

**WARNING**

**Installation and use of this module voids Factory Mutual Research Corporation (FMRC) approval. FMRC approved radios must be returned to Motorola for installation. Additional radio modifications are necessary to maintain the FMRC approval.**

**1. DESCRIPTION**

Systems SABER™ SECURENET™ Handie-Talkie® portable radios include the ability to receive and transmit secure-coded voice transmissions. Option H796 modifies a standard SECURENET radio to operate with a Fascinator™ encryption module. The NTN1094A Retrofit Kit supplies the NTN7298 Fascinator Encryption Module, a zero, ohm jumper, a label, and the information needed to field modify a Systems SABER SECURENET radio to include the H796 option.

**NOTE**

To be retrofittable, the radio to be modified must be equipped with a coded/clear selector switch; that is, the transmit mode selector switch (TMSS) must be assigned to the coded/clear function.

In addition to the information required to field modify SABER SECURENET radios for Fascinator operation, this manual also includes the Radio Service Software (RSS) procedure for reprogramming the radio for Fascinator operation.

Fascinator encryption provides two-key radio operation; a radio channel can be strapped to either key location, but not both, using the RSS. Before a key can be used, it must first be downloaded into the radio, using keyloading equipment.

**2. RADIO OPERATION**

A Systems SABER radio with the Fascinator encryption module operates the same as with other encryption modules, as described in the radio's operating instructions. However, the procedure for Fascinator keyloading does differ from the standard Systems SABER keyloading procedure.

**NOTE**

The Fascinator module must be installed, and the radio must be programmed for Fascinator operation, before keyloading is performed. See "3. FASCINATOR ENCRYPTION MODULE INSTALLATION."

With Fascinator encryption, keyloading requires several pieces of equipment: the T5164x ("x" refers to the product version; that is, A, B, etc.) Security Interface Box (SIB), the TKN8516x Keyloader cable, and either the KOI-18 or the KYK-13 Government Fill Device (GFD). Information for connecting this equipment to the radio is included in Motorola Instruction Manual 68P81078E10 (provided with the SIB). Connect the GFD, SIB, and cable together, but do not connect the cable to the radio. Load the key(s) as follows:

- a. Turn the radio on.
- b. Select the channel onto which the first key is to be loaded.
- c. Attach the keyloader cable to the radio's universal connector.
- d. Load the first key.
- e. Remove the keyloader cable from the radio.
- f. Select the channel onto which the second key is to be loaded.
- g. Attach the keyloader cable to the radio's universal connector.
- h. Load the second key.
- i. Remove the keyloader cable from the radio.

**3. FASCINATOR ENCRYPTION  
MODULE INSTALLATION**

The following procedure should be performed whenever installing a Fascinator encryption module in a Systems SABER secure-capable radio:

- a. Referring to the applicable service manual (68P81066C95 [UHF], or 68P81067C10 [VHF]), remove the existing U900 module and replace it with the supplied NTN7298 Fascinator module.

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b. For radios manufactured prior to February 1991, refer to the circuit board overlay in the applicable service manual, and install JU508 (for VHF) or JU501 (for UHF) using the 0605021K01 0Ω chip jumper. Failure to have this part installed will inhibit the radio's ability to transmit clear modulation.

c. Using the Systems SABER Fascinator radio service software, connect the radio to the computer, then read the radio's personality into the computer.

d. Modify the radio's personality file as follows:

- (1) Select the **F4-CHANGE/CREATE/VIEW Radio Codeplug Data** screen from the main menu.
- (2) From the resulting menu, select the **F3-Radio Configuration: Buttons, Secure, Scan, Phone, Stat/Msg etc.** screen.
- (3) From the resulting menu, select the **F3-Button Configuration** screen.
- (4) Ensure that the TMSS is assigned to the **TMSS** function, then select **F10-EXIT** to revert back to the **RADIO CONFIG MENU** screen.
- (5) From the resulting menu, select the **F8-Radio Wide Secure Options** screen.
- (6) From the resulting menu, select the **F7-ASN** screen.
- (7) Set the optional **Number of Keys** to "2" for dual-key operation.
- (8) If desired, elect to have programmable key names by setting **Key Names** to **Programmable**.
- (9) If desired, elect to have the key names displayed when the push-to-talk (PTT) switch is pressed by setting **Display Key Name On PTT** to **Enabled**. The two key name vernaculars are entered under **Key Names** positions **0** and **1**; other key name positions should be ignored.

#### NOTE

Since they pertain to "over-the-air rekeying" (OTAR) radios only, ignore the "Display Index Name On TMSS," "Manual Zeroize," "INDEX NAMES," "INDEX0," "INDEX1," and "INDEXED" selections.

- (10) When the selections have been made, press the **F10** key three times to return to the **CHANGE/VIEW MENU** screen.
- (11) From the resulting menu, select the **F6-Conventional Data: Configuration, MDC, and Personalities** screen.
- (12) From the resulting menu, select the **F8-Conventional Personalities: Frequencies, Power, etc.** screen.

(13) To assign keys to personalities, select the **F6-SECURE OPTIONS** screen.

(14) If desired, elect to have "proper code" operation by setting **Proper Code Required** to **Enabled**.

(15) To select the personality key, go to the **Encryption Key** entry and select **Key 1** or **Key 2** for each personality.

#### NOTE

For Fascinator radios, all other options on the **SECURE OPTIONS** screen (that is, "XL," "Operator Selectable Key," "Key ID," and "OTAR") should be ignored.

(16) When the radio personality has been changed as desired, **ESCAPE** to the main menu and write the modified personality to the radio. This completes the programming procedure; go to step d., below.

e. Affix the NTN5874 Fascinator Encryption Label (CCI label) to the back cover of the radio as shown in Figure 1.

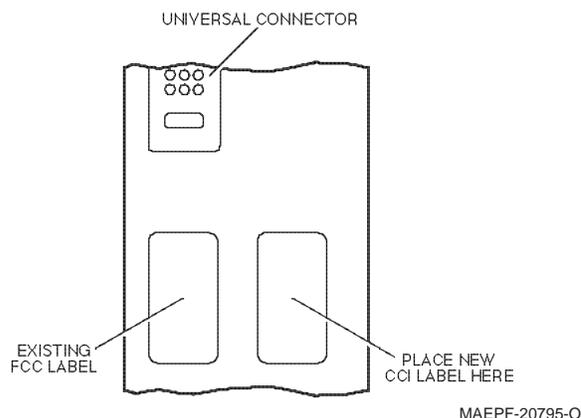


Figure 1. Affixing the CCI Label to the Radio

#### 4. FASCINATOR SIGNALLING DEVIATION TUNING PROCEDURE

If Fascinator signalling deviations require tuning, use the RSS and perform the following procedure, after first verifying that both keys have been loaded into the radio. *Do not* attempt to tune deviations until *both* keys have been loaded.

- a. Turn the TMSS to the "clear" position, then tune "DTMF W/Connect Tone Deviation," "DTMF Deviation," "DTMF W/PL Deviation," and "ISW Deviation."
- b. Turn the TMSS to the "coded" position, then tune "Secure Voice Deviation."