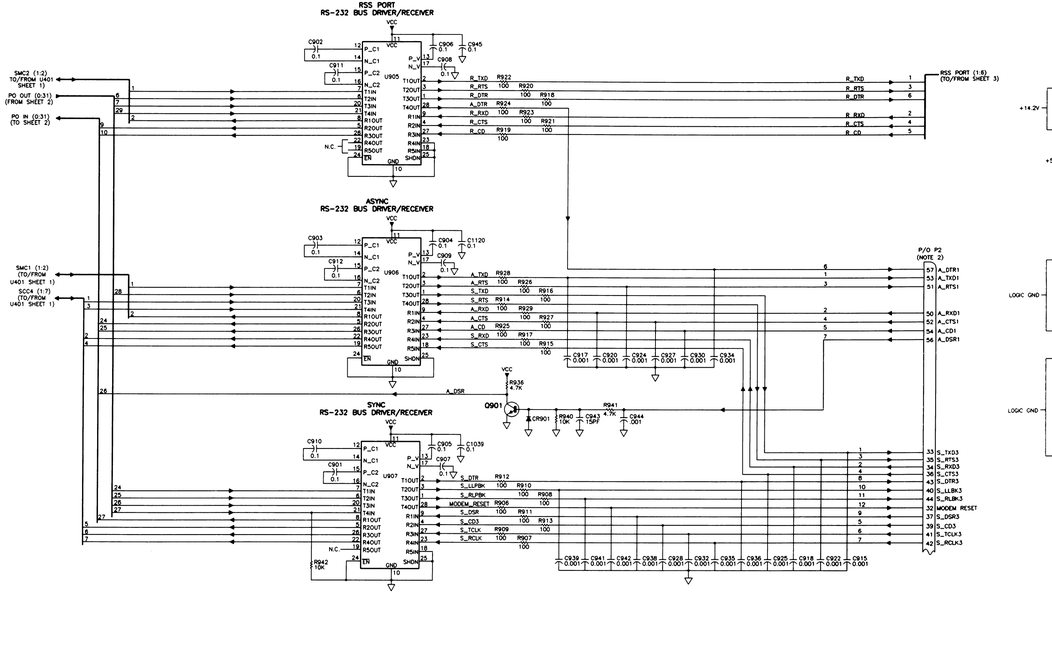
MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)

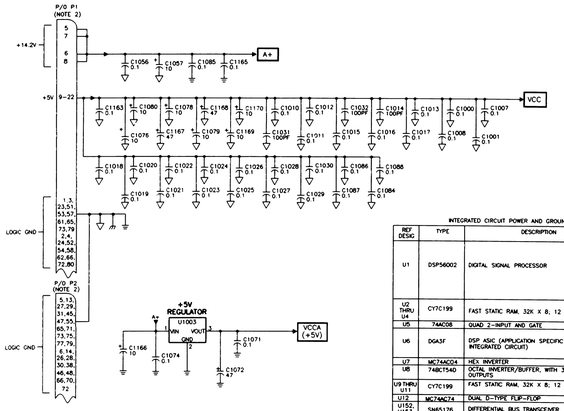


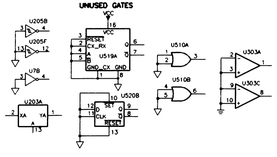
68P81097E09–A
(Sheet 9 of 12)
1/31/01–UP

CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)







INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	DSP56002	DIGITAL SIGNAL PROCESSOR	2,9,20,30, 37,45,58, 66,69,78, 89,97,102 119,124, 127,128	3,5,11,16, 22,27,34, 35,48,56, 57,65,80, 82,87,88, 92,98,99, 105,110, 116,122, 129
U2 THRU U4	CY7C199	FAST STATIC RAM, 32K X 8; 12 NSEC	28	14
U5	74AC08	QUAD 2-INPUT AND GATE	14	7
U6	DGA3F	DSP ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	7,18,39, 50,65,80, 90,100	1,9,12, 19,31, 41 51,67,81, 92
U7	MC74AC04	HEX INVERTER	14	7
U8	74BCT540	OCTAL INVERTER/BUFFER, WITH 3-STATE OUTPUTS	20	10
U9 THRU U11	CY7C199	FAST STATIC RAM, 32K X 8; 12 NSEC	28	14
U12	MC74AC74	DUAL D-TYPE FLIP-FLOP	14	7
U152, U153	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U154, U155	MC74ACT244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U201	CUSTOM	REFERENCE OSCILLATOR MODULE	13	1-6,28,28, 29,30-32
U202	MC145170	PHASE-LOCKED LOOP FREQUENCY SYNTHESIZER WITH SERIAL INTERFACE	16	12
U203	MC74HC4066	QUAD ANALOG SWITCH MULTIPLEXER	14	7
U204	MC74HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U205	MC74AC114	SCHMITT TRIGGER HEX INVETER	14	7

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U301	175407	EPSILON AUDIO ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	2,14,22, 30,38,59	1,13,21, 29,37,60
U302	LM4880	1W AUDIO POWER AMPLIFIER	12	1,4,8,9,16
U303, U318	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U401	MC68EN360	32-BIT INTEGRATED MULTIPROTOCOL PROCESSOR	C8,D3,D5, D7,D10, D11,D12, D15,E3, E15,F5,F15, F17,G3,G5, G13,J4,J15, K4,K5,K14, K15,L15, M3,M15, N16,M4,M5, M15,P5, P15,R3—15, T3,T4,T6, T8,T16	B3,B9,D8, F6—F14, G6—G14, H6—H14,J4, J5—J15, K6—K14, L6—L14, M6—M14, M16, N6—N14, P6—P14,R2, S7,T10
U501 THRU U504	MC74ACT244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U505 THRU U508	MC74ACT245	OCTAL BUS TRANSCEIVER, WITH 3-STATE OUTPUTS	20	10
U509	MC74AC11	TRIPLE 3-INPUT AND	14	7
U510	MC74AC132	QUAD 2-INPUT OR	14	7
U511	MC74AC04	HEX INVERTER	14	7
U512, U513	MC74AC10	TRIPLE 3-INPUT NAND	14	7
U515	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U516	MC74HC03	QUAD 2-INPUT NAND GATE	14	7
U517	MC74AC132	QUAD 2-INPUT OR GATE	14	7
U518	MC74ACT08	QUAD 2-INPUT AND GATE	14	7
U519	MC74HC4538	DUAL PRECISION MONOSTABLE MULTIVIBRA-TOR (RETRIGGERABLE, RESETABLE)	16	1
U520 THRU U522	MC74AC74	DUAL D-TYPE FLIP FLOP	14	7
U523	MC74AC11	TRIPLE 3-INPUT AND	14	7
U601	MCM32230	SIMM (SINGLE IN-LINE MEMORY MODULE) DRAM 2M x 32	10,30,59	1,38,72

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U655	28C64	EEPROM, 8192 X 8	32	16
U658	MC74ACT244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	24	12
U703	MC74AC74	DUAL D-TYPE FLIP-FLOP	14	7
U751 THRU U755	74AC652	OCTAL BUS TRANSCEIVER/REGISTER, WITH 3-STATE	20	10
U759 THRU U764	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	24	12
U765	MC74AC714	SCHMITT TRIGGER HEX INVETER	14	7
U766	74HC4078	8-INPUT NOR/OR GATE	14	7
U767	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U851	LXT908	ETHERNET INTERFACE ADAPTER	9,10,56	39,40,55
U852	DP83920V	COAXIAL TRANSCEIVER INTERFACE	5,6,7,8,9, 10,11,20, 21,22,23, 24,25	16,17
U863	LT1425	NEGATIVE 5V SWITCHING REGULATOR	1,24	12,13
U905 THRU U907	MAX211	SINGLE SUPPLY RS-232 DRIVER/RECEIVER	11	10
U1003	MC7805	+5V VOLTAGE REGULATOR	1	2

NOTES:
1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. EDGE CONNECTORS P1 AND P2 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. RESISTORS R835,R836,R838,R839,R841 AND R842 SET THE VERSION ID OF THE STATION CONTROL MODULE.
4. FLASH SIMM, P651, CONTAINS THE STATION SOFTWARE.

CONTROL BOARD

MODELS CLN7060A (EPIC III, Tantalum)
CLN7558A (EPIC III, Ceramic)

parts list

CLN7060A Station Control Module Board (EPIC III) PL–13180–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C100 thru 102	2113741B69	0.1 uF, ±5%, 50 V
C103 thru 106	2113740A39	27 pF, ±5%, 50 V
C107	2113740A31	12 pF, ±5%, 50 V
C201	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311049A23	47 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311049A45	10 uF, ±10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C221 thru 224	2113741A45	0.01 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C255	2113740A69	150 pF, ±5%, 50V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2113741B69	0.1 uF, ±5%, 50 V
C301	2380090M27	330 uF, ±20%, 16 V
C302 thru 305	2113741B69	0.1 uF, ±5%, 50 V
C310	2311049A45	10 uF, ±10%, 35 V
C311	2113741B69	0.1 uF, ±5%, 50 V
C312	2113741A21	1000 pF, ±5%, 50 V
C313 thru 316	2113740A55	100 pF, ±5%, 50 V
C317,318	2113741B69	0.1 uF, ±5%, 50 V
C319 thru 321	2311049A45	10 uF, ±10%, 35 V
C322,323	2113741B69	0.1 uF, ±5%, 50 V
C334	2311049A08	1 uF, ±10%, 35 V
C341	2113741B69	0.1 uF, ±5%, 50 V
C342	2311049A45	10 uF, ±10%, 35 V
C343	2113743S77	0.680 uF, ±10%
C350	2311049A23	47 uF, ±10%, 10 V
C400	2113741B69	0.1 uF, ±5%, 50 V
C401	2113740A69	390 pF, ±5%, 50V
C502	2113741B69	0.1 uF, ±5%, 50 V
C503	2311049A45	10 uF, ±10%, 35 V
C505	2113743A31	12 pF, ±5%, 50 V
C507,508	2113740A39	27 pF, ±5%, 50 V
C509	2113740A55	100 pF, ±5%, 50 V
C553,654	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V
C705	2113740A31	12 pF, ±5%, 50 V
C751 thru 756	2113740A55	100 pF, ±5%, 50 V
C777	2113740A79	1000 pF, ±5%, 50 V
C851	2113741B69	0.1 uF, ±5%, 50 V
C852	2113741F49	0.01 uF, ±5%, 50V
C853,854	2113740F35	22 pF, ±5%, 50V
C859	2113918B09	CAP CHIP 100000PF 1000V 20% X7R
C860	2311049A21	22 uF, ±10%, 20 V
C861	2113918A05	470 pF, ±20%, 1000 V
C862	2113741B69	0.1 uF, ±5%, 50 V
C863	2311049A21	22 uF, ±10%, 20 V
C864,865	2113741F17	470 pF, ±5%, 50V
C866	2113741B69	0.1 uF, ±5%, 50 V
C867	2113741F17	470 pF, ±5%, 50V
C868	2113741F49	0.01 uF, ±5%, 50V
C869	2311049A23	47 uF, ±10%, 10 V
C870	2113741F25	1000 pF, ±5%, 50V
C871,872	2311049A23	47 uF, ±10%, 10 V
C873	2113918B09	CAP CHIP 100000PF 1000V 20% X7R

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C880,881	2311049A23	47 uF, ±10%, 10 V
C882,883	2113741B69	0.1 uF, ±5%, 50 V
C901 thru 912	2113741B69	0.1 uF, ±5%, 50 V
C915	2113740A79	1000 pF, ±5%, 50 V
C917,918	2113740A79	1000 pF, ±5%, 50 V
C920	2113740A79	1000 pF, ±5%, 50 V
C922	2113740A79	1000 pF, ±5%, 50 V
C924,925	2113740A79	1000 pF, ±5%, 50 V
C927,928	2113740A79	1000 pF, ±5%, 50 V
C930	2113740A79	1000 pF, ±5%, 50 V
C932	2113740A79	1000 pF, ±5%, 50 V
C934 thru 936	2113740A79	1000 pF, ±5%, 50 V
C938,939	2113740A79	1000 pF, ±5%, 50 V
C941,942	2113740A79	1000 pF, ±5%, 50 V
C943	2113740A33	15 pF, ±5%, 50 V
C944	2113740A79	1000 pF, ±5%, 50 V
C945	2113741B69	0.1 uF, ±5%, 50 V
C1000 thru 1004	2113741B69	0.1 uF, ±5%, 50 V
C1006 thru 1013	2113741B69	0.1 uF, ±5%, 50 V
C1014	2113740A55	100 pF, ±5%, 50 V
C1015 thru 1030	2113741B69	0.1 uF, ±5%, 50 V
C1031,1032	2113740A55	100 pF, ±5%, 50 V
C1033 thru 1052	2113741B69	0.1 uF, ±5%, 50 V
C1054 thru 1056	2113741B69	0.1 uF, ±5%, 50 V
C1057	2311049A45	10 uF, ±10%, 35 V
C1058,1059	2113741B69	0.1 uF, ±5%, 50 V
C1060	2113741A45	0.01 uF, ±5%, 50 V
C1061 thru 1071	2113741B69	0.1 uF, ±5%, 50 V
C1072	2311049A23	47 uF, ±10%, 10 V
C1073 thru 1075	2113741B69	0.1 uF, ±5%, 50 V
C1076	2311049A45	10 uF, ±10%, 35 V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1078 thru 1080	2311049A45	10 uF, ±10%, 35 V
C1081,1082	2113741B69	0.1 uF, ±5%, 50 V
C1084	2113741B69	0.1 uF, ±5%, 50 V
C1085	2113741A45	0.01 uF, ±5%, 50 V
C1086 thru 1089	2113741B69	0.1 uF, ±5%, 50 V
C1092	2113741B69	0.1 uF, ±5%, 50 V
C1096	2113741B69	0.1 uF, ±5%, 50 V
C1099	2113741B69	0.1 uF, ±5%, 50 V
C1106	2113741B69	0.1 uF, ±5%, 50 V
C1114	2113741B69	0.1 uF, ±5%, 50 V
C1119,1120	2113741B69	0.1 uF, ±5%, 50 V
C1125,1127	2113741B69	0.1 uF, ±5%, 50 V
C1129	2311049A23	47 uF, ±10%, 10 V
C1132	2311049A23	47 uF, ±10%, 10 V
C1154	2113741A33	330 pF, ±5%, 50 V
C1155 thru 1165	2113741B69	0.1 uF, ±5%, 50 V
C1166	2311049A45	10 uF, ±10%, 35 V
C1167,1168	2311049A23	47 uF, ±10%, 10 V
C1169,1170	2311049A45	10 uF, ±10%, 35 V
C1206	2113918A05	470 pF, ±20%, 1000 V
		diode (see note):
CR2	4813833B01	Schottky type
CR201	4882290T02	DIODE SI HOT CARRIER*HSMS2802*
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR305,306	4813833C05	dual 70 V
CR651	4813833C10	0.1A, 70 V
CR652	4813833B01	Schottky type
CR801	4813833B01	Schottky type
		inductor:
L202	2411087A44	33 uH
L851	2484657R01	ferrite bead
L852	2411087A29	1.8 UH
		connector:
P14	2885155U14	CON TCB HDR 34 POS HT ST
P651	(NOTE 1)	(NOTE 1)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		transistor (see note):
Q1	4813824A10	NPN
Q2	4884955T01	NPN
Q100 thru 103	4813824A10	NPN
Q202,203	4813824A10	NPN
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q250	4813824A10	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A08	P–CH FET type
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q901	4813824A10	NPN
		resistor, fixed:
R1 thru 7	0662057P10	RES CHIP 10.0K 1% 30X60
R10	0611079A34	22 ohms, ±5%; 1/10 W
R11,12	0662057P10	RES CHIP 10.0K 1% 30X60
R13	0611079A74	1K, ±5%; 1/10 W
R15 thru 18	0662057P10	RES CHIP 10.0K 1% 30X60
R20	0611079A52	120 ohms, ±5%; 1/10 W
R21,22	0662057P10	RES CHIP 10.0K 1% 30X60
R23	0611072A25	100 ohms, ±5%; 1/4 W
R24,25	0611079A74	1K, ±5%; 1/10 W
R26	0611079A66	470 ohms, ±5%; 1/10 W
R27	0611079A34	22 ohms, ±5%; 1/10 W
R31	0611079A10	39 ohms, ±5%; 1/10 W
R36	0611072A25	100 ohms, ±5%; 1/4 W
R37	0611079A26	10 ohms, ±5%; 1/10 W
R38	0611077A34	240 ohms, ±5%; 1/8 W
R39,40	0611079B15	47K, ±5%; 1/10 W
R43	0662057P10	RES CHIP 10.0K 1% 30X60
R44 thru 46	0662057B47	CHIP RES 0 OHMS +– .050 OHMS
R100,101	0611079A98	10K, ±5%; 1/10 W
R102 thru 105	0611079A62	330 ohms, ±5%; 1/10 W
R106	0611079A82	2200 ohms, ±5%; 1/10 W
R107	0611079A84	2700 ohms, ±5%; 1/10 W
R108	0611079A40	39 ohms, ±5%; 1/10 W
R109	0611079A90	4700 ohms, ±5%; 1/10 W
R110 thru 113	0611079A34	22 ohms, ±5%; 1/10 W
R114	0611079A74	1K, ±5%; 1/10 W
R202	0611079A52	120 ohms, ±5%; 1/10 W
R204	0611079B21	82K, ±5%; 1/10 W
R205	0611079E01	100K, 1/10 W; ±1%
R206	0611079B35	330K ±5%; 1/10 W
R207	0611079B29	RES FIXED CHIP 240K 5 1/10 A/P
R209	0611079A92	5600 ohms, ±5%; 1/10 W
R210	0611079A84	2700 ohms, ±5%; 1/10 W
R211	0611079A62	330 ohms, ±5%; 1/10 W
R212	0611079A40	39 ohms, ±5%; 1/10 W
R213	0611079A46	68 ohms, ±5%; 1/10 W
R214	0611079A36	27 ohms, ±5%; 1/10 W
R215	0611079A01	0 ohms, ±5%; 1/10 W
R216	0611079E97	RES CHIP 1.0M 1/10W 1%
R217	0611079A36	27 ohms, ±5%; 1/10 W
R218	0611079A46	68 ohms, ±5%; 1/10 W
R219	0611079B11	33K, ±5%; 1/10 W
R220,221	0611079A90	4700 ohms, ±5%; 1/10 W
R223	0611079E97	RES CHIP 1.0M 1/10W 1%
R230,231	0611079A98	10K, ±5%; 1/10 W
R232	0611079A84	2700 ohms, ±5%; 1/10 W
R233 thru 235	0611079A98	10K, ±5%; 1/10 W
R236	0611079A84	2700 ohms, ±5%; 1/10 W
R237	0611079B15	47K, ±5%; 1/10 W
R238,239	0611079A98	10K, ±5%; 1/10 W
R249	0611079A98	10K, ±5%; 1/10 W
R250	0611079A44	56 ohms, ±5%; 1/10 W
R251,252	0611079A84	2700 ohms, ±5%; 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R254	0611079A52	120 ohms, ±5%; 1/10 W
R255	0611079A46	68 ohms, ±5%; 1/10 W
R256	0611079A40	39 ohms, ±5%; 1/10 W
R259	0611079A66	470 ohms, ±5%; 1/10 W
R260	0611079A98	10K, ±5%; 1/10 W
R261	0611079A52	120 ohms, ±5%; 1/10 W
R262	0611079A74	1K, ±5%; 1/10 W
R263	0611079A66	470 ohms, ±5%; 1/10 W
R265	0611079A68	560 5 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%; 1/10 W
R301 thru 303	0611079A66	470 ohms, ±5%; 1/10 W
R304	0611079A52	120 ohms, ±5%; 1/10 W
R305 thru 308	0611079G01	10k, ±1%; 1/10 W
R310,311	0611079G01	10k, ±1%; 1/10 W
R313	0611079A52	120 ohms, ±5%; 1/10 W
R318	0611079A82	2200 ohms, ±5%; 1/10 W
R320	0611079A68	3900 ohms, ±5%; 1/10 W
R323	0611079G01	10k, ±1%; 1/10 W
R324	0611079G30	20.0K, ±1%; 1/10 W
R325	0611079G58	Resistor chip 39.2K 1/10 W 1%
R326	0611079G66	47.5K, 1/10W; ±1%
R327	0611079G01	10k, ±1%; 1/10 W
R328	0611079G30	20.0K, ±1%; 1/10 W
R329	0611079G26	RES CHIP 18.2K 1/10W 1% 0805
R330	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R331	0611079E01	100K, 1/10 W; ±1%
R332	0611079G01	10k, ±1%; 1/10 W
R333	0611079G09	12.1K, 1/10 W; ±1%
R343	0611079G18	15K, ±1%; 1/10 W
R346,347	0611079B07	22K, ±5%; 1/10 W
R351	0611079A80	1800 ohms, ±5%; 1/10 W
R352	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R357	0611079A76	1.2K, ±5%; 1/10 W
R369	0611079A91	5100 ohms, ±5%; 1/10 W
R370	0611079A98	10K, ±5%; 1/10 W
R371	0611079B07	22K, ±5%; 1/10 W
R392	0611079A98	10K, ±5%; 1/10 W
R393	0611079A90	4700 ohms, ±5%; 1/10 W
R400	0611079A34	22 ohms, ±5%; 1/10 W
R401 thru 407	0611079A90	4700 ohms, ±5%; 1/10 W
R408	0611079A98	10K, ±5%; 1/10 W
R409	0611079A90	4700 ohms, ±5%; 1/10 W
R410 thru 413	0662057P10	RES CHIP 10.0K 1% 30X60
R414,415	0611079A98	10K, ±5%; 1/10 W
R416	0611079A74	1K, ±5%; 1/10 W
R417	0611079A98	10K, ±5%; 1/10 W
R418	0611079A74	1K, ±5%; 1/10 W
R419,420	0611079A98	10K, ±5%; 1/10 W
R421	0611079A36	27 ohms, ±5%; 1/10 W
R422	5184387T05	RESISTOR NETWORK 10 X 4.7K
R423,424	0662057B47	CHIP RES 0 OHMS +– .050 OHMS
R425,426	0611079A90	4700 ohms, ±5%; 1/10 W
R427	0611079A98	10K, ±5%; 1/10 W
R428	0611079A90	4700 ohms, ±5%; 1/10 W
R429	0611079A98	10K, ±5%; 1/10 W
R430	0611079A90	4700 ohms, ±5%; 1/10 W
R431,432	0611079A98	10K, ±5%; 1/10 W
R433,434	0611079A90	4700 ohms, ±5%; 1/10 W
R435,436	0611079A98	10K, ±5%; 1/10 W
R437	0611079A82	2200 ohms, ±5%; 1/10 W
R438	0611079A90	4700 ohms, ±5%; 1/10 W
R439	0611079A98	10K, ±5%; 1/10 W
R440	0611079A90	4700 ohms, ±5%; 1/10 W
R441	0662057P10	RES CHIP 10.0K 1% 30X60
R502	0611079E01	100K, 1/10 W; ±1%
R503	0611079A98	10K, ±5%; 1/10 W
R504	0611079E01	100K, 1/10 W; ±1%
R509	0611079A70	680 ohms, ±5%; 1/10 W
R510	0611079A98	10K, ±5%; 1/10 W
R517,518	0611079A34	22 ohms, ±5%; 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R519	0611079A98	10K, ±5%; 1/10 W
R520	0611079B05	18K, ±5%; 1/10 W
R527,528	0611079A01	0 ohms, ±5%; 1/10 W
R602 thru 605	0611079A34	22 ohms, ±5%; 1/10 W
R651 thru 654	0611079A36	27 ohms, ±5%; 1/10 W
R655 thru 658	0611079A34	22 ohms, ±5%; 1/10 W
R701	0611079A34	22 ohms, ±5%; 1/10 W
R702	0611079A74	1K, ±5%; 1/10 W
R703	0611079A01	0 ohms, ±5%; 1/10 W
R704	0611079A74	1K, ±5%; 1/10 W
R705,706	0611079A40	39 ohms, ±5%; 1/10 W
R707	0611079A70	680 ohms, ±5%; 1/10 W
R751 thru 753	5184387T01	Resistor Network, 8 pin, ±2%; 1.012W
R754	0611079A74	1K, ±5%; 1/10 W
R756	0611079A98	10K, ±5%; 1/10 W
R758 thru 760	0611079A74	1K, ±5%; 1/10 W
R764 thru 767	0611079A98	10K, ±5%; 1/10 W
R776	0611079B13	39K, ±5%; 1/10 W
R782	0611079E01	100K, 1/10 W; ±1%
R794	0611079A90	4700 ohms, ±5%; 1/10 W
R796	0611079A74	1K, ±5%; 1/10 W
R798,799	0662057P10	RES CHIP 10.0K 1% 30X60
R823	0611079A66	470 ohms, ±5%; 1/10 W
R824	0611079A34	22 ohms, ±5%; 1/10 W
R835,836	0611079A01	0 ohms, ±5%; 1/10 W
R838,839	0611079A01	0 ohms, ±5%; 1/10 W
R841,842	0611079A01	0 ohms, ±5%; 1/10 W
R852	0662057B47	CHIP RES 0 OHMS +– .050 OHMS
R853,854	0662057P03	RES CHIP 78.7 1% 0603
R856	0662057Y03	RES CHIP 78.7 1% 0603
R857 thru 860	0611077F12	1.5K, ±1%; 1/8 W
R865	0611072B22	RES CHIP 1 MEG 5 1/4
R866	0611079F01	1.00K, 1/10 W
R868	0662057P10	RES CHIP 10.0K 1% 30X60
R869	0662057P10	RES CHIP 10.0K 1% 30X60
R870	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R871	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R872,873	0611079A42	47 ohms, ±5%; 1/10 W
R874	0662057P10	RES CHIP 10.0K 1% 30X60
R876	0662057P10	RES CHIP 10.0K 1% 30X60
R877	0662057P69	RES CHIP 12.4K
R881	0662057P10	RES CHIP 10.0K 1% 30X60
R882,883	0662057B47	CHIP RES 0 OHMS +– .050 OHMS
R885,886	0662057P10	RES CHIP 10.0K 1% 30X60
R906 thru 929	0662057A25	CHIP RES 100 OHMS 5%
R939	0611079A90	4700 ohms, ±5%; 1/10 W
R940	0611079A98	10K, ±5%; 1/10 W
R941	0611079A90	4700 ohms, ±5%; 1/10 W
R943	0611079A98	10K, ±5%; 1/10 W
R1202	0611079A01	0 ohms, ±5%; 1/10 W
R1212	0611079A98	10K, ±5%; 1/10 W
R1213,1214	0611079A01	0 ohms, ±5%; 1/10 W
R1215	0611079A98	10K, ±5%; 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%; 1/10 W
		transformer:
T851	2482074Y01	IND 47UH 20% .98A DCR .13A AM
T852	2582066V04	XFMR PULSE 1:1 10 BASE SM
		integrated circuit (see note):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2 thru 4	5184531T09	IC SRAM 32K08 12NS
U5	5113808A07	Quad 2–input AND Gate
U6	5184625T10	IC, DSP GLUE W/EPSILON
U7	5113808A05	Hex Inverter
U8	5183486U01	IC BFR OCT INV 3–ST 74__T540
U9 thru 11	5184531T09	IC SRAM 32K08 12NS
U12	5113808A16	Dual D–type Flip–Flop
U152,153	5184288T01	Differential Bus Transceiver
U154,155	5113808A39	IC LINE DRVR OCT NON INV
U201	5184726T02	REFERENCE OSC MODULE
U202	5113812A26	IC PLL FREQ SYNTH

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
U203	5113805A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U205	5113808A13	Hex Inverter Schmitt Trigger
U301	5184625T07	IC ASIC EPSILON
U302	5182962X01	IC 1W AUDIO PWR AMP 4960
U303	5113819A05	High Performance, Single Supply
U318	5113819A05	High Performance, Single Supply
U401	5113802B03	IC QD COMM CNTRL W/ETHERNET 20ML
U501 thru 504	5113808A39	IC LINE DRVR OCT NON INV
U505 thru 508	5113808A41	Line Driver/Receiver Octal
U509	5113808A10	Triple 3–Input AND Gate
U510	5113808A15	OR QUAD 2–Input
U511	5113808A05	Hex Inverter
U512,513	5113808A09	Triple 3–Input NAND Gate
U515	5113815A02	Under Voltage Sensing Circuit
U516	5113808A03	Quad 2–Input NAND Gate
U517	5113808A15	OR QUAD 2–Input
U518	5113808A07	Quad 2–Input AND Gate
U519	5113805A89	Monostable Multivibrator, Dual Precision
U520 thru 522	5113808A16	Dual D–type Flip–Flop
U523	5113808A10	Triple 3–Input AND Gate
U601	5184630T06	MODULE DRAM 2MX32 70NS
U655	5184293T02	Simultaneous Monitor, EEPROM 8K X 8
U658	5113808A39	IC LINE DRVR OCT NON INV
U703	5113808A16	Dual D–type Flip–Flop
U751 thru 755	5182043W01	IC OCT TRANS/REG AC652 SM
U759 thru 764	5113805A54	Octal Buffer Line Driver/Receiver
U765	5113808A13	Hex Inverter Schmitt Trigger
U766	5182550Y03	NOR/OR 8–IN
U767	5113805A54	Octal Buffer Line Driver/Receiver
U851	5184789T06	IC ETHNT INTFC ADPTR 908
U852	5184634T09	IC COAX TRNSCVR INTRFC 8392 INDL
U863	5182056T02	IC RGLTR FLYBK LT 1425/15
U905 thru 907	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1003	5113816A07	5–Volt Positive Regulator
		crystal (see note):
Y1	4882336V02	CRYSTAL OSC SURFACE MOUNT
Y400	4882336V01	OSCILLATOR CLOCK 25 MHZ
Y851	4884450T12	XTAL SM CP12A 20MHZ
		non–referenced items:
	0982286V04	SKT SIMM 22.5 DEGREES 72 POS fuseld U601)
	5482066W02	ribbon, thermal transfer
	5482066W03	BARCODE LABEL
	8482006Y01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

Notes:

1. P651 is an 80–pin SIMM socket (0982286V03). This socket accepts a 512K x 32 FLASH SIMM (0180706P52) which contains the station operating software.

parts list

CLN7558A Station Control Module Board (EPIC III) PL–13183–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C100 thru 102	2113741B69	0.1 uF, ±5%, 50 V
C103 thru 106	2113740A39	27 pF, ±5%, 50 V
C107	2113740A31	12 pF, ±5%, 50 V
C201	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311049A23	47 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311049A45	10 uF, ±10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C221 thru 224	2113741A45	0.01 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C255	2113740A59	150 pF, ±5%, 50V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2113741B69	0.1 uF, ±5%, 50 V
C301	2380009A27	330 uF, ±20%, 16 V
C303 thru 305	2113741B69	0.1 uF, ±5%, 50 V
C310	2109822S04	CAP CHIP CER 10UF 35V 2220
C311	2113741B69	0.1 uF, ±5%, 50 V
C312	2113741A21	1000 pF, ±5%, 50 V
C313 thru 316	2113740A55	100 pF, ±5%, 50 V
C317,318	2113741B69	0.1 uF, ±5%, 50 V
C319 thru 321	2109822S04	CAP CHIP CER 10UF 35V 2220
C322,323	2113741B69	0.1 uF, ±5%, 50 V
C334	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C341	2113741B69	0.1 uF, ±5%, 50 V
C342	2109822S04	CAP CHIP CER 10UF 35V 2220
C343	2113743B27	0.680 uF, ±10%
C350	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C400	2113741B69	0.1 uF, ±5%, 50 V
C401	2113740A69	390 pF, ±5%, 50V
C502	2113741B69	0.1 uF, ±5%, 50 V
C503	2109822S04	CAP CHIP CER 10UF 35V 2220
C505	2113740A31	12 pF, ±5%, 50 V
C507,508	2113740A39	27 pF, ±5%, 50 V
C509	2113740A55	100 pF, ±5%, 50 V
C653,654	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V
C705	2113740A31	12 pF, ±5%, 50 V
C751 thru 756	2113740A55	100 pF, ±5%, 50 V
C777	2113740A79	1000 pF, ±5%, 50 V
C851	2113741B69	0.1 uF, ±5%, 50 V
C852	2113741F49	0.01 uF, ±5%, 50V
C853,854	2113740F35	22 pF, ±5%, 50V
C859	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C860	2311049A21	22 uF, ±10%, 20 V
C861	2113918A05	470 pF, ±20%, 1000 V
C862	2113741B69	0.1 uF, ±5%, 50 V
C863	2311049A21	22 uF, ±10%, 20 V
C864,865	2113741F17	470 pF, ±5%, 50V
C866	2113741B69	0.1 uF, ±5%, 50 V
C867	2113741F17	470 pF, ±5%, 50V
C868	2113741F49	0.01 uF, ±5%, 50V
C869	2311049A23	47 uF, ±10%, 10 V
C870	2113741F25	1000 pF, ±5%, 50V
C871,872	2311049A23	47 uF, ±10%, 10 V
C873	2113918B09	CAP CHIP 10000PF 1000V 20% X7R

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C880,881	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C882,883	2113741B69	0.1 uF, ±5%, 50 V
C901 thru 912	2113741B69	0.1 uF, ±5%, 50 V
C915	2113740A79	1000 pF, ±5%, 50 V
C917,918	2113740A79	1000 pF, ±5%, 50 V
C920	2113740A79	1000 pF, ±5%, 50 V
C922	2113740A79	1000 pF, ±5%, 50 V
C924,925	2113740A79	1000 pF, ±5%, 50 V
C927,928	2113740A79	1000 pF, ±5%, 50 V
C930	2113740A79	1000 pF, ±5%, 50 V
C932	2113740A79	1000 pF, ±5%, 50 V
C934 thru 936	2113740A79	1000 pF, ±5%, 50 V
C938,939	2113740A79	1000 pF, ±5%, 50 V
C941,942	2113740A79	1000 pF, ±5%, 50 V
C943	2113740A33	15 pF, ±5%, 50 V
C944	2113740A79	1000 pF, ±5%, 50 V
C945	2113741B69	0.1 uF, ±5%, 50 V
C1000 thru 1004	2113741B69	0.1 uF, ±5%, 50 V
C1006 thru 1013	2113741B69	0.1 uF, ±5%, 50 V
C1014	2113740A55	100 pF, ±5%, 50 V
C1015 thru 1030	2113741B69	0.1 uF, ±5%, 50 V
C1031,1032	2113740A55	100 pF, ±5%, 50 V
C1033 thru 1052	2113741B69	0.1 uF, ±5%, 50 V
C1054 thru 1056	2113741B69	0.1 uF, ±5%, 50 V
C1057	2109822S04	CAP CHIP CER 10UF 35V 2220
C1058,1059	2113741B69	0.1 uF, ±5%, 50 V
C1060	2113741A45	0.01 uF, ±5%, 50 V
C1061 thru 1071	2113741B69	0.1 uF, ±5%, 50 V
C1072	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1073 thru 1075	2113741B69	0.1 uF, ±5%, 50 V
C1076	2109822S04	CAP CHIP CER 10UF 35V 2220
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1078 thru 1080	2109822S04	CAP CHIP CER 10UF 35V 2220
C1081,1082	2113741B69	0.1 uF, ±5%, 50 V
C1084	2113741B69	0.1 uF, ±5%, 50 V
C1085	2113741A45	0.01 uF, ±5%, 50 V
C1086 thru 1089	2113741B69	0.1 uF, ±5%, 50 V
C1092	2113741B69	0.1 uF, ±5%, 50 V
C1096	2113741B69	0.1 uF, ±5%, 50 V
C1099	2113741B69	0.1 uF, ±5%, 50 V
C1106	2113741B69	0.1 uF, ±5%, 50 V
C1114	2113741B69	0.1 uF, ±5%, 50 V
C1119,1120	2113741B69	0.1 uF, ±5%, 50 V
C1126,1127	2113741B69	0.1 uF, ±5%, 50 V
C1129	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1132	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1154	2113741A33	3300 pF, ±5%, 50 V
C1155 thru 1165	2113741B69	0.1 uF, ±5%, 50 V
C1166	2109822S04	CAP CHIP CER 10UF 35V 2220
C1167,1168	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1169,1170	2109822S04	CAP CHIP CER 10UF 35V 2220
C1206	2113918A05	470 pF, ±20%, 1000 V
		diode (see note):
CR2	4813833B01	Schottky type
CR201	4882290T02	DIODE SI HOT CARRIER*HSMS2802*
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR305,306	4813833C05	dual 70 V
CR851	4813833C10	0.1A, 70 V
CR852	4813833B01	Schottky type
CR901	4813833B01	Schottky type
		inductor:
L202	2411087A44	33 uH
L851	2484657R01	ferrite bead
L852	2411087A29	1.8 UH
		connector:
P14	2885155U14	CON TCB HDR 34 POS HT ST
P651	(Note 1)	(Note 1)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		transistor (see note):
Q1	4813824A10	NPN
Q2	4884955T01	NPN
Q100 thru 103	4813824A10	NPN
Q202,203	4813824A10	NPN
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q250	4884955T01	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813824A08	P–CH FET type
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q901	4813824A10	NPN
		resistor, fixed:
R1 thru 7	0662057P10	RES CHIP 10.0K 1% 30X60
R10	0611079A34	22 ohms, ±5%, 1/10 W
R11,12	0662057P10	RES CHIP 10.0K 1% 30X60
R13	0611079A74	1K, ±5%, 1/10 W
R15 thru 18	0662057P10	RES CHIP 10.0K 1% 30X60
R20	0611079A34	22 ohms, ±5%, 1/10 W
R21,22	0662057P10	RES CHIP 10.0K 1% 30X60
R23	0611072A25	100 ohms, ±5%, 1/4 W
R24,25	0611079A74	1K, ±5%, 1/10 W
R26	0611079A66	470 ohms, ±5%, 1/10 W
R27	0611079A34	22 ohms, ±5%, 1/10 W
R31	0611078A40	39 ohms, ±5%, 1/10 W
R36	0611072A25	100 ohms, ±5%, 1/4 W
R37	0611079A90	10 ohms, ±5%, 1/10 W
R38	0611077A59	240 ohms, ±5%, 1/8 W
R39,40	0611079B15	47K, ±5%, 1/10 W
R43	0662057P10	RES CHIP 10.0K 1% 30X60
R44 thru 46	0662057B47	CHIP RES 0 OHMS + – .050 OHMS
R100,101	0611079A98	10K, ±5%, 1/10 W
R102 thru 105	0611079A62	330 ohms, ±5%, 1/10 W
R106	0611079A82	2200 ohms, ±5%, 1/10 W
R107	0611079A84	2700 ohms, ±5%, 1/10 W
R108	0611079A98	10K, ±5%, 1/10 W
R109	0611079A90	4700 ohms, ±5%, 1/10 W
R110 thru 113	0611079A34	22 ohms, ±5%, 1/10 W
R114	0611079A70	680 ohms, ±5%, 1/10 W
R202	0611079A52	120 ohms, ±5%, 1/10 W
R204	0611079B21	82K, ±5%, 1/10 W
R205	0611079E01	100K, 1/10 W, ±1%
R206	0611079B35	330K ±5%, 1/10 W
R207	0611079B32	RES CHIP 240K 5 1/10 A/P
R209	0611079A92	5600 ohms, ±5%, 1/10 W
R210	0611079A84	2700 ohms, ±5%, 1/10 W
R211	0611079A62	330 ohms, ±5%, 1/10 W
R212	0611079A40	39 ohms, ±5%, 1/10 W
R213	0611079A46	68 ohms, ±5%, 1/10 W
R214	0611079A34	27 ohms, ±5%, 1/10 W
R215	0611079A01	O ohms, ±5%, 1/10 W
R216	0611079E97	RES CHIP 1.0M 1/10W 1%
R217	0611079A56	82 ohms, ±5%, 1/10 W
R218	0611079A46	68 ohms, ±5%, 1/10 W
R219	0611079A61	33K, ±5%, 1/10 W
R220,221	0611079A90	4700 ohms, ±5%, 1/10 W
R223	0611079E97	RES CHIP 1.0M 1/10W 1%
R230,231	0611079A98	10K, ±5%, 1/10 W
R232	0611079A84	2700 ohms, ±5%, 1/10 W
R233 thru 235	0611079A98	10K, ±5%, 1/10 W
R236	0611079A84	2700 ohms, ±5%, 1/10 W
R237	0611079B15	47K, ±5%, 1/10 W
R238,239	0611079A98	10K, ±5%, 1/10 W
R249	0611079A98	10K, ±5%, 1/10 W
R250	0611079A44	56 ohms, ±5%, 1/10 W
R251,252	0611079A84	2700 ohms, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R254	0611079A52	120 ohms, ±5%, 1/10 W
R255	0611079A46	68 ohms, ±5%, 1/10 W
R256	0611079A40	39 ohms, ±5%, 1/10 W
R259	0611079A66	470 ohms, ±5%, 1/10 W
R260	0611079A98	10K, ±5%, 1/10 W
R261	0611079A52	120 ohms, ±5%, 1/10 W
R262	0611079A74	1K, ±5%, 1/10 W
R263,264	0611079A66	470 ohms, ±5%, 1/10 W
R265	0611079A68	560 5 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%, 1/10 W
R301 thru 303	0611079A66	470 ohms, ±5%, 1/10 W
R304	0611079A52	120 ohms, ±5%, 1/10 W
R305 thru 308	0611079G01	10K, ±1%, 1/10 W
R310,311	0611079G01	10K, ±1%, 1/10 W
R313	0611079A52	120 ohms, ±5%, 1/10 W
R318	0611079A82	2200 ohms, ±5%, 1/10 W
R320	0611079A88	3900 ohms, ±5%, 1/10 W
R323	0611079G01	10K, ±1%, 1/10 W
R324	0611079G30	20.0K, ±1%, 1/10 W
R325	0611079G58	Resistor chip 39.2K 1/10 W 1%
R326	0611079G66	47.5K, 1/10W, ±1%
R327	0611079G01	10K, ±1%, 1/10 W
R328	0611079G30	20.0K, ±1%, 1/10 W
R329	0611079G26	RES CHIP 18.2K 1/10W 1% 0805
R330	0611079E09	Resistor chip 121.0K 1/10 W 1%
R331	0611079E01	100K, 1/10 W, ±1%
R332	0611079G01	10K, ±1%, 1/10 W
R333	0611079G09	12.1K, 1/10 W, ±1%
R343	0611079G18	15K, ±1%, 1/10 W
R346,347	0611079B07	22K, ±5%, 1/10 W
R351	0611079A30	1800 ohms, ±5%, 1/10 W
R352	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R357	0611079A76	1.2K, ±5%, 1/10 W
R369	0611079A91	5100 ohms, ±5%, 1/10 W
R370	0611079A98	10K, ±5%, 1/10 W
R371	0611079B07	22K, ±5%, 1/10 W
R392	0611079A98	10K, ±5%, 1/10 W
R393	0611079A90	4700 ohms, ±5%, 1/10 W
R400	0611079A34	22 ohms, ±5%, 1/10 W
R401 thru 407	0611079A90	4700 ohms, ±5%, 1/10 W
R408	0611079A98	10K, ±5%, 1/10 W
R409	0611079A90	4700 ohms, ±5%, 1/10 W
R410 thru 413	0662057P10	RES CHIP 10.0K 1% 30X60
R414,415	0611079A98	10K, ±5%, 1/10 W
R416	0611079A74	1K, ±5%, 1/10 W
R417	0611079A98	10K, ±5%, 1/10 W
R418	0611079A74	1K, ±5%, 1/10 W
R419,420	0611079A98	10K, ±5%, 1/10 W
R421	0611079A36	27 ohms, ±5%, 1/10 W
R422	5164387T05	RESISTOR NETWORK 10 X 4.7K
R423,424	0662057B47	CHIP RES 0 OHMS + – .050 OHMS
R425,426	0611079A90	4700 ohms, ±5%, 1/10 W
R427	0611079A98	10K, ±5%, 1/10 W
R428	0611079A90	4700 ohms, ±5%, 1/10 W
R429	0611079A98	10K, ±5%, 1/10 W
R430	0611079A90	4700 ohms, ±5%, 1/10 W
R431,432	0611079A98	10K, ±5%, 1/10 W
R433,434	0611079A90	4700 ohms, ±5%, 1/10 W
R435,436	0611079B61	33K, ±5%, 1/10 W
R437	0611079A82	2200 ohms, ±5%, 1/10 W
R438	0611079A90	4700 ohms, ±5%, 1/10 W
R439	0611079A98	10K, ±5%, 1/10 W
R440	0611079A90	4700 ohms, ±5%, 1/10 W
R441	0662057P10	RES CHIP 10.0K 1% 30X60
R502	0611079E01	100K, 1/10 W, ±1%
R503	0611079A98	10K, ±5%, 1/10 W
R504	0611079E01	100K, 1/10 W, ±1%
R506	0611079A70	680 ohms, ±5%, 1/10 W
R510	0611079A98	10K, ±5%, 1/10 W
R517,518	0611079A34	22 ohms, ±5%, 1/10 W

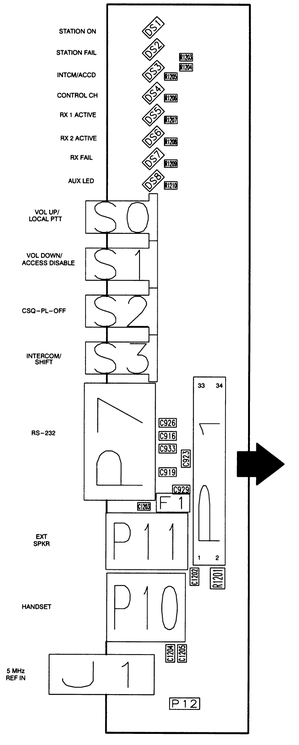
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R519	0611079A98	10K, ±5%, 1/10 W
R520	0611079B05	18K, ±5%, 1/10 W
R527,528	0611079A01	O ohms, ±5%, 1/10 W
R602 thru 605	0611079A34	22 ohms, ±5%, 1/10 W
R651 thru 654	0611079A36	27 ohms, ±5%, 1/10 W
R655 thru 658	0611079A34	22 ohms, ±5%, 1/10 W
R701	0611079A34	22 ohms, ±5%, 1/10 W
R702	0611079A74	1K, ±5%, 1/10 W
R703	0611079A01	O ohms, ±5%, 1/10 W
R704	0611079A74	1K, ±5%, 1/10 W
R705,706	0611079A90	39 ohms, ±5%, 1/10 W
R707	0611079A70	680 ohms, ±5%, 1/10 W
R751 thru 753	5184387T01	Resistor Network, 10K, ±2%, 1.012W
R754	0611079A74	1K, ±5%, 1/10 W
R756	0611079A98	10K, ±5%, 1/10 W
R758 thru 760	0611079A74	1K, ±5%, 1/10 W
R764 thru 767	0611079A98	10K, ±5%, 1/10 W
R776	0611079B13	39K, ±5%, 1/10 W
R782	0611079E01	100K, 1/10 W, ±1%
R794	0611079A90	4700 ohms, ±5%, 1/10 W
R796	0611079A74	1K, ±5%, 1/10 W
R798,799	0662057P10	RES CHIP 10.0K 1% 30X60
R823	0611079A66	470 ohms, ±5%, 1/10 W
R824	0611079A34	22 ohms, ±5%, 1/10 W
R835,836	0611079A01	O ohms, ±5%, 1/10 W
R838,839	0611079A01	O ohms, ±5%, 1/10 W
R841,842	0611079A74	1K, ±5%, 1/10 W
R852	0662057B47	CHIP RES 0 OHMS + – .050 OHMS
R853,854	0662057F03	RES CHIP 78.7 1% 0603
R855	0662057F03	RES CHIP 78.7 1% 0603
R857 thru 860	0611077F12	1.5K, ±1%, 1/8 W
R865	0611077B22	RES CHIP 1 MEG 5 1/4
R866	0611079F01	1.00K, 1/10 W
R868	0662057P10	RES CHIP 10.0K 1% 30X60
R869	0662057P02	RES. CHIP 15K 1% 30X60
R870	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R871	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R872,873	0611079A42	47 ohms, ±5%, 1/10 W
R874	0662057P10	RES CHIP 10.0K 1% 30X60
R876	0662057P10	RES CHIP 10.0K 1% 30X60
R877	0662057P99	RES CHIP 12.4K
R881	0662057P10	RES CHIP 10.0K 1% 30X60
R882,883	0662057B47	CHIP RES 0 OHMS + – .050 OHMS
R885,886	0662057P10	RES CHIP 10.0K 1% 30X60
R906 thru 929	0662057A25	CHIP RES 100 OHMS 5%
R936	0611079A90	4700 ohms, ±5%, 1/10 W
R940	0611079A98	10K, ±5%, 1/10 W
R941	0611079A90	4700 ohms, ±5%, 1/10 W
R942	0611079A98	10K, ±5%, 1/10 W
R1202	0611079A01	O ohms, ±5%, 1/10 W
R1212	0611079A98	10K, ±5%, 1/10 W
R1213,1214	0662057B47	CHIP RES 0 OHMS + – .050 OHMS
R1215	0611079A98	10K, ±5%, 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%, 1/10 W
		transformer:
T851	2482074Y01	IND 410H 20% .98A DCR .13A AM
T852	2582066V04	XFMR PULSE 1:1 :10 BASE SM
		integrated circuit (see note):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2 thru 4	5184531T09	IC SRAM 32K08 12NS
U5	5113808A07	Quad 2–Input AND Gate
U6	5184025T10	IC, DSP GLUE W/EPSILON
U7	5113808A05	Hex Inverter
U8	5185486U01	IC BFR OCT INV 3–ST 74__TS40
U9 thru 11	5184531T09	IC SRAM 32K08 12NS
U12	5113808A16	Dual D–type Flip–Flop
U152,153	5184288T01	Differential Bus Transceiver
U154,155	5113808A39	IC LINE DRVR OCT NON INV
U201	5184726T02	REFERENCE OSC MODULE
U202	5113812A26	IC PLL FREQ SYNTH

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
U203	5113805A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U205	5113808A13	Hex Inverter Schmitt Trigger
U301	5184625T07	IC ASIC EPSILON
U302	5182952X01	IC 1W AUDIO PWR AMP 4960
U303	5113813A05	High Performance, Single Supply
U318	5113818A05	High Performance, Single Supply
U401	5113802B03	IC QD COMM CNTRL W/ETHERNET 25MA
U501 thru 504	5113808A39	IC LINE DRVR OCT NON INV
U505 thru 508	5113808A41	Line Driver/Receiver Octal
U509	5113808A10	Triple 3–Input AND Gate
U510	5113808A15	OR QUAD 2–Input
U511	5113808A05	Hex Inverter
U512,513	5113808A09	Triple 3–Input NAND Gate
U515	5113815A02	Under Voltage Sensing Circuit
U516	5113805A03	Quad 2–Input NAND Gate
U517	5113808A15	OR QUAD 2–Input
U518	5113808A07	Quad 2–Input AND Gate
U519	5113805A89	Monostable Multivibrator, Dual Precision
U520 thru 522	5113808A16	Dual D–type Flip–Flop
U523	5113808A10	Triple 3–Input AND Gate
U601	5184530T08	MODULE DRAM 2MX32 70NS
U655	5184293T02	Simultaneous Monitor, EEPROM 8K X 8
U658	5113808A39	IC LINE DRVR OCT NON INV
U703	5113808A16	Dual D–type Flip–Flop
U751 thru 755	5180434W01	IC OCT TRANS/REG AC652 SM
U759 thru 764	5113805A54	Octal Buffer Line Driver/Receiver
U765	5113808A13	Hex Inverter Schmitt Trigger
U766	5182550Y03	NOR/OR 8–IN
U767	5113805A54	Octal Buffer Line Driver/Receiver
U851	5184788T06	IC ETHNT INTFC ADPTR 908
U852	5184634T09	IC COAX TRNSCVR INTRFC 8392 INDL
U863	5182056Y02	IC RS(T)R FLYBK LT 14515
U905 thru 907	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1003	5113816A07	5–Volt Positive Regulator
		crystal (see note):
Y1	4882336V02	CRYSTAL OSC SURFACE MOUNT
Y400	4882336V01	OSCILLATOR CLOCK 25 MHZ
Y851	4884450T12	XTAL SM CP12A 20MHZ
		non–referenced items:
	0982286V04	SKT SIMM 22.5 DEGREES 72 POS (used with U601)
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	8483004Y01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

Notes:

1. P651 is an 80–pin SIMM socket (0982286V03). This socket accepts a 512k x 32 FLASH SIMM (0180706F52) which contains the station operating software.



ILEPS–48948–O

P1 PIN-OUT DETAILS

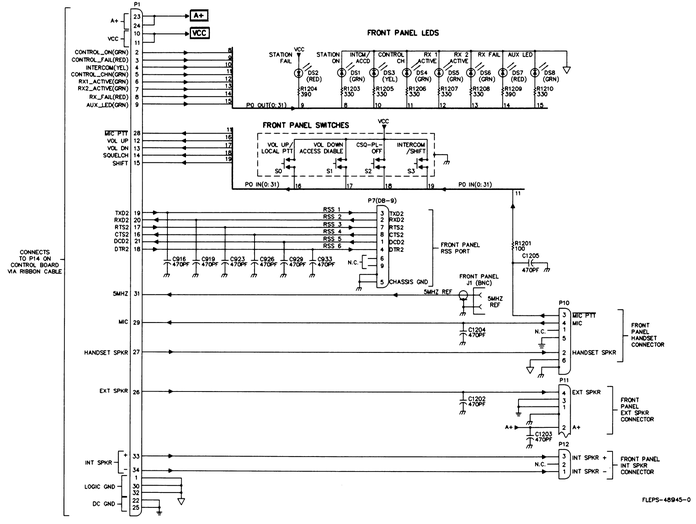
PIN	SIGNAL NAME
1	LOGIC GND
2	CONTROL_ON (GRN)
3	CONTROL_FAIL (RED)
4	INTERCOM (YEL)
5	CONTROL_CHN (GRN)
6	RX1_ACTIVE (GRN)
7	RX2_ACTIVE (GRN)
8	RX_FAIL (RED)
9	AUX_LED (GRN)
10	VCC
11	VCC
12	VOL UP
13	VOL DN
14	SQUELCH
15	SHIFT
16	CTS2
17	RTS2
18	DTR2
19	TXD2
20	RSD2
21	DCD2
22	DC GND
23	A+
24	A+
25	DC GND
26	EXT SPKR
27	HANDSET SPKR
28	MIC PTT
29	MIC
30	LOGIC GND
31	5MHZ
32	LOGIC GND
33	INT SPKR +
34	INT SPKR –

parts list

CLN7098A LED Board (EPIC III) — **PL–13181–O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C916	2113918A05	470 pF, ±20%, 1000 V
C919	2113918A05	470 pF, ±20%, 1000 V
C923	2113918A05	470 pF, ±20%, 1000 V
C926	2113918A05	470 pF, ±20%, 1000 V
C929	2113918A05	470 pF, ±20%, 1000 V
C933	2113918A05	470 pF, ±20%, 1000 V
C1202	2113918A05	470 pF, ±20%, 1000 V
C1203	2113740A71	470 pF, ±5%, 50 V
C1204,1205	2113918A05	470 pF, ±20%, 1000 V
		light emitting diode (see note):
DS1	4883636N18	DIODE LED GRN 36N18
DS2	4883636N20	DIODE LED RED 36N20
DS3	4882025Y01	DIO LED AMBER SM
DS4 thru 6	4883636N18	DIODE LED GRN 36N18
DS7	4883636N20	DIODE LED RED 36N20
DS8	4883636N18	DIODE LED GRN 36N18
		connector:
J1	0984963T02	BNC jack
P1	2885155U14	CON TCB HDR 34 POS HT ST
P7	0984524T07	9–pin, right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
		resistor, fixed:
R1201	0611072A25	100 ohms, ±5%, 1/4 W
R1203	0611079A69	620 ohms, ±5%, 1/10W
R1204	0611079A81	2000, ±5%, 1/10W
R1205	0611079A68	560 5 1/10 W
R1206 thru 1208	0611079A69	620 ohms, ±5%, 1/10W
R1209	0611079A81	2000, ±5%, 1/10W
R1210	0611079A69	620 ohms, ±5%, 1/10W
		switch:
S0 thru 3	4083621T01	push–button, spst
		non–referenced items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	6182512W03	LIGHTPIPES (8)
	8482052Y01	CIRCUIT BOARD

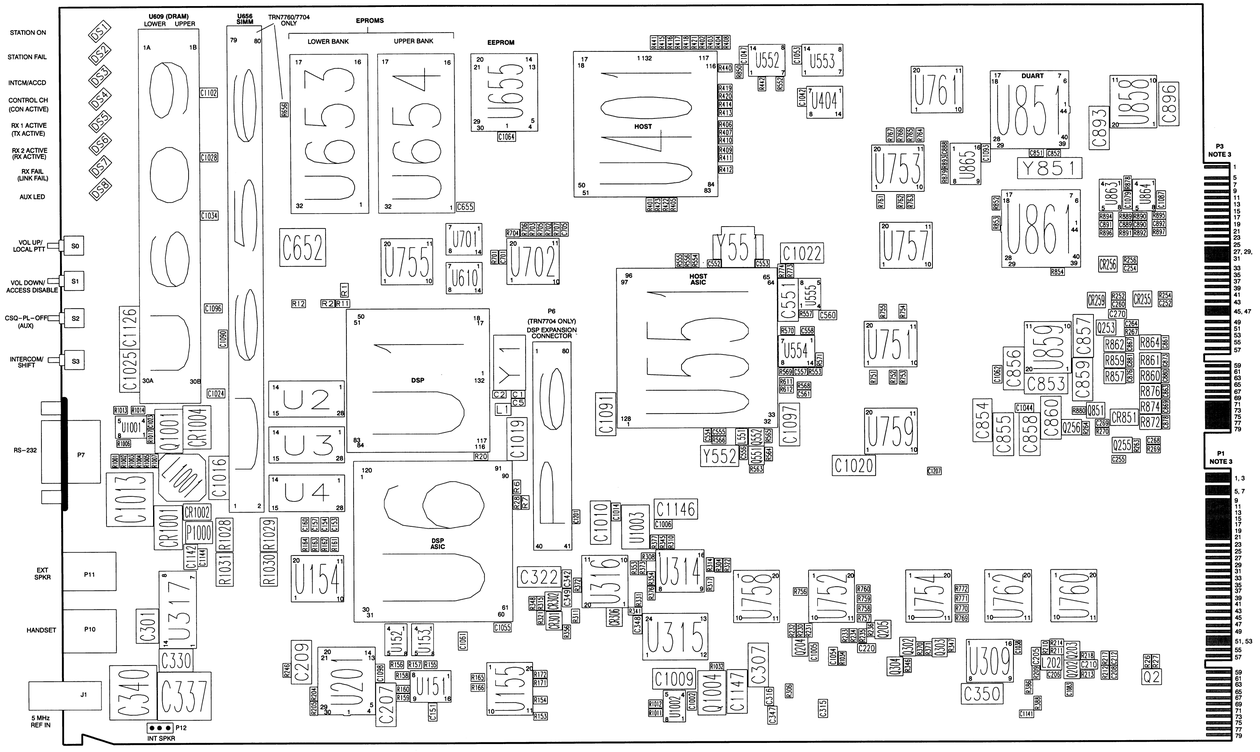
note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.



68P81096E54–O
10/30/00–UP

CONTROL MODULE

MODELS TRN7760F/TRN7475F STATION CONTROL
TRN7704F COMPARATOR CONTROL



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(1 OF 2)

NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. RESISTORS R32, R34, AND R782 ARE NOT USED ON THE TRN7760 STATION CONTROL MODULE BOARD. THESE RESISTORS ARE SHOWN WITH A DASHED OUTLINE.
3. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P3 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P2 AND P4 AND HAVE EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P1–1, 3	LOGIC GND	P2–2, 4	LOGIC GND	P3–1	MODEM+	P4–2	MODEM–
P1–5, 7	+14.2V	P2–6, 8	+14.2V	P3–5	LOGIC GND	P4–6	LOGIC GND
P1–9, 11, 13, 15, 17, 19, 21	+5V	P2–10, 12, 14, 16, 18, 20, 22	+5V	P3–7	WFI+	P4–8	WFI–
P1–23	LOGIC GND	P2–24	LOGIC GND	P3–9	DLAN1+	P4–10	DLAN1–
P1–25	SPI MISO	P2–26	SPI MOSI	P3–11	DLAN2+	P4–12	DLAN2–
P1–27	SPI CLK	P2–28	XLT RESET	P3–13	LOGIC GND	P4–14	LOGIC GND
P1–29	HDLC DATA	P2–30	HDLC BUSY	P3–15	PC STRIP	P4–16	AUX INDICATE
P1–31	HDLC CLK	P2–32	TDM FS	P3–17	MONITOR	P4–18	N.C.
P1–33	TDM DATA	P2–34	TDM CLK	P3–19	N.C.	P4–20	PATCH INH
P1–35	SPARE 1	P2–36	SPARE 2	P3–21	MRTI PTT	P4–22	MRTI RX AUDIO
P1–37	HOST 1PPS	P2–38	SPARE 4	P3–23	MRTI TX AUDIO	P4–24	N.C.
P1–39	SPARE 5	P2–40	SPARE 6	P3–25	RX CARRIER	P4–26, 28	LOGIC GND
P1–41	SPI A0	P2–42	SPI A1	P3–27, 29, 31	LOGIC GND	P4–30	LOGIC GND
P1–43	SPI GRANT	P2–44	SPI A5	P3–33	TXD3	P4–32	MODEM RESET
P1–45	SPI A4	P2–46	SPI A3	P3–35	RTS3	P4–34	RXD3
P1–47	SPI A2	P2–48	TX SPI REQ	P3–37	DSR3	P4–36	CTS3
P1–49	PTT REQ	P2–50	HOST REQ	P3–39	DCD3	P4–38	LOGIC GND
P1–51, 53	LOGIC GND	P2–52, 54	LOGIC GND	P3–41	TCLK3	P4–40	LLPBK3
P1–55	RX 2.1 MHz REF	P2–56	TX 2.1 MHz REF	P3–43	DTR3	P4–42	RCLK3
P1–57	LOGIC GND	P2–58	LOGIC GND	P3–45, 47	LOGIC GND	P4–44	RLPBK3
P1–59	REF AUDIO	P2–60	VCO AUDIO	P3–49	NO CONNECTION	P4–46, 48	LOGIC GND
P1–61	LOGIC GND	P2–62	LOGIC GND	P3–51	TXD1	P4–50	RXD1
P1–63	TX WB AUDIO	P2–64	5 MHz REF	P3–53	RTS1	P4–52	CTS1
P1–65	LOGIC GND	P2–66	LOGIC GND	P3–55	LOGIC GND	P4–54	DCD1
P1–67	RX2 AGC	P2–68	RX2 ODC	P3–57	DTR1	P4–56	DSR1
P1–69	RX2 SBI	P2–70	RX2 DATA	P3–59	TSTAT	P4–58	SERIAL ID
P1–71	RX2 DATA	P2–72	LOGIC GND	P3–61	N.C.	P4–60	TPTT
P1–73	LOGIC GND	P2–74	RX1 AGC	P3–63	RSTAT	P4–62	MUTE
P1–75	RX1 ODC	P2–76	RX1 SBI	P3–65	LOGIC GND	P4–64	CCI
P1–77	RX1 DATA	P2–78	RX1 DATA	P3–67	TX DATA+	P4–66	LOGIC GND
P1–79	LOGIC GND	P2–80	LOGIC GND	P3–69	TX DATA–	P4–68	6809 RX AUDIO
				P3–71, 73, 75,77, 79	LOGIC GND	P4–70, 72	LOGIC GND
						P4–74	GPS 1PPS
						P4–76	ETHERNET GRD
						P4–78	ETHERNET SIGNAL
						P4–80	ETHERNET GRD

ILEPS–48783–B
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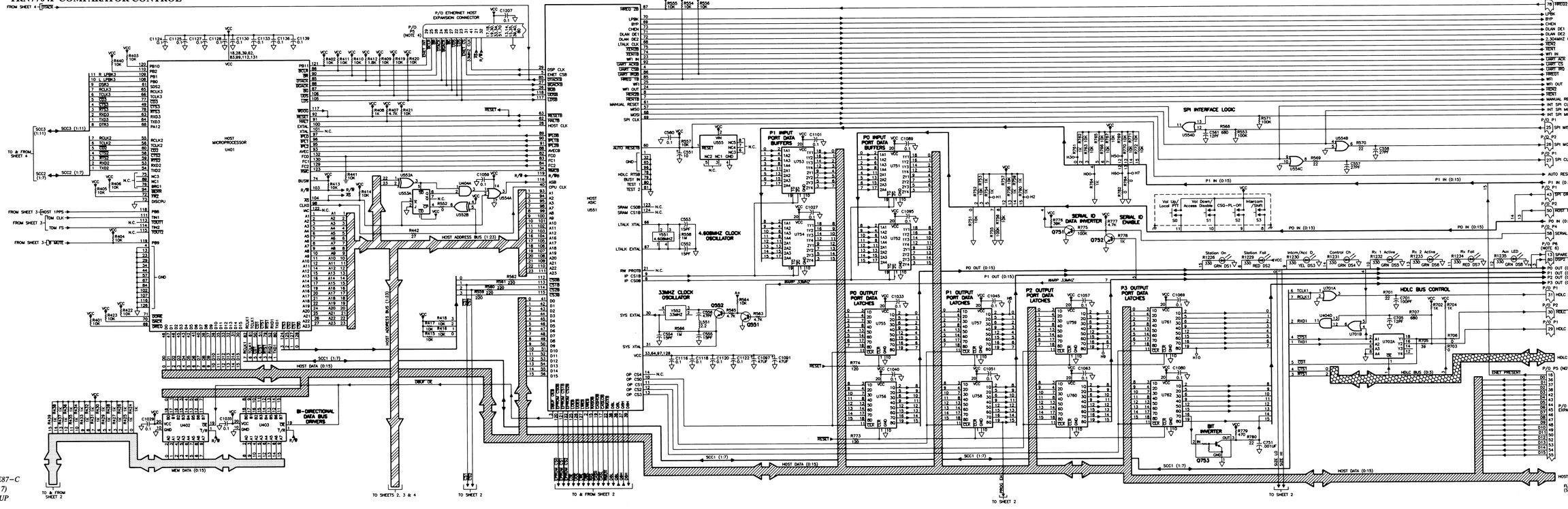
CONTROL MODULE

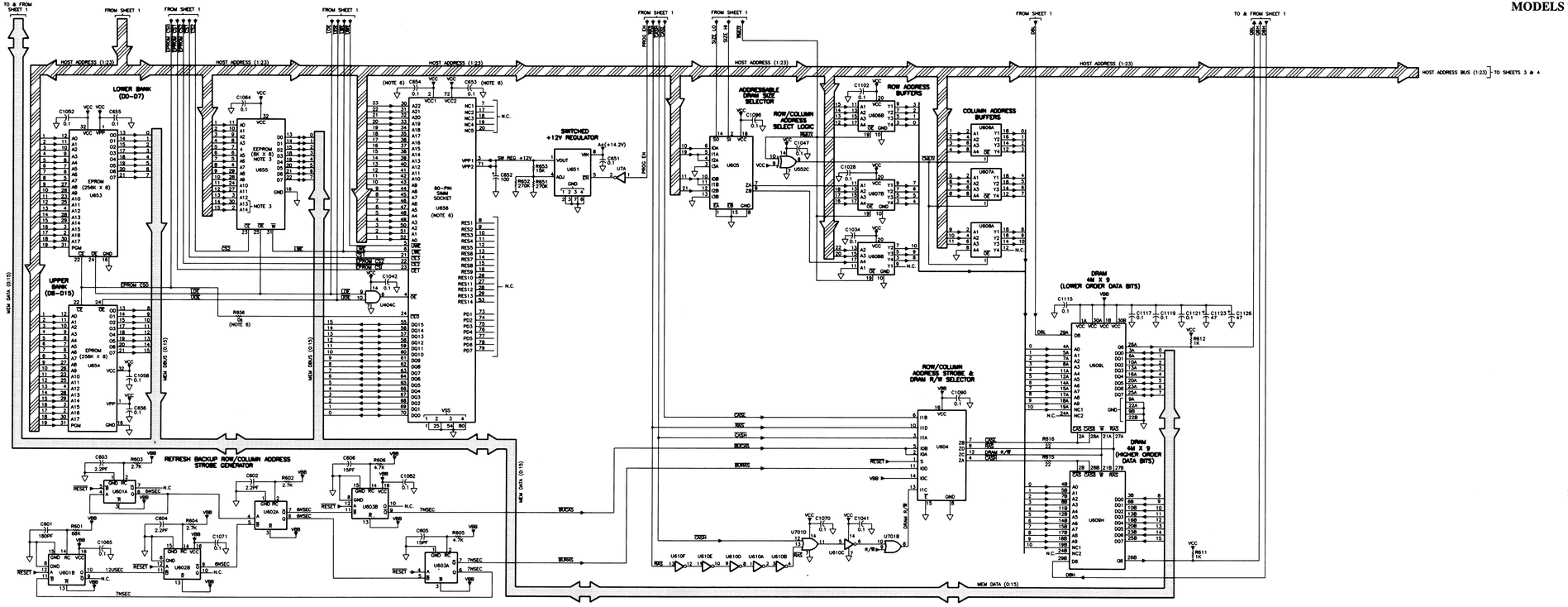
MODELS TRN7760F/TRN7475F STATION CONTROL
TRN7704F COMPARATOR CONTROL

ILEPS-48784-B

CONTROL MODULE

MODELS TRN7760F/TRN7475F STATION CONTROL
TRN7704F COMPARATOR CONTROL

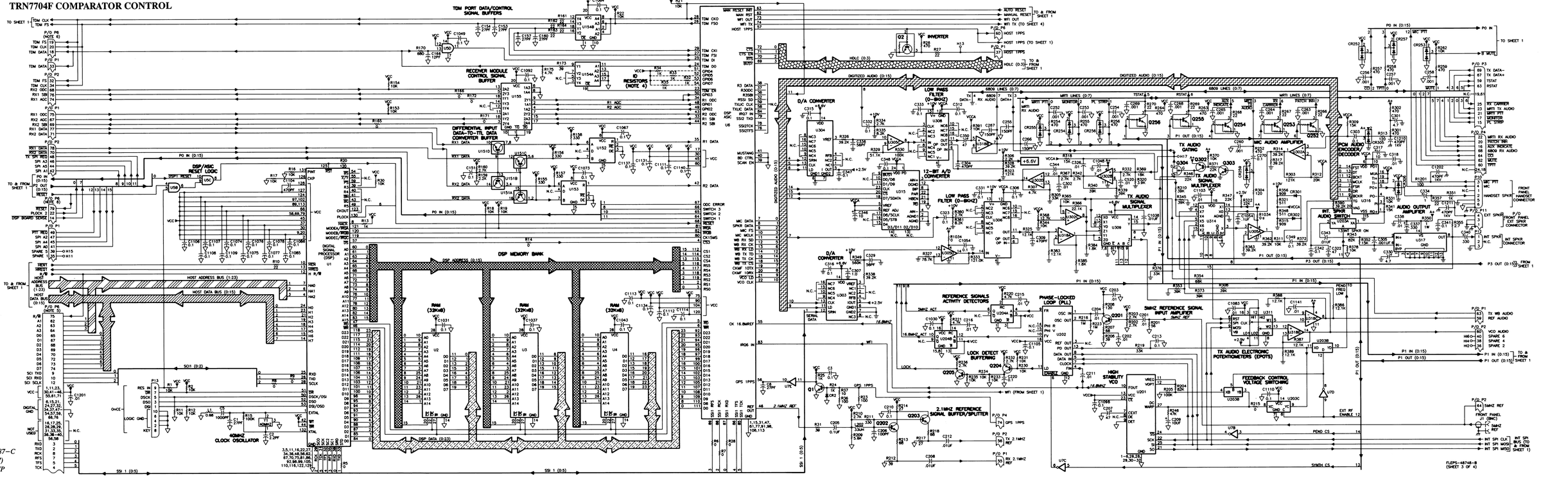




FLEPS–68748–B
(SHEET 2 OF 4)

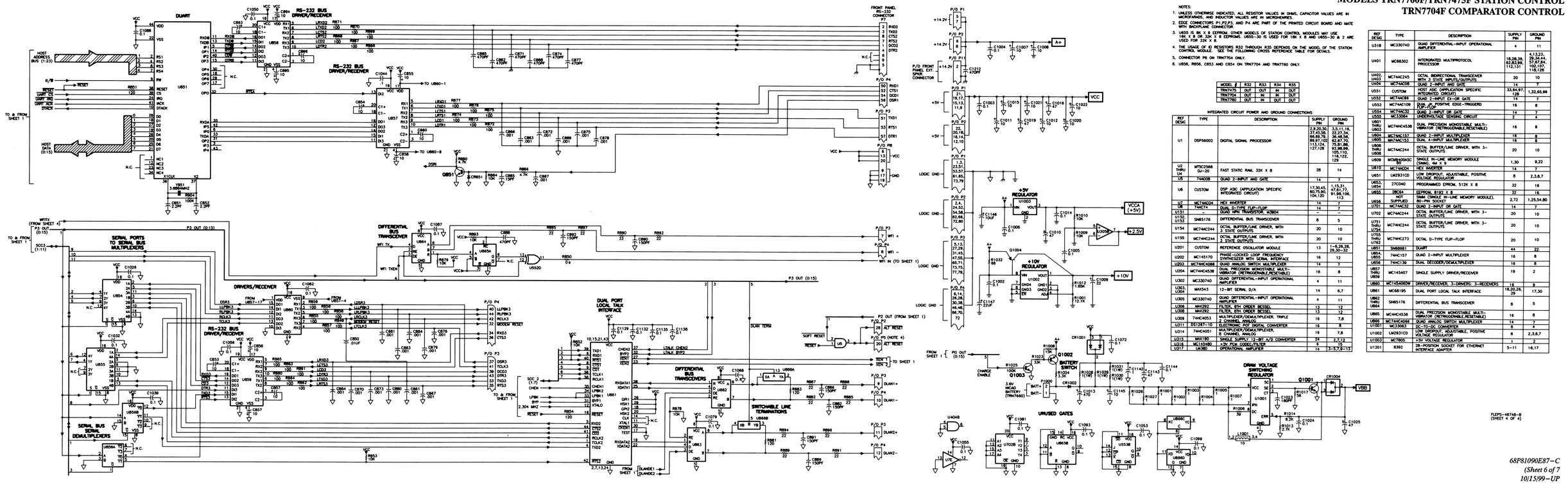
CONTROL MODULE

MODELS TRN7760F/TRN7475F STATION CONTROL
TRN7704F COMPARATOR CONTROL


TDM PORT DATA/CONTROL SIGNAL BUFFERS
RECEIVER MODULE CONTROL SIGNAL BUFFER
DIFFERENTIAL INPUT DATA-TO-TTL DATA CONVERTER BUFFER
DSP/ASIC RESET LOGIC
DSP MEMORY BANK
RAM (32K×8)
RAM (32K×8)
RAM (32K×8)
DIGITAL SIGNAL PROCESSOR (DSP)
40MHZ CLOCK OSCILLATOR
D/A CONVERTER
LOW PASS FILTER (0–8kHZ)
12-BIT A/D CONVERTER
LOW PASS FILTER (0–8kHZ)
D/A CONVERTER
TX AUDIO GATING
TX AUDIO SIGNAL MULTIPLEXER
RX AUDIO SIGNAL MULTIPLEXER
MIC AUDIO AMPLIFIER
PCM AUDIO ENCODER/ DECODER
INT. SPKR AUDIO SWITCH
TX AUDIO OUTPUT AMPLIFIER
REFERENCE SIGNALS ACTIVITY DETECTORS
PHASE-LOCKED LOOP (PLL)
LOCK DETECT BUFFERING
HIGH STABILITY VCO
2.1MHZ REFERENCE SIGNAL BUFFER/SPLITTER
2.1MHZ REFERENCE SIGNAL INPUT AMPLIFIER
TX AUDIO ELECTRONIC POTENTIOMETERS (EPOTS)
FEEDBACK CONTROL VOLTAGE SWITCHING
INVERTER
TO SHEET 1
TO & FROM SHEET 1
TO & FROM SHEET 3
TO & FROM SHEET 4
TO & FROM SHEET 5
TO & FROM SHEET 6
TO & FROM SHEET 7
TO & FROM SHEET 8
TO & FROM SHEET 9
TO & FROM SHEET 10
TO & FROM SHEET

CONTROL MODULE

MODELS TRN7760F/TRN7475F STATION CONTROL
TRN7704F COMPARATOR CONTROL



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. EDGE CONNECTORS P1,P2,P3, AND P4 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTORS.
3. U855 IS 8K X 8 EEPROM. OTHER MODELS OF STATION CONTROL MODULES MAY USE 16K X 8 OR 32K X 8 EEPROMS. U855-30 IS USED FOR 16K X 8 AND U855-30 & 2 ARE USED FOR 32K X 8.
4. THE USAGE OF R RESISTORS R32 THROUGH R35 DEPENDS ON THE MODEL OF THE STATION CONTROL MODULE. SEE THE FOLLOWING CROSS REFERENCE TABLE FOR DETAILS.

MODEL	R32	R33	R34	R35
TRN7475	OUT	OUT	IN	OUT
TRN7704	OUT	IN	IN	OUT
TRN7760	OUT	IN	OUT	OUT

5. CONNECTOR P6 ON TRN7704 ONLY.
6. U858, R856, C853 AND C854 ON TRN7704 AND TRN7760 ONLY.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	DSP56002	DIGITAL SIGNAL PROCESSOR	2,8,20,30, 37,45,58, 66,69,79, 89,97,102, 113,124, 127,128	3,5,11,16, 23,27,34, 36,48,56, 62,67,70, 75,81,86, 92,95,99, 103,107, 110,122, 125
U2 THRU U4	MT5C2568 DJ-20	FAST STATIC RAM, 32K X 8	28	14
U5	74AC08	QUAD 2-INPUT AND GATE	14	7
U6	CUSTOM	DSP ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	17,30,45, 60,75,90, 105,120	1,15,31, 47,61,73, 91,106, 113
U7	MC74AC04	HEX INVERTER	14	7
U8	74AC74	QUAD D-TYPE FLIP-FLOP	14	7
U151	-	QUAD NPN TRANSISTOR MJN804	-	-
U152 THRU U153	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U154	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U155	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U201	CUSTOM	REFERENCE OSCILLATOR MODULE	13	1-6,26,28, 29,30-32
U202	MC145170	PHASE-LOCKED LOOP FREQUENCY SYNTHESIZER WITH SERIAL INTERFACE	16	12
U203	MC74HC4066	QUAD ANALOG SWITCH MULTIPLEXER	14	7
U204	MC74HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U302	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U303-U304	MAX543	12-BIT SERIAL D/A	14	6,7
U305	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U306	MAX292	FILTER, 8TH ORDER BESSEL	12	12
U308	MAX292	FILTER, 8TH ORDER BESSEL	12	12
U309	74HC4053	MULTIPLEXER/DEMULTIPLEXER, TRIPLE 2 CHANNEL ANALOG	16	7,8
U311	DS1267-10	ELECTRONIC POT DIGITAL CONVERTER	16	8
U314	74HC4051	MULTIPLEXER/DEMULTIPLEXER, 8 CHANNEL ANALOG	16	7,8
U315	MAX190	SINGLE SUPPLY 12-BIT A/D CONVERTER	24	2,7,12
U316	MC145480	+3V PCM CODEC/FILTER	6	15
U317	LM380	OPERATIONAL AMPLIFIER	14	3-5,7,8-13
U318	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U401	MC68302	INTERGRATED MULTIPROTOCOL PROCESSOR	18,28,39, 51,63,99, 112,131	4,13,21, 29,33,44, 57,87,94, 102,107, 118,126
U402, U403	MC74AC245	OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3 STATE INPUTS/OUTPUTS	20	10
U404	MC74AC08	QUAD 2-INPUT AND GATE	14	7
U551	CUSTOM	HOST ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	33,64,97, 129	1,32,65,96
U552	MC74AC86	QUAD 2-INPUT EX-OR GATE	14	7
U553	MC74AC109	DUAL J-K POSITIVE EDGE-TRIGGERED FLIP-FLOP	16	8
U554	MC74AC32	QUAD 2-INPUT OR GATE	14	7
U555	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U601 THRU U603	MC74HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U604	MC74SC157	QUAD 2-INPUT MULTIPLEXER	16	8
U605	MM74HC153	DUAL 4-INPUT MULTIPLEXER	16	8
U606 THRU U608	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U609	MCM6206AC 70	SINGLE IN-LINE MEMORY MODULE (SIMM), 4M X 9	1,30	9,22
U610	MC74AC04	HEX INVERTER	14	7
U651	LM2931CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U653, U654	27C040	PROGRAMMED EPROM, 512K X 8	32	16
U655	28C64	EEPROM, 8192 X 8	32	16
U656	SUPPLIED	NOT Stated (SINGLE IN-LINE MEMORY MODULE), 80-PIN SOCKET	2,72	1,25,54,80
U701	MC74AC32	QUAD 2-INPUT OR GATE	14	7
U702	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U751 THRU U754	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U750 THRU U752	MC74HC273	OCTAL D-TYPE FLIP-FLOP	20	10
U851	SN65881	DUART	44	22
U854 THRU U855	74HC157	QUAD 2-INPUT MULTIPLEXER	16	8
U856	74HC130	DUAL DECODER/DEMULTIPLEXER	16	8
U857 THRU U859	MC145407	SINGLE SUPPLY DRIVER/RECEIVER	16	2
U860	MC145406DW	DRIVER/RECEIVER, 3-DRIVERS, 3-RECEIVERS	16	9
U861	MC68195	DUAL PORT LOCAL TALK INTERFACE	18,20,26, 29	17,30
U862 THRU U864	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U865	MC14HC4538	DUAL PRECISION MONOSTABLE MULTI-VIBRATOR (RETRIGGERABLE/RESETABLE)	16	8
U866	MC74HC4066	QUAD ANALOG SWITCH MULTIPLEXER	14	7
U1001	MC33063	DC-TO-DC CONVERTER	8	4
U1002	LM2931CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U1003	MC7805	+5V VOLTAGE REGULATOR	1	2
U1201	8392	28-POSITION SOCKET FOR ETHERNET INTERFACE ADAPTER	5--11	16,17

CONTROL MODULE
MODELS TRN7760F/TRN7475F STATION CONTROL
TRN7704F COMPARATOR CONTROL

parts list

TRN7760F/TRN7475F/TRN7704F Station Control Module Board PL–13035–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1	2113740A39	27 pF, ±5%, 50 V
C2	2113740G11	2.2 pF, ±0.1 pF, 50 V
C3	2113741B69	0.1 uF, ±5%, 50 V
C5	2113740A79	1000 pF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C151	2113741B69	0.1 uF, ±5%, 50 V
C153,154	2113740A39	27 pF, ±5%, 50 V
C157	2113740A39	27 pF, ±5%, 50 V
C160	2113740A39	27 pF, ±5%, 50 V
C161	2113740A31	12 pF, ±5%, 50 V
C201 thru 204	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311049A23	47 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311049A45	10 uF, ±10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C255	2113740A59	150 pF, ±5%, 50V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2113741B69	0.1 uF, ±5%, 50 V
C301	2380009M22	4.007 uF, ±20%, 50V
C302	2113741A45	0.01 uF, ±5%, 50 V
C303	2113741B69	0.1 uF, ±5%, 50 V
C304	2113740A71	470 pF, ±5%, 50 V
C305	2113740A79	1000 pF, ±5%, 50 V
C306	2113741B69	0.1 uF, ±5%, 50 V
C307	2311049A45	10 uF, ±10%, 35 V
C309	2113740A71	470 pF, ±5%, 50 V
C312	2113741B69	0.1 uF, ±5%, 50 V
C315,316	2113741B69	0.1 uF, ±5%, 50 V
C317	2311049A45	10 uF, ±10%, 35 V
C318	2113741A45	0.01 uF, ±5%, 50 V
C320	2113741A45	0.01 uF, ±5%, 50 V
C322	2311049A23	47 uF, ±10%, 10 V
C323	2113741B69	0.1 uF, ±5%, 50 V
C326	2113741A45	0.01 uF, ±5%, 50 V
C329	2113740A49	56 pF, ±5%, 50V
C330	2380009M22	4.007 uF, ±20%, 50V
C331 thru 333	2113741B69	0.1 uF, ±5%, 50 V
C334	2311049A39	1 uF, ±10%, 35 V
C336	2113740A49	56 pF, ±5%, 50V
C337	2380009M27	330 uF, ±20%, 16 V
C338	2113741A45	0.01 uF, ±5%, 50 V
C340	2380009M27	330 uF, ±20%, 16 V
C341,342	2113741B69	0.1 uF, ±5%, 50 V
C343,344	2113741A45	0.01 uF, ±5%, 50 V
C346	2311049A45	10 uF, ±10%, 35 V
C347 thru 349	2113741B69	0.1 uF, ±5%, 50 V
C350	2311049A23	47 uF, ±10%, 10 V
C551	2311049A45	10 uF, ±10%, 35 V
C552 thru 555	2113740A33	15 pF, ±5%, 50 V
C556	2113740A46	47 pF, ±5%, 50V
C557,558	2113740A39	27 pF, ±5%, 50 V
C560	2113741B69	0.1 uF, ±5%, 50 V
C561	2113740A31	12 pF, ±5%, 50 V
C601	2113740A61	180 pF, ±5%, 50V
C602 thru 604	2113740G11	2.2 pF, ±0.1 pF, 50V
C605,606	2113740A33	15 pF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C651	2113741B69	0.1 uF, ±5%, 50 V
C652	2380009M25	100 uF, 25 V
C653, C654	2113741B69	0.1 uF, ±5%, 50 V (TRN7760/TRN7704)
C653 thru 656	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V
C705	2113740A31	12 pF, ±5%, 50 V
C751	2113740A79	1000 pF, ±5%, 50 V
C850	2113741A45	0.01 uF, ±5%, 50 V
C851,852	2113740G11	2.2 pF, ±0.1 pF, 50 V
C853 thru 860	2311049A45	10 uF, ±10%, 35 V
C861	2113741A45	0.01 uF, ±5%, 50 V
C862	2113918A05	470 pF, ±20%, 1000 V
C863,864	2113740A79	1000 pF, ±5%, 50 V
C865	2113918A05	470 pF, ±20%, 1000 V
C866,867	2113740A79	1000 pF, ±5%, 50 V
C868	2113918A05	470 pF, ±20%, 1000 V
C869,870	2113740A79	1000 pF, ±5%, 50 V
C871	2113918A05	470 pF, ±20%, 1000 V
C872,873	2113740A79	1000 pF, ±5%, 50 V
C874	2113918A05	470 pF, ±20%, 1000 V
C875,876	2113740A79	1000 pF, ±5%, 50 V
C877	2113918A05	470 pF, ±20%, 1000 V
C878 thru 881	2113740A79	1000 pF, ±5%, 50 V
C882	2113740A59	150 pF, ±5%, 50V
C883,884	2113740A79	1000 pF, ±5%, 50 V
C885	2113740A33	15 pF, ±5%, 50 V
C886	2113740A59	150 pF, ±5%, 50V
C887	2113740A79	1000 pF, ±5%, 50 V
C888	2113740A71	470 pF, ±5%, 50 V
C889 thru 892	2113740A59	150 pF, ±5%, 50V
C893 thru 896	2311049A45	10 uF, ±10%, 35 V
C1002 thru 1006	2113741B69	0.1 uF, ±5%, 50 V
C1007,1008	2311049A45	10 uF, ±10%, 35 V
C1009	2311049A21	22 uF, ±10%, 20 V
C1010	2311049A23	47 uF, ±10%, 10 V
C1011,1012	2311049A45	10 uF, ±10%, 35 V
C1013	2380009M26	470 uF, ±20%, 6.3V
C1014	2113741B69	0.1 uF, ±5%, 50 V
C1015	2311049A45	10 uF, ±10%, 35 V
C1016	2311049A23	47 uF, ±10%, 10 V
C1019	2311049A23	47 uF, ±10%, 10 V
C1020 thru 1022	2311049A45	10 uF, ±10%, 35 V
C1023	2113740A61	180 pF, ±5%, 50V
C1024	2113741B69	0.1 uF, ±5%, 50 V
C1025	2311049A23	47 uF, ±10%, 10 V
C1028 thru 1035	2113741B69	0.1 uF, ±5%, 50 V
C1037	2113741B69	0.1 uF, ±5%, 50 V
C1038	2113741A45	0.01 uF, ±5%, 50 V
C1039 thru 1045	2113741B69	0.1 uF, ±5%, 50 V
C1047	2113741B69	0.1 uF, ±5%, 50 V
C1048	2113741A45	0.01 uF, ±5%, 50 V
C1049 thru 1059	2113741B69	0.1 uF, ±5%, 50 V
C1061 thru 1065	2113741B69	0.1 uF, ±5%, 50 V
C1067 thru 1082	2113741B69	0.1 uF, ±5%, 50 V
C1083	2113741A45	0.01 uF, ±5%, 50 V
C1084 thru 1090	2113741B69	0.1 uF, ±5%, 50 V
C1091	2311049A23	47 uF, ±10%, 10 V
C1092,1093	2113741B69	0.1 uF, ±5%, 50 V
C1095,1096	2113741B69	0.1 uF, ±5%, 50 V
C1097	2311049A45	10 uF, ±10%, 35 V
C1098,1099	2113741B69	0.1 uF, ±5%, 50 V
C1101,1102	2113741B69	0.1 uF, ±5%, 50 V
C1103	2113741A45	0.01 uF, ±5%, 50 V
C1104	2113740A71	470 pF, ±5%, 50 V
C1105 thru 1122	2113741B69	0.1 uF, ±5%, 50 V
C1123	2311049A23	47 uF, ±10%, 10 V
C1124,1125	2113741B69	0.1 uF, ±5%, 50 V
C1126	2311049A23	47 uF, ±10%, 10 V
C1127 thru 1140	2113741B69	0.1 uF, ±5%, 50 V
C1141	2113741A45	0.01 uF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1142	2311049A08	1 uF, ±10%, 35 V
C1143	2311049A23	47 uF, ±10%, 10 V
C1144	2113741B69	0.1 uF, ±5%, 50 V
C1145,1146	2311049S45	10 uF, ±10%, 35 V
C1147	2311049A21	22 uF, ±10%, 20 V
C1201	2113741A45	0.01 uF, ±5%, 50 V
C1202,1203	2113918A05	470 pF, ±20%, 1000 V
C1207	2113741A45	0.01 uF, ±5%, 50 V
C1210,1211	2113918A05	470 pF, ±20%, 1000 V
C1212	2113740A71	470 pF, ±5%, 50 V
		diode (see note):
CR2	4813833B01	Schottky type
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813825A05	Hot Carrier
CR305,306	4813833C05	dual 70 V
CR851	4813833B01	Schottky type
CR1001	4813833A03	Schottky type
CR1002	4813833B01	Schottky type
CR1004	4813833A03	Schottky type
		light emitting diode (see note):
DS1	4882198T06	SUBMINIATURE LED GRN SM
DS2	4882198T04	SUBMINIATURE LED RED SM
DS3	4882198T05	SUBMINIATURE LED YEL SM
DS4 thru 6	4882198T06	SUBMINIATURE LED GRN SM
DS7	4882198T04	SUBMINIATURE LED RED SM
DS8	4882198T06	SUBMINIATURE LED GRN SM
		coil:
L1	2462587X64	IND CHIP LO–PRO 680 NH 5%
L2	2411087A44	10 uH
L551	2462587N72	2200 NH, ±5%
L1001	2485069U02	COIL, 10 uH; 2.2AMP
		connector:
J1	0984963T02	BNC jack
P6	2885029U01	HEADER, 80 position (TRN7704)
P7	0984524T07	9–pin, right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813922U03	HDR 3 POS STR .1 CTR GLD PLTD
P1000	2813922A02	HDR; 2–pos str .1 ctr gld pltd
		translator (see note):
Q1	4813824A10	NPN
Q2	4884955T01	NPN
Q201 thru 203	4813824A10	NPN
Q204	4813824A17	PNP
Q205	4813824A10	NPN
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A08	P–CH FET type
Q551,552	4813824A10	NPN
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q851	4813824A10	NPN
Q1001	4813823A15	NPN
Q1002	4813824A17	PNP
Q1003	4813824A10	NPN
Q1004	4813822A09	PNP
		resistor, fixed:
R1,2	0611079A96	10K, ±5%, 1/10 W
R5 thru 9	0611079A01	0 ohms, ±5%, 1/10 W
R10	0611079A34	22 ohms, ±5%, 1/10 W
R11,12	0611079A96	10K, ±5%, 1/10 W
R13	0611079A74	1K, ±5%, 1/10 W
R14	0611079A01	0 ohms, ±5%, 1/10 W
R15	0611079B03	100K, ±5%, 1/10 W
R16 thru 19	0611079A98	10K, ±5%, 1/10 W
R20	0611079A52	120 ohms, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R21,22	0611079A98	10K, ±5%, 1/10 W
R23	0611079A25	100 ohms, ±5%, 1/4 W
R24,25	0611079A74	1K, ±5%, 1/10 W
R26	0611079A66	470 ohms, ±5%, 1/10 W
R27	0611079A34	22 ohms, ±5%, 1/10 W
R28	0611079A01	0 ohms, ±5%, 1/10 W
R30	0611079A98	10K, ±5%, 1/10 W
R31	0611079A34	22 ohms, ±5%, 1/10 W
R33	0611079A74	1K, ±5%, 1/10 W (TRN7760/TRN7704)
R36	0611079A25	100 ohms, ±5%, 1/4 W
R37	0611079A84	10 ohms, ±5%, 1/10 W
R153,154	0611079A98	10K, ±5%, 1/10 W
R155 thru 158	0611079A98	10K, ±5%, 1/10 W
R159	0611079A82	2200 ohms, ±5%, 1/10 W
R160	0611079A84	2700 ohms, ±5%, 1/10 W
R161 thru 164	0611079A34	22 ohms, ±5%, 1/10 W
R165,166	0611079A01	0 ohms, ±5%, 1/10 W
R170	0611079A70	680 ohms, ±5%, 1/10 W
R171,172	0611079A01	0 ohms, ±5%, 1/10 W
R173	0611079A40	39 ohms, ±5%, 1/10 W
R175	0611079A90	4700 ohms, ±5%, 1/10 W
R201	0611079A44	56 ohms, ±5%, 1/10 W
R202,203	0611079A84	2700 ohms, ±5%, 1/10 W
R204	0611079B21	82K, ±5%,1/10 W
R205	0611079B23	100K, ±5%, 1/10 W
R206	0611079A40	39 ohms, ±5%, 1/10 W
R207	0611079A40	39 ohms, ±5%, 1/10 W
R208	0611079A52	120 ohms, ±5%, 1/10 W
R209	0611079A92	5600 ohms, ±5%, 1/10 W
R210	0611079A84	2700 ohms, ±5%, 1/10 W
R211	0611079A62	330 ohms, ±5%, 1/10 W
R212	0611079A40	39 ohms, ±5%, 1/10 W
R213	0611079A46	68 ohms, ±5%, 1/10 W
R214	0611079A36	27 ohms, ±5%, 1/10 W
R215	0611079A01	0 ohms, ±5%, 1/10 W
R216	0611079B47	1 MEG, ±5%, 1/10 W
R217	0611079A36	27 ohms, ±5%, 1/10 W
R218	0611079A46	68 ohms, ±5%, 1/10 W
R219	0611079B11	33K, ±5%, 1/10 W
R220,221	0611079A90	4700 ohms, ±5%, 1/10 W
R222	0611079B47	1 MEG, ±5%, 1/10 W
R230,231	0611079A98	10K, ±5%, 1/10 W
R232	0611079A84	2700 ohms, ±5%, 1/10 W
R233 thru 235	0611079B13	39K, ±5%, 1/10 W
R236	0611079A84	2700 ohms, ±5%, 1/10 W
R246	0611079B15	47K, ±5%, 1/10 W
R252	0611079A66	470 ohms, ±5%, 1/10 W
R254 thru 259	0611079A66	470 ohms, ±5%, 1/10 W
R262	0611079A98	10K, ±5%, 1/10 W
R263,264	0611079A66	470 ohms, ±5%, 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%, 1/10 W
R301,302	0611079A66	470 ohms, ±5%, 1/10 W
R303	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%, 1/10 W
R305	0611079B11	33K, ±5%, 1/10 W
R306	0611079A82	2200 ohms, ±5%, 1/10 W
R307	0611079A90	4700 ohms, ±5%, 1/10 W
R308	0611079B13	39K, ±5%, 1/10 W
R309	0611079B03	15K, ±5%, 1/10 W
R310	0611079B13	39K, ±5%, 1/10 W
R311	0611079G01	10k, ±1% 1/10 W
R312	0611079G30	RES CHIP 20.0K 1/10W 1% 0805
R313	0611079A52	120 ohms, ±5%, 1/10 W
R314	0611079G58	Resistor chip 39.2K 1/10 W 1%
R315	0611079D83	909 ohms, 1/10 W; ±1%
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079B03	15K, ±5%, 1/10 W
R320	0611079A88	3900 ohms, ±5%, 1/10 W
R321	0611079D69	511 ohms, 1/10 W; ±1%

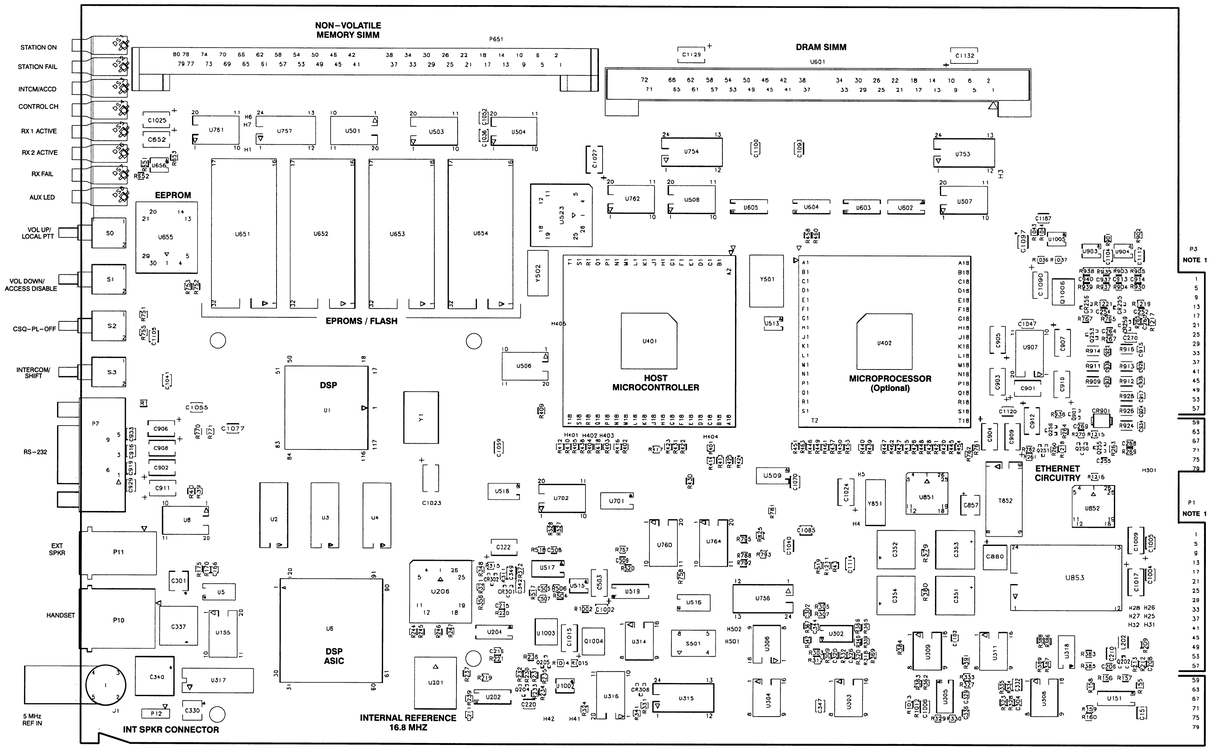
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R322	0611079B07	22K, ±5%, 1/10 W
R323	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R325	0611079G09	12.1K, 1/10 W; ±1%
R326	0611079G58	Resistor chip 39.2K 1/10 W 1%
R327	0611079G87	Resistor chip 78.7K 1/10 W 1%
R328	0611079G58	Resistor chip 39.2K 1/10 W 1%
R329	0611079G89	RES CHIP 51.1K 1/10W 1% 0805
R330	0611079B23	100K, ±5%, 1/10 W
R331	0611079A98	10K, ±5%,1/10 W
R332	0611079A84	2700 ohms, ±5%, 1/10 W
R333	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R334	0611079A84	2700 ohms, ±5%, 1/10 W
R335	0611079A98	8200 ohms, ±5%, 1/10 W
R336	0611079G58	Resistor chip 39.2K 1/10 W 1%
R339,340	0611079B13	39K, ±5%, 1/10 W
R341	0611079B03	15K, ±5%,1/10 W
R342	0611079A84	2700 ohms, ±5%, 1/10 W
R343	0611079B21	82K, ±5%,1/10 W
R344	0611079G01	10k, ±1% 1/10 W
R345	0611079B13	39K, ±5%, 1/10 W
R346,347	0611079B07	22K, ±5%,1/10 W
R348	0611079D69	511 ohms, 1/10 W; ±1%
R349	0611079B41	Resistor, fixed: chip 560K
R350	0683982T01	1 ohm, ±5%, 1 W
R351	0611079A74	1K, ±5%,1/10 W
R352	0611079B03	15K, ±5%, 1/10 W
R353	0611079B13	39K, ±5%,1/10 W
R354	0611079B19	68K, ±5%,1/10 W
R355	0611079A12	2.7 ohms, ±5%, 1/10 W
R356	0611079D93	909 ohms, 1/10 W; ±1%
R357	0611079A84	2700 ohms, ±5%, 1/10 W
R360	0611079A84	2700 ohms, ±5%, 1/10 W
R361	0611079A98	8200 ohms, ±5%, 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079G01	10k, ±1% 1/10 W
R366	0611079G24	RES CHIP 22.1K 1/10W 1% 0805
R367	0611079A84	2700 ohms, ±5%, 1/10 W
R368	0611079G11	12.7K, 1/10W; ±1%
R369	0611079B05	18K, ±5%,1/10 W
R370	0611079A98	10K, ±5%,1/10 W
R371	0611079B07	22K, ±5%,1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%,1/10 W
R376	0611079B11	33K, ±5%,1/10 W
R377	0611079B13	39K, ±5%,1/10 W
R378	0611079A98	10K, ±5%,1/10 W
R383	0611079G09	12.1K, 1/10 W; ±1%
R384,385	0611079A66	470 ohms, ±5%, 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W; ±1%
R390	0611079G58	Resistor chip 39.2K 1/10 W 1%
R391	0611079A66	470 ohms, ±5%, 1/10 W
R401 thru 406	0611079A96	10K, ±5%, 1/10 W
R407	0611079A74	1K, ±5%,1/10 W
R408	0611079A74	1K, ±5%,1/10 W
R409 thru 411	0611079A98	10K, ±5%, 1/10 W
R412	0611079B03	15K, ±5%,1/10 W
R413 thru 423	0611079A98	10K, ±5%, 1/10 W
R424 thru 439	0611079A74	1K, ±5%,1/10 W
R440,441	0611079A74	1K, ±5%,1/10 W
R442	0611079A36	27 ohms, ±5%, 1/10 W
R552	0611079A01	0 ohms, ±5%, 1/10 W
R553	0611079B03	100K, ±5%,1/10 W
R554 thru 557	0611079A98	10K, ±5%, 1/10 W
R558	0611079B47	1 MEG, ±5%, 1/10 W
R559 thru 562	0611079A58	220 ohms, ±5%, 1/10 W
R563	0611079A90	4700 ohms, ±5%, 1/10 W
R564	0611079A74	1K, ±5%,1/10 W
R565	0611079B03	15K, ±5%,1/10 W
R566	0611079B47	1 MEG, ±5%, 1/10 W
R568	0611079A70	680 ohms, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R569,570	0611079A34	22 ohms, ±5%, 1/10 W
R571	0611079B23	100K, ±5%, 1/10 W
R601	0611079B19	68K, ±5%,1/10 W
R602 thru 604	0611079A84	2700 ohms, ±5%, 1/10 W
R605,606	0611079A90	4700 ohms, ±5%, 1/10 W
R611,612	0611079A74	1K, ±5%, 1/10 W
R615,616	0611079A34	22 ohms, ±5%, 1/10 W
R651,652	0611079B33	270K, ±5%, 1/10 W
R653	0611079B03	15K, ±5%,1/10 W
R656	0611079A01	0 ohms, ±5%, 1/10 W (TRN7760/TRN7704)
R701	0611079A34	22 ohms, ±5%, 1/10 W
R702	0611079A74	1K, ±5%, 1/10 W
R703	0611079A01	0 ohms, ±5%, 1/10 W
R704	0611079A74	1K, ±5%, 1/10 W
R705	0611079A40	39 ohms, ±5%, 1/10 W
R706	0611079A01	0 ohms, ±5%, 1/10 W
R707	0611079B33	270K, ±5%, 1/10 W
R751 thru 753	0611079A98	10K, ±5%, 1/10 W
R754	0611079A74	1K, ±5%, 1/10 W
R755	0611079B23	100K, ±5%,1/10 W
R756,757	0611079A98	10K, ±5%, 1/10 W
R758 thru 761	0611079A74	1K, ±5%, 1/10 W
R762,763	0611079A98	10K, ±5%, 1/10 W
R764	0611079A74	1K, ±5%, 1/10 W
R765 thru 767	0611079A98	10K, ±5%,1/10 W
R769 thru 772	0611079A98	10K, ±5%,1/10 W
R773,774	0611079A52	120 ohms, ±5%, 1/10 W
R775	0611079B23	100K, ±5%,1/10 W
R776	0611079B13	39K, ±5%, 1/10 W
R777	0611079A90	4700 ohms, ±5%, 1/10 W
R778	0611079A74	1K, ±5%,1/10 W
R779	0611079A66	470 ohms, ±5%, 1/10 W
R780	0611079A34	22 ohms, ±5%, 1/10 W
R782	0611079A01	0 ohms, ±5%, 1/10 W
R784	0611079A01	0 ohms, ±5%, 1/10 W
R849	0611072A25	100 ohms, ±5%, 1/4 W
R850	0611079A01	0 ohms, ±5%, 1/10 W
R851	0611079A52	120 ohms, ±5%, 1/10 W
R852,853	0611079A98	10K, ±5%, 1/10 W
R854	0611079A52	120 ohms, ±5%, 1/10 W
R855 thru 877	0611072A25	100 ohms, ±5%, 1/4 W
R878,879	0611079A98	10K, ±5%, 1/10 W
R880	0611079A90	4700 ohms, ±5%, 1/10 W
R881	0611079A52	120 ohms, ±5%, 1/10 W
R882	0611079B13	39K, ±5%,1/10 W
R883	0611079A52	120 ohms, ±5%, 1/10 W
R884	0611079A98	10K, ±5%, 1/10 W
R885	0611079A34	22 ohms, ±5%, 1/10 W
R886 thru 889	0611079A90	4700 ohms, ±5%, 1/10 W
R887 thru 892	0611079A34	22 ohms, ±5%, 1/10 W
R893	0611079A98	10K, ±5%, 1/10 W
R894 thru 897	0611079A34	22 ohms, ±5%, 1/10 W
R904	0611079B23	100K, ±5%, 1/10 W
R1001 thru 1005	0611079A02	1 ohm, ±5%, 1/10 W
R1006	0611079A40	39 ohms, ±5%, 1/10 W
R1007	0611079A02	1 ohm, ±5%, 1/10 W
R1008	0611079B01	12K, ±5%, 1/10 W
R1009,1010	0611079G01	10k, ±1%, 1/10 W
R1011	0611079C09	12.1K, 1/10 W; ±1%
R1012	0611079F22	Resistor: chip 1.65K 1/10 W
R1013	0611079A84	2700 ohms, ±5%, 1/10 W
R1014	0611079A98	8200 ohms, ±5%, 1/10 W
R1017	0611079A44	56 ohms, ±5%, 1/10 W
R1023	0611079B11	33K, ±5%, 1/10 W
R1024	0611079A86	3300 ohms, ±5%, 1/10 W
R1025	0611079B23	100K, ±5%,1/10 W
R1026,1027	0611079A02	1 ohm, ±5%, 1/10 W
R1029 thru 1031	0683982T01	1 ohm, ±5%, 1 W
R1032	0611079A46	68 ohms, ±5%, 1/10 W
R1034	0611079A01	0 ohms, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R1201	0611072A25	100 ohms, ±5%, 1/4 W
R1226	0611079A62	330 ohms, ±5%, 1/10 W
R1229 thru 1235	0611079A52	330 ohms, ±5%, 1/10 W
		switch:
S0 thru 3	4083621T01	pushbutton, spst
		integrated circuit (see note):
U1	5185238U01	Digital Signal Processor
U2 thru 4	5184531T02	Static Ram
U5	5113636A07	Quad 2–Input AND Gate
U6	5184625T05	IC ASIC DSP GLUE 2 120QFP
U7	5113808A05	Hex Inverter
U8	5113808A16	Dual D–type Flip–Flop
U151	5113826A04	Quad NPN General Purpose
U152,153	5184288T01	Differential Bus Transceiver
U154	5113808A38	Octal 3–State Non–Inverter Line Driver
U155	5113805A54	Octal Buffer Line Driver/Receiver
U201	5184728T02	REFERENCE OSC MODULE
U202	5184717T01	Synthesizer with Serial Interface
U203	5113805A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U302	5113819A05	High Performance, Single Supply
U303,304	5182276R86	Complementary Symmetry/oxide Semiconductor
U305	5113819A05	High Performance, Single Supply
U306	5185222U02	IC Filter
U308	5185222U02	IC Filter
U309	5113805A85	Mux/Demux, Trip 2–Channel Analog
U311	5182802R86	Digital Pot Converter
U314	5113805A83	Mux/Demux, 8–Channel Analog
U315	5182276R85	IC SNG SUPPLY 128IT ADC MAX190
U316	5184740T01	CODEC Pulse Code Modulation
U317	5184621K33	Operational Amplifier
U318	5113819A05	High Performance, Single Supply
U401	5113803A08	Multiprotocol
U402,403	5113808A40	Octal 3–State Non–Inverter Line Driver/Receiver
U404	5113808A07	Quad 2–Input AND Gate
U551	5184625T02	Application Specific Gate Array
U552	5113806A18	EXOR, Quad 2–Input
U553	5113808A19	Flip–Flop, Dual Jack w/Set
U554	5113808A14	Quad 2–Input OR Gate
U555	5113815A02	Under Voltage Sensing Circuit
U601 thru 603	5113805A89	Monostable Multivibrator, Dual Precision
U604	5113808A27	Quad Mux 2–Input
U605	5113808A25	Dual Mux, 4–Input
U606 thru 608	5113808A38	Octal 3–State Non–Inverter Line Driver
U609	5184530T02	Single In–Line Memory Module (2 used) (TRN7475/TRN7704)
	5184530T04	Single In–Line Memory Module (2 used) (TRN7760)
U610	5113808A05	Hex Inverter
U651	5113816A01	Adjustable Low Dropout, Positive
U653	(SEE NOTE 1)	IC PRGMD EPROM
U654	(SEE NOTE 1)	IC PRGMD EPROM
U655	5184293T06	IC EEPROM 8K X 8,32–byte page (TRN7475/TRN7760)
	5184293T02	IC EEPROM 8K X 8, Simultan Monitor (TRN7704)
U656	0984527T05	socket, 80 position
U701	5113808A14	Quad 2–Input OR Gate
U702	5113808A38	Octal 3–State Non–Inverter Line Driver
U751 thru 754	5113805A54	Octal Buffer Line Driver/Receiver
U755 thru 762	5113805A60	Octal D, Flip–Flop
U851	5184529T02	IC DUART 44PLCC SCN68681
U854,855	5113805A36	Quad 2–Input Non–Inv Multiplexer
U856	5113805A31	Dual Decoder/Demux
U857 thru 859	5113811A01	Single Supply Driver/Receiver
U860	5113811A10	Driver/Receiver, 3–Drivers; 3–Receivers
U861	5184532T01	Adapter, Local
U862 thru 864	5184288T01	Differential Bus Transceiver
U865	5113805A89	Monostable Multivibrator, Dual Precision
U866	5113805A86	Quad Analog Multiplexer/Demultiplexer

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
U1001	5113815A01	DC to DC Converter
U1002	5113816A01	Adjustable Low Dropout, Positive
U1003	5113816A07	5–Volt Positive Regulator
		crystal (see note):
Y1	4885592U01	40 MHZ
Y551	4884405T05	4.608 MHZ
Y552	4885135U01	33.000 MHZ
Y851	4883793T04	4.096 MHZ
		non–referenced items:
	0784775T01	STIFFNER, PC board edge (2 used)
	0913900A03	SOCKET, 20 position (used with U655)
	0982451V13	Socket, IC; 32–pin (used with U653)
	0982451V13	Socket, IC; 32–pin (used with U654)
	0984527T04	socket, dual (used with U609)
	3883253X01	PLUG, BATTERY HOLDER (TRN7760)
	4282319V01	HOLDER BATTER

STATION CONTROL MODULE
MODELS TTN4094C / TRN7900C / CLN6686C



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NOTES:

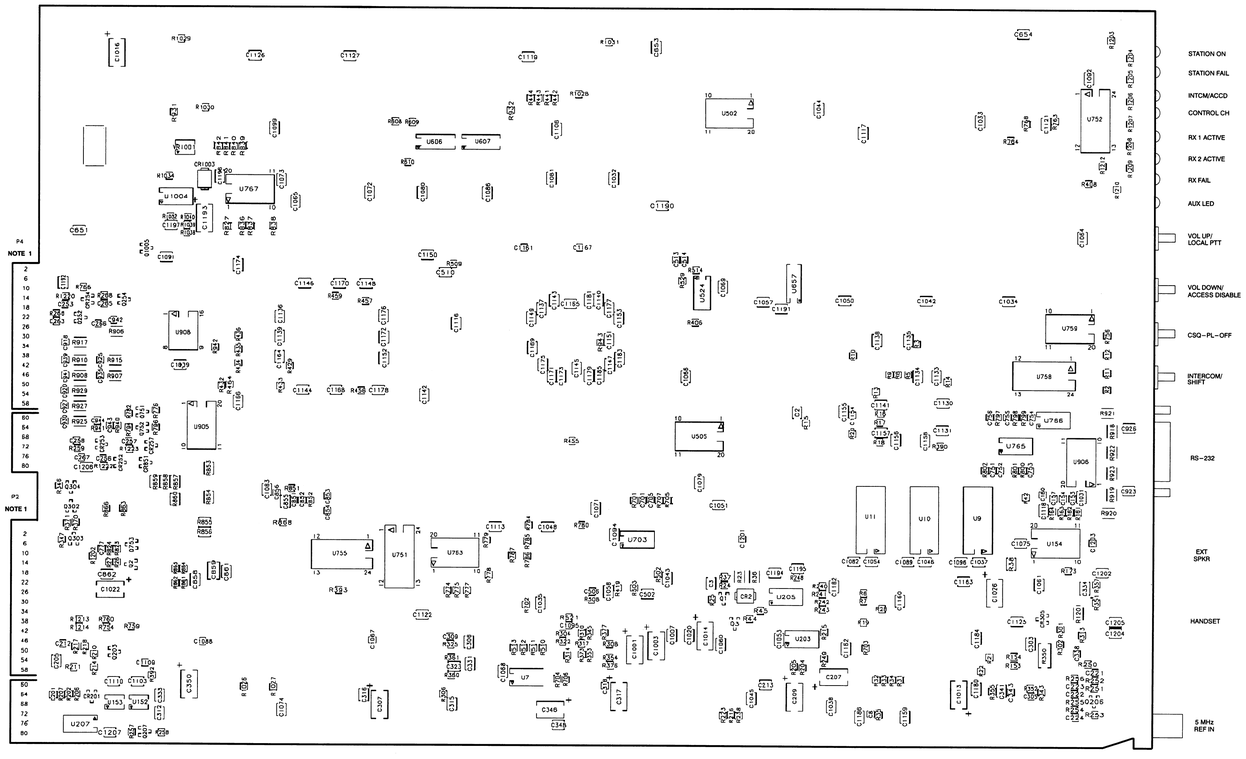
1. THE CIRCUIT BOARD EDGE CONNECTORS HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE MAIN SIDE CONTACTS ARE REFERENCED AS P1 AND P3 AND HAVE ODD NUMBERED CONTACTS. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P2 AND P4 AND HAVE EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P1-1, 3	LOGIC GND	P2-2, 4	LOGIC GND	P3-1	WIDEBAND OUTPUT	P4-2	WIDE BAND INPUT
P1-5, 7	+14.2V	P2-6, 8	+14.2V	P3-5	LOGIC GND	P4-6	LOGIC GND
P1-9, 11, 13, 15, 17, 19, 21	+5V	P2-10, 12, 14, 16, 18, 20, 22	+5V	P3-7	WFI+	P4-8	WFI-
P1-23	LOGIC GND	P2-24	LOGIC GND	P3-9	DLAN1+	P4-10	DLAN1-
P1-25	SPI MISO	P2-26	SPI MOSI	P3-11	FAN +	P4-12	N.C.
P1-27	SPI CLK	P2-28	ALT RESET	P3-13	LOGIC GND	P4-14	LOGIC GND
P1-29	HDLC DATA	P2-30	HDLC BUSY	P3-15	PL STRIP	P4-16	AUX INDICATE
P1-31	HDLC CLK	P2-32	TDM FS	P3-17	MONITOR	P4-18	N.C.
P1-33	TDM DATA	P2-34	TDM CLK	P3-19	N.C.	P4-20	PATCH INH
P1-35	SPARE 1	P2-36	SPARE 2	P3-21	MRTI PTT	P4-22	MRTI RX AUDIO
P1-37	HOST TPPS	P2-38	EXP SPI REQ	P3-23	MRTI TX AUDIO	P4-24	N.C.
P1-39	EXP SPI GRANT	P2-40	EXP HOST REQ	P3-25	RX CARRIER	P4-26, 28	LOGIC GND
P1-41	SPI A0	P2-42	SPI A1	P3-27, 29, 31	LOGIC GND	P4-30	LOGIC GND
P1-43	TX SPI GRANT	P2-44	SPI A5	P3-33	TXD3	P4-32	MODEM RESET
P1-45	SPI A4	P2-46	SPI A3	P3-35	RTS3	P4-34	RXD3
P1-47	SPI A2	P2-48	TX SPI REQ	P3-37	DSR3	P4-36	CTS3
P1-49	PTT REQ	P2-50	TX HOST REQ	P3-39	DCD3	P4-38	LOGIC GND
P1-51, 53	LOGIC GND	P2-52, 54	LOGIC GND	P3-41	TCLK3	P4-40	LLPBK3
P1-55	RX 2.1 MHz REF	P2-56	TX 2.1 MHz REF	P3-43	DTR3	P4-42	RCLK3
P1-57	LOGIC GND	P2-58	LOGIC GND	P3-45, 47	LOGIC GND	P4-44	RLPBK3
P1-59	REF AUDIO	P2-60	VCO AUDIO	P3-49	N.C.	P4-46, 48	LOGIC GND
P1-61	LOGIC GND	P2-62	LOGIC GND	P3-51	TXD1	P4-50	RXD1
P1-63	TX WB AUDIO	P2-64	5 MHz REF (REAR)	P3-53	RTS1	P4-52	CTS1
P1-65	LOGIC GND	P2-66	LOGIC GND	P3-55	LOGIC GND	P4-54	DCD1
P1-67	RX2 AGC	P2-68	RX2 ODC	P3-57	DTR1	P4-56	DSR1
P1-69	RX2 SBI	P2-70	RX2 DATA	P3-59	TSTAT	P4-58	SERIAL ID
P1-71	RX2 DATA	P2-72	LOGIC GND	P3-61	N.C.	P4-60	TPTT
P1-73	LOGIC GND	P2-74	RX1 AGC	P3-63	RSTAT	P4-62	MUTE
P1-75	RX1 ODC	P2-76	RX1 SBI	P3-65	LOGIC GND	P4-64	CCI
P1-77	RX1 DATA	P2-78	RX1 DATA	P3-67	TX DATA+	P4-66	LOGIC GND
P1-79	LOGIC GND	P2-80	LOGIC GND	P3-69	TX DATA-	P4-68	6809 RX AUDIO
				P3-71, 73, 75,77, 79	LOGIC GND	P4-70, 72	LOGIC GND
						P4-74	GPS 1PPS
						P4-76	ETHERNET GND
						P4-78	ETHERNET SIGNAL
						P4-80	ETHERNET GND

ILEPS-48843-A (2 OF 2)

STATION CONTROL MODULE
MODELS TTN4094C / TRN7900C / CLN6686C



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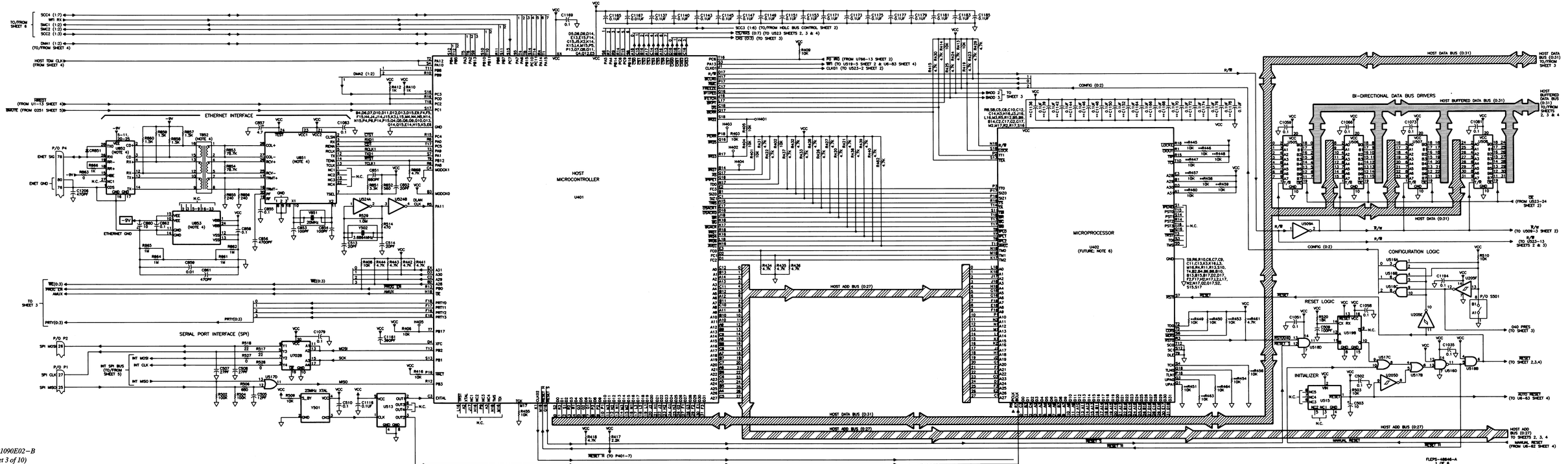
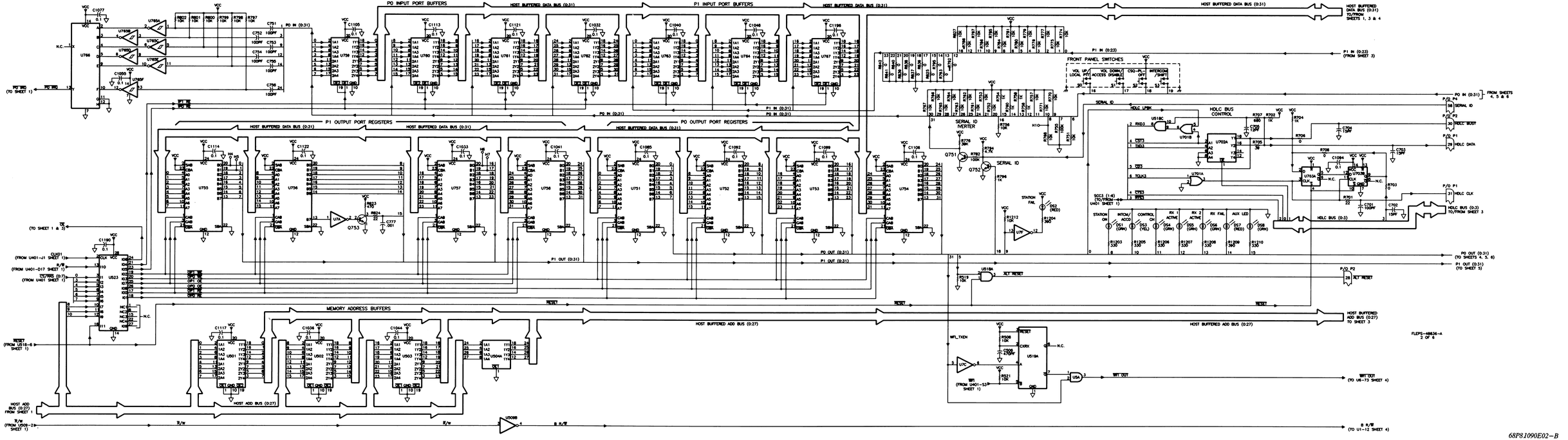
STATION CONTROL MODULE

MODELS TTN4094C / TRN7900C / CLN6686C

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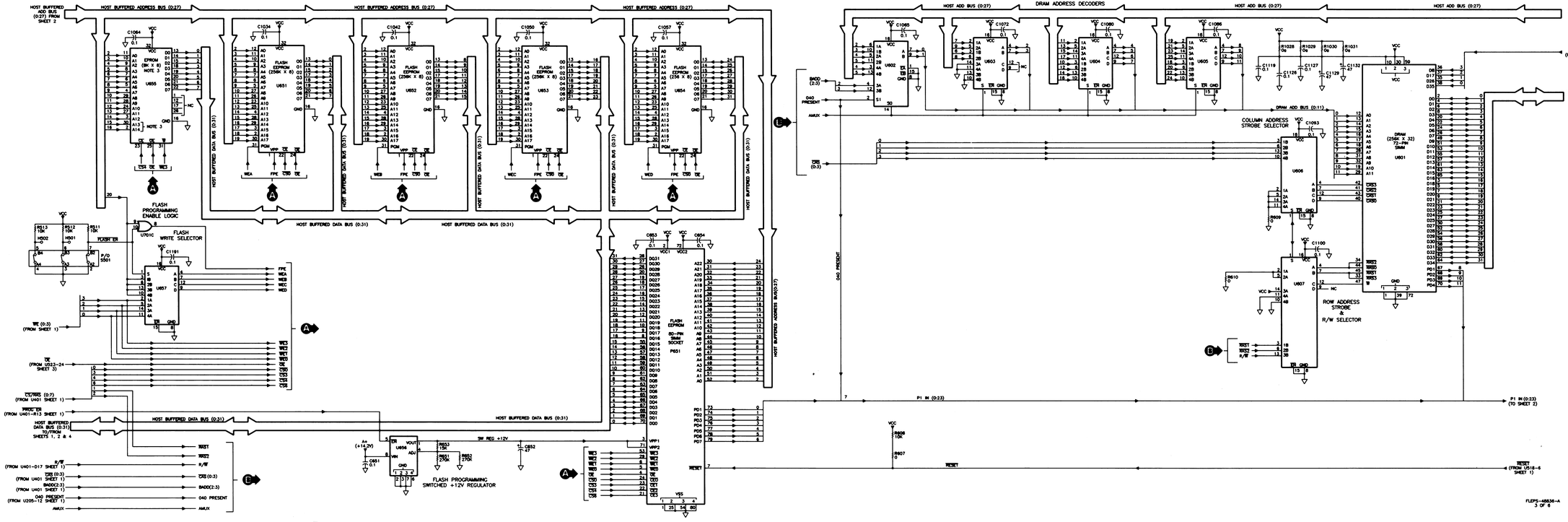
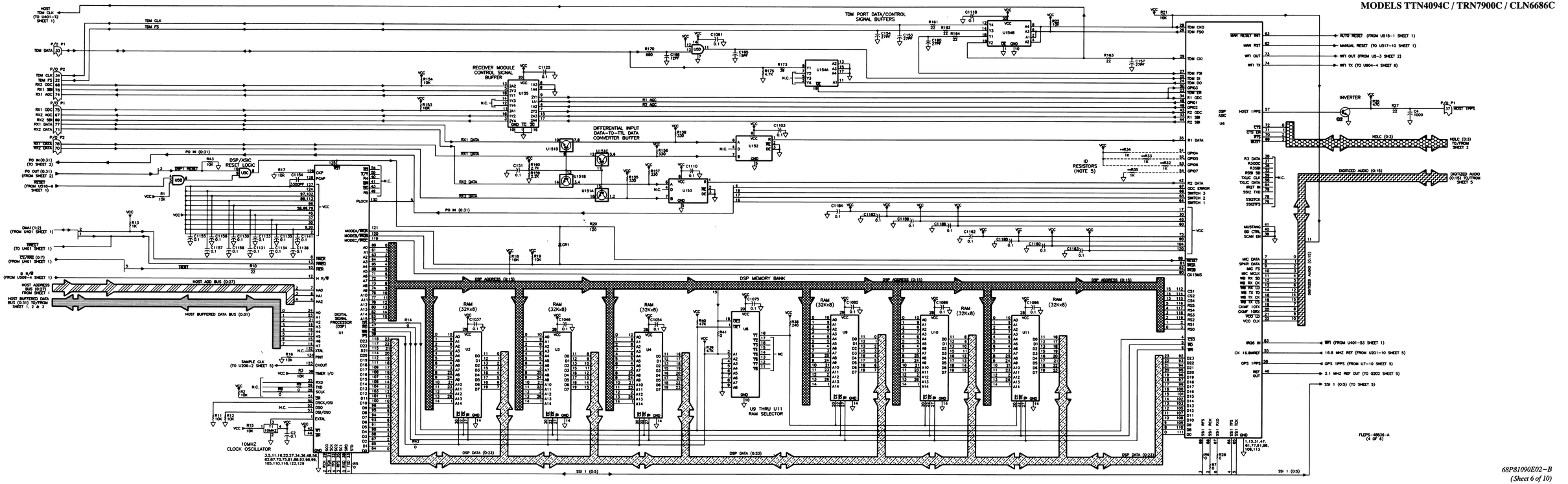
P1 INPUT PORT BUFFERS
HOST BUFFERED DATA BUS (0:31)
P1 OUTPUT PORT REGISTERS
P0 OUTPUT PORT REGISTERS
MEMORY ADDRESS BUFFERS
HOST BUFFERED ADD BUS (0:27)
FRONT PANEL SWITCHES
SERIAL ID
HDLC BUS CONTROL
RESET
P0 IN (0:31)
P1 IN (0:31)
P0 OUT (0:31)
P1 OUT (0:31)
HOST ADD BUS (0:27)
HDLC BUS (0:3)

STATION CONTROL MODULE

MODELS TTN4094C / TRN7900C / CLN6686C





68P81090E02–B
(Sheet 6 of 10)
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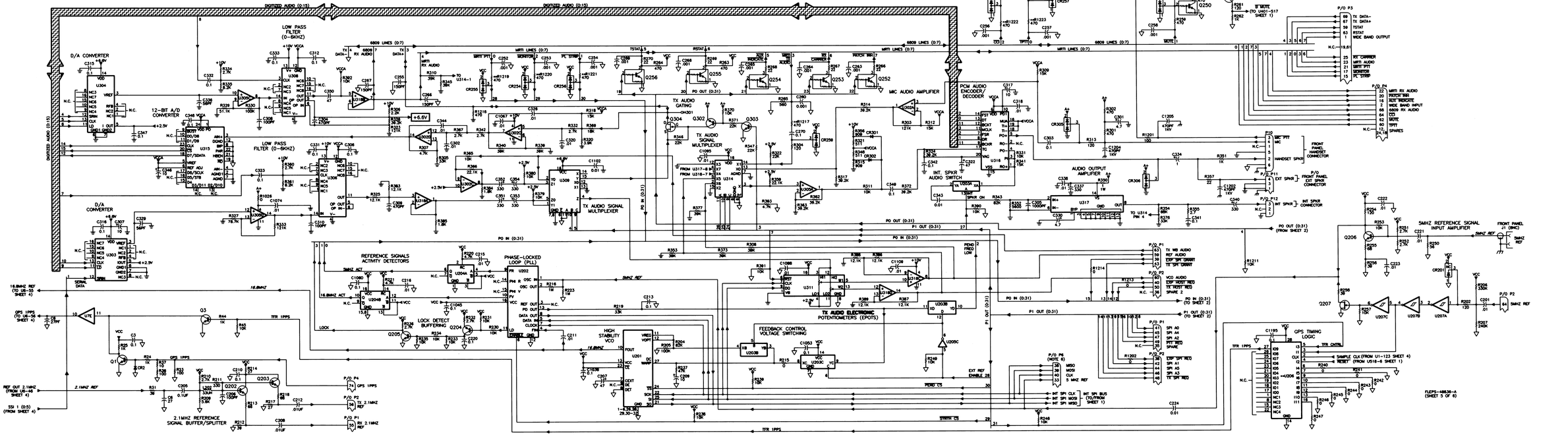
STATION CONTROL MODULE

MODELS TTN4094C / TRN7900C / CLN6686C



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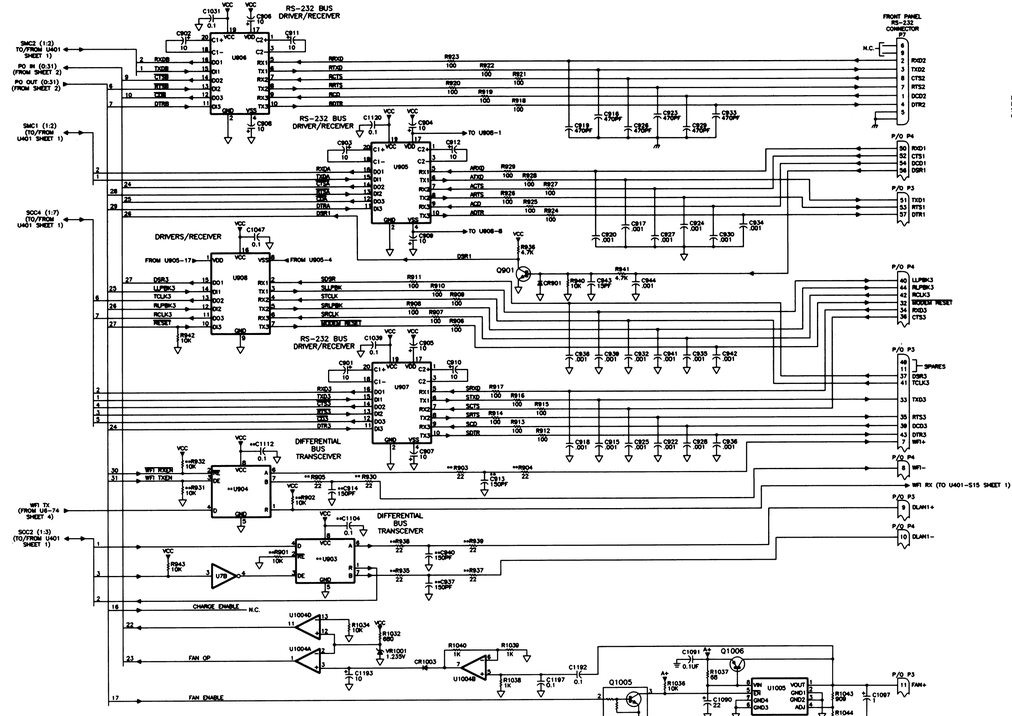
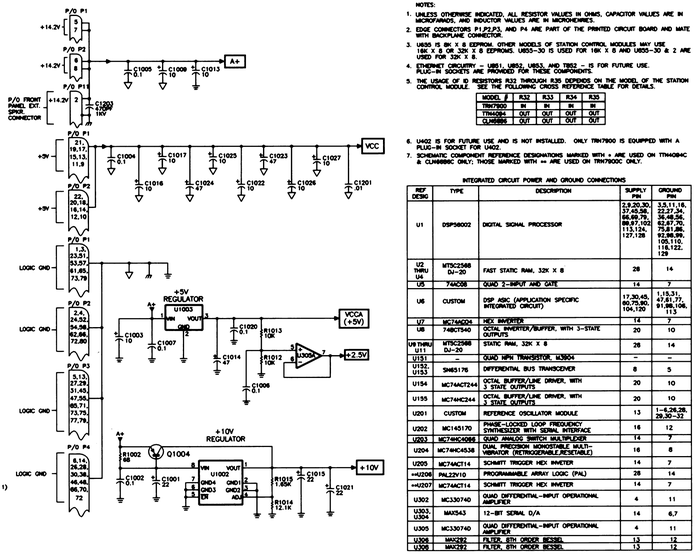
STATION CONTROL MODULE
MODELS TTN4094C / TRN7900C / CLN6686C





NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. EDGE CONNECTORS P1,P2,P3, AND P4 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. U605 IS 8K X 8 EEPROM. OTHER MODELS OF STATION CONTROL MODULES MAY USE 16K X 8 OR 32K X 8 EEPROMS. U655–30 IS USED FOR 16K X 8 AND U655–30 & 2 ARE USED FOR 32K X 8.
4. ETHERNET CIRCUITRY — U651, U652, U653, AND U654 — IS FOR FUTURE USE. PLUG–IN SOCKETS ARE PROVIDED FOR THESE COMPONENTS.
5. THE USAGE OF 0 Ω RESISTORS R32 THROUGH R35 DEPENDS ON THE MODEL OF THE STATION CONTROL MODULE. SEE THE FOLLOWING CROSS REFERENCE TABLE FOR DETAILS.

MODEL #	R32	R33	R34	R35
TRN7900	IN	IN	IN	IN
TTN4094	OUT	OUT	OUT	OUT
CLN6686	OUT	OUT	OUT	OUT

6. U402 IS FOR FUTURE USE AND IS NOT INSTALLED. ONLY TRN7900 IS EQUIPPED WITH A PLUG–IN SOCKET FOR U402.
7. SCHEMATIC COMPONENT REFERENCE DESIGNATORS MARKED WITH + ARE USED ON TTN4094C & CLN6686C ONLY; THOSE MARKED WITH ++ ARE USED ON TRN7900C ONLY.

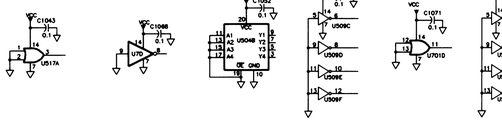
INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	DSP56002	DIGITAL SIGNAL PROCESSOR	2,9,20,30, 37,69,88, 89,98,79, 89,97,102, 113,124, 127,128	3,5,11,15, 22,27,34, 35,48,56, 62,67,70, 75,81,86, 92,95,99, 105,110, 116,122, 129
U2 THRU U4	MT5C2568 DJ–20	FAST STATIC RAM, 32K X 8	28	14
U5	74AC08	QUAD 2–INPUT AND GATE	14	7
U6	CUSTOM	DSP ASIC (APPLICATION SPECIFIC INTEGRATED CIRCUIT)	17,30,45, 60,75,90, 104,134	1,15,31, 47,61,77, 91,98,106, 113
U7	MC74AC04	HEX INVERTER	14	7
U8	74BCT540	OCTAL INVERTER/BUFFER, WITH 3–STATE OUTPUTS	20	10
U9 THRU U11	MT5C2568 DJ–20	STATIC RAM, 32K X 8	28	14
U151	—	QUAD NPN TRANSISTOR, ML9304	—	—
U152, U153	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U154	MC74AC7244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U155	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3 STATE OUTPUTS	20	10
U201	CUSTOM	REFERENCE OSCILLATOR MODULE	13	1–6,26,28, 29,30–32
U202	MC145170	PHASE–LOCKED LOOP FREQUENCY SYNTHESIZER WITH SERIAL INTERFACE	16	12
U203	MC74HC4066	QUAD ANALOG SWITCH MULTIPLEXER	14	7
U204	MC74HC4538	DUAL PRECISION MONOSTABLE MULTI–VIBRATOR (RETRIGGERABLE, RESETABLE)	16	8
U205	MC74AC114	SCHMITT TRIGGER HEX INVERTER	14	7
++U206	PAL22V10	PROGRAMMABLE ARRAY LOGIC (PAL)	28	14
++U207	MC74AC114	SCHMITT TRIGGER HEX INVERTER	14	7
U302	MC33074D	QUAD DIFFERENTIAL–INPUT OPERATIONAL AMPLIFIER	4	11
U303, U304	MAX543	12–BIT SERIAL D/A	14	6,7
U305	MC33074D	QUAD DIFFERENTIAL–INPUT OPERATIONAL AMPLIFIER	4	11
U306	MAX292	FILTER, 8TH ORDER BESSEL	13	12
U308	MAX292	FILTER, 8TH ORDER BESSEL	13	12

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U309	74HC4053	MULTIPLEXER/DEMULTIPLEXER, TRIPLE 2–CHANNEL ANALOG	16	7,8
U311	DS1267–10	ELECTRONIC POT DIGITAL CONVERTER	16	8
U314	74HC4051	MULTIPLEXER/DEMULTIPLEXER, 8 CHANNEL ANALOG	16	7,8
U315	MX0780	SINGLE SUPPLY, 12–BIT A/D CONVERTER	24	2,7,13
U316	MC14568B	+3V POR CODEC/FILTER	8	4
U317	LM360	OPERATIONAL AMPLIFIER	14	3–5,7,9–13
U318	MC33074D	QUAD DIFFERENTIAL–INPUT OPERATIONAL AMPLIFIER	4	11
U401	MC68EN360	32–BIT INTEGRATED MULTIPROTOCOL PROCESSOR	D5,D8,D9, D14,E13, E15,F14, J5,K5, K15,K16, L4,M13, P18,Q7,Q8, Q11,Q12, R4,E5	B4,D6,D7, D10,D11, D12,D13, D15,E8,F4, F5,F15,H4, J4,J14,J15, K3,L13,M4, M5,M14, N4,N5,N14, P14,P15, Q4,Q5,Q6, Q9,Q10, Q13,Q14, Q15,E14, H15,K5,E6
++U402	MC68EC040	32–BIT MICROPROCESSOR (FOR FUTURE USE);NOT SUPPLIED (SEE NOTE 7).	R8,S8,C5, C8,C10, C12,C14, H3,H16,J3, K4,K14,L3, M3,R3,R4, B5,B9,B14, C2,C7,G2, G17,M2, M17,R2, R17,S16	S9,B6,B10, C6,C7,C9, C11,C13, K3,K16,L3, L4,L5,L14, R11,R13, S10,T4,B2, B4,B8,B9, B10,B13, B15,B17, D2,D17,F2, F3,F17, H17,L2, L17,N2, R17,G2, Q17,S2, S15,T17
U501 THRU U504	MC74AC7244	OCTAL BUFFER/LINE DRIVER, WITH 3–STATE OUTPUTS	20	10
U505 THRU U508	MC74AC7245	OCTAL BUS TRANSCEIVER, WITH 3–STATE OUTPUTS	20	10
U509	MC74AC04	HEX INVERTER	14	7
U513	MC74ACT2524	CLOCK DRIVER	5	4,8
U515	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U516	MC74HC03	QUAD 2–INPUT NAND GATE	14	7
U517	MC74AC32	QUAD 2–INPUT OR GATE	14	7
U518	MC74AC08	QUAD 2–INPUT AND GATE	14	7
U519	MC74HC4538	DUAL PRECISION MONOSTABLE MULTIVIBRATOR (RETRIGGERABLE, RESETABLE)	16	1
U523	PAL22V10	PROGRAMMABLE ARRAY LOGIC (PAL)	28	14
U524	MC74HC04AD	HEX INVERTER	14	7
U601	MCM32230	SRAM (SINGLE IN–LINE MEMORY MODULE) DRAM 256K X 32	10,30,94	1,39,72

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U602	MC74ACT1630	DUAL 4–INPUT MULTIPLEXER	16	8
U603 THRU U607	MC74ACT157	QUAD 2–INPUT MULTIPLEXER	16	8
U651 THRU U654	27C020	PROGRAMMED FLASH EEPROM, 256K X 8	32	16
U655	28C64	EEPROM, 8192 X 8	32	16
U656	LM2931CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLT–AGE REGULATOR	8	2,3,6,7
U657	MC74ACT157	QUAD 2–INPUT MULTIPLEXER	16	8
U701	MC74AC32	QUAD 2–INPUT OR GATE	14	7
U702	MC74ACT244	OCTAL BUFFER/LINE DRIVER, WITH 3–STATE OUTPUTS	20	10
U703	MC74AC74	DUAL D–TYPE FLIP–FLOP	14	7
U751 THRU U756	74AC652	OCTAL BUS TRANSCEIVER/REGISTER, WITH 3–STATE	20	10
U759 THRU U764	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3–STATE OUTPUTS	24	12
U765	MC74AC14	SCHMITT TRIGGER HEX INVERTER	14	7
U766	74HC4078	8–INPUT NOR/OR GATE	14	7
U767	MC74HC244	OCTAL BUFFER/LINE DRIVER, WITH 3–STATE OUTPUTS	20	10
U851	AM79928	ETHERNET INTERFACE ADAPTER; NOT SUP–PLIED (SEE NOTE 4)	21,23	8,9,18
U852	DP8392CV	ETHERNET INTERFACE ADAPTER; NOT SUP–PLIED (SEE NOTE 4)	1,5,7,8,9, 10,11,20, 21,22,23, 24,25	16,17
U853	ZMP5V0	NEGATIVE 5V OUTPUT REGULATOR FOR ETHERNET INTERFACE ADAPTER; NOT SUP–PLIED (SEE NOTE 4)	1,24	12,13
++J803 ++J804	SN65176	DIFFERENTIAL BUS TRANSCEIVER	8	5
U900 THRU U907	MC145407	SINGLE SUPPLY DRIVER/RECEIVER	19	2
U909	MC145408DW	DRIVER/RECEIVER, 3–DRIVERS,3–RECEIVERS	16	9
U1002	LM2931CD	LOW DROPOUT, ADJUSTABLE, POSITIVE VOLTAGE REGULATOR	8	2,3,6,7
U1003	MC7805	+5V VOLTAGE REGULATOR	1	2
U1004	MC33074D	QUAD DIFFERENTIAL–INPUT OPERATIONAL AMPLIFIER	4	11
U1005	LM2931CD	LOW DROPOUT ADJUSTABLE,POSITIVE VOLT–AGE REGULATOR	8	2,3,6,7

UNUSED GATES



FLEPS–40836–A
6 OF 6

STATION CONTROL MODULE
MODELS TTN4094C / TRN7900C / CLN6686C

parts list

TRN7900C EPIC Station Control Module Board — PL–13105–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%; 50 V
C8	2113740A39	27 pF, ±5%; 50 V
C151	2113741B69	0.1 uF, ±5%; 50 V
C153,154	2113740A39	27 pF, ±5%; 50 V
C157	2113740A39	27 pF, ±5%; 50 V
C160	2113740A39	27 pF, ±5%; 50 V
C166	2113740A31	12 pF, ±5%; 50 V
C201	2113741A45	0.01 uF, ±5%; 50 V
C205	2113741B69	0.1 uF, ±5%; 50 V
C206	2113740A55	100 pF, ±5%; 50 V
C207	2311049A23	47 uF, ±10%; 10 V
C208	2113741A45	0.01 uF, ±5%; 50 V
C209	2311049A05	10 uF, ±10%; 35 V
C210	2113741B69	0.1 uF, ±5%; 50 V
C211,212	2113741A45	0.01 uF, ±5%; 50 V
C213	2113741B69	0.1 uF, ±5%; 50 V
C215,216	2113741A45	0.01 uF, ±5%; 50 V
C220	2113741B69	0.1 uF, ±5%; 50 V
C221 thru 224	2113741A45	0.01 uF, ±5%; 50 V
C252 thru 254	2113740A79	1000 pF, ±5%; 500 V
C255	2113740A39	150 pF, ±5%; 500 V
C256 thru 258	2113740A79	1000 pF, ±5%; 500 V
C260	2113740A79	1000 pF, ±5%; 500 V
C263 thru 265	2113740A79	1000 pF, ±5%; 500 V
C266,267	2113740A59	150 pF, ±5%; 500 V
C268,269	2113740A79	1000 pF, ±5%; 500 V
C270	2113918A05	0.1 uF, ±20%; 100 V
C301	2380090M22	4.007 uF, ±20%; 50V
C302	2113741A45	0.01 uF, ±5%; 50 V
C303	2113741B69	0.1 uF, ±5%; 50 V
C304	2113740A71	470 pF, ±5%; 50 V
C305	2113740A79	1000 pF, ±5%; 500 V
C306	2113741B69	0.1 uF, ±5%; 50 V
C307	2311049A45	10 uF, ±10%; 35 V
C309	2113740A71	470 pF, ±5%; 50 V
C312	2113740A59	150 pF, ±5%; 500 V
C315,316	2113741B69	0.1 uF, ±5%; 50 V
C317	2311049A45	10 uF, ±10%; 35 V
C318	2113741A45	0.01 uF, ±5%; 50 V
C320	2113741A45	0.01 uF, ±5%; 50 V
C322	2311049A23	47 uF, ±10%; 10 V
C323	2311049A45	10 uF, ±10%; 35 V
C326	2113741A45	0.01 uF, ±5%; 50 V
C329	2113740A49	56 pF, ±5%; 50V
C330	2380090M22	4.007 uF, ±20%; 50V
C331 thru 333	2113741B69	0.1 uF, ±5%; 50 V
C334	2311049A08	1 uF, ±10%; 35 V
C336	2113740A49	56 pF, ±5%; 50V
C337	2380090M27	330 uF, ±20%; 16 V
C338	2113741A45	0.01 uF, ±5%; 50 V
C340	2380090M27	330 uF, ±20%; 16 V
C341,342	2113741B69	0.1 uF, ±5%; 50 V
C343,344	2113741A45	0.01 uF, ±5%; 50 V
C346	2311049A45	10 uF, ±10%; 35 V
C347 thru 349	2113741B69	0.1 uF, ±5%; 50 V
C350	2311049A23	47 uF, ±10%; 10 V
C351 thru 354	2380090M27	330 uF, ±20%; 16 V
C502	2113741B69	0.1 uF, ±5%; 50 V
C503	2311049A45	10 uF, ±10%; 35 V
C505	2113740A31	12 pF, ±5%; 50 V
C506	2113740A71	470 pF, ±5%; 50 V
C507,508	2113740A39	27 pF, ±5%; 50 V
C509	2113740A55	100 pF, ±5%; 50 V
C510	2113741B69	0.1 uF, ±5%; 50 V
C513,514	2113740A36	20 pF, ±5%; 50V
C651	2113741B69	0.1 uF, ±5%; 50 V
C652	2311049A23	47 uF, ±10%; 10 V
C653,654	2113741B69	0.1 uF, ±5%; 50 V
C701	2113740A55	100 pF, ±5%; 50 V
C705	2113740A31	12 pF, ±5%; 50 V
C751 thru 756	2113740A55	100 pF, ±5%; 50 V
C777	2113740A79	1000 pF, ±5%; 50 V
C851	2113740A75	680 pF, ±5%; 50 V
C852	2113740A36	20 pF, ±5%; 50V
C853,854	2113740A55	100 pF, ±5%; 50 V
C855	2113741B69	0.1 uF, ±5%; 50 V
C856	2113741A37	4700 pF, ±5%; 50 V
C857	2380090M22	4.007 uF, ±20%; 50V
C858	2113741B69	0.1 uF, ±5%; 50 V
C859	2113918B09	CAP CHIP 1000PF 1000V 20% X7R
C860	2380090M24	10 uF, ±20%; 50 V
C861	2113918A05	470 pF, ±20%; 1000 V
C862	2113741B69	0.1 uF, ±5%; 50 V
C901 thru 912	2311049A45	10 uF, ±10%; 35 V
C913,914	2113740A59	150 pF, ±5%; 500 V
C915	2113740A79	1000 pF, ±5%; 500 V
C916	2113918A05	470 pF, ±20%; 1000 V
C917,918	2113740A79	1000 pF, ±5%; 500 V
C919	2113918A05	470 pF, ±20%; 1000 V
C920	2113740A79	1000 pF, ±5%; 500 V
C922	2113740A79	1000 pF, ±5%; 500 V
C923	2113918A05	470 pF, ±20%; 1000 V
C924,925	2113740A79	1000 pF, ±5%; 500 V
C926	2113918A05	0.1 uF, ±20%; 100 V
C927,928	2113740A79	1000 pF, ±5%; 500 V
C929	2113918A05	470 pF, ±20%; 1000 V
C930	2113740A79	1000 pF, ±5%; 500 V
C932	2113740A79	1000 pF, ±5%; 500 V
C933	2113918A05	470 pF, ±20%; 1000 V
C934 thru 936	2113740A79	1000 pF, ±5%; 500 V
C937	2113740A59	150 pF, ±5%; 500 V
C938,939	2113740A79	1000 pF, ±5%; 500 V
C940	2113740A59	150 pF, ±5%; 500 V
C941,942	2113740A79	1000 pF, ±5%; 500 V
C943	2113740A33	15 pF, ±5%; 50 V
C944	2113740A79	1000 pF, ±5%; 500 V
C1001	2311049A21	22 uF, ±10%; 20 V
C1002	2113741B69	0.1 uF, ±5%; 50 V
C1003	2311049A45	10 uF, ±10%; 35 V
C1004 thru 1007	2113741B69	0.1 uF, ±5%; 50 V
C1009	2311049A45	10 uF, ±10%; 35 V
C1013	2311049A45	10 uF, ±10%; 35 V
C1014	2311049A23	47 uF, ±10%; 10 V
C1015	2311049A21	22 uF, ±10%; 20 V
C1016,1017	2311049A45	10 uF, ±10%; 35 V
C1020	2113741B69	0.1 uF, ±5%; 50 V
C1022	2311049A45	10 uF, ±10%; 35 V
C1023,1024	2311049A23	47 uF, ±10%; 10 V
C1025 thru 1027	2311049A45	10 uF, ±10%; 35 V
C1033 thru 1048	2113741B69	0.1 uF, ±5%; 50 V
C1050 thru 1055	2113741B69	0.1 uF, ±5%; 50 V
C1057 thru 1061	2113741B69	0.1 uF, ±5%; 50 V
C1064 thru 1066	2113741B69	0.1 uF, ±5%; 50 V
C1067	2113741A45	0.01 uF, ±5%; 50 V
C1068 thru 1075	2113741B69	0.1 uF, ±5%; 50 V
C1077	2113741B69	0.1 uF, ±5%; 50 V
C1079 thru 1083	2113741B69	0.1 uF, ±5%; 50 V
C1085,1086	2113741B69	0.1 uF, ±5%; 50 V
C1088	2113741A45	0.01 uF, ±5%; 50 V
C1089	2113741B69	0.1 uF, ±5%; 50 V
C1090	2311049A21	22 uF, ±10%; 20 V
C1091 thru 1094	2113741B69	0.1 uF, ±5%; 50 V
C1095	2113741A45	0.01 uF, ±5%; 50 V
C1096	2113741B69	0.1 uF, ±5%; 50 V
C1097	2311049A08	1 uF, ±10%; 35 V
C1099,1100	2113741B69	0.1 uF, ±5%; 50 V
C1102	2113741A45	0.01 uF, ±5%; 50 V
C1103 thru 1106	2113741B69	0.1 uF, ±5%; 50 V
C1109	2113741A45	0.01 uF, ±5%; 50 V
C1110	2113741B69	0.1 uF, ±5%; 50 V
C1112 thru 1114	2113741B69	0.1 uF, ±5%; 50 V
C1116 thru 1122	2113741B69	0.1 uF, ±5%; 50 V
C1125 thru 1127	2113741B69	0.1 uF, ±5%; 50 V
C1129	2311049A23	47 uF, ±10%; 10 V
C1130,1131	2113741B69	0.1 uF, ±5%; 50 V
C1132	2311049A23	47 uF, ±10%; 10 V
C1133 thru 1153	2113741B69	0.1 uF, ±5%; 50 V
C1154	2113741A33	3300 pF, ±5%; 50V
C1155 thru 1160	2113741B69	0.1 uF, ±5%; 50 V
C1161	2113740A69	390 pF, ±5%; 50V
C1162 thru 1166	2113741B69	0.1 uF, ±5%; 50 V
C1167	2113741A45	0.01 uF, ±5%; 50 V
C1168 thru 1187	2113741B69	0.1 uF, ±5%; 50 V
C1190 thru 1192	2113741B69	0.1 uF, ±5%; 50 V
C1193	2311049A45	10 uF, ±10%; 35 V
C1194 thru 1197	2113741B69	0.1 uF, ±5%; 50 V
C1201	2113741A45	0.01 uF, ±5%; 50 V
C1202	2113918A05	470 pF, ±20%; 1000 V
C1203	2113740A71	470 pF, ±5%; 50 V
C1204 thru 1206	2113918A05	470 pF, ±20%; 1000 V
C1207	2113741B69	0.1 uF, ±5%; 50 V
CR2	4813833B01	**diode (see note):** Schottky type
CR201	4882090T02	Hot Carrier
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813825A05	Hot Carrier
CR305,306	4813833C05	dual 70 V
CR851	4813833C10	0.1A, 70 V
CR901	4813833B01	Schottky type
CR1003	4813833B01	Schottky type
DS1	4882198T06	**light emitting diode (see note):** SUBMINIATURE LED GRN SM
DS2	4882198T04	SUBMINIATURE LED RED SM
DS3	4882198T05	SUBMINIATURE LED YEL SM
DS4 thru 6	4882198T06	SUBMINIATURE LED GRN SM
DS7	4882198T04	SUBMINIATURE LED RED SM
DS8	4882198T06	SUBMINIATURE LED GRN SM
J1	0984983T02	**connector:** BNC jack
P7	0984524T07	9–pin, right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813923A03	HDR 3 POS STR .1 CTR GLD PLTD
P651	0982286U03	SKT SIMM 22.5 DEGREES 80 POS
L202	2411087A44	**coil:** 33 uH
Q1	4813824A10	**translator (see note):** NPN
Q2	4884955T01	NPN
Q3	4813824A10	NPN
Q202,203	4813824A10	NPN
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q207	2N7002LT1	FET
Q250	4884955T01	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A08	P–CH FET type
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q901	4813824A10	NPN
Q1004	4813822A09	PNP
Q1005	4884955T01	NPN
Q1006	4813822A16	TSTR PNP 100V 4A MJD253T4
R1 thru 3	0611079A98	**resistor, fixed:** 10K, ±5%; 1/10 W
R5 thru 9	0611079A01	0 ohms, ±5%; 1/10 W
R10	0611079A34	22 ohms, ±5%; 1/10 W
R11,12	0611079A98	10K, ±5%; 1/10 W
R13	0611079A74	1K, ±5%; 1/10 W
R14	0611079A01	0 ohms, ±5%; 1/10 W
R15 thru 19	0611079A98	10K, ±5%; 1/10 W
R20	0611079A52	120 ohms, ±5%; 1/10 W
R21,22	0611079A98	10K, ±5%; 1/10 W
R23	0611079A25	100 ohms, ±5%; 1/4 W
R24,25	0611079A74	1K, ±5%; 1/10 W
R26	0611079A66	470 ohms, ±5%; 1/10 W
R27	0611079A34	22 ohms, ±5%; 1/10 W
R28	0611079A01	0 ohms, ±5%; 1/10 W
R31	0611079A40	39 ohms, ±5%; 1/10 W
R32 thru 35	0611079A74	1K, ±5%; 1/10 W
R36	0611072A25	100 ohms, ±5%; 1/4 W
R37	0611079A26	10 ohms, ±5%; 1/10 W
R38	0611079A59	240 ohms, ±5%; 1/8 W
R39,40	0611079B15	47K, ±5%; 1/10 W
R42	0611079A01	0 ohms, ±5%; 1/10 W
R43	0611079A98	10K, ±5%; 1/10 W
R44	0611079A74	1K, ±5%; 1/10 W
R45	0611079A98	10K, ±5%; 1/10 W
R153,154	0611079A98	10K, ±5%; 1/10 W
R155 thru 158	0611079A62	330 ohms, ±5%; 1/10 W
R159	0611079A62	330 ohms, ±5%; 1/10 W
R160	0611079A84	2700 ohms, ±5%; 1/10 W
R161 thru 164	0611079A34	22 ohms, ±5%; 1/10 W
R170	0611079A70	680 ohms, ±5%; 1/10 W
R173	0611079A40	39 ohms, ±5%; 1/10 W
R175	0611079A90	4700 ohms, ±5%; 1/10 W
R202	0611079A52	120 ohms, ±5%; 1/10 W
R204	0611079B21	82K, ±5%; 1/10 W
R205	0611079B23	100K, ±5%; 1/10 W
R206	0611079B35	330K, ±5%; 1/10 W
R207	0611079B32	240K, ±5%; 1/10 W
R209	0611079A92	5600 ohms, ±5%; 1/10 W
R210	0611079A84	2700 ohms, ±5%; 1/10 W
R211	0611079A62	330 ohms, ±5%; 1/10 W
R212	0611079A40	39 ohms, ±5%; 1/10 W
R213	0611079A46	68 ohms, ±5%; 1/10 W
R214	0611079A36	27 ohms, ±5%; 1/10 W
R215	0611079A01	0 ohms, ±5%; 1/10 W
R216	0611079B47	1 MEG, ±5%; 1/10 W
R217	0611079A36	27 ohms, ±5%; 1/10 W
R218	0611079A46	68 ohms, ±5%; 1/10 W
R219	0611079B11	33K, ±5%; 1/10 W
R220,221	0611079A90	4700 ohms, ±5%; 1/10 W
R223	0611079B47	1 MEG, ±5%; 1/10 W
R230,231	0611079A98	10K, ±5%; 1/10 W
R232	0611079A84	2700 ohms, ±5%; 1/10 W
R233 thru 235	0611079A98	10K, ±5%; 1/10 W
R236	0611079A84	2700 ohms, ±5%; 1/10 W
R237	0611079B15	47K, ±5%; 1/10 W
R238,239	0611079A98	10K, ±5%; 1/10 W
R240 thru 247	0611079A01	0 ohms, ±5%; 1/10 W
R248,249	0611079A98	10K, ±5%; 1/10 W
R250	0611079A44	56 ohms, ±5%; 1/10 W
R251,252	0611079A84	2700 ohms, ±5%; 1/10 W
R253	0611079A98	10K, ±5%; 1/10 W
R254	0611079A52	120 ohms, ±5%; 1/10 W
R255	0611079A46	68 ohms, ±5%; 1/10 W
R256	0611079A40	39 ohms, ±5%; 1/10 W
R257	0611079A98	10K, ±5%; 1/10 W
R258	0611079A40	39 ohms, ±5%; 1/10 W
R259	0611079A66	470 ohms, ±5%; 1/10 W
R260	0611079A98	10K, ±5%; 1/10 W
R261	0611079A52	120 ohms, ±5%; 1/10 W
R262	0611079A74	1K, ±5%; 1/10 W
R263,264	0611079A66	470 ohms, ±5%; 1/10 W
R265	0611079A68	560 5 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%; 1/10 W
R301,302	0611079A66	470 ohms, ±5%; 1/10 W
R303	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%; 1/10 W
R305	0611079A01	0 ohms, ±5%; 1/10 W
R306	0611079A52	2200 ohms, ±5%; 1/10 W
R307	0611079A90	4700 ohms, ±5%; 1/10 W
R308	0611079B13	39K, ±5%; 1/10 W
R309	0611079B03	15K, ±5%; 1/10 W
R310	0611079B13	39K, ±5%; 1/10 W
R311	0611079G01	10k, ±1%; 1/10 W
R312	0611079G18	Resistor chip 15.0K 1/10 W 1%
R313	0611079A52	120 ohms, ±5%; 1/10 W
R314	0611079G58	Resistor chip 39.2K 1/10 W 1%
R315	0611079G93	909 ohms, 1/10 W; ±1%
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079B03	15K, ±5%; 1/10 W
R320	0611079A88	3900 ohms, ±5%; 1/10 W
R321	0611079G98	511 ohms, 1/10 W; ±1%
R322	0611079B07	22K, ±5%; 1/10 W
R323	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R324	0611079G58	Resistor chip 39.2K 1/10 W 1%
R325	0611079G09	12.1K, 1/10 W; ±1%
R327	0611079G87	Resistor chip 78.7K 1/10 W 1%
R328	0611079G58	Resistor chip 39.2K 1/10 W 1%
R329	0611079G69	RES CHIP 51.1K 1/10W 1% 0805
R330	0611079B23	100K, ±5%; 1/10 W
R331	0611079A70	680 ohms, ±5%; 1/10 W
R332	0611079A84	2700 ohms, ±5%; 1/10 W
R333	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R334	0611079A84	2700 ohms, ±5%; 1/10 W
R335	0611079A96	8200 ohms, ±5%; 1/10 W
R339,340	0611079A84	2700 ohms, ±5%; 1/10 W
R341	0611079B03	15K, ±5%; 1/10 W
R342	0611079A84	2700 ohms, ±5%; 1/10 W
R343	0611079B21	82K, ±5%; 1/10 W
R345	0611079B13	39K, ±5%; 1/10 W
R346,347	0611079B07	22K, ±5%; 1/10 W
R348	0611079D99	39 ohms, ±5%; 1/10 W
R350	0683962T01	1 ohm, ±5%; 1 W
R351	0611079A74	1K, ±5%; 1/10 W
R352	0611079A90	4700 ohms, ±5%; 1/10 W
R353	0611079B13	39K, ±5%; 1/10 W
R354	0611079B19	68K, ±5%; 1/10 W
R355	0611079A36	27 ohms, ±5%; 1/10 W
R356	0611079D93	909 ohms, 1/10 W; ±1%
R357	0611079A34	22 ohms, ±5%; 1/10 W
R360	0611079A84	2700 ohms, ±5%; 1/10 W
R361	0611079A96	8200 ohms, ±5%; 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079G01	10k, ±1%; 1/10 W
R366	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R367	0611079A84	2700 ohms, ±5%; 1/10 W
R369	0611079B05	18K, ±5%; 1/10 W
R370	0611079A98	10K, ±5%; 1/10 W
R371	0611079B07	22K, ±5%; 1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%; 1/10 W
R376	0611079B11	33K, ±5%; 1/10 W
R377	0611079B13	39K, ±5%; 1/10 W
R379,380	0611079A98	10K, ±5%; 1/10 W
R383	0611079G09	12.1K, 1/10 W; ±1%
R384,385	0611079A80	1800 ohms, ±5%; 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W; ±1%
R390 thru 392	0611079A98	10K, ±5%; 1/10 W
R393	0611079A90	4700 ohms, ±5%; 1/10 W
R401 thru 406	0611079A98	10K, ±5%; 1/10 W
R408,409	0611079A98	10K, ±5%; 1/10 W
R410	0611079A74	1K, ±5%; 1/10 W
R412	0611079A74	1K, ±5%; 1/10 W
R413,414	0611079A98	10K, ±5%; 1/10 W
R415	0611079A90	4700 ohms, ±5%; 1/10 W
R416	0611079A98	10K, ±5%; 1/10 W
R417	0611079A92	2200 ohms, ±5%; 1/10 W
R418 thru 444	0611079A90	4700 ohms, ±5%; 1/10 W
R445 thru 451	0611079A98	10K, ±5%; 1/10 W
R453 thru 460	0611079A98	10K, ±5%; 1/10 W
R461,462	0611079A90	4700 ohms, ±5%; 1/10 W
R463,464	0611079A98	10K, ±5%; 1/10 W
R501	0611079B23	100K, ±5%; 1/10 W
R503	0611079A98	10K, ±5%; 1/10 W
R504	0611079B23	100K, ±5%; 1/10 W
R506	0611079A70	680 ohms, ±5%; 1/10 W
R508 thru 513	0611079A98	10K, ±5%; 1/10 W
R514	0611079A66	470 ohms, ±5%; 1/10 W
R517,518	0611079A34	22 ohms, ±5%; 1/10 W
R519	0611079A98	10K, ±5%; 1/10 W
R520	0611079B05	18K, ±5%; 1/10 W
R521	0611079A98	10K, ±5%; 1/10 W
R527,528	0611079A01	0 ohms, ±5%; 1/10 W
R529	0611079B47	1 MEG, ±5%; 1/10 W
R608	0611079A98	10K, ±5%; 1/10 W
R609, 610	0611079A01	0 ohms, ±5%; 1/10 W
R651,652	0611079B33	270K, ±5%; 1/10 W
R653	0611079B03	15K, ±5%; 1/10 W
R701	0611079A34	22 ohms, ±5%; 1/10 W
R702	0611079A98	10K, ±5%; 1/10 W
R703	0611079A01	0 ohms, ±5%; 1/10 W
R704	0611079A74	1K, ±5%; 1/10 W
R705,706	0611079A40	39 ohms, ±5%; 1/10 W
R707	0611079A70	680 ohms, ±5%; 1/10 W
R751 thru 753	0611079A98	10K, ±5%; 1/10 W
R754	0611079A74	1K, ±5%; 1/10 W
R755	0611079B23	100K, ±5%; 1/10 W
R756,757	0611079A98	10K, ±5%; 1/10 W
R758 thru 760	0611079A74	1K, ±5%; 1/10 W
R761 thru 768	0611079A98	10K, ±5%; 1/10 W
R770,771	0611079A98	10K, ±5%; 1/10 W
R774,775	0611079A98	10K, ±5%; 1/10 W
R776	0611079B13	39K, ±5%; 1/10 W
R777 thru 781	0611079A98	10K, ±5%; 1/10 W
R782	0611079A90	4700 ohms, ±5%; 1/10 W
R784 thru 787	0611079A98	10K, ±5%; 1/10 W
R792,793	0611079A01	0 ohms, ±5%; 1/10 W
R794	0611079A90	4700 ohms, ±5%; 1/10 W
R795	0611079A01	0 ohms, ±5%; 1/10 W
R796	0611079A74	1K, ±5%; 1/10 W
R797 thru 802	0611079A98	10K, ±5%; 1/10 W
R823	0611079A66	470 ohms, ±5%; 1/10 W
R824	0611079A34	22 ohms, ±5%; 1/10 W
R825	0611079A01	0 ohms, ±5%; 1/10 W
R827	0611079A98	10K, ±5%; 1/10 W
R849 thru 842	0611079A01	0 ohms, ±5%; 1/10 W
R851	0611079A86	3300 ohms, ±5%; 1/10 W
R852	0611079A68	560 5 1/10 W
R853,854	0611077D97	78.7 ohms, ±1%; 1/8W
R855,856	0611077A59	240 ohms, ±5%; 1/8 W
R857 thru 860	0611077F12	1.5K, ±1%; 1/8 W
R861,862	0611079B47	1 MEG, ±5%; 1/10 W
R863	0611079A01	0 ohms, ±5%; 1/10 W
R864,865	0611079B47	1 MEG, ±5%; 1/10 W
R866	0611079F01	Resistor: chip 1.00K 1/10 W
R868	0611079A90	4700 ohms, ±5%; 1/10 W
R901,902	0611079A98	10K, ±5%; 1/10 W
R903 thru 905	0611079A34	22 ohms, ±5%; 1/10 W
R906 thru 929	0611072A25	100 ohms, ±5%; 1/4 W
R930	0611079A34	22 ohms, ±5%; 1/10 W
R931,932	0611079A98	10K, ±5%; 1/10 W
R935	0611079A34	22 ohms, ±5%; 1/10 W
R936	0611079A90	4700 ohms, ±5%; 1/10 W
R937 thru 939	0611079A34	22 ohms, ±5%; 1/10 W
R940	0611079A98	10K, ±5%; 1/10 W
R941	0611079A90	4700 ohms, ±5%; 1/10 W
R942,943	0611079A98	10K, ±5%; 1/10 W
R1002	0611079A46	68 ohms, ±5%; 1/10 W
R1012,1013	0611079G01	10k, ±1%; 1/10 W
R1014	0611079G09	12.1K, 1/10 W; ±1%
R1015	0611079F22	Resistor: chip 1.65K 1/10 W
R1026	0611079A01	0 ohms, ±5%; 1/10 W
R1027	0611079A01	0 ohms, ±5%; 1/10 W
R1028 thru 1031	0611079B23	100K, ±5%; 1/10 W
R1032	0611079A70	680 ohms, ±5%; 1/10 W
R1034	0611079A98	10K, ±5%; 1/10 W
R1036	0611079A98	10K, ±5%; 1/10 W
R1037	0611079A66	68 ohms, ±5%; 1/10 W
R1038 thru 1040	0611079A74	1K, ±5%; 1/10 W
R1043	0611079A90	4700 ohms, ±5%; 1/10 W
R1044	0611079A96	8200 ohms, ±5%; 1/10 W
R1201	0611072A25	100 ohms, ±5%; 1/4 W
R1202	0611079A98	10K, ±5%; 1/10 W
R1203	0611079A52	330 ohms, ±5%; 1/10 W
R1204	0611079A54	390 ohms, ±5%; 1/10 W
R1205 thru 1208	0611079A52	330 ohms, ±5%; 1/10 W
R1209	0611079A54	390 ohms, ±5%; 1/10 W
R1210	0611079A52	330 ohms, ±5%; 1/10 W
R1211,1212	0611079A98	10K, ±5%; 1/10 W
R1213,1214	0611079A01	0 ohms, ±5%; 1/10 W
R1215	0611079A98	10K, ±5%; 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%; 1/10 W
		switch:
S0 thru 3	4063621T01	pushbutton, spst
S501	4083970E02	dip, spst
		transformer:
T852	0982451V10	SOCKET, IC 16 PIN SM T & R
		integrated circuit (see note):
U1	5113803A13	IC 80002 DSP 66MHZ CLK
U2 thru 4	5184531T04	IC SRAM 32KB 12NS –2568
U5	5113808A07	Quad 2–Input AND Gate
U6	5113808A05	IC ASIC DSP GLUE 2 100QFP
U7	5113808A05	Hex Inverter
U8	5185466U01	IC BFR OCT INV 3–ST 74__T540
U9 thru 11	5184531T02	Static Ram
U151	5113826A04	Quad NPN General Purpose
U152,153	5184288T01	Differential Bus Transceiver
U154	5113808A39	IC LINE DRVR OCT NON INV
U155	5113805A54	Octal Buffer Line Driver/Receiver
U201	5184726T02	REFERENCE OSC MODULE
U202	5184717T01	Synthesizer with Serial Interface
U203	5113805A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U205	5113808A13	Hex Inverter Schmitt Trigger
U206	0913900A02	SOCKET, 28 position
U207	5113808A13	Hex Inverter Schmitt Trigger
U302	5113819A05	High Performance, Single Supply Complementary Symmetry/oxide Semiconductor
U305	5113819A05	High Performance, Single Supply
U306	5185222U02	IC Filter
U308	5185222U02	IC Filter
U309	5113805A85	Mux/Demux, Trip 2–Channel Analog
U311	5182802T38	Digital Pot Converter
U314	5113805A83	Mux/Demux, 8–Channel Analog
U315	5182276R85	IC SNG SUPPLY 12BIT ADC MAX190
U316	5184743T01	CODEC Pulse Code Modulation
U317	5184021K33	Operational Amplifier
U318	5113819A05	High Performance, Single Supply
U401	5113802C09	IC QD COMM CNTRLR WIETHERNET
U501 thru 504	5113808A39	IC LINE DRVR OCT NON INV
U505 thru 508	5113808A41	Line Driver/Receiver Octal
U509	5113808A05	Hex Inverter
U513	5182048W01	IC CLOCK DRIVER_74CT2524_SM
U515	5113815A02	Under Voltage Sensing Circuit
U516	5113805A03	Quad 2–Input NAND Gate
U517	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U518	5113808A07	Quad 2–Input AND Gate
U519	5113805A89	Monostable Multivibrator, Dual Precision
U523	5191037C01	IC PRGMD PLD
U524	5113805A04	Inverter HEX
U601	5184530T08	MODULE,SRAM 2MX32 70NS
U602	5113808A26	IC MUX DUAL 4INP MC74ACT153D
U603 thru 607	5113808A28	Quad 2–Input Non–Inverting Multiplexer
U651	(Note 1)	IC PRGMD EPROM
U652	(Note 1)	IC PRGMD EPROM
U653	(Note 1)	IC PRGMD EPROM
U654	(Note 1)	IC PRGMD EPROM
U655	5184293T02

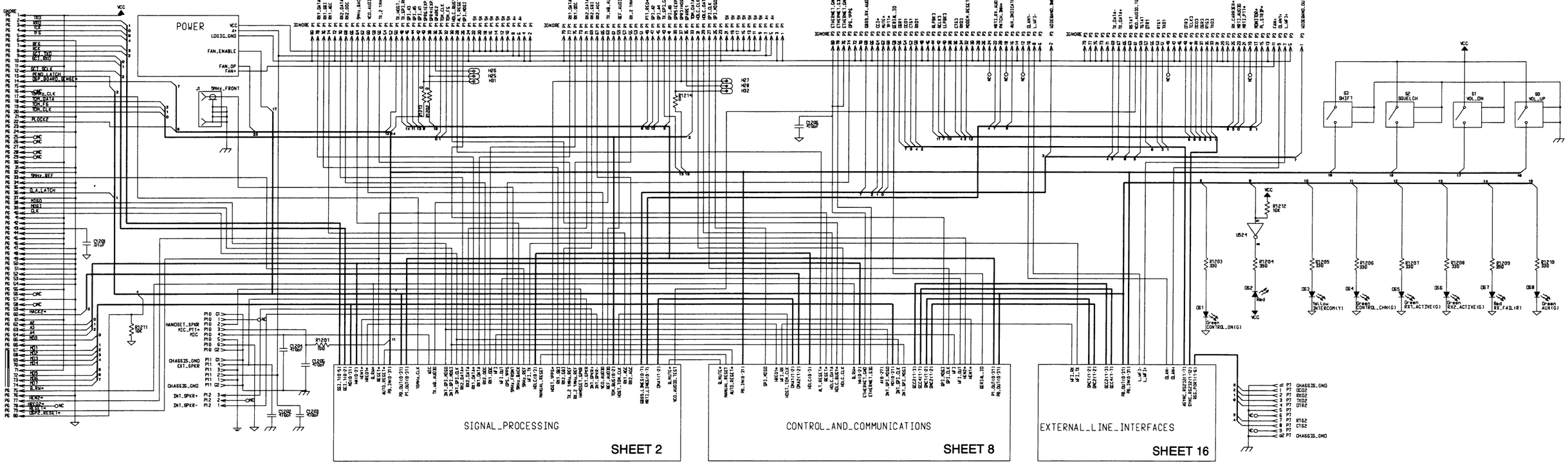
parts list

TTN4094C / CLN6686C EPIC Station Control Module Board PL–13107–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	2113741B69	0.1 uF, ±5%, 50 V
C8	2113740A39	27 pF, ±5%, 50 V
C151	2113741B69	0.1 uF, ±5%, 50 V
C153,154	2113740A39	27 pF, ±5%, 50 V
C157	2113740A39	27 pF, ±5%, 50 V
C160	2113740A39	27 pF, ±5%, 50 V
C166	2113740A31	12 pF, ±5%, 50 V
C201	2113741A45	0.01 uF, ±5%, 50 V
C205	2113741B69	0.1 uF, ±5%, 50 V
C206	2113740A55	100 pF, ±5%, 50 V
C207	2311049A23	4.7 uF, ±10%, 10 V
C208	2113741A45	0.01 uF, ±5%, 50 V
C209	2311048A45	1.0 uF, ±10%, 35 V
C210	2113741B69	0.1 uF, ±5%, 50 V
C211,212	2113741A45	0.01 uF, ±5%, 50 V
C213	2113741B69	0.1 uF, ±5%, 50 V
C215,216	2113741A45	0.01 uF, ±5%, 50 V
C220	2113741B69	0.1 uF, ±5%, 50 V
C221 thru 224	2113741A45	0.01 uF, ±5%, 50 V
C252 thru 254	2113740A79	1000 pF, ±5%, 50 V
C255	2113740A59	150 pF, ±5%, 50V
C256 thru 258	2113740A79	1000 pF, ±5%, 50 V
C260	2113740A79	1000 pF, ±5%, 50 V
C263 thru 265	2113740A79	1000 pF, ±5%, 50 V
C266,267	2113740A59	150 pF, ±5%, 50V
C268,269	2113740A79	1000 pF, ±5%, 50 V
C270	2113741B69	0.1 uF, ±5%, 50 V
C301	2380090M22	4.007 uF, ±20%, 50V
C302	2113741A45	0.01 uF, ±5%, 50 V
C303	2113741B69	0.1 uF, ±5%, 50 V
C304	2113740A71	470 pF, ±5%, 50 V
C305	2113740A79	1000 pF, ±5%, 50 V
C306	2113741B69	0.1 uF, ±5%, 50 V
C307	2311048A45	1.0 uF, ±10%, 35 V
C309	2113740A71	470 pF, ±5%, 50 V
C312	2113741B69	0.1 uF, ±5%, 50 V
C315,316	2113741B69	0.1 uF, ±5%, 50 V
C317	2311049A45	1.0 uF, ±10%, 35 V
C318	2113741A45	0.01 uF, ±5%, 50 V
C320	2113741A45	0.01 uF, ±5%, 50 V
C322	2311049A23	4.7 uF, ±10%, 10 V
C323	2113741B69	0.1 uF, ±5%, 50 V
C326	2113741A45	0.01 uF, ±5%, 50 V
C329	2113740A49	56 pF, ±5%, 50V
C330	2380090M22	4.007 uF, ±20%, 50V
C331 thru 333	2113741B69	0.1 uF, ±5%, 50 V
C334	2311049A08	1 uF, ±10%, 35 V
C336	2113740A49	56 pF, ±5%, 50V
C337	2380090M27	330 uF, ±20%, 16 V
C338	2113741A45	0.01 uF, ±5%, 50 V
C340	2380090M27	330 uF, ±20%, 16 V
C341,342	2113741B69	0.1 uF, ±5%, 50 V
C343,344	2113741A45	0.01 uF, ±5%, 50 V
C346	2311049A45	1.0 uF, ±10%, 35 V
C347 thru 349	2113741B69	0.1 uF, ±5%, 50 V
C350	2311049A23	4.7 uF, ±10%, 10 V
C351 thru 354	2380090M27	330 uF, ±20%, 16 V
C502	2113741B69	0.1 uF, ±5%, 50 V
C503	2311049A45	1.0 uF, ±10%, 35 V
C505	2113740A31	12 pF, ±5%, 50 V
C506	2113740A71	470 pF, ±5%, 50 V
C507,508	2113740A39	27 pF, ±5%, 50 V
C509	2113740A55	100 pF, ±5%, 50 V
C510	2113741B69	0.1 uF, ±5%, 50 V
C513,514	2113740A36	20 pF, ±5%, 50V
C651	2113741B69	0.1 uF, ±5%, 50 V
C652	2311049A23	4.7 uF, ±10%, 10 V
C653,654	2113741B69	0.1 uF, ±5%, 50 V
C701	2113740A55	100 pF, ±5%, 50 V
C705	2113740A31	12 pF, ±5%, 50 V
C751 thru 756	2113740A55	100 pF, ±5%, 50 V
C777	2113740A79	1000 pF, ±5%, 50 V
C851	2113740A75	680 pF, ±5%, 50 V
C852	2113740A36	20 pF, ±5%, 50V
C853,854	2113740A55	100 pF, ±5%, 50 V
C855	2113741B69	0.1 uF, ±5%, 50 V
C856	2113741A37	4700 pF, ±5%, 50 V
C857	2380090K22	4.007 uF, ±20%, 50V
C858	2113741B69	0.1 uF, ±5%, 50 V
C859	2113916B09	CAP CHIP 10000PF 1000V 20% X7R
C860	2380090M24	10 uF, ±20%, 50 V
C861	2113918A05	470 pF, ±20%, 1000 V
C862	2113741B69	0.1 uF, ±5%, 50 V
C901 thru 912	2311048A45	1.0 uF, ±10%, 35 V
C915	2113740A79	1000 pF, ±5%, 50 V
C916	2113918A05	470 pF, ±20%, 1000 V
C917,918	2113740A79	1000 pF, ±5%, 50 V
C919	2113918A05	470 pF, ±20%, 1000 V
C920	2113740A79	1000 pF, ±5%, 50 V
C922	2113741B69	0.1 uF, ±5%, 50 V
C923	2113918A05	470 pF, ±20%, 1000 V
C924,925	2113740A79	1000 pF, ±5%, 50 V
C926	2113918A05	470 pF, ±20%, 1000 V
C927,928	2113740A79	1000 pF, ±5%, 50 V
C929	2113918A05	470 pF, ±20%, 1000 V
C930	2113740A79	1000 pF, ±5%, 50 V
C932	2113740A79	1000 pF, ±5%, 50 V
C933	2113918A05	470 pF, ±20%, 1000 V
C934 thru 936	2113740A79	1000 pF, ±5%, 50 V
C938,939	2113740A79	1000 pF, ±5%, 50 V
C941,942	2113740A79	1000 pF, ±5%, 50 V
C943	2113740A55	100 pF, ±5%, 50 V
C944	2113740A79	1000 pF, ±5%, 50 V
C1001	2311048A23	22 uF, ±10%, 20 V
C1002	2113741B69	0.1 uF, ±5%, 50 V
C1003	2311049A45	1.0 uF, ±10%, 35 V
C1004 thru 1007	2311049A45	1.0 uF, ±10%, 35 V
C1009	2311049A45	1.0 uF, ±10%, 35 V
C1013	2311049A45	1.0 uF, ±10%, 35 V
C1014	2311048A45	1.0 uF, ±10%, 35 V
C1015	2311049A21	22 uF, ±10%, 20 V
C1016,1017	2311049A45	1.0 uF, ±10%, 35 V
C1020	2311049A45	1.0 uF, ±10%, 35 V
C1022	2311049A45	1.0 uF, ±10%, 35 V
C1023,1024	2311049A23	47 uF, ±10%, 10 V
C1025 thru 1027	2311049A45	1.0 uF, ±10%, 35 V
C1031 thru 1048	2113741B69	0.1 uF, ±5%, 50 V
C1050 thru 1055	2113741B69	0.1 uF, ±5%, 50 V
C1057 thru 1061	2113741B69	0.1 uF, ±5%, 50 V
C1064 thru 1066	2113741B69	0.1 uF, ±5%, 50 V
C1067	2113741A45	0.01 uF, ±5%, 50 V
C1068 thru 1075	2113741B69	0.1 uF, ±5%, 50 V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1079 thru 1083	2113741B69	0.1 uF, ±5%, 50 V
C1085,1086	2113741B69	0.1 uF, ±5%, 50 V
C1088	2113741A45	0.01 uF, ±5%, 50 V
C1089	2113741B69	0.1 uF, ±5%, 50 V
C1090	2113741B69	0.1 uF, ±5%, 50 V
C1091 thru 1094	2113741B69	0.1 uF, ±5%, 50 V
C1095	2113741A45	0.01 uF, ±5%, 50 V
C1096	2113741B69	0.1 uF, ±5%, 50 V
C1097	2311049A08	1 uF, ±10%, 35 V
C1099,1100	2113741B69	0.1 uF, ±5%, 50 V
C1102	2113741A45	0.01 uF, ±5%, 50 V
C1103	2113741B69	0.1 uF, ±5%, 50 V
C1105,1106	2113741B69	0.1 uF, ±5%, 50 V
C1109	2113741A45	0.01 uF, ±5%, 50 V
C1110	2113741B69	0.1 uF, ±5%, 50 V
C1113,1114	2113741B69	0.1 uF, ±5%, 50 V
C1116 thru 1122	2113741B69	0.1 uF, ±5%, 50 V
C1125 thru 1127	2113741B69	0.1 uF, ±5%, 50 V
C1129	2311049A23	47 uF, ±10%, 10 V
C1130,1131	2113741B69	0.1 uF, ±5%, 50 V
C1132	2311049A23	47 uF, ±10%, 10 V
C1133 thru 1135	2113741B69	0.1 uF, ±5%, 50 V
C1137,1138	2113741B69	0.1 uF, ±5%, 50 V
C1140,1141	2113741B69	0.1 uF, ±5%, 50 V
C1143	2113741B69	0.1 uF, ±5%, 50 V
C1145	2113741B69	0.1 uF, ±5%, 50 V
C1147	2113741B69	0.1 uF, ±5%, 50 V
C1149	2113741B69	0.1 uF, ±5%, 50 V
C1151	2113741B69	0.1 uF, ±5%, 50 V
C1153	2113741B6F	0.1 uF, ±5%, 50 V
C1154	2113741A33	3300 pF, ±5%, 50V
C1155 thru 1160	2113741B69	0.1 uF, ±5%, 50 V
C1161	2113740A69	390 pF, ±5%, 50V
C1162,1163	2113741B69	0.1 uF, ±5%, 50 V
C1165	2113741B69	0.1 uF, ±5%, 50 V
C1167	2113741A45	0.01 uF, ±5%, 50 V
C1169	2113741B69	0.1 uF, ±5%, 50 V
C1171	2113741B69	0.1 uF, ±5%, 50 V
C1173	2113741B69	0.1 uF, ±5%, 50 V
C1175	2113741B69	0.1 uF, ±5%, 50 V
C1177	2113741B69	0.1 uF, ±5%, 50 V
C1179 thru 1187	2113741B69	0.1 uF, ±5%, 50 V
C1190 thru 1192	2113741B69	0.1 uF, ±5%, 50 V
C1193	2311048A45	1.0 uF, ±10%, 35 V
C1194 thru 1197	2113741B69	0.1 uF, ±5%, 50 V
C1201	2113741A45	0.01 uF, ±5%, 50 V
C1202	2113918A05	470 pF, ±20%, 1000 V
C1203	2113740A71	470 pF, ±5%, 50 V
C1204 thru 1206	2113918A05	470 pF, ±20%, 1000 V
C1207	2113741B69	0.1 uF, ±5%, 50 V
		diode (see note):
CR2	4813833B01	Schottky type
CR201	4882290T02	Hot Carrier
CR252 thru 257	4813833C05	dual 70 V
CR259	4813833C05	dual 70 V
CR301,302	4813825A05	Hot Carrier
CR305,306	4813833C05	dual 70 V
CR851	4813833C01	0.1A, 70 V
CR901	4813833B01	Schottky type
CR1003	4813833B01	Schottky type
		light emitting diode (see note):
DS1	4882198T06	SUBMINIATURE LED GRN SM
DS2	4882198T04	SUBMINIATURE LED RED SM
DS3	4882198T05	SUBMINIATURE LED YEL SM
DS4 thru 6	4882198T06	SUBMINIATURE LED GRN SM
DS7	4882198T04	SUBMINIATURE LED RED SM
DS8	4882198T06	SUBMINIATURE LED GRN SM
		connector:
J1	0984963T02	BNC jack
P7	0984524T07	9–pin, right angle
P10	0985237U02	jack, 6/6
P11	0985237U01	jack, 4/4
P12	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
P651	0982286V03	SKT SIMM 22.5 DEGREES 80 POS
		coil:
L202	2411087A44	33 uH
		translator (see note):
Q1	4813824A10	NPN
Q2	4884955T01	NPN
Q3	4813824A10	NPN
Q202,203	4813824A10	NPN
Q204	4813824A17	PNP
Q205,206	4813824A10	NPN
Q207	2N7002LT1	FET
Q250	4884955T01	NPN
Q251	4813824A17	PNP
Q252 thru 256	4884955T01	NPN
Q302	4813824A17	PNP
Q303	4813824A10	NPN
Q304	4813823A08	P–CH FET type
Q751,752	4813824A10	NPN
Q753	4884955T01	NPN
Q901	4813824A10	NPN
Q1004	4813823A09	NPN
Q1005	4884955T01	NPN
Q1006	4813822A16	TSTR PNP 100V 4A MJD253T4
		resistor, fixed:
R1 thru 3	0611079A98	10K, ±5%, 1/10 W
R5 thru 9	0611079A01	O ohms, ±5%, 1/10 W
R10	0611079A34	22 ohms, ±5%, 1/10 W
R11,12	0611079A98	10K, ±5%, 1/10 W
R13	0611079A74	1K, ±5%, 1/10 W
R14	0611079A01	O ohms, ±5%, 1/10 W
R15 thru 19	0611079A98	10K, ±5%, 1/10 W
R20	0611079A52	120 ohms, ±5%, 1/10 W
R21,22	0611079A98	10K, ±5%, 1/10 W
R23	0611072A25	100 ohms, ±5%, 1/4 W
R24,25	0611079A74	1K, ±5%, 1/10 W
R26	0611079A76	470 ohms, ±5%, 1/10 W
R27	0611079A34	22 ohms, ±5%, 1/10 W
R28	0611079A01	O ohms, ±5%, 1/10 W
R31	0611079A40	39 ohms, ±5%, 1/10 W
R36	0611072A25	100 ohms, ±5%, 1/4 W
R37	0611079A26	10 ohms, ±5%, 1/10 W
R38	0611077A59	240 ohms, ±5%, 1/8 W
R39,40	0611079B15	47K, ±5%, 1/10 W
R42	0611079A01	O ohms, ±5%, 1/10 W
R43	0611079A98	10K, ±5%, 1/10 W
R44	0611079A74	1K, ±5%, 1/10 W
R45	0611079A98	10K, ±5%, 1/10 W
R46	0611079A98	10K, ±5%, 1/10 W
R153,154	0611079A98	10K, ±5%, 1/10 W
R155 thru 158	0611079A82	330 ohms, ±5%, 1/10 W
R159	0611079A82	2200 ohms, ±5%, 1/10 W
R160	0611079A59	240 ohms, ±5%, 1/8 W
R161 thru 164	0611079A34	22 ohms, ±5%, 1/10 W
R170	0611079A70	680 ohms, ±5%, 1/10 W
R173	0611079A40	39 ohms, ±5%, 1/10 W
R175	0611079A90	4700 ohms, ±5%, 1/10 W
R202	0611079A52	120 ohms, ±5%, 1/10 W
R204	0611079B03	82K, ±5%, 1/10 W
R205	0611079B23	100K, ±5%, 1/10 W
R206	0611079B35	330K, ±5%, 1/10W
R207	0611079B32	240K, ±5%, 1/10 W
R209	0611079A92	5600 ohms, ±5%, 1/10 W
R210	0611079A84	2700 ohms, ±5%, 1/10 W
R211	0611079A92	5600 ohms, ±5%, 1/10 W
R212	0611079A40	39 ohms, ±5%, 1/10 W
R213	0611079A40	39 ohms, ±5%, 1/10 W
R214	0611079A36	27 ohms, ±5%, 1/10 W
R215	0611079A01	O ohms, ±5%, 1/10 W
R216	0611079A98	10K, ±5%, 1/10 W
R217	0611079A36	27 ohms, ±5%, 1/10 W
R218	0611079A46	68 ohms, ±5%, 1/10 W
R219	0611079B11	33K, ±5%, 1/10 W
R220,221	0611079A90	4700 ohms, ±5%, 1/10 W
R223	0611079B47	1 MEG, ±5%, 1/10 W
R230,231	0611079A98	10K, ±5%, 1/10 W
R232	0611079A84	2700 ohms, ±5%, 1/10 W
R233 thru 235	0611079A98	10K, ±5%, 1/10 W
R236	0611079A84	2700 ohms, ±5%, 1/10 W
R237	0611079B15	47K, ±5%, 1/10 W
R238,239	0611079A98	10K, ±5%, 1/10 W
R240 thru 247	0611079A01	O ohms, ±5%, 1/10 W
R248,249	0611079A98	10K, ±5%, 1/10 W
R250	0611077A44	56 ohms, ±5%, 1/10 W
R251,252	0611079A84	2700 ohms, ±5%, 1/10 W
R253	0611079A98	10K, ±5%, 1/10 W
R254	0611079A52	120 ohms, ±5%, 1/10 W
R255	0611079A46	68 ohms, ±5%, 1/10 W
R256	0611079A98	10K, ±5%, 1/10 W
R257	0611079A98	10K, ±5%, 1/10 W
R258	0611079A40	39 ohms, ±5%, 1/10 W
R259	0611079A98	10K, ±5%, 1/10 W
R260	0611079A98	10K, ±5%, 1/10 W
R261	0611079A52	120 ohms, ±5%, 1/10 W
R262	0611079A74	1K, ±5%, 1/10 W
R263,264	0611079A66	470 ohms, ±5%, 1/10 W
R265	0611079A58	560 ohms, ±5%, 1/10 W
R266 thru 270	0611079A34	22 ohms, ±5%, 1/10 W
R301,302	0611079A66	470 ohms, ±5%, 1/10 W
R303	0611079B09	Resistor: chip 121.0K 1/10 W 1%
R304	0611079A52	120 ohms, ±5%, 1/10 W
R305	0611079B11	33K, ±5%, 1/10 W
R306	0611079A82	2200 ohms, ±5%, 1/10 W
R307	0611079A90	4700 ohms, ±5%, 1/10 W
R308	0611079B13	39K, ±5%, 1/10 W
R309	0611079B03	82K, ±5%, 1/10 W
R310	0611079B13	39K, ±5%, 1/10 W
R311	0611079G01	10k, ±1%, 1/10 W
R312	0611079G18	Resistor chip 15.0K 1/10 W 1%
R313	0611079A52	120 ohms, ±5%, 1/10 W
R314	0611079G58	Resistor chip 39.2K 1/10 W 1%
R315	0611079G03	Resistor chip 90.9K 1/10 W 1%
R317	0611079G58	Resistor chip 39.2K 1/10 W 1%
R318	0611079B03	15K, ±5%, 1/10 W
R320	0611079A88	3900 ohms, ±5%, 1/10 W
R321	0611079D69	511 ohms, 1/10 W, ±1%
R322	0611079B98	22K, ±5%, 1/10 W
R323	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R324	0611079G58	Resistor chip 39.2K 1/10 W 1%
R325	0611079G68	Resistor chip 49.9K 1/10 W 1%
R327	0611079G87	Resistor chip 78.7K 1/10 W 1%
R329	0611079G68	Resistor chip 49.9K 1/10 W 1%
R330	0611079G69	RES CHIP 51.1K 1/10W 1% 0805
R331	0611079B23	100K, ±5%, 1/10 W
R333	0611079A98	10K, ±5%, 1/10 W
R334	0611079A84	2700 ohms, ±5%, 1/10 W
R335	0611079A98	10K, ±5%, 1/10 W
R339,340	0611079B13	39K, ±5%, 1/10 W
R341	0611079B03	15K, ±5%, 1/10 W
R342	0611079A84	2700 ohms, ±5%, 1/10 W
R343	0611079B21	82K, ±5%, 1/10 W
R345	0611079B13	39K, ±5%, 1/10 W
R346,347	0611079B07	27K, ±5%, 1/10 W
R348	0611079D69	511 ohms, 1/10 W, ±1%
R350	0683982T01	1 ohm, ±5%, 1 W
R351	0611079A74	1K, ±5%, 1/10 W
R352	0611079A92	5600 ohms, ±5%, 1/10 W
R353	0611079B13	39K, ±5%, 1/10 W
R354	0611079B19	68K, ±5%, 1/10 W
R355	0611079A12	2.7 ohms, ±5%, 1/10 W
R356	0611079D93	909 ohms, 1/10 W, ±1%
R357	0611079A34	22 ohms, ±5%, 1/10 W
R360	0611079A84	2700 ohms, ±5%, 1/10 W
R361	0611079A90	4700 ohms, ±5%, 1/10 W
R362,363	0611079G58	Resistor chip 39.2K 1/10 W 1%
R365	0611079G01	10k, ±1%, 1/10 W
R366	0611079A34	RES CHIP 22.1K 1/10W 1% 0805
R367	0611079A84	2700 ohms, ±5%, 1/10 W
R369	0611079B05	18K, ±5%, 1/10 W
R370	0611079A98	10K, ±5%, 1/10 W
R371	0611079B07	22K, ±5%, 1/10 W
R372	0611079G58	Resistor chip 39.2K 1/10 W 1%
R373	0611079B13	39K, ±5%, 1/10 W
R376	0611079B11	33K, ±5%, 1/10 W
R377	0611079B13	39K, ±5%, 1/10 W
R379,380	0611079A46	10K, ±5%, 1/10 W
R383	0611079C06	12.1K, 1/10 W, ±1%
R384,385	0611079A80	1800 ohms, ±5%, 1/10 W
R386 thru 389	0611079G09	12.1K, 1/10 W, ±1%
R390 thru 392	0611079A82	2200 ohms, ±5%, 1/10 W
R393	0611079A90	4700 ohms, ±5%, 1/10 W
R401 thru 406	0611079A98	10K, ±5%, 1/10 W
R408,409	0611079A98	10K, ±5%, 1/10 W
R410	0611079A74	1K, ±5%, 1/10 W
R412	0611079A74	1K, ±5%, 1/10 W
R413,414	0611079A90	4700 ohms, ±5%, 1/10 W
R415	0611079A90	4700 ohms, ±5%, 1/10 W
R416	0611079A98	10K, ±5%, 1/10 W
R417	0611079A82	2200 ohms, ±5%, 1/10 W
R418 thru 444	0611079A90	4700 ohms, ±5%, 1/10 W
R455	0611079A98	10K, ±5%, 1/10 W
R461,462	0611079A90	4700 ohms, ±5%, 1/10 W
R502	0611079B23	100K, ±5%, 1/10 W
R503	0611079A98	10K, ±5%, 1/10 W
R504	0611079B23	100K, ±5%, 1/10 W
R506	0611079A70	680 ohms, ±5%, 1/10 W
R508 thru 513	0611079A98	10K, ±5%, 1/10 W
R514	0611079A66	470 ohms, ±5%, 1/10 W
R517,518	0611079A34	22 ohms, ±5%, 1/10 W
R519	0611079A98	10K, ±5%, 1/10 W
R520	0611079B05	18K, ±5%, 1/10 W
R521	0611079A98	10K, ±5%, 1/10 W
R527,528	0611079A98	10K, ±5%, 1/10 W
R529	0611079B47	1 MEG, ±5%, 1/10 W
R608	0611079A98	10K, ±5%, 1/10 W
R609,610	0611079A01	O ohms, ±5%, 1/10 W
R651,652	0611079B33	270K, ±5%, 1/10 W
R653	0611079B03	15K, ±5%, 1/10 W
R701	0611079A34	22 ohms, ±5%, 1/10 W
R702	0611079A74	1K, ±5%, 1/10 W
R703	0611079A74	1K, ±5%, 1/10 W
R704	0611079A74	1K, ±5%, 1/10 W
R705,706	0611079A40	39 ohms, ±5%, 1/10 W
R707	0611079A84	2700 ohms, ±5%, 1/10 W
R751 thru 753	0611079A98	10K, ±5%, 1/10 W
R754	0611079A74	1K, ±5%, 1/10 W
R755	0611079A50	100K, ±5%, 1/10 W
R756,757	0611079A98	10K, ±5%, 1/10 W
R758 thru 760	0611079A74	1K, ±5%, 1/10 W
R761 thru 768	0611079A98	10K, ±5%, 1/10 W
R770,771	0611079A98	10K, ±5%, 1/10 W
R774,775	0611079A98	10K, ±5%, 1/10 W
R776	0611079B07	27K, ±5%, 1/10 W
R777 thru 781	0611079A98	10K, ±5%, 1/10 W
R782	0611079B23	100K, ±5%, 1/10 W
R784 thru 788	0611079A98	10K, ±5%, 1/10 W
R793	0611079A01	O ohms, ±5%, 1/10 W
R794	0611079A90	4700 ohms, ±5%, 1/10 W
R795	0611079A01	O ohms, ±5%, 1/10 W
R796	0611079A74	1K, ±5%, 1/10 W
R797 thru 802	0611079A98	10K, ±5%, 1/10 W
R823	0611079A66	470 ohms, ±5%, 1/10 W
R824	0611079A34	22 ohms, ±5%, 1/10 W
R825	0611079A01	O ohms, ±5%, 1/10 W
R826	0611079A98	10K, ±5%, 1/10 W
R836 thru 842	0611079A01	O ohms, ±5%, 1/10 W
R851	0611079A66	470 ohms, ±5%, 1/10 W
R852	0611079A68	560 5 1/10 W
R853,854	0611077D87	78.7 ohms, ±1%, 1/8W
R855,856	0611077A59	240 ohms, ±5%, 1/8 W
R857 thru 860	0611077F12	1.5K, ±1%, 1/8 W
R861,862	0611079B47	1 MEG, ±5%, 1/10 W
R863	0611079A01	O ohms, ±5%, 1/10 W
R864,865	0611079B47	1 MEG, ±5%, 1/10 W
R866	0611079F01	Resistor: chip 1.00K 1/10 W
R868	0611079A90	4700 ohms, ±5%, 1/10 W
R906 thru 929	0611072A25	100 ohms, ±5%, 1/4 W
R936	0611079A90	4700 ohms, ±5%, 1/10 W
R1015	0611079A98	10K, ±5%, 1/10 W
R1016	0611079A98	10K, ±5%, 1/10 W
R1022	0611077A46	68 ohms, ±5%, 1/10 W
R1012,1013	0611079G01	10k, ±1%, 1/10 W
R1014	0611079G09	12.1K, 1/10 W, ±1%
R1015	0611079F22	Resistor: chip 1.65K 1/10 W
R1026	0611079A01	O ohms, ±5%, 1/10 W
R1028 thru 1031	0611079A01	O ohms, ±5%, 1/10 W
R1032	0611079A70	680 ohms, ±5%, 1/10 W
R1034	0611079A98	10K, ±5%, 1/10 W
R1036	0611079A98	10K, ±5%, 1/10 W
R1037	0611079A98	10K, ±5%, 1/10 W
R1038 thru 1040	0611079A74	1K, ±5%, 1/10 W
R1043	0611079D93	909 ohms, 1/10 W, ±1%
R1044	0611079A96	8200 ohms, ±5%, 1/10 W
R1201	0611072A25	100 ohms, ±5%, 1/4 W
R1202	0611079A01	O ohms, ±5%, 1/10 W
R1203	0611079A92	5600 ohms, ±5%, 1/10 W
R1204	0611079A64	390 ohms, ±5%, 1/10 W
R1205 thru 1208	0611079A82	330 ohms, ±5%, 1/10 W
R1209	0611079A64	390 ohms, ±5%, 1/10 W
R1210	0611079A82	330 ohms, ±5%, 1/10 W
R1211,1212	0611079A98	10K, ±5%, 1/10 W
R1213,1214	0611079D93	909 ohms, 1/10 W, ±1%
R1215	0611079A98	10K, ±5%, 1/10 W
R1216 thru 1223	0611079A66	470 ohms, ±5%, 1/10 W
		switch:
S0 thru 3	4083621T01	pushbutton, spst
S501	4083706T02	dip, spst
		transformer:
T852	0982451V10	SOCKET, IC 16 PIN SM T & R
		integrated circuit (see note):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2 thru 4	5184537A77	IC SRAM 32KB 120NS 256B
U5	5113808A07	Quad 2–Input AND Gate
U6	5184625T05	IC ASIC DSP GLUE 2 120QFP
U7	5113808A05	Quad NOR Gate
U8	5185486U01	IC BFR OCT INV 3–ST 74__T540
U9 thru 11	5184531T02	Static Ram
U151	5113808A04	Quad NPN General Purpose
U152,153	5184288T01	Differential Bus Transceiver
U154	5113808A39	IC LINE DRVR OCT NON INV
U155	5113808A38	Octal Buffer Line Driver/Receiver
U201	5184726T02	REFERENCE OSC MODULE
U202	5184717T01	Synthesizer with Serial Interface
U203	5113803A86	Quad Analog Multiplexer/Demultiplexer
U204	5113805A89	Monostable Multivibrator, Dual Precision
U205	5113808A13	Hex Inverter Schmitt Trigger
U206	0913900A02	SOCKET, 28 position
U207	5113808A13	Hex Inverter Schmitt Trigger
U302	5113819A05	High Performance, Single Supply
U303,304	5182276R86	Complementary Symmetry/oxide Semiconductor
U305	5113819A05	High Performance, Single Supply
U306	5185222U02	IC Filter
U308	5185222U02	IC Filter
U309	5113805A85	Mux/Demux, Trip 2–Channel Analog
U311	5182802R38	Digital Pot Converter
U314	5113805A83	Mux/Demux, 8–Channel Analog
U315	5182276R85	IC SNG SUPPLY 12BIT ADC MAX190
U316	5184737I01	CODEC Pulse Code Modulation
U317	5184621X33	Operational Amplifier
U318	5113819A05	High Performance, Single Supply
U401	5113802D29	IC QD COMM CNTRLR W/ETHERNET
U501 thru 504	5113808A39	IC LINE DRVR OCT NON INV
U505 thru 508	5113808A44	Line Driver/Receiver Octal
U509	5113808A05	Hex Inverter
U513	5182046W01	IC CLOCK DRIVER_74CT2524_SM
U515	5113815A02	Under Voltage Sensing Circuit
U516	5113805A03	Quad 2–Input NAND Gate
U517	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U518	5113808A07	Quad 2–Input AND Gate
U519	5113805A89	Monostable Multivibrator, Dual Precision
U523	5191037C01	IC PRGMD PLD
U524	5113805A04	Inverter HEX
U601	5184530T10	SIMM 256K X 32 72–PIN 70NS
U602	5113808A26	IC MUX DUAL 4INP MC74ACT153D
U603 thru 607	5113808A28	Quad 2–Input Non–Inverting Multiplex-er
U651	(See Note 1)	IC PRGMD EPROM
U652	(See Note 1)	IC PRGMD EPROM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



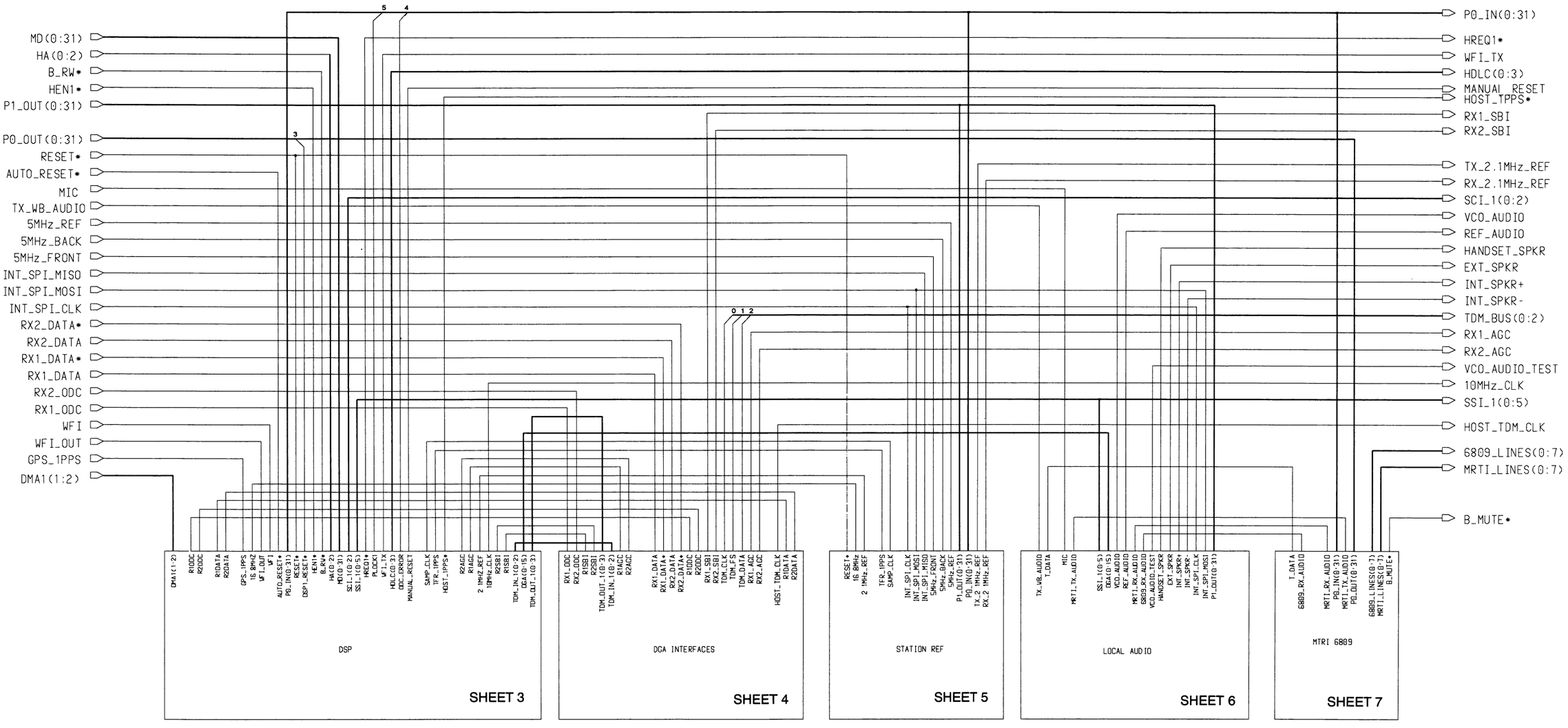
Notes:

1. Ignore indicates part is not installed
2. Even numbered pins of P1 referred to as P2 in other documents
3. Even numbered pins of P3 referred to as P4 in other documents

EPIC II STATION CONTROL BOARD HIGH LEVEL INTERCONNECT DIAGRAM

STATION CONTROL MODULE

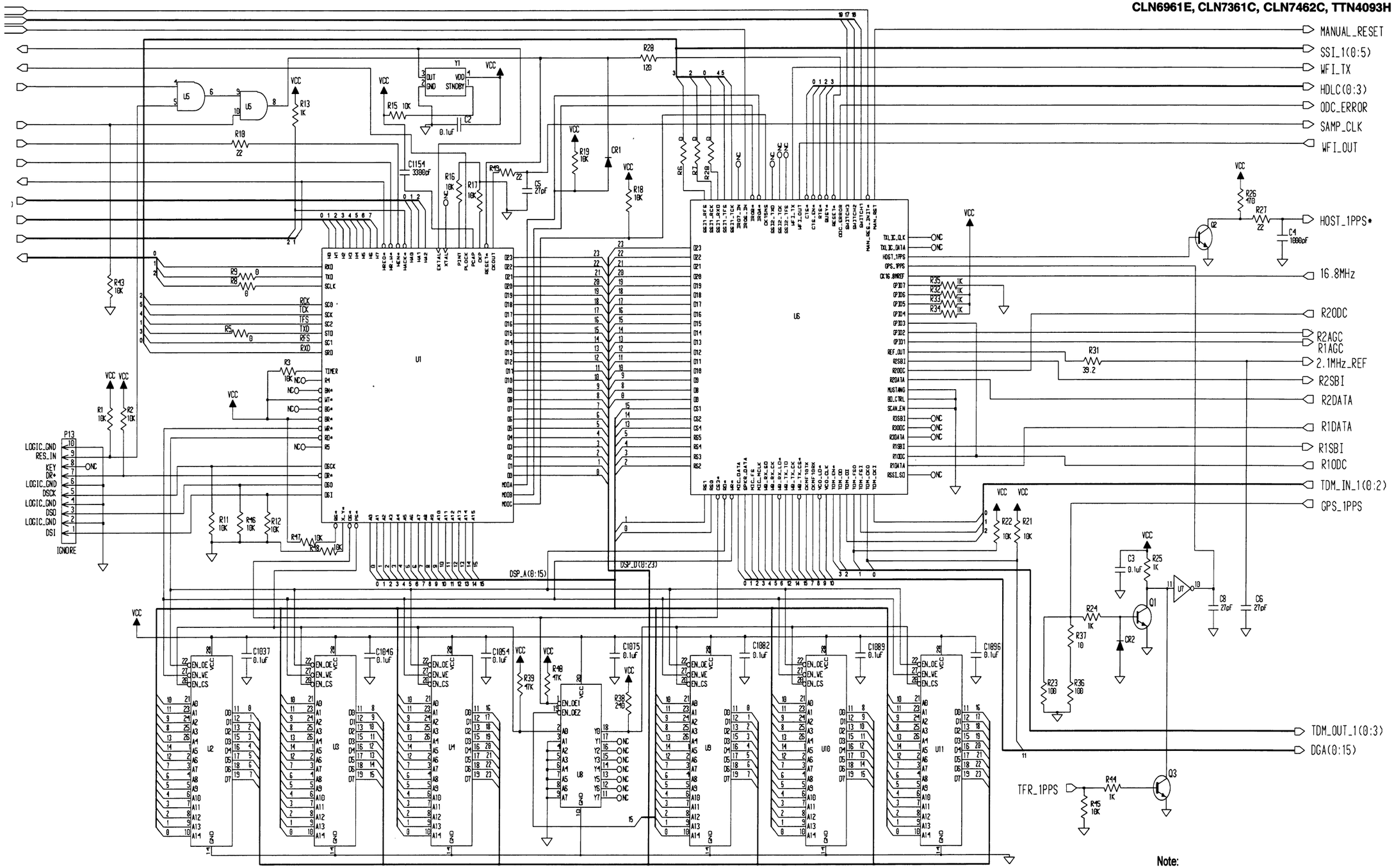
MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



SIGNAL PROCESSING CIRCUIT
INTERCONNECT DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



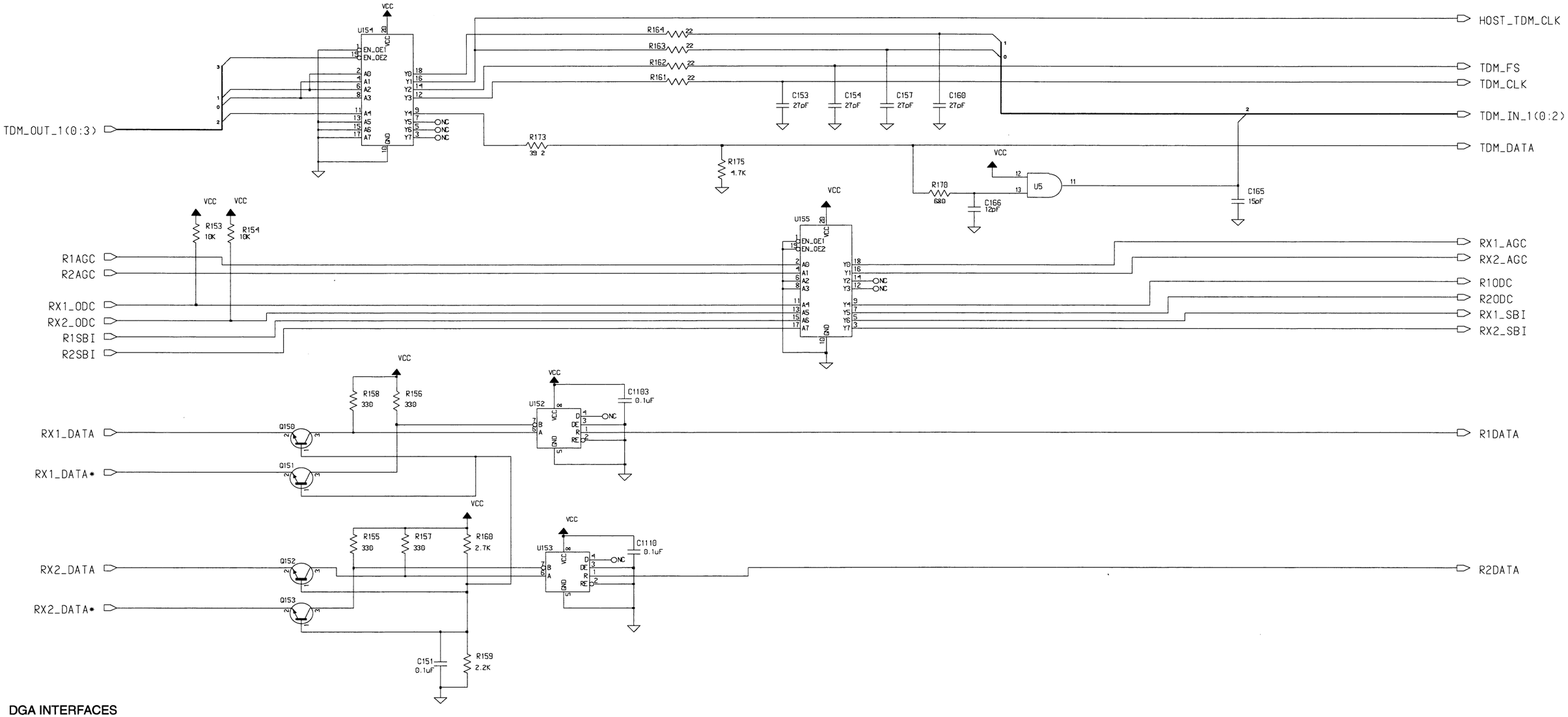
Note:

1. Ignore indicates that the part is not installed.

DIGITAL SIGNAL PROCESSOR CIRCUIT
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

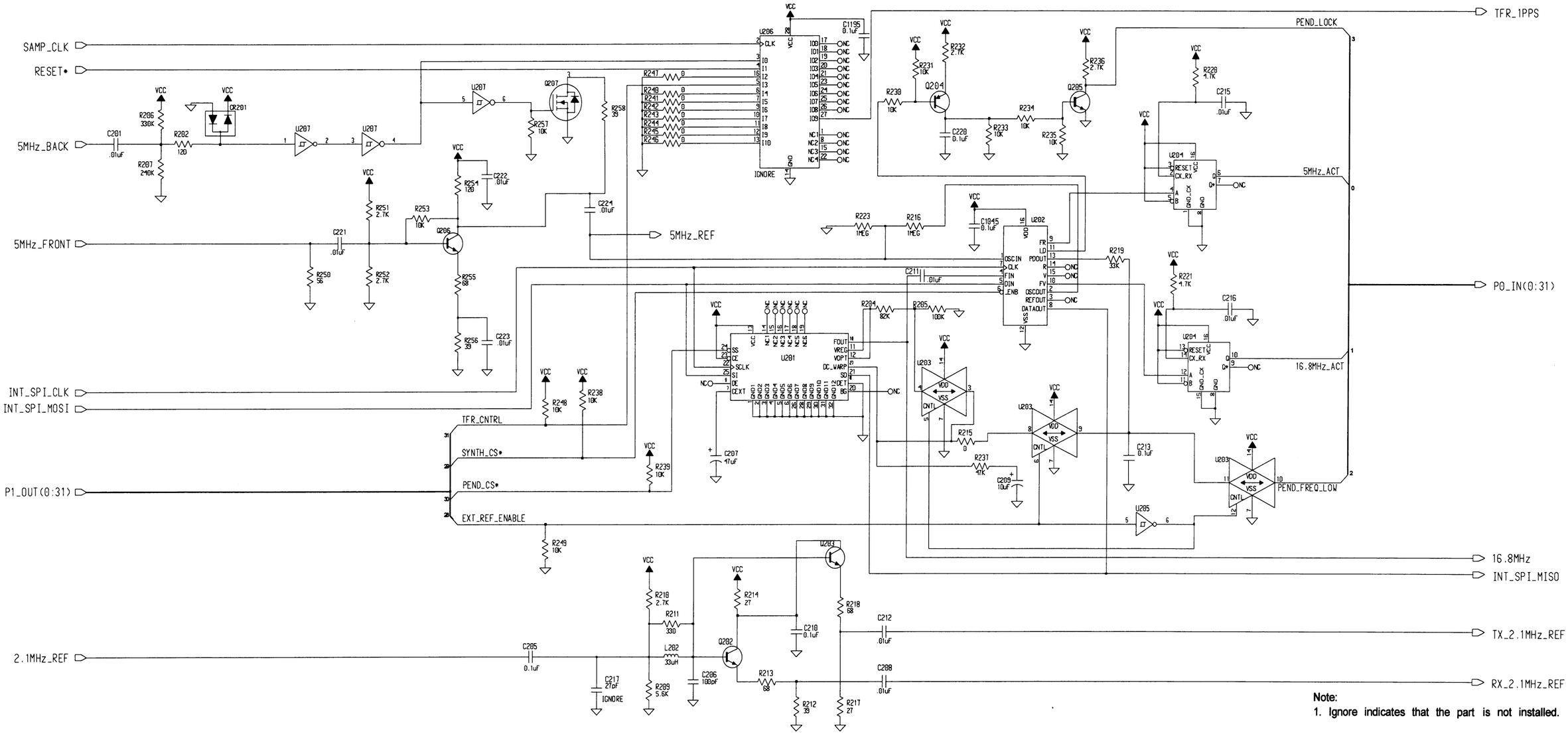
MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



DGA INTERFACES
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H

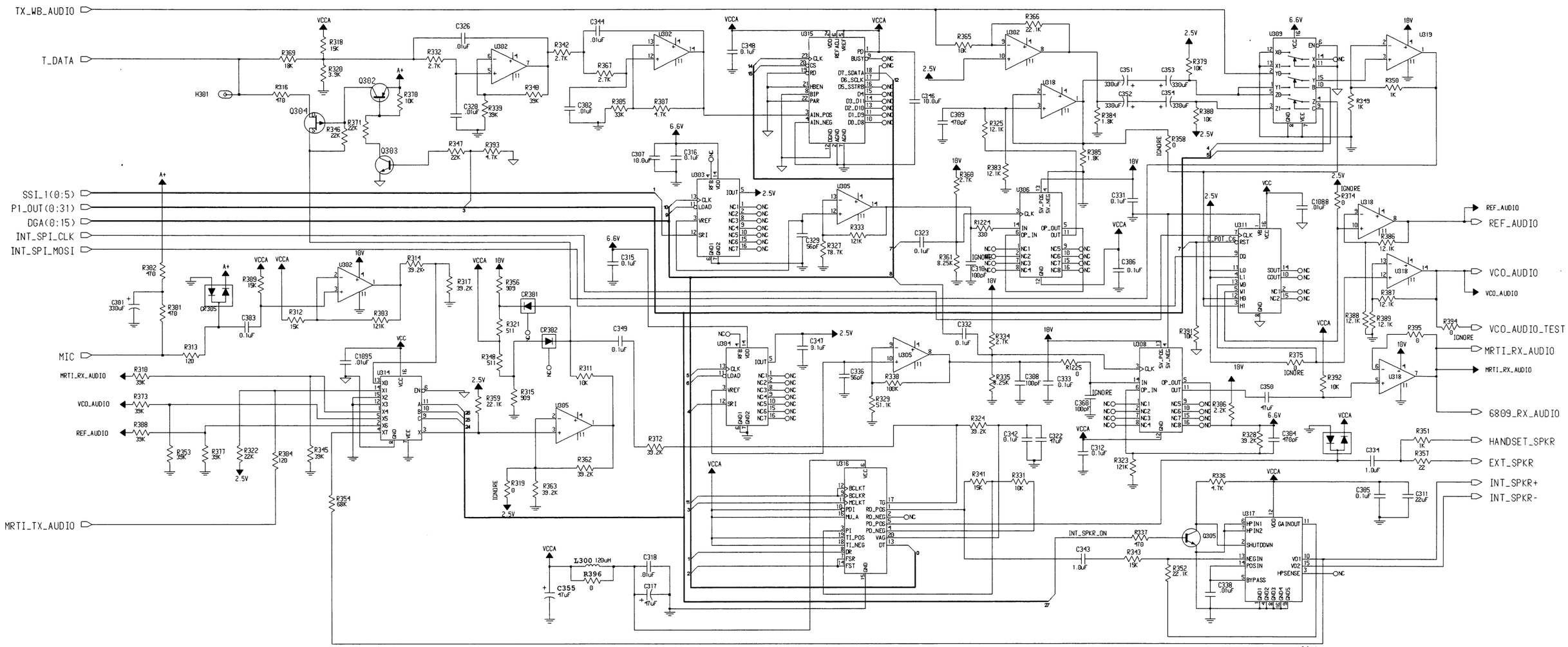


Note:
1. Ignore indicates that the part is not installed.

STATION REFERENCE
SCHEMATIC DIAGRAM

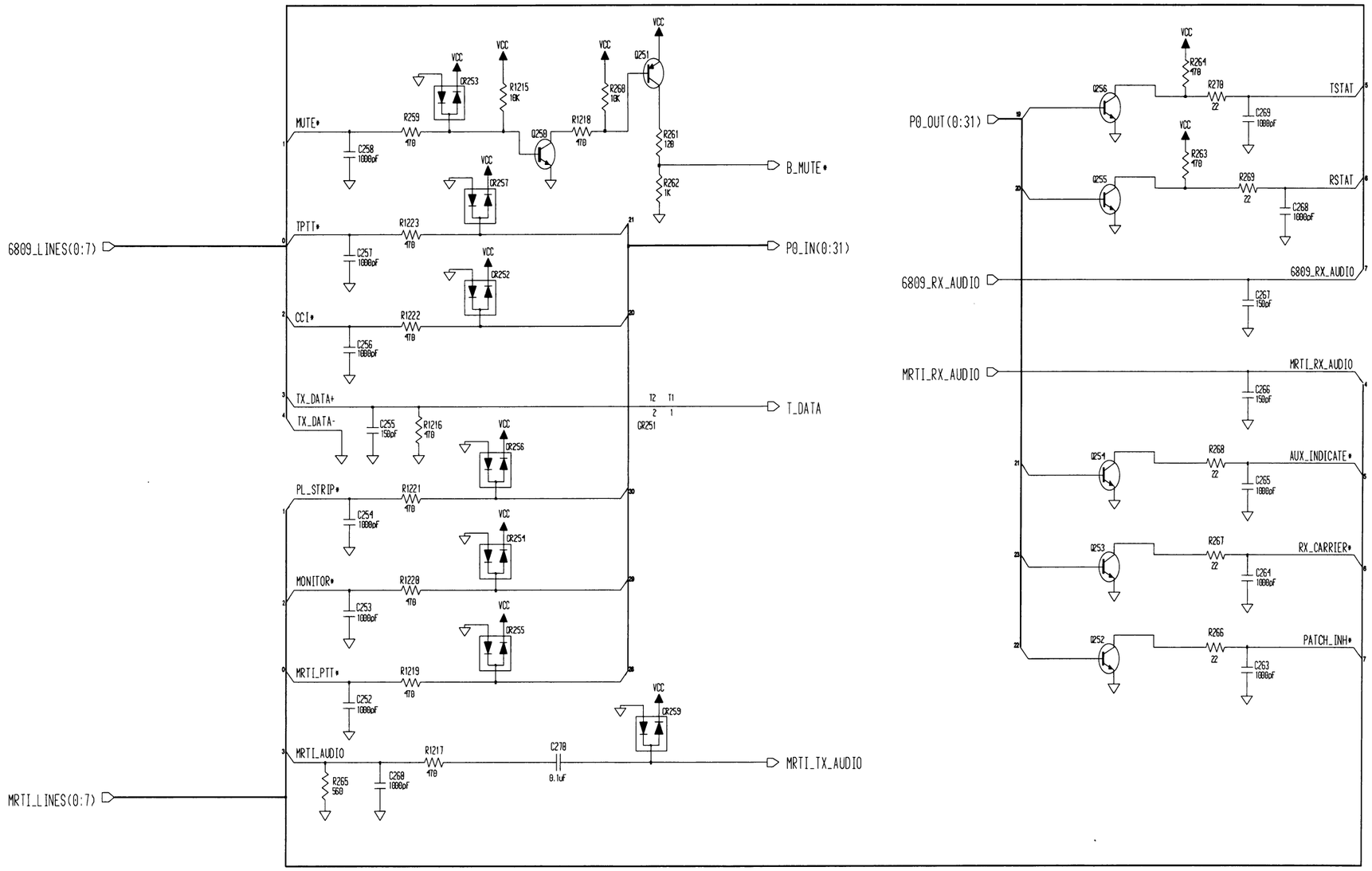
STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



Note:
1. Ignore indicates that the part is not installed.

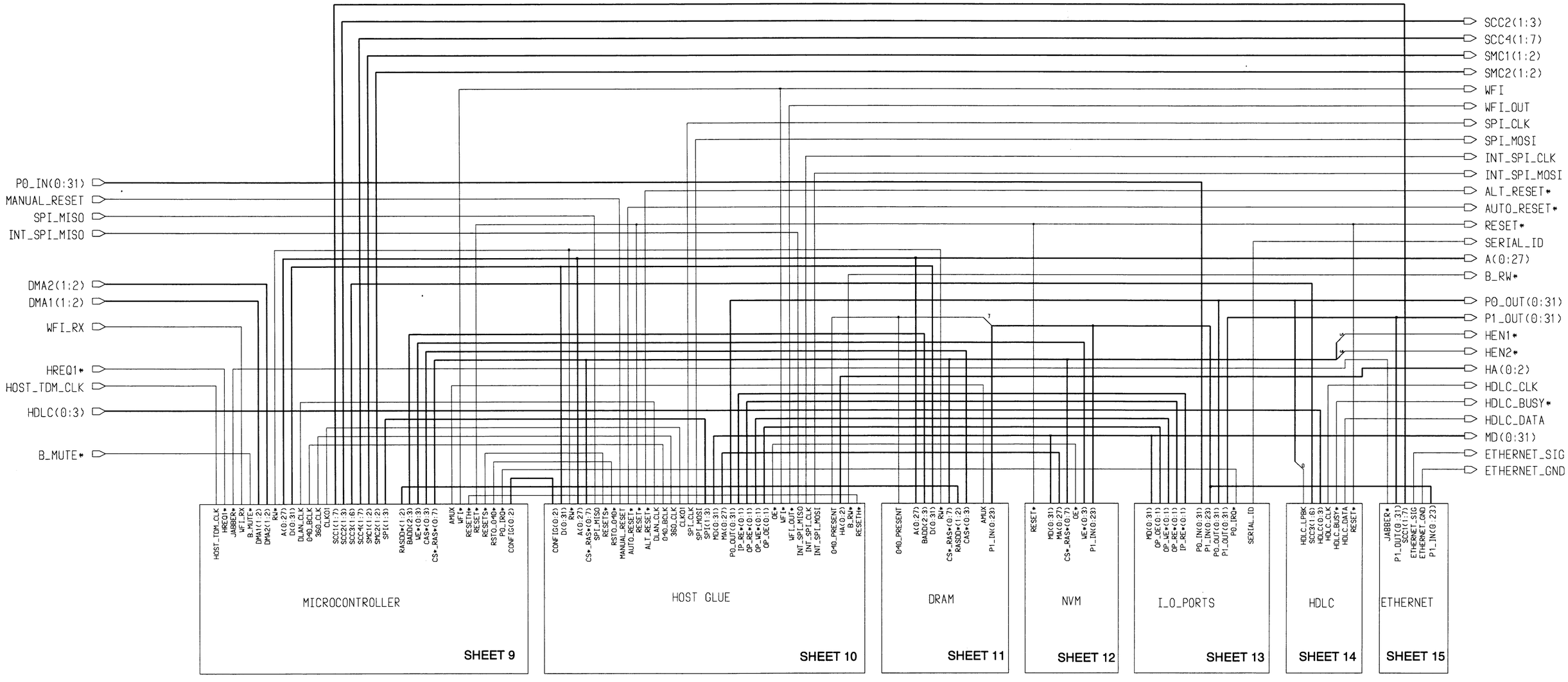
LOCAL AUDIO SCHEMATIC DIAGRAM



MRTI 6809 SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



CONTROL AND COMMUNICATIONS
INTERCONNECT DIAGRAM

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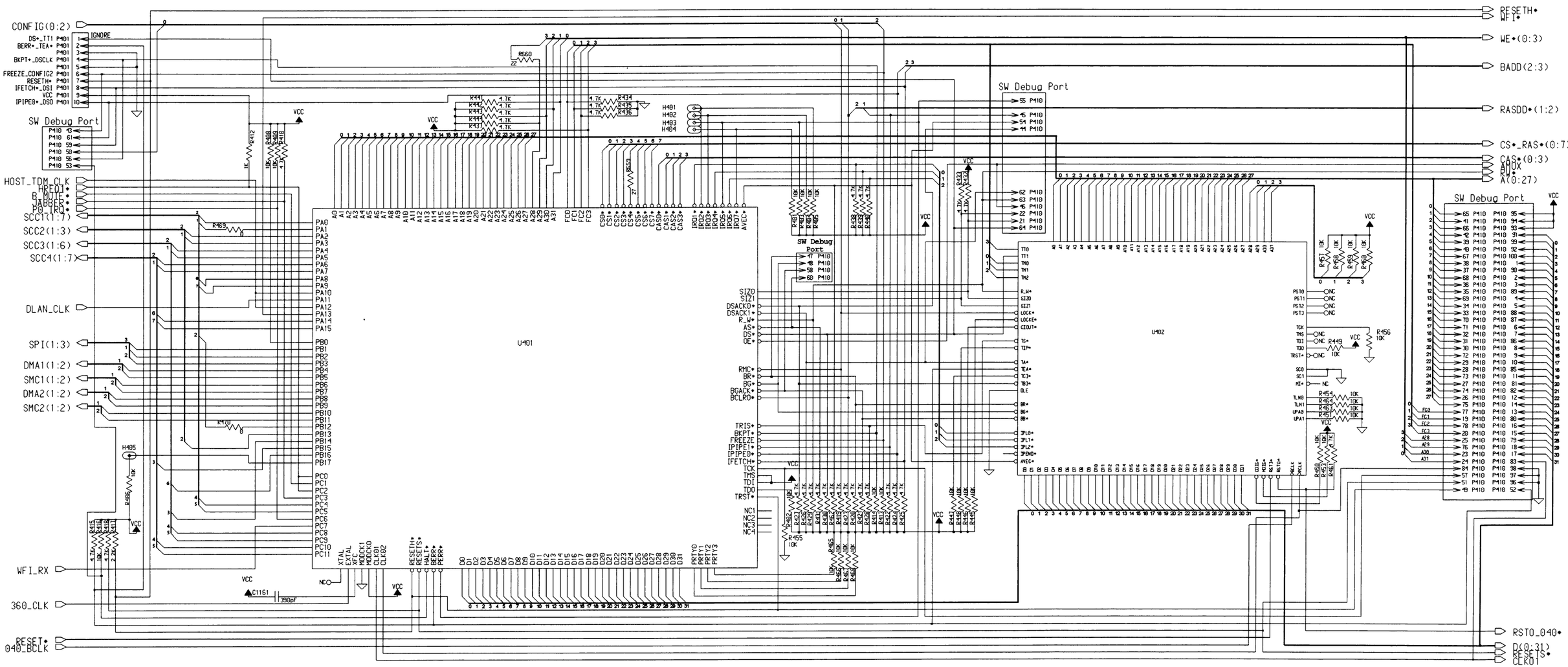
STATION CONTROL MODULE

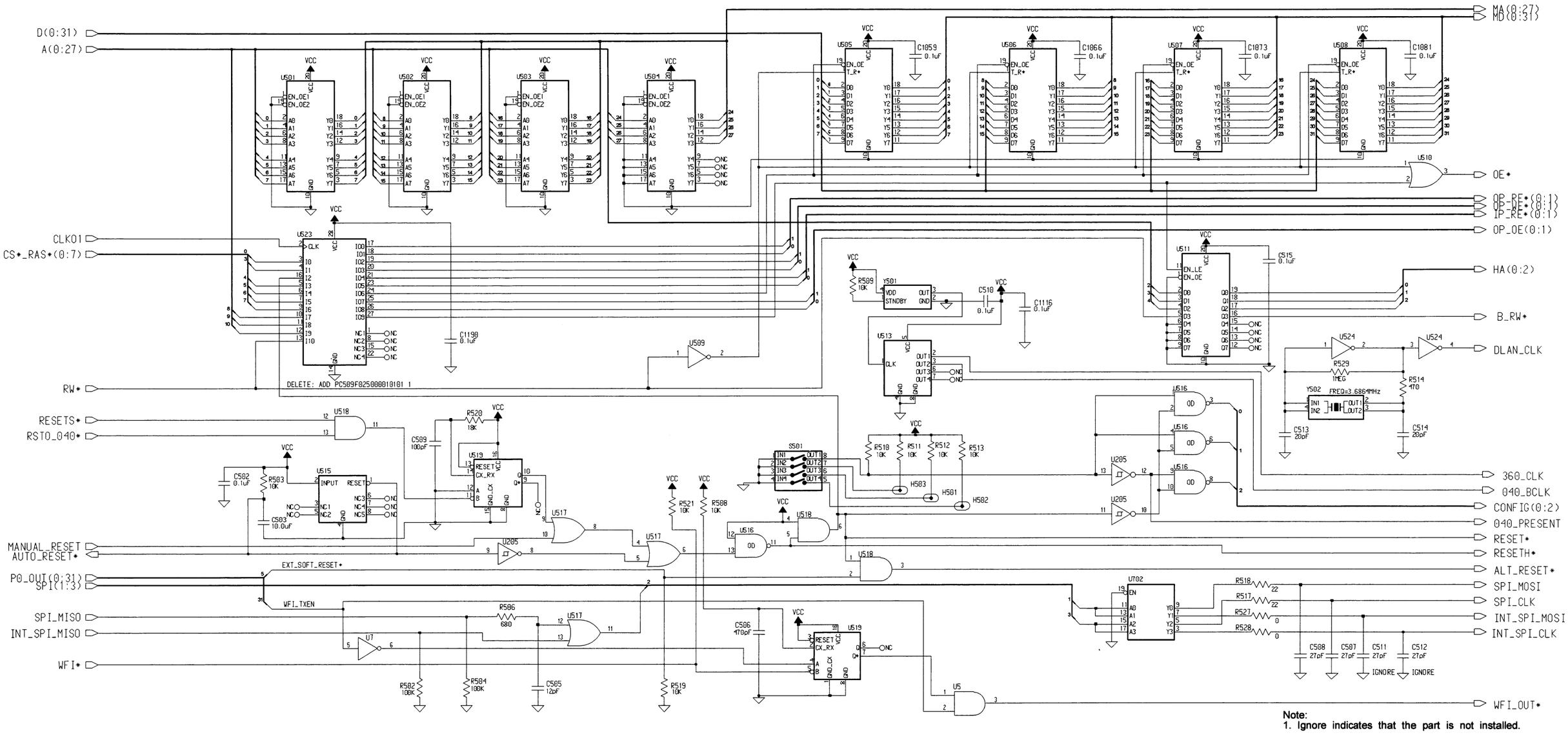
MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



MICROCONTROLLER
SCHEMATIC DIAGRAM

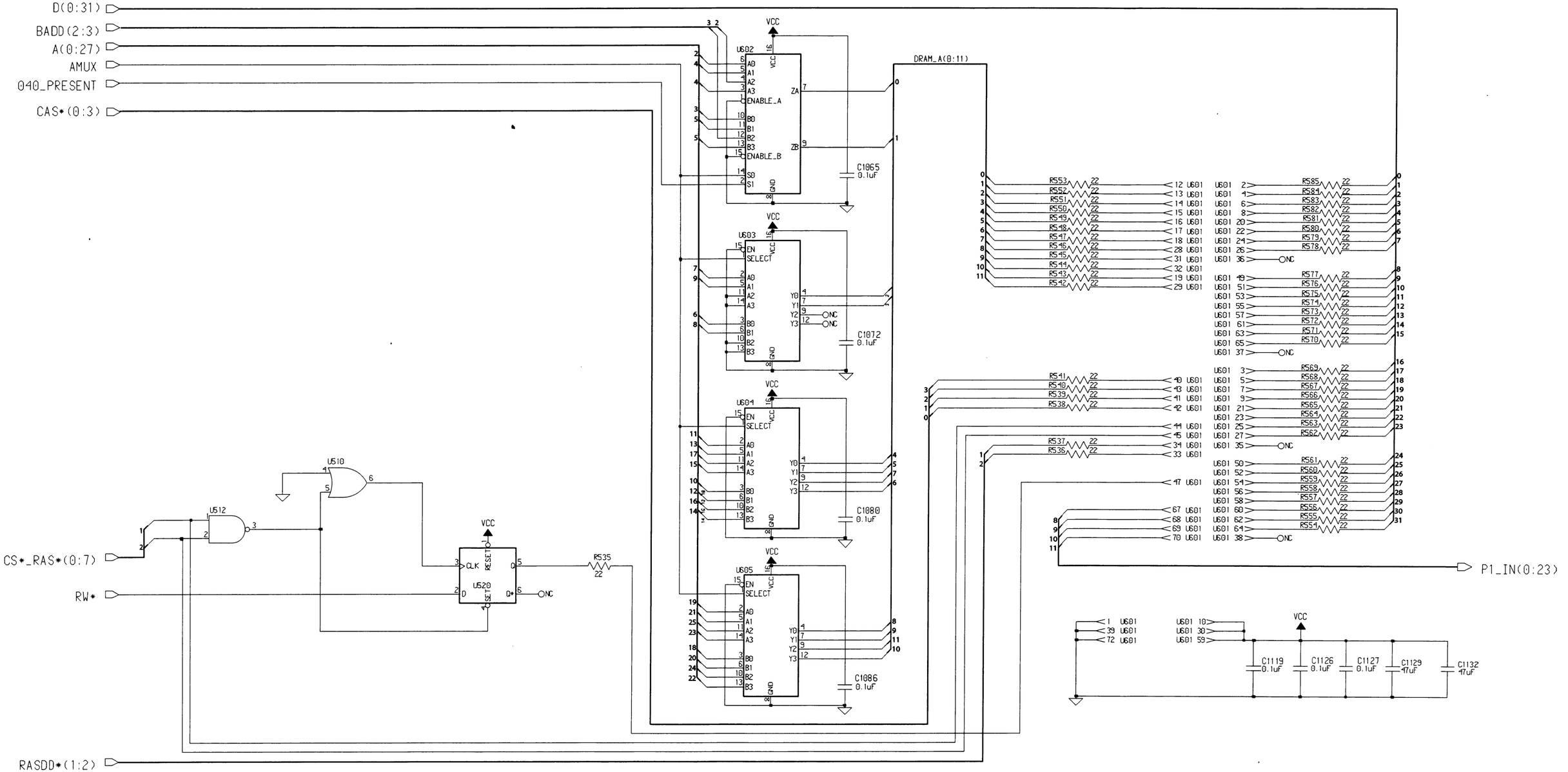
STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



Note:
1. Ignore indicates that the part is not installed.

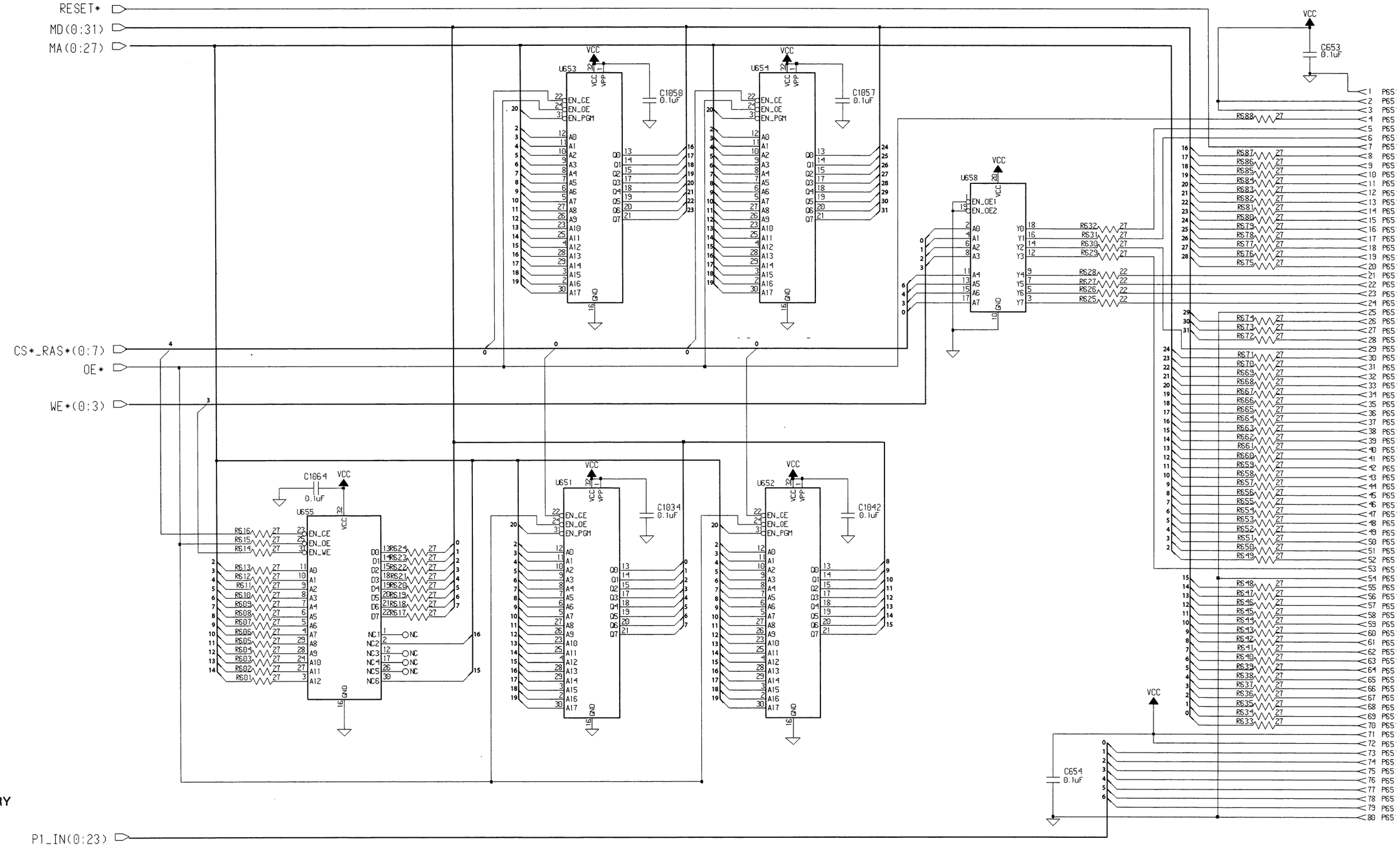
HOST GLUE SCHEMATIC DIAGRAM



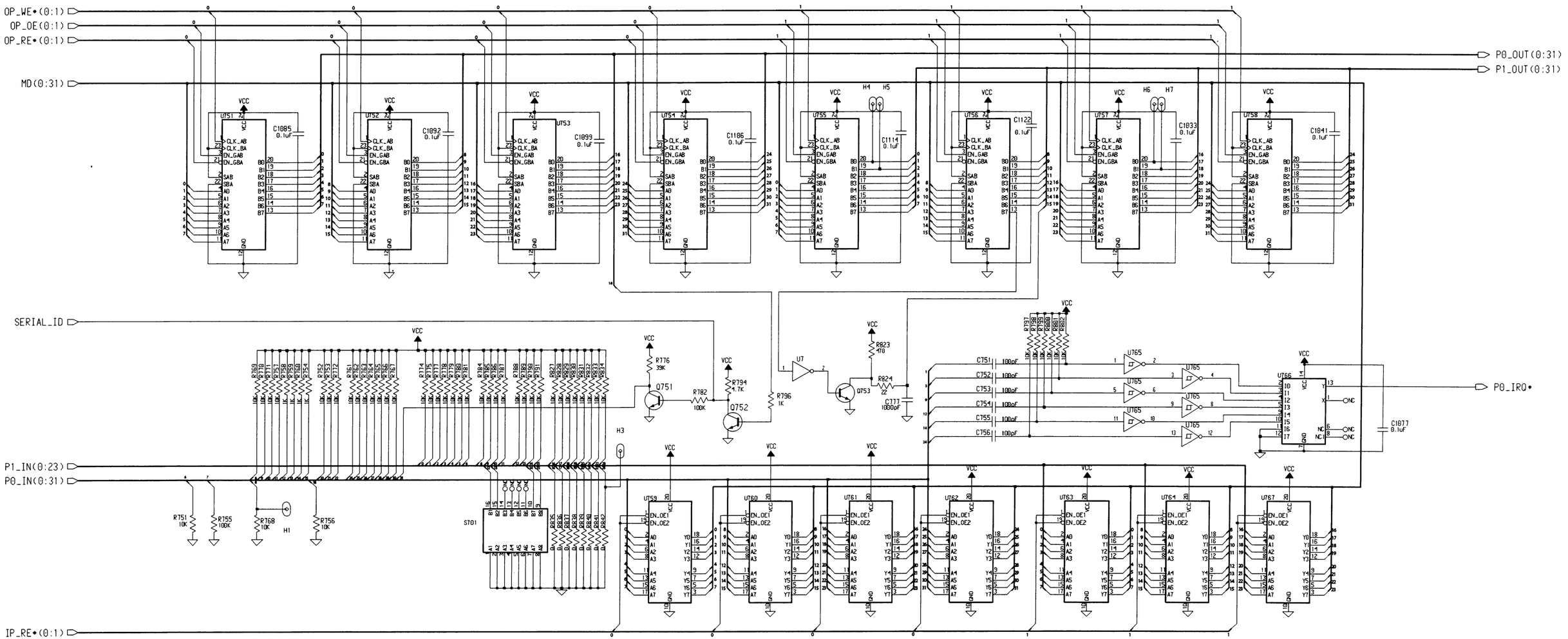
DRAM SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



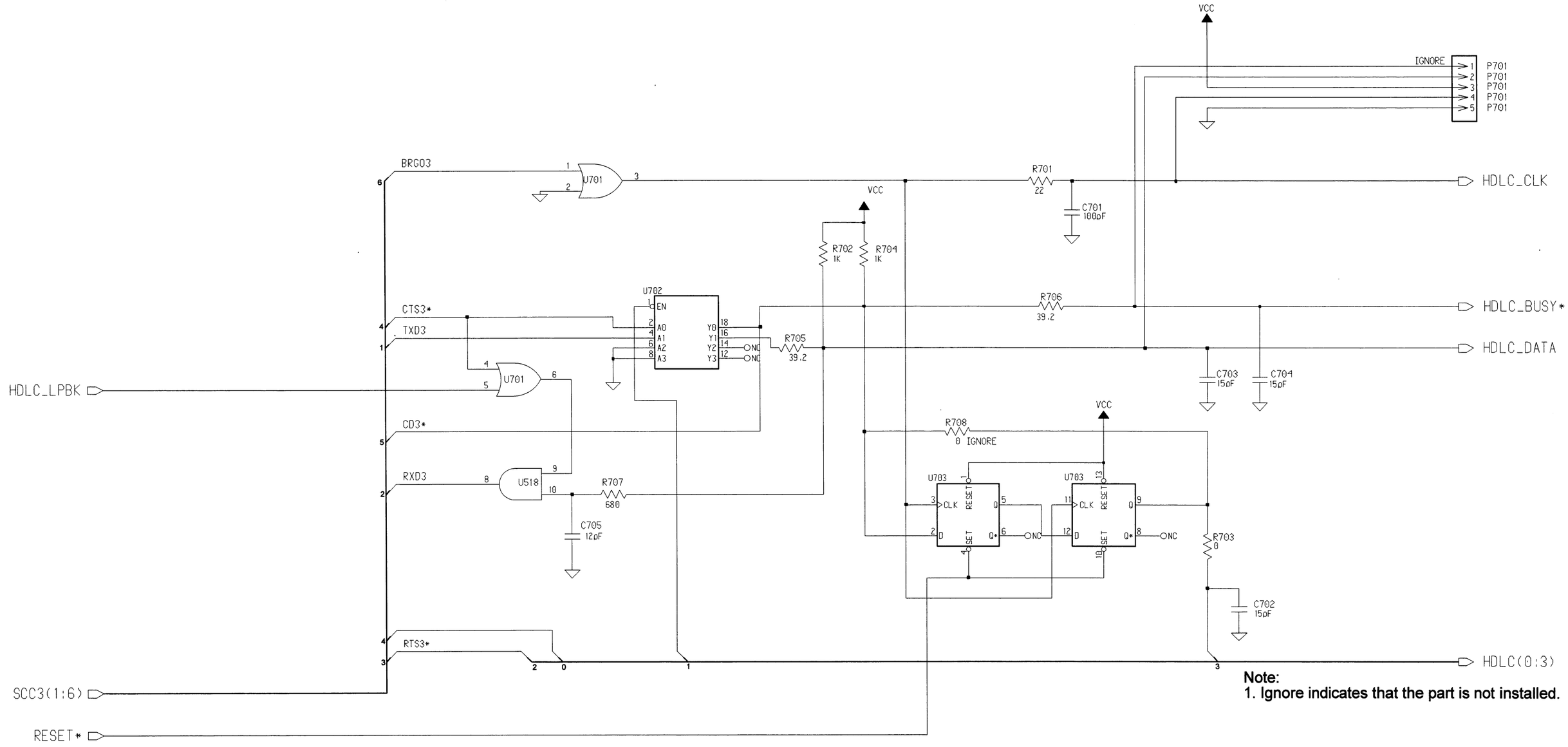
NONVOLATILE MEMORY
SCHEMATIC DIAGRAM



INPUT/OUTPUT PORTS
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H

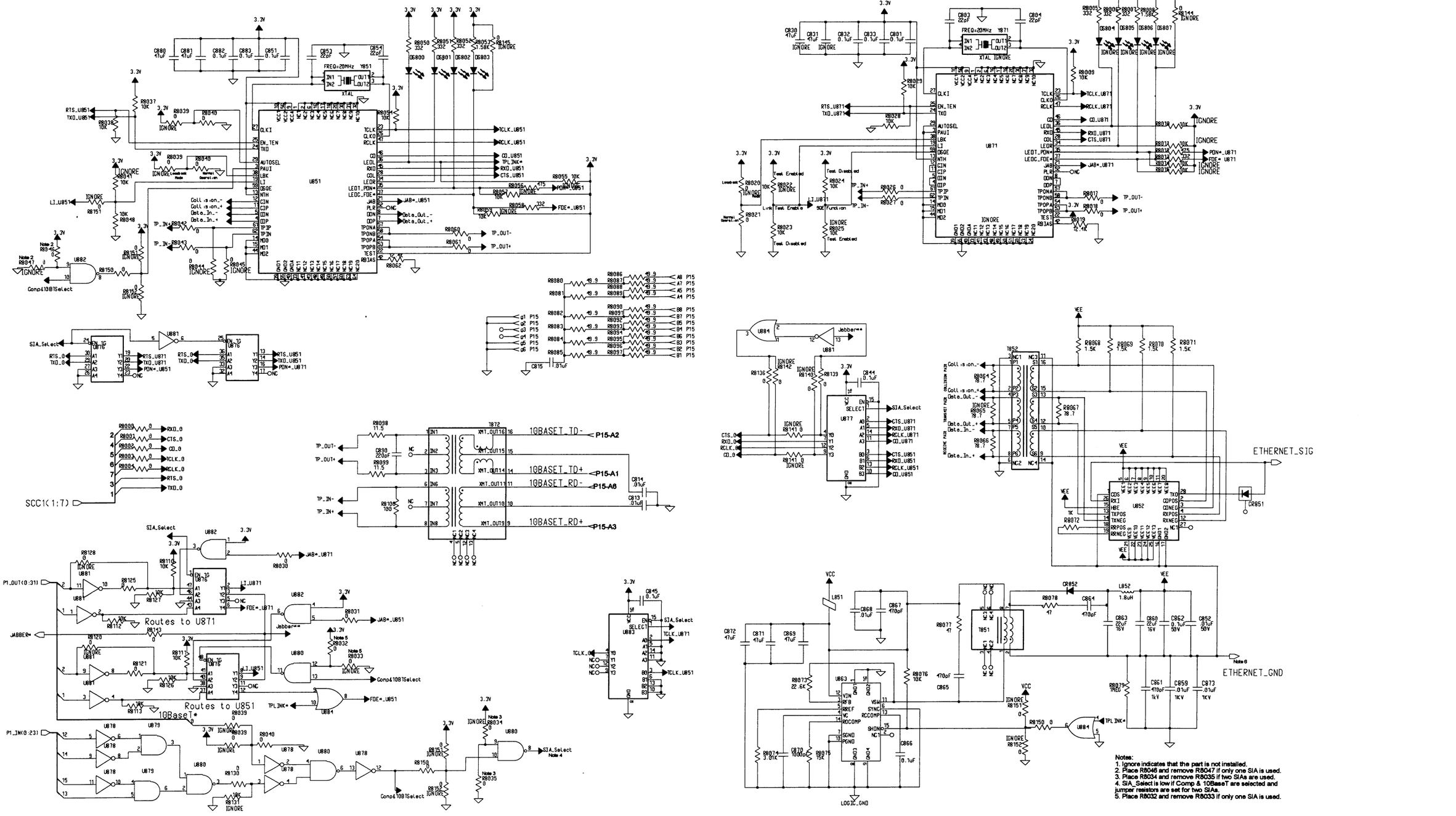


Note:
1. Ignore indicates that the part is not installed.

HDLC SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H

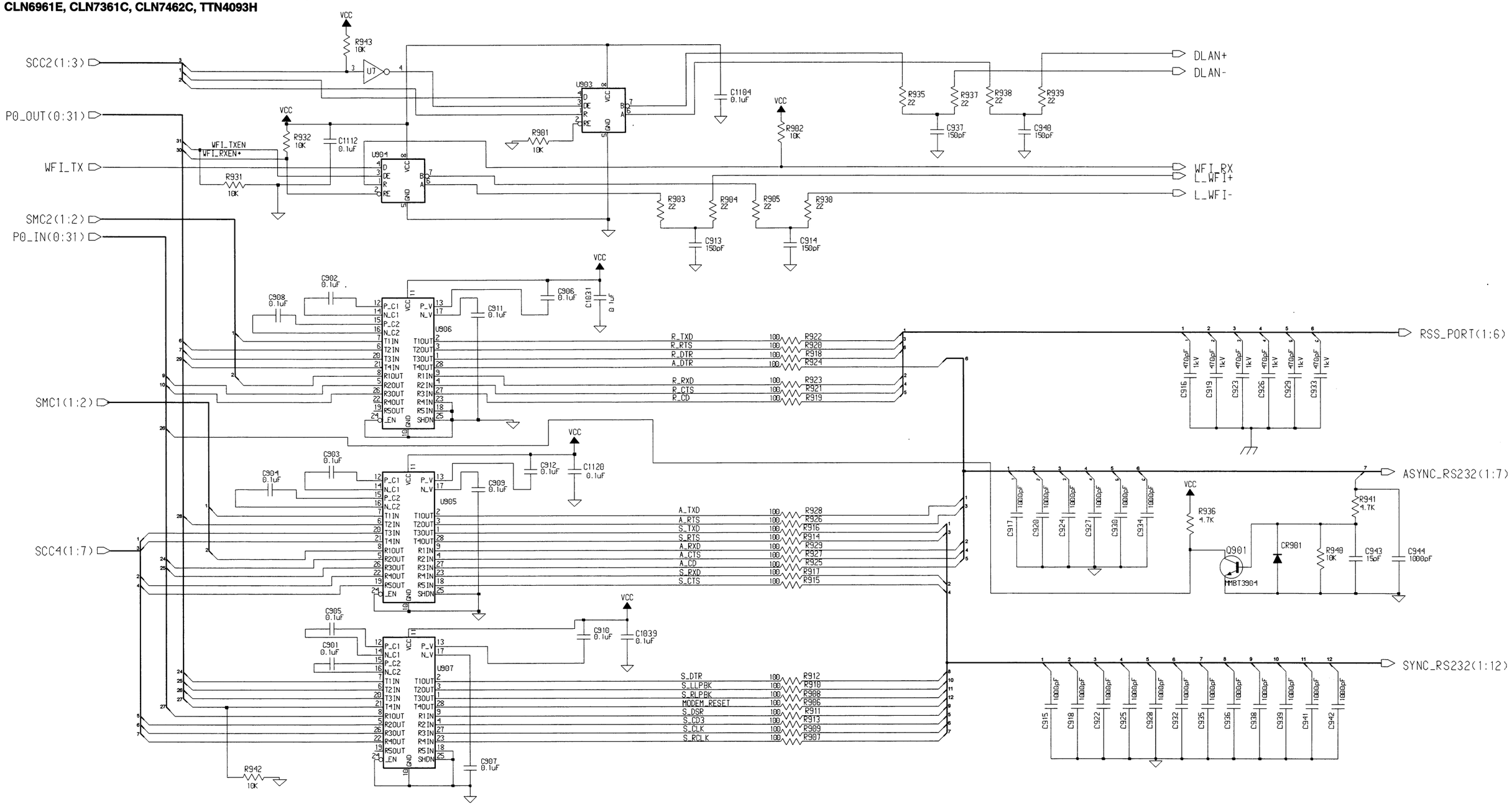


Notes:
1. Ignore indicates that the part is not installed.
2. Place R8046 and remove R8047 if only one SIA is used.
3. Place R8034 and remove R8035 if two SIAs are used.
4. SIA_Select is low if Comp & 10BaseT are selected and jumper resistors are set for two SIAs.
5. Place R8032 and remove R8033 if only one SIA is used.

ETHERNET SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



EXTERNAL INTERFACES
SCHEMATIC DIAGRAM

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H

New 10V Supply

3.3V Power Supply for Ethernet Circuitry

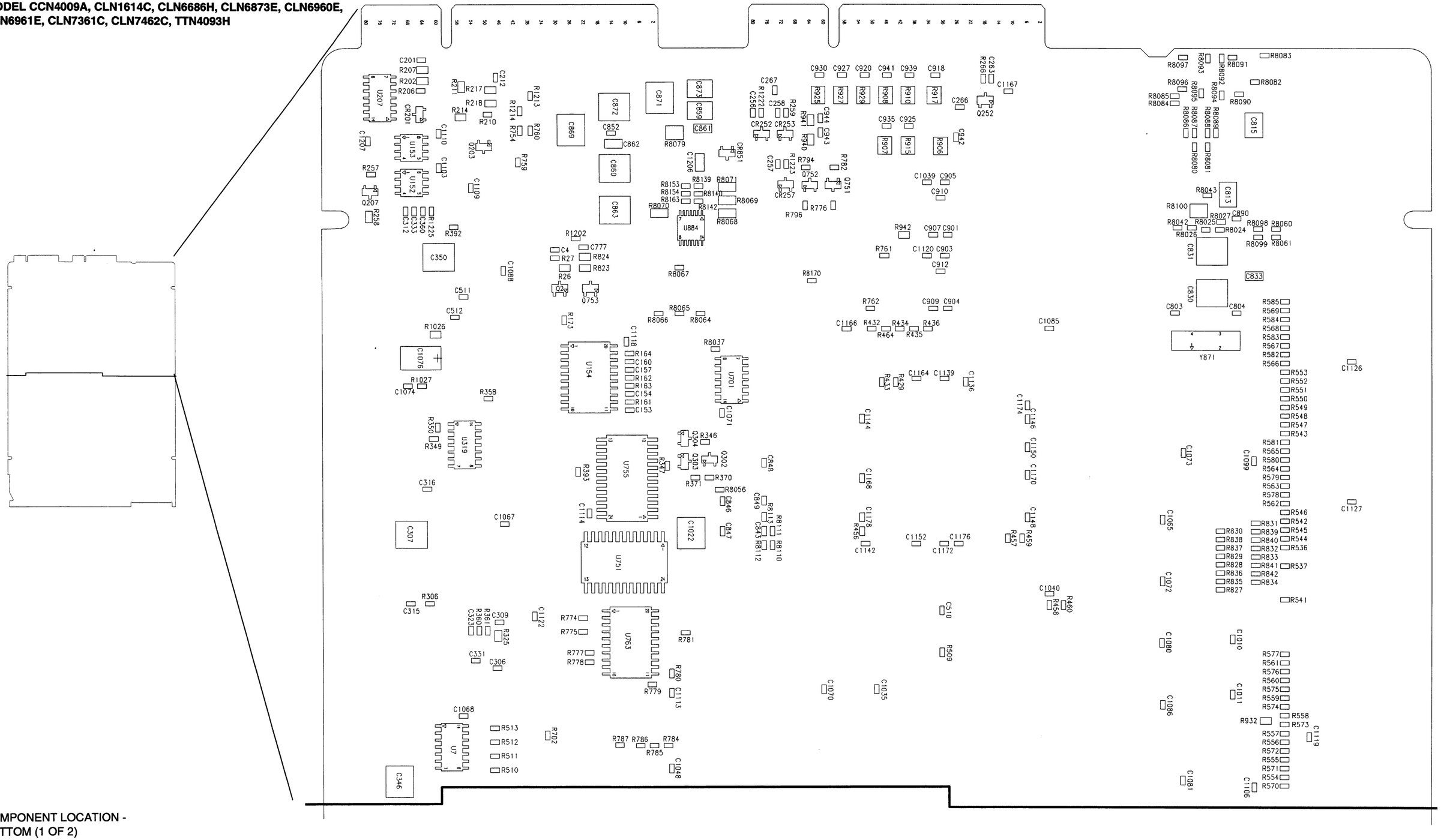
UNUSED COMPONENTS

GROUND CONNECTIONS AND UNUSED GATES

Note:
1. Ignore indicates that the part is not installed.

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



COMPONENT LOCATION - BOTTOM (1 OF 2)

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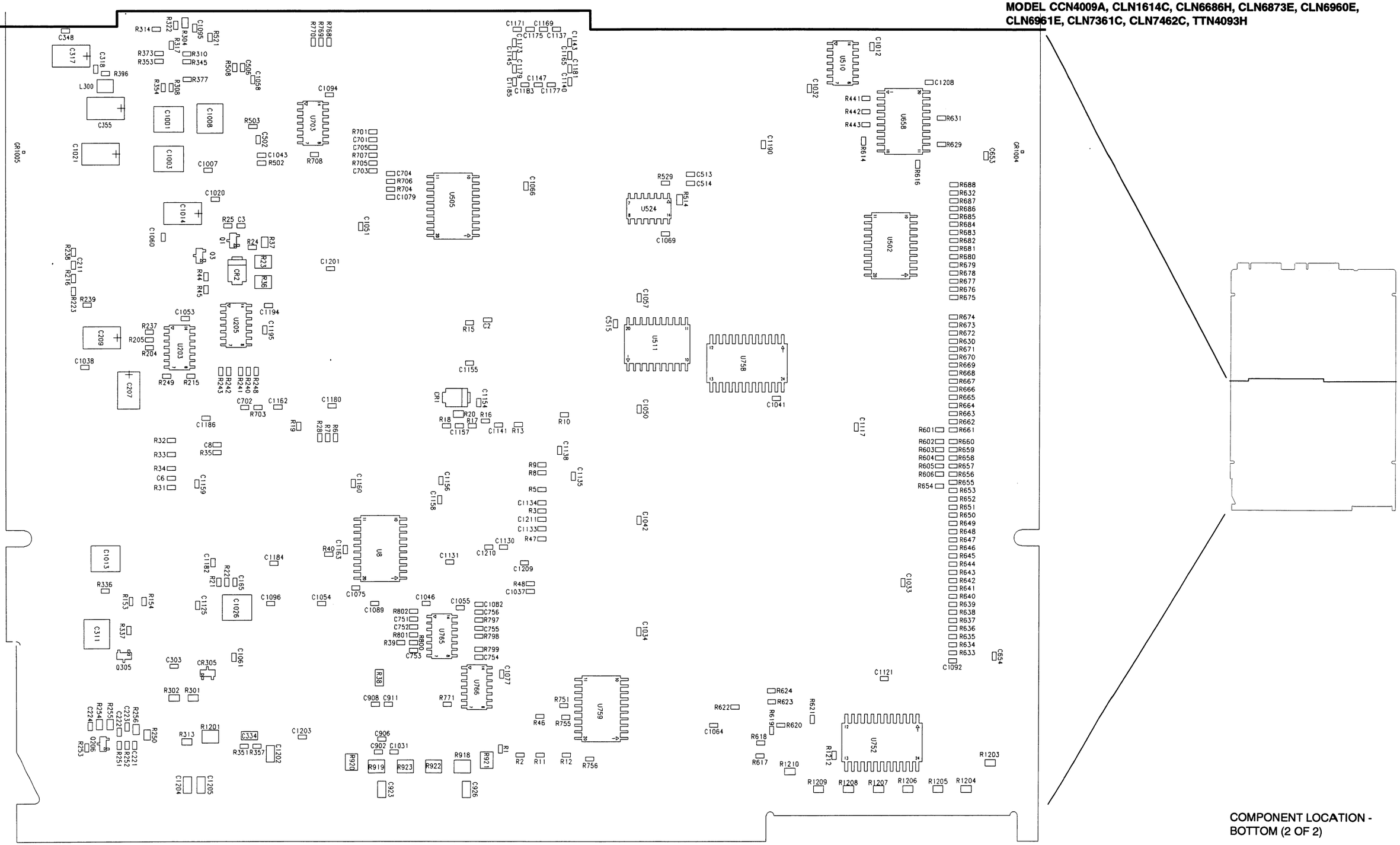
STATION CONTROL MODULE

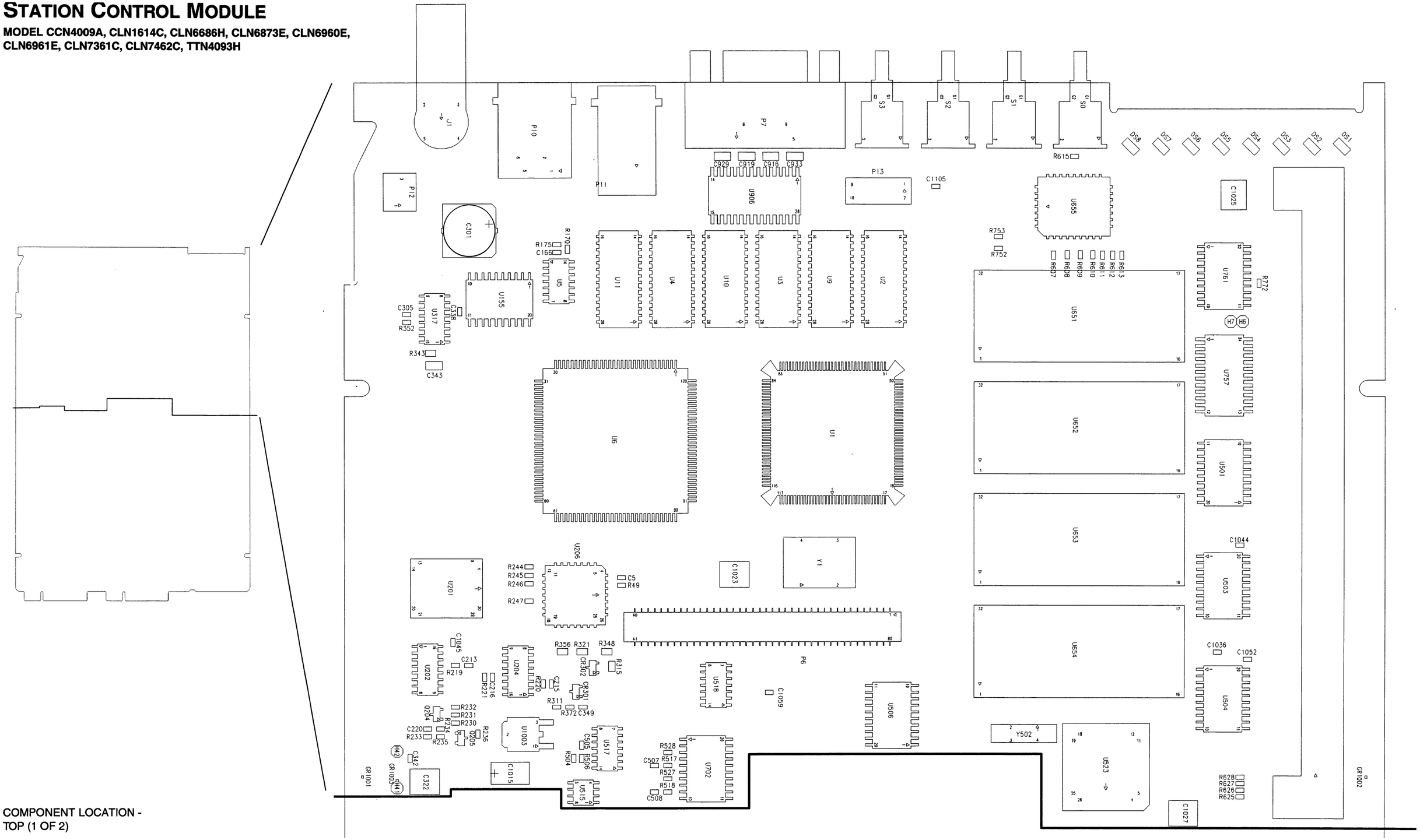
MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



COMPONENT LOCATION - BOTTOM (2 OF 2)

STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



COMPONENT LOCATION - TOP (1 OF 2)

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(Sheet 20 of 22)
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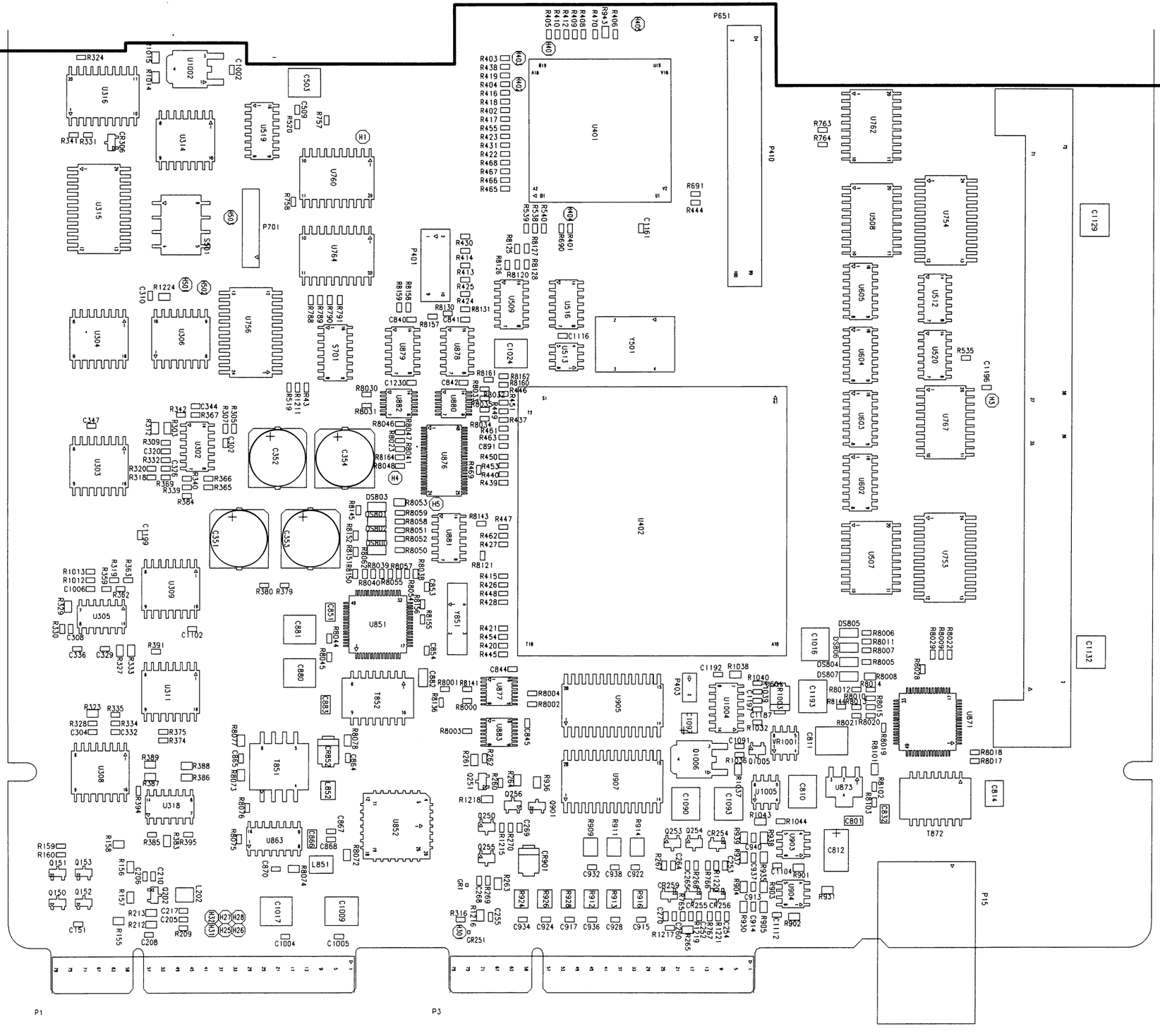
STATION CONTROL MODULE

MODEL CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H



COMPONENT LOCATION -
TOP (2 OF 2)

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(Sheet 21 of 22)
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Parts Lists, Station Control Modules: CCN4009A, CLN1614C, CLN6686H, CLN6873E, CLN6960E, CLN6961E, CLN7361C, CLN7462C, TTN4093H

Reference	Part Number	Description
		CCN4009A:
	0180706G54	EPIC II Board with BGA Processor-out (see note 1)
	0180706G10	PROG SIMM COMP 9600 F51
	5184530T08	MODULE DRAM 2MX32 70NS
		CLN1614C:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U2	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6686H:
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
U651	PC680E102000104013	PRGMD EPROM DBS
U652	PC680E202000104013	PRGMD EPROM DBS
U653	PC680E302000104013	PRGMD EPROM DBS
U654	PC680E402000104013	PRGMD EPROM DBS
		CLN6873E:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6960E:
	0180706G06	PROG SIMM QTAR IR 3.5 F51
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN6961E:
	0180706G11	PROG SIMM QTAR C/09 F96
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN7361C:
	0180706G09	PROG SIMM COMP 3.0 F51
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U402	5113801D15	IC 32 BIT HI PERF CNTLR
U601	5184530T08	MODULE DRAM 2MX32 70NS
		CLN7462C:
	0180706G12	PROG SIMM QTAR LIM F52
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U601	5184530T08	MODULE DRAM 2MX32 70NS

Reference	Part Number	Description
		TTN4093H:
	0180706G55	EPIC II Board with BGA Processor-out (see note 1)
U402	5113801D15	IC 32 BIT HI PERF CNTLR
U601	5184530T08	MODULE DRAM 2MX32 70NS
U651	PC5251101000030508	EPIC CONTROL PRGMD EPROM
U652	PC5251201000030508	EPIC CONTROL PRGMD EPROM
U653	PC5251301000030508	EPIC CONTROL PRGMD EPROM
U654	PC5251401000030508	EPIC CONTROL PGRMD EPROM

NOTE 1: See Parts List, EPIC II Board with BGA Processor-out, 0180706G54 and 0180706G55 for the board level components.

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Parts List, EPIC II Board with BGA Processor-out, 0180706G54 and 0180706G55

Reference	Part Number	Description
		SEE NOTE 2
		capacitor, fixed:
C2, 3	2113743E20	CAP CHIP .10 UF 10%,
C5, 8	2113740F37	CAP CHIP REEL CL1 +/-30 27
C151	2113743E20	CAP CHIP .10 UF 10%
C153,154, 157,160	2113740F37	CAP CHIP REEL CL1 +/-30 27
C166	2113740F29	CAP CHIP REEL CL1 +/-30 12
C201	2113741F49	CAP CHIP CL2 X7R REEL 10000
C205	2113743E20	CAP CHIP .10 UF 10%
C206	2113740F51	CAP CHIP REEL CL1 +/-30 100
C207	2311049A23	CAP TANT CHIP 47 10 10
C208	2113741F49	CAP CHIP CL2 X7R REEL 10000
C209	2311049A45	CAP TANT CHIP 10 10 35
C210	2113743E20	CAP CHIP .10 UF 10%
C211, 212	2113741F49	CAP CHIP CL2 X7R REEL 10000
C213	2113743E20	CAP CHIP .10 UF 10%
C215, 216	2113741F49	CAP CHIP CL2 X7R REEL 10000
C220	2113743E20	CAP CHIP .10 UF 10%
C221, 224	2113741F49	CAP CHIP CL2 X7R REEL 10000
C252, 254	2113741F25	CAP CHIP CL2 X7R REEL 1000
C255	2113740F55	CAP CHIP REEL CL1 +/-30 150
C256–258	2113741F25	CAP CHIP CL2 X7R REEL 1000
C260	2113741F25	CAP CHIP CL2 X7R REEL 1000
C263–265	2113741F25	CAP CHIP CL2 X7R REEL 1000
C266, 267	2113740F55	CAP CHIP REEL CL1 +/-30 150
C268, 269	2113741F25	CAP CHIP CL2 X7R REEL 1000
C270	2113743E20	CAP CHIP .10 UF 10%
C301	2380090M27	CAP ALU 330 20 16V
C302	2113741F49	CAP CHIP CL2 X7R REEL 10000
C303	2113743E20	CAP CHIP .10 UF 10%
C304	2113740F67	CAP CHIP CL1 +/-30 470 5%
C305, 306	2113743E20	CAP CHIP .10 UF 10%
C307	2109822S04	CAP CHIP CER 10UF 35V 2220
C309	2113740F67	CAP CHIP CL1 +/-30 470 5%
C311	2109822S07	CAP CHIP CER 22UF 16V
C312	2113743E20	CAP CHIP .10 UF 10%
C315, 316	2113743E20	CAP CHIP .10 UF 10%
C317	2311049A23	CAP TANT CHIP 47 10 10
C318, 320	2113741F49	CAP CHIP CL2 X7R REEL 10000
C322	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C323	2113743E20	CAP CHIP .10 UF 10%
C326	2113741F49	CAP CHIP CL2 X7R REEL 10000
C329	2113740F45	CAP CHIP REEL CL1 +/-30 56
C331–333	2113743E20	CAP CHIP .10 UF 10%
C334	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C336	2113740F45	CAP CHIP REEL CL1 +/-30 56
C338	2113741F49	CAP CHIP CL2 X7R REEL 10000
C342	2113743E20	CAP CHIP .10 UF 10%
C343	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C344	2113741F49	CAP CHIP CL2 X7R REEL 10000
C346	2109822S04	CAP CHIP CER 10UF 35V 2220
C347–349	2113743E20	CAP CHIP .10 UF 10%
C350	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C351–354	2380090M27	CAP ALU 330 20 16V
C355		
	0180706G54:	
	Not installed	
	0180706G55:	
	2311049A23	CAP TANT CHIP 47 10 10
C502	2113743E20	CAP CHIP .10 UF 10%
C503	2109822S04	CAP CHIP CER 10UF 35V 2220
C505	2113740F29	CAP CHIP REEL CL1 +/-30 12
C506	2113740F67	CAP CHIP CL1 +/-30 470 5%
C507, 508	2113740F37	CAP CHIP REEL CL1 +/-30 27
C509	2113740F51	CAP CHIP REEL CL1 +/-30 100
C510	2113743E20	CAP CHIP .10 UF 10%
C513, 514	2113740F34	CAP CHIP REEL CL1 +/-30 20
C515	2113743E20	CAP CHIP .10 UF 10%
C653, 654	2113743E20	CAP CHIP .10 UF 10%
C701	2113740F51	CAP CHIP REEL CL1 +/-30 100
C705	2113740F29	CAP CHIP REEL CL1 +/-30 12
C751	2113740F51	CAP CHIP REEL CL1 +/-30 100
C752–756	2113740F51	CAP CHIP REEL CL1 +/-30 100
C777	2113741F25	CAP CHIP CL2 X7R REEL 1000
C801	2113741B69	CAP CHIP CL2 X7R REEL 100000
C803, 804	2113740F35	CAP CHIP REEL CL1 +/-30 22
C810	2109822S04	CAP CHIP CER 10UF 35V 2220
C812	2311049A21	CAP TANT CHIP 22 10 20 A/P
C813–815		
	0180706G54:	
	2113918B09	CAP CHIP 10000pF 1000W 10% X7R
	0180706G55:	
	Not installed	
C830, 831		
	0180706G54:	
	2109822S08	CAP CERAMIC CHIP 47uF 20 16W
	0180706G55:	
	Not installed	
C832, 833	2113741B69	CAP CHIP CL2 X7R REEL 100000
C840–846	2113743E20	CAP CHIP .10 UF 10%
C847	2113741F49	CAP CHIP CL2 X7R REEL 10000
C848, 849	2113743E20	CAP CHIP .10 UF 10%
C851	2113741B69	CAP CHIP CL2 X7R REEL 100000
C852	2113741F49	CAP CHIP CL2 X7R REEL 10000
C853, 854	2113740F35	CAP CHIP REEL CL1 +/-30 22
C859	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C860	2109822S07	CAP CHIP CER 22UF 16V
C861	2113918A05	CAP CHIP 470 PF 1000V 10% X7R
C862	2113741B69	CAP CHIP CL2 X7R REEL 100000
C863	2109822S07	CAP CHIP CER 22UF 16V
C864, 865	2113741F17	CAP CHIP CL2 X7R REEL 470
C866	2113741B69	CAP CHIP CL2 X7R REEL 100000
C867	2113741F17	CAP CHIP CL2 X7R REEL 470
C868	2113741F49	CAP CHIP CL2 X7R REEL 10000
C869	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C870	2113741F25	CAP CHIP CL2 X7R REEL 1000
C871, 872	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C873	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C880, 881	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C882, 883	2113741B69	CAP CHIP CL2 X7R REEL 100000
C890	2113740F59	CAP CHIP REEL CL1 +/-30 220
C891	2113743E20	CAP CHIP .10 UF 10%
C901–912	2113743E20	CAP CHIP .10 UF 10%
C913, 914	2113740F55	CAP CHIP REEL CL1 +/-30 150
C937	2113740F55	CAP CHIP REEL CL1 +/-30 150
C940	2113740F55	CAP CHIP REEL CL1 +/-30 150
C943	2113740F31	CAP CHIP REEL CL1 +/-30 15
C944	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1001	2109822S04	CAP CHIP CER 10UF 35V 2220
C1002	2113743E20	CAP CHIP .10 UF 10%
C1003	2109822S04	CAP CHIP CER 10UF 35V 2220
C1004–1007	2113743E20	CAP CHIP .10 UF 10%
C1008,1009	2109822S04	CAP CHIP CER 10UF 35V 2220
C1010–1012	2113743E20	CAP CHIP .10 UF 10%
C1013	2109822S04	CAP CHIP CER 10UF 35V 2220

Parts List, EPIC II Board with BGA Processor-out, 0180706G54 and 0180706G55

Reference	Part Number	Description
C1014	2311049A23	CAP TANT CHIP 47 10 10
C1015	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1016,1017	2109822S04	CAP CHIP CER 10UF 35V 2220
C1020	2113743E20	CAP CHIP .10 UF 10%
C1022	2109822S04	CAP CHIP CER 10UF 35V 2220
C1023–1024	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1025–1027	2109822S04	CAP CHIP CER 10UF 35V 2220
C1031–1066	2113743E20	CAP CHIP .10 UF 10%
C1067	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1068–1075	2113743E20	CAP CHIP .10 UF 10%
C1076	2311049A45	CAP TANT CHIP 10 10 35
C1077	2113743E20	CAP CHIP .10 UF 10%
C1079–1082	2113743E20	CAP CHIP .10 UF 10%
C1085,1086	2113743E20	CAP CHIP .10 UF 10%
C1088	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1089	2113743E20	CAP CHIP .10 UF 10%
C1090	2109822S04	CAP CHIP CER 10UF 35V 2220
C1091,1092	2113743E20	CAP CHIP .10 UF 10%
C1093	2109822S04	CAP CHIP CER 10UF 35V 2220
C1094	2113743E20	CAP CHIP .10 UF 10%
C1095	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1096	2113743E20	CAP CHIP .10 UF 10%
C1097	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1099	2113743E20	CAP CHIP .10 UF 10%
C1102	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1103–1106	2113743E20	CAP CHIP .10 UF 10%
C1109	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1110	2113743E20	CAP CHIP .10 UF 10%
C1112–1114	2113743E20	CAP CHIP .10 UF 10%
C1116–1122	2113743E20	CAP CHIP .10 UF 10%
C1125–1127	2113743E20	CAP CHIP .10 UF 10%
C1129	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1130,1131	2113743E20	CAP CHIP .10 UF 10%
C1132	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1133–1146	2113743E20	CAP CHIP .10 UF 10%
C1147	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1148,1150	2113743E20	CAP CHIP .10 UF 10%
C1152	2113743E20	CAP CHIP .10 UF 10%
C1154	2113741F37	CAP CHIP CL2 X7R REEL 3300
C1155–1160	2113743E20	CAP CHIP .10 UF 10%
C1161	2113740F65	CAP CHIP CL1 +/-30 390 5%
C1162–1166	2113743E20	CAP CHIP .10 UF 10%
C1167	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1168–1187	2113743E20	CAP CHIP .10 UF 10%
C1190,1192	2113743E20	CAP CHIP .10 UF 10%
C1193	2109822S04	CAP CHIP CER 10UF 35V 2220
C1194–1197	2113743E20	CAP CHIP .10 UF 10%
C1199,1201	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1202	2113918A05	CAP CHIP 470 PF 1000V 10% X7R
C1203	2113740F67	CAP CHIPCL1 +/-30 470 5%
C1204–1206	2113918A05	CAP CHIP 470 PF 1000V 10% X7R
C1207,1208	2113743E20	CAP CHIP .10 UF 10%
C1209–1211	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1230	2113743E20	CAP CHIP .10 UF 10%
		diode (see note 1):
CR2	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR201	4882290T02	DIODE SI HOT CARRIER*HSMS2802*
CR252	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR253–257	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR259	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR301, 302	4813825A05	DIODE 30V HOT CARRIER MMBD301L
CR305, 306	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR851	4813833C10	DIODE GEN PUR 70V MMBD6050
CR852	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR901	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR1003	4813833B01	DIODE SCHOTTKY 1.0A 40V

Reference	Part Number	Description
		light emitting diode:
DS1	4883288Y03	LED, GREEN, SMT
DS2–7	4883288Y05	LED, RED, SMT
DS8	4883288Y03	LED, GREEN, SMT
DS800		
	0180706G54:	
	4883288Y03	LED, GREEN, SMT
	0180706G55:	
	Not installed	
DS801–803		
	0180706G54:	
	4883288Y05	LED, RED, SMT
	0180706G55:	
	Not installed	
		connector:
J1	0984963T02	BNC JACK PCB RT ANGLE
P7	0984524T12	D SUB, 9 PIN RECPT RT ANG PCB MOUNT
P10	0985237U03	JACK, 6/6 MODULAR, SHIELDED
P11	0985237U01	JACK MOD
P12	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
P15		
	0180706G54:	
	0184028Y01	CONNECTOR ASSY, DUAL ETHERNET
	0180706G55:	
	Not installed	
P651	0982286V03	SKT SIMM 22.5 DEGREES 80 POS
		inductor:
L202	2411087A44	COIL CHIP 33 UH 10 A/P
L300		
	0180706G54:	
	Not installed	
	0180706G55:	
	2411087A51	COIL CHIP 120 UH 10 A/P
L851	2484657R01	INDUCTOR BEAD CHIP
L852	2411087A29	COIL CHIP 1.8 UH 10 A/P
		transformer:
T851	2482074Y01	IND 47UH 20% .98A DCR .13A AM
T852	2582975X03	XFMR 10BASE2 SINGLE PORT (TRPL)
T872		
	0180706G54:	
	2583083Y01	XFMR 10BASE-T SINGLE PORT
	0180706G55:	
	Not installed	
		transistor (see note 1):
Q1	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q3	4813824A10	TSTR NPN 40V .2A GEN PURP
Q150–153	4813824A10	TSTR NPN 40V .2A GEN PURP
Q202, 203	4813824A10	TSTR NPN 40V .2A GEN PURP
Q204	4813824A17	XSTR PNP 40V .2A GENP B=100-300
Q205, 206	4813824A10	TSTR NPN 40V .2A GEN PURP
Q207	4813823A07	XSTR N-CH TMOS FET 2N7002LT1
Q250	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q251	4813824A17	XSTR PNP 40V .2A GENP B=100-300
Q252–256	4884955T01	TSTR BIASED 10KOHM NPN -8A-

Reference	Part Number	Description
Q302	4813824A17	XSTR PNP 40V .2A GENP B=100-300
Q303	4813824A10	TSTR NPN 40V .2A GEN PURP
Q304	4813823A08	XSTR P-CH FET SW MMBFJ175LT1
Q305	4813824A10	TSTR NPN 40V .2A GEN PURP
Q751, 752	4813824A10	TSTR NPN 40V .2A GEN PURP
Q753	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q901	4813824A10	TSTR NPN 40V .2A GEN PURP
Q1005	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q1006	4813822A16	TSTR PNP 100V 4A MJD253T4
		resistor, fixed:
R1–3	0662057A73	CHIP RES 10K OHMS 5%
R5–9	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R10	0662057A09	CHIP RES 22 OHMS 5%
R11,12	0662057A73	CHIP RES 10K OHMS 5%
R13	0662057A49	CHIP RES 1000 OHMS 5%
R15	0662057A73	CHIP RES 10K OHMS 5%
R16–19	0662057A73	CHIP RES 10K OHMS 5%
R20	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R21, 22	0662057A73	CHIP RES 10K OHMS 5%
R23	0611072A25	RES CHIP 100 5 1/4
R24, 25	0662057A49	CHIP RES 1000 OHMS 5%
R26	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R27	0662057A09	CHIP RES 22 OHMS 5%
R28	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R31	0662057Z47	RES CHIP 39.2 1% 0603
R32–35	0662057A49	CHIP RES 1000 OHMS 5%
R36	0611072A25	RES CHIP 100 5 1/4
R37	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R38	0611077A59	RES CHIP 240 5 1/8W
R39, 40	0662057A89	CHIP RES 47K OHMS 5%
R43	0662057A73	CHIP RES 10K OHMS 5%
R44	0662057A49	CHIP RES 1000 OHMS 5%
R45–48	0662057A73	CHIP RES 10K OHMS 5%
R49	0662057A09	CHIP RES 22 OHMS 5%
R153, 154	0662057A73	CHIP RES 10K OHMS 5%
R155–158	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R159	0662057A57	CHIP RES 2200 OHMS 5%
R160	0662057A59	CHIP RES 2700 OHMS 5%
R161–164	0662057A09	CHIP RES 22 OHMS 5%
R170	0662057A45	CHIP RES 680 OHMS 5%
R173	0662057Z47	RES CHIP 39.2 1% 0603
R175	0662057A65	CHIP RES 4700 OHMS 5%
R202	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R204, 205	0662057A95	CHIP RES 82K OHMS 5%
R206	0662057B10	CHIP RES 330K OHMS 5%
R207	0611079B32	RES FIXED CHIP 240K 5 1/10 A/P
R209	0662057A67	CHIP RES 5600 OHMS 5%
R210	0662057A59	CHIP RES 2700 OHMS 5%
R211	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R212	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R213	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R214	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R215	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R216	0662057T98	RES CHIP 1.0 MEG
R217	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R218	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R219	0662057A85	CHIP RES 33K OHMS 5%
R220, 221	0662057A65	CHIP RES 4700 OHMS 5%
R223	0662057T98	RES CHIP 1.0 MEG
R230, 231	0662057A73	CHIP RES 10K OHMS 5%
R232	0662057A59	CHIP RES 2700 OHMS 5%
R233–235	0662057A73	CHIP RES 10K OHMS 5%
R236	0662057A59	CHIP RES 2700 OHMS 5%
R237	0662057A89	CHIP RES 47K OHMS 5%
R238, 239	0662057A73	CHIP RES 10K OHMS 5%
R240	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R241–247	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R248, 249	0662057A73	CHIP RES 10K OHMS 5%
R250	0611079A44	RES FIXED CHIP 56 5 1/10W A/P
R251, 252	0662057A59	CHIP RES 2700 OHMS 5%
R253	0662057A73	CHIP RES 10K OHMS 5%
R254	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R255	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R256	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R257	0662057A73	CHIP RES 10K OHMS 5%
R258	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R259	0662057A41	CHIP RES 470 OHMS 5%
R260	0662057A73	CHIP RES 10K OHMS 5%
R261	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R262	0662057A49	CHIP RES 1000 OHMS 5%
R263, 264	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R265	0611079A68	RES FIXED CHIP 560 5 1/10W A/P
R266–270	0662057A09	CHIP RES 22 OHMS 5%
R301, 302	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R303	0611079E09	RES CHIP 121.0K 1/10W 1%
R304	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R305	0662057A85	CHIP RES 33K OHMS 5%
R306	0662057A57	CHIP RES 2200 OHMS 5%
R307	0662057A65	CHIP RES 4700 OHMS 5%
R308	0662057A87	CHIP RES 39K OHMS 5%
R309	0662057A77	CHIP RES 15K OHMS 5%
R310	0662057A87	CHIP RES 39K OHMS 5%
R311	0662057P10	RES CHIP 10.0K 1% 30X60
R312	0611079G18	RES CHIP 15.0K 1/10W 1% 0805
R313	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R314	0662057T63	CHIP RES 39.2K OHMS 1 %
R315	0611079D93	RES CHIP 909.0 1/10W 1%
R316	0662057A41	CHIP RES 470 OHMS 5%
R317	0662057T63	CHIP RES 39.2K OHMS 1 %
R318	0662057A77	CHIP RES 15K OHMS 5%
R320	0662057A63	CHIP RES 3900 OHMS 5%
R321	0611079D69	RES CHIP 511.0 1/10W 1%
R322	0662057A81	CHIP RES 22K OHMS 5%
R323	0611079E09	RES CHIP 121.0K 1/10W 1%
R324	0662057T63	CHIP RES 39.2K OHMS 1 %
R325	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R327	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R328	0662057T63	CHIP RES 39.2K OHMS 1 %
R329	0611079G69	RES CHIP 51.1K 1/10W 1% 0805
R330	0662057P95	RES CHIP 100.0K 1% 30X60
R331	0662057A73	CHIP RES 10K OHMS 5%
R332	0662057A59	CHIP RES 2700 OHMS 5%
R333	0611079E09	RES CHIP 121.0K 1/10W 1%
R334	0662057A59	CHIP RES 2700 OHMS 5%
R335	0662057T62	CHIP RES 8.25K OHMS 1 %
R336	0662057A65	CHIP RES 4700 OHMS 5%
R337	0662057A41	CHIP RES 470 OHMS 5%
R339, 340	0662057A87	CHIP RES 39K OHMS 5%
R341	0662057A77	CHIP RES 15K OHMS 5%
R342	0662057A59	CHIP RES 2700 OHMS 5%
R343	0611079G18	RES CHIP 15.0K 1/10W 1% 0805
R345	0662057A87	CHIP RES 39K OHMS 5%
R346, 347	0662057A81	CHIP RES 22K OHMS 5%
R348	0611079D69	RES CHIP 511.0 1/10W 1%
R349, 350	0662057T68	RES CHIP 1.0K 1% 30*60
R351	0662057A49	CHIP RES 1000 OHMS 5%
R352	0662057P22	RES CHIP 22.1K 1% 30X60
R353	0662057A87	CHIP RES 39K OHMS 5%
R354	0662057A93	CHIP RES 68K OHMS 5%
R356	0611079D93	RES CHIP 909.0 1/10W 1%
R357	0662057A09	CHIP RES 22 OHMS 5%
R360	0662057A59	CHIP RES 2700 OHMS 5%
R361	0662057T62	CHIP RES 8.25K OHMS 1 %
R362, 363	0662057T63	CHIP RES 39.2K OHMS 1 %
R365	0662057P10	RES CHIP 10.0K 1% 30X60

Parts List, EPIC II Board with BGA Processor-out, 0180706G54 and 0180706G55

Reference	Part Number	Description
R366	0662057P22	RES CHIP 22.1K 1% 30X60
R367	0662057A59	CHIP RES 2700 OHMS 5%
R369	0662057A79	CHIP RES 18K OHMS 5%
R370	0662057A73	CHIP RES 10K OHMS 5%
R371	0662057A81	CHIP RES 22K OHMS 5%
R372	0662057T63	CHIP RES 39.2K OHMS 1 %
R373, 377	0662057A87	CHIP RES 39K OHMS 5%
R379, 380	0662057A73	CHIP RES 10K OHMS 5%
R383	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R384, 385	0662057A55	CHIP RES 1800 OHMS 5%
R386–389	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R391, 392	0662057A73	CHIP RES 10K OHMS 5%
R393	0662057A65	CHIP RES 4700 OHMS 5%
R395	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R396		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	Not installed	
R401-406	0662057A73	CHIP RES 10K OHMS 5%
R408, 409	0662057A73	CHIP RES 10K OHMS 5%
R410	0662057A65	CHIP RES 4700 OHMS 5%
R412	0662057A49	CHIP RES 1000 OHMS 5%
R413, 414	0662057A73	CHIP RES 10K OHMS 5%
R415	0662057A65	CHIP RES 4700 OHMS 5%
R416	0662057A73	CHIP RES 10K OHMS 5%
R417	0662057A57	CHIP RES 2200 OHMS 5%
R418–444	0662057A65	CHIP RES 4700 OHMS 5%
R445–451		
453–460	0662057A73	CHIP RES 10K OHMS 5%
R461, 462	0662057A65	CHIP RES 4700 OHMS 5%
R463–468	0662057A73	CHIP RES 10K OHMS 5%
R469, 470	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R502	0662057P95	RES CHIP 100.0K 1% 30X60
R503	0662057A73	CHIP RES 10K OHMS 5%
R504	0662057P95	RES CHIP 100.0K 1% 30X60
R506	0662057A45	CHIP RES 680 OHMS 5%
R508–513	0662057A73	CHIP RES 10K OHMS 5%
R514	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R517, 518	0662057A09	CHIP RES 22 OHMS 5%
R519	0662057A73	CHIP RES 10K OHMS 5%
R520	0662057A79	CHIP RES 18K OHMS 5%
R521	0662057A73	CHIP RES 10K OHMS 5%
R527, 528	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R529	0662057T98	RES CHIP 1.0 MEG
R535–585	0662057A09	CHIP RES 22 OHMS 5%
R601–613	0662057A11	CHIP RES 27 OHMS 5%
R614		
	0180706G54:	
	0662057A18	CHIP RES 51 OHMS 5%
	0180706G55:	
	0662057A11	CHIP RES 27 OHMS 5%
R615-624	0662057A11	CHIP RES 27 OHMS 5%
R625-628	0662057A09	CHIP RES 22 OHMS 5%
R629-688,690	0662057A11	CHIP RES 27 OHMS 5%
R691		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	0662057A09	CHIP RES 22 OHMS 5%
R701	0662057A09	CHIP RES 22 OHMS 5%
R702	0662057A49	CHIP RES 1000 OHMS 5%
R703	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R704	0662057A49	CHIP RES 1000 OHMS 5%
R705,706	0662057Z47	RES CHIP 39.2 1% 0603
R707	0662057A45	CHIP RES 680 OHMS 5%
R751-753	0662057A73	CHIP RES 10K OHMS 5%
R754	0662057A49	CHIP RES 1000 OHMS 5%
R755	0662057P95	RES CHIP 100.0K 1% 30X60
R756, 757	0662057A73	CHIP RES 10K OHMS 5%
R758–760	0662057A49	CHIP RES 1000 OHMS 5%
R761–768	0662057A73	CHIP RES 10K OHMS 5%
R770–775	0662057A73	CHIP RES 10K OHMS 5%
R776	0662057A87	CHIP RES 39K OHMS 5%
R777-781	0662057A73	CHIP RES 10K OHMS 5%
R782	0662057P95	RES CHIP 100.0K 1% 30X60
R784-791	0662057A73	CHIP RES 10K OHMS 5%
R794	0662057A65	CHIP RES 4700 OHMS 5%
R796	0662057A49	CHIP RES 1000 OHMS 5%
R797-802	0662057A73	CHIP RES 10K OHMS 5%
R823	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R824	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R828	0662057A73	CHIP RES 10K OHMS 5%
R835, 837-842	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R901, 902	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R903–905	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R906–929	0611072A25	RES CHIP 100 5 1/4
R930	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R931, 932	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R935	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R936	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R937–939	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R940	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R941	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R942, 943	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1012, 1013	0662057P10	RES CHIP 10.0K 1% 30X60
R1014	0611079F20	RES CHIP 1.58K 1/10W 1% 0805
R1015	0611079D35	RES CHIP 226.0 1/10W 1%
R1026	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R1032	0662057A45	CHIP RES 680 OHMS 5%
R1036	0662057A73	CHIP RES 10K OHMS 5%
R1037	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R1038	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R1039, 1040	0662057A49	CHIP RES 1000 OHMS 5%
R1043	0611079D93	RES CHIP 909.0 1/10W 1%
R1044	0662057T62	CHIP RES 8.25K OHMS 1 %
R1201	0611072A25	RES CHIP 100 5 1/4
R1202	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1203	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1204		
	0180706G54:	
	0611079D69	RES CHIP 511.0 1/10W 1%
	0180706G55:	
	0611079D55	RES CHIP 365.0 1/10W 1%
R1205–1208	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1209		
	0180706G54:	
	0611079D69	RES CHIP 511.0 1/10W 1%
	0180706G55:	
	0611079D55	RES CHIP 365.0 1/10W 1%
R1210	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1211, 1212	0662057A73	CHIP RES 10K OHMS 5%
R1213, 1214	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1215	0662057A73	CHIP RES 10K OHMS 5%
R1216	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R1217	0662057A41	CHIP RES 470 OHMS 5%
R1218	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R1219–1223	0662057A41	CHIP RES470 OHMS 5%
R1224	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1225, 8000-8004	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8009	0662057P10	RES CHIP 10.0K 1% 30X60
R8012	0662057P39	RES CHIP 475
R8013	0662057T52	CHIP RES 332 OHMS 1 %
R8019	0662057P69	RES CHIP 12.4K
R8021	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8023, 8024	0662057P10	RES CHIP 10.0K 1% 30X60
R8028, 8029	0662057P10	RES CHIP 10.0K 1% 30X60

Reference	Part Number	Description
R8030–8032	0662057P10	RES CHIP 10.0K 1% 30X60
R8035	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8037, 8038	0662057P10	RES CHIP 10.0K 1% 30X60
R8040	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8041–8043		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	Not installed	
R8044, 8045		
	0180706G54:	
	Not installed	
	0180706G55:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8046	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8048		
	0180706G54:	
	Not installed	
	0180706G55:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8050–8052	0662057T52	CHIP RES 332 OHMS 1 %
R8053	0611079F20	RES CHIP 1.58K 1/10W 1% 0805
R8054	0662057P10	RES CHIP 10.0K 1% 30X60
R8055, 8057		
	0180706G54:	
	0662057P10	RES CHIP 10 K 1% 30X60
	0180706G55:	
	0662057A73	CHIP RES 10K OHMS 5%
R8058		
	0180706G54:	
	0662057T52	CHIP RES 332 OHM 1%
	0180706G55:	
	Not installed	
R8059		
	0180706G54:	
	Not installed	
	0180706G55:	
	0662057A73	CHIP RES 10K OHMS 5%
R8060, 8061		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	Not installed	
R8062	0662057P69	RES CHIP 12.4K
R8064, 8066, 8067	0662057Y03	RES CHIP 78.7 1% 0603
R8068–8071	0611077F12	RES CHIP 1500 1 1/8W
R8072	0611079F01	RES CHIP 1.00K 1/10W 1% 0805
R8073	0611079G35	RES CHIP 22.6K 1/10W 1% 0805
R8074	0611079F47	RES CHIP 3.01K 1/10W 1% 0805
R8075	0662057A77	CHIP RES 15K OHMS 5%
R8076	0662057P10	RES CHIP 10.0K 1% 30X60
R8077, 8078	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R8079	0611072B22	RES CHIP 1 MEG 5 1/4
R8080–8097		
	0180706G54:	
	0662057T44	CHIP RES 49.9 OHM 1%
	0180706G55:	
	Not installed	
R8098, 8099	0683106Y01	RES 11.5 OHM 1% 0603
R8100	0611072A25	RES CHIP 100 5 1/4
R8101	0611079D55	RES CHIP 365.0 1/10W 1%
R8102	0662057T49	CHIP RES 221 OHMS 1 %
R8103	0662057P39	RES CHIP 475
R8110–8113	0662057P10	RES CHIP 10.0K 1% 30X60
R8121, 8125, 8131, 8136, 8139		
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8151		
	0180706G54:	
	0662057P10	RES CHIP 10 K 1% 30X60
	0180706G55:	
	0662057B47	CHIP RES 0OHMS +-.050 OHMS
R8052		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	Not installed	
R8153		
	0180706G54:	
	Not installed	
	0180706G55:	
	0662057A73	CHIP RES 10K OHMS 5%
R8155		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	Not installed	
R8156		
	0180706G54:	
	Not installed	
	0180706G55:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8159, 8160	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R8163		
	0180706G54:	
	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
	0180706G55:	
	Not installed	
R8170	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
		switch:
S0–3	4083621T01	SWPB SPST SURFACE MOUNT
S501	4083706T02	SWITCH 4 POSTN SMT SPST
S701	4082280Y01	SWOT PROGRAMMABLE SHUNT
		integrated circuit (see note 1):
U1	5113803A13	IC 56002 DSP 66MHZ CLK
U2–4	5184531T09	IC SRAM 32KX8 12NS CY7C199-12VI
U5	5113808A07	IC AND QUAD 2 INP MC74AC08D
U6	5184625T05	IC ASIC DSP GLUE 2 120QFP
U7	5113808A05	IC INV HEX MC74AC04D
U8	5185486U01	IC BFR OCT INV 3-ST 74__T540
U9–11	5184531T09	IC SRAM 32KX8 12NS CY7C199-12VI
U152,153	5184288T01	IC BUS XCVR _65176_
U154	5113808A39	IC LINE DRVR OCT 3T NON INV
U155	5113805A54	IC OCT BFR LINE DRV/RCVR HC244
U201	5184726T02	REFERENCE OSC MODULE
U202	5113812A26	IC PLL FREQ SYNTH
U203	5113805A86	IC QUAD ANALOG MUX/DEMUX
U204	5113805A89	IC HCM05 MULTIVBRTE DUAL 4538
U205, 207	5113808A13	IC INV HEX SCHMITT TRIG ACT14
U302	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U303, 304	5182276R86	IC CMOS 12 BIT SER INP DAC
U305	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U306, 308	5185222U02	IC FLTR 8TH ORD BESSEL _292_
U309	5113805A85	IC TRIP 2 CH ANALOG MUX/DEMUX
U311	5182802R38	IC DIG POT DL 10K _1267SN-10_
U314	5113805A83	IC MUX/DMUX 8-CH ANALOG HC4051

Parts List, EPIC II Board with BGA Processor-out, 0180706G54 and 0180706G55

Reference	Part Number	Description
U315	5182276R85	IC SNG SUPPLY 12BIT ADC MAX190
U316	5184743T01	IC CODEC PCM 5V_145480
U317	5182952X01	IC 1W AUDIO PWR AMP 4860
U318, 319	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U401	5113802B03	IC QD COMM CNTRL W/ETHERNET 25MHZ
U402		
	0180706G54:	
	5113801D15	
	0180706G55:	
	0982297V02	SOCKET 18X18 PGA 179 POS
U501–504	5113808A39	IC LINE DRVR OCT 3T NON INV
U505–508	5113808A41	IC LINE DRVR/RCVR OCT 3ST
U509	5113808A05	IC INV HEX MC74AC04D
U510	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U511	5113808A55	IC LATCH TRANSP OCT D 3ST
U512	5113808A02	IC NAND QUAD 2 INP MC74ACT00D
U513	5182046W01	IC CLOCK DRIVER_74CT2524_SM
U515	5113815A02	IC UNDERVOLT SENSING CKT
U516	5113805A03	IC QUAD 2INP NAND 74HC03AD
U517	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U518	5113808A07	IC AND QUAD 2 INP MC74AC08D
U519	5113805A89	IC HCM05 MULTIVBRTE DUAL 4538
U520	5113808A16	IC FF DUAL D MC74AC74D
U523	PC509F025000010101	PROGRAMMED PLD EPIC II
U524	5113805A04	IC INVTR HEX 74HC04AD
U601	0982286V04	SKT SIMM 22.5 DEGREES 72 POS
U602	5113808A26	IC MUX DUAL 4INP MC74ACT153D
U603–605	5113808A28	IC MUX QUAD 2INP NON INV
U651–654		
	0180706G54:	
	Not installed	
	0180706G55:	
	0982451V13	SOCKET,IC 32 PIN SM T & R
U655	5184293T02	IC SM EEPROM 8K X 8 _28C64_
U655	0913900A23	32 POS PLCC SOCKET SMT
U658	5113808A39	IC LINE DRVR OCT 3T NON INV
U701	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U702	5113808A38	IC LINE DRVR OCT 3T NON INV
U703	5113808A16	IC FF DUAL D MC74AC74D
U751–758	5182043W01	IC OCT TRANS/REG AC652 SM
U759–764	5113805A54	IC OCT BFR LINE DRV/RCVR HC244
U765	5113808A13	IC INV HEX SCHMITT TRIG ACT14
U766	5182550Y03	NOR/OR 8#NAME?
U767	5113805A54	IC OCT BFR LINE DRV/RCVR HC244

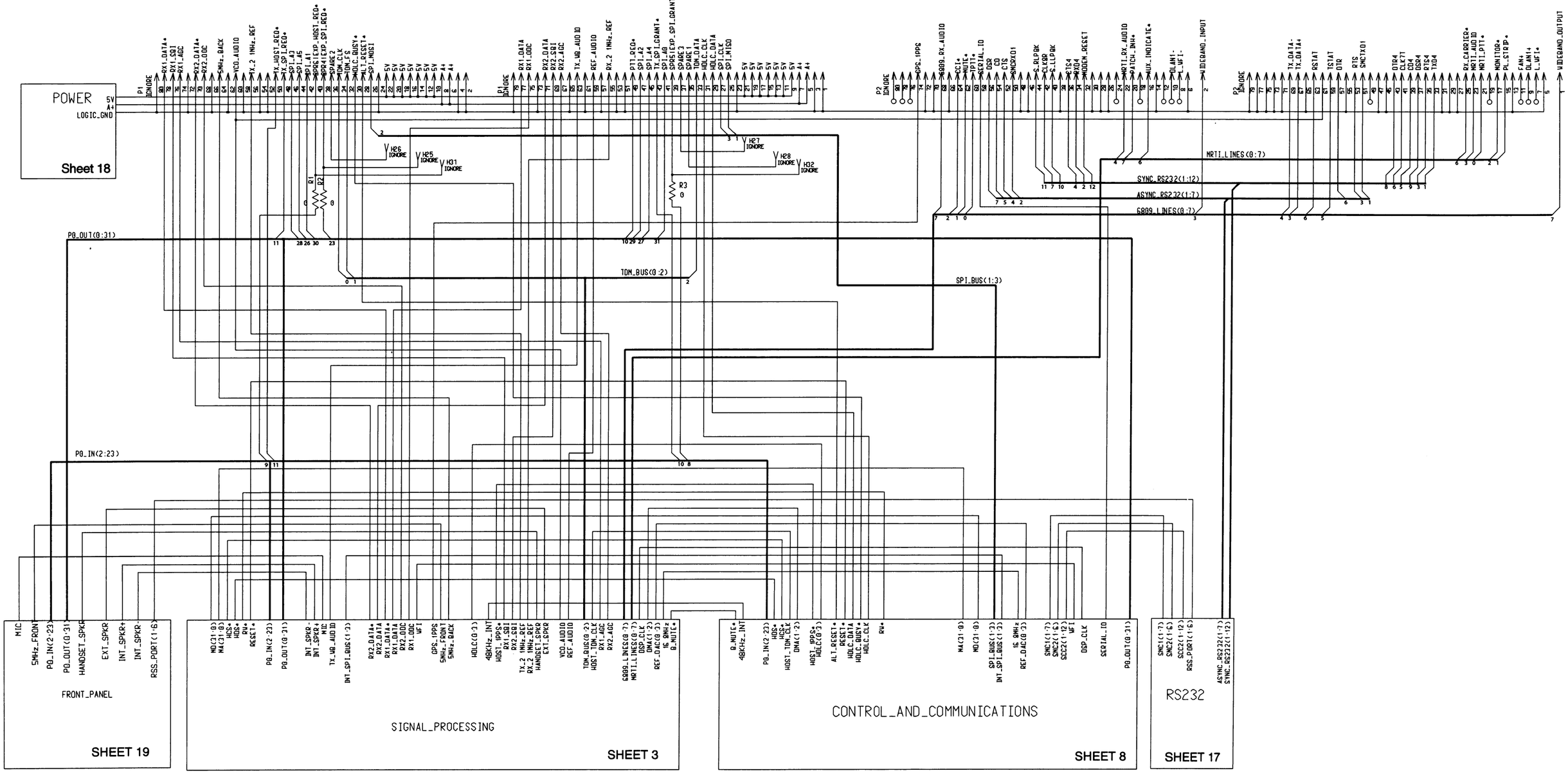
Reference	Part Number	Description
U851	5184789T06	IC ETHNT INTFC ADPTR 908
U852	5184834T09	IC COAX TRNSCVR INTRFC 8392 IND
U863	5182056Y02	IC RGLTR FLYBK LT 142515
U873	5182681Y01	ADJ LOW DROPOUT POS REG 800MA SOT-2
U876	5113837A13	IC BUFFER 16 BIT
U877	5113837A18	IC MUX QUAD 2-IN NON-INV
U878	5113808A05	IC INV HEX MC74AC04D
U879	5113808A07	IC AND QUAD 2 INP MC74AC08D
U880	5113839M01	IC NAND QUAD 2-IN
U881	5113808A05	IC INV HEX MC74AC04D
U882	5113839M01	IC NAND QUAD 2-IN
U883	5113837A18	IC MUX QUAD 2-IN NON-INV
U884	5113837A05	IC OR QUAD 2 IN MC74LCX32DTR2
U903, 904	5184288T01	IC BUS XCVR _65176_
U905–907	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1002	5113816G14	IC ADJ. POSITIVE REG,500MA
U1003	5113816A07	REG 5V POS 500MA MC78M05BDTRK
U1004	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U1005	5113816A01	IC ADJ. LOW DROPOUT POS,100MA
VR1001	5113815A06	IC MICROPOWER V REF,1.235 V
		crystal (see note 1):
Y1	4882336V02	CRYSTAL OSC SURFACE MOUNT
Y501	4882336V01	OSCILLATOR CLOCK 25 MHZ
Y502	4884450T02	CRYSTAL UNIT 3.6864 MHZ
Y851	4884450T12	XTAL SMCP 12A 20MHZ
		non-referenced items:
	8482985Y03	PCB ,EPIC STA,CTRL W/CER CAP
	0784775T01	STIFFNER PC BD EDGE
	0784775T01	STIFFNER PC BD EDGE
	5482006W03	BARCODE LABEL
	6182512W03	LIGHTPIPES (8)
	5480139S02	LBL THERMAL XFER 2.5

NOTE 1: For optimum performance, diodes, transistors, lightpipes, and integrated circuits must be ordered by Motorola part number.

NOTE 2: Unless otherwise noted, all parts are common to both circuit boards covered in this parts list. Differences between the board configurations are noted where applicable. Components present on one of the boards but not the other are noted as "not installed."

CONTROL BOARD

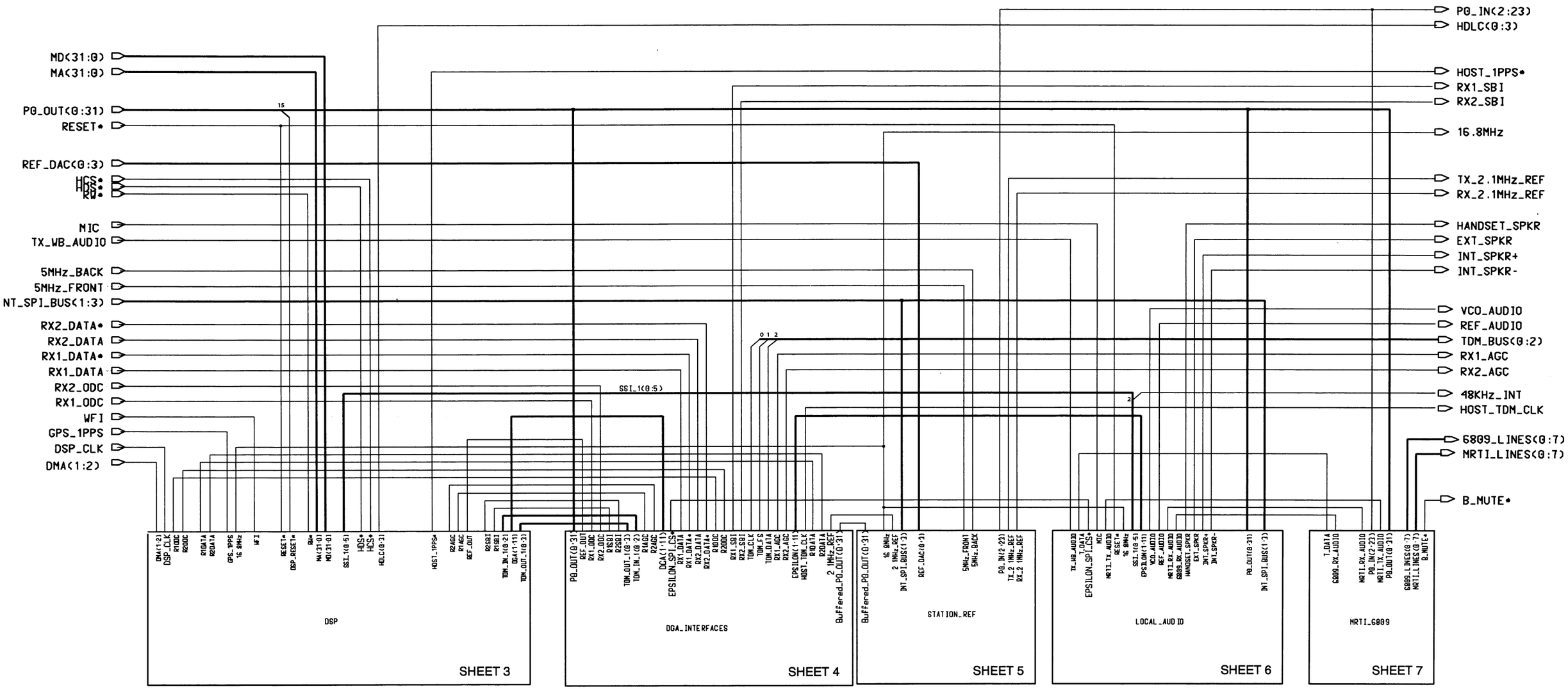
MODEL CLN7692B



OVERALL BOARD BLOCK DIAGRAM

CONTROL BOARD

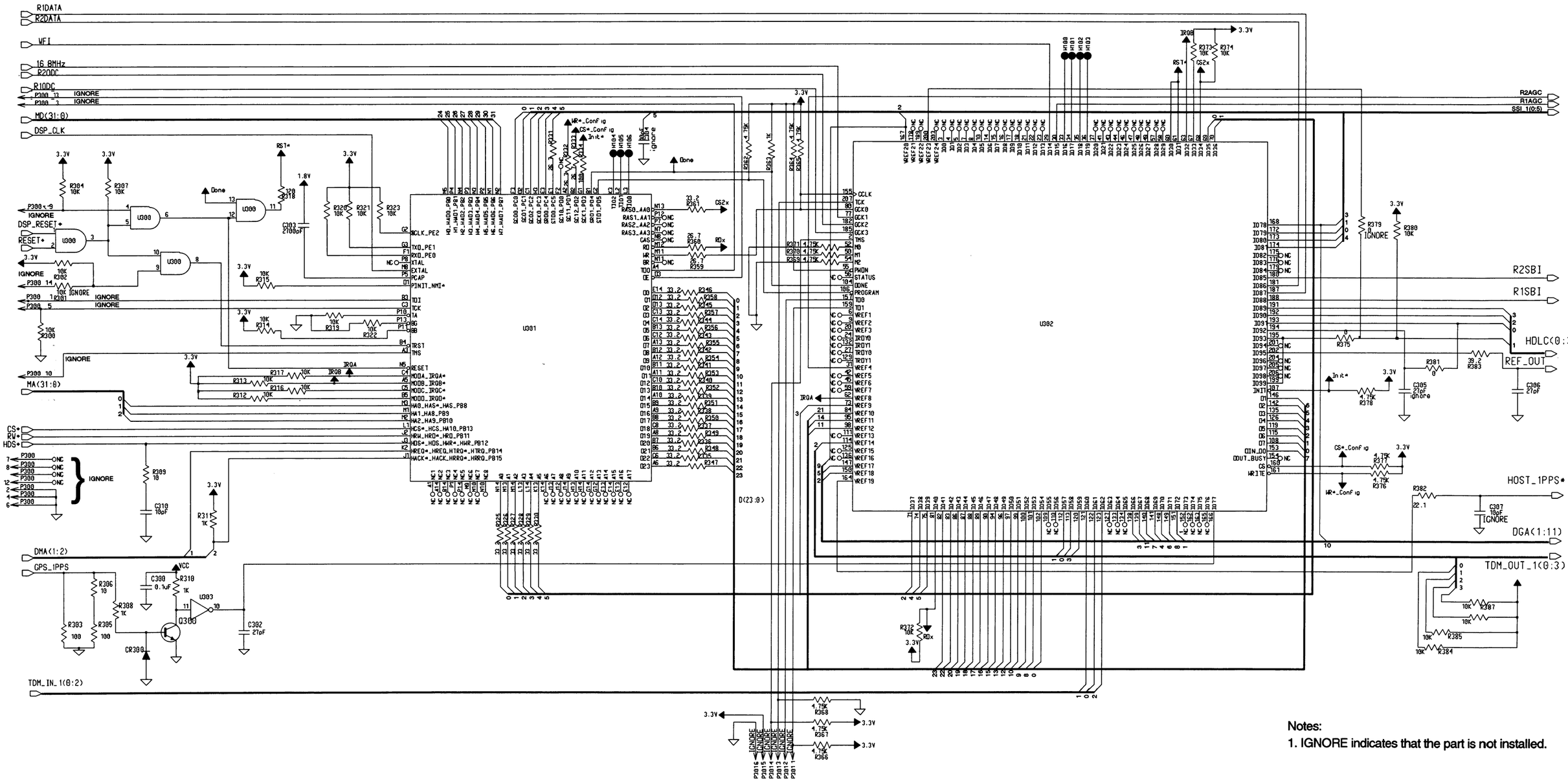
MODEL CLN7692B



SIGNAL PROCESSING

CONTROL BOARD

MODEL CLN7692B



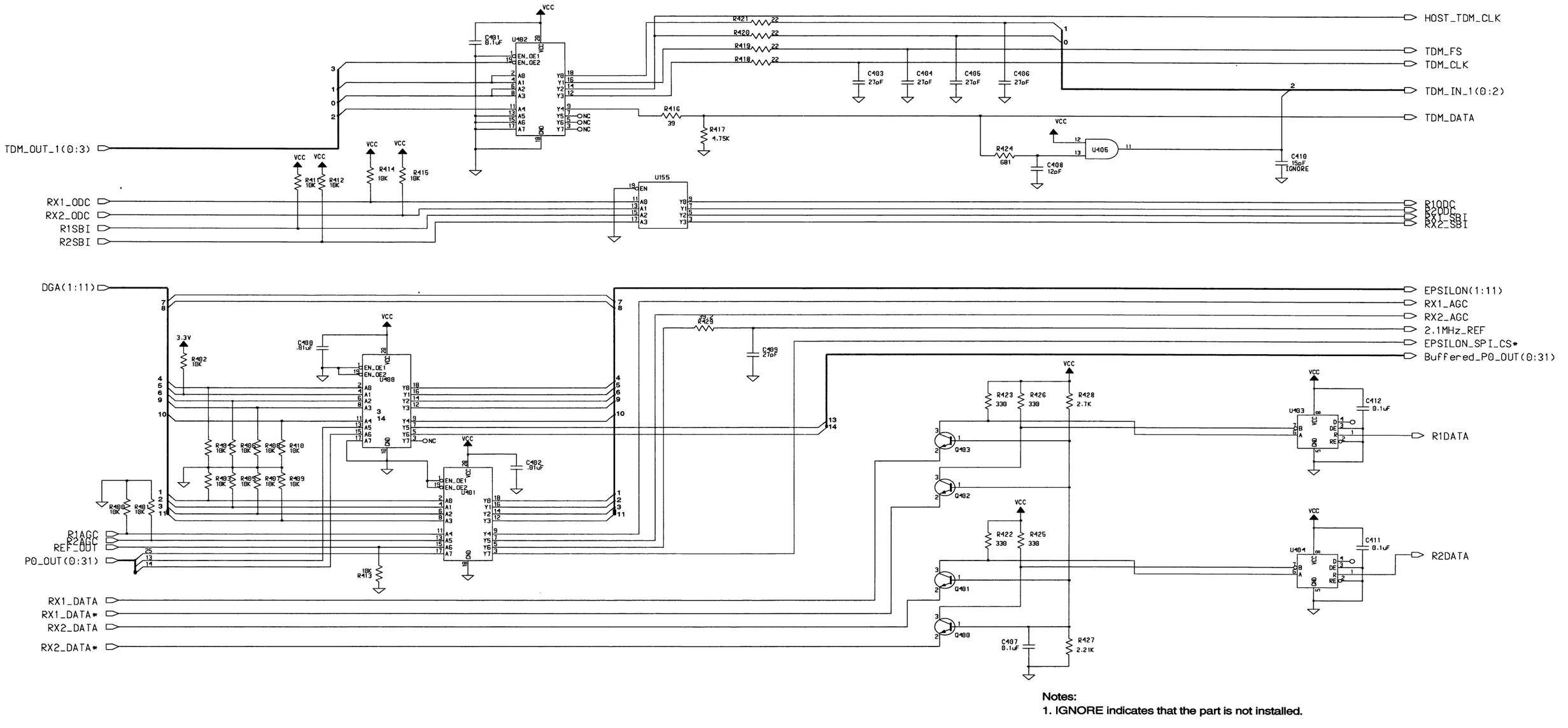
Notes:

1. IGNORE indicates that the part is not installed.

DIGITAL SIGNAL PROCESSOR

CONTROL BOARD

MODEL CLN7692B



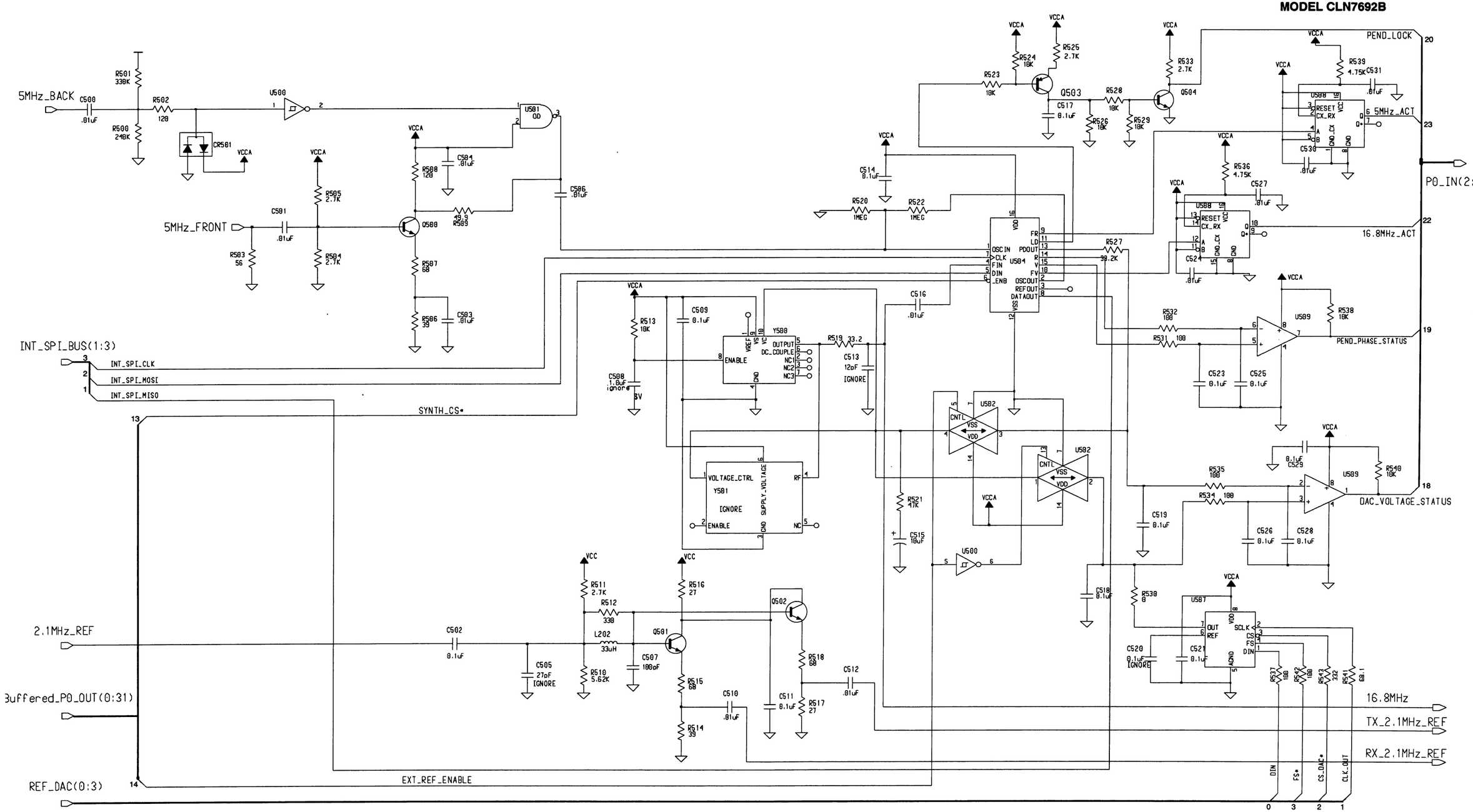
Notes:

1. IGNORE indicates that the part is not installed.

DGA INTERFACES

CONTROL BOARD

MODEL CLN7692B



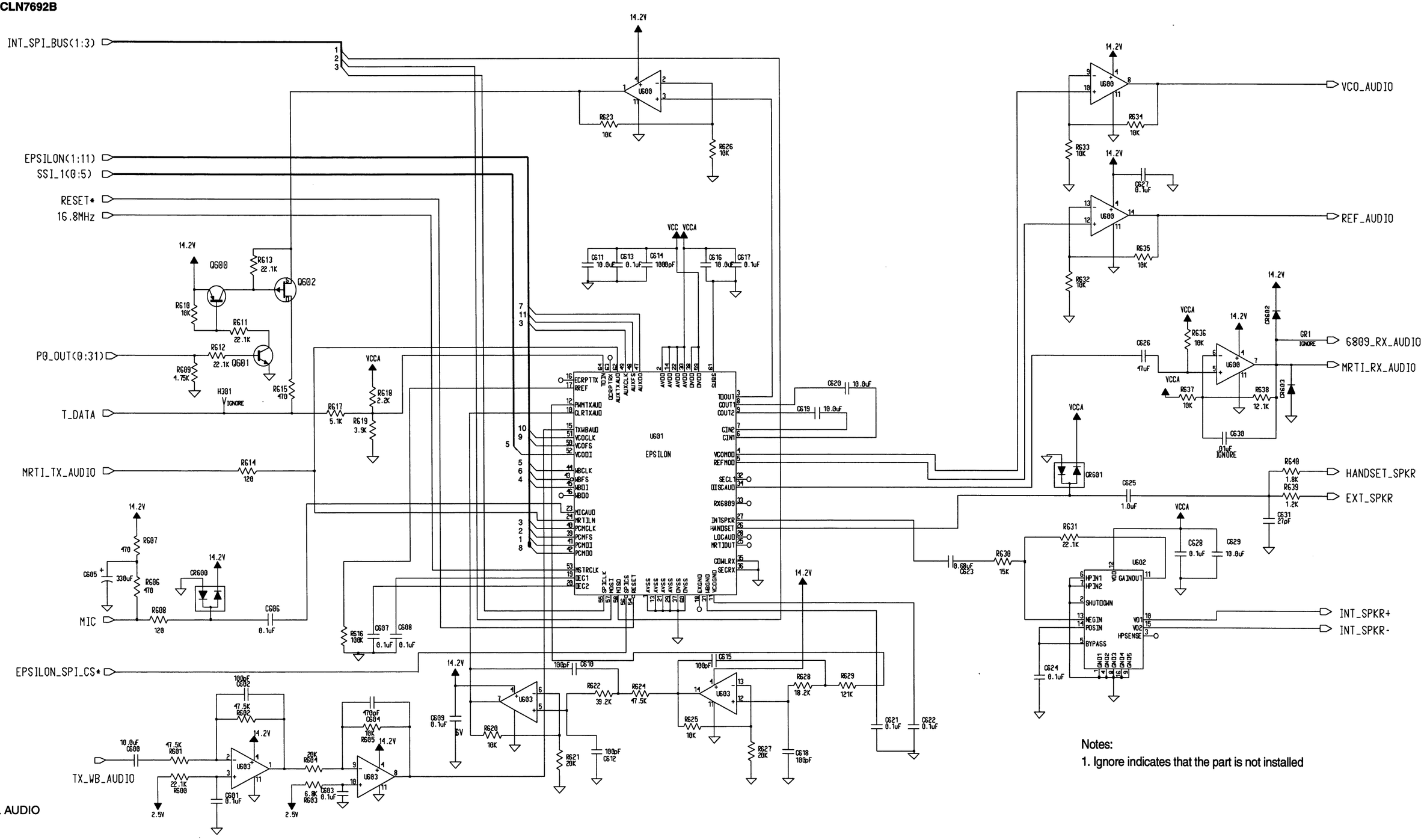
Notes:

1. IGNORE indicates that the part is not installed.

STATION REFERENCE

CONTROL BOARD

MODEL CLN7692B



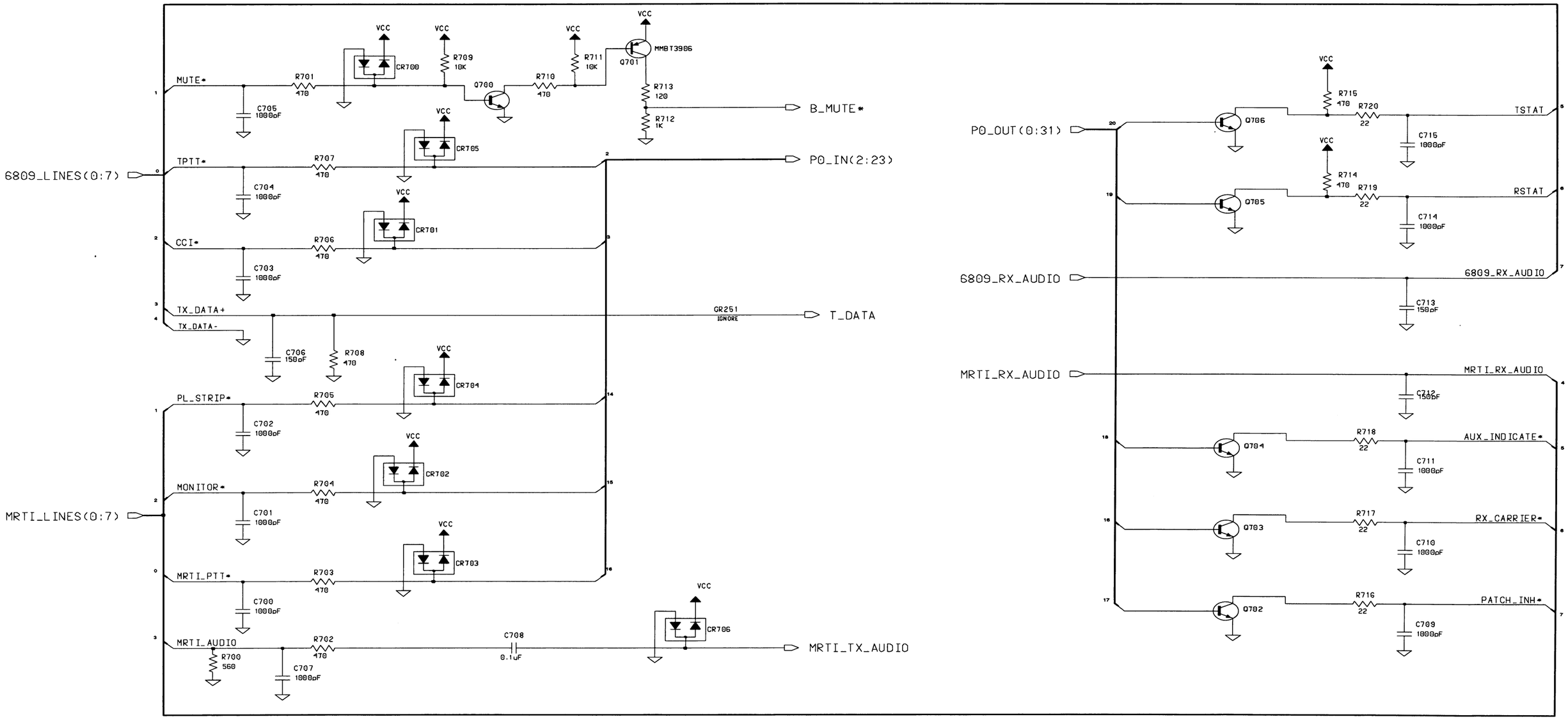
Notes:

1. Ignore indicates that the part is not installed

LOCAL AUDIO

CONTROL BOARD

MODEL CLN7692B

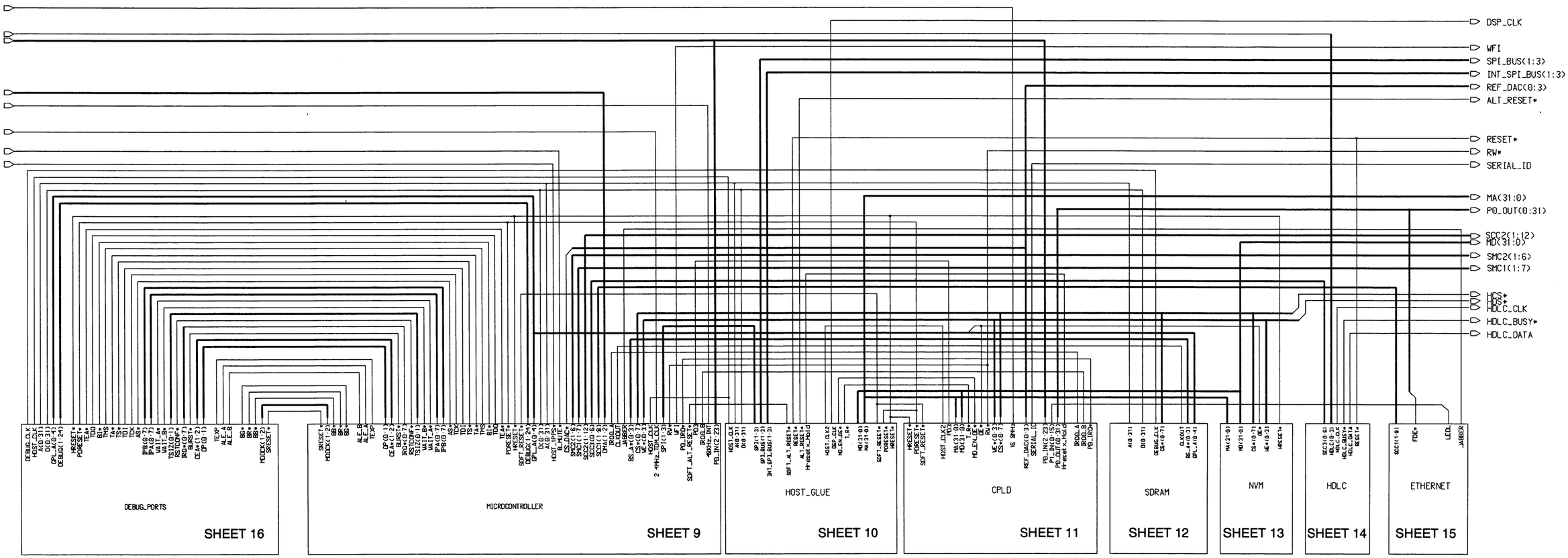


Notes:

1. Ignore indicates that the part is not installed

CONTROL BOARD

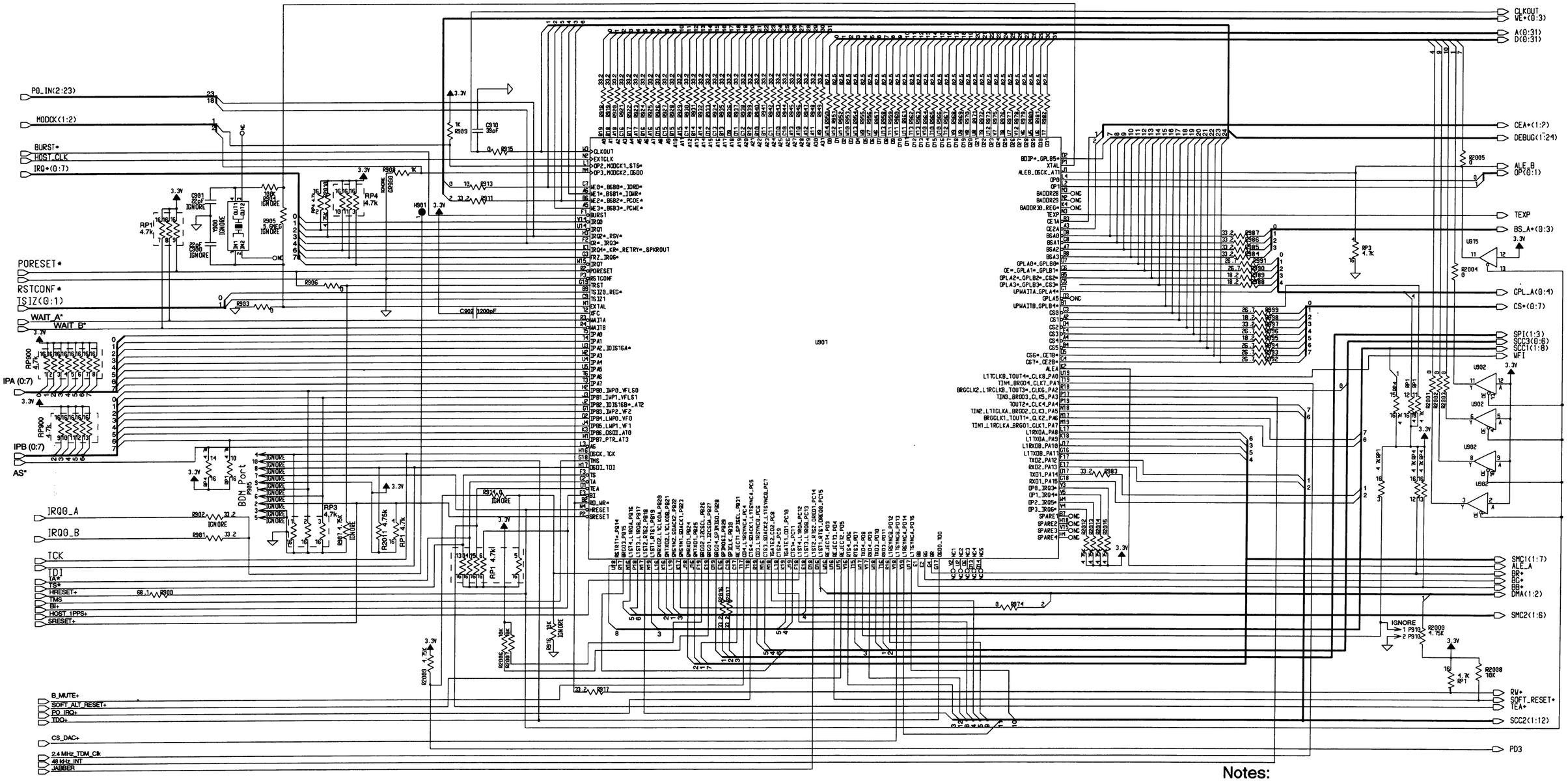
MODEL CLN7692B



CONTROL AND COMMUNICATIONS

CONTROL BOARD

MODEL CLN7692B

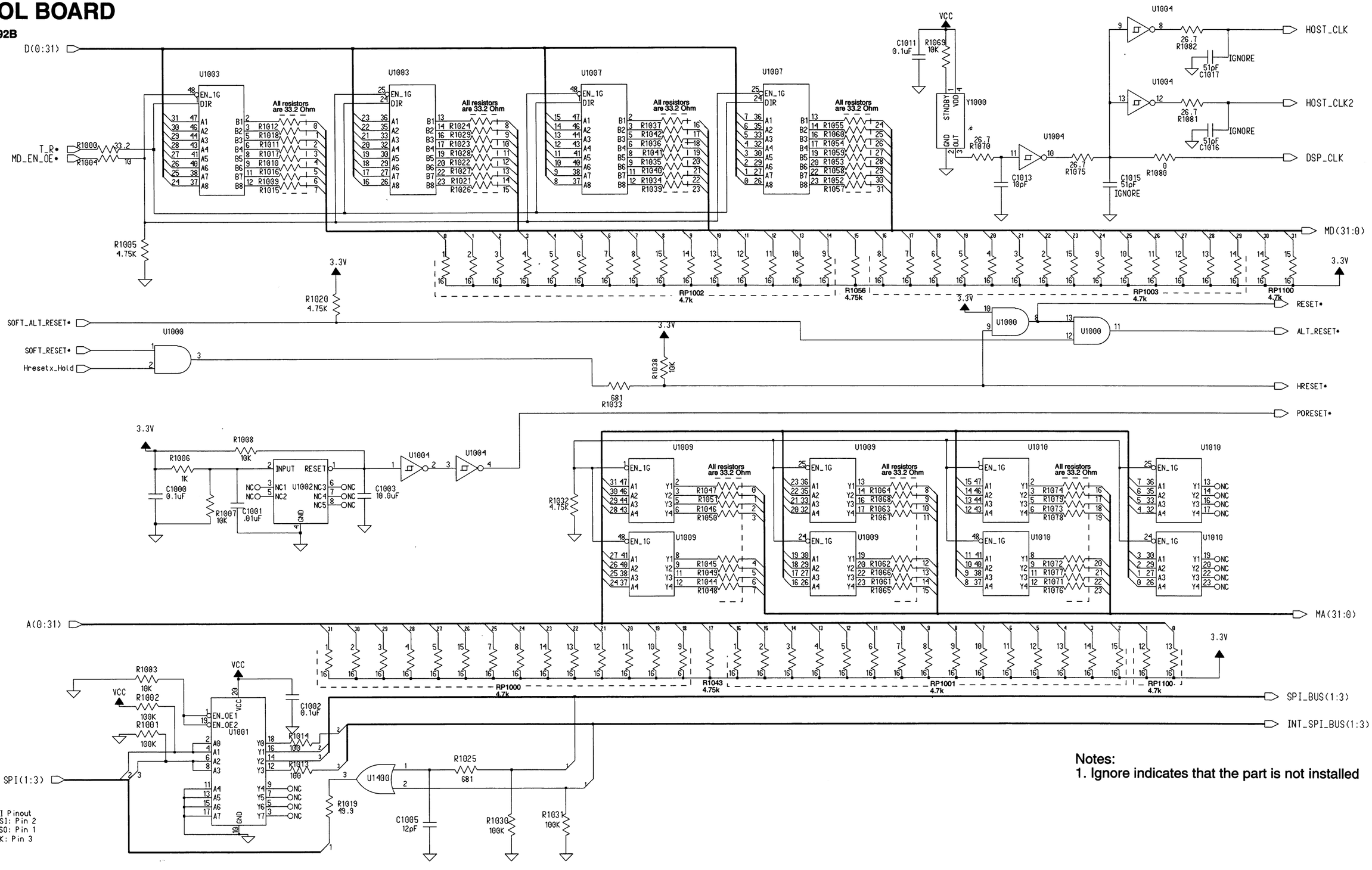


Notes:
1. Ignore indicates that the part is not installed

MICROCONTROLLER

CONTROL BOARD

MODEL CLN7692B



Notes:
1. Ignore indicates that the part is not installed

HOST GLUE

CONTROL BOARD

MODEL CLN7692B

U1101

U1102

U1100 LED Driver Buffer

P1100 AMP Connector ISP

Q1100 Serial ID

Q1101

Q1102

U303 EXP_SPI_REQ*

SERIAL_ID

P0_IN(2:23)

MD(31:0)

HOST_CLK2

SOFT_RESET*

WE*(0:3)

OE*

MA(31:0)

RW*

CS*(0:7)

HRESET*

PURESET*

PD3

16.8MHz

P1_IN(0:15)

JTAG(0:3)

Int_P0_Out(31:26,11,10)

Int_P0_Out(0:7)

P0_IN

P0_OUT(0:31)

Programmable Hreset Hold

CODE(0:1)

MD_EN_OE*

REF_DAC(0:3)

IRQ0_B

IRQ0_A

P0_IRQ*

Hresetx_Hold

0- DIN
1- CLK_out
2- CS_DAC*
3 - FSx

Module ID P1_IN(15-12) 0000
Version ID P1_IN(11-7) 01000

Notes:

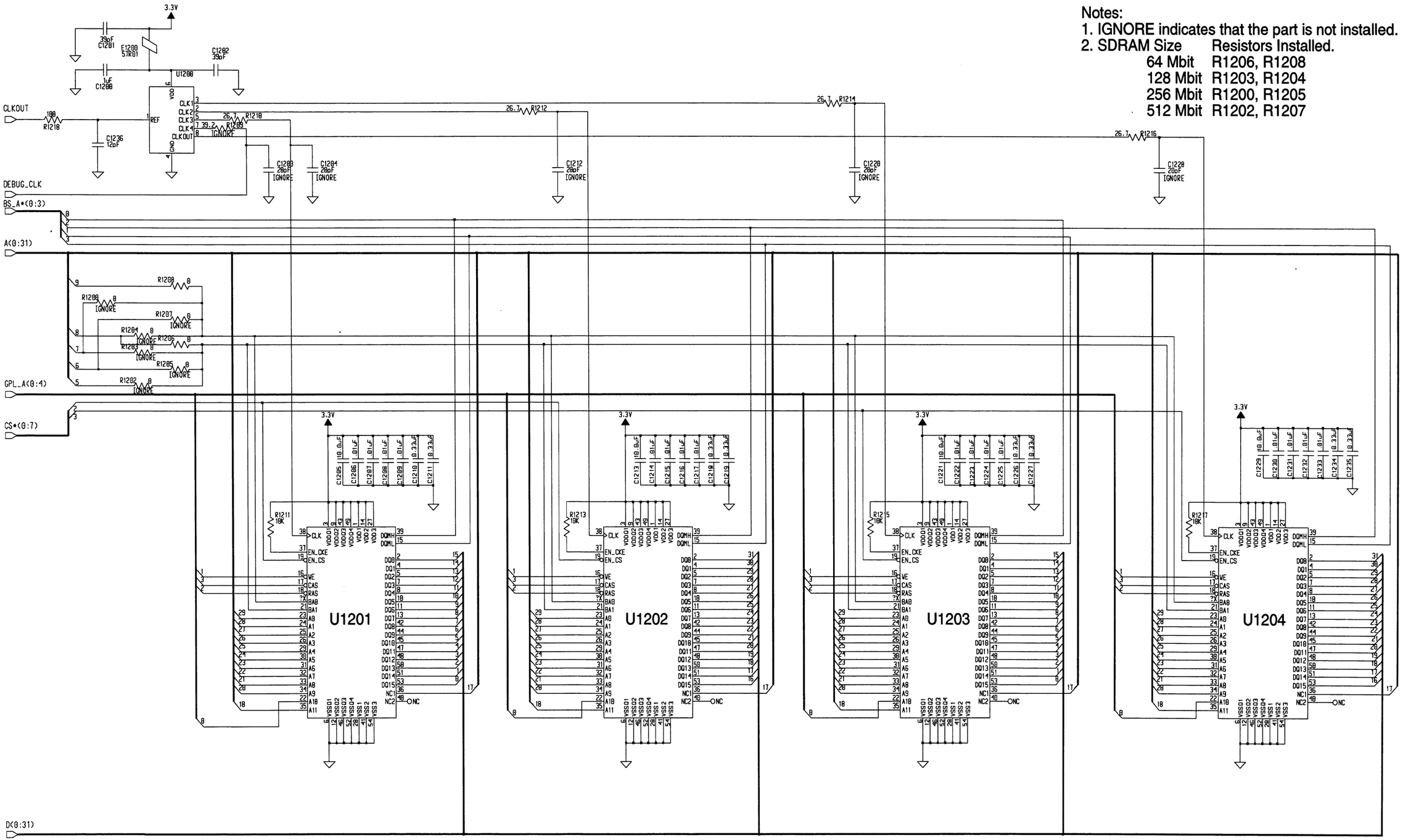
1. P0_IN(21) is internal to the CPLD.
2. IGNORE indicates that the part is not installed.

CPLD-HOST INTERFACE

CONTROL BOARD

MODEL CLN7692B

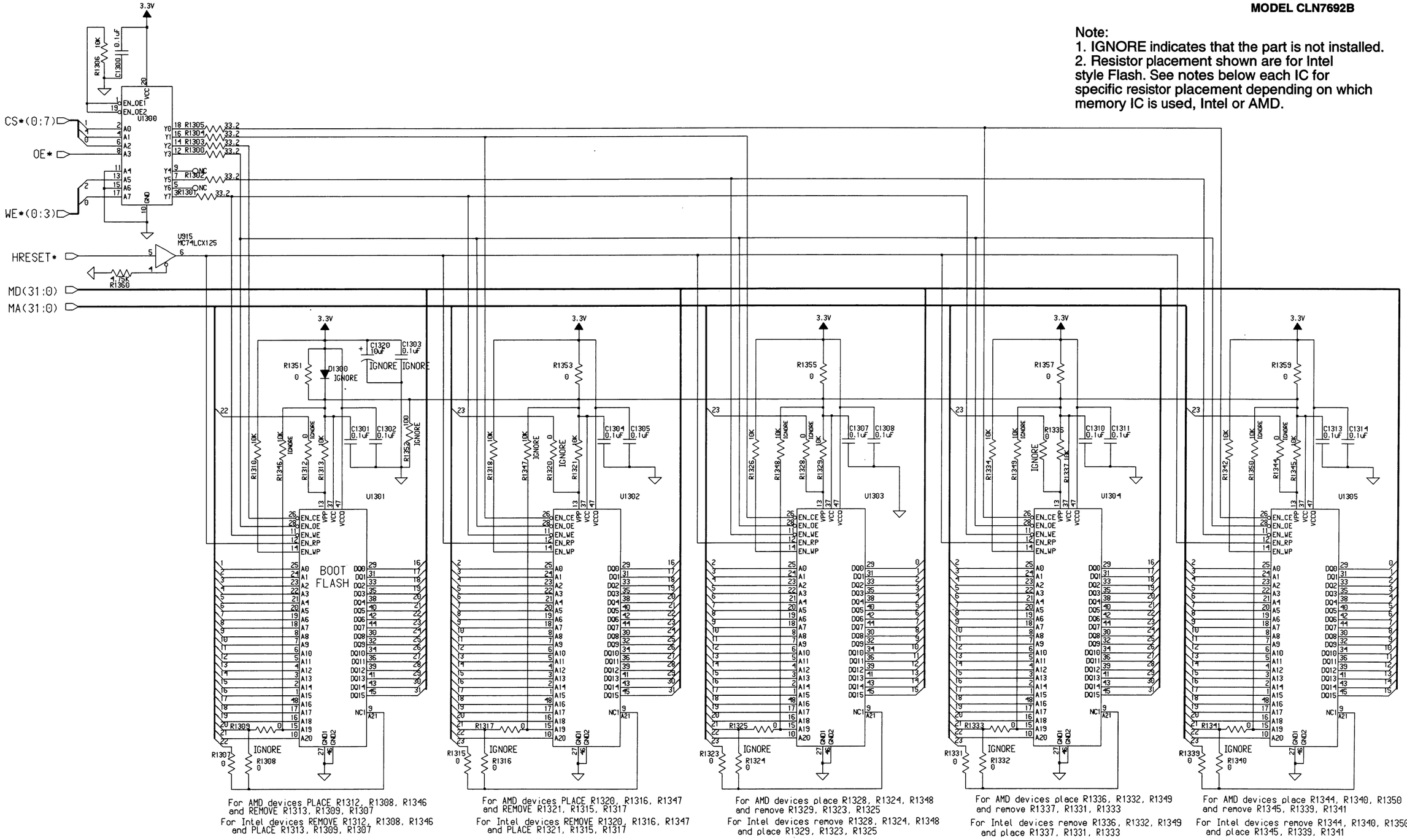
Notes:
1. IGNORE indicates that the part is not installed.
2. SDRAM Size — Resistors Installed.
   - 64 Mbit — R1206, R1208
   - 128 Mbit — R1203, R1204
   - 256 Mbit — R1200, R1205
   - 512 Mbit — R1202, R1207



CONTROL BOARD

MODEL CLN7692B

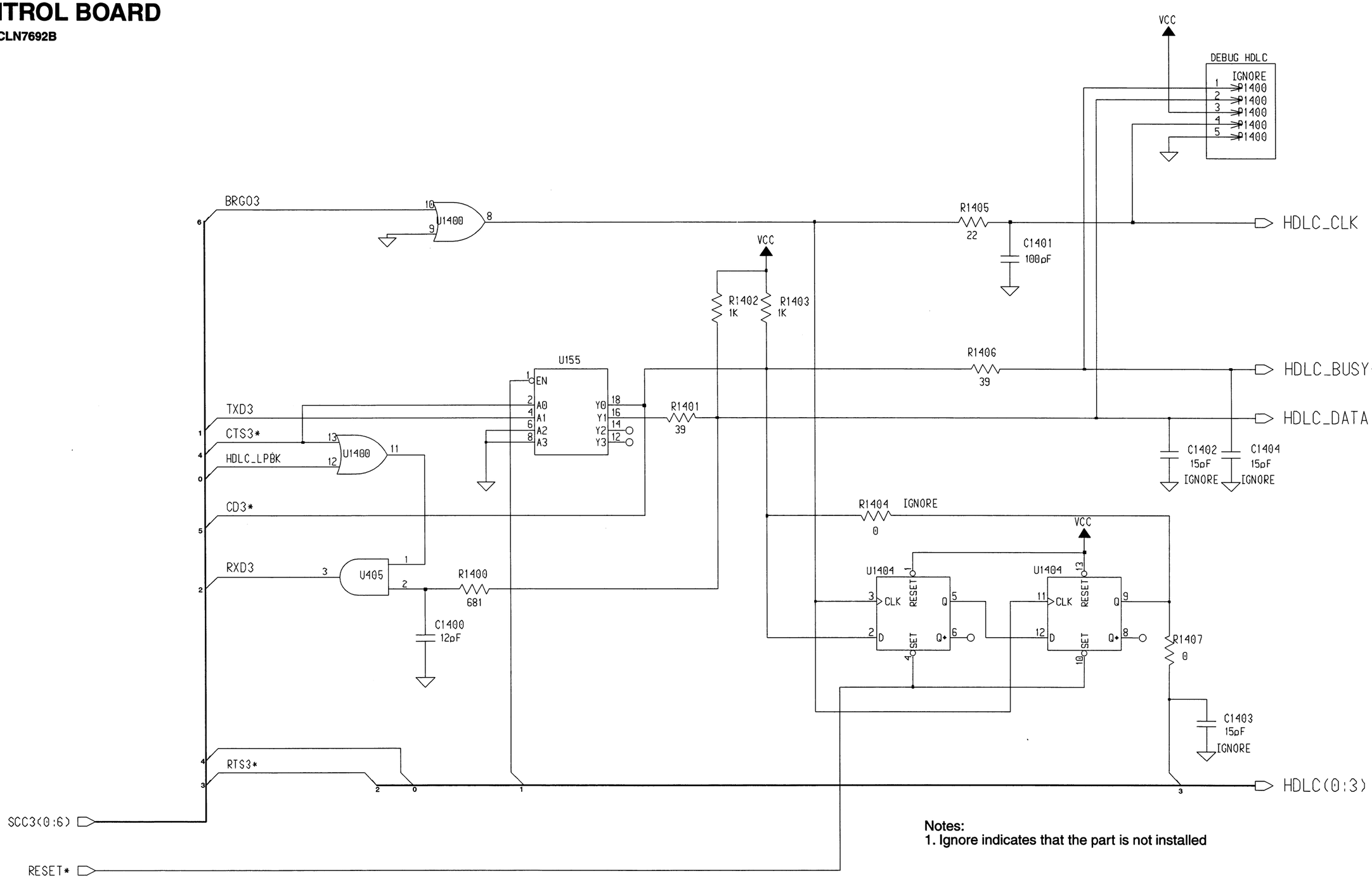
Note:
1. IGNORE indicates that the part is not installed.
2. Resistor placement shown are for Intel style Flash. See notes below each IC for specific resistor placement depending on which memory IC is used, Intel or AMD.



NONVOLATILE MEMORY

CONTROL BOARD

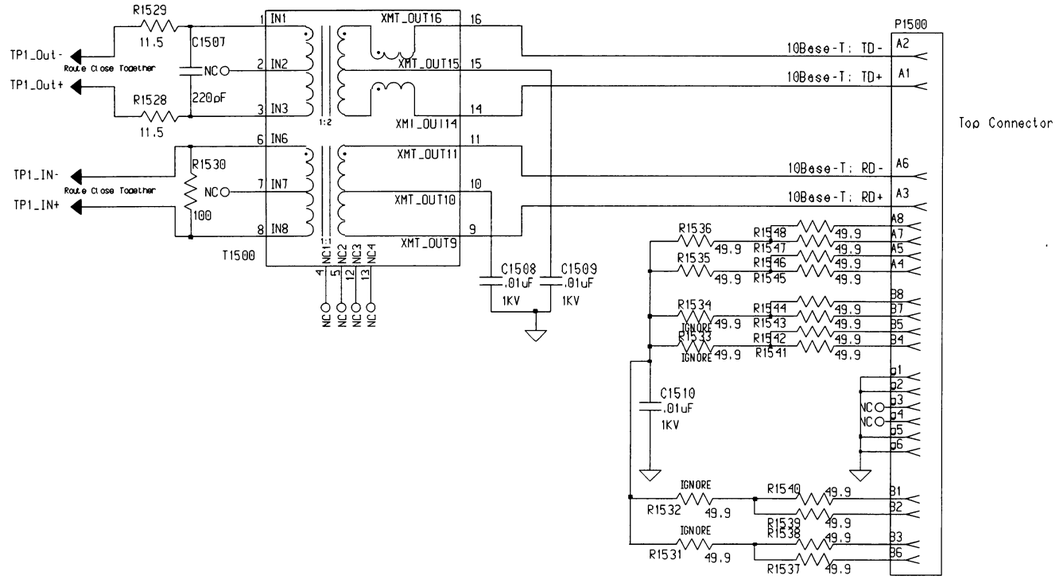
MODEL CLN7692B



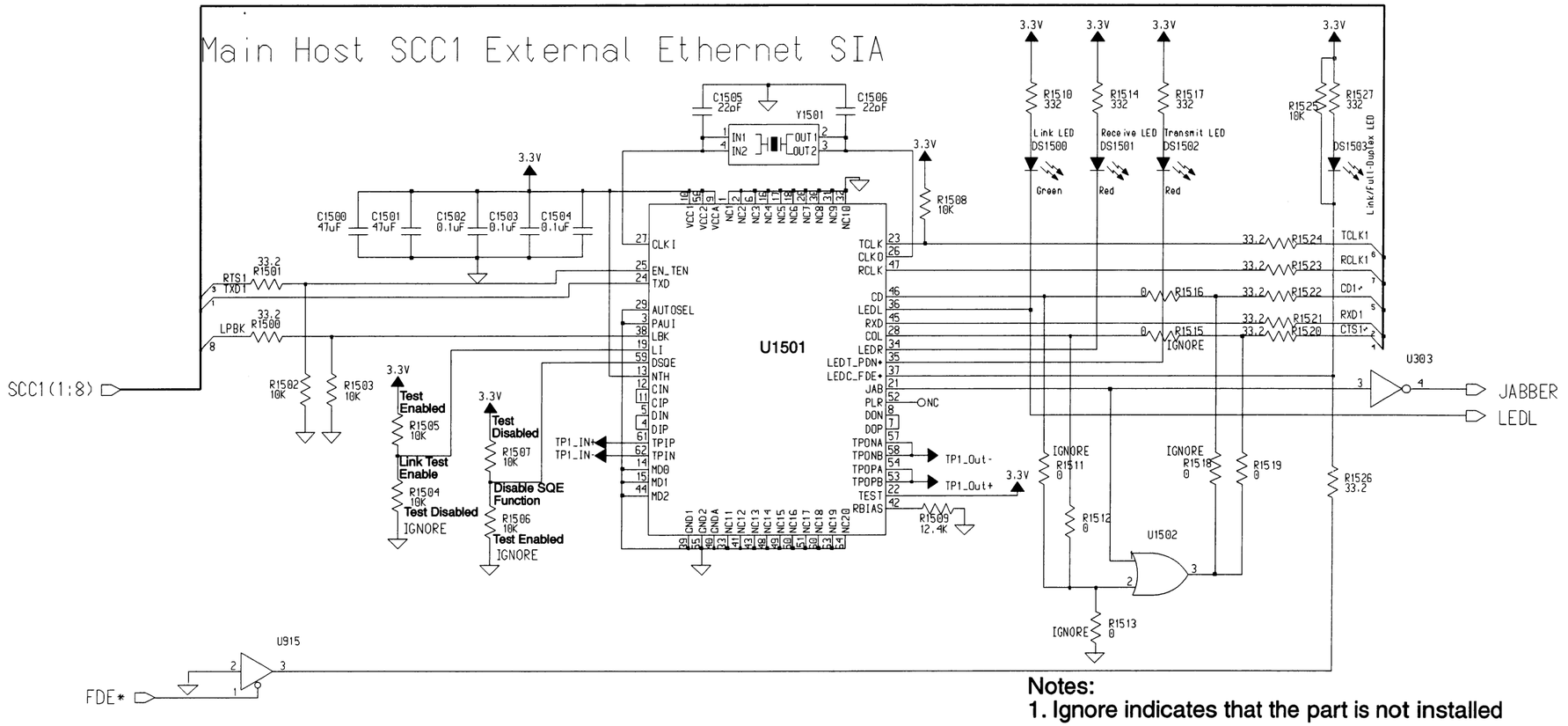
Notes:
1. Ignore indicates that the part is not installed

HDLC CONTROL

Main Host SCC1 External 10BASE-T Interface



Main Host SCC1 External Ethernet SIA

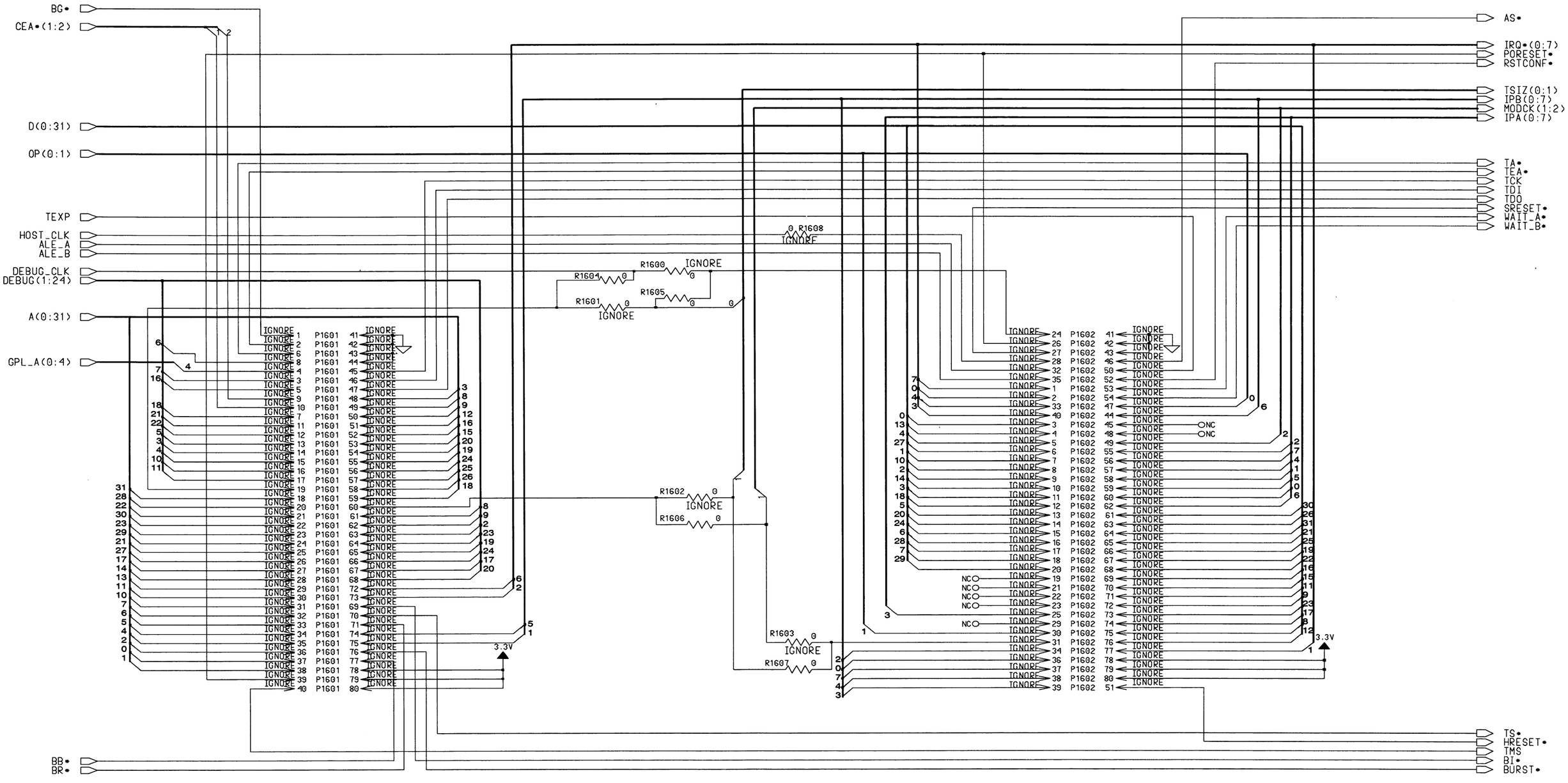


Notes:
1. Ignore indicates that the part is not installed

ETHERNET

CONTROL BOARD

MODEL CLN7692B



Notes:
1. IGNORE indicates that the part is not installed.
2. Place R1600, R1601, R1602, and R1603 to make debug ports identical to CLN7205A or for use with Lauterbach debugger.
3. Place R1604, R1606, and R1607 to make debug ports identical to current HP LA data sheet. The debug board should also have jumper added from P1-61 to HP4-17.

DEBUG PORTS

CONTROL BOARD

MODEL CLN7692B

SMC2(1:6)

SMC1(1:7)

SCC2(1:12)

RSS_PORT(1:6)

ASYNC_RS232(1:7)

SYNC_RS232(1:12)

U1700 U1701 U1702 U1703 U1704 U1705 U1800

R_SMCTXD2 R_RTS R_DTR A_DTR R_SMCRXD2 R_CTS R_DCD A_DSR

A_SMCTXD1 A_RTS A_SMCRXD1 A_CTS A_CD

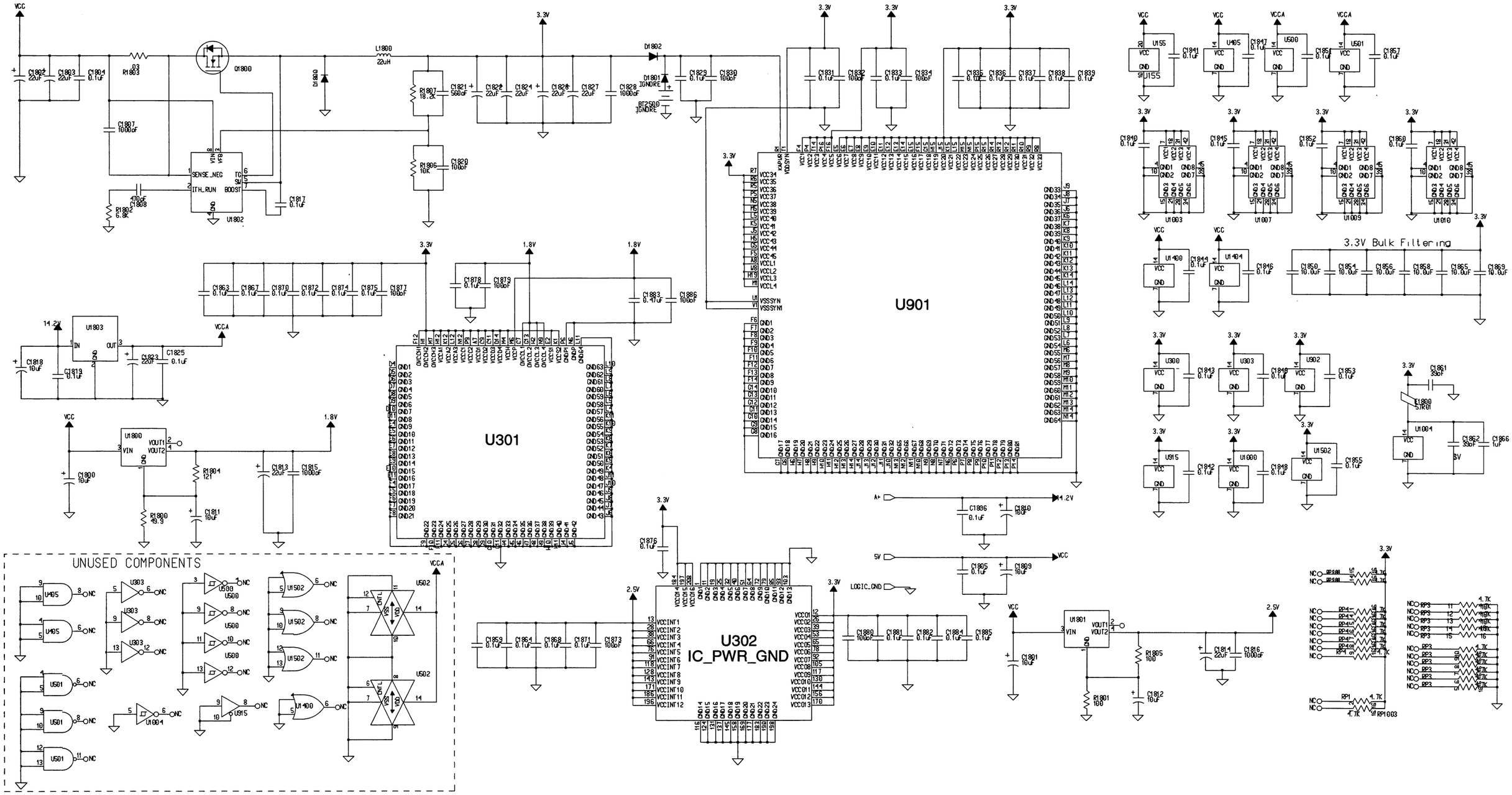
S_DTR S_RLPBK S_DSR S_TXD2 S_RTS2 S_MODEM_RESET1 S_RXD2 S_CLK4R S_CTS2 S_CD2 S_CLK31 S_LLPBK

Notes:
1. Ignore indicates that the part is not installed

RS232

CONTROL BOARD

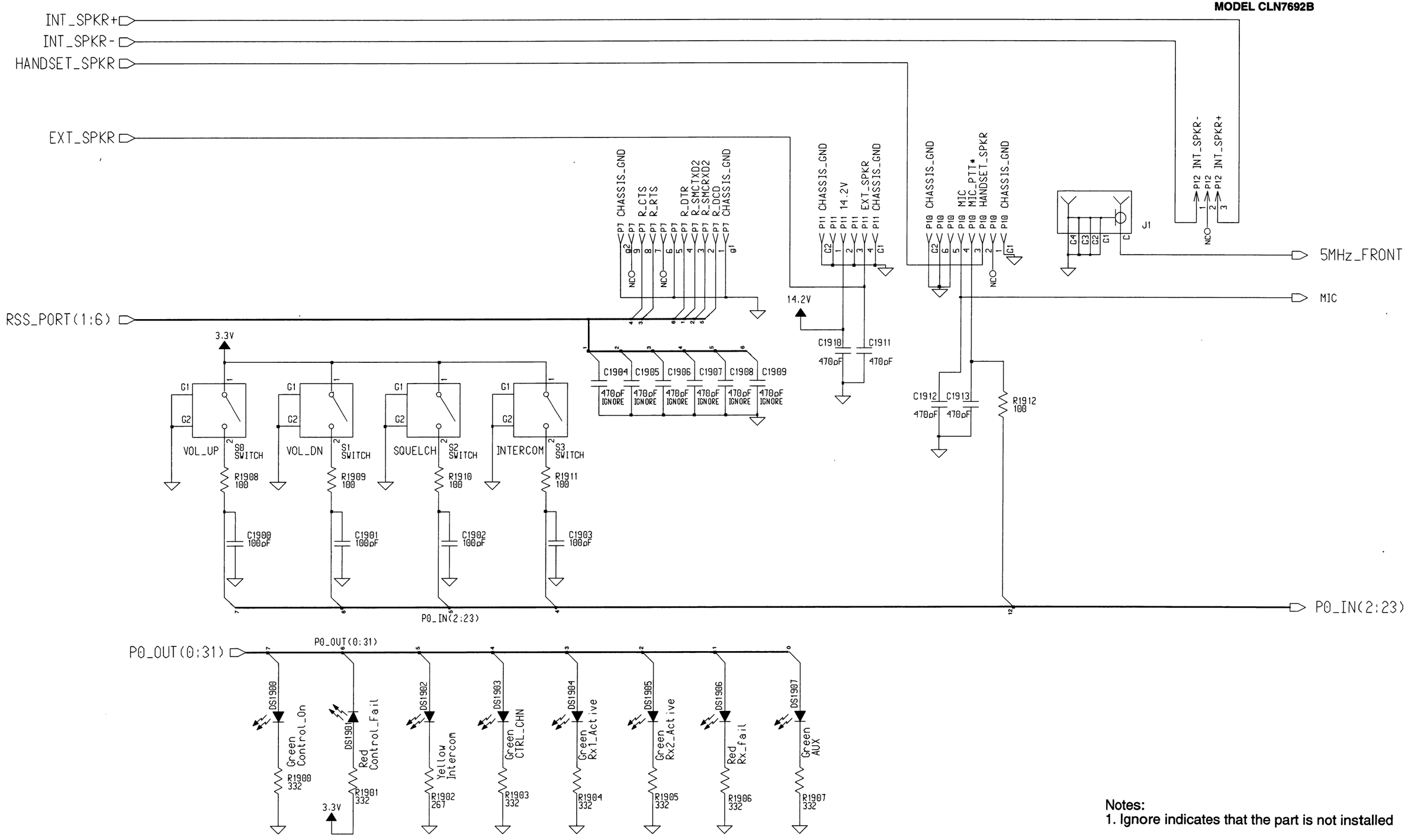
MODEL CLN7692B



POWER DISTRIBUTION

CONTROL BOARD

MODEL CLN7692B

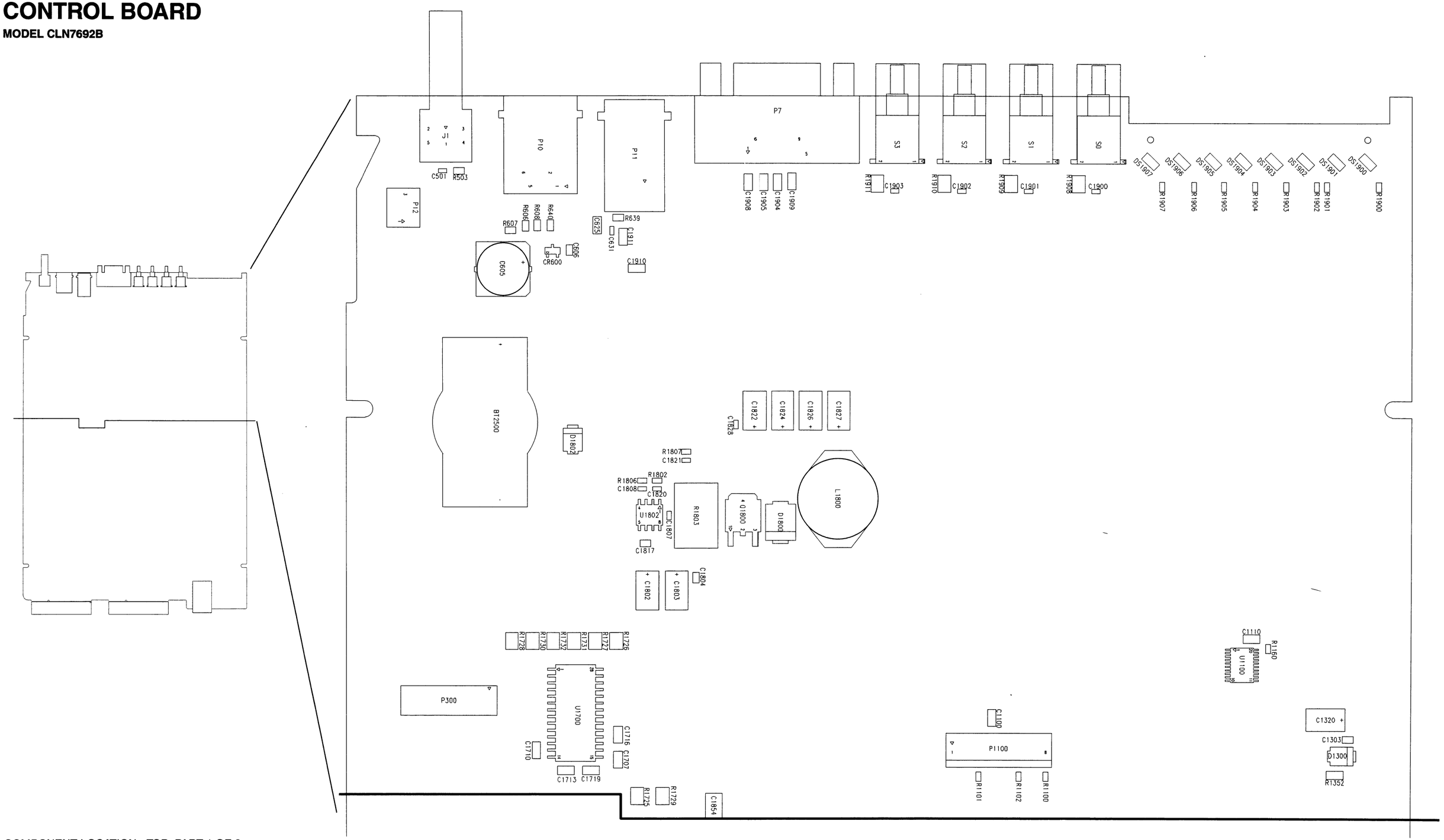


Notes:
1. Ignore indicates that the part is not installed

FRONT PANEL INTERFACE

CONTROL BOARD

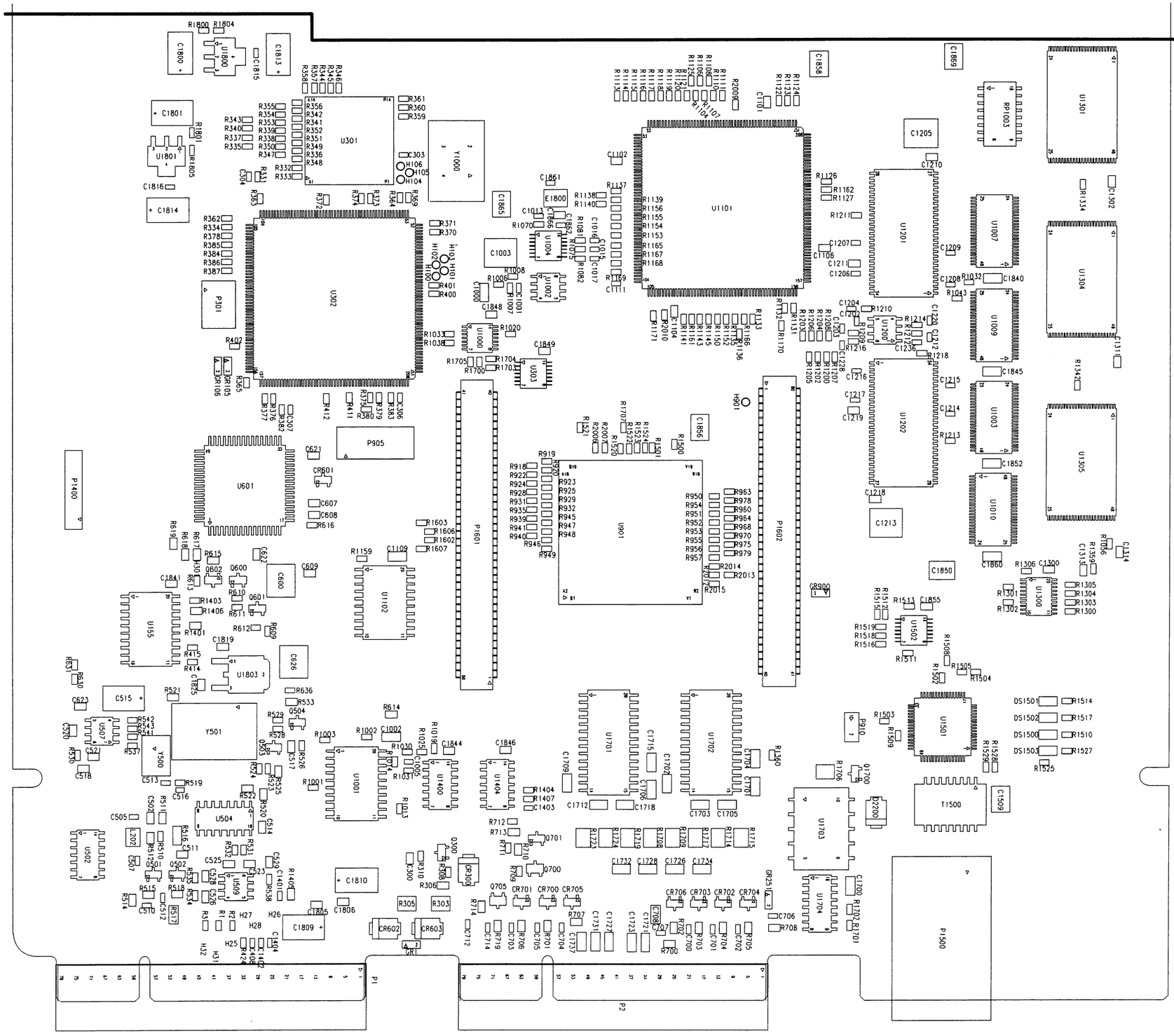
MODEL CLN7692B



COMPONENT LOCATION - TOP, PART 1 OF 2

CONTROL BOARD

MODEL CLN7692B


U1800
C1800
C1813
C1815
U301
Y1000
C303
H106
H105
H104
C304
R363
R372
R373
R374
R364
R369
C1816
C1814
C1801
R1801
U1801
R1805
C1865
E1800
C1861
C1858
C1869
U1101
C1102
R1138
R1140
R1137
R1139
R1156
R1155
R1154
R1153
R1165
R1167
R1168
R1124
R1123
R1122
R1111
R1110
R1109
R1108
R1107
R1106
R1125
R1112
R1104
R1105
R1113
R1114
R1115
R1116
R1117
R1118
R1119
R1120
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C1866
C1867
C1016
C1015
C1017
R1082
R1081
R1080
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R1070
C1003
R1008
R1006
C1001
U1004
U1002
C1000
C1848
R1007
U1000
R1020
R1034
R1038
C1849
R1705
R1700
R1704
R1701
U1003
U302
P301
R362
R334
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R384
R386
R387
H103
H102
H101
R371
R370
R401
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R1033
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R376
R377
R382
C307
C306
R383
R379
R380
R375
R412
R411
P905
C621
CR601
U601
C607
C608
R616
R619
R618
R617
R615
C622
C600
C609
Q602
Q600
Q610
Q601
R610
R611
R612
R609
R1403
R1406
R1401
R415
R414
C1819
U1803
C1825
C626
R636
R533
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R631
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C623
C515
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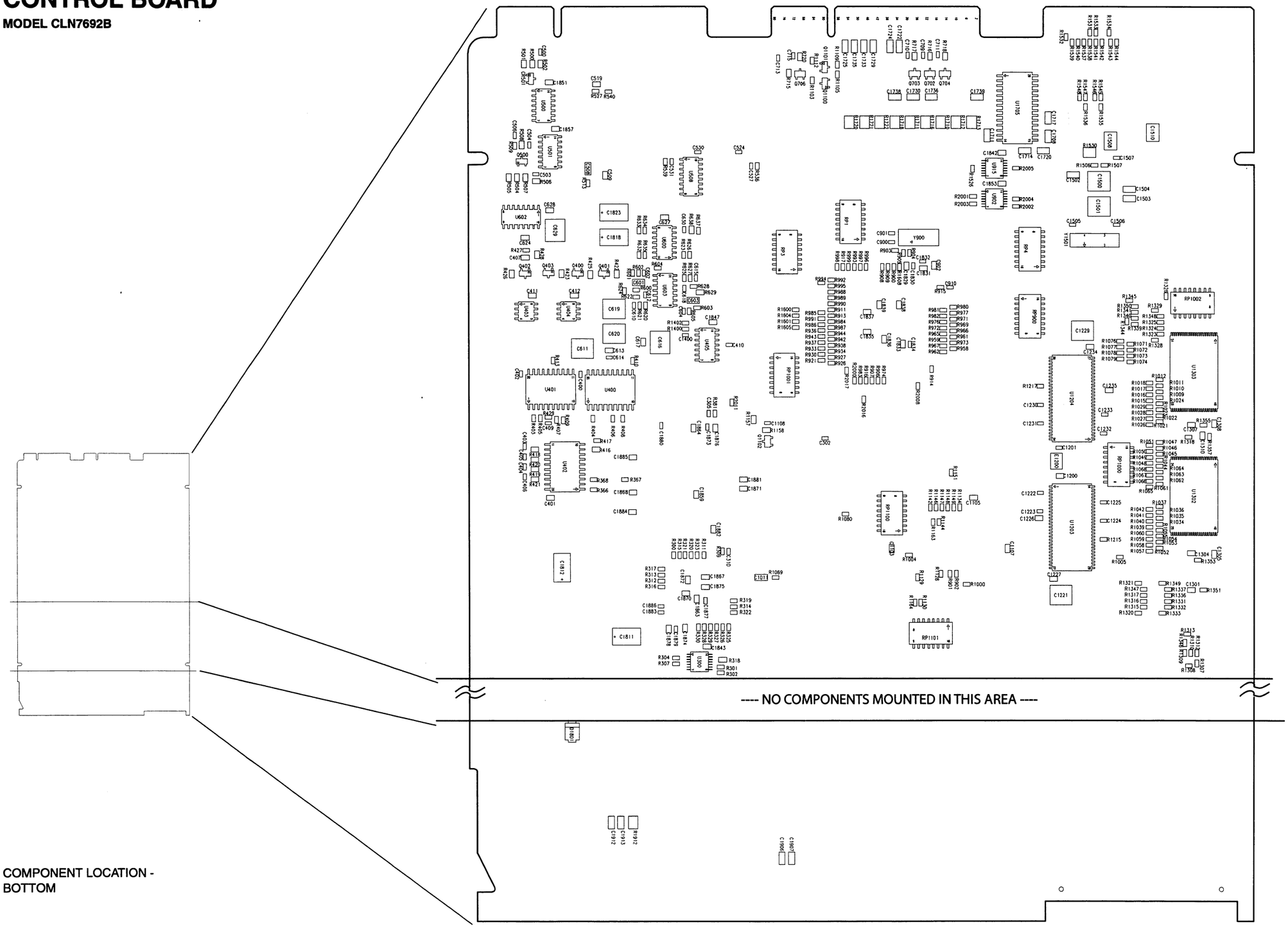
CONTROL BOARD

MODEL CLN7692B



COMPONENT LOCATION - BOTTOM

Parts List
CLN7692B Control Board

Reference	Part Number	Description
		capacitor, fixed:
C300	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C302	2113740F37	CAP CHIP REEL CL1 +/-30 27
C303	2113741F35	CAP CHIP CL2 X7R REEL 2700
C306	2113740F37	CAP CHIP REEL CL1 +/-30 27
C310	2113740F27	CAP CHIP REEL CL1 +/-30 10
C400	2113741F49	CAP CHIP CL2 X7R REEL 10000
C401	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C402	2113741F49	CAP CHIP CL2 X7R REEL 10000
C403 – C407	2113740F37	CAP CHIP REEL CL1 +/-30 27
C408	2113740F29	CAP CHIP REEL CL1 +/-30 12
C409	2113740F37	CAP CHIP REEL CL1 +/-30 27
C411, 412	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C500, 501	2113741F49	CAP CHIP CL2 X7R REEL 10000
C502	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C503, 504	2113741F49	CAP CHIP CL2 X7R REEL 10000
C506	2113741F49	CAP CHIP CL2 X7R REEL 10000
C507	2113740F51	CAP CHIP REEL CL1 +/-30 100
C509	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C510	2113741F49	CAP CHIP CL2 X7R REEL 10000
C511	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C512	2113741F49	CAP CHIP CL2 X7R REEL 10000
C514	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C515	2311049A45	CAP TANT CHIP 10 10 35
C516	2113741F49	CAP CHIP CL2 X7R REEL 10000
C517 – 519	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C521	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C523	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C524	2113741F49	CAP CHIP CL2 X7R REEL 10000
C525, 526	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C527	2113741F49	CAP CHIP CL2 X7R REEL 10000
C528, 529	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C530, 531	2113741F49	CAP CHIP CL2 X7R REEL 10000
C600	2109822S04	CAP CHIP CER 10UF 35V 2220
C601	2113741B69	CAP CHIP CL2 X7R REEL 100000
C602	2113740F51	CAP CHIP REEL CL1 +/-30 100
C603	2113741B69	CAP CHIP CL2 X7R REEL 100000
C604	2113740F67	CAP CHIP CL1 +/-30 470 5%
C605	2380090M27	CAP ALU 330 20 16V
C606 – 609	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C610	2113740F51	CAP CHIP REEL CL1 +/-30 100
C611	2109822S04	CAP CHIP CER 10UF 35V 2220
C612	2113740F51	CAP CHIP REEL CL1 +/-30 100
C613	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C614	2113741F25	CAP CHIP CL2 X7R REEL 1000
C615	2113740F51	CAP CHIP REEL CL1 +/-30 100
C616	2109822S04	CAP CHIP CER 10UF 35V 2220
C617	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C618	2113740F51	CAP CHIP REEL CL1 +/-30 100
C619, 620	2109822S04	CAP CHIP CER 10UF 35V 2220
C621, 622	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C623	2113946E01	CAP CER CHP 0.68UF 16V 10%
C624	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C625	2109822S01	CAP CHIP CER 1.0UF 35V 1206
C626	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C627, 628	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C629	2109822S04	CAP CHIP CER 10UF 35V 2220
C631	2113740F37	CAP CHIP REEL CL1 +/-30 27
C700 – 705	2113741F25	CAP CHIP CL2 X7R REEL 1000
C706	2113740F55	CAP CHIP REEL CL1 +/-30 150
C707	2113741F25	CAP CHIP CL2 X7R REEL 1000
C708	2113741B69	CAP CHIP CL2 X7R REEL 100000
C709 – 711	2113741F25	CAP CHIP CL2 X7R REEL 1000
C712, 713	2113740F55	CAP CHIP REEL CL1 +/-30 150
C714, 715	2113741F25	CAP CHIP CL2 X7R REEL 1000
C902	2113740A80	CAP CHIP REEL CL1 +/-30 1200
C910	2113740F41	CAP CHIP REEL CL1 +/-30 39
C1000	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1001	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1002	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1003	2109822S04	CAP CHIP CER 10UF 35V 2220
C1005	2113740F29	CAP CHIP REEL CL1 +/-30 12
C1011	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1013	2113740F27	CAP CHIP REEL CL1 +/-30 10
C1100	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1101	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1102 – 1107	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1108	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1109, 1110	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1111	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1200	2113743A31	CAP CHIP 1.0 UF 10% X7R
C1201, 1202	2113740F41	CAP CHIP REEL CL1 +/-30 39
C1205	2109822S04	CAP CHIP CER 10UF 35V 2220
C1206 – 1209	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1210, 1211	2113743A24	CAP CHIP .330 UF 10% 16V
C1213	2109822S04	CAP CHIP CER 10UF 35V 2220
C1214 – 1217	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1218, 1219	2113743A24	CAP CHIP .330 UF 10% 16V
C1221	2109822S04	CAP CHIP CER 10UF 35V 2220
C1222 – 1225	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1226, 1227	2113743A24	CAP CHIP .330 UF 10% 16V
C1229	2109822S04	CAP CHIP CER 10UF 35V 2220
C1230 – 1233	2113741F49	CAP CHIP CL2 X7R REEL 10000
C1234, 1235	2113743A24	CAP CHIP .330 UF 10% 16V
C1236	2113740F29	CAP CHIP REEL CL1 +/-30 12
C1300 – 1302	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1304, 1305	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1307, 1308	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1310, 1311	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1313, 1314	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1400	2113740F29	CAP CHIP REEL CL1 +/-30 12
C1401	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1500, 1501	2109822S08	CAP CERAMIC CHIP 47UF 20 16V
C1502 – 1504	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1505, 1506	2113740F35	CAP CHIP REEL CL1 +/-30 22
C1507	2113740F59	CAP CHIP REEL CL1 +/-30 220
C1508 – 1510	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C1700	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1701 – 1720	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1800, 1801	2311049A45	CAP TANT CHIP 10 10 35
C1802, 1803	2311049A21	CAP TANT CHIP 22 10 20
C1804 – 1806	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1807	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1808	2113740F67	CAP CHIP CL1 +/-30 470 5%
C1809 – 1812	2311049A45	CAP TANT CHIP 10 10 35
C1813, 1814	2311049A21	CAP TANT CHIP 22 10 20
C1815, 1816	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1817	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1818	2311049A45	CAP TANT CHIP 10 10 35
C1819	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1820	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1821	2113740F69	CAP CHIP CL1 +/-30 560 5%
C1822 – 1824	2311049A21	CAP TANT CHIP 22 10 20
C1825	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1826, 1827	2311049A21	CAP TANT CHIP 22 10 20
C1828	2113741F25	CAP CHIP CL2 X7R REEL 1000
C1829	2113741M69	CAP CHIP CLS2 100000PF 50V 10%

Reference	Part Number	Description
C1830	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1831	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1832	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1833	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1834	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1835 – 1839	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1840	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1841 – 1844	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1845	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1846 – 1849	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1850	2109822S06	CAP CHIP CER 10UF 16V
C1851	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1852	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1853	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1854	2109822S06	CAP CHIP CER 10UF 16V
C1855	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1856	2109822S06	CAP CHIP CER 10UF 16V
C1857	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1858	2109822S06	CAP CHIP CER 10UF 16V
C1859	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1860	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1861, 1862	2113740F41	CAP CHIP REEL CL1 +/-30 39
C1863, 1864	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1865	2109822S06	CAP CHIP CER 10UF 16V
C1866	2113743A31	CAP CHIP 1.0 UF 10% X7R
C1867, 1868	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1869	2109822S06	CAP CHIP CER 10UF 16V
C1870 – 1872	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1873	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1874 – 1876	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1877	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1878	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1879, 1880	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1881, 1882	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1883	2113743K18	CAP CHIP 0.47 UF +80-20% 16V
C1884, 1885	2113741M69	CAP CHIP CLS2 100000PF 50V 10%
C1886	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1900 – 1903	2113740F51	CAP CHIP REEL CL1 +/-30 100
C1910, 1913	2113918A05	CAP CHIP 470 PF 1000V 10%
		diode (see note 1):
CR300	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR501	4882290T02	DIODE SI HOT CARRIER
CR600	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR601	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR602, 603	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR700 – 706	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
D01800	4813833B02	DIODE SCHOTTKY 3.0A 40V RECT
D01802	4813833B01	DIODE SCHOTTKY 1.0A 40V
D02200	4813833B01	DIODE SCHOTTKY 1.0A 40V
		light emitting diode (see note):
DS1500	4883288Y03	LED, GREEN, SMT
DS1501 – 1503	4883288Y05	LED, RED, SMT
DS1900	4883288Y03	LED, GREEN, SMT
DS1901	4883288Y05	LED, RED, SMT
DS1902	4883288Y02	LED,YELLOW,SMT
DS1903 – 1905	4883288Y03	LED, GREEN, SMT
DS1906	4883288Y05	LED, RED, SMT
DS1907	4883288Y03	LED, GREEN, SMT

Reference	Part Number	Description
		connector:
J1	0984963T02	BNC JACK PCB RT ANGLE
P7	0984524T12	D SUB, 9PIN RECPT RT ANG
P10	0985237U03	JACK, 6/6 MODULAR, SHIELDED
P11	0985237U01	JACK MOD 4/4
P12	2813922A03	HDR 3 POS STR .1 CTR
P1500	0983154Y01	RECP, MOD JACK 2X1 PORT,8 POS,
		inductor:
L202	2411087A44	COIL CHIP 33 UH 10 A/P
L1800	2485069U06	INDUCTOR FIXED SM 22UH 200KHZ
		transistor (see note 1):
Q300	4813824A10	TSTR NPN 40V .2A GEN PURP
Q400 – 403	4813824A10	TSTR NPN 40V .2A GEN PURP
Q500 – 502	4813824A10	TSTR NPN 40V .2A GEN PURP
Q503	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q504	4813824A10	TSTR NPN 40V .2A GEN PURP
Q600	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q601	4813824A10	TSTR NPN 40V .2A GEN PURP
Q602	4813823A08	XSTR P-CH FET SW MMBFJ175LT1
Q700	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q701	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q702 – 706	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q1100, 1101	4813824A10	TSTR NPN 40V .2A GEN PURP
Q1102	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q1700	4813824A10	TSTR NPN 40V .2A GEN PURP
Q1800	4813821A21	TSTR N-CH 30V 20A
		resistor, fixed:
R1 – R3	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R300	0662057P10	RES CHIP 10.0K 1% 30X60
R302	0662057P10	RES CHIP 10.0K 1% 30X60
R303	0611072A25	RES CHIP 100 5 1/4
R304	0662057P10	RES CHIP 10.0K 1% 30X60
R305	0611072A25	RES CHIP 100 5 1/4
R306	0611079A26	RES FIXED CHIP 10 5 1/10W
R307	0662057P10	RES CHIP 10.0K 1% 30X60
R308	0662057T68	RES CHIP 1.0K 1% 30*60
R309	0662057T41	CHIP RES 10 OHMS 1%
R310	0662057T68	RES CHIP 1.0K 1% 30*60
R311	0662057T68	RES CHIP 1.0K 1% 30*60
R312 – 317	0662057P10	RES CHIP 10.0K 1% 30X60
R318	0611079A52	RES FIXED CHIP 120 5 1/10W
R319 – 323	0662057P10	RES CHIP 10.0K 1% 30X60
R325 – 330	0662057T43	CHIP RES 33.2 OHMS 1%
R331 – 333	0662057Z46	RES CHIP 26.7 1% 0603
R334	0662057T46	CHIP RES 100 OHMS 1%
R335 – 359	0662057T43	CHIP RES 33.2 OHMS 1%
R359, 360	0662057Z46	RES CHIP 26.7 1% 0603
R361	0662057T43	CHIP RES 33.2 OHMS 1%
R362	0662057P03	RES CHIP 4.75K 1% 30X60
R363	0662057T68	RES CHIP 1.0K 1% 30*60
R364	0662057P03	RES CHIP 4.75K 1% 30X60
R365 – 371	0662057P03	RES CHIP 4.75K 1% 30X60
R375	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R376 – 378	0662057P03	RES CHIP 4.75K 1% 30X60
R380	0662057P10	RES CHIP 10.0K 1% 30X60
R381	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R382	0662057T42	CHIP RES 22.1 OHMS 1%
R383	0662057Z47	RES CHIP 39.2 1% 0603
R384 – 387	0662057P10	RES CHIP 10.0K 1% 30X60
R400 – 415	0662057P10	RES CHIP 10.0K 1% 30X60
R416	0611079A40	RES FIXED CHIP 39 5 1/10W
R417	0662057P03	RES CHIP 4.75K 1% 30X60

Reference	Part Number	Description
R418 – 421	0611079A34	RES FIXED CHIP 22 5 1/10W
R422, 423	0611079A62	RES FIXED CHIP 330 5 1/10W
R424	0662057T55	CHIP RES 681 OHMS 1%
R425, 426	0611079A62	RES FIXED CHIP 330 5 1/10W
R427	0662057P49	RES CHIP 2.21K
R428	0611079A84	RES FIXED CHIP 2700 5 1/10
R429	0662057Z47	RES CHIP 39.2 1% 0603
R500	0611079B32	RES FIXED CHIP 240K 5 1/10
R501	0611079B35	RES FIXED CHIP 330K 5 1/10
R502	0611079A52	RES FIXED CHIP 120 5 1/10W
R503	0611079A44	RES FIXED CHIP 56 5 1/10W
R504	0611079A84	RES FIXED CHIP 2700 5 1/10
R505	0611079A84	RES FIXED CHIP 2700 5 1/10
R506	0611079A40	RES FIXED CHIP 39 5 1/10W
R507	0611079A46	RES FIXED CHIP 68 5 1/10W
R508	0611079A52	RES FIXED CHIP 120 5 1/10W
R509	0662057T44	CHIP RES 49.9 OHMS 1%
R510	0662057P66	RES CHIP 5.62K
R511	0611079A84	RES FIXED CHIP 2700 5 1/10
R512	0611079A62	RES FIXED CHIP 330 5 1/10W
R513	0662057P10	RES CHIP 10.0K 1% 30X60
R514	0611079A40	RES FIXED CHIP 39 5 1/10W
R515	0611079A46	RES FIXED CHIP 68 5 1/10W
R516 – 518	0611077A36	RES CHIP 27 5 1/8W
R519	0662057T43	CHIP RES 33.2 OHMS 1%
R520	0611079E97	RES CHIP 1.0M 1/10W 1%
R521	0611079B15	RES FIXED CHIP 47K 5 1/10
R522	0611079E97	RES CHIP 1.0M 1/10W 1%
R523, 524	0662057P10	RES CHIP 10.0K 1% 30X60
R525	0611079A84	RES FIXED CHIP 2700 5 1/10
R526	0662057P10	RES CHIP 10.0K 1% 30X60
R527	0662057T73	RES CHIP 33.2K 1% 30*60
R528, 529	0662057P10	RES CHIP 10.0K 1% 30X60
R530	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R531, 532	0662057T46	CHIP RES 100 OHMS 1%
R533	0611079A84	RES FIXED CHIP 2700 5 1/10
R534, 535	0662057T46	CHIP RES 100 OHMS 1%
R536	0662057P03	RES CHIP 4.75K 1% 30X60
R537	0662057T46	CHIP RES 100 OHMS 1%
R538	0662057P10	RES CHIP 10.0K 1% 30X60
R539	0662057P03	RES CHIP 4.75K 1% 30X60
R540	0662057P10	RES CHIP 10.0K 1% 30X60
R541	0662057T45	CHIP RES 68.1 OHMS 1%
R542	0662057T46	CHIP RES 100 OHMS 1%
R543	0662057T52	CHIP RES 332 OHMS 1%
R600	0662057P22	RES CHIP 22.1K 1% 30X60
R601	0662057T64	CHIP RES 47.5K OHMS 1%
R602	0662057T64	CHIP RES 47.5K OHMS 1%
R603	0662057A69	CHIP RES 6800 OHMS 5%
R604	0662057P20	RES CHIP 20.0K 1% 30X60
R605	0662057P10	RES CHIP 10.0K 1% 30X60
R606, 607	0611079A66	RES FIXED CHIP 470 5 1/10W
R608	0611079A52	RES FIXED CHIP 120 5 1/10W
R609	0662057P03	RES CHIP 4.75K 1% 30X60
R610	0662057P10	RES CHIP 10.0K 1% 30X60
R611 – 613	0662057P22	RES CHIP 22.1K 1% 30X60
R614	0611079A52	RES FIXED CHIP 120 5 1/10W
R615	0611079A66	RES FIXED CHIP 470 5 1/10W
R616	0662057P95	RES CHIP 100.0K 1% 30X60
R617	0611079A91	RES FIXED CHIP 5100 5 1/10
R618	0611079A82	RES FIXED CHIP 2200 5 1/10
R619	0611079A88	RES FIXED CHIP 3900 5 1/10
R620	0662057P10	RES CHIP 10.0K 1% 30X60
R621	0662057P20	RES CHIP 20.0K 1% 30X60
R622	0662057T63	CHIP RES 39.2K OHMS 1%
R623	0662057P10	RES CHIP 10.0K 1% 30X60
R624	0662057T64	CHIP RES 47.5K OHMS 1%
R625, 626	0662057P10	RES CHIP 10.0K 1% 30X60
R627	0662057P20	RES CHIP 20.0K 1% 30X60
R628	0662057P18	RES CHIP 18.2K 1% 30X60
R629	0611079E09	RES CHIP 121.0K 1/10W 1%
R630	0662057P02	RES. CHIP 15K 1% 30X60
R631	0662057P22	RES CHIP 22.1K 1% 30X60
R632 – 637	0662057P10	RES CHIP 10.0K 1% 30X60
R638	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R639	0611079A76	RES FIXED CHIP 1200 5 1/10
R640	0611079A80	RES FIXED CHIP 1800 5 1/10
R700	0611079A68	RES FIXED CHIP 560 5 1/10W
R701 – 708	0611079A66	RES FIXED CHIP 470 5 1/10W
R709	0662057P10	RES CHIP 10.0K 1% 30X60
R710	0611079A66	RES FIXED CHIP 470 5 1/10W
R711	0662057P10	RES CHIP 10.0K 1% 30X60
R712	0662057T68	RES CHIP 1.0K 1% 30*60
R713	0611079A52	RES FIXED CHIP 120 5 1/10W
R714	0611079A66	RES FIXED CHIP 470 5 1/10W
R715	0611079A66	RES FIXED CHIP 470 5 1/10W
R716 – 720	0611079A34	RES FIXED CHIP 22 5 1/10W
R900	0662057T45	CHIP RES 68.1 OHMS 1%
R901	0662057T43	CHIP RES 33.2 OHMS 1%
R903	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R906	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R908, 909	0662057A49	CHIP RES 1000 OHMS 5%
R911	0662057T43	CHIP RES 33.2 OHMS 1%
R913	0662057T41	CHIP RES 10 OHMS 1%
R915	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R917 – 949	0662057T43	CHIP RES 33.2 OHMS 1%
R950 – 973	0662057Y06	RES CHIP 82.5 1% 0603
R974	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R975 – 982	0662057Y06	RES CHIP 82.5 1% 0603
R983 – 987	0662057T43	CHIP RES 33.2 OHMS 1%
R988, 989	0662057Y07	RES CHIP 18.2 1% 0603
R990 – 994	0662057Z46	RES CHIP 26.7 1% 0603
R995	0662057Y07	RES CHIP 18.2 1% 0603
R996	0662057Z46	RES CHIP 26.7 1% 0603
R997	0662057T43	CHIP RES 33.2 OHMS 1%
R998	0662057Y07	RES CHIP 18.2 1% 0603
R999	0662057Z46	RES CHIP 26.7 1% 0603
R1000	0662057T43	CHIP RES 33.2 OHMS 1%
R1001, 1002	0662057P95	RES CHIP 100.0K 1% 30X60
R1003	0662057P10	RES CHIP 10.0K 1% 30X60
R1004	0662057T41	CHIP RES 10 OHMS 1%
R1005	0662057P03	RES CHIP 4.75K 1% 30X60
R1006	0662057T68	RES CHIP 1.0K 1% 30*60
R1007, 1008	0662057P10	RES CHIP 10.0K 1% 30X60
R1009 – 1012	0662057T43	CHIP RES 33.2 OHMS 1%
R1013, 1014	0662057T46	CHIP RES 100 OHMS 1%
R1015 – 1018	0662057T43	CHIP RES 33.2 OHMS 1%
R1019	0662057T44	CHIP RES 49.9 OHMS 1%
R1020	0662057P03	RES CHIP 4.75K 1% 30X60
R1021 – 1024	0662057T43	CHIP RES 33.2 OHMS 1%
R1025	0662057T55	CHIP RES 681 OHMS 1%
R1026 – 1029	0662057T43	CHIP RES 33.2 OHMS 1%
R1030, 1031	0662057P95	RES CHIP 100.0K 1% 30X60
R1032	0662057P03	RES CHIP 4.75K 1% 30X60
R1033	0662057T55	CHIP RES 681 OHMS 1%
R1034 – 1037	0662057T43	CHIP RES 33.2 OHMS 1%
R1038	0662057P10	RES CHIP 10.0K 1% 30X60
R1039 – 1042	0662057T43	CHIP RES 33.2 OHMS 1%
R1043	0662057P03	RES CHIP 4.75K 1% 30X60
R1044 – 1055	0662057T43	CHIP RES 33.2 OHMS 1%
R1056	0662057P03	RES CHIP 4.75K 1% 30X60
R1057 – 1068	0662057T43	CHIP RES 33.2 OHMS 1%
R1069	0662057P10	RES CHIP 10.0K 1% 30X60
R1070	0662057Z46	RES CHIP 26.7 1% 0603
R1071 – 1074	0662057T43	CHIP RES 33.2 OHMS 1%
R1075	0662057Z46	RES CHIP 26.7 1% 0603
R1076 – 1079	0662057T43	CHIP RES 33.2 OHMS 1%
R1080	0662057B47	CHIP RES 0 OHMS +-.050 OHMS

Reference	Part Number	Description
R1081	0662057Z46	RES CHIP 26.7 1% 0603
R1082	0662057Z46	RES CHIP 26.7 1% 0603
R1100 – 1102	0662057P03	RES CHIP 4.75K 1% 30X60
R1103	0662057T63	CHIP RES 39.2K OHMS 1%
R1105	0662057P95	RES CHIP 100.0K 1% 30X60
R1109	0662057P03	RES CHIP 4.75K 1% 30X60
R1112	0662057T68	RES CHIP 1.0K 1% 30*60
R1113 – 1117	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1119 – 1124	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1126	0662057T43	CHIP RES 33.2 OHMS 1%
R1127	0662057P03	RES CHIP 4.75K 1% 30X60
R1128 – 1136	0662057T43	CHIP RES 33.2 OHMS 1%
R1137	0662057T46	CHIP RES 100 OHMS 1%
R1138	0662057T45	CHIP RES 68.1 OHMS 1%
R1139	0662057T52	CHIP RES 332 OHMS 1%
R1140	0662057T46	CHIP RES 100 OHMS 1%
R1141	0662057T43	CHIP RES 33.2 OHMS 1%
R1142 – 1152	0662057T43	CHIP RES 33.2 OHMS 1%
R1153	0662057P03	RES CHIP 4.75K 1% 30X60
R1155	0662057P03	RES CHIP 4.75K 1% 30X60
R1157	0611079A66	RES FIXED CHIP 470 5 1/10W
R1158	0611079A34	RES FIXED CHIP 22 5 1/10W
R1159 – 1171	0662057P03	RES CHIP 4.75K 1% 30X60
R1206	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1208	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1210	0662057Z46	RES CHIP 26.7 1% 0603
R1211	0662057P10	RES CHIP 10.0K 1% 30X60
R1212	0662057Z46	RES CHIP 26.7 1% 0603
R1213	0662057P10	RES CHIP 10.0K 1% 30X60
R1214	0662057Z46	RES CHIP 26.7 1% 0603
R1215	0662057P10	RES CHIP 10.0K 1% 30X60
R1216	0662057Z46	RES CHIP 26.7 1% 0603
R1217	0662057P10	RES CHIP 10.0K 1% 30X60
R1218	0662057T46	CHIP RES 100 OHMS 1%
R1300 – 1305	0662057T43	CHIP RES 33.2 OHMS 1%
R1306	0662057P10	RES CHIP 10.0K 1% 30X60
R1308	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1310	0662057P10	RES CHIP 10.0K 1% 30X60
R1312	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1316	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1318	0662057P10	RES CHIP 10.0K 1% 30X60
R1320	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1324	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1326	0662057P10	RES CHIP 10.0K 1% 30X60
R1328	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1332	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1334	0662057P10	RES CHIP 10.0K 1% 30X60
R1336	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1340	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1342	0662057P10	RES CHIP 10.0K 1% 30X60
R1344	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1346 – 1350	0662057P10	RES CHIP 10.0K 1% 30X60
R1351	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1353	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1355	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1357	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1359	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1360	0662057P03	RES CHIP 4.75K 1% 30X60

Reference	Part Number	Description
R1400	0662057T55	CHIP RES 681 OHMS 1%
R1401	0611079A40	RES FIXED CHIP 39 5 1/10W
R1402	0662057T68	RES CHIP 1.0K 1% 30*60
R1403	0662057T68	RES CHIP 1.0K 1% 30*60
R1405	0611079A34	RES FIXED CHIP 22 5 1/10W
R1406	0611079A40	RES FIXED CHIP 39 5 1/10W
R1407	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1500	0662057T43	CHIP RES 33.2 OHMS 1%
R1501	0662057T43	CHIP RES 33.2 OHMS 1%
R1502, 1503	0662057P10	RES CHIP 10.0K 1% 30X60
R1505	0662057P10	RES CHIP 10.0K 1% 30X60
R1507, 1508	0662057P10	RES CHIP 10.0K 1% 30X60
R1509	0662057P69	RES CHIP 12.4K
R1510	0662057T52	CHIP RES 332 OHMS 1%
R1512	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1514	0662057T52	CHIP RES 332 OHMS 1%
R1516	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1517	0662057T52	CHIP RES 332 OHMS 1%
R1519	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1520 – 1524	0662057T43	CHIP RES 33.2 OHMS 1%
R1525	0662057P10	RES CHIP 10.0K 1% 30X60
R1526	0662057T43	CHIP RES 33.2 OHMS 1%
R1527	0662057T52	CHIP RES 332 OHMS 1%
R1528, 1529	0683106Y01	RES 11.5 OHM 1% 0603
R1530	0611072A25	RES CHIP 100 5 1/4
R1535 – 1548	0662057T44	CHIP RES 49.9 OHMS 1%
R1604 – 1607	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R1700 – 1703	0662057P10	RES CHIP 10.0K 1% 30X60
R1705	0662057P39	RES CHIP 475
R1706	0611072A25	RES CHIP 100 5 1/4
R1707 – 1732	0662057T43	CHIP RES 33.2 OHMS 1%
R1800	0662057T44	CHIP RES 49.9 OHMS 1%
R1801	0662057T46	CHIP RES 100 OHMS 1%
R1802	0662057A69	CHIP RES 6800 OHMS 5%
R1803	0682089V03	SMT RES .03 OHM 5% 2W
R1804	0662057T47	CHIP RES 121 OHMS 1%
R1805	0662057T46	CHIP RES 100 OHMS 1%
R1806	0662057P10	RES CHIP 10.0K 1% 30X60
R1807	0662057P18	RES CHIP 18.2K 1% 30X60
R1900 – 1907	0662057T52	CHIP RES 332 OHMS 1%
R1908 – 1912	0611072A25	RES CHIP 100 5 1/4
R2000	0662057P03	RES CHIP 4.75K 1% 30X60
R2001 – 2008	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R2009 – 2107	0662057P03	RES CHIP 4.75K 1% 30X60
RP1	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP3, 4	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP900	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP1000 – 1003	5184387T05	RESISTOR NETWORK 10 X 4.7K
RP1100, 1101	5184387T05	RESISTOR NETWORK 10 X 4.7K
		switch:
S0 – S3	4083621T01	SW PB SPST SURFACE MOUNT
		transformer:
T1500	2583083Y01	XFMR 10 BASE-T SINGLE PORT

Reference	Part Number	Description
		integrated circuit (see note 1):
U155	5113805A55	LN DR/RCVR TTLIN OCT N-INV BFR
U300	5113839M04	IC AND QUAD 2-IN
U301	5113803A50	IC DSP 24BIT 150MHZ
U302	5183080Y02	2.5V 208-PIN PQFP FPGA
U303	5113837A03	IC INVERT HEX 14 MC
U400 – 402	5113805A55	LN DR/RCVR TTLIN OCT N-INV BFR
U403, 404	5184288T01	IC BUS XCVR _65176_
U405	5113808A07	IC AND QUAD 2 INP MC74AC08D
U500	5113808A13	IC INV HEX SCHMITT TRIG ACT14
U501	5113805A03	IC QUAD 2INP NAND 74HC03AD
U502	5113805A86	IC QUAD ANALOG MUX/DEMUX
U504	5113812A26	IC PLL FREQ SYNTH
U507	5183084Y01	8-BIT DAC SOIC -40 TO 85C
U508	5113805A89	IC HCM05 MULTIVBRTE DUAL 4538
U509	5113820A02	IC DUAL SING SPLY LO PWR
U600	5113819A05	IC HIGH PERF SINGLE SUPPLY
U601	5184625T07	IC ASIC EPSILON
U602	5182952X01	IC 1W AUDIO PWR AMP 4860
U603	5113819A05	IC HIGH PERF SINGLE SUPPLY
U901	5113802B04	IC 50 MHZ ETHERNET PWR QUICC
U902	5113839M09	IC BUFFER QUAD 3-ST NON-INV
U915	5113837A15	IC 3.3V QUAD BUFFER
U1000	5113837A04	IC AND QUAD 2 IN MC
U1001	5113808A39	IC LINE DRVR OCT 3T NON
U1002	5113815A47	IC MICROPWR UNDERVOLT SENSING
U1003	5113837A14	IC 16 BIT XCVR
U1004	5113839M05	IC SCHMITT TRIGGER HEX INVERTE
U1007	5113837A14	IC 16 BIT XCVR
U1009, 1010	5113837A13	IC BUFFER 16 BIT
U1100	5113837A07	IC LINE DRVR OCT3
U1101	5182975Y03	3.3V CPLD 256MCELL 160IO I TMP
U1102	5113808A39	IC LINE DRVR OCT 3T NON
U1200	5182390Y01	IC BFFR ODELAX 3V 2305
U1201 – 1204	5182635Y05	IC SDRAM 64 MBIT
U1300	5113837A07	IC LINE DRVR OCT3
U1301	5191099C01	FLASH 2MX16 3V 100NS 48TSOP (See Note 2)
U1302 – 1305	5191099C02	FLASH 4MX16 3V 100NS 48TSOP (See Note 2)
U1400	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U1404	5113808A17	IC FF DUAL D MC74ACT74D
U1501	5184789T06	IC ETHNT INTFC ADPTR 908
U1502	5113839M06	IC OR QUAD 2-IN
U1700 – 1702	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1703	8013917B01	RELAY SMD 5V 330MM T&R
U1704	5113808A28	IC MUX QUAD 2INP NON INV
U1705	5183376X01	IC, +5V RS232 XCVR, MAX211E
U1800 – 1802	5182681Y01	ADJ LOW DROPOUT POS REG 800MA
U1803	5113816A07	REG 5V POS 500MA
		crystal (see note 1):
Y500	5183070Y01	REF OSC MODULE 16.8 MHZ
Y1000	4882336V01	OSCILLATOR CLOCK 25 MHZ
Y1501	4884450T12	XTAL SM CP12A 20MHZ
		non-referenced items:
	2484657R01	INDUCTOR BEAD CHIP
	2484657R01	INDUCTOR BEAD CHIP
	0784775T01	STIFFNER PC BD EDGE
	0784775T01	STIFFNER PC BD EDGE
	5482006W02	RIBBON THERMAL XFER
	5482006W03	BARCODE LABEL
	6182512W03	LIGHTPIPES (8)
	8483030Y01	BD CKT, EPIC IV

NOTE 1: For optimum performance, diodes, transistors, lightpipes and integrated circuits must be ordered by Motorola part number.

NOTE 2: U1301 through 1305 are flash memory chips. Contact Motorola System Support Center (1-800-448-3245) for information on software for these chips.

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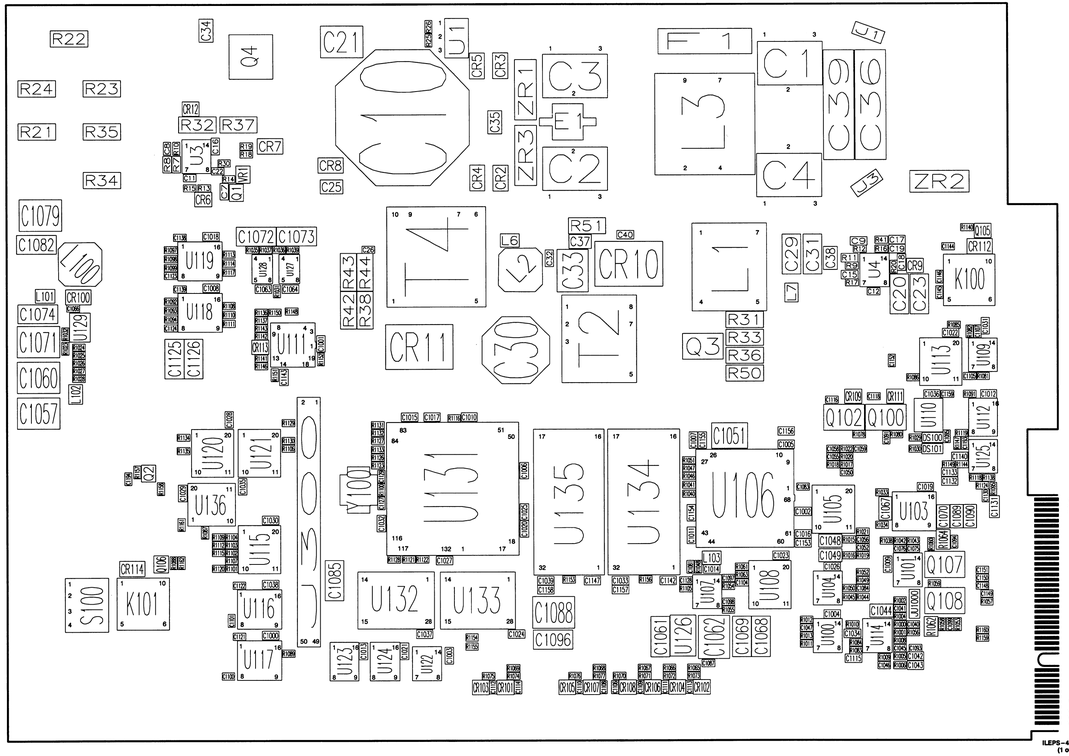
WIRELINE / POWER SUPPLY BOARD
MODEL TTN5041A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R24
R23
R21
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C1057
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CR100
U129
L100
C34
Q4
R17
R32
R37
CR7
U3
C18
R30
C19
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Q1
VR1
R15
R16
CR6
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U1
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ZR1
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F1
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CR8
C25
CR4
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C39
C36
C4
J1
J3
ZR2
C1072
C1073
U119
U118
U111
C1125
C1126
T4
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R51
C37
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CR10
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R38
CR11
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Q105
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R33
R36
R50
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U112
U125
Q102
Q100
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C2
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U115
U116
U117
S100
K101
CR114
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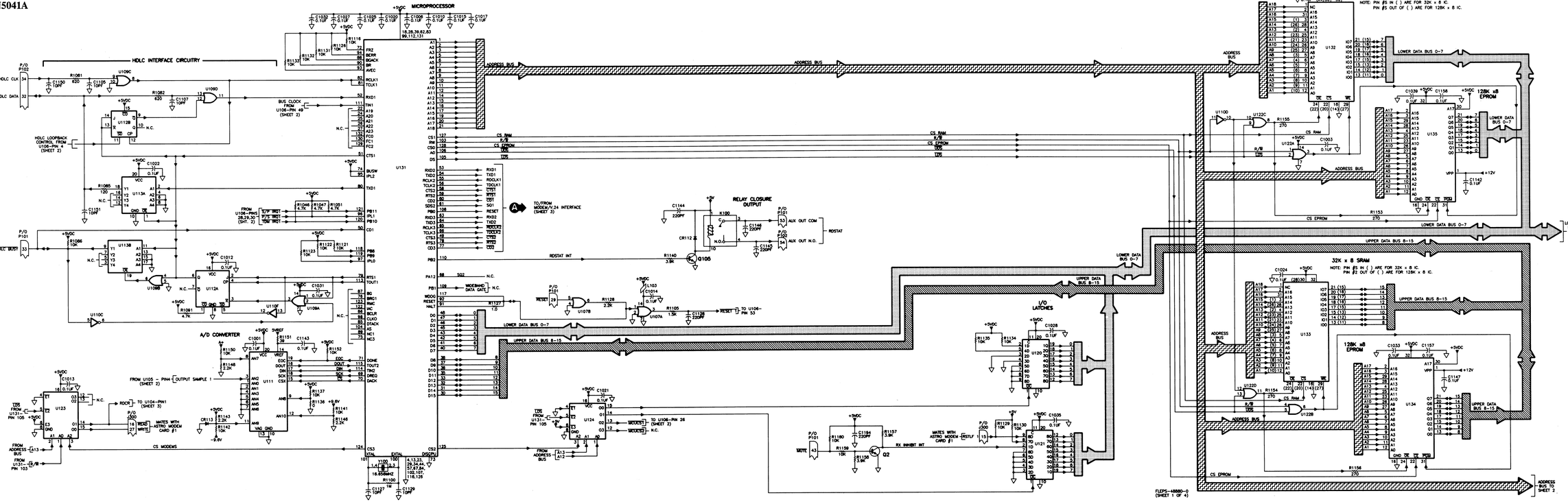
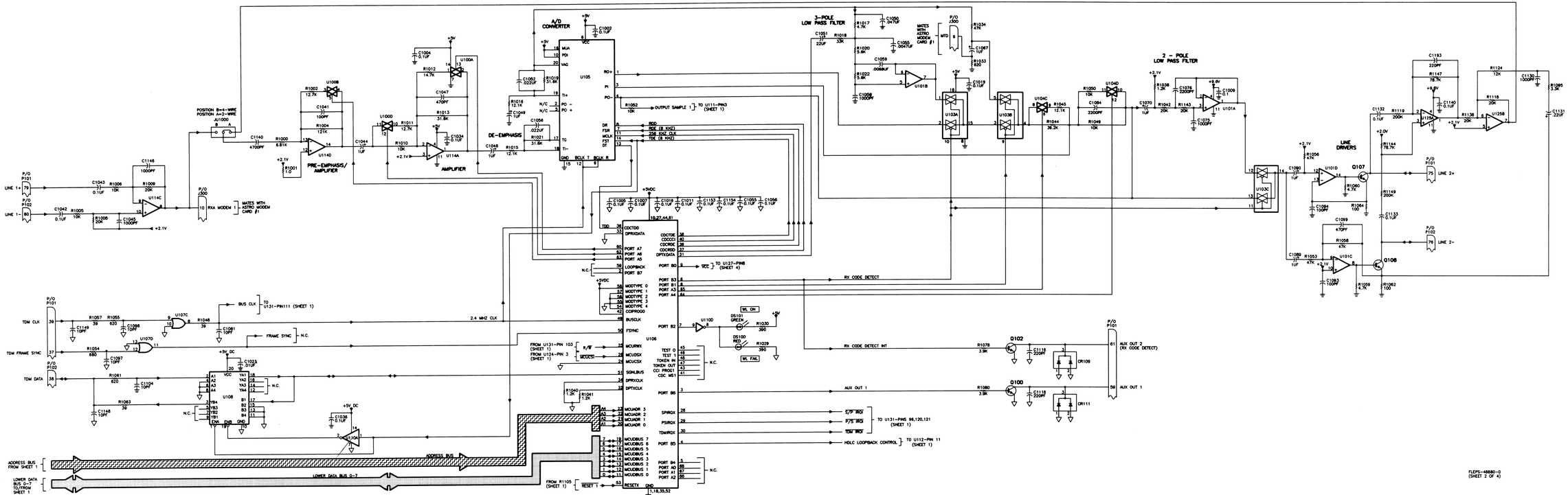
WIRELINE / POWER SUPPLY BOARD

MODEL TTN5041A





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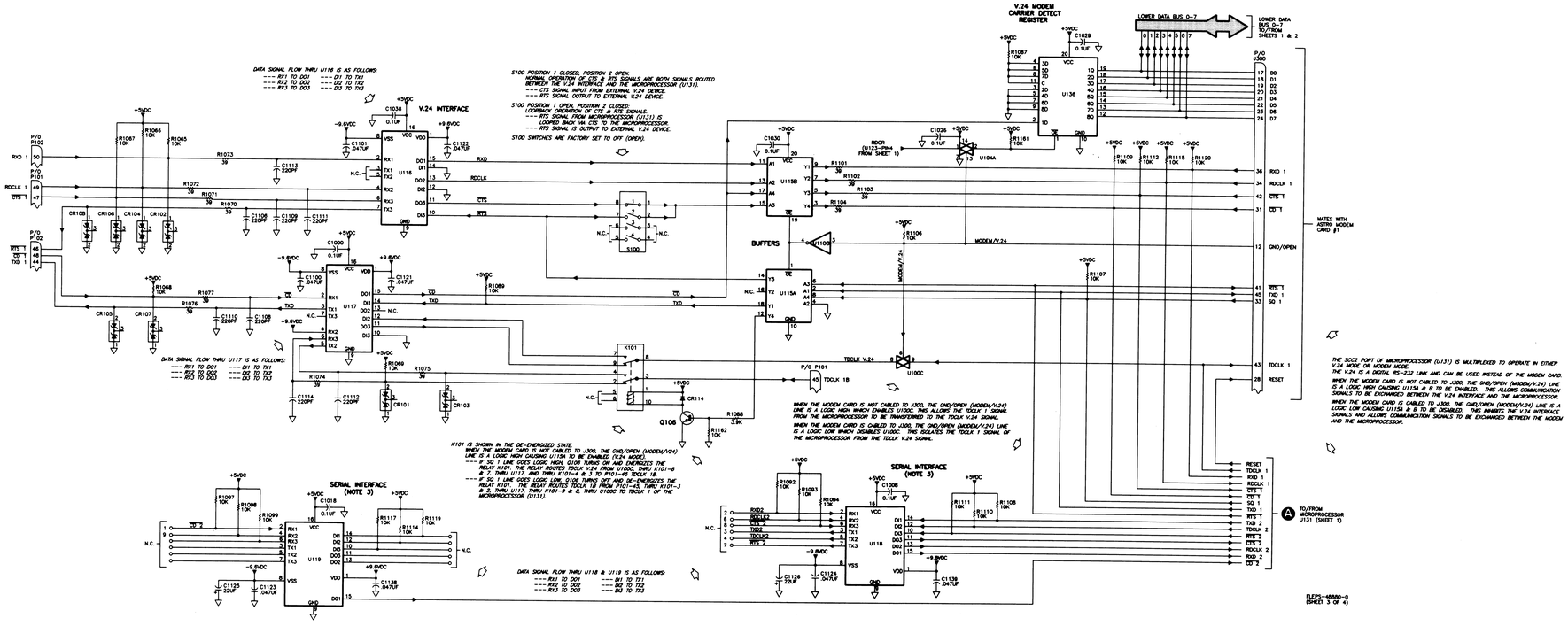
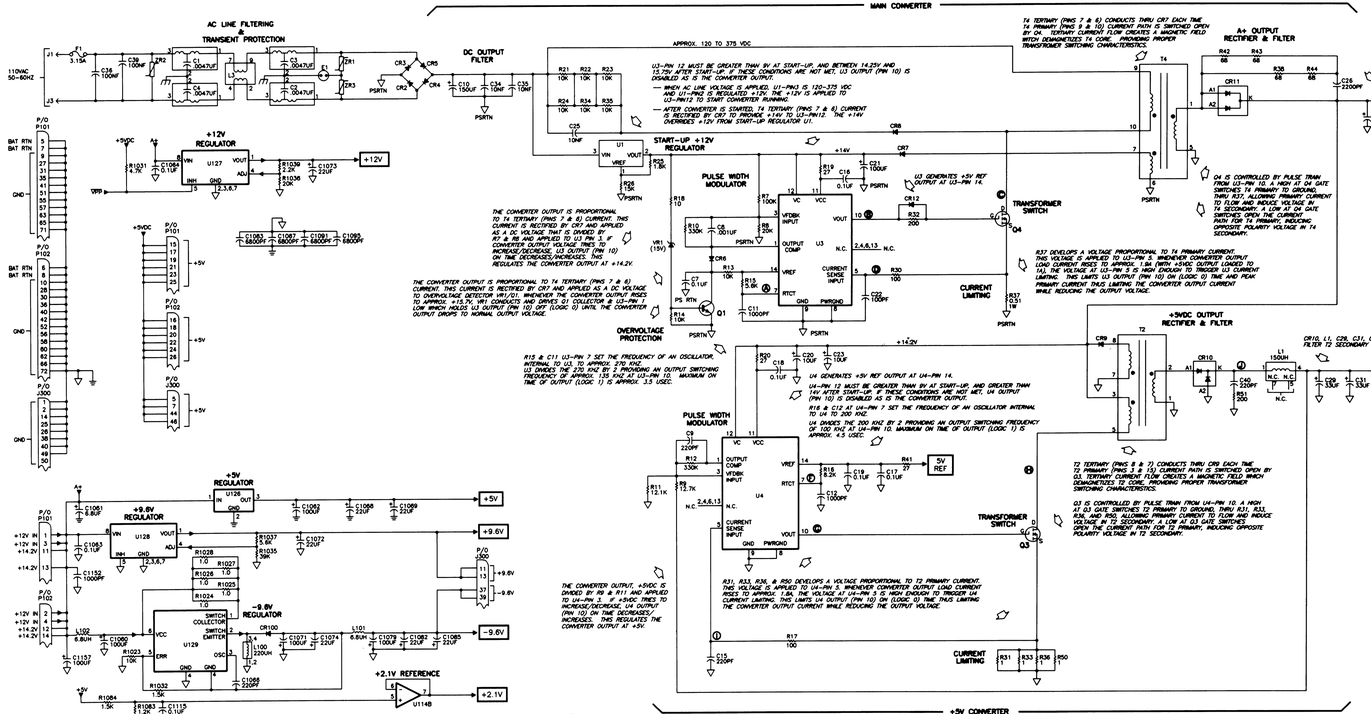
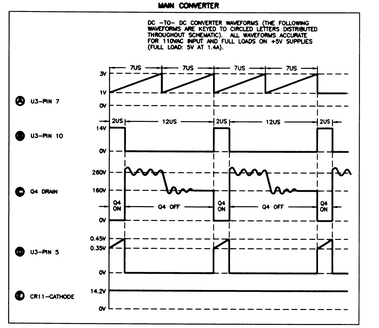
(Sheet 3 of 6)
10/15/99-UP

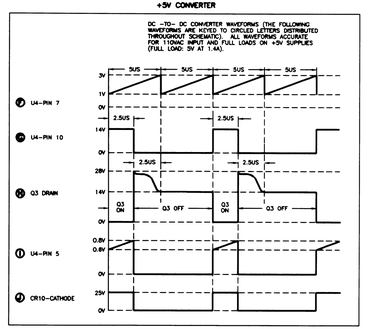
WIRELINE / POWER SUPPLY BOARD
MODEL TTN5041A



68P81094E81-A
(Sheet 4 of 6)
10/15/99-UP







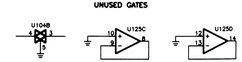
NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. EDGE CONNECTORS P101 AND P102 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. U118, U119 AND ASSOCIATED COMPONENTS ARE POPULATED ON THE CIRCUIT BOARD, BUT ARE NOT USED.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	HIP5600IS	HIGH VOLTAGE LINEAR REGULATOR	–	–
U3,4	UC2845B	HIGH PERFORMANCE, CURRENT MODE CONTROLLER	11,12	8,9
U100	MC14066B	QUAD ANALOG SWITCH	14	7
U101	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U103	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U104	MC14066B	QUAD ANALOG SWITCH	14	7
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	74AC32	QUAD 2-INPUT OR	14	7
U108	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U109	74AC32	QUAD 2-INPUT OR	14	7
U110	74AC04	HEX INVERTER	14	7
U111	MC1450411	8-BIT A/D CONVERTER	20	10
U112	74AC109	DUAL J-K FLIP-FLOP	16	8
U113	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U114	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U115	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U116, U117, U118, U119,	MC145406	DRIVER/RECEIVER; 3-DRIVERS, 3-RECEIVERS	16	9
U120, U121	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U122	74AC32	QUAD 2-INPUT OR	14	7
U123, U124	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U125	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U126	LM7805	+5V DC REGULATOR	–	–
U127, U128	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U129	MC33063	DC-TO-DC CONVERTER	6	4
U131	–	MICROPROCESSOR	18,28,39,62, 83,99,112, 131	4,13,23,29, 34,44,57,67, 84,102,107, 118,126
U132, U133	–	32K x 8 SRAM	28	14
U134, U135	–	128K x 8 EPROM	32	16
U136	74HC573	OCTAL 3-STATE NON-INVERTING LATCH	20	10
U145	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7

UNUSED GATES



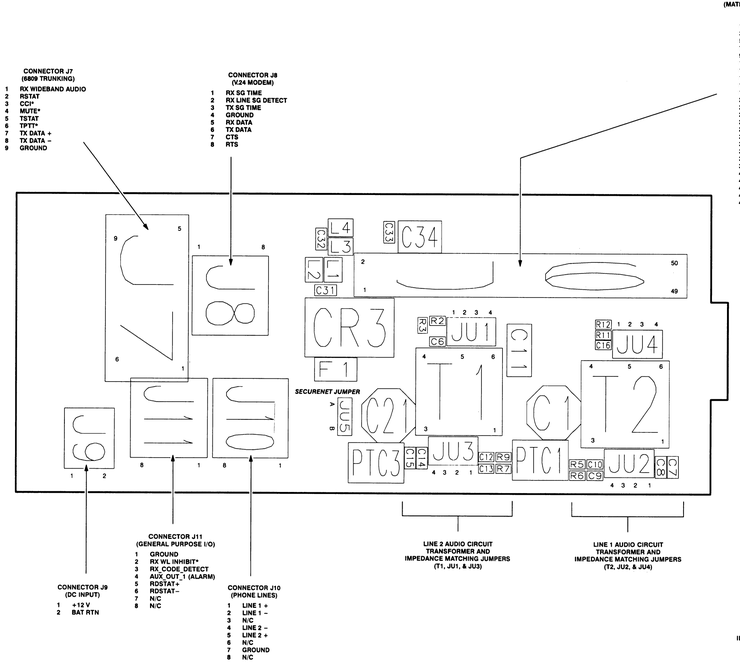
FLEPS-48680-0
(SHEET 4 OF 4)

parts list

TTN5041A Wireline/Power Supply Board — **PL–13140–O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1 thru 4	9184185T01	470 pF, ±20%, 250V
C7	2113741B69	0.1 uF, ±5%, 50 V
C8	2113740A79	1000 pF, ±5%, 50 V
C9	2113740857	220 pF, ±30%, 50 V
C10	2382128V02	CAPLYT LOW PROFILE 150UF 400V
C11,12	2113740A79	1000 pF, ±5%, 50 V
C15	2113740857	220 pF, ±30%, 50 V
C16 thru 19	2113741B69	0.1 uF, ±5%, 50 V
C20	2311048A19	10 uF, ±10%, 25 V
C21	2380090M25	100 uF, 25 V
C22	2113740A55	100 pF, ±5%, 50 V
C23	2311048A19	10 uF, ±10%, 25 V
C25	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C26	2113741A29	2200 pF, ±5%, 50 V
C29	2311049A22	33 uF, ±10%, 16 V
C30	2313748H41	1000 uF, ±20%, 25V
C31	2311048A22	33 uF, ±10%, 16 V
C32	2113741B69	0.1 uF, ±5%, 50 V
C33	2380090M25	100 uF, 25 V
C34,35	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C36	0813910G19	CAP 0.100 UF 10% 250V
C37,38	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C39	0813910G19	CAP 0.100 UF 10% 250V
C40	2113740857	220 pF, ±30%, 50 V
C1000 thru 1039	2113741B69	0.1 uF, ±5%, 50 V
C1040	2113741A37	4700 pF, ±5%, 50 V
C1041	2113740A55	100 pF, ±5%, 50 V
C1042,1043	2113741B69	0.1 uF, ±5%, 50 V
C1044	2311048A08	1 uF, ±10%, 35 V
C1045,1046	2113740A79	1000 pF, ±5%, 50 V
C1047	2113740A71	470 pF, ±5%, 50 V
C1048,1049	2311048A08	1 uF, ±10%, 35 V
C1050	2113749A17	0.047 uF, ±5%, 50 V
C1051	2380090M10	22 uF, ±20%, 25V
C1052	2113741A53	0.022 uF, ±5%, 50 V
C1055	2113741A37	4700 pF, ±5%, 50 V
C1056	2113741A53	0.022 uF, ±5%, 50 V
C1057	2380090M25	100 uF, 25 V
C1058	2113740A79	1000 pF, ±5%, 50 V
C1059	2113741A41	6800 pF, ±5%, 50 V
C1060	2380090M25	100 uF, 25 V
C1061	2311049A17	6.8 uF, ±10%, 35 V
C1062	2380090M25	100 uF, 25 V
C1063,1064	2113741B69	0.1 uF, ±5%, 50 V
C1066	2113740A53	220 pF, ±5%, 50 V
C1067	2311048A08	1 uF, ±10%, 35 V
C1068,1069	2311048A31	22 uF, ±10%, 20 V
C1070	2311048A08	1 uF, ±10%, 35 V
C1071	2380090M25	100 uF, 25 V
C1072 thru 1074	2311048A31	22 uF, ±10%, 20 V
C1075	2113740A79	1000 pF, ±5%, 50 V
C1076	2113741A29	2200 pF, ±5%, 50 V
C1079	2380090M25	100 uF, 25 V
C1081	2113740A29	10 pF, ±5%, 50 V
C1082	2311048A21	22 uF, ±10%, 20 V
C1083	2113741A41	6800 pF, ±5%, 50 V
C1084	2113741A29	2200 pF, ±5%, 50 V
C1085	2311048A21	22 uF, ±10%, 20 V
C1087	2113741A41	6800 pF, ±5%, 50 V
C1088	2380090M25	100 uF, 25 V
C1089,1090	2311048A08	1 uF, ±10%, 35 V
C1091	2113741A41	6800 pF, ±5%, 50 V
C1093,1094	2113740A55	100 pF, ±5%, 50 V
C1095	2113741A41	6800 pF, ±5%, 50 V
C1096	2311048A21	22 uF, ±10%, 20 V
C1097,1098	2113740A29	10 pF, ±5%, 50 V
C1099	2113740A71	470 pF, ±5%, 50 V
C1100,1101	2113741A61	0.047 uF, ±5%, 50 V
C1104,1105	2113740A29	10 pF, ±5%, 50 V
C1106	2113740A63	220 pF, ±5%, 50 V
C1107	2113740A29	10 pF, ±5%, 50 V
C1108 thru 1114	2113740A53	220 pF, ±5%, 50 V
C1115	2113741B69	0.1 uF, ±5%, 50 V
C1116	2113740A53	220 pF, ±5%, 50 V
C1118	2113740A63	220 pF, ±5%, 50 V
C1121 thru 1124	2113741A61	0.047 uF, ±5%, 50 V
C1125,1126	2311049A21	22 uF, ±10%, 20 V
C1127	2113740A29	10 pF, ±5%, 50 V
C1128	2113740A53	220 pF, ±5%, 50 V
C1129	2113740A29	10 pF, ±5%, 50 V
C1130	2113740A79	1000 pF, ±5%, 50 V
C1131	2311049A23	0.22 uF, ±10%, 35V
C1132,1133	2113741B69	0.1 uF, ±5%, 50 V
C1138,1139	2113741A61	0.047 uF, ±5%, 50 V
C1140	2113741B69	0.1 uF, ±5%, 50 V
C1142,1143	2113741B69	0.1 uF, ±5%, 50 V
C1144 thru 1146	2113740A63	220 pF, ±5%, 50 V
C1147	2113741B69	0.1 uF, ±5%, 50 V
C1148 thru 1151	2113740A29	10 pF, ±5%, 50 V
C1152	2113740A79	1000 pF, ±5%, 50 V
C1153 thru 1158	2113741B69	0.1 uF, ±5%, 50 V
C1159	2113740A79	1000 pF, ±5%, 50 V
C1193,1194	2113740A63	220 pF, ±5%, 50 V
		diode (see note):
CR2 thru 5	4813833B06	1A; 600 V
CR6	4813833C10	0.1A, 70 V
CR7,8	4813833B06	1A; 600 V
CR9	4813833C10	0.1A, 70 V
CR10,11	4813833A07	DIODE SCHOTTKY DL 20A 100V
CR12	4813833C10	0.1A, 70 V
CR100	4813833B01	Schottky type
CR101 thru 109	4813832C28	Zener 15 V
CR111	4813832C28	Zener 15 V
CR112	4813833B01	Schottky type
CR113	4813833C10	0.1A, 70 V
CR114	4813833B01	Schottky type
		light emitting diode (see note):
DS100	4882198T01	red
DS101	4882198T03	GRN
		spark gap:
E1	8083029H10	SPARK GAP
		fuse:
F1	6582847N04	FUSE, 3.15A, 250V
		connector:
J1	2910231A10	terminal, circuit board
J3	2910231A10	terminal, circuit board
J300	0984455T29	Blindmate Keyed, 50–position
		relay:
K100,101	8013917B01	5 V, 330 ohm
		coil:
L1	2484266T01	150 UH
L2	2485069U02	COIL, 10 uH; 2.2AMP
L3	2483265X01	TRANSFORMER SWITCHING
L6,7	2484657R01	ferrite bead
L100	2485069U01	220UH, 480 MA
L101,102	2462587M28	CHIP IND 6800 NH 5%
L103	2484657R01	ferrite bead
		translator (see note):
Q1,2	4813824A10	NPN
Q3	4813821A24	TSTR N–CH 60V 20A
Q4	4813821D34	TSTR N–CH 600V 6A
Q100	4813822A07	NPN
Q102	4813822A07	NPN
Q105,106	4813824A11	NPN
Q107,108	4813822A07	NPN
		resistor, fixed:
R7	0611077G88	100K, ±1%, 1/8 W
R8	0611077G21	20K, ±1%, 1/8W
R9	0611079G11	12.7K, 1/10W, ±1%
R10	0611079G35	330K, ±5%, 1/10 W
R11	0611077F99	12.1K, ±1%, 1/8 W
R12	0611079B35	330K ±5%, 1/10 W
R13,14	0611079A98	10K, ±5%, 1/10 W
R15	0611079A82	5600 ohms, ±5%, 1/10 W
R16	0611079A96	8200 ohms, ±5% 1/10 W
R17	0611079A50	100 ohms, ±5%, 1/10 W
R18	0611079A26	10 ohms, ±5%; 1/10 W
R19,20	0611079A36	27 ohms, ±5%; 1/10 W
R21 thru 24	0683682T67	RES CHIP 10K 5–1
R25	0611079A80	1800 ohms, ±5%; 1/10 W
R26	0611079B03	15K, ±5%; 1/10 W
R30	0611079A50	100 ohms, ±5%; 1/10 W
R31	0683682T01	1 ohm, ±5%; 1 W
R32	0683682T56	200 ohms, ±5%; 1W
R33	0683682T01	1 ohm, ±5%; 1 W
R34,35	0683682T97	RES CHIP 10K 5–1
R36	0683682T01	1 ohm, ±5%; 1 W
R37	0683682T98	0.51 ohms, ±5%; 1W
R38	0683682T45	68 ohms, ±5%; 1W
R41	0611079A36	27 ohms, ±5%; 1/10 W
R42 thru 44	0683682T45	68 ohms, ±5%; 1W
R50	0683682T01	1 ohm, ±5%; 1 W
R51	0683682T56	200 ohms, ±5%; 1W
R1000	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1001	0611079A02	1 ohm, ±5%; 1/10 W
R1002	0611079G11	12.7K, 1/10W, ±1%
R1004	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R1005,1006	0611079A98	10K, ±5%; 1/10 W
R1008,1009	0611079B06	20K, ±5%; 1/10W
R1010	0611079G01	10K, ±1%; 1/10 W
R1011	0611079G11	12.7K, 1/10W, ±1%
R1012	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1013	0611079G49	31.6K, 1/10W, ±1%
R1015,1016	0611079G09	12.1K, 1/10 W; ±1%
R1017	0611079A90	4700 ohms, ±5%; 1/10 W
R1018	0611079B11	33K, ±5%; 1/10 W
R1019	0611079G49	31.6K, 1/10W, ±1%
R1020	0611079A82	5600 ohms, ±5%; 1/10 W
R1021	0611079G49	31.6K, 1/10W; ±1%
R1022	0611079A82	5600 ohms, ±5%; 1/10 W
R1023	0611079A98	10K, ±5%; 1/10 W
R1024 thru 1028	0611079A02	1 ohm, ±5%; 1/10 W
R1029,1030	0611079A64	390 ohms, ±5%; 1/10 W
R1031	0611079A90	4700 ohms, ±5%; 1/10 W
R1032	0611079A78	1500 ohms, ±5%; 1/10 W
R1033	0611079A69	620 ohms, ±5%; 1/10W
R1034	0611079B15	47K, ±5%; 1/10 W
R1035	0611079B13	39K, ±5%; 1/10 W
R1036	0611079B06	20K, ±5%; 1/10W
R1037	0611079A92	5600 ohms, ±5%; 1/10 W
R1038	0611079A76	1.2K, ±5%; 1/10 W
R1039	0611079A82	2200 ohms, ±5%; 1/10 W
R1040,1041	0611079A76	1.2K, ±5%; 1/10 W
R1042,1043	0611079B06	20K, ±5%; 1/10W
R1044	0611079G58	Resistor chip 39.2K 1/10 W 1%
R1045	0611079G09	12.1K, 1/10 W; ±1%
R1046,1047	0611079A90	4700 ohms, ±5%; 1/10 W
R1048	0611079A40	39 ohms, ±5%; 1/10 W
R1049,1050	0611079G01	10K, ±1%; 1/10 W
R1051	0611079A90	4700 ohms, ±5%; 1/10 W
R1052	0611079A98	10K, ±5%; 1/10 W
R1053	0611079B15	47K, ±5%; 1/10 W
R1054	0611079A70	680 ohms, ±5%, 1/10 W
R1055	0611079A69	620 ohms, ±5%; 1/10W
R1056	0611079B15	47K, ±5%; 1/10 W
R1057	0611079A40	39 ohms, ±5%; 1/10 W
R1058	0611079B15	47K, ±5%; 1/10 W
R1059,1060	0611079A90	4700 ohms, ±5%; 1/10 W
R1061	0611079A69	620 ohms, ±5%; 1/10W
R1062	0611072A25	100 ohms, ±5%; 1/4 W
R1063	0611079A40	39 ohms, ±5%; 1/10 W
R1064	0611072A25	100 ohms, ±5%; 1/4 W
R1065 thru 1069	0611079A98	10K, ±5%; 1/10 W
R1070 thru 1077	0611079A40	39 ohms, ±5%; 1/10 W
R1078	0611079A88	3900 ohms, ±5%; 1/10 W
R1080	0611079A88	3900 ohms, ±5%; 1/10 W
R1081,1082	0611079A69	620 ohms, ±5%; 1/10W
R1083	0611079A76	1.2K, ±5%; 1/10 W
R1084	0611079A78	1500 ohms, ±5%; 1/10 W
R1085	0611079A52	120 ohms, ±5%; 1/10 W
R1086,1087	0611079A98	10K, ±5%; 1/10 W
R1088	0611079A88	3900 ohms, ±5%; 1/10 W
R1089	0611079A98	10K, ±5%; 1/10 W
R1091	0611079A90	4700 ohms, ±5%; 1/10 W
R1092 thru 1094	0611079A98	10K, ±5%; 1/10 W
R1095	0611079A86	3300 ohms, ±5%; 1/10 W
R1097 thru 1099	0611079A98	10K, ±5%; 1/10 W
R1100	0611079B47	1 MEG, ±5%; 1/10 W
R1101 thru 1104	0611079A40	39 ohms, ±5%; 1/10 W
R1105	0611079A78	1500 ohms, ±5%; 1/10 W
R1106 thru 1117	0611079A98	10K, ±5%; 1/10 W
R1118	0611079B06	20K, ±5%; 1/10W
R1119	0611079E30	200K, 1/10 W; ±1%
R1120 thru 1123	0611079A98	10K, ±5%; 1/10 W
R1124	0611079B01	12K, ±5%; 1/10 W
R1126	0611079A98	10K, ±5%; 1/10 W
R1127	0611073A02	1 ohm, ±5%; 1/10 W
R1128	0611079A82	2200 ohms, ±5%; 1/10 W
R1129 thru 1135	0611079A98	10K, ±5%; 1/10 W
R1136	0611073A01	0 ohms, ±5%; 1/10 W
R1137	0611079A98	10K, ±5%; 1/10 W
R1138	0611079B06	20K, ±5%; 1/10W
R1140	0611073A88	3900 ohms, ±5%; 1/10 W
R1141,1142	0611079A98	10K, ±5%; 1/10 W
R1143	0611079A82	2200 ohms, ±5%; 1/10 W
R1144	0611079G87	Resistor chip 78.7K 1/10 W 1%
R1146	0611079A82	2200 ohms, ±5%; 1/10 W
R1147	0611079G87	Resistor chip 78.7K 1/10 W 1%
R1148	0611073A82	2200 ohms, ±5%; 1/10 W
R1149	0611079E30	200K, 1/10 W; ±1%
R1150	0611079A98	10K, ±5%; 1/10 W
R1151	0611073A40	39 ohms, ±5%; 1/10 W
R1152	0611079A98	10K, ±5%; 1/10 W
R1153 thru 1156	0611079A60	270 ohms, ±5%; 1/10 W
R1157,1158	0611073A88	3900 ohms, ±5%; 1/10 W
R1159 thru 1162	0611079A98	10K, ±5%; 1/10 W
		switch:
S100	4083706T02	dip, spst
		transformer:
T2	2584265T01	power
T4	2485248U02	25W FLYBACK INDUCTOR
		integrated circuit (see note):
U1	5182657C02	IC HV LIN RGLTR 5600LS
U3,4	5182278R78	ICurrent Module Control
U100	5113805A86	Quad Analog Multiplexer/Demultiplexer
U101	5113819A05	High Performance, Single Supply
U103	5113805A85	Mux/Demux, Trip 2–Channel Analog
U104	5113805A86	Quad Analog Multiplexer/Demultiplexer
U105	5184743T01	CODEC Pulse Code Modulation
U106	5184625T03	ASIC Gate Array
U107	5113808A14	Quad 2–Input OR Gate
U108	5113808A38	Octal 3–State Non–Inverter Line Driver
U109	5113808A14	Quad 2–Input OR Gate
U110	5113808A05	Hex Inverter
U111	5113811A08	IC; 8–bit
U112	5113808A19	Flip–Flop, Dual Jack w/Set
U113	5113808A38	Octal 3–State Non–Inverter Line Driver
U114	5113819A05	High Performance, Single Supply
U115	5113808A38	Octal 3–State Non–Inverter Line Driver
U116 thru 119	5113811A10	Driver/Receiver, 3–Drivers; 3–Receivers
U120,121	5113805A72	Octal 3–State Non–Inverter Transmit Latch
U122	5113808A14	Quad 2–Input OR Gate
U123,124	5113808A20	1 of 8 Decoder/Demultiplexer
U125	5113819A05	High Performance, Single Supply
U126	5113816A07	5–Volt Positive Regulator
U127,128	5113816A01	Adjustable Low Dropout, Positive
U129	5113815A01	DC to DC Converter
U131	5113803A06	Multiprotocol
U132,133	5184064F78	CMOS SRAM, 32Kx8
U134	5191013H66	IC PRGMD EPROM
U135	5191013H65	IC PRGMD EPROM
U136	5113805A72	Octal 3–State Non–Inverter Transmit Latch
		zener diode (see note):
VR1	4813830A28	Zener 15 V
		crystal (see note):
Y100	4884450T06	12A, 16.6567 MHZ
		varistor (see note):
ZR1 thru 3	0684357M07	VARISTOR UL 275LC20A
		non–referenced items:
	0910548A04	Fuse Block (used with F1)
	0982451V13	SOCKET, IC 32 PIN SM T & R (used with U134)
	0982451V13	SOCKET, IC 32 PIN SM T & R (used with U135)
	0984728L01	Shorting Jumper; 2–contact (used with JU1000)
	2683678T02	HEAT SINK (used with Q4)
	2880001R03	plug; 3–pin header (used with JU1000)
	5482008W01	Label, PCB barcode
	5484960T01	Label, barcode; 6.3 x 12.7mm, white
	8482328W01	BOARD, printed circuit

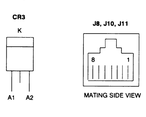
note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.



CONNECTOR J6
(MATES WITH 50-CONDUCTOR RIBBON CABLE ON BACKPLANE)

1	GND	2	GND
3	GND	4	GND
5	+12V IN	6	+12V IN
7	+12V IN	8	+12V IN
9	BAT RTN	10	BAT RTN
11	BAT RTN	12	BAT RTN
13	GND	14	GND
15	RX WL INHIBIT*	16	TX DATA
17	GND	18	TX SIGNAL TIMING (DCE)
19	RTS	20	CTS
21	RX LINE DETECT	22	RX SIGNAL TIMING
23	RX DATA	24	GND
25	GND	26	+13.8V
27	GND	28	GND
29	RD STAT+	30	RD STAT–
31	AUX OUT 1	32	AUX OUT 2 (RX CODE DETECT)
33	TX DATA –	34	TX DATA+
35	TPTT*	36	TSTAT
37	RX WIDEBAND AUDIO	38	CCI*
39	RSTAT	40	MUTE*
41	GND	42	GND
43	GND	44	GND
45	LINE 2+	46	LINE 2–
47	GND	48	GND
49	LINE 1+	50	LINE 1–

BASING DETAILS



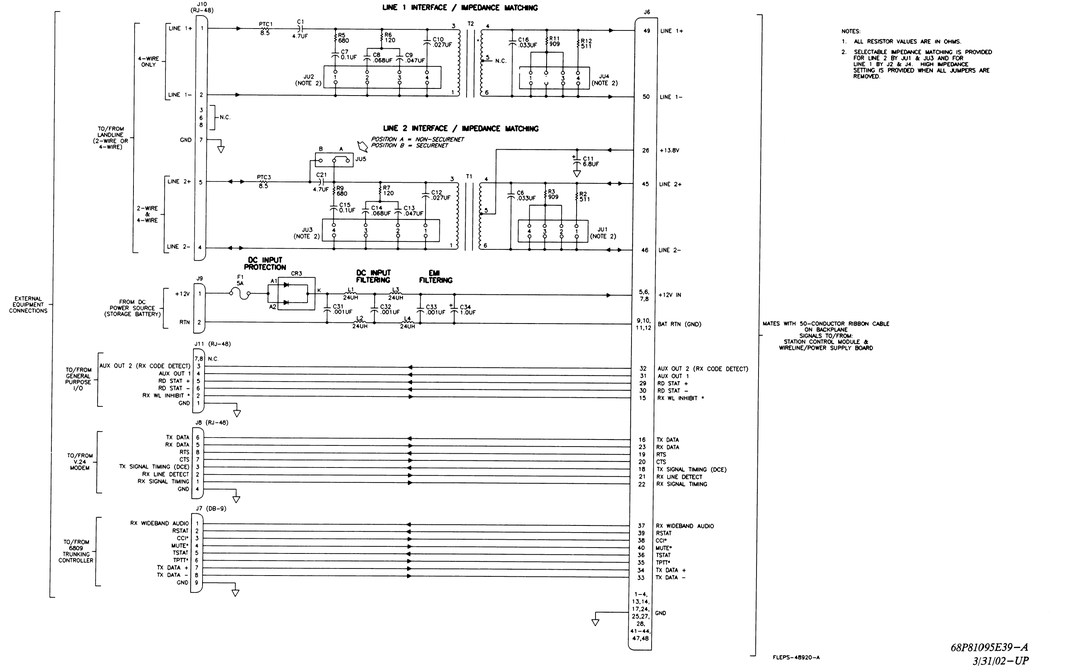
ILEPS-48921-A

parts list

TTN5061E Wireline Interface Board (WIB) — PL-13160-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1	2382174V01	4.7 uF, ±20%; 200 V
C6	2113741A57	0.033 uF, ±5%; 50 V
C7	2113741B69	0.1 uF, ±5%; 50 V
C8	2113741B65	0.068 uF, ±5%; 50 V
C9	2113741A61	0.047 uF, ±5%; 50 V
C10	2113741A55	0.027 uF, ±5%; 50 V
C11	2311049A17	6.8 uF, ±10%, 35 V
C12	2113741A55	0.027 uF, ±5%; 50 V
C13	2113741A61	0.047 uF, ±5%; 50 V
C14	2113741B65	0.068 uF, ±5%; 50 V
C15	2113741B69	0.1 uF, ±5%; 50 V
C16	2113741A57	0.033 uF, ±5%; 50 V
C21	2382174V01	4.7 uF, ±20%; 200 V
C33 thru 33	2113740B73	1000 pF, ±5%, 50 V
C34	0882424W45	CAP FILM SM 1.0UFF 63V 5%
		diode (see note):
CR3	4813833A07	DIODE SCHOTTKY DL 20A 100V
		fuse:
F1	6512018A08	5A
		connector:
J6	2885155U07	PLUG, Header; 50 contacts
J7	0982855X03	RECP 9 POS D SUB PC MT
J8	0909895R04	JK PHN 8 POS PC MT TOP ENTRY
J9	3183331R01	terminal strip; 2–contact
J10,11	0909895R04	JK PHN 8 POS PC MT TOP ENTRY
		coil:
L1 thru 4	2484657R01	ferrite bead
		varistor:
PTC1	0685239U01	Resistor PTC 600V – 145A
PTC3	0685239U01	Resistor PTC 600V – 145A
		resistor, fixed:
R2	0611079D69	511 ohms, 1/10 W; ±1%
R3	0611079D93	909 ohms, 1/10 W; ±1%
R5	0611079A70	680 ohms, ±5%, 1/10 W
R6,7	0611079A52	120 ohms, ±5%; 1/10 W
R9	0611079A70	680 ohms, ±5%, 1/10 W
R11	0611079D93	909 ohms, 1/10 W; ±1%
R12	0611079D69	511 ohms, 1/10 W; ±1%
		transformer:
T1,2	2584422T01	telephone line isolation
		non–referenced items:
	0984728L01	Shorting Jumper: 2–contact (used with JU1)
	0984728L01	Shorting Jumper: 2–contact (used with JU2)
	0984728L01	Shorting Jumper: 2–contact (used with JU3)
	0984728L01	Shorting Jumper: 2–contact (used with JU4)
	0984728L01	Shorting Jumper: 2–contact (used with JU5)
	2880001P03	plug: 3–pin header (used with JU5)
	2880001S04	plug: 8–contact (used with JU1)
	2880001S04	plug: 8–contact (used with JU2)
	2880001S04	plug: 8–contact (used with JU3)
	2880001S04	plug: 8–contact (used with JU4)
	2883291R01	plug: 2–contact (used with J9)
	8482355W06	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.



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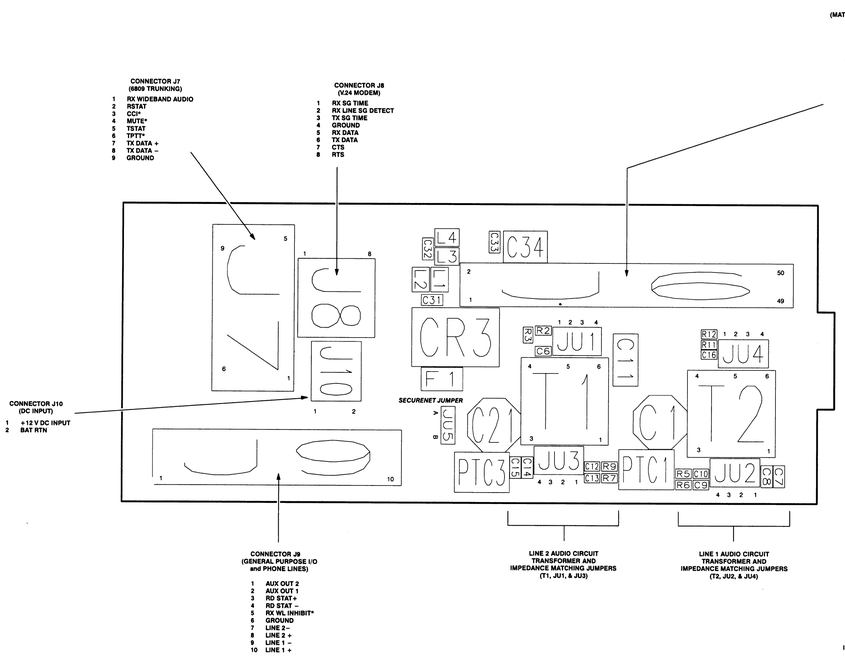

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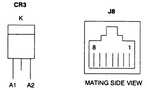
BASING DETAILS

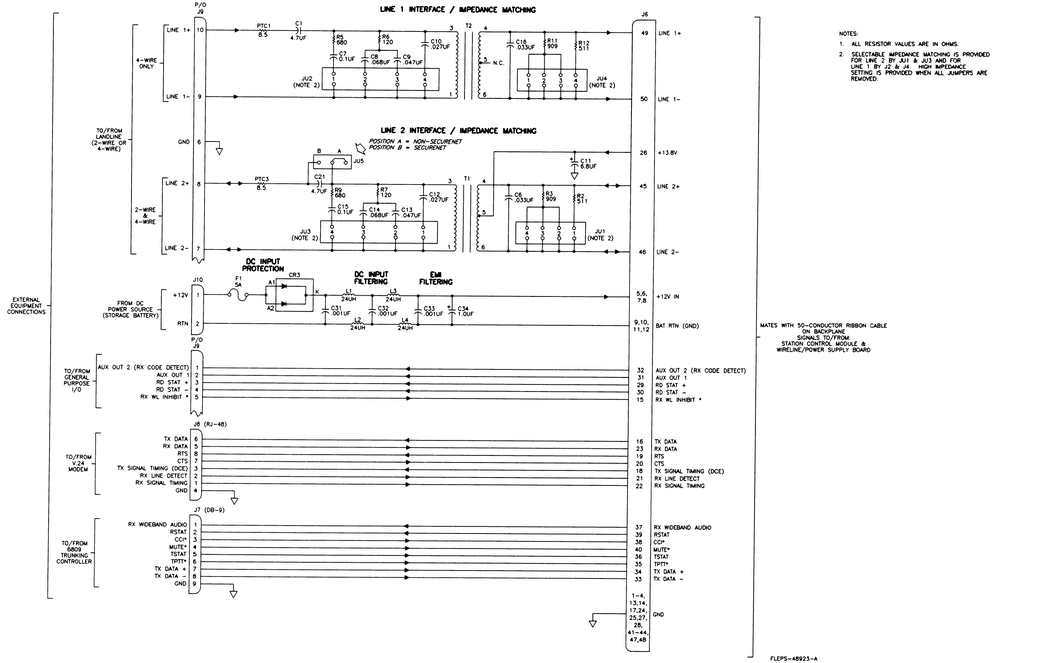


parts list

CLN6651D Wireline Interface Board (WIB) PL–13161–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1	2382174V01	4.7 uF, ±20%, 200 V
C6	2113741A57	0.033 uF, ±5%, 50 V
C7	2113741B69	0.1 uF, ±5%, 50 V
C8	2113741B65	0.068 uF, ±5%, 50 V
C9	2113741A61	0.047 uF, ±5%, 50 V
C10	2113741A55	0.027 uF, ±5%, 50 V
C11	2311049A17	6.8 uF, ±10%, 35 V
C12	2113741A55	0.027 uF, ±5%, 50 V
C13	2113741A61	0.047 uF, ±5%, 50 V
C14	2113741B65	0.068 uF, ±5%, 50 V
C15	2113741B69	0.1 uF, ±5%, 50 V
C16	2113741A57	0.033 uF, ±5%, 50 V
C21	2382174V01	4.7 uF, ±20%, 200 V
C31 thru 33	2113740B73	1000 pF, ±5%, 50 V
C34	0882422W45	CAP FILM SM 1.0UF 63V 5%
		diode (see note):
CR3	4813833A07	DIODE SCHOTTKY DL 20A 100V
		fuse:
F1	6512018A08	5A
		connector:
J6	2885155U07	PLUG, Header; 50 contacts
J7	0982855X03	RECP 9 POS D SUB PC MT
J8	0909895R04	JK PHN 8 POS PC MT TOP ENTRY
J10	3183331R01	terminal strip; 2–contact
		coil:
L1 thru 4	2484657R01	ferrite bead
		varistor:
PTC1	0685239U01	Resistor PTC 600V–145A
PTC3	0685239U01	Resistor PTC 600V–145A
		resistor, fixed:
R2	0611079D69	511 ohms, 1/10 W, ±1%
R3	0611079D93	909 ohms, 1/10 W, ±1%
R5	0611079A70	680 ohms, ±5%, 1/10 W
R6,7	0611079A52	120 ohms, ±5%, 1/10 W
R9	0611079A70	680 ohms, ±5%, 1/10 W
R11	0611079D93	909 ohms, 1/10 W, ±1%
R12	0611079D69	511 ohms, 1/10 W, ±1%
		transformer:
T1,2	2584422T01	telephone line isolation
		non–referenced items:
	0983587X01	CONNECTOR, REC; 10–position (used with J9)
	0984728L01	Shorting Jumper; 2–contact (used with JU1)
	0984728L01	Shorting Jumper; 2–contact (used with JU2)
	0984728L01	Shorting Jumper; 2–contact (used with JU3)
	0984728L01	Shorting Jumper; 2–contact (used with JU4)
	0984728L01	Shorting Jumper; 2–contact (used with JU5)
	2880001R03	plug; 3–pin header (used with JU5)
	2880001S04	plug; 8–contact (used with JU1)
	2880001S04	plug; 8–contact (used with JU2)
	2880001S04	plug; 8–contact (used with JU3)
	2880001S04	plug; 8–contact (used with JU4)
	2883291R01	plug; 2–contact (used with J10)
	2883586X01	CONNECTOR, PCB plug; 10–position (used with J9)
	8483267X04	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

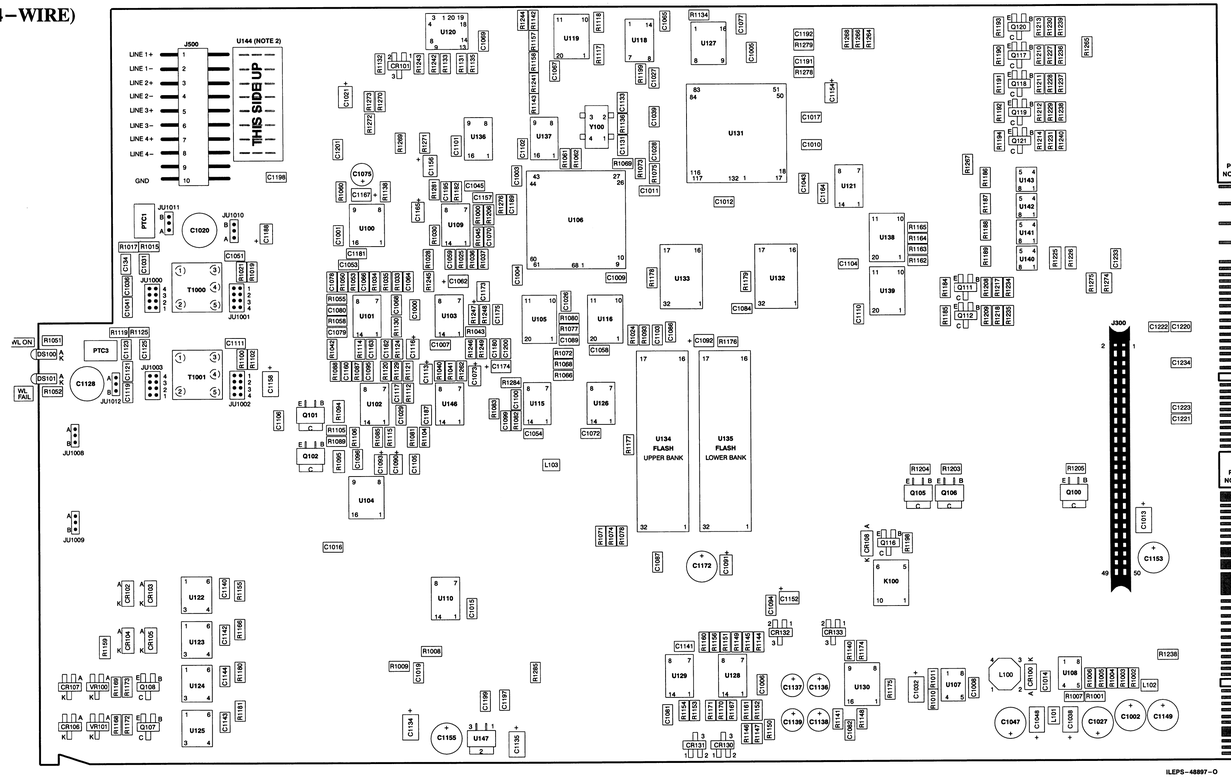


NOTES:
1. ALL RESISTOR VALUES ARE IN OHMS.
2. SELECTABLE IMPEDANCE MATCHING IS PROVIDED FOR LINE 2 BY JU1 & JU3 AND FOR LINE 1 BY J2 & J4. HIGH IMPEDANCE SETTING IS PROVIDED WHEN ALL JUMPERS ARE REMOVED.

FLEPS–48923–A

WIRELINE INTERFACE BOARD (4–WIRE)

MODELS CLN6955A
CLN6957A



ILEPS–48897–O
(1 of 2)

68P81094E82–A
(Sheet 1 of 5)
10/15/99–UP

NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. ON THIS CIRCUIT BOARD, A PRINTED CIRCUIT JUMPER BOARD IS SOLDERED INTO U144 (MOTOROLA PART NO. 8483404X01) LOCATION. THE JUMPER BOARD CONNECTS J500 CONTACTS TO THE LINE I/O CIRCUITRY. THE DASHED LINES REPRESENT PLATED JUMPERS ON THE UNDERSIDE OF THE JUMPER BOARD.
3. THE CIRCUIT BOARD EDGE CONNECTORS, P101 AND P201, HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE ODD NUMBERED AND THE CONTACTS ON THE BACK OF THE BOARD ARE EVEN NUMBERED. THE CUTAWAY VIEW OF THE BACK OF THE BOARD, JUST TO THE RIGHT OF THE COMPONENT SIDE VIEW, SHOWS THE EVEN NUMBERED CONTACTS OF P101 AND P201.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P101–1, 3	GND	P101–2, 4	GND	P201–1	LINE 1+	P201–2	LINE 1–
P101–5	NOT USED	P101–6	NOT USED	P201–7	LINE 2+	P201–8	LINE 2–
P101–7	NOT USED	P101–8	NOT USED	P201–13	NOT USED	P201–14	NOT USED
P101–9	NOT USED	P101–10	NOT USED	P201–19	NOT USED	P201–20	NOT USED
P101–11	NOT USED	P101–12	NOT USED	P201–25	NOT USED	P201–26	GEN TX DATA+
P101–13	NOT USED	P101–14	NOT USED	P201–27	PL–	P201–28	AUX OUT 1 (FAILSOFT)
P101–15	NOT USED	P101–16	NOT USED	P201–29	AUX OUT 2	P201–30	AUX OUT 3
P101–17	NOT USED	P101–18, 20	GND	P201–31	NOT USED	P201–32	NOT USED
P101–19, 21	GND	P101–22, 24	+14.2V	P201–33	NOT USED	P201–34	NOT USED
P101–23, 25	+14.2V	P101–26	+14.2V	P201–35	AUX OUT 7 N.O.	P201–36	NOT USED
P101–27, 29, 31, 33	+5V	P101–28, 30, 32, 34	+5V	P201–37	NOT USED	P201–38	NOT USED
P101–35	GND	P101–36	GND	P201–39	AUX IN 9 OPTO–	P201–40	NOT USED
P101–37	NOT USED	P101–38	NOT USED	P201–41	NOT USED	P201–42	NOT USED
P101–39	NOT USED	P101–40	RESET	P201–43	NOT USED	P201–44	NOT USED
P101–41	HDLC DATA	P101–42	HDLC BUSY	P201–45	NOT USED	P201–46	NOT USED
P101–43	HDLC CLK	P101–44	TDM FRAME SYNC	P201–47	NOT USED	P201–48	AUX IN 9 OPTO+
P101–45	TDM DATA	P101–46	TDM CLK	P201–49	NOT USED	P201–50	NOT USED
P101–47	NOT USED	P101–48	NOT USED	P201–51	NOT USED	P201–52	AUX OUT 7 COM
P101–49	NOT USED	P101–50	NOT USED	P201–53	NOT USED	P201–54	AUX IN 6 (IN CABINET RE-PEAT)
P101–51	NOT USED	P101–52	NOT USED	P201–55	NOT USED	P201–56	AUX IN 4 (RX INHIBIT)
P101–53	NOT USED	P101–54	NOT USED	P201–57	NOT USED	P201–58	AUX IN 2 (TX INHIBIT)
P101–55	BOARD ID DECODE LINE	P101–56	NOT USED	P201–59	AUX IN 7	P201–60	AUX IN 1 (SITE FAILSOFT)
P101–57	BOARD ID DECODE LINE	P101–58	NOT USED	P201–61	NOT USED	P201–62	PL+
P101–59	BOARD ID DECODE LINE	P101–60	NOT USED	P201–63	AUX IN 5 (DUPLEX ENABLE)	P201–64	GEN TX DATA–
P101–61	BOARD ID DECODE LINE	P101–62	NOT USED	P201–65	AUX INT 3 (EXT TX CODE DE-TECT)	P201–66	NOT USED
P101–63	GND	P101–64	GND	P201–67	NOT USED	P201–68	NOT USED
P101–65	NOT USED	P101–66	NOT USED	P201–69	NOT USED	P201–70	NOT USED
P101–67	GND	P101–68	GND	P201–71	NOT USED	P201–72	NOT USED
P101–69	TX WIDE BAND AUDIO	P101–70	NOT USED	P201–73	NOT USED	P201–74	NOT USED
P101–71, 73	GND	P101–72	GND	P201–75	NOT USED	P201–76	NOT USED
P101–75	NOT USED	P101–74	NOT USED	P201–77	NOT USED	P201–78	NOT USED
P101–77	NOT USED	P101–76	NOT USED	P201–79	NOT USED	P201–80	NOT USED
P101–79	GND	P101–78	NOT USED				
		P101–80	GND				

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parts list

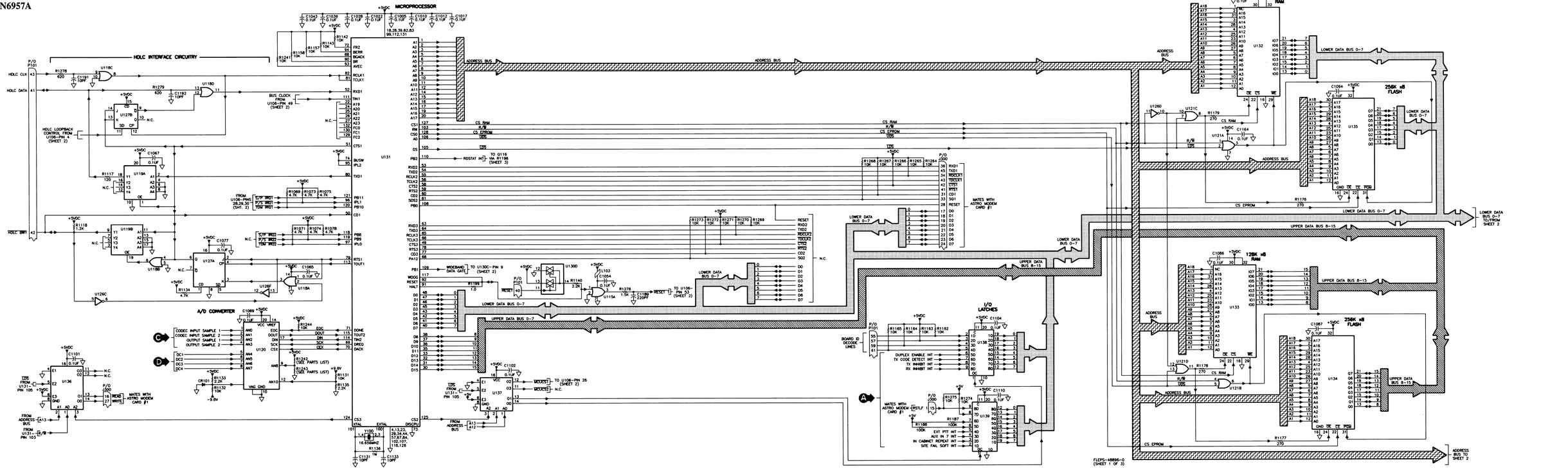
CLN6955A / CLN6957A Wireline Interface Board (4–Wire) PL–13147–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1000,1001	2113741B69	0.1 uF, ±5%, 50 V
C1002	2380009M36	100 uF, 25V
C1003 thru 1012	2113741B69	0.1 uF, ±5%, 50 V
C1013	2311049A21	22 uF, ±10%, 20 V
C1014	2113740A83	220 pF, ±5%, 50V
C1015 thru 1017	2113741B69	0.1 uF, ±5%, 50 V
C1019	2113741B69	0.1 uF, ±5%, 50 V
C1020	2382174V01	4.7 uF, ±20%, 200 V
C1021	2311049A21	22 uF, ±10%, 20 V
C1022	2113741B69	0.1 uF, ±5%, 50 V
C1026	2113741B69	0.1 uF, ±5%, 50 V
C1027	2380009M36	100 uF, 25V
C1028,1029	2113741B69	0.1 uF, ±5%, 50 V
C1031	2113741B69	0.1 uF, ±5%, 50 V
C1032	2311049A21	22 uF, ±10%, 20 V
C1034	2113741B65	0.068 uF, ±5%, 50V
C1036	2113741A61	0.047 uF, ±5%, 50V
C1038	2311049A21	22 uF, ±10%, 20 V
C1039	2311049A21	22 uF, ±10%, 20 V
C1041	2113741A55	0.027 uF, ±5%, 50V
C1043	2113741B69	0.1 uF, ±5%, 50 V
C1045	2113741B69	0.1 uF, ±5%, 50 V
C1047	2380009M36	100 uF, 25V
C1048	2311049A21	22 uF, ±10%, 20 V
C1051	2113741A57	0.033 uF, ±5%, 50V
C1053	2113741A61	0.047 uF, ±5%, 50V
C1054	2113741B69	0.1 uF, ±5%, 50 V
C1058	2113741B69	0.1 uF, ±5%, 50 V
C1059	2113740A55	100 pF, ±5%, 50V
C1062	2311049A06	1 uF, ±10%, 35 V
C1064	2113741A29	2200 pF, ±5%, 50V
C1065	2113741B69	0.1 uF, ±5%, 50 V
C1066	2113741A57	4700 pF, ±5%, 50V
C1067	2113741B69	0.1 uF, ±5%, 50 V
C1068	2113740A67	330 pF, ±5%, 50V
C1069	2113741B69	0.1 uF, ±5%, 50 V
C1070	2113740A71	470 pF, ±5%, 50V
C1072	2113741B69	0.1 uF, ±5%, 50 V
C1073	2311049A06	1 uF, ±10%, 35 V
C1075	2380009M10	22 uF, ±20%, 25V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1078	2113741A57	4700 pF, ±5%, 50V
C1079	2113740A79	1000 pF, ±5%, 50V
C1080	2113741A41	6800 pF, ±5%, 50V
C1081,1082	2113741B69	0.1 uF, ±5%, 50 V
C1084	2113741B69	0.1 uF, ±5%, 50 V
C1086,1087	2113741B69	0.1 uF, ±5%, 50 V
C1089	2113741A29	2200 pF, ±5%, 50V
C1090	2311049A06	1 uF, ±10%, 35 V
C1093	2311049A06	1 uF, ±10%, 35 V
C1094	2113741B69	0.1 uF, ±5%, 50 V
C1095,1096	2113740A55	100 pF, ±5%, 50V
C1099,1100	2113740A29	10 pF, ±5%, 50V
C1101,1102	2113741B69	0.1 uF, ±5%, 50 V
C1103	2113740A29	10 pF, ±5%, 50V
C1104 thru 1106	2311049A03	0.1 uF, ±10%, 35V
C1110	2113741B69	0.1 uF, ±5%, 50 V
C1111	2113741A57	0.033 uF, ±5%, 50V
C1113	2311049A03	0.22 uF, ±10%, 35V
C1116	2311049A06	1 uF, ±10%, 35 V
C1117	2113740A79	1000 pF, ±5%, 50V
C1119	2113741A55	0.027 uF, ±5%, 50V
C1121	2113741A61	0.047 uF, ±5%, 50V
C1123	2113741B65	0.068 uF, ±5%, 50V
C1125	2113741B69	0.1 uF, ±5%, 50 V
C1128	2382174V01	4.7 uF, ±20%, 200 V
C1131	2113740A29	10 pF, ±5%, 50V
C1133	2113740A29	10 pF, ±5%, 50V
C1134	2311049A21	22 uF, ±10%, 20 V
C1135	2311049A45	10 uF, ±20%, 35 V
C1136 thru 1139	2380009M10	22 uF, ±20%, 25V
C1140 thru 1144	2113741B69	0.1 uF, ±5%, 50 V
C1149	2380009M36	100 uF, 25V
C1152	2311049A21	22 uF, ±10%, 20 V
C1153	2380009M36	100 uF, 25V
C1154	2311049A21	22 uF, ±10%, 20 V
C1155	2380009M36	100 uF, 25V
C1156	2311049A21	22 uF, ±10%, 20 V
C1157	2113741B69	0.1 uF, ±5%, 50 V
C1158	2311049A45	10 uF, ±20%, 35 V
C1160	2113740A57	330 pF, ±5%, 50V
C1162	2113741A29	2200 pF, ±5%, 50V
C1163	2113740A79	1000 pF, ±5%, 50V
C1164	2113741B69	0.1 uF, ±5%, 50 V
C1165	2311049A06	1 uF, ±10%, 35 V
C1167	2311049A06	1 uF, ±10%, 35 V
C1172	2380009M36	100 uF, 25V
C1173,1174	2311049A06	1 uF, ±10%, 35 V
C1175	2113741A53	0.022 uF, ±5%, 50V
C1180	2113741A53	0.022 uF, ±5%, 50V
C1181	2113741A57	4700 pF, ±5%, 50V
C1187	2113741B69	0.1 uF, ±5%, 50 V
C1188	2311049A06	1 uF, ±10%, 35 V
C1189	2113740A63	220 pF, ±5%, 50V
C1191,1192	2113740A29	10 pF, ±5%, 50V
C1195	2113740A79	1000 pF, ±5%, 50V
C1197	2113741B69	0.1 uF, ±5%, 50 V
C1198 thru 1201	2113741A41	6800 pF, ±5%, 50V
C1220 thru 1223	2113740A63	220 pF, ±5%, 50V
C1233,1234	2113740A63	220 pF, ±5%, 50V
		diode (see note):
CR100	4813833B01	Schottky type
CR101	4813833C10	0.1A, 70V
CR102 thru 105	4813833B06	1A, 600 V
CR106,107	4813833C10	0.1A, 70V
CR108	4813833B01	Schottky type
CR130 thru 133	4813832C28	Zener 15V
		light emitting diode (see note):
DS100	4882198T04	SUBMINIATURE LED RED
DS101	4882198T06	SUBMINIATURE LED GRN
		connector:
J300	0984455T29	Blindmate Keyed, 50–position
J500	2880004U10	HDR .156 FLK SNPB SR RT 10 POS
		relay:
K100	8013917B01	5V, 330MM
		coil:
L100	2485069U01	220UH, 480 MA
L101,102	2411087B36	6.8 UH
L103	2484657R01	ferrite bead
		transient protector:
PTC1	0685239U01	RES PTC 600V–,145A
PTC3	0685239U01	RES PTC 600V–,145A
		translator (see note):
Q100 thru 102	4813822A07	NPN
Q105,106	4813822A07	NPN
Q107,108	4813824A18	PNP
Q111,112	4813824A11	NPN
Q116 thru 121	4813824A11	NPN
		resistor, fixed:
R1000	0611079A86	3300 ohms, ±5%, 1/10W
R1001	0611079A98	10K, ±5%, 1/10W
R1002 thru 1006	0611079A02	1 ohm, ±5%, 1/10W
R1007	0611079A78	1500 ohms, ±5%, 1/10W
R1008	0611079A76	1.2K, ±5%, 1/10W
R1009	0611079A78	1500 ohms, ±5%, 1/10W
R1010	0611079B13	39K, ±5%, 1/10W
R1011	0611079A92	5600 ohms, ±5%, 1/10W
R1015	0611079A72	680 ohms, ±5%, 1/10W
R1017	0611079A52	120 ohms, ±5%, 1/10W
R1019	0611079D93	909 ohms, 1/10W, ±1%
R1021	0611079D90	511 ohms, 1/10W, ±1%
R1024	0611079A40	39 ohms, ±5%, 1/10W
R1025	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1028	0611079A02	1 ohm, ±5%, 1/10W
R1030	0611079E09	RES CHIP 121.0K 1/10W 1%
R1033	0611079A92	5600 ohms, ±5%, 1/10W
R1034	0611079A78	1500 ohms, ±5%, 1/10W
R1035	0611079B09	27K, ±5%, 1/10W
R1036	0611079G01	10K, 1/10W, ±1%
R1037	0611079G11	12.7K, 1/10W, ±1%
R1040	0611079B01	12K, ±5%, 1/10W
R1041	0611079B15	47K, ±5%, 1/10W
R1042	0611079A76	1.2K, ±5%, 1/10W
R1043	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1045	0611079G49	31.6K, 1/10W, ±1%
R1047	0611079A98	10K, ±5%, 1/10W
R1050	0611079A96	4700 ohms, ±5%, 1/10W
R1051	0611079A64	390 ohms, ±5%, 1/10W
R1052	0611079A62	330 ohms, ±5%, 1/10W
R1053	0611079B11	33K, ±5%, 1/10W
R1055	0611079A92	5600 ohms, ±5%, 1/10W
R1058	0611079A92	5600 ohms, ±5%, 1/10W
R1060	0611079A69	620 ohms, ±5%, 1/10W
R1061,1062	0611079A76	1.2K, ±5%, 1/10W
R1066	0611079G68	RES CHIP 39.2K 1/10W 1% 0805
R1068	0611079G09	12.1K, 1/10W, ±1%
R1069	0611079A90	4700 ohms, ±5%, 1/10W
R1071	0611079A90	4700 ohms, ±5%, 1/10W
R1072	0611079G01	10K, 1/10W, ±1%
R1073 thru 1075	0611079A90	4700 ohms, ±5%, 1/10W
R1077	0611079G01	10K, 1/10W, ±1%
R1078	0611079A90	4700 ohms, ±5%, 1/10W
R1080	0611079A98	10K, ±5%, 1/10W
R1081	0611079B15	47K, ±5%, 1/10W
R1082	0611079A70	680 ohms, ±5%, 1/10W
R1083	0611079A69	620 ohms, ±5%, 1/10W
R1085	0611079B15	47K, ±5%, 1/10W
R1087	0611079B15	47K, ±5%, 1/10W
R1088,1089	0611079A90	4700 ohms, ±5%, 1/10W
R1093	0611079A70	680 ohms, ±5%, 1/10W
R1094,1095	0611079A25	100 ohms, ±5%, 1/4W
R1100	0611079D69	511 ohms, 1/10W, ±1%
R1102	0611079D93	909 ohms, 1/10W, ±1%
R1104,1105	0611079E30	200K, 1/10W, ±1%
R1106	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1112	0611079A86	3300 ohms, ±5%, 1/10W
R1114	0611079A76	1.2K, ±5%, 1/10W
R1115	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1117	0611079A52	120 ohms, ±5%, 1/10W
R1118	0611079A76	1.2K, ±5%, 1/10W
R1119	0611079A52	120 ohms, ±5%, 1/10W
R1120	0611079B06	20K, ±5%, 1/10W
R1121	0611079B01	12K, ±5%, 1/10W
R1124	0611079B06	20K, ±5%, 1/10W
R1125	0611079A70	680 ohms, ±5%, 1/10W
R1129,1130	0611079B06	20K, ±5%, 1/10W
R1131,1132	0611079A98	10K, ±5%, 1/10W
R1133	0611079A92	2200 ohms, ±5% 1/10W
R1134	0611079A90	4700 ohms, ±5%, 1/10W
R1135	0611079A92	2200 ohms, ±5% 1/10W
R1136	0611079B47	1MEG, ±5%, 1/10W
R1138	0611079B15	47K, ±5%, 1/10W
R1140,1141	0611079A69	620 ohms, ±5%, 1/10W
R1142,1143	0611079A98	10K, ±5%, 1/10W
R1144 thru 1147	0611079B15	47K, ±5%, 1/10W
R1148	0611079A82	2200 ohms, ±5%, 1/10W
R1149 thru 1152	0611079B15	47K, ±5%, 1/10W
R1153	0611079B09	27K, ±5%, 1/10W
R1154	0611079B13	39K, ±5%, 1/10W
R1155	0611079A92	5600 ohms, ±5%, 1/10W
R1156 thru 1158	0611079A96	10K, ±5%, 1/10W
R1159	0611072A41	470 ohms, ±5%, 1/4W
R1160 thru 1165	0611079A98	10K, ±5%, 1/10W
R1166	0611079A92	5600 ohms, ±5%, 1/10W
R1167	0611079A98	10K, ±5%, 1/10W
R1168	0611079A82	2200 ohms, ±5%, 1/10W
R1169	0611079A76	1.2K, ±5%, 1/10W
R1170	0611079A90	4700 ohms, ±5%, 1/10W
R1171	0611079A98	10K, ±5%, 1/10W
R1172,1173	0611079B15	47K, ±5%, 1/10W
R1174	0611079A96	10K, ±5%, 1/10W
R1175	0611079A02	1 ohm, ±5%, 1/10W
R1176 thru 1179	0611079A60	270 ohms, ±5%, 1/10W
R1180,1181	0611079B19	68K, ±5%, 1/10W
R182	0611079B06	20K, ±5%, 1/10W
R1184,1185	0611079A90	4700 ohms, ±5%, 1/10W
R1186 thru 1189	0611079B23	100K, ±5%, 1/10W
R1190 thru 1194	0611079A90	4700 ohms, ±5%, 1/10W
R1196	0611079A88	3900 ohms, ±5%, 1/10W
R1199	0611079A02	1 ohm, ±5%, 1/10W
R1203 thru 1205	0611079A88	3900 ohms, ±5%, 1/10W
R1206	0611079A82	2200 ohms, ±5%, 1/10W
R1208 thru 1214	0611079A98	10K, ±5%, 1/10W
R1217,1218	0611079A98	10K, ±5%, 1/10W
R1225,1226	0611072A63	3900 ohms, ±5%, 1/4W
R1227 thru 1231	0611079A98	10K, ±5%, 1/10W
R1234 thru 1241	0611079A98	10K, ±5%, 1/10W
R1242	0611079G01 0611079D49	10K, 1/10W, ±1% (CLN6955) 31.6K, 1/10W, ±1% (CLN6957)
R1243	0611079D93	909 ohms, ±1%, 1/10W (CLN6955) 12.7K, 1/10W, ±1% (CLN6957)
R1244	0611079A98	10K, ±5%, 1/10W
R1245	0611079B06	20K, ±5%, 1/10W
R1246,1247	0611079G09	12.1K, 1/10W, ±1%
R1248,1249	0611079G49	31.6K, 1/10W, ±1%
R1262	0611079G11	12.7K, 1/10W, ±1%
R1264 thru 1275	0611079A98	10K, ±5%, 1/10W
R1276	0611079A78	1500 ohms, ±5%, 1/10W
R1276,1279	0611079A70	680 ohms, ±5%, 1/10W
R1281	0611079A98	10K, ±5%, 1/10W
R1283,1284	0611079A40	39 ohms, ±5%, 1/10W
T1000,1001	2584422T01	**transformer:** telephone line isolation
U100	5113805A85	**integrated circuit (see note):** Mux/Demux, Trip 2–Channel Analog
U101	5113818A05	High Performance, Single Supply
U102	5113819A04	Quad Operational Amplifier
U103	5113805A86	Quad Analog Multiplexer/Demultiplexer
U104	5113805A85	Mux/Demux, Trip 2–Channel Analog
U105	5187437D01	CODEC Pulse Code Modulation
U106	5184625T03	ASIC Gate Array
U107	5113818A01	Adjustable Low Dropout, Positive
U108	5113815A01	DC to DC Converter
U109,110	5113819A05	High Performance, Single Supply
U115	5113808A14	Quad 2–Input OR Gate
U116	5113808A38	Octal 3–State Non–Inverter Line Driver
U118	5113808A15	Quad 2–Input OR Gate (CLN6955) Quad 2–Input OR Gate (CLN6957)
U119	5113808A38	Octal 3–State Non–Inverter Line Driver
U120	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U121	5113805A13	Quad 2–Input OR Gate
U122 thru 125	5184742T03	OPTOISOLATOR
U126	5113808A05	Hex Inverter
U127	5113808A19	Flip–Flop, Dual Jack w/Set
U128	5113819A04	Quad Operational Amplifier
U129	5113805A86	Quad Analog Multiplexer/Demultiplexer
U130	5113805A85	Mux/Demux, Trip 2–Channel Analog
U131	5113802A08	Multiprocessor
U132,133	5184630T01	128Kx8 Bit SRAM
U134	5191071C02	IC PRGMD FLASH
U135	5191071C01	IC PRGMD FLASH
U136,137	5113808A20	1 of 8 Decoder/Demultiplexer
U138,139	5113805A72	Octal 3–State Non–Inverting Latch
U140	5184742T01	OPTOISOLATOR
U146	5113805A86	Quad Analog Multiplexer/Demultiplexer
U147	5113816A07	5–Volt Positive Regulator
		zener diode (see note):
VR100	4813833A20	8.2V ±5%, 200MA 350 MW
VR101	4813833A18	Zener, 6.8V
		filter:
Y100	4884450T14	XTAL CP12A 16.656MHZ
		non–referenced items:
	0784775T01	STIFFNER, PC board edge (2 used)
	0982451V13	SOCKET, IC: 32–pin (used with U134)
	0982451V13	SOCKET, IC: 32–pin (used with U135)
	0984728L01	Shorting Jumper: 2–contact (used with JU1000)
	0984728L01	Shorting Jumper: 2–contact (used with JU1001)
	0984728L01	Shorting Jumper: 2–contact (used with JU1002)
	0984728L01	Shorting Jumper: 2–contact (used with JU1003)
	0984728L01	Shorting Jumper: 2–contact (used with JU1006)
	0984728L01	Shorting Jumper: 2–contact (used with JU1009)
	0984728L01	Shorting Jumper: 2–contact (used with JU1010)
	0984728L01	Shorting Jumper: 2–contact (used with JU1011)
	0984728L01	Shorting Jumper: 2–contact (used with JU1012)
	2880001R03	plug: 3–pin header contact (used with JU1006)
	2880001R03	plug: 3–pin header (used with JU1009)
	2880001R03	plug: 3–pin header (used with JU1010)
	2880001R03	plug: 3–pin header (used with JU1011)
	2880001R03	plug: 3–pin header (used with JU1012)
	2880001S04	plug: 8–contact (used with JU1000)
	2880001S04	plug: 8–contact (used with JU1001)
	2880001S04	plug: 8–contact (used with JU1002)
	2880001S04	plug: 8–contact (used with JU1003)
	5482006W01	LABEL, PCB barcode
	5482006W02	RIBBON, thermal transfer
	5182519W02	Lightpipes (2 used) for DS100 and DS101
	8484750T07	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

WIRELINE INTERFACE BOARD (4–WIRE)

MODELS CLN6955A
CLN6957A



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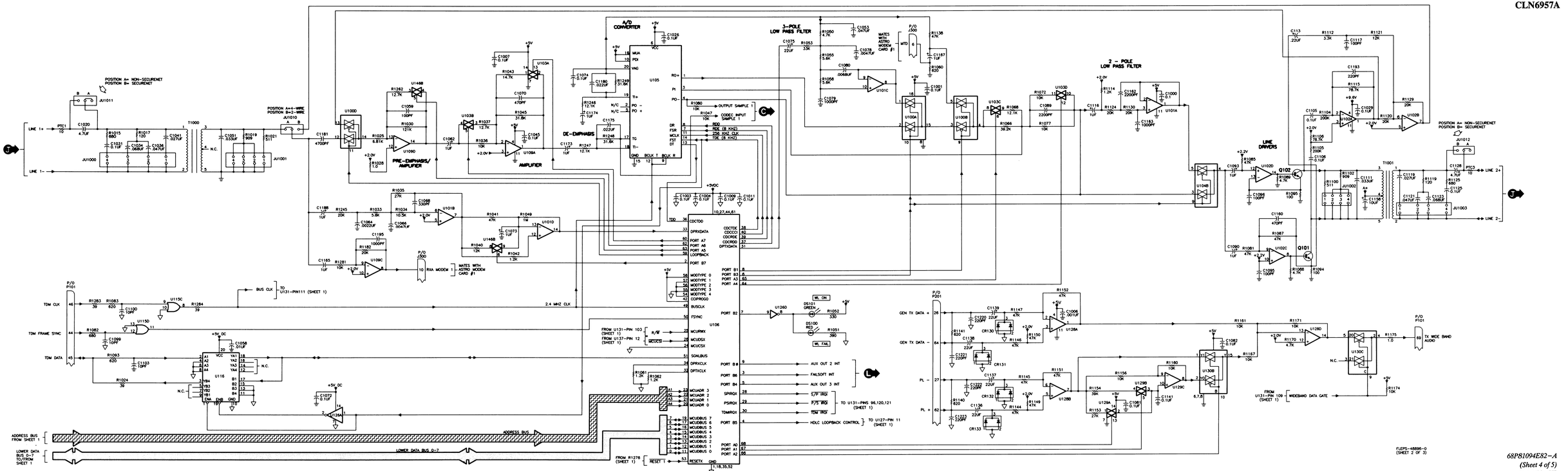
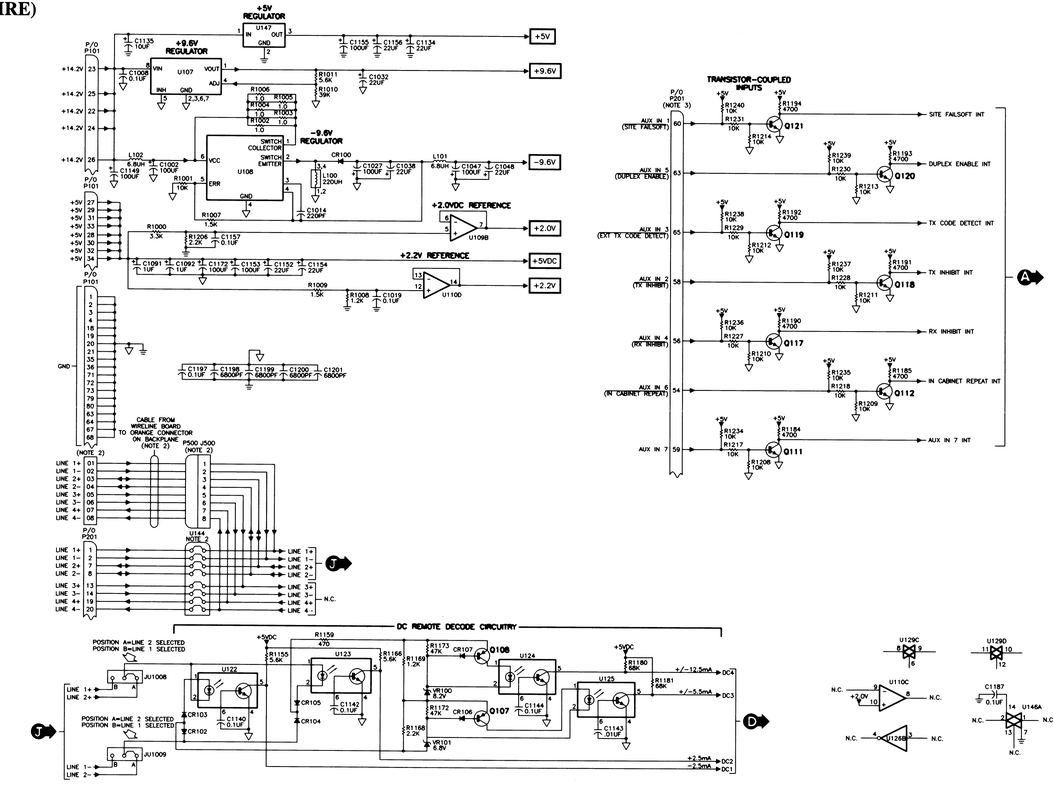

A/D CONVERTER
3–POLE LOW PASS FILTER
2 – POLE LOW PASS FILTER
DE–EMPHASIS
PRE–EMPHASIS/ AMPLIFIER
AMPLIFIER
LINE DRIVERS
POSITION A= NON–SECURENET
POSITION B= SECURENET
POSITION A=4–WIRE
POSITION B=2–WIRE
LINE 1+
LINE 1–
LINE 2+
LINE 2–
MATES WITH ASTRO MODEM CARD #1
MATES WITH ASTRO MODEM CARD #2
TO U131–PIN111 (SHEET 1)
FROM U131–PIN 103 (SHEET 1)
FROM U137–PIN 12 (SHEET 1)
TO U131–PINS 96,120,121 (SHEET 1)
TO U127–PIN 11 (SHEET 1)
FROM U131–PIN 109 (SHEET 1)
WIDEBAND DATA GATE
TX WIDE BAND AUDIO
FROM R1278 (SHEET 1)
ADDRESS BUS FROM SHEET 1
ADDRESS BUS
LOWER DATA BUS 0–7
LOWER DATA BUS 0–7 TO/FROM SHEET 1
BUS CLK
2.4 MHZ CLK
TDM CLK
TDM FRAME SYNC
TDM DATA
GEN TX DATA +
GEN TX DATA –
PL +
PL –
WL ON
WL FAIL
AUX OUT 2 INT
FAILSOFT INT
AUX OUT 3 INT
E/R IRQ
P/S IRQ
TDM IRQ
HDLC LOOPBACK CONTROL
OUTPUT SAMPLE 1
CODEC INPUT SAMPLE 1
RDD (8 KHZ)
RDE (8 KHZ)
TDE (8 KHZ)
256 KHZ CLK
10,27,44,61
FLEPS–48695–0
(SHEET 2 OF 3)

WIRELINE INTERFACE BOARD (4-WIRE)

MODELS CLN6955A
CLN6957A



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TO ALLOW PHONE LINE CONNECTIONS AT BOTH THE 50-PIN TELCO CONNECTOR AND THE 8-POSITION ORANGE SCREW TERMINAL CONNECTOR (BOTH MOUNTED ON THE STATION BACKPLANE), THE ORANGE CONNECTOR IS CABLED TO THE WIRELINE INTERFACE BOARD. THE PHONE LINE CONNECTIONS (LINE 1+, LINE 1-, LINE 2+, ETC.) ARE ELECTRICALLY CONNECTED TO THE CORRESPONDING PHONE LINES FROM THE 50-PIN TELCO CONNECTOR THROUGH A JUMPER BOARD (U144, 848304X01) (FOR THE INTERNATIONAL MODEL CLN6957, THIS JUMPER BOARD IS REMOVED TO MAINTAIN THE 3mm PIN SPACING REQUIREMENTS SPECIFIED BY THE INTERNATIONAL TELEPHONE AGENCIES).
3. MANY OF THE CUSTOMER-DEFINED INPUTS AND OUTPUTS HAVE BEEN PREASSIGNED WITH SIGNAL NAMES AND FUNCTIONS USUALLY REQUIRED IN TYPICAL TRUNKING, SECURENET, AND OTHER SYSTEMS. THESE DEFAULT PREASSIGNMENTS HAVE BEEN MADE FOR CUSTOMER CONVENIENCE ONLY, AND MAY BE RE-ASSIGNED AS NECESSARY. THE PREASSIGNED SIGNAL NAMES ARE SHOWN IN PARENTHESES.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U101	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U102	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U103	MC14066B	QUAD ANALOG SWITCH	14	7
U104	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U108	MC33063	DC-TO-DC CONVERTER	6	4
U109	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U110	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U115	74AC32	QUAD 2-INPUT OR	14	7
U116	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U118	74AC32 74AC732	QUAD 2-INPUT OR (CLN6955) QUAD 2-INPUT OR (CLN6957)	14 14	7 7
U119	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U120	MC145041	8-BIT A/D CONVERTER	20	10
U121	74HC32AD	QUAD 2-INPUT OR	14	7
U122	-	OPTOISOLATOR	-	-
U123	-	OPTOISOLATOR	-	-
U124	-	OPTOISOLATOR	-	-
U125	-	OPTOISOLATOR	-	-
U126	74AC04	HEX INVERTER	14	7
U127	74AC109	DUAL J-K FLIP-FLOP	16	8
U128	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U129	MC14066B	QUAD ANALOG SWITCH	14	7
U130	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U131	-	MICROPROCESSOR	18,28,39,62,83,99,112,131	4,13,23,29,34,44,57,87,94,102,107,116,126
U132	-	128k x 8 SRAM	28	14
U133	-	128k x 8 SRAM	28	14
U134	-	256k x 8 FLASH	32	16
U135	-	256k x 8 FLASH	32	16
U136	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U137	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U138	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U139	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U140	-	OPTOISOLATOR	-	-
U144	-	JUMPER	-	-
U146	MC14066B	QUAD ANALOG SWITCH	14	7
U147	LM7805	+5V DC REGULATOR	-	-

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Parts List, 4-Wire Wireline Interface Board: CLN6955D, CLN6957D

Reference	Part Number	Description
		capacitor:
C1000,1001	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1002	2380090M33	CAP ALU 330 20 25V
C1003-1012	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1013	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1014	2113740A63	CAP CHIP REEL CL1 +/-30 220
C1015-1019	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1020	2382174V01	CAP LYTIC 4.7UF 200V 20% N/PLR
C1021	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1022,1026	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1027	2380090M36	CAP 100 UF 25V
C1028-1031	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1032	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1034	2113741B65	CAP CHIP CL2 X7R REEL 68000
C1036	2113741A61	CAP CHIP CL2 X7R REEL 47000
C1038	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1039	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1041	2113741A55	CAP CHIP CL2 X7R REEL 27000
C1043,1045	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1047	2380090M36	CAP 100 UF 25V
C1048	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1051	2113741A57	CAP CHIP CL2 X7R REEL 33000
C1053	2113741A61	CAP CHIP CL2 X7R REEL 47000
C1054,1058	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1059	2113740A55	CAP CHIP REEL CL1 +/-30 100
C1062	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1064	2113741A29	CAP CHIP CL2 X7R REEL 2200
C1065	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1066	2113741A37	CAP CHIP CL2 X7R REEL 4700
C1067	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1068	2113740A67	CAP CHIP REEL CL1 +/-30 330
C1069	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1070	2113740A71	CAP CHIP REEL CL1 +/-30 470
C1072	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1073	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1075	2380090M10	CAP ALU 22 20 25V SURF MT
C1077	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1078	2113741A37	CAP CHIP CL2 X7R REEL 4700
C1079	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1080	2113741A41	CAP CHIP CL2 X7R REEL 6800
C1081-1087	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1089	2113741A29	CAP CHIP CL2 X7R REEL 2200
C1090,1093	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1094	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1095,1096	2113740A55	CAP CHIP REEL CL1 +/-30 100
C1099,1100	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1101,1102	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1103	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1104-1110	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1111	2113741A57	CAP CHIP CL2 X7R REEL 33000
C1113	2311049A03	CAP TANT CHIP A/P .22 10 35
C1116	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1117	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1119	2113741A55	CAP CHIP CL2 X7R REEL 27000
C1121	2113741A61	CAP CHIP CL2 X7R REEL 47000
C1123	2113741B65	CAP CHIP CL2 X7R REEL 68000
C1125	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1128	2382174V01	CAP LYTIC 4.7UF 200V 20% N/PLR
C1131,1133	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1134	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1135	2311049A17	CAP TANT CHIP 6.8 1035 A/P
C1136-1139	2380090M10	CAP ALU 22 20 25V SURF MT
C1140-1144	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1149	2380090M33	CAP ALU 330 20 25V
C1152	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1153	2380090M36	CAP 100 UF 25V
C1154	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1155	2380090M36	CAP 100 UF 25V
C1156	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1157	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1158	2311049A17	CAP TANT CHIP 6.8 1035 A/P
C1160	2113740A67	CAP CHIP REEL CL1 +/-30 330
C1162	2113741A29	CAP CHIP CL2 X7R REEL 2200
C1163	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1164	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1165,1167	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1172	2380090M36	CAP 100 UF 25V
C1173,1174	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1175,1180	2113741A53	CAP CHIP CL2 X7R REEL 22000
C1181	2113741A37	CAP CHIP CL2 X7R REEL 4700
C1187	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1188	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1189	2113740A63	CAP CHIP REEL CL1 +/-30 220
C1191-1195	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1197	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1198-1201	2113741A41	CAP CHIP CL2 X7R REEL 6800
C1220-1234	2113740A63	CAP CHIP REEL CL1 +/-30 220
C1252	2113741B69	CAP CHIP CL2 X7R REEL 100000
		diode (note 1):
CR100	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR101	4813833C10	DIODE GEN PUR 70V MMBD6050
CR102-R105	4813833B06	RECT 1A 600V MURS160T3
CR106,R107	4813833C10	DIODE GEN PUR 70V MMBD6050
CR108	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR130-R133	4813832C28	ZENER BPLR 15V FOR ESD SOT23
VR100	4813830A20	DIODE 8.2V 5% 225MW MMBZ5237B_
VR101	4813830A18	DIODE 6.8V 5% 225MW MMBZ5235B
DS100	4882198T08	SUBMINiTURE LED RED SM
DS101	4882198T09	SUBMINiTURE LED GRN SM
		connector:
J300	0984455T29	RECP BLINDMATE KEYED 50 POS
J500	2880004U10	HDR .156 FLK SNPB SR RT 10 POS
JU1000-1003	2880001S04	CON PCB HDR 1 GOLD DR ST 8 POS
JU1008-1012	2880001R03	CON PCB HDR .1 GLD SR ST 3 POS
		relay:
K0100	8013917B01	RELAY SMD 5V 330MM T&R
		inductor:
L0100	2485069U01	COIL SM 220UH 480MA
L0101	2411087B36	COIL CHIP 6.8 UH 5 A/I
L0102	2409143L21	IND WW 220UH 20% 7X7MM SMD
L0103	2484657R01	INDUCTOR BEAD CHIP
		transient protector:
PTC1, 3	0685239U01	RES PTC 600V-.145A

Parts List, 4-Wire Wireline Interface Board: CLN6955D, CLN6957D

Reference	Part Number	Description
		transistor (note 1):
Q100-106	4813822A07	TSTR NPN 300V .5A MJD340T4
Q107,108	4813824A18	XSTR PNP 40V .6A SW B=100
Q111-121	4813824A11	XSTR NPN 40V .6A GENP B=75
		resistor:
R1000	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R1001	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1002-1006	0611079A02	RES FIXED CHIP 1 5 1/10 A/P
R1007	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1008	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1009	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1010	0611079B13	RES FIXED CHIP 39K 5 1/10 A/P
R1011	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1015	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1017	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1019	0611079D93	RES CHIP 909.0 1/10W 1%
R1021	0611079D69	RES CHIP 511.0 1/10W 1%
R1024	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R1025	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1028	0611079A02	RES FIXED CHIP 1 5 1/10 A/P
R1030	0611079E14	RES CHIP 121.0K 1/10W 1%
R1033	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1034	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1035	0611079B09	RES FIXED CHIP 27K 5 1/10 A/P
R1036	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1037	0611079G11	RES CHIP 12.7K 1/10W 1% 0805
R1040	0611079B01	RES FIXED CHIP 12K 5 1/10 A/P
R1041	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1042	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1043	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1045	0611079G49	RES CHIP 31.6K 1/10W 1% 0805
R1047	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1050	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1051	0611079A64	RES FIXED CHIP 390 5 1/10W A/P
R1052	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1053	0611079B11	RES FIXED CHIP 33K 5 1/10 A/P
R1055,1058	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1060	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R1061,1062	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1066	0611079G58	RES CHIP 39.2K 1/10W 1% 0805
R1068	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R1069,1071	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1072	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1073-1075	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1077	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1078	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1080	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1081	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1082	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1083	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R1085,1087	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1088,1089	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1093	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1094,1095	0611072A25	RES CHIP 100 5 1/4
R1100	0611079D69	RES CHIP 511.0 1/10W 1%
R1102	0611079D93	RES CHIP 909.0 1/10W 1%
R1104,1105	0611079E35	RES CHIP 200.0K 1/10W 1%
R1106	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1112	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R1114	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1115	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1117	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1118	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1119	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1120	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1121	0611079B01	RES FIXED CHIP 12K 5 1/10 A/P
R1124	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1125	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1129,1130	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1131,1132	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1133	0611079F34	RES CHIP 2.21K 1/10W 1% 0805
R1134	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1135	0611079F34	RES CHIP 2.21K 1/10W 1% 0805
R1136	0611079E102	RES CHIP 1.0M 1/10W 1%
R1138	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1140,1141	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R1142,1143	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1144-1147	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1148	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R1149-1152	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1153	0611079B09	RES FIXED CHIP 27K 5 1/10 A/P
R1154	0611079B13	RES FIXED CHIP 39K 5 1/10 A/P
R1155	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1156-1158	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1159	0611072A41	RES CHIP 470 5 1/4
R1160-1165	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1166	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1167	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1168	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R1169	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1170	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1171	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1172,1173	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1174	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1175	0611079A02	RES FIXED CHIP 1 5 1/10 A/P
R1176-1179	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R1180,1181	0611079B19	RES FIXED CHIP 68K 5 1/10 A/P
R1182	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1184,1185	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1186-1189	0611079E06	RES CHIP 100.0K 1/10W 1%
R1190-1194	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1198	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R1199	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R1203-1205	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R1206	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R1208-1218	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1225,1226	0611072A63	RES CHIP 3900 5 1/4
R1227-1241	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1242	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1243	0611079D93	RES CHIP 909.0 1/10W 1%
R1244	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1245	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1246,1247	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R1248,1249	0611079G49	RES CHIP 31.6K 1/10W 1% 0805
R1262	0611079G11	RES CHIP 12.7K 1/10W 1% 0805
R1264-1275	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1276	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1278,1279	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1281	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1283,1284	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R1286,1287	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1290,1291	0611072A45	RES CHIP 680 5 1/4
R1292	0611072A53	RES CHIP 1500 5 1/4
R1293	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R1294-1302	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1303,1304	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R1305-1309	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1310	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R1311	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1314	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
		transformer
T1000,1001	2584422T01	XFMR LINE ISOLATION TELEPHONE

Reference	Part Number	Description
		integrated circuit (note 1):
U100	5113805A85	IC TRIP 2CH ANALOG MUX/DEMUX
U101	5184334Y01	IC HIGH PERF. SING SPLY
U102	5113819A04	IC QD OP AMP GEN PURP MC3303D
U103	5113805A86	IC QUAD ANALOG MUX/DEMUX
U104	5113805A85	IC TRIP 2CH ANALOG MUX/DEMUX
U105	5184743T01	IC CODEC PCM 5V_145480
U106	5184625T03	ASIC GATE ARRAY SX6 8K6015JD02
U107	5113816A01	IC ADJ. LOW DROPOUT POS,100MA
U108	5113815A01	IC DC TO DC CONVERTER
U109,110	5184334Y01	IC HIGH PERF. SING SPLY
U115	5113808A14	IC QUAD 2 INPUT OR GATE
U116	5113808A38	IC LINE DRVR OCT 3T NON INV
U118	5113808A15	IC OR QUAD 2 INP MC74ACT32D
U119	5113808A38	IC LINE DRVR OCT 3T NON INV
U120	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U121	5113805A13	IC QUAD 2INP OR 74HC32AD
U122-125	5184742T03	IC OPTOISOLATOR_4N27-
U126	5113808A05	IC INV HEX MC74AC04D
U127	5184136Y01	IC FF DUAL W/SET CLR
U128	5113819A04	IC QD OP AMP GEN PURP MC3303D
U129	5113805A86	IC QUAD ANALOG MUX/DEMUX
U130	5113805A85	IC TRIP 2CH ANALOG MUX/DEMUX
U131	5113802A08	IC INTEGRATED MULTIPROTOCOL
U132	5184830T01	IC 128KX8 SRAM -628128- SM
U133	5184830T01	IC 128KX8 SRAM -628128- SM
U134,135	5191071A02	IC FLASH 29C020 150NS 32TSOP
U136,137	5113808A20	IC DCDR/DEMUX 1 OF 8 AC138D
U138,139	5113805A72	IC OCT 3ST N/INV TRANS LAT
U140	5184742T01	IC OPTOISOLATOR MOC207_M207_
U146	5113805A86	IC QUAD ANALOG MUX/DEMUX
U147	5113816A07	REG 5V POS 500MA MC78M05BDTRK
U150	5113808A67	IC BUF QD 3-ST MC74ACT125DR2
		crystal (note 1):
Y100	4884450T14	XTAL CP12A 16.656MHZ
		non-referenced items:
	5482006W03	BARCODE LABEL
	6182512W02	LIGHTPIPES (2)
	0984728L01	Shorting Jumper, 2 contact (used with JU1000, JU1001-1003, and JU1008-1012)

NOTE 1: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

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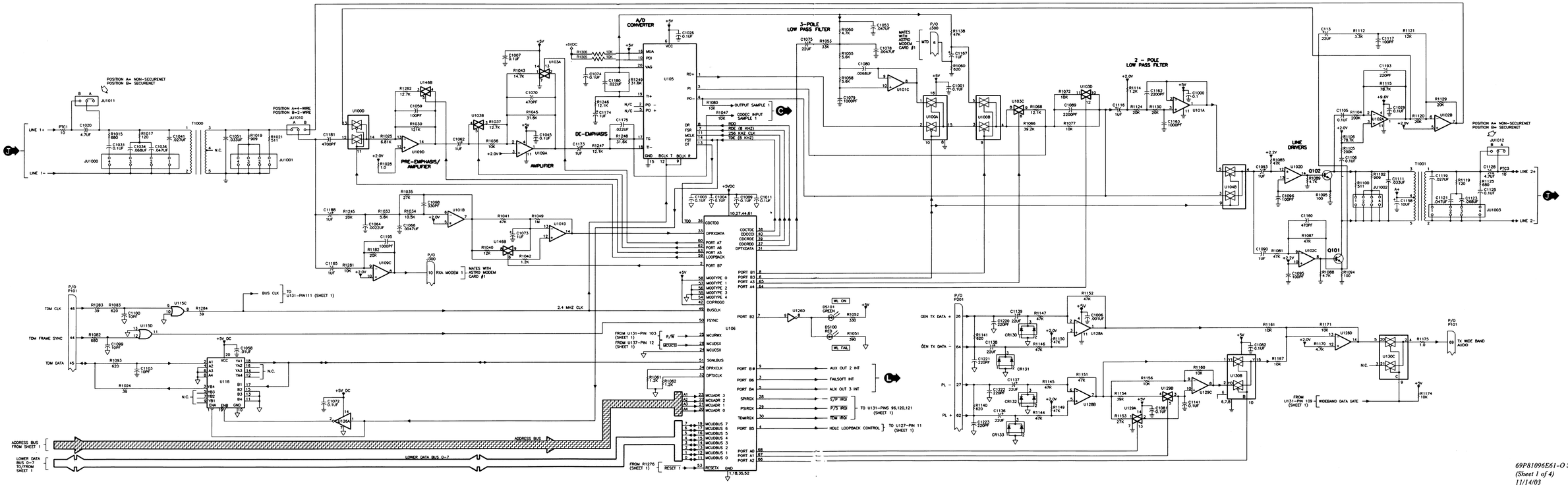
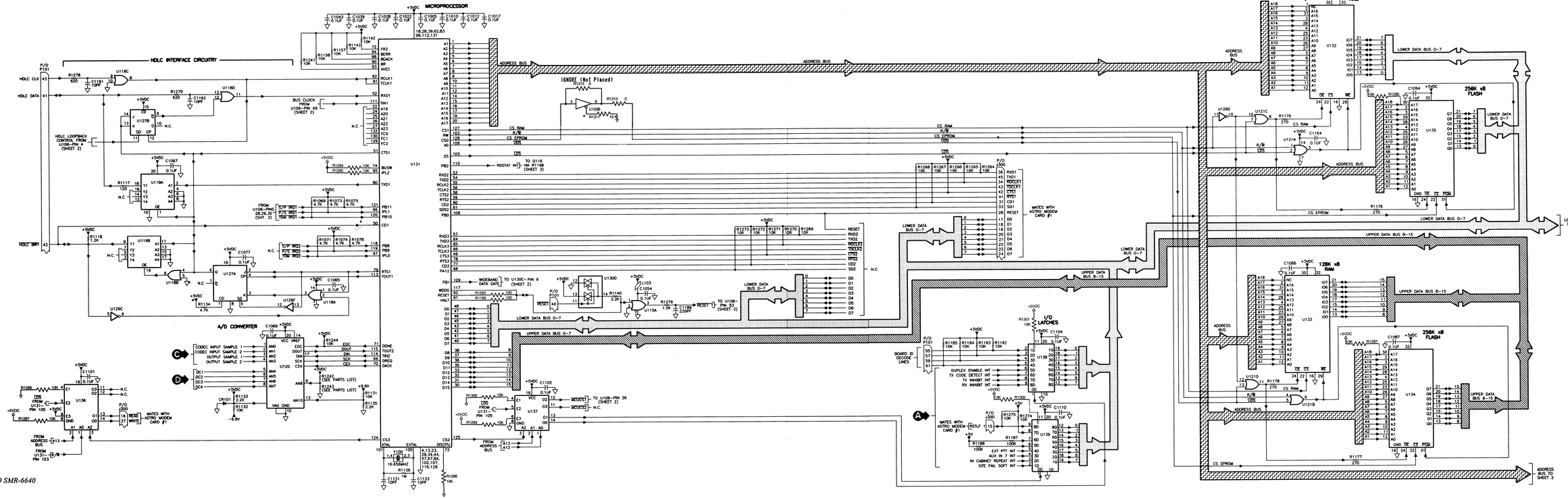
WIRELINE INTERFACE BOARD (4-WIRE)

MODELS CLN6955D, CLN6957D



WIRELINE INTERFACE BOARD (4-WIRE)

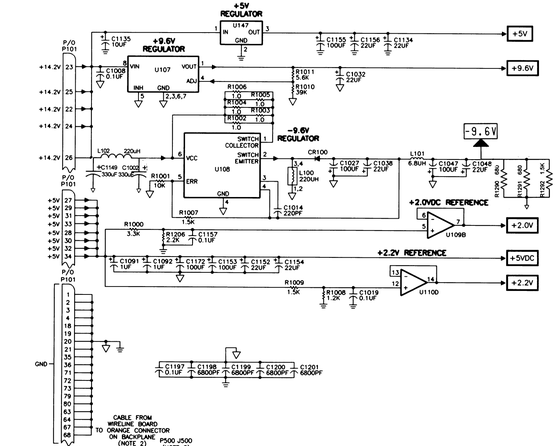
MODELS CLN6955D, CLN6957D

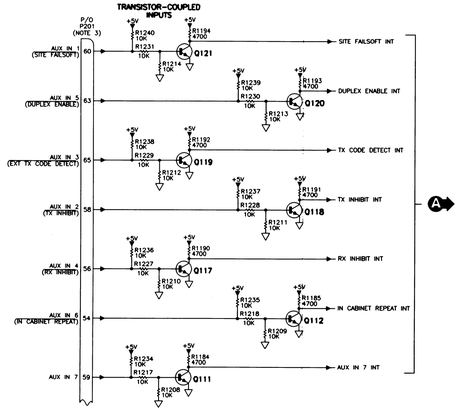


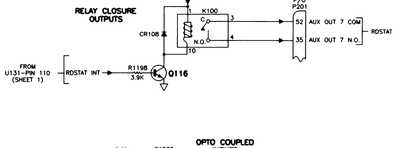
69P81096E61-O SMR-6640
(Sheet 2 of 4)
11/14/03

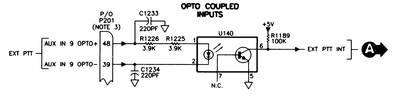
WIRELINE INTERFACE BOARD (4-WIRE)

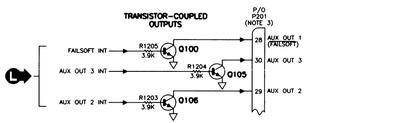
MODELS CLN6955D, CLN6957D

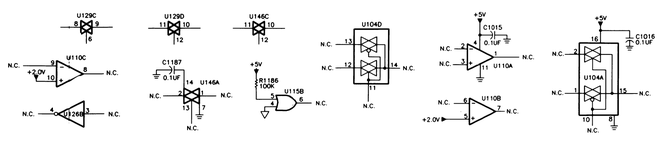












NOTES

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TO ALLOW PHONE LINE CONNECTIONS AT BOTH THE 50-PIN TELCO CONNECTOR AND THE 8-POSITION ORANGE MODULE TERMINAL CONNECTOR (BOTH MOUNTED ON THE STATION BACKPLANE), THE WIRELINE INTERFACE BOARD (4-WIRE) AND THE WIRELINE INTERFACE BOARD (2-WIRE) PROVIDE CONNECTIONS (LINE 1+, LINE 1-, LINE 2+, LINE 2-) THAT ARE ELECTRICALLY CONNECTED TO THE CORRESPONDING PHONE LINES FROM THE 50-PIN TELCO CONNECTOR THROUGH A JUMPER BOARD (U144, 848304X01) (FOR THE INTERNATIONAL MODEL CLN6957, THIS JUMPER BOARD IS REMOVED TO MAINTAIN THE 3mm PIN SPACING REQUIREMENTS SPECIFIED BY THE INTERNATIONAL TELEPHONE AGENCIES).
3. MANY OF THE CUSTOMER-DEFINED INPUTS AND OUTPUTS HAVE BEEN PREASSIGNED WITH SIGNAL NAMES AND FUNCTIONS USUALLY REQUIRED IN TYPICAL TRUNKING, SECURENET, AND OTHER SYSTEMS. THESE DEFAULT PREASSIGNMENTS HAVE BEEN MADE FOR CUSTOMER CONVENIENCE ONLY, AND MAY BE RE-ASSIGNED AS NECESSARY. THE PREASSIGNED SIGNAL NAMES ARE SHOWN IN PARENTHESES.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

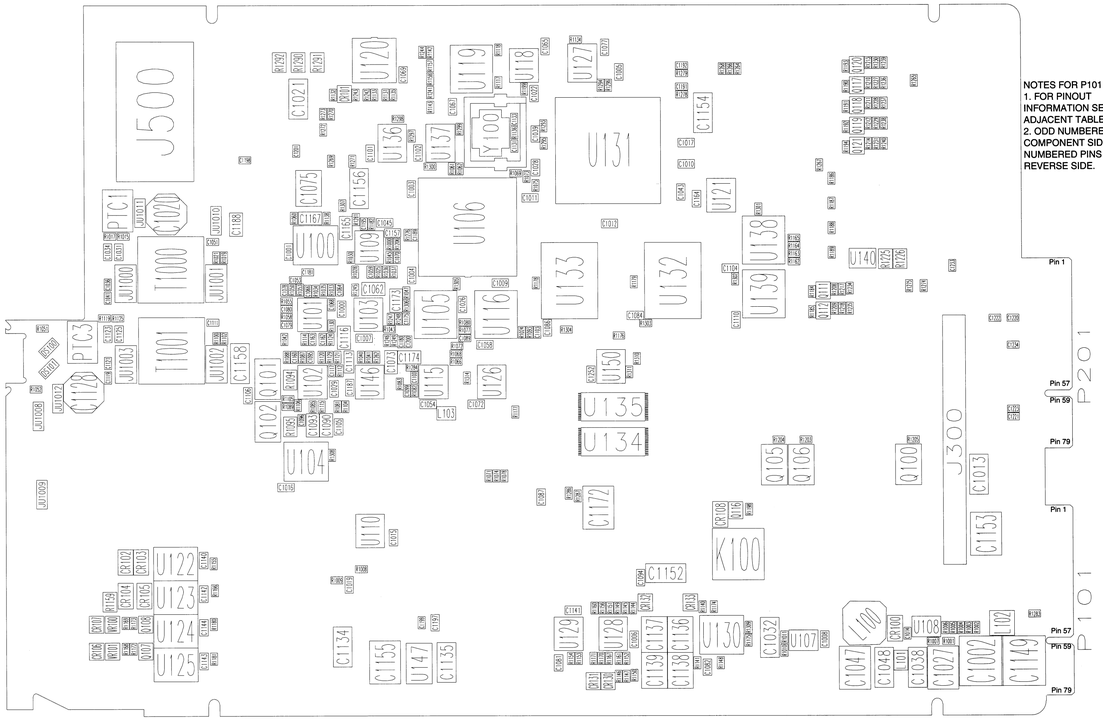
REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U101	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U102	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U103	MC14066B	QUAD ANALOG SWITCH	14	7
U104	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U108	MC33063	DC-TO-DC CONVERTER	6	4
U109	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U110	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U115	74AC32	QUAD 2-INPUT OR	14	7
U116	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U118	74AC32 74ACT86	QUAD 2-INPUT OR (CLN6955) QUAD 2-INPUT OR (CLN6957)	14 14	7 7
U119	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U120	MC145041	8-BIT A/D CONVERTER	20	10
U121	74HC32A0	QUAD 2-INPUT OR	14	7
U122	–	OPTOISOLATOR	–	–
U123	–	OPTOISOLATOR	–	–
U124	–	OPTOISOLATOR	–	–
U125	–	OPTOISOLATOR	–	–
U126	74AC04	HEX INVERTER	14	7
U127	74AC109	DUAL J-K FLIP-FLOP	16	8
U128	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U129	MC14066B	QUAD ANALOG SWITCH	14	7
U130	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U131	–	MICROPROCESSOR	18,28,39,62,83,99,112,131	4,13,23,29,34,44,57,07,84,102,107,116,126
U132	–	128k x 8 SRAM	28	14
U133	–	128k x 8 SRAM	28	14
U134	–	256k x 8 FLASH	32	16
U135	–	256k x 8 FLASH	32	16
U136	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U137	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U138	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U139	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U140	–	OPTOISOLATOR	–	–
U144	–	JUMPER	–	–
U146	MC14066B	QUAD ANALOG SWITCH	14	7
U147	LM7805	+5V DC REGULATOR	–	–
U150	74ACT125	TRI-STATE BUFFER	14	7

WIRELINE INTERFACE BOARD (4 WIRE)

MODEL CLN6955D, CLN6957D

Connector Pinouts, P101 and P102

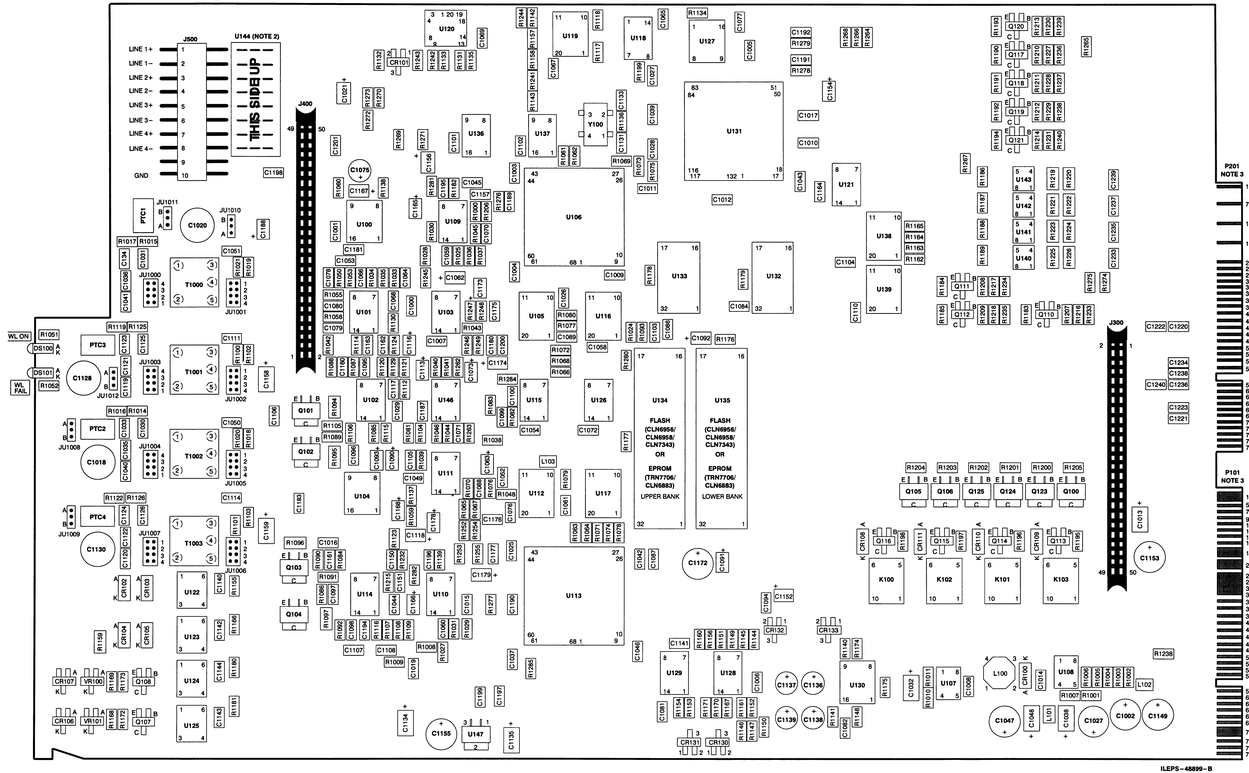
P101				P102			
P101-1, 3	GND	P101-2,4	GND	P201-1	LINE 1+	P201-2	LINE 1-
P101-5	Not Used	P101-6	Not Used	P201-7	LINE 2+	P201-8	LINE 2-
P101-7	Not Used	P101-8	Not Used	P201-13	Not Used	P201-14	Not Used
P101-9	Not Used	P101-10	Not Used	P201-19	Not Used	P201-20	Not Used
P101-11	Not Used	P101-12	Not Used	P201-25	Not Used	P201-26	GEN TX DATA+
P101-13	Not Used	P101-14	Not Used	P201-27	PL-	P201-28	AUX OUT 1 (FAILSOFT)
P101-15	Not Used	P101-16	Not Used	P201-29	AUX OUT 2	P201-30	AUX OUT 3
P101-17	Not Used	P101-18, 20	GND	P201-31	Not Used	P201-32	Not Used
P101-19, 21	GND	P101-22, 24	+14.2V	P201-33	Not Used	P201-34	Not Used
P101-23, 25	+14.2V	P101-26	+14.2V	P201-35	AUX OUT 7 N.O.	P201-36	Not Used
P101-27, 29, 31, 33	+5V	P101-28, 30, 32, 34	+5V	P201-37	Not Used	P201-38	Not Used
P101-35	GND	P101-36	GND	P201-39	AUX IN 9 OPTO-	P201-40	Not Used
P101-37	Not Used	P101-38	Not Used	P201-41	Not Used	P201-42	Not Used
P101-39	Not Used	P101-40	RESET	P201-43	Not Used	P201-44	Not Used
P101-41	HDLC DATA	P101-42	HDLC BUSY	P201-45	Not Used	P201-46	Not Used
P101-43	HDLC CLK	P101-44	TDM FRAME SYNC	P201-47	Not Used	P201-48	AUX IN 9 OPTO+
P101-45	TDM DATA	P101-46	TDM CLK	P201-49	Not Used	P201-50	Not Used
P101-47	Not Used	P101-48	Not Used	P201-51	Not Used	P201-52	AUX OUT 7 COM
P101-49	Not Used	P101-50	Not Used	P201-53	Not Used	P201-54	AUX IN 6 (IN CABINET REPEAT)
P101-51	Not Used	P101-52	Not Used	P201-55	Not Used	P201-56	AUX IN 4 (RX INHIBIT)
P101-53	Not Used	P101-54	Not Used	P201-57	Not Used	P201-58	AUX IN 2 (TX INHIBIT)
P101-55	BOARD ID DECODE LINE	P101-56	Not Used	P201-59	AUX IN 7	P201-60	AUX IN 1 (SITE FAILSOFT)
P101-57	BOARD ID DECODE LINE	P101-58	Not Used	P201-61	Not Used	P201-62	PL+
P101-59	BOARD ID DECODE LINE	P101-60	Not Used	P201-63	AUX IN 5 (DUPLEX ENABLE)	P201-64	GEN TX DATA-
P101-61	BOARD ID DECODE LINE	P101-62	Not Used	P201-65	AUX INT 3 (EXT TX CODE DETECT)	P201-66	Not Used
P101-63	GND	P101-64	GND	P201-67	Not Used	P201-68	Not Used
P101-65	Not Used	P101-66	Not Used	P201-69	Not Used	P201-70	Not Used
P101-67	GND	P101-68	GND	P201-71	Not Used	P201-72	Not Used
P101-69	TX WIDE BAND AUDIO	P101-70	Not Used	P201-73	Not Used	P201-74	Not Used
P101-71, 73	GND	P101-72	GND	P201-75	Not Used	P201-76	Not Used
P101-75	Not Used	P101-74	Not Used	P201-77	Not Used	P201-78	Not Used
P101-77	Not Used	P101-76	Not Used	P201-79	Not Used	P201-80	Not Used
P101-79	GND	P101-78	Not Used				
		p101-80	GND				



NOTES FOR P101 AND P102:
1. FOR PINOUT INFORMATION SEE THE ADJACENT TABLE.
2. ODD NUMBERED PINS ON COMPONENT SIDE, EVEN NUMBERED PINS ON REVERSE SIDE.

WIRELINE INTERFACE BOARD (8–WIRE)

MODELS CLN6956A, CLN6958A, TRN7706G, CLN6883B, and CLN7343A



NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. ON THIS CIRCUIT BOARD, A PRINTED CIRCUIT JUMPER BOARD IS SOLDERED INTO U144 (MOTOROLA PART NO. 8483404D01) LOCATION. THE JUMPER BOARD CONNECTS J500 CONTACTS TO THE LINE I/O CIRCUITRY. THE DASHED LINES REPRESENT PLATED JUMPERS ON THE UNDERSIDE OF THE JUMPER BOARD.
3. THE CIRCUIT BOARD EDGE CONNECTORS, P101 AND P201, HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE ODD NUMBERED AND THE CONTACTS ON THE BACK OF THE BOARD ARE EVEN NUMBERED. THE CUTAWAY VIEW OF THE BACK OF THE BOARD, JUST TO THE RIGHT OF THE COMPONENT SIDE VIEW, SHOWS THE EVEN NUMBERED CONTACTS OF P101 AND P201.

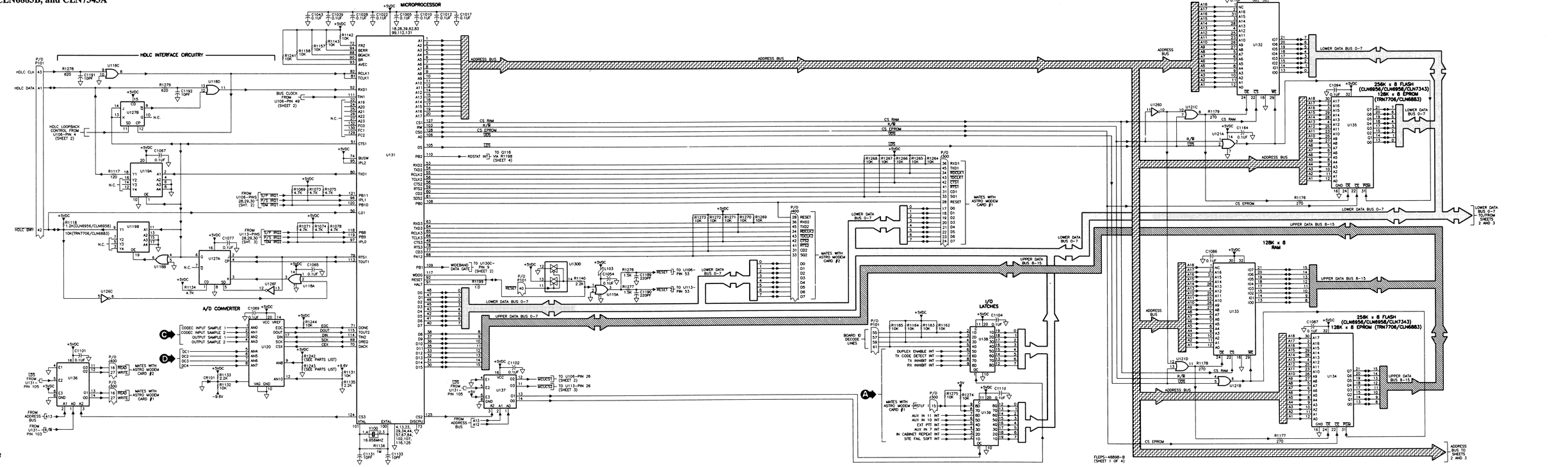
SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

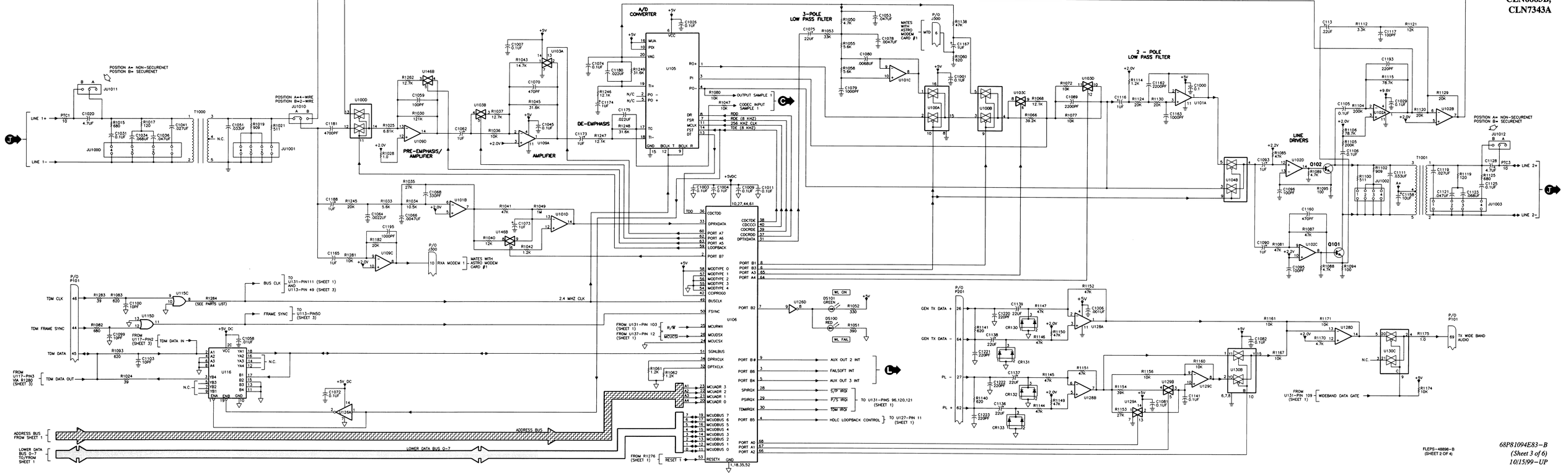
CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P101–1, 3	GND	P101–2, 4	GND	P201–1	LINE 1+	P201–2	LINE 1–
P101–5	NOT USED	P101–6	NOT USED	P201–7	LINE 2+	P201–8	LINE 2–
P101–7	NOT USED	P101–8	NOT USED	P201–13	LINE 3+	P201–14	LINE 3–
P101–9	NOT USED	P101–10	NOT USED	P201–19	LINE 4+	P201–20	LINE 4–
P101–11	NOT USED	P101–12	NOT USED	P201–25	NOT USED	P201–26	GEN TX DATA+
P101–13	NOT USED	P101–14	NOT USED	P201–27	PL–	P201–28	AUX OUT 1 (FAILSOFT)
P101–15	NOT USED	P101–16	NOT USED	P201–29	AUX OUT 2	P201–30	AUX OUT 3
P101–17	NOT USED	P101–18, 20	GND	P201–31	AUX OUT 4	P201–32	AUX OUT 5
P101–19, 21	GND	P101–22, 24	+14.2V	P201–33	AUX OUT 6	P201–34	AUX IN 8
P101–23, 25	+14.2V	P101–26	+14.2V	P201–35	AUX OUT 7 N.O.	P201–36	AUX OUT 8 N.O.
P101–27, 29, 31, 33	+5V	P101–28, 30, 32, 34	+5V	P201–37	AUX OUT 9 N.O.	P201–38	NOT USED
P101–35	GND	P101–36	GND	P201–39	AUX IN 9 OPTO–	P201–40	AUX OUT 10 N.O.
P101–37	NOT USED	P101–38	NOT USED	P201–41	AUX IN 11 OPTO–	P201–42	AUX IN 10 OPTO–
P101–39	NOT USED	P101–40	RESET	P201–43	AUX IN 12 OPTO+	P201–44	AUX IN 12 OPTO–
P101–41	HDLC DATA	P101–42	HDLC BUSY	P201–45	NOT USED	P201–46	AUX IN 11 OPTO+
P101–43	HDLC CLK	P101–44	TDM FRAME SYNC	P201–47	NOT USED	P201–48	AUX IN 9 OPTO+
P101–45	TDM DATA	P101–46	TDM CLK	P201–49	AUX IN 10 OPTO+	P201–50	AUX OUT 9 COM
P101–47	NOT USED	P101–48	NOT USED	P201–51	AUX OUT 10 COM	P201–52	AUX OUT 7 COM
P101–49	NOT USED	P101–50	NOT USED	P201–53	NOT USED	P201–54	AUX IN 6 (RX CABINET RESET)
P101–51	NOT USED	P101–52	NOT USED	P201–55	NOT USED	P201–56	AUX IN 4 (RX INHIBIT)
P101–53	NOT USED	P101–54	NOT USED	P201–57	AUX OUT 8 COM	P201–58	AUX IN 2 (TX INHIBIT)
P101–55	BOARD ID DECODE LINE	P101–56	NOT USED	P201–59	AUX IN 7	P201–60	AUX IN 1 (SITE FAILSOFT)
P101–57	BOARD ID DECODE LINE	P101–58	NOT USED	P201–61	NOT USED	P201–62	PL+
P101–59	BOARD ID DECODE LINE	P101–60	NOT USED	P201–63	AUX IN 5 (DUPLEX ENABLE)	P201–64	GEN TX DATA–
P101–61	BOARD ID DECODE LINE	P101–62	NOT USED	P201–65	AUX INT 3 (EXT TX CODE DETECT)	P201–66	NOT USED
P101–63	GND	P101–64	GND	P201–67	NOT USED	P201–68	NOT USED
P101–65	NOT USED	P101–66	NOT USED	P201–69	NOT USED	P201–70	NOT USED
P101–67	GND	P101–68	GND	P201–71	NOT USED	P201–72	NOT USED
P101–69	TX WIDE BAND AUDIO	P101–70	NOT USED	P201–73	NOT USED	P201–74	NOT USED
P101–71, 73	GND	P101–72	GND	P201–75	NOT USED	P201–76	NOT USED
P101–75	NOT USED	P101–74	NOT USED	P201–77	NOT USED	P201–78	NOT USED
P101–77	NOT USED	P101–76	NOT USED	P201–79	NOT USED	P201–80	NOT USED
P101–79	GND	P101–78	NOT USED				
		P101–80	GND				

ILEPS–48899–B
(2 of 2)

WIRELINE INTERFACE BOARD (8−WIRE)

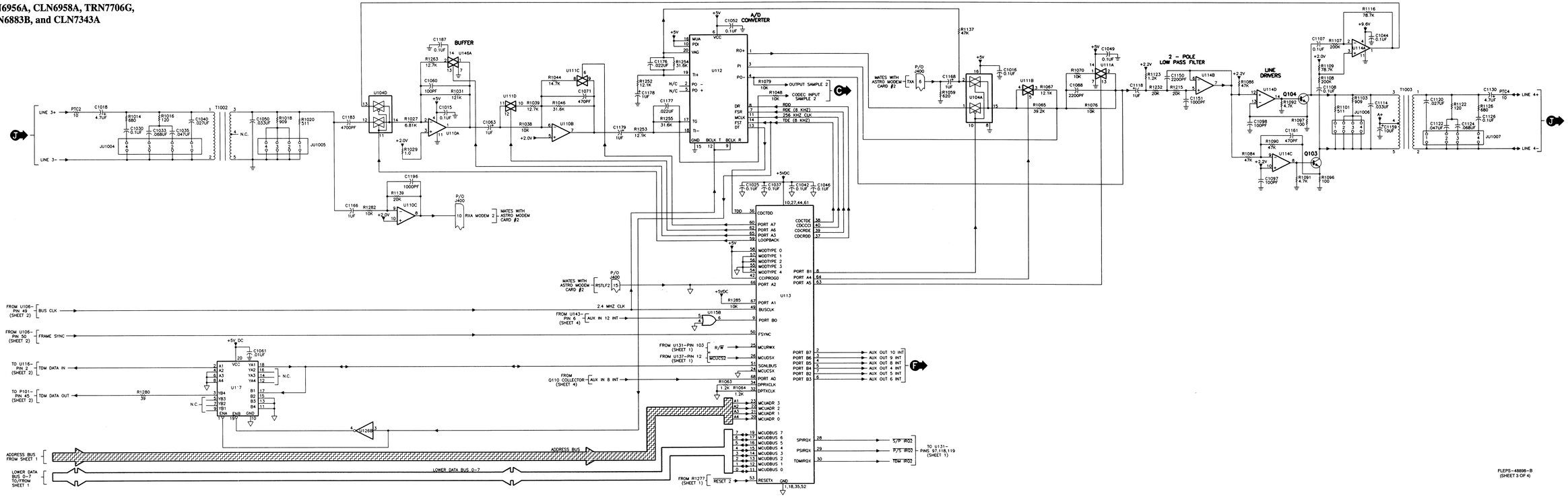
MODELS CLN6956A, CLN6958A, TRN7706G, CLN6883B, and CLN7343A




A/D CONVERTER
3-POLE LOW PASS FILTER
2 - POLE LOW PASS FILTER
PRE-EMPHASIS/ AMPLIFIER
DE-EMPHASIS
AMPLIFIER
LINE DRIVERS
POSITION A= NON-SECURENET POSITION B= SECURENET
POSITION A=4-WIRE POSITION B=2-WIRE
MATES WITH ASTRO MODEM CARD #1
TO U131-PIN111 (SHEET 1) AND U113-PIN 49 (SHEET 3)
TO U131-PIN50 (SHEET 3)
FROM U117-PIN2 (SHEET 3)
FROM U117-PIN3 VIA R1280 (SHEET 3)
FROM U131-PIN 103 (SHEET 1)
FROM U137-PIN 12 (SHEET 1)
TO U131-PINS 96,120,121 (SHEET 1)
TO U127-PIN 11 (SHEET 1)
FROM U131-PIN 109 (SHEET 1)
WIDEBAND DATA GATE
TX WIDE BAND AUDIO
ADDRESS BUS FROM SHEET 1
LOWER DATA BUS D-7 TO/FROM SHEET 1
ADDRESS BUS
LOWER DATA BUS D-7
FROM R1276 (SHEET 1)
WL ON
WL FAIL
AUX OUT 2 INT
FAILSOFT INT
AUX OUT 3 INT
S/P IRQI
P/S IRQI
TDM IRQI
HDLC LOOPBACK CONTROL
OUTPUT SAMPLE 1
CODEC INPUT SAMPLE 1
2.4 MHZ CLK
FLEPS-46896-B (SHEET 2 OF 4)

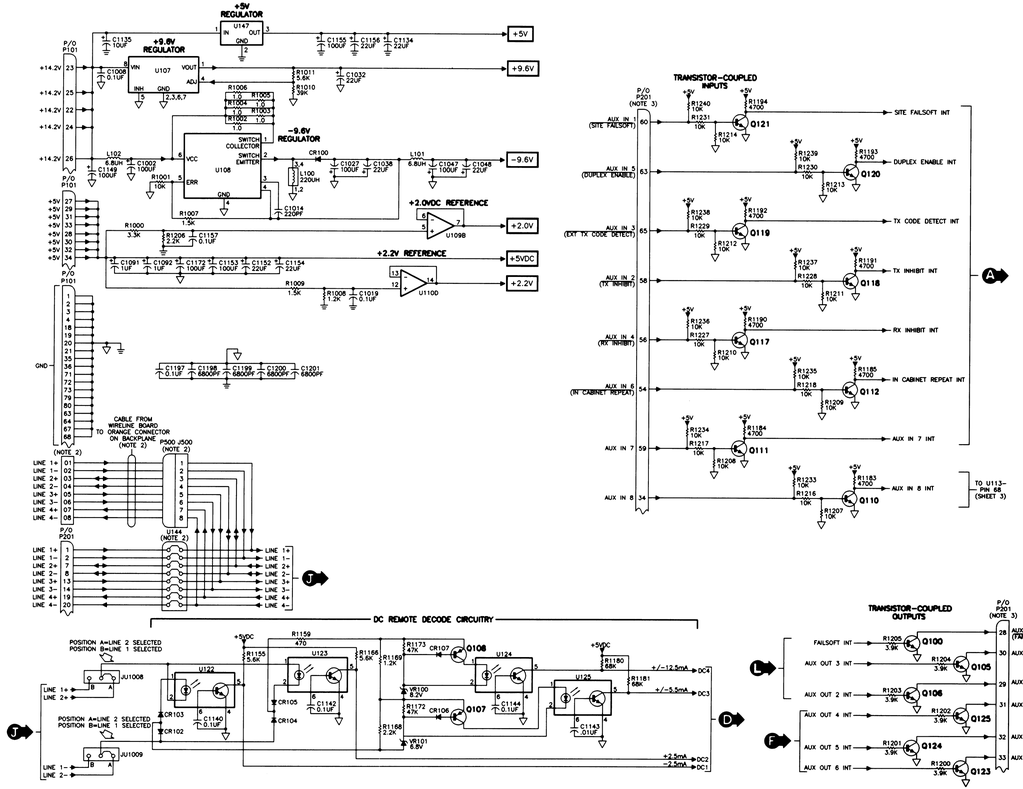
WIRELINE INTERFACE BOARD (8−WIRE)

MODELS CLN6956A, CLN6958A, TRN7706G, CLN6883B, and CLN7343A



WIRELINE INTERFACE BOARD (8-WIRE)

MODELS CLN6956A, CLN6958A, TRN7706G, CLN6883B, and CLN7343A



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TO ALLOW PHONE LINE CONNECTIONS AT BOTH THE 50-PIN TELCO CONNECTOR AND THE 8-POSITION ORANGE SCREW TERMINAL CONNECTOR (BOTH MOUNTED ON THE STATION BACKPLANE), THE ORANGE CONNECTOR IS CABLED TO THE WIRELINE INTERFACE BOARD. THE PHONE LINE CONNECTIONS (LINE 1+, LINE 1-, LINE 2+, ETC.) ARE ELECTRICALLY CONNECTED TO THE CORRESPONDING PHONE LINES ON THE 50-PIN TELCO CONNECTOR THROUGH A JUMPER BOARD (U144, 848340X01) THAT THE INTERNATIONAL VERSION OF THE WIRELINE INTERFACE BOARD (WITH THE 7mm PIN SPACING REQUIREMENTS SPECIFIED BY THE INTERNATIONAL TELEPHONE AGENCIES).
3. MANY OF THE CUSTOMER-DEFINED INPUTS AND OUTPUTS HAVE BEEN PREASSIGNED WITH SIGNAL NAMES AND FUNCTIONS USUALLY DESIRED BY MOST TRUNKING SYSTEMS. THESE DEFAULT PREASSIGNMENTS HAVE BEEN MADE FOR CUSTOMER CONVENIENCE ONLY, AND MAY BE RE-ASSIGNED AS NECESSARY. THE PREASSIGNED SIGNAL NAMES ARE SHOWN IN PARENTHESES.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U101	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U102	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U103	MC14066B	QUAD ANALOG SWITCH	14	7
U104	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U108	MC33063	DC-TO-DC CONVERTER	6	4
U109	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U110	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U111	MC14066B	QUAD ANALOG SWITCH	14	7
U112	MC145480	CODEC IC	6	15
U113	CUSTOM	CUSTOM ASIC	10,27,44,61	1,18,35,52
U114	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U115	74AC32	QUAD 2-INPUT OR	14	7
U116	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U117	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U118	74AC32 74ACT32	QUAD 2-INPUT OR (CLN6956/TRN7706) QUAD 2-INPUT OR (CLN6958)	14	7
U119	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U120	MC145041	8-BIT A/D CONVERTER	20	10
U121	74HC32AD	QUAD 2-INPUT OR	14	7
U122	–	OPTOISOLATOR	–	–
U123	–	OPTOISOLATOR	–	–
U124	–	OPTOISOLATOR	–	–
U125	–	OPTOISOLATOR	–	–
U126	74AC04	HEX INVERTER	14	7
U127	74AC109	DUAL J-K FLIP-FLOP	16	8
U128	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U129	MC140668	QUAD ANALOG SWITCH	14	7
U130	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U131	–	MICROPROCESSOR	18,28,39,62,83,99,112,131	4,13,23,29,54,64,77,87,104,102,107,116,126
U132	–	128k x 8 SRAM	32	16
U133	–	128k x 8 SRAM	32	16
U134	–	128k x 8 EPROM (TRN7706/CLN6883) 256k x 8 FLASH (CLN6956/CLN6958/CLN7343)	32	16
U135	–	128k x 8 EPROM (TRN7706/CLN6883) 256k x 8 FLASH (CLN6956/CLN6958/CLN7343)	32	16
U136	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U137	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U138	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U139	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U140	–	OPTOISOLATOR	–	–
U141	–	OPTOISOLATOR	–	–
U142	–	OPTOISOLATOR	–	–
U143	–	OPTOISOLATOR	–	–
U144	–	JUMPER	–	–
U146	MC140668	QUAD ANALOG SWITCH	14	7
U147	LM7805	+5V DC REGULATOR	–	–

UNUSED GATES

U129C (8, 9, 6) U129D (11, 10, 12) U146C (11, 10, 12)

FLEPS-48898-B (SHEET 4 OF 4)

WIRELINE INTERFACE BOARD (8−WIRE)

MODELS CLN6956A, CLN6958A, TRN7706G, CLN6883B, and CLN7343A

parts list

CLN6956A / CLN6958A Wireline Interface Board (Quantar/Quantro; 8−Wire)
TRN7706G Wireline Interface Board (ASTRO−TAC; 8−Wire)
CLN6883B Wireline Interface Board (ASTRO−TAC; 8−Wire)
CLN7343A Wireline Interface Board (ASTRO−TAC; 8−Wire; FLASH) PL−13148−B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1000,1001	2113741B69	0.1 uF, ±5%, 50 V
C1002	2380090M36	100 uF, 25V
C1003 thru 1012	2113741B69	0.1 uF, ±5%, 50 V
C1013	2311049A21	22 uF, ±10%, 20V
C1014	2113740A83	220 pF, ±5%, 50V
C1015 thru 1017	2113741B69	0.1 uF, ±5%, 50 V
C1018	2382174V01	4.7 uF, ±20%, 200 V
C1019	2113741B69	0.1 uF, ±5%, 50 V
C1020	2382174V01	4.7 uF, ±20%, 200 V
C1021	2311049A21	22 uF, ±10%, 20V
C1022	2113741B69	0.1 uF, ±5%, 50 V
C1025,1026	2113741B69	0.1 uF, ±5%, 50 V
C1027	2380090M36	100 uF, 25V
C1028 thru 1031	2113741B69	0.1 uF, ±5%, 50 V
C1032	2311049A21	22 uF, ±10%, 20V
C1033,1034	2113741B69	0.1 uF, ±5%, 50 V
C1035,1036	2113741A61	0.047 uF, ±5%, 50V
C1037	2113741B69	0.1 uF, ±5%, 50 V
C1038	2311049A21	22 uF, ±10%, 20V
C1039	2113741B69	0.1 uF, ±5%, 50 V
C1040,1041	2113741A55	0.027 uF, ±5%, 50V
C1042 thru 1046	2113741B69	0.1 uF, ±5%, 50 V
C1047	2380090M36	100 uF, 25V
C1048	2311049A21	22 uF, ±10%, 20V
C1049	2113741B69	0.1 uF, ±5%, 50 V
C1050,1051	2113741A57	0.033 uF, ±5%, 50V
C1052	2113741B69	0.1 uF, ±5%, 50 V
C1053	2113741A61	0.047 uF, ±5%, 50V
C1054	2113741B69	0.1 uF, ±5%, 50 V
C1055	2113741B69	0.1 uF, ±5%, 50 V
C1059,1060	2113740A55	100 pF, ±5%, 50V
C1061	2113741B69	0.1 uF, ±5%, 50 V
C1062,1063	2311049A36	1 uF, ±10%, 35 V
C1064	2113741A29	2200 pF, ±5%, 50V
C1065	2113741B69	0.1 uF, ±5%, 50 V
C1066	2113741A57	470 pF, ±5%, 50V
C1067	2113741B69	0.1 uF, ±5%, 50 V
C1068	2113740A67	330 pF, ±5%, 50V
C1069	2113741B69	0.1 uF, ±5%, 50 V
C1070,1071	2113740A71	470 pF, ±5%, 50V
C1072	2113741B69	0.1 uF, ±5%, 50 V
C1073	2311049A08	1 uF, ±10%, 35 V
C1075	2380090M10	22 uF, ±20%, 25V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1078	2113741A37	4700 pF, ±5%, 50V
C1079	2113740A79	1000 pF, ±5%, 50V
C1080	2113741A41	6800 pF, ±5%, 50V
C1081,1082	2113741B69	0.1 uF, ±5%, 50 V
C1084	2113741B69	0.1 uF, ±5%, 50 V
C1085,1087	2113741B69	0.1 uF, ±5%, 50 V
C1088,1089	2113741A29	2200 pF, ±5%, 50V
C1090 thru 1093	2311049A08	1 uF, ±10%, 35 V
C1094	2113741B69	0.1 uF, ±5%, 50 V
C1095 thru 1098	2113740A55	100 pF, ±5%, 50V
C1099,1100	2113740A29	10 pF, ±5%, 50V
C1101,1102	2113741B69	0.1 uF, ±5%, 50 V
C1103	2113740A29	10 pF, ±5%, 50V
C1104 thru 1108	2113741B69	0.1 uF, ±5%, 50 V
C1110	2113741B69	0.1 uF, ±5%, 50 V
C1111	2113741A57	0.033 uF, ±5%, 50V
C1113	2311049A03	0.22 uF, ±10%, 35V
C1114	2113741A57	0.033 uF, ±5%, 50V
C1116	2311049A08	1 uF, ±10%, 35 V
C1117	2113740A79	1000 pF, ±5%, 50V
C1118	2311049A08	1 uF, ±10%, 35 V
C1119,1120	2113741A55	0.027 uF, ±5%, 50V
C1121,1122	2113741A61	0.047 uF, ±5%, 50V
C1123,1124	2113741B65	0.068 uF, ±5%, 50V
C1125,1126	2113741B69	0.1 uF, ±5%, 50 V
C1128	2382174V01	4.7 uF, ±20%, 200 V
C1130	2382174V01	4.7 uF, ±20%, 200 V
C1131	2113740A29	10 pF, ±5%, 50V
C1133	2113740A29	10 pF, ±5%, 50V
C1134	2311049A21	22 uF, ±10%, 20V
C1135	2311049A45	10 uF, ±10%, 35V
C1136 thru 1139	2380090M10	22 uF, ±20%, 25V
C1140 thru 1144	2113741B69	0.1 uF, ±5%, 50 V
C1149	2380090M36	100 uF, 25V
C1150	2113741A29	2200 pF, ±5%, 50V
C1151	2113740A79	1000 pF, ±5%, 50V
C1152	2311049A21	22 uF, ±10%, 20V
C1153	2380090M36	100 uF, 25V
C1154	2311049A21	22 uF, ±10%, 20V
C1155	2380090M36	100 uF, 25V
C1156	2311049A21	22 uF, ±10%, 20V
C1157	2113741B69	0.1 uF, ±5%, 50 V
C1158,1159	2311049A45	10 uF, ±10%, 35V
C1160,1161	2113740A67	330 pF, ±5%, 50V
C1162	2113741A29	2200 pF, ±5%, 50V
C1163	2113740A79	1000 pF, ±5%, 50V
C1164	2113741B69	0.1 uF, ±5%, 50 V
C1165 thru 1168	2311049A08	1 uF, ±10%, 35 V
C1172	2380090M36	100 uF, 25V
C1173,1174	2311049A08	1 uF, ±10%, 35 V
C1175 thru 1177	2113741A53	0.022 uF, ±5%, 50V
C1178,1179	2311049A08	1 uF, ±10%, 35 V
C1180	2113741A53	0.022 uF, ±5%, 50V
C1181	2113741A37	4700 pF, ±5%, 50V
C1183	2113741A37	4700 pF, ±5%, 50V
C1187	2113741B69	0.1 uF, ±5%, 50 V
C1188	2311049A08	1 uF, ±10%, 35 V
C1189,1190	2113740A63	220 pF, ±5%, 50V
C1191,1192	2113740A29	10 pF, ±5%, 50V
C1195,1196	2113740A79	1000 pF, ±5%, 50V
C1197	2113741B69	0.1 uF, ±5%, 50 V
C1198 thru 1201	2113741A41	6800 pF, ±5%, 50V
C1220 thru 1223	2113740A63	220 pF, ±5%, 50V
C1233 thru 1240	2113740A63	220 pF, ±5%, 50V
		diode (see note):
CR100	4813833B01	Schottky type
CR101	4813833C10	0.1A, 70V
CR102 thru 105	4813833B06	1A, 600 V
CR106,107	4813833C10	0.1A, 70V
CR108 thru 111	4813833B01	Schottky type
CR130 thru 133	4813833C28	Zener 15V
		light emitting diode (see note):
DS100	4882198T04	SUBMINIATURE LED RED
DS101	4882198T06	SUBMINIATURE LED GRN
		connector:
J300	0984455T29	Blindmate Keyed, 50−position
J400	0984455T29	Blindmate Keyed, 50−position
J500	2880004U10	HDR ,156 FLK SNPB SR RT 10 POS
		relay:
K100 thru 103	8013917B01	5V, 330MM
		coil:
L100	2485069U01	220UH, 480 MA
L101,102	2411087B36	6.8 UH
L103	2484657R01	ferrite bead
		transient protector
PTC1 thru 4	0685239U01	RES PTC 600V− 145A
Q100 thru 106	4813822A07	**translator (see note):** NPN
Q107,108	4813824A18	PNP
Q110 thru 121	4813824A11	NPN
Q123 thru 125	4813822A07	NPN
		resistor, fixed:
R1000	0611079A86	3300 ohms, ±5%, 1/10W
R1001	0611079A98	10K, ±5%, 1/10W
R1002 thru 1006	0611079A02	1 ohm, ±5%, 1/10W
R1007	0611079A78	1500 ohms, ±5%, 1/10W
R1008	0611079A76	1.2K, ±5%, 1/10W
R1009	0611079A78	1500 ohms, ±5%, 1/10W
R1010	0611079B13	39K, ±5%, 1/10W
R1011	0611079A92	5600 ohms, ±5%, 1/10W
R1014,1015	0611079A70	680 ohms, ±5%, 1/10W
R1016,1017	0611079A52	120 ohms, ±5%, 1/10W
R1018,1019	0611079D93	909 ohms, 1/10W; ±1%
R1020,1021	0611079D69	511 ohms, 1/10W; ±1%
R1024	0611079A40	39 ohms, ±5%, 1/10W
R1025	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1027	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1028,1029	0611079A02	1 ohm, ±5%, 1/10W
R1030,1031	0611079E09	RES CHIP 121.0K 1/10W 1%
R1033	0611079A92	5600 ohms, ±5%, 1/10W
R1034	0611079A78	1500 ohms, ±5%, 1/10W
R1035	0611079B09	27K, ±5%, 1/10W
R1036	0611079G01	10K, 1/10W; ±1%
R1037	0611079G11	12.7K, 1/10W; ±1%
R1038	0611079G01	10K, 1/10W; ±1%
R1039	0611079G11	12.7K, 1/10W; ±1%
R1040	0611079B01	12K, ±5%, 1/10W
R1041	0611079B15	47K, ±5%, 1/10W
R1042	0611079A76	1.2K, ±5%, 1/10W
R1043,1044	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1045,1046	0611079G49	31.6K, 1/10W; ±1%
R1047,1048	0611079A98	10K, ±5%, 1/10W
R1050	0611079A90	4700 ohms, ±5%, 1/10W
R1051	0611079A64	390 ohms, ±5%, 1/10W
R1052	0611079A62	330 ohms, ±5%, 1/10W
R1053	0611079B11	33K, ±5%, 1/10W
R1055	0611079A92	5600 ohms, ±5%, 1/10W
R1058	0611079A92	5600 ohms, ±5%, 1/10W
R1059,1060	0611079A69	620 ohms, ±5%, 1/10W
R1061 thru 1064	0611079A76	1.2K, ±5%, 1/10W
R1065,1066	0611079G58	RES CHIP 39.2K 1/10W 1% 0805
R1067,1068	0611079G09	12.1K, 1/10W; ±1%
R1069	0611079A90	4700 ohms, ±5%, 1/10W
R1070	0611079G01	10K, 1/10W; ±1%
R1071	0611079A90	4700 ohms, ±5%, 1/10W
R1072	0611079G01	10K, 1/10W; ±1%
R1073 thru 1075	0611079A90	4700 ohms, ±5%, 1/10W
R1076,1077	0611079G01	10K, 1/10W; ±1%
R1078	0611079A90	4700 ohms, ±5%, 1/10W
R1079,1080	0611079A98	10K, ±5%, 1/10W
R1081	0611079B15	47K, ±5%, 1/10W
R1082	0611079A70	680 ohms, ±5%, 1/10W
R1083	0611079A69	620 ohms, ±5%, 1/10W
R1084 thru 1087	0611079B15	47K, ±5%, 1/10W
R1088,1089	0611079A90	4700 ohms, ±5%, 1/10W
R1090	0611079B15	47K, ±5%, 1/10W
R1091,1092	0611079A90	4700 ohms, ±5%, 1/10W
R1093	0611079A70	680 ohms, ±5%, 1/10W
R1094 thru 1097	0611072A25	100 ohms, ±5%, 1/4W
R1100,1101	0611079D69	511 ohms, 1/10W; ±1%
R1102,1103	0611079D93	909 ohms, 1/10W; ±1%
R1104,1105	0611079E30	200K, 1/10W; ±1%
R1106	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1107,1108	0611079E30	200K, 1/10W; ±1%
R1109	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1112	0611079A86	3300 ohms, ±5%, 1/10W
R1114	0611079A76	1.2K, ±5%, 1/10W
R1115,1116	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1117	0611079A52	120 ohms, ±5%, 1/10W
R1118	0611079A76 0611079A98	1.2K, ±5%, 1/10W (CLN6956/CLN6958) 10K, ±5%, 1/10W (TRN7706/CLN6883)
R1119	0611079A52	120 ohms, ±5%, 1/10W
R1120	0611079B06	20K, ±5%, 1/10W
R1121	0611079B01	12K, ±5%, 1/10W
R1122	0611079A52	120 ohms, ±5%, 1/10W
R1123	0611079A76	1.2K, ±5%, 1/10W
R1124	0611079B06	20K, ±5%, 1/10W
R1125,1126	0611079A70	680 ohms, ±5%, 1/10W
R1129,1130	0611079B06	20K, ±5%, 1/10W
R1131,1132	0611079A92	5600 ohms, ±5%, 1/10W
R1133	0611079A82	2200 ohms, ±5%, 1/10W
R1134	0611079A90	4700 ohms, ±5%, 1/10W
R1135	0611079A82	2200 ohms, ±5%, 1/10W
R1136	0611079B47	1MEG, ±5%, 1/10W
R1137,1138	0611079B15	47K, ±5%, 1/10W
R1139	0611079B06	20K, ±5%, 1/10W
R1140,1141	0611079A69	620 ohms, ±5%, 1/10W
R1142,1143	0611079A98	10K, ±5%, 1/10W
R1144 thru 1147	0611079B15	47K, ±5%, 1/10W
R1148	0611079A82	2200 ohms, ±5%, 1/10W
R1149 thru 1152	0611079B15	47K, ±5%, 1/10W
R1153	0611079B09	27K, ±5%, 1/10W
R1154	0611079B13	39K, ±5%, 1/10W
R1155	0611079A92	5600 ohms, ±5%, 1/10W
R1156 thru 1158	0611079A98	10K, ±5%, 1/10W
R1159	0611072A41	470 ohms, ±5%, 1/4W
R1160 thru 1165	0611079A98	10K, ±5%, 1/10W
R1166	0611079A92	5600 ohms, ±5%, 1/10W
R1167	0611079A98	10K, ±5%, 1/10W
R1168	0611079A82	2200 ohms, ±5%, 1/10W
R1169	0611079A76	1.2K, ±5%, 1/10W
R1170	0611079A90	4700 ohms, ±5%, 1/10W
R1171	0611079A98	10K, ±5%, 1/10W
R1172,1173	0611079B15	47K, ±5%, 1/10W
R1174	0611079A62	330 ohms, ±5%, 1/10W
R1175	0611079A02	1 ohm, ±5%, 1/10W
R1176 thru 1179	0611079A60	270 ohms, ±5%, 1/10W
R1180,1181	0611079B19	68K, ±5%, 1/10W
R1182	0611079B06	20K, ±5%, 1/10W
R1183 thru 1185	0611079A90	4700 ohms, ±5%, 1/10W
R1186 thru 1189	0611079B23	100K, ±5%, 1/10W
R1190 thru 1194	0611079A90	4700 ohms, ±5%, 1/10W
R1195 thru 1198	0611079A88	3900 ohms, ±5%, 1/10W
R1199	0611079A02	1 ohm, ±5%, 1/10W
R1200 thru 1205	0611079A88	3900 ohms, ±5%, 1/10W
R1206	0611079A82	2200 ohms, ±5%, 1/10W
R1207 thru 1214	0611079A98	10K, ±5%, 1/10W
R1215	0611079B06	20K, ±5%, 1/10W
R1216 thru 1218	0611079A90	4700 ohms, ±5%, 1/10W
R1219 thru 1226	0611072A63	390 ohms, ±5%, 1/4W
R1227 thru 1231	0611079A98	10K, ±5%, 1/10W
R1232	0611079B06	20K, ±5%, 1/10W
R1233 thru 1241	0611079A98	10K, ±5%, 1/10W
R1242	0611079G49 0611079G01 0611079A86 0611079B39	31.6K, 1/10W; ±1% (CLN6956) 10K, 1/10W; ±1% (CLN6958) 10K, 1/10W; ±5% (TRN7706) 121.0K 1/10W; ±1% (CLN6883)
R1243	0611079D93 0611079G01 0611079A86 0611079E30	909 ohms, ±1%; 1/10W (CLN6956) 10K, 1/10W; ±1% (CLN6958) 3300 ohms, ±5%; 1/10W (TRN7706) 200.0K 1/10W; ±1% (CLN6883)
R1244	0611079A98	10K, ±5%, 1/10W
R1245	0611079B06	20K, ±5%, 1/10W
R1246,1247	0611079G09	12.1K, 1/10W; ±1%
R1248,1249	0611079G49	31.6K, 1/10W; ±1%
R1252,1253	0611079G09	12.1K, 1/10W; ±1%
R1254,1255	0611079G49	31.6K, 1/10W; ±1%
R1262,1263	0611079G11	12.7K, 1/10W; ±1%
R1264 thru 1275	0611079A98	10K, ±5%, 1/10W
R1276,1277	0611079A78	1500 ohms, ±5%, 1/10W
R1278,1279	0611079A70	680 ohms, ±5%, 1/10W
R1280	0611079A40	39 ohms, ±5%, 1/10W
R1281,1282	0611079A98	10K, ±5%, 1/10W
R1283	0611079A40	39 ohms, ±5%, 1/10W (All except CLN6883)
R1284	0611079A50	100 ohms, ±5%, 1/10W (CLN6883 only)
R1285	0611079A98	10K, ±5%, 1/10W
T1000 thru 1003	2584422T01	**transformer:** telephone line isolation
		integrated circuit (see note):
U100	5113805A85	Mux/Demux, Trip 2−Channel Analog
U101	5113819A05	High Performance, Single Supply
U102	5113819A04	Quad Operational Amplifier
U103	5113805A86	Quad Analog Multiplexer/Demultiplexer
U104	5113805A85	Mux/Demux, Trip 2−Channel Analog
U105	5184743T01	CODEC Pulse Code Modulation
U106	5184625T03	ASIC Gate Array
U107	5113816A01	Adjustable Low Dropout, Positive
U108	5113815A01	DC to DC Converter
U109,110	5113819A05	High Performance, Single Supply
U111	5113805A86	Quad Analog Multiplexer/Demultiplexer
U112	5184743T01	CODEC Pulse Code Modulation
U113	5184625T03	ASIC Gate Array
U114	5113819A04	Quad Operational Amplifier
U115	5113805A13	Quad 2−Inp OR Gate
U116,117	5113808A38	Octal 3−State Non−Inverter Line Driver
U118	5113808A14 5113808A15	Quad 2−Inp Or Gate (CLN6956/TRN7706) Quad 2−Inp OR MC74ACT32D (CLN6958)
U119	5113808A38	Octal 3−State Non−Inverter Line Driver
U120	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U121	5113808A13	Quad 2−Input OR Gate
U122 thru 125	5184743T03	CODEC Pulse Code Modulation
U126	5113808A05	Hex Inverter
U127	5113808A19	Flip−Flop, Dual Jack w/Set
U128	5113819A04	Quad Operational Amplifier
U129	5113805A86	Quad Analog Multiplexer/Demultiplexer
U130	5113805A85	Mux/Demux, Trip 2−Channel Analog
U131	5113803A08	Multiprotocol
U132,133	5184830T01	128Kbit Bit SRAM
U134	(See Note 1)	(See Note 1)
U135	(See Note 1)	(See Note 1)
U136,137	5113808A20	1 of 8 Decoder/Demultiplexer
U138,139	5113805A72	Octal 3−State Non−Inverting Latch
U140 thru 143	5184742T01	OPTOISOLATOR
U146	5113805A86	Quad Analog Multiplexer/Demultiplexer
U147	5113816A07	5−Volt Positive Regulator
		zener diode (see note):
VR100	4813830A20	8.2V ±5%, 20MA 350 MW
VR101	4813830A18	Zener, 6.8V
		filter (see note):
Y100	4884450T14	XTAL CP13A,16.656MHZ
		non−referenced items:
	0784775T01	STIFFNER, PC board edge (2 used)
	0982451V13	SOCKET, IC, SURF MT 40 PIN (used with U134)
	0982451V13	SOCKET, IC, SURF MT 40 PIN (used with U135)
	0984728L01	Shorting Jumper: 2−contact (used with JU1006)
	0984728L01	Shorting Jumper: 2−contact (used with JU1007)
	0984728L01	Shorting Jumper: 2−contact (used with JU1008)
	0984728L01	Shorting Jumper: 2−contact (used with JU1009)
	0984728L01	Shorting Jumper: 2−contact (used with JU1010)
	0984728L01	Shorting Jumper: 2−contact (used with JU1011)
	2880001R03	plug; 3−contact (used with JU1009)
	2880001R03	plug; 3−contact (used with JU1010)
	2880001R03	plug; 3−contact (used with JU1011)
	2880001S04	plug; 8−contact (used with JU1002)
	2880001S04	plug; 8−contact (used with JU1003)
	2880001S04	plug; 8−contact (used with JU1004)
	2880001S04	plug; 8−contact (used with JU1005)
	2880001S04	plug; 8−contact (used with JU1006)
	2880001S04	plug; 8−contact (used with JU1007)
	5482006W01	LABEL, PCB barcode (CLN6956/CLN6958)
	5482006W02	RIBBON, thermal transfer
	6182512W02	Lightpipes (2 used) for DS100 and DS101
	8484750T07	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

Note 1: For TRN7706 and CLN6883, U134 and U135 are EPROMS that contain the wireline board operating code. For CLN6956, CLN6958, and CLN7343, U134 and U135 are FLASH ICs that contain the wireline board operating code. The part numbers for these ICs are determined by the particular firmware version. Contact Motorola System Support Center (1−800−448−3245) for the current version and corresponding part numbers for U134 and U135.

Parts List, 8-Wire Wireline Interface Board: CLN6956D, CLN6958D, CLN7343D

Reference	Part Number	Description
		capacitor:
C1000,1001	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1002	2380090M33	CAP ALU 330 20 25V
C1003-1012	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1013	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1014	2113740A63	CAP CHIP REEL CL1 +/-30 220
C1015-1017	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1018	2382174V01	CAP LYTIC 4.7UF 200V 20% N/PLR
C1019	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1020	2382174V01	CAP LYTIC 4.7UF 200V 20% N/PLR
C1021	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1022-1026	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1027	2380090M36	CAP 100 UF 25V
C1028-1031	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1032	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1033,1034	2113741B65	CAP CHIP CL2 X7R REEL 68000
C1035,1036	2113741A61	CAP CHIP CL2 X7R REEL 47000
C1037	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1038	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1039	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1040,1041	2113741A55	CAP CHIP CL2 X7R REEL 27000
C1042,1043	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1044	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1045,1046	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1047	2380090M36	CAP 100 UF 25V
C1048	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1049	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1050,1051	2113741A57	CAP CHIP CL2 X7R REEL 33000
C1052	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1053	2113741A61	CAP CHIP CL2 X7R REEL 47000
C1054,1058	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1059,1060	2113740A55	CAP CHIP REEL CL1 +/-30 100
C1061	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1062,1063	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1064	2113741A29	CAP CHIP CL2 X7R REEL 2200
C1065	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1066	2113741A37	CAP CHIP CL2 X7R REEL 4700
C1067	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1068	2113740A67	CAP CHIP REEL CL1 +/-30 330
C1069	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1070,1071	2113740A71	CAP CHIP REEL CL1 +/-30 470
C1072	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1073	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1075	2380090M10	CAP ALU 22 20 25V SURF MT
C1077	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1078	2113741A37	CAP CHIP CL2 X7R REEL 4700
C1079	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1080	2113741A41	CAP CHIP CL2 X7R REEL 6800
C1081-1087	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1088,1089	2113741A29	CAP CHIP CL2 X7R REEL 2200
C1090-1093	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1094	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1095-1098	2113740A55	CAP CHIP REEL CL1 +/-30 100
C1099,1100	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1101,1102	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1103	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1104-1110	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1111	2113741A57	CAP CHIP CL2 X7R REEL 33000
C1113	2311049A03	CAP TANT CHIP A/P .22 10 35
C1114	2113741A57	CAP CHIP CL2 X7R REEL 33000
C1116	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1117	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1118	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1119,1120	2113741A55	CAP CHIP CL2 X7R REEL 27000
C1121,1122	2113741A61	CAP CHIP CL2 X7R REEL 47000
C1123,1124	2113741B65	CAP CHIP CL2 X7R REEL 68000
C1125,1126	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1128,1130	2382174V01	CAP LYTIC 4.7UF 200V 20% N/PLR
C1131,1133	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1134	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1135	2311049A17	CAP TANT CHIP 6.8 1035 A/P
C1136-1139	2380090M10	CAP ALU 22 20 25V SURF MT
C1140-1144	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1149	2380090M33	CAP ALU 330 20 25V
C1150	2113741A29	CAP CHIP CL2 X7R REEL 2200
C1151	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1152	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1153	2380090M36	CAP 100 UF 25V
C1154	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1155	2380090M36	CAP 100 UF 25V
C1156	2311049A21	CAP TANT CHIP 22 10 20 A/P
C1157	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1158,1159	2311049A17	CAP TANT CHIP 6.8 1035 A/P
C1160,1161	2113740A67	CAP CHIP REEL CL1 +/-30 330
C1162	2113741A29	CAP CHIP CL2 X7R REEL 2200
C01163	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C1164	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1165-1168	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1172	2380090M36	CAP 100 UF 25V
C1173,1174	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1175-1177	2113741A53	CAP CHIP CL2 X7R REEL 22000
C1178,1179	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1180	2113741A53	CAP CHIP CL2 X7R REEL 22000
C1181,1183	2113741A37	CAP CHIP CL2 X7R REEL 4700
C1187	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1188	2311049A08	CAP TANT CHIP 1 10 35 A/P
C1189,1190	2113740A63	CAP CHIP REEL CL1 +/-30 220
C1191-1196	2113740A29	CAP CHIP REEL CL1 +/-30 10
C1197	2113741B69	CAP CHIP CL2 X7R REEL 100000
C1198-1201	2113741A41	CAP CHIP CL2 X7R REEL 6800
C1220-1240	2113740A63	CAP CHIP REEL CL1 +/-30 220
C1252	2113741B69	CAP CHIP CL2 X7R REEL 100000
		diode (note 1):
CR100	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR101	4813833C10	DIODE GEN PUR 70V MMBD6050
CR102-105	4813833B06	RECT 1A 600V MURS160T3
CR106,107	4813833C10	DIODE GEN PUR 70V MMBD6050
CR108-111	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR130-133	4813832C28	ZENER BPLR 15V FOR ESD SOT23
DS100	4882198T08	SUB MINEATURE LED RED SM
DS101	4882198T09	SUB MINEATURE LED GRN SM
VR100	4813830A20	DIODE 8.2V 5% 225MW MMBZ5237B_
VR101	4813830A18	DIODE 6.8V 5% 225MW MMBZ5235B_
		connector:
J300,400	0984455T29	RECP BLINDMATE KEYED 50 POS
J500	2880004U10	HDR .156 FLK SNPB SR RT 10 POS
JU1000-1007	2880001S04	CON PCB HDR 1 GOLD DR ST 8 POS
JU1008-1012	2880001R03	CON PCB HDR .1 GLD SR ST 3 POS

Reference	Part Number	Description
		relay:
K100-103	8013917B01	RELAY SMD 5V 330MM T&R
		inductor:
L100	2485069U01	COIL SM 220UH 480MA
L101	2411087B36	COIL CHIP 6.8 UH 5 A/I
L102	2409143L21	IND WW 220UH 20% 7X7MM SMD
L103	2484657R01	INDUCTOR BEAD CHIP
		transient protector:
PTC1-C4	0685239U01	RESPTC 600V-.145A
		transistor (note 1):
Q100-106	4813822A07	TSTR NPN 300V .5A MJD340T4
Q107,108	4813824A18	XSTR PNP 40V .6A SW B=100
Q110-121	4813824A11	XSTR NPN 40V .6A GENP B=75
Q123-125	4813822A07	TSTR NPN 300V .5A MJD340T4
		resistor:
R1000	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R1001	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1002-1006	0611079A02	RES FIXED CHIP 1 5 1/10 A/P
R1007	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1008	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1009	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1010	0611079B13	RES FIXED CHIP 39K 5 1/10 A/P
R1011	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1014,1015	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1016,1017	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1018,1019	0611079D93	RES CHIP 909.0 1/10W 1%
R1020,1021	0611079D69	RES CHIP 511.0 1/10W 1%
R1024	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R1025,1027	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1028,1029	0611079A02	RES FIXED CHIP 1 5 1/10 A/P
R1030,1031	0611079E14	RES CHIP 121.0K 1/10W 1%
R1033	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1034	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R1035	0611079B09	RES FIXED CHIP 27K 5 1/10 A/P
R1036	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1037	0611079G11	RES CHIP 12.7K 1/10W 1% 0805
R1038	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1039	0611079G11	RES CHIP 12.7K 1/10W 1% 0805
R1040	0611079B01	RES FIXED CHIP 12K 5 1/10 A/P
R1041	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1042	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1043,1044	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1045,1046	0611079G49	RES CHIP 31.6K 1/10W 1% 0805
R1047,1048	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1050	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1051	0611079A64	RES FIXED CHIP 390 5 1/10W A/P
R1052	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R1053	0611079B11	RES FIXED CHIP 33K 5 1/10 A/P
R1055,1058	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1059,1060	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R1061-1064	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1065,1066	0611079G58	RES CHIP 39.2K 1/10W 1% 0805
R1067,1068	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R1069	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1070	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1071	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1072	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1073-1075	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1076,1077	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1078	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1079,1080	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P

Reference	Part Number	Description
R1081	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1082	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1083	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R1084-1087	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1088,1089	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1090	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1091,1092	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1093	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1094-1097	0611072A25	RES CHIP 100 5 1/4
R1100,1101	0611079D69	RES CHIP 511.0 1/10W 1%
R1102,1103	0611079D93	RES CHIP 909.0 1/10W 1%
R1104,1105	0611079E35	RES CHIP 200.0K 1/10W 1%
R1106	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1107,1108	0611079E35	RES CHIP 200.0K 1/10W 1%
R1109	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1112	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R1114	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1115,1116	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1117	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1118	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1119	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1120	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1121	0611079B01	RES FIXED CHIP 12K 5 1/10 A/P
R1122	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R1123	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1124	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1125,1126	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1129,1130	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1131,1132	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1133	0611079F34	RES CHIP 2.21K 1/10W 1% 0805
R1134	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1135	0611079F34	RES CHIP 2.21K 1/10W 1% 0805
R1136	0611079E102	RES CHIP 1.0M 1/10W 1%
R1137,1138	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1139	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1140,1141	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R1142,1143	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1144-1147	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1148	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R1149-1152	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1153	0611079B09	RES FIXED CHIP 27K 5 1/10 A/P
R1154	0611079B13	RES FIXED CHIP 39K 5 1/10 A/P
R1155	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1156-1158	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1159	0611072A41	RES CHIP 470 5 1/4
R1160-1165	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1166	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R1167	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1168	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R1169	0611079A76	RES FIXED CHIP 1200 5 1/10 A/P
R1170	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1171	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1172,1173	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R1174	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1175	0611079A02	RES FIXED CHIP 1 5 1/10 A/P
R1176-1179	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R1180,1181	0611079B19	RES FIXED CHIP 68K 5 1/10 A/P
R1182	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1183-1185	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1186-1189	0611079E06	RES CHIP 100.0K 1/10W 1%
R1190-1194	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R1195-1198	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R1199	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R1200-1205	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R1206	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R1207-1214	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1215	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1216-1218	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1219-1226	0611072A63	RES CHIP 3900 5 1/4

Reference	Part Number	Description
R1227-1231	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1232	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1233-1241	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1242	0611079G49	RES CHIP 31.6K 1/10W 1% 0805
R1243	0611079D93	RES CHIP 909.0 1/10W 1%
R1244	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1245	0611079B06	RES FIXED CHIP 20K 5 1/10 A/P
R1246,1247	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R1248,1249	0611079G49	RES CHIP 31.6K 1/10W 1% 0805
R1252,1253	0611079G09	RES CHIP 12.1K 1/10W 1% 0805
R1254,1255	0611079G49	RES CHIP 31.6K 1/10W 1% 0805
R1262,1263	0611079G11	RES CHIP 12.7K 1/10W 1% 0805
R1264-1277	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1278,1279	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R1280	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R1281,1282	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1283,1284	0611079A40	RES FIXED CHIP 39 5 1/10W A/P
R1285-1287	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R1290,1291	0611072A45	RES CHIP 680 5 1/4
R1292	0611072A53	RES CHIP 1500 5 1/4
R1293	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R1294-1302	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1303,1304	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R1305-1309	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1310	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R1311,1312	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R1313,1314	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
		transformer:
T1000-1003	2584422T01	XFMR LINE ISOLATION TELEPHONE
		integrated circuit (note 1):
U100	5113805A85	IC TRIP 2CH ANALOG MUX/DEMUX
U101	5184334Y01	IC HIGH PERF. SING SPLY
U102	5113819A04	IC QD OP AMP GEN PURP MC3303D
U103	5113805A86	IC QUAD ANALOG MUX/DEMUX
U104	5113805A85	IC TRIP 2CH ANALOG MUX/DEMUX
U105	5184743T01	IC CODEC PCM 5V_145480
U106	5184625T03	ASIC GATE ARRAY SX6 8K6015JD02
U107	5113816A01	IC ADJ. LOW DROPOUT POS,100MA
U108	5113815A01	IC DC TO DC CONVERTER
U109,110	5184334Y01	IC HIGH PERF. SING SPLY
U111	5113805A86	IC QUAD ANALOG MUX/DEMUX
U112	5184743T01	IC CODEC PCM 5V_145480
U113	5184625T03	ASIC GATE ARRAY SX6 8K6015JD02
U114	5113819A04	IC QD OP AMP GEN PURP MC3303D
U115	5113808A14	IC QUAD 2 INPUT OR GATE
U116,117	5113808A38	IC LINE DRVR OCT 3T NON INV
U118	5113808A14	IC QUAD 2 INPUT OR GATE
U119	5113808A38	IC LINE DRVR OCT 3T NON INV
U120	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U121	5113805A13	IC QUAD 2INP OR 74HC32AD
U122-125	5184742T03	IC OPTOISOLATOR_4N27-
U126	5113808A05	IC INV HEX MC74AC04D
U127	5184136Y01	IC FF DUAL W/SET CLR
U128	5113819A04	IC QD OP AMP GEN PURP MC3303D
U129	5113805A86	IC QUAD ANALOG MUX/DEMUX
U130	5113805A85	IC TRIP 2CH ANALOG MUX/DEMUX
U131	5113802A08	IC INTEGRATED MULTIPROTOCOL
U132-133	5184830T01	IC 128KX8 SRAM -628128- SM
U134-135	5191071A02	IC FLASH 29C020 150NS 32TSOP (note 2)
U136-137	5113808A20	IC DCDR/DEMUX 1 OF 8 AC138D
U138,139	5113805A72	IC OCT 3ST N/INV TRANS LAT
U140-143	5184742T01	IC OPTOISOLATOR MOC207_M207_
U146	5113805A86	IC QUAD ANALOG MUX/DEMUX
U147	5113816A07	REG 5V POS 500MA MC78M05BDTRK
U150	5113808A67	IC BUF QD 3-ST MC74ACT125DR2
		crystal (note 1:
Y100	4884450T14	XTAL CP12A 16.656MHZ
		non-referenced items:
	5482006W03	BARCODE LABEL
	6182512W02	LIGHTPIPES (2)
	0984728L01	Shorting Jumper, 2 contact (used with JU1000-1012)

NOTE 1: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

NOTE 2: For CLN6956, CLN6958, and CLN7343, U134 and U135 are FLASH ICs that contain the wireline board operating code. The part numbers for these ICs are determined by the particular firmware version. Contact Motorola System Support Center (1-800-448-3245) for the current version and corresponding part numbers for U134 and U135.

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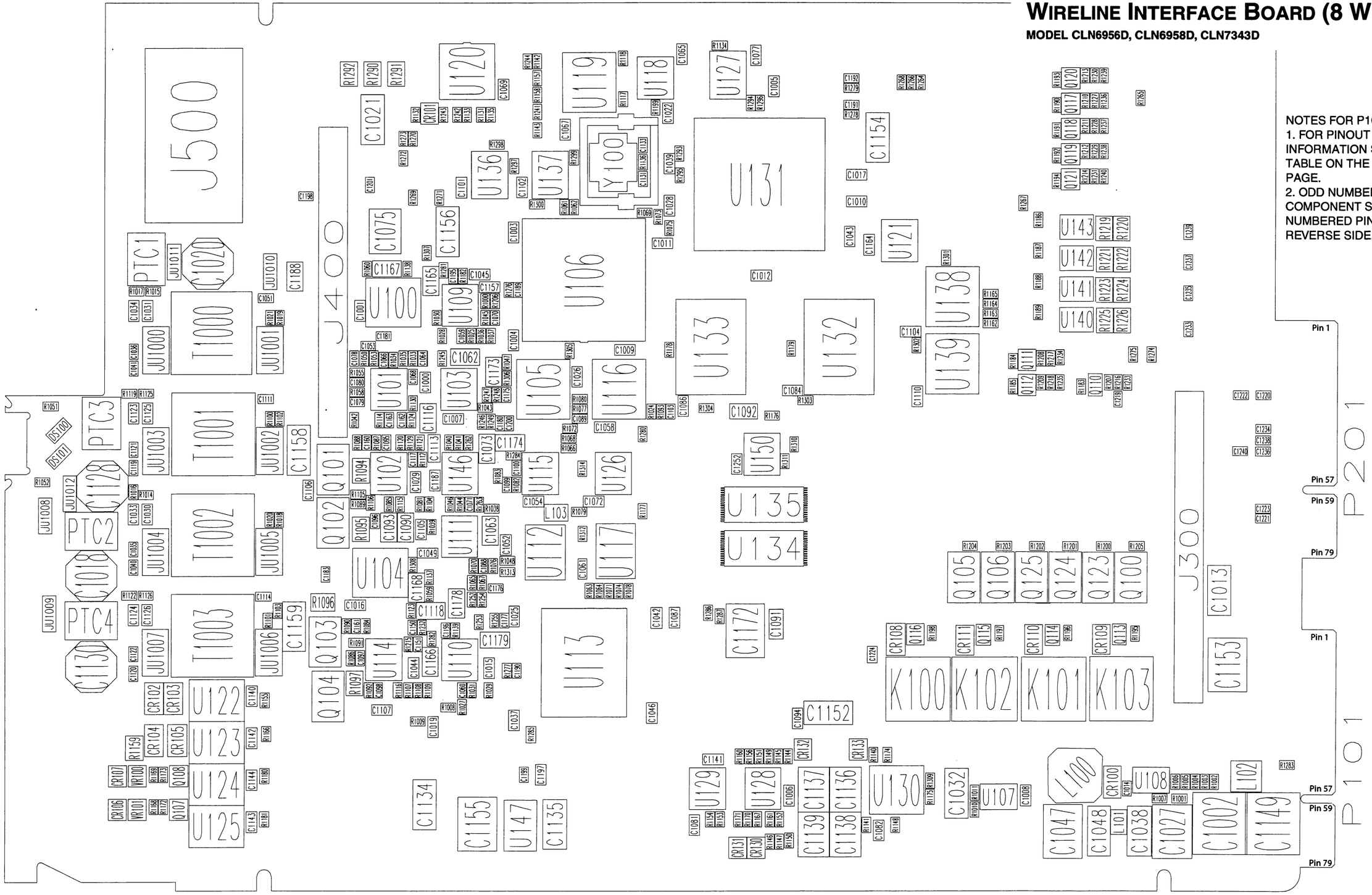
WIRELINE INTERFACE BOARD (8 WIRE)

MODEL CLN6956D, CLN6958D, CLN7343D



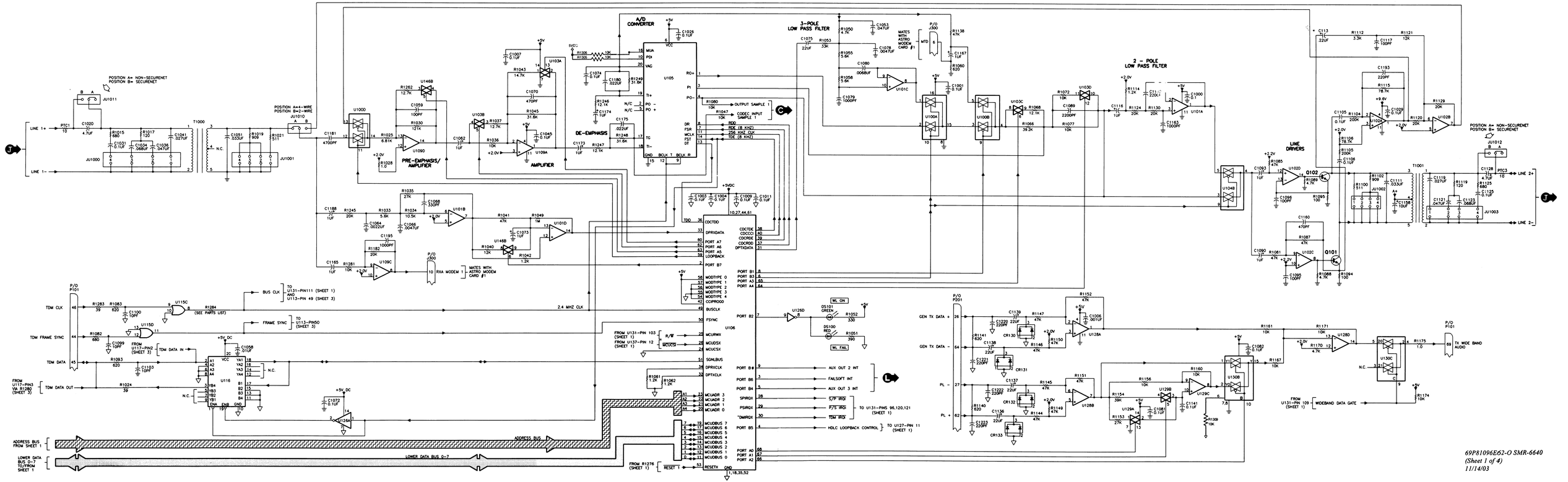
NOTES FOR P101 AND P102:
1. FOR PINOUT INFORMATION SEE THE TABLE ON THE FOLLOWING PAGE.
2. ODD NUMBERED PINS ON COMPONENT SIDE, EVEN NUMBERED PINS ON REVERSE SIDE.

Connector Pinouts, P101 and P102

Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
P101				**P102**			
P101-1, 3	GND	P101-2,4	GND	P201-1	LINE 1+	P201-2	LINE 1-
P101-5	Not Used	P101-6	Not Used	P201-7	LINE 2+	P201-8	LINE 2-
P101-7	Not Used	P101-8	Not Used	P201-13	LINE 3+	P201-14	LINE 3-
P101-9	Not Used	P101-10	Not Used	P201-19	LINE 4+	P201-20	LINE 4-
P101-11	Not Used	P101-12	Not Used	P201-25	Not Used	P201-26	GEN TX DATA+
P101-13	Not Used	P101-14	Not Used	P201-27	PL-	P201-28	AUX OUT 1 (FAILSOFT)
P101-15	Not Used	P101-16	Not Used	P201-29	AUX OUT 2	P201-30	AUX OUT 3
P101-17	Not Used	P101-18, 20	GND	P201-31	AUX OUT 4	P201-32	AUX OUT 5
P101-19, 21	GND	P101-22, 24	+14.2V	P201-33	AUX OUT 6	P201-34	AUX IN 8
P101-23, 25	+14.2V	P101-26	+14.2V	P201-35	AUX OUT 7 N.O.	P201-36	AUX OUT 8 N.O.
P101-27, 29, 31, 33	+5V	P101-28, 30, 32, 34	+5V	P201-37	AUX OUT 9 N.O.	P201-38	Not Used
P101-35	GND	P101-36	GND	P201-39	AUX IN 9 OPTO-	P201-40	AUX OUT 10 N.O.
P101-37	Not Used	P101-38	Not Used	P201-41	AUX IN 11 OPTO-	P201-42	AUX IN 10 OPTO-
P101-39	Not Used	P101-40	RESET	P201-43	AUX IN 12 OPTO+	P201-44	AUX IN 12 OPTO-
P101-41	HDLC DATA	P101-42	HDLC BUSY	P201-45	Not Used	P201-46	AUX IN 11 OPTO+
P101-43	HDLC CLK	P101-44	TDM FRAME SYNC	P201-47	Not Used	P201-48	AUX IN 9 OPTO+
P101-45	TDM DATA	P101-46	TDM CLK	P201-49	AUX IN 10 OPTO+	P201-50	AUX OUT 9 COM
P101-47	Not Used	P101-48	Not Used	P201-51	AUX OUT 10 COM	P201-52	AUX OUT 7 COM
P101-49	Not Used	P101-50	Not Used	P201-53	Not Used	P201-54	AUX IN 6 (IN CABINET REPEAT)
P101-51	Not Used	P101-52	Not Used	P201-55	Not Used	P201-56	AUX IN 4 (RX INHIBIT)
P101-53	Not Used	P101-54	Not Used	P201-57	AUX OUT 8 COM	P201-58	AUX IN 2 (TX INHIBIT)
P101-55	BOARD ID DECODE LINE	P101-56	Not Used	P201-59	AUX IN 7	P201-60	AUX IN 1 (SITE FAILSOFT)
P101-57	BOARD ID DECODE LINE	P101-58	Not Used	P201-61	Not Used	P201-62	PL+
P101-59	BOARD ID DECODE LINE	P101-60	Not Used	P201-63	AUX IN 5 (DUPLEX ENABLE)	P201-64	GEN TX DATA-
P101-61	BOARD ID DECODE LINE	P101-62	Not Used	P201-65	AUX INT 3 (EXT TX CODE DETECT)	P201-66	Not Used
P101-63	GND	P101-64	GND	P201-67	Not Used	P201-68	Not Used
P101-65	Not Used	P101-66	Not Used	P201-69	Not Used	P201-70	Not Used
P101-67	GND	P101-68	GND	P201-71	Not Used	P201-72	Not Used
P101-69	TX WIDE BAND AUDIO	P101-70	Not Used	P201-73	Not Used	P201-74	Not Used
P101-71, 73	GND	P101-72	GND	P201-75	Not Used	P201-76	Not Used
P101-75	Not Used	P101-74	Not Used	P201-77	Not Used	P201-78	Not Used
P101-77	Not Used	P101-76	Not Used	P201-79	Not Used	P201-80	Not Used
P101-79	GND	P101-78	Not Used				
		p101-80	GND				

WIRELINE INTERFACE BOARD (8-WIRE)

MODELS CLN6956D, CLN6958D, CLN7343D



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(Sheet 1 of 4)
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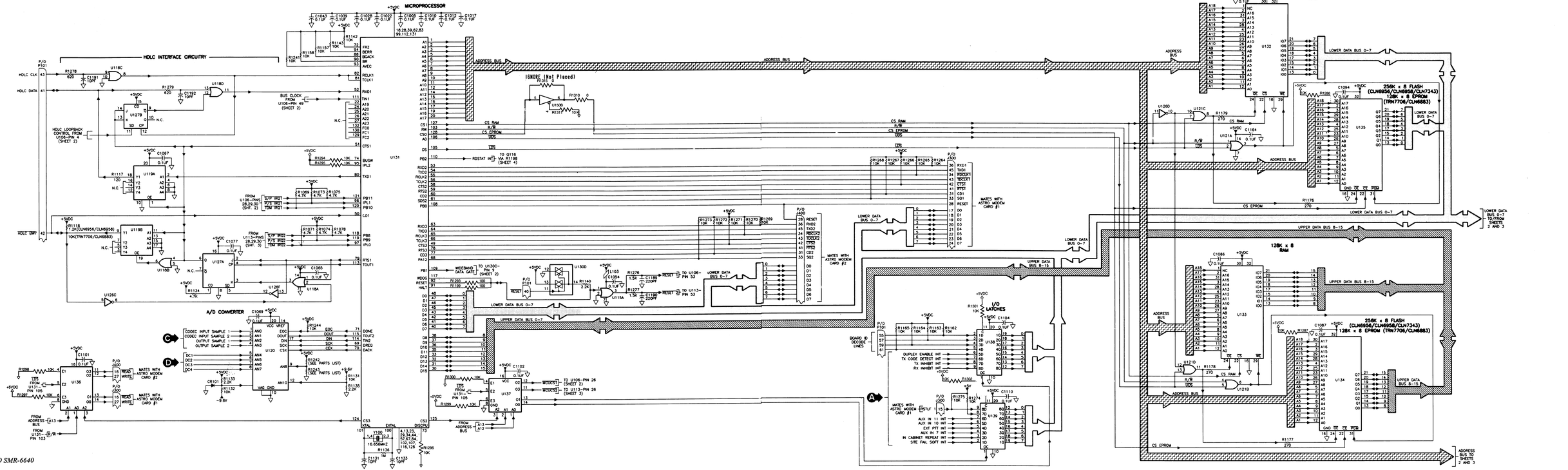
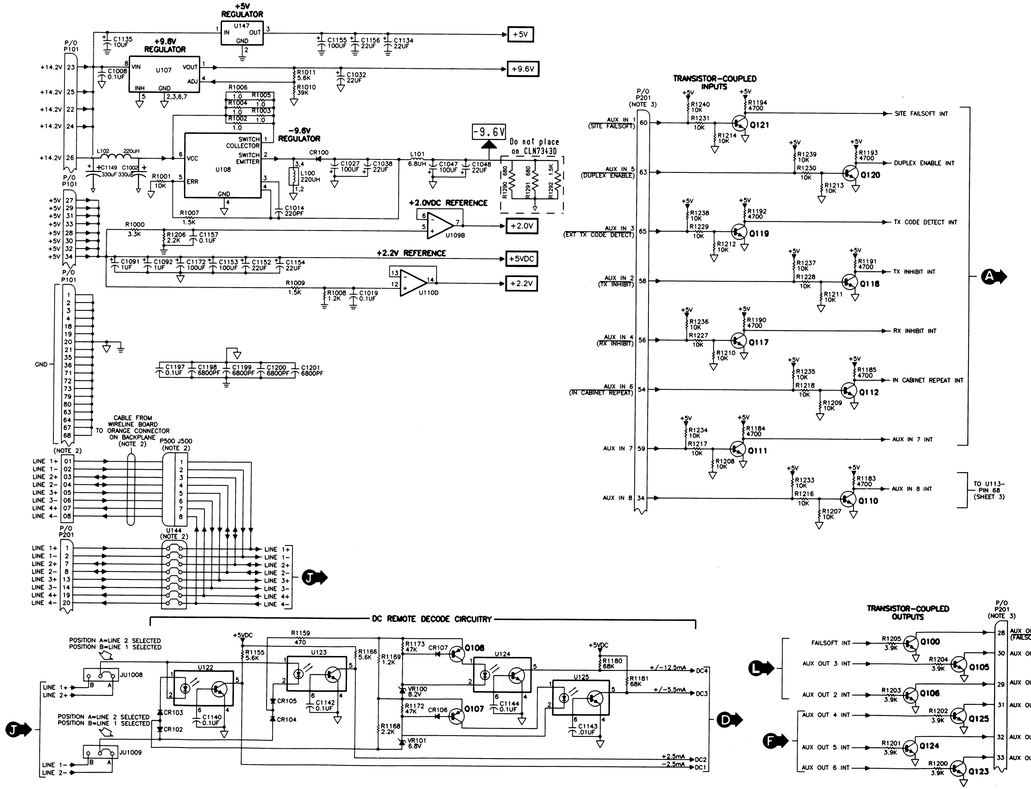
WIRELINE INTERFACE BOARD (8-WIRE)

MODELS CLN6956D, CLN6958D, CLN7343D



WIRELINE INTERFACE BOARD (8-WIRE)

MODELS CLN6956D, CLN6958D, CLN7343D



NOTES

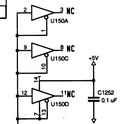
1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TO ALLOW PHONE LINE CONNECTIONS VIA BOTH THE 50-PIN TELCO CONNECTOR AND THE 25-POSITION ORANGE SCREW TERMINAL CONNECTOR (ON THE BACKPLANE), THE ORANGE CONNECTOR IS CABLED TO THE WIRELINE INTERFACE BOARD. THE PHONE LINE CONNECTIONS (LINE 1+, LINE 1-, LINE 2+, ETC.) ARE ELECTRICALLY CONNECTED TO THE CORRESPONDING PHONE LINES FROM THE 50-PIN TELCO CONNECTOR THROUGH A JUMPER BOARD (U144, 848340X01) (FOR THE INTERNATIONAL MODEL CLN6958D, THIS JUMPER BOARD IS REMOVED TO MAINTAIN THE 5mm PIN SPACING REQUIREMENTS SPECIFIED BY THE INTERNATIONAL TELEPHONE AGENCIES).
3. MANY OF THE CUSTOMER-DEFINED INPUTS AND OUTPUTS HAVE BEEN PREASSIGNED WITH SIGNAL NAMES AND FUNCTIONS USUALLY REQUIRED IN TYPICAL TRUNKING, SECURENET, AND OTHER SYSTEMS. THESE DEFAULT PREASSIGNMENTS HAVE BEEN MADE FOR CUSTOMER CONVENIENCE ONLY, AND MAY BE RE-ASSIGNED AS NECESSARY. THE PREASSIGNED SIGNAL NAMES ARE SHOWN IN PARENTHESES.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U101	MC33074	QUAD SINGLE SUPPLY HI-PERF OP AMP	4	11
U102	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U103	MC14066B	QUAD ANALOG SWITCH	14	7
U104	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U108	MC33063	DC-TO-DC CONVERTER	6	4
U109	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U110	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U111	MC14066B	QUAD ANALOG SWITCH	14	7
U112	MC145480	CODEC IC	6	15
U113	CUSTOM	CUSTOM ASIC	10,27,44,81	1,18,35,52
U114	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U115	74AC32	QUAD 2-INPUT OR	14	7
U116	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U117	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U118	74AC32 74AC7J32	QUAD 2-INPUT OR (CLN6956/TRN7706) QUAD 2-INPUT OR (CLN6958)	14 14	7 7
U119	74AC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U120	MC145041	8-BIT A/D CONVERTER	20	10
U121	74HC32AD	QUAD 2-INPUT OR	14	7
U122	–	OPTOISOLATOR	–	–
U123	–	OPTOISOLATOR	–	–
U124	–	OPTOISOLATOR	–	–
U125	–	OPTOISOLATOR	–	–
U126	74AC04	HEX INVERTER	14	7
U127	74AC109	DUAL J-K FLIP-FLOP	16	8
U128	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U129	MC14066B	QUAD ANALOG SWITCH	14	7
U130	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U131	–	MICROPROCESSOR	18,28,38,62,83,99,112,131	4,13,23,29,34,44,57,87,94,102,107,116,126
U132	–	128k x 8 SRAM	32	16
U133	–	128k x 8 SRAM	32	16
U134	–	256k x 8 FLASH (CLN6956/CLN6958/CLN7343)	32	16
U135	–	256k x 8 FLASH (CLN6956/CLN6958/CLN7343)	32	16
U136	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U137	74AC138	1-OF-8 DECODER/DEMULTIPLEXER	16	8
U138	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U139	74HC573	OCTAL 3-STATE NONINVERTING LATCH	20	10
U140	–	OPTOISOLATOR	–	–
U141	–	OPTOISOLATOR	–	–
U142	–	OPTOISOLATOR	–	–
U143	–	OPTOISOLATOR	–	–
U144	–	JUMPER	–	–
U146	MC14066B	QUAD ANALOG SWITCH	14	7
U147	LM7805	+5V DC REGULATOR	–	–
U150	74ACT125	TRI-STATE BUFFER	14	7

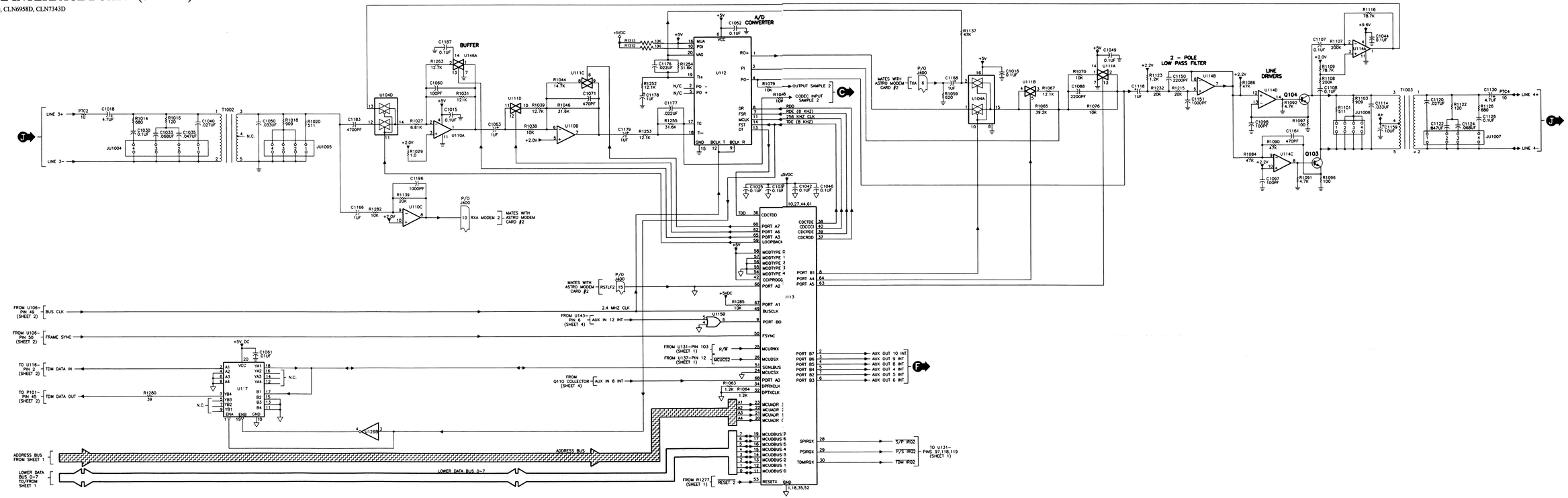
UNUSED GATES

U129C (11, 10, 12) U139D (11, 10, 12) U146C (11, 10, 12)



WIRELINE INTERFACE BOARD (8-WIRE)

MODELS CLN6956D, CLN6958D, CLN7343D

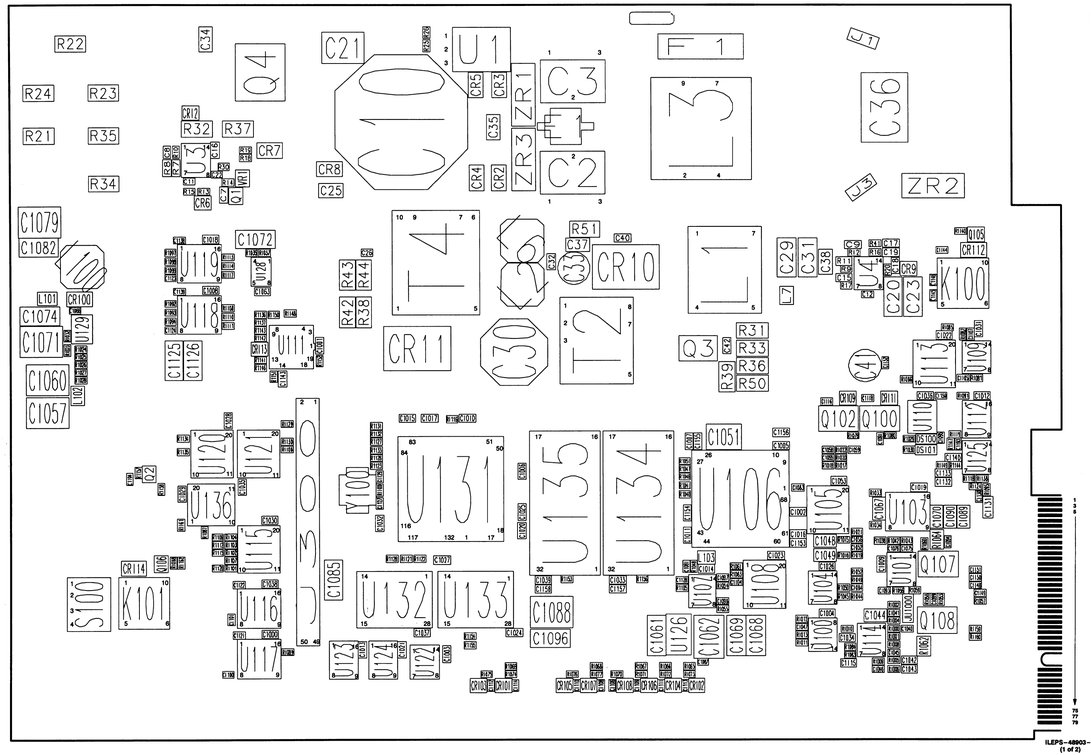


69P81096E62-O SMR-6640

(Sheet 4 of 4)

11/14/03

WIRELINE / POWER SUPPLY BOARD
MODEL CLN6959B


R22
R24
R23
R21
R35
R34
C34
Q4
C21
C10
U1
CR5
CR3
CR1
ZR1
C3
C2
ZR3
CR4
CR2
C35
F1
L3
C36
J3
ZR2
CR17
R32
R37
U3
CR7
CR8
C25
C1079
C1082
C1072
U119
U128
U118
U111
C1125
C1126
T4
R43
R44
R42
R38
CR11
C30
C32
C33
R51
C37
C40
CR10
T2
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C31
C38
L7
C20
C23
C22
C39
U4
CR9
Q105
CR112
K100
L101
CR100
C1074
C1071
C1060
C1057
U123
U124
R31
R33
R36
R50
R39
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C4
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U109
Q102
Q100
U110
U112
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U115
U116
U117
U131
U135
U134
Y100
C1051
U106
U105
U103
U104
U107
U108
U102
Q107
Q108
U101
U100
U132
U133
C1088
C1096
C1061
U126
C1062
C1069
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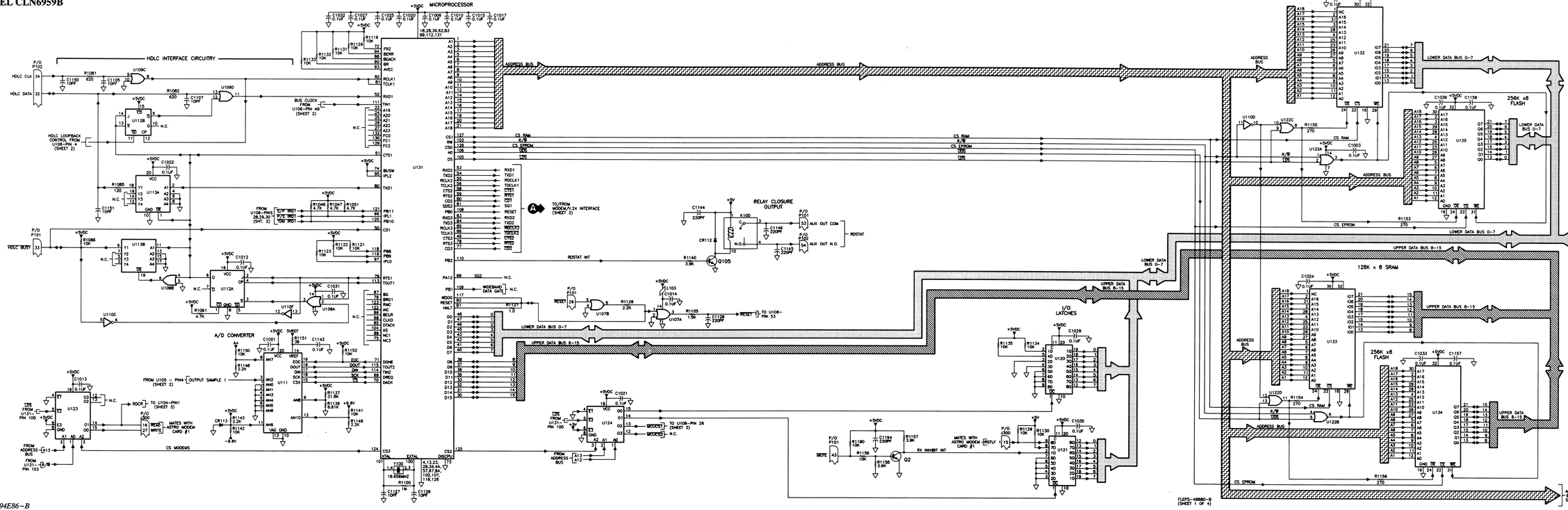
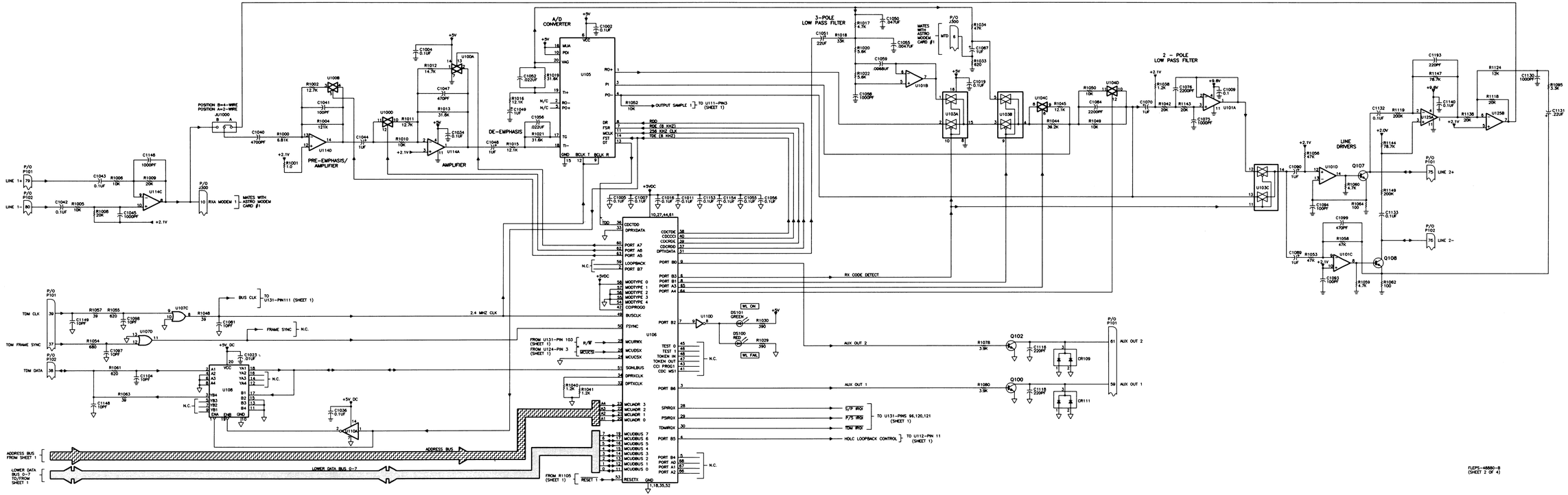
WIRELINE / POWER SUPPLY BOARD

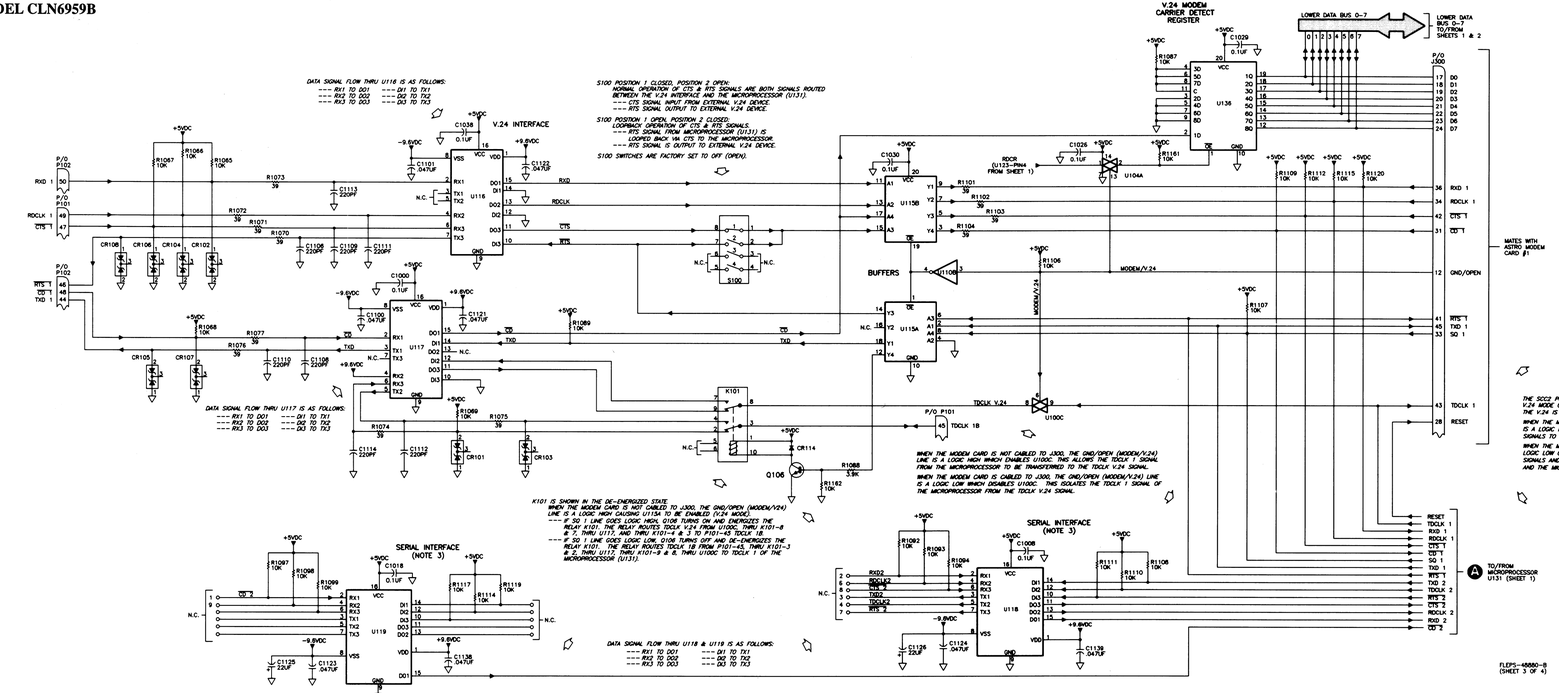
MODEL CLN6959B

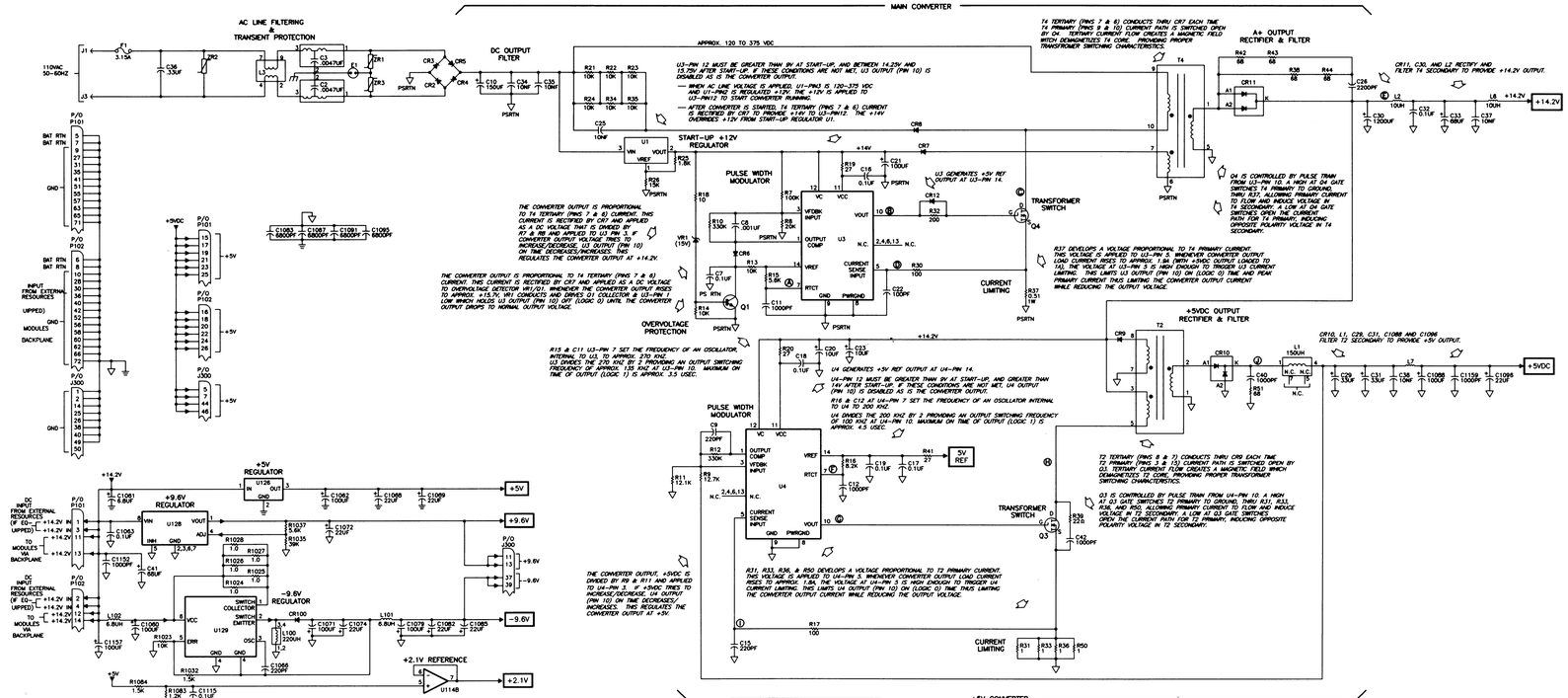


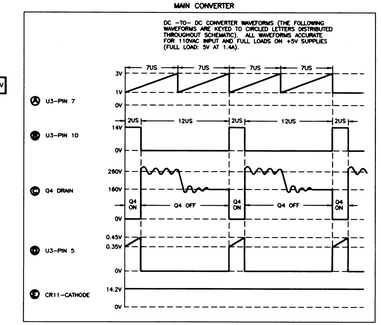


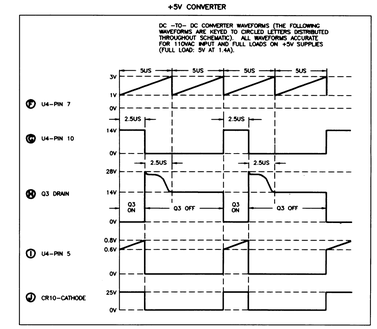
FLEPS-46880-B
(SHEET 2 OF 4)

WIRELINE / POWER SUPPLY BOARD
MODEL CLN6959B









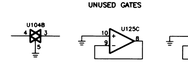
NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. EDGE CONNECTORS P101 AND P102 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. U118, U119 AND ASSOCIATED COMPONENTS ARE POPULATED ON THE CIRCUIT BOARD, BUT ARE NOT USED.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U1	HIP5600IS2	HIGH VOLTAGE LINEAR REGULATOR	–	–
U3,4	UC2845B	HIGH PERFORMANCE CURRENT MODE CONTROLLER	11,12	8,9
U100	MC14066B	QUAD ANALOG SWITCH	14	7
U101	MC33074	DUAL SINGLE SUPPLY HI~PERF OP AMP	4	11
U103	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U104	MC14066B	QUAD ANALOG SWITCH	14	7
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	74AC32	QUAD 2~INPUT OR	14	7
U108	74AC244	OCTAL 3~STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U109	74AC32	QUAD 2~INPUT OR	14	7
U110	74AC04	HEX INVERTER	14	7
U111	MC145041	8~BIT A/D CONVERTER	20	10
U112	74AC109	DUAL J~K FLIP~FLOP	16	8
U113	74AC244	OCTAL 3~STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U114	MC33074	QUAD SINGLE SUPPLY HI~PERF OP AMP	4	11
U115	74AC244	OCTAL 3~STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U116, U117, U118, U119,	MC145406	DRIVER/RECEIVER; 3~DRIVERS, 3~RECEIVERS	16	9
U120, U121	74HC573	OCTAL 3~STATE NONINVERTING LATCH	20	10
U122	74HC32	QUAD 2~INPUT OR	14	7
U123, U124	74AC138	1~OF~8 DECODER/DEMULTIPLEXER	16	8
U125	MC33074	QUAD SINGLE SUPPLY HI~PERF OP AMP	4	11
U126	LM7805	+5V DC REGULATOR	–	–
U128	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U129	MC33063	DC~TO~DC CONVERTER	6	4
U131	–	MICROPROCESSOR	18,28,39,62, 83,99,112, 131	4,13,23,29, 34,44,57,87, 84,102,107, 118,125
U132, U133	–	128k x 8 SRAM	28	14
U134, U135	–	256k x 8 FLASH	32	16
U136	74HC573	OCTAL 3~STATE NON~INVERTING LATCH	20	10
U145	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7

UNUSED GATES



FLEPS~48880~B (SHEET 4 OF 4)

WIRELINE / POWER SUPPLY BOARD
MODEL CLN6959B

parts list

CLN6959B Wireline/Power Supply Board — PL–13151–A

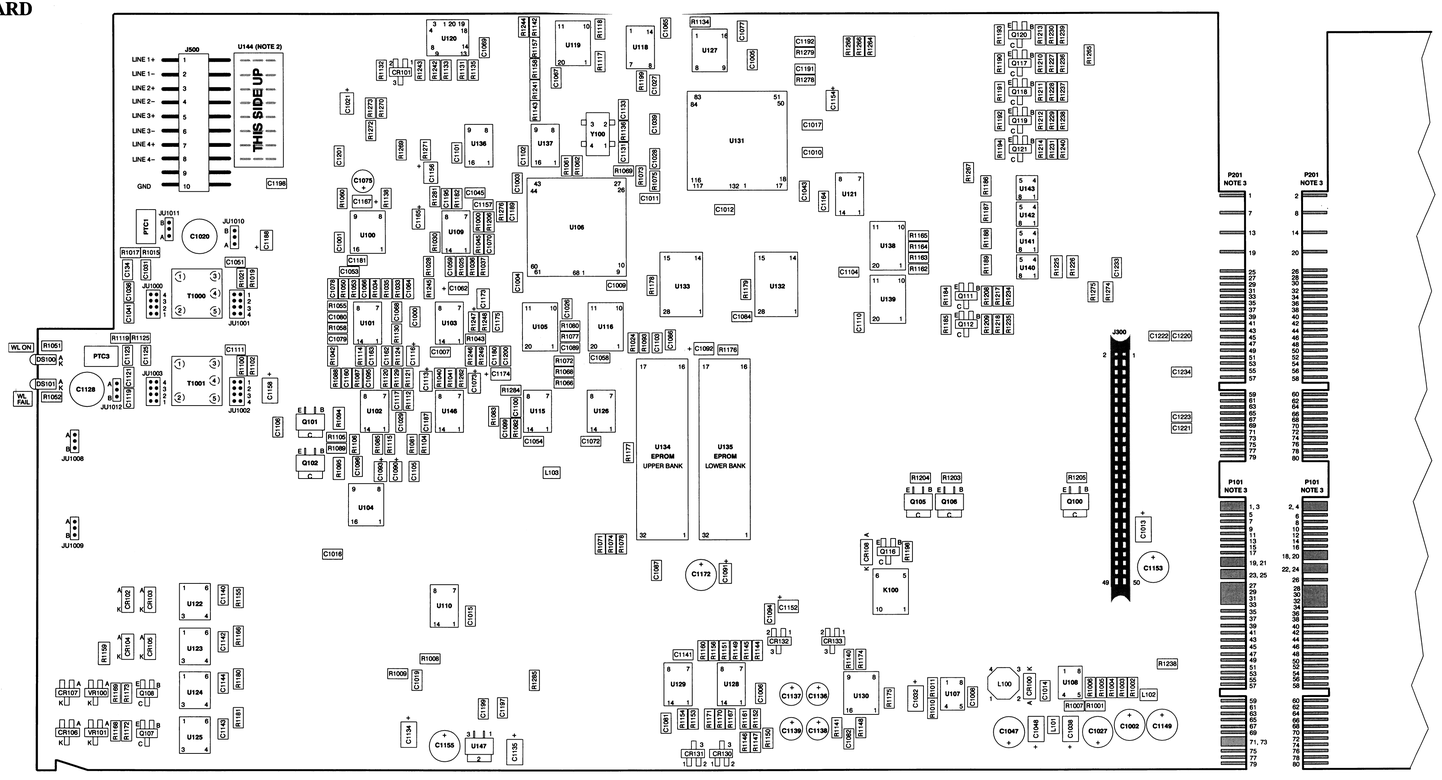
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2,3	9184185T01	470 pF, ±20%; 250V
C7	2113741B69	0.1 uF, ±5%; 50 V
C8	2113740A79	1000 pF, ±5%; 50 V
C9	2113740B57	220 pF, ±30%; 50 V
C10	2362129V02	CAPLYT LOW PROFILE 150UF 400V
C11,12	2113740A79	1000 pF, ±5%; 50 V
C15	2113740B57	220 pF, ±30%; 50 V
C16 thru 19	2113741B69	0.1 uF, ±5%; 50 V
C20	2311049A19	10 uF, ±10%; 25 V
C21	2380090M36	100 uF, 25 V
C22	2113740A55	100 pF, ±5%; 50 V
C23	2311049A19	10 uF, ±10%; 25 V
C25	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C26	2113741A29	2200 pF, ±5%; 50 V
C29	2311049A22	33 uF, ±10%; 16 V
C30	2313748H41	1200 uF, ±20%; 25V
C31	2311049A22	33 uF, ±10%; 16 V
C32	2113741B69	0.1 uF, ±5%; 50 V
C33	2383564X05	68 uF, 20 V
C34,35	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C36	0884198T02	CAP 0.33 UF 10% 250V
C37,38	2113918B09	CAP CHIP 10000PF 1000V 20% X7R
C40	2113740B73	1000 pF, ±5%; 50 V
C41	2383564X05	68 uF, 20 V
C42	2113740B73	1000 pF, ±5%; 50 V
C1000 thru 1039	2113741B69	0.1 uF, ±5%; 50 V
C1040	2113741A37	4700 pF, ±5%; 50 V
C1041	2113740A55	100 pF, ±5%; 50 V
C1042,1043	2113741B69	0.1 uF, ±5%; 50 V
C1044	2311049A05	1 uF, ±10%; 35 V
C1045,1046	2113740A79	1000 pF, ±5%; 50 V
C1047	2113740A71	470 pF, ±5%; 50 V
C1048,1049	2311049A08	1 uF, ±10%; 35 V
C1050	2113741A61	0.047 uF, ±5%; 50 V
C1051	2380090M10	22 uF, ±20%; 25V
C1052	2113741A53	0.022 uF, ±5%; 50 V
C1055	2113741A37	4700 pF, ±5%; 50 V
C1056	2113741A53	0.022 uF, ±5%; 50 V
C1057	2380090M36	100 uF, 25 V
C1058	2113740A79	1000 pF, ±5%; 50 V
C1059	2113741A41	6800 pF, ±5%; 50 V
C1060	2380090M36	100 uF, 25 V
C1061	2311049A17	6.8 uF, ±10%; 35 V
C1062	2380090M36	100 uF, 25 V
C1063	2113741B69	0.1 uF, ±5%; 50 V
C1066	2113740A53	220 pF, ±5%; 50 V
C1067	2311049A08	1 uF, ±10%; 35 V
C1068,1069	2311049A21	22 uF, ±10%; 20 V
C1070	2311049A08	1 uF, ±10%; 35 V
C1071	2380090M36	100 uF, 25 V
C1072	2311049A21	22 uF, ±10%; 20 V
C1074	2311049A21	22 uF, ±10%; 20 V
C1075	2113740A79	1000 pF, ±5%; 50 V
C1076	2113741A29	2200 pF, ±5%; 50 V
C1079	2380090M36	100 uF, 25 V
C1081	2113740A29	10 pF, ±5%; 50 V
C1082	2311049A21	22 uF, ±10%; 20 V
C1083	2113741A41	6800 pF, ±5%; 50 V
C1084	2113741A29	2200 pF, ±5%; 50 V
C1085	2311049A21	22 uF, ±10%; 20 V
C1087	2113741A41	6800 pF, ±5%; 50 V
C1088	2380090M36	100 uF, 25 V
C1089,1090	2311049A08	1 uF, ±10%; 35 V
C1091	2113741A41	6800 pF, ±5%; 50 V
C1093,1094	2113740A55	100 pF, ±5%; 50 V
C1095	2113741A41	6800 pF, ±5%; 50 V
C1096	2311049A21	22 uF, ±10%; 20 V
C1097,1098	2113740A29	10 pF, ±5%; 50 V
C1099	2113740A71	470 pF, ±5%; 50 V
C1100,1101	2113741A61	0.047 uF, ±5%; 50 V
C1104,1105	2113740A29	10 pF, ±5%; 50 V
C1106	2113740A53	220 pF, ±5%; 50 V
C1107	2113740A29	10 pF, ±5%; 50 V
C1108 thru 1114	2113740A53	220 pF, ±5%; 50 V
C1115	2113741B69	0.1 uF, ±5%; 50 V
C1116	2113740A53	220 pF, ±5%; 50 V
C1118	2113740A53	220 pF, ±5%; 50 V
C1121 thru 1124	2113741A61	0.047 uF, ±5%; 50 V
C1125,1126	2311049A21	22 uF, ±10%; 20 V
C1127	2113740A29	10 pF, ±5%; 50 V
C1128	2113740A53	220 pF, ±5%; 50 V
C1129	2113740A29	10 pF, ±5%; 50 V
C1130	2113740A79	1000 pF, ±5%; 50 V
C1131	2311049A03	0.22 uF, ±10%; 35V
C1132,1133	2113741B69	0.1 uF, ±5%; 50 V
C1138,1139	2113741A61	0.047 uF, ±5%; 50 V
C1140	2113741B69	0.1 uF, ±5%; 50 V
C1143	2113741B69	0.1 uF, ±5%; 50 V
C1144 thru 1146	2113740A53	220 pF, ±5%; 50 V
C1148 thru 1151	2113740A29	10 pF, ±5%; 50 V
C1152	2113740A79	1000 pF, ±5%; 50 V
C1153 thru 1158	2113741B69	0.1 uF, ±5%; 50 V
C1159	2113740A79	1000 pF, ±5%; 50 V
C1193,1194	2113740A53	220 pF, ±5%; 50 V
		diode (see note):
CR2 thru 5	4813833B06	1A; 600 V
CR6	4813833C10	0.1A, 70 V
CR7,8	4813833B06	1A; 600 V
CR9	4813833C10	0.1A, 70 V
CR10,11	4813833A07	DIODE SCHOTTKY DL 20A 100V
CR12	4813833C10	0.1A, 70 V
CR100	4813833B01	Schottky type
CR101 thru 109	4813833C28	Zener 15 V
CR111	4813833C28	Zener 15 V
CR112	4813833B01	Schottky type
CR113	4813833C10	0.1A, 70 V
CR114	4813833B01	Schottky type
		light emitting diode (see note):
DS100	4882198T01	red
DS101	4882198T03	GRN
		spark gap:
E1	8083029H10	SPARK GAP
		fuse:
F1	6582847N04	FUSE, 3.15A, 250V
		connector:
J1	2910231A10	terminal, circuit board
J3	2910231A10	terminal, circuit board
J300	0984455T29	Blindmate Keyed, 50–position
		relay:
K100,101	8013917B01	5 V, 330 ohm
		coil:
L1	2484268T01	150 UH
L2	2485069U02	COIL, 10 uH; 2.2AMP
L3	2483265X01	TRANSFORMER SWITCHING
L6	2485069U02	COIL, 10 uH; 2.2AMP
L7	2484657R01	ferrite bead
L100	2485069U01	220UH, 480 MA
L101,102	2485287M28	CHIP IND 6800 NH 5%
L103	2484657R01	ferrite bead
		translator (see note):
Q1,2	4813824A10	NPN
Q3	4813821A24	TSTR N–CH 60V 20A
Q4	4813821D34	TSTR N–CH 600V 6A
Q100	4813822A07	NPN
Q102	4813822A07	NPN
Q105,106	4813824A11	NPN
Q107,108	4813822A07	NPN
		resistor, fixed:
R7	0611077G88	100K, ±1%; 1/8 W
R8	0611077G21	20K, ±1%; 1/8W
R9	0611079G11	12.7K, 1/10W; ±1%
R10	0611079B35	330K ±5%; 1/10 W
R11	0611077F99	12.1K, ±1%; 1/8 W
R12	0611079B35	330K ±5%; 1/10 W
R13,14	0611079A98	10K, ±5%; 1/10 W
R15	0611079A92	5600 ohms, ±5%; 1/10 W
R16	0611079A96	8200 ohms, ±5%; 1/10 W
R17	0611079A90	100 ohms, ±5%; 1/10 W
R18	0611079A26	10 ohms, ±5%; 1/10 W
R19,20	0611079A36	27 ohms, ±5%; 1/10 W
R21 thru 24	0683967T97	RES CHIP 10K 5–1
R25	0611079A80	1800 ohms, ±5%; 1/10 W
R26	0611079B03	15K, ±5%; 1/10 W
R30	0611079A50	100 ohms, ±5%; 1/10 W
R31	0683962T01	1 ohm, ±5%; 1 W
R32	0683963T56	200 ohms, ±5%; 1W
R33	0683962T01	1 ohm, ±5%; 1 W
R34,35	0683962T97	RES CHIP 10K 5–1
R36	0683962T01	1 ohm, ±5%; 1 W
R37	0683962T98	0.51 ohms, ±5%; 1W
R38	0683962T45	68 ohms, ±5%; 1W
R39	0683963T33	22 ohms, ±5%; 1 W
R41	0611079A36	27 ohms, ±5%; 1/10 W
R42 thru 44	0683962T45	68 ohms, ±5%; 1W
R50	0683962T01	1 ohm, ±5%; 1 W
R51	0683962T45	68 ohms, ±5%; 1W
R1000	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1001	0611079A02	1 ohm, ±5%; 1/10 W
R1002	0611079G11	12.7K, 1/10W; ±1%
R1004	0611079E09	Resistor: chip 121.0K 1/10W W 1%
R1005,1006	0611079A98	10K, ±5%; 1/10 W
R1008,1009	0611079B06	20K, ±5%; 1/10W
R1010	0611079G01	10k, ±1%; 1/10 W
R1011	0611079G11	12.7K, 1/10W; ±1%
R1012	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1013	0611079G49	31.6K, 1/10W; ±1%
R1015,1016	0611079G09	12.1K, 1/10 W; ±1%
R1017	0611079A90	4700 ohms, ±5%; 1/10 W
R1018	0611079B11	33K, ±5%; 1/10 W
R1019	0611079G49	31.6K, 1/10W; ±1%
R1020	0611079A92	5600 ohms, ±5%; 1/10 W
R1021	0611079G49	31.6K, 1/10W; ±1%
R1022	0611079A92	5600 ohms, ±5%; 1/10 W
R1023	0611079A98	10K, ±5%; 1/10 W
R1024 thru 1028	0611079A02	1 ohm, ±5%; 1/10 W
R1029,1030	0611079A64	390 ohms, ±5%; 1/10 W
R1032	0611079A78	1500 ohms, ±5%; 1/10 W
R1033	0611079A68	620 ohms, ±5%; 1/10W
R1034	0611079B15	47K, ±5%; 1/10 W
R1035	0611079B13	39K, ±5%; 1/10 W
R1037	0611079A92	5600 ohms, ±5%; 1/10 W
R1038	0611079A76	1.2K, ±5%; 1/10 W
R1040,1041	0611079A76	1.2K, ±5%; 1/10 W
R1042,1043	0611079B06	20K, ±5%; 1/10W
R1044	0611079G58	Resistor chip 39.2K 1/10 W 1%
R1045	0611079G09	12.1K, 1/10 W; ±1%
R1046,1047	0611079A90	4700 ohms, ±5%; 1/10 W
R1048	0611079A40	39 ohms, ±5%; 1/10 W
R1048,1050	0611079G01	10k, ±1%; 1/10 W
R1051	0611079A90	4700 ohms, ±5%; 1/10 W
R1052	0611079A98	10K, ±5%; 1/10 W
R1053	0611079B15	47K, ±5%; 1/10 W
R1054	0611079A70	680 ohms, ±5%; 1/10 W
R1055	0611079A69	620 ohms, ±5%; 1/10W
R1056	0611079B15	47K, ±5%; 1/10 W
R1057	0611079A40	39 ohms, ±5%; 1/10 W
R1058	0611079B15	47K, ±5%; 1/10 W
R1059,1060	0611079A90	4700 ohms, ±5%; 1/10 W
R1061	0611079A69	620 ohms, ±5%; 1/10W
R1062	0611072A25	100 ohms, ±5%; 1/4 W
R1063	0611079A40	39 ohms, ±5%; 1/10 W
R1064	0611072A25	100 ohms, ±5%; 1/4 W
R1065 thru 1069	0611079A98	10K, ±5%; 1/10 W
R1070 thru 1077	0611079A40	39 ohms, ±5%; 1/10 W
R1078	0611079A88	3900 ohms, ±5%; 1/10 W
R1080	0611079A88	3900 ohms, ±5%; 1/10 W
R1081,1082	0611079A69	620 ohms, ±5%; 1/10W
R1083	0611079A76	1.2K, ±5%; 1/10 W
R1084	0611079A78	1500 ohms, ±5%; 1/10 W
R1085	0611079A52	120 ohms, ±5%; 1/10 W
R1086,1087	0611079A98	10K, ±5%; 1/10 W
R1088	0611079A88	3900 ohms, ±5%; 1/10 W
R1089	0611079A98	10K, ±5%; 1/10 W
R1091	0611079A90	4700 ohms, ±5%; 1/10 W
R1092 thru 1094	0611079A98	10K, ±5%; 1/10 W
R1095	0611079A88	3300 ohms, ±5%; 1/10 W
R1097 thru 1099	0611079A98	10K, ±5%; 1/10 W
R1100	0611079B47	1 MEG, ±5%; 1/10 W
R1101 thru 1104	0611079A40	39 ohms, ±5%; 1/10 W
R1105	0611079A78	1500 ohms, ±5%; 1/10 W
R1106 thru 1117	0611079A98	10K, ±5%; 1/10 W
R1118	0611079B06	20K, ±5%; 1/10W
R1119	0611079E30	200K, 1/10 W; ±1%
R1120 thru 1123	0611079A98	10K, ±5%; 1/10 W
R1124	0611079B01	12K, ±5%; 1/10 W
R1126	0611079A98	10K, ±5%; 1/10 W
R1127	0611079A02	1 ohm, ±5%; 1/10 W
R1128	0611079A82	2200 ohms, ±5%; 1/10 W
R1129 thru 1135	0611079A98	10K, ±5%; 1/10 W
R1136	0611079A01	O ohms, ±5%; 1/10 W
R1137	0611079F81	RES CHIP 6.81k 1/10W 1%
R1138	0611079G49	31.6k 1/10W 1%
R1140	0611079A88	3900 ohms, ±5%; 1/10 W
R1141,1142	0611079A98	10K, ±5%; 1/10 W
R1143	0611079A52	2200 ohms, ±5%; 1/10 W
R1144	0611079G87	Resistor chip 78.7K 1/10 W 1%
R1146	0611079A82	2200 ohms, ±5%; 1/10 W
R1147	0611079G87	Resistor chip 78.7K 1/10 W 1%
R1148	0611079A82	2200 ohms, ±5%; 1/10 W
R1149	0611079E30	200K, 1/10 W; ±1%
R1150	0611079A98	10K, ±5%; 1/10 W
R1151	0611079A40	39 ohms, ±5%; 1/10 W
R1152	0611079A98	10K, ±5%; 1/10 W
R1153 thru 1156	0611079A60	270 ohms, ±5%; 1/10 W
R1157,1158	0611079A88	3900 ohms, ±5%; 1/10 W
R1159 thru 1162	0611079A98	10K, ±5%; 1/10 W
		switch:
S100	4083706T02	dip, spst
		transformer:
T2	2584265T01	power
T4	2485248U02	25W FLYBACK INDUCTOR
		integrated circuit (see note):
U1	5182657X03	IC HV LIN RGLTR 5600S2
U2,4	5182276T78	ICurrent Mode Control
U100	5113805A86	Quad Analog Multiplexer/Demultiplexer
U101	5113819A05	High Performance, Single Supply
U103	5113905A85	Mux/Demux, Trip 2–Channel Analog
U104	5113805A86	Quad Analog Multiplexer/Demultiplexer
U105	5184743T01	CODEC Pulse Code Modulation
U106	5184625T03	ASIC Gate Array
U107	5113808A14	Quad 2–Input OR Gate
U108	5113808A38	Octal 3–State Non–Inverter Line Driver
U109	5113808A14	Quad 2–Input OR Gate
U110	5113808A05	Hex Inverter
U111	5113811A06	IC, 8–bit
U112	5113808A19	Flip–Flop, Dual Jack w/Set
U113	5113808A38	Octal 3–State Non–Inverter Line Driver
U114	5113819A05	High Performance, Single Supply
U115	5113808A38	Octal 3–State Non–Inverter Line Driver
U116 thru 119	5113811A10	Driver/Receiver, 3–Drivers; 3–Receivers
U120,121	5113805A72	Octal 3–State Non–Inverter Transmit Latch
U122	5113808A13	Quad 2–Input OR Gate
U123,124	5113808A20	1 of 8 Decoder/Demultiplexer
U125	5113819A05	High Performance, Single Supply
U126	5113816A07	5–Volt Positive Regulator
U128	5113816A01	Adjustable Low Dropout, Positive
U129	5113815A01	DC to DC Converter
U131	5113803A08	Multiprocsor
U132,133	5184630T01	CMOS SRAM, 128Kx8
U134	5191071C02	IC PRGMD FLASH 256kx8
U135	5191071C01	IC PRGMD FLASH 256kx8
U136	5113805A72	Octal 3–State Non–Inverter Transmit Latch
VR1	4813830A28	**zener diode (see note):** Zener 15 V
Y100	4884450T08	**crystal (see note):** 12A, 16.6567 MHZ
ZR1 thru 3	0684357M07	**varistor (see note):** VARISTOR UL 275LC20A
	0910548A04	**non–referenced items:** Fuse Block (used with F1)
	0982451V13	SOCKET, IC 32 PIN SM T & R (used with U134)
	0982451V13	SOCKET, IC 32 PIN SM T & R (used with U135)
	0984728L01	Shorting Jumper: 2–contact (used with J01000)
	2683678T02	HEAT SINK (used with Q4)
	2980001R03	plug: 3–pin header (used with JU1000)
	5482008W01	Label, PCB barcode
	5484960T01	Label, barcode: 6.3 x 12.7mm, white
	8482326W03	BOARD, printed circuit

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

WIRELINE INTERFACE BOARD

MODEL TRN7477F

(4–Wire)



ILEPS–48765–A

68P81090E89–C
(Sheet 1 of 5)
10/15/99–UP

NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. ON THIS CIRCUIT BOARD, A PRINTED CIRCUIT JUMPER BOARD IS SOLDERED INTO U144 LOCATION. THE JUMPER BOARD CONNECTS J500 CONTACTS TO THE LINE I/O CIRCUITRY. THE DASHED LINES REPRESENT PLATED JUMPERS ON THE UNDERSIDE OF THE JUMPER BOARD.
3. THE CIRCUIT BOARD EDGE CONNECTORS, P101 AND P201, HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE ODD NUMBERED AND THE CONTACTS ON THE BACK OF THE BOARD ARE EVEN NUMBERED. THE CUTAWAY VIEW OF THE BACK OF THE BOARD, JUST TO THE RIGHT OF THE COMPONENT SIDE VIEW, SHOWS THE EVEN NUMBERED CONTACTS OF P101 AND P201.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P101–1, 3	GND	P101–2, 4	GND	P201–1	LINE 1+	P201–2	LINE 1–
P101–5	NOT USED	P101–6	NOT USED	P201–7	LINE 2+	P201–8	LINE 2–
P101–7	NOT USED	P101–8	NOT USED	P201–13	NOT USED	P201–14	NOT USED
P101–9	NOT USED	P101–10	NOT USED	P201–19	NOT USED	P201–20	NOT USED
P101–11	NOT USED	P101–12	NOT USED	P201–25	NOT USED	P201–26	GEN TX DATA+
P101–13	NOT USED	P101–14	NOT USED	P201–27	PL–	P201–28	AUX OUT 1 (FAILSOFT)
P101–15	NOT USED	P101–16	NOT USED	P201–29	AUX OUT 2 (RX CODE DETECT)	P201–30	AUX OUT 3
P101–17	NOT USED	P101–18, 20	GND	P201–31	NOT USED	P201–32	NOT USED
P101–19, 21	GND	P101–22, 24	+14.2V	P201–33	NOT USED	P201–34	NOT USED
P101–23, 25	+14.2V	P101–26	+14.2V	P201–35	AUX OUT 7 N.O.	P201–36	NOT USED
P101–27, 29, 31, 33	+5V	P101–28, 30, 32, 34	+5V	P201–37	NOT USED	P201–38	NOT USED
P101–35	GND	P101–36	GND	P201–39	AUX IN 9 OPTO–	P201–40	NOT USED
P101–37	NOT USED	P101–38	NOT USED	P201–41	NOT USED	P201–42	NOT USED
P101–39	NOT USED	P101–40	RESET	P201–43	NOT USED	P201–44	NOT USED
P101–41	HDLC DATA	P101–42	HDLC BUSY	P201–45	NOT USED	P201–46	NOT USED
P101–43	HDLC CLK	P101–44	TDM FRAME SYNC	P201–47	NOT USED	P201–48	AUX IN 9 OPTO+
P101–45	TDM DATA	P101–46	TDM CLK	P201–49	NOT USED	P201–50	NOT USED
P101–47	NOT USED	P101–48	NOT USED	P201–51	NOT USED	P201–52	AUX OUT 7 COM
P101–49	NOT USED	P101–50	NOT USED	P201–53	NOT USED	P201–54	AUX IN 6 (X1 CABINET REPEAT)
P101–51	NOT USED	P101–52	NOT USED	P201–55	NOT USED	P201–56	AUX IN 4 (RX INHIBIT)
P101–53	NOT USED	P101–54	NOT USED	P201–57	NOT USED	P201–58	AUX IN 2 (TX INHIBIT)
P101–55	BOARD ID DECODE LINE	P101–56	NOT USED	P201–59	AUX IN 7	P201–60	AUX IN 1 (SITE FAILSOFT)
P101–57	BOARD ID DECODE LINE	P101–58	NOT USED	P201–61	NOT USED	P201–62	PL+
P101–59	BOARD ID DECODE LINE	P101–60	NOT USED	P201–63	AUX IN 5 (DUPLEX ENABLE)	P201–64	GEN TX DATA–
P101–61	BOARD ID DECODE LINE	P101–62	NOT USED	P201–65	AUX IN 3 (EXT TX CODE DETECT)	P201–66	NOT USED
P101–63	GND	P101–64	GND	P201–67	NOT USED	P201–68	NOT USED
P101–65	NOT USED	P101–66	NOT USED	P201–69	NOT USED	P201–70	NOT USED
P101–67	GND	P101–68	GND	P201–71	NOT USED	P201–72	NOT USED
P101–69	TX WIDE BAND AUDIO	P101–70	NOT USED	P201–73	NOT USED	P201–74	NOT USED
P101–71, 73	GND	P101–72	GND	P201–75	NOT USED	P201–76	NOT USED
P101–75	NOT USED	P101–74	NOT USED	P201–77	NOT USED	P201–78	NOT USED
P101–77	NOT USED	P101–76	NOT USED	P201–79	NOT USED	P201–80	NOT USED
P101–79	GND	P101–78	NOT USED				
		P101–80	GND				

parts list

TRN7477F Wireline Interface Board (4–Wire) PL–13038–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1000,1001	2113741B69	0.1 uF, ±5%, 50 V
C1002	2380090M25	100 uF, 25V
C1003 thru 1012	2113741B69	0.1 uF, ±5%, 50 V
C1013	2311049A21	22 uF, ±10%, 20 V
C1014	2113740A63	220 pF, ±5%, 50V
C1015 thru 1017	2113741B69	0.1 uF, ±5%, 50 V
C1019	2113741B69	0.1 uF, ±5%, 50 V
C1020	2380174V01	4.7 uF, ±20%, 200 V
C1021	2311049A21	22 uF, ±10%, 20 V
C1022	2113741B69	0.1 uF, ±5%, 50 V
C1026	2113741B69	0.1 uF, ±5%, 50 V
C1027	2380090M25	100 uF, 25V
C1028,1029	2113741B69	0.1 uF, ±5%, 50 V
C1031	2113741B69	0.1 uF, ±5%, 50 V
C1032	2311049A21	22 uF, ±10%, 20 V
C1034	2113741B65	0.068 uF, ±5%, 50V
C1036	2113741A61	0.047 uF, ±5%, 50V
C1038	2311049A21	22 uF, ±10%, 20 V
C1039	2113741B69	0.1 uF, ±5%, 50 V
C1041	2113741A55	0.027 uF, ±5%, 50V
C1043	2113741B69	0.1 uF, ±5%, 50 V
C1045	2113741B69	0.1 uF, ±5%, 50 V
C1047	2380090M25	100 uF, 25V
C1048	2311049A21	22 uF, ±10%, 20 V
C1051	2113741A57	0.033 uF, ±5%, 50V
C1053	2113741A61	0.047 uF, ±5%, 50V
C1054	2113741B69	0.1 uF, ±5%, 50 V
C1058	2113741B69	0.1 uF, ±5%, 50 V
C1059	2113740A55	100 pF, ±5%, 50V
C1062	2311049A08	1 uF, ±10%, 35 V
C1064	2113741A29	2200 pF, ±5%, 50V
C1065	2113741B69	0.1 uF, ±5%, 50 V
C1066	2113741A37	4700 pF, ±5%, 50V
C1067	2113741B69	0.1 uF, ±5%, 50 V
C1068	2113740A67	330 pF, ±5%, 50V
C1069	2113741B69	0.1 uF, ±5%, 50 V
C1070	2113740A41	470 pF, ±5%, 50V
C1072	2113741B69	0.1 uF, ±5%, 50 V
C1073	2311049A08	1 uF, ±10%, 35 V
C1075	2380090M10	22 uF, ±20%, 25V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1078	2113741A37	4700 pF, ±5%, 50V
C1079	2113740A79	1000 pF, ±5%, 50V
C1080	2113741A41	6800 pF, ±5%, 50V
C1081,1082	2113741B69	0.1 uF, ±5%, 50 V
C1084	2113741B69	0.1 uF, ±5%, 50 V
C1086,1087	2113741B69	0.1 uF, ±5%, 50 V
C1089	2113741A29	2200 pF, ±5%, 50V
C1090	2311049A08	1 uF, ±10%, 35 V
C1093	2311049A08	1 uF, ±10%, 35 V
C1094	2113741B69	0.1 uF, ±5%, 50 V
C1095,1096	2113740A55	100 pF, ±5%, 50V
C1099,1100	2113740A29	10 pF, ±5%, 50V
C1101,1102	2113741B69	0.1 uF, ±5%, 50 V
C1103	2113740A29	10 pF, ±5%, 50V
C1104 thru 1106	2113741B69	0.1 uF, ±5%, 50 V
C1110	2113741B69	0.1 uF, ±5%, 50 V
C1111	2113741A57	0.033 uF, ±5%, 50V
C1113	2311049A03	0.22 uF, ±10%, 35V
C1116	2311049A08	1 uF, ±10%, 35 V
C1117	2113740A79	1000 pF, ±5%, 50V
C1119	2113741A55	0.027 uF, ±5%, 50V
C1121	2113741A61	0.047 uF, ±5%, 50V
C1123	2113741B65	0.068 uF, ±5%, 50V
C1125	2113741B69	0.1 uF, ±5%, 50 V
C1128	2382174V01	4.7 uF, ±20%, 200 V
C1131	2113740A29	10 pF, ±5%, 50V
C1133	2113740A29	10 pF, ±5%, 50V
C1134	2311049A21	22 uF, ±10%, 20 V
C1135	2311049A45	10 uF, ±20%, 35 V
C1136 thru 1139	2380090M10	22 uF, ±20%, 25V
C1140 thru 1144	2113741B69	0.1 uF, ±5%, 50 V
C1149	2380090M25	100 uF, 25V
C1152	2311049A21	22 uF, ±10%, 20 V
C1153	2380090M25	100 uF, 25V
C1154	2311049A21	22 uF, ±10%, 20 V
C1155	2380090M25	100 uF, 25V
C1156	2311049A21	22 uF, ±10%, 20 V
C1157	2113741B69	0.1 uF, ±5%, 50 V
C1158	2311049A45	10 uF, ±20%, 35 V
C1160	2113740A67	330 pF, ±5%, 50V
C1162	2113741A29	2200 pF, ±5%, 50V
C1163	2113740A79	1000 pF, ±5%, 50V
C1164	2113741B69	0.1 uF, ±5%, 50 V
C1165	2311049A08	1 uF, ±10%, 35 V
C1167	2311049A08	1 uF, ±10%, 35 V
C1172	2380090M25	100 uF, 25V
C1173,1174	2311049A08	1 uF, ±10%, 35 V
C1175	2113741A53	0.022 uF, ±5%, 50V
C1180	2113741A53	0.022 uF, ±5%, 50V
C1181	2113741A37	4700 pF, ±5%, 50V
C1187	2113741B69	0.1 uF, ±5%, 50 V
C1188	2311049A08	1 uF, ±10%, 35 V
C1189	2113740A63	220 pF, ±5%, 50V
C1191,1192	2113740A29	10 pF, ±5%, 50V
C1195	2113740A79	1000 pF, ±5%, 50V
C1197	2113741B69	0.1 uF, ±5%, 50 V
C1198 thru 1201	2113741A41	6800 pF, ±5%, 50V
C1220 thru 1223	2113740A63	220 pF, ±5%, 50V
C1233,1234	2113740A63	220 pF, ±5%, 50V
		diode (see note):
CR100	4813833B01	Schottky type
CR101	4813833C10	0.1A, 70V
CR102 thru 105	4813833B06	1A, 600 V
CR106,107	4813833C10	0.1A, 70V
CR108	4813833B01	Schottky type
CR130 thru 133	4813832C28	Zener 15V
		light emitting diode (see note):
DS100	4882198T04	SUBMINEATURE LED RED
DS101	4882198T06	SUBMINEATURE LED GRN
		connector:
J300	0984455T29	Blindmate Keyed, 50–position
J500	2880004U10	HDR .156 FLK SNPB SR RT 10 POS
		relay:
K100	8013917B01	5V, 330MM
		coil:
L100	2485069U01	220UH, 480 MA
L101,102	2411087B36	6.8 UH
L103	2484637R01	ferrite bead
		transient protector:
PTC1	0685239U01	RES PTC 600V– -145A
PTC3	0685239U01	RES PTC 600V– -145A
		transistor (see note):
Q100 thru 102	4813822A07	NPN
Q105,106	4813822A07	NPN
Q107,108	4813824A18	PNP
Q111,112	4813824A11	NPN
Q116 thru 121	4813824A11	NPN
		resistor, fixed:
R1000	0611079A86	3300 ohms, ±5%, 1/10W
R1001	0611079A98	10K, ±5%, 1/10W
R1002 thru 1006	0611078A02	1 ohm, ±5%, 1/10W
R1007	0611079A78	1500 ohms, ±5%, 1/10W
R1008	0611079A76	1.2K, ±5%, 1/10W
R1009	0611079A78	1500 ohms, ±5%, 1/10W
R1010	0611079B13	39K, ±5%, 1/10W
R1011	0611079A92	5600 ohms, ±5%, 1/10W
R1015	0611079A70	680 ohms, ±5%, 1/10W
R1017	0611079A52	120 ohms, ±5%, 1/10W
R1019	0611079D93	909 ohms, 1/10W, ±1%
R1021	0611079D69	511 ohms, 1/10W, ±1%
R1024	0611079A40	39 ohms, ±5%, 1/10W
R1025	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1028	0611079A02	1 ohm, ±5%, 1/10W
R1030	0611079E09	RES CHIP 121.0K 1/10W 1%
R1033	0611079A92	5600 ohms, ±5%, 1/10W
R1034	0611079A78	1500 ohms, ±5%, 1/10W
R1035	0611079B09	27K, ±5%, 1/10W
R1036	0611079G01	10K, 1/10W, ±1%
R1037	0611079G11	12.7K, 1/10W, ±1%
R1040	0611079B01	12K, ±5%, 1/10W
R1041	0611079B15	47K, ±5%, 1/10W
R1042	0611079A76	1.2K, ±5%, 1/10W
R1043	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1045	0611079G49	31.6K, 1/10W, ±1%
R1047	0611079A98	10K, ±5%, 1/10W
R1050	0611079A90	4700 ohms, ±5%, 1/10W
R1051	0611079A64	390 ohms, ±5%, 1/10W
R1052	0611079A62	330 ohms, ±5%, 1/10W
R1053	0611079B11	33K, ±5%, 1/10W
R1055	0611079A92	5600 ohms, ±5%, 1/10W
R1058	0611079A92	5600 ohms, ±5%, 1/10W
R1060	0611079A88	620 ohms, ±5%, 1/10W
R1061,1062	0611079A76	1.2K, ±5%, 1/10W
R1066	0611079G58	RES CHIP 39.2K 1/10W 1% 0805
R1068	0611079G09	12.1K, 1/10W, ±1%
R1069	0611079A90	4700 ohms, ±5%, 1/10W
R1071	0611079A90	4700 ohms, ±5%, 1/10W
R1072	0611079G01	10K, 1/10W, ±1%
R1073 thru 1075	0611079A90	4700 ohms, ±5%, 1/10W
R1077	0611079G01	10K, 1/10W, ±1%
R1078	0611079A90	4700 ohms, ±5%, 1/10W
R1080	0611079A98	10K, ±5%, 1/10W
R1081	0611079B15	47K, ±5%, 1/10W
R1082	0611079A70	680 ohms, ±5%, 1/10W
R1083	0611079A88	620 ohms, ±5%, 1/10W
R1085	0611079B15	47K, ±5%, 1/10W
R1087	0611079B15	47K, ±5%, 1/10W
R1088,1089	0611079A90	4700 ohms, ±5%, 1/10W
R1093	0611079A70	680 ohms, ±5%, 1/10W
R1094,1095	0611072A25	100 ohms, ±5%, 1/4W
R1100	0611079D69	511 ohms, 1/10W, ±1%
R1102	0611079D93	909 ohms, 1/10W, ±1%
R1104,1105	0611079E30	200K, 1/10W, ±1%
R1106	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1112	0611079A86	3300 ohms, ±5%, 1/10W
R1114	0611079A76	1.2K, ±5%, 1/10W
R1115	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1117	0611079A52	120 ohms, ±5%, 1/10W
R1118	0611079A76	1.2K, ±5%, 1/10W
R1119	0611079A52	120 ohms, ±5%, 1/10W
R1120	0611079B06	20K, ±5%, 1/10W
R1121	0611079B01	12K, ±5%, 1/10W
R1124	0611079B06	20K, ±5%, 1/10W
R1125	0611079A70	680 ohms, ±5%, 1/10W
R1129,1130	0611079B06	20K, ±5%, 1/10W
R1131,1132	0611079A98	10K, ±5%, 1/10W
R1133	0611079A82	2200 ohms, ±5%, 1/10W
R1134	0611079A90	4700 ohms, ±5%, 1/10W
R1135	0611079A82	2200 ohms, ±5%, 1/10W
R1136	0611079B47	1MEG, ±5%, 1/10W
R1138	0611079B15	47K, ±5%, 1/10W
R1140,1141	0611079A49	620 ohms, ±5%, 1/10W
R1142,1143	0611079A98	10K, ±5%, 1/10W
R1144 thru 1147	0611079B15	47K, ±5%, 1/10W
R1148	0611079A82	2200 ohms, ±5%, 1/10W
R1149 thru 1152	0611079B15	47K, ±5%, 1/10W
R1153	0611079B09	27K, ±5%, 1/10W
R1154	0611079B13	39K, ±5%, 1/10W
R1155	0611079A92	5600 ohms, ±5%, 1/10W
R1156 thru 1158	0611079A98	10K, ±5%, 1/10W
R1159	0611072A41	470 ohms, ±5%, 1/4W
R1160 thru 1165	0611079A98	10K, ±5%, 1/10W
R1166	0611079A92	5600 ohms, ±5%, 1/10W
R1167	0611079A98	10K, ±5%, 1/10W
R1168	0611079A82	2200 ohms, ±5%, 1/10W
R1169	0611079A76	1.2K, ±5%, 1/10W
R1170	0611079A90	4700 ohms, ±5%, 1/10W
R1171	0611079A98	10K, ±5%, 1/10W
R1172,1173	0611079B15	47K, ±5%, 1/10W
R1174	0611079A98	10K, ±5%, 1/10W
R1175	0611079A02	1 ohm, ±5%, 1/10W
R1176 thru 1179	0611079A92	5600 ohms, ±5%, 1/10W
R1180,1181	0611079B19	68K, ±5%, 1/10W
R1182	0611079B06	20K, ±5%, 1/10W
R1184,1185	0611079A90	4700 ohms, ±5%, 1/10W
R1186 thru 1189	0611079B23	100K, ±5%, 1/10W
R1190 thru 1194	0611079A90	4700 ohms, ±5%, 1/10W
R1198	0611079A88	3900 ohms, ±5%, 1/10W
R1199	0611079A02	1 ohm, ±5%, 1/10W
R1203 thru 1205	0611079A88	3900 ohms, ±5%, 1/10W
R1206	0611079A82	2200 ohms, ±5%, 1/10W
R1208 thru 1214	0611079A98	10K, ±5%, 1/10W
R1217,1218	0611079A98	10K, ±5%, 1/10W
R1225,1226	0611072A63	3900 ohms, ±5%, 1/4W
R1227 thru 1231	0611079A98	10K, ±5%, 1/10W
R1234 thru 1241	0611079A98	10K, ±5%, 1/10W
R1242	0611079G01	10K, 1/10W, ±1%
R1243	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1244	0611079A98	10K, ±5%, 1/10W
R1245	0611079B06	20K, ±5%, 1/10W
R1246,1247	0611079G09	12.1K, 1/10W, ±1%
R1248,1249	0611079G49	31.6K, 1/10W, ±1%
R1262	0611079G11	12.7K, 1/10W, ±1%
R1264 thru 1275	0611079A98	10K, ±5%, 1/10W
R1276	0611079A78	1500 ohms, ±5%, 1/10W
R1278,1279	0611079A70	680 ohms, ±5%, 1/10W
R1281	0611079A98	10K, ±5%, 1/10W
R1283,1284	0611079A40	39 ohms, ±5%, 1/10W
		transformer:
T1000,1001	2584422T01	telephone line isolation
		integrated circuit (see note):
U100	5113805A85	Mux/Demux, Trip 2–Channel Analog
U101	5113819A05	High Performance, Single Supply
U102	5113819A04	Quad Operational Amplifier
U103	5113805A86	Quad Analog Multiplexer/Demultiplexer
U104	5113805A85	Mux/Demux, Trip 2–Channel Analog
U105	5187437D01	CODEC Pulse Code Modulation
U106	5184625T03	ASIC Gate Array
U107	5113816A01	Adjustable Low Dropout, Positive
U108	5113815A01	DC to DC Converter
U109,110	5113819A05	High Performance, Single Supply
U115	5113808A14	Quad 2–Input OR Gate
U116	5113808A38	Octal 3–State Non–Inverter Line Driver
U118	5113808A15	Quad 2–Input OR Gate
U119	5113808A38	Octal 3–State Non–Inverter Line Driver
U120	5113811A06	IC 8BIT A/D CONV SPI INTERFACE
U121	5113808A14	Quad 2–Input OR Gate
U122 thru 125	5184742T03	OPTOISOLATOR
U126	5113808A05	Hex Inverter
U127	5113808A19	Flip–Flop, Dual Jack w/Set
U128	5113819A04	Quad Operational Amplifier
U129	5113805A86	Quad Analog Multiplexer/Demultiplexer
U130	5113805A85	Mux/Demux, Trip 2–Channel Analog
U131	5113803A08	Multiprotocol
U132,133	5184064T78	32Kx8 Bit SRAM
U134	(See Note 1)	IC PRGMD EPROM_13C62
U135	(See Note 1)	IC PRGMD EPROM_13C61
U136,137	5113803A20	1 of 8 Decoder/Demultiplexer
U138,139	5113805A72	Octal 3–State Non–Inverting Latch
U140	5184742T01	OPTOISOLATOR
U146	5113805A86	Quad Analog Multiplexer/Demultiplexer
U147	5113816A07	5–Volt Positive Regulator
		zener diode (see note):
VR100	4813833A20	8.2V ±5%, 20MA 350 MW
VR101	4813833A18	Zener, 6.8V
		filter:
Y100	4884450T14	XTAL CP12A 16.656MHZ
		non–referenced items:
	0784775T01	STIFFNER, PC board edge (2 used)
	0982451V13	SOCKET, IC: 32–pin (used with U134)
	0982451V13	SOCKET, IC: 32–pin (used with U135)
	0984728L01	Shorting Jumper: 2–contact (used with JU1000)
	0984728L01	Shorting Jumper: 2–contact (used with JU1001)
	0984728L01	Shorting Jumper: 2–contact (used with JU1002)
	0984728L01	Shorting Jumper: 2–contact (used with JU1003)
	0984728L01	Shorting Jumper: 2–contact (used with JU1006)
	0984728L01	Shorting Jumper: 2–contact (used with JU1008)
	0984728L01	Shorting Jumper: 2–contact (used with JU1009)
	0984728L01	Shorting Jumper: 2–contact (used with JU1010)
	0984728L01	Shorting Jumper: 2–contact (used with JU1011)
	0984728L01	Shorting Jumper: 2–contact (used with JU1012)
	2880001R03	plug; 3–pin header (used with JU1006)
	2880001R03	plug; 3–pin header (used with JU1008)
	2880001R03	plug; 3–pin header (used with JU1009)
	2880001R03	plug; 3–pin header (used with JU1010)
	2880001R03	plug; 3–pin header (used with JU1011)
	2880001R03	plug; 3–pin header (used with JU1012)
	2880001S04	plug; 8–contact (used with JU1000)
	2880001S04	plug; 8–contact (used with JU1001)
	2880001S04	plug; 8–contact (used with JU1002)
	2880001S04	plug; 8–contact (used with JU1003)
	5482006W01	LABEL, PCB barcode
	5482006W02	RIBBON, thermal transfer
	6182512W02	Lightpipes (2 used) for DS100 and DS101
	8484750T01	CIRCUIT BOARD

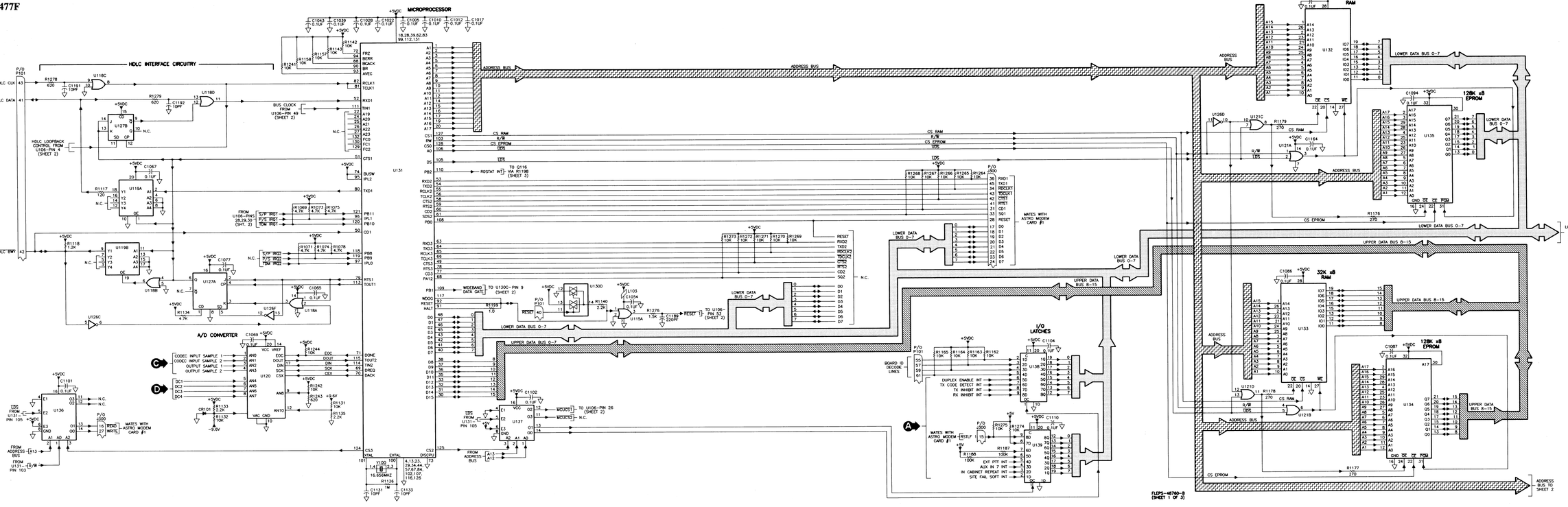
note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

Note 1: U134 and U135 contain the wireline operating code. The part numbers for these two IC are determined by the particular firmware version. Contact Motorola System Support Center (1–800–448–3245) for the current version and corresponding part numbers for U134 and U135.

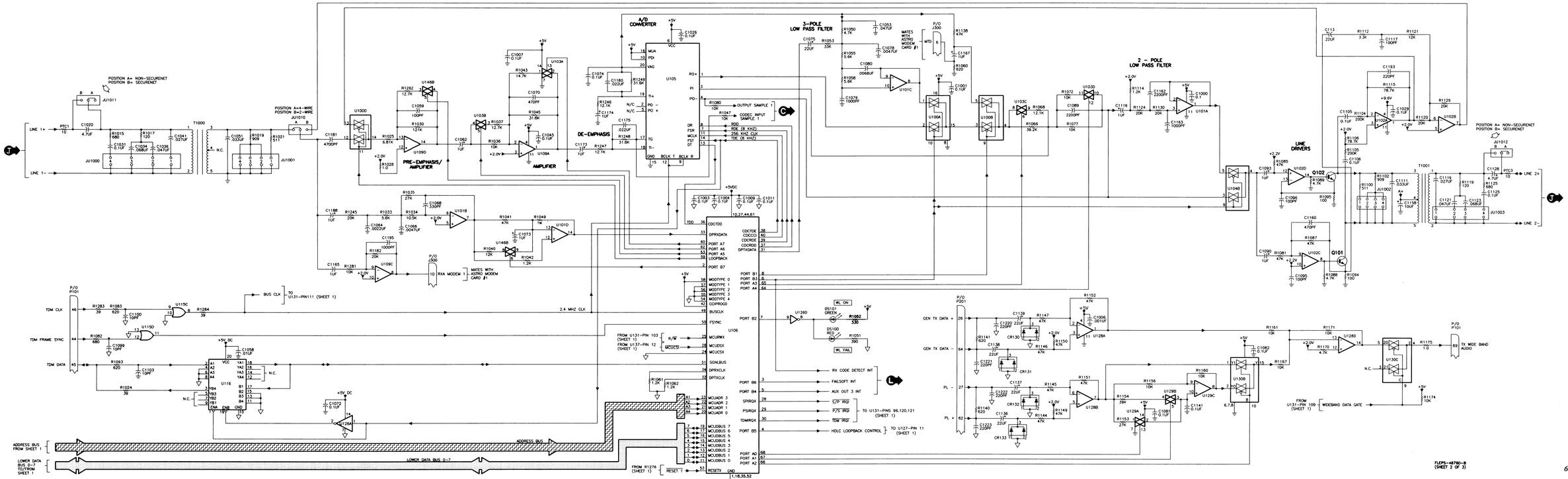
WIRELINE INTERFACE BOARD

MODEL TRN7477F

(4–Wire)



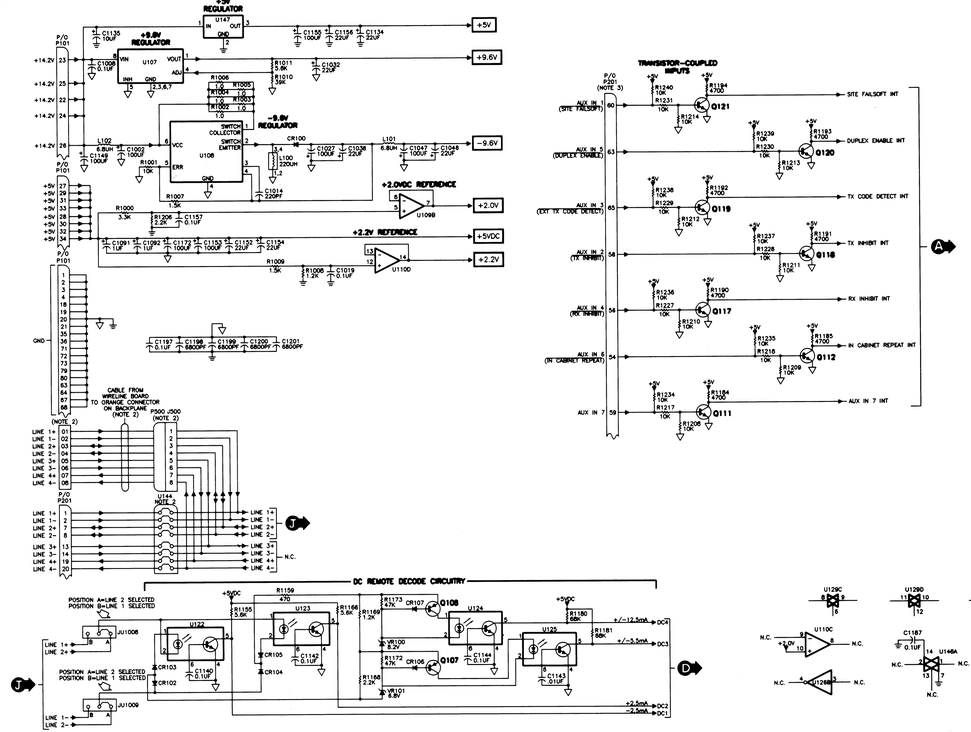
68P81090E89–C
(Sheet 3 of 5)
10/15/99–UP


A/D CONVERTER
3-POLE LOW PASS FILTER
2 - POLE LOW PASS FILTER
DE-EMPHASIS
PRE-EMPHASIS/ AMPLIFIER
AMPLIFIER
LINE DRIVERS
POSITION A= NON-SECURENET
POSITION B= SECURENET
POSITION A=4-WIRE
POSITION B=2-WIRE
LINE 1+
LINE 1–
LINE 2+
LINE 2–
TDM CLK
TDM FRAME SYNC
TDM DATA
BUS CLK
2.4 MHZ CLK
ADDRESS BUS
LOWER DATA BUS 0–7
GEN TX DATA +
GEN TX DATA –
PL –
PL +
TX WIDE BAND AUDIO
WIDEBAND DATA GATE
RX CODE DETECT INT
FAILSOFT INT
AUX OUT 3 INT
SPI IRQ
PTS IRQ
TDM IRQ
HDLC LOOPBACK CONTROL
MATES WITH ASTRO MODEM CARD J1
RXA MODEM
OUTPUT SAMPLE 1
CODEC INPUT SAMPLE 1
256 KHZ CLK
RDD (8 KHZ)
RDC (8 KHZ)
TDE (8 KHZ)
WL ON
WL FAIL
FLEPS-48780-B
(SHEET 2 OF 3)

WIRELINE INTERFACE BOARD

MODEL TRN7477F

(4−Wire)



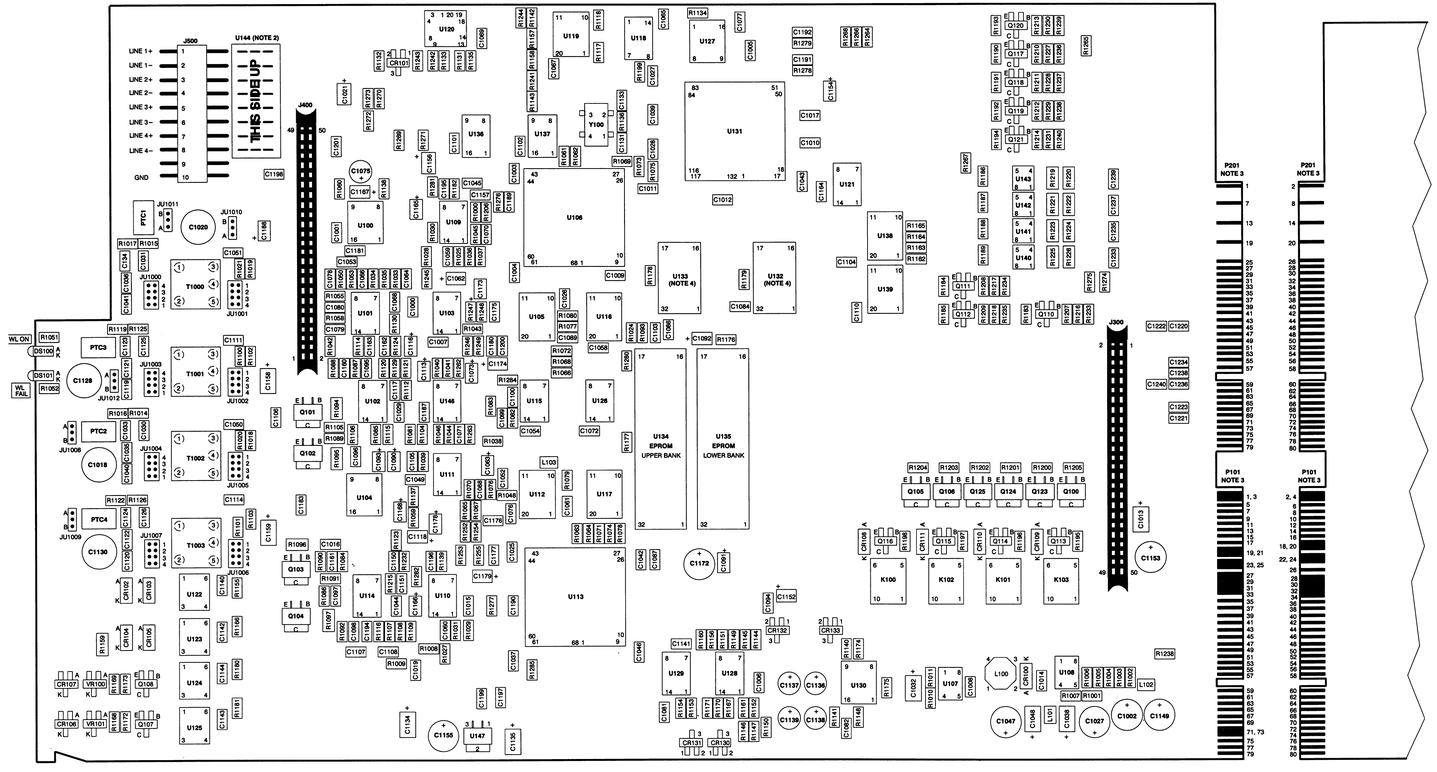
NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRYS.
2. TO ALLOW PHONE LINE CONNECTIONS AT BOTH THE 50−PIN TELCO CONNECTOR AND THE 8−POSITION ORANGE SCREW TERMINAL CONNECTOR (BOTH MOUNTED ON THE STATION BACKPLANE), THE ORANGE CONNECTOR IS CABLED TO THE WIRELINE INTERFACE BOARD. THE PHONE LINE CONNECTIONS (LINE 1+, LINE 1−, LINE 2+, ETC.) ARE ELECTRICALLY CONNECTED TO THE CORRESPONDING PHONE LINES FROM THE 50−PIN TELCO CONNECTOR THROUGH A JUMPER BOARD (U144) (FOR THE INTERNATIONAL MODEL TRN7720, THIS JUMPER BOARD IS REMOVED TO MAINTAIN THE 5mm PIN SPACING REQUIREMENTS SPECIFIED BY THE INTERNATIONAL TELEPHONE AGENCIES).
3. MANY OF THE CUSTOMER−DEFINED INPUTS AND OUTPUTS HAVE BEEN PREASSIGNED WITH SIGNAL NAMES AND FUNCTIONS USUALLY REQUIRED IN TYPICAL TRUNKING, SECURENET, AND OTHER SYSTEMS. THESE DEFAULT PREASSIGNMENTS HAVE BEEN MADE FOR CUSTOMER CONVENIENCE ONLY, AND MAY BE RE−ASSIGNED AS NECESSARY. THE PREASSIGNED SIGNAL NAMES ARE SHOWN IN PARENTHESES.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U101	MC33074	QUAD SINGLE SUPPLY HI−PERF Op. AMP	4	11
U102	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U103	MC140688	QUAD ANALOG SWITCH	14	7
U104	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U105	MC145480	CODEC IC	6	15
U106	CUSTOM	CUSTOM ASIC	4	11
U107	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U108	MC33063	DC−TO−DC CONVERTER	6	4
U109	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U110	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U115	74AC32	QUAD 2−INPUT OR	14	7
U116	74AC244	OCTAL 3−STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U118	74AC32	QUAD 2−INPUT OR	14	7
U119	74AC244	OCTAL 3−STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U120	MC145041	8−BIT A/D CONVERTER	20	10
U121	74AC32	QUAD 2−INPUT OR	14	7
U122	−	OPTOISOLATOR	−	−
U123	−	OPTOISOLATOR	−	−
U124	−	OPTOISOLATOR	−	−
U125	−	OPTOISOLATOR	−	−
U126	74AC04	HEX INVERTER	14	7
U127	74AC109	DUAL J−K FLIP−FLOP	16	8
U128	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U129	MC140688	QUAD ANALOG SWITCH	14	7
U130	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U131	−	MICROPROCESSOR	18,28,39,62, 83,99,112, 131	4,13,23,29, 34,44,57,87, 84,102,107, 116,126
U132	−	32k x 8 SRAM	28	14
U133	−	32k x 8 SRAM	28	14
U134	−	128k x 8 EPROM	32	16
U135	−	128k x 8 EPROM	32	16
U136	74AC138	1−OF−8 DECODER/DEMULTIPLEXER	16	8
U137	74AC138	1−OF−8 DECODER/DEMULTIPLEXER	16	8
U138	74HC573	OCTAL 3−STATE NONINVERTING LATCH	20	10
U139	74HC573	OCTAL 3−STATE NONINVERTING LATCH	20	10
U140	−	OPTOISOLATOR	−	−
U144	−	JUMPER	−	−
U145	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U146	MC140688	QUAD ANALOG SWITCH	14	7
U147	LM7805	+5V DC REGULATOR	−	−

FLEPS−40780−B (SHEET 3 OF 3)



NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. ON THIS CIRCUIT BOARD, A PRINTED CIRCUIT JUMPER BOARD IS SOLDERED INTO U144 LOCATION. THE JUMPER BOARD CONNECTS J500 CONTACTS TO THE LINE I/O CIRCUITRY. THE DASHED LINES REPRESENT PLATED JUMPERS ON THE UNDERSIDE OF THE JUMPER BOARD.
3. THE CIRCUIT BOARD EDGE CONNECTORS, P101 AND P201, HAVE PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE ODD NUMBERED AND THE CONTACTS ON THE BACK OF THE BOARD ARE EVEN NUMBERED. THE CUTAWAY VIEW OF THE BACK OF THE BOARD, JUST TO THE RIGHT OF THE COMPONENT SIDE VIEW, SHOWS THE EVEN NUMBERED CONTACTS OF P101 AND P201.
4. U132 AND U133 ARE 32K X 8 SRAMS ON TRN7667D AND 128K X 8 SRAMS ON TRN7706D. PART LAYOUT IS SHOWN FOR THE 32–PIN 128K X 8 SRAMS. 28–PIN 32K X 8 SRAMS ARE PLACED SO THAT PIN 1 IS ON PAD FOR PIN 3, THEREBY LEAVING PADS FOR PINS 1, 2, 31, AND 32 OPEN.

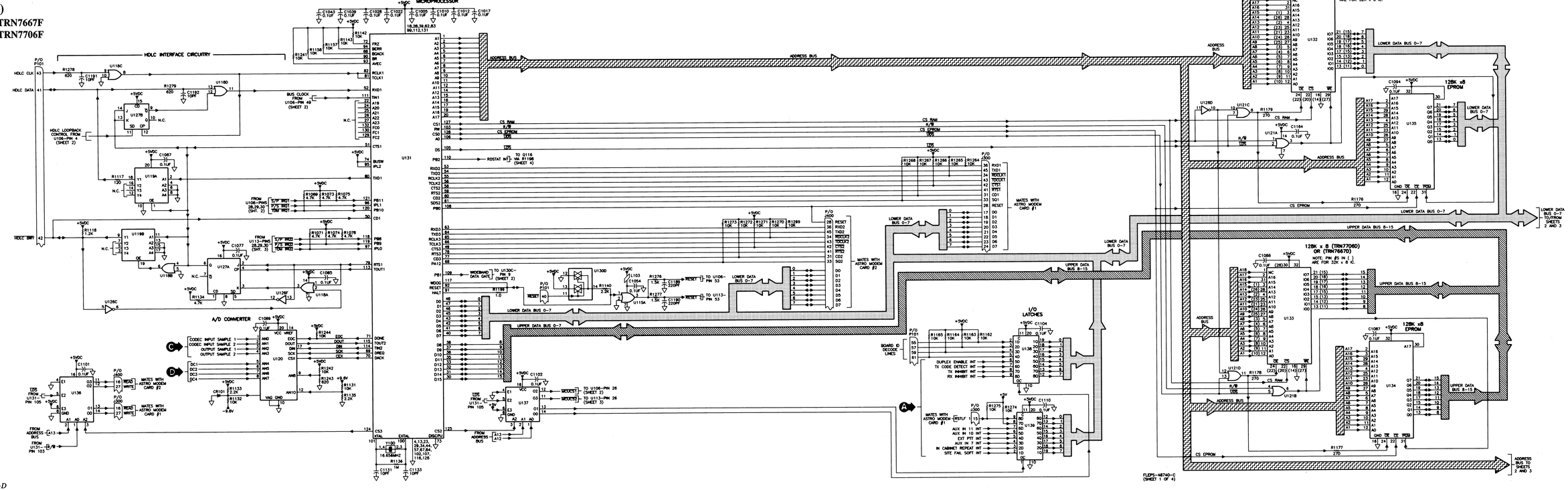
SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P101–1, 3	GND	P101–2, 4	GND	P201–1	LINE 1+	P201–2	LINE 1–
P101–5	NOT USED	P101–6	NOT USED	P201–7	LINE 2+	P201–8	LINE 2–
P101–7	NOT USED	P101–8	NOT USED	P201–13	LINE 3+	P201–14	LINE 3–
P101–9	NOT USED	P101–10	NOT USED	P201–19	LINE 4+	P201–20	LINE 4–
P101–11	NOT USED	P101–12	NOT USED	P201–25	NOT USED	P201–26	GEN TX DATA+
P101–13	NOT USED	P101–14	NOT USED	P201–27	PL–	P201–28	AUX OUT 1 (FAILSOFT)
P101–15	NOT USED	P101–16	NOT USED	P201–29	AUX OUT 2 (RX CODE DETECT)	P201–30	AUX OUT 3
P101–17	NOT USED	P101–18, 20	GND	P201–31	AUX OUT 4	P201–32	AUX OUT 5
P101–19, 21	GND	P101–22, 24	+14.2V	P201–33	AUX OUT 6	P201–34	AUX IN 8
P101–23, 25	+14.2V	P101–26	+14.2V	P201–35	AUX OUT 7 N.O.	P201–36	AUX OUT 8 N.O.
P101–27, 29, 31, 33	+5V	P101–28, 30, 32, 34	+5V	P201–37	AUX OUT 9 N.O.	P201–38	NOT USED
P101–35	GND	P101–36	GND	P201–39	AUX IN 9 OPTO–	P201–40	AUX OUT 10 N.O.
P101–37	NOT USED	P101–38	NOT USED	P201–41	AUX IN 11 OPTO–	P201–42	AUX IN 10 OPTO–
P101–39	NOT USED	P101–40	RESET	P201–43	AUX IN 12 OPTO+	P201–44	AUX IN 12 OPTO–
P101–41	HDLC DATA	P101–42	HDLC BUSY	P201–45	NOT USED	P201–46	AUX IN 11 OPTO+
P101–43	HDLC CLK	P101–44	TDM FRAME SYNC	P201–47	NOT USED	P201–48	AUX IN 9 OPTO+
P101–45	TDM DATA	P101–46	TDM CLK	P201–49	AUX IN 10 OPTO+	P201–50	AUX OUT 9 COM
P101–47	NOT USED	P101–48	NOT USED	P201–51	AUX OUT 10 COM	P201–52	AUX OUT 7 COM
P101–49	NOT USED	P101–50	NOT USED	P201–53	NOT USED	P201–54	AUX IN 6 (RX CABINET REPEAT)
P101–51	NOT USED	P101–52	NOT USED	P201–55	NOT USED	P201–56	AUX IN 4 (RX INHIBIT)
P101–53	NOT USED	P101–54	NOT USED	P201–57	AUX OUT 8 COM	P201–58	AUX IN 2 (TX INHIBIT)
P101–55	BOARD ID DECODE LINE	P101–56	NOT USED	P201–59	AUX IN 7	P201–60	AUX IN 1 (SITE FAILSOFT)
P101–57	BOARD ID DECODE LINE	P101–58	NOT USED	P201–61	NOT USED	P201–62	PL+
P101–59	BOARD ID DECODE LINE	P101–60	NOT USED	P201–63	AUX IN 5 (DUPLEX ENABLE)	P201–64	GEN TX DATA–
P101–61	BOARD ID DECODE LINE	P101–62	NOT USED	P201–65	AUX INT 3 (EXT TX CODE DETECT)	P201–66	NOT USED
P101–63	GND	P101–64	GND	P201–67	NOT USED	P201–68	NOT USED
P101–65	NOT USED	P101–66	NOT USED	P201–69	NOT USED	P201–70	NOT USED
P101–67	GND	P101–68	GND	P201–71	NOT USED	P201–72	NOT USED
P101–69	TX WIDE BAND AUDIO	P101–70	NOT USED	P201–73	NOT USED	P201–74	NOT USED
P101–71, 73	GND	P101–72	GND	P201–75	NOT USED	P201–76	NOT USED
P101–75	NOT USED	P101–74	NOT USED	P201–77	NOT USED	P201–78	NOT USED
P101–77	NOT USED	P101–76	NOT USED	P201–79	NOT USED	P201–80	NOT USED
P101–79	GND	P101–78	NOT USED				
		P101–80	GND				

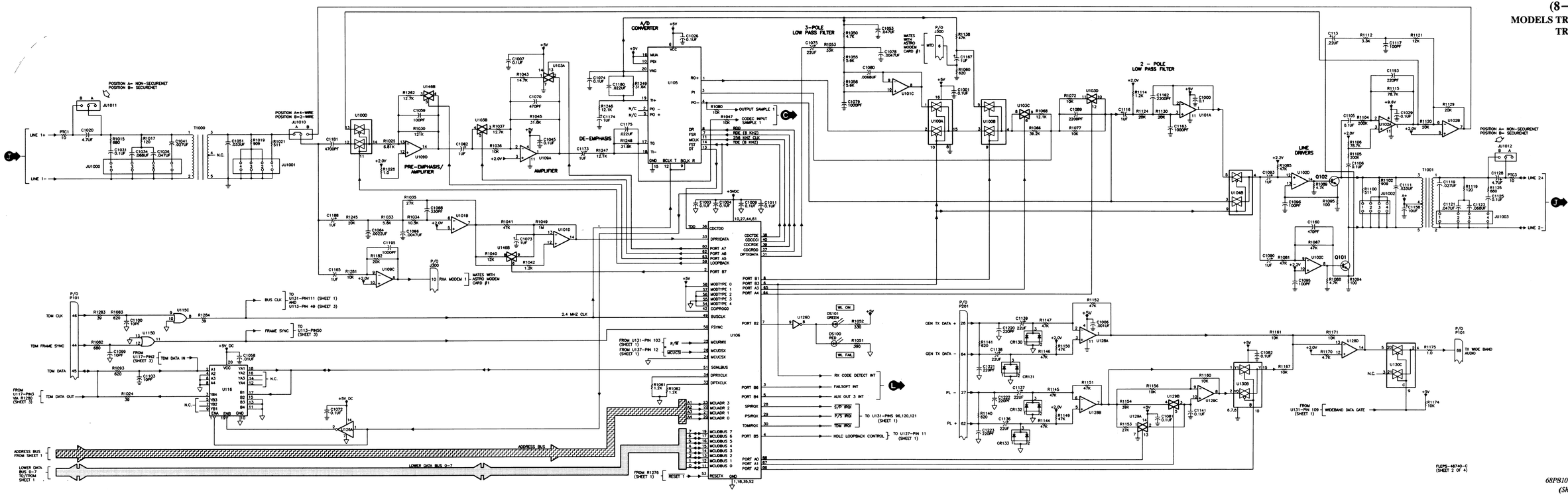
WIRELINE INTERFACE BOARD (8–Wire)

MODELS TRN7667F TRN7706F

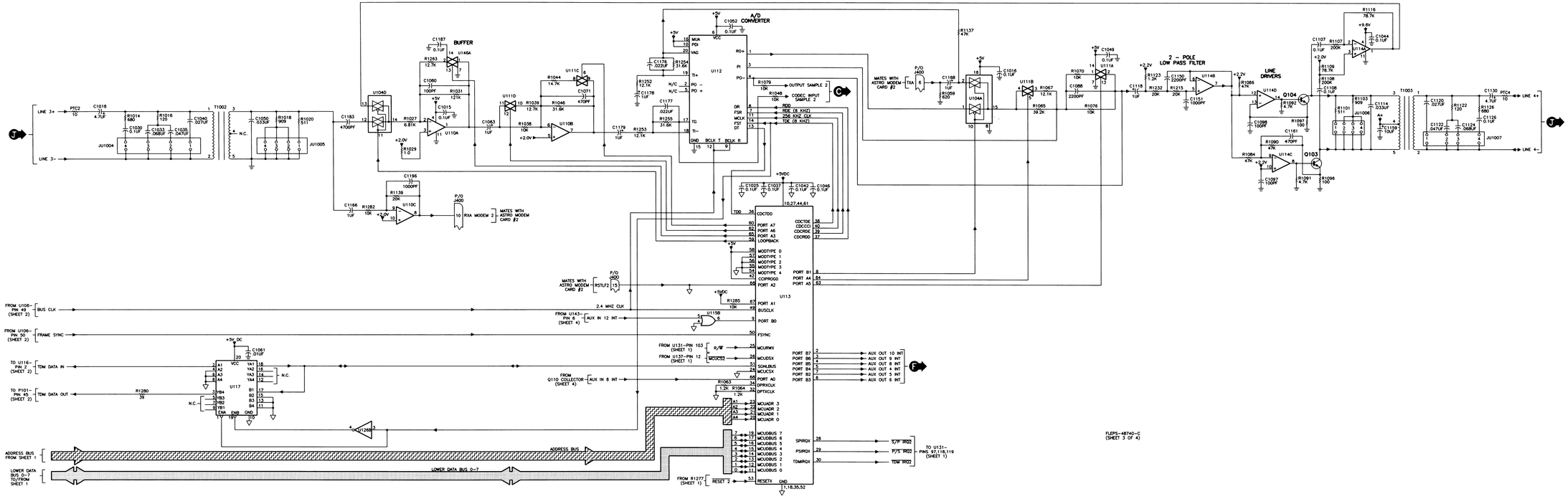
WIRELINE INTERFACE BOARD
(8−Wire)
MODELS TRN7667F
TRN7706F



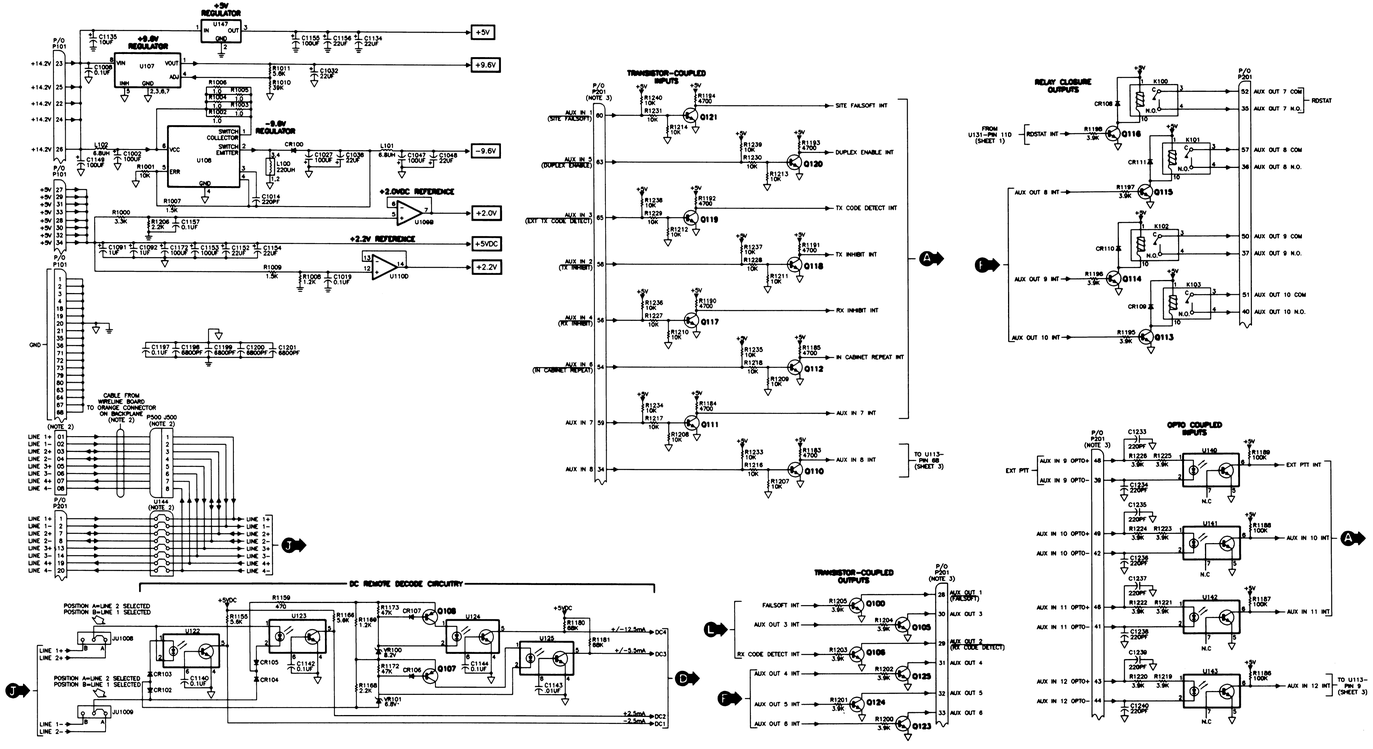
WIRELINE INTERFACE BOARD
(8−Wire)
MODELS TRN7667F
TRN7706F



WIRELINE INTERFACE BOARD
(8–Wire)
MODELS TRN7667F
TRN7706F



WIRELINE INTERFACE BOARD
(8−Wire)
MODELS TRN7667F
TRN7706F



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TO ALLOW PHONE LINE CONNECTIONS AT BOTH THE 50−PIN TELCO CONNECTOR AND THE 9−POSITION ORANGE SCREW TERMINAL CONNECTOR ON THE MODULE'S FRONT PANEL, THE ORANGE CONNECTOR IS CABLED TO THE WIRELINE INTERFACE BOARD. THE PHONE LINE CONNECTIONS (LINE 1+, LINE 1−, LINE 2+, ETC.) ARE ELECTRICALLY CONNECTED TO THE CORRESPONDING PHONE LINES FROM THE 50−PIN TELCO CONNECTOR THROUGH A JUMPER BOARD (FOR THE INTERNATIONAL MODEL TRN7728, THIS JUMPER BOARD IS REMOVED TO MAINTAIN THE 3mm PIN SPACING REQUIREMENTS SPECIFIED BY THE INTERNATIONAL TELEPHONE AGENCIES).
3. MANY OF THE CUSTOMER−DEFINED INPUTS AND OUTPUTS HAVE BEEN PREASSIGNED WITH SIGNAL NAMES AND FUNCTIONS USUALLY REQUIRED IN TYPICAL TRUNKING, SECURENET, AND OTHER SYSTEMS. THESE DEFAULT PREASSIGNMENTS HAVE BEEN MADE FOR CUSTOMER CONVENIENCE ONLY, AND MAY BE RE−ASSIGNED AS NECESSARY. THE PREASSIGNED SIGNAL NAMES ARE SHOWN IN PARENTHESES.

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U106	CUSTOM	CUSTOM ASIC	4	11
U107	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U108	MC33063	DC−TO−DC CONVERTER	6	4
U109	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U110	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U111	MC14066B	QUAD ANALOG SWITCH	14	7
U112	MC145480	CODEC IC	6	15
U113	CUSTOM	CUSTOM ASIC	10,27,44,61	1,18,35,52
U114	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U115	74AC32	QUAD 2−INPUT OR	14	7
U116	74AC244	OCTAL 3−STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U117	74AC244	OCTAL 3−STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U118	74AC32	QUAD 2−INPUT OR	14	7
U119	74AC244	OCTAL 3−STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U120	MC145041	8−BIT A/D CONVERTER	20	10
U121	74AC32	QUAD 2−INPUT OR	14	7
U122	−	OPTOISOLATOR	−	−
U123	−	OPTOISOLATOR	−	−
U124	−	OPTOISOLATOR	−	−
U125	−	OPTOISOLATOR	−	−
U126	74AC04	HEX INVERTER	14	7
U127	74AC109	DUAL J−K FLIP−FLOP	16	8
U128	MC3303	QUAD DIFFERENTIAL OP AMP	4	11
U129	MC14066B	QUAD ANALOG SWITCH	14	7
U130	MC14053	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U131	−	MICROPROCESSOR	18,28,39,62, 83,90,112, 131	4,13,23,29, 34,44,57,67, 84,102,107, 118,126
U132	−	32k x 8 SRAM	28	14
U133	−	32k x 8 SRAM	28	14
U134	−	128k x 8 EPROM	32	16
U135	−	128k x 8 EPROM	32	16
U136	74AC138	1−OF−8 DECODER/DEMULTIPLEXER	16	8
U137	74AC138	1−OF−8 DECODER/DEMULTIPLEXER	16	8
U138	74HC573	OCTAL 3−STATE NONINVERTING LATCH	20	10
U139	74HC573	OCTAL 3−STATE NONINVERTING LATCH	20	10
U140	−	OPTOISOLATOR	−	−
U141	−	OPTOISOLATOR	−	−
U142	−	OPTOISOLATOR	−	−
U143	−	OPTOISOLATOR	−	−
U144	−	JUMPER	−	−
U145	LM2931	LOW DROPOUT VOLTAGE REGULATOR	8	2,3,6,7
U146	MC14066B	QUAD ANALOG SWITCH	14	7
U147	LM7805	+5V DC REGULATOR	−	−

UNUSED GATES

U129C U129D U146C

FLEPS−48740−C (SHEET 4 OF 4)

WIRELINE INTERFACE BOARD
(8−Wire)
MODELS TRN7667F
TRN7706F

parts list

TRN7667F Wireline Interface Board (Quantar/Quantro; 8−Wire)
TRN7706F Wireline Interface Board (ASTRO−TAC; 8−Wire) PL−13036−C

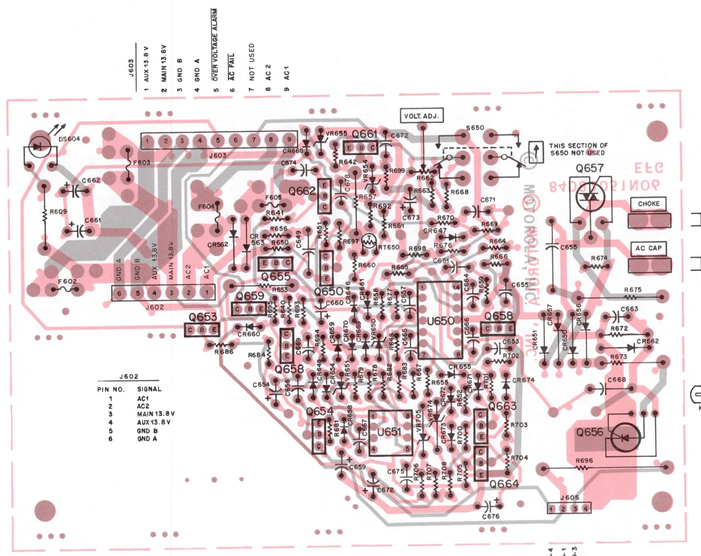
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1000,1001	2113741B69	0.1 uF, ±5%, 50 V
C1002	2380090M25	100 uF, 25V
C1003 thru 1012	2113741B69	0.1 uF, ±5%, 50 V
C1013	2311049A21	22 uF, ±10%, 20V
C1014	2113740A93	220 pF, ±5%, 50V
C1015 thru 1017	2113741B69	0.1 uF, ±5%, 50 V
C1018	2382174V01	4.7 uF, ±20%, 200 V
C1019	2113741B69	0.1 uF, ±5%, 50 V
C1020	2382174V01	4.7 uF, ±20%, 200 V
C1021	2311049A21	22 uF, ±10%, 20V
C1022	2113741B69	0.1 uF, ±5%, 50 V
C1025,1026	2113741B69	0.1 uF, ±5%, 50 V
C1027	2380090M25	100 uF, 25V
C1028 thru 1031	2113741B69	0.1 uF, ±5%, 50 V
C1032	2311049A21	22 uF, ±10%, 20V
C1033,1034	2113741B65	0.068 uF, ±5%, 50V
C1035,1036	2113741A61	0.047 uF, ±5%, 50V
C1037	2113741B69	0.1 uF, ±5%, 50 V
C1038	2311049A21	22 uF, ±10%, 20V
C1039	2113741B69	0.1 uF, ±5%, 50 V
C1040,1041	2113741A55	0.027 uF, ±5%, 50V
C1042 thru 1046	2113741B69	0.1 uF, ±5%, 50 V
C1047	2380090M25	100 uF, 25V
C1048	2311049A21	22 uF, ±10%, 20V
C1049	2113741B69	0.1 uF, ±5%, 50 V
C1050,1051	2113741A57	0.033 uF, ±5%, 50V
C1052	2113741B69	0.1 uF, ±5%, 50 V
C1053	2113741A61	0.047 uF, ±5%, 50V
C1054	2113741B69	0.1 uF, ±5%, 50 V
C1058	2113741B69	0.1 uF, ±5%, 50 V
C1059,1060	2113740A55	100 pF, ±5%, 50V
C1061	2113741B69	0.1 uF, ±5%, 50 V
C1062,1063	2311049A26	1 uF, ±10%, 35 V
C1064	2113741A29	2200 pF, ±5%, 50V
C1065	2113741B69	0.1 uF, ±5%, 50 V
C1066	2113741A37	4700 pF, ±5%, 50V
C1067	2113741B69	0.1 uF, ±5%, 50 V
C1068	2113740A67	330 pF, ±5%, 50V
C1069	2113741B69	0.1 uF, ±5%, 50 V
C1070,1071	2113740A71	470 pF, ±5%, 50V
C1072	2113741B69	0.1 uF, ±5%, 50 V
C1073	2311049A26	1 uF, ±10%, 35 V
C1075	2380090M10	22 uF, ±20%, 25V
C1077	2113741B69	0.1 uF, ±5%, 50 V
C1078	2113741A37	4700 pF, ±5%, 50V
C1079	2113740A79	1000 pF, ±5%, 50V
C1080	2113741A41	6800 pF, ±5%, 50V
C1081,1082	2113741B69	0.1 uF, ±5%, 50 V
C1084	2113741B69	0.1 uF, ±5%, 50 V
C1086,1087	2113741B69	0.1 uF, ±5%, 50 V
C1088,1089	2113741A29	2200 pF, ±5%, 50V
C1090 thru 1093	2311049A08	1 uF, ±10%, 35 V
C1094	2113741B69	0.1 uF, ±5%, 50 V
C1095 thru 1098	2113740A55	100 pF, ±5%, 50V
C1099,1100	2113740A29	10 pF, ±5%, 50V
C1101,1102	2113741B69	0.1 uF, ±5%, 50 V
C1103	2113740A29	10 pF, ±5%, 50V
C1104 thru 1108	2113741B69	0.1 uF, ±5%, 50 V
C1110	2113741B69	0.1 uF, ±5%, 50 V
C1111	2113741A57	0.033 uF, ±5%, 50V
C1113	2311049A03	0.22 uF, ±10%, 35V
C1114	2113741A57	0.033 uF, ±5%, 50V
C1116	2311049A08	1 uF, ±10%, 35 V
C1117	2113740A79	1000 pF, ±5%, 50V
C1118	2311049A08	1 uF, ±10%, 35 V
C1119,1120	2113741A55	0.027 uF, ±5%, 50V
C1121,1122	2113741A61	0.047 uF, ±5%, 50V
C1123,1124	2113741B65	0.068 uF, ±5%, 50V
C1125,1126	2113741B69	0.1 uF, ±5%, 50 V
C1128	2382174V01	4.7 uF, ±20%, 200 V
C1130	2382174V01	4.7 uF, ±20%, 200 V
C1131	2113740A29	10 pF, ±5%, 50V
C1133	2113740A29	10 pF, ±5%, 50V
C1134	2311049A21	22 uF, ±10%, 20V
C1135	2311049A45	10 uF, ±10%, 35V
C1136 thru 1139	2380090M10	22 uF, ±20%, 25V
C1140 thru 1144	2113741B69	0.1 uF, ±5%, 50 V
C1149	2380090M25	100 uF, 25V
C1150	2113741A29	2200 pF, ±5%, 50V
C1151	2113740A79	1000 pF, ±5%, 50V
C1152	2311049A21	22 uF, ±10%, 20V
C1153	2380090M25	100 uF, 25V
C1154	2311049A21	22 uF, ±10%, 20V
C1155	2380090M25	100 uF, 25V
C1156	2311049A21	22 uF, ±10%, 20V
C1157	2113741B69	0.1 uF, ±5%, 50 V
C1158,1159	2311049A45	10 uF, ±10%, 35V
C1160,1161	2113740A67	330 pF, ±5%, 50V
C1162	2113741A29	2200 pF, ±5%, 50V
C1163	2113740A79	1000 pF, ±5%, 50V
C1164	2113741B69	0.1 uF, ±5%, 50 V
C1165 thru 1168	2311049A08	1 uF, ±10%, 35 V
C1172	2380090M25	100 uF, 25V
C1173,1174	2311049A08	1 uF, ±10%, 35 V
C1175 thru 1177	2113741A53	0.022 uF, ±5%, 50V
C1178,1179	2311049A08	1 uF, ±10%, 35 V
C1180	2113741A53	0.022 uF, ±5%, 50V
C1181	2113741A37	4700 pF, ±5%, 50V
C1183	2113741A37	4700 pF, ±5%, 50V
C1187	2113741B69	0.1 uF, ±5%, 50 V
C1188	2311049A08	1 uF, ±10%, 35 V
C1189,1190	2113740A63	220 pF, ±5%, 50V
C1191,1192	2113740A29	10 pF, ±5%, 50V
C1195,1196	2113740A79	1000 pF, ±5%, 50V
C1197	2113741B69	0.1 uF, ±5%, 50 V
C1198 thru 1201	2113741A41	6800 pF, ±5%, 50V
C1220 thru 1223	2113740A63	220 pF, ±5%, 50V
C1233 thru 1240	2113740A63	220 pF, ±5%, 50V
		diode (see note):
CR100	4813833B01	Schottky type
CR101	4813833C10	0.1A, 70V
CR102 thru 105	4813833B06	1A; 600 V
CR106,107	4813833C10	0.1A, 70V
CR108 thru 111	4813833B01	Schottky type
CR130 thru 133	4813832C28	Zener 15V
		light emitting diode (see note):
DS100	4882198T04	SUBMINIATURE LED RED
DS101	4882198T06	SUBMINIATURE LED GRN
		connector:
J300	0984455T29	Blindmate Keyed, 50−position
J400	0984455T29	Blindmate Keyed, 50−position
J500	2880004U10	HDR .156 FLK SNPB SR RT 10 POS
		relay:
K100 thru 103	8013917B01	5V, 330MM
		coil:
L100	2485069U01	220UH, 480 MA
L101,102	2411087B36	6.8 UH
L103	2484657T01	ferrite bead
		transient protector
PTC1 thru 4	0685239U01	RES PTC 600V−.145A
		transistor (see note):
Q100 thru 106	4813822A07	NPN
Q107,108	4813824A18	PNP
Q110 thru 121	4813824A11	NPN
Q123 thru 125	4813822A07	NPN
		resistor, fixed:
R1000	0611079A86	3300 ohms, ±5%, 1/10W
R1001	0611079A98	10K, ±5%, 1/10W
R1002 thru 1006	0611079A02	1 ohm, ±5%, 1/10W
R1007	0611079A78	1500 ohms, ±5%, 1/10W
R1008	0611079A76	1.2K, ±5%, 1/10W
R1009	0611079A78	1500 ohms, ±5%, 1/10W
R1010	0611079B13	39K, ±5%, 1/10W
R1011	0611079A92	5600 ohms, ±5%, 1/10W
R1014,1015	0611079A70	680 ohms, ±5%, 1/10W
R1016,1017	0611079A52	120 ohms, ±5%, 1/10W
R1018,1019	0611079D93	909 ohms, 1/10W, ±1%
R1020,1021	0611079D69	511 ohms, 1/10W, ±1%
R1024	0611079A40	39 ohms, ±5%, 1/10W
R1025	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1027	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R1028,1029	0611079A02	1 ohm, ±5%, 1/10W
R1030,1031	0611079E09	RES CHIP 121.0K 1/10W 1%
R1033	0611079A92	5600 ohms, ±5%, 1/10W
R1034	0611079A78	1500 ohms, ±5%, 1/10W
R1035	0611079B09	27K, ±5%, 1/10W
R1036	0611079G01	10K, 1/10W, ±1%
R1037	0611079G11	12.7K, 1/10W, ±1%
R1038	0611079G01	10K, 1/10W, ±1%
R1039	0611079G11	12.7K, 1/10W, ±1%
R1040	0611079B01	12K, ±5%, 1/10W
R1041	0611079B15	47K, ±5%, 1/10W
R1042	0611079A78	1.2K, ±5%, 1/10W
R1043,1044	0611079G17	RES CHIP 14.7K 1/10W 1% 0805
R1045,1046	0611079G49	31.6K, 1/10W, ±1%
R1047,1048	0611079A98	10K, ±5%, 1/10W
R1050	0611079A90	4700 ohms, ±5%, 1/10W
R1051	0611079A98	10K, ±5%, 1/10W
R1052	0611079A62	330 ohms, ±5%, 1/10W
R1053	0611079B11	33K, ±5%, 1/10W
R1055	0611079A92	5600 ohms, ±5%, 1/10W
R1058	0611079A92	5600 ohms, ±5%, 1/10W
R1059,1060	0611079A69	620 ohms, ±5%, 1/10W
R1061 thru 1064	0611079A76	1.2K, ±5%, 1/10W
R1065,1066	0611079G58	RES CHIP 39.2K 1/10W 1% 0805
R1067,1068	0611079G09	12.1K, 1/10W, ±1%
R1069	0611079A90	4700 ohms, ±5%, 1/10W
R1070	0611079G01	10K, 1/10W, ±1%
R1071	0611079A90	4700 ohms, ±5%, 1/10W
R1072	0611079G01	10K, 1/10W, ±1%
R1073 thru 1075	0611079A90	4700 ohms, ±5%, 1/10W
R1076,1077	0611079G01	10K, 1/10W, ±1%
R1078	0611079A90	4700 ohms, ±5%, 1/10W
R1079,1080	0611079A98	10K, ±5%, 1/10W
R1081	0611079B15	47K, ±5%, 1/10W
R1082	0611079A70	680 ohms, ±5%, 1/10W
R1083	0611079A69	620 ohms, ±5%, 1/10W
R1084 thru 1087	0611079B15	47K, ±5%, 1/10W
R1088,1089	0611079A90	4700 ohms, ±5%, 1/10W
R1090	0611079B15	47K, ±5%, 1/10W
R1091,1092	0611079A90	4700 ohms, ±5%, 1/10W
R1093	0611079A70	680 ohms, ±5%, 1/10W
R1094 thru 1097	0611072A25	100 ohms, ±5%, 1/4W
R1100,1101	0611079D69	511 ohms, 1/10W, ±1%
R1102,1103	0611079D93	909 ohms, 1/10W, ±1%
R1104,1105	0611079E30	200K, 1/10W, ±1%
R1106	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1107,1108	0611079E30	200K, 1/10W, ±1%
R1109	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1112	0611079A86	3300 ohms, ±5%, 1/10W
R1114	0611079A76	1.2K, ±5%, 1/10W
R1115,1116	0611079G87	RES CHIP 78.7K 1/10W 1% 0805
R1117	0611079A52	120 ohms, ±5%, 1/10W
R1118	0611079A76	1.2K, ±5%, 1/10W
R1119	0611079A52	120 ohms, ±5%, 1/10W
R1120	0611079B06	20K, ±5%, 1/10W
R1121	0611079B01	12K, ±5%, 1/10W
R1122	0611079A52	120 ohms, ±5%, 1/10W
R1123	0611079A76	1.2K, ±5%, 1/10W
R1124	0611079B06	20K, ±5%, 1/10W
R1125,1126	0611079A70	680 ohms, ±5%, 1/10W
R1129,1130	0611079B06	20K, ±5%, 1/10W
R1131,1132	0611079A98	10K, ±5%, 1/10W
R1133	0611079A82	2200 ohms, ±5%, 1/10W
R1134	0611079A90	4700 ohms, ±5%, 1/10W
R1135	0611079A82	2200 ohms, ±5%, 1/10W
R1136	0611079B47	1 MEG, ±5%, 1/10W
R1137,1138	0611079B15	47K, ±5%, 1/10W
R1139	0611079B06	20K, ±5%, 1/10W
R1140,1141	0611079A89	620 ohms, ±5%, 1/10W
R1142,1143	0611079A98	10K, ±5%, 1/10W
R1144 thru 1147	0611079B15	47K, ±5%, 1/10W
R1148	0611079A82	2200 ohms, ±5%, 1/10W
R1149 thru 1152	0611079B15	47K, ±5%, 1/10W
R1153	0611079B09	27K, ±5%, 1/10W
R1154	0611079B13	39K, ±5%, 1/10W
R1155	0611079A92	5600 ohms, ±5%, 1/10W
R1156 thru 1158	0611079A98	10K, ±5%, 1/10W
R1159	0611072A41	470 ohms, ±5%, 1/4W
R1160 thru 1165	0611079A98	10K, ±5%, 1/10W
R1166	0611079A92	5600 ohms, ±5%, 1/10W
R1167	0611079A98	10K, ±5%, 1/10W
R1168	0611079A82	2200 ohms, ±5%, 1/10W
R1169	0611079A76	1.2K, ±5%, 1/10W
R1170	0611079A90	4700 ohms, ±5%, 1/10W
R1171	0611079A98	10K, ±5%, 1/10W
R1172,1173	0611079B15	47K, ±5%, 1/10W
R1174	0611079A98	10K, ±5%, 1/10W
R1175	0611079A02	1 ohm, ±5%, 1/10W
R1176 thru 1179	0611079A90	4700 ohms, ±5%, 1/10W
R1180,1181	0611079B19	68K, ±5%, 1/10W
R1182	0611079B06	20K, ±5%, 1/10W
R1183 thru 1185	0611079A90	4700 ohms, ±5%, 1/10W
R1186 thru 1189	0611079B23	100K, ±5%, 1/10W
R1190 thru 1194	0611079A90	4700 ohms, ±5%, 1/10W
R1195 thru 1198	0611079A88	3900 ohms, ±5%, 1/10W
R1199	0611079A02	1 ohm, ±5%, 1/10W
R1200 thru 1205	0611079A88	3900 ohms, ±5%, 1/10W
R1206	0611079A82	2200 ohms, ±5%, 1/10W
R1207 thru 1214	0611079A98	10K, ±5%, 1/10W
R1215	0611079B06	20K, ±5%, 1/10W
R1216 thru 1218	0611079A98	10K, ±5%, 1/10W
R1219 thru 1226	0611072A63	3900 ohms, ±5%, 1/4W
R1227 thru 1231	0611079A98	10K, ±5%, 1/10W
R1232	0611079B06	20K, ±5%, 1/10W
R1233 thru 1241	0611079A98	10K, ±5%, 1/10W
R1242	0611079G01 0611079A76	10K, 1/10W, ±1% (TRN7667F) 1.2K, ±5%, 1/10W (TRN7706F)
R1243	0611079A69 0611079A92	620 ohms, ±5%, 1/10W (TRN7667F) 5600 ohms, ±5%, 1/10W (TRN7706F)
R1244	0611079A98	10K, ±5%, 1/10W
R1245	0611079B06	20K, ±5%, 1/10W
R1246,1247	0611079G09	12.1K, 1/10W, ±1%
R1248,1249	0611079G49	31.6K, 1/10W, ±1%
R1252,1253	0611079G09	12.1K, 1/10W, ±1%
R1254,1255	0611079G49	31.6K, 1/10W, ±1%
R1262,1263	0611079G11	12.7K, 1/10W, ±1%
R1264 thru 1275	0611079A98	10K, ±5%, 1/10W
R1276,1277	0611079A78	1500 ohms, ±5%, 1/10W
R1278,1279	0611079A70	680 ohms, ±5%, 1/10W
R1280	0611079A40	39 ohms, ±5%, 1/10W
R1281,1282	0611079A98	10K, ±5%, 1/10W
R1283,1284	0611079A40	39 ohms, ±5%, 1/10W
R1285	0611079A98	10K, ±5%, 1/10W
T1000 thru 1003	2584422T01	**transformer:** telephone line isolation
		integrated circuit (see note):
U100	5113805A85	Mux/Demux, Trip 2−Channel Analog
U101	5113819A05	High Performance, Single Supply
U102	5113819A04	Quad Operational Amplifier
U103	5113805A86	Quad Analog Multiplexer/Demultiplexer
U104	5113805A85	Mux/Demux, Trip 2−Channel Analog
U105	5184743T01	CODEC Pulse Code Modulation
U106	5184625T03	ASIC Gate Array
U107	5113816A01	Adjustable Low Dropout, Positive
U108	5113815A01	DC to DC Converter
U109,110	5113819A05	High Performance, Single Supply
U111	5113805A86	Quad Analog Multiplexer/Demultiplexer
U112	5184743T01	CODEC Pulse Code Modulation
U113	5184625T03	ASIC Gate Array
U114	5113819A04	Quad Operational Amplifier
U115	5113808A14	Quad 2−Input OR Gate
U116,117	5113808A38	Octal 3−State Non−Inverter Line Driver
U118	5113808A14	Quad 2−Input OR Gate
U119	5113808A38	Octal 3−State Non−Inverter Line Driver
U120	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U121	5113872A41	Quad 2−Input OR Gate
U122 thru 125	5184742T03	OPTOISOLATOR
U126	5113808A05	Hex Inverter
U127	5113805A19	Flip−Flop, Dual Jack w/Set
U128	5113819A04	Quad Operational Amplifier
U129	5113805A86	Quad Analog Multiplexer/Demultiplexer
U130	5113805A85	Mux/Demux, Trip 2−Channel Analog
U131	5113802A08	Multiprotocol
U132,133	5184064T78	32Kx8 Bit SRAM (TRN7667F) 128K x 8 Bit SRAM (TRN7706F)
U134	(See Note 1)	IC PRGMD EPROM
U135	(See Note 1)	IC PRGMD EPROM
U136,137	5113808A20	1 of 8 Decoder/Demultiplexer
U138,139	5113805A72	Octal 3−State Non−Inverting Latch
U140 thru 143	5184742T01	OPTOISOLATOR
U146	5113805A86	Quad Analog Multiplexer/Demultiplexer
U147	5113816A07	5−Volt Positive Regulator
		zener diode (see note):
VR100	4813830A20	8.2V ±5%, 250MA 500 MW
VR101	4813830A18	Zener, 6.8V
		filter (see note):
Y100	4884450T14	XTAL OSC 16.656MHZ
		non−referenced items:
	0784775T01	STIFFNER, PC board edge (2 used)
	0982451V13	SOCKET, IC, SURF MT 40 PIN (used with U134)
	0982451V13	SOCKET, IC, SURF MT 40 PIN (used with U135)
	0984728L01	Shorting Jumper: 2−contact (used with JU1000)
	0984728L01	Shorting Jumper: 2−contact (used with JU1001)
	0984728L01	Shorting Jumper: 2−contact (used with JU1002)
	0984728L01	Shorting Jumper: 2−contact (used with JU1003)
	0984728L01	Shorting Jumper: 2−contact (used with JU1004)
	0984728L01	Shorting Jumper: 2−contact (used with JU1005)
	0984728L01	Shorting Jumper: 2−contact (used with JU1006)
	0984728L01	Shorting Jumper: 2−contact (used with JU1007)
	0984728L01	Shorting Jumper: 2−contact (used with JU1008)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	0984728L01	Shorting Jumper: 2−contact (used with JU1010)
	0984728L01	Shorting Jumper: 2−contact (used with JU1011)
	0984728L01	Shorting Jumper: 2−contact (used with JU1012)
	2880001R03	plug: 3−contact (used with JU1008)
	2880001R03	plug: 3−contact (used with JU1009)
	2880001R03	plug: 3−contact (used with JU1010)
	2880001R03	plug: 3−contact (used with JU1011)
	2880001R03	plug: 3−contact (used with JU1012)
	2880001S04	plug: 8−contact (used with JU1000)
	2880001S04	plug: 8−contact (used with JU1001)
	2880001S04	plug: 8−contact (used with JU1002)
	2880001S04	plug: 8−contact (used with JU1003)
	2880001S04	plug: 8−contact (used with JU1004)
	2880001S04	plug: 8−contact (used with JU1005)
	2880001S04	plug: 8−contact (used with JU1006)
	2880001S04	plug: 8−contact (used with JU1007)
	5482006W01	LABEL, PCB barcode
	5482006W02	RIBBON, thermal transfer
	6182510W02	Lightpipes (2 used) for DS100 and DS101
	8484750T01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

Note 1: U134 and U135 contain the wireline operating code. The part numbers for these two IC are determined by the particular firmware version. Contact Motorola System Support Center (1−800−448−3245) for the current version and corresponding part numbers for U134 and U135.

POWER SUPPLY MODULE
(60 Hz with Battery Charger)
MODEL TPN1185B



68P81090E68–A
(Sheet 1 of 2)
10/15/99–UP

parts list

TPN6137C Battery Charger Circuit Board — PL-10681-C

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF ±20%; 25 V: unless otherwise stated
C510	8-84637L18	0.12 ±10%; 100 V
C651	8-11017A09	.015 ±5%; 50 V
C653	8-11017A10	.018 ±5%; 50 V
C654	23-11019A40	47
C655	8-82660N01	.047 ±10%; 250 V
C656, 657, 658	21-11014H32	20 pF ±5%; 100 V
C659	23-11019A40	47
C660	23-11019A11	2.2; 50 V
C661, 662	23-11019A48	220; 10 V
C663 thru 667	21-11014H32	20 pF ±5%; 100 V
C668	21-83559E20	.01; 1000 V
C669	21-11014H32	20 pF ±5%; 100 V
C670		NOT USED
C671	8-11051A15	0.22 ±5%; 63 V
C672	21-11014H32	20 pF ±5%; 100 V
C673	23-11019A46	100
C674, 675	21-11014H32	20 pF ±5%; 100 V
C676	23-11019A40	47
C677	23-84665F15	330 +50-10%
C678	8-11044A13	0.056 ±5%; 63 V
CR646 thru 648	48-83654H01	**diode: (see note)** silicon
CR650, 651	48-82458H18	silicon
CR652, 653	48-82458H13	silicon
CR654, 655	48-83654H01	silicon
CR656, 657	48-82466H18	silicon
CR658, 659	48-83654H01	silicon
CR660	48-82466H18	silicon
CR661, 662	48-83654H01	silicon
CR663 thru 674	48-83654H01	silicon
DS604	48-84404E04	**light emitting diode: (see note)** green
F602	65-139787	**fuse:** 10 amp; 32 V
F603, 604, 605	65-82859N01	4 amp; 32 V
J602	28-82984N06	**connector, plug:** male; 6-contact
J603	28-82984N14	male; 9-contact
J606	28-83143M05	male; 4-contact
Q650	48-869649	**transistor: (see note)** PNP; type M9649
Q651	48-869642	NPN; type M9642
Q653	48-869642	NPN; type M9642
Q654	48-869648	NPN; type M9648
Q655	48-869643	PNP; type M9643
Q656	48-82604N01	silicon controller rectifier
Q657	48-82965F02	TRIAC; 15 amp; 800 V
Q658	48-869642	NPN; type M9642
Q659	48-869528	NPN; type M9528
Q661 thru 664	48-869642	NPN; type M9642
R609	6-11045A51	**resistor, fixed: ±5%; 1/4 W:** unless otherwise stated 1.2k; 1/2 W
R640, 641	6-11009E49	1k
R642	6-11045A33	220; 1/2 W
R648	6-11009E89	47k
R650	6-11009E56	2k
R651	6-11009E63	3.9k
R652	6-11009E60	3k
R653	6-11045A31	180; 1/2 W
R655	6-84640C25	2.1k ±0.5%
R656	6-11009E56	2k
R657	6-11045A35	270; 1/2 W
R658	6-11009F12	390k
R659	6-11009F05	270k
R660	6-11009E49	1k
R661	6-11009E67	5.6k
R662	18-82374N10	variable; 1k; ±20%; 0.2 W
R663	6-11009E61	3.3k
R664	6-11009E63	3.9k
R665	6-11009E66	33k
R666	6-11009E53	1.5k
R667	6-11009F10	330k
R668	6-11009E83	27k
R669	6-11009E89	47k
R670	6-11009E55	1.8k
R672	6-11009A49	1k
R673	6-11045A59	2.7k; 1/2 W
R674	6-11009E29	150
R675	6-126A49	1k; 1 W
R676	6-11009E65	4.7k
R677	6-11009E89	47k
R678	6-11009E55	1.8k
R679	6-11009E44	620
R680	6-11045A45	680; 1/2 W
R681	6-11009E53	1.5k
R682	6-11009E95	82k

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R683	6-11009E35	270
R684	6-11009E56	2k
R686	6-11009E73	10k
R692	6-11009E56	2k
R693	6-11009E65	4.7k
R694	6-11009E53	1.5k
R695	6-11009E65	4.7k
R696	7-821778D2	2; 5 W
R697	6-11009E49	1k
R698	6-11009E81	22k
R699	6-11009E89	47k
R700	6-11009F08	270k
R701	6-11009F22	1 meg.
R702	6-11009E27	120
R703	6-11009F06	220k
R704	6-11009E87	39k
R705	6-11009E89	47k
R706	6-11045A39	390; 1/2 W
R707	6-11045A37	330; 1/2 W
R708	6-11009E53	220
R709	6-11009F06	10k
RT650	6-82769A08	**thermistor:** 2.02k @ 25°C
S650	40-83204B02	**switch:** slide, dpdt
U650	51-83222M39	**integrated circuit: (see note)** quad operational amplifier
U651	51-83223M56	dual operational amplifier
VR650	48-82256C56	**voltage regulator:** Zener; 8.8 V
VR651	48-82256C25	Zener; 12 V
VR654, 655	48-83461E36	Zener; 6.2 V
VR674	48-82256C56	Zener; 8.8 V
VR675	48-82256C58	Zener; 39 V
		mechanical parts
	2-10971A16	NUT M3 × 0.5
	3-83497N04	SCREW, machine: M3 × 0.5 × 8
	4-7683	LOCKWASHER, #4 internal
	14-83820M02	INSULATOR, transistor
	15-84578N01	SHROUD, fuse terminal; 4 used
	26-84275L01	HEAT SINK
	29-82909N01	TERMINAL, blade fuse; 8 used
	29-10231A10	TERMINAL, mounting faston; 2 used

TRN5336A Power Supply Hardware Kit (500 W) — PL-8020-H

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C601	8-82682N01	**capacitor, fixed:** 20 uF ±6%; 330 V
C602,603	23-82681N01	64,000 uF +75-1%; 20 V
C604	23-82681N02	120,000 uF +75-10%; 20 V
CR601,602	48-82732C09	**diode: (see note)** silicon
L601	25-82686N01	**coil:** choke; 420 uH
P602	9-83360N01	**connector, receptacle:** female; 6 contact
T601	25-82253N01	**transformer:** power; 500 W, 60 Hz
TB601	31-83576K02	**terminal, board:** 2-terminals
		mechanical parts
	2-10971A17	NUT, machine: M4 × 0.7 hex; 5 used
	2-10971A18	NUT, machine: M5 × 0.8 hex; 2 used
	2-10971A19	NUT, machine: M8 × 1; 2 used
	3-10908A55	SCREW, machine: M6 × 1 × 25mm; 4 used
	3-83497N01	SCREW, machine: M4 × 0.7 × 28mm; 4 used
	3-83497N02	SCREW, machine: M5 × 0.8 × 12mm; 8 used
	3-83498N04	SCREW, tapping: M4 × 0.7 × 7mm; 16 used
	3-83498N06	SCREW, tapping: M4 × 0.7 × 16mm; 3 used
	3-83678N02	SCREW, tapping: M4 × 0.7 × 18mm
	4-7851	LOCKWASHER, #8 Internal; 8 used
	4-119331	LOCKWASHER, 1/4" split; 2 used
	4-83423R01	WASHER, flat rectangular, 1/4"; 2 used
	4-135873	WASHER, flat: 0.281 × 0.75 × .06; 2 used
	4-83423R01	WASHER, flat rectangular; 1/4"; 2 used
	4-83499N01	WASHER, Insulator; 3 used
	4-7858	LOCKWASHER, #10 Internal; 15 used
	5-82904N01	GROMMET; 4 used
	14-83277N01	INSULATOR, lug; 3 used
	14-84088N01	INSULATOR, cap terminals; 2 used
	14-84548A01	INSULATOR, washer; 2 used
	26-82902N01	HEAT SINK
	29-82907B06	TERMINAL, ring; 3 used
	29-82907B09	LUG, ring tounge; 2 used
	29-82907B05	LUG, ring tounge; 2 used
	29-82907B06	LUG, ring tounge; 2 used
	29-82907N05	TERMINAL, ring (YEL); 8 used
	29-82907N07	TERMINAL, ring (RED); 2 used
	29-83137N01	TERMINAL, splice; 2 used
	39-83146N01	CONTACT, socket
	42-10217A02	STRAP, tie; .091 × 3.62; 16 used
	42-10217A33	STRAP, tie; 0.19 × 15; 3 used
	42-82903N01	CLAMP, cap; 2"
	42-82903N02	CLAMP, cap; 2 1/2"; 2 used
	42-82903N03	CLAMP, cap; 3"
	54-83971N01	LABEL; 2 used
	54-84046N01	LABEL
	75-83066P01	PAD, snap-on
	31-811350	TERMINAL, board; 4 terminal

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN5153A Battery Charger PS. Hardware Kit — PL-8018-F

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
K650	80-83013N01	**relay:** 1 form "C"; coil res, 70 ohms
L650	25-82419N05	**coil:** choke, 65 mh
P606	15-83901N01	**connector, plug:** housing, 4 position
R709	6-11009A73	**resistor, fixed:** 10k ±5%; 1/4 W
		mechanical parts
	2-10971A17	NUT, machine: M4 × 0.7 hex
	3-83497N03	SCREW, machine: M5 × 0.8 × 25mm; 4 used
	3-83497N02	SCREW, machine: M5 × 0.8 × 12mm
	3-83497N05	SCREW, machine: M4 × 0.7 × 10mm
	3-83498N04	SCREW, tapping: M4 × 0.7 × 7mm; 4 used
	3-83498N06	SCREW, tapping: M4 × 0.7 × 16mm; 2 used
	4-7851	LOCKWASHER: #8 internal; 4 used
	5-82904N02	GROMMET, transformer; 4 used
	7-83364N02	BRACKET, charger board
	15-83901N01	COVER, battery: option, board
	29-82907N07	TERMINAL, ring; 3 used
	29-83113N03	TERMINAL, right angle; 2 used
	29-83883C02	LUG, crimp
	39-82717M01	CONTACT, receptacle; 4 used
	2-10971A18	NUT, machine: M5 × 0.8 hex
	4-7858	LOCKWASHER: #10 Internal
	4-7873	LOCKWASHER, split: #10 Internal
	14-83986N01	INSULATOR
	29-82907N05	TERMINAL, ring: 10 ga.; 2 used
	43-82800N01	STANDOFF; 6 used
	42-10217A02	STRAP, tie: nylon; 8 used
	54-83971N01	LABEL

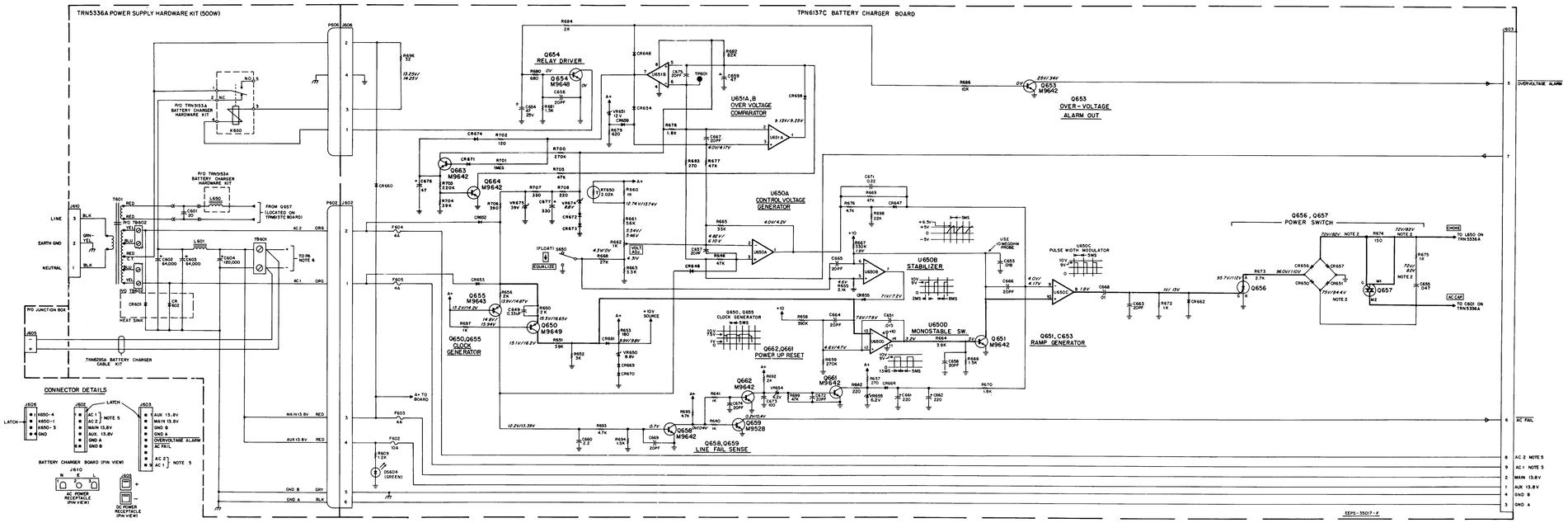
TRN5155A External Battery Cable Kit — PL-8059-C

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
F610	65-82846N01	**fuse:** 60 amp; 300 V
P605	15-83502N01	**connector, plug:** assembly, connector; includes: HOUSING, single contact; 2 used
	39-83503N02	CONTACT, battery; 2 used
		mechanical parts
	3-138490	SCREW, tapping: 8-18 x 1 1/4"; 2 used
	9-82842N01	BLOCK, fuse
	29-847817	LUG, ring torque; 2 used
	42-10217A02	STRAP, tie; 3 used

TKN8295A Internal Battery Cable Kit
TKN8845A Internal Battery Cable Kit (DC Only) — PL-6017-E

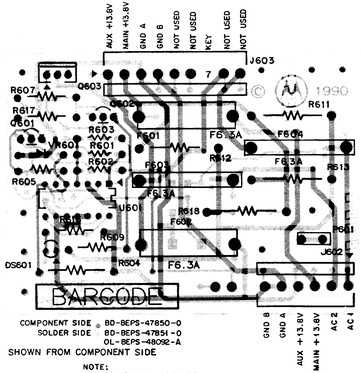
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
J605		**connector, receptacle:** assembly connector, includes:
	15-83502N01	HOUSING, single contact; 2 used
	39-83503N02	CONTACT, battery; 2 used
		mechanical parts
	7-83504N01	BRACKET, male mounting
	7-83505N01	BRACKET, female mounting
	2-10971A18	NUT, machine: M5 x 0.8; 2 used
	3-83497N02	SCREW, machine: M5 x 0.8 x 12 mm; 2 used
	4-7858	WASHER, lock: #10 Internal; 2 used
	42-10217A02	STRAP, tie: .091 x 3.62; 3 used

POWER SUPPLY MODULE
(60 Hz with Battery Charger)
MODEL TPN1185B



NOTES:

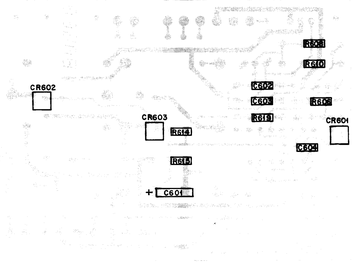
1. Unless specified otherwise, all capacitor values are in microfarads and resistor values in ohms.
2. Waveform is non-sinusoidal. Voltage in recorded rms.
3. Voltages measured with DVM, with 1 meg ohm or greater input impedance.
4. Voltages measured correspond to SW650 = float position/equalize position, 120 V ac line, 2A load current, with output voltage set to 13.2 V in the float position by R662. Voltage measured @ TB601.
5. Used in MSR 2000 stations only.
6. The + and — wires from TB601 connect to TB801 on MSR 2000 stations and directly to the power amplifier on MSF 5000 stations.



COMPONENT SIDE = 80-BEPS-47850-0
SOLDER SIDE = 80-BEPS-47851-0
OL-BEPS-48092-A

SHOWN FROM COMPONENT SIDE

NOTE:
F603 AND F604 NOT USED ON TRN7242A



SHOWN FROM SOLDER SIDE

SOLDER SIDE = 80-BEPS-47851-0 (REV)
OL-BEPS-47853-0

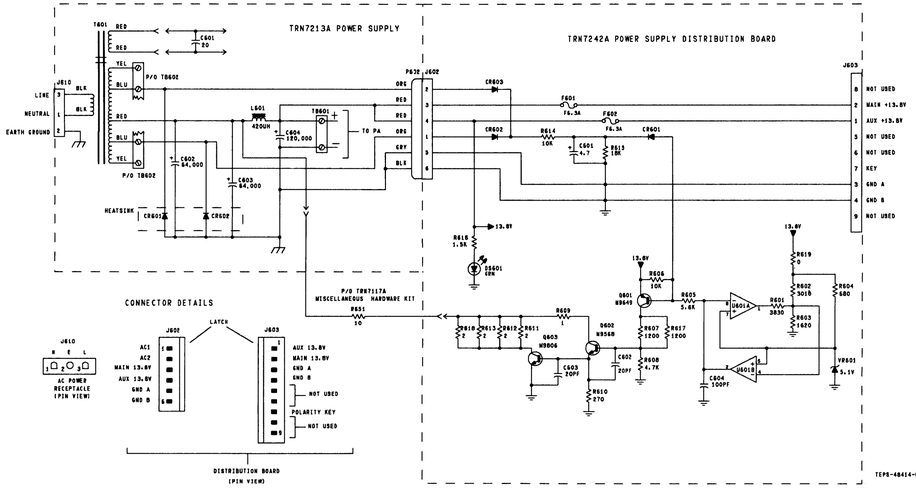
TRN7117A Miscellaneous Hardware			PL-11302-A
REF. SYMBOL	PART NO.	DESCRIPTION	
		resistor, fixed:	
R651	1782177B65	10 ±10%; 50W	
		non-referenced items:	
	0383498N04	SCREW, tapping: M4x0.7x7	
	2982807N07	TERMINAL, ring (red)	
	2983113N03	TERMINAL, right angle (3 used)	
	4382980N03	STANDOFF, printed circuit bd (4 used)	

TRN7242A Power Supply Distribution Board			PL-11762-O
REF. SYMBOL	PART NO.	DESCRIPTION	
		capacitor, fixed:	
C601	2311049A15	4.7uF ±10; 35V	
C602,603	2113740B32	20pF ±5%; 50V	
C604	2113740B49	100pF ±5%; 50V	
		diode: (see note)	
CR601 thru 603	4811058A11	silicon	
DS601	4883636N03	light emitting diode: (see note) green	
F601,602	6552847N27	fuse: 6.3A, 250V	
J602	2882984N08	connector: plug: 8-contact	
J603	2882984N14	plug: 9-contact	
P601	2910231A10	connector: terminal, contact	
		transistor: (see note)	
Q601	4800889543	PNP	
Q602	4800889568	NPN	
Q603	4800869808	NPN	
		resistor, fixed: ±5% unless otherwise stated	
R601	0611040C51	3830 ±.5%; 1/4W	
R602	0611040C41	3010 ±.5%; 1/4W	
R603	0611040C15	1620 ±.5%; 1/4W	
R604	0611086C55	680; 2W	
R605	0611009A67	5600; 1/4W	
R606	0611077A98	10K; 1/8W	
R607	0611086A61	1200; 1W	
R608	0611077A90	4700; 1/8W	
R609	0611086A03	1; 1W	
R610	0611077A60	270; 1/8W	
R611 thru 613	1782036G03	2; 2W	
R614	0611077A98	10K; 1/8W	
R615	0611077B05	18K; 1/8W	
R616	0611086A63	1500; 1W	
R617	0611086A61	1200; 1W	
R618	1782036G03	2; 2W	
R619	0611077A01	jumper; 0 ohm	
		integrated circuit: (see note)	
U601	5184621K74	Comparator	
		voltage regulator: (see note)	
VR601	4883461E40	Zener; 5.1V	
		non-referenced item:	
	0910548A04	FUSE BLOCK (2 used for F601 & F602)	

NOTE: For optimum performance diodes, transistors, and integrated circuits must be ordered by Motorola part number.

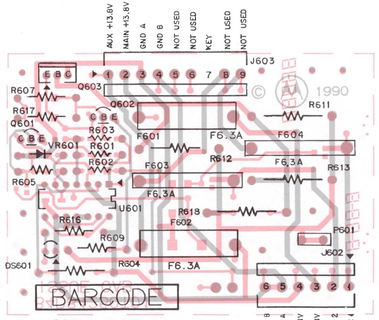
TRN9752A Support Bracket Hardware			6/14/91
REF. SYMBOL	PART NO.	DESCRIPTION	
		non-referenced items:	
	0383498N04	SCREW, tapping: M4x0.7x7 (4 used)	
	0784794P01	BRACKET, support (2 used)	

POWER SUPPLY MODULE
(60 Hz without Battery Charger)
MODEL TPN1186B



NOTES:

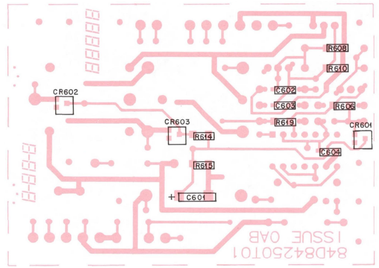
1. UNLESS OTHERWISE INDICATED: RESISTOR VALUES ARE IN OHMS; CAPACITOR VALUES ARE IN MICROFARADS; AND INDUCTOR VALUES ARE MILLIHENRIES.
2. VOLTAGES MEASURED WITH DVM, WITH 1 MEGAOHM OR GREATER INPUT RESISTANCE.
3. CIRCUIT CONDITIONS: LOAD CURRENT = 8A, @ 120V AC (LINE IN).
4. R601 IS MOUNTED ON POWER SUPPLY CHASSIS.



COMPONENT SIDE = 80-BEPS-47850-O
SOLDER SIDE = 80-BEPS-47851-O
OL-BEPS-48092-A

SHOWN FROM COMPONENT SIDE.

NOTE:
F603 AND F604 NOT
USED ON TRN7242A



SHOWN FROM SOLDER SIDE

SOLDER SIDE = 80-BEPS-47851-O (REV)
OL-BEPS-47853-O

TRN7117A Miscellaneous Hardware — PL-11302-A

REF. SYMBOL	PART NO.	DESCRIPTION
		resistor, fixed:
R651	1782177B65	10 ±10%; 50W
		non-referenced items:
	0383498N04	SCREW, tapping: M4x0.7x7
	2982907N07	TERMINAL, ring (red)
	2983113N03	TERMINAL, right angle (3 used)
	4382980N03	STANDOFF, printed circuit bd (4 used)

TRN7242A Power Supply Distribution Board — PL-11762-O

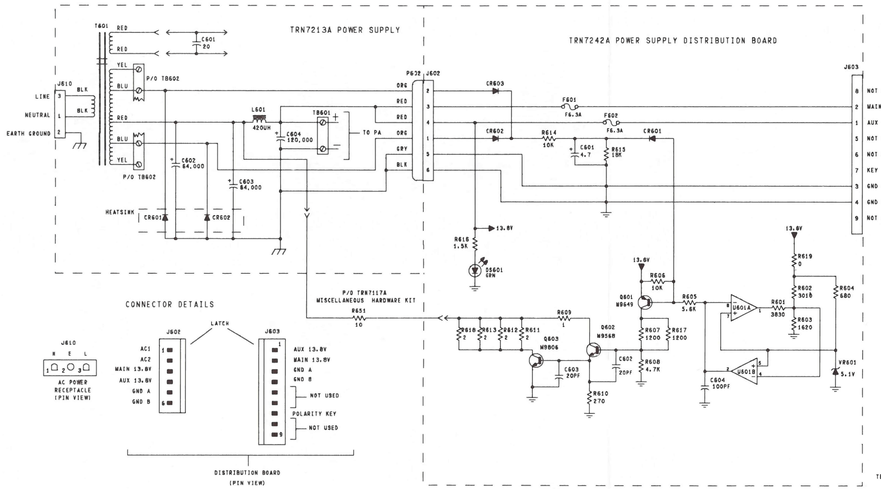
REF. SYMBOL	PART NO.	DESCRIPTION
		capacitor, fixed:
C601	2311049A15	4.7uF ±10; 35V
C602,603	2113740B32	20pF ±5%; 50V
C604	2113740B49	100pF ±5%; 50V
		diode: (see note)
CR601 thru 603	4811058A11	silicon
DS601	4883636N03	light emitting diode: (see note) green
F601,602	6582847N27	fuse: 6.3A, 250V
J602	2882984N06	connector: plug: 6-contact
J603	2882984N14	plug: 9-contact
P601	2910231A10	connector: terminal, contact
		transistor: (see note)
Q601	4800869843	PNP
Q602	4800869568	NPN
Q603	4800869808	NPN
		resistor, fixed: ±5% unless otherwise stated
R601	0611040C51	3830 ±.5%; 1/4W
R602	0611040C41	3010 ±.5%; 1/4W
R603	0611040C15	1620 ±.5%; 1/4W
R604	0611086C55	680; 2W
R605	0611009A87	5600; 1/4W
R606	0611077A98	10K; 1/8W
R607	0611086A61	1200; 1W
R608	0611077A90	4700; 1/8W
R609	0611086A03	1; 1W
R610	0611077A60	270; 1/8W
R611 thru 613	1782036G03	2; 2W
R614	0611077A98	10K; 1/8W
R615	0611077B05	18K; 1/8W
R616	0611086A83	1500; 1W
R617	0611086A61	1200; 1W
R618	1782036G03	2; 2W
R619	0611077A01	jumper; 0 ohm
U601	5184621K74	integrated circuit: (see note) Comparator
VR601	4883461E40	voltage regulator: (see note) Zener; 5.1V
	0910548A04	non-referenced item: FUSE BLOCK (2 used for F601 & F602)

NOTE: For optimum performance diodes, transistors, and integrated circuits must be ordered by Motorola part number.

TRN9752A Support Bracket Hardware — PL-10640-A — 6/14/91

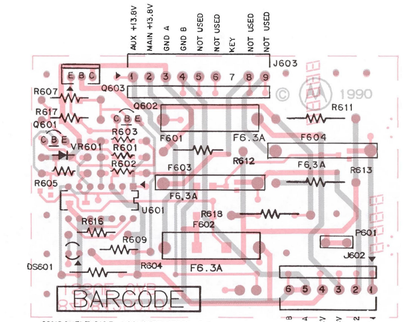
REF. SYMBOL	PART NO.	DESCRIPTION
		non-referenced items:
	0383498N04	SCREW, tapping: M4x0.7x7 (4 used)
	0784794P01	BRACKET, support (2 used)

POWER SUPPLY MODULE
(60 Hz without Battery Charger)
MODEL TPN1186B



NOTES:

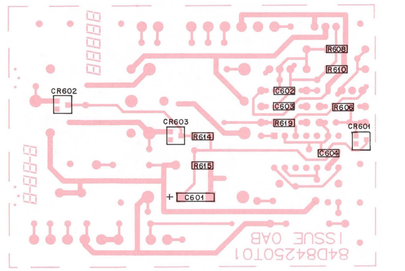
1. UNLESS OTHERWISE INDICATED: RESISTOR VALUES ARE IN OHMS; CAPACITOR VALUES ARE IN MICROFARADS; AND INDUCTOR VALUES ARE MILLIHENRIES.
2. VOLTAGES MEASURED WITH DVM, WITH 1 MEGAOHM OR GREATER INPUT RESISTANCE.
3. CIRCUIT CONDITIONS: LOAD CURRENT = 2A, @ 120V AC (LINE IN).
4. R601 IS MOUNTED ON POWER SUPPLY CHASSIS.



COMPONENT SIDE = BD-BEPS-47850-O
SOLDER SIDE = BD-BEPS-47851-O
OL-BEPS-48092-A

SHOWN FROM COMPONENT SIDE

NOTE:
F603 AND F604 NOT
USED ON TRN7242A



SHOWN FROM SOLDER SIDE

SOLDER SIDE = BD-BEPS-47851-O (REV)
OL-BEPS-47853-O

parts list

TRN7274A Power Supply Hardware Kit: 500W, 50 Hz — PL-11872-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C651	0882682N05	30uF +-6% 330V
C652,653	2382681N03	97,000uF –10 +75% 20V
C654	2382681N02	120,000uF –10 +75% 20V
		diode: (see note)
CR651,652	4882732C09	silicon
		fuse:
F651	6582847N26	5A 250V (220Vac)
F652	6582847N28	10A 250V (110Vac)
		coil:
L651	2582686N02	700 uH
		connector:
P602	0983360N01	receptacle: 6-contact
		switch, rocker:
S651	4084812B05	dpdt
		transformer, power:
T651	2584329T01	500W 50Hz
		terminal block:
TB651	3183579P02	2-contact
TB652	3100811350	4-contact

non-referenced items

	0210971A17	NUT, machine: M4 x 0.7; 4 used
	0210971A19	NUT, machine: M8 x 1; 2 used
	0310908A55	SCREW, machine: M6 x 1 x 25; 4 used
	0310928B30	SCREW, locking: TTS x 0.8 x 10; 2 used
	0383497N01	SCREW, machine: M4 x 0.7 x 23; 4 used
	0383497N02	SCREW, machine: M5 x 0.8 x 12; 6 used
	0383498N04	SCREW, tapping: M4 x 0.7 x 7; 22 used
	0383678N02	SCREW, tapping: M4 x 0.7 x 18
	0400007851	WASHER, #8 internal lock; 8 used
	0400007858	WASHER, #10 internal lock; 8 used
	0400119331	WASHER, #1/4 medium split lock; 2 used
	0400135873	WASHER, 0.281 x 0.75 x .06 flat; 2 used
	0483423R01	WASHER, flat rectangular; 2 used
	0483486N01	WASHER, Insulating lug; 3 used
	0582904N01	GROMMET, M12.7; 4 used
	0983641T01	HOLDER, fuse: w/mounting hardware
	0983641T02	CARRIER, fuse
	1483277N01	INSULATOR, lug; 3 used
	1582650P01	COVER, front switch
	1582660P01	COVER, rear switch
	2783747T03	CHASSIS, power supply
	2982907B05	LUG, ring; 2 used
	2982907B06	LUG, ring
	2982907N05	TERMINAL, yellow ring; 6 used
	2984708N01	TERMINAL, blue crimp insulating
	3000813233	CABLE, battery (red): 17.5" used
	3983145N02	CONTACT, receptacle
	4210217A02	STRAP tie: .091 x 3.82"; 17 used
	4210217A33	STRAP tie: 0.19 x 15"; 4 used
	4282903N01	CLIP 2" cap
	4282903N03	CLIP 3" cap; 3 used
	5483440T05	LABEL, 220 Vac switch
	5483440T12	LABEL, power rating
	5483440T14	LABLE, fuse switch
	5483971N01	LABEL, high voltage
	5484048N01	LABEL, caution-heavy
	7583056P01	PAD, snap-on; 380MM
	7583056P03	PAD, snap-on; 140MM
	1484088N01	INSULATOR, terminal cap; 2 used
	3006315T2	CABLE, battery (black): 23.75" used
	0180752D44	HEAT SINK ASSEMBLY includes:
	0383498N06	SCREW, tapping: M4 x 0.7 x 16; 3 used
	0400007851	WASHER, #8 internal lock
	1484548A01	INSULATOR, washer; 2 used
	2882902N01	HEAT SINK
	2982907B09	LUG, ring; 2 used
	2982907N07	TERMINAL, yellow ring; 2 used
	2983137N01	TERMINAL, insulator; 2 used
	4282828T01	CLAMP, cable
	0180777D41	CONNECTOR CHOKE ASSEMBLY includes:
	2982907B08	LUG, ring; 2 used
	2982907N07	TERMINAL, red ring; 2 used

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN7328A Label Kit — PL-11669-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced item
	5483440T15	LABEL, TRN1268A

TRN7242A Power Supply Distribution Board — PL-11848-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF ±5% 50V: unless otherwise stated
C601	2311048A15	4.7 uF ± 10%, 35 V
C602, 603	2113740B32	20 pF ± 5%, 50 V
C604	2113740B49	100 pF ± 5%, 50 V
		connector:
J601	2910231A10	TERMINAL, circuit board, single contact
J602	2882984N06	male, 6-pin
J603	2882984N14	male, 9-pin
		diode (see note):
CR601 thru 603	4811056B11	silicon
		light emitting diode (see note):
DS901	4883636N03	green
		fuse:
F601, 602	6584711C27	6.3 A, fast blow
F603, 604		NOT USED
		integrated circuit (see note):
U601	5184621K74	Comparator
		resistor, fixed: ± 5%; 1/8 W unless otherwise stated
R601	0811040C51	3830 ±0.5%; 1/4 W
R602	0811040C41	3010 ±0.5%; 1/4 W
R603	0811040C15	1620 ±0.5%; 1/4 W
R604	0811066C55	680, 2 W
R605	0811008A87	5600; 1/4 W
R606	0811077A98	10 k
R607	0811066A81	1200, 2 W
R608	0811077A90	4700
R609	0811066A03	1; 1 W
R610	0811077A80	270
R611 thru 613	1782036G17	1.5; 2 W
R614	0811077A88	10 k
R615	0811077B05	18 k
R616	0811066A83	1.5 k; 1 W
R617	0811066A81	1200, 2 W
R618	1782036G17	1.5; 2 W
R619	0811077A01	0 ohm (jumper)
		transistor (see note):
Q601	4800869643	PNP
Q602	4800869568	NPN
Q603	4800869806	NPN
		zener diode (see note):
VR801	4883461E40	Zener 5.1 V

non-referenced items

	0910548A04	FUSEHOLDER (2 used)

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

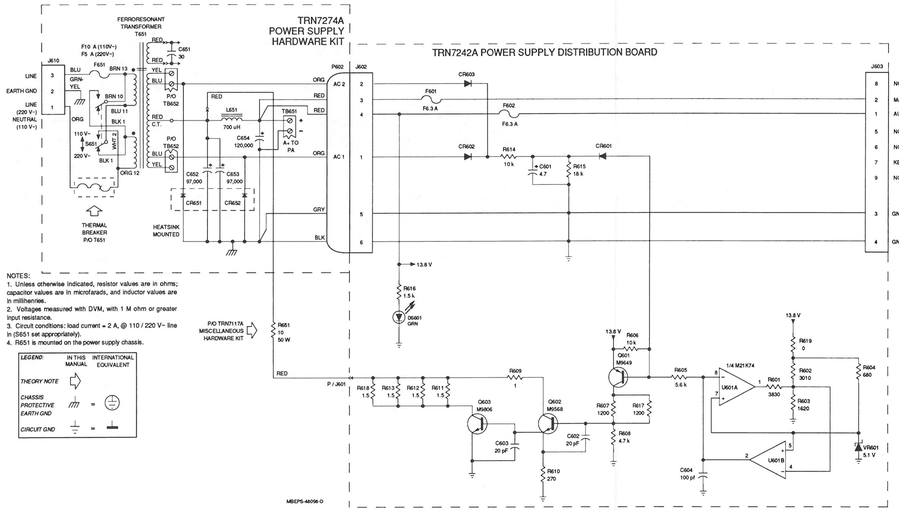
TRN7117A Miscellaneous Hardware Kit — PL-11302-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		resistor, fixed
R651	1782177B65	10 ± 10%; 50 W;

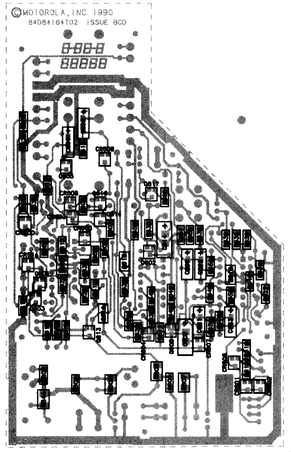
non-referenced items

	0310928B30	SCREW, tapping: M5 x 0.8 x 10 mm; 2 used
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 mm
	0400007833	WASHER, flat: 0.172 x 0.562 x 0.033 "
	2982907N05	TERMINAL, ring: yellow
	2982907N07	TERMINAL, ring: red
	2983113N03	TERMINAL, insulator: red; 3 used
	2983378H06	TERMINAL, wire
	4382980N03	STANDOFF, board support; 4 used

POWER SUPPLY MODULE
(50 Hz without Battery Charger)
MODEL TPN1268A

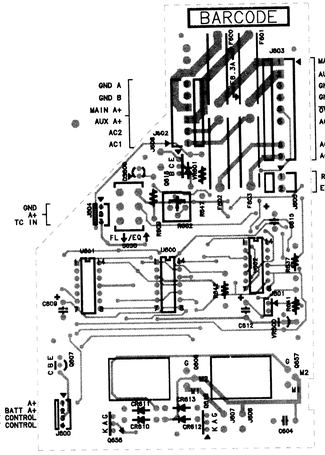


POWER SUPPLY MODULE
(50 Hz with Battery Charger)
MODEL TPN1269A



SHOWN FROM SOLDER SIDE

OL-TEPS-48164-0
8D-TEPS-48161-0



SHOWN FROM COMPONENT SIDE

OL-TEPS-48163-0
8D-TEPS-48159-0

SHOWN FROM SOLDER SIDE

SHOWN FROM COMPONENT SIDE

68P81090E66–A
(Sheet 1 of 2)
10/15/99–UP

parts list

TRN7241A Battery Charger Control Board
TRN7277A Battery Charger Control Board — PL-11673–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF +–10% 35V: unless otherwise stated
C600 thru 603	2311049A01	0.1
C604	0684637L31	.047 250V
C606	2311049A01	0.1
C607	2311049A08	1.0
C608	2311049A01	0.1
C609	2311019A21	10 ±20%
C610	2113741B69	0.1 ±5% 50V
C611	2113741B43	.01 ±5% 50V
C612	2311019A28	22 ±20%
C613	2113741B69	0.1 ±5% 50V
C614	2311049A08	1.0
C615	2311019A45	100 ±20% 16V
		diode: (see note)
CR600 thru 609	4811058A11	silicon
CR610 thru 613	4882469H18	silicon
CR614	4811058A11	silicon
		light emitting diode: (see note)
DS600	4883636N03	green
		fuse:
F600, 601	6562847N27	FUSE, F8.3 A, 250 V, 2 used
		connector:
J600	2883143M05	male: 4-contact
J601	2880006P02	male: 2-contact
J602	2882684N06	male: 6-contact (TRN7241A)
	or 2882684N14	male: 9-contact (TRN7277A)
J603	2882684N14	male: 9-contact
J604	2883143M06	male: 3-contact
J605	2882684N01	male: 2-contact
J606 thru 608	2910231A10	terminal
		transistor: (see note)
Q600	4811058C21	NPN type MJ5C21
Q602 thru 605	4811058C21	NPN type MJ5C21
Q606	4882466F02	thyristor: 15A 800V
Q607	4820885R56	NPN type MJ5585
Q613	4882233F11	PNP type MJ3F11
Q614	4811058C21	NPN type MJ5C21
Q615	4811058C21	NPN type MJ5C21
Q616,617	4811058C21	NPN type MJ5C21
Q618	4820885R39	PNP type MJ5639
Q655	4882604N01	thyristor: 4A 500V
Q657	4882466F02	thyristor: 15A 800V
		resistor, fixed: ±5% 1/8W unless otherwise stated
R600	0611072A59	2.7k 1/4W
R601	0611077A56	180
R602	0611077B09	27k
R603	0611072A59	2.7k 1/4W
R604	0611077A68	560
R605	0611077B23	100k
R606	0611077B09	27k
R607	0611072A59	2.7k 1/4W
R608	0611077A56	180
R609	0611068A59	1k 1W
R610	0611077B09	27k
R611	0611077A74	1k
R612,613	0611077B09	27k
R614	0611077A90	4.7k
R615	0611077H06	150k ±1%
R616	0611077A68	10k
R617	0611077B09	27k
R618	0611077B23	100k
R619	0611077B03	15k
R620	0611077A90	4.7k
R621	0611077B09	27k
R622	0611077B43	680k
R623	0611077H42	357k ±1%
R624	0611077F90	4.7k ±1% (TRN7241A)
	or 0611077F79	7.5k ±1% (TRN7277A)
R625	0611077B17	56k
R626	0611077B09	27k
R627	0611077B27	150k (TRN7241A)
	or 0611077B20	75k (TRN7277A)
R628	0611077F63	5.11k ±1%
R629	0611077E73	604 ±1%
R630	0611077A68	560
R631,632	0611077G11	15.8k ±1%
R633	0611077G14	18.9k ±1%
R634	0611077F91	10k ±1%
R635	0611077F71	6.19k ±1%
R636,637	0611077F91	10k ±1%
R638	0611077E73	604 ±1%
R639,640	0611077F91	10k ±1%
R641	0611040C91	10k ±0.5% 1/4W
R642	0611040B66	1.05k ±0.5% 1/4W
R643	0611077A90	4.7k
R644	0611072A49	1k 1/4W
R645	0611077A52	2.2k
R646	0611077A90	4.7k
R647	0611086A42	200 1W (TRN7241A)
	or 0611086A41	180 1W (TRN7277A)
R648	0611077A64	2.7k
R650	0611072A49	1k 1/4W
R651,652	0611077B27	150k
R653	0611077A90	4.7k
R654,655	0611077F71	6.19k ±1%
R656,657	0611077B18	51k
R658	0611077B09	27 ±5%; 1/8 W
R660	0611077B03	15k
R661	0611077A01	0–ohm jumper (TRN7277A)
R662	1883452F02	var 2K ±10% 1/2W
		switch:
S650	4083204B02	dpdt slide
		integrated circuit: (see note)
U600	5184621K74	comparator
U601	5184621K32	quad operational amplifier
U602	5184621K74	comparator
VR600	5183222M81	**voltage regulator: (see note)** adjustable shunt precision regulator
VR601	4882256C34	Zener: 11V
		non-referenced items
	0810548A04	SOCKET, 2–contact: for F600,601
	2883472R01	HEAT SINK: 2 used for Q606,Q657
	5483885R01	LABEL, white bar code
	5484267T01	LABEL, bar code

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN7275A Battery Charger Hardware Kit; 65 mH
TRN7276A Battery Charger Hardware Kit; 120 mH — PL-11675–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items
	2582419N05	CHOKE, power supply: 65 mH 50 Hz (TRN7275A)
	or 2582419N03	CHOKE, power supply: 120 mH 50 Hz (TRN7276A)
	0210971A17	NUT, machine: M4 x 0.7
	0310928B30	SCREW, locking: TTS x 0.8 x 10
	0383497N03	SCREW, machine: M5 x 0.8 x 25; 4 used
	0383497N06	SCREW, machine: M4 x 0.7 x 10
	0383486N04	SCREW, tapping: M4 x 0.7 x 7; 4 used
	0400007651	WASHER, #8 internal lock: 5 used
	0582904N02	GROMMET, MS.58: 4 used
	0783008P02	BRACKET, battery charger bd (TRN7275A)
	or 0783008P01	BRACKET, battery charger bd (TRN7276A)
	1483869N01	INSULATOR, circuit board
	1583801N01	COVER, battery option board
	2982907N07	TERMINAL, red ring: 2 used
	2983113N02	TERMINAL, red insulating: 2 used
	4210217A02	STRAP, .091 x 3.82 white tie: 4 used
	4382980N01	STANDOFF, white board support: 8 used
	5483971N01	LABEL

note: P/N's 2582419N03, 0783008P02, ans 0582904N02 are part of assembly 0184373T01 (TRN7276A). P/N's 2582419N05, 0783008P02, and 0582904N02 are part of assembly 0184373T02 (TRN7275A).

TRN5155A External Battery Cable Kit — PL-8059–D

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		fuse:
F810	65–82846N01	60 amp; 300 V
		connector, plug:
P805		assembly, connector, includes:
	15–83502N01	HOUSING, single contact: 2 used
	39–83503N02	CONTACT, battery: 2 used
		mechanical parts
	3–82846N01	SCREW, tapping: 8–18 x 1–1/4"; 2 used
	9–82842N01	BLOCK, fuse
	29–8478??	LUG, ring tongue; 2 used
	42–10217A02	STRAP, tie; 3 used
	5484697B01	LABEL

TRN7274A Power Supply Hardware Kit; 500W; 50 Hz — PL-11672–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C651	0882882N05	30uF +–6% 330V
C652,653	2382881N03	97,000uF –10 +75% 20V
C654	2382881N02	120,000uF –10 +75% 20V
CR651,652	4882732C09	**diode: (see note)** silicon
		fuse:
F651	6582847N28	5A 250V (220Vac)
F652	6582847N28	10A 250V (110Vac)
L651	2582686N02	**coil:** 700 uH
P602	0983380N01	**connector:** receptacle: 6–contact
S651	4084612B05	**switch, rocker:** dpdt
T651	2584329T01	**transformer, power:** 500W 50Hz
TB651	3183578K02	**terminal block:** 2–contact
TB652	3100811350	4–contact
		non-referenced items
	0210971A17	NUT, machine: M4 x 0.7; 4 used
	0210971A19	NUT, machine: M6 x 1; 2 used
	0310928A55	SCREW, machine: M5 x 1 x 25; 4 used
	0310928B30	SCREW, locking: TTS x 0.8 x 10; 2 used
	0383497N01	SCREW, machine: M4 x 0.7 x 23; 4 used
	0383497N02	SCREW, machine: M5 x 0.8 x 12; 6 used
	0383486N04	SCREW, tapping: M4 x 0.7 x 7; 22 used
	0383678N02	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, #8 internal lock; 8 used
	0400007858	WASHER, #10 internal lock; 6 used
	0400118031	WASHER, #1/4 medium split lock; 2 used
	0400135873	WASHER, 0.281 x 0.75 x .06 flat; 2 used
	0483423R01	WASHER, flat rectangular; 2 used
	0483498N01	WASHER, insulating lug; 3 used
	0582904N01	GROMMET, MS17.7; 4 used
	0983641T01	HOLDER, fuse: w/mounting hardware
	0983641T02	CARRIER, fuse
	1483277N01	INSULATOR, lug; 3 used
	1582958P01	COVER, front switch
	1582980P01	COVER, rear switch
	2783747T03	CHASSIS, power supply
	2982907B06	LUG, ring; 2 used
	2982907B08	LUG, ring
	2982907N05	TERMINAL, yellow ring; 6 used
	2984708N01	TERMINAL, blue crimp insulating
	3000813233	CABLE, battery (red); 17.5" used
	3983146N02	CONTACT, receptacle
	4210217A02	STRAP tie: .091 x 3.82"; 17 used
	4210217A33	STRAP tie: 0.19 x 15" ; 4 used
	4282903N01	CLIP 2" cap
	4282903N03	CLIP 3" cap; 3 used
	5483440T06	LABEL, 220 Vac switch
	5483440T12	LABEL, power rating
	5483440T14	LABLE, fuse switch
	5483971N01	LABEL, high voltage
	5484049N01	LABEL, caution–heavy
	7583056P02	PAD, snap–on; 380MM
	7583059P03	PAD, snap–on, 140MM
	1484268N01	INSULATOR, terminal cap; 2 used
	3000313572	CABLE, battery (black); 23.75" used
	0180752D44	HEAT SINK ASSEMBLY Includes:
	0383498N06	SCREW, tapping: M4 x 0.7 x 16; 3 used
	0400007651	WASHER, #8 internal lock
	1484548A01	INSULATOR, washer; 2 used
	2882902N01	HEAT SINK
	2982907B06	LUG, ring; 2 used
	2982907N05	TERMINAL, yellow ring; 2 used
	2983137N01	TERMINAL, insulator; 2 used
	4282928T01	CLAMP, cable
	0180777D41	CONNECTOR CHOKE ASSEMBLY Includes:
	2982907B08	LUG, ring; 2 used
	2982907N07	TERMINAL, red ring; 2 used

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TKN8295A Internal Battery Cable Kit
TKN8845A Internal Battery Cable Kit (DC Only) — PL-8017–E

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		connector, receptacle: assembly connector, Includes:
	1583502N01	HOUSING, single contact: 2 used
	3983503N02	CONTACT, battery: 2 used
		non-referenced items
	0783504N01	BRACKET, male mounting
	0783505N01	BRACKET, female mounting
	0210971A18	NUT, machine: M5 x 0.8; 2 used
	0383497N02	SCREW, machine: M5 x 0.8 x 12 mm; 2 used
	4–7658	WASHER, lock: #10 internal; 2 used
	4210217A02	STRAP tie: .091 x 3.82"; 3 used

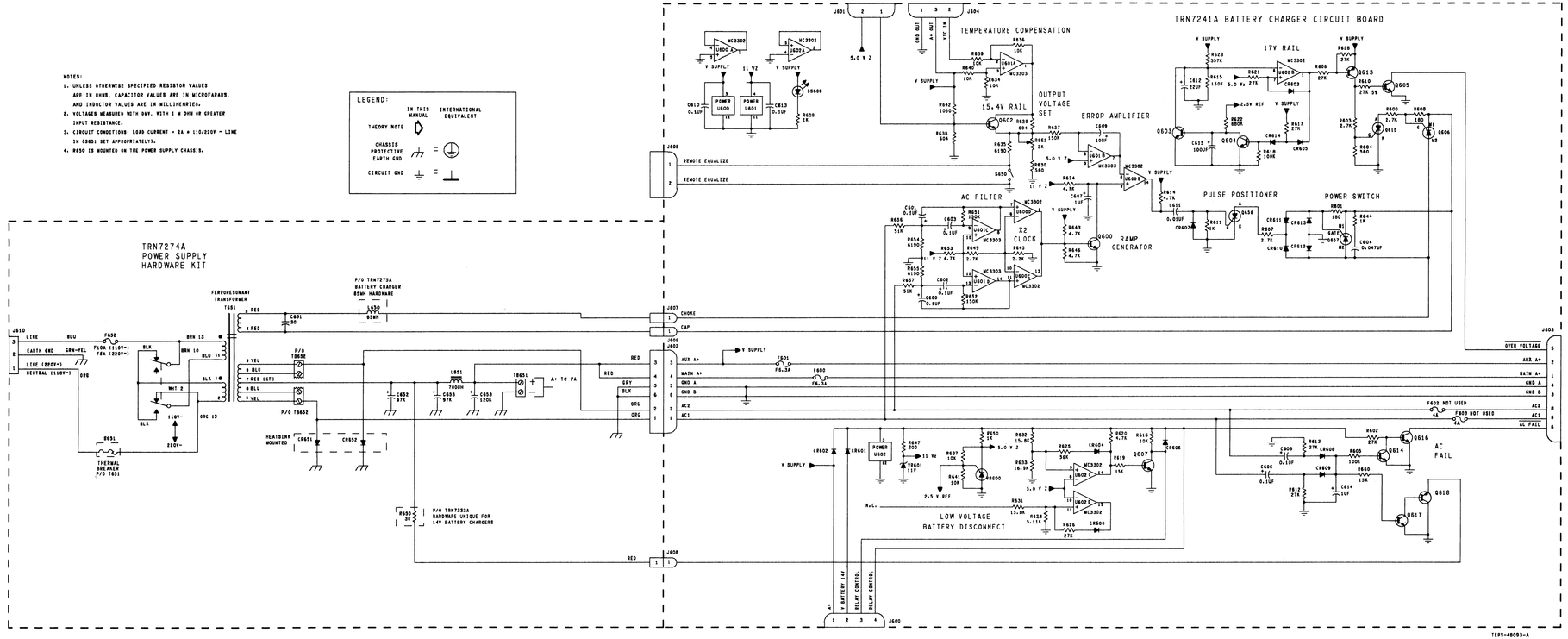
TRN7333A Unique Hardware for 14 V Battery Chargere — PL-11677–O

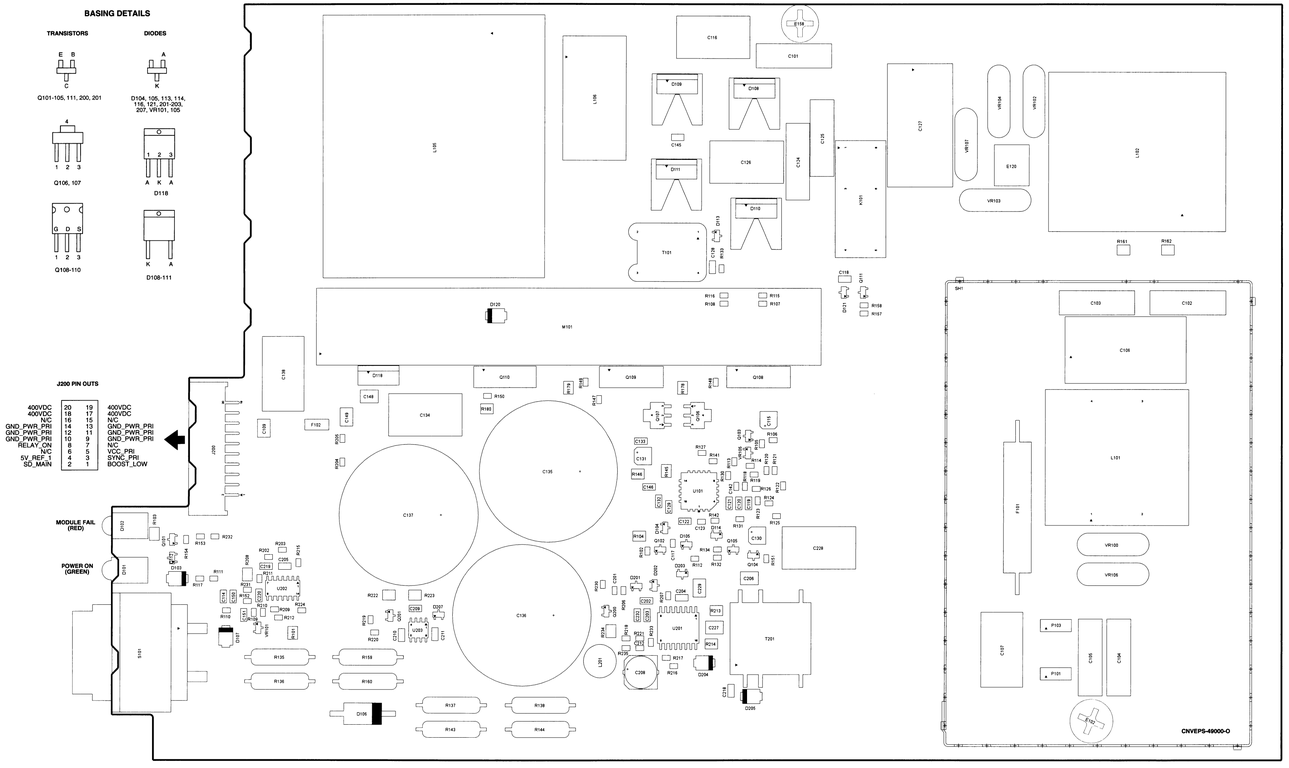
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items
R650	1783389G02	RESISTOR, 30 +–5% 20W
	0383678N02	SCREW, tapping: M4 x 0.7 x 18; 2 used
	2900859I18	LUG, crimp; 2 used
	2982907N07	TERMINAL, red ring
	2983113N03	TERMINAL, red insulating

TRN7329A Label Kit — PL-11870–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced item
	5483440T18	LABEL, TPN1269A

POWER SUPPLY MODULE
(50 Hz with Battery Charger)
MODEL TPN1269A





AC-to-DC CONVERTER BOARD
MODEL CPN6065D

parts list

CPN6065D AC-to-DC Converter Board **PL-13168-A**

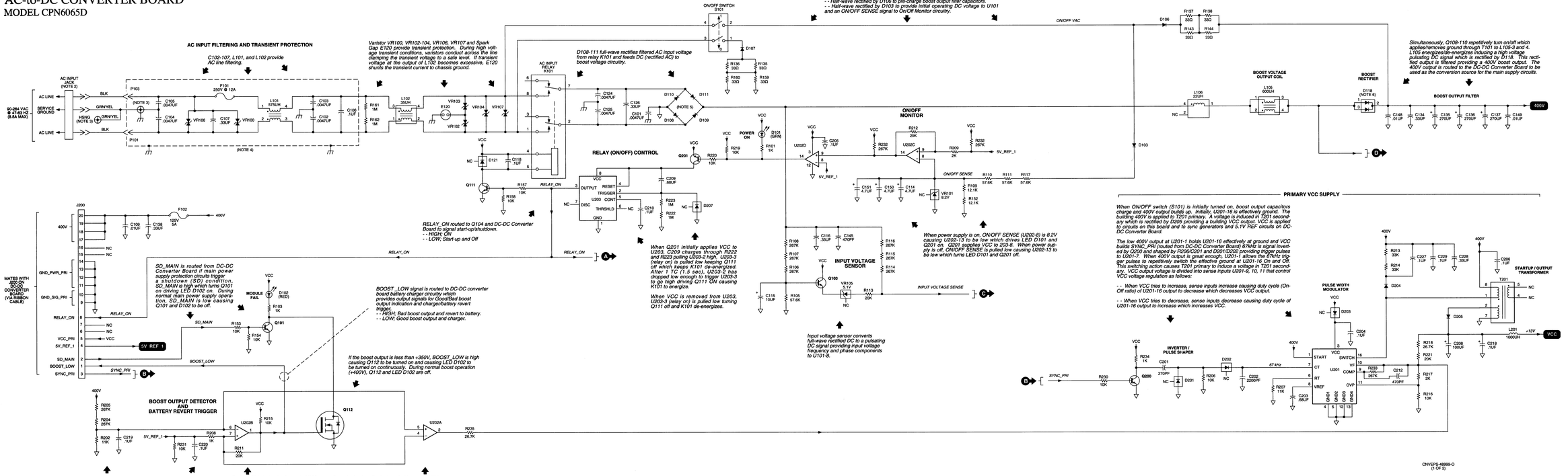
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C101 thru 105	0884189T13	CAP FILM .0047UF 250VACX2
C106	0884189T07	CAP FILM 1.0UF 250VAC X2
C107	0884189T02	CAP FILM X CLASS
C109	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C114	2113743G26	CAP CHIP 4.7 UF 16V +80-20%
C115	2380060M06	10 uF, +/-20%, 16V
C116	0884189T02	CAP FILM X CLASS
C117	2113740A65	270 pF, +/-5%, 50V
C118	2113741B69	0.1 uF, +/-5%, 50 V
C119,120	2113743B27	0.680 uF, +/-10%
C121,122	2113740B60	2200 pF, +/-5%, 50V
C123	2113740A65	270 pF, +/-5%, 50V
C124,125	0884189T13	CAP FILM .0047UF 250VACX2
C126	0884189T02	CAP FILM X CLASS
C127	0884189T07	CAP FILM 1.0UF 250VAC X2
C128	2113740B60	2200 pF, +/-5%, 50V
C129	2113741B69	0.1 uF, +/-5%, 50 V
C130,131	2380060M06	10 uF, +/-20%, 16V
C132	2113741B69	0.1 uF, +/-5%, 50 V
C133	2113743B27	0.680 uF, +/-10%
C134	0884189T02	CAP FILM X CLASS
C135 thru 137	2382129V04	CAP ALU 270 20 450
C138	0884189T02	CAP FILM X CLASS
C142	2113740A65	270 pF, +/-5%, 50V
C145	2113918A05	470 pF, +/-20%, 1000 V
C146	2113741B69	0.1 uF, +/-5%, 50 V
C148,149	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C150,151	2113743G26	CAP CHIP 4.7 UF 16V +80-20%
C201	2113740A65	270 pF, +/-5%, 50V
C202	2113740B60	2200 pF, +/-5%, 50V
C203	2113743B27	0.680 uF, +/-10%
C204,205	2113741B69	0.1 uF, +/-5%, 50 V
C206	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C208	2380090M25	100 uF, 25 V
C209	2113743B27	0.680 uF, +/-10%
C210,211	2113741B69	0.1 uF, +/-5%, 50 V
C212	2113740A71	470 pF, +/-5%, 50 V
C218 thru 220	2113741B69	0.1 uF, +/-5%, 50 V
C227	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C228	0884189T02	CAP FILM X CLASS
C229	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
		light emitting diode (see note):
D101	4882452C22	GRN
D102	4882452C24	RED
		diode (see note):
D103	4813833B06	1A; 600 V
D104,105	4813833C10	0.1A, 70 V
D106	4813833D21	DIODE GEN PURP 3A 1000V
D107	4813833B06	1A; 600 V
D108 thru 111	4813833E11	ultrafast 8A, 600V
D113,114	4813833C10	0.1A, 70 V
D120	4813833B06	1A; 600 V
D121	4813833C10	0.1A, 70 V
D201 thru 203	4813833C10	0.1A, 70 V
D204,205	4813833B06	1A; 600 V
D207	4813833C10	0.1A, 70 V
		spark gap:
E120	8083029H10	SPARK GAP
		fuse:
F101	6583567X02	FUSE PIGTAIL 12A 250V SLO BLOW
F102	6582045X16	FUSE 5A FAST ACT
		connector:
J200	2883290P17	PLUG HDR RT ANG 20 CONTACTS
		relay:
K101	8082042Y01	REL PWR 10A 12 VDC DPDT
		inductor:
L101	2483265X02	INDUCTOR COMMON MODES75UH 13A
L102	2482040Y01	COIL CHK 35UH 10A
L105	2482210Y01	INDUCTOR PWR 600UH
L106	2484172T06	CHK TORID 14V FLTR
L201	2482212Y02	INDUCTOR FIXED 1.000UH 0.3A
		heat sink:
M101	0180706F71	PFC HS WITH FETS AND DIODE
		connector:
P101	2983816X02	TAB, PC BOARD, LOOSE
P103	2983816X02	TAB, PC BOARD, LOOSE

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		transistor: (see note)
Q101 thru 105	4813824A11	NPN
Q106	4813824B08	TSTR PNP HI CURRENT 60V 2A
Q107	4813824B07	TSTR NPN HI CURRENT 60V 2A
Q111	4813824A11	NPN
Q112	2N7002LT1	FET
Q200	4813824A11	NPN
Q201	4813824A21	PNP
		resistor, fixed:
R101	0611072A49	1K, +/-5%, 1/4 W
R102	0611079B11	33K, +/-5%, 1/10 W
R103,104	0611072A49	1K, +/-5%, 1/4 W
R105	0611079G74	RES CHIP 57.6K 1/10W 1% 0805
R106 thru 108	0611079E47	RES CHIP 267.0K 1/10W 1%
R109	0611079G09	12.1K, 1/10 W; +/-1%
R110,111	0611079G74	RES CHIP 57.6K 1/10W 1% 0805
R112	0611079G01	10k, +/-1%; 1/10 W
R113	0611079G30	20.0K, +/-1%; 1/10 W
R114 thru 116	0611079E42	RES CHIP 267.0K 1/10W 1%
R117	0611079G74	RES CHIP 57.6K 1/10W 1% 0805
R118	0611079G01	10k, +/-1%; 1/10 W
R119	0611079G74	RES CHIP 57.6K 1/10W 1% 0805
R120 thru 125	0611079E42	RES CHIP 267.0K 1/10W 1%
R126	0611079G01	10k, +/-1%; 1/10 W
R127	0611079G05	Resistor chip 11.0K 1/10 W 1%
R130	0611079G74	RES CHIP 57.6K 1/10W 1% 0805
R131	0611079G30	20.0K, +/-1%; 1/10 W
R132	0611079G01	10k, +/-1%; 1/10 W
R133	0611079A44	56 ohms, +/-5%; 1/10 W
R134	0611079G74	RES CHIP 57.6K 1/10W 1% 0805
R135 thru 138	0611086C23	33 ohms, +/-5%; 2W
R141	0611079G30	20.0K, +/-1%; 1/10 W
R142	0611079G49	31.6K, 1/10W; +/-1%
R143,144	0611086C23	33 ohms, +/-5%; 2W
R145,146	0611072A01	10 ohms, +/-5%; 1/4 W
R147	0611079G01	10k, +/-1%; 1/10 W
R148 thru 150	0611079A01	0 ohms, +/-5%; 1/10 W
R151	0611079G01	10k, +/-1%; 1/10 W
R152	0611079G18	15K, +/-1%; 1/10 W
R153,154	0611079G01	10k, +/-1%; 1/10 W
R157,158	0611079G01	10k, +/-1%; 1/10 W
R159,160	0611086C23	33 ohms, +/-5%; 2W
R161,162	0611072B22	RES CHIP 1 MEG 5 1/4
R178 thru 180	0611072A13	33 ohms, +/-5%; 1/4 W
R202	0611079G05	Resistor chip 11.0K 1/10 W 1%
R203 thru 205	0611079E42	RES CHIP 267.0K 1/10W 1%
R206	0611079G01	10k, +/-1%; 1/10 W
R207	0611079G05	Resistor chip 11.0K 1/10 W 1%
R208	0611072A49	1K, +/-5%; 1/4 W
R209,210	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R211,212	0611079G30	20.0K, +/-1%; 1/10 W
R213,214	0611072A85	RES CHIP 33K 5 1/4W
R215,216	0611079G01	10k, +/-1%; 1/10 W
R217	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R218	0611079G42	RES CHIP 26.7K 1/10W 1% 0805
R219,220	0611079G01	10k, +/-1%; 1/10 W
R221	0611079G30	20.0K, +/-1%; 1/10 W
R222,223	0611072B22	RES CHIP 1 MEG 5 1/4
R224	0611079B11	33K, +/-5%; 1/10 W
R230,231	0611079G01	10k, +/-1%; 1/10 W
R232,233	0611079E42	RES CHIP 267.0K 1/10W 1%
R234	0611072A49	1K, +/-5%; 1/4 W
R235	0611079G42	RES CHIP 26.7K 1/10W 1% 0805
		switch:
S101	4083980R14	SW RKR DPST 16A 250VAC PCMT
		transformer:
T101	2584168T01	current sensing
T201	2584265T02	SFMR FLYBACK PWR
		integrated circuit: (see note)
U101	5182135Y01	IC PWR FLTR CNTRLR ML4812
U201	5113815A36	IC HIGH VOLT SWITCH REG.
U202	5113820A03	Quad Single/Dual Supply
U203	5113815A17	IC 555 TIMER ,1455,
		voltage regulator: (see note)
VR100	0684357M08	VSTR 680V 100A UL/CSA
VR101	4813830A20	8.2V +/-5%; 20 mA 350 mW
VR102,103	0684357M08	VSTR 680V 100A UL/CSA
VR105	4813830A14	Zener, 5.1 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
VR107	0684357M08	VSTR 680V 100A UL/CSA
		non-referenced items:
	1584753T07	HSNG CORRAL EXTRA LARGE
	2683678T03	HT SINK TO220 5PKG (used with D108)
	2683678T03	HT SINK TO220 5PKG (used with D109)
	2683678T03	HT SINK TO220 5PKG (used with D110)
	2683678T03	HT SINK TO220 5PKG (used with D111)
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	8482653Y04	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

AC-to-DC CONVERTER BOARD
MODEL CPN6065D



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(Sheet 2 of 3)
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When on/off switch (S101) is initially turned on, RELAY_ON is low and U101 is disabled, and VCC builds up. SYNC_PRI (routed from DC-DC Converter Board) 67kHz signal is inverted by Q102 and shaped by R112,C117 and D104,D105 providing trigger pulses to U101-20. About 1.5 seconds after S101 on, RELAY_ON goes high. About 0.5 seconds later, U101 is enabled and U101-15 is repetitively triggered high and low at the 67kHz rate. The duty cycle (high-low ratio) of U101-15 is decreased or increased to adjust boost output 400V for output voltage regulation, current limiting, and input voltage prescaling and power factor correction.

OUTPUT VOLTAGE REGULATION

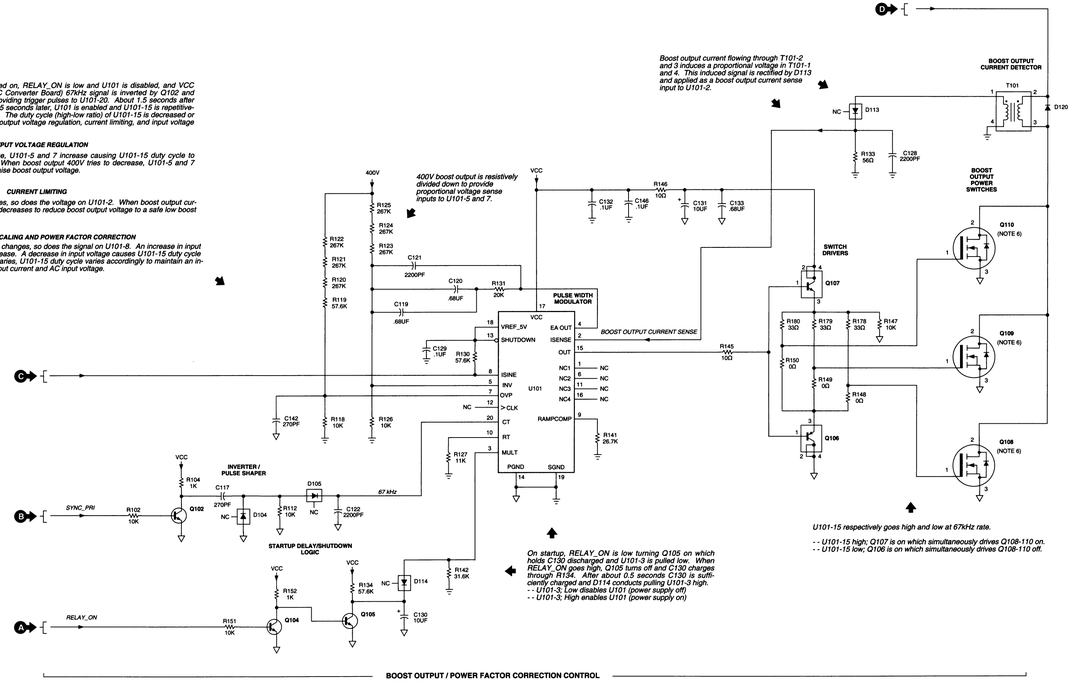
When boost output 400V tries to increase, U101-5 and 7 increase causing U101-15 duty cycle to decrease to lower boost output voltage. When boost output 400V tries to decrease, U101-5 and 7 decrease causing U101-15 duty cycle to raise boost output voltage.

CURRENT LIMITING

As boost output current increases/decreases, so does the voltage on U101-2. When boost output current exceeds the limit, U101-15 duty cycle decreases to reduce boost output voltage to a safe low boost output level.

INPUT VOLTAGE PRESCALING AND POWER FACTOR CORRECTION

As the AC line input voltage and frequency changes, so does the signal on U101-8. An increase in input voltage causes U101-15 duty cycle to decrease. A decrease in input voltage causes U101-15 duty cycle to increase. If frequency of input voltage varies, U101-15 duty cycle varies accordingly to maintain an in-phase relationship between average AC input current and AC input voltage.



Notes:

1) Unless otherwise indicated, all resistor values are in ohms.

2) AC input jack is mounted on Power Supply Module housing and connects to the printed circuit board (PCB) via wires and spade/lug connectors.

3) AC line service ground connects to Power Supply Module housing and PCB chassis ground. A ring lug on one end of the GRN/YEL wire connects to the housing via a screw. A ring lug on the other end of the GRN/YEL wire connects to PCB chassis ground and the housing via a PCB mounting screw.

4) Dashed box represents chassis grounded metal box mounted on the PCB. This metal box encloses the AC input circuitry to shield the AC line from EMI generated by the Power Supply Module.

5) Each rectifier diode (D108, D109, D110, and D111) has a heatsink. The heatsink is securely fastened to the body of the diode. The diode is constructed so that the heatsink mounting is insulated from the diode leads. The diode leads and a PCB mounting lead on the heatsink are soldered to the PCB. The heatsink lead is for mounting only and does not connect to any circuits.

6) The body of diode D118, translators Q108, Q109, and Q110 are fastened to heatsink M101. M101 has PCB mounting leads that are soldered to circuit ground of the PCB. There is an insulator between the heatsink and the device body. The devices are constructed so that the heatsink mounting screw is insulated from the device leads.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

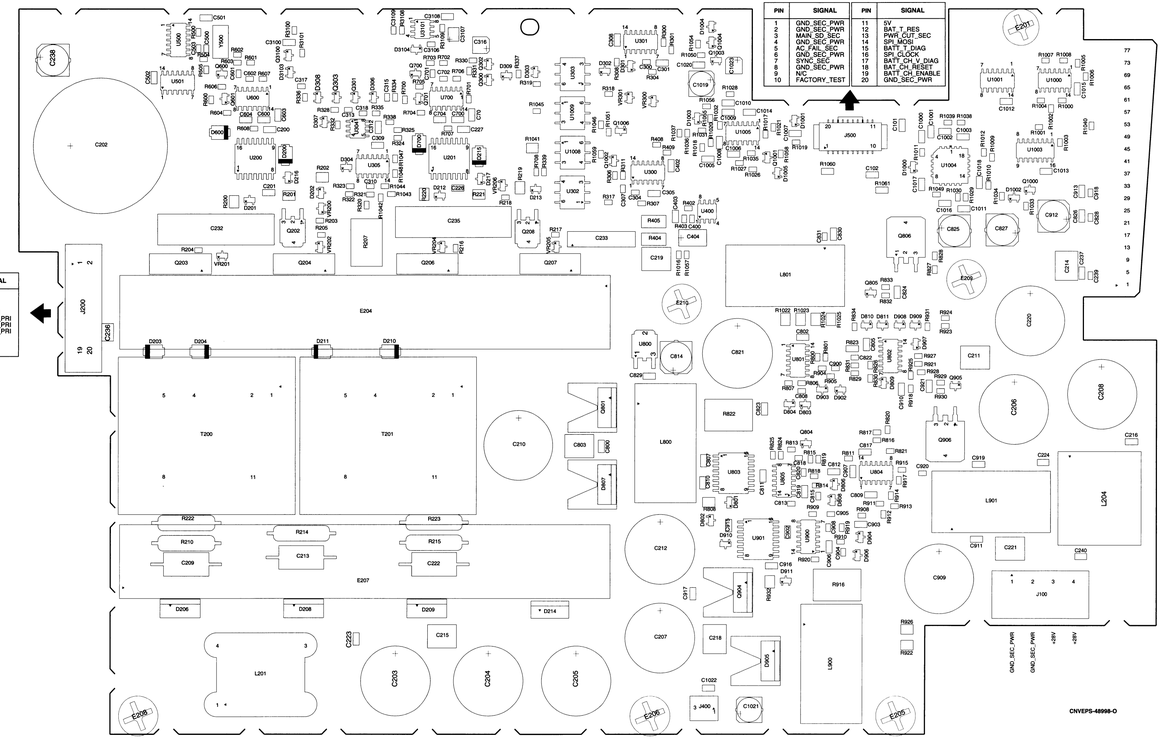
REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U101	ML4812	Power Filter Controller	17	14, 19
U201	MC33363	High Voltage Switch Regulator	3	4, 5, 12, 13
U202	LM2901	Quad Single-Supply Comparator	3	12
U203	MIC1455B	Timing Circuit (555)	8	1

LEGEND:

- Chassis Ground
- DC Ground
- Signal Ground
- Mounting Screw

CNVEPS-48999-O
(2 OF 2)

DC-to-DC CONVERTER BOARD
MODEL CPN6067D



J200 PIN OUTS

PIN	SIGNAL	PIN	SIGNAL
1	BOOST_LOW	2	SD_MAIN
3	SYNC_PRI	4	5V_REF_1
5	VCC_PRI	6	NO_CNCT
7	NO_CNCT	8	RELAY_ON
9	GND_PWR_PRI	10	GND_PWR_PRI
11	GND_PWR_PRI	12	GND_PWR_PRI
13	GND_PWR_PRI	14	GND_PWR_PRI
15	NO_CNCT	16	NO_CNCT
17	400 VDC	18	400 VDC
19	400 VDC	20	400 VDC

J500 PIN OUTS

PIN	SIGNAL	PIN	SIGNAL
1	GND_SEC_PWR	11	5V
2	GND_SEC_PWR	12	BAT_T_RES
3	MAIN_SD_SEC	13	PWR_OUT_SEC
4	GND_SEC_PWR	14	SPI_MOSI
5	AC_FAIL_SEC	15	BATT_T_DIAG
6	GND_SEC_PWR	16	SPI_CLOCK
7	SYNC_SEC	17	BAT_CH_V_DIAG
8	GND_SEC_PWR	18	BAT_CH_RESET
9	N/C	19	BATT_CH_ENABLE
10	FACTORY_TEST	20	GND_SEC_PWR

BASING DETAILS

TRANSISTORS

Q300, Q302, Q601, Q701, Q804

Q301, Q303, Q600, Q700, Q805, Q905
Q1000-Q1004, Q1006, Q3100

Q801, Q904

Q202, Q208, Q806, Q906

Q203, Q204, Q206, Q207

DIODES

D201, D202, D212, D213, D216, D301, D310-304, D600-604, D901-904, D906, D909-911, D1000-1005, D3103, D3104, VR200-202, VR204-206, VR300, VR301

D206, D208, D209

D214, D607, D905

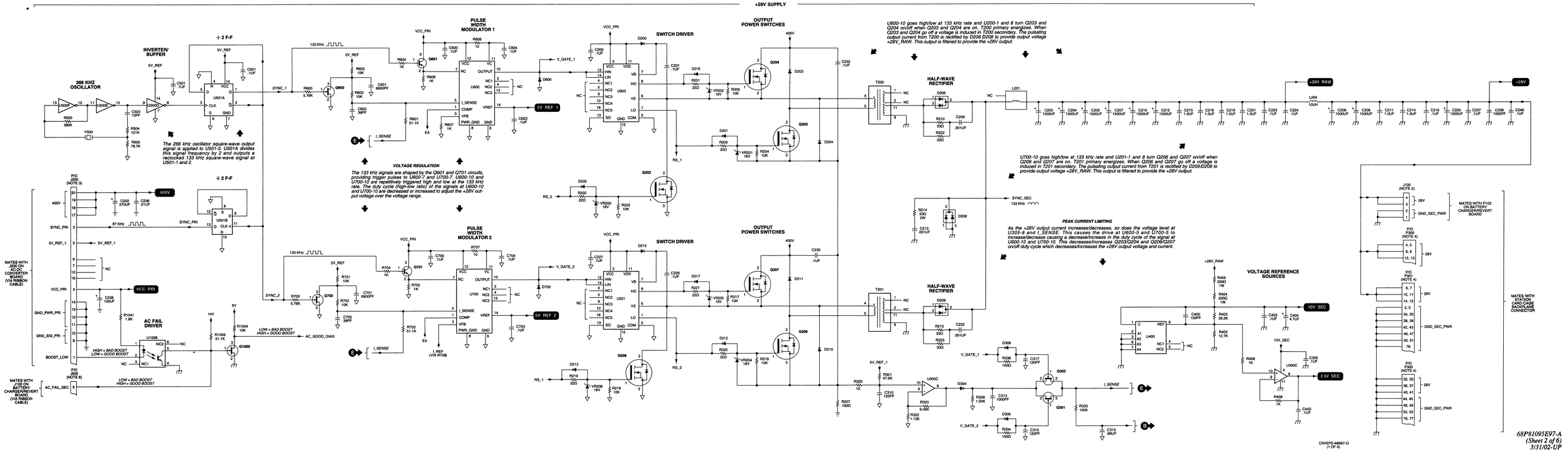
Notes:

The circuit board edge connector has printed circuit contacts on both sides of the board edge. The component side contacts are referenced as P301. The contacts on the back of the back of the board are referenced as P300.

See the following table for edge connector pin numbering / signal name cross-reference, as well as numbering sequence.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P301-2	GND_SEC_PWR	P300-1	A1
P301-4	GND_SEC_PWR	P300-3	+28V
P301-6	+28V	P300-5	+28V
P301-7	+28V	P300-8	+28V
P301-10	+28V	P300-9	+28V
P301-11	+28V	P300-12	+28V
P301-14	+28V	P300-13	+28V
P301-15	+28V	P300-16	14V
P301-18	14V	P300-17	14V
P301-19	14V	P300-20	14V
P301-22	14V	P300-21	14V
P301-23	14V	P300-24	5V
P301-25	5V	P300-25	5V
P301-27	5V	P300-28	5V
P301-30	5V	P300-29	5V
P301-31	5V	P300-32	GND_SEC_PWR
P301-34	GND_SEC_PWR	P300-33	GND_SEC_PWR
P301-35	GND_SEC_PWR	P300-36	GND_SEC_PWR
P301-38	GND_SEC_PWR	P300-37	GND_SEC_PWR
P301-39	GND_SEC_PWR	P300-40	GND_SEC_PWR
P301-42	GND_SEC_PWR	P300-41	GND_SEC_PWR
P301-43	GND_SEC_PWR	P300-44	GND_SEC_PWR
P301-46	GND_SEC_PWR	P300-45	GND_SEC_PWR
P301-47	GND_SEC_PWR	P300-48	GND_SEC_PWR
P301-50	GND_SEC_PWR	P300-49	GND_SEC_PWR
P301-51	GND_SEC_PWR	P300-52	GND_SEC_PWR
P301-54	FAN_CONTROL	P300-53	GND_SEC_PWR
P301-55	FACTORY_TEST	P300-56	NC (OPEN)
P301-58	NC (OPEN)	P300-57	SHUTDOWN
P301-59	BAT_T_RES	P300-60	SPI_MISO
P301-62	SPI_CLOCK	P300-61	SPI_MOSI
P301-63	BAT_CH_RESET	P300-64	NC (OPEN)
P301-66	NC (OPEN)	P300-65	NC (OPEN)
P301-67	A0	P300-68	A1
P301-70	P4	P300-69	A5
P301-71	A4	P300-72	P3
P301-74	P2	P300-73	A3
P301-75	A2	P300-76	GND_SEC_PWR
P301-78	GND_SEC_PWR	P300-77	GND_SEC_PWR

DC-to-DC CONVERTER BOARD
MODEL CPN6067D



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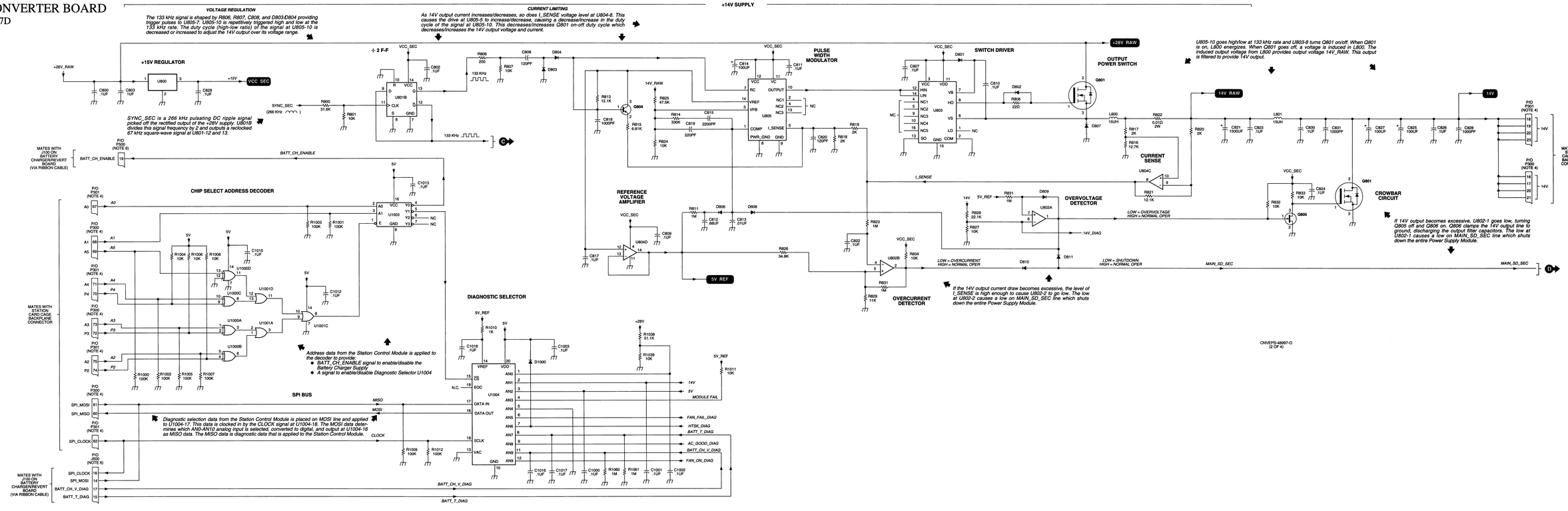
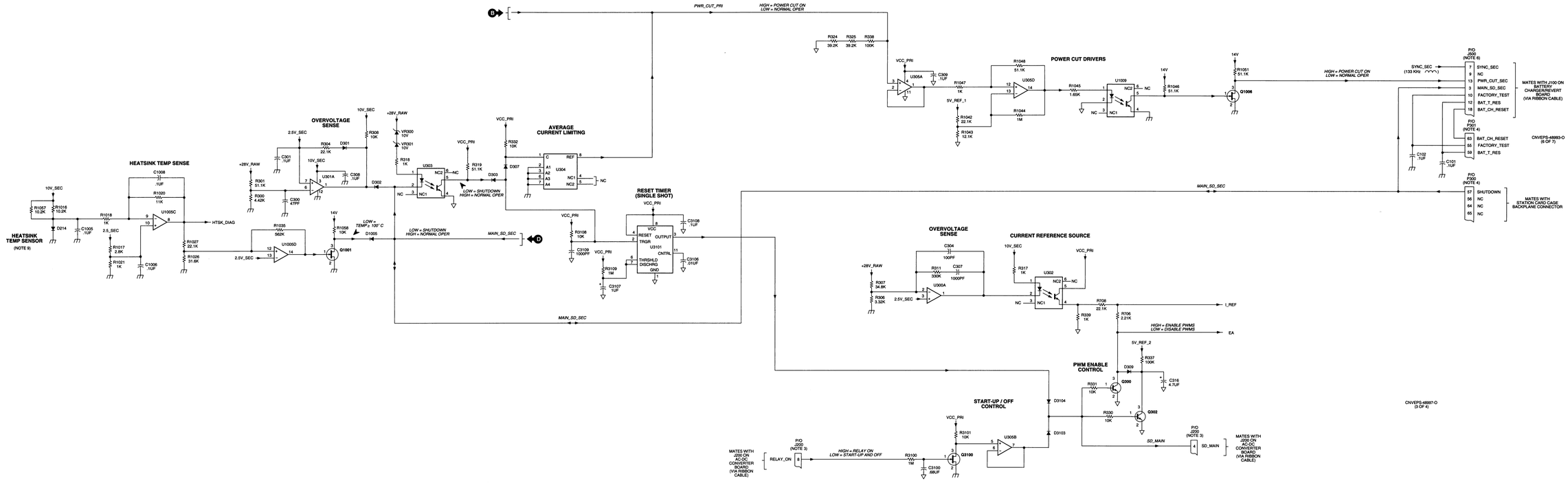
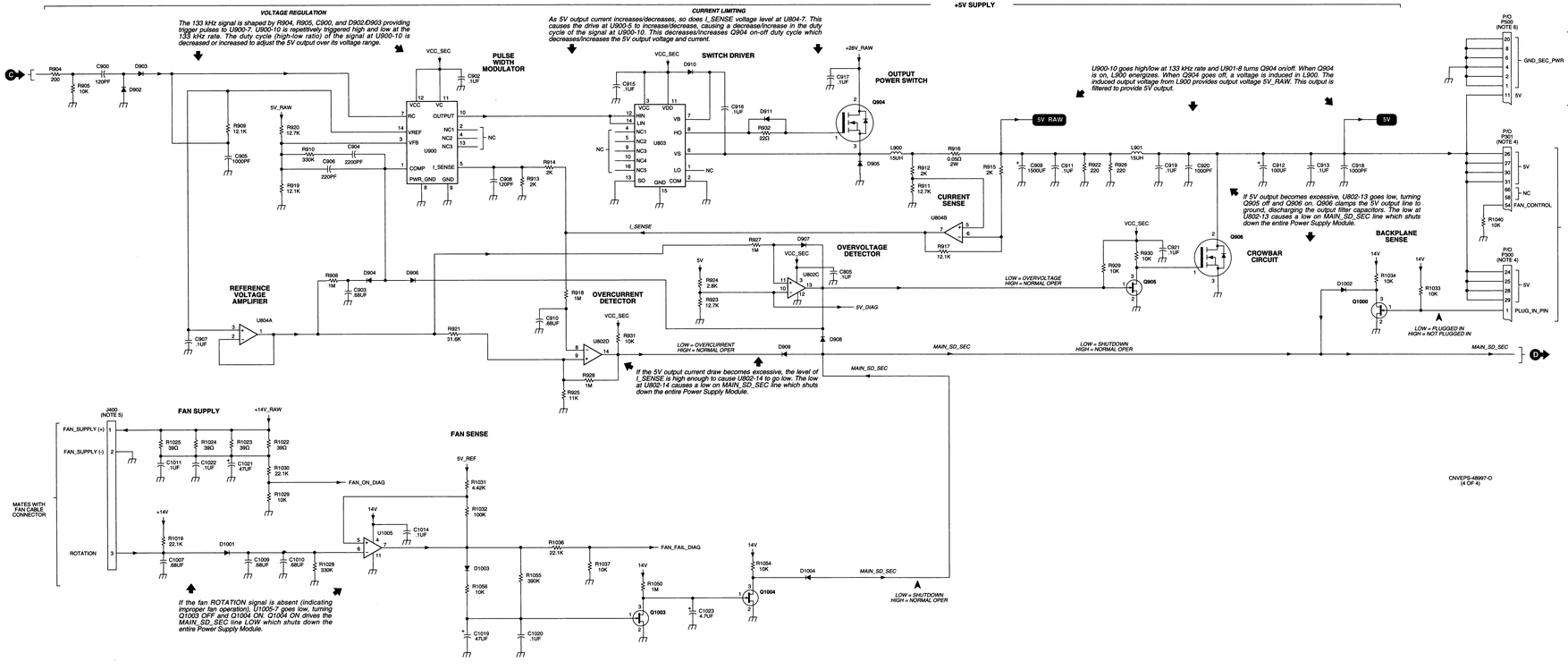
DC-to-DC CONVERTER BOARD
MODEL CPN6067D




HEATSINK TEMP SENSE
HEATSINK TEMP SENSOR
(NOTE 9)
HTSK_DIAG
OVERVOLTAGE SENSE
AVERAGE CURRENT LIMITING
RESET TIMER (SINGLE SHOT)
LOW = SHUTDOWN
HIGH = NORMAL OPER
LOW = TEMP ≥ 100° C
PWR_CUT_PRI
HIGH = POWER CUT ON
LOW = NORMAL OPER
POWER CUT DRIVERS
MAIN_SD_SEC
CURRENT REFERENCE SOURCE
I_REF
PWM ENABLE CONTROL
HIGH = ENABLE PWMS
LOW = DISABLE PWMS
EA
START-UP / OFF CONTROL
HIGH = RELAY ON
LOW = START-UP AND OFF
SD_MAIN
MATES WITH J200 ON AC-DC CONVERTER BOARD (VIA RIBBON CABLE)
MATES WITH J100 ON BATTERY CHARGER/REVERT BOARD (VIA RIBBON CABLE)
MATES WITH STATION CARD CAGE BACKPLANE CONNECTOR
CNVEPS-48993-O (6 OF 7)
CNVEPS-48997-O (3 OF 4)

DC-to-DC CONVERTER BOARD
MODEL CPN6067D



Notes:

1) Unless otherwise indicated, all resistor values are in ohms.

2) Connector J100 is a 4-pin male receptacle that accepts a 4-conductor cable. This connector is cabled to the PCN6074 Battery Charger/Revert Board.

3) Connector J200 is a 20-pin male receptacle that accepts a 20-conductor ribbon cable. This connector is cabled to the CPN6065 AC-DC Converter Board.

4) The circuit board edge connector has printed circuit plated contacts on both sides of the board edge. The component side contacts are referenced as J301. The contacts on the back of the board are referenced as J300. The edge connector mates with the station card cage backplane.

5) Connector J400 is a 3-pin male receptacle that accepts a 3-conductor fan cable. This connector is cabled to the cooling fan mounted on the Power Supply Module housing.

6) Connector J500 is a 20-pin male receptacle that accepts a 20-conductor ribbon cable. This connector is cabled to the CPN6074 Battery Charger/Revert Board.

7) Diodes D807, D905, and transistors Q801 and Q904 each have a separate heatsink. The heatsink is securely fastened to the body of the device. The devices are constructed so that the heatsink mounting is insulated from the device leads. The device leads and a PCB mounting lead on the heatsink are soldered to the PCB. The heatsink lead is for mounting only and does not connect to any circuits.

8) The body of transistors Q203, Q204, Q206, and Q207 are fastened to the heatsink E204. The body of rectifier diodes D206, D208, D209, and temperature sensor diode D214 are fastened to heatsink E207. E204 and E207 have PCB mounting leads that are soldered to circuit ground of the PCB. There is an insulator between the heatsink and device body. The devices are constructed so that the heatsink mounting screw is insulated from the device leads.

9) Diode D214, which is fastened to heatsink E207, senses heatsink temperature. D214 conducts when the heatsink temperature is greater than 100 degrees celsius.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U200, 201	IR2110S	High/Low Driver	3, 11	15
U300	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U301	LM2901	Quad Single-Supply Comparator	3	12
U302, 303	MOC8106	Opto-Isolator	–	–
U104, 105	MC33072	Dual Operational Amplifier, High Perf, Sngl Supply	8	4
U304	TL4311DR2	Programmable Precision Voltage Reference	–	–
U305	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U400	TL4311DR2	Programmable Precision Voltage Reference	–	–
U500	MC14069	Hex Inverter	14	7
U501	MC14013	Dual D Flip-Flop	14	7
U600	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U700	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U800	MC78M15B	15V, Fixed-Voltage Positive Regulator	1	2
U801	MC14013	Dual D Flip-Flop	14	7
U802	LM2901	Quad Single-Supply Comparator	3	12
U803	IR2110S	High/Low Driver	3, 11	15
U804	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U805	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U900	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U901	IR2110S	High/Low Driver	3, 11	15
U1000	MC74C86	Quad 2-Input Exclusive OR Gate	14	7
U1001	MC74C32	Quad 2-Input OR Gate	14	7
U1003	MC74C139	Dual 1-of-4 Decoder/Demultiplexer	16	8
U1004	MC145041FN2	11-Chnannel 8-bit A/D Converter w/ Serial Interface	20	10
U1005	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U1008, 1009	MOC8106	Opto-Isolator	–	–
U3101	MC1455B	Timing Circuit (555)	8	1

LEGEND:

Chassis Ground

DC Ground

Signal Ground

parts list

CPN6067D DC-to-DC Converter Board **PL-13169-A**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C101,102	2113741B69	0.1 uF, +/-5%, 50 V
C200,201	2113741B69	0.1 uF, +/-5%, 50 V
C202	2382129V04	CAP ALU 270 20 450
C203 thru 208	2313748H43	1500 uF, +/-20%, 35V
C209	0884188T06	CAP POLY PROP 400V 0.001UF
C210	2313748H43	1500 uF, +/-20%, 35V
C211	0811051A19	1 uF, +/-5%/-0.5%, 63 V
C212	2313748H43	1500 uF, +/-20%, 35V
C213	0884188T06	CAP POLY PROP 400V 0.001UF
C214,215	0811051A19	1 uF, +/-5%/-0.5%, 63 V
C216	2113741B69	0.1 uF, +/-5%, 50 V
C218,219	0811051A19	1 uF, +/-5%/-0.5%, 63 V
C220	2313748H43	1500 uF, +/-20%, 35V
C221	0811051A19	1 uF, +/-5%/-0.5%, 63 V
C222	0884188T06	CAP POLY PROP 400V 0.001UF
C223,224	2113741B69	0.1 uF, +/-5%, 50 V
C226,227	2113741B69	0.1 uF, +/-5%, 50 V
C232	0813910G19	CAP 0.100 UF 10% 250V
C235	0813910G19	CAP 0.100 UF 10% 250V
C236	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C237	2113741B69	0.1 uF, +/-5%, 50 V
C238	2380090M36	CAP 100 UF 25V
C239	2113740A79	1000 pF, +/-5%, 50 V
C240	2113741B69	0.1 uF, +/-5%, 50 V
C300	2113740A46	47 pF, +/-5%, 50V
C301	2113741B69	0.1 uF, +/-5%, 50 V
C304	2113740A55	100 pF, +/-5%, 50 V
C305	2113741B69	0.1 uF, +/-5%, 50 V
C307	2113741A45	0.01 uF, +/-5%, 50 V
C308,309	2113741B69	0.1 uF, +/-5%, 50 V
C310	2113740A57	120 pF, +/-5%, 50V
C312	2113743B27	0.680 uF, +/-10%
C313	2113740A79	1000 pF, +/-5%, 50 V
C315	2113740A57	120 pF, +/-5%, 50V
C316	2380090M08	4.007 uF, +/-20%, 25V
C317	2113740A57	120 pF, +/-5%, 50V
C318	2113741A29	2200 pF, +/-5%, 50 V
C400	2113740A55	100 pF, +/-5%, 50 V
C402,403	2113741B69	0.1 uF, +/-5%, 50 V
C404	2311049A15	4.7 uF, +/-10%, 35V
C501,502	2113741B69	0.1 uF, +/-5%, 50V
C503	2113740G29	10 pF, +/-0.1 pF, 50V
C600	2113741B69	0.1 uF, +/-5%, 50 V
C601	2113741A41	6800 pF, +/-5%, 50 V
C602	2113740A43	39 pF, +/-5%, 50 V
C603,604	2113741B69	0.1 uF, +/-5%, 50 V
C700	2113741B69	0.1 uF, +/-5%, 50 V
C701	2113741A41	6800 pF, +/-5%, 50 V
C702	2113740A43	39 pF, +/-5%, 50 V
C703,704	2113741B69	0.1 uF, +/-5%, 50 V
C800	2113741B69	0.1 uF, +/-5%, 50 V
C802	2113741B69	0.1 uF, +/-5%, 50 V
C803	0811051A19	1 uF, +/-5%/-0.5%, 63 V
C805	2113741B69	0.1 uF, +/-5%, 50 V
C807	2113741B69	0.1 uF, +/-5%, 50 V
C808	2113740A57	120 pF, +/-5%, 50V
C809 thru 811	2113741B69	0.1 uF, +/-5%, 50 V
C812	2113743B27	0.680 uF, +/-10%
C813	2113741A45	0.01 uF, +/-5%, 50 V
C814	2380090M36	CAP 100 UF 25V
C815	2113741A29	2200 pF, +/-5%, 50 V
C817	2113741B69	0.1 uF, +/-5%, 50 V
C818	2113740A79	1000 pF, +/-5%, 50 V
C819	2113740B57	220 pF, +/-30%, 50 V
C820	2113740A57	120 pF, +/-5%, 50V
C821	2313748H43	1500 uF, +/-20%, 35V
C822 thru 824	2113741B69	0.1 uF, +/-5%, 50 V
C825	2380090M36	CAP 100 UF 25V
C826	2113741B69	0.1 uF, +/-5%, 50 V
C827	2380090M36	CAP 100 UF 25V
C828	2113740A79	1000 pF, +/-5%, 50 V
C829,830	2113741B69	0.1 uF, +/-5%, 50 V
C831	2113740A79	1000 pF, +/-5%, 50 V
C900	2113740A57	120 pF, +/-5%, 50V
C902	2113741B69	0.1 uF, +/-5%, 50 V
C903	2113743B27	0.680 uF, +/-10%
C904	2113741A29	2200 pF, +/-5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C905	2113740A79	1000 pF, +/-5%, 50 V
C906	2113740B57	220 pF, +/-30%, 50 V
C907	2113741B69	0.1 uF, +/-5%, 50 V
C908	2113740A57	120 pF, +/-5%, 50V
C909	2313748H43	1500 uF, +/-20%, 35V
C910	2113743B27	0.680 uF, +/-10%
C911	2113741B69	0.1 uF, +/-5%, 50 V
C912	2380090M36	CAP 100 UF 25V
C913	2113741B69	0.1 uF, +/-5%, 50 V
C915 thru 917	2113741B69	0.1 uF, +/-5%, 50 V
C918	2113740A79	1000 pF, +/-5%, 50 V
C919	2113741B69	0.1 uF, +/-5%, 50 V
C920	2113740A79	1000 pF, +/-5%, 50 V
C921	2113741B69	0.1 uF, +/-5%, 50 V
C1000 thru 1003	2113741B69	0.1 uF, +/-5%, 50 V
C1005,1006	2113741A29	2200 pF, +/-5%, 50 V
C1007	2113743B27	0.680 uF, +/-10%
C1008	2113741B69	0.1 uF, +/-5%, 50 V
C1009,1010	2113743B27	0.680 uF, +/-10%
C1011 thru 1018	2113741B69	0.1 uF, +/-5%, 50 V
C1019	2380090M07	47 uF, +/-20%, 16 V
C1020	2113741B69	0.1 uF, +/-5%, 50 V
C1021	2380090M07	47 uF, +/-20%, 16 V
C1022	2113741B69	0.1 uF, +/-5%, 50 V
C1023	2380090M08	4.007 uF, +/-20%, 25V
C3100	2113743B27	0.680 uF, +/-10%
C3106	2113741A45	0.01 uF, +/-5%, 50 V
C3107	2311049A08	1 uF, +/-10%, 35 V
C3108	2113741B69	0.1 uF, +/-5%, 50 V
C3109	2113740A79	1000 pF, +/-5%, 50 V
		unknown:
D200	4813833D06	1A; 600 V
D201,202	4813833C10	0.1A, 70 V
D203,204	4813833B06	1A; 600 V
D210,211	4813833B06	1A; 600 V
D212,213	4813833C10	0.1A, 70 V
D215	4813833B06	1A; 600 V
D216,217	4813833C10	0.1A, 70 V
D301 thru 304	4813833C10	0.1A, 70 V
D306 thru 309	4813833C10	0.1A, 70 V
D600	4813833B01	Schottky type
D700	4813833B01	Schottky type
D801 thru 804	4813833C10	0.1A, 70 V
D806	4813833C10	0.1A, 70 V
D807	4813833E01	type SCHOTTKY 16A, 45V MBR1645
D808 thru 811	4813833C10	0.1A, 70 V
D902 thru 904	4813833C10	0.1A, 70 V
D905	4813833E01	type SCHOTTKY 16A, 45V MBR1645
D906 thru 911	4813833C10	0.1A, 70 V
D1000 thru 1005	4813833C10	0.1A, 70 V
D3103,3104	4813833C10	0.1A, 70 V
		unknown:
E204	0180706F72	PRIMARY HEATSINK W/4 FETS
E207	0180706F73	SECONDARY HEATSINK W/4 DIODES
		connector:
J100	1585546U03	PC HEADER 4 CIRCUITS
J200	2883290P04	plug; 20-contact
J400	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
J500	0909716V02	SOCKET SM DBL ROW 20 PIN
		inductor:
L201	2484172T01	30 uF filter
L204	2483265X06	INDUCTOR POWER 10UH, 20A HORIZ
L800	2484172T09	INDCTR FILTER 15UH 9A
L801	2484172T06	CHK TORID 14V FLTR
L900,901	2484172T06	CHK TORID 14V FLTR
		transistor: (see note)
Q202	4813821A07	TSTR N-CH 500V 2A
Q208	4813821A07	TSTR N-CH 500V 2A
Q300	4813824A11	NPN
Q301	2N7002LT1	FET
Q302	4813824A11	NPN
Q303	2N7002LT1	FET
Q600	2N7002LT1	FET
Q601	4813824A11	NPN
Q700	2N7002LT1	FET
Q701	4813824A11	NPN
Q801	4813821D35	MOSFET N-CH 60V 50A
Q804	4813824A11	NPN

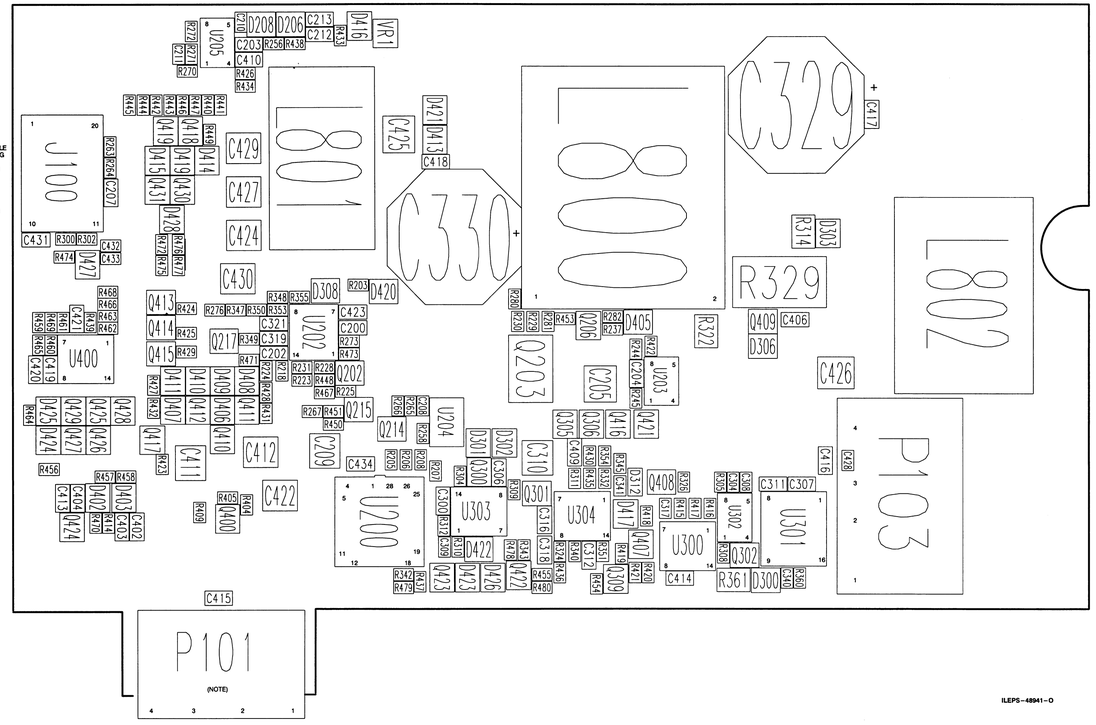
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q805	2N7002LT1	FET
Q806	4813821A33	TSTR N-CH 60V 50A
Q904	4813821D35	MOSFET N-CH 60V 50A
Q905	2N7002LT1	FET
Q906	4813821A33	TSTR N-CH 60V 50A
Q1000 thru 1004	2N7002LT1	FET
Q1006	2N7002LT1	FET
Q3100	2N7002LT1	FET
		resistor, fixed:
R200 thru 202	0611072A09	22 ohms, +/-5%, 1/4 W
R203 thru 205	0611079G01	10k, +/-1%, 1/10 W
R207	0682089V06	RES CHIP 0.150HM 5% 2W
R210	0611086C23	33 ohms, +/-5%, 2W
R214,215	0611086C23	33 ohms, +/-5%, 2W
R216 thru 218	0611079G01	10k, +/-1%, 1/10 W
R219 thru 221	0611072A09	22 ohms, +/-5%, 1/4 W
R222,223	0611086C23	33 ohms, +/-5%, 2W
R300	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R301	0611079G69	51.1K, +/-1%, 1/10 W
R304	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R306	0611079F51	RES CHIP 3.32K 1/10W 1% 0805
R307	0611079G53	34.8K, 1/10W +/-1% 0805
R308	0611079G01	10k, +/-1%, 1/10 W
R311	0611079B35	330K +/-5%; 1/10 W
R317,318	0611079F01	1.00K, 1/10 W
R319	0611079G69	51.1K, +/-1%, 1/10 W
R320	0611079F01	1.00K, 1/10 W
R321	0611079G66	47.5K, 1/10W, +/-1%
R322	0611079F66	RES CHIP 1.13K 1/10W 1% 0805
R323	0611079F93	RES CHIP 9.09K 1/10W 1% 0805
R324,325	0611079G58	Resistor chip 39.2K 1/10 W 1%
R326	0611079F01	1.00K, 1/10 W
R330 thru 332	0611079G01	10k, +/-1%, 1/10 W
R334	0611079D18	RES CHIP 150.0 1/10W 1%
R335	0611079E01	100K, 1/10 W, +/-1%
R336	0611079D18	RES CHIP 150.0 1/10W 1%
R337,338	0611079E01	100K, 1/10 W, +/-1%
R339	0611079F01	1.00K, 1/10 W
R402	0611079G11	12.7K, 1/10W, +/-1%
R403	0611079G58	Resistor chip 39.2K 1/10 W 1%
R404,405	0683962T56	200 ohms, +/-5%; 1W
R406,409	0611079F01	1.00K, 1/10 W
R500	0611079B37	390K, +/-5%; 1/4W
R504	0611079E09	Resistor: chip 121.0K 1/10W 1%
R505	0611079G87	Resistor chip 7K 1/10 W 1%
R600	0611079F74	5.76K, +/-1%; 1/10 W
R601	0611079G69	51.1K, +/-1%; 1/10 W
R602,603	0611079G01	10k, +/-1%, 1/10 W
R604	0611079F01	1.00K, 1/10 W
R606,607	0611079F01	1.00K, 1/10 W
R608	0611079A26	10 ohms, +/-5%; 1/10 W
R700	0611079F74	5.76K, +/-1%; 1/10 W
R701	0611079G01	10k, +/-1%, 1/10 W
R702	0611079G69	51.1K, +/-1%; 1/10 W
R703	0611079G01	10k, +/-1%, 1/10 W
R704,705	0611079F01	1.00K, 1/10 W
R706	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R707	0611079A26	10 ohms, +/-5%; 1/10 W
R708	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R800	0611079G49	inductor:
R801	0611079G01	31.6K, 1/10W; +/-1%
R806	0611079G30	10k, +/-1%, 1/10 W
R807	0611079G01	200 ohms, 1%; 1/10W
R808	0611072A09	10k, +/-1%, 1/10 W
R811	0611079E97	22 ohms, +/-5%, 1/4 W
R813	0611079G09	RES CHIP 1.0M 1/10W 1%
R814	0611079B35	12.1K, 1/10 W; +/-1%
R815	0611079F81	330K +/-5%; 1/10 W
R816	0611079G11	RES CHIP 6.81K 1/10W 1% 0805
R817 thru 820	0611079F30	12.7K, 1/10W; +/-1%
R821	0611079G09	RES CHIP 2.00K 1/10W 1% 0805
R822	0682089V01	12.1K, 1/10 W; +/-1%
R823	0611079E97	RES CHIP .01 5% 2W
R824	0611079G01	RES CHIP 1.0M 1/10W 1%
R825	0611079G66	10k, +/-1%, 1/10 W
R826	0611079G53	47.5K, 1/10W +/-1%
R827	0611079G01	34.8K, 1/10W +/-1% 0805
R828	0611079G34	10k, +/-1%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R829	0611079G05	Resistor chip 11.0K 1/10 W 1%
R830	0611079G01	10k, +/-1%, 1/10 W
R831	0611079E97	RES CHIP 1.0M 1/10W 1%
R832 thru 834	0611079G01	10k, +/-1%; 1/10 W
R904	0611079D30	200 ohms, 1%; 1/10W
R905	0611079G01	10k, +/-1%; 1/10 W
R908	0611079E97	RES CHIP 1.0M 1/10W 1%
R909	0611079G09	12.1K, 1/10 W; +/-1%
R910	0611079B35	330K +/-5%; 1/10 W
R911	0611079G11	12.7K, 1/10W; +/-1%
R912 thru 915	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R916	0682089V06	RES CHIP .051 5% 2W
R917	0611079G09	12.1K, 1/10 W; +/-1%
R918	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R919	0611079G09	12.1K, 1/10 W; +/-1%
R920	0611079G11	12.7K, 1/10W; +/-1%
R921	0611079G49	31.6K, 1/10W; +/-1%
R922	0611072A33	220 ohms, +/-5%, 1/4 W
R923	0611079G11	12.7K, 1/10W; +/-1%
R924	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R925	0611079G05	Resistor chip 11.0K 1/10 W 1%
R926	0611072A33	220 ohms, +/-5%, 1/4 W
R927	0611079G01	10k, +/-1%, 1/10 W
R928	0611079E97	RES CHIP 1.0M 1/10W 1%
R929 thru 931	0611079G01	10k, +/-1%, 1/10 W
R932	0611072A09	22 ohms, +/-5%, 1/4 W
R1000 thru 1003	0611079E01	100K, 1/10 W; +/-1%
R1004	0611079G01	10k, +/-1%, 1/10 W
R1005	0611079E01	100K, 1/10 W; +/-1%
R1006	0611079G01	10k, +/-1%; 1/10 W
R1007	0611079E01	100K, 1/10 W; +/-1%
R1008	0611079G01	10k, +/-1%, 1/10 W
R1009	0611079E01	100K, 1/10 W; +/-1%
R1010	0611079F01	1.00K, 1/10 W
R1011	0611079G01	10k, +/-1%, 1/10 W
R1012	0611079E01	100K, 1/10 W; +/-1%
R1016	0611079D02	RES CHIP 10.2K 1/10W 1% 0805
R1017	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R1018	0611079F01	1.00K, 1/10 W
R1019	0611079G04	Resistor chip 39.2K 1/10 W 1%
R1020	0611079G05	Resistor chip 11.0K 1/10 W 1%
R1021	0611079F01	1.00K, 1/10 W
R1022 thru 1025	0611072A15	39 ohms, +/-5%; 1/4W
R1026	0611079G49	31.6K, 1/10W; +/-1%
R1027	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1028	0611079B35	330K +/-5%; 1/10 W
R1029	0611079G01	10k, +/-1%, 1/10 W
R1030	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1031	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R1032	0611079E01	100K, 1/10 W; +/-1%
R1033,1034	0611079G01	10k, +/-1%; 1/10 W
R1035	0611079E73	562.0K, 1/10W; +/-1%
R1036	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1037	0611079G01	10k, +/-1%; 1/10 W
R1038	0611079G69	51.1K, +/-1%, 1/10 W
R1039,1040	0611079G01	10k, +/-1%, 1/10 W
R1041	0611072A55	1.8K, +/-5%; 1/4W
R1042	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1043	0611079G09	12.1K, 1/10 W; +/-1%
R1044	0611079E97	RES CHIP 1.0M 1/10W 1%
R1045	0611079F22	Resistor: chip 1.65K 1/10 W
R1046	0611079G69	51.1K, +/-1%, 1/10 W
R1047	0611079F01	1.00K, 1/10 W
R1048	0611079G69	51.1K, +/-1%; 1/10 W
R1049	0611079G01	10k, +/-1%, 1/10 W
R1050	0611079E97	RES CHIP 1.0M 1/10W 1%
R1051	0611079G69	51.1K, +/-1%; 1/10 W
R1054	0611079G01	10k, +/-1%, 1/10 W
R1055	0611079B37	390K, +/-5%; 1/10W
R1056	0611079G01	10k, +/-1%, 1/10 W
R1057	0611079G02	RES CHIP 10.2K 1/10W 1% 0805
R1058	0611079G01	10k, +/-1%; 1/10 W
R1059	0611079G69	51.1K, +/-1%; 1/10 W
R1060,1061	0611077H85	1 meg, +/-1%; 1/8 W
R3100	0611079E97	47.5K, 1/10W; +/-1%
R3101	0611079G01	10k, +/-1%, 1/10 W
R3108	0611079G01	10k, +/-1%; 1/10 W
R3109	0611079E97	RES CHIP 1.0M 1/10W 1%

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		transformer:
T200,201	2582041Y01	XFMR PWR IS ON
		integrated circuit: (see note)
U200,201	5184200T02	IC HI LO DRVR, IR21105, SM
U300	5113819A05	High Performance, Single Supply
U301	5113820A03	Quad Single/Dual Supply
U302,303	4882759Y01	OPTO ISOLATOR NO BASE CONN
U304	5113815A08	Precision Voltage Reference
U305	5113819A05	High Performance, Single Supply
U400	5113815A08	Precision Voltage Reference
U500	5113806A23	Inverter
U501	5113806A05	Dual D-Type Flip-Flop
U600	5182276R74	Current Mode Control
U700	5182276R74	Current Mode Control
U800	5113816A10	REG 15V POS 500MA MC78M15BDTRK
U801	5113806A05	Dual D-Type Flip-Flop
U802	5113820A03	Quad Single/Dual Supply
U803	5184200T02	IC HI LO DRVR, IR21105, SM
U804	5113819A05	High Performance, Single Supply
U805	5182276R74	Current Mode Control
U900	5182276R74	Current Mode Control
U901	5184200T02	IC HI LO DRVR, IR21105, SM
U1000	5113805A22	Quad 2-Input Exclusive OR Gate
U1001	5113805A13	Quad 2-Input OR Gate
U1003	5113808A22	Dual 1 of 4 Decoder/Demultiplexer
U1004	5182374Y01	IC A/D 8 BIT
U1005	5113819A05	High Performance, Single Supply
U1008,1009	4882759Y01	OPTO ISOLATOR NO BASE CONN
U3101	5113815A17	IC 555 TIMER, 1455_
		voltage regulator: (see note)
VR200 thru 202	4813830A31	Zener, 18V
VR204 thru 206	4813830A31	Zener, 18V
VR300,301	4813830A23	DIODE 10V 5% 225MW MMBZ5240B_
		crystal: (see note)
Y500	4884186T01	266.667KHZ
non-referenced items:		
	2683678T02	HEAT SINK (used with D807)
	2683678T02	HEAT SINK (used with D905)
	2683678T02	HEAT SINK (used with Q801)
	2683678T02	HEAT SINK (used with Q904)
	8482023Y02	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

BATTERY CHARGER/REVERT BOARD
MODEL CPN6074C



J100 PIN OUTS

GND_SEC_PWR	20	19	BATT_CH_ENABLE
BATT_CH_RESET	18	17	BATT_CH_V_DIAG
SPI_CLOCK	16	15	BATT_T_DIAG
SPI_MOSI	14	13	GND_SEC_PWR
BATT_T_RES	12	11	5V
FACTORY_TEST	10	9	N/C
GND_SEC_PWR	8	7	SYNC_SEC
GND_SEC_PWR	6	5	AC_FAIL_SEC
GND_SEC_PWR	4	3	MAIN_SD_SEC
GND_SEC_PWR	2	1	GND_SEC_PWR

BASING DETAILS

TRANSISTORS

Q206, Q407, Q408, Q410, Q417

Q203, Q219 – 222, Q304, Q307, Q401, Q402

Q202, Q214, Q215, Q217, Q300 –302, Q305, Q306, Q309, Q400, Q409, Q411 – 416, Q418, Q419, Q421 – 431

DIODES

D206, D208, D300 – 303, D306, D308, D402, D403, D405 – 411, D413 – 417, D419 – 428, VR1

D304, D307

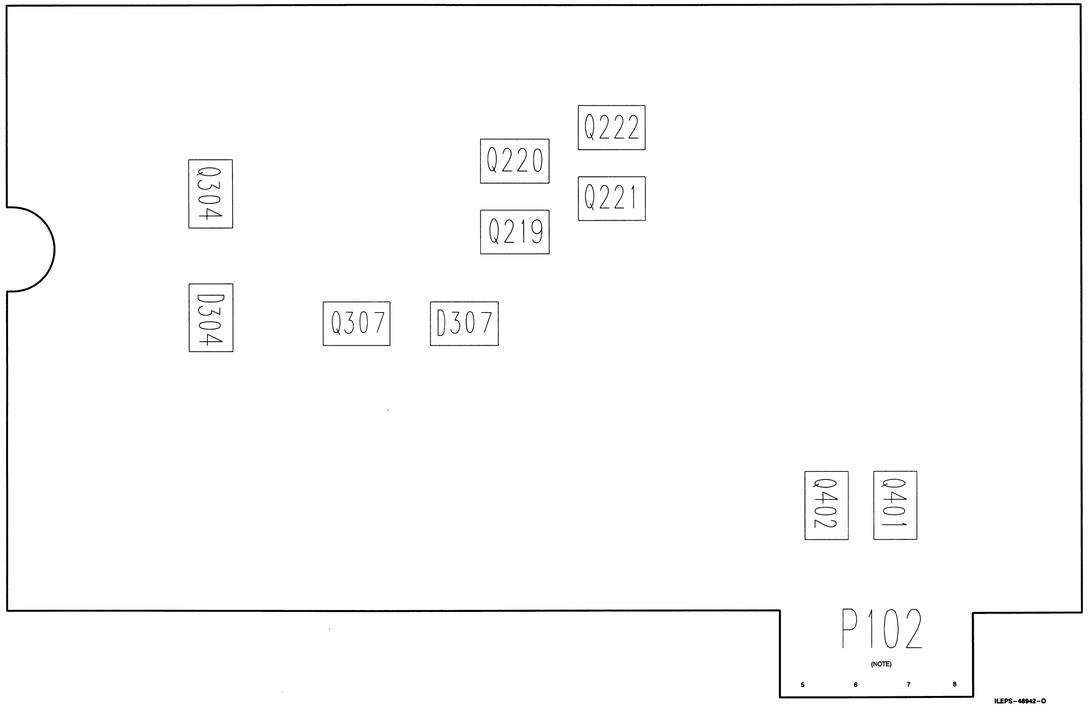
NOTES:

THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P101. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P102.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P101-1	BATT +	P102-5	BATT +
P101-2	BATT +	P102-6	BATT +
P101-3	BATT –	P102-7	BATT –
P101-4	BATT –	P102-8	BATT –

ILEPS-48941-O
(2 of 2)



parts list

CPN6074C Battery Charger/Revert Board PL-13170-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C200	2113741B69	0.1 uF, ±5%, 50 V
C202,203	2113741B69	0.1 uF, ±5%, 50 V
C204	2113741B33	3300 pF, ±5%, 50V
C205	2109822S05	4.7 uF, ±20%, 50V
C207	2113741B69	0.1 uF, ±5%, 50 V
C208	2113740A79	1000 pF, ±5%, 50 V
C209	2109822S05	4.7 uF, ±20%, 50V
C210	2113741A45	0.01 uF, ±5%, 50 V
C211	2113740A79	1000 pF, ±5%, 50 V
C212,213	2113741B69	0.1 uF, ±5%, 50 V
C300	2113741B69	0.1 uF, ±5%, 50 V
C304	2113740A79	1000 pF, ±5%, 50 V
C306,307	2113741B69	0.1 uF, ±5%, 50 V
C308	2113741A45	0.01 uF, ±5%, 50 V
C309	2113740A57	120 pF, ±5%, 50V
C310	2109822S05	4.7 uF, ±20%, 50V
C311,312	2113741B69	0.1 uF, ±5%, 50 V
C316	2113741B33	3300 pF, ±5%, 50V
C317	2113740A79	1000 pF, ±5%, 50 V
C318	2113741B65	0.068 uF, ±5%, 50 V
C319	2113741B69	0.1 uF, ±5%, 50 V
C321	2113741B69	0.1 uF, ±5%, 50 V
C329,330	2313749H43	1500 uF, ±20%,.35V
C340	2113740A75	680 pF, ±5%, 50 V
C341	2113740A71	470 pF, ±5%, 50 V
C402 thru 404	2113741B69	0.1 uF, ±5%, 50 V
C406	2113741B69	0.1 uF, ±5%, 50 V
C409,410	2113741B69	0.1 uF, ±5%, 50 V
C411,412	2109822S05	4.7 uF, ±20%, 50V
C413 thru 421	2113741B69	0.1 uF, ±5%, 50 V
C422	2109822S05	4.7 uF, ±20%, 50V
C423	2113743B27	0.680 uF, ±10%
C424 thru 427	2109822S05	4.7 uF, ±20%, 50V
C428	2113741A33	3300 pF, ±5%, 50 V
C429,430	2109822S05	4.7 uF, ±20%, 50V
C431	2113741B69	0.1 uF, ±5%, 50 V
C432,433	2113743F15	CAP CHIP .680 UF 16V +80-20%
C434	2113741B69	0.1 uF, ±5%, 50 V
		diode (see note):
D206	4813833C10	0.1A, 70 V
D208	4813833C10	0.1A, 70 V
D300 thru 303	4813833C10	0.1A, 70 V
D304	4813833A07	DIODE SCHOTTKY DL 20A 100V
D306	4813833C10	0.1A, 70 V
D307	4813833A07	DIODE SCHOTTKY DL 20A 100V
D308	4813833C10	0.1A, 70 V
D312	2113741B65	0.068 uF, ±5%, 50 V
D402,403	4813833C10	0.1A, 70 V
D405 thru 411	4813833C10	0.1A, 70 V
D413 thru 417	4813833C10	0.1A, 70 V
D419 thru 428	4813833C10	0.1A, 70 V
		connector:
J100	0909718V02	SOCKET SM DBL ROW 20 PIN
P103	1585546U03	PC HEADER 4 CIRCUITS
		coil:
L800	2484172T08	CHK TOROID HORIZ 100UH FLTR
L801,802	2484172T06	CHK TORID 14V FLTR
		transistor (see note):
Q202	2N7002LT1	FET
Q203	4813821A09	Transistor; 60 V
Q206	4813824A11	NPN
Q214,215	2N7002LT1	FET
Q217	2N7002LT1	FET
Q219 thru 222	4813821A41	TSTR N-CH 60V 60A PWR FET
Q300 thru 302	2N7002LT1	FET

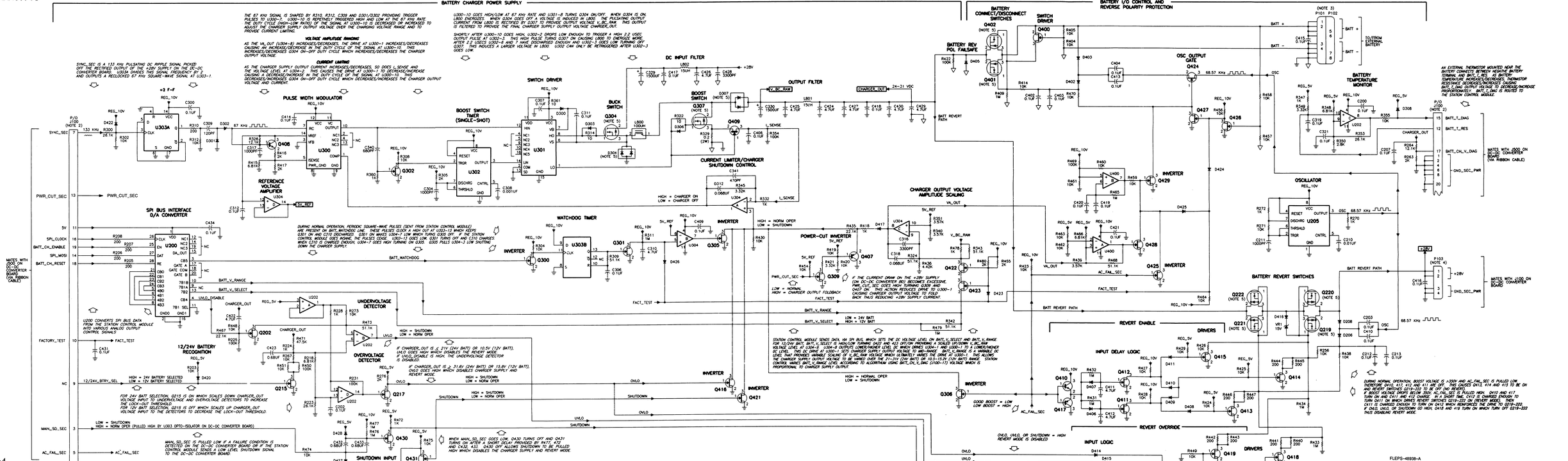
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q304	4813821A41	TSTR N-CH 60V 60A PWR FET
Q305,306	2N7002LT1	FET
Q307	4813821A41	TSTR N-CH 60V 60A PWR FET
Q309	2N7002LT1	FET
Q400	2N7002LT1	FET
Q401,402	4813821A41	TSTR N-CH 60V 60A PWR FET
Q407	4813824A18	PNP
Q408	4813824A11	NPN
Q409	2N7002LT1	FET
Q410	4813824A11	NPN
Q411 thru 416	2N7002LT1	FET
Q417	4813824A18	PNP
Q418,419	2N7002LT1	FET
Q421 thru 431	2N7002LT1	FET
		resistor, fixed:
R203	0611079G01	10K, ±1%; 1/10 W
R205 thru 208	0611079D30	200 ohms, 1%; 1/10W
R218	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R223	0611079G41	RES CHIP 26.1K 1/10W 1% 0805
R224	0611079F01	1.00K, 1/10 W
R225	0611079E01	100K, 1/10 W; ±1%
R228	0611079F01	1.00K, 1/10 W
R229	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R230	0611079G01	10K, ±1%; 1/10 W
R231	0611079E01	100K, 1/10 W; ±1%
R237	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R244	0611079F51	RES CHIP 3.32K 1/10W 1% 0805
R245	0611079G01	10K, ±1%; 1/10 W
R256	0611079G01	10K, ±1%; 1/10 W
R258	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R263	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R264	0611079G09	12.1K, 1/10 W; ±1%
R265,266	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R267	0611079G01	10K, ±1%; 1/10 W
R270	0611079F01	1.00K, 1/10 W
R271	0611079G01	10K, ±1%; 1/10 W
R272	0611079F01	1.00K, 1/10 W
R273	0611079G01	10K, ±1%; 1/10 W
R276	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R280	0611079G01	10K, ±1%; 1/10 W
R281,282	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R300	0611079G41	RES CHIP 26.1K 1/10W 1% 0805
R302	0611079G01	10K, ±1%; 1/10 W
R304	0611079G01	10K, ±1%; 1/10 W
R305	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R308	0611079G01	10K, ±1%; 1/10 W
R309	0611079G69	51.1K, ±1%; 1/10 W
R310	0611079D30	200 ohms, 1%; 1/10W
R311	0611079E97	RES CHIP 1.0M 1/10W 1%
R312	0611079G01	10K, ±1%; 1/10 W
R314	0611072A01	10 ohms, ±5%; 1/4 W
R322	0611072A01	10 ohms, ±5%; 1/4 W
R324	0611079G69	51.1K, ±1%; 1/10 W
R326	0611079G09	12.1K, 1/10 W; ±1%
R329	0682086V06	SMT RES 0.2 OHM 5% 2W
R332	0611079F01	1.00K, 1/10 W
R340	0611079F54	RES CHIP 3.57K 1/10W 1% 0805
R342,343	0611079G69	51.1K, ±1%; 1/10 W
R345	0611079F51	RES CHIP 3.32K 1/10W 1% 0805
R347	0611079F01	1.00K, 1/10 W
R348	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R349	0611079F51	RES CHIP 3.32K 1/10W 1% 0805
R350	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R351	0611079F54	RES CHIP 3.57K 1/10W 1% 0805
R353	0611079G41	RES CHIP 26.1K 1/10W 1% 0805
R354	0611079E01	100K, 1/10 W; ±1%
R355	0611079G01	10K, ±1%; 1/10 W
R360	0611079F01	1.00K, 1/10 W
R361	0611072A01	10 ohms, ±5%; 1/4 W
R404,405	0611079G01	10K, ±1%; 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R409	0611079E97	RES CHIP 1.0M 1/10W 1%
R414	0611079G01	10K, ±1%; 1/10 W
R415	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R416,417	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R418	0611079F01	1.00K, 1/10 W
R419,420	0611079G01	10K, ±1%; 1/10 W
R421	0611079F51	RES CHIP 3.32K 1/10W 1% 0805
R422	0611079E01	100K, 1/10 W; ±1%
R423 thru 430	0611079G01	10K, ±1%; 1/10 W
R431 thru 434	0611079E97	RES CHIP 1.0M 1/10W 1%
R435	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R436,437	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R438	0611079G01	10K, ±1%; 1/10 W
R439	0611079F54	RES CHIP 3.57K 1/10W 1% 0805
R440 thru 447	0611079D30	200 ohms, 1%; 1/10W
R448,449	0611079G01	10K, ±1%; 1/10 W
R450	0611079E01	100K, 1/10 W; ±1%
R451	0611079G01	10K, ±1%; 1/10 W
R453,454	0611079G01	10K, ±1%; 1/10 W
R455	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R456 thru 464	0611079G01	10K, ±1%; 1/10 W
R465	0611079E97	RES CHIP 1.0M 1/10W 1%
R466	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R467	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R468	0611079G69	51.1K, ±1%; 1/10 W
R469	0611079E01	100K, 1/10 W; ±1%
R470	0611079G01	10K, ±1%; 1/10 W
R471	0611079G66	47.5K, 1/10W; ±1%
R472	0611079F01	1.00K, 1/10 W
R473	0611079G69	51.1K, ±1%; 1/10 W
R474,475	0611079G01	10K, ±1%; 1/10 W
R476 thru 479	0611079E97	RES CHIP 1.0M 1/10W 1%
R480	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
		integrated circuit (see note):
U200	5183977M73	Custom D/A Converter
U202	5113818A05	High Performance, Single Supply
U203,204	5113815A08	Precision Voltage Reference
U205	5113815A17	IC 555 TIMER _1455_
U300	5185276R74	Current Mode Control
U301	5184200T02	IC HI LO DRVR, IR21105, SM
U302	5113815A17	IC 555 TIMER _1455_
U303	5113806A05	Dual D-Type Flip-Flop
U304	5113818A05	High Performance, Single Supply
U400	5113818A05	High Performance, Single Supply
		voltage regulator (see note):
VR1	4813830A28	Zener 15 V
		non-referenced items:
	8482054Y02	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

BATTERY CHARGER/REVERT BOARD

MODEL CPN6074C


BATTERY CHARGER POWER SUPPLY
BATTERY I/O CONTROL AND REVERSE POLARITY PROTECTION
SYNC_SEC
PWR_CUT_SEC
5V
SPI_CLOCK
BATT_CH_ENABLE
SPI_MOSI
BATT_CH_RESET
FACTORY_TEST
NC
12/24V_BTRY_SEL
MAIN_SD_SEC
AC_FAIL_SEC
MATES WITH J500 ON DC-DC CONVERTER BOARD (VIA RIBBON CABLE)
MATES WITH J100 ON DC-DC CONVERTER BOARD
TO/FROM EXTERNAL BATTERY
BATT_T_DIAG
BATT_T_RES
BATT_CH_V_DIAG
GND_SEC_PWR
+28V
BATT REVERT PATH
REVERT ENABLE
REVERT OVERRIDE
INPUT DELAY LOGIC
INPUT LOGIC
DRIVERS
OSCILLATOR
OSC OUTPUT GATE
BATTERY REVERT SWITCHES
BATTERY TEMPERATURE MONITOR
BATTERY REV POL FAILSAFE
BATTERY CONNECT/DISCONNECT SWITCHES
SWITCH DRIVER
DC INPUT FILTER
OUTPUT FILTER
BUCK SWITCH
BOOST SWITCH
BOOST SWITCH TIMER (SINGLE-SHOT)
PULSE WIDTH MODULATOR
REFERENCE VOLTAGE AMPLIFIER
CURRENT LIMITER/CHARGER SHUTDOWN CONTROL
SPI BUS INTERFACE D/A CONVERTER
WATCHDOG TIMER
POWER-CUT INVERTER
CHARGER OUTPUT VOLTAGE AMPLITUDE SCALING
UNDERVOLTAGE DETECTOR
OVERVOLTAGE DETECTOR
12/24V BATTERY RECOGNITION
SHUTDOWN INPUT DELAY LATCH
INVERTER
U303A
U303B
U300
U301
U302
U200
U202
U205
U400
U402
U403
U404
U405
U406
U407
U408
U409
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U426
U427
U428
U429
Q200
Q201
Q202
Q203
Q204
Q205
Q206
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Q209
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Q212
Q213
Q214
Q215
Q216
Q217
Q218
Q219
Q220
Q221
Q222
Q300
Q301
Q302
Q303
Q304
Q305
Q306
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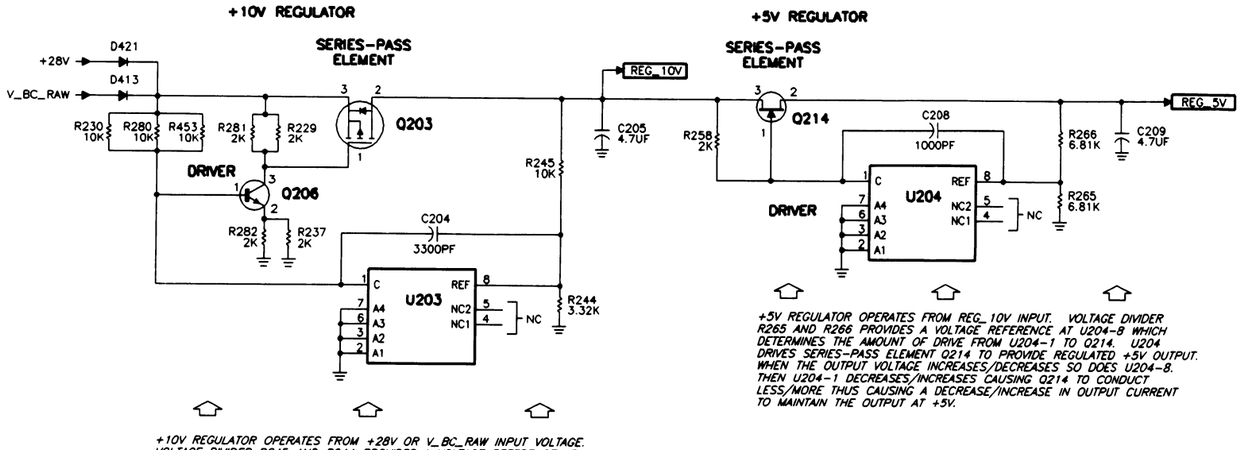
Q311
Q312
Q313
Q314
Q315
Q316

BATTERY CHARGER/REVERT BOARD
MODEL CPN6074C

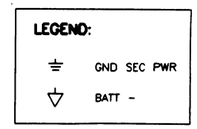


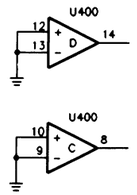
NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS.
2. CONNECTOR J100 IS A 20-PIN MALE RECEPTACLE THAT ACCEPTS A 20-CONDUCTOR RIBBON CABLE. THIS CONNECTOR IS CABLED TO THE CPN6067 DC-DC CONVERTER BOARD.
3. THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P101. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P102. THE EDGE CONECTOR MATES WITH THE EXTERNAL BATTERY CABLE.
4. CONNECTOR P103 IS A 4-PIN MALE RECEPACLE THAT ACCEPTS A 4-CONDUCTOR CABLE. THIS CONNECTOR IS CABLED TO THE CPN6067 DC-DC CONVERTER BOARD.
5. DIODES D304, D307 AND TRANSISTORS Q219, Q220, Q221, Q222, Q304, Q307, Q401 AND Q402 ARE MOUNTED ON THE BACK OF THE BOARD.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

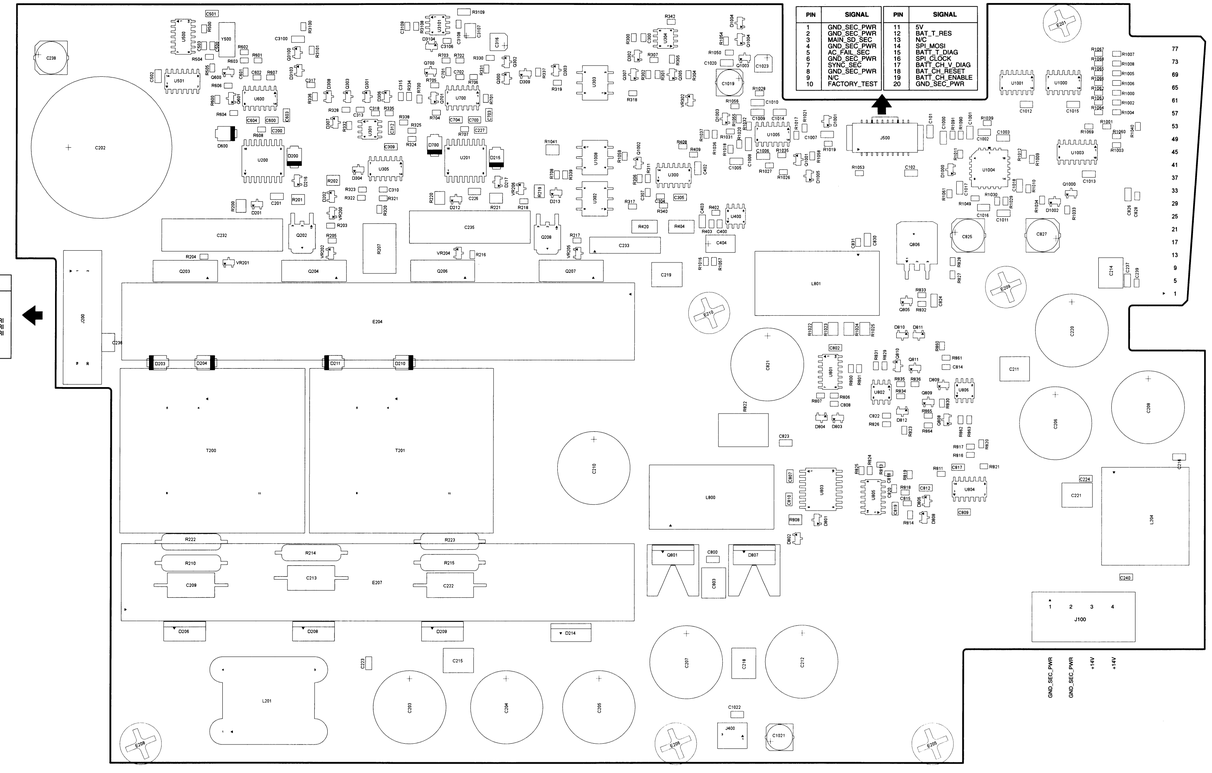
REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U200	CUSTOM	D/A CONVERTER	1, 11	2, 16
U202	MC33074	QUAD, HIGH PERFORMANCE SINGLE-SUPPLY OPERATIONAL AMPLIFIER	4	11
U203, U204	TL431DR2	PROGRAMMABLE PRECISION VOLTAGE REFERENCE	-	-
U205	MC1455B	TIMING CIRCUIT (555)	8	1
U300	SG2843	CIRCUIT MODE SWITCHING REGULATOR	11, 12	8, 9
U301	IR2110S	HIGH/LOW DRIVER	3, 11	15
U302	MC1455B	TIMING CIRCUIT (555)	8	1
U303	MC14013	DUAL D FLIP-FLOP	14	7
U304	MC33074	QUAD, HIGH PERFORMANCE SINGLE-SUPPLY OPERATIONAL AMPLIFIER	4	11
U400	MC33074	QUAD, HIGH PERFORMANCE SINGLE-SUPPLY OPERATIONAL AMPLIFIER	4	11





FLEPS-48938-A
(SHEET 2 OF 2)

DC-to-DC CONVERTER BOARD
MODEL CPN6079E



J500 PIN OUTS

PIN	SIGNAL	PIN	SIGNAL
1	GND_SEC_PWR	11	5V
2	GND_SEC_PWR	12	BAT_T_RES
3	MAIN_SD_SEC	13	N/C
4	GND_SEC_PWR	14	SPI_MOSI
5	AC_FAIL_SEC	15	BATT_T_DIAG
6	GND_SEC_PWR	16	SPI_CLOCK
7	SYNC_SEC	17	BATT_CH_LV_DIAG
8	GND_SEC_PWR	18	BAT_CH_RESET
9	N/C	19	BATT_CH_ENABLE
10	FACTORY_TEST	20	GND_SEC_PWR

J200 PIN OUTS

PIN	SIGNAL	PIN	SIGNAL
1	BOOST_LOW	2	SD_MAIN
3	SYNC_PRI	4	AC_FAIL
5	VCC_PRI	6	NO_CNCT
7	NO_CNCT	8	RELAY_ON
9	GND_PWR_PRI	10	GND_PWR_PRI
11	GND_PWR_PRI	12	GND_PWR_PRI
13	GND_PWR_PRI	14	GND_PWR_PRI
15	NO_CNCT	16	NO_CNCT
17	400 VDC	18	400 VDC
19	400 VDC	20	400 VDC

BASING DETAILS

TRANSISTORS

Q300, Q302, Q601, Q701, Q804

Q301, Q303, Q600, Q700, Q805, Q905
Q1000-Q1004, Q1006, Q3100

Q801, Q904

Q202, Q208,
Q806, Q906

Q203, Q204,
Q206, Q207

DIODES

D201, D202, D212, D213,
D216, D217, D301-304,
D306-309, D801-804,
D806, D809-811,
D902-904, D906-911,
D1000-1005, D3103,
D3104, VR200-202,
VR204-206, VR300, VR301

D206, D208, D209

D214, D807, D905

CNVEPS-49002-O

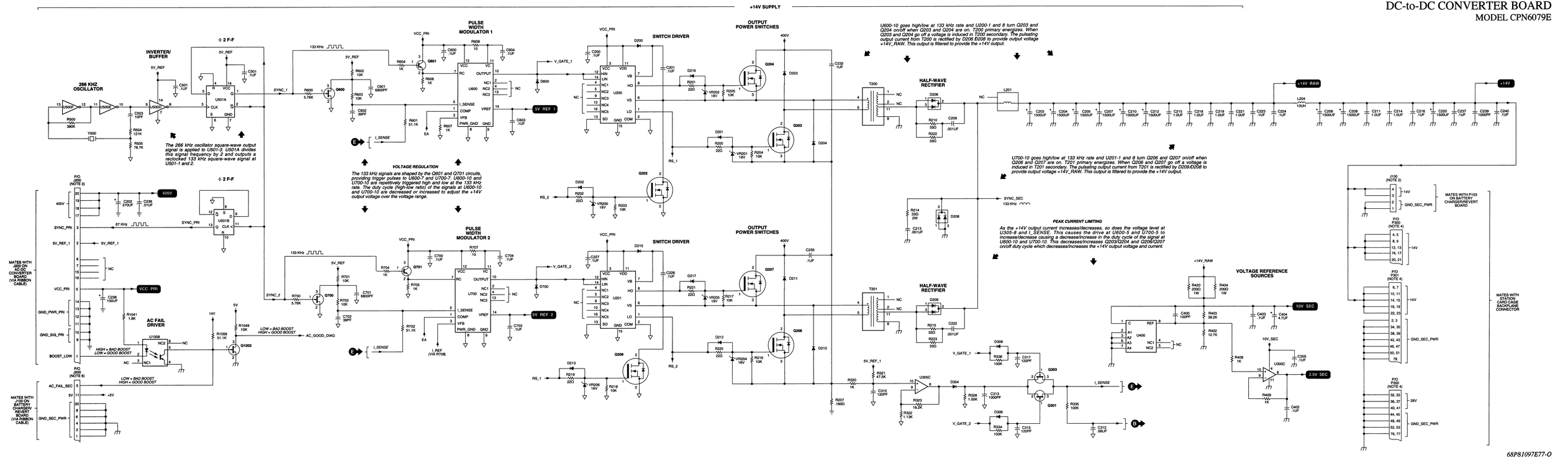
Notes:

The circuit board edge connector has printed circuit contacts on both sides of the board edge. The component side contacts are referenced as P301. The contacts on the back of the back of the board are referenced as P300.

See the following table for edge connector pin numbering / signal name cross-reference, as well as numbering sequence.

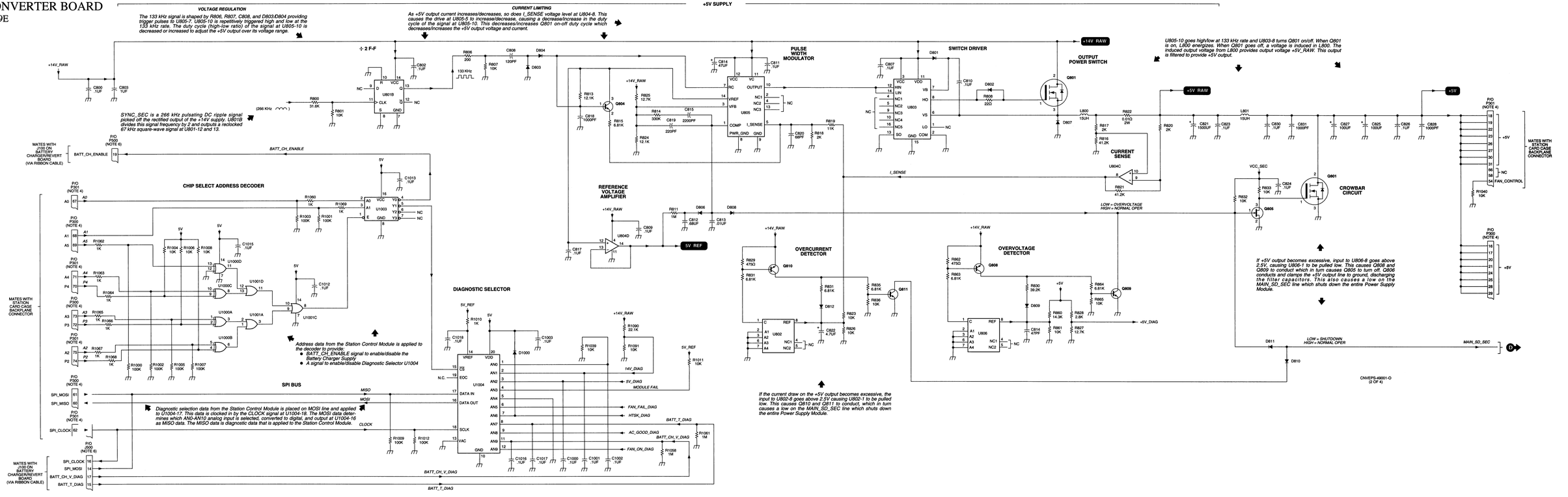
CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P301-2	GND_SEC_PWR	P300-1	FILTER_PWR
P301-8	GND_SEC_PWR	P300-7	+14V
P301-6	+14V	P300-5	+14V
P301-7	+14V	P300-8	+14V
P301-10	+14V	P300-9	+14V
P301-11	+14V	P300-12	+14V
P301-14	+14V	P300-13	+14V
P301-15	+14V	P300-16	+5V
P301-18	+5V	P300-17	+5V
P301-19	+5V	P300-20	+5V
P301-22	+5V	P300-21	+5V
P301-23	+5V	P300-24	+5V
P301-26	+5V	P300-25	+5V
P301-27	+5V	P300-28	+5V
P301-30	+5V	P300-29	+5V
P301-31	+5V	P300-32	GND_SEC_PWR
P301-34	GND_SEC_PWR	P300-33	GND_SEC_PWR
P301-35	GND_SEC_PWR	P300-36	GND_SEC_PWR
P301-38	GND_SEC_PWR	P300-37	GND_SEC_PWR
P301-39	GND_SEC_PWR	P300-40	GND_SEC_PWR
P301-42	GND_SEC_PWR	P300-41	GND_SEC_PWR
P301-43	GND_SEC_PWR	P300-44	GND_SEC_PWR
P301-46	GND_SEC_PWR	P300-45	GND_SEC_PWR
P301-47	GND_SEC_PWR	P300-48	GND_SEC_PWR
P301-50	GND_SEC_PWR	P300-49	GND_SEC_PWR
P301-51	GND_SEC_PWR	P300-52	GND_SEC_PWR
P301-54	FAN_CONTROL	P300-53	GND_SEC_PWR
P301-55	FACTORY_TEST	P300-56	NC (OPEN)
P301-58	NC (OPEN)	P300-57	SHUTDOWN
P301-59	BAT_T_RES	P300-60	SPI_MISO
P301-62	SPI_CLOCK	P300-61	SPI_MOSI
P301-63	BAT_CH_RESET	P300-64	NC (OPEN)
P301-66	NC (OPEN)	P300-65	NC (OPEN)
P301-67	A0	P300-68	A1
P301-70	P4	P300-69	A5
P301-71	A4	P300-72	P3
P301-74	P2	P300-73	A3
P301-75	A2	P300-76	GND_SEC_PWR
P301-78	GND_SEC_PWR	P300-77	GND_SEC_PWR

DC-to-DC CONVERTER BOARD
MODEL CPN6079E

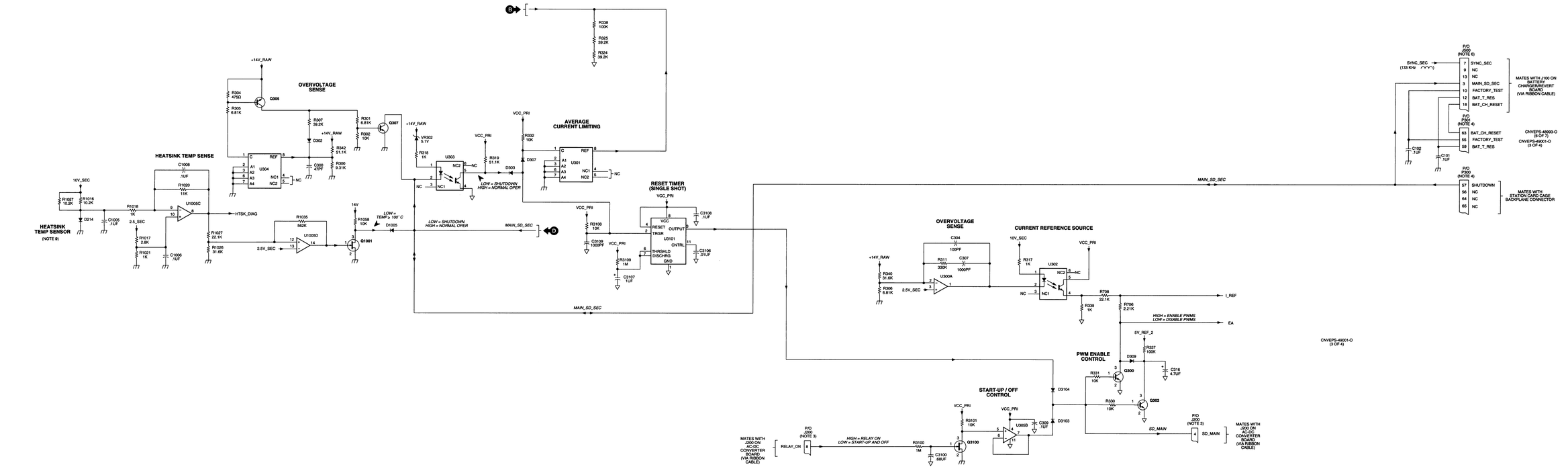


68P81097E77-O
(Sheet 2 of 6)
3/31/02-UP

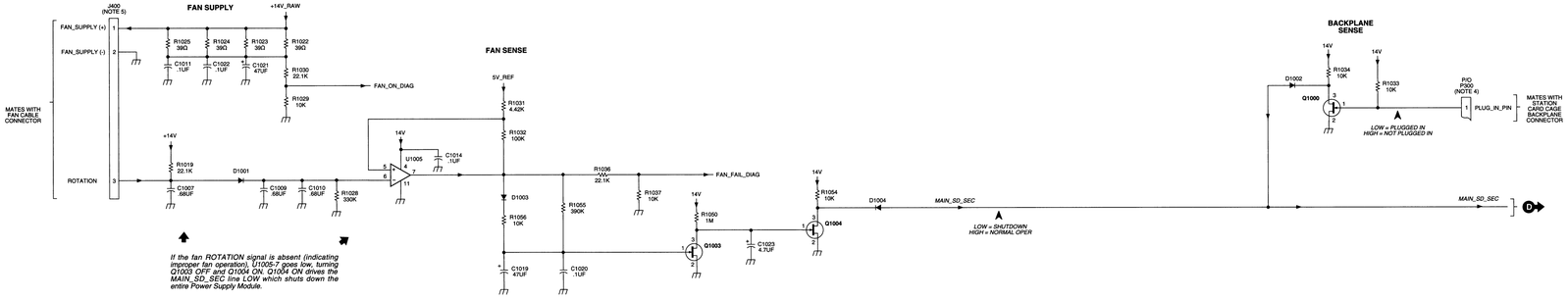
DC-to-DC CONVERTER BOARD
MODEL CPN6079E



68P81097E77-O
(Sheet 3 of 6)
3/31/02-UP


HEATSINK TEMP SENSE
HEATSINK TEMP SENSOR
(NOTE 9)
10V_SEC
R1057 10.2K
R1016 10.2K
D214
C1005 .1UF
R1018 1K
2.5_SEC
C1008 .1UF
R1020 11K
U1005C
R1017 2.8K
R1021 1K
C1006 .1UF
R1027 22.1K
R1026 31.6K
HTSK_DIAG
R1035 562K
U1005D
2.5V_SEC
14V
R1058 10K
Q1001
LOW = TEMP ≥ 100° C
D1005
LOW = SHUTDOWN
HIGH = NORMAL OPER
MAIN_SD_SEC
+14V_RAW
OVERVOLTAGE SENSE
R304 4753
Q306
R305 6.81K
R307 39.2K
D302
+14V_RAW
R342 51.1K
R300 9.31K
C300 47PF
U304
REF
NC1
NC2
R301 6.81K
R302 10K
Q307
+14V_RAW
VR302 5.1V
R318 1K
U303
NC2
NC1
VCC_PRI
R319 51.1K
LOW = SHUTDOWN
HIGH = NORMAL OPER
AVERAGE CURRENT LIMITING
VCC_PRI
R332 10K
D307
D303
U301
REF
NC1
NC2
RESET TIMER (SINGLE SHOT)
VCC_PRI
C3108 1UF
VCC
RESET
OUTPUT
TRGR
U3101
CNTRL
THRSHLD
DISCHRG
GND
C3106 .01UF
R3108 10K
C3109 1000PF
VCC_PRI
R3109 1M
C3107 1UF
R338 100K
R325 39.2K
R324 39.2K
B
D
MAIN_SD_SEC
OVERVOLTAGE SENSE
+14V_RAW
R340 31.6K
R306 6.81K
C304 100PF
R311 330K
U300A
2.5V_SEC
CURRENT REFERENCE SOURCE
10V_SEC
R317 1K
VCC_PRI
U302
NC2
NC1
R339 1K
R708 22.1K
R706 2.21K
I_REF
HIGH = ENABLE PWMS
LOW = DISABLE PWMS
EA
5V_REF_2
R337 100K
D309
C316 4.7UF
PWM ENABLE CONTROL
Q300
R331 10K
R330 10K
Q302
SD_MAIN
START-UP / OFF CONTROL
VCC_PRI
R3101 10K
VCC_PRI
U305B
C309 .1UF
D3104
D3103
Q3100
R3100 1M
C3100 68UF
HIGH = RELAY ON
LOW = START-UP AND OFF
P/O J200 (NOTE 3)
RELAY_ON
MATES WITH J200 ON BATTERY CHARGER/REVERT BOARD (VIA RIBBON CABLE)
P/O J200 (NOTE 3)
SD_MAIN
MATES WITH J200 ON BATTERY CHARGER/REVERT BOARD (VIA RIBBON CABLE)
MAIN_SD_SEC
P/O J100 (NOTE 6)
SYNC_SEC (133 KHz)
7 SYNC_SEC
8 NC
13 NC
3 MAIN_SD_SEC
10 FACTORY_TEST
12 BAT_T_RES
18 BAT_CH_RESET
MATES WITH J100 ON BATTERY CHARGER/REVERT BOARD (VIA RIBBON CABLE)
P/O P301 (NOTE 4)
63 BAT_CH_RESET
55 FACTORY_TEST
59 BAT_T_RES
CNVEPS-48993-O (6 OF 7)
CNVEPS-49001-O (3 OF 4)
C102 1UF
C101 1UF
P/O P300 (NOTE 4)
57 SHUTDOWN
56 NC
64 NC
65 NC
MATES WITH STATION CARD CAGE BACKPLANE CONNECTOR
CNVEPS-49001-O (3 OF 4)

DC-to-DC CONVERTER BOARD
MODEL CPN6079E



CNVEPS-49001-O
(4 OF 4)

Notes:

1) Unless otherwise indicated, all resistor values are in ohms.

2) Connector J100 is a 4-pin male receptacle that accepts a 4-conductor cable. This connector is cabled to the PCN6074 Battery Charger/Revert Board.

3) Connector J200 is a 20-pin male receptacle that accepts a 20-conductor ribbon cable. This connector is cabled to the CPN6065 AC-DC Converter Board.

4) The circuit board edge connector has printed circuit plated contacts on both sides of the board edge. The component side contacts are referenced as J301. The contacts on the back of the board are referenced as J300. The edge connector mates with the station card cage backplane.

5) Connector J400 is a 3-pin male receptacle that accepts a 3-conductor fan cable. This connector is cabled to the cooling fan mounted on the Power Supply Module housing.

6) Connector J500 is a 20-pin male receptacle that accepts a 20-conductor ribbon cable. This connector is cabled to the CPN6074 Battery Charger/Revert Board.

7) Diodes D807, D905, and transistor Q801 each have a separate heatsink. The heatsink is securely fastened to the body of the device. The devices are constructed so that the heatsink mounting is insulated from the device leads. The device leads and a PCB mounting lead on the heatsink are soldered to the PCB. The heatsink lead is for mounting only and does not connect to any circuits.

8) The body of transistors Q203, Q204, Q206, and Q207 are fastened to the heatsink E204. The body of rectifier diodes D206, D208, D209, and temperature sensor diode D214 are fastened to heatsink E207. E204 and E207 have PCB mounting leads that are soldered to circuit ground of the PCB. There is an insulator between the heatsink and device body. The devices are constructed so that the heatsink mounting screw is insulated from the device leads.

9) Diode D214, which is fastened to heatsink E207, senses heatsink temperature. D214 conducts when the heatsink temperature is greater than 100 degrees celsius.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U200, 201	IR2110S	High/Low Driver	3, 11	15
U300	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U301	TL4311DR2	Programmable Precision Voltage Reference	–	–
U302, 303	MOC8106	Opto-isolator	–	–
U304	TL4311DR2	Programmable Precision Voltage Reference	–	–
U305	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U400	TL4311DR2	Programmable Precision Voltage Reference	–	–
U500	MC14069	Hex Inverter	14	7
U501	MC14013	Dual D Flip-Flop	14	7
U600	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U700	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U800	MC78M15B	15V, Fixed-Voltage Positive Regulator	1	2
U801	MC14013	Dual D Flip-Flop	14	7
U802	TL4311DR2	Programmable Precision Voltage Reference	–	–
U803	IR2110S	High/Low Driver	3, 11	15
U804	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U805	SG2843	Current Mode Switching Regulator	11, 12	8, 9
U806	TL4311DR2	Programmable Precision Voltage Reference	–	–
U1000	MC74C86	Quad 2-Input Exclusive OR Gate	14	7
U1001	MC74C32	Quad 2-Input OR Gate	14	7
U1003	MC74C139	Dual 1-of-4 Decoder/Demultiplexer	16	8
U1004	MC145041FN2	11-Chnannel 8-bit A/D Converter w/ Serial Interface	20	10
U1005	MC33074	Quad High-Perf Single-Supply Operational Amplifier	4	11
U1008, 1009	MOC8106	Opto-isolator	–	–
U3101	MC1455B	Timing Circuit (555)	8	1

LEGEND:

Chassis Ground

DC Ground

Signal Ground

parts list

CPN6079E DC-to-DC Converter Board **PL-13208-O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C101,102	2113741B69	0.1 uF, +/-5%, 50 V
C200,201	2113741B69	0.1 uF, +/-5%, 50 V
C202	2382129V04	CAP ALU 270 20 450
C203 thru 208	2313748H43	1500 uF, +/-20%, 35V
C209	0884188T06	CAP POLY PROP 400V 0.001UF
C210	2313748H43	1500 uF, +/-20%, 35V
C211	0811051A19	1 uF, +5%/-0.5%, 63 V
C212	2313748H43	1500 uF, +/-20%, 35V
C213	0884188T06	CAP POLY PROP 400V 0.001UF
C214,215	0811051A19	1 uF, +5%/-0.5%, 63 V
C216	2113741B69	0.1 uF, +/-5%, 50 V
C218,219	0811051A19	1 uF, +5%/-0.5%, 63 V
C220	2313748H43	1500 uF, +/-20%, 35V
C221	0811051A19	1 uF, +5%/-0.5%, 63 V
C222	0884188T06	CAP POLY PROP 400V 0.001UF
C223,224	2113741B69	0.1 uF, +/-5%, 50 V
C226,227	2113741B69	0.1 uF, +/-5%, 50 V
C232	0813910G19	CAP 0.100 UF 10% 250V
C235	0813910G19	CAP 0.100 UF 10% 250V
C236	2113918B09	CAP CHIP 10000PF 1000V 10% X7R
C237	2113741B69	0.1 uF, +/-5%, 50 V
C238	2380909M36	CAP 100 UF 25V
C239	2113740A79	1000 pF, +/-5%, 50 V
C240	2113741B69	0.1 uF, +/-5%, 50 V
C300	2113740A46	47 pF, +/-5%, 50V
C304	2113740A55	100 pF, +/-5%, 50 V
C305	2113741B69	0.1 uF, +/-5%, 50 V
C307	2113741A45	0.01 uF, +/-5%, 50 V
C309	2113741B69	0.1 uF, +/-5%, 50 V
C310	2113740A57	120 pF, +/-5%, 50V
C312	2113743B27	0.680 uF, +/-10%
C313	2113740A79	1000 pF, +/-5%, 50 V
C315	2113740A57	120 pF, +/-5%, 50V
C316	2380909M08	4.007 uF, +/-20%, 25V
C317	2113740A57	120 pF, +/-5%, 50V
C318	2113741A29	2200 pF, +/-5%, 50 V
C400	2113740A55	100 pF, +/-5%, 50 V
C402,403	2113741B69	0.1 uF, +/-5%, 50 V
C404	2311048A15	4.7 uF, +/-10%, 35V
C501,502	2113741B69	0.1 uF, +/-5%, 50 V
C503	2113740G29	10 pF, +/-0.1 pF, 50V
C600	2113741B69	0.1 uF, +/-5%, 50 V
C601	2113741A41	6800 pF, +/-5%, 50 V
C602	2113740A43	39 pF, +/-5%, 50 V
C603,604	2113741B69	0.1 uF, +/-5%, 50 V
C700	2113741B69	0.1 uF, +/-5%, 50 V
C701	2113741A41	6800 pF, +/-5%, 50 V
C702	2113740A43	39 pF, +/-5%, 50 V
C703,704	2113741B69	0.1 uF, +/-5%, 50 V
C800	2113741B69	0.1 uF, +/-5%, 50 V
C802	2113741B69	0.1 uF, +/-5%, 50 V
C803	0811051A19	1 uF, +5%/-0.5%, 63 V
C807	2113741B69	0.1 uF, +/-5%, 50 V
C808	2113740A57	120 pF, +/-5%, 50V
C809,810	2113741B69	0.1 uF, +/-5%, 50 V
C812	2113743B27	0.680 uF, +/-10%
C814	2113740A46	47 pF, +/-5%, 50V
C815	2113741A29	2200 pF, +/-5%, 50 V
C817	2113741B69	0.1 uF, +/-5%, 50 V
C818	2113740A79	1000 pF, +/-5%, 50 V
C819	2113740B57	220 pF, +/-30%, 50 V
C820	2113740A51	68 pF, +/-5%, 50 V
C821	2313748H43	1500 uF, +/-20%, 35V
C822	2113743G26	CAP CHIP 4.7 UF 16V +80-20%
C823,824	2113741B69	0.1 uF, +/-5%, 50 V
C825	2380909M36	CAP 100 UF 25V
C826	2113741B69	0.1 uF, +/-5%, 50 V
C827	2380909M36	CAP 100 UF 25V
C828	2113740A79	1000 pF, +/-5%, 50 V
C830	2113741B69	0.1 uF, +/-5%, 50 V
C831	2113740A79	1000 pF, +/-5%, 50 V
C1000 thru 1003	2113741B69	0.1 uF, +/-5%, 50 V
C1005,1006	2113741B69	0.1 uF, +/-5%, 50 V
C1007	2113743B27	0.680 uF, +/-10%
C1008	2113741B69	0.1 uF, +/-5%, 50 V
C1009,1010	2113743B27	0.680 uF, +/-10%
C1011 thru 1018	2113741B69	0.1 uF, +/-5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C1019	2380909M07	47 uF, +/-20%, 16 V
C1020	2113741B69	0.1 uF, +/-5%, 50 V
C1021	2380909M07	47 uF, +/-20%, 16 V
C1022	2113741B69	0.1 uF, +/-5%, 50 V
C1023	2380909M08	4.007 uF, +/-20%, 25V
C3100	2113743B27	0.680 uF, +/-10%
C3106	2113741A45	0.01 uF, +/-5%, 50 V
C3107	2311048A08	1 uF, +/-20%, 35 V
C3108	2113741B69	0.1 uF, +/-5%, 50 V
C3109	2113740A79	1000 pF, +/-5%, 50 V
		diode (see note):
D200	4813833B06	1A; 600 V
D201,202	4813833C10	0.1A, 70 V
D203,204	4813833B06	1A; 600 V
D210,211	4813833B06	1A; 600 V
D212,213	4813833C10	0.1A, 70 V
D215	4813833B06	1A; 600 V
D216,217	4813833C10	0.1A, 70 V
D302 thru 304	4813833C10	0.1A, 70 V
D306 thru 309	4813833C10	0.1A, 70 V
D600	4813833B01	Schottky type
D700	4813833B01	Schottky type
D801 thru 804	4813833C10	0.1A, 70 V
D806	4813833C10	0.1A, 70 V
D807	4813833E01	type SCHOTTKY 16A, 45V MBR1645
D808 thru 812	4813833C10	0.1A, 70 V
D1000 thru 1005	4813833C10	0.1A, 70 V
D3103,3104	4813833C10	0.1A, 70 V
		connector:
J100	1585546U03	PC HEADER 4 CIRCUITS
J200	2885155U03	plug; header 20-contacts
J400	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
J500	0909718V02	SOCKET SM DBL ROW 20 PIN
		inductor:
L201	2484172T01	30 uF filter
L204	2483265X06	INDUCTOR POWER 10UH, 20A HORIZ
L800	2484172T09	INDCTR FILTER 15UH 9A
L801	2484172T06	CHK TOROID 14V FLTR
		translator: (see note)
Q202	4813821A07	TSTR N-CH 500V 2A
Q208	4813821A07	TSTR N-CH 500V 2A
Q300	4813824A11	NPN
Q301	2N7002LT1	FET
Q302	4813824A11	NPN
Q303	2N7002LT1	FET
Q305	4813824A17	PNP
Q307	4813824A11	NPN
Q600	2N7002LT1	FET
Q601	4813824A11	NPN
Q700	2N7002LT1	FET
Q701	4813824A11	NPN
Q801	4813821D35	MOSFET N-CH 60V 50A
Q805	2N7002LT1	FET
Q806	4813821A33	TSTR N-CH 60V 50A
Q808	4813824A17	PNP
Q809	4813824A11	NPN
Q810	4813824A17	PNP
Q811	4813824A11	NPN
Q1000 thru 1004	2N7002LT1	FET
Q3100	2N7002LT1	FET
		resistor, fixed:
R200 thru 202	0611072A09	22 ohms, +/-5%, 1/4 W
R203 thru 205	0611079G01	10k, +/-1%, 1/10 W
R207	0682089V08	RES CHIP 0.160HM 5% 2W
R210	0611066C23	33 ohms, +/-5%, 2W
R214,215	0611066C23	33 ohms, +/-5%, 2W
R216 thru 218	0611079G01	10k, +/-1%, 1/10 W
R219 thru 221	0611072A09	22 ohms, +/-5%, 1/4 W
R222,223	0611066C23	33 ohms, +/-5%, 2W
R300	0611079F94	RES CHIP 9.31K 1/10W 1% 0805
R301	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R302	0611079A98	10K, +/-5%, 1/10 W
R304	0611078D66	RES CHIP 475.0 1/10W 1%
R305,306	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R307	0611079G68	Resistor chip 39.2K 1/10 W 1%
R311	0611079B35	330K +/-5%, 1/10 W
R317,318	0611079F01	1.00K, 1/10 W
R319	0611079G69	51.1K, +/-1%, 1/10 W

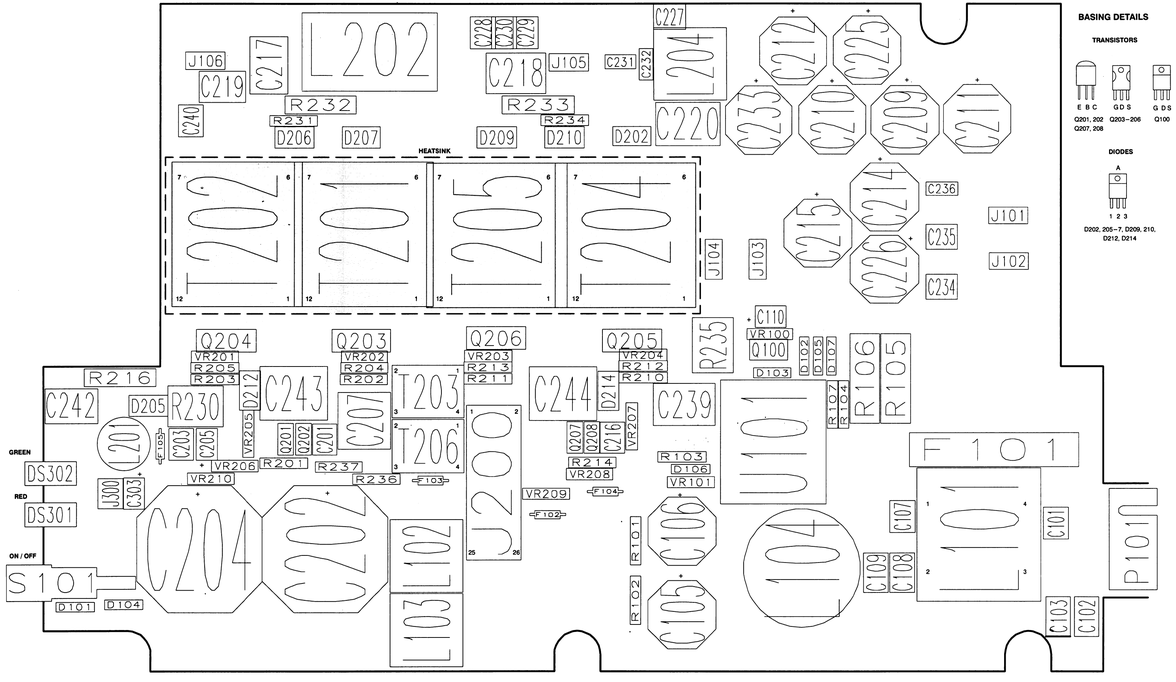
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R320	0611079F01	1.00K, 1/10 W
R321	0611079G66	47.5K, 1/10W, +/-1%
R322	0611079F06	RES CHIP 1.13K 1/10W 1% 0805
R323	0611079G26	RES CHIP 18.2K 1/10W 1% 0805
R324,325	0611079G58	Resistor chip 39.2K 1/10 W 1%
R328	0611079F01	1.00K, 1/10 W
R330 thru 332	0611079G01	10k, +/-1%, 1/10 W
R334	0611079A54	150 ohms, +/-5%, 1/10 W
R335	0611079E01	100K, 1/10 W, +/-1%
R336	0611079A54	150 ohms, +/-5%, 1/10 W
R337,338	0611079E01	100K, 1/10 W, +/-1%
R339	0611079F01	1.00K, 1/10 W
R340	0611079G49	31.6K, 1/10W, +/-1%
R342	0611079G69	51.1K, +/-1%, 1/10 W
R402	0611079G11	12.7K, 1/10W, +/-1%
R403	0611079G58	Resistor chip 39.2K 1/10 W 1%
R404	0683962T56	200 ohms, +/-5%, 1W
R408,409	0611079F01	1.00K, 1/10 W
R420	0683962T56	200 ohms, +/-5%, 1W
R500	0611079B37	390K, +/-5%, 1/10W
R504	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R505	0611079G87	Resistor chip 78.7K 1/10 W 1%
R550	0611079F74	5.76K, +/-1%, 1/10 W
R601	0611079G69	51.1K, +/-1%, 1/10 W
R602,603	0611079G01	10k, +/-1%, 1/10 W
R604	0611079F01	1.00K, 1/10 W
R606,607	0611079F01	1.00K, 1/10 W
R608	0611079A95	10 ohms, +/-5%, 1/10 W
R700	0611079F74	5.76K, +/-1%, 1/10 W
R701	0611079G01	10k, +/-1%, 1/10 W
R702	0611079G69	51.1K, +/-1%, 1/10 W
R703	0611079G01	10k, +/-1%, 1/10 W
R704,705	0611079F01	1.00K, 1/10 W
R706	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R707	0611079A26	10 ohms, +/-5%, 1/10 W
R708	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R800	0611079G49	31.6K, 1/10W, +/-1%
R801	0611079D01	10K, +/-1%, 1/10 W
R806	0611079D30	200 ohms, 1%, 1/10W
R807	0611079G01	10k, +/-1%, 1/10 W
R808	0611072A09	22 ohms, +/-5%, 1/4 W
R811	0611079B47	1 MEG, +/-5%, 1/10 W
R813	0611079G11	12.7K, 1/10W, +/-1%
R814	0611079B35	330K +/-5%, 1/10 W
R816	0611079G60	Resistor chip 41.2K 1/10 W 1%
R817,818	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R819	0611079G05	Resistor chip 11.0K 1/10 W 1%
R820	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R821	0611079G60	Resistor chip 41.2K 1/10 W 1%
R822	0682089R01	RES CHIP .01 5% 2W
R823	0611079G01	10k, +/-1%, 1/10 W
R824	0611079G09	12.1K, 1/10W, +/-1%
R825	0611079G11	12.7K, 1/10W, +/-1%
R827	0611079G11	12.7K, 1/10W, +/-1%
R828	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R829	0611079D66	RES CHIP 475.0 1/10W 1%
R830	0611079G58	Resistor chip 39.2K 1/10 W 1%
R831	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R832,833	0611079G01	10k, +/-1%, 1/10 W
R834	0611079G58	Resistor chip 39.2K 1/10 W 1%
R835	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R836	0611079A98	10K, +/-5%, 1/10 W
R860	0611079G16	RES CHIP 14.3K 1/10W 1% 0805
R861	0611079G01	10k, +/-1%, 1/10 W
R862	0611079D66	RES CHIP 475.0 1/10W 1%
R863,864	0611079F81	RES CHIP 6.81K 1/10W 1% 0805
R865	0611079A98	10K, +/-5%, 1/10 W
R1000 thru 1003	0611079E01	100K, 1/10 W, +/-1%
R1004	0611079G01	10k, +/-1%, 1/10 W
R1005	0611079E01	100K, 1/10 W, +/-1%
R1006	0611079G01	10k, +/-1%, 1/10 W
R1007	0611079E01	100K, 1/10 W, +/-1%
R1008	0611079G01	10k, +/-1%, 1/10 W
R1009	0611079E01	100K, 1/10 W, +/-1%
R1010	0611079F01	1.00K, 1/10 W
R1011	0611079G01	10k, +/-1%, 1/10 W
R1012	0611079E01	100K, 1/10 W, +/-1%
R1016	0611079G02	RES CHIP 10.2K 1/10W 1% 0805

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R1017	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R1018	0611079F01	1.00K, 1/10 W
R1019	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1020	0611079G05	Resistor chip 11.0K 1/10 W 1%
R1021	0611079F01	1.00K, 1/10 W
R1022 thru 1025	0611072A15	39 ohms, +/-5%, 1/4W
R1026	0611079G49	31.6K, 1/10W, +/-1%
R1027	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1028	0611079B35	330K +/-5%, 1/10 W
R1029	0611079G01	10k, +/-1%, 1/10 W
R1030	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1031	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R1032	0611079E01	100K, 1/10 W, +/-1%
R1033,1034	0611079G01	10k, +/-1%, 1/10 W
R1035	0611079E73	562.0K, 1/10W, +/-1%
R1036	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1037	0611079G01	10k, +/-1%, 1/10 W
R1039,1040	0611079G01	10k, +/-1%, 1/10 W
R1041	0611072A55	1.8K, +/-5%, 1/4W
R1049	0611079G01	10k, +/-1%, 1/10 W
R1050	0611079B47	1 MEG, +/-5%, 1/10 W
R1053	0611079B47	1 MEG, +/-5%, 1/10 W
R1054	0611079F74	5.76K, +/-1%, 1/10 W
R1055	0611079B37	390K, +/-5%, 1/10W
R1056	0611079G01	10k, +/-1%, 1/10 W
R1057	0611079G02	RES CHIP 10.2K 1/10W 1% 0805
R1058	0611079G01	10k, +/-1%, 1/10 W
R1059	0611079G69	51.1K, +/-1%, 1/10 W
R1060	0611079F01	1.00K, 1/10 W
R1061	0611079E97	RES CHIP 1.0M 1/10W 1%
R1062 thru 1069	0611079F01	1.00K, 1/10 W
R1090	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R1091	0611079G01	10k, +/-1%, 1/10 W
R3100	0611079B47	1 MEG, +/-5%, 1/10 W
R3101	0611079G01	10k, +/-1%, 1/10 W
R3108	0611079G01	10k, +/-1%, 1/10 W
R3109	0611079B47	1 MEG, +/-5%, 1/10 W
		transformer:
T200,201	2582041Y02	XFMR PWR 3.5MH 100KHZ
		integrated circuit: (see note)
U200,201	5184200T02	IC HI LO DRVR, IR2110S, SM
U300	5113819A05	High Performance, Single Supply
U301	5113815A08	Precision Voltage Reference
U302,303	4882759Y01	OPTO ISOLATOR NO BASE CONN
U304	5113815A08	Precision Voltage Reference
U305	5113819A05	High Performance, Single Supply
U400	5113815A08	Precision Voltage Reference
U500	5113806A23	Inverter
U501	5113806A05	Dual D-Type Flip-Flop
U600	5182276R74	Current Mode Control
U700	5182276R74	Current Mode Control
U801	5113806A05	Dual D-Type Flip-Flop
U802	5113815A08	Precision Voltage Reference
U803	5184200T02	IC HI LO DRVR, IR2110S, SM
U804	5113819A05	High Performance, Single Supply
U805	5182276R74	Current Mode Control
U806	5113815A08	Precision Voltage Reference
U1000	5113805A22	Quad 2-Input Exclusive OR Gate
U1001	5113805A13	Quad 2-Input OR Gate
U1003	5113809A22	Dual 1 of 4 Decoder/Demultiplexer
U1004	5113811A08	IC; 8-bit
U1005	5113819A05	High Performance, Single Supply
U1006	4882759Y01	OPTO ISOLATOR NO BASE CONN
U3101	5113815A17	IC 555 TIMER _1455_
		voltage regulator: (see note)
VR200 thru 202	4813830A31	Zener, 18V
VR204 thru 206	4813830A31	Zener, 18V
VR302	4813830A14	Zener, 5.1 V
		crystal: (see note)
Y500	4884186T01	266.667KHZ
		non-referenced items:
	0180706F72	PRIMARY HEATSINK W/4 FETS
	0180706F73	SECONDARY HEATSINK W/4 DIODES
	2683676T02	HEAT SINK (used with D807)
	2683678T02	HEAT SINK (used with Q801)
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	8482340Y06	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

DC-DC MAIN BOARD
MODEL CPN6064C



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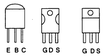
BASING DETAILS

TRANSISTORS



Q201, 202 Q203–206 Q100
Q207, 208

DIODES

D202, 205–7, D209, 210,
D212, D214

PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE FOR CONNECTOR J200

CONNECTOR J200 PIN #	SIGNAL NAME
1	TEMP_SENSE
2	28V_FEEDBACK
3	GND_SEC_SIG
4	GND_SEC_SIG
5	NOT USED
6	SYNC
7	VBULK
8	NOT USED
9	I_SENSE–
10	I_SENSE1+
11	GND_PRI
12	I_SENSE2+
13	V_GATE_1
14	V_GATE_2
15	GND_PRI
16	PRI_OVP
17	VCC_PRI
18	VIN_SW
19	DC_GOOD_LED
20	MOD_FAIL_LED
21	NOT USED
22	NOT USED
23	FAN_SUPPLY
24	GND_SEC_SIG
25	FAN_SENSE
26	GND_SEC_SIG

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parts list

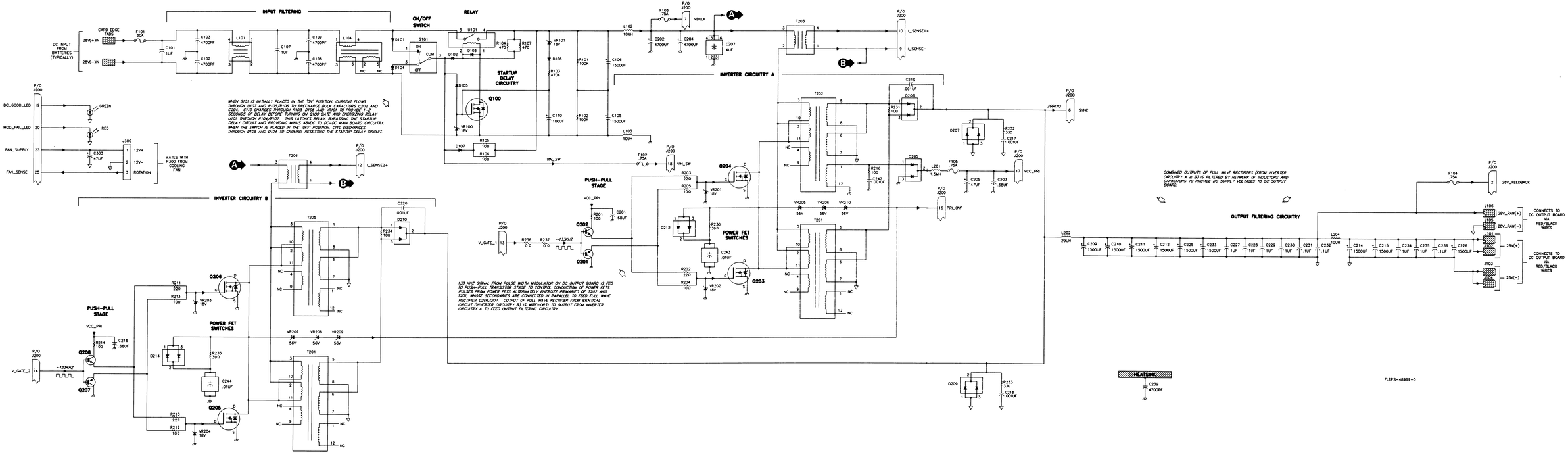
CPN6064C DC-DC Main Board PL–13192–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C101	0811051A19	1 uF, +5%/–0.5%, 63 V
C102,103	2183676X04	CAP CER DISC4700PFX1.Y2 250VAC
C105,106	2313748H43	1500 uF, ±20%, 35V
C107	0811051A19	1 uF, +5%/–0.5%, 63 V
C108,109	2183676X04	CAP CER DISC4700PFX1.Y2 250VAC
C110	2313748G09	10 uF, ±20%, 35 V
C201	0811051A18	0.68 uF, ±5%, 63 V
C202	2384190T02	4700 uF, +20.6%/–20%, 100V
C203	0811051A18	0.68 uF, ±5%, 63 V
C204	2384190T02	4700 uF, +20.6%/–20%, 100V
C205	2313748G19	47 uF, ±20%, 35 V
C207	0883531X01	CAP PLYMER 4.0UF 100V
C209 thru 212	2313748H43	1500 uF, ±20%, 35V
C214,215	2313748H43	1500 uF, ±20%, 35V
C216	0811051A18	0.68 uF, ±5%, 63 V
C217 thru 220	0882650Y02	CAP POLY 600V .001UF PREFRM LD
C225,226	2313748H43	1500 uF, ±20%, 35V
C227 thru 230	0811051A19	1 uF, +5%/–0.5%, 63 V
C231,232	0811051A13	0.1 uF, ±5%, 63 V
C233	2313748H43	1500 uF, ±20%, 35V
C234,235	0811051A19	1 uF, +5%/–0.5%, 63 V
C236	0811051A13	0.1 uF, ±5%, 63 V
C240	0811051A19	1 uF, +5%/–0.5%, 63 V
C242	0882650Y02	CAP POLY 600V .001UF PREFRM LD
C243,244	0884188T04	CAP POLYP 10NF, 400V AX
C303	2313748G19	47 uF, ±20%, 35 V
		diode (see note):
D101 thru 107	4813833D08	1A, 600V
D202	4813832E11	ultrafast 8A, 600V
D205	4813832E05	DIODE SCHOTTKY DL 20A 100V
D206,207	4813832E19	DIODE SCHOTTKY 20A 200V
D209,210	4813832E19	DIODE SCHOTTKY 20A 200V
D212	4813832E19	DIODE SCHOTTKY 20A 200V
D214	4813832E19	DIODE SCHOTTKY 20A 200V
		light emitting diode (see note):
DS301	4882425C24	RED
DS302	4882425C22	GRN
		fuse:
F101	6583567X01	FUSE, PIGTAIL 30A 125V SLOBLOW
F102 thru 105	6580011N03	FUSES AXIAL 0.75A FAST BLOW
		unknown:
		connector:
J101 thru 106	2983816X02	TAB, PC BOARD, LOOSE
J200	2983396P05	plug; 26 –contact
J300	2813992A03	HDR 3 POS STR .1 CTR GLD PLTD
		inductor:
L101	2483265X02	INDUCTOR COMMON MODE575UH 13A
L102,103	2483265X05	INDUCTOR POWER 10UH, 20A VERT
L104	2485113U01	Common Module
L201	2482704Y01	INDUCTOR 1500UH RADIAL LEAD .4AL
L202	2484172T01	30 uF filter
L204	2483265X05	INDUCTOR POWER 10UH, 20A VERT
		translator (see note):
Q100	4813821D35	MOSFET N–CH 60V 50A
Q201	4813824D16	TSTR HI IC–PNP 40V 2A MPS750
Q202	4813824D15	TSTR HI IC–NPN 40V 2A MPS650
Q203 thru 206	4813821D40	TSTR TMOS PWR FET N–CH 32A 200
Q207	4813824D16	TSTR HI IC–PNP 40V 2A MPS750
Q208	4813824D15	TSTR HI IC–NPN 40V 2A MPS650
		resistor, fixed:
R101,102	0611009A97	100K, ±5%, 1/4W
R103	0611009B14	470K, ±5%, 1/4W
R104	0611009A41	470 ohms, ±5%, 1/4W

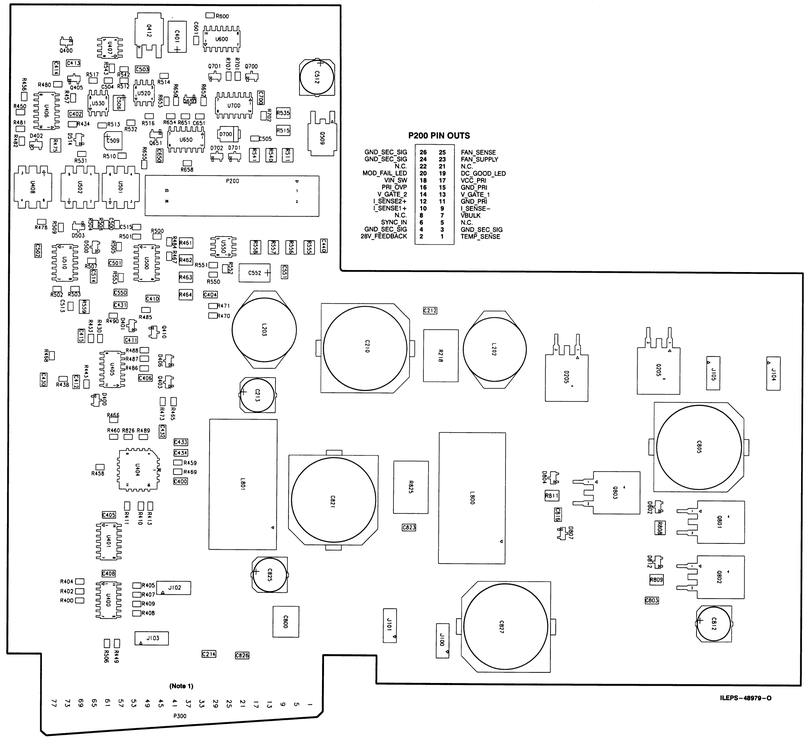
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R105,106	1780336G08	10 ohms, ±5%, 2W
R107	0611009A41	470 ohms, ±5%, 1/4W
R201	0611009A01	10 ohms, ±5%, 1/4W
R202,203	0611009A09	22 ohms, ±5%, 1/4 W
R204,205	0611009A01	10 ohms, ±5%, 1/4W
R210,211	0611009A09	22 ohms, ±5%, 1/4 W
R212 thru 214	0611009A01	10 ohms, ±5%, 1/4W
R216	0611066C11	10 ohms, ±5%, 2W
R230	0683656X01	RES WW 5 39 10 VERT
R231	0611009A01	10 ohms, ±5%, 1/4W
R232,233	0611066C23	33 ohms, ±5%, 2W
R234	0611009A01	10 ohms, ±5%, 1/4W
R235	0683656X01	RES WW 5 39 10 VERT
R236,237	0811009B23	0 ohm, ±5%, 1/4 W
		switch:
S101	4083980R13	SW RKR SPDT RT ANG PC MT
		transformer:
T201,202	2583817X01	XFMR, PWR,133KHZ,5W, E375 CIB
T203	2584168T01	current sensing
T204,205	2583817X01	XFMR, PWR,133KHZ,5W, E375 CIB
T206	2584168T01	current sensing
		integrated circuit (see note):
U101	8083356X01	RELAY PC MOUNT SPST N048V 30A
		zener diode (see note):
VR100,101	4882479V18	DIODE ZENER 18V
VR201 thru 204	4882479V18	DIODE ZENER 18V
VR205 thru 210	4813830D46	DIODE 56V 5% 2.2MA 500MW
		non–referenced items:
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (6 used)
	2683580X01	HTSINK, U CHANNEL 5 IN.
	4283685X01	CLIP, TO220 & TO247 (2 used)
	5482006W02	ribbon, thermal transfer
	5482008W03	BARCODE LABEL
	8483643X03	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

DC-DC MAIN BOARD
MODEL CPN6064C



DC OUTPUT BOARD
MODEL CPN6068B



NOTES:

THE CIRCUIT BOARD EDGE CONNECTOR P300 HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE TOP SIDE CONTACTS ARE ODD NUMBERED, AND THE BOTTOM SIDE CONTACTS ARE EVEN NUMBERED.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

TOP SIDE		BOTTOM SIDE	
CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
1	PLUG_IN_PIN1	2	GND_SEC_PWR
3	GND_SEC_PWR	4	28V
5	28V	6	28V
7	28V	8	28V
9	28V	10	28V
11	28V	12	28V
13	28V	14	28V
15	28V	16	+14V
17	+14V	18	+14V
19	+14V	20	+14V
21	+14V	22	+14V
23	+14V	24	+5V
25	+5V	26	+5V
27	+5V	28	+5V
29	+5V	30	+5V
31	+5V	32	GND_SEC_PWR
33	GND_SEC_PWR	34	GND_SEC_PWR
35	GND_SEC_PWR	36	GND_SEC_PWR
37	GND_SEC_PWR	38	GND_SEC_PWR
39	GND_SEC_PWR	40	GND_SEC_PWR
41	GND_SEC_PWR	42	GND_SEC_PWR
43	GND_SEC_PWR	44	GND_SEC_PWR
45	GND_SEC_PWR	46	GND_SEC_PWR
47	GND_SEC_PWR	48	GND_SEC_PWR
49	GND_SEC_PWR	50	GND_SEC_PWR
51	GND_SEC_PWR	52	GND_SEC_PWR
53	GND_SEC_PWR	54	FAN_CONTROL
55	N.C.	56	N.C.
57	PRI_SHUTDOWN	58	POWER_SHARE
59	N.C.	60	SPI_MISO
61	SPI_MOSI	62	SPI_CLOCK
63	N.C.	64	N.C.
65	N.C.	66	N.C.
67	A0	68	A1
69	A5	70	P4
71	A4	72	P3
73	A3	74	P2
75	A2	76	GND_SEC
77	GND_SEC	78	GND_SEC

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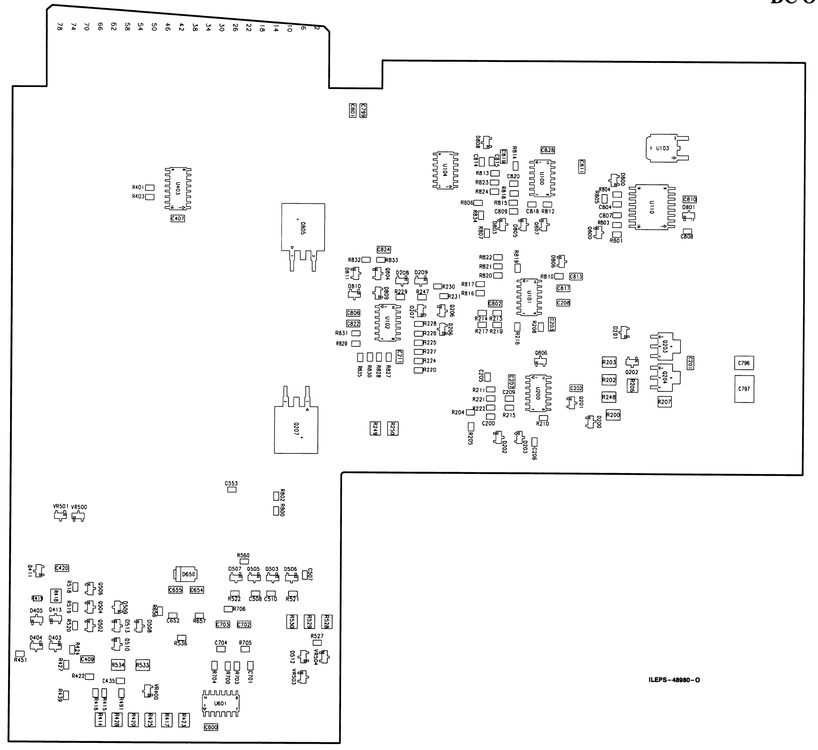

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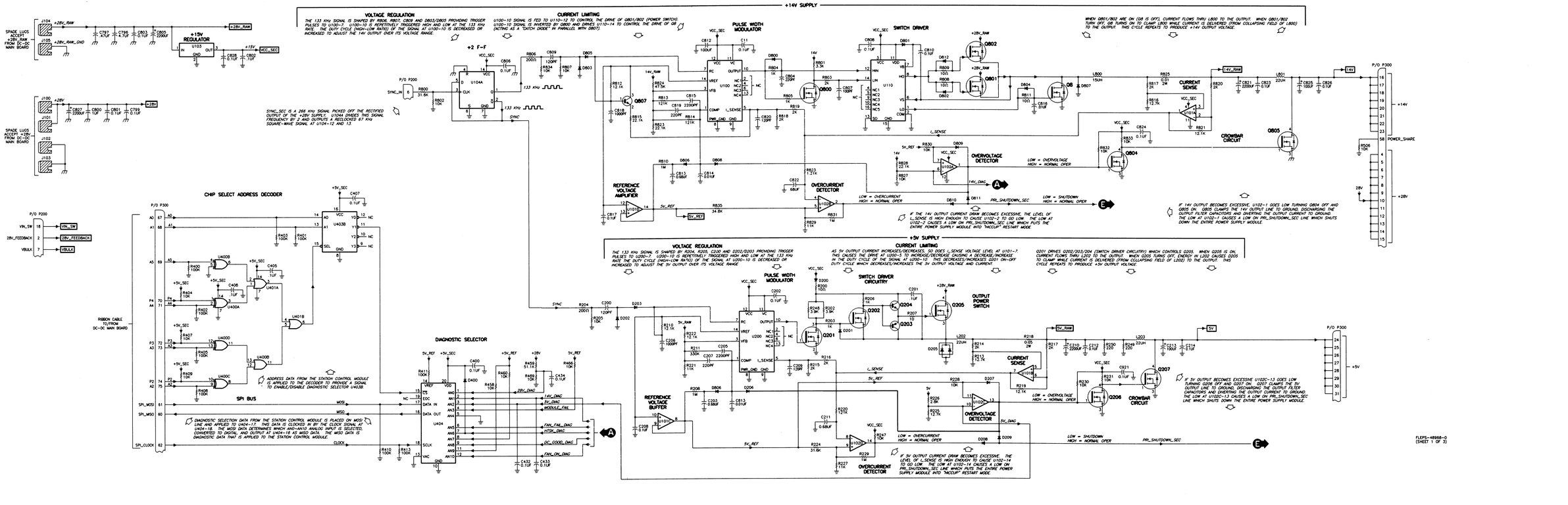
DC OUTPUT BOARD

MODEL CPN6068B



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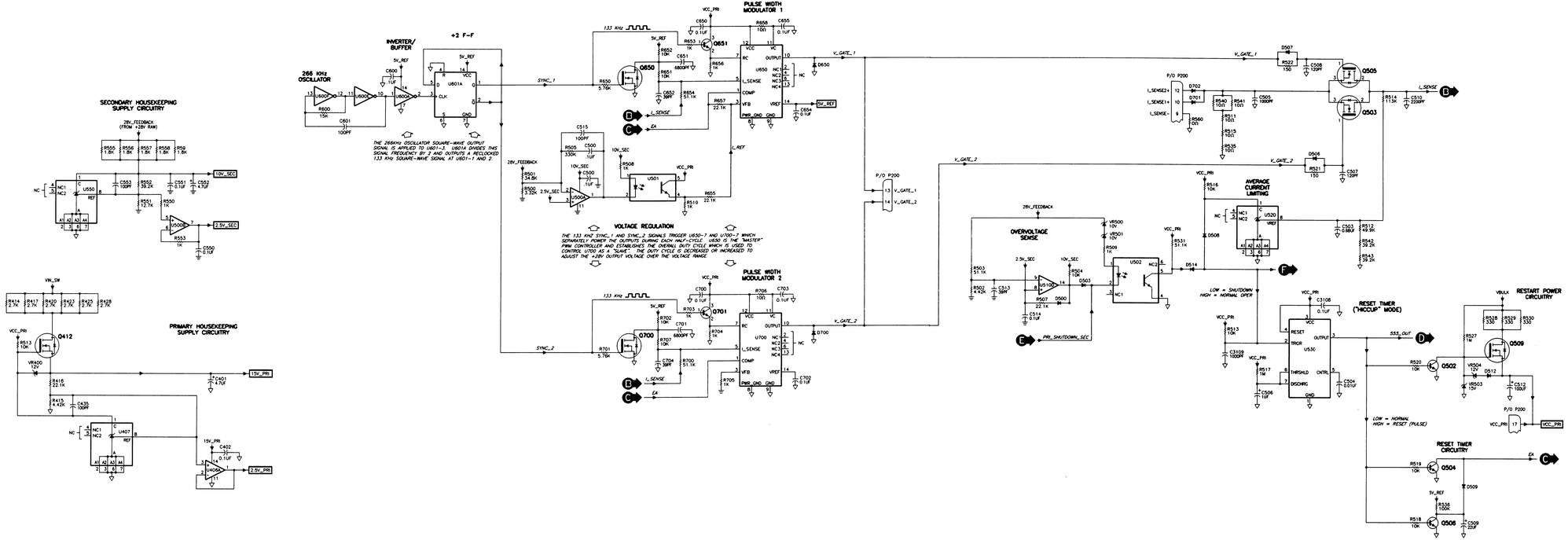

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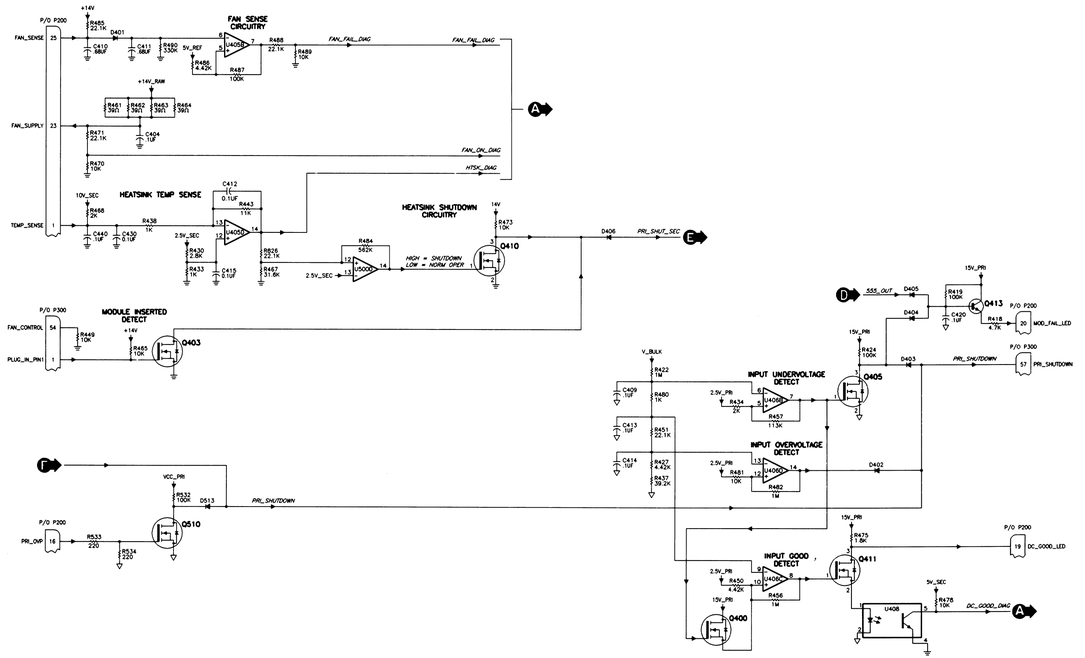
DC OUTPUT BOARD
MODEL CPN6068B

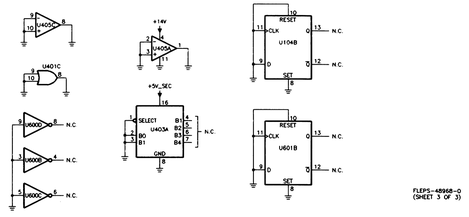


INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	SG2843	CURRENT MODE SWITCHING REGULATOR	11,12	8,9
U101	MC33074	QUAD, HIGH PERFORMANCE SINGLE-SUPPLY OPERATIONAL AMPLIFIER	4	11
U102	LM2901	QUAD, SINGLE-SUPPLY COMPARATORS	3	12
U103	MC78M15B	15V, FIXED-VOLTAGE, POSITIVE REGULATOR	1	2
U104	MC14013	DUAL D FLIP-FLOP	14	7
U110	IR2110S	HIGH/LOW DRIVER	14	7
U200	SG2843	CURRENT MODE SWITCHING REGULATOR	11,12	8,9
U400	MC74C86	QUAD 2-INPUT EXCLUSIVE OR GATE	14	7
U401	MC74C32	QUAD 2-INPUT OR GATE	14	7
U403	MC74C86	QUAD 2-INPUT EXCLUSIVE OR GATE	14	7
U404	MC145041	11-CHANNEL 8-BIT A/D CONVERTER WITH SERIAL INTERFACE	20	10
U405,U406	MC33074	QUAD, HIGH PERFORMANCE SINGLE-SUPPLY OPERATIONAL AMPLIFIER	4	11
U407	TL4311DR2	PROGRAMMABLE PRECISION VOLTAGE REFERENCE	–	–
U408	MOC8106SR2W	OPTO-ISOLATOR	–	–
U500	MC33074	QUAD, HIGH PERFORMANCE SINGLE-SUPPLY OPERATIONAL AMPLIFIER	4	11
U501,U502	MOC8106SR2W	OPTO-ISOLATOR	–	–
U510	LM2901	QUAD SINGLE-SUPPLY COMPARATORS	3	12
U520	TL4311DR2	PROGRAMMABLE PRECISION VOLTAGE REFERENCE	–	–
U530	MC14558	TIMING CIRCUIT (555)	8	1
U550	TL4311DR2	PROGRAMMABLE PRECISION VOLTAGE REFERENCE	–	–
U600	MC14069	HEX INVERTER	14	7
U601	MC14013	DUAL D FLIP-FLOP	14	7
U650	SG2843	CURRENT MODE SWITCHING REGULATOR	11,12	8,9
U700	SG2843	CURRENT MODE SWITCHING REGULATOR	11,12	8,9

LEGEND:
- CHASSIS GND
- DC GND
- SIGNAL GND

UNUSED GATES



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parts list

CPN6068B DC Output Board PL–13197–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C200	2113740A57	120 pF, ±5%; 50V
C201,202	2113741B69	0.1 uF, ±5%; 50 V
C203	2113743B27	0.680 uF, ±10%
C205	2113741A29	2200 pF, ±5%; 50 V
C206	2113740A79	1000 pF, ±5%; 50 V
C207	2113740B57	220 pF, ±30%; 50 V
C208	2113741B69	0.1 uF, ±5%; 50 V
C209	2113740A57	120 pF, ±5%; 50V
C210	2382372Y01	CAP ALU 220UF 20% 35V SURF MT
C211	2113743B27	0.680 uF, ±10%
C212	2113741B69	0.1 uF, ±5%; 50 V
C213	2380090M25	100 uF, 25 V
C214	2113741B69	0.1 uF, ±5%; 50 V
C400	2113741B69	0.1 uF, ±5%; 50 V
C401	2311049A15	4.7 uF, ±10%; 35V
C402	2113741B69	0.1 uF, ±5%; 50 V
C404 thru 409	2113741B69	0.1 uF, ±5%; 50 V
C410,411	2113743B27	0.680 uF, ±10%
C412 thru 415	2113741B69	0.1 uF, ±5%; 50 V
C420	2113741B69	0.1 uF, ±5%; 50 V
C430	2113741B69	0.1 uF, ±5%; 50 V
C431	2113743B27	0.680 uF, ±10%
C432 thru 434	2113741B69	0.1 uF, ±5%; 50 V
C435	2113740A55	100 pF, ±5%; 50 V
C440	2113741B69	0.1 uF, ±5%; 50 V
C500	2113741A45	0.01 uF, ±5%; 50 V
C501,502	2113741B69	0.1 uF, ±5%; 50 V
C503	2113743B27	0.680 uF, ±10%
C504	2113741A45	0.01 uF, ±5%; 50 V
C505	2113740A79	1000 pF, ±5%; 50 V
C506	2311049A08	1 uF, ±10%; 35 V
C507,508	2113740A57	120 pF, ±5%; 50V
C509	2380090M04	22 uF, ±20%; 6.3V
C510	2113741A29	2200 pF, ±5%; 50 V
C512	2380090M25	100 uF, 25 V
C513	2113740A43	39 pF, ±5%; 50 V
C514	2113741B69	0.1 uF, ±5%; 50 V
C515	2113740A55	100 pF, ±5%; 50 V
C550,551	2113741B69	0.1 uF, ±5%; 50 V
C552	2311049A15	4.7 uF, ±10%; 35V
C553	2113740A55	100 pF, ±5%; 50 V
C600	2113741B69	0.1 uF, ±5%; 50 V
C601	2113740A55	100 pF, ±5%; 50 V
C650	2113741B69	0.1 uF, ±5%; 50 V
C651	2113741A41	6800 pF, ±5%; 50 V
C652	2113740A43	39 pF, ±5%; 50 V
C654,655	2113741B69	0.1 uF, ±5%; 50 V
C700	2113741B69	0.1 uF, ±5%; 50 V
C701	2113741A41	6800 pF, ±5%; 50 V
C702,703	2113741B69	0.1 uF, ±5%; 50 V
C704	2113740A43	39 pF, ±5%; 50 V
C796	2109822S03	CAP CHIP CER 4.7UF 35V 1812
C797	2113741H36	CAP CHIP 470,000PF 10% 100V
C799	2113741B69	0.1 uF, ±5%; 50 V
C800	0882422W45	CAP FILM 5M 1.0UF 63V 5%
C801 thru 803	2113741B69	0.1 uF, ±5%; 50 V
C804	2113741A05	220 pF, ±5%; 50V
C805	2382372Y01	CAP ALU 220UF 20% 35V SURF MT
C806	2113741B69	0.1 uF, ±5%; 50 V
C807	2113740A55	100 pF, ±5%; 50 V
C808	2113741A45	0.01 uF, ±5%; 50 V
C809	2113740A57	120 pF, ±5%; 50V
C810,811	2113741B69	0.1 uF, ±5%; 50 V
C812	2380090M25	100 uF, 25 V
C813	2113743B27	0.680 uF, ±10%
C814	2113741A45	0.01 uF, ±5%; 50 V
C815	2113741A29	2200 pF, ±5%; 50 V
C816	2113741B45	0.01 uF, ±5%; 50 V
C817	2113741B69	0.1 uF, ±5%; 50 V
C818	2113740A79	1000 pF, ±5%; 50 V
C819	2113740B57	220 pF, ±30%; 50 V
C820	2113740A57	120 pF, ±5%; 50V
C821	2382372Y01	CAP ALU 220UF 20% 35V SURF MT
C822	2113743B27	0.680 uF, ±10%
C823,824	2113741B69	0.1 uF, ±5%; 50 V
C825	2380090M25	100 uF, 25 V
C826	2113741B69	0.1 uF, ±5%; 50 V
C827	2382372Y01	CAP ALU 220UF 20% 35V SURF MT
C828	2113741B69	0.1 uF, ±5%; 50 V
		diode (see note):
D200 thru 203	4813833C10	0.1A, 70 V
D205	4813833A07	DIODE SCHOTTKY DL 20A 100V
D206 thru 209	4813833C10	0.1A, 70 V
D400 thru 406	4813833C10	0.1A, 70 V
D500	4813833C10	0.1A, 70 V
D503	4813833C10	0.1A, 70 V
D506 thru 509	4813833C10	0.1A, 70 V
D512 thru 514	4813833C10	0.1A, 70 V
D650	4813833B01	Schottky type
D700	4813833B01	Schottky type
D701,702	4813833C10	0.1A, 70 V
D800 thru 812	4813833C10	0.1A, 70 V
		connector:
J100 thru 105	2983816X02	TAB, PC BOARD, LOOSE
P200	2883290P05	plug: 26–contact
		Inductor:
L202,203	2485069U06	INDUCTOR FIXED SM 22UH 200KHZ
L800	2484172T09	INDCTR FILTER 15UH 9A
L801	2484172T06	CHK TORID 14V FLTR
		transistor (see note):
Q201,202	2N7002LT1	FET
Q203	4813824B08	TSTR PNP HI CURRENT 60V 2A
Q204	4813824B07	TSTR NPN HI CURRENT 60V 2A
Q205	4813821A33	TSTR N–CH 60V 50A
Q206	2N7002LT1	FET
Q207	4813821A33	TSTR N–CH 60V 50A
Q400	2N7002LT1	FET
Q403	2N7002LT1	FET
Q405	2N7002LT1	FET
Q410,411	2N7002LT1	FET
Q412	4813821A36	TSTR N–CH 60V 12A
Q413	4813824A11	NPN
Q502	4813824A11	NPN
Q503	2N7002LT1	FET
Q504	4813824A11	NPN
Q505	2N7002LT1	FET
Q506	4813824A11	NPN
Q509	4813821A52	TSTR N–CH 60V 12A
Q510	2N7002LT1	FET
Q650	2N7002LT1	FET
Q651	4813824A11	NPN
Q700	2N7002LT1	FET
Q701	4813824A11	NPN
Q800	2N7002LT1	FET
Q801 thru 803	4813821A33	TSTR N–CH 60V 50A
Q804	2N7002LT1	FET
Q805	4813821A33	TSTR N–CH 60V 50A
Q806	4813833C10	0.1A, 70 V
Q807	4813824A11	NPN
		resistor, fixed:
R200	0611072A01	10 ohms, ±5%; 1/4 W
R202	0611072A63	3900 ohms, ±5%; 1/4W
R203	0611072A49	1K, ±5%, 1/4 W
R204	0611079D30	200 ohms, 1%; 1/10W
R205	0611079G01	10k, ±1%; 1/10 W
R206	0611072A49	1K, ±5%, 1/4 W
R207	0611072A01	10 ohms, ±5%; 1/4 W
R208	0611079E97	RES CHIP 1.0M 1/10W 1%
R210	0611079G09	12.1K, 1/10 W; ±1%
R211	0611079B35	330K ±5%; 1/10 W
R213	0611079G11	12.7K, 1/10W; ±1%
R214 thru 217	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R218	0682089V04	RES CHIP .051 5% 2W
R219	0611079G09	12.1K, 1/10 W; ±1%
R220	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R221	0611079G05	Resistor chip 11.0K 1/10 W 1%
R222	0611079G09	12.1K, 1/10 W; ±1%
R224	0611079G49	31.6K, 1/10W; ±1%
R225	0611079G11	12.7K, 1/10W; ±1%
R226	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R227	0611079G05	Resistor chip 11.0K 1/10 W 1%
R228	0611079G01	10k, ±1%; 1/10 W
R229	0611079E97	RES CHIP 1.0M 1/10W 1%
R230,231	0611079G01	10k, ±1%; 1/10 W
R247	0611079G01	10k, ±1%; 1/10 W
R248	0611072A63	3900 ohms, ±5%; 1/4W
R249,250	0611072A33	220 ohms, ±5%, 1/4 W
R400 thru 403	0611079E01	100K, 1/10 W; ±1%
R404	0611079G01	10k, ±1%; 1/10 W
R405	0611079E01	100K, 1/10 W; ±1%
R407	0611079G01	10k, ±1%; 1/10 W
R408	0611079E01	100K, 1/10 W; ±1%
R409	0611079G01	10k, ±1%; 1/10 W
R410	0611079E01	100K, 1/10 W; ±1%
R411	0611079F01	1.00K, 1/10 W
R413	0611079E01	100K, 1/10 W; ±1%
R414	0611072A59	2.7K ±5%; 1/4 W
R415	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R416	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R417	0611072A59	2.7K ±5%; 1/4 W
R418	0611072A65	RES CHIP 4700 5 1/4W
R419	0611079E01	100K, 1/10 W; ±1%
R420	0611072A59	2.7K ±5%; 1/4 W
R422	0611079E97	RES CHIP 1.0M 1/10W 1%
R423	0611072A59	2.7K ±5%; 1/4 W
R424	0611079E01	100K, 1/10 W; ±1%
R425	0611072A59	2.7K ±5%; 1/4 W
R427	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R428	0611072A59	2.7K ±5%; 1/4 W
R430	0611079F44	RES CHIP 2.80K 1/10W 1% 0805
R433	0611079F01	1.00K, 1/10 W
R434	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R438	0611079F01	1.00K, 1/10 W
R439	0611079G58	Resistor chip 39.2K 1/10 W 1%
R443	0611079G05	Resistor chip 11.0K 1/10 W 1%
R449	0611079G01	10k, ±1%; 1/10 W
R450	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R451	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R456	0611079E97	RES CHIP 1.0M 1/10W 1%
R457	0611079E06	RES CHIP 113.0K 1/10W 1%
R458	0611079G01	10k, ±1%; 1/10 W
R459	0611079G69	51.1K, ±1%; 1/10 W
R460	0611079G01	10k, ±1%; 1/10 W
R461 thru 464	0611072A15	39 ohms, ±5%; 1/4W
R465,466	0611079G01	10k, ±1%; 1/10 W
R467	0611079G49	31.6K, 1/10W; ±1%
R468	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R469,470	0611079G01	10k, ±1%; 1/10 W
R471	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R473	0611079G01	10k, ±1%; 1/10 W
R475	0611072A55	1.8K, ±5%; 1/4W
R478	0611079G01	10k, ±1%; 1/10 W
R480	0611079F01	1.00K, 1/10 W
R481	0611079G01	10k, ±1%; 1/10 W
R482	0611079E97	RES CHIP 1.0M 1/10W 1%
R484	0611079E73	562.0K, 1/10W; ±1%
R485	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R486	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R487	0611079E01	100K, 1/10 W; ±1%
R488	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R489	0611079G01	10k, ±1%; 1/10 W
R490	0611079B35	330K ±5%; 1/10 W
R491	0611079G01	10k, ±1%; 1/10 W
R500	0611079F51	RES CHIP 3.32K 1/10W 1% 0805
R501	0611079G53	34.8K, 1/10W ±1% 0805
R502	0611079F63	RES CHIP 4.42K 1/10W 1% 0805
R503	0611079G69	51.1K, ±1%; 1/10 W
R504	0611079G01	10k, ±1%; 1/10 W
R505	0611079B35	330K ±5%; 1/10 W
R506	0611079G01	10k, ±1%; 1/10 W
R507	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R508 thru 510	0611079F01	1.00K, 1/10 W
R511	0611072A01	10 ohms, ±5%; 1/4 W
R512	0611079G68	RES CHIP 49.9K 1/10W 1% 0805
R513	0611079G01	10k, ±1%; 1/10 W
R514	0611079E06	RES CHIP 113.0K 1/10W 1%
R515	0611072A01	10 ohms, ±5%; 1/4 W
R516	0611079G69	51.1K, ±1%; 1/10 W
R517	0611079E97	RES CHIP 1.0M 1/10W 1%
R518 thru 520	0611079G01	10k, ±1%; 1/10 W
R521,522	0611079D18	RES CHIP 150.0 1/10W 1%
R527	0611079G66	47.5K, 1/10W; ±1%
R528 thru 530	0611072A37	330 1/4 W
R531	0611079G69	51.1K, ±1%; 1/10 W
R532	0611079E01	100K, 1/10 W; ±1%
R533,534	0611072A33	220 ohms, ±5%, 1/4 W
R535	0611072A01	10 ohms, ±5%; 1/4 W
R536	0611079E01	100K, 1/10 W; ±1%
R540,541	0611072A01	10 ohms, ±5%; 1/4 W
R542,543	0611079G58	Resistor chip 39.2K 1/10 W 1%
R550	0611079F01	1.00K, 1/10 W
R551	0611079G11	12.7K, 1/10W; ±1%
R552	0611079G58	Resistor chip 39.2K 1/10 W 1%
R553	0611079F01	1.00K, 1/10 W
R555 thru 559	0611072A55	1.8K, ±5%; 1/4W
R560	0611079A01	O ohms, ±5%; 1/10 W
R600	0611079G18	15K, ±1%; 1/10 W
R650	0611079F74	5.76K, ±1%; 1/10 W
R651,652	0611079G01	10k, ±1%; 1/10 W
R653	0611079F01	1.00K, 1/10 W
R654	0611079G69	51.1K, ±1%; 1/10 W
R655	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R656	0611079F01	1.00K, 1/10 W
R657	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R658	0611079A26	10 ohms, ±5%; 1/10 W
R700	0611079G69	51.1K, ±1%; 1/10 W
R701	0611079F74	5.76K, ±1%; 1/10 W
R702	0611079G01	10k, ±1%; 1/10 W
R703 thru 705	0611079F01	1.00K, 1/10 W
R706	0611079A26	10 ohms, ±5%; 1/10 W
R707	0611079G01	10k, ±1%; 1/10 W
R800	0611079G49	31.6K, 1/10W; ±1%
R801	0611079A86	3300 ohms, ±5%; 1/10 W
R802	0611079G01	10k, ±1%; 1/10 W
R803	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R804,805	0611079F01	1.00K, 1/10 W
R806	0611079D30	200 ohms, 1%; 1/10W
R807	0611079G01	10k, ±1%; 1/10 W
R808,809	0611072A01	10 ohms, ±5%; 1/4 W
R810	0611079E97	RES CHIP 1.0M 1/10W 1%
R811	0611072A01	10 ohms, ±5%; 1/4 W
R812	0611079G09	12.1K, 1/10 W; ±1%
R813,814	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R815	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R816	0611079G11	12.7K, 1/10W; ±1%
R817 thru 820	0611079F30	RES CHIP 2.00K 1/10W 1% 0805
R821	0611079G09	12.1K, 1/10 W; ±1%
R822	0611079E09	Resistor: chip 121.0K 1/10 W 1%
R823	0611079G01	10k, ±1%; 1/10 W
R824	0611079G66	47.5K, 1/10W; ±1%
R825	0682089V01	RES CHIP .01 5% 2W
R826	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R827	0611079G01	10k, ±1%; 1/10 W
R828	0611079G34	RES CHIP 22.1K 1/10W 1% 0805
R829	0611079G05	Resistor chip 11.0K 1/10 W 1%
R830	0611079G01	10k, ±1%; 1/10 W
R831	0611079E97	RES CHIP 1.0M 1/10W 1%
R832 thru 834	0611079G01	*0k, ±1%; 1/10 W
R835	0611079G53	34.8K, 1/10W ±1% 0805
		integrated circuit (see note):
U100	5182276R74	Current Mode Control
U101	5113819A05	High Performance, Single Supply
U102	5113820A03	Quad Single/Dual Supply
U103	5113816A10	REG 15V POS 500MA MC78M15BDTRK
U104	5113806A05	Dual D–Type Flip–Flop
U110	5184200T02	IC HI LO DRVR, IR21105, SM
U200	5182276R74	Current Mode Control
U400	5113805A22	Quad 2–Input Exclusive OR Gate
U401	5113805A13	Quad 2–Input OR Gate
U403	5113808A22	Dual 1 of 4 Decoder/Demultiplexer
U404	5182374Y01	IC A/D 8 BIT
U405,406	5113819A05	High Performance, Single Supply
U407	5113815A08	Precision Voltage Reference
U408	4882759Y01	OPTO ISOLATOR NO BASE CONN
U500	5113819A05	High Performance, Single Supply
U501,502	4882759Y01	OPTO ISOLATOR NO BASE CONN
U510	5113820A03	Quad Single/Dual Supply
U520	5113815A08	Precision Voltage Reference
U530	5113815A17	IC 555 TIMER _1455_
U550	5113815A08	Precision Voltage Reference
U600	5113806A23	Inverter
U601	5113806A05	Dual D–Type Flip–Flop
U650	5182276R74	Current Mode Control
U700	5182276R74	Current Mode Control
		voltage regulator (see note):
VR400	4813830A25	Zener 12 V
VR500,501	4813830A23	DIODE 10V 5% 225MW MMBZ5240B_
VR503	4813830A28	Zener 15 V
VR504	4813830A25	Zener 12 V
		non–referenced items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	8483746X02	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

MOTOROLA

STATION BACKPLANE

MODEL TRN7480A
(Quantar)

1 NET LIST

The listing on the following pages provides"Net List" information for the connectors on both sides of the station backplane board. The example in Figure 1 describes how to interpret the information.

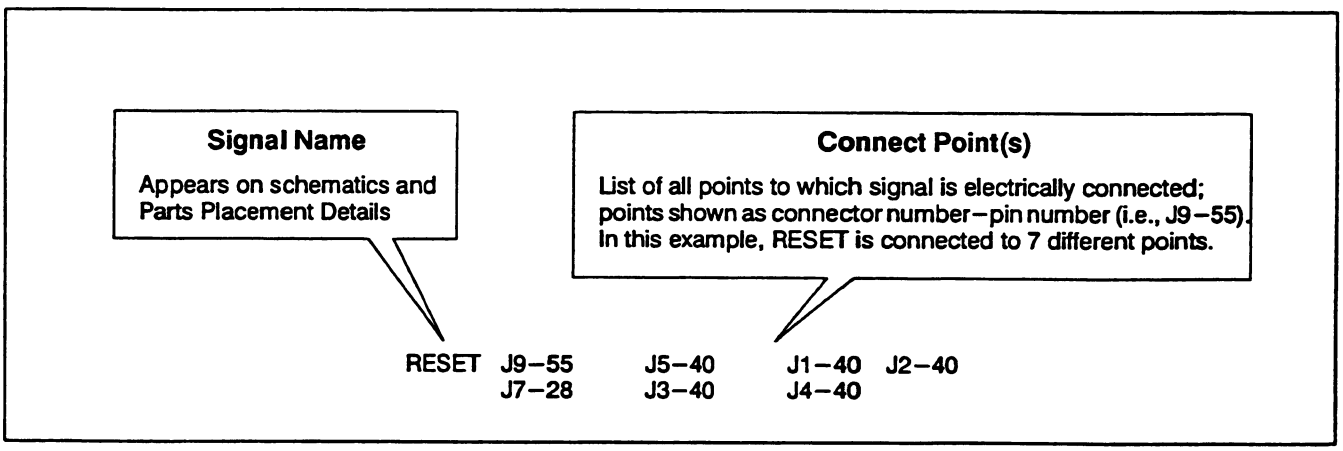

Figure 1. Interpreting Net List Information Example

Land Mobile Products Sector
1301 E. Algonquin Road, Schaumburg, IL 60196

68P81088E12–O
7/15/94–UP

Net List

RCLK3	J8	42	J15	17
LINE1–	J6	2J17	26	
GenTxData–	J6	26		
	J17	34		
AuxOut3	J6	30	J17	38
AuxOut1	J6	28	J17	36
LINE4–	J6	20	J17	29
LINE2–	J6	8	J17	27
AuxIn2(TxInh	J6	58	J17	12
AuxIn6	J6	54	J17	16
AuxOut7rla+	J6	52	J17	18
AuxOut9Rla+	J6	50	J17	20
AuxIn9–opto+	J6	48	J17	22
AuxIn11–opto+	J6	46	J17	24
AuxIn4(RxInh	J6	56	J17	14
RxD1	J8	50	J20	2
CTS1	J8	52	J20	8
LINE3–	J6	14	J17	28
Modem–	J8	1	J17	30
LinePTTDtGCC	J14	10	J8	16
ExtSpare#8	J31	3	J4	12
	J2	12	J5	12
	J3	12	J1	12
ExtSpare#2	J31	9	J4	6
	J2	6	J5	6
	J3	6	J1	6
DATA*1	J2	78	J7	78
DATA*2	J4	78	J7	70
ODC2	J4	75	J7	68
SBI1	J2	76	J7	76
5MHZREF	J4	70	J5	70
	J7	64	J30	1
Modem+	J8	2	J17	5
AGC1	J2	74	J7	74
1PPS	J8	74	J21	1
DLAN2–	J8	12	J18	5
	J18	9		
DLAN1–	J8	10	J19	5
	J19	9		
ETHERNET	J8	78	J22	1
WFI–	J8	8	J18	3
	J18	7	J19	3
	J19	7		
ExtSpare#4	J31	7	J4	8
	J2	8	J5	8
	J3	8	J1	8
ExtSpare#6	J31	5	J4	10
	J2	10	J5	10
	J3	10	J1	10
Async–	J8	56	J20	6
DCD1	J8	54	J20	1

PTT	J14	11	J8	60
MonDet(GCC)	J14	8	J8	20
DataRx(GCC)	J14	7	J8	22
RSSI(GCC)	J14	6	J8	24
CTS3	J8	36	J15	5
RxD3	J8	34	J15	3
RemoteLpback3	J8	44	J15	21
ExtSpare#12	J31	4	J4	16
	J2	16	J5	16
	J3	16	J1	16
ExtSpare#10	J31	2	J4	14
	J2	14	J5	14
	J3	14	J1	14
AuxOut8–Rel–	J6	36	J17	44
AuxOut5	J6	32	J17	40
GenTxData+	J6	64	J17	9
AuxIn12–opto–	J6	44	J17	50
AuxIn1Siteoft	J6	60	J17	11
ExtSpare#16	J32	7	J6	72
ExtSpare#14	J32	9	J6	70
AuxIn8	J6	34	J17	42
AuxOut10–Rel–	J6	40	J17	46
CCI/Monitor	J14	24	J8	64
Mute/PLStrip	J14	23	J8	62
SerialID	U1	2	J8	58
AuxIn10–opto–	J6	42	J17	48
PL+In	J6	62	J17	10
TDMCLOCK	J4	46	J2	46
	J5	46	J7	34
RN1	8J3	46	J1	46
SPARE#4	J4	50	J2	50
	J5	50	J7	38
	J9	60	J3	50
	J1	50		
SPARE#6	J4	52	J2	52
	J5	52	J7	40
	J9	62	J3	52
	J1	52		
TDMFRAMESYNC	J4	44	J2	44
	J5	44	J7	32
RN16	J3	44	J1	44
HDLCBUSY	J4	42	J2	42
	J5	42	J7	30
RN13	J3	42	J1	42
A5	J4	56	J2	56
	J5	56	J7	44
	J3	56	J1	56
	J10	69		
A3	J4	60	J2	60
	J5	60	J7	46
	J3	60	J1	60
	J10	73		

A4	J4	58	J2	58
	J5	58	J7	45
	J3	58	J1	58
	J10	71		
A2	J4	62	J2	62
	J5	62	J7	47
	J3	62	J1	62
	J10	75		
SPIMOSI	J4	38	J2	38
	J5	38	J7	26
	J9	53	J3	38
	J1	38	J10	61
RESET	J4	40	J2	40
	J5	40	J7	28
	J9	55	J3	40
	J1	40	J10	63
SPARE#2	J4	48	J2	48
	J5	48	J7	36
	J9	57	J3	48
	J1	48	J10	65
	J11	61		
A1(CS2)	J4	54	J2	54
	J5	54	J7	42
	J3	54	J1	54
	J10	68		
SPARE#5	J4	51	J2	51
	J5	51	J7	39
	J9	61	J3	51
	J1	51		
XMITSPIREQ	J7	48	J9	65
HST_REQ	J7	50	J9	67
SPARE#1	J4	47	J2	47
	J5	47	J7	35
	J9	56	J3	47
	J1	47	J10	64
	J11	60		
SPARE#3	J4	49	J2	49
	J5	49	J7	37
	J9	58	J3	49
	J1	49	J10	66
	J11	62		
PTTREQ	J7	49	J9	66
SPICLK	J4	39	J2	39
	J5	39	J7	27
	J9	54	J3	39
	J1	39	J10	62
SPIMISO	J4	37	J2	37
	J5	37	J7	25
	J9	52	J3	37
	J1	37	J10	60
AMUXCTRL	J9	48	J11	58
X3MUX	J9	46	J11	56
X2MUX	J9	44	J11	54
X1MUX	J9	42	J11	52
FAN_ON	J9	38	J11	48
FINALA_TUNE1	J9	36	J11	46
DRIVERA_TUNE1	J9	34	J11	44

VfinalREFLEC	J9	22	J11	39
PATEMP	J9	20	J11	37
TX16.8MHZREF	J4	66	J5	66
	J7	56	J9	70
VCOAUDIO	J7	60	J9	78
28V	J9	4	J10	4
	J10	5	J10	6
	J10	7	J10	8
	J10	9	J10	10
	J10	11	J10	12
	J10	13	J10	14
	J10	15	J11	4
	J11	5		
28V	J11	6	J11	7
	J11	8	J11	9
	J11	10	J11	11
	J11	12	J11	13
	J11	14	J11	15
Vcontrol	J9	15	J9	16
	J9	17	J9	18
	J11	32	J11	33
	J11	34	J11	35
ANTRYKEYEDA+	J9	31	J23	2
	J27	8		
EXTWMVr	J9	26	J27	3
EXTCircTemp	J9	28	J27	5
EXTI/O1	J9	32	J27	6
RxAudio	J14	22	J4	17
	J2	17	J5	17
	J8	68	J3	17
	J1	17		
ETHERNETISOGD	J8	76	J8	80
	J22	2	J22	3
	J22	4	J22	5
5V	J31	8	J4	27
	J4	28	J4	29
	J4	30	J4	31
	J4	32	J4	33
	J4	34	J2	27
	J2	28	J2	29
	J2	30	J2	31
	J2	32		
5V	J2	33	J2	34
	J5	27	J5	28
	J5	29	J5	30
	J5	31	J5	32
	J5	33	J5	34
	J7	9	J7	10
	J7	11	J7	12
	J7	13		
5V	J7	14	J7	15
	J7	16	J7	17
	J7	18	J7	19
	J7	20	J7	21
	J7	22	J9	11
	J9	12	J17	8
	J3	27	J3	28
	J3	29		

5V	J3	30	J3	31
	J3	32	J3	33
	J3	34	J1	27
	J1	28	J1	29
	J1	30	J1	31
	J1	32	J1	33
	J1	34	J10	24
	J10	25		
5V	J10	26	J10	27
	J10	28	J10	29
	J10	30	J10	31
	J11	24		
BATTERYTEMP	J24	2	J10	59
GND	J14	9	J14	16
	J14	17	J14	18
	J14	19	J14	20
	J31	1	J31	10
GND	J4	1	J4	2
	J4	3	J4	4
	J4	18	J4	19
	J4	20	J4	21
	J4	35	J4	36
	J4	57	J4	61
	J4	63	J4	64
	J4	67		
GND	J4	68	J4	71
	J4	72	J4	73
	J4	79	J4	80
	J2	1	J2	2
	J2	3	J2	4
	J2	18	J2	19
	J2	20	J2	21
	J2	35		
GND	J2	36	J2	59
	J2	61	J2	63
	J2	64	J2	67
	J2	68	J2	71
	J2	72	J2	73
	J2	79	J2	80
	J5	1	J5	2
	J5	3		
GND	J5	4	J5	18
	J5	19	J5	20
	J5	21	J5	35
	J5	36	J5	57
	J5	59	J5	63
	J5	64	J5	67
	J5	68	J5	71
	J5	72		
GND	J5	73	J5	79
	J5	80	J7	1
	J7	2	J7	3
	J7	4	J7	23
	J7	24	J7	51
	J7	52	J7	53
	J7	54	J7	57
	J7	58		

GND	J7	61	J7	62
	J7	65	J7	66
	J7	72	J7	73
	J7	79	J7	80
	J6	38	J6	53
	J6	79	J6	80
	J8	5	J8	6
	J8	13		
GND	J8	14	J8	26
	J8	27	J8	28
	J8	29	J8	30
	J8	31	J8	38
	J8	45	J8	46
	J8	47	J8	48
	J8	55	J8	65
	J8	66		
GND	J8	70	J8	71
	J8	72	J8	73
	J8	75	J8	77
	J8	79	J18	1
	J15	1	J15	7
	J9	1	J9	2
GND	J9	13	J9	14
	J9	23	J9	24
	J9	29	J9	30
	J9	39	J9	40
	J9	41	J9	50
	J9	51	J9	68
	J9	69	J9	71
	J9	72		
GND	J9	73	J9	74
	J9	75	J9	76
	J9	79	J9	80
	J19	1	J21	2
	J21	3	J21	4
	J21	5	J30	2
	J30	3	J30	4
	J30	5		
GND	J23	1	J23	3
	J17	7	J17	32
	J27	1	J27	9
	J24	1	J24	3
	J20	5	J3	1
	J3	2	J3	3
	J3	4	J3	18
	J3	19		
GND	J3	20	J3	21
	J3	35	J3	36
	J3	57	J3	63
	J3	64	J3	67
	J3	68	J3	71
	J3	72	J3	73
	J3	79	J3	80
	J1	1		
GND	J1	2	J1	3
	J1	4	J1	18
	J1	19	J1	20
	J1	21	J1	35
	J1	36	J1	59
	J1	63	J1	64
	J1	67	J1	68
	J1	71		

GND	J1	72	J1	73
	J1	79	J1	80
	J10	1	J10	2
	J10	3	J10	32
	J10	33	J10	34
	J10	35	J10	36
	J10	37	J10	38
	J10	39		
GND	J10	40	J10	41
	J10	42	J10	43
	J10	44	J10	45
	J10	46	J10	47
	J10	48	J10	49
	J10	50	J10	51
	J10	52	J10	53
	J10	74		
GND	J10	76	J10	77
	J10	78	J11	1
	J11	2	J11	3
	J11	25	J11	26
	J11	27	J11	28
	J11	29	J11	30
	J11	31	J11	40
	J11	41		
GND	J11	42	J11	43
	J11	49	J11	50
	J11	51	J11	63
	J11	64	J11	65
	J11	66	J11	67
	J11	68	J11	69
	J11	70	J11	71
	J11	72		
GND	J11	73	J11	74
	J11	75	J11	76
	J11	77	J11	78
13.8V	J31	6	J4	22
	J4	23	J4	24
	J4	25	J4	26
	J2	22	J2	23
	J2	24	J2	25
	J2	26	J5	22
	J5	23	J5	24
	J5	25		
13.8V	J5	26	J7	5
	J7	6	J7	7
	J7	8	J9	3
	J9	5	J9	6
	J9	7	J9	8
	J9	9	J9	10
	J17	33	J27	10
	J3	22		
13.8V	J3	23	J3	24
	J3	25	J3	26
	J1	22	J1	23
	J1	24	J1	25
	J1	26	J10	16
	J10	17	J10	18
	J10	19	J10	20
	J10	21		

13.8V	J10	22	J10	23
	J11	16	J11	17
	J11	18	J11	19
	J11	20	J11	21
	J11	22	J11	23
LocalIpback3	J8	40	J15	18
AuxIn10−opto+	J6	49	J17	23
AuxOut10R+	J6	51	J17	21
TxPLInhitGCC	J14	5	J8	15
ODC1	J2	75	J7	75
SBI2	J4	76	J7	69
ExtSpare#1	J32	5	J4	5
	J2	5	J5	5
	J3	5	J1	5
ExtSpare#5	J32	1	J4	9
	J2	9	J5	9
	J3	9	J1	9
ExtSpare#7	J32	2	J4	11
	J2	11	J5	11
	J3	11	J1	11
ExtSpare#15	J32	10	J6	71
ExtSpare#13	J32	8	J6	69
DATA2	J4	77	J7	71
AGC2***	J4	74	J7	67
DLAN1+	J8	9	J19	4
	J19	8		
ExtSpare#3	J32	3	J4	7
	J2	7	J5	7
	J3	7	J1	7
LINE4+	J6	19	J17	4
LINE3+	J6	13	J17	3
LINE2+	J6	7	J17	2
LINE1+	J6	1	J17	1
WFI+	J8	7	J18	2
	J18	6	J19	2
	J19	6		
DLAN2+	J8	11	J18	4
	J18	8		
RingIndicator	J8	49	J20	9
TxD1	J8	51	J20	3
RTS1	J8	53	J20	7
Async+	J8	57	J20	4
AUXCarrier	J14	14	J8	61
SeizeRelseGC	J14	4	J8	17
RxMute(GCC)	J14	3	J8	19
DataPTT(GCC)	J14	2	J8	21
DataTx(GCC)	J14	1	J8	23
RXPLDET	J14	15	J8	25
TXData−	J14	21	J8	69
TSTAT/RXCaie	J14	12	J8	59
TXData+/TXAio	J14	13	J8	67
TxD3	J8	33	J15	2
RTS3	J8	35	J15	4
DCD3	J8	39	J15	8
TCLK3	J8	41	J15	15

DTR3	J8	43	J15	20
ExtSpare#9	J32	4	J4	13
	J2	13	J5	13
	J3	13	J1	13
ExtSpare#11	J32	6	J4	15
	J2	15	J5	15
	J3	15	J1	15
PL–In	J6	27	J17	35
AuxOut2(RxCo	J6	29	J17	37
AuxOut4	J6	31	J17	39
AuxOut6	J6	33	J17	41
TXWIDEBANDAIO	J4	69	J2	69
	J5	69	J7	63
	J3	69	J1	69
RX16.8MHZREF	J4	65	J2	65
	J5	65	J7	55
	J3	65	J1	65
AuxOut8Rla+	J6	57	J17	19
AuxIn7	J6	59	J17	17
AuxIn5	J6	63	J17	15
AuxIn3(ExtTx	J6	65	J17	13
AuxIn9–opto–	J6	39	J17	47
AuxOut7–Rela–	J6	35	J17	43
AuxOut9–Rela–	J6	37	J17	45
DATA1	J2	77	J7	77
RSTAT/PahInh	J14	25	J8	63
DSR3	J8	37	J15	6

TDMDATA	J4	45	J2	45
	J5	45	J7	33
RN17	J3	45	J1	45
HDLCCLK	J4	43	J2	43
	J5	43	J7	31
RN1	4J3	43	J1	43
HDLCDATA	J4	41	J2	41
	J5	41	J7	29
RN1	2J3	41	J1	41
SPIGRANT	J7	43	J9	59
A0(CS1)	J4	53	J2	53
	J5	53	J7	41
	J3	53	J1	53
	J10	67		
REFAUDIO	J7	59	J9	77
BMUXCTRL	J9	49	J11	59
Y3MUX	J9	47	J11	57
Y2MUX	J9	45	J11	55
Y1MUX	J9	43	J11	53
FINALA_TUNE2	J9	37	J11	47
DRIVERA_TUNE2	J9	35	J11	45
VfinalFORWARD	J9	19	J11	36
VdriverFOARD	J9	21	J11	38
EXTWMVf	J9	25	J27	2
EXTWMRef	J9	27	J27	4
EXTI/O2	J9	33	J27	7
AuxIn11–opto–	J6	41	J17	49
AuxIn12–opto+	J6	43	J17	25

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2 CONNECTOR PINOUT INFORMATION

Figure 2 shows the backplane board viewed from the rear with all connectors labeled. The tables on the facing page provide pinout information for each corresponding connector.

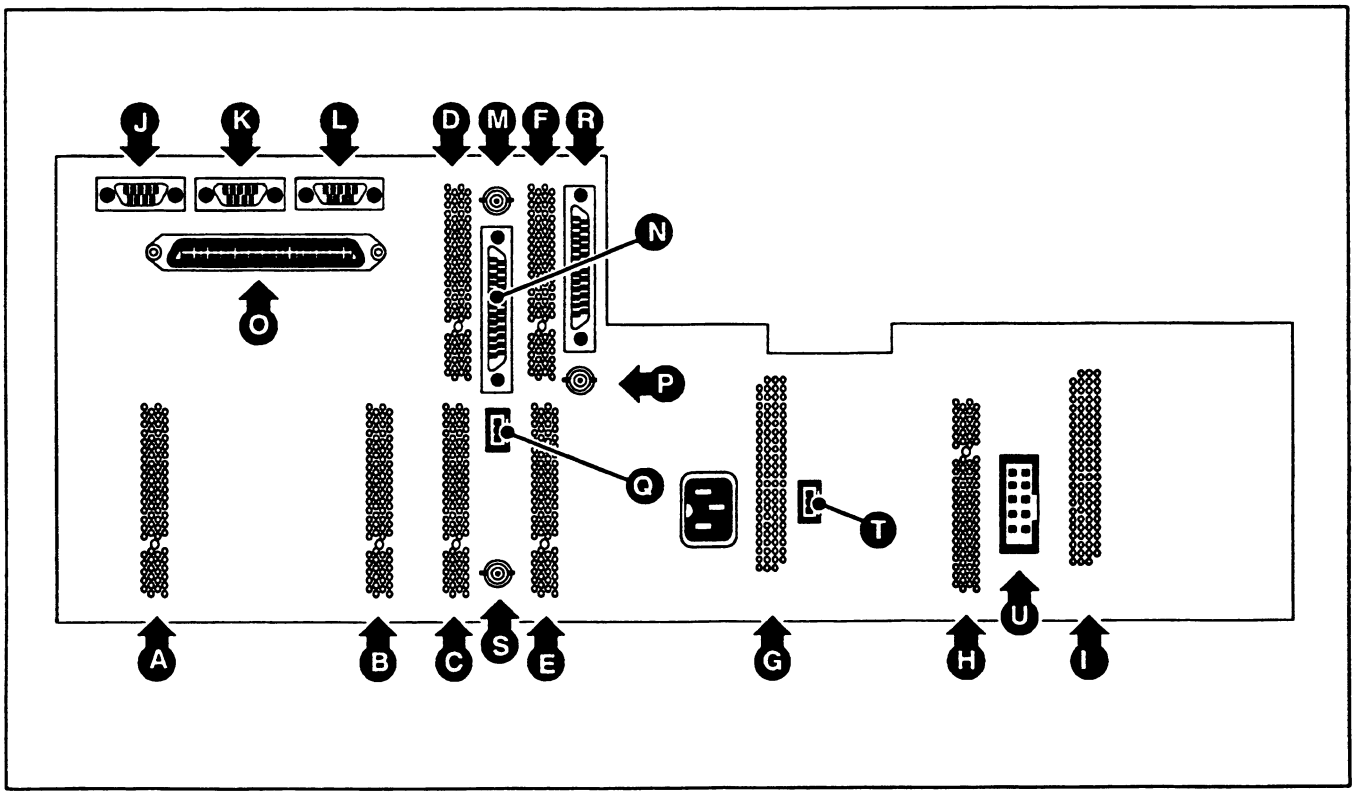

Figure 2. *Quantar* Backplane Connectors

A J2 RECEIVER #1

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	AGC 1
75	ODC 1
76	SBI 1
77	DATA 1
78	DATA *1
79	GND
80	GND

B J4 RECEIVER #2/UHSO

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	AGC 2 ***
75	ODC 2
76	SBI 2
77	DATA 2
78	DATA* 2
79	GND
80	GND

C J5 WIRELINE INTERFACE BOARD

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

D J6 WIRELINE INTERFACE BOARD

Pin #	Signal Name
1	LINE 1+
2	LINE 1–
3	OPEN
4	OPEN
5	OPEN
6	OPEN
7	LINE 2+
8	LINE 2–
9	OPEN
10	OPEN
11	OPEN
12	OPEN
13	LINE 3+
14	LINE 3–
15	OPEN
16	OPEN
17	OPEN
18	OPEN
19	LINE 4+
20	LINE 4–
21	OPEN
22	OPEN
23	OPEN
24	OPEN
25	OPEN
26	Gen Tx Data + PL–In
27	PL–In
28	Aux Out 1 (Fallsoft Ind)
29	Aux Out 2 (Rx Osc Det)
30	Aux Out 3
31	Aux Out 4
32	Aux Out 5
33	Aux Out 6
34	Aux In 8
35	Aux Out 7 –Relay
36	Aux Out 8 –Relay
37	Aux Out 9 –Relay
38	Gnd
39	Aux In 9 –opto–
40	Aux Out 10 –Relay
41	Aux In 11 –opto–
42	Aux In 10 –opto–
43	Aux In 12 –opto–
44	Aux In 12 –opto–
45	OPEN
46	Aux In 11 –opto+
47	OPEN
48	Aux In 9 –opto+ (Ext PTT)
49	Aux In 10 –opto+
50	Aux Out 9 –Relay
51	Aux Out 10 –Relay
52	Aux Out 7 –Relay
53	GND
54	Aux In 6
55	OPEN
56	Aux In 4 (Rx Inh)
57	Aux Out 8 –Relay
58	Aux In 2 (Tx Inhibit)
59	Aux In 7
60	Aux In 1 (Site Fallsoft)
61	OPEN
62	PL+ In
63	Aux In 5
64	Gen Tx Data– Aux In 3 (Ext Tx Code Det)
65	OPEN
66	TX 2.1 MHZ REF
67	OPEN
68	OPEN
69	External Spare #13
70	External Spare #14
71	External Spare #15
72	External Spare #16
73	OPEN
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

E J7 STATION CONTROL

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	14.2V
6	14.2V
7	14.2V
8	14.2V
9	5V
10	5V
11	5V
12	5V
13	5V
14	5V
15	5V
16	5V
17	5V
18	5V
19	5V
20	5V
21	5V
22	5V
23	GND
24	GND
25	SPIMISO
26	SPI CLK
27	ALT_RESET
28	HDLC DATA
29	HDLC BUSY
30	HDLC CLK
31	TDM FRAME SYNC
32	TDM DATA
33	TDM CLOCK
34	SPARE #1
35	SPARE #2
36	SPARE #3
37	DSR3
38	SPARE #4
39	SPARE #5
40	SPARE #6
41	A0 (CS1)
42	A1 (CS2)
43	SPI GRANT
44	A5
45	A4
46	A3
47	A2
48	XMIT SPIREQ
49	PTT REQ
50	HOST_REQ
51	GND
52	GND
53	GND
54	GND
55	RX 2.1 MHZ REF
56	TX 2.1 MHZ REF
57	GND
58	GND
59	REF AUDIO
60	VCO AUDIO
61	GND
62	GND
63	TX WIDEBAND AUDIO
64	5 MHZ REF
65	GND
66	GND
67	AGC 2 ***
68	ODC 2
69	SBI 2
70	DATA* 2
71	DATA 2
72	GND
73	GND
74	AGC 1
75	ODC 1
76	SBI 1
77	DATA 1
78	DATA* 1
79	GND
80	GND

F J8 STATION CONTROL

Pin #	Signal Name
1	FUNCTION
2	Modem +
3	Modem –
4	OPEN
5	OPEN
6	GND
7	GND
8	WR+
9	WR–
10	DLAN1+
11	DLAN1–
12	DLAN2+
13	DLAN2–GND
14	GND
15	PL Sing
16	AUX Indicate
17	Monitor
18	OPEN
19	OPEN
20	Patch INH
21	MRTI PTT
22	MRTI Rx Audio
23	MRTI Audio
24	OPEN
25	Rx Carrier
26	GND
27	GND
28	GND
29	GND
30	GND
31	GND
32	Modem Rst
33	TxD3
34	RxD3
35	RTS3
36	CTS3
37	DSR3
38	GND
39	DCD3
40	Local loopback 3
41	TCLK3
42	RCLK3
43	DTR3
44	Remote Loopback 3
45	GND
46	GND
47	GND
48	GND
49	Ring Indicator
50	RxD1
51	TxD1
52	CTS1
53	RTS1
54	DCD1
55	GND
56	DSR1
57	DTR1
58	Serial ID
59	TSTAT
60	PTT
61	SPI MOSI
62	SPI CLK
63	RSTAT
64	CCI
65	GND
66	GND
67	TX Data
68	Rx WIDEBAND AUDIO
69	TX DATA –
70	GND
71	GND
72	GND
73	GND
74	1PPS
75	GND
76	ETHERNET ISOLATED GND
77	GND
78	ETHERNET
79	GND
80	ETHERNET ISOLATED GND

G J10 POWER SUPPLY

Pin #	Signal Name
1	GND
2	GND
3	GND
4	28V
5	28V
6	28V
7	28V
8	28V
9	28V
10	28V
11	28V
12	28V
13	28V
14	28V
15	28V
16	14.2V
17	14.2V
18	14.2V
19	14.2V
20	14.2V
21	14.2V
22	14.2V
23	14.2V
24	5V
25	5V
26	5V
27	5V
28	5V
29	5V
30	GND
31	5V
32	GND
33	GND
34	GND
35	GND
36	GND
37	GND
38	GND
39	GND
40	GND
41	GND
42	GND
43	GND
44	GND
45	GND
46	GND
47	GND
48	GND
49	GND
50	GND
51	GND
52	GND
53	GND
54	OPEN
55	OPEN
56	OPEN
57	OPEN
58	OPEN
59	BATTERY TEMP
60	S/N MISO
61	S/N MOSI
62	SPI CLK
63	ALT RESET
64	SPARE #1
65	SPARE #2
66	SPARE #3
67	HOST_REQ
68	GND
69	GND
70	TX 2.1 MHZ REF
71	GND
72	GND
73	GND
74	GND
75	GND
76	GND
77	REF AUDIO
78	VCO AUDIO
79	GND
80	GND

H J9 Exciter

Pin #	Signal Name
1	GND
2	GND
3	14.2V
4	28V
5	14.2V
6	14.2V
7	14.2V
8	14.2V
9	14.2V
10	14.2V
11	5V
12	5V
13	GND
14	GND
15	V control
16	V control
17	V control
18	V control
19	V Final FORWARD
20	PA TEMP
21	V Final FORWARD
22	V Final REFLECTED
23	GND
24	GND
25	EXT WM Vf
26	EXT WM Vr
27	EXT WM Ref
28	EXT Circ Temp
29	GND
30	GND
31	ANT RY KEYED A+
32	EXT I/O 1
33	EXT I/O 2
34	DRIVER A_TUNE 1
35	DRIVER A_ TUNE 2
36	FINAL A_ TUNE 1
37	FINAL A_ TUNE 2
38	FAN_ON
39	GND
40	GND
41	GND
42	X1 MUX
43	Y1 MUX
44	X2 MUX
45	Y2 MUX
46	X3 MUX
47	Y3 MUX
48	A MUX CTRL
49	B MUX CTRL
50	GND
51	GND
52	SPIMISO
53	SPIMOSI
54	SPICLK
55	ALT_RESET
56	SPARE #1
57	SPARE #2
58	SPARE #3
59	SPI GRANT
60	SPARE #4
61	SPARE #5
62	SPARE #6
63	OPEN
64	OPEN
65	XMIT SPIREQ
66	SPARE #3
67	PTT REQ
68	HOST_REQ
69	GND
70	GND
71	GND
72	GND
73	GND
74	GND
75	GND
76	GND
77	GND
78	GND

I J11 POWER AMPLIFIER

Pin #	Signal Name
1	GND
2	GND
3	GND
4	28V
5	28V
6	28V
7	28V
8	28V
9	28V
10	28V
11	28V
12	28V
13	28V
14	28V
15	28V
16	14.2V
17	14.2V
18	14.2V
19	14.2V
20	14.2V
21	14.2V
22	14.2V
23	14.2V
24	5V
25	GND
26	GND
27	GND
28	GND
29	GND
30	GND
31	GND
32	V CONTROL
33	V CONTROL
34	V CONTROL
35	V CONTROL
36	V FINAL FORWARD
37	PA TEMP
38	V DRIVER FORWARD
39	V FINAL REFLECTED
40	GND
41	GND
42	GND
43	GND
44	DRIVER A TUNE 1
45	DRIVER A TUNE 2
46	FINAL A TUNE 1
47	FINAL A TUNE 2
48	FAN ON
49	GND
50	GND
51	GND
52	X1 MUX
53	Y1 MUX
54	X2 MUX
55	Y2 MUX
56	X3 MUX
57	Y3 MUX
58	A MUX CTRL
59	B MUX CTRL
60	SPARE #1
61	SPARE #2
62	SPARE #3
63	GND
64	GND
65	GND
66	GND
67	GND
68	GND
69	GND
70	GND
71	GND
72	GND
73	GND
74	GND
75	GND
76	GND
77	GND
78	GND

J J20 Async RS232/485

Pin #	Signal Name
1	DCD1
2	GNDRxD1
3	TxD1
4	Async +
5	Signal Gnd
6	Async –
7	RTS1
8	CTS1
9	Ring Indicator

K J18 DLAN1

Pin #	Signal Name
1	Shield Gnd
2	GNDWF1+
3	WR1–
4	DLAN2+
5	DLAN2–
6	WR1+
7	WR1–
8	DLAN2+
9	DLAN2–

L J19 DLAN2

Pin #	Signal Name
1	Shield Gnd
2	GNDWF1+
3	WR1–
4	DLAN1+
5	DLAN1–
6	WR1+
7	WR1–
8	DLAN1+
9	DLAN1–

M J21 1PPS INPUT

Pin #	Signal Name
1	1PPS
2	GND
3	GND
4	GND
5	GND

N J14 6809/MRTI

Pin #	Signal Name
1	MRTI Audio
2	MARTI PTT
3	OPEN
4	Monitor
5	PL Strip
6	Down
7	MRTI Rx Audio
8	Patch INH
9	Gnd
10	AUX Indicate
11	PTT
12	TSTAT
13	Tx Data+
14	OPEN
15	Rx Carrier
16	GND
17	GND
18	GND
19	GND
20	GND
21	Tx Data–
22	Rx WIDEBAND AUDIO
23	MUTE
24	CCI
25	RSTAT

O J17 System 50–Pin Telco

Pin #	Signal Name
1	Line 1+
2	Line 2+
3	Line 3+
4	Line 4+
5	Modem +
6	Open
7	GND
8	5 VDC Out
9	Gen TX Data +
10	PL + In
11	Aux In 1 (Site Fallsoft)
12	Aux In 2 (TX Inhibit)
13	Aux In 3 (Ext TX Code Det)
14	Aux In 4 (RX Inh)
15	Aux In 5 (Duplex Enable)
16	Aux In 6 (In Cabinet Repeat)
17	Aux In 7 (Channel 4)
18	Aux Out 7
19	Aux Out 8
20	Aux Out 9
21	Aux Out 10
22	Aux In 9 (Ext PTT)
23	Aux In 10 (Channel 1)
24	Aux In 11 (Channel 2)
25	Aux In 12 (Channel 3)
26	Line 1 –
27	Line 2 –
28	Line 3 –
29	Line 4 –
30	Modem –
31	Open
32	GND
33	14.2 VDC Out
34	Gen TX Data –
35	PL IN
36	Aux Out 1 (Fallsoft Ind)
37	Aux Out 2 (RX Code Det)
38	Aux Out 3
39	Aux Out 4
40	Aux Out 5
41	Aux Out 6
42	Aux In 8
43	Aux Out 7 (RD Stat)
44	Aux Out 8
45	Aux Out 9
46	Aux Out 10
47	Aux In 9
48	Aux In 10
49	Aux In 11
50	Aux In 12

*** Isloated from chassis ground**

P J22 ETHERNET In/Out

Pin #	Signal Name
1	ETHERNET
2	gnd*
3	gnd*
4	gnd*
5	gnd*

Q J23 ANTENNA RELAY

Pin #	Signal Name
1	GND
2	ANT RY KEYED A+
3	GND

R J15 SYNC RS232

Pin #	Signal Name
1	Shield Gnd
2	TxD9
3	RxD3
4	RTS3
5	CTS3
6	DSR3
7	Signal Ground
8	DCD3
9	OPEN
10	OPEN
11	OPEN
12	OPEN
13	Local Loopback 3
14	OPEN
15	TCLK3
16	OPEN
17	RCLK3
18	OPEN
19	OPEN
20	DTR3
21	OPEN
22	OPEN
23	OPEN
24	OPEN
25	Remote Loopback 3

S J30 5 MHz REF INPUT

Pin #	Signal Name
1	5 MHz REF
2	GND
3	GND
4	GND
5	GND

T J24 BATTERY TEMPERATURE

Pin #	Signal Name
1	GND
2	BATTERY TEMP
3	GND

U J27 PERIPHERAL TRAY

Pin #	Signal Name
1	14.2V
2	GND
3	ANT RY KEYED A+
4	EXT I/O 2
5	EXT I/O 1
6	EXT CIRC TEMP
7	EXT WM REF
8	EXT WM VR
9	EXT WM VF
10	GND

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MOTOROLA

STATION BACKPLANE

MODEL TRN7688A
(Quantro)

1 NET LIST

The listing on the following pages provides "Net List" information for the connectors on both sides of the station backplane board. The example in Figure 1 describes how to interpret the information.

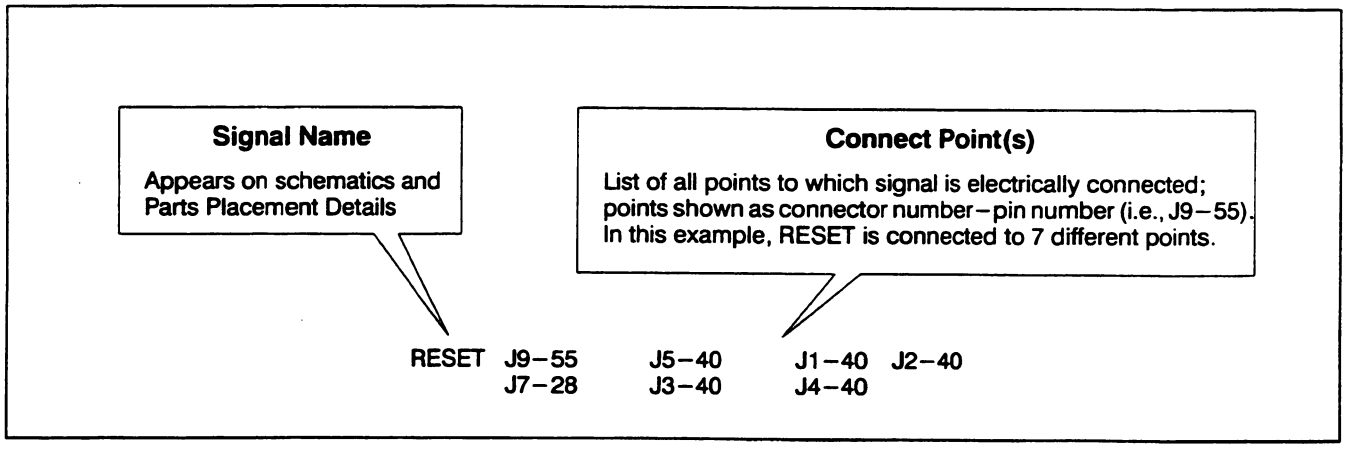

Figure 1. Interpreting Net List Information Example

Land Mobile Products Sector
1301 E. Algonquin Road, Schaumburg, IL 60196

68P81090E63–A
7/15/94–UP

Net List

RCLK3	J15–17	J8–42		
LINE1–	J6–2	J17–26		
AuxIn8	J6–34	J17–42		
GenTxData–	J6–26	J17–34		
AuxOut3	J6–30	J17–38		
AuxOut1	J6–28	J17–36		
LINE4–	J6–20	J17–29		
LINE2–	J6–8	J17–27		
AuxIn2	J6–58	J17–12		
AuxIn6	J6–54	J17–16		
AuxOut7–Rlay+	J6–52	J17–18		
AuxOut9–Rlay+	J6–50	J17–20		
AuxIn9–opto+	J6–48	J17–22		
AuxIn11–opto+	J6–46	J17–24		
AuxIn4	J6–56	J17–14		
RxD1	J8–50	J20–2		
CTS1	J8–52	J20–8		
Y2MUX	J38–55	J9–45		
Y3MUX	J38–57	J9–47		
BMUXCTRL	J38–59	J9–49		
SPARE#2	J38–61	J9–57	J5–48	J1–48
	J2–48	J7–36	J3–48	J4–48
SPARE#3	J38–62	J9–58	J5–49	J1–49
	J2–49	J7–37	J3–49	J4–49
Overvoltage	J38–67	J33–5		
VdrverFORWRD	J38–38	J9–21		
VfinalRFLCTD	J38–39	J9–22		
Vcontrol	J38–32	J9–15	J9–16	J9–17
	J9–18			
LINE3–	J6–14	J17–28		
Modem–	J8–1	J17–30		
LnPTTDt(GCC)	J8–16	J14–10		
SPARE#4	J9–60	J5–50	J1–50	J2–50
	J7–38	J3–50	J4–50	
RESET	J9–55	J5–40	J1–40	J2–40
	J7–28	J3–40	J4–40	
ExtrnSpare#8	J5–12	J1–12	J2–12	J31–3
	J3–12	J4–12		
ExtrnSpare#2	J5–6	J1–6	J2–6	J31–9
	J3–6	J4–6		
HST_REQ	J9–67	J7–50		
SPARE#6	J9–62	J5–52	J1–52	J2–52
	J7–40	J3–52	J4–52	
XMITSPIREQ	J9–65	J7–48		
SPARE#1	J38–60	J9–56	J5–47	J1–47
	J2–47	J7–35	J3–47	J4–47
DATA*1	J2–78	J7–78		
DATA*2	J7–70	J4–78		
ODC2	J7–68	J4–75		
SBI1	J2–76	J7–76		
5MHZREF	J30–1	J5–70	J7–64	J4–70

ExtrnSpare#14	J6–70	J32–9		
ExtrnSpare#16	J6–72	J32–7		
ETRNTISLTDGND	J22–2	J22–3	J22–4	J22–5
	J8–76	J8–80		
Modem+	J8–2	J17–5		
AGC1	J2–74	J7–74		
1PPS	J8–74	J21–1		
DLAN2–	J8–12	J18–5	J18–9	
DLAN1–	J8–10	J19–5	J19–9	
DCD1	J8–54	J20–1		
Async–	J8–56	J20–6		
ETHERNET	J22–1	J8–78		
A3	J5–60	J1–60	J2–60	J7–46
	J3–60	J4–60		
TDMCLOCK	J39–8	J5–46	J1–46	J2–46
	J7–34	J3–46	J4–46	
TDMFRAMESYNC		J39–6	J5–44	J1–44
	J2–44	J7–32	J3–44	J4–44
SPIMOSI	J9–53	J5–38	J1–38	J2–38
	J7–26	J3–38	J4–38	
WFI–	J8–8	J19–3	J19–7	J18–3
	J18–7			
ExtrnSpare#4	J5–8	J1–8	J2–8	J31–7
	J3–8	J4–8		
ExtrnSpare#6	J5–10	J1–10	J2–10	J31–5
	J3–10	J4–10		
HDLCBUSY	J39–3	J5–42	J1–42	J2–42
	J7–30	J3–42	J4–42	
FinalPATemp	J38–70	J37–1		
AC_Fail	J38–72	J33–6		
TX16.8MHZREF	J9–70	J5–66	J7–56	J4–66
RxD3	J15–3	J8–34		
RmteLopbck3	J15–21	J8–44		
RSSI(GCC)	J8–24	J14–6		
MnitrDt(GCC)	J8–20	J14–8		
DataRx(GCC)	J8–22	J14–7		
CCI/Monitor	J8–64	J14–24		
PTT	J8–60	J14–11		
Mute/PLStrip	J8–62	J14–23		
SerialID	J8–58	U1–2		
GenTxData+	J6–64	J17–9		
AuxIn10–opto–	J6–42	J17–48		
AuxOut5	J6–32	J17–40		
AuxIn12–opto–	J6–44	J17–50		
AuxIn1	J6–60	J17–11		
PL+In	J6–62	J17–10		
A1(CS2)	J5–54	J1–54	J2–54	J7–42
	J3–54	J4–54		
A5	J5–56	J1–56	J2–56	J7–44
	J3–56	J4–56		
A2	J5–62	J1–62	J2–62	J7–47
	J3–62	J4–62		

A4	J5-58	J1-58	J2-58	J7-45
	J3-58	J4-58		
VCOAUDIO	J9-78	J7-60		
13.8V	J38-4	J38-5	J38-6	J38-7
	J38-8	J38-9	J38-10	J38-11
	J9-3	J9-5	J9-6	J9-7
	J9-8	J9-9	J9-10	
13.8V	J5-22	J5-23	J5-24	J5-25
	J5-26	J1-22	J1-23	J1-24
	J1-25	J1-26	J2-22	J2-23
	J2-24	J2-25	J2-26	
13.8V	J7-5	J7-6	J7-7	J7-8
	J31-6	J33-1	J33-2	J17-33
	J3-22	J3-23	J3-24	J3-25
	J3-26	J4-22	J4-23	
13.8V	J4-24	J4-25	J4-26	
CTS3	J15-5	J8-36		
Lcallopbck3	J15-18	J8-40		
ExtrnSpare#12	J5-16	J1-16	J2-16	J31-4
	J3-16	J4-16		
ExtrnSpare#10	J5-14	J1-14	J2-14	J31-2
	J3-14	J4-14		
AuxOut8-Rlay-	J6-36	J17-44		
AuxOut10-Rlay-	J6-40	J17-46		
5V	J38-20	J38-21	J38-22	J38-23
	J38-24	J38-25	J38-26	J38-27
	J9-11	J9-12	J5-27	J5-28
	J5-29	J5-30	J5-31	
5V	J5-32	J5-33	J5-34	J1-27
	J1-28	J1-29	J1-30	J1-31
	J1-32	J1-33	J1-34	J2-27
	J2-28	J2-29	J2-30	
5V	J2-31	J2-32	J2-33	J2-34
	J7-9	J7-10	J7-11	J7-12
	J7-13	J7-14	J7-15	J7-16
	J7-17	J7-18	J7-19	
5V	J7-20	J7-21	J7-22	J31-8
	J17-8	J3-27	J3-28	J3-29
	J3-30	J3-31	J3-32	J3-33
	J3-34	J4-27	J4-28	
5V	J4-29	J4-30	J4-31	J4-32
	J4-33	J4-34		
EXTWMVf	J34-1	J9-25		
GND	J30-3	J30-4	J30-5	J39-1
	J39-5	J39-9	J38-1	J38-2
	J38-3	J38-12	J38-13	J38-14
	J38-15	J38-16	J38-17	
GND	J38-18	J38-19	J38-28	J38-29
	J38-30	J38-31	J38-33	J38-34
	J38-35	J38-42	J38-43	J38-44
	J38-45	J38-46	J38-47	
GND	J38-48	J38-49	J38-50	J38-63
	J38-64	J38-65	J38-73	J38-74
	J38-75	J38-76	J38-77	J38-78
	J36-3	J34-2	J34-3	
GND	J35-2	J35-3	J9-1	J9-2
	J9-13	J9-14	J9-23	J9-24
	J9-27	J9-29	J9-30	J9-39
	J9-40	J9-41	J9-50	

GND	J9-51	J9-68	J9-69	J9-71
	J9-72	J9-73	J9-74	J9-75
	J9-76	J9-79	J9-80	J15-1
	J15-7	J8-5	J8-6	
GND	J8-13	J8-14	J8-26	J8-27
	J8-28	J8-29	J8-30	J8-31
	J8-38	J8-45	J8-46	J8-47
	J8-48	J8-55	J8-65	
GND	J8-66	J8-70	J8-71	J8-72
	J8-73	J8-75	J8-77	J8-79
	J5-1	J5-2	J5-3	J5-4
	J5-18	J5-19	J5-20	
GND	J5-21	J5-35	J5-36	J5-57
	J5-59	J5-63	J5-64	J5-67
	J5-68	J5-71	J5-72	J5-73
	J5-79	J5-80	J6-38	
GND	J6-53	J6-79	J6-80	J14-9
	J14-16	J14-17	J14-18	J14-19
	J14-20	J1-1	J1-2	J1-3
	J1-4	J1-18	J1-19	
GND	J1-20	J1-21	J1-35	J1-36
	J1-59	J1-63	J1-64	J1-67
	J1-68	J1-71	J1-72	J1-73
	J1-79	J1-80	J2-1	
GND	J2-2	J2-3	J2-4	J2-18
	J2-19	J2-20	J2-21	J2-35
	J2-36	J2-59	J2-61	J2-63
	J2-64	J2-67	J2-68	
GND	J2-71	J2-72	J2-73	J2-79
	J2-80	J23-1	J23-3	J7-1
	J7-2	J7-3	J7-4	J7-23
	J7-24	J7-51	J7-52	
GND	J7-53	J7-54	J7-57	J7-58
	J7-61	J7-62	J7-65	J7-66
	J7-72	J7-73	J7-79	J7-80 U1-1
	U1-3	J21-2		
GND	J21-3	J21-4	J21-5	J19-1
	J18-1	J20-5	J31-1	J31-10
	J33-3	J33-4	J37-5	J17-7
	J17-32	T331-1	J3-1	
GND	J3-2	J3-3	J3-4	J3-18
	J3-19	J3-20	J3-21	J3-35
	J3-36	J3-57	J3-63	J3-64
	J3-67	J3-68	J3-71	
GND	J3-72	J3-73	J3-79	J3-80
	J4-1	J4-2	J4-3	J4-4
	J4-18	J4-19	J4-20	J4-21
	J4-35	J4-36	J4-57	
GND	J4-61	J4-63	J4-64	J4-67
	J4-68	J4-71	J4-72	J4-73
	J4-79	J4-80	MH30-1	MH29-1
	MH31-1	MH28-1	MH32-1	
Y1MUX	J38-53	J9-43		
AuxIn10-opto+	J6-49	J17-23		
AuxOut10-Rlay+	J6-51	J17-21		
TxPLInbtGCC	J8-15	J14-5		
DATA1	J2-77	J7-77		
ODC1	J2-75	J7-75		
SBI2	J7-69	J4-76		
ExtrnSpare#1	J5-5	J1-5	J2-5	J32-5
	J3-5	J4-5		

ExtrnSpare#5	J5–9	J1–9	J2–9	J32–1
	J3–9	J4–9		
ExtrnSpare#7	J5–11	J1–11	J2–11	J32–2
	J3–11	J4–11		
ExtrnSpare#15	J6–71	J32–10		
ExtrnSpare#13	J6–69	J32–8		
TXWIDEBNDADIO		J5–69	J1–69	J2–69
	J7–63	J3–69	J4–69	
X3MUX	J38–56	J9–46		
X2MUX	J38–54	J9–44		
AMUXCTRL	J38–58	J9–48		
VfinalFORWRD	J38–36	J9–19		
PATEMP	J38–37	J9–20		
DATA2	J7–71	J4–77		
AGC2***	J7–67	J4–74		
DLAN1+	J8–9	J19–4	J19–8	
RTS1	J8–53	J20–7		
RngIndcatr	J8–49	J20–9		
Async+	J8–57	J20–4		
TxD1	J8–51	J20–3		
SPIMISO	J9–52	J5–37	J1–37	J2–37
	J7–25	J3–37	J4–37	
HDLCCLK	J39–4	J5–43	J1–43	J2–43
	J7–31	J3–43	J4–43	
HDLCDATA	J39–2	J5–41	J1–41	J2–41
	J7–29	J3–41	J4–41	
ExtrnSpare#3	J5–7	J1–7	J2–7	J32–3
	J3–7	J4–7		
LINE4+	J6–19	J17–4		
LINE3+	J6–13	J17–3		
LINE2+	J6–7	J17–2		
LINE1+	J6–1	J17–1		
WFI+	J8–7	J19–2	J19–6	J18–2
	J18–6			
DLAN2+	J8–11	J18–4	J18–8	
FnlPAVrflctd	J38–69	J37–2		
CirultrTemp	J38–71	J37–3		
FnlPAVfrwrd	J38–68	J37–4		
DrvrPAVfrwrd	J38–66	J36–2		
RX16.8MHZREF	J5–65	J1–65	J2–65	J7–55
	J3–65	J4–65		
SPICLK	J9–54	J5–39	J1–39	J2–39
	J7–27	J3–39	J4–39	
SPARE#5	J9–61	J5–51	J1–51	J2–51
	J7–39	J3–51	J4–51	
SPIGRANT	J9–59	J7–43		

PTTREQ	J9–66	J7–49		
REFAUDIO	J9–77	J7–59		
TXDta+/TXAudo	J8–67	J14–13		
RSTATPtchIh	J8–63	J14–25		
TSTATRXCarir	J8–59	J14–12		
TxD3	J15–2	J8–33		
DSR3	J15–6	J8–37		
DCD3	J15–8	J8–39		
TCLK3	J15–15	J8–41		
DTR3	J15–20	J8–43		
SizeRlas(GCC)	J8–17	J14–4		
RxMute(GCC)	J8–19	J14–3		
DataPTT(GCC)	J8–21	J14–2		
DataTx(GCC)	J8–23	J14–1		
TXData–	J8–69	J14–21		
RTS3	J15–4	J8–35		
AUXCarrier	J8–61	J14–14		
AuxOut8–Rlay+	J6–57	J17–19		
AuxIn7	J6–59	J17–17		
AuxIn5	J6–63	J17–15		
AuxIn3	J6–65	J17–13		
AuxIn9–opto–	J6–39	J17–47		
ExtrnSpare#11	J5–15	J1–15	J2–15	J32–6
	J3–15	J4–15		
TDMDATA	J39–7	J5–45	J1–45	J2–45
	J7–33	J3–45	J4–45	
A0(CS1)	J5–53	J1–53	J2–53	J7–41
	J3–53	J4–53		
ExtrnSpare#9	J5–13	J1–13	J2–13	J32–4
	J3–13	J4–13		
RxAudio	J8–68	J5–17	J14–22	J1–17
	J2–17	J3–17	J4–17	
ANTRYKEYDA+	J9–31	J23–2		
AuxIn11–opto–	J6–41	J17–49		
AuxIn12–opto+	J6–43	J17–25		
RXPLDET	J8–25	J14–15		
AuxOut7–Rlay–	J6–35	J17–43		
AuxOut9–Rlay–	J6–37	J17–45		
PL–In	J6–27	J17–35		
AuxOut2	J6–29	J17–37		
AuxOut4	J6–31	J17–39		
AuxOut6	J6–33	J17–41		
EXTWMVr	J35–1	J9–26		
X1MUX	J38–52	J9–42		

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2 CONNECTOR PINOUT INFORMATION

Figure 2 shows the backplane board viewed from the rear with all connectors labeled. The tables on the facing page provide pinout information for each corresponding connector.

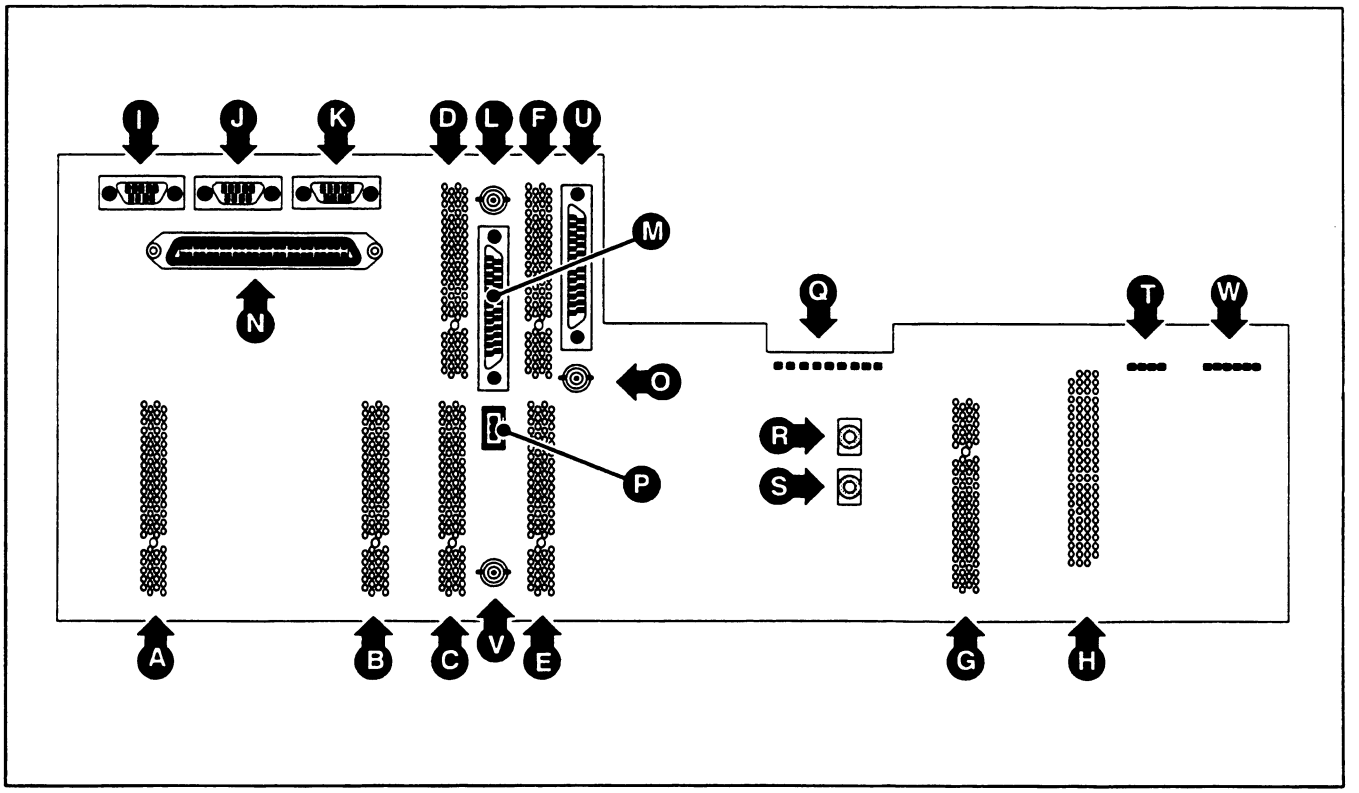


Figure 2. *Quantro* Backplane Connectors

A J2 RECEIVER #1

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	AGC 1
75	ODC 1
76	SBI 1
77	DATA 1
78	DATA *1
79	GND
80	GND

B J4 RECEIVER #2/UHSO

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	AGC 2 ***
75	ODC 2
76	SBI 2
77	DATA 2
78	DATA* 2
79	GND
80	GND

C J5 WIRELINE INTERFACE BOARD

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

D J6 WIRELINE INTERFACE BOARD

Pin #	Signal Name
1	LINE 1+
2	LINE 1–
3	OPEN
4	OPEN
5	OPEN
6	OPEN
7	LINE 2 +
8	LINE 2–
9	OPEN
10	OPEN
11	OPEN
12	OPEN
13	LINE 3 +
14	LINE 3–
15	OPEN
16	OPEN
17	OPEN
18	OPEN
19	LINE 4 +
20	LINE 4–
21	OPEN
22	OPEN
23	OPEN
24	OPEN
25	OPEN
26	Gen Tx Data +
27	PL–in
28	Aux Out 1 (Failsoft Ind)
29	Aux Out 2 (Rx Code Det)
30	Aux Out 3
31	Aux Out 4
32	Aux Out 5
33	Aux Out 6
34	Aux In 8
35	Aux Out 7–Relay
36	Aux Out 8–Relay
37	Aux Out 9–Relay
38	Gnd
39	Aux In 9–opto–
40	Aux Out 10–Relay
41	Aux In 11–opto–
42	Aux In 10–opto–
43	Aux In 12–opto +
44	Aux In 12–opto–
45	OPEN
46	Aux In 11–opto +
47	OPEN
48	Aux In 9–opto + (Ext PTT)
49	Aux In 10–opto +
50	Aux Out 9–Relay
51	Aux Out 10–Relay
52	Aux Out 7–Relay
53	GND
54	Aux In 6
55	OPEN
56	Aux In 4 (Rx Inh)
57	Aux Out 8–Relay
58	Aux In 2 (TX INHIBIT)
59	Aux In 7
60	Aux In 1 (Site Failsoft)
61	GND
62	PL+ In
63	Aux In 5
64	Gen Tx Data–
65	Aux In 3 (Ext Tx Code Det)
66	GND
67	OPEN
68	OPEN
69	External Spare #13
70	External Spare #14
71	External Spare #15
72	External Spare #16
73	OPEN
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

E J7 STATION CONTROL

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	14.2V
6	14.2V
7	14.2V
8	14.2V
9	5V
10	5V
11	5V
12	5V
13	5V
14	5V
15	5V
16	5V
17	5V
18	5V
19	5V
20	5V
21	5V
22	5V
23	GND
24	GND
25	SPIMISO
26	SPIMOSI
27	SPI CLK
28	ALT_RESET
29	HDLC DATA
30	HDLC BUSY
31	HDLC CLK
32	TDM FRAME SYNC
33	TDM DATA
34	TDM CLOCK
35	SPARE #1
36	SPARE #2
37	SPARE #3
38	SPARE #4
39	SPARE #5
40	SPARE #6
41	A0 (CS1)
42	A1 (CS2)
43	SPI GRANT
44	A5
45	A4
46	A3
47	A2
48	XMIT SPIREQ
49	PTT REQ
50	HOST_REQ
51	GND
52	GND
53	GND
54	GND
55	RX 2.1 MHZ REF
56	TX 2.1 MHZ REF
57	GND
58	GND
59	REF AUDIO
60	VCO AUDIO
61	OPEN
62	GND
63	TX WIDEBAND AUDIO
64	5 MHZ REF
65	GND
66	GND
67	AGC 2 ***
68	ODC 2
69	SBI 2
70	DATA* 2
71	DATA 2
72	GND
73	GND
74	AGC 1
75	ODC 1
76	SBI 1
77	DATA 1
78	DATA* 1
79	GND
80	GND

F J8 STATION CONTROL

Pin #	Signal Name
1	FUNCTION
2	Modem +
3	Modem –
4	OPEN
5	OPEN
6	GND
7	GND
8	WR1+
9	WR1–
10	DLAN1+
11	DLAN1–
12	DLAN2 +
13	DLAN2–GND
14	GND
15	PL Strip
16	AUX Indicate
17	Monitor
18	OPEN
19	OPEN
20	Patch INH
21	MRTI PTT
22	MRTI Rx Audio
23	MRTI Audio
24	GND
25	Rx Carrier
26	GND
27	GND
28	GND
29	GND
30	GND
31	GND
32	Modem Ret
33	TxD3
34	RxD3
35	RTS3
36	CTS3
37	DSR3
38	GND
39	DCD3
40	Local loopback 3
41	TCLK3
42	RCLK3
43	DTR3
44	Remote Loopback 3
45	GND
46	GND
47	A2
48	XMT SPIREQ
49	PTT REQ
50	HOST_REQ
51	TxD1
52	CTS1
53	RTS1
54	DCD1
55	GND
56	DSR1
57	DTR1
58	Serial ID
59	TSTAT
60	PTT
61	OPEN
62	GND
63	RSTAT
64	CCI
65	GND
66	PTT REQ
67	TX Data
68	Rx WIDEBAND AUDIO
69	TX DATA –
70	GND
71	GND
72	GND
73	GND
74	GND
75	GND
76	ETHERNET ISOLATED GND
77	GND
78	ETHERNET
79	GND
80	ETHERNET ISOLATED GND

G J9 Exciter

Pin #	Signal Name
1	GND
2	GND
3	14.2V
4	28V
5	14.2V
6	14.2V
7	14.2V
8	14.2V
9	14.2V
10	14.2V
11	5V
12	5V
13	GND
14	GND
15	V control
16	GND
17	GND
18	GND
19	GND
20	5V
21	5V
22	5V
23	5V
24	5V
25	5V
26	5V
27	5V
28	GND
29	GND
30	GND
31	GND
32	V control
33	GND
34	GND
35	GND
36	V final FORWARD
37	PA TEMP
38	V detect FORWARD
39	V final REFLECTED
40	
41	GND
42	GND
43	GND
44	GND
45	GND
46	GND
47	GND
48	GND
49	GND
50	GND
51	
52	
53	
54	X2 MUX
55	Y2 MUX
56	X3 MUX
57	Y3 MUX
58	A MUX CTRL
59	B MUX CTRL
60	SPARE #1
61	SPARE #2
62	SPARE #3
63	GND
64	GND
65	GND
66	Driver PA Vforward
67	Overvoltage
68	Final PA Vforward
69	Final PA Vreflected
70	Final PA Temp
71	Circulator Temp
72	AC Fail
73	GND
74	GND
75	GND
76	GND
77	GND
78	GND
79	
80	

H J38 +5V / IPA

Pin #	Signal Name
1	GND
2	GND
3	GND
4	14.2V BUS
5	14.2V BUS
6	14V BUS
7	14.2V BUS
8	14.2V BUS
9	14.2V BUS
10	14.2V BUS
11	14.2V BUS
12	GND
13	GND
14	GND
15	GND
16	GND
17	GND
18	GND
19	GND
20	5V
21	5V
22	5V
23	5V
24	5V
25	5V
26	5V
27	5V
28	GND
29	GND
30	GND
31	GND
32	V control
33	GND
34	GND
35	GND
36	V final FORWARD
37	PA TEMP
38	V detect FORWARD
39	V final REFLECTED
40	
41	GND
42	GND
43	GND
44	GND
45	GND
46	GND
47	GND
48	GND
49	GND
50	GND
51	
52	
53	
54	X2 MUX
55	Y2 MUX
56	X3 MUX
57	Y3 MUX
58	A MUX CTRL
59	B MUX CTRL
60	SPARE #1
61	SPARE #2
62	SPARE #3
63	GND
64	GND
65	GND
66	Driver PA Vforward
67	Overvoltage
68	Final PA Vforward
69	Final PA Vreflected
70	Final PA Temp
71	Circulator Temp
72	AC Fail
73	GND
74	GND
75	GND
76	GND
77	GND
78	GND
79	
80	

I J20 Async RS232/485

Pin #	Signal Name
1	DCD1
2	GNDfloD1
3	TxD1
4	Async +
5	Signal Gnd
6	Async –
7	RTS1
8	CTS1
9	Ring Indicator

J J18 DLAN1

Pin #	Signal Name
1	Shield Gnd
2	GNDWF1+
3	WF1–
4	DLAN2+
5	DLAN2–
6	WF1+
7	WF1–
8	DLAN2+
9	DLAN2–

K J19 DLAN2

Pin #	Signal Name
1	Shield Gnd
2	GNDWF1+
3	WF1–
4	DLAN1 +
5	DLAN1–
6	WF1+
7	WF1–
8	DLAN1 +
9	DLAN1–

L J21 1PPS INPUT

Pin #	Signal Name
1	1PPS
2	GND
3	GND
4	GND
5	GND

M J14 6809/MRTI

Pin #	Signal Name
1	MRTI Audio
2	MARTI PTT
3	OPEN
4	Monitor
5	PL Strip
6	Open
7	MRTI Rx Audio
8	Patch INH
9	Gnd
10	AUX Indicate
11	PTT
12	TSTAT
13	Tx Data +
14	OPEN
15	Rx Carrier
16	GND
17	GND
18	GND
19	GND
20	GND
21	Tx Data–
22	Rx WIDEBAND AUDIO
23	MUTE
24	CCI
25	RSTAT

N J17 System 50–Pin Telco

Pin #	Signal Name
1	Line 1+
2	Line 2+
3	Line 3+
4	Line 4+
5	Modem +
6	Open
7	GND
8	5 VDC Out
9	Gen TX Data +
10	PL + In
11	Aux In 1 (Site Failsoft)
12	Aux In 2 (TX Inhibit)
13	Aux In 3 (Ext TX Code Det)
14	Aux In 4 (RX Inh)
15	Aux In 5 (Duplex Enable)
16	Aux In 6 (In Channel Repeat)
17	Aux In 7 (Channel 4)
18	Aux Out 7
19	Aux Out 8
20	Aux Out 9
21	Aux Out 10
22	Aux In 9 (Ext PTT)
23	Aux In 10 (Channel 1)
24	Aux In 11 (Channel 2)
25	Aux In 12 (Channel 3)
26	Line 1 –
27	Line 2 –
28	Line 3 –
29	Line 4 –
30	Modem –
31	Open
32	GND
33	14.2 VDC Out
34	Gen TX Data –
35	PL IN
36	Aux Out 1 (Failsoft Ind)
37	Aux Out 2 (RX Code Det)
38	Aux Out 3
39	Aux Out 4
40	Aux Out 5
41	Aux Out 6
42	Aux In 8
43	Aux Out 7 (RD Stat)
44	Aux Out 8
45	Aux Out 9
46	Aux Out 10
47	Aux In 9
48	Aux In 10
49	Aux In 11
50	Aux In 12

O J22 ETHERNET In/Out

Pin #	Signal Name
1	ETHERNET
2	gnd*
3	gnd*
4	gnd*
5	gnd*

* Isloated from chassis ground

P J23 ANTENNA RELAY

Pin #	Signal Name
1	GND
2	ANT RY KEYED A +
3	GND

Q J33 POWER SUPPLY INPUTS

Pin #	Signal Name
1	14V
2	14V
3	GND
4	GND
5	Overvoltage
6	AC Fail
7	OPEN
8	OPEN
9	OPEN

R J34 EXTERNAL WATTMETER INPUT

Pin #	Signal Name
1	EXT WM Ref
2	EXT WM Vf
3	EXT WM Ref

S J35 EXTERNAL WATTMETER INPUT

Pin #	Signal Name
1	EXT WM Ref
2	EXT WM Vf
3	EXT WM Ref

T J36 DRIVER PA INPUTS

Pin #	Signal Name
1	
2	Driver PA Vforward
3	GND
4	OPEN

U J15 SYNC RS232

Pin #	Signal Name
1	Shield Gnd
2	TxD3
3	RxD3
4	RTS3
5	CTS3
6	DSR3
7	Signal Ground
8	DCD3
9	OPEN
10	OPEN
11	OPEN
12	OPEN
13	Local Loopback 3
14	OPEN
15	TCLK3
16	OPEN
17	RCLK3
18	OPEN
19	OPEN
20	DTR3
21	OPEN
22	OPEN
23	OPEN
24	OPEN
25	Remote Loopback 3

V J30 5 MHz REF INPUT

Pin #	Signal Name
1	5 MHz REF
2	GND
3	GND
4	GND
5	GND

W J37 FINAL PA INPUTS

Pin #	Signal Name
1	Final PA Temp
2	Final PA Vreflected
3	Circulator Temp
4	Final PA Vforward
5	GND
6	OPEN

MOTOROLA

COMPARATOR BACKPLANE

MODEL TRN7737A
(ASTRO–TAC)

1 NET LIST

The listing on the following pages provides "Net List" information for the connectors on both sides of the comparator backplane board. The example in Figure 1 describes how to interpret the information.

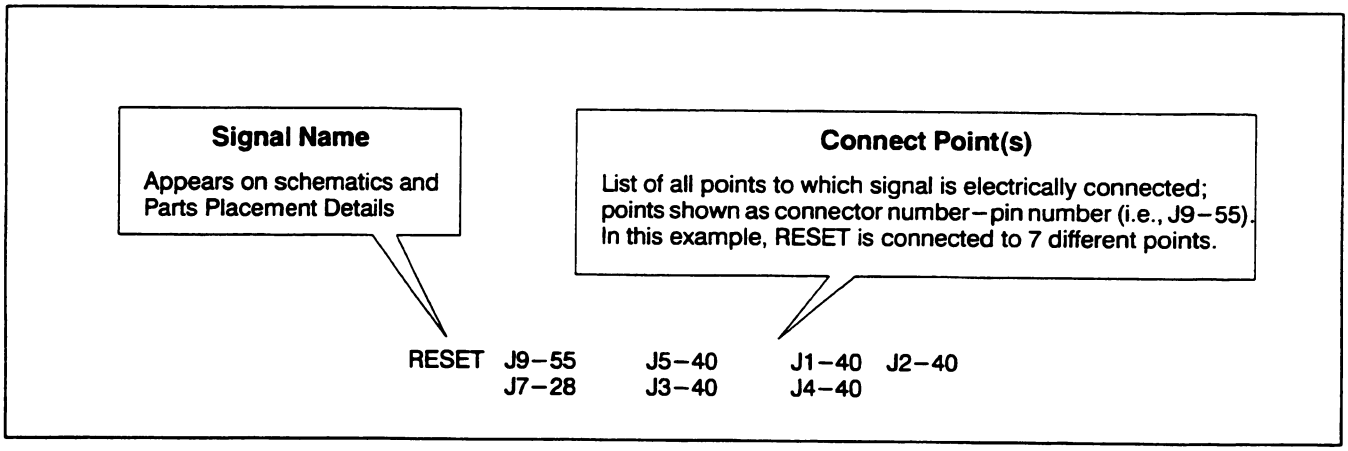


Figure 1. Interpreting Net List Information Example

Land Mobile Products Sector
1301 E. Algonquin Road, Schaumburg, IL 60196

68P81090E93–O
7/15/94–UP

Net List

RCLK3	J8–42	J15–17		
LINE1–	J6–2	J17–26		
GenTxData–	J6–26	J17–34		
AuxOut3	J6–30	J17–38		
AuxOut1Flstd	J6–28	J17–36		
LINE4–	J6–20	J17–29		
LINE2–	J6–8	J17–27		
AuxIn2TxInhbt	J6–58	J17–12		
AuxIn6	J6–54	J17–16		
AuxOut7–Rely+	J6–52	J17–18		
AuxOut9–Rely+	J6–50	J17–20		
AuxIn9–op+EPT	J6–48	J17–22		
AuxIn11–opto+	J6–46	J17–24		
AuxIn4(RxInh)	J6–56	J17–14		
RxD1	J8–50	J20–2		
CTS1	J8–52	J20–8		
LINE3–	J6–14	J17–28		
Modem–	J8–1	J17–30		
LnePTDt(GCC)	J14–10	J8–16		
extspare#8	J31–3	J3–12	J4–12	J2–12
	J1–12	J5–12		
extspare#2	J31–9	J3–6	J4–6	J2–6
	J1–6	J5–6		
DATA*1	J2–78	J7–78		
DATA*2	J4–78	J7–70		
ODC2	J4–75	J7–68		
SBI1	J2–76	J7–76		
5MHZREF	J4–70	J5–70	J30–1	J7–64
ETHERNETGND	J8–76	J8–80	J22–2	J22–3
	J22–4	J22–5		
Modem+	J8–2	J17–5		
AGC1	J2–74	J7–74		
1PPS	J8–74	J21–1		
DLAN2–	J8–12	J18–5	J18–9	
DLAN1–	J8–10	J19–5	J19–9	
ETHERNET	J8–78	J22–1		
WFI–	J8–8	J18–3	J18–7	J19–3
	J19–7			
extspare#4	J31–7	J3–8	J4–8	J2–8
	J1–8	J5–8		
extspare#6	J31–5	J3–10	J4–10	J2–10
	J1–10	J5–10		
Async–	J8–56	J20–6		
DCD1	J8–54	J20–1		
SPIMOSI	J3–38	J4–38	J2–38	J1–38
	J5–38	J41–38	J40–38	J42–38
	J7–26	J10–61		
TX16.8MHZREF	J4–66	J5–66	J7–56	
PTT	J14–11	J8–60		
MonitrDtGCC	J14–8	J8–20		
DataRx(GCC)	J14–7	J8–22		
RSSI(GCC)	J14–6	J8–24		
CTS3	J8–36	J15–5RxD3		J8–34
	J15–3			
LocalIpbck3	J8–40	J15–18		
RemotLpback3	J8–44	J15–21		
extspare#12	J31–4	J3–16	J4–16	J2–16
	J1–16	J5–16		
extspare#10	J31–2	J3–14	J4–14	J2–14
	J1–14	J5–14		
AuxOut8–Rely–	J6–36	J17–44		
AuxOut5	J6–32	J17–40		
A5	J3–56	J4–56	J2–56	J1–56
	J5–56	J41–56	J40–56	J42–56
	J7–44	J10–69		
GenTxData+	J6–64	J17–9		
AuxIn12–opto–	J6–44	J17–50		
AuxIn1StFlst	J6–60	J17–11		
extspare#16	J32–7	J6–72		
extspare#14	J32–9	J6–70		
AuxIn8	J6–34	J17–42		
AuxOut10–Rla–	J6–40	J17–46		
CCI/Monitor	J14–24	J8–64		
Mute/PLStrip	J14–23	J8–62		
SerialID	U1–2	J8–58		
AuxIn10–opto–	J6–42	J17–48		
PL+In	J6–62	J17–1013.8V		J31–6
	J3–22	J3–23	J3–24	J3–25
	J3–26	J4–22	J4–23	J4–24
	J4–25	J4–26	J2–22	J2–23
	J2–24	J2–25		
13.8V	J2–26	J1–22	J1–23	J1–24
	J1–25	J1–26	J5–22	J5–23
	J5–24	J5–25	J5–26	J17–33
	J7–5	J7–6	J7–7	
13.8V	J7–8	J39–4	J39–5	J39–8
	J39–9	J10–16	J10–17	J10–18
	J10–19	J10–20	J10–21	J10–22
	J10–23			
5V	J31–8	J3–27	J3–28	J3–29
	J3–30	J3–31	J3–32	J3–33
	J3–34	J4–27	J4–28	J4–29
	J4–30	J4–31	J4–32	
5V	J4–33	J4–34	J2–27	J2–28
	J2–29	J2–30	J2–31	J2–32
	J2–33	J2–34	J1–27	J1–28
	J1–29	J1–30	J1–31	
5V	J1–32	J1–33	J1–34	J5–27
	J5–28	J5–29	J5–30	J5–31
	J5–32	J5–33	J5–34	J17–8
	J7–9	J7–10	J7–11	
5V	J7–12	J7–13	J7–14	J7–15
	J7–16	J7–17	J7–18	J7–19
	J7–20	J7–21	J7–22	J10–24
	J10–25	J10–26	J10–27	
5V	J10–28	J10–29	J10–30	J10–31
extspare#2_A	J41–6	J40–6	J42–6	

extspare#6_A	J41-10 J40-10 J42-10
extspare#10_A	J41-14 J40-14 J42-14
extspare#4_A	J41-8 J40-8 J42-8
extspare#8_A	J41-12 J40-12 J42-12
extspare#12_A	J41-16 J40-16 J42-16
RESET	J3-40 J4-40 J2-40 J1-40 J5-40 J41-40 J40-40 J42-40 J7-28 J10-63
A3	J3-60 J4-60 J2-60 J1-60 J5-60 J41-60 J40-60 J42-60 J7-46 J10-73
SPARE#2	J3-48 J4-48 J2-48 J1-48 J5-48 J41-48 J40-48 J42-48 J7-36 J10-65
A4	J3-58 J4-58 J2-58 J1-58 J5-58 J41-58 J40-58 J42-58 J7-45 J10-71
A2	J3-62 J4-62 J2-62 J1-62 J5-62 J41-62 J40-62 J42-62 J7-47 J10-75
5V_A	J41-27 J41-28 J41-29 J41-30 J41-31 J41-32 J41-33 J41-34 J40-27 J40-28 J40-29 J40-30 J40-31 J40-32 J40-33
5V_A	J40-34 J42-27 J42-28 J42-29 J42-30 J42-31 J42-32 J42-33 J42-34 J39-20 J39-21 J39-22 J39-23 J39-24 J39-25
5V_A	J39-26 J39-27
RxAudio	J14-22 J3-17 J4-17 J2-17 J1-17 J5-17 J8-68 J41-17 J40-17 J42-17
A1(CS2)	J3-54 J4-54 J2-54 J1-54 J5-54 J41-54 J40-54 J42-54 J7-42 J10-68
TDMCLOCK	J3-46 J4-46 J2-46 J1-46 J5-46 J41-46 J40-46 J42-46 J7-34
SPARE#4	J3-50 J4-50 J2-50 J1-50 J5-50 J41-50 J40-50 J42-50 J7-38
SPARE#6	J3-52 J4-52 J2-52 J1-52 J5-52 J41-52 J40-52 J42-52 J7-40
SPARE#1	J3-47 J4-47 J2-47 J1-47 J5-47 J41-47 J40-47 J42-47 J7-35 J10-64
SPARE#3	J3-49 J4-49 J2-49 J1-49 J5-49 J41-49 J40-49 J42-49 J7-37 J10-66
A0(CS1)	J3-53 J4-53 J2-53 J1-53 J5-53 J41-53 J40-53 J42-53 J7-41 J10-67
TDMFRAMESYNC	J3-44 J4-44 J2-44 J1-44 J5-44 J41-44 J40-44 J42-44 J7-32
HDLCBUSY	J3-42 J4-42 J2-42 J1-42 J5-42 J41-42 J40-42 J42-42 J7-30
13.8V_A	J41-22 J41-23 J41-24 J41-25 J41-26 J40-22 J40-23 J40-24 J40-25 J40-26 J42-22 J42-23 J42-24 J42-25 J42-26
13.8V_A	J39-6 J39-7 J39-10 J39-11
GND	J14-9 J14-16 J14-17 J14-18 J14-19 J14-20
GND	J31-1 J31-10 J3-1 J3-2 J3-3 J3-4 J3-18 J3-19 J3-20 J3-21 J3-35 J3-36 J3-57
GND	J3-63 J3-64 J3-67 J3-68 J3-71 J3-72 J3-73 J3-79 J3-80 J4-1 J4-2 J4-3 J4-4 J4-18 J4-19
GND	J4-20 J4-21 J4-35 J4-36 J4-57 J4-61 J4-63 J4-64 J4-67 J4-68 J4-71 J4-72 J4-73 J4-79 J4-80
GND	J2-1 J2-2 J2-3 J2-4 J2-18 J2-19 J2-20 J2-21 J2-35 J2-36 J2-59 J2-61 J2-63 J2-64 J2-67
GND	J2-68 J2-71 J2-72 J2-73 J2-79 J2-80 J1-1 J1-2 J1-3 J1-4 J1-18 J1-19 J1-20 J1-21 J1-35
GND	J1-36 J1-59 J1-63 J1-64 J1-67 J1-68 J1-71 J1-72 J1-73 J1-79 J1-80 J5-1 J5-2 J5-3 J5-4
GND	J5-18 J5-19 J5-20 J5-21 J5-35 J5-36 J5-57 J5-59 J5-63 J5-64 J5-67 J5-68 J5-71 J5-72 J5-73
GND	J5-79 J5-80 J6-38 J6-53 J6-79 J6-80 J8-5 J8-6 J8-13 J8-14 J8-26 J8-27 J8-28 J8-29 J8-30
GND	J8-31 J8-38 J8-45 J8-46 J8-47 J8-48 J8-55 J8-65 J8-66 J8-70 J8-71 J8-72 J8-73 J8-75 J8-77
GND	J8-79 J18-1 J41-1 J41-2 J41-3 J41-4 J41-18 J41-19 J41-20 J41-21 J41-35 J41-36 J41-55 J41-57 J41-61
GND	J41-63 J41-64 J41-67 J41-68 J41-71 J41-72 J41-73 J41-79 J41-80 J40-1 J40-2 J40-3 J40-4 J40-18 J40-19
GND	J40-20 J40-21 J40-35 J40-36 J40-55 J40-57 J40-63 J40-64 J40-67 J40-68 J40-71 J40-72 J40-73 J40-79 J40-80
GND	J42-1 J42-2 J42-3 J42-4 J42-18 J42-19 J42-20 J42-21 J42-35 J42-36 J42-55 J42-57 J42-59 J42-63 J42-64

GND	J42–67	J42–68	J42–71	J42–72
	J42–73	J42–79	J42–80	J15–1
	J15–7	J20–5	J21–2	J21–3
	J21–4	J21–5	J30–2	
GND	J30–3	J30–4	J30–5	J17–7
	J17–32	J23–1	J23–3	J19–1
	RN2–1	RN2–5	RN2–9	J24–1
	J24–3	RN1–1	RN1–5	
GND	RN1–9	J7–1	J7–2	J7–3
	J7–4	J7–23	J7–24	J7–51
	J7–52	J7–53	J7–54	J7–57
	J7–58	J7–61	J7–62	
GND	J7–65	J7–66	J7–72	J7–73
	J7–79	J7–80	J39–1	J39–2
	J39–3	J39–12	J39–13	J39–14
	J39–15	J39–16	J39–17	
GND	J39–18	J39–19	J39–28	J39–29
	J39–30	J39–31	J39–33	J39–34
	J39–35	J39–42	J39–43	J39–44
	J39–45	J39–46	J39–47	
GND	J39–48	J39–49	J39–50	J39–63
	J39–64	J39–65	J39–73	J39–74
	J39–75	J39–76	J39–77	J39–78
	J10–1	J10–2	J10–3	
GND	J10–32	J10–33	J10–34	J10–35
	J10–36	J10–37	J10–38	J10–39
	J10–40	J10–41	J10–42	J10–43
	J10–44	J10–45	J10–46	
GND	J10–47	J10–48	J10–49	J10–50
	J10–51	J10–52	J10–53	J10–74
	J10–76	J10–77	J10–78	T331–1
BATTERYTEMP	J24–2	J10–59		
28V	J10–4	J10–5	J10–6	J10–7
	J10–8	J10–9	J10–10	J10–11
	J10–12	J10–13	J10–14	J10–15
AuxIn10–opto+	J6–49	J17–23		
AuxOut10–Rla+	J6–51	J17–21		
TxPLInhbtGCC	J14–5	J8–15		
ODC1	J2–75	J7–75		
SBI2	J4–76	J7–69		
extspare#1	J32–5	J3–5	J4–5	J2–5
	J1–5	J5–5		
extspare#5	J32–1	J3–9	J4–9	J2–9
	J1–9	J5–9		
extspare#7	J32–2	J3–11	J4–11	J2–11
	J1–11	J5–11		
extspare#15	J32–10	J6–71		
extspare#13	J32–8	J6–69		
DATA2	J4–77	J7–71		
AGC2***	J4–74	J7–67		
DLAN1+	J8–9	J19–4	J19–8	
extspare#3	J32–3	J3–7	J4–7	J2–7
	J1–7	J5–7		
LINE4+	J6–19	J17–4		
LINE3+	J6–13	J17–3		
LINE2+	J6–7	J17–2		
LINE1+	J6–1	J17–1		

WFI+	J8–7	J18–2	J18–6	J19–2
	J19–6			
DLAN2+	J8–11	J18–4	J18–8	
RingIndicator	J8–49	J20–9		
TxD1	J8–51	J20–3		
RTS1	J8–53	J20–7		
Async+	J8–57	J20–4		
SPICLK	J3–39	J4–39	J2–39	J1–39
	J5–39	J41–39	J40–39	J42–39
	J7–27	J10–62		
SPIMISO	J3–37	J4–37	J2–37	J1–37
	J5–37	J41–37	J40–37	J42–37
	J7–25	J10–60		
AUXCarrier	J14–14	J8–61		
SeizeRelseGCC	J14–4	J8–17		
RxMute(GCC)	J14–3	J8–19		
DataPTT(GCC)	J14–2	J8–21		
DataTx(GCC)	J14–1	J8–23		
RXPLDET	J14–15	J8–25		
TXData–	J14–21	J8–69		
TSTATRXCarir	J14–12	J8–59		
TXData+TXAdio	J14–13	J8–67		
TxD3	J8–33	J15–2		
RTS3	J8–35	J15–4		
DCD3	J8–39	J15–8		
TCLK3	J8–41	J15–15		
DTR3	J8–43	J15–20		
extspare#9	J32–4	J3–13	J4–13	J2–13
	J1–13	J5–13		
extspare#11	J32–6	J3–15	J4–15	J2–15
	J1–15	J5–15		
PL–In	J6–27	J17–35		
AuxOut2RxCdDt	J6–29	J17–37		
AuxOut4	J6–31	J17–39		
AuxOut6	J6–33	J17–41		
TXWBANDAUDIO	J3–69	J4–69	J2–69	J1–69
	J5–69	J41–69	J40–69	J42–69
	J7–63			
RX16.8MHZREF	J3–65	J4–65	J2–65	J1–65
	J5–65	J7–55		
AuxOut8–Rely+	J6–57	J17–19		
AuxIn7	J6–59	J17–17		
AuxIn5	J6–63	J17–15		
AuxIn3EtTxCdt	J6–65	J17–13		
AuxIn9–opto–	J6–39	J17–47		
AuxOut7–Rely–	J6–35	J17–43		
AuxOut9–Rely–	J6–37	J17–45		
DATA1	J2–77	J7–77		
RSTATPtchInh	J14–25	J8–63		
DSR3	J8–37	J15–6		
extspare#1_A	J41–5	J40–5	J42–5	
extspare#3_A	J41–7	J40–7	J42–7	
extspare#5_A	J41–9	J40–9	J42–9	
extspare#9_A	J41–13	J40–13	J42–13	
extspare#7_A	J41–11	J40–11	J42–11	

extspare#11_A	J41-15	J40-15	J42-15	
TDMDATA	J3-45	J4-45	J2-45	J1-45
	J5-45	J41-45	J40-45	J42-45
	J7-33			
SPARE#5	J3-51	J4-51	J2-51	J1-51
	J5-51	J41-51	J40-51	J42-51
	J7-39			

HDLCCLK	J3-43	J4-43	J2-43	J1-43
	J5-43	J41-43	J40-43	J42-43
	J7-31			
HDLCDATA	J3-41	J4-41	J2-41	J1-41
	J5-41	J41-41	J40-41	J42-41
	J7-29			
AuxIn11-opto-	J6-41	J17-49		
AuxIn12-opto+	J6-43	J17-25		

2 CONNECTOR PINOUT INFORMATION

Figure 2 shows the backplane board viewed from the rear with all connectors used for the comparator labeled. The tables on the facing page provide pinout information for each corresponding connector.

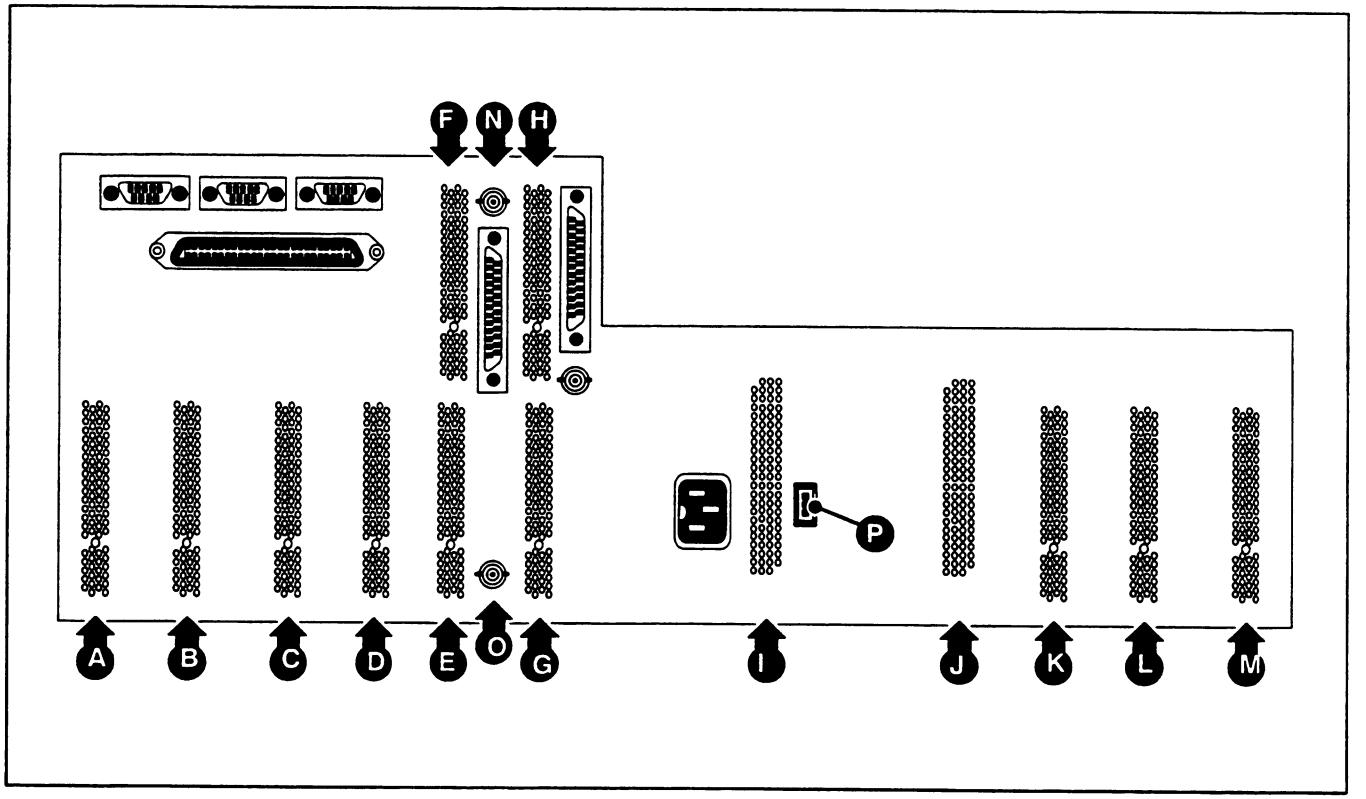


Figure 2. *ASTRO–TAC* Comparator Backplane Connectors

A J1 WIRELINE INTERFACE BOARD #5

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

B J2 WIRELINE INTERFACE BOARD #4

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

C J3 WIRELINE INTERFACE BOARD #3

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

D J4 WIRELINE INTERFACE BOARD #2

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

E J5 WIRELINE INTERFACE BOARD #1

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

F J6 WIRELINE INTERFACE BOARD #1

Pin #	Signal Name
1	GND
2	LINE 1–
3	OPEN
4	OPEN
5	OPEN
6	OPEN
7	LINE 2+
8	LINE 2–
9	OPEN
10	OPEN
11	OPEN
12	OPEN
13	LINE 3+
14	LINE 3–
15	OPEN
16	OPEN
17	OPEN
18	OPEN
19	LINE 4+
20	LINE 4–
21	OPEN
22	OPEN
23	OPEN
24	OPEN
25	OPEN
26	Gen Tx Data +
27	PL–Ix
28	Aux Out 1 (Failsoft Ind)
29	Aux Out 2 (Rx Code Det)
30	Aux Out 3
31	Aux Out 4
32	Aux Out 5
33	Aux Out 6
34	Aux In 8
35	Aux Out 7–Relay
36	Aux Out 8–Relay
37	Aux Out 9–Relay
38	Gnd
39	Aux In 9–opto–
40	Aux Out 10–Relay
41	Aux In 11–opto–
42	Aux In 10–opto–
43	Aux In 12–opto+
44	Aux In 12–opto–
45	OPEN
46	Aux In 11–opto+
47	OPEN
48	Aux In 9–opto+ (Ext PTT)
49	Aux In 10–opto+
50	Aux Out 9–Relay
51	Aux Out 10–Relay
52	Aux Out 7–Relay
53	GND
54	Aux In 6
55	OPEN
56	Aux In 4 (Sc Inh)
57	Aux Out 6–Relay
58	Aux In 3 (Tx Inhibit)
59	Aux In 7
60	Aux In 1 (Site Failsoft)
61	OPEN
62	PL+ In
63	Aux In 5
64	Gen Tx Data–
65	Aux In 3 (Ext Tx Code Det)
66	GND
67	OPEN
68	OPEN
69	External Spare #13
70	External Spare #14
71	External Spare #15
72	External Spare #16
73	OPEN
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

G J7 STATION CONTROL

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	14.2V
6	14.2V
7	14.2V
8	14.2V
9	5V
10	5V
11	5V
12	5V
13	5V
14	5V
15	5V
16	5V
17	5V
18	5V
19	5V
20	5V
21	5V
22	5V
23	GND
24	GND
25	SPIMISO
26	SPIMOSI
27	SPI CLK
28	ALT_RESET
29	HDLC DATA
30	HDLC BUSY
31	HDLC CLK
32	TDM FRAME SYNC
33	TDM DATA
34	TDM CLOCK
35	SPARE #1
36	SPARE #2
37	SPARE #3
38	SPARE #4
39	SPARE #5
40	SPARE #6
41	A0 (CS1)
42	A1 (CS2)
43	SPI GRANT
44	A5
45	A4
46	A3
47	A2
48	XMIT SPIREQ
49	PTT REQ
50	HOST_REQ
51	GND
52	GND
53	GND
54	GND
55	RX 2.1 MHZ REF
56	TX 2.1 MHZ REF
57	GND
58	GND
59	REF AUDIO
60	VCO AUDIO
61	GND
62	GND
63	TX WIDEBAND AUDIO
64	5 MHZ REF
65	GND
66	GND
67	AGC 2 ***
68	OCC 2
69	SBI 2
70	DATA* 2
71	DATA 2
72	GND
73	GND
74	AGC 1
75	OCC 1
76	SBI 1
77	DATA 1
78	DATA* 1
79	GND
80	GND

H J8 STATION CONTROL

Pin #	Signal Name
1	FUNCTION
2	Modem +
3	Modem –
4	OPEN
5	OPEN
6	GND
7	GND
8	WFI+
9	WFI–
10	DLAN1+
11	DLAN1–
12	DLAN2+
13	DLAN2–GND
14	GND
15	PL Strip
16	AUX Indicate
17	Monitor
18	OPEN
19	OPEN
20	Patch INH
21	MRTI PTT
22	MRTI Rx Audio
23	MRTI Audio
24	OPEN
25	Rx Carrier
26	GND
27	GND
28	GND
29	GND
30	GND
31	GND
32	Modem Rst
33	TxD3
34	RxD3
35	RTS3
36	CTS3
37	DSR3
38	GND
39	DCD3
40	Local loopback 3
41	TCLK3
42	RCLK3
43	DTR3
44	Remote Loopback 3
45	GND
46	GND
47	GND
48	GND
49	Ring Indicator
50	RxD1
51	TxD1
52	CTS1
53	RTS1
54	DCD1
55	GND
56	DSR1
57	DTR1
58	Serial ID
59	TSTAT
60	PTT
61	OPEN
62	MUTE
63	RSTAT
64	CO1
65	GND
66	GND
67	TX Data
68	Rx WIDEBAND AUDIO
69	TX DATA –
70	GND
71	GND
72	GND
73	GND
74	1PPS
75	GND
76	ETHERNET ISOLATED GND
77	GND
78	ETHERNET
79	GND
80	ETHERNET ISOLATED GND

I J10 POWER SUPPLY

Pin #	Signal Name
1	GND
2	GND
3	GND
4	28V
5	28V
6	28V
7	28V
8	28V
9	28V
10	28V
11	28V
12	28V
13	28V
14	28V
15	28V
16	14.2V
17	14.2V
18	14.2V
19	14.2V
20	14.2V
21	14.2V
22	14.2V
23	14.2V
24	5V
25	5V
26	5V
27	5V
28	5V
29	5V
30	5V
31	5V
32	GND
33	GND
34	GND
35	GND
36	GND
37	GND
38	GND
39	GND
40	GND
41	GND
42	GND
43	GND
44	GND
45	GND
46	GND
47	GND
48	GND
49	GND
50	GND
51	GND
52	GND
53	GND
54	OPEN
55	OPEN
56	OPEN
57	OPEN
58	OPEN
59	BATTERY TEMP
60	SPI MISO
61	SPI MOSI
62	SPI CLK
63	ALT RESET
64	SPARE #1
65	SPARE #2
66	SPARE #3
67	A0 (CS1)
68	A1 (CS2)
69	A5
70	OPEN
71	A4
72	OPEN
73	A3
74	OPEN
75	A2
76	GND
77	GND
78	GND

J J39 +5V EXPANSION MODULE

Pin #	Signal Name
1	GND
2	GND
3	GND
4	14.2V
5	14.2V
6	14.2V
7	14.2V
8	14.2V
9	14.2V
10	14.2V
11	14.2V
12	GND
13	GND
14	GND
15	GND
16	GND
17	GND
18	GND
19	GND
20	5V
21	5V
22	5V
23	5V
24	5V
25	5V
26	5V
27	5V
28	GND
29	GND
30	GND
31	GND
32	OPEN
33	OPEN
34	OPEN
35	OPEN
36	OPEN
37	OPEN
38	OPEN
39	OPEN
40	OPEN
41	OPEN
42	GND
43	GND
44	GND
45	GND
46	GND
47	GND
48	GND
49	GND
50	GND
51	OPEN
52	OPEN
53	OPEN
54	OPEN
55	OPEN
56	OPEN
57	OPEN
58	OPEN
59	OPEN
60	SPARE #1
61	SPARE #2
62	SPARE #3
63	GND
64	GND
65	GND
66	OPEN
67	OPEN
68	OPEN
69	OPEN
70	OPEN
71	OPEN
72	OPEN
73	GND
74	GND
75	GND
76	GND
77	GND
78	GND

K J40 WIRELINE INTERFACE BOARD #8

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

L J41 WIRELINE INTERFACE BOARD #7

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

M J42 WIRELINE INTERFACE BOARD #6

Pin #	Signal Name
1	GND
2	GND
3	GND
4	GND
5	External Spare #1
6	External Spare #2
7	External Spare #3
8	External Spare #4
9	External Spare #5
10	External Spare #6
11	External Spare #7
12	External Spare #8
13	External Spare #9
14	External Spare #10
15	External Spare #11
16	External Spare #12
17	Rx WIDEBAND AUDIO
18	GND
19	GND
20	GND
21	GND
22	14.2V
23	14.2V
24	14.2V
25	14.2V
26	14.2V
27	5V
28	5V
29	5V
30	5V
31	5V
32	5V
33	5V
34	5V
35	GND
36	GND
37	SPIMISO
38	SPIMOSI
39	SPICLK
40	ALT_RESET
41	HDLC DATA
42	HDLC BUSY
43	HDLC CLK
44	TDM FRAME SYNC
45	TDM DATA
46	TDM CLOCK
47	SPARE #1
48	SPARE #2
49	SPARE #3
50	SPARE #4
51	SPARE #5
52	SPARE #6
53	A0 (CS1)
54	A1 (CS2)
55	OPEN
56	A5
57	GND
58	A4
59	GND
60	A3
61	OPEN
62	A2
63	GND
64	GND
65	RX 2.1 MHZ REF
66	TX 2.1 MHZ REF
67	GND
68	GND
69	TX WIDEBAND AUDIO
70	5 MHZ REF
71	GND
72	GND
73	GND
74	OPEN
75	OPEN
76	OPEN
77	OPEN
78	OPEN
79	GND
80	GND

N J21 1PPS INPUT

Pin #	Signal Name
1	1PPS
2	GND
3	GND
4	GND
5	GND

O J30 5 MHz REF INPUT

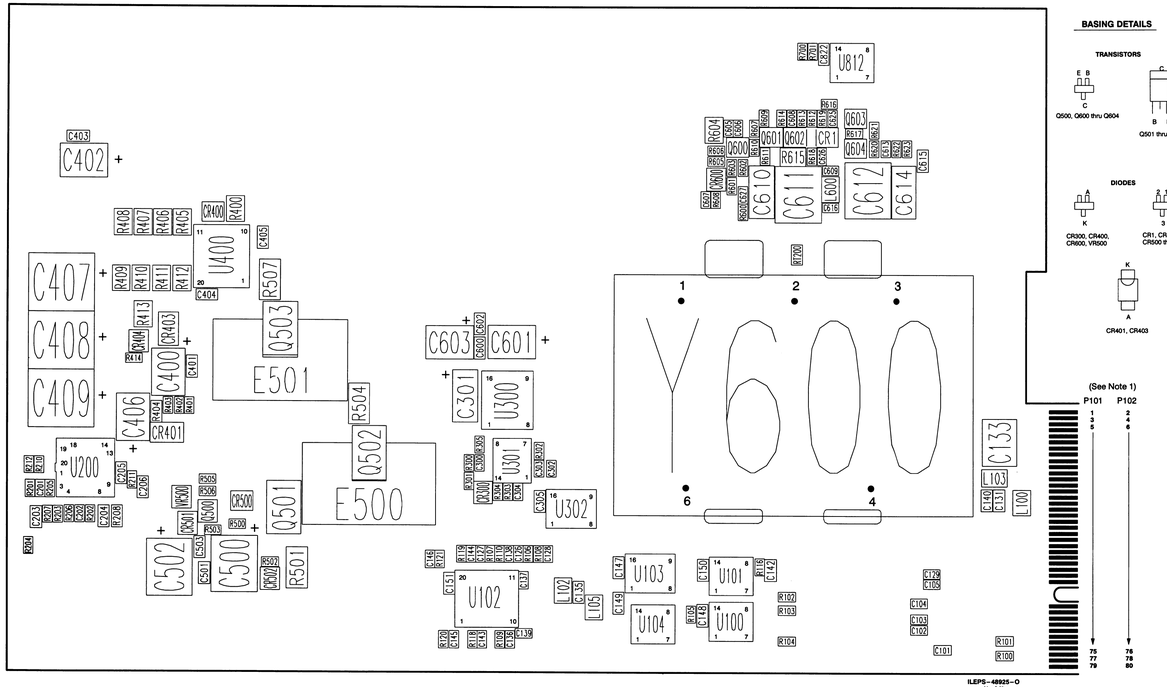
Pin #	Signal Name
1	5 MHz REF
2	GND
3	GND
4	GND
5	GND

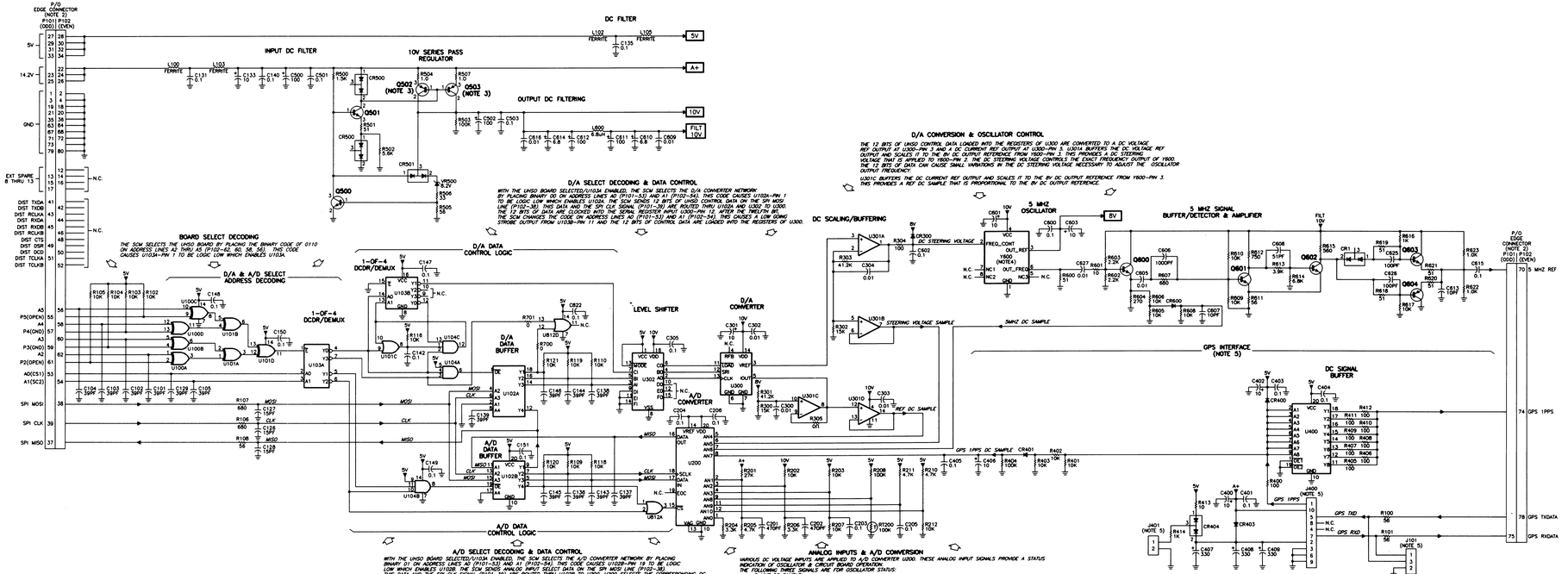
P J24 BATTERY TEMPERATURE

Pin #	Signal Name
1	GND
2	BATTERY TEMP
3	GND

ULTRA HIGH STABILITY OSCILLAROR (UHSO) MODULE

MODEL TTN5070C





NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS.
2. EDGE CONNECTORS P101 AND P102 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
3. TRANSISTORS Q500 & Q503 HAVE HEATSINKS. THE COLLECTOR (BACK OF TRANSISTOR BODY) MAKES ELECTRICAL CONTACT WITH THE COLLECTOR LAND OF THE PCB PLATING. THE HEATSINK MAKES ELECTRICAL CONTACT WITH THE COLLECTOR AND THUS ELECTRICALLY CONTACTS WITH THE COLLECTOR LAND OF THE PCB PLATING. THE TRANSISTOR COLLECTORS AND ITS HEATSINK ARE ELECTRICALLY CONNECTED WHEN PROPERLY MOUNTED TO THE PCB.
4. THE ULTRA HIGH STABILITY OSCILLATOR (UHSO) OPTION INCLUDES: TTN5070 UHSO BOARD AND TTN5072 UHSO SMB HARDWARE KIT. TTN5072 CONTAINS Y600, MOTOROLA PART NUMBER 51-83204V03. Y600 IS A SEALED 5 MHZ PRECISION OVENIZED CRYSTAL OSCILLATOR WITH A STABILITY OF 5 PARTS PER BILLION.
5. THE GPS INTERFACE CIRCUITRY IS FOR A FUTURE OPTION. CONNECTORS J101, J400 & J401 ARE NOT POPULATED ON THE TTN5070 UHSO BOARD.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC74HC86	QUAD 2-INPUT EXCLUSIVE OR GATE	14	7
U101	MC74HC32	QUAD 2-INPUT OR GATE	14	7
U102	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U103	74AC139	DUAL 1-OF-4 DECODER/DEMULTIPLEXER	16	8
U104	74HC11	TRIPLES 3-INPUT AND GATE	14	7
U200	MC145041	8-BIT A/D CONVERTER	20	10
U300	MAX543	COMPLEMENTARY SYMMETRY/OXIDE SEMICONDUCTOR	14	6, 7
U301	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U302	MC14504	HEX LEVEL SHIFTER	1, 16	8
U400	MC74AC541	OCTAL BUFFER/LINE DRIVER/RECEIVER, WITH 3-STATE OUTPUTS	20	10
UB12	MC74HC32	QUAD 2-INPUT OR GATE	14	7

Parts List, V.24 Interface Assembly, TTN4010C

Reference	Part Number	Description
		capacitor:
C1, C2	2311049A21	CAP TANT CHIP 22 10 20 A/P
C3, C4	2113741A45	CAP CHIP CL2 X7R REEL 10000
C5	2311049A21	CAP TANT CHIP 22 10 20 A/P
C6 – C10	2113741A45	CAP CHIP CL2 X7R REEL 10000
C12 – C18	2113740A65	CAP CHIP REEL CL1 +/-30 270
C100, C101	2311049A21	CAP TANT CHIP 22 10 20 A/P
C102, C103	2113741A45	CAP CHIP CL2 X7R REEL 10000
C104	2311049A21	CAP TANT CHIP 22 10 20 A/P
C105 – C109	2113741A45	CAP CHIP CL2 X7R REEL 10000
C111 – C117	2113740A65	CAP CHIP REEL CL1 +/-30 270
		diode:
CR1	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR3 – CR10	4813832C28	ZENER BPLR 15V FOR ESD SOT23
CR20	4813833B01	DIODE SCHOTTKY 1.0A 40V
CR22 – CR29	4813832C28	ZENER BPLR 15V FOR ESD SOT23
		relay:
K101, K102	8013917B01	RELAY SMD 5V 330MM T&R
		non-referenced items:
	8482518W02	PCB FOR V.24
	4385211U02	STANDOFF CKT BD PLASTIC (8X)
	5482006W03	BARCODE LABEL
	5684448Y02	CARTON,LARGE RSC W/10 CELLS
	5683638Y04	BAG,ESD W/CORROSION PROTECTION
	5480139S02	LBL THERMAL XFER 2.5

Reference	Part Number	Description
		connector:
P1	2880001S25	CON PCB HDR 1 GOLD DR ST 50POS
P2	0982563W02	CONNECTOR TELCO RJ-45
P3	2880001S25	CON PCB HDR 1 GOLD DR ST 50POS
P4	0982563W02	CONNECTOR TELCO RJ-45
		transistor (see note):
Q101, Q102	4813824A11	XSTR NPN 40V .6A GENP B=75
		resistor, fixed:
R1, R2	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R4	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R5 – R11	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R100, R101	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R102	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R103	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R104 – R110	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
		switch:
S101, S102	4083706T02	SWITCH 4 POSTN SMT SPST
		integrated circuit:
U2 – U5	5183376X02	RS-232 DRI/REC 3TX/3RX 16WSO
U7, U8	5113805A62	IC OCT 3ST N/INV TRANS LAT

NOTE 1: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

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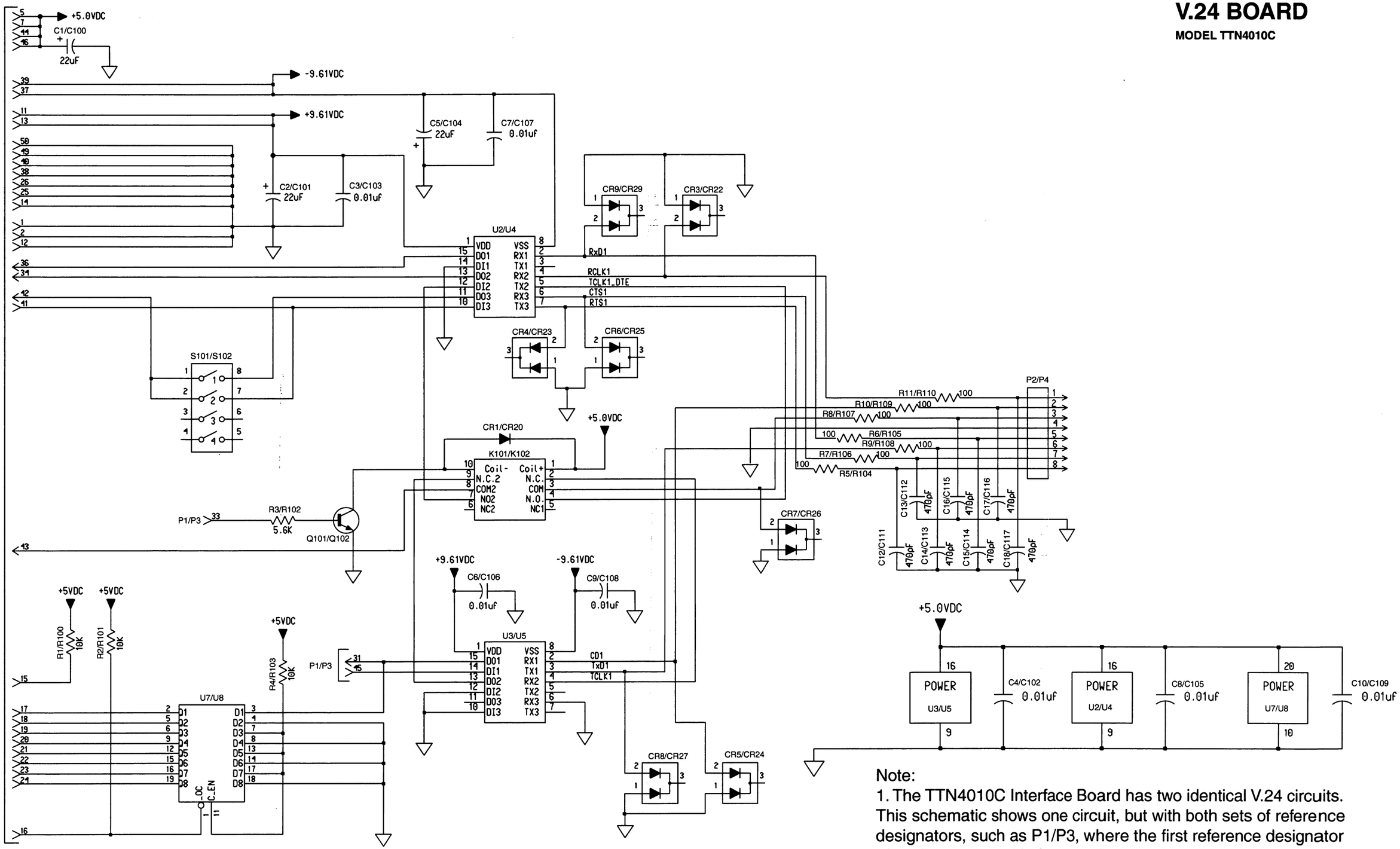
V.24 BOARD

MODEL TTN4010C

P1/P3

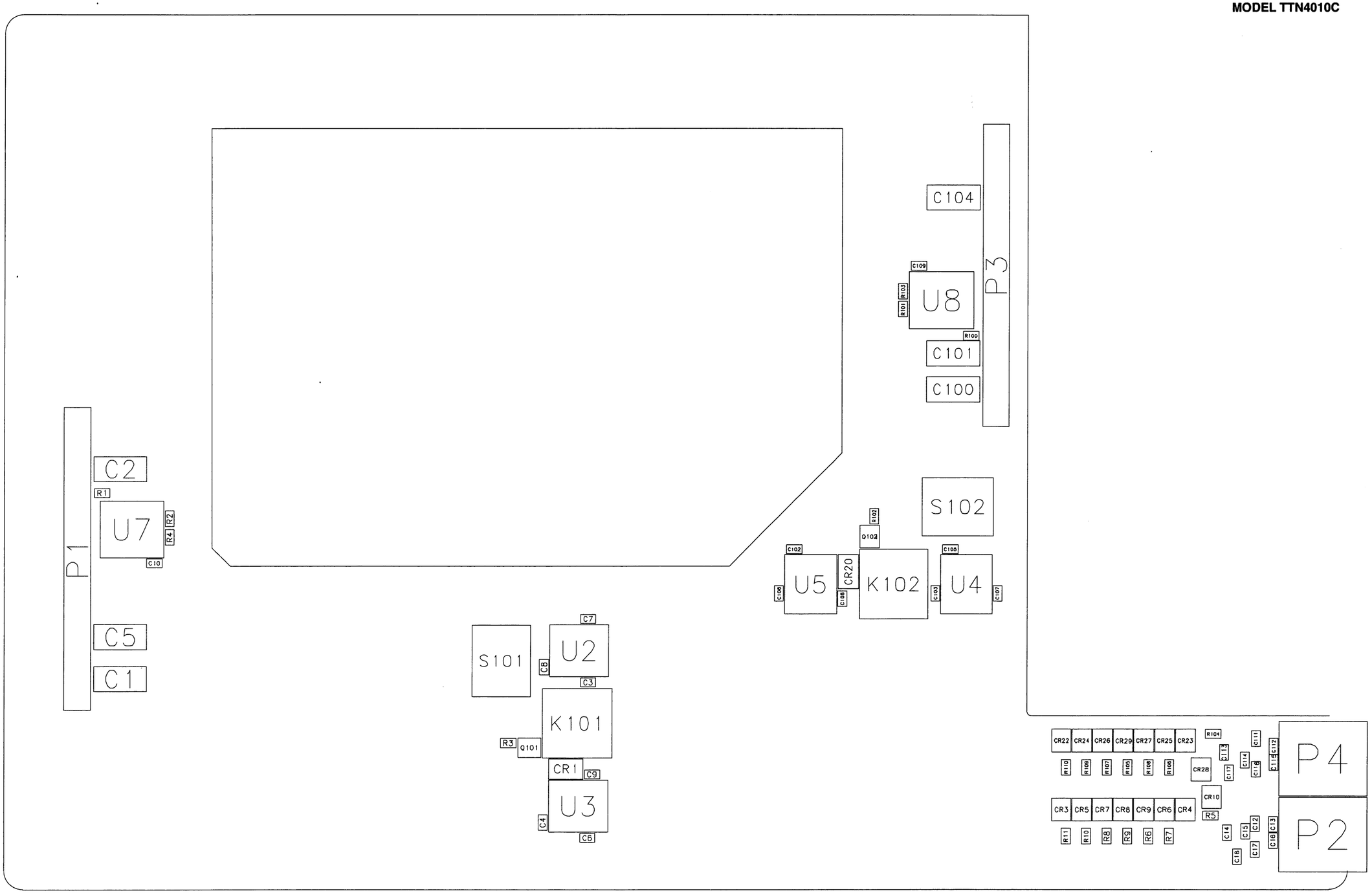


Note:

1. The TTN4010C Interface Board has two identical V.24 circuits. This schematic shows one circuit, but with both sets of reference designators, such as P1/P3, where the first reference designator of each component is for one circuit and the second for the other circuit on the board.

V.24 BOARD

MODEL TTN4010C



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Service Manual for:

Quantar® Station Products
Quantro® Station Products
DSS-III Station Products
ASTRO-TAC® Comparator
ASTRO-TAC® Receiver

(Includes Schematics, Part Location Details, and Parts Lists)

[redacted]

Service Manual

68P81088E90-G

Volume 2 of 2

Quantar Service Manual

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MOTOROLA

SMR 6867

Manual Revision

Service Manual for:
Quantar™ Station Products
Quantro™ Station Products
DSS-III ™ Station Products
ASTRO-TAC™ Comparator
ASTRO-TAC ™ Receiver

General

This revision contains information on new assemblies released since the manual was printed in March 2004. Information is provided for the following new assemblies:

- 125 W VHF Power Amplifier Module models CLD1298A/CLD1299A

  Add this new section, 68P71004P75-A, to your manual behind the "Transmitter Modules" tab in Volume 2.

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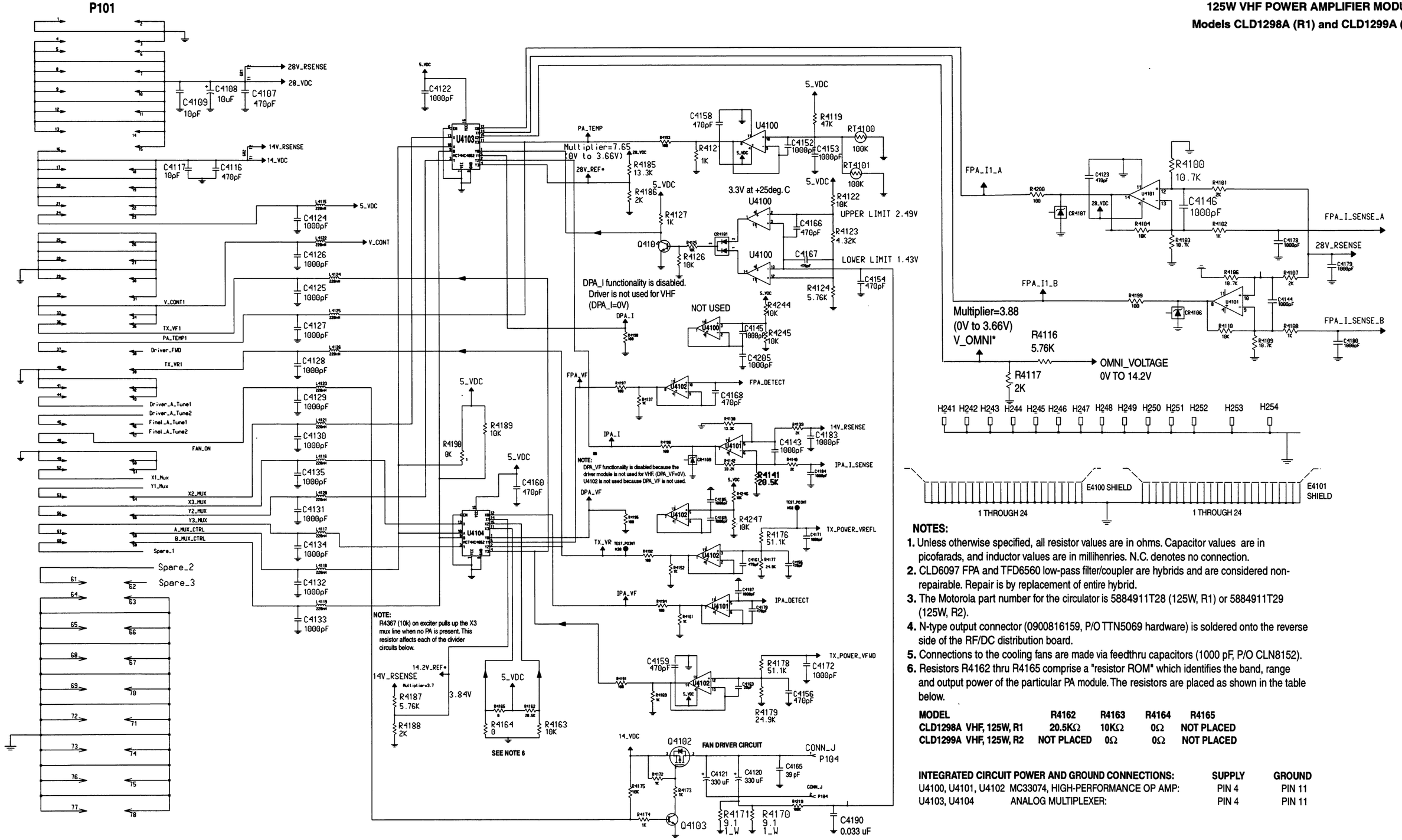


NOTES:

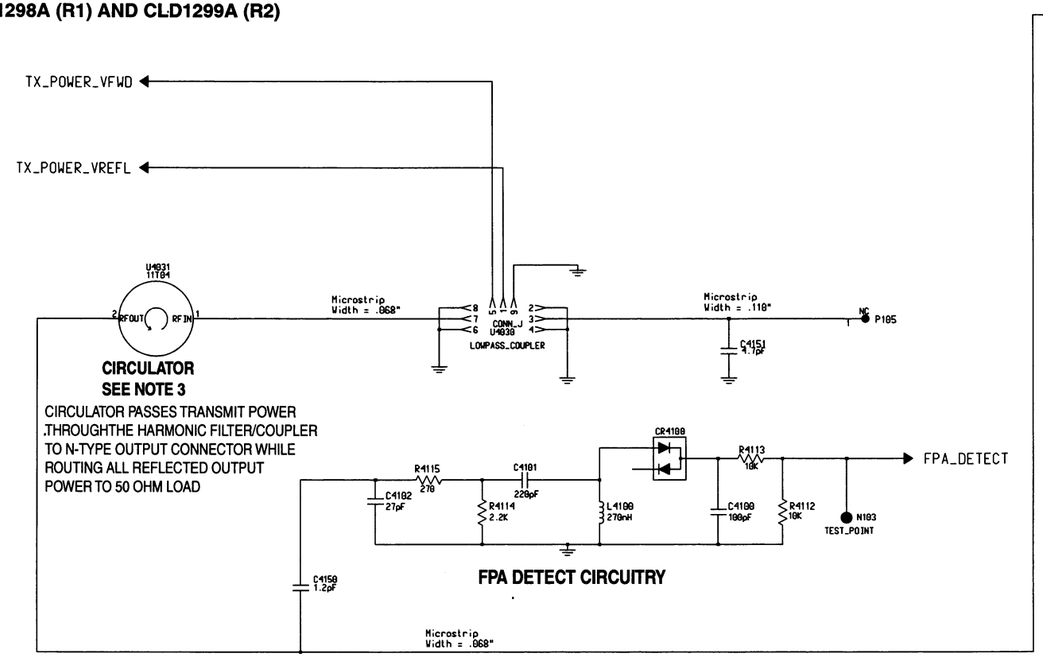
1. Unless otherwise specified, all resistor values are in ohms. Capacitor values are in picofarads, and inductor values are in millihenries. N.C. denotes no connection.
2. CLD6097 FPA and TFD6560 low-pass filter/coupler are hybrids and are considered non-repairable. Repair is by replacement of entire hybrid.
3. The Motorola part number for the circulator is 5884911T28 (125W, R1) or 5884911T29 (125W, R2).
4. N-type output connector (0900816159, P/O TTN5069 hardware) is soldered onto the reverse side of the RF/DC distribution board.
5. Connections to the cooling fans are made via feedthru capacitors (1000 pF, P/O CLN8152).
6. Resistors R4162 thru R4165 comprise a "resistor ROM" which identifies the band, range and output power of the particular PA module. The resistors are placed as shown in the table below.

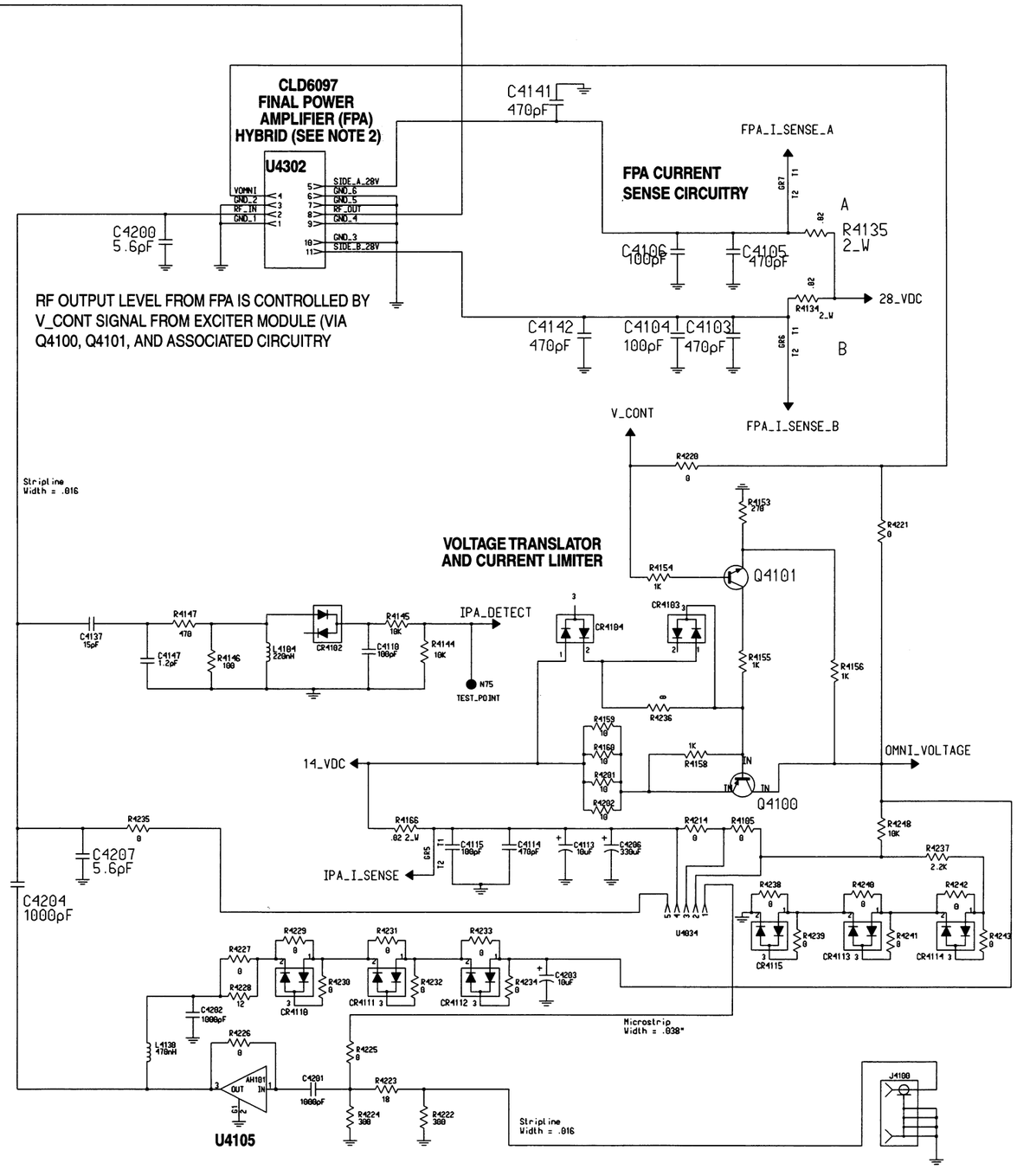
MODEL	R4162	R4163	R4164	R4165
CLD1298A VHF, 125W, R1	20.5KΩ	10KΩ	0Ω	NOT PLACED
CLD1299A VHF, 125W, R2	NOT PLACED	0Ω	0Ω	NOT PLACED

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS:		SUPPLY	GROUND
U4100, U4101, U4102	MC33074, HIGH-PERFORMANCE OP AMP:	PIN 4	PIN 11
U4103, U4104	ANALOG MULTIPLEXER:	PIN 4	PIN 11

DC Distribution Board Schematic Diagram (Sheet 1 of 2)

125W VHF POWER AMPLIFIER MODULE
MODELS CLD1298A (R1) AND CLD1299A (R2)

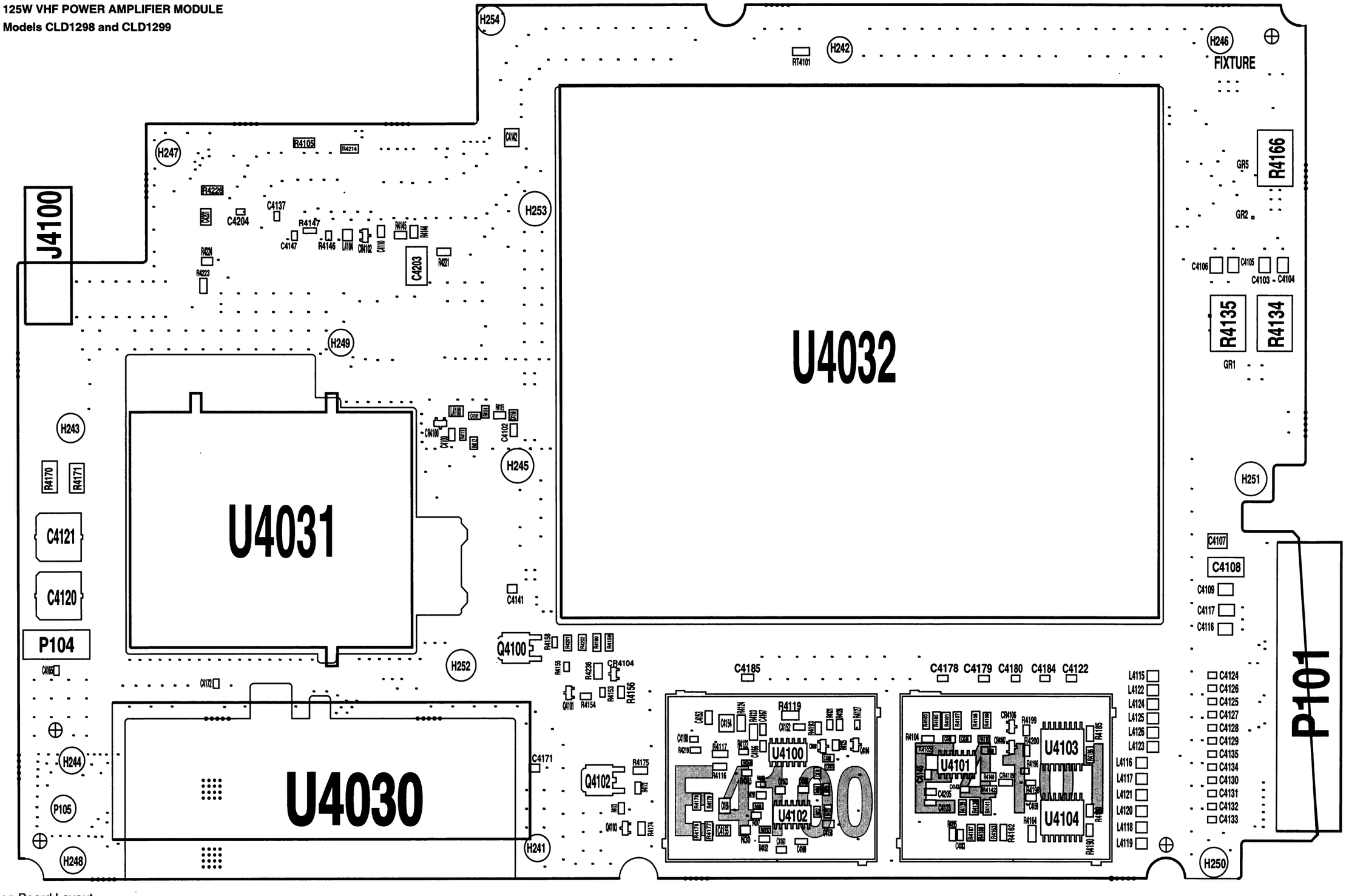




DC Distribution Board Schematic Diagram (Sheet 2 of 2)

68P71004P75-A
(Sheet 2 of 4)
01/15/2007

125W VHF POWER AMPLIFIER MODULE
Models CLD1298 and CLD1299



DC Distribution Board Layout

68P71004P75-A
(Sheet 3 of 4)
01/15/2007

NOTES:

1) For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

2) CLD6097 and TFD6560A are hybrids and are considerd non-serviceable. if hybrid malfunctions, replace entire hybrid.

3) Motorola part numbers for the circulator are 5884911T28 (CLD1298; 125W, R1) or 5884911T29 (CLD1299; 125W, R2)

4) The circuit board edge connector has printed circuit plated contacts on both sides of the board edge. See the follwing table for edge connector pin numbering/signal name cross-reference.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VOMNI	71	GND
33	VOMNI	72	GND
34	VOMNI	73	GND
35	VOMNI	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1	78	GND

Parts List

TYD4372A RF/DC Distribution Board (VHF, 125W, R1)
TYD4373A RF/DC Distribution Board (VHF, 125W, R2)

Reference	Part Number	Description
		capacitor, fixed:
C4100	2113740A55	CAP CHIP REEL CL1 ±30 100
C4101	2113740A63	CAP CHIP REEL CL1 ±30 220
C4102	2113740A39	CAP CHIP REEL CL1 ±30 27
C4103	2113901C75	CAP CHIP HI Q 470 PF ±5%
C4104	2113901C58	CAP CHIP HI Q 100 PF ±5%
C4105	2113901C75	CAP CHIP HI Q 470 PF ±5%
C4106	2113901C58	CAP CHIP HI Q 100 PF ±5%
C4107	2113901C75	CAP CHIP HI Q 470 PF ±5%
C4108	2311049A45	CAP TANT CHIP 10 10 35
C4109	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4110	2113740A55	CAP CHIP REEL CL1 ±30 100
C4116	2113901C75	CAP CHIP HI Q 470 PF ±5%
C4117	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4120, 4121	2380090M27	CAP ALU 330 20 16V
C4122	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4123	2113740A71	CAP CHIP REEL CL1 ±30 470
C4124–4135	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4137	2113951B37	CAP NPO 15.0PF ±5% 250V HI FREQ
C4141, 4142	2113901C75	CAP CHIP HI Q 470 PF ±5%
C4143–4146	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4147	2113740G05	CAP CERAMIC CHIP 1.2 PF ±0.1PF
C4150	2113740G05	CAP CERAMIC CHIP 1.2 PF ±0.1PF
C4152, 4153	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4154–4156	2113901C75	CAP CHIP HI Q 470 PF ±5%
C4158–4161	2113740A71	CAP CHIP REEL CL1 ±30 470
C4163	2113740A43	CAP CHIP REEL CL1 ±30 39
C4165	2113740A43	CAP CHIP REEL CL1 ±30 39
C4166–4168	2113740A71	CAP CHIP REEL CL1 ±30 470
C4169	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4170	2113740A71	CAP CHIP REEL CL1 ±30 470
C4171, 4172	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4178–4180	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4183–4187	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4190	2113741A57	CAP CHIP CL2 X7R REEL 33000
C4201	2113740A79	CAP CHIP REEL CL1 ±30 1000
C4203	2311049A45	CAP TANT CHIP 10 10 35
C4204, 4205	2113740A79	CAP CHIP REEL CL1 ±30 1000
		diode (note 1):
CR4100	4882290T04	DIODE SI HOT CARRIER HSMS 2812
CR4101	4813833C02	DIODE DUAL 70V 5B COMM CATH
CR4102	4882290T04	DIODE SI HOT CARRIER HSMS 2812
CR4104	4813833C05	"DIODE, RECT, BAV99L, TO-236AB,715MA, .225W, DL 70V A7X BAV99LT1"
CR4106, 4107	4813830A14	DIODE 5.1V 5% 225MW MMBZ5231B_
CR4109	4813830A14	DIODE 5.1V 5% 225MW MMBZ5231B_
		connector:
J4100	0984393T01	CONN MINI UHF RT ANGLE PCB MT
		inductor:
L4100	2462587N58	CHIP IND 270 NH 5%
L4104	2462587X57	IND CHIP LO-PRO 220 NH 5%
L4115–4126	2462587X57	IND CHIP LO-PRO 220 NH 5%
		transistor (note 1):
Q4100	4813822A09	TSTR PNP 40V 3A MJD32T4
Q4101	4813824A10	TSTR NPN 40V .2A GEN PURP
Q4102	4813821A09	TSTR P-CH 60V 12A _2955_
Q4103, 4104	4813824A10	TSTR NPN 40V .2A GEN PURP
		resistor, fixed:
R4100–4103	0611077F94	RES CHIP 10.7K 1 1/8W
R4104	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4106	0611077F94	RES CHIP 10.7K 1 1/8W
R4107	0611077F24	RES CHIP 2000 1 1/8W
R4108	0611077E94	RES CHIP 1000 1 1/8W
R4109	0611077F94	RES CHIP 10.7K 1 1/8W
R4110	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4112, 4113	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4114	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R4115	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R4116, 4117	0611077F68	RES CHIP 5760 1 1/8W
R4119	0611077B08	RES CHIP 24K 5 1/8W
R4121	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4122	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4123, 4124	0611077F56	RES CHIP 4320 1 1/8W
R4125, 4126	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4127	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4134, 4135	0682089V02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4138	0611077G04	RES CHIP 13.3K 1 1/8 W
R4139, 4140	0611077F24	RES CHIP 2000 1 1/8W
R4141	0611077G22	RES CHIP 20.5K 1 1/8W
R4142	0611077G42	RES CHIP 33.2K 1 1/8W
R4144, 4145	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4146	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R4147	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R4152	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4153	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R4154–4158	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4159, 4160	0611077A26	RES CHIP 10 5 1/8W
R4161	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4162	0611077G22	RES CHIP 20.5K 1 1/8W
See Note 6 on Sheet 1 of schematic diagram.		
R4163	0611077F91	RES CHIP 10.0K 1 1/8W
See Note 6 on Sheet 1 of schematic diagram.		
R4164	0611077A01	RES CHIP JUMPER
See Note 6 on Sheet 1 of schematic diagram.		
R4166	0682089V02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4170, 4171	0683962T24	RES CHIP 9.1 5-1
R4172–4174	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4175	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R4176	0611077G60	RES CHIP 51.1K 1 1/8W
R4177	0611077G30	RES CHIP 24.9K 1 1/8W
R4178	0611077G60	RES CHIP 51.1K 1 1/8W
R4179	0611077G30	RES CHIP 24.9K 1 1/8W
R4185	0611077G04	RES CHIP 13.3K 1 1/8 W
R4186	0611077F24	RES CHIP 2000 1 1/8W
R4187	0611077F68	RES CHIP 5760 1 1/8W
R4188	0611077F24	RES CHIP 2000 1 1/8W
R4189, 4190	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4190	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4191–4200	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R4201, 4202	0611077A26	RES CHIP 10 5 1/8W
R4219	0611079E01	RES CHIP 100.0K 1/10W 1%
R4221	0611077A01	RES CHIP JUMPER
R4223	0611077A01	RES CHIP JUMPER
R4226	0611077A01	RES CHIP JUMPER
R4236	0611077A01	RES CHIP JUMPER
R4244	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4245–4247	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
		thermistor
RT4101	0680149M02	THERMISTOR CHIP 100K OHM
		integrated circuit (note 1):
U4103, 4104	5113805A84	IC MUX/DEMUX DUAL 4-CH ANALOG
U4100–4102	5184334Y01	IC HIGH PERFORMANCE SING SPLY
		TTN5238A circulator load
W4900	4284729T02	STRAP, PA
	4385035U02	FLANGE circulator load (VHF)
		hybrid (notes 1, 2):
	TFD6560A	LOW PASS FILTER/COUPLER HYBRID
	CLD6097A	FINAL PA HYBRID
		non-referenced items:
	1584753T02	HOUSING (used with E4100, 4101)
	1585034U03	COVER (used with E4100, 4101)
	5482006W02	RIBBON THERMAL XFER
	5482006W03	BARCODE LABEL
	8484769Y01	QUANTAR VHF DC BD HI PWR

CLN8152A VHF 125W PA Hardware

Reference	Part Number	Description
		non-referenced items
	018518U01	Assembly, PA Cooling Fans
	0211996A02	NUT Hex, 3/8 x 24 x 1/2 x 3/32
	0310943J09	SCREW, tapping: TT3 x 0.5 x 6 (13 used)
	0310943J10	SCREW, tapping: TT3 x 0.5 x 8 (12 used)
	0312016A31	SCREW, tapping: TT3.5 x .6 x 12 (3 used)
	0312016A32	SCREW, tapping: TT3.5 x .6 x 18 (8 used)
	0400007691	WASHER, lock: 3/8". int. tooth 2 used)(
	0900816159	CONNECTOR, receptacle: coaxial
	1585002U02	COVER, Highband PA
	2182805H05	1000 pF, ±0%; 200V (2 used)
	2684772T05	heatsink
	3282796H05	GASKET, 0.094 x 0,094" (35.75 used)
	5482006W01	LABEL, PCB Barcode

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Service Manual for:

Quantar®Station Products
Quantro®Station Products
DSS-III Station Products
ASTRO-TAC®Comparator
ASTRO-TAC®Receiver

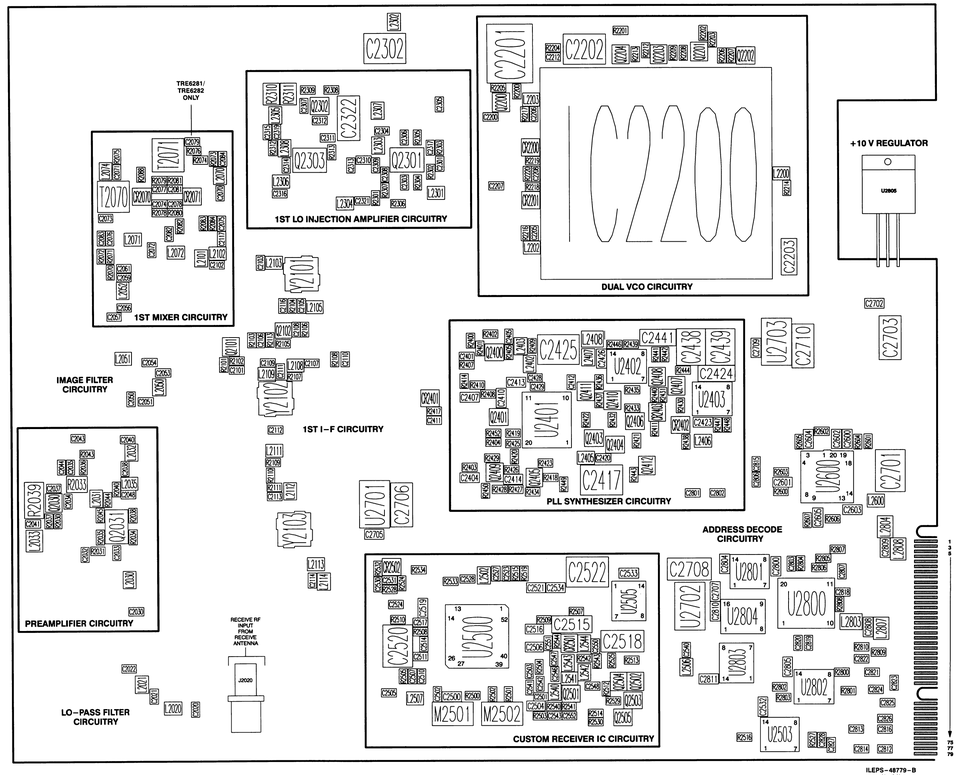
(Includes Schematics, Part Location Details, and Parts Lists)

Table of Contents (Volume 2)

Commercial Government and Industrial Solutions Center
1301 E. Algonquin Schaumburg, IL 60196

68P81088E90-G
3/31/04—UP

UHF RECEIVER MODULES
MODELS TRE6281G–TRE6284G



BASING DETAILS

TRANSISTORS DIODES

NOTE:

THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE NUMBERED 1, 3, 5, ETC.. THE SOLDER SIDE CONTACTS ARE NUMBERED 2, 4, 6, ETC.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

PIN	SIGNAL NAME	PIN	SIGNAL NAME
1	GND	2	GND
3	GND	4	GND
5	EXT_SPARE1	6	EXT_SPARE2
7	EXT_SPARE3	8	EXT_SPARE4
9	EXT_SPARE5	10	EXT_SPARE6
11	EXT_SPARE7	12	EXT_SPARE8
13	EXT_SPARE9	14	EXT_SPARE10
15	EXT_SPARE11	16	EXT_SPARE12
17	RX_WB_AUDIO	18	GND
19	GND	20	GND
21	GND	22	+14.2 V INPUT
23	+14.2 V INPUT	24	+14.2 V INPUT
25	+14.2 V INPUT	26	+14.2 V INPUT
27	+5 V INPUT	28	+5 V INPUT
29	+5 V INPUT	30	+5 V INPUT
31	+5 V INPUT	32	+5 V INPUT
33	+5 V INPUT	34	+5 V INPUT
35	GND	36	GND
37	SPI_MISO	38	SPI_MOSI
39	SPI_CLK	40	RESET
41	HDLC_DATA	42	HDLC_BUSY
43	HDLC_CLK	44	TDM_SYNC
45	TDM_DATA	46	TDM_CLOCK
47	SPARE 1	48	SPARE 2
49	SPARE 3	50	SPARE 4
51	SPARE 5	52	SPARE 6
53	A0_CS1	54	A0_CS2
55	P5	56	A5
57	P4	58	A4
59	P3	60	A3
61	P2	62	A2
63	GND	64	GND
65	RX_2.1_REF	66	N/C
67	GND	68	GND
69	N/C	70	N/C
71	GND	72	GND
73	GND	74	AGC_IN
75	ODC	76	SBI
77	DATA	78	DATA*
79	GND	80	GND

ILEPS–48779–B
(2 of 2)

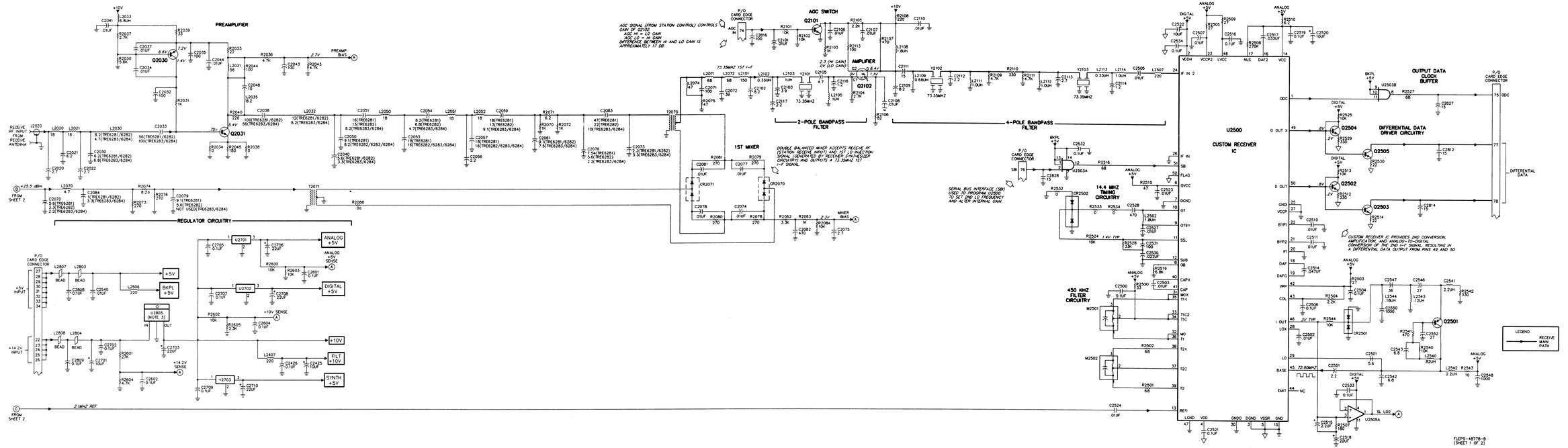
parts list

TRE6281G (403–433 MHz)
TRE6282G (438–470 MHz)
TRE6283G (470–494 MHz)
TRE6284G (494–520 MHz) UHF Receiver Modules PL–13069–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2020	2113740G13	2.7 pF, ±0.1 pF; 50V
C2021	2113740A23	6.2 pF, ±0.25 pF; 50V
C2022	2113740G13	2.7 pF, ±0.1 pF; 50V
C2030	2113740A23	6.2 pF, ±0.25 pF; 50V (TRE6281 & TRE6282)
	2113740A24	6.8 pF, ±0.25 pF; 50V (TRE6283 & TRE6284)
C2032	2113740A55	100 pF, ±5%; 50V
C2033	2113740A49	56 pF, ±5%; 50V (TRE6281 & TRE6282)
	2113740A55	100 pF, ±5%; 50V (TRE6283 & TRE6284)
C2034	2113741A45	0.01 uF, ±5%, 50V
C2035	2113740A55	100 pF, ±5%, 50V
C2037	2113741A45	0.01 uF, ±5%, 50V
C2038	2113740A55	100 pF, ±5%; 50V (TRE6281 & TRE6282)
	2113740A49	56 pF, ±5%; 50V (TRE6283 & TRE6284)
C2040	2113740A21	5.6 pF, ±0.25 pF; 50V (TRE6281 & TRE6282)
	2113740G15	3.3 pF, ±0.1 pF; 50V (TRE6283 & TRE6284)
C2041	2113741A45	0.01 uF, ±5%, 50V
C2043	2113740A55	100 pF, ±5%, 50V
C2044	2113741A45	0.01 uF, ±5%, 50V
C2048	2113740A29	10 pF, ±5%, 50V
C2050	2113740G28	9.1 pF, ±0.1 pF; 50V (TRE6281)
	2113740G27	8.2 pF, ±0.1 pF; 50V (TRE6282, TRE6283 & TRE6284)
C2051	2113740G34	16 pF, ±2 pF; 50V (TRE6281)
	2113740G32	13 pF, ±2 pF; 50V (TRE6282)
	2113740G27	8.2 pF, ±0.1 pF; 50V (TRE6283 & TRE6284)
C2053	2113740G35	18 pF, ±2%; 50V (TRE6281)
	2113740G34	16 pF, ±2 pF; 50V (TRE6282, TRE6283 & TRE6284)
C2059	2113740G35	18 pF, ±2%; 50V (TRE6281)
	2113740G32	13 pF, ±2 pF; 50V (TRE6282)
	2113740G28	9.1 pF, ±0.1 pF; 50V (TRE6283 & TRE6284)
C2061	2113740G28	9.1 pF, ±0.1 pF; 50V (TRE6283 & TRE6282)
	2113740G25	7.5 pF, ±0.1 pF; 50V (TRE6283 & TRE6284)
C2070	2113740A21	5.6 pF, ±0.25 pF; 50V (TRE6281)
	2113740G15	3.3 pF, ±0.1 pF; 50V (TRE6282)
C2404	2113740G11	2.2 pF, ±0.1 pF; 50V (TRE6283 & TRE6284)
C2405	2113740A55	100 pF, ±5%; 50V
C2407	2113741B69	0.1 uF, ±5%; 50 V
C2410	2113741B69	0.1 uF, ±5%; 50 V
C2411	2113741A45	0.01 uF, ±5%; 50V
C2412	2113740A55	100 pF, ±5%; 50 V
C2413,2414	2113741B69	0.1 uF, ±5%; 50 V
C2417	2380090M24	10 uF, ±20%; 50V
C2420	2113740A55	100 pF, ±5%; 50V
C2423	2113741B69	0.1 uF, ±5%; 50 V
C2424	0811051A09	0.022 uF, ±5%; 63 V
C2425	2380090M24	10 uF, ±20%; 50V
C2426	2113741B69	0.1 uF, ±5%; 50 V
C2428	2113740A21	5.6 pF, ±0.25 pF; 50V
C2429	2113740A55	100 pF, ±5%; 50V
C2438,2439	0811051A19	1 uF, +5%–0.5%, 63V
C2441	0811051A15	0.22 uF, ±5%; 63 V
C2500	2113741B69	0.1 uF, ±5%, 50 V
C2501	2113740A21	5.6 pF, ±0.25 pF; 50V
C2079	2113740A28	9.1 pF, ±0.25 pF; 50V (TRE6281)
	2113740A21	5.6 pF, ±0.25 pF; 50V (TRE6282)
	Not Used	- (TRE6283 & TRE6284)
C2081	2113741A45	0.01 uF, ±5%; 50V
C2082	2113740A71	470 pF, ±5%; 50V
C2083	2113740A46	47 pF, ±5%; 50V (TRE6281)
	2113740A37	22 pF, ±5%; 50V (TRE6282)
	2113740A24	6.8 pF, ±5%; 50V (TRE6283 & TRE6284)
C2084	2113740G03	1 pF, ±0.1 pF; 50V (TRE6281 & TRE6282)
	2113740G15	3.3 pF, ±0.1 pF; 50V (TRE6283 & TRE6284)
C2101	2113741A45	0.01 uF, ±5%, 50V
C2102	2113740A27	8.2 pF, ±0.25 pF; 50V
C2103	2113740A17	3.9 pF, ±0.25 pF; 50V
C2105	2113740A19	4.7 pF, ±0.25 pF; 50V
C2106 thru 2108	2113741A45	0.01 uF, ±5%, 50V
C2109	2113740A27	8.2 pF, ±0.25 pF; 50V
C2110	2113741A45	0.01 uF, ±5%, 50V
C2111	2113740A33	15 pF, ±5%; 50V
C2112	2113740G11	2.2 pF, ±0.1 pF; 50V
C2113	2113740G13	2.7 pF, ±0.1 pF; 50V
C2114	2113740G05	1.2 pF, ±0.1 pF; 50V
C2116	2113740G05	1.2 pF, ±0.1 pF; 50V
C2117	2113740G11	2.2 pF, ±0.1 pF; 50V
C2200	2113741A45	0.01 uF, ±5%, 50V
C2201	2380090M27	330 uF, ±20%, 16V
C2202	2380090M07	47 uF, ±20%, 16V
C2203	0811051A11	0.047 uF, ±5%, 63V
C2205 thru 2208	2113740A55	100 pF, ±5%; 50V
C2212	2113741A45	0.01 uF, ±5%, 50V
C2301	2113740A28	9.1 pF, ±0.25 pF; 50V
C2302	2380090M24	10 uF, ±20%; 50V
C2303,2304	2113740A79	1000 pF, ±5%, 50V
C2305	2113740A55	100 pF, ±5%; 50V
C2306	2113740A79	1000 pF, ±5%, 50V
C2307	2113741A45	0.01 uF, ±5%; 50V
C2308	2113740A55	100 pF, ±5%; 50V
C2309	2113740G07	1.5 pF, ±0.1 pF; 50V
C2310	2113740A19	4.7 pF, ±0.25 pF; 50V
C2311	2113740A55	100 pF, ±5%; 50V
C2312	2113741A45	0.01 uF, ±5%; 50V
C2313	2113740A29	10 pF, ±5%; 50V
C2314	2113740A55	100 pF, ±5%; 50V
C2315	2113740A79	1000 pF, ±5%; 50V
C2316	2113740A17	3.9 pF, ±0.25 pF; 50V
C2317	2113740A24	6.8 pF, ±0.25 pF; 50V
C2319	2113741A61	0.047 uF, ±5%; 50V
C2321	2113740A19	4.7 pF, ±0.25 pF; 50V
C2322	2113149A45	10 uF, ±10%; 35V
C2401	2113740G03	1 pF, ±0.1 pF; 50V
C2404	2113741B69	0.1 uF, ±5%, 50 V
C2405	2113740A55	100 pF, ±5%; 50V
C2407	2113741B69	0.1 uF, ±5%, 50 V
C2410	2113741B69	0.1 uF, ±5%, 50 V
C2411	2113741A45	0.01 uF, ±5%, 50V
C2412	2113740A55	100 pF, ±5%; 50 V
C2413,2414	2113741B69	0.1 uF, ±5%, 50 V
C2417	2380090M24	10 uF, ±20%; 50V
C2420	2113740A55	100 pF, ±5%; 50V
C2423	2113741B69	0.1 uF, ±5%, 50 V
C2424	0811051A09	0.022 uF, ±5%; 63 V
C2425	2380090M24	10 uF, ±20%; 50V
C2426	2113741B69	0.1 uF, ±5%, 50 V
C2428	2113740A21	5.6 pF, ±0.25 pF; 50V
C2429	2113740A55	100 pF, ±5%; 50V
C2438,2439	0811051A19	1 uF, +5%–0.5%, 63V
C2441	0811051A15	0.22 uF, ±5%; 63 V
C2500	2113741B69	0.1 uF, ±5%, 50 V
C2501	2113740A21	5.6 pF, ±0.25 pF; 50V
C2502,2503	2113741A45	0.01 uF, ±5%, 50V
C2504	2113741B69	0.1 uF, ±5%, 50 V
C2505	2113741A45	0.01 uF, ±5%, 50V
C2506	2113741B69	0.1 uF, ±5%, 50 V
C2507	2113741A45	0.01 uF, ±5%, 50V
C2510,2511	2113741A45	0.01 uF, ±5%, 50V
C2514	2113741A61	0.047 uF, ±5%, 50V
C2515	2311046A10	2.2 uF, ±10%; 35V
C2516	2113741B69	0.1 uF, ±5%, 50 V
C2517	2113741A57	0.033 uF, ±5%; 50V
C2518	2311046A21	22 uF, ±10%; 20 V
C2519	2113741B69	0.1 uF, ±5%, 50 V
C2520	2380090M24	10 uF, ±20%; 50V
C2521	2113741B69	0.1 uF, ±5%, 50 V
C2522	2380090M24	10 uF, ±20%; 50V
C2523,2524	2113741A45	0.01 uF, ±5%, 50V
C2527	2113741A45	0.01 uF, ±5%; 50V
C2528	2113740A71	470 pF, ±5%; 50V
C2530	2113741A53	0.022 uF, ±5%; 50V
C2531	2113740A55	100 pF, ±5%; 50V
C2532 thru 2534	2113741B69	0.1 uF, ±5%, 50 V
C2540	2113741A45	0.01 uF, ±5%, 50V
C2547,2548	2113740A55	100 pF, ±5%; 50V
C2551	2113740G11	2.2 pF, ±0.1 pF; 50V
C2542, C2543	2113740A24	06.8uF, ±5%; 50 V
C2546	2113740A39	27 pF, ±5%; 50V
C2547	2113740A42	36 pF, ±5%; 50V
C2548, C2550	2113740A79	1000 pF, ±5%; 50V
C2552	2113740A55	100 pF, ±5%; 50V
C2600 thru 2605	2113741B69	0.1 uF, ±5%, 50 V
C2701	2380090M24	10 uF, ±20%; 50V
C2702	2113741B69	0.1 uF, ±5%, 50 V
C2703	2311046A21	22 uF, ±10%; 20 V
C2705	2113741B69	0.1 uF, ±5%, 50 V
C2706	2311046A21	22 uF, ±10%; 20 V
C2707	2113741B69	0.1 uF, ±5%, 50 V
C2708	2311046A21	22 uF, ±10%; 20 V
C2709	2113741B69	0.1 uF, ±5%, 50 V
C2710	2311046A21	22 uF, ±10%; 20 V
C2800	2113741B69	0.1 uF, ±5%, 50 V
C2801 thru 2803	2113740A55	100 pF, ±5%; 50V
C2804,2805	2113741B69	0.1 uF, ±5%, 50 V
C2806,2807	2113740A33	15 pF, ±5%; 50V
C2808 thru 2811	2113741B69	0.1 uF, ±5%, 50 V
C2812 thru 2815	2113740A33	15 pF, ±5%; 50V
C2816	2113740A55	100 pF, ±5%; 50V
C2818 thru 2820	2113740A33	15 pF, ±5%; 50V
C2821 thru 2826	2113740A55	100 pF, ±5%; 50V
C2827,2828	2113740A33	15 pF, ±5%; 50V
CR2070,2071	4882290T04	**diode (see note):** Diode; hot carrier
CR2200,2201	4813825A06	Pin,35V
CR2401	4813825A05	Hot Carrier
CR2402,2403	4813833C10	0.1A, 70V
CR2501,2502	4813825A01	3V, dual
IC2200	0180733E59	**hybrid (see note):** VCO RCVR UHF R1 (TRE6281)
	0180733E60	VCO RCVR UHF R2 (TRE6282)
	0180733E61	VCO RCVR UHF R3 (TRE6283)
	0180733E62	VCO RCVR UHF R4 (TRE6284)
J0020	0984393T01	**connector:** receptacle: uhf
L2020,2021	2462587N44	**coil:** 18 nH, ±5%
L2030	2462587R17	IND CHIP 8.2NH 5% (TRE6281 & TRE6282)
	2462587R16	4.7 nH, ±5% (TRE6283 & TRE6284)
L2031	2462587N50	CHIP IND 56 NH 5%
L2032	2462587N42	CHIP IND 12 NH 5% (TRE6281 & TRE6282)
	2462587R17	IND CHIP 8.2NH 5% (TRE6283 & TRE6284)
L2033	2411087A36	COIL CHIP 6.8 UH 10 A/P
L2035	2462587R17	IND CHIP 8.2NH 5%
L2050 thru 2052	2462587N44	18 nH, ±5%
L2070	2462587R16	4.7 nH, ±5%
L2071,2072	2462587N51	68 nH, ±5%
L2074	2462587N49	47 nH, ±5%
L2101	2462587N55	150 nH, ±5%
L2102	2462587N59	330 nH, ±5%
L2103	2462587N68	1000 nH, 5%
L2105	2462587N68	1000 nH, 5%
L2108	2462587N71	1800 nH, ±5%
L2109	2462587N64	680 nH, ±5%
L2111,2112	2462587N68	1000 nH, 5%
L2113	2462587N59	330 nH, ±5%
L2114	2462587N68	1000 nH, 5%
L2200	2462587N57	220 nH, ±5%
L2202,2203	2462587N57	220 nH, ±5%
L2301	2462587R17	IND CHIP 8.2NH 5%
L2302	2462587N57	220 nH, ±5%
L2303	2462587R17	IND CHIP 8.2NH 5%
L2304	2462587N44	18 nH, ±5%
L2305	2462587N68	1000 nH, 5%
L2306	2462587N44	18 nH, ±5%
L2307	2462587N68	1000 nH, 5%
L2308	2462587N57	220 nH, ±5%
L2402	2462587N43	15 nH, ±5%
L2403	2462587N57	220 nH, ±5%
L2405 thru 2407	2462587N57	220 nH, ±5%
L2408	2411087A54	220 uH, ±10%
L2502	2462587N71	1800 nH, ±5%
L2506,2507	2462587N57	220 nH, ±5%
L2540	2413903A17	220 nH, ±5%
L2541, L2542	2462587N72	2200 nH, ±5%
L2543	2413923A05	120 nH, 2%
L2544	2413923A07	180 nH, 2%
L2600	2462587N71	1800 nH, ±5%
L2803,2804	2484657R01	ferrite bead
L2807,2808	2484657R01	ferrite bead
Q2030	4813824A17	**translator (see note):** PNP
Q2031	4813827A24	TSTR NPN SML SIG MRF5812 5812
Q2101	4813824A10	NPN
Q2102	4885228U01	TSTR GAAS DL GATE MESFET_U74_
Q2030,2201	4813824A10	NPN
Q2202	4813824A17	PNP
Q2203	4813824A10	NPN
Q2304	4813824A17	PNP
Q2301	4813827A03	NPN
Q2302	4813824A17	PNP
Q2303	4813827A26	NPN
Q2400	4813827A03	NPN
Q2401	4813824A10	NPN
Q2403,2404	4813824A10	NPN
Q2405	4813824A17	PNP
Q2406,2407	4813824A10	NPN
Q2408	4813824A17	PNP
Q2409,2410	4813824A10	NPN
Q2411	4813824A17	PNP
Q2412	4813824A10	NPN
Q2501	4813827A03	NPN
Q2502 thru 2505	4813824A10	NPN
R2030	0611079A92	**resistor, fixed:** 5600 ohms, ±5%, 1/10W
R2031	0611079A74	1K, ±5%, 1/10W
R2033	0611072A09	22 ohms, ±5%, 1/4 W
R2034	0611079A01	0 ohms, ±5%, 1/10W
R2036	0611079A90	4700 ohms, ±5%, 1/10W
R2037	0611079A84	2700 ohms, ±5%, 1/10W
R2038	0611079A01	0 ohms, ±5%, 1/10W
R2039	0683962737	33 ohms, ±5%, 1W
R2040	0611079A58	220 ohms, ±5%, 1/10W
R2044	0611079A50	100 ohms, ±5%, 1/10W
R2045	0611079A58	220 ohms, ±5%, 1/10W
R2070	0611079A74	1K, ±5%, 1/10W
R2071	0611079A21	6.2 ohms, ±5%; 1/10W
R2072	0611079A74	1K, ±5%, 1/10W
R2073	0611079A60	270 ohms, ±5%; 1/10W
R2074	0611079A24	RES FIXED CHIP 8.2 5 1/10W A/P
R2075	0611079A58	47 ohms, ±5%; 1/10W
R2076	0611079A60	270 ohms, ±5%; 1/10W
R2078 thru 2081	0611079A60	270 ohms, ±5%; 1/10W
R2082	0611079A98	330 ohms, ±5%; 1/10W
R2083	0611079A74	1K, ±5%, 1/10W
R2084	0611079A98	10K, ±5%; 1/10W
R2088	0611079A57	220 ohms, ±5%, 1/10W
R2101,2102	0611079A98	10K, ±5%; 1/10W
R2103	0611079A74	1K, ±5%, 1/10W
R2104	0611079A84	2700 ohms, ±5%; 1/10W
R2105	0611079A82	2200 ohms, ±5%; 1/10W
R2106	0611079A48	82 ohms, ±5%, 1/10W
R2107	0611079A58	470 ohms, ±5%; 1/10W
R2108	0611079A58	220 ohms, ±5%; 1/10W
R2109	0611079A90	4700 ohms, ±5%; 1/10W
R2110	0611079A57	220 ohms, ±5%; 1/10W
R2111	0611079A90	4700 ohms, ±5%; 1/10W
R2113	0611079A50	100 ohms, ±5%; 1/10W
R2200	0611079A84	2700 ohms, ±5%; 1/10W
R2201	0611079A94	6800 ohms, ±5%; 1/10W
R2202	0611079A98	10K, ±5%; 1/10W
R2203	0611079A84	2700 ohms, ±5%; 1/10W
R2204,2205	0611079A26	10 ohms, ±5%; 1/10W
R2206	0611079A84	2700 ohms, ±5%; 1/10W
R2207	0611079A66	470 ohms, ±5%; 1/10W
R2208	0611079A98	10K, ±5%; 1/10W
R2209	0611079A84	2700 ohms, ±5%; 1/10W
R2212	0611079A84	2700 ohms, ±5%; 1/10W
R2213	0611079A66	470 ohms, ±5%; 1/10W
R2214	0611079A26	10 ohms, ±5%; 1/10W
R2216,2217	0611079A34	22 ohms, ±5%; 1/10W
R2218,2219	0611079B15	47K, ±5%; 1/10W
R2220	0611079A42	47 ohms, ±5%; 1/10W
R2301	0611079A26	10 ohms, ±5%; 1/10W
R2302	0611079A60	270 ohms, ±5%; 1/10W
R2303	0611079A72	820 ohms, ±5%; 1/10W
R2304 thru 2306	0611079A46	68 ohms, ±5%; 1/10W
R2307	0611079A48	82 ohms, ±5%, 1/10W
R2308	0611079A82	2200 ohms, ±5%; 1/10W
R2309	0611079A70	680 ohms, ±5%; 1/10W
R2310,2311	0611079A15	39 ohms, ±5%; 1/4W
R2312	0611079A70	680 ohms, ±5%; 1/10W
R2313	0611079A72	820 ohms, ±5%; 1/10W
R2400	0611079A82	2200 ohms, ±5%; 1/10W
R2401	0611079B01	12K, ±5%; 1/10W
R2402	0611079A84	2700 ohms, ±5%; 1/10W
R2403,2404	0611079A84	2700 ohms, ±5%; 1/10W
R2405	0611079A66	470 ohms, ±5%; 1/10W
R2407	0611079A42	47 ohms, ±5%; 1/10W
R2408	0611079A36	27 ohms, ±5%; 1/10W
R2409	0611079A42	47 ohms, ±5%; 1/10W
R2410	0611079A50	100 ohms, ±5%; 1/10W
R2411	0611079A82	2200 ohms, ±5%; 1/10W
R2414	0611079A72	820 ohms, ±5%; 1/10W
R2417	0611079A98	10K, ±5%; 1/10W
R2418	0611079A66	470 ohms, ±5%; 1/10W
R2419	0611079A74	1K, ±5%; 1/10W
R2420	0611079A98	10K, ±5%; 1/10W
R2421,2422	0611079A82	2200 ohms, ±5%; 1/10W
R2423	0611079A01	0 ohms, ±5%; 1/10W
R2425	0611079A74	1K, ±5%; 1/10W
R2426	0611079A50	100 ohms, ±5%; 1/10W
R2427	0611079A98	10K, ±5%; 1/10W
R2428,2429	0611079B15	47K, ±5%; 1/10W
R2430,2431	0611079A88	3900 ohms, ±5%; 1/10W
R2432,2433	0611079A20	5.6 ohm, ±5%; 1/10W
R2434	0611079A92	5600 ohms, ±5%; 1/10W
R2435	0611079A98	10K, ±5%; 1/10W
R2436	0611079A88	3900 ohms, ±5%; 1/10W
R2437	0611079A98	10K, ±5%; 1/10W
R2438	0611079A82	220 ohms, ±5%; 1/10W
R2439	0611079A92	5600 ohms, ±5%; 1/10W
R2440	0611079A58	220 ohms, ±5%; 1/10W
R2441	0611079A98	560 5 1/10W
R2442	0611079B03	15K, ±5%; 1/10W
R2443	0611079A98	10K, ±5%; 1/10W
R2444	0611079A92	5600 ohms, ±5%; 1/10W
R2446 thru 2448	0611079A98	10K, ±5%; 1/10W
R2449	0611079A01	O ohms, ±5%; 1/10W (TRE6281 & TRE6282)
R2450	0611079A86	3300 ohms, ±5%; 1/10W (TRE6283 & TRE6284)
	0611079A01	O ohms, ±5%; 1/10W (TRE6281 & TRE6283)
	0611079A86	3300 ohms, ±5%; 1/10W (TRE6282 & TRE6284)
R2452	0611079A74	1K, ±5%; 1/10W
R2500	0611079A38	33 ohms, ±5%; 1/10 W
R2501,2502	0611079A46	68 ohms, ±5%; 1/10W
R2503	0611079A36	27 ohms, ±5%; 1/10W
R2504	0611079A82	2200 ohms, ±5%; 1/10W
R2505	0611079A36	27 ohms, ±5%; 1/10W
R2507	0611079A56	180 ohms, ±5%; 1/10W
R2508	0611079B33	270K, ±5%; 1/10W
R2509	0611079A21	6.2 ohms, ±5%; 1/10W
R2510	0611079A21	6.2 ohms, ±5%; 1/10W
R2512	0611079A82	330 ohms, ±5%; 1/10W
R2513	0611079A98	10K, ±5%; 1/10W
R2514	0611079A34	22 ohms, ±5%; 1/10W
R2515	0611079A42	47 ohms, ±5%; 1/10W
R2516	0611079A46	68 ohms, ±5%; 1/10W
R2519	0611079A94	6800 ohms, ±5%; 1/10W
R2524,2525	0611079A98	10K, ±5%; 1/10W
R2527	0611079A46	68 ohms, ±5%; 1/10W
R2528	0611079B11	33K, ±5%; 1/10W
R2529	0611079A82	330 ohms, ±5%; 1/10W
R2530	0611079A34	22 ohms, ±5%; 1/10W
R2532 thru 2534	0611079A01	O ohms, ±5%; 1/10W
R2540	0611079A98	10K, ±5%; 1/10W
R2541	0611079A66	470, ±5%; 1/10W
R2542	0611079A82	330 ohms, ±5%; 1/10W
R2543	0611079A26	10 ohms, ±5%; 1/10W
R2544	0611079A98	10K, ±5%; 1/10W
R2600	0611079A98	10K, ±5%; 1/10W
R2601	0611079B09	27K, ±5%; 1/10W
R2602,2603	0611079A98	10K, ±5%; 1/10W
R2604	0611079A90	4700 ohms, ±5%; 1/10W
R2605	0611079A86	3300 ohms, ±5%; 1/10W
R2606,2607	0611079A76	1.2K, ±5%; 1/10W
R2800 thru 2807	0611079A98	10K, ±5%; 1/10W
R2808	0611079A42	47 ohms, ±5%; 1/10W
R2809,2810	0611079A70	680 ohms, ±5%; 1/10W
T2070,2071	2584600T01	**transformer:** BALUN RF
U2401	5184602T03	**integrated circuit (see note):** IC CUSTOM SYNZER SCRND
U2402	5113905A86	Quad Analog Multiplexer/Demultiplexer
U2403	5113818A08	Low Power JFET–IN
U2500	5184523T09	IC ASACUS
U2503	5113805A08	Triple 3–Input AND Gate
U2505	5113819A02	Low Power Differential Amp
U2600	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U2701 thru 2703	5113816A07	5–Volt Positive Regulator
U2800	5113805A54	Octal Buffer Line Driver/Receiver
U2801	5113805A08	Triple 3–Input AND Gate
U2802	5113805A22	Quad 2–Input Exclusive OR Gate
U2803	5113805A13	Quad 2–Input OR Gate
U2804	5113808A22	Dual 1 of 4 Decoder/Demultiplexer
U2805	5182276R82	10 V Positive Regulator
Y2101	9184784T04	**filter:** FLTR XTAL 73.35MH HIGH IM
Y2102,2103	9184784T06	FLTR XTAL 73.35MHZ 2POLE
M2501,2502	9185128U02	FLTR L–C 450KHZ LCF– 450
		non–referenced items:
	1584753T01	Corral, UHF (used with E2200)
	1584753T02	Housing (used with E2030)
	1584753T02	Housing (used with E2070)
	1584753T02	Housing (used with E2301)
	1584753T03	HSNG CORRAL LARGE (used with E2400)
	1584753T03	HSNG CORRAL LARGE (used with E2500)
	1585034U03	Cover, Shield (used with E2030)
	1585034U03	Cover, Shield (used with E2070)
	1585034U03	Cover, Shield (used with E2301)
	1585034U04	COVER SHIELD LARGE (used with E2400)
	1585034U04	COVER SHIELD LARGE (used with E2500)
	1585034U10	Cover, UHF (used with E2200)
	2685039U01	SHIELD, Modified (E2020)
	2680003M02	SHIELD, HIGH 1F (E2050)
	2680003M02	SHIELD, HIGH 1F (E2102)
	2680004M02	SHIELD, OUTPUT MATCH (E2105)
	5482006W01	Lable, PCB Barcode
	8484748T04	Board, printed circuit

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

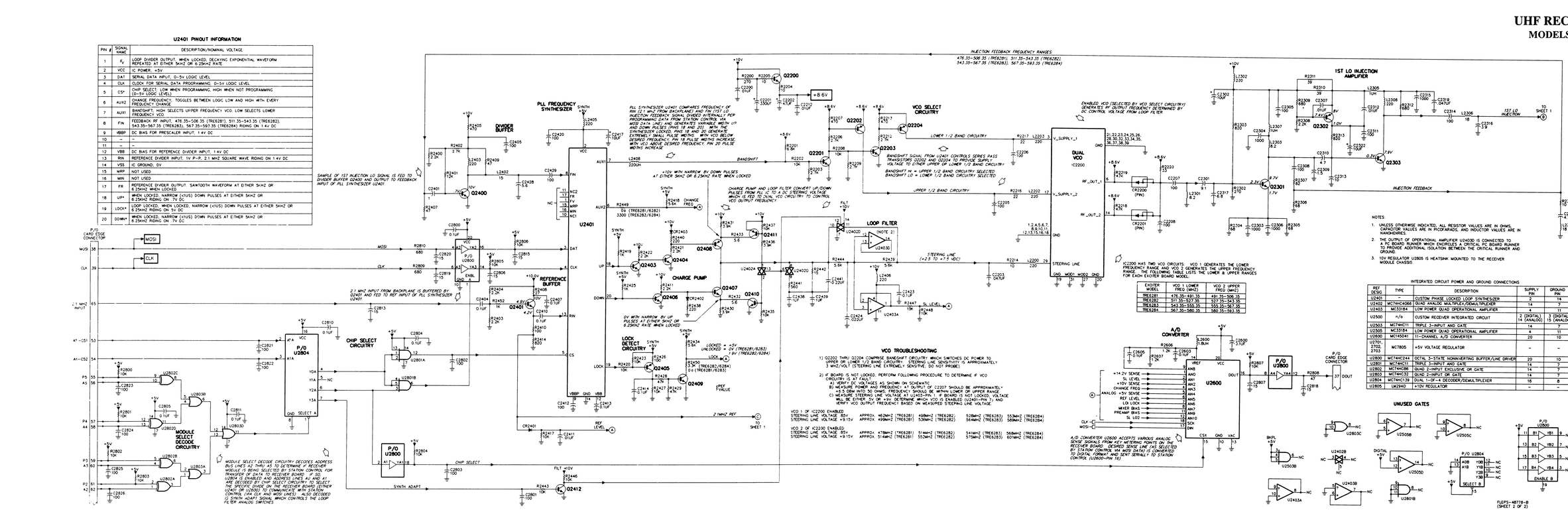
UHF RECEIVER MODULES
MODELS TRE6281G–TRE6284G



68P81088E09–C
(Sheet 3 of 4)
3/31/02–UP

U2401 PINOUT INFORMATION

PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	f_V	LOOP DIVIDER OUTPUT. WHEN LOCKED, DECAYING EXPONENTIAL WAVEFORM REPEATED AT EITHER 5kHZ OR 6.25kHZ RATE
2	VCC	IC POWER: +5V
3	DAT	SERIAL DATA INPUT, 0–5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING, 0–5V LOGIC LEVEL
5	CS*	CHIP SELECT. LOW WHEN PROGRAMMING; HIGH WHEN NOT PROGRAMMING (0–5V LOGIC LEVEL)
6	AUX2	CHANGE FREQUENCY: TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	BANDSHIFT: HIGH SELECTS UPPER FREQUENCY VCO; LOW SELECTS LOWER FREQUENCY VCO
8	FIN	FEEDBACK RF INPUT. 476.35–506.35 (TRE6281), 511.35–543.35 (TRE6282), 543.35–567.35 (TRE6283), 567.35–583.35 (TRE6284) RIDING ON 1.4V DC
9	VBBP	DC BIAS FOR PRESCALER INPUT: 1.4V DC
10	–	–
11	–	–
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT, 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 1V P–P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	VSS	IC GROUND: 0V
15	MRP	NOT USED
16	MIN	NOT USED
17	FR	REFERENCE DIVIDER OUTPUT. SAWTOOTH WAVEFORM AT EITHER 5kHZ OR 6.25kHZ WHEN LOCKED
18	UP*	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT EITHER 5kHZ OR 6.25kHZ RIDING ON 7V DC
19	LOCK*	LOOP LOCKED, WHEN LOCKED, NARROW (<1US) DOWN PULSES AT EITHER 5kHZ OR 6.25kHZ RIDING ON 5V DC
20	DOWN*	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT EITHER 5kHZ OR 6.25kHZ RIDING ON 7V DC

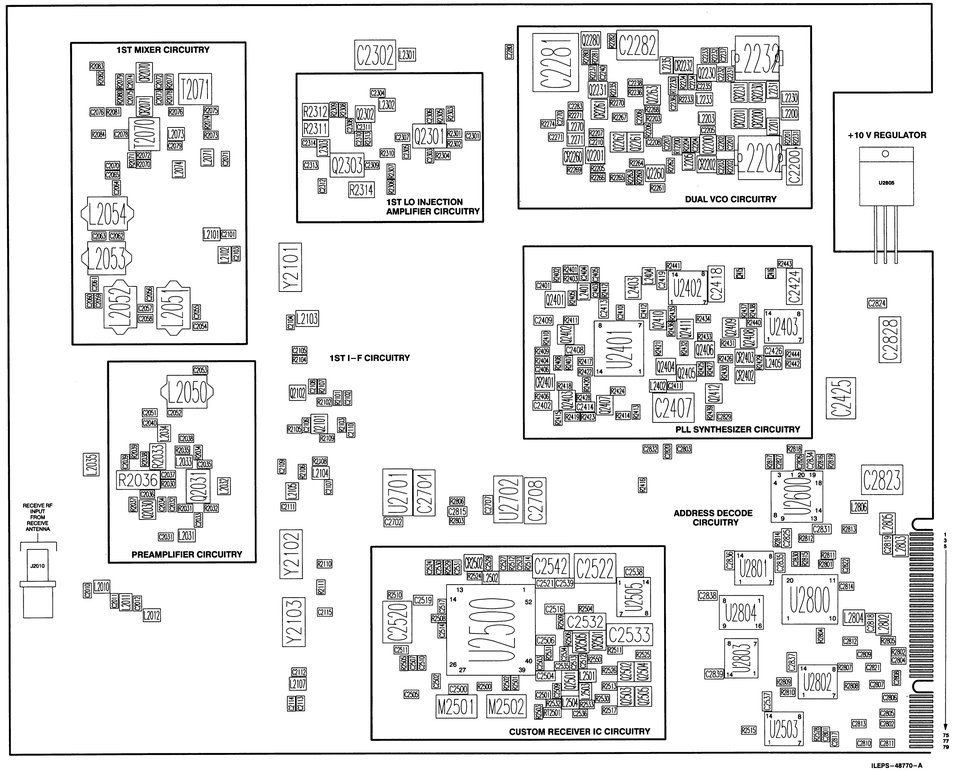


INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U2401	n/a	CUSTOM PHASE LOCKED LOOP SYNTHESIZER	2	14
U2402	MC74HC4066	QUAD ANALOG MULTIPLEX/DEMULTIPLEXER	14	7
U2403	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2500	n/a	CUSTOM RECEIVER INTEGRATED CIRCUIT	2 (DIGITAL) 14 (ANALOG)	3 (DIGITAL) 15 (ANALOG)
U2503	MC74HC11	TRIPLE 3-INPUT AND GATE	14	7
U2505	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2600	MC145041	11-CHANNEL A/D CONVERTER	20	10
U2701, 2702, 2703	MC7805	+5V VOLTAGE REGULATOR	–	–
U2800	MC74HC244	OCTAL 3-STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U2801	MC74HC11	TRIPLE 3-INPUT AND GATE	14	7
U2802	MC74HC86	QUAD 2-INPUT EXCLUSIVE OR GATE	14	7
U2803	MC74HC32	QUAD 2-INPUT OR GATE	14	7
U2804	MC74HC139	DUAL 1-OF-4 DECODER/DEMULTIPLEXER	16	8
U2805	LM2940	+10V REGULATOR	–	–

VHF RECEIVER MODULES

MODELS TRD6361D (R1)
TRD6362D (R2)



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BASING DETAILS

TRANSISTORS DIODES

NOTE:

THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE NUMBERED 1, 3, 5, ETC.. THE SOLDER SIDE CONTACTS ARE NUMBERED 2, 4, 6, ETC.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

PIN	SIGNAL NAME	PIN	SIGNAL NAME
1	GND	2	GND
3	GND	4	GND
5	EXT_SPARE1	6	EXT_SPARE2
7	EXT_SPARE3	8	EXT_SPARE4
9	EXT_SPARE5	10	EXT_SPARE6
11	EXT_SPARE7	12	EXT_SPARE8
13	EXT_SPARE9	14	EXT_SPARE10
15	EXT_SPARE11	16	EXT_SPARE12
17	RX_WB_AUDIO	18	GND
19	GND	20	GND
21	GND	22	+14.2 V INPUT
23	+14.2 V INPUT	24	+14.2 V INPUT
25	+14.2 V INPUT	26	+14.2 V INPUT
27	+5 V INPUT	28	+5 V INPUT
29	+5 V INPUT	30	+5 V INPUT
31	+5 V INPUT	32	+5 V INPUT
33	+5 V INPUT	34	+5 V INPUT
35	GND	36	GND
37	SPI_MISO	38	SPI_MOSI
39	SPI_CLK	40	RESET
41	HDLC_DATA	42	HDLC_BUSY
43	HDLC_CLK	44	TDM_SYNC
45	TDM_DATA	46	TDM_CLOCK
47	SPARE 1	48	SPARE 2
49	SPARE 3	50	SPARE 4
51	SPARE 5	52	SPARE 6
53	A0_CS1	54	A0_CS2
55	P5	56	A5
57	P4	58	A4
59	P3	60	A3
61	P2	62	A2
63	GND	64	GND
65	RX_2.1_REF	66	N/C
67	GND	68	GND
69	N/C	70	N/C
71	GND	72	GND
73	GND	74	AGC_IN
75	ODC	76	SBI
77	DATA	78	DATA*
79	GND	80	GND

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parts list

TRD6361D / TRD6362D VHF Receiver Modules — PL–13063–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2010	2113740A35	15 pF, ±5%, 50 V
C2011	2113740A46	47 pF, ±5%, 50 V
C2012	2113740A51	68 pF, ±5%, 50 V
C2031	2113740A51	68 pF, ±5%, 50 V
C2032,2033	2113740A71	470 pF, ±5%, 50 V
C2034 thru 2037	2113741A45	0.01 uF, ±5%, 50 V
C2038	2113740A71	470 pF, ±5%, 50 V
C2039	2113741A45	0.01 uF, ±5%, 50 V
C2040	2113740A29	10pF, ±5%, 50V (TRD6361C only)
C2061	2113740A37	22 pF, ±5%, 50V (TRD6362C)
	2113740A33	15 pF, ±5%, 50V (TRD6361C)
C2062	2113740A39	27 pF, ±5%, 50V (TRD6362C)
	2113740A51	68 pF, ±5%, 50V (TRD6361C)
C2058	2113740A37	22 pF, ±5%, 50V (TRD6362C)
	2113740A41	33 pF, ±5%, 50V(TRD6361C)
C2059	2113740A43	39 pF, ±5%, 50V (TRD6362C)
	2113740A46	47 pF, ±5%, 50V (TRD6361C)
C2060	2113740A41	33 pF, ±5%, 50V
C2061	2113740A37	22 pF, ±5%, 50V (TRD6362C)
	2113740A43	39 pF, ±5%, 50V (TRD6361C)
C2062	2113740A43	39 pF, ±5%, 50V (TRD6362C)
	2113740A39	27 pF, ±5%, 50V
C2063	2113740A39	27 pF, ±5%, 50V
C2064	2113740A40	30 pF, ±5%, 50 V (TRD6362C)
	2113740A51	68 pF, ±5%, 50V (TRD6361C)
C2065	2113740A33	15 pF, ±5%, 50V
C2070	2113740A29	10 pF, ±5%, 50V (TRD6362C only)
C2071	2113740A33	15 pF, ±5%, 50V
C2072 thru 2075	2113741A45	0.01 uF, ±5%, 50V
C2076	2113740A71	470 pF, ±5%, 50V
C2078	2113740A24	5.6 pF, ±0.25 pF, 50V
C2079	2113740A27	120 pF, ±5%, 50V
C2101	2113740A37	22 pF, ±5%, 50V
C2102	2113741A29	2200 pF, ±5%, 50V
C2103	2113740A29	10 pF, ±5%, 50V
C2104	2113740A41	33 pF, ±5%, 50V
C2105	2113740A19	4.7 pF, ±0.25 pF, 50V
C2106 thru 2108	2113741A45	0.01 uF, ±5%, 50V
C2109	2113740G15	3.3 pF, ±0.1 pF, 50V
C2110	2113741A45	0.01 uF, ±5%, 50V
C2111	2113740A24	5.6 pF, ±0.25 pF, 50V
C2112	2113740G15	3.3 pF, ±0.1 pF, 50V
C2113	2113740A27	8.2 pF, ±0.25 pF, 50V
C2114	2113740G15	3.3 pF, ±0.1 pF, 50V
C2115	2113740G03	1 pF, ±0.1 pF, 50V
C2200	0811061A09	0.022 uF, ±5%, 63 V
C2201	2113740A33	15 pF, ±5%, 50V (TRD6362C)
	2113740A31	12 pF, ±5%, 50V (TRD6361C)
C2202	2113740A33	15 pF, ±5%, 50V (TRD6362C)
	2113740A29	10pF, ±5%, 50V (TRD6361C)
C2203,2204	2113740A71	470 pF, ±5%, 50V
C2205	2113740A35	18 pF, ±5%, 50 V
C2206	2113740A71	470 pF, ±5%, 50V
C2207	2113740A35	18 pF, ±5%, 50 V (TRD6362C)
	2113740A33	15 pF, ±5%, 50V (TRD6361C)
C2208	2113740G11	2.2 pF, ±0.1 pF, 50V
C2210	2113741A45	0.01 uF, ±5%, 50V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C2231	2113740A31	12 pF, ±5%, 50V (TRD6362C)
	2113740A33	15 pF, ±5%, 50V (TRD6361C)
C2232	2113740A29	10 pF, ±5%, 50V (TRD6362C)
	2113740A33	15 pF, ±5%, 50V (TRD6361C)
C2233,2234	2113740A71	470 pF, ±5%, 50V
C2235	2113740A35	18 pF, ±5%, 50 V (TRD6362C)
	2113740A37	22 pF, ±5%, 50V (TRD6361C)
C2236	2113740A71	470 pF, ±5%, 50V
C2237	2113740A35	18 pF, ±5%, 50 V
C2238	2113740G11	2.2 pF, ±0.1 pF, 50V
C2240	2113741A45	0.01 uF, ±5%, 50V
C2270	2113740G11	2.2 pF, ±0.1 pF, 50V
C2271	2113740A71	470 pF, ±5%, 50V
C2280	2113741A45	0.01 uF, ±5%, 50V
C2281	2380909M27	330 uF, ±20%, 16V
C2282	2380909M24	10 uF, ±20%, 50V
C2283	2113741A45	0.01 uF, ±5%, 50V
C2301	2113740A71	470 pF, ±5%, 50V
C2302	2380909M24	10 uF, ±20%, 50V
C2303 thru 2307	2113740A71	470 pF, ±5%, 50V
C2308	2113741A45	0.01 uF, ±5%, 50V
C2309,2310	2113740A71	470 pF, ±5%, 50V
C2311	2113741A45	0.01 uF, ±5%, 50V
C2312 thru 2314	2113740A71	470 pF, ±5%, 50V
C2401	2113740A39	27 pF, ±5%, 50V
C2402	2113741B69	0.1 uF, ±5%, 50 V
C2403,2404	2113740A71	470 pF, ±5%, 50V
C2405	2113740A43	39 pF, ±5%, 50V
C2406	2113741A45	0.01 uF, ±5%, 50V
C2407	2380909M24	10 uF, ±20%, 50V
C2408,2409	2113741B69	0.1 uF, ±5%, 50 V
C2410 thru 2412	2113740A71	470 pF, ±5%, 50V
C2413,2414	2113741B69	0.1 uF, ±5%, 50 V
C2415,2416	0811051A19	1 uF, +5%/–0.5%, 63V
C2418	0811051A15	0.22 uF, ±5%, 63 V
C2419	2113741B69	0.1 uF, ±5%, 50 V
C2424	0811051A09	0.022 uF, ±5%, 63 V
C2425	2380909M24	10 uF, ±20%, 50V
C2426	2113741B69	0.1 uF, ±5%, 50 V
C2500	2113741B69	0.1 uF, ±5%, 50 V
C2501	2113740A21	5.6 pF, ±0.25 pF, 50V
C2502,2503	2113741A45	0.01 uF, ±5%, 50V
C2504	2113741B69	0.1 uF, ±5%, 50 V
C2505	2113741A45	0.01 uF, ±5%, 50V
C2506	2113741B69	0.1 uF, ±5%, 50 V
C2507	2113741A45	0.01 uF, ±5%, 50V
C2509	2113740A51	68 pF, ±5%, 50V
C2510,2511	2113741A45	0.01 uF, ±5%, 50V
C2512	2113740A49	56 pF, ±5%, 50V
C2513	2113740A37	22 pF, ±5%, 50V
C2514	2113741A61	0.047 uF, ±5%, 50V
C2516	2113741B69	0.1 uF, ±5%, 50 V
C2517	2113741A57	0.033 uF, ±5%, 50V
C2519	2113741B69	0.1 uF, ±5%, 50 V
C2520	2380909M24	10 uF, ±20%, 50V
C2521	2113741B69	0.1 uF, ±5%, 50 V
C2522	2380909M24	10 uF, ±20%, 50V
C2523,2524	2113741A45	0.01 uF, ±5%, 50V
C2527	2113741A45	0.01 uF, ±5%, 50V
C2529	2113740A71	470 pF, ±5%, 50V
C2530	2113741A53	0.022 uF, ±5%, 50V
C2531	2113740A55	100 pF, ±5%, 50V
C2532	2311048A10	2.2 uF, ±10%, 35V
C2533	2311048A21	22 uF, ±10%, 20 V
C2534	2113740G11	2.2 pF, ±0.1 pF, 50V
C2535	2113740A51	68 pF, ±5%, 50V
C2536	2113740A79	1000 pF, ±5%, 50V
C2537 thru 2539	2113741B69	0.1 uF, ±5%, 50 V
C2542	2380909M22	4.007 uF, ±20%, 50V
C2702	2113741B69	0.1 uF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C2704	2311048A21	22 uF, ±10%, 20 V
C2707	2113741B69	0.1 uF, ±5%, 50 V
C2708	2311048A21	22 uF, ±10%, 20 V
C2801	2113740A33	15 pF, ±5%, 50V
C2902	2113740A71	470 pF, ±5%, 50V
C2903	2113740A43	39 pF, ±5%, 50V
C2904	2113740A33	15 pF, ±5%, 50V
C2905 thru 2909	2113740A43	39 pF, ±5%, 50V
C2910 thru 2914	2113740A33	15 pF, ±5%, 50V
C2815	2113741B69	0.1 uF, ±5%, 50 V
C2817	2113740A33	15 pF, ±5%, 50V
C2818,2819	2113741B69	0.1 uF, ±5%, 50 V
C2820 thru 2822	2113740A43	39 pF, ±5%, 50V
C2823	2380909M24	10 uF, ±20%, 50V
C2824,2825	2113741B69	0.1 uF, ±5%, 50 V
C2826,2827	2113740A71	470 pF, ±5%, 50V
C2828	2311048A21	22 uF, ±10%, 20 V
C2829,2830	2113740A43	39 pF, ±5%, 50V
C2831	2113741B69	0.1 uF, ±5%, 50 V
C2832	2113740A43	39 pF, ±5%, 50V
C2834 thru 2839	2113741B69	0.1 uF, ±5%, 50 V
		diode (see note):
CR2070,2071	4882290T04	Diode; hot carrier
CR2200,2201	4813825A01	3V, dual
CR2202	4882290T01	Schottky type
CR2230,2231	4813825A01	3V, dual
CR2232	4882290T01	Schottky type
CR2260,2261	4813825A06	Pin,35V
CR2401	2380909M24	Schottky type
CR2402,2403	4813833C10	0.1A, 70V
CR2501,2502	4813825A01	3V, dual
CR2505	4813825A01	3V, dual
		connector:
J2010	0984393T01	receptacle: uhf
		coil:
L2010	2462587N48	CHIP IND 39 NH 5%
L2011	2462587N46	CHIP IND 27 NH 5%
L2012	2462587N42	CHIP IND 12 NH 5%
L2031	2462587N42	CHIP IND 12 NH 5%
L2032	2462587N47	CHIP IND 33 NH 5%
L2033	2462587N71	1800 nH, ±%
L2034	2462587N42	CHIP IND 12 NH 5%
L2035	2411087B36	6.8 UH
L2050 thru 2054	2484713T01	COIL SHLD 4–1/2T 7MM
L2071	2462587N42	CHIP IND 12 NH 5%
L2073,2074	2462587N64	680 nH, ±%
L2101	2462587N64	680 nH, ±%
L2102	2462587N76	CHIP IND 4700 NH 5%
L2103	2411087B36	6.8 UH
L2104	2462587N71	1800 nH, ±%
L2105	2462587N76	CHIP IND 4700 NH 5%
L2107	2462587N76	CHIP IND 4700 NH 5%
L2200	2462587N71	1800 nH, ±%
L2201	2462587N64	680 nH, ±%
L2202	2485588U04	COIL SHLD 10MM 2 1/2 (TRN3362C)
	2485588U05	COIL SHLD 10MM 3 1/2 T (TRN3361C)
L2203	2462587N71	1800 nH, ±%
L2205	2462587N71	1800 nH, ±%
L2230	2462587N71	1800 nH, ±%
L2231	2462587N54	120 nH, ±%
L2232	2485588U04	COIL SHLD 10MM 2 1/2 TURN
L2233	2462587N71	1800 nH, ±%
L2235	2462587N71	1800 nH, ±%
L2270	2462587N71	1800 nH, ±%
L2271	2462587N51	68 nH, ±5%
L2301 thru 2303	2462587N71	1800 nH, ±%
L2401	2462587N71	1800 nH, ±%
L2402	2462587N54	120 nH, ±%

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
L2403	2411087A54	220 uH, ±10%
L2404,2405	2462587N71	1800 nH, ±%
L2501	2413603A27	CHIP IND 1800 nH 2%
L2502	2462587N71	1800 nH, ±%
L2503,2504	2462587N76	CHIP IND 4700 NH 5%
L2802 thru 2805	2484657R01	ferrite bead
L2806	2462587N71	1800 nH, ±%
		transistor (see note):
Q2030	4813824A17	PNP
Q2031	4813827A24	TSTR NPN SML SIG MRF5812 SB12
Q2101	4813824A10	NPN
Q2102	4885228U05	TSTR GAAS DL GATE MESFET_UT3_
Q2200	4813823A06	XSTR N–CH RF JFET MMBFJ310LT1
Q2201	4813827A20	NPN
Q2230	4813823A06	XSTR N–CH RF JFET MMBFJ310LT1
Q2231	4813827A03	NPN
Q2260	4813824A10	NPN
Q2261	4813824A17	PNP
Q2262	4813824A10	NPN
Q2263	4813824A17	PNP
Q2280	4813824A10	NPN
Q2301	4813827A26	NPN
Q2302	4813824A17	PNP
Q2303	4813827A26	NPN
Q2401	4813827A03	NPN
Q2402 thru 2406	4813824A10	NPN
Q2407	4813824A17	PNP
Q2408	4813824A10	NPN
Q2409,2410	4813824A17	PNP
Q2411,2412	4813824A10	NPN
Q2501	4813823A06	XSTR N–CH RF JFET MMBFJ310LT1
Q2502 thru 2505	4813824A10	NPN
		resistor, fixed:
R2030	0611079A92	5600 ohms, ±5%, 1/10W
R2031	0611079A74	1K, ±5%, 1/10W
R2032	0611079A66	470 ohms, ±5%, 1/10W
R2033	0611073A94	20 ohms, ±5%, 1/4 W
R2034	0611079A30	RES FIXED CHIP 15 5 1/10W
R2035	0611079A50	100 ohms, ±5%, 1/10W
R2036	0683963T37	33 ohms, ±5%, 1W
R2037	0611079A84	2700 ohms, ±5%, 1/10W
R2038,2039	0611079A90	4700 ohms, ±5%, 1/10W
R2070	0611079A50	270 ohms, ±5%, 1/10W
R2071	0611079A32	RES FIXED CHIP 18 5 1/10W
R2072	0611079A60	270 ohms, ±5%, 1/10W
R2073	0611079A58	220 ohms, ±5%, 1/10W
R2074	0611079A21	6.2 ohms, ±5%, 1/10W
R2075	0611079A58	220 ohms, ±5%, 1/10W
R2076	0611079A01	O ohms, ±5%, 1/10W
R2077 thru 2080	0611079A46	68 ohms, ±5%, 1/10W
R2081	0611079A86	3300 ohms, ±5%, 1/10W
R2082	0611079A74	1K, ±5%, 1/10W
R2083	0611079B15	10K, ±5%, 1/10W
R2084	0611079A90	4700 ohms, ±5%, 1/10W
R2101,2102	0611079A98	10K, ±5%, 1/10W
R2103	0611079A74	1.2K, ±5%, 1/10W
R2104	0611079A82	2200 ohms, ±5%, 1/10W
R2105	0611079A50	100 ohms, ±5%, 1/10W
R2106	0611079A82	2200 ohms, ±5%, 1/10W
R2107	0611079A46	82 ohms, ±5%, 1/10W
R2108	0611079A70	680 ohms, ±5%, 1/10W
R2109	0611079A58	220 ohms, ±5%, 1/10W
R2110	0611079B13	39K, ±5%, 1/10W
R2111	0611079A58	220 ohms, ±5%, 1/10W
R2201	0611079A26	10 ohms, ±5%, 1/10W
R2202	0611079B09	27K, ±5%, 1/10W
R2203	0611079A42	47 ohms, ±5%, 1/10W
R2204	0611079A62	330 ohms, ±5%, 1/10W
R2205	0611079A74	1K, ±5%, 1/10W
R2206	0611079A56	470 ohms, ±5%, 1/10W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R2207	0611079A60	270 ohms, ±5%, 1/10W
R2231	0611079A26	10 ohms, ±5%, 1/10W
R2232	0611079A95	8200 ohms, ±5% 1/10W
R2233	0611079A42	47 ohms, ±5% 1/10W
R2234	0611079A82	330 ohms, ±5% 1/10W
R2235	0611079A74	1K, ±5% 1/10W
R2236	0611079A66	470 ohms, ±5% 1/10W
R2237	0611079A60	270 ohms, ±5% 1/10W
R2260	0611079A94	6800 ohms, ±5% 1/10W
R2261	0611079A98	10K, ±5% 1/10W
R2262,2263	0611079A84	2700 ohms, ±5% 1/10W
R2264	0611079A66	470 ohms, ±5% 1/10W
R2265	0611079A98	10K, ±5% 1/10W
R2266,2267	0611079A84	2700 ohms, ±5% 1/10W
R2268	0611079A66	470 ohms, ±5% 1/10W
R2269,2270	0611078B15	47K, ±5% 1/10W
R2271	0611079A54	150 ohms, ±5% 1/10W
R2274	0611079A54	150 ohms, ±5% 1/10W (TRN6362C)
	0611079A50	100 ohms, ±5% 1/10W (TRN6361C)
R2263	0611079A60	270 ohms, ±5% 1/10W
R2280	0611078A26	10 ohms, ±5% 1/10W
R2301	0611079A36	27 ohms, ±5% 1/10W
R2302	0611079A60	270 ohms, ±5% 1/10W
R2303	0611078A72	820 ohms, ±5% 1/10W
R2304	0611079A58	220 ohms, ±5% 1/10W
R2305	0611079A42	47 ohms, ±5% 1/10W
R2306	0611078A46	68 ohms, ±5% 1/10W
R2307	0611079A58	220 ohms, ±5% 1/10W
R2308	0611079A82	2200 ohms, ±5% 1/10W
R2309	0611079A70	680 ohms, ±5% 1/10W
R2310	0611079A36	27 ohms, ±5% 1/10W
R2311,2312	0611072A15	39 ohms, ±5% 1/4W
R2313	0611079A72	820 ohms, ±5% 1/10W
R2314	0611072A33	220 ohms, ±5% 1/4W
R2401	0611079A82	2200 ohms, ±5% 1/10W
R2402	0611079A98	10K, ±5% 1/10W
R2403	0611079A84	2700 ohms, ±5% 1/10W
R2404	0611079A98	10K, ±5% 1/10W
R2405	0611079A66	470 ohms, ±5% 1/10W
R2406,2407	0683963T37	33 ohms, ±5% 1W
R2408	0611079A74	1K, ±5% 1/10W
R2409	0611079A72	820 ohms, ±5% 1/10W
R2410	0611079A50	100 ohms, ±5% 1/10W
R2411	0611079A36	27 ohms, ±5% 1/10W
R2412	0611079A46	68 ohms, ±5% 1/10W
R2413	0611079A98	10K, ±5% 1/10W
R2414	0611079A92	5600 ohms, ±5% 1/10W
R2415	0611079A86	3300 ohms, ±5% 1/10W (TRD6362C)
	0611079A01	O ohms, ±5% 1/10W (TRD6361C)
R2416	0611079A92	5600 ohms, ±5% 1/10W
R2417	0611079A76	1.2K, ±5% 1/10W (TRD6362C)
	0611079A74	1K, ±5% 1/10W (TRD6361C)
R2418,2419	0611079B15	47K, ±5% 1/10W
R2420	0611079A50	100 ohms, ±5% 1/10W
R2421	0611079A98	10K, ±5% 1/10W
R2422	0611079A74	1K, ±5% 1/10W (TRD6362C)
	0611079A82	2200 ohms, ±5% 1/10W (TRD6361C)
R2423,2424	0611079A82	2200 ohms, ±5% 1/10W
R2425	0611079A92	5600 ohms, ±5% 1/10W
R2426	0611079A58	220 ohms, ±5% 1/10W
R2427	0611079A82	2200 ohms, ±5% 1/10W
R2428	0611079A50	100 ohms, ±5% 1/10W
R2429	0611079A58	220 ohms, ±5% 1/10W
R2430,2431	0611079A86	3300 ohms, ±5% 1/10W
R2432	0611079A26	10 ohms, ±5% 1/10W (TRD6362C)
	0611079A28	12 ohms, ±5% 1/10W (TRD6361C)
R2433	0611079A26	10 ohms, ±5% 1/10W (TRD6362C)
	0611079A28	12 ohms, ±5% 1/10W (TRD6361C)
R2434	0611079A98	10K, ±5% 1/10W
R2435	0611079A86	3300 ohms, ±5% 1/10W

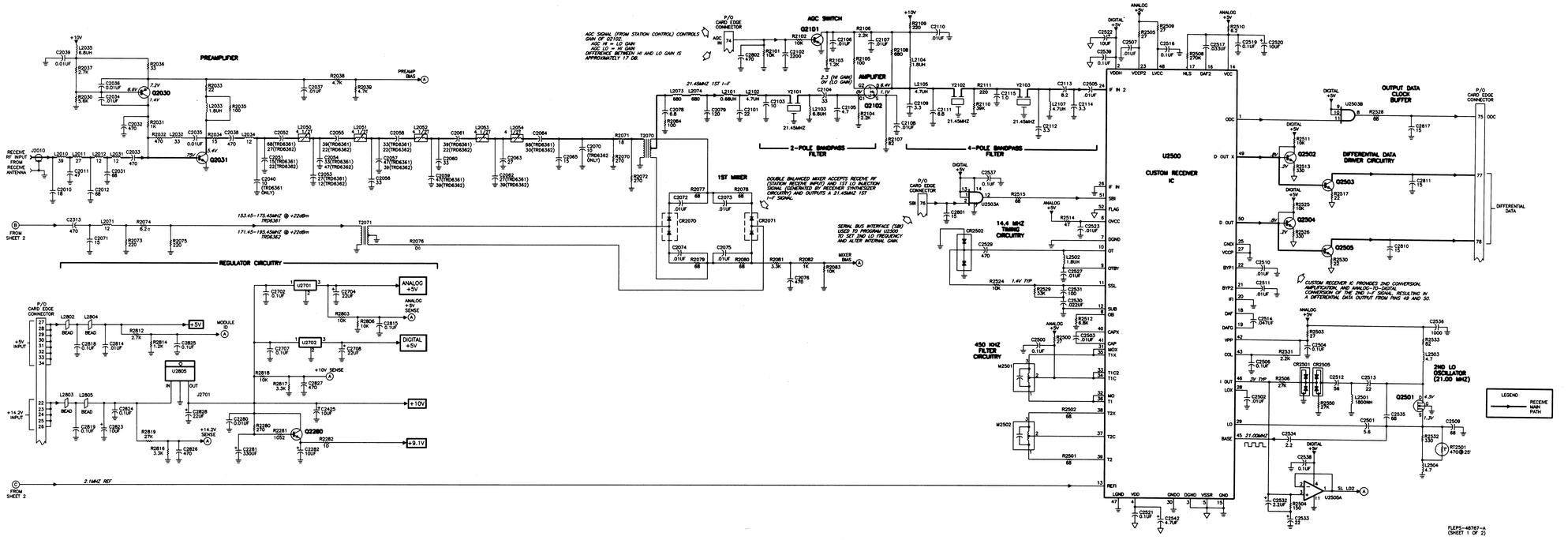
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R2436	0611079A98	10K, ±5% 1/10W
R2437	0611079A54	390 ohms, ±5% 1/10W
R2438	0611079A95	8200 ohms, ±5% 1/10W
R2439	0611079A98	10K, ±5% 1/10W
R2440	0611079A92	5600 ohms, ±5% 1/10W
R2441,2442	0611079A98	10K, ±5% 1/10W
R2443	0611079A66	470 ohms, ±5% 1/10W
R2444	0611079A98	10K, ±5% 1/10W
R2500	0611079A36	27 ohms, ±5% 1/10W
R2501,2502	0611079A46	68 ohms, ±5% 1/10W
R2503	0611079A36	27 ohms, ±5% 1/10W
R2504	0611079A54	150 ohms, ±5% 1/10W
R2505	0611079A36	27 ohms, ±5% 1/10W
R2506	0611079B09	27K, ±5% 1/10W
R2508	0611079B33	270K, ±5% 1/10W
R2509	0611079A36	27 ohms, ±5% 1/10W
R2510	0611079A21	6.2 ohms, ±5% 1/10W
R2511	0611079A98	10K, ±5% 1/10W
R2512	0611079A94	6800 ohms, ±5% 1/10W
R2513	0611079A82	330 ohms, ±5% 1/10W
R2514	0611079A42	47 ohms, ±5% 1/10W
R2515	0611079A46	68 ohms, ±5% 1/10W
R2517	0611079A60	270 ohms, ±5% 1/10W
R2524,2525	0611079A98	10K, ±5% 1/10W
R2526	0611079A62	330 ohms, ±5% 1/10W
R2528	0611079A46	68 ohms, ±5% 1/10W
R2529	0611079B11	33K, ±5% 1/10W
R2530	0611078A34	22 ohms, ±5% 1/10W
R2531	0611079A82	2200 ohms, ±5% 1/10W
R2532	0611079A62	330 ohms, ±5% 1/10W
R2533	0611079A46	82 ohms, ±5% 1/10W
R2550	0611079B09	27K, ±5% 1/10W
R2801	0611079A98	10K, ±5% 1/10W
R2802	0611079A70	680 ohms, ±5% 1/10W
R2803	0611079A98	10K, ±5% 1/10W
R2804	0611079A70	680 ohms, ±5% 1/10W
R2805	0611079A42	47 ohms, ±5% 1/10W
R2806 thru 2811	0611079A98	10K, ±5% 1/10W
R2812	0611079A84	2700 ohms, ±5% 1/10W
R2813	0611079A98	10K, ±5% 1/10W
R2814	0611079A76	1.2K, ±5% 1/10W
R2815	0611079A98	10K, ±5% 1/10W
R2816	0611079A90	4700 ohms, ±5% 1/10W
R2817	0611079A86	3300 ohms, ±5% 1/10W
R2818	0611079A98	10K, ±5% 1/10W
R2819	0611079B09	27K, ±5% 1/10W
		thermistor:
RT2200	0680149M01	470 ohms, ±10%; 240 MW
RT2230	0680149M01	470 ohms, ±10%; 240 MW
RT2501	0680149M01	470 ohms, ±10%; 240 MW
		transformer:
T2070,2071	2584600T01	BALUN RF
		integrated circuit (see note):
U2401	5184602T03	IC CUSTOM SYNZER SCBN2
U2402	5113805A86	Quad Analog Multiplexer/Demultiplexer
U2403	5113819A08	Low Power JFET–IN
U2500	5184023T09	IC ABACUS2 Tray Package
U2503	5113805A08	Triple 3–Input AND Gate
U2505	5113819A02	Low Power Differential Input
U2600	5113811A08	IC 8BIT A/D CONV SPI INTERFACE
U2701,2702	5113816A07	5–Volt Positive Regulator
U2900	5113805A54	Octal Buffer Line Driver/Receiver
U2801	5113805A58	Triple 3–Input AND Gate
U2802	5113805A22	Quad 2–Input Exclusive OR Gate
U2803	5113805A13	Quad 2–Input OR Gate
U2804	5113808A22	Dual 1 of 4 Decoder/Demultiplexer
U2805	5182276R82	Lo Voltage Dropout Regulator
		filter:
M2501,2502	9188128J02	FLTR L–C 450KHZ LCF–450

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Y2101	9184784T01	FLTR XTAL 21.45MHZ 2–POLE
Y2102,2103	9184784T05	FLTR XTAL 21.45 MHZ LOW IM
		non–referenced items:
	1584753T02	HSNG CORRAL MED (E2031)
	1584753T02	HSNG CORRAL MED (E2301)
	1584753T03	HSNG CORRAL LARGE (E2071)
	1584753T03	HSNG CORRAL LARGE (E2201)
	1584753T03	HSNG CORRAL LARGE (E2401)
	1584753T03	HSNG CORRAL LARGE (E2501)
	1585034U03	COVER SHIELD LARGE (used with E2031)
	1585034U04	COVER SHIELD LARGE (used with E2071)
	1585034U04	COVER SHIELD LARGE (used with E2501)
	2680539U01	SHIELD, Modified (E2010)
	5482006W01	Label, PCB bar code
	5482000W02	Ribbon, thermal transfer
	5484960T01	Label, bar code: 6.9 x 12.7MM, white
	8409448ST05	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

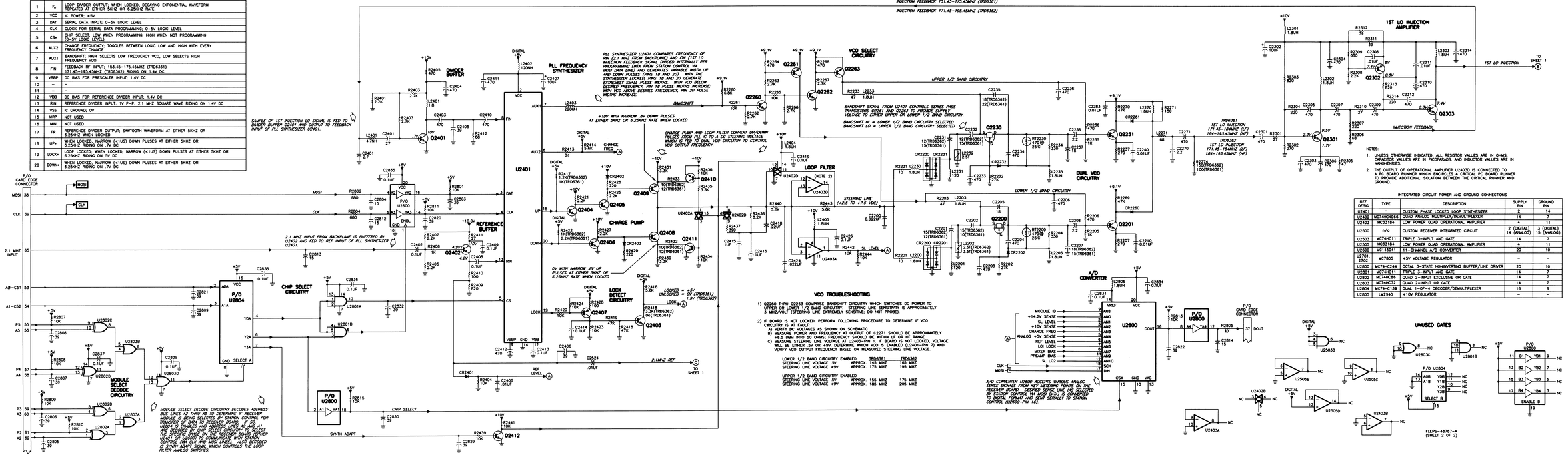
VHF RECEIVER MODULES

MODELS TRD6361D (R1)
TRD6362D (R2)



U2401 PINOUT INFORMATION

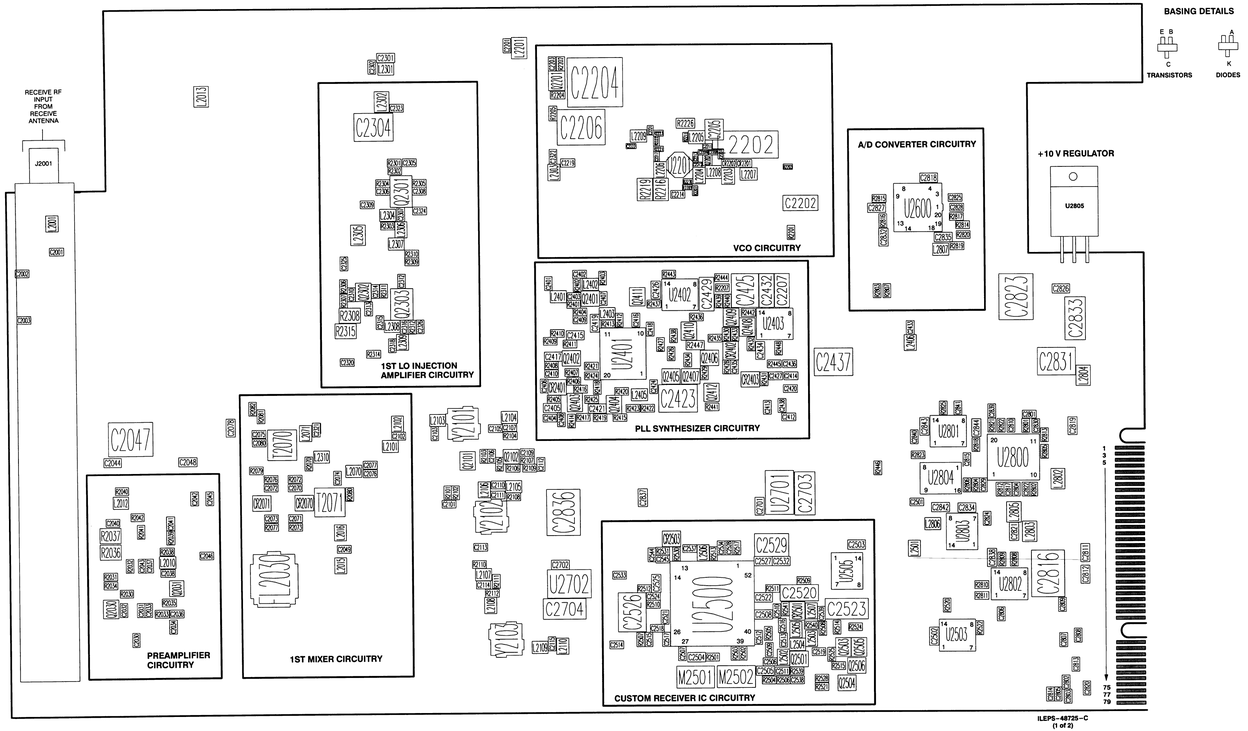
PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	f_V	LOOP DIVIDER OUTPUT; WHEN LOCKED, DECAYING EXPONENTIAL WAVEFORM REPEATED AT EITHER 5KHZ OR 6.25KHZ RATE.
2	VCC	IC POWER; +5V
3	DAT	SERIAL DATA INPUT; 0–5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING; 0–5V LOGIC LEVEL
5	CS+	CHIP SELECT; LOW WHEN PROGRAMMING, HIGH WHEN NOT PROGRAMMING (0–5V LOGIC LEVEL)
6	AUX2	CHANGE FREQUENCY; TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	BANDSHIFT; HIGH SELECTS LOW FREQUENCY VCO, LOW SELECTS HIGH FREQUENCY VCO.
8	FIN	FEEDBACK RF INPUT; 153.45–175.45MHZ (TRD6361) 171.45–185.45MHZ (TRD6362) RIDING ON 1.4V DC
9	VBBP	DC BIAS FOR PRESCALER INPUT; 1.4V DC
10	–	–
11	–	–
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT; 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 1V P–P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	VSS	IC GROUND; 0V
15	MRP	NOT USED
16	MIN	NOT USED
17	FR	REFERENCE DIVIDER OUTPUT; SAWTOOTH WAVEFORM AT EITHER 5KHZ OR 6.25KHZ WHEN LOCKED
18	UP+	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT EITHER 5KHZ OR 6.25KHZ RIDING ON 7V DC.
19	LOCK+	LOOP LOCKED; WHEN LOCKED, NARROW (<1US) DOWN PULSES AT EITHER 5KHZ OR 6.25KHZ RIDING ON 5V DC
20	DOWN+	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT EITHER 5KHZ OR 6.25KHZ RIDING ON .7V DC



INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U2401	–	CUSTOM PHASE LOCKED LOOP SYNTHESIZER	2	14
U2402	MC14HC4066	QUAD ANALOG MULTIPLEX/DEMULTIPLEXER	14	7
U2403	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2500	n/a	CUSTOM RECEIVER INTEGRATED CIRCUIT	2 (DIGITAL) 14 (ANLOG)	3 (DIGITAL) 15 (ANALOG)
U2503	MC74HC11	TRIPLE 3–INPUT AND GATE	14	7
U2505	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2600	MC145041	11–CHANNEL A/D CONVERTER	20	10
U2701, 2702	MC7805	+5 VOLTAGE REGULATOR	–	–
U2800	MC74HC244	OCTAL 3–STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U2801	MC74HC11	TRIPLE 3–INPUT AND GATE	14	7
U2802	MC74HC86	QUAD 2–INPUT EXCLUSIVE OR GATE	14	7
U2803	MC74HC32	QUAD 2–INPUT OR GATE	14	7
U2804	MC74HC139	DUAL 1–OF–4 DECODER/DEMULTIPLEXER	16	8
U2805	LM2940	+10V REGULATOR	–	–

800 MHz RECEIVER MODULE
MODEL TRF6551H



NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE NUMBERED 1, 3, 5, ETC. THE SOLDER SIDE CONTACTS ARE NUMBERED 2, 4, 6, ETC.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN	SIGNAL NAME	PIN	SIGNAL NAME
1	GND	2	GND
3	GND	4	GND
5	EXT_SPARE1	6	EXT_SPARE2
7	EXT_SPARE3	8	EXT_SPARE4
9	EXT_SPARE5	10	EXT_SPARE6
11	EXT_SPARE7	12	EXT_SPARE8
13	EXT_SPARE9	14	EXT_SPARE10
15	EXT_SPARE11	16	EXT_SPARE12
17	RX_WB_AUDIO	18	GND
19	GND	20	GND
21	GND	22	+14.2 V INPUT
23	+14.2 V INPUT	24	+14.2 V INPUT
25	+14.2 V INPUT	26	+14.2 V INPUT
27	+5 V INPUT	28	+5 V INPUT
29	+5 V INPUT	30	+5 V INPUT
31	+5 V INPUT	32	+5 V INPUT
33	+5 V INPUT	34	+5 V INPUT
35	GND	36	GND
37	SPI_MISO	38	SPI_MOSI
39	SPI_CLK	40	RESET
41	HDLC_DATA	42	HDLC_BUSY
43	HDLC_CLK	44	TDM_SYNC
45	TDM_DATA	46	TDM_CLOCK
47	SPARE 1	48	SPARE 2
49	SPARE 3	50	SPARE 4
51	SPARE 5	52	SPARE 6
53	A0_CS1	54	A0_CS2
55	P5	56	A5
57	P4	58	A4
59	P3	60	A3
61	P2	62	A2
63	GND	64	GND
65	RX_2.1_REF	66	N/C
67	GND	68	GND
69	N/C	70	N/C
71	GND	72	GND
73	GND	74	AGC_IN
75	ODC	76	SBI
77	DATA	78	DATA*
79	GND	80	GND

ILEPS-48725-C
(2 of 2)

parts list

TRF6551H Receiver Module — PL–13031–C

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2001	2113740G13	2.7 pF, ±0.1 pF; 50V
C2002,2003	2113740G15	3.3 pF, ±0.1 pF; 50V
C2030	2113740G09	1.8 pF, ±0.1 pF; 50V
C2031,2032	2113741A45	0.01 uF, ±5%; 50V
C2033,2034	2113740A43	39 pF, ±5%; 50V
C2036	2113740A19	4.7 pF, ±0.25 pF; 50V
C2037,2038	2113740A43	39 pF, ±5%; 50V
C2040	2113740A43	39 pF, ±5%; 50V
C2041	2113740A19	4.7 pF, ±0.25 pF; 50V
C2042	2113740G09	1.8 pF, ±0.1 pF; 50V
C2043	2113741A45	0.01 uF, ±5%; 50V
C2044	2113741B69	0.1 uF, ±5%; 50 V
C2045	2113740G09	1.8 pF, ±0.1 pF; 50V
C2046	2113740G15	3.3 pF, ±0.1 pF; 50V
C2047	2380090M36	100 uF; 25V
C2048	2113741B69	0.1 uF, ±5%; 50 V
C2049	2113740G03	1 pF, ±0.1 pF; 50V
C2070 thru 2073	2113741A45	0.01 uF, ±5%; 50V
C2074	2113740A17	3.9 pF, ±0.25 pF; 50V
C2075	2113740A43	39 pF, ±5%; 50V
C2076	2113740A17	3.9 pF, ±0.25 pF; 50V
C2077	2113741A45	0.01 uF, ±5%; 50V
C2078	2113741B69	0.1 uF, ±5%; 50 V
C2080	2113740A43	39 pF, ±5%; 50V
C2101	0811001A18	0.68 uF, ±5%; 63V
C2102	2113740A27	8.2 pF, ±0.25 pF; 50V
C2103	2113740A24	6.8 pF, ±0.25 pF; 50V
C2105	2113740A19	4.7 pF, ±0.25 pF; 50V
C2106	2113741A45	0.01 uF, ±5%; 50V
C2107	2113740G05	1.2 pF, ±0.1 pF; 50V
C2108,2109	2113741A45	0.01 uF, ±5%; 50V
C2110,2111	2113740A27	8.2 pF, ±0.25 pF; 50V
C2112	2113741A45	0.01 uF, ±5%; 50V
C2113	2113740G09	1.8 pF, ±0.1 pF; 50V
C2114	2113740G11	2.2 pF, ±0.1 pF; 50V
C2115	2113740G15	3.3 pF, ±0.1 pF; 50V
C2201	2113740A43	39 pF, ±5%; 50V
C2202	0811051A09	0.022 uF, ±5%; 63V
C2203	2113741A45	0.01 uF, ±5%; 50V
C2204	2380090M27	330 uF; ±20%; 16V
C2205	2113906B03	CERAMIC CHIP C0 LSR 2.5/3.5 pF
C2206	2380090M35	100 uF; 25V
C2207	2113742K30	CERAMIC CHIP 3.3 pF, ±0.1 pF
C2208	2113742K28	CERAMIC CHIP 4.7 pF, ±0.1 pF
C2209	2113742L10	CERAMIC CHIP 8.2 pF, ±0.25 pF
C2211	2113742L11	CERAMIC CHIP 12 pF, ±2 pF
C2212	2113740F43	47 pF, ±5%; 50 V
C2213	2113740A19	CERAMIC CHIP 3.3 pF, ±0.1 pF
C2214	2113741A53	0.022 uF, ±5%; 50V
C2217	2113740F43	47 pF, ±5%; 50V
C2218,2219	2113741A43	39 pF, ±5%; 50V
C2221,2222	2113740L02	CERAMIC CHIP 2.2 pF, ±0.1 pF
C2301	2113741B69	0.1 uF, ±5%; 50 V
C2302	2113741A43	39 pF, ±5%; 50V
C2304	2380090M24	10 uF, ±20%; 50V
C2305	2113740A17	3.9 pF, ±0.25 pF; 50V
C2306	2113740A79	1000 pF, ±5%; 50V
C2307	2113740A43	39 pF, ±5%; 50V
C2308	2113740A79	1000 pF, ±5%; 50V
C2309	2113740A43	39 pF, ±5%; 50V
C2310	2113741A45	0.01 uF, ±5%; 50V
C2312	2113740G13	2.7 pF, ±0.1 pF; 50V
C2313	2113740A43	39 pF, ±5%; 50V
C2314	2113741A45	0.01 uF, ±5%; 50V
C2315	2113740A79	1000 pF, ±5%; 50V
C2316	2113740A39	10 pF, ±5%; 50V
C2318	2113740G15	3.3 pF, ±0.1 pF; 50V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C2320	2113740G03	1 pF, ±0.1 pF; 50V
C2321	2113740G13	2.7 pF, ±0.1 pF; 50V
C2322	2113740A19	4.7 pF, ±0.25 pF; 50V
C2323	2113740G11	2.2 pF, ±0.1 pF; 50V
C2324	2113740G09	1.8 pF, ±0.1 pF; 50V
C2325	2113740G11	2.2 pF, ±0.1 pF; 50V
C2326	2113740G09	1.8 pF, ±0.1 pF; 50V
C2401	2113740G13	2.7 pF, ±0.1 pF; 50V
C2402,2403	2113740A43	39 pF, ±5%; 50V
C2404	2113740A19	4.7 pF, ±0.25 pF; 50V
C2405	2113741B69	0.1 uF, ±5%; 50 V
C2406 thru 2408	2113740A43	39 pF, ±5%; 50V
C2409	2113740A79	1000 pF, ±5%; 50V
C2410	2113741A45	0.01 uF, ±5%; 50V
C2412 thru 2414	2113740A43	39 pF, ±5%; 50V
C2415	2113741B69	0.1 uF, ±5%; 50 V
C2416	2113740A43	39 pF, ±5%; 50V
C2417	2113741B69	0.1 uF, ±5%; 50 V
C2418	2113740A43	39 pF, ±5%; 50V
C2419	2113741B69	0.1 uF, ±5%; 50 V
C2420	2113740A43	39 pF, ±5%; 50V
C2421	2113741B69	0.1 uF, ±5%; 50 V
C2423	2380090M24	10 uF, ±20%; 50V
C2424	2113740A43	39 pF, ±5%; 50V
C2425	0811001A18	0.68 uF, ±5%; 63V
C2426	2113741B69	0.1 uF, ±5%; 50 V
C2427	2113740A43	39 pF, ±5%; 50V
C2429	0811001A11	0.047 uF, ±5%; 63V
C2432	0811051A09	0.022 uF, ±5%; 63 V
C2433	2113740A43	39 pF, ±5%; 50V
C2434	2113741B69	0.1 uF, ±5%; 50 V
C2435,2436	2113740A43	39 pF, ±5%; 50V
C2437	2380090M24	10 uF, ±20%; 50V
C2438	2113740A43	39 pF, ±5%; 50V
C2501	2113741A45*	0.01 uF, ±5%; 50V
C2502 thru 2505	2113741B69	0.1 uF, ±5%; 50 V
C2506	2113740A21	5.6 pF, ±0.25 pF; 50V
C2507	2113741A45	0.01 uF, ±5%; 50V
C2508	2113741B69	0.1 uF, ±5%; 50 V
C2509	2113740A24	6.8 pF, ±0.25 pF; 50V
C2510	2113740G11	2.2 pF, ±0.1 pF; 50V
C2511	2113740A24	6.8 pF, ±0.25 pF; 50V
C2512	2113741A45	0.01 uF, ±5%; 50V
C2513	2113740A39	27 pF, ±5%; 50 V
C2514,2515	2113741A45	0.01 uF, ±5%; 50V
C2516	2113740A42	36 pF, ±5%; 50 V
C2517,2518	2113741A45	0.01 uF, ±5%; 50V
C2519	2113740A79	1000 pF, ±5%; 50V
C2520	2113104B10	2.2 uF, ±10%; 35V
C2521	2113741A61	0.047 uF, ±5%; 50V
C2522	2113741B69	0.1 uF, ±5%; 50 V
C2523	2113104B21	22 uF, ±10%; 20 V
C2524	2113741A57	0.033 uF, ±5%; 50V
C2525	2113741B69	0.1 uF, ±5%; 50 V
C2526	2380090M24	10 uF, ±20%; 50V
C2527	2113741B69	0.1 uF, ±5%; 50 V
C2528	2113741A45	0.01 uF, ±5%; 50V
C2529	2380090M22	4.7 uF, ±20%; 50V
C2532	2113741B69	0.1 uF, ±5%; 50 V
C2533,2534	2113741A45	0.01 uF, ±5%; 50V
C2537	2113740A71	470 pF, ±5%; 50V
C2538	2113740A39	27 pF, ±5%; 50 V
C2539	2113740A79	1000 pF, ±5%; 50V
C2544	2113741A53	0.022 uF, ±5%; 50V
C2545	2113740A55	100 pF, ±5%; 50 V
C2701,2702	2113741B69	0.1 uF, ±5%; 50 V
C2703,2704	2311104B21	22 uF, ±10%, 20 V
C2801,2802	2113740A33	15 pF, ±5%, 50 V
C2803	2113740A71	470 pF, ±5%; 50V
C2804,2805	2113740A33	15 pF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C2806 thru 2809	2113740A55	100 pF, ±5%, 50 V
C2810	2113740A33	15 pF, ±5%; 50 V
C2811,2812	2113741B69	0.1 uF, ±5%; 50 V
C2813 thru 2815	2113740A33	15 pF, ±5%, 50 V
C2816	2380090M36	100 uF; 25V
C2817	2113740A33	15 pF, ±5%, 50 V
C2818,2819	2113741B69	0.1 uF, ±5%; 50 V
C2820	2113740A55	100 pF, ±5%, 50 V
C2821	2113741B69	0.1 uF, ±5%; 50 V
C2822	2113740A55	15 pF, ±5%; 50 V
C2823	2380090M36	100 uF; 25V
C2824	2113741A45	0.01 uF, ±5%; 50V
C2825	2113740A71	470 pF, ±5%; 50V
C2826,2827	2113741B69	0.1 uF, ±5%; 50 V
C2828	2113740A71	470 pF, ±5%; 50V
C2829,2830	2113740A33	15 pF, ±5%, 50 V
C2831	2380090M24	10 uF, ±20%; 50V
C2832	2113741B69	0.1 uF, ±5%; 50 V
C2833	2311046A21	22 uF, ±10%; 20 V
C2834,2835	2113741B69	0.1 uF, ±5%; 50 V
C2836	2380090M36	100 uF; 25V
C2837,2838	2113741B69	0.1 uF, ±5%; 50 V
C2839 thru 2841	2113740A55	100 pF, ±5%, 50 V
C2842 thru 2844	2113741B69	0.1 uF, ±5%; 50 V
CR2070,2071	4882290T04	Diode; Hot Carrier
CR2201,2202	4882824C01	Diode; Varactor
CR2401	4813823A05	Hot Carrier
CR2402,2403	4813833C10	0.1A, 70V
CR2501	4813825A01	3V, dual
CR2503	4813825A01	3V, dual
FL2000	9184682T01	**filter:** FILTER CERAMIC 800MHZ
FL2030	5105279V10	HYBRID TRIM AND TEST 79V10
M2501,2502	9185128U02	FLTR L–C 450KHZ LCF–450
J2001	0984393T01	**connector:** receptacle: uhf, right angle
P2200, 2201	2880001R03	plug: 3–pin header
L2001	2482587X51	**coil:** CHIP LO–PRO IND 68 NH 5%
L2010	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2012	2482587N71	CHIP IND 1800 NH 5%
L2013	2484657R01	ferrite bead
L2015	2482587X44	CHIP LO–PRO IND 18 NH 5%
L2016	2482587X43	CHIP LO–PRO IND 15 NH 5%
L2070	2482587X43	CHIP LO–PRO IND 15 NH 5%
L2071	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2101	2482587X55	CHIP LO–PRO IND 150 NH 5%
L2102	2482587X59	CHIP LO–PRO IND 330 NH 5%
L2103,2104	2482587X55	CHIP LO–PRO IND 150 NH 5%
L2105	2482587N71	CHIP IND 1800 NH 5%
L2106	2482587X64	CHIP LO–PRO IND 680 NH 5%
L2107,2108	2482587X65	CHIP LO–PRO 1000 NH, 5%
L2109	2482587X59	CHIP LO–PRO IND 330 NH 5%
L2110	2482587X68	LO–PRO 1000 NH, 5%
L2201	2484657R01	ferrite bead
L2202	9183223X01	COAXIAL CERAMIC RESONATOR
L2203	2482587X44	CHIP LO–PRO IND 18 NH 5%
L2204 thru L2208	2482587X55	CHIP LO–PRO IND 150 NH 5%
L2209	2482587X41	CHIP LO–PRO IND 10 NH 5%
L2301	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2302	2484657R01	ferrite bead
L2303	2482587X48	CHIP LO–PRO IND 39NH 5%
L2304	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2305	2484657R01	ferrite bead
L2306	2482587R16	IND CHIP 4.7NH 5%
L2307	2482587X41	CHIP IND 10 NH 5%
L2308	2482587X51	CHIP IND 68 NH 5%

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
L2309	2482587R17	CHIP IND 8.2 NH 2%
L2310	2482587R16	IND CHIP 4.7NH 5%
L2401	2482587R16	IND CHIP 4.7NH 5%
L2402	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2403	2482587X41	CHIP LO–PRO IND 10 NH 5%
L2405,2406	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2501	2482587X57	CHIP LO–PRO IND 220 NH 5%
L2502	2413923A17	CHIP IND 820 NH 2%
L2503, 2504	2482587N72	CHIP IND 2200 NH 5%
L2505	2413923A05	CHIP IND 120 NH 2%
L2506	2482587N71	CHIP IND 1800 NH 5%
L2507	2413923A07	CHIP IND 180 NH 2%
L2802 thru 2805	2484657R01	ferrite bead
L2806	2482587X51	CHIP LO–PRO IND 68 NH 5%
L2807	2482587N71	CHIP IND 1800 NH 5%
Q2030	4813824A17	**translator (see note):** PNP
Q2031	4813827A15	TSTR NPN SML SIG MRF5711LT1 02
Q2101	4813824A10	NPN
Q2102	4885228U05	TSTR GAAS DL GATE MESFET_U73
Q2201	4813824A10	NPN
Q2202	4885228U03	TSTR NPN 6V 30uA 12GHz NE68519
Q2301	4813827A26	TSTR NPN SML SIG MRF5372 8372
Q2302	4813824A17	PNP
Q2303	4813827A26	TSTR NPN SML SIG MRF5372 8372
Q2401	4813827A03	NPN
Q2402,2403	4813824A10	NPN
Q2404	4813824A17	PNP
Q2405 thru 2408	4813824A10	NPN
Q2409	4813824A17	PNP
Q2410	4813824A10	NPN
Q2411	4813824A17	PNP
Q2412	4813824A10	NPN
Q2501	4813827A03	NPN
Q2503 thru 2506	4813824A10	NPN
R2030	0611079A86	**resistor, fixed:** RES FIXED CHIP 3300 5 1/10
R2031	0611079A01	O ohms, ± 5%; 1/10W
R2032	0611079A92	RES FIXED CHIP 5600 5 1/10
R2033	0611079A90	RES FIXED CHIP 4700 5 1/10
R2034	0611079A01	O ohms, ± 5%; 1/10W
R2035	0611079A76	1.2K ±5%; 1/10W
R2036,2037	0611079A33	220 ohms, ±5%; 1/4W
R2038	0611079A64	RES FIXED CHIP 390 5 1/10W
R2039	0611079A34	RES FIXED CHIP 22 5 1/10W
R2040	0611079A43	RES FIXED CHIP 100 5 1/10W
R2041,2042	0611079A90	RES FIXED CHIP 4700 5 1/10
R2070	0611079A01	O ohms, ± 5%; 1/10W
R2072,2073	0611079A86	RES FIXED CHIP 3300 5 1/10W A/P
R2076,2077	0611079A56	RES FIXED CHIP 180 5 1/10W A/P
R2079	0611079A38	10K ±5%; 1/10W
R2080	0611079A42	47 ±5%; 1/10W
R2081	0611079A76	1.2K ±5%; 1/10W
R2082	0611079A86	RES FIXED CHIP 3300 5 1/10
R2101,2102	0611079A55	CHIP LO–PRO 1000 NH, 5%
R2103	0611079A74	1K ±5%; 1/10W
R2104	0611079A84	RES FIXED CHIP 2700 5 1/10
R2105	0611079A50	100 5 1/10W
R2106	0611079A52	2200 5 1/10
R2107	0611079A48	RES FIXED CHIP 82 5 1/10W
R2108	0611079A66	RES FIXED CHIP 470 5 1/10W
R2109	0611079A58	220 ±5%; 1/10W
R2110	0611079A90	RES FIXED CHIP 4700 5 1/10
R2111	0611079A62	RES FIXED CHIP 330 5 1/10W
R2112	0611079A90	RES FIXED CHIP 4700 5 1/10
R2201	0611079A50	0.5 1/10W
R2202	0611079A50	100 5 1/10W
R2203	0662057A01	RES CHIP 10 5 1/10

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R2204	0611079A26	RES CHIP 10 5 1/10
R2205	0611079A30	5.6 5 1/10W
R2207	0662057A53	1500 ohms, ± 5%; 1/10W
R2209	0662057A56	RES CHIP 2000 5 1/10W
R2210	0662057B47	0 ±5%; 1/10W
R2211	0662057A56	RES CHIP 2000 5 1/10
R2218	0611072A35	270 5 1/4W
R2219	0611072A37	330 1/4W
R2221	0662057A37	RES CHIP 330 5
R2222	0662057A05	RES CHIP 15 5
R2223	0662057A37	RES CHIP 330 5
R2226	0611077A66	470 5 1/8W
R2301	0611079A66	RES FIXED CHIP 470 5 1/10W
R2302	0611079A72	RES FIXED CHIP 820 5 1/10W
R2303	0611079A54	RES FIXED CHIP 150 5 1/10W
R2304,2305	0611079A52	RES FIXED CHIP 120 5 1/10W A/P
R2306	0611079A52	2200 5 1/10
R2307	0611079A74	1K ±5%; 1/10W
R2308	0611079A21	68 ohms, ±5%; 1/4W
R2309	0611079A42	47 ±5%; 1/10W
R2310	0611079A66	RES FIXED CHIP 470 5 1/10W
R2311	0611079A72	RES FIXED CHIP 820 5 1/10W
R2312	0611079A66	RES FIXED CHIP 470 5 1/10W
R2314	0611079A01	O ohms, ± 5%; 1/10W
R2315	0611079A38	10K ±5%; 1/10W
R2401	0611079A82	RES FIXED CHIP 5600 5 1/10
R2402	0611079A86	RES FIXED CHIP 3900 5 1/10 A/P
R2403	0611079A90	RES FIXED CHIP 270 5 1/10W
R2404 thru 2406	0611079A82	2200 5 1/10
R2407	0611079A74	1K ±5%; 1/10W
R2408	0611079A58	220 ±5%; 1/10W
R2409	0611079A72	RES FIXED CHIP 820 5 1/10W
R2410	0611079A50	100 5 1/10W
R2411	0611079A38	10K ±5%; 1/10W
R2412	0611079A38	chip 33 5 1/10 W
R2413	0611079A54	RES FIXED CHIP 150 5 1/10W
R2414	0611079A01	O ohms, ± 5%; 1/10W
R2415	0611079A92	RES FIXED CHIP 5600 5 1/10
R2416,2417	0611079B15	RES FIXED CHIP 47K 5 1/10
R2418 thru 2420	0611079A98	100K ±5%; 1/10W
R2421	0611079A74	1K ±5%; 1/10W
R2422	0611079A01	O ohms, ± 5%; 1/10W
R2423	0611079A92	RES FIXED CHIP 5600 5 1/10
R2424	0611079A74	1K ±5%; 1/10W
R2425	0611079A50	100 5 1/10W
R2426	0611079A52	2200 5 1/10
R2428,2429	0611079A82	2200 5 1/10
R2430,2431	0611079A01	O ohms, ± 5%; 1/10W
R2432,2433	0611079B13	39K ±5%; 1/10W
R2434,2435	0611079A34	RES FIXED CHIP 8.2 5 1/10W A/P
R2436	0611079A96	82K ±5%; 1/10W
R2437	0611079A86	RES FIXED CHIP 3300 5 1/10
R2438	0611079A98	100K ±5%; 1/10W
R2439	0611079A74	RES FIXED CHIP 1500 5 1/10 A/P
R2440	0611079B23	100K ±5%; 1/10W
R2441	0611079A98	10K ±5%; 1/10W
R2442	0611079A98	10K ±5%; 1/10W
R2443	0611079A98	10K ±5%; 1/10W
R2444	0611079A92	5600 ±5%; 1/10W
R2445	0611079A98	100 5 1/10W
R2446	0611079A01	O ohms, ± 5%; 1/10W
R2447	0611077A01	0 ohm, ±5%; 0 W
R2448	0611079A98	10K ±5%; 1/10W
R2501	0611079A38	chip 33 5 1/10 W
R2502,2503	0611079A46	RES FIXED CHIP 68 5 1/10W
R2504	0611079A36	27 5 1/10W
R2505	0611079A98	10K ±5%; 1/10W
R2506	0611079A62	RES FIXED CHIP 330 5 1/10W
R2507	0611079A36	27 5 1/10W
R2508	0611079A26	10 ±5%; 1/10W

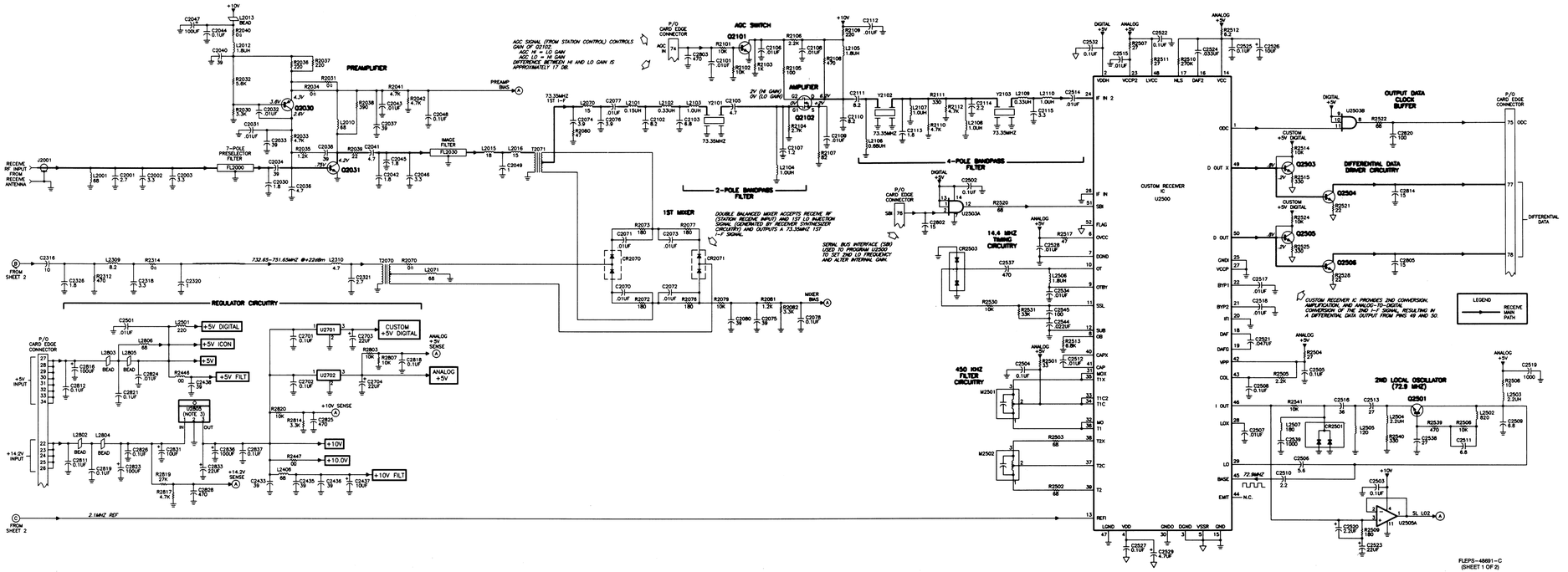
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R2509	0611079A56	RES FIXED CHIP 180 5 1/10W A/P
R2510	0611079B33	RES FIXED CHIP 270K 5 1/10
R2511	0611079A36	27 5 1/10W
R2512	0611079A21	RES FIXED CHIP 6.2 5 1/10W
R2513	0611079A94	chip 6800 5 1/10
R2514	0611079A98	10K ±5%; 1/10W
R2515	0611079A92	RES FIXED CHIP 330 5 1/10W
R2517	0611079A42	47 ±5%; 1/10W
R2520	0611079A46	RES FIXED CHIP 68 5 1/10W
R2521	0611079A34	RES FIXED CHIP 22 5 1/10W
R2522	0611079A74	RES FIXED CHIP 68 5 1/10W
R2524	0611079A98	10K ±5%; 1/10W
R2525	0611079A62	RES FIXED CHIP 330 5 1/10W
R2528	0611079A34	RES FIXED CHIP 22 5 1/10W
R2530	0611079A98	10K ±5%; 1/10W
R2531	0611079B11	RES FIXED CHIP 33K 5 1/10 A/P
R2539	0611079A66	RES FIXED CHIP 470 5 1/10W
R2540	0611079A62	RES FIXED CHIP 330 5 1/10W
R2541	0611079A98	10K ±5%; 1/10W
R2801	0611079A98	10K ±5%; 1/10W
R2802	0611079A70	RES FIXED CHIP 680 5 1/10W
R2803	0611079A98	10K ±5%; 1/10W
R2804	0611079A66	RES FIXED CHIP 470 5 1/10W
R2805	0611079A42	47 ±5%; 1/10W
R2806	0611079A66	RES FIXED CHIP 470 5 1/10W
R2807 thru 2811	0611079A98	10K ±5%; 1/10W
R2812	0611079A70	RES FIXED CHIP 680 5 1/10W
R2813	0611079A98	10K ±5%; 1/10W
R2814	0611079A86	RES FIXED CHIP 3300 5 1/10
R2815	0611079A84	RES FIXED CHIP 2700 5 1/10
R2816	0611079A76	1.2K ±5%; 1/10W
R2817	0611079A90	RES FIXED CHIP 4700 5 1/10
R2818	0611079A98	10K ±5%; 1/10W
R2819	0611079B09	27K ±5%; 1/10W
R2820	0611079A98	10K ±5%; 1/10W
R2821	0611079A42	47 ±5%; 1/10W
R2822	0611079A98	10K ±5%; 1/10W
R2823	0611079A42	47 ±5%; 1/10W
R2825	0611079A42	47 ±5%; 1/10W
T2070,2071	2584600T01	**transformer:** BALUN RF
U2001	4882347W01	**integrated circuit (see note):** SILICON
U2401	5184602T03	IC CUSTOM SYNZR_02T03
U2402	5113805A86	Quad Analog Multiplexer/Demultiplexer
U2403	5113819A08	IC LOW PWR JFET–IN MC33184
U2500	5184523T09	IC ASACUS2 QFP
U2503	5113805A08	Triple 3–Input AND Gate
U2505	5113819A02	IC LOW PWR JFET–IN MC33184
U2600	5182374Y01	IC 8BIT A/D CONV SPI INTERFACE
U2701,2702	5113816A07	REG 5V POS 500MA MC78M05BDTRK
U2800	5113803A54	IC OCT BFR LINE DRV/RCVR HC244
U2801	5113805A08	Triple 3–Input AND Gate
U2802	5113805A20	Quad 2–Input Exclusive OR Gate
U2803	5113805A13	Quad 2–Input OR Gate
U2804	5113808A22	Dual 1 of 4 Decoder/Demultiplexer
U2805	5182276R82	Regulator, Lo Vtg Dropout
Y2101	9184784T04	**crystal (see note):** FLTR XTAL 73.35MH HIGH IM
Y2102,2103	9184784T06	FLTR XTAL 73.35MHZ 2POLE
	1585021U02	**non–referenced items:** SHLD 800 QUANTAR PRESELCTOR (used with FL2000)
	1584753T02	HSNG CORRAL MED (used with E2030)
	1584753T02	HSNG CORRAL MED (used with E2601)
	1584753T03	HSNG CORRAL LRG (used with E2070)
	1584753T03	HSNG CORRAL LRG (used with E2401)
	1584753T03	HSNG CORRAL LRG (used with E2501)
	1584753T05	HSNG CORRAL LRG (used with E2201)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	1584753T05	HSNG CORRAL LRG (used with E2301)
	1585034U03	COVER SHIELD MED (used with E2030)
	1585034U03	COVER SHIELD MED (used with E2601)
	1585034U04	COVER SHIELD LRG (used with E2070)
	1585034U04	COVER SHIELD LRG (used with E2401)
	1585034U04	COVER SHIELD LRG (used with E2501)
	1585034U09	COVER EXCITER LRG (used with E2201)
	1585034U09	COVER EXCITER LRG (used with E2301)
	5482006W01	LABEL, PCB bar code
	8484747T10	CKT BOARD

note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part numbers.

800 MHz RECEIVER MODULE

MODEL TRF6551H



68P81087E88–C
(Sheet 3 of 4)
10/15/99–UP

800 MHz RECEIVER MODULE
MODEL TRF6551H

U2401 PINOUT INFORMATION

PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	f_V	LOOP DIVIDER OUTPUT; WHEN LOCKED, DECAYING EXPONENTIAL WAVEFORM REPEATED AT 6.25 KHZ RATE.
2	VCC	IC POWER; +5V
3	DAT	SERIAL DATA INPUT; 0–5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING; 0–5V LOGIC LEVEL
5	CS+	CHIP SELECT; LOW WHEN PROGRAMMING, HIGH WHEN NOT PROGRAMMING (0–5V LOGIC LEVEL)
6	AUX2	CHANGE FREQUENCY; TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	NOT USED
8	FIN	FEEDBACK RF INPUT; 731–751 MHZ RIDING ON 1.4V DC
9	VBBP	DC BIAS FOR PRESCALER INPUT; 1.4V DC
10	–	–
11	–	–
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT; 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 1V P–P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	VSS	IC GROUND; 0V
15	MRP	NOT USED
16	MIN	NOT USED
17	FR	REFERENCE DIVIDER OUTPUT; SAWTOOTH WAVEFORM AT 6.25 KHZ WHEN LOCKED
18	UP+	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON .7V DC
19	LOCK+	LOOP LOCKED; WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON 5V DC
20	DOWN+	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON .7V DC

P/O CARD EDGE CONNECTOR

MOSI

CLK

2.1 MHZ INPUT

AB–CS1

A1–CS2

P5 A5

P4 A4

P3 A3

P2 A2

MODULE SELECT DECODE CIRCUITRY

MODULE SELECT DECODE CIRCUITRY DECODES ADDRESS BUS LINES A2 THRU A5 TO DETERMINE IF RECEIVER MODULE IS BEING SELECTED BY STATION CONTROL FOR TRANSFER OF DATA TO RECEIVER BOARD. IF SO, U2804 IS ENABLED AND ADDRESS LINES A2 AND A1 ARE USED TO SELECT THE CHIP SELECT LINE THAT SELECT THE SPECIFIC DEVICE ON THE RECEIVER BOARD (EITHER U2401 OR U2800) TO COMMUNICATE WITH STATION CONTROL (VIA CLK AND MOSI LINES). ALSO DECODED IS SYNTH ADAPT SIGNAL WHICH CONTROLS THE LOOP FILTER ANALOG SWITCHES.

CHIP SELECT CIRCUITRY

REFERENCE BUFFER

CHARGE PUMP

LOCK DETECT CIRCUITRY

LOCK

+5V(LOCKED) 0V(UNLOCKED)

REF LEVEL

2.1MHZ REF

SHEET 1

SAMPLE OF 1ST INJECTION LO SIGNAL IS FED TO DIVIDER BUFFER Q2401 AND OUTPUT TO FEEDBACK

DIVIDER BUFFER

PLL FREQUENCY SYNTHESIZER

PLL SYNTHESIZER U2401 COMPARES FREQUENCY OF FIN (2.1 MHZ FROM BACKPLANE) AND FIN (1ST LO INJECTION FEEDBACK SIGNAL DIVIDED INTERNALLY PER PROGRAMMING DATA FROM STATION CONTROL VIA MOSI DATA LINE) AND GENERATES VARIABLE WIDTH UP AND DOWN PULSES (FROM 1.4 TO 4.2 V P–P) AT 6.25 KHZ RATE. WHEN VCO IS AT CORRECT FREQUENCY, PIN 18 PULSE WIDTH IS EXTREMELY SMALL PULSE WIDTHS. WITH VCO BELOW DESIRED FREQUENCY, PIN 18 PULSE WIDTHS INCREASE. WITH VCO ABOVE DESIRED FREQUENCY, PIN 20 PULSE WIDTHS INCREASE.

+10V WITH NARROW 0V DOWN PULSES AT 6.25KHZ RATE WHEN LOCKED

CHARGE PUMP AND LOOP FILTER CONVERT UP/DOWN PULSES FROM PLL IC TO A DC STEERING VOLTAGE WHICH IS FED TO DUAL VCO CIRCUITRY TO CONTROL VCO OUTPUT FREQUENCY.

0V WITH NARROW 5V UP PULSES AT 6.25KHZ RATE WHEN LOCKED

LOOP FILTER

STEERING LINE (+2.0 TO +8.0 VDC)

SL VOLT

VCO CIRCUITRY

INJECTION FEEDBACK (732.65–751.65MHZ)

1ST LO INJECTION 732.65–751.65MHZ

SUPER FILTER

1ST LO INJECTION AMPLIFIER

1ST LO INJECTION (732.65–751.65MHZ)

TO SHEET 1

INJECTION FEEDBACK

A/D CONVERTER

+14.2V SENSE
SL LEVEL
+10V SENSE
CHANGE FREQ
ANALOG +5V SENSE
REF LEVEL
LOI LOCK
MIXER BIAS
PREAMP BIAS
SL LO2

CLK
MOSI

CSX
SCK
DIN

A/D CONVERTER U2800 ACCEPTS VARIOUS ANALOG SENSE SIGNALS FROM A/D METERING POINTS ON THE RECEIVER BOARD. DESIRED SENSE LINE (AS SELECTED BY STATION CONTROL VIA MOSI DATA) IS CONVERTED TO DIGITAL FORMAT AND SENT SERIALLY TO STATION CONTROL (U2800–PIN 16).

VCO TROUBLESHOOTING

1) Q2201 AND ASSOCIATED CIRCUITRY COMPRISE +8.7V SUPERFILTER. MEASURE VOLTAGE DROP ACROSS R2205 AND CALCULATE CURRENT (SHOULD BE APPROXIMATELY 45 MA).

2) IF BOARD IS NOT LOCKED, PERFORM FOLLOWING PROCEDURE TO DETERMINE IF VCO CIRCUITRY IS AT FAULT:
A) VERIFY DC VOLTAGES AS SHOWN ON SCHEMATIC.
B) MEASURE POWER AND FREQUENCY AT OUTPUT OF C2219; SHOULD BE APPROXIMATELY +10 DBM INTO 50 OHMS; FREQUENCY SHOULD BE WITHIN RANGE.
C) MEASURE STEERING LINE VOLTAGE AT U2403–PIN 1; IF BOARD IS NOT LOCKED, VOLTAGE WILL BE EITHER 5V OR 9V. VERIFY VCO OUTPUT FREQUENCY BASED ON MEASURED STEERING LINE VOLTAGE.

STEERING LINE VOLTAGE 5V — APPROX. 717 MHZ
STEERING LINE VOLTAGE +9V — APPROX. 782 MHZ

NOTES:
1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN NANOHENRIES.
2. THE OUTPUT OF OPERATIONAL AMPLIFIER U2403D IS CONNECTED TO A PC BOARD RUNNER WHICH ENCIRCLES A CRITICAL PC BOARD RUNNER TO PROVIDE ADDITIONAL ISOLATION BETWEEN THE CRITICAL RUNNER AND GROUND.
3. 10V REGULATOR U2800 IS SOLDERED TO THE CIRCUIT BOARD AND IS HEATSINK MOUNTED TO THE RECEIVER MODULE CHASSIS.
4. C2205 IS A LASER TRIMMED COMPONENT WITH A FINAL VALUE DETERMINED ON A PER BOARD BASIS. THIS COMPONENT IS CONSIDERED NON–REPLACEABLE.

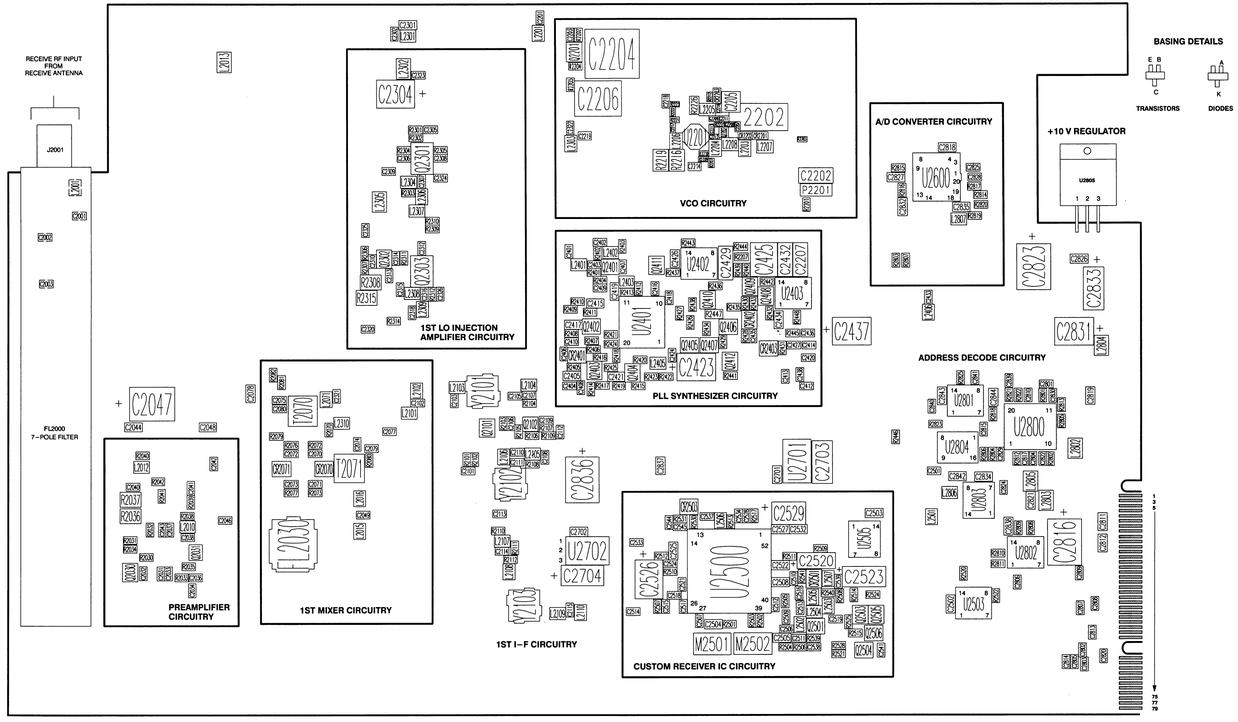
INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U2401	–	CUSTOM PHASE LOCKED LOOP SYNTHESIZER	2	14
U2403	MC74HC4066	QUAD ANALOG MULTIPLEX/DEMULTIPLEXER	14	7
U2403	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	–	11
U2500	n/a	CUSTOM RECEIVER INTEGRATED CIRCUIT	9 (DIGITAL) 21 (ANALOG)	10 (DIGITAL) 22 (ANALOG)
U2503	MC74HC11	TRIPLE 3–INPUT AND GATE	14	7
U2505	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2800	MC145041	11–CHANNEL A/D CONVERTER	20	10
U2701, 2702	MC78D5	+5V VOLTAGE REGULATOR	–	–
U2800	MC74HC244	OCTAL 3–STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U2801	MC74HC11	TRIPLE 3–INPUT AND GATE	14	7
U2802	MC74HC86	QUAD 2–INPUT EXCLUSIVE OR GATE	14	7
U2803	MC74HC32	QUAD 2–INPUT OR GATE	14	7
U2804	MC74HC139	DUAL 1–OF–4 DECODER/DEMULTIPLEXER	16	8
U2805	LM2940	+10V REGULATOR	–	–
U2201	MSA0386	MMIC AMPLIFIER	–	2,4

UNUSED GATES

FLEPS–48691–C (SHEET 2 OF 2)

900 MHz RECEIVER MODULE
MODEL TRF6552H



NOTE:
THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE NUMBERED 1, 3, 5, ETC.. THE SOLDER SIDE CONTACTS ARE NUMBERED 2, 4, 6, ETC.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS−REFERENCE.

PIN	SIGNAL NAME	PIN	SIGNAL NAME
1	GND	2	GND
3	GND	4	GND
5	EXT_SPARE1	6	EXT_SPARE2
7	EXT_SPARE3	8	EXT_SPARE4
9	EXT_SPARE5	10	EXT_SPARE6
11	EXT_SPARE7	12	EXT_SPARE8
13	EXT_SPARE9	14	EXT_SPARE10
15	EXT_SPARE11	16	EXT_SPARE12
17	RX_WB_AUDIO	18	GND
19	GND	20	GND
21	GND	22	+14.2 V INPUT
23	+14.2 V INPUT	24	+14.2 V INPUT
25	+14.2 V INPUT	26	+14.2 V INPUT
27	+5 V INPUT	28	+5 V INPUT
29	+5 V INPUT	30	+5 V INPUT
31	+5 V INPUT	32	+5 V INPUT
33	+5 V INPUT	34	+5 V INPUT
35	GND	36	GND
37	SPI_MISO	38	SPI_MOSI
39	SPI_CLK	40	RESET
41	HDLC_DATA	42	HDLC_BUSY
43	HDLC_CLK	44	TDM_SYNC
45	TDM_DATA	46	TDM_CLOCK
47	SPARE 1	48	SPARE 2
49	SPARE 3	50	SPARE 4
51	SPARE 5	52	SPARE 6
53	A0_CS1	54	A0_CS2
55	P5	56	A5
57	P4	58	A4
59	P3	60	A3
61	P2	62	A2
63	GND	64	GND
65	RX_2.1_REF	66	N/C
67	GND	68	GND
69	N/C	70	N/C
71	GND	72	GND
73	GND	74	AGC_IN
75	ODC	76	SBI
77	DATA	78	DATA*
79	GND	80	GND

ILEPS−68799−B (2 of 2)

parts list

TRF6552H Receiver Module (900 MHz) PL–13079–C

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C2001	2113740G09	1.8 pF, ±0.1 pF; 50 V
C2002	2113740G15	3.3 pF, ±0.1 pF; 50 V
C2003	2113740G13	2.7 pF, ±0.1 pF; 50 V
C2031,2032	2113741A45	0.01 uF, ±5%; 50 V
C2033	2113740A43	39 pF, ±5%; 50 V
C2034	2113740A35	18 pF, ±5%; 50 V
C2035	2113740A19	4.7 pF, ±0.25 pF; 50 V
C2037,2038	2113740A43	39 pF, ±5%; 50 V
C2040	2113740A43	39 pF, ±5%; 50 V
C2041	2113740A17	3.9 pF, ±0.25 pF; 50 V
C2042	2113740G03	1 pF, ±0.1 pF; 50 V
C2043	2113741A45	0.01 uF, ±5%; 50 V
C2044	2113741B69	0.1 uF, ±5%; 50 V
C2046	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2047	2380990M25	100 uF; 25 V
C2048	2113741B69	0.1 uF, ±5%; 50 V
C2049	2113740G03	1 pF, ±0.1 pF; 50 V
C2070 thru 2073	2113741A45	0.01 uF, ±5%; 50 V
C2074	2113740A17	3.9 pF, ±0.25 pF; 50 V
C2075	2113740A43	39 pF, ±5%; 50 V
C2077	2113741A45	0.01 uF, ±5%; 50 V
C2078	2113741B69	0.1 uF, ±5%; 50 V
C2079	2113740A55	100 pF, ±5%; 50 V
C2080	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2101	2113741A45	0.01 uF, ±5%; 50 V
C2102	2113740A27	8.2 pF, ±0.25 pF; 50 V
C2103	2113740A19	4.7 pF, ±0.25 pF; 50 V
C2105	2113740A19	4.7 pF, ±0.25 pF; 50 V
C2106	2113741A45	0.01 uF, ±5%; 50 V
C2107	2113740G05	1.2 pF, ±0.1 pF; 50 V
C2108,2109	2113741A45	0.01 uF, ±5%; 50 V
C2110,2111	2113740A27	8.2 pF, ±0.25 pF; 50 V
C2112	2113741A45	0.01 uF, ±5%; 50 V
C2113	2113740G09	1.8 pF, ±0.1 pF; 50 V
C2114	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2115	2113740G13	2.7 pF, ±0.1 pF; 50 V
C2201	2113741A45	0.01 uF, ±5%; 50 V
C2202	0811017A08	0.01 uF, ±5%; 50 V
C2203	2113741A45	0.01 uF, ±5%; 50 V
C2204	2380990M27	330 uF, ±20%; 16 V
C2205	2113906B03	CAP CER CHIP CLI LSR 2.5/3.5PF
C2206	2380990M38	CAP 100 UF 25V
C2207	2113742R26	CAP CER CHIP 2.7PF ± 0.1PF
C2208	2113742R38	CAP CER CHIP 4.7PF ± 0.1PF
C2209	2113742R42	CAP CER CHIP 5.6PF ± 0.1PF
C2211	2113742R44	CAP CER CHIP 6.8PF ± 0.1PF
C2212	2113740F07	1.5 pF, ±0.1 pF; 50V
C2214	2113741A53	0.022 uF, ±5%; 50 V
C2217	2113740F43	47 pF, ±5%; 50V
C2219	2113740A43	39 pF, ±5%; 50 V
C2301	2113741B69	0.1 uF, ±5%; 50 V
C2302	2113740A43	39 pF, ±5%; 50 V
C2304	2380990M24	10 uF, ±20%; 50 V
C2305	2113740A17	3.9 pF, ±0.25 pF; 50 V
C2306	2113740A79	1000 pF, ±5%; 50 V
C2307	2113740A43	39 pF, ±5%; 50 V
C2308	2113740A79	1000 pF, ±5%; 50 V
C2309	2113740A43	39 pF, ±5%; 50 V
C2310	2113741A45	0.01 uF, ±5%; 50 V
C2312	2113740G13	2.7 pF, ±0.1 pF; 50 V
C2313	2113740A43	39 pF, ±5%; 50 V
C2314	2113741A45	0.01 uF, ±5%; 50 V
C2315	2113740A79	1000 pF, ±5%; 50 V
C2316	2113740A29	10 pF, ±5%; 50 V
C2318	2113740G15	3.3 pF, ±0.1 pF; 50 V
C2320	2113740G03	1 pF, ±0.1 pF; 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C2321	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2322	2113740A19	4.7 pF, ±0.25 pF; 50 V
C2323	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2324	2113740G09	1.8 pF, ±0.1 pF; 50 V
C2325	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2326	2113740G09	1.8 pF, ±0.1 pF; 50 V
C2401	2113740G13	2.7 pF, ±0.1 pF; 50 V
C2402,2403	2113740A43	39 pF, ±5%; 50 V
C2404	2113740A19	4.7 pF, ±0.25 pF; 50 V
C2405	2113741A45	0.01 uF, ±5%; 50 V
C2406 thru 2408	2113740A43	39 pF, ±5%; 50 V
C2409	2113740A79	1000 pF, ±5%; 50 V
C2410	2113740A71	470 pF, ±5%; 50 V
C2412 thru 2414	2113740A43	39 pF, ±5%; 50 V
C2415	2113741B69	0.1 uF, ±5%; 50 V
C2416	2113740A43	39 pF, ±5%; 50 V
C2417	2113741B69	0.1 uF, ±5%; 50 V
C2418	2113740A43	39 pF, ±5%; 50 V
C2419	2113741B69	0.1 uF, ±5%; 50 V
C2420	2113740A43	39 pF, ±5%; 50 V
C2421	2113741B69	0.1 uF, ±5%; 50 V
C2423	2380990M24	10 uF, ±20%; 50 V
C2424	2113740A43	39 pF, ±5%; 50 V
C2425	0811051A18	0.68 uF, ±5%; 63 V
C2426	2113741B69	0.1 uF, ±5%; 50 V
C2427	2113740A43	39 pF, ±5%; 50 V
C2429	0811051A11	0.047 uF, ±5%; 63 V
C2432	0811017A08	0.01 uF, ±5%; 50 V
C2433	2113740A43	39 pF, ±5%; 50 V
C2434	2113741B69	0.1 uF, ±5%; 50 V
C2435,2436	2113740A43	39 pF, ±5%; 50 V
C2437	2380990M24	10 uF, ±20%; 50 V
C2438	2113740A43	39 pF, ±5%; 50 V
C2501	2113741A45	0.01 uF, ±5%; 50 V
C2502 thru 2505	2113741B69	0.1 uF, ±5%; 50 V
C2506	2113740A21	5.6 pF, ±0.25 pF; 50 V
C2507	2113741A45	0.01 uF, ±5%; 50 V
C2508	2113741B69	0.1 uF, ±5%; 50 V
C2509	2113740A24	6.8 pF, ±0.25 pF; 50 V
C2510	2113740G11	2.2 pF, ±0.1 pF; 50 V
C2511	2113740A24	6.8 pF, ±0.25 pF; 50 V
C2512	2113741A45	0.01 uF, ±5%; 50 V
C2513	2113740A29	27 pF, ±5%; 50 V
C2514,2515	2113741A45	0.01 uF, ±5%; 50 V
C2516	2113740A42	36 pF, ±5%; 50V
C2517,2518	2113741A45	0.01 uF, ±5%; 50 V
C2519	2113740A79	1000 pF, ±5%; 50 V
C2520	2311049A10	2.2 uF, ±10%; 35 V
C2521	2113741A61	0.047 uF, ±5%; 50 V
C2522	2113741B69	0.1 uF, ±5%; 50 V
C2523	2311049A21	22 uF, ±10%; 20 V
C2524	2113741A57	0.033 uF, ±5%; 50 V
C2525	2113741B69	0.1 uF, ±5%; 50 V
C2526	2380990M24	10 uF, ±20%; 50 V
C2527	2113741B69	0.1 uF, ±5%; 50 V
C2528	2113741A45	0.01 uF, ±5%; 50 V
C2529	2380990M22	4.007 uF, ±20%; 50V
C2532	2113741B69	0.1 uF, ±5%; 50 V
C2533,2534	2113741A45	0.01 uF, ±5%; 50 V
C2537	2113740A71	470 pF, ±5%; 50 V
C2538	2113740A39	27 pF, ±5%; 50 V
C2539	2113740A79	1000 pF, ±5%; 50 V
C2544	2113741A53	0.022 uF, ±5%; 50 V
C2545	2113740A55	100 pF, ±5%; 50 V
C2701,2702	2113741B69	0.1 uF, ±5%; 50 V
C2703,2704	2311049A21	22 uF, ±10%; 20 V
C2801,2802	2113740A33	15 pF, ±5%; 50 V
C2803	2113740A71	470 pF, ±5%; 50 V
C2804,2805	2113740A33	15 pF, ±5%; 50 V
C2806 thru 2809	2113740A55	100 pF, ±5%; 50 V
C2810	2113740A33	15 pF, ±5%; 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C2811,2812	2113741B69	0.1 uF, ±5%; 50 V
C2813 thru 2815	2113740A33	15 pF, ±5%; 50 V
C2816	2380990M25	100 uF; 25 V
C2817	2113740A33	15 pF, ±5%; 50 V
C2818,2819	2113741B69	0.1 uF, ±5%; 50 V
C2820	2113740A55	100 pF, ±5%; 50 V
C2821	2113741B69	0.1 uF, ±5%; 50 V
C2822	2113740A33	15 pF, ±5%; 50 V
C2823	2380990M25	100 uF; 25 V
C2824	2113741A45	0.01 uF, ±5%; 50 V
C2825	2113740A71	470 pF, ±5%; 50 V
C2826,2827	2113741B69	0.1 uF, ±5%; 50 V
C2828	2113740A71	470 pF, ±5%; 50 V
C2829,2830	2113740A33	15 pF, ±5%; 50 V
C2831	2380990M24	10 uF, ±20%; 50 V
C2832	2113741B69	0.1 uF, ±5%; 50 V
C2833	2311049A21	22 uF, ±10%; 20 V
C2834,2835	2113741B69	0.1 uF, ±5%; 50 V
C2836	2380990M25	100 uF; 25 V
C2837,2838	2113741B69	0.1 uF, ±5%; 50 V
C2839,2840	2113740A55	100 pF, ±5%; 50 V
C2841	2113740A75	680 pF, ±5%; 50 V
C2842 thru 2844	2113741B69	0.1 uF, ±5%; 50 V
		diode (see note):
CR2070,2071	4882290T04	Diode; hot carrier
CR2201,2202	4862824C01	DIODE VARACTOR
CR2401	4813825A05	Hot Carrier
CR2402,2403	4813833C10	0.1A, 70 V
CR2501	4813825A01	3V, dual
CR2503	4813825A01	3V, dual
		mechanical:
E2001	1585021U02	Shield: 800 preselector
SH2202	2683380X01	SHIELD, VCO, 800
		filter:
FL2000	9184682T02	FILTER CERAMIC 900MHZ
FL2200	5105279V12	HYBRID 3 POLE STRIPLINE FILTER
M2501,2502	9185128U02	FLTR L–C 450KC LCF– 450
		connector:
J2001	0984393T01	receptacle: UHF
		coil:
L2001	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2010	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2012	2462587N71	1800 nH, ±5%
L2013	2484657R01	ferrite bead
L2015,2016	2462587X41	IND CHIP LO–PRO 10.0 NH 5%
L2071	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2101	2462587X55	IND CHIP LO–PRO 150 NH 5%
L2102	2462587X59	IND CHIP LO–PRO 330 NH 5%
L2103,2104	2462587X68	IND CHIP LO–PRO 1.000 NH 5%
L2105	2462587N71	1800 nH, ±5%
L2106	2462587X64	IND CHIP LO–PRO 680 NH 5%
L2107,2108	2462587X68	IND CHIP LO–PRO 1.000 NH 5%
L2109	2462587X59	IND CHIP LO–PRO 330 NH 5%
L2110	2462587X68	IND CHIP LO–PRO 1.000 NH 5%
L2201	2484657R01	ferrite bead
L2202	9182223D02	RESONATOR-COAX CERAMIC
L2203	2462587X44	IND CHIP LO–PRO 18.0 NH 5%
L2204 thru 2208	2462587X55	IND CHIP LO–PRO 150 NH 5%
L2301	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2302	2484657R01	ferrite bead
L2303	2462587X48	IND CHIP LO–PRO 39.0 NH 5%
L2304	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2305	2484657R01	ferrite bead
L2306	2462587R16	4.7 nH, ±5%
L2307	2462587X41	IND CHIP LO–PRO 10.0 NH 5%
L2308	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2309,2310	2462587R17	Chip; indictor; 8.2 NH 5%
L2401	2462587R16	4.7 nH, ±5%

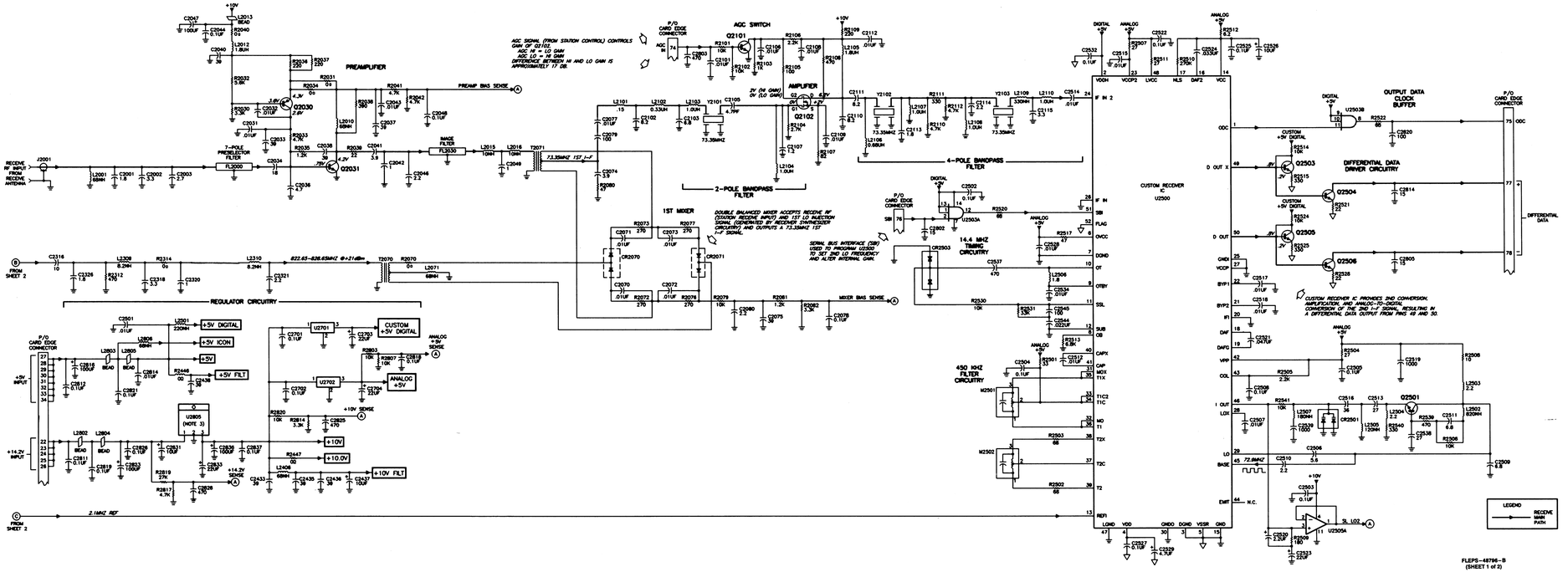
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
L2402	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2403	2462587X41	IND CHIP LO–PRO 10.0 NH 5%
L2405,2406	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2501	2462587X57	CHIP IND lopro 220 NH 5%
L2502	2413923A17	IND CHIP 820 NH 2%
L2503,2504	2462587N72	2200 NH, ±5%
L2505	2413923A05	IND CHIP 120 NH 2%
L2506	2462587N71	1800 nH, ±5%
L2507	2413923A07	IND CHIP 180 NH 2%
L2802 thru 2805	2484657R01	ferrite bead
L2806	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L2807	2462587N71	1800 nH, ±5%
		transistor (see note):
Q2030	4813824A17	PNP
Q2031	4813827A15	NPN
Q2101	4813824A10	NPN
Q2102	4885228U05	TSTR GAAS DL GATE MESFET_U73_
Q2201	4813824A10	NPN
Q2202	4885228U03	TSTR NPN 6V 30UA 12GHZ NE68519
Q2301	4813827A26	Transistor; NPN
Q2302	4813824A17	PNP
Q2303	4813827A26	Transistor; NPN
Q2401	4813827A03	NPN
Q2402,2403	4813824A10	NPN
Q2404	4813824A17	PNP
Q2405 thru 2408	4813824A10	NPN
Q2409	4813824A17	PNP
Q2410	4813824A10	NPN
Q2411	4813824A17	PNP
Q2412	4813824A10	NPN
Q2501	4813827A03	NPN
Q2503 thru 2506	4813824A10	NPN
		resistor, fixed:
R2030	0611079A86	3300 ohms, ±5%; 1/10 W
R2031	0611079A01	O ohms, ±5%; 1/10 W
R2032	0611079A92	5600 ohms, ±5%; 1/10 W
R2033	0611079A90	4700 ohms, ±5%; 1/10 W
R2034	0611079A01	O ohms, ±5%; 1/10 W
R2035	0611079A76	1.2K, ±5%; 1/10 W
R2036,2037	0611072A33	220 ohms, ±5%; 1/4 W
R2038	0611079A64	390 ohms, ±5%; 1/10 W
R2039	0611079A34	22 ohms, ±5%; 1/10 W
R2040	0611079A01	O ohms, ±5%; 1/10 W
R2041,2042	0611079A90	4700 ohms, ±5%; 1/10 W
R2070	0611079A01	O ohms, ±5%; 1/10 W
R2072,2073	0611079A80	270 ohms, ±5%; 1/10 W
R2076,2077	0611079A80	270 ohms, ±5%; 1/10 W
R2079	0611079A98	10K, ±5%; 1/10 W
R2080	0611079A55	180 ohms, ±5%; 1/10 W
R2081	0611079A76	1.2K, ±5%; 1/10 W
R2082	0611079A86	3300 ohms, ±5%; 1/10 W
R2101,2102	0611079A98	10K, ±5%; 1/10 W
R2103	0611079A74	1K, ±5%; 1/10 W
R2104	0611079A84	2700 ohms, ±5%; 1/10 W
R2105	0611079A55	180 ohms, ±5%; 1/10 W
R2106	0611079A82	2200 ohms, ±5%; 1/10 W
R2107	0611079A48	82 ohms, ±5%; 1/10 W
R2108	0611079A66	470 ohms, ±5%; 1/10 W
R2109	0611079A58	220 ohms, ±5%; 1/10 W
R2110	0611079A90	4700 ohms, ±5%; 1/10 W
R2111	0611079A62	330 ohms, ±5%; 1/10 W
R2112	0611079A90	4700 ohms, ±5%; 1/10 W
R2201	0611079A01	O ohms, ±5%; 1/10 W
R2202	0611079A50	100 ohms, ±5%; 1/10 W
R2203	0662057A01	CHIP RES 10 OHMS 5%
R2204	0611079A26	10 ohms, ±5%; 1/10 W
R2205	0611079A30	5.6 ohm, ±5%; 1/10 W
R2207	0662057A61	CHIP RES 3300 OHMS 5%
R2209	0662057A65	CHIP RES 4700 OHMS 5%
R2210	0662057A47	CHIP RES O OHMS +– .050 OHMS

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R2216	0611072A35	270 ohms, ±5%; 1/4W
R2219	0611072A37	330 1/4 W
R2221	0662057A37	CHIP RES 330 OHMS 5%
R2222	0662057A05	CHIP RES 15 OHMS 5%
R2223	0662057A37	CHIP RES 330 OHMS 5%
R2226	0611077A59	240 ohms, ±5%; 1/8 W
R2227	0662057A15	CHIP RES 39 OHMS 5%
R2301	0611079A66	470 ohms, ±5%; 1/10 W
R2302	0611079A72	820 ohms, ±5%; 1/10 W
R2303	0611079A55	180 ohms, ±5%; 1/10 W
R2304,2305	0611079A52	120 ohms, ±5%; 1/10 W
R2306	0611079A82	2200 ohms, ±5%; 1/10 W
R2307	0611072A21	1K, ±5%; 1/4 W
R2308	0611072A21	68 ohms, ±5%; 1/4W
R2309	0611079A42	47 ohms, ±5%; 1/10 W
R2310	0611079A66	470 ohms, ±5%; 1/10 W
R2311	0611079A72	820 ohms, ±5%; 1/10 W
R2312	0611079A66	470 ohms, ±5%; 1/10 W
R2314	0611079A66	470 ohms, ±5%; 1/10 W
R2315	0611072A21	68 ohms, ±5%; 1/4W
R2401	0611079A92	5600 ohms, ±5%; 1/10 W
R2402	0611079A88	3900 ohms, ±5%; 1/10 W
R2403	0611079A80	270 ohms, ±5%; 1/10 W
R2404 thru 2406	0611079A82	2200 ohms, ±5%; 1/10 W
R2407	0611079A74	1K, ±5%; 1/10 W
R2408	0611079B15	47K, ±5%; 1/10 W
R2409	0611079A72	820 ohms, ±5%; 1/10 W
R2410	0611079A50	100 ohms, ±5%; 1/10 W
R2411	0611079A36	27 ohms, ±5%; 1/10 W
R2412	0611079A38	33 ohms, ±5%; 1/10 W
R2413	0611079A04	150 ohms, ±5%; 1/10 W
R2414	0611079A01	O ohms, ±5%; 1/10 W
R2415	0611079A92	5600 ohms, ±5%; 1/10 W
R2416,2417	0611079B15	47K, ±5%; 1/10 W
R2418 thru 2421	0611079A98	10K, ±5%; 1/10 W
R2422	0611079A01	O ohms, ±5%; 1/10 W
R2423	0611079A92	5600 ohms, ±5%; 1/10 W
R2424	0611079A98	10K, ±5%; 1/10 W
R2425	0611079A01	O ohms, ±5%; 1/10 W
R2426	0611079A82	2200 ohms, ±5%; 1/10 W
R2428,2429	0611079A82	2200 ohms, ±5%; 1/10 W
R2430,2431	0611079A58	220 ohms, ±5%; 1/10 W
R2432,2433	0611079B07	22K, ±5%; 1/10 W
R2434,2435	0611079A18	4.7 ohms, ±5%; 1/10 W
R2436	0611079A98	10K, ±5%; 1/10 W
R2437	0611079A86	3300 ohms, ±5%; 1/10 W
R2438	0611079A98	10K, ±5%; 1/10 W
R2439	0611079A74	1K, ±5%; 1/10 W
R2440	0611079B23	100K, ±5%; 1/10 W
R2441 thru 2445	0611079A62	330 ohms, ±5%; 1/10 W
R2446	0611079A01	O ohms, ±5%; 1/10 W
R2447	0611077A01	O ohm, ±5%; 0 W
R2448	0611079A98	10K, ±5%; 1/10 W
R2501	0611079A38	33 ohms, ±5%; 1/10 W
R2502,2503	0611079A46	68 ohms, ±5%; 1/10 W
R2504	0611079A50	100 ohms, ±5%; 1/10 W
R2505	0611079A82	2200 ohms, ±5%; 1/10 W
R2506	0611079A98	10K, ±5%; 1/10 W
R2507	0611079A66	470 ohms, ±5%; 1/10 W
R2508	0611079A26	10 ohms, ±5%; 1/10 W
R2509	0611079A56	180 ohms, ±5%; 1/10 W
R2510	0611079B33	270K, ±5%; 1/10 W
R2511	0611079A36	27 ohms, ±5%; 1/10 W
R2512	0611079A21	6.2 ohms, ±5%; 1/10 W
R2513	0611079A94	6800 ohms, ±5%; 1/10 W
R2514	0611079A98	10K, ±5%; 1/10 W
R2515	0611079A62	330 ohms, ±5%; 1/10 W
R2517	0611079A42	47 ohms, ±5%; 1/10 W
R2520	0611079A46	68 ohms, ±5%; 1/10 W
R2521	0611079A34	22 ohms, ±5%; 1/10 W
R2522	0611079A46	68 ohms, ±5%; 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R2524	0611079A98	10K, ±5%; 1/10 W
R2525	0611079A62	330 ohms, ±5%; 1/10 W
R2526	0611079A34	22 ohms, ±5%; 1/10 W
R2530	0611079A98	10K, ±5%; 1/10 W
R2531	0611079B11	33K, ±5%; 1/10 W
R2539	0611079A66	470 ohms, ±5%; 1/10 W
R2540	0611079A62	330 ohms, ±5%; 1/10 W
R2541	0611079A98	10K, ±5%; 1/10 W
R2801	0611079A98	10K, ±5%; 1/10 W
R2802	0611079A70	680 ohms, ±5%; 1/10 W
R2803	0611079A98	10K, ±5%; 1/10 W
R2804	0611079A66	470 ohms, ±5%; 1/10 W
R2805	0611079A42	47 ohms, ±5%; 1/10 W
R2806	0611079A66	470 ohms, ±5%; 1/10 W
R2807 thru 2811	0611079A98	10K, ±5%; 1/10 W
R2812	0611079A70	680 ohms, ±5%; 1/10 W
R2813	0611079A98	10K, ±5%; 1/10 W
R2814	0611079A86	3300 ohms, ±5%; 1/10 W
R2815	0611079A90	4700 ohms, ±5%; 1/10 W
R2816	0611079A76	1.2K, ±5%; 1/10 W
R2817	0611079A90	4700 ohms, ±5%; 1/10 W
R2818	0611079A98	10K, ±5%; 1/10 W
R2819	0611079B09	27K, ±5%; 1/10 W
R2820	0611079A98	10K, ±5%; 1/10 W
R2821	0611079A42	47 ohms, ±5%; 1/10 W
R2822	0611079A98	10K, ±5%; 1/10 W
R2823	0611079A42	47 ohms, ±5%; 1/10 W
R2825	0611079A42	47 ohms, ±5%; 1/10 W
		transformer:
T2070,2071	2584600T01	Balun; RF
		integrated circuit (see note):
U2201	4882347W01	silicon
U2401	5184602T04	IC SYNTHOR SPEED SCRND
U2402	5113606A96	Quad Analog Multiplexer/Demultiplexer
U2403	5113819A08	Low Power
U2500	5184523T08	IC ABACUS JEDEC 52QFP
U2503	5113606A08	Triple 2–Input AND Gate
U2505	5113819A02	Low Power Differential Input
U2600	5182374T01	IC; 8–bit
U2701,2702	5113818A07	5 –Volt Postive Regulator
U2800	5113606A54	Octal Buffer Line Driver/Receiver
U2801	5113606A08	Triple 2–Input AND Gate
U2802	5113606A22	Quad 2–Input Exclusive OR Gate
U2803	5113606A13	Quad 2–Input OR Gate
U2804	5113606A22	Dual 1 of 4 Decoder/Demultiplexer
U2805	5182276R82	Regulator, LO Voltage Dropout
		crystal:
Y2101	9184784T04	FILTER; 73.35 MHz HIGH IM
Y2102,2103	9184784T06	FILTER; 73.35 MHz 2–POLE
		non–referenced items:
	1584753T02	Housing (used with E2030)
	1584753T02	Housing (used with E2501)
	1584753T03	Housing, Coral; large (used with E2070)
	1584753T03	Housing, Coral; large (used with E2401)
	1584753T03	Housing, Coral; large (used with E2501)
	1584753T05	Housing, Coral; large (used with E2201)
	1584753T05	Housing, Coral; large (used with E2301)
	1585034U03	COVER, Shield (used with E2030)
	1585034U04	COVER, Shield, large (used with E2070)
	1585034U04	COVER, Shield, large (used with E2401)
	1585034U04	COVER, Shield, large (used with E2501)
	1585034U09	Cover, large (used with E2201)
	1585034U09	Cover, large (used with E2301)
	5482006W01	Label, PCB barcode
	8484747T10	CKT BOARD

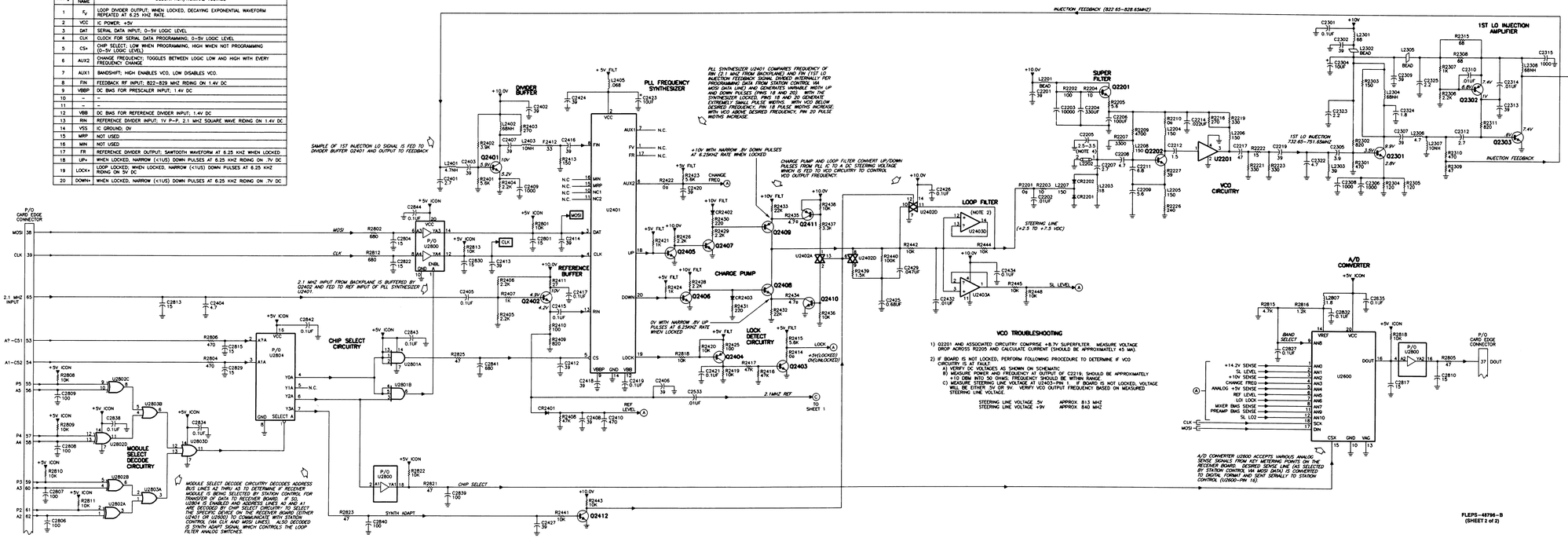
note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

900 MHz RECEIVER MODULE
MODEL TRF6552H



U2401 PINOUT INFORMATION

PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	f_V	LOOP DIVIDER OUTPUT; WHEN LOCKED, DECAYING EXPONENTIAL WAVEFORM REPEATED AT 6.25 KHZ RATE.
2	VCC	IC POWER: +5V
3	DAT	SERIAL DATA INPUT; 0–5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING; 0–5V LOGIC LEVEL
5	CS+	CHIP SELECT: LOW WHEN PROGRAMMING, HIGH WHEN NOT PROGRAMMING (0–5V LOGIC LEVEL)
6	AUX2	CHANGE FREQUENCY; TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	BANDSHIFT; HIGH ENABLES VCO, LOW DISABLES VCO.
8	FIN	FEEDBACK RF INPUT; 822–829 MHZ RIDING ON 1.4V DC
9	VBBP	DC BIAS FOR PRESCALER INPUT; 1.4V DC
10	–	–
11	–	–
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT; 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 1V P–P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	VSS	IC GROUND, 0V
15	MRP	NOT USED
16	MIN	NOT USED
17	FR	REFERENCE DIVIDER OUTPUT; SAWTOOTH WAVEFORM AT 6.25 KHZ WHEN LOCKED
18	UP+	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON .7V DC
19	LOCK+	LOOP LOCKED; WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON 5V DC
20	DOWN+	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON .7V DC



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. THE OUTPUT OF OPERATIONAL AMPLIFIER U24030 IS CONNECTED TO A PC BOARD RUNNER WHICH ENCIRCLES A CRITICAL PC BOARD RUNNER TO PROVIDE ADDITIONAL ISOLATION BETWEEN THE CRITICAL RUNNER AND GROUND.
3. 10V REGULATOR U2805 IS HEATSINK MOUNTED TO THE RECEIVER MODULE CHASSIS.
4. C2205 IS A LASER TRIMMED COMPONENT WITH A FINAL VALUE DETERMINED ON A PER BOARD BASIS. THIS COMPONENT IS CONSIDERED NON–REPLACEABLE.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

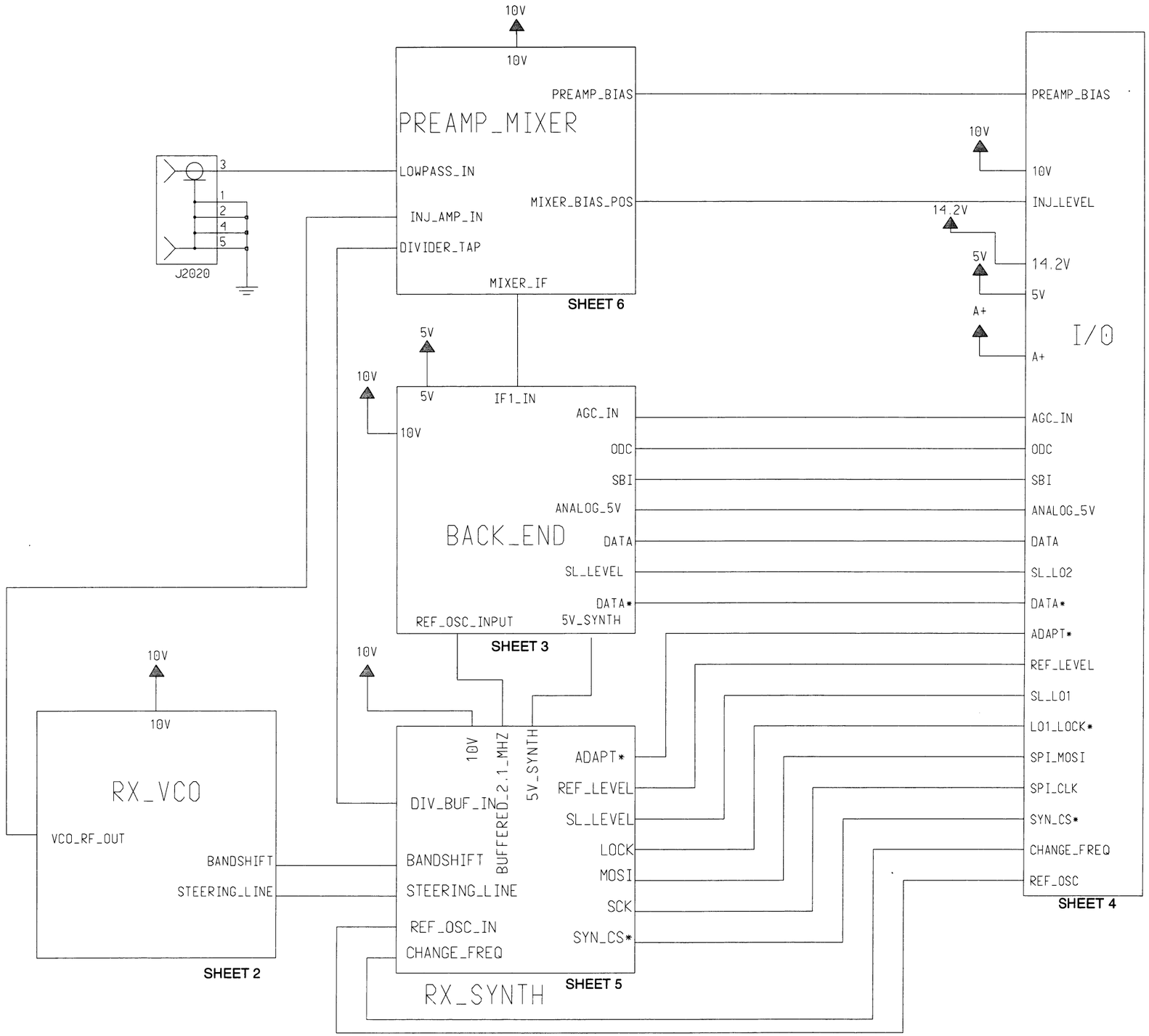
REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U2401	–	CUSTOM PHASE LOCKED LOOP SYNTHESIZER	2	14
U2402	MC74HC4066	QUAD ANALOG MULTIPLEX/DEMULTIPLEXER	14	7
U2403	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2500	n/a	CUSTOM RECEIVER INTEGRATED CIRCUIT	2 (DIGITAL) 14,23 (ANALOG)	3 (DIGITAL) 5, 15, 30, 47 (ANALOG)
U2503	MC74HC11	TRIPLE 3–INPUT AND GATE	14	7
U2505	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U2800	MC145041	11–CHANNEL A/D CONVERTER	20	10,13
U2701, 2702	MC78L05	+5V VOLTAGE REGULATOR	–	–
U2800	MC74HC244	OCTAL 3–STATE NONINVERTING BUFFER/LINE DRIVER	20	10
U2801	MC74HC11	TRIPLE 3–INPUT AND GATE	14	7
U2802	MC74HC86	QUAD 2–INPUT EXCLUSIVE OR GATE	14	7
U2803	MC74HC32	QUAD 2–INPUT OR GATE	14	7
U2804	MC74HC139	DUAL 1–OF–4 DECODER/DEMULTIPLEXER	16	8
U2805	LM2940	+10V REGULATOR	–	–

UNUSED GATES

FLEPS–48796–B
(SHEET 2 of 2)

RANGE 0 RECEIVER

MODEL CRX4022B

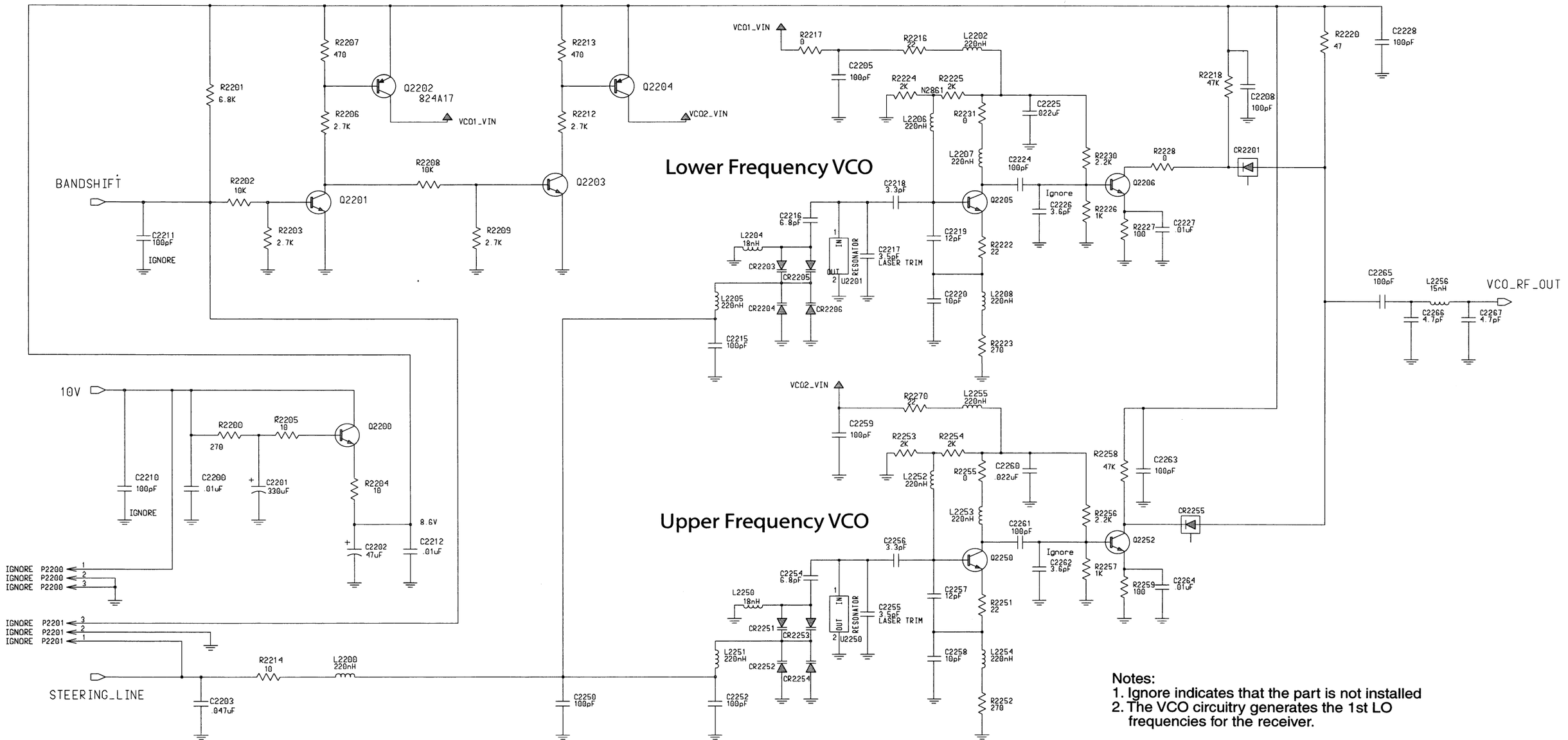


OVERALL BLOCK DIAGRAM

RANGE 0 RECEIVER

MODEL CRX4022B

VCO Select Switch

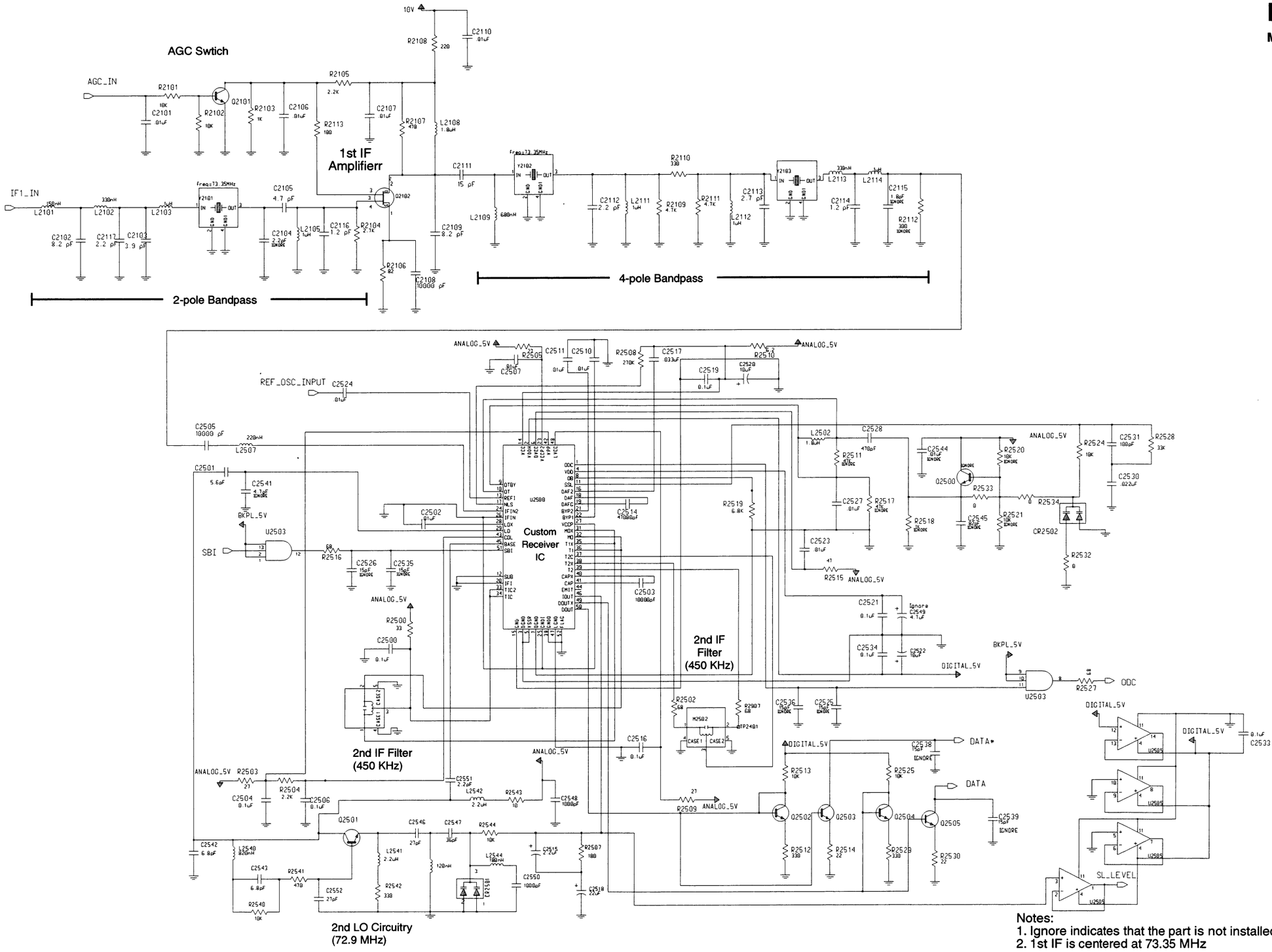


Notes:
1. Ignore indicates that the part is not installed
2. The VCO circuitry generates the 1st LO frequencies for the receiver.

RECEIVER VOLTAGE-CONTROLLED OSCILLATOR (VCO)

RANGE 0 RECEIVER

MODEL CRX4022B

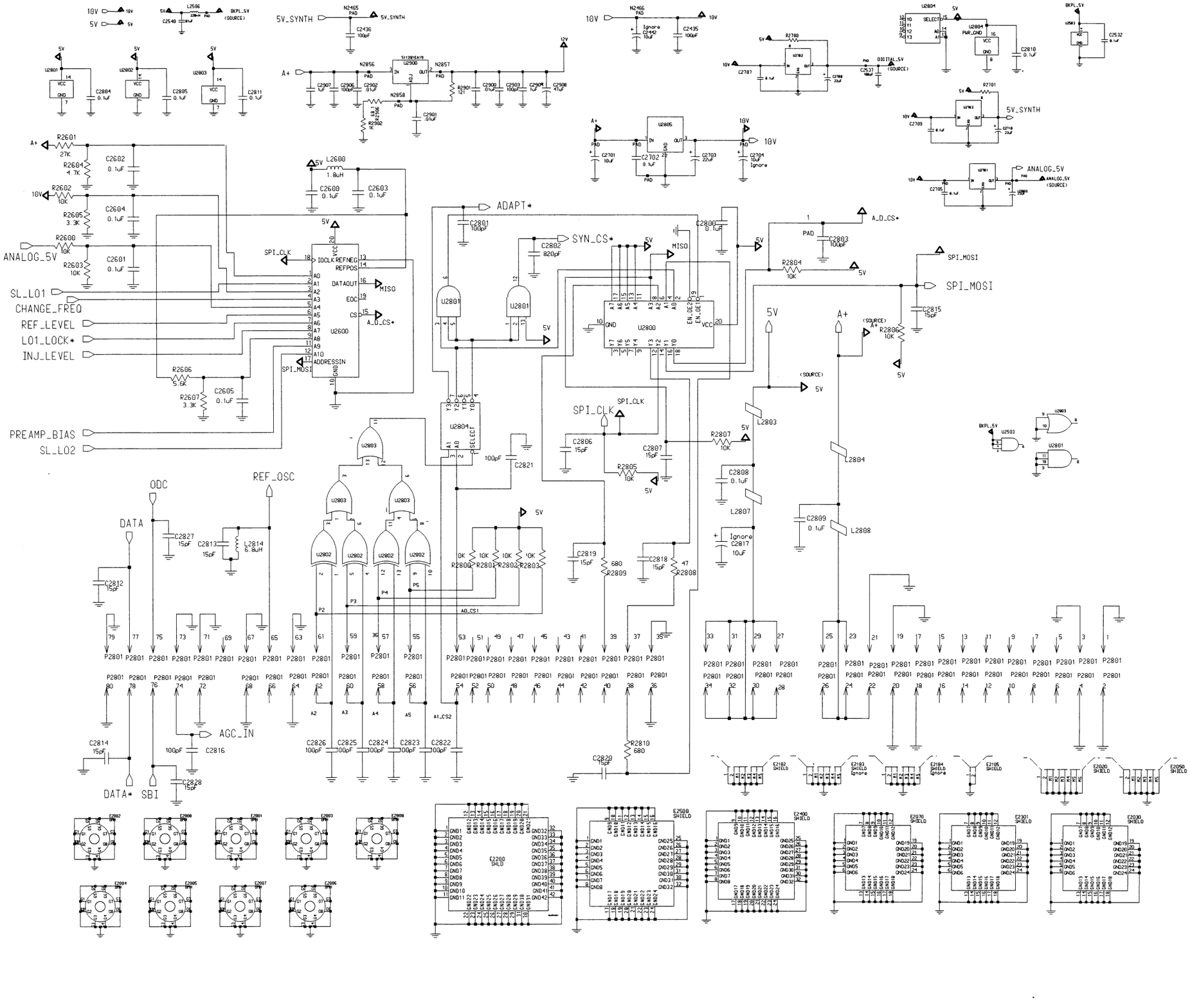


Notes:
1. Ignore indicates that the part is not installed
2. 1st IF is centered at 73.35 MHz

RECEIVER BACK END

RANGE 0 RECEIVER

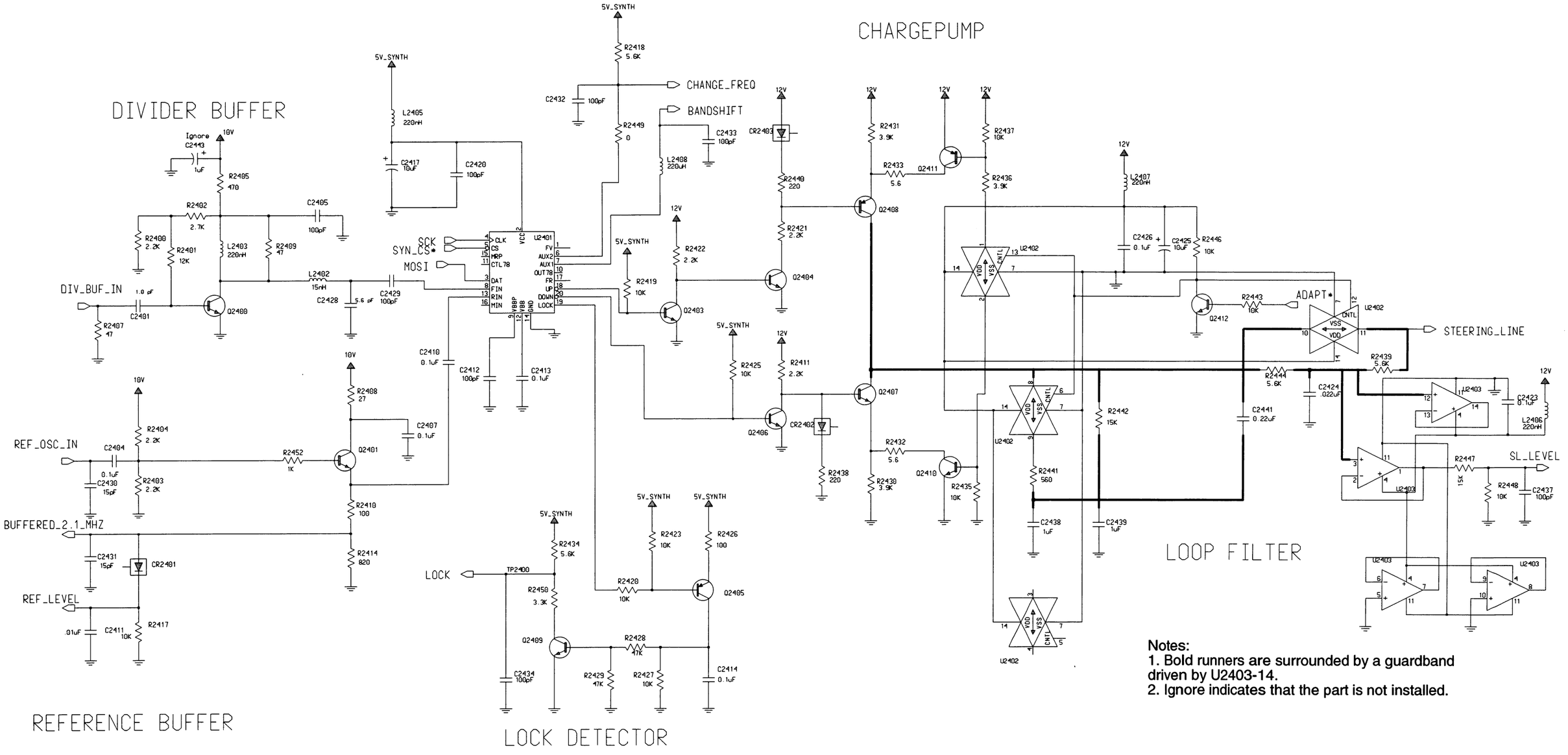
MODEL CRX4022B



RECEIVER INTERCONNECT

RANGE 0 RECEIVER

MODEL CRX4022B

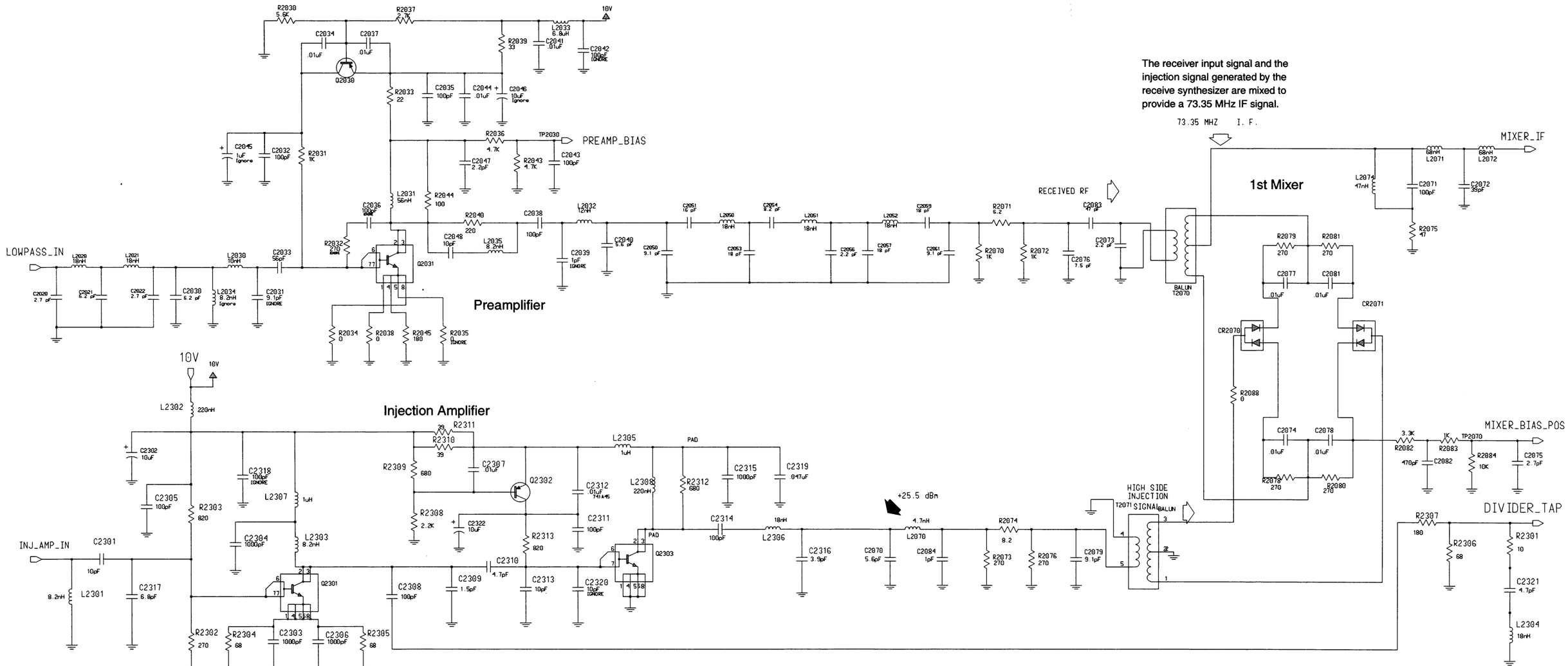


Notes:
1. Bold runners are surrounded by a guardband driven by U2403-14.
2. Ignore indicates that the part is not installed.

RANGE 0 RECEIVER

MODEL CRX4022B

The receiver input signal and the injection signal generated by the receive synthesizer are mixed to provide a 73.35 MHz IF signal.



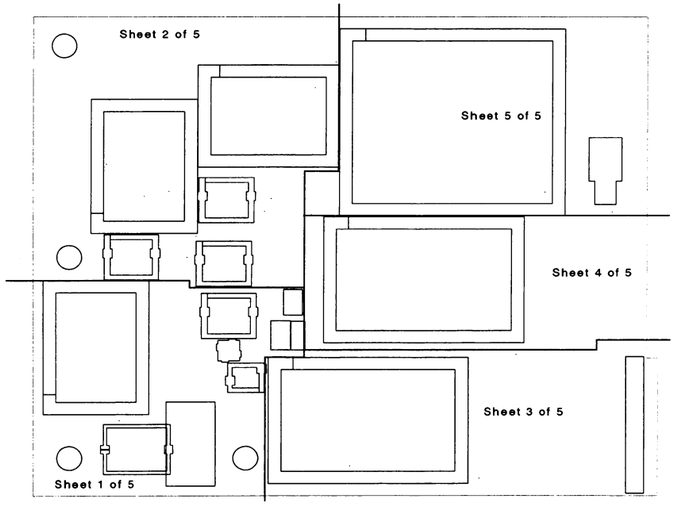
Notes:
1. Ignore indicates that the part is not installed.

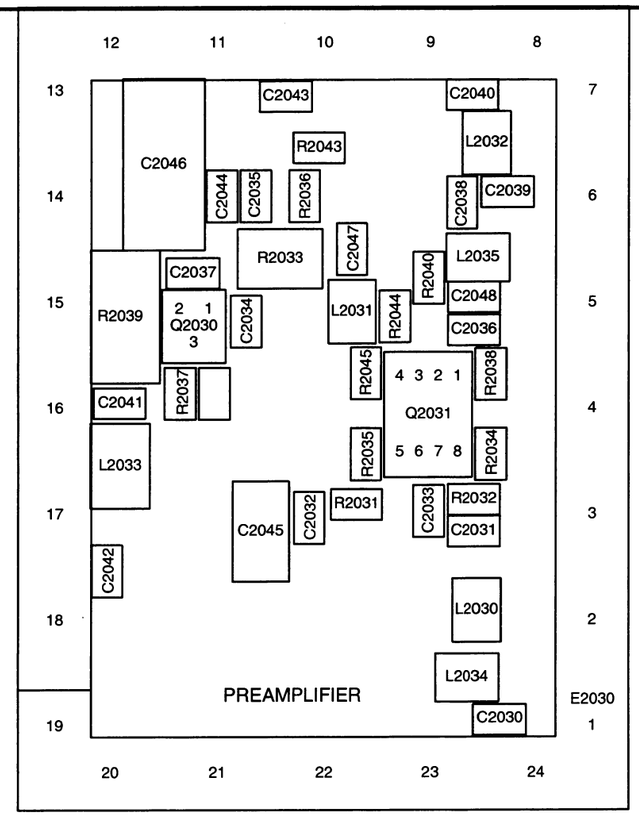
RECEIVER FRONT END

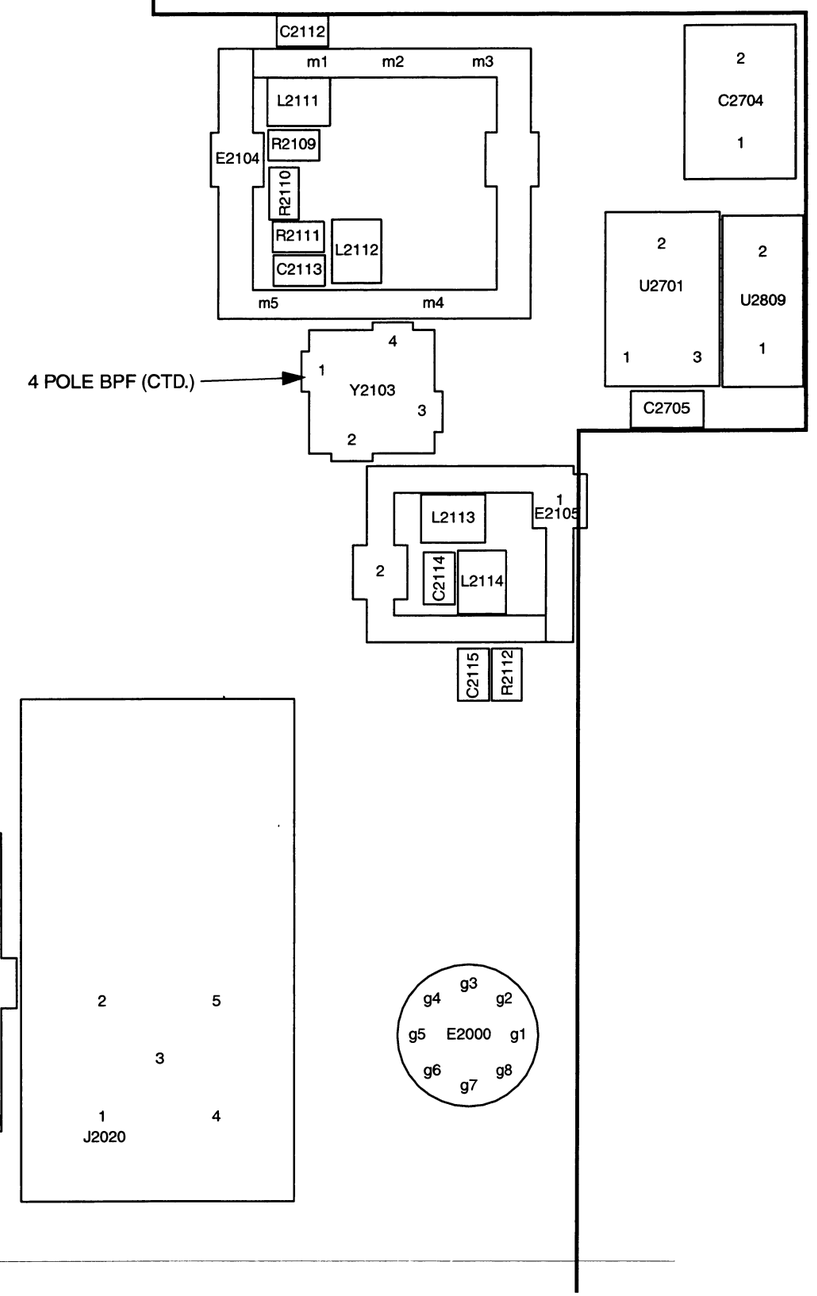
RANGE 0 RECEIVER

MODEL CRX4022B

Top Side Components View







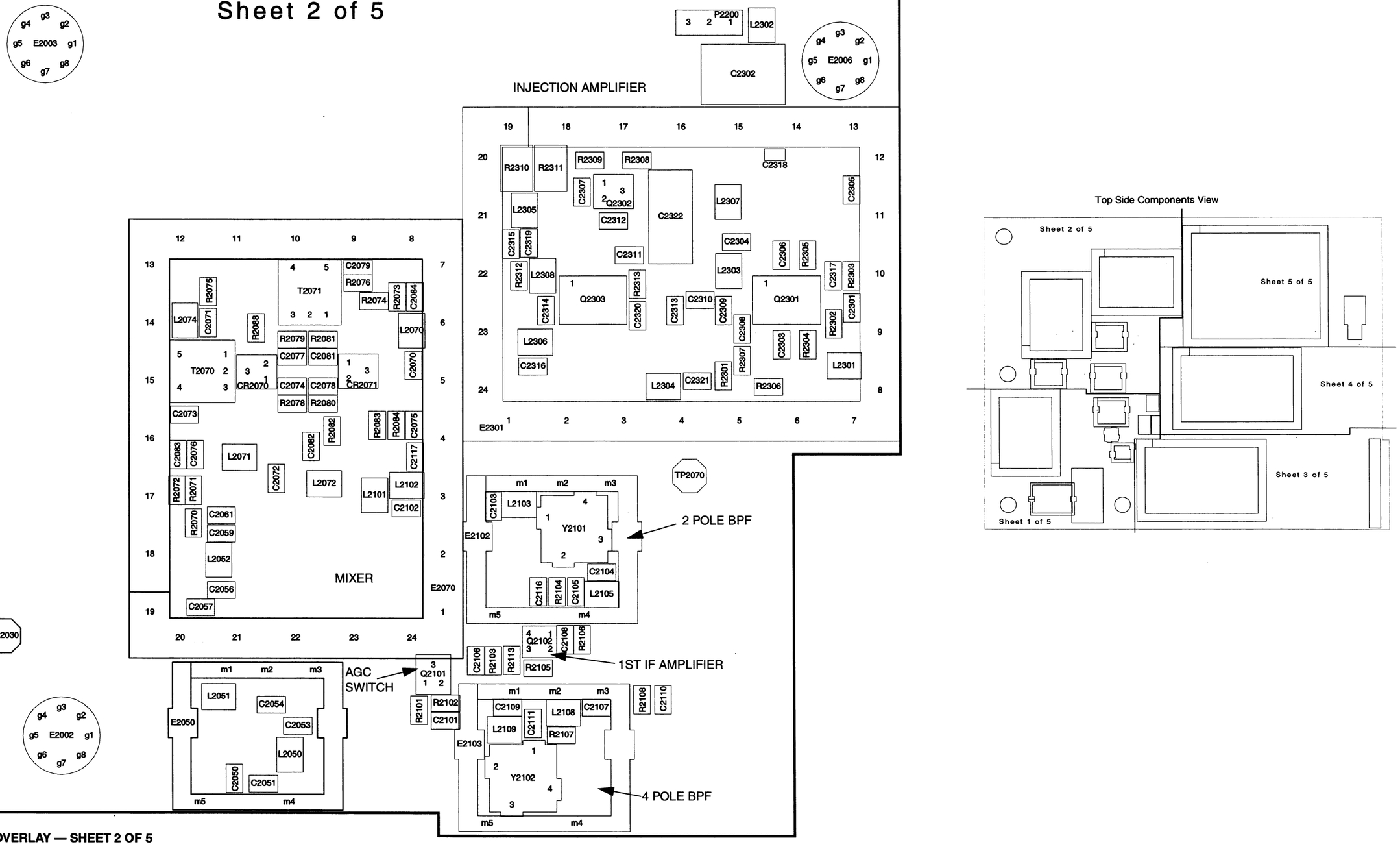
Sheet 1 of 5

UHF RANGE 0 RECEIVER OVERLAY — SHEET 1 OF 5

RANGE 0 RECEIVER

MODEL CRX4022B

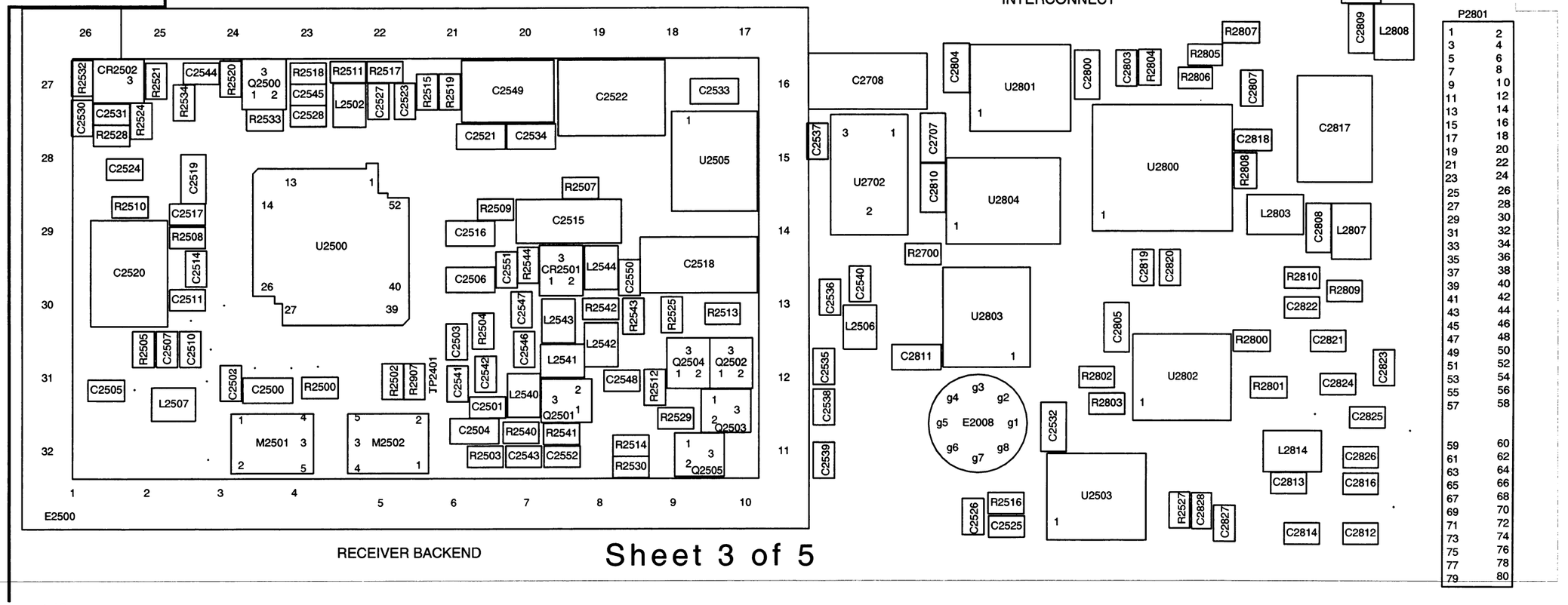
Sheet 2 of 5



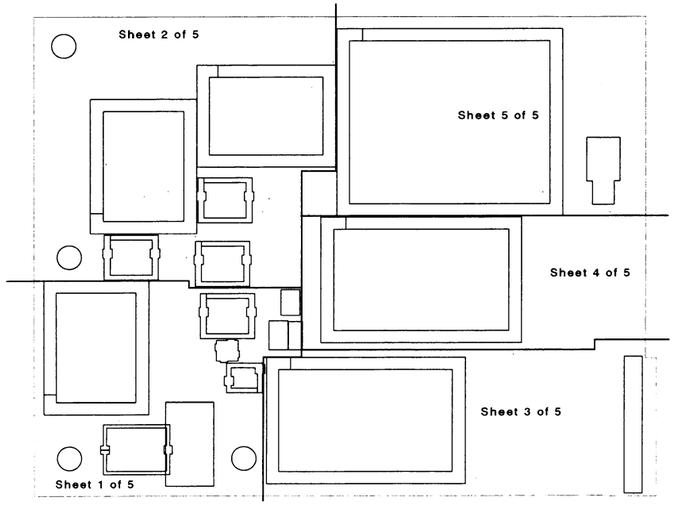
UHF RANGE 0 RECEIVER OVERLAY — SHEET 2 OF 5

RANGE 0 RECEIVER

MODEL CRX4022B



Top Side Components View

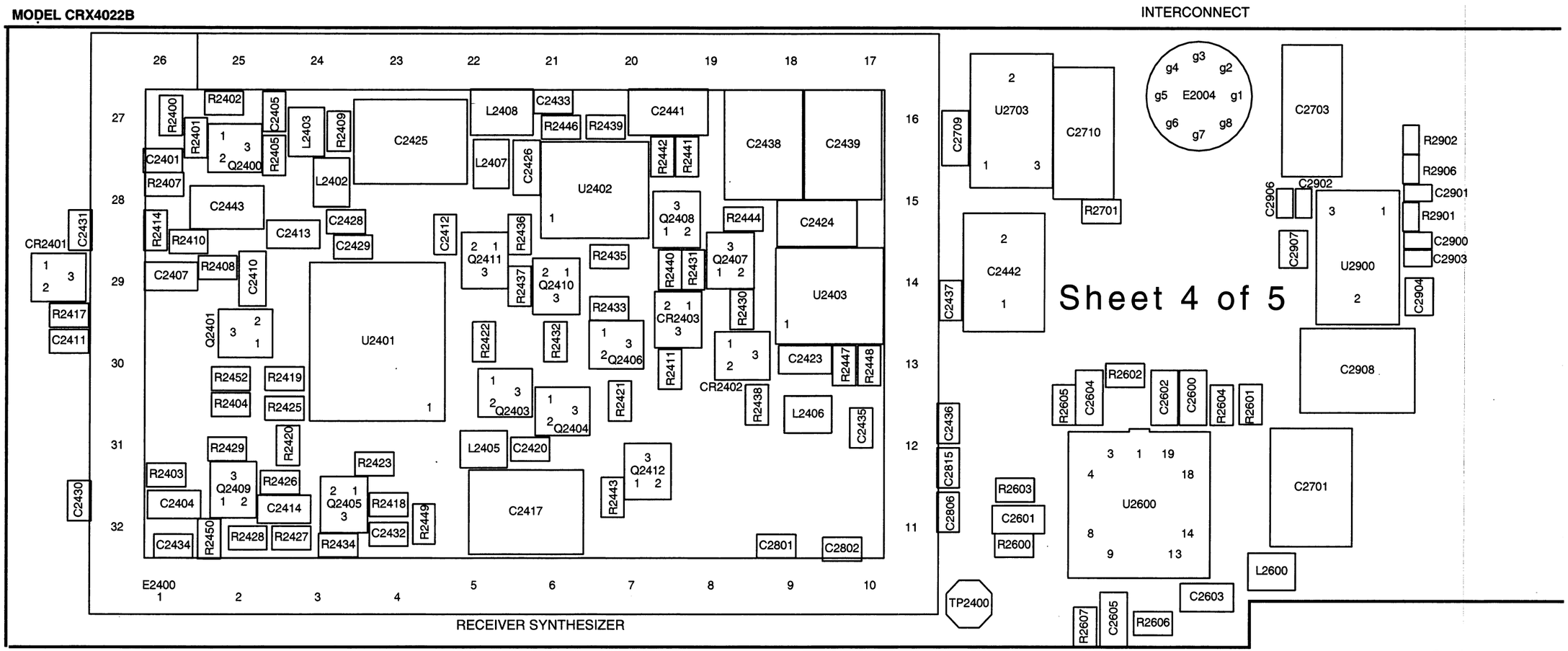


UHF RANGE 0 RECEIVER OVERLAY — SHEET 3 OF 5

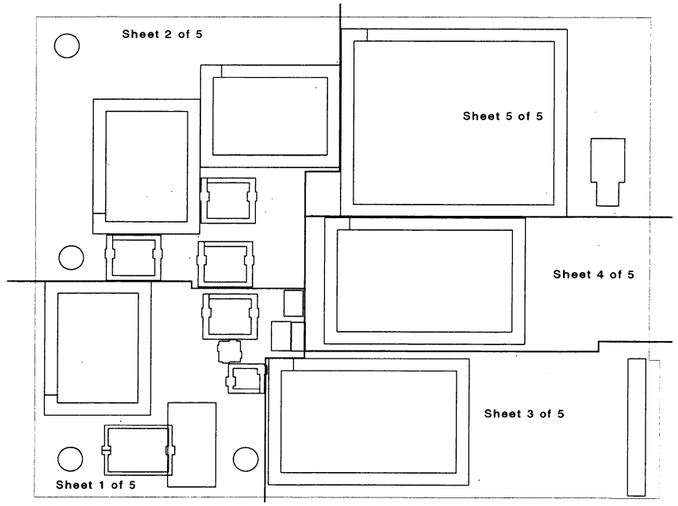
RANGE 0 RECEIVER

MODEL CRX4022B

INTERCONNECT



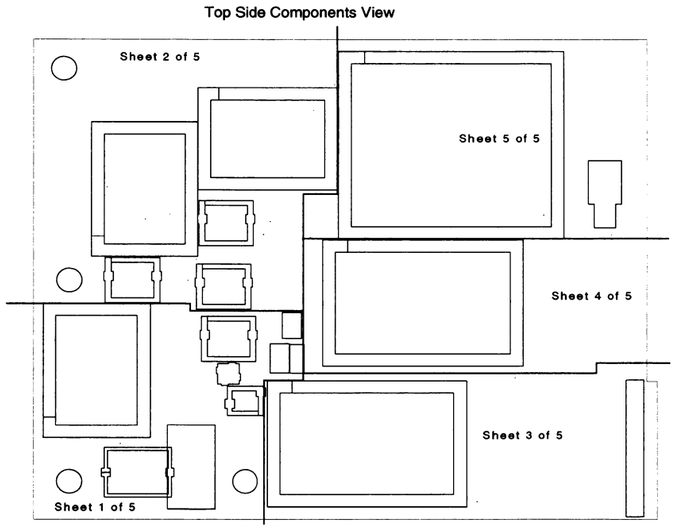
Top Side Components View

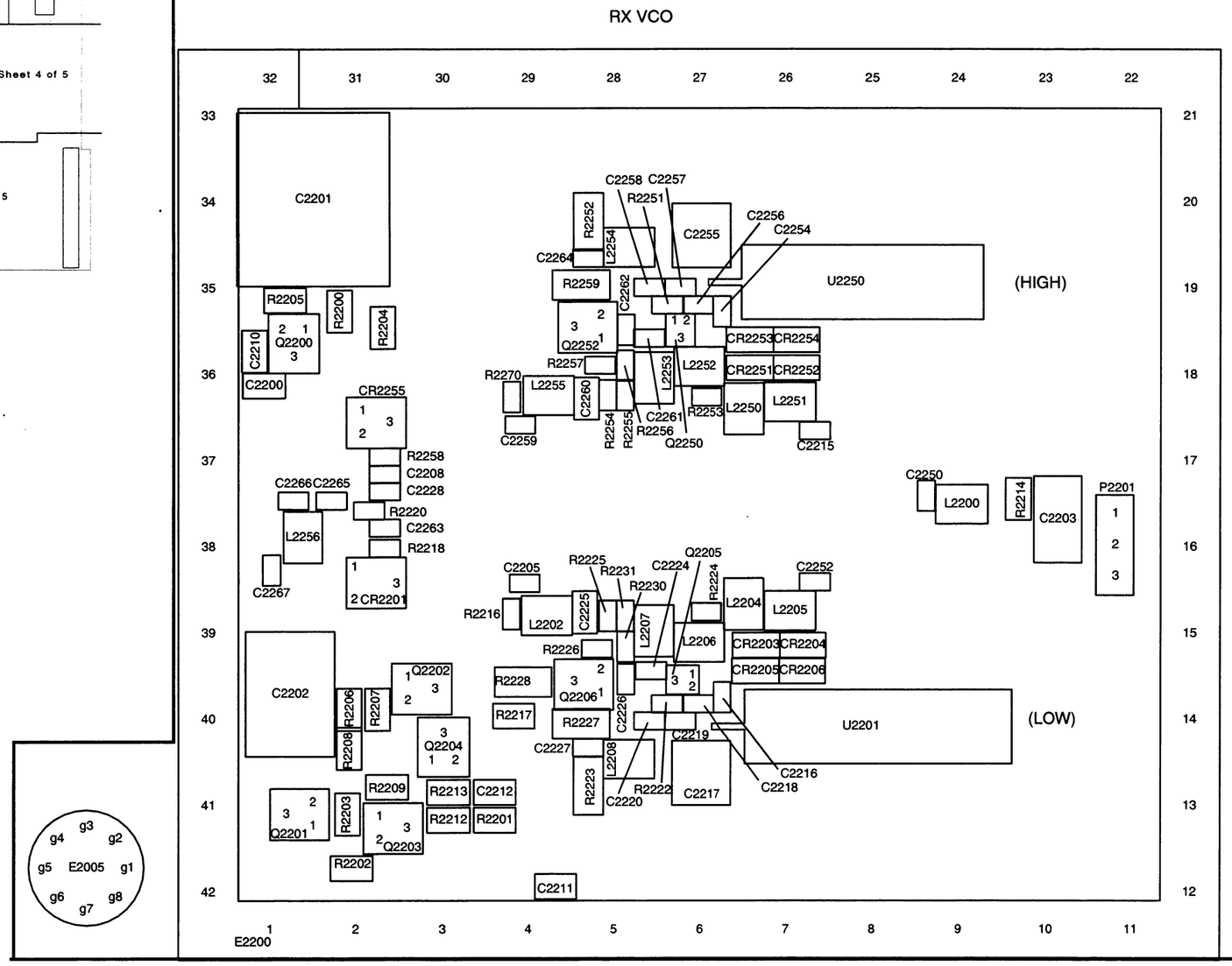


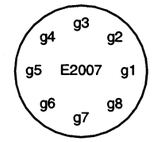
UHF RANGE 0 RECEIVER OVERLAY – SHEET 4 OF 5

RANGE 0 RECEIVER

MODEL CRX4022B







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UHF RANGE 0 RECEIVER OVERLAY

Parts List
CRX4022B Range 0 Receiver

Reference	Part Number	Description
		capacitor, fixed:
C2020	2113740G13	CAP CERAMIC CHIP 2.7 PF +-.1PF
C2021	2113740A23	CAP CHIP REEL CL1 +/-30 6.2
C2022	2113740G13	CAP CERAMIC CHIP 2.7 PF +-.1PF
C2030	2113740A23	CAP CHIP REEL CL1 +/-30 6.2
C2032	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2033	2113740A49	CAP CHIP REEL CL1 +/-30 56
C2034	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2035	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2037	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2038	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2040	2113740A21	CAP CHIP REEL CL1 +/-30 5.6
C2041	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2043	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2044	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2047	2113740A11	CAP CHIP REEL CL1 +/-30 2.2
C2048	2113740A29	CAP CHIP REEL CL1 +/-30 10
C2050	2113740G28	CAP CERAMIC CHIP 9.1 PF +-.1PF
C2051	2113740G34	CAP CERAMIC CHIP 16 PF +-2%
C2053	2113740G35	CAP CER CHIP 18PF 2%
C2054	2113740G27	CAP CERAMIC CHIP 8.2 PF +-.1PF
C2056	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C2057	2113740G35	CAP CER CHIP 18PF 2%
C2059	2113740G35	CAP CER CHIP 18PF 2%
C2061	2113740G28	CAP CERAMIC CHIP 9.1 PF +-.1PF
C2070	2113740A21	CAP CHIP REEL CL1 +/-30 5.6
C2071	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2072	2113740A43	CAP CHIP REEL CL1 +/-30 39
C2073	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C2074	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2075	2113740G13	CAP CERAMIC CHIP 2.7 PF +-.1PF
C2076	2113740A25	CAP CHIP REEL CL1 +/-30 7.5
C2077, 2078	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2079	2113740A28	CAP CHIP REEL CL1 +/-30 9.1
C2081	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2082	2113740A71	CAP CHIP REEL CL1 +/-30 470
C2083	2113740A46	CAP CHIP REEL CL1 +/-30 47
C2084	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C2101	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2102	2113740A27	CAP CHIP REEL CL1 +/-30 8.2
C2103	2113740A17	CAP CHIP REEL CL1 +/-30 3.9
C2105	2113740A19	CAP CHIP REEL CL1 +/-30 4.7
C2106	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2107, 2108	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2109	2113740A27	CAP CHIP REEL CL1 +/-30 8.2
C2110	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2111	2113740A33	CAP CHIP REEL CL1 +/-30 15
C2112	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C2113	2113740G13	CAP CERAMIC CHIP 2.7 PF +-.1PF
C2114	2113740G05	CAP CERAMIC CHIP 1.2 PF +-.1PF
C2116	2113740G05	CAP CERAMIC CHIP 1.2 PF +-.1PF
C2117	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C2200	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2201	2380090M27	CAP ALU 330 20 16V
C2202	2380090M07	CAP ALU 47 20 16.0V SURF MT
C2203	0882422W40	CAP FILM 5M 0.047UF 63V 5%
C2205	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2208	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2212	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2215	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2216	2113742K44	CAP CER CHIP 6.8PF +/- 0.1PF
C2217	2113906B07	CAP CER CHIP LSR 3.2/3.8 PF
C2218	2113742K30	CAP CER CHIP 3.3PF +/- 0.1PF
C2219	2113742L11	CAP CER CHIP 12.0PF +/- 2%
C2220	2113742L07	CAP CER CHIP 10.0PF +/- 0.1PF
C2224	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2225	2113741A53	CAP CHIP CL2 X7R REEL 22000
C2227	2113741F49	CAP CHIP CL2 X7R REEL 10000
C2228	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2250	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2252	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2254	2113742K44	CAP CER CHIP 6.8PF +/- 0.1PF
C2255	2113906B07	CAP CER CHIP LSR 3.2/3.8 PF
C2256	2113742K30	CAP CER CHIP 3.3PF +/- 0.1PF
C2257	2113742L11	CAP CER CHIP 12.0PF +/- 2%
C2258	2113742L07	CAP CER CHIP 10.0PF +/- 0.1PF
C2259	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2260	2113741A53	CAP CHIP CL2 X7R REEL 22000
C2261	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2263	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2264	2113741F49	CAP CHIP CL2 X7R REEL 10000
C2265	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2266, 2277	2113740L10	CAP CER CHIP 4.7 PF +-0.1PF
C2301	2113740A29	CAP CHIP REEL CL1 +/-30 10
C2302	2380090M24	CAP ALU 10 20 50V SURF MT
C2303, 2304	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C2305	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2306	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C2307	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2308	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2309	2113740G07	CAP CERAMIC CHIP 1.5 PF +-.1PF
C2310	2113740A19	CAP CHIP REEL CL1 +/-30 4.7
C2311	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2312	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2313	2113740A29	CAP CHIP REEL CL1 +/-30 10
C2314	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2315	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C2316	2113740A17	CAP CHIP REEL CL1 +/-30 3.9
C2317	2113740A24	CAP CHIP REEL CL1 +/-30 6.8
C2319	2113741A61	CAP CHIP CL2 X7R REEL 47000
C2321	2113740A19	CAP CHIP REEL CL1 +/-30 4.7
C2322	2311049A45	CAP TANT CHIP 10 10 35
C2401	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C2404	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2405	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2407	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2410	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2411	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2412	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2413, 2414	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2417	2380090M24	CAP ALU 10 20 50V SURF MT
C2420	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2423	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2424	0882422W39	CAP FILM 5M 0.022UF 63V 5%
C2425	2380090M24	CAP ALU 10 20 50V SURF MT
C2426	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2428	2113740A21	CAP CHIP REEL CL1 +/-30 5.6
C2429	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2438, 2439	0882422W45	CAP FILM 5M 1.0UF 63V 5%
C2441	0882422W42	CAP FILM 5M 0.220UF 63V 5%
C2500	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2501	2113740A21	CAP CHIP REEL CL1 +/-30 5.6
C2502, 2503	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2504	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2505	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2506	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2507	2113741A45	CAP CHIP CL2 X7R REEL 10000

Reference	Part Number	Description
C2510, 2511	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2514	2113741A61	CAP CHIP CL2 X7R REEL 47000
C2515	2311049A10	CAP TANT CHIP 2.2 10 35 A/P
C2516	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2517	2113741A57	CAP CHIP CL2 X7R REEL 33000
C2518	2311049A21	CAP TANT CHIP 22 10 20 A/P
C2519	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2520	2380090M24	CAP ALU 10 20 50V SURF MT
C2521	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2522	2380090M24	CAP ALU 10 20 50V SURF MT
C2523, 2524	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2527	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2528	2113740A71	CAP CHIP REEL CL1 +/-30 470
C2530	2113741A53	CAP CHIP CL2 X7R REEL 22000
C2531	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2532 – 2534	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2540	2113741A45	CAP CHIP CL2 X7R REEL 10000
C2542, 2543	2113740A24	CAP CHIP REEL CL1 +/-30 6.8
C2546	2113740A39	CAP CHIP REEL CL1 +/-30 27
C2547	2113740A42	CAP CHIP REEL CL1 +/-30 36
C2548	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C2550	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C2551	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C2552	2113740A39	CAP CHIP REEL CL1 +/-30 27
C2600 – 2605	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2701	2380090M24	CAP ALU 10 20 50V SURF MT
C2702	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2703	2311049A21	CAP TANT CHIP 22 10 20 A/P
C2705	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2707	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2708	2311049A21	CAP TANT CHIP 22 10 20 A/P
C2709	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2710	2311049A21	CAP TANT CHIP 22 10 20 A/P
C2800	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2801	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2802	2113740A77	CAP CHIP REEL CL1 +/-30 820
C2803	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2804, 2805	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2806, 2807	2113740A33	CAP CHIP REEL CL1 +/-30 15
C2808 – 2811	2113741B69	CAP CHIP CL2 X7R REEL 100000
C2812 – 2816	2113740A33	CAP CHIP REEL CL1 +/-30 15
C2818 – 2820	2113740A33	CAP CHIP REEL CL1 +/-30 15
C2821 – 2826	2113740A55	CAP CHIP REEL CL1 +/-30 100
C2827, 2828	2113740A33	CAP CHIP REEL CL1 +/-30 15
C2900 – 2902	2113741F49	CAP CHIP CL2 X7R REEL 10000
C2903	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2904	2113741Y32	CAP CER 1,000,000 10% 50V
C2906	2113740F51	CAP CHIP REEL CL1 +/-30 100
C2907	2113741Y32	CAP CER 1,000,000 10% 50V
C2908	2380090M07	CAP ALU 47 20 16.0V SURF MT
		diode (see note):
CR2070, 2071	4882290T04	DIODE SI HOT CARRIER
CR2201	4813825A06	PIN DIODE 35V
CR2203 – 2206	4862824C01	DIODE VARACTOR
CR2251 – 2254	4862824C01	DIODE VARACTOR
CR2255	4813825A06	PIN DIODE 35V
CR2401	4813825A05	DIODE 30V HOT CARRIER MMBD301L
CR2402, 2403	4813833C10	DIODE GEN PUR 70V MMBD6050
CR2501, 2502	4813825A01	VARACTOR 3V DUAL
		connector:
J2020	0984393T01	CONN MINI UHF RT ANGLE PCB MT
		inductor:
L2020, 2021	2462587X44	IND CHIP LO-PRO 18.0 NH 5%

Reference	Part Number	Description
L2030	2462587N41	CHIP IND 10 NH 5%
L2031	2462587X50	IND CHIP LO-PRO 56.0 NH 5%
L2032	2462587X42	IND CHIP LO-PRO 12.0 NH 5%
L2033	2411087A36	COIL CHIP 6.8 UH 10 A/P
L2035	2462587R17	IND CHIP 8.2NH 5%
L2050 – 2052	2462587X44	IND CHIP LO-PRO 18.0 NH 5%
L2070	2462587R16	IND CHIP 4.7NH 5%
L2071, 2072	2462587X51	IND CHIP LO-PRO 68.0 NH 5%
L2074	2462587X49	IND CHIP LO-PRO 47.0 NH 5%
L2101	2462587X55	IND CHIP LO-PRO 150 NH 5%
L2102	2462587X59	IND CHIP LO-PRO 330 NH 5%
L2103	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
L2105	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
L2108	2462587N71	CHIP IND 1800 NH 5%
L2109	2462587X64	IND CHIP LO-PRO 680 NH 5%
L2111, 2112	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
L2113	2462587X59	IND CHIP LO-PRO 330 NH 5%
L2114	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
L2200	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2202	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2204	2462587X44	IND CHIP LO-PRO 18.0 NH 5%
L2205 – 2208	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2250	2462587X44	IND CHIP LO-PRO 18.0 NH 5%
L2251 – 2255	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2256	2462587X43	IND CHIP LO-PRO 15.0 NH 5%
L2301	2462587R17	IND CHIP 8.2NH 5%
L2302	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2303	2462587R17	IND CHIP 8.2NH 5%
L2304	2462587X44	IND CHIP LO-PRO 18.0 NH 5%
L2305	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
L2306	2462587X44	IND CHIP LO-PRO 18.0 NH 5%
L2307	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
L2308	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2402	2462587X43	IND CHIP LO-PRO 15.0 NH 5%
L2403 – 2407	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2408	2411087A54	COIL CHIP 220 UH 10 A/P
L2502	2462587N71	CHIP IND 1800 NH 5%
L2506	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2507	2462587X57	IND CHIP LO-PRO 220 NH 5%
L2540	2413923A17	IND CHIP 820 NH 2%
L2541, 2542	2462587N72	CHIP IND 2200 NH 3%
L2543	2413923A05	IND CHIP 120 NH 2%
L2544	2413923A07	IND CHIP 180 NH 2%
L2600	2462587N71	CHIP IND 1800 NH 5%
L2803, 2804	2484657R01	INDUCTOR BEAD CHIP
L2807, 2808	2484657R01	INDUCTOR BEAD CHIP
M2501, 2502	9185128U02	FLTR L-C 450KC LCF- 450
		transistor (see note):
Q2030	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2031	4813827A24	TSTR NPN SML SIG MRF5812 5812
Q2101	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2102	4885228U05	TSTR GAAS DL GATE MESFET_U73_
Q2200	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2201	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2202	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2203	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2204	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2205	4885228U03	TSTR NPN 6V 30UA 12GHZ NE68519
Q2206	4813827A03	TSTR NPN SML SIG MMBR901LT1 7X
Q2250	4885228U03	TSTR NPN 6V 30UA 12GHZ NE68519
Q2252	4813827A03	TSTR NPN SML SIG MMBR901LT1 7X

Reference	Part Number	Description
Q2301	4813827A26	TSTR NPN SML SIG MRF8372 8372
Q2302	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2303	4813827A26	TSTR NPN SML SIG MRF8372 8372
Q2400	4813827A03	TSTR NPN SML SIG MMBR901LT1 7X
Q2401	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2403, 2404	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2405	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2406, 2407	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2408	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2409, 2410	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2411	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q2412	4813824A10	TSTR NPN 40V .2A GEN PURP
Q2501	4813827A03	TSTR NPN SML SIG MMBR901LT1 7X
Q2502 – 2505	4813824A10	TSTR NPN 40V .2A GEN PURP
R2030	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R2031	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R2033	0611072A09	RES CHIP 22 5 1/4
R2034	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R2036	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R2037	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2038	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R2039	0683962T37	RES CHIP 33 5-1
R2040	0611079A58	RES FIXED CHIP 220 5 1/10W A/P
R2043	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R2044	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R2045	0611079A56	RES FIXED CHIP 180 5 1/10W A/P
R2070	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R2071	0611079A21	RES FIXED CHIP 6.2 5 1/10W A/P
R2072	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R2073	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R2074	0611079A24	RES FIXED CHIP 8.2 5 1/10W A/P
R2075	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R2076	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R2078 – 2081	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R2082	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R2083	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R2084	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2088	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R2101, 2102	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2103	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R2104	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2105	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2106	0611079A48	RES FIXED CHIP 82 5 1/10W A/P
R2107	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R2108	0611079A58	RES FIXED CHIP 220 5 1/10W A/P
R2109	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R2110	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R2111	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R2113	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R2200	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R2201	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R2202	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2203	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2204	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R2205	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R2206	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2207	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R2208	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2209	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2212	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2213	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R2214	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R2216	0662057A09	CHIP RES 22 OHMS 5%
R2217	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R2218	0662057A89	CHIP RES 47K OHMS 5%
R2220	0662057A17	CHIP RES 47 OHMS 5%
R2222	0662057A09	CHIP RES 22 OHMS 5%
R2223	0611077A60	RES CHIP 270 5 1/8W
R2224	0662057A56	CHIP RES 2000 OHMS 5%
R2225	0662057A56	CHIP RES 2000 OHMS 5%
R2226	0662057A49	CHIP RES 1000 OHMS 5%
R2227	0611077D97	RES CHIP 100 1 1/8W
R2228	0611077A01	RES CHIP JUMPER
R2230	0662057A57	CHIP RES 2200 OHMS 5%
R2231	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R2251	0662057A09	CHIP RES 22 OHMS 5%
R2252	0611077A60	RES CHIP 270 5 1/8W
R2253, 2254	0662057A56	CHIP RES 2000 OHMS 5%
R2255	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R2256	0662057A57	CHIP RES 2200 OHMS 5%
R2257	0662057A49	CHIP RES 1000 OHMS 5%
R2258	0662057A89	CHIP RES 47K OHMS 5%
R2259	0611077D97	RES CHIP 100 1 1/8W
R2270	0662057A09	CHIP RES 22 OHMS 5%
R2301	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R2302	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R2303	0611079A72	RES FIXED CHIP 820 5 1/10W A/P
R2304 – 2306	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R2307	0611079A56	RES FIXED CHIP 180 5 1/10W A/P
R2308	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2309	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R2310, 2311	0611072A15	RES CHIP 39 5 1/4
R2312	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R2313	0611079A72	RES FIXED CHIP 820 5 1/10W A/P
R2400	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2401	0611079B01	RES FIXED CHIP 12K 5 1/10 A/P
R2402	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R2403, 2404	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2405	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R2407	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R2408	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R2409	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R2410	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R2411	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2414	0611079A72	RES FIXED CHIP 820 5 1/10W A/P
R2417	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2418	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R2419, 2420	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2421, 2422	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2423	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2425	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2426	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R2427	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2428, 2429	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R2430, 2431	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R2432, 2433	0611079A20	RES FIXED CHIP 5.6 5 1/10W A/P
R2434	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R2435	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2436	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R2437	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2438	0611079A58	RES FIXED CHIP 220 5 1/10W A/P
R2439	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R2440	0611079A58	RES FIXED CHIP 220 5 1/10W A/P
R2441	0611079A68	RES FIXED CHIP 560 5 1/10W A/P
R2442	0611079B03	RES FIXED CHIP 15K 5 1/10 A/P
R2443	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2444	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R2446	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2447	0611079B03	RES FIXED CHIP 15K 5 1/10 A/P
R2448	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2449	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R2450	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R2452	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R2500	0611079A38	RES FIXED CHIP 33 5 1/10W A/P
R2502	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R2503	0611079A36	RES FIXED CHIP 27 5 1/10W A/P

Reference	Part Number	Description
R2504	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R2505	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R2507	0611079A56	RES FIXED CHIP 180 5 1/10W A/P
R2508	0611079B33	RES FIXED CHIP 270K 5 1/10 A/P
R2509	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R2510	0611079A21	RES FIXED CHIP 6.2 5 1/10W A/P
R2512	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R2513	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2514	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R2515	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R2516	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R2519	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R2524	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2525	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2527	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
R2528	0611079B11	RES FIXED CHIP 33K 5 1/10 A/P
R2529	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R2530	0611079A34	RES FIXED CHIP 22 5 1/10W A/P
R2532 – 2534	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R2540	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2541	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R2542	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R2543	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R2544	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2600	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2601	0611079B09	RES FIXED CHIP 27K 5 1/10 A/P
R2602, 2603	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2604	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R2605	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R2606	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R2607	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R2800 – 2807	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R2808	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R2809, 2810	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R2901	0662057T47	CHIP RES 121 OHMS 1%
R2902	0662057T68	RES CHIP 1.0K 1% 30*60
R2906	0662057T45	CHIP RES 68.1 OHMS 1%
R2907	0611079A46	RES FIXED CHIP 68 5 1/10W A/P
		transformer:
T2070, 2071	2584600T01	BALUN RF
		integrated circuit (see note):
U2201	9183223X20	COAXIAL RESONATOR SRF=555MHZ
U2250	9183223X19	COAXIAL RESONATOR SRF=605MHZ
U2401	5184602T04	IC SYNTHZR SPEED SCRND
U2402	5113806A21	IC MC14066BDR2
U2403	5183077Y01	HI SPEED QUAD AMP SO14
U2500	5184523T08	IC ABACUS JEDEZ 52QFP
U2503	5182550Y02	ANO TRIPLE 3-IN 14 SOIC T+R
U2505	5113819A02	IC LOW PWR DIFF INPUT LM2902
U2600	5182374Y01	IC A/D 8 BIT
U2701 – 2703	5113816A07	REG 5V POS 500MA MC78M05BDTRK
U2800	5113805A54	IC OCT BFR LINE DRV/RCVR HC244
U2801	5182550Y02	ANO TRIPLE 3-IN 14 SOIC T+R
U2802	5113805A22	IC QUAD 2 INPUT EXOR
U2803	5113805A13	IC QUAD 2INP OR 74HC32AD
U2804	5113808A22	IC DCDR/DEMUX DUAL 1OF 4 AC139
U2805	5182276R82	IC REGLTR VLTG LO DRPOUT 2940
U2809	2311049A21	CAP TANT CHIP 22 10 20 A/P
U2900	5113816A19	IC ADJ LO DROPOUT POS REG .8A
		crystal (see note):
Y2101	9184784T04	FLTR XTAL 73.35MH HIGH IM
Y2102, 2103	9184784T06	FLTR XTAL 73.35MHZ 2POLE
		non-referenced items:
	2682953X01	SHLD RCVR 18X24MM (used with E2020)
	1584753T02	HSNG CORRAL MED (used with E2030)
	1585034U03	COVER SHIELD MEDIUM (used with E2030)
	2683732X01	MEDIUM SPECTRA SHIELD (used with E2050)
	1584753T02	HSNG CORRAL MED (used with E2070)
	1585034U03	COVER SHIELD MEDIUM (used with E2070)
	2683732X01	MEDIUM SPECTRA SHIELD (used with E2102)
	2683256X01	SHIELD 9 X 11MM (used with E2105)
	1584753T01	CORRAL, UHF (used with E2200)
	1585034U10	COVER UHF (used with E2200)
	1584753T02	HSNG CORRAL MED (used with E2301)
	1585034U03	COVER SHIELD MEDIUM (used with E2301)
	1584753T03	HSNG CORRAL LARGE (used with E2400)
	1585034U04	COVER SHIELD LARGE (used with E2400)
	1584753T03	HSNG CORRAL LARGE (used with E2500)
	1585034U04	COVER SHIELD LARGE (used with E2500)
	8483455Y01	BD CKT RCVR QUANTAR UHF RANGE 0
	5482006W02	RIBBON THERMAL XFER
	5482006W03	BARCODE LABEL

NOTE 1: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

parts list

TKN8342B Driver PA Deck Cabling Kit — PL-9776-B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
P590, 591	28-84476G01	**connector, plug:** male; single contact
W590	1-80784D13	**cable; assembly:** rf input; color coded BLU; includes P590 and cable, coaxial; 20.5" used decal, colorstrip (BLU) bushing; cable
W591	1-80705E34	rf output; color coded RED; includes P591 (pin 28-84776G01) and cable, coaxial; 13.2" used DECAL, color strip (RED) bushing, cable
	non-referenced items	
	1-80781D77	ASSEMBLY, external DC-; includes:
	29-82907N05	terminal, ring; color coded YEL
	30-831572	wire, stranded; #10 BLK; 8.5" used
	1-80781D78	ASSEMBLY, external DC +; includes:
	29-83897A02	terminal, receptacle
	30-813233	wire, stranded; #10 RED; 9.5" used
	1-80783D66	ASSEMBLY, internal DC distribution; includes:
	29-83818P01	terminal, plug; wire crimp-on; 5 used
	42-30424B01	tie, cable; 4 used

TRN9191A Driver PA Deck Feedthru Plate Kit — PL-9791-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C571 thru C574	21-82812H03	**capacitor, fixed:** 1000 pF +100-0%; 500 V
P596	—	**connector, plug** consists of:
	15-84953L01	housing, 6-position
	29-84706E06	terminal, crimp socket; 6 used
W596	1-80781D60	**cable, assembly:** driver control; includes: P596, and
	30-854104	cable, 4-conductor; 18" used
	42-10217A02	strap, tie
	mechanical parts	
	4-83755H01	WASHER, shoulder; 4 used
	29-3046	LUG, soldering
	42-10217A02	STRAP, tie
	64-83542P01	PLATE, feedthru; 4-position

TTF6420A Combiner w/Directional Coupler 3 Hybrid — PL-10897-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C527, 528	2111078B32	**capacitor, fixed: pF; ±5%; 100 V** unless otherwise stated; chip 39
CR501, 502	4882106T01	**diode: (see note)** Schottky; 2 used
L507, 508	2411087A10	**coil, rf:** chip; 0.047 uH ±20%
R515, 516	0683854P02	**resistor, fixed: thick film; ±2%; 1 W** unless otherwise stated 50

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN9386A Thermistor Board — PL-9777-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
RT501	6-83600K05	**thermistor:** 100k @ 25°C
W501	1-80783D63	**assembly, wire:** sense; 11" used (BRN); includes: RT501, and
	29-82713M01	TERMINAL

IMPORTANT

Field repair of this kit is not recommended. *It should be replaced in its entirety.* The following parts are listed for reference purposes only.

TLF6820A Final Hybrid Module — PL-10894-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF; ±5%; 100 V unless otherwise stated
C511 thru 514	2184730P06	mica 9 pF/9 pF/14 pF/14 pF; 250 V
C516	2111078B32	chip; 39 pF
C517	2311049A17	chip; 6.8 ±10%; 35 V
C518	2111078B32	chip; 39 pF
		coil, rf:
L510	0180702T04	formed wire and bead
L511	2480202B06	3-turns
L512	2480202B06	2-turns
		translator: (see note)
Q511	4883495P09	NPN; type 33P46
		resistor, fixed: chip ±5%; 1/8 W unless otherwise stated
R512	0611077A26	10
	non-referenced items	
	1583309P01	FLANGE, shroud
	4283308P01	CLIP, substrate retainer; 2 used
	4284510M04	STRAP, PA; 7 used
	6483307P01	FLANGE, plate

TRN9062A DC Metering Board — PL-9772-B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
J504, 505	9-83365N01	**connector, receptacle:** female; 8-contact
J506, 507	31-84425P01	terminal board; 3-position
L509, 510	24-82835G14	**coil, rf:** choke; 1 uH (BRN-BLK)
R501 thru 506	17-82620B04	**resistor, fixed:** .02 ±3%; 3W
R507 thru 512	6-124A56	2k ±5%; 1/4 W
	non-referenced item	
	31-84425P01	STRIP, terminal; 3-position, 2 used

IMPORTANT

Field repair of this kit is not recommended. *It should be replaced in its entirety.* The following parts are listed for reference purposes only.

TLF6830A Pre-Driver Hybrid Module — PL-10895-O

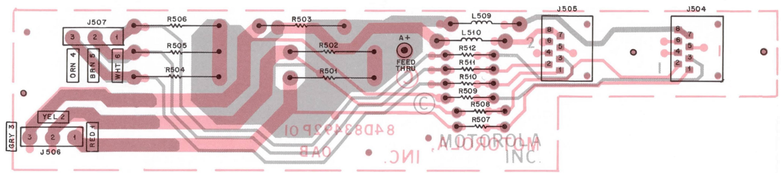
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: pF; ±5%; 100 V unless otherwise stated
C501 thru 504	2184730P04	mica 10/10/9/9; 250 V
C505	2111078B01	chip; 3.3 ±0.25 pF
C506	2111078B32	chip; 39
C507	2111032A32	chip; 0.1 ±10%; 50 V
C508	2111078B32	chip; 39
		coil, rf:
L501	2480202B03	coil, rf
L502	2483035N12	3-turns
L503	2483035N21	3-turns
		translator: (see note)
Q501	4883495P06	NPN; type 11L71
		resistor, fixed: chip ±5%; 1/8 W unless otherwise stated
R501	0611077A26	10
R502	0611077A12	2.7
	non-referenced items	
	1583309P01	FRANGE, shroud
	4283308P01	CLIP, substrate retainer; 2 used
	4284510M04	STRAP, PA; 7 used
	6483307P01	FLANGE, plate

TRN9929A 75W Final PA Hardware Kit — PL-10896-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C570	2184211B01	**capacitor, feedthru:** .01pF 20% 250V
	non-referenced items	
	0200008364	NUT; 3/8-32 × 1/2 × 3/32"; 2 used
	0200115968	NUT; 1/4-28 × 3/8 × 1/8"
	0310943M10	SCREW, tapping; TT3 × 0.5 × 8mm; 32 used
	0310943R68	SCREW, tapping; TT4 × 0.7 × 13mm; 2 used
	0383498N05	SCREW, tapping; M4 × 0.7 × 12mm; 9 used
	0383498N14	SCREW, tapping; M4 × 0.7 × 18mm; 6 used
	0383678N03	SCREW, tapping; M3 × 0.5 × 9mm; 8 used
	0383812P01	SCREW, tapping; M4 × 0.7 × 20mm; 10 used
	0383812P02	SCREW, tapping; M3 × 0.5 × 9mm; 4 used
	0400007557	WASHER, flat; 0.172 × 0.375 × .033"
	0400007607	WASHER, flat; 0.125 × 0.281 × .027"
	0400007657	WASHER, lock; #6 ext; 0.381 × .02"
	0400007670	WASHER, lock; #1/4 int; 0.478 × .025"
	0400007691	WASHER, lock; #3/8 int; 0.507 × .022 2 used
	0410058A36	WASHER, non-metal; 6 used
	0783390P01	BRACKET, right-hand PA mounting
	0783390P02	BRACKET, left-hand PA mounting
	1484520P01	INSULATOR, adhesive
	1583178N02	COVER, PA interconnect
	1583684P01	COVER, PA; 203mm
	2683400P03	HEATSINK, PA
	3282796H02	GASKET
	3283140N02	GASKET, feedthru; 6-position
	4210217A04	STRAP, tie; 0.184 × 7.31; nylon black
	4282387D08	CLIP, cable
	4284430P01	CLIP, board mounting wire guide; 4 used
	5482690R01	LABEL, PA
	7684069B04	CORE, ferrite bead; 4 used

75W POWER AMPLIFIER MODULE
MODEL TTF1440B

TRN9062A DC METERING BOARD



COMPONENT SIDE = BD-BEPS-42064-O
SOLDER SIDE = BD-BEPS-42065-O
OL-CEPS-42066-O

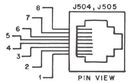
SHOWN FROM COMPONENT SIDE

J506,J507

TOP VIEW

A+ DISTRIBUTION

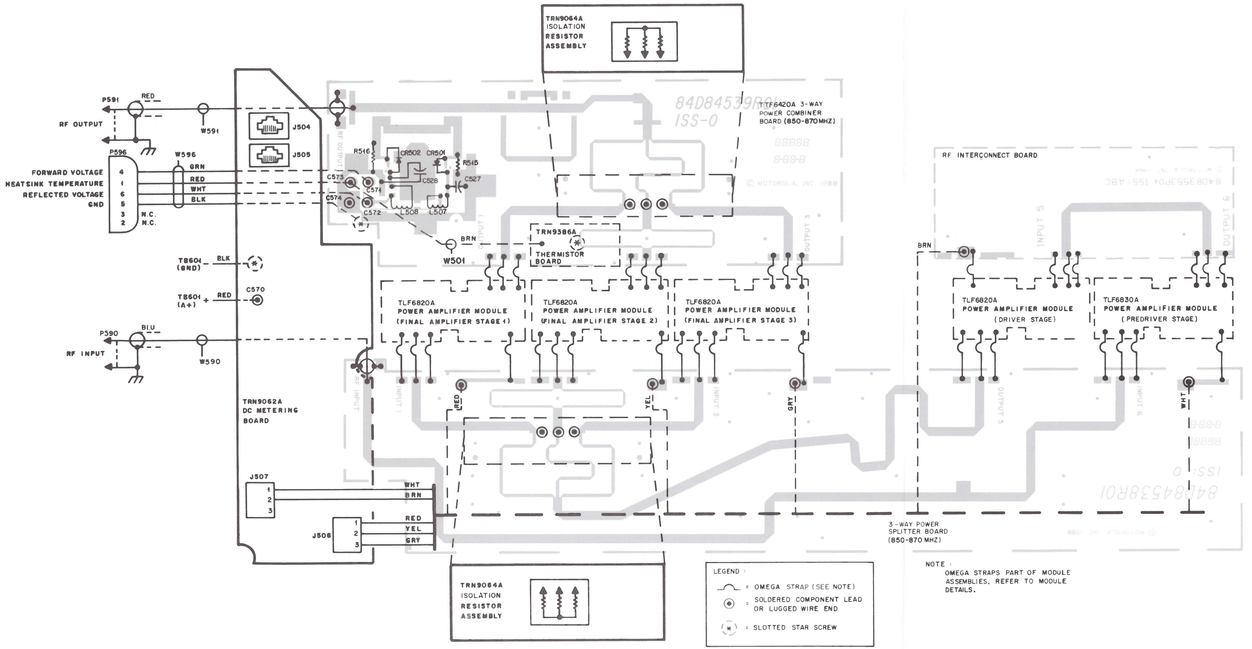
PIN	J506	J507
1	STAGE 1	STAGE 6
2	STAGE 2	STAGE 5
3	STAGE 3	STAGE 4



PA METERING

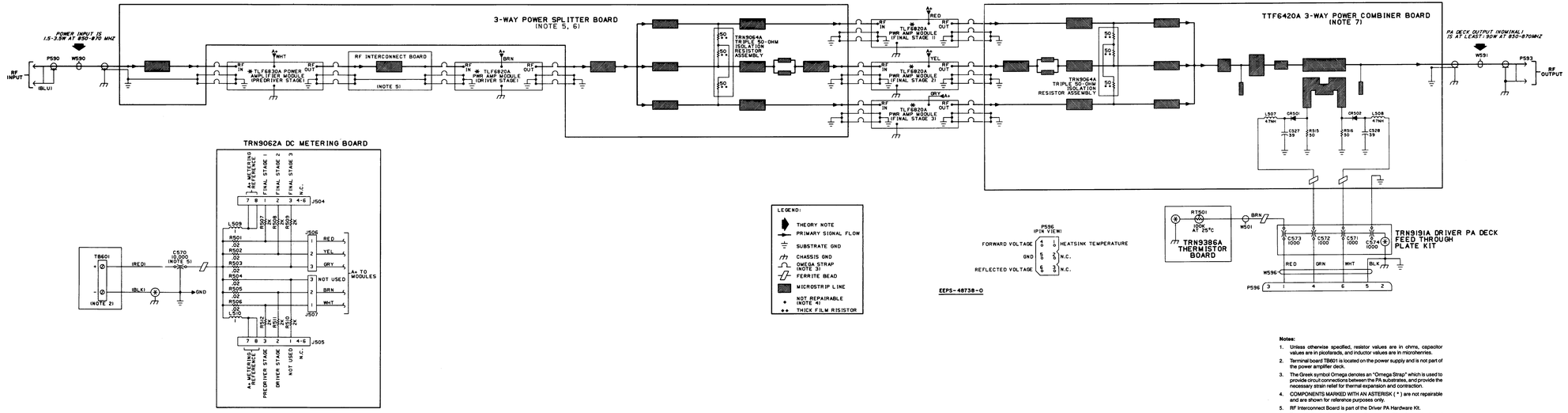
PIN	J504	J505
1	STAGE 1	STAGE 4
2	STAGE 2	STAGE 5
3	STAGE 3	STAGE 6
4	NOT USED	NOT USED
5	NOT USED	NOT USED
6	NOT USED	NOT USED
7	A+ REF	A+ REF
8	A+ REF	A+ REF

POWER AMPLIFIER DECK



COMPONENT SIDE BD-DEPS-45626-O
OL-DEPS-45627-A

SHOWN FROM COMPONENT SIDE



Notes:

1. Unless otherwise specified, resistor values are in ohms, capacitor values are in picofarads, and inductor values are in microhenries.
2. Terminal board TB601 is located on the power supply and is not part of the power amplifier deck.
3. The Greek symbol Omega denotes an "Omega Strap" which is used to provide circuit connections between the PA substrates, and provide the necessary strain relief for thermal expansion and contraction.
4. COMPONENTS MARKED WITH AN ASTERISK (*) are not repairable and are shown for reference purposes only.
5. RF Interconnect Board is part of the Driver PA Hardware Kit.
6. Transmission line lengths between the power splitter stage outputs and final amplifier stages inputs are critical to proper amplifier operation. Do not insert test instruments (wattmeter, load termination, etc.) at those locations.
7. Transmission line lengths between the power combiner stage inputs and final amplifier stages outputs are critical to proper amplifier operation. Do not insert test instruments (wattmeter, load termination, etc.) at those locations.

parts list

TKN8975B Final PA Deck Cabling Kit — PL-9775-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		connector, plug:
P592, 593	28-84476G01	male, single contact
		cable, assembly:
W592	1-80777D95	rf input; color coded RED; includes: P592, and
	30-84173E01	CABLE, coaxial; 16.5" used
	43-83152N02	BUSHING, cable
W593	1-80705E35	rf output; no color code; includes: P593
	30-84173E01	CABLE, coaxial; 12" used
	43-83152N02	BUSHING, cable
		non-referenced items
	1-80781D77	ASSEMBLY, external DC-; includes:
	29-82907N05	TERMINAL, ring; color coded YEL
	30-801572	WIRE, stranded; #10 BLK; 8.5" used
	1-80781D78	ASSEMBLY, external DC +; includes:
	29-83897M02	TERMINAL, receptacle
	30-813233	WIRE, stranded; #10 RED; 9.5" used
	1-80783D64	ASSEMBLY, internal DC distribution; includes:
	29-83818P01	TERMINAL, plug; wire crimp-on; 6 used
	42-354248B01	TIE, cable; 4 used

TRN9038A Thermistor Board — PL-9777-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		thermistor:
RT501	6-836000K05	100k @ 25°C
		assembly, wire:
W501	1-80783D63	sense; 11" used (BRN); includes: RT501, and
	29-82713M01	TERMINAL

IMPORTANT

Field repair of this kit is not recommended. *It should be replaced in its entirety.* The following parts are listed for reference purposes only.

TLF6820A Final Hybrid Module — PL-10894-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF; ± 5%; 100 V unless otherwise stated
C511 thru 514	2184730P06	mica 9 pF/9 pF/14 pF/14 pF; 250 V
C516	2111078B32	chip; 39 pF
C517	2311048A17	chip; 6.8 ± 10%; 35 V
C518	2111078B32	chip; 39 pF
		coil, rf:
L510	0180702T04	formed wire and bead
L511	2480202B02	3-turns
L512	2480202B06	2-turns
		transistor: (see note)
Q511	4883495P09	NPN; type 33P48
		resistor, fixed: chip ± 5%; 1/8 W unless otherwise stated
R512	0611077A26	10
		non-referenced items
	1583309P01	FLANGE, shroud
	4283308P01	CLIP, substrate retainer; 2 used
	4284510M04	STRAP, PA; 7 used
	6483307P01	FLANGE, plate

TTF8450A Combiner w/Directional Coupler 3 Hybrid — PL-11138-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: pF; ± 5%; 100 V unless otherwise stated;
C527, 528	2111078B32	chip 39
		diode: (see note)
CR501, 502	4882106T01	Schottky; 2 used
		coil, rf:
L507, 508	2411087A10	chip; 0.047 uH ± 20%
		resistor, fixed: thick film; ± 2%; 1 W unless otherwise stated
R515, 516	0683854P02	50
R517	0611077A69	620; ± 5%; 1/8 W (CHIP)

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN9060A Dual 50-Ohm Isolation Resistor Assembly — PL-9778-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	7-83683P02	BRACKET, resistor
	7-84102N01	FRAME

TRN9064A Triple 50-Ohm Isolation Resistor Assembly — PL-9616-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	7-83683P02	BRACKET, resistor
	7-84102N01	FRAME

TRN9062A DC Metering Board — PL-9772-B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		connector, receptacle:
J504, 505	9-83365N01	female; 8-contact
J506, 507	31-84425P01	terminal board; 3-position
		coil, rf:
L509, 510	24-82835G14	choke; 1 uH (BRN-BLK)
		resistor, fixed:
R501 thru 506	17-82620B04	.02 ± 3%; 3W
R507 thru 512	6-124A56	2k ± 5%; 1/4 W
		non-referenced item
	31-84425P01	STRIP, terminal; 3-position, 2 used

TRN9065A Final PA Deck Feedthru Plate Kit — PL-9790-O

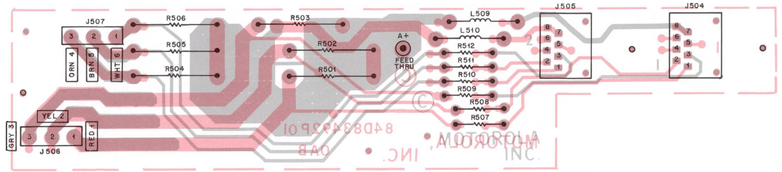
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C571 thru C574	21-82812H03	1000 pF + 100-0%; 500 V
		connector, plug: consists of:
P502	—	
	15-84953L01	housing, 6-position
	29-84706E06	terminal, crimp socket; 6 used
W502	1-80779D97	final control; includes: P502, and
	30-854104	cable, 4-conductor; 16.5" used
	42-10217A02	strap, tie
		mechanical parts
	4-83755H01	WASHER, shoulder; 4 used
	29-3046	LUG, soldering
	42-10217A02	STRAP, tie; 2 used
	64-83542P01	PLATE, feedthru; 4-position

TRN9958A Hardware Kit — PL-11067-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	0200008354	NUT, hex: 3/8-32X1/2X3/32 (2 used)
	0200115968	NUT, hex: 1/4-28X3/8X1/8
	0310943M10	SCREW, tapping: TT3X0.5X8 (38 used)
	0310943R88	SCREW, tapping: TT4X0.7X13 (2 used)
	0383498R05	SCREW, tapping: M4X0.7X12 (9 used)
	0383498N14	SCREW, tapping: M4X0.7X18 (8 used)
	0383678N03	SCREW, tapping: M3X0.5X8 (8 used)
	0383812P01	SCREW, tapping: M4X0.7X20 (12 used)
	0383812P02	SCREW, tapping: M3X0.5X8 (12 used)
	0400007557	WASHER, flat: 0.172X0.375X.033
	0400007607	WASHER, flat: 0.125X0.281X.027
	0400007657	WASHER, lock: No.8 external tooth
	0400007670	WASHER, lock: No.1/4 internal tooth
	0400007691	WASHER, lock: No. 3/8 int (2 used)
	0783990P01	BRACKET, PA (RH)
	0783990P02	BRACKET, PA (LH)
	1484520P01	INSULATOR
	1583178N02	COVER, PA (interconnect)
	1583664P01	COVER, PA (DSMM)
	2184211B01	CAPACITOR, feedthru
	2663400P03	HEAT SINK, PA
	3282796H02	GASKET
	3283140N02	GASKET, feedthru (49.25" lg)
	4210217A04	STRAP, tie: 0.184X7.31
	4282387D08	CLIP, cable
	4284430P01	CLIP, wire guide (4 used)
	5482808R01	LABEL, PA cover
	7684069B04	FERRITE BEAD (4 used)

150W POWER AMPLIFIER MODULE
MODEL TTF1460B

TRN9062A DC METERING BOARD



COMPONENT SIDE = BD-BEPS-42064-O
SOLDER SIDE = BD-BEPS-42065-O
OL-CEPS-42066-O

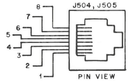
SHOWN FROM COMPONENT SIDE

J506, J507

TOP VIEW

A+ DISTRIBUTION

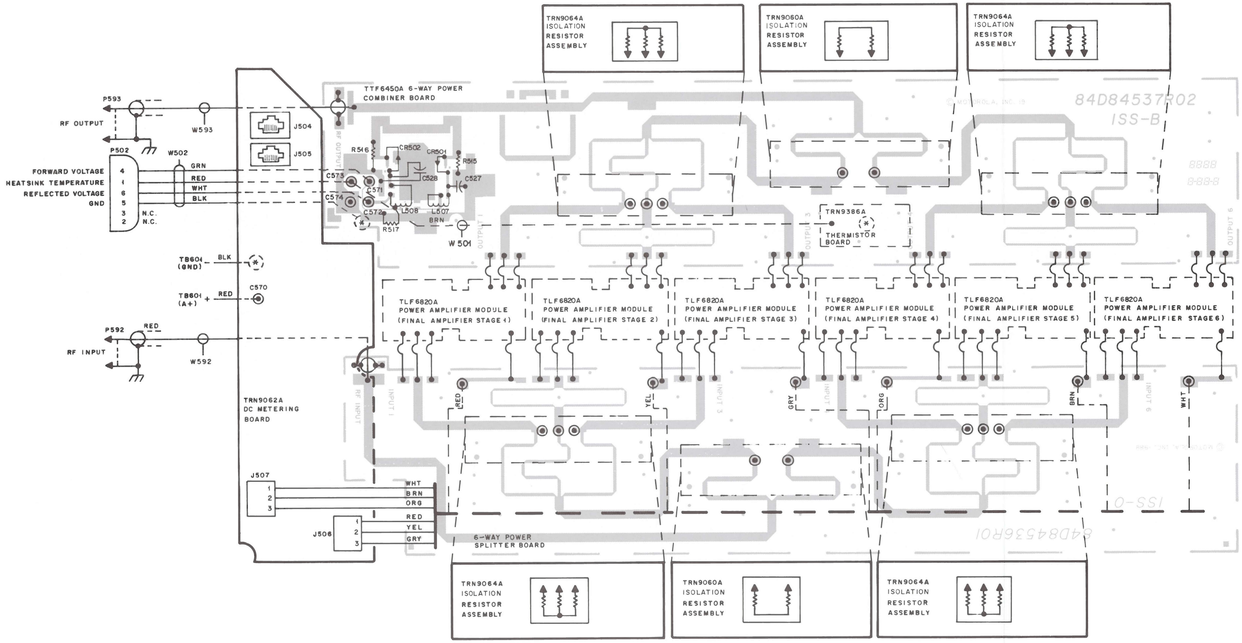
PIN	J506	J507
1	STAGE 1	STAGE 6
2	STAGE 2	STAGE 5
3	STAGE 3	STAGE 4



PIN VIEW

PA METERING

PIN	J504	J505
1	STAGE 1	STAGE 4
2	STAGE 2	STAGE 5
3	STAGE 3	STAGE 6
4	NOT USED	NOT USED
5	NOT USED	NOT USED
6	NOT USED	NOT USED
7	A+ REF	A+ REF
8	A+ REF	A+ REF

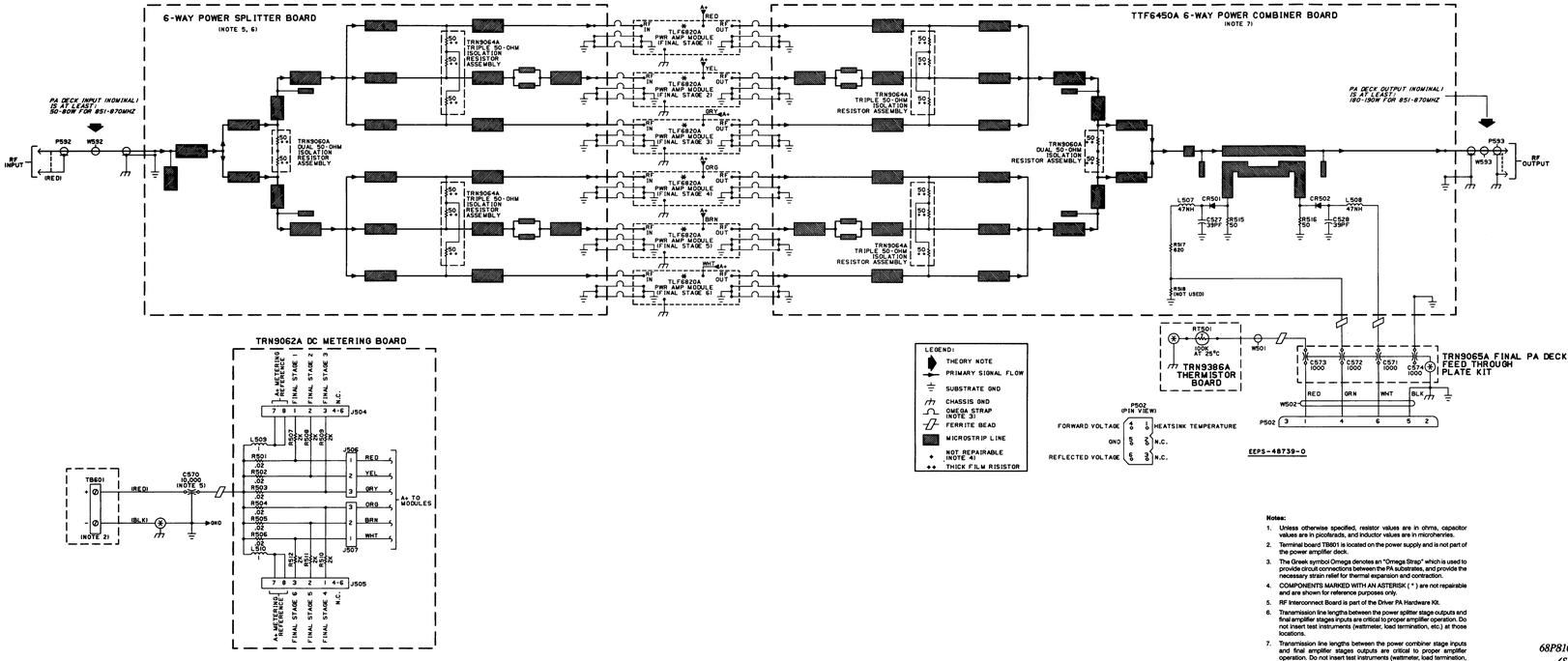


COMPONENT SIDE BD-CEPS-45817-A
OL-DEPS-45818-A

SHOWN FROM COMPONENT SIDE

LEGEND:
- ~ = OMEGA STRAP (SEE NOTE)
- ⊙ = SOLDERED COMPONENT LEAD OR LUGGED WIRE END
- ⊛ = SLOTTED STAR SCREW

NOTE:
OMEGA STRAPS PART OF MODULE ASSEMBLIES. REFER TO MODULE DETAILS.

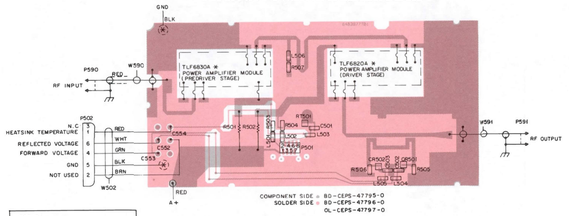


Notes:

1. Unless otherwise specified, resistor values are in ohms, capacitor values are in picofarads, and inductor values are in microhenries.
2. Terminal board TB601 is located on the power supply and is not part of the power amplifier deck.
3. The Greek symbol Omega denotes an "Omega Strap" which is used to provide circuit connections between the PA substrates, and provide the necessary strain relief for thermal expansion and contraction.
4. COMPONENTS MARKED WITH AN ASTERISK (*) are not repairable and are shown for reference purposes only.
5. RF Interconnect Board is part of the Driver PA Hardware Kit.
6. Transmission line lengths between the power splitter stage outputs and final amplifier stages inputs are critical to proper amplifier operation. Do not insert test instruments (wattmeter, load termination, etc.) at those locations.
7. Transmission line lengths between the power combiner stage inputs and final amplifier stages outputs are critical to proper amplifier operation. Do not insert test instruments (wattmeter, load termination, etc.) at those locations.

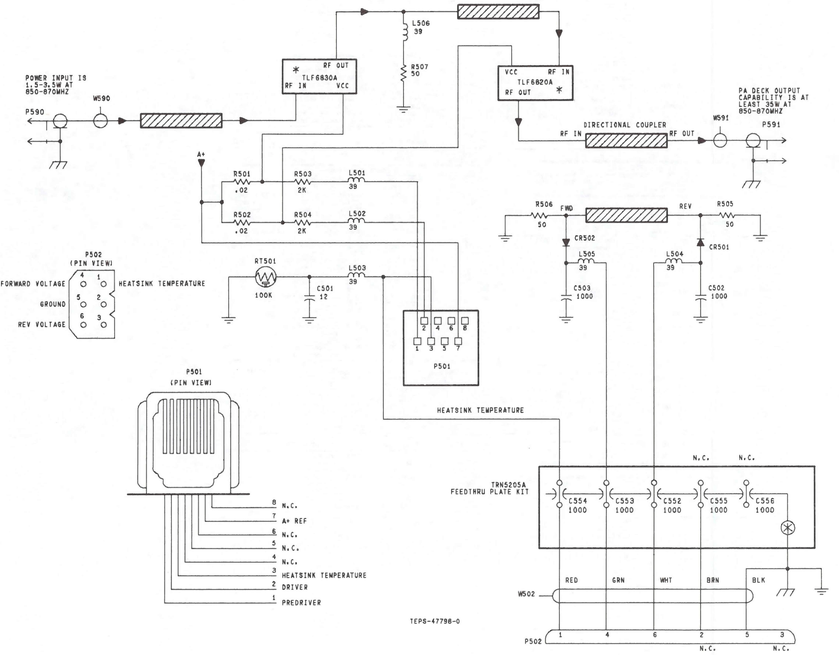
35W POWER AMPLIFIER MODULE
MODEL TLF1550A

TLF1550A POWER AMPLIFIER DECK



LEGEND:
- ~ = OMEGA STRAP (SEE NOTE)
- ⊛ = SOLDERED COMPONENT LEAD OR LUGGED WIRE END
- (N) = SLOTTED STAR SCREW

OMEGA STRAPS PART OF MODULE ASSEMBLIES. REFER TO MODULE DETAILS.



LEGEND:
- PRIMARY SIGNAL FLOW
- OMEGA STRAP
- SUBSTRATE GROUND
- CHASSIS GROUND
- MICROSTRIP LINE
- * NOT REPAIRABLE (NOTE 2)

NOTES:
1. UNLESS OTHERWISE SPECIFIED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN NANOHENRIES.
2. COMPONENTS MARKED WITH AN ASTERISK (*) ARE NOT REPAIRABLE AND ARE SHOWN FOR REFERENCE PURPOSE ONLY.

35W POWER AMPLIFIER MODULE
MODEL TLF1550A

parts list

TLF5680A RF DC Board — PL-11535-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C501	2113740B27	12pF ±5% 50V
C502,503	2113740B73	.0015uF ±5% 50V
		diode: (see note)
CR501,502	4882108T01	Schottky
		coil:
L501 thru 506	2411087A09	.039uH ±10%
		connector:
P501	0983365N01	female: 8-contact
		resistor, fixed:
R501,502	1782820B04	.02 ±3% 3W
R503,504	0611077A81	2k ±5% 1/8W
R505 thru 507	0683264P02	50 ±2% 1W
		thermistor:
RT501	0680149M02	100k

IMPORTANT
Field repair of this kit is not recommended. *It should be replaced in its entirety.* The following parts are listed for reference purposes only.

TLF5830A Pre-Driver Hybrid Module — PL-10895-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: pF: ± 5%; 100 V unless otherwise stated
C501 thru 504	2184730P04	mica 10/10/99; 250 V
C505	2111078B01	chip; 3.3 ±0.25 pF
C506	2111078B32	chip; 39
C507	2111032A32	chip; 0.1 ±10%; 50 V
C508	2111078B32	chip; 39
		coil, rf:
L501	2480202B03	coil, rf
L502	2483030N12	3-turns
L503	2483035N21	3-turns
		transistor: (see note)
Q501	4883495P06	NPN; type 11L71
		resistor, fixed: chip ±5%; 1/8 W unless otherwise stated
R501	0611077A26	10
R502	0611077A12	2.7
		non-referenced items
	1583309P01	FRANGE, shroud
	4283308P01	CLIP, substrate retainer; 2 used
	4284510M04	STRAP, PA; 7 used
	5483307P01	FLANGE, plate

IMPORTANT
Field repair of this kit is not recommended. *It should be replaced in its entirety.* The following parts are listed for reference purposes only.

TLF5820A Final Hybrid Module — PL-10894-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed: uF: ± 5%; 100 V unless otherwise stated
C511 thru 514	2184730P06	mica 9 pF/9 pF/14 pF/14 pF; 250 V
C516	2111078B32	chip; 39 pF
C517	2311049A17	chip; 8.8 ±10%; 35 V
C518	2111078B32	chip; 39 pF
		coil, rf:
L510	0180702T04	formed wire and bead
L511	2480202B02	3-turns
L512	2480202B08	2-turns
		transistor: (see note)
Q511	4883495P09	NPN; type 33P48
		resistor, fixed: chip ±5%; 1/8 W unless otherwise stated
R512	0611077A26	10
		non-referenced items
	1583309P01	FLANGE, shroud
	4283308P01	CLIP, substrate retainer; 2 used
	4284510M04	STRAP, PA; 7 used
	5483307P01	FLANGE, plate

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN5205A Feedthru Plate — PL-8257-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed feedthru:
C551 thru 556	2182812H03	1000pF +100-0% 500V
		connector:
P502	1584953L01	HOUSING,receptacle: 6-position
		cable:
W502	0180746D50	power control; includes: P502 and
	2884706E02	TERMINAL, crimp: 6 used
	3200B61A15	CABLE, 20" 5-conductor
	4210217A02	STRAP, tie: .091 × 3.62"
		non-referenced items
	0483756H01	WASHER, shoulder: 6 used
	2800030A46	LUG, solder
	4210217A02	STRAP, tie: .091 × 3.62"
	5483165N01	PLATE, feedthru: 6-position

TRN7174A Power Amplifier Deck Hardware Kit — PL-11542-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items
	0200008X54	NUT: 3/8-32 × 1/2 × 3/32
	0200115968	NUT: 1/4-28 × 3/8 × 1/8
	0310943J21	SCREW, tapping: T74 × 0.7 × 10; 7 used
	0383498N06	SCREW, tapping: M4 × 0.7 × 16; 3 used
	0383498N07	SCREW, tapping: M4 × 0.7 × 40; 6 used
	0383678N03	SCREW, tapping: M3 × 0.5 × 9; 13 used
	0383812P01	SCREW, tapping: M4 × 0.7 × 20; 4 used
	0400007557	WASHER, flat: 0.172 × 0.375 × .033; 8 used
	0400007557	WASHER, #8 external lock
	0400007570	WASHER, #10 internal lock
	0400007891	WASHER, #3/8 internal lock
	0783098P01	BRACKET, right-hand PA mounting
	0783098P02	BRACKET, left-hand PA mounting
	1583099P01	COVER, power amplifier
	2184211B01	CAPACITOR, feedthru: .01uF ±20% 250V
	2883548T02	HEAT SINK, 5" power amplifier
	3282798H05	GASKET, 43.75"
	3282798H06	GASKET, 3.75"
	3283140N02	GASKET, 6-position feedthru
	4210217A04	STRAP, tie: 0.184 × 7.31
	4282143C01	CLAMP, cable
	4282387D08	CLIP, cable
	5483097P01	PLATE, interconnect cover: 2 used
	7664069B04	CORE, ferrite bead: 7 used

TKN8802A Power Amplifier Deck Output Cable — PL-11534-O

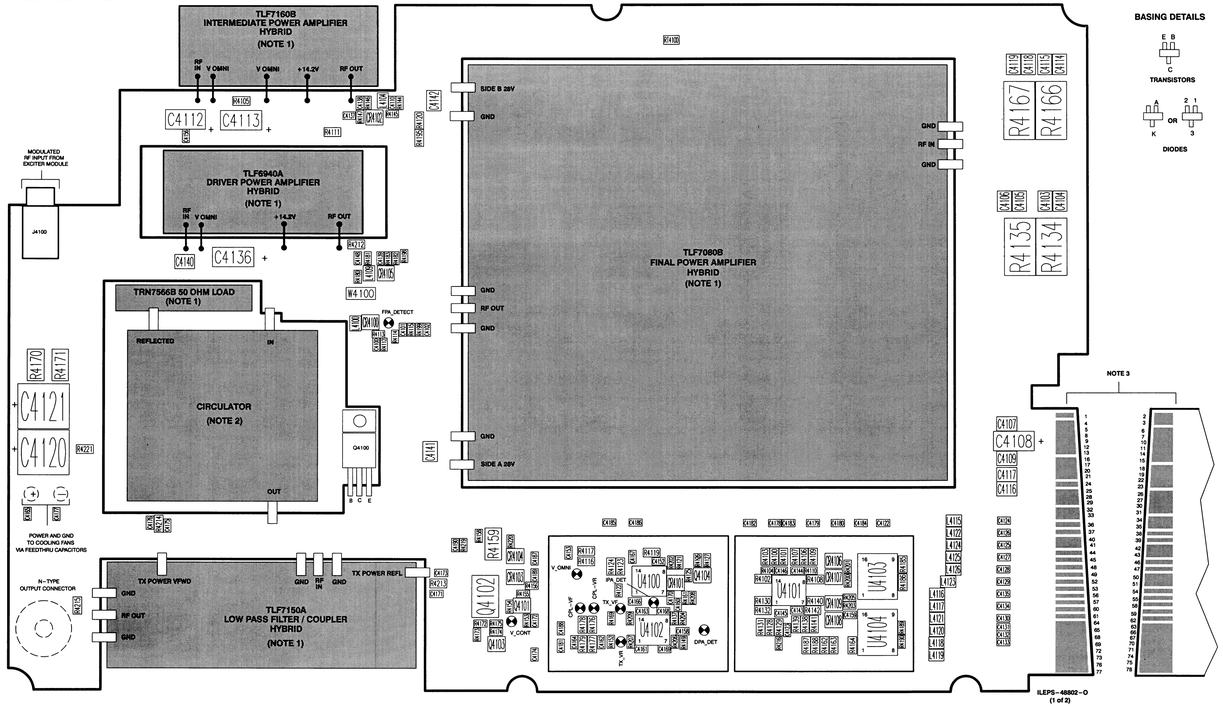
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items
W591	0182721T01	CABLE, output assembly

TKN8486A Power Amplifier Cables — PL-11335-B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W580	0180799D32	INPUT; includes:
P580	2884478G01	CONNECTOR, male coax
	3084173E01	CABLE, 13.63" coaxial
	3388063C02	DECAL
	4383152N02	BUSHING, cable
	0180752D78	9.5" long; black bat; includes:
	2962907N05	TERMINAL, yellow ring
		non-referenced items
	0180776D78	CABLE ASSEMBLY, 10"; red bat; includes:
	2963897M02	TERMINAL, wire grip

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

100W 900 MHz POWER AMPLIFIER MODULE
MODEL TLF1800B



BASING DETAILS

NOTES:

1) TLF7080B, TLF7160B, TLF7150A, TLF6940A, AND TRN7566B ARE HYBRIDS AND ARE CONSIDERED NON-SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

ILEPS-48802-O
(2 OF 3)

parts list

TLF7310B RF/DC Distribution Board (900 MHz 100W PA) PL-13083-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A35	18 pF, ±5%, 50 V
C4101	2113740A43	39 pF, ±5%, 50 V
C4102	2113740G03	1 pF, ±0.1 pF, 50 V
C4103 thru 4107	2111078B32	39 pF, ±5%, 100V
C4108	2311048A45	10 uF, +10%, 35 V
C4109	2111078B13	10 pF, ±0.5 pF, 100 V
C4110	2113740A35	18 pF, ±5%, 50 V
C4112,4113	2311048A45	10 uF, +10%, 35 V
C4114 thru 4116	2111078B32	39 pF, ±5%, 100V
C4117	2111078B13	10 pF, ±0.5 pF; 100 V
C4118,4119	2111078B32	39 pF, ±5%, 100V
C4120,4121	2380936M27	330 uF, ±20%, 16 V
C4122 thru 4135	2113740A43	39 pF, ±5%, 50 V
C4136	2311048A45	10 uF, +10%, 35 V
C4137,4138	2113740G03	1 pF, ±0.1 pF, 50 V
C4139	2113740A35	18 pF, ±5%, 50 V
C4140 thru 4142	2111078B32	39 pF, ±5%, 100V
C4143 thru 4146	2113740A43	39 pF, ±5%, 50 V
C4148	2113740G03	1 pF, ±0.1 pF; 50 V
C4152,4153	2113740A43	39 pF, ±5%, 50 V
C4156	2113740G03	1 pF, ±0.1 pF; 50 V
C4158 thru 4172	2113740A43	39 pF, ±5%, 50 V
C4173	2113740A25	7.54 pF, ±0.25 pF; 50V
C4174,4175	2113740G15	3.3 pF, ±0.1 pF; 50 V
C4176	2113740A25	7.54 pF, ±0.25 pF; 50V
C4177 thru 4189	2113740A43	39 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4101	4813833C02	Dual Diode; common cathode
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4105	4882290T04	Diode; hot carrier
CR4106 thru 4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle: uhf
		coil:
L4100	2462587N47	CHIP IND 33 NH 5%
L4104	2462587N41	10 nH, ±5%
L4109	2462587N44	18 nH, ±5%
L4115 thru 4126	2462587N55	150 nH, ±5%
		transistor (see note):
Q4100	4813822D08	TSTR PNP 100V 5A DAFIL MJF127
Q4101	4813824A10	NPN
Q4102	4813821A09	TSTR P-CH 60V 12A_2955_
Q4103,4104	4813824A10	NPN
		resistor, fixed:
R4100	0611077F94	10.7K, ±1%; 1/8 W
R4101	0611077F24	2K, ±1%; 1/8 W
R4102	0611077E94	1K, ±1%; 1/8 W
R4103	0611077F94	10.7K, ±1%; 1/8 W
R4104	0611079G01	10K, 1/10 W; ±1%
R4105	0611077A01	0 ohm, ±5%; 0 W
R4106	0611077F94	10.7K, ±1%; 1/8 W
R4107	0611077F24	2K, ±1%; 1/8 W
R4108	0611077E94	1K, ±1%; 1/8 W
R4109	0611077F94	10.7K, ±1%; 1/8 W
R4110	0611079G01	10K, 1/10 W; ±1%
R4111	0611077A01	0 ohm, ±5%; 0 W
R4112,4113	0611079G01	10K, 1/10 W; ±1%
R4114	0611079A94	2700 ohms, ±5%; 1/10 W
R4115	0611079A26	10 ohms, ±5%; 1/10 W
R4116	0611077F68	5.76K, ±1%; 1/8 W
R4117	0611077F24	2K, ±1%; 1/8 W
R4119	0611077B15	47K, ±5%; 1/8 W
R4120	0611077A01	0 ohm, ±5%; 0 W
R4121	0611079A74	1K, ±5%; 1/10 W
R4122	0611079G01	10K, 1/10 W; ±1%
R4123	0611077F56	4.32K, ±1%; 1/8 W
R4124	0611077F68	5.76K, ±1%; 1/8 W
R4125,4126	0611079G01	10K, 1/10 W; ±1%
R4127	0611079A74	1K, ±5%; 1/10 W
R4128	0611077G04	13.3K, ±1%; 1/8 W
R4129,4130	0611077F24	2K, ±1%; 1/8 W
R4131	0611077G22	20.5K, ±1%; 1/8 W
R4132	0611077G42	33.2K, ±1%; 1/8 W
R4134,4135	0680086V02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	1K, ±5%; 1/10 W
R4138	0611077G04	13.3K, ±1%; 1/8 W
R4139,4140	0611077F24	2K, ±1%; 1/8 W
R4141	0611077G22	20.5K, ±1%; 1/8 W
R4142	0611077G42	33.2K, ±1%; 1/8 W
R4144,4145	0611079G01	10K, 1/10 W; ±1%
R4146	0611079A56	560 ohms, ±5%; 1/10 W
R4147	0611079A44	56 ohms, ±5%; 1/10 W
R4149	0611079A74	1K, ±5%; 1/10 W
R4152	0611079A74	1K, ±5%; 1/10 W
R4153	0611079A80	270 ohms, ±5%; 1/10 W
R4154 thru 4156	0611079A74	1K, ±5%; 1/10 W
R4158	0611079G01	10K, 1/10 W; ±1%
R4159	0683062T01	1 ohm, ±5%; 1 W
R4161	0611079A74	1K, ±5%; 1/10 W
R4162	0611077G22	20.5K, ±1%; 1/8 W
R4163	0611077F91	10K, ±1%; 1/8 W
R4164	0611077E94	1K, ±1%; 1/8 W
R4166,4167	0682086V02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	1K, ±5%; 1/10 W
R4170,4171	0683962T24	9.1 ohms, ±5%; 1 W
R4172	0611079G01	10K, 1/10 W; ±1%
R4173,4174	0611079A74	1K, ±5%; 1/10 W
R4175	0611079G01	10K, 1/10 W; ±1%
R4176	0611077G49	39.2K, ±1%; 1/8 W
R4177	0611077G46	36.5K, ±1%; 1/8W
R4178	0611077G49	39.2K, ±1%; 1/8 W
R4179	0611077G46	36.5K, ±1%; 1/8W
R4180	0611079A94	2700 ohms, ±5%; 1/10 W
R4181	0611079A26	10 ohms, ±5%; 1/10 W
R4182,4183	0611079G01	10K, 1/10 W; ±1%
R4185	0611077G04	13.3K, ±1%; 1/8 W
R4186	0611077F24	2K, ±1%; 1/8 W
R4187	0611077F68	5.76K, ±1%; 1/8 W
R4188	0611077F24	2K, ±1%; 1/8 W
R4189,4190	0611079G01	10K, 1/10 W; ±1%
R4195	0611077A01	0 ohm, ±5%; 0 W
R4196 thru 4209	0611079A50	100 ohms, ±5%; 1/10 W
R4212	0611077A01	0 ohm, ±5%; 0 W
R4213,4214	0611077E94	1K, ±1%; 1/8 W
R4215	0611077A01	0 ohm, ±5%; 0 W
R4216	0611079A01	O ohms, ±5%; 1/10 W
R4219	0611079G03	100K, ±5%; 1/10 W
R4220	0611079A01	O ohms, ±5%; 1/10 W
R4221	0611077A01	0 ohm, ±5%; 0 W
		thermistor:
RT4100	0680149M02	100K, ±10%; 240 MW
		integrated circuit (see note):
U4100 thru 4102	5113819A05	High Performance, Single Supply
U4103,4104	5113805A84	Mux/Demux, Dual 4-Channel Analog
		cable assembly:
W4100	4280500F01	SMT ZERO OHM MELF
		non-referenced items:
	1584753T02	Housing (used with E4100)
	1584753T02	Housing (used with E4101)
	1585034U03	COVER, Shield (used with E4100)
	1585034U03	COVER, Shield (used with E4101)
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, barcode: 6.3 x 12.7MM, white
	8482219W05	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN7908A 900 MHz 100W PA Hardware PL-13084-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	0185181U01	ASSEM PA COOLING FANS
	0211986A02	NUT HEX 3/8 x 24 x 1/2 x 3/32
	0310943J09	Screw, tapping: T73 x 0.5 x 6 (16 used)
	0310943J10	Screw, tapping: T73 x 0.5 x 8 (13 used)
	0310943J15	Screw, tapping (2 used)
	0312016A31	SCRTPG T73.5X.6X12 STRPNSTLZNC (3 used)
	0312016A32	SCRTPG T73.5X.6X18 STRPNSTLZNC (8 used)
	0400007691	WASHER, lock: 3/8", int, tooth (2 used)
	0906181S9	CONNECTOR, receptacle: coaxial
	1585002U02	COVER High Band PA
	2182805H05	1000 pF, ±0%, 200V (2 used)
	2894772T05	HEATSINK HB PA
	3282796H05	GASKET, RFI: .094 x 094" (35.75 used)
	5482006W01	Label, PCB barcode
	5482006W02	RIBBON, thermal XFER (0.00002 used)

TLF7080B Final PA Hybrid PL-13085-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLF7160B Intermediate PA Hybrid PL-13086-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLF7150A Low Pass Filter/Coupler Hybrid PL-13087-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLF6940A Driver PA Hybrid PL-13088-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

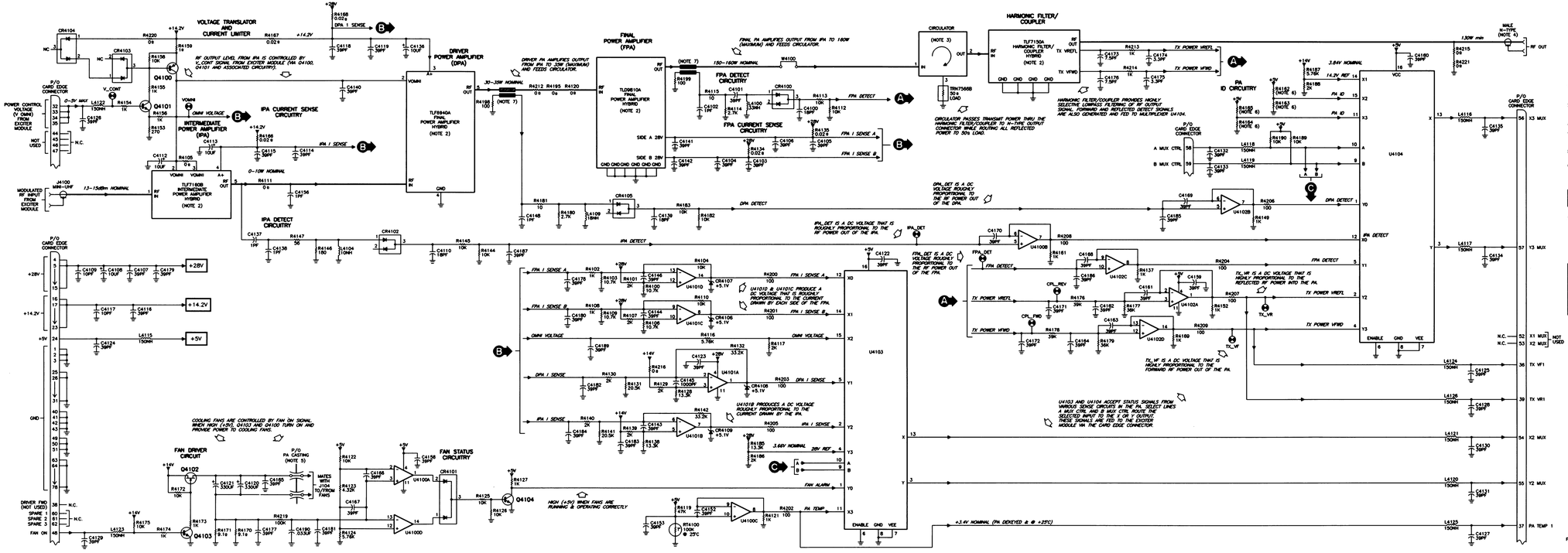
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TRN7566B Circulator 50Ω Load PL-13074-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

100W 900 MHz POWER AMPLIFIER MODULE
MODEL TLF1800B



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS. CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TLF7160 (PN TLF7060 FPA, TLF8840 DPA, AND TLF7150 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.
4. THE N-TYPE OUTPUT CONNECTOR (0802616139, P/O TRN7906A HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. CONNECTIONS TO THE COOLING FANS ARE MADE VIA FEEDTHRU CAPACITORS (1000PF, P/O TRN7900A HARDWARE).
6. RESISTORS R4162 THRU R4165 COMPRISE A "RESISTOR BOX" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

MODEL	R4162	R4163	R4164	R4165
TLF1800B (900 MHz)	20.5K	10K	1K	NOT PLACED

7. FPA/DPA DETECT CIRCUITRY ACCEPT SAMPLES OF FPA/DPA OUTPUTS VIA MICROSTRIP COUPLERS.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

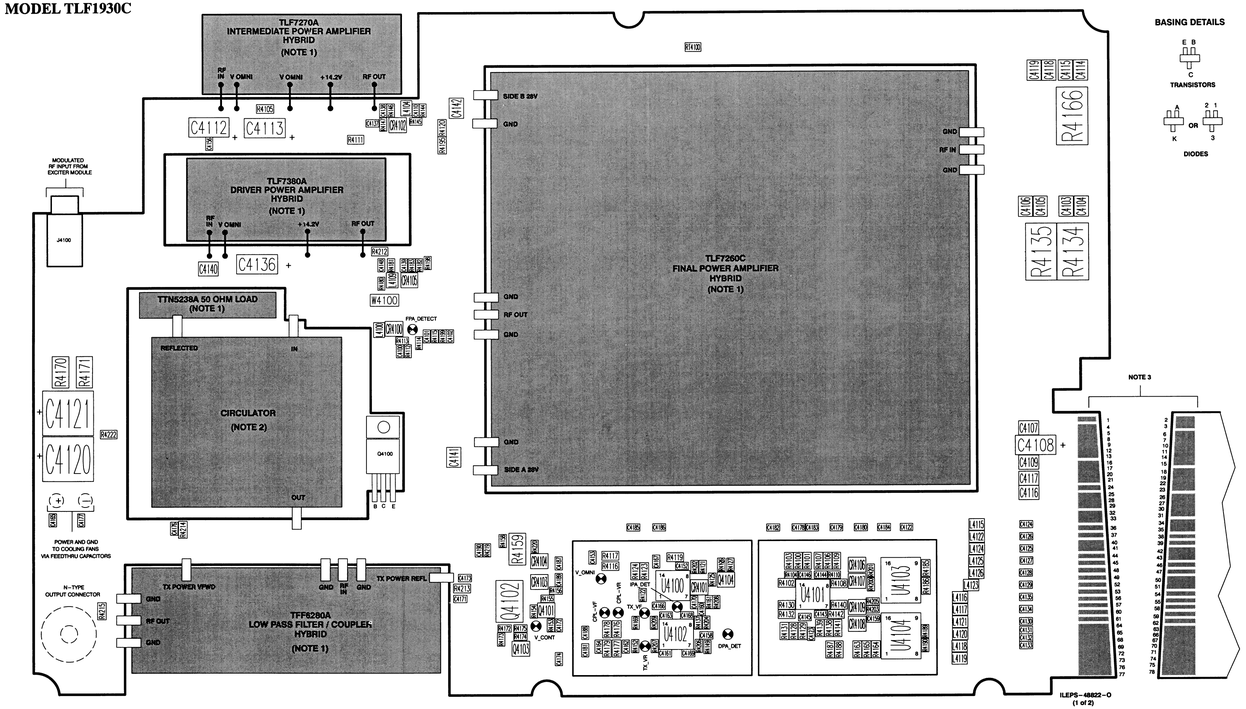
REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

LEGEND

MAIN RF SIGNAL PATH

100W 800 MHz POWER AMPLIFIER MODULE

MODEL TLF1930C



BASING DETAILS

NOTES:

1) TLF7260A, TLF7270A, TFF6280A, TLF7380A, AND TTN5238A ARE HYBRIDS AND ARE CONSIDERED NON-SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5864911706.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

ILEPS-48822-O
(2 OF 2)

parts list

TLF7390A RF/DC Distribution Board (800 MHz 100W PA) PL-13098-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A35	18 pF, ±5%, 50 V
C4101	2113740A43	39 pF, ±5%, 50 V
C4102	2113740G03	1 pF, ±0.1 pF, 50 V
C4103 thru 4107	2111078B32	39 pF, ±5%, 100V
C4108	2311048A45	10 uF, ±10%, 35 V
C4109	2111078B13	10 pF, ±0.5 pF, 100 V
C4110	2113740A35	18 pF, ±5%, 50 V
C4112,4113	2311048A45	10 uF, ±10%, 35 V
C4114 thru 4116	2111078B32	39 pF, ±5%, 100V
C4117	2111078B13	10 pF, ±0.5 pF, 100 V
C4118,4119	2111078B32	39 pF, ±5%, 100V
C4120,4121	2360090M27	330 uF, ±20%, 16 V
C4122 thru 4135	2113740A43	39 pF, ±5%, 50 V
C4136	2311048A45	10 uF, ±10%, 35 V
C4137,4138	2113740G03	1 pF, ±0.1 pF, 50 V
C4139	2113740A35	18 pF, ±5%, 50 V
C4140 thru 4142	2111078B32	39 pF, ±5%, 100V
C4143 thru 4146	2113740A43	39 pF, ±5%, 50 V
C4148	2113740G03	1 pF, ±0.1 pF, 50 V
C4152,4153	2113740A43	39 pF, ±5%, 50 V
C4156	2113740G03	1 pF, ±0.1 pF, 50 V
C4158 thru 4172	2113740A43	39 pF, ±5%, 50 V
C4173	2113740A25	7.54 pF, ±0.25 pF, 50V
C4174,4175	2113740G15	3.3 pF, ±0.1 pF, 50 V
C4176	2113740A25	7.54 pF, ±0.25 pF, 50V
C4177 thru 4189	2113740A43	39 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4101	4813833C02	Dual Diode; common cathode
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4105	4882290T04	Diode; hot carrier
CR4106 thru 4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle: uhf
		coil:
L4100	2462587N47	CHIP IND 33 NH 5%
L4104	2462587N41	10 nH, ±5%
L4109	2462587N44	18 nH, ±5%
L4115 thru 4126	2462587N55	150 nH, ±5%
L4129	2480981E65	22.57 nH, ±5%
		transistor (see note):
Q4100	4813822D08	TSTR PNP 100V 5A DARL MJF127
Q4101	4813824A10	NPN
Q4102	4813821A09	TSTR P-CH 60V 12A _2955_
Q4103,4104	4813824A10	NPN
		resistor, fixed:
R4100	0611077F94	10.7K, ±1%, 1/8 W
R4101	0611077F24	2K, ±1%, 1/8 W
R4102	0611077E94	1K, ±1%, 1/8 W
R4103	0611077F94	10.7K, ±1%, 1/8 W
R4104	0611079G01	10K, 1/10 W, ±1%
R4105	0611077A01	0 ohm, ±5%, 0 W
R4106	0611077F94	10.7K, ±1%, 1/8 W
R4107	0611077F24	2K, ±1%, 1/8 W
R4108	0611077E94	1K, ±1%, 1/8 W
R4109	0611077F94	10.7K, ±1%, 1/8 W
R4110	0611079G01	10K, 1/10 W, ±1%
R4111	0611077A01	0 ohm, ±5%, 0 W
R4112,4113	0611079G01	10K, 1/10 W, ±1%
R4114	0611079A84	2700 ohms, ±5%, 1/10 W
R4115	0611079A26	10 ohms, ±5%, 1/10 W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4119	0611077B15	47K, ±5%, 1/8 W
R4120	0611077A01	0 ohm, ±5%, 0 W
R4121	0611079A74	1K, ±5%, 1/10 W
R4122	0611079G01	10K, 1/10 W, ±1%
R4123	0611077F56	4.32K, ±1%, 1/8 W
R4124	0611077F68	5.76K, ±1%, 1/8 W
R4125,4126	0611079G01	10K, 1/10 W, ±1%
R4127	0611079A74	1K, ±5%, 1/10 W
R4128	0611077G04	13.3K, ±1%, 1/8W
R4129,4130	0611077F24	2K, ±1%, 1/8 W
R4131	0611077G22	20.5K, ±1%, 1/8 W
R4132	0611077G42	33.2K, ±1%, 1/8 W
R4134,4135	0682086V02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	1K, ±5%, 1/10 W
R4138	0611077G04	13.3K, ±1%, 1/8 W
R4139,4140	0611077F24	2K, ±1%, 1/8 W
R4141	0611077G22	20.5K, ±1%, 1/8 W
R4142	0611077G42	33.2K, ±1%, 1/8 W
R4144,4145	0611079G01	10K, 1/10 W, ±1%
R4146	0611079A56	180 ohms, ±5%, 1/10 W
R4147	0611079A44	56 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%, 1/10 W
R4152	0611079A74	1K, ±5%, 1/10 W
R4153	0611079A60	270 ohms, ±5%, 1/10 W
R4154 thru 4156	0611079A74	1K, ±5%, 1/10 W
R4158	0611079G01	10K, 1/10 W, ±1%
R4159	0683962T01	1 ohm, ±5%, 1 W
R4161	0611079A74	1K, ±5%, 1/10 W
R4163	0611077A01	0 ohm, ±5%, 0 W
R4164	0611077F12	1.5K, ±1%, 1/8 W
R4165	0611077G09	15K, ±1%, 1/8 W
R4166	0682086V02	SMT RES .02 OHM 5% 2W
R4168	0682086V02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	1K, ±5%, 1/10 W
R4170,4171	0683962T24	8.1 ohms, ±5%, 1 W
R4172	0611079G01	10K, 1/10 W, ±1%
R4173,4174	0611079A74	1K, ±5%, 1/10 W
R4175	0611079G01	10K, 1/10 W, ±1%
R4176	0611077B14	43K, ±5%, 1/8 W
R4177	0611077B10	30K, ±5%, 1/8W
R4178	0611077B14	43K, ±5%, 1/8 W
R4179	0611077B10	30K, ±5%, 1/8W
R4180	0611079A50	100 ohms, ±5%, 1/10 W
R4181	0611079A36	10 ohms, ±5%, 1/10 W
R4182,4183	0611079G01	10K, 1/10 W, ±1%
R4185	0611077G04	13.3K, ±1%, 1/8 W
R4186	0611077F24	2K, ±1%, 1/8 W
R4187	0611077F68	5.76K, ±1%, 1/8 W
R4188	0611077F24	2K, ±1%, 1/8 W
R4189,4190	0611079G01	10K, 1/10 W, ±1%
R4195	0611077A01	0 ohm, ±5%, 0 W
R4196 thru 4209	0611079A50	100 ohms, ±5%, 1/10 W
R4212	0611077A01	0 ohm, ±5%, 0 W
R4213,4214	0611077E94	1K, ±1%, 1/8 W
R4215	0611077A01	0 ohm, ±5%, 0 W
R4217	0611079A01	0 ohm, ±5%, 1/10 W
R4219	0611079B23	100K, ±5%, 1/10 W
R4220	0611079A01	0 ohms, ±5%, 1/10 W
R4222	0611077A01	0 ohm, ±5%, 0 W
		thermistor:
RT4100	0680149M02	100K, ±10%, 240 MW
		integrated circuit (see note):
U4100 thru 4102	5113818A05	High Performance, Single Supply Mux/Demux, Dual 4-Channel Analog
U4103,4104	5113805A84	
		cable assembly:
W4100	4280500F01	SMT ZERO OHM MELF
		cable assembly:
W4900	4284729T02	STRAP, PA
		non-referenced items:
	4365035U02	FLANGE, circulator load (VHF)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	1584753T02	Housing (used with E4105)
	1584753T02	Housing (used with E4101)
	1585034U03	COVER, Shield (used with E4100)
	1585034U03	COVER, Shield (used with E4101)
	5482009W01	LABEL, PCB barcode
	5482008W02	RIBBON, thermal XFER
	5484960T01	Label, barcode: 6.3 x 12.7MM, white
	8482219W05	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TRN7908A 800/900 MHz 100W PA Hardware PL-13084-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	0185181U01	ASSEM PA COOLING FANS
	0211996A02	NUT HEX 3/8 x 24 x 1/2 x 3/32
	0310943J09	Screw, tapping: T73 x 0.5 x 6 (16 used)
	0310943J10	Screw, tapping: T73 x 0.5 x 8 (13 used)
	0310943J15	Screw, tapping (2 used)
	0312016A31	SCRTPG T73.5X.6X12 STRPNSTLZNC (3 used)
	0312016A32	SCRTPG T73.5X.6X18 STRPNSTLZNC (8 used)
	0400007B91	WASHER, lock: 3/8", int. tooth (2 used)
	0900816159	CONNECTOR, receptacle: coaxial
	1585002U02	COVER High Band PA
	2182809R05	1000 pF, ±0%, 200V (2 used)
	2684772T05	HEATSINK HB PA
	3252790H05	GASKET, RFI .094 x 094" (35.75 used)
	5482008W01	Label, PCB barcode
	5482008W02	RIBBON, thermal XFER (0.00002 used)

TLF7380A Driver PA Hybrid PL-13102-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TFF6280A Low Pass Filter/Coupler Hybrid PL-13101-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLF7270A Intermediate PA Hybrid PL-13100-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTN5238A Circulator 50Ω Load PL-13103-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

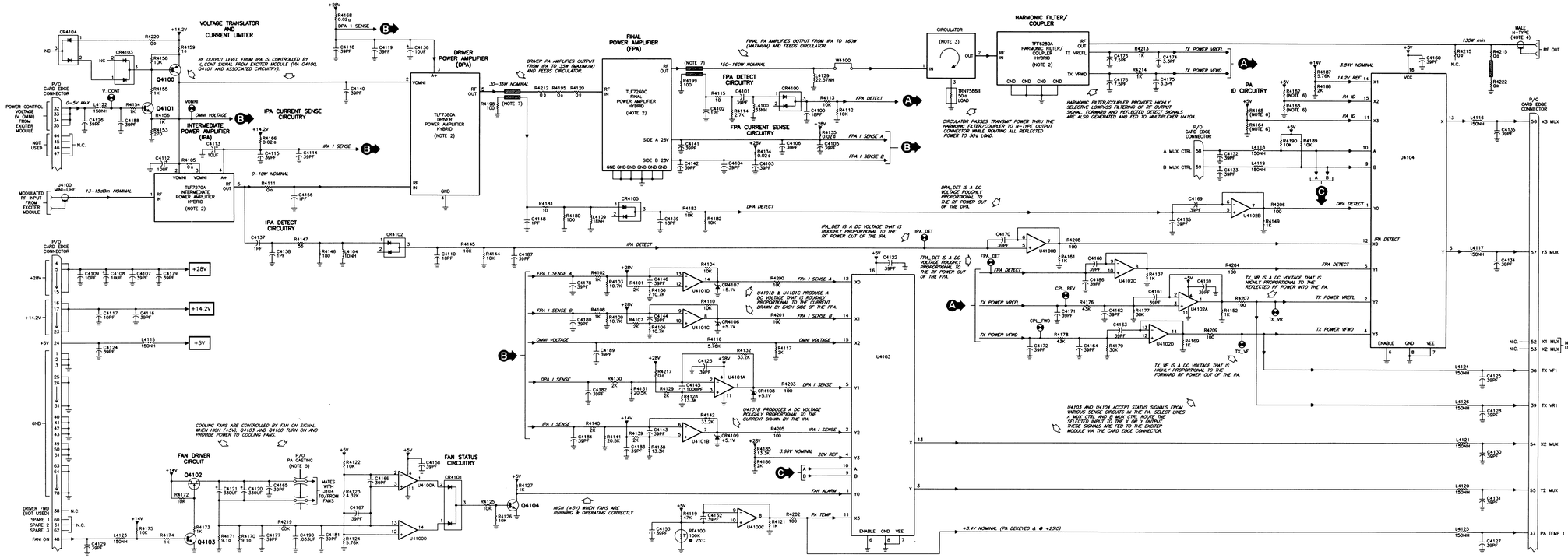
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLF7260C Final PA Hybrid PL-13099-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

100W 800 MHz POWER AMPLIFIER MODULE
MODEL TLF1930C



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES. N.C. = NO CONNECTION.
2. TLF7270 IPA, TLF7260 FPA, TLF7380 DPA, AND TLF6280 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.
4. THE N-TYPE OUTPUT CONNECTOR (0900816159, P/O TRN7908A HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. CONNECTIONS TO THE COOLING FANS ARE MADE VIA FEEDTHRU CAPACITORS (1000PF, P/O TRN7908A HARDWARE).
6. RESISTORS R4162 THRU R4165 COMPRISE A "RESISTOR ROM" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

MODEL	R4162	R4163	R4164	R4165
TLF1930A (800 MHz)	NOT PLACED	0	1.5K	15K

7. FPA/DPA DETECT CIRCUITRY ACCEPT SAMPLES OF FPA/DPA OUTPUTS VIA MICROSTRIP COUPLERS.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

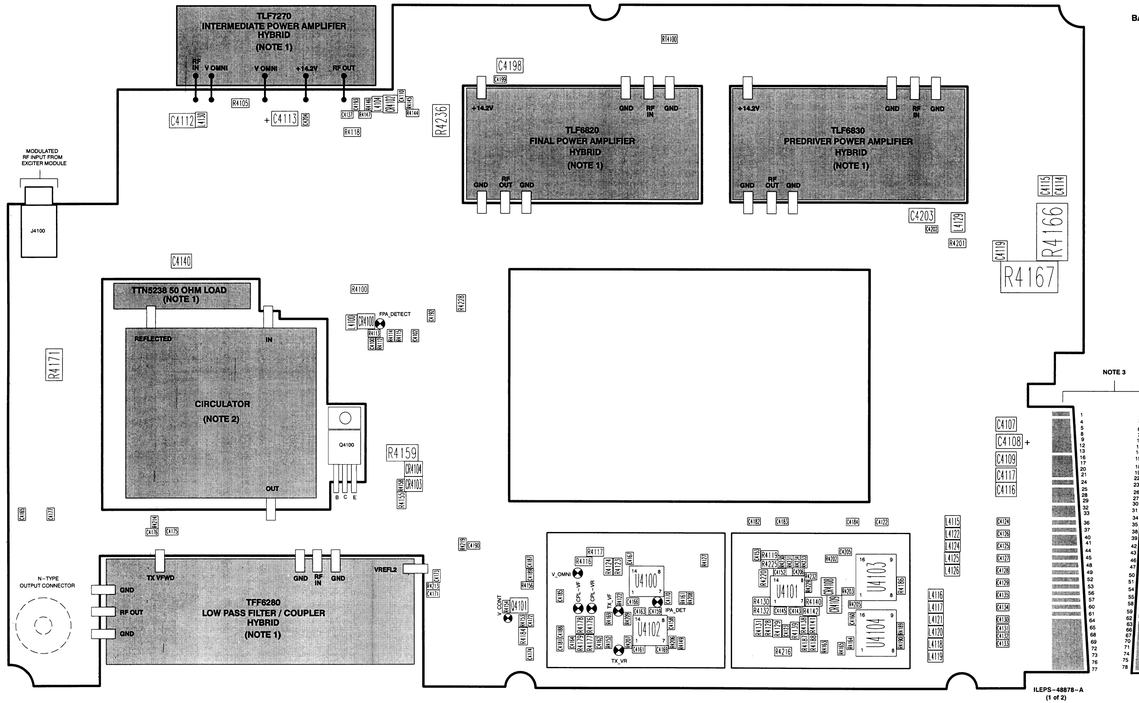
REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

LEGEND

MAIN RF SIGNAL PATH

20W 800 MHz POWER AMPLIFIER MODULE

MODEL TLF1940B



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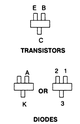
BASING DETAILS



NOTES:

1) ALL HYBRIDS ARE CONSIDERED NON-SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

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parts list

CLF6230A RF/DC Distribution Board (800 MHz 20W PA) PL-13174-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A35	18 pF, ±5%, 50 V
C4102	2113740G13	2.7 pF, ±0.1 pF, 50 V
C4107	2113901C48	CAP CHIP HI Q 39 PF ± 5%
C4108	2109822S06	CAP CHIP CER 10UF 16V
C4109	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4110	2113740A35	18 pF, ±5%, 50 V
C4112,4113	2109822S06	CAP CHIP CER 10UF 16V
C4114 thru 4116	2113901C48	CAP CHIP HI Q 39 PF ± 5%
C4117	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4119	2113901C48	CAP CHIP HI Q 39 PF ± 5%
C4122	2113740A43	39 pF, ±5%, 50 V
C4123	2113741A57	0.033 uF, ±5%, 50 V
C4124 thru 4135	2113740A43	39 pF, ±5%, 50 V
C4137	2113740G03	1 pF, ±0.1 pF, 50 V
C4140	2113901C48	CAP CHIP HI Q 39 PF ± 5%
C4143	2113740A43	39 pF, ±5%, 50 V
C4145	2113740A43	39 pF, ±5%, 50 V
C4152,4153	2113740A43	39 pF, ±5%, 50 V
C4158 thru 4160	2113741A57	0.033 uF, ±5%, 50 V
C4161 thru 4167	2113740A43	39 pF, ±5%, 50 V
C4169,4170	2113740A43	39 pF, ±5%, 50 V
C4171	2113740G15	3.3 pF, ±0.1 pF, 50 V
C4172	2113740A43	39 pF, ±5%, 50 V
C4173	2113740A25	7.54 pF, ±0.25 pF, 50V
C4174	2113740A43	39 pF, ±5%, 50 V
C4175	2113740G15	3.3 pF, ±0.1 pF, 50 V
C4176	2113740A25	7.54 pF, ±0.25 pF, 50V
C4177	2113740A43	39 pF, ±5%, 50 V
C4181 thru 4185	2113740A43	39 pF, ±5%, 50 V
C4187 thru 4189	2113740A43	39 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
C4192,4193	2113740G03	1 pF, ±0.1 pF, 50 V
C4198	2109822S06	CAP CHIP CER 10UF 16V
C4199	2113740A43	39 pF, ±5%, 50 V
C4202	2113740A43	39 pF, ±5%, 50 V
C4203	2109822S06	CAP CHIP CER 10UF 16V
C4204	2113740A43	39 pF, ±5%, 50 V
C4205	2113741A57	0.033 uF, ±5%, 50 V
C4206	2113740A43	39 pF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4108,4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0994393T01	receptacle; UHF
		inductor:
L4100	2462587X51	IND CHIP LO-PRO 68.0 NH 5%
L4104	2462587X41	IND CHIP LO-PRO 10.0 NH 5%
L4115 thru 4122	2462587X55	IND CHIP LO-PRO 150 NH 5%
L4124 thru 4126	2462587X55	IND CHIP LO-PRO 150 NH 5%
L4129	2484657R01	ferrite bead
L4130	2462587X55	IND CHIP LO-PRO 150 NH 5%
		translator (see note):
Q4100	4813822D08	Transistor; 100 V
Q4101	4813824A10	NPN
		resistor, fixed:
R4100	0611077A01	0 ohm, ±5%, 0 W
R4105	0611077A01	0 ohm, ±5%, 0 W
R4112,4113	0611079G01	10k, ±1%, 1/10 W
R4114,4115	0611079A50	100 ohms, ±5%, 1/10 W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4118	0611077A01	0 ohm, ±5%, 0 W
R4119	0611077B17	56K, ±5%, 1/8 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R4122	0611079G01	10k, ±1%, 1/10 W
R4123	0611077F56	4.32K, ±1%, 1/8 W
R4124	0611077F68	5.76K, ±1%, 1/8 W
R4127	0611079A74	1K, ±5%, 1/10 W
R4129	0611077G04	13.3K, ±1%, 1/8 W
R4129,4130	0611077F24	2K, ±1%, 1/8 W
R4131	0611077G22	20.5K, ±1%, 1/8 W
R4132	0611077G42	33.2K, ±1%, 1/8 W
R4138	0611077G04	13.3K, ±1%, 1/8 W
R4139,4140	0611077F24	2K, ±1%, 1/8 W
R4141	0611077G22	20.5K, ±1%, 1/8 W
R4142	0611077G42	33.2K, ±1%, 1/8 W
R4144,4145	0611079G01	10k, ±1%, 1/10 W
R4146	0611079A56	180 ohms, ±5%, 1/10 W
R4147	0611079A49	56 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%, 1/10 W
R4152	0611079A74	1K, ±5%, 1/10 W
R4153	0611079A60	270 ohms, ±5%, 1/10 W
R4154	0611079A74	1K, ±5%, 1/10 W
R4155	0611077E94	1K, ±1%, 1/8 W
R4156	0611079A74	1K, ±5%, 1/10 W
R4158	0611079G01	10k, ±1%, 1/10 W
R4159	0683962T01	1 ohm, ±5%, 1 W
R4161	0611079A74	1K, ±5%, 1/10 W
R4163	0611079A74	1K, ±5%, 1/10 W
R4164	0611079A78	1500 ohms, ±5%, 1/10 W
R4165	0611079G18	15K, ±1%, 1/10 W
R4166,4167	0682089V02	Resistor; .02 ohm 5% 2 W
R4169	0611079A74	1K, ±5%, 1/10 W
R4171	0683962T24	9.1 ohms, ±5%, 1 W
R4176	0611077A01	0 ohm, ±5%, 0 W
R4177	0611077G76	75K, ±1%, 1/8 W
R4178	0611077A01	0 ohm, ±5%, 0 W
R4179	0611077G76	75K, ±1%, 1/8 W
R4184	0611077A01	0 ohm, ±5%, 0 W
R4186	0611077F24	2K, ±1%, 1/8 W
R4187	0611077F68	5.76K, ±1%, 1/8 W
R4188	0611077F24	2K, ±1%, 1/8 W
R4189,4190	0611079G01	10k, ±1%, 1/10 W
R4201	0611077A01	0 ohm, ±5%, 0 W
R4202,4203	0611079A50	100 ohms, ±5%, 1/10 W
R4205 thru 4209	0611079A50	100 ohms, ±5%, 1/10 W
R4213-4214	0611079A74	1K, ±5%, 1/10 W
R4216	0611077A01	0 ohm, ±5%, 0 W
R4219	0611079G01	10k, ±1%, 1/10 W
R4220	0611077F91	10K, ±1%, 1/8 W
R4225	0611077A92	5.6K, ±5%, 1/8 W
R4228	0611077A01	0 ohm, ±5%, 0 W
R4229 thru 4234	0611079G01	10k, ±1%, 1/10 W
R4236	0683962T98	0.51 ohms, ±5%, 1W
		thermistor:
RT4100	0680149M02	100 k, ±10%, 240 mW
		integrated circuit (see note):
U4100 thru 4102	5113819A05	High Performance, Single Supply
U4103,4104	5113805A84	Mux/Demux, Dual 4-Channel Analog
		non-referenced items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL (2 used)
	5484960T02	LABEL BLANK BARCODE
	8482219Y01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

CLN7247A 800 MHz 20W PA Hardware PL-13175-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	0211996A02	NUT, hex; 3/8 x 24 x 1/2 x 3/32
	0310943J09	Screw, tapping; T73 x 0.5 x 6 (24 used)
	0310943J10	SCREW, tapping; T73 x 0.5 x 8 (8 used)
	0312016A32	SCREW, tapping; T73.5 X 6 x 18 (8 used)
	0383812P01	SCREW, tapping; M4 x 0.7 x 20 (4 used)
	0400007691	WASHER, lock; 3/8", int, tooth (2 used)
	0900816159	CONNECTOR, receptacle: coaxial
	1585000J02	COVER, Highband PA
	2682318W05	HEATSINK PA 25W QUANTAR
	3282796H05	GASKET, .094 x 094" (36 used)
	5482624Y01	LABEL THERMAL XFER WHT POLYSTR

TLF7270A Intermediate PA Hybrid PL-13121-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.		

TLF6830A Predriver PA Hybrid PL-13177-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.		

TLF6820A Final PA Hybrid PL-13176-O

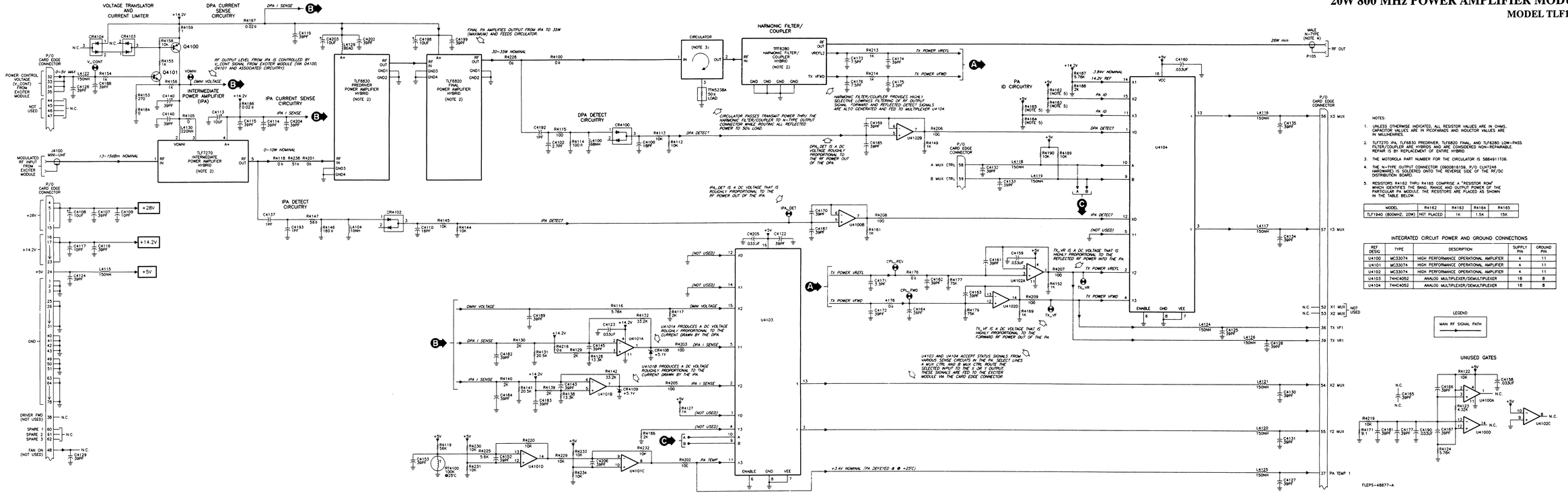
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.		

TFF6280B Low Pass Filter/Coupler Hybrid PL-13123-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.		

TTN5238A Circulator 50Ω Load PL-13074-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W4900	4284729T02	STRAP, PA
		non-referenced items:
	4385035U02	FLANGE circulator load (VHF)



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. TLF7270, (P/N TLF6830) PREDRIVER, TLF6820 FINAL, AND TLF6280 LOW–PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON–REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.
4. THE N–TYPE OUTPUT CONNECTOR (0900B81S9, P/O CLN7246 HARDWARE) IS SOLDERED ONTO THE RESERVE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. RESISTORS R4162 THRU R4165 COMPRISE A "RESISTOR ROM" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

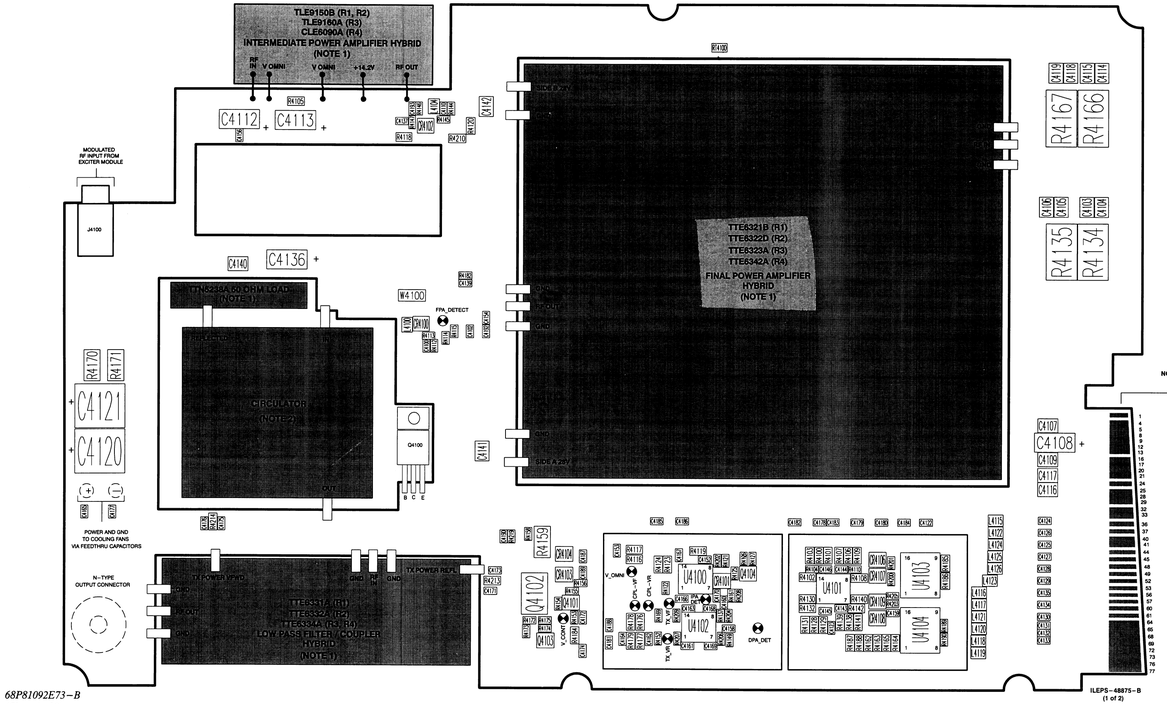
MODEL	R4162	R4163	R4164	R4165
TLF1940 (800MHZ, 20W)	NOT PLACED	1K	1.5K	15K

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

UHF 100/110W POWER AMPLIFIER MODULES

MODELS TTE2061A / 62B / 63−64A



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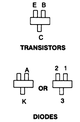
BASING DETAILS



NOTES:

1) ALL HYBRIDS ARE CONSIDERED NON−SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T04 (R1, R2) AND 5884911T18 (R3, R4).

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS−REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

ILEPS−48875−B
(2 OF 2)

parts list

TTE6371−7AA RF/DC Distribution Board (UHF R1−R4; 100/110W PA) PL−13110−B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A49	56 pF, ±5%, 50V
C4102	2113740G03	1 pF, ±0.1 pF, 50 V
C4103 thru 4107	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4108	2311049A45	10 uF, ± 10%, 35 V
C4109	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4110	2113740A49	56 pF, ±5%, 50V
C4112,4113	2311049A45	10 uF, ± 10%, 35 V
C4114 thru 4116	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4117	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4118,4119	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4120,4121	2380909M27	330 uF, ±20%, 16 V
C4122 thru 4135	2113740A55	100 pF, ±5%, 50 V
C4136	2311049A45	10 uF, ± 10%, 35 V
C4137	2113740G03	1 pF, ±0.1 pF, 50 V
C4140 thru 4142	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4143 thru 4146	2113740A55	100 pF, ±5%, 50 V
C4152,4153	2113740A55	100 pF, ±5%, 50 V
C4154	2113740G03	1 pF, ±0.1 pF, 50 V
C4156	2113740G03	1 pF, ±0.1 pF, 50 V
C4158 thru 4189	2113740A55	100 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
C4192,4193	2113740G03	1 pF, ±0.1 pF, 50 V
C4194	2113741B69	0.1 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4101	4813833C02	Dual diode; common cathode
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4106 thru 4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle: UHF
		coil:
L4100	2462587X57	CHIP IND lopro 220 NH 5%
L4104	2462587X57	CHIP IND lopro 220 NH 5%
L4115 thru 4126	2462587X57	CHIP IND lopro 220 NH 5%
		translator (see note):
Q4100	4813822D08	Transistor; 100 V
Q4101	4813824A10	NPN
Q4102	4813821A09	Transistor; 60 V
Q4103,4104	4813824A10	NPN
		resistor, fixed:
R4100	0611077F94	10.7K, ±1%, 1/8 W
R4101	0611077F24	2K, ±1%, 1/8 W
R4102	0611077E94	1K, ±1%, 1/8 W
R4103	0611077F94	10.7K, ±1%, 1/8 W
R4104	0611079G01	10k, ±1%, 1/10 W
R4105	0611077A01	0 ohm, ±5% 0 W
R4106	0611077F94	10.7K, ±1%, 1/8 W
R4107	0611077F24	2K, ±1%, 1/8 W
R4108	0611077E94	1K, ±1%, 1/8 W
R4109	0611077F94	10.7K, ±1%, 1/8 W
R4110	0611079G01	10k, ±1%, 1/10 W
R4112	0611079G01	10k, ±1%, 1/10 W
R4113	0611079A94	6800 ohms, ±5%, 1/10 W
R4114	0611079A84	2700 ohms, ±5%, 1/10 W
R4115	0611079A69	620 ohms, ±5%, 1/10W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4118	0611077A01	0 ohm, ±5% 0 W
R4119	0611077B15	47K, ±5%; 1/8 W
R4120	0611077A01	0 ohm, ±5% 0 W
R4121	0611079A74	1K, ±5%; 1/10 W
R4122	0611079G01	10k, ±1%; 1/10 W
R4123	0611077F56	4.32K, ±1%; 1/8 W
R4124	0611077F68	5.76K, ±1%; 1/8 W
R4125,4126	0611079G01	10k, ±1%; 1/10 W
R4127	0611079A74	1K, ±5%; 1/10 W
R4128	0611077G04	13.3K, ±1%; 1/8 W
R4129,4130	0611077F24	2K, ±1%; 1/8 W
R4131	0611077G22	20.5K, ±1%; 1/8 W
R4132	0611077G42	33.2K, ±1%; 1/8 W
R4134,4135	0682089V02	Resistor; .02 ohm 5% 2 W
R4137	0611079A74	1K, ±5%; 1/10 W
R4138	0611077G04	13.3K, ±1%; 1/8 W
R4139,4140	0611077F24	2K, ±1%; 1/8 W
R4141	0611077G22	20.5K, ±1%; 1/8 W
R4142	0611077G42	33.2K, ±1%; 1/8 W
R4144	0611079A96	8200 ohms, ±5%; 1/10 W
R4145	0611079A84	2700 ohms, ±5%; 1/10 W
R4146	0611079A74	1K, ±5%; 1/10 W
R4147	0611079A50	100 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%; 1/10 W
R4152	0611079A74	1K, ±5%; 1/10 W
R4153	0611079A42	47 ohms, ±5%; 1/10 W
R4154	0611079A74	1K, ±5%; 1/10 W
R4155	0611077F24	2K, ±1%; 1/8 W
R4156	0611079A74	1K, ±5%; 1/10 W
R4158	0611079G01	10k, ±1%; 1/10 W
R4159	0683962T01	1 ohm, ±5%; 1 W
R4161	0611079A74	1K, ±5%; 1/10 W
R4162	0611077B03	15K, ±5%; 1/8 W (TTE6371)
	0611077A74	1K, ±5%; 1/8 W (TTE6372)
	0611077A82	2.2K, ±5%; 1/8 W (TTE6373)
	0611077B05	16K, ±5%; 1/8 W (TTE6374)
R4163	0611077A78	1.5K, ±5%; 1/8 W (TTE6371)
	0611077A84	390 ohms, ±5%; 1/8 W (TTE6372)
	0611077A84	2.7K, ±5%; 1/8 W (TTE6373)
	0611077B03	15K, ±5%; 1/8 W (TTE6374)
R4164	0611077A68	560 ohms, ±5%; 1/8 W (TTN6371)
	0611077A50	100 ohms, ±5%; 1/8 W (TTN6372)
	0611077A78	1.5K, ±5%; 1/8 W (TTN6373A/74)
R4165	0611077A98	10K, ±5%; 1/8 W (TTE6371)
	0611077A74	1K, ±5%; 1/8 W (TTE6372)
	0611077B03	15K, ±5%; 1/8 W (TTE6373/74)
R4166,4167	0682089V02	Resistor; .02 ohm 5% 2 W
R4169	0611079A74	1K, ±5%; 1/10 W
R4170,4171	0683962T24	9.1 ohms, ±5%; 1 W
R4172	0611079G01	10k, ±1%; 1/10 W
R4173,4174	0611079A74	1K, ±5%; 1/10 W
R4175	0611079G01	10k, ±1%; 1/10 W
R4176	0611077G49	39.2K, ±1%; 1/8 W
R4177	0611077G41	32.4K, ±1%; 1/8 W
R4178	0611077G49	39.2K, ±1%; 1/8 W
R4179	0611077G41	32.4K, ±1%; 1/8 W
R4182	0611079G01	10k, ±1%; 1/10 W
R4184	0611077A58	220 ohms, ±5%; 1/8 W
R4185	0611077G04	13.3K, ±1%; 1/8 W
R4186	0611077F24	2K, ±1%; 1/8 W
R4187	0611077F68	5.76K, ±1%; 1/8 W
R4188	0611077F24	2K, ±1%; 1/8 W
R4189,4190	0611079G01	10k, ±1%; 1/10 W
R4200 thru 4209	0611079A50	100 ohms, ±5%; 1/10 W
R4210	0611077A01	0 ohm, ±5%; 0 W
R4213,4214	0611077E94	1K, ±1%, 1/8 W
R4219	0611079B03	100K, ±5%; 1/10 W
R4224	0611077F24	2K, ±1%; 1/8 W
		thermistor:
RT4100	0680149M02	100 k, ±1%; 240 mW
		integrated circuit (see note):
U4100 thru 4102	5113818A05	High Performance, Single Supply
U4103,4104	5113805A84	Mux/Demux, Dual 4−Channel Analog
		cable assembly:
W4100	4280500F01	Resistor; 0 ohm
		non−referenced items:
	1584753T02	Housing (used with E4100)
	1584753T02	Housing (used with E4101)
		COVER, Shield (used with E4100)
		COVER, Shield (used with E4101)
	5482006W01	Label, PCB barcode
	5482006W02	ribbon, thermal transfer
	5484960T01	Label, barcode; 6.3 x 12.7mm, white
	8482790X03	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TTN5069A UHF 100/110W PA Hardware PL−13111−O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non−referenced items:
	0185181U01	Assembly; PA Cooling Fans
	0211996A02	NUT, hex; 3/8 x 24 x 1/2 x 3/32
	0310917A51	SCRAICH M3.5X0.6X12 STPN STLZNC (5 used)
	0310943J09	Screw, tapping: TT3 x 0.5 x 6 (16 used)
	0310943J10	SCREW, tapping; TT3 x 0.5 x 8 (12 used)
	0312016A32	SCREW, tapping; TT3.5 X 6 x 18 (8 used)
	0400007691	WASHER, lock: 3/8", int. tooth (2 used)
	0900816159	CONNECTOR, receptacle: coaxial
	1585003U02	COVER, Highband PA
	2182805H05	1000 pF, ±0%; 200V (2 used)
	2682318W01	HEATSINK PA 100W (W/FINS)
	3282796H05	GASKET, .094 x .094" (35.75 used)
	5482006W01	Label, PCB barcode

TTE6331A/32A/34A Low Pass Filter/Coupler Hybrid PL−13112−O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non−serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTE6321B/22D/23A/24A UHF 100/110W Final PA Hybrid PL−13114−A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non−serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLE9150B / TLE9160A / CLE6090A Intermediate PA Hybrid PL−13113−B

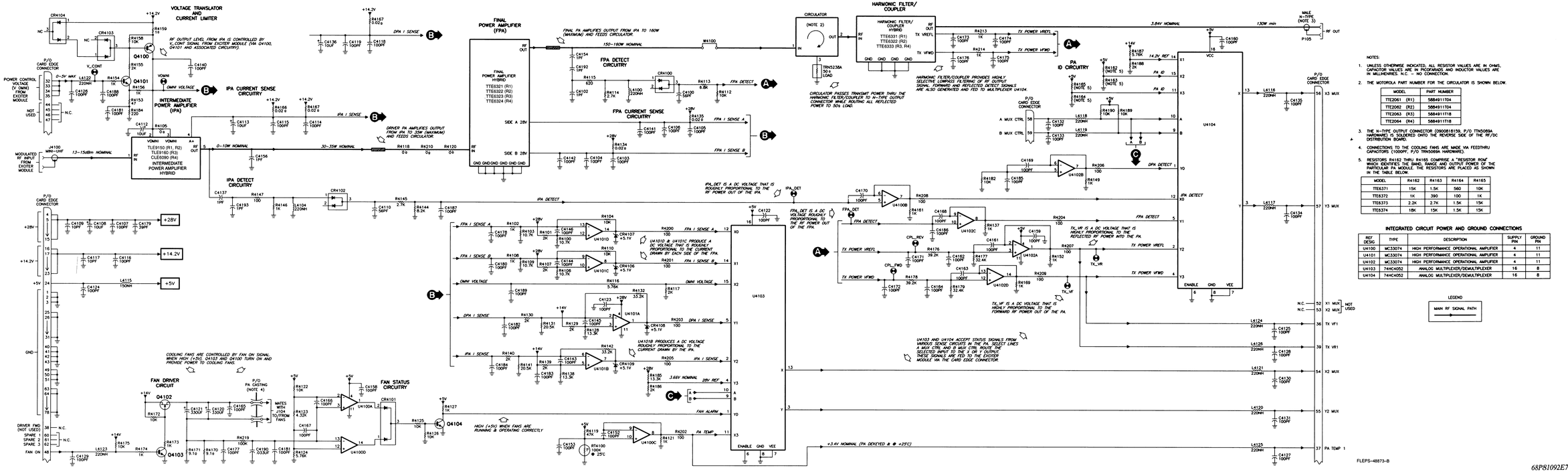
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non−serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTN5238A Circulator 50Ω Load PL−13103−O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W4900	4284729T02	STRAP, PA
		non−referenced items:
	4385035U02	FLANGE, circulator load (VHF)

This hybrid contains non−serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES. N.C. = NO CONNECTION.
2. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS SHOWN BELOW.

MODEL	PART NUMBER
TTE2061 (R1)	5884911T04
TTE2062 (R2)	5884911T04
TTE2063 (R3)	5884911T18
TTE2064 (R4)	5884911T18

3. THE N−TYPE OUTPUT CONNECTOR (0900081615R, P/O TTN5059A HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
4. CONNECTIONS TO THE COOLING FANS ARE MADE VIA FEEDTHRU CAPACITORS (1000PF, P/O TRN5069A HARDWARE).
5. RESISTORS R4162 THRU R4165 COMPRISE A "RESISTOR ROW" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

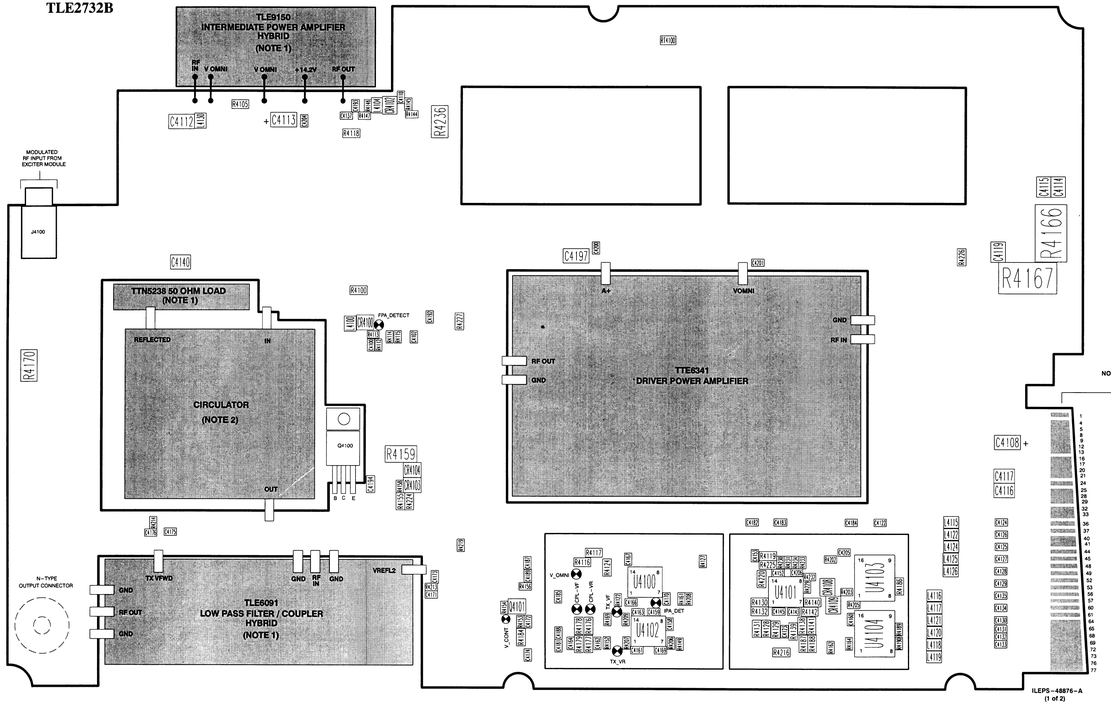
MODEL	R4162	R4163	R4164	R4165
TTE6371	15K	1.5K	560	10K
TTE6372	1K	390	100	1K
TTE6373	2.2K	2.7K	1.5K	15K
TTE6374	18K	15K	1.5K	15K

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

25W UHF POWER AMPLIFIER MODULES

MODELS TLE2731B
TLE2732B



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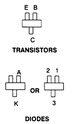
68P81092E74-B
(Sheet 1 of 2)
3/31/02-UP

BASING DETAILS



NOTES:

1) ALL HYBRIDS ARE CONSIDERED NON-SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T04.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

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parts list

CLE6070A/80A RF/DC Distribution Board (UHF, 25W, R1 & R2) PL-13115-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A49	56 pF, ±5%, 50V
C4102	2113740G24	6.8 pF, ±0.1 pF, 50V
C4108	2109822S06	CAP CHIP CER 10UF 16V
C4110	2113740A49	56 pF, ±5%, 50V
C4112,4113	2109822S06	CAP CHIP CER 10UF 16V
C4114 thru 4116	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4117	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4119	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4122	2113740A55	100 pF, ±5%, 50 V
C4123	2113741A57	0.033 uF, ±5%, 50 V
C4124 thru 4135	2113740A55	100 pF, ±5%, 50 V
C4137	2113740G03	1 pF, ±0.1 pF, 50 V
C4140	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4143	2113740A55	100 pF, ±5%, 50 V
C4145	2113740A55	100 pF, ±5%, 50 V
C4152,4153	2113740A55	100 pF, ±5%, 50 V
C4158 thru 4160	2113741A57	0.033 uF, ±5%, 50 V
C4161 thru 4164	2113740A55	100 pF, ±5%, 50 V
C4166,4167	2113740A55	100 pF, ±5%, 50 V
C4169 thru 4172	2113740A55	100 pF, ±5%, 50 V
C4173	2113740A43	39 pF, ±5%, 50 V
C4174,4175	2113740A33	15 pF, ±5%, 50 V
C4176	2113740A43	39 pF, ±5%, 50 V
C4181 thru 4185	2113740A55	100 pF, ±5%, 50 V
C4187 thru 4189	2113740A55	100 pF, ±5%, 50 V
C4192	2113740G03	1 pF, ±0.1 pF, 50 V
C4193	2113740G17	3.9 pF, ±0.1 pF, 50V
C4194	2113741B69	0.1 uF, ±5%, 50 V
C4197	2109822S06	CAP CHIP CER 10UF 16V
C4200,4201	2113740A55	100 pF, ±5%, 50 V
C4204	2113740A55	100 pF, ±5%, 50 V
C4205	2113741A57	0.033 uF, ±5%, 50 V
C4206	2113740A55	100 pF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4106,4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle; UHF
		inductor:
L4100	2462587X57	CHIP IND lopro 220 NH 5%
L4104	2462587X57	CHIP IND lopro 220 NH 5%
L4115 thru 4122	2462587X57	CHIP IND lopro 220 NH 5%
L4124 thru 4126	2462587X57	CHIP IND lopro 220 NH 5%
L4130	2462587X57	CHIP IND lopro 220 NH 5%
		translator (see note):
Q4100	4813822D08	Transistor; 100 V
Q4101	4813824A10	NPN
		resistor, fixed:
R4100	0611077A01	0 ohm, ±5%, 0 W
R4105	0611077A01	0 ohm, ±5%, 0 W
R4112,4113	0611079G01	10k, ±1%, 1/10 W
R4114	0611079A74	1K, ±5%, 1/10 W
R4115	0611079A50	100 ohms, ±5%, 1/10 W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4118	0611077A01	0 ohm, ±5%, 0 W
R4119	0611077B17	56K, ±5%, 1/8 W
R4122	0611079G01	10k, ±1%, 1/10 W
R4124	0611077F68	5.76K, ±1%, 1/8 W
R4127	0611079A74	1K, ±5%, 1/10 W
R4128	0611077G04	13.3K, ±1%, 1/8 W
R4129,4130	0611077F24	2K, ±1%, 1/8 W
R4131	0611077G22	20.5K, ±1%, 1/8 W
R4132	0611077G42	33.2K, ±1%, 1/8 W
R4138	0611077G04	13.3K, ±1%, 1/8 W
R4139,4140	0611077F24	2K, ±1%, 1/8 W
R4141	0611077G22	20.5K, ±1%, 1/8 W
R4142	0611077G42	33.2K, ±1%, 1/8 W
R4144	0611079G01	10k, ±1%, 1/10 W
R4145	0611079A86	3300 ohms, ±5%, 1/10 W
R4146	0611079A74	1K, ±5%, 1/10 W
R4147	0611079A50	100 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%, 1/10 W
R4152	0611079A74	1K, ±5%, 1/10 W
R4153	0611079A60	270 ohms, ±5%, 1/10 W
R4154	0611079A74	1K, ±5%, 1/10 W
R4155	0611077F24	2K, ±1%, 1/8 W
R4156	0611079A74	1K, ±5%, 1/10 W
R4158	0611079A74	1K, ±5%, 1/10 W
R4159	0683962T01	1 ohm, ±5%, 1 W
R4161	0611079A74	1K, ±5%, 1/10 W
R4162	0611079A01	0 ohms, ±5%, 1/10 W (CLE6070A Only)
R4163	0611079A01	0 ohms, ±5%, 1/10 W (CLE6080A Only)
R4164	0611079A01	0 ohms, ±5%, 1/10 W (CLE6070A)
	0611079A74	1K, ±5%, 1/10 W (CLE6080A)
R4166,4167	0682089F02	Resistor, .02 ohm 5% 2 W
R4169	0611079A74	1K, ±5%, 1/10 W
R4170	0683962T24	9.1 ohms, ±5%, 1 W
R4176	0611077A01	0 ohm, ±5%, 0 W
R4177	0611077G76	75K, ±1%, 1/8 W
R4178	0611077A01	0 ohm, ±5%, 0 W
R4179	0611077G76	75K, ±1%, 1/8 W
R4184	0611077A01	0 ohm, ±5%, 0 W
R4186	0611077F24	2K, ±1%, 1/8 W
R4187	0611077F68	5.76K, ±1%, 1/8 W
R4188	0611077F24	2K, ±1%, 1/8 W
R4189,4190	0611079G01	10k, ±1%, 1/10 W
R4202,4203	0611079A50	100 ohms, ±5%, 1/10 W
R4205 thru 4209	0611079A50	100 ohms, ±5%, 1/10 W
R4213,4214	0611079A74	1K, ±5%, 1/10 W
R4216	0611077A01	0 ohm, ±5%, 0 W
R4219	0611079G01	10k, ±1%, 1/10 W
R4220	0611077F91	10K, ±1%, 1/8 W
R4224	0611077F24	2K, ±1%, 1/8 W
R4225	0611077A92	5.6K, ±5%, 1/8 W
R4226,4227	0611077A01	0 ohm, ±5%, 0 W
R4229 thru 4234	0611079G01	10k, ±1%, 1/10 W
R4236	0683962T98	0.51 ohms, ±5%, 1W
		thermistor:
RT4100	0680149M02	100 k, ±10%, 240 mW
		integrated circuit (see note):
U4100 thru 4102	5113819A05	High Performance, Single Supply
U4103,4104	5113805A84	Mux/Demux, Dual 4-Channel Analog
		non-referenced items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL (2 used)
	5484960T02	LABEL BLANK BARCODE
	8482215Y01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

CLN7246A VHF/UHF 25W PA Hardware PL-13171-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	0211996A02	NUT, hex, 3/8 x 24 x 1/2 x 3/32
	0310943J09	Screw, tapping: TT3 x 0.5 x 6 (24 used)
	0310943J10	SCREW, tapping: TT3 x 0.5 x 8 (8 used)
	0312016A32	SCREW, tapping: TT3.5 X 6 x 18 (8 used)
	0383498N05	SCREW, tapping: M4 x 0.7 x 12 (2 used)
	0400007691	WASHER, lock: 3/8", int. tooth (2 used)
	0906816159	CONNECTOR, receptacle: coaxial
	1585002U02	COVER, Highband PA
	2682318W05	HEATSINK PA 25W QUANTAR
	3282796H05	GASKET, .094 x .094" (36 used)
	4280500F01	T & R VER OF 4282981X01 (2 used)
	5482006W02	ribbon, thermal transfer
	5482824Y01	LABEL THERMAL XFER WHT POLYSTR

TLE9150B Intermediate PA Hybrid PL-13117-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTE6341A Driver PA Hybrid PL-13172-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTN5238A Circulator 50Ω Load PL-13074-A

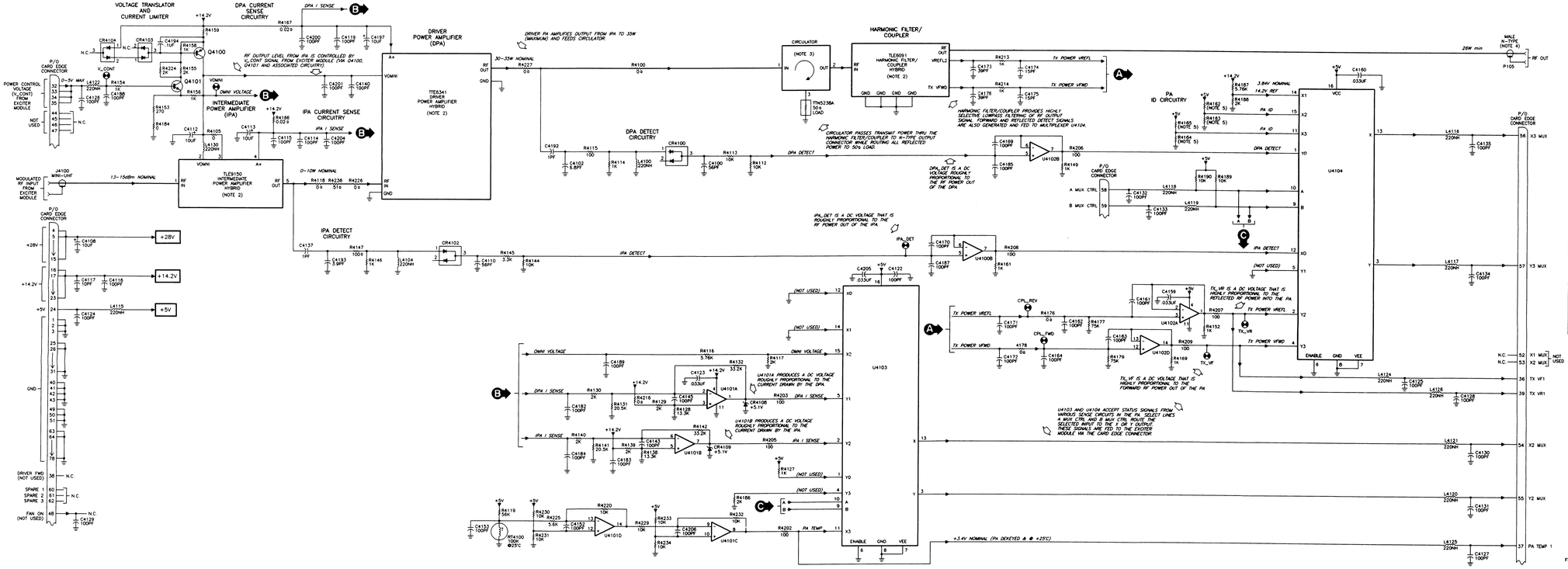
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W4900	4284729T02	STRAP, PA
		non-referenced items:
	4385035U02	FLANGE circulator load (VHF)

TLE6091A Low Pass Filter/Coupler Hybrid PL-13173-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

25W UHF POWER AMPLIFIER MODULES
MODELS TLE2731B TLE2732B



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRYS.
2. TLE5150 PIN, TTE6341 DPA AND TLE6091 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T04.
4. THE N-TYPE OUTPUT CONNECTOR (0900818159, P/O CLN7246 HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. RESISTORS R4182 THRU R4165 COMPRISE A "RESISTOR ROM" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

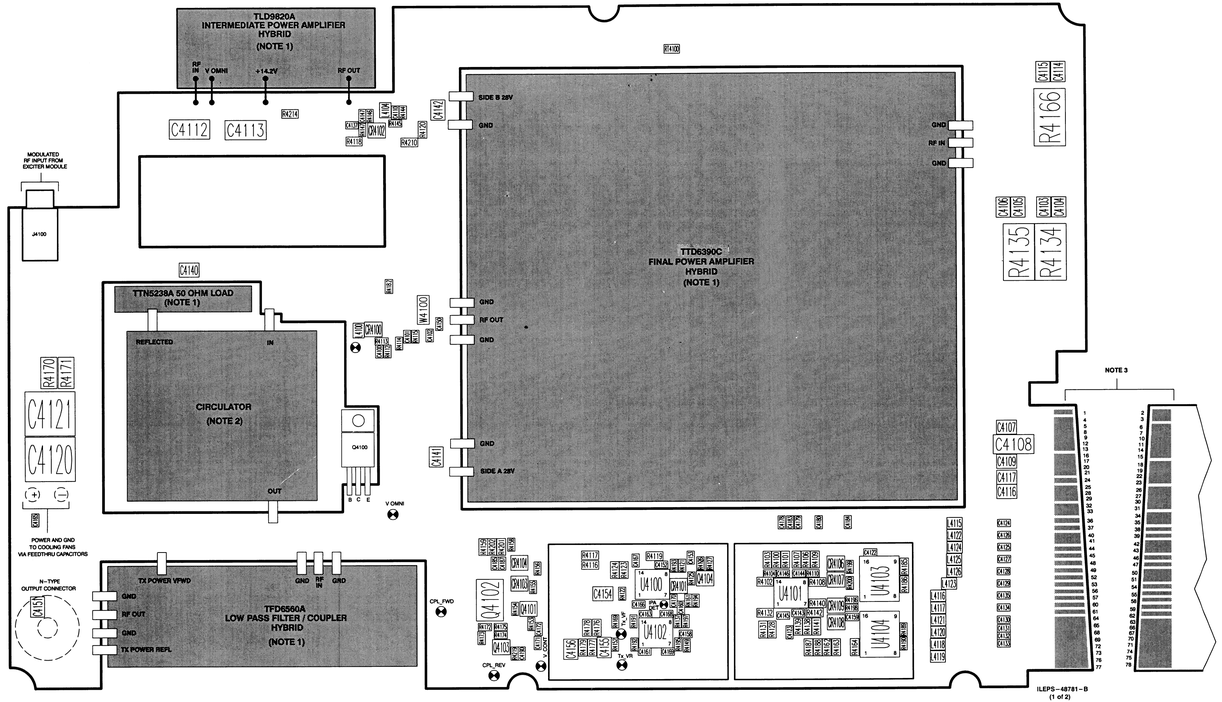
MODEL	R4182	R4163	R4164	R4165
25W UHF TLE2731B R1	33.2K	NOT PLACED	0Ω	NOT PLACED
25W UHF TLE2732B R2	NOT PLACED	0Ω	1K	NOT PLACED

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

125W VHF POWER AMPLIFIER MODULE

MODELS TLD3101G / TLD3102G



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NOTES:

1) TLD9820A, TLD9810A, TRNT5668, AND TFD6560A ARE HYBRIDS AND ARE CONSIDERED NON-SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T19 (TLD3101; 125W, R1) OR 5884911T20 (TLD3102; 125W, R2).

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VOMNI	71	GND
33	VOMNI	72	GND
34	VOMNI	73	GND
35	VOMNI	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1	78	GND

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parts list

TYD4367A RF/DC Distribution Board (VHF; 125W, R1)
TYD4368A RF/DC Distribution Board (VHF; 125W, R2) PL-13070-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A55	100 pF, ±5%, 50 V
C4101	2113740A63	220 pF, ±5%, 50 V
C4102	2113740A39	27 pF, ±5%, 50 V
C4103	2111078B59	470 pF, ±5%, 100 V
C4104	2111078B42	100 pF, ±5%, 100 V
C4105	2111078B59	470 pF, ±5%, 100 V
C4106	2111078B42	100 pF, ±5%, 100 V
C4107	2111078B59	470 pF, ±5%, 100 V
C4108	2311049A45	10 uF, ±10%, 35 V
C4109	2111078B13	10 pF, ±0.5 pF, 100 V
C4110	2113740A55	100 pF, ±5%, 50 V
C4112;4113	2311049A45	10 uF, ±10%, 35 V
C4114	2111078B59	470 pF, ±5%, 100 V
C4115	2111078B42	100 pF, ±5%, 100 V
C4116	2111078B59	470 pF, ±5%, 100 V
C4117	2111078B13	10 pF, ±0.5 pF, 100 V
C4120;4121	2383090M27	330 uF, ±20%, 16 V
C4122	2113740A79	1000 pF, ±5%, 50 V
C4123	2113740A71	470 pF, ±5%, 50 V
C4124 thru 4135	2113740A79	1000 pF, ±5%, 50 V
C4137	2113740G33	15 pF, ±2%, 50 V
C4140 thru 4142	2111078B59	470 pF, ±5%, 100 V
C4143 thru 4146	2113740A79	1000 pF, ±5%, 50 V
C4147	2113740G05	1.2 pF, ±0.1 pF; 50 V
C4150	2113740G05	1.2 pF, ±0.1 pF; 50 V
C4151	2111078B05	4.7 pF, ±0.25 pF; 100 V
C4152,4153	2113740A79	1000 pF, ±5%, 50 V
C4154 thru 4156	2111078B59	470 pF, ±5%, 100 V
C4158 thru 4161	2113740A71	470 pF, ±5%, 50 V
C4163	2113740A43	39 pF, ±5%, 50 V
C4165	2113740A43	39 pF, ±5%, 50 V
C4166 thru 4168	2113740A71	470 pF, ±5%, 50 V
C4169	2113740A43	39 pF, ±5%, 50 V
C4170	2113740A71	470 pF, ±5%, 50 V
C4171,4172	2113740A79	1000 pF, ±5%, 50 V
C4178 thru 4180	2113740A79	1000 pF, ±5%, 50 V
C4183 thru 4185	2113740A79	1000 pF, ±5%, 50 V
C4187	2113740A79	1000 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4101	4813833C02	Dual diode; common cathode
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4106 thru 4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle: UHF
		coil:
L4100	2462587N58	270 NH, 5%
L4104	2462587X57	CHIP IND lopro 220 NH 5%
L4115 thru 4126	2462587X57	CHIP IND lopro 220 NH 5%
		transistor (see note):
Q4100	4813822D08	Transistor; 100 V
Q4101	4813824A10	NPN
Q4102	4813821A09	Transistor; 60 V
Q4103,4104	4813824A10	NPN
		resistor, fixed:
R4100	0611077F94	10.7K, ±1%; 1/8 W
R4101	0611077F24	2K, ±1%; 1/8 W
R4102	0611077E94	1K, ±1%; 1/8 W
R4103	0611077F94	10.7K, ±1%; 1/8 W
R4104	0611079G01	10k, ±1%; 1/10 W
R4105	0611077F94	10.7K, ±1%; 1/8 W
R4107	0611077F24	2K, ±1%; 1/8 W
R4108	0611077E94	1K, ±1%; 1/8 W
R4109	0611077F94	10.7K, ±1%; 1/8 W
R4110	0611079G01	10k, ±1%; 1/10 W
R4112;4113	0611079G01	10k, ±1%; 1/10 W
R4114	0611079A68	2200 ohms, ±5%; 1/10 W
R4115	0611079A60	270 ohms, ±5%; 1/10 W
R4116	0611077F68	5.76K, ±1%; 1/8 W
R4117	0611077F24	2K, ±1%; 1/8 W
R4118	0611077A01	0 ohm, ±5%, 0 W
R4119	0611077B15	47K, ±5%; 1/8 W
R4120	0611077A01	0 ohm, ±5%; 0 W
R4121	0611079A74	1K, ±5%; 1/10 W
R4122	0611079G01	10k, ±1%; 1/10 W
R4123	0611077F56	4.32K, ±1%; 1/8 W
R4124	0611077F68	5.76K, ±1%; 1/8 W
R4125,4126	0611079G01	10k, ±1%; 1/10 W
R4127	0611079A74	1K, ±5%; 1/10 W
R4128	0611077G04	13.3K, ±1%; 1/8 W
R4131	0611077G22	20.5K, ±1%; 1/8 W
R4132	0611077G42	33.2K, ±1%; 1/8 W
R4134,4135	0682089V02	Resistor; .02 ohm 5% 2 W
R4137	0611079A74	1K, ±5%; 1/10 W
R4138	0611077G04	13.3K, ±1%; 1/8 W
R4139,4140	0611077F24	2K, ±1%; 1/8 W
R4141	0611077G22	20.5K, ±1%; 1/8 W
R4142	0611077G42	33.2K, ±1%; 1/8 W
R4144,4145	0611079G01	10k, ±1%; 1/10 W
R4146	0611079A50	100 ohms, ±5%; 1/10 W
R4147	0611079A66	470 ohms, ±5%; 1/10 W
R4149	0611079A74	1K, ±5%; 1/10 W
R4152	0611079A74	1K, ±5%; 1/10 W
R4153	0611079A60	270 ohms, ±5%; 1/10 W
R4154 thru 4156	0611079A74	1K, ±5%; 1/10 W
R4158	0611079A74	1K, ±5%; 1/10 W
R4159	0611079A74	1K, ±5%; 1/10 W
R4161	0611079A74	1K, ±5%; 1/10 W
R4162	0611077G22	20.5K, ±1%; 1/8 W (TYD4366A ONLY)
R4163	0611077F91	10K, ±1%; 1/8 W (TYD4366A) 0 ohm, ±5%; 0 W (TYD4367A)
R4164	0611077A01	0 ohm, ±5%; 0 W
R4166	0682089V02	Resistor; .02 ohm 5% 2 W
R4169	0611079A74	1K, ±5%; 1/10 W
R4170,4171	0683992T24	9.1 ohms, ±5%; 1 W
R4172 thru 4174	0611079A74	1K, ±5%; 1/10 W
R4175	0611079A98	10K, ±5%; 1/10 W
R4176	0611077G60	51.1K, ±1%; 1/8 W
R4177	0611077G30	24.9K, ±1%; 1/8 W
R4178	0611077G60	51.1K, ±1%; 1/8 W
R4179	0611077G30	24.9K, ±1%; 1/8 W
R4182	0611079G01	10k, ±1%; 1/10 W
R4185	0611077G04	13.3K, ±1%; 1/8 W
R4186	0611077F24	2K, ±1%; 1/8 W
R4187	0611077F68	5.76K, ±1%; 1/8 W
R4188	0611077F24	2K, ±1%; 1/8 W
R4189,4190	0611079G01	10k, ±1%; 1/10 W
R4191 thru 4200	0611079A50	100 ohms, ±5%; 1/10 W
R4201,4202	0611077A26	100 ohms, ±5%; 1/8 W
R4210	0611077A01	0 ohm, ±5%; 0 W
R4214	0611077A01	0 ohm, ±5%; 0 W
R4219	0611079B63	100K, ±5%; 1/10 W
		thermistor:
RT4100	0680149M02	100 k, ±10%; 240 mW
		integrated circuit (see note):
U4100 thru 4102	5113819A05	High Performance, Single Supply
U4103,4104	5113805A84	Mux/Demux, Dual 4-Channel Analog
		cable assembly:
W4100	0662286V01	Resistor; 0 ohm
		non-referenced items:
	1584753T02	Housing (used with E4100)
	1584753T02	Housing (used with E4100)
	1585034U03	COVER, Shield (used with E4100)
	1585034U03	COVER, Shield (used with E4101)
	5482006W01	Label, PCB barcode
	5482006W02	ribbon, thermal transfer
	5484960T01	Label, barcode: 6.3 x 12.7mm, white
	8482092W02	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

TTN5068A VHF 125W PA Hardware PL-13075-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	0185181U01	Assembly; PA Cooling Fans
	0211866A02	NUT, hex; 3/8 x 24 x 1/2 x 3/32
	0310943J09	Screw, tapping: TT3 x 0.5 x 6 (13 used)
	0310943J10	SCREW, tapping: TT3 x 0.5 x 8 (12 used)
	0312016A31	SCREW, tapping; TT3.5 X .6 X 12 (3 used)
	0312016A32	SCREW, tapping; TT3.5 X.6 X 18 (8 used)
	0400007691	WASHER, lock: 3/8", int. tooth (2 used)
	0906816159	CONNECTOR, receptacle: coaxial
	1585002U02	COVER, Highband PA
	2182905H05	1000 pF, ±0%; 200V (2 used)
	2684772T05	heatsink
	3282796H05	GASKET, .094 x .094" (35.75 used)
	5482006W01	Label, PCB barcode

TTN5238A Circulator 50Ω Load PL-13074-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W4900	4284727T02	STRAP; PA
		non-referenced items:
	4385035U02	FLANGE circulator load (VHF)

TLD9820A Intermediate PA Hybrid PL-13073-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TFD6560A Low Pass Filter/Coupler Hybrid PL-13071-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

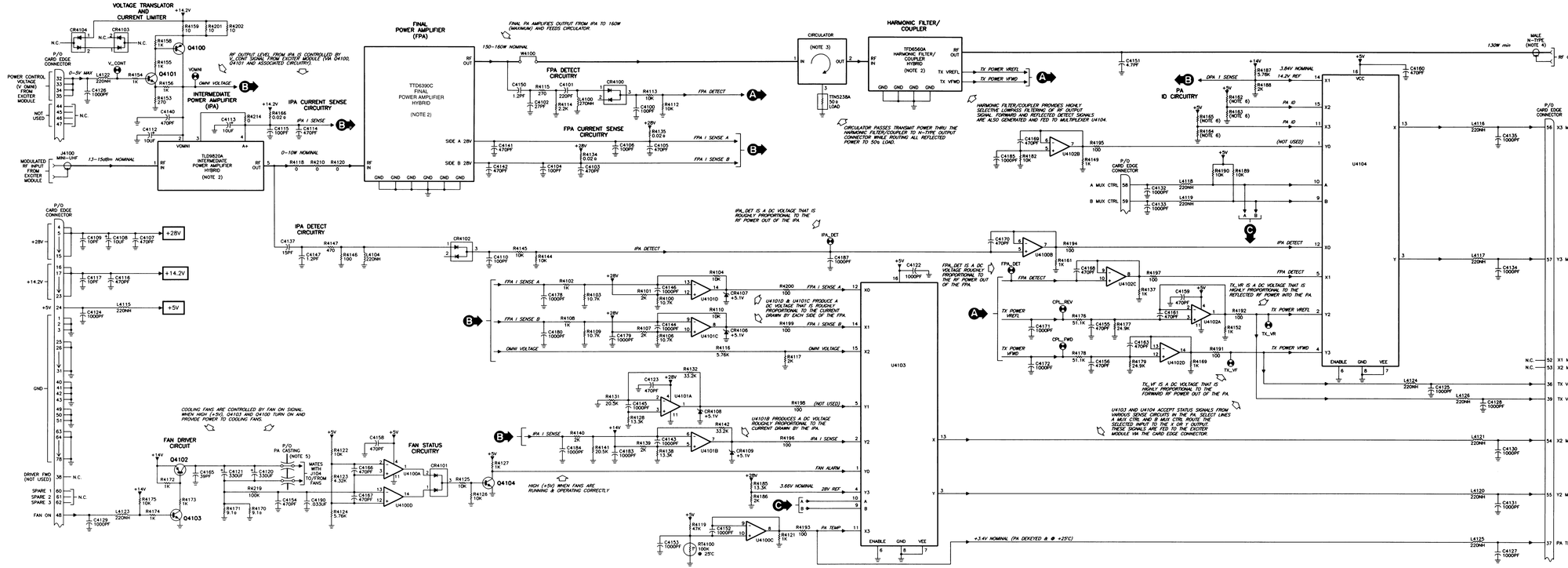
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTD6390C Final PA Hybrid PL-13072-B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

125W VHF POWER AMPLIFIER MODULE
MODELS TLD3101G / TLD3102G



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES. N.C. DENOTES NO CONNECTION.
2. TLD9820 IPA, TLD9810 FPA AND TTD6560 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T19 (TLD3101; 125W, R1) OR 5884911120 (TLD3102; 125W, R2).
4. THE N-TYPE OUTPUT CONNECTOR (0900818156, P/O TTN5068A HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. CONNECTIONS TO THE COOLING FANS ARE MADE VIA FEEDTHRU CAPACITORS (1000PF, P/O TTN5069A HARDWARE).
6. RESISTORS R4162 THRU R4165 COMPRISE A "RESISTOR ROM" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

MODEL	R4162	R4163	R4164	R4165
TLD3101 (VHF; 125W, R1)	20.5K	10K	0 Ω	NOT PLACED
TLD3102 (VHF; 125W, R2)	NOT PLACED	0 Ω	0 Ω	NOT PLACED

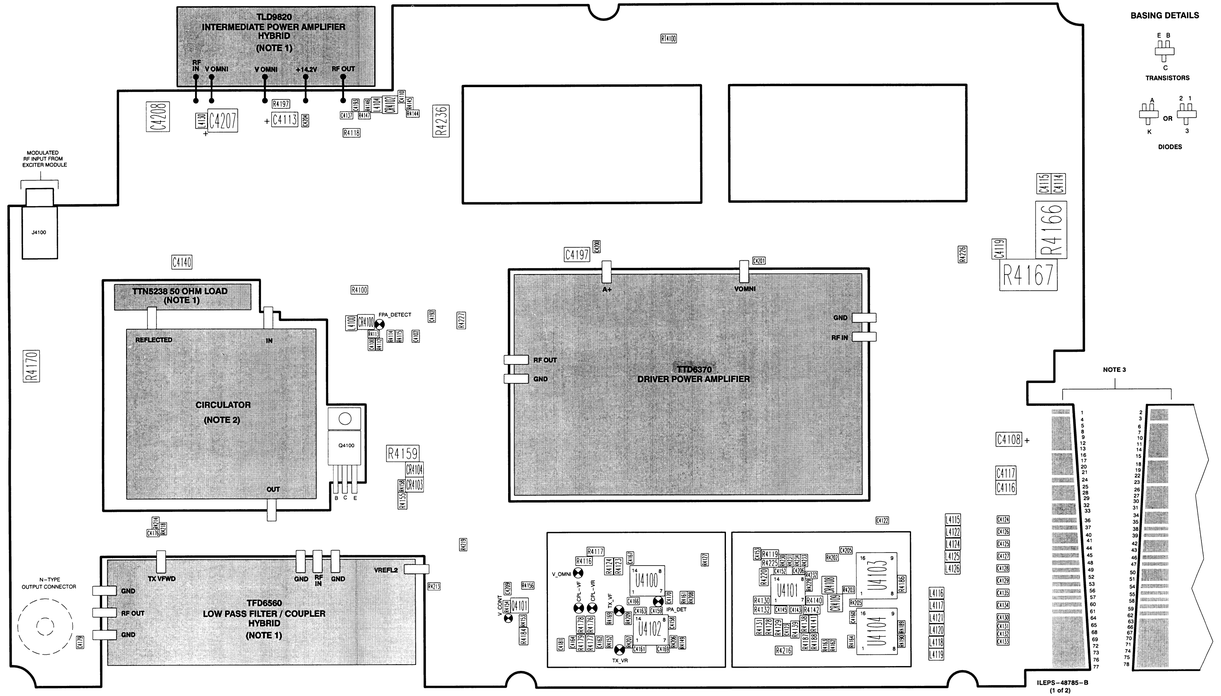
INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

LEGEND

MAIN RF SIGNAL PATH

25W VHF POWER AMPLIFIER MODULE
MODEL TLD3110C



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BASING DETAILS

NOTES:

1) ALL HYBRIDS ARE CONSIDERED NON-SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T30.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VOMNI	71	GND
33	VOMNI	72	GND
34	VOMNI	73	GND
35	VOMNI	74	GND
36	TX VP 1	75	GND
37	PA TEMP 1	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1	78	GND

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parts list

CLD6050A RF/DC Distribution Board (VHF; 25W, R1 & R2) PL-13178-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A55	100 pF, ±5%, 50 V
C4102	2113740A29	10 pF, ±5%, 50 V
C4108	2109622S06	CAP CHIP CER 10UF 16V
C4110	2113740A55	100 pF, ±5%, 50 V
C4113	2109622S06	CAP CHIP CER 10UF 16V
C4114	2113901C75	CAP CHIP HI Q 470 PF ± 5%
C4115	2113901C58	CAP CHIP HI Q 100 PF ± 5%
C4116	2113901C75	CAP CHIP HI Q 470 PF ± 5%
C4117	2113901C29	CAP CHIP HI Q 10 PF ±0.50PF
C4119	2113901C48	CAP CHIP HI Q 39 PF ± 5%
C4122	2113740A79	1000 pF, ±5%, 50 V
C4123	2113741A57	0.033 uF, ±5%, 50 V
C4124 thru 4135	2113740A79	1000 pF, ±5%, 50 V
C4137	2113740G33	15 pF, ±2%, 50 V
C4140	2113901C75	CAP CHIP HI Q 470 PF ± 5%
C4143	2113740A79	1000 pF, ±5%, 50 V
C4145	2113740A79	1000 pF, ±5%, 50 V
C4152,4153	2113740A79	1000 pF, ±5%, 50 V
C4158 thru 4160	2113741A57	0.033 uF, ±5%, 50 V
C4161 thru 4164	2113740A71	470 pF, ±5%, 50 V
C4166,4167	2113740A71	470 pF, ±5%, 50 V
C4169,4170	2113740A71	470 pF, ±5%, 50 V
C4176	2113740A71	470 pF, ±5%, 50 V
C4179	2113740A71	470 pF, ±5%, 50 V
C4181	2113740A71	470 pF, ±5%, 50 V
C4192,4193	2113740G05	1.2 pF, ±0.1 pF; 50 V
C4197	2109622S06	CAP CHIP CER 10UF 16V
C4200,4201	2113740A71	470 pF, ±5%, 50 V
C4204	2113740A71	470 pF, ±5%, 50 V
C4205	2113741A57	0.033 uF, ±5%, 50 V
C4206	2113740A71	470 pF, ±5%, 50 V
C4207,4208	2109622S07	CAP CHIP CER 22UF 16V
C4209	2113741A45	0.01 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C09	dual 70 V
CR4108,4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle: UHF
		inductor:
L4100	2462587N76	CHIP IND 4700 NH 5%
L4104	2462587X57	CHIP IND lopro 220 NH 5%
L4115 thru 4122	2462587X57	CHIP IND lopro 220 NH 5%
L4124 thru 4126	2462587X57	CHIP IND lopro 220 NH 5%
L4130	2462587X57	CHIP IND lopro 220 NH 5%
		transistor (see note):
Q4100	4813822D08	Transistor; 100 V
Q4101	4813824A10	NPN
		resistor, fixed:
R4100	0611077A01	0 ohm, ±5%, 0 W
R4112,4113	0611079G01	10k, ±1%, 1/10 W
R4114	0611079A84	2700 ohms, ±5%, 1/10 W
R4115	0611079A66	470 ohms, ±5%, 1/10 W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4118	0611077A01	0 ohm, ±5%, 0 W
R4119	0611077B11	33K, ±5%, 1/8 W
R4123	0611077F56	4.32K, ±1%, 1/8 W
R4124	0611077F68	5.76K, ±1%, 1/8 W
R4127	0611079A74	1K, ±5%, 1/10 W
R4128	0611077G04	13.3K, ±1%, 1/8 W
R4129,4130	0611077F24	2K, ±1%, 1/8 W
R4131	0611077G22	20.5K, ±1%, 1/8 W
R4132	0611077G42	33.2K, ±1%, 1/8 W
R4138	0611077G04	13.3K, ±1%, 1/8 W
R4139,4140	0611077F24	2K, ±1%, 1/8 W
R4141	0611077G22	20.5K, ±1%, 1/8 W
R4142	0611077G42	33.2K, ±1%, 1/8 W
R4144,4145	0611079G01	10k, ±1%, 1/10 W
R4146	0611079A50	100 ohms, ±5%, 1/10 W
R4147	0611079A56	470 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%, 1/10 W
R4152	0611079A74	1K, ±5%, 1/10 W
R4153	0611079A60	270 ohms, ±5%, 1/10 W
R4154	0611079A74	1K, ±5%, 1/10 W
R4155	0611077E94	1K, ±1%, 1/8 W
R4156	0611079A74	1K, ±5%, 1/10 W
R4158	0611079A74	1K, ±5%, 1/10 W
R4159	0683962T01	10 ohm, ±5%, 1 W
R4161	0611079A74	1K, ±5%, 1/10 W
R4162	0611079B01	12K, ±5%, 1/10 W
R4163	0611079B19	68K, ±5%, 1/10 W
R4164	0611079A01	0 ohms, ±5%, 1/10 W
R4166,4167	0682589V02	Resistor, .02 ohm 5% 2 W
R4169	0611079A74	1K, ±5%, 1/10 W
R4170	0683962T24	9.1 ohms, ±5%, 1 W
R4176	0611077A01	0 ohm, ±5%, 0 W
R4177	0611077G76	75K, ±1%, 1/8 W
R4178	0611077A01	0 ohm, ±5%, 0 W
R4179	0611077G76	75K, ±1%, 1/8 W
R4184	0611077A01	0 ohm, ±5%, 0 W
R4186	0611077F24	2K, ±1%, 1/8 W
R4187	0611077F68	5.76K, ±1%, 1/8 W
R4188	0611077F24	2K, ±1%, 1/8 W
R4189,4190	0611079G01	10k, ±1%, 1/10 W
R4197	0611077A01	0 ohm, ±5%, 0 W
R4202,4203	0611079A50	100 ohms, ±5%, 1/10 W
R4205 thru 4209	0611079A50	100 ohms, ±5%, 1/10 W
R4213	0611079A56	470 ohms, ±5%, 1/10 W
R4214	0611079A74	1K, ±5%, 1/10 W
R4216	0611077A01	0 ohm, ±5%, 0 W
R4218	0611079A56	470 ohms, ±5%, 1/10 W
R4219	0611079A01	0 ohms, ±5%, 1/10 W
R4220	0611077F91	10K, ±1%, 1/8 W
R4225	0611077A93	6.2K, ±5%, 1/8W
R4226,4227	0611077A01	0 ohm, ±5%, 0 W
R4229 thru 4234	0611079G01	10k, ±1%, 1/10 W
R4235	0683962T98	0.51 ohms, ±5%, 1W
		thermistor:
RT4100	0680149M02	100 k, ±10%; 240 mW
		integrated circuit (see note):
U4100 thru 4102	5113818A05	High Performance, Single Supply
U4103,4104	5113805A84	Mux/Demux, Dual 4-Channel Analog
		non-referenced items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL (2 used)
	5484960T02	LABEL BLANK BARCODE
	8482215Y01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

CLN7246A VHF/UHF 25W PA Hardware PL-13171-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non-referenced items:
	0211996A02	NUT, hex; 3/8 x 24 x 1/2 x 3/32
	0310943J09	Screw, tapping: TT3 x 0.5 x 6 (24 used)
	0310943J10	SCREW, tapping; TT3 x 0.5 x 8 (8 used)
	0312016A32	SCREW, tapping; TT3.5 X.6 x 18 (8 used)
	0383498N05	SCREW, tapping; M4 x 0.7 x 12 (2 used)
	0400007B91	WASHER, lock: 3/8", int. tooth (2 used)
	0900816159	CONNECTOR, receptacle: coaxial
	1585002U02	COVER, Highband PA
	2682318W05	HEATSINK PA 25W CLIANTAR
	3282796H05	GASKET, .094 x .094" (36 used)
	4280500F01	T & R VER OF 4282981X01 (2 used)
	5482006W02	ribbon, thermal transfer
	5482624Y01	LABEL THERMAL XFER WHT POLYSTR

TTN5238A Circulator 50Ω Load PL-13074-A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W4900	4284729T02	STRAP, PA
		non-referenced items:
	4385035U02	FLANGE circulator load (VHF)

TTD6370A Driver PA Hybrid PL-13179-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLD9820A Intermediate PA Hybrid PL-13073-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

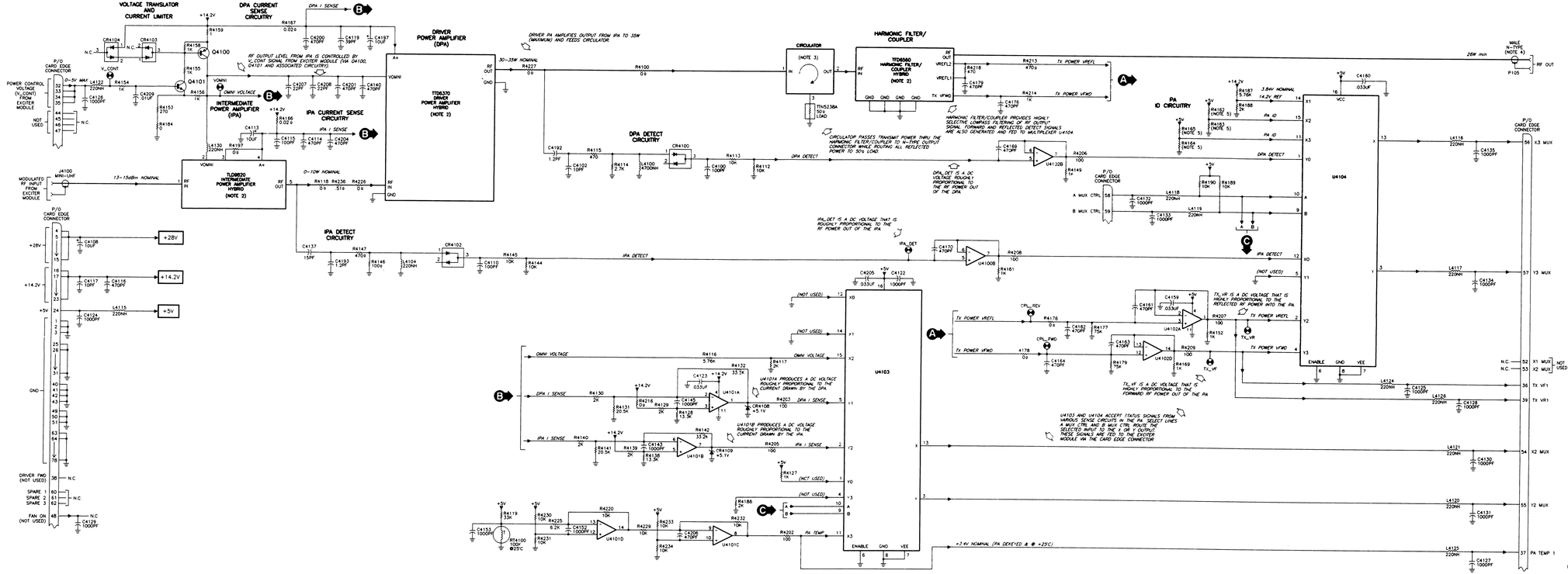
This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TFD6560A Low Pass Filter/Coupler Hybrid PL-13071-O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non-serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

25W VHF POWER AMPLIFIER MODULE
MODEL TLD3110C



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN NANOHENRIES.
2. TLD9820 IPA, TTD6370 DPA AND TTD5560 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911730.
4. THE N-TYPE OUTPUT CONNECTOR (0900818159, P/O CLN7246, HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. RESISTORS R4162 THRU R4165 COMPRISE A "RESISTOR ROW" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

MODEL	R4162	R4163	R4164	R4165
TLD3110 (VHF, 25W, R1 & R2)	12K	68K	0Ω	NOT PLACED

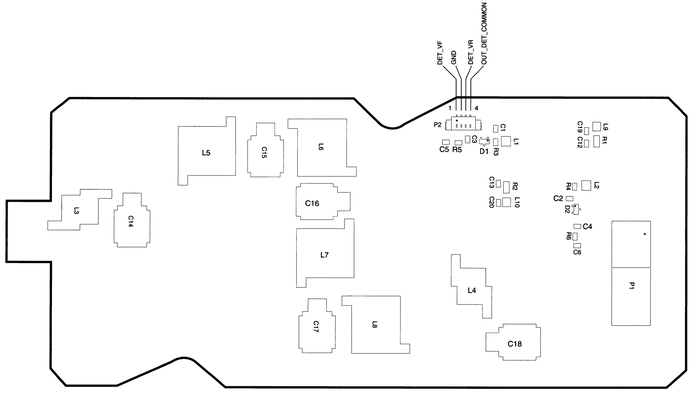
INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

LEGEND

MAIN RF SIGNAL PATH

UNUSED GATES



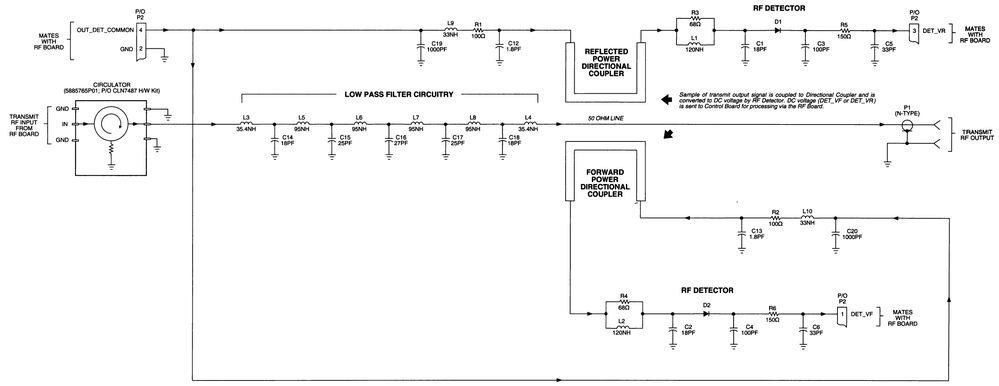
CNVEPS-48987-O

parts list

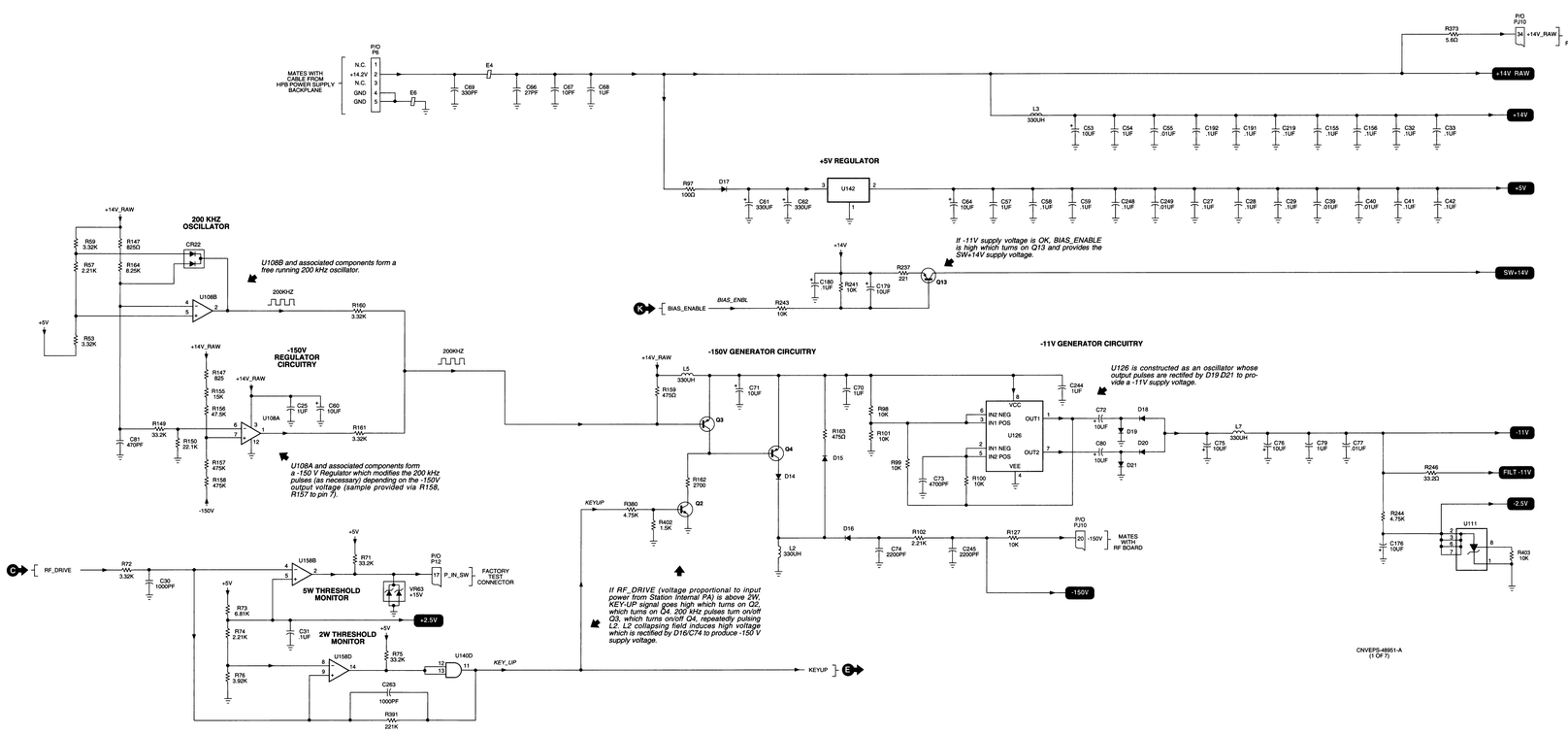
PTFD4007A Low Pass Filter Board (VHF) **PL-13201-O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1,2	2113740A35	18 pF, +/-5%; 50 V
C3,4	2113740A55	100 pF, +/-5%; 50 V
C5,6	2113740A41	33 pF, +/-5%; 50V
C12,13	2113740G09	1.8 pF, +/-0.1 pF; 50 V
C14	2183366K37	15 pF, +/-2%; 500V
C15	2183366K43	25 pF, +/-2%; 500V
C16	2183366K44	27 pF, +/-2%; 500V
C17	2183366K43	25 pF, +/-2%; 500V
C18	2183366K37	18 pF, +/-2%; 500V
C19,20	2113740A79	1000 pF, +/-5%; 50 V
		diode (see note):
D1,2	4882290T01	Schottky type
		inductor:
L1,2	2413923A05	IND CHIP 120 NH 2%
L3,4	2480502F07	COIL T&R OF 2483035N64
L5 thru 8	2480502F13	COIL AIR 12AWG 3 TURNS
L9,10	2462587X47	IND CHIP LO-PRO 33.0 NH 5%
		connector:
P2	0909897T06	CONN HEADER 4 PIN SMT
		resistor, fixed:
R1,2	0611077D97	100 ohms, +/-1%; 1/8W
R3,4	0611079A46	68 ohms, +/-5%; 1/10 W
R5,6	0611079A54	150 ohms, +/-5%; 1/10 W
		non-referenced Items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	8485782P02	CIRCUIT BOARD

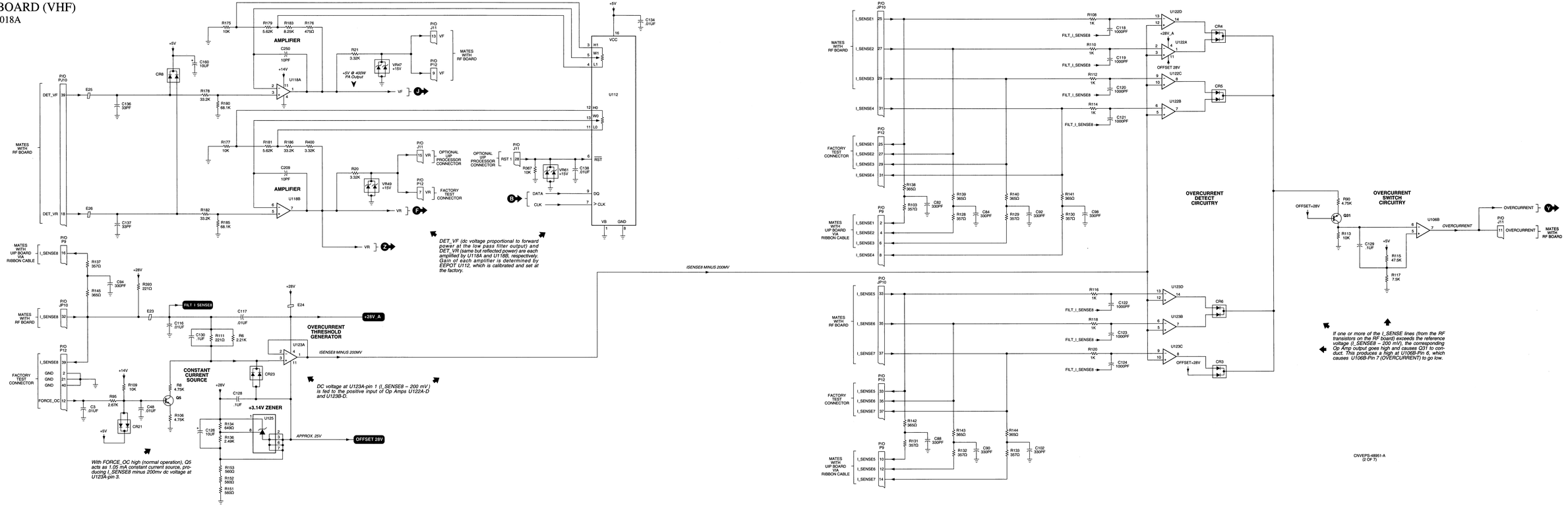
note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

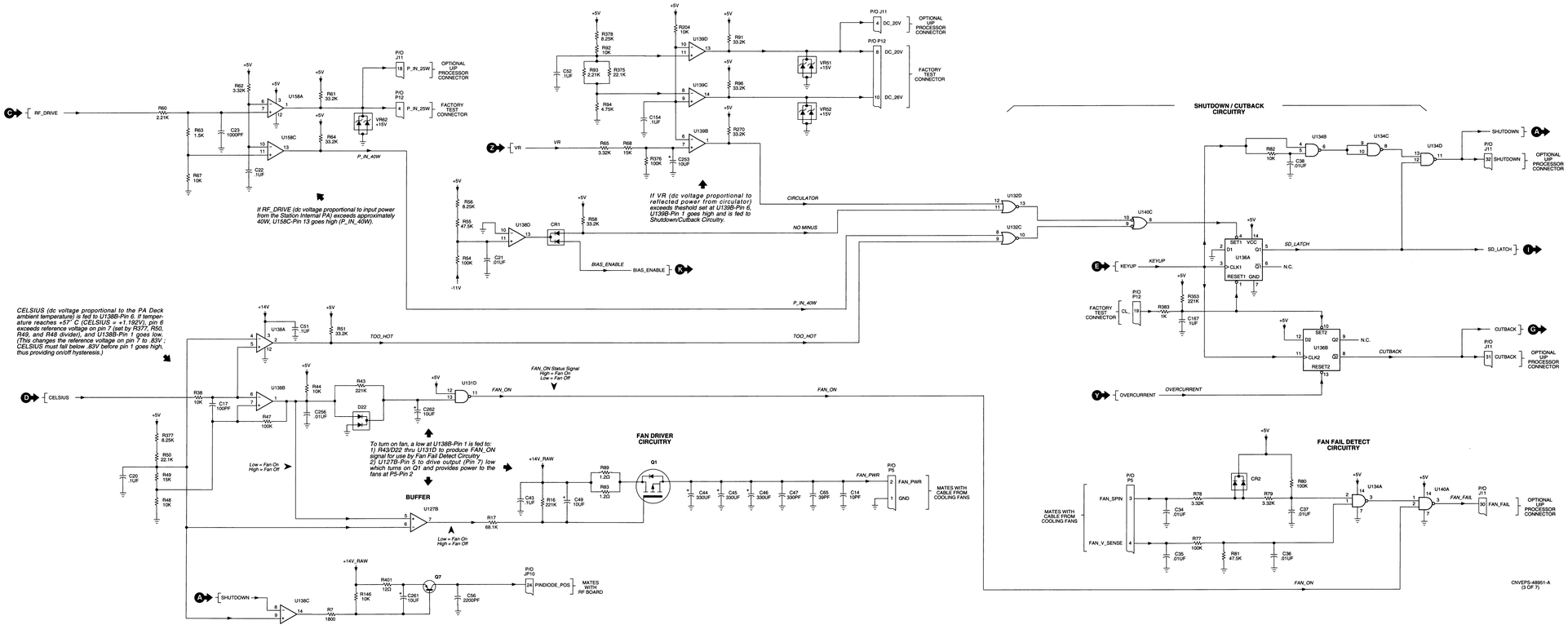


CNVEPS-48986-O

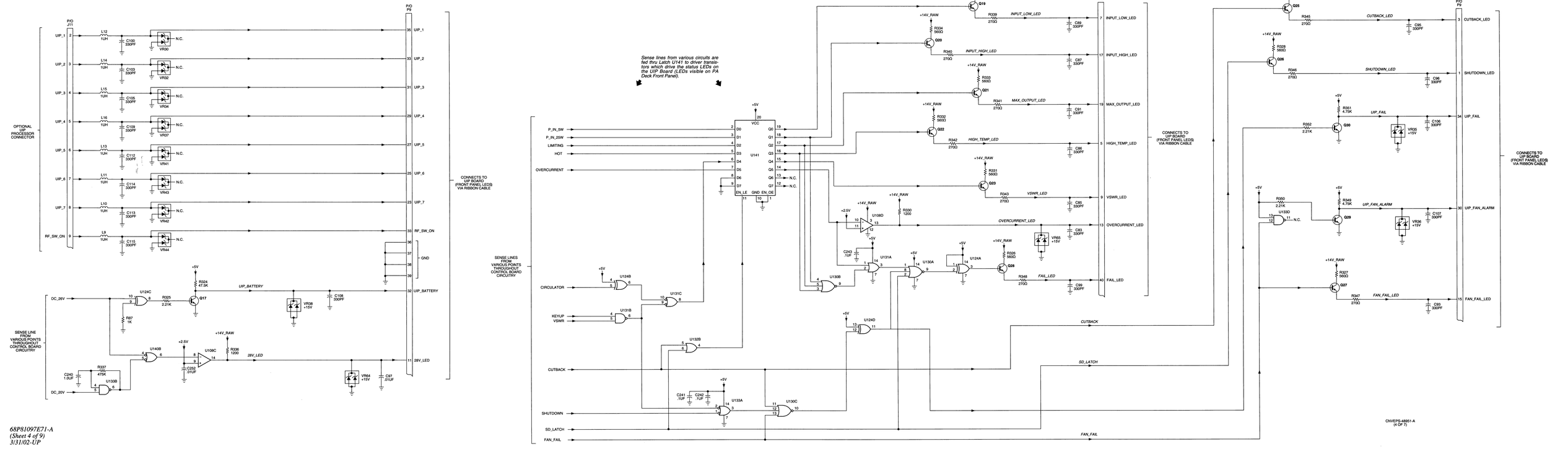

MATES WITH CABLE FROM HPB POWER SUPPLY 'V' BACKPLANE
P/O P6
N.C. 1
+14.2V 2
N.C. 3
GND 4
GND 5
E6
E4
C69 330PF
C66 27PF
C67 10PF
C68 1UF
P/O PJ10
+14V_RAW
MATES WITH RF BOARD
R373 0.6Ω
+14V RAW
+14V
L3 330UH
C53 10UF
C54 1UF
C55 .01UF
C192 .1UF
C191 .1UF
C219 .1UF
C155 .1UF
C156 .1UF
C32 1UF
C33 1UF
+5V REGULATOR
R97 100Ω
D17
U142
C51 330UF
C52 330UF
C64 10UF
C57 1UF
C58 1UF
C59 1UF
C248 1UF
C249 .01UF
C27 1UF
C28 1UF
C29 1UF
C39 .01UF
C40 .01UF
C41 1UF
C42 1UF
+5V
+14V_RAW
200 KHZ OSCILLATOR
R69 3.32K
R57 2.21K
R147 825Ω
R164 8.25K
CR22
U108B and associated components form a free running 200 kHz oscillator.
U108B
200KHZ
R160 3.32K
+5V
R53 3.32K
-150V REGULATOR CIRCUITRY
+14V_RAW
R147 825
R155 15K
R156 47.5K
+14V_RAW
C25 1UF
C60 10UF
U108A
R149 33.2K
C81 470PF
R150 22.1K
R161 3.32K
R157 475K
R158 475K
-150V
U108A and associated components form a -150 V Regulator which modifies the 200 khz pulses (as necessary) depending on the -150V output voltage (sample provided via R158, R157 to pin 7).
200KHZ
+14V
C180 .1UF
R241 10K
C170 10UF
R237 221
Q13
If -11V supply voltage is OK, BIAS_ENABLE is high which turns on Q13 and provides the SW+14V supply voltage.
SW+14V
K
BIAS_ENBL
BIAS_ENABLE
R243 10K
-150V GENERATOR CIRCUITRY
+14V_RAW
L5 330UH
R159 475Ω
C71 1UF
Q3
Q4
D14
R162 2700
Q2
KEYUP
R380 4.75K
R402 1.5K
C70 1UF
R98 10K
R101 10K
R163 475Ω
D15
R99 10K
C73 4700PF
R100 10K
D16
R102 2.21K
C74 2200PF
C245 2200PF
R127 10K
P/O PJ10
-150V
MATES WITH RF BOARD
-150V
L2 330UH
-11V GENERATOR CIRCUITRY
U126 is constructed as an oscillator whose output pulses are rectified by D19 D21 to provide a -11V supply voltage.
C244 1UF
U126
VCC
IN2 NEG
IN1 POS
OUT1
IN1 NEG
IN2 POS
OUT2
VEE
C72 10UF
C80 10UF
D18
D19
D20
D21
L7 330UH
C75 10UF
C76 10UF
C79 1UF
C77 .01UF
-11V
R246 33.2Ω
FILT -11V
-2.5V
R244 4.75K
C176 10UF
U111
R403 10K
CNVEPS-48951-A (1 OF 7)
RF_DRIVE
R72 3.32K
C30 1000PF
5W THRESHOLD MONITOR
U158B
+5V
R71 33.2K
P/O P12
P_IN_SW
FACTORY TEST CONNECTOR
VR63 +15V
+2.5V
If RF_DRIVE (voltage proportional to input power from Station Internal PA) is above 2W, KEY-UP signal goes high which turns on Q2, which turns on Q4. 200 kHz pulses turn on/off Q3, which turns on/off Q4, repeatedly pulsing L2. L2 collapsing field induces high voltage which is rectified by D16/C74 to produce -150 V supply voltage.
2W THRESHOLD MONITOR
+5V
R73 6.81K
R74 2.21K
C31 1UF
R76 3.92K
U158D
R75 33.2K
U140D
KEY_UP
KEYUP
C263 1000PF
R391 221K

CONTROL BOARD (VHF)
MODEL PTTD4018A




RF_DRIVE
R60 2.21K
R62 3.32K
R63 1.5K
C23 1000PF
R67 10K
C20 .1UF
U158A
U158C
R61 33.2K
R64 33.2K
VR62 +15V
P/O J11
18 P_IN_25W
OPTIONAL UIP PROCESSOR CONNECTOR
P/O P12
4 P_IN_25W
FACTORY TEST CONNECTOR
P_IN_40W
If RF_DRIVE (dc voltage proportional to input power from the Station Internal PA) exceeds approximately 40W, U158C-Pin 13 goes high (P_IN_40W).
VR
R65 3.32K
R68 19K
R376 100K
C253 10UF
R373 8.25K
R92 10K
R93 2.21K
R375 22.1K
R94 4.75K
C22 1UF
C154 .1UF
U139D
U139C
U139B
R204 10K
R91 33.2K
R96 33.2K
R270 33.2K
VR51 +15V
VR52 +15V
P/O J11
4 DC_20V
OPTIONAL UIP PROCESSOR CONNECTOR
P/O P12
6 DC_20V
10 DC_26V
FACTORY TEST CONNECTOR
If VR (dc voltage proportional to reflected power from circulator) exceeds theshold set at U139B-Pin 6, U139B-Pin 1 goes high and is fed to Shutdown/Cutback Circuitry.
R56 8.25K
R55 47.5K
R54 100K
C21 .01UF
-11V
U138D
CR1
R58 33.2K
BIAS_ENABLE
BIAS_ENABLE
CIRCULATOR
NO MINUS
U132D
U132C
SHUTDOWN / CUTBACK CIRCUITRY
U134B
U134C
U134D
R82 10K
C38 .01UF
SHUTDOWN
P/O J11
32 SHUTDOWN
OPTIONAL UIP PROCESSOR CONNECTOR
U140C
KEYUP
U136A
SET1
D1
CLK1
RESET1
VCC
GND
Q1
N.C.
SD_LATCH
SD_LATCH
FACTORY TEST CONNECTOR
P/O P12
19 CL
R383 1K
R353 221K
C167 1UF
U136B
SET2
D2
CLK2
RESET2
Q2
N.C.
CUTBACK
CUTBACK
P/O J11
31 CUTBACK
OPTIONAL UIP PROCESSOR CONNECTOR
OVERCURRENT
OVERCURRENT
CELSIUS (dc voltage proportional to the PA Deck ambient temperature) is fed to U138B-Pin 6. If temperature reaches +57° C (CELSIUS = +1.192V), pin 6 exceeds reference voltage on pin 7 (set by R377, R50, R49, and R48 divider), and U138B-Pin 1 goes low. (This changes the reference voltage on pin 7 to .63V.; CELSIUS must fall below .63V before pin 1 goes high, thus providing on/off hysteresis.)
CELSIUS
R38 10K
C17 100PF
R47 100K
U138B
R377 8.25K
R50 22.1K
R49 15K
R48 10K
C20 .1UF
Low = Fan On
High = Fan Off
U136A
C51 .1UF
R51 33.2K
TOO_HOT
TOO_HOT
R44 10K
R43 221K
D22
C256 .01UF
C262 10UF
U131D
FAN_ON Status Signal
High = Fan On
Low = Fan Off
FAN_ON
FAN_ON
To turn on fan, a low at U138B-Pin 1 is fed to:
1) R43/D22 thru U131D to produce FAN_ON signal for use by Fan Fail Detect Circuitry.
2) U127B-Pin 5 to drive output (Pin 7) low which turns on Q1 and provides power to the fans at P5-Pin 2
BUFFER
U127B
R17 68.1K
Low = Fan On
High = Fan Off
FAN DRIVER CIRCUITRY
+14V_RAW
R89 1.2Ω
R83 1.2Ω
Q1
C43 .1UF
R16 221K
C49 10UF
C44 330UF
C45 330UF
C46 330UF
C47 330PF
C65 39PF
C14 10PF
FAN_PWR
P/O P5
2 FAN_PWR
1 GND
MATES WITH CABLE FROM COOLING FANS
FAN FAIL DETECT CIRCUITRY
MATES WITH CABLE FROM COOLING FANS
P/O P5
FAN_SPIN
FAN_V_SENSE
CR2
R80 100K
R78 3.32K
R79 3.32K
C34 .01UF
C37 .01UF
R77 100K
R81 47.5K
C35 .01UF
C36 .01UF
U134A
U140A
FAN_FAIL
P/O J11
30 FAN_FAIL
OPTIONAL UIP PROCESSOR CONNECTOR
FAN_ON
SHUTDOWN
U138C
R146 10K
R401 100
C261 10UF
Q7
C56 2200PF
R7 1800
P/O JP10
24 PINDIODE_POS
MATES WITH RF BOARD
CNVEPS-48951-A
(3 OF 7)

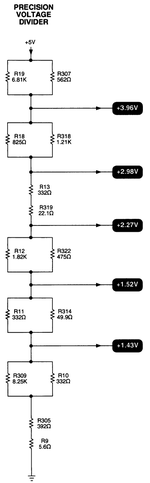
CONTROL BOARD (VHF)
MODEL PTTD4018A



CNVEPS-48951-A
(4 OF 7)

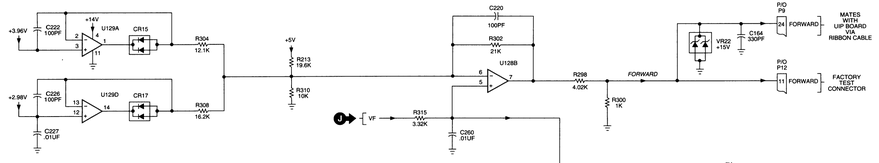
68P81097E71-A
(Sheet 4 of 9)
3/31/02-UP

PRECISION VOLTAGE DIVIDER

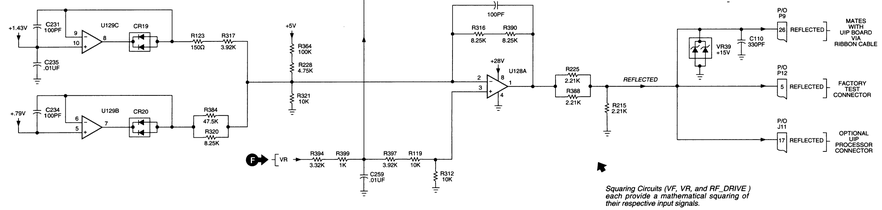


Precision Voltage Divider generates dc reference voltages for use by Squaring Circuits.

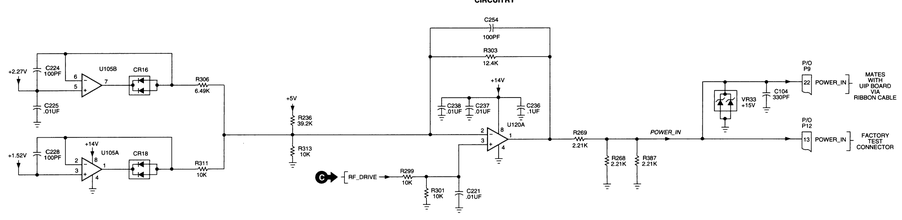
VF SQUARING CIRCUITRY



VR SQUARING CIRCUITRY

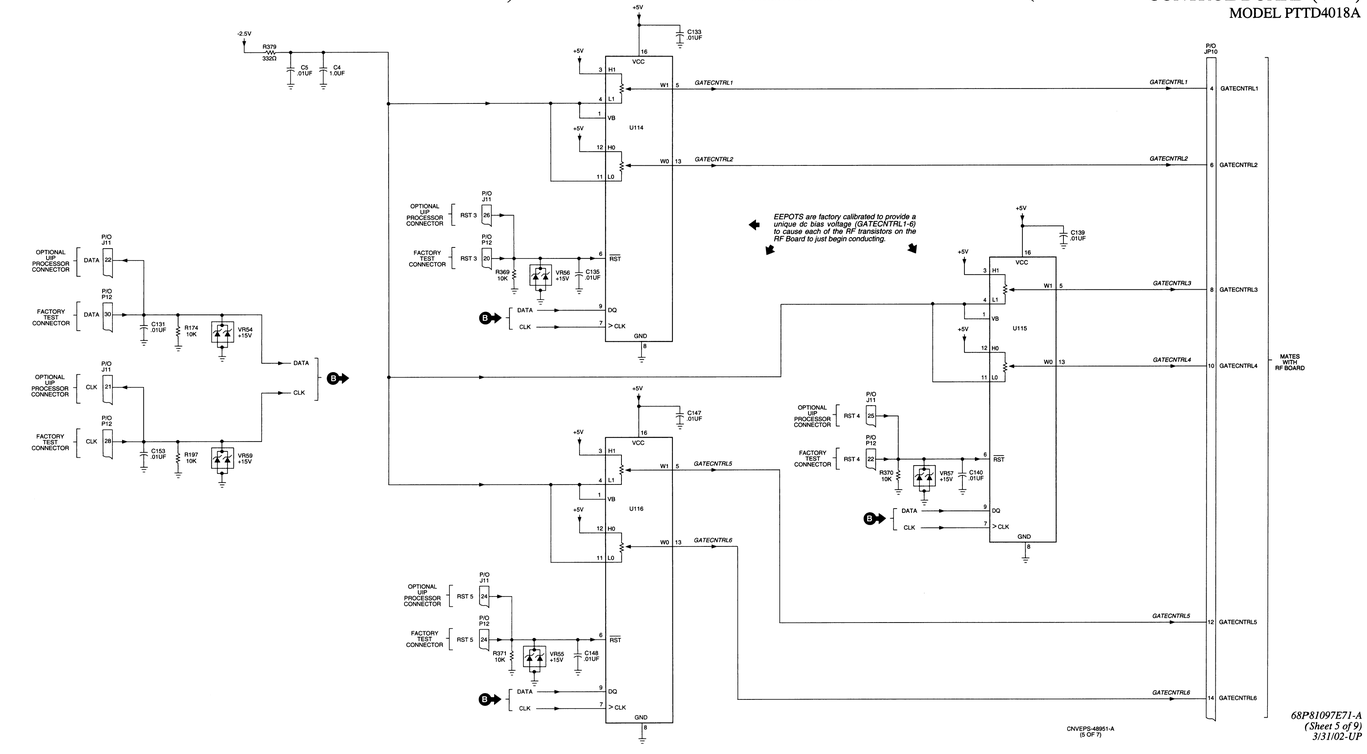


RF_DRIVE SQUARING CIRCUITRY



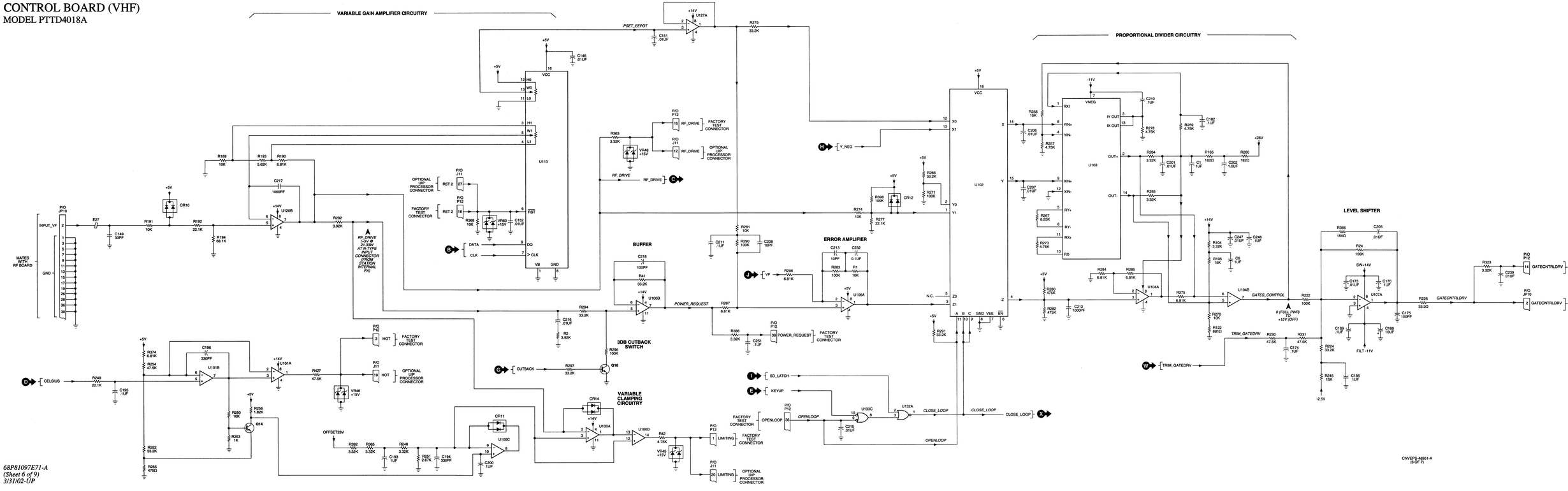
Squaring Circuits (VF, VR, and RF_DRIVE) each provide a mathematical squaring of their respective input signals.

RF TRANSISTORS BIASING CIRCUITRY

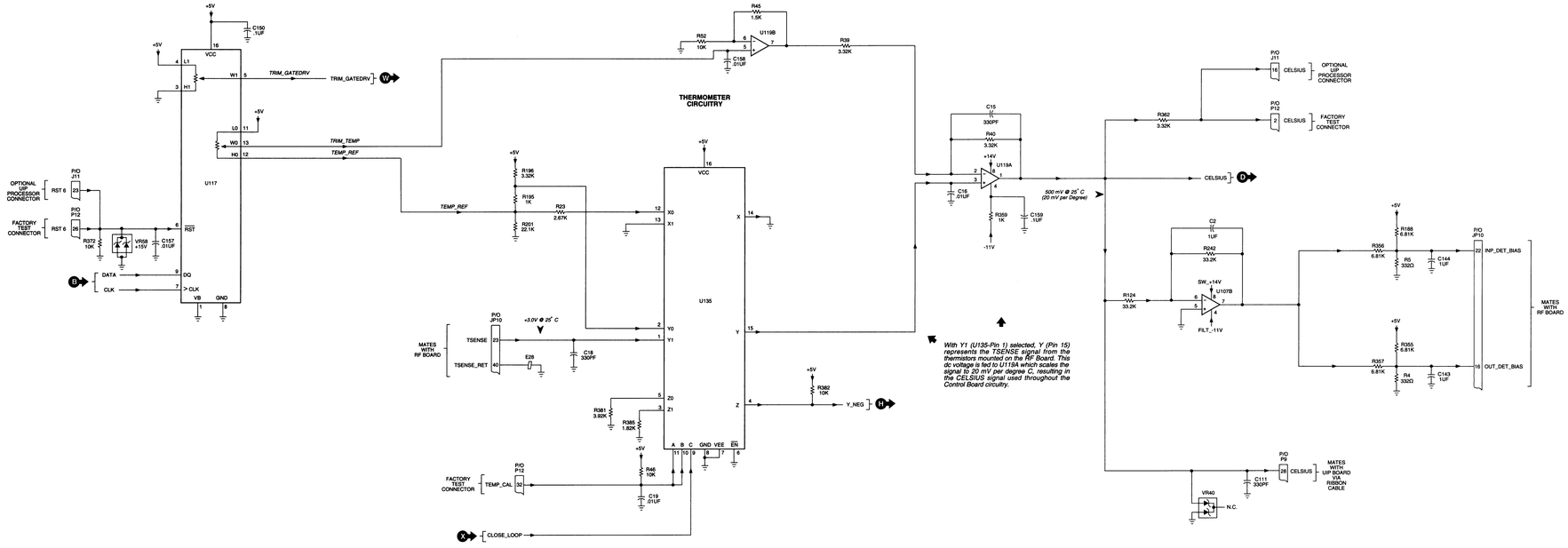


CNVEPS-48951-A
(5 OF 7)

CONTROL BOARD (VHF)
MODEL PTTD4018A



68P81097E71-A
(Sheet 6 of 9)
3/31/02-UP



INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC33074D	Quad Differential-Input Operational Amplifier	4	11
U101	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U102	MC74HC4053A	Multiplexer/Demultiplexer, Triple 2-Channel Analog	16	7, 8
U103	MC1495	4-Quadrant Multiplier	–	–
U104, 105	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U106	MC33202	Dual Operational Amplifier	8	4
U107	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U108	LM2901	Quad Comparator	3	12
U111	TL431	Precision Voltage Regulator	–	–
U112 thru 117	DS1867	Dual Digital Potentiometer with EEPROM	16	8
U118 thru 120	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U122, 123	MC33204	Quad Operational Amplifier	4	11
U124	MC74HC86A	Quad 2-Input Exclusive OR	14	7
U125	TL431	Precision Voltage Regulator	–	–
U126	MC33076	Dual Operational Amplifier, Hi Output Current	8	4
U127, 128	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U129	MC33074D	Quad Differential-Input Operational Amplifier	4	11
U130	MC14025	Triple 3-Input NOR	14	7
U131	MC74HC132A	Quad 2-Input NAND w/Schmidt Trigger	14	7
U132	MC74HC02A	Quad 2-Input NOR	14	7
U133, 134	MC74HC132A	Quad 2-Input NAND w/Schmidt Trigger	14	7
U135	MC74HC4053A	Multiplexer/Demultiplexer, Triple 2-Channel Analog	16	7, 8
U136	MC74HC74A	Dual D Flip-Flop with Set/Reset	14	7
U136, 139	LM2901	Quad Comparator	3	12
U140	MC74HC08A	Quad 2-Input AND	14	7
U141	MC74HC573A	Octal 3-State Non-Inverting Latch	20	10
U142	MC33269	Adjustable Low-Dropout Positive Regulator	–	–
U158	LM2901	Quad Comparator	3	12

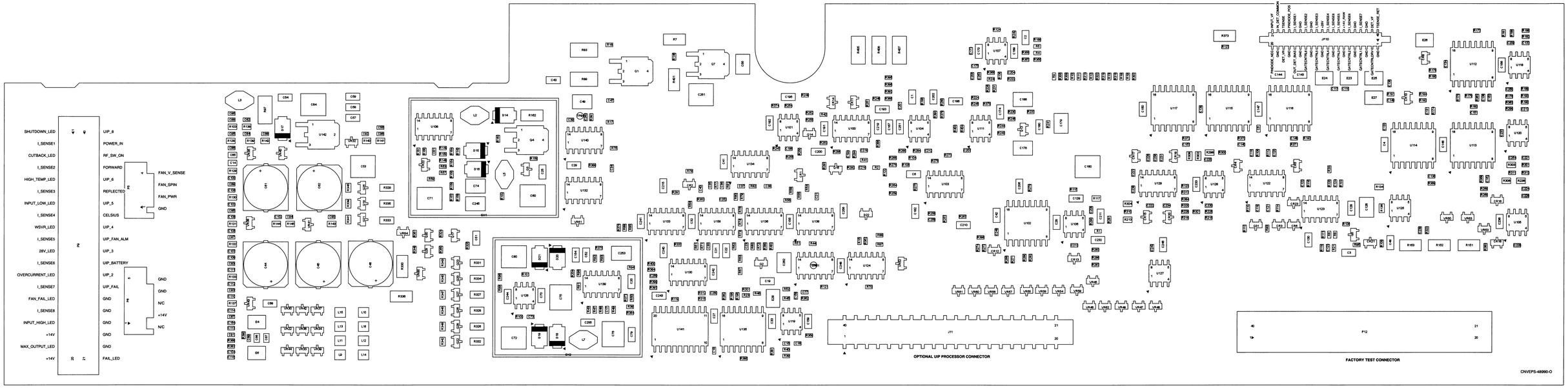
CONTROL BOARD (VHF)
MODEL PTTD4018A

parts list

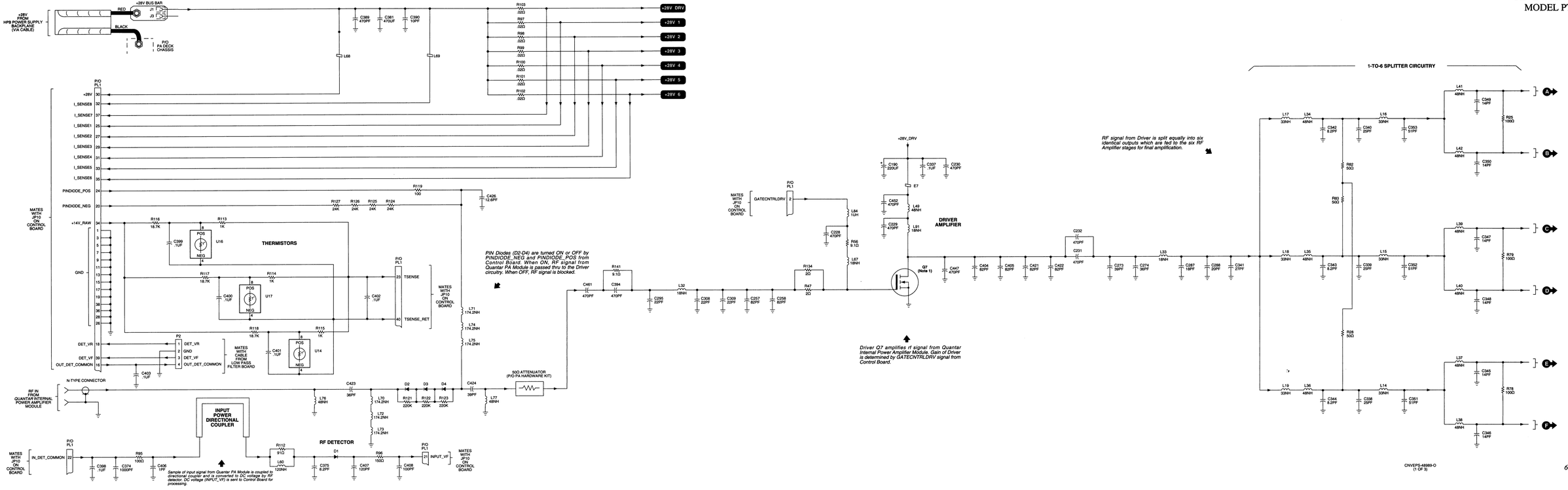
PTTD4018A Control Board (VHF) — **PL-13201-O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1,2	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C3	2113741B69	0.1 uF, +/-5%, 50 V
C4	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C5	2113741F49	0.01 uF, +/-5%, 50V
C6	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C14	2113001A29	CAP CHIP HI Q 10 PF +/- 0.50PF
C15	2113741F13	330 pF, +/-5%, 50V
C16	2113741F49	0.01 uF, +/-5%, 50V
C17	2113740F51	100 pF, +/-5%, 50V
C18	2113741F13	330 pF, +/-5%, 50V
C19,20	2113741B69	0.1 uF, +/-5%, 50 V
C21	2113741F51	100 pF, +/-5%, 50V
C22	2113741B69	0.1 uF, +/-5%, 50 V
C23	2113741F25	1000 pF, +/-5%, 50V
C25	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C27 thru 29	2113741B69	0.1 uF, +/-5%, 50 V
C30	2113741F25	1000 pF, +/-5%, 50V
C33 thru 33	2113741B69	0.1 uF, +/-5%, 50 V
C34 thru 40	2113741B69	0.1 uF, +/-5%, 50 V
C41 thru 43	2113741B69	0.1 uF, +/-5%, 50 V
C44 thru 46	2382415W35	Capacitor, lytic 330 uF; 16 V
C47	2113741F13	330 pF, +/-5%, 50V
C48	2113741B69	0.1 uF, +/-5%, 50 V
C49	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C51,52	2113741B69	0.1 uF, +/-5%, 50 V
C53	2109622S04	CAP CHIP CER 10UF 35V 2220
C54	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C55	2113741F49	0.01 uF, +/-5%, 50V
C56	2113918B01	CAP CHIP CER 2200PF 1000V 10% X7R
C57	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C58,59	2113741B69	0.1 uF, +/-5%, 50 V
C60	2109622S04	CAP CHIP CER 10UF 35V 2220
C61,62	2382415W35	Capacitor, lytic 330 uF; 16 V
C64	2109622S04	CAP CHIP CER 10UF 35V 2220
C65	2113901A48	CAP CHIP HI Q 39 PF +/- 5%
C66	2113740A41	33 pF, +/-5%, 50V
C67	2113001A29	CAP CHIP HI Q 10 PF +/- 0.50PF
C68	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C69	2113741F13	330 pF, +/-5%, 50V
C70	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C71,72	2109622S04	CAP CHIP CER 10UF 35V 2220
C73	2113741F49	0.01 uF, +/-5%, 50V
C74	2113918B01	CAP CHIP 2200PF 1000V 10% X7R
C75,76	2109622S04	CAP CHIP CER 10UF 35V 2220
C77	2113741F49	0.01 uF, +/-5%, 50V
C79	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C80	2109622S04	CAP CHIP CER 10UF 35V 2220
C81	2113740F67	CAP CHIP CL1 +/-30 470 5%
C82	2113741F13	330 pF, +/-5%, 50V
C83	2113741F49	0.01 uF, +/-5%, 50V
C84	2113741F13	330 pF, +/-5%, 50V
C85 thru 87	2113741F49	0.01 uF, +/-5%, 50V
C88	2113741F13	330 pF, +/-5%, 50V
C89	2113741F49	0.01 uF, +/-5%, 50V
C90	2113741F13	330 pF, +/-5%, 50V
C91	2113741F49	0.01 uF, +/-5%, 50V
C92	2113741F13	330 pF, +/-5%, 50V
C93	2113741F49	0.01 uF, +/-5%, 50V
C94	2113741F13	330 pF, +/-5%, 50V
C95 thru 97	2113741F49	0.01 uF, +/-5%, 50V
C98	2113741F13	330 pF, +/-5%, 50V
C99	2113741F49	0.01 uF, +/-5%, 50V
C100	2113741F13	330 pF, +/-5%, 50V
C102 thru 115	2113741F13	330 pF, +/-5%, 50V
C116,117	2113741F49	0.01 uF, +/-5%, 50V
C118 thru 124	2113741F25	1000 pF, +/-5%, 50V
C125	2109622S06	CAP CHIP CER 10UF 16V
C128	2113741B69	0.1 uF, +/-5%, 50 V
C129	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C130	2113741F49	0.01 uF, +/-5%, 50V
C131	2113741F49	0.01 uF, +/-5%, 50V
C133 thru 135	2113741F25	1000 pF, +/-5%, 50V
C136,137	2113740F39	33 pF, +/-5%, 50V
C138 thru 140	2113741F49	0.01 uF, +/-5%, 50V
C143,144	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C146,147	2113741B69	0.1 uF, +/-5%, 50 V
C148	2113741F49	0.01 uF, +/-5%, 50V
C149	2113740F39	33 pF, +/-5%, 50V
C150	2113741B69	0.1 uF, +/-5%, 50 V
C151 thru 153	2113741F49	0.01 uF, +/-5%, 50V
C154 thru 156	2113741B69	0.1 uF, +/-5%, 50 V
C157,158	2113741B69	0.1 uF, +/-5%, 50 V
C159	2113741B69	0.1 uF, +/-5%, 50 V
C160	2109622S04	CAP CHIP CER 10UF 35V 2220
C164	2113741F13	330 pF, +/-5%, 50V
C167	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C170	2109622S04	CAP CHIP CER 10UF 35V 2220
C173	2113741F49	0.01 uF, +/-5%, 50V
C174	2113741B69	0.1 uF, +/-5%, 50 V
C175	2113740F51	100 pF, +/-5%, 50V
C176	2109622S06	CAP CHIP CER 10UF 16V
C179	2109622S06	CAP CHIP CER 10UF 16V
C180	2113741B69	0.1 uF, +/-5%, 50 V
C182	2113741B69	0.1 uF, +/-5%, 50 V
C186	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C188	2109622S06	CAP CHIP CER 10UF 16V
C189	2113741B69	0.1 uF, +/-5%, 50 V
C191,192	2113741B69	0.1 uF, +/-5%, 50 V
C193	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C194	2113741F13	330 pF, +/-5%, 50V
C195	2113741B69	0.1 uF, +/-5%, 50 V
C196	2113741F13	330 pF, +/-5%, 50V
C200	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C201	2113741F49	0.01 uF, +/-5%, 50V
C202	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C205	2113741F49	0.01 uF, +/-5%, 50V
C206	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C207	2113741F49	0.01 uF, +/-5%, 50V
C208,209	2113741F27	10 pF, +/-5%, 50V
C210,211	2113741B69	0.1 uF, +/-5%, 50 V
C212	2113741F25	1000 pF, +/-5%, 50V
C213	2113741F27	10 pF, +/-5%, 50V
C215	2113741B69	0.1 uF, +/-5%, 50 V
C216	2113741F49	0.01 uF, +/-5%, 50V
C217	2113741F25	1000 pF, +/-5%, 50V
C218	2113740F51	100 pF, +/-5%, 50V
C219	2113741B69	0.1 uF, +/-5%, 50 V
C220	2113740F51	100 pF, +/-5%, 50V
C221	2113741F49	0.01 uF, +/-5%, 50V
C222	2113740F51	100 pF, +/-5%, 50V
C224	2113740F51	100 pF, +/-5%, 50V
C225	2113741F49	0.01 uF, +/-5%, 50V
C226	2113740F51	100 pF, +/-5%, 50V
C227	2113741F49	0.01 uF, +/-5%, 50V
C228	2113740F51	100 pF, +/-5%, 50V
C230,231	2113740F51	100 pF, +/-5%, 50V
C232,233	2113741B69	0.1 uF, +/-5%, 50 V
C234	2113740F51	100 pF, +/-5%, 50V
C235	2113741F49	0.01 uF, +/-5%, 50V
C236	2113741B69	0.1 uF, +/-5%, 50 V
C237 thru 239	2113741F49	0.01 uF, +/-5%, 50V
C240	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C241 thru 243	2113741B69	0.1 uF, +/-5%, 50 V
C244	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C245	2113918B01	CAP CHIP CER 2200PF 1000V 10% X7R
C246	2113741B69	0.1 uF, +/-5%, 50 V
C247	2113741B69	0.1 uF, +/-5%, 50 V
C248	2113741B69	0.1 uF, +/-5%, 50 V
C249	2113741F49	0.01 uF, +/-5%, 50V
C250	2113740F27	10 pF, +/-5%, 50V
C251	2113741B69	0.1 uF, +/-5%, 50 V
C252	2113741F49	0.01 uF, +/-5%, 50V
C253	2109622S06	CAP CHIP CER 10UF 16V
C254	2113740F51	100 pF, +/-5%, 50V
C255	2109622S01	CAP CHIP CER 1.0UF 35V 1206
C256	2113741B69	0.1 uF, +/-5%, 50 V
C259,260	2113741F49	0.01 uF, +/-5%, 50V
C261	2109622S04	CAP CHIP CER 10UF 35V 2220
C262	2109622S06	CAP CHIP CER 10UF 16V
C263	2113741F25	1000 pF, +/-5%, 50V
		diode; (see note)
CR1 thru 6	4813833C02	Dual diode; common cathode
CR8	4813833C02	Dual diode; common cathode
CR10 thru 12	4813833C02	Dual diode; common cathode
CR14 thru 23	4813833C02	Dual diode; common cathode
D14 thru 21	4813833B06	1A; 600 V
D22	4813833C02	Dual diode; common cathode
		ferrite bead:
E4	2484657R01	ferrite bead
E6	2484657R01	ferrite bead
E23 thru 28	2484657R01	ferrite bead
		inductor:
L2,3	2503788S16	IND PWR 330UH 20% 0.18A DO1608
L5	2503788S16	IND PWR 330UH 20% 0.18A DO1608
L7	2503788S16	IND PWR 330UH 20% 0.18A DO1608
L9 thru 16	2462587X68	IND CHIP LO-PRO 1,000 NH 5%
		connector;
P5	2885774P01	HEADER ASSY AMPMODU 4 PIN
P6	2885774P02	HEADER ASSY AMPMODU, 5 PIN
P9	2885787P01	SHROUDED HEADER, VERTICAL 40 PIL
P12	2885787P01	SHROUDED HEADER, VERTICAL 40 PIL
JP10	0985785P02	RECEPTACLE 40 PIN, DBL ROW
		transistor; (see note)
Q1	4813821A09	Transistor; 60 V
Q2	4813824A10	NPN
Q3	4813824A17	PNP
Q4	4813822A18	TSTR PNP 300V .5A
Q5	4813824A10	NPN
Q7	4813822A18	TSTR PNP 300V .5A
Q13	4813824A17	PNP
Q14	4813824A10	NPN
Q16,17	4813824A10	NPN
Q19 thru 23	4813824A10	NPN
Q25 thru 30	4813824A10	NPN
Q31	4813824A17	PNP
		resistor, fixed:
R1	0662057P10	RES CHIP 1.0K 1% 30X60
R2	0662057Z16	RES CHIP 3.92KOHMS
R4,5	0662057T52	CHIP RES 332 OHMS 1 %
R6	0662057P49	RES CHIP 2.21K
R7	0609887C79	1.8K, +/-5% ,1/2W
R8	0662057P03	RES CHIP 4.75K 1% 30X60
R9	0662057W19	RES CHIP 2.0K 1%
R10,11	0662057T52	CHIP RES 332 OHMS 1 %
R12	0662057T14	RES CHIP 1.82KOHMS
R13	0662057T52	CHIP RES 332 OHMS 1 %
R16	0662057T04	RES CHIP 221K
R17	0662057T07	RES CHIP 68.1K 1%
R18	0662057T66	CHIP RES 825 OHMS 1 %
R19	0662057T60	CHIP RES 6.81K OHMS 1 %
R20,21	0662057T59	CHIP RES 3.32K OHMS 1 %
R23	0662057Z15	RES CHIP 2.67KOHMS
R24	0662057T95	RES CHIP 619 OHMS 1 %
R38	0662057P10	RES CHIP 10.0K 1% 30X60
R39,40	0662057T59	CHIP RES 3.32K OHMS 1 %
R41	0662057T73	RES CHIP 33.2K 1% 30*60
R42	0662057T64	CHIP RES 47.5K OHMS 1 %
R43	0662057T04	RES CHIP 221K
R44	0662057P10	RES CHIP 10.0K 1% 30X60
R45	0662057T57	CHIP RES 1.5K OHMS 1%
R46	0662057P10	RES CHIP 10.0K 1% 30X60
R47	0662057P95	RES CHIP 100.0K 1% 30X60
R48	0662057P10	RES CHIP 10.0K 1% 30X60
R49	0662057P02	RES. CHIP 15K 1% 30X60
R50	0662057P22	RES CHIP 22.1K 1% 30X60
R52	0662057T73	RES CHIP 33.2K 1% 30*60
R53	0662057P10	RES CHIP 10.0K 1% 30X60
R54	0662057P95	RES CHIP 100.0K 1% 30X60
R55	0662057T64	CHIP RES 47.5K OHMS 1 %
R56	0662057P02	RES. CHIP 15K 1% 30X60
R57	0662057P49	RES CHIP 2.21K
R58	0662057T73	RES CHIP 33.2K 1% 30*60
R59	0662057T59	CHIP RES 3.32K OHMS 1 %
R61	0662057T73	RES CHIP 33.2K 1% 30*60
R62	0662057T59	CHIP RES 3.32K OHMS 1 %
R63	0662057T57	CHIP RES 1.5K OHMS 1%
R64	0662057T73	RES CHIP 33.2K 1% 30*60
R65	0662057P03	RES CHIP 4.75K 1% 30X60
R67	0662057P10	RES CHIP 10.0K 1% 30X60
R68	0662057P02	RES. CHIP 15K 1% 30X60
R70,71	0662057T73	RES CHIP 33.2K 1% 30*60
R72	0662057T59	CHIP RES 3.32K OHMS 1 %
R73	0662057T60	CHIP RES 6.81K OHMS 1 %
R74	0662057P49	RES CHIP 2.21K
R75	0662057T73	RES CHIP 33.2K 1% 30*60
R76	0662057Z16	RES CHIP 3.92KOHMS
R77	0662057P95	RES CHIP 100.0K 1% 30X60
R78,79	0662057T59	CHIP RES 3.32K OHMS 1 %
R196	0662057P95	RES CHIP 100.0K 1% 30X60
R81	0662057T64	CHIP RES 47.5K OHMS 1 %
R82	0662057P10	RES CHIP 10.0K 1% 30X60
R83	0683962T03	1.2 ohms, +/-5%, 1W
R87	0662057T68	CHIP RES 10.0K 1% 30*60
R89	0683962T03	1.2 ohms, +/-5%, 1W
R90	0662057P03	RES CHIP 4.75K 1% 30X60
R91	0662057T73	RES CHIP 33.2K 1% 30*60
R92	0662057P10	RES CHIP 10.0K 1% 30X60
R93	0662057P49	RES CHIP 2.21K
R94	0662057P03	RES CHIP 4.75K 1% 30X60
R95	0662057Z15	RES CHIP 2.67KOHMS
R96	0662057T73	RES CHIP 33.2K 1% 30*60
R97	0683962T49	100 ohms, +/-5%, 1W
R98 thru 101	0662057P10	RES CHIP 10.0K 1% 30X60
R102	0662057P49	RES CHIP 2.21K
R103	0611079D54	RES CHIP 357.0 1/10W 1%
R104	0662057T59	CHIP RES 3.32K OHMS 1 %
R105	0662057P02	RES. CHIP 15K 1% 30X60
R106	0662057P03	RES CHIP 4.75K 1% 30X60
R108	0662057T68	CHIP RES 10.0K 1% 30*60
R109	0662057P10	RES CHIP 10.0K 1% 30X60
R110	0662057T68	RES CHIP 10.0K 1% 30*60
R111	0662057T49	CHIP RES 221 OHMS 1 %
R112	0662057T68	RES CHIP 10.0K 1% 30*60
R113	0662057P10	RES CHIP 10.0K 1% 30X60
R114	0662057T68	RES CHIP 10.0K 1% 30*60
R115	0662057T64	CHIP RES 47.5K OHMS 1 %
R116	0662057T68	RES CHIP 10.0K 1% 30*60
R117	0611079A95	7500 ohms, +/-5%, 1/10W
R118	0662057T68	RES CHIP 10.0K 1% 30*60
R119	0662057P10	RES CHIP 10.0K 1% 30X60
R120	0662057T68	RES CHIP 10.0K 1% 30*60
R121	0662057P95	RES CHIP 100.0K 1% 30X60
R122	0662057T55	CHIP RES 681 OHMS 1 %
R123	0662057T48	CHIP RES 150 OHMS 1 %
R124	0662057T73	RES CHIP 33.2K 1% 30*60
R127	0662057P10	RES CHIP 10.0K 1% 30X60
R128 thru 133	0611079D54	RES CHIP 357.0 1/10W 1%
R134	0611079D79	RES CHIP 649.0 1/10W 1%
R136	0611079F39	RES CHIP 2.49K 1/10W 1% 0805
R137	0611079D54	RES CHIP 357.0 1/10W 1%
R138 thru 145	0611079D55	RES CHIP 392.0 1/10W 1%
R146	0662057P10	RES CHIP 10.0K 1% 30X60
R147	0662057T56	CHIP RES 825 OHMS 1 %
R148	0662057P39	RES CHIP 2.1K
R149	0662057T73	RES CHIP 33.2K 1% 30*60
R150	0662057P22	RES CHIP 22.1K 1% 30X60
R151 thru 153	0609887C67	560 ohms, +/-5%, 1/2W
R154	0662057Z16	RES CHIP 3.92KOHMS
R155	0662057P10	RES CHIP 10.0K 1% 30X60
R156	0662057T64	CHIP RES 47.5K OHMS 1 %
R157,158	0662057T65	CHIP RES 475K OHMS 1 %
R159	0662057P39	RES CHIP 2.1K
R160,161	0662057T59	CHIP RES 3.32K OHMS 1 %
R162	0609887C83	2.7K, +/-5%, 1/2W
R163	0662057P39	RES CHIP 2.1K
R164	0662057T77	RES CHIP 68.1K 1%
R165	0662057Z49	RES CHIP 182 1% 0603
R174,175	0662057P10	RES CHIP 10.0K 1% 30X60
R176	0662057P39	RES CHIP 2.1K
R177	0662057P10	RES CHIP 10.0K 1% 30X60
R178	0662057T73	RES CHIP 33.2K 1% 30*60
R179	0662057P66	RES CHIP 5.62K
R180	0662057T77	RES CHIP 68.1K 1%
R181	0662057P66	RES CHIP 5.62K
R182	0662057T73	RES CHIP 33.2K 1% 30*60
R183	0662057T52	CHIP RES 332 OHMS 1 %
R185	0662057T77	RES CHIP 68.1K 1%
R186	0662057T73	RES CHIP 33.2K 1% 30*60
R187	0662057T60	CHIP RES 6.81K OHMS 1 %
R189	0662057P66	RES CHIP 5.62K
R190	0662057Z16	RES CHIP 3.92KOHMS
R191	0662057T73	RES CHIP 33.2K 1% 30*60
R192	0662057T42	CHIP RES 22.1 OHMS 1%
R193	0662057P66	RES CHIP 5.62K
R194	0662057T77	RES CHIP 68.1K 1%
R195	0662057T59	CHIP RES 3.32K OHMS 1 %
R196	0662057P95	RES CHIP 100.0K 1% 30X60
R197	0662057P10	RES CHIP 10.0K 1% 30X60
R201	0662057P22	RES CHIP 22.1K 1% 30X60
R204	0662057P10	RES CHIP 10.0K 1% 30X60
R213	0611079D68	RES CHIP 19.6K 1/10W 1% 0805
R215	0662057T48	CHIP RES 150 OHMS 1 %
R222	0662057P95	RES CHIP 100.0K 1% 30X60
R224	0662057T73	RES CHIP 33.2K 1% 30*60
R225	0662057P66	RES CHIP 5.62K
R226	0662057T43	CHIP RES 33.2 OHMS 1%
R228	0662057P03	RES CHIP 4.75K 1% 30X60
R230,231	0662057T64	CHIP RES 47.5K OHMS 1 %
R236	0611079D68	RES CHIP 19.6K 1/10W 1% 0805
R237	0662057T49	CHIP RES 221 OHMS 1 %
R241	0662057P10	RES CHIP 10.0K 1% 30X60
R242	0662057T73	RES CHIP 33.2K 1% 30*60
R243	0662057P10	RES CHIP 10.0K 1% 30X60
R244	0662057T59	CHIP RES 3.32K OHMS 1 %
R245	0662057P02	RES. CHIP 15K 1% 30X60
R246	0662057T43	CHIP RES 33.2 OHMS 1%
R247	0662057T64	CHIP RES 47.5K OHMS 1 %
R248	0662057T59	CHIP RES 3.32K OHMS 1 %
R249	0662057P22	RES CHIP 22.1K 1% 30X60
R250	0662057P10	RES CHIP 10.0K 1% 30X60
R251	0662057Z15	RES CHIP 2.67KOHMS
R252	0662057T73	RES CHIP 33.2K 1% 30*60
R253	0662057T68	RES CHIP 10.0K 1% 30*60
R254	0662057T64	CHIP RES 47.5K OHMS 1 %
R255	0662057P39	RES CHIP 475
R261	0662057Z14	RES CHIP 1.82KOHMS
R262	0662057P03	RES CHIP 4.75K 1% 30X60
R263	0662057T59	CHIP RES 3.32K OHMS 1 %
R264,265	0662057T59	CHIP RES 3.32K OHMS 1 %
R266	0662057T48	CHIP RES 150 OHMS 1 %
R267	0662057T62	CHIP RES 8.25K OHMS 1 %
R268,269	0662057P49	RES CHIP 2.21K
R271	0662057P95	RES CHIP 100.0K 1% 30X60
R272	0662057T73	RES CHIP 33.2K 1% 30*60
R274	0662057P10	RES CHIP 10.0K 1% 30X60
R275	0662057T60	CHIP RES 6.81K OHMS 1 %
R276	0662057P10	RES CHIP 10.0K 1% 30X60
R277	0662057P22	RES CHIP 22.1K 1% 30X60
R278	0662057P03	RES CHIP 4.75K 1% 30X60
R279	0662057T73	RES CHIP 33.2K 1% 30*60
R280	0662057T65	CHIP RES 475K OHMS 1 %
R281	0662057P10	RES CHIP 10.0K 1% 30X60
R282	0662057T65	CHIP RES 475K OHMS 1 %
R283	0662057P95	RES CHIP 100.0K 1% 30X60
R284 thru 287	0662057P07	RES CHIP 6.81K OHMS 1 %
R290	0662057P95	RES CHIP 100.0K 1% 30X60
R291	0662057T73	RES CHIP 33.2K 1% 30*60
R292	0662057Z16	RES CHIP 3.92KOHMS
R294	0662057T73	RES CHIP 33.2K 1% 30*60
R295	0662057P95	RES CHIP 100.0K 1% 30X60
R297	0662057T73	RES CHIP 33.2K 1% 30*60
R298	0611079G01	10k, +/-1%, 1/10 W
R299	0662057P10	RES CHIP 10.0K 1% 30X60
R300	0662057T54	CHIP RES 562 OHMS 1 %
R301	0662057P10	RES CHIP 10.0K 1% 30X60
R302	0611079G32	RES CHIP 21.0K 1/10W 1% 0805
R303	0611079G10	RES CHIP 12.4K 1/10W 1% 0805
R304	0611079G09	12.1K, 1/10 W; +/-1%
R305	0662057P31	RES CHIP 392
R306	0611079F79	RES CHIP 6.49K 1/10W 1% 0805
R307	0662057T54	CHIP RES 562 OHMS 1 %
R308	0611079G21	RES CHIP 16.2K 1/10W 1% 0805
R309	0662057T62	CHIP RES 8.25K OHMS 1 %
R310 thru 313	0662057P10	RES CHIP 10.0K 1% 30X60
R314	0662057T44	CHIP RES 49.9 OHMS 1%
R315	0662057T59	CHIP RES 3.32K OHMS 1 %
R316	0662057T62	CHIP RES 8.25K OHMS 1 %
R317	0662057Z16	RES CHIP 3.92KOHMS
R318	0662057P48	RES CHIP 1.21K
R319	0662057P66	RES CHIP 5.62K
R320	0662057T62	CHIP RES 8.25K OHMS 1 %
R321	0662057P10	RES CHIP 10.0K 1% 30X60
R322	0662057P39	RES CHIP 475
R323	0662057T59	CHIP RES 3.32K OHMS 1 %
R324	0662057P59	RES CHIP 4.75K
R325	0662057P49	RES CHIP 2.21K
R326 thru 329	0611077A68	560 ohms, +/-5%, 1/8 W
R330	0609887C75	1.2K, +/-5%, 1/2W
R331 thru 335	0611077A68	560 ohms, +/-5%, 1/8 W
R336	0609887C75	1.2K, +/-5%, 1/2W
R337	0662057T65	CHIP RES 475K OHMS 1 %
R339 thru 343	0611079A60	270 ohms, +/-5%, 1/10 W
R345 thru 348	0611079A60	270 ohms, +/-5%, 1/10 W
R349	0662057P59	RES CHIP 4.75K
R351	0662057P59	RES CHIP 4.75K
R352	0662057P49	RES CHIP 2.21K
R353	0662057T04	RES CHIP 221K
R355 thru 357	0662057T60	CHIP RES 6.81K OHMS 1 %
R359	0662057T68	RES CHIP 10.0K 1% 30*60
R362,363	0662057T59	CHIP RES 3.32K OHMS 1 %
R364	0662057P95	RES CHIP 100.0K 1% 30X60
R365	0662057T53	CHIP RES 3.32K OHMS 1 %
R366	0662057T48	CHIP RES 150 OHMS 1 %
R367 thru 372	0662057P10	RES CHIP 10.0K 1% 30X60
R373	0609887C19	5.6 ohms, +/-5%, 1/2W
R374	0662057T60	CHIP RES 6.81K OHMS 1 %
R375	0662057P22	RES CHIP 22.1K 1% 30X60
R376	0662057P95	RES CHIP 100.0K 1% 30X60
R377,378	0662057T62	CHIP RES 8.25K OHMS 1 %
R379	0662057T52	CHIP RES 332 OHMS 1 %
R380	0662057P59	RES CHIP 4.75K
R381	0662057Z14	RES CHIP 1.82KOHMS
R382	0662057P10	RES CHIP 10.0K 1% 30X60
R383	0662057T68	RES CHIP 1.0K 1% 30*60
R384	0662057T64	CHIP RES 47.5K OHMS 1 %
R385	0662057Z14	RES CHIP 1.82KOHMS
R386	0662057T59	CHIP RES 3.32K OHMS 1 %
R387	0662057P49	RES CHIP 2.21K
R388	0662057P03	RES CHIP 4.75K 1% 30X60
R389	0662057P49	RES CHIP 2.21K
R390	0662057T62	CHIP RES 8.25K OHMS 1 %
R391	0662057T04	RES CHIP 221K
R392	0662057T59	CHIP RES 3.32K OHMS 1 %
R393	0662057T49	CHIP RES 221 OHMS 1 %
R394	0662057T59	CHIP RES 3.32K OHMS 1 %
R397	0662057Z16	RES CHIP 3.92KOHMS
R398	0662057P03	RES CHIP 4.75K 1% 30X60
R399	0662057T68	RES CHIP 1.0K 1% 30*60
R400	0662057T73	RES CHIP 33.2K 1% 30*60
R401	0609887C27	12 ohms, +/-5%, 1/2W
R402	0662057T57	CHIP RES 1.5K OHMS 1%
R403	0662057P10	RES CHIP 10.0K 1% 30X60
R405 thru 407	0683962T27	12 ohms, +/-5%, 1W
		integrated circuit; (see note)
U100	5113819A05	High Performance, Single Supply
U101	5113818A03	IC HIGH PERFORMANCE SING SPLY
U102	5113805A85	Mux/Demux, Trip 2-Channel Analog
U103	5113815A52	IC MULTIPLIER 4-QUAD
U104,105	5113818A03	IC HIGH PERFORMANCE SING SPLY
U106	5113819A14	IC DL OP AMP RAIL TO RAIL
U107	5113818A03	IC HIGH PERFORMANCE SING SPLY
U108	5113805A93	Quad Single/Dual Supply
U111	5113815A08	Precision Voltage Reference
U112 thru 117	5180533F01	IC DUAL DIG POT 50K OHM EEPROM
U118 thru 120	5113818A03	IC HIGH PERFORMANCE SING SPLY
U122,123	5113819A14	IC QD OP AMP _SS304_
U124	5113805A22	Quad 2-Input Exclusive OR Gate
U125	5113815A08	Precision Voltage Reference
U126	5113818A18	IC DUAL OP AMP HIGH OUTPUT
U127,128	5113818A03	IC HIGH PERFORMANCE SING SPLY
U129	5113819A05	High Performance, Single Supply
U130	5113805A56	IC NOR GATE TRIPLE 3IN MC14025
U131	5113805A27	Quad 2-Input NAND Gate
U132	5113805A02	Quad 2-Input NOR Gate
U133,134	5113805A27	Quad 2-Input NAND Gate
U135	5113805A85	Mux/Demux, Trip 2-Channel Analog
U136	5113805A18	Dual D-Type Flip-Flop with Set/Reset
U136,139	5113802A03	Quad Single/Dual Supply
U140	5113805A06	Quad 2-Input AND Gate
U141	5113805A72	Octal 3-State Non-Inverter Transmit Latch
U142	5113816A21	IC ADJ LO DROPOUT POS REG .8A
U158	5113802A03	Quad Single/Dual Supply
		voltage regulator; (see note)
VR22	4813823C28	Zener 15 V
VR30	4813823C28	Zener 15 V
VR32 thru 49	4813823C28	Zener 15 V
VR51 thru 65	4813823C28	Zener 15 V
		non-referenced items:
	1583004X01	CORRAL LARGE (used with SH1)
	1583004X02	CORRAL SMALL (used with SH1)
	2683006X01	COVER LARGE (used with SH1)
	2683006X01	COVER LARGE (used with SH2)
	5482006W02	ribbon, thermal transfer
	5462006W03	BARCODE LABEL
	8486797P01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

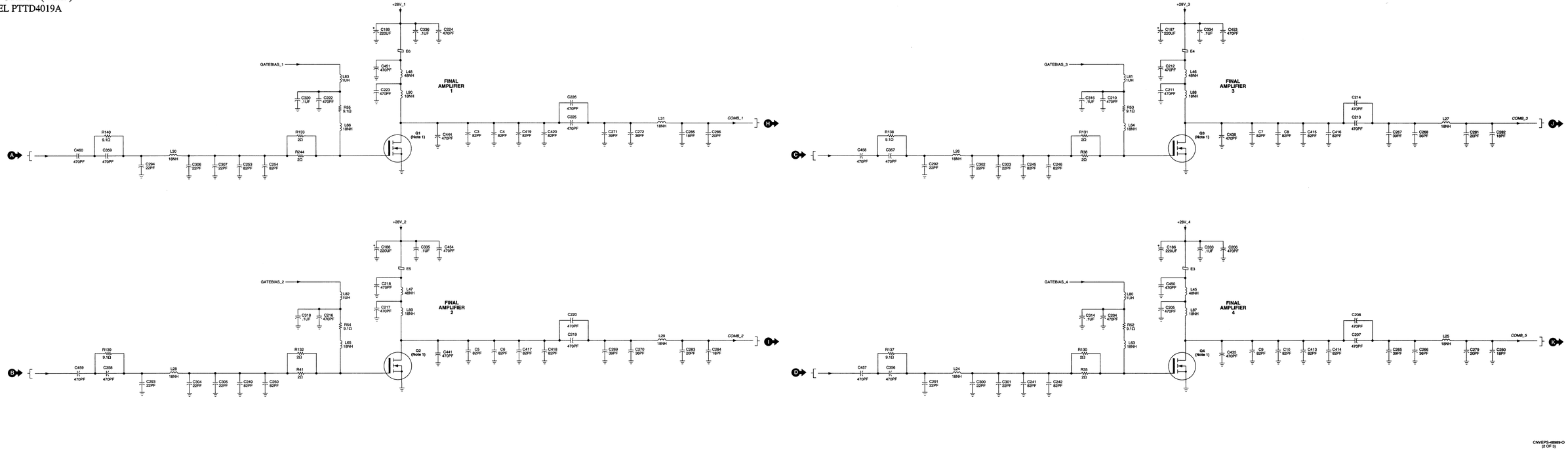

SHUTDOWN_LED
I_SENSE1
CUTBACK_LED
I_SENSE2
HIGH_TEMP_LED
I_SENSE3
INPUT_LOW_LED
I_SENSE4
WSVR_LED
I_SENSE5
26V_LED
I_SENSE6
OVERCURRENT_LED
I_SENSE7
FAN_FAIL_LED
I_SENSE8
INPUT_HIGH_LED
+14V
MAX_OUTPUT_LED
+14V
UIP_8
POWER_IN
RF_SW_ON
FORWARD
UIP_6
REFLECTED
UIP_5
CELSIUS
UIP_4
UIP_FAN_ALM
UIP_3
UIP_BATTERY
UIP_2
UIP_FAIL
GND
GND
GND
GND
GND
GND
FAIL_LED
FAN_V_SENSE
FAN_SPIN
FAN_PWR
GND
GND
N/C
+14V
N/C
OPTIONAL UIP PROCESSOR CONNECTOR
FACTORY TEST CONNECTOR
CNVEPS-48990-O

RF BOARD (VHF)
MODEL PTTD4019A

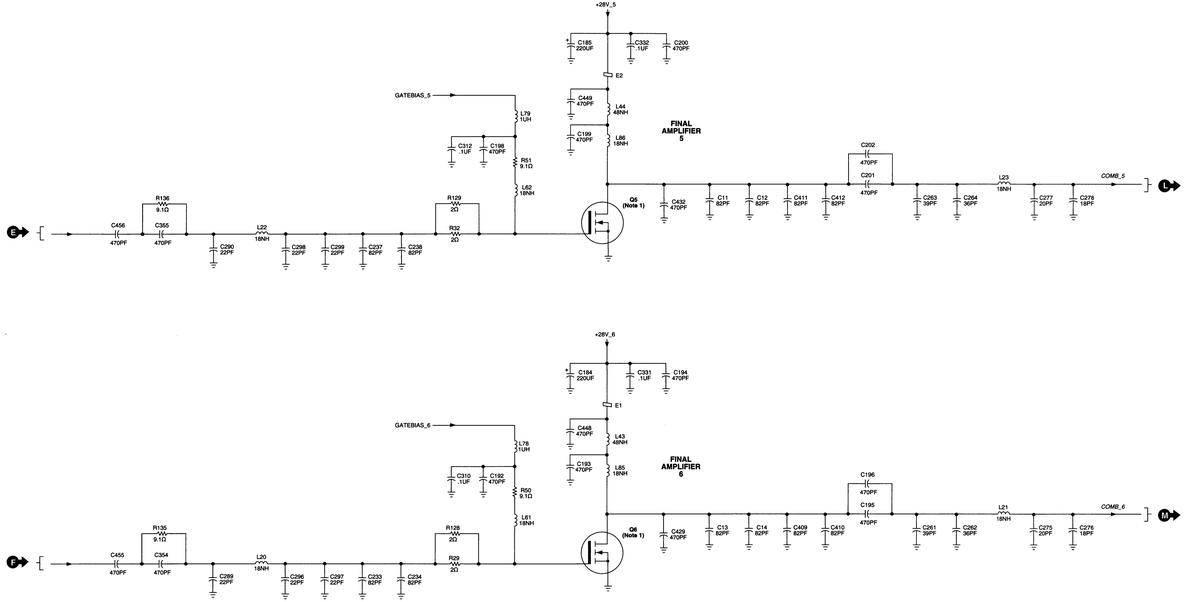


68P81097E72-O
(Sheet 1 of 4)
1/15/02-UP

RF BOARD (VHF)
MODEL PTTD4019A



CNVEPS-48989-O
(5 OF 5)


+28V_5
C185 220UF
C332 1UF
C200 470PF
E2
GATEBIAS_5
C449 470PF
L44 48NH
C199 470PF
L86 18NH
FINAL AMPLIFIER 5
L79 1UH
C312 1UF
C186 470PF
R51 9.1Ω
L82 18NH
C202 470PF
C201 470PF
L23 18NH
COMB_5
L
E
R136 9.1Ω
C456 470PF
C355 470PF
L22 18NH
R129 2Ω
R32 2Ω
Q6 (Note 1)
C290 22PF
C298 22PF
C299 22PF
C237 82PF
C238 82PF
C432 470PF
C11 82PF
C12 82PF
C411 82PF
C412 82PF
C263 39PF
C264 36PF
C277 20PF
C278 18PF
+28V_6
C184 220UF
C331 1UF
C194 470PF
E1
GATEBIAS_6
C448 470PF
L43 48NH
C193 470PF
L85 18NH
FINAL AMPLIFIER 6
L78 1UH
C310 .1UF
C192 470PF
R50 9.1Ω
L61 18NH
C196 470PF
C195 470PF
L21 18NH
COMB_6
M
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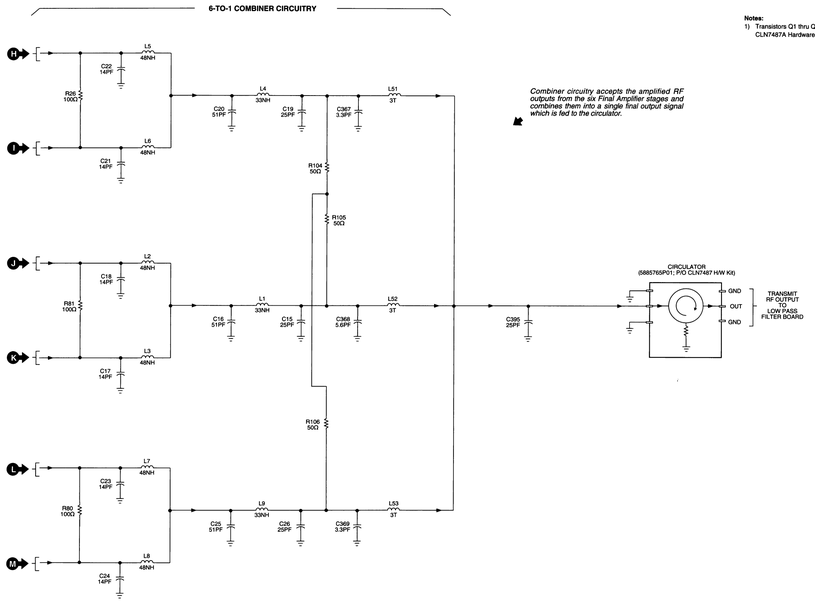
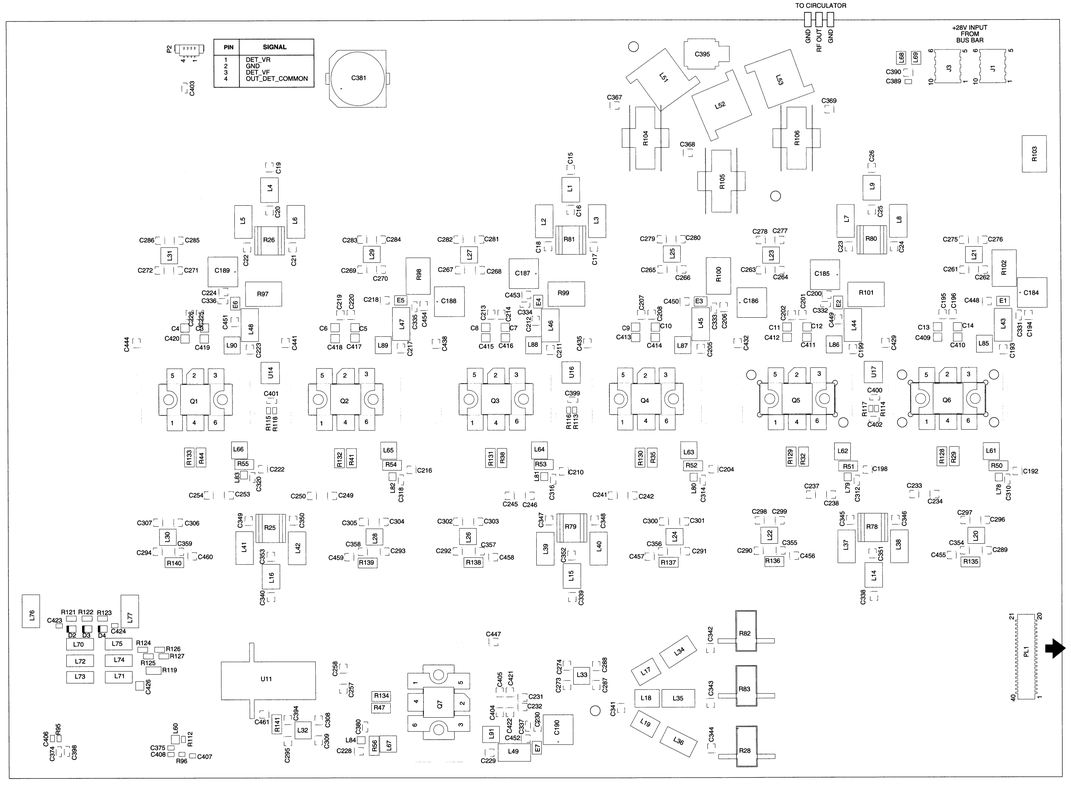
R135 9.1Ω
C455 470PF
C354 470PF
L20 18NH
R128 2Ω
R29 2Ω
Q6 (Note 1)
C289 22PF
C296 22PF
C297 22PF
C233 82PF
C234 82PF
C429 470PF
C13 82PF
C14 82PF
C409 82PF
C410 82PF
C261 39PF
C262 36PF
C275 20PF
C276 18PF


6-TO-1 COMBINER CIRCUITRY
H
I
J
K
L
M
L5 48NH
C22 14PF
R26 100Ω 7
L6 48NH
C21 14PF
L4 33NH
C20 51PF
C19 25PF
C367 3.3PF
L51 3T
R104 50Ω
R105 50Ω
R106 50Ω
L2 48NH
C16 14PF
R81 100Ω 7
L3 48NH
C17 14PF
L1 33NH
C16 51PF
C15 25PF
C366 3.6PF
L52 3T
L7 48NH
C23 14PF
R80 100Ω
L8 48NH
C24 14PF
L9 33NH
C25 51PF
C26 25PF
C369 3.3PF
L53 3T
C395 25PF
CIRCULATOR (5885765P01; P/O CLN7487 H/W Kit)
GND
OUT
GND
TRANSMIT RF OUTPUT TO LOW PASS FILTER BOARD
Combiner circuitry accepts the amplified RF outputs from the six Final Amplifier stages and combines them into a single final output signal which is fed to the circulator.
Notes:
1) Transistors Q1 thru Q7 (Motorola Part No. 4813628D31) are part of the CLN7487A Hardware Kit.

RF BOARD (VHF)
MODEL PTTD4019A


TO CIRCULATOR
GND
RF OUT
GND
+28V INPUT FROM BUS BAR
P2
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C395
C381
C403
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R104
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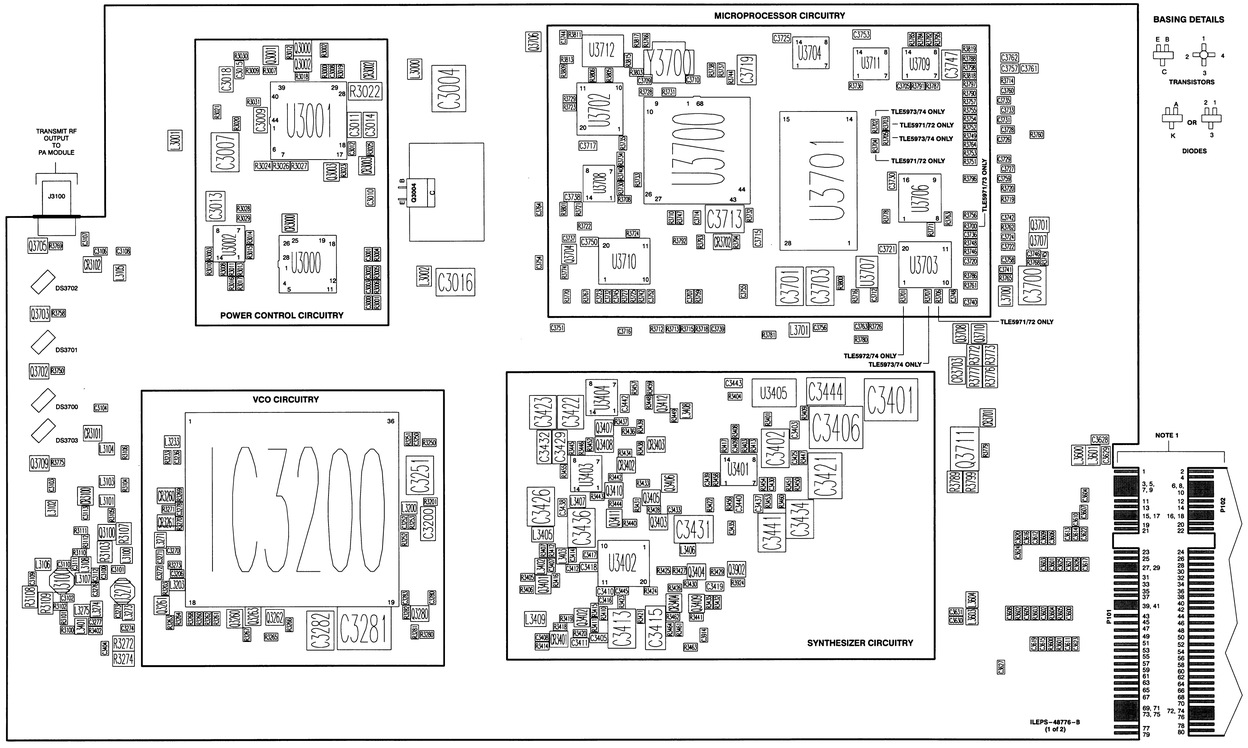
UHF EXCITER BOARD
MODELS TLE5971F–TLE5974F



BASING DETAILS

NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P101. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P102. P102 CONTACT LAYOUT IS SHOWN IN THE CUTAWAY VIEW JUST TO THE RIGHT OF THE P101 CONTACT LAYOUT. IN ADDITION, P101 CONTAINS ODD NUMBERED CONTACTS AND P102 CONTAINS EVEN NUMBERED CONTACTS.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P101–1	CHASSIS GND	P102–2	CHASSIS GND
P101–3, 5, 7, 9	14.2V	P102–4	NOT USED
P101–11	+5V	P102–6, 8, 10	14.2V
P101–13	CHASSIS GND	P102–12	+5V
P101–15, 17	V–CONTROL	P102–14	CHASSIS GND
P101–19	TX VFWD	P102–16, 18	V–CONTROL
P101–21	NOT USED	P102–20	NOT USED
P101–23	CHASSIS GND	P102–22	NOT USED
P101–25	EXT WM VFWD	P102–24	CHASSIS GND
P101–27, 29	CHASSIS GND	P102–26	EXT WM REFL
P101–31	ANT RLY ENABLE	P102–28	EXT CIRC
P101–33	NOT USED	P102–30	CHASSIS GND
P101–35	NOT USED	P102–32	EXT MON VOLTAGE 1
P101–37	ADAPTIVE TUNE 2	P102–34	NOT USED
P101–39, 41	CHASSIS GND	P102–36	ADAPTIVE TUNE 1
P101–43	Y1 MUX1	P102–38	FANS ON
P101–45	Y2 MUX2	P102–40	CHASSIS GND
P101–47	Y3 MUX3	P102–42	X1 MUX1
P101–49	MUX SELECT B	P102–44	X2 MUX2
P101–51	CHASSIS GND	P102–46	X3 MUX3
P101–53	MOSI HOST	P102–48	MUX SELECT A
P101–55	RESET	P102–50	CHASSIS GND
P101–57	NOT USED	P102–52	MISO HOST
P101–59	SPI GRANT	P102–54	SCK HOST
P101–61	NOT USED	P102–56	NOT USED
P101–63	NOT USED	P102–58	NOT USED
P101–65	SPI REQ	P102–60	NOT USED
P101–67	TX TO HOST REQ	P102–62	NOT USED
P101–69, 71, 73, 75	CHASSIS GND	P102–64	NOT USED
P101–77	REF AUDIO	P102–66	PTT REQ
P101–79	CHASSIS GND	P102–68	CHASSIS GND
		P102–70	REF OSC
		P102–72, 74, 76	CHASSIS GND
		P102–78	VCO AUDIO
		P102–80	CHASSIS GND

ILEPS–48776–B (2 of 2)

parts list

TLE5971F Exciter Board (403 to 433 MHz)
TLE5972F Exciter Board (438 to 470 MHz)
TLE5973F Exciter Board (470 to 494 MHz)
TLE5974F Exciter Board (494 to 520 MHz)

PL–13068–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C3000 thru 3003	2113740A39	27 pF, ±5%, 50V
C3004	2380090M36	100 uF, 25V
C3007	2380090M07	4.7 uF, ±20%, 16V
C3008	2113740A39	27 pF, ±5%, 50V
C3009	2311049A06	0.47 uF, ± 10%, 35V
C3010	2113741B69	0.1 uF, ±5%, 50 V
C3011	2311049A06	1 uF, ± 10%, 35 V
C3012	2113740A39	27 pF, ±5%, 50V
C3013	2380090M18	1 uF, ±20%, 50V
C3014	2311049A06	1 uF, ± 10%, 35 V
C3015	2113741B69	0.1 uF, ±5%, 50 V
C3016	2380090M07	4.7 uF, ±20%, 16V
C3018	2311049A06	0.47 uF, ± 10%, 35V
C3100	2113740A79	1000 pF, ±5%, 50V
C3101 thru 3103	2113740A55	100 pF, ±5%, 50V
C3104	2113740A39	27 pF, ±5%, 50V
C3106	2113740A39	27 pF, ±5%, 50V
C3107 thru 3110	2113740A55	100 pF, ±5%, 50V
C3111	2113740A21	5.6 pF, ±0.25 pF; 50V (TLE5971 & TLE5972) 4.7 pF, ±0.25pF; 50V (TLE5973 & TLE5974)
	2113740A19	
C3112	2113740G15 2113740G13	3.3 pF, ±0.1 pF; 50V (TLE5971) 2.7pF, ±0.1 pF; 50V (TLE5972, TLE5973, TLE5974)
C3113	2113740A55	100 pF, ±5%, 50V
C3200	0811049A99	0.022 uF, ±5%, 63 V
C3206	2113740A55	100 pF, ±5%, 50V
C3236	2113740A55	100 pF, ±5%, 50V
C3250	2113741A51	0.018 uF, ±5%, 50V (TLE5971, TLE5972 & TLE5973)
	2113741A33	3300 pF, ±5%, 50V (TLE5974)
C3251	2380090M24	10 uF, ±20%, 50V
C3252	2113741A51	0.018 uF, ±5%, 50V (TLE5971, TLE5972 & TLE5973)
	2113741A33	3300 pF, ±5%, 50V (TLE5974)
C3270	2113740A21	5.6 pF, ±0.25 pF; 50V
C3271 thru 3274	2113740A55	100 pF, ±5%, 50V
C3276	2113740A21	5.6 pF, ±0.25 pF; 50V (TLE5971 & TLE5972) 4.7 pF, ±0.25pF; 50V (TLE5973 & TLE5974)
	2113740A19	
C3277	2113740G15 2113740G13	3.3 pF, ±0.1 pF; 50V (TLE5971) 2.7pF, ±0.1 pF; 50V (TLE5972, TLE5973, TLE5974)
C3278	2113740A55	100 pF, ±5%, 50V
C3280	2113741A45	0.01 uF, ±5%, 50V
C3281	2380090M31	220 uF, ±20%, 16V
C3282	2380090M07	47 uF, ±20%, 16V
C3283	2113741A45	0.01 uF, ±5%, 50V
C3401	2380090M29	220 uF, ±20%, 16V
C3402	2380090M24	10 uF, ±20%, 50V
C3403	2113741B69	0.1 uF, ±5%, 50 V
C3404	2113740A79	1 pF, ±0.1 pF; 50V
C3405	2113741B69	0.1 uF, ±5%, 50 V
C3406	2380090M28	220 uF, ±20%, 16V
C3407	2113741B69	0.1 uF, ±5%, 50 V
C3408	2113741A45	0.01 uF, ±5%, 50V
C3409	2113741A37	4700 pF, ±5%, 50V
C3410,3411	2113741B69	0.1 uF, ±5%, 50 V
C3412	2113740A21	5.6 pF, ±0.25 pF; 50V
C3413	2380090M24	10 uF, ±20%, 50V
C3414	2113740A55	100 pF, ±5%, 50V
C3415	2311048A19	10 uF, ±10%, 25V
C3416	2113740A67	330 pF, ±5%, 50V
C3417	2113740A55	100 pF, ±5%, 50V
C3418,3419	2113741B69	0.1 uF, ±5%, 50 V
C3421	2380090M36	100 uF, 25V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C3422,3423	0811051A19	1 uF, +5%/–0.5%, 63V
C3425	2113741A33	3300 pF, ±5%, 50V
C3426	2380090M24	10 uF, ±20%, 50V
C3429	0811051A15	0.22 uF, ±5%, 63 V
C3430	2113740A53	82 pF, ±5%, 50V
C3431	2380090M24	10 uF, ±20%, 50V
C3432	0811051A09	0.022 uF, ±5%, 63 V
C3433	2113740A55	100 pF, ±5%, 50V
C3434	2380090M24	10 uF, ±20%, 50V
C3435	2113741A33	3300 pF, ±5%, 50V
C3436	2380090M24	10 uF, ±20%, 50V
C3437,3438	2113741B69	0.1 uF, ±5%, 50 V
C3439	2113740A71	470 pF, ±5%, 50V
C3440	2113741B69	0.1 uF, ±5%, 50 V
C3441	2380090M24	10 uF, ±20%, 50V
C3442,3443	2113741B69	0.1 uF, ±5%, 50 V
C3444	2380090M24	10 uF, ±20%, 50V
C3445	2113740A55	100 pF, ±5%, 50V
C3446	2113740A53	82 pF, ±5%, 50V
C3801	2113740A55	100 pF, ±5%, 50V
C3802	2113740A33	15 pF, ±5%, 50V
C3803	2113740A55	100 pF, ±5%, 50V
C3804	2113741A53	0.022 uF, ±5%, 50V
C3805	2113740A33	15 pF, ±5%, 50V
C3806	2113740A55	100 pF, ±5%, 50V
C3807	2113741A53	0.022 uF, ±5%, 50V
C3808	2113740A33	15 pF, ±5%, 50V
C3809	2113740A55	100 pF, ±5%, 50V
C3810	2113741A53	0.022 uF, ±5%, 50V
C3811	2113740A33	15 pF, ±5%, 50V
C3812	2113740A55	100 pF, ±5%, 50V
C3813,3814	2113741A53	0.022 uF, ±5%, 50V
C3815	2113740A33	15 pF, ±5%, 50V
C3816	2113740A55	100 pF, ±5%, 50V
C3817	2113741A53	0.022 uF, ±5%, 50V
C3819	2113740A39	27 pF, ±5%, 50V
C3820	2113740A55	100 pF, ±5%, 50V
C3821,3822	2113741A53	0.022 uF, ±5%, 50V
C3823	2113740A39	27 pF, ±5%, 50V
C3824	2113740A55	100 pF, ±5%, 50V
C3825,3826	2113741A53	0.022 uF, ±5%, 50V
C3827	2113740A39	27 pF, ±5%, 50V
C3828,3829	2113741B69	0.1 uF, ±5%, 50 V
C3830,3831	2113740A39	27 pF, ±5%, 50V
C3700,3701	2380090M07	47 uF, ±20%, 16V
C3703	2380090M24	10 uF, ±20%, 50V
C3705	2113740A39	27 pF, ±5%, 50V
C3707	2113740A39	27 pF, ±5%, 50V
C3709,3710	2113740A37	22 pF, ±5%, 50V
C3712	2113740A39	27 pF, ±5%, 50V
C3713	2380090M24	10 uF, ±20%, 50V
C3714	2113741A45	0.01 uF, ±5%, 50V
C3715	2113741B69	0.1 uF, ±5%, 50 V
C3716	2113740A39	27 pF, ±5%, 50V
C3717	2113741B69	0.1 uF, ±5%, 50 V
C3719	2380090M18	1 uF, ±20%, 50V
C3720	2113740A55	100 pF, ±5%, 50V
C3721	2113741B69	0.1 uF, ±5%, 50 V
C3722 thru 3724	2113740A39	27 pF, ±5%, 50V
C3725	2113741B69	0.1 uF, ±5%, 50 V
C3726 thru 3729	2113740A39	27 pF, ±5%, 50V
C3730	2113741B69	0.1 uF, ±5%, 50 V
C3731 thru 3733	2113740A39	27 pF, ±5%, 50V
C3735	2113740A39	27 pF, ±5%, 50V
C3736	2113740G11	2.2 pF, ±0.1 pF; 50V
C3737	2113740A39	27 pF, ±5%, 50V
C3738	2113741B69	0.1 uF, ±5%, 50 V
C3739	2113740A55	100 pF, ±5%, 50V
C3740	2113740G11	2.2 pF, ±0.1 pF; 50V
C3741,3742	2113740A39	27 pF, ±5%, 50V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C3744,3745	2113740A39	27 pF, ±5%, 50V
C3746	2113740A77	0.82 pF, ±5%, 50V
C3747	2380090M18	1 uF, ±20%, 50V
C3748	2113740A39	27 pF, ±5%, 50V
C3750	2113741B69	0.1 uF, ±5%, 50 V
C3751	2113740A55	100 pF, ±5%, 50V
C3752	2113740A39	27 pF, ±5%, 50V
C3753	2113741B69	0.1 uF, ±5%, 50 V
C3754	2113740A77	0.82 pF, ±5%, 50V
C3755,3756	2113740A39	27 pF, ±5%, 50V
C3757	2113741B69	0.1 uF, ±5%, 50 V
C3758 thru 3760	2113740A39	27 pF, ±5%, 50V
C3761,3762	2113741B69	0.1 uF, ±5%, 50 V
C3763,3764	2113740A39	27 pF, ±5%, 50V
		diode (see note):
CR3000	4813833C10	0.1A, 70V
CR3002	4813833C05	dual 70V
CR3003	4813825A05	Hot Carrier
CR3100 thru 3102	4813825A06	Pin,35V
CR3260,3261	4813825A06	Pin,35V
CR3401	4813825A05	Hot Carrier
CR3402,3403	4813833C10	0.1A, 70V
CR3404	4813833C05	dual 70V
CR3701,3702	4813833C05	dual 70V
CR3703	4813833B01	Schottky type
		light emitting diode (see note):
DS3700	4882198T05	submin LED YEL
DS3701,3702	4882198T06	submin LED GRN
DS3703	4882198T04	submin LED RED
		hybrid (see note):
IC3200	0180733E55	VCO XMTR UHF R1 (TLE5971)
	0180733E56	VCO XMTR UHF R2 (TLE5972)
	0180733E57	VCO XMTR UHF R3 (TLE5973)
	0180733E58	VCO XMTR UHF R4 (TLE5974)
J3100	0984399T01	**connector:** receptacle: uhf
L3000 thru 3002	2484657R01	**inductor:** ferrite bead
L3100	2462587N57	220 nH, ±5%
L3101	2462587N77	820 nH, ±5%
L3102	2462587N55	150 nH, ±5%
L3103 thru 3105	2462587N71	1800 nH, ±5%
L3106	2462587N57	220 nH, ±5%
L3107,3108	2462587N43 2462587N42	15 nH, ±5% (TLE5971 & TLE5972) 12 nH, ±5% (TLE5973 & TLE5974)
L3200	2462587N57	220 nH, ±5%
L3203	2462587N57	220 nH, ±5%
L3204	2462587N67	220 nH, ±5%
L3271	2462587N43	15 nH, ±5%
L3273	2462587N57	220 nH, ±5%
L3274,3275	2462587N43 2462587N42	15 nH, ±5% (TLE5971 & TLE5972) 12 nH, ±5% (TLE5973 & TLE5974)
L3401	2462587N52	CHIP IND 82 NH 5%
L3402	2462587N57	220 nH, ±5%
L3403	2462587N43	15 nH, ±5%
L3405	2411087A54	220 uH, ±10%
L3406 thru 3408	2462587N57	220 nH, ±5%
L3409	2411087A54	220 uH, ±10%
L3600,3601	2484657R01	ferrite bead
L3603,3604	2462587N49	47 nH, ±5%
L3700,3701	2484657R01	ferrite bead
		translator (see note):
Q3000 thru 3003	4813824A10	NPN
Q3004	4813822A09	PNP
Q3100	4813824A10	NPN
Q3260	4813824A10	NPN
Q3261	4813824A17	PNP
Q3262	4813824A10	NPN

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q3263	4813824A17	PNP
Q3280	4813824A10	NPN
Q3401	4813827A03	NPN
Q3402,3403	4813824A10	NPN
Q3404	4813824A17	PNP
Q3405 thru 3407	4813824A10	NPN
Q3408	4813824A17	PNP
Q3409,3410	4813824A10	NPN
Q3411	4813824A17	PNP
Q3412	4813824A10	NPN
Q3701 thru 3706	4884955T01	NPN
Q3707	4813824A10	NPN
Q3708 thru 3710	4884955T01	NPN
Q3711	4813822A09	PNP
		resistor, fixed:
R3000	0611079A98	10K, ±5%, 1/10W
R3001	0611079A66	470 ohms, ±5%, 1/10W
R3002	0611079A98	10K, ±5%, 1/10W
R3003	0611079B47	1MEG, ±5%, 1/10W
R3004 thru 3006	0611079A66	470 ohms, ±5%, 1/10W
R3007	0611079A98	10K, ±5%, 1/10W
R3008	0611079A74	1K, ±5%, 1/10W
R3009	0611079A82	5600 ohms, ±5%, 1/10W
R3010	0611079A98	10K, ±5%, 1/10W
R3011	0611079B23	100K, ±5%, 1/10W
R3012	0611079A98	10K, ±5%, 1/10W
R3013 thru 3015	0611079B23	100K, ±5%, 1/10W
R3016	0611079A74	1K, ±5%, 1/10W
R3017	0611079A88	3900 ohms, ±5%, 1/10W
R3018	0611079A74	1K, ±5%, 1/10W
R3019	0611079A98	10K, ±5%, 1/10W
R3020,3021	0611079A90	4700 ohms, ±5%, 1/10W
R3022	0683962T01	1 ohm, ±5%, 1 W
R3023	0611079A50	100 ohms, ±5%, 1/10W
R3024	0611079H31	274K, ±1%, 1/8W
R3025	0611079B07	22K, ±5%, 1/10W
R3026	0611077D34	27.4K, ±1%, 1/8W
R3027	0611077G98	127K, ±1%, 1/8W
R3028	0611079A74	1K, ±5%, 1/10W
R3029	0611079B23	100K, ±5%, 1/10W
R3030,R3031	0611079A66	470 ohms, ±5%, 1/10W
R3100	0611079A54	150 ohms, ±5%, 1/10W
R3101	0611079A36	27 ohms, ±5%, 1/10W
R3102	0611079A38	33 ohms, ±5%, 1/10W
R3103	0611072A45	680 ohms, ±5%,1/4 W
R3104	0611079A74	1K, ±5%, 1/10W
R3105	0611079A98	10K, ±5%, 1/10W
R3106	0611079A74	1K, ±5%, 1/10W
R3107	0611072A45	680 ohms, ±5%,1/4 W
R3108	0611072A33	220 ohms, ±5%, 1/4W
R3109	0611072A37	330 1/4 W
R3110,3111	0611079A78	1500 ohms, ±5%, 1/10W
R3112	0611079A24	8.2 ohms, ±5%, 1/10W
R3201	0611079A26	10 ohms, ±5%, 1/10W
R3203	0611079A34	22 ohms, ±5%, 1/10W
R3233	0611079A34	22 ohms, ±5%, 1/10W
R3250	0611079A98	10K, ±5%, 1/10W
R3251	0611079A60	270 ohms, ±5%, 1/10W (TLE5971, TLE5972 & TLE5973) 180 ohms, ±5%, 1/10W (TLE5974)
	0611079A58	
R3252,3253	0611079B15	47K, ±5%, 1/10W
R3260	0611079A94	6800 ohms, ±5%, 1/10W
R3261	0611079A98	10K, ±5%, 1/10W
R3262,3263	0611079A84	2700 ohms, ±5%, 1/10W
R3264	0611079A66	470 ohms, ±5%, 1/10W
R3265	0611079A98	10K, ±5%, 1/10W
R3266,3267	0611079A84	2700 ohms, ±5%, 1/10W
R3268	0611079A66	470 ohms, ±5%, 1/10W
R3269,3270	0611079B15	47K, ±5%, 1/10W
R3271	0611079A38	33 ohms, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3272	0611072A33	220 ohms, ±5%, 1/4W
R3273	0611079A54	150 ohms, ±5%, 1/10W
R3274	0611072A37	330 1/4 W
R3280	0611079A60	270 ohms, ±5%, 1/10W
R3281,3282	0611079A26	10 ohms, ±5%, 1/10W
R3401	0611079A98	10K, ±5%, 1/10W
R3402	0611079A92	47 ohms, ±5%, 1/10W
R3403	0611079A98	10K, ±5%, 1/10W
R3404	0611079A98	10K, ±5%, 1/10W
R3405	0611079A82	2200 ohms, ±5%, 1/10W
R3406	0611079A98	10K, ±5%, 1/10W
R3407	0611079A74	1K, ±5%, 1/10W
R3408	0611079A86	3300 ohms, ±5%, 1/10W
R3409	0611079A98	10K, ±5%, 1/10W
R3410,3411	0611079A82	2200 ohms, ±5%, 1/10W
R3412	0611079A66	470 ohms, ±5%, 1/10W
R3413	0611079A94	6800 ohms, ±5%, 1/10W
R3414	0611079A98	10K, ±5%, 1/10W
R3415	0611079A74	1K, ±5%, 1/10W
R3416	0611079A66	470 ohms, ±5%, 1/10W
R3417	0611079A94	6800 ohms, ±5%, 1/10W
R3418	0611079A72	820 ohms, ±5%, 1/10W
R3419	0611079A82	2200 ohms, ±5%, 1/10W
R3420	0611079A36	27 ohms, ±5%, 1/10W
R3421	0611079A74	1K, ±5%, 1/10W
R3422,3423	0611079B07	22K, ±5%, 1/10W
R3424	0611079A98	10K, ±5%, 1/10W
R3425	0611079A98	10K, ±5%, 1/10W
R3426	0611079A98	10K, ±5%, 1/10W
R3427	0611079A98	10K, ±5%, 1/10W
R3428	0611079A98	10K, ±5%, 1/10W
R3429	0611079A66	470 ohms, ±5%, 1/10W
R3430	0611079A50	100 ohms, ±5%, 1/10W
R3431	0611079A50	100 ohms, ±5%, 1/10W
R3432	0611079B15	47K, ±5%, 1/10W
R3433	0611079A82	2200 ohms, ±5%, 1/10W
R3434	0611079A26	10 ohms, ±5%, 1/10W
R3435	0611079A98	10K, ±5%, 1/10W
R3436	0611079A58	220 ohms, ±5%, 1/10W
R3437,3438	0611079B23	100K, ±5%, 1/10W
R3439,3440	0611079A20	5.6 ohm, ±5%, 1/10W
R3441,3442	0611079A98	10K, ±5%, 1/10W
R3443	0611079A36	27 ohms, ±5%, 1/10W
R3444	0611079A98	10K, ±5%, 1/10W
R3445	0611079A68	560 5 1/10W
R3446	0611079B03	15K, ±5%, 1/10W
R3447 thru 3449	0611079A98	10K, ±5%, 1/10W
R3450	0611079B15	47K, ±5%, 1/10W
R3451	0611079A98	10K, ±5%, 1/10W
R3452	0611079A92	5600 ohms, ±5%, 1/10W
R3453	0611079A98	10K, ±5%, 1/10W
R3454	0611079A86	3300 ohms, ±5%, 1/10W
R3455	0611079A92	5600 ohms, ±5%, 1/10W
R3456	0611079B01	12K, ±5%, 1/10W
R3457	0611079A98	10K, ±5%, 1/10W
R3458	0611079A94	6800 ohms, ±5%, 1/10W
R3459,3460	0611079A98	10K, ±5%, 1/10W
R3461	0611079A86	330 ohms, ±5%, 1/10W
R3462	0611079A98	560 5 1/10W
R3463	0611079A01	O ohms, ±5%, 1/10W
R3464	0611079A94	680 ohms, ±5%, 1/10W
R3600 thru 3602	0611079A66	470 ohms, ±5%, 1/10W
R3603,3604	0611079A70	680 ohms, ±5%, 1/10W
R3605	0611079A42	47 ohms, ±5%, 1/10W
R3700	0611079A74	1K, ±5%; 1/10W (TLE5971 & TLE5973 only) 1K, ±5%; 1/10W (TLE5972 & TLE5974 only)
R3701	0611079A74	
R3702	0611079A74	1K, ±5%; 1/10W (TLE5973 & TLE5974 only)

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3703,3704	0611079A74	1K, ±5%; 1/10W (TLE5971 &TLE5972 only) 1K, ±5%; 1/10W (TLE5973 &TLE5974 only)
R3705	0611079A74	
R3706	0611079A74	1K, ±5%; 1/10W (TLE5971 & TLE5972 only) 1K, ±5%; 1/10W (TLE5973 & TLE5974 only)
R3707	0611079A74	
R3708	0611079A98	10K, ±5%, 1/10W
R3710	0611079A98	10K, ±5%, 1/10W
R3712,3713	0611079A01	O ohms, ±5%, 1/10W
R3714	0611079A66	470 ohms, ±5%, 1/10W
R3715	0611079A01	O ohms, ±5%, 1/10W
R3716	0611079A98	10K, ±5%, 1/10W
R3718	0611079A66	470 ohms, ±5%, 1/10W
R3719,3720	0611079A01	O ohms, ±5%, 1/10W
R3721 thru 3725	0611079A98	10K, ±5%, 1/10W
R3726	0611079A66	470 ohms, ±5%, 1/10W
R3727 thru 3730	0611079A98	10K, ±5%, 1/10W
R3731	0611079B45	820K, ±5%, 1/10W
R3732 thru 3738	0611079A98	10K, ±5%, 1/10W
R3740	0611079A66	470 ohms, ±5%, 1/10W
R3742	0611079A01	O ohms, ±5%, 1/10W
R3744	0611079A74	1K, ±5%, 1/10W
R3745	0611079A98	10K, ±5%, 1/10W
R3746 thru 3748	0611079A66	470 ohms, ±5%, 1/10W
R3749	0611079A01	O ohms, ±5%, 1/10W
R3750	0611079A94	6800 ohms, ±5%, 1/10W
R3751	0611079A66	470 ohms, ±5%, 1/10W
R3752	0611079A01	O ohms, ±5%, 1/10W
R3753	0611079A66	470 ohms, ±5%, 1/10W
R3754 thru 3757	0611079A01	O ohms, ±5%, 1/10W
R3758	0611079A94	6800 ohms, ±5%, 1/10W
R3759	0611079A66	470 ohms, ±5%, 1/10W
R3760	0611079A98	10K, ±5%, 1/10W
R3761	0611079A01	O ohms, ±5%, 1/10W
R3762	0611079A66	470 ohms, ±5%, 1/10W
R3763	0611079A01	O ohms, ±5%, 1/10W
R3764	0611079A26	10 ohms, ±5%, 1/10W
R3765	0611079A66	470 ohms, ±5%, 1/10W
R3766	0611079B07	22K, ±5%, 1/10W
R3767	0611079A01	O ohms, ±5%, 1/10W
R3768	0611079A98	10K, ±5%, 1/10W
R3769	0611079A94	390 ohms, ±5%, 1/10W
R3770,3771	0611079A66	470 ohms, ±5%, 1/10W
R3772,3773	0611072A41	470 ohms, ±5%, 1/4W
R3774	0611079A66	470 ohms, ±5%, 1/10W
R3775	0611079A64	390 ohms, ±5%, 1/10W
R3776,3777	0611072A41	470 ohms, ±5%, 1/4W
R3778	0611079A01	O ohms, ±5%, 1/10W
R3779	0611079A54	150 ohms, ±5%, 1/10W
R3780	0611079A92	2200 ohms, ±5%, 1/10W
R3781	0611079A94	2700 ohms, ±5%, 1/10W
R3782	0611079A98	10K, ±5%, 1/10W
R3784	0611079A98	10K, ±5%, 1/10W
R3785,3786	0611079A74	1K, ±5%, 1/10W
R3787	0611079A98	10K, ±5%, 1/10W
R3788	0611079A01	O ohms, ±5%, 1/10W
R3789	0611072A01	10 ohms, ±5%, 1/4W
R3790	0611079A01	O ohms, ±5%, 1/10W
R3791,3792	0611079A98	10K, ±5%, 1/10W
R3793	0611079A88	3900 ohms, ±5%, 1/10W
R3794	0611079A98	10K, ±5%, 1/10W
R3795	0611079B07	22K, ±5%, 1/10W
R3796	0611079A66	470 ohms, ±5%, 1/10W
R3797	0611079A01	O ohms, ±5%, 1/10W
R3798	0611079B23	100K, ±5%, 1/10W
R3799	0611072A01	10 ohms, ±5%, 1/4W
R3800,3801	0611079A01	O ohms, ±5%, 1/10W
R3803	0611079A66	470 ohms, ±5%, 1/10W
R3805,3806	0611079A66	470 ohms, ±5%, 1/10W
R3809	0611079A66	470 ohms, ±5%, 1/10W

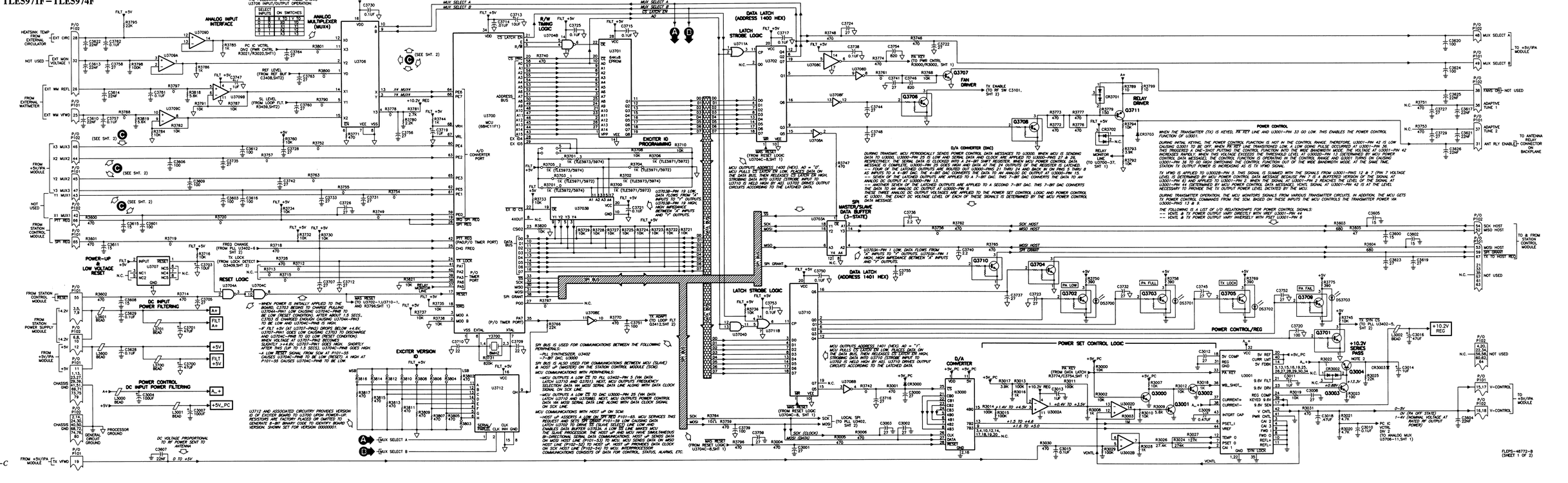
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3811	0611079A66	470 ohms, ±5%, 1/10W
R3813	0611079A66	470 ohms, ±5%, 1/10W
R3815	0611079A66	470 ohms, ±5%, 1/10W
R3817	0611079A66	470 ohms, ±5%, 1/10W
R3818,3819	0611079A92	5600 ohms, ±5%, 1/10W
R3820, 3821	0611079A98	10K, ±5%, 1/10W
		integrated circuit (see note):
U3000	5183977M73	Custom D/A Converter
U3001	5183977M70	+105V Regulator/Power Control
U3002	5113818A04	Quad Operational Amplifier
U3100	4882347W01	50 ohm MMIC
U3270	4882347W01	50 ohm MMIC
U3401	5113818A05	High Performance, Single Supply
U3402	5184602T04	IC CUSTOM SYNZER SCRND
U3403	5113805A86	Quad Analog Multiplexer/Demultiplexer
U3404	5113818A05	Low Power JFET–IN
U3405	5113816A07	5–Volt Positive Regulator
U3700	5113802A06	IC 68HC11 W/SCI SPI NON MUX
U3701	(See Note 1)	IC PROMD EPROM
U3702	5113808A42	Dual D–type Flip–Flop
U3703	5113808A38	Octal 3–State Non–Inverter Line Driver
U3704	5113808A01	Quad 2–Input NAND Gate
U3705	5113808A84	Mux/Demux, Dual 4–Channel Analog
U3707	5113815A02	Under Voltage Sensing Circuit
U3708	5113808A05	Hex Inverter
U3709	5113818A04	Quad Operational Amplifier
U3710	5113808A42	Dual D–type Flip–Flop
U3711	5113808A14	Quad 2–Input OR Gate
U3712	5113805A43	8 Bit Shift Register
		filter (see note):
Y3700	4884450T01	8.000 MHZ
		non–referenced items:
	0982451V07	socket, 28–pin (used with U3701)
	1584737T01	Corral, UHF (used with E3200)
	1584737T04	Housing, Corral; extra large (used with E3400)
	1584737T04	Housing, Corral; extra large (used with E3700)
	1584737T05	Housing, Corral; large (used with E3000)
	1585204U08	Cover, extra large (used with E3400)
	1585204U08	Cover, extra large (used with E3700)
	1585204U09	Cover, large (used with E3000)
	1585204U10	Cover, UHF (used with E3200)
	2685059U01	Heatsink, DPAK (used with Q3004)
	5482006W01	Cable, PCB Barcode
	5482006W02	RIBBON THERMAL XFER
	6182512W04	LIGHTPIPE(4)
	8464944T09	Board, printed circuit

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

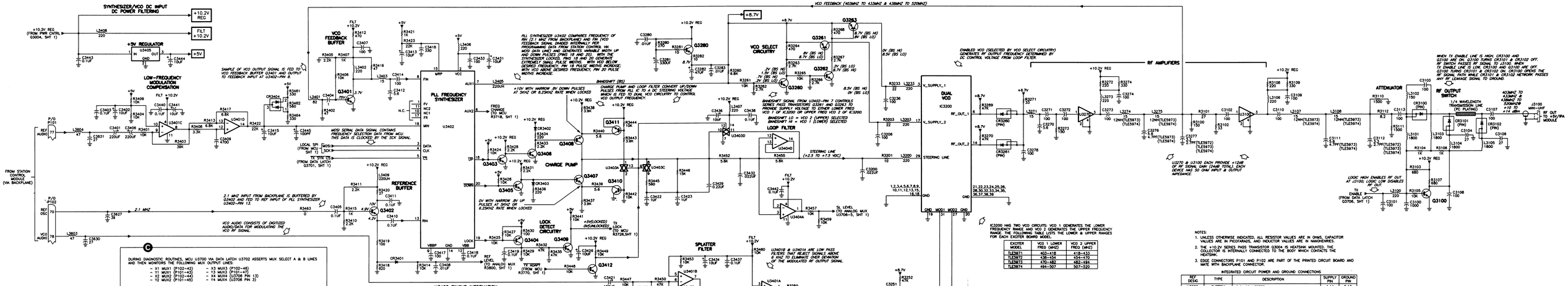
Note 1: U3701 contains exciter operating code. The part number for this IC is determined by the particular firmware version. Contact Motorola System Support Center (1–800–448–3245) for the current version and corresponding part number for U3701.

UHF EXCITER BOARD

MODELS TLE5971F–TLE5974F



68P81090E92–C
(Sheet 3 of 4)
10/15/99–UP



C

DURING DIAGNOSTIC ROUTINES, MCU U3700 VIA DATA LATCH U3702 ASSERTS MUX SELECT A & B LINES AND THEN MONITORS THE FOLLOWING MUX OUTPUT LINES:

- X1 MUX1 (P101-42) — Y3 MUX3 (P102-48)
- X2 MUX1 (P101-43) — Y3 MUX3 (P101-47)
- X3 MUX2 (P101-44) — Y4 MUX4 (U3706 PIN 13)
- Y2 MUX2 (P101-45) — Y4 MUX4 (U3706 PIN 3)

MCU U3700 POLLS EACH MUX OUTPUT LINE DURING A 10–20mS LOOP CYCLE.

EACH MUX OUTPUT LINE CONTAINS FOUR 200uS CHANNELS 0 THRU 3. EACH CHANNEL CORRESPONDS TO A MUX INPUT SIGNAL TO THRU 3 OR TO THRU 13. EACH MUX INPUT SIGNAL RANGES BETWEEN 0 TO +5V (SEE FIG. 1).

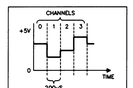


FIG. 1. TYPICAL DATA STREAM ON MUX OUTPUT LINE.

FOR THIS CIRCUIT BOARD APPLICATION, THERE ARE NO MUX1 SIGNAL INPUTS.

U3706 MUX4 ANALOG SIGNAL INPUTS CAN BE DETERMINED FROM THIS SCHEMATIC DIAGRAM. TO DETERMINE MUX2 & MUX3 SIGNAL INPUTS, SEE THE FOLLOWING TABLE.

OUTPUT LINE	SIGNAL INPUTS	OUTPUT LINE	SIGNAL INPUTS
X2MUX2 (P102-44)	X0 — RAC_FAIL	X3MUX3 (P102-48)	X0 — N.C.
X1 — SYNTHESIZER		X1 — N.C.
X2 — VCXO/N_REF		X2 — IPA_IDA
X3 — PPA_TEMP		X3 — IPA_IDD
Y0 — CIRCULATOR TEMP		Y0 — DPA_VFWD (HIGH POWER ONLY)
Y2MUX2 (P101-45)	Y1 — N.C.	X3MUX3 (P101-47)	Y1 — N.C.
Y2 — N.C.		Y2 — FPA_VREFL
Y3 — N.C.		Y3 — FPA_VFWD

U3402 PINOUT INFORMATION

PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	FV	TEST POINT; DIVIDED DOWN VCO FREQUENCY, 6.25 KHZ OR 5 KHZ SAWTOOTH IN A LOCKED CONDITION.
2	VCC	IC POWER, +5V
3	DATA	SERIAL DATA INPUT; 0–5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING, 0–5V LOGIC LEVEL
5	CS	CHIP SELECT; LOW WHEN PROGRAMMING, HIGH WHEN NOT PROGRAMMING (0–5V LOGIC LEVEL)
6	AUX2	CHANGE FREQUENCY; TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	BANDSHIFT; HIGH SELECTS LOW FREQUENCY VCO (1 OF IC3200), LOW SELECTS HIGH FREQUENCY VCO (2 OF IC3200)
8	FIN	FEEDBACK RF INPUT; 403MHZ TO 433MHZ (TLE5971F,) 436MHZ TO 470MHZ (TLE5972F), 470MHZ TO 494MHZ (TLE5973F), OR 494MHZ TO 520MHZ (TLE5974F).
9	VBBP	DC BIAS FOR PRESCALER INPUT; 1.4V DC
10	NC1	NOT USED
11	NC2	NOT USED
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT; 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 1V P–P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	GND	IC GROUND; 0V
15	MRP	CONNECTION TO EXTERNAL RAMP CIRCUIT FOR PHASE MODULATOR; STEEPLY SLOPED RAMP, RAMPING BETWEEN 0 AND 5V @ 6.25 KHZ OR 5 KHZ RATE.
16	MIN	MODULATION INPUT TO PHASE MODULATOR; +2.5V DC BIAS
17	FR	TEST POINT; DIVIDED DOWN 2.1 MHZ REFERENCE @ 6.25 KHZ OR 5 KHZ IN A LOCKED CONDITION.
18	DP	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ OR 5 KHZ RIDING ON .7V DC
19	LOCK	LOOP LOCKED; WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ OR 5 KHZ RIDING ON 5V DC
20	DOWN	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ OR 5 KHZ RIDING ON .7V DC

VCO TROUBLESHOOTING

1) Q3280 AND ASSOCIATED CIRCUITRY COMPRISE +8.7V SUPERFILTER. MEASURE VOLTAGE DROP ACROSS R3282 AND CALCULATE CURRENT (SHOULD BE APPROXIMATELY 60 MA).

2) Q3280 THRU Q3283 COMPRISE BANDSHIFT CIRCUITRY WHICH SWITCHES DC POWER TO VCO 1 OF IC3200 (LOWER PORTION OF BAND) OR TO VCO 2 OF IC3200 (UPPER PORTION OF BAND). STEERING LINE SENSITIVITY IS APPROXIMATELY 3 MHZ/VOLT (STEERING LINE EXTREMELY SENSITIVE; DO NOT PROBE). POWER AT CR3280/CR3281 OUTPUT SHOULD BE APPROXIMATELY 4 100OHM INTO 50 OHMS.

3) IF BOARD IS NOT LOCKED, PERFORM FOLLOWING PROCEDURE TO DETERMINE IF VCO CIRCUITRY IS AT FAULT:

A) VERIFY DC VOLTAGES AS SHOWN ON SCHEMATIC

B) MEASURE POWER AND FREQUENCY AT OUTPUT OF CR3280/CR3261; SHOULD BE APPROXIMATELY +10 DBM INTO 50 OHMS. FREQUENCY SHOULD BE WITHIN LOWER OR UPPER RANGE.

C) MEASURE STEERING LINE VOLTAGE AT U3404A–PIN 1. IF BOARD IS NOT LOCKED, VOLTAGE WILL BE EITHER .85V OR +9.15V DETERMINE WHICH VCO IS ENABLED (U3402–PIN 7) AND VERIFY VCO OUTPUT FREQUENCY BASED ON MEASURED STEERING LINE VOLTAGE. REFER TO DATA BELOW.

VCO 1 OF IC3200 ENABLED
STEERING LINE VOLTAGE .85V — APPROX 390 MHZ (TLE5971) 425 MHZ (TLE5972) 457 MHZ (TLE5973) 482 MHZ (TLE5974)
STEERING LINE VOLTAGE +9.15V — APPROX 425 MHZ (TLE5971) 461 MHZ (TLE5972) 489 MHZ (TLE5973) 514 MHZ (TLE5974)

VCO 2 OF IC3200 ENABLED
STEERING LINE VOLTAGE .85V — APPROX 406 MHZ (TLE5972) 442 MHZ (TLE5972) 468 MHZ (TLE5973) 494 MHZ (TLE5974)
STEERING LINE VOLTAGE +9.15V — APPROX 440 MHZ (TLE5971) 477 MHZ (TLE5972) 501 MHZ (TLE5973) 527 MHZ (TLE5974)

NOTES:
1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN NANOHENRIES.
2. THE +10.2V SERIES PASS TRANSISTOR Q3004 IS HEATSINK MOUNTED, THE COLLECTOR IS INTERNALLY CONNECTED TO THE BODY WHICH CONTACTS THE HEATSINK.
3. EDGE CONNECTORS P101 AND P102 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DES#	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U3000	CUSTOM	D/A CONVERTER	1,11	2,16
U3001	CUSTOM	REGULATOR/POWER CONTROL	32	1,31
U3002	MC33030R2	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3100 & U3270	MMA03111	MICROWAVE AMPLIFIER, 50–OHM INPUT & OUTPUT IMPEDANCE (MMIC)	3	4
U3401	MC3330740	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3402	CUSTOM	PHASE LOCKED LOOP SYNTHESIZER	2	14
U3403	MC74HC4066	QUAD ANALOG MULTIPLEXER/DEMULTIPLEXER	14	7
U3404	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U3405	MC7805	+5V VOLTAGE REGULATOR	1	2
U3700	M68HC11F1	MICROCONTROLLER (MCU) W/SCI, SPI (NON–MULTIPLEXED ADDRESS/DATA BUS)	34	1
U3701	27C512	64K X 8–BIT EPROM, PROGRAMMED	28	14
U3702	MC74AC273	OCTAL D–TYPE FLIP–FLOP	20	10
U3703	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3–STATE OUTPUTS	20	10
U3704	MC74AC00	QUAD 2–INPUT NAND GATE	14	7
U3706	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	7,8
U3707	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U3708	MC74AC04	HEX INVERTER	14	7
U3709	MC33030R2	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3710	MC74AC273	OCTAL D–TYPE FLIP–FLOP	20	10
U3711	MC74AC32	QUAD 2–INPUT OR GATE	14	7
U3712	74HC165	8 BIT S/P–IN S–OUT SHIFT REGISTER	16	8

FLEPS–48772–B (SHEET 2 OF 2)

parts list

TLE5980C (UHF) and TLF6900C (800 MHz) +5V/IPA Board PL–13027–C

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4000	2113741B69	0.1 uF, ±5%, 50V
C4002,4003	2113741B69	0.1 uF, ±5%, 50V
C4004	2113740A29	10 pF, ±5%, 50V
C4005,4006	2113741B69	0.1 uF, ±5%, 50V
C4007	2113740A79	1000 pF, ±5%, 50V
C4008	2113741A53	0.022 uF, ±5%, 50V
C4009	2113740A79	1000 pF, ±5%, 50V
C4010	2113740A77	0.82 pF, ±5%, 50V
C4011,4012	2113741B69	0.1 uF, ±5%, 50V
C4013	2311049A17	6.8 uF, ±10%, 35V
C4014	2113741B69	0.1 uF, ±5%, 50V
C4015	2311049A45	10 uF, ±10%, 35V
C4016	2113740A73	560 pF, ±5%, 50V
C4018	2311049A17	6.8 uF, ±10%, 35V (TLE5980)
C4019 thru 4021	2113740C33	4700 pF, ±5%, 50V
C4022 thru 4026	2313748N41	1200 uF, ±20%, 25V
C4029	2313748N41	1200 uF, ±20%, 25V
C4032,4033	2113741B69	0.1 uF, ±5%, 50V
C4040 thru 4047	2113741A53	0.022 uF, ±5%, 50V
C4050 thru 4057	2113740A55	100 pF, ±5%, 50V
C4058	2113741A33	3300 pF, ±5%, 50V
C4060,4061	2113740B39	39 pF, ±5%, 50V (TLF6900)
	2113740B49	100 pF, ±5%, 50V (TLE5980)
C4062	2113740B17	4.7 pF, ±0.25pF, 50V (TLE5980)
C4063	2113740B13	3.3 pF, ±0.25pF, 50V (TLE5980)
C4064	2113740B17	4.7 pF, ±0.25pF, 50V (TLE5980)
C4065	2380090M24	CAP ALU 10 20 50V SURF MT (TLE6900)
		diode (see note):
CR4001	4813833C10	0.1A, 70V
CR4002,4003	4813833C05	dual 70V
CR4004	4813833B01	Schottky type
CR4005	4813833E15	Schottky type, dual
		connector:
J4000	0984393T01	Receptacle, mini–UHF, rt. angle PCB mnt.
		inductor:
L4001	2485248U01	50.0 uH
L4005	2485248U01	50.0 uH
L4006	2460591A49	Air–wound, 8.01 nH
		translator (see note):
Q4000	4813824A10	NPN
Q4001	4884204T04	E–FET
Q4002	4813824A10	NPN
Q4003	4813822D07	PNP
		resistor, fixed:
R4000	0611079B45	820K, ±5%, 1/10W
R4001	0611072A25	100 ohms, ±5%, 1/4W
R4002	0611079B11	33K, ±5%, 1/10W
R4003	0611079B23	100K, ±5%, 1/10W
R4004	0683962T73	1K, ±5%, 1W
R4005	0611079A42	47 ohms, ±5%, 1/10W
R4006	0611072A25	100 ohms, ±5%, 1/4W
R4007	0611079A74	1K, ±5%, 1/10W
R4008	0611079A84	2700 ohms, ±5%, 1/10W
R4009	0611077F63	5.11K, ±1%, 1/8W
R4010	0611079A54	150 ohms, ±5%, 1/10W
R4011	0611077F60	4.75K, ±1%, 1/8W
R4012	0611079A84	2700 ohms, ±5%, 1/10W (TLF6900)
	0611079A36	27 ohms, ±5%, 1/10W (TLE5980)
R4013	0611079B15	47K, ±5%, 1/10W
R4014	0683962T01	1 ohm, ±5%, 1W
R4015	0611079A74	1K, ±5%, 1/10W
R4016	0611079A80	1800 ohms, ±5%, 1/10W (TLF6900)
	0611079A84	2700 ohms, ±5%, 1/10W (TLE5980)
R4017,4018	0611079A74	1K, ±5%, 1/10W
R4019	0611079A96	8200 ohms, ±5%, 1/10W
R4020	0611072A25	100 ohms, ±5%, 1/4W (TLF6900)
	0611072A37	330 ohms, ±5%, 1/4W (TLE5980)
R4021	0611077E94	1K, ±1%, 1/8W
R4023	0611079A01	O ohms, ±5%, 1/10W (TLF6900)
	0611079A74	1K, ±5%, 1/10W (TLE5980)
R4026	0611072A09	22 ohms, ±5%, 1/4W
R4027	0611079B15	47K, ±5%, 1/10W
R4028	0611077F26	2.21K, ±1%, 1/8W
R4029	0611079A84	2700 ohms, ±5%, 1/10W
R4030	0611079A74	1K, ±5%, 1/10W
R4031	0683962T33	22 ohms, ±5%, 1W
R4032	0611079A74	1K, ±5%, 1/10W
R4033	1782620B09	0.05 ohms, ±1%, 3W
R4034	0611079B07	22K, ±5%, 1/10W
R4035	1782620B09	0.05 ohms, ±1%, 3W
R4036	0611079B13	39K, ±5%, 1/10W
R4037	0683962T45	68 ohms, ±5%, 1W
R4038	0611077F91	10K, ±1%, 1/8 W
R4039,4040	0683962T37	33 ohms, ±5%, 1W
R4041	0611077F28	2.21K, ±1%, 1/8W
R4042,4043	0683962T45	68 ohms, ±5%, 1W
R4046	0611079A74	1K, ±5%, 1/10W
R4052,4053	0611079A74	1K, ±5%, 1/10W
R4056,4057	0611079A74	1K, ±5%, 1/10W
R4060	0611079B12	36K, ±5%, 1/10W
R4062,4063	0611079B15	47K, ±5%, 1/10W
R4064	0611079A58	220 ohms, ±5%, 1/10W
R4070,4071	0611079A74	1K, ±5%, 1/10W
R4075	0611079A98	10K, ±5%, 1/10W
R4076	0611079B15	47K, ±5%, 1/10W
R4082	0611079A74	1K, ±5%, 1/10W
R4083	0611079A81	2000, ±5%, 1/10W
R4085	0611079A81	2000, ±5%, 1/10W
R4092, 4093	0611079A01	O ohms, ±5%, 1/10W
R4094, 4095	0611079A01	O ohms, ±5%, 1/10W (TLF6900)
R4096, 4097	0611079A01	O ohms, ±5%, 1/10W (TLE5980)
R4098	0611072A25	100 ohms, ±5%, 1/4W (TLF6900)
	0611072A45	680 ohms, ±5%, 1/4W (TLE5980)
R4099	0683962T01	1 ohm, ±5%, 1W (TLF6900)
R4100	0611079A01	O ohms, ±5%, 1/10W (TLE5980)
R4102	0611079A01	O ohms, ±5%, 1/10W
R4103,4104	0611079A98	10K, ±5%, 1/10W
		transformer:
T4000	2584937T01	Switching Mode Transformer
T4001	2485113J01	Toroid, m–windings
		integrated circuit (see note):
U4000	5113819A04	Quad Differential–input Operational Amplifier
U4002,4003	5113805A84	Analog Multiplexer/Demultiplexer
U4008	5182276R78	High Performance Current Mode Controller
U4009	5113819A05	Quad Differential–input Operational Amplifier
U4010	5113806A23	Hex Inverter
		zener diode (see note):
VR4000	4813830A20	8.2V ±5%, 20MA, 350 MW (TLF6900)
		crystal (see note):
Y4000	4884186T01	266.667KHZ
		non–referenced items:
	1584753T02	Shielding Fence, small
	1585018U01	Shielding Fence, large
	1585034U03	Cover, shield (used with small fence)
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	8484914T05	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

TRN7590B Hardware Kit PL–13026–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non–referenced items:
	0211996A02	NUT, hex: 3/8X24X1/2X3/32 SST
	0310943J09	SCREW, tapping: TT3x0.5x6 (13 used)
	0310943J10	SCREW, tapping: TT3 x 0.5 x 8 (6 used)
	0310943J15	SCREW, tapping: TT3.5x0.6x8 (2 used)
	0310943M59	SCREW, tapping: TT3.5X0.6X6 INT-STARSLT (4 used)
	0383677N02	SCREW, captive: M3.5 x 0.6 x 18 (6 used)
	0400007691	WASHER, lock: 3/8", int. tooth
	0909816159	CONNECTOR, receptacle, N–type coaxial, chassis mnt (for RF OUT)
	1585002U02	COVER HB PA
	2684772T06	HEATSINK 4+5V/IPA
	2685242U01	HEATSINK 5V/RF INTFC
	3282796H05	GASKET, RFI: .094 x 094" (35.75" used)
	5485282U01	LABEL BARCODE
	6484760T03	PNL FRONT HB PA 125W

TRN7732A +5V Expansion Module Hardware Kit PL–13062–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non–referenced items:
	0310907A18	SCRMCH M3X0.5X6 INTSTARPAN (11 used)
	0785153U01	FRAME DC CONVERTER
	2685019U01	SHIELD 5V/IPA

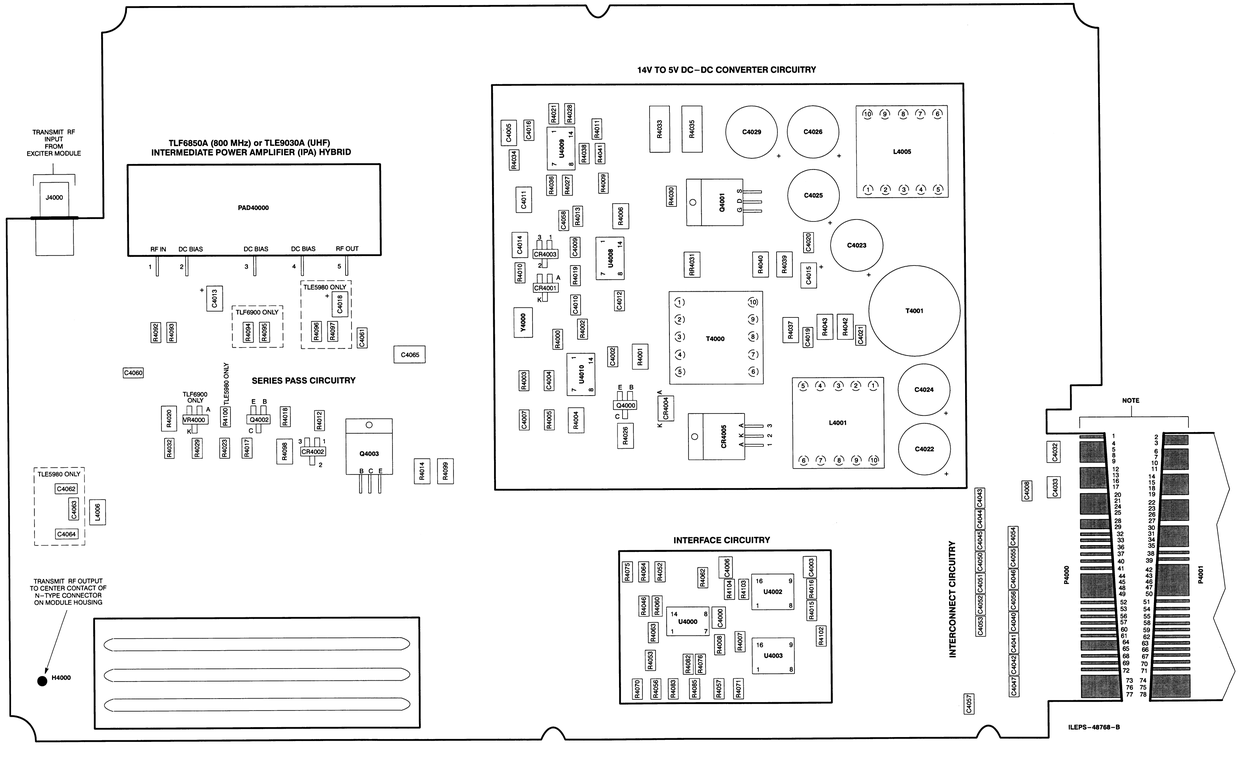
TLE9030A (UHF) and TLF6850A (800 MHz) IPA Hybrid PL–13028–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

These hybrids contain non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

+5V/IPA BOARD

MODELS TLE5980C (UHF)
TLF6900C (800 MHz/Comparator)



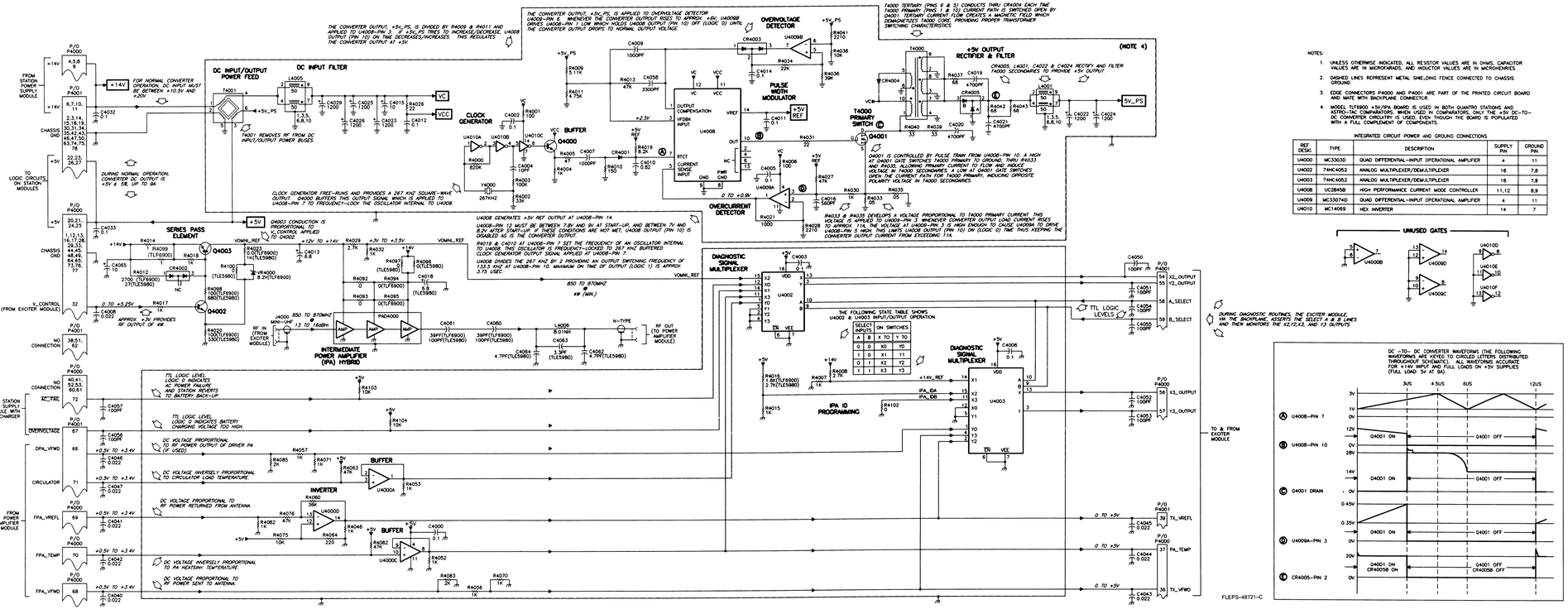
NOTE:

THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P4000. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P4001. P4001 CONTACT LAYOUT IS SHOWN IN THE CUTAWAY VIEW JUST TO THE RIGHT OF THE P4000 CONTACT LAYOUT.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P4000-1	CHASSIS GND	P4001-2, 3	CHASSIS GND
P4000-4, 5, 8, 9	+14V	P4001-6, 7, 10, 11	+14V
P4000-12, 13, 16, 17	CHASSIS GND	P4001-14, 15, 18, 19	CHASSIS GND
P4000-20, 21, 24, 25	+5V	P4001-22, 23, 26, 27	+5V
P4000-28, 29	CHASSIS GND	P4001-30, 31, 34, 35	CHASSIS GND
P4000-32	V_CONTROL	P4001-38	NO CONNECTION
P4000-33	CHASSIS GND	P4001-39	TX_VREFL
P4000-36	TX_VFWD	P4001-42, 43, 46, 47, 50	CHASSIS GND
P4000-37	PA_TEMP	P4001-51	NO CONNECTION
P4000-40, 41	NO CONNECTION	P4001-54	X2_OUTPUT
P4000-44, 45, 48, 49	CHASSIS GND	P4001-55	Y2_OUTPUT
P4000-52	NO CONNECTION	P4001-58	A_SELECT
P4000-53	NO CONNECTION	P4001-59	B_SELECT
P4000-56	X3_OUTPUT	P4001-62	NO CONNECTION
P4000-57	Y3_OUTPUT	P4001-63	CHASSIS GND
P4000-60	NO CONNECTION	P4001-66	DPA_VFWD
P4000-61	NO CONNECTION	P4001-67	OVERVOLTAGE
P4000-64, 65	CHASSIS GND	P4001-70	FPA_TEMP
P4000-68	FPA_VFWD	P4001-71	CIRCULATOR
P4000-69	FPA_VREFL	P4001-74, 75, 78	CHASSIS GND
P4000-72	AC_FAIL		
P4000-73, 76, 77	CHASSIS GND		

+5V/IPA BOARD
MODELS TLE5980C (UHF)
TLF6900C (800 MHz/Comparator)

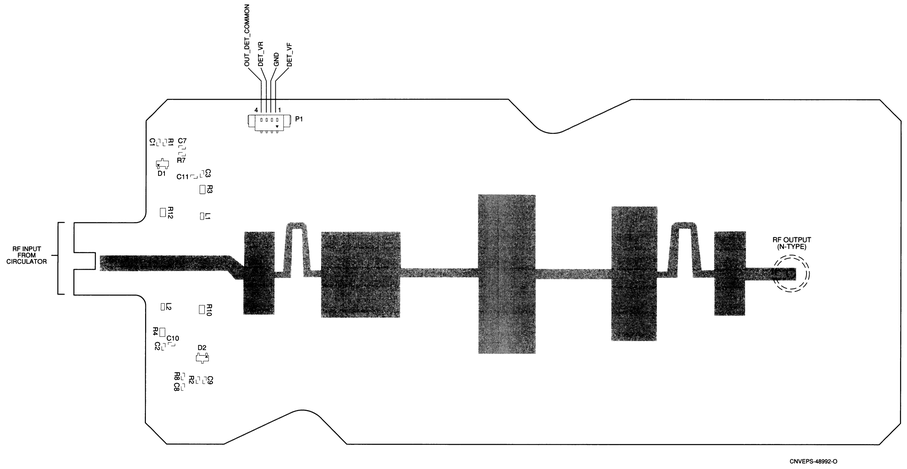


NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MICROHENRIES.
2. DASHED LINES REPRESENT METAL SHIELDING FENCE CONNECTED TO CHASSIS GROUND.
3. EDGE CONNECTORS P4000 AND P4001 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
4. MODEL TLF6900 +5V/IPA BOARD IS USED IN BOTH QUANTRO STATIONS AND ASTRO-TAC COMPARATORS. WHEN USED IN COMPARATORS, ONLY THE +5V DC-TO-DC CONVERTER CIRCUITRY IS USED, EVEN THOUGH THE BOARD IS POPULATED WITH A FULL COMPLEMENT OF COMPONENTS.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4000	MC33035	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U4002	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	7,8
U4003	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	7,8
U4008	UC2845B	HIGH PERFORMANCE CURRENT MODE CONTROLLER	11,12	8,9
U4009	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U4010	MC14069	HEX INVERTER	14	7



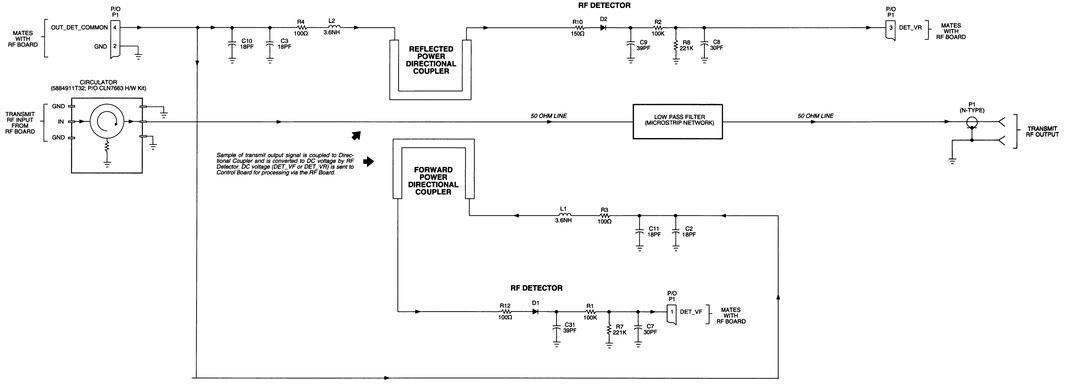
CNVEPS-48992-O

parts list

CFF6051A Low Pass Filter Board (800 MHz) **PL-13204-O**

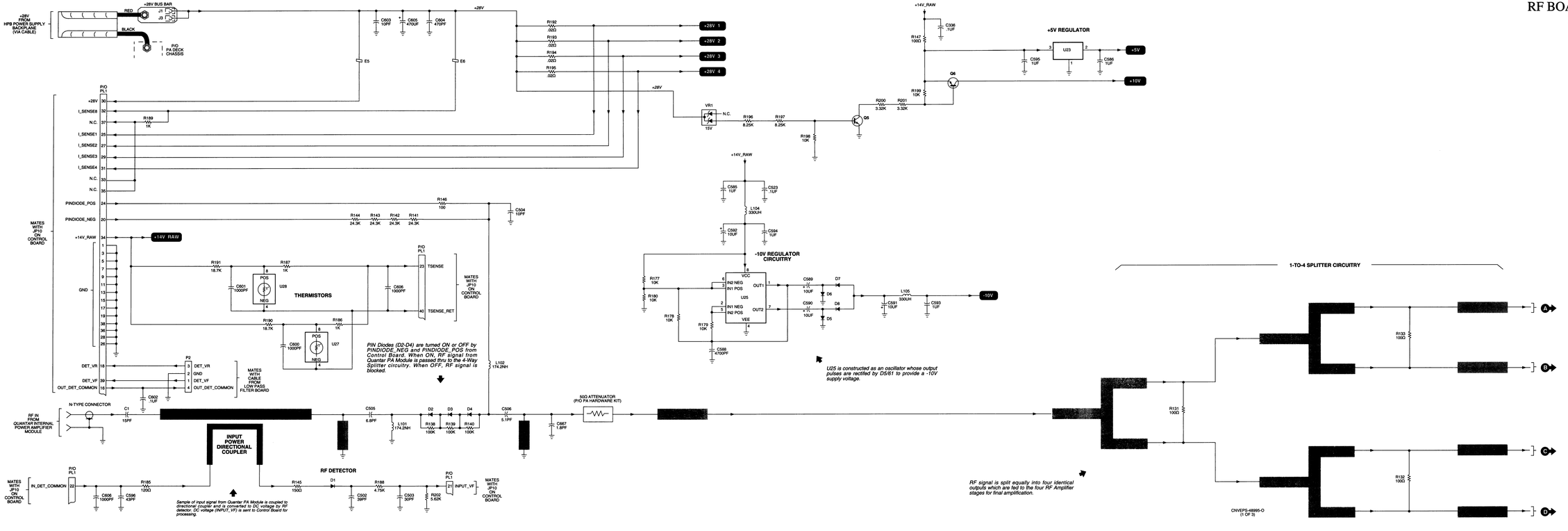
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1	2113740F41	39 pF, +/-5%, 50V
C2,3	2113740F33	18 pF, +/-5%, 50V
C7,8	2113740F38	30 pF, +/-5%, 50V
C9	2113740F41	39 pF, +/-5%, 50V
C10,11	2113740F33	18 pF, +/-5%, 50V
		diode:
D1,2	4882290T01	Schottky type
		inductor:
L1,2	2488428L02	IND CHIP WW 3.6NH 5% 2.3A 1608
		connector:
P1	0909897T06	CONN HEADER 4 PIN SMT
		resistor, fixed:
R1,2	0662057A97	CHIP RES 100K OHMS 5%
R3,4	0611079D01	RES CHIP 100.0 1/10W 1%
R7,8	0662057T04	RES CHIP 221K
R10	0611079D01	RES CHIP 100.0 1/10W 1%
R12	0611079D01	RES CHIP 100.0 1/10W 1%
		non-referenced items:
	5482006W02	ribbon, thermal transfer
	5482006W03	BARCODE LABEL
	8483091Y01	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.



CNVEPS-48991-O

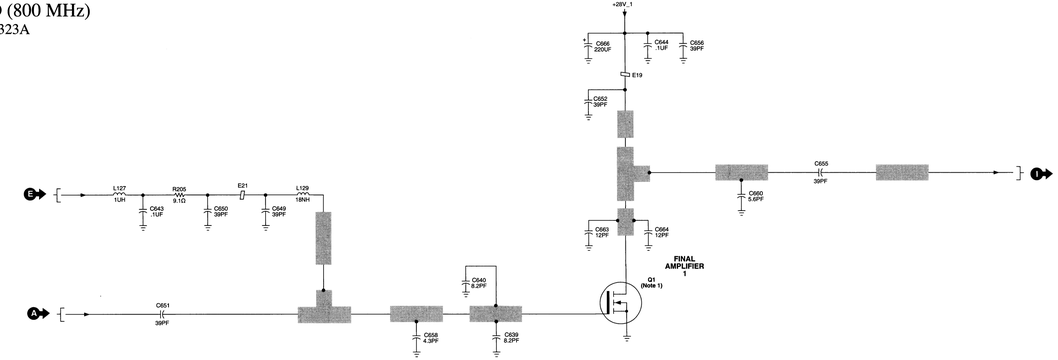
RF BOARD (800 MHz)
MODEL CTF6323A

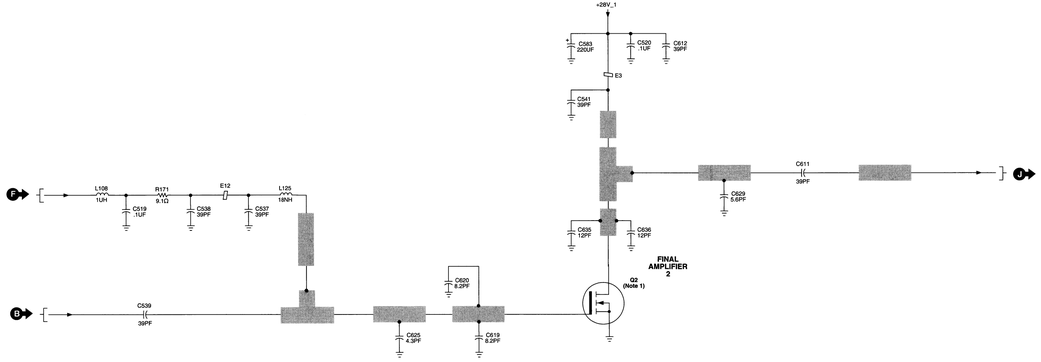


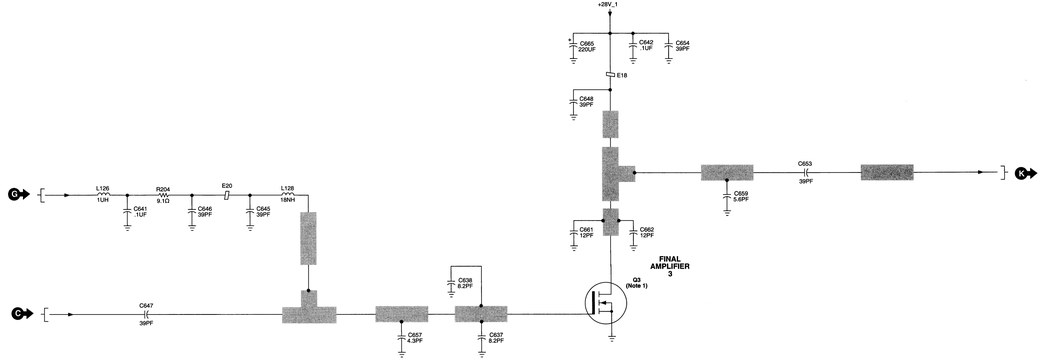
CNVEPS-48995-O
(1 OF 3)

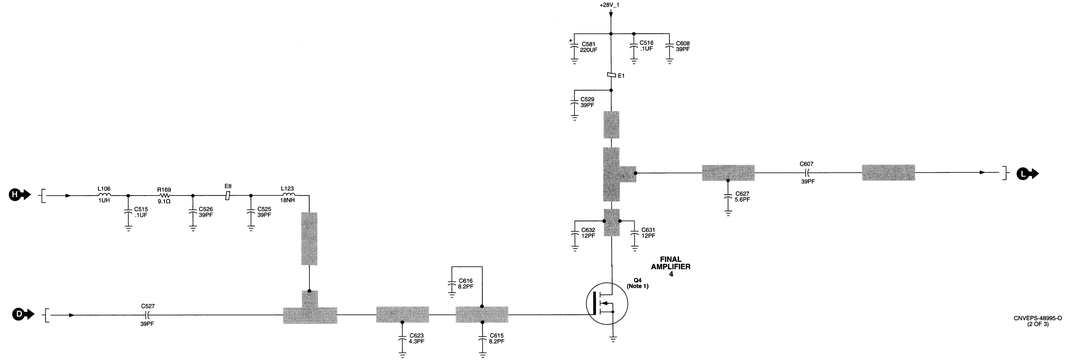
68P81097E76-O
(Sheet 1 of 4)
2/28/02-UP

RF BOARD (800 MHz)
MODEL CTF6323A



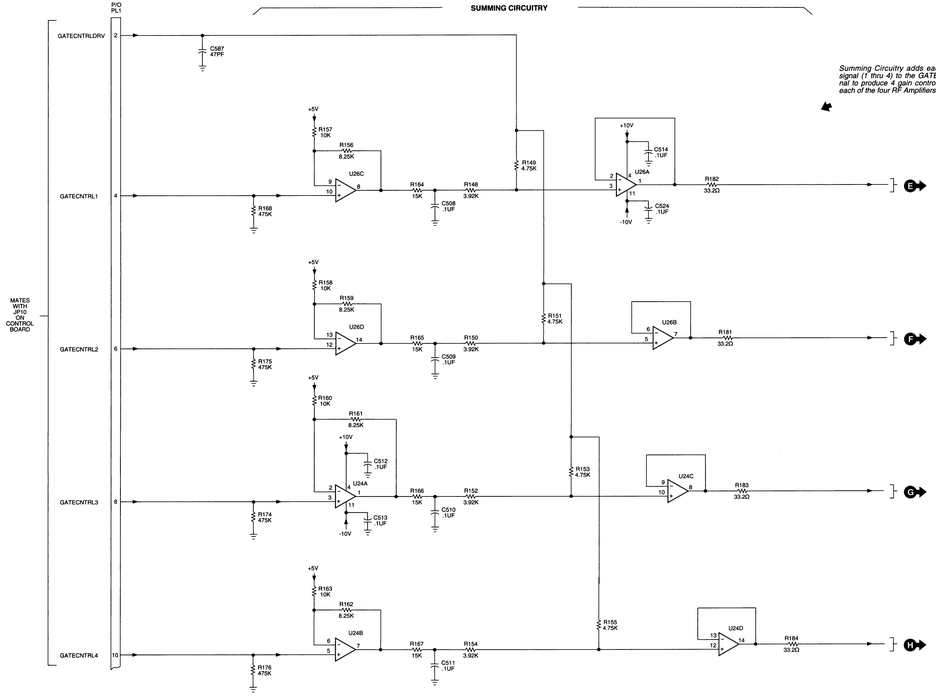




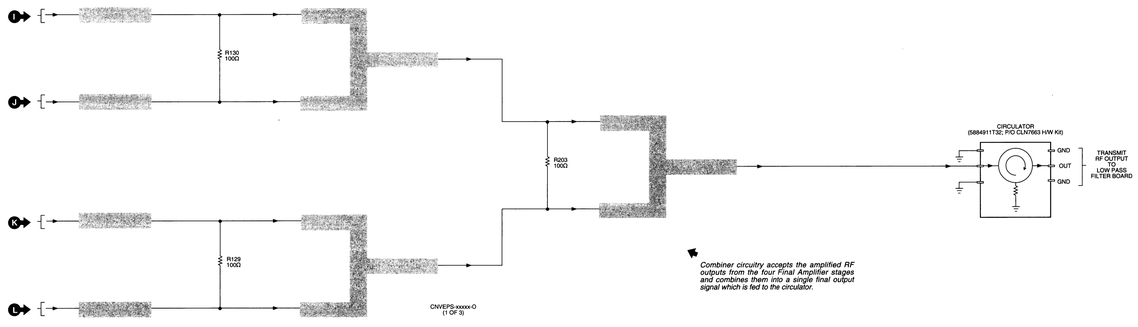


CNVEPS-48995-O
(2 OF 3)

68P81097E76-O
(Sheet 2 of 4)
2/28/02-UP



Summing Circuitry adds each GATECNTRL signal (1 thru 4) to the GATECNTRLDRV signal to produce 4 gain control signals (one for each of the four RF Amplifiers Q1 thru Q4).



Combiner circuitry accepts the amplified RF outputs from the four Final Amplifier stages and combines them into a single final output signal which is fed to the circulator.

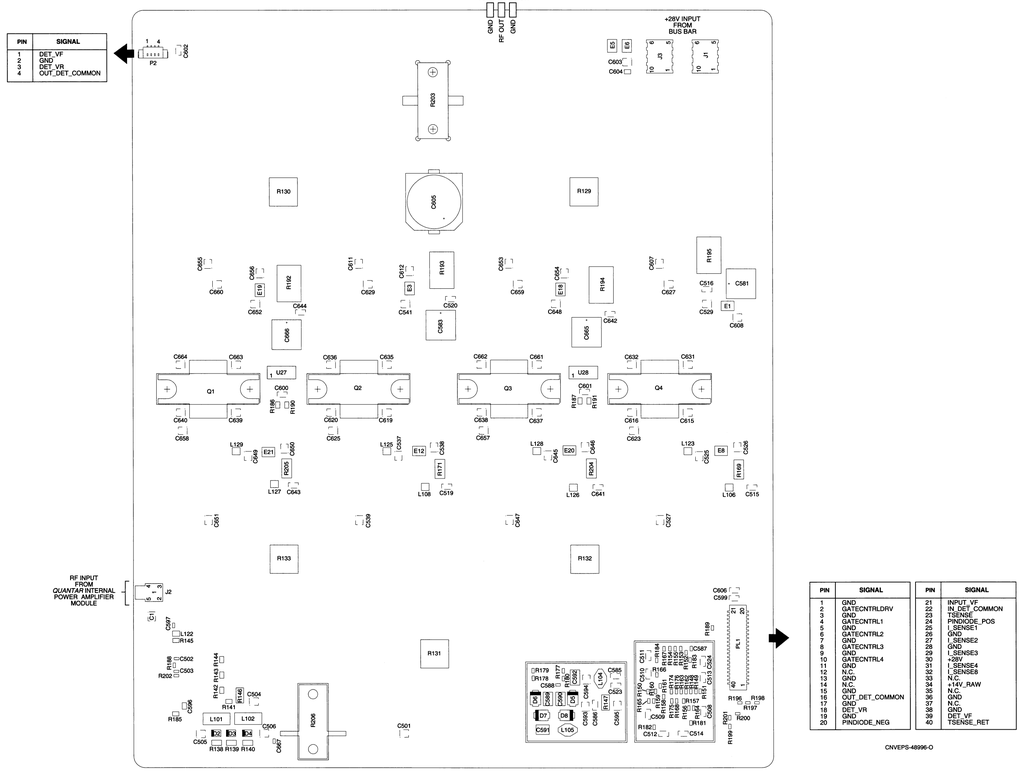
Notes:

1) Transistors Q1 thru Q4 (Motorola Part No. 4813828D35) are part of the CLN7663A Hardware Kit.

2) The symbol ( ) is used throughout this schematic to depict microstrip circuitry, and serves only as a general representation and not the exact microstrip pattern.

CNVEPS-48995-O (3 OF 3)

RF BOARD (800 MHz)
MODEL CTF6323A


TO CIRCULATOR
GND
RF OUT
GND
+28V INPUT FROM BUS BAR
RF INPUT FROM QUANTAR INTERNAL POWER AMPLIFIER MODULE
P2
J2
J3
J1
Q1
Q2
Q3
Q4
R133
R132
R131
R130
R129
R203
R206
C605
C606
C599
C601
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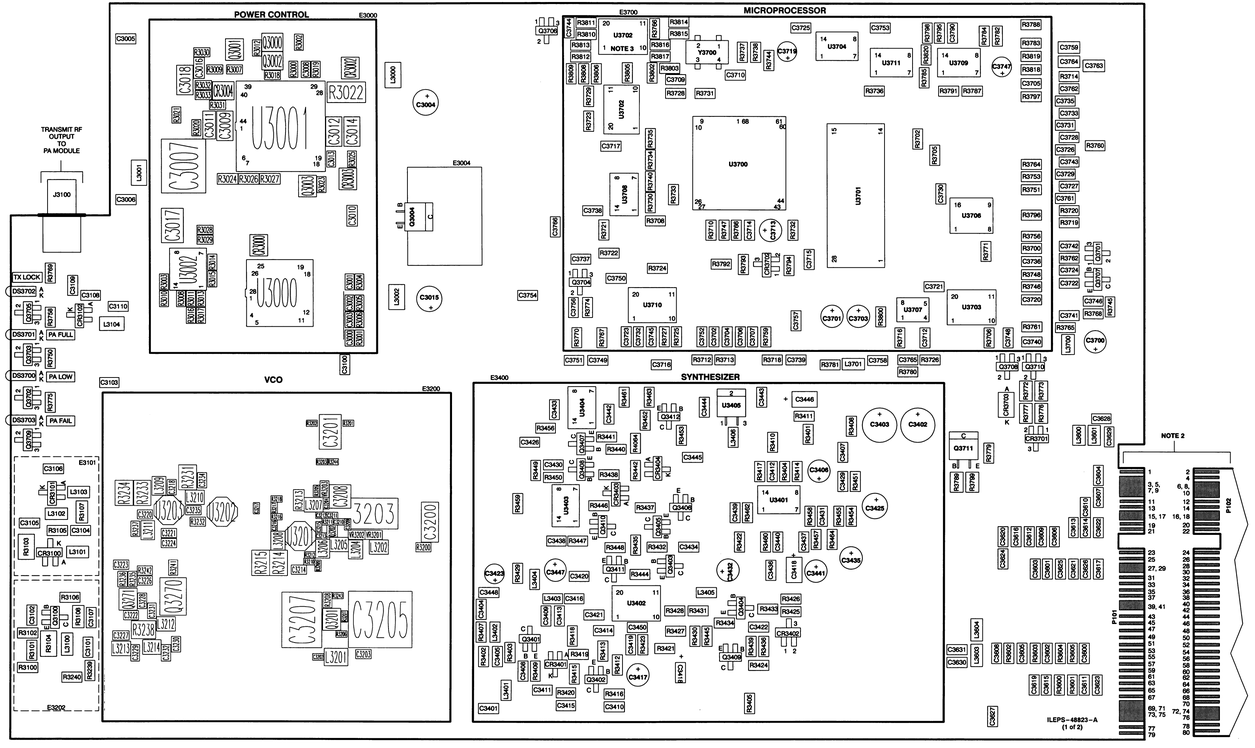
800 MHz EXCITER BOARD
MODEL TLF6920G



NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE AND SPACING BETWEEN OBJECTS IS INTENTIONALLY REDUCED.
2. THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P101. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P102. P102 CONTACT LAYOUT IS SHOWN IN THE CUTAWAY VIEW JUST TO THE RIGHT OF THE P101 CONTACT LAYOUT. IN ADDITION, P101 CONTAINS ODD NUMBERED CONTACTS AND P102 CONTAINS EVEN NUMBERED CONTACTS.
3. U3712 AND ASSOCIATED CIRCUITRY PROVIDES VERSION ID OF EXCITER BOARD. RESISTORS R3802 THRU R3817 ARE FACTORY PLACED OR OMITTED TO GENERATE 8–BIT BINARY CODE TO IDENTIFY BOARD VERSION, SHOWN WITH ALL RESISTORS PLACED.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

CONNECTOR–PIN	SIGNAL NAME	CONNECTOR–PIN	SIGNAL NAME
P101–1	CHASSIS GND	P102–2	CHASSIS GND
P101–3, 5, 7, 9	14.2V	P102–4	NOT USED
P101–11	+5V	P102–6, 8, 10	14.2V
P101–13	CHASSIS GND	P102–12	+5V
P101–15, 17	V–CONTROL	P102–14	CHASSIS GND
P101–19	TX VFWD	P102–16, 18	V–CONTROL
P101–21	NOT USED	P102–20	NOT USED
P101–23	CHASSIS GND	P102–22	NOT USED
P101–25	EXT WM VFWD	P102–24	CHASSIS GND
P101–27, 29	CHASSIS GND	P102–26	EXT WM REFL
P101–31	ANT RLY ENABLE	P102–28	EXT CIRC
P101–33	NOT USED	P102–30	CHASSIS GND
P101–35	NOT USED	P102–32	EXT MON VOLTAGE 1
P101–37	ADAPTIVE TUNE 2	P102–34	NOT USED
P101–39, 41	CHASSIS GND	P102–36	ADAPTIVE TUNE 1
P101–43	Y1 MUX1	P102–38	FANS ON
P101–45	Y2 MUX2	P102–40	CHASSIS GND
P101–47	Y3 MUX3	P102–42	X1 MUX1
P101–49	MUX SELECT B	P102–44	X2 MUX2
P101–51	CHASSIS GND	P102–46	X3 MUX3
P101–53	MOSI HOST	P102–48	MUX SELECT A
P101–55	RESET	P102–50	CHASSIS GND
P101–57	NOT USED	P102–52	MISO HOST
P101–59	SPI GRANT	P102–54	SCK HOST
P101–61	NOT USED	P102–56	NOT USED
P101–63	NOT USED	P102–58	NOT USED
P101–65	SPI REQ	P102–60	NOT USED
P101–67	TX TO HOST REQ	P102–62	NOT USED
P101–69, 71, 73, 75	CHASSIS GND	P102–64	NOT USED
P101–77	REF AUDIO	P102–66	PTT REQ
P101–79	CHASSIS GND	P102–68	CHASSIS GND
		P102–70	REF OSC
		P102–72, 74, 76	CHASSIS GND
		P102–78	VCO AUDIO
		P102–80	CHASSIS GND

ILEPS–48823–A (2 of 2)

parts list

TLF6920G Exciter Board (800 MHz) PL–13032–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C3004	2380090M36	CAP 100 UF 25V
C3005,3006	2113740A43	39 pF, ±5%, 50 V
C3007	2380090M36	CAP 100 UF 25V
C3008	2113740A39	27 pF, ±5%, 50 V
C3009	2311049A06	0.47 uF, ±10%, 35 V
C3010	2113741B69	0.1 uF, ±5%, 50 V
C3011	2311049A03	0.22 uF, ±10%, 35V
C3012	2311049A06	1 uF, ±10%, 35 V
C3013	2113740A39	27 pF, ±5%, 50 V
C3014	2311049A06	1 uF, ±10%, 35 V
C3015	2380090M36	CAP 100 UF 25V
C3016	2113741B69	0.1 uF, ±5%, 50 V
C3017	2380090M18	1 uF, ±20%, 50 V
C3100 thru 3102	2113740A43	39 pF, ±5%, 50 V
C3103	2113741A67	0.033 uF, ±5%, 50 V
C3104,3105	2113740A43	39 pF, ±5%, 50 V
C3106	2113740A24	6.8 pF, ±0.25 pF, 50 V
C3107	2113741B69	0.1 uF, ±5%, 50 V
C3108	2113740A24	6.8 pF, ±0.25 pF, 50 V
C3109,3110	2113740A43	39 pF, ±5%, 50 V
C3200	0811017A08	0.01 uF, ±5%, 50 V
C3201	2380090M06	10 uF, ±20%, 16V
C3202	2113740F41	39 pF, ±5%, 50V
C3203	2113741A45	0.01 uF, ±5%, 50 V
C3204	2113742C02	CAP CER CHIP 0.2PF +–.05PF 100V
C3205	2380090M27	330 uF, ±20%, 16 V
C3207	2380090M36	CAP 100 UF 25V
C3208	2113906B03	CAP CER CHIP CL1 LSR 2.5/3.5PF
C3209	2113742C02	CAP CER CHIP 2.4PF +–0.05PF
C3210	2113742C22	CAP CER CHIP 2.2PF +–.10PF 100V
C3211	2113742K42	CAP CER CHIP 5.6PF ± 0.1PF
C3212	2113742C42	CAP CER CHIP 4.7PF ± 0.1PF
C3213	2113740F41	39 pF, ±5%, 50V
C3214	2113741A53	0.022 uF, ±5% 50 V
C3216,3217	2113740F41	39 pF, ±5%, 50V
C3218	2113740A43	39 pF, ±5%, 50 V
C3222	2113741A45	0.01 uF, ±5%, 50 V
C3223,3224	2113740A43	39 pF, ±5%, 50 V
C3226	2113740A43	39 pF, ±5%, 50 V
C3227	2113740Q09	1.8 pF, ±0.1 pF, 50 V
C3228	2113741A45	0.01 uF, ±5%, 50 V
C3229	2113740A17	3.9 pF, ±0.25 pF, 50 V
C3230,3231	2113740A43	39 pF, ±5%, 50 V
C3232	2113740Q09	1.8 pF, ±0.1 pF, 50 V
C3233	2113740G13	2.7 pF, ±0.1 pF, 50 V
C3234,3235	2113740A43	39 pF, ±5%, 50 V
C3401	2113740Q03	1 pF, ±0.1 pF, 50 V
C3402,3403	2380090M28	220 uF, ±20%, 16 V
C3404,3405	2113740A39	27 pF, ±5%, 50 V
C3406	2380090M24	10 uF, ±20%, 50 V
C3407	2113741B69	0.1 uF, ±5%, 50 V
C3408,3409	2113741A67	0.033 uF, ±5%, 50 V
C3410	2113741B69	0.1 uF, ±5%, 50 V
C3411	2113741A45	0.01 uF, ±5%, 50 V
C3412	2113741A57	4700 pF, ±5%, 50 V
C3413	2113740G13	2.7 pF, ±0.1 pF, 50 V
C3414,3415	2113741B69	0.1 uF, ±5% 50 V
C3416	2113740A43	39 pF, ±5%, 50 V
C3417	2380090M24	10 uF, ±20%, 50 V
C3418	2311049A19	10 uF, ±10%, 25 V
C3419	2113740A67	330 pF, ±5% 50 V
C3420	2113740A43	39 pF, ±5%, 50 V
C3421,3422	2113741B69	0.1 uF, ±5%, 50 V
C3425	2380090M36	CAP 100 UF 25V
C3426	0811051A18	0.68 uF, ±5%, 63 V
C3429	2113741A33	3300 pF, ±5%, 50 V
C3430	0811051A11	0.047 uF, ±5%, 63 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C3431	2113740A53	82 pF, ±5%, 50 V
C3432	2380090M24	10 uF, ±20%, 50 V
C3433	0811017A08	0.01 uF, ±5%, 50 V
C3434	2113740A43	39 pF, ±5%, 50 V
C3435	2380090M24	10 uF, ±20%, 50 V
C3436	2113741A33	3300 pF, ±5%, 50 V
C3437,3438	2113741B69	0.1 uF, ±5%, 50 V
C3439	2113740F41	470 pF, ±5%, 50 V
C3440	2113741B69	0.1 uF, ±5%, 50 V
C3441	2380090M24	10 uF, ±20%, 50 V
C3442	2113741B69	0.1 uF, ±5%, 50 V
C3443	2113740A43	39 pF, ±5%, 50 V
C3444	2113741B69	0.1 uF, ±5%, 50 V
C3445	2113740A43	39 pF, ±5%, 50 V
C3446	2311049A21	22 uF, ±10%, 20 V
C3447	2380090M24	10 uF, ±20%, 50 V
C3448	2113740A43	39 pF, ±5%, 50 V
C3449	2113740G07	1.5 pF, ±0.1 pF, 50V
C3450	2113740A43	39 pF, ±5%, 50 V
C3600	2113740A33	15 pF, ±5%, 50 V
C3601	2113740A55	100 pF, ±5% 50 V
C3602	2113740A33	15 pF, ±5% 50 V
C3603	2113740A55	100 pF, ±5% 50 V
C3604	2113741A53	0.022 uF, ±5% 50 V
C3605	2113740A33	15 pF, ±5% 50 V
C3606	2113740A55	100 pF, ±5% 50 V
C3607	2113741A53	0.022 uF, ±5% 50 V
C3608	2113740A33	15 pF, ±5% 50 V
C3609	2113740A55	100 pF, ±5% 50 V
C3610	2113741A53	0.022 uF, ±5% 50 V
C3611	2113740A33	15 pF, ±5% 50 V
C3612	2113740A55	100 pF, ±5% 50 V
C3613,3614	2113741A53	0.022 uF, ±5% 50 V
C3615	2113740A33	15 pF, ±5% 50 V
C3616	2113740A55	100 pF, ±5% 50 V
C3617	2113741A53	0.022 uF, ±5% 50 V
C3619	2113740F41	470 pF, ±5% 50 V
C3620	2113740A55	100 pF, ±5% 50 V
C3621,3622	2113741A53	0.022 uF, ±5% 50 V
C3623	2113740A39	27 pF, ±5% 50 V
C3624	2113740A55	100 pF, ±5% 50 V
C3625,3626	2113741A53	0.022 uF, ±5% 50 V
C3627	2113740A43	39 pF, ±5% 50 V
C3628,3629	2113741B69	0.1 uF, ±5% 50 V
C3630,3631	2113740A39	27 pF, ±5% 50 V
C3700,3701	2380090M07	47 uF, ±20% 16 V
C3703	2380090M24	10 uF, ±20%, 50 V
C3705	2113740A39	27 pF, ±5% 50 V
C3707	2113740A39	27 pF, ±5% 50 V
C3709,3710	2113740A37	22 pF, ±5% 50 V
C3712	2113740A39	27 pF, ±5% 50 V
C3713	2380090M24	10 uF, ±20% 50 V
C3714	2113741A45	0.01 uF, ±5% 50 V
C3715	2113741B69	0.1 uF, ±5% 50 V
C3716	2113740A39	27 pF, ±5% 50 V
C3717	2113741B69	0.1 uF, ±5% 50 V
C3719	2380090M18	1 uF, ±20% 50 V
C3720	2113740A55	100 pF, ±5% 50 V
C3721	2113741B69	0.1 uF, ±5% 50 V
C3722 thru 3724	2113740A39	27 pF, ±5% 50 V
C3725	2113741B69	0.1 uF, ±5% 50 V
C3726 thru 3729	2113740A39	27 pF, ±5% 50 V
C3730	2113741B69	0.1 uF, ±5% 50 V
C3731 thru 3733	2113740A39	27 pF, ±5% 50 V
C3735	2113740A39	27 pF, ±5% 50 V
C3736	2113740G11	2.2 pF, ±0.1 pF, 50 V
C3737	2113740A39	27 pF, ±5% 50 V
C3738	2113741B69	0.1 uF, ±5% 50 V
C3739	2113740A55	100 pF, ±5% 50 V
C3740	2113740G11	2.2 pF, ±0.1 pF, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C3741,3742	2113740A39	27 pF, ±5% 50 V
C3744,3745	2113740A39	27 pF, ±5% 50 V
C3746	2113740A77	0.82 pF, ±5% 50 V
C3747	2380090M18	1 uF, ±20% 50 V
C3748	2113740A39	27 pF, ±5% 50 V
C3750	2113741B69	0.1 uF, ±5% 50 V
C3751	2113740A55	100 pF, ±5% 50 V
C3752	2113740A39	27 pF, ±5% 50 V
C3753	2113741B69	0.1 uF, ±5% 50 V
C3754	2113740A43	39 pF, ±5% 50 V
C3755	2113741A77	0.82 pF, ±5% 50 V
C3757,3758	2113740A39	27 pF, ±5% 50 V
C3759	2113741B69	0.1 uF, ±5% 50 V
C3761,3762	2113740A43	39 pF, ±5% 50 V
C3763,3764	2113741B69	0.1 uF, ±5% 50 V
C3765,3766	2113740A39	27 pF, ±5% 50 V
C3790	2113741B69	0.1 uF, ±5% 50 V
		diode (see note):
CR3000	4813833C10	0.1A, 70 V
CR3002	4813833C05	dual 70 V
CR3003	4813825A05	Hot Carrier
CR3100 thru 3102	4813825A06	Pin,35 V
CR3401	4813825A05	Hot Carrier
CR3402	4813833C05	dual 70 V
CR3403,3404	4813833C10	0.1A, 70 V
CR3701,3702	4813833C05	dual 70 V
CR3703	4813833B01	Schottky type
		light emitting diode (see note):
DS3700	4882198T05	SUBMINIATURE LED YEL SM
DS3701,3702	4882198T04	SUBMINIATURE LED GRN SM
DS3703	4882198T04	SUBMINIATURE LED RED SM
		mechanical parts:
E3004	2685059U01	Heatsink, DPAK
E3101	2682953X01	SHLD RCVR 18X24MM
E3201,3202	2682953X01	SHLD RCVR 18X24MM
SH3202	2883380D01	SHIELD, VCO, 800
		connector:
J3100	0984393T01	receptacle: UHF
		inductor:
L3000 thru 3002	2484657R01	ferrite bead
L3100	2462587X54	IND CHIP LO–PRO 120 NH 5%
L3101 thru 3104	2411087A14	0.10 uH
L3201	2484657R01	ferrite bead
L3202	2462587X55	IND CHIP LO–PRO 150 NH 5%
L3203	9183223X02	RESONATOR COAX CERAMIC
L3204	2462587X43	IND CHIP LO–PRO 15.0 NH 5%
L3205 thru 3208	2462587X55	IND CHIP LO–PRO 150 NH 5%
L3209,3210	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L3212	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L3213,3214	2462587X41	IND CHIP LO–PRO 10.0 NH 5%
L3401	2462587R16	4.7 nH, 5%
L3402	2462587X37	IND CHIP LO–PRO 4.7 NH 5%
L3403	2462587R16	4.7 nH, 5%
L3405,3406	2462587X51	IND CHIP LO–PRO 68.0 NH 5%
L3600,3601	2484657R01	ferrite bead
L3603,3604	2462587X49	IND CHIP LO–PRO 47.0 NH 5%
L3700,3701	2484657R01	ferrite bead
		transistor (see note):
Q3000 thru 3003	4813824A10	PNP
Q3004	4813822A09	PNP
Q3100	4813824A10	NPN
Q3201	4813824A10	NPN
Q3202	4885228U03	TSTR NPN 6V 30UA 12GHZ NE68519
Q3270	4813827A26	Transistor; NPN
Q3271	4813824A17	PNP
Q3401	4813827A03	NPN
Q3402,3403	4813824A10	NPN
Q3404	4813824A17	PNP

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
Q3405 thru 3407	4813824A10	NPN
Q3408	4813824A17	PNP
Q3409,3410	4813824A10	NPN
Q3411	4813824A17	PNP
Q3412	4813824A10	NPN
Q3701 thru 3706	4884955T01	NPN
Q3707	4813824A10	NPN
Q3708 thru 3710	4884955T01	NPN
U3711	4813822A09	PNP
		resistor, fixed:
R3000	0611079A98	10K, ±5%, 1/10 W
R3001	0611079A66	470 ohms, ±5%, 1/10 W
R3002	0611079A98	10K, ±5%, 1/10 W
R3003	0611079B47	1 MEG, ±5%, 1/10 W
R3004 thru 3006	0611079A66	470 ohms, ±5%, 1/10 W
R3007	0611079A98	10K, ±5%, 1/10 W
R3008	0611079A74	1K, ±5%, 1/10 W
R3009	0611079A92	5600 ohms, ±5%, 1/10 W
R3010	0611079A98	10K, ±5%, 1/10 W
R3011	0611079B23	100K, ±5%, 1/10 W
R3012	0611079A98	10K, ±5%, 1/10 W
R3013 thru 3015	0611079B23	100K, ±5%, 1/10 W
R3016	0611079A74	1K, ±5%, 1/10 W
R3017	0611079A88	3900 ohms, ±5%, 1/10 W
R3018	0611079A74	1K, ±5%, 1/10 W
R3019	0611079A98	10K, ±5%, 1/10 W
R3020,3021	0611079A90	4700 ohms, ±5%, 1/10 W
R3022	0683962T01	1 ohm, ±5% 1 W
R3023	0611079A50	100 ohms, ±5%, 1/10 W
R3024	0611077H31	274K, ±1%, 1/8 W
R3025	0611079B07	22K, ±5%, 1/10 W
R3026	0611077G34	27.4K, ±1%, 1/8 W
R3027	0611077G98	127K, ±1%, 1/8 W
R3028	0611079A74	1K, ±5%, 1/10 W
R3029	0611079B23	100K, ±5%, 1/10 W
R3030,3031	0611079A66	470 ohms, ±5%, 1/10 W
R3100	0611079A66	470 ohms, ±5%, 1/10 W
R3101	0611079A26	10 ohms, ±5%, 1/10 W
R3102	0611079A66	470 ohms, ±5%, 1/10 W
R3103	0611073A17	47 ohms, ±5%, 1/4W
R3104	0611072A45	680 ohms ±5%,1/4 W
R3105	0611079A74	1K, ±5%, 1/10 W
R3106	0611079A98	10K, ±5%, 1/10 W
R3107	0611079A74	1K, ±5%, 1/10 W
R3108	0611072A45	680 ohms, ±5%,1/4 W
R3200	0611079A26	10 ohms, ±5%, 1/10 W
R3201	0662057A73	CHIP RES 10K OHMS 5%
R3202	0662057A39	CHIP RES 390 OHMS 5%
R3203	0662057A89	CHIP RES 47K OHMS 5%
R3205	0662057A49	CHIP RES 1000 OHMS 5%
R3206	0662057A25	CHIP RES 100 OHMS 5%
R3207	0662057A01	CHIP RES 10 OHMS 5%
R3208	0611079A20	5.6 ohms, ±5% 1/10 W
R3209	0662057A53	CHIP RES 1500 OHMS 5%
R3210	0662057A56	CHIP RES 2000 OHMS 5%
R3211	0662057A13	CHIP RES 33 OHMS 5%
R3212	0662057B47	CHIP RES 0 OHMS +–.050 OHMS
R3213	0611077E31	221 ohms, ±1%, 1/8W
R3214,3215	0611072A37	330 1/4 W
R3216	0662057A29	CHIP RES 150 OHMS 5%
R3217	0662057A15	CHIP RES 39 OHMS 5%
R3218	0662057A29	CHIP RES 150 OHMS 5%
R3231	0611072A33	220 ohms, ±5%, 1/4 W
R3232	0611079A01	O ohms, ±5%, 1/10 W
R3233	0611072A33	220 ohms, ±5% 1/4 W
R3235	0611079A82	2200 ohms, ±5% 1/10 W
R3236	0611079A70	680 ohms, ±5%, 1/10 W
R3237	0611079A01	O ohms, ±5%, 1/10 W
R3238	0611072A13	33 ohms, ±5% 1/4 W
R3239	0611079A60	270 ohms, ±5%, 1/10 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3240	0611079A42	47 ohms, ±5%, 1/10 W
R3241	0611079A26	10 ohms, ±5%, 1/10 W
R3242	0611079A72	820 ohms, ±5%, 1/10 W
R3243,3244	0662057A81	CHIP RES 22K OHMS 5%
R3401	0611079A98	10K, ±5%, 1/10 W
R3402,3403	0611079A74	1K, ±5%,1/10 W
R3404	0611079B13	39K, ±5%,1/10 W
R3405	0611079A01	O ohms, ±5%, 1/10 W
R3407	0611079A50	100 ohms, ±5%, 1/10 W
R3408	0611079A98	10K, ±5%, 1/10 W
R3409	0611079A74	1K, ±5%,1/10 W
R3410	0611079A88	3300 ohms, ±5%, 1/10 W
R3411	0611079A98	10K, ±5%,1/10 W
R3412,3413	0611079A82	2200 ohms, ±5%, 1/10 W
R3414	0611079A94	6800 ohms, ±5%, 1/10 W
R3415	0611079A98	10K, ±5%, 1/10 W
R3416	0611079A74	1K, ±5%, 1/10 W
R3417	0611079A94	6800 ohms, ±5%, 1/10 W
R3418	0611079A72	820 ohms, ±5%, 1/10 W
R3419	0611079A50	100 ohms, ±5%, 1/10 W
R3420	0611079A36	27 ohms, ±5%, 1/10 W
R3421	0611079A74	1K, ±5%,1/10 W
R3422	0611079B15	47K, ±5%, 1/10 W
R3423	0611079B07	22K, ±5%, 1/10 W
R3424	0611079A62	330 ohms, ±5%, 1/10 W
R3425	0611079A98	10K, ±5%, 1/10 W
R3426	0611079A62	330 ohms, ±5%, 1/10 W
R3427,3428	0611079A98	10K, ±5%, 1/10 W
R3430,3431	0611079A50	100 ohms, ±5%, 1/10 W
R3432	0611079A82	2200 ohms, ±5%, 1/10 W
R3433	0611079A98	10K, ±5%,1/10 W
R3434	0611079A50	100 ohms, ±5%, 1/10 W
R3435	0611079A82	2200 ohms, ±5%, 1/10 W
R3436	0611079B15	47K, ±5%, 1/10 W
R3437	0611079A82	2200 ohms, ±5%, 1/10 W
R3438	0611079A58	220 ohms, ±5%, 1/10 W
R3439	0611079B15	47K, ±5%, 1/10 W
R3440	0611079A58	220 ohms, ±5%, 1/10 W
R3441	0611079B07	22K, ±5%, 1/10 W
R3442	0611073A17	47 ohms, ±5%, 1/4W
R3443,3444	0611079A18	4.7 ohms, ±5%, 1/10 W
R3445,3446	0611079A98	10K, ±5%,1/10 W
R3447	0611079A98	10K, ±5%, 1/10 W
R3448	0611079A98	10K, ±5%,1/10 W
R3449	0611079A78	1500 ohms, ±5%, 1/10 W
R3450	0611079B23	100K, ±5%,1/10 W
R3451 thru 3453	0611079A98	10K, ±5%,1/10 W
R3454	0611079B15	47K, ±5%,1/10 W
R3455 thru 3457	0611079A98	10K, ±5%,1/10 W
R3458	0611079A66	3300 ohms, ±5%, 1/10 W
R3459	0611079A98	10K, ±5%,1/10 W
R3460	0611079B01	12K, ±5%,1/10 W
R3461	0611079A98	10K, ±5%,1/10 W
R3462	0611079A92	5600 ohms, ±5%, 1/10 W
R3463,3464	0611079A98	10K, ±5%,1/10 W
R3600 thru 3602	0611079A66	470 ohms, ±5%, 1/10 W
R3603,3604	0662057B47	CHIP RES 0 OHMS +–.050 OHMS
R3605	0611077A42	47 ohms, ±5%, 1/10 W
R3700	0611079A74	1K, ±5%, 1/10 W
R3702	0611079A74	1K, ±5%,1/10 W
R3705,3706	0611079A74	1K, ±5%,1/10 W
R3708	0611079A98	10K, ±5%, 1/10 W
R3710	0611079A98	10K, ±5%, 1/10 W
R3712,3713	0611079A98	10K, ±5%,1/10 W
R3714	0611079A66	470 ohms, ±5%, 1/10 W
R3715,3716	0611079A98	10K, ±5%,1/10 W
R3718	0611079A66	680 ohms, ±5%, 1/10 W
R3721 thru 3725	0611079A98	10K, ±5%,1/10 W
R3726	0611079A66	470 ohms, ±5%, 1/10 W
R3727 thru 3730	0611079A98	10K, ±5%,1/10 W

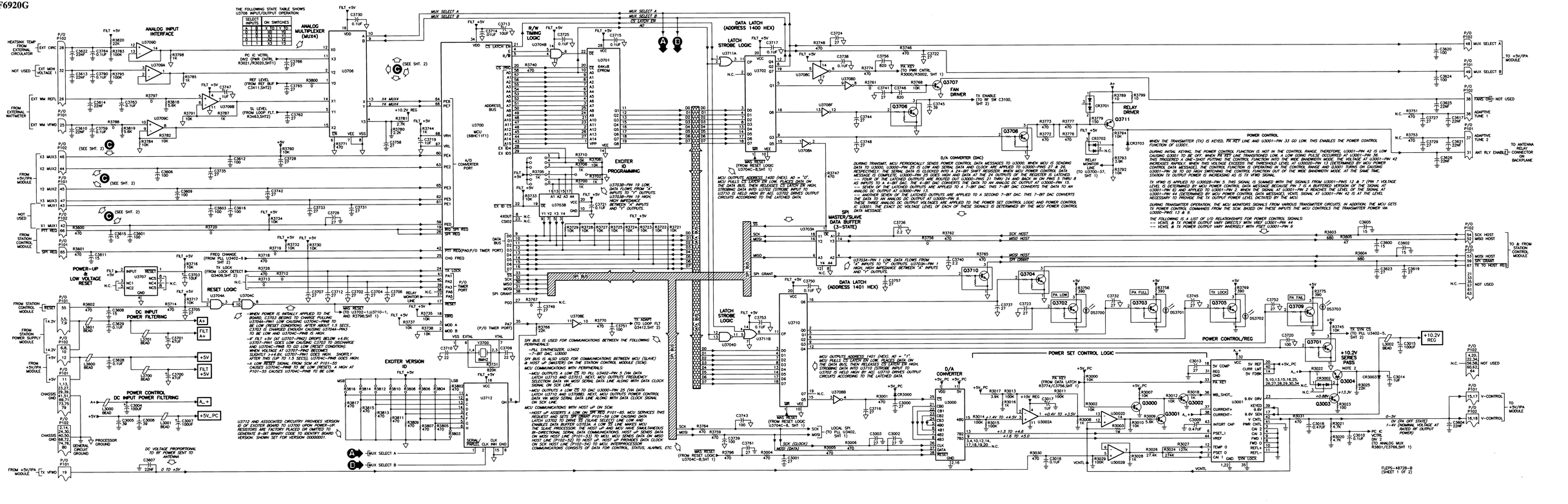
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3731	0611079B45	820K, ±5%, 1/10 W
R3732 thru 3738	0611079A98	10K, ±5%,1/10 W
R3740	0611079A66	470 ohms, ±5%, 1/10 W
R3744	0611079A74	1K, ±5%, 1/10 W
R3745	0611079A98	10K, ±5%,1/10 W
R3746 thru 3748	0611079A74	1K, ±5%,1/10 W
R3750	0611079A64	390 ohms, ±5%, 1/10 W
R3751	0611079A66	470 ohms, ±5%, 1/10 W
R3753	0611079A66	470 ohms, ±5%, 1/10 W
R3756	0611079A01	O ohms, ±5%, 1/10 W
R3758	0611079A64	390 ohms, ±5%, 1/10 W
R3759	0611079A66	470 ohms, ±5%, 1/10 W
R3760	0611079A98	10K, ±5%,1/10 W
R3761	0611079A82	2200 ohms, ±5%, 1/10 W
R3762	0611079A98	10K, ±5%,1/10 W
R3764	0611079A26	10 ohms, ±5%, 1/10 W
R3765	0611079A66	470 ohms, ±5%, 1/10 W
R3766	0611079B07	22K, ±5%,1/10 W
R3767,3768	0611079A98	10K, ±5%,1/10 W
R3769	0611079A64	390 ohms, ±5%, 1/10 W
R3770,3771	0611079A66	470 ohms, ±5%, 1/10 W
R3772,3773	0611072A41	470 ohms, ±5%, 1/4 W
R3774	0611079A66	470 ohms, ±5%, 1/10 W
R3775	0611079A64	390 ohms, ±5%, 1/10 W
R3776,3777	0611072A41	470 ohms, ±5%, 1/4 W
R3779	0611079A54	560 5 1/10W
R3780	0611079A82	2200 ohms, ±5%, 1/10 W
R3781	0611079A84	2700 ohms, ±5%, 1/10 W
R3782	0611079A98	10K, ±5%,1/10 W
R3783	0611079B23	100K, ±5%,1/10 W
R3784	0611079A98	10K, ±5%,1/10 W
R3785	0611079A74	1K, ±5%, 1/10 W
R3787	0611079A98	10K, ±5%,1/10 W
R3788	0611079A01	O ohms, ±5%, 1/10 W
R3789	0611072A01	10 ohms, ±5%, 1/4 W
R3791,3792	0611079A98	10K, ±5%,1/10 W
R3793	0611079A88	3900 ohms, ±5%, 1/10 W
R3794	0611079A98	10K, ±5%,1/10 W
R3795	0611079B23	100K, ±5%,1/10 W
R3796	0611079A66	470 ohms, ±5%, 1/10 W
R3797	0611079A01	O ohms, ±5%, 1/10 W
R3798	0611079A74	1K, ±5%,1/10 W
R3799	0611072A01	10 ohms, ±5%, 1/4 W
R3800	0611079A01	O ohms, ±5%, 1/10 W
R3802	0611079A66	470 ohms, ±5%, 1/10 W
R3804	0611079A66	470 ohms, ±5%, 1/10 W
R3806	0611079A66	470 ohms, ±5%, 1/10 W
R3809	0611079A66	470 ohms, ±5%, 1/10 W
R3811	0611079A66	470 ohms, ±5%, 1/10 W
R3813	0611079A66	470 ohms, ±5%, 1/10 W
R3815	0611079A66	470 ohms, ±5%, 1/10 W
R3817	0611079A66	470 ohms, ±5%, 1/10 W
R3818,3819	0611079A92	5600 ohms, ±5%, 1/10 W
R3820	0611079B07	22K, ±5%,1/10 W
R3821,3822	0611079A98	10K, ±5%,1/10 W
		integrated circuit (see note):
U3000	5180057S02	IC CMOS CUST DA CONV 13" REEL
U3001	5183977M70	+105 V Regulator/Power Control
U3002	5113819A04	Quad Operational Amplifier
U3201 thru 3203	4882347W01	silicon
U3401	5113819A05	High Performance, Single Supply
U3402	5184602T04	IC SYNTHZR SPEED SCRND
U3403	5113805A86	Quad Analog Multiplexer/Demultiplexer
U3404	5113819A08	Low Power
U3405	5113816A07	5–Volt Positive Regulator
U3700	5113802A27	IC 68HC11 W SCI SPI A/D
U3701	(See Note 1)	IC PRGMD EPROM
U3702	5113806A42	Dual D–type Flip–Flop
U3703	5113806A38	Octal 3–State Non–Inverter Line Driver
U3704	5113806A01	Quad 2–Input NAND Gate

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
U3706	5113805A84	Mux/Demux, Dual 4–Channel Analog
U3707	5113815A02	Under Voltage Sensing Circuit
U3708	5113808A05	Hex Inverter
U3709	5113819A04	Quad Operational Amplifier
U3710	5113806A42	Dual D–type Flip–Flop
U3711	5113808A14	Quad 2–Input OR Gate
U3712	5113805A43	8–Bit S/P–In S–Out Shift Register
		zener diode (see note):
VR3201,3202	4862824C01	DIODE VARACTOR
VR3203	4862824C02	DIODE VARACTOR
		crystal (see note):
Y3700	4884450T01	8.000 MHZ
		non–referenced items:
	0183250K01	POINTER RIBBON,DATA I/O
	0982451V12	Socket, IC; 28–pin (used with U3701)
	1584732T01	Corral, UHF (used with SH3201)
	1584753T04	Housing, Corral; extra large (used with E3400)
	1584753T04	Housing, Corral; extra large (used with E3700)
	1584753T05	Housing, Corral; large (used with E3000)
	1585034U08	Cover, extra large (used with E3400)
	1585034U08	Cover, extra large (used with E3700)
	1585034U09	Cover, large (used with E3000)
	1585034U10	Cover, UHF (used with SH3201)
	5191012A01	64Kx8 Bit EPROM
	5482000W01	Label, PCB barcode
	5482000W02	ribbon, thermal transfer
	5483260X02	LABEL,600MIL DIP,DATA I/O
	6182512W04	LIGHTPIPES (4)
	8485061U08	BOARD, printed circuit

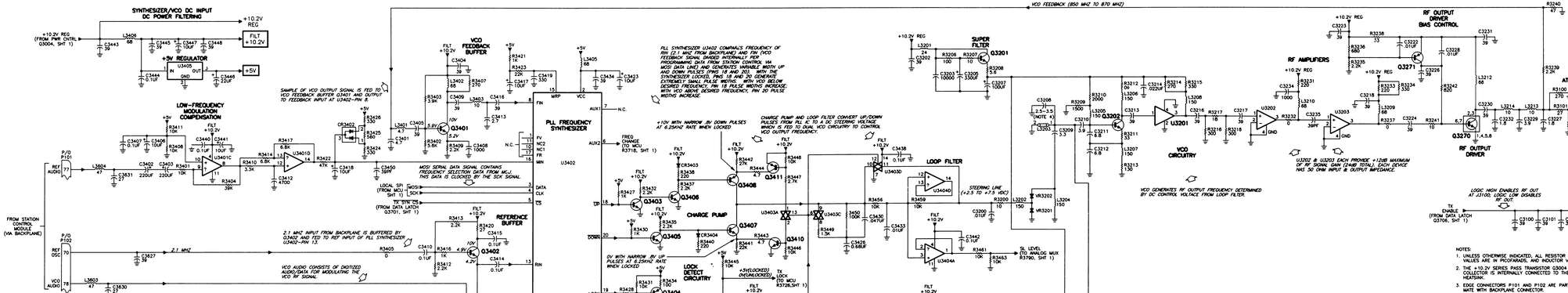
note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

Note 1: U3701 contains exciter operating code. The part number for this IC is determined by the particular firmware version. Contact Motorola System Support Center (1–800–448–3245) for the current version and corresponding part number for U3701.

800 MHz EXCITER BOARD
MODEL TLF6920G



800 MHz EXCITER BOARD
MODEL TLF6920G



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS, AND INDUCTOR VALUES ARE IN NANOHENRIES.
2. THE +10.2V SERIES PASS TRANSISTOR Q3004 IS HEATSINK MOUNTED. THE COLLECTOR IS INTERNALLY CONNECTED TO THE BODY WHICH CONTACTS THE HEATSINK.
3. EDGE CONNECTORS P101 AND P102 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.
4. C3208 IS A LASER TRIMMED COMPONENT WITH A FINAL VALUE DETERMINED ON A PER BOARD BASIS. THIS COMPONENT IS CONSIDERED NON-REPLACEABLE.

C

DURING DIAGNOSTIC ROUTINES, MCU U3700 VIA DATA LATCH U3702 ASSERTS MUX SELECT A & B LINES AND THEN MONITORS THE FOLLOWING MUX OUTPUT LINES:

- X1 MUX1 (P102-42)
- X2 MUX2 (P102-44)
- X3 MUX3 (P102-46)
- X4 MUX4 (U3706 PIN 13)
- Y1 MUX1 (P102-43)
- Y2 MUX2 (P102-45)
- Y3 MUX3 (P102-47)
- Y4 MUX4 (U3706 PIN 3)

MCU U3700 POLLS EACH MUX OUTPUT LINE DURING A 10–20mS LOOP CYCLE.

EACH MUX OUTPUT LINE CONTAINS FOUR 200uS CHANNELS 0 THRU 3. EACH CHANNEL CORRESPONDS TO A MUX INPUT SIGNAL X0 THRU X3 OR Y0 THRU Y3. EACH MUX INPUT SIGNAL RANGES BETWEEN 0 TO +5V (SEE FIG. 1).

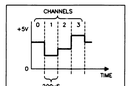


FIG. 1. TYPICAL DATA STREAM ON MUX OUTPUT LINE.

FOR THIS CIRCUIT BOARD APPLICATION, THERE ARE NO MUX1 SIGNAL INPUTS. U3706 MUX4 SIGNAL INPUTS CAN BE DETERMINED FROM THIS SCHEMATIC DIAGRAM. TO DETERMINE MUX2 & MUX3 SIGNAL INPUTS, SEE THE FOLLOWING TABLE.

OUTPUT LINE	SIGNAL INPUTS		OUTPUT LINE	SIGNAL INPUTS
X2MUX2 (P102-44)	X0	MC-TAS	X3MUX3 (P102-46)	N.C.
	X1	OVERVOLTAGE		N.C.
	X2	VOMAL REF		IPA_IDA
	X3	FPA_TEMP		IPA_IDB
	Y0	CIRCULATOR TEMP		IDPA_VFWD (HIGH POWER ONLY)
Y2MUX2 (P101-45)	Y1	N.C.	Y3MUX3 (P101-47)	N.C.
	Y2	N.C.		FPA_VREFL
	Y3	N.C.		FPA_VFWD

U3402 PINOUT INFORMATION

PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	FV	TEST POINT; DIVIDED DOWN VCO FREQUENCY, 6.25 KHZ SAWTOOTH IN LOCKED CONDITION.
2	VCC	VCC POWER, +5V
3	DATA	SERIAL DATA INPUT; 0–5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING; 0–5V LOGIC LEVEL
5	$\overline{CS}$	CHIP SELECT; LOW WHEN PROGRAMMING; HIGH WHEN NOT PROGRAMMING (0–5V LOGIC LEVEL)
6	AUX2	CHANGE FREQUENCY; TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	BAND/SHIFT; HIGH SELECTS LOW FREQUENCY VCO (U3200), LOW SELECTS HIGH FREQUENCY VCO (U3201).
8	FIN	FEEDBACK RF INPUT; 851 MHZ TO 870 MHZ RIDING ON 1.4V DC
9	VBBP	DC BIAS FOR PRESCALER INPUT; 1.4V DC
10	NC1	NOT USED
11	NC2	NOT USED
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT; 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 1V P–P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	GND	IC GROUND; 0V
15	MRP	CONNECTION TO EXTERNAL RAMP CIRCUIT FOR PHASE MODULATOR; STEEPLY SLOPED RAMP; RAMPING BETWEEN 0 AND 5V @ 6.25 KHZ RATE.
16	MIN	MODULATION INPUT TO PHASE MODULATOR; +2.5V DC BIAS
17	FR	TEST POINT; DIVIDED DOWN 2.1 MHZ REFERENCE @ 6.25 KHZ IN A LOCKED CONDITION.
18	TP	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON .7V DC
19	LOCK	LOCK INDICATOR; WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ RIDING ON 5V DC
20	DOWN	WHEN LOCKED, NARROW (<1US) UP PULSES AT 6.25 KHZ RIDING ON .7V DC

VCO TROUBLESHOOTING

1) Q3201 AND ASSOCIATED CIRCUITRY COMPRISE +8.7V SUPERFILTER. MEASURE VOLTAGE DROP ACROSS R3208 AND CALCULATE CURRENT (SHOULD BE APPROXIMATELY 45 MA).

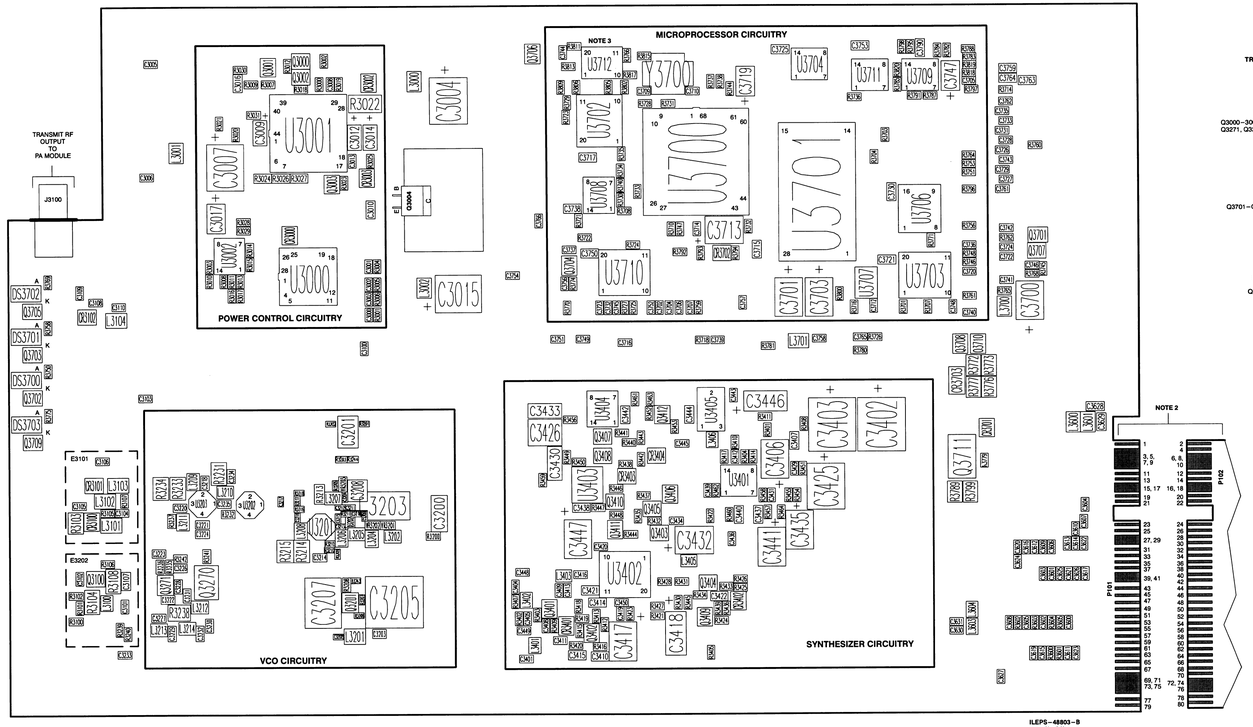
2) IF BOARD IS NOT LOCKED, PERFORM FOLLOWING PROCEDURE TO DETERMINE IF VCO CIRCUITRY IS AT FAULT:
   A) MEASURE RESISTANCES AS SHOWN ON SCHEMATIC.
   B) MEASURE POWER AND FREQUENCY AT U3202–PIN 1. SHOULD BE APPROXIMATELY +10 DBM INTO 50 OHMS; FREQUENCY SHOULD BE WITHIN RANGE.
   C) MEASURE STEERING LINE VOLTAGE AT U3404–PIN 1. IF BOARD IS NOT LOCKED, VOLTAGE WILL BE EITHER 0V OR 5V. VERIFY VCO OUTPUT FREQUENCY BASED ON MEASURED STEERING LINE VOLTAGE.

STEERING LINE VOLTAGE .5V	APPROX. 830 MHZ
STEERING LINE VOLTAGE +5V	APPROX. 879 MHZ

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U3000	CUSTOM	D/A CONVERTER	1,11	2,10
U3001	CUSTOM	REGULATOR/POWER CONTROL	32	1,31
U3002	MC33030R2	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3201, U3202, U3203	MMA0311T1	MICROWAVE AMPLIFIER, 50-OHM INPUT & OUTPUT IMPEDANCE (MMIC)	1	2,3
U3401	MC3330740	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3402	CUSTOM	PHASE LOCKED LOOP SYNTHESIZER	2	14
U3403	MC74HC4066	QUAD ANALOG MULTIPLEXER/DEMULTIPLEXER	14	7
U3404	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U3405	MC7805	+5V VOLTAGE REGULATOR	1	2
U3700	M68HC11F1	MICROCONTROLLER (MCU) W/SCI, SPI (NON-MULTIPLEXED ADDRESS/DATA BUS)	34	1
U3701	27C512	64K X 8-BIT EPROM, PROGRAMMED	28	14
U3702	MC74AC273	OCTAL D-TYPE FLIP-FLOP	20	10
U3703	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U3704	MC74AC00	QUAD 2-INPUT NAND GATE	14	7
U3706	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	7,8
U3707	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U3708	MC74AC04	HEX INVERTER	14	7
U3709	MC33030R2	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3710	MC74AC273	OCTAL D-TYPE FLIP-FLOP	20	10
U3711	MC74AC32	QUAD 2-INPUT OR GATE	14	7
U3712	MC74HC165	8-BIT SERIAL OR PARALLEL INPUT SHIFT REGISTER	16	8

900 MHz EXCITER BOARD
MODEL TLF6930G



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BASING DETAILS

TRANSISTORS

Q3000-3003, Q3100, Q3261, Q3271, Q3280, Q3401-3412, Q3707

Q3701-Q3706, Q3708-Q3710

Q3004, Q3711

DIODES

CR3000, CR3003, CR3401 CR3403, CR3404

CR3100-CR3102, CR3260

CR3002, CR3402, CR3701, CR3702

NOTES:

1. THIS COMPONENT LOCATION DETAIL IS NOT DRAWN TO EXACT SCALE.
2. THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P101. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P102. P102 CONTACT LAYOUT IS SHOWN IN THE CUTAWAY VIEW JUST TO THE RIGHT OF THE P101 CONTACT LAYOUT. IN ADDITION, P101 CONTAINS ODD NUMBERED CONTACTS AND P102 CONTAINS EVEN NUMBERED CONTACTS.
3. U3712 AND ASSOCIATED CIRCUITRY PROVIDE VERSION ID OF EXCITER BOARD. RESISTORS ARE FACTORY PLACED OR OMITTED TO GENERATE 8-BIT BINARY CODE TO IDENTIFY BOARD VERSION. SHOWN WITH "C" VERSION PLACEMENT.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P101-1	CHASSIS GND	P102-2	CHASSIS GND
P101-3, 5, 7, 9	14.2V	P102-4	NOT USED
P101-11	+5V	P102-6, 8, 10	14.2V
P101-13	CHASSIS GND	P102-12	+5V
P101-15, 17	V-CONTROL	P102-14	CHASSIS GND
P101-19	TX VPWD	P102-16, 18	V-CONTROL
P101-21	NOT USED	P102-20	NOT USED
P101-23	CHASSIS GND	P102-22	NOT USED
P101-25	EXT WM VPWD	P102-24	CHASSIS GND
P101-27, 29	CHASSIS GND	P102-26	EXT WM REFL
P101-31	ANT RLY ENABLE	P102-28	EXT CIRC
P101-33	NOT USED	P102-30	CHASSIS GND
P101-35	NOT USED	P102-32	EXT MON VOLTAGE 1
P101-37	ADAPTIVE TUNE 2	P102-34	NOT USED
P101-39, 41	CHASSIS GND	P102-36	ADAPTIVE TUNE 1
P101-43	Y1 MUX1	P102-38	FANS ON
P101-45	Y2 MUX2	P102-40	CHASSIS GND
P101-47	Y3 MUX3	P102-42	X1 MUX1
P101-49	MUX SELECT B	P102-44	X2 MUX2
P101-51	CHASSIS GND	P102-46	X3 MUX3
P101-53	MOSI HOST	P102-48	MUX SELECT A
P101-55	RESET	P102-50	CHASSIS GND
P101-57	NOT USED	P102-52	MISO HOST
P101-59	SPI GRANT	P102-54	SCK HOST
P101-61	NOT USED	P102-56	NOT USED
P101-63	NOT USED	P102-58	NOT USED
P101-65	SPI REQ	P102-60	NOT USED
P101-67	TX TO HOST REQ	P102-62	NOT USED
P101-69, 71, 73, 75	CHASSIS GND	P102-64	NOT USED
P101-77	REF AUDIO	P102-66	PTT REQ
P101-79	CHASSIS GND	P102-68	CHASSIS GND
		P102-70	REF OSC
		P102-72, 74, 76	CHASSIS GND
		P102-78	VCO AUDIO
		P102-80	CHASSIS GND

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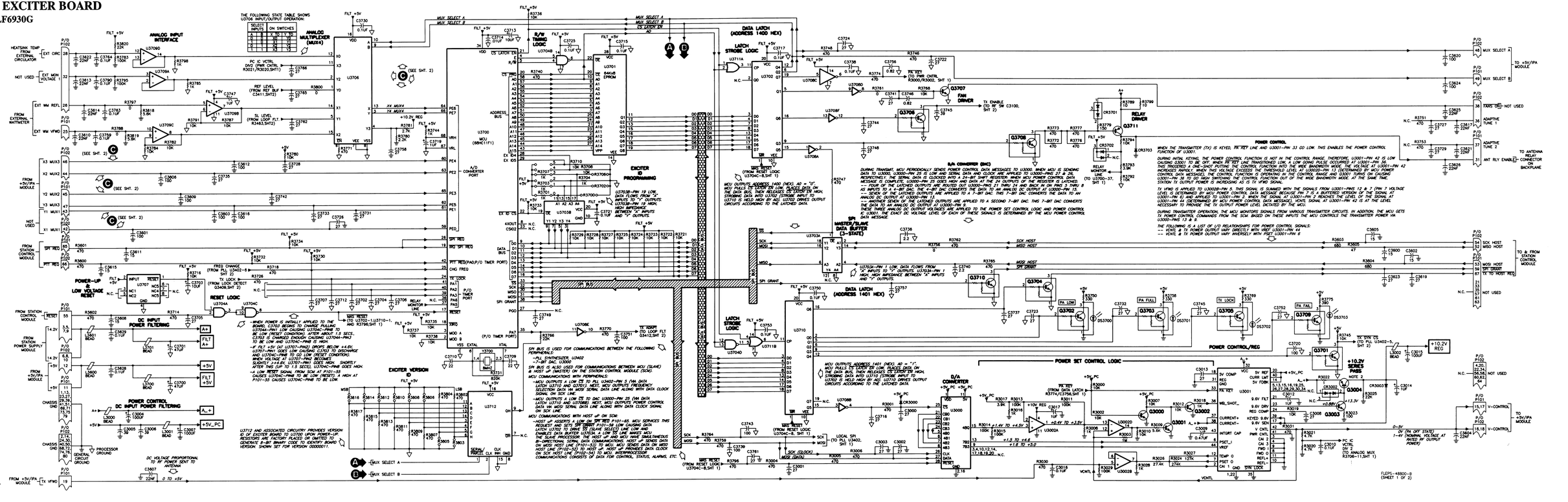
900 MHz EXCITER BOARD
MODEL TLF6930G



THE FOLLOWING STATE TABLE SHOWS U3706 INPUT/OUTPUT OPERATION:

SELECT INPUTS		ON SWITCHES	
A	B	X TO	Y TO
0	0	X0	Y0
1	0	X1	Y1
0	1	X2	Y2
1	1	X3	Y3

U3703B–PIN 19 LOW, DATA FLOWS FROM "A" INPUTS TO "Y" OUTPUTS. U3703B–PIN 19 HIGH, HIGH IMPEDANCE BETWEEN "A" INPUTS AND "Y" OUTPUTS.

MCU OUTPUTS ADDRESS 1400 (HEX). A0 = "0". MCU PULLS CS LATCH EN LOW, PLACES DATA ON THE DATA BUS, THEN RELEASES CS LATCH EN HIGH, STROBING DATA INTO U3702 (STROBE INPUT TO U3710 IS HELD HIGH BY A0). U3702 DRIVES OUTPUT CIRCUITS ACCORDING TO THE LATCHED DATA.

D/A CONVERTER (DAC)

DURING TRANSMIT, MCU PERIODICALLY SENDS POWER CONTROL DATA MESSAGES TO U3000. WHEN MCU IS SENDING DATA TO U3000, U3000–PIN 25 IS LOW AND SERIAL DATA AND CLOCK ARE APPLIED TO U3000–PINS 27 & 26, RESPECTIVELY. THE SERIAL DATA IS CLOCKED INTO A 24–BIT SHIFT REGISTER: WHEN MCU POWER CONTROL DATA MESSAGE IS COMPLETE, U3000–PIN 25 GOES HIGH AND DATA AT THE 24 OUTPUTS OF THE REGISTER IS LATCHED.
-- FOUR OF THE LATCHED OUTPUTS ARE ROUTED OUT U3000–PINS 21 THRU 24 AND BACK IN ON PINS 5 THRU 8 AS INPUTS TO A 4–BIT DAC. THE 4–BIT DAC CONVERTS THE DATA TO AN ANALOG DC OUTPUT AT U3000–PIN 15.
-- SEVEN OF THE LATCHED OUTPUTS ARE APPLIED TO A 7–BIT DAC. THIS 7–BIT DAC CONVERTS THE DATA TO AN ANALOG DC OUTPUT AT U3000–PIN 13.
-- ANOTHER SEVEN OF THE LATCHED OUTPUTS ARE APPLIED TO A SECOND 7–BIT DAC. THIS 7–BIT DAC CONVERTS THE DATA TO AN ANALOG DC OUTPUT AT U3000–PIN 9.
THESE THREE ANALOG DC OUTPUT VOLTAGES ARE APPLIED TO THE POWER SET CONTROL LOGIC AND POWER CONTROL IC U3001. THE EXACT DC VOLTAGE LEVEL OF EACH OF THESE SIGNALS IS DETERMINED BY THE MCU POWER CONTROL DATA MESSAGE.

POWER CONTROL

WHEN THE TRANSMITTER (TX) IS KEYED, PA KEY LINE AND U3001–PIN 33 GO LOW. THIS ENABLES THE POWER CONTROL FUNCTION OF U3001.

DURING INITIAL KEYING, THE POWER CONTROL FUNCTION IS NOT IN THE CONTROL RANGE. THEREFORE, U3001–PIN 42 IS LOW CAUSING Q3001 TO BE OFF. WHEN PA KEY LINE TRANSITIONED LOW, A LOW GOING PULSE OCCURRED AT U3001–PIN 36. THIS TRIGGERED A ONE–SHOT PUTTING THE CONTROL FUNCTION INTO THE WIDE BANDWIDTH MODE. THE VOLTAGE AT U3001–PIN 42 INCREASES RAPIDLY. WHEN THIS VOLTAGE EXCEEDS THE THRESHOLD LEVEL AT U3002D–PIN 13 (DETERMINED BY MCU POWER CONTROL DATA MESSAGE), THE CONTROL FUNCTION IS OPERATING IN THE CONTROL RANGE AND Q3001 TURNS ON CAUSING U3001–PIN 36 TO GO HIGH SWITCHING THE CONTROL FUNCTION OUT OF THE WIDE BANDWIDTH MODE. AT THE SAME TIME, STATION TX OUTPUT POWER IS INCREASING AS IS TX VFWD SIGNAL.

TX VFWD IS APPLIED TO U3002B–PIN 5. THIS SIGNAL IS SUMMED WITH THE SIGNALS FROM U3001–PINS 12 & 7 (PIN 7 VOLTAGE LEVEL IS DETERMINED BY MCU POWER CONTROL DATA MESSAGE BECAUSE PIN 7 IS A BUFFERED VERSION OF THE SIGNAL AT U3001–PIN 6) AND APPLIED TO U3001–PIN 2. WHEN THE SIGNAL AT U3001–PIN 2 REACHES THE LEVEL OF THE SIGNAL AT U3001–PIN 44 (DETERMINED BY MCU POWER CONTROL DATA MESSAGE), VCNTL SIGNAL AT U3001–PIN 42 IS AT THE LEVEL NECESSARY TO PROVIDE THE TX OUTPUT POWER LEVEL DICTATED BY THE MCU.

DURING TRANSMITTER OPERATION, THE MCU MONITORS SIGNALS FROM VARIOUS TRANSMITTER CIRCUITS. IN ADDITION, THE MCU GETS TX POWER CONTROL COMMANDS FROM THE SCM. BASED ON THESE INPUTS THE MCU CONTROLS THE TRANSMITTER POWER VIA U3000–PINS 13 & 9.

THE FOLLOWING IS A LIST OF I/O RELATIONSHIPS FOR POWER CONTROL SIGNALS:
-- VCNTL & TX POWER OUTPUT VARY DIRECTLY WITH VREF U3001–PIN 44
-- VCNTL & TX POWER OUTPUT VARY INVERSELY WITH PSET U3001–PIN 6

U3703A–PIN 1 LOW, DATA FLOWS FROM "A" INPUTS TO "Y" OUTPUTS. U3703A–PIN 1 HIGH, HIGH IMPEDANCE BETWEEN "A" INPUTS AND "Y" OUTPUTS.

-WHEN POWER IS INITIALLY APPLIED TO THE BOARD, C3703 BEGINS TO CHARGE PULLING U3704A–PIN1 LOW CAUSING U3704C–PIN8 TO BE LOW (RESET CONDITION). AFTER ABOUT 1.5 SECS., C3703 IS CHARGED ENOUGH CAUSING U3704A–PIN3 TO BE LOW AND U3704C–PIN8 IS HIGH.

-IF FILT +5V (AT U3707–PIN2) DROPS BELOW +4.6V, U3707–PIN1 GOES LOW CAUSING C3703 TO DISCHARGE AND U3704C–PIN8 TO GO LOW (RESET CONDITION). WHEN VOLTAGE AT U3707–PIN2 BECOMES SLIGHTLY >+4.6V, U3707–PIN1 GOES HIGH. SHORTLY AFTER THIS (UP TO 1.5 SECS), U3704C–PIN8 GOES HIGH.

-A LOW RESET SIGNAL FROM SCM AT P101–55 CAUSES U3704C–PIN8 TO BE LOW (RESET). A HIGH AT P101–55 CAUSES U3704C–PIN8 TO BE LOW.

SPI BUS IS USED FOR COMMUNICATIONS BETWEEN THE FOLLOWING PERIPHERALS:
- PLL SYNTHESIZER, U3402
- 7–BIT DAC, U3000

SPI BUS IS ALSO USED FOR COMMUNICATIONS BETWEEN MCU (SLAVE) & HOST uP (MASTER) ON THE STATION CONTROL MODULE (SCM).

MCU COMMUNICATIONS WITH PERIPHERALS:
- MCU OUTPUTS A LOW CS TO PLL U3402–PIN 5 (VIA DATA LATCH U3710 AND Q3701). NEXT, MCU OUTPUTS FREQUENCY SELECTION DATA VIA MOSI SERIAL DATA LINE ALONG WITH DATA CLOCK SIGNAL ON SCK LINE.
- MCU OUTPUTS A LOW CS TO DAC U3000–PIN 25 (VIA DATA LATCH U3710 AND U3708B). NEXT, MCU OUTPUTS POWER CONTROL DATA VIA MOSI SERIAL DATA LINE ALONG WITH DATA CLOCK SIGNAL ON SCK LINE.

MCU COMMUNICATIONS WITH HOST uP ON SCM:
- HOST uP ASSERTS A LOW ON SPI REQ P101–65. MCU SERVICES THIS REQUEST AND SETS SPI GRANT P101–59 LOW CAUSING DATA LATCH U3702 TO DRIVE SS (SLAVE SELECT) LINE LOW AND ENABLES DATA BUFFER U3703A. A LOW SS LINE MAKES MCU THE SLAVE PROCESSOR. THE HOST uP AND MCU HAVE SIMULTANEOUS BI–DIRECTIONAL SERIAL DATA COMMUNICATIONS. HOST uP SENDS DATA ON MOSI HOST LINE (P101–53) TO MCU. MCU SENDS DATA ON MISO HOST LINE (P102–52) TO HOST uP. HOST uP PROVIDES DATA CLOCK ON SCK HOST LINE (P102–54) TO MCU. INTERPROCESSOR COMMUNICATIONS CONSISTS OF DATA FOR CONTROL, STATUS, ALARMS, ETC.

MCU OUTPUTS ADDRESS 1401 (HEX). A0 = "1". MCU PULLS CS LATCH EN LOW, PLACES DATA ON THE DATA BUS, THEN RELEASES CS LATCH EN HIGH, STROBING DATA INTO U3710 (STROBE INPUT TO U3702 IS HELD HIGH BY A0). U3710 DRIVES OUTPUT CIRCUITS ACCORDING TO THE LATCHED DATA.

U3712 AND ASSOCIATED CIRCUITRY PROVIDES VERSION ID OF EXCITER BOARD TO U3700 UPON POWER–UP. RESISTORS ARE FACTORY PLACED OR OMITTED TO GENERATE 8–BIT BINARY CODE TO IDENTIFY BOARD VERSION. SHOWN SET FOR VERSION 00000011.

FLEPS–48800–B
(SHEET 1 OF 2)

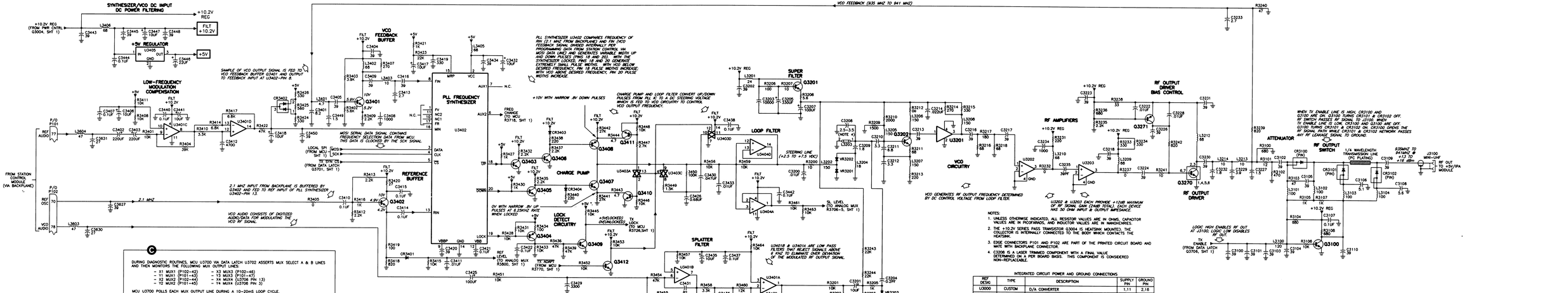
parts list

TLFF6930G Exciter Board (900 MHz) PL–13089–B

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C3000 thru 3003	2113740A39	27 pF, ±5%, 50 V
C3004	2380099M36	CAP 100 UF 25V
C3005,3006	2113740A43	39 pF, ±5%, 50 V
C3007	2380099M36	CAP 100 UF 25V
C3008	2113740A39	27 pF, ±5%, 50 V
C3009	2311049A08	0.47 uF, ±10%, 35 V
C3010	2113741B69	0.1 uF, ±5%, 50 V
C3012	2311049A08	1 uF, ±10% 35 V
C3013	2113740A39	27 pF, ±5%, 50 V
C3014	2311049A08	1 uF, ±10% 35 V
C3015	2380099M36	CAP 100 UF 25V
C3016	2113741B69	0.1 uF, ±5%, 50 V
C3017	2380099M18	1 uF, ±20%, 50 V
C3100 thru 3105	2113740A43	39 pF, ±5%, 50 V
C3106	2113740A33	5.1 pF, ±0.25 pF, 50 V
C3107	2113741B69	0.1 uF, ±5%, 50 V
C3108	2113740A21	5.6 pF, ±0.25 pF, 50 V
C3109,3110	2113740A43	39 pF, ±5%, 50 V
C3200	0811017A08	0.01 uF, ±5%, 50 V
C3201	2380099M06	10 uF, ±20%, 16V
C3202	2113740F41	39 pF, ±5%, 50V
C3203	2113741A45	0.01 uF, ±5%, 50 V
C3204	2113742C02	CAP CER CHIP 0.2PF +–.05PF 100V
C3205	2380099M27	330 uF, ±20%, 16 V
C3207	2380099M36	CAP 100 UF 25V
C3208	2113906B03	CAP CER CHIP CL1 LSR 2.5/3.5PF
C3209	2113742C18	CAP CER CHIP 1.8PF +–.10PF 100V
C3210	2113742K30	CAP CER CHIP 3.3PF ± 0.1PF
C3211	2113742K82	CAP CER CHIP 8.2PF ± 0.1PF
C3212	2113742K30	CAP CER CHIP 3.3PF ± 0.1PF
C3213	2113740F41	39 pF, ±5%, 50V
C3214	2113741A53	0.022 uF, ±5%, 50 V
C3216,3217	2113740F41	39 pF, ±5%, 50V
C3218	2113740A43	39 pF, ±5%, 50 V
C3222	2113741A45	0.01 uF, ±5%, 50 V
C3223,3224	2113740A43	39 pF, ±5%, 50 V
C3226	2113740A43	39 pF, ±5%, 50 V
C3227	2113740A02	1.5 pF, ±0.1 pF, 50V
C3228	2113741A45	0.01 uF, ±5%, 50 V
C3229	2113740A17	3.9 pF, ±0.25 pF, 50 V
C3230,3231	2113740A43	39 pF, ±5%, 50 V
C3232	2113740G09	1.8 pF, ±0.1 pF, 50 V
C3233	2113740G13	2.7 pF, ±0.1 pF, 50 V
C3234,3235	2113740A43	39 pF, ±5%, 50 V
C3401	2113740A27	8.2 pF, ±0.25 pF, 50 V
C3402,3403	2380099M36	220 uF, ±20%, 16 V
C3404,3405	2113740A43	39 pF, ±5%, 50 V
C3406	2380099M24	10 uF, ±20%, 50 V
C3407	2113741B69	0.1 uF, ±5%, 50 V
C3408	2113740A79	1000 pF, ±5%, 50 V
C3409	2113740A43	39 pF, ±5%, 50 V
C3410	2113741B69	0.1 uF, ±5%, 50 V
C3411	2113741A45	0.01 uF, ±5%, 50 V
C3412	2113741A37	4700 pF, ±5%, 50 V
C3413	2113740G13	2.7 pF, ±0.1 pF, 50 V
C3414,3415	2113741B69	0.1 uF, ±5%, 50 V
C3416	2113740A43	39 pF, ±5%, 50 V
C3417	2380099M24	10 uF, ±20%, 50 V
C3418	2311049A45	10 uF, ±10%, 35 V
C3419	2113740A67	330 pF, ±5%, 50 V
C3420	2113740A43	39 pF, ±5%, 50 V
C3421,3422	2113741B69	0.1 uF, ±5%, 50 V
C3425	2380099M36	CAP 100 UF 25V
C3426	0811051A18	0.68 uF, ±5%, 63 V
C3429	2113741A33	3300 pF, ±5%, 50 V
C3430	0811051A11	0.047 uF, ±5%, 63 V
C3431	2113740A53	82 pF, ±5%, 50 V
C3432	2380099M24	10 uF, ±20%, 50 V
C3433	0811017A08	0.01 uF, ±5%, 50 V
C3434	2113740A43	39 pF, ±5%, 50 V
C3435	2380099M24	10 uF, ±20%, 50 V
C3436	2113741A33	3300 pF, ±5%, 50 V
C3437,3438	2113741B69	0.1 uF, ±5%, 50 V
C3439	2113740A71	470 pF, ±5%, 50 V
C3440	2113741B69	0.1 uF, ±5%, 50 V
C3441	2380099M24	10 uF, ±20%, 50 V
C3442	2113741B69	0.1 uF, ±5%, 50 V
C3443	2113740A43	39 pF, ±5%, 50 V
C3444	2113741B69	0.1 uF, ±5%, 50 V
C3445	2113740A43	39 pF, ±5%, 50 V
C3446	2311049A27	22 uF, ±10%, 20 V
C3447	2380099M24	10 uF, ±20%, 50 V
C3448	2113740A43	39 pF, ±5%, 50 V
C3449	2113740G07	1.5 pF, ±0.1 pF, 50V
C3450	2113740A43	39 pF, ±5%, 50 V
C3600	2113740A33	15 pF, ±5%, 50 V
C3601	2113740A33	15 pF, ±5%, 50 V
C3602	2113740A33	15 pF, ±5%, 50 V
C3603	2113740A55	100 pF, ±5%, 50 V
C3604	2113741A53	0.022 uF, ±5%, 50 V
C3605	2113740A33	15 pF, ±5%, 50 V
C3606	2113740A55	100 pF, ±5%, 50 V
C3607	2113741A53	0.022 uF, ±5%, 50 V
C3608	2113740A33	15 pF, ±5%, 50 V
C3609	2113740A55	100 pF, ±5%, 50 V
C3610	2113741A53	0.022 uF, ±5%, 50 V
C3611	2113740A33	15 pF, ±5%, 50 V
C3612	2113740A55	100 pF, ±5%, 50 V
C3613,3614	2113741A53	0.022 uF, ±5%, 50 V
C3615	2113740A33	15 pF, ±5%, 50 V
C3616	2113740A55	100 pF, ±5%, 50 V
C3617	2113741A53	0.022 uF, ±5%, 50 V
C3619	2113740A39	27 pF, ±5%, 50 V
C3620	2113740A55	100 pF, ±5%, 50 V
C3621,3622	2113741A53	0.022 uF, ±5%, 50 V
C3623	2113740A39	27 pF, ±5%, 50 V
C3624	2113740A55	100 pF, ±5%, 50 V
C3625,3626	2113741A53	0.022 uF, ±5%, 50 V
C3627	2113740A43	39 pF, ±5%, 50 V
C3628,3629	2113741B69	0.1 uF, ±5%, 50 V
C3630,3631	2113740A39	27 pF, ±5%, 50 V
C3700,3701	2380099M07	47 uF, ±20%, 16 V
C3703	2380099M24	220 uF, ±20%, 16 V
C3705	2113740A39	27 pF, ±5%, 50 V
C3707	2113740A39	27 pF, ±5%, 50 V
C3709,3710	2113740A39	27 pF, ±5%, 50 V
C3712	2113740A39	27 pF, ±5%, 50 V
C3713	2380099M24	10 uF, ±20%, 50 V
C3714	2113741A45	0.01 uF, ±5%, 50 V
C3715	2113741B69	0.1 uF, ±5%, 50 V
C3716	2113740A39	27 pF, ±5%, 50 V
C3717	2113741B69	0.1 uF, ±5%, 50 V
C3719	2380099M18	1 uF, ±20%, 50 V
C3720	2113740A55	100 pF, ±5%, 50 V
C3721	2113741B69	0.1 uF, ±5%, 50 V
C3722 thru 3724	2113740A39	27 pF, ±5%, 50 V
C3725	2113741B69	0.1 uF, ±5%, 50 V
C3726 thru 3729	2113740A39	27 pF, ±5%, 50 V
C3730	2113741B69	0.1 uF, ±5%, 50 V
C3731 thru 3733	2113740A39	27 pF, ±5%, 50 V
C3735	2113740A39	27 pF, ±5%, 50 V
C3736	2113740G11	2.2 pF, ±0.1 pF, 50 V
C3737	2113740A39	27 pF, ±5%, 50 V
C3738	2113741B69	0.1 uF, ±5%, 50 V
C3739	2113740A55	100 pF, ±5%, 50 V
C3740	2113740G11	2.2 pF, ±0.1 pF, 50 V
C3741,3742	2113740A39	27 pF, ±5%, 50 V
C3744,3745	2113740A39	27 pF, ±5%, 50 V
C3746	2113740A77	0.82 pF, ±5%, 50 V
C3747	2380099M18	1 uF, ±20%, 50 V
C3748	2113740A39	27 pF, ±5%, 50 V
C3750	2113741B69	0.1 uF, ±5%, 50 V
C3751	2113740A55	100 pF, ±5%, 50 V
C3752	2113740A39	27 pF, ±5%, 50 V
C3753	2113741B69	0.1 uF, ±5%, 50 V
C3754	2113740A43	39 pF, ±5%, 50 V
C3756	2113740A77	0.82 pF, ±5%, 50 V
C3757,3758	2113740A39	27 pF, ±5%, 50 V
C3759	2113741B69	0.1 uF, ±5%, 50 V
C3761,3762	2113740A39	27 pF, ±5%, 50 V
C3763,3764	2113741B69	0.1 uF, ±5%, 50 V
C3765,3766	2113740A39	27 pF, ±5%, 50 V
C3790	2113741B69	0.1 uF, ±5%, 50 V
		diode (see note):
CR3000	4813833C10	0.1A, 70 V
CR3002	4813833C05	dual 70 V
CR3003	4813825A05	Hot Carrier
CR3100 thru 3102	4813825A06	Pin,35 V
CR3401	4813825A05	Hot Carrier
CR3402	4813833C05	dual 70 V
CR3403,3404	4813833C10	0.1A, 70 V
CR3701,3702	4813833C05	dual 70 V
CR3703	4813833B01	Schottky type
		light emitting diode (see note):
DS3700	4882196T05	SUBMINEATURE LED YEL SM
DS3701,3702	4882196T06	SUBMINEATURE LED GRN SM
DS3703	4882198T04	SUBMINEATURE LED RED SM
		mechanical parts:
E3004	2685059U01	Heasink, DPAK
E3101	2882653X01	SHLD RCVR 1852/4MM
E3201,3202	2882653X01	SHLD RCVR 1852/4MM
SH3202	2683380X01	SHIELD, VCO, 800
		connector:
J3100	0984393T01	receptacle: UHF
		inductor:
L3000 thru 3002	2484657R01	ferrite bead
L3100	2462587R54	IND CHIP LO–PRO 120 NH 5%
L3101 thru 3104	2411087A14	0.10 uH
L3201	2484657R01	ferrite bead
L3202	2462587R05	IND CHIP LO–PRO 150 NH 5%
L3203	9183223X03	RESONATOR COAX CERAMIC 8.15MM
L3204	2462587X44	IND CHIP LO–PRO 18.0 NH 5%
L3205 thru 3208	2462587R55	IND CHIP LO–PRO 180 NH 5%
L3209,3210	2462587R51	IND CHIP LO–PRO 68.0 NH 5%
L3212	2462587R51	IND CHIP LO–PRO 68.0 NH 5%
L3213,3214	2462587X41	IND CHIP LO–PRO 10.0 NH 5%
L3401	2462587R16	4.7 nH, ±5%
L3402	2462587R51	IND CHIP LO–PRO 68.0 NH 5%
L3403	2462587X41	IND CHIP LO–PRO 10.0 NH 5%
L3405,3406	2462587R51	IND CHIP LO–PRO 68.0 NH 5%
L3600,3601	2484657R01	ferrite bead
L3603,3604	2462587X49	IND CHIP LO–PRO 47.0 NH 5%
L3700,3701	2484657R01	ferrite bead
		transistor (see note):
Q3000 thru 3003	4813824A10	NPN
Q3004	4813822A09	PNP
Q3100	4813824A10	NPN
Q3201	4813824A10	NPN
Q3202	4885228U03	TSTR NPN 6V 30UA 12GHZ NE68519
Q3270	4813827A26	Transistor; NPN
Q3271	4813824A17	PNP
Q3401	4813827A03	NPN
Q3402,3403	4813824A10	NPN
Q3404	4813822A17	PNP
Q3405 thru 3407	4813824A10	NPN
Q3408	4813824A17	PNP
Q3409,3410	4813824A10	NPN
Q3411	4813824A17	PNP
Q3412	4813824A10	NPN
Q3701 thru 3706	4884955T01	NPN
Q3707	4813824A10	NPN
Q3708 thru 3710	4884955T01	NPN
Q3711	4813822A09	PNP
		resistor, fixed:
R3000	0611079A98	10K, ±5%, 1/10 W
R3001	0611079A66	470 ohms, ±5%, 1/10 W
R3002	0611079A98	10K, ±5%, 1/10 W
R3003	0611079B47	1 MEG, ±5%, 1/10 W
R3004 thru 3006	0611079A66	470 ohms, ±5%, 1/10 W
R3007	0611079A98	10K, ±5%, 1/10 W
R3008	0611079A74	1K, ±5%, 1/10 W
R3009	0611079A92	5600 ohms, ±5%, 1/10 W
R3010	0611079A98	10K, ±5%, 1/10 W
R3011	0611079B23	100K, ±5%, 1/10 W
R3012	0611079A98	10K, ±5%, 1/10 W
R3013 thru 3015	0611079B23	100K, ±5%, 1/10 W
R3016	0611079A74	1K, ±5%, 1/10 W
R3017	0611079A98	3900 ohms, ±5%, 1/10 W
R3018	0611079A74	1K, ±5%, 1/10 W
R3019	0611079A98	10K, ±5%, 1/10 W
R3020,3021	0611079A90	4700 ohms, ±5%, 1/10 W
R3022	0683962T01	1 ohm, ±5%, 1 W
R3023	0611079A50	100 ohms, ±5%, 1/10 W
R3024	0611077H31	274K, ±1%, 1/8 W
R3025	0611079B07	22K, ±5%, 1/10 W
R3026	0611077G34	27.4K, ±1%, 1/8 W
R3027	0611077G98	127K, ±1%, 1/8 W
R3028	0611079A74	1K, ±5%, 1/10 W
R3029	0611079B23	100K, ±5%, 1/10 W
R3030,3031	0611079A66	470 ohms, ±5%, 1/10 W
R3100	0611079A70	680 ohms, ±5%, 1/10 W
R3101	0611079A28	Resistor, fixed: chip 12.5 1/10 W
R3102	0611079A66	470 ohms, ±5%, 1/10 W
R3103	0611072A17	47 ohms, ±5%, 1/4W
R3104	0611072A45	680 ohms, ±5%,1/4 W
R3105	0611079A74	1K, ±5%, 1/10 W
R3106	0611079A98	10K, ±5%, 1/10 W
R3107	0611079A74	1K, ±5%, 1/10 W
R3108	0611072A45	680 ohms, ±5%,1/4 W
R3200	0611079A26	10 ohms, ±5%, 1/10 W
R3201	0662057A73	CHIP RES 10K OHMS 5%
R3202	0662057A43	CHIP RES 560 OHMS 5%
R3203	0662057A89	CHIP RES 47K OHMS 5%
R3205	0662057A49	CHIP RES 1000 OHMS 5%
R3206	0662057A25	CHIP RES 100 OHMS 5%
R3207	0662057A01	CHIP RES 10 OHMS 5%
R3208	0611079A01	5.6 ohm, ±5%, 1/10 W
R3209	0662057A53	CHIP RES 1500 OHMS 5%
R3210	0662057A56	CHIP RES 2000 OHMS 5%
R3211	0662057A21	CHIP RES 68 OHMS 5%
R3212	0662057B47	CHIP RES 0 OHMS + –.050 OHMS
R3213	0611077A58	220 ohms, ±5%, 1/8 W
R3214,3215	0611072A37	330 1/4 W
R3216	0662057A21	CHIP RES 68 OHMS 5%
R3217	0662057A31	CHIP RES 180 OHMS 5%
R3218	0662057A21	CHIP RES 68 OHMS 5%
R3231	0611072A33	220 ohms, ±5%, 1/4 W
R3232	0611079A01	O ohms, ±5%, 1/10 W
R3233,3234	0611072A37	330 1/4 W
R3235	0611079A82	2200 ohms, ±5%, 1/10 W
R3236	0611079A70	680 ohms, ±5%, 1/10 W
R3237	0611079A01	O ohms, ±5%, 1/10 W
R3238	0611072A13	33 ohms, ±5%, 1/4 W
R3239	0611079A72	820 ohms, ±5%, 1/10 W
R3240	0611079A42	47 ohms, ±5%, 1/10 W
R3241	0611079A26	10 ohms, ±5%, 1/10 W
R3242	0611079A72	820 ohms, ±5%, 1/10 W
R3243,3244	0662057A81	CHIP RES 22K OHMS 5%
R3401	0611079A98	10K, ±5%, 1/10 W
R3402	0611079A92	5600 ohms, ±5%, 1/10 W
R3403	0611079A98	3900 ohms, ±5%, 1/10 W
R3404	0611079B13	39K, ±5%, 1/10 W
R3405	0611079A01	O ohms, ±5%, 1/10 W
R3407	0611079A50	270 ohms, ±5%, 1/10 W
R3408	0611079A98	10K, ±5%, 1/10 W
R3409	0611079A82	2200 ohms, ±5%, 1/10 W
R3410	0611079A98	3300 ohms, ±5%, 1/10 W
R3411	0611079A98	10K, ±5%, 1/10 W
R3412,3413	0611079A82	2200 ohms, ±5%, 1/10 W
R3414	0611079A98	6800 ohms, ±5%, 1/10 W
R3415	0611079A98	10K, ±5%, 1/10 W
R3416	0611079A74	1K, ±5%, 1/10 W
R3417	0611079A98	10K, ±5%, 1/10 W
R3418	0611079A72	820 ohms, ±5%, 1/10 W
R3419	0611079A50	100 ohms, ±5%, 1/10 W
R3420	0611079B23	100K, ±5%, 1/10 W
R3421	0611079A74	1K, ±5%, 1/10 W
R3422	0611079A66	470 ohms, ±5%, 1/10 W
R3423	0611079B07	22K, ±5%, 1/10 W
R3424	0611079A82	330 ohms, ±5%, 1/10 W
R3425	0611079A98	560 5 1/10 W
R3426	0611079A82	330 ohms, ±5%, 1/10 W
R3427,3428	0611079A98	10K, ±5%, 1/10 W
R3430,3431	0611077H31	274K, ±1%, 1/8 W
R3432	0611079B07	22K, ±5%, 1/10 W
R3433	0611079A98	10K, ±5%, 1/10 W
R3434	0611079A50	100 ohms, ±5%, 1/10 W
R3435	0611079A82	2200 ohms, ±5%, 1/10 W
R3436	0611079B15	47K, ±5%, 1/10 W
R3437	0611079A66	470 ohms, ±5%, 1/10 W
R3438	0611079A58	220 ohms, ±5%, 1/10 W
R3439	0611079B15	47K, ±5%, 1/10 W
R3440	0611079A58	220 ohms, ±5%, 1/10 W
R3441	0611079B07	22K, ±5%, 1/10 W
R3442	0611079B09	27K, ±5%, 1/10 W
R3443,3444	0611079A18	4.7K, ±5%, 1/10 W
R3445,3446	0611079A98	10K, ±5%, 1/10 W
R3447	0611079A94	2700 ohms, ±5%, 1/10 W
R3448	0611079A98	10K, ±5%, 1/10 W
R3449	0611079A78	1500 ohms, ±5%, 1/10 W
R3450	0611079B23	100K, ±5%, 1/10 W
R3451 thru 3453	0611079A98	10K, ±5%, 1/10 W
R3454	0611079B15	47K, ±5%, 1/10 W
R3455 thru 3457	0611079A98	10K, ±5%, 1/10 W
R3458	0611079A86	3300 ohms, ±5%, 1/10 W
R3459	0611079A98	10K, ±5%, 1/10 W
R3460	0611079B01	5.6 ohm, ±5%, 1/10 W
R3461	0611079A98	10K, ±5%, 1/10 W
R3462	0611079A94	6800 ohms, ±5%, 1/10 W
R3463,3464	0611079A98	10K, ±5%, 1/10 W
R3600 thru 3602	0611079A66	470 ohms, ±5%, 1/10 W
R3603,3604	0611079A70	680 ohms, ±5%, 1/10 W
R3605	0611072A37	330 1/4 W
R3701	0611079A74	1K, ±5%, 1/10 W
R3703,3704	0611079A74	1K, ±5%, 1/10 W
R3707	0611079A74	1K, ±5%, 1/10 W
R3708	0611079A98	10K, ±5%, 1/10 W
R3710	0611079A98	10K, ±5%, 1/10 W
R3712,3713	0611079A98	10K, ±5%, 1/10 W
R3714	0611079A66	470 ohms, ±5%, 1/10 W
R3715,3716	0611079A98	10K, ±5%, 1/10 W
R3718	0611079A66	470 ohms, ±5%, 1/10 W
R3721 thru 3725	0611079A98	10K, ±5%, 1/10 W
R3726	0611079A66	470 ohms, ±5%, 1/10 W
R3727 thru 3730	0611079A98	10K, ±5%, 1/10 W
R3731	0611079B45	820K, ±5%, 1/10 W
R3732 thru 3738	0611079A98	10K, ±5%, 1/10 W
R3740	0611079A56	470 ohms, ±5%, 1/10 W
R3744	0611079A74	1K, ±5%, 1/10 W
R3745	0611079A98	10K, ±5%, 1/10 W
R3746 thru 3748	0611079A66	470 ohms, ±5%, 1/10 W
R3750	0611079A82	330 ohms, ±5%, 1/10 W
R3751	0611079A66	470 ohms, ±5%, 1/10 W
R3753	0611079A50	270 ohms, ±5%, 1/10 W
R3756	0611079A01	O ohms, ±5%, 1/10 W
R3758	0611079A82	330 ohms, ±5%, 1/10 W
R3759	0611079A98	3300 ohms, ±5%, 1/10 W
R3760	0611079A98	10K, ±5%, 1/10 W
R3761	0611079A01	O ohms, ±5%, 1/10 W
R3762	0611079A98	6800 ohms, ±5%, 1/10 W
R3764	0611079A26	10 ohms, ±5%, 1/10 W
R3765	0611079A66	470 ohms, ±5%, 1/10 W
R3766	0611079B07	22K, ±5%, 1/10 W
R3767,3768	0611079A98	10K, ±5%, 1/10 W
R3769	0611079A50	330 ohms, ±5%, 1/10 W
R3770,3771	0611079A66	470 ohms, ±5%, 1/10 W
R3772,3773	0611072A41	470 ohms, ±5%, 1/4 W
R3774	0611079A66	470 ohms, ±5%, 1/10 W
R3775	0611079B07	22K, ±5%, 1/10 W
R3776,3777	0611072A41	470 ohms, ±5%, 1/4 W
R3779	0611079A54	150 ohms, ±5%, 1/10 W
R3780	0611079A82	2200 ohms, ±5%, 1/10 W
R3781	0611079A84	2700 ohms, ±5%, 1/10 W
R3782	0611079A98	10K, ±5%, 1/10 W
R3783	0611079B23	100K, ±5%, 1/10 W
R3784	0611079A98	10K, ±5%, 1/10 W
R3785	0611079A74	1K, ±5%, 1/10 W
R3787	0611079A98	10K, ±5%, 1/10 W
R3788	0611079A01	O ohms, ±5%, 1/10 W
R3789	0611072A01	O ohms, ±5%, 1/4 W
R3791,3792	0611079A98	10K, ±5%, 1/10 W
R3793	0611079A88	3900 ohms, ±5%, 1/10 W
R3794	0611079A98	10K, ±5%, 1/10 W
R3795	0611079B23	100K, ±5%, 1/10 W
R3796	0611079A66	470 ohms, ±5%, 1/10 W
R3797	0611079A01	O ohms, ±5%, 1/10 W
R3798	0611079A74	1K, ±5%, 1/10 W
R3799	0611072A01	10 ohms, ±5%, 1/4 W
R3800	0611079A01	O ohms, ±5%, 1/10 W
R3802	0611079A66	470 ohms, ±5%, 1/10 W
R3804	0611079A66	470 ohms, ±5%, 1/10 W
R3806	0611079A66	470 ohms, ±5%, 1/10 W
R3809	0611079A66	470 ohms, ±5%, 1/10 W
R3811	0611079A56	470 ohms, ±5%, 1/10 W
R3813	0611079A56	470 ohms, ±5%, 1/10 W
R3815	0611079A56	470 ohms, ±5%, 1/10 W
R3817	0611079A56	470 ohms, ±5%, 1/10 W
R3818,3819	0611079A92	5600 ohms, ±5%, 1/10 W
R3820	0611079B07	22K, ±5%, 1/10 W
R3821,3822	0611079A98	10K, ±5%, 1/10 W
		integrated circuit (see note):
U3000	5180057S02	IC CMOS CUST DA CONV 13" REEL
U3001	5183977M70	+10S V Regulator/Power Control
U3002	5113819A04	Quad Operational Amplifier
U3201 thru 3203	4882347W01	silicon
U3401	5113819A25	High Performance, Single Supply
U3402	5184602T04	IC SYNTHZR SPEED SCRND
U3403	5113805A86	Quad Analog Multiplexer/Demultiplexer
U3404	5113819A08	Low Power
U3405	5113816A07	5–Volt Positive Regulator
U3700	5113802A27	IC 68HC11 W.SCI SPI A/D
U3701	(See Note 1)	IC PROMD EPROM
U3702	5113805A42	Dual D–type Flip–Flop
U3703	5113808A38	Octal 3–State Non–Inverter Line Driver
U3704	5113808A01	Quad 2–Input NAND Gate
U3706	5113805A84	Mux/Demux, Dual 4–Channel Analog
U3707	5113815A02	Under Voltage Sensing Circuit
U3708	5113808A05	Hex Inverter
U3709	5113819A04	Quad Operational Amplifier
U3710	5113808A42	Dual D–type Flip–Flop
U3711	5113808A14	Quad 2–Input OR Gate
U3712	5113805A43	8–Bit S/P–In S–Out Shift Register
		varactor diode (see note):
VR3201,3202	4862824C01	DIODE VARACTOR
VR3203	4862824C02	DIODE VARACTOR
		crystal (see note):
Y3700	4884450T01	8.000 MHZ
		not–referenced items:
	0982451V12	Socket, IC; 28–pin (used with U3701)
	1584753T01	Corral, UHF (used with SH3201)
	1584753T04	Housing, Corral; extra large (used with E3400)
	1584753T04	Housing, Corral; extra large (used with E3700)
	1584753T05	Housing, Corral; large (used with E3000)
	1585034U08	Cover, extra large (used with E3400)
	1585034U08	Cover, extra large (used with E3700)
	1585034U09	Cover, large (used with E3000)
	1585034U10	Cover, UHF (used with SH3201)
	5191012A01	64Kx8 Bit EPROM
	5482006W01	Label, PCB barcode
	5482008W02	ribbon, thermal transfer
	5483260X02	LABEL,600MIL DIP/DATA I/O
	6182512W04	LIGHTPIPES (4)
	8485061U08	BOARD, printed circuit

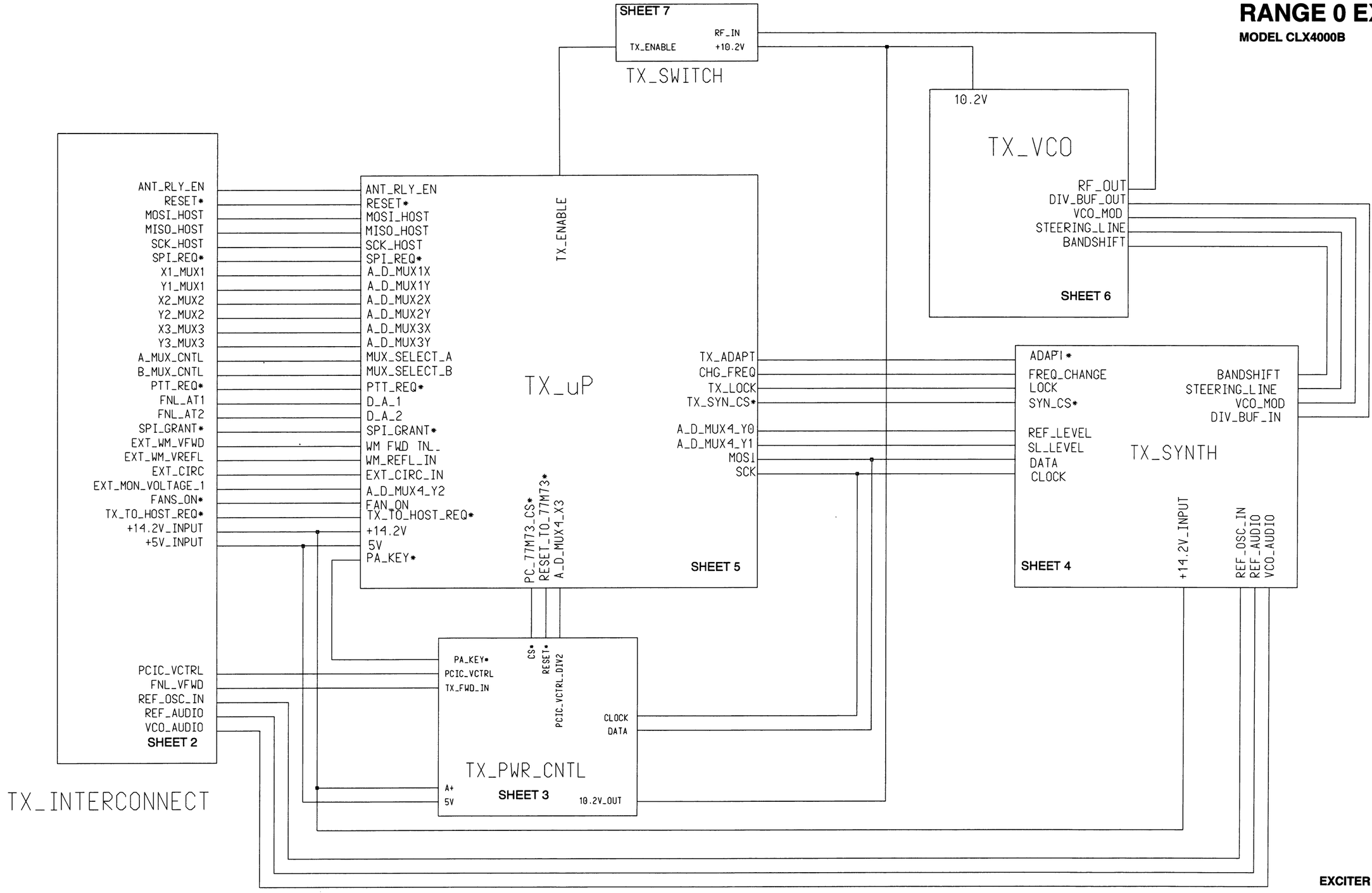
note: For optimum performance, diodes, transistors, crystals, and integrated circuits must be ordered by Motorola part numbers.

Note 1: U3701 contains exciter operating code. The part number for this IC is determined by the particular firmware version. Contact Motorola System Support Center (1–800–448–3240), for the current version and corresponding part number for U3701.


SYNTHESIZER/VCO DC INPUT DC POWER FILTERING
+10.2V REG (FROM PWR CNTRL 03004, SHT 1)
FILT +10.2V
+5V REGULATOR
U3405
+5V
SAMPLE OF VCO OUTPUT SIGNAL IS FED TO VCO FEEDBACK BUFFER Q3401 AND OUTPUT TO FEEDBACK INPUT AT U3402-PIN 8.
VCO FEEDBACK BUFFER
Q3401
LOW-FREQUENCY MODULATION COMPENSATION
MOSI SERIAL DATA SIGNAL CONTAINS FREQUENCY SELECTION DATA FROM MCU. THIS DATA IS CLOCKED BY THE SCM SIGNAL.
LOCAL SPI (FROM MCU SHT 1)
TX ENA (FROM DATA LATCH U3701, SHT 1)
PLL FREQUENCY SYNTHESIZER
U3402
PLL SYNTHESIZER U3402 COMPARES FREQUENCY OF PIN (2.1 MHZ FROM BACKPLANE) AND PIN (VCO FEEDBACK SIGNAL DIVIDED INTERNALLY PER PROGRAMMING DATA FROM STATION CONTROL VIA MOSI DATA LINE) AND GENERATES VARIABLE WIDTH UP AND DOWN PULSES (PINS 18 AND 20). WITH THE SYNTHESIZER LOCKED, PINS 18 AND 20 GENERATE EXTREMELY SMALL PULSE WIDTHS. WITH VCO BELOW DESIRED FREQUENCY, PIN 18 PULSE WIDTHS INCREASE; WITH VCO ABOVE DESIRED FREQUENCY, PIN 20 PULSE WIDTHS INCREASE.
+10V WITH NARROW 0V DOWN PULSES
CHARGE PUMP AND LOOP FILTER CONVERT UP/DOWN PULSES FROM PLL IC TO A DC STEERING VOLTAGE WHICH IS FED TO VCO CIRCUITRY TO CONTROL VCO OUTPUT FREQUENCY.
REFERENCE BUFFER
2.1 MHZ INPUT FROM BACKPLANE IS BUFFERED BY Q3402 AND FED TO REF INPUT OF PLL SYNTHESIZER, U3402-PIN 12.
VCO AUDIO CONSISTS OF DIGITIZED AUDIO/DATA FOR MODULATING THE VCO RF SIGNAL.
CHARGE PUMP
Q3407
Q3410
LOCK DETECT CIRCUITRY
Q3409
Q3412
0V WITH NARROW 3V LIT PULSES AT 6.25KHZ RATE WHEN LOCKED
+5V(LOCKED) OV(UNLOCKED)
LOCK (TO MCU SHT2B,SHT 1)
LOOP FILTER
STEERING LINE (+2.5 TO +7.5 VDC)
VCO CIRCUITRY
VCO GENERATES RF OUTPUT FREQUENCY DETERMINED BY DC CONTROL VOLTAGE FROM LOOP FILTER.
SUPER FILTER
Q3201
Q3202
Q3203
SPLATTER FILTER
U3401B & U3401A ARE LOW PASS FILTERS THAT REJECT SIGNALS ABOVE & KHZ TO ELIMINATE OVER DEVIATION OF THE MODULATED RF OUTPUT SIGNAL.
RF AMPLIFIERS
U3202 & U3203 EACH PROVIDE +12dB MAXIMUM GAIN OF RF SIGNAL GAIN (THRU STATE) EACH DEVICE HAS 50 OHM INPUT & OUTPUT IMPEDANCE.
RF OUTPUT DRIVER BIAS CONTROL
RF OUTPUT DRIVER
Q3270
RF OUTPUT SWITCH
ATTENUATOR
WHEN TX ENABLE LINE IS HIGH, Q3100 AND Q3100 ARE ON. Q3100 TURNS Q3101 OFF. RF SWITCH PASSES RF SIGNAL TO J3100. WHEN TX ENABLE LINE IS LOW, Q3100 AND Q3100 ARE OFF. Q3100 TURNS Q3101 & CR3102 ON. Q3100 OPENS THE RF SIGNAL PATH WHILE CR3101 & CR3102 NETWORK PASSES ANY RF LEAKAGE SIGNAL TO GROUND.
LOGIC HIGH ENABLES RF OUT AT J3100. LOGIC LOW DISABLES RF OUT.
TX ENABLE (FROM DATA LATCH Q3706, SHT 1)
FROM STATION CONTROL MODULE (VIA BACKPLANE)
P/O P101
P/O P102
REF AUDIO
REF OSC
VCO AUDIO
2.1 MHZ
TO MCU (FROM MCU R3770, SHT 1)
TO ANALOG MUX (TO ANALOG MUX R3600, SHT 1)
SL LEVEL (TO ANALOG MUX R3706-5, SHT 1)
VCO FEEDBACK (935 MHZ TO 941 MHZ)
J3100 MINI-UHF RF OUT 10 W/PA MODULE
R3240
C3233
2.7
47
C3223
39
+10.2V REG
R3238
33
R3236
680
R3235
5.1K
C3222
.01UF
C3228
.01UF
C3226
39
R3234
330
R3233
330
R3242
820
C3224
39
R3241
10
C3231
39
R3212
68
R3213
220
R3214
270
R3215
330
R3208
150
R3216
68
R3217
39
R3218
39
C3216
39
C3217
39
C3218
39
C3212
3.3
R3211
68
R3207
100
R3206
100
C3207
1000F
R3205
330F
R3204
1.8
L3209
68
C3209
3.3
C3208
2.5-3.5 PF (NOTE 4)
C3210
1.8
L3206
150
L3205
2000
L3208
150
C3213
39
C3214
2225
C3215
330
C3211
6.8
R3209
1500
R3210
2000
C3203
39
C3202
39
L3201
24
C3201
39
R3203
10000
R3205
330F
R3204
1.8
L3209
68
C3209
3.3
C3208
2.5-3.5 PF (NOTE 4)
C3210
1.8
L3206
150
L3205
2000
L3208
150
C3213
39
C3214
2225
C3215
330
C3211
6.8
R3209
1500
R3210
2000
C3203
39
C3202
39
L3201
24
C3201
39
R3203
10000
R3205
330F
R3207
100
R3206
100
C3207
1000F
R3208
5.6
R3212
68
R3213
220
R3217
39
R3218
39
C3216
39
C3217
39
C3212
3.3
C3211
6.8
R3211
68
R3216
68
C3218
39
R3233
330
R3234
330
R3242
820
C3224
39
R3241
10
C3231
39
R3238
33
R3236
680
R3235
5.1K
C3222
.01UF
C3228
.01UF
C3226
39
C3223
39
+10.2V REG
R3239
820
R3100
680
C3102
.01UF
R3101
10
R3102
470
R3103
47
C3105
39
L3101
100
L3102
100
L3103
100
L3104
100
R3105
47
R3107
1K
C3107
.01UF
R3108
10K
C3108
5.6
R3106
1K
C3106
5.1
C3109
39
R3109
1K
C3110
39
R3110
1K
C3111
39
R3111
1K
C3112
39
R3112
1K
C3113
39
R3113
1K
C3114
39
R3114
1K
C3115
39
R3115
1K
C3116
39
R3116
1K
C3117
39
R3117
1K
C3118
39
R3118
1K

RANGE 0 EXCITER

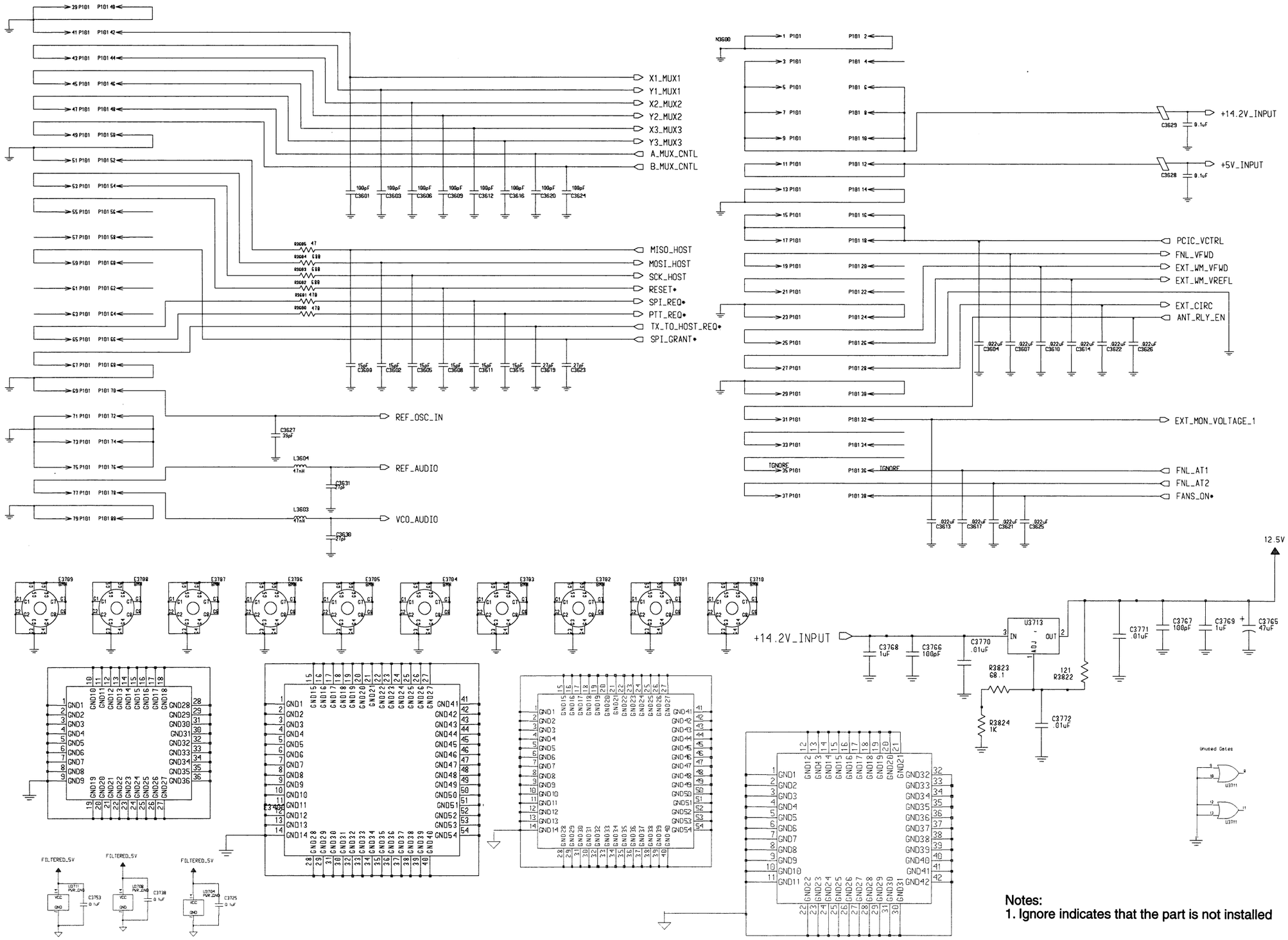
MODEL CLX4000B



EXCITER BLOCK DIAGRAM

RANGE 0 EXCITER

MODEL CLX4000B

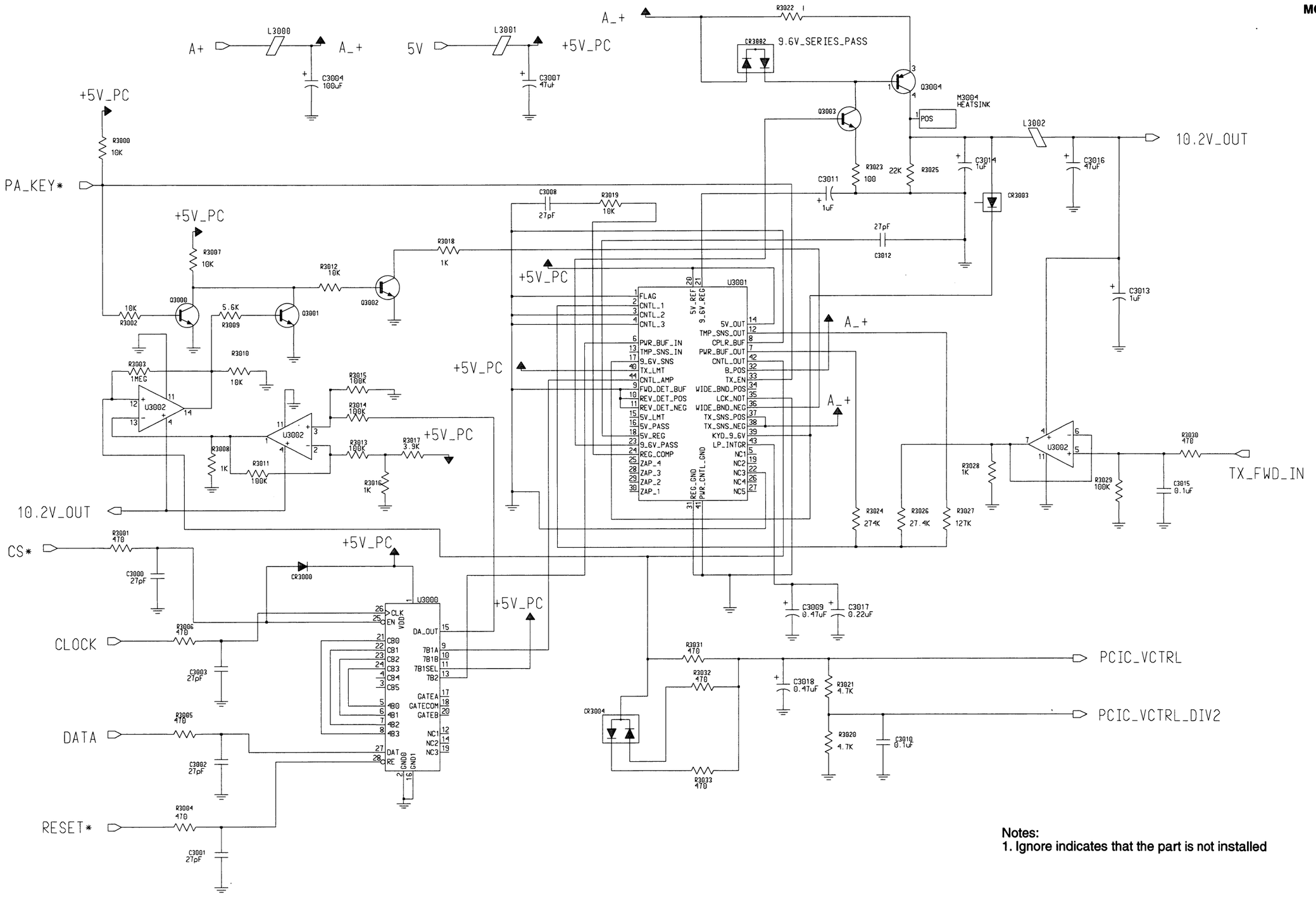


FRONT PANEL INTERFACE

Notes:
1. Ignore indicates that the part is not installed

RANGE 0 EXCITER

MODEL CLX4000B

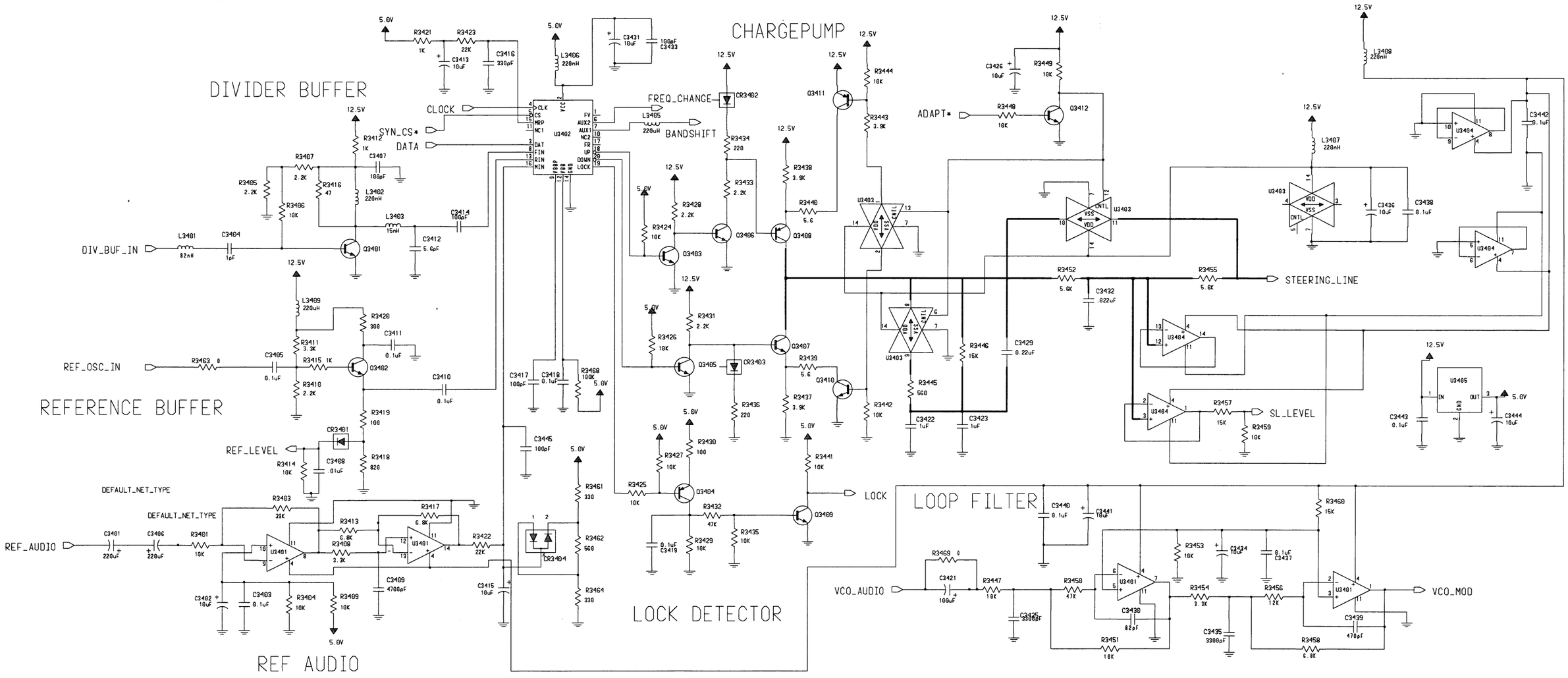


Notes:
1. Ignore indicates that the part is not installed

POWER CONTROL

RANGE 0 EXCITER

MODEL CLX4000B



Notes:
1. Ignore indicates that the part is not installed
2. Bold runners are surrounded by a guardband generated by U3401-14

Tx Synthesizer

RANGE 0 EXCITER

MODEL CLX4000B

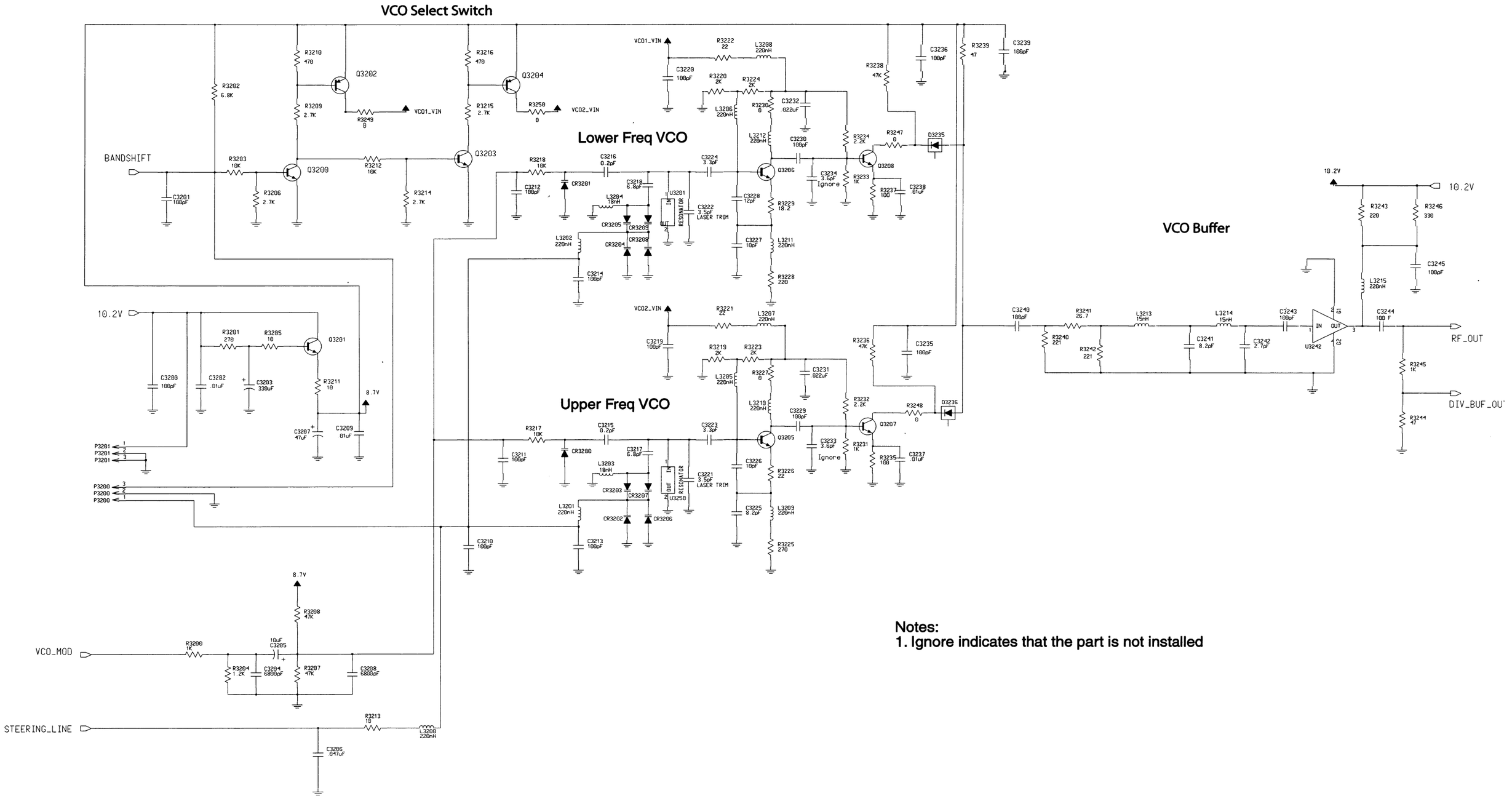
VERSION ID JUMPERS
UPPER RESISTOR IN FOR "1",
LOWER RESISTOR IN FOR "0".
SHOWN JUMPERED BINARY "00000001" = 1

Notes:
1. IGNORE indicates that the part is not installed

TRANSMIT MICROPROCESSOR

RANGE 0 EXCITER

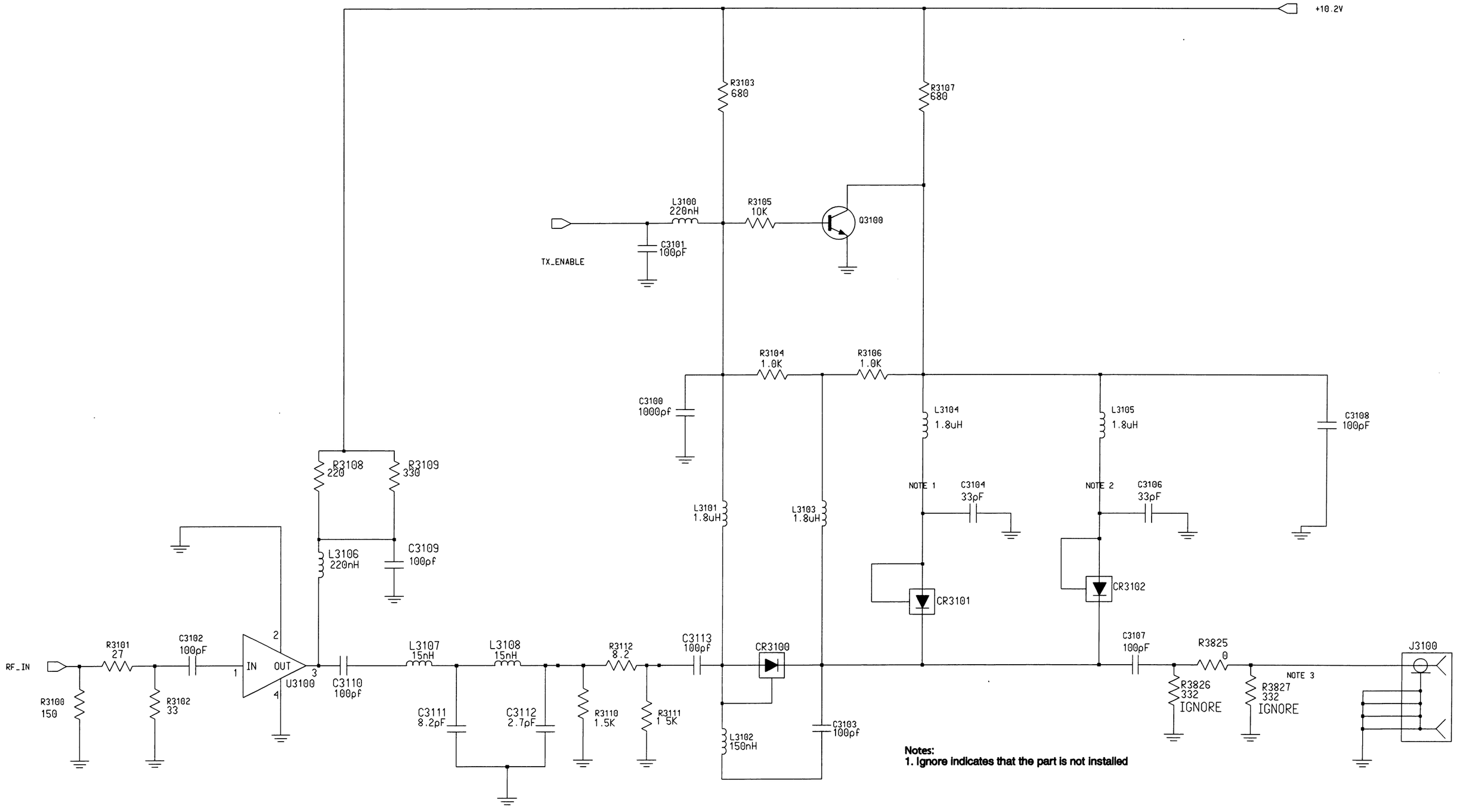
MODEL CLX4000B



Notes:
1. Ignore indicates that the part is not installed

RANGE 0 EXCITER

MODEL CLX4000B

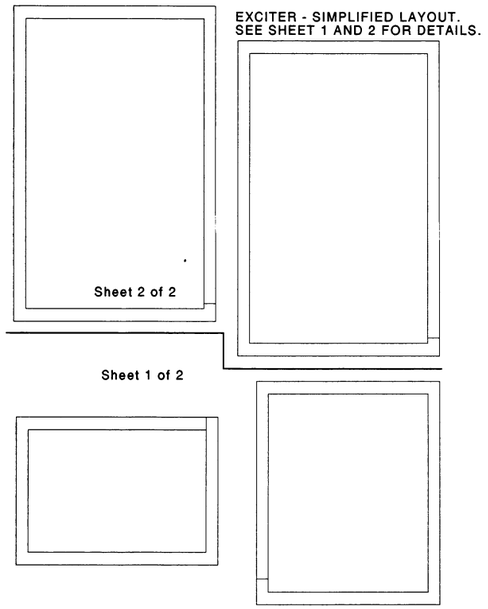


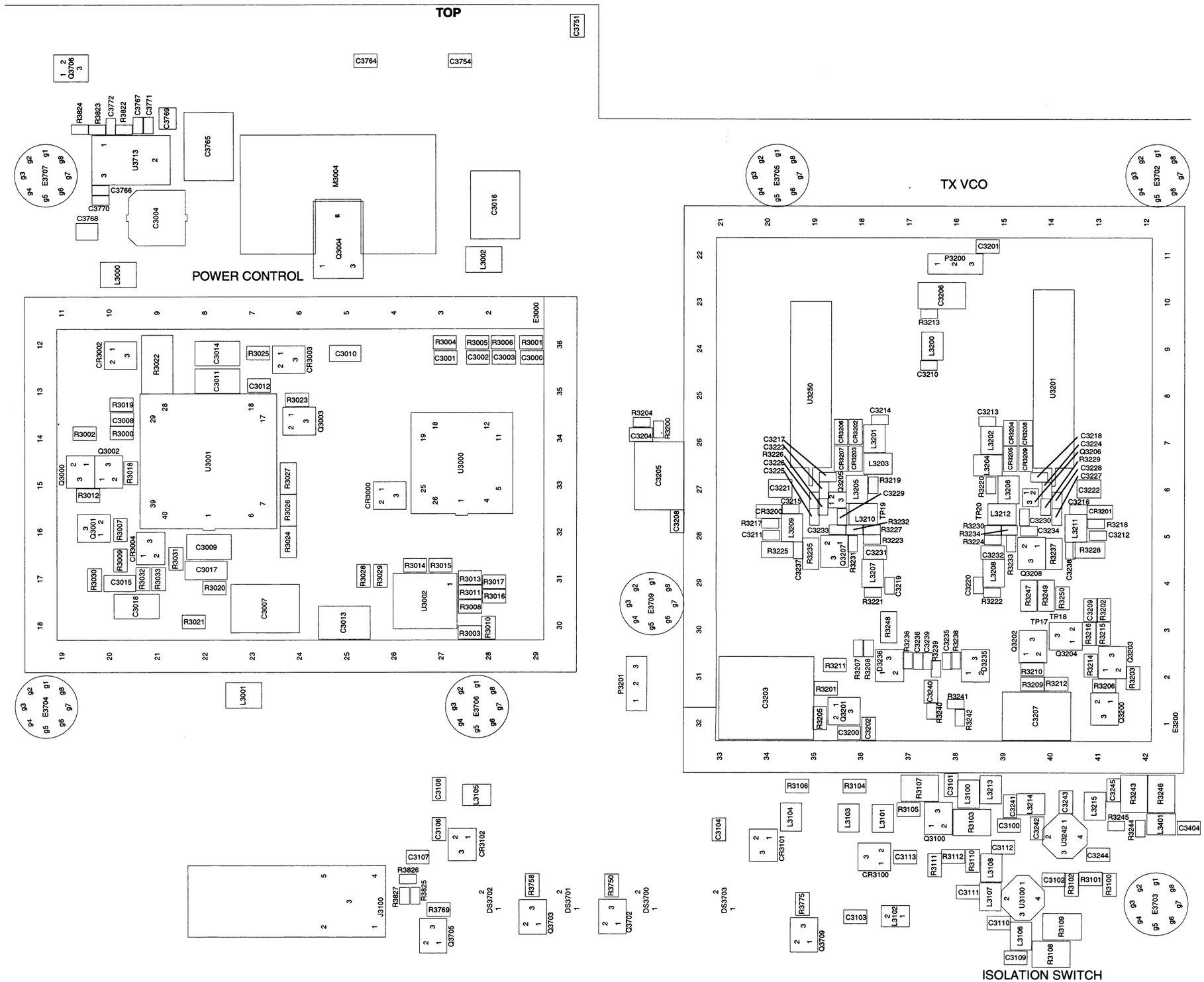
Notes:
1. Ignore indicates that the part is not installed

RANGE 0 RF ISOLATION SWITCH

RANGE 0 EXCITER

MODEL CLX4000B

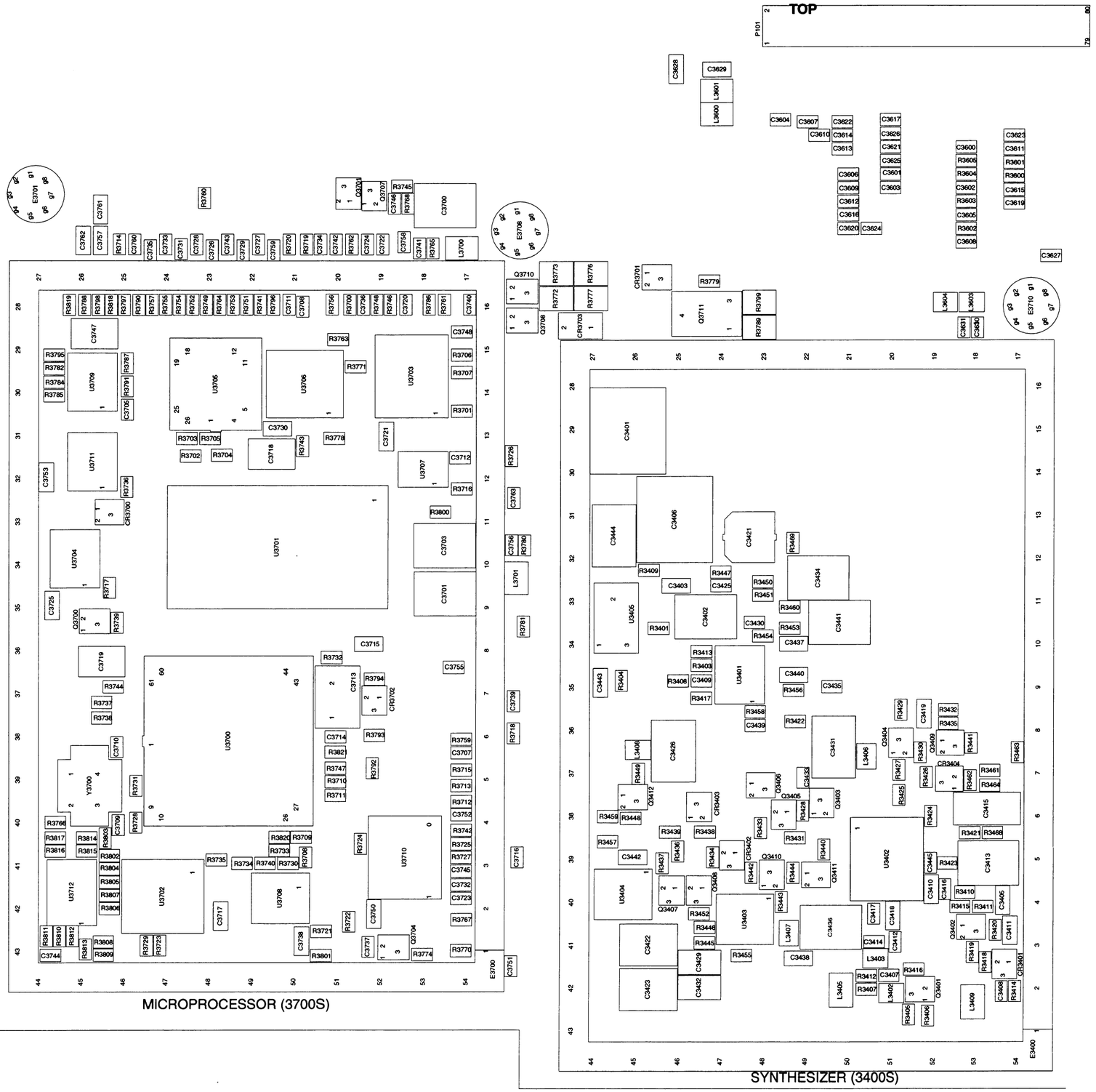


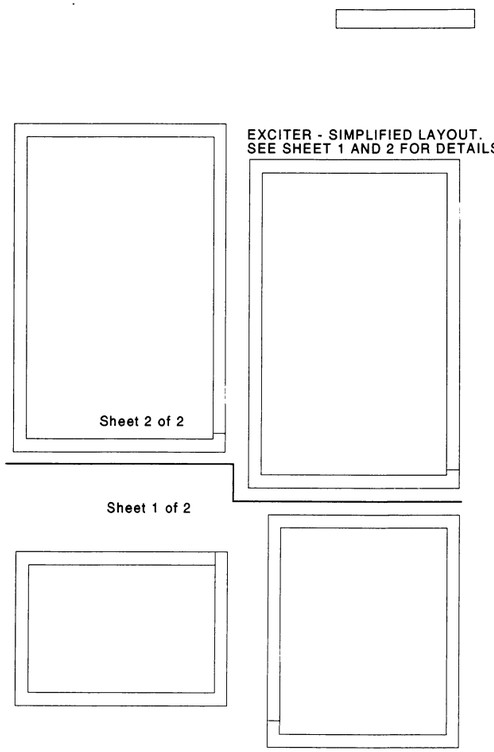


COMPONENT LOCATION DIAGRAM SHEET 1 OF 2

RANGE 0 EXCITER

MODEL CLX4000B





COMPONENT LOCATION DIAGRAM — SHEET 2 OF 2

Parts list
CLX4000B Range 0 Exciter

Reference	Part Number	Description
		capacitor, fixed:
C3000 – 3003	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3004	2380090M36	CAP 100 UF 25V
C3007	2380090M07	CAP ALU 47 20 16.0V SURF MT
C3008	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3009	2311049A06	CAP TANT CHIP .47 10 35
C3010	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3011	2311049A08	CAP TANT CHIP 1 10 35 A/P
C3012	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3013	2380090M18	CAP ALU 1.0 20 50V SURF MT
C3014	2311049A08	CAP TANT CHIP 1 10 35 A/P
C3015	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3016	2380090M07	CAP ALU 47 20 16.0V SURF MT
C3100 – 3103	2113740A79	CAP CHIP REEL CL1 +/-30 1000
C3104	2113740A41	CAP CHIP REEL CL1 +/-30 33
C3106	2113740A41	CAP CHIP REEL CL1 +/-30 33
C3107 – 3110	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3111	2113740A27	CAP CHIP REEL CL1 +/-30 8.2
C3112	2113740G13	CAP CERAMIC CHIP 2.7 PF +-.1PF
C3113	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3201	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3202	2113741A45	CAP CHIP CL2 X7R REEL 10000
C3203	2380090M27	CAP ALU 330 20 16V
C3204	2113741A41	CAP CHIP CL2 X7R REEL 6800
C3205	2380090M24	CAP ALU 10 20 50V SURF MT
C3206	0882422W40	CAP FILM 5M 0.047UF 63V 5%
C3207	2380090M07	CAP ALU 47 20 16.0V SURF MT
C3208	2113741A41	CAP CHIP CL2 X7R REEL 6800
C3209	2113741A45	CAP CHIP CL2 X7R REEL 10000
C3210	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3211 – 3214	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3215, 3216	2113742C02	CAP CER CHP 0.2PF +-.05PF 100V
C3217, 3218	2113742K44	CAP CER CHIP 6.8PF +/- 0.1PF
C3219, 3220	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3221, 3222	2113906B07	CAP CER CHIP LSR 3.2/3.8 PF
C3223, 3224	2113742K30	CAP CER CHIP 3.3PF +/- 0.1PF
C3225	2113742L04	CAP CER CHIP 8.2PF +/- 0.25PF
C3226, 3227	2113742L07	CAP CER CHIP 10.0PF +/- 0.1PF
C3228	2113742L11	CAP CER CHIP 12.0PF +/- 2%
C3229, 3230	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3231, 3232	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3235, 3236	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3237, 3238	2113741F49	CAP CHIP CL2 X7R REEL 10000
C3239	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3240	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3241	2113740A27	CAP CHIP REEL CL1 +/-30 8.2
C3242 – 3245	2113740G13	CAP CERAMIC CHIP 2.7 PF +-.1PF
C3401	2380090M28	CAP ALU 220 20 16V
C3402	2380090M24	CAP ALU 10 20 50V SURF MT
C3403	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3404	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C3405	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3406	2380090M28	CAP ALU 220 20 16V
C3407	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3408	2113741A45	CAP CHIP CL2 X7R REEL 10000
C3409	2113741A37	CAP CHIP CL2 X7R REEL 4700
C3410, 3411	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3412	2113740A21	CAP CHIP REEL CL1 +/-30 5.6
C3413	2380090M24	CAP ALU 10 20 50V SURF MT
C3414	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3415	2311049A19	CAP TANT CHIP 10 10 25 A/P
C3416	2113740A67	CAP CHIP REEL CL1 +/-30 330
C3417	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3418, 3419	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3421	2380090M36	CAP 100 UF 25V
C3422, 3423	0882422W45	CAP FILM 5M 1.0UF 63V 5%
C3425	2113741A33	CAP CHIP CL2 X7R REEL 3300
C3426	2380090M24	CAP ALU 10 20 50V SURF MT
C3429	0882422W42	CAP FILM 5M 0.220UF 63V 5%
C3430	2113740A53	CAP CHIP REEL CL1 +/-30 82
C3431	2380090M24	CAP ALU 10 20 50V SURF MT
C3432	0882422W39	CAP FILM 5M 0.022UF 63V 5%
C3433	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3434	2380090M24	CAP ALU 10 20 50V SURF MT
C3435	2113741A33	CAP CHIP CL2 X7R REEL 3300
C3436	2380090M24	CAP ALU 10 20 50V SURF MT
C3437, 3438	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3439	2113740A71	CAP CHIP REEL CL1 +/-30 470
C3440	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3441	2380090M24	CAP ALU 10 20 50V SURF MT
C3442, 3443	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3444	2380090M24	CAP ALU 10 20 50V SURF MT
C3445	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3600	2113740A33	CAP CHIP REEL CL1 +/-30 15
C3601	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3602	2113740A33	CAP CHIP REEL CL1 +/-30 15
C3603	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3604	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3605	2113740A33	CAP CHIP REEL CL1 +/-30 15
C3606	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3607	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3608	2113740A33	CAP CHIP REEL CL1 +/-30 15
C3609	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3610	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3611	2113740A33	CAP CHIP REEL CL1 +/-30 15
C3612	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3613, 3614	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3615	2113740A33	CAP CHIP REEL CL1 +/-30 15
C3616	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3617	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3619	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3620	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3621, 3622	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3623	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3624	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3625, 3626	2113741A53	CAP CHIP CL2 X7R REEL 22000
C3627	2113740A43	CAP CHIP REEL CL1 +/-30 39
C3628, 3629	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3630, 3631	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3700, 3701	2380090M07	CAP ALU 47 20 16.0V SURF MT
C3703	2380090M24	CAP ALU 10 20 50V SURF MT
C3705	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3707	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3709, 3710	2113740A37	CAP CHIP REEL CL1 +/-30 22
C3712	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3713	2380090M24	CAP ALU 10 20 50V SURF MT
C3714	2113741A45	CAP CHIP CL2 X7R REEL 10000
C3715	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3716	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3717	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3719	2380090M18	CAP ALU 1.0 20 50V SURF MT
C3720	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3721	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3722	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3723, 3724	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3725	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3726 – 3729	2113740A39	CAP CHIP REEL CL1 +/-30 27

Reference	Part Number	Description
C3730	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3731 – 3733	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3735	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3736	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C3737	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3738	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3739	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3740	2113740G11	CAP CERAMIC CHIP 2.2 PF +-.1PF
C3741, 3742	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3744, 3745	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3746	2113740A77	CAP CHIP REEL CL1 +/-30 820
C3747	2380090M18	CAP ALU 1.0 20 50V SURF MT
C3748	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3750	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3751	2113740A55	CAP CHIP REEL CL1 +/-30 100
C3752	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3753	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3754	2113740A77	CAP CHIP REEL CL1 +/-30 820
C3755, 3756	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3757	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3758 – 3760	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3761, 3762	2113741B69	CAP CHIP CL2 X7R REEL 100000
C3763, 3764	2113740A39	CAP CHIP REEL CL1 +/-30 27
C3765	2380090M07	CAP ALU 47 20 16.0V SURF MT
C3766, 3767	2113740F51	CAP CHIP REEL CL1 +/-30 100
C3768, 3769	2113741Y32	CAP CER 1,000,000 10% 50V
C3770 – 3772	2113741F49	CAP CHIP CL2 X7R REEL 10000
		diode (see note 1):
CR3000	4813833C10	DIODE GEN PUR 70V MMBD6050
CR3002	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR3003	4813825A05	DIODE 30V HOT CARRIER MMBD301L
CR3100	4813825A06	PIN DIODE 35V
CR3101, 3102	4813825A06	PIN DIODE 35V
CR3200, 3201	4862824C02	DIODE VARACTOR
CR3202 – 3209	4862824C01	DIODE VARACTOR
CR3401	4813825A05	DIODE 30V HOT CARRIER MMBD301L
CR3402, 3403	4813833C10	DIODE GEN PUR 70V MMBD6050
CR3404	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR3701, 3702	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR3703	4813833B01	DIODE SCHOTTKY 1.0A 40V
D3235, 3236	4813825A06	PIN DIODE 35V
		light emitting diode (see note 1):
DS3700	4882198T10	SUB MINIATURE LED YEL; SM
DS3701	4882198T09	SUB MINIATURE LED GRN SM
DS3702	4882198T09	SUB MINIATURE LED GRN SM
DS3703	4882198T08	SUB MINIATURE LED RED SM
		connector:
J3100	0984393T01	CONN MINI UHF RT ANGLE PCB MT
		inductor:
L3000 – 3002	2484657R01	INDUCTOR BEAD CHIP
L3100	2462587X57	IND CHIP LO-PRO 220 NH 5%
L3101	2462587N71	CHIP IND 1800 NH 5%
L3102	2462587X55	IND CHIP LO-PRO 150 NH 5%
L3103 – 3105	2462587N71	CHIP IND 1800 NH 5%
L3106	2462587X57	IND CHIP LO-PRO 220 NH 5%
L3107, 3108	2462587X43	IND CHIP LO-PRO 15.0 NH 5%
L3200 – 3202	2462587X57	CHIP LO-PRO 220 NH 5%
L3203, 3204	2462587X44	IND CHIP LO-PRO 18.0 NH 5%
L3205 – 3212	2462587X57	IND CHIP LO-PRO 220 NH 5%
L3213, 3214	2462587X43	IND CHIP LO-PRO 15.0 NH 5%
L3215	2462587X57	IND CHIP LO-PRO 220 NH 5%
L3401	2462587X52	IND CHIP LO-PRO 82.0 NH 5%
L3402	2462587X57	IND CHIP LO-PRO 220 NH 5%
L3403	2462587X43	IND CHIP LO-PRO 15.0 NH 5%
L3405	2411087A54	COIL CHIP 220 UH 10 A/P
L3406 – 3408	2462587X57	IND CHIP LO-PRO 220 NH 5%
L3409	2411087A54	COIL CHIP 220 UH 10 A/P
L3600, 3601	2484657R01	INDUCTOR BEAD CHIP
L3603, 3604	2462587X49	IND CHIP LO-PRO 47.0 NH 5%
L3700, 3701	2484657R01	BEAD CHIP
		transistor (see note 1):
Q3000 – 3003	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3004	4813822A09	TSTR PNP 40V 3A MJD32T4
Q3100	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3200, 3201	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3202	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q3203	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3204	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q3205, 3206	4885228U03	TSTR NPN 6V 30UA 12GHZ
Q3207, 3208	4813827A03	TSTR NPN SML SIG
Q3401	4813827A03	TSTR NPN SML SIG
Q3402, 3403	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3404	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q3405 – 3407	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3408	4813824A17	PNP40V .2A GENP B=100-300
Q3409, 3410	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3411	4813824A17	XSTR PNP40V .2A GENP B=100-300
Q3412	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3701 – 3706	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q3707	4813824A10	TSTR NPN 40V .2A GEN PURP
Q3708 – 3710	4884955T01	TSTR BIASED 10KOHM NPN -8A-
Q3711	4813822A09	PNP 40V 3A MJD32T4
		resistor, fixed:
R3000	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3001	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3002	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3003	0611079E97	RES CHIP 1.0M 1/10W 1%
R3004 – 3006	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3007	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3008	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3009	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R3010	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3011	0611079E01	RES CHIP 100.0K 1/10W 1%
R3012	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3013 – 3015	0611079E01	RES CHIP 100.0K 1/10W 1%
R3016	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3017	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R3018	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3019	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3020, 3021	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R3022	0683962T01	RES CHIP 1.0 5-1
R3023	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R3024	0611077H31	RES CHIP 274K 1 1/8W
R3025	0611079B07	RES FIXED CHIP 22K 5 1/10 A/P
R3026	0611077G34	RES CHIP 27.4K 1 1/8W
R3027	0611077G98	RES CHIP 127K 1 1/8W
R3028	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3029	0611079E01	RES CHIP 100.0K 1/10W 1%
R3030, 3031	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3100	0611079D18	RES CHIP 150.0 1/10W 1%
R3101	0611079A36	RES FIXED CHIP 27 5 1/10W A/P
R3102	0611079A38	RES FIXED CHIP 33 5 1/10W A/P
R3103	0611072A45	RES CHIP 680 5 1/4
R3104	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3105	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P

Reference	Part Number	Description
R31060	611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3107	0611072A45	RES CHIP 680 5 1/4
R3108, 3019	0611072A33	RES CHIP 220 5 1/4
R3110, 3111	0611079A78	RES FIXED CHIP 1500 5 1/10 A/P
R3112	0611079A24	RES FIXED CHIP 8.2 5 1/10W A/P
R3200	0662057A49	CHIP RES 1000 OHMS 5%
R3201	0611079A60	RES FIXED CHIP 270 5 1/10W A/P
R3202	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R3203	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3204	0662057A51	CHIP RES 1200 OHMS 5%
R3205	0611079A26	RES FIXED CHIP 10 5 1/10W A/P
R3206	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R3207, 3208	0662057A89	CHIP RES 47K OHMS 5%
R3209	0611079A84	FIXED CHIP 2700 5 1/10 A/P
R3210	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3211	0611079A26	FIXED CHIP 10 5 1/10W A/P
R3212	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3213	0662057A01	CHIP RES 10 OHMS 5%
R3214, 3215	0611079A84	FIXED CHIP 2700 5 1/10 A/P
R3216	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3217, 3218	0662057P10	RES CHIP 10.0K 1% 30X60
R3219, 3220	0662057A56	CHIP RES 2000 OHMS 5%
R3221, 3222	0662057A09	CHIP RES 22 OHMS 5%
R3223, 3224	0662057A56	RES 2000 OHMS 5%
R3225	0611077A60	RES CHIP 270 5 1/8W
R3226	0662057A09	CHIP RES 22 OHMS 5%
R3227	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R3228	0611077A58	RES CHIP 220 5 1/8W
R3229	0662057Y07	RES CHIP 18.2 1% 0603
R3230	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
R3231	0662057A49	CHIP RES 1000 OHMS 5%
R3232	0662057A57	CHIP RES 2200 OHMS 5%
R3233	0662057A49	CHIP RES 1000 OHMS 5%
R3234	0662057A57	CHIP RES 2200 OHMS 5%
R3235	0611077D97	RES CHIP 100 1 1/8W
R3236	0662057A89	CHIP RES 47K OHMS 5%
R3237	0611077D97	RES CHIP 100 1 1/8W
R3238	0662057A89	CHIP RES 47K OHMS 5%
R3239	0662057A17	CHIP RES 47 OHMS 5%
R3240	0662057T49	CHIP RES 221 OHMS 1%
R3241	0662057Z46	RES CHIP 26.7 1% 0603
R3242	0662057T49	CHIP RES 221 OHMS 1%
R3243	0611072A33	RES CHIP 220 5 1/4
R3244	0662057A17	CHIP RES 47 OHMS 5%
R3245	0662057A49	CHIP RES 1000 OHMS 5%
R3246	0611072A37	RES CHIP 330 5 1/4
R3247 – 3249	0611077A01	RES CHIP JUMPER
R3250	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3401	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3403	0611079B13	RES FIXED CHIP 39K 5 1/10 A/P
R3404	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3405	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R3406	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3407	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R3408	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R3409	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3410	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R3411	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R3412	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3413	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R3414	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3415	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3416	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R3417	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R3418	0611079A72	RES FIXED CHIP 820 5 1/10W A/P
R3419	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R3420	0611079A61	RES FIXED CHIP 300 5 1/10W A/P
R3421	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3422, 3423	0611079B07	RES FIXED CHIP 22K 5 1/10 A/P

Reference	Part Number	Description
R3424 – 3427	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3428	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R3429	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3430	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R3431	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R3432	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R3433	0611079A82	RES FIXED CHIP 2200 5 1/10 A/P
R3434	0611079A58	RES FIXED CHIP 220 5 1/10W A/P
R3435	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3436	0611079A58	RES FIXED CHIP 220 5 1/10W A/P
R3437, 3438	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R3439, 3440	0611079A20	RES FIXED CHIP 5.6 5 1/10W A/P
R3441, 3442	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3443	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R3444	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3445	0611079A68	RES FIXED CHIP 560 5 1/10W A/P
R3446	0611079B03	RES FIXED CHIP 15K 5 1/10 A/P
R3447 – 3449	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3450	0611079B15	RES FIXED CHIP 47K 5 1/10 A/P
R3451	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3452	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R3453	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3454	0611079A86	RES FIXED CHIP 3300 5 1/10 A/P
R3455	0611079A92	RES FIXED CHIP 5600 5 1/10 A/P
R3456	0611079B01	RES FIXED CHIP 12K 5 1/10 A/P
R3457	0611079B03	RES FIXED CHIP 15K 5 1/10 A/P
R3458	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R3459	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3460	0611079B03	RES FIXED CHIP 15K 5 1/10 A/P
R3461	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R3462	0611079A68	RES FIXED CHIP 560 5 1/10W A/P
R3463	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3464	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R3600 – 3602	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3603, 3604	0611079A70	RES FIXED CHIP 680 5 1/10W A/P
R3605	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R3701	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3703, 3704	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3706	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3709, 3710	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3712, 3713	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3714	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3715	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3716	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3718	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3719, 3720	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3721 – 3725	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3726	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3727 – 3730	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3731	0611079B45	RES FIXED CHIP 820K 5 1/10 A/P
R3732 – 3738	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3740	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3742	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3744	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3745	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3746 – 3748	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3749	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3750	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R3751	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3752	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3753	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3754 – 3757	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3758	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R3759	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3760	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3761	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3762	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3763	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3764	0611079A26	RES FIXED CHIP 10 5 1/10W A/P

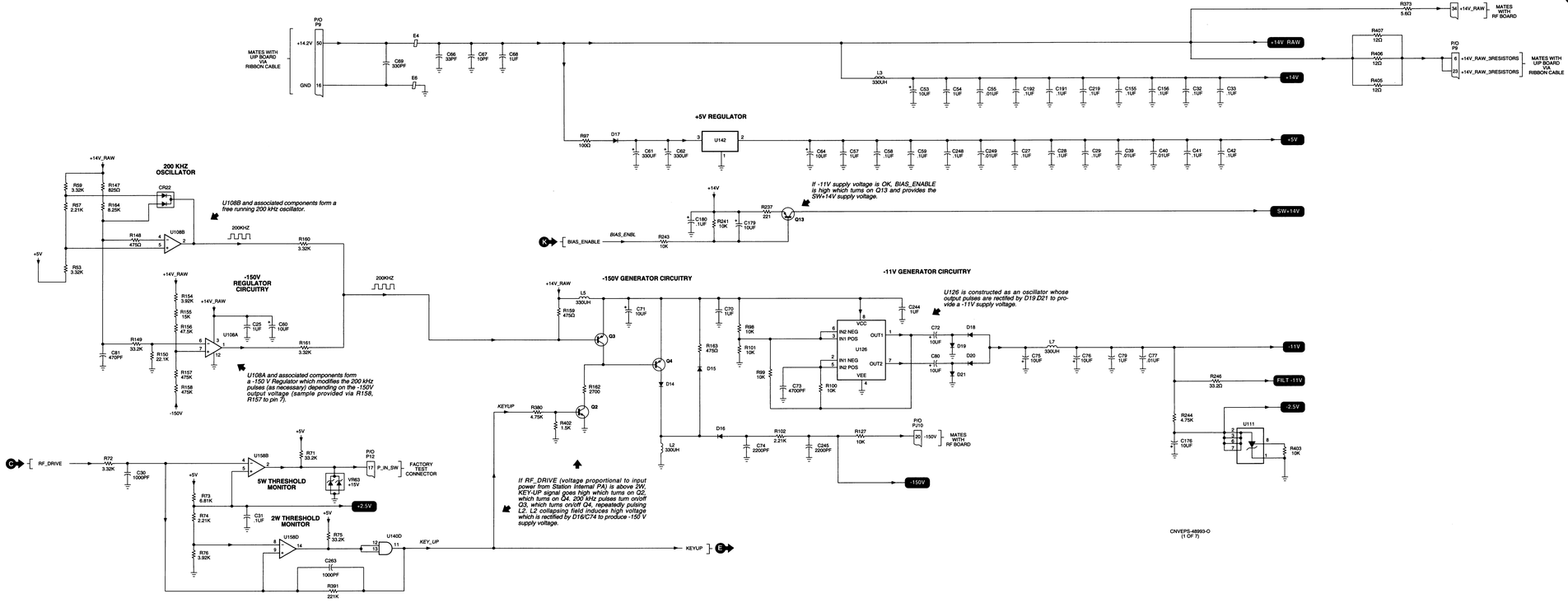
Reference	Part Number	Description
R3765	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3766	0611079B07	RES FIXED CHIP 22K 5 1/10 A/P
R3767	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3768	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3769	0611079A62	RES FIXED CHIP 330 5 1/10W A/P
R3770, 3771	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3772, 3773	0611072A41	RES CHIP 470 5 1/4
R3774	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3775	0611079A64	RES FIXED CHIP 390 5 1/10W A/P
R3776, 3777	0611072A41	RES CHIP 470 5 1/4
R3778	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3779	0611079D18	RES CHIP 150.0 1/10W 1%
R3780	0611079B03	RES FIXED CHIP 15K 5 1/10 A/P
R3781	0611079B13	RES FIXED CHIP 39K 5 1/10 A/P
R3782	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3784	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3785, 3786	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R3787	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3788– 3790	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3791, 3792	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3793	0611079A88	RES FIXED CHIP 3900 5 1/10 A/P
R3794	0611079A98	RES FIXED CHIP 10K 5 1/10 A/P
R3795	0611079B07	RES FIXED CHIP 22K 5 1/10 A/P
R3796	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3797	0611079A01	RES FIXED CHIP 0 5 1/10W A/P
R3798	06110790E01	RES CHIP 100.0K 1/10W 1%
R3799 – 3801	0611072A01	RES CHIP 10 5 1/4
R3803	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3805, 3806	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3809	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3811	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3813	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3815	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3817 – 3821	0611079A66	RES FIXED CHIP 470 5 1/10W A/P
R3822	0662057T47	CHIP RES 121 OHMS 1%
R3823	0662057T45	CHIP RES 68.1 OHMS 1%
R3824	0662057T68	RES CHIP 1.0K 1% 30*60
R3825	0662057B47	CHIP RES 0 OHMS +-.050 OHMS
		integrated circuits (see note 1):
U3000	5180057S02	IC CMOS CUST DA CONV 13" REEL
U3001	5180057S01	IC REG/PWR CONT 13" REEL
U3002	5113819A04	IC QD OP AMP GEN PURP MC3303D
U3100	4882347W01	MMIC SILICON BIPOLAR SM
U3201	9183223X16	COAXIAL RESONATOR SRF=445MHZ
U3242	4882347W01	MMIC SILICON BIPOLAR SM
U3250	9183223X17	COAXIAL RESONATOR SRF=485MHZ

Reference	Part Number	Description
U3401	5113819A05	IC HIGH PERFORMANCE SING SPLY
U3402	5184602T04	IC SYNTHZR SPEED SCRND
U3403	5113806A21	IC MC14066BDR2
U3404	5183077Y01	HI SPEED QUAD AMP SO14
U3405	5113816A07	5-volt Positive Regulator
U3700	5113802A27	IC 68HC11 W.SCI SPI A/D
U3701	(See note 2)	QUANTAR EXCITER EPROM
U3702	5113808A42	IC FLIPFLOP DUAL D
U3703	5113808A38	IC LINE DRVR OCT 3T NON INV
U3704	5113808A01	IC QUAD 2-INPUT NAND
U3706	5113805A84	IC MUX/DEMUX DUAL 4-CH ANALOG
U3707	5113815A02	IC UNDERVOLT SENSING CKT
U3708	5113808A05	IC INV HEX
U3709	5113819A04	IC QUAD OP AMP GEN PURPOSE
U3710	5113808A42	IC DUAL D FLIPFLIP
U3711	5113808A14	IC QUAD 2 INPUT OR GATE
U3712	5113805A43	IC RGTR 8 BIT SER/PRL 74HC165
U3713	5113816A19	IC ADJ LO DROPOUT POS REG .8A
Y3700	4884450T01	CRYSTAL SURFACE MT
		non-referenced items:
	0982451V12	SOCKET, 28-PIN (used with U3701)
	1584753T05	Housing, Corral, extra large (used with E3000)
	1585034U09	Cover, large (used with E3000)
	1584753T01	CORRAL, UHF (used with E3200)
	1585034U10	COVER, UHF (used with E3200)
	1584753T04	Housing, Corral, extra large (used with E3400)
	1585034U08	Cover, extra-large (used with E3400)
	1584753T04	Housing, Corral, extra large (used with E3700)
	1585034U08	Cover, extra-Large (used with E3700)
	2685059U01	HEATSINK DPAK DEVICE (used with Q3004
	8483454Y01	Board, printed circuit
	5482006W02	RIBBON THERMAL XFER
	5482006W03	BARCODE LABEL
	6182512W04	LIGHTPIPES (4)

NOTE 1: For optimum performance, diodes, transistors, lightpipes and integrated circuits must be ordered by Motorola part number.

NOTE 2: U3701 contains exciter operating code. The part number for this IC is determined by the particular firmware version. Contact Motorola System Support Center (1-800-448-3245) for the current version and corresponding part number for U3701.

CONTROL BOARD (800 MHz)
MODEL CLN7665A



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(Sheet 1 of 9)
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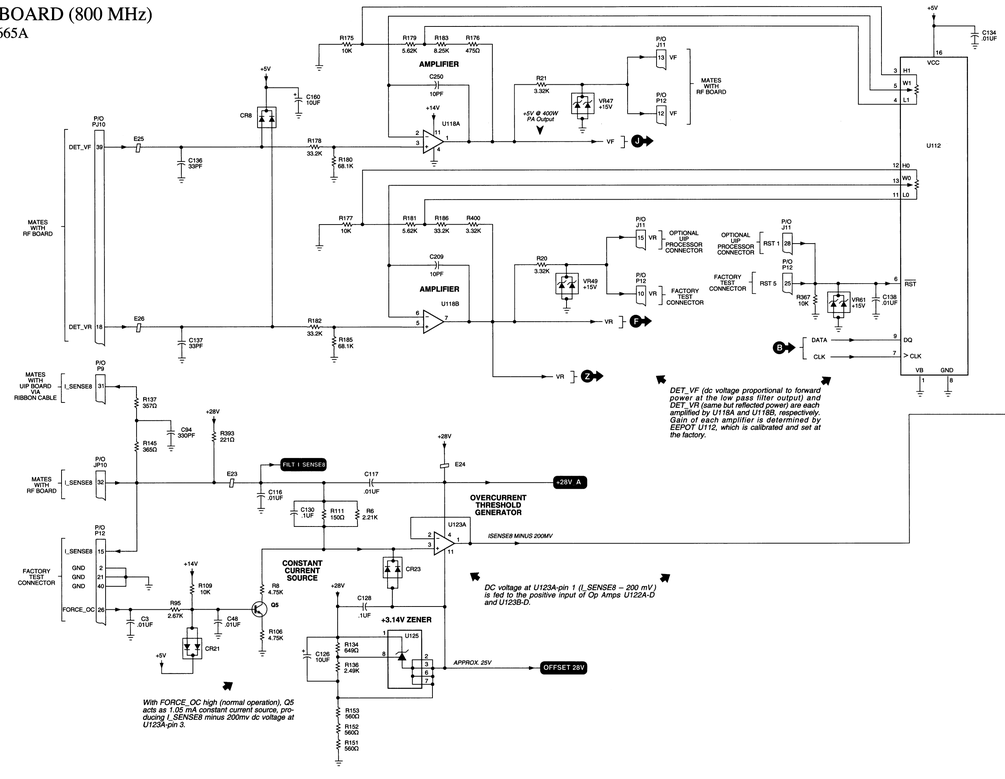
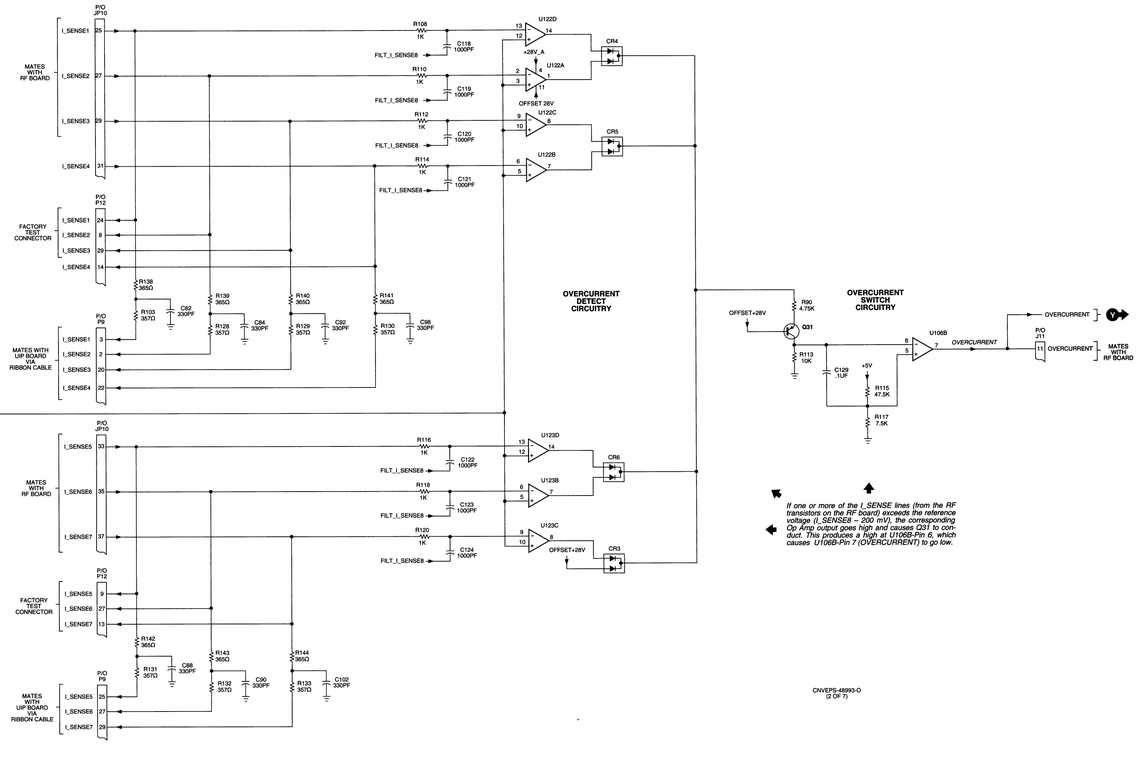
CONTROL BOARD (800 MHz)
MODEL CLN7665A





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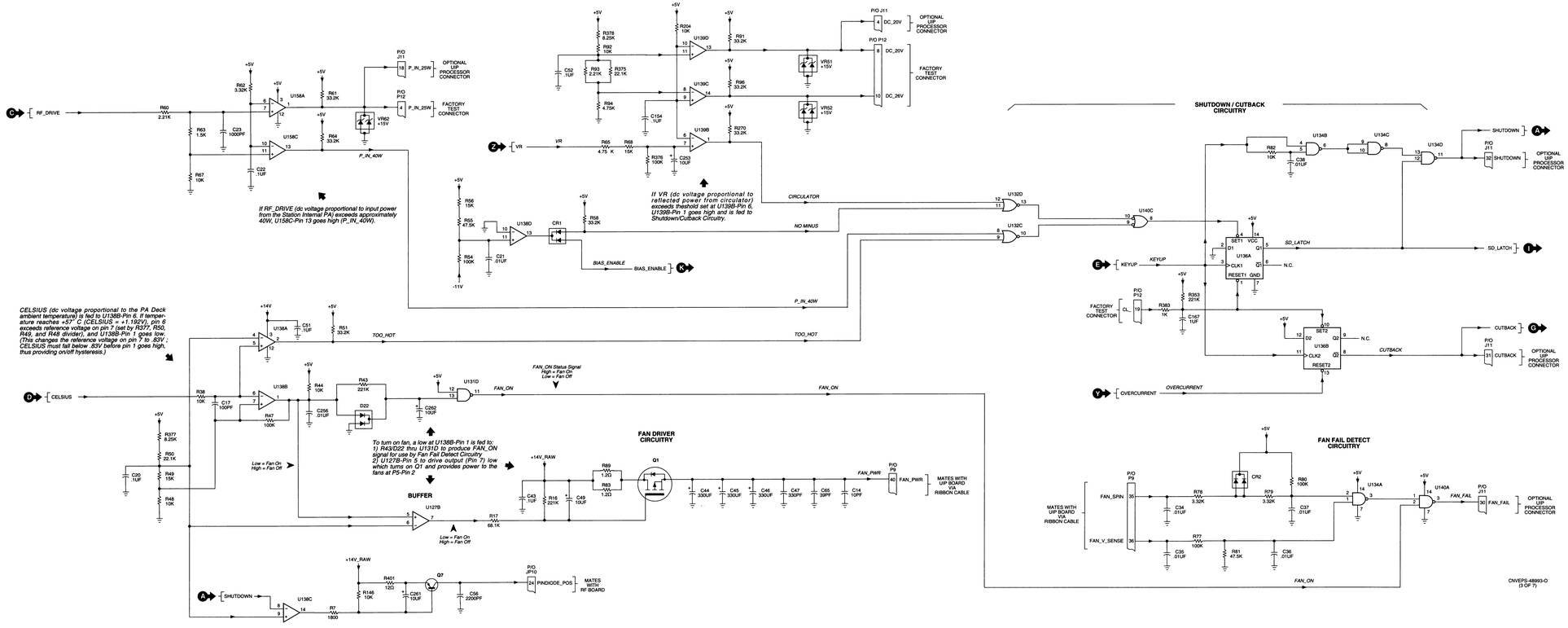
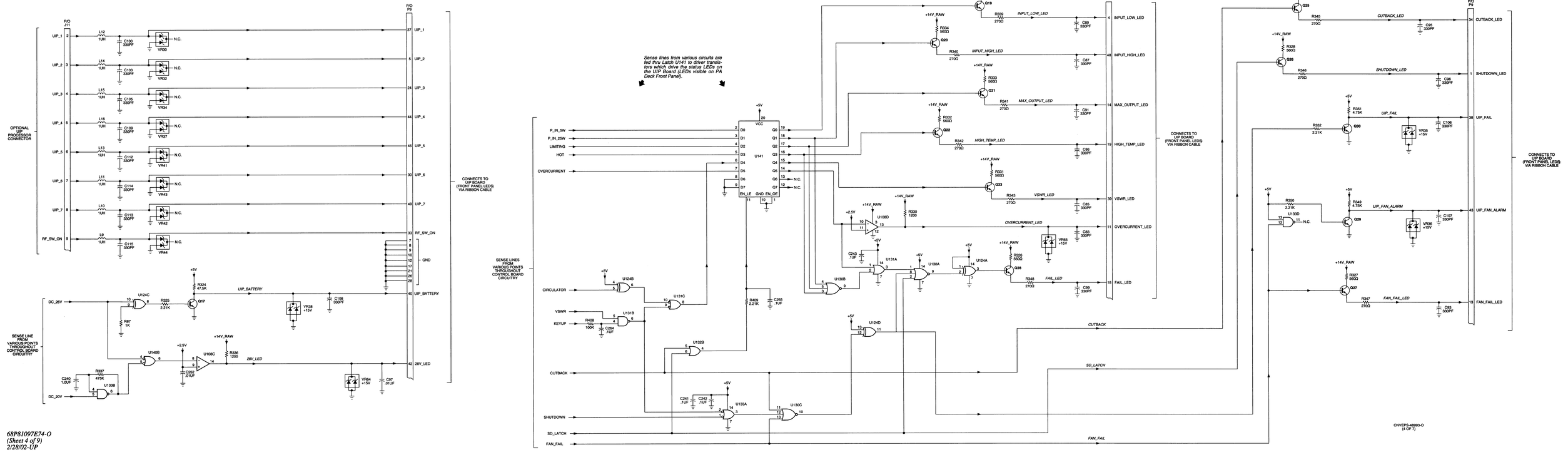
(2 OF 7)

68P81097E74-O
(Sheet 2 of 9)
2/28/02-UP

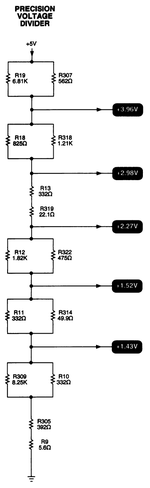

RF_DRIVE
P_IN_40W
If RF_DRIVE (dc voltage proportional to input power from the Station Internal PA) exceeds approximately 40W, U158C-Pin 13 goes high (P_IN_40W).
VR
If VR (dc voltage proportional to reflected power from circulator) exceeds theshold set at U139B-Pin 6, U139B-Pin 1 goes high and is fed to Shutdown/Cutback Circuitry.
CIRCULATOR
NO MINUS
BIAS_ENABLE
CELSIUS (dc voltage proportional to the PA Deck ambient temperature) is fed to U138B-Pin 6. If temperature reaches +57° C (CELSIUS = +1.192V), pin 6 exceeds reference voltage on pin 7 (set by R377, R50, R49, and R48 divider), and U138B-Pin 1 goes low. (This changes the reference voltage on pin 7 to .63V ; CELSIUS must fall below .63V before pin 1 goes high, thus providing on/off hysteresis.)
TOO_HOT
FAN_ON Status Signal High = Fan On Low = Fan Off
FAN_ON
To turn on fan, a low at U138B-Pin 1 is fed to:
1) R43/D22 thru U131D to produce FAN_ON signal for use by Fan Fail Detect Circuitry
2) U127B-Pin 5 to drive output (Pin 7) low which turns on Q1 and provides power to the fans at P5-Pin 2
Low = Fan On High = Fan Off
BUFFER
FAN DRIVER CIRCUITRY
FAN_PWR
MATES WITH UIP BOARD VIA RIBBON CABLE
SHUTDOWN / CUTBACK CIRCUITRY
SHUTDOWN
KEYUP
SD_LATCH
OVERCURRENT
CUTBACK
FACTORY TEST CONNECTOR
FAN FAIL DETECT CIRCUITRY
FAN_SPIN
FAN_V_SENSE
FAN_FAIL
OPTIONAL UIP PROCESSOR CONNECTOR
FACTORY TEST CONNECTOR
MATES WITH RF BOARD
CNVEPS-48993-O
(3 OF 7)

CONTROL BOARD (800 MHz)
MODEL CLN7665A



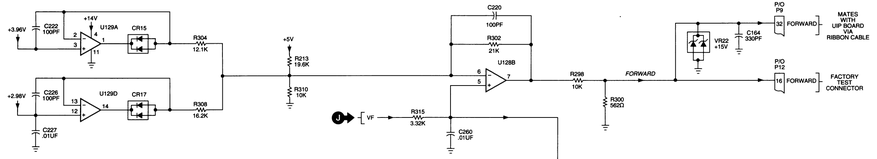
CONTROL BOARD (800 MHz)
MODEL CLN7665A

PRECISION VOLTAGE DIVIDER

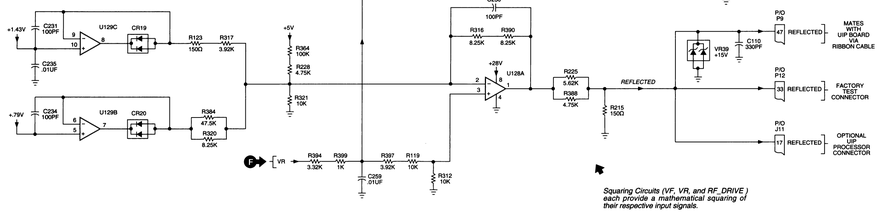


Precision Voltage Divider generates dc reference voltages for use by Squaring Circuits.

VF SQUARING CIRCUITRY

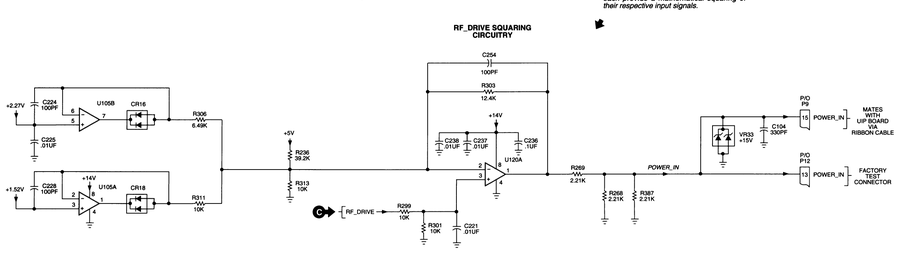


VR SQUARING CIRCUITRY

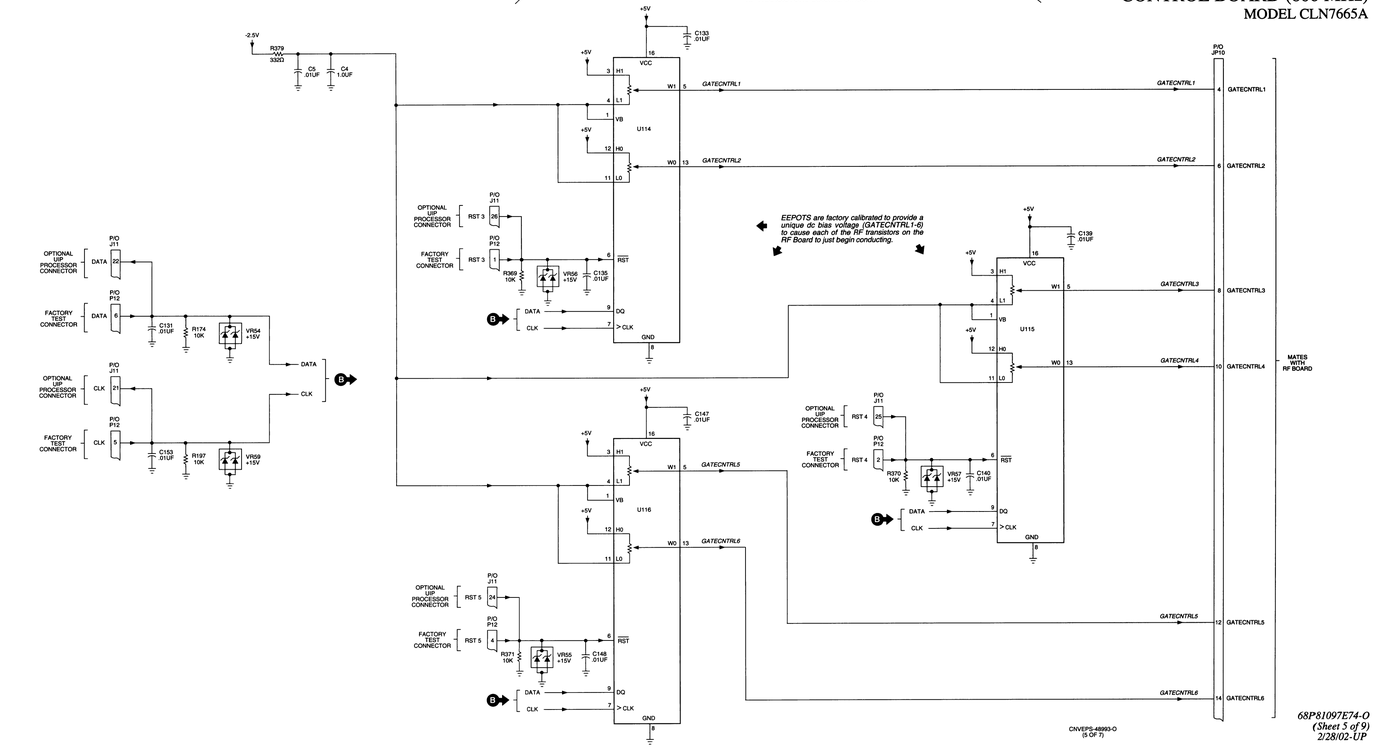


Squaring Circuits (VF, VR, and RF_DRIVE) each provide a mathematical squaring of their respective input signals.

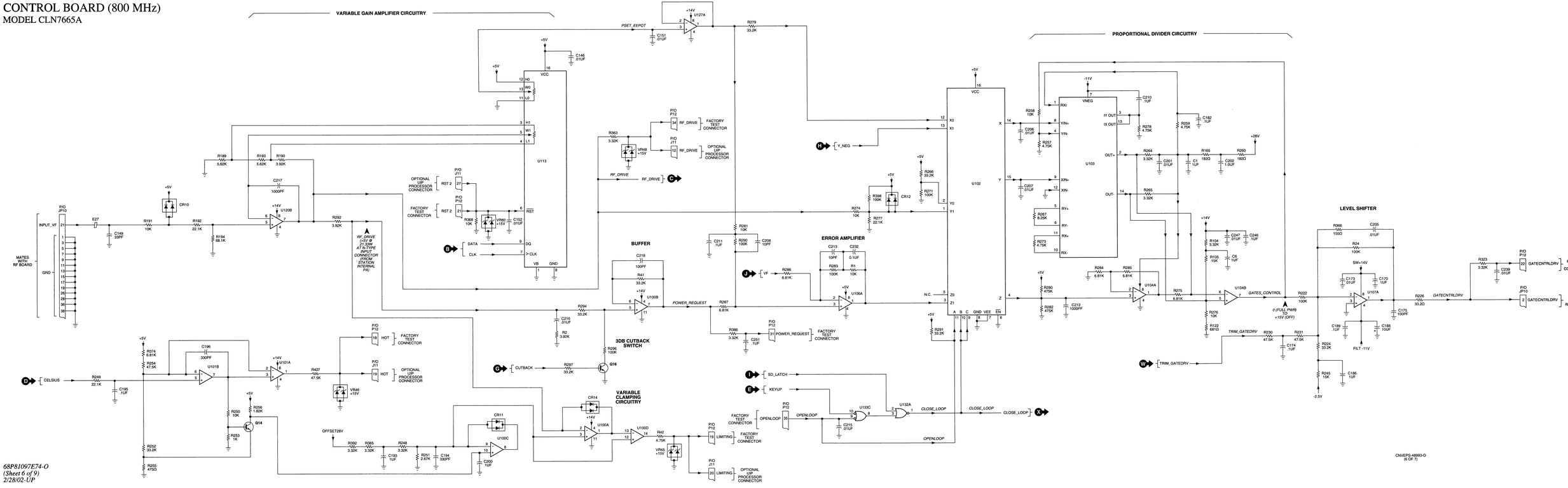
RF_DRIVE SQUARING CIRCUITRY

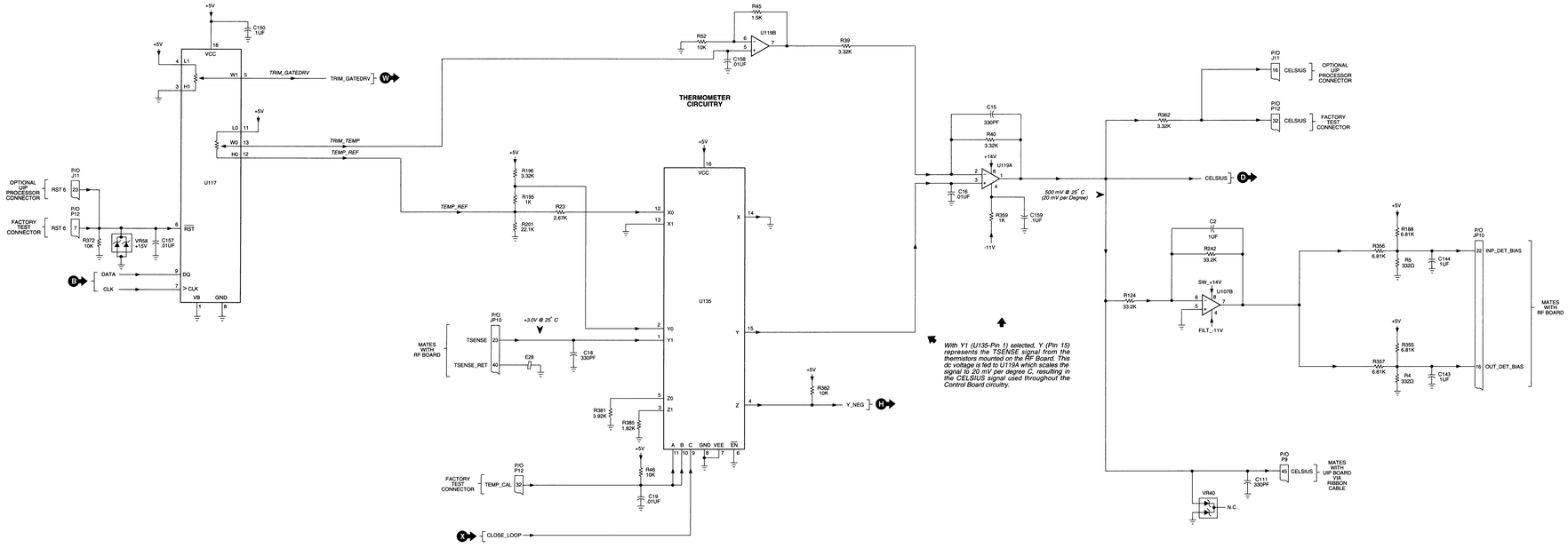


RF TRANSISTORS BIASING CIRCUITRY



CONTROL BOARD (800 MHz)
MODEL CLN7665A





INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U100	MC33074D	Quad Differential-Input Operational Amplifier	4	11
U101	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U102	MC74HC4053A	Multiplexer/Demultiplexer, Triple 2-Channel Analog	16	7, 8
U103	MC1495	4-Quadrant Multiplier	–	–
U104, 105	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U106	MC33202	Dual Operational Amplifier	8	4
U107	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U108	LM2901	Quad Comparator	3	12
U111	TL431	Precision Voltage Regulator	–	–
U112 thru 117	DS1867	Dual Digital Potentiometer with EEPROM	16	8
U118 thru 120	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U122, 123	MC33204	Quad Operational Amplifier	4	11
U124	MC74HC86A	Quad 2-Input Exclusive OR	14	7
U125	TL431	Precision Voltage Regulator	–	–
U126	MC33076	Dual Operational Amplifier, Hi Output Current	8	4
U127, 128	MC33072	Dual Operational Amplifier; High Perf, Sngl Supply	8	4
U129	MC33074D	Quad Differential-Input Operational Amplifier	4	11
U130	MC14025	Triple 3-Input NOR	14	7
U131	MC74HC132A	Quad 2-Input NAND w/Schmidt Trigger	14	7
U132	MC74HC02A	Quad 2-Input NOR	14	7
U133, 134	MC74HC132A	Quad 2-Input NAND w/Schmidt Trigger	14	7
U135	MC74HC4053A	Multiplexer/Demultiplexer, Triple 2-Channel Analog	16	7, 8
U136	MC74HC74A	Dual D Flip-Flop with Set/Reset	14	7
U136, 139	LM2901	Quad Comparator	3	12
U140	MC74HC08A	Quad 2-Input AND	14	7
U141	MC74HC573A	Octal 3-State Non-Inverting Latch	20	10
U142	MC33269	Adjustable Low-Dropout Positive Regulator	–	–
U158	LM2901	Quad Comparator	3	12

CNVEPS-48993-O
(7 OF 7)

CONTROL BOARD (800MHz)
MODEL CLN7665A

parts list

CLN7665A Control Board (800 MHz) — **PL-13205-O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C1,2	2109822501	CAP CHIP CER 1.0UF 35V 1206
C3	2113741B69	0.1 uF, +/-5%, 50 V
C4	2109822501	CAP CHIP CER 1.0UF 35V 1206
C5	2113741F49	0.01 uF, +/-5%, 50V
C6	2109822501	CAP CHIP CER 1.0UF 35V 1206
C14	2113901A29	CAP CHIP HI Q 10 PF +/- 0.50PF
C15	2113741F13	330 pF, +/-5%, 50V
C16	2113741F49	0.01 uF, +/-5%, 50V
C17	2113741G13	330 pF, +/-5%, 50V
C18	2113741F13	330 pF, +/-5%, 50V
C19,20	2113741B69	0.1 uF, +/-5%, 50 V
C21	2113741F49	0.01 uF, +/-5%, 50V
C22	2113741B69	0.1 uF, +/-5%, 50 V
C23	2113741B69	0.1 uF, +/-5%, 50 V
C25	2109822501	CAP CHIP CER 1.0UF 35V 1206
C27 thru 29	2113741B69	0.1 uF, +/-5%, 50 V
C30	2113741F25	1000 pF, +/-5%, 50V
C31 thru 33	2113741B69	0.1 uF, +/-5%, 50 V
C34 thru 40	2113741B69	0.1 uF, +/-5%, 50V
C41 thru 43	2113741B69	0.1 uF, +/-5%, 50 V
C44 thru 46	2382415W35	Capacitor, lytic 330 uF; 16 V
C47	2113741G13	330 pF, +/-5%, 50V
C48	2113741B69	0.1 uF, +/-5%, 50 V
C49	2109822506	CAP CHIP CER 10UF 35V 2220
C51,52	2113741B69	0.1 uF, +/-5%, 50 V
C53	2109822504	CAP CHIP CER 10UF 35V 2220
C54	2109822501	CAP CHIP CER 1.0UF 35V 1206
C55	2113741F49	0.01 uF, +/-5%, 50V
C56	2113918B01	CAP CHIP 2200PF 1000V 10% X7R
C57	2109822501	CAP CHIP CER 1.0UF 35V 1206
C58,59	2113741B69	0.1 uF, +/-5%, 50 V
C60	2109822504	CAP CHIP CER 10UF 35V 2220
C61,62	2382415W35	Capacitor, lytic 330 uF; 16 V
C64,65	2109822504	CAP CHIP CER 10UF 35V 2220
C66	2113901A48	CAP CHIP HI Q 39 PF +/- 5%
C67	2113740A41	33 pF, +/-5%, 50V
C68	2113901A29	CAP CHIP HI Q 10 PF +/- 0.50PF
C69	2109822501	CAP CHIP CER 1.0UF 35V 1206
C70	2109822501	CAP CHIP CER 1.0UF 35V 1206
C71,72	2109822504	CAP CHIP CER 10UF 35V 2220
C73	2113740F41	470 pF, +/-5%, 50V
C74	2113918B01	CAP CHIP 2200PF 1000V 10% X7R
C75,76	2109822504	CAP CHIP CER 10UF 35V 2220
C77	2113741F49	0.01 uF, +/-5%, 50V
C79	2109822501	CAP CHIP CER 1.0UF 35V 1206
C80	2109822504	CAP CHIP CER 10UF 35V 2220
C81	2113740F67	CAP CHIP CL 1-=30 470 5%
C82	2113741F13	330 pF, +/-5%, 50V
C83	2113741F49	0.01 uF, +/-5%, 50V
C84	2113741F13	330 pF, +/-5%, 50V
C85 thru 87	2113741F49	0.01 uF, +/-5%, 50V
C88	2113741F13	330 pF, +/-5%, 50V
C89	2113741F49	0.01 uF, +/-5%, 50V
C90	2113741F13	330 pF, +/-5%, 50V
C91	2113741F49	0.01 uF, +/-5%, 50V
C92	2113741F13	330 pF, +/-5%, 50V
C93	2113741F49	0.01 uF, +/-5%, 50V
C94	2113741F13	330 pF, +/-5%, 50V
C95 thru 97	2113741F49	0.01 uF, +/-5%, 50V
C98	2113741F13	330 pF, +/-5%, 50V
C99	2113741F49	0.01 uF, +/-5%, 50V
C102	2113741F13	330 pF, +/-5%, 50V
C104	2113741F13	330 pF, +/-5%, 50V
C106 thru 108	2113741F13	330 pF, +/-5%, 50V
C110,111	2113741F13	330 pF, +/-5%, 50V
C116,117	2113741F49	0.01 uF, +/-5%, 50V
C118 thru 124	2113741F25	1000 pF, +/-5%, 50V
C126	2109822506	CAP CHIP CER 10UF 16V
C128	2113741B69	0.1 uF, +/-5%, 50 V
C129	2109822501	CAP CHIP CER 1.0UF 35V 1206
C130	2113741B69	0.1 uF, +/-5%, 50 V
C131	2113741F49	0.01 uF, +/-5%, 50V
C133 thru 135	2113741F49	0.01 uF, +/-5%, 50V
C136,137	2113740F39	33 pF, +/-5%, 50V
C138 thru 140	2113741F49	0.01 uF, +/-5%, 50V
C143,144	2109822501	CAP CHIP CER 1.0UF 35V 1206
C146,147	2113741B69	0.1 uF, +/-5%, 50 V
C148	2113741F49	0.01 uF, +/-5%, 50V
C149	2113740F39	33 pF, +/-5%, 50V
C150	2113741B69	0.1 uF, +/-5%, 50 V
C151 thru 153	2113741F49	0.01 uF, +/-5%, 50V
C154 thru 156	2113741B69	0.1 uF, +/-5%, 50 V
C157,158	2113741F49	0.01 uF, +/-5%, 50V
C159	2113741F13	0.1 uF, +/-5%, 50 V
C160	2109822504	CAP CHIP CER 10UF 35V 2220
C164	2113741F13	330 pF, +/-5%, 50V
C167	2109822501	CAP CHIP CER 1.0UF 35V 1206
C170	2109822501	CAP CHIP CER 1.0UF 35V 1206
C173	2113741F49	0.01 uF, +/-5%, 50V
C174	2113741B69	0.1 uF, +/-5%, 50 V
C175	2113740F51	100 pF, +/-5%, 50V
C176	2109822506	CAP CHIP CER 10UF 16V
C179	2109822506	CAP CHIP CER 10UF 16V
C180	2113741B69	0.1 uF, +/-5%, 50 V
C182	2113741B69	0.1 uF, +/-5%, 50 V
C183	2109822501	CAP CHIP CER 1.0UF 35V 1206
C188	2109822506	CAP CHIP CER 10UF 16V
C189	2113741B69	0.1 uF, +/-5%, 50 V
C191,192	2113741B69	0.1 uF, +/-5%, 50 V
C193	2109822501	CAP CHIP CER 1.0UF 35V 1206
C194	2113741F13	330 pF, +/-5%, 50V
C195	2113741B69	0.1 uF, +/-5%, 50 V
C196	2113741F13	330 pF, +/-5%, 50V
C200	2109822501	CAP CHIP CER 1.0UF 35V 1206
C201	2113741F49	0.01 uF, +/-5%, 50V
C202	2109822501	CAP CHIP CER 1.0UF 35V 1206
C205	2113741F49	0.01 uF, +/-5%, 50V
C206	2109822501	CAP CHIP CER 1.0UF 35V 1206
C207	2113741F49	0.01 uF, +/-5%, 50V
C208,209	2113740F27	10 pF, +/-5%, 50V
C210,211	2113741B69	0.1 uF, +/-5%, 50 V
C212	2113741F25	1000 pF, +/-5%, 50V
C213	2113740F27	10 pF, +/-5%, 50V
C215	2113741B69	0.1 uF, +/-5%, 50 V
C216	2113741F49	0.01 uF, +/-5%, 50V
C217	2113741F25	1000 pF, +/-5%, 50V
C218	2113740F51	100 pF, +/-5%, 50V
C219	2113741B69	0.1 uF, +/-5%, 50 V
C220	2113740F51	100 pF, +/-5%, 50V
C221	2113741F49	0.01 uF, +/-5%, 50V
C222	2113740F51	100 pF, +/-5%, 50V
C224	2113740F51	100 pF, +/-5%, 50V
C225	2113741F49	0.01 uF, +/-5%, 50V
C226	2113740F51	100 pF, +/-5%, 50V
C227	2113741F49	0.01 uF, +/-5%, 50V
C228	2113740F51	100 pF, +/-5%, 50V
C230,231	2113740F51	100 pF, +/-5%, 50V
C232,233	2113741B69	0.1 uF, +/-5%, 50 V
C234	2113740F51	100 pF, +/-5%, 50V
C235	2113741F49	0.01 uF, +/-5%, 50V
C236	2113741B69	0.1 uF, +/-5%, 50 V
C237 thru 239	2113741F49	0.01 uF, +/-5%, 50V
C240	2109822501	CAP CHIP CER 1.0UF 35V 1206
C241 thru 243	2113741B69	0.1 uF, +/-5%, 50 V
C244	2109822501	CAP CHIP CER 1.0UF 35V 1206
C245	2113918B01	CAP CHIP 2200PF 1000V 10% X7R
C246	2113741F51	0.1 uF, +/-5%, 50 V
C247	2113741F49	0.01 uF, +/-5%, 50V
C248	2113741B69	0.1 uF, +/-5%, 50 V
C249	2113741F49	0.01 uF, +/-5%, 50V
C250	2113741F27	10 pF, +/-5%, 50V
C251	2113741B69	0.1 uF, +/-5%, 50 V
C252	2113741F49	0.01 uF, +/-5%, 50V
C253	2109822506	CAP CHIP CER 10UF 16V
C254	2113740F51	100 pF, +/-5%, 50V
C255	2109822501	CAP CHIP CER 1.0UF 35V 1206
C256	2113741B69	0.1 uF, +/-5%, 50 V
C259,260	2113741F49	0.01 uF, +/-5%, 50V
C261	2109822504	CAP CHIP CER 10UF 35V 2220
C262	2109822506	CAP CHIP CER 10UF 16V
C263	2113741F25	1000 pF, +/-5%, 50V
C264,265	2113741B69	0.1 uF, +/-5%, 50 V
CR1 thru 6	4813833C02	**diode: (see note)** Dual diode; common cathode
CR8	4813833C02	Dual diode; common cathode
CR10 thru 12	4813833C02	Dual diode; common cathode
CR14 thru 23	4813833C02	Dual diode; common cathode
D14 thru 21	4813833B06	1A; 600 V
D22	4813833C02	Dual diode; common cathode
		ferrite bead:
E4	2484657R01	ferrite bead
E6	2484657R01	ferrite bead
E23 thru 28	2484657R01	ferrite bead
		inductor:
L2,3	2503788S16	IND PWR 330UH 20% 0.18A DO1608
L5	2503788S16	IND PWR 330UH 20% 0.18A DO1608
L7	2503788S16	IND PWR 330UH 20% 0.18A DO1608
		connector:
P9	0986359H04	RECPT 9PIN FILTERED0-SUB
P12	0986359H03	RECPT 37PIN FILTERED0-SUB
JP10	0985785P02	RECEPTACLE 40 PIN, DBL ROW
		transistor: (see note)
Q1	4813821A09	Transistor; 60 V
Q2	4813824A15	NPN
Q3	4813824A17	PNP
Q4	4813822A18	TSTR PNP 300V .5A
Q5	4813824A10	NPN
Q7	4813822A18	TSTR PNP 300V .5A
Q13	4813824A17	PNP
Q14	4813824A10	NPN
Q16,17	4813824A10	NPN
Q19 thru 23	4813824A10	NPN
Q25 thru 30	4813824A10	NPN
Q31	4813824A17	PNP
		resistor, fixed:
R1	0662057P10	RES CHIP 10.0K 1% 30X60
R2	0662057Z16	RES CHIP 3.32K OHMS
R4,5	0662057T52	CHIP RES 332 OHMS 1 %
R6	0662057T57	CHIP RES 1.5K OHMS 1%
R7	0609887C79	1.8K, +/-5%, 1/2W
R8	0662057P03	RES CHIP 4.75K 1% 30X60
R9	0662057W19	RES CHIP 2.61K 1%
R10,11	0662057T52	CHIP RES 332 OHMS 1 %
R12	0662057Z14	RES CHIP 1.82K OHMS
R13	0662057T52	CHIP RES 332 OHMS 1 %
R16	0662057T04	RES CHIP 221K
R17	0662057T77	RES CHIP 68.1K 1%
R18	0662057T56	CHIP RES 825 OHMS 1 %
R19	0662057T80	CHIP RES 6.81K OHMS 1 %
R20,21	0662057T59	CHIP RES 3.32K OHMS 1 %
R23	0662057Z15	RES CHIP 2.67KOHMS
R24	0662057P95	RES CHIP 100.0K 1% 30X60
R38	0662057P10	RES CHIP 10.0K 1% 30X60
R39,40	0662057T59	CHIP RES 3.32K OHMS 1 %
R41	0662057T73	RES CHIP 33.2K 1% 30*60
R42	0662057T64	CHIP RES 47.5K OHMS 1 %
R43	0662057T04	RES CHIP 221K
R44	0662057P10	RES CHIP 10.0K 1% 30X60
R45	0662057T57	CHIP RES 1.5K OHMS 1%
R46	0662057P10	RES CHIP 10.0K 1% 30X60
R47	0662057P95	RES CHIP 100.0K 1% 30X60
R48	0662057P10	RES CHIP 10.0K 1% 30X60
R49	0662057P02	RES. CHIP 15K 1% 30X60
R51	0662057T73	RES CHIP 33.2K 1% 30*60
R52	0662057P10	RES CHIP 10.0K 1% 30X60
R53	0662057T59	CHIP RES 3.32K OHMS 1 %
R54	0662057P95	RES CHIP 100.0K 1% 30X60
R55	0662057T64	CHIP RES 47.5K OHMS 1 %
R56	0662057P02	RES. CHIP 15K 1% 30X60
R57	0662057P49	RES CHIP 2.21K
R58	0662057T73	RES CHIP 33.2K 1% 30*60
R59	0662057T59	CHIP RES 3.32K OHMS 1 %
R60	0662057P49	RES CHIP 2.21K
R61	0662057T73	RES CHIP 33.2K 1% 30*60
R62	0662057T59	CHIP RES 3.32K OHMS 1 %
R63	0662057T57	CHIP RES 1.5K OHMS 1%
R64	0662057T73	RES CHIP 33.2K 1% 30*60
R65	0662057P03	RES CHIP 4.75K 1% 30X60
R67	0662057P10	RES CHIP 10.0K 1% 30X60
R68	0662057P02	RES. CHIP 15K 1% 30X60
R70,71	0662057T73	RES CHIP 33.2K 1% 30*60
R72	0662057T59	CHIP RES 3.32K OHMS 1 %
R73	0662057T62	CHIP RES 8.25K OHMS 1 %
R74	0662057P49	RES CHIP 2.21K
R75	0662057T73	RES CHIP 33.2K 1% 30*60
R76	0662057Z16	RES CHIP 3.92KOHMS
R77	0662057P95	RES CHIP 100.0K 1% 30X60
R78,79	0662057T59	CHIP RES 3.32K OHMS 1 %
R80	0662057P95	RES CHIP 100.0K 1% 30X60
R81	0662057T64	CHIP RES 47.5K OHMS 1 %
R82	0662057P10	RES CHIP 10.0K 1% 30X60
R83	0683962T03	1.2 ohms, +/-5%, 1W
R87	0662057T68	RES CHIP 1.0K 1% 30*60
R89	0683962T03	1.2 ohms, +/-5%, 1W
R90	0662057P03	RES CHIP 4.75K 1% 30X60
R91	0662057T59	CHIP RES 3.32K OHMS 1 %
R92	0662057P10	RES CHIP 10.0K 1% 30X60
R93	0662057P49	RES CHIP 2.21K
R94	0662057P03	RES CHIP 4.75K 1% 30X60
R95	0662057Z15	RES CHIP 2.67KOHMS
R96	0662057T73	RES CHIP 33.2K 1% 30*60
R97	0683962T49	100 ohms, +/-5%, 1W
R98 thru 101	0662057P10	RES CHIP 10.0K 1% 30X60
R102	0662057T73	RES CHIP 33.2K 1% 30*60
R103	0611079D54	RES CHIP 357.0 1/10W 1%
R104	0662057T59	CHIP RES 3.32K OHMS 1 %
R105	0662057P02	RES. CHIP 15K 1% 30X60
R106	0662057P03	RES CHIP 4.75K 1% 30X60
R108	0662057T68	RES CHIP 1.0K 1% 30*60
R109	0662057P10	RES CHIP 10.0K 1% 30X60
R110	0662057T68	RES CHIP 1.0K 1% 30*60
R111	0662057T48	CHIP RES 150 OHMS 1 %
R112	0662057T68	RES CHIP 1.0K 1% 30*60
R113	0662057P10	RES CHIP 10.0K 1% 30X60
R114	0662057T68	RES CHIP 1.0K 1% 30*60
R115	0662057T64	CHIP RES 47.5K OHMS 1 %
R116	0662057T68	RES CHIP 1.0K 1% 30*60
R117	0611079A95	7500 ohms, +/-5%, 1/10W
R118	0662057T68	RES CHIP 1.0K 1% 30*60
R119	0662057P10	RES CHIP 10.0K 1% 30X60
R120	0662057T68	RES CHIP 1.0K 1% 30*60
R121	0662057P95	RES CHIP 100.0K 1% 30X60
R122	0662057T55	CHIP RES 681 OHMS 1 %
R123	0662057T48	CHIP RES 150 OHMS 1 %
R124	0662057T73	RES CHIP 33.2K 1% 30*60
R127	0662057P10	RES CHIP 10.0K 1% 30X60
R128 thru 133	0611079D54	RES CHIP 357.0 1/10W 1%
R134	0611079D79	RES CHIP 549.0 1/10W 1%
R136	0611079F39	RES CHIP 2.49K 1/10W 1% 0805
R137	0611079D54	RES CHIP 357.0 1/10W 1%
R138 thru 145	0611079D55	RES CHIP 365.0 1/10W 1%
R146	0662057P10	RES CHIP 10.0K 1% 30X60
R147	0662057T56	CHIP RES 825 OHMS 1 %
R148	0662057P39	RES CHIP 475
R149	0662057T73	RES CHIP 33.2K 1% 30*60
R150	0662057P02	RES CHIP 15K 1% 30X60
R151 thru 153	0609887C67	560 ohms, +/-5%, 1/2W
R154	0662057Z16	RES CHIP 3.92KOHMS
R155	0662057P10	RES CHIP 10.0K 1% 30X60
R156	0662057T64	CHIP RES 47.5K OHMS 1 %
R157,158	0662057T73	RES CHIP 33.2K 1% 30*60
R159	0662057P39	RES CHIP 475
R160,161	0662057T59	CHIP RES 3.32K OHMS 1 %
R162	0662057P49	RES CHIP 2.21K
R163	0662057P39	RES CHIP 475
R164	0662057T64	CHIP RES 47.5K OHMS 1 %
R165	0662057Z49	RES CHIP 182 1% 0603
R174,175	0662057P10	RES CHIP 10.0K 1% 30X60
R176	0662057P39	RES CHIP 475
R177	0662057P10	RES CHIP 10.0K 1% 30X60
R178	0662057T73	RES CHIP 33.2K 1% 30*60
R179	0662057P66	RES CHIP 5.62K
R180	0662057T77	RES CHIP 68.1K 1%
R181	0662057P66	RES CHIP 5.62K
R182	0662057T73	RES CHIP 33.2K 1% 30*60
R183	0662057T62	CHIP RES 8.25K OHMS 1 %
R184	0662057T77	RES CHIP 68.1K 1%
R186	0662057T73	RES CHIP 33.2K 1% 30*60
R187	0662057T64	CHIP RES 47.5K OHMS 1 %
R189	0662057P66	RES CHIP 5.62K
R190	0662057Z16	RES CHIP 3.92KOHMS
R191	0662057T73	RES CHIP 33.2K 1% 30*60
R192	0662057T42	CHIP RES 22.1 OHMS 1%
R193	0662057P66	RES CHIP 5.62K
R194	0662057T77	RES CHIP 68.1K 1%
R195	0662057T68	RES CHIP 1.0K 1% 30*60
R196	0662057T59	CHIP RES 3.32K OHMS 1 %
R197	0662057P10	RES CHIP 10.0K 1% 30X60
R201	0662057P92	RES CHIP 10.0K 1% 30X60
R204	0662057P10	RES CHIP 10.0K 1% 30X60
R213	0611079G29	RES CHIP 19.6K 1/10W 1% 0805
R215	0683962T03	CHIP RES 150 OHMS 1 %
R222	0662057P95	RES CHIP 100.0K 1% 30X60
R224	0662057T73	RES CHIP 33.2K 1% 30*60
R225	0662057P66	RES CHIP 5.62K
R226	0662057T43	CHIP RES 33.2 OHMS 1%
R229	0662057P03	RES CHIP 4.75K 1% 30X60
R230,231	0662057T64	CHIP RES 47.5K OHMS 1 %
R235	0611079G58	Resistor chip 36.5K 1/10 W 1%
R237	0662057P49	RES CHIP 221 OHMS 1 %
R241	0662057P10	RES CHIP 10.0K 1% 30X60
R242	0662057T73	RES CHIP 33.2K 1% 30*60
R243	0662057P10	RES CHIP 10.0K 1% 30X60
R244	0662057T59	CHIP RES 3.32K OHMS 1 %
R245	0662057P02	RES. CHIP 15K 1% 30X60
R246	0662057T43	CHIP RES 33.2 OHMS 1%
R247	0662057T64	CHIP RES 47.5K OHMS 1 %
R248	0662057T59	CHIP RES 3.32K OHMS 1 %
R249	0662057P92	RES CHIP 10.0K 1% 30X60
R250	0662057P10	RES CHIP 10.0K 1% 30X60
R251	0662057Z15	RES CHIP 2.67KOHMS
R252	0662057T73	RES CHIP 33.2K 1% 30*60
R253	0662057T68	RES CHIP 1.0K 1% 30*60
R254	0662057T64	CHIP RES 47.5K OHMS 1 %
R255	0662057P39	RES CHIP 475
R256	0662057Z14	RES CHIP 1.82KOHMS
R257	0662057P03	RES CHIP 4.75K 1% 30X60
R258	0662057P10	RES CHIP 10.0K 1% 30X60
R259	0662057T68	RES CHIP 1.0K 1% 30*60
R260	0662057Z49	RES CHIP 182 1% 0603
R264,265	0662057T59	CHIP RES 3.32K OHMS 1 %
R266	0662057T48	CHIP RES 150 OHMS 1 %
R267	0662057T62	CHIP RES 8.25K OHMS 1 %
R268,269	0662057T80	CHIP RES 6.81K OHMS 1 %
R271	0662057P95	RES CHIP 100.0K 1% 30X60
R273	0662057P03	RES CHIP 4.75K 1% 30X60
R274	0662057P10	RES CHIP 10.0K 1% 30X60
R275	0662057T60	CHIP RES 6.81K OHMS 1 %
R276	0662057P10	RES CHIP 10.0K 1% 30X60
R277	0662057P22	RES CHIP 22.1K 1% 30X60
R278	0662057P03	RES CHIP 4.75K 1% 30X60
R279	0662057T73	RES CHIP 33.2K 1% 30*60
R280	0662057T65	CHIP RES 475K OHMS 1 %
R281	0662057P10	RES CHIP 10.0K 1% 30X60
R282	0662057T65	CHIP RES 475K OHMS 1 %
R283	0662057P95	RES CHIP 100.0K 1% 30X60
R284 thru 287	0662057P02	RES. CHIP 15K 1% 30X60
R290	0662057P95	RES CHIP 100.0K 1% 30X60
R291	0662057T65	CHIP RES 475K OHMS 1 %
R292	0662057Z16	RES CHIP 3.92KOHMS
R294	0662057T73	RES CHIP 33.2K 1% 30*60
R296	0662057P95	RES CHIP 100.0K 1% 30X60
R297	0662057T73	RES CHIP 33.2K 1% 30*60
R298	0662057T62	CHIP RES 8.25K OHMS 1 %
R299	0662057P10	RES CHIP 10.0K 1% 30X60
R300	0662057T52	CHIP RES 332 OHMS 1 %
R301	0662057P10	RES CHIP 10.0K 1% 30X60
R302	0611079G32	RES CHIP 21.0K 1/10W 1% 0805
R303	0611079G10	RES CHIP 12.4K 1/10W 1% 0805
R304	0611079G09	12.1K, 1/10 W; +/-1%
R305	0662057P31	RES CHIP 392
R306	0611079F79	RES CHIP 6.49K 1/10W 1% 0805
R307	0662057T54	CHIP RES 562 OHMS 1 %
R308	0611079G31	RES CHIP 16.2K 1/10W 1% 0805
R309	0662057T62	CHIP RES 8.25K OHMS 1 %
R310 thru 313	0662057P10	RES CHIP 10.0K 1% 30X60
R314	0662057T44	CHIP RES 49.9 OHMS 1%
R315	0662057T59	CHIP RES 3.32K OHMS 1 %
R316	0662057T62	CHIP RES 8.25K OHMS 1 %
R317	0662057Z16	RES CHIP 3.92KOHMS
R318	0662057P48	RES CHIP 1.21K
R319	0662057T42	CHIP RES 22.1 OHMS 1%
R320	0662057T62	CHIP RES 8.25K OHMS 1 %
R321	0662057P10	RES CHIP 10.0K 1% 30X60
R322	0662057P39	RES CHIP 475
R323	0662057T59	CHIP RES 3.32K OHMS 1 %
R324	0662057P59	RES CHIP 4.75K
R325	0662057P49	RES CHIP 2.21K
R326 thru 329	0611077A68	560 ohms, +/-5%, 1/8 W
R330	0609887C75	1.2K, +/-5%, 1/2W
R331 thru 335	0611077A68	560 ohms, +/-5%, 1/8 W
R336	0609887C75	1.2K, +/-5%, 1/2W
R337	0662057T65	CHIP RES 475K OHMS 1 %
R338 thru 343	0611079A60	270 ohms, +/-5%, 1/10 W
R345 thru 348	0611079A60	270 ohms, +/-5%, 1/10 W
R349	0662057P59	RES CHIP 4.75K
R351	0662057P59	RES CHIP 4.75K
R352	0662057P49	RES CHIP 2.21K
R353	0662057T04	RES CHIP 221K
R355 thru 357	0662057T60	CHIP RES 6.81K OHMS 1 %
R359	0662057T68	RES CHIP 1.0K 1% 30*60
R362,363	0662057T59	CHIP RES 3.32K OHMS 1 %
R364	0662057P95	RES CHIP 100.0K 1% 30X60
R365	0662057T59	CHIP RES 3.32K OHMS 1 %
R366	0662057T48	CHIP RES 150 OHMS 1 %
R367 thru 372	0662057P10	RES CHIP 10.0K 1% 30X60
R373	0609887C19	5.6 ohms, +/-5%, 1/2W
R374	0662057T60	CHIP RES 6.81K OHMS 1 %
R375	0662057P22	RES CHIP 22.1K 1% 30X60
R376	0662057P95	RES CHIP 100.0K 1% 30X60
R377,378	0662057T62	CHIP RES 8.25K OHMS 1 %
R379	0662057T52	CHIP RES 332 OHMS 1 %
R380	0662057P59	RES CHIP 4.75K
R381	0662057Z16	RES CHIP 3.92KOHMS
R382	0662057P10	RES CHIP 10.0K 1% 30X60
R383	0662057T68	RES CHIP 1.0K 1% 30*60
R384	0662057T64	CHIP RES 47.5K OHMS 1 %
R385	0662057Z14	RES CHIP 1.82KOHMS
R386	0662057T59	CHIP RES 3.32K OHMS 1 %
R387	0662057P49	RES CHIP 2.21K
R388	0662057Z15	RES CHIP 2.67KOHMS
R389	0662057P49	RES CHIP 2.21K
R390	0662057T62	CHIP RES 8.25K OHMS 1 %
R391	0662057T04	RES CHIP 221K
R392	0662057T59	CHIP RES 3.32K OHMS 1 %
R393	0662057T49	CHIP RES 221 OHMS 1 %
R394	0662057T59	CHIP RES 3.32K OHMS 1 %
R397	0662057Z16	RES CHIP 3.92KOHMS
R398	0662057P95	RES CHIP 100.0K 1% 30X60
R399	0662057T68	RES CHIP 1.0K 1% 30*60
R400	0662057T73	RES CHIP 33.2K 1% 30*60
R401	0609887C07	47 ohms, +/-5% 1/2W
R402	0662057T57	CHIP RES 1.5K OHMS 1%
R403	0662057P10	RES CHIP 10.0K 1% 30X60
R408	0662057P95	RES CHIP 100.0K 1% 30X60
R409	0662057P49	RES CHIP 2.21K
		integrated circuit: (see note)
U100	5113819A05	High Performance, Single Supply
U101	5113818A03	IC HIGH PERFORMANCE SING SPLY
U102	5113805A85	Mux/Demux, Trip-2-Channel Analog
U103	5113815A52	IC MULTIPLIER 4-QUAD
U104,105	5113818A03	IC HIGH PERFORMANCE SING SPLY
U106	5113818A14	IC DL OP AMP RAIL TO RAIL
U107	5113818A03	IC HIGH PERFORMANCE SING SPLY
U108	5113802A03	Quad Single/Dual Supply
U111	5113815A08	Precision Voltage Reference
U112 thru 115	5180533F01	IC DUAL DIG POT 50K OHM EEPROM
U117	5180533F01	IC DUAL DIG POT 50K OHM EEPROM
U118 thru 120	5113818A03	IC HIGH PERFORMANCE SING SPLY
U122,123	5113819A14	IC QD OP AMP ,3.3Dt4,
U124	5113805A22	Quad 2-Input Exclusive OR Gate
U125	5113815A08	Precision Voltage Reference
U126	5113818A18	IC DUAL OP AMP HIGH OUTPUT
U127,128	5113818A03	IC HIGH PERFORMANCE SING SPLY
U129	5113819A05	High Performance, Single Supply
U130	5113806A56	IC NOR GATE TRIPLE 3IN MC14025
U131	5113805A27	Quad 2-Input NAND Gate
U132	5113805A02	Quad 2-Input NOR Gate
U133,134	5113805A27	Quad 2-Input NAND Gate
U135	5113805A85	Mux/Demux, Trip-2-Channel Analog
U136	5113805A18	Dual D-Type Flip-Flop with Set/Reset
U136,139	5113805A03	Quad Single/Dual Supply
U140	5113805A06	Quad 2-Input AND Gate
U141	5113805A72	Octal 3-State Non-Inverter Transmit Latch
U142	5113818A21	IC ADJ-LO DROPOUT POS REG .8A
U158	5113820A03	Quad Single/Dual Supply
		voltage regulator: (see note)
VR22	4813833C28	1.2K, +/-5%, 1/2W
VR33	4813833C28	Zener 15 V
VR35,36	4813833C28	Zener 15 V
VR38 thru 40	4813833C28	Zener 15 V
VR45 thru 49	4813833C28	Zener 15 V
VR51 thru 65	4813833C28	Zener 15 V
		non-referenced items:
	1583004X01	CORRAL LARGE (used with SH1)
	1583004X02	CORRAL LARGE (used with SH2)
	2683006X01	COVER LARGE (used with SH1)
	2683006X02	COVER LARGE (used with SH2)
	5482006W02	ribbon, thermal transfer
	5482006W53	BARCODE LABEL
	8483402Y02	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

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(Sheet 8 of 9)

PIN	SIGNAL	PIN	SIGNAL
1	SHUTDOWN_LED	26	GND
2	I_SENSE2	27	GND
3	I_SENSE3	28	GND
4	INPUT_LOW_LED	29	I_SENSE7
5	UIP_2	30	UIP_6
6	+14V_RAW_3RESISTORS	31	I_SENSE8
7	GND	32	FORWARD
8	GND	33	RF_SW_ON
9	GND	34	CUTBACK_LED
10	GND	35	FAN_SPIN
11	OVERCURRENT_LED	36	FAN_V_SENSE
12	GND	37	UIP_1
13	FAN_FAIL_LED	38	UIP_FAIL
14	MAX_OUTPUT_LED	39	VSWR_LED
15	POWER_IN	40	UIP_BATTERY
16	+14V_RETURN	41	FAN_POWER
17	GND	42	28V_LED
18	FAIL_LED	43	UIP_FAN_ALM
19	HIGH_TEMP_LED	44	UIP_4
20	I_SENSE3	45	CELSIUS
21	GND	46	UIP_5
22	I_SENSE4	47	REFLECTED
23	+14V_RAW_3RESISTORS	48	INPUT_HIGH_LED
24	UIP_3	49	UIP_7
25	I_SENSE5	50	+14V_SUPPLY

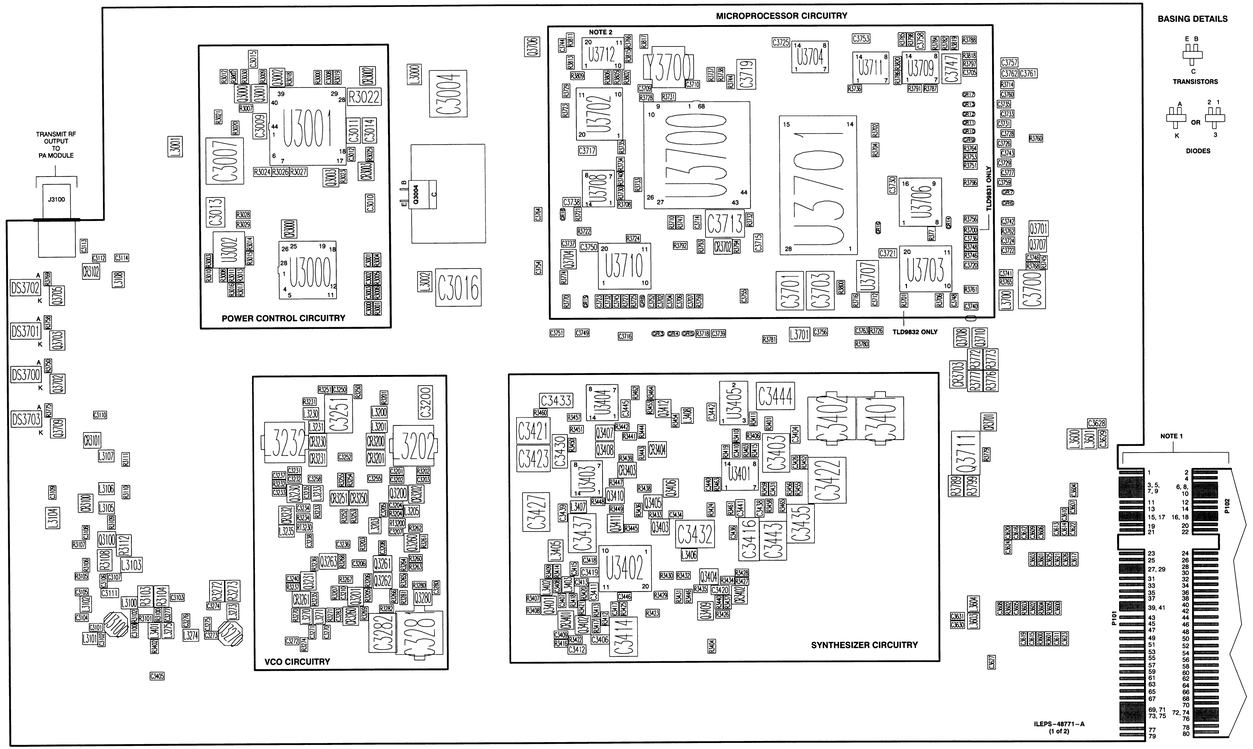
OPTIONAL UIP PROCESSOR CONNECTOR

FACTORY TEST CONNECTOR

CNVEPS-48993-O

VHF EXCITER BOARD

MODELS TLD9831D
TLD9832D



BASING DETAILS

NOTES:

1. THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. THE COMPONENT SIDE CONTACTS ARE REFERENCED AS P101. THE CONTACTS ON THE BACK OF THE BOARD ARE REFERENCED AS P102. P102 CONTACT LAYOUT IS SHOWN IN THE CUTAWAY VIEW JUST TO THE RIGHT OF THE P101 CONTACT LAYOUT. IN ADDITION, P101 CONTAINS ODD NUMBERED CONTACTS AND P102 CONTAINS EVEN NUMBERED CONTACTS.
2. U3712 AND ASSOCIATED CIRCUITRY PROVIDE VERSION ID OF EXCITER BOARD. RESISTORS ARE FACTORY PLACED OR OMITTED TO GENERATE 8-BIT BINARY CODE TO IDENTIFY BOARD VERSION. SHOWN WITH "0" VERSION PLACEMENT.

SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS-REFERENCE.

CONNECTOR-PIN	SIGNAL NAME	CONNECTOR-PIN	SIGNAL NAME
P101-1	CHASSIS GND	P102-2	CHASSIS GND
P101-3, 5, 7, 9	14.2V	P102-4	NOT USED
P101-11	+5V	P102-6, 8, 10	14.2V
P101-13	CHASSIS GND	P102-12	+5V
P101-15, 17	V-CONTROL	P102-14	CHASSIS GND
P101-19	TX VFWD	P102-16, 18	V-CONTROL
P101-21	NOT USED	P102-20	NOT USED
P101-23	CHASSIS GND	P102-22	NOT USED
P101-25	EXT WM VFWD	P102-24	CHASSIS GND
P101-27, 29	CHASSIS GND	P102-26	EXT WM REFL
P101-31	ANT RLY ENABLE	P102-28	EXT CIRC
P101-33	NOT USED	P102-30	CHASSIS GND
P101-35	NOT USED	P102-32	EXT MON VOLTAGE 1
P101-37	ADAPTIVE TUNE 2	P102-34	NOT USED
P101-39, 41	CHASSIS GND	P102-36	ADAPTIVE TUNE 1
P101-43	Y1 MUX1	P102-38	FANS ON
P101-45	Y2 MUX2	P102-40	CHASSIS GND
P101-47	Y3 MUX3	P102-42	X1 MUX1
P101-49	MUX SELECT B	P102-44	X2 MUX2
P101-51	CHASSIS GND	P102-46	X3 MUX3
P101-53	MOSI HOST	P102-48	MUX SELECT A
P101-55	RESET	P102-50	CHASSIS GND
P101-57	NOT USED	P102-52	MISO HOST
P101-59	SPI GRANT	P102-54	SCK HOST
P101-61	NOT USED	P102-56	NOT USED
P101-63	NOT USED	P102-58	NOT USED
P101-65	SPI REQ	P102-60	NOT USED
P101-67	TX TO HOST REQ	P102-62	NOT USED
P101-69, 71, 73, 75	CHASSIS GND	P102-64	NOT USED
P101-77	REF AUDIO	P102-66	PTT REQ
P101-79	CHASSIS GND	P102-68	CHASSIS GND
		P102-70	REF OSC
		P102-72, 74, 76	CHASSIS GND
		P102-78	VCO AUDIO
		P102-80	CHASSIS GND

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parts list

TLD9831D Exciter Board (132 to 154 MHz)
TLD9832D Exciter Board (150 to 174 MHz) PL–13067–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C3000 thru 3003	2113740A39	27 pF, ±5%, 50V
C3004	2380090M25	100 uF, 25V
C3007	2380090M25	100 uF, 25V
C3008	2113740A39	27 pF, ±5%, 50V
C3009	2311049A06	0.47 uF, ±10%, 35V
C3010	2113741B69	0.1 uF, ±5%, 50 V
C3011	2311049A08	1 uF, ±10%, 35 V
C3012	2113740A39	27 pF, ±5%, 50V
C3013	2380090M18	1 uF, ±20%, 50V
C3014	2311049A08	1 uF, ±10%, 35 V
C3015	2113741B69	0.1 uF, ±5%, 50 V
C3016	2380090M25	100 uF, 25V
C3100,3101	2113740A71	470 pF, ±5%, 50V
C3102	2113740A29	10 pF, ±5%, 50V
C3103	2113740A71	470 pF, ±5%, 50V
C3104	2113740A39	27 pF, ±5%, 50V
C3105	2113740A33	15 pF, ±5%, 50V
C3106	2113740A79	1000 pF, ±5%, 50V
C3107	2113740A71	470 pF, ±5%, 50V
C3108,3109	2113740A79	1000 pF, ±5%, 50V
C3110	2113740A71	470 pF, ±5%, 50V
C3111	2113741B69	0.1 uF, ±5%, 50 V
C3112	2113740A71	470 pF, ±5%, 50V
C3113,3114	2113740A79	1000 pF, ±5%, 50V
C3200	0811017A08	0.01 uF, ±5%, 50 V (TLD9831D)
	0811017A08	0.022 uF, ±5%, 63 V (TLD9832D)
C3201	2113740A33	15 pF, ±5%, 50V (TLD9831D)
	2113740A31	12 pF, ±5%, 50V (TLD9832D)
C3202	2113740A33	15 pF, ±5%, 50V (TLD9831D)
	2113740A29	10 pF, ±5%, 50V (TLD9832D)
C3203,3204	2113740A71	470 pF, ±5%, 50V
C3205	2113740A37	22 pF, ±5%, 50V (TLD9831D)
	2113740A35	18 pF, ±5%, 50 V (TLD9832D)
C3206	2113740A71	470 pF, ±5%, 50V
C3207	2113740A37	22 pF, ±5%, 50V (TLD9831D)
	2113740A35	18 pF, ±5%, 50 V (TLD9832D)
C3208	2113740G11	2.2 pF, ±0.1 pF, 50V
C3210	2113741A45	0.01 uF, ±5%, 50V
C3231	2113740A33	15 pF, ±5%, 50V
C3232	2113740A31	12 pF, ±5%, 50V (TLD9831D)
	2113740A33	15 pF, ±5%, 50V (TLD9832D)
C3233,3234	2113740A71	470 pF, ±5%, 50V
C3235	2113740A35	18 pF, ±5%, 50 V
C3236	2113740A71	470 pF, ±5%, 50V
C3237	2113740A35	18 pF, ±5%, 50 V
C3238	2113740G11	2.2 pF, ±0.1 pF, 50V
C3240	2113741A45	0.01 uF, ±5%, 50V
C3250	2113740A71	470 pF, ±5%, 50V
C3251	2380090M24	10 uF, ±20%, 50V
C3252	2113740A71	470 pF, ±5%, 50V
C3255	2113740G03	1 pF, ±0.1 pF, 50V
C3258	2113740G03	1 pF, ±0.1 pF, 50V
C3270	2113740G11	2.2 pF, ±0.1 pF, 50V
C3271 thru 3274	2113740A71	470 pF, ±5%, 50V
C3275	2113740A39	27 pF, ±5%, 50V
C3276	2113740A39	27 pF, ±5%, 50V
C3277	2113740A33	15 pF, ±5%, 50V
C3280	2113741A45	0.01 uF, ±5%, 50V
C3281	2380090M27	330 uF, ±20%, 16V
C3282	2380090M24	10 uF, ±20%, 50V
C3283	2113741A45	0.01 uF, ±5%, 50V
C3401,3402	2380090M28	220 uF, ±20%, 16V
C3403	2380090M24	10 uF, ±20%, 50V
C3404	2113741B69	0.1 uF, ±5%, 50 V
C3405	2113740A71	470 pF, ±5%, 50V
C3406	2113741B69	0.1 uF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C3407,3408	2113740A71	470 pF, ±5%, 50V
C3409	2113741A45	0.01 uF, ±5%, 50V
C3410	2113741A37	4700 pF, ±5%, 50V
C3411,3412	2113741B69	0.1 uF, ±5%, 50 V
C3413	2113740A29	10 pF, ±5%, 50V
C3414	2380090M24	10 uF, ±20%, 50V
C3415	2113740A71	470 pF, ±5%, 50V
C3416	2311049A10	10 uF, ±10%, 25 V
C3417,3418	2113740A71	470 pF, ±5%, 50V
C3419,3420	2113741B69	0.1 uF, ±5%, 50 V
C3421	0811021A19	1 uF, +5%–0.5%, 63V
C3422	2380090M25	100 uF, 25V
C3423	0811051A19	1 uF, +5%–0.5%, 63V
C3426	2113741A33	3300 pF, ±5%, 50V
C3427	2380090M24	10 uF, ±20%, 50V
C3430	0811051A15	0.22 uF, ±5%, 63 V
C3431	2113740A83	82 pF, ±5%, 50V
C3432	2380090M24	10 uF, ±20%, 50V
C3433	0811017A08	0.01 uF, ±5%, 50 V (TLD9831D)
	0811017A08	0.022 uF, ±5%, 63 V (TLD9832D)
C3434	2113740A71	470 pF, ±5%, 50V
C3435	2380090M24	10 uF, ±20%, 50V
C3436	2113741A33	3300 pF, ±5%, 50V
C3437	2380090M24	10 uF, ±20%, 50V
C3438,3439	2113741B69	0.1 uF, ±5%, 50 V
C3440	2113740A71	470 pF, ±5%, 50V
C3441,3442	2113741B69	0.1 uF, ±5%, 50 V
C3443,3444	2380090M24	10 uF, ±20%, 50V
C3445	2113741B69	0.1 uF, ±5%, 50 V
C3446	2113740A71	470 pF, ±5%, 50V
C3600	2113740A33	15 pF, ±5%, 50V
C3601	2113740A55	100 pF, ±5%, 50V
C3602	2113740A33	15 pF, ±5%, 50V
C3603	2113740A55	100 pF, ±5%, 50V
C3604	2113741A53	0.022 uF, ±5%, 50V
C3605	2113740A33	15 pF, ±5%, 50V
C3606	2113740A55	100 pF, ±5%, 50V
C3607	2113741A53	0.022 uF, ±5%, 50V
C3608	2113740A33	15 pF, ±5%, 50V
C3609	2113740A55	100 pF, ±5%, 50V
C3610	2113741A53	0.022 uF, ±5%, 50V
C3611	2113740A33	15 pF, ±5%, 50V
C3612	2113740A55	100 pF, ±5%, 50V
C3613,3614	2113741A53	0.022 uF, ±5%, 50V
C3615	2113740A33	15 pF, ±5%, 50V
C3616	2113740A55	100 pF, ±5%, 50V
C3617	2113741A53	0.022 uF, ±5%, 50V
C3619	2113740A39	27 pF, ±5%, 50V
C3620	2113740A55	100 pF, ±5%, 50V
C3621,3622	2113741A53	0.022 uF, ±5%, 50V
C3623	2113740A39	27 pF, ±5%, 50V
C3624	2113740A55	100 pF, ±5%, 50V
C3625,3626	2113741A53	0.022 uF, ±5%, 50V
C3627	2113740A43	39 pF, ±5%, 50V
C3628,3629	2113741B69	0.1 uF, ±5%, 50 V
C3630,3631	2113740A39	27 pF, ±5%, 50V
C3700,3701	2380090M07	47 uF, ±20%, 16V
C3702	2113740A39	27 pF, ±5%, 50V
C3703	2380090M24	10 uF, ±20%, 50V
C3704 thru 3707	2380090M07	47 uF, ±20%, 16V
C3709,3710	2113740A37	22 pF, ±5%, 50V
C3712	2113740A39	27 pF, ±5%, 50V
C3713	2380090M24	10 uF, ±20%, 50V
C3714	2113741A45	0.01 uF, ±5%, 50V
C3715	2113741B69	0.1 uF, ±5%, 50 V
C3716	2113740A39	27 pF, ±5%, 50V
C3717	2113741B69	0.1 uF, ±5%, 50 V
C3719	2380090M18	1 uF, ±20%, 50V
C3720	2113740A55	100 pF, ±5%, 50V
C3721	2113741B69	0.1 uF, ±5%, 50 V

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
C3722 thru 3724	2113740A39	27 pF, ±5%, 50V
C3725	2113741A69	0.1 uF, ±5%, 50 V
C3726 thru 3729	2113740A39	27 pF, ±5%, 50V
C3730	2113741B69	0.1 uF, ±5%, 50 V
C3731 thru 3733	2113740A39	27 pF, ±5%, 50V
C3735	2113740A39	27 pF, ±5%, 50V
C3736	2113740G11	2.2 pF, ±0.1 pF, 50V
C3737	2113740A39	27 pF, ±5%, 50V
C3738	2113741B69	0.1 uF, ±5%, 50 V
C3739	2113740A55	100 pF, ±5%, 50V
C3740	2113740G11	2.2 pF, ±0.1 pF, 50V
C3741,3742	2113740A39	27 pF, ±5%, 50V
C3743	2113740A55	100 pF, ±5%, 50V
C3744,3745	2113740A39	27 pF, ±5%, 50V
C3746	2113740A71	0.82 pF, ±5%, 50V
C3747	2380090M18	1 uF, ±20%, 50V
C3748,3749	2113740A39	27 pF, ±5%, 50V
C3750	2113741B69	0.1 uF, ±5%, 50 V
C3751	2113740A55	100 pF, ±5%, 50V
C3752	2113740A39	27 pF, ±5%, 50V
C3753	2113741B69	0.1 uF, ±5%, 50 V
C3754	2113740A77	0.82 pF, ±5%, 50V
C3755,3756	2113740A39	27 pF, ±5%, 50V
C3757,3758	2113741B69	0.1 uF, ±5%, 50 V
C3759,3760	2113740A39	27 pF, ±5%, 50V
C3761,3762	2113741B69	0.1 uF, ±5%, 50 V
C3763,3764	2113740A39	27 pF, ±5%, 50V
		diode (see note):
CR3000	4813833C10	0.1A, 70V
CR3002	4813833C05	dual 70V
CR3003	4813825A05	Hot Carrier
CR3100 thru 3102	4813825A06	Pin,35V
CR3200,3201	4813825A01	3V, dual
CR3202	4882290T01	Schottky type
CR3230,3231	4813825A01	3V, dual
CR3232	4882290T01	Schottky type
CR3250,3251	4813825A01	3V, dual
CR3260,3261	4813825A06	Pin,35V
CR3401	4813825A05	Hot Carrier
CR3402	4813833C05	dual 70V
CR3403,3404	4813833C10	0.1A, 70V
CR3701,3702	4813833C05	dual 70V
CR3703	4813833B01	Schottky type
		light emitting diode (see note):
DS3700	4882198T05	SUBMINEATURE LED YEL SM
DS3701,3702	4882198T06	SUBMINEATURE LED GRN SM
DS3703	4882198T04	SUBMINEATURE LED RED SM
		connector:
J3100	0984393T01	receptacle: uhf
		inductor:
L2000 thru 3002	2484657P01	ferrite bead
L3100	2462587N71	1800 nH, ±5%
L3101,3102	2462587N51	68 nH, ±5%
L3103	2411087A01	120 UH
L3104	2411087A23	0.56 UH
L3105 thru 3108	2462587N71	1800 nH, ±5%
L3200	2462587N71	1800 nH, ±5%
L3201	2462587N54	120 nH, ±5%
L3202	2485588U05	COIL SHLD 10MM 3 1/2 TURN
L3203	2462587N71	1800 nH, ±5%
L3205	2462587N71	1800 nH, ±5%
L3230	2462587N71	1800 nH, ±5%
L3231	2462587N54	120 nH, ±5%
L3232	2485588U05	COIL SHLD 10MM 3 1/2 TURN (TLD9831D)
	2485588U04	COIL SHLD 10MM 2 1/2 TURN (TLD9832D)
L3233	2462587N71	1800 nH, ±5%
L3235	2462587N71	1800 nH, ±5%

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
L3270	2462587N71	1800 nH, ±5%
L3271	2462587N51	68 nH, ±5%
L3273	2462587N71	1800 nH, ±5%
L3274,3275	2462587N51	68 nH, ±5%
L3401	2462587N64	680 nH, ±5%
L3402	2462587N71	1800 nH, ±5%
L3403	2462587N54	120 nH, ±5%
L3405	2411087A54	220 uH, ±10%
L3406	2462587N54	120 nH, ±5%
L3407,3408	2462587N71	1800 nH, ±5%
L3600,3601	2484657R01	ferrite bead
L3603,3604	2462587N49	47 nH, ±5%
L3700,3701	2484657R01	ferrite bead
		transistor (see note):
Q3000 thru 3003	4813824A10	NPN
Q3004	4813822A09	PNP
Q3100	4813824A10	NPN
Q3200	4813822A36	XSTR N–CH RF JFET MMBFJ310LT1
Q3201	4813827A03	NPN
Q3230	4813822A36	XSTR N–CH RF JFET MMBFJ310LT1
Q3231	4813827A03	NPN
Q3260	4813824A10	NPN
Q3261	4813824A10	NPN
Q3262	4813824A10	NPN
Q3263	4813824A17	PNP
Q3280	4813824A10	NPN
Q3401	4813827A03	NPN
Q3402,3403	4813824A10	NPN
Q3404	4813824A17	PNP
Q3405 thru 3407	4813824A10	NPN
Q3408	4813824A17	PNP
Q3409,3410	4813824A10	NPN
Q3411	4813824A17	PNP
Q3412	4813824A10	NPN
Q3701 thru 3706	4884965T01	NPN
Q3707	4813824A10	NPN
Q3708 thru 3710	4884965T01	NPN
Q3711	4813825A09	PNP
		resistor, fixed:
R3000	0611079A98	10K, ±5%, 1/10W
R3001	0611079A50	470 ohms, ±5%, 1/10W
R3002	0611079A98	10K, ±5%, 1/10W
R3003	0611079B47	1MEG, ±5%, 1/10W
R3004 thru 3006	0611079A66	470 ohms, ±5%, 1/10W
R3007	0611079A98	10K, ±5%, 1/10W
R3008	0611079A74	1K, ±5%, 1/10W
R3009	0611079A82	2200 ohms, ±5%, 1/10W
R3010	0611079A98	10K, ±5%, 1/10W
R3011	0611079B23	100K, ±5%, 1/10W
R3012	0611079A98	10K, ±5%, 1/10W
R3013 thru 3015	0611079B23	100K, ±5%, 1/10W
R3016	0611079A74	1K, ±5%, 1/10W
R3017	0611079A98	10K, ±5%, 1/10W
R3018	0611079A74	1K, ±5%, 1/10W
R3019	0611079A98	10K, ±5%, 1/10W
R3020,3021	0611079A50	470 ohms, ±5%, 1/10W
R3022	0683962T01	1 ohm, ±5%, 1 W
R3023	0611079A50	100 ohms, ±5%, 1/10W
R3024	0611077G93	274K, ±1%, 1/8W
R3025	0611079B07	22K, ±5%, 1/10W
R3026	0611077G34	27.4K, ±1%, 1/8W
R3027	0611077G98	127K, ±1%, 1/8W
R3028	0611079A74	1K, ±5%, 1/10W
R3029	0611079B23	100K, ±5%, 1/10W
R3030	0611079A66	470 ohms, ±5%, 1/10W
R3100	0611079A50	100 ohms, ±5%, 1/10W
R3101	0611079A34	22 ohms, ±5%, 1/10W
R3102	0611079A50	100 ohms, ±5%, 1/10W
R3103	0611072A33	220 ohms, ±5%, 1/4W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3104	0611072A37	330 1/4 W
R3105	0611079A74	1K, ±5%, 1/10W
R3106	0611079A26	10 ohms, ±5%, 1/10W
R3107	0611079A74	1K, ±5%, 1/10W
R3108	0611072A45	680 ohms, ±5%,1/4 W
R3109	0611079A98	10K, ±5%, 1/10W
R3110,3111	0611079A74	1K, ±5%, 1/10W
R3112	0611072A45	680 ohms, ±5%,1/4 W
R3201	0611079A26	10 ohms, ±5%, 1/10W
R3202	0611079B09	27K, ±5%, 1/10W
R3203	0611079A42	47 ohms, ±5%, 1/10W
R3204	0611079A54	390 ohms, ±5%, 1/10W
R3205	0611079A74	1K, ±5%, 1/10W
R3206	0611079A66	470 ohms, ±5%, 1/10W
R3207	0611079A50	270 ohms, ±5%, 1/10W
R3230	0611079A26	10 ohms, ±5%, 1/10W
R3231	0611079B09	27K, ±5%, 1/10W
R3232	0611079A42	47 ohms, ±5%, 1/10W
R3233	0611079A54	390 ohms, ±5%, 1/10W
R3234	0611079A74	1K, ±5%, 1/10W
R3235	0611079A66	470 ohms, ±5%, 1/10W
R3236	0611079A50	270 ohms, ±5%, 1/10W
R3237	0611079A98	10K, ±5%, 1/10W
R3250	0611079A66	8200 ohms, ±5%, 1/10W (TLD9831D)
R3251	0611079A94	6800 ohms, ±5%, 1/10W (TLD9832D)
R3252,3253	0611079B15	47K, ±5%, 1/10W
R3254,3255	0611079B15	47K, ±5%, 1/10W
R3260	0611079A84	1000 ohms, ±5%, 1/10W
R3261	0611079A98	10K, ±5%, 1/10W
R3262,3263	0611079A84	2700 ohms, ±5%, 1/10W
R3264	0611079A66	470 ohms, ±5%, 1/10W
R3265	0611079A98	10K, ±5%, 1/10W
R3266,3267	0611079A84	2700 ohms, ±5%, 1/10W
R3268	0611079A66	470 ohms, ±5%, 1/10W
R3269,3270	0611079B15	47K, ±5%, 1/10W
R3271	0611079A50	100 ohms, ±5%, 1/10W (TLD9831D)
	0611079A54	150 ohms, ±5%, 1/10W (TLD9832D)
R3272	0611072A33	220 ohms, ±5%, 1/4W
R3273	0611072A37	330 1/4 W
R3274	0611079A54	150 ohms, ±5%, 1/10W (TLD9831D)
	0611079A50	100 ohms, ±5%, 1/10W (TLD9832D)
R3280	0611079A60	270 ohms, ±5%, 1/10W
R3281,3282	0611079A26	10 ohms, ±5%, 1/10W
R3401	0611079A98	10K, ±5%, 1/10W
R3402	0611079A53	220 ohms, ±5%, 1/10W
R3403	0611079B21	82K, ±5%, 1/10W
R3404	0611079A01	0 ohms, ±5%, 1/10W
R3406	0611079A98	10K, ±5%, 1/10W
R3407	0611079A82	2200 ohms, ±5%, 1/10W
R3408	0611079A98	10K, ±5%, 1/10W
R3409	0611079A74	1K, ±5%, 1/10W
R3410	0611079A86	3300 ohms, ±5%, 1/10W
R3411	0611079A98	10K, ±5%, 1/10W
R3412,3413	0611079A53	220 ohms, ±5%, 1/10W
R3414	0611079A66	470 ohms, ±5%, 1/10W
R3415	0611079A94	6800 ohms, ±5%, 1/10W
R3416	0611079A98	10K, ±5%, 1/10W
R3417	0611079A74	1K, ±5%, 1/10W
R3418	0611079A36	27 ohms, ±5%, 1/10W
R3419	0611079A94	6800 ohms, ±5%, 1/10W
R3420	0611079A72	820 ohms, ±5%, 1/10W
R3421	0611079A50	100 ohms, ±5%, 1/10W
R3422	0611079A36	27 ohms, ±5%, 1/10W
R3423	0611079A74	1K, ±5%, 1/10W
R3424,3425	0611079B07	22K, ±5%, 1/10W
R3426	0611079A62	330 ohms, ±5%, 1/10W
R3427	0611079A68	560 5 1/10W
R3428	0611079A62	330 ohms, ±5%, 1/10W
R3429	0611079A74	1K, ±5%, 1/10W
R3430	0611079A98	10K, ±5%, 1/10W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3431	0611079A74	1K, ±5%, 1/10W
R3432	0611079A98	10K, ±5%, 1/10W
R3433	0611079A62	2200 ohms, ±5%, 1/10W
R3434	0611079A98	10K, ±5%, 1/10W
R3435	0611079A50	100 ohms, ±5%, 1/10W
R3436	0611079A84	2700 ohms, ±5%, 1/10W (TLD9831D)
	0611079A82	2200 ohms, ±5%, 1/10W (TLD9832D)
R3437	0611079B15	47K, ±5%, 1/10W
R3438	0611079A74	1K, ±5%, 1/10W
R3439	0611079A50	100 ohms, ±5%, 1/10W
R3440	0611079B15	47K, ±5%, 1/10W
R3441	0611079A60	270 ohms, ±5%, 1/10W (TLD9831D)
	0611079A58	220 ohms, ±5%, 1/10W (TLD9832D)
R3442,3443	0611079A62	5600 ohms, ±5%, 1/10W (TLD9831D)
	0611079A86	3300 ohms, ±5%, 1/10W (TLD9832D)
R3444,3445	0611079A32	RES FIXED CHIP 18 5 1/10W (TLD9831D)
	0611079A28	RES FIXED CHIP 12 5 1/10W (TLD9832D)
R3446,3447	0611079A98	10K, ±5%, 1/10W
R3448	0611079A74	1K, ±5%, 1/10W
R3449	0611079A98	10K, ±5%, 1/10W
R3450	0611079A66	470 ohms, ±5%, 1/10W (TLD9831D)
	0611079A62	330 ohms, ±5%, 1/10W (TLD9832D)
R3451	0611079B01	12K, ±5%, 1/10W (TLD9831D)
	0611079A96	8200 ohms, ±5%, 1/10W (TLD9832D)
R3452 thru 3454	0611079A98	10K, ±5%, 1/10W
R3455	0611079B15	47K, ±5%, 1/10W
R3456	0611079A98	10K, ±5%, 1/10W
R3457	0611079B01	12K, ±5%, 1/10W (TLD9831D)
	0611079A92	5600 ohms, ±5%, 1/10W (TLD9832D)
R3458	0611079A66	470 ohms, ±5%, 1/10W
R3459	0611079A98	10K, ±5%, 1/10W
R3460	0611079B01	12K, ±5%, 1/10W (TLD9831D)
	0611079A66	470 ohms, ±5%, 1/10W (TLD9832D)
R3461	0611079B01	12K, ±5%, 1/10W
R3462	0611079A98	10K, ±5%, 1/10W
R3463	0611079A94	6800 ohms, ±5%, 1/10W
R3464,3465	0611079A98	10K, ±5%, 1/10W
R3600 thru 3602	0611079A66	470 ohms, ±5%, 1/10W
R3603,3604	0611079A54	390 ohms, ±5%, 1/10W
R3605	0611079A42	47 ohms, ±5%, 1/10W
R3700	0611079A74	1K, ±5%, 1/10W (TLD9831D only)
R3701	0611079A26	10 ohms, ±5%, 1/10W (TLD9832D only)
R3702	0611079A74	1K, ±5%, 1/10W
R3704	0611079A74	1K, ±5%, 1/10W
R3706	0611079A74	1K, ±5%, 1/10W
R3708	0611079A98	10K, ±5%, 1/10W
R3710	0611079A98	10K, ±5%, 1/10W
R3714	0611079A98	10K, ±5%, 1/10W
R3716	0611079A98	10K, ±5%, 1/10W
R3718	0611079A74	1K, ±5%, 1/10W
R3721 thru 3725	0611079A98	10K, ±5%, 1/10W
R3726	0611079A66	470 ohms, ±5%, 1/10W
R3727 thru 3730	0611079A82	2200 ohms, ±5%, 1/10W
R3731	0611079B45	820K, ±5%, 1/10W
R3732 thru 3738	0611079A98	10K, ±5%, 1/10W
R3740	0611079A98	10K, ±5%, 1/10W
R3744	0611079A74	1K, ±5%, 1/10W
R3745	0611079A98	10K, ±5%, 1/10W
R3746 thru 3748	0611079A98	10K, ±5%, 1/10W
R3750	0611079A62	330 ohms, ±5%, 1/10W
R3751	0611079A66	470 ohms, ±5%, 1/10W
R3753	0611079A66	470 ohms, ±5%, 1/10W
R3756	0611079A01	0 ohms, ±5%, 1/10W
R3758	0611079A62	330 ohms, ±5%, 1/10W
R3759	0611079A66	470 ohms, ±5%, 1/10W
R3760	0611079A98	10K, ±5%, 1/10W
R3761	0611079A01	0 ohms, ±5%, 1/10W
R3762	0611079A66	470 ohms, ±5%, 1/10W
R3764,3765	0611079A66	470 ohms, ±5%, 1/10W

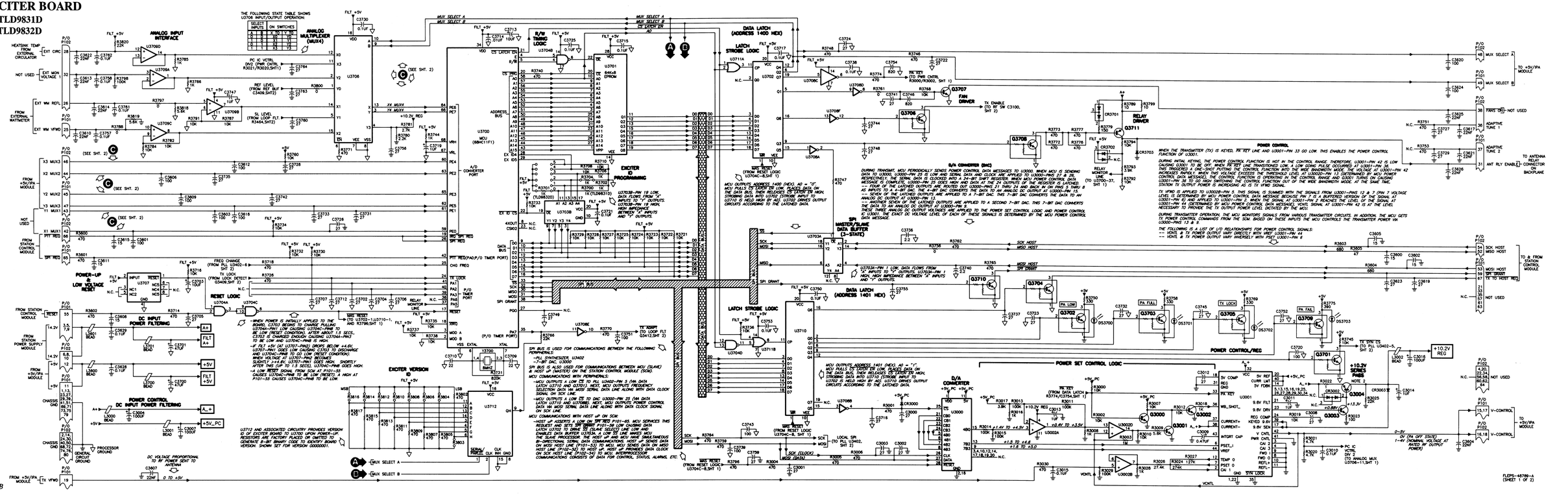
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R3766	0611079B07	22K, ±5%, 1/10W
R3768	0611079A98	10K, ±5%, 1/10W
R3769	0611079A62	330 ohms, ±5%, 1/10W
R3770,3771	0611079A66	470 ohms, ±5%, 1/10W
R3772,3773	0611072A41	470 ohms, ±5%, 1/4W
R3774	0611079A66	470 ohms, ±5%, 1/10W
R3775	0611079A54	390 ohms, ±5%, 1/10W
R3776,3777	0611072A41	470 ohms, ±5%, 1/4W
R3779	0611079A54	150 ohms, ±5%, 1/10W
R3780	0611079A82	2200 ohms, ±5%, 1/10W
R3781	0611079A84	2700 ohms, ±5%, 1/10W
R3782	0611079A98	10K, ±5%, 1/10W
R3784	0611079A98	10K, ±5%, 1/10W
R3785,3786	0611079A74	1K, ±5%, 1/10W
R3787	0611079A98	10K, ±5%, 1/10W
R3788	0611079A01	0 ohms, ±5%, 1/10W
R3789	0611072A01	10 ohms, ±5%, 1/4W
R3791,3792	0611079A98	10K, ±5%, 1/10W
R3793	0611079A88	3900 ohms, ±5%, 1/10W
R3794	0611079A98	10K, ±5%, 1/10W
R3796	0611079A66	470 ohms, ±5%, 1/10W
R3797	0611079A01	0 ohms, ±5%, 1/10W
R3798	0611079B23	100K, ±5%, 1/10W
R3799	0611072A01	10 ohms, ±5%, 1/4W
R3800	0611079A01	0 ohms, ±5%, 1/10W
R3802	0611079A66	470 ohms, ±5%, 1/10W
R3805, 3806	0611079A66	470 ohms, ±5%, 1/10W
R3809	0611079A66	470 ohms, ±5%, 1/10W
R3811	0611079A66	470 ohms, ±5%, 1/10W
R3813	0611079A66	470 ohms, ±5%, 1/10W
R3815	0611079A66	470 ohms, ±5%, 1/10W
R3817	0611079A66	470 ohms, ±5%, 1/10W
R3818,3819	0611079A86	3300 ohms, ±5%, 1/10W
R3820	0611079B07	22K, ±5%, 1/10W
		thermistor:
RT3200	0680149M01	470 ohms, +10%, 240 MW
RT3230	0680149M01	470 ohms, +10%, 240 MW
		integrated circuit (see note):
U3000	5183977M73	Custom D/A Converter
U3001	5183977M70	+105V Regulator/Power Control
U3002	5113819A04	Quad Operational Amplifier
U3100	4882347W01	MMIC SILICON BIPOLAR SM
U3270	4882347W01	MMIC SILICON BIPOLAR SM
U3401	5113819A05	High Performance, Single Supply
U3402	5184607T03	IC CUSTOM SYNTER SCRVO
U3403	5113800A86	Quad Analog Multiplexer/Demultiplexer
U3404	5113819A08	Low Power JFET–IN
U3405	5113815A07	5–Volt Positive Regulator
U3700	5113802A06	IC 68HC11 W/SCI SPI NON MUX
U3701	5191013L72	IC PROM EPROM
U3702	5113808A42	Dual D–type Flip–Flop
U3703	5113808A38	Octal 3–State Non–Inverter Line Driver
U3704	5113808A01	Quad 2–Input NAND Gate
U3706	5113808A84	Mux/Demux, Dual 4–Channel Analog
U3707	5113815A02	Under Voltage Sensing Circuit
U3708	5113808A05	Hex Inverter
U3709	5113819A04	Quad Operational Amplifier
U3710	5113808A42	Dual D–type Flip–Flop
U3711	5113808A14	Quad 2–Input OR Gate
U3712	5113805A43	8–Bit S/P–In S–Out Shift Register
		crystal (see note):
Y3700	4884450T01	8.000 MHZ

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non–referenced items:
	0982451V07	socket, 28–pin (used with U3701)
	1584753T04	Housing, Corral; extra large (used with E3400)
	1584753T04	Housing, Corral; extra large (used with E3700)
	1584753T05	Housing, Corral; large (used with E3000)
	1584753T05	Housing, Corral; large (used with E3200)
	1585034U08	Cover, extra large (used with E3400)
	1585034U08	Cover, extra large (used with E3700)
	1585034U09	Cover, large (used with E3000)
	1585034U09	Cover, large (used with E3200)
	2680556V01	HEATSINK, DPAK (used with Q3400)
	6182521W04	LIGHTPIPES (4)
	6404062T05	CIRCUIT BOARD

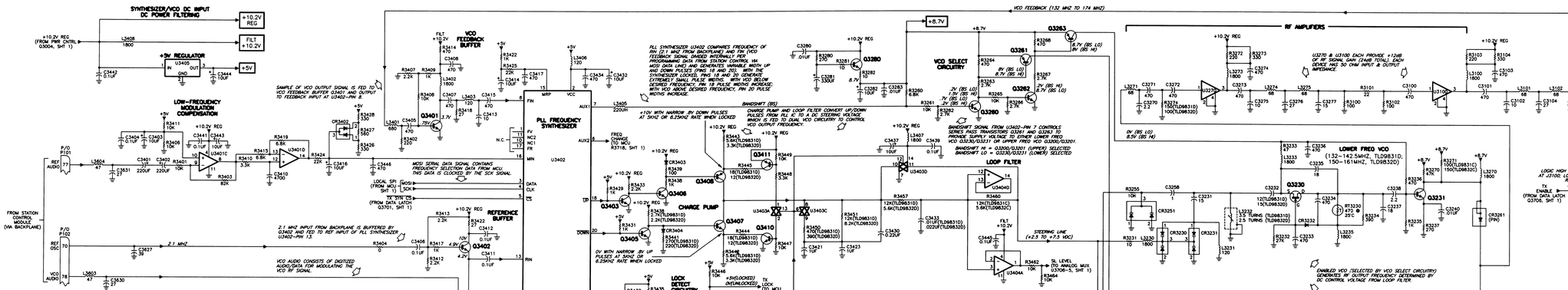
note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

VHF EXCITER BOARD

MODELS TLD9831D
TLD9832D



VHF EXCITER BOARD
MODELS TLD9831D
TLD9832D



C

DURING DIAGNOSTIC ROUTINES, MCU U3700 VIA DATA_LATCH U3702 ASSERTS MUX SELECT A & B LINES AND THEN MONITORS THE FOLLOWING MUX OUTPUT LINES:

- X1 MUX1 (P102~42) — X3 MUX2 (P102~46)
- Y1 MUX1 (P101~43) — Y3 MUX3 (P101~47)
- X2 MUX2 (P102~44) — X4 MUX4 (U3706 PIN 13)
- Y2 MUX2 (P101~45) — Y4 MUX4 (U3706 PIN 3)

MCU U3700 POLLS EACH MUX OUTPUT LINE DURING A 10~20mS LOOP CYCLE.

EACH MUX OUTPUT LINE CONTAINS FOUR 200uS CHANNELS 0 THRU 3. EACH CHANNEL CORRESPONDS TO A MUX INPUT SIGNAL X0 THRU X3 OR Y0 THRU Y3. EACH MUX INPUT SIGNAL RANGES BETWEEN 0 TO +5V (SEE FIG. 1).

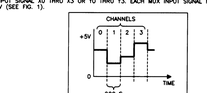


FIG. 1. TYPICAL DATA STREAM ON MUX OUTPUT LINE.

FOR THIS CIRCUIT BOARD APPLICATION, THERE ARE NO MUX1 SIGNAL INPUTS.
U3706 MUX4 SIGNAL INPUTS CAN BE DETERMINED FROM THIS SCHEMATIC DIAGRAM.
TO DETERMINE MUX2 & MUX3 SIGNAL INPUTS, SEE THE FOLLOWING TABLE.

OUTPUT LINE	SIGNAL INPUTS	OUTPUT LINE	SIGNAL INPUTS
	X0 NO FAN		X0 N.C.
Y2MUX2 (P102~44)	X1 OVERVOLTAGE	Y3MUX3 (P102~46)	X1 N.C.
	X2 VOMAL_REF		X2 IPA_IDA
	X3 FPA_TEMP		X3 IPA_IDB
	Y0 CIRCULATOR TEMP		Y0 DPA_VFWD (HIGH POWER ONLY)
Y2MUX2 (P101~45)	Y1 N.C.	Y3MUX3 (P101~47)	Y1 N.C.
	Y2 N.C.		Y2 FPA_VREFL
	Y3 N.C.		Y3 FPA_VFWD

U3402 PINOUT INFORMATION

PIN #	SIGNAL NAME	DESCRIPTION/NOMINAL VOLTAGE
1	FV	TEST POINT; DIVIDED DOWN VCO FREQUENCY, 8.25 KHZ OR 5 KHZ SAWTOOTH IN A LOCKED CONDITION.
2	VCC	RF POWER, +5V
3	DATA	SERIAL DATA INPUT; 0~5V LOGIC LEVEL
4	CLK	CLOCK FOR SERIAL DATA PROGRAMMING; 0~5V LOGIC LEVEL
5	$\overline{CS}$	CHIP SELECT; LOW WHEN PROGRAMMING, HIGH WHEN NOT PROGRAMMING 0~5V LOGIC LEVELS
6	AUX2	CHANGE FREQUENCY; TOGGLES BETWEEN LOGIC LOW AND HIGH WITH EVERY FREQUENCY CHANGE
7	AUX1	BANDSHIFT; HIGH SELECTS LOW FREQUENCY VCO (Q3200/Q3201), LOW SELECTS HIGH FREQUENCY VCO (Q3230/Q3231)
8	FIN	FEEDBACK RF INPUT; 132 MHZ TO 154 MHZ (TLD9831C) OR 150 MHZ TO 174 MHZ (TLD9832C) RISING ON 1.4V DC
9	VBBP	DC BIAS FOR PRESCALER INPUT, 1.4V DC
10	NC1	NOT USED
11	NC2	NOT USED
12	VBB	DC BIAS FOR REFERENCE DIVIDER INPUT, 1.4V DC
13	RIN	REFERENCE DIVIDER INPUT; 10.7 P~P, 2.1 MHZ SQUARE WAVE RIDING ON 1.4V DC
14	GND	RF GROUND; 0V
15	MRP	CONNECTION TO EXTERNAL RAMP CIRCUIT FOR PHASE MODULATOR; STEEPLY SLOPED RAMP, RAMPING BETWEEN 0 AND 5V @ 6.25 KHZ OR 5 KHZ RATE
16	MIN	MODULATION INPUT TO PHASE MODULATOR; +2.5V DC BIAS
17	FIN	TEST POINT; DIVIDED DOWN 2.1 MHZ REFERENCE @ 6.25 KHZ OR 5 KHZ IN A LOCKED CONDITION.
18	UP	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ OR 5 KHZ RIDING ON 7V DC
19	LOCK	LOW WHEN LOCKED, WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ OR 5 KHZ RIDING ON 5V DC.
20	DOWN	WHEN LOCKED, NARROW (<1US) DOWN PULSES AT 6.25 KHZ OR 5 KHZ RIDING ON .7V DC

VCO TROUBLESHOOTING

1) Q3280 AND ASSOCIATED CIRCUITRY COMPRISE +8.7V SUPERFILTER. MEASURE VOLTAGE DROP ACROSS R3282 AND CALCULATE CURRENT (SHOULD BE APPROXIMATELY 60 MA).
2) Q3260 THRU Q3263 COMPRISE BANDSHIFT CIRCUITRY, WHICH SWITCHES DC POWER TO Q3230/Q3231 (LOWER PORTION OF BAND) OR TO Q3200/Q3201 (UPPER PORTION OF BAND). STEERING LINE SENSITIVITY IS APPROXIMATELY 3 MHZ/VOLT (STEERING LINE EXTREMELY SENSITIVE, DO NOT PROBE). POWER AT CR3260/CR3261 OUTPUT SHOULD BE APPROXIMATELY +10DBM INTO 50 OHMS.
3) IF BOARD IS NOT LOCKED, PERFORM FOLLOWING PROCEDURE TO DETERMINE IF VCO CIRCUITRY IS AT FAULT:
   A) VERIFY DC VOLTAGES AS SHOWN ON SCHEMATIC.
   B) MEASURE POWER AND FREQUENCY AT OUTPUT OF CR3200/CR3261; SHOULD BE APPROXIMATELY +10.5DBM INTO 50 OHMS, FREQUENCY SHOULD BE WITHIN LOWER OR UPPER RANGE.
   C) MEASURE STEERING LINE VOLTAGE AT U3404A~PIN 1. IF BOARD IS NOT LOCKED, VOLTAGE SHOULD BE BETWEEN +2.5V AND +9.15V. DETERMINE WHICH VCO IS ENABLED (U3402~PIN 7) AND VERIFY VCO OUTPUT FREQUENCY BASED ON MEASURED STEERING LINE VOLTAGE. REFER TO DATA BELOW.

Q3200/Q3201 ENABLED		
STEERING LINE VOLTAGE .5V	APPROX 145 MHZ (TLD9832D)	126 MHZ (TLD9831D)
STEERING LINE VOLTAGE +9.15V	APPROX 170 MHZ (TLD9832D)	154 MHZ (TLD9831D)
Q3230/Q3231 ENABLED		
STEERING LINE VOLTAGE .5V	APPROX 154 MHZ (TLD9832D)	135 MHZ (TLD9831D)
STEERING LINE VOLTAGE +9.15V	APPROX 185 MHZ (TLD9832D)	168 MHZ (TLD9831D)

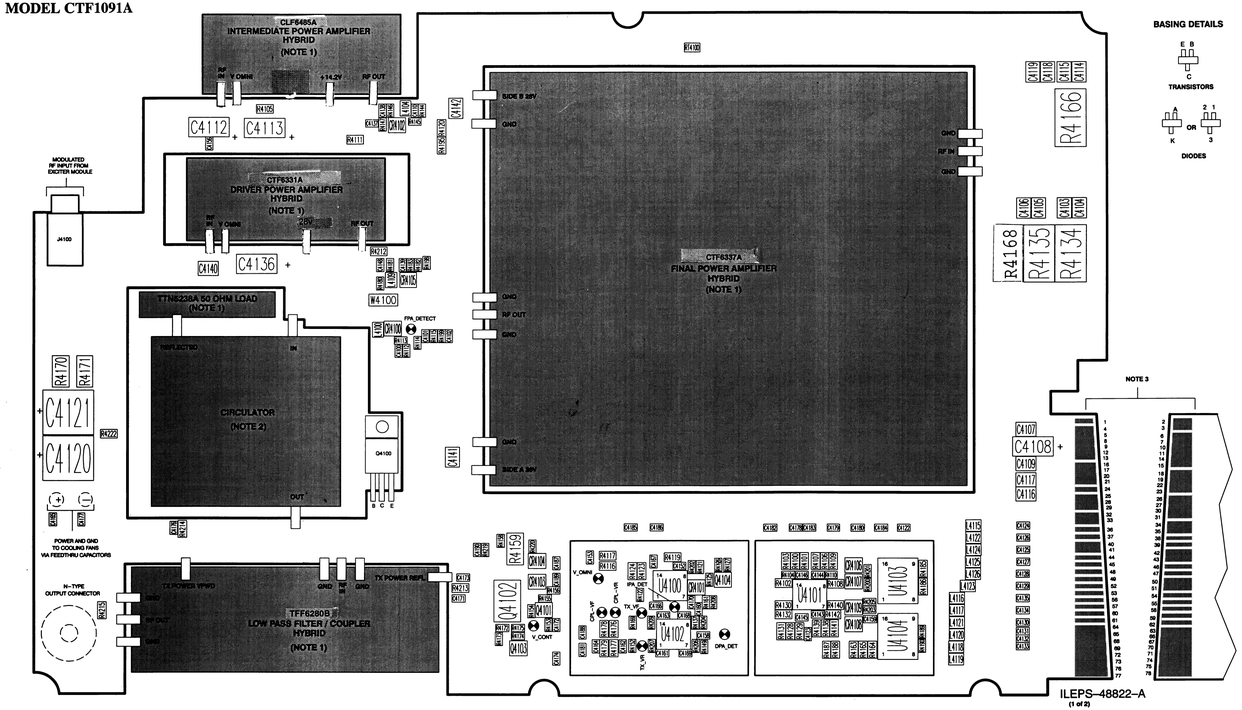
NOTES:
1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN NANOHENRIES.
2. THE +10.2V SERIES PASS TRANSISTOR Q3004 IS HEATSINK MOUNTED. THE COLLECTOR IS INTERNALLY CONNECTED TO THE BODY WHICH CONTACTS THE HEATSINK.
3. EDGE CONNECTORS P101 AND P102 ARE PART OF THE PRINTED CIRCUIT BOARD AND MATE WITH BACKPLANE CONNECTOR.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DES	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U3000	CUSTOM	D/A CONVERTER	1,11	2,16
U3001	CUSTOM	REGULATOR/POWER CONTROL	32	1,31
U3002	MC33053D#2	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3100 & U3370	MSA0386	MICROWAVE AMPLIFIER, 50~OHM INPUT & OUTPUT IMPEDANCE (MMIC)	3	2,4
U3401	MC33074D	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3402	CUSTOM	PHASE LOCKED LOOP SYNTHESIZER	2	14
U3403	MC74HC4066	QUAD ANALOG MULTIPLEXER/DEMULTIPLEXER	14	7
U3404	MC33184	LOW POWER QUAD OPERATIONAL AMPLIFIER	4	11
U3405	MC7805	+5V VOLTAGE REGULATOR	1	2
U3700	M68HC11F1	MICROCONTROLLER (MCU W/SCI, SPI (NON-MULTIPLEXED ADDRESS/DATA BUS)	34	1
U3701	27C512	64K X 8-BIT EPROM, PROGRAMMED	28	14
U3702	MC74AC273	OCTAL D-TYPE FLIP-FLOP	20	10
U3703	MC74AC244	OCTAL BUFFER/LINE DRIVER, WITH 3-STATE OUTPUTS	20	10
U3704	MC74AC000	QUAD 2-INPUT NAND GATE	14	7
U3708	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	7,8
U3707	MC33064	UNDERVOLTAGE SENSING CIRCUIT	2	4
U3708	MC74AC04	HEX INVERTER	14	7
U3709	MC33053D#2	QUAD DIFFERENTIAL-INPUT OPERATIONAL AMPLIFIER	4	11
U3710	MC74AC273	OCTAL D-TYPE FLIP-FLOP	20	10
U3711	MC74AC32	QUAD 2-INPUT OR GATE	14	7
U3712	MC74HC165	8-BIT SERIAL OR PARALLEL INPUT SHIFT REGISTER	16	8

100W 800 MHz POWER AMPLIFIER MODULE

MODEL CTF1091A



SMR5651 68P81097E99-O
(Sheet 1 of 2)
12/01/03-UP

NOTES:

1) CLF5485A, CTF6337A, CTF6331A, and TFF6280B ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

ILEPS–48822–A
(2 OF 2)

parts list

CTF6344A **RF/DC Distribution Board (800 MHz 100W PA)** PL–13096–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A55	18 pF, ±5%, 50 V
C4101	2113740A43	39 pF, ±5%, 50 V
C4102	2113740G03	1 pF, ±0.1 pF, 50 V
C4103 thru 4107	2113901C48	39 pF, ±5%, 100V
C4108	2311048A45	10 uF, ±10%, 35 V
C4109	2113901C29	10 pF, ±0.5 pF, 100 V
C4110	2113740A35	15 pF, ±5%, 50 V
C4112,4113	2311048A45	10 uF, ±10%, 35 V
C4114 thru 4116	2113901C48	39 pF, ±5%, 100V
C4117	2113901C29	10 pF, ±0.5 pF, 100 V
C4118,4119	2113901C48	39 pF, ±5%, 100V
C4120,4121	2380909M27	330 uF, ±20%, 16 V
C4122 thru 4135	2113740A43	39 pF, ±5%, 50 V
C4136	2311048A45	10 uF, ±10%, 35 V
C4137,4138	2113740G03	1 pF, ±0.1 pF, 50 V
C4139	2113740A35	15 pF, ±5%, 50 V
C4140 thru 4142	2113901C48	39 pF, ±5%, 100V
C4143 thru 4146	2113740A43	39 pF, ±5%, 50 V
C4148	2113740G03	1 pF, ±0.1 pF, 50 V
C4152,4153	2113740A43	39 pF, ±5%, 50 V
C4156	2113740G03	1 pF, ±0.1 pF, 50 V
C4158 thru 4172	2113740A43	39 pF, ±5%, 50 V
C4173	2113740A25	7.54 pF, ±0.25 pF, 50V
C4174,4175	2113740G15	3.3 pF, ±0.1 pF, 50 V
C4176	2113740A25	7.54 pF, ±0.25 pF, 50V
C4177 thru 4189	2113740A43	39 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4101	4813633C02	Dual Diode; common cathode
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813633C05	dual 70 V
CR4105	4882290T04	Diode; hot carrier
CR4106 thru 4109	4813830A14	Zener, 5.1 V
		connector:
J4100	0984393T01	receptacle: uhf
		coil:
L4100	2462587X47	CHIP IND 33 NH 5%
L4104	2462587X41	10 nH, ±5%
L4109	2462587X44	18 nH, ±5%
L4115 thru 4126	2462587X55	150 nH, ±5%
L4127	2480591E65	22.57 nH, ±5%
		transistor (see note):
Q4100	4813822D07	TSTR PNP 90V 10A MJF2955
Q4101	4813824A10	NPN
Q4102	4813821A09	TSTR P–CH 60V 12A _2955_
Q4103,4104	4813824A10	NPN
		resistor, fixed:
R4100	0611077F94	10.7K, ±1%, 1/8 W
R4101	0611077F24	2K, ±1%, 1/8 W
R4102	0611077E94	1K, ±1%, 1/8 W
R4103	0611077F94	10.7K, ±1%, 1/8 W
R4104	0611076G01	10K, 1/10 W, ±1%
R4105	0611077A01	0 ohm, ±5%, 0 W
R4106	0611077F94	10.7K, ±1%, 1/8 W
R4107	0611077F24	2K, ±1%, 1/8 W
R4108	0611077E94	1K, ±1%, 1/8 W
R4109	0611077F94	10.7K, ±1%, 1/8 W
R4110	0611076G01	10K, 1/10 W, ±1%
R4111	0611077A01	0 ohm, ±5%, 0 W
R4112,4113	0611079G01	10K, 1/10 W, ±1%
R4114	0611079A94	2700 ohms, ±5%, 1/10 W
R4115	0611079A26	10 ohms, ±5%, 1/10 W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4119	0611077B15	47K, ±5%, 1/8 W
R4120	0611077A01	0 ohm, ±5%, 0 W
R4121	0611079A74	1K, ±5%, 1/10 W
R4122	0611079G01	10K, 1/10 W, ±1%
R4123	0611077F56	4.32K, ±1%, 1/8 W
R4124	0611077F68	5.76K, ±1%, 1/8 W
R4125,4126	0611079G01	10K, 1/10 W, ±1%
R4127	0611079A74	1K, ±5%, 1/10 W
R4128	0611077C04	13.3K, ±1%, 1/8 W
R4129,4130	0611077F24	2K, ±1%, 1/8 W
R4131	0611077G22	20.5K, ±1%, 1/8 W
R4132	0611077C42	33.2K, ±1%, 1/8 W
R4134,4135	0682089V02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	1K, ±5%, 1/10 W
R4138	0611077C04	13.3K, ±1%, 1/8 W
R4139,4140	0611077F24	2K, ±1%, 1/8 W
R4141	0611077G22	20.5K, ±1%, 1/8 W
R4142	0611077C42	33.2K, ±1%, 1/8 W
R4144,4145	0611079G01	10K, 1/10 W, ±1%
R4146	0611079A56	180 ohms, ±5%, 1/10 W
R4147	0611079A44	56 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%, 1/10 W
R4152	0611079A74	1K, ±5%, 1/10 W
R4153	0611079A90	270 ohms, ±5%, 1/10 W
R4154 thru 4156	0611079A74	1K, ±5%, 1/10 W
R4158	0611079G01	10K, 1/10 W, ±1%
R4159	0683962T24	1 ohm, ±5%, 1 W
R4161	0611079A74	1K, ±5%, 1/10 W
R4163	0611077A01	0 ohm, ±5%, 0 W
R4164	0611077F12	1.5K, ±1%, 1/8 W
R4165	0611077G08	15K, ±1%, 1/8 W
R4166	0682089V02	SMT RES .02 OHM 5% 2W
R4169	0682089V02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	1K, ±5%, 1/10 W
R4170,4171	0683962T24	9.1 ohms, ±5%, 1 W
R4172	0611079G01	10K, 1/10 W, ±1%
R4173,4174	0611079A74	1K, ±5%, 1/10 W
R4175	0611079G01	10K, 1/10 W, ±1%
R4176	0611077B14	43K, ±5%, 1/8 W
R4177	0611077B10	30K, ±5%, 1/8W
R4178	0611077B14	43K, ±5%, 1/8 W
R4179	0611077B10	30K, ±5%, 1/8W
R4180	0611079A50	100 ohms, ±5%, 1/10 W
R4181	0611079A26	10 ohms, ±5%, 1/10 W
R4182,4183	0611079G01	10K, 1/10 W, ±1%
R4185	0611077G04	13.3K, ±1%, 1/8 W
R4186	0611077F24	2K, ±1%, 1/8 W
R4187	0611077F68	5.76K, ±1%, 1/8 W
R4188	0611077F24	2K, ±1%, 1/8 W
R4189,4190	0611079G01	10K, 1/10 W, ±1%
R4195	0611077A01	0 ohm, ±5%, 0 W
R4196 thru 4209	0611079A50	100 ohms, ±5%, 1/10 W
R4212	0611077A01	0 ohm, ±5%, 0 W
R4213,4214	0611077E94	1K, ±1%, 1/8 W
R4215	0611077A01	0 ohm, ±5%, 0 W
R4217	0611079A01	0 ohms, ±5%, 1/10 W
R4219	0611078E01	100K, ±5%, 1/10 W
R4220	0611079A01	0 ohms, ±5%, 1/10 W
R4222	0611077A01	0 ohm, ±5%, 0 W
		thermistor:
RT4100	0680149M02	100K, ±10%, 240 MW
		integrated circuit (see note):
U4100 thru 4102	5113818A05	High Performance, Single Supply Mux/Demux, Dual 4–Channel Analog
U4103,4104	5113805A84	**cable assembly:**
		cable assembly:
W4100	4280500F01	SMT ZERO OHM MELF

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non–referenced items:
	1584753T02	Housing (used with E4100)
	1584753T02	Housing (used with E4101)
	1585034U03	COVER, Shield (used with E4100)
	1585034U03	COVER, Shield (used with E4101)
	5482008W01	LABEL, PCB barcode
	5482008W02	RIBBON, thermal XFER
	5484966T01	Label, barcode: 8.3 x 12.7MM, white
	8482219W07	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

CLF6508A **800/900 MHz 100W PA Hardware** PL–13084–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non–referenced items:
	0185181U01	ASSEM PA COOLING FANS
	0211996A02	NUT HEX 3/8 x 24 x 1/2 x 3/32
	0310607A28	Screw, Tapping: m3.5 x 0.6 x 10 (7 used)
	0310943J09	Screw, Tapping: TT3 x 5 x 6 (16 used)
	0310943J10	Screw, Tapping: TT3 x 5 x 8 (13 used)
	0310943J15	Screw, Tapping: (2 used)
	0312016A32	SCRTPG TT3.5X.6X18 STRPNSTL2NC (8 used)
	0400007B91	WASHER, lock: 3/8", int. tooth (2 used)
	0909818199	CONNECTOR, receptacle: coaxial
	1585002U02	COVER High Band PA
	2182800H05	1000 pF, ±0% 200V (2 used)
	2682318W06	HEATSINK HB PA
	3282796H05	Gasket, RFI: .094" x .094" (35.8 used)
	5482624Y01	Label, PCB barcode
	5482008W02	RIBBON, thermal XFER (0.00002 used)

CTF6331A **Driver PA Hybrid** PL–13102–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TFF6280B **Low Pass Filter/Coupler Hybrid** PL–13101–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

CLF5485A **Intermediate PA Hybrid** PL–13100–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTN6238A **Circulator 50Ω Load** PL–13103–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

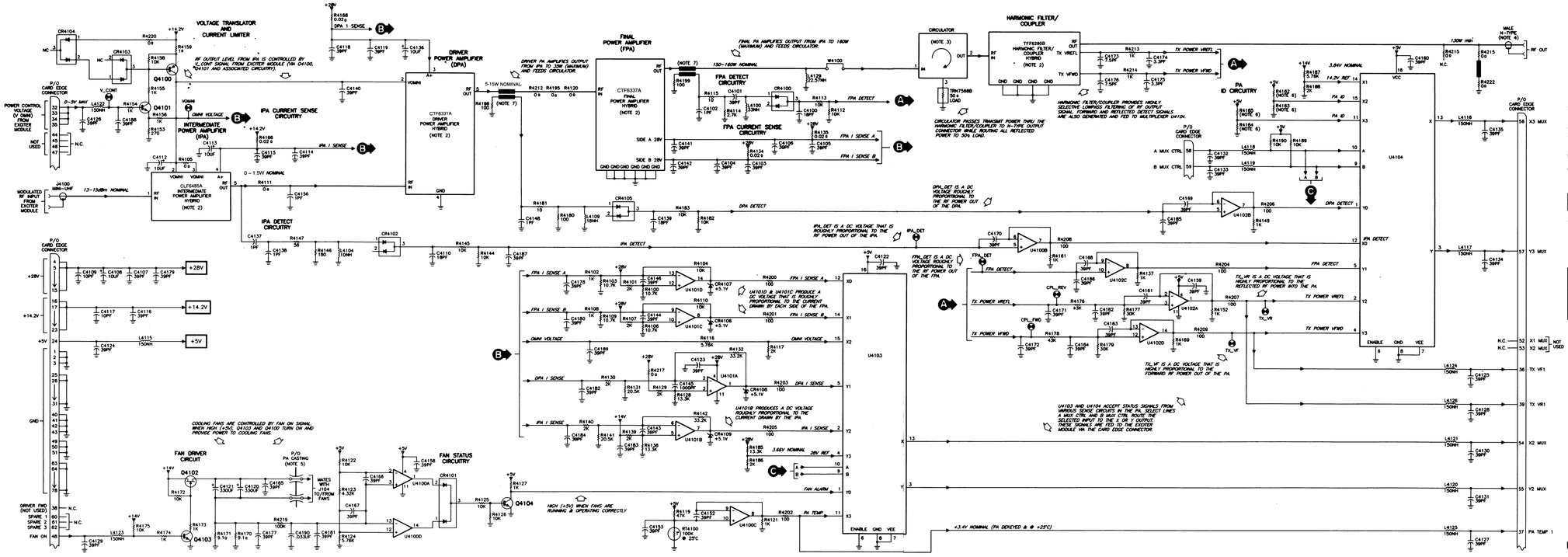
This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

CTF6337A **Final PA Hybrid** PL–13099–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

100W 800 MHz POWER AMPLIFIER MODULE
MODEL CTF1091A



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS. CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES. N.C. – NO CONNECTION.
2. CLF6485A IPA, CTF6337A FPA, CTF6331A DPA, and TFF22600 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884911T06.
4. THE N-TYPE OUTPUT CONNECTOR (0900081B15W, P/O TRN7908A HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. CONNECTIONS TO THE COOLING FANS ARE MADE VIA FEEDTHRU CAPACITORS (1000PF, P/O TRN7908A HARDWARE).
6. RESISTORS R4182 THRU R4185 COMPRISE A "RESISTOR ROM" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PARTICULAR PA MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

MODEL	R4182	R4183	R4184	R4185
CTF1091A (800 MHz)	NOT PLACED	0	1.5K	15K

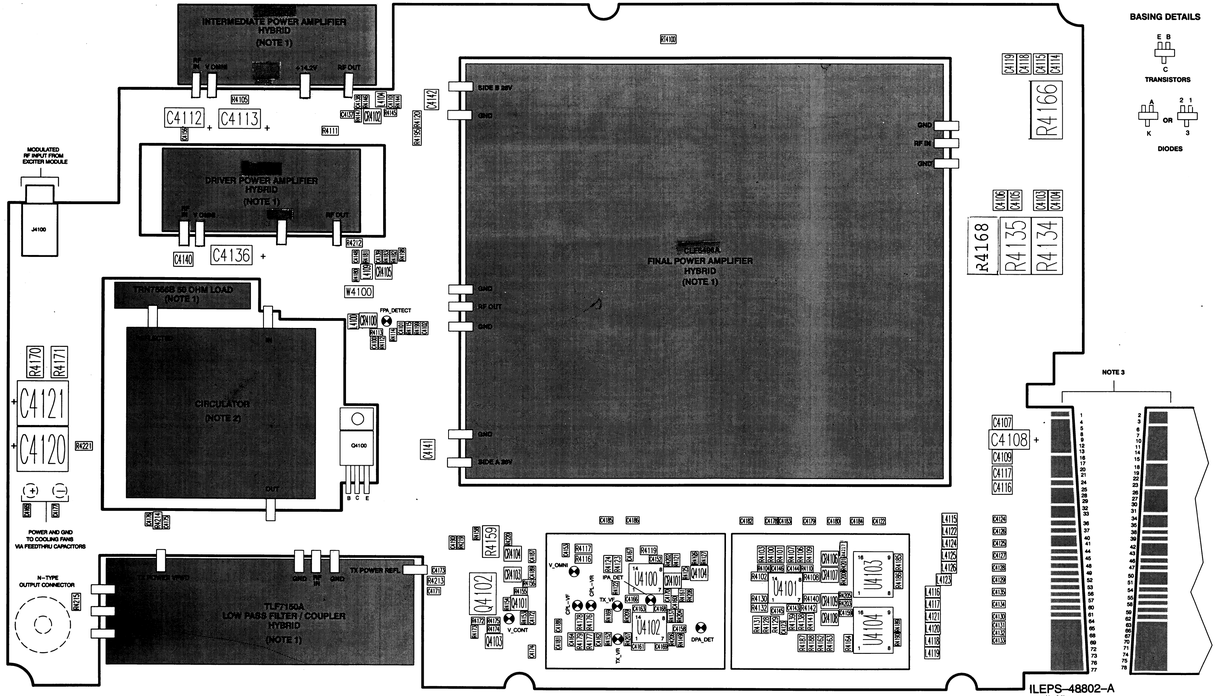
7. FPA/DPA DETECT CIRCUITRY ACCEPT SAMPLES OF FPA/DPA OUTPUTS VIA MICROSTRIP COUPLERS.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF DESIG	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

FLEPS–48821–A

100W 900 MHz POWER AMPLIFIER MODULE
MODEL CTF1092A



BASING DETAILS

NOTES:

1) CLF5400A, CLF5485A, TLF7150A, CTF6348A AND TRN7566B ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.

2) THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5864911T06.

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS--REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

ILEPS–48802–A
(2 OF 2)

parts list

CTF6347A RF/DC Distribution Board (900 MHz 100W PA) PL–13083–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		capacitor, fixed:
C4100	2113740A35	18 pF, ±5%, 50 V
C4101	2113740A43	39 pF, ±5%, 50 V
C4102	2113740Q03	1 pF, ±0.1 pF, 50 V
C4103 thru 4107	2111078B32	39 pF, ±5%, 100V
C4108	2311049A45	10 uF, ±10%, 35 V
C4109	2111078B13	10 pF, ±0.5 pF, 100 V
C4110	2113740A35	18 pF, ±5%, 50 V
C4112,4113	2311049A45	10 uF, ±10%, 35 V
C4114 thru 4118	2111078B32	39 pF, ±5%, 100V
C4117	2111078B13	10 pF, ±0.5 pF, 100 V
C4118,4119	2111078B32	39 pF, ±5%, 100V
C4120,4121	2380009M27	330 uF, ±20%, 16 V
C4122 thru 4135	2113740A43	39 pF, ±5%, 50 V
C4136	2311049A45	10 uF, ±10%, 35 V
C4137,4138	2113740Q03	1 pF, ±0.1 pF, 50 V
C4139	2113740A35	18 pF, ±5%, 50 V
C4140 thru 4142	2111078B32	39 pF, ±5%, 100V
C4143 thru 4146	2113740A43	39 pF, ±5%, 50 V
C4147	2113740Q03	1 pF, ±0.1 pF, 50 V
C4152,4153	2113740A43	39 pF, ±5%, 50 V
C4156	2113740Q03	1 pF, ±0.1 pF, 50 V
C4158 thru 4172	2113740A43	39 pF, ±5%, 50 V
C4173	2113740A25	7.54 pF, ±0.25 pF, 50V
C4174,4175	2113740Y15	3.3 pF, ±0.1 pF, 50 V
C4176	2113740A25	7.54 pF, ±0.25 pF, 50V
C4177 thru 4189	2113740A43	39 pF, ±5%, 50 V
C4190	2113741A57	0.033 uF, ±5%, 50 V
		diode (see note):
CR4100	4882290T04	Diode; hot carrier
CR4101	4813833C02	Dual Diode; common cathode
CR4102	4882290T04	Diode; hot carrier
CR4103,4104	4813833C05	dual 70 V
CR4105	4882290T04	Diode; hot carrier
CR4106 thru 4109	4813809A14	Zener, 8.1 V
		connector:
J4100	0984393T01	receptacle: uhf
		coil:
L4100	2462587N47	CHIP IND 33 NH 5%
L4104	2462587N41	10 nH, ±5%
L4109	2462587N44	18 nH, ±5%
L4115 thru 4126	2462587N15	150 nH, ±5%
		transistor (see note):
Q4100	4813822D01	TSTR PNP 90V 10A MJF2955
Q4101	4813824A10	NPN
Q4102	4813821A09	TSTR P--CH 60V 12A _2955_
Q4103,4104	4813824A10	NPN
		resistor, fixed:
R4100	0611077F94	10.7K, ±1%, 1/8 W
R4101	0611077F24	2K, ±1%, 1/8 W
R4102	0611077E94	1K, ±1%, 1/8 W
R4103	0611077F94	10.7K, ±1%, 1/8 W
R4104	0611079G01	10K, 1/10 W, ±1%
R4105	0611077A01	0 ohm, ±5%, 0 W
R4106	0611077F94	10.7K, ±1%, 1/8 W
R4107	0611077F24	2K, ±1%, 1/8 W
R4108	0611077E94	1K, ±1%, 1/8 W
R4109	0611077F94	10.7K, ±1%, 1/8 W
R4110	0611079G01	10K, 1/10 W, ±1%
R4111	0611077A01	0 ohm, ±5%, 0 W
R4112,4113	0611079G01	10K, 1/10 W, ±1%
R4114	0611079A84	2700 ohms, ±5%, 1/10 W
R4115	0611079A26	10 ohms, ±5%, 1/10 W
R4116	0611077F68	5.76K, ±1%, 1/8 W
R4117	0611077F24	2K, ±1%, 1/8 W
R4119	0611077B15	47K, ±5%, 1/8 W

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R4120	0611077A01	0 ohm, ±5%, 0 W
R4121	0611079A74	1K, ±5%, 1/10 W
R4122	0611079G01	10K, 1/10 W, ±1%
R4123	0611077F56	4.32K, ±1%, 1/8 W
R4124	0611077F68	5.76K, ±1%, 1/8 W
R4125,4126	0611079G01	10K, 1/10 W, ±1%
R4127	0611079A74	1K, ±5%, 1/10 W
R4128	0611077G04	13.3K, ±1%, 1/8 W
R4129,4130	0611077F24	2K, ±1%, 1/8 W
R4131	0611077G22	20.5K, ±1%, 1/8 W
R4132	0611077G42	33.2K, ±1%, 1/8 W
R4134,4135	0682066Y02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	1K, ±5%, 1/10 W
R4138	0611077G04	13.3K, ±1%, 1/8 W
R4139,4140	0611077F24	2K, ±1%, 1/8 W
R4141	0611077G22	20.5K, ±1%, 1/8 W
R4142	0611077G42	33.2K, ±1%, 1/8 W
R4144,4145	0611079G01	10K, 1/10 W, ±1%
R4146	0611079A56	180 ohms, ±5%, 1/10 W
R4147	0611079A44	56 ohms, ±5%, 1/10 W
R4149	0611079A74	1K, ±5%, 1/10 W
R4152	0611079A74	1K, ±5%, 1/10 W
R4153	0611079A60	270 ohms, ±5%, 1/10 W
R4154 thru 4156	0611079A74	1K, ±5%, 1/10 W
R4158	0611079G01	10K, 1/10 W, ±1%
R4159	0683962T01	1 ohm, ±5%, 1 W
R4161	0611079A74	1K, ±5%, 1/10 W
R4162	0611077G22	20.5K, ±1%, 1/8 W
R4163	0611077F91	10K, ±1%, 1/8 W
R4164	0611077E94	1K, ±1%, 1/8 W
R4165,4166	0682066Y02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	1K, ±5%, 1/10 W
R4170,4171	0683962T24	9.1 ohms, ±5%, 1 W
R4172	0611079G01	10K, 1/10 W, ±1%
R4173,4174	0611079A74	1K, ±5%, 1/10 W
R4175	0611079G01	10K, 1/10 W, ±1%
R4176	0611077G49	39.2K, ±1%, 1/8 W
R4177	0611077G46	36.5K, ±1%, 1/8W
R4178	0611077G49	39.2K, ±1%, 1/8 W
R4179	0611077G46	36.5K, ±1%, 1/8W
R4180	0611079A84	2700 ohms, ±5%, 1/10 W
R4181	0611079A26	10 ohms, ±5%, 1/10 W
R4182,4183	0611079G01	10K, 1/10 W, ±1%
R4185	0611077G04	13.3K, ±1%, 1/8 W
R4186	0611077F24	2K, ±1%, 1/8 W
R4187	0611077F68	5.76K, ±1%, 1/8 W
R4188	0611077F24	2K, ±1%, 1/8 W
R4189,4190	0611079G01	10K, 1/10 W, ±1%
R4195	0611077A01	0 ohm, ±5%, 0 W
R4196 thru 4209	0611079A50	100 ohms, ±5%, 1/10 W
R4212	0611077A01	0 ohm, ±5%, 0 W
R4213,4214	0611077E94	1K, ±1%, 1/8 W
R4215	0611077A01	0 ohm, ±5%, 0 W
R4217	0611079A01	0 ohms, ±5%, 1/10 W
R4219	0611079B23	100K, ±5%, 1/10 W
R4220	0611079A01	0 ohms, ±5%, 1/10 W
R4221	0611077A01	0 ohm, ±5%, 0 W
		thermistor:
RT4100	0680149M02	100K, ±10%, 240 MW
		integrated circuit (see note):
U4100 thru 4102	5113819A05	High Performance, Single Supply Mux/Demux, Dual 4--Channel Analog
U4103,4104	5113805A84	
		cable assembly:
		cable assembly:
W4100	4280500F01	SMT ZERO OHM MELF
		non--referenced items:
	1584753T02	Housing (used with E4100)
	1584753T02	Housing (used with E4101)
	1585034U03	COVER, Shield (used with E4100)
	1585034U03	COVER, Shield (used with E4101)
	5483665R01	Label, bar code: 1/4" wide, white
	5484667D01	Label, barcode: 6.3 x 12.7MM, white
	8482219W07	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

CLF5002A , 900 MHz 100W PA Hardware PL–13084–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		non--referenced items:
	0185181U01	ASSEM PA COOLING FANS
	0211986A02	NUT HEX 3/8 x 24 x 1/2 x 3/32
	0310907A28	Screw, Tapping: #s3.5 x 0.6 x 10 (7 used)
	0310943J28	Screw, Tapping: TT3 x 5 x 6 (21 Used)
	0310943J10	Screw, Tapping: TT3 x 5 x 8 (9 used)
	0310943J15	Screw, Tapping: (2 used)
	0312016A32	SCRTPG TT3.5X.6X18 STRPNSTLZNC (8 used)
	0400007691	WASHER, lock: 3/8", int. tooth (2 used)
	0900816159	CONNECTOR, receptacle: coaxial
	1585002U02	COVER High Band PA
	2182805R05	1000 pF, ±5%, 200V (2 used)
	2682318W06	HEATSINK HB PA
	3282796H05	GASKET, RFI: .094 x .094" - (35.8 used)
	5482624Y01	Label, PCB barcode
	5482006W02	RIBBON, thermal XFER (0.00002 used)

CLF5400A Final PA Hybrid PL–13085–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non--serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

CLF5485A Intermediate PA Hybrid PL–13086–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non--serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TLF7150A Low Pass Filter/Coupler Hybrid PL–13087–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non--serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

CTF6348A Driver PA Hybrid PL–13088–O

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

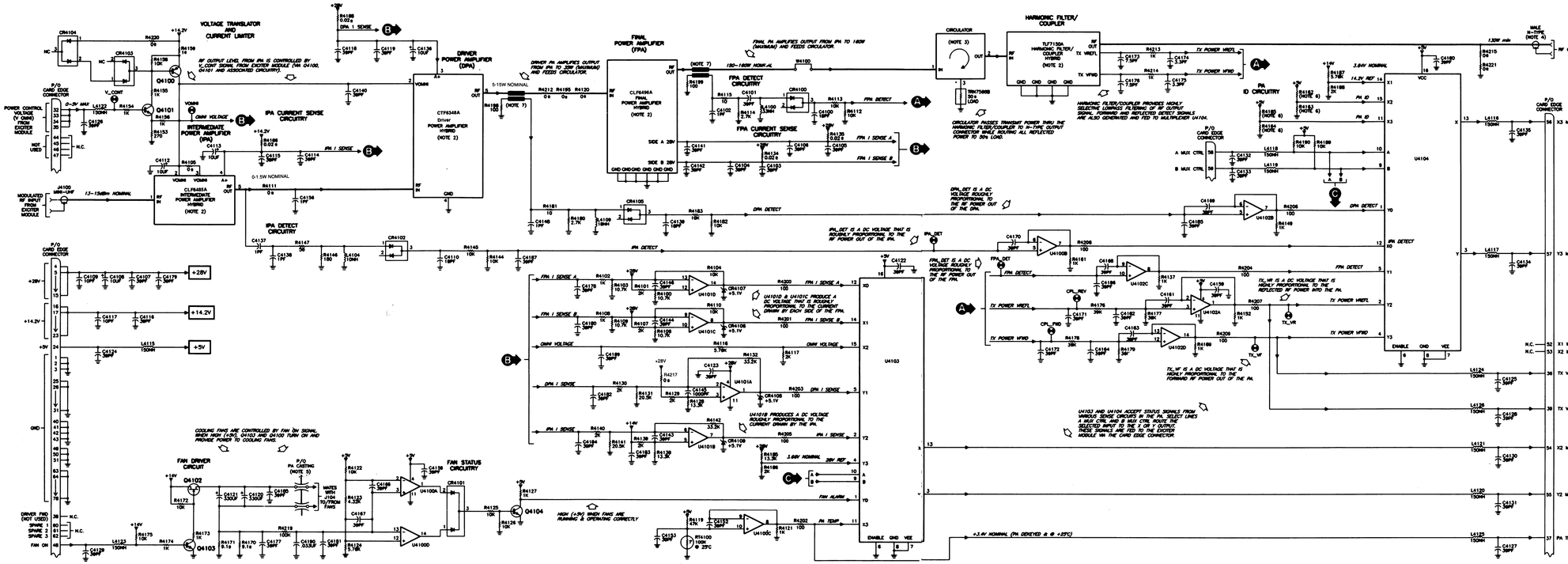
This hybrid contains non--serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TRN7566B Circulator 50Ω Load PL–13074–A

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non--serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

100W 900 MHz POWER AMPLIFIER MODULE
MODEL CTF1092A



NOTES:

1. UNLESS OTHERWISE INDICATED, ALL RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN PICOFARADS AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. CLF6545A IPA, CLF6596A FPA, CTF6348A DPA, AND TLF7150 LOW-PASS FILTER/COUPLER ARE HYBRIDS AND ARE CONSIDERED NON-REPAIRABLE. REPAIR IS BY REPLACEMENT OF ENTIRE HYBRID.
3. THE MOTOROLA PART NUMBER FOR THE CIRCULATOR IS 5884411T06.
4. THE N-TYPE OUTPUT CONNECTOR (0R0081813B, P/O TRN7909A HARDWARE) IS SOLDERED ONTO THE REVERSE SIDE OF THE RF/DC DISTRIBUTION BOARD.
5. CONNECTIONS TO THE COOLING FINS ARE MADE VIA FEEDTHRU CAPACITORS (1000PF, P/O TRN7909A HARDWARE).
6. RESISTORS R4182 THRU R4185 COMPRISE A "RESISTOR BOLT" WHICH IDENTIFIES THE BAND, RANGE AND OUTPUT POWER OF THE PA/TRANSCEIVER MODULE. THE RESISTORS ARE PLACED AS SHOWN IN THE TABLE BELOW.

MODEL	R4182	R4183	R4184	R4185
CTF1092A (900 MHz)	20.5K	10K	1K	NOT PLACED

7. FPA/DPA DETECT CIRCUITRY ACCEPT SAMPLES OF FPA/DPA OUTPUTS VIA MICROSTRIP COUPLERS.

INTEGRATED CIRCUIT POWER AND GROUND CONNECTIONS

REF. DES.	TYPE	DESCRIPTION	SUPPLY PIN	GROUND PIN
U4100	MC33074	HIGH PERFORMANCE, OPERATIONAL AMPLIFIER	4	11
U4101	MC33074	HIGH PERFORMANCE, OPERATIONAL AMPLIFIER	4	11
U4102	MC33074	HIGH PERFORMANCE, OPERATIONAL AMPLIFIER	4	11
U4103	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8
U4104	74HC4052	ANALOG MULTIPLEXER/DEMULTIPLEXER	16	8

FLEPS–48801–A

Parts List, RF/DC Distribution Board CLX4002A, CLE6164A, CLE6155A, TTE6373A, TTE6374A

Reference	Part Number	Description
		Capacitor:
C4100	2113740A49	CAP CHIP REEL CL1 +/-30 56
C4102	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4103-4107	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4108	2311049A45	CAP TANT CHIP 10 10 35
C4109	2113901C29	CAP CHIP HI Q 10 PF +/-0.50PF
C4110	2113740A49	CAP CHIP REEL CL1 +/-30 56
C4112,4113	2311049A45	CAP TANT CHIP 10 10 35
C4114-4116	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4117	2113901C29	CAP CHIP HI Q 10 PF +/-0.50PF
C4118,4119	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4120,4121	2380090M27	CAP ALU 330 20 16V
C4122-4135	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4136	2311049A45	CAP TANT CHIP 10 10 35
C4137	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4140-4142	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4143-4153	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4154,4156	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4158-4189	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4190	2113741A57	CAP CHIP CL2 X7R REEL 33000
C4192,4193	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4194	2113741B69	CAP CHIP CL2 X7R REEL 100000
		Diodes:
CR4100	4882290T04	DIODE SI HOT CARRIER HSMS 2812
CR4101	4813833C02	DIODE DUAL 70V '5B' COMM CATH
CR4102	4882290T04	DIODE SI HOT CARRIER HSMS 2812
CR4103	**CLX4002A:**	
	Not Installed	N/A
	CLE6164A:	
	Not Installed	N/A
	CLE6155A:	
	Not Installed	N/A
	TTE6373A:	
	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
	TTE6374A:	
	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR4104	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR4106-4109	4813830A14	DIODE 5.1V 5% 225MW MMBZ5231B_
		Connectors:
J4100	0984393T01	CONN MINI UHF RT ANGLE PCB MT
		Inductors:
L4100-4126	2462587X57	IND CHIP LO-PRO 220 NH 5%
		Transistors:
Q4100	**CLX4002A:**	
	4813822D07	TSTR PNP 90V 10A MJF2955
	CLE6164A:	
	4813822D07	TSTR PNP 90V 10A MJF2955
	CLE6155A:	
	4813822D07	TSTR PNP 90V 10A MJF2955
	TTE6373A:	
	4813822D08	TSTR PNP 100V 5A DARL MJF127
	TTE6374A:	
	4813822D08	TSTR PNP 100V 5A DARL MJF127
Q4101	4813824A10	TSTR NPN 40V .2A GEN PURP
Q4102	4813821A09	TSTR P-CH 60V 12A _2955_
Q4103,4104	4813824A10	TSTR NPN 40V .2A GEN PURP
		Resistors:
R4100	0611077F94	RES CHIP 10.7K 1 1/8W
R4101	0611077F24	RES CHIP 2000 1 1/8W
R4102,4103	0611077E94	RES CHIP 1000 1 1/8W
R4104	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4105	0611077A01	RES CHIP JUMPER
R4106,4107	0611077F94	RES CHIP 10.7K 1 1/8W
R4108	0611077E94	RES CHIP 1000 1 1/8W
R4109	0611077F94	RES CHIP 10.7K 1 1/8W
R4110,4112	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4113	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R4114	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R4115	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R4116	0611077F68	RES CHIP 5760 1 1/8W
R4117	0611077F24	RES CHIP 2000 1 1/8W
R4118	0611077A01	RES CHIP JUMPER
R4119	0611077B15	RES CHIP 47K 5 1/8W
R4120	0611077A01	RES CHIP JUMPER
R4121	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4122	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4123	0611077F56	RES CHIP 4320 1 1/8W
R4124	0611077F68	RES CHIP 5760 1 1/8W
R4125,4126	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4127	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4128	0611077G04	RES CHIP 13.3K 1 1/8W
R4129,4130	0611077F24	RES CHIP 2000 1 1/8W
R4131	0611077G22	RES CHIP 20.5K 1 1/8W
R4132	0611077G42	RES CHIP 33.2K 1 1/8W
R4134,4135	0682089V02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4138	0611077G04	RES CHIP 13.3K 1 1/8W
R4139,4140	0611077F24	RES CHIP 2000 1 1/8W
R4141	0611077G22	RES CHIP 20.5K 1 1/8W
R4142	0611077G42	RES CHIP 33.2K 1 1/8W
R4144	**CLX4002A:**	
	0611079A95	RES FIXED CHIP 7500 5 1/10 A/P
	CLE6164A:	
	0611079A95	RES FIXED CHIP 7500 5 1/10 A/P
	CLE6155A:	
	0611079A95	RES FIXED CHIP 7500 5 1/10 A/P
	TTE6373A:	
	0611079A95	RES FIXED CHIP 7500 5 1/10 A/P
	TTE6374A:	
	0611079A96	RES FIXED CHIP 8200 5 1/10 A/P
R4145	**CLX4002A:**	
	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
	CLE6164A:	
	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
	CLE6155A:	
	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
	TTE6373A:	
	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
	TTE6374A:	
	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R4146	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4147	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R4149,4152	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4153	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R4154	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P

Reference	Part Number	Description
R4155	0611077F24	RES CHIP 2000 1 1/8W
R4156	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4158	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4159	0683962T05	RES CHIP 1.5 5-1
R4161	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4162	**CLX4002A:**	
	Not Installed	N/A
	CLE6164A:	
	0611077B03	RES CHIP 15K 5 1/8W
	CLE6155A:	
	0611077B03	RES CHIP 15K 5 1/8W
	TTE6373A:	
	0611077A82	RES CHIP 2200 5 1/8
	TTE6374A:	
	0611077B05	RES CHIP 18K 5 1/8W
R4163	**CLX4002A:**	
	0611077A01	RES CHIP JUMPER
	CLE6164A:	
	0611077F12	RES CHIP 1500 1 1/8W
	CLE6155A:	
	0611077A64	RES CHIP 390 5 1/8W
	TTE6373A:	
	0611077A84	RES CHIP 2700 5 1/8
	TTE6374A:	
	0611077B03	RES CHIP 15K 5 1/8W
R4164	**CLX4002A:**	
	0611077A64	RES CHIP 390 5 1/8W
	CLE6164A:	
	0611077A68	RES CHIP 560 5 1/8W
	CLE6155A:	
	0611077D97	RES CHIP 100 1 1/8W
	TTE6373A:	
	0611077F12	RES CHIP 1500 1 1/8W
	TTE6374A:	
	0611077F12	RES CHIP 1500 1 1/8W
R4165	**CLX4002A:**	
	0611077A74	RES CHIP 1000 5 1/8
	CLE6164A:	
	0611077F91	RES CHIP 10.0K 1 1/8W
	CLE6155A:	
	0611077F91	RES CHIP 1000 1 1/8W
	TTE6373A:	
	0611077B03	RES CHIP 15K 5 1/8W
	TTE6374A:	
	0611077B03	RES CHIP 15K 5 1/8W
R4166,4167	0682089V02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4170,4171	0683962T24	RES CHIP 9.1 5-1
R4172	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4173,4174	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4175	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4176	0611077G49	RES CHIP 39.2K 1 1/8W

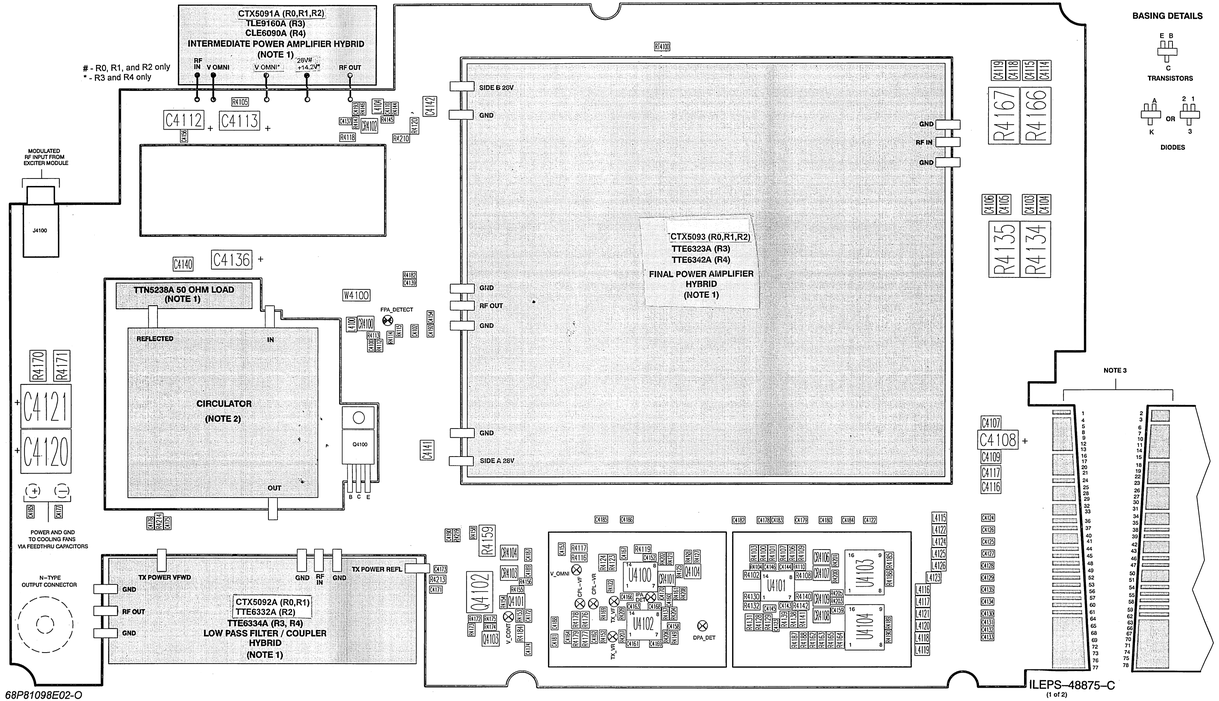
Reference	Part Number	Description
R4177	0611077G41	RES CHIP 32.4K 1 1/8W
R4178	0611077G49	RES CHIP 39.2K 1 1/8W
R4179	0611077G41	RES CHIP 32.4K 1 1/8W
R4182	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4184	0611077A58	RES CHIP 220 5 1/8W
R4185	0611077G04	RES CHIP 13.3K 1 1/8W
R4186	0611077F24	RES CHIP 2000 1 1/8W
R4187	0611077F68	RES CHIP 5760 1 1/8W
R4188	0611077F24	RES CHIP 2000 1 1/8W
R4189	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4190	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4200-4209	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R4210	0611077A01	RES CHIP JUMPER
R4213,4214	0611077E94	RES CHIP 1000 1 1/8W
R4219	0611079E01	RES CHIP 100.0K 1/10W 1%
R4223	**CLX4002A:**	
	0611077A01	RES CHIP JUMPER
	CLE6164A:	
	0611077A01	RES CHIP JUMPER
	CLE6155A:	
	0611077A01	RES CHIP JUMPER
	TTE6373A:	
	Not Installed	N/A
	TTE6374A:	
	Not Installed	N/A
R4224	0611077F24	RES CHIP 2000 1 1/8W
RT4100	0680149M02	THERMISTOR CHIP 100K OHM
		Semiconductors
U4100-4102	5184334Y01	IC HIGH PERFORMANCE SING SPLY
U4103,4104	5113805A84	IC MUX/DEMUX DUAL 4-CH ANALOG
		Miscellaneous
W4100	4280500F01	T & R VER OF 4282981X01
W4201	**CLX4002A:**	
	4280500F01	T & R VER OF 4282981X01
	CLE6164A:	
	4280500F01	T & R VER OF 4282981X01
	CLE6155A:	
	4280500F01	T & R VER OF 4282981X01
	TTE6373A:	
	Not Installed	N/A
	TTE6374A:	
	Not Installed	N/A

NOTE 1: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

NOTE 2: Unless otherwise noted, parts are common to all boards.

UHF 100/110W POWER AMPLIFIER MODULES

MODELS CLX4002A, CLE6164A/65A, TTE6373A/74A



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(Sheet 1 of 2)
12/01/03-UP

ILEPS–48875–C
(1 of 2)

BASING DETAILS

NOTES:

1) ALL HYBRIDS ARE CONSIDERED NON–SERVICEABLE. IF HYBRID IS MALFUNCTIONING, REPLACE ENTIRE HYBRID.

2) The Motorola part number for the circulator is 5884911T33 (R0,R1,R2) and 5884911T18 (R3,R4)

3) THE CIRCUIT BOARD EDGE CONNECTOR HAS PRINTED CIRCUIT PLATED CONTACTS ON BOTH SIDES OF THE BOARD EDGE. SEE THE FOLLOWING TABLE FOR EDGE CONNECTOR PIN NUMBERING/SIGNAL NAME CROSS–REFERENCE.

PIN NUMBER	SIGNAL NAME	PIN NUMBER	SIGNAL NAME
1	GND	40	GND
2	GND	41	GND
3	GND	42	GND
4	+28V	43	GND
5	+28V	44	NOT USED
6	+28V	45	NOT USED
7	+28V	46	NOT USED
8	+28V	47	NOT USED
9	+28V	48	FAN ON
10	+28V	49	GND
11	+28V	50	GND
12	+28V	51	GND
13	+28V	52	X1 MUX (NOT USED)
14	+28V	53	Y1 MUX (NOT USED)
15	+28V	54	X2 MUX
16	+14.2V	55	Y2 MUX
17	+14.2V	56	X3 MUX
18	+14.2V	57	Y3 MUX
19	+14.2V	58	A MUX CTRL
20	+14.2V	59	B MUX CTRL
21	+14.2V	60	SPARE 1
22	+14.2V	61	SPARE 2
23	+14.2V	62	SPARE 3
24	+5V	63	GND
25	GND	64	GND
26	GND	65	GND
27	GND	66	GND
28	GND	67	GND
29	GND	68	GND
30	GND	69	GND
31	GND	70	GND
32	VCTRL	71	GND
33	VCTRL	72	GND
34	VCTRL	73	GND
35	VCTRL	74	GND
36	TX VF 1	75	GND
37	PA TEMP 1 (NOT USED)	76	GND
38	DRIVER FWD (NOT USED)	77	GND
39	TX VR 1 (NOT USED)	78	GND

ILEPS–48875–C
(2 OF 2)

See the A-size pages for the RF/DC Distribution board's parts list. The parts list is for the CLX4002A, CLE6164A, CLE6165A, TTE6373A, and TTE6374A boards.

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
	1585034U03	COVER, Shield (used with E4100)
	1585034U03	COVER, Shield (used with E4101)
	5482006W01	Label, PCB barcode
	5482006W02	ribbon, thermal transfer
	5484960T01	Label, barcode: 6.3 x 12.7mm, white
	8482790K03	CIRCUIT BOARD

note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

CLE6158A, TTN5069A UHF 100/110W PA Hardware

Part Number	Description	Quantity
0185181U01	ASSEM PA COOLING FANS	1
0211996A02	NUT HEX 3/8X24X1/2X3/32 SST	1
0310907A28	SCRMCH M3.5X0.6X10 INTSTARPAN	
	CLE6158A:	7
	TTN5069A:	3
0310943J09	SCRTPG TT3X0.5X6 INTSTARPAN	20
0310943J10	SCRTPG TT3X0.5X8 INTSTARPAN	8
0312016A32	SCRTPG TT3.5X.6X18 STIFPINSTL,ZNC	8
0400007691	WSHRLCK 3/8 INT STL CAD	2
0984169Y01	CONNECTOR,RECEPT "N" CAST HSG	1
1010041B42	SLDR 63/37 .031 DIA 2.5%	1
1110022A55	COMPOUND THERMAL JOINT	1
1585002U02	COVER HB PA	1
2182805H05	CAP CER FEEDTHRU 1000 GMV X5U	2
2682318W06	HEATSINK PA 100W (W/FINS)	1
3282790H05	GSKT	35.8
5482624Y01	LABEL THERMAL XFER WHT POLYSTR	1

CTX5092A/TTE6332A/TTE6334A Low Pass Filter/Coupler Hybrid **PL–13112–O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

CTX5093A/TTE6323A/TTE6324A 100/110W Final PA Hybrid **PL–13114–A**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

CTX5091A/TLE9160A/CLE6090A Intermediate PA Hybrid **PL–13113–B**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION

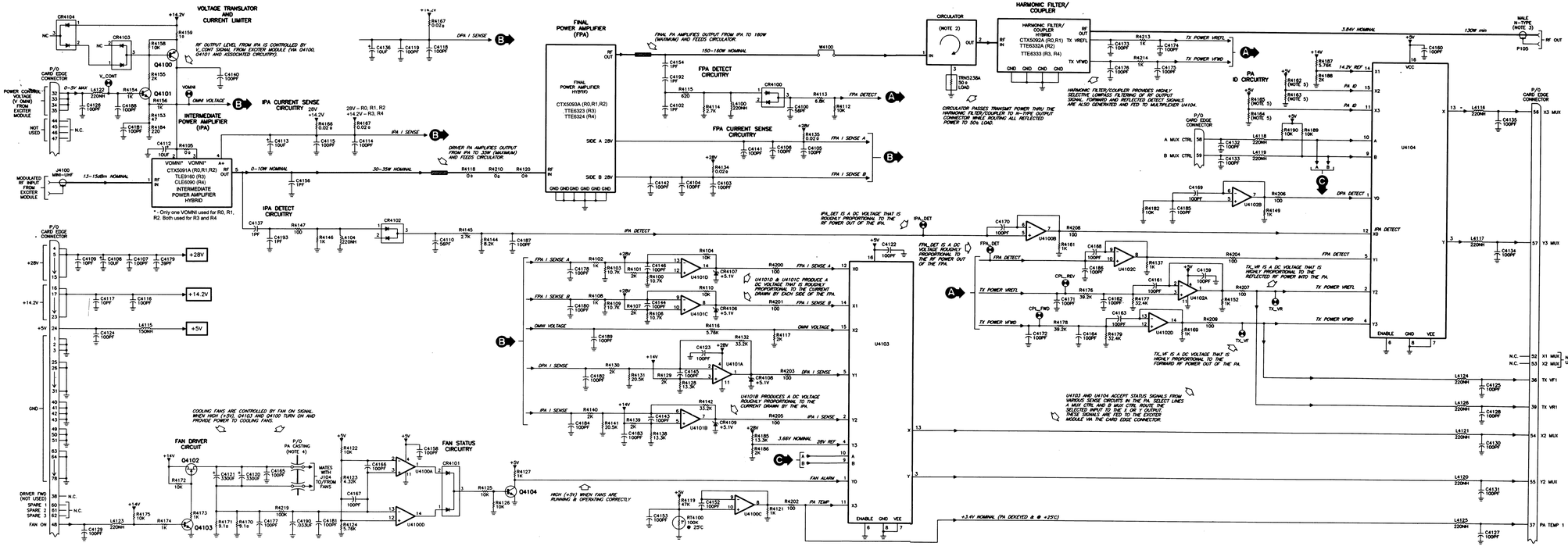
This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

TTN5238A Circulator 50Ω Load **PL–13103–O**

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
		cable assembly:
W4900	4284729T02	STRAP, PA
		non–referenced items:
	4385035U02	FLANGE, circulator load (VHF)

This hybrid contains non–serviceable parts. If the hybrid is malfunctioning, replace the entire hybrid module.

UHF 100/110W POWER AMPLIFIER MODULES
MODELS CLX4002A, CLE6164A/65A, TTE6373A/74A



NOTES:

1. Unless otherwise indicated, all resistor values are in Ohms, capacitor values are in picofarads, and inductor values are in millihenries. N.C. = No Connection
2. The Motorola part number for the circulator is shown in the table below.

Model	Part Number
CTX1146 (R0)	5884911T33
CLE1319 (R1)	5884911T33
CLE1308 (R2)	5884911T33
TTE2063 (R3)	5884911T18
TTE2064 (R4)	5884911T18

3. The N-type output connector (0900816159, P/O TTN5069A hardware) is soldered onto the reverse side of the RFDC distribution board.
4. Connections to the cooling fans are made via feedthru capacitors (1000 pF, P/O TRN5065A hardware).
5. Resistors R4162 thru R4165 comprise a "resistor ROM" that identifies the band, range, and output power of the particular PA module. The resistors are placed as shown in the table below.

Model	R4162	R4163	R4164	R4165
CLX4002 (R0)	N/A	0	390	1K
CLE6164 (R1)	15K	1.5K	580	10K
CLE6165 (R2)	1K	390	100	1K
TTE6373 (R3)	2.2K	2.7K	1.5K	15K
TTE6374 (R4)	18K	15K	1.5K	15K

Integrated Circuit Power and Ground Connections

Ref. Desig.	Type	Description	Supply Pin	Ground Pin
U4100	MC33074	High performance operational amplifier	4	11
U4101	MC33074	High performance operational amplifier	4	11
U4102	MC33074	High performance operational amplifier	4	11
U4103	74HC4052	Analog multiplexor/demultiplexor	16	8
U4104	74HC4052	Analog multiplexor/demultiplexor	16	8

Legend:
Main RF signal path

POWER AMPLIFIER MODULE, DC DISTRIBUTION BOARD

MODEL CTX1146A

Table 1 PA_ID Resistor Values

KIT #	PA_ID_A	PA_ID_B	R4162	R4163	R4164	R4165
TLE6021A						
TLE6022A						
TLF7400A	0.5V	1.0V	OPEN	1.0K	1.5K	15K
TTE6371A	1.0V	0.5V	15K	1.5K	560	10K
TTE6372A	1.5V	0.5V	1.0K	390	100	1K
TTE6373A	3.0V	1.0V	2.2K	2.7K	1.5K	15K
TTE6374A	3.5V	1.0V	18K	15K	1.5K	15K
CLX4002A			OPEN	0.0	390	1K

Note:
1. IGNORE indicates that the part is not installed.

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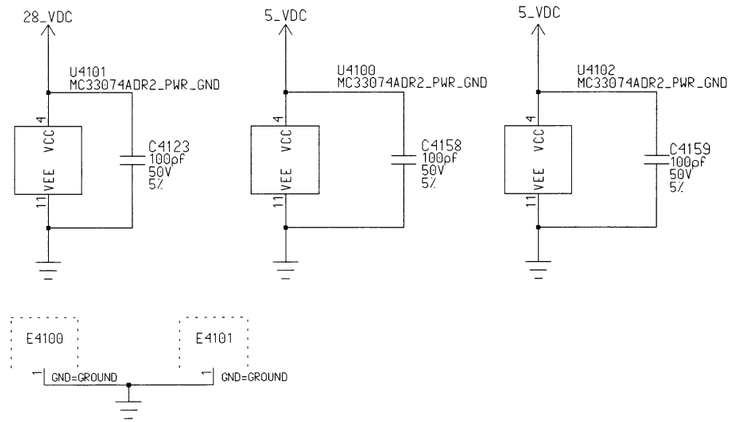
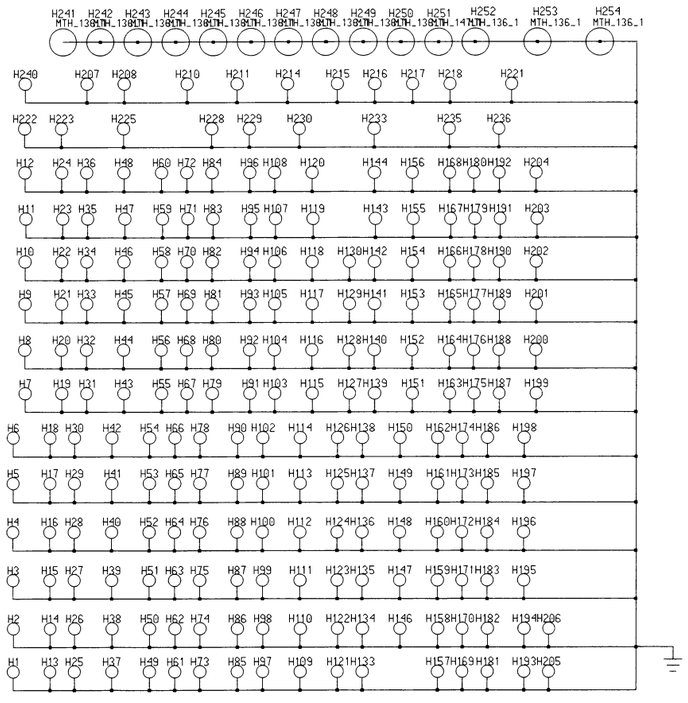
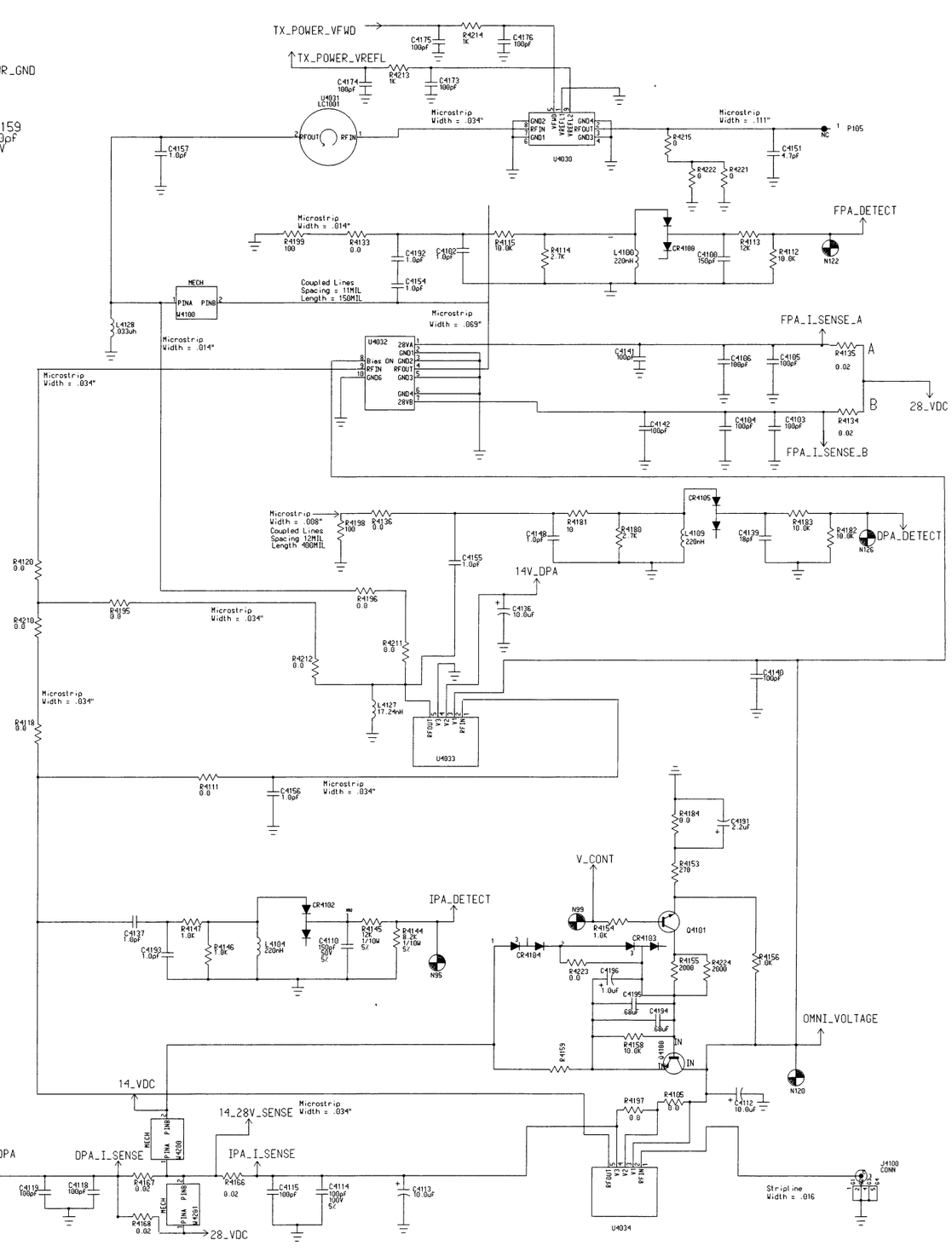
POWER AMPLIFIER MODULE , DC DISTRIBUTION BOARD

MODEL CTX1146A



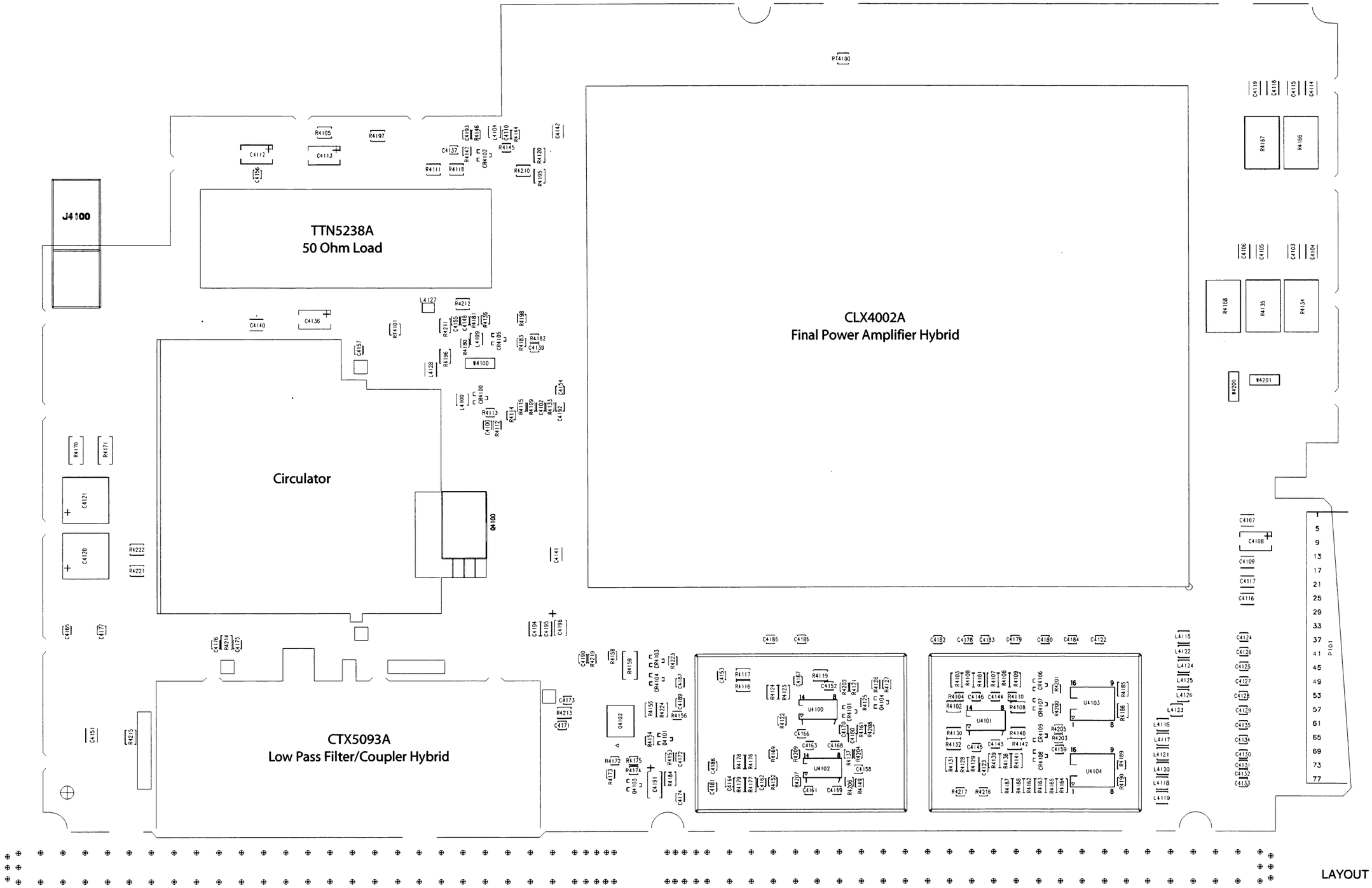




Notes:
1. R4367 (10k) on Exciter pulls up the X3 mux line to 5.0 V when there is no PA present. This resistor affects each of the divider circuits above.
2. Ignore indicates that the part is not installed.

POWER AMPLIFIER MODULE , DC DISTRIBUTION BOARD

MODEL CTX1146A



LAYOUT

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(Sheet 3 of 4)
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Parts List, Range 0 Power Amplifier, CTX1146A DC Distribution Board

Reference	Part Number	Description
		capacitor:
C4100	2113740A49	CAP CHIP REEL CL1 +/-30 56
C4102	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4103 – 4107	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4108	2311049A45	CAP TANT CHIP 10 10 35
C4109	2113901C29	CAP CHIP HI Q 10 PF +/-0.50PF
C4110	2113740A49	CAP CHIP REEL CL1 +/-30 56
C4112, 4113	2311049A45	CAP TANT CHIP 10 10 35
C4114 – 4116	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4117	2113901C29	CAP CHIP HI Q 10 PF +/-0.50PF
C4118, 4119	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4120, 4121	2380090M27	CAP ALU 330 20 16V
C4122 – 4135	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4136	2311049A45	CAP TANT CHIP 10 10 35
C4137	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4140 – 4142	2113901C58	CAP CHIP HI Q 100 PF +/- 5%
C4143 – 4146	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4152, 4153	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4154	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4156	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4158 – 4189	2113740A55	CAP CHIP REEL CL1 +/-30 100
C4190	2113741A57	CAP CHIP CL2 X7R REEL 33000
C4192, 4193	2113740G03	CAP CERAMIC CHIP 1.0 PF +-.1PF
C4194	2113741B69	CAP CHIP CL2 X7R REEL 100000
		diode:
CR4100	4882290T04	DIODE SI HOT CARRIER HSMS 2812
CR4101	4813833C02	DIODE DUAL 70V '5B' COMM CATH
CR4102	4882290T04	DIODE SI HOT CARRIER HSMS 2812
CR4104	4813833C05	DIODE DUAL 70V 'A7X' BAV99LT1
CR4106 – 4109	4813830A14	DIODE 5.1V 5% 225MW MMBZ5231B_
		connector:
J4100	0984393T01	CONN MINI UHF RT ANGLE PCB MT
		inductor:
L4100	2462587X57	IND CHIP LO-PRO 220 NH 5%
L4104	2462587X57	IND CHIP LO-PRO 220 NH 5%
L4115 – 4126	2462587X57	IND CHIP LO-PRO 220 NH 5%
		transistor (see note):
Q4100	4813822D07	TSTR PNP 90V 10A MJF2955
Q4101	4813824A10	TSTR NPN 40V .2A GEN PURP
Q4102	4813821A09	TSTR P-CH 60V 12A _2955_
Q4103, 4104	4813824A10	TSTR NPN 40V .2A GEN PURP
		resistor, fixed:
R4100	0611077F94	RES CHIP 10.7K 1 1/8W
R4101	0611077F24	RES CHIP 2000 1 1/8W
R4102	0611077E94	RES CHIP 1000 1 1/8W
R4103	0611077F94	RES CHIP 10.7K 1 1/8W
R4104	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4105	0611077A01	RES CHIP JUMPER
R4106	0611077F94	RES CHIP 10.7K 1 1/8W
R4107	0611077F24	RES CHIP 2000 1 1/8W
R4108	0611077E94	RES CHIP 1000 1 1/8W
R4109	0611077F94	RES CHIP 10.7K 1 1/8W
R4110	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4112	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4113	0611079A94	RES FIXED CHIP 6800 5 1/10 A/P
R4114	0611079A84	RES FIXED CHIP 2700 5 1/10 A/P
R4115	0611079A69	RES FIXED CHIP 620 5 1/10W A/P
R4116	0611077F68	RES CHIP 5760 1 1/8W
R4117	0611077F24	RES CHIP 2000 1 1/8W
R4118	0611077A01	RES CHIP JUMPER
R4119	0611077B15	RES CHIP 47K 5 1/8W
R4120	0611077A01	RES CHIP JUMPER
R4121	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4122	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4123	0611077F56	RES CHIP 4320 1 1/8W
R4124	0611077F68	RES CHIP 5760 1 1/8W
R4125, 4126	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4127	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4128	0611077G04	RES CHIP 13.3K 1 1/8W
R4129, 4130	0611077F24	RES CHIP 2000 1 1/8W
R4131	0611077G22	RES CHIP 20.5K 1 1/8W
R4132	0611077G42	RES CHIP 33.2K 1 1/8W
R4134, 4135	0682089V02	SMT RES .02 OHM 5% 2W
R4137	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4138	0611077G04	RES CHIP 13.3K 1 1/8W
R4139, 4140	0611077F24	RES CHIP 2000 1 1/8W
R4141	0611077G22	RES CHIP 20.5K 1 1/8W
R4142	0611077G42	RES CHIP 33.2K 1 1/8W
R4144	0611079A95	RES FIXED CHIP 7500 5 1/10 A/P
R4145	0611079A90	RES FIXED CHIP 4700 5 1/10 A/P
R4146	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4147	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R4149	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4152	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4153	0611079A42	RES FIXED CHIP 47 5 1/10W A/P
R4154	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4155	0611077F24	RES CHIP 2000 1 1/8W
R4156	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4158	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4159	0683962T05	RES CHIP 1.5 5-1
R4161	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4163	0611077A01	RES CHIP JUMPER
R4164	0611077A64	RES CHIP 390 5 1/8W
R4165	0611077A74	RES CHIP 1000 5 1/8
R4166	0682089V02	SMT RES .02 OHM 5% 2W
R4167	0682089V02	SMT RES .02 OHM 5% 2W
R4169	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4170, 4171	0683962T24	RES CHIP 9.1 5-1
R4172	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4173	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4174	0611079A74	RES FIXED CHIP 1000 5 1/10 A/P
R4175	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4176	0611077G49	RES CHIP 39.2K 1 1/8W
R4177	0611077G41	RES CHIP 32.4K 1 1/8W
R4178	0611077G49	RES CHIP 39.2K 1 1/8W
R4179	0611077G41	RES CHIP 32.4K 1 1/8W
R4182	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4184	0611077A58	RES CHIP 220 5 1/8W
R4185	0611077G04	RES CHIP 13.3K 1 1/8W
R4186	0611077F24	RES CHIP 2000 1 1/8W
R4187	0611077F68	RES CHIP 5760 1 1/8W
R4188	0611077F24	RES CHIP 2000 1 1/8W
R4189	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4190	0611079G01	RES CHIP 10.0K 1/10W 1% 0805
R4200 – 4209	0611079A50	RES FIXED CHIP 100 5 1/10W A/P
R4210	0611077A01	RES CHIP JUMPER

Reference	Part Number	Description
R4213, 4214	0611077E94	RES CHIP 1000 1 1/8W
R4219	0611079E01	RES CHIP 100.0K 1/10W 1%
R4223	0611077A01	RES CHIP JUMPER
R4224	0611077F24	RES CHIP 2000 1 1/8W
		thermistor:
RT4100	0680149M02	THERMISTOR CHIP 100K OHM
		integrated circuit (see note):
U4100 – 4102	5113819A05	IC HIGH PERFORMANCE SING SPLY
U4103, 4104	5113805A84	IC MUX/DEMUX DUAL 4-CH ANALOG

Reference	Part Number	Description
		jumper:
W4100	4280500F01	T & R VER OF 4282981X01
W4201	4280500F01	T & R VER OF 4282981X01
		non-referenced items:
	1584753T02	HSNG CORRAL MED
	1585034U03	COVER SHIELD MEDIUM
	1584753T02	HSNG CORRAL MED
	1585034U03	COVER SHIELD MEDIUM
	8482790X05	BD CKT UHF DC DIST
	(PR50905)	UHF QUANTAR
	5482006W02	RIBBON THERMAL XFER
	5482006W03	BARCODE LABEL
	1280966D31	UHF RANGE 0 & 2 QUANTAR PWR AMP

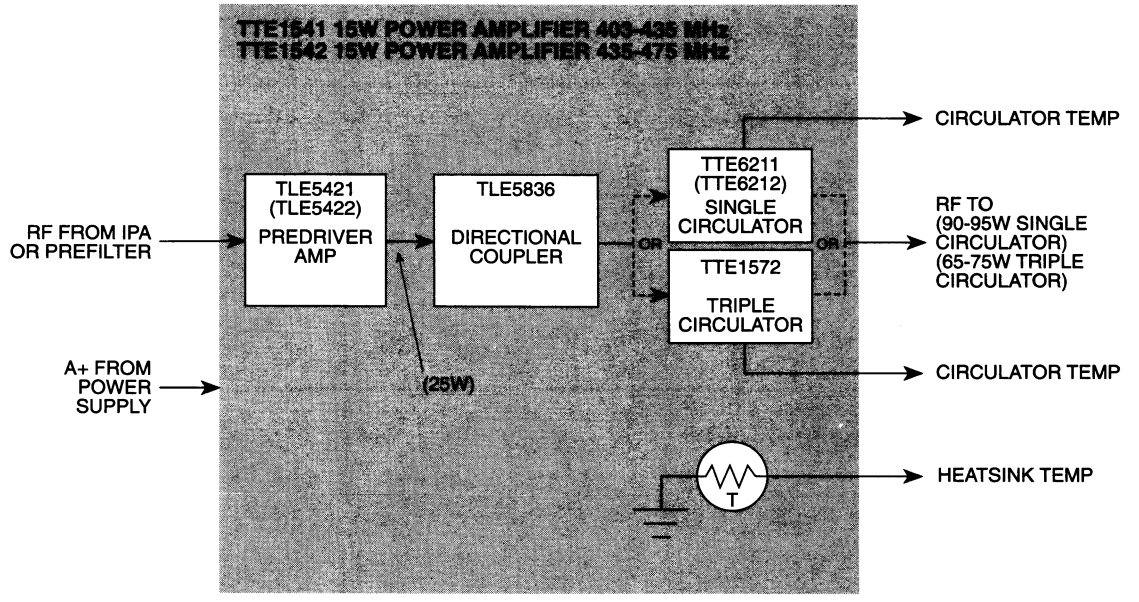
NOTE 1: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

Power Amplifier

Chapter Overview

This chapter contains block diagrams and replaceable components for the *MSF 5000* Power Amplifiers.

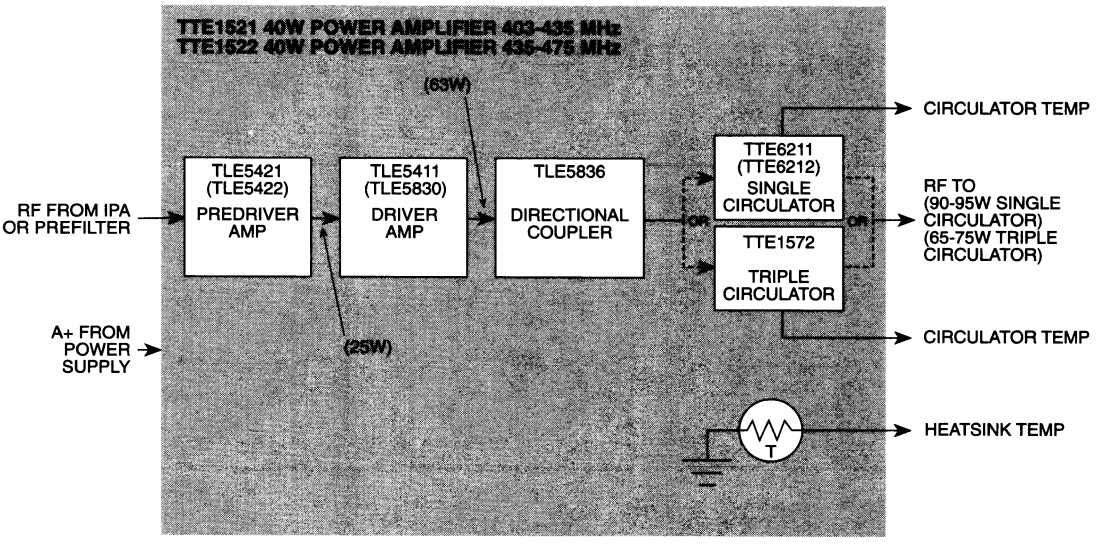
TTE1541/TTE1542 and TTE1521/ TTE1522 Power Amplifiers



Hardware Kit: TRN7104

NOTE:
Model numbers are as follows:
No parenthesis = 403 - 435 MHz.
Parenthesis = 435 - 475 MHz.

MSFS122
050594KOM

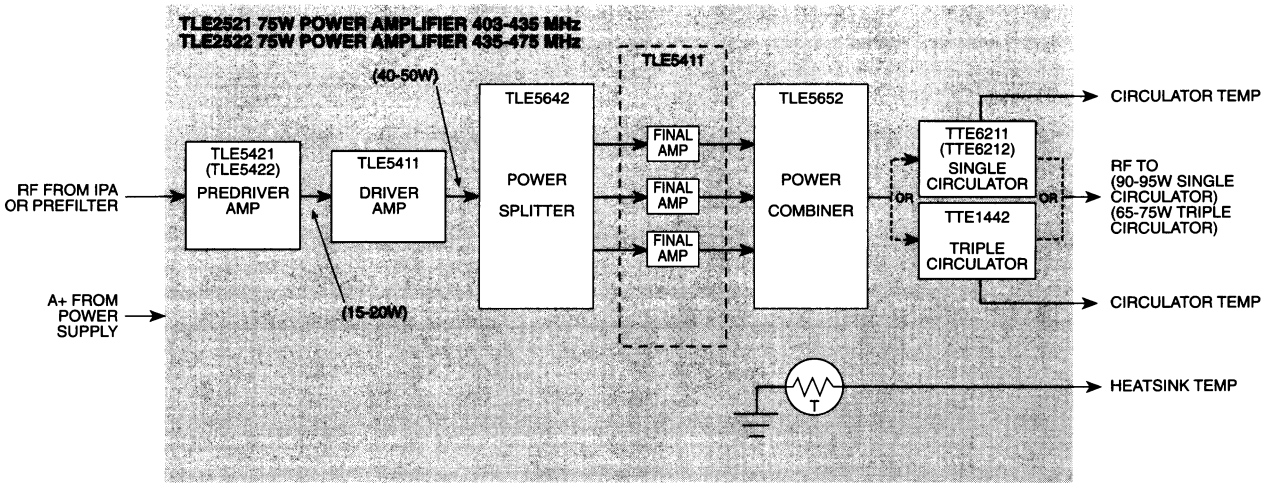


Hardware Kit: TRN7103

NOTE:
Model numbers are as follows:
No parenthesis = 403 - 435 MHz.
Parenthesis = 435 - 475 MHz.

MSFS121
050594KOM

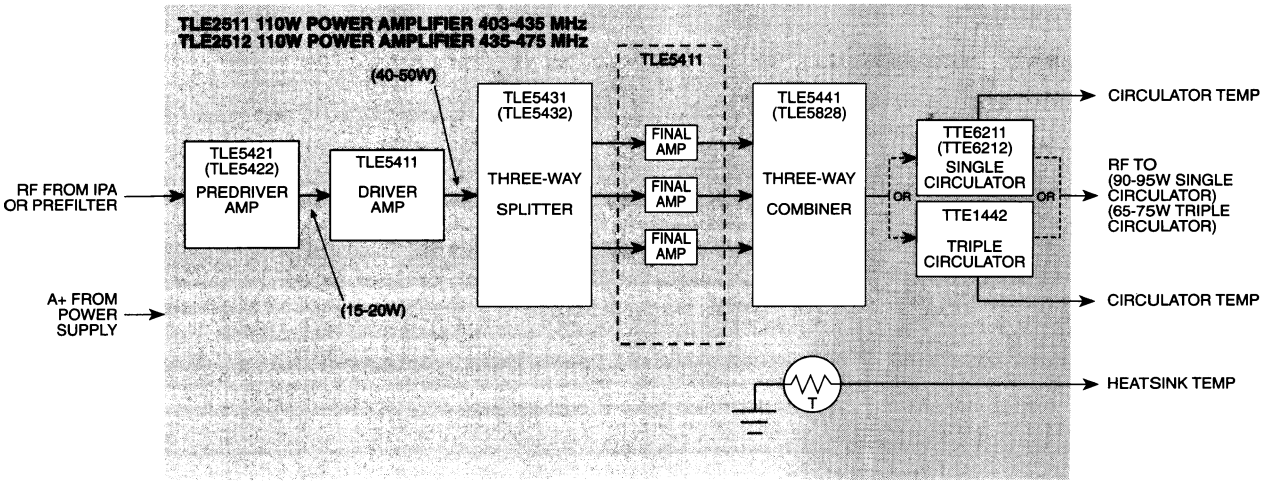
TLE2521/TLE2572 and TLE2511/ TLE2512 Power Amplifiers



Hardware Kit: TRN7366

NOTE:
Model numbers are as follows:
No parenthesis = 403 - 435 MHz.
Parenthesis = 435 - 475 MHz.

MSFS111
050594KOM

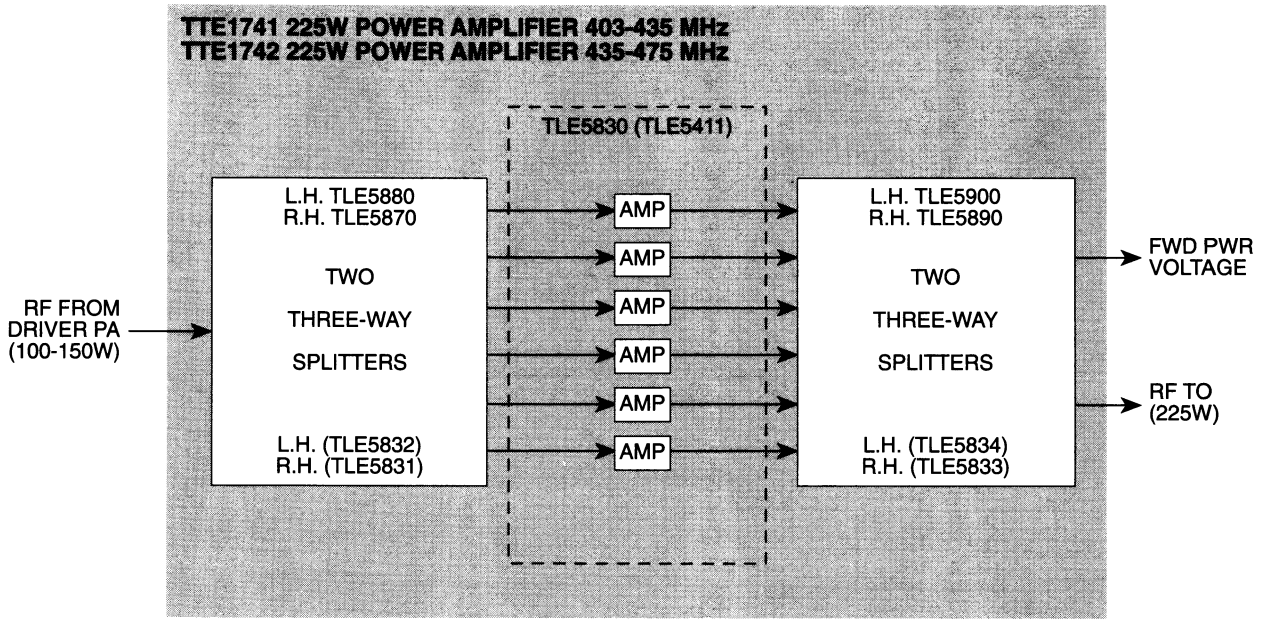


Hardware Kit: TRN7365

NOTE:
Model numbers are as follows:
No parenthesis = 403 - 435 MHz.
Parenthesis = 435 - 475 MHz.

MSFS110
052494KOM

TTE1741/TTE1742 Power Amplifiers



Hardware Kit: TRN7013

NOTE:
Model numbers are as follows:
No parenthesis = 403 - 435 MHz.
Parenthesis = 435 - 475 MHz.

MSFS109
050594KOM