

**OFFICE AND TACTICAL  
SECURE TERMINAL EQUIPMENT  
USER'S MANUAL  
Release 1C**



Prepared by  
**L-3 Communications**  
**Communication Systems East**  
**One Federal Street**  
**Camden, NJ 08103-1013**



**communications**

## Preface

This Secure Terminal Equipment (STE) User's Manual describes the features and operating procedures for using the Office and Tactical STE Terminals with Release 1C software.

- Chapter 1, "Introduction", is primarily intended for site engineers and technicians. It provides:
  - a brief overview of the STE,
  - identifies classes of operators,
  - lists features and technical specifications,
  - provides technical support information, and
  - provides safety instructions.
- Chapter 2, "Installation", is primarily intended for site engineers, technicians and custodians or TPAs (Terminal Privilege Authority). It provides:
  - pre-installation requirements (types of phone service and installation location),
  - unpacking and inspection instructions, and
  - installation instructions (connection, programming and testing).
- Chapter 3, "Controls, Indicators and Interfaces", is intended for all audiences. It provides:
  - an overview of the STE,
  - identifies various display types,
  - identifies user keys (buttons), indicators, and the alphanumeric display, and
  - identifies rear panel controls and interfaces (ports).
- Chapter 4, "System Administration" is primarily intended for the TPA. However, all users should be familiar with its contents in order to operate the STE with greater efficiency. It contains:
  - an introduction to the FORTEZZA PLUS Crypto Card,
  - transfer of TPA privileges,
  - terminal menu hierarchy
  - default settings
  - terminal management,
  - crypto card management, and
  - features configuration.
- Chapter 5, "Operation", is intended for all operators. It provides:
  - call management,
    - crypto card insertion and removal
    - answering a call
    - placing calls (for each type service, i.e., ISDN, PSTN)
  - in call operations,
    - handset/speakerphone
    - mode changes
    - mute and hold
    - transfer
    - conferencing
    - multiple calls
    - volume and sidetone control
    - terminating calls
  - 8510 features, and
  - call failures.
- Chapter 6, "Data Operations", is intended for all operators. It provides:
  - general information,
  - data modes,
  - auto-answer,
  - remote control (including detailed command descriptions), and
  - remote control examples (dialing, manual answering, auto-answer).
- Chapter 7, "User Maintenance", is intended for all operators. It provides:
  - cleaning instructions,
  - self test and software verification,
  - software revision number,
  - terminal failure indications, and
  - a troubleshooting guide.

- Chapter 8, "Notes", is primarily intended for the site engineer and technicians. It provides:
  - warranty information,
  - FCC information, and
  - use in Canada information.
- Chapter 9, "Electronic Files", is primarily intended for the TPA. It provides:
  - a description of, and instructions to download, electronic Access Control Lists (ACL and
  - a description of, and instructions to download, the STE Toolset Program.
- Chapter 10, "Glossary", provides a description of terms used.

The difference between the Office and Tactical STE Terminals is distinguished by the type of wedge connected to the bottom of the STE. The Office Wedge has a single port for connecting to the Public Switched Telephone Network (PSTN). The Tactical Wedge has ports for PSTN, Tri-Service Tactical Communications (TRI-TAC), and BDI (Black Digital Interface) EIA-530A/EIA-232 networks. At initialization, the STE detects the type of wedge installed and limits operations and displays to the services supported by that wedge. A third type STE, the Data STE, has a different configuration and is supported by it's own manual.

The following features were added to Release 1B features to form Release 1C:

- Rekey (Secure Telephone Unit-III (STU-III) and Secure Data Network System (SDNS) keys
- KOV-14 Crypto Card reprogramming
- Terminal Privilege Authority (TPA) transfer of privileges to another KOV-14
- STU-III Secure Dial
- Secure Hold
- Digital secure traffic over ISDN Voice Bearer Channels (where validated by VBSCT protocol)
- TRI-TAC STE calls to/from PSTN terminals (STE or STU-III) without an Inter-Working Function (IWF)
- BDI network interface (EIA-530A/EIA-232)
- C<sup>2</sup> terminal capability (BDI Clear Linear Predictive Coding (LPC)/Codebook Excited Linear Prediction (CELP) and Wideband)
- 8510 feature to simulate AT&T 8510 non-secure operations
- Sidetone Control

REVISION LOG

REVISION	CHANGE SUMMARY
0	<ul style="list-style-type: none"><li data-bbox="381 394 829 422">• Initial Release, December 5, 2000</li></ul>



## LIST OF ACRONYMS

Acronyms	Meaning
ACK	Acknowledgement
ACL	Access Control List
ACO	Additional Call Offering
ADPCM	Adaptive Differential PCM
ANI	Automatic Number Identification
ASYNC	Asynchronous
AUTOVON	AUTOMATIC VOICE Network
BDI	Black Digital Interface
BRI	Basic Rate Interface
CELP	Codebook Excited Linear Prediction
CIK	Crypto Ignition Key
CIM	Compromised Information Message
CKL	Compromised Key List
CO	Central Office
CSD	Circuit Switched Data
CSV	Circuit Switched Voice
CVSD	Continuously Variable Slope Delta Modulation
DAO	Department-Agency-Organization
DCE	Data Communications Equipment
DN	Directory Number
DRSN	Defense Red Switch Network
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
DTR	Data Terminal Ready
DNVT	Digital Nonsecure Voice Terminal
EIA	Electronics Industries Association
EKMS	Electronic Key Management System
FAQ	Frequently Asked Question
FCC	Federal Communications Commission
HMI	Human Machine Interface
ISDN	Integrated Services Digital Network
IWF	Inter-Working Function
kbps	Kilobits per second
KMID	Key Material Identifier

## LIST OF ACRONYMS (Continued)

Acronyms	Meaning
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LPC-10e	Linear Predictive Coding
LSB	Least Significant Bit
MLPP	Multi-Level Precedence Preemption
MSB	Most Significant Bit
MSE	Mobile Subscriber Equipment
NACK/NAK	Negative Acknowledgement
NI-1	National ISDN 1
NI-2	National ISDN 2
NSA	National Security Agency
NT-1	Network Termination Device ("U" to "S/T" interface)
PC	Personal Computer (IBM compatible)
PCM	Pulse Code Modulation
PCMCIA	PC Memory Card International Assoc.
PIN	Personal Identification Number
PSTN	Public Switched Telephone Network
PUP	Portable Uninterruptible Power System
SACS	Secure Access Control System
SDNS	Secure Data Network System
SPID	Service Profile Identifier
STE	Secure Terminal Equipment
STU-III	Secure Telephone Unit-III
S/T	4 wire ISDN interface
TPA	Terminal Privilege Authority
TRI-TAC	TRI-service TACTical Communications
TSG	Telephone Security Group
U	2 wire ISDN interface
UL	Underwriters Laboratory
VAC	Volts Alternating Current
VBST	Voice Bearer Secure Capable Test





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## CHAPTER 1. INTRODUCTION

### OVERVIEW

The L-3 Communications Secure Terminal Equipment (STE) Terminals are available in three configurations:

- The Office STE Terminal provides access to ISDN (Integrated Services Digital Network) and PSTN (Public Switched Telephone Network) telecommunications systems,
- The Tactical STE Terminal provides access to ISDN, PSTN, TRI-TAC (TRI Service TACTical network), and serial EIA-530A/EIA-232 BDI (Black Digital Interface) telecommunications systems.

The L-3 Communications Office and Tactical STE Terminals (supported by this manual) provide:

- Non-secure voice telephone service interoperable with conventional ISDN and PSTN telephones, STE and STU-III (Secure Telephone Unit Type III) terminals, and DNVT (Digital Non-secure Voice Terminals),
- Secure voice, interoperable with other STE or STU-III Terminals,
- Secure facsimile, interoperable with units supported by other STEs or STU-III Terminals, and
- Secure data, interoperable with terminals supported by STEs or STU-III Terminals.

Refer to the Data STE Terminal Equipment User's Manual for a detailed

### 1.1. CLASSES OF USERS

The STE supports two classes of operators: TPA and User.

The Terminal Privilege Authority (TPA), normally the System Administrator, is responsible for activating all Terminal Management functions. The TPA establishes what security features are to be activated on a terminal and who may use the terminal.

The User is a person who has been given the authority to operate a terminal by the TPA. Users may not change TPA functions. However, users may view what capabilities are available at a terminal.

### 1.2. FEATURES

The STE features include:

- Information protected by U.S. Government FORTEZZA Plus KRYPTON Crypto Card (KOV-14)
- Secure Access Control System (SACS)
  - Access Control List (ACL)
  - Maximum and Minimum Security Levels
- Alphanumeric Display for Identification and Authentication
- Telephone Security Group (TSG) Qualifications
- Tempest Qualifications
- Traditional/Auto-Secure/Secure-Only Operation
- Terminal Zeroize
- Terminal Self-Test Diagnostics
- Upgrade via Software Download
- Upgrade via Two Expansion Type III PC Memory Card International Association (PCMCIA) Slots
- Desktop or Wall Mountable
- Speakerphone (both secure and non-secure) if enabled
- Speed dialing

### 1.3. TECHNICAL SPECIFICATIONS

<p><b>Voice Applications</b> Secure Voice:</p> <p>Non-Secure Voice</p>	<p>ADPCM @ 32 kbps. CELP @ 4.8 kbps. LPC-10e @ 2.4 kbps.</p> <p>PCM. CVSD (Tactical STE only).</p>
<p><b>Secure Data Applications:</b> Synchronous</p> <p>Asynchronous</p>	<p>128, 112, 64, 56, 38.4, 19.2, 9.6, 4.8, 2.4 kbps.</p> <p>38.4, 19.2, 9.6, 4.8, 2.4 kbps.</p>
<p><b>Interfaces:</b> Network</p> <p>Host Data</p>	<p>ISDN (S/T), BRI, 1B+D/2B+D, RJ-45 PSTN, RJ-11C, 2-wire. TRI-TAC/MSE wireline modem, 4-wire (Tactical STE only). BDI EIA-232 or BDI EIA-530A (Tactical STE only)</p> <p>EIA-232 or EIA-530A.</p>
<p><b>Interoperability:</b></p>	<p>STU-III. DNVT (Tactical STE, only). ISDN: NI-1, NI-2, 5ESS, DMS-100, DEFINITY, Euro ISDN (ETSI-3)</p>
<p><b>Physical Characteristics:</b></p>	<p>10" w x 9.5" d x 5.25" h. 7 lbs.</p>
<p><b>Environmental:</b> Operating Temperature Operating Relative Humidity Storage Temperature</p>	<p>0° to 40° C. 10% to 90% Non-condensing. -20° to 60° C.</p>
<p><b>Power:</b></p>	<p>External Power Supply, 100-250 VAC (-10%, +6%); 47-63 Hz. Auto-ranging. Portable Uninterruptible Power System (PUP) purchased as a separate item. 20 Watts.</p>
<p><b>Safety:</b></p>	<p>UL (Conforms to UL1950). C-UL (Certified to CSA 22.2 #950).</p>
<p><b>Design Compliance:</b></p>	<p>NSA Security Requirements. Tempest Qualifications. TSG CE FCC Part 15. FCC Part 68. UL 1950.</p>

### 1.4. L-3 STE SERVICE CENTER TECHNICAL SUPPORT

L-3 Communications  
 Communication Systems – East  
 STE Service Center  
 One Federal Street  
 Camden, NJ 08103-1013

Phone: 800-339-6197/856-338-6207  
 Email: STEHELP@cse.L-3com.com

## 1.5. SAFETY INSTRUCTIONS

When using your STE terminal the following safety instructions should always be followed to reduce the risk of fire, electric shock, and personal injury:

- Do not use your STE near water.
- Do not use your STE to report a gas leak near the leak.
- Avoid using your STE during an electrical storm. There is a remote risk of electric shock from lightning.
- Use caution when installing or modifying telephone lines.
  - Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
  - Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface or wall jack.
- It is best not to rely on the STE as your only source of unclassified telephone communications for the following reasons:
  - If the STE is in secure-only mode, you will not be able to place a "911" emergency call.
  - In the commercial telephone system, telephones get their electrical power over the lines connecting the telephone to the central office. ISDN telephones (like STE) get their power locally; if you lose power, you cannot use the telephone (e.g., to place a "911" emergency call).



## CHAPTER 2. INSTALLATION

This chapter addresses the pre-installation requirements (determining and ordering phone services), ordering cryptographic cards, unpacking and inspection, physical installation (locating and connecting services), and establishing the Network Settings for the STE (Secure Terminal Equipment) Terminal.

### 2.1. PRE-INSTALLATION REQUIREMENTS

Before installing your STE you must determine:

- The type(s) of telephone service that the STE will be connected to,
- Where the STE will be located within the facility, and
- Are the proper connections for each service available at the desired location.

The facilities manager can tell you what services are presently available for your location and what must be done to obtain services that are not presently available.

You must also order your FORTEZZA Plus KRYPTON CRYPTO CARD. Refer to Paragraph 2.1.2.

#### 2.1.1. Determine Type(s) of Phone Service

An Office STE can be connected to:

- An ISDN (Integrated Services Digital Network) or
- A PSTN (Public Switched Telephone Network).

A Tactical STE can be connected to:

- An ISDN,
- A PSTN,
- A TRI-TAC (TRI Service TACTical network), or
- A serial EIA-530A/EIA-232 BDI (Black Data Interface) network.

For the STE to operate at full capability, the ISDN service must be installed.

#### 2.1.1.1. ISDN Pre-installation Requirements

##### 2.1.1.1.1. Ordering ISDN Service

To order ISDN, speak to your local facility telecom department or telephone company service provider. Make sure you order the features that you want supported on the STE (e.g., if you want the DROP feature to be supported, you must order the DROP feature from your service provider).

*STEP 1:* Provide ISDN Ordering Codes (IOC) or Line Options.

IOC codes: P, U, V, EZ ISDN-1, or EZ ISDN-1a

If the service provider does not offer these codes, you must order the ISDN service using the actual ISDN line options:

- BRI (Basic Rate Interface) with 2B+D Line Type
- CSV (Circuit Switched Voice) and CSD (Circuit Switched Data) must be enabled on both B channels.
- Flex Calling (Hold, Conference, Transfer and Drop) options must be enabled.
- Caller ID (Automatic Number ID) function is optional.
- Additional Call Offerings (ACOs)/Appearances must be at least three.
- On the Lucent 5ESS Switch, the line must be set for point-to-multipoint. (See Step 2)
- The Terminal Type must be set to "A" (Only for Custom Mode on the Lucent 5ESS Switch).

**NOTE:** If you are configuring a STE for 8510 operations, see Paragraph 5.1.6. .

Once the ISDN service order has been placed, the service provider should provide you with several parameters required for configuring your STE.

## STE USER'S MANUAL

*STEP 2:* Determine Switch Type and Software Version.

The STE is compatible with the protocols used by the following switches and associated PBX (Private Branch Exchanges).

- NI-1/NI-2 National Standard (best compatibility with STE)
- Lucent 5ESS Version 10 or greater
- Northern Telecom DMS-100
- Lucent Definity (WCBRI or 8510T terminal types)
- Siemens EWSD or EWSDE (Euro Version)
- REDCOM
- Meridian (Release 24B)
- Madge 20, 60 and 200
- SL-100

*STEP 3:* Determine Switch Feature Codes for:

- Transfer Feature
- Conference Feature
- Drop Feature

*STEP 4:* Determine SPID (Service Profile Identifier) and DN (Directory Number).

The switch uses SPIDs and DNs as unique identification numbers for each ISDN line so it can determine where to send calls.

The SPID identifies the available service options. There may be one or two SPIDs depending upon the Switch Type and Switch Line Setting. A SPID may be up to 20 characters long.

The DN is your telephone number. There may be one or two DNs depending upon the Switch Type and Switch Line Setting.

Examples of SPIDs and DNs formats are:

- SPID: 01-555-5555-000
- DN: 410-555-5555

Note: Formats for SPIDs and DNs vary among local service providers.

*STEP 5:* Determine the ISDN Interface from the service provider.

If the ISDN service comes directly from a telephone company CO (Central Office) switch, it probably is a 2-wire U-interface. However, if your service comes from a local ISDN capable PBX, you may get a 4-wire S/T-interface. This is preferred since the STE is an S/T-interface device.

*STEP 6:* Determine if a Network Termination Device (NT-1) is required.

An NT-1 is a device that converts the 2-wire (U-interface) connection coming from the Phone Company into a 4-wire (S/T-interface) connection interface for ISDN terminal equipment. The NT-1 is a small electronic box that, if needed, must be purchased by the STE user. An example of an NT-1 is the Tone Commander NTIU-220TC. Call 800-245-9780 or visit their web site at "<http://www.tonecommander.com>". Other sources are also available.

A STE needs the NT-1 to operate on a U-interface; however, it needs nothing extra on the S/T-interface.

*STEP 7:* Determine where the ISDN Line will be physically terminated.

The Phone Company will install the line up to the point of connecting it to your facility. Once the line is connected to your facility, it is usually your telecom department's responsibility to run the wiring to the exact STE location. The STE is a point-to-point ISDN device requiring a RJ-45 type connection. Point-to-point is defined as having "one Terminal Equipment per ISDN line."

**NOTE:** Write down all the information (line options, switch type, switch features, SPID, DN) about your ISDN service in Table 2.1. It will be needed to program the STE.

**Table 2.1. ISDN Service Installation Information**

IOC Code/Line Options BRI with 2B+D line type CSV and CSD Enabled Flex Calling Codes Hold Conference Transfer Drop Caller ID ACOs (Appearances must be at least 3)	? P, U, V, EZ ISDN-1 or ? P, U, V, EZ ISDN-1a ? Yes           ? No ? Yes           ? No - - - - ? Yes           ? No -
Switch Type Switch Features Transfer Conference Drop	- - - -
SPID #1 DN #1	- -
SPID #2 DN #2	- -
Connection Type	? 2-wire (U) – NT-1 required ? 4-wire (S/T)

#### 2.1.1.1.2. STE ISDN Connector Pin-out

Once the ISDN line is installed, make sure the connector that will mate to the STE is wired as shown in Table 2.2. The STE's ISDN PORT (RJ-45 interface connector) is located on the rear of the STE.

**Table 2.2. ISDN Connector Pin-out**

Pin	Signal Name
1	No Connection
2	No Connection
3	ISDN TX+
4	ISDN RX+
5	ISDN RX-
6	ISDN TX-
7	No Connection
8	No Connection

### 2.1.1.1.3. Additional ISDN Information

Following are some additional sources of ISDN information.

Internet:

- <http://ste.securephone.net>
  - Switch Configuration Guide

Books:

- Communications Network Test and Measurement Handbook, Clyde F. Coombs, Jr. and Catherine Anne Coombs, McGraw Hill.
- ISDN & SS7, Architectures for Digital Signaling Networks, Uyles Black, Prentice-Hall.
- ISDN Implementor's Guide, Charles K. Summers, McGraw Hill.
- ISDN Concepts, Facilities, and Services, Third Edition. Gary C. Kessler and Peter Southwick, McGraw Hill.
- ISDN and Broadband ISDN with Frame Relay and ATM. William Stallings, Prentice-Hall.
- ISDN Explained, John M. Griffiths

### 2.1.1.2. PSTN Pre-installation Requirements

The PSTN connection is presently used only in the USA. A RJ-11 connector is required at the facility PSTN interface.

Once the PSTN line is installed, make sure the connector is wired as shown in Table 2.3 (only the RNG and TIP leads are required for STE operation). The STE's PSTN PORT (RJ-11 interface connector) is located on the rear of the Office or Tactical Wedge.

**Table 2.3. PSTN Connector Pin-out**

Pin	Signal Name
1	X
2	A
3	RNG
4	TIP
5	A1
6	x

### 2.1.1.3. TRI-TAC Pre-installation Requirements

Once the TRI-TAC line is installed, make sure the 4-pin MOLEX 430450402 connector used at the facility TRI-TAC interface is wired as shown in Table 2.4. The STE's TRI-TAC PORT (Molex 430450400 interface connector) is located on the rear of the Tactical Wedge.

**Table 2.4. TRI-TAC Connector Pin-out**

Pin	Signal Name
1	RCV-1 (RX+)
2	RCV-2 (RX-)
3	XMT-1 (TX+)
4	XMT-2 (TX-)

MOLEX Connector arrangement  
(connector on STE is shown, latch on top)

3	2
4	1



#### 2.1.1.4. EIA-530A/EIA-232 BDI Port Pre-installation Requirements

Once the BDI service is installed, make sure the connector is wired as shown in Table 2.5. The STE's BDI PORT (DB-25 interface connector) is located on the rear of the Tactical Wedge.

The STE supports vocoded plain and encrypted voice (LPC @ 2400 and CELP @ 4800 bps) and synchronous and asynchronous encrypted data communications (2400, 4800, 9600 bps) via the black serial data port at the rear of the Tactical Wedge. The port can be configured for as either EIA-530A or EIA-232 via selections in the STE HMI menu. The STE functions as a DTE (Data Terminal Equipment) at the network interface.

**Table 2.5. BDI Connector Pin-out**

Pin	EIA-530A Signal Name	EIA-232 Signal Name	Pin	EIA-530A Signal Name	EIA-232 Signal Name
1	GND	GND	14	TXD-B	Not Used
2	TXD-A	TXD	15	*TXCC-A	*TXCC
3	RXD-A	RXD	16	RXD-B	Not Used
4	RTS-A	RTS	17	RXC-A	RXC
5	CTS-A	CTS	18	LL	No Connection
6	DSR	DSR	19	RTS-B	Not Used
7	GND	GND	20	DTR	DTR
8	DCD-A	DCD	21	RL	No Connection
9	RXC-B	Not Used	22	RING IND	RING IND
10	DCD-B	Not Used	23	GND	No Connection
11	No Connection	No Connection	24	No Connection	No Connection
12	*TXCC-B	Not Used	25	No Connection	No Connection
13	CTS-B	Not Used			

\* In this table, the timing (clock) for the transmit element is supplied by the Network via pins 12 and 15 for an EIA-530A interface or just pin 15 for an EIA-232 interface.

#### 2.1.1.5. Red Serial Data Port Pre-installation Requirements

The STE supports red synchronous and asynchronous data communications via the RED SERIAL DATA PORT (DB-25 interface connector) located at the rear of the STE. The port can be configured for EIA-530A or EIA-232 operations via selections in the STE HMI menus. At this port the STE functions as a DCE (Data Communication Equipment).

Refer to Table 2.6 for the appropriate pin outs.

#### 2.1.2. Order Your KOV-14 FORTEZZA Plus Cards

The KOV-14 contains all the keys and algorithms a STE needs for secure operation. The user is responsible for ordering the cards from the government; they are not included in your STE order. See the STE Web Site ([ste.securephone.net](http://ste.securephone.net)) for ordering instructions.

**Table 2.6. Red Serial Data Port Connector Pin-out**

Pin	EIA-530A Signal Name	EIA-232 Signal Name	Pin	EIA-530A Signal Name	EIA-232 Signal Name
1	GND	GND	14	TXD-B	Not Used
2	TXD-A	TXD	15	*TXCC-A	*TXCC
3	RXD-A	RXD	16	RXD-B	Not Used
4	RTS-A	RTS	17	RXC-A	RXC
5	CTS-A	CTS	18	No Connection	No Connection
6	DSR	DSR	19	RTS-B	Not Used
7	GND	GND	20	DTR	DTR
8	DCD-A	DCD	21	No Connection	No Connection
9	RXC-B	Not Used	22	RING IND	RING IND
10	DCD-B	Not Used	23	GND	GND
11	No Connection	No Connection	24	No Connection	No Connection
12	*TXCC-B	Not Used	25	No Connection	No Connection
13	CTS-B	Not Used			

\* The timing (clock) for the transmit element is supplied by the DCE, i.e., the STE, via pins 12 and 15 for an EIA-530A interface or just pin 15 for an EIA-232 interface.

### 2.1.2.1. STE Web Site

The STE Web Site is located at <http://ste.securephone.net>.

**NOTE:** This web site is managed by NSA. You must get a User ID and password to access many of the site's pages. Procedures for requesting access are on the site. It normally takes one or two business days to activate your account. You can contact the Webmaster at (410) 854-7071/7072.

This site contains:

- The most current STE User's Manual (which you can read on-line or download),
- The most current STE Software,
- FAQs (Frequency Asked Questions), and
- Detailed information for provisioning ISDN lines, from various ISDN suppliers/switches.

## 2.2. UNPACKING

### 2.2.1. Inspection and Inventory

Inspect the shipping container for obvious signs of damage. If damage is evident, make sure a description of the damage is noted on the shipping documentation prior to signing for the shipment. When the shipping container is opened, inventory the contents (Table 2.7) and inspect each item for damage. If the STE Terminal (an assembly made up of a base STE and either an Office Wedge or a Tactical Wedge) shows signs of damage, DO NOT proceed with the installation. Send the terminal back to L-3.

**Table 2.7. STE Packing Container Contents**

Quantity	Description	Part Number
1	STE Office Terminal or STE Tactical Terminal	K10046389-503 or K10046389-502
1	Power Supply with Line Cord	K10046396
1	Handset	K10046394
1	Handset Cord, Coiled	TC08-BLK/12FT
1	Network Cable (ISDN)	URT45-M4N-12-BK
1	Line Cord (PSTN)	H1442-14-ND
1	Quick Reference Guide	OSTE-QRG-10
1	User's Manual (this manual)	OSTE-UM-10
1	Packet of write-on cards	No part number

**2.3. INSTALLATION**

Once you have completed the necessary procedures in the pre-installation section, you should take the time to review this manual, especially Chapter 3. before proceeding with the installation.

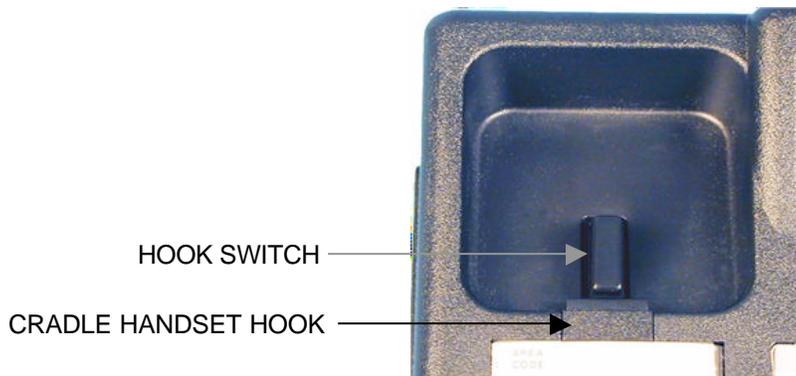
The crypto card you ordered is not needed to complete the installation procedures. Therefore, you can install the STE, perform initial tests, and complete network programming as soon as the facility lines are in place.

If the terminal will be mounted on a wall, proceed to paragraph 2.3.1. If the terminal will be used as a standard desk unit, proceed to paragraph 2.3.2.

**2.3.1. Wall Mounting Instructions**

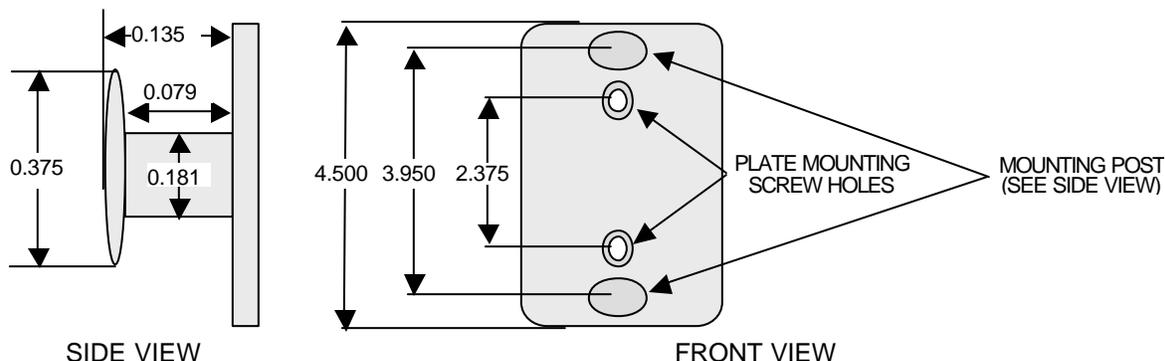
To configure the terminal for wall mounting, on a standard telephone-mounting bracket, proceed as follows:

1. Turn the terminal over and remove the inner four Phillips head screws that secure the wedge to the STE. **Note**; the wedge will remain connected to the STE by the ribbon cable.
2. Carefully rotate the wedge 180°. **Note**; the ribbon cable should not have more than a "half twist" (90°).
3. Replace the four Phillips head screws to attach the wedge to the STE.
4. Remove the Cradle Handset Hook by sliding it up and out of the Handset Cradle. Rotate the hook 180° and slide it back into the Handset Cradle. Refer to Figure 2.1.



**Figure 2.1. Cradle Handset Hook**

- Mount the terminal on a standard wall mounting plate and make sure it is firmly in place. Refer to Figure 2.2. The mounting post center-to-center dimension (3.950 inches), shown in the front view, is critical to mounting the STE; the other dimensions are not critical. All dimensions in the side view are critical.  
NOTE: The wedge has "L" shaped wall-mounting slots, so when mounting the terminal it must be slid to the left and down to secure it to the plate.



**Figure 2.2. Wall Mounting Plate**

- When the terminal is mounted, continue with the installation in paragraph 2.3.2.

### 2.3.2. Install Handset

Plug the Handset Cord into the jack located on the left side of the STE and into the jack on the Handset. Make sure the plugs are properly seated in both jacks. Place the Handset in the cradle.

### 2.3.3. Connect Power

The terminal can be installed using the STE Power Supply shipped with the unit or you can use an optional PUP (Portable Uninterruptible Power Supply). If you use the PUP, refer to the PUP User's Manual to prepare the unit for use. Do not apply power until directed in Step 3 below.

The pin-out requirements for the power connector are shown in Table 2.8.

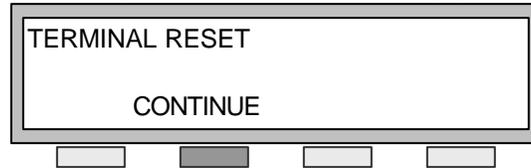
**Table 2.8. Power Connector Pin-out**

Pin	Signal Name
1	Chassis Ground
2	+5 Volts
3	+5 Volts
4	Common
5	-12 Volts
6	Common
7	+12 Volts
8	Common
9	+5 Volts Sense
Shell	Chassis Ground

Connect the STE Power Supply or PUP to the STE as follows:

- Plug the power supply (or PUP) cable into the STE POWER PORT (DB-9 Power Supply Interface connector) at the rear of the STE and tighten the fasteners.
- Plug the Power Supply Line Cord into the STE Power Supply.

3. Plug the Power Supply Line Cord into the wall outlet. If a PUP is used, apply power as directed in the PUP User's Manual.
4. About 1 minute after power has been applied to the terminal the Alphanumeric Display on the front panel should look like the display shown here. If the display is not as shown verify that the Power Supply has been properly connected or that the PUP is properly connected and turned on. Refer to Chapter 7. for troubleshooting procedures.



Press *CONTINUE* (the Soft-key below the word *CONTINUE* in the display) to clear the display.

### 2.3.4. Connect Ports and Program Terminal

As each service is connected to the appropriate STE interface port, the terminal must be programmed for the specific service. Prior to proceeding, refer to Paragraph 4.4.1.

#### NOTE

After changing an "ACTIVE Network Port", it may be necessary to power cycle the STE.

#### 2.3.4.1. ISDN Port

The ISDN PORT is available on the rear panel of the STE (Figure 3.3. Office STE Terminal Rear View and Figure 3.4. Tactical STE Rear View).

##### 2.3.4.1.1. Connect ISDN Port

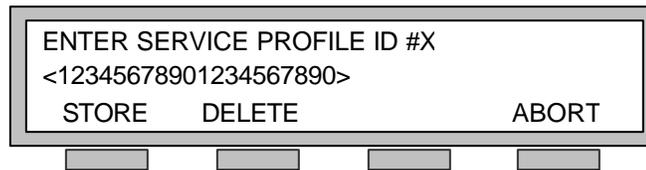
1. Set both ISDN TERMINATION SWITCHES, at the rear of the STE unit, to "ON" (up) position.
2. Plug one end of the ISDN cable, supplied with the terminal, into the S/T-receptacle (RJ-45 connector) in the rear of the STE unit.
3. Plug the other end of the ISDN cable into the facility's ISDN S/T-receptacle or to the NT-1 if used. If an NT-1 is used, make sure the termination switch is set to 100Ω, and it is plugged into the facility's ISDN U-receptacle.
4. Program Terminal for ISDN

##### 2.3.4.1.2. Program Terminal for ISDN

Refer to Paragraph 4.4.1. Using the information you received from your service provider (Table 2.1), perform the following:

1. Select ISDN as the Active Network Port setting. Enter Switch Type or Protocol.
  - (a) Press *SCROLL* until the switch type (NI-1/NI-2, 5ESS, 5ESS-8510, DEF-WCBRI, DEF-8510, DMS-100, EuroISDN) appears in the display.
  - (b) Press *CHANGE* to choose the various switch options.
2. Enter the "Transfer Feature Code" that is to be transmitted to your switch for the Transfer feature.
3. Enter the "Conference Feature Code" that is to be transmitted to your switch for the Conference feature.
4. Enter the "Drop Feature Code" that is to be transmitted to your switch for the Drop feature.
5. Enter SPID(s) and DN(s).
  - (a) Press *SCROLL* until the option SPID is displayed.
  - (b) Press *CHANGE*.

- (c) Enter the SPID number (up to 20 characters). If the wrong number is entered, press *DELETE* and then reenter the correct SPID.



- (d) When the number is entered, press *STORE*. The SPID is now stored in the STE.
  - (e) Enter *SCROLL* until the option DN is displayed.
  - (f) Press *CHANGE*.
  - (g) Enter the DN number (up to 27 characters). If the wrong number is entered, press *DELETE* and then reenter the correct DN.
  - (h) When the number is entered, press *STORE*. The DN is now stored in the STE.
  - (i) Repeat these procedures to enter the second SPID and DN if necessary.
6. Exit out of the NETWORK SETTINGS by pressing *BACK* until you arrive at the beginning of the options menu.
  7. Enter STU-III settings as directed in Paragraph 2.3.4.6.
  8. Make a test call as directed in Paragraph 2.3.4.7.

### 2.3.4.2. PSTN Port

The PSTN PORT is available on the rear panel of both the Office STE Wedge (Figure 3.3) and the Tactical STE Wedge (Figure 3.4).

#### 2.3.4.2.1. Connect PSTN Port

1. Plug the PSTN cable supplied with the STE into the RJ-11 connector located in the wedge.
2. Plug the other end of the cable into the facility RJ-11 connector (wall receptacle).

#### 2.3.4.2.2. Program Terminal for PSTN

Refer to Paragraph 4.4.1.

1. Select PSTN as the Active Network Port setting.
2. Select PSTN DIALING MODE. Then, press *CHANGE* to select either PULSE or TONE (DTMF).
3. Select PSTN NETWORK GROUP. The STE is pre-set to PSTN Network Group 1 and does not currently support a change option for this setting.
4. Select PRE-EMPTY TONE DETECTION. Then, press *CHANGE* to choose between ENABLE or DISABLE for the AUTOVON precedence tones.
5. Enter STU-III settings as directed in Paragraph 2.3.4.6.
6. Make a test call as directed in Paragraph 2.3.4.7.

### 2.3.4.3. TRI-TAC Port

The TRI-TAC PORT is available on the rear panel of the Tactical STE Wedge (Figure 3.4).

#### 2.3.4.3.1. Connect TRI-TAC Port

1. Plug the TRI-TAC cable MOLEX 430450402 connector into the 4-pin MOLEX 430250400 connector in the rear of the Tactical Wedge.
2. Plug the other end of the TRI-TAC cable into the facility provided TRI-TAC equipment or wall receptacle.

- NOTE: A STE-to-PUP mounting sleeve (option) is available; it provides a connection to the 4-pin MOLEX connector while providing four push pin terminals for connection to the TRI-TAC equipment.

### 2.3.4.3.2. Program Terminal for TRI-TAC

Refer to Paragraph 4.4.1.

- Select TRI-TAC as the Active Network Port setting. There are no options to set.
- Enter STU-III settings as directed in Paragraph 2.3.4.6.
- Make a test call as directed in Paragraph 2.3.4.7.

### 2.3.4.4. BDI Port

The BDI PORT is available on the rear panel of the Tactical STE Wedge (Figure 3.4).

#### 2.3.4.4.1. Connect BDI Port

- Plug the serial (EIA-530A/EIA-232) cable into the BDI DB-25 connector on the rear of the Tactical Wedge.
- Plug the other end serial (EIA-530A/EIA-232) cable into the facility provided serial interface equipment or wall receptacle.

#### 2.3.4.4.2. Program Terminal for BDI

Refer to Paragraph 4.4.1.

- Select BDI EIA-530 or BDI EIA-232 as the Active Network Port. The default setting is EIA-232.
- Select DCE READY. Then, press *CHANGE* to choose between REQUIRED or NOT REQUIRED. The default setting is REQUIRED.  
The DCE Ready signal is transmitted from the DCE to the STE BDI interface to indicate that the DCE is connected to a communications channel. The STE will work with DCEs that are able to supply this signal and with those that are not able. REQUIRED sets the STE to "observe and take into account" the state of the DCE Ready signals in the establishment of a channel with the DCE. NOT REQUIRED sets the STE to not use the DCE Ready signal in the establishment of a channel with the DCE.
- Select NETWORK RATE. Then, press *CHANGE* to choose between 2.4, 4.8, or 9.6 (Kbps). The default setting is 9.6 Kbps.
- Follow the procedures in Paragraph 5.1.4.4. to test this interface.

#### 2.3.4.5. Connect Red Serial Data Port

The RED SERIAL DATA PORT is available on the rear panel of both the Office STE (Figure 3.3) and Tactical STE (Figure 3.4).

Use a shielded RS-232C cable to connect a PC or FAX unit to the RED SERIAL DATA PORT on the rear of the STE unit. If connecting a device with a 9-pin serial port you may use a cable similar to a Radio Shack 6' (18m) Shielded RS-232C Cable Male DB25 to Female DB9, part number 26-269. If connecting a device with a 25-pin serial port you may use a cable similar to a Radio Shack 6' (18m) Shielded RS-232C Cable Male DB25 to Female DB25, part number 26-240.

Although not part of the initial installation, you should be aware there is a "STE Toolset Program" that runs on a PC connected to the STE RED SERIAL DATA PORT. Refer to Paragraph 9.2.

The Toolset includes the following:

- Software Download Tool:
  - Provides new software versions to be downloaded to the STE and KOV-14 processors.
    - STE Host Processor

- STE Network Processor
- STE Wedge Processor
- KOV-14 Processor

The STE Toolset Program is further described in Chapter 9.

### 2.3.4.6. STU-III Settings

#### 2.3.4.6.1. STU-III ACK/NACK

This setting selects a protocol that requires message transfers from the near-end to be re-attempted when no response is received from the far-end within the expected time. This selection can improve message transfer and secure call connection reliability on a poor network. However, a very poor network connection may extend connection times to an unacceptable degree because of repeated unsuccessful retries. In this case, the user may decide to abort the call and try for a new network connection. When ACK/NACK is "Disabled", the lack of a response from the far-end will cause the near-end to fail the call. The default setting is "Enabled".

To modify the STU-III ACK/NACK setting:

1. Select ACK/NACK under NETWORK SETTINGS on the display.
2. Then, press *CHANGE* to select between ENABLED and DISABLED.

NOTE: This mode should be ENABLED when making secure calls to a cellular STU-III.

#### 2.3.4.6.2. STU-III Extended Timeout

In a secure call attempt based on STU-III signaling (FSVS-210), the time allotted (in seconds) for the far-end to respond is increased by this value. In other words, it defines how long the STE will wait for a response from STU-III associated signaling attempts during call establishment. Settings are from 0 to 300 seconds. The default setting is "0 seconds".

To modify the STU-III EXTENDED TIMEOUT setting:

1. Select TIMEOUT under NETWORK SETTINGS on the display.
2. Select setting between 0 and 300.

#### 2.3.4.6.3. Network Response Timer/VBSCT Control

This parameter sets the time allotted for the STE to maintain the network connection when the modem carrier fades before the STE fails the call. In other words, it defines how long the STE will attempt to maintain an active call (STU-III) if the network fades (such as in a cellular network). The default setting is "10 seconds" with VBSCT (Voice Bearer Secure Capable Test) disabled.

*NOTE:* Although the STE maintains the connection while within this timeout window, it may be necessary for the STE to automatically resync at the end of the fading interval.

The NETWORK RESPONSE TIMER/VBSCT CONTROL also provides a mechanism for a STE user to control VBSCT signaling (see section 5.1. ). Settings from 0 through 99 set the NETWORK RESPONSE TIMER to 0 through 99 seconds respectively and DISABLE VBSCT signaling. Settings from 100 through 199 set the NETWORK RESPONSE TIMER to 0 through 99 seconds respectively and ENABLE VBSCT signaling.

To modify the NETWORK RESPONSE TIMER/VBSCT CONTROL setting:

1. Select NETWORK RESPONSE TIMER under NETWORK SETTINGS on the display.
2. Select setting between 0 and 199.



#### 2.3.4.6.4. STE Extended Timeout

In a secure call attempt based on STE signaling (STE-210), the time allotted (in seconds) for the far-end to respond is increased by this value. In other words, it defines how long the STE will wait for a response from STE associated signaling attempts during call establishment. Settings are from 0 to 300 seconds. The default setting is "0 seconds".

To modify the STE EXTENDED TIMEOUT setting:

1. Select STE EXTENDED TIMEOUT under NETWORK SETTINGS on the display.
2. Select setting between 0 and 300.

#### 2.3.4.7. Initial Operational Call

After Network Settings have been completed, return to an idle display (by pressing MENU) and take the handset off the hook. When the display indicates that secure communications is disabled, non-secure communications should be selected by pressing *NONSEC*. If the terminal has been connected and configured properly, a dial tone will be heard in the handset and the front panel will display:



At this point, you can dial to any other telephone using the terminal as a regular telephone. When connected to ISDN, if the network settings are incorrect, the terminal front panel will indicate that a network registration failure has occurred. Check all connections, reenter the Network Settings, and retest the terminal.

When all Network Settings and initial test calls have been completed, the TPA should:

- Established the TPA Card (Paragraph 4.1.2.1.1. ),
- Complete the Terminal Privileges settings (Paragraph 4.4.2. ), and
- Create a Resident User CIK Association (Paragraph 4.1.2.2. ) so that you can use your STE for secure calls.

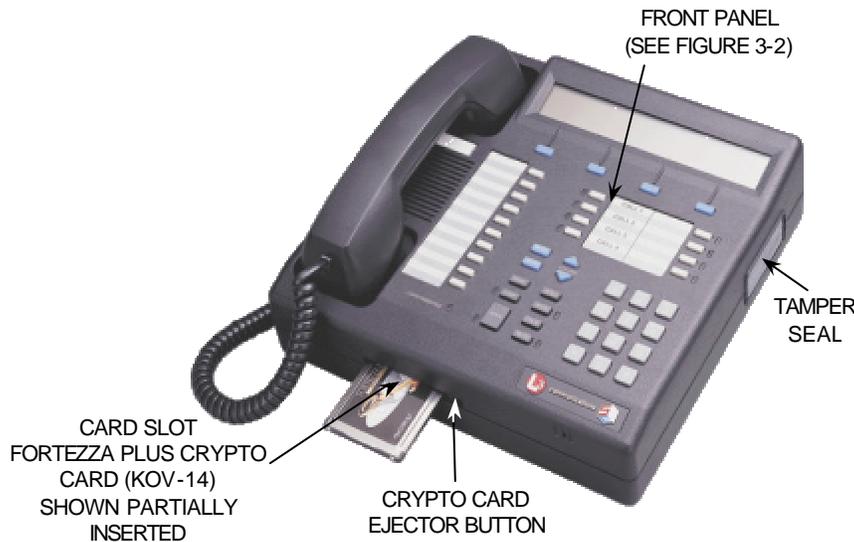


## CHAPTER 3. CONTROLS, INDICATORS AND INTERFACES

This chapter introduces the controls, indicator and interfaces of the Office STE (Secure Terminal Equipment) Terminal and Tactical STE Terminal.

### 3.1. STE TERMINAL OVERVIEW

An overview illustration of a typical STE Terminal is shown in Figure 3.1. Details of the front panel are shown in Figure 3.2. A rear view of the Office STE is shown in Figure 3.3, and a rear view of the Tactical STE is shown in Figure 3.4. Tamper Seals are located along the left (not shown) and right edge of the STE. The Crypto Card Slot and Crypto Card Ejector Button are located along the front edge.



**Figure 3.1. STE Terminal Overview**

#### 3.1.1. Tamper Seal

The Tamper Seals, one on each side of the STE, are security seals that will tear or distort if the STE is opened. The STE shall never be opened by anyone except an L-3 Communications System technician.

#### 3.1.2. Crypto Card Slot

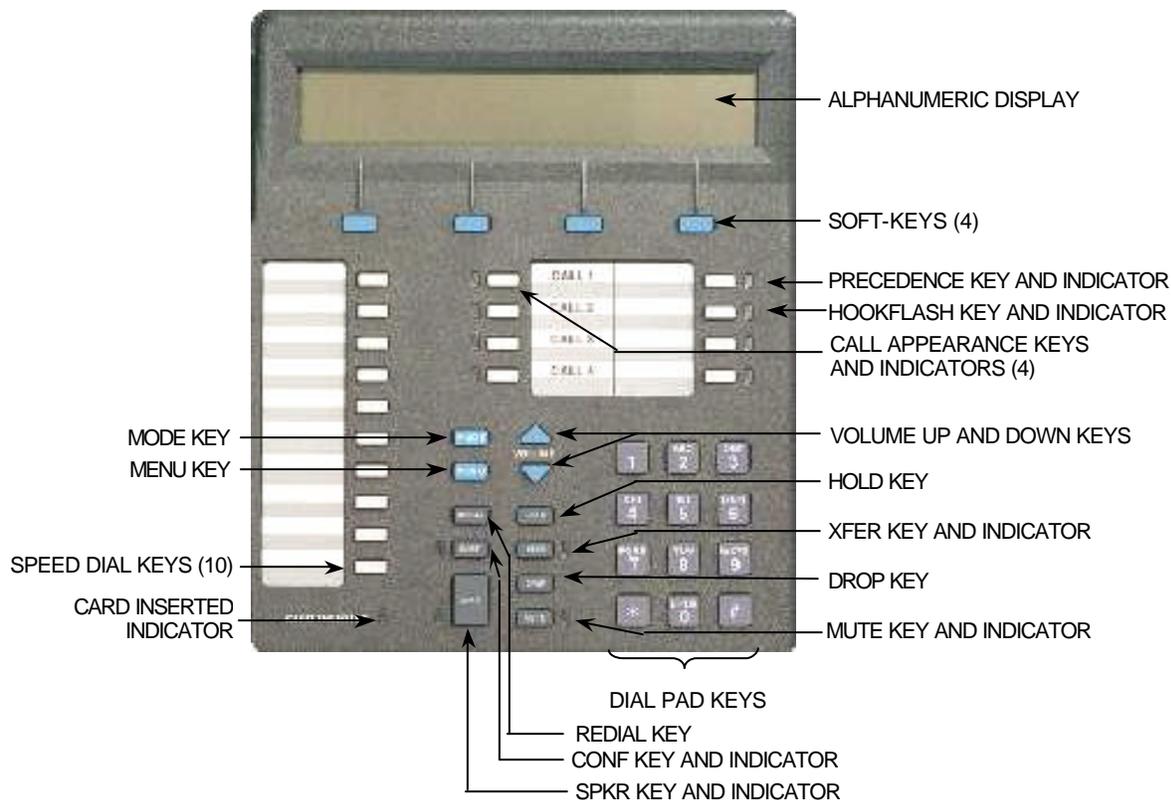
Secure communications using the STE requires the use of a FORTEZZA Plus KRYPTON Crypto Card, known as the KOV-14. The KOV-14 is inserted in a slot on the front of the STE as shown in Figure 3.1. When the crypto card is inserted into the CRYPTO CARD SLOT, the CARD INSERTED indicator located on the front panel will glow.

#### 3.1.3. Crypto Card Ejector Button

The KOV-14 Crypto Card is removed by pressing the CRYPTO CARD EJECTOR button located to the right of the CRYPTO CARD SLOT. When the crypto card is removed, the CARD INSERTED indicator goes out.

### 3.2. FRONT PANEL

The front panel, shown in Figure 3.2, provides the alphanumeric display, control keys and indicators for the STE. Programming of the STE and crypto cards, as well as call control, is accomplished by actuation of various keys.



**Figure 3.2. STE Front Panel**

#### 3.2.1. Alphanumeric Display

The alphanumeric display is a 3-row by 32-character LCD (Liquid Crystal Diode) display to support terminal and crypto card programming, and call management. The display is used with the four *SOFT-KEYS* located immediately below the display. Reference to, or samples of, LCD displays will be shown capitalized Sans Serif type (*AERIAL* font) as it is normally displayed. Reference to, or samples of, *SOFT-KEYS* will be shown in capitalized and italicized San Serif type (*AERIAL ITALIC*) font.



Typically:

- Line 1 contains the Menu Title or guidance for operator entries in line 2
- Line 2 contains submenus of line 1 or space to make operator entries.
- Line 3 contains the names of the applicable *SOFT-KEYS* used with the display.

The STE provides four types of displays: scrollable, soft-key selection, acknowledgement, and data entry.

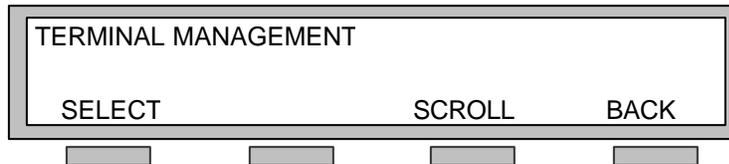
### 3.2.1.1. Scrollable Displays

When a “scrollable” display is presented, you can scroll through the display names that appear in line 1 by pressing *SCROLL*. You select the desired display by pressing *SELECT*. Options or lists associated with the selected display are presented in line 2.



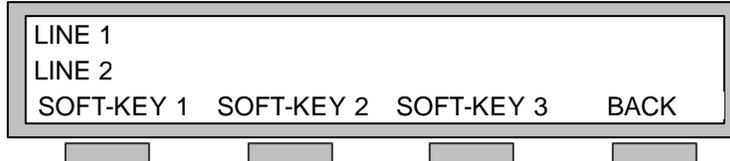
Soft-key	Action Description
<i>SELECT</i>	Selects the option/name displayed in line 1.
<i>SCROLL</i>	Scrolls to the next option or list in line 2.
<i>BACK</i>	Returns to the next higher display

Example:



### 3.2.1.2. Soft-key Selection Display

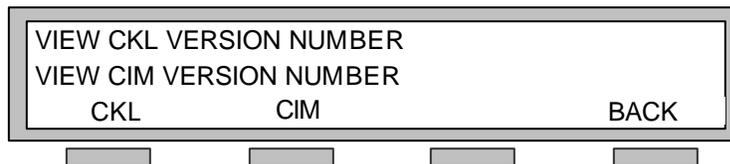
In a “soft-key selection” display, you select an option by pressing the appropriate *SOFT-KEY*.



Line 1 contains a prompt for selecting a *SOFT-KEY*. Optionally, line 2 may contain additional information.

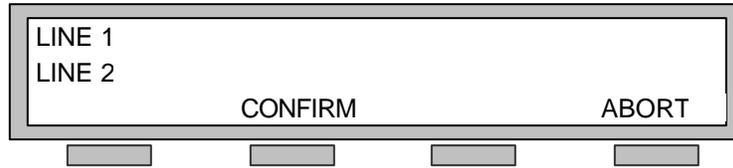
Soft-key	Action Description
<i>SOFT-KEY 1</i>	Execute the option indicated for <i>SOFT-KEY 1</i> .
<i>SOFT-KEY 2</i>	Execute the option indicated for <i>SOFT-KEY 2</i> .
<i>SOFT-KEY 3</i>	Execute the option indicated for <i>SOFT-KEY 3</i> .
<i>BACK</i>	Returns to the next higher display.

Example:



### 3.2.1.3. Acknowledgement Display

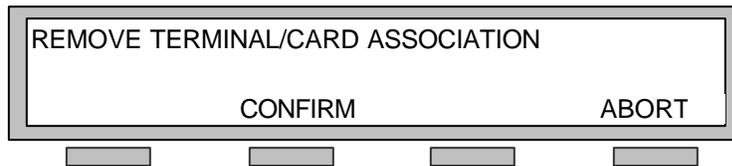
The “acknowledgement” displays usually pop up when you must perform a manual action (e.g., insert user card) or when you must confirm an action (e.g., deleting a key).



Line 1 contains advisory information (e.g., INSERT USER CARD or CONFIRM DELETION). Optionally, Line 2 may contain additional information.

Soft-key	Action Description
<i>CONFIRM</i>	Acknowledge an advisory or Authorize a change.
<i>ABORT</i>	Abort a change and return to the next higher display.

Example:



### 3.2.1.4. Data Entry Display

In a “data entry” display, you enter data in line 2 by using the keypad.



Line 1 contains prompt information. Line 2 contains the data you are entering from the keypad.

Soft-key	Action Description
<i>STORE</i>	Accept data in line 2.
<i>DELETE</i>	Delete the last character entered in line 2.
<i>ABORT</i>	Cancel the data in line 2 and return to the next higher display.

Example:



### 3.2.2. Control Keys and Indicators

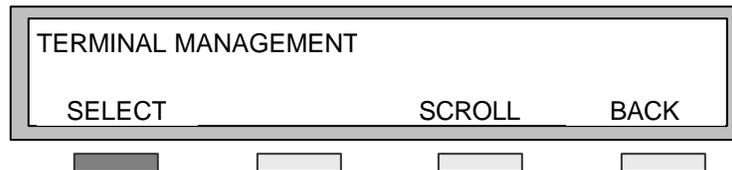
The typographical convention used in this manual to show the action of pressing a soft-key will be shown in capitalized and italicized San Serif type (*AERIAL ITALIC*), e.g. *SELECT*.

The typographical convention used in this manual to show the action of pressing all other control keys or reference to indicators will be shown in capitalized and bolded San Serif type (*AERIAL ITALIC*), e.g. **PREC**.

#### 3.2.2.1. Soft-keys

The four *SOFT-KEYS* located immediately below the display provide interaction with the STE during programming modes. Whether you are programming the terminal, crypto cards, or setting up a call, the functionality of the soft-keys is constantly updated (as indicated in the bottom line of the display) to allow rapid access to terminal features.

When directed to press a soft-key during programming or operational functions (i.e., Press *SELECT* to confirm), you will be required to press the *SOFT-KEY* located immediately below the word (i.e., *SELECT*) in the third line of the display.



Typically:

*SELECT* is used to traverse down through the Menu hierarchy.

*SCROLL* is used to scroll through the Menus at the same level of the Menu hierarchy.

*BACK* is used to traverse up through the Menu hierarchy.

#### 3.2.2.2. Precedence Key and Indicator

Pressing the **PREC** (Precedence) key when the STE is in the PSTN (Public Switched Telephone Network) or the TRI-TAC (TRI-service TACTical network) mode and set for tone dialing, allows you to send the AUTOVON precedence tones. If supported in ISDN, **PREC** works in the same manner.

#### 3.2.2.3. Hookflash Key and Indicator

While you are connected to a call in the PSTN mode, pressing the **HOOKFLASH** key will initiate a measured on-hook (line disconnect) to the active line. This feature is used to access switch features on some switches (e.g., for call-waiting service to answer a second incoming call, pressing the key after the intercept of the second call, you are returned to the first connected call).

#### 3.2.2.4. Call Appearance Keys and Indicators

The four call appearance keys (**CALL1** – **CALL4**) may be used to place or receive calls. The call appearance indicators provide the status of each call. On incoming calls, the associated **CALL** indicator flashes (0.5 seconds on, 0.5 seconds off). When a call has been placed on hold the indicator blinks (0.2 seconds on, 0.8 seconds off). When connected to a call, the indicator is lit. Moreover, when no calls are connected to a particular call appearance, the indicator is off. Call appearance keys are set by the switch during ISDN installation.

### 3.2.2.5. Volume Keys

The VOLUME keys, up (▲) and down (▼) allow you to adjust the ringer, handset and speakerphone volume. Ringer volume is adjusted while the STE is ringing. The handset and speakerphone volume is adjusted while they are in use.

### 3.2.2.6. Call Control Keys

The call control keys MUTE, SPKR (Speakerphone), REDIAL, DROP, HOLD, CONF (Conference), and XFER (Transfer) are used to initiate control and terminate calls.

#### 3.2.2.6.1. HOLD Key

ISDN only. When pressed, the HOLD key places the active call on hold as with a normal telephone. Select (press) CALL APPEARANCE to return the call to the active status. HOLD is also used while other tasks are being performed, such as establishing conference calls or transfers

#### 3.2.2.6.2. XFER Key and Indicator

ISDN only. When pressed, the XFER key allows you to transfer the current call to another party. When activated the LED indicator is lit.

#### 3.2.2.6.3. DROP Key

ISDN only. When in the conference call mode pressing the DROP key disconnects the last party connected to the conference call without going on-hook (hanging up the handset).

#### 3.2.2.6.4. MUTE Key and Indicator

When pressed, the MUTE key disables the handset and speakerphone microphone to prevent the distant party from overhearing a local conversation. When the mute function is activated, the LED indicator is lit.

#### 3.2.2.6.5. REDIAL Key

When pressed, the REDIAL key automatically redials the last number called.

#### 3.2.2.6.6. CONF Key and Indicator

ISDN only. When pressed, the CONF key allows multiple parties to be linked for shared communications.

#### 3.2.2.6.7. SPKR Key and Indicator

When the SPKR (Speakerphone) key is pressed, it turns the speakerphone on or off in both secure and non-secure modes. When the speakerphone function has been activated, the LED is lit.

*NOTE: If the speakerphone function is activated while the call is in progress (secure or non-secure), but has been disabled for that particular mode, you will be alerted by the front panel display to use the handset.*



### 3.2.2.7. Dial Pad Keys

The Dial Pad keys (numbers 0-9, \* and #) provide the dialing digits needed for placing calls. These buttons are also used for entering information in the Terminal and Card Management Menus.

### 3.2.2.8. CARD INSERTED Indicator

Whenever a crypto card is inserted in the STE the CARD INSERTED indicator will be lit. If the terminal determines the card is invalid or not compatible the indicator will flash and you will be notified on the alphanumeric display to remove the card.

### 3.2.2.9. Speed Dial Keys

The 10 programmable SPEED DIAL keys allow you to pre-program frequently called numbers. Once programmed you may dial a number by pressing the associated key while off-hook.

### 3.2.2.10. Programming Keys

#### 3.2.2.10.1. MENU Key

Used to enter and exit the menus to view or change the Terminal Management and Card Management settings.

#### 3.2.2.10.2. MODE Key

Used to enter and exit the menus to configure the voice and data modes of the STE and to modify Speed Dial settings.

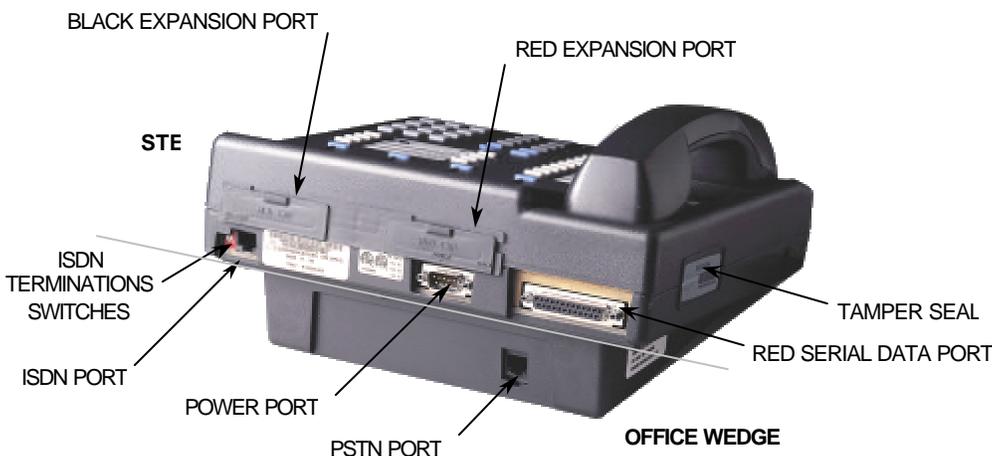
### 3.2.3. Terminal Reset

The STE can be reset, or cleared, by pressing the MODE and MUTE keys simultaneously and typically shown as "MODE+MUTE". This action may not clear the wedge. When necessary you may need to cycle the power by briefly disconnecting the power from the STE.

## 3.3. STE TERMINAL REAR PANEL CONTROLS AND INTERFACES

Controls and interfaces (ports) that are located on the rear panel of the STE are shown in Figure 3.3.

**NOTE:** The STE is shown attached to an Office Wedge.



**Figure 3.3. Office STE Terminal Rear View**

### 3.3.1. Black Expansion Port

The BLACK EXPANSION PORT is a Personal Computer Memory Card International Association (PCMCIA) expansion slot for future network interfaces.

### 3.3.2. Red Expansion Port

The RED EXPANSION PORT is a PCMCIA expansion slot for the addition of future applications.

### 3.3.3. ISDN Terminal Selector Switches

The ISDN TERMINATION SWITCHES are used to set the ISDN characteristics. For point-to-point ISDN Mode (the only mode currently supported) they are set to the "ON" (up) position.

### 3.3.4. ISDN Port

The ISDN PORT is an S/T interface (RJ-45 connector) used to connect to the ISDN service.

### 3.3.5. Power Port

The POWER PORT is a DB9 connector used to apply power.

### 3.3.6. Red Serial Data Port

The RED SERIAL DATA PORT interface can be configured for either EIA-530A or EIA-232 using the STE HMI menu. The STE functions as a DCE (Data Communication Equipment) interface.

## 3.4. OFFICE WEDGE INTERFACES

Refer to Figure 3.3. The Office Wedge provides a PSTN Port.

### 3.4.1. PSTN Port

The PSTN PORT, and RJ-11 connector, is located on the rear of the Office Wedge and the Tactical Wedge. A plug inserted in the receptacle may block this connector, or a warning label may be placed over the receptacle. The blockage is required because the STE has not yet been tested OCONUS (Outside Continental United States) for in country PTT (Post Telephone and Telegraph) HNCA (Host Nation Connection Approval). For CONUS (Continental United States) applications or OCONUS applications not directly connected to host country telephone service, this plug or label may be removed and the PSTN PORT accessed.

## 3.5. TACTICAL WEDGE INTERFACES

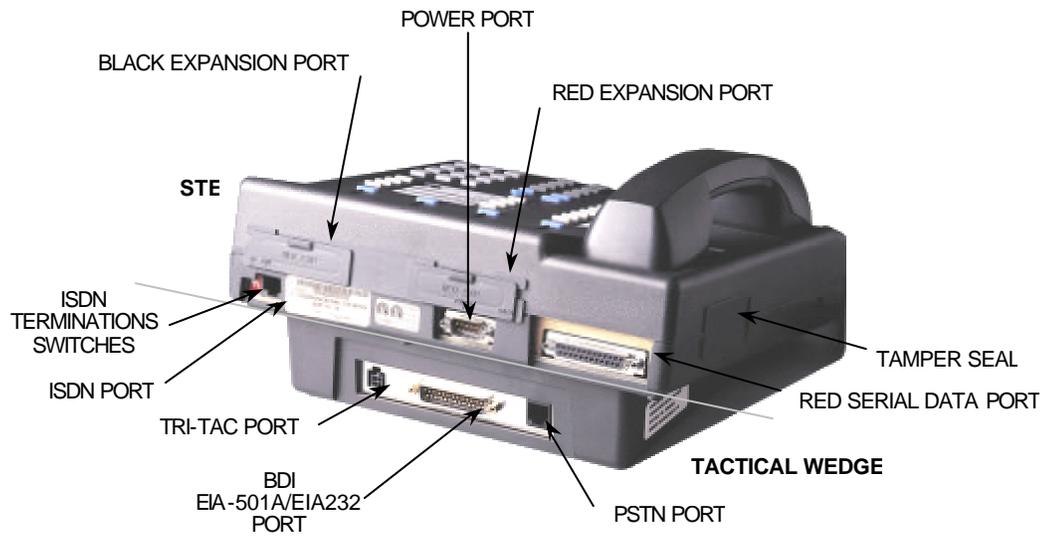
Refer to Figure 3.4. The Tactical Wedge provides a TRI-TAC Port, a Black Digital Interface (BDI) EIA-530A/EIA-232 Port, and a PSTN Port.

### 3.5.1. TRI-TAC Port

The TRI-TAC PORT, a 4-pin MOLEX 430450400 connector, located on the rear of the Tactical Wedge, is used to connect to the TRI-TAC service.

### 3.5.2. EIA-530A/EIA-232 BDI Port

The BDI PORT, a 25-pin D-connector, located on the rear of the Tactical Wedge, is used to connect to the BDI service. The port can be configured as either EIA-530A or EIA-232 via selections in the STE HMI menu.



**Figure 3.4. Tactical STE Rear View**

### 3.5.3. PSTN Port

See Paragraph 3.4.1. .



## CHAPTER 4. SYSTEM ADMINISTRATION

“System Administrator” is a generic term for the individual responsible for the configuration of the security features of the Secure Terminal Equipment (STE) terminals and the FORTEZZA Plus KRYPTON (KOV-14) Crypto Cards in accordance with the local security policy.

The Terminal Privilege Authority (TPA) is the individual who has specific responsibilities associated with the STEs and KOV-14's. The TPA shall ensure that all STE Terminals within his/her area of responsibility are properly programmed for proper operational capabilities in accordance with the local security policy. A command may use one or more persons to manage the STE Terminals within the facility. One TPA may manage all STEs or several TPAs can be assigned to maintain specific STE Terminals. The TPA's KOV-14, known as the TPA Card, when inserted into an assigned STE, unlocks its security features and allows the TPA to accomplish his/her responsibility.

The TPA is responsible for:

- Setting the STE Security Straps and STE Privileges,
- Downloading STE and KOV-14 Software Upgrades,
- Creating KOV-14 User Cards from KOV-14 Fill Cards, and
- Transferring TPA card privileges for a given STE to another TPA card.

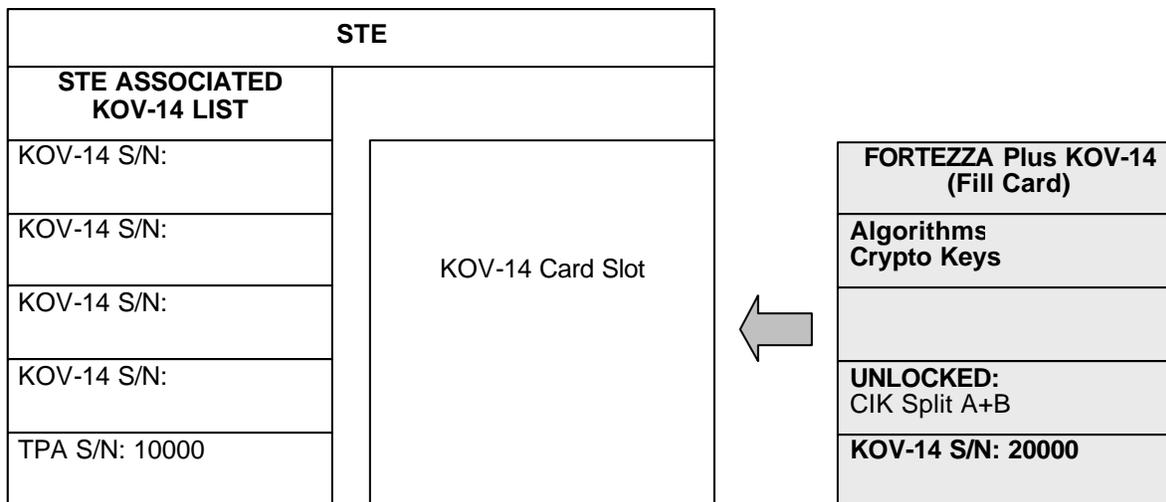
### 4.1. FORTEZZA PLUS (KOV-14) CRYPTO CARD

A Cryptographic Ignition Key (CIK) is a mechanism that is used to unlock the secure functionality of a cryptographic device. Conceptually, a CIK can be viewed as a key to a lock.

#### 4.1.1. Basic KOV-14 Information

A “Fill Card” is a KOV-14 programmed at the Central Facility with the CIK installed on the card. The “Fill Card” (Figure 4.1) contains all the keys and algorithms a STE needs for secure operation. The card is classified to the level of the keying material.

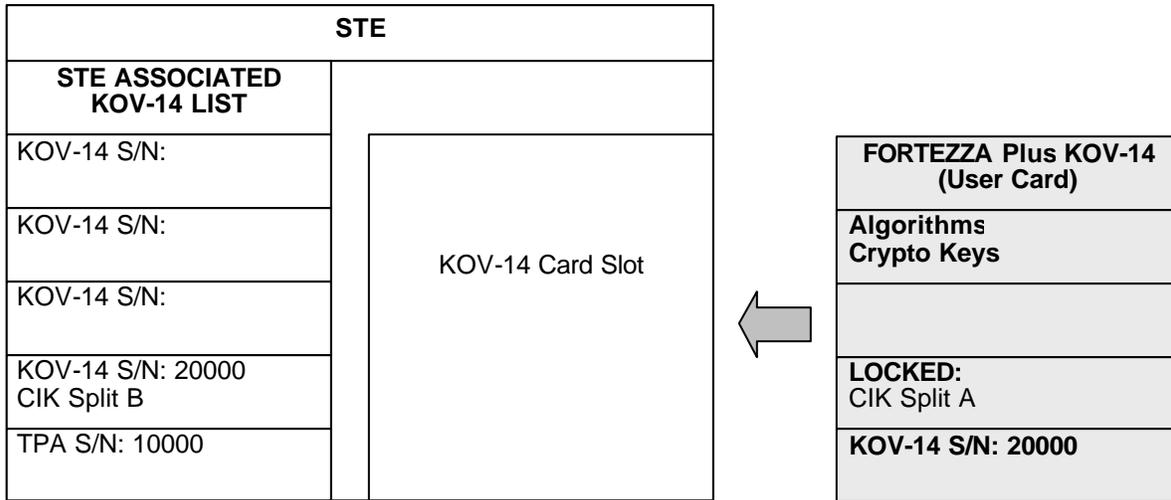
The STE uses “CIK Splits” to control access to the secure functionality of the KOV-14. Splitting a CIK can be viewed as cutting the CIK into two pieces (CIK Split A and CIK Split B); this is similar to cutting a key into two pieces. When both pieces of the CIK split are available on the KOV-14, the secure mode of the KOV-14 is unlocked and available for use. Refer to Figure 4.1.



**Figure 4.1. Fill Card**

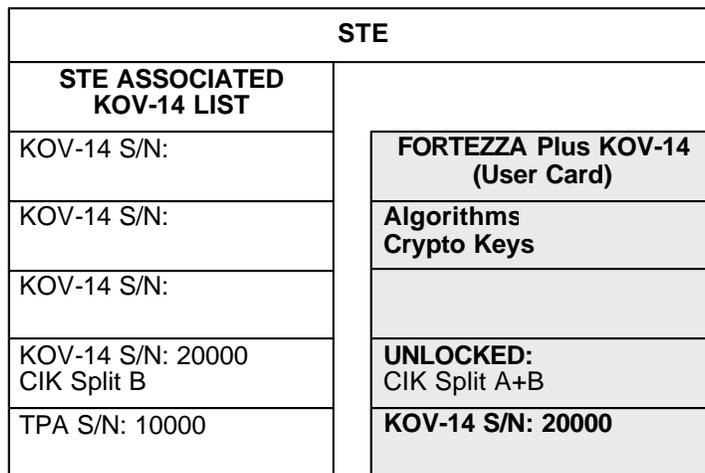
A "User Card" is said to be "associated" with a STE when the STE and the card each store the complementary split components of a CIK. This association means that the "User Card" can be used to make secure calls. A "TPA Card" is said to be "assigned" to a STE when the TPA Card's serial number has been stored in the STE (there is no CIK). Only one card may serve as the STE's TPA (See Paragraph 4.1.2.1. ).

When only one piece of the Split CIK is available on the KOV-14 the cryptographic capability of the KOV-14 is locked and unusable. Secure operation is "locked" by removing the CIK Split B from the Card (creating a "User Card"). The CIK is transferred to the STE under control of the TPA during the establishment the "CIK Association". See Figure 4.2.



**Figure 4.2. CIK Association - User Card**

Secure operation is "unlocked" by inserting the Card into the STE (thereby installing the CIK Split B on the card). See Figure 4.3.



**Figure 4.3. Installing CIK Split B - User Card**

### 4.1.2. Advanced KOV-14 Information

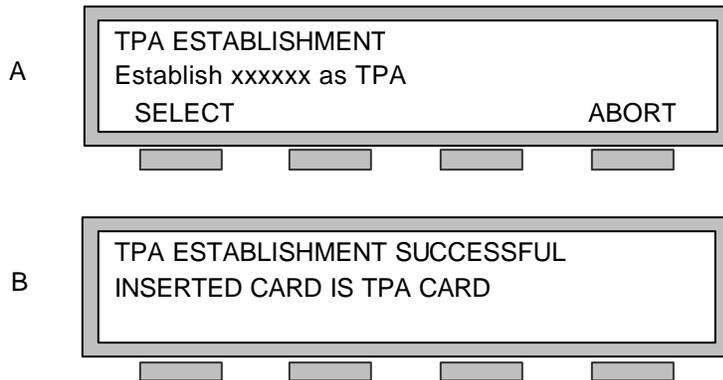
#### 4.1.2.1. TPA Assignment

A KOV-14 Crypto Card should be designated as the “TPA Card” for a specific STE Terminal or a group of terminals within a facility, as directed by the System Administrator or Security Officer. A TPA card can be used to control any number of STEs. Others cards (i.e., User Cards) are limited to the number of STE Terminals as directed by the System Administrator or Security Officer, but no more than nine.

##### 4.1.2.1.1. Establish TPA

The first card inserted into a STE while in the factory Default State will be designated as the “TPA” card by that STE. The factory Default State can be achieved by zeroizing the STE. However, zeroizing the STE removes all of its Crypto Card associations Paragraph 4.6. The preferred method of assigning another TPA to a STE is covered in Paragraph 4.1.2.6. A TPA must be established on each STE Terminal as described herein.

Insert the crypto card that has been designated as the “TPA” in the CRYPTO CARD SLOT at the front of the STE. Push the card into the STE until the CARD INSERTED indicator on the front panel glows. The display (Figure 4.4A) will then indicate that the crypto card is being processed. When prompted to establish the inserted card as TPA, you must press *SELECT*. The soft-key options disappear and the terminal will process the inserted card for about 30 seconds. When processing has completed, successfully, the STE will display Figure 4.4B.



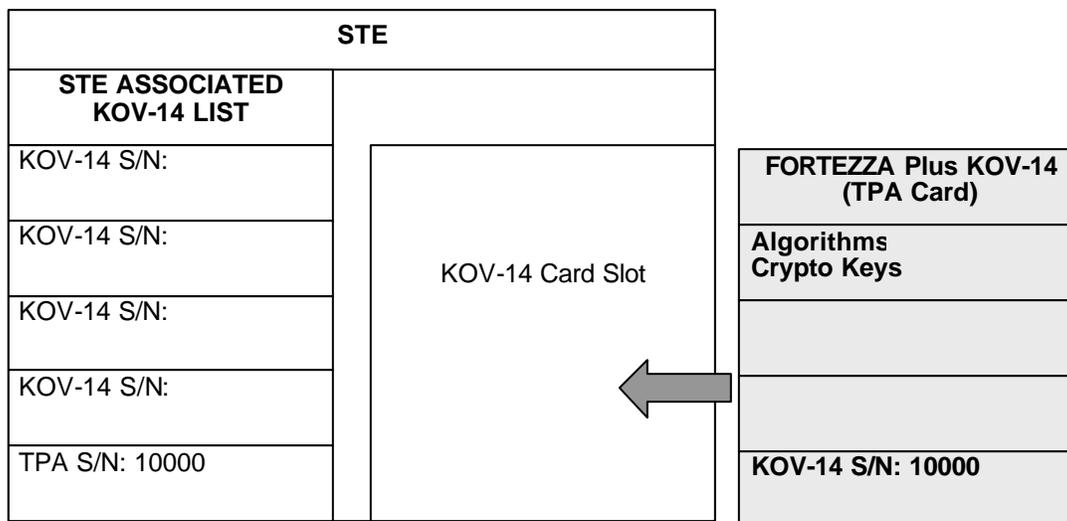
**Figure 4.4. STE TPA Setup Display**

During the establishment of the TPA (Figure 4.5):

- You inserted the KOV-14 crypto card selected as “TPA” (serial number 10000) into the STE.
- As the first KOV-14 crypto card inserted into the STE, it recorded the serial number (10000) as the TPA card.

From now on, the STE will check to ensure that the TPA Card (serial number 10000) is inserted before allowing any changes to privileges or security related terminal settings.

A crypto card must be “Associated” with a STE Terminal before it can be used to establish secure communications.



**Figure 4.5. TPA Card**

Before performing card associations or any other functions associated with the crypto cards, program the Terminal Privileges for the STE Terminal using the TPA card.

#### 4.1.2.2. Resident User CIK Association

Secure capabilities are limited to a specific set of terminals established under the control of the TPA(s).

- A single KOV-14 card can establish nine (9) Resident User CIK Associations (e.g., Resident User Associations on nine different STEs).
- The CIK is transferred from the Fill Card or a “Carry Card”.
  - Only the Electronic Key Management System (EKMS) Central Facility can install the User CIK on a Fill Card.
  - Additional User CIKs created at a STE require a separate Carry Card to transport the User CIK.

#### 4.1.2.3. Resident User CIK Association – User’s Card

**Step #1:** The TPA card is inserted into the STE to access the CIK Association Menu. Use menu selections sequence Terminal Management/Terminal Privileges, Association and Software Update Management/Create Association. Each sequence is described in detail later in this Chapter. Figure 4.6 represents the action that takes place in the STE.



STE	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (TPA Card)</b>
KOV-14 S/N:	<b>Algorithms Crypto Keys</b>
KOV-14 S/N:	
KOV-14 S/N:	<b>UNLOCKED: CIK Split A+B</b>
TPA S/N: 10000	<b>KOV-14 S/N: 10000</b>

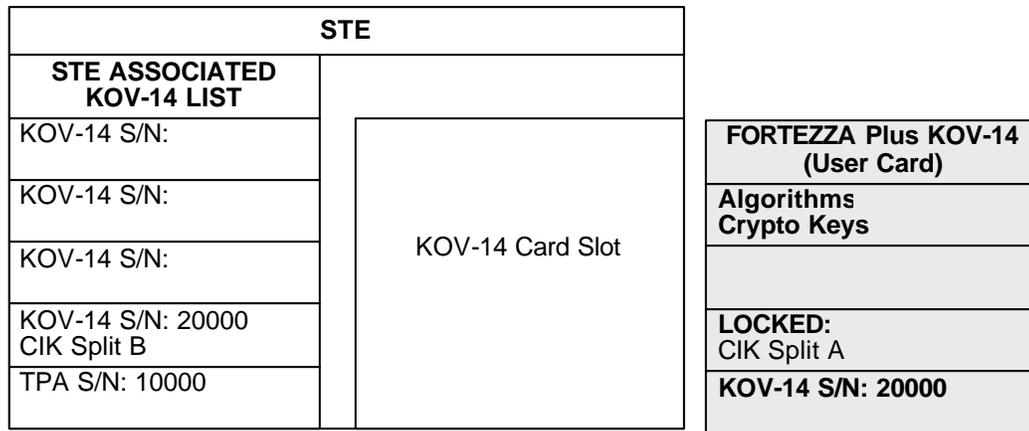
**Figure 4.6. CIK Association - TPA Card**

**Step #2:** The TPA card is then replaced with the Fill Card to complete the Association of the Fill Card with the STE. Figure 4.7 represents the action that takes place in the STE. Notice the CIK Split A+B on Fill Card.

STE	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (Fill Card)</b>
KOV-14 S/N:	<b>Algorithms Crypto Keys</b>
KOV-14 S/N:	
KOV-14 S/N:	<b>UNLOCKED: CIK Split A+B</b>
TPA S/N: 10000	<b>KOV-14 S/N: 20000</b>

**Figure 4.7. CIK Association - Fill Card**

**Step #3:** The User CIK Split B is transferred from the Fill Card to the STE under the control of the TPA. The Fill Card is now considered a User Card and is unclassified when removed from the STE. Figure 4.8 represents the action that takes place in the STE. Notice the CIK Split A on the User Card while B is now on the STE.

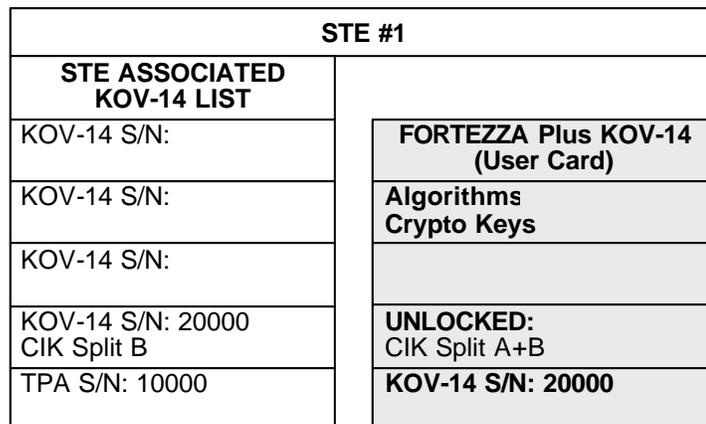


**Figure 4.8. CIK Association - User Card**

4.1.2.4. Prepare Remote Association – Carry Card

If a User has a Resident Association at STE #1 and wants to use his KOV-14 at STE #2, the User must create a Carry Card using a second KOV-14 Card. The User will need his/her User Card and Carry Card to create an Association at STE #2. Use menu selection sequence Terminal Management/Remove Crypto Card Association/Prepare Remote Association. Each sequence is described in detail later in this Chapter.

**Step #1:** The User Card is inserted into the STE #1 (where the Resident Association exists). Figure 4.9 represents the action that takes place in the STE.



**Figure 4.9. Remote Association - User Card**

**Step #2:** The User requests the card to prepare a remote association via the Terminal Management Menu. The CIK is temporarily stored on the STE. Figure 4.10 represents the action that takes place in the STE.

STE #1	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (User Card)</b>
KOV-14 S/N:	<b>Algorithms Crypto Keys</b>
KOV-14 S/N: 20000 Carry Split B	<b>LOCKED:</b> Carry Split A
KOV-14 S/N: 20000 CIK Split B	<b>UNLOCKED:</b> CIK Split A+B
TPA S/N: 10000	<b>KOV-14 S/N: 20000</b>

**Figure 4.10. Remote Association - STE #1 Store CIK**

**Step #3:** The STE prompts the User to replace the "User Card" with the "Carry Card" and transfers the CIK from the STE to the Carry Card. Figure 4.11 represents the action that takes place in the STE.

STE #1	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (Carry Card)</b>
KOV-14 S/N:	
KOV-14 S/N:	<b>KOV S/N: 20000 Carry Split B</b>
KOV-14 S/N: 20000 CIK Split B	
TPA S/N: 10000	<b>KOV-14 S/N: 30000</b>

**Figure 4.11. Remote Association - STE #1 Carry Card**

4.1.2.5. Resident User CIK Association – Carry Card

If a user has a Resident Association at STE #1 and wants to be able to use the KOV-14 at STE #2 he/she must make a Carry Card (see step #3 above). The user then presents their User Card and Carry Card to the STE #2 TPA who creates an Association at STE #2.

**Step #1:** The TPA card is inserted into STE #2 to access the CIK Association Menu. Figure 4.12 represents the action that takes place in the STE.

STE #2	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (TPA Card)</b>
KOV-14 S/N:	<b>Algorithms Crypto Keys</b>
KOV-14 S/N:	
KOV-14 S/N:	
TPA S/N: 10101	<b>KOV-14 S/N: 10101</b>

**Figure 4.12. Resident User CIK Association - TPA Card**

**Step #2:** When prompted by the STE, the User Card replaces the TPA card; the STE checks that the User Card is not already associated with the STE. Figure 4.13 represents the action that takes place in the STE. Notice the KOV 14's serial number.

STE #2	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (User Card)</b>
KOV-14 S/N:	<b>Algorithms Crypto Keys</b>
KOV-14 S/N:	<b>Locked: Carry Split A</b>
KOV-14 S/N:	<b>Locked: CIK Split A</b>
TPA S/N: 10101	<b>KOV-14 S/N: 20000</b>

**Figure 4.13. Resident User CIK Association - User Card**

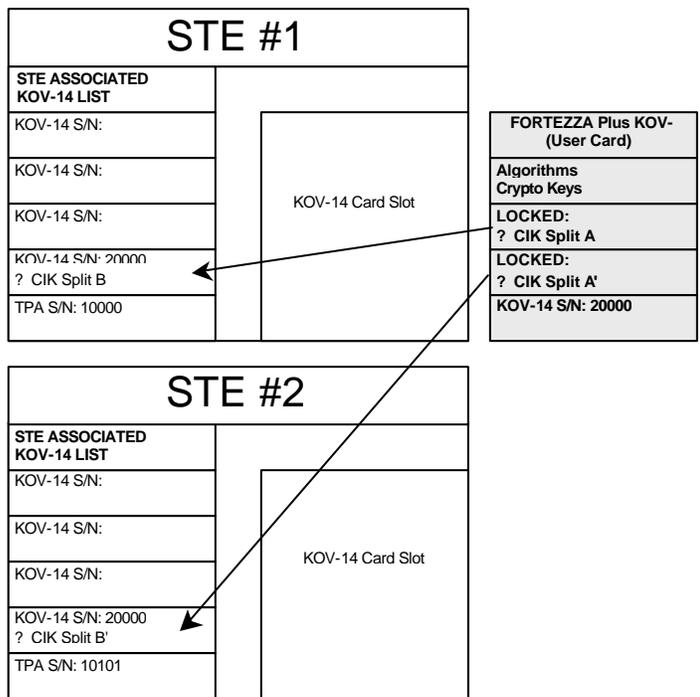
**Step #3:** When prompted by the STE, the User Card is then replaced by the Carry Card to complete the association of the User Card with the STE. Figure 4.14 represents the action that takes place in the STE.

STE #2	
<b>STE ASSOCIATED KOV-14 LIST</b>	
KOV-14 S/N:	<b>FORTEZZA Plus KOV-14 (Carry Card)</b>
KOV-14 S/N:	
KOV-14 S/N: CIK Split B	
KOV-14 S/N:	
TPA S/N: 10101	
	<b>KOV-14 S/N: 30000</b>

**Figure 4.14. Resident CIK Association Carry Card**

**Step 4:** The User CIK is transferred from the Carry Card to the STE under control of the TPA. The secure capabilities of this User Card can be unlocked in STE #1 or STE #2. Figure 4.15 represents the action that takes place in the STE.

Note that the KOV-14 is associated with STE #1 by one CIK Split and associated with STE #2 by a different CIK Split. The KOV-14 can be used on STE #1 or on STE #2.



**Figure 4.15. Resident User Card**

#### 4.1.2.6. Transfer of TPA Privileges

A KOV-14 card can be assigned as the TPA Card for a particular STE in two ways.

1. After the STE is zeroized, the first card inserted may be assigned as the STE's TPA. The TPA assignment procedure is guided by a STE display that presents itself when the KOV-14 is inserted. Since zeroizing the STE deleted all User Card associations, those user associations will have to be re-established before the previous users are able to make secure calls on the STE. In addition, the newly assigned TPA Card cannot serve as the TPA Card for any other STE until it is assigned to those STEs.
2. STE Release 1C allows a KOV-14 card to replace the original TPA Card by a "transfer of TPA privileges" to a replacement card. In the process, the original TPA's privileges are deleted so that only one card serves as a STE's TPA. To provide for this transfer, the original TPA initially installs a "transfer of privileges password" into the STE. Knowledge of this password will allow the original TPA's privileges to be transferred to another card that will serve as a new TPA Card. This feature accommodates the replacement of a lost or defective TPA Card while retaining the STE's User Card associations. Therefore, there is no disruption of STE calling services to the current users. However, as in the zeroizing case above, the newly created TPA Card can only service the affected STE. The newly assigned TPA Card cannot serve as the TPA Card for any other STE until it is assigned to those STEs.

Note: During an attempt to transfer TPA privileges, if an incorrect transfer password is entered 10 times in succession either maliciously or mistakenly, the STE will delete the transfer password. The TPA will need to create a new password. Prior to the 10 incorrect attempts, the input of a correct password will reset the incorrect password counter to zero.

The steps for transferring TPA privileges to another KOV-14 card are summarized here. In practice, the TPA is guided through the process by specific STE displays.

##### INSTALLING TPA TRANSFER PASSWORD IN STE

- Insert assigned TPA Card into STE.
- Access the TPA Password menu item via /Terminal Management/Terminal Privileges, Associations/Terminal Configuration Control/Change TPA Password
- Follow menu instructions.

##### TRANSFER STE'S TPA PRIVILEGES TO ANOTHER KOV-14 CARD

- Insert KOV-14 card that is to be new TPA. The card must contain proper algorithms and keys (that the STE will use to validate that the card is legitimate).
- Access the TPA Transfer Privilege menu item via /Terminal Management/Transfer TPA Privileges.
- Follow menu instructions.

## 4.2. TERMINAL MENU HIERARCHY

This section provides a description of the Terminal Menu

The STE Menu Structure hierarchy, for Release 1C, is shown in:

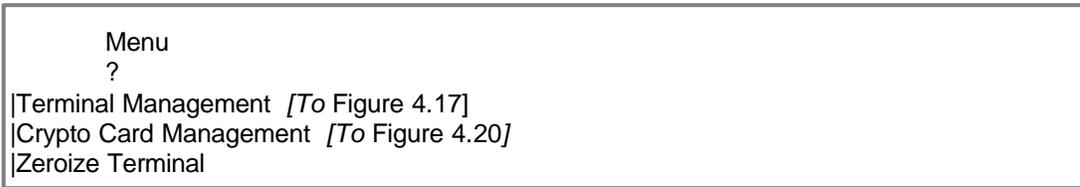
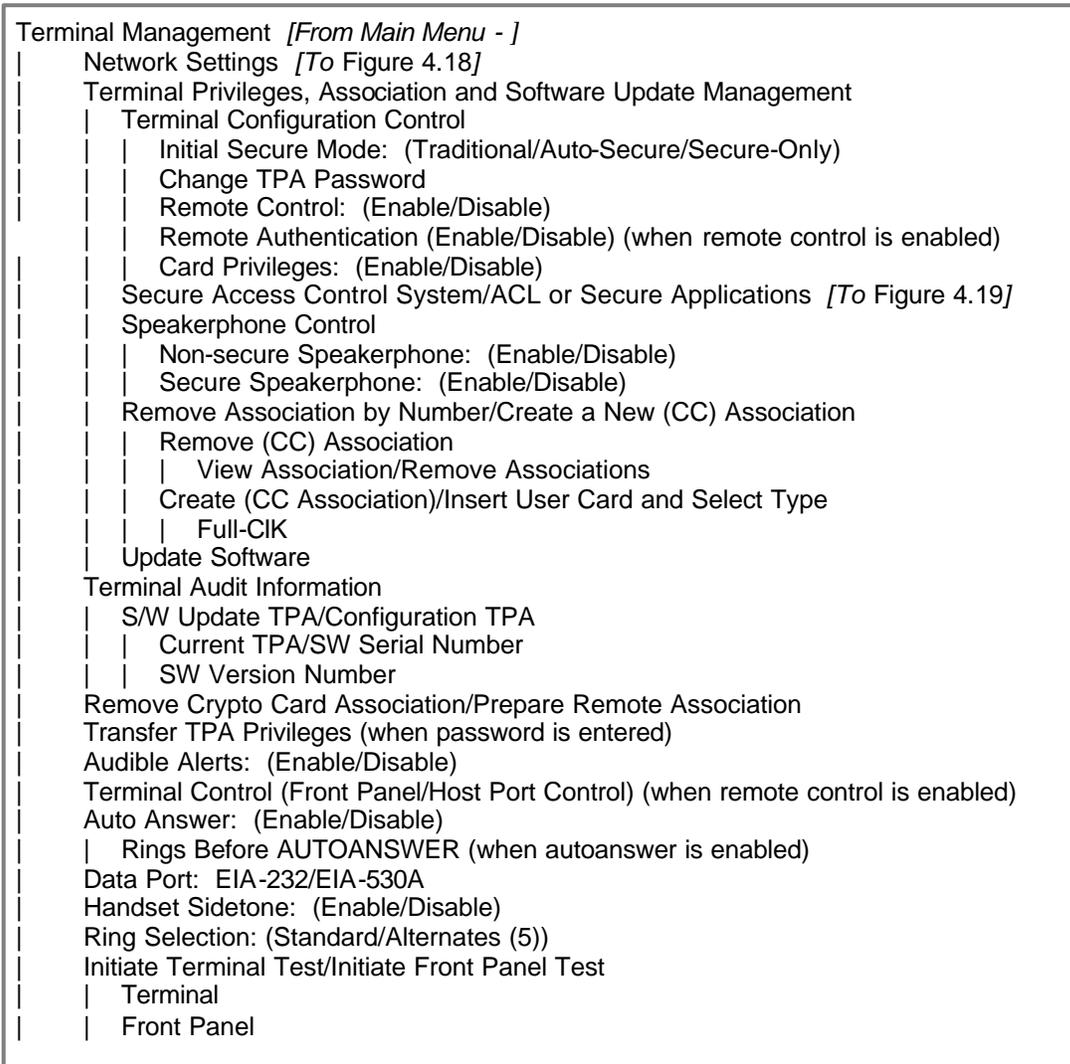
Figure 4.16. Main Menu

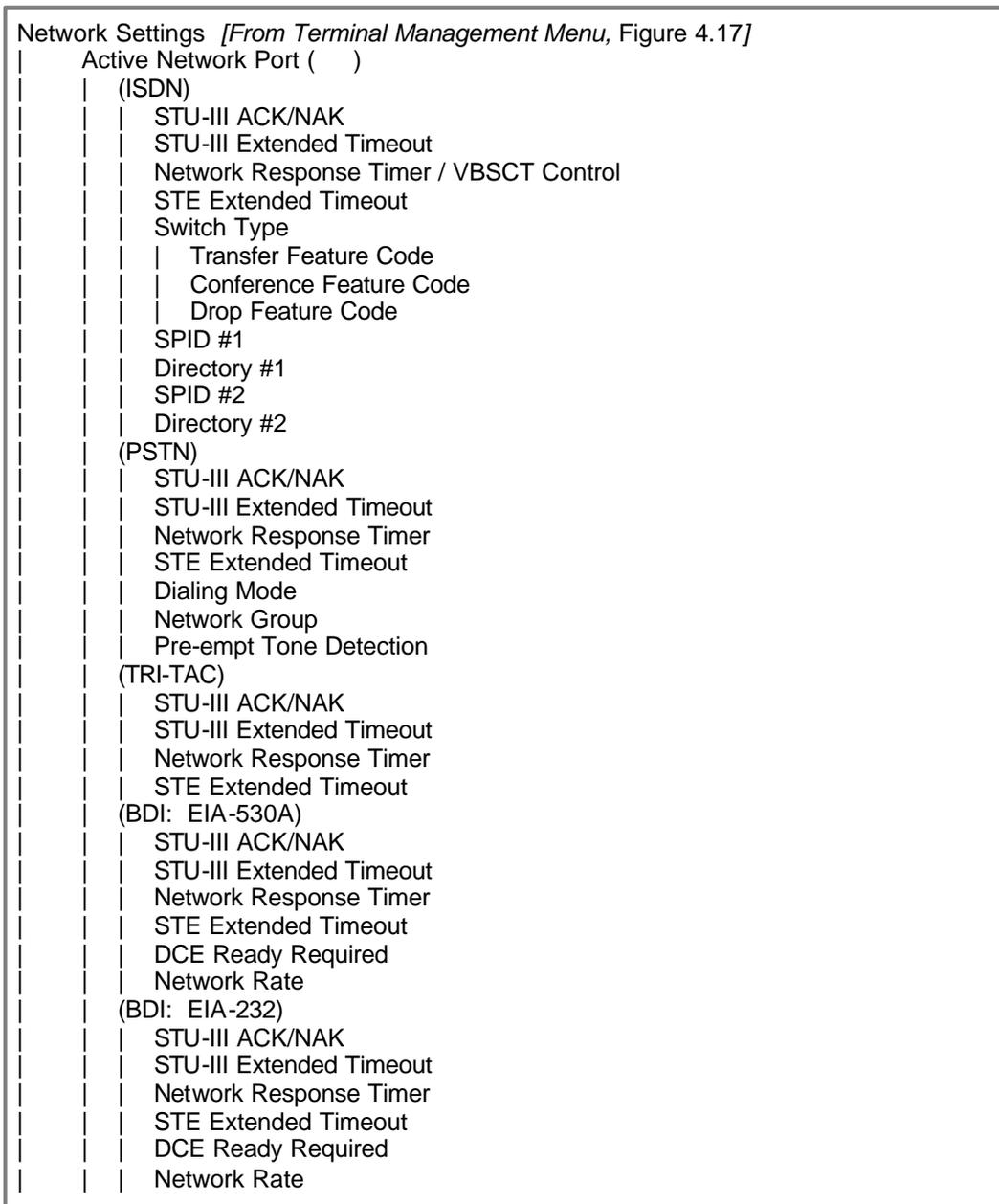
Figure 4.17. Terminal Management Menu

Figure 4.18. Network Settings Menu

Figure 4.19. Secure Access Control System Menu

Figure 4.20. Crypto Card Management Menu

**Figure 4.16. Main Menu****Figure 4.17. Terminal Management Menu**



**Figure 4.18. Network Settings Menu**



```

Secure Access Control System [From Terminal Management Menu, Figure 4.17]
|
| ACL (Access Control List)
| | View (ACL)
| | | DAO
| | | KMID
| | Edit (ACL)
| | | Add
| | | | Add DAO
| | | | Add KMID
| | | Remove
| | | | Remove DAO
| | | | Remove KMID
| | | | Remove All
| | | From_PC
| | | ACL Installation/Initiate Install from PC
|
| SECAPP (Secure Applications)
| | Secure Data Application: (Enable/Disable)
| | Secure Data ACL: (Enable/Disable)
| | Secure Data MAXSEC: ( )/MINSEC: ( )
| | | Sec Data Maximum Security Level: ( )
| | | Sec Data Minimum Security Level: ( )
| | Secure Voice Application: (Enable/Disable)
| | Secure Voice ACL: (Enable/Disable)
| | Secure Voice MAXSEC: ( )/MINSEC: ( )
| | | Sec Voice Maximum Security Level: ( )
| | | Sec Voice Minimum Security Level: ( )

```

**Figure 4.19. Secure Access Control System Menu**

Crypto Card Management [From Figure 4.16]			
Card Management Privileges/Select Management Level			
			User
			Rekey Function
			Update Rekey Phone Number/Perform Rekey
			Update Stored Phone Number
			STU-III
			SDNS
			Perform Rekey (key must be resident in Crypto Card)
			STU-III
			SDNS (STE must be configured for ISDN)
			View Card Key Data
			STU-III Key Data – Key ID
			STU-III Key Data – DAO Code
			STU-III Key Data – Key Classification
			STU-III Key Data – Key Exp. Date
			STU-III Key Data – (Key Owner)
			STU-III Key Data – Key State
			SDNS 1 Key Data – Key ID
			SDNS 1 Key Data – DAO Code
			SDNS 1 Key Data – Key Classification
			SDNS 1 Key Data – Key Exp. Date
			SDNS 1 Key Data – (Key Owner)
			SDNS 1 Key Data – Universal ID
			SDNS 1 Key Data – Universal Edition
			SDNS 1 Key Data – Key State
			Zeroize Key (when card privileges are enabled)
			Remove Terminal/Card Association (when card privileges are enabled)
			View CKL/CIM
			CKL Version Number
			CIM Version Number

**Figure 4.20. Crypto Card Management Menu**

### 4.3. TERMINAL OPERATION VARIABLES

The variables that control STE operations are listed in Table 4.1 through Table 4.3. Each table includes the variable, their default values, and whether TPA privileges are required to change the settings. If the terminal is “Zeroized” after changing the mode to Secure-Only, the STE will start up in Secure-Only Mode.

The Network Settings, shown in Table 4.1, may be made by all authorized users. The Privilege Settings, shown in Table 4.2, may only be made by the TPA but may be viewed by all users. The Terminal Variable Features, shown in Table 4.3, may be made by the all users.

**Table 4.1. Terminal Management - Network Settings**

Setting	Default	TPA
Network Settings		
Active Network Port	ISDN	
ISDN (also see ALL)		
Switch Type	NI-1/NI-2	
Transfer Feature Code	61	
Conference Feature Code	60	
Drop Feature Code	62	
Service Profile ID #1	Empty	
DN #1	Empty	
Service Profile ID #2	Empty	
DN #2	Empty	
PSTN (also see ALL)		
Dialing Mode	Tone	
PSTN Network Group	1	
Pre-empt Tone Detection	Enabled	
TRI-TAC (see ALL)		
BDI (also see ALL)		
EIA-530A/EIA-232	EIA-232	
DCE Ready	Required	
Network Rate	9600	
(ALL)		
STU-III ACK/NAK	Enabled	
STU-III Extended Timeout	0 seconds	
Network Response Timer	10 seconds / Enable	
VBSC Control		
STE Extended Timeout	0 seconds	

**Table 4.2. Terminal Management - Terminal Privilege**

Setting	Default	TPA
Terminal Privileges		
Terminal Configuration Control		
Initial Secure Mode	Autosecure	X
Change TPA Password	None	X
Remote Control	Disabled	X
Remote Authentication	Enable	X
Card Privileges	Disabled	X
Secure Access Control System		X
Access Control List	Empty	X
Secure Applications		
Secure Data Applications	Enabled	X
Secure Data ACL	Disabled	X
Minimum Security Level	None	X
Maximum Security Level	None	X
Secure Voice Application	Enabled	X
Secure Voice ACL	Disabled	X
Minimum Security Level	None	X
Maximum Security Level	None	X
Speakerphone Control		
Non-secure Speakerphone	Disabled	X
Secure Speakerphone	Disabled	X
Remove/Create CC Association		
Remove Association By Number		X
Create a New Association		X
Software Version (Load New Software)		X

**Table 4.3. Terminal Management - Miscellaneous Variables/Features**

Setting	Default	TPA
Terminal Audit Information		
Manage Crypto Card Association		
Remove Crypto Card Association		
Prepare Remote Association		
Transfer TPA Privileges		
Audible Alert	Enabled	
Terminal Control	Front Panel	
Autoanswer	Disabled	
Rings Before Autoanswer	4	
Data Port (EIA-232/EIA-530A) [RED SERIAL DATA PORT]	EIA-232	
Handset Sidetone	Enabled	
Ring Selection	Standard Ring	
Terminal Test		
Initiate Terminal Test		
Initiate Front Panel Test		

#### 4.4. TERMINAL MANAGEMENT

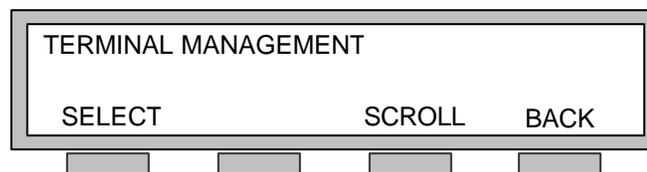
The main TERMINAL MANAGEMENT menu provides access to all screens necessary to program the STE Terminal for its specific tasks. While programming the terminal or preparing crypto cards, it is recommended that you disconnect the terminal from the network line(s) to prevent incoming calls from interfering with your operations.

To enter the "Terminal Management" menu:

1. Make sure the STE Terminal is in the idle state (i.e., no active calls (data or voice), handset on-hook, speakerphone off, and no calls on hold).
2. Insert a Crypto Card into the card slot in front of the STE.

NOTE: Most Terminal Management functions can be performed without a Crypto Card. A card is not necessary to make the Network Settings.

3. Press the MENU key. The front panel display should look like this.



4. Press *SELECT* (the Soft-key below the word *SELECT*) to enter the TERMINAL MANAGEMENT menu.  
Press *SCROLL* to move within the TERMINAL MANAGEMENT menu.  
To exit the menu at any time, press the MENU key.
5. When you reach the desired menu option, press the associated key and follow the instructions given in the paragraph.

##### 4.4.1. Network Settings

Refer to the terminal Network Settings Menu hierarchy shown in Figure 4.18 and default setting in Table 4.1. All authorized users may make these settings.

To make the NETWORK SETTINGS you will choose the Active Network Port (the type service to be programmed), program the port's characteristics, and set STU-III defaults. A Crypto Card is not necessary to make the NETWORK SETTINGS. After Network Settings are made, you will make test calls to verify network operations. When all network settings are completed, the TPA will insert his/her crypto card to complete programming the terminal by setting the Terminal Privileges.

Active Network Port defines the terminal's network port (ISDN, PSTN, TRI-TAC, BDI EIA-530A, or BDI EIA-232) that you will program for use.

1. Enter the TERMINAL MANAGEMENT menu and select NETWORK SETTINGS on the display.
2. Press *SCROLL* to sequence through the choices that will be needed to make the Network Settings.
3. Select the network type by pressing *CHANGE* until the desired choice is displayed. Follow the procedures in Paragraph 2.3.4. for the network selected.

##### 4.4.2. Terminal Privileges, Associations and Software Update Enhancement

TERMINAL PRIVILEGES are set by the TPA. All parameters, settings, etc. discussed in this paragraph and subordinate paragraphs are TPA exclusive. However, all users may view the setting, but they cannot change them. Refer to the Terminal Management hierarchy shown in Figure 4.17 and Terminal Privilege defaults shown in Table 4.2).

Insert your TPA Crypto Card in the CARD SLOT at the front of the STE.

Access the TERMINAL PRIVILEGES display from the TERMINAL MANAGEMENT menu by pressing *SCROLL*. When you are in the TERMINAL PRIVILEGES display press *MODIFY*. You will use the *SCROLL* and *SELECT* keys to move within this menu. Follow the instructions herein to view or change the settings.

#### 4.4.2.1. Terminal Configuration Control

TERMINAL CONFIGURATION CONTROL is comprised of four major components: Initial Secure Mode, Change TPA Password, Remote Control, and Card Privileges. Refer to the Terminal Management hierarchy shown in Figure 4.17 and Terminal Privilege defaults shown in Table 4.2.

##### 4.4.2.1.1. Initial Secure Mode

INITIAL SECURE MODE: (Traditional/Auto-Secure/Secure-Only) - determines whether the STE Terminal will automatically initiate a secure call upon completion of dialing. The default setting is AUTO-SECURE.

From the TERMINAL CONFIGURATION CONTROL display, press *SELECT* until INITIAL SECURE MODE is displayed. Then press *CHANGE* to select the desired option listed below:

- **TRADITIONAL** - The STE Terminal will proceed to a non-secure voice call, unless changed while placing the call.
- **AUTO-SECURE** - The STE Terminal will automatically initiate a secure voice call, unless changed while placing the call.
- **SECURE ONLY** - The STE Terminal will always initiate a secure voice call and will not allow non-secure communications.

##### 4.4.2.1.2. Change TPA Password

Refer to Paragraph 4.1.2.6.

##### 4.4.2.1.3. Remote Control

REMOTE CONTROL (Enable/Disable) determines whether the remote control capability of the terminal can be used. The default setting is DISABLED.

From the INITIAL SECURE MODE display, press *SCROLL* until the REMOTE CONTROL menu is displayed, then press *SELECT*. Press *CHANGE* to select the desired option (ENABLED or DISABLED).

If ENABLED, users will be provided with a TERMINAL CONTROL (Paragraph 4.4.2.1.3.1. ) display to select STE control options.

When REMOTE CONTROL is enabled, REMOTE AUTHENTICATION (Paragraph 4.4.2.1.3.2. ) is automatically enabled.

##### 4.4.2.1.3.1. Terminal Control

TERMINAL CONTROL may be changed by all authorized users if the TPA has enabled REMOTE CONTROL (Paragraph 4.4.2.1.3. ). Refer to the Terminal Control default settings shown in Table 4.3.

Control of your STE may be from the FRONT PANEL or from a device connected to the HOST PORT (RED SERIAL DATA PORT). The default setting is FRONT PANEL. To change the control device, enter the TERMINAL CONTROL Menu and use *CHANGE* to toggle between HOST PORT and FRONT PANEL CONTROL. Selection of *HOST PORT* implies that you intend to operate the STE via a remote control device connected to the RED SERIAL DATA PORT.

#### 4.4.2.1.3.2. Remote Authentication

When REMOTE CONTROL is enabled, REMOTE AUTHENTICATION is automatically ENABLED.

To modify the setting *SCROLL* to the REMOTE AUTHENTICATION menu and press *SELECT*. Press *CHANGE* to select the desired option (ENABLED or DISABLED).

NOTE: In order for the STE to be placed into the REMOTE CONTROL mode, either REMOTE AUTHENTICATION or the ACCESS CONTROL LIST must be enabled.

#### 4.4.2.1.4. Card Privileges

CARD PRIVILEGES: (Enable/Disable) - determines if personnel, other than the TPA, are authorized to manage crypto card association. Setting to DISABLE will disallow anyone but you from making changes to Crypto Card privileges. The default setting is DISABLED.

To modify the setting *SCROLL* to the CARD PRIVILEGE menu and press *SELECT*. Press *CHANGE* to select the desired option (ENABLED or DISABLED).

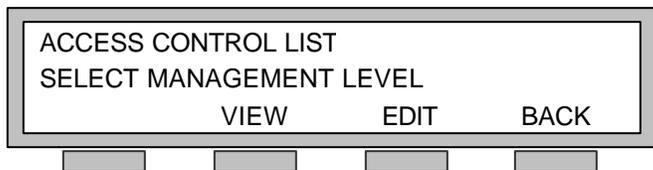
Refer to Paragraph 4.5. for details.

#### 4.4.2.2. Secure Access Control System

The TPA makes the Secure Access Control System settings that include the Access Control List (ACL) and Secure Applications. Refer to menu hierarchy shown in Figure 4.17 and Figure 4.19, and the terminal privileges Table 4.2.

##### 4.4.2.2.1. ACL (Access Control List)

The ACL allows or disallows the STE Terminal to automatically make secure connections with far-end terminals. The ACL is made up of a list of KMID (Key Material Identifiers) and DAO (Department-Agency-Organization) codes that are stored within the STE Terminal. As TPA, you can independently enable or disable the ACL for voice and data communications. The main ACL display allows all authorized users to VIEW the contents of the ACL and the TPA to EDIT the contents. The ACL is empty when shipped from the factory, or after the terminal has been zeroized (reset).



##### 4.4.2.2.1.1. View ACL

Authorized users can view the contents of the ACL by pressing *VIEW* when in the ACCESS CONTROL LIST display and then pressing either *DAO* or *KMID* in the next screen. Once in the DAO or KMID list you may move through the list by pressing *PREV* or *NEXT*.

#### 4.4.2.2.1.2. Edit ACL

You can edit the contents of the ACL by pressing *EDIT* while in the ACCESS CONTROL LIST display and the EDIT ACCESS CONTROL LIST display is presented.



From the EDIT ACCESS CONTROL LIST display you can ADD or REMOVE the DAO or KMID elements. The FROM\_PC function allows electronic ACL downloads from the connected PC (Paragraph 4.4.2.2.1.2.3. ).

##### 4.4.2.2.1.2.1. Add ACL Elements

Add DAO or KMID elements to the ACL by:

1. Pressing *ADD* in the EDIT ACCESS CONTROL LIST display.
2. Pressing either *DAO* or *KMID* in the next display.
3. Enter the DAO or KMID using the keypad. DAOs are composed of six numeric characters. KMIDs are composed of either 9 or 15 numeric characters.
4. If you enter a wrong character press *DELETE* to remove it; then type the correct character. When the element has been entered press *STORE*.
5. When the entry has been accepted the STE will confirm that it has been added and you must then press *CONTINUE*.
6. The STE will then return you to the ADD ACL ELEMENTS menu.

##### 4.4.2.2.1.2.2. Remove ACL Elements

Remove DAO or KMID elements from the ACL by:

1. Pressing *REMOVE* in the EDIT ACCESS CONTROL LIST display.
2. Pressing *DAO*, *KMID* or *All* in the next display.
3. Enter the DAO or KMID to be removed using the keypad. DAOs are composed of six numeric characters. KMIDs are composed of either 9 or 15 numeric characters.
4. If you enter a wrong character press *DELETE* to remove it; then type the correct character. When the element has been entered press *SEARCH*.
5. If the ACL element to be removed is found, you will be notified and you must then press *CONFIRM* to remove it from the terminal.
6. When the element has been removed, you will be notified and you must then press *CONTINUE*. If the ACL element to be removed cannot be found you will also be notified and you press *CONTINUE* as confirmation.
7. The STE will then return you to the REMOVE ACL ELEMENTS menu.



#### 4.4.2.2.1.2.3. Download ACL From\_PC

You may download the ACL into the STE from a PC connected to its RED SERIAL DATA PORT (Host Port). By selecting FROM\_PC in the EDIT ACCESS CONTROL LIST display, you will see the ACL INSTALLATION display.



Refer to Chapter 9. for detailed instructions for downloading the Electronic ACL.

#### 4.4.2.2.2. Secure Applications

Secure Applications (SECAPP) controls Secure Data and Secure Voice, their ACL, and the minimum and maximum classification levels for each. The default setting for both data and voice is ENABLED with no security levels set. Each application can be independently configured.

To modify the setting *SCROLL* to the SECURE APPLICATIONS menu and press *SELECT*. Press *CHANGE* to select the options below (Data and Voice have identical menus but are shown together):

- SECURE (DATA or VOICE) APPLICATION: (ENABLE/DISABLE) - defines if the STE will accept and place secure data or voice calls to terminals with compatible security settings. Pressing *CHANGE* in this menu will toggle the application between ENABLED and DISABLED. The default setting is ENABLED.
- SECURE (DATA or VOICE) ACL: (ENABLE/DISABLE) - defines if this application will use the ACL when placing and receiving calls. Pressing *CHANGE* in this menu will toggle the ACL usage between ENABLED and DISABLED. The default setting is DISABLED.
- SECURE (DATA or VOICE) MAXSEC: ( )/MINSEC: ( ) - defines the maximum and minimum level of secure calls which the terminal will support during a secure call. Pressing *CHANGE* in this menu will change the security levels within the menu. To choose between Minimum and Maximum (shown below), press *SCROLL*. When you have selected the security level to be modified, press *CHANGE*.
  - Sec (Data or VOICE) Minimum Classification Level: ( )
  - Sec (Data or VOICE) Maximum Classification Level: ( )

#### 4.4.2.3. Speakerphone Control

The Speakerphone Control settings may be either enabled or disabled for non-secure or secure calls depending on the settings made by the TPA. The default setting for both modes is disabled. Refer to the menu hierarchy shown in Figure 4.17 and the terminal privilege defaults in Table 4.2.

To modify the setting *SCROLL* to the SPEAKERPHONE CONTROL menu and press *SELECT* for NONSECURE SPEAKERPHONE. Press *SCROLL* for SECURE SPEAKERPHONE. Within the selected menu, pressing *CHANGE* allows selection of either *ENABLED* or *DISABLED* for each.

#### 4.4.2.4. Remove Association by Number/Create a New Crypto Card (CC) Association

Refer to the terminal management hierarchy shown in Figure 4.17 and the terminal privilege defaults shown in Table 4.2.

##### 4.4.2.4.1. Remove a Crypto Card Association by Number

When it becomes necessary to remove a Crypto Card association and the card is not available, the TPA can remove the Crypto Card associations by entering the card serial number through the keypad. If the crypto card is available, any authorized user can remove the association using the procedures in Paragraph 4.4.4.1.

To remove an association by serial number, proceed as follows:

1. Access the REMOVE ASSOCIATION BY NUMBER /CREATE A NEW CRYPTO CARD (CC) ASSOCIATION menu.
2. Access the VIEW ASSOCIATION/REMOVE ASSOCIATION menu. Select *VIEW* to see associations on STE. Enter the serial number of the crypto card. If, during serial number entry, you enter a wrong character press *DELETE* to remove it.
3. When you have finished entry of the serial number of the card association to be removed press *SEARCH*.
4. If the association to be removed is found, you will be notified and you must then press *CONFIRM* to remove it from the terminal. You will be notified when the association has been removed; you must then press *CONTINUE* to complete the process. If the association you specified could not be found (does not exist) you will also be notified and you must press *CONTINUE* to complete the process.

#### NOTE

Crypto card associations would normally be removed via the user menu with the associated crypto card inserted in the terminal. This allows association removal from both the crypto card and terminal. TPA removal of the association from the terminal by card serial number would normally be used only when the associated crypto card is not available.

##### 4.4.2.4.2. Create a New Crypto Card Association/Insert User Card and Select Type

The STE supports the creation of Crypto Card associations. An association allows an authorized user to place calls at security levels as high as "TOP SECRET SCI" (depending upon available secure key material and terminal security level settings). To create an association:

1. Access the REMOVE ASSOCIATION BY NUMBER /CREATE A NEW CRYPTO CARD (CC) ASSOCIATION menu.
2. Access the CREATE ASSOCIATION menu.
3. When prompted remove the TPA Card and insert the User Card for which the association is to be created.
4. To make an association, press *FULL-CIK*. If the STE displays "INCORRECT CRYPTO CARD" either the card is already associated with the STE or the card is not STE-capable.
5. If prompted to INSERT THE CARRY CARD, remove the User Card and then insert the Carry Card.
6. If prompted to REINSERT USER CARD, remove the carry card and then insert the User Card.

7. If the association creation is successful you will be notified of its completion and prompted to either REINSERT TPA CARD or press *DONE*. If you wish to continue in the TPA mode, you must reinsert the TPA card. Otherwise press *DONE* to terminate the TPA mode and return to a user mode terminal programming session.

#### 4.4.2.5. Update Software

You, the TPA, are responsible to UPDATE SOFTWARE.

All or part of your STE Software may be updated via a Software Download. Software down loads may update the software for the STE "Host", the STE "Network", the STE "Wedge", the KOV-14, or all the above.

The current version of the STE software is available at the STE Web Site and can be downloaded with any web browser. Likewise, updates to the STE Users Manual may be downloaded from the STE Web Site. If you need the software by electronic mail, contact the STE Service Center.

Updating the STE software requires:

- A valid TPA crypto card (inserted and accepted in the STE),
- A Personal Computer (PC) with installed resources as described in Paragraph 9.2. , and
- An RS232 to RS232 interface cable (or EIA-530A to EIA-530A if you have configured your STE serial data port and PC for EIA-530A).

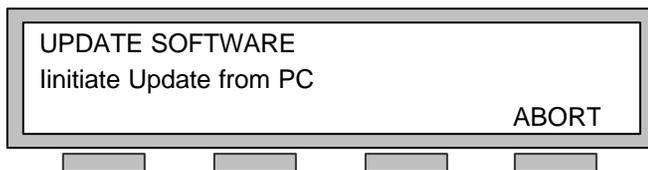
Before performing a particular software update, follow the directions in Paragraph 9.2. for configuring the PC and the installed "STE Toolset Program".

The STE software update process consists of:

1. Connecting the PC, to be used for the software download, to the STE Red Serial Data Port,
2. Installing and executing, on the PC, the "STE Toolset Program",
3. Configuring the STE for software download via its menus,
4. Starting the desired download parameters in the "STE Toolset Program", and
5. Pressing the START button on the PC Download Screen.

To perform a software update at the STE:

1. Place STE at the TERMINAL MANAGEMENT/TERMINAL PRIVILEGES/SOFTWARE VERSION menu.
2. Press *CHANGE*.
3. When the STE has completed its software download initialization process, the terminal will display:



4. If you wish to stop the procedure, press *ABORT* otherwise proceed to step 5.

#### CAUTION

**Once you have initiated a software update, DO NOT attempt to abort the update by removing the KOV-14 crypto card or resetting the power. These actions will likely corrupt the STE software.**

#### NOTE

Software updates can take up to 40 minutes depending on the download data rate and amount of software to be downloaded. The download data rate is selectable via the "STE Toolset Program".

5. Execute the "STE Toolset Program" on the PC and set the download parameters as desired and as described in Paragraph 9.2.
6. Initiate the update process from the PC by clicking the START button. While the software is being updated, the STE will display the following message. As the software updates, a cursor will move across the bottom of the display.



7. When the software update process has been successfully completed, you will be prompted to either remove the KOV-14 crypto card from the STE or press *CONTINUE*. If the software update process fails, the STE will notify you via the front panel display. In most cases, you will be able to attempt a subsequent software download. If the software download continues to fail, contact the STE Service Center (see Chapter 1).

The previous paragraphs (4.4.2. ) dealt with settings made only by the TPA.

The following paragraphs address settings that can be made by all authorized users.

#### 4.4.3. Terminal Audit Information

TERMINAL AUDIT INFORMATION may be accessed by all authorized users. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

To obtain the status of the current software, or to identify the TPA for the STE, select the TERMINAL AUDIT INFORMATION menu and *SCROLL* through these displays to view the desired information:

- SOFTWARE UPDATE TPA - indicates the serial number of the last TPA card to update the STE software.
- CONFIGURATION TPA - indicates the serial number of the last TPA card to modify the STE configuration.
- CURRENT TPA - indicates the TPA that is currently established for the STE.
- SOFTWARE SERIAL - is the identifier for the BOOT program.
- SOFTWARE VERSION - indicates the version numbers of the operational software within your STE.

#### 4.4.4. Remove Crypto Card Association/Prepare Remote Association

The REMOVE CRYPTO CARD ASSOCIATION/PREPARE REMOTE ASSOCIATION function may be used by all authorized users. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

##### 4.4.4.1. Remove Crypto Card Association

1. Access the REMOVE CRYPTO CARD ASSOCIATION/PREPARE REMOTE ASSOCIATION menu.
2. Insert the crypto card you want to remove from association and press *REMOVE*. The STE will prompt you to confirm the association removal.
3. When the association removal is complete, the STE will notify you and then prompt you to press *CONTINUE*. If you had not inserted a card before pressing *REMOVE*, the STE will prompt you to insert a card before you may proceed with association removal.

#### 4.4.4.2. Prepare Remote Association

The STE supports the creation of a terminal/card association that may be installed on other STEs. To prepare a remote association:

1. Access the PREPARE REMOTE ASSOCIATION menu with a crypto card inserted that is associated with the STE.
2. Press, *CONFIRM*.
3. When prompted to INSERT THE CARRY CARD, remove the User Card and insert another crypto card that will carry part of the remote association (i.e., the Carry Card).
4. If the remote association creation is successful, you will be notified of its completion and prompted to REMOVE CARRY CARD.

#### 4.4.5. Audible Alerts

AUDIBLE ALERTS may be changed by all authorized users. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

You have the ability to selectively enable or disable the audible alerts (ringing, user action audible feedback (beeps)). The default setting is ENABLED. To change the setting, enter the AUDIBLE ALERTS Menu and use *CHANGE* to toggle between ENABLED and DISABLED.

#### 4.4.6. Auto-Answer

AUTO-ANSWER may be changed by all authorized users. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

If TERMINAL CONTROL (Paragraph 4.4.2.1.3.1. ) is set for FRONT PANEL, and if the SECURE DATA ACL (Paragraph 4.4.2.2.2. ) is set to ENABLE, then you may ENABLE or DISABLE the STE's AUTO-ANSWER. The default setting is DISABLE. To change the setting, enter AUTO-ANSWER and use *CHANGE* to toggles between ENABLE and DISABLE.

If you set ENABLE, you may program the number of rings before the call is automatically answered. The default value is 4. To change the ring count use *CHANGE* to select between "1" and "255". A setting of 1 allows AUTO-ANSWER with no rings. All other settings are on the number of rings selected.

#### 4.4.7. Data Port

DATA PORT (RED SERIAL DATA PORT) may be changed by all authorized users. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

You may configure the RED SERIAL DATA PORT for EIA-232 or EIA-530A interoperability. The default setting is EIA-232. To change the setting, enter DATA PORT and use *CHANGE* to toggles between EIA-232 and EIA-530A.

#### 4.4.8. Handset Sidetone

HANDBET SIDETONE may be changed by all authorized users. The handset sidetone should normally be left in the enabled state in that users are accustomed to hearing a sidetone (their own voice as they speak) in the handset earpiece. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

#### 4.4.9. Ring Selection

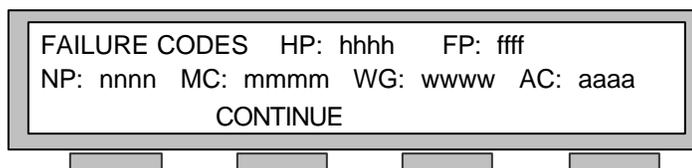
RING SELECTION, standard and five alternates, may be changed by all authorized users. The ring selector allows the user to customize the ring tone of the STE so one can distinguish it from other nearby terminals. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

#### 4.4.10. Terminal Test

INITIATE TERMINAL TEST/INITIATE FRONT PANEL TEST may be accessed by all authorized users. Refer to the menu hierarchy shown in Figure 4.17 and the default setting shown in Table 4.3.

##### 4.4.10.1. Terminal Health Tests

The STE performs secure and non-secure self-tests. If a crypto card is inserted, at the initiation of terminal self-test, both the secure and non-secure self-tests will be performed. Otherwise only the non-secure self-tests will be performed. If a self-test error occurs, you will see the following display:



Where:

- hhhh = Host Processor error code
- ffff = Front Panel error code
- nnnn = Network Processor error code
- mmmm = Modem error code
- wwww = Wedge error code
- aaaa = Audio Processor error code

Should a self-test error occur, record the error codes and call the STE Service Center (Paragraph 1.4. ).

##### 4.4.10.2. Front Panel Tests

The front panel test consists of display and keyboard tests. The front panel display test is performed first. It involves scrolling of all displayable characters and lighting each of the LEDs. The keyboard test is an interactive test that prompts you to PRESS ANY KEY. When a key is pressed, the STE recognizes it and displays its name. To cancel the keyboard test or to exit the front panel tests, press *DONE*.

#### 4.5. CRYPTO CARD MANAGEMENT

Refer to the menu hierarchy shown in Figure 4.16 and Figure 4.20.

The STE performs KOV-14 Card Management without the need for a Certificate Authority workstation. STE Release 1C allows you to:

- Rekey STU-III keys
- Rekey SNDS keys
- View Card Key Data
- View CKL Version (SNDS (Secure Data Network System) only)
- View CIM Version (STU-III only)
- Zeroize Key (Card Privilege must be enabled)
- Remove Terminal/Card Association (Card Privilege must be enabled)

##### 4.5.1. Card Management Privileges/Select Management Level

The CARD MANAGEMENT PRIVILEGES/SELECT MANAGEMENT LEVEL function (Figure 4.20) at the User level provides for the rekeying of crypto cards, viewing card key data, and viewing CKL and CIM version numbers

#### 4.5.1.1. Rekey Function

##### 4.5.1.1.1. Update Rekey Phone Number/Perform Rekey

The UPDATE REKEY PHONE NUMBER/PERFORM REKEY function lets the authorized users update or change rekey telephone numbers and rekey their crypto cards.

##### 4.5.1.1.1.1. Update Stored Phone Number

The STE provides special storage locations for two rekey telephone numbers, one for STU-III rekey and one for SDNS rekey. These numbers can be programmed by the user via the menu (Crypto Card Management/Card Management Privileges/Rekey Functions/Update Rekey Phone Number/Update Stored Phone Numbers/STU-III and SDNS). Once the selected number is reached it can be entered, or modified the same as for Speed Dial locations. The STU-III and SDNS rekey numbers are available from the STE web site

##### 4.5.1.1.1.2. Perform Rekey

The Rekey function allows a user to update the keys on his Crypto Card. A user can update keys at any time via the STE Menu (Crypto Card Management / Card Management Privileges / Rekey Functions / Perform Rekey / STU-III and SDNS). The STE will also notify the user automatically and provide a soft key to initiate rekey, each time he goes off-hook when keys expire and need to be rekeyed (approximately annually).

##### 4.5.1.1.1.2.1. STU-III Rekey

The KOV-14 Crypto Card contains two types of key material, i.e., STU-III and SDNS. This section describes the rekey of the STU-III key materials. The STE provides the user with the capability to place a call to the STU-III rekey facility to accomplish the STU-III rekey of a KOV-14 Crypto Card.

#### REKEY AVAILABILITY

The STU-III Rekey function is available when:

1. The STE is configured for PSTN, TRI-TAC, or ISDN
2. An associated crypto card containing STU-III keys is inserted, and
3. The STE is idle, i.e., no calls active or on HOLD.

The STE provides the rekey capability only when requested by the user by pressing the *REKEY* soft-key. *REKEY* is presented to the user in a REKEY DUE display, if the crypto card has determined that a rekey is necessary. The user can manually access the "Rekey Function" and *REKEY* via the Crypto Card Management on-hook menu (Figure 4.20). Along with the REKEY DUE display, the user is presented with the option of selecting (1) a STU-III rekey, or (2) an SDNS rekey. The display will indicate if the STU-III and SDNS keys are "DUE" or are "OK". If a STU-III rekey is "DUE", it will not be possible to place a STU-III secure call, other than a rekey call, until rekey.

#### REKEY CALL PROCEDURE

#### CAUTION

Do not remove the Crypto Card while in the process of a rekey attempt. The resulting incomplete key materials installment may cause the card to have to be re-initialized by the KMC.

STU-III Rekey requires that a call be placed to the Key Management Center (KMC). The STE provides a dedicated, stored telephone numbers that may be used to place the Rekey call. If a number has been stored, it is Displayed to the user when the *REKEY* / *STU-III* soft-keys are selected. The user can then accept the displayed stored number or manually enter another number to call.

Manually entering the number does not change the value stored in memory. However, any user, using a procedure similar to that used to store numbers for speed dialing, can change the stored KMC telephone number. The ability to change the KMC telephone number is provided under the Crypto Card Management menu and "Update Rekey Phone Number" (Figure 4.20). When you Zeroize the STE, the stored KMC telephone number is erased.

Place the rekey call as a non-secure voice call by pressing *REKEY / STU-III / GO* soft-keys. Once the rekey call has been connected, and upon successful negotiation of the rekey call, the STE will perform the signaling to accomplish the rekey. The user is advised via the STE display of the rekey progress, including its ultimate success or failure. A typically successful STU-III Rekey takes about 10 seconds, although it can take less or more time depending on the load experienced by the network switch and the KMC.

While in rekey mode, the STE will not permit non-rekey calls to be placed, nor will the STE allow calls to be answered. The STE will not notify the user of incoming calls while in rekey mode. When the STE is configured for ISDN and an incoming call is received, the STE will provide a BUSY indication to the network.

#### 4.5.1.1.1.2.2. SDNS Rekey

The STE must be configured for ISDN to perform this function.

The KOV-14 Crypto Card contains two types of key material, i.e., STU-III and SDNS. This section describes the rekey of the SDNS key materials. The STE provides the user with the capability to place a call to the SDNS rekey facility to accomplish the SDNS rekey of a KOV-14 Crypto Card.

##### REKEY AVAILABILITY

The SDNS Rekey function is available when:

1. The STE is configured for ISDN
2. An associated crypto card containing SDNS keys is inserted, and
3. The STE is idle, i.e., no calls active or on HOLD.

The STE provides the rekey capability only when requested by the user by pressing the *REKEY* soft-key. *REKEY* is presented to the user in a REKEY DUE display, if the crypto card has determined that a rekey is necessary. The user can manually access the "Rekey Function" and *REKEY* via the Crypto Card Management on-hook menu (Figure 4.20). Along with the REKEY DUE display, the user is presented with the option of selecting (1) a STU-III rekey, or (2) and SDNS rekey. The display will indicate if the STU-III and SDNS keys are "DUE" or are "OK". If an SDNS rekey is "DUE", it will not be possible to place a SDNS secure call, other than a rekey call, until rekey.

##### REKEY CALL PROCEDURE

#### CAUTION

Do not remove the Crypto Card while in the process of a rekey attempt. The resulting incomplete key materials installment may cause the card to have to be re-initialized by the KPF.

SDNS Rekey requires that a call be placed to the Key Processing Facility (KPF). The STE provides dedicated, stored telephone numbers that may be used to place the Rekey call. If a number has been stored, it is displayed to the user when the *REKEY / SDNS* soft-keys are selected. The user can then accept the displayed stored number or manually enter another number to call. Manually entering the number does not change the value stored in memory. However, any user, using a procedure similar to that used to store numbers for speed dialing, can change the stored KPF telephone number. The ability to change the KPF telephone number is provided under the Crypto Card Management menu and "Update Rekey Phone Number" (Figure 4.20). Zeroizing erases the stored KPF telephone number.



Place the rekey call as a non-secure voice call by pressing *REKEY / SDNS / GO* soft-keys.

**NOTE:** For SDNS Rekey, an ISDN Data Bearer path must exist to the KPF. Once the rekey call has been connected, and upon successful negotiation of the rekey call, the STE will perform the signaling to accomplish the rekey. The user is advised via the STE display of the rekey progress, including its ultimate success or failure. A typically successful SDNS Rekey takes about 10 seconds, although it can take less or considerably more time depending on the load experienced by the network switch and the KPF.

While in rekey mode, the STE will not permit non-rekey calls to be placed, nor will the STE allow calls to be answered. The STE will not notify the user of incoming calls while in rekey mode. When an incoming call is received, the STE will provide a BUSY indication to the network.

**ERROR CONDITIONS**

Various error conditions are possible during an SDNS Rekey attempt. Some errors are managed automatically by the STE, other errors are recoverable by placing the rekey call again, and under some conditions, the errors are not recoverable and the TPA must be contacted. In each of these cases the user is advised via the STE display of the appropriate action, e.g.,

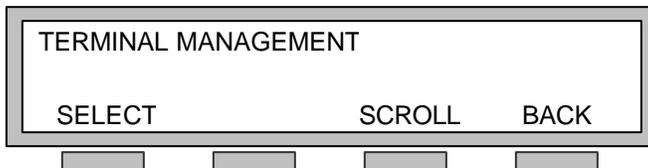
SDNS REKEY FAILED ERR CODE: nn, TRY CALL LATER, or  
 SDNS REKEY FAILED ERR CODE: nn, CONTACT TPA

In those cases that cannot be resolved by the user or TPA, record the complete error display and contact the STE Service Center.

**4.5.1.2. View Card Key Data**

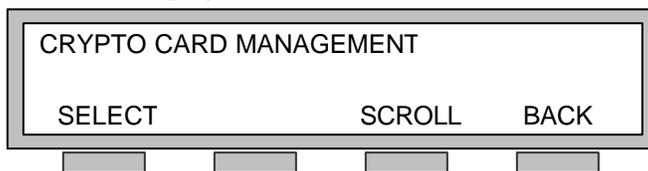
All authorized users may access VIEW CARD KEY DATA. Refer to the menu hierarchy shown in Figure 4.20.

1. Press MENU. The STE displays:



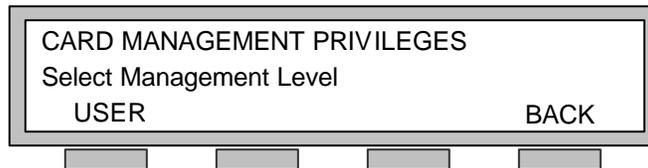
Soft-key	Action Description
<i>SELECT</i>	Select Terminal Management menu items.
<i>SCROLL</i>	Next step.
<i>BACK</i>	Exit Menu operations.

2. Press SCROLL. The STE displays:



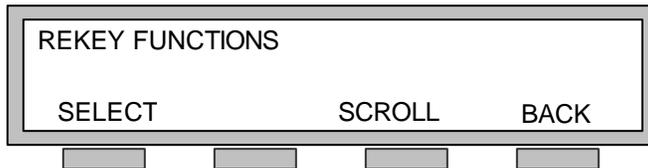
Soft-key	Action Description
<i>SELECT</i>	Next step.
<i>SCROLL</i>	Scroll to Zeroize Terminal
<i>BACK</i>	Exit Menu operations.

3. Press *SELECT*. The STE displays:



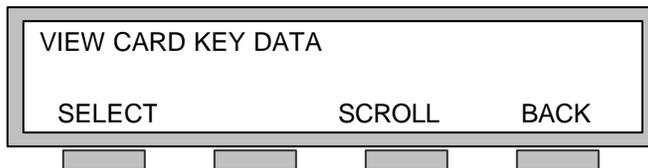
Soft-key	Action Description
<i>USER</i>	Next step.
<i>BACK</i>	Return to next higher display.

4. Press *USER*. The STE displays:



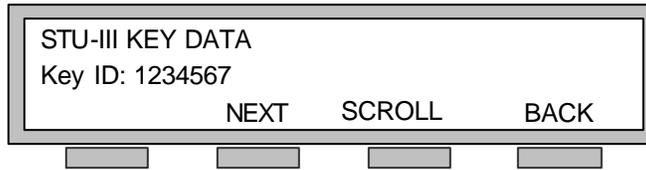
Soft-key	Action Description
<i>SELECT</i>	Next step.
<i>SCROLL</i>	Scroll to next Card Management option.
<i>BACK</i>	Return to next higher display.

5. Press *SCROLL*. The STE Displays:



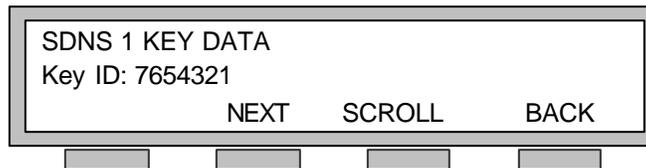
Soft-key	Action Description
<i>SELECT</i>	Next step.
<i>SCROLL</i>	Scroll to next Card Management option.
<i>BACK</i>	Return to next higher display.

6. Press *SELECT*. The STE displays:



Soft-key	Action Description
<i>NEXT</i>	Display information for next key.
<i>SCROLL</i>	Scroll to next Card Management option.
<i>BACK</i>	Return to next higher display.

7. Press *SCROLL* to view KEY ID, DAO CODE, KEY CLASSIFICATION, KEY EXP DATE, KEY OWNER, KEY STATE, or SITE ID information.
8. Or, press *NEXT* to view SDNS Key data:



Soft-key	Action Description
<i>NEXT</i>	Display information for next key.
<i>SCROLL</i>	Display next information for this key.
<i>BACK</i>	Return to next higher display.

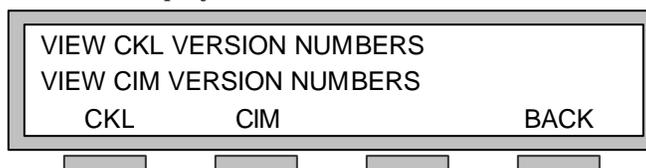
9. Press *SCROLL* to view KEY ID, DAO CODE, KEY CLASSIFICATION, KEY EXP DATE, KEY OWNER, UNIVERSAL ID, UNIVERSAL EDITION, or KEY STATE information.
10. Press *BACK* three times or *MENU* to clear the display.

#### 4.5.1.3. View CKL/CIM

All users may view the CKL and CIM version numbers. Refer to the menu hierarchy shown in Figure 4.20.

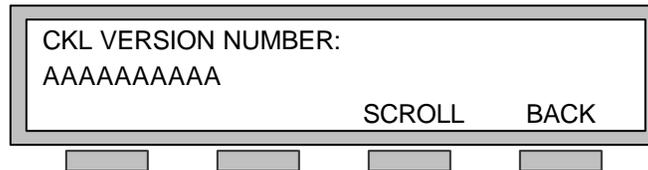
##### 4.5.1.3.1. View CKL Version

1. Perform steps 1 thru 5 as stated in Paragraph 4.5.1.2.
2. If Card Privileges are Enabled (by the TPA) press *SCROLL* twice to bypass the Zeroize Key and Remove Terminal/Card Association menu options.
3. Press *SCROLL*. The STE displays:



Soft-key	Action Description
<i>CKL</i>	Next step.
<i>CIM</i>	Go to View CIM
<i>BACK</i>	Return to next higher menu display.

4. Press *CKL*. The STE displays.



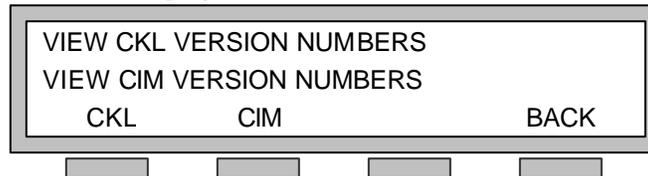
Soft-key	Action Description
<i>SCROLL</i>	View additional number (if on card). See Note.
<i>BACK</i>	Return to next higher menu display.

NOTE: STE CKL version numbers are displayed as STE CKL ID#, ED#, V#. If audible alerts are enabled, the STE will beep at the last entry.

5. Press *MENU* to clear the display.

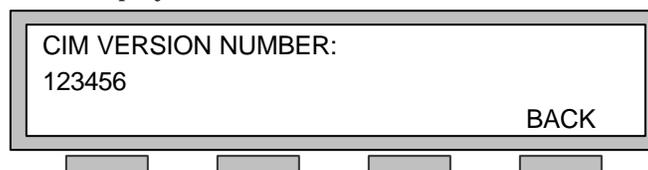
#### 4.5.1.3.2. View CIM Version

1. Perform steps 1 thru 5 as stated in Paragraph 4.5.1.2.
2. If Card Privileges are Enabled (by the TPA) press *SCROLL* twice to bypass the Zeroize Key and Remove Terminal/Card Association menu options.
3. Press *SCROLL*. The STE displays:



Soft-key	Action Description
<i>CKL</i>	Go to View CKL.
<i>CIM</i>	Next step.
<i>BACK</i>	Return to next higher menu display.

4. Press *CIM*. The STE displays.



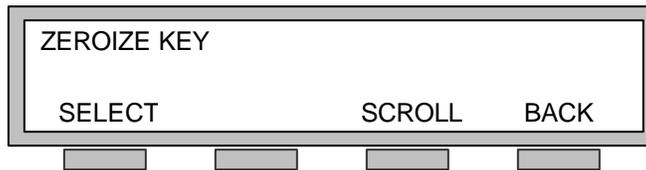
Soft-key	Action Description
<i>BACK</i>	Go back to View CKL/CIM.

5. Press MENU to clear the display.

#### 4.5.1.4. Zeroize Key

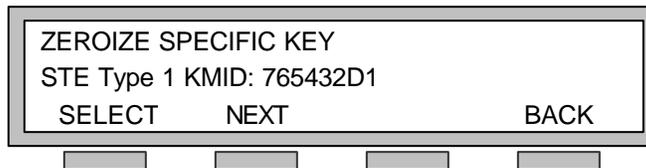
When CARD PRIVILEGES are enabled, authorized users may access the ZEROIZE KEY menu.

1. Perform steps 1 thru 5 as stated in Paragraph 4.5.1.2.
2. Press *SCROLL*. The STE displays:



Soft-key	Action Description
<i>SELECT</i>	Next Step
<i>SCROLL</i>	Scroll to next Card Management option
<i>BACK</i>	Return to next higher menu display.

3. Press *SELECT*. The STE displays:



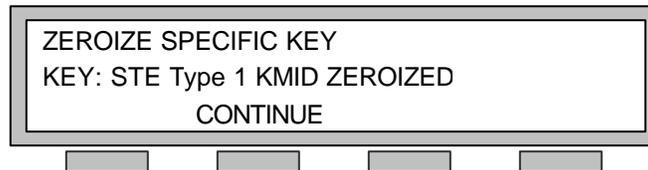
Soft-key	Action Description
<i>SELECT</i>	Delete the key shown on the display.
<i>NEXT</i>	View next Key.
<i>BACK</i>	Return to next higher menu display.

4. Press *SELECT*. The STE displays:



Soft-key	Action Description
<i>CONFIRM</i>	Delete the selected Key.
<i>ABORT</i>	Do not delete the selected Key.

5. Press *CONFIRM*. The STE displays:



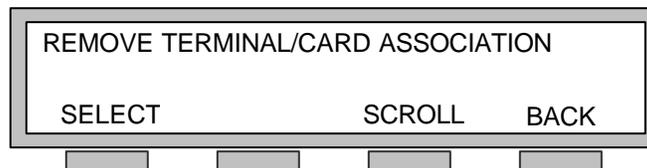
Soft-key	Action Description
<i>CONTINUE</i>	Confirms deletion of Key.

6. Press *MENU* to clear the display.

#### 4.5.1.5. Remove Terminal/Card Association

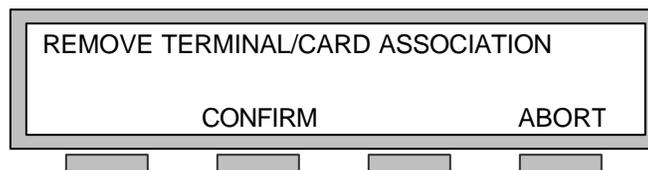
When *CARD PRIVILEGES* are enabled, authorized users may access *REMOVE TERMINAL/CARD ASSOCIATION*.

1. Perform steps 1 thru 5 as stated in Paragraph 4.5.1.2.
2. Press *SCROLL* to bypass the Remove Terminal/Card Association menu option.
3. Press *SCROLL*. The STE displays:



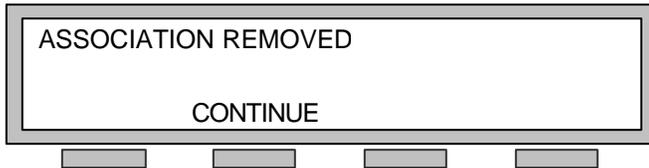
Soft-key	Action Description
<i>SELECT</i>	Next Step
<i>SCROLL</i>	Scroll to next Card Management option
<i>BACK</i>	Return to next higher menu display.

4. Press *SELECT*. The STE displays:



Soft-key	Action Description
<i>CONFIRM</i>	Confirm that the association is to be terminated.
<i>ABORT</i>	Abort terminating the association.

5. Press *CONFIRM*. The STE displays:



Soft-key	Action Description
<i>CONTINUE</i>	Confirm that the association has been terminated.

6. Press *MENU* to clear the display.

#### 4.6. ZEROIZE TERMINAL

ZEROIZE TERMINAL may be accessed by all authorized users.

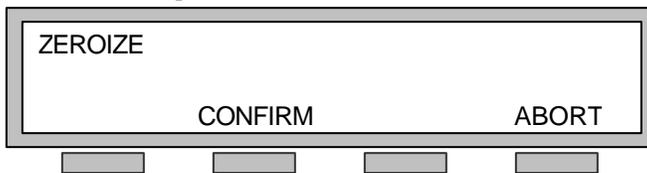
#### CAUTION

DO NOT USE THE ZEROIZE FUNCTION AS A MEANS OF TRYING TO CLEAR PROBLEMS IN THE STE TERMINAL. FOLLOW THE RECOMMENDED MAINTENANCE PROCEDURES.

When ZEROIZE TERMINAL is initiated, all configuration settings are reset to the STE's default values shown in Table 4.1 through Table 4.3. In addition, terminal associations including the current, established TPA are removed. However, the secure only strap and audit information are retained.

To initiate ZEROIZE, press *MENU*, then scroll twice to enter ZEROIZE TERMINAL. Press *CONFIRM* to reset the STE. The ZEROIZE process takes approximately one minute.

If you decide not to ZEROIZE the STE, press *ABORT*.



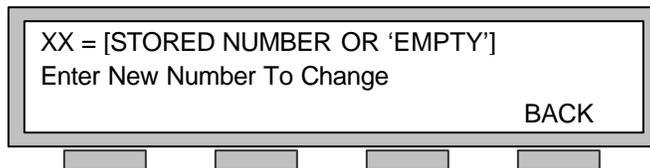
When the reset is complete, press *CONTINUE*.

#### 4.7. FEATURE CONFIGURATION

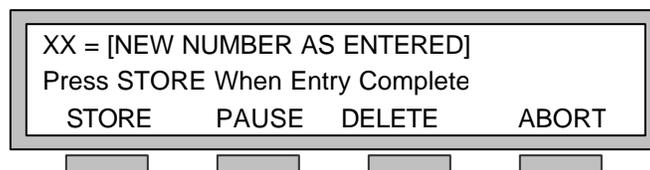
##### 4.7.1. Speed Dial Keys

Set, change, or erase a SPEED DIAL number as follows:

1. Make sure the STE is in an idle state (i.e., handset on-hook, speakerphone off, and no call on hold).
2. Press MODE, and then press the SPEED DIAL key you want to program. The display shows:



3. Enter the new number. The number may be up to 24 characters, including pauses. Press PAUSE once to wait for a PSTN dial tone ("W" appears in the display). Press PAUSE twice for a 100-millisecond dial delay ("," appears in the display). Press PAUSE three times for a two second dial delay (",," appears in the display). Press DELETE, to change an incorrectly entered digit. While in the speed dial programming the display will show:



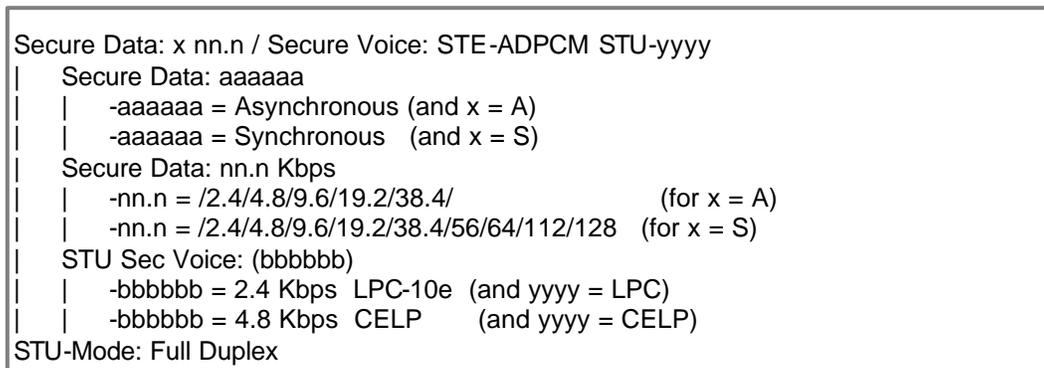
4. When you have completed entering the number, press STORE. If you wish to exit speed dial programming without changes, press ABORT.
5. To enter another number into memory, repeat step 2 through 4.

To enter the name or number, of the person or organization, next to a particular SPEED DIAL key follow these steps:

1. Remove the plastic faceplate covering the speed dial card by pressing it together slightly, top to bottom, and lifting it up.
2. Remove the card.
3. Write or type the name or number associated with the key in the appropriate space on the card.
4. Replace the card and faceplate.

#### 4.7.2. Mode Changes

Mode Changes are initiated by pressing MODE. The MODE menu hierarchy is shown in Figure 4.21.



**Figure 4.21. MODE Menu Hierarchy**

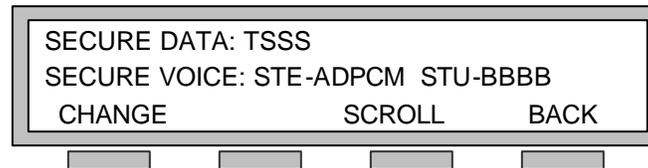


**NOTE:** Non-secure calls use PCM or CVSD (TRI-TAC circuits) voice modes. The ADPCM, CELP, and LPC-10e modes apply to secure voice.

#### 4.7.2.1. Setting On-hook Data Port and Voice Modes

To set the RED SERIAL DATA PORT mode and rate, or STU-III voice mode

1. Make sure that the STE is in the idle state (i.e., handset on-hook, speakerphone off, and no calls on hold).
2. Press MODE. The display will show:



Where:

- “T” is the secure data mode (A – Asynchronous, S – Synchronous)
- “SSS” is the secure data rate,
- “ADPCM” is the STE secure voice mode, and
- “BBBB” is the STU-III secure voice mode (CELP or LPC).

The range of synchronous and asynchronous data rates available is greater for ISDN than for the other network types.

3. To change the current setting, press *CHANGE*. To exit without changes, press *BACK* or *MODE*.
4. If you choose to change the configuration, the front panel will display the current data mode setting, Asynchronous or Synchronous. Pressing *CHANGE* while in this menu will toggle between these data modes. To continue making changes to other settings press *SCROLL*. If you have completed all changes and wish to exit press *BACK* or *MODE*.
5. If you choose to make other changes, by pressing *SCROLL* the front panel will then display the current secure data rate settings, and if configured for ISDN the additional available data rates will be displayed. Pressing *CHANGE* while in this menu will cycle through the available data rates for the current network type. To continue making changes to other configuration settings press *SCROLL*. If you have completed all changes and wish to exit press *BACK* or *MODE*.
6. If you choose to make other changes, by pressing *SCROLL* the front panel will then display the current STU-III secure voice mode, 2.4 Kbps LPC-10e or 4.8 Kbps CELP. Pressing *CHANGE* while in this menu will cycle between the voice modes. To continue making changes to other configuration settings press *SCROLL*. If you have completed all changes and wish to exit press *BACK* or *MODE*.

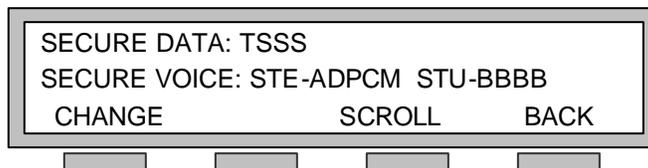
**NOTE:** This option would normally be set to *CELP*. The STE terminal will automatically select *LPC-10e* if you connect to a *STU-III* that does not support *CELP*. It is recommended that the data mode setting be set the same at both terminals before a data call is attempted.

#### 4.7.2.2. Setting Off-hook Data and Voice Modes

The STE allows you to change data and voice modes for active calls while off-hook. Off-hook mode selections are only active for the duration of the call in progress. If you change the data or voice mode while off-hook, it will be necessary to select *SECVOICE* or *SECDATA* in order to regain synchronization.

To change the data mode or STU-III voice mode while off-hook:

1. If multiple lines are active at the terminal, scroll the display until the call that is to be changed is displayed. If the mode change is required for a call that is on hold, select the desired CALL APPEARANCE and activate the call to be changed.
2. Press MODE. The front panel shows:



Where:

“T” is the secure data mode (A – Asynchronous, S – Synchronous)

“SSS” is the secure data rate,

“ADPCM” is the STE secure voice mode, and

“BBBB” is the STU-III secure voice mode (CELP or LPC).

The range of synchronous and asynchronous data rates available is greater for ISDN than for the other network types.

3. To change the current setting, press *CHANGE*. To exit without changes, press *BACK* or *MODE*.
4. If you choose to change the configuration, the front panel will display the current secure data mode settings, Asynchronous or Synchronous. Pressing *CHANGE* while in this menu will toggle between these data modes. To continue making changes to other settings press *SCROLL*. If you have completed all changes and wish to exit press *BACK* or *MODE*.
5. If you choose to make other changes, by pressing *SCROLL* the front panel will then display the current secure data rate settings, and if configured for and connected to ISDN the additional available data rates will be displayed. Pressing *CHANGE* while in this menu will cycle through the available data rates for the current network type. To continue making changes to other configuration settings press *SCROLL*. If you have completed all changes and wish to exit press *BACK* or *MODE*.
6. If you choose to make other changes, by pressing *SCROLL* the front panel will then display the current STU-III secure voice mode, 2.4 Kbps LPC-10e or 4.8 Kbps CELP. Pressing *CHANGE* while in this menu will toggle between the voice modes. To continue making changes to other configuration settings press *SCROLL*. If you have completed all changes and wish to exit press *BACK* or *MODE*.

*NOTE: This option would normally be set to CELP. The STE terminal will automatically select LPC-10e if you connect to a STU-III that does not support CELP. It is recommended that the data mode setting be set the same at both terminals before a data call is attempted.*

## CHAPTER 5. OPERATION

### 5.1. CALL MANAGEMENT

Your STE (Secure Terminal Equipment) supports three modes of calls: Non-secure Voice, Secure Voice, and Secure Data.

Access to these modes depends on how the terminal's "Initial Secure Mode" setting was established by the TPA (Terminal Privilege Authority).

- If the setting is "Traditional", the STE will automatically initiate a non-secure voice call unless you select secure voice or secure data, or the far end (calling) terminal initiates a secure call.
- If the setting is "Auto-Secure", the STE will automatically initiate a secure voice call, unless you select a non-secure voice call, or a secure data call.
- If the setting is "Secure-Only", the STE it will always initiate a secure voice call, unless you select a secure data call.

When connected to an ISDN network, the STE places "Auto-Secure" mode (initially secure calls) and "Secure-Only" mode calls on a Data Bearer service, if it is available to the far end (called) party. The STE places "Traditional" mode (initially non-secure calls) calls on a Voice Bearer service. To utilize STE signaling (with high quality secure voice and higher data rates) a digital network path from end-to-end is required. Data Bearer service guarantees a digital network path. Voice Bearer service does not guarantee a digital network path; however, it often provides a digital network path (especially on local calls). If a call is initiated on a Voice Bearer (traditional mode), the STE can execute a test with the far end terminal to determine if both the network and far end terminal will support STE signaling. This can be accomplished by enabling VBSCT (Voice Bearer Secure Capable Test) as described in paragraph 2.3.4.6.3. If VBSCT passes, the STE initiates STE security signaling; if the test fails or it is disabled, the STE utilizes STU-III modem based signaling. To improve the probability of VBSCT success, the STE utilizes only a portion of the B-channel bandwidth that supports standard STE secure voice (ADPCM). However, it limits the secure data rate to 38.4 kbps instead of the 64 kbps available on a true Data Bearer service and 128 kbps on bonded Data Bearers. If VBSCT fails, or it is not enabled, the resulting STU-III signaling supports CELP voice and data to 9.6 kbps.

If your STE is configured for operation over the PSTN (Public Switch Telephone Network), EIA-232/EIA-530A BDI (serial Black Digital Interface), or TRI-TAC (Tri-service Tactical) network operation will be limited to STU-III modes only.

#### 5.1.1. Call Management Overview

Table 5.1 and Table 5.2 show the type service you are provided when requesting a voice or data call depends on:

- The capabilities of the communications links between the Caller and the Called Party,
- The STE security strapping of the Caller and the Called Party, and
- The communications capabilities of the equipment at both ends of the circuit.

**Table 5.1. Secure Voice Call Service**

Caller		Carrier Service		User Service Provided	
Network	Strapping	Requested	Provided	Security Signaling	Voice Quality
ISDN	Traditional	Voice Bearer	Voice Bearer (not digital) Voice Bearer (digital)	STU-III STE	CELP, LPC-10e ADPCM
	Auto-Secure	Data Bearer	Data Bearer Voice Bearer (not digital) Voice Bearer (digital)	STE STU-III STE	ADPCM CELP, LPC-10e ADPCM
	Secure-Only	Data Bearer	Data Bearer Voice Bearer (not digital) Voice Bearer (digital)	STE STU-III STE	ADPCM CELP, LPC-10e ADPCM
PSTN	Any	Analog Line		STU-III	CELP LPC-10e
TRI-TAC	Any	Digital Line		STU-III	CELP LPC-10e
BRI	Any	Point-to-Point EIA-530A EIA -232		STU-III	CELP LPC-10e

**Table 5.2. Secure Data Call Service**

Caller		Carrier Service		User Service Provided	
Network	Strapping	Requested	Provided	Security Signaling	Rate (Kbps)
ISDN	Traditional	Voice Bearer	Voice Bearer (non digital) Voice Bearer (digital)	STU-III STE	S: 2.4 – 9.6 A: 2.4 – 9.6 S: 2.3 – 38.4 A: 2.4 – 38.4
	Auto-Secure	Data Bearer	Data Bearer Voice Bearer (non digital) Voice Bearer (digital)	STE STU-III STE	S: 2.4 – 128 A: 2.4 – 38.4 S: 2.4 – 9.6 A: 2.4 – 9.6 S: 2.3 – 38.4 A: 2.4 – 38.4
	Secure-Only	Data Bearer	Data Bearer Voice Bearer (non digital) Voice Bearer (digital)	STE STU-III STE	S: 2.4 - 128 A: 2.4 – 38.4 S: 2.4 – 9.6 A: 2.4 – 9.6 S: 2.3 – 38.4 A: 2.4 – 38.4
PSTN	Any	Analog Line		STU-III	S: 2.4 – 9.6 A: 2.4 – 9.6
TRI-TAC	Any	Digital Line		STU-III	S: 2.4 – 9.6 A: 2.4 – 9.6
BDI	Any	Point-to-Point EIA-530A EIA-232		STU-III	S: 2.4 – 9.6 A: 2.4 – 9.6

**5.1.2. Crypto Card Insertion/Removal**

- In general, you should insert a crypto card before initiating or answering secure calls. Place the crypto card in the CARD SLOT at the front of the STE. The CARD INSERTED Indicator is lit when a crypto card is inserted and engaged.
- The STE may prompt you to insert a Crypto Card (e.g., if you answer a call and the calling party attempts to go secure).

- When a crypto card is inserted during a call, the STE will automatically initiate card processing. For the five seconds the terminal is processing the crypto card, the front panel display will flash on and off.

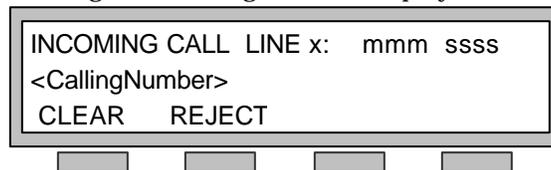
## CAUTION

**Do not remove the crypto card while you are in an active call or if you are off hook. If you do so, you may have to reset the STE Terminal, using MODE+MUTE, to return it to normal operation.**

- When you have completed using the STE (your calls are completed and you will not use the phone again, or it's the end of the day or shift) set it to an idle condition. Remove your crypto card by pressing the CRYPTO CARD EJECTOR BUTTON on the front of the STE. The card will pop out and the CARD INSERTED indicator will stop glowing.

## 5.1.3. Answering a Call

1. When your STE is receiving an incoming call, the display will show:



Where on:

Line 1:

“x” = the number of the CALL button. This can be 1 thru 4, corresponding to the CALL1 thru CALL4 appearance buttons/indicators. The indicator of the incoming line will be flashing (on 0.5 seconds, off 0.5 seconds).

“mmm” = the application type (NSV = Non-secure Voice, SV = Secure Voice, SD = Secure Data). Note: SD will appear only if the STE is set for data only.

“ssss” = application rate (2.4, 4.8, 32, 64, etc. Kbps).

Line 2:

<Calling Number> = if available, the area code and telephone number of the calling party (caller ID) if available.

Line 3:

CLEAR and REJECT soft-keys are only available on ISDN networks

Display (Line 1) Examples:

- INCOMING CALL LINE 1: NSV 64  
Indicates the incoming call is on line 1 (CALL1) and your STE is strapped “Traditional” on all services.
  - INCOMING CALL LINE 2: SV 32  
Indicates the incoming call is on line 2 (CALL2) and your STE is strapped “Auto-Secure” on ISDN with data bearer service.
  - INCOMING CALL LINE 1: SV 2.4 or SV 4.8  
Indicates the incoming call is on line 1 (CALL1) and your STE is strapped “Auto-Secure” ISDN with audio bearer service or PSTN.
  - INCOMING CALL LINE 2: SD 128  
Indicates the incoming call is on line 2 (CALL2) and your STE is set for Secure Data (strapped “Auto-Secure” with voice disabled).
2. You may answer an incoming call by lifting the handset, pressing the CALL button of the incoming call, or pressing the SPKR button. Calls answered by pressing the CALL button or the SPKR button will be routed to the speakerphone. If the speakerphone function has been disabled, for either the non-secure or secure mode (or both) the call will be connected but not audible. Under this condition, to speak or listen to the far-end, you must lift the handset. Depending upon the configuration of the communicating sets, an answered call may be connected in any of the three call modes (non-secure voice, secure voice, or secure data).

3. To disconnect an incoming call, without answering it, press *REJECT*. If another call is in progress when you have chosen to reject an incoming call, you will be returned to its associated display. (see Paragraph 5.1.3.1.2. , Answer Multiple ISDN Calls With a Call In Progress)
4. To silence the ringer and clear the display, without either answering or disconnecting the incoming call, press *CLEAR* Soft-key. (see Paragraph 5.1.3.1.2. , Answer Multiple ISDN Calls With a Call In Progress)

**NOTE:** If your STE is configured for ISDN and you receive an incoming call, you must either place the call on hold or disconnect your existing call before answering the incoming call.

### 5.1.3.1. Managing Multiple ISDN Calls

If your STE is connected to ISDN, you will normally have at least two lines available (CALL1 and CALL2); you may also have more. The STE provides the capability, for you, to manage multiple calls on the ISDN lines.

#### 5.1.3.1.1. Place Additional ISDN Calls with a Call In Progress

While handling a call (in progress), you can place another call by placing the in-progress call on hold. The sample display below shows the in-progress call on line 1.

NON-SECURE TO: LINE 1 NSV 64  
 1111234567  

SECVOICE
SECDATA

Soft-key	Action Description
<i>SECVOICE</i>	Places STE in Secure Voice mode.
<i>SECDATA</i>	Places STE in Secure Data mode.

To place your second call:

1. Place the present call on hold by pressing the HOLD button. The CALL1 indicator will start flashing (on 0.2 seconds, off 0.8 seconds). A detailed description of Call Hold is available in Paragraph 5.1.5.4. The sample display below shows that the call on line 1 has been placed on hold.

CALL ON HOLD: LINE 1 NSV 64  
 1111234567

2. After your first call is placed on hold, place your second call by pressing the next available CALL button, in this case CALL2. Follow the procedures in Paragraph 5.1.4. , Initiating Calls, to complete the call procedures. The example display below shows the in dial display for a call being made on line 2.

NON-SECURE MODE LINE 2 NSV 64  
 Dial: 4443332222  
 AUTOSEC

- When the distant party answers, display (shown below) will change to show the *SCROLL* soft-key activated.

NON-SECURE TO: LINE 2 NSV 64  
 Dial: 4443332222  

SECVOICE   SECDATA   SCROLL

Soft-key	Action Description
<i>SECVOICE</i>	Places STE in Secure Voice mode.
<i>SECDATA</i>	Places STE in Secure Data mode.
<i>SCROLL</i>	Scroll to next (hold) call display.

*NOTE:* The *SCROLL* soft-key is available when more than one ISDN line is connected (in progress and/or on hold). When *SCROLL* is pressed in any active display, and held for at least 3 seconds, you will scroll to the next active display. In this case, the *HOLD* display in step 1 above will also show the *SCROLL* soft-key.

- When you have completed your second call, hang up and return to your first call (presently on hold) by pressing the *CALL1* button. The sample display below shows the call on line 1.

NON-SECURE TO: LINE 1 NSV 64  
 1111234567

- When you have completed the call on line 1, disconnect the call in a normal manner (pressing the *CALL1* button, placing the handset back in the cradle, or pressing the speakerphone button).

### 5.1.3.1.2. Answer Multiple ISDN Calls With a Call In Progress

While handling a call on line 1, you receive a call on another line. The sample display below shows the present (in-progress) call on line 1.

NON-SECURE TO: LINE 1 NSV 64  
 1111234567  

SECVOICE   SECDATA

The sample display below shows an unanswered call on line 2.

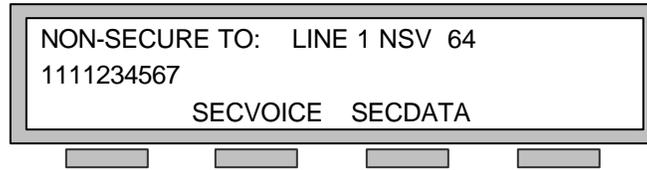
INCOMING CALL ON: LINE 2 NSV 64  
 2224567890  

CLEAR   REJECT

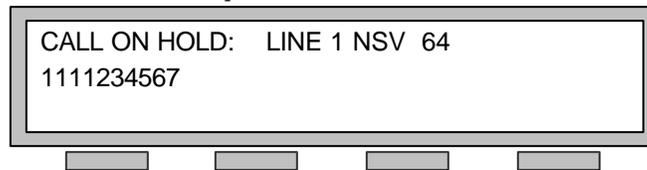
Soft-key	Action Description
<i>CLEAR</i>	Clear display.
<i>REJECT</i>	Rejects the call (disconnects caller)

You can choose to ignore the call (not answer it) or you can answer it.

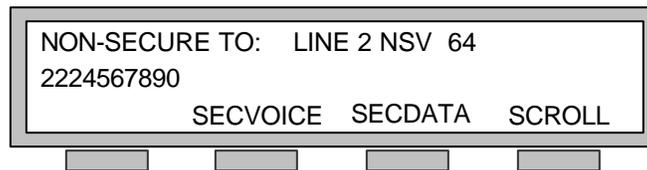
1. If you choose to ignore the call, press *REJECT*. The new call will be disconnected and you will be returned to the display associated with the call in progress. The sample display below shows the in-progress call on line 1.



2. To silence the ringer and clear the display without either answering or disconnecting the incoming call, press *CLEAR*. You will be returned to the display associated with the in-process call.
3. If you choose to answer the call, the call in progress must be placed on hold. First, press the *CLEAR* soft-key, then press the HOLD button. The CALL1 indicator will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. The display below shows the original call, on line 1 (CALL1), has been placed on hold.

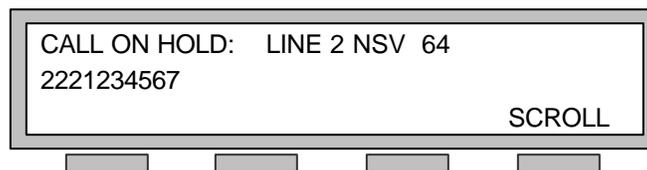


4. When the first call is on hold, press the CALL button of the new incoming call, in this case CALL2. The sample display below shows the new in-process call on line 2.



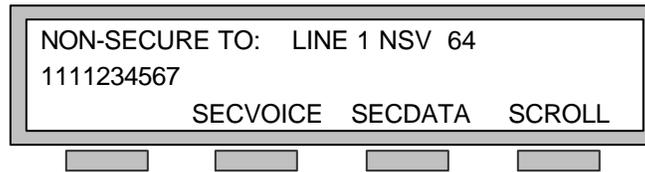
**NOTE:** The *SCROLL* soft-key is available when more than one ISDN line is connected (in progress and/or on hold). When *SCROLL* is pressed in any active display, and held for at least 3 seconds, you will scroll to the next active display. If you press *SCROLL* in this case, the HOLD display in step 2 above will be displayed and also shows the *SCROLL* soft-key activated.

- (a) If the new call is more important than the call on hold, your options are to continue holding the first call and complete your new task, or terminate the first call.
  - (1) If you choose to terminate the call holding on line 1, the line 2 in-process call must be placed on hold by pressing the HOLD button. The sample display below shows the line 2 call on hold.

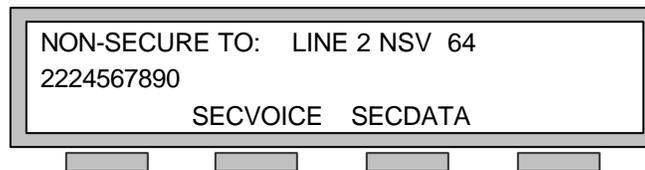




- (2) With CALL2 on hold, press the CALL1 button. The sample display below shows the line 1 call in an active status.



- (3) Disconnect the line 1 call in the normal manner.
- (4) With line 1 disconnected, press the CALL2 button to retrieve the call from hold. The sample display below shows the line 2 call in an active status. Note that the



SCROLL soft-key has been removed from the display.

- (5) When you have concluded your business, hand up in a normal manner.
- (b) If the call on line 2 needs to be transferred to another number/party, refer to Paragraph 5.1.5.5. .
- (c) If the call on line 2 needs to be connected in a conference with another number or the call on line 1, refer to Paragraph 5.1.5.6. .

#### 5.1.4. Initiating Calls

1. General procedures:
  - If you are planning to make a secure call, ensure that a crypto card is inserted and engaged (CARD INSERTED LED is lit).
  - You can go off hook by lifting the handset, pressing a CALL button, or pressing the SPKR button. Calls initiated by pressing a CALL button or the SPKR button will be routed to the speakerphone.
  - You may enter a telephone number via the KEYPAD, SPEED DIAL, or REDIAL.
2. In general, the procedures for initiating a call depend on:
  - Your network connection (ISDN, PSTN, TRI-TAC, EIA-530A/EIA-232 BDI)
  - The strapping mode of your STE (Auto-Secure, Traditional, Secure-Only)
  - The type of call (Non-Secure Voice = NSV, Secure Voice = SV, Secure Data = SD)

##### 5.1.4.1. Procedures for Initiating ISDN Calls

Quality of Service is addressed in Paragraph 5.1.4.1.1. . Procedures and supporting displays for placing an ISDN call are presented in Paragraph 5.1.4.1.2. .

##### 5.1.4.1.1. Achieving the Highest Quality of Service

In order to insure the highest Quality of Service (when calling another STE), calls must be initiated in secure mode. When calls are initiated in secure mode, the STE attempts to obtain a data service and provide fast security establishment, quality ADPCM secure voice and synchronous data rates to 128 kbps (asynchronous rates to 38.4 kbps). When calls are initiated in non-secure mode, the STE obtains a voice service, which may or may not support improved STE modes. On a voice service, your best case secure performance will be fast security establishment, quality ADPCM secure voice, and secure data up to 38.4 kbps. If the voice service does not support the best case (digital signaling) or the VBSCT test is disabled, you will have slower call setup, CELP encoded secure voice and up to 9.6 kbps secure data.

Although the highest Quality of Service is obtained by placing initially secure calls and obtaining data bearers, there may be other advantages to initially placing non-secure calls. Supplementary services such as "call hold" and "transfers" are not generally supported on data service. Your carrier may charge you a per minute connection fee on data service. Therefore, security considerations aside, you may prefer to place non-secure calls, especially if they generally support higher quality modes and you do not plan to exchange synchronous data.

5.1.4.1.2. ISDN Call Procedures and Displays

1. Upon going off hook, STE will display one of the screens shown in Table 5.3, depending on the Strapping Mode.
2. Follow the procedures in Table 5.4 depending on the call type.

**Table 5.3. Opening Screens for Initiating ISDN Calls**

Strapping	Opening Screen
Auto-secure	<div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 80%;">                     AUTO-SECURE MODE LINE x: mmm ssss                      Dial: p&lt;Called Number&gt;                      NONSEC SECDATA                 </div> <div style="text-align: center; margin-top: 5px;"> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc;"></span> </div>
Traditional	<div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 80%;">                     NON-SECURE MODE LINE x: mmm ssss                      Dial: p&lt;Called Number&gt;                      AUTOSEC                 </div> <div style="text-align: center; margin-top: 5px;"> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc;"></span> </div>
Secure-Only	<div style="border: 1px solid black; padding: 5px; margin: 5px auto; width: 80%;">                     SECURE ONLY MODE LINE x: mmm ssss                      Dial: p&lt;Called Number&gt;                      SECDATA                 </div> <div style="text-align: center; margin-top: 5px;"> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc; margin-right: 10px;"></span> <span style="display: inline-block; width: 20px; height: 10px; background-color: #ccc;"></span> </div>

Where:

- x = Line being used for the call
- mmm = application type (NSV = Non-Secure Voice; SV = Secure Voice; SD = Secure Data)
- ssss = Application rate (2.4, 4.8, 9.6, 19.2, 32, 38.4, 56, 64, 112, or 128 kbps)
- p = Precedence Indicator (FO = Flash Override, F = Flash, I = Immediate, P = Priority, blank = Routine)
- Called Number: = the number being called, user input

**Table 5.4. Procedures for Initiating ISDN Calls**

Mode	Call Type	Procedures
Auto-Secure	Non-secure Voice	After going off hook and receiving a dial done, change the call initiation mode to non-secure mode by pressing <i>NONSEC</i> . NOTE 1. Enter the number you wish to call.
	Secure Voice	Enter the number you wish to call. Once a secure connection has been established, your STE will display the identification information of the call. NOTE 2.
	Secure Data	Change the secure application to data by pressing <i>SECDATA</i> . NOTE 1. Enter the number you wish to call. Once a secure connection has been established, your STE will display the identification information of the call. NOTE 2.
Traditional	Non-secure Voice	Enter the number you wish to call.
	Secure Voice	After going off hook and receiving a dial done, change the call initiation mode to secure mode by pressing <i>AUTO-SEC</i> . NOTE 1. Enter the number you wish to call. Once a secure connection has been established, your STE will display the identification information of the call. NOTE 2.
	Secure Data	After going off hook and receiving a dial done, change the call initiation mode to secure mode by pressing <i>AUTO-SEC</i> . NOTE 1. Change the secure application to data by pressing <i>SECDATA</i> . NOTE 1. Enter the number you wish to call. Once a secure connection has been established, your STE will display the identification information of the call. NOTE 2.
Secure-Only	Non-Secure Voice	Not possible if STE is strapped for Secure-Only.
	Secure Voice	Enter the number you wish to call. Once a secure connection has been established, your STE will display the identification information of the call. NOTE 2.
	Secure Data	After going off hook and receiving a dial done, change the call initiation mode to data by pressing <i>SECDATA</i> . NOTE 1. Enter the number you wish to call. Once a secure connection has been established, your STE will display the identification information of the call. NOTE 2.

**NOTES:**

1. Once dialing has begun, the call initiation mode cannot be changed until the call is connected.
2. To view additional security information about the call press *SCROLL*. Information that cannot be validated (e.g., Caller ID) is enclosed by parenthesis.

**5.1.4.2. Procedures for Initiating PSTN Calls**

1. Upon going off hook, STE will display the screen shown in, depending on the Strapping Mode.
2. Follow the procedures in Table 5.6, depending on the call type.

**Table 5.5. Opening Screens for Initiating PSTN Calls**

Strapping	Opening Screen
Auto-secure	
Traditional	
Secure-Only	

Where:

- x = Line being used for the call
- mmm = application type (NSV = Non-Secure Voice)
- ssss = Application rate (64 Kbps)

**Table 5.6. Procedures for Initiating PSTN Calls**

Mode	Call Type	Procedures
Auto-Secure	Non-secure Voice	After going off-hook, press <i>NONSEC</i> . Enter the number you wish to call.
	Secure Voice	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECVOICE</i> . NOTE 2.
	Secure Data	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECDATA</i> . NOTE 2.
Traditional	Non-secure Voice	Enter the number you wish to call.
	Secure Voice	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECVOICE</i> . NOTE 2.
	Secure Data	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECDATA</i> . NOTE 2.
Secure-Only	Non-Secure Voice	Not possible if STE is strapped for Secure-Only.
	Secure Voice	Enter the number you wish to call. After call is established, press <i>SECVOICE</i> . NOTE 2.
	Secure Data	Enter the number you wish to call. After call is established, press <i>SECDATA</i> . NOTE 2.

NOTES:

1. Non-secure call must be made before going secure.
2. To view additional security information about the call press *SCROLL*. Information that cannot be validated (e.g., Caller ID) is enclosed by parenthesis

5.1.4.3. Procedures for Initiating TRI-TAC Calls

3. Upon going off hook, STE will display the screen shown in
1. Table 5.7, depending on the Strapping Mode.
2. Follow the procedures in Table 5.8 depending on the call type.

**Table 5.7. Opening Screens for Initiating TRI-TAC Calls**

Strapping	Opening Screen
Auto-secure	
Traditional	
Secure-Only	

Where:

- x = Line being used for the call
- mmm = application type (NSV = Non-Secure Voice)
- ssss = Application rate (64 kbps)

In Table 5.8 the procedures assume both STEs (calling and called) are connected on the TRI-TAC network. Also, refer to Note 3 following the table.

**Table 5.8. Procedures for Initiating TRI-TAC Calls**

Mode	Call Type	Procedures
Auto-Secure	Non-secure Voice	After going off-hook, press <i>NONSEC</i> . Enter the number you wish to call.
	Secure Voice	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECVOICE</i> . NOTE 2.
	Secure Data	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECDATA</i> . NOTE 2.
Traditional (Note 3)	Non-secure Voice	Enter the number you wish to call.
	Secure Voice	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECVOICE</i> . NOTE 2.
	Secure Data	Enter the number you wish to call. NOTE 1. After call is established, press <i>SECDATA</i> . NOTE 2.
Secure-Only	Non-Secure Voice	Not possible if STE is strapped for Secure-Only.
	Secure Voice	Enter the number you wish to call. After call established, press <i>SECVOICE</i> . NOTE 2.
	Secure Data	Enter the number you wish to call. After call established, press <i>SECDATA</i> . NOTE 2.

NOTES:

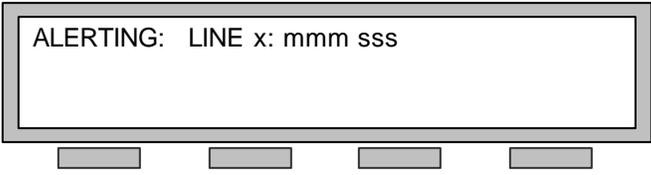
1. Non-secure call must be made before going secure.
2. To view additional security information about the call press *SCROLL*. Information that cannot be validated (e.g., Caller ID) is enclosed by parenthesis.
3. When the initiator of a call is strapped in Traditional Mode, it is also possible to make secure calls between TRI-TAC and PSTN STEs. The STE dialing procedure depends on the network configuration and on the dialing process required by the associated network switch. See Paragraph 5.1.4.5.4.1. for details.

5.1.4.4. Procedures for Initiating BDI Calls

The EIA-530A/EIA-232 BDI interface provides for a single point-to-point connection between STEs. Therefore, no dialing is required.

1. Upon going off hook, a point-to-point connection with the far-end is established. During the connection establishment period, the STE first displays the "ALERTING: Line X mmm sss" screen shown in Table 5.9. Operation is automatic and no user options are available during this call establishment period.
2. The security level established for the call is dependent on the strapping of both STEs (Traditional, Auto-Secure, or Secure-Only) and on parameters set into the STEs (preferred vocoder type, data rate).
3. At the conclusion of the initial call establishment period the display will indicate the security status of the call and you will be presented with available secure and/or non-secure call options.
4. Follow the procedures in Table 5.10, depending of the call type.

**Table 5.9. Opening Screens while Initiating BDI Calls**

Strapping	Opening Screen
Auto-secure	
Traditional	
Secure-Only	

Where:

- x = Line being used for the call
- mmm = application type (NSV = Non-Secure Voice; SV = Secure Voice; SD = Secure Data)
- sss = Application rate (2.4, 4.8, or 9.6 kbps)

**Table 5.10. Procedures for Initiating BDI Calls**

Mode	Call Type	Procedures
Auto-Secure	Non-secure Voice	After call is established, press <i>NONSEC</i> . However, if far-end is strapped Secure-Only, establishment of NSV will not be permitted
	Secure Voice	After call is established, far-end strapping will determine whether (1) the call automatically proceeds to Secure Voice or (2) you have to press <i>SECVOICE</i> .
	Secure Data	After call is established, far end strapping will determine whether (1) the call automatically proceeds to Secure Data or (2) you have to press <i>SECDATA</i> .
Traditional	Non-secure Voice	If far-end is strapped Traditional, the initial call is established as the desired NSV. If far-end is strapped Auto-Secure, you will need to press <i>NONSEC</i> after the initial (secure) call establishment. If far-end is strapped Secure-Only, establishment of NSV will not be permitted.
	Secure Voice	After call is established, far-end strapping will determine whether (1) the call automatically proceeds to Secure Voice or (2) you will have to press <i>SECVOICE</i> .
	Secure Data	After call is established, far-end strapping will determine whether (1) the call automatically proceeds to Secure Date or (2) you will have to press <i>SECDATA</i> .
Secure-Only	Non-Secure Voice	Not possible if STE is strapped for Secure-Only.
	Secure Voice	After call is established, far-end strapping will determine whether (1) the call automatically proceeds to Secure Voice or (2) you have to press <i>SECVOICE</i> .
	Secure Data	After call is established, far end strapping will determine whether (1) the call automatically proceeds to Secure Data or (2) you have to press <i>SECDATA</i> .

**NOTES:**

1. To view additional security information about the secure call, press *SCROLL*. Information that can not be validated (e.g., Caller ID) is enclosed in parenthesis.

#### 5.1.4.5. Special Dialing Procedures

##### 5.1.4.5.1. Redial

To redial the last number dialed from the keypad press *REDIAL*, while off-hook.

##### 5.1.4.5.2. Speed Dial

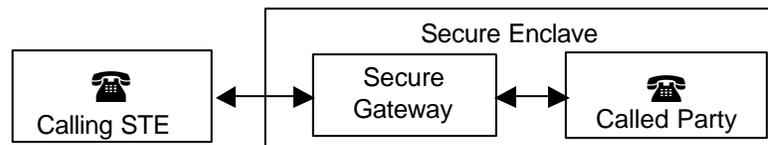
The ten programmable speed dial (repertory) keys allow you to pre-program frequently called telephone numbers. Once programmed you may dial one of these frequently called numbers by simply pressing the associated *SPEED DIAL* key while off-hook. To set, change, or erase a *SPEED DIAL* number, refer to Paragraph 4.7.1. .

### 5.1.4.5.3. Precedence Dialing

If you are connected to a network that supports Multi-Level Precedence Preemption (MLPP), you can set the precedence of your call. By default, your call will have Routine precedence. To place a higher precedence call, take the STE off-hook and select the **PREC** button. Select from the four precedence levels: **FLASH-OV**, **FLASH**, **IMMED**, or **PRIORITY**. When you select a precedence type via a soft-key, you will be returned to the dial display.

### 5.1.4.5.4. Secure Dialing

When using STU-III signaling, if the party you are calling is in a secure enclave guarded by a Secure Gateway, you may need to use Secure Dialing to reach your party.



- Call the Secure Gateway.
- The STE will negotiate a secure connection with the Secure Gateway.
- When you hear a voice prompt or a secondary dial tone, dial the Called Party's extension and press the *SEND* key.

The Secure Dial function supports the use of the following 16 characters: 0-9, \*, and # which are represented as one digit each in the display, and the four precedence dialed characters, FO (Flash Override), F (Flash), I (Immediate), and P (Priority) which are represented as two digits each in the display.

The STE will accept up to 32 digits, in the send queue, before *SEND* must be pressed for their transmission. Memory dialing from the **SPEED KEYS** is accommodated; redial is not. You are allowed 10 seconds between keypad presses before the digit entry process, times-out. If the time elapses you must restart the digit entry sequence. If the far end terminal does not accept secure dial digits, your entries will result in a bad beep. Pressing *ABORT* cancels all digits in the send queue. A mistakenly entered digit may be deleted by pressing *DELETE*. After pressing *SEND* or *ABORT*, or after a 10 second timeout, the STE returns to the parent secure traffic application display.

A receiving STE operating under local control will display up to 64 digits (32 at a time) for 10 seconds. *NEXT/PREVIOUS* soft keys provide you with the ability to extend the 32 digit display to the display 64 digits. Pressing *NEXT* or *PREVIOUS* resets the 10 seconds timer. Pressing *BACK* returns the STE to the parent secure traffic application display.

#### 5.1.4.5.4.1. TRI-TAC Calls To and From PSTN Terminals

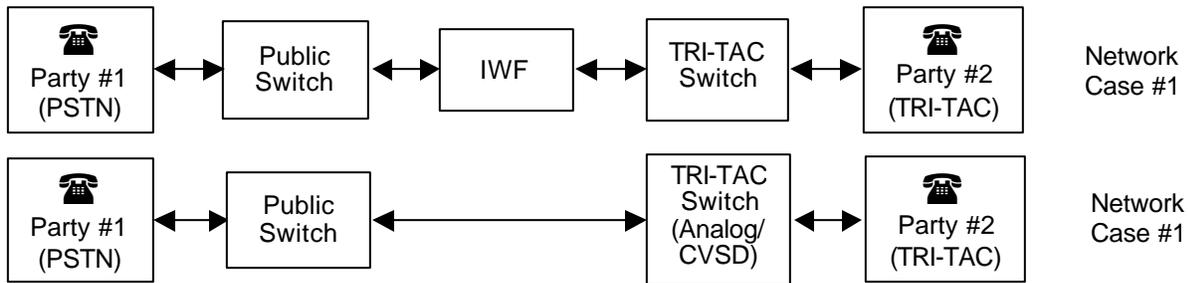
When the initiator of a call is strapped as Traditional, STE TRI-TAC users can place and receive secure calls to/from terminals connected to a PSTN network. Two network configurations are accommodated as shown in the figure below.

Network Case #1 with an Inter-Working Function (IWF) provides the required modulation and network signaling conversions and serves as a secure gateway between PSTN (including ISDN networks) and the TRI-TAC networks. In Network Case #2 without an IWF, the TRI-TAC switch provides modulation conversion only (TRI-TAC CVSD – PSTN analog) and the STEs negotiate a signaling protocol that is compatible with both network types. In both cases (1) and (2), the dialing procedures are similar, but are dependent on the particular network switch dialing requirements. The following is an example of a dialing procedure that requires the dialing of two independent



number sequences. Another switch might only require the dialing of one number sequence which includes a dial code prefix that accesses an appropriate switch output channel.

Example requiring two number dialing:



To place a call either from a TRI-TAC STE or a PSTN STE -

- Call the IWF (Network Case #1), or call the TRI-TAC Switch (Network Case #2).
- Upon hearing the second dial tone, dial the phone number of the Called Party.
- When the two subscribers wish to go secure, follow the normal procedures.

(The STEs will then cause different connectivity signaling to occur depending on whether or not an IWF is present, but the signaling is automatic and no user interaction is required.)

In order to allow for the increased signaling time required for the STEs to establish a common signaling mode, the menu available “STU-III Extended Timeout” should be set to compatible network value. A setting of 2 seconds is adequate for most network configurations, although a specific network configuration may require a long Timeout setting. The “STU-III Extended Timeout” setting adds an additional time allowance before the Initiator assumes that the Call Party is not going to respond, and thereby prevents the Initiator from prematurely going to another step in the signaling sequence.

## 5.1.5. In-Call Operations

### 5.1.5.1. Handset vs Speakerphone

If you are processing a call using the handset, you can switch to Speakerphone mode by pressing the SPKR button and hanging up the handset.

If you are processing a call using the Speakerphone, you can switch to the handset by lifting the handset.

### 5.1.5.2. Change Mode

After the call establishment process is complete, non-secure or secure, you will be provided the option of changing the call mode. To change the call mode, or resynchronize the established secure call, press the appropriate call mode soft-key (i.e., *NONSEC*, *SECVOICE*, or, *SECDATA*). In STE modes, to change from secure voice to secure data, go *NONSEC* and then go *SECDATA*.

### 5.1.5.3. Mute

To silence the handset or speakerphone's microphone, while off-hook, press **MUTE**. When MUTE has been activated, its LED is lit.

### 5.1.5.4. Call Hold

There is no “Call Hold” function available for PSTN, TRI-TAC or BDI. The “Call Hold” function for ISDN is discussed in the following paragraphs.

### 5.1.5.4.1. ISDN Non-Secure Call Hold

To place a call on hold, press HOLD. The CALL indicator associated with the call placed on hold will blink.

- If your ISDN switch supports hold, once a call has been placed on hold you may place or answer other calls. To retrieve a call from hold, press the CALL button associated with that call.
- If your ISDN switch does not support hold, the STE will implement a "Terminal Hold". You cannot place or answer other calls while in "Terminal Hold" (if you attempt to access a second call, you will get a "Terminal Resources Not Available" message on your display). To retrieve the call from hold, press the CALL button associated with the call.

### 5.1.5.4.2. ISDN Secure Call Hold

You may place your secure voice call on hold and then retrieve that call from hold and return to a secure state. The actions are the same as those used for non-secure on-hold described in Paragraph 5.1.5.4.1. However, there are additional displays used to report the secure hold status. The following table summarizes the STE near-end (your STE) and far-end displays when secure-hold is successful and unsuccessful. When entering the "failed" displays, a Bad Beep is also sounded.

<u>Party</u>	<u>Secure On-hold Achieved</u>	<u>Secure On-hold Failed</u>
Near-end	CALL ON HOLD	SECURE CALL FAILED
Far-end	CALL PUT ON HOLD	Not Applicable

<u>Party</u>	<u>Secure Off-hold Achieved</u>	<u>Secure Off-hold Failed</u>
Near-end	(Return to secure voice)	SECURE CALL FAILED or CALL PLACEMENT NOT POSSIBLE
Far-end	(Return to secure voice)	Not Applicable

**NOTE:** You may see two possible displays in a "Secure Off-hold Failed" condition. "SECURE CALL FAILED" is displayed when signaling negotiations between your STE and the far-end failed. "CALL PLACEMENT NOT POSSIBLE" is displayed when there are not adequate STE resources to resume the call. This may occur when there is another secure or non-secure voice call active, or if there are no available ISDN B channels.

When you place a secure call on hold, the far-end user has limited options. The far-end user is not able to take the call off-hold, and may only (1) wait for the near-end to return to the call (take the call off-hold), or (2) go on-hook and disconnect the call.

You may place your secure data call on hold and maintain the connection by first transitioning to non-secure voice and then going on-hold.

Removing the KOV-14 card while in secure-hold will cause the STE to disconnect the call and go into alarm. This action should be avoided if possible.

### 5.1.5.5. Call Transfer

#### 5.1.5.5.1. PSTN Call Transfer

You may be able to transfer a non-secure voice call to another party by using the HOOK FLASH key. Consult your local PSTN network operating instructions.

#### 5.1.5.5.2. ISDN Call Transfer

You may be able to transferring a non-secure call by using the XFER key. Consult your local ISDN network operating instructions. Generally, to transfer a call:

- Press the XFER button. You will get a dial tone.
- Call the party you want to transfer the call to, and when the party answers, press the XFER button.

If you are connected to a DMS-100 switch, use the following procedure:

- Press the CONF button. You will get a dial tone.
- Call the party you want to transfer the call to, and when the party answers you can hang up.

#### 5.1.5.6. Conference Calls

##### 5.1.5.6.1. PSTN Conference Calls

You may be capable of holding a non-secure conference call by using the HOOK FLASH key. Consult your local PSTN network operating instructions.

##### 5.1.5.6.2. ISDN Conference Calls

You may be capable of holding a non-secure conference call by using the CONF key. Consult your local ISDN network operating instructions. Generally, to add a third party to your call:

- Press the CONF button. You will get a dial tone.
- Call the party you want to add to the conference call. When the party answers, press the CONF button.

#### 5.1.5.7. Volume Control

Adjust the ringer, handset and speakerphone volume, by pressing the VOLUME up (▲) and down (▼) up keys.

- Ringer volume is adjustable while the STE is ringing.
- Handset (speakerphone) volume is adjustable while the handset (speakerphone) is in use.
- Volume adjustments, made during ringing or during a call, will be maintained for subsequent calls until readjusted.

#### 5.1.5.8. Sidetone Control

This feature provides you with the ability to enable or disable sidetone. Sidetone disable is for use in the application of the STE as a front-end terminal for a DRSN (Defense Red Switch Network).

Sidetone Enabled or Disabled is selectable from the STE Configuration Menu, with or without a KOV-14 card inserted. The factory default for the Sidetone Control feature is "Enable".

#### 5.1.5.9. Terminating a Call

When your voice call is completed, place the handset in the cradle or if in speakerphone mode with the handset in cradle, by pressing SPKR.

When your data call is completed, disconnect by pressing the CALL button.

#### 5.1.6. 8510 Features

The STE, when connected to a 5ESS Switch configured for 8510 operation (such as TEMPO switches), operates in a manner similar to the Lucent Model 8510 non-secure ISDN voice terminal. These NSV features are listed below. Consult your Model 8510 manual for their descriptions. The features will also operate when the terminal is set to auto-answer. In addition to implementing 8510

feature buttons, the STE provides a voice mail indicator on its display (an alternating "V" and "M" for "Voice Mail") when connected to an appropriately configured 5ESS-8510 switch.

NOTE: The Definity 8510 setting does not emulate the 5ESS Model 8510 features. Nor are the features that depend upon the STE to respond to an Adjunct Control Message from the switch supported (due to security restrictions the STE will not respond to a switch request to go off-hook). The features are also not available in Remote Mode.

**BASIC SEND SERVICES**

- Place a Voice Bearer call
- Place a call using redial
- Place a repeat call
- Place a return call
- Place an Intercom call
- Place a second call
- Place 3-way Conference Call
- Place 6-way Conference Call
- Call Transfer
- Place a call on hold
- Answer a Voice Bearer call
- Call Pickup
- Receive an Intercom Call (special ring)
- Answer a second call
- Reject an incoming call
- Inspect current incoming call

**TERMINATING A CALL**

- End a call
- Drop

**CALL FORWARDING**

- Program Call Forward All
- Activate/Deactivate Call Forward All
- Activate/Deactivate No Answer
- Program Call Forward Busy
- Program Call Forward No Answer
- Activate/Deactivate Call Forward Busy
- Multiple Call Appearances (up to 8)
- Shared Call Appearances (up to 6)
- Activate/Deactivate Call Exclusion
- Voice Mail Indicator
- Variable Ringing
- Call Back Special Ring
- Inspect Any Assigned Feature Key
- Private Number

Standard templates have been defined for STE operating in 8510 mode on the TEMPO system. These templates define the feature buttons as follows (refer to Figure 3.2):

Button #1 (Call 1)	Primary Call Appearance
Button #2 (Call 2)	Primary Call Appearance
Button #3 (Call 3)	Primary Call Appearance
Button #4 (Call 4)	Secondary Call Appearance
Button #5 (Precedence)	Secondary Call Appearance
Button #6 (Hook Flash)	Secondary Call Appearance
Button #7 (below Hook Flash)	Manual Call Exclusion
Button #8 (below Button #7)	Intercom
Button #9 (Speed Dial 8)	Call Forward All
Button #10 (Speed Dial 9)	Inspect

You may request a TMPSTE03 template, from your service provider, for your BRI service which will support secure voice and secure data at rates up to 64 kbps. You may also request templates TMPSTE03 and TMPSTE04 for your BRI service if you will be using synchronous data at rates above 64 kbps. The two-template configuration provides two SPIDs and two telephone numbers. However, the STE only supports the second telephone number being used internally (for bonding of B-channels to obtain synchronous data rates of 112 kbps and 128 kbps), and it should not be used by others to place calls to you.

*The 10 speed dial keys may each be programmed for a desired telephone number. However, if you program a telephone number into the 8 or 9 positions you will lose the 8510 functions. These functions will be recovered when the telephone numbers are removed from the speed dial keys.*

**5.1.6.1. 8510 Calls**

Single and multiple calls can be handled using either the handset or speakerphone. However, when the speakerphone is used for multiple calls a "2-button" operation may be needed. On the other

hand, using the handset requires only a "1-button" operation. The button operations are described below.

The 8510 may be configured in one of two preference variables, Ring or Idle, at the time of installation. The "Ring Preference" option allows the STE to function as a normal multi-line telephone when answering an incoming call. The "Idle Preference" option forces the STE to select the next available idle line when answering a call.

### 5.1.6.1.1. Answering an Incoming 8510 Call

When your STE is configured for 8510 operations and it is receiving an incoming call, the display will look similar to the example display below prior to picking up the handset.

INCOMING CALL ON: LINE<sub>n</sub> NSV 64  
 <calling number>  
 CLEAR

Soft-key	Action Description
CLEAR	Clear display.

Where on:

- Line 1: INCOMING CALL ON: LINE<sub>n</sub> NSV 64  
 n = the number of the Primary Call Appearance on **8510 BUTTONS 1-3** (CALL1-3) or Secondary Call Appearance on **8510 BUTTONS 4-6** (CALL4, PREC, and HOOKFLASH). The indicator of the incoming line will be flashing (on 0.5 seconds, off 0.5 seconds)  
 NSV = Non-secure Voice  
 64 = application rate or 64Kbps

Line 2: <calling number> = if available, the area code and telephone number of the calling party (caller ID if available).

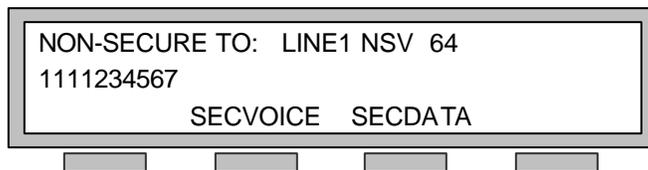
Line 3: CLEAR soft-key.

1. If the incoming call is the only call on your STE, it may be answered by lifting the handset or pressing SPKR. If the call is answered by pressing the SPKR button, the call will be routed to the speakerphone
2. When the call is answered, the incoming call screen changes to show that the call is now active as shown in the example below.

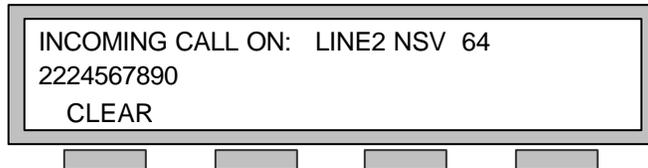
NON-SECURE TO: LINE1 NSV 64  
 1111234567  
 SECVOICE SECDATA

### 5.1.6.2. Manage Multiple 8510 Calls

While handling a call on one line, you can answer a new incoming call using either the handset or speakerphone. The sample display below shows the present (in-progress) call on line 1.



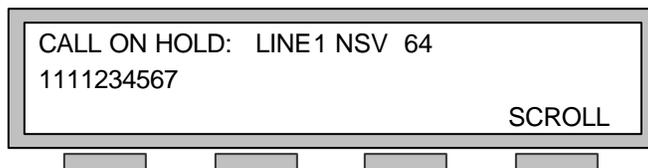
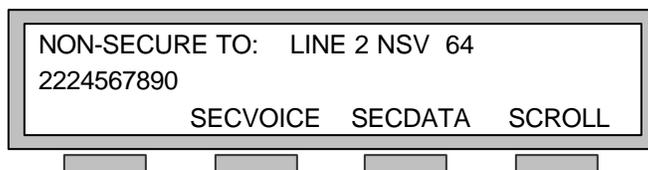
The sample display below shows the new unanswered incoming call on line 2.



#### Manage multiple calls using the handset.

To answer an incoming call with a call in progress, or to switch between calls, two methods are available. You can use the 8510 automated features by pressing the **8510 BUTTONS**, or you can use the manual method by pressing HOLD and the **8510 BUTTONS**.

1. **8510**. Press the associated **8510 BUTTON**.  
 This action automatically places the in-progress call on hold and makes the new call available in the handset. The indicator associated with the call placed on hold will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. To switch between (toggle) calls simply press the **8510 BUTTONS** associated with the calls. The first sample display below shows the new in-progress call (on line 2) after the original call on line 1 (**8510 BUTTON 1**, STE CALL1 button), was automatically placed on hold. The second shows the HOLD display for the call placed on hold.
2. **HOLD**. Press *CLEAR*, HOLD and then the **8510 BUTTON** of the new incoming call.  
 Pressing *CLEAR* and HOLD placed the in-progress call on hold and its associated indicator will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. Pressing the **8510 BUTTON** made the new call available in the handset. You can also use this process to switch (toggle) between calls. However, you can also switch between calls using the process described in step 1 above. The first sample display below shows the new in-progress call on line 2 after the original call on line 1 (**8510 BUTTON 1**, STE CALL1 button), was placed on hold. The second shows the HOLD display for the call placed on hold.



**NOTE:** The *SCROLL* soft-key is made available when more than one line is connected (in progress and/or on hold). When *SCROLL* is pressed and held for three seconds, in any active display, you will scroll to the next active display.

**Manage multiple calls using the speakerphone.**

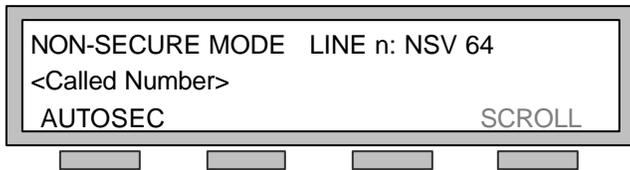
To answer an incoming call, with a call in progress, or to switch between calls, two methods are available. You can use the **8510 BUTTONS** and SPKR or you can use the manual method by pressing HOLD, the **8510 BUTTONS** and SPKR.

1. **8510**. Press the associated **8510 BUTTON**.  
 This action automatically places the in-progress call on hold and makes the new call available in the speakerphone. The indicator associated with the call placed on hold will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. To switch between (toggle) calls simply press the **8510 BUTTONS** associated with the calls. The displays are the same as shown for handset operations hold.
2. **HOLD**. Press **CLEAR**, HOLD, the **8510 BUTTON** of the new incoming call, and finally SPKR.

Pressing **CLEAR** and HOLD placed the in-progress call on hold and its associated indicator will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. Pressing the **8510 BUTTON** and SPKR makes the new call available in the speakerphone. You can also use this process switch (toggle) between calls. However, you can also switch between calls using the process described in step 1 above. The displays are the same as shown for handset operations hold.

**5.1.6.3. Placing Outgoing 8510 Calls**

To place an outgoing call on a primary number, with no other activity on the STE, simply go off hook by picking up the handset or pressing SPKR. Then dial the desired number by entering the number on the keypad or pressing the appropriate speed dial button. If a secondary number is to be used to place the call, press the desired **8510 BUTTON** then pick the handset or press The sample display below represents a typical dial screen.



Where on:  
 Line 1:

**n** = the number of the Primary Call Appearance on **8510 BUTTONS 1-3** (CALL1-3) or Secondary Call Appearance on **8510 BUTTONS 4-6** (CALL4, PREC, and HOOKFLASH)  
 NSV = Non-secure Voice  
 64 = application rate or 64Kbps

Line 2:

<called number> = displays, digit by digit, the number dialed from the keypad or a speed dial button

Line 3:

**AUTOSEC** soft-key if the STE is strapped traditional.  
 When more than one line is active, the **SCROLL** soft-key becomes available.

**Making calls, with a call in-progress, using the handset or speakerphone.**

1. **8510**. Press the **8510 BUTTON** associated with an available line and dial the desired telephone number from the keypad or speed dial.  
 This action automatically places the in-progress call on hold and makes a line available for dialing. The indicator associated with the call placed on hold will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. To switch between (toggle) calls simply press the **8510 BUTTONS** associated with the calls.

2. HOLD with Handset in use. Press HOLD and then press the **8510 BUTTON** associated with an available line. Dial the desired telephone number from the keypad or speed dial. Pressing HOLD places the in-progress call on hold and its associated indicator will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. Pressing the **8510 BUTTON** makes the line available for dialing.
3. HOLD with Speakerphone in use. Press HOLD; press the **8510 BUTTON** associated with an available line, and then press SPKR. Dial the desired telephone number from the keypad or speed dial. Pressing HOLD places the in-progress call on hold and its associated indicator will flash (on 0.2 seconds and off 0.8 seconds) during the hold period. Pressing the **8510 BUTTON** and SPKR made the line available for dialing.

#### 5.1.6.4. Call Disconnect

Call can be disconnected by hanging up the handset or pressing SPKR.

#### 5.1.7. Call Failures

Non-secure and secure calls made from, or received by, your STE may fail for a number of reasons.

Table 5.11 lists the reasons and the associated STE displays. Depending upon the terminal configuration and the nature of the failure, you may or may not be provided an option for continuing the call.

**Table 5.11. STE Call Failures and Displays**

Call Failure	STE Display
No available ISDN connection	NETWORK REJECTED CALL Please Hang up
No common key material between terminals	SECURE CALL FAILED INCOMPATIBLE KEY
Security association signaling timeout	SECURE CALL FAILED TIMEOUT
Incompatible secure terminal	SECURE CALL FAILED SECURITY INCOMPATIBILITY
Incompatible security levels between terminal	SECURE CALL FAILED SECURITY INCOMPATIBILITY
Incompatible secure applications between terminals	SECURE CALL FAILED SECURITY INCOMPATIBILITY
Far-end terminal credentials not on Access Control List (ACL)	SECURE CALL FAILED FAR KEY NOT ON ACL
Far-end key on compromised key list (CKL)	SECURE CALL FAILED FAR KEY COMPROMISED
Far-end key expired	SECURE CALL FAILED FAR KEY EXPIRED
Failure processing far-end invalid cryptographic security material (not operational key)	SECURE CALL FAILED FAR KEY INVALID
General call failure	SECURE CALL FAILED
	SECURE CALL FAILED TERMINAL RESOURCES NOT AVAILABLE
	SECURE CALL FAILED LOCAL KEY EXPIRED (REKEY DUE)



## CHAPTER 6. DATA OPERATIONS

### 6.1. GENERAL INFORMATION

The STE terminal has a powerful and easy to use data communications capability. Your STE is compatible with most PCs and facsimile machines available today. However, some manufacturers do not provide a direct RS232 or EIA-530A interface. Interfacing with some devices may require special cables, adapter units, and attention to detail. Refer to Chapter 2. for installation details.

### 6.2. DATA MODES

Table 6.1 shows which data modes are achievable by the STE on each network type. All STE terminals are interoperable with each other in all modes.

**Table 6.1. STE Secure Data Modes**

Communications Modes	Data Modes	Data Rate (Kbps)	Network
STE	Sync	128 (1)	ISDN
STE	Sync	112 (1)	ISDN
STE	Sync	64	ISDN
STE	Sync	56	ISDN
STE	Sync/Async	38.4	ISDN
STE	Sync/Async	19.2	ISDN
STE	Sync/Async	9.6	ISDN
STE	Sync/Async	4.8	ISDN
STE	Sync/Async	2.4	ISDN
STU-III	Sync/Async	9.6 (2)	ISDN, PSTN, TRI-TAC, BDI
STU-III	Sync/Async	4.8 (2)	ISDN, PSTN, TRI-TAC, BDI
STU-III	Sync/Async	2.4	ISDN, PSTN, TRI-TAC, BDI

#### NOTE

(1) The 128 and 112 kbps data rates are achieved by splitting and sending the data stream over two bonded STE/ISDN channels. The two bonded channels are established by the initiating STE making two phone calls, i.e., one to establish the first channel and one to establish the second channel. The user only makes the first phone call. The STEs accomplish the second call automatically. During the establishment of the first call, the far-end sends the phone number of the second (bonded) channel to the initiating STE, the initiating STE calls the number, and the second channel and full data rate are thereby established. In the event of a "busy" at the far-end, the STEs support the forwarding of the call to voice mail (if the far-end switch is so configured). Again, with the exception of a slightly longer call set-up time, the establishment of the second channel and the final full data rate is transparent to the user.

(2) While in STU-III mode, the data rate selected for the STE data port does not guarantee that a connection at that speed will be made, as line conditions affect the data rate at which communication to the far end can be established. Poor line conditions could cause the STEs to establish a secure connection at a data rate that is lower than that set for the data port. The connect data rate is displayed to the user.

### 6.3. DATA AUTO-ANSWER

Auto-answer provides you with the capability to have the STE automatically handle incoming Type 1 secure data calls when the terminal is unattended.

Auto-answer operation is allowed in both the Local (control via the front panel) mode and Remote (control via the Host Port) mode. The auto-answer capability is enabled via a Terminal Management menu selection. Once auto-answer has been enabled, you may select the number of rings before the call is automatically answered.

Auto-answer will not be activated if a valid associated crypto card with Type 1 key is not present in the STE.

If your STE is set for local front panel operation, the Current TPA must configure your STE with the Secure Data Application ENABLED and with the Secure Data ACL ENABLED (and not empty).

If your STE is set for remote control operation, the Current TPA must configure your terminal with the Secure Data Application ENABLED, and with the Secure Data ACL ENABLED (and not empty) or with Remote Authentication ENABLED.

### 6.4. DATA REMOTE CONTROL

When operating in the Remote Control mode, the STE can transmit and receive secure data at any of the available data rates and modes that are compatible with your network setting.

Remote control will default to asynchronous 38.4 Kbps and is backward compatibility with STU-III data rates by using flow control.

The activation and use of the STE in Remote Control Mode is described in the following sections.

#### 6.4.1. Activating Data Remote Control

Remote Control of the STE is activated via a two-step process.

- The Current TPA for the terminal must perform the first step, Enabling Remote Control. The TPA can enable or disable remote control by modifying Terminal Privileges from within the Terminal Management/Terminal Privileges menu.
- Once your STE has been Remote Control ENABLED by the TPA, all users will be provided with a Terminal Control Setting (FRONT PANEL or HOST PORT) Menu Option as a Terminal Management menu selection. Selection of HOST PORT will cause your STE to accept and respond to "AT" commands received via its RED SERIAL DATA PORT.

When in Remote Control Mode, the STE requires that the Secure Data Application is ENABLED and that either, the Secure Data ACL is ENABLED or that Remote Authentication is ENABLED.

#### 6.4.2. Data Remote Authentication

Remote Authentication provides the capability for the STE to authenticate far end key material and make access control decisions (via the AT+C1 command).

The Current TPA for your terminal must activate the Remote Authentication function. The TPA enables remote authentication by setting Remote Authentication to ENABLE. Modifying Terminal Privileges from within the Terminal Management/Terminal Privileges menu performs this action. Remote Authentication is automatically preset to ENABLE when the TPA enables remote control.

Remote Authentication is only active when the STE is in the Remote Control mode (Remote Control: ENABLED and Terminal Control Setting: Host Port).

### 6.4.3. Data Remote Control States

When your STE is in the Remote Control mode, the STE can be in any one of the following four states:

- Command State (asynchronous)
- Connecting State (call setup)
- Asynchronous On-line State (asynchronous data transfer)
- Synchronous On-line State (synchronous data transfer)

The following paragraphs describe how your STE is capable of transitioning to/from each state and provides an overview of the capabilities within each state.

#### 6.4.3.1. Data Command State

When your STE's Control Setting is changed to Host Port and the terminal is on-hook, the STE is ready to answer calls and to accept any of the valid commands described in Paragraph 6.4.5. The STE will also accept commands under the following circumstances:

- Following receipt of the escape code when transferring asynchronous data
- Following the deactivation of the DTR signal at the host port interface when transferring either synchronous or asynchronous data
- Following call failure when connecting to a far end terminal
- When a call is disconnected

Remote Control commands and responses are transmitted between the STE and a DTE asynchronously.

#### 6.4.3.2. Data Connect State

The STE will attempt to connect to a far end terminal following receipt of a dial command via the Host Port interface or when answering an incoming call. The information that is returned to the control device by the STE during the connection process is controlled by the configuration that you have established via AT commands prior to the call establishment.

#### 6.4.3.3. Data On-Line States

When the STE has connected to a far end terminal it will be capable of transmitting and receiving either asynchronous or synchronous data. When data communication is terminated (as previously described), the STE will return to the Command State.

### 6.4.4. Data Display Messages

The STE provides you with the ability to control the types and formats of response message that are sent from the STE to the DTE (your PC). This control is provided via execution of one or more of the AT commands listed in Table 6.2. The short form and verbose form response messages are listed in Table 6.3.

**Table 6.2. Configuration Commands**

Command	Result/Meaning
q0	Enable result codes. This command causes the STE to return result codes and information to the DTE.
q1	Disable result codes. This command causes the STE to inhibit returning result codes and information to the DTE.
v0	Send short form result codes. This command causes the STE to send two digit short form result codes to the DTE. The short form result codes are defined in Table 6.3.
v1	Send verbose result codes. This command causes the STE to send verbose form result codes to the DTE. The verbose form result codes are defined in Table 6.3.
e0	Inhibit Echo. This command inhibits the STE from echoing command sent from the DTE back to the DTE
e1	Enable Echo. This command causes the commands sent to the STE from the DTE to be echoed back to the DTE.
+q0	Enable message control. This command causes the STE to send the information that would be displayed on the terminal, if the terminal were in LOCAL mode to the DTE. Each line of display information sent is preceded and followed by carriage return and line feed characters. The display information is sent as verbose ASCII characters regardless of the "V" setting.
+q1	Disable message control.

**Table 6.3. Result Codes**

Short Form	Verbose Form
00	OK
01	CONNECT
02	RING
03	NO CARRIER
04	ERROR
05	Not used
06	NO DIALTONE
07	BUSY
08	Not used
09	Not used
10	CONNECT 2400
11	CONNECT 4800

Short Form	Verbose Form
18	Not used
19	Not used
20	CONNECT 38400
21	CONNECT 56000
22	Not used
23	CONNECT 64000
24	CONNECT 112000
25	CONNECT 128000
26	Not used
27	Not used
28	Not used
29	Not used

**Table 6.3. Result Codes (Continued)**

Short Form	Verbose Form	Short Form	Verbose Form
12	CONNECT 9600	30	EXPIRED LOCAL KEY
13	WAITING CONNECTING	31	EXPIRED REMOTE KEY
14	Not used	32	COMPROMISED KEY
15	Not used	33	GOING SECURE
16	Not used	34	Not used
17	CONNECT 19200	35	Not used

#### 6.4.5. Data Remote Control Command Summary

The STE will accept asynchronous "AT" commands via its Host Port when in the Command State. This section describes the STE Remote Control Commands, their structure and syntax.

##### 6.4.5.1. Data Command Structure and Syntax

The following rules apply to STE remote control commands:

- Both upper and lower case "AT" commands will be accepted. However, upper and lower case commands cannot be mixed on the same command line.
- The line termination character, stored in S3, is recognized as the end of a command line; you cannot use a "space" as the line termination character because spaces are not put into the command buffer.
- Commands may be entered on separate lines or multiple commands may be entered on the same command line.
- Command lines cannot exceed 32 characters (excluding the AT, spaces, and the line termination character).
- Commands on the same command line will be executed in order from left to right.
- Spaces in a command line will be ignored.
- AT commands that are not defined will result in an ERROR result code being returned to the DTE.
- If the STE does not execute a command on a command line, an ERROR result code will be returned to the DTE and the remaining commands on that command line will be ignored.

##### 6.4.5.2. Data Command Description

Table 6.5 provides a complete list of STE remote control commands. The following paragraphs provide a more detailed description of some command types.

###### 6.4.5.2.1. Data ATDn Command

When the ATDn command is received by the STE, it goes off-hook, dials the number (n) and transitions to the Connecting State. The STE recognizes the line termination character as the end of the dialing string. Table 6.4 describes the parameters that can be used with the ATDn command.

###### 6.4.5.2.2. Data ATXn Command

The STE supports "ATX4" (default) and "ATX0" modes, which are defined as follows:

1. ATX4 results in a return of the result code CONNECT followed by the data rate when the terminal is prepared to enter the On-line State. ATX0 results in the return of CONNECT without the associated data rate.
2. If the terminal is performing STU-III signaling and executing a dial command, wait the S7 specified time following dialing for initiation by the far end of secure signaling (carrier or digital message depending on the network). If this signaling is not initiated from the far

end, within the specified time, send a "NO CARRIER" result code to the DTE and go on-hook if the dialing command does not include the "R" (reverse) code, else initiate secure signaling if the dialing command does include an "R" code. If the terminal is performing STE signaling, initiate secure signaling per the signaling command based upon a connection indication from the network.

3. Bits 6, 5 and 4 of register S22 are set to reflect the Xn setting.

**Table 6.4 Dial Parameters**

Parameter		Description
T	Tone Dialing	Upon receiving the "T" parameter anytime after the "D" command; the STE changes to tone dialing.
P	Pulse Dialing	Upon receiving the "P" parameter anytime after the "D" command; the STE changes to pulse dialing.
,	Pause	Upon receiving the "," parameter anytime after the "D" command; the STE pauses dialing for 2 seconds.
W	Waiting for Dial tone	Upon receiving the "W" parameter after the "D" command when on a PSTN network; the STE stops dialing until it detects a dial tone or until the time specified in register S6 expires, whichever comes first. If dial tone is detected, dialing continues. If dial tone is not detected, the STE enters the Command State and returns the NO DIALTONE result code to the host.
R	Reverse	Upon receiving the "R" parameter after the "D" command, the STE enters the Connecting State as the answering terminal instead of the originating terminal. The "R" parameter must be the last character in the dial string. If the "R" parameter is not the last character in the dial string, an ERROR result code is returned to the host and the dial command is not executed.
.	Stop	Upon receiving the "." Parameter anytime after the "D" command; the STE stops dialing.
A	Dial Flash Override	Upon receiving the "A" parameter after the "D" command; the STE dials with the precedence code "flash override". This command is for use with a network that supports MLPP.
B	Dial Flash	Upon receiving the "B" parameters after the "D" command; the STE dials with the precedence code "flash". This command is for use with a network that supports MLPP
C	Dial Immediate	Upon receiving the "C" parameters after the "D" command; the STE dials with the precedence code "immediate". This command is for use with a network that supports MLPP.
D	Dial Priority	Upon receiving the "D" parameters after the "D" command; the STE dials with the precedence code "priority". This command is for use with a network that supports MLPP.
0, 1-9	Dial Digits	Number to be dialed.

### 6.4.5.2.3. Data Secure Dial

When operating in STU-III traffic mode, the STE supports Secure Dial transmit and receive. Transmission of Secure Dial characters is performed by the DTE escaping from On-Line State (via escape code or DTR toggle) and then issuing the ATDn command. When sending Secure Dial digits, only digits 0 through 9 and A through D should be included in n. If the transmission is successful, an OK result code will be returned. If the far end can not accept Secure Dial digits, the STE is not in STU-III traffic mode, or the command contains invalid digits, an ERROR result code will be returned. Following the result code return, the connection can be returned to On-Line State by the DTE issuing the ATO0 command.

If Secure Dial digits are received while the STE is in the STU-III On-Line State, the STE buffers the digits and then toggles the DCD signal to alert the DTE that a status change has taken place (the STE also toggles DCD in the event of a disconnect). To retrieve the received Secure Dial digits from the STE the DTE must escape from On-Line State (via escape code or DTR toggle), issue the AT+S command to confirm the receipt of digits, and then issue the AT+Z command to read the digits. Received digits can only be read once; subsequent AT+Z commands, or commands issued when no digits have been received, will return an ERROR result code. The AT+Z command can return up to 64 digits. Digits are lost if they have not been read when a call is disconnected. Following the result code return, the connection can be returned to On-Line State by the ATO0 command.

### 6.4.5.3. Data Command and Response Summary

Refer to Table 6.5 for a listing of the commands, their descriptions, and the success or failure responses for each.

**Table 6.5. Command and Response Summary**

CMD	Description	Response	
		Success	Failure
+++	Escape to Command State	0/OK	None – stays in On-line state
A	Go off-hook in Answer mode	[optional call set up commands and response] CONNECT<rate>	4/ERROR
Dn	Go off-hook and dial “n” that can include digits to dial and the dialing modifiers listed in Table 6.4.	[optional call set up commands and responses] CONNECT <rate>	4/ERROR
E0	Inhibit echo command	0/OK	4/ERROR
E1	Enable echo command	0/OK	4/ERROR
H0	Go on-hook	0/OK	4/ERROR
O0	Return to On-line State	None	4/ERROR
Q0	Enable result codes	0/OK	4/ERROR
Q1	Disable result codes	None	4/ERROR
Sn=x	Set the value of S-Register n to x	0/OK	4/ERROR
Sn	Show the value of S-Register n	<value>	4/ERROR

**Table 6.5. Command and Response Summary (Continued)**

CMD	Description	Response	
		Success	Failure
V0	Send short form result codes	0	4/ERROR
V1	Send long form result codes	OK	4/ERROR
Xn	Extended result code control	0/OK	4/ERROR
&B3	Request audit record	<audit data>	4/ERROR
&F	Restore factory configuration	0/OK	4/ERROR
&M0	Asynchronous communications	0/OK	4/ERROR
&M1	Synchronous communications	0/OK	4/ERROR
&V1	Request software version	<S/W Version>	4/ERROR
+A	Request far-end ID (Only valid when in Command mode with a call established)	0/OK <far end ID>	4/ERROR
+C0	Far-end user not authorized	0/OK	4/ERROR
+C1	Far-end user authorized (Only valid during Remote Authentication)	CONNECT or CONNECT <rate>	4/ERROR
+H	Go to disconnect	0/OK	4/ERROR
+I	Request local ID (Only valid when in Command mode with a call established)	0/OK <Local ID>	4/ERROR
+M1	Request security association maximum security level (Only valid when in Command mode with a call established)	0/OK <max sec level>	4/ERROR
+M2	Request security association minimum security level (Only valid when in Command mode with a call established)	0/OK <min sec level>	4/ERROR
+O0	On-line secure state will be secure data	0/OK	4/ERROR
+Q0	Enable messages control	0/OK	4/ERROR
+Q1	Disable message control	0/OK	4/ERROR
+S	Secure Dial Status	<value 00 or 80>	4/ERROR
+T	Request terminal privilege settings	<Terminal Privilege>	4/ERROR
+Z	Received Secure Dial Digits	<received digits>	4/ERROR



### 6.4.6. Data S-Register Summary

The STE has several S-registers that allow a DTE to view the settings and status of the terminal. This section describes and summarizes the set of STE S-registers. The S-registers are 8 bits wide and are numbered 0 to 7, right to left. Bit 0 is the Least Significant Bit (LSB) and Bit 7 is the Most Significant Bit (MSB).

#### 6.4.6.1. Data S-Register Description

The S-Registers (S2 thru S35) are described in Table 6.6.

**Table 6.6. S-Register Summary**

Register	Description
S2	<ul style="list-style-type: none"> <li>a. S2 holds the ASCII value of the character used as an escape from the Asynchronous On-line State back to the Command State without disconnecting the call.</li> <li>b. The default value for S2 is 43(+).</li> <li>c. S2 has a valid range of 0 to 255. Attempts to set the register to a value outside this range will result in the error result code being sent to the DTE and will leave the register unchanged. Setting S2 to a value greater than 127 disables escape code processing.</li> </ul>
S3	<ul style="list-style-type: none"> <li>a. S3 holds the ASCII value of the line termination character used to end a command line.</li> <li>b. The default value for S3 is 13 (^M).</li> <li>c. Do not use a "space" as the line termination character.</li> <li>d. S3 has a valid range of 0 to 127. Attempts to set the register to a value outside this range will result in the error result code being sent to the DTE and will leave the register unchanged.</li> </ul>
S4	<ul style="list-style-type: none"> <li>a. S4 holds the ASCII value of the line feed character used when the terminal sends result codes or other information to the DTE.</li> <li>b. The default value for S4 is 10(^J).</li> <li>c. S4 has a valid range of 0 to 127. Attempts to set the register to a value outside this range will result in the error result code being sent to the DTE and will leave the register unchanged.</li> </ul>
S6	<ul style="list-style-type: none"> <li>a. S6 holds the length of time (in seconds) the terminal waits for dialtone when a W is included in the ATDn command on a PSTN network.</li> <li>b. S6 has a valid range of 3 to 255. If an attempt to set the register to a value less than 3, the register will be set to 3 and the success result code will be sent to the DTE. Attempts to set the register to a value outside this range will result in the error result code being sent to the DTE and will leave the register unchanged.</li> </ul>
S7	<ul style="list-style-type: none"> <li>a. S7 holds the length of time (in seconds) the terminal waits to detect carrier from the far end terminal following the end of the dialing when STU-III signaling is being used.</li> <li>b. The default value for S6 is 30 (30 seconds).</li> <li>c. S7 has a valid range of 1 to 30. If an attempt to set the register to a value less than 1, the register will be set to 1 and the success result code will be sent to the DTE. Attempts to set the register to a value greater than 30 will cause the register to be set to 30 and the success result code will be sent to the DTE.</li> </ul>
S8	<ul style="list-style-type: none"> <li>a. S8 holds the length of time (in seconds) the terminal waits before dialing after it goes off-hook on a PSTN network.</li> <li>b. The default value for S8 is 2 (2 seconds).</li> <li>c. S8 has a valid range of 0 to 255. Attempts to set the register to a value outside this range will result in the error result code being sent to the DTE and will leave the register unchanged.</li> </ul>

**Table 6.6. S-Register Summary (Continued)**

Register	Description																											
S12	<p>a. S12 holds the minimum time (in increments of 20 milliseconds), when in the Asynchronous On-line State, that the terminal requires the input from the DTE to be idle before and after an escape sequence to recognize the escape sequence as valid. S12 holds a maximum time that the terminal allows between adjacent characters in an escape sequence to recognize the escape sequence as valid.</p> <p>b. The default value for S12 is 50 (1 second).</p> <p>c. S12 has a valid range of 0 to 255. Attempts to set the register to a value outside this range will result in the error result code being sent to the DTE and will leave the register unchanged. If the register is set to 0 guard time processing is disabled (three escape characters, regardless of the before, after, and between character timing constitutes an escape sequence) and the success result code will be sent to the DTE.</p>																											
S14	<p>a. S14 is bit mapped to store the options listed below:</p> <table border="0" data-bbox="342 667 1084 1066"> <thead> <tr> <th><u>Bit</u></th> <th><u>Option</u></th> <th><u>Value</u></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>1</td> <td>Command Echo (E)</td> <td>0 = Disabled 1 = Enabled *</td> </tr> <tr> <td>2</td> <td>Result Code (Q)</td> <td>0 = Enabled * 1 = Disabled</td> </tr> <tr> <td>3</td> <td>Verbose Mode (V)</td> <td>0 = Numeric result code 1 = Word result code *</td> </tr> <tr> <td>4</td> <td>Display Messages (+Q)</td> <td>0 = Enabled * 1 = Disabled</td> </tr> <tr> <td>5</td> <td>Dial Method on PSTN Network</td> <td>0 = Tone * 1 = Pulse</td> </tr> <tr> <td>6</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>7</td> <td>Answer/Originate</td> <td>0 = Answer * 1 = Originate</td> </tr> </tbody> </table> <p>* = Factory Default</p> <p>b. The default value for S14 is 10.</p> <p>c. If an attempt to set bit 0 or bit 6 (reserved bits) to 1, the error result code will be sent to the DTE and will leave the register unchanged.</p>	<u>Bit</u>	<u>Option</u>	<u>Value</u>	0	Reserved	0	1	Command Echo (E)	0 = Disabled 1 = Enabled *	2	Result Code (Q)	0 = Enabled * 1 = Disabled	3	Verbose Mode (V)	0 = Numeric result code 1 = Word result code *	4	Display Messages (+Q)	0 = Enabled * 1 = Disabled	5	Dial Method on PSTN Network	0 = Tone * 1 = Pulse	6	Reserved	0	7	Answer/Originate	0 = Answer * 1 = Originate
<u>Bit</u>	<u>Option</u>	<u>Value</u>																										
0	Reserved	0																										
1	Command Echo (E)	0 = Disabled 1 = Enabled *																										
2	Result Code (Q)	0 = Enabled * 1 = Disabled																										
3	Verbose Mode (V)	0 = Numeric result code 1 = Word result code *																										
4	Display Messages (+Q)	0 = Enabled * 1 = Disabled																										
5	Dial Method on PSTN Network	0 = Tone * 1 = Pulse																										
6	Reserved	0																										
7	Answer/Originate	0 = Answer * 1 = Originate																										
S21	<p>a. S21 is bit mapped to store the options listed below:</p> <table border="0" data-bbox="342 1201 1325 1486"> <thead> <tr> <th><u>Bit</u></th> <th><u>Option</u></th> <th><u>Value</u></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>1</td> <td>DSN</td> <td>0 = Disabled 1 = Enables AUTOVON pre-emption signal detection *</td> </tr> <tr> <td>2</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>3</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>4</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>5</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>6</td> <td>Reserved</td> <td>0</td> </tr> <tr> <td>7</td> <td>Reserved</td> <td>0</td> </tr> </tbody> </table> <p>* = Factory Default</p> <p>b. The default value for S21 is 0.</p> <p>c. If an attempt is made to set bit 0, 2, 3, 4, 6, or 7 (reserved bits) to 1, the error result code will be sent to the DTE and will leave the register unchanged.</p>	<u>Bit</u>	<u>Option</u>	<u>Value</u>	0	Reserved	0	1	DSN	0 = Disabled 1 = Enables AUTOVON pre-emption signal detection *	2	Reserved	0	3	Reserved	0	4	Reserved	0	5	Reserved	0	6	Reserved	0	7	Reserved	0
<u>Bit</u>	<u>Option</u>	<u>Value</u>																										
0	Reserved	0																										
1	DSN	0 = Disabled 1 = Enables AUTOVON pre-emption signal detection *																										
2	Reserved	0																										
3	Reserved	0																										
4	Reserved	0																										
5	Reserved	0																										
6	Reserved	0																										
7	Reserved	0																										

**Table 6.6. S-Register Summary (Continued)**

Register	Description																														
S22	<p>a. S22 is bit mapped to store the options listed below:</p> <table border="0"> <thead> <tr> <th data-bbox="347 348 386 373"><u>Bit</u></th> <th data-bbox="488 348 574 373"><u>Option</u></th> <th data-bbox="919 348 987 373"><u>Value</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="347 373 386 399">3-0</td> <td data-bbox="488 373 597 399">Reserved</td> <td data-bbox="919 373 976 399">0000</td> </tr> <tr> <td data-bbox="347 399 386 424">6-4</td> <td data-bbox="488 399 786 424">Extended Result Code (X)</td> <td data-bbox="919 399 1068 424">000 = X0 set</td> </tr> <tr> <td></td> <td></td> <td data-bbox="919 424 1068 449">001 = Illegal</td> </tr> <tr> <td></td> <td></td> <td data-bbox="919 449 1068 474">010 = Illegal</td> </tr> <tr> <td></td> <td></td> <td data-bbox="919 474 1068 499">011 = Illegal</td> </tr> <tr> <td></td> <td></td> <td data-bbox="919 499 1101 525">100 = Not used</td> </tr> <tr> <td></td> <td></td> <td data-bbox="919 525 1101 550">110 = Not used</td> </tr> <tr> <td></td> <td></td> <td data-bbox="919 550 1089 575">111 = X4 set *</td> </tr> <tr> <td data-bbox="347 575 358 600">7</td> <td data-bbox="488 575 597 600">Reserved</td> <td data-bbox="919 575 930 600">0</td> </tr> </tbody> </table> <p>* = Factory Default</p> <p>b. The default value for S21 is 112.</p> <p>c. If an attempt is made to set bit 0, 1, 2, 3, or 7 (reserved bits) to 1, the error result code will be sent to the DTE and will leave the register unchanged.</p> <p>d. If an attempt is made to set bits 6, 5, and 4 to the values 001, 010 or 011 (illegal X values) the error result code will be sent to the DTE and will leave the register unchanged.</p>	<u>Bit</u>	<u>Option</u>	<u>Value</u>	3-0	Reserved	0000	6-4	Extended Result Code (X)	000 = X0 set			001 = Illegal			010 = Illegal			011 = Illegal			100 = Not used			110 = Not used			111 = X4 set *	7	Reserved	0
<u>Bit</u>	<u>Option</u>	<u>Value</u>																													
3-0	Reserved	0000																													
6-4	Extended Result Code (X)	000 = X0 set																													
		001 = Illegal																													
		010 = Illegal																													
		011 = Illegal																													
		100 = Not used																													
		110 = Not used																													
		111 = X4 set *																													
7	Reserved	0																													
S25	<p>a. S25 hold the length of time (in seconds) the terminal waits after a call has entered the Synchronous On-line State to examine the DTR line.</p> <p>b. The default value for S25 is 5 (5 seconds).</p> <p>c. S25 has a valid range of 0 to 255. If an attempt is made to set the register to a value outside this range the error result code will be sent to the DTE and will leave the register unchanged.</p>																														
S27	<p>a. S27 holds the preferred secure data rate for on-line data mode. The terminal writes to S27 to set it to the default value and to update the rate if the terminal is driven to a different rate by the far end DTE. The values and their corresponding data rate are as follows:</p> <table border="0"> <thead> <tr> <th data-bbox="391 1062 459 1087"><u>Value</u></th> <th data-bbox="488 1062 545 1087"><u>Rate</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="391 1087 407 1113">6</td> <td data-bbox="488 1087 545 1113">2400</td> </tr> <tr> <td data-bbox="391 1113 407 1138">7</td> <td data-bbox="488 1113 545 1138">4800</td> </tr> <tr> <td data-bbox="391 1138 418 1163">10</td> <td data-bbox="488 1138 545 1163">9600</td> </tr> <tr> <td data-bbox="391 1163 418 1188">14</td> <td data-bbox="488 1163 545 1188">19200</td> </tr> <tr> <td data-bbox="391 1188 418 1213">17</td> <td data-bbox="488 1188 581 1213">38400 *</td> </tr> <tr> <td data-bbox="391 1213 418 1239">18</td> <td data-bbox="488 1213 545 1239">56000</td> </tr> <tr> <td data-bbox="391 1239 418 1264">20</td> <td data-bbox="488 1239 545 1264">64000</td> </tr> <tr> <td data-bbox="391 1264 418 1289">22</td> <td data-bbox="488 1264 581 1289">112000</td> </tr> <tr> <td data-bbox="391 1289 418 1314">23</td> <td data-bbox="488 1289 581 1314">128000</td> </tr> </tbody> </table> <p>* = Factory Default</p> <p>b. The default value for S27 is 17 (38400) bps.</p> <p>c. S27 has valid values of 6, 7, 10, 14, 17, 18, 20, 22, and 23. If an attempt is made to set the register to an invalid value the error result code will be sent to the DTE and will leave the register unchanged.</p> <p>d. If an attempt is made to set a value greater than 17 when S28, bit 6 is set to 0 (Asynchronous Mode) the error result code will be sent to the DTE and will leave the register unchanged.</p>	<u>Value</u>	<u>Rate</u>	6	2400	7	4800	10	9600	14	19200	17	38400 *	18	56000	20	64000	22	112000	23	128000										
<u>Value</u>	<u>Rate</u>																														
6	2400																														
7	4800																														
10	9600																														
14	19200																														
17	38400 *																														
18	56000																														
20	64000																														
22	112000																														
23	128000																														

**Table 6-6. S-Register Summary (Continued)**

Register	Description																														
S28	<p>a. S28 is bit mapped to store the options listed below:</p> <table border="1" data-bbox="342 344 992 617"> <thead> <tr> <th data-bbox="342 344 391 369">Bit</th> <th data-bbox="391 344 911 369">Option</th> <th data-bbox="911 344 992 369">Value</th> </tr> </thead> <tbody> <tr> <td data-bbox="342 369 391 394">0</td> <td data-bbox="391 369 911 394">Not used</td> <td data-bbox="911 369 992 394">0</td> </tr> <tr> <td data-bbox="342 394 391 420">1</td> <td data-bbox="391 394 911 420">Reserved</td> <td data-bbox="911 394 992 420">0</td> </tr> <tr> <td data-bbox="342 420 391 445">2</td> <td data-bbox="391 420 911 445">Reserved</td> <td data-bbox="911 420 992 445">0</td> </tr> <tr> <td data-bbox="342 445 391 470">3</td> <td data-bbox="391 445 911 470">Reserved</td> <td data-bbox="911 445 992 470">0</td> </tr> <tr> <td data-bbox="342 470 391 495">4</td> <td data-bbox="391 470 911 495">Reserved</td> <td data-bbox="911 470 992 495">0</td> </tr> <tr> <td data-bbox="342 495 391 520">5</td> <td data-bbox="391 495 911 520">Not used</td> <td data-bbox="911 495 992 520">1</td> </tr> <tr> <td data-bbox="342 520 391 546">6</td> <td data-bbox="391 520 911 546">On-Line Status</td> <td data-bbox="911 520 992 546">0 = Asynchronous *</td> </tr> <tr> <td data-bbox="342 546 391 571"></td> <td data-bbox="391 546 911 571"></td> <td data-bbox="911 546 992 571">1 = Synchronous</td> </tr> <tr> <td data-bbox="342 571 391 596">7</td> <td data-bbox="391 571 911 596">Reserved</td> <td data-bbox="911 571 992 596">0</td> </tr> </tbody> </table> <p>* = Factory Default</p> <p>b. The terminal writes to register S28 to set its default state.</p> <p>c. Bit 5 is set by the terminal to 1. This bit cannot be changed by the DTE. This bit is ignored by the STE when the DTE writes to the register.</p> <p>d. Bit 6 (Async/Sync) indicates the On-line State the terminal will enter on the next data call setup or indicates the state if it is on-line. A 0 indicates the Asynchronous State and is also set by the "&amp;M0" command. A 1 indicates the Synchronous State and is also set by the "&amp;M1" command.</p> <p>e. The default value for S28 is 32.</p> <p>f. If an attempt is made to set bit 1, 2, 3, 4, or 7 (reserved bits) to 1, the error result code is sent to the DTE and the register is unchanged.</p> <p>If an attempt is made to set bit 6 to 0 (Asynchronous Mode) when the value in S27 is greater than 17, the error result code is sent to the DTE and the register is unchanged.</p>	Bit	Option	Value	0	Not used	0	1	Reserved	0	2	Reserved	0	3	Reserved	0	4	Reserved	0	5	Not used	1	6	On-Line Status	0 = Asynchronous *			1 = Synchronous	7	Reserved	0
Bit	Option	Value																													
0	Not used	0																													
1	Reserved	0																													
2	Reserved	0																													
3	Reserved	0																													
4	Reserved	0																													
5	Not used	1																													
6	On-Line Status	0 = Asynchronous *																													
		1 = Synchronous																													
7	Reserved	0																													
S31	<p>a. S31 holds the maximum value, measured in milliseconds, of the time in which the DTR signal must return to ON for the STE to resync without returning to the Command State.</p> <p>b. The default value for S31 is 100 (100 milliseconds).</p> <p>c. S31 has a valid range of 0 to 255. If an attempt is made to set the register to a value outside this range the error result code will be sent to the DTE and will leave the register unchanged.</p> <p>d. If an attempt is made to set the time value greater than the time value in S32, the time value will be set equal to S32 and the success result code is sent to the DTE.</p>																														
S32	<p>a. S32 holds the maximum time, measured in hundredths of seconds, in which the DTR signal must return to ON for the STE not to disconnect the call when in a secure state. If the DTR signal is set to the OFF State by the DTE for a period greater than S31 but not greater than S32, the terminal enters the Command State while maintaining the secure connection to a far end terminal. If the DTR signal is set to the OFF State by the DTE for a period of greater than S32, the STE terminates the secure call, goes on-hook, and returns to the Command State.</p> <p>b. The default value for S32 is 50 (50 milliseconds).</p> <p>c. S32 has a valid range of 1 to 255. If an attempt is made to set the register to a value outside this range the error result code will be sent to the DTE and the register is unchanged.</p> <p>d. If an attempt is made to set the time to a value less than the time value in S31, the time value will be set equal to S31 (rounded to the next higher hundredth of a second) and the success result code is sent to the DTE.</p>																														

**Table 6-6. S-Register Summary (Continued)**

Register	Description												
S35	<p>a) S35 is bit mapped to store the options listed below:</p> <table border="1"> <thead> <tr> <th>Bit</th> <th>Option</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>1-0</td> <td>Current Connection</td> <td>00 = Not connected * 01 = Data Mode 10 = Not used 11 = Illegal</td> </tr> <tr> <td>4-2</td> <td>Reserved</td> <td>000</td> </tr> <tr> <td>7-5</td> <td>Connected Security Level</td> <td>000 = not connected * 001 = Not used 010 = Not used 011 = Unclassified 100 = Confidential 101 = Secret 110 = Top Secret 111 = illegal</td> </tr> </tbody> </table> <p>* = Factory Default</p> <p>b) The default value for S35 is 0.</p> <p>c) S35 provides call status information to the DTE. It is set by the terminal and read by the DTE.</p> <p>d) If an attempt is made to write to this register by the DTE, the error result code is sent to the DTE and the register is unchanged.</p>	Bit	Option	Value	1-0	Current Connection	00 = Not connected * 01 = Data Mode 10 = Not used 11 = Illegal	4-2	Reserved	000	7-5	Connected Security Level	000 = not connected * 001 = Not used 010 = Not used 011 = Unclassified 100 = Confidential 101 = Secret 110 = Top Secret 111 = illegal
Bit	Option	Value											
1-0	Current Connection	00 = Not connected * 01 = Data Mode 10 = Not used 11 = Illegal											
4-2	Reserved	000											
7-5	Connected Security Level	000 = not connected * 001 = Not used 010 = Not used 011 = Unclassified 100 = Confidential 101 = Secret 110 = Top Secret 111 = illegal											

## 6.5. REMOTE CONTROL EXAMPLES

### 6.5.1. Dialing a Remote STE

Command Line: ATDT8W9876543210<cr>

This command line might be used to dial another STE through a PSTN PBX. In executing this command line, the STE:

- Dials "8", to get an outside line.
- Waits for a dial tone.
- Dials "9876543210".

### 6.5.2. Manual Answer an Incoming Call

Command Line: ATA<cr>

If you get an incoming call, the STE will send result codes:

RING

RING

...

Seeing that, you may issue the ATA command to answer the call.

### 6.5.3. Auto Answer an Incoming Data Call

Changing the setting of the Auto-Answer and Number of Rings setting from the STE menu prior to entering remote control mode can enable auto answer.



## CHAPTER 7. USER MAINTENANCE

### 7.1. PREVENTIVE MAINTENANCE

There are no preventive maintenance tasks. All maintenance must be performed by an L-3 Communications trained technician. In case of trouble see Terminal Failure Indications in Paragraph 7.5.

### 7.2. CLEANING

The surfaces of the STE Terminal may be cleaned using a nonabrasive cleaner and soft, lint-free cloth. Do not apply cleaner directly to the terminal surfaces, but rather apply the cleaner to the cloth and then clean the terminal.

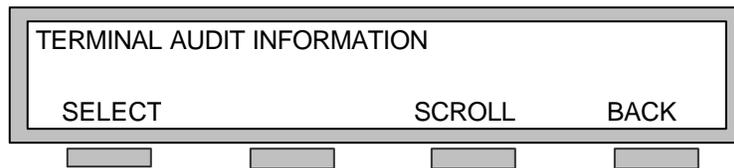
### 7.3. SELF TEST AND SOFTWARE VERIFICATION

Terminal self-test can be initiated by selecting the "Self Test" functions from the STE Terminal Management menu. Software verification can be initiated by resetting the terminal with the Crypto Card inserted.

### 7.4. SOFTWARE VERSION NUMBER

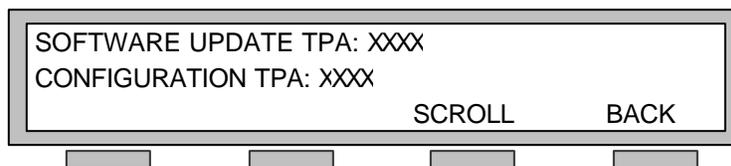
The STE has five separate processors, each running a separate program. If you report a STE problem, you may be asked for the software versions installed in your STE.

From the Terminal Management display, scroll to:



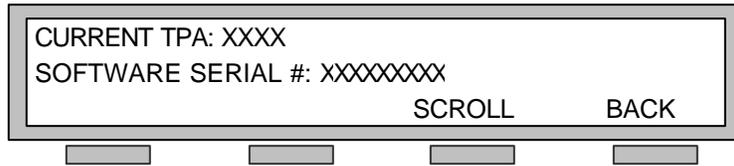
**Figure 7.1. Terminal Audit Display**

Press *SELECT*. You will see:



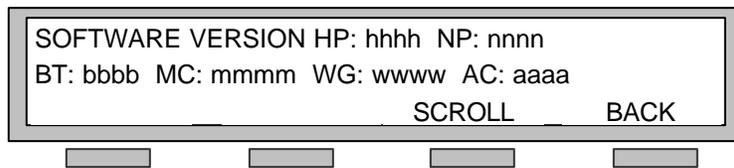
**Figure 7.2. Software Update Display**

SCROLL to:



**Figure 7.3. Current TPA Display**

SCROLL to:



**Figure 7.4. Software Version Display**

Where:

- hhhh = Host Processor software version number.
- nnnn = Network Processor software version number.
- bbbb = Boot Code version number.
- mmmm = Modem Processor software version number.
- wwww = Wedge Processor software version number.
- aaaa = Audio Processor software version number.

## 7.5. TERMINAL FAILURE INDICATIONS

Your STE may fail for a number of reasons. Table 7.1 lists the possible reasons and the associated STE display. Depending upon the nature of the failure, you may or may not be provided with options for using the STE.



**Table 7.1. STE Failures and Displays**

Terminal Failure	STE Display
Communications Security Failure – card must be removed to reset terminal	SECURITY FAILURE REMOVE CRYPTO CARD TO CONTINUE
Communications Security Failure – terminal going into reset	SECURITY FAILURE RESETTING TERMINAL
Terminal communications security failure – terminal is not secure capable	TERMINAL SECURE TEST FAILURE CRYPTO CARD OPERATIONS DISABLED
Terminal communications security failure – terminal is not secure capable	TERMINAL SECURE TEST FAILURE X CRYPTO CARD OPERATIONS DISABLED
Terminal failure – communications or other capabilities may be impaired	TERMINAL SELF TEST FAILURE LIMITED CAPABILITY MAY EXIST
Terminal failure – communications or other capabilities may be impaired. X is the Hexadecimal identifier of the failed board(s)	TERMINAL SELF TEST FAILURE X LIMITED CAPABILITY MAY EXIST
Terminal is not secure capable because, TPA not established, terminal not initialized, or incompatible security levels	SECURE COMMUNICATIONS DISABLED SELECT NON-SECURE
Terminal communications security failure – terminal is only non-secure capable	TERMINAL SECURE TEST FAILURE NON-SECURE MODE ONLY
Terminal could not register with network – verify network settings	NETWORK REGISTRATION FAILURE PLEASE HANG UP AND CHECK SETTINGS
Terminal is not secure capable because Initial Secure Mode is “SECURE ONLY” and TPA not established, terminal not initialized, or incompatible security levels	SECURE COMMUNICATIONS DISABLED OPERATION NOT POSSIBLE
Electronic download of ACL failed	PROCESSING ACL FAILED

## 7.6. TROUBLESHOOTING GUIDE

Below are some problems you may experience and actions you can take to restore operation of your STE Terminal. Problems are identified by: Title, Symptom, Cause, and Resolution.

### Terminal Management Changes Not Implemented Immediately

- Applicability:** Office/Tactical STE – Release 1A/1B/1C
- Symptom:** After you have changed Terminal Management options, the change sometimes is not effective until the next call or until the STE is reset.
- Cause(s):** As with many PC software packages, in which some changes aren't implemented until you restart your PC, some STE changes aren't implemented immediately.
- Resolution:** After changing Terminal Management options reset (Mode/Mute) your STE.

### No TRI-TAC Dial tone

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** When connected to the TRI-TAC network, the STE does not have a dial tone and cannot receive calls.  
**Cause(s):** When you changed network connections, the STE may not immediately recognize the network changes.  
**Resolution:** Cycle the power to the STE.

### TRI-TAC Call Failures

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** STE calls fail after changing TRI-TAC network connections to/from back-to-back mode.  
**Cause(s):** When STE first attempts to use a TRI-TAC circuit, it negotiates the line speed. In back-to-back mode this is 16 KBPS; when connected to a TRI-TAC switch, it is usually 32 Kbps. If you change Connections, the STE doesn't negotiate the line speed.  
**Resolution:** Cycle the power to the STE.

### STE/STU-III Data Fail over to Voice

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** A STE operating in remote control mode cannot make a data connection to a STU-III.  
**Cause(s):** In remote control mode, the STE attempts to establish a data connection. If a STU-III is set for Auto-Secure or Secure-Only, the STU-III will attempt to establish a secure voice call. The STE will reject secure voice calls because remote control is data only.  
**Resolution:** Make sure the distant end STU-III is not set for Auto-Secure, Secure-Only, or Auto-Answer (which is treated as Secure-Only).

### Calling second SPID hangs STE

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** If someone calls you and activates the second call appearance, if you answer the call the STE hangs.  
**Cause(s):** Some switches only support one “call appearance”. If you receive a call on the second number (DN #2) the ability to receive additional calls will be disabled until a new call is placed from your terminal. Calls received on the second number are characterized by a shorter than normal ring.  
**Resolution:** (1) Ask your telephone service provider for additional call appearances, to assign a second phone number, or permanently forward all calls received on the second number (DN #2) to the first number (DN #1).  
(2) Reset (Mode/Mute) your STE.

### Extra “Going Secure” in Remote Control Mode

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** When establishing a call to a remote terminal, the remote terminal sees “Going Secure” twice.  
**Cause(s):** This is an anomaly of the Release 1A/1B software. It should only impact users who are developing telecommunications software scripts for automating data call establishment and file transfer.  
**Resolution:** If you are writing scripts, consider that you might see two copies of some messages.

**Erratic Host Data Port Operation**

**Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** When performing PC file transfers, the line speed doesn't appear right.  
**Cause(s):** Many PC serial ports do not fully support EIA-530.  
**Resolution:** Make sure your Host Data Port option is set to RS-232.

**AUTOVON Precedence Tones Incorrect**

**Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** The switch does not recognize call precedence requests, or the call precedence is not what the user expected.  
**Cause(s):** (1) If the subscriber line is not provisioned to support call precedence, the switch will not recognize call precedence requests.  
 (2) If the subscriber line is provisioned to support call precedence, a digital switch will recognize specific characters as precedence characters, an analog switch will recognize specific DTMF Tones.

Precedence	Digital Switch Character	Analog Switch DTMF Tone
Flash Override	A	697 + 1633
Flash	B	770 + 1633
Immediate	C	852 + 1633
Priority	D	941 + 1633

Dialing precedence was implemented in STE Release 1B. There are no known problems when connected to a digital switch. However, STE Release 1B inverted the precedence/DTMF Tone mapping (e.g., Flash Override = 941 + 1633) for analog switch connections.

**Resolution:** (1) Coordinate with your serve provider to have your subscriber line provisioned for call precedence.  
 (2) The Precedence/DTMF Tone mapping will be corrected in STE Release 1C. Until then, if you are connected to an Analog Switch, use D = Flash Override, C = Flash, B = Immediate, A = Priority.

**Self-Test Failure: HP 0004**

**Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** The STE displays "Software Test Failure: HP: 0004".  
**Cause(s):** The STE has encountered a Software Verification Error.  
**Resolution:** Insert Crypto Card and perform a MODE-MUTE Reset.

**Case-Sensitive AT Commands**

**Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** Under some circumstances, a remote dialing command connection is established but the connection fails to go secure.  
**Cause(s):** Under analysis. It appears that the problem only occurs if the AT commands are in upper case.  
**Resolution:** Make sure the AT commands are all in lower case.

### **Cryptographic Resync Sometimes Doesn't Work**

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** Resync (and other mode change messages preceded by an escape) may not work in local mode if remote control and remote authentication are enabled.  
**Cause(s):** Under analysis.  
**Resolution:** If users experience loss of traffic (voice or data) they should press the non-secure key. This will cause a non-secure request to the far end. When the far end presses non-secure, the STE will be in non-secure traffic.

### **Remote Authentication 112 or 128 KBPS data call disconnects prior to far end authorization.**

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** A STE under Host Port Control attempting to establish a remote authentication secure data 112 or 128 kbps call spontaneously fails then disconnects the call.  
**Cause(s):** STE internal ISDN resource management requires initiation of the secure data traffic flow within 100 to 200 milliseconds of remote authentication data receipt in order to maintain ISDN B channel synchronization. The far end authorization command (AT+C1) must be presented within this time constraint to prevent internal buffer overflow conditions within the STE.  
**Resolution:** Use secure data access control lists for far end authentication at the 112kbps and 128kbps data rates.

### **STE accepts dial digits but nothing happens. The call does not connect.**

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** Using either the speakerphone or a call appearance button to go off-hook, a non-secure (or secure) speakerphone disabled message appears followed approximately 30 seconds later by the STE dial display. The STE accepts and displays digits dialed but the call is not connected.  
**Cause(s):** The TPA disabled non-secure (or secure) speakerphone operations. The STE will not allow dial digits or audio traffic to be presented to the connected telephone network, thus the call will not be connected.  
**Resolution:** Use the handset to place calls, or ask the TPA to enable the desired speakerphone mode(s).

### **STE Speed Dialing Problems.**

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** Tones stick when accessing voice mail or keypad locks up.  
**Cause(s):** The STE assigns a store area for a 26-character speed dial. If all 26 characters are used, the STE does not handle all characters correctly.  
**Resolution:** Use less than 26 characters in speed dials.

### **Manual intervention required when STE resets.**

- Applicability:** Office/Tactical STE – Release 1A/1B/1C  
**Symptom:** If there is a power failure and a crypto card is inserted in the STE, it verifies the integrity of the crypto card and requires the operator to acknowledge the results of the integrity check.  
**Cause(s):** The Government's security policy requires that the operator manually acknowledge the results of the crypto card integrity check.  
**Resolution:** When not in use (particularly at the end of the day), remove the crypto card from the STE. If the STE resets, the STE will be automatically restored to operational status without manual intervention.

## CHAPTER 8. NOTES

### 8.1. WARRANTY

L-3 Communications warrants the STE, and any ancillary or optional equipment delivered with the STE Terminal, for a period of three years. The STE identification sticker, located at the rear of the STE, lists the date of manufacture. The warranty expiration date is three years from the date of manufacture on the sticker, unless an extended warranty has been procured.

If the equipment fails, within the warranty period, we will repair or replace the defective unit provided you notify us, either by telephone or in writing, prior to the expiration date of the warranty. The warranty covers all parts, hardware and firmware, for terminals and other options or ancillaries purchased with your STE Terminal. Defective material should not be returned except as directed by our service department technician.

When you experience a failure, contact the STE Service Center by telephone at (800) 339-6197 or (856) 338-6207. We will help you try to restore you STE and if it cannot be restored, you will be authorized to return the item for repair. You will be given an "RMA Number" and a point of contact. **The authorization number (RMA Number) and point of contact must be posted on the exterior of the shipping container, near the address.**

#### NOTE

Make a Carry Card (current settings) and zeroize the STE prior to packing it for return for repair/replacement. This will facilitate reloading when the STE is returned.

Ship the item to our STE Service Center at:

L-3 Communications  
Communications Systems – East  
STE Service Center  
11 Federal Street  
Camden, NJ 08103-1013

RMA#
Please contact:
Phone:

This warranty DOES NOT extend to defects or failures resulting from:

- a) Neglect, accident, or abuse,
- b) Use in other than a normal and customary manner,
- c) Improper installation,
- d) Unauthorized alterations and repairs,
- e) Acts of God, or
- f) Improper use of peripheral devices.

NOTE

The Portable Uninterruptable Power Supply (PUP) and STE/PUP Mounting Sleeve are shipped direct from the manufacturer and covered under a one year warranty directly.

Contact:

STS International  
215 Union Street  
P.O. Box 10  
Berkley Springs, WV 25411

Phone: (304) 258-2700 or (304) 258-3200

## 8.2. FCC INFORMATION

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device complies with Part 68 of the FCC rules. On the bottom of this equipment is a label that contains, among other information, the FCC Registration Number. If this telephone is equipped for operation with the PSTN via POTS, the Ringer Equivalence Number (REN) for this equipment will also be indicated. If requested, this information must be given to the telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice is not practical, you will be notified as soon as possible. You will be notified of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this telephone equipment, please turn to the TROUBLESHOOTING section of this guide for information in obtaining service or repairs. The telephone company may ask that you disconnect this equipment until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

The STE is non-hearing aid-compatible, exempted under the code of federal regulations, part 68, subpart A, section 68.4.

FCC rules prohibit the use of non-hearing aid-compatible telephones in the following location or application:

- All public or semi-public coin-operated or credit card telephones.
- Elevators, highways and tunnels (automobile, subway, railroad, or pedestrian) where a person with impaired hearing might be isolated in an emergency.
- Places where telephones are specifically installed to alert emergency authorities such as fire, police or medical assistance personnel.
- Workstations for hearing impaired personnel.
- Hotel, motel, and apartment lobbies; in stores where telephones are used by patrons to order merchandise; in public transportation terminals where telephones are used to call taxis, or to reserve lodging or rental cars.
- Hotel and motel rooms (except as described in section 68.112).

### 8.3. STE USE IN CANADA

To ensure that certified equipment is attached correctly and only to the networks of participating carriers, the Canadian government requires the following two statements accompany each unit of certified equipment offered for sale.

**Statement 1:**

“NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.”

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunication company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.”

**Statement 2:**

“NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.”





## CHAPTER 9. ELECTRONIC FILES

### 9.1. ELECTRONIC ACL FILE

If you need to make significant changes to the ACL, it is probably easier to make the changes from a PC connected to your STE's host port. In particular, the ACL may be centrally distributed so all you have to do is download the common ACL. From the PC, you can:

- Download a DAO Definition file,
- Download a KMID Definition file, or
- Purge the STE DAO and KMID lists.

There are numerous terminal emulation software programs that you may use to interface with the STE to change the ACL. Most of these programs can be scripted to automate the exchange. Following is a description of one way the exchange can be performed.

#### 9.1.1. Electronic File Formats

DAO Definition, KMID Definition, or ACL Purge information can not be mixed within a file.

The file format is a line oriented flat ASCII file with three record formats:

- File Type Record
- Data Record(s)
- File Termination Record

The following special characters are used in the file exchange:

Hexadecimal	Special Character
06	ACK
0A	LF (Line Feed)
0C	FF (Form Feed)
0D	CR (Carriage Return)
15	NAK

All alphabetic characters must be upper case. Each line is terminated by an ASCII Carriage Return or ASCII Line Feed. The STE discards extraneous line termination characters between formatted lines.

- File Type Record
  - First Character (must be uppercase):  
 D = DAO Definition File  
 K = KMID Definition File  
 P = Purge STE DAO and KMID lists
  - Second through Fourth Character:  
 Number of Data Format records (001-500) in the Type D or K file.  
 Numeric characters only, right-justified with leading zero fill.  
 Not used for Purge command.
- Data Records
  - DAO Records are up to 6 alphanumeric ASCII characters (one DAO code per line). STE will right justify with left zero fill.
  - KMID records are up to 15 ASCII characters (one KMID code per line). STE will left justify the data and right fill with NULL characters.
- File Termination Record
  - ASCII Form Feed

#### 9.1.1.1. Sample DAO Definition File

Up to 500 DAO codes may be contained in a DAO Definition File.

```
D003
100001
100002
100003
<FF>
```

#### 9.1.1.2. Sample KMID Definition File

Up to 500 KMIDs may be contained in a KMID Definition File.

```
K004
123456789012341
123456789012342
123456789012343
123456789012344
<FF>
```

#### 9.1.1.3. Sample ACL Purge File

```
P
<FF>
```

### 9.1.2. PC Setup

The PC interface with the STE must be set to:

- Mode: Asynchronous
- Bit Rate: 9600
- Character Size: 8 bits
- Parity: None
- Stop Bits: 1

### 9.1.3. Software Script

The script that automates the PC/STE exchange will depend on the PC terminal emulation software you use. From a logical perspective, following is possible logic for the script:

```
R_Count = 0; // initialize the count of records successfully transferred //
File_Done = False; //initialize to file transfer not done //
Open File-X ;
If (File-X open failure)
    File_Done = True;
    Op_message = "Failed: file open failure";
Endif;
While (not File_Done)
    Read File_Record from File_X;
    If (End_of_File)
        File_Record = Formfeed;
    Endif
    If ( (File_Record == Carriage Return) or (File_Record == Line Feed) )
        Do nothing; //don't transfer blank lines //
    Else
        Send File_Record to STE;
        If (File_Record == Formfeed)
            File_Done = True; //end of file is not ACK'd //
        Op_Message = "Successfully transferred R_Count Records";
```

```

Else
  Request STE_Response;
If ((STE_Response != ACK) or (Response_Timeout))
  Done = True;
  Op_Message = "Failed after R_Count Records);
Else // Got STE ACK //
  R_Count = R_Count+1;
Endif
Endif
Endif
Endwhile
Close File-X;
Write Op_Message to PC Operator;

```

#### 9.1.4. Procedures to Load Electronic Files

If you selected FROM\_PC from the "Edit Access Control List" menu, you will see the following display:

ACL INSTALLATION INITIATE INSTALL FROM PC <div style="text-align: right;">ABORT</div>
---

Start the PC's ACL update software and the STE's display will change to:

ACL INSTALLATION <PC ACL COMMAND> <div style="display: flex; justify-content: space-around;"> <span>CONFIRM</span> <span>ABORT</span> </div>
--

Where <PC ACL COMMAND> is:

- REMOVE ALL ACL ENTRIES
- ADD DAO ENTRIES, or
- ADD KMID ENTRIES

If you **CONFIRM** the <PC ACL COMMAND>, the STE will execute the command and advise you of the success/failure of the execution.

## 9.2. STE TOOLSET PROGRAM

### 9.2.1. General Toolset Program Information

The "STE Toolset Program" is installed on a PC that is connected to a STE Red Data Port. The STE Toolset includes the following:

- Software Download Tool
  - Provides for new software versions to be downloaded to the STE and KOV-14 processors.
    - STE Host Processor
    - STE Network Processor
    - STE Wedge Processor
    - KOV-14 Processor

#### 9.2.1.1. Computer Requirements

In order for the computer to load programs and operate efficiently, it should meet the following requirements:

- Pentium class 266 MHz or better computer
- 14 inch or larger SVGA monitor set to 1024 x 768, small font. The software can be operated on a VGA monitor if required.
- 64 MB memory (minimum) or more recommended
- Windows 95, 98, or Windows NT 4.0 or higher

- One available COMM Port (COMM 1 through COMM 15)
- For interface to an Office or Tactical STE, an interface cable with one end compatible with the PC's selected COMM port and the other end compatible with the STE's RED SERIAL DATA PORT connector.

#### 9.2.1.2. Toolset Installation

1. The STE Toolset software must be installed, not copied, onto the host computer since it requires DLL files not normally supplied by the operating system. Follow the installation instructions supplied with the distribution media. The STE Toolset expects its support files to be in the same directory as the executable. This will occur as part of the installation. Do not move individual files to a different location unless the entire directory is moved.
2. The interface cable must be connected to an available COMM Port (COMM 1 through COMM 15) on the host computer. It is expected that the host computer will be used with multiple STE units so the connection to the appropriate STE connector will be site specific (roll around computer with loose cable end, stationary computer with patch panel, etc).

#### 9.2.1.3. Loading the Toolset Program

The STE Toolset Program is a normal executable file and can be run by any method normally used to load and run an executable.

#### 9.2.1.4. Toolset Menu Items

##### 9.2.1.4.1. Exit Toolset

The first item in the menu bar is "Exit". It is used to end the STE Toolset Program. While there are other ways that might be used to exit the program, it is recommended that the "Exit" menu always be used.

##### 9.2.1.4.2. Toolset Options

The second item in the menu bar is "Options". It is used to view and set various options of the STE Toolset Program as follows:

###### 9.2.1.4.2.1. Terminal Type Selection

The "Terminal Type" tab allows selection of the STE terminal type. Making this selection correctly is important since the STE Toolset Program uses this information in several ways. Only a Tactical STE has a wedge that required a software download. If an Office STE is selected, the wedge download will not be offered unless the wedge override is selected (see below). This selection is stored in a file so it does not have to be made each time the program is run unless the host computer is connected to a different type STE terminal. The first, or only, panel on the Status Bar at the bottom of the STE Toolset window informs you of the terminal type selection that is in effect.

###### 9.2.1.4.2.2. COMM Port Selection

The COMM Port tab allows selection of the COMM Port and Data Rate. Each selection is made from a drop-down list that is populated with the available choices. Typing into the selection box is not permitted. When the STE Toolset Program is run, it polls COMM Port 1 through COMM Port 15. Any ports that respond are listed in the COMM Port drop-down list. Be aware, however, that an existing COMM Port is not the same as an available COMM Port. It is your responsibility to select a COMM Port that is not being used by another device such as a modem or mouse. These selections are stored in a file so they do not have to be made each time the program is run unless the host computer is connected to a different type STE terminal. The selected COMM Port and Data Rate are displayed in an information box in the upper right side of the Software Download tool.

#### 9.2.1.4.2.3. Debug Toolset

The Debug tab allows selections associated with debug options. The first selection is a check box that, if checked, causes debug information to be written to a box on the Software Download tool. If unchecked, the debug information is not displayed. In either case, the debug information is written to a results (log) file named DOWNLOAD.RES. The second selection is the maximum size of the results file. This setting, in kilobytes, determines how large the file is allowed to become before data is removed (over-written), oldest first. Be aware, however, that the downsizing is done prior to a download operation so the file will actually grow beyond the maximum specified at the conclusion of the download operation. These selections are stored in a file so they do not have to be made each time the program is run unless the host computer is connected to a different type STE terminal. If the Write information to on-screen window selection is made, a panel will be added to the Status Bar at the bottom of the STE Toolset window to inform you that the option is in effect.

#### 9.2.1.4.2.4. Override

The Override tab allows selections associated with the override option.

##### 9.2.1.4.2.4.1. CPU Override

A header file controls the normal software download process for each CPU (Host, Network, Wedge, and KOV-14) that can be downloaded. The default override option for each CPU is, therefore, "allow control by header file". Each CPU download option can be overridden by selection the tool's "Force full download" or "Skip download". If any of these selections are made, a panel is added to the Status Bar at the bottom of the STE Toolset window to inform you that the selected override option is in effect. The override options are in effect only as long as the STE Toolset Program is running, i.e. the defaults are not changed. Note that the completion of a download operation does not exit the STE Toolset Program. The program simply resets and is available for the next operation. If the program is ended and restarted, the override options return to their default settings.

##### 9.2.1.4.2.5. Initiate Data STE Software Download.

The button does not apply to the Office or Tactical STEs.

#### 9.2.1.4.3. Help

The third item in the menu bar is "Help". It is used to view the STE Toolset Program "About" and "Credits" menu items.

##### 9.2.1.4.3.1. About

The "About" menu item displays a standard Windows About form that provides STE Toolset Program information.

##### 9.2.1.4.3.2. Credits

The "Credits" menu item displays a scrolling list of the people who developed the STE in an end of movie credit format.

### 9.2.2. Software Download Tool

This tool is capable of performing the software download operations on the Office and Tactical STE terminals. Since this operation is performed via the RED SERIAL DATA PORT it is necessary to select the proper type terminal from the "Options" menu and to make sure that the host computer is connected from the selected COMM Port to the correct connector on the STE.

#### 9.2.2.1. Host, Network, Wedge and KOV-14 Status Boxes

During a software download operation, the progress is reported to the user by status boxes. The status of the Host Processor software download is reported in the Host Processor status box. Since the software delivery header file for the Host Processor determines which, if any, sector files need to be downloaded, the reported status could be anything from "Download Not Required" to "Sending /Sent Signature Packet", "Sending/Sent Packet xx" followed by "Download Complete" or "Download Failed". Whether or not the Host Processor download is performed and is successful, the Network download will attempt unless the STE aborts the download operation.

The status of the Network Processor download is reported in the Network Processor status box. Since the software delivery header file for the Network Processor determines which, if any, sector files need to be downloaded, the reported status could be anything from "Download Not Required" to "Sending/Sent Packet xx" followed by "Download Complete" or "Download Failed". Whether or not the Network Processor download is performed and is successful, the Wedge download process is performed unless the STE aborts the download operation.

The status of the Wedge Processor download is reported in the Wedge Processor status box. Since the STE terminal type and the software delivery header file for the Wedge Processor determines whether a download needs to be performed, the reported status could be anything from "Download Not Required" to "Download in Progress" followed by "Download Complete" or "Download Failed". Whether or not the Wedge Processor download is performed and is successful, the KOV-14 download process is performed unless the STE aborts the download operation.

The status of the KOV-14 Processor software download is reported in the KOV-14 Processor status box. Since the software delivery header file for the KOV-14 Processor determines whether a download needs to be performed, the reported status could be anything from "Download Not Required" to "Download in Progress" followed by "Download Complete" or "Download Failed".

#### 9.2.2.2. File, Job Progress Indicators

During the software download process for the Host and Network processors, the progress is displayed by gauge indicators. Even at the highest speed supported by the STE (38.4 kbps), a sector download takes over 30 seconds. To give the user a visual indication that the download is progressing satisfactorily, a File Progress Indicator is updated after each 2kB block of data is transferred. The indicator is scaled to the number of sectors that will be transferred and is updated after each sector transfer is completed.

#### 9.2.2.3. COMM Port Settings Box

The user selected settings of the active COMM Port are displayed in the COMM Port setting box. Displayed settings include the selected COMM Port, the data rate, parity setting, number of data bits, and number of stop bits.

#### 9.2.2.4. Software Version Box

As the software download progresses through the processors, the current (previous) and new software version numbers are displayed in the Software Versions box.

#### 9.2.2.5. Start, Quit Buttons

In order to prepare an Office or Tactical STE Terminal for a software download, the STE must be configured to accept the download via a STE menu setting, i.e., /Terminal Management/Terminal Privileges, Association-Software Update Enhancement/Software Version/CHANGE.

### CAUTION

Canceling a software download can leave the STE in a state that requires a complete download to recover.

When the Toolset's Software Download tool is displayed for the Office and Tactical STE terminals, it does not start automatically. This is to give you the opportunity to check and/or change the settings in the Options menu. When you are satisfied with these settings, the program is started by clicking on the "Start" button. The program can be stopped at any time by clicking on the "Cancel" button. Note that a complete "no-fault" software download for all four CPUs takes approximately 20 minutes, or about 4 to 6 minutes per CPU. If fewer CPUs require update, less time will be required.

#### 9.2.2.6. Debug Box

When the Write information to on-screen window check box on the Debug tab of the Options form is checked, a scrollable text box is displayed in the lower, empty, portion of the Software Download tool. Each protocol packet sent to or received from the STE is also written to this text box so that you can observe any protocol problems the process may experience.

If the Write information to on-screen window check box on the Debug tab of the Options form is not checked this text box is not displayed.

In either case the protocol packets are written to the results file.

#### 9.2.2.7. Wedge S Records

During a Wedge software download, each S Record sent to the Wedge is displayed in the Wedge S Records box. At all other times this box is not visible.

#### 9.2.2.8. KOV-14 Reprogram Option

If, by header file decision or override option, the KOV-14 reprogramming option is offered to you, the KOV-14 Reprogram Option form is displayed. This form offers you the opportunity to program the KOV-14 presently in the STE by pressing the Continue button. You may also remove the KOV-14 presently in the STE and insert a different KOV-14 to be reprogrammed, then press the Continue button. Additionally, you can choose not to program a KOV-14 by pressing the Cancel button.

#### 9.2.2.9. KOV-14 Reprogram Warning

If a KOV-14 reprogram operation is performed, the KOV-14 Reprogram Warning form is displayed. This form warns you not to remove the KOV-14 during reprogramming.

### WARNING

Removal of the KOV-14 when this form is displayed may leave the KOV-14 in a non-recoverable state.

#### 9.2.2.10. Message Box

The message boxes are used to display information such as normal program termination or abnormal occurrences during the software download process.





## CHAPTER 10. GLOSSARY

**Access Control List (ACL):** A defined list of remote users that can establish secure communications with a local terminal. The ACL is stored within the STE and is composed of a list of Key Material identifier (KMID) numbers and/or Department Agency Organization (DAO) Codes.

**Adaptive Differential Pulse Code Modulation (ADPCM):** A speech coding scheme that allows an analog voice conversation to be carried in a 32kps digital channel.

**Carry Card:** A KOV-14 cryptographic card used to transfer a Resident User CIK to another STE terminal in order to establish a Resident User Association.

**Code Excited Linear Prediction (CELP):** A speech coding scheme that allows an analog voice conversation to be carried in a 4.8kps digital channel.

**Continuously Variable Slope Delta (CVSD) Modulation:** A method for coding analog voice signals into digital signals that uses 16kbps to 64kbps bandwidth, depending on the sampling rate.

**Fill Card:** A KOV-14 cryptographic card programmed at the Central Facility with the CIK installed on the card. The card is classified to the level of the keying material.

**Linear Predictive Coding (LPC):** A speech coding scheme that allows an analog voice conversation to be carried in a 2.4kps digital channel.

**Maximum Security Level:** A component of SACS that defines the maximum security level the STE may attempt to establish secure communications.

**Minimum Security Level:** A component of SACS that defines the minimum security level the STE may attempt to establish secure communications.

**Multi-Level Precedence Preemption (MLPP):** A system that allows selected customers to exercise preemption capabilities to seize facilities being used for calls with lower level precedence (e.g., Flash preempts Routine).

**Point-to-Point Configuration:** A configuration having one Terminal Equipment per ISDN line.

**Point-to-Multipoint Configuration:** A configuration having more than one Terminal Equipment per ISDN line. In many situations, the STE appears as more than one Terminal Equipment to an ISDN switch.

**Pulse Code Modulation (PCM):** A speech coding scheme that allows an analog voice conversation to be carried in a 64kps digital channel.

**Resident User:** Secure operation of the STE is automatically enabled when the User's card is installed in the STE. A Resident User Association must first be established by the TPA.

**Resident User Association:** The one-to-one correspondence between a particular User card and STE terminal. The User CIK is transferred from a Fill Card or Carry Card to the STE under the control of the TPA.

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**Secure Access Control System (SACS):** The STE terminal provides a SACS feature that controls secure connections between STEs based on capabilities and privileges of the user and terminals. SACS consists of three elements: an ACL, an application minimum security level, and an application maximum security level; each of which may be offered independently. The configuration of each of these elements is under the control of the TPA.

**Terminal Privilege Authority (TPA):** Individual responsible for the configuration of the security features and software upgrades of the STE. These functions are controlled via the TPA card and accessed via the Terminal Management Menu on the STE.

**Type 1 Key:** Key used in classified algorithms approved by NSA for securing classified information.

**User Card:** A KOV-14 cryptographic card carried by the User to activate the secure capabilities of the STE.

**User Cryptographic Ignition Key (CIK):** The User CIK serves as a mechanism to enable the security functions of the KOV-14 cryptographic card.

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