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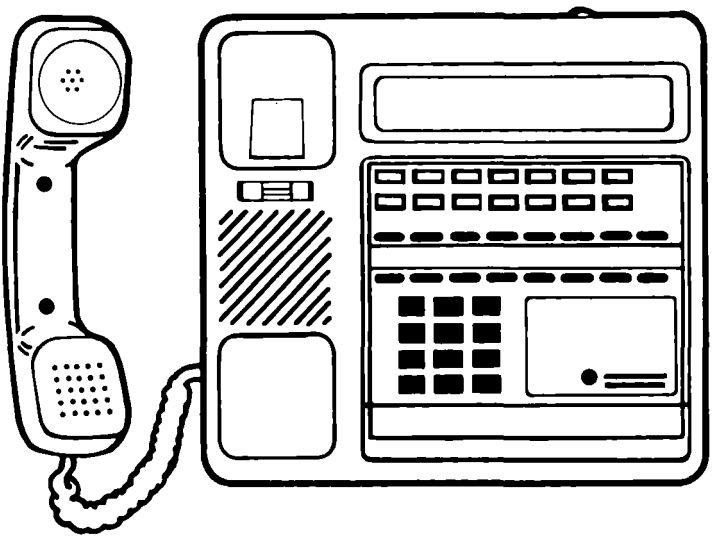
MOTOROLA INC.

STU III/SECTEL™

Secure Voice & Data Telephone

USER'S GUIDE



CONSULT WITH LOCAL SECURITY AUTHORITY FOR SECURITY PROCEDURES APPLICABLE TO THE CONTROL AND USE OF THE STU III/SECTEL 1000.

SECTEL 1000 (Type I) and
SECTEL 2000 (Type II)

68-P25439J001 SEPTEMBER 1987

Contents

Chapter 1
General Information

INTRODUCTION

The Motorola STU III/SECTEL combines clear/secure voice and secure data communication functions into one easy-to-use telephone. This manual shows how to install, use, and troubleshoot the telephone. It also discusses the necessary security measures to communicate voice and data in secure mode.

HOW TO USE THIS MANUAL

This manual is divided into nine key chapters. Each chapter is separated by tabs, with primary headings printed in color. Every chapter stands alone, so you may skip from one chapter to another to find the information you need.

This chapter provides general information on the STU III/SECTEL, overviews the equipment's purpose and features, and lists the relevant technical specifications.

Chapter 2, Controls and Indicators, discusses the location and use of the keypad, memory dial keys, message display and Crypto Ignition Keys (CIKs). For a quick overview of the STU III/SECTEL, turn to Chapter 2.

Chapter 3, Installation, explains how to unpack the system, where to locate it, and how to perform the necessary setup and programming steps to prepare the system for operation. After performing the steps outlined in Chapter 3, the STU III/SECTEL will operate as a normal telephone, but requires a crypto fill to be able to transmit or receive secure voice or data.

Chapter 4, Security Considerations and Procedures, provides the crypto fill procedure and discusses checking crypto status, zeroizing the CIKs, and zeroizing the STU III/SECTEL unit itself. Chapter 4 also provides an overview of the operation of the

STU III/SECTEL as a secure device. It explains classification levels of the unit and its display.

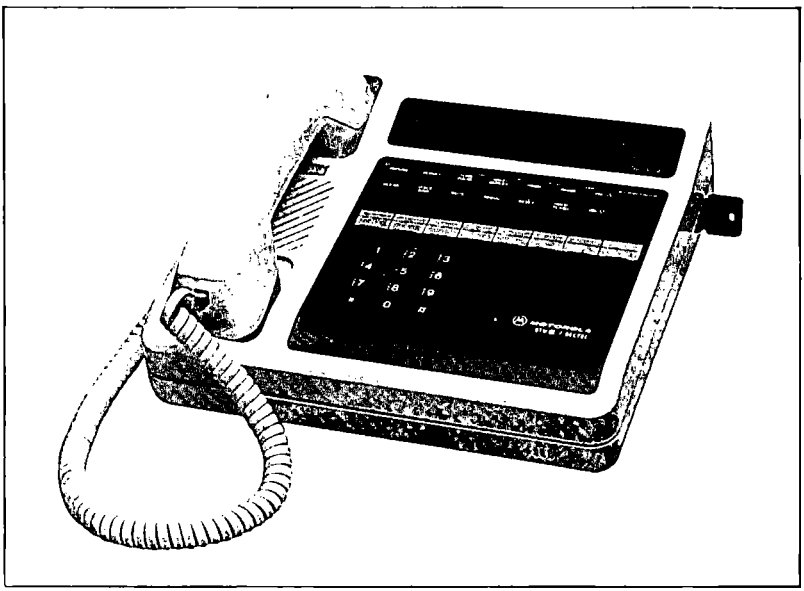
If your system is already set up, filled with an operational key, and you wish to make a call, turn to Chapter 5, Voice Communication, or Chapter 6, Data Communication (Secure Mode Only). These two chapters show how to send or receive voice calls in either clear or secure modes, how to set protocols for data communication, and how to send or receive a data file in the secure mode only.

Chapter 7 covers equipment Care and Cleaning. Chapter 8, Troubleshooting, explains how to isolate faults with the system and provides a list of error display messages; and Chapter 9 discusses the Models and Accessories available for the STU III/ SECTEL system.

Most of the instructions in this manual apply to both the STU III/ SECTEL 1000 and STU III/SECTEL 2000. Any differences that exist are individually addressed.

PURPOSE OF EQUIPMENT

Ninety percent of our commercial and military communications are transmitted (at least in part) via microwave or satellite



87-3455

Figure 1-1. STU III/SECTEL Terminal

repeaters. Both of these methods are susceptible to interception by rival businesses or governments. The STU III/SECTEL (Figure 1-1) provides the high level encryption necessary to protect our nation's military and industrial secrets.

FEATURE HIGHLIGHTS

The STU III/SECTEL features include:

- Small Size. No larger than a standard office telephone, the STU III/SECTEL fits easily on any desk.
- No noisy blowers or fans. An efficient external power converter assures that the STU III/SECTEL will be a welcome addition to any office environment.
- Retention of emergency communications. If power is interrupted for any reason, the STU III/SECTEL will function as a plain old telephone (POT) to provide reliable communications in an emergency situation.
- Field upgradeability. Motorola is continually developing enhancements to ensure that the STU III/SECTEL maintains its state-of-the-art position among secure communications systems.
- Ease of programming. With many user-definable parameters, the STU III/SECTEL can be tailored to your individual requirements.
- Ease of use. The adjustable message display shows the status of all STU III/SECTEL modes and functions.
- Dialing flexibility. The STU III/SECTEL is compatible with both tone and pulse dialing systems.
- Adjustable handset speaker and ringer. The handset speaker and ringer volume can be set to meet your individual needs.
- Standard telephone with speed-dialing capability.
- No batteries to replace.

In addition to the features listed above, the STU III/SECTEL (Bell 1A2) Model offers multiline operation, an intercom function, a HOLD feature, and LED indicators for these additional functions. Motorola also offers a STU III/SECTEL which is directly compatible with the AUTOVON telephone network.

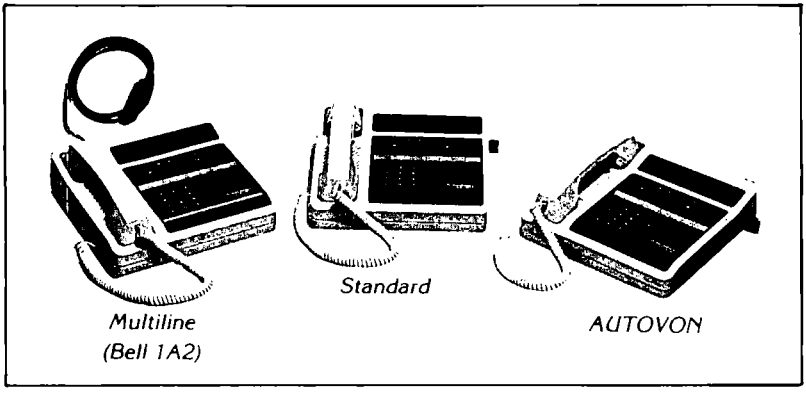


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Figure 1-2. The STU III/SECTEL Family

There are two levels of security offered with the STU III/SECTEL family. The STU III/SECTEL 1000 terminal is a U.S. Government – approved device designed for protection of "sensitive" or classified information. The STU III/SECTEL 2000 terminal is U.S. Government-approved for unclassified but "sensitive" communications, providing the highest level of security commerically available. Figure 1-2 shows the STU III/ SECTEL family. Refer to Chapter 9, Models and Accessories, for more information on the available models.

TECHNICAL SPECIFICATIONS

Phone Line Interface

Phone line connection is made by an industry standard RJ11C modular phone jack. An optional RJ45S connection is also available.

Modem Specifications

Bit rate	2400 bps with echo cancelling
Input level	0 to −43 dBm
Output level	0 to −12 dBm (adjustable)
Connector compatibility	RS-449, RS-232C (w/ adapter)
Data transmission	300, 1200, 2400 bps asynchronous or 2400 bps synchronous

Speech processor

Processor type	LPC10 enhanced, interoperable with FED-STD-10
Output level	Adjustable from +12 dB to −6 dB in 4 steps
Mute	Operable in clear or secure mode
Hum	Better than 60 dB down
Noise level	Less than MIL-STD-1472 curve NC-35

Physical Characteristics

Height	2.5 inches
Width	9 inches
Depth	10 inches
Weight	7.5 pounds
Operating temperature	0°C to +50°C
Storage temperature	−40°C to +70°C
Humidity	90% (noncondensing)
Mounting	Desk top – standard Wall – optional
Colors	Shadow white, burgundy or brown

Power Requirements

Primary input	115 Vac/50-60 Hz or 230 Vac/50-60 Hz
Operating range	91 to 252 Vac, 47 to 63 Hz, single-phase, non-polarity sensitive
Power Consumption	20 W (nominal)

FCC Approval

FCC Part 68, Subpart D

FCC Part 15, Subpart J, Class B

UL Listed

General

Meets TEMPEST requirements . . . . . NACSIM 5100A

Radiated Susceptibility Compliance

MIL-STD-461B (RS03)

NOTE

Specifications are subject to change without notice.

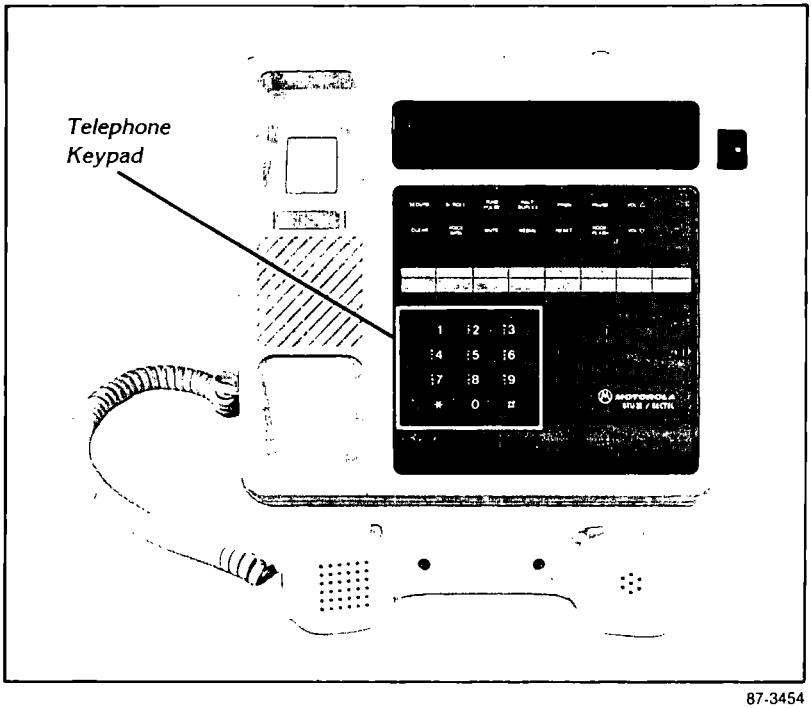
Chapter 2
Controls and Indicators

INTRODUCTION

The Motorola STU III/SECTEL incorporates many features and functions which provide both flexibility and ease of operation. For example, an invalid key press may cause a short beep, but the incorrect entry is ignored. This section introduces these functions, and provides a detailed discussion of the STU III/SECTEL's message display, keys, and controls.

KEYPAD

The STU III/SECTEL has a standard telephone keypad (Figure 2-1). The keypad is used for all digit entry functions, as well as regular dialing sequences, and the programming of memory dial keys.



87-3454

Figure 2-1. Telephone Keypad

MEMORY DIAL KEYS

There are 16 memory dial keys located in two rows of 8 keys each (Figure 2-2). Each key can store a dialing sequence up to 32 digits long. A labeling strip between the two rows can be used to mark and identify any keys which have been programmed.

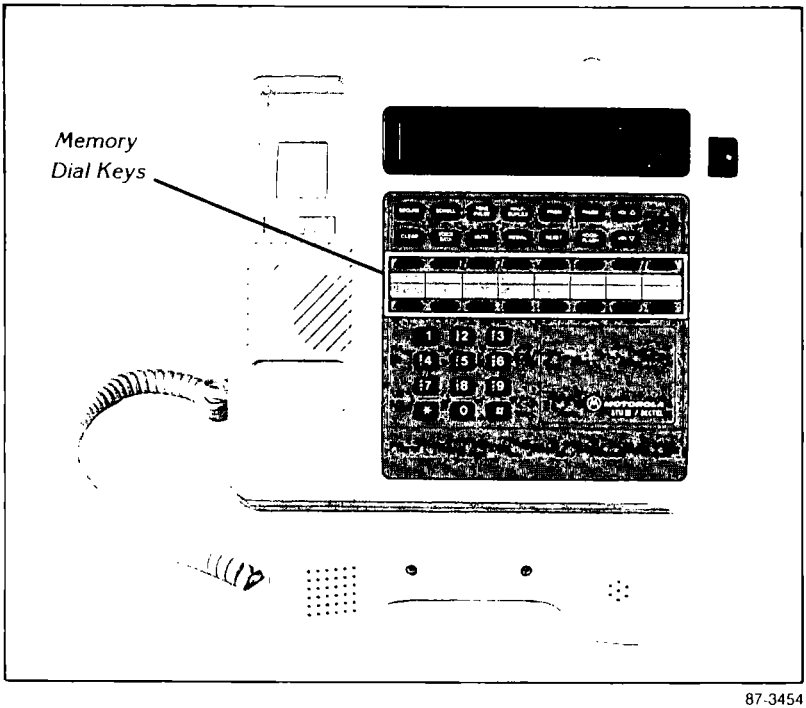


Figure 2-2. Memory Dial Keys

FUNCTION KEYS

Pre-programmed function keys provide easy access to features available on the terminal.

Figure 2-3 illustrates the array of function keys found on the STU III/SECTEL. Each of these keys has a unique function as described below and on the following pages.

SECURE Places the terminal in the secure communication mode.

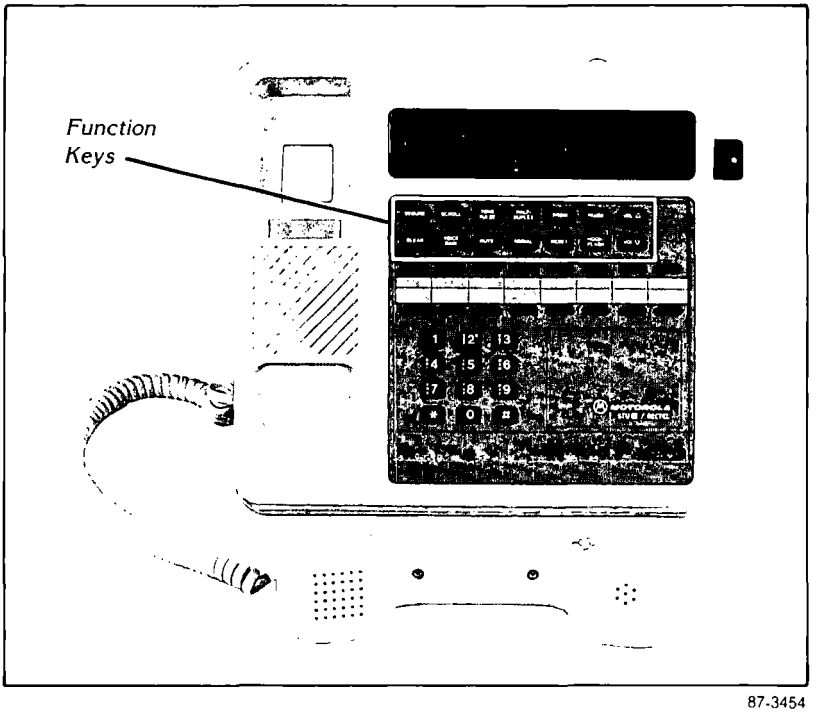


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Figure 2-3. Function Keys

CLEAR Places the terminal in the clear communication mode, and enables user to place clear calls during a loss of power (see Chapter 8, Troubleshooting).

SCROLL Advances the display so that more information may be presented.

NOTE

If the STU III/SECTEL remains idle for an extended period of time, the **SCROLL** *key may be pressed to receive more information from the message display.*

VOICE/DATA Alternates the voice mode for verbal communication, or the data mode for data communication.

TONE/PULSE Alternates the tone or pulse dialing options.

MUTE Disables the handset microphone, preventing the other party from overhearing the conversation.

HALF DUPLEX Alternates the full duplex/half duplex secure voice and data transmission mode. See Chapter 5, Voice Communication.

REDIAL	Automatically repeats the last dialing sequence entered.
PRGM	Enters and exits program mode allowing access to such features as memory dial keys, software parameters, data mode configuration, security setup parameters, and other user-definable features.
RESET	Cancels any current procedure while the handset is off-hook, and any active programming while the handset is on-hook.
PAUSE	Enters a user defined time delay (1 to 9 seconds), into any dialing sequence.
HOOK FLASH	Sends a precisely timed flash signal to access special telephone (PBX) functins.
VOL △	Increases the volume of the *ringer* when the handset is on-hook, or increases the volume of the handset *earpiece* when the handset is off-hook.
VOL ▽	Decreases the volume of the *ringer* when the handset is on-hook,or decreases the volume of the handset *earpiece* when the handset is off-hook.

MESSAGE DISPLAY

Introduction

The message display (Figure 2-4) shows all the numeric keypad entries, messages, and prompts used to operate the terminal. The message display consists of alphanumerics and annunciators.

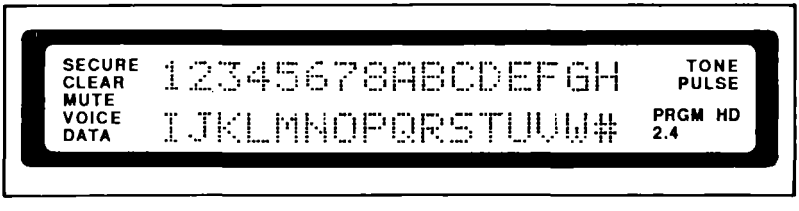

Figure 2-4. Message Display

Alphanumerics

The alphanumeric portion is located in the center of the message display and is divided into two rows of 16 characters each. This

portion of the message display shows all letters, numbers, and symbols necessary for effective user interaction.

Annunciators

The annunciators, located on either side of the alphanumeric portion of the message display, provide a constant indication of the terminal's current operating mode and dialing parameters. The following is a brief description of each annunciator.

SECURE Indicates the terminal is operating in the secure mode.

CLEAR Indicates the terminal is operating in the clear mode.

MUTE Indicates the handset microphone has been disabled. This enables the user to hear the other party, but prevents the other party from overhearing the user's conversation.

VOICE Indicates the terminal is operating in the voice mode.

DATA Indicates the terminal is operating in the data mode. The data mode can only be accessed and used when the terminal is operating in secure mode.

TONE Indicates the terminal will send tone signals when phone numbers are dialed.

PULSE Indicates the terminal will send pulse signals when phone numbers are dialed.

PRGM Indicates the terminal is operating in the program mode.

2.4 Indicates the terminal is operating at 2400 bps when in the secure mode.

HD Indicates the terminal will operate in half duplex when in secure mode. The person speaking will have a "T" (transmit) on the message display, while the listener has an "R" (receive) on the message display. If the message display does not show a "T" or an "R" the line is idle and either party may begin speaking.

Message Display Contrast Adjustment

The message display contrast can be adjusted by a knob on the rear of the terminal (Figure 2-5) to produce the most effective viewing. To adjust the message display, place yourself at the viewing angle at which the terminal will be used, and slowly turn the knob until the best contrast is achieved. If the display message disappears during this procedure, turn the knob in the opposite direction.

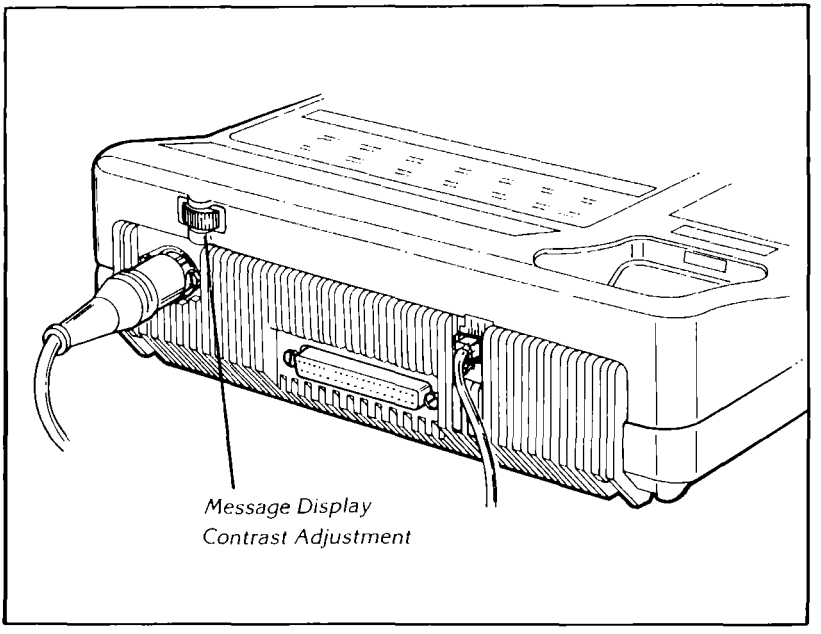

Figure 2-5. Message Display Contrast Adjustment

Messages

The STU III/SECTEL's menu-driven software provides users with information via the message display. The 32-character interface is capable of displaying over 150 different messages, including configuration prompts, operational status, and error information.

Chapter 8, Troubleshooting, of this User's Guide contains those display messages which inform the user when the terminal is not operating properly or when it has failed to perform a selected function.

Appendix A, Display Messages, contains configuration prompts and operational status display messages, any of which may appear in the course of normal operation.

FILL KEY

To establish a secure link, the STU III/SECTEL must be filled with cryptographic data. This can be accomplished in two ways, by an operational fill or a seed fill. An *operational* fill, performed by your security representative, will give the terminal all required data. A *seed* fill must be converted to an operational fill by calling a Key Management Center (KMC) to obtain the necessary crypto data.

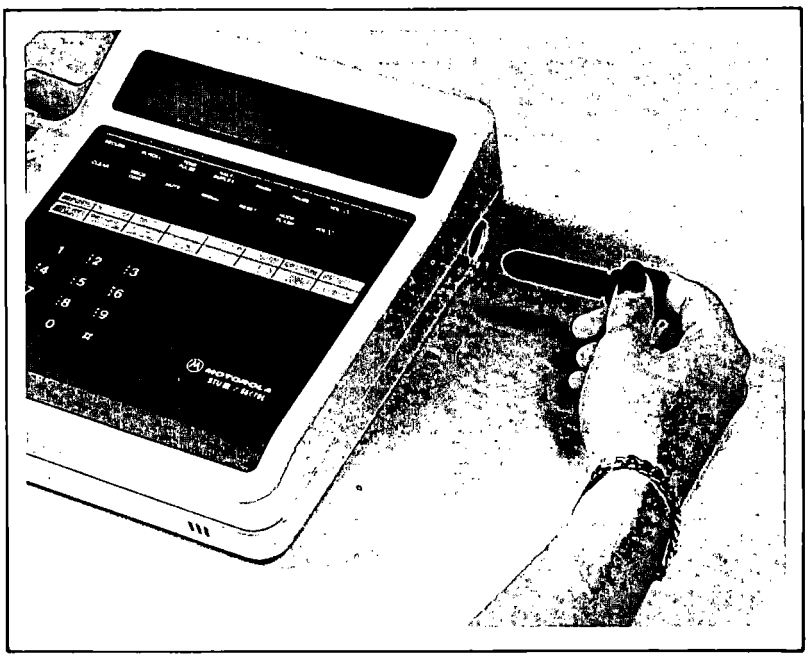

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Figure 2-6. Crypto Ignition Key (CIK) KSD-64A

CIK

The Crypto Ignition Key (CIK) (Figure 2-6) is a primary feature of the STU III/SECTEL. It unlocks the terminal, allowing a secure communications link to be established. Once the CIK is inserted into the STU III/SECTEL 1000, the system becomes classified (see Chapter 4, Security Considerations). The CIK can only be inserted one way, and should be turned one-quarter turn clockwise to operate.

Chapter 3
Installation

The Motorola STU III/SECTEL has been carefully inspected and packaged to ensure optimum performance. As with any piece of electronic equipment, proper installation and knowledge of operating procedures is essential before the equipment can be used.

After performing the steps outlined in this chapter, the STU III/SECTEL will operate as a normal telephone, but requires a crypto fill (see Chapter 4, Security Considerations and Procedures) to be able to transmit or receive secure voice or data.

Take a few moments to read through the following material for instructions on proper installation and an introduction to the features of the Motorola STU III/SECTEL.

UNPACKING

The materials used to pack the STU III/SECTEL were specifically designed and selected to withstand shipping stresses. Please be sure to save all packing materials so that the terminal may be repacked. This may prevent damage during subsequent moves or shipping.

The STU III/SECTEL shipping package contains the following items (Figure 3-1):

- STU III/SECTEL
- Handset
- 6-foot handset coiled cord
- 15-foot telephone line cord (6-conductor)
- Power converter
- 8-foot power converter line cord
- Blank KSD-64A Crypto Ignition Key (CIK)
- STU III/SECTEL User's Guide

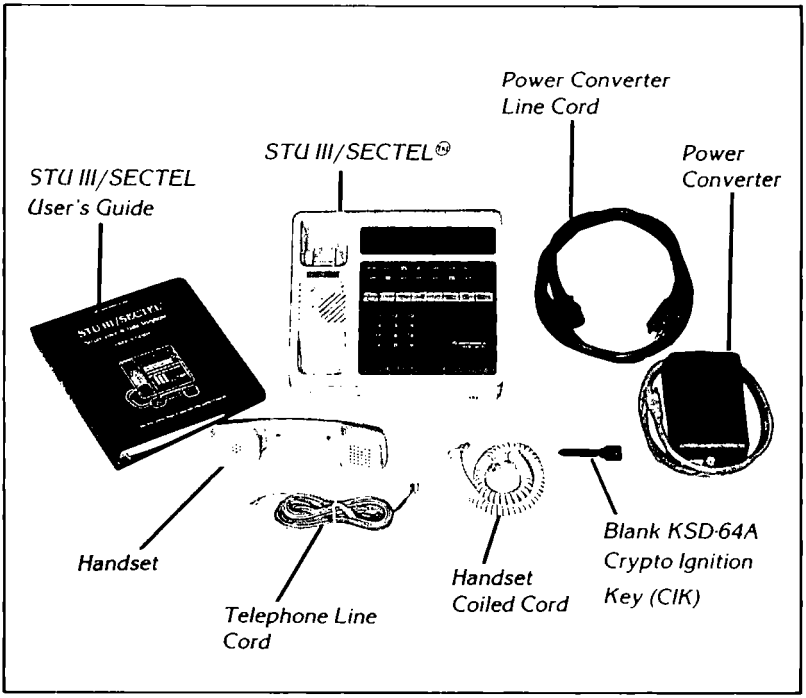

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Figure 3-1. Contents of STU III/SECTEL Shipping Package

NOTE

If any of the items listed above are missing, contact your Motorola Customer Service Representative immediately.

LOCATION REQUIREMENTS

The STU III/SECTEL may be located in any indoor office environment.

NOTE

The STU III/SECTEL requires a 3-prong, grounded, 115V/50-60Hz or 230V/50-60Hz electrical outlet. An RJ11C modular phone jack connects the terminal to the telephone network. If your existing phone line does not have the RJ11C jack, contact your telephone service representative. A standard 50-pin connector is supplied with the STU III/SECTEL multiline model to connect with your Bell 1A2-compatible Key Service Unit.

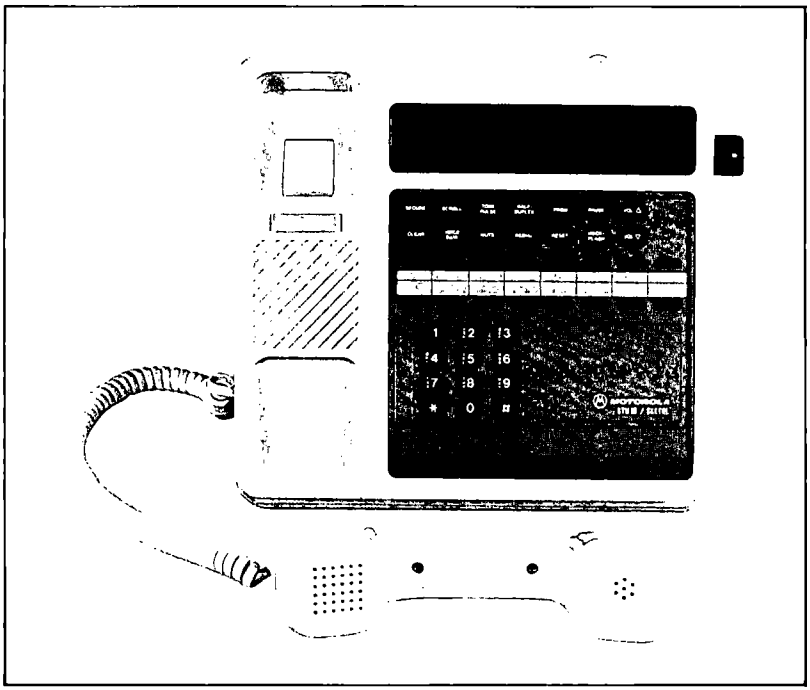

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Figure 3-2. Motorola STU III/SECTEL

Cord Connections

Once the power and phone interfaces have been verified, the unit may be installed. Follow these instructions carefully, making sure that all connections are made properly.

(1) Plug one end of the handset coiled cord into the microphone end of the handset (Figure 3-3). The proper connection is made when the connector snaps into place.

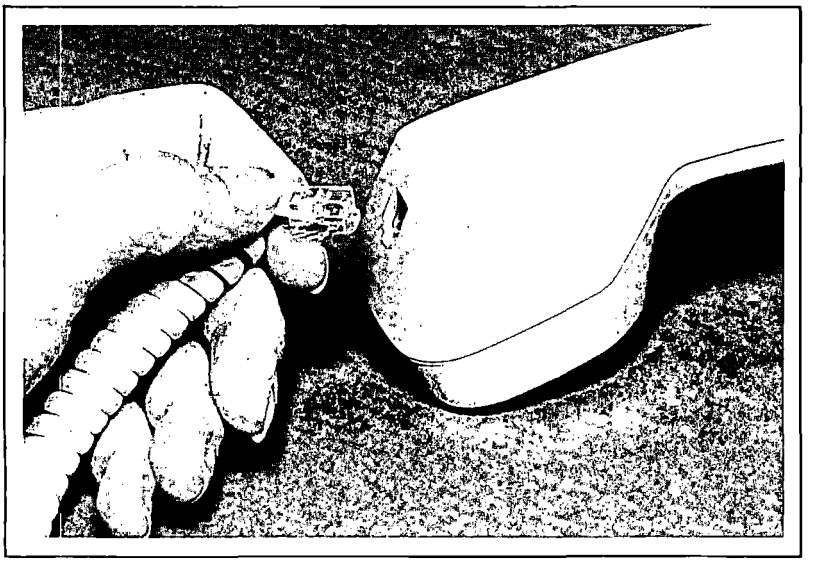

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Figure 3-3 Handset Coiled Cord Connection

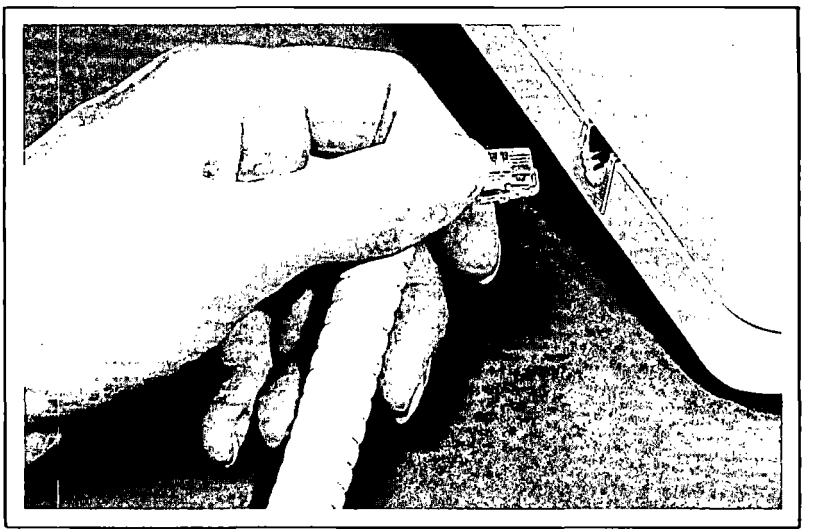

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Figure 3-4 Terminal Coiled Cord Connection

(2) Plug the other end of the coiled cord into the left side of the terminal as shown (Figure 3-4). The proper connection is made when the the connector snaps into place.

(3) Plug one end of the 15-foot telephone line cord into the jack at the rear of the STU III/SECTEL terminal (Figure 3-5). The proper connection is made when the connector snaps into place.

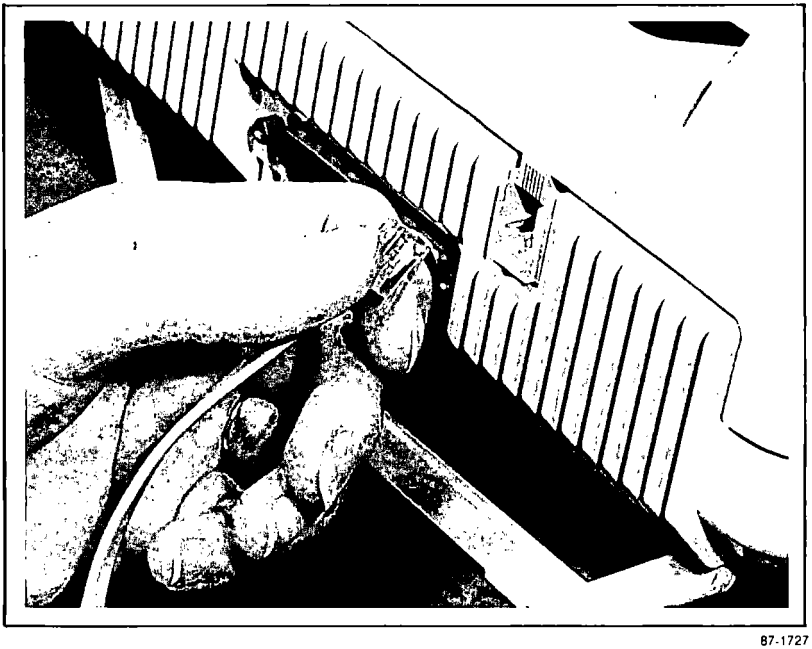

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Figure 3-5 Telephone Line Cord Connection

(4) Plug the other end of the line cord into the modular jack in the wall. The proper connection is made when the connector snaps into place.

(5) Plug the 8-pin DIN power connector into the DIN jack at the rear of the terminal (Figure 3-6). Match the notch on the DIN power converter to the notch on the DIN jack.

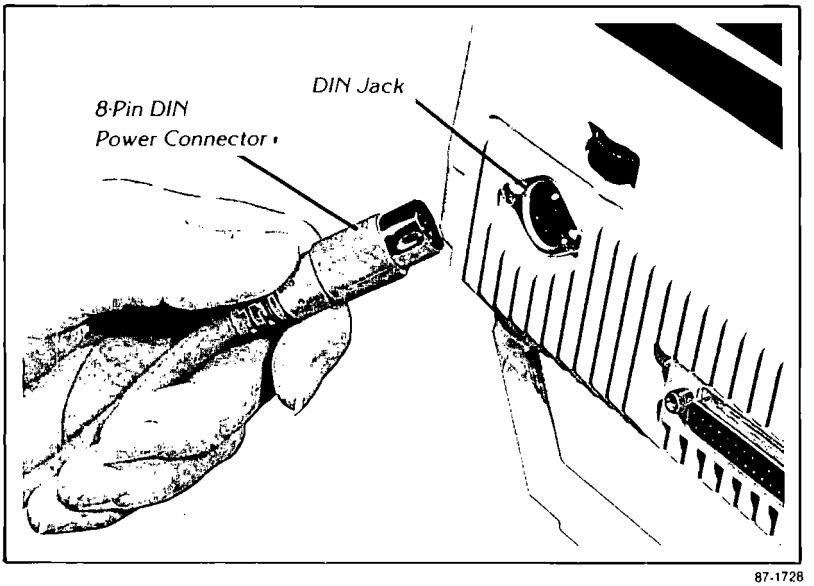


Figure 3-6 Power Connector Insertion

⑥ Plug the female side of the power converter line cord into the power converter, then plug the other end into any standard three-pronged wall receptacle.

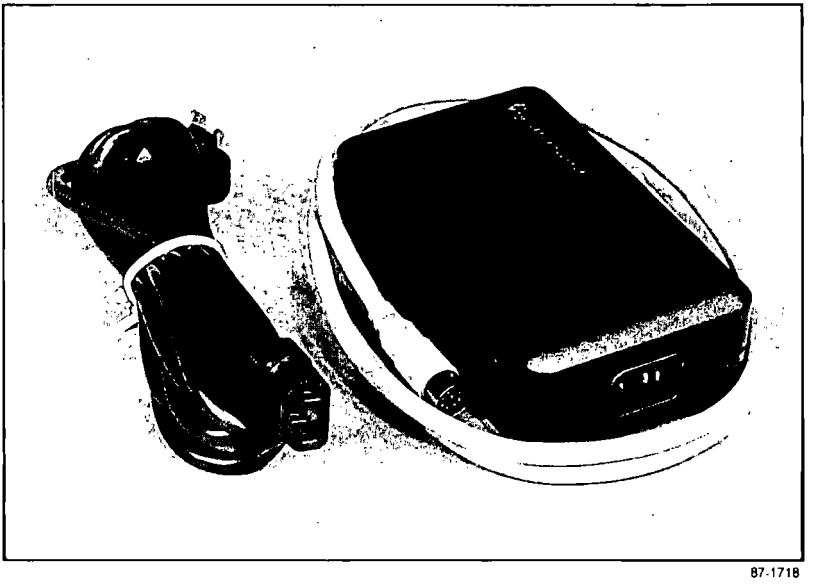


Figure 3-7 STU III/SECTEL Power Converter

When power is applied, the terminal will automatically run an internal diagnostics (self-test) program to verify that it is functioning properly. If the terminal is functioning properly, the message "RINGER MEDIUM-HI" will be displayed. If not, an error message will be displayed, refer to Chapter 8, Troubleshooting, for more information.

NOTE

If the message display is blank and the cords are connected properly, check to ensure that the Message Display Contrast Adjustment knob is properly positioned. Refer to Chapter 2, Controls and Indicators, for more information.

The STU III/SECTEL is now fully connected and a clear mode call is possible.

Ringer Volume Adjustment

The factory default setting for the ringer volume is RINGER MEDIUM-HI. There are four other ringer volume options available: RINGER HIGH, RINGER MEDIUM-LOW, RINGER LOW, and RINGER OFF.

Use the following procedure to adjust the ringer volume:

1. Place handset on-hook.
2. Ensure that the PRGM annunciator is off. If not, press [PRGM].
3. Press [VOL △], or [VOL ▽] until the desired setting appears on the message display.

Software Configuration

Your unit comes from the factory with preset software configurations, or defaults. These are shown as Table 3-1 below.

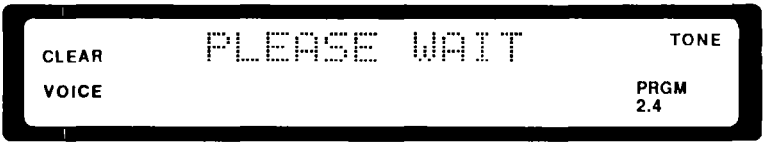
Table 3-1 Factory-Set Defaults.

CLEAR MODE	ON
AUTO SECURE	OFF
DIAL PAUSE DURATION	2 SECONDS
AUTOVON PREEMPT	OFF
SETUP TONES	ON
DATA MODE	2400 ASYNC

The procedure below will enable you to change these defaults, if desired:

1. Make sure handset is on-hook
2. Press [PRGM]. Ensure that the PRGM annunciator appears. Then, press [SCROLL].

The message display will show:



then,

NOTE

Refer to the crypto fill procedure, Chapter 4, Security Considerations and Procedures, if [#] *is pressed.*

(3) Press [*]. To remind the user that [SCROLL] is pressed to advance to the next step during the programming sequence, the message display will show:

(4) Press [SCROLL]. The message display will show:

(5) The Clear Mode Muted option allows the user to communicate only in the secure mode, by disabling the handset microphone in the clear mode. If this option is desired, press [#]. If not, press [SCROLL]. Pressing [#] again will switch this option back. Once selected the message display will show:

(6) Press [SCROLL] to continue. The message display will show:

(7) If you wish to have the phone automatically enter the secure mode when answering a call, press [#]. If not, press [SCROLL] to continue. Each time [#] is pressed, this option will alternate modes.

(8) Press [SCROLL]. The message display will show:

(9) Select a time duration (1-9 seconds) by pressing the corresponding number on the dial keypad. Once a number is selected, it will take the place of the digit (2) in the display shown above.

(10) Press [SCROLL] to continue. The message display will show:

(11) If the STU III/SECTEL is an AUTOVON Model, it is equipped with an AUTOVON PREEMPT message option. In an emergency, this option will provide the user with a warning that an AUTOVON preempt signal has been detected. To enable the AUTOVON PREEMPT message, press [#]; otherwise, press [SCROLL].

(12) Press [SCROLL] to continue. The message display will show:

(13) With this function on, the tones generated during a secure call setup will be heard through the handset earpiece. Press [#] to disable the tones, or [SCROLL] to continue.

(14) Press [SCROLL] to continue. The message display will show:

(15) Pressing [#] will step through the available data communication protocols. The message display will show the following choices:

An additional key press after the last option will bring back the first option.

(16) After choosing the desired data rate, press [SCROLL] to continue. The message display is cleared, and the PRGM annunciator will go off. The STU III/SECTEL is now in the idle mode.

Hardware Configuration

In addition to the software configuration options described in the previous section, hardware configuration changes are available which can further customize the STU III/SECTEL to specific requirements.

These configuration options are shown below, with the factory settings (defaults) in parentheses:

- RJ11/RJ45 mode select (RJ11)
- MI/MIC connection enabled/disabled (disabled)
- Multiline ring select TR/BR (BR)
- Multiline fail-to-plain telephone line select (position 1)
- Power failure dialing default to tone/pulse (pulse)
- Plain telephone enabled/disabled (enabled)

For further information on changing hardware configurations, contact Motorola Customer Service at 1-800-922-HELP.

Telephone Number Label

To label the STU III/SECTEL with the proper phone number use the following procedure:

1. Lift handset and set aside.
2. Remove the plastic cover from the telephone number label by inserting the end of a paper clip into the hole, and applying pressure until the plastic bows up.
3. Write the phone number on the paper shield provided, and replace it in the slot.
4. Replace the plastic cover by placing the end opposite the hole into the slot. Apply pressure to the plastic shield until the end with the hole aligns with the slot, and will snap into place.
5. Replace the handset on-hook

MEMORY DIAL KEYS

The memory dial keys offer a quick and easy means of automatically accessing up to 16 frequently dialed telephone numbers. Once the memory dial keys are programmed, the phone numbers will be retained in memory until their memory locations are either erased or reprogrammed. Each memory dial key can hold up to 32 digits, which may be pulse, tone, pause, or hook-flash. A flashing digit on the display indicates a pulse digit. The user may exit the program mode at anytime by taking the phone off-hook.

Use the following procedures to program the memory keys on the STU III/SECTEL.

Examining Memory Dial Keys

To ***examine*** a number contained in memory, follow the procedure below:

1. Make sure handset is on-hook.
2. Press [PRGM]. Note that the message display PRGM annunciator appears.
3. Press the memory dial key to be examined. The STU III/SECTEL will show the entire sequence of digits on the message display. Continue to press memory dial keys as desired.
4. Press [PRGM]. The phone will return to the idle mode.

Erasing Memory Dial Keys

To ***erase*** a number in a memory dial key, follow this procedure:

1. Make sure handset is on-hook.
2. Press [PRGM]. Note that the message display PRGM annunciator appears.
3. Press [RESET], then the memory dial key to be erased. That memory dial key is now empty.

Entering Memory Dial Keys

To ***enter*** a number in a memory dial key, follow this procedure:

1. Make sure handset is on-hook.
2. Press [PRGM]. Note that the message display PRGM annunciator appears.
3. Select a memory dial key to store the number. Examine the contents of the selected memory dial key to prevent accidental loss of a stored number.
4. If the selected memory dial key contains an unwanted number, press [RESET], and the memory dial key to be erased. The memory dial key is now empty.

5. Enter all the digits you normally dial to reach the other party. Be sure to use the PAUSE key for any pauses.
6. Verify that the number shown on the message display is correct, including all long distance access codes and pauses. If not, press PRGM twice, and repeat step 5.
7. Press the selected memory dial key. Once the memory dial key is pressed, the terminal will transfer the number on the message display to that memory dial key and the message display will blank.
8. To continue programming memory dial keys, repeat steps 3 through 7 until all memory dial keys are programmed.
9. Once all desired keys have been programmed, press PRGM. On the display, the PRGM annunciator will go out and the STU III/SECTEL will return to the idle mode.

Labeling the Memory Dial Keys

A paper label, protected by a plastic shield, has been provided between the two rows of memory dial keys to identify the dialing sequence assigned to each key. After programming the memory dial keys, remove the plastic shield by placing a finger at each end of the shield and squeezing in, causing the plastic shield to bow up. Identify the memory dial key by writing in the appropriate area of the label, and replace the plastic shield. This labeling technique should also be used in labeling multiline keys.

Using the Memory Dial Keys

Once the memory dial keys have been programmed, they are ready to be used for fast dialing. Follow the procedure below to use the memory dial keys:

1. Lift the handset.
2. While watching the message display, press the desired memory dial key. As the number appears on the message display, it is being dialed automatically.
3. If the number shown on the message display is not correct or the dialing sequence must be stopped for any reason, either press RESET, or hang up.

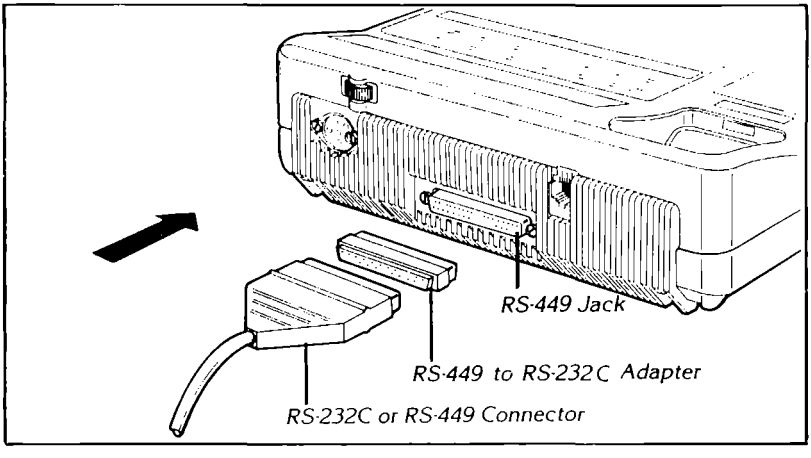


Figure 3-8. Connecting Computer to STU III/SECTEL

The STU III/SECTEL interfaces directly to a computer via an RS-449 connector. If the computer is equipped with an RS-232C interface connector, an RS-449-to-RS-232C adapter, such as Motorola adapter 5DGA71AA (see Chapter 9, Models and Accessories), is required. Refer to Figure 3-8 and your computer's manual as a guide to make the following connections.

(1) Connect the computer terminal end of a modem interface cable to the computer.

NOTE

The STU III SECTEL must be connected only to a computer terminal configured as a Data Terminal Equipment (DTE). Refer to the computer's operators manual for instructions.

(2) Determine the type of connector that is attached to the modem end of the computer's interface cable, and proceed as follows:

a. If the connector is an RS-449, plug the connector directly into the RS-449 jack located on the rear of the STU III/SECTEL.

b. If the connector is an RS-232C, plug the connector into an RS-449-to-RS-232C connector adapter (passive) and plug the RS-449 connector adapter into the RS-449 jack located on the rear of the STU III/SECTEL. If your STU III/SECTEL has been filled with a CIK, refer to Chapter 6, Data Communication, for further instructions.

Chapter 4
Security Considerations and Procedures

OVERVIEW

This chapter provides basic security information necessary to operate and safeguard the STU III/SECTEL. It is not intended to provide all rules, conditions, and secure operating states of the STU III/SECTEL, or replace the organization's security manual. For complete up-to-date information on security practices for safeguarding the STU III/SECTEL, consult your organization's security procedures.

CLASSIFICATION LEVEL

The Motorola STU III/SECTEL 1000 and STU III/SECTEL 2000 contain highly sophisticated electronics and software designed to provide high-level cryptographic coding of voice and data communications. The STU III/SECTEL 1000 is a U.S. Government-approved secure communications device designed for protection of "sensitive" or classified information. The STU III/SECTEL 2000 is U.S. Government-approved for unclassified but "sensitive" communications, providing the highest level of security commercially available. Both the STU III/SECTEL 1000 and STU III/SECTEL 2000 terminals operate in a similar manner, and are fully interoperable.

No matter how sophisticated, complex, or complete the encoding process, **you** must ensure classified and sensitive information is not compromised.

STU III/SECTEL 1000

If you are an authorized user of a STU III/SECTEL 1000's secure mode and possess a valid Crypto Ignition Key (CIK), you should know that:

- The STU III/SECTEL 1000 is a Controlled Cryptographic Item (CCI), and national COMSEC policy requires that it be protected.
- When the CIK is inserted in your STU III/SECTEL 1000 **your CIK and STU III/SECTEL 1000 become classified to the level you are keyed. Do not leave it unattended!**
- Specific security procedures for controlling and using your STU III/SECTEL 1000 and CIK are prescribed by your cognizant security person.

Classification Level Shown on Message Display

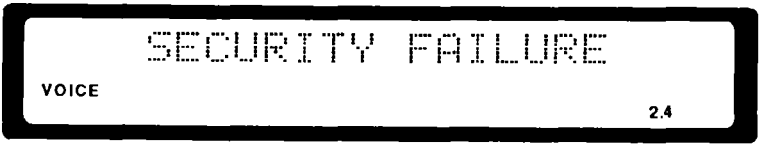
Your STU III/SECTEL message display will show you the highest classification of information that may be communicated while in the secure mode. **Never** communicate information classified at a higher level than that shown on the message display.

Terminal's Identification Shown on Message Display

In the secure mode, the identification (ID) of the terminal you are contacting will be shown on the STU III/SECTEL message display. **Always** use the ID shown on the message display to authenticate the contacted terminal.

WARNING

If STU III/SECTEL 1000 remains classified after CIK is removed, the message display will show:



This means that the STU III/SECTEL has failed to erase the cryptographic information it contains. Contact your cognizant security person **immediately,** and treat your STU III/SECTEL **as if the CIK were still installed.**

STU III/SECTEL 2000

The U.S. Government has designated the STU III/SECTEL 2000 as an Endorsed for Unclassified Cryptographic Item (EUCI). As such, it may be used by government and private users to protect "sensitive", but unclassified information only. Control for the STU III/SECTEL 2000 is not prescribed by national COMSEC policy. You must consult your local security authority for guidelines on how to protect your equipment.

WARNING

The STU III/SECTEL 2000 is **not** to be used for communicating classified information.

LOST OR STOLEN CIK

If your CIK is lost or stolen, you must report the loss or theft to your cognizant security person **immediately.** In addition, you must arrange to have any valid user of your STU III/SECTEL (or your cognizant security person if a valid user is not available) "lock out" (zeroize) your CIK from your STU III/SECTEL 1000 **immediately.**

LOST OR STOLEN STU III/SECTEL

If your STU III/SECTEL is lost or stolen, you must report the loss or theft to your cognizant security person **immediately.**

CRYPTO FILL PROCEDURE

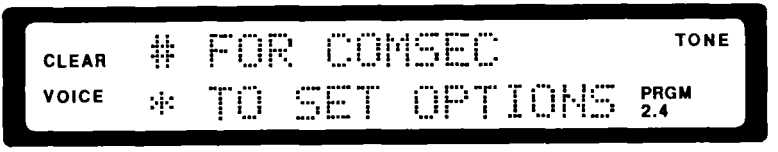
There are two different types of fill devices for the STU III/ SECTEL 1000: Type I operational and seed fill keys. A Type I operational fill device contains classified information that is erased during a fill procedure. After successfully filling the terminal with an operational fill and loading the Crypto Ignition Keys (CIKs), a secure call is possible. A Type I seed fill device is unclassified and is also erased during a fill procedure. After successfully performing a seed fill and programming the CIKs, a secure call is not possible until the Key Management Center is called. The KMC will convert the seed fill to an operational fill. A STU III/SECTEL 2000 has only one type of fill device: Type II operational fill. The crypto fill procedure is normally performed by the cognizant security person. To operate in the secure mode the following procedure must be performed for either the Type I or Type II fill:

NOTE

The fill procedure must be completed within 10 minutes or it will abort automatically.

1. Make sure handset is on-hook.
2. Insert valid fill key and turn one-quarter turn clockwise.
3. Press [PRGM] . Ensure that the PRGM annunciator appears. Then, press [SCROLL] .The message display will show:

then,

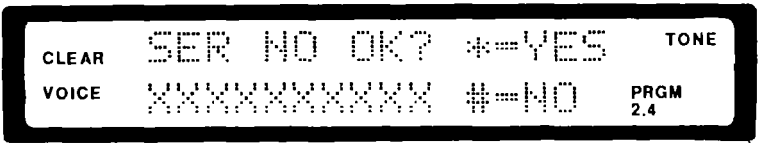


(4) Press [#]. The message display will show:

(5) Press [#]. The message display will show:

(6) Press [#]. The message display will show:

then,



(7) If the serial number on the bottom of the STU III/SECTEL (represented here by XXXXXXXXXX) is correct, skip to step 10, if not, press [#], the message display will show:

(8) Use the number keys to enter the correct terminal serial number (ten digits). Verify that the correct number is now displayed.

(9) Press [#]. The message display will show:

(10) Press [*]. The message display will show:

(11) Press [*] twenty times (the lower line of the message display will count your key presses). After the [*] key is pressed twenty times, the message display will show:

(12) Obtain the label supplied with the fill device for key ID verification prior to accepting the fill.

(13) It is necessary to press [SCROLL] several times to view the entire key ID. Each time [SCROLL] is pressed, two new lines of the key ID are displayed until the entire ID has been read. The message display will then show:

(14) If the key ID information was correct, skip to step 16. If the information was not correct, press [#]. The message display will show:

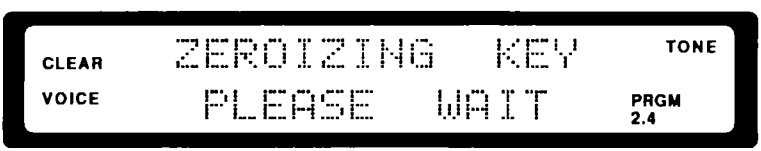
NOTE

Pressing [*] will abort the fill attempt without causing loss of the current terminal fill and without invalidating current CIKs.

(15) If you do not wish to abort the fill, press [#] again. The message display will show:

indicating that you have another chance to accept the fill.

(16) Press [*]. The message display will show:



then,

(17) Remove the fill key. Insert the CIK turning it one-quarter turn clockwise to become CIK 1. If desired, convert the fill key into a CIK.

(18) Press [#]. The message display will show:

NOTE

Only CIK 1 can become a Master CIK. A Master CIK is required to add other CIKs. If the user does not choose to make a Master CIK now, the Crypto Fill Procedure must be repeated if one is desired in the future.

(19) Press either [*] or [#]. The message display will show:

then,

(20) Remove CIK 1. You may load up to a total of eight CIKs by following the message display prompts. You may also exit after loading any CIK by pressing [SCROLL].

NOTE

If any CIK fails to load properly, the message display will show:

You may attempt loading that CIK device again, or try a different one. The CIK count will not advance until the current CIK is successfully loaded.

After the eighth CIK is loaded (or after the [SCROLL] key is pressed if less than 8 CIKs are needed), the message display will show:

When the fill is complete the message display will blank if an operational fill was used. If the STU III/SECTEL was filled with a seed key, the message display will show:

Contact the KMC to convert the seed fill to operational fill.

CHECKING CRYPTO STATUS

The following procedure may be performed anytime you wish to check the crypto status of your STU III/SECTEL.

(1) Make sure handset is on-hook.

(2) Insert a valid CIK and turn one-quarter turn clockwise.

(3) Press [PRGM]. Ensure that the PRGM annunciator appears. Then, press [SCROLL]. The message display will show:

then,

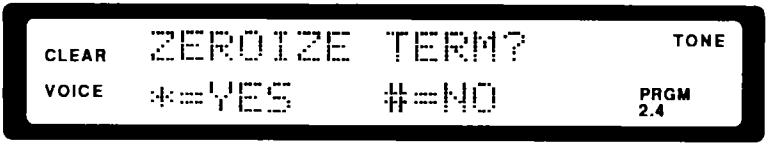
(4) Press [#]. The message display will show:

(5) Press [*]. The message display will show:

(6) Press [SCROLL]. The message display will show:

(7) Press [#]. The message display will show the number of the inserted CIK.

(8) Each time [SCROLL] is pressed, two new lines of the local ID are displayed until the entire ID has been read. The message display will then show:



(9) Press [#]. The message display will indicate the status of CIK 1. Press [SCROLL] to read the status of each CIK assigned to this STU III/SECTEL.

(10) After the status of the eighth CIK is displayed, the next keypress of [SCROLL] will exit the status checking mode.

ADDING CIKs

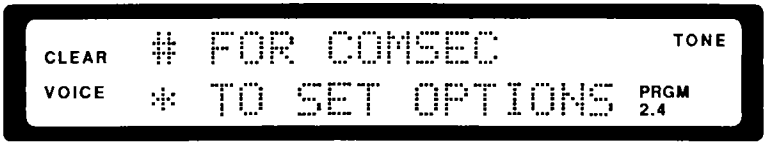
To add CIKs, you must have already made a Master CIK when you first performed a crypto fill on the STU III/SECTEL. Perform the following procedure to add CIKs to the terminal.

(1) Make sure handset is on-hook.

(2) Insert a valid Master CIK into the STU III/SECTEL turning it one-quarter turn clockwise.

(3) Press [PRGM]. Ensure that the PRGM annunciator appears. Press [SCROLL]. The message display will show:

then,



④ Press [#]. The message display will show:

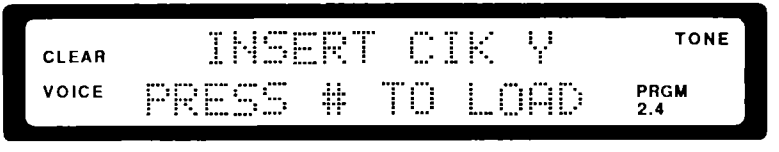
⑤ Press [#]. The message display will show:

⑥ Press [*]. The message display will show:

where X is a number from 1 to 8 that represents the next available CIK.

⑦ Press [#]. The message display will show:

then,



where Y is a number from 1 to 8 that represents the next available CIK.

⑧ Remove the previous CIK and insert the next CIK. You may load up to a total of eight CIKs by following the message display prompts. You may also exit after loading any CIK by pressing [SCROLL].

NOTE

If any CIK fails to load properly, the message display will show:

You may attempt loading that CIK again, or try a different one. The CIK count will not advance until the current CIK is successfully loaded.

After the eighth CIK is loaded (or after [SCROLL] is pressed if less than eight CIKs are needed), the message display will blank.

ZEROIZING CIKs

The following procedure must be performed to render invalid (unusable) any or all of the CIKs assigned to the STU III/SECTEL. It is not necessary to insert the CIK into the crypto-ignition port.

(1) Make sure handset is on-hook.

(2) Press [PRGM]. Ensure the PRGM annunciator appears. Then, press [SCROLL].
The message display display will show:

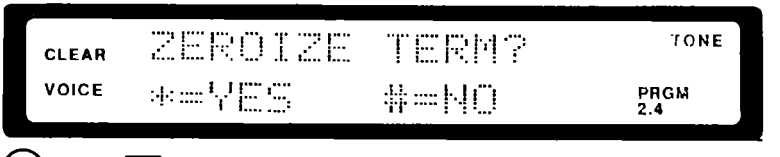
then,

(3) Press [#]. The message display will show:

④ Press [*]. The message display will show:

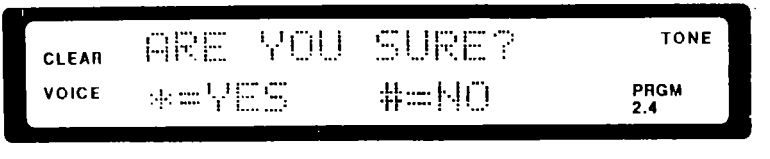
⑤ Press [SCROLL]. The message display will show:

⑥ Press [SCROLL] to bypass the local ID display. The message display will show:



⑦ Press [#]. The message display will show:

⑧ If you wish to zeroize some other CIK than CIK 1, press [SCROLL] until the CIK you want to zeroize is displayed. To zeroize CIK 1, press [#]. The message display will show:



⑨ Press [*] to zeroize the CIK. The message display will show:

where X may be a digit from 1-8.

(10) To zeroize another CIK, repeat steps 6 through 9 above until all the desired CIKs have been zeroized.

(11) After the eighth CIK is zeroized, the next keypress of [SCROLL] will exit the zeroize mode.

ZEROIZING STU III/SECTEL

The following procedure must be performed to render invalid (unusable for secure communication) the STU III/SECTEL and all of the CIKs assigned to the STU III/SECTEL.

(1) Make sure handset is on-hook.

(2) Press [PRGM]. Ensure that the PRGM annunciator appears. Then, press [SCROLL]. The message display display will show:

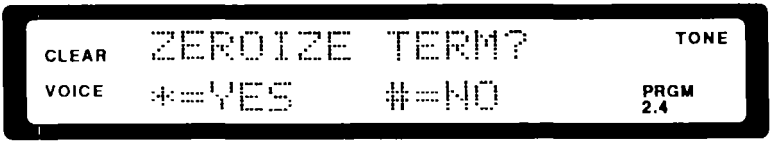
then,

(3) Press [#]. The message display will show:

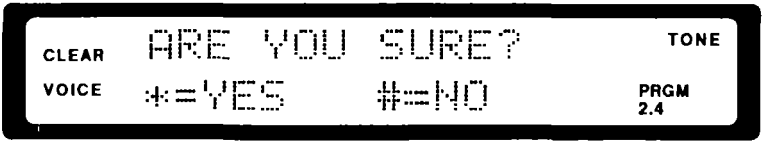
(4) Press [*]. The message display will show:

(5) Press [SCROLL]. The message display will show:

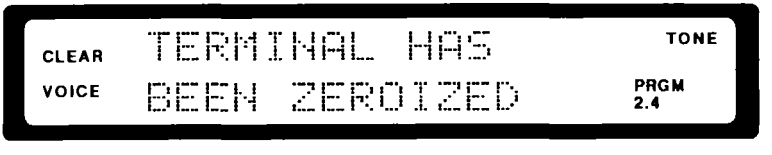
(6) Press [SCROLL] to bypass the local ID display. The message display will show:



(7) Press [*]. The message display will show:



(8) Press [*]. The message display will show:



(9) Press [SCROLL] eight times. Note that the message display indicates that each of the CIKs have been zeroized.

(10) After the status of the eighth CIK is displayed, the next keypress of [SCROLL] will exit the zeroize mode.

Chapter 5
Voice Communication

This chapter shows how to place a clear mode call, receive a clear mode call, convert a clear mode call to secure mode, and receive auto secure calls. It also shows how to read and erase a compromised information message (CIM) from the Key Management Center (KMC).

PLACING CLEAR MODE CALLS

A voice call in the clear mode is made in the same manner as with an ordinary telephone. All features currently available with your present PBX equipment that are accessible by a standard telephone (call forwarding, conference calling, etc.) are available and function the same way on the STU III/SECTEL.

1. Lift the handset and listen for the dial tone.
2. Dial the phone number using either the number keys, redial key, or a memory dial key. Include any special access numbers you would ordinarily use to interface with your current PBX equipment.
3. If you have misdialed, press [RESET], or hold down the switch hook long enough to establish a new dial tone, and redial the number.

NOTE

The number dialed will show on the message display. Use the [SCROLL] *key to review the first 16 digits of a dialing sequence that is greater than 16 digits.*

NOTE

If you received a busy signal, you may redial later by pressing the [REDIAL] *key. Up to 32 keystrokes entered during the last dialing sequence will be redialed and displayed. If your local PBX equipment requires a short pause after dialing special access numbers to reach an outside phone line, you must include the* [PAUSE] *key in your original dialing sequence to use the redial feature. To include the access code and pause in a dialing sequence, dial your access number, press* [PAUSE], *and continue dialing the rest of the number.*

④ Converse at normal level. If desired, adjust earpiece volume by pressing [VOL △] or [VOL ▽].

NOTE

If the MUTE annunciator is on, you will be able to hear the other party, but they will NOT *be able to hear you. Pressing* [MUTE] *will reactivate the handset microphone (unless the STU III/SECTEL has been configured for "clear mode muted".)*

⑤ End call by hanging up or pressing [RESET] and dialing another number.

RECEIVING CLEAR MODE CALLS

Receiving a voice call in the clear mode is accomplished in the same manner as an ordinary telephone.

① Lift the handset when the STU III/SECTEL rings.

② Converse at normal level. If desired, adjust earpiece volume by pressing [VOL △] or [VOL ▽].

NOTE

If the MUTE annunciator is on, you will be able to hear the other party, but they will NOT *be able to hear you. Pressing* [MUTE] *will reactivate the handset microphone (unless the STU III/SECTEL has been configured for "clear mode muted".)*

③ End the call by hanging up.

NOTE

After hanging up handset, the ringer volume can be raised or lowered by pressing [VOL △] *or* [VOL ▽].

CONVERTING CLEAR MODE CALLS TO SECURE MODE

The primary function of the STU III/SECTEL is the secure voice mode of communication. The STU III/SECTEL's sophisticated cryptographic encoding and voice synthesization circuitry permits communication over commercial phone services while ensuring that only the authorized parties receive usable information.

Full Duplex Calls

To use the secure communication mode:

(1) Ensure your CIK is inserted and turned one-quarter turn clockwise.

NOTE

The CIK must remain inserted while the terminal is in secure mode.

NOTE

Once the CIK is inserted in the STU III/SECTEL 1000, the terminal and CIK become classified to the level you are keyed. Consult your security procedures for instructions on how to properly handle your equipment.

(2) Place a clear call and establish contact with the person to whom you will be communicating in the secure mode (see the paragraph above, PLACING CLEAR MODE CALLS).

(3) Tell the person you want to establish a secure conversation.

(4) Verify that the VOICE annunciator on the message display is on. If it is not, press [VOICE/DATA] to enter the voice mode.

(5) Verify that the HD annunciator on the message display is off. If it is not, press [HALF DUPLEX].

(6) Press [SECURE]. The message display will show the following message:

(7) The STU III/SECTEL will take approximately 15 seconds to enter the secure mode. During this time, both terminals are exchanging and validating authorization information to determine if you AND the person you are talking with have authorized access to the secure mode. While this is occurring, both handsets are disabled.

NOTE

If the terminal classifications allow for a secure call, but the highest classification levels do not match, the terminals will default to the highest common classification level of the two terminals.

(8) When the secure mode is established, the SECURE annunciator will appear, and the top line of the message display shows the classification level. The bottom line of the message display automatically scrolls through the other party's authentication, and CIM (if any).

NOTE

If the secure mode cannot be established, the message display will show:

See Chapter 8, Troubleshooting. If desired, you may use the **SCROLL** *key to manually review the authentication, ID, and CIM (if any).*

(9) Converse at normal level. If desired, adjust earpiece volume by pressing **VOL △** or **VOL ▽**.

NOTE

If voice quality suddenly becomes unintelligible (loss of synchronization), press **SECURE** *to resynchronize.*

(10) Either end may reinitiate the clear mode by pressing **CLEAR**. If the other party presses **CLEAR**, communication will be disabled and the following message will appear on the message display:

Press **CLEAR** to reestablish communication. The message display will show:

(11) End call by hanging up, or pressing [RESET], and dialing another number (this may be done from either the secure or clear mode). If the other party terminates the call, the message display will show:

Half Duplex Calls

The half duplex mode of operation is useful when there is too much interference on the phone line to use it for secure voice/data communication. Follow the procedure below to operate in half duplex:

(1) Ensure your CIK is inserted and turned one-quarter turn clockwise.

NOTE

The CIK must remain inserted while the terminal is in secure mode.

NOTE

Once the CIK is inserted in the STU III/SECTEL 1000, the terminal and CIK become classified to the level you are keyed. Consult your security procedures for instructions on how to properly handle the equipment.

(2) Place a clear call and establish contact with the person to whom you will be communicating in the secure mode. See the paragraph above, PLACING CLEAR MODE CALLS.

(3) Tell the person you want to establish a secure conversation.

(4) Verify that the VOICE annunciator on the message display is on. If it is not, press [VOICE/DATA].

(5) Press [HALF DUPLEX]. The HD annunciator on the bottom right corner of the message display will appear.

NOTE

If one of two terminals is in the half duplex and secure mode, the other terminal will be converted to half duplex automatically by going secure.

(6) Press [SECURE]. The message display will show:

(7) The STU III/SECTEL will take approximately 15 seconds to enter the secure mode. During this time, both terminals are exchanging and validating authorization information to determine if you AND the person you are talking with have authorized access to the secure mode. While this is occurring both handsets are disabled.

NOTE

If the terminal classifications allow for a secure call, but the highest classification levels do not match, the terminals will default to the highest common classification level of the two terminals.

(8) When the secure mode is established, the SECURE annunciator will appear, and the top line of the message display will show the classification level. The bottom line of the message display automatically scrolls through the authentication, and CIM (if any).

NOTE

One person may talk at a time in half duplex. The speaker will have a "T" (transmit) displayed while the listener has an "R" (receive) displayed. When "T" or "R" is not displayed, the line is idle and either party may begin speaking.

(9) Terminating the secure half duplex call is accomplished by placing the handset in the cradle, and pressing [HALF DUPLEX]. Ensure the HD annunciator is off.

RECEIVING AUTO SECURE CALLS

Receiving a voice call in the secure mode occurs automatically when your STU III/SECTEL has been configured as autosecure (see Chapter 3, Installation).

(1) Ensure your CIK is inserted and turned one-quarter turn clockwise.

(2) Lift the handset when the STU III/SECTEL rings. The STU III/SECTEL will take approximately 15 seconds to enter the secure mode. During this time, both terminals are exchanging and validating authorization information to determine if you AND the person you are talking with have authorized access to the secure mode. While this is occurring, both handsets are disabled.

NOTE

If the terminal classifications allow for a secure call, but do not match, the terminals will default to the highest common classification level of the two terminals.

(3) When the secure mode is established (SECURE annunciator on), the top line of the message display will show the classification level. The bottom line of the message display automatically scrolls through the authentication, and CIM (if any).

NOTE

If desired, you may use the [SCROLL] *key to manually review the authentication, ID, and CIM (if any).*

NOTE

Be sure to note the level of security clearance being shown on the message display. This message will remain in view while the STU III/SECTEL is in the secure mode. Its purpose is to inform you of the highest level of classified information that may be discussed over the terminal and provide a constant security reminder during the conversation.

(4) Converse at normal level. If desired, adjust earpiece volume by pressing [VOL △] or [VOL ▽].

NOTE

If voice quality suddenly degrades (loss of synchronization), press [SECURE] *to resynchronize.*

(5) Either end may initiate the clear mode by pressing [CLEAR]. If the other party presses [CLEAR], communication will be disabled and the following will appear on the message display:

Press [CLEAR] to re-establish communication. The message display will show:

NOTE

If the MUTE annunciator is on, you will be able to hear the other party, but they will NOT be able to hear you. Pressing [MUTE] will reactivate the handset microphone.

(6) End call by hanging up (this may be done from the secure or clear mode). If the other party terminates the call while in secure mode, the message display will show:

READING/CLEARING A CIM

The display message above indicates that a compromised information message (CIM) has been transmitted to your STU III/ SECTEL. The CIM contains special information that has been updated by the KMC or another STU III/SECTEL with a more recent version of the CIM than your terminal.

The CIM prompt may be disregarded. The user can dial, converse, or go secure without viewing the CIM. For more information, contact your cognizant security person.

The CIM cannot be read without a valid CIK. The user may view the CIM by using the following procedure:

1. Insert CIK and turn one-quarter turn clockwise.
2. Press [SCROLL] to read the CIM.
3. To erase the CIM from memory, press [CLEAR].

NOTE

Whenever a secure call is established with another STU III/SECTEL, the STU III/SECTEL may send an updated CIM to that terminal. The STU III/SECTEL receiving the updated CIM will "beep" so the user is aware it has been updated.

Chapter 6
Data Communication (Secure Mode Only)

OVERVIEW

The STU III/SECTEL contains a built-in modem designed to provide secure data communication with any type of computer terminal, using RS-232C or RS-449 connectors.

You should have a basic understanding of your computer's telecommunications capabilities before using the STU III/SECTEL in the data communication mode. Thoroughly review your telecommunication software manual and computer hardware manual.

The STU III/SECTEL transmits data in the secure mode only. The computer that will be receiving the transmitted data must be connected to a STU III Terminal. Your STU III/SECTEL is designed to provide a secure telecommunication link with other computer equipment.

SETTING DATA COMMUNICATION PROTOCOLS

The STU III/SECTEL is designed to operate as a modem, capable of handling both synchronous and asynchronous communication. Using your telecommunication software manual as a guide, set the communication protocols used to interface the computer terminal to your STU III/SECTEL. The following paragraphs summarize the information used to set your computer's communication protocols.

PROTOCOL

Communication Parameters

If you have connected your computer to the STU III/SECTEL, your computer will be able to operate in both secure synchronous and secure asynchronous modes.

To set your computer to secure synchronous communication mode, use the following procedure:

1. Load your computer's telecommunication software.
2. Access the portion of the program that allows you to set the communication protocols.
3. Set your computer communication protocols to synchronous.
4. Set the data rate to 2400 bits per second (bps).

To set your computer to secure asynchronous mode, use the procedure below:

1. Load your computer's telecommunication software.
2. Access the portion of the program that allows you to set the communication protocols.
3. Set your computer communication protocols to asynchronous.
4. Choose the comm port that your computer will use when transmitting data (i.e., comm port 1, comm port 2, etc.)
5. Set the data rate to either 300, 1200, or 2400 bits per second (bps).
6. Set the data bits (size of each character) to 8.
7. Set the stop bits (an additional bit sent at the end of each character transmitted) to 1.
8. Set the parity check (form of error checking) to none.

NOTE

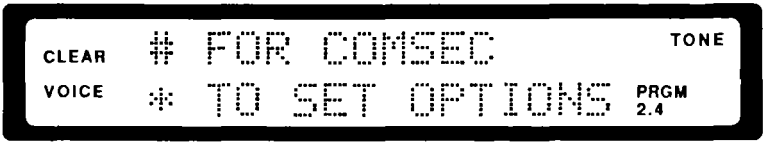
These parameters are used to interface your computer to your STU III/SECTEL. The computer receiving your transmitted data may require additional settings. Refer to your computer telecommunication software manual for further information.

The STU III/SECTEL data interface can be connected directly to any RS-449 interface, and indirectly to any RS-232C via an RS-232 to RS-449 adapter.

STU III/SECTEL Software Setting

The STU III/SECTEL's internal modem can operate in the synchronous or asynchronous mode of communication. In addition, it can transmit data at various rates in the asynchronous mode. After you have set your computer communication protocols, you must set the STU III/SECTEL's communication protocols to the same values. Use the following procedure to set the STU III/SECTEL's communication protocols:

1. Make sure handset is on-hook.
2. Press [PRGM], and note the PRGM annunciator appears.
3. Press [SCROLL]. The message display will show:



4. Press [*] to set software configurations (options).
5. Press [SCROLL] until the current data mode setting is shown on the message display, as in the example below:

6. Press [#] to step through the following four data mode settings:
   - Sync (equivalent to your terminal's synchronous 2400 bps data rate).
   - Async 300 (equivalent to your terminal's asynchronous 300 bps data rate).
   - Async 1200 (equivalent to your terminal's asynchronous 1200 bps data rate).
   - Async 2400 (equivalent to your terminal's asynchronous 2400 bps data rate).

(7) When the setting shown on the message display matches the settings you have selected on your computer, press [PRGM]. The STU III/SECTEL will store the setting and exit the program mode.

SENDING/RECEIVING A DATA FILE

If you have set the communication protocols for your computer and STU III/SECTEL, you are ready to use your equipment to transmit secure data. Refer to Chapter 5, Voice Communication, for information on placing clear calls and going secure. Use the following procedure to establish a computer link:

(1) Establish a clear call with the person who will be sending/receiving the data.

(2) Tell the person you want to establish a computer link and give your current communication protocol settings. These settings **must be the same** for both computers and STU III's. When both computers are ready to send/receive data, press [VOICE/DATA]. Ensure the DATA annunicator appears.

(3) Press [SECURE] to establish the secure data mode.

After a few seconds, your STU III/SECTEL will respond in one of the following ways:

- If all connections and protocol settings are correct, the message display annunciator DATA will be on with no change in the information displayed. You are now ready to send or receive data files. Skip to step 4 of this procedure.
- If there is a problem with either computer terminal's connections, the STU III/SECTEL message display will show:

or,

If the LOCAL DISABLED message is displayed, check to ensure your computer is properly connected to the STU III/ SECTEL data port.

If the REMOTE DISABLED message is displayed, the other party's terminal is not properly connected to the STU III/ SECTEL data port.

If either message is displayed, your STU III/SECTEL will return to the secure voice mode.

If you have checked the connections, and continue to have problems entering the data mode, exit the secure mode and refer to Chapter 8, Troubleshooting.

(4) Transfer data with the other computer using your computer's telecommunication software. Refer to your telecommunication software manual for instructions.

NOTE

Do not place the handset on the handset cradle while you are transmitting data; doing so will disconnect the terminal.

(5) If the data you are transmitting suddenly becomes garbled and unrecognizable, the STU III/SECTEL may need to be resynchronized. Press [SECURE] to resynchronize.

The resynchronizing process will take approximately one second; after it is finished, transfer your data in the normal manner.

(6) After you have finished, exit the data mode in any of the following ways:

- Press [VOICE/DATA]. You will exit the data mode but remain in the secure voice mode. Note the message display annunciators SECURE and VOICE are on.
- Press [CLEAR]. You will exit the data and secure modes and remain in contact with the other party. Note the message display annunciators CLEAR and VOICE are on.

- Press [RESET] or hang up the handset. You will exit the data and secure modes, and end the call.

NOTE

Your STU III/SECTEL 1000 will remain classified to the classification level you are keyed until your CIK is removed. Consult your security procedures for instructions on how to properly handle the equipment.

OFF-HOOK DATA PROTOCOL CHANGES

If you are attempting to send or receive data files, and encounter problems in data transfer, the STU III's data transfer protocols may be unmatched (different data rates, synchronous vs asynchronous, etc.). It is not necessary to hang up and redial to confirm and/or change protocols.

To change protocols, use the following procedure:

1. Press [PRGM] while in the CLEAR mode. Note that the message display annunciator PRGM comes on.
2. Press [SCROLL] until the desired protocol is displayed.
3. Press [SECURE] to store the desired protocol and exit the program mode.

Chapter 7
Care and Cleaning

EXERCISE CARE

Care for the STU III/SECTEL is simple and easy. The terminal is constructed of high-impact plastic and metal that has been coated with a scuff-resistant finish. All electronics are installed to withstand minor shocks and vibrations associated with everyday use. Treat the terminal as carefully as a piece of sophisticated computer equipment.

To keep the terminal looking good and working well, follow these guidelines.

KEEP SURFACE CLEAN

Keep the surface of the STU III/SECTEL clean by wiping it with a soft cloth. If the finish is stained, moisten a soft cloth with a mild soap and gently rub the stain until it is removed. Use extreme caution when cleaning the message display lens to avoid scratching it. Never use detergents, ammonia, or abrasive substances; they can mar the surface of the terminal.

AVOID SUDDEN IMPACT

The STU III/SECTEL contains components that can be damaged if the terminal is subjected to sudden or severe impacts. **Do not** drop or strike it at any time.

AVOID PULLING CORDS

The connectors used on the STU III/SECTEL's power converter cord, handset coiled cord, telephone line cord, and power line cord should not be subjected to excessive stress or strain. **Do not** pull on any cords or place any cords where people may trip over them.

AVOID EXCESSIVE HEAT

The STU III/SECTEL case and internal components may become damaged if exposed to excessive heat. **Do not** install the terminal near steam pipes or other heating equipment.

AVOID LIQUIDS

Liquids such as water, soda pop, and coffee which are spilled on the front panel can seep into the interior and cause severe damage. Use extreme caution when placing beverages or other liquids near the STU III/SECTEL. If a liquid does spill on the terminal, **clean it up immediately.**

Chapter 8
Troubleshooting

Most frequently encountered problems associated with the STU III/ SECTEL are a result of either faulty cord connections (power line, handset, telephone line, or power converter), or errors made while using features incorporated in the terminal.

This chapter will help identify and correct minor hardware malfunctions and interpret display messages associated with equipment failure, telephone line problems, invalid CIKs (Crypto Ignition Keys), and improper use of selected features.

HARDWARE MALFUNCTIONS

The most common hardware malfunctions associated with the STU III/SECTEL produce the following symptoms:

- Blank Message Display (loss of input power)
- No Dial Tone
- Poor Quality Sound or Inability To Place Call

Perform the following troubleshooting steps in the order given to determine if the terminal is operating properly, or if the problem is caused by external equipment or services.

Blank Message Display (loss of input power)

The most probable cause of a blank message display is a **loss of input power**. The Motorola STU III/SECTEL has the unique capability of functioning as a plain old telephone (POT), in clear mode only, during a loss of input power. To use the STU III/SECTEL during a loss of input power, press [CLEAR] before each call placed.

1. Ensure the Message Display Contrast Adjustment knob is in the proper position. See Chapter 2, Controls and Indicators for more information.
2. Check power line cord connections. Ensure that the connections at the ac receptacle and the power converter are made properly.

(3) Replace the power line cord with a known good one. If power is restored, the power line cord was faulty. The STU III/SECTEL may be used as soon as power is restored. Contact the Motorola Service Representative for instructions regarding the faulty power cord.

(4) If the original symptom remains, do not attempt to use the terminal in secure mode. Contact the Motorola Service Representative for instructions.

No Dial Tone

(1) Check telephone line and handset cords. Ensure that all connections are made properly. If the symptom remains, proceed to step 2.

(2) First, replace the telephone line cord, then the handset coiled cord with known good ones to isolate a possible faulty cord. If a dial tone is heard, the faulty cord has been found. Contact the Motorola Service Representative for instructions regarding the faulty cord.

(3) If the symptom remains, connect a known good STU III/ SECTEL, or an ordinary telephone to the telephone line cord. If a dial tone is heard, the previous STU III/SECTEL was faulty. Contact the Motorola Service Representative. If no dial tone is heard, contact the telephone company.

Poor Quality Sound or Inability To Place Call

(1) Check the telephone line and handset coiled cords for proper connections.

(2) Connect a known good STU III/SECTEL to the telephone line cord. If the sound improves, the STU III/SECTEL was faulty; contact the Motorola service representative. If the sound does not improve; contact the telephone company.

MODEM DIAGNOSTICS

The STU III/SECTEL can perform online diagnostics of modem performance, including signal quality, echo levels, and echo locations for both successful and failed calls. Current modem data is obtained by pressing [PRGM] while in the SECURE mode.

NOTE

These procedures should be performed only under the guidance of a field engineer.

To view the previous set of modem data obtained while in the SECURE mode, press [PRGM], followed by the digit [1], while in the CLEAR MODE.

DISPLAY MESSAGES

The display messages discussed in this chapter have been incorporated in the STU III/SECTEL's software to inform the user when the terminal is not operating properly or when it has failed to perform a selected function. Generally, the display message contains the current status of the terminal on the top line and the recommended user's prompt on the bottom line. For example, the message:

Notifies the user that a valid Crypto Ignition Key (CIK) must be inserted and prompts the user to press [CLEAR] to enter the clear mode of operation.

The display messages are listed in alphabetical order by first line within five related error groups as follows:

- Clear Call
- Secure Call
- Fill
- Key Management Center (KMC)
- Miscellaneous.

This enables the user to apply corrective action as quickly as possible. Some of the messages are preceded by a beep to alert the user that action is required at the terminal.

NOTE

Invalid key presses may cause a beep to occur, but are otherwise ignored.

Only one message is preceded by a continuous audible tone to notify the user that an emergency condition exists and that prompt remedial action is required. This display message is described below.

WARNING

The STU III/SECTEL has detected a security related error. **Place the handset in the cradle, or press [RESET]. If the problem persists, call the cognizant security person immediately.** The STU III/SECTEL may be classified and should be treated as classified.

Clear Call Errors

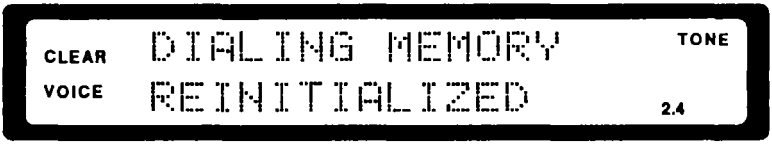
An invalid Crypto Ignition Key (CIK) was inserted. The Compromised Information Message (CIM) cannot be viewed. **Obtain a valid CIK.**

The Compromised Information Message (CIM) cannot be viewed without a valid Crypto Ignition Key (CIK). **Insert a valid CIK.**

The "clear mode muted" option is set. **If clear mode muting is not desired, refer to Chapter 3, Installation.**

The Crypto Ignition Key (CIK) was removed during updating. A short tone is sounded and this message is displayed for approximately 10 seconds. If the user does not replace the CIK in time, the following message will be displayed.

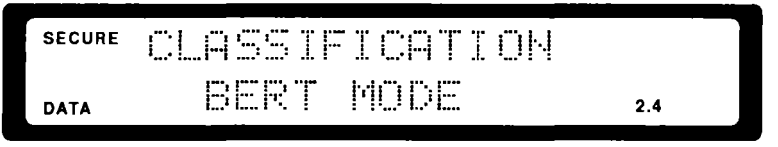
The Crypto Ignition Key (CIK) needs to be updated; it is invalid. **Contact your cognizant security person.**



A failure was detected in the STU III/SECTEL's memory. The software options will be reset to default conditions (see Chapter 3, Installation) and all memory keys will be erased.

Secure Call Errors

Valid Crypto Ignition Key (CIK) is needed. **Insert a valid CIK.**



The other party's STU III/SECTEL is performing a Bit Error Rate Test (BERT). This test is reserved for service use and should not occur without notice. **Hang up and re-establish the call. Contact the Motorola Service Representative for more information on how this function is used.**

The user's computer terminal is not attached, or connections are not tight. **Connect the computer terminal, or ensure that the connections are tight.**

The other party's STU III cannot process the secure-dialed digits. **Contact your cognizant security person.**

The other party's computer terminal is not attached or the connections are not tight. No further action required.

An attempt was made to change state in half duplex while the other side had the line. **The request is queued and acted on when the other side releases the line.**

The Crypto Ignition Key (CIK) inserted at the other end has expired. No further action required.

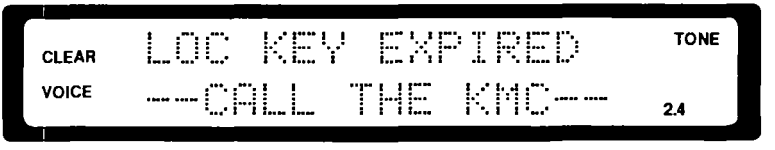
The remote STU III's key is a seed key and cannot be used for secure communication.

The other party's STU III is on the Compromised Terminal List. **Hang up and contact the cognizant security person immediately for instructions.**

This may indicate that a secure call between the two STU III's is not possible due to an incompatible fill variables.

An invalid Crypto Ignition Key (CIK) has been inserted. **Use the proper key for the STU III/SECTEL or call the cognizant security person to have the key updated.**

Your key has expired or the STU III/SECTEL's fill is out of date. After the [CLEAR] key is pressed, the NONSECURE message is displayed. After the handset is placed on-hook, the following message is displayed:



Your key has expired; **contact the Key Management Center.**

The other party pressed the [CLEAR] key. **Press [CLEAR] to change to clear voice communication.**

A secure call has been aborted. The Crypto Ignition Key (CIK) has been removed from its port. **Press [CLEAR] to change to clear voice communication.**

An attempted secure call has not been completed. **Try going secure two more times;** if unsuccessful, either the telephone line contains too much interference to be used for secure voice/data communication, or the other telephone cannot go secure. Press [CLEAR], tell the other party you will be switching to half duplex mode. Press [HALF DUPLEX]. Try to go secure again by pressing [SECURE]. If the half duplex mode does not solve the problem, press [HALF DUPLEX] again to return to full duplex mode. Contact the Motorola Service Representative.

The other party has terminated the call; **hang up.**

Fill Errors

A valid Crypto Ignition Key (CIK) is needed to view the local identification (ID) and COMSEC status. **Insert a valid key, and press [SCROLL].**

The data in the fill device is invalid; **obtain a valid fill device, and start at the beginning of the crypto fill procedure in Chapter 4, Security Consideration and Procedures.**

The device that has been inserted is not the fill device; insert the fill device, and start at the beginning of the crypto fill procedure in Chapter 4, Security Consideration and Procedures.

The Crypto Ignition Key (CIK) was not programmed correctly. Ensure that the CIK is properly installed in the CIK port. **Attempt to reprogram the CIK.** If the failure reoccurs, **the CIK is damaged and needs to be replaced with another CIK.**

The fill has been aborted.The existing terminal fill will remain intact.

The fill device is not inserted; **insert the fill device, and start at the beginning of the crypto fill procedure in Chapter 4, Security Considerations and Procedures.**

The fill failed to complete; the error is displayed as a diagnostic code number. **Press [RESET], and start at the beginning of the crypto fill procedure in Chapter 4, Security Consideration and**

Procedures. If the problem persists, **make a note of the failure and contact the Motorola Service Representative.**

The terminal has been zeroized, and does not contain fill information. **Contact the cognizant security person.**

The 10-minute timer has expired during the fill operation. **After the display clears, start at the beginning of the crypto fill procedure in Chapter 4, Security Considerations and Procedures.**

KMC Errors

An error has been detected on the Compromised Key List; **call the Key Management Center.**

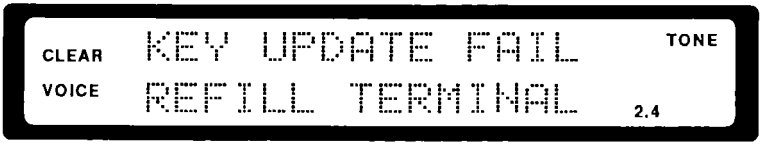
The key failed to update; **hang up.** Either one of the following two displays will appear.

The key failed to update; **call the Key Management Center.**

The key failed to update; **refill the terminal.**

The local key has expired; **hang up.** Either one of the following two displays will appear.

The local key has expired; **call the Key Management Center.**



The key failed to update; **refill the terminal with a seed fill key.**

Miscellaneous Errors

A malfunction inside the STU III/SECTEL has been detected. The 'X XXXX' on the status line will contain a letter and numbers which identify the problem. **Place the handset in the cradle, or press [RESET]. If the problem persists, note the status letter and numbers and contact the Motorola Service Representative.**

WARNING

The STU III/SECTEL has detected a security-related error. **Place the handset in the cradle, or press [RESET].** If the problem persists, **call the cognizant security person immediately.** The terminal may be classified and should be treated as classified.

A malfunction inside the terminal has been detected. The 'XXXX' on the status line will contain a number that identifies the problem. **Place the handset in the cradle, or press [RESET].** If the problem persists, **note the status number and contact the Motorola Service Representative.**

Chapter 9
Models and Accessories

INTRODUCTION

This chapter contains model descriptions, system drawings, ordering information, and optional accessories for the different STU III/SECTEL's. In addition, it contains installation instructions for the wall mounting bracket assembly.

TYPES OF TERMINALS

The STU III/SECTEL is available in two types: STU III/SECTEL 1000 (Type I) and STU III/SECTEL 2000 (Type II).

The **STU III/SECTEL 1000 (Type I)** provides secure voice/data transmission of U.S. Government classified information into an existing telephone network.

The **STU III/SECTEL 2000 (Type II)** provides secure voice/data transmission of "sensitive," but unclassified information into an existing telephone network.

TYPE I MODELS

The STU III/SECTEL 1000 (Type I) is available in five models: single line two-wire, multiline (Bell 1A2), four-wire AUTOVON, foreign two-wire, and foreign four-wire AUTOVON.

TYPE II MODELS

The STU III/SECTEL 2000 (Type II) is available in two models: single line two-wire, and foreign two-wire.

The single line STU III/SECTEL is a basic desk-top telephone providing secure voice and data communications. A crypto ignition key (CIK) activates the SECURE feature of this telephone terminal. For data transmission, a computer terminal interfaces to the telephone terminal through the RS449 interface port located on the back panel. An accessory RS449-to-RS232C adapter (5DGA71AA) is needed for an RS232C connection. The STU III/ SECTEL is connected to the telephone line by an RJ11C modular line cord. Power is supplied by a stand-alone power converter.

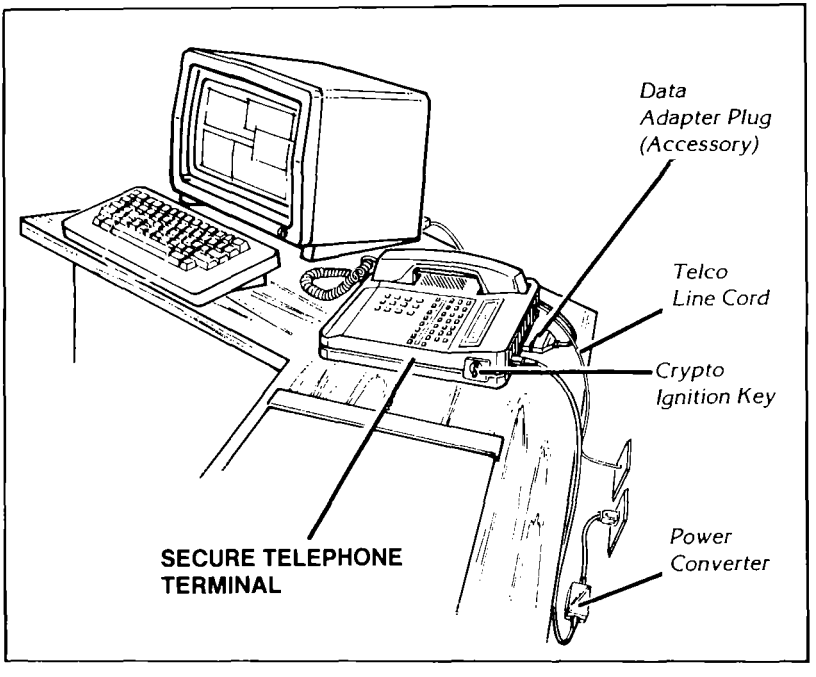


Figure 9-1. Single Line Two-Wire Model

The multiline STU III/SECTEL is compatible with the 1A2 multiline key system and can be installed in an existing 1A2 system. In addition to containing all of the features of the single line two-wire model, the multiline model provides four-line capability, an intercom, and a hold function (or five lines and a hold function). The telephone line cord is hard-wired to the instrument and is terminated in a 50-pin connector compatible with those used in the 1A2 system.

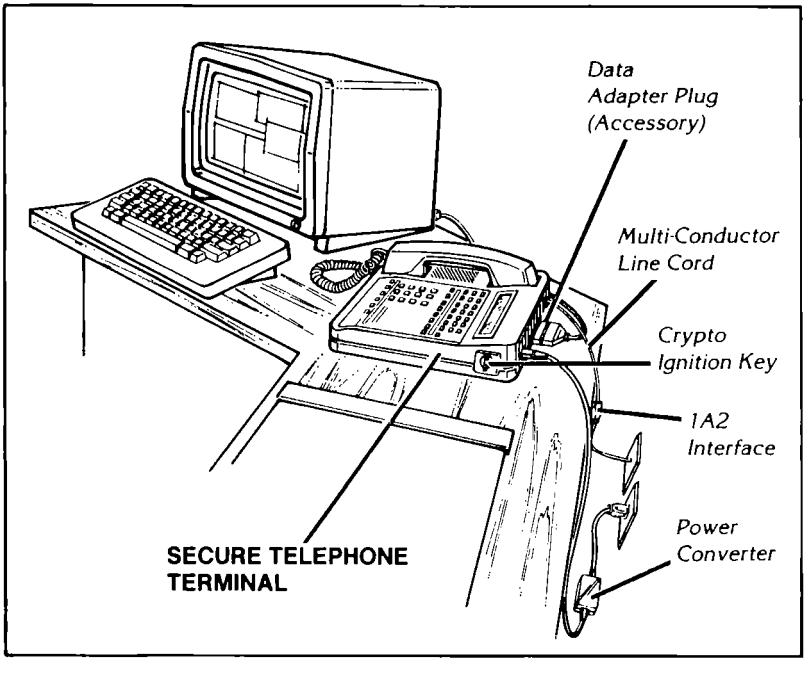


Figure 9-2. Multiline Model

FOREIGN FOUR-WIRE AUTOVON MODEL WITH HEMP

The foreign four-wire AUTOVON STU III/SECTEL can easily be integrated into an existing AUTOVON four-wire interface network. An AUTOVON adapter provides connectivity to the four-wire AUTOVON system, and an AUTOVON line interface unit provides ear and mouth (E&M) signaling capabilities to meet six/eight-wire AUTOVON interface requirements.

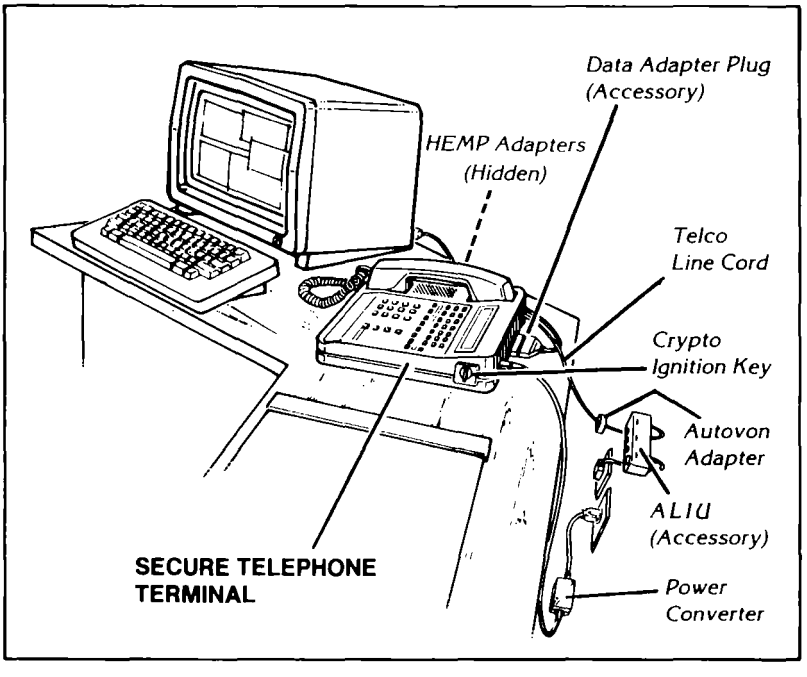


Figure 9-3. Foreign Four-Wire AUTOVON Model with HEMP

The four-wire AUTOVON STU III/SECTEL can easily be integrated into an existing AUTOVON four-wire interface network. An AUTOVON adapter provides connectivity to the four-wire AUTOVON system, and an AUTOVON line interface unit (AILU) provides ear and mouth (E&M) signaling capabilities to meet six/eight-wire AUTOVON interface requirements.

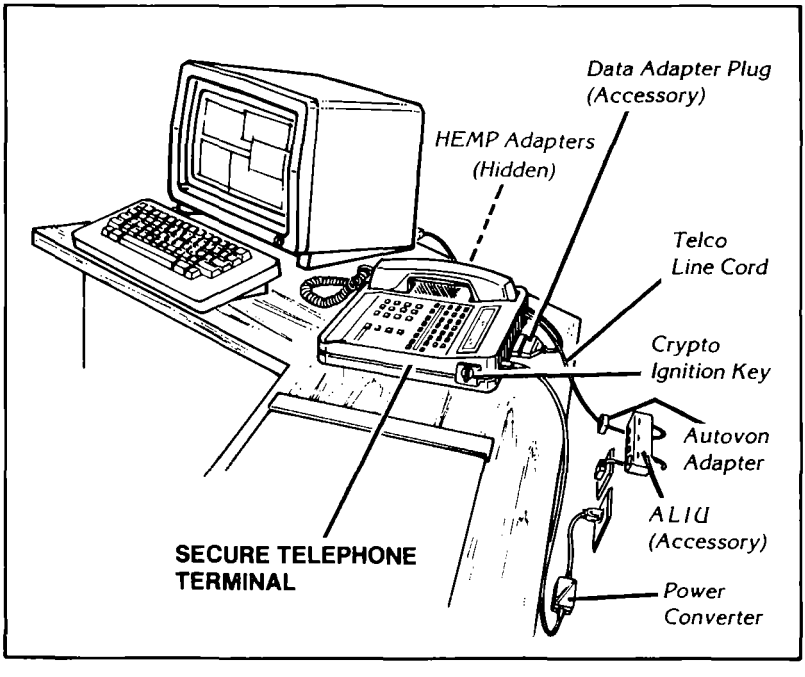


Figure 9-4. Four-Wire AUTOVON Model with HEMP

FOREIGN TWO-WIRE MODEL

The foreign two-wire model of the STU III/SECTEL is a single line, desktop telephone that provides secure voice and data communication. This telephone is similar to the single line two-wire model and is shipped with a universal auto sensing power converter and suitable interfaces. Additionally, the foreign STU III terminal can be zeroized without ac power, and it will zeroize if the terminal is disassembled.

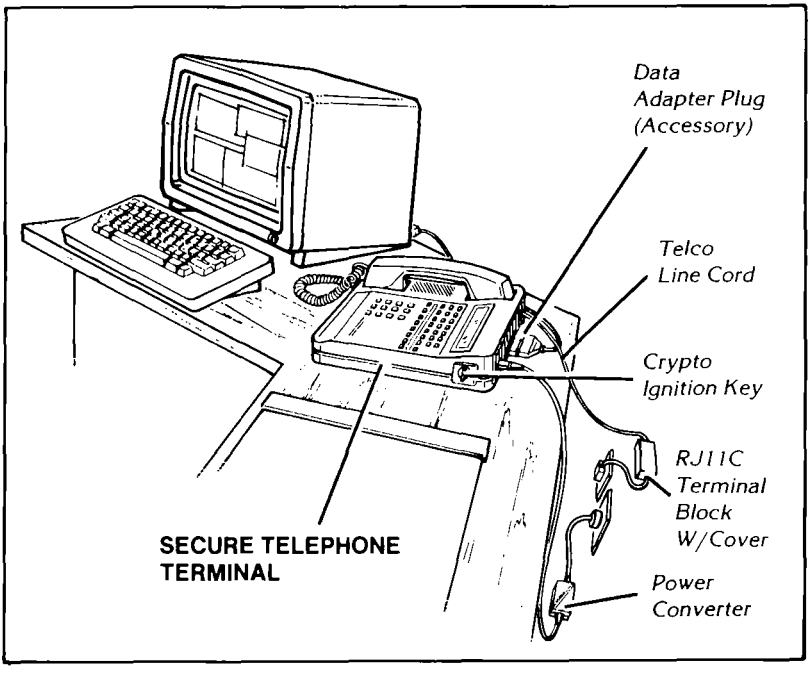


Figure 9-5. Foreign Two-Wire Model

WALL MOUNTING BRACKET ASSEMBLY

The components of the optional wall mounting bracket assembly are noted in the table on the following page.

Table 9-1. Wall Mounting Bracket Assembly

QTY.	DESCRIPTION
1	Wall Mounting Bracket
4	Screw
4	Anchor
1	Cable, 10-inch

Installation

View the illustration in Figure 9-6 while performing the following procedure.

1. Use the four screws and anchors and install the wall mounting bracket over the wall telephone jack plate.
2. Connect one end of the 10-inch cable to the RJ11C jack.
3. Position the STU III/SECTEL on the mounting hooks of the bracket.
4. Connect the other end of the 10-inch cable to the RJ11C jack at the back of the STU III/SECTEL.

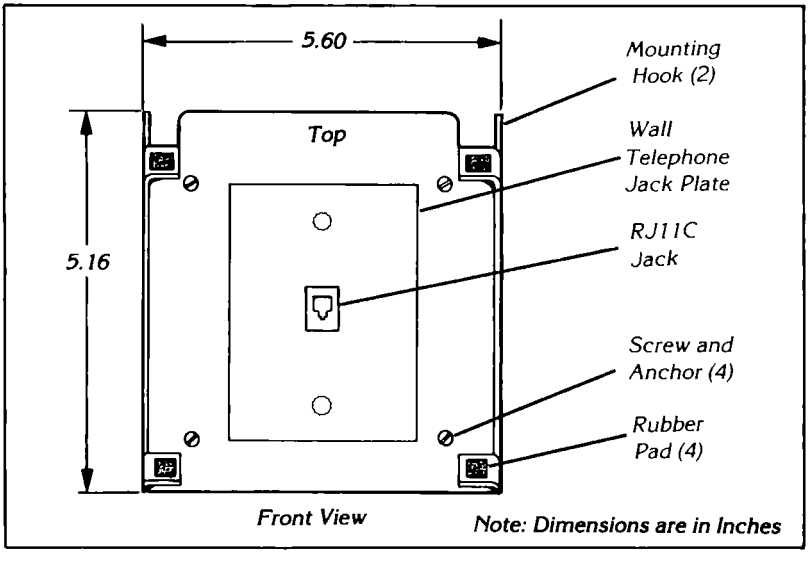


Figure 9-6. Wall Mounting Bracket Assembly

Handset Hanger Installation

There is a plastic handset hanger included with every STU III/ SECTEL. It is located under the telephone number label.

Follow the procedure below to install the plastic handset hanger (Figure 9-7):

1. Lift Handset and set it aside.
2. Insert the end of a paperclip into the plastic shield covering the telephone number label.
3. Apply pressure to the plastic shield until it bows up, then remove it.
4. Remove the paper label from the slot.
5. Insert your fingernail or a flat-head screwdriver into the grove in the plastic hanger. Apply pressure towards the hook switch, and the plastic hanger will slide out.
6. Rotate the plastic hanger 180° and insert it back into the grove it was removed from.

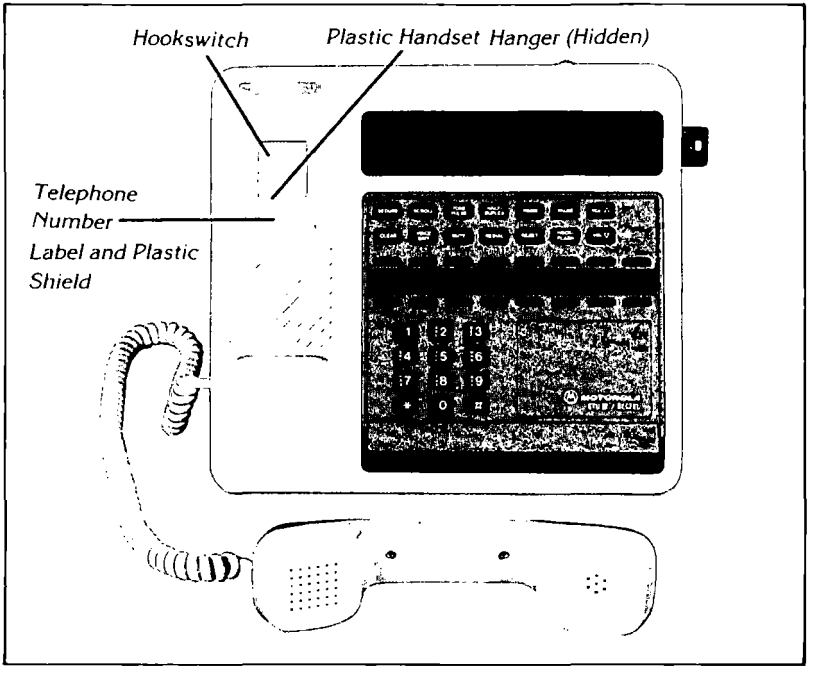


Figure 9-7. Handset Hanger Location

(7) Replace the telephone number label and plastic shield.

(8) The STU III/SECTEL is now ready to be wall mounted.

DESCRIPTIONS OF MODELS AND ACCESSORIES

This paragraph briefly describes the models and accessories used with a STU III/SECTEL. The STU III/SECTEL and accessories are available in three colors: Shadow White, Burgundy, and Brown. See the paragraph below, Ordering Information, for model numbers.

- The **STU III/SECTEL 1000, (Type I),** provides secure voice/data transmission of U.S. Government classified information into an existing telephone network.
- The **STU III/SECTEL 2000, (Type II),** provides secure voice/data transmission of "sensitive," but unclassified information into an existing telephone network.
- The **Crypto Ignition Key (KSD-64A)** allows the Type I or Type II STU III/SECTEL's to transmit and receive secure voice or data communication when inserted in both terminals. It is standard with all models.
- The **Power Converter** allows a terminal to be operated with 115/230 Vac at 47-63 Hz. It is standard with all models.
- The **Wall Mounting Bracket Assembly** is an option that includes a mounting bracket and the necessary hardware to mount the terminal on a wall.
- The **Handset** with coiled cord (unique to STU III/SECTEL) allows voice communication to take place between users.
- The **Telephone Line Cord** provides the interface between the telephone company's telephone jack wall plate and the STU III/SECTEL. It contains the conductors for receiving and transmitting voice and data communications. Available in RJ-11 (4-conductor) and RJ-45 (6-conductor) configurations.
- The **RS449-to-RS232C Connector Adapter** is the hardware interface between the terminal's RS449 37-pin connector and a computer terminal's RS232C 25-pin DTE connector.

- The **Two/Four-Wire Autovon Adapter** with cable adapts a two-wire telephone to a four-wire AUTOVON network through an AUTOVON line interface unit (ALIU).
- The **RJ11C-to-RJ45S Adapter** is the hardware interface that converts a 8-position RJ45S jack (two pins are used to mount a resistor to set the gain level to optimize modem performance) to a 6-position RJ11C jack. It requires a six conductor telephone line cord.
- The **RJ11C Terminal Block** with cover is a six-conductor screw terminal box for an RJ11C jack (for foreign use).
- The **Data Port HEMP Adapter** provides high-altitude electromagnetic pulse (HEMP) protection for the RS449 data port.
- The **Handset HEMP Adapter** provides high-altitude electromagnetic pulse protection for the handset port.
- The **Terminal Carrying Case** provides protection for the STU III/SECTEL and accessories while in transit or storage. Includes universal power and telephone adapters.
- The **RJ11C-to-50-pin Adapter** is the hardware interface between the terminal's RJ11C jack and the 50-pin connector used in a Bell 1A2 system.
- The **50-pin-to-RJ11C Adapter** is the hardware interface between the STU III/SECTEL's 50-pin connector (multiline model) and a standard single line system.

Assistance with pricing and order placement is available by calling Motorola, Inc. at (602) 949-4300 or (602) 949-6217, or by writing:

Motorola, Inc.
Government Electronics Group
P.O. Box 1417
Scottsdale, Az 85252
ATTN: STU III/SECTEL Marketing M/D 2099

DESCRIPTION	MODEL NO.
Type I	
Single Line Two Wire 2.4 Kbps Terminal	
Shadow White	5DGT1000AA
Burgundy	5DGT1001AA
Brown	5DGT1002AA
Multiline 2.4 Kbps Terminal	
Shadow White	5DGT1010AA
Burgundy	5DGT1011AA
Brown	5DGT1012AA
Two/Four Wire AUTOVON w/HEMP Terminal	
Shadow White	5DGT1020AA
Burgundy	5DGT1021AA
Brown	5DGT1022AA
Outside CONUS	
Shadow White	5DGT1050XA
Burgundy	5DGT1051XA
Brown	5DGT1052XA
Type II	
Single Line Two Wire 2.4 Kbps Terminal	5DGT2000AA
Shadow White	5DGT2000AA
Burgundy	5DGT2001AA
Brown	5DGT2002AA

Multiline 2.4 Kbps Terminal	
Shadow White	5DGT2010AA
Burgundy	5DGT2011AA
Brown	5DGT2012AA
Two/Four Wire AUTOVON w/HEMP	
Shadow White	5DGT2020AA
Burgundy	5DGT2021AA
Brown	5DGT2022AA
Outside CONUS	
Shadow White	5DGT2050XA
Burgundy	5DGT2051XA
Brown	5DGT2052XA
Accessories	
KSD-64A Blank Crypto Ignition Key	5DGA01AA
Type II Fill Device	5DGA02AA
KSD-64A w/Type II Key	
Wall Mounting Bracket Assy	5DGA03AA
Power Converter	5DGA04AA
Terminal Handset w/Coiled Cord	
Shadow White	5DGA06AA
Burgundy	5DGA07AA
Brown	5DGA08AA
15' 6 Conductor Phone Line	5DGA51AA
5' Multiline Extension Cord	5DGA53AA
10' Multiline Ext. Cord	5DGA54AA
RS449/232 Connector Adapter	5DGA71AA
2/4 Wire Auto Adapter w/Cable	5DGA72AA
RJ11C/RJ45 Adapter	5DGA73AA
Data Port HEMP Adapter	5DGA75AA
Handset HEMP Adapter	5DGA76AA
50 Pin 1A2 to RJ11C Adapter	5DGA77AA
*Carrying Case	5DGA25XA
User's Manual	5DGA15AA
Field Service Manual	5DGA16AA

*Carrying Case Model No. 5DGA25XA contains the following:

(1) 3" Briefcase
(1) 4' 6 Conductor Phone Wire
(1) 50 Pin to RJ11C Connector
(1) Set Universal Power Connector Adapters
(1) Universal Telephone Adapter

Repair Kits

**Handset, Cord, User	
Replaceable Plastic Parts	
Shadow White	5DGK00AA
Burgundy	5DGK01AA
Brown	5DGK02AA
Power Supply (2 Ea)	5DGK11AA
Red Board (5 Ea) w/o Key Generator (KG)	5DGK 21AA
Black Board (CONUS) (3 Ea)	5DGK23AA
Black Board (Outside CONUS) (3 Ea)	5DGK23XA
OIC Board (Standard) (3 Ea)	5DGK24AA
OIC Board (Multiline) (3 Ea)	5DGK25AA
***Complete Field Maintenance	
Standard Kit	
Shadow White	5DGK30AA
Burgundy	5DGK31AA
Brown	5DGK32AA
Outside CONUS	
Shadow White	5DGK30XA
Burgundy	5DGK31XA
Brown	5DGK32XA
Multiline	
Shadow White	5DGK33AA
Burgundy	5DGK34AA
Brown	5DGK35AA
Outside CONUS	
Shadow White	5DGK30XA
Burgundy	5DGK31XA
Brown	5DGK32XA

**Repair kit contains:
(1) Handset w/standard coiled cord
(1) 15' 6 Conductor Phone Line
(1) Plastic Speed Dial Cover
(1) Speed Dial Position Paper
(1) Plastic Phone Number Cover
(1) 4 Rubber Feet

***Complete Field Maintenance Kit contains the following:
(1) Fully populated Red Board w/o Key Generator
(1) Fully populated Black Board
(1) Fully populated OIC Board
(1) Fully populated Red Coprocessor Board

(1) Key Pad
(1) Message Display
(1) Power Supply
(1) Handset w/standard coiled cord
(1) 15' 6 Conductor Telephone Wire
(1) 8 Pin DIN Connector
(1) Plastic Speed Dial Cover
(1) Rubber Feet

NOTE

The kit will have the red or black board appropriate for the model number specified.

Appendix A
Display Messages

The following paragraphs contain configuration prompts and operational status display messages, any of which may appear in the course of normal operation. They are listed in alphabetical order and briefly described within three major groups as follows:

- Status Messages
- Prompt Messages
- Combined Status-Prompt Messages

Chapter 8, Troubleshooting, contains lists of display messages which convey error information. Generally, they contain the current status of the terminal on the top line and prompt the user to perform the corrective action specified on the bottom line.

Status Messages

Display messages which notify the user *only* of the current status of the terminal are listed and described in this group.

Confirms that the Crypto Ignition Key X (1-8) has just been made unusable.

Indicates that the Crypto Ignition Key X (1-8) has been zeroized and is no longer usable.

Indicates that the STU III/SECTEL is resynchronizing with the other party's STU III.

An example of a truncated classification level with an appended common field.

Prompts the user to enter the serial number (0000000000 is the current serial number) of the terminal and then to press the # key when finished.

Indicates that the fill device contains a maintenance key.

Indicates that the fill key is a maintenance key and will not be zeroized.

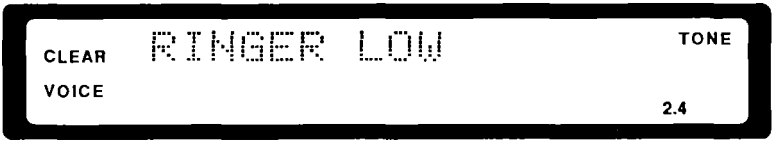
Indicates that an attempt is being made to enter the secure mode.

Indicates that the STU III/SECTEL is operating in the clear mode.

Indicates that a Compromised Information Message (CIM) is present for viewing in the clear mode.

Indicates that the handset microphone has been disabled in the clear mode.

Indicates that the ringer has been set to maximum volume.



Indicates that the ringer has been set to minimum volume.

Indicates that the ringer has been set to medium-high volume.

Indicates that the ringer has been set to medium-low.

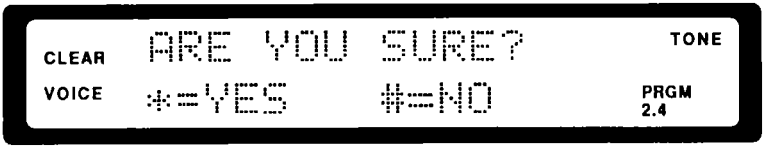
Indicates that the ringer has been turned off.

Indicates that the STU III/SECTEL has been zeroized and is not capable of processing secure calls.

Prompt Messages

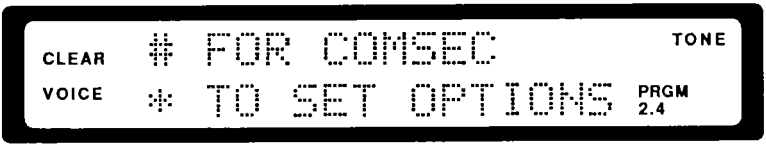
These display messages only prompt the user to perform the action described on the display.

Prompts the user to verify the request to exit the crypto fill procedure.



Prompts the user to confirm a previous selection.

After the fill status has been viewed, the user is prompted to verify that the fill information is correct.



Prompts the user to select an option by pressing either [#] for security functions, Chapter 4, Security Considerations and Procedures, or [*] to set software configuration options, Chapter 3, Installation.

Prompts the user to select an option by pressing either [#] for crypto fill procedure, or [*] to check crypto status and/or to initiate the zeroizing function.

Prompts the user to select a memory key to be erased.

Prompts the user to insert the Crypto Ignition Key X (1-8) and to press [#] to program the key.

Attempts to verify the serial number and prompts the user for acceptance.

Indicates that the STU III/SECTEL is busy processing information and that the user should wait until the update has been completed.

Prompts the user to make successive [SCROLL] presses to view the crypto- vector status.

Prompts the user to press [SCROLL] to display the next message.

Prompts the user to select a number (1- 9) to define a pause duration while entering a phone number. The value chosen will replace the default value (2) above.

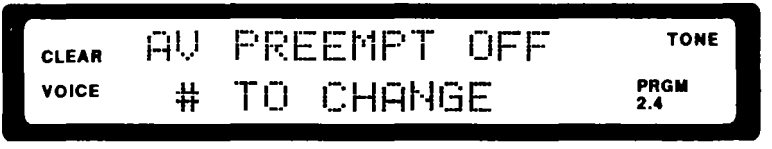
Prompts the user to press either [*] to zeroize the STU III/ SECTEL, or [#] to proceed to the next step.

Combined Status-Prompt Messages

The top line of this group of display messages informs the user of the current status of the STU III/SECTEL, and the bottom line prompts the user to perform the action specified.

Indicates that the STU III/SECTEL will not initiate a secure call automatically upon answering. Press [#] to change the function.

Indicates that the STU III/SECTEL will initiate a secure call automatically upon answering. Press [#] to change the function.

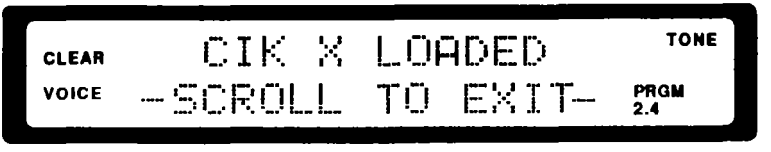


Indicates that the ability of the STU III/SECTEL to detect the AUTOVON preempt signal is enabled.

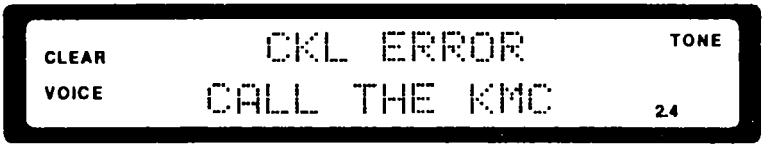
Indicates that the ability of the STU III/SECTEL to detect the AUTOVON preempt signal is disabled.

The AUTOVON PREEMPT signal has been detected during a secure call. The call is automatically terminated.

Indicates that the Crypto Ignition Key X (1-8) is usable. Press [#] to zeroize the key.



Indicates briefly that the Crypto Ignition Key X (1-8) has been successfully programmed, and prompts the user to press [SCROLL] if no other CIK s are to be programmed.



Indicates a Compromised Key List (CKL) error has occurred, and prompts the user to call the KMC to refill the terminal.

Indicates the call classification level and prompts the user to wait until the other user releases the line (half duplex call).

Indicates that the handset microphone is disabled in clear mode. Press [#] to select the clear mode enable function.

Indicates that the handset microphone is enabled in clear mode. Press [#] to select the clear mode muted function.

Indicates that the fill procedure is being completed and that the terminal is busy updating the crypto information.

Indicates that the data mode selected is asynchronous at 300 bits per second. Press [#] to change the function.

Indicates that the data mode selected is asynchronous at 1200 bits per second. Press [#] to change the function.

Indicates that the data mode is asynchronous at 2400 bits per second. Press [#] to change the function.

Indicates that the data mode selected is synchronous. Press [#] to change the function.

Indicates that the fill device contains a seed key. Prompts the user to call the Key Management Center to convert the seed fill to an operational fill.

Indicates that the Key Management Center rekey was successful. Prompts the user to terminate the call.

Indicates that a Compromised Information Message (CIM) is present in the clear mode. Prompts the user to press scroll to manually view the CIM display lines.

Indicates that the secure call setup tones will not be heard through the handset earpiece. Press [#] to change the function.

Indicates that the secure call setup tones will be heard through the handset earpiece. Press [#] to change the function.

Indicates that the terminal contains a valid crypto fill, and prompts the user to press [#] to view the local identification.

Indicates that the fill key is being erased, and prompts the user to wait until the terminal is ready to continue with the fill operation.

Appendix B
FCC Registration and Compliance

Motorola STU III/SECTEL 1000 and STU III/SECTEL 2000 are registered with the Federal Communications Commission (FCC) and have been approved for commercial office use. Before installation and operation, the following FCC rules and regulations must be observed.

Equipment Installation:
Install the Motorola STU III/SECTEL in accordance with the instructions in Chapter 3, Installation.

Phone Company Notification:
Notify your local telephone company before you install the STU III/SECTEL. Give the phone company the following information: the phone number of the line on which the STU III/SECTEL will be installed, the Motorola model number located on the bottom of the terminal's base, the FCC registration and ringer equivalency numbers located on the bottom of the terminal's base.

Equipment Repairs:
If a problem develops with the terminal, immediately disconnect it from the telephone line. Before the terminal is reconnected, it must be serviced by a qualified service technician.

Telephone Company Rights:
Your local telephone company may temporarily disconnect your phone service if they believe the STU III/SECTEL to be the cause of a problem. If this occurs, the telephone company must do the following: promptly notify you of the action they are taking; provide you with the opportunity to correct the problem; inform you of your right to file a complaint with the FCC. If you receive such a notice, contact your Motorola Customer Service Representative immediately.

Electromagnetic Interference:
As with all telecommunications computing equipment, the Motorola STU III/SECTEL emits some electromagnetic energy. Motorola has designed and tested the STU III/SECTEL to ensure that the electromagnetic energy emitted is within the required FCC standards. However, placing the unit next to equipment receiving and/or transmitting a radio or television signal may cause signal interference.

Appendix C
Direct Sale Warranty Agreement

Motorola STU III/SECTEL™ products are warranted to be free from defects in design, material and workmanship for ONE (1) YEAR from the date of shipment from our manufacturing facility.*

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WHICH ARE SPECIFICALLY EXCLUDED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

In the event of a defect, malfunction or failure to conform to specifications established by Seller, or if appropriate, to specifications accepted by Seller in writing, during the applicable periods dated above, Seller, at its option, will either repair or replace the product and such action on the part of the Seller shall be the full extent of Seller's liability hereunder, and Buyer's exclusive remedy. This warranty shall automatically terminate if any of the following occur:

- The product is used in other than its normal and customary manner.
- The product has been subject to misuse, accident, neglect or damage.
- Improper alterations or repairs have been made, or if nonconforming parts are used in the product unless done by a service facility by Seller to perform warranty service.
- Damage occurs due to an act of God.

Non-Motorola manufactured products such as an AUTOVON Line Interface Unit, which are used in conjunction with STU III/SECTEL™ but not supplied by Motorola, are excluded from this warranty (unless bearing a Motorola Model Number in the form of an "alphanumeric number").

Any claim for breach of this warranty shall be waived unless Buyer notifies Seller within the applicable warranty period.

*Some STU III/SECTELs have been delivered with other than a one-year warranty. Refer to your particular contract to determine the applicable warranty period.

GOVERNMENT CONTRACT WARRANTY AGREEMENT

Motorola STU III/SECTEL™ products are warranted to be free from defects in design, material and workmanship for TWO (2) YEARS from the date of acceptance. All parts contained within the STU III/SECTEL™ will be replaced free of charge, including labor for a period of two (2) years from the date of acceptance.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH ARE SPECIFICALLY EXCLUDED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

In the event of a defect, malfunction or failure to conform to specifications established by Seller, or if appropriate, to specifications accepted by Seller in writing, during the applicable periods dated above, Seller, at its option, will either repair or replace the product and such action on the part of the Seller shall be the full extent of Seller's liability hereunder, and Buyer's exclusive remedy. This warranty shall automatically terminate if any of the following occur:

- The product is used in other than its normal and customary manner.
- The product has been subject to misuse, accident, neglect or damage.
- Improper alterations or repairs have been made, or if nonconforming parts are used in the product unless done by a service facility by Seller to perform warranty service.
- Damage occurs due to an act of God.

Non-Motorola manufactured products such as an AUTOVON Line Interface Unit, which are used in conjunction with STU III/SECTEL™ terminal, but not supplied by Motorola, are

excluded from this warranty (unless bearing a Motorola Model Number in the form of an "alphanumeric number").

Any claim for breach of this warranty shall be waived unless Buyer notifies Seller within the applicable warranty period.

ADDITIONAL GOVERNMENT CONTRACT WARRANTY INFORMATION

The following warranty information pertains to users of Motorola's STU III/SECTEL as purchased under government contract MDA904-86-C-7026:

- The two year warranty can be upgraded to a five year warranty. Notification of Warranty extension must be submitted to Motorola Inc., Government Electronics Group, 8201 E. McDowell Rd., Scottsdale, Arizona 85282, Attention STU III/SECTEL Marketing Department M/D 2099 at any time up to 90 days prior to expiration of the two year warranty.
- The user-replaceable battery furnished with the Foreign Model terminal is warranted for one year from date of acceptance.
- Any supplies corrected or furnished in replacement are warranted for the remaining duration of the products initially delivered.
- Motorola will repair or replace products within 20 working days from the date Motorola instructed the user to return the supplies. For products being shipped outside the continental United States, the user will receive a repaired or replacement device within 30 working days from the date Motorola furnished disposition instructions.
- Upon receiving return shipping instructions from the Motorola STU III Depot (see Service Assistance), Motorola will bear the commercial transportation costs of returning defective or non-conforming products to and from any location within the continental United States.
- The Motorola warranty does not extend to loss of key due to battery fault or failure.

Service Assistance

In order to comply with the terms of the warranty agreement, Motorola provides toll-free telephone assistance (via two 800 numbers) to users, custodians and authorized limited maintenance technicians.

IMPORTANT

Servicing of the STU III/SECTEL is limited to authorized and trained personnel only. Any unauthorized opening, altering or modifying in any way will void the warranty and jeopardize the unit's security integrity.

Before contacting Motorola for warranty service, ensure that all programming, operating and troubleshooting steps have been performed as prescribed in this guide. If further assistance is required or if it appears that the terminal may require servicing, the Motorola Depot can be accessed through either phone number as described below.

CONUS

Call 1-800-922-HELP (4357) for assistance in the following:

- Installation
- Operation
- Fault/Error Detection
- Diagnostics

Call 1-800-922-STU3 (7883) for administrative purposes as follows:

- Shipping/Receipt Verification(s)
- Unit Tracking
- Other General Administrative Functions

The Motorola Depot located in the Phoenix metropolitan area, is staffed on weekdays between 8:00 AM and 4:30 PM (excluding Motorola holidays). Calls received at any other time will be promptly returned on the next business day. The 800 numbers may be accessed within CONUS, including Alaska and Hawaii.

Motorola will provide detailed shipping and handling instructions, including a Return Authorization Number, to users whose terminals require depot service. In addition, users will be asked to identify their designated contact point, phone number and inventory control or COMSEC account number.

NOTE

When calling the administrative toll-free number concerning equipment returned for service, be prepared to provide the Return Authorization Number to the Motorola staffer.

OUTSIDE CONUS PACKING AND SHIPPING INSTRUCTIONS

When you contact the Depot for shipping authorization you will be given complete instructions regarding packaging and other safeguards.

However, if you plan or need to return the terminal from any outside CONUS location without prior contact with the Depot, please follow the instructions below:

- Do NOT ship any CIKs or fill devices to the Depot.
- Verify operation of terminal per the instruction and/or troubleshooting section(s).
- Include a description of the fault as it occurred.
- Provide a return shipping address or CONUS contact name and phone number.
- Zeroize your unit – if you cannot, special handling will be required!
- Clear your memory redial keys.
- Remove memory labels.
- Contact your CONUS Inventory Representative requesting that the Depot be notified of upcoming shipment.
- If possible, ship the STU III/SECTEL in the original shipping container.
- Comply with current security regulations.

NOTE

Outside CONUS shipping expenses TO the Depot or CONUS point of entry will be borne by the sender/user. After the user has contacted the depot to receive a return authorization number, the shipping expenses from the CONUS point of entry to the Depot are borne by Motorola. Also be advised that the Warranty Turn-Time Period may not apply to unauthorized return shipments.

- Ship the terminal to:
  Motorola C&E, Inc.
  P.O. Box 52000
  Phoenix, Arizona 85082-2000

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