HTC-1100E

Digital Loop Carrier System

Craft Interface Manual

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1. Introduction

1.1. This document describes the basic HTC-1100E Craft Interface. The craft interface is a simple, menu-driven software interface which provides facilities for provisioning, maintaining, traffic monitoring, testing and administering the HTC-1100E system.

1.2. This manual assumes the reader possesses a general knowledge of the HTC-1100E System. If more basic information is needed, consult the System Overview before continuing with this Craft Interface manual.

1.3. The introduction gives a summary of the conventions used in this document. It also lists special keys and describes the menus used to operate the system. After the introduction, separate sections for each menu discuss the various menu commands and the input they require.

Conventions

1.4. In this document, words or characters enclosed in brackets {} are keys on the terminal keyboard. When the {} brackets appear, press the key for the character or word enclosed in {} brackets, but do not type the {} brackets. For example, {ENTER} means press the enter key. {>} means press the "greater than" key.

1.5. Some keyboards use {RETURN} rather than{ENTER}. Other keyboards use a bent arrow pointing toward the alphabetic character keys. If the keyboard uses something other than {ENTER}, substitute that key when this manual says to press {ENTER}.

1.6. The HTC-1100E System is designed to be simple yet powerful. A LET or RST may be set up and operated without using the Craft Interface software. On power up, the system will automatically perform all necessary initialization routines for the CPU, the PSU and any user interface cards that have been mounted in the terminal cabinet. The software interface has been added to provide greater flexibility in operating the system.

1.7. The system uses a menu-driven craft interface that requires no switches, straps or other forms of manual intervention. The software supports all the commands needed to administer, maintain and provision the system. Figure 1-a shows the menu structure of the HTC-1100E Craft Interface.

Interfaces

1.8. To use the craft interface, the operator needs a 9-pin RS232-C connector cable connected to either a simple terminal such as a VT 100 or a computer running a terminal emulation program.

1.9. The system operates at 9600 baud. The craft interface may also be accessed remotely using a modem. When using modems or PCs to access the craft interface, a null modem may be necessary to complete the connection. The craft interface port is configured with pin 2 as receive, pin 3 as transmit and pin 5 as ground.

1.10. If desired, the terminal may also be connected directly to the HTC-1100E backplane. However, if a direct connection is made to the backplane, the user may not use the DB9 connector under the air ramp on the front of the HTC-1100E. Cable length should not exceed 50 feet. Connection points are provided on the alarm contact field of the HTC-1100E backplane. The cable should terminate to pin C5 for receive, pin D5 for transmit and a ground should terminate to pin D7.

1.11 Figure 1-b shows the location of the port on the front of the LET or RST. Connect the terminal to the port on either the LET or the RST and press {ENTER}. The system then prompts the user for User ID and Password information.

1.12. The HTC-1100E craft interface allows more than one user to access the system at the same time. Multiple users may log on from remote terminals to test and monitor the system.

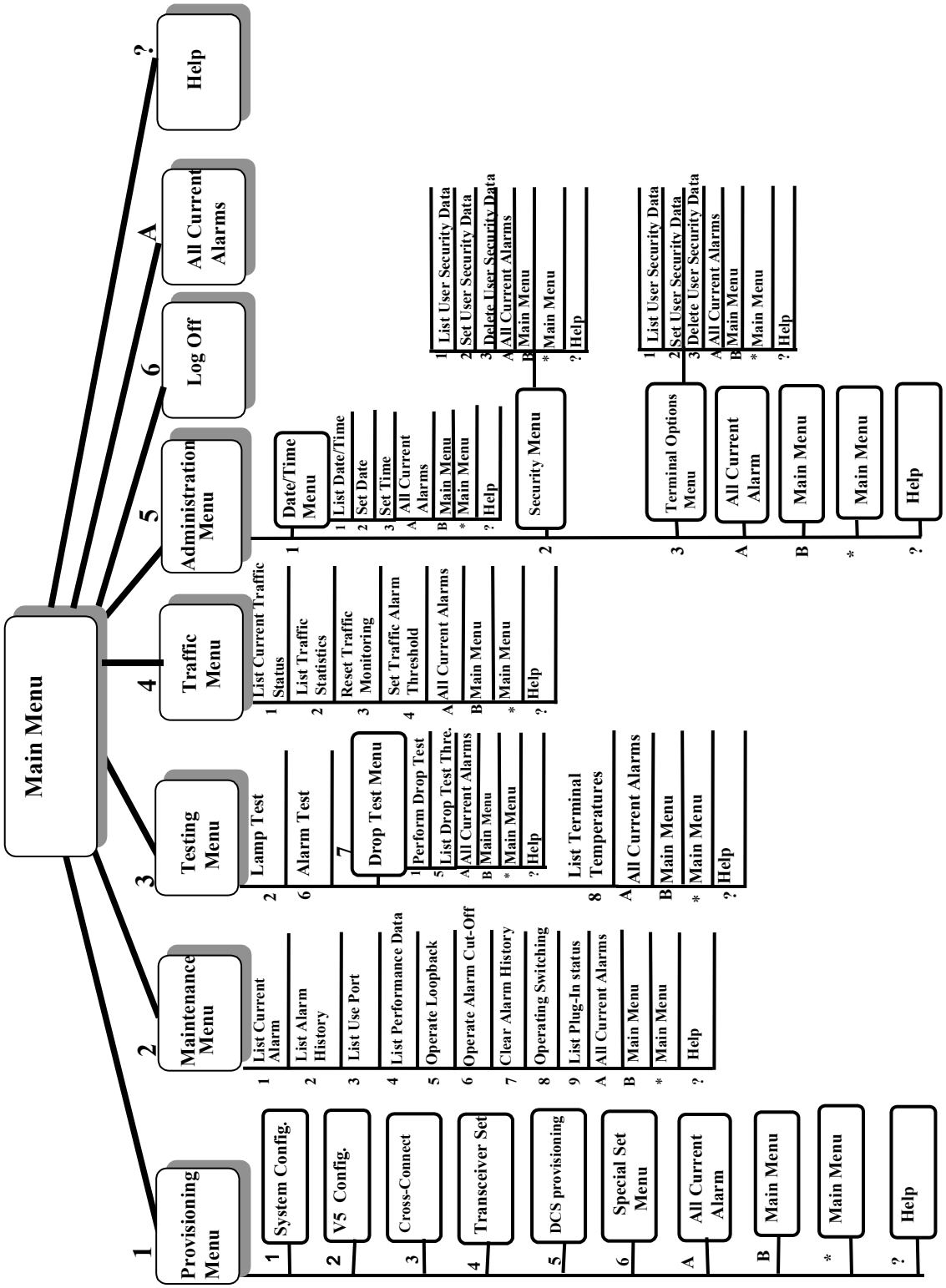


Figure 1-a. HTC-1100E Craft Interface Menu Structure

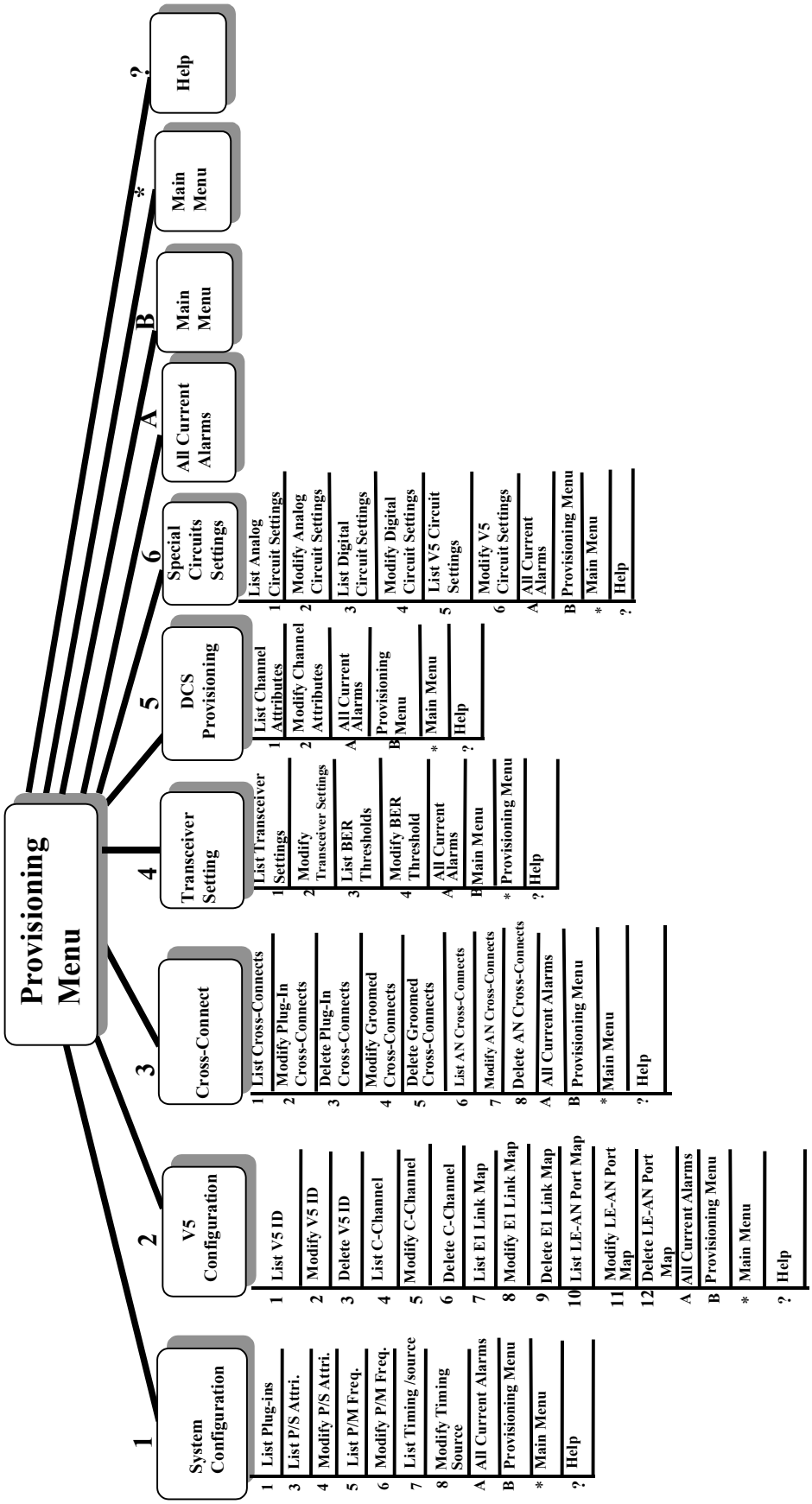


Figure 1-a-1. HTC-1100E Provisioning Menu

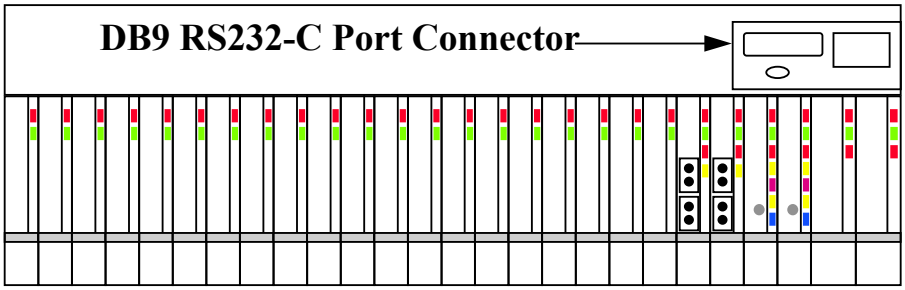


Figure 1-b HTC-1100E Channel Bank Assembly Showing Location of DB9 RS232-C Port

1.13. For autonomous alarm reporting, equipment inventory and other desired reports, output may be automatically directed to a printer. Autonomous reporting requires that a printer be connected to the printer port on the terminal or computer which is interfaced to the HTC-1100E equipment. Consult the user manual for the terminal or terminal emulation software being used for specific instructions about how to set up a printer for this purpose.

Power Up

1.14. The first time when the HTC-1100E is powered up, the system performs a power up diagnostics routine. The CPU performs an internal initialization routine for both the software and hardware components of the active CPU card. Then the CPU performs a series of terminal diagnostics on the components of the local terminal to verify functionality of communications links, data paths and audio paths. If a standby CPU is installed, a series of diagnostic tests is run on the standby CPU to verify its hardware and software operability. All LED lamps are tested during the power up diagnostics testing by first turning on all LEDs in the terminal. As each LED is tested, it is turned off. The complete LED test procedure takes about one minute. A standing FAIL LED will indicate a failure state of a card after the system turn-up diagnostics test is performed. A message is printed on the screen identifying any cards which report failures during the terminal diagnostic procedure. Finally, the CPU performs a system test to verify data paths and communications links throughout the system (the LET and any RST's in the network). If no data paths or communications links exist between the LET and an RST in the network, the system will report that the LET cannot communicate with that RST. The LET will power up alarm free only if it is successfully communicating with all RSTs in the network.

1.15. When the initial power up testing is completed, a report is printed on the terminal screen. The terminal is ready for traffic when the green ACTV LED is lit on the active CPU. If a standby CPU is installed, the yellow STBY light should be lit. Any card that failed the power up diagnostics routines will show a lighted red FAIL LED on the card that failed.

Logging On

1.16. To use the HTC-1100E craft interface, establish a connection. Using a 9-pin RS232-C connector cable, connect the terminal to the LET or RST. When properly connected, the system prompt appears on the terminal screen to ask for user name and password key-in.

1.17. If the system is being started for the first time, no user I. D. or password information has been entered into the system. In this case, pressing {ENTER) at each of the log-in prompts will give the user access to the HTC-1100E Craft Interface. In case of the security has been set up, user has to input the correct user name and password to get access to the Craft Interface. For more information on User IDs and Passwords, see the "Administration" section.

1.18. When a correct User ID and Password have been entered, the terminal displays the HTC-1100E Craft Interface Main Menu shown in Figure 1-c.

1.19. HTC-1100E commands fall into one of five major categories: Provisioning, Maintenance, Testing, Traffic and Administration. In addition, the Main Menu lists three other options: the **Log Off** option to end the craft interface session, the **A** option to list all current alarms, and the **{?} Help** option to request help with a particular command or menu. If Help is requested at a data input prompt, the system lists the valid input values for the current prompt.

1.20. To make a selection from the menu, type the number displayed beside the desired menu item and press {ENTER}.

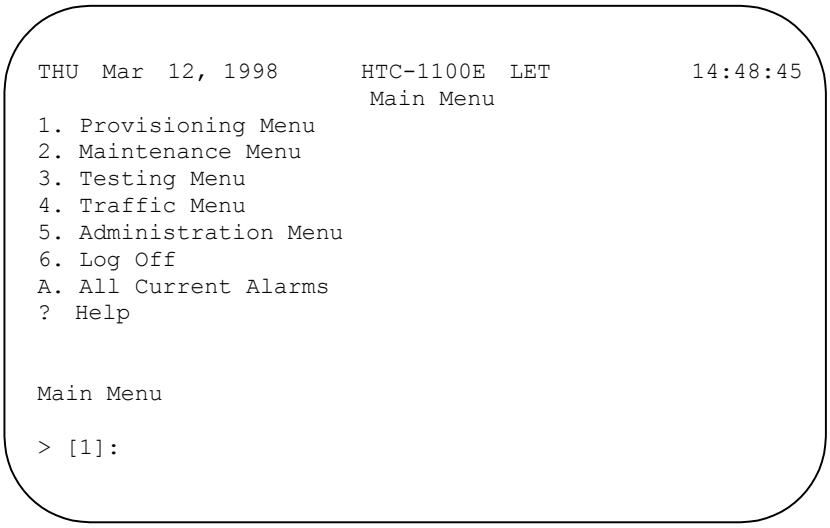


Figure 1-c HTC-1100E Craft Interface Main Menu

The Prompt

1.21. The HTC-1100E craft interface uses the Greater Than {>} symbol as the system prompt. It marks the position on the screen where the user types menu selection numbers or other needed input. One Greater Than {>} symbol indicate the top level of the HTC-1100E menu system. As the user moves to lower levels of the menu tree, the system adds Greater Than symbols to the prompt. For example, at the second menu level, the prompt becomes {>>}. By counting the number of Greater Than symbols in the prompt, the user can easily determine his current level in the menu structure.

1.22. In addition, the system also displays the default input value for the prompt where the user is working. This value appears enclosed in brackets [ ] following the prompt symbol. If the displayed value is the correct one, pressing {ENTER} at the prompt accepts the displayed default value as the current input value. Otherwise, the user has two options. If the desired value is not known, press either bracket key ([or]) to begin scrolling through the acceptable entry values until the desired value is displayed, then press {ENTER} to accept the displayed value as the input for the prompt. If the desired value is known, just type it after the prompt and press {ENTER}.

HTC-1100E Card Addresses

1.23. Many HTC-1100E commands require a Card Address. The Card Address is the unique location of a particular interface card in the HTC-1100E system. It identifies the physical location of the card in terms of the terminal, terminal shelf number and shelf slot number.

1.24. Card Addresses take the form: <terminal> - <shelf> - <slot>
where:
terminal = LET, RST1, RST2, RST3, ..., RSTn
shelf = 1 to 8
slot = 1 to 26

- **Terminal** - Either LET or RST. LET stands for the Local Exchange Terminal. RST stands for the Remote Subscriber Terminal. The number following RST indicates the n^{th} RST terminal address in the system, where n could be any value from 1 to 15.. The system automatically stores this number in the system database at system turn-up.

- **Shelf** - The shelf number indicates the shelf, where a card resides in the system. The LET or RST may contain a maximum of 8 shelves. The first shelf is shelf one, also called the primary shelf.

- **Slot** - The slot refers to the shelf slot where a card resides. There are 26 slots in each shelf.

1.25. For example, the address for the card in the first slot on the first shelf of the Local Exchange Terminal becomes: LET-1-1. The address for the card in the sixth slot on the fifth shelf of the first Remote Subscriber Terminal becomes: RST1-5-6

Special Keys

1.26. The HTC-1100E Craft Interface assigns special functions to some of the keys on the terminal keyboard. These special keys are provided to make data entry as quick and easy as possible. These special keys are not needed to operate the system, they have been provided to facilitate the process if desired. The special keys are listed and discussed below. Table 1-A summarizes special keys and their functions in the Craft Interface.

Special Key	Function in HTC-1100E Craft Interface
>	Toggle forward through current valid data values
}	Toggle forward through current valid data values
<	Toggle backward through current valid data values
{	Toggle backward through current valid data values
?	Help
*	Return to Main Menu
A or a	List all current alarms
B or b	Back up to the previous menu
ENTER	Execute the selected command
ESC	Back up to previous menu or escape from current command

Table 1-A. Special Characters for HTC-1100E Craft Interface

The Enter Key

1.27. The {ENTER} key is usually the largest key on the keyboard. It is located to the right of the alphabetic characters. On some keyboards, the key says {RETURN}; on others it is marked with a bent arrow. Pressing the {ENTER} key executes HTC-1100E commands.

The Escape Key

1.28. The location of the {ESC} key varies from one keyboard to another. It usually is found in the upper left hand corner of the keyboard. If pressed before the final {ENTER} on a command line, the {ESC} key allows the user to escape from a command before execution. When pressed at a menu, it allows the user to back up to the previous menu.

The Greater Than {>} Key

1.29. The Greater Than key adds one to the value displayed in the input field. If no data appears in the input field, the Greater Than key provides the lowest value allowed for that field**.** Press the Greater Than key as many times as needed to reach the desired value. If the correct value is known, you may enter it. Data entry does not require the use of the Greater Than key.

The Right Bracket {]} Key

1.30. The {]} key works just like the Greater Than Key. Pressing the {]} key adds one to the current value in the data field**.** If no value appears in a data field, it provides the lowest value allowed in that field**.** If the correct value is known, data can be entered without using this key.

The Less Than {<} Key

1.31. Pressing the Less Than key subtracts one from the data displayed on the screen. If there is no value on the screen, pressing the Less Than key provides the highest value allowed for this data field. This key may be pressed several times until the screen displays the desired value. If the correct value is known, enter it without using the Less Than key.

The Left Bracket {[} Key

1.32. The Left Bracket key works just like the Less Than Key. It subtracts one from the current value in the data field. If no value is displayed, it provides the highest value allowed for this field. This key is not required. If the correct value is know, you may enter it.

The Question Mark {?} Key

1.33. This {?} key provides help with HTC-1100E commands and menus. Pressing the {?} key provides the user with a list of the input options available for the prompt where the user is currently working. Pressing the {?} key at a menu level prompt causes the current working menu to be displayed on the screen.

The {A} or {a} Key

1.34. The {A} key allows the system operator to get a listing of all current alarms from any prompt in the HTC-1100E Craft Interface. To obtain the list of current alarms, press the {A} or {a} key at any system prompt and press {ENTER}. The system will print a list of all current alarms on the screen and return to the last menu being used.

The {B} or {b} Key

1.35. The {B} key allows the user to backup to the previous menu. This option usually appears on the menu screen. The system will accept either the upper case or the lower case B.

The Asterisk {*} Key

1.36. From anywhere in the HTC-1100E Craft Interface, pressing the key returns to the Main Menu.

2. Main Menu

2.1. The Main Menu lists the major command groups for the HTC-1100E Craft Interface software. There are no executable commands available at this level. The command groups are described below. Figure 2-a shows the Main Menu.

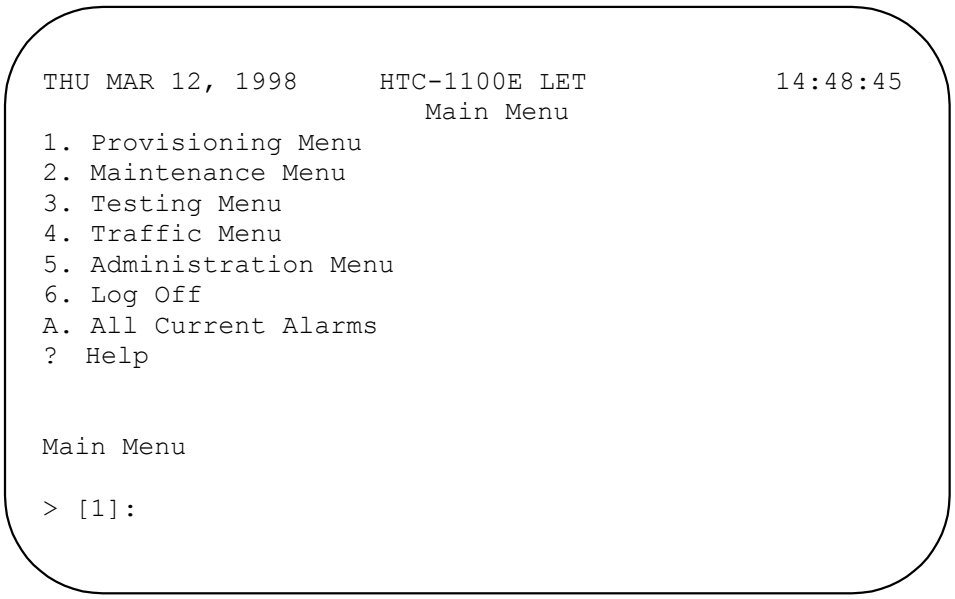


Figure 2-a. HTC-1100E Craft Interface Main Menu

Provisioning - Provides commands for configuring the system. Command options include configuration commands for groomed circuits and POTS (Plain Old Telephone Service). Transceiver configurations are also done using the Provisioning Menu.

Maintenance - Performs system maintenance functions such as listing current alarms and alarm history, listing performance information about transmission spans and operating the alarm cut off.

Testing - Performs system testing functions. Options include running lamp and alarm testing as well as subscriber line drop testing. Temperatures in remote cabinets may also be monitored with commands in the Testing Menu.

Traffic - Lists traffic statistics and allows resetting of traffic statistics information. This menu also provides the ability to set thresholds for traffic alarms.

Administration - Provides system date, time and screen display control functions, provides commands to add, change or remove users and user passwords in the system.

Log-Off - Ends the current user's session in the HTC-1100E Craft Interface.
A - List All Current Alarms occurring in the system.
? - Provides help with the menu screen or command currently displayed.

To make a choice from the Main Menu, type the number beside that choice at the system prompt and press {ENTER}

3. Provisioning Menu

3.1. The Provisioning Menu is used to configure the system hardware. Several sub-menu options are available. Figure 3-a shows the Provisioning Menu.

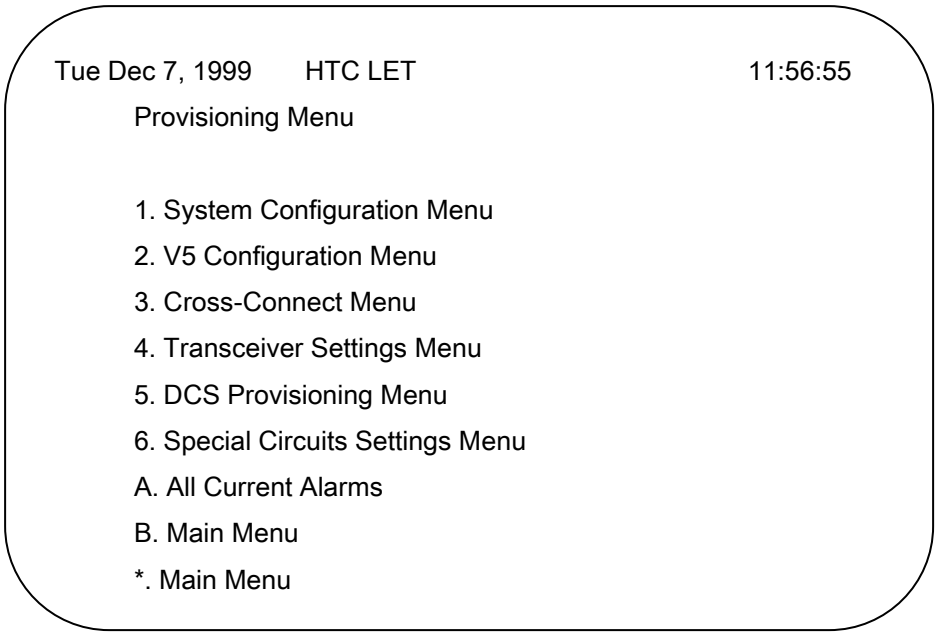


Figure 3-a. HTC-1100E Craft Interface Provisioning Menu

System Configuration Sub-menu - Provides a list of current interface card addresses and card status.

V5 Configuration Sub-menu –Provides commands for listing and setting V5 system. All V5 system refer to chapter 8, please.

Cross-Connect Sub-menu - Provides the capability to build various types of cross-connects from one time slot to another time-slot.

Transceiver Setting Sub-menu - Provides commands for listing and setting transceiver configurations and listing or modifying BER Red and BER Maintenance alarm thresholds.

DCS Provisioning Sub-menu - Provides commands for listing and configuring individual groomed circuits on an E1 span.

Special Circuits Settings Sub-menu - Provides commands for configuring settings for analog or digital cards having user defined options such as gain or signaling type.

The System Configuration Sub-menu

3.2 The System Configuration Sub-menu provides commands that allow the user to properly configure the HTC-1100E. Figure 3-b shows the System Configuration Sub-menu.

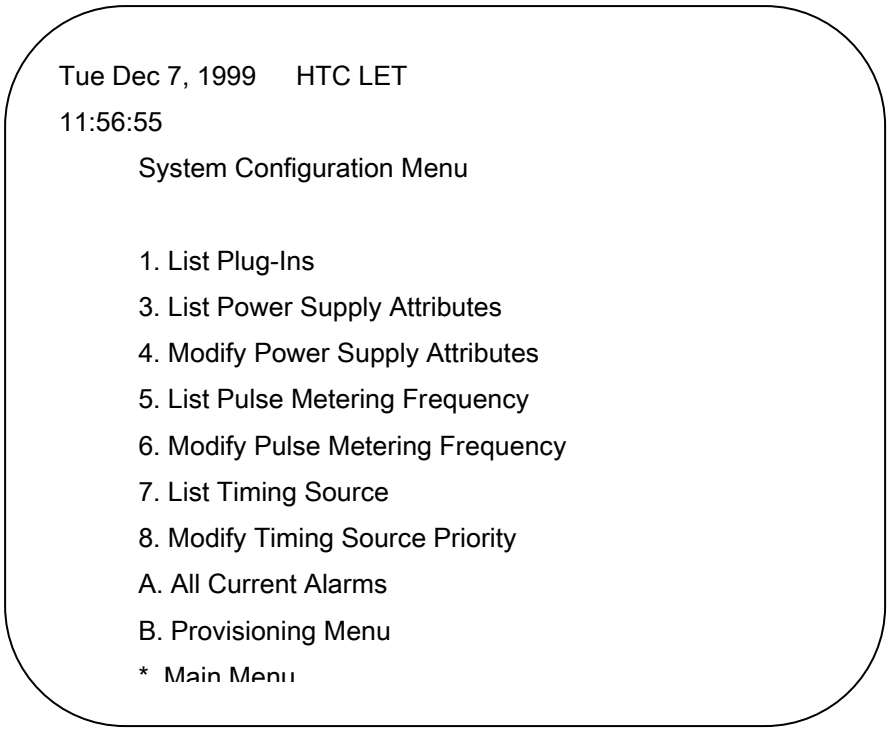


Figure 3-b. The System Configuration Sub-menu

List Plug-Ins

3.3 The List Plug-Ins command provides a list of all plug-in cards installed in a system. Table 3-A lists the status types which may be reported in the plug-ins listing.

Plug-In Status	Definition
Failed	Unit type is established, but the plug-in that is seated in the slot is not operating properly
In-Service	Unit type is established. The plug-in is seated in the slot and is operating properly. This doesn't mean that the card is carrying traffic or serving subscribers.
Missing	The unit type was established but the defined plug-in that was once seated is no longer found.
Unequipped	The card slot has no plug-in type established and has no plug-in card seated in the slot.
Wrong Type	The established card type does not match the plug-in actually seated in the slot.
Out of service	The card in this slot is not in service.
Disabled	The card has been disabled via Craft Interface commands.
Standby	The unit is established and is a standby for the active unit.
Active	The unit is established and is currently in use.
Notes:	
Established:	System software has assigned a particular plug-in type to a given card slot. This is accomplished by seating a card into an unequipped slot.
Seated:	A plug-in card has been physically inserted into the card slot in the Channel Bank Assembly card cage.

Table 3-A. Plug-In Status Values for HTC-1100E System

3.4. The system will display a prompt asking for the starting location for this Plug-Ins report. The default location appears in brackets in the system prompt. Press {ENTER} to accept the default selection.

Enter Starting Plug-In Location: [LET-1-1]

3.5. If the default value is not desired, type the desired beginning location at the system prompt. **T**he location takes the form terminal-shelf-slot. A dash separates each of the location fields.

3.6. The terminal may be LET or RST1 to RSTxx. Shelf may be any number from 1 to 8. Slot may be any number from 1 to 26. If the desired beginning location is known, type it at the prompt and press {ENTER}. LET- 1-1 is the lowest beginning location; RSTxx-8-26 is the highest where xx represents the highest RST number stored in

in the system database. If an incorrect value is entered into the data field, the system displays an error message identifying the problem and listing a range of acceptable values.

3.7. When all three components of the beginning location have been entered, the system prompts the user for the ending location.

Enter Ending Plug-In Location: [RST1-1-26]

3.8. The ending location address follows the same rules as those for the beginning location.

3.9. The ending location must be equal to or greater than the beginning location. For example, if RST1-1-1 were entered as the beginning location, the ending location must be RST1-1-1 or higher. LET-1-1 would be less than RST1-1-1 and could not be entered as the ending location.

3.10. When correct beginning and ending locations have been entered, the HTC-1100E system will print a report on the screen. Table 3-A shows a listing of the different status values that may appear on this report. Figure 3-c shows a sample printout from this report. After the report is completed, the System returns to the System Configuration Sub-menu.

```
List Plug-Ins

Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

Location   Plug-In   Status          Version      Assembly     Serial Number
-------------------------------------------------------------------------------
LET-1-6    DD64      In Service      1B 2.1.3     2008301001   9018300045
LET-1-13   E1X-XCVR  Out Of Service  1B 2.0.10    2038-0100    9010100089
LET-1-17   FO-XCVR   Standby         3D 3.0.6     2004-0100    7010401261
LET-1-22   FO-XCVR   Active          3D 3.0.5     2004-0100    8010400272
LET-1-23   CPU       Standby         1D 5.0.9     2008901001   8010000003
LET-1-24   CPU       Active          1D 5.0.9     2008901001   8010000021
LET-1-25   L-PSU     In Service      1B           0101-0002    8000200024
RST1-1-8   RI-POTS   In Service      3E 2.2.6     2003-0100    7014903470
RST1-1-21  FO-XCVR   Standby         3D 3.0.6     2004-0100    7010400320
RST1-1-22  FO-XCVR   Active          3D 3.0.6     2004-0100    8010400455
```

Figure 3-c. Sample Output using the List Plug-Ins Command

List Power Supply Attributes

3.11. The List Power Supply Attributes Command allows the user to view the PSU ring voltage and PSU ring frequency defined in the system. The system will list the ring voltage and ring frequency currently defined in the system when press {3} at the System Configuration Menu and press {ENTER}.

PSU Ring Voltage: 85 volts
PSU Ring Frequency: 20.0Hz

Modify Power Supply Attributes

3.12. Type {4} at the System Configuration Menu prompt and press {ENTER} to access to the Modify Power Supply Attributes command. It is used to modify ring voltage and ring frequency in the system. The ringing voltage and frequency are both software selectable. There are totally 20 different frequency values and 4 ringer voltage levels can be selected by user. The 85 Volt and 20 Hz are the default voltage and frequency settings.

List Pulse Metering Frequency

3.13. The List Pulse Metering Frequency Command displays the pulse metering frequency used by the subscriber interface.

3.14 The RST terminal provides two different Pulse Metering frequencies: 12 kHz and 16 kKz. The modify Pulse Metering Frequency command allow the user to select wither frequency. The default frequency is 16 kHz.

List Timing Source

3.15 The List Timing Source Command allows users to view the timing source and the timing source priority defined in the system. The system will list the timing source and the timing source priority currently defined in the system when press {7} at the System Configuration Menu and press {ENTER}.

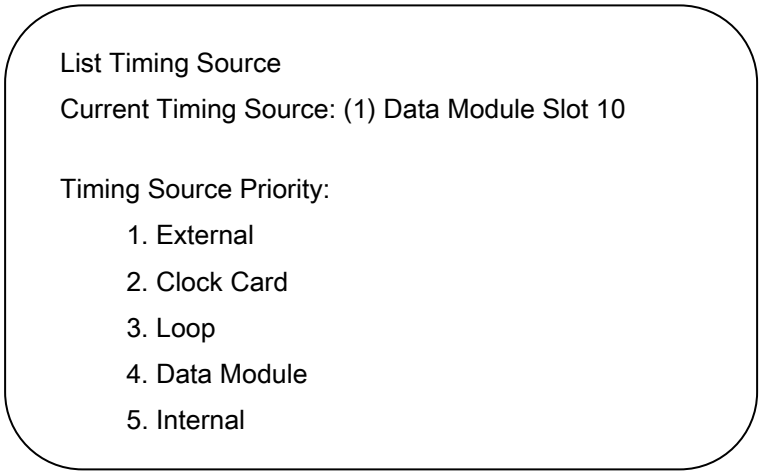


Figure 3-d Sample Output using the List Timing Source Command

Modify Timing Source Priority

3.16. Type {7} at the System Configuration Menu prompt and press {ENTER} to access to the Modify Timing Source Priority command. It is used to modify timing source priority in the system. The system defined External and Internal Timing Sources have the highest and lowest priority separately, It can't be changed. The other of priority timing sources can be selected by user. No matter user changed the Timing Source Priority at LET side or RST side, only LET side Timing Source Priority can be changed.

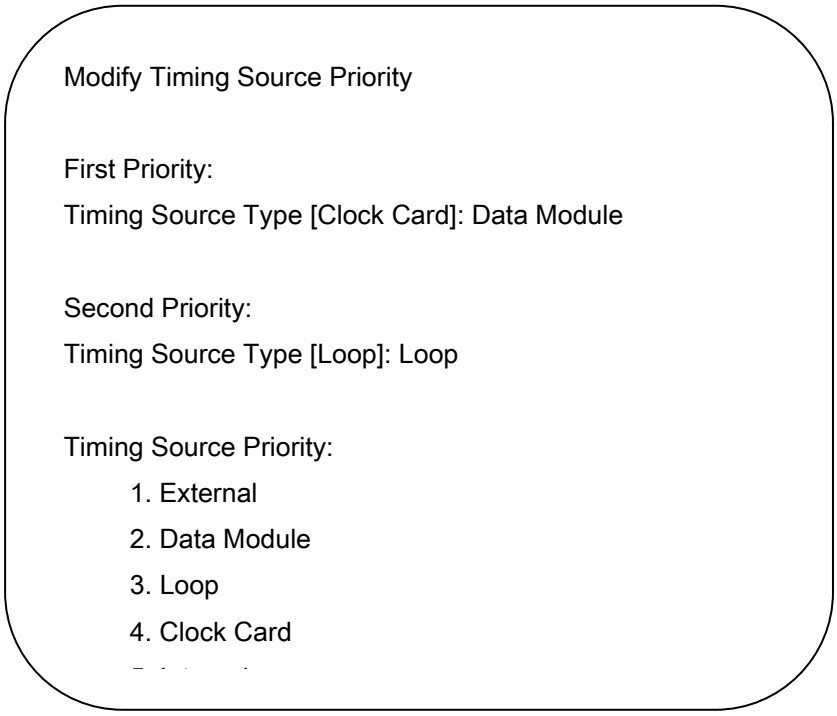


Figure3 –e Sample Output using the Modify Timing Source Priority Command

The Cross-Connect Sub-menu

3.17. The Cross-Connect Sub-menu contains commands which allow the user to list, modify or delete cross-connects between different slots in channel banks. These commands may be used to cross-connect circuits from one POTS card to another. Next figure shows the Cross-Connects Sub-menu.

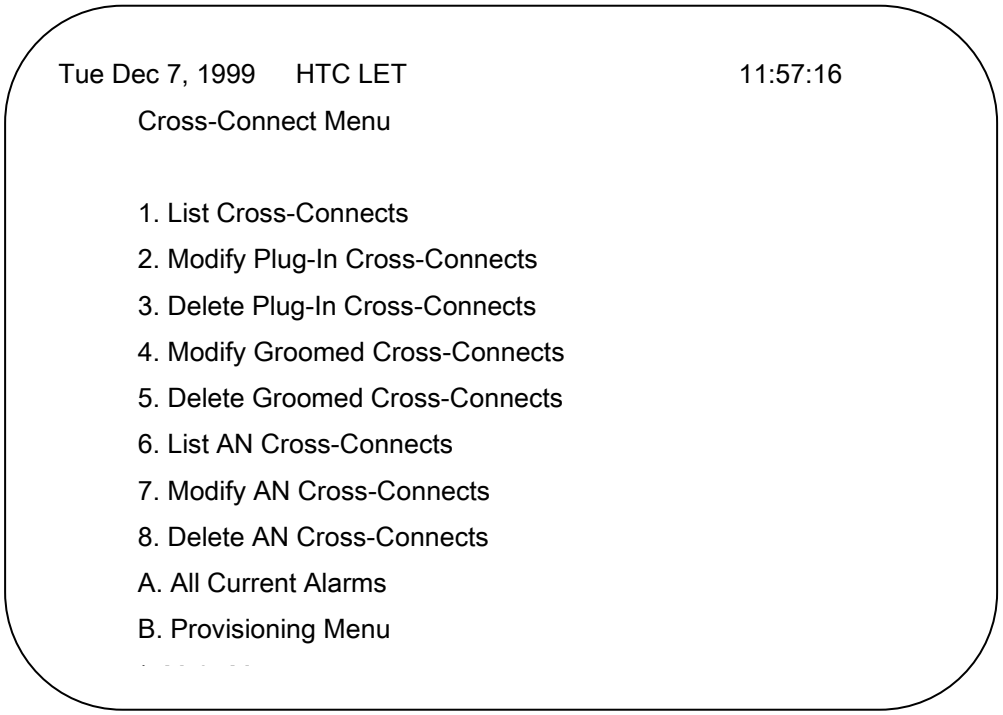


Figure 3-f. HTC-1100E Craft Interface Cross-Connect Sub-menu

3.18. When slot to slot cross-connects are used, the system builds cross-connects for all circuits on the cards occupying the two slots specified in the Plug-In Cross-Connects commands. These cross-connects are done sequentially (i.e., circuit one on the "From" card is mapped to circuit one on the "To" card; circuit two on the "From" card

is mapped to circuit two on the "To" card, etc.) until all circuits on the two cards are mapped. To use the Cross-Connect Sub-menu commands, type {3} at the Provisioning Menu prompt and press {ENTER}.

List Cross-Connects

3.19. The List Cross-Connects command displays a list of the cross-connects defined in the system. This command lists both the slot to slot mappings and circuit to circuit mappings defined in the system. All cross-connects are listed. When the List Cross-Connects command is issued, the system searches for all cross-connects in the system and prints a listing of all cross-connects found. To issue the List Cross-Connects command, type {1} at the Cross-Connects Sub-menu prompt and press {ENTER}. The system prints a report similar to the one shown in next figure.

```
THU MAR 12, 1998 HTC-1100E LET      14:48:45

List Cross-Connects

LET-1-1 to LET-1-22     Mapped to RST1-1-1 to RST1-1-22

Cross-Connects Menu

» [1] :
```

Figure 3-g Sample Output From the List Cross-Connects Command

Modify Plug-In Cross-Connects

3.20. The Modify Plug-In Cross-Connects is used to specify a slot to slot cross-connect between two cards in different slot locations. The cross-connects established using the Modify Plug-In Cross-Connects command are done sequentially for all circuits on the two cards. For example, if two POTS cards are mapped using the Modify Plug-In Cross-Connects Command, circuit one on the first POTS

3.21. To use the Modify Plug-In Cross-Connect command, type {2} at the Cross-Connect Sub-menu prompt and press {ENTER}. The system prompts for the “From” plug-in location. This location is the terminal-shelf-slot location of the card that is to be mapped. Type the card location and press {ENTER}

Enter From Plug-In Location[LET-1-1]: LET-1-1

```
Modify    Plug-In    Cross

Enter From Plug-In Location  [LET-1-1]   :LET-1-1

Enter To Plug-In Location    [RST-8-26]  :RST1-1-1
Enter Number of Slots  [1] : 2

Overwrite Current Mapping ? [Yes]: Yes

LET-1-2          Mapped to        RST1-1-2

Cross-Connects Menu
>>> [3]:
```

Figure 3-h. Sample Screen Using the Modify Plug-In Cross-Connects Command

3.22. After the “From” location has been entered, the system prompts for the “To” plug-in location. The “To” location is the terminal-shelf-slot location of the card where the “From” card circuits are to be cross-connected. At the prompt, type the location of the “To” card and press {ENTER}.

Enter To Plug-In Location[RST1-8-26]: RST1-1-1

3.23. The system now prompts the user to enter a number of slots. If more than one card is to be mapped, enter the number of cards to be mapped. When more than one card is specified, the system moves from one slot to the next in sequence at both the “From” and the “To” locations until the specified number of slots have been mapped. For example, using the “From” and “To” locations specified in the sample prompts and using two as the number of slots to be mapped, the results of the Modify Plug-In Cross-Connects would be that all circuits on the card in slot LET-1-1 would be mapped in sequence to the corresponding circuits on the card in slot RST1-1-1. After the first card slots are mapped, the system would move to slot LET-1-2 and map all circuits on the card in that slot to their corresponding circuits on the card in slot RST1-1-2. At the prompt, type the number of slots to be mapped and press {ENTER}.

Enter Number of Slots [1]: 2

3.24. After the number of slots is specified, the system checks to see if mappings for those slots already exist. If the system finds mappings, the user is prompted to overwrite the existing mappings. If the user says "Yes", the existing mappings will be overwritten with the new mappings. If the user responds "No", the System does not overwrite the old mappings with the new. At the prompt, type the appropriate response and press {ENTER}.

Overwrite Current Mapping[Yes]: Yes

3.25. After the user responds to the overwrite prompt, the system prints a listing of the current mappings and returns to the Cross-Connect Sub-menu prompt.

Delete Plug-In Cross-Connects

3.26. The Delete Plug-In Cross-Connects allows the user to remove a slot to slot cross-connect between two cards in different slot locations. The cross-connects removed using the Delete Plug-In Cross-Connects command are done sequentially for all circuits on the two cards. Figure 3-g shows a typical Delete Plug-In Cross-Connects screen.

3.27. To use the Delete Plug-In Cross-Connects command, type {3} at the Cross-Connect Sub-menu prompt and press {ENTER}. The system prompts for the "From" plug-in location. This location is the terminal-shelf-slot location of the card whose mapping is to be deleted. Type the card location and press {ENTER}.

Enter From Plug-In Location[LET-1-1]: LET-1-1

3.28. After the "From" location has been entered, the system prompts for the "To" plug-in location. The "To" location is the terminal shelf-slot location of the card where the "From“ card circuits are currently cross-connected. At the prompt, type the location of the "To" card and press {ENTER}.

Enter To Plug-In Location[RST1-8-26]: RST1-1-1

3.29. The system now prompts the user to enter a number of slots. If more than one "From" card is to be mapped, enter the number of cards to be mapped.

Enter Number of Slots [1]: 2

3.30. When more than one card is specified, the system moves from one slot to the next in sequence at both the "From" and the "To" locations established using the Modify Cross-Connects command until the mappings between the specified number of slots have been deleted. For example, using the "From" and "To" locations specified in the sample prompts and using two as the number of slots whose mappings are to be deleted, the results of the Delete Plug-In Cross-Connects would be that the mappings between all circuits on the card in slot LET-1-1 to the corresponding circuits on the card in slot RST1-1-1 would be deleted in sequence. After the mappings on the first card slots are removed, the system would move to slot LET- 1-2 and delete the mappings for all circuits on the card in that slot to their corresponding circuits on the card in slot RST 1-1-2. At the prompt, type the number of slots to whose mappings are to be removed and press {ENTER}.

Delete Current Mapping [Yes]: Yes

3.31. After the number of slots is specified, the system checks to see if mappings for those slots exist. If the system finds mappings, the user is prompted to delete the existing mappings. If the user says "Yes", the existing mappings will be deleted. If the user responds "No", the system does not remove the old mappings. At the prompt, type the appropriate response and press {ENTER}. After the user responds to the delete prompt, the system prints a listing of the current mappings and returns to the Sub-menu prompt.

```
Delete Plug-In Cross Connects

Enter Plug-In Location [LET-1-1]   :LET-1-1
Enter Number of Slots  [1] : 2


LET-1-1 to LET-1-2     Mapped to   RST1-1-1 to RST1-1-2

Delete Current Mapping ? [Yes]: Yes
Cross-Connects Menu
>>> [4]:
```

Figure 3-i. Sample Screen Using the Delete Plug-In Cross-Connects Command

Modify Groomed Cross-Connects

3.32. The Modify Groomed Cross-Connects command is used to establish or change groomed cross-connects. In general, grooming is designed to allow more efficient use of E1 trunks. Groomed cross-connects are used in a variety of applications. For example, fractional E1 service is provided by routing certain time slots on a E1 span to a specific location. The other time slots not used for the fractional E1 service may be used for other purposes such as carrying general traffic. Grooming also allows the user to maximize E1 span use by assigning various non-switched services to a common E1 span. In such an application, the HTC-1100E functions much like a DACS. To establish or modify a groomed cross-connect, type {4} at the Cross-Connect Sub-menu prompt and press {ENTER}.

3.33. The user is prompted for the starting circuit location. This starting circuit location is the terminal-shelf-slot-circuit location of the circuit that is to be mapped. Type the desired circuit location at the prompt and press {ENTER}.

Enter Starting Circuit Location [LET-1-1-1]: LET-1-1-1

3.34. After the starting circuit location has been entered, the system prompts the user for the ending circuit location. This location is the terminal-shelf-slot-circuit location where the starting circuit location is to be cross-connected. At the prompt, type the desired location and press {ENTER}.

Enter Ending Circuit Location[RST1-1-1-1]: RST1-1-1-1

3.35. The system will now prompt the user for a number of circuits. More than one circuit may be mapped using this command. When more than one circuit is specified, the system will create a cross-connect between the starting and ending circuits specified at those prompts. When that cross-connect has been established, the system moves to the next circuit in sequence at each location and builds a cross-connect between those circuits. The system continues in this fashion until the specified number of cross-connects has been established. At the prompt, type the number of circuits to be mapped and press {ENTER}.

Enter Number of Circuits [1]: 2

3.36. After the number of circuits is entered, the system prompts the user to overwrite the existing cross-connects. If the user answers "Yes," the new circuit cross-connects are established. If the user answers "No," the command is stopped and the existing cross-connects are not changed. At the prompt, type the desired response and press {ENTER}.

Overwrite Current Mapping [Yes]? Yes

3.37. The system completes the mappings specified or escapes from the command, depending upon the user's response to the overwrite prompt. The system then returns to the Cross-Connect Sub-menu.

Delete Groomed Cross-Connects

3.38. The Delete Groomed Cross-Connects command allows the user to remove groomed cross-connects from the system. When the groomed cross-connect is removed, mapping for the affected circuits reverts to the system slot to slot mapping currently specified. To use the Delete Groomed Cross-Connects command, type {5} at the Cross-Connect Sub-menu and press {ENTER}. The system prompts the user for information to identify the groomed to be deleted.

3.39. The user is prompted for the circuit location. This circuit location is the LET or RST terminal-shelf-slot-circuit location of the circuit that is to be deleted. Type either the LET or RST location of the circuit to be deleted at the prompt and press {ENTER}.

Enter Circuit Location[LET-1-1-1]:LET-1-1-1

3.40. The system will now prompt the user for a number of circuits. More than one circuit may be deleted using this command. When more than one circuit is specified, the system will delete the cross-connect beginning at the starting circuit specified at the prompt. When that cross-connect has been deleted, the system moves to the next circuit in sequence and deletes the cross-connect for that circuit. The system continues in this fashion until the specified number of cross-connects has been deleted. At the prompt, type the number of circuits to be deleted and press {ENTER}.

Enter Number of Circuits [1]: 2

3.41. After the number of circuits is entered, the system prompts the user to overwrite the existing cross-connects. If the user answers "Yes," the specified circuit cross-connects will be deleted. If the user answers "No," the command is stopped and the existing cross-connects are not changed. At the prompt, type the desired response and press {ENTER}.

Delete Current Mapping [Yes]? Yes

3.42. The system now completes the mappings specified or escapes from the command depending upon the user's response to the overwrite prompt. The user is then returned to the Cross-Connect Sub-menu.

The Transceiver Setting Sub-menu

3.43. The Transceiver Setting Sub-menu provides commands for listing and modifying transceiver settings and alarm thresholds for the transceiver cards mounted in the system. Fiber optic transceivers have no user definable settings and do not appear in any of the menus used for listing or modifying transceiver settings. The user may list or set BER-Red and BER-Maintenance alarms for fiber optic transceivers. Next figure 3-h shows the Transceiver Setting Menu.

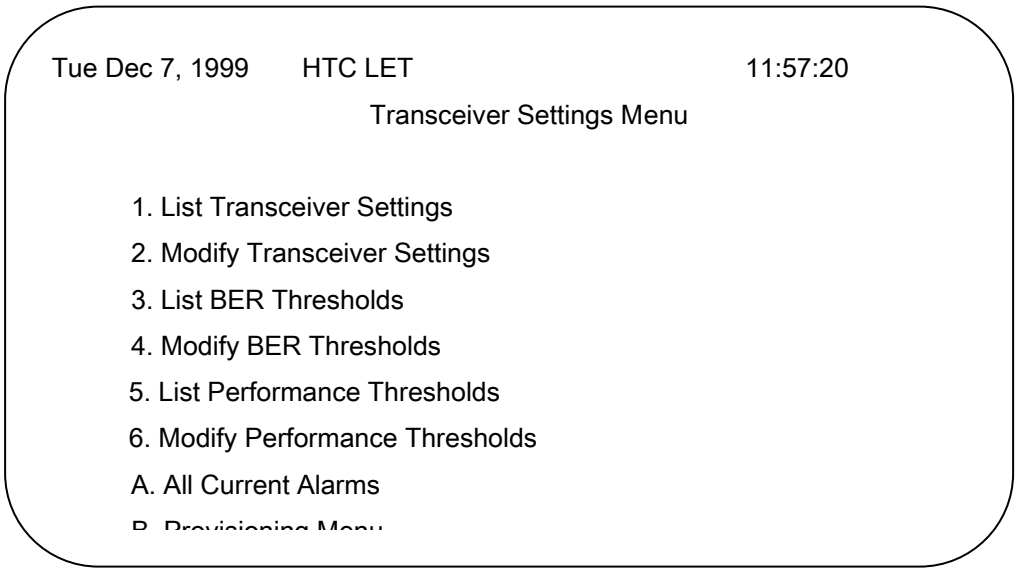


Figure 3-j. HTC-1100E Craft Interface Transceiver Settings Sub-menu

List Transceiver Settings

3.44. The List Transceiver Settings command allows the user to list the various transceiver settings that may be modified for a particular transceiver type. To list these settings, type {1} at the Transceiver Settings Menu prompt and press {ENTER}. The system prompts for the plug-in type of the transceiver card whose settings are to be listed.

Enter Plug-In Type [All]:

3.45. At the prompt, type the name of the transceiver card type to be listed. The choices are "All" and "E1 -XCVR","E1X-XCVR", "FO-XCVR","HD-XCVR". If "All" is selected, the system reports the transceiver settings for all transceiver types with user definable settings.

3.46. After the transceiver type has been entered, the system prompts the user for a beginning location. This location is the terminal-shelf-slot location where the user wishes to begin a search for transceiver cards.

Enter Starting Plug-In Location [LET-1-1]:

3.47. After the starting location has been entered, the system prompts the user for an ending location. This is the terminal-shelf-slot location where the search for transceiver cards is to stop.

Enter Ending Plug-In Location [RST1-8-26]:

3.48. When the ending location has been entered, the system searches all slots between the starting and ending locations looking for transceiver cards. When transceiver cards matching the specified type are found, the system prints a listing of the settings for that card on the screen. When all card slots falling in the specified range have been searched and any matching transceiver card settings have been reported, the system returns to the Transceiver Settings Menu prompt.

```
List Transceiver Settings

Enter Plug-In Type [All]: HD-XCVR
Enter Starting Plug-In Location [LET-1-1]: LET-1-10
--------------------------------------------------------------------------------
Location: LET-1-10      Plug-In: HD-XCVR

   Groomed Service:  Enabled
   Timing Source:      Disabled
   PCM30 Or PCM31:  PCM30
   FPGA Remote Loopback: Disabled
   FPGA Local Loopback:     Disabled
   xDSL Remote Loopback:  Disabled
   xDSL Local Loopback:     Disabled

Far End FE1-HDSL(E1-HDSL) Setting:
E1 Line Coding:  HDB3
Timeslot Assignment:
1 : Port 1, 2 : Port 2, 3 : Port 3, 4 : Port 3, 5 : Port 3, 6 : Port 3,
7 : Port 3, 8 : Port 3, 9 : Port 3, 10: Port 3, 11: Port 3, 12: Port 3,
13: Port 3, 14: Port 3, 15: Port 3, 16: Port 3, 17: Port 3, 18: Port 3,
19: Port 3, 20: Port 3, 21: Port 3, 22: Port 3, 23: Port 3, 24: Port 3,
25: Port 3, 26: Port 3, 27: Port 3, 28: Port 3, 29: Port 3, 30: Port 3,
31: Port 3,

Press Any Key

Transceiver Settings Menu
```

Figure 3-k. Sample Screen of HD-XCVR

Timeslot assignment: All Timeslot are mapped to port 3 except timeslot 1 and 2.

Modify Transceiver Settings

3.49. The Modify Transceiver Settings command allows the user to set certain options on the various transceiver cards available in the system. Next figure shows the E1X-XCVR setting options, E1X-XCVR has following options:

Groomed Service: The Groomed Service setting is used to designate the communication protocol used in transmissions between this transceiver card and the other end of the transmission span. If the other end of the span is not a HTC-1100E transceiver card, this setting must be "Yes" (for groomed service), and a channel format protocol must be selected. If the other end of the span is a transceiver card of an HTC-1100E terminal, the choice may be "No" to specify the HTC-1100E transmission protocol. When E1X-XCVR is used in Groomed Service, it can provide local and remote loopback capability implement channel test.

```
Modify Transceiver Settings
Enter Plug-In Type [ALL]:E1X-XCVR
Enter Starting Plug-In Location[LET-1-1]:LET-1-1
Enter Ending Plug-In Location[RST1-8-26]:RST1-8-26
LET-1-10 is a E1X-XCVR
Disable Transceiver[No]:No
Groomed Service[Disabled]:Enabled
Enable Timing Source[Disabled]:Disabled
CRC-4 Multiframe[Disabled]:Enabled
Local Loopback[Disabled]:Disabled
Remote Loopback[Disabled]:Disabled
Overwrite Current Mapping ? [Yes]: Yes
Transceiver Setting Menu
>>> [2]:
```

Figure 3-l. HTC-1100E Craft Interface Modify Transceiver Setting Menu

3.50 Not all options will be needed for a particular transceiver card.. To modify transceiver settings, select {2} at the Transceiver Settings Menu prompt and press {ENTER}. The system will display the following prompt.

Enter Plug-In Type [All]:

3.51. At the prompt, type the name of the transceiver card type to be listed. The choices are "All" ,"E1-XCVR","E1X–XCVR,"FO-XCVR", and "HD-XCVR". If "All" is selected, the system reports the transceiver settings for all transceiver types which have user definable settings.

3.52. After the transceiver type has been entered, the system prompts the user for a beginning location. This location is the terminal-shelf-slot location where the user wishes to begin a search for transceiver cards.

Enter Starting Plug-In Location [LET-1-1]:

3.53. After the starting location has been entered, the system prompts the user for an ending location. This location is the terminal-shelf-slot location where the search for transceiver cards is to stop.

Enter Ending Plug-In Location [RST1-8-26]:

3.54. When the ending location has been entered, the system searches all slots between the starting and ending locations looking for transceiver cards. When transceiver cards matching the specified type are found, the system prints a listing of the settings for that card on the screen. Following the listing of current settings, the system prompts the user asking if this card is to be edited.

Edit This Card? [Yes]:

3.55. If this card is not to be edited, type {No} and press {ENTER}. The system will leave the settings at their current values and continue to search for the next transceiver card of the specified type. If this card is to be edited, type {Yes} and press {ENTER}. The system will then prompt the user for all settings necessary for the transceiver type being configured. Some settings will not appear if the " Transceiver Disabled "Setting is set to "Yes" or "Groomed Service" setting is set to "No". If no groomed services are to be established on this transceiver, the frame format and channel format do not need to be set. When all settings for the transceiver have been entered, the system prompts the user asking if the current settings are to be overwritten.

Overwrite Current settings [Yes]:

3.56. If the new settings are correct, type {Yes} at the prompt and press {ENTER}. If not correct, type {No} and press {ENTER}. A "No" response at this prompt causes the system to leave the settings for this transceiver at their original values and move to the next card in the search. If corrections need to be made, this command must be executed again.

```
Modify Transceiver Settings

Enter Plug-In Type [All]: HD-XCVR
Enter Starting Plug-In Location [LET-1-1]: LET-1-10
Enter Ending Plug-In Location [RST1-8-22]: LET-1-10
--------------------------------------------------------------------------------
Location: LET-1-10      Plug-In: HD-XCVR
Groomed Service:  Disabled

Edit this card? [No]: Yes

Groomed Service? [No]: Yes

Enable Timing Source? [No]: No

PCM30 Or PCM31 [PCM30]: PCM30

FPGA Remote Loopback [Disable]: Disable
FPGA Local Loopback [Disable]: Disable
xDSL Remote Loopback [Disable]: Disable
xDSL Local Loopback [Disable]: Disable

Far End FE1-HDSL(E1-HDSL) Setting:

Enter Line Coding [HDB3]: HDB3

Timeslot Assignment:
Assignment All Timeslots To Port [No Change]: Port 3

Timeslot Number [1]: 1
Port [Port 3]: Port 1
Continuous [Yes]: Yes

Timeslot Number [2]: 2
Port [Port 3]: Port 2
Continuous [Yes]: No

Effect Changes? [Yes]: Yes

Transceiver Settings Menu
MJ>>> [2]: 1
```

Figure 3-m. HD-XCVR Modify Transceiver Setting Menu

3.57. When all card slots falling in the specified range have been searched and any located transceiver card settings have been established, the system returns to the Transceiver Settings Menu prompt.

List BER Thresholds

3.58. The List BER Thresholds command allows the user to list all BER thresholds that are currently set for the transceiver cards in the system. The alarm information is generated by the transmission card as it constantly monitors both data bits and CRC violations. The collected data is used to calculate a Bit Error Rate. The BER is calculated for each end of the transmission span on the receive data. The system operator may specify the Bit Error Rate where specific alarms are to be reported. Two BER alarms are currently supported, the BER Red alarm and the BER Maintenance alarm. The BER Red alarm indicates that the facility is no longer able to carry traffic. The default value for this alarm is 10^{-3} for fiber and 10^{-4} for E1 transceivers. When the system detects a BER at this threshold level for the corresponding transceiver, the facility is taken out of service. In addition to the system offer other performance data: ES(Error Second), SES(Severe Error Second), UAS (unavailable Second), the interval of record have 15 mins, 24 hours and 7 days.

```
List BER Thresholds
E1 Thresholds
      BER - Red Alarm           : 10-4
      BER - Maintenance Alarm: 10-6
      15 minutes ES : 900
      15 minutes SES: 900
      15 minutes UAS: 900
      24 hours ES     : 86400
      24 hours SES    : 86400
      24 hours UAS    : 86400
      7 days ES       : 604800
      7 days SES      : 604800
      7 days UAS      : 604800
E3 Thresholds
      BER - Red Alarm           : 10-3
      BER - Maintenance Alarm: 10-8
Fiber Thresholds
      BER - Red Alarm           : 10-3
```

Figure 3-n Sample Printout from the List BER Thresholds Commands

3.59. If a redundant facility is available, service is concentrated onto it. Otherwise, trunk conditioning is initiated. The BER Red alarm is a Major alarm if no protection is available; it is a Minor alarm if redundant facilities are available for service concentration. The BER Maintenance alarm indicates that the facility service is degraded. The BER Maintenance alarm default threshold is 10^{-6} for fiber and E3 and 10^{-8} for El transceivers. The BER Maintenance alarm is always reported as a minor alarm.

3.60. To list the current BER threshold settings, type {3} at the prompt and press {ENTER}. The BER thresholds for E1 and fiber transceivers will be listed. Figure 3-l shows the default BER thresholds listed when the List BER Thresholds command is executed.

Modify BER Thresholds

3.61. The Modify BER Thresholds command allows the user to change the alarm threshold settings for a specific transmission medium. To modify the BER thresholds, type {4} at the Transceiver Settings Menu prompt and press {ENTER}. The system then prompts the user for the type of facility to be modified. The default facility type is E1.

Enter Facility Type [El]:

3.62. Type the facility type at the prompt and press{ENTER}. If the {ENTER} key is pressed without specifying a facility type, the system uses the default value, E1. If the user wishes to see the available facility types, pressing either the {[} or {]} keys at the system prompt will scroll through the available facility types. Press {ENTER} when the desired facility is displayed at the prompt.

3.63. After entering the facility type, the system then prompts the user for the new BER thresholds to be used for the specified facility. Table 3-B shows a list of the range of values to be used for the different transmission facilities available in the HTC-1100E.

Type	Alarm Type	Inputs Allowed
Fiber/E3	Red	10^{-3} to 10^{-9}
	Maintenance	10^{-4} to 10^{-10}
E1	Red	10^{-3} to 10^{-7}
	Maintenance	10^{-5} to 10^{-8}

Table 3-B. Alarm Threshold Ranges for HTC-1100E Transceiver Cards

3.64. The first alarm threshold is the BER - Red Alarm. This alarm threshold specifies the Bit Error Rate at which a Major or Critical alarm should be generated. Such an alarm would indicate that the system is experiencing such a degradation in transmission that it is no longer able to carry traffic. For example, if the user wants a BER Red Alarm to be triggered when the BER reaches 1 x 10^{-4}, the user should enter the number {4} at the BER - Red Alarm prompt.

BER - Red Alarm [10-4]: 10-

3.65. The default threshold for the selected facility (E1 in this case) appears in brackets and is selected by pressing {ENTER} at the prompt. If the number entered is not valid, the system will display an error message identifying the error. Correct the error by entering a correct value at the prompt and pressing {ENTER}. When a correct value has been entered for the BER - Red Alarm, the system prompts for the alarm threshold value for the BER - Maintenance Alarm.

BER - Maintenance Alarm [10-6]: 10-

3.66. At the prompt, enter the appropriate power of ten to be used as the BER alarm threshold that will trigger a maintenance alarm and press {ENTER}. The default threshold for the selected facility (E1 in this case) appears in brackets and is selected by pressing {ENTER}. This value should indicate that the system is experiencing sufficient errors in transmission that the system is in imminent danger of failure. If an incorrect value is entered, the system will display an error message identifying the problem. Enter a value in the appropriate range and press {ENTER}. When a correct value for the BER Maintenance Alarm threshold has been entered, the system will set the BER thresholds and display the message Alarm Thresholds Modified before returning to the Transceiver Setting Sub-menu.

3.67 The system also offers these performance data of E1X-XCVR card：ES、SES and UAS. These data indicate user about the transmission status. There are their definitions:

Item	Definition
ES(Error Second)	A one second period with one or more errored blocks or at least one defect
SES(Severe Error Second)	A one-second period which contains ≥30% errored blocks or at least one defect. SES is a subset of ES.
UAS(Unavailable Second)	A period of unavailable time begins at the onset of ten consecutive SES events. These ten seconds are considered to be part of unavailable time.

Note: errored block (EB) means A block in which one or more bits are in error.

The system defined ES alarm is minor alarm. SES alarm is major alarm. UAS alarm is critical alarm. The intervals of record have 15 minutes, 24 hours, 7 days. After 15 minutes, the system will move the performance data from 15 minutes record memory to 24 hours record memory. After 24 hours, the system will move the performance data from 24 hours record memory to 7 days record memory.

The default threshold for the selected facility appears in brackets and is selected by pressing “ENTER” at the prompt. If the number entered is not valid, the system will display an error message identifying the error. Correct the error by entering a correct value at the prompt and pressing “ENTER”.

```
Modify BER Thresholds

Enter Facility Type [E1]: E1
     BER - Red Alarm              [10-4]: 10-4
     BER - Maintenance Alarm [10-6]: 10-6
     15 minutes ES    [900]: 300
     15 minutes SES [900]: 300
     15 minutes UAS [900]: 300
     24 hours ES       [86400]: 10000
     24 hours SES     [86400]: 10000
     24 hours UAS     [86400]: 10000
     7 days ES          [604800]: 300000
     7 days SES        [604800]: 300000
     7 days UAS        [604800]: 300000
```

Figure 3-o. Sample Printout from the Modify BER Thresholds Commands

3.68. From any menu in the system, the "A" command is available. To list all alarms, type {A} at the Transceiver Setting Sub-menu prompt and press {ENTER}.

3.69. To return to the Provisioning Menu, type {B} at the Transceiver Setting Sub-menu prompt and press {ENTER}.

3.70. To return to the Main Menu, type {*} at the Transceiver Setting Sub-menu prompt and press {ENTER}.

3.71. To get current menu list with the commands in the Transceiver Setting Sub-menu, type {?} at the Transceiver Setting Sub-menu prompt and press {ENTER}.

The DCS Provisioning Sub-menu

3.72. The DCS Provisioning Sub-menu is used to specify the attributes of groomed E1 channels. This menu defines the carrier group alarm trunk conditioning signaling definitions and the idle code or mux code for individual channels. The DCS provisioning menu can be used to specify the plug-in type, mux code, idle signaling and busy signaling.

3.73. When the HTC-1100E system detects a failure of the incoming signal and data, the system freezes the data and signal at the last valid state. Then, 2.5 seconds after the failure is detected, the system transmits the idle signaling pattern in the signaling bits and the mux code in the data bits. The system begins sending the busy signal 2.5 seconds after sending the idle signal, and continues sending the busy signal for the duration of the fault. The mux code is sent in the data bits for the duration of the fault - The idle and busy signal and mux code are user configurable and should be selected based on the use of the respective channels. AIS (alarm indication signal) is specified by the CCITT for all fault conditions. Under normal conditions, there is not need to change any settings in the DCS menus.

3.74. The DCS provisioning menu is used to define the attributes of groomed E1 channels. It is not used to define a channel as a groomed E1. To define a channel as a groomed E1, use the Transceiver Settings Menu. To map a groomed E1 channel, use the Modify Groomed Cross-Connects options of the Cross-Connect Menu. Channels may be configured on an individual basis, i.e., the first channel on the E1 may be POTS and the second channel may be digital data. Figure 3-k shows the DCS Provisioning Sub-menu. To use the commands on this menu, type {5} at the Provisioning menu prompt and press {ENTER}.

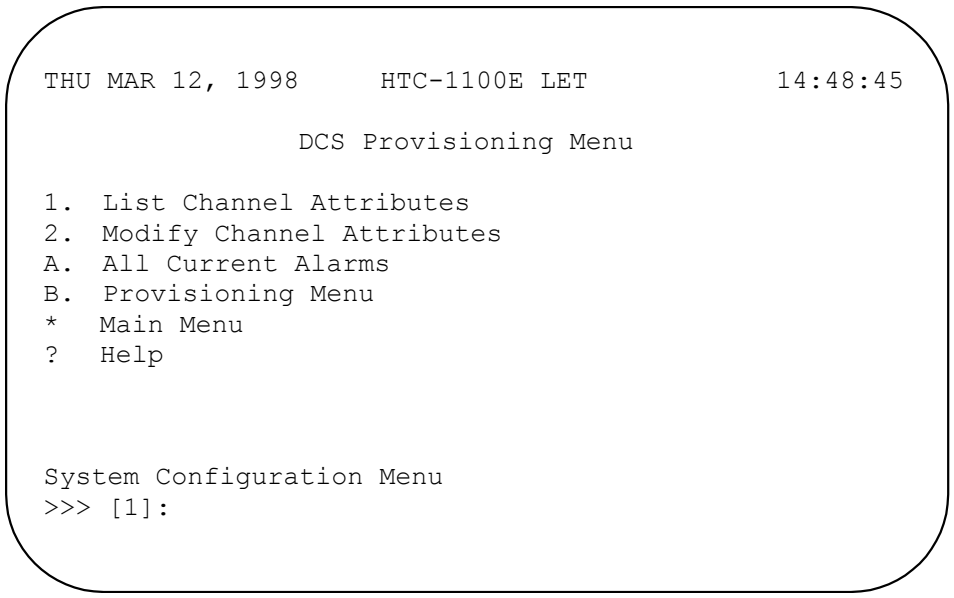


Figure 3-p. HTC-1100E Craft Interface DCS Provisioning Sub-menu

List Channel Attributes

3.75. The List Channel Attributes Command allows the user to list the current attributes for a specific groomed E1 span. To use this command, type {1} at the DCS Provisioning Sub-menu prompt and press {ENTER}. The system will prompt for the shelf-slot-circuit plug-in location of the groomed E1.

Enter Plug-In Location [LET-1-1-1] :

3.76. Type the shelf-slot-circuit location of the E1 card. If the location contains a groomed E1, the system will print a report listing the attributes of the specified channels. Before the first time setting, to list Channel Attributes will get " Has Not been Provisioned".

Location: LET-1-1-1
Plug-In: E1X-XCVR
Mux Code: FF
Idle Signaling: 1111
Busy Signaling: 1111

3.77. If the location does not contain a groomed E1 card, the system will report an error.

Plug-In Location Has No Circuits

3.78. When the report is completed, the system returns to the DCS Provisioning Sub-menu prompt.

Modify Channel Attributes

3.79. The Modify Channel Attributes Command is used to establish the attributes for a groomed E1 channel. To use this command, type {2} at the DCS Provisioning Sub-menu prompt and press {ENTER}. The system will prompt for the shelf-slot-circuit plug-in location of the groomed E1.

Enter Plug-In Location [LET-1-1-1]: LET-1-1-1

3.80. At the prompt, type the shelf-slot-circuit location of the E1 card channel number carrying the groomed circuit to be configured and press {ENTER}. The system will prompt for the attributes to configure a specific channel or channels.

3.81. After a correct location is entered, the system prompts for the mux code. This option specifies the eight-bit pattern that will be transmitted in the data bits 2.5 seconds after the failure of the E1 span.- At the prompt, type the desired mux code (two hex digits) and press {ENTER}. The default mux code is hex FF (AIS or 1111).

Enter Mux Code [FF]:

3.82. The user is next prompted for the idle signaling to be used. This option specifies the four-bit pattern that will be transmitted 2.5 seconds after the failure of the E1 span. At the prompt, type the desired idle signaling pattern and press {ENTER}. The default pattern is 1111.

Enter Idle Signaling [1111]:

3.83. Next, the user is prompted for the busy signaling to be used. This option specifies the four-bit pattern that will be transmitted 2.5 seconds after the idle code is sent. Then the busy signal will continue for the duration of the E1 span failure. At the prompt, type the desired busy signaling pattern and press {ENTER}. The default pattern is 1111.

Enter Busy Signaling [1111]:

3.84. If the plug-in location typed at the initial prompt does not contain a E1 configured for groomed circuits, the system displays the following error message.

Plug-In Location Has No Circuits

3.85. To define a channel as a groomed E1, use the Modify Transceiver Settings options of the Transceiver Settings Menu.

3.86. When DCS modifications are complete, the system will print a message confirming that the settings have been made and return to the DCS Provisioning Sub-menu prompt.

3.87. From any menu in the system, the "A" command is available. To list all alarms, type {A} at the DCS Provisioning Sub-menu prompt and press {ENTER}.

3.88. To return to the Provisioning Menu, type {B} at the DCS Provisioning Sub-menu prompt and press {ENTER}.

3.89. To return to the Main Menu, type {*} at the DCS Provisioning Sub-menu prompt and press {ENTER}.

3.90. To current menu list help with the commands in the DCS Provisioning Sub-menu, type {?} at the DCS Provisioning Sub-menu prompt and press {ENTER}.

The Special Circuits Settings Sub-menu

3.91. The Special Circuits Settings sub-menu contains commands used to provision the different types of special cards used in the HTC-1100E . Commands are provided for provisioning both analog and digital cards. To use the commands of the Special Circuits Settings sub-menu, type {6} at the Provisioning Menu prompt and press {ENTER}. The system displays the Special Circuits Settings sub-menu shown in the next figure.

Tue Dec 7, 1999 HTC LET
11:57:31

Special Circuits Settings Menu

1. List Analog Circuit Settings
2. Modify Analog Circuit Settings
3. List Digital Circuit Settings
4. Modify Digital Circuit Settings
5. List V5 Circuit Settings

Figure 3-q HTC-1100E Craft Interface Special Circuits Settings Sub-menu

List Analog Circuit Settings

3.92. The List Analog Circuit Settings command allows the user to list the settings for analog cards in the system. When this command is issued, the system prints a report of the analog circuit settings similar to the report shown in figure 3-n. To use the List Analog Circuit Settings command, type {1} at the Circuit Settings sub-menu prompt and press {ENTER}.

3.93. The system prompts the user for a Plug-in card type. This card type may be All, DPO, DPT, E&M, L-PAY, L-UVG, R-PAY, R-UVG, SLC-E, SLC-T, TO. At the prompt, type the desired card type and press {ENTER}.

Enter Plug-In Type [All]:

3.94. After the plug-in type has been entered, the system prompts the user for a starting location. The starting location is the terminal-shelf-slot-circuit location where the user wishes the report to begin. At the prompt, type the desired starting location and press {ENTER}

Enter Starting Plug-in Location [LET-1-1-1]: LET-1-1

3.95. The system now prompts the user for an ending location. The ending location is the terminal-shelf-slot-circuit location where the user wishes the report to end. At the prompt, type the desired location and press {ENTER}.

Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

3.96. After the ending location has been entered. the system prints the report and returns the user to the Circuit Settings sub-menu.

```
List Analog Circuit Settings

Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

Location    Plug-In     Mode        Type        RX Gain     TX Gain Misc
-------------------------------------------------------------------------
LET-1-8     E&M         Interface   Type: 4Wire
LET-1-8-1   E&M         E&M I                   0.0dB       0.0dB
LET-1-8-2   E&M         E&M I                   0.0dB       0.0dB
RST1-1-8    E&M         Interface   Type: 4Wire
RST1-1-8-1  E&M         E&M I                   0.0dB       0.0dB
RST1-1-8-2  E&M         E&M I                   0.0dB       0.0dB

Line Cards Listed:2

Special Circuits Settings Menu
>>>[1]:
```

Figure 3-r. Sample Output from the List Analog Circuits Settings Command

Modify Analog Circuit Settings

3.97. The Modify Analog Circuit Settings command allows the user to change settings such as gain and attenuation on various analog plug-in cards. Table 3-C list the various settings available for each of the analog cards. To establish or change the settings for an analog card, type {2} at the Circuit Settings sub-menu prompt and press {ENTER}. Figure 3-p-1~3-p-7 shows a typical screen using the Modify Analog Circuit Settings command.

Card Type	Setting Item	Acceptable Values
E&M	Interface Type	4-Wire、2-Wire
	Plug-In Mode	All、E&M I、E&M II 、E&M III、E&M IV、E&M V 、PLR I、PLRII 、Tand I sta.、Tand I Swi. 、Tand II sta.、Tand II Swi.、DX、TO
	Signalling Type	D4、R2、KD4
	RX Gain	4 Wire：-16 ~ 8 ；2 Wire：-10 ~ 0
	TX Gain	4 Wire：-16 ~ 6 ；2 Wire：-4 ~ 4
L-UVG	AC Impedance	Auto、600 Ohms、900 Ohms
	DC Resistance	Auto、200 Ohms、1000 Ohms
	Plug-In Mode	GSLS、GS、LS
	RX Gain	-9 ~ 3
	TX Gain	-3 ~ 9
R-UVG	Plug-In Mode	GSLS、GS、LS
	RX Gain	-9 ~ 3
	TX Gain	-3 ~ 9
SLC-E	AC Impedance	Auto、600 Ohms、900 Ohms
	DC Resistance	Auto、200 Ohms、1000 Ohms
	Plug-In Mode	GSLS、GS、LS
	Signalling Type	R2、KD4
	RX Gain	-9 ~ 3
	TX Gain	-3 ~ 9
SLC-T	Plug-In Mode	GSLS、GS、LS
	Signalling Type	R2、KD4
	RX Gain	-9 ~ 3
	TX Gain	-3 ~ 9

Card Type	Setting Item	Acceptable Values
DPT	AC Impedance	Auto、600 Ohms、900 Ohms
	DC Resistance	Auto、200 Ohms、1000 Ohms
	Plug-In Mode	GSLS、GS、LS
	Signalling Type	R2、KD4
	RX Gain	-9 ~ 3
	TX Gain	-3 ~ 9
DPO	Plug-In Mode	GSLS、GS、LS
	Signalling Type	R2、KD4
	RX Gain	-9 ~ 3
	TX Gain	-3 ~ 9

Table 3-C. Settings for Analog Cards

Note: When using the E&M cards, wiring configurations on the backplane will limit the combinations of settings which can be used in the software provisioning of this card.

3.98. The system prompts the user for the plug-in type. The analog cards (SLC-E, SLC-T, DPO, DPT, L-UVG, R-UVG and E&M) may be set using this command. At the prompt, type the card type to be set and press {ENTER}.

Enter Plug-In Type [E&M]: E&M

3.99. The user is now prompted for a beginning circuit location. This location is the terminal-shelf-slot-circuit location of the first circuit the user wishes to set. At the prompt, type the desired location and press {ENTER}.

Enter Starting Circuit Location [LET-1-1-1]: LET-1-1

3.100. The user is now prompted for an ending circuit location. This location is the last terminal-shelf-slot-circuit location the user wishes to set with this command. At the prompt, type the desired location and press {ENTER}.

Enter Ending Circuit Location [RST1-8-26]: RST1-8-26

3.101. After the ending location has been specified, the system begins at the starting location and searches the slots for cards matching the card type specified. When a matching card is found, the system lists the current configuration information for that card and asks the user if this card is to be edited.

Edit This Card? [Yes]:

3.102 Depending upon the card type specified above, the user will now be prompted for the configuration information for the card. At the prompt or prompts displayed, type the appropriate information and press {ENTER}. The prompts will ask for information such as gain, attenuation and other settings that are specific to the card type

being configured. For each card, selecting specific settings for that card may restrict the user's available choices for other settings on that card. Selecting "Auto" when that choice is available causes the system to set certain settings to predefined settings which are listed in the settings options tables for each card.

3.103 After the configuration settings have been entered, the system asks if the current settings are to be over-written. If the new values are to be used as the new settings for this card, type {Yes} and press {ENTER}. If the old, values are to be used, type {No} at the prompt and press {ENTER} to discard the changes. If "No" is specified, the system continues the search for the next matching card of the specified type. The user must execute this command again to edit entries made to the card settings.After the configuration settings are completed, the system returns the user to the Circuit Settings sub-menu prompt.

3.104 After the configuration settings are completed, the system returns the user to the Circuit Setting sub-menu prompt.

```
Modify Analog Circuit Settings

Enter Plug-In Type [All]:E&M
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26

Location        Plug-In     Mode     Type    RX Gain   TX Gain  Misc
-------------------------------------------------------------------
LET-1-10         E&M        Interface Type: 4 Wire
LET-1-10-1       E&M        E&M I     D4     0.0 dB    0.0 dB
LET-1-10-2       E&M        E&M I     D4     0.0 dB    0.0 dB

Edit this card? [Yes]: Yes

LET-1-10
Enter Interface Type [4 Wire]: 4 Wire

LET-1-10-1
Enter Plug-In Mode [E&M I]: E&M I
Enter Signalling Type [D4]: D4
Enter RX Gain [0.0]: 0.0
Enter TX Gain [0.0]: 0.0

LET-1-10-2
Enter Plug-In Mode [E&M I]: TO
Enter Signalling Type [D4]: D4
Enter RX Gain [0.0]: 0.0
Enter TX Gain [0.0]: 0.0

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1
Special Circuits Settings Menu

 MJ>>> [2]:
```

Figure 3-r-1 Sample Screen of E &M

```
Modify Analog Circuit Settings
Enter Plug-In Type [All]:L-UVG
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location    Plug-In       Mode   Type    RX Gain    TX Gain  Misc
LET-1-10      L-UVG   AC Impedance: Auto   DC Resistance: Auto
LET-1-10-1    L-UVG       GSLS             Auto       Auto
LET-1-10-2    L-UVG       GSLS             Auto       Auto
LET-1-10-3    L-UVG       GSLS             Auto       Auto
LET-1-10-4    L-UVG       GSLS             Auto       Auto
LET-1-10-5    L-UVG       GSLS             Auto       Auto
LET-1-10-6    L-UVG       GSLS             Auto       Auto
Edit this card? [Yes]: Yes
LET-1-10
Enter AC Impedance [Auto]: Auto
Enter DC Resistance [Auto]: Auto
LET-1-10-1
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-2
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-3
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-4
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-5
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-6
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
Overwrite Current Setting? [Yes]: Yes
Line Cards Modified: 1
Special Circuits Settings Menu
MJ>>> [2]:
```

Figure 3-s-2 Sample Screen of L-UVG

```
Modify Analog Circuit Settings

Enter Plug-In Type [All]:R-UVG
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location     Plug-In       Mode    Type    RX Gain     TX Gain  Misc
-------------------------------------------------------------------
LET-1-10-1     R-UVG        GSLS              Auto        Auto
LET-1-10-2     R-UVG        GSLS              Auto        Auto
LET-1-10-3     R-UVG        GSLS              Auto        Auto
LET-1-10-4     R-UVG        GSLS              Auto        Auto
LET-1-10-5     R-UVG        GSLS              Auto        Auto
LET-1-10-6     R-UVG        GSLS              Auto        Auto

Edit this card? [Yes]: Yes
LET-1-10

LET-1-10-1
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-2
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-3
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-4
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-5
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-6
Enter Plug-In Mode [GSLS]: GSLS
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto


Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1
Special Circuits Settings Menu
 MJ>>> [2]:
```

Figure 3-s-3 Sample Screen of R-UVG

```
Modify Analog Circuit Settings
Enter Plug-In Type [All]:SLC-E
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location     Plug-In       Mode    Type    RX Gain     TX Gain  Misc
-------------------------------------------------------------------
LET-1-10       SLC-E   AC Impedance: Auto   DC Resistance: Auto
LET-1-10-1     SLC-E        GSLS     R2       Auto        Auto
LET-1-10-2     SLC-E        GSLS     R2       Auto        Auto
LET-1-10-3     SLC-E        GSLS     R2       Auto        Auto
LET-1-10-4     SLC-E        GSLS     R2       Auto        Auto
LET-1-10-5     SLC-E        GSLS     R2       Auto        Auto
LET-1-10-6     SLC-E        GSLS     R2       Auto        Auto
Edit this card? [Yes]: Yes
LET-1-10
Enter AC Impedance [Auto]: Auto
Enter DC Resistance [Auto]: Auto
LET-1-10-1
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-2
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-3
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-4
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-5
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-6
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
Overwrite Current Setting? [Yes]: Yes
Line Cards Modified: 1
Special Circuits Settings Menu
MJ>>> [2]:
```

Figure 3-r-4 Sample Screen of SLC-E

```
Modify Analog Circuit Settings

Enter Plug-In Type [All]:SLC-T
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location     Plug-In       Mode    Type    RX Gain     TX Gain  Misc
-------------------------------------------------------------------
LET-1-10-1     SLC-T       GSLS     R2       Auto        Auto
LET-1-10-2     SLC-T       GSLS     R2       Auto        Auto
LET-1-10-3     SLC-T       GSLS     R2       Auto        Auto
LET-1-10-4     SLC-T       GSLS     R2       Auto        Auto
LET-1-10-5     SLC-T       GSLS     R2       Auto        Auto
LET-1-10-6     SLC-T       GSLS     R2       Auto        Auto

Edit this card? [Yes]: Yes
LET-1-10

LET-1-10-1
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-2
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-3
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-4
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-5
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-6
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1
Special Circuits Settings Menu
MJ>>> [2]:
```

Figure3-r-5 Sample Screen of SLC-T

```
Modify Analog Circuit Settings
Enter Plug-In Type [All]:DPT
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location     Plug-In       Mode    Type    RX Gain     TX Gain  Misc
-------------------------------------------------------------------
LET-1-10        DPT    AC Impedance: Auto   DC Resistance: Auto
LET-1-10-1      DPT         GSLS     R2       Auto        Auto
LET-1-10-2      DPT         GSLS     R2       Auto        Auto
LET-1-10-3      DPT         GSLS     R2       Auto        Auto
LET-1-10-4      DPT         GSLS     R2       Auto        Auto
LET-1-10-5      DPT         GSLS     R2       Auto        Auto
LET-1-10-6      DPT         GSLS     R2       Auto        Auto
Edit this card? [Yes]: Yes
LET-1-10
Enter AC Impedance [Auto]: Auto
Enter DC Resistance [Auto]: Auto
LET-1-10-1
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-2
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-3
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-4
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-5
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
LET-1-10-6
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto
Overwrite Current Setting? [Yes]: Yes
Line Cards Modified: 1
Special Circuits Settings Menu
 MJ>>> [2]:
```

Figure 3-r-6 Sample Screen of SLC-T

```
Modify Analog Circuit Settings

Enter Plug-In Type [All]:DPO
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location     Plug-In       Mode    Type    RX Gain     TX Gain  Misc
.....................................................................
LET-1-10-1      DPO         GSLS     R2       Auto        Auto
LET-1-10-2      DPO         GSLS     R2       Auto        Auto
LET-1-10-3      DPO         GSLS     R2       Auto        Auto
LET-1-10-4      DPO         GSLS     R2       Auto        Auto
LET-1-10-5      DPO         GSLS     R2       Auto        Auto
LET-1-10-6      DPO         GSLS     R2       Auto        Auto

Edit this card? [Yes]: Yes
LET-1-10

LET-1-10-1
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-2
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-3
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-4
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-5
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

LET-1-10-6
Enter Plug-In Mode [GSLS]: GSLS
Enter Signalling Type [R2]: R2
Enter RX Gain [Auto]: Auto
Enter TX Gain [Auto]: Auto

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1
Special Circuits Settings Menu
 MJ>>> [2]:
```

Figure 3-r-7 Sample Screen of DPO

List Digital Circuit Settings

3.105. The List Digital Circuit Settings command allows the user to list the settings for the digital cards in the system. To use this command type {3} at the Circuit Settings sub-menu and press {ENTER}. Figure 3-q shows a sample printout using this command

3.106. The system prompts the user for the plug-in type. The settings for digital cards may be listed using this command. The digital cards may not be configured using this command. At the prompt, type the card type to be set and press {ENTER}.

Enter Plug-In Type [All]:

3.107. The user is now prompted for a beginning and an ending circuit location. This location is the terminal-shelf-slot-circuit location of the first and last circuit the user wishes to set. At the prompt, type the desired location and press {ENTER}.

Enter Starting Plug-In Location [LET-1-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-1-1

3.108. After the ending location has been entered, the system prints a report of the settings for all digital circuits matching the specified type found between the starting and ending locations specified. When the report is completed, the system returns the user to the Special Circuits Settings sub-menu.

Modify Digital Circuit Settings

3.109. The Modify Digital Circuit Settings command allows the user to establish or change settings for the digital circuits in the system. These commands are used only with digital cards. Analog cards are configured using the Modify Analog Circuit Settings command discussed above. To use the Modify Digital Circuit Settings command, type {4} at the Circuit Settings sub-menu prompt and press {ENTER}. Figure 3-r-1~3-r-10 shows a typical screen using this command.

```
List Digital Circuit Settings
Enter Plug-In Type[All]: ALL
Enter Staring Plug-In Location( LET-1-1) :LET-1-1
Enter Ending Plug-In Location[RST1-8-26]: RST1-8-26
.....
Location: LET-1-10      Plug-In: ADU

Circuit     Data Rate   Stop Bits   Character Length
.....
1           9600 bps    1           8 Bits
2           9600 bps    1           8 Bits

Press Any key
.....
Location: LET-1-15      Plug-In: CO64

Circuit     Line        Loopback
.....
1           Disabled    Disabled
2           Disabled    Disabled
3           Enabled     Disabled

 Press Any Key
.....
Location: RST1-1-14     Plug-In: SDU

Interface Type: V.35
Data Rate: 64 Kbps
SYNC Char: 16

Press Any Key
.....
Location: RST1-1-17     Plug-In: ADU

Circuit     Data Rate   Stop Bits   Character Length
.....
1           9600 bps    1           8 Bits
2           9600 bps    1           8 Bits

Press Any key
.....
Location: RST1-1-18     Plug-In: N64P

Interface Type: V.35
Data Rate: 1 * 64 Kbps
Remote Loopback      : No
Local loopback      : No

Line Cards Listed: 5

Special Circuits Setting Menu
```

Figure 3-s Sample Screen Using the List Digital Circuit Settings Command

```
Enter Plug-In Type [ADU]:ADU
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
.....
Location: LET-1-10  Plug-In: ADU

Circuit     Data Rate   Stop Bits    Character Length

1           9600 bps        1            8 Bits
2           9600 bps        1            8 Bits

Edit this card? [Yes]: Yes
Location:LET-1-10       Plug-In: ADU

LET-1-10-1
Enter Data Rate [9600 bps]: 9600 bps
Enter Stop Bits [1]: 1

LET-1-10-2
Enter Data Rate [9600 bps]: 9600 bps
Enter Stop Bits [1]: 1

Overwrite Current Setting? [Yes]: Yes
Line Cards Modified: 1
Special Circuits Settings Menu
MJ>>> [4]:
```

Figure 3-s-1 Sample Screen of ADU

Choices of ADU setting item：

Edit This Card ?　[Yes]：　Yes

…

Enter Data Rate：300/600/1200/4800/9600/19200/38400 bps

Enter Stop Bits：1

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]:SDU
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
-------------------------------------------------
Location: RST1-1-10       Plug-In: SDU

Interface Type: V.35
Data Rate: 56kbps
SYNC Char: 16

Edit this card? [Yes]: Yes

Location:RST1-1-10        Plug-In: SDU

Enter Interface Type [V.35]: V.35
Enter Data Rate [64kbps]:64k bps
Enter SYNC Code [16]:16

Overwrite Current Setting? [Yes]: Yes
Line Cards Modified: 1
Special Circuits Settings Menu
MJ>>> [4]:
```

Figure 3-s-2 Sample Screen of SDU

Choices of SDU setting item：

Edit This Card ? [Yes]： Yes

…

Enter Interface Type：V.35/V.11/V.28

Enter Data Rate ： 600/ 1200/ 2400/ 4800/ 9600/ 19.2 k/ 38.4 k/ 48 k/ 56 k/ 64 kbps

Enter SYNC Code：00 ~FF

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]:CO64
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location: LET-1-10       Plug-In: CO64

Circuit     Line        Loopback
-------------------------------------------------------

1           Enabled     Disabled
2           Enabled     Disabled
3           Enabled     Disabled

Edit this card? [Yes]: Yes

Location:LET-1-10            Plug-In: CO64

LET-1-10-1
Line Circuit [Disabled]: Enabled
Line Loopback [Disabled]: Disabled


LET-1-10-2
Line Circuit [Disabled]: Enabled
Line Loopback [Disabled]: Enabled

LET-1-10-3
Line Circuit [Enabled]: Disabled
Line Loopback [Disabled]: Disabled

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1

Special Circuits Settings Menu
MJ>>> [4]:
```

Figure 3-s-3 Sample Screen of CO64

Choices of CO64 setting item：

Edit This Card ? [Yes]： Yes

…

Timing Source：Enabled /Disabled

…

Line Circuit：Disabled / Enabled

Line Loopback：Disabled /Enabled

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]: DD64
Enter Staring Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST13-8-26]:RST13-8-26
-------------------------------------------------------
Location: LET-1-10      Plug-In: DD64
     Data Rate : 64 Kbps
     Error correction : Disabled
     Remote Loopback : Disallow
     Zero Code Suppression:Disabled

Edit this card? [Yes]: Yes
Location: LET-1-10      Plug-In: DD64
     Enter Data Rate[64 kbps]:2400 bps
     Error correction[Disabled]:Disabled
     Remote Loopback[Disallow]:Disallow
     Second Channel[Disabled]:Disabled
     Enter DS0 Type[DS0-A]:DSO-A
 Overwrite Current Setting? [Yes]: Yes

 Line Cards Modified: 1
MJ >>> [4]:
```

Figure 3-s-4 Sample Screen of DD64

Choices of DD64 setting item：

Edit This Card ? [Yes]： Yes

…

Enter Data Rate：2400 /4800 / 9600 / 19200 / 56000 / 64000 bps

Error Correction： Enabled / Disabled

Remote Loopback：Allow / Disallow

Zero Code Suppression：Enabled / Disabled (When data rate is under 56 kbps)

Second Channel：Enabled / Disabled (When data rate is under 56 kbps)

DS0-A/B：DS0-A

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]: N64P
Enter Staring Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST13-8-26]:RST13-8-26

Location: LET-1-10      Plug-In: N64P

Timing Source: Disabled
Interface Type: V.35
Data Rate: 1×64 Kbps
Remote Loopback: Disabled
Local Loopback: Disabled

Edit this card? [Yes]: Yes

Location: LET-1-10      Plug-In: N64P

Timing Source: Disabled
Enter Interface Type[V.35]: V.36
Enter N×64  rate selection, N is [1]:30
Remote Loopback[Disabled]: Disabled
Local Loopback[Disabled]: Disabled

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1
MJ >>> [4]:
```

Figure 3-s-5 Sample Screen of N64P

Choices of N64P setting item：

Edit This Card ? [Yes]： Yes

…

Timing Source：Enabled /Disabled Enter Interface Type：V.35 / V.36

Enter N ×64 rate selection ,N is ：1～30

Remote Loop：Enabled / Disabled

Local Loop：Enabled / Disabled

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]:LI-ISDN
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location: LET-1-10       Plug-In: LI-ISDN

Timing Source:Disabled

     Circuit       Line Circuit
.....................................................................

         1             Disabled
         2             Disabled

Edit this card? [Yes]: Yes
Location:LET-1-10            Plug-In: LI-ISDN

Timing Source[Disabled]:Enabled

LET-1-10-1
Line Circuit [Disabled]: Enabled

LET-1-10-2
Line Circuit [Disabled]: Enabled


Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1

Special Circuits Settings Menu
MJ>>> [4]:
```

Figure 3-s-6 Sample Screen of LI-ISDN

Choices of LI-ISDN setting item：

Edit This Card ? [Yes]： Yes

…

Timing Source：Enabled /Disabled

…

Line Circuit：Disable/Enable

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]:RI-ISDN
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location: LET-1-10       Plug-In: RI-ISDN

V5 Provisioning:Disabled

     Circuit       Line Circuit
.....................................................................

         1             Disabled
         2             Disabled

Edit this card? [Yes]: Yes

Location:LET-1-10            Plug-In: RI-ISDN

V5 Provisioning[Disabled]:Disabled

LET-1-10-1
Line Circuit [Disabled]: Enabled

LET-1-10-2
Line Circuit [Disabled]: Enabled

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1

Special Circuits Settings Menu
MJ>>> [4]:
```

Figure 3-s-7 Sample Screen of RI-ISDN

Choices of RI-ISDN setting item：

Edit This Card ? [Yes]： Yes

…

V5 Provisioning：Enabled /Disabled

…

Line Circuit：Disable/Enable

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]:E1AX
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location: LET-1-10       Plug-In: E1AX

Local Loop : Disabled
Remote Loop: Disabled

Edit this card? [Yes]: Yes

Location:LET-1-10            Plug-In: E1AX

Local Loop [Disabled]: Enabled
Remote Loop [Disabled]: Disabled

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1

Special Circuits Settings Menu
MJ>>> [4]:
```

Figure 3-s-8 Sample Screen of E1AX

Choices of E1AX setting item：

Edit This Card ? [Yes]： Yes

…

Local Loop：Enabled /Disabled

Remote Loop：Enabled /Disabled

…

```
Modify Transceiver Settings
Enter Plug-In Type [ALL]:E1X
Enter Starting Plug-In Location[LET-1-1]:LET-1-1
Enter Ending Plug-In Location[RST1-8-26]:RST1-8-26
LET-1-10 is a E1X
Enable Timing Source[Disabled]:Disabled
Local Loopback[Disabled]:Disabled
Remote Loopback[Disabled]:Disabled
Overwrite Current Mapping ? [Yes]: Yes
Transceiver Setting Menu
>>> [2]:
```

Figure 3-s-9 Sample Screen of E1X

Choices of E1X setting item：

Edit This Card ? [Yes]： Yes

…

Enable Timing Sources：Enable /Disable

Local Loop：Enabled /Disabled

Remote Loop：Enabled /Disabled

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]: DD1.5
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

LET-1-10 is a DD1.5
Timing Source: Disabled
Equalization: 0-40 M
Line Code:B8ZS
Remote Loop: Disabled
Local Loop: Disabled

Edit this card? [Yes]: Yes
Timing Source[Disabled]: Enabled
Equalization: 0-40 M
Line Code:AMI
Remote Loop: Disabled
Local Loop: Disabled

Overwrite Current Setting? [Yes]: Yes
Line Cards Modified: 1
Special Circuits Settings Menu
>>> [2]:
```

Figure 3-s-10 Sample Screen of DD1.5

Choices of DD1.5 setting item：

Edit This Card ? [Yes]： Yes

…

Timing Source：Enabled /Disabled

Enter Equalization：0-40 M /40-80 M /80-120 M /120-160 M /160-200 M

Line Code：B8ZS /AMI

Local Loop：Enabled /Disabled

Remote Loop：Enabled /Disabled

…

```
Modify Digital Circuit Settings

Enter Plug-In Type [All]:IDSL
Enter Starting Plug-In Location [LET-1-1]:LET-1-1
Enter Ending Plug-In Location [RST1-8-26]:RST1-8-26
Location: LET-1-10       Plug-In: IDSL

Circuit     Line      Remote Loopback   Local Loopback
.....................................................

   1      Disabled       Disabled         Disabled
   2      Disabled       Disabled         Disabled

Edit this card? [Yes]: Yes

Location:LET-1-10            Plug-In: IDSL

Line 1
Line Circuit [Disabled]: Enabled
Remote Loopback [Disabled]: Disabled
Local Loopback [Disabled]: Disabled

Line 2
Line Circuit [Disabled]: Enabled
Remote Loopback [Disabled]: Disabled
Local Loopback [Disabled]: Disabled

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1

Special Circuits Settings Menu

MJ>>> [4]:
```

Figure 3-s-11 Sample Screen of IDSL

Choices of IDSL setting item：

Edit This Card ?　[Yes]：　Yes

…

Line Circuit：Disabled/Enabled

Remote Loopback：Disabled /Enabled

Local Loopback：Disabled /Enabled

…

3.110. The system prompts the user for the plug-in type. The settings for digital cards may be listed using this command. Digital cards may not be configured using this command. At the prompt, type the card type to be set and press {ENTER}.

Enter Plug-In Type [All]:

3.111. The user is prompted for a starting circuit location. This is the terminal-shelf-slot-circuit location of the first digital circuit to be included on the report. At the prompt, type the starting location and press {ENTER}.

Enter Starting Plug-In Location [LET-1-1]: LET-1-1

3.112. The user is now prompted for the ending circuit location. This location is the terminal-shelf-slot-circuit location of the last digital circuit to be included on the report. At the prompt, type the desired ending location and press {ENTER}.

Enter Ending Plug-In Location[RST1-8-261: RST1-8-26

3.113. After the ending location is entered, the system begins a search of all slots between the starting and ending locations looking for cards matching the specified card type. When a matching card is found, the system prints the current settings for that card on the screen. The system then asks the user if the card is to be edited.

Edit This Card? [Yes]: Yes

3.114. If the card settings are to be changed, type {Yes} at the prompt and press {ENTER}. The system will then prompt the user for the appropriate settings for the listed card. If the card is not to be edited, type {No} and press {ENTER} to continue the search for the next matching card.

3.115. After the last setting for this card is modified, the system asks the user if the current settings are to be over-written. If the new settings are to become the permanent settings for this card, type {Yes} and press {ENTER}. If the settings are not to be made permanent, type {No} and the system will continue to search for the next matching card.

Overwrite Current Settings? [Yes]:

3.116. After all matching cards have been found and edited, the system returns to the Special Circuit Settings sub-menu.

3.117. From any menu in the system, the "A" command is available. To list all alarms, type {A} at the Special Circuits Settings Sub-menu prompt and press {ENTER}.

3.118. To return to the Provisioning Menu, type {B}at the Special Circuits Settings Sub-menu prompt and press {ENTER}.

3.119. To return to the Main Menu, type {*} at the Special Circuits Settings Sub-menu prompt and press {ENTER}.

3.120. To get current menu list with the command in the Special Circuits Settings Sub-menu, type {?} at the Special Circuits Settings Sub-menu prompt and press {ENTER}.

4. Maintenance Menu

4.1. The Maintenance Menu provides commands for maintaining system hardware operation. Commands in this group provide listings of current alarms, listings of alarm history and alarm cut off activation. Figure 4-a shows the Maintenance Menu.

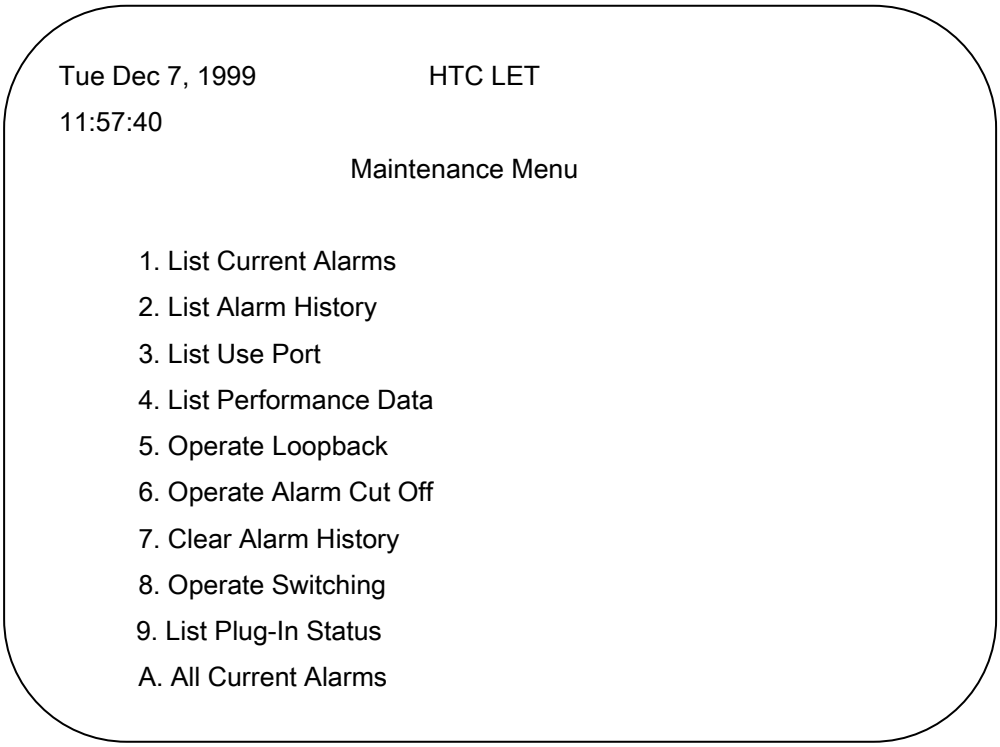


Figure 4-a. HTC-1100E Craft Interface Maintenance Menu

List Current Alarms

4.2 The List Current Alarms command provides a list of the locations of all uncleared alarms detected in the system at the time the report is being run. To use this command, type {1} at the Maintenance Menu prompt and press {ENTER}. The system will then prompt for a card type.

Enter plug-In Type [All]:

4.3. Type the desired beginning location at the prompt. The location address takes the form terminal-shelf-slot. The three address components are entered separately. Press {ENTER} after each part of the address is entered. The screen displays the address components already entered separated by dashes (-) and the cursor advances to the next position where an address component is to be entered. If the {ENTER} key is pressed while the field is blank, the HTC-1100E Craft Interface software places LET as the terminal value, 1 as the shelf value and 1 as the slot value.

If an incorrect value is entered into the data field, the system displays an error message identifying the problem and listing a range of acceptable values.

Enter Starting Plug-In Location [LET-1-1]:

4.4. When the beginning location has been entered, the system prompts the user for the ending location.

Enter Ending Plug-In Location [RST1-8-26]:

4.5. The ending location must be equal to or greater than the beginning location. For example, if RST1-1-1 was entered as the beginning location, the ending location must be RST1-1-1 or higher. LET-1-1 would be less than RST 1-1-1 and could not be entered as the ending location. The system would display an error message identifying the problem. If necessary, press the {ESC} key to return to the Maintenance Menu. This step cancels the current command and allows the user to start again with a new prompt for the beginning location.

4.6. When correct beginning and ending locations have been entered, the user is prompted to enter the alarm severity level to be reported.

Enter Alarm Severity [All]:

4.7. Typing {Enter} at this prompt will list all alarm types. If the alarm type is known, it may be typed at the prompt. Press {ENTER} to execute the command. Pressing {ENTER} after the alarm severity field has been filled will execute the command. If an incorrect value has been entered, the system will display an error message identifying the problem and giving a range of acceptable values.

```
Location Status  Alarm          Plug-In   Time
RST2     Set CR  Link to RST1             04/12/94 10:41:36
LET-1-11 Set MJ  LOS            E1-XCVR   04/10/94 14:22:18
LET-1-12 Set CR  LOF            E1-XCVR   04/08/94 08:03:51

Current Alarms Listed : 2 CR , 1  MJ , 0  MN, 0 ST
```

Figure 4-b. Sample Output of the List Current Alarms Command

4.8 When all information has been entered correctly, the HTC-1100E system will print a report on the screen listing all cards with active alarms. The report shows the terminal-shelf-slot location of each card, the alarm type, the alarm severity, the type of card and the date and time the alarm was activated. Figure 4-b shows a sample printout from this report. Table 4-A lists and defines the alarm messages issued by the system. After the report is completed, the system returns to the Maintenance Menu.

List Alarm History

4.9 The system is designed to store alarm history information in the alarm history buffer. This buffer holds 50 alarm history records. The alarm history buffer is constantly monitored and old history records are cleared as new history records are added. If the buffer becomes full, the system purges old records to make room for the new. The old records are purged based on the date the alarm occurred and the severity level of the alarm. The oldest, least critical alarms are cleared first from the history buffer. Even if the buffer is not full, the system purges the alarm history buffer. As the buffer is monitored, the system removes alarm history records that are more than two weeks old.

4.10 The List Alarm History command is used to list the history of alarms that have occurred in the system. Figure 4-c shows a sample printout of the report. After the report is completed, the system returns to the Maintenance Menu.

```
Time               Status  Alarm         Location  Plug-In
04/12/94 10:41:36 Cur CR  Link to RST1 RST2
04/12/94 10:41:25 Cur     CPU Active    RST2-1-23 CPU
04/12/94 10:41:25 Cur     CPU Boot      RST2-1-23 CPU
04/10/94 14:22:18 Clr MJ  LOS           LET-1-11  ELX-XCVR
04/08/94 08:03:51 Set CR  LOF           LET-1-12  EIX-XCVR

History Alarms Listed:    2 CR, 1 MJ, 0 MN, 0 ST
```

Figure 4-c. Sample Output for The List Alarm History Command

List Use Port

4.11 The List Use Port command allows the user to view information about the current active port status of analog card in the system. To list these status, type {3} at the Maintenance Menu prompt and press {ENTER}. The system will prompt for the plug-in type of card.

Enter Plug-In Type [All]：

4.12 At the card type has been entered, the system prompts the user for a starting location. This location is the terminal-shelf-slot location where the user wishes to begin a search for the specified card type.

Enter Starting Plug-In Location [LET-1-1]：

4.13 At the starting location has been entered, the system prompts for a ending location. This location is the terminal-shelf-slot location where the user wishes to stop a search for the specified card type.

Enter Ending Plug-In Location [RST1-8-26]：

4.14. When the ending location has been entered, the system searches all slots between the starting and ending locations looking for specified card type. When the cards matching the specified card type are found, the system prints a use port status list.Next figure shows a sample output of the List Use Port command. After the list is completed, the system returns to the Maintenance Menu.

```
List Use Port

Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

Location    Plug-In    Port 1    Port 2    Port 3    Port 4    Port 5    Port 6
-------------------------------------------------------------------------------
LET-1-4     LI-POTS    Not Use   Not Use   Busy      Not Use   Not Use   Not Use
RST-1-4     RI-POTS    Not Use   Not Use   Busy      Not Use   Not Use   Not Use
```

Figure 4-d Sample Output of the List Use Port command

List Performance Data

4.15. The List Performance Data command allows the user to view information about the current status of active transmission facilities in the system. Performance data listed includes the span being reported and the BER and status of individual spans. To obtain the performance data, select option {4} from the Maintenance Menu and press {ENTER}.

4.16. The system prompts for the facility type to be reported. If no facility type is specified, the system uses All as the default.

Enter Facility Type [All]:

4.17. After entering a valid facility type, the system prompts for the starting plug-in location.

Enter Starting Plug-In Location [LET-1-1]:

4.18. At the prompt, enter a valid Terminal-Shelf-Slot location where the report is to begin. If no beginning location is specified, the system defaults to LET-1-1 for the beginning location. If an incorrect value is entered, the system will display an error message identifying the error and requesting valid input. When a correct starting location has been entered, the system prompts for the ending location.

Enter Ending Plug-In Location [RST1-8-26]:

4.19. At the prompt, enter a valid Terminal-Shelf-Slot location where the report is to end. If no ending location is specified, the system defaults to the highest RSTxx-8-26 address available for the system. The xx represents the highest remote terminal number stored in the system database. If an incorrect value is entered, the system will display an error message the error and requesting valid input. When a correct ending location has been entered, the system prints the performance data information on the screen.

4.20. When the performance data has been printed on the screen, the system returns to the Maintenance Menu. Figure 4-d shows a sample report from the List Performance Data command.

```
List Performance Data

Enter Facility Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

E1 Span: LET-1-7 Has No Corresponding Remote Span
        BER:    -
        Status: LOS

            ES        SES       UAS       BE        BBE       ESR    SESR   BBER
-------------------------------------------------------------------------------
15min       879       879       879       0         0         0.0%   0.0%   0.0%
prev15min   900       900       900       0         0         0.0%   0.0%   0.0%
24hr        51300     51300     51300     0         0         0.0%   0.0%   0.0%
prev24hr    42421     42421     42411     0         0         0.0%   0.0%   0.0%
7days       42421     42421     42411     0         0         0.0%   0.0%   0.0%
1mon        0         0         0         0         0         0.0%   0.0%   0.0%

Fiber Span: LET-1-17 Has No Corresponding Remote Span
```

Figure 4-e. Sample Output of List Performance Data Command

Alarm Type	Level	Alarm Definition
Link_to <terminal ID>	Critical	The link to the identified terminal is down
Two <terminal ID>	Critical	Terminals are identically numbered
Uas15min.	Critical	Unavailable Second exceeds 5 minute
Uas1day	Critical	Unavailable Second exceeds 1 day
Uas7day	Critical	Unavailable Second exceeds 7 day
CPU Temperature	Major	The temperature sensor on the CPU is above safe operating temperature
AIS	Major	An Alarm Indication Signal is transmitted to the network interface either upon the loss of originating signal or when some action is taken that would cause signal disruption. The AIS signal is sent as unframed, all “ones” and continuous until the triggering
Yellow	Major	The far end terminal link is not receiving a transmission correctly but the local (near end) terminal link is receiving correctly. This alarm appears at the local terminal side to indicate that there is a problem with the transmission span
PSU Fuse Fail	Major	A fuse on the listed power supply plug-in card has failed
PSU Led Fail	Major	An LED on the listed power supply plug-in card has failed.
PSU Ring Fail	Major	The ringing generator circuit on the listed power supply plug-in card has failed
FOX Loss of Sync	Major	Failure to read framing bits of messages along a FOX span
External 2	Major	The system has detected one of the external alarm conditions wired to this alarm output in a remote cabinet. These alarms may include DC power failure, i.e., failure of the rectifier or Universal Power Assembly(UPA) in the cabinet
<Circuit Number> LOS or LOS	Major	A transmission span is in a Loss of Singal condition
Slips	Major	Timing not synchronized from one side of a transmission to the other. Lack of synchronization means frames are discarded or repeated depending upon if timing on the send side is faster or slower than timing on the receive side
Diagnostics	Major	The indicated plug-in card failed the self-tests upon plug-in card installtion
MFCass	Major	T1 multi-frame cass signal error
MFYellow	Major	T1 multi-frame yellow error
No Line Voltage	Major	No power present on express power or AC power line. This alarm is present only when an NPSU or ENPSU power supply unit is being used
BER Red	Major	The number of bit errors detected in a transmission has reached or exceeded the BER Red threshold as established as system turn-up

Alarm Type	Level	Alarm Definition
SES 15 Minute	Major	Severe Error Second exceeds 15 minutes
SES 1 Day	Major	Severe Error Second exceeds 1 day
SES 7 Day	Major	Server Error Second exceeds 7 days
BER Maintenance	Minor	The number of bit errors detected in a transmission has reached or exceeded the BER Red threshold which was set at system turn-up
Illegal Signalling	Minor	A plug-in card is not receiving appropriate signalling information
External 1	Minor	The system has detected one of the external alarm conditions wired to this alarm in a remote cabinet. These alarm may include open cabinet doors or over temperature
Hardware Fail	Minor	A hardware failure has occurred on the indicated plug-in card
Bad Man Data	Minor	Bad Manufacturing Data
Line Coding	Minor	The wrong line coding is in used
Peak Traffic Load	Minor	The traffic load on the system has reached the traffic alarm threshold value that was set in the system during system installation
PSU Low Battery	Minor	Less than 48V DC is being delivered to the PSU
PSU Power Fail	Minor	Not Used
Card Failed	Minor	Not Used
Card Missing	Minor	A Plug-in card was seated in the card cage at the indicated location, but the plug-in card is no longer physically present in the slot
Card Wrong Type	Minor	An attempt has been made to link two plug-in cards that are not compatible type
Provisioning Error	Minor	Not Used
Line Low Voltage	Minor	Voltage on line is low. This means that the voltage has gone below the low thresh-old limit for the power supply unit being used, either because the equipment is drawing too much power or because the power source is failing
Loop Current	Minor	Not Used
Card Reserved	Minor	Not Used
Card Unequipped	Minor	Not Used
ES 15 Minute	Minor	Error Second exceeds 15 minutes
ES 1 day	Minor	Error Second exceeds 1 day
ES 7 day	Minor	Error Second exceeds 7 days

Table 4-A. Alarm Messages and Definition

Operate Loop

4.21 The Operate Loopback command allows the user to establish the loopback setting that may be defined on the Special Circuits Setting Menu of each card. To list these settings, type {5} at the Maintenance Menu prompt and press {ENTER}. The system will prompts for the plug-in type of card whose loopback characteristics are to be set.

Enter Plug-In Type [All]：

4.22 At the card type has been entered, the system prompts the user for a starting location. This location is the terminal-shelf-slot location where the user wishes to begin a search for the specified card type.

Enter Starting Plug-In Location [LET-1-1]：

4.23 At the starting location has been entered, the system prompts for a ending location. This location is the terminal-shelf-slot location where the user wishes to stop a search for the specified card type.

Enter Ending Plug-In Location [RST1-8-26]：

4.24 When the ending location has been entered, the system searches all slots between the starting and ending locations looking for specified card type. When the cards matching the specified card type are found, the system prints a listing of the settings for the card on the screen. The system then asks the user if the card is to be edited.

Edit This Card? [Yes]：

4.25 The “Operate Loopback” command performs the same function as the loopback settings in the “Special Circuits Setting Menu” of each card. Only these settings of loopback can be edited on “Operate Loopback” command.

Next Figure shows a sample output of the Operate Loopback command. After the report is completed, the system returns to the Maintenance Menu.

```
Operate Loopback

Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

LET-1-7 is a E1X-XCVR
Local Loopback: Disabled
Remote Loopback: Disabled

Edit this card? [Yes]: Yes
Local Loopback [Disabled]: Disabled
Remote Loopback [Disabled]: Disabled

Overwrite Current Setting? [Yes]: Yes

Line Cards Modified: 1
```

Figure 4-f. Sample Output of Operate Loopback Command

Operate Alarm Cut-Off

4.26. The Operate Alarm Cut-Off command is used to turn off an audible alarm. To select this command, type {5} at the Maintenance Menu prompt and press {ENTER}. The audible alarm will be silenced. Issuing this command also resets the record of the system configuration in the system memory. When a card is installed in the HTC-1100E, its type and location is saved in a database record. Once a card is installed, when the card is absent, the system sends a missing card alarm. The ACO command resets the system memory, and thus clears any missing card alarms. This feature is particularly useful during initial system installation when cards may be moved from one slot to another as part of the initial system configuration process.

Note: The ACO (Alarm Cut-Off) button on the CPU card performs the same function as the Alarm Cut-Off command in the craft interface.

4.27. From any menu in the system, the "A" command is available. To list all current alarms, type {A} at the Maintenance Menu prompt and press {ENTER}.

4.28. To return to the Main Menu from the Maintenance Menu, type either {B} or {*} at the prompt and press {ENTER}

4.29. Type the {?} at the prompt and press {ENTER} to get current menu list with any of the Maintenance Menu commands.

Clear Alarm History

4.30 The Clear Alarm History command is used to clear the history of alarms that have occurred in the system. When the command is issued, all non-current alarms are removed from the alarms history buffer. To use this command, type {7} at the Maintenance Menu prompt and press {ENTER}. The system will ask for confirmation before clearing the alarm history.

4.31 After The Clear Alarm History command is issued, the system displays the message “Alarm History Cleared” for each terminal in the system, then the system will have a event display to remind the user.

Next Figure shows a sample output of the report. After the report is completed, the system returns to the Maintenance Menu.

```
Clear Alarm History

Effect Changes [Yes]: Yes

Maintenance Menu
MJ>> [7]:
--- Alarm Report ------------------------------------------------------------
|                                                                            |
|Location          Status   Alarm                    Plug-In     Time        |
|----------------------------------------------------------------------------|
|LET                 Evt      Clear Alarm History               12/07/99 14:31:05   |
|                                                                            |
```

Figure 4-g. Sample Output of Clear Alarm History

Operate Switching

4.32 The Operate Switching command is used to do the CPU or FO-XCVR Card redundancy in Craft Interface. When the command is issued, CPU or FO-XCVR Card which is in status standby will be active in the system, and the active card will be in standby status. To use this command, type {8} at the Maintenance Menu prompt and press {ENTER}. The system will ask for switching card type.

4.33 After The Operate Switching command is issued, the system displays the message "Operate CPU (or Fiber Span) Switching", then the system will have a event display to remind the user.

Next Figure shows a sample output of the Operate Switching command. After the report is completed, the system returns to the Maintenance Menu.

```
Enter Plug-In Type [CPU]: FO-XCVR
Operate Fiber Span Switching

Maintenance Menu
MJ>> [8]:
--- Alarm Report ----------------------------------------------------------
|                                                                           |
|Location          Status   Alarm                    Plug-In     Time       |
|---------------------------------------------------------------------------|
|LET                 Evt      FO-XCVR Switch                  12/08/99 10:58:28   |
|RST1                Evt      FO-XCVR Switch                  12/08/99 10:58:28   |
|                                                                           |
--- Alarm Report ----------------------------------------------------------

MJ>> [8]:
```

Figure 4-h. Sample Output of Operate Switching Command

List Plug-In Status

4.34 This function is the same as “List Plug-in” item of “System Configuration Menu”. It provides a list of all plug-in cards installed in a system. But This command only can list the location and card type and card status of card .

4.35 The system will display a prompt asking for the starting location for this Plug-Ins report. The default location appears in brackets in the system prompt. Press {ENTER} to accept the default selection.

Enter Starting Plug-In Location: [LET-1-1]

4.36 If the default value is not desired, type the desired beginning location at the system prompt. **T**he location takes the form terminal-shelf-slot. A dash separates each of the location fields.

4.37 The terminal may be LET or RST1 to RSTxx. Shelf may be any number from 1 to 8. Slot may be any number from 1 to 26. If the desired beginning location is known, type it at the prompt and press {ENTER}. LET-1-1 is the lowest beginning location; RSTxx-8-26 is the highest where xx represents the highest RST number stored in the system database. If an incorrect value is entered into the data field, the system displays an error message identifying the problem and listing a range of acceptable values.

4.38 When all three components of the beginning location have been entered, the system prompts the user for the ending location.

Enter Ending Plug-In Location: [RST1-8-26]

4.39 The ending location address follows the same rules as those for the beginning location.The ending location must be equal to or greater than the beginning location. For example, if RST1-1-1 were entered as the beginning location, the ending location must be RST1-1-1 or higher. LET-1-1 would be less than RST1-1-1 and could not be entered as the ending location.

4.40 When correct beginning and ending locations have been entered, the HTC-1100E system will print a report on the screen. Table 3-A shows a listing of the different status values that may appear on this report. Next Figure shows a sample printout from this report. After the report is completed, the System returns to the Maintenance Menu.

```
List Plug-Ins

Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

Location     Plug-In     Status
--------------------------------------------------------------------------
LET-1-6      DD64        In Service
LET-1-13     E1X-XCVR    Out Of Service
LET-1-17     FO-XCVR     Standby
LET-1-22     FO-XCVR     Active
LET-1-23     CPU         Standby
LET-1-24     CPU         Active
LET-1-25     L-PSU       In Service
RST1-1-8     RI-POTS     In Service
RST1-1-21    FO-XCVR     Standby
RST1-1-22    FO-XCVR     Active
```

Figure 4-i Sample Output of Plug-In Status

5. Testing Menu

5.1. The Testing Menu Command Group is used to perform diagnostic tests on system hardware. The available commands allow the user to run diagnostics or to perform lamp tests. The commands are listed and discussed below. Figure 5-a shows the Testing Menu.

```
Tue 2 Nov 1999      HTC-1100E LET       10:10:44
                    Testing Menu

       2. Perform Lamp Test
       3. Analog Test Menu
       4. Digital Test Menu
       6. Perform Alarm Test
       7. Drop Test Menu
       8. List Terminal Temperatures
       A. All Current Alarms
       B. Main Menu
       *. Main Menu
       ?. Help
```

Figure 5-a. HTC-1100E Craft Interface Testing Menu

Perform Lamp Test

5.2. The Perform Lamp Test command is used to test the LED's on the front panel of the cards. Select the Perform Lamp Test command by typing {2} at the Testing Menu prompt and pressing {ENTER}. The system prompts for the number of repetitions for the test.

Enter Number of Repetitions [3]:

5.3. Type the number of times each lamp is to be tested. If the user wishes to run the test continuously, type {CON} as the number of repetitions. The system runs a test on all of the LED's in the terminal. The test runs the specified number of times. The operator must watch the faceplates on the terminal to verify results as no report is generated by this test. After completing the test, the system returns to the Testing menu.

5.4. If "CON" was selected as the number of repetitions, the user may stop the test by returning to the Testing Menu and selecting the Perform Lamp Test command again. When prompted for the number of repetitions for the test, type {STOP} and press {ENTER}. The test will stop and the system returns to the Testing Menu.

Analogy Test Sub-Menu

5.5 The Analogy Test Sub-menu provides commands for testing individual cards or subscriber lines. These commands are designed to be used with the Analogy Test Unit (ATU) card and cannot be used if the card is not present. The system will display the Analogy Test Sub-menu shown in Figure 5-b.

```
Tue 2 Nov 1999      HTC-1100E LET          10:11:11
                   Analog Test Menu

       1. List Analog Test Thresholds
       2. Modify Analog Test Thresholds
       3. Perform Analog Test
       A. All Current Alarms
       B. Testing Menu
       *. Main Menu
       ?. Help

Analog Test Menu
MJ>>> [1]:
```

Figure 5-b. HTC-1100E Craft Interface Analogy Test Sub-menu

List Analogy Test Thresholds

5.6. The List Analogy Test Thresholds command allows the user to see the current analogy test threshold settings. A sample listing from this report is shown in Figure 5-c.

```
List Analog Test Thresholds

            Analog Threshold Value
=============================================
   Item     T-R      T-G      R-G        Unit
---------------------------------------------
   L_RES   30.0     200.0    200.0      kOhms
   L_CAP    0.3                         uF
   H_CAP    0.8                         uF
   DC       5.0                         Volts
---------------------------------------------

Analog Test Menu
MJ>>> [1]:
```

Figure 5-c. Sample Output from the List Analogy Test Thresholds Command

Modify Analogy Test Thresholds

5.7. The List Analogy Test Thresholds command allows the user to set the current analogy test threshold settings. A sample listing from this report is shown in Figure 5-d.

```
Modify Analog Test Thresholds

Enter T-R Low RES [30]: 30
Enter T-G Low RES [200]: 200
Enter R-G Low RES [200]: 200
Enter T-R Low CAP [0.3]: 0.3
Enter T-R High CAP [0.8]: 0.8
Enter T-R DC [5]: 5

Effect Changes? [No]: Yes

Analog Test Menu
MJ>>> [2]:
```

Figure 5-d. Sample Output from the Modify Analogy Test Thresholds Command

Perform Analogy Test

5.8. The Perform Analogy Test Command allows the user to test an individual subscriber line on a specific analogy card. The tests performed include the following:

AC Voltages: Tests the line to determine if there is a line cross to a ac power. The test positions include Tip-Ring, Tip-Ground, Ring-Ground.

DC Voltage: Tests the line to determine if there is a line cross to a dc power. The test positions include Tip-Ring, Tip-Ground, Ring-Ground.

DC Resistance between Lines and Ground: Tests for resistive faults between subscriber lines or subscriber line to ground. If all telephone instruments are on-hook, the test should measure a high DC resistance between the lines. If the resistance is low, either there is a telephone receiver off-hook or there is a resistive fault between the lines.

Capacitance: Tests the AC impedance at the ringing frequency by applying a 50 V peak-to-peak AC voltage to the line. The capacitance value is reported. The test positions include Tip-Ring, Tip-Ground, Ring-Ground.

Level: ATU card receives the voice band signal from the side of Local Exchange Terminal, it also can send the voice band signal to the side of Local Exchange Terminal.

DT: ATU card supports the function of Dial Tone Detection.

DTD: ATU card supports the function of Dial Tone Disconnection Detection

Loop Current: Test for Loop Current.

Howler: ATU card can send a howler tone to subscriber if the user doesn't hang on the telephone hook.

5.9. To use this command, type {3} at the Analogy Test Sub-menu prompt and press {ENTER}. The system will prompt for the location of the line to be tested.

Enter Circuit Location:

5.10. Enter the address of the line to be tested. This address takes the form Terminal-Shelf-Slot-Circuit. The Terminal-Shelf-Slot portion of the circuit identification is identical to the Terminal-Shelf-Slot locations used throughout the system. The Circuit portion of the circuit identification is the specific circuit (Ex: RI-POTS has circuits from 1 to 6) to be tested on the card located in the Terminal-Shelf-Slot location specified. At the prompt, type the circuit identification to be tested and press {ENTER}. If an incorrect location is entered, the system will display an error message identifying the problem.

5.11. If the system detects that the circuit being tested is busy, the system will ask if the user wants to force the analogy test on that circuit. If the analogy test is forced, any call in progress on that circuit will be dropped before the test is performed.

5.12. When correct circuit identification has been entered, the system will print a report for that circuit similar to the report shown in Figure 5-e. After the report is completed, the system returns to the Analogy Test Sub-menu.

5.13. From any menu in the system, the "A" command is available. To list all current alarms, type {A} at the Analogy Test Sub-menu prompt and press {ENTER}.

5.14. To return to the Testing Sub-menu from the Analogy Test Sub-menu, type {B} and press {ENTER}.

5.15 To return to the Main Menu from the Analogy Test Sub-menu, type{* }and press {ENTER}

5.16 To get the current menu list, type {? } and press {ENTER}

```
Perform Analog Test

Enter Circuit Location [LET-1-1-1]: RST1-1-2-1
Enter Test Item [DC]: Test All

                 Analog General Test Result
=====================================================================
   Address    =  RST1-1-2-1
   Type         =  RI-APOTS
   Result       =  OK
---------------------------------------------------------------------
   Item     T-R      T-G      R-G      T1-R1    T1-G     R1-G     Unit
---------------------------------------------------------------------
   DC       0.000    0.000    0.000                               Volts
   AC       0.000    0.000    0.000                               Volts
   RES      100      20.1     19.7                                kOhms
   CAP      1.001    0.001    0.001                                uF
---------------------------------------------------------------------

Analog Test Menu
MJ>>> [3]:
```

Figure 5-e. Sample Output from the Perform Analogy Test Command

Digital Test Sub-Menu

5.17 The Digital Test Sub-menu provides commands for testing individual cards or subscriber lines. These commands design to be used with the Digital Test Unit (DTU) card and cannot be used if the card is not present. The system will display the Digital Test Sub-menu shown in Figure 5-f.

```
Tue 2 Nov 1999      HTC-1100E LET                10:12:16
                   Digital Test Menu

      1. List Digital Test Thresholds
      2. Perform Digital Test
      A. All Current Alarms
      B. Testing Menu
      *. Main Menu
      ?. Help

Digital Test Menu
MJ>>> [1]:
```

Figure 5-f. HTC-1100E Craft Interface Digital Test Sub-menu

List Digital Test Thresholds

5.18. The List Digital Test Thresholds command allows the user to see the current digital test threshold settings. A sample listing from this report is shown in Figure 5-g.

```
List Digital Test Thresholds

             Digital Threshold Value
=============================================
        Item
---------------------------------------------
        Test Time=1800 Sec
        Report Interval=10 Sec
        Threshold=9999
        Pattern=511
---------------------------------------------

Digital Test Menu
MJ>>> [1]:
```

Figure 5-g. Sample Output from the List Digital Test Thresholds Command

Perform Digital Test

5.19. The Perform Digital Test Command allows the user to test an individual subscriber line on a specific digital card. The tests performed include Loopback test, BER test, Insert 6 bits error, and test stop.

Loopback: DTU send a command to make the tested circuit loopback, what kind of loopback can be selected is depend on the tested card.

BER: DTU send a test pattern and count the bit error rate, tester can decide the test pattern, test time, report interval and the threshold.

Insert 6 Bits Error: DTU insert 6 bits error in each time tester does this command.

Stop: DTU stop the test.

To use this command, type {2} at the Digital Test Sub-menu prompt and press {ENTER}. The system will prompt for the location of the line to be tested.

Enter Circuit Location:

5.20. Enter the address of the line to be tested. This address takes the form Terminal-Shelf-Slot-Circuit. The Terminal-Shelf-Slot portion of the circuit identification is identical to the Terminal-Shelf-Slot locations used throughout the system. The Circuit portion of the circuit identification is the specific circuit to be tested on the card located in the Terminal-Shelf-Slot location specified. At the prompt, type the circuit identification to be tested and press {ENTER}. If an incorrect location is entered, the system will display an error message identifying the problem. When correct circuit identification has been entered, the system will print a report for that circuit similar to the report shown in Figure 5-h. After the report is completed, the system returns to the Digital Test Sub-menu.

5.21. From any menu in the system, the "A" command is available. To list all current alarms, type {A} at the Digital Test Sub-menu prompt and press {ENTER}.

5.22. To return to the Testing Sub-menu from the Digital Test Sub-menu, type {B} and press {ENTER}.

5.23. To return to the Main Menu from the Digital Test Sub-menu, type{* }and press {ENTER}

5.24. To get the current menu list, type {? } and press {ENTER}

```
Perform Digital Test

Enter Plug In Location [LET-1-1]: RST1-1-9
Enter Test Item [Loopback]:
Enter Test Pattern [511]: 2047
Enter Test Time (Continuous = 9999) [1800]: 1800
Enter Report Interval [10]: 10
Enter Threshold [9999]: 9999

Digital Test Menu

MJ>>>
```

Figure 5-h. Sample Output from the Perform Digital Test Command

Perform Alarm Test

5.25. The Perform Alarm Test command is used to test the alarm relays in the system. Select the Perform Alarm Test command by typing {6} at the Testing Menu prompt and pressing {ENTER}. The system will display the

message, "Alarms will be disabled for approximately 1 minute." On the prompt line, the question "Do you wish to proceed?" appears. Type "YES" and press {ENTER} to start the alarm test. While the alarm test is in progress, press the {ESC} key at any time to stop the test. The screen will display a report of the progress of the alarm test. The report lists the operation (Setting or Clearing the alarm), location (Near End or Far End), the Alarm Type (Critical, Major, Minor, Status) and the number of seconds since the beginning of the current alarm test (maximum of 5 seconds for each test). While the test is in progress, the operator should check to make sure that the appropriate bay alarms (visual and audible) are activated during the alarm test. When the test is completed, the system displays the message, "Resetting terminal to current alarm conditions," and resets the system to its pretest state. After the test finish, the system returns to the Testing Menu.

Drop Test Sub-Menu

5.26. The Drop Test includes digital cards channel test, and analog cards channel test or subscriber line at an RST. The analog cards test methods are via relay to set up test route. The Drop Test Sub-menu provides commands for testing individual cards or subscriber lines. The commands design to be used with the Metallic Test Unit (MTU) card and cannot be used if the card is not present. The system will display the Drop Test Sub-menu shown in Figure 5-i.

```
THU MAR 12, 1998    HTC-1100E LET          14:48:33
                     Drop Test Menu

1.  Perform Drop Test
5.  List Drop Test Thresholds
A.  All Current Alarms
B.  Testing Menu
*   Main Menu
?   Help


Drop Test Menu
>>> [1]:
```

Figure 5-i. HTC-1100E Craft Interface Drop Test Sub-menu

Perform Drop Test

5.27. The Perform Drop Test Command allows the user to test an individual subscriber line on a specific analogy card. The tests performed include the following:

AC and DC Hazardous Voltages: Tests the line to determine if there is a line cross to a power utility line or other source of high voltage. If a voltage greater than 60V is detected, the test reports a failure.

AC and DC Foreign Voltage: Tests the line to determine if there is a line cross to another line or to check for an induced voltage in the line. If the AC or DC voltages on either line is greater than 10 V, the test reports a failure.

Common Mode Resistive Faults to Ground: Tests for ground faults. The lines should be isolated from ground. If the test measures a resistance of less than 50kΩ from either leg to ground, the test reports a failure.

DC Resistance between Lines: Tests for resistive faults between subscriber lines. If all telephone instruments are on-hook, the test should measure a high DC resistance between the lines. If the resistance is low, either there is a telephone receiver off-hook or there is a resistive fault between the lines. If the resistance between lines is less than 20kΩ, the Receiver Off-Hook test is then run to check for a receiver off-hook. If no off-hook is detected, the test reports a failure.

Receiver Off-Hook: Monitors the resistance between lines. The test passes a test current through the line and monitors the current transfer characteristics. If the monitored characteristics are non-linear, the telephone instrument is off-hook. A linear characteristic pattern would indicate a resistive fault between the lines.

REN and Ringer Capacitance: Tests the AC impedance at the ringing frequency by applying a 40 V peak-to-peak AC voltage to the line. Ringer Equivalence Numbers are determined in accordance with Bellcore TANWT-000909. The capacitance value is reported. If the AC impedance is more than 70kΩ, the test reports a REN failure.

5.28. To use this command, type {1} at the Drop Test Sub-menu prompt and press {ENTER}. The system will prompt for the location of the line to be tested.

Enter Circuit Identification:

5.29. Enter the address of the line to be tested. This address takes the form Terminal-Shelf-Slot-Circuit. The Terminal-Shelf-Slot portion of the circuit identification is identical to the Terminal-Shelf-Slot locations used throughout the system. The Circuit portion of the circuit identification is the specific circuit (Ex: RI-POTS has circuits from 1 to 6) to be tested on the card located in the Terminal-Shelf-Slot location specified. At the prompt, type the circuit identification to be tested and press {ENTER}. If an incorrect location is entered, the system will display an error message identifying the problem.

5.30. If the system detects that the circuit being tested is busy, the system will ask if the user wants to force the drop test on that circuit. If the drop test is forced, any call in progress on that circuit will be dropped before the test is performed.

5.31. When a correct circuit identification has been entered, the system will print a report for that circuit similar to the report shown in Figure 5-j. After the report is completed, the system returns to the Drop Test Sub-menu.

```
Enter Circuit Identification: RST1-1-10-1

Voltage Tests
T DC                              1 Volt      Pass
R DC                             -1 Volt      Pass
T RMS                           < 1 Volt      Pass
R RMS                           < 1 Volt      Pass

Resistance Tests
T - Ground                      > 1000 kohm   Pass
T - R                           > 1000 kohm   Pass
R - Ground                      > 1000 kohm   Pass

Miscellaneous Tests
Receiver Test                   On Hook
Ringer Test                     0.42 REN      Pass
Capacitance Test                731 nF        Pass

RST1-1-10-1 Test Summary: Line OK
```

Figure 5-j. Sample Output from the Perform Drop Test Command

List Drop Test Thresholds

5.32. The List Drop Test Thresholds command allows the user to see the current drop test threshold settings. A sample listing from this report is shown in Figure 5-k.

```
Enter Circuit identification:   RST1-1-10-1

Hazardous Voltage Tests
A DC                            > 60 Volt
B DC                            > 60 Volt
A RMS                           > 60 Volt
B RMS                           > 60 Volt

Foreign Voltage Tests
A DC                            > 10 Volt
B DC                            > 10 Volt
A RMS                           > 10 Volt
B RMS                           > 10 Volt

Resistance Tests
A - Earth                       < 50 kOhm
A - B                           < 20 kOhm
B - Earth                       < 50 kOhm

Miscellaneous Tests
Ringer Test                     < 0.10 REN
Capacitance Test                < 100 nF
```

Figure 5-k. Sample Output from the List Drop Test Thresholds Command

5.33. From any menu in the system, the "A" command is available. To list all current alarms, type {A} at the Drop Test Sub-menu prompt and press {ENTER}.

5.34. To return to the Testing Sub-menu from the Drop Test Sub-menu, type {B} and press {ENTER}.

5.35. To return to the Main Menu from the Drop Test Sub-menu, type {* }and press {ENTER}

5.36. To get the current menu list, type {? } and press {ENTER}

List Terminal Temperatures

5.37. The List Terminal Temperatures Command is used to list the current operating temperatures of the components in each terminal location within the system. After entering this command, the system will prompt for a starting and ending terminal location. The default starting terminal location is LET and the default ending terminal location is RST1.

Enter Starting Terminal Location [LET]:
Enter Ending Terminal Location [RST1]:

5.38. When the starting and ending terminal locations have been entered, the system will print a list of all terminals and the current operating temperatures of those terminals. The temperatures are reported in both degrees Celsius and degrees Fahrenheit. Figure 5-l shows a sample listing of the output from this command. When the report is completed, the system returns to the Testing Sub-menu.

5.39. If the terminal operating temperatures are over 65 degrees Celsius (149 degrees Fahrenheit) or under –35 degrees Celsius (-31 degrees Fahrenheit), the system will have a major alarm displays " CPU Temperatures" until the temperature in safe temperature range.

```
Enter Starting Terminal Location: LET
Enter Ending Terminal Location: RST1

Location        Degrees Celsius      Degrees Fahrenheit
LET                   29                    84
RST1                  27                    80
```

Figure 5-l. Sample Output from the List Terminal Temperatures Command

5.40. To return to the Main Menu from the Testing Sub-menu, select the Main Menu option by typing either the {B} or {*} key at the Testing Sub-menu prompt and pressing {ENTER}.

5.41. To get current list with any of the Testing Menu commands, select the Help option by typing {?} at the prompt and pressing {ENTER}.

6. Traffic Menu

6.1. The Traffic Menu provides commands for setting thresholds and monitoring statistics about the traffic carrying characteristics of the system. Figure 6-a shows the Traffic Menu.

```
THU MAR 12, 1998      HTC-1000E LET              14:48:33
                           Traffic Menu

1.   List Current Traffic Status
2.   List Traffic Statistics
3.   Reset Traffic Monitoring
4.   Set Traffic Alarm Threshold
A.   All Current Alarms
B.   Main Menu
*    Main Menu
?    Help

Traffic Menu
>> [1]:
```

Figure 6-a. Traffic Menu

List Current Traffic Status

The List Current Traffic Status command allows the user to see the current traffic status of the system. The report provides a "snapshot" of how the system is carrying traffic at this point in time. The items reported include the total number of calls processed and the number of calls that were blocked on a system wide basis. In addition to the information about the entire system, traffic information is given for each remote terminal. Included in the individual status report is information about the number of channels in use, the number of channels currently available and the number of channels currently unavailable because the facility supporting those channels is out of service. The used channels and currently available channels are used to calculate the percentage of channels available. Figure 6-b shows the screen as it would appear for a typical traffic status report.

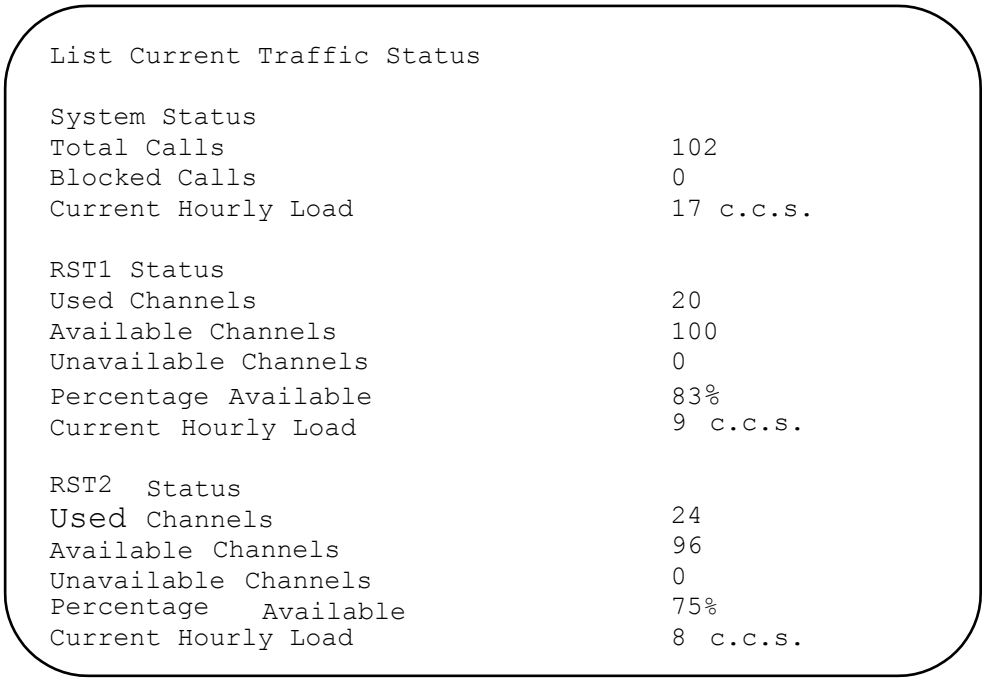


Figure 6-b. Sample Output from the List Current Traffic Status Command

List Traffic Statistics

6.3. The List Traffic Statistics Command allows the user to list the traffic carrying statistics for the system. Selecting this command causes the system to list the various traffic statistics accumulated for the system and for each remote terminal in the system. The traffic statistics reported include the number of permanently and the number of non-permanently assigned channels, the peak hourly load, the number of originating calls and the number of terminating calls received, the number of blocked originating and blocked terminating calls and the peak all-channels-busy duration time.

6.4 To select the List Traffic Statistics command, press {2} at the Traffic Sub-menu prompt and press {ENTER}. The system will print a report on the screen similar to the one shown in Figure 6-c. Table 6-A summarizes the different statistics reported and their meaning.

Reset Traffic Monitoring Registers

6.5. The system maintains a number of traffic monitoring registers for accumulating traffic statistics. These registers are reset only when the reset command is issued. The Reset Traffic Monitoring Registers command causes all traffic statistics information to be reset to zero. If the system configuration is changed, the traffic statistics information should also be reset so that future traffic statistics reports will reflect the new system configuration. To use this command, press {3} at the Traffic Sub-menu prompt and press {ENTER}. The system will ask for confirmation before resetting traffic statistics.

This will erase All current Traffic statistics.
Do You Wish To Proceed [No]:

```
System Performance

Permanently Assigned Channels                48
Non-Permanently Assigned channels            192
Peak Hourly Load                             18
Peak Date and Time                           MAR 12, 1998 10:14:33
Number Originating Calls                     46
Blocked Originating Calls                    0
Number Terminating Calls                     32
Blocked Terminating Calls                    0
Peak All-Channels-Busy Duration              45  Seconds
Peak Date and Time                           MAR 12, 1998 10:14:33

RST1  Performance
Permanently Assigned     Channels            24
Non-Permanently Assigned      Channels       96
Peak Hourly    Load                          9
Peak Date and Time                           MAR 12, 1998 10:14:33
Number Originating Calls                     10
Blocked Originating Calls                    0
Number Terminating Calls                     8
Blocked   Terminating Calls                  0
Peak All-Channels-Busy Duration              15  Seconds
Peak Date and Calls                          MAR 12, 1998 10:14:33
```

Figure 6-c. Sample Output from the List Traffic Statistics Command

Report Item	Definition
Register Reset Time	The date and time the traffic statistics registers were last reset.
Permanently Assigned Channels	Channels are hard mapped and cannot be changed.
Non-Permanently Assigned Channels	Channels are dynamically mapped as calls are placed. Used with concentrated systems.
Peak Hourly Load	Highest traffic load measured (in C.C.S) in any given traffic hour since the traffic statistics registers were last reset.
Number Originating Calls	Total number of calls which originated within the system or terminal being reported.
Blocked Originating Calls	Number of calls which originated within the system or terminal being reported which could not be completed because all system or terminal resources were busy.
Number Terminating Calls	Total number of calls which terminated within the system or terminal being reported.
Blocked Terminating Calls	Number of calls which terminated within the system or terminal being reported which could not be completed because all system or terminal resources were busy.
Peak All-Channels-Busy Duration	The total time, in seconds, minutes or hours that all system or terminal resources were busy.

Table 6-A. Traffic Statistics Report Items

6.6. To reset the traffic statistics, type "Yes" and press {ENTER}. The system will display the following message and then return to the Traffic Sub-menu prompt.

Traffic Monitoring Initialized

6.7. To stop the reset process, type "No" and press {ENTER}. The system will display the following message and then return to the Traffic Sub-menu prompt.

Traffic monitoring Halted

```
Set Traffic Alarm Threshold

Peak Hourly Load Threshold [ ]: 30
```

Figure 6-d. Sample Set Traffic Alarm Threshold Screen

Set Traffic Alarm Threshold

6.8. The Traffic Alarm Threshold represents the traffic volume value where the system) is approaching full capacity and the system operator needs to be notified. The Set Traffic Alarm Threshold command allows the user to set the threshold where this alarm is issued.

6.9. The alarm threshold value is best determined by the user's traffic engineers. The traffic alarm threshold must consider several factors including the call characteristics of the system, the characteristics of the transmission media being used, any service concentration being used and company policy regarding acceptable blocking characteristics for the system. The number entered in this field represents the total number of circuits multiplied by a predetermined average traffic load per circuit.

6.10. The number entered will be used to monitor overall system performance. When the peak hourly load value reaches the threshold value, the system issues an alarm. The threshold value also is used to monitor individual terminal performance. If any terminal in the system exceeds the threshold value, an alarm will be issued. Figure 6-d shows a sample screen using the Set Traffic Alarm Threshold command.

6.11. To set the Traffic Alarm Threshold, press {4} at the Traffic Menu and press {ENTER}. The system will display the following prompt.

Peak Hourly Load Threshold [27]:

6.12. At the prompt, type the desired threshold value (in C.C.S) and press {ENTER}. If an incorrect value was entered, the system will print an error message indicating the error. Correct the error by typing correct information at the prompt. The system will display the following message if the threshold value was changed.

System Thresholds Updated

6.13. From any menu in the system, the "A" command is available. To list all cur-rent alarms, type {A} at the Traffic Menu prompt and press {ENTER}.

6.14. To return to the Main Menu, type {B} or {*} at the Traffic Menu prompt and press {ENTER}.

6.15. To get help with the commands in the Traffic Menu, type {?} at the prompt and press {ENTER}.

This will erase all current traffic statistics.
Do you wish to proceed [No]:

7. Administration Menu

7.1. The Administration Menu provides command groups for controlling user access to the HTC-1100E Interface, changing date and time information and controlling the way information is displayed on the screen. The Administration Sub-menus are listed and described below.

Date and Time Sub-menu - Allows operator to list the system date and time, set the system date or set the system time.

Security Sub-menu - Allows the system operator to manage user access to the system.

Terminal Options Sub-menu - Allows user to choose the clock display as AM/PM or 24 Hr., determine the frequency of menu display, and control scrolling of information on the display screen. Figure 7-a shows the Administration Menu.

```
THU MAR 12, 1998     HTC-1100E  LET          14:48:33
                       Administration Menu

1.    Date and Time Menu
2.    Security Menu
3.    Terminal options Menu
A.    All Current Alarms
B.    Main Menu
*     Main Menu
?     Help

Administration Menu
>> [1]:
```

Figure 7-a. HTC-1100E Craft Interface Administration Menu

The Date and Time Sub-menu

7.2. The Date and Time Sub-menu provides commands used to list or set the system date and time. Select the Date and Time Sub-menu by typing {1} at the Administration Menu prompt and pressing {ENTER}.

7.3. There are three selections on the Date and Time Sub-menu. Figure 7-b shows the Date and Time Sub-menu. Option 1 is the List Date and Time command. This command displays the current system date and time setting. Menu option 2 is the Set Date command. It allows the user to set the system date. The date is entered in Month, Day, Year format. Option 3, the Set Time command, allows the user to set the system time. Time may be in either AM/PM or 24 Hour format. Selecting option allows the user to see a list of all system alarms which have not been cleared from the system. Selecting option B returns the user to the Administration Menu. Option * returns the user to the Main Menu. The ? option provides help with any of the Date and Time Sub-menu commands.

```
THU MAR 12, 1998     HTC-1100E  LET              14:48:33
                       Date and Time Menu

1.   List Date and Time
2.   Set Date
3.   Set Time
A.   All Current Alarms
B.   Administration Menu
*    Main Menu
?    Help

Date and Time Menu
>>> [1]:
```

Figure 7-b. The HTC-1100E Craft Interface Date and Time Sub-menu

List Date and Time

7.4. To list the current system date and time settings, select the List Date and Time command by typing {1} at the Date and Time Sub-menu prompt and pressing {ENTER}. The current date and time setting will display on the screen above the Date and Time Sub-menu.

Current Date and Time is: Tue, November 26, 1992 10 : 32 : 23

Set Date

7.5. To set the system date, select the Set Date command by typing {2} at the Date and Time Sub-menu prompt and pressing {ENTER}. The current date setting will display on the screen. Type the new date and press {ENTER}.

Enter New Date [MARCH 12,1998]:

7.6. Pressing the {ENTER} key when the date field is blank places the current date in the date field. If the {ENTER} key is used to enter the date, this is done in three steps. First, the Month is entered. Next, the Day of the month is entered; and finally, the Year is entered. After each part of the date is placed in the date field, press the {ENTER} key to store that entry. The {[} and {]} keys may be used to increase or decrease the date displayed in the date field. When the desired date is displayed in the date field, pressing {ENTER} stores that date as the current system date. After the new system date is set, the new date is displayed and the system returns to the Date and Time Sub-menu.

New Date is: THU MARCH 12, 1998

Set Time

7.7. To set the system time, select the Set Time command by typing {3} at the Date and Time Sub-menu prompt and pressing {ENTER}. The current time setting will display on the screen. Type the new time and press {ENTER}.

Enter New Time [10:32:23]:

7.8. Pressing the {ENTER} key when the time field is blank places the current time in the time field. If the {ENTER} key is used to enter the time, this is done in three steps. First, the Hour is entered. Next, the Minutes are entered; and finally, the Seconds are entered. After each part of the time is placed in the time field, press the {ENTER} key to store that entry. The {[} and {]} keys may be used to increase or decrease the time displayed in the time field. When the desired time is displayed in the time field, pressing {ENTER} stores that time as the current system time. After the system time is set, the new time is displayed and the system returns to the Date and Time Sub-menu.

New Time is: 12:32:23

7.9. From any menu in the system, the “A“ command is available. To list all current alarms, type {A} at the Date and Time Sub-menu prompt and press {ENTER}.

7.10. To return to the Administration Sub-menu from the Date and Time Sub-menu, type {B} and press {ENTER}.

7.11. To return to the Main Menu, select the Main Menu option by typing the {*} key at the Date and Time Sub-menu prompt and pressing {ENTER}.

7.12. To get help with any Date and Time Sub-menu commands, select the Help option by typing a {?} at the prompt and pressing {ENTER}.

The Security Sub-menu

7.13. When the HTC-1100E system is shipped, there is no security information in the software. As long as no security information has been entered, any user may press {ENTER} at both the ,Enter User Name" and the "Enter User Password" prompts to gain entry to the system. The Security Sub-menu provides commands that control user access to the HTC-1100E Craft Interface software. Commands for listing, changing, or deleting user and password information give the ability to restrict access to unauthorized users. The security commands also include the ability to restrict access on a menu level basis. When any new user is entered, the system operator will be asked to establish the read and write privileges for each menu for that user. Figure 7-c shows the Security Sub-menu.

```
 THU MAR 12, 1998     HTC-1100E  LET              14:48:33
                         Security Menu

1.    List User Security Data
2.    Set User Security Data
3.    Delete User Security Data
A.    All Current Alarms
B.    Administration Menu
*     Main Menu
?     Help

Security Menu

>>> [1]:
```

Figure 7-c. The HTC-1100E Craft Interface Security Sub-menu

List User Security Data

The List User Security Data command prints a list of users who may access the HTC-1100E Craft Interface software. The list also includes information about the menus the user may access. For users other than the System Operator (SysOp), only the logged on user's security information may be viewed using this command. Select the List User Security Data command by typing {1} at the Security Sub-menu prompt and pressing {ENTER}. The system prints the current user's name and menu read/ write privileges on the screen. If the current user is the System Operator (SysOp), a list of all user names and menu privileges will print on the screen. Figure 7-d shows a sample of this report.

```
List User Security Data

User Name    Provisioning  Maintenance  Testing  Traffic  Admin  Security

BILL SMITH   Rd/Wr         Rd/Wr        Rd       Rd       Rd/Wr

Users listed: 1
Security Menu
>>>[1]:
```

Figure 7-d. Sample Printout Using the List User Security Data Command

Set User Security Data

7.15. The Set User Security Data command allows the user to add or change user security information. New users may be added to the system or current user information may be changed using this command. The first user entered into the system is automatically designated as the System Operator (SysOp). The SysOp is the only user

who may change user security information about other users. Other users authorized to read and write to the Security Menu may only change their own user name or password using this command; they may not change their menu access security information. Only the SysOp may change menu access security information for a user. Select the Set User Security Data command by typing {2} at the Security Sub-menu prompt and pressing {ENTER}. For security reasons, the system will first ask for the current user to enter his/her password

Current User Name Is: 000000
Enter Current User Password:

7.16. If the correct password is entered, the system displays a prompt asking for the user name. If the current user wishes to change his/ her name, type the new name at this prompt. Type the new user name and press {ENTER}. The user name must be at least six characters and no more than fifteen. If the current logged on user wishes to change the password, enter a new password at this prompt. The system displays a prompt asking for the new password.

Enter User Name To Set: 000001

7.17. Passwords must contain between 6 and 15 characters. The password may contain any combination of numbers, letters or special characters using the standard character keys. Characters entered using the {SHIFT} key are also permitted. The {CONTROL} key and other special function keys are not permitted. Passwords are case sensitive. For example, the password "ORANGE" is not the same as the password "orange" or the password "Orange". At the prompt, type the new password and press {ENTER}. To verify the new password, the user is asked to type the new password again.

Enter User Password:
Verify User Password:

7.18. When password information is requested by the system, the password entry is not displayed on the screen. When typing a password, the characters must match exactly. If they do not, the user is denied access to the system.

```
Set User Security Data

Current User Name is BILL SMITH
Enter Current User Password: ***************
Enter User Name to Set: Joe Jones

JOE JONES is a New User
Enter User Password: ***************
Verify User Password: ***************
Provisioning Menu Read? [No]: Y
Provisioning Menu Write? (No): Y
Maintenance Menu Read? [No]: N
Testing Menu Read? (No]: Y
Testing Menu Write? (No]: Y
Traffic Menu Read? [No): No
Administration Menu Read? [No]: Y
Administration Menu Write? (No]: Y
Security Menu Read? [No]: Y
Security Menu Write? (No]: Y

Security Menu
>>>[1]:
```

Figure 7-e. Sample Screen Using the Set User Security Data Command

7.19. When the new user name and password are entered correctly, the system displays a prompt asking if this user is to be allowed to read the Provisioning Menu. If the system operator says "Yes", the system displays a prompt asking if this user is to be allowed to write (i.e. make changes) the information that could be changed using the Provisioning Menu commands. After the system operator responds with a "Yes" or "No", the system asks these same questions for each of the Main Menu selections and the Security Menu. If the user is not allowed to read a menu (i.e., the read privilege is set to "No"), the system automatically sets the write privilege for that menu to "No". The system moves to the next menu and asks if the user will be allowed to read that menu. Figure 7-e shows an example of the information requested to set user security. If the read privilege for a menu is denied, the system assumes that the write privilege is also denied for that menu. For any active user, the screen will only display the menus and commands that user is allowed to access.

New User Was Created: 000001

Delete User Security Data

7.20. The Delete User Security Data command allows the removal of users from the system. The System Operator (SysOp) is the only user who may remove users from the system, Select the Delete User Security Data Command by typing {3} at the Security Sub-menu prompt and pressing {ENTER}. First, the system displays the name of the current user and requests the current user to enter his/her password. Type the current user's password and press {ENTER}.

Current User Name Is: 000000
Enter Current User Password:

Next, the system prompts for the name of the user that is to be deleted. Type the user name and press {ENTER}. That user is deleted from the system. Figure 7-f shows a sample screen when using the delete user security Command. The deleted user name is displayed on the screen and the user is then returned to the Security Sub-menu..

Enter User Name to Delete: 000010
User Name Was Deleted: 000010

```
Delete User Security Data

Current User Name is BILL SMITH
Enter Current User Password:   ***************
Enter User Name to Delete:      Joe Jones
Do You Wish To Proceed? [No):

Security Menu
>>>[l]:
```

Figure 7-f. Sample Screen Using the Delete User Security Data Command

7.22. From any menu in the system, the "A" command is available. To list all current alarms, type {A} at the Security Sub-menu prompt and press {ENTER}.

7.23. To return to the Administration Menu, select the Administration Menu by typing {b} at the Security Sub-menu prompt and pressing {ENTER}.

7.24. To return to the Main Menu, select the Main Menu option by typing {*} at the Security Sub-menu prompt and pressing {ENTER}.

7.25. To get help with the Security Sub-menu commands, select the help option by typing {?} at the Security Sub-menu prompt and pressing {ENTER}.

The Terminal Options Sub-menu

7.26. The Terminal Options Sub-menu provides commands for controlling the way date and time information is stored and displayed in the system. This menu also controls the frequency of menu display and the scrolling of information on the screen. Each user may use these commands to individualize terminal options for his/her session on the HTC-1100E Craft Interface. Currently the terminal options are stored as part of each user's identification information. The user must be logged in as the current user to personalize these options. Figure 7-g shows the Terminal Options Sub-menu.

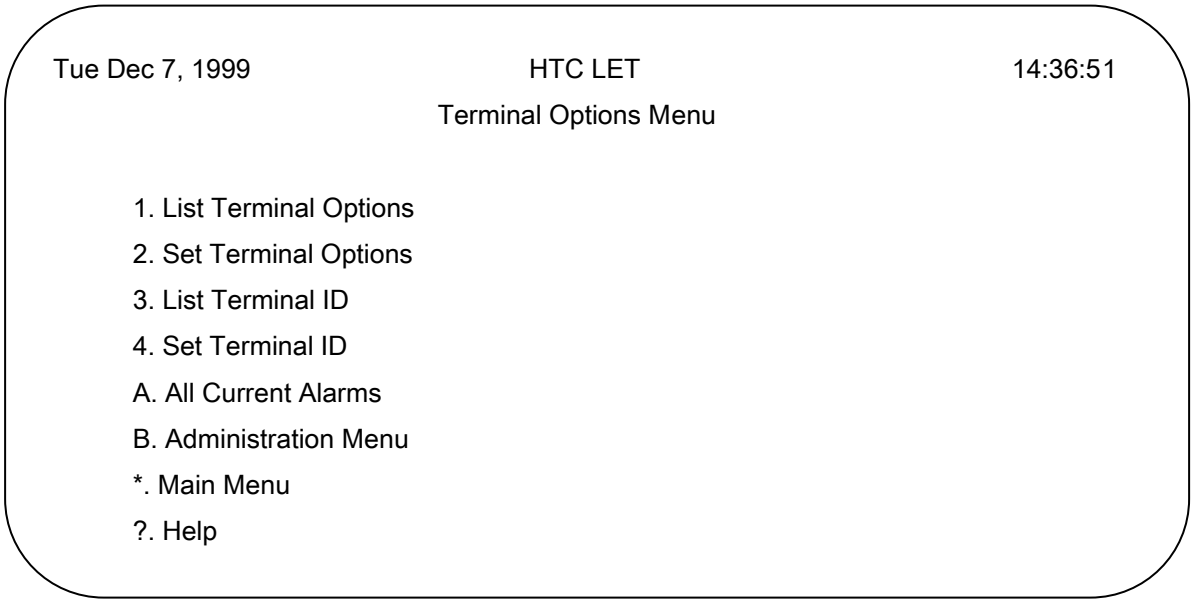


Figure 7-g. HTC-1100E Craft Interface Terminal Options Sub-menu

List Terminal Options

The List Terminal Options command allows the current logged on user to see Ws/her current terminal options settings. The command will print only the settings for the cur-rent logged on user. To use this command, type {1} at the Terminal Options Sub-menu prompt and press {ENTER}. The terminal options will be printed on the screen in a report similar to the one shown in Figure 7-h.

```
List Terminal options

User Name: Bill Smith

Clock Format: AM/PM
Auto Menu Display: On
Paging control: Press Any Key

Terminal Options Menu
>>> [1]:
```

Figure 7-h. Sample Screen for the List Terminal Options Command

Set Terminal Options

7.28. The Set Terminal Options command allows the current logged on user to set or change his/her terminal options settings. These settings may be set on an individual basis and are stored with the user name and password information in the system database. To use this command, type {2} at the Terminal Options Sub-menu prompt and press {ENTER} . Figure 7-i shows a typical screen using the Set Terminal Options command. The system will print the name of the current logged on user and prompt for each of the terminal options settings. These settings are detailed below.

```
Set Terminal Options

User Name:   BILL SMITH

Select Clock Format [AM/PM]:           AM/PM
Select Auto Menu Display [On]:         On
Enter Paging Control [Press Any Key]: Press Any Key

Terminal Options Menu

>>> [2]:
```

Figure 7-i. Sample Screen Using the Set Terminal Options Command

7.29. The Set Clock Display allows the user to select either AM/PM or 24 Hour format for displaying the system clock.

Select Clock Format [AM/PM]:

7.30. Type the new clock display format and press {ENTER}. The default clock display format is enclosed in square brackets {[ ]} in the prompt. Pressing the {ENTER} key while the clock display field is blank will place the default clock display format into the clock display field. The {[} or {]} keys may be used to scroll through the list of available choices. When the desired choice is displayed in the clock display field, press {ENTER}. The system will set this value as the clock display format.

7.31. The Set Auto Menu Display command sets the frequency of automatic menu displays. Table 7-A summarizes the choices for this command. Choices for this option are ON, OFF, and ON MENU LEVEL CHANGE. When ON is chosen, the current menu is displayed every time the screen is updated. The OFF option turns off menu display so that the menu is never displayed. This option setting should be selected with care. If the user selects this option setting, remember that pressing the {?} key at a menu prompt will display the current menu. The ON MENU LEVEL CHANGE option causes the menu to be displayed only when moving from one menu level to another.

Select Auto Menu Display [On Menu Level Change]:

Menu Display Options	Function
ON	The menu is always redisplayed after each command is executed
OFF	The menu is never redisplayed
On Menu Level Change	The menu is displayed only when changing from one menu level to another

Table 7-A. Menu Display Options for HTC-1100E Craft Interface

7.32. Type the new setting and press {ENTER}. The default value is enclosed in square brackets ([ ]) in the prompt line. If the {ENTER} key is pressed while the Menu Display setting field is blank, the system will put the default setting into the empty field. The {[} or {]} key may be used to scroll through the list of available choices. When the correct choice is displayed in the Menu Display field, press {ENTER}. The system will now use the new setting as the Menu Display frequency.

7.33. The Paging Control setting allows the user to control the scrolling of information on the screen. This option is important when long reports are being printed to the screen. Settings for this option are XON/XOFF, PRESS ANY KEY, and NONE. Table 7-B summarizes the options for this command.

Enter Paging Control [Press Any Key]:

Paging Control	Function
XON/XOFF	Scrolling of screen display is controlled by Control S ({Ctrl} + {S} keys pressed at the same time) to stop scrolling and Control Q ({Ctrl} + {Q} keys pressed at the same time) to resume scrolling
PRESS ANY KEY	Scrolling of screen display stops when screen has filled. Pressing any key on the keyboard will resume scrolling of the display
NONE	Scrolling of the screen display continues until all information has been displayed

Table 7-B. Paging Control Options for the HTC-1100E Craft Interface

7.34. Type the new setting and press {ENTER}. The default setting is enclosed in square brackets ([ ]) in the prompt line. If the {ENTER} key is pressed while the new setting field is blank, the system will place the default setting into the new setting field. The {[} or {]} key may be used to scroll through the list of available settings. When the correct setting is displayed, press {ENTER} to select that setting. When the {ENTER} key is pressed, the new setting is used as the Scroll Options setting. After the new Terminal Options are completed, the system returns to the Terminal Options Sub-menu prompt.

7.35. From any menu in the system, the "A" command is available. To list all current alarms, type {A} at the Terminal Options Sub-menu prompt and press {ENTER}.

7.36. To return to the Administration Menu, type {B} at the Terminal Options Sub-menu prompt and press {ENTER}.

7.37. To return to the Main Menu, type {*} at the Terminal Options Sub-menu prompt and press {ENTER}.

7.38. To get the current menu list with the Terminal Options Sub-menu commands, type {?} at the Terminal Options Sub-menu prompt and press {ENTER}.

List Terminal ID

7.31. The List Terminal ID command allows the user to see the current terminal IDs defined for the system. The command will print the ID settings for all terminals. To use this command, type {3} at the Terminal Options Menu prompt and press {ENTER}. The terminal options will be printed on the screen in a report similar to the one shown in the next figure.

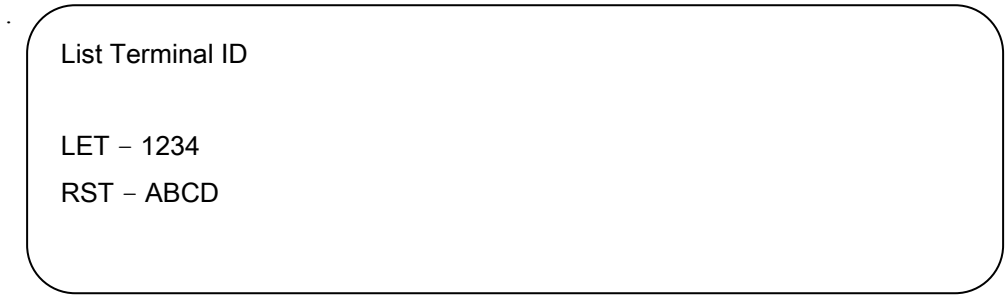


Figure 7-j. Sample Screen Using the List Terminal ID Command

Set Terminal ID

7.32. The Set Terminal ID command allows the user to set or change the current terminal ID settings. These terminal ID is a user defined name of up to 20 characters that can be established or changed using this command. Once set, the ID will appear in the screen. To use this command, type {4} at the Terminal Options Menu prompt and press {ENTER}.

7.33. The system will prompt for the location of the terminal for which the ID is to be set. Enter the terminal (LET、RST1、RST2…etc.)and press {ENTER}.

Enter Terminal Location [LET]：

7.34. The system will prompt for the terminal ID. Enter any string of up to 20 alphanumeric characters. A single space will clear the field. When the desired terminal ID is entered, press {ENTER}.

Enter Terminal ID [.....]：Next figure shows a typical screen using the Set Terminal ID command.

Figure 7-k. Sample Screen Using the Set Terminal ID Command

8. The V5 Configuration Sub-Menu

The V5 Configuration Sub-Menu provides commands for listing and modifying C-channel setting, E1 link setting , PSTN user port mapping, ISDN user port mapping for the V5.2 interface cards plugged in the system. Figure ?? shows the V5 Configuration Menu.

```
Wed Nov 25, 1998                HTC LET
08:05:17
                          V5 Configuration Menu

      1. List V5 ID Provisioning
      2. Modify V5 ID Provisioning
      3. Delete V5 ID Provisioning
      4. List C-Channel Provisioning
      5. Modify C-Channel Provisioning
      6. Delete C-Channel Provisioning
      7. List E1 Link Map
      8. Modify E1 Link Map
      9. Delete E1 Link Map
     10. List LE-AN Ports Map
     11. Modify LE-AN Ports Map
     12. Delete LE-AN Ports Map
      A. All Current Alarms
      B. Provisioning Menu
      *. Main Menu
      ?. Help
```

List V5 ID Provisioning

The List V5 ID Provisioning commands displays the current settings of the V5 interface card (V5PU). To list the setting, type {1} at the V5 Configuration Menu prompt and press {ENTER}. The system prompts for the AN Interface ID and Variant Number of the interface card whose setting are to be listed.

```
Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0
```

At the prompt, type the interface ID of the interface card to be listed. The default ID value is”0”.After the variant number has been entered, the system will search all of provisioning record for the V5 Interface provisioning. If the record matches the specified number in the provisioning database, the system prints a listing of the settings that the interface provisioned for the system. The following show the example result.

```
LE Interface ID: 0
Number of PSTN Ports: 1
Number of ISDN Ports: 0
```

PSTN T2 Timer: 25 Seconds
PSTN Originating Call Prevails: No
Port Alignment: No
Link ID Check: Yes

If the AN interface ID and Variant Number are not provisioned then “Has Not Been Provisioned” is displayed.

Modify V5 ID Provisioning

The Modify V5 ID Provisioning is used to specify the interface ID and Variant Number installed in the system. The provisioning includes specifying which interface used in the LE, number of PSTN ports, number of ISDN port equipped in the system. In the provisioning, the user also needs to specify PSTN T2 timer period in seconds and PSTN call priority if call collision happened.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

Enter LE Interface ID [0]: 0
Enter Number of PSTN Ports [1]: 1
Enter Number of ISDN Ports [0]: 0
Enter PSTN T2 Timer [25]: 25
PSTN Originating Call Prevails [No]: No
Port Alignment [No]: Yes
Link ID Check [Yes]: Yes

Overwrite Current Setting? [Yes]: Yes

From the above setting, we has provisioned a V5.2 interface in the system which interface ID is “0” and variant number is also “0”. The provisioned interface ID for the LE as “0”. Number of PSTN port is “1” and number of ISDN port is “0”. The setting also set PSTN T2 timer as 25 seconds and originating call has higher priority. In addition, this setting defined the behavior while the interface starting with unblock all ports capability “Yes” and doing link identity checking while starting up.

Delete V5 ID Provisioning

Chose option {3} “Delete V5 ID provisioning” would remove the provisioned V5.2 interface from the system. The user shall enter the AN interface ID and variant number to indicate which provisioned record to be removed.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

LE Interface ID: 0
Number of PSTN Ports: 1
Number of ISDN Ports: 0
PSTN T2 Timer: 25
PSTN Originating Call Prevails: No
Port Alignment: Yes
Link ID Check: Yes

Delete Current Setting? [Yes]: No

After entering interface ID and variant number, the provisioned record would be shown in the screen. The user shall enter {Yes} or {No} in the prompt “Delete Current Setting? ”

List C-Channel Provisioning

The option enables the user to list the C-channel provisioning for the specified V5 interface. The C-channel used in the V5 interface should comply with ITU-T G.964/G.965 standards which mapping to a physical time slot of a specified E1 link. The C-channel needed to be provisioned in the system are the Control Data Link, the Link Control Data Link, the Bearer Channel Control Data Link, the PSTN Data Link and two Protection Data Links.
The user press option {4} in the V5 ID provisioning sub-menu, the user is required to enter AN interface ID and variant number. The following shows the C-channel settings defined for the AN interface ID “0” and variant number “0”.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

Number of Logical C-Channel: 3

	Logical C-Channel ID	E1 Link Number	Timeslot	Protection Group
CPath 1	1	0	16	1
CPath 2	2	0	15	2
CPath 3	3	0	31	2

	E1 Link Number	Timeslot
Protection Group 1 Standby	1	16
Protection Group 2 Standby 1	1	15
Protection Group 2 Standby 2	N/A	N/A
Protection Group 2 Standby 3	N/A	N/A

	PSTN	CTRL	BCC	PROT	LINKCTRL
CPath	1	1	1	1	1

The C-channel provisioning has defined “3” active C-paths and “2” standby C-paths in the system. The timeslot 16 of E1 link number ‘0’ is used as C-path ‘1’ whose protection group is ‘1’. The timeslot 15 of E1 link number ‘0’ is used as C-path ‘2’ whose protection group is ‘2’. And the timeslot 31 of the E1 link number ‘0’ is used as C-path ‘3’ whose protection group is also ‘2’. After the C-path provisioning been listed, then came the protection channel’s setting. In the system, there are two protection group can be defined. Protection group ‘1’ is located in the timeslot 16 of E1 link number ‘1’. Only one protection group located in the timeslot 15 of E1 link number ‘1’ is defined in the example.

Modify C-Channel Provisioning

Mappings of C-path to logical C-channels are provisioned in the sub-menu. The CONTROL, LINK CONTROL, and BCC protocol C-paths will start up in the time slot 16 of the Primary Link. Time slot 16 of the Secondary Link will be used for protection of the CONTROL, LINK CONTROL, and BCC protocol C-paths.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

Enter Number of Logical C-Channel [2]: 2

At first, the user enters the AN interface ID (0) and AN variant number (0) to be provisioned, and the number of logical C-channels (2) used in the interface in the
above settings.

Enter Logical C-Channel ID [1]: 1
Enter E1 Link Number [0]: 0
Enter E1 Timeslot [16]: 16
Enter Protection Group [1]: 1

Enter Logical C-Channel ID [2]: 2
Enter E1 Link Number [0]: 0
Enter E1 Timeslot [15]: 15
Enter Protection Group [2]: 2

The logical C-channel is provisioned as the above. The logical C-channel '1' locates at time slot 16 of the link 0 belongings to protection group 1. The logical C-channel '2' locates at time slot 15 of the link 0 belongings to protection group 2.

The protection group 1 and 2 are provisioned as the following. The time slot 16 of link 1 is used to protect logical C-channel '1'. The time slot 15 of link 1 is used to protect logical C-channel '2'. In the protection group 2 only one standby C-channel is active.

Protection Group 1 Standby
Enter C-Channel Status [Enabled]: Enabled
Enter E1 Link Number [1]: 1
Enter E1 Timeslot [16]: 16

Protection Group 2 Standby 1
Enter C-Channel Status [Enabled]: Enabled
Enter E1 Link Number [1]: 1
Enter E1 Timeslot [15]: 15

Protection Group 2 Standby 2
Enter C-Channel Status [Disabled]: Disabled

Protection Group 2 Standby 3
Enter C-Channel Status [Disabled]: Disabled

Each protocol C-path is provisioned in different C-channels. Usually the control (CTRL), BCC, link control (LINK) and protection (PROT) shall be provisioned at the same logical C-channel which initially located as time 16 of the primary link. The PSTN protocol C-path is provisioned as '2' in the example.

Enter PSTN CPath [1]: 2
Enter CTRL CPath [1]: 1
Enter BCC CPath [1]:1

Enter PROT CPath [1]: 1
Enter LINK CPath [1]: 1

Overwrite Current Setting? [Yes]: Yes

After the provision data is entered, the user is requested to confirm to changed the settings. If the user press [Yes] then the provisioning of the AN 0 is updated.

Delete C-Channel Provisioning

In the sub-menu, the user can remove the C-channel settings associated with one AN interface. The user is requested to enter the AN interface ID and variant number of the AN interface and then conformed to delete the entry from the provisioning database.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

Delete Current Setting? [Yes]: Yes

List E1 Link Map

A single V5.2 interface may consist of up to sixteen (16) 2048 kbits/s links. The E1 mappings to the physical E1 circuits are shown in the sub-menu. The user shall enter AN interface ID and the variant number to specify and list the E1 link mapping table. Any E1 link is provisioned, the LE link ID and location of the E1 circuit would be shown, otherwise 'Has not Been Provisioned' is displayed.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

E1 Link Number	LE Link ID	Location
0	0	LET-1-6
1	1	LET-1-10
2	Has Not Been Provisioned	
3	Has Not Been Provisioned	
4	Has Not Been Provisioned	
5	Has Not Been Provisioned	
6	Has Not Been Provisioned	
7	Has Not Been Provisioned	
8	Has Not Been Provisioned	
9	Has Not Been Provisioned	
10	Has Not Been Provisioned	
11	Has Not Been Provisioned	
12	Has Not Been Provisioned	
13	Has Not Been Provisioned	
14	Has Not Been Provisioned	
15	Has Not Been Provisioned	

From the above example, we can see two E1 links are provisioned in the V5.2 interface with Link ID 0 and 1 which are located at LET-1-6 and LET-1-10, respectively.

Modify E1 Link Map

The Modify E1 Link Map sub-menu allows users to create or modify V5.2 E1 link map table. There are total sixteen E1 links needs to be provisioned. If the corresponding E1 link is not used in the V5.2 interface, the user shall specify the E1 link as {Disabled} at the prompt {Provisioning [Enabled]}".

```
Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

E1 Link Number 0
Provisioning [Enabled]: Enabled
Enter LE Link ID [0]: 0
Enter Circuit Location [LET-1-6]: LET-1-6

E1 Link Number 1
Provisioning [Enabled]: Enabled
Enter LE Link ID [1]: 1
Enter Circuit Location [LET-1-10]: LET-1-10

E1 Link Number 2
Provisioning [Disabled]: Disabled

Overwrite Current Setting? [Yes]: Yes
```

Regarding the above settings, there are two E1 links are provisioned for AN interface ID '0'. The other E1 links are unequipped by entering {Disabled} at the {Provisioning [Enabled]:} prompt.

Delete E1 Link Map

The Delete E1 Link Map sub-menu enable the user to remove the E1 link map settings from the system for the specified AN interface. The following delete the E1 link map table entry for AN interface ID '0', variant number '0' from the system.

```
Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

E1 Link Number    LE Link ID        Location
-------------------------------------------------------------
        0                0              LET-1-6
        1                1              LET-1-10
        2          Has Not Been Provisioned
        3          Has Not Been Provisioned
        4          Has Not Been Provisioned
        5          Has Not Been Provisioned
        6          Has Not Been Provisioned
```

```
7               Has Not Been Provisioned
8               Has Not Been Provisioned
9               Has Not Been Provisioned
10              Has Not Been Provisioned
11              Has Not Been Provisioned
12              Has Not Been Provisioned
13              Has Not Been Provisioned
14              Has Not Been Provisioned
15              Has Not Been Provisioned
Delete Current Setting? [Yes]: Yes
```

List LE-AN Port Map

The List LE-AN Ports Map sub-menu allows the user to list the ports mapping for the specified V5.2 interface. The logical mapping for the port number enables the system administrator to change the relationship of AN and LE ports easily. Hence, the port needs not to be hard-wired in the system.

```
Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

Enter Port Type [PSTN]: PSTN
Enter LE Port Number [0]: 0
Enter Number of Ports [1]: 100

LE Port 0                       Not Assigned
LE Port 1                       Mapped to       AN Port 1
LE Port 2       to 99           Not Assigned
```

Modify LE-AN Port Map

In the Modify LE-AN Ports Map, in addition to specifying the AN interface ID and variant number, the user shall specify which port type to be mapped. The following example illustrates PSTN port is mapped from AN port 0 to 9 (totally 10 ports) in the system. The original mapping is displayed before the setting became effective.
The provisioned data is updated by entering {Yes} at the prompt “Overwrite Current Mapping? [Yes]:”.

```
Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

Enter Port Type [PSTN]: PSTN
Enter LE Port Number [0]: 0
Enter AN Port ID [0]: 0
Enter Number of Ports [1]: 10

LE Port 0                       Not Assigned
LE Port 1                       Mapped to       AN Port 1
LE Port 2       to 9            Not Assigned

Overwrite Current Mapping? [Yes]: Yes
LE port 0       to9             Mapped to AN port 0 to 9
```

Delete LE-AN Port Map

The Delete LE-AN Port Map sub-menu allows the user remove LE to AN port mapping from the V5 interface in the system. The user shall specify the starting LE port number and number of ports to be deleted after the prompt. The provisioning data is listed before removing it from the database.

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 0

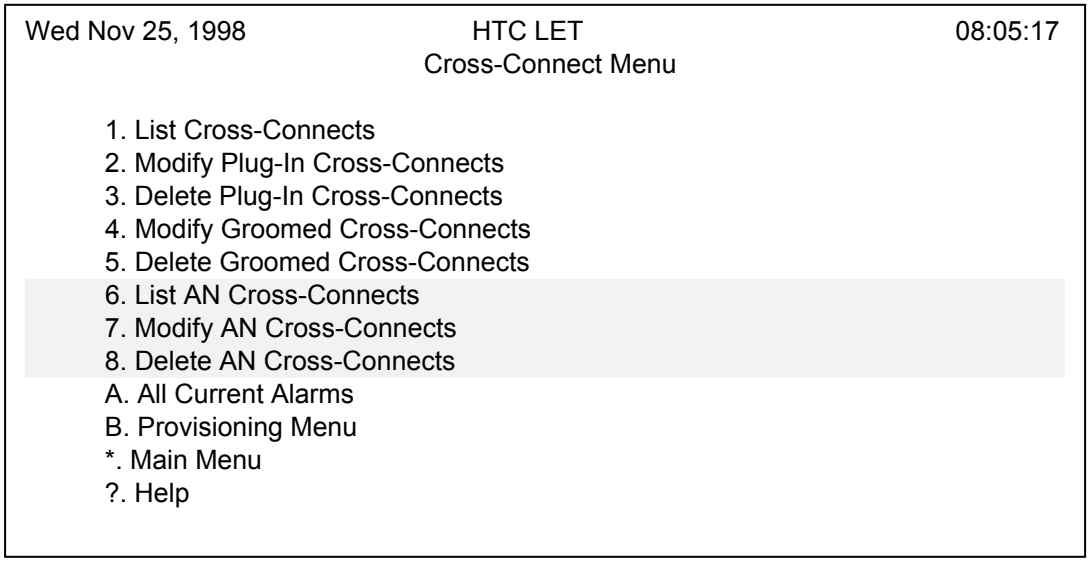
Enter Port Type [PSTN]: PSTN
Enter LE Port Number [0]: 1
Enter Number of Ports [1]: 1

LE Port 1 Mapped to AN Port 1

Delete Current Mapping? [Yes]: No

Cross Connect Sub-Menu

The Cross Connect Sub-Menu allows the user to map a logical AN port to a physical circuit in the system. The logical AN port number used in the V5 interface is a integer number ranging from 0 to 2^31 – 1, however, the integer number is not a real circuit number in the **HTC-5200AN** system. A physical circuit number used in the system is *Term-Shelf-Slot-Circuit*. The *Term* shall be either LET, RST1 ... , or RST15. The *Shelf* number is from 1 to 8. The *Slot* number is from 1 to 22 (slot 23, 24 for CPU, slot 25,26 for PSU).
The cross-connect settings including **Modify** and **Delete** affect the AN operation immediately whenever the V5 interface is in service. It is not recommended to changed the cross-connect setting of the AN port in service while the V5 interface is operational.



List AN Cross-Connects

The List AN Cross-Connects sub-menu allows the user to list the mapping of logical ports in V5 interface to the physical circuit in the system. The AN port number in the system is unique and the cross-connect is one-to-one mapping. The user needs not to enter AN interface ID and variant number here. The user shall specify the starting port ID and a number of ports to do cross-connect. The following example shows AN port cross-connect mappings from AN port ID '0' with ten circuits listed. In the setting, only one port '0' is cross-connected to LET-1-1-1.

```
Enter AN Port ID [0]: 0

Enter Port Type [PSTN]: PSTN
Enter Number of Circuits [1]: 10

AN Port 0                       Not Assigned
AN Port 1                       Mapped to       LET-1-1-1
AN Port 2           to 9        Not Assigned
```

Modify AN Cross-Connects

The Modify AN Cross-Connects sub-menu allows the user to modify the mapping of logical ports in V5 interface to the physical circuit in the system. The user shall specify the starting port ID and a number of ports to renew cross-connect state of AN port. It shows AN port ID '0' cross-connects to circuit LET-1-1-1 in the following example.

```
Enter AN Port ID [0]: 0

Enter Port Type [PSTN]: PSTN
Enter Custom Circuit Location [LET-1-1-1]: LET-1-1-1
Enter Number of Circuits [1]: 1

AN Port 0                       Not Assigned

Overwrite Current Mapping? [Yes]: Yes

AN Port 0                       Mapped to       LET-1-1-1
```

Delete AN Cross-Connects

The Delete AN Cross-Connects allows the user to disconnect a number of AN ports with physical circuits from the system. While the AN port cross-connect is removed from the system without changing V5 interface provisioning will introduce the erroneous behaviors of call setup. If a call terminate to AN port 0 that has no physical mapping then the call is incomplete. The user shall be very careful about the setting of the AN port cross-connect.

In the following example, the user is prompted with {Enter AN Port ID [0]:} in the first step. The user chooses '0' for starting AN port number. The port type to remove from the system is PSTN type and one circuit is specified in the action. The below shows the results.

```
Enter AN Port ID [0]: 0
```

Enter Port Type [PSTN]: PSTN
Enter Number of Circuits [1]: 1

AN Port 0 Mapped to LET-1-1-1
Delete Current Mapping? [Yes]:

Special Circuits Settings Menu

The sub-menus related with V5 interface setting are {5. List V5 Circuit Settings} and {6. Modify V5 Circuit Settings} in the Special Circuits Settings Menu. The circuit type used in the V5 applications are V5.1, V5.2 and V5PU. The V5.1 is for V5.1 application of which supports one V5.1 interface per card. The V5.2 interface consists of one V5PU card and numbers of the V5.2 cards. The V5PU processes V5 protocol messages to and from the LE side. The V5.2 card is used as E1 interface to the LE.

```
Wed Nov 25, 1998                    HTC LET
08:05:17
                        Special Circuits Settings Menu

        1. List Analog Circuit Settings
        2. Modify Analog Circuit Settings
        3. List Digital Circuit Settings
        4. Modify Digital Circuit Settings
        5. List V5 Circuit Settings
        6. Modify V5 Circuit Settings
        A. All Current Alarms
        B. Provisioning Menu
        *. Main Menu
        ?. Help
```

List V5 Circuit Settings

The List V5 Circuit Settings allows the user to list all of V5 circuit installed in the system. First the user is prompt with {Enter Plug-In Type [All]:} to choose which type of V5 card to be listed. Second the user shall enter the plug-in range under the prompt. Finally, the system will search the cards which meet the card type and plug-in range and list out the setting of each card. There are two V5.2 cards and one V5PU card installed in the system in the following example.

```
Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

Location        Plug-In     Timing Source       CRC-4 Multiframe
-------------------------------------------------------------
LET-1-6         V5.2        Enabled             Enabled

Press Any Key

Location        Plug-In     Timing Source       CRC-4 Multiframe
-------------------------------------------------------------
LET-1-10        V5.2        Disabled            Enabled

Press Any Key

Location        Plug-In     AN Interface ID     Variant Number
-------------------------------------------------------------
LET-1-15        V5PU        0                   0
```

Modifying V5 Cirsuit Settings

The “modifying V5 Circuit Settings” allows the user to change the setting of V5.1, V5.2 or V5PU setting in the system. The following example change the setting of the V5.2 card in location LET-1-6 as the Timing Reference source

so that the system will synchronize to the clock extracted from E1 interface of the card. It is a convenient method to have the AN synchronize to LE in general applications.

```
Enter Plug-In Type [All]: All
Enter Starting Plug-In Location [LET-1-1]: LET-1-1
Enter Ending Plug-In Location [RST1-8-26]: RST1-8-26

Location        Plug-In    Timing Source      CRC-4 Multiframe
-------------------------------------------------------------
LET-1-6         V5.2       Disabled           Enabled

Edit this card? [Yes]: Yes

LET-1-6              V5.2
Enter Timing Reference [Disabled]: Enabled
Enable CRC-4 Multiframe [Yes]: Yes

Overwrite Current Setting? [Yes]: Yes
```

The user chooses the V5.2 card located in LET-1-6 as primary E1 link in the above example. In general, the user enables the timing reference of E1 clock in the primary link and secondary link. The system can continue to synchronize to LE system in case of the link failure of primary link. The current settings of the V5.2 card located in LET-1-10 meets the general setting, hence it is not modified in the example.

```
Location        Plug-In    Timing Source      CRC-4 Multiframe
-------------------------------------------------------------
LET-1-10        V5.2       Enabled            Enabled

Edit this card? [Yes]: No
```

Now, the user continues configuring the V5PU card located in LET-1-15. The AN interface ID setting is not changed. The Variant Number is changed from 0 to 1. The variant number used in V5PU will be 1 in next cold start. Or if the user would like to invoke variant switch-over to the in-service V5 interface by entering {Yes} after the prompt {Switch Variant? [Yes]:}. The V5PU will perform variant switch-over procedure to LE system.

```
Location        Plug-In    AN Interface ID    Variant Number
-------------------------------------------------------------
LET-1-15        V5PU       0                  0

Edit this card? [Yes]: Yes

Enter AN Interface ID [0]: 0
Enter Variant Number [0]: 1

Switch Variant [Yes]: No
```