Multi-pay, Coin basic, Graphic, Card, Inmate, Desk

Millennium terminals:

Using the craft interface

Document number: P0883893 Document issue: 00.01

Document status: Standard Date: June 1998

This document pertains to all Millennium terminals.

NØRTEL

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Millennium terminals installation, operation, and maintenance documentation modules

The table below shows all the customer-orderable books in the terminal installation, operation and maintenance suite. These books can be ordered separately as modules or in sets as documentation kits.

Title	Order code
All terminals	
Millennium terminals provisioning guide	A0685011
Millennium terminals: using the craft interface	P0883893
Millennium terminals: maintenance troubleshooting	P0883894
Millennium terminals pocket troubleshooting guide	P0883895
Multi-pay-based terminals	
Millennium Multi-pay-based terminals: installing terminal hardware	P0883896
Millennium Multi-pay-based terminals: replacing parts	P0883897
Card-based terminals	
Millennium Card-based terminals: installing terminal hardware	P0883898
Millennium Card-based terminals: replacing parts	P0883899
Desk terminals	
Millennium Desk terminals: installing and replacing hardware	P0883900
Also available:	
Accessory kit: binder, cover, and spine	A0737727
Complete assembly kit (one each of all modules)	A0737720
Multi-pay terminal documentation kit	A0737722
Card terminal documentation kit	A0737723
Desk terminal documentation kit	A0737725

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Publication history

February 1998

This is the first standard version of *Millennium terminals: using the craft interface*. This document contains all the craft interface information previously contained in the Multi-pay, Card, Inmate, and Desk installation, operation, and maintenance guides for terminal versions MSR 1.7, MTR 1.9.

This document also contains updated information for the following terminals:

- Coin basic w/o display terminals

- MTR 2.0 (downloadable code) terminals

- Multi-pay terminals with the SmartCity reloadable smartcard application

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1-1

1   Introduction

This guide is intended for the craftspeople who maintain Millennium terminals.

It describes the interactive menu system installed on Millennium terminals which is used to install terminal operations tables in the terminal and to test terminal function as part of a maintenance routine.

How this book is organized

The *Millennium terminals*: *using the craft interface* is organized into the following sections:

Chapter 1:   **Introduction** gives an overview of this book and an overview of the craft interface operations and maintenance menus.

Chapter 2:   **INSTALL interface** provides instructions for installing the terminal software once the terminal is connected to the CO line on-site.

Chapter 4:   **Maintenance interface** explains the craft interface menu. Attention boxes are used to mark variances in procedures for different types and vintages of terminals.

Chapter 5:   **Testing the terminal** explains how to make each type of call to test the terminal to ensure it is working as it should be.

Chapter 6:   **Operation-code interface** provides instructions on how to use the operation-code level in the craft interface to send messages to the Millennium Manager on the status of the terminal.

Appendix A: **Alarm messages** provides a table of alarm messages the terminal could send to the Millennium Manager indicating problems or attention requests.

Appendix B: **Error codes** provides details about the error codes generated by the craft interface during INSTALL or maintenance procedures.

Appendix C: **Special terminals** provides procedures for installing portable displays in the Coin-basic w/o display and Inmate terminals so that the craft interface can be viewed while installing or maintaining these terminals.

Appendix D: **INSTALL quick reference guide** lists the prompts and the actions required to run an INSTALL.

Appendix E: **Maintenance level quick reference guide** list gives a brief overview of accessing the craft interface and lists the menu prompts for the maintenance level of the craft interface.

Index: provides an easy cross-reference for the *Millennium terminals craft interface guide.*

Craft interface overview

This section outlines the craft interface for Millennium terminals.

Although most administration of Millennium terminals is done by the Millennium Manager, some maintenance procedures require a terminal visit. On these maintenance visits, the craft interface is used to install function tables into the terminals and troubleshoot terminal problems.

The craft interface provides prompts on the vacuum fluorescent display (VFD). You communicate with the interface using the main keypad.

Figure 1-1 points out the communication tools for the craft interface on Multi-pay-based terminals.

Figure 1-1: Accessing the craft interface at the terminal
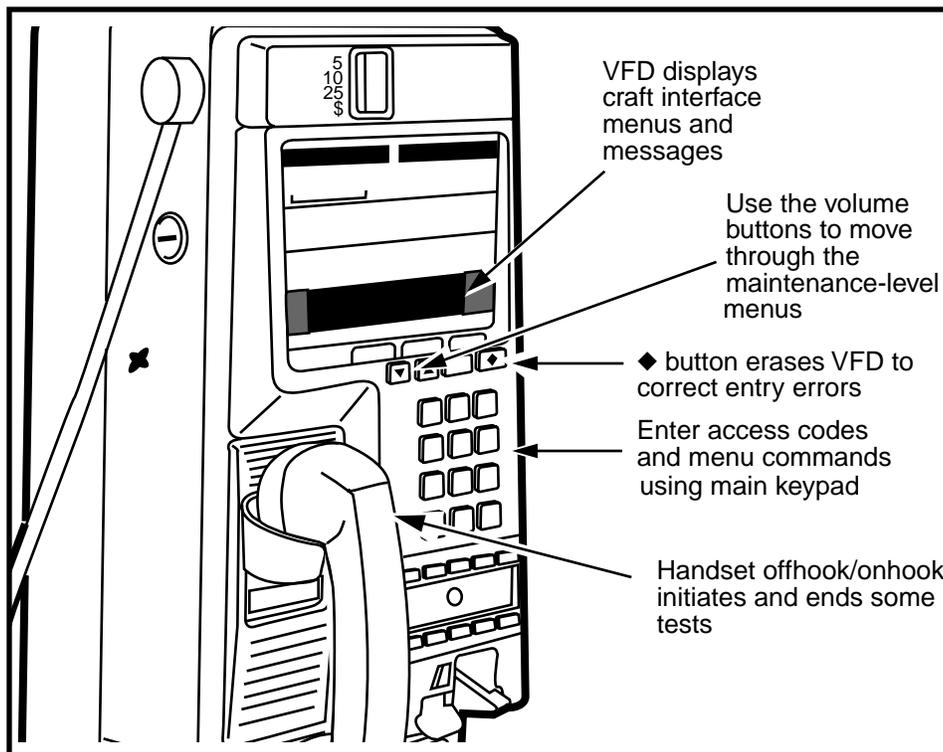
The craft interface resides on firmware, read-only memory in the terminal. The following is required before the craft interface can be accessed:

- supplementary power

- an operational VFD

- an operational control PCP

Note: Coin basic w/o display terminals and **Inmate terminals** must have a portable display installed in order to view the interface prompts. **Appendix C : Special terminals** describes how to install and remove the portable displays.

Entering the craft interface

An access code and a PIN (personal identification number) are required to enable entry into the craft interface. These codes serve as security gates and as notifiers to the Millennium Manager that activity is occurring at the terminal site.

The access code and PINs are configured in the Millennium Manager by the system administrator, based on the decisions of the operating company.

PINs can be assigned according to the levels of access privileges required. For instance, a craftsperson who only does coin collections would have a different PIN from someone who replaces modules inside the terminal.

The seven-digit **access code** is downloaded to the terminal from the Millennium Manager when the terminal is installed. There is also a default access code resident in the terminal firmware.

Use the default access code if the assigned code will not work, such as when:

- a prolonged power failure has caused the terminal to lose its memory

- the control PCP or the firmware was replaced

- the INSTALL is being run for the first time

Privilege levels

When you use the craft interface, your privilege level determines the craft interface level you can access. Your five-digit PIN determines your privilege level.

The two levels of the craft interface are:

- the maintenance interface

- the operation-code interface

Maintenance-level interface

The maintenance interface lets you perform diagnostic routines on the components of the terminal, the INSTALL routine, and administrative functions such as a forced download of terminal tables or upload of terminal records. You can enter all operation codes at this level.

For instructions on accessing the maintenance level, running the tests, and entering operation codes, refer to Chapter 3.

When you access the maintenance interface, you will be prompted to unlock the terminal.

Once the terminal is unlocked, the display will show one of the following messages:

- If the terminal needs the software installed, this message appears on the VFD:

```
Not installed
Use # to INSTALL
```

If this message appears, refer to Chapter 2 and perform the INSTALL routine.

• If the terminal is in working condition, this message appears on the VFD:

```
Use ✳=MENU, #=INSTALL
or dial item number
```

At this prompt, you can do one of three things:

— Initiate the INSTALL terminal-configuration routine by pressing the # button. This process is described in Chapter 2.

— Access the maintenance menu by pressing the ✳ button. This process is described in Chapter 3.

— Access a maintenance activity by entering its numeric or mnemonic code. This allows you to bypass the maintenance menu and directly access specific activities. The codes are given in Chapter 3.

Operation-code interface

Operation-code interface lets you enter up to eight operation codes, from code 1 to 899, to send operations information messages to the Millennium Manager.

The codes tell the telephone company about the status of the terminal, including any maintenance required or done on the terminal. For example, code 87 could mean the card reader needs repairing, and code 15 could mean the booth has been cleaned.

The telephone company specifies the meaning of the operation codes.

When you access the operation code interface, if you have operation-level privileges, this message appears:

```
Enter op code: ■ ■ ■
◆=FIX, ✳=SAVE, #=STOP
```

Terminal timeout

During craft interface sessions, if 30 minutes elapse between button presses, the terminal times out.

When this happens, the session ends.

This message appears on the VFD:

```
    *  ALARM  SENT  *
    *  COVER  OPEN  *
```

The message displays until you close the housing.

To re-enter the craft interface, close and lock the terminal and re-enter the access code and PIN.

Note: The timeout provision does not apply during certain time-consuming processes such as the download.

Error codes

Error codes are two-digit identifiers generated by the terminal and displayed on the VFD to give feedback on craft interface tasks.

These codes are not uploaded to the Millennium Manager. They are information pointers within the terminal for troubleshooting terminal problems.

Appendix B lists these codes and recommended actions.

Error codes can indicate the successful completion of a task as well as failed tasks.

• If a task is successful, other than a download, this message appears on the VFD:

```
Completed             00
To continue, Press  ✳
```

• After a successful download from the Millennium Manager, this message appears on the VFD:

```
Completed          0X
To continue, press ✳
```

0X indicates the terminal type.

— 01 indicates a Card or Desk terminal

— 02 indicates a Multi-pay terminal

— 03 indicates a Coin basic terminal

— 04 indicates an Inmate terminal.

• If a task fails, this message appears on the VFD:

```
Failed:            XX
Press ✳ to try again
```

XX is the error code you refer to in the error code chart in Appendix B.

If the keypad buttons do not work

If you cannot enter an access code because the keypad buttons do not seem to work, you will need to enter the set, in the case of the Multi-pay-based or Card-based terminals, and troubleshoot for the problem.

Desk set: you will need to use the emergency procedure to upload CDRs, as described in **Desk set emergency CDR upload** on page 3-40, then replace the set.

Multi-pay/Card terminal: Follow the steps below to troubleshoot keypad problems:

1. Take the handset offhook and try to enter a telephone number to confirm that the keypad is not working.

    If the keypad is not working there will be no change in what the terminal has on its display, or it may display wrong characters.

2. Unlock the terminal.

    As soon as you open the terminal, an alarm goes to the Millennium Manager.

    This message appears on the VFD:

    ```
    * ALARM SENT *
    * COVER OPEN *
    ```

    As soon as you open the terminal, a diagnostic test of the telephony PCP begins.

    If the test finds that the telephony PCP is not communicating with the control PCP, this message appears:

    ```
    Telephony board is
     not responding
    ```

This message alternates with the alarm-sent message at 4.5-second intervals.

3. Follow your company procedures for troubleshooting telephony PCP problems.

For instance:

- Check the keypad/telephony PCP cable connector for damage.

- Disconnect the keypad connector on the telephony PCP and plug in a test set and attempt to dial out.

  — If the test set works okay, replace the upper bezel assembly — which contains the keypad PCP.

  — If the test set cannot dial out, replace the telephony PCP.

  — In either case, retest, once the repair has been done.

If the terminal is busy

Millennium terminals make data calls to the Millennium Manager to verify credit cards, get toll rates, and to upload terminal statistics.

If you attempt to enter the craft interface during a time when the terminal is busy, this prompt displays:

```
Maintenance Mode
Please wait
```

1. Stop and wait.

When the process is finished, the terminal will display its usual first message.

2. Enter the craft interface again.

2-1

2 INSTALL interface

This chapter describes how to use the **INSTALL routine** to set up a terminal ID in the terminal, to download the functional tables to the terminal, and to test the terminal function once the tables are downloaded.

You use the keypad to respond to prompts displayed on the vacuum fluorescent display (VFD), and to enter data, such as the phone number of the terminal.

See this	**Coin basic w/o display** and **Inmate terminals** need to have a portable display installed before this procedure is done. If the display was not installed when the terminal was installed, refer to **Appendix C: Special terminals**.

When to do an INSTALL

The INSTALL routine must be carried out whenever the control PCP memory is blank. This occurs when:

- The terminal is first mounted.

- The memory has been corrupted because the terminal has been without supplementary power long enough for the super capacitor to drain.

   This would only occur if power was absent for more than about 48 hours. The period the terminal retains memory also depends on environmental conditions.

- The control PCP, firmware, validator, or escrow have been replaced.

For an overview of the craft interface and its levels of operation refer to Chapter 1.

About the INSTALL routine

The INSTALL first asks for the information to set up the initial call to the Millennium Manager. It then leads you through a series of terminal function tests.

The steps of the INSTALL routine include:

- testing the central-office (CO) line

- entering the telephone number of the terminal

- entering the serial number of the terminal

- entering the telephone number of the Millennium Manager, including a pre-dial string if required (MTR 1.9 and later vintages of terminals)

- doing the answer supervision test

- downloading required information from the Millennium Manager (NCC) to the terminal

- testing the buttons of the terminal

- testing the card reader (Card- and Multi-pay-based terminals) — mag stripe cards

- testing the coin paths (Multi-pay-based terminals)

- terminals which accept SmartCity cards: uploading transaction records to the SmartCity collection center and testing the SAM (security application module)

Note: To end the routine at any time, close and lock the terminal.
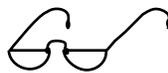
See this	If you do not close and lock the terminal (with the T-tool) at the end of the INSTALL routine, it will not complete.

Desk terminal: Press # to end the session.

Preparing for an INSTALL session

To prepare for an INSTALL procedure, ensure that

- the terminal is properly mounted, if this is a first-time install

- the control PCP is properly seated and the cables are connected, if you have replaced the control PCP

- the terminal has been closed and locked with the T-tool

With the terminal locked, this message appears on the VFD:

```
*   out of service   *
```

or this message appears on the VFD:

```
 (Date: YYYY/MM/DD)
*   out of service   *
```

- a portable display has been mounted, if this is an **Inmate terminal**,
  or a internal display has been mounted if this is a **Coin basic w/o display terminal**

See this	**Coin basic w/o display** and **Inmate terminals**
	Refer to **Appendix C : Special terminals** for the correct procedure to install the portable display.
	If the terminal is connected to the CO line, do not open it without doing **steps 1** to **4** of **Accessing the INSTALL prompt** on page 2-6.

2-4 INSTALL interface

With the terminal locked, you will either get the messages shown above, or you will still be in the craft interface and you will be able to continue with the procedure.

See this	**Inmate terminals** cannot be closed if an external portable display is installed, therefore, you must manipulate the internal housing tiebars to simulate locking/unlocking the terminal.
	To simulate locking an Inmate terminal, pull the lefthand tiebar up. The display will read: `Out of Service`.

If any other message appears on the display, troubleshoot the problem until the `Out of Service` prompt is displayed.

Flowchart — **INSTALL**

Figure 2-1 gives an overview of the INSTALL procedure.
for Multi-pay terminals. For detailed instructions and spe-
cific instructions for Card, Coin basic, and Inmate termi-
nals, refer to the next section.

Figure 2-1: Flowchart — INSTALL overview
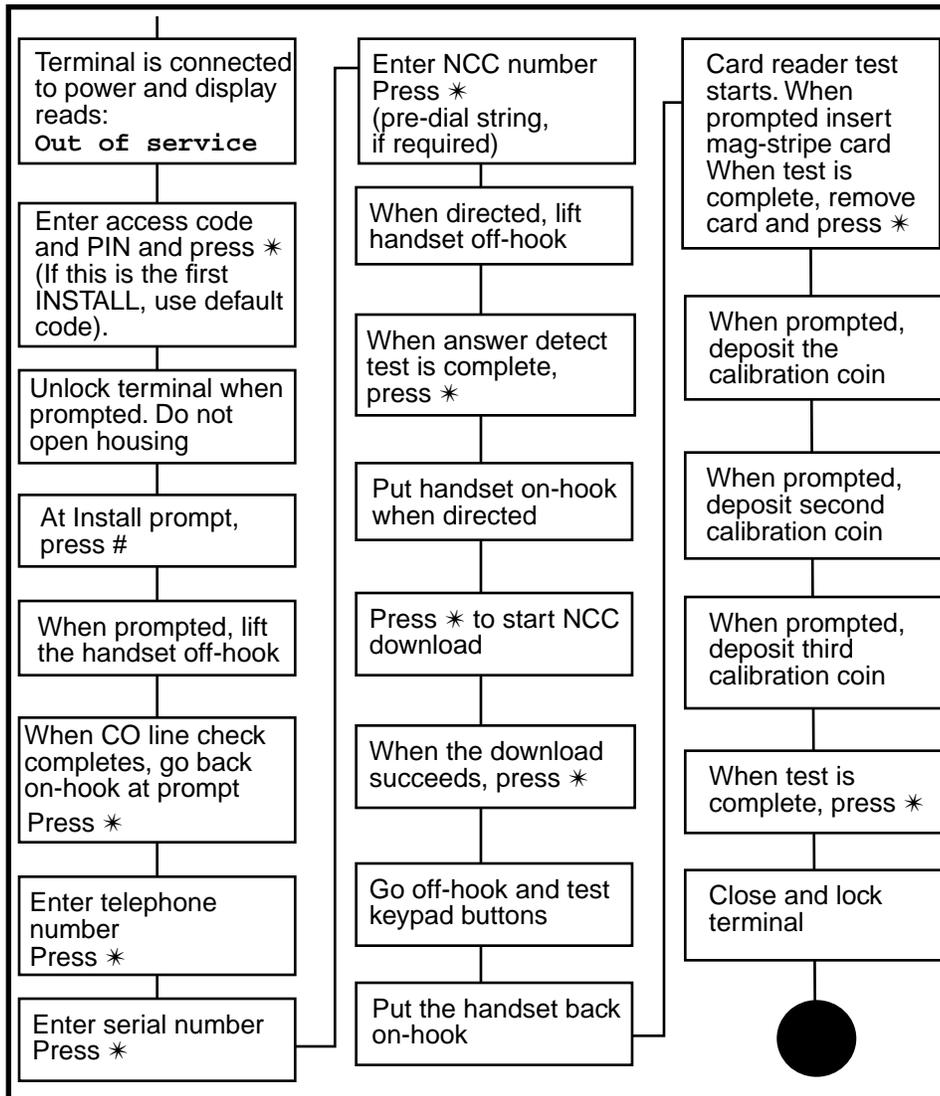
Accessing the INSTALL prompt

When the terminal is ready to continue with the INSTALL procedure, as described in the previous section, follow these steps to enter the craft interface and perform the INSTALL routine.

1. **While the handset is on-hook, enter the access code given to you by your operating company.**

   If this is the initial INSTALL for a terminal, use the default access code.

   Note: If the keypad does not respond, refer to **If the keypad buttons do not work** on page 1-9 (Multi-pay and Card-based terminals) or **Desk set emergency CDR upload** on page 3-40 (Desk set).

   If you make a mistake, press ◆ to clear the display, and enter the correct number.

   This message appears on the VFD:

   ```
   Enter PIN: ■ ■ ■ ■ ■
    ◆=Fix,✳=Save, #=STOP
   ```

2. **Enter your five-digit personal identification number (PIN) code**

   As you enter the digits, they appear on the VFD.

   If you make a mistake, press ◆ and enter the correct number.

3. **Press ✳.**

See this	If you unlock the terminal without pressing ✳, the terminal will send an alarm to the Millennium Manager indicating an illegal entry.
	Close and lock the terminal and re-enter the interface.

4. **Depending on the type of terminal, an unlock prompt appears on the VFD.**

*   **Desk terminal:** The Desk terminal is unlocked using a key card when this prompt appears:

> ```
> Please insert the
> key card now
> ```

To use the keycard, insert it into the card reader and remove it in one smooth flow, this is called swiping. If the card reader is not working, refer to **Desk set emergency CDR upload** on page 3-40.

*   **Multi-pay-based and Card-based terminals:** This message appears on the VFD:
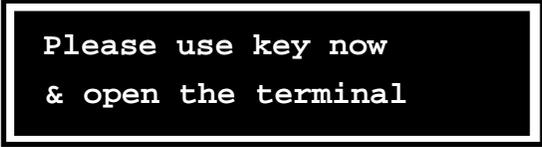
> ```
> Please use key now
> & open the terminal
> ```

To unlock Multi-pay and Card-based terminals, do the following:

a) Put the key into the key lock on the left side of the terminal housing assembly, and turn the key clockwise to unlock the terminal.

Refer to Figure 2-2 and Figure 2-3 to locate these locking entry points on the two styles of wall-mounted terminals.

b) Insert the T-tool or the L-tool into the housing aperture.

c) Rotate the tool clockwise (Multi-pay)/counterclockwise (Card) to release the housing locking mechanism.

Note: Do not open up the terminal unless you need to install a portable display.

2-8 INSTALL interface

Figure 2-2: Unlocking Multi-pay-based terminals
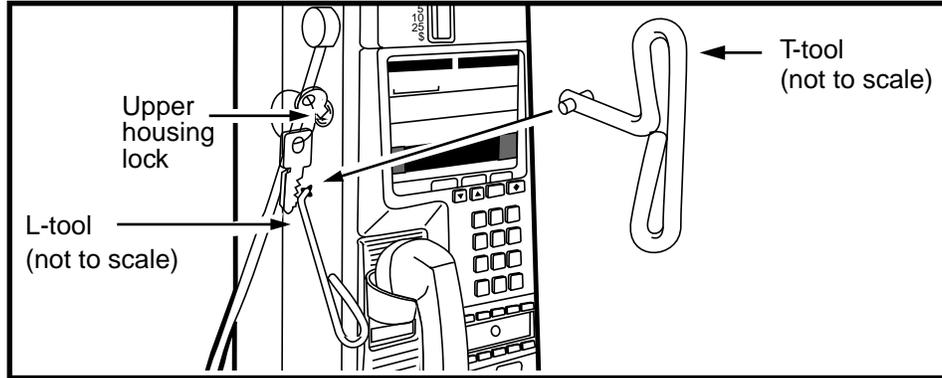
Figure 2-3: Unlocking Card-based terminals
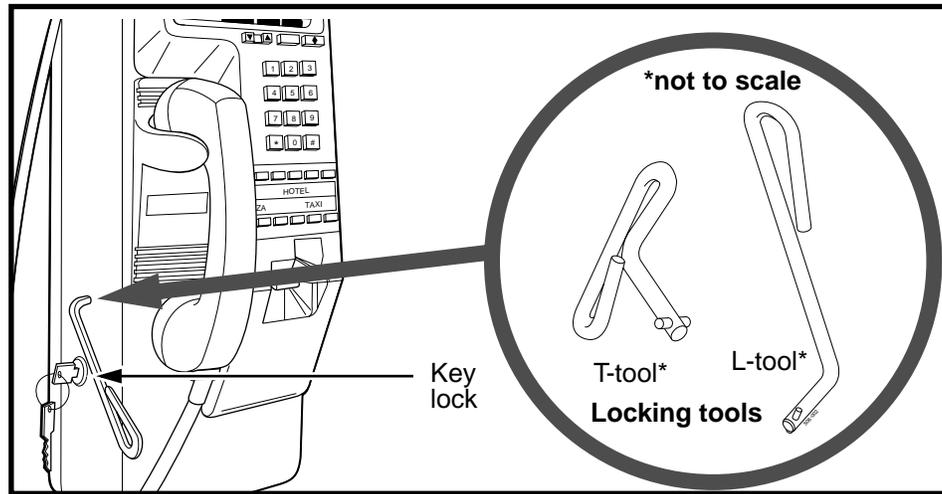
Figure 2-4: Unlocking the Desk terminal
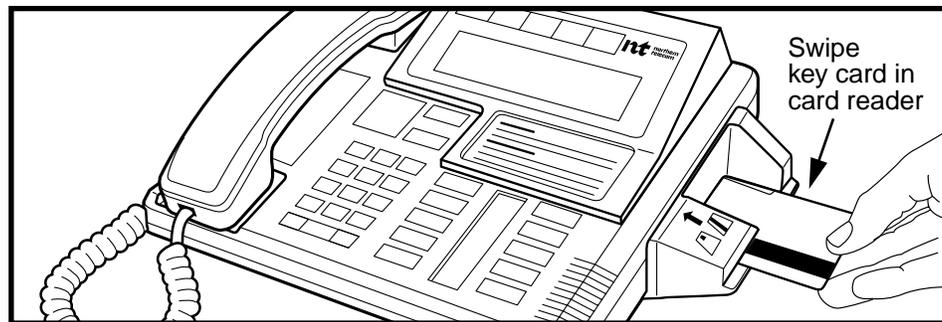
See this **Using an external portable display**	**Inmate terminals** cannot be closed if an external portable display is installed. You must manipulate the internal housing tiebars to simulate locking/unlocking the terminal.
	To simulate locking an Inmate terminal, pull the left-hand tiebar up.
	Refer to **Appendix C: Special terminals** for detailed instructions for installing a portable display.

5. **If the terminal was not in operation before the installation procedure began, this message appears on the VFD:**

```
Not installed
Use # to INSTALL
```

Otherwise, this message appears on the VFD:

```
Use ✳=MENU, #=INSTALL
or dial item number
```

See this	**Previously-installed terminal:** If you did not uninstall the terminal, ensure that you have completed a CDR upload before you press # to start the INSTALL

6. **Press # in either case.**

   Note: If the terminal is busy, another type of prompt may appear. Refer to **If the terminal is busy** on page 1-10, for an example.

2-10 INSTALL interface

See this	**SmartCity records notice**
(glasses)	If the following prompt appears after you press #, it indicates there are CDRs or transaction records still resident in the terminal. **`Records xx xx xx xx`** **`Use 1=IGNORE, #=ABORT`** XX XX XX XX: the second last X indicates SmartCity records; the last X indicates CDRs: Press 1 to continue with the INSTALL. *Note:* If you choose to do this, the transaction records may be lost. If you click on #, you will be returned to the previous prompt. **Press** ✶ to upload the records. Then re-run the INSTALL.

Performing the INSTALL routine

To run the INSTALL routine, proceed as follows:

1. Access the INSTALL prompt as described in the previous section.

2. Press #.

The INSTALL routine first checks the central office (CO) line.

This message appears on the VFD:

```
CO line check
Go offhook
```

3. Lift the handset off-hook.

This message appears on the VFD:

```
Checking CO
connection
```

When the routine detects both voltage and dial tone, this message appears on the VFD:

```
Completed      00
To continue, press ✳
```

4. Press ✳.

This message appears on the VFD:

```
Go back onhook
```

Millennium terminals: using the craft interface

Failed test: If the routine does not detect voltage or dial tone, this message appears on the VFD:

```
Failed:          XX
Press ✳ to try again
```

Refer to the appropriate error code in Appendix B to troubleshoot the problem. The INSTALL routine will not proceed until the CO connection passes the test.

5. **Place the handset back on-hook.**

   This message appears on the VFD:

```
■■■-■■■-■■■■
Enter line tel. num.
```

6. **Enter the telephone number of the terminal.**

   As you enter the number, this message appears on the VFD:

```
■■■-■■■-■■■■
Use ◆=FIX,  ✳=SAVE
```

   If you make a mistake, press ◆ to correct it.

   Be careful to enter the correct number. This is what the Millennium Manager uses to download the correct tables.

7. **Press ✳.**

   This message appears on the VFD:

```
■■■■■■■■■
Enter serial number
```

8. **Enter the ten-digit serial number of the terminal.**

   As you enter the digits, this message appears:

   ```
   ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
   Use ◆=FIX,  ✳=SAVE
   ```

   The operating company uses the serial number for tracking. If you make a mistake, press ◆ and correct it.

9. **Press ✳.**

   This message appears on the VFD:

   ```
   ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
   Enter NCC tel. number
   ```

10. **Enter the telephone number of the Millennium Manager. This may be a 7- , 10, or 11-digit number.**

    If you enter a wrong number, press ◆ and correct it.

    As you enter the number, this message appears:

    ```
    ■ ■ ■ ■ ■ ■  ■ ■ ■ ■ ■ ■
    Use ◆=FIX,  ✳=SAVE
    ```
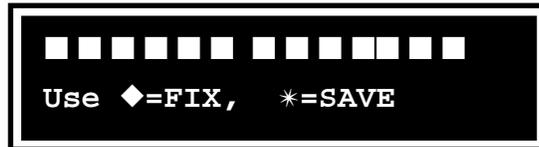
See this ![glasses] **Pre-dial string**	**1.9-and later vintage terminals** If a **pre-dial string** is required, enter the number before the Millennium Manager number. For example: @@@XXXXXXXXXX, where @@@ is the pre-dial string, and XXXXXXXXXX is the telephone number. The pre-dial string can be from one to eight digits long and is assigned by the operating company.

11. **Press** ✳**.**

   This message appears on the VFD:

   ```
   Answer detect check
   Go offhook
   ```

12. **To initiate the answer supervision test, lift the handset off-hook.**

   This message appears on the VFD:

   ```
   Checking answer
   detection
   ```

   If the terminal detects answer supervision, this message appears on the VFD:

   ```
   Completed:      00
   To continue, press ✳
   ```

13. **Press** ✳**.**

14. **Go to step 15 after this message appears on the VFD:**

   ```
   Go back onhook
   ```

   Failed test: If the terminal does not detect answer supervision, this message appears on the VFD:

   ```
   Failed:        51
   ```

CAUTION	**Failed answer supervision**
⚠	If there is no answer supervision, do not cut the power to the terminal or abort the INSTALL process by closing the housing. Either action would require you to restart the INSTALL routine from the beginning.

See this	**Inmate terminals**
👓	Some Inmate terminals do not have answer supervision on the line and do not require it. For these terminals, this test will timeout and the next prompt will appear.

If the answer supervision test fails:

• Attach your butt-end test set to the line and make a call.

• When the call connects, listen for a click in the handset or monitor the line with your multi meter and watch for polarity reversal.

• If answer supervision is not being supplied from the CO, ask the CO personnel to verify that the line has been set up properly.

Note: If the operating company cannot supply CO for a line, an inferred answer supervision (IAS) module must be installed in the terminal. Refer to *Millennium terminals: replacing parts* for detailed instructions.

• When the line is set up properly, press ✳ to retry the answer supervision test, then carry out the remaining steps of the INSTALL routine.

If the problem is not with the line, you may have entered an incorrect Millennium Manager modem number. Close and lock the terminal and retry the INSTALL from the beginning.

> *Note:* The INSTALL routine will not continue until the answer supervision test completes or times out.

15. Hang up the receiver.

This message appears on the VFD:

```
Press ✳ to start NCC
      download
```

16. Press ✳ to download information from the Millennium Manager (NCC) to the terminal.

This message appears on the VFD:

```
*     Please wait    *
```

Then this message appears on the VFD:

```
Download in progress
*     Please wait    *
```

When the download succeeds, this message appears on the VFD:

```
Completed:        0X
To continue, press ✳
```

`0x` indicates the terminal type: 01 = Card/Desk terminal; 02 = Multi-pay-based terminals; 03 = Coin basic terminals; 04 = Inmate

When the download completed message appears, continue with **step 17** on page 2-20
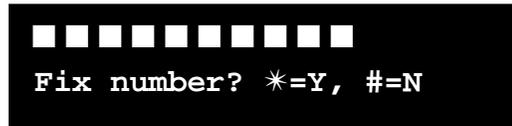
Stopping the download

If you want to stop a download after it is initiated, press #.

Note: You must stop the download before the terminal connects to the modem pool. This includes the time the `Please wait` prompt displays on the VFD.

After the terminal connects, the keypad is disabled.

When you press # to stop the download, this screen appears:

```
■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Fix number?  ✳=Y, #=N
```

• If you want to exit the program, press #. This takes you back to the download prompt.

• If you want to correct the number, press ✳.

• The following prompt appears:

```
■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Use ◆=FIX,  ✳=SAVE
```

• Press ◆ to clear the number.

• Enter the correct Millennium Manager modem pool number.

• Press ✳. This takes you back to the download prompt.

• Continue with the download.
  If you do not continue, the INSTALL terminates.

See this	The terminal timeout provision does not apply during the downloading procedure.

Problems with the download

During the download, the following errors may occur.

• When the modem tries to contact the Millennium Manager, there may be no response. (Error code 24)

• The line to the Millennium Manager may be busy. (Error code 22)

• No ringback signal is detected by the terminal (Error code 26)

• A pre-dial string may be required or may have been entered incorrectly. (Error code 24)

• A necessary table was not downloaded (Error code 34)

• The terminal ID has not been added to the Millennium Manager

If the download fails, this message appears:

```
Failed:          XX
Press ✳ to try again
```

Refer to the appropriate error code in Appendix B to troubleshoot the problem.

If the Millennium Manager does not respond, this message appears on the VFD (MTR 1.9 and later vintage terminals):

```
■ ■ ■ ■ ■ ■ ■ ■
Fix string? ✳=Y, #=N
```

Continued on the next page

Problems with the download (continued)

If the pre-dial string is correct, press #.

This message appears on the VFD

```
■ ■ ■ ■ ■ ■ ■ ■ ■ ■
Fix number?  ✳=Y, #=N
```

Note: For terminals not based on MTR 1.9 software, this will be the first prompt to appear.

- If the number displayed is correct, press #.

- If the number displayed is **not** the correct telephone number for the Millennium Manager modem pool, press ✳.

- This message appears on the VFD.

```
■ ■ ■ ■ ■ ■ ■ ■
Use ◆=FIX,  ✳=SAVE
```

- Press ◆ to clear the number.

- Enter the Millennium Manager number, which can be from seven to 10 digits long.

- Press ✳.

- Continue with the download. Go to step 17.
  If you do not continue, the INSTALL terminates.

When the download completed message appears, continue with the following steps.

17. Press ✳**.**

This message appears on the VFD:

```
Go offhook, press all
buttons, then onhook
```

18. Lift the handset off-hook.

19. Press each keypad button.

Listen for the DTMF tones for the dialpad buttons. There are no DTMF tones for the special keys or quick access keys.
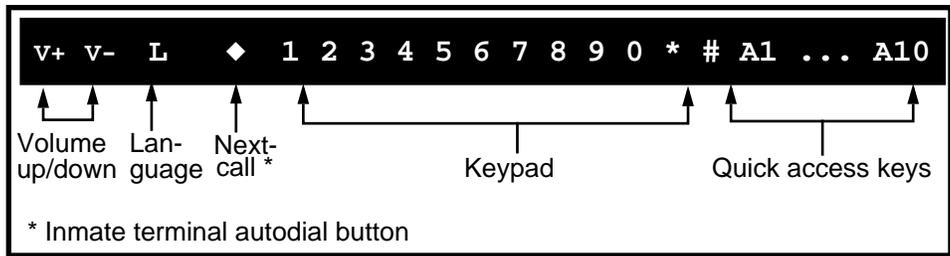
This message appears on the VFD:

```
(keypad character)
Go on hook when done
```

Note: If a keypad digit appears on the display but the corresponding DTMF tone does not sound, the problem may be in the handset or the telephony PCP. Replace these units as necessary.

As you press each button, the character appears on the VFD, as shown below:

```
V+ V-  L   ◆  1 2 3 4 5 6 7 8 9 0 * # A1 ... A10
```

Volume up/down | Language | Next-call * | Keypad | Quick access keys

* Inmate terminal autodial button

20. Put the handset on-hook.

21. If the terminal has a card reader, the INSTALL routine now prompts for the card reader test. Otherwise, this section is skipped.

The test checks the two sensors of the card reader, the card-present sensor and the card-fully-seated sensor, then prompts you to insert a card.

Failed test: If either sensor reports a blockage, this message appears on the VFD:

```
      Card reader problem
      Check for blockage
```

If there is no blockage, this message appears on the VFD:

```
      Please insert and
      remove your card
```

22. Insert your test card, a valid mag-stripe card.

Note: If you hesitate to put your card in, this message appears on the VFD:

```
      Insert card in slot
      black strip to left
```

After a successful card reader test, this message appears on the VFD:

```
      *   Please remove   *
          your card
```

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Note: This test checks mag stripe cards only. The only way to check the smart card part of the reader is to make a call.

23. Remove the card.

This message appears on the VFD:

> **(the card mag stripe no.)**
>
> **To continue, press** ✳

The number on the VFD is the number from the mag stripe of the card. The number of digits will vary according to card type.

Note: If you leave the card in the terminal too long, this message appears on the VFD:

> **✳   Please remove**
>
> **your card** ✳

Failed test: If the test fails, try a different card. If that still does not work enter the terminal and check the connection to the control PCP. If the connection appears to be okay and the test still does not work, replace the card reader.

24. Press ✳ **to begin the coin validator test.**

See this

If the terminal does not have coin capability, the following steps for coin validation do not occur.

Instead, you will receive the prompt given in **step 28**.

When the coin validator passes the first test, this message appears on the VFD:

```
Deposit a
calibration coin
```

Note: Calibration coins can be inserted in any order. Actual coins may be used. The operating company chooses which coins are acceptable.

25. Deposit calibration coin number one.

The VFD goes blank while the test occurs.

When the validator passes the test, this message appears on the VFD:

```
Deposit a
calibration coin
```

26. Deposit calibration coin number two.

The VFD goes blank during the test.

When the validator passes the test, this message appears on the VFD:

```
Deposit a coin
to test escrow unit
```

27. Deposit calibration coin number three.

The VFD goes blank during the test.

When the validator passes the test, this message appears on the VFD:

```
Completed:        00
To continue, press  ✳
```

The calibration coins are deposited into the coin return.

28. Press ✳.

This message appears on the VFD:

```
Install is complete
Close terminal now
```

Note: The message displays for ten seconds.

If the terminal remains open beyond that time, the initial maintenance prompt appears on the VFD.

29. Complete the INSTALL.

- **Multi-pay-based and Card-based terminals:** Close and lock the terminal.

See this	You must at least lock the terminal with the T-tool to complete the INSTALL.
	If you are going to do more maintenance procedures: lock the terminal with the T-tool, then re-enter the craft interface.

- **Desk terminal:** Press # to exit the craft interface.

- See note below about exiting **Coin basic w/o display** and **Inmate** terminals.

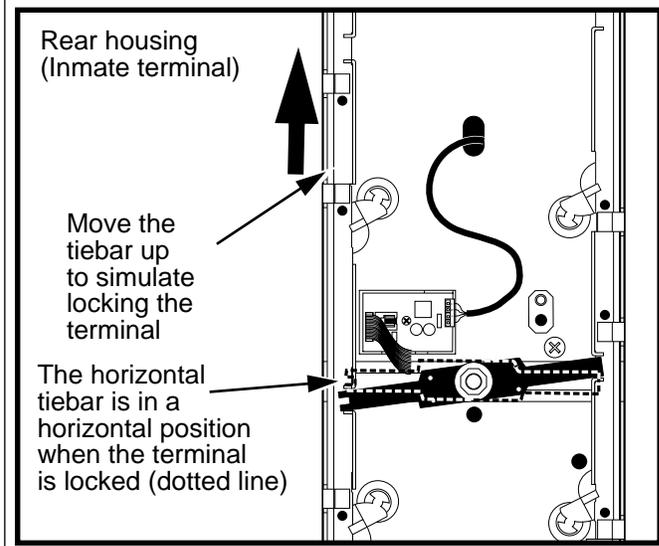| **See this**	**Coin basic w/o display terminals**
	When you have finished the INSTALL, close the terminal and lock it with the T-tool.
	Follow the procedure given in **Appendix C : Special terminals** to remove the display.

See this	**Inmate terminals**
	When you have finished the INSTALL procedure, simulate locking the terminal by pulling up the left hand tiebar on the rear housing, as shown in Figure 2-5.
	Follow the procedure given in **Appendix C : Special terminals** to remove the display.

Figure 2-5: Simulating locking the Inmate terminal

Rear housing (Inmate terminal)

Move the tiebar up to simulate locking the terminal

The horizontal tiebar is in a horizontal position when the terminal is locked (dotted line)

The INSTALL routine is complete

The terminal reverts to the idle state.

30. Test the terminal functions. Refer to Chapter 4.

2-26 INSTALL interface

3-1

3 Maintenance-level interface

The maintenance level of the craft interface allows you to perform administrative and testing procedures at the terminal.

This chapter describes how to enter this system and how to use the various tests, which are accessed through this interface.

Using the maintenance level

You can use the menus at this level to:

- run diagnostic tests on the components of the terminal in response to error messages received at the Millennium Manager, customer complaints, or terminal reduced-service or out-of-service conditions

- download terminal configuration data from the Millennium Manager to the terminal

- upload terminal status records and call detail records (CDRs) from the terminal memory

- put the terminal in or out of service

- check or change various terminal functions

See this:	Always run the craft interface tests for components after any maintenance activity.

See this **(continued)**	Running tests on new components ensures that the component is functioning properly in the terminal.
	Exiting the craft interface without fixing a problem, such as a blocked card reader, will cause an erroneous un-alarm to be sent to the terminal. The terminal will return to service until the problem recurs and shuts down service again.

Terminal notes

The craft interface is basically the same for all types of Millennium terminals. However, pre-MTR 1.9-vintage terminals (1.6, 1.7, 1.8), and various terminal types, have slight variations.

When these variations occur, the **See this box**, as shown below, will be inserted in the text to indicate that a terminal type or vintage variation is occurring.

See this	Look for the **See this** boxes throughout this chapter to give you hints and direction for differences in procedure for different types and vintages of terminals.

Coin basic w/o display and Inmate terminals

The **Coin basic w/o display** and **Inmate terminals** need to have a portable display installed so that the craft interface prompts can be viewed.

The procedure for installing this display is described **Appendix C : Special terminals**.

Ensure that you observe ESD and power safety procedures when you install and remove the portable display.

Desk set

To unlock this terminal to access the craft interface, you need a key card. This card is swiped in and out of the card reader at the unlock prompt during entry into the craft interface.

If the card reader or the keypad do not work, use the procedures described in **Desk set emergency CDR upload** on page 3-40 to upload the CDRs. Then replace the defective part (card reader), or the set (keypad).
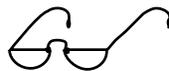
Maintenance menu options

The maintenance menu of the craft interface lists maintenance-level activities. The menu options appear on the vacuum fluorescent display (VFD).

The options on the menu are:

- 227. Check cardreader
- 264. Check coin unit
- 546. Check C.O. line
- 347. Check display
- 539. Check dialpad
- 225. Make/Answer call
- 835. Show tel. number
- 622. Show NCC number
- 673. Enter op codes
- 369. Force download
- 732. Call records

See this **Vintage alert!**	**MSR 1.6, 1.7, 1.8 terminals** The following four items do not appear on the maintenance menu for these terminals. Instead, these items can be accessed by entering the codes given in Table 3-1.

- 267. Answer detect
- 274. VFD brightness
- 636. Check memory
- 688. Out of service

Scroll through the menu options to select the desired option or enter the code.

See this Vintage alert!	**MTR 2.3 SmartCity terminals** This terminal has two additional menu items: **378 FSU records** is used to upload the records created for this card application **277 Check FSU SAM** is used to ensure a SAM is resident in the terminal and to initialize it.

Each menu option displays the name and the code of an activity and a prompt to initiate the activity (1), or to pass on to the next item (∗).

The maintenance menu is circular.

Bypassing the maintenance menu

To perform a maintenance-level activity, you do not need to scroll through the menu to find the desired option. You can enter the appropriate numeric or mnemonic code at the initial maintenance prompt.
Table 3-1 lists the codes.

Table 3-1: Maintenance-level codes

Activity	Numeric	Mnemonic
Check the card reader	227	CAR
Check the coin unit	264	COI
Check the CO line	546	LIN
Check the display (VFD)	347	DIS
Check the dialpad	539	KEY
Make/Answer a call	225	CAL
Display the terminal tele-phone number	835	TEL
Display the Millennium Manager number	622	NCC
Enter operation codes	673	OPE
Force download	369	DOW
Send CDRs to the Millen-nium Manager	732	REC
Note: **MSR 1.6, 1.7, and 1.8 terminals:** the following four options can be accessed only by the code number.		
Testing answer supervi-sion	267	ANS
Change the VFD bright-ness	274	BRI
Testing memory of the terminal	636	MEM
Put the terminal out of or back in service	688	OUT

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Table 3-1: Maintenance-level codes (continued)

Activity	Numeric	Mnemonic
Fix Telephone #	349	
MTR 1.9/2.0-based terminals: the following options can be accessed only by using the code in version.		
Fix NCC number	362	
Fix string	737	
Fix telephone #	349	
Note: The following options are only visible in terminals running the SmartCity application.		
FSU records	378	FSU
Check FSU SAM	277	CPS

Entering codes: After you enter the activity code, the activity proceeds as if selected from the maintenance menu.

Accessing the maintenance prompt

This section describes how to access the craft interface and decide which functions you want to do.

To enter the craft interface to perform maintenance-level activities, proceed as follows:

See this	**Coin basic w/o display** and **Inmate terminals** do not have permanent VFDs.
	To install a display to allow you to do maintenance on these terminals, you must do **steps 1** to **4** without benefit of visual prompts to enter the terminal to install a portable display.
	Refer to **Appendix C : Special terminals** for detailed instructions for installing a portable VFD.

1. **With the handset on-hook, enter the access code on your instruction card.**

   If the buttons work but the access code produces no effect, enter the default access code.

   Note: If the buttons do not seem to work, refer to **If the keypad buttons do not work** on page 1-9.

   This message appears on the VFD:

   ```
   Enter PIN: ■ ■ ■ ■ ■
   ◆=FIX, *=SAVE, #=STOP
   ```

2. **Enter your personal identification number (PIN) code**

   As you enter the digits, they appear on the VFD.

   If you make a mistake, press the ◆ button to erase the VFD and then enter the correct number.

3. **Press** ✳**.**

See this	If you attempt to open the terminal before you press ✳, the terminal sends an alarm (24) to the Millennium Manager indicating an illegal entry and you will not be able to continue.
	Close and lock the terminal and re-enter the craft interface.

Note: If you press #, the terminal is uninstalled and the craft interface exits. If you attempt to open the terminal, an alarm message is sent to the Millennium Manager indicating an illegal entry.

4. **You are prompted to unlock the terminal.**

Caution	Open the terminal quickly after entering your PIN.
	If you do not open the terminal within three minutes, the terminal times out and **Please lift receiver** reappears on the VFD.
	If you open the terminal after the timeout, an alarm message is sent to the Millennium Manager indicating an illegal entry

- **Multi-pay-based and Card-based terminals:** This message appears on the VFD:

```
Please use key now
& open the terminal
```
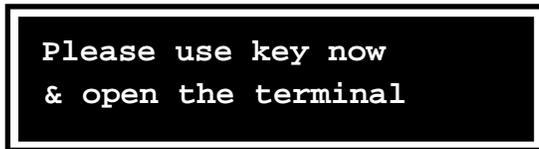
   a) Put the key into the key lock on the left side of the terminal housing, and turn the key clockwise. Refer to Figure 3-1.

b) To release the housing locking mecha-
nism, insert the T-or L-tool in the hole be-
low the key lock and rotate it until it stops.

Multi-pay-based terminals: Rotate the
tool clockwise.

Card-based terminals: Rotate the tool
counterclockwise

DO NOT open the terminal housing unless you are
going to install a portable display.

Figure 3-1: Unlocking Multi-pay and Card terminals
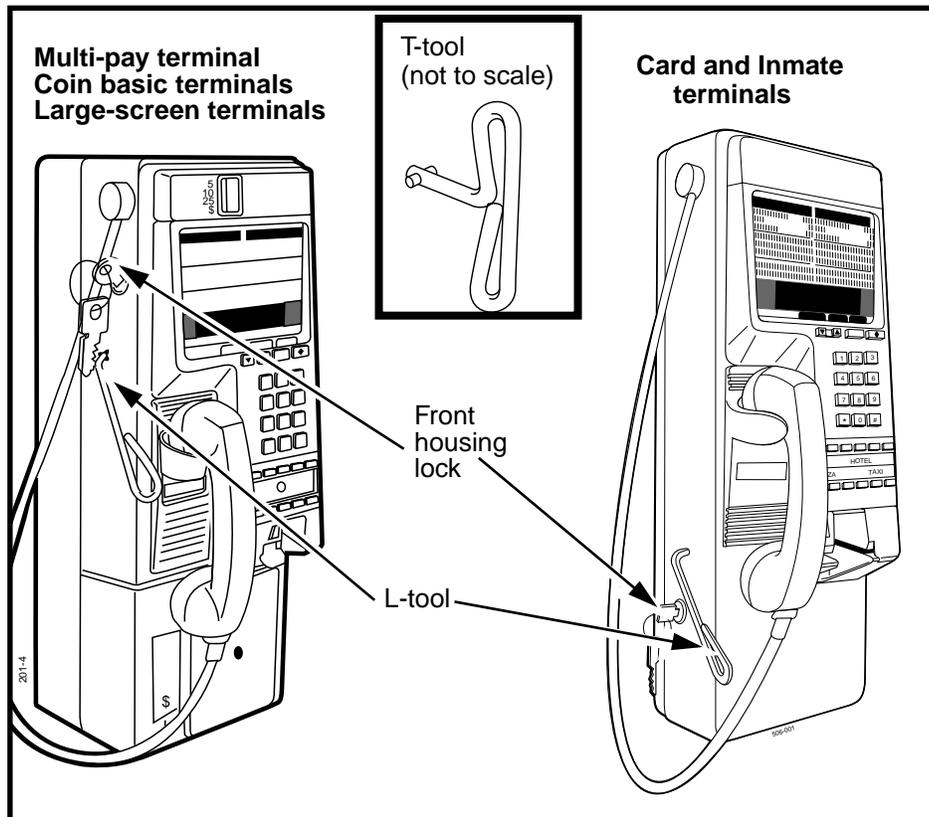
- **Desk terminal:** Use a key card to unlock this terminal. Insert and remove the card in a swiping movement when this prompt appears:

```
Please insert the
key card now
```

Figure 3-2: Unlocking the Desk terminal

Swipe card in card reader
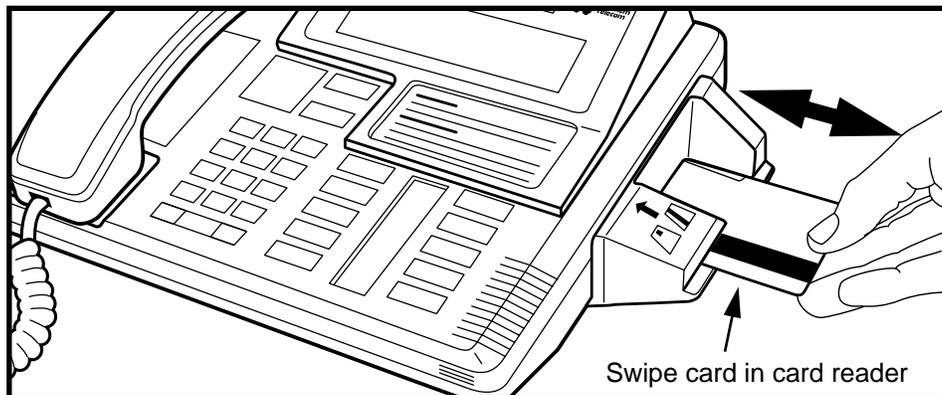
- If the terminal has not been installed, or has been uninstalled, this message appears on the VFD:

```
Not installed
Use # to INSTALL
```

If the terminal needs to be installed, refer to Chapter 2.

- If the terminal is in working condition, this message appears on the VFD:

```
Use ✳=MENU, #=INSTALL
or dial item number
```

5. **Press ✳ to get into the maintenance menu.**

Flowchart

The following flowchart briefly gives an overview of the pro-
cess of accessing and exiting the craft interface.

Figure 3-3: Flowchart — accessing/exiting the craft interface

At the terminal

Enter access code

At prompt, enter PIN code
Press ✳

At unlock prompt,
unlock and open terminal

Is this
an Inmate or
Coin basic
terminal?

No

Yes

Disconnect power and
install portable display

Reconnect power. Re-enter
craft interface, if necessary

Scroll through menu
or enter numbers
for what you want
to test.

When complete, exit the
interface by:

Multi-pay/card terminals
Close and lock the terminal.

Inmate terminal:
Slide left tiebar up to
simulate locking. Re-enter
the craft interface,
disconnect power and
remove portable display.
Reconnect power, then
close and lock the terminal

**Coin basic terminal
w/o display:** Close and
lock the terminal, then
re-enter the craft interface,
disconnect power and
remove the portable display.
Reconnect the power, then
close and lock the terminal

Desk set: Press #
on the keypad.

Using the maintenance level

This section describes the process of using the craft interface maintenance-level menus, including:

- how to start a session

- how to scroll through the menus

- how to activate each test

- how to properly end the session.

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

   This message appears on the VFD:

   ```
   Use *=MENU, #=INSTALL
   or dial item number
   ```

2. **Press *.**

   The first option on the menu is displayed.

   ```
   227. Check card reader
   Use 1=DO IT, *=NEXT
   ```

See this	**Coin basic w/o display** and **Coin basic with display terminals** begin with this prompt:
	``` 264. Check coin unit Use 1=DO IT, *=NEXT ```

See this	**MTR 2.0 (downloadable code) terminals** begin with this prompt:
	732. Call records **Use 1=DO IT, ✳=NEXT**
	Refer to **Sending CDRs to the Millennium Manager** on page 3-37.

3. **If you don't want to test every item, scroll through the menu to locate the desired activity.**

   - To advance from one activity to the next, press ✳.

   - You can also press ▲ to select the next activity or ▼ to select the previous activity.

   - To go directly to a menu item, enter the appropriate code number.

4. **When you find the appropriate menu item, press 1 to initiate the DO IT function.**

   - Follow the prompts that appear on the VFD.

   - For details, refer to the descriptions of each activity given below.

5. When the activity is finished, the option you chose re-appears on the VFD.
   Press ✳ to return to the main menu so you can select other menu options.

6. **To end the maintenance session at any time, close and lock the terminal.**

   Desk terminal: End a session by pressing #.

Refer to the following **See this** boxes for specific in-structions for exiting the craft interface from Coin ba-sic w/o display and Inmate terminals.

See this	**Coin basic w/o display terminals (internal portable display)**
	When you have finished mainte-nance activities, close the terminal and lock it with the T-tool.
	Refer to **Appendix C : Special terminals** for specific instructions for removing the display.
See this	**Inmate terminals**
	When you have finished mainte-nance activities, simulate locking the terminal by pulling up the left hand tiebar on the rear housing. Refer to Figure 3-4.
	Refer to **Appendix C : Special terminals** for specific instructions for removing the display.

Figure 3-4: Using the tiebar to simulate locking

Rear housing
(Inmate terminal)

Move the tiebar up to simulate locking the terminal

The horizontal tiebar is in a horizontal position when the terminal is locked (dotted line)
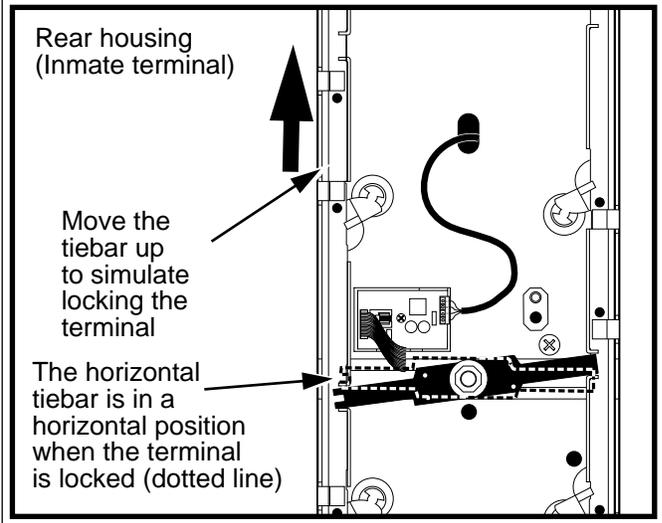
Checking the card reader

The first menu item on most terminals allows you to check the operation of the card reader. Make sure you have a test mag-stripe card which is accepted by the terminal to do this test.

1. **Access the initial maintenance prompt** as explained in **Accessing the maintenance prompt on page 3-7.**

2. **Press ⁎.**

   This message appears on the VFD:

   ```
   227. Check cardreader
   Use 1=DO IT, ⁎=NEXT
   ```

See this	This will usually be the first menu item when you enter the craft interface. However, the following exceptions apply:
Vintage alert	The **Coin basic w/o display** and **Coin basic with display** terminals, skip this item.
	Some **MTR 2.0-based terminals** start with the **732. Call records** prompt. In this case, the card test (227) is the second prompt.

3. **Press 1.**

   The card reader test begins.

   This test checks the two sensors of the card reader: the card-present sensor and the card-fully-seated sensor.

- If either sensor reports a blockage, this message appears on the VFD:

> **Card reader problem**
> **Check for blockage**

- If there is no blockage, this message appears on the VFD:

> **Please insert and**
> **remove your card**

4. **Insert your mag stripe test card: an ordinary credit card will do.**

   Note: Smart cards will not work for this test.

   When the test is successful, this message appears on the VFD:

   > *** Please remove ***
   > **your card**

- If you hesitate to insert your card, this message appears on the VFD:

> **Insert card in slot**
> **black strip to left**

- If you do not completely insert the card, this message appears on the VFD:

> **Insert entire card**
> **then remove quickly**

Failed test: If the test is unsuccessful or if any other messages appear during the card reader test, refer to **Card reader test errors** on page 3-17.

5. **Remove the card.**

   This message appears on the VFD:

   ```
   ■ ■ ■ ■ ■ ■ ■ ■ ■
   To continue, press  ✳
   ```

   Note: The number on the mag stripe of the card is displayed. The number of digits displayed will depend on the type of card you are using.

6. **Press ✳.**

   This message appears on the VFD:

   ```
   227. Check cardreader
   Use 1=DO IT,  ✳=NEXT
   ```

7. **Press ✳ to continue to the next item.**

   To end the maintenance session, close and lock the terminal.

   Desk terminal: Press # to end the session.

Card reader test errors

During the card reader test, these problems may occur:

- When the card is in the card reader, one or both sensors may fail to send a signal that the circuit closed.

- A card-reading failure may occur.

Sensor failures

The card reader has two sensors, the **card-present sensor** and the **card-fully-seated sensor**. When a card is inserted, both sensors should go on, that is, send a closed signal.

• If the card-present sensor does not activate, this message appears on the VFD:

```
Sensor error.
Try cleaning or replace
```

• If the card-fully-seated sensor does not activate, this message appears on the VFD:

```
Insert entire card
then remove quickly
```

Card-reading failures

If the card reader cannot read the card, you may get one of these errors:

• If the reader cannot detect a magnetic stripe on the card, this message appears on the VFD:

```
Try card face down
black strip to left
```

• If the reader cannot read the numbers on the card, or if that card type is not accepted by the terminal, this message appears on the VFD:

```
Not an accepted card
See list, try again
```

- After the second failed attempt to read a card, this message appears on the VFD:

```
Cannot read card
Try a different card
```

- After the third failed attempt to read a card, this message appears on the VFD:

```
Clean and try again
May need replacement
```

Note: If the card reader is still not functioning after you have tried using a different card and after cleaning the card reader, enter the terminal and check the card reader connection to the control PCP. If the connection is okay, replace the card reader.

If the new card reader does not work, replace the control PCP.

WARNING	When working inside the terminal, ensure that you use your ESD strap and disconnect the power.

Checking the coin unit

The following test checks the coin path, including the validator and escrow functions.

See this	**Card, Inmate,** and **Desk terminals** do not have coin payment. This section does not appear on the menu for these terminals.

To carry out the coin unit test:

1. **Access the initial maintenance prompt** as explained in **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Type in 264 on the keypad**
   or press ✳ until this message appears on the VFD:

   ```
   264. Check coin unit
   Use 1=DO IT, ✳=NEXT
   ```

See this	**Coin basic w/o display** and **Coin basic with display**: This is the first prompt that appears for these terminals.

4. **Press 1.**

   The presence and status of the validator is tested.

   This message appears on the VFD:

   ```
   Deposit a
   calibration coin
   ```

5. **Deposit calibration coin number one.**

This message appears on the VFD:

```
Deposit a
calibration coin
```

Note: Calibration coins may be inserted in any order. Actual coins may be used as per operating company instructions. The coins can be of the same value.

6. **Deposit calibration coin number two.**

This message appears on the VFD:

```
Deposit a coin
to test escrow unit
```

7. **Deposit calibration coin number three.**

This message appears on the VFD:

```
Completed:       00
To continue, press ✳
```

8. **Press ✳ to end the test.**

The escrow dumps the three coins into the coin return.

This message appears on the VFD:

```
264. Check coin unit
Use 1=DO IT, ✳=NEXT
```

9. **Press ✳ to continue to the next item.**
To end the maintenance session, close and lock the terminal.

Problems in the coin unit test

If, during any of the coin tests, this message appears on the VFD:

```
Failed              XX
Use 1=DO IT, ✳=NEXT
```

Look up the XX number in the error codes table in Appendix B and troubleshoot the problem, then repeat the coin unit test.

Checking the central office line

Before doing this test, attach your butt-end test set to the line and check the telephone line for voltage and dial tone.

Follow these steps to test the terminal connection to the CO line:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Enter 546 from the keypad**
   or press ✳ until this message appears on the VFD:

```
546. Check C.O. line
Use 1=DO IT, ✳=NEXT
```

4. **Press 1.**

This message appears on the VFD:

```
C.O. line check
Go offhook
```

5. Lift the handset off-hook.

The test checks line voltage and dial tone.

This message appears on the VFD:

```
Checking C.O.
connection
```

If the test detects both voltage and dial tone, this message appears on the VFD:

```
Completed:      00
To continue, press ✳
```

6. Press ✳.

This message appears on the VFD:

```
Go back onhook
```

7. Replace the handset on-hook.

This message appears on the VFD:

```
546. Check C.O. line
Use 1=DO IT, ✳=NEXT
```

8. Press ✳ to continue to the next item.

To end the maintenance session, close and lock the terminal.

Desk terminal: Press # to end the session.

Problems with the CO test

If the test does not detect voltage or dial tone, the VFD displays an error code, informing you of the problem.

Troubleshoot the problem and press ✳ to retry the test, or press # to end the test and refer to Appendix B for troubleshooting suggestions.

Note: If you end the test, you end the INSTALL routine.

Checking the display (VFD)

The VFD is tested to ensure that all the pixels are working.

To run this test:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

    The first menu item appears on the VFD.

3. **Press 347 on the keypad**
    or press ✳ until this message appears:

    ```
    347. Check display
    Use 1=DO IT, ✳=NEXT
    ```

4. **Press 1.**

    The test proceeds as follows:

    • All the pixels are displayed for five seconds.

    • Then the screen blanks out.

- The pixels in each character space may form a dia-mond or rectangle shape.

- Then, one at a time, the pixels turn on and off.

When the test is finished, this message appears:

```
347. Check display
Use 1=DO IT, ✶=NEXT
```

5. **Press ✶ to continue to the next item.**

To end the maintenance session, close and lock the terminal.

Desk terminal: End a session by pressing #.

Checking the keypad

Use the dialpad test to make sure the buttons work. Press each button to check that the DTMF tones sound.

To perform the keypad test:

1. **Access the initial maintenance prompt** as ex-plained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✶.**

The first menu item appears on the VFD.

3. **Press 539 on the keypad**
   or press ✶ until this message appears:

```
539. Check dialpad
Use 1=DO IT, ✶=NEXT
```

4. **Press 1.**

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This message appears on the VFD:

```
Go offhook, press all
buttons, then onhook
```

5. Lift the handset off-hook.

This message appears on the VFD:

```
Go onhook when done
```

6. Press each button.

As you press each keypad button, its DTMF tone sounds and the characters shown below appear on the VFD. Special keys and quick access keys do not have DTMF tones.

```
v+  v-   L      ◆   1 2 3 4 5 6 7 8 9 0 * # A1 ... A10
```

Volume up/down — Language — Next-call * — Keypad — Quick access keys

* Inmate terminal autodial button
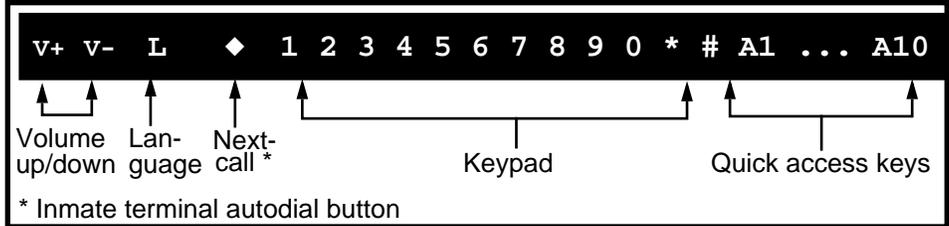
7. Replace the handset on-hook.

This message appears on the VFD:

```
539. Check dialpad
Use 1=DO IT, ✳=NEXT
```

8. Press ✳ to continue to the next item.

To end the maintenance session, close and lock the terminal.

Desk terminal: End a session by pressing #.

Issue: 00.01 Status: Standard Date: June 1998

Making and answering calls

Use the menu item titled **Make/Answer call** if you need to make or answer a call during a maintenance-level session.

Note: The terminal can be configured to not accept incoming calls.

To make or answer a call:

1. From anywhere in the maintenance menu press 225 on the keypad.

This message appears on the VFD:

> **225. Make/Answer call**
> **Use 1=DO IT, ✳=NEXT**

2. Press 1.

The terminal switches into the idle or on-hook state.

This message appears on the VFD:

> **Please lift receiver**

3. Lift the handset off-hook.

This message appears on the VFD:

> **Please insert card**
> **OR dial the number**

4. Make or answer a call.

If you dial the number first, you are prompted to insert a card or deposit some money. If you insert a card first, you are prompted to dial a number.

- If you pause, this message appears on the VFD:

> **Insert card in slot**
> **under dial pad**

- If you do not enter the number or insert a card be-fore the timer expires, this message appears:

> **Please hang up**
> **and start again**

- When you hang up, you can choose to make anoth-er call. Otherwise the craft interface starts running again.

    This message appears on the VFD:

> **225. Make/Answer call**
> **Use 1=DO IT, ✳=NEXT**

5. **Press ✳ to continue to the next item.**

    To end the maintenance session, close and lock the terminal.

    Desk terminal: End a session by pressing #.

Checking the terminal telephone number

The telephone number of the terminal is stored in the memory of the control PCP.

To display this number:

1. **Access the initial maintenance prompt** as explained in **Accessing the maintenance prompt on page 3-7.**

2. **Press ✷.**

   The first menu item appears on the VFD.

3. **Press 835 on the keypad**
   or press ✷ until this message appears on the VFD**:**

   ```
   835. Show tel. number
   Use 1=DO IT, ✷=NEXT
   ```

4. **Press 1.**

   This message appears on the VFD:

   ```
   ■■■ - ■■■ - ■■■■
   To continue, press ✷
   ```

   This is the telephone number which acts as the unique identifier for the telephone.

5. **Press ✷.**

   This message appears on the VFD:

   ```
   835. Show tel. number
   Use 1=DO IT, ✷=NEXT
   ```

6. **Press ✷ to continue to the next item.**

To end the maintenance session, close and lock the terminal.

Desk terminal: End a session by pressing #.

Checking the Millennium Manager number

The telephone number of the Millennium Manager modem pool is in the memory of the control PCP in the terminal. The modem in the terminal uses this number when making a data call to the Millennium Manager.

To check that the correct number has been entered:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Press 622 on the keypad**
   or press ✳ until this message appears on the VFD:

   ```
   622. Show NCC number
   Use 1=DO IT, ✳=NEXT
   ```

4. **Press 1.**

   This message appears on the VFD:

   ```
   ■■■■■■■■■■
   To continue, press ✳
   ```

   • The number displayed is the telephone number of the modem pool the terminal calls to access the Millennium Manager.

- The number of digits will depend on whether the data call is local or long distance.

See this **Vintage alert!**	**MTR 1.9 and later terminals** The pre-dial string is not included in this display. Use item 737 to check the pre-dial string.

5. Press ✳**.**

This message appears on the VFD:

```
622. Show NCC number
Use 1=DO IT, ✳=NEXT
```

6. Press ✳ **to continue to the next item.**

To end the maintenance session, close and lock the terminal.

Desk terminal: End a session by pressing #.

Entering operation codes

The following section gives the steps for entering operation codes on the maintenance level.

About operation codes

With maintenance-level privileges, you must initiate an operation code session through the maintenance menu.

- In a single session, you can enter up to eight codes.

- The codes are sent to the Millennium Manager when the session ends.

- You can initiate multiple sessions if necessary.

Follow these steps to enter operation codes:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Press 673 on the keypad**
   or press ✳ until this message appears on the VFD:

   ```
   673. Enter op codes
   Use 1=DO IT, ✳=NEXT
   ```

4. **Press 1.**

   This initiates an operation-code-entry session.

   This message appears on the VFD:

   ```
   Enter op code: ■ ■ ■
   ◆=FIX, ✳=SAVE, #=STOP
   ```

5. **Enter the operation codes.**

   Refer to the operation codes card issued by the operating company for the codes. When the code is correct, press ✳.

   - Do not enter leading zeros.

   - If you make a mistake while entering a code, press ◆ to erase the code from the VFD and re-enter the code.

   - After you save a code, it disappears from the display. The rest of the prompt remains unchanged.

6. **Press # to end the operation code entry session.**

   This saves the final operation code.

You can also press ✳ and then #. This action exits the operation code level and re-enters the maintenance-level interface.

Note: The session also can end if a non-reserved operation code is entered as the ninth or subsequent code for the session, or if a timeout occurs.

- Regardless of how the session ends, this message appears on the VFD:

> ```
> 673. Enter op codes
> Use 1=DO IT, ✳=NEXT
> ```

- When the session ends, the terminal automatically sends the codes to the Millennium Manager, including the 996 code indicating that a session took place, and your PIN.

7. Press ✳ to continue to the next item.

To end the maintenance session, close and lock the terminal.

Desk terminal: End a session by pressing #.

Reserved operation codes

Operation codes in the 900 to 999 range are used as terminal-status indicators to the Millennium Manager. Only users with maintenance-level privileges can enter reserved operation codes.

These codes are defined by the Millennium Manager:

996	maintenance-level access has occurred
997	craftsperson has placed the coin validator out of service
998	craftsperson has placed the card reader out of service
999	craftsperson has placed the terminal out of service

Millennium Manager download

Use this procedure to download terminal configuration and rate tables from the Millennium Manager.

Post MTR 1.9 terminals: This procedure also downloads the cashbox status.

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

    The first menu item appears on the VFD.

3. **Press 369 on the keypad**
    or press ✳ until this message appears on the VFD:

    ```
    369. Force download
    Use 1=DO IT, ✳=NEXT
    ```

4. **Press 1.**

    This message appears on the VFD:

    ```
    Press ✳ to start NCC
    download
    ```

5. **Press ✳ to begin the download.**

    This message appears on the VFD:

    ```
    *    Please wait    *
    ```

    Note: If you need to stop the download for any reason, you must do so while the **Please wait** prompt is still showing. See **Stopping the download**, below.

Once the terminal connects to the modem pool, this message appears on the VFD:

> **Download in progress**
> ***   Please wait   ***

Stopping the download

If you want to stop a download after it is initiated, press #.

Note: You must stop the download before the terminal connects to the modem pool. After the terminal connects, the keypad is disabled.

This screen appears:

> ▪▪▪▪▪▪▪▪▪▪
> **Fix number? *=Y, #=N**

- If you want to exit the program, press #. This takes you back to the download prompt.
- If you want to correct the number, press *.
- The following prompt appears:

> ▪▪▪▪▪▪▪▪▪▪
> **Use ◆=FIX, *=SAVE**

- Press ◆ to clear the number.
- Enter the number, which can be from 7 to 10 digits long.
- Press *. This takes you back to the download prompt.
- Retry the download.

When the download is complete, this message appears on the VFD:

```
Completed:        0X
To continue, press ✳
```

`0X` indicates the terminal type:

- 01 indicates a Card or Desk terminal
- 02 indicates a Multi-pay-based terminals
- 03 indicates a Coin basic terminal
- 04 indicates an Inmate terminal.

6. Press ✳.

This message appears on the VFD:

```
369. Force download
Use 1=DO IT, ✳=NEXT
```

7. Press ✳ to continue to the next item.

To end the maintenance session, close and lock the terminal.

Desk terminal: End a session by pressing #.

Download error conditions: Refer to the download section of the INSTALL procedure in **Chapter 2** for information.

Sending CDRs to the Millennium Manager

Use the call-records item on the maintenance menu to send the Millennium Manager copies of the terminal status call-detail records (CDRs) and the summary local smart card records from the memory of the control PCP.

The terminal normally automatically uploads the status and CDR records during its regular call-in. As well, a couple of records are uploaded every time the terminal makes a data call into the Millennium Manager, for example, for a credit card validation.

About uploading CDRs

There are times when it is a good idea to empty CDRs out of the terminal rather than wait for the regular call-in.

- It is important to upload all CDRs from the terminal before performing maintenance tasks inside.

  This is especially critical if you are changing the control board, the firmware, the validator, or the escrow.

- Uploading the CDRs assures that the terminal records are up-to-date should something prevent the terminal from regaining operation.

- This function also saves the cash box status amount if it has been updated since the last upload (MTR 1.9 and later vintage terminals).

- **Desk terminal:** If the card reader or keypad is not working, refer to **Desk set emergency CDR upload** on page 3-40.

Uploading CDRs

Follow this procedure to upload CDRs:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Press 732 on the keypad**
   or press ✳ until this message appears on the VFD:

   ```
   732. Call records
   Use 1=DO IT, ✳=NEXT
   ```

4. **Press 1.**

   • If there **are CDRs** in the memory of the terminal this message appears on the VFD:

   ```
   Call records present
   Press ✳ for NCC call
   ```

   Go to Step 5.

   • If there are **no CDRs** in the memory and the cash box status does not need to be uploaded this message appears on the VFD:

   ```
   No call records
   To continue, press ✳
   ```

   Go to Step 6.

5. **Press ✳.**

   • While the terminal is contacting the Millennium
     Manager, this message appears on the VFD:

   ```
   *    Please wait    *
   ```

   • While the records are being sent, this message ap-
     pears on the VFD:

   ```
   Download in progress
   *    Please wait    *
   ```

See this	**MTR 1.9 and later terminals**
	It is at this point that the cash box status is uploaded to the terminal.
Vintage alert!	If there is no CDR present, the terminal will create one so the cash box status can be uploaded.

   • When the process is finished, this message ap-
     pears on the VFD:

   ```
   Completed:        00
   To continue, press ✳
   ```

6. **Press ✳.**

   This message appears on the VFD:

   ```
   732. Call records
   Use 1=DO IT, ✳=NEXT
   ```

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Note: To make sure that all CDRs were uploaded, re-peat **Steps 1** to **6**, until this message appears:

```
No call records
To continue, press  ✳
```

7. **Press ✳ to continue to the next item.**
    To end the maintenance session, close and lock the terminal.

    Desk terminal: End a session by pressing #.

Desk set emergency CDR upload

These procedures describe how to upload CDRs from a Desk terminal when the card reader or keypad are broken.

Note: At least one must be functional.

This procedure follows the CDR upload procedure, except that key presses can replace card swipes and card swipes replace key presses.

Uploading CDRs without key card

1. Enter your access code on the key pad.

    This lets you into the restricted maintenance level.

2. Enter 832, the code designated for an emer-gency CDR upload.

3. Carry out normal CDR upload procedure.

4. Replace the card reader.

Uploading CDRs without keypad
1. Swipe your key card through the card reader
2. A message about the CDRs displays. If CDRs are available, go to Step 3. If CDRS are not available, go to Step 4.
3. Swipe your card through the reader again. If a success message appears, go to Step 4. If a failure message appears, repeat Step 3. If you get nothing but failure messages, replace the set.
4. Exit the CDR upload procedure by swiping the card through the card reader once again. 5. Replace the set.
If neither the card reader nor keypad are working, replace the set and inform the operating company that the CDRs could not be uploaded.

See this **Vintage alert!**	**SmartCity (FSU) terminals** The two FSU prompts occur at this point. Refer to the section **SmartCity application prompts** on page 3-58.
See this **Vintage alert!**	**Pre- and post-MTR 1.9** The following menu items may not appear on the maintenance menu. Access them by entering the codes. Note the prompt difference: Instead of: ✳ **= NEXT** the prompt reads: **# = BACK** When # is selected, the terminal returns to the initial menu prompt.

Testing answer supervision

Answer supervision is provided on the line to the terminal, or through an inferred answer supervision (IAS) module installed inside the terminal between the outside line and the rear terminal PCP.

See this	**Inmate terminals**
	Some Inmate terminals do not have answer supervision.
	In that case, if you do this test, it times out.

To test for answer supervision:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ⬥.**

   The first menu item appears on the VFD.

3. **Enter 267 on the keypad** or press ⬥ until this message appears on the VFD:

   ```
   267. Answer detection
   Use 1=DO IT, ⬥=NEXT
   ```

4. **Press 1.**

   This message appears on the VFD:

   ```
   Answer detect check
   Go offhook
   ```

5. **Go off-hook.**

This message appears on the VFD:

```
Checking answer
detection
```

When the check is complete, this message appears:

```
Completed:        00
To continue, press ✳
```

6. **Press ✳.**

7. **Go back on-hook.**

   This message appears on the VFD:

```
267. Answer detection
Use 1=DO IT, ✳=NEXT
```

8. **Press ✳ to continue to the next item.**

   To end the maintenance session, close and lock the terminal.

   Desk terminal: End a session by pressing #.

Answer supervision errors

If there are problems with answer detection, this message appears on the VFD:

```
Failed:         XX
Press ✳ to try again
```

Check the error code chart in Appendix B to diagnose the problem, then press ✳ to try the test again.

Changing the brightness of the VFD

The VFD has three levels of brightness.

You may want to change the brightness of the display depending on the surroundings. For instance, if a terminal is inside, away from direct lighting, you may want to increase the brightness.

To change the brightness of the VFD:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press** ✳

   The first menu item appears on the VFD.

3. **Enter 274 on the keypad**
   or press ✳ until this message appears on the VFD:

   ```
   274. VFD brightness
   Use 1=DO IT, ✳=NEXT
   ```

4. **Press 1.**

   This message appears on the VFD:

   ```
   Choose level: 1 - 100%
   2 - 75%, 3 - 50%
   ```

5. **Press the keypad button corresponding to the desired brightness level.**

   For example, to reduce the brightness, press 3.

This message appears on the VFD:

```
274. VFD brightness
Use 1=DO IT, ✶=NEXT
```

6. **Press ✶ to continue to the next item.**
   To end the maintenance session, close and lock the terminal.

   Desk terminal: End a session by pressing #.

Testing the memory of the terminal

One of the tests you may want to run if the terminal is not functioning properly is a memory test.

The following test checks the memory for corruption.

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✶.**

   The first menu item appears on the VFD.

3. **Enter 636 on the keypad**

   or press ✶ until this message appears on the VFD:

```
636. Check memory
Use 1=DO IT, ✶=NEXT
```

4. **Press 1.**

   • While the memory is checked, this message appears on the VFD:

```
*   Please wait   *
```

- When the check is finished, this message appears on the VFD:

```
Completed:        00
To continue, press ✳
```

5. **Press ✳.**

   This message appears on the VFD:

```
636. Check memory
Use 1=DO IT, ✳=NEXT
```

6. **Press ✳ to continue to the next item.**

   To end the maintenance session, close and lock the terminal.

   Desk terminal: End a session by pressing #.

Memory errors

If there are memory errors, this message appears:

```
Failed:           XX
Press ✳ to try again
```

Check the error code chart in Appendix B to diagnose the problem, then press ✳ to try the test again.

Putting the terminal in/out of service

When you use this feature, an operation code is transmitted to the Millennium Manager.

Use this code to:

- put a terminal out of service

- put the terminal back in service when it has been previously put out of service with this menu item.

Putting out of service

The following procedure puts an installed terminal out of service.

Note: This process does not uninstall the terminal. Refer to **Uninstalling the terminal** on page 3-56 to uninstall a terminal.

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Enter 688 on the keypad**
   or press ✳ until this message appears on the VFD:

   ```
   688. Out of service
   Use 1=DO IT, ✳=NEXT
   ```

4. **Press 1.**

   This message appears on the VFD:

   ```
   Press 1 = card reader
   2 = coin, 3 = whole set
   ```

Note: Only Multi-pay terminals will show all three options.

5. **Enter the number of the component you want to remove from service.**

    a) If the card reader is not working, press 1.

    • Operation code 998 is sent to the Millennium Manager.

    • This message appears on the VFD:

    ```
    Message activated
    Op code sent to NCC
    ```

    • Close and lock the terminal.

    • This message appears on the VFD:

    ```
    COIN SERVICE ONLY
    ```

See this	**Pre-1.9-vintage terminals**
	Terminals with firmware of MSR 1.6, 1.7, or 1.8 vintage s how the following prompt: ```Card service not available```

b) **If the coin unit is not working**, press 2.

- This message appears on the VFD:

```
Message activated
Op code sent to NCC
```

- Operation code 997 is sent to the Millennium Manager.

- Close and lock the terminal.

- This message appears on the VFD:

```
CARD SERVICE ONLY
```

See this	**Pre-1.9-vintage terminals**
	Terminals with firmware of MSR 1.6, 1.7, or 1.8 vintage show the following prompt:
	``` Coin service not available ```

c) **If you want to take the terminal entirely out of service**, press 3.

- This message appears on the VFD:

```
Message activated
Op code sent to NCC
```

- Operation code 999 is transmitted to the Millennium Manager.

- Close and lock the terminal.

Millennium terminals: using the craft interface

• This message appears on the VFD:

```
        YY-MM-DD
*    out of service    *
```

Desk terminal: Press #.

Putting into service

If the terminal has been put out of service with the proce-dure described in **Putting out of service** on page 3-47, return it to service with this procedure:

1. **Access the initial maintenance prompt** as ex-plained in **Accessing the maintenance prompt on page 3-7**.

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Close and lock the terminal.**

   Desk terminal: Press #.

4. **The terminal is now back in service. If you need to run craft interface tests, re-enter your access code and PIN.**

Fix telephone number

During the INSTALL routine, a telephone number is entered that identifies the terminal. The Millennium Manager uses this number as a unique ID to identify which tables to download to the terminal and also to identify the records that come from the terminal.

Therefore, it is imperative that the number entered is correct.

If an incorrect number is entered, and it is not a number which has been set up on the Millennium Manager as a valid terminal number, the INSTALL will not work and the craftsperson will have to run the INSTALL again and enter the correct number.

However, a number may be incorrect but because it is a number recognized by the Millennium Manager — for another terminal, for instance — the INSTALL may work, but the tables and records would be wrong.

It is preferable to re-run the INSTALL routine to correct this situation, since you have to re-run the download anyway.

However, if it is desirable to just change the number and do a download, use the following steps:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press** ✳

    The first menu item appears on the VFD.

3. **Enter 349 on the keypad**.

    This message appears:

    ```
    349. Fix telephone #
    Use 1=DO IT, #=BACK
    ```

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4. **Press 1.**

   This message appears on the VFD:
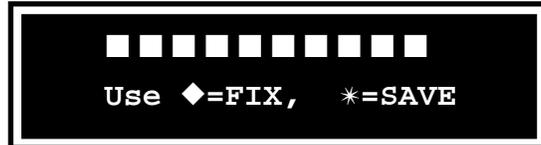
   ```
   ■ ■ ■ ■ ■ ■ ■ ■ ■
   Use ◆=FIX,  ✳=SAVE
   ```

5. **Enter the correct number.**

6. **Press ✳**

   This message appears:

   ```
   349. Fix telephone #
   Use 1=DO IT, #=BACK
   ```

7. **Press #.**

   This returns you to the first menu prompt.

8. **Select the download prompt.**

   Refer to **Millennium Manager download** on page 3-
   34.

9. **To end the maintenance session, close and lock
   the terminal.**

   Desk terminal: End a session by pressing #.

See this	**MTR 1.9 and SmartCity terminals**
Vintage alert!	The following menu items are available only for these terminals and must be accessed using the numeric codes. When **# = BACK** is selected, the terminal returns to the initial maintenance prompt.

Fix Millennium Manager (NCC) number

Use this menu item if you need to change the Millennium Manager phone number and you do not want to have to go through the install procedure.

To change the Millennium Manager number, follow these steps:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press** ✶

   The first menu item appears on the VFD.

3. **Enter 362 on the keypad**.

   This message appears:

   ```
   362. Fix NCC number
   Use 1=DO IT, #=BACK
   ```

4. **Press 1.**

This message appears on the VFD:

```
■ ■ ■ ■ ■ ■ ■ ■ ■
Use ◆=FIX,  ✳=SAVE
```

5. **Enter the correct number.**

6. **Press** ✳

This message appears:

```
362. Fix NCC number
Use 1=DO IT, #=BACK
```

7. **Press #.**

   This returns you to the first menu prompt.
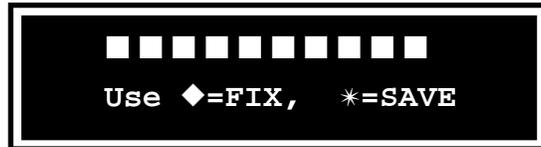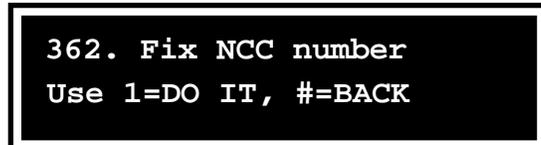
8. **To end the maintenance session, close and lock the terminal.**

   Desk terminal: End a session by pressing #.

Fix pre-dial string

The pre-dial string is a number from one to eight digits long and is entered during the INSTALL procedure in front of the MIllennium Manager modem pool number.

The pre-dial string is an optional feature, which is determined by switch requirements.

If you enter the wrong string, the terminal will not be able to connect to the Millennium Manager modem pool, even if you entered the correct Millennium Manager number.

Follow these steps to change the pre-dial string:

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press** ✷

   The first menu item appears on the VFD.

3. **Enter 737 on the keypad**.

   This message appears:

   ```
   737. Fix String
   Use 1=DO IT, #=BACK
   ```

4. **Press 1.**
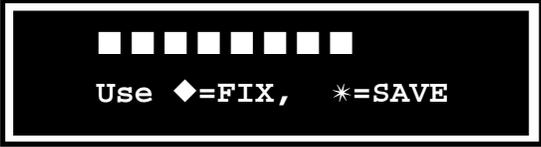
   This message appears on the VFD:

   ```
   ■ ■ ■ ■ ■ ■ ■ □
   Use ◆=FIX,  ✷=SAVE
   ```

5. **Enter the correct number.**

6. **Press** ✷

   This message appears:

   ```
   737. Fix String
   Use 1=DO IT, #=BACK
   ```

7. **Press #.**

   This returns you to the first menu prompt.

   To end the maintenance session, close and lock the terminal.

   Desk terminal: End a session by pressing #.

8. Be sure you test the feature by making a data call to the Millennium Manager.

Uninstalling the terminal

Use the following procedure to uninstall terminals when you need to replace the control PCP, the firmware, the validator or the escrow.

See this **Vintage alert!**	**Pre-MTR 1.9 terminals** Arrange a coin box collection before you uninstall any non-MTR 1.9-vintage terminal, otherwise the coin box records between the terminal and the Millennium Manager may disagree.

This procedure ensures that terminal records are uploaded to the Millennium Manager. Otherwise, replacing these components would result in the loss of the records.

1. Put the terminal out of service, as described in **Putting out of service** on page 3-47.

2. Upload the terminal records. Refer to **Uploading CDRs** on page 3-38.

   Vintage alert: SmartCity (or any e-purse application): Upload transaction records

3. Close and lock the terminal with the T-tool.

See this	**Inmate terminals** **Slide up** the left vertical housing tiebar to simulate locking the terminal.

4. Enter your access code and PIN again and press ✳.

5. Unlock the terminal housing, but do not open it.

See this	**Inmate terminals** **Slide down** the vertical left housing tiebar to simulate unlocking the terminal.

6. Press # on the keypad. The terminal is now uninstalled.

Re-installing the terminal

When you have completed your maintenance procedures and you are ready to re-install the terminal, follow these steps:

1. Reconnect power to the terminal

2. Remove your ESD wrist strap connect from the terminal.

3. Close and lock the terminal.

This message appears on the VFD:

```
            Out of Service
```

4. To re-install the terminal, enter the craft interface.

This message appears on the VFD:

```
Not installed
Use # to INSTALL
```

5. Press # to run the INSTALL routine as described in Chapter 2.

SmartCity application prompts

This section describes the two prompts which are specific to terminals with the SmartCity (FSU) application firmware. Currently, this application is only available on Multipay terminals.

These prompts allow you to:

- upload FSU smart card records to the SmartCity collection center

- check that a SAM is installed in the terminal and that the terminal recognizes the SAM.

Uploading SmartCity transaction records

The following menu item uploads the smart card records for this application.

1. **Access the initial maintenance prompt** as explained in **Accessing the maintenance prompt on page 3-7.**

2. **Press ✻.**

   The first menu item appears on the VFD.

3. **Enter 378 on the keypad**

   This message appears on the VFD:

   ```
   378. FSU records
   Use 1=DO IT, ✻=NEXT
   ```

4. **Press 1.**

   - If there are transaction records in the terminal, the terminal will display this prompt:

   ```
   FSU records present
   Press ✻ to upload
   ```

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• If there are no records, this prompt will display:

```
No FSU records
To continue, press  ✳
```

5. **Press ✳.**

   When the records have uploaded, this message appears on the VFD:

```
378. FSU records
Use 1=DO IT,  ✳=NEXT
```

6. **Press ✳ to continue to the next item.**

   To end the maintenance session, close and lock the terminal.

Checking the SAM

The following menu item checks the SAM (secure application module) installed in the terminal and initializes it.

1. **Access the initial maintenance prompt** as explained in the section **Accessing the maintenance prompt on page 3-7.**

2. **Press ✳.**

   The first menu item appears on the VFD.

3. **Enter 277** on the keypad or press ✳ until this message appears on the VFD**:**

```
277. Check FSU SAM
Use 1=DO IT,  ✳=NEXT
```

4. **Press 1.**

- If the SAM is okay, this prompt displays:

```
SAM is okay
To continue, press *
```

5. **Press *.**

    This message appears on the VFD:

```
378. Check FSU PSAM
Use 1=DO IT, *=NEXT
```

6. **Press * to continue to the next item.**

    To end the maintenance session, close and lock the terminal.

SAM errors

If there is a problem with the SAM, the terminal displays:

```
SAM Not Responding
To continue, press *
```

1. **Press * to return to the main prompt.**

2. **Enter the terminal and change the SAM.**

WARNING	When changing the SAM
	Ensure that you: • attach an ESD wrist strap to a grounding point in the terminal • disconnect the power from the rear terminal PCP
Failure to follow these precautions will result in damage to the control PCP.	

3. Re-run **steps 3** and **4** of **Checking the SAM** on page 3-59 until the SAM test passes.

4-1

4 Testing terminal function

Once you have successfully installed the terminal on the wall and have downloaded the terminal tables into the terminal, you need to test terminal functions.

You also run these tests after any maintenance procedures where you replaced modules, to confirm that the terminal still functions as expected.

When you install new firmware, there may be special testing instructions given to you to test new functions.

Testing overview

These tests ensure the terminal meets operating requirements.

This procedure verifies the operation of the buttons, and the ability of the terminal to:

- make calls with all payment options available to the terminal:

    — coin local

    — coin long-distance/interLATA

    — credit card

    — calling card, using card reader and entered manually

    — smart card

    — operator call

- test for valid coin acceptance and rejection of non-valid coins

- accept an incoming call, if the terminal can receive one

- use the quick access keys to autodial numbers, if the option is present

- make a datajack call or confirm the line is open, if the option is present

- test the smart card alert, if the option is present

Specific testing procedures

Once the terminal is closed and appears to be in working order, perform the following tests:

Testing the special buttons

1. **Lift the handset off-hook.**

   This message appears on the VFD:
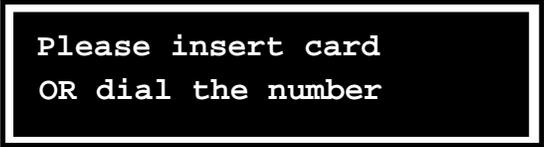
   ```
   Please insert card
   OR dial the number
   ```

   The handset emits a dial tone.

   The voice prompt asks the caller to insert a payment or dial a number.

2. **Press the language button**, which is beside the ◆ button and the VFD display will change to the alternate language.

   The voice prompt will repeat the initial prompt in the alternate language.

3. **Press the language button again** and the VFD and the voice prompts will return to the first language**.**

4. **Press the V+ (▲) button.**

   Each time you press the button, the volume of the dial tone and voice prompts goes up a level. Four levels are available.

5. **Press the V- (▼) button.**

   Each time you press the button, the volume of the dial tone and voice prompts goes down a level. Four levels are available.

Testing the quick access keys

If the terminal has quick access keys, lift the handset and press one of the keys on the quick access keys bezel.

- The handset produces DTMF tones.

- The number being dialed appears on the VFD.

- After dialing is completed, the handset produces the ringback signal

When you establish a two-way conversation, one of these messages appears on the VFD:

```
To make another call
press the ◆ button
```

```
Use ◆ for next call
(advertising ........)
```

Testing the card reader

1. **Insert your test mag-stripe card completely**, and following a short delay, an attention tone sounds.

   The voice prompt says: **"Please remove your card"**.

   This message appears on the VFD:

   ```
   *   Please remove   *
       your card
   ```

   If the VFD or voice prompts ask you to hang up, do so and continue following the current step.

   Note: If you use a calling card as a test card, the prompts may be slightly different. Follow the prompts you receive.

2. **Remove your card in one smooth movement.**

   The terminal performs a preliminary plausibility check on the data read from the card.

   If the card fails the plausibility check, an attention tone sounds and this message appears on the VFD:

   ```
   Insert entire card then
   remove quickly
   ```

   The voice prompt says: "**Try again. Please completely insert your card".**

   In this case, go back and repeat **Step 1** and **2**.

   If that still does not work, use a different card**.**

   If that does not work, enter the terminal and check the card reader connection. If the connection is okay, and the card reader still does not work, replace the card reader.

If the card passes the plausibility check, this message appears on the VFD:

```
*   Thank you   *
Dial the number
```

Note: If the terminal also accepts smart cards, also insert a test smart card which has a value greater than zero and follow the prompts to make sure the smart card switch in the reader is working properly.

Checking the line

To ensure the line is set up correctly, do the following:

1. Lift the handset off-hook and call the operator. Ask the operator to verify the telephone number of the terminal and that the telephone is designated as a Millennium terminal.

2. If the terminal can receive incoming calls, ask the operator to call you back.

3. If the line to the terminal supports the Automated Calling Card Service, dial 0 plus the number. In response to the bong tone, enter the calling card number. Make sure the call connects.

Operating the terminals

Millennium terminals have several modes of operation. These modes define levels of operation, and include:

Full service: All payment types are available to the caller, and all call types allowed by the terminal can be made.

Downgraded service: One of the payment types has been taken out, either by a hardware failure or deliberately by the craftsperson. The VFD will display a prompt identifying the payment type which is still operable.

See this	MTR 1.9-based terminals
Vintage alert!	This terminal has the option to have these prompts flash on and off during display.
See this	MSR 1.6, 1.7, 1.8-version terminals
Vintage alert!	The prompts show which service has been taken out.
See this	Coin basic w/o display terminal
Vintage alert!	Since this terminal does not have a VFD, the only way this level of service is indicated is that no coins or calling cards will be accepted as payment.

Restricted service: Only certain call types and payment types are allowed. This is configurable by the operating company, for instance to introduce only emergency calls during an overnight period. The VFD indicates that only restricted service is available during these periods.

Power Fail: The supplementary power has been disrupted or the control PCP is not getting power. Only emergency and free calls are allowed.

- The VFD is blank, and no payment functions work.

- There is a dial tone but no voice prompts.

- The called numbers to be allowed during this time must be entered in the first 10 lines of the Call Screening list, and must be designated as Free calls.

Out of Service: No service is available. Either there has been a total power failure, the control PCP has lost its memory, or there is a problem with the terminal functions or components that affect terminal service.

- There is no power if the VFD is blank and there is no dial tone through the handset.

- If the VFD displays `Out of service`, then there is power to the terminal, but a problem exists with some other terminal function or component.

- If `Telephony board not responding` displays, it indicates a problem with the telephony PCP.

Making calls

In the following section, the call process is explained for each payment type accepted by the various Millennium terminals.

- All terminals offer free and emergency call capability.

- The **Multi-pay terminal** offers coin and card payment options.

- The **Desk, Card,** and **Inmate terminals** only accept cards.

- The **Coin basic w/o display** and the **Coin basic w/ display** only accept coins and manually-entered calling card numbers.

- Terminals with **e-purse** applications accept various types of reloadable cash cards as well as the usual mag-stripe, smart cards, and coins.

- Terminals equipped with a **datajack** connector allow data calls made with credit cards, calling cards, or smart cards.

In the idle or on-hook state, the terminal is disconnected from the C.O. line. When the caller lifts the handset off-hook, the handset emits a dial tone, which is produced by the telephony PCP.

Using a credit or calling card

This section refers to any card which has a mag-stripe. Not all such cards will be recognized by the terminal. It is up to the operating company to define which cards are accepted.

Figure 4-1 shows the terminal features which support using cards to make a call.

Figure 4-1: Using cards to make calls

Instruction card indicates specific brands of cards accepted

VFD displays smart card credit and rate information

Next-call button allows multi-calls without revalidating card

Number can be dialed before or after card inserted

Handset must be off-hook

Card inserted into card reader slot

Icon indicates types of cards accepted by card reader (mag stripe and/or smart card)
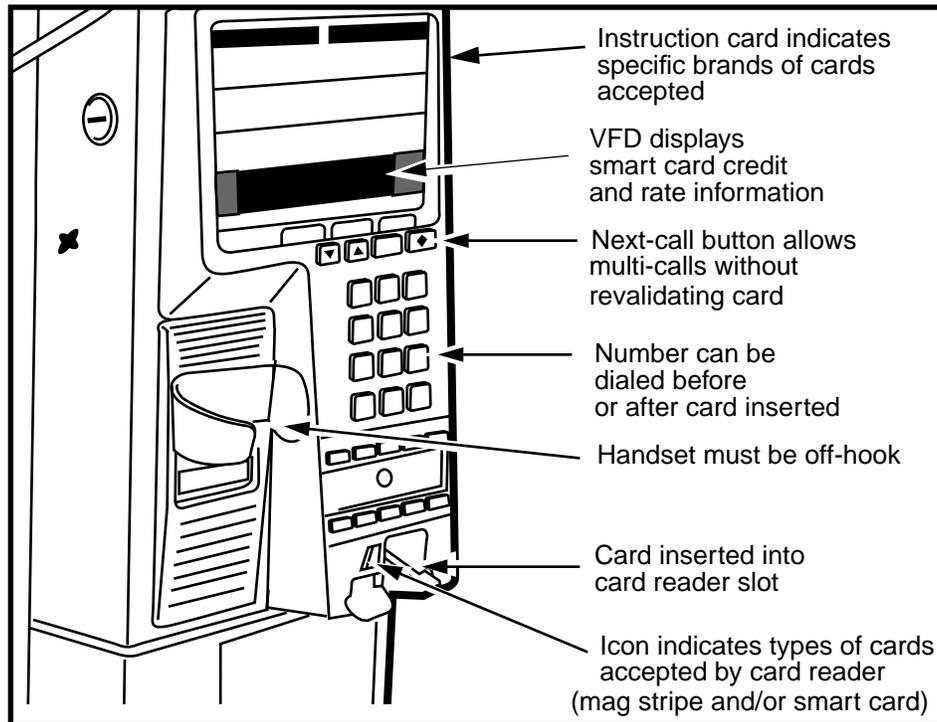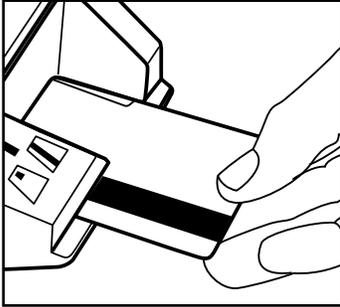
1. With the handset off-hook, the caller inserts and re-moves a credit or calling card, then dials a telephone number. Or the number can be dialed before any payment selection is made, in which case the terminal prompts for a payment choice.

    •   Mag stripe cards must be inserted in the card reader with the magnetic stripe facing upward and to the left.

    •   The caller must remove the card to proceed with the call.

    •   The card is read twice, on entry and removal.

    •   If the card is not removed from the reader, the terminal will prompt the caller to remove the card. The call will not proceed until the card is removed.

    Note: If the number is dialed before a payment type is chosen, the terminal will flash the default rate on the VFD. This is usually the coin rate.

2. When the caller inserts a card, the terminal makes sure there is a magnetic stripe on the card and then makes a data connection to the Millennium Manager.

    •   If the caller uses a calling card, the terminal may connect to a card validation service.

3. Card validation occurs, the verification call is disconnected, and the terminal selects the carrier chosen by the caller, or the default carrier if one was not selected.

4. If the caller has not dialed the telephone number, the terminal prompts for the number. If the card and the number are valid, the terminal dials out to the switch.

5. Once the call is answered, call supervision occurs. At this time the terminal may begin creating a call detail record (CDR) for the call, depending on what types of calls it has been configured to record.

6. When the caller hangs up, the terminal returns to the idle state.

4-10 Testing terminal function

> *Note:* Terminals can be configured so that calling cards
> are validated by the Automated Calling Card Service
> (ACCS) at the Central Office Network or to Alternate
> Operator Services instead of through the Millennium
> Manager.

Using smart cards

Smart cards refer to any card which uses an electronic
chip. Just like mag-stripe cards, not all smart cards will be
recognized by the terminal. It is up to the operating com-
pany to define which cards are accepted.

Cards with reloadable features, such as e-purse cards,
need specific applications on the firmware in the terminal
before the terminal will accept the cards as payment op-
tions. However, the same steps given below are used to
make a call with such cards.
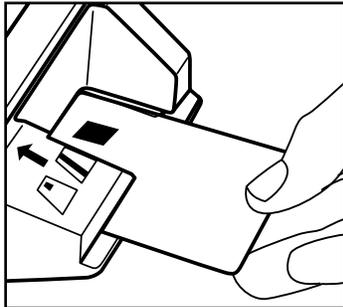
1. **The caller inserts the smart card either before or
   after a number is dialed.**

   • Smart cards must be inserted with the chip facing
     up and towards the front of the card.

   • These cards remain in the card reader for the du-
     ration of the call.

   • The VFD shows the value on the card. If the num-
     ber has been dialed, it shows the initial rate.

   • When the call is complete, a visual prompt reminds
     the caller to remove the card.

See this **Vintage alert:** **MTR 1.9**	*Note:* If the number is dialed before a payment type is chosen, the terminal will flash an initial rate on the VFD. This is usually the coin rate, however, the operating company can configure the default rate to be the smart card rate, if desired. If the initial rate is a coin rate, and the caller inserts a smart card, the terminal will correct the rate amount shown.

2. The terminal makes sure there is a data chip present, with a valid card number sequence.

3. The VFD displays the money remaining on the card and prompts the caller to dial the number, if that has not already been done. If no money is left on the card, the caller is asked to insert a different card.

4. The terminal performs a rate request for long distance calls, and displays the initial and subsequent long distance charges.

5. If the card has sufficient value, the terminal dials out the number entered by the caller.

6. The terminal selects the carrier chosen by the caller, or the default carrier if a carrier was not selected.

7. Once the call is answered, call supervision occurs.

   Vintage note: MTR 1.9-based terminals create a summary record for each new type of smart card used to make a local call for up to 12 different cards. These records create CDRs. The operating company uses these records to track the different types of smart cards being used.

   This option is also available in terminals with the SmartCity application, but only for GPM103 smart cards.

8. The VFD displays the time left, based on the value on the card as the call proceeds. If the call has a flat rate charge, no countdown is shown.

9. If the caller removes the card before hanging up, the timer shows the pre-paid time remaining on the call. If a new card is not inserted before this time expires, the call ends and the caller is prompted to `Please Hang-up`.

   The call is also shut down when no money remains on the card in the card reader.

10. When the caller hangs up, the VFD displays briefly the balance left on the card and prompts the caller to re-move the card.

- Any time the caller hangs up or presses the next call button (◆), the set displays the balance re-maining on the card.

- **Smart card alert:** on terminals equipped with this feature, an alarm will sound if a smart card is left in the card reader for a pre-determined time after the handset is put back on-hook.

Using coins to make a call

Make a local call, the caller inserts the correct change and dials the number. Or the caller may first dial the number.

If a caller deposits more than the amount for a local call, the terminal will not refund the difference. However, if the caller has not replaced the handset on-hook, the ◆ button can be used to make more calls until the balance is used.

Make a toll call:

1. The caller picks up the handset, hears the dial tone, and dials the telephone number or inserts a coin.

2. A data connection is made between the terminal and Millennium Manager.

- *Vintage note:* MTR 1.9-based terminals have a post-payment rate request feature whereby, If the number is dialed before a payment type is chosen, the terminal will flash an initial rate on the VFD. This is usually the coin rate.

- If a coin is inserted before the number is dialed, the terminal displays the amount required to complete a local call. Once the number is dialed, the terminal downloads the call rate from the Millennium Man-ager and displays the amount of money needed for the initial call period.

- If the caller inserted enough coins before dialing the number, the terminal dials out immediately.

3. When the caller inserts the correct amount, the terminal selects either the default carrier or the carrier chosen by the caller and dials the call.

4. Once the call is answered, call supervision occurs. If the terminal is configured to collect call records for coin calls, a record would be started at this point.

5. When the caller hangs up, the terminal returns to the idle state. Extra payment is not returned.
Coins are deposited in the coin box.

Figure 4-2 shows the terminal features which support coin calls.

Figure 4-2: Using coins to make a call
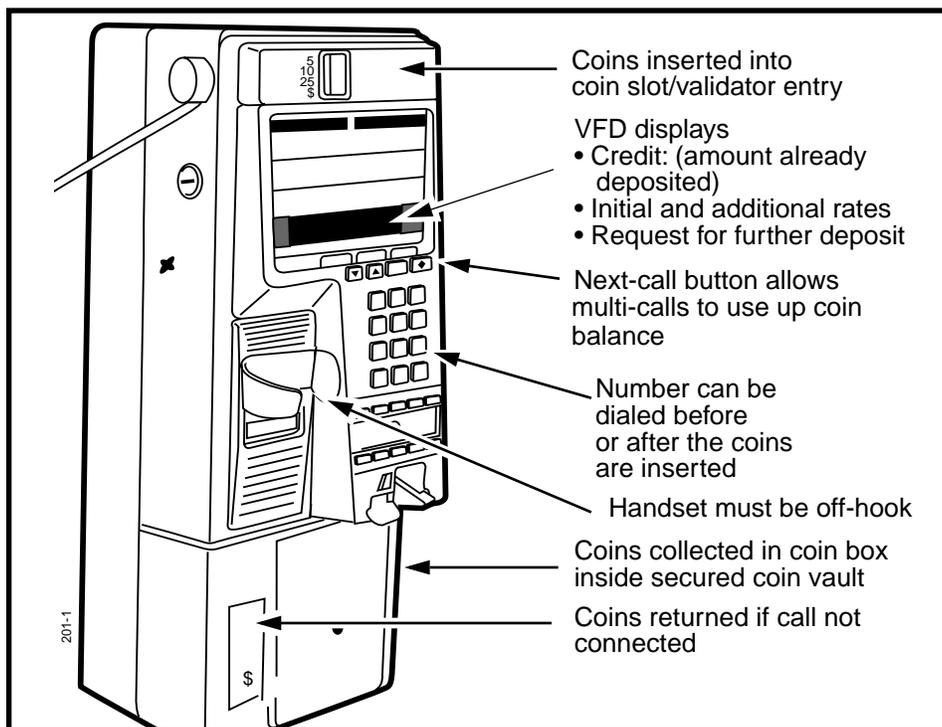
Free calls

For free calls, including operator calls, the caller lifts the handset off-hook and dials the number. The number is automatically dialed out.

Autodial calls

Quick access keys dial pre-selected numbers, such as taxi companies or car rental agencies or free or emergency numbers, when the caller presses the appropriate button. The numbers are entered by the operating company and can be designated as free or can be individually rated. Not all terminals will have these key sets.

Figure 4-3 shows the terminal features which are used to make free calls and autodial calls.

Figure 4-3: Dialing out free calls or autodial calls
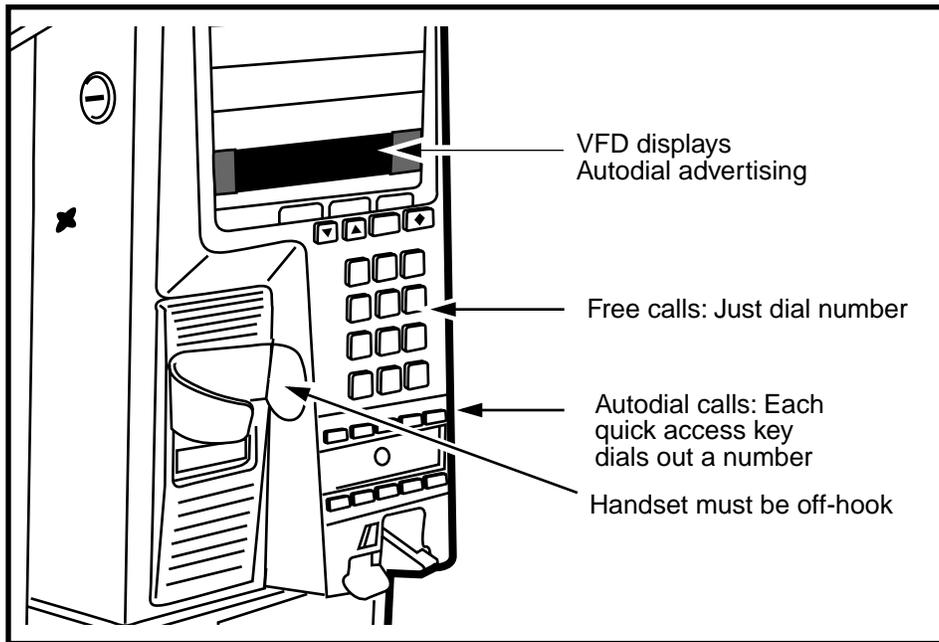
Incoming calls

The terminal can be configured to accept incoming calls. When this feature is active and a call comes in and is answered, the terminal emits a specific DTMF tone which indicates to the switch that an incoming call has been answered.

At that point, no numbers dialed out from the terminal are acknowledged by the switch until the handset is replaced on-hook, ending the incoming call.

Datajack calls

Datajack calls are initially set up in the same manner as other calls:

1. The caller dials a number and/or inserts a card.

    -   Datajack calls cannot be made using coins.

    -   The cards are validated as normal.

2. The caller presses # twice (##) to initiate a data call.

3. If the caller has not already done so, the data equipment is plugged into the datajack connector on the card reader bezel.

    Desk terminal: The datajack teladapt is located on the left side of the terminal, by the handset.

4. The modem in the equipment dials the number and proceeds with the call.

    Once the terminal obtains answer supervision, it prompts the caller to return the handset on-hook. This prevents the data from being interrupted by noise.

5. The call is complete when the modem hangs up. The caller then unplugs the equipment from the card reader teladapt.

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Figure 4-4: Making datajack calls using cards

initiates a
datajack call

Datajack teladapt
in card reader bezel

Insert card
for payment

Handset must be off-hook
to initiate a datajack call
Return handset when
datajack call is connected

201-1
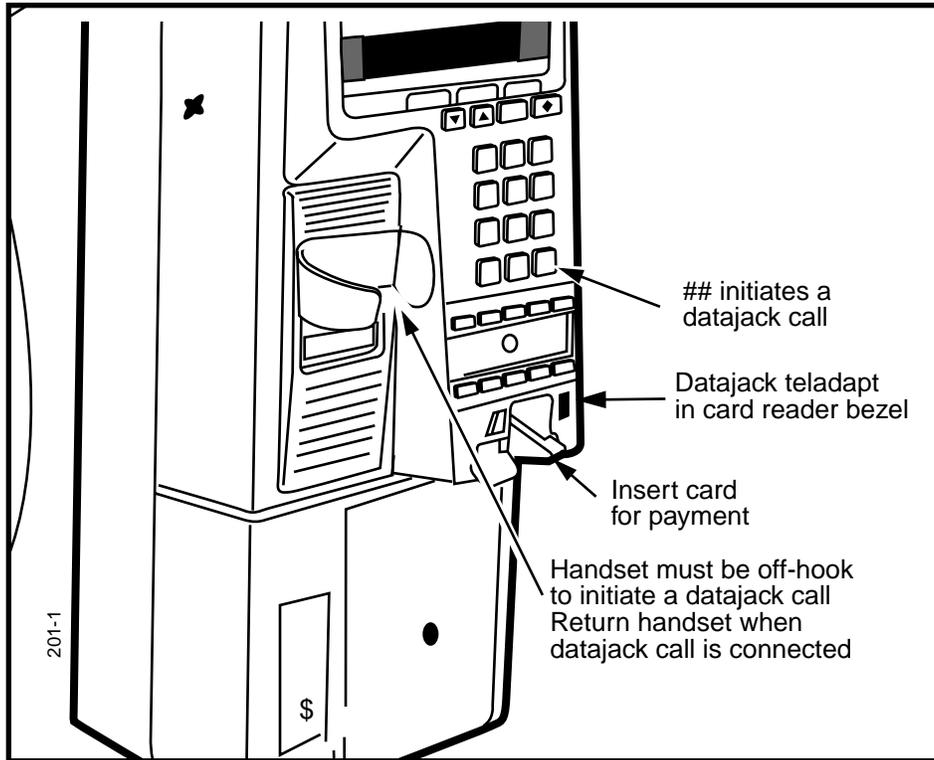
Using the ADS feature

If the ADS (audio-gram delivery service) is available to the terminal (MTR 1.8 and 1.9-vintage terminals), the caller can choose to leave a voice message for the number being called. There are two situations when this feature can be activated, both are described in the following call process:

1. The caller uses one of the call processes described above to initiate a call.

2. There are two choices open to the caller:

    • If the caller just wants to leave a message for the called party, as soon as the number is dialed out, the caller presses the ✳ key on the keypad. If the terminal has quick access keys, there may be a message key indicated.

    • If the caller receives a pre-configured number of busy or ring-no-answer, the terminal will prompt the caller to press the ✳ or the message key if the caller wishes to leave a message for the called party.

3. Once the ✳ key or the message key is pressed, the ADS service prompts request additional payment, if the original call was a coin call, or display the ADS call rate.

4. The prompts direct the caller to leave a message.

5. The service is disconnected when the caller hangs up.

4-18 Testing terminal function

5-1

5 Operation codes interface

Operation codes are messages you send to the Millennium Manager from the terminal using the craft interface operation codes interface.

- Each code is up to three digits long.

- The operating company specifies the meanings of most operation codes. There are four codes which are defined by the Millennium Manager and are not accessible by the craftsperson.

- If you have operation code-level privileges in the craft interface, the operating company provides you with an instruction card that explains the codes relevant to your task.

See this 	**Inmate and Coin basic w/o display terminals** These terminals do not have VFDs. You could still enter operations codes from the operations level interface on these terminals, but there would be no visual confirmation of the numbers you sent or any indication if the session automatically ended. If you have maintenance-level privileges, use the maintenance level interface to enter operations codes, as described in Chapter 3.

Here are examples of possible codes

87	Repair required (8); to the card reader (7)
97	Repair performed (9); new card reader installed (7)
15	Contractor (1); booth cleaned (5)
160	Contractor (1); quality-booth clean verification (6); unsatisfactory performance (0)

Figure 5-1 and Figure 5-2 show a sample of two sides of an instruction card.

Figure 5-1: Operation-code instruction card, front

Figure 5-2: Operation-code instruction card, back

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Entering operation codes

In a single session you can enter up to eight codes.

The codes are sent to the Millennium Manager when the session ends.

You can do multiple sessions, if necessary.

Note: If you have maintenance level privileges in the craft interface, refer to **Entering operation codes** on page 3-31.

Establishing a session

The following steps describe how to access the operation codes level of the craft interface and how to enter operation codes at this level.

1. **While the handset is on hook, enter the seven-digit access code on the keypad.**

   For a terminal in normal operation, use the access code on your instruction card. If that code is not in the memory of the terminal, use the default access code on your instruction card.

   As you enter the code, the numbers do not appear on the vacuum fluorescent display (VFD). This is to discourage vandals and curious users.

Entry timeout

If 12 seconds elapse between button presses while entering the access code, the terminal times out. It does not give a time-out notification.

Correcting entry errors

If you make a mistake while entering the code or suspect the terminal has timed out, lift the handset, and put it back on hook. Alternatively press the ◆ button. Then re-enter the access code.

After you enter the access code correctly, this message appears on the VFD:

```
Enter PIN: ■ ■ ■ ■ ■
◆=FIX, ✳=SAVE, #=STOP
```

2. **Enter your five-digit personal identification number (PIN).**

   As you enter the numbers, they appear on the VFD.

   If you make a mistake, press ◆ to erase the VFD and re-enter the number.

3. **When the number is correct, press ✳.**

   - If you have only operation code-level privileges, this message appears on the VFD:

   ```
   Enter op code: ■ ■ ■
   ◆=FIX, ✳=SAVE, #=STOP
   ```

   Follow the remaining steps of this procedure.

   - If you have maintenance-level privileges in the craft interface, this message appears on the VFD:
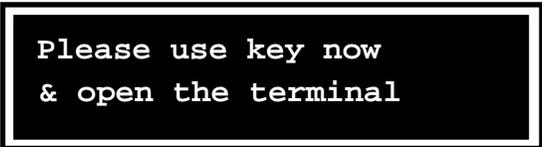
   ```
   Please use key now
   & open the terminal
   ```

   If this message appears, refer to **Entering operation codes** on page 3-31.

Terminal timeout

If 30 minutes elapse between button presses during a session, the terminal times out, and returns to the idle state, and you must start from the beginning.

---

4. **Enter operation codes.**

   - Each code that you enter during the session dis-
     plays on the VFD.

   - If an operation code has only one or two digits, do
     not enter leading zeros.

   - If you make a mistake, press ◆ and re-enter the
     code.

5. **When the operation code is correct, press ✳.**

   After you save each operation code for the session, up
   to the eighth code, the code just entered disappears
   from the display, and the rest of the prompt remains
   unchanged.

6. **To end the session, do one of the following:**

   - Press the # (STOP) after keying in the final code.
     This action saves the final operation code.

   - Press ✳ (SAVE) and then # (STOP).

   The terminal returns to the idle state.

7. **If you enter an eighth operation code, press ✳.**

   - After saving the eighth code in a single session, a
     message appears on the VFD saying you have en-
     tered the maximum of eight codes and the session
     is ending.

   - The message remains on display for 4.5 seconds,
     then the terminal returns to the idle state.

   - If you want to enter more operation codes, you
     need to initiate a new session.

If you try to enter more than eight operation codes in a sin-
gle session, this message appears on the VFD:

```
Last code not saved
Maximum of 8 codes
```

When the session ends, the entered codes are sent to the Millennium Manager along with your PIN. The Millennium Manager checks that your PIN grants you access to the terminal.

Reserved codes

Operation codes in the 900 to 999 range are terminal-status indicators used to notify the Millennium Manager of events during maintenance level sessions.

Only users with maintenance-level privileges can use these reserved codes.

If you enter a reserved operation code but lack maintenance level privileges, this message appears on the VFD:

```
Not a valid op code
Try again
```

The message displays for 4.5 seconds, then this message appears on the VFD:

```
Enter op code: ■ ■ ■
◆=FIX, ✳=SAVE, #=STOP
```

A-1

Appendix A: List of alarms

Table A-1 lists the alarms issued by the terminal to the Millennium Manager. Table A-2 explains the alarms in detail, including the appropriate corrective actions, when required.

Saving CDRs

It is important to upload CDRs (call detail records) from the terminal before performing maintenance tasks inside the terminal. Although records may not be directly affected by what you are doing, uploading the CDRs assures that the terminal records are up-to-date as of the time of maintenance, should something prevent the terminal from regaining operation. Refer to **Sending CDRs to the Millennium Manager** on page 3-37.

Note: Uploading CDRs also uploads a the cash box status record for MTR 1.9 and MTR 2.0 vintage terminals.

Before you enter the terminal

To access the inside of the terminal you require maintenance-level privileges, an upper housing key, and a locking tool (T- or L-tool).

You may need to access the terminal if the terminal is out of service or if you ran the craft interface tests and discovered a faulty component.

- If you know you will be replacing the control PCP or firmware on it, uninstall the terminal before you start replacing parts. After you replace those parts, run the INSTALL routine when you are ready to re-activate the terminal.

- If you replace the telephony PCP, run the download procedure to re-activate the terminal.

Table A-1: List of alarms

Alarm code:	Alarm description
0	Handset discontinuity
1	Telephony board not responding
2	SAM not present or not responding
3	SAM locked out
4	SAM expired
5	SAM transaction threshold reached
6	Unable to reach collection system on primary number
8	Power fail
9	Display not responding
10	Voice synthesis not responding
11	Unable to reach collection system on alternate number
12	Card Reader blocked alarm
16, 17, 18, 19	CDR checksum error, statistics checksum error, terminal table checksum error, other data checksum error
20	CDR list full
22	Control microprocessor RAM contents lost
24	Station access cover open
25	Stuck button
26	Set removal alarm

Table A-1: List of alarms (continued)

27	Cash box threshold met
28	Coin box cover opened
29	Cash box removed
30	Cash box full
31	Validator jam
32	Escrow jam
33	Validator hardware failure
34	Central office (C.O.) line check failure
35	Dialog failure
37	Dialog failure(s) during collection session
99	Un-alarm

Table A-2: Detailed description of alarms

Alarm code:	The code the Millennium Manager gives to this alarm condition.
Message:	What the code means
Description:	A description of the possible causes of the problem.
Action:	A description of the corrective action to take to return the terminal to service.

Table A-2: Detailed description of alarms (continued)

0	**Message: Handset discontinuity**
Description:	Occurs when there is a discontinuity in the handset receive circuit, indicating: • a severed handset cord • a handset cord failure • a detached connector at the telephony PCP (J15) Handset continuity is monitored by an electrical continuity check through the receive path while the handset is off-hook. The control PCP checks the telephony PCP status, typically every 60 seconds. If there is a discontinuity, the control PCP notes the failure but does not take the terminal out of service. The control PCP monitors the situation for five minutes. If continuity is not re-established, the terminal displays `Out of service`, and this alarm is transmitted.

Action:	1. Check the handset connector on the telephony PCP.
	 2. Visually inspect the handset for abuse or vandalism.
	 3. If the handset and cord look okay:
	   a) Disconnect power
	   b) Plug in a spare handset to the telephony PCP connection
	   c) Reconnect power
	   d) With the handset off-hook, listen for dialtone
	 4. If you can hear dialtone on the spare set, replace the handset.
	 5. If you don't hear dialtone on the spare set, replace the telephony PCP. *Note:* If you replace the telephony PCP, remember to do a download to re-activate the terminal.

Table A-2: Detailed description of alarms (continued)

1	**Message: Telephony board not responding**
Description:	Occurs when there is a communication problem with the tele-phony PCP, such as: • a control PCP query times out while waiting for a re-sponse from the telephony PCP • the interprocessor connector between the telephony PCP (J2) and the control PCP (J17) is not connected. When a communication problem is detected, the control PCP attempts to query the telephony PCP four times. • If these attempts fail, the alarm is sent immediately to the Millennium Manager and the display indicates **Telephony board not responding.** • If communication between the control and telephony PCPs resumes, the status returns to normal. When a terminal is first installed, the display may indicate **Telephony board not responding.** This occurs if the super capacitor on the telephony PCP, which powers the telephony microprocessor, is not charged. • The super capacitor is charged from the C.O. line. • Place the handset on-hook until the capacitor is charged.
Action:	1. Check for sufficient voltage on tip and ring. 2. Check the telephony/control PCP connector. 3. Make a call to verify telephony operation. 4. If the problem continues a) Upload the call detail records (CDRs) b) Replace the telephony PCP c) Perform a forced download using menu item 369.

Interconnect cable

Table A-2: Detailed description of alarms (continued)

2	Message: SAM not present or not responding
Description:	Occurs after the terminal is powered up and does not detect a SAM.
Action:	This error may occur if there is no SAM in the first socket, or it can occur if the SAM is not readable. 1. Check and make sure there is a SAM in the first socket. 2. If an SAM is present, take it out, clean it, then replace it and try powering up the set again. 3. If the error recurs, perform a forced download to re-establish the pertinent tables. 4. If the error continues to occur, replace the SAM.
3	**Message: SAM locked out**
Description:	This error relates to SAMs with PINs. If the SAM being used does not have a PIN, this message indicates a faulty SAM.
Action:	Replace the module.
4	**Message: SAM expired**
Description:	Occurs when the SAM module has reached its internal expiry date.
Action:	This message indicates that the SAM needs replacing. The terminal can be configured to continue to accept e-purse cards once the SAM expiry date is reached. Upload transaction records then: Replace the SAM when convenient, if cards can still be accepted. Replace the card immediately if cards are to be rejected when the expiry date is reached.

e-purse terminal

e-purse terminal

e-purse terminal

Table A-2: Detailed description of alarms (continued)

5	**Message: SAM transaction threshold reached**
Description:	Occurs when the SAM has reached the limit of transaction records it can contain.
Action	This warning message indicates that the SAM is wearing out. Replace the SAM immediately.
6	**Message: Unable to reach collection system on primary number**
Description:	Occurs when a terminal attempts to upload e-purse transaction records but cannot connect to the Collection system.
Action:	No action is required. This is a warning message. The terminal will switch to the alternate access number if it still has not connected after the configured number of retries.

e-purse terminal

e-purse terminal

- The terminal will retry the transmission, or the maintenance person can retry the transmission through the craft interface.
- If the connection still cannot be made, contact the system administrator of the collection system and confirm the status of the modems.
- If a craftsperson is on-site, the craft interface can be used to force a download to reprogram the terminal with the primary number.

    MTR 2.0 terminals: The terminal automatically reverts back to the primary number at the next scheduled call-in.

A-8 Appendix A: List of alarms

Table A-2: Detailed description of alarms (continued)

8	**Message: Power fail**
Description:	Occurs when the terminal powers up after a power interruption that lasted long enough to corrupt the memory and the terminal loses part or all of its tables. • The VFD displays `Out of Service`.
Action:	If the terminal fails to call in, this may indicate a continuing problem and require a site visit. • Check the terminal for vandalism. • If the terminal cannot restart, check the outside line. • If the line is okay, run the craft interface memory tests. If the tests fail or will not run, replace the control PCP and run the INSTALL routine. If the tests pass, force a table download.
9	**Message: Display not responding**
Description:	Occurs when there is a VFD communication problem. • When the control PCP tries to send characters to the display, the display indicates it is communicating with the control microprocessor. • There is no visual indication on the display that the alarm has been sent. However, this problem may cause the display to freeze and the terminal to go out of service. • Likely causes are a damaged ribbon cable or a defective VFD or control PCP.

Action:	1. Check the display connection to the control PCP.
	2. Check the ribbon cable. If damaged, replace the display.
	3. Disconnect the power and plug a spare VFD into the control PCP. Restore the power.
	4. If the VFD works, replace the VFD.
	5. If the problem continues:
	    a) Upload CDRs and records.
	    b) Uninstall the terminal.
	    c) Replace the control PCP
	    d) Run the INSTALL routine.

CDRs may be lost

Table A-2: Detailed description of alarms (continued)

10	Message: Voice synthesis not responding
Description:	Occurs when there is a voice prompt problem.
	This could be caused by the voice chip on the control PCP being damaged or not fully seated in its socket.
Action:	**On-site indications:** The visual prompts and dial tone are available. You can make a call, but there are no voice prompts.
	1. Visually inspect the voice chip(s) for damage.
	2. Check that the voice chip is fully seated in its socket.
	3. If the problem continues:
	a) Send the CDRs to the Millennium Manager.
	b) Uninstall the terminal.
	c) Replace the control PCP (or the voice chips, if you are sure that is the problem).
	d) Perform the INSTALL routine**.**
	e) If the INSTALL fails, replace the telephony PCP.
11	Message: Unable to reach collection system on alternate number
Description:	Occurs when a terminal attempts to upload e-purse transaction records using the alternate collection system number after failing to connect using the main number.
Action:	This is a warning message which could indicate a busy modem or trouble at the collection system.
	• The terminal will re-try the transmission, or the maintenance person will re-try using the craft interface.
	• If the connection still cannot be made, contact the system administrator of the collection system and confirm the status of the modems.
	• If the craftsperson is on-site, the craft interface can be used to force a download to reprogram the set with the primary number.

e-purse terminal

Table A-2: Detailed description of alarms (continued)

13	Message: Required Table Missing alarm
Description:	Occurs after a code download if a required table does not get downloaded to the terminal.
Action:	1. System administrator: Check for the missing table and redo the download to the Millennium Manager. 2. The terminal will pick up the missing table at the next download and put itself back into service.
12	Message: Card Reader blocked alarm
Description:	Occurs when one or both of the card reader sensors are activated on-hook or in the off-hook-idle state. If the obstruction is removed, the terminal sends an unalarm to the Millennium Manager.
Action:	If the alarm does not clear itself, check the card reader for a forgotten card or debris. If a zero-value smart card is left in the card reader, the terminal can be configured to send this alarm rather than sounding the smart card alert, if that option is available. Reloadable cards should be configured to sound the smart card alert for cards reduced to zero value.

New: MTR 2.0 +

Table A-2: Detailed description of alarms (continued)

16, 17, 18, 19	Message: CDR checksum error, statistics checksum error, terminal table checksum error, other data checksum error
Description:	These alarms are caused when data on the control PCP has been damaged.
Action:	1. Run a memory check by entering 636 or MEM from the maintenance level menu.
	2. If the check works, the terminal should be monitored for additional alarms to pinpoint the problem.
	3. If the check fails:
	a) If possible, send the CDRs to the Millennium Manager.
	b) If possible, uninstall the terminal.
	c) Replace the control PCP.
	d) Perform the INSTALL routine.
20	**Message: CDR list full**
Description:	Occurs when the call detail record (CDR) list is full.
	• The CDR threshold typically is set to 80% to prevent this alarm.
	• When the threshold is reached, the terminal calls the Millennium Manager to upload the CDRs.
	• If the terminal is unable to call in, and the CDR list is full, the terminal goes out of service.
	• The terminal tries to call in periodically. When it succeeds, it sends the alarm and uploads the CDRs.
	• The terminal remains out of service until the list is uploaded.
Action:	None

CDRs may be lost

Table A-2: Detailed description of alarms (continued)

21	Message: Bad EEPROM
Description:	Occurs when the terminal fails to read and write to the EEPROM on the control PCP. • EEPROM is memory that does not require power to maintain data. • Data stored in EEPROM includes the Millennium Manager and terminal telephone numbers.
Action:	Check the connectors to the control PCP. If the problem continues: 1. Send the CDRs to the Millennium Manager, if possible. 2. Uninstall the terminal, if possible. 3. Replace the control PCP. 4. Perform the INSTALL routine.
22	Message: Control microprocessor RAM contents lost
Description:	Occurs when a terminal memory test, run in the idle state, results in a checksum error, indicating memory corruption by one of the following: • a loss of supplementary power and super capacitor backup • a control PCP firmware chip problem.
Action:	Use the craft interface to do a memory check (636 or MEM). If the problem continues: 1. Send the CDRs to the Millennium Manager, if possible. 2. Uninstall the terminal, if possible. 3. Replace the control PCP. 4. Perform the INSTALL routine.

CDRs may be lost

CDRs may be lost

Table A-2: Detailed description of alarms (continued)

23	Message: Control microprocessor RAM defective
Description:	Occurs when the terminal fails a memory test to write data to a block of memory and read it back. The test is done during powerup and idle states.
Action:	Use the craft interface to do a memory check (636 or MEM). If the test fails: 1. Send the CDRs to the Millennium Manager, if possible. 2. Uninstall the terminal, if possible. 3. Replace the control PCP. 4. Perform the INSTALL routine.
24	Message: Station access cover open
Description:	• Occurs when the front housing is opened without first entering an access code and personal identification number (PIN) and pressing *. • A defective switch or actuator on the rear terminal board, which controls the alarm, can also trigger the alarm. When this happens the **Alarm Sent Cover Open** prompt is displayed although the terminal is locked and the switch circuit is closed. • **Fraud alert:** This alarm could also indicate illegal entry of the housing by unauthorized persons.
Action:	1. Check the terminal for abuse and vandalism. 2. Check that the bolts holding the chrome-plated strike plates (locking tiebars) are fully seated and the plates are engaging the actuator switch on the rear terminal PCP. 3. If the problem continues, replace the rear terminal PCP.

CDRs may be lost

Table A-2: Detailed description of alarms (continued)

25	Message: Stuck button
Description:	Occurs when a terminal detects a malfunctioning button. • When this problem is detected, the terminal monitors the situation, typically every minute for 30 minutes. • When the problem is verified, the terminal goes out of service and the alarm is sent to the Millennium Manager. • The situation is checked every minute and the terminal resumes normal operation when the problem is corrected.

Action:	1. Check the operation of all buttons to determine if debris or other foreign material is present.
	2. Clean the buttons.
	3. If the problem continues:
	    a) Check the keypad ribbon cable.
	      If the keypad connects to the hookswitch module, check the cable from the hookswitch module to the connector on the telephony PCP as well.
	    b) If any cable is damaged, replace the relevant assembly.

26	Message: Set removal alarm
Description:	Occurs when the terminal is removed from the wall without first entering the craft interface and unlocking it. This alarm is triggered by a switch on the rear housing.
Action:	Possible fraud situation. Make a site inspection.
27	Message: Cash box threshold met
Description:	Occurs when the volume of the coin box reaches the predetermined threshold. • The coin box threshold is downloaded to the terminal and is typically set to 70% to 80% of the coin box capacity. • The terminal maintains normal operation, despite the alarm.
Action:	Arrange for a coin box collection.

Table A-2: Detailed description of alarms (continued)

28	Message: Coin box cover opened
Description:	Occurs when the coin compartment lock is unlocked longer than the time-out period. • A switch on the vault security PCP controls this alarm. • The time-out period on this alarm ensures it is not generated by a valid coin box collection. • The length of the time-out is downloaded.

Action:	1. Check the terminal for abuse and vandalism.
	2. If the problem continues, even if the coin box is replaced:
	   a) Replace the vault security PCP.
	   b) Simulate a coin pickup so the terminal reverts to zero.
	   c) Put in a new coin box.
	
	Note: When the vault security P CP is replaced, it may be necessary to adjust the switch actuator so the switch operates properly when the vault is locked and unlocked.

29	Message: Cash box removed
Description:	Occurs when the coin box is removed without unlocking the coin compartment lock. • This alarm may be generated accidently by a collector if the coin vault lock is locked before the coin box is replaced or if the collection takes too long before the coin box is replaced in the vault. • The alarm may also occur if the coin box is damaged and does not contact the switch actuator on the security PCP.

Action:	1. Check the terminal for abuse and vandalism.
	2. Check that the coin box is fully pushed into the vault area and engaging the switch actuator on the security PCP.
	3. If the problem continues:
	   a) Replace the vault security board.
	   b) Simulate a coin collection to return the stats to zero.
	   c) Insert a new coin box.

Table A-2: Detailed description of alarms (continued)

30	Message: Cash box full
Description:	Occurs while the terminal is in the on-hook or idle state. • It follows a coin box threshold alarm, alarm 27. • When this alarm is sent, the terminal goes out of service and displays `Coin Service not Available` or `Card Service Only`, depending on terminal vintage. This alarm is caused by one of two conditions: • the coin box volume is greater than 100% full • the coin box threshold has been met and a coin jam occurred at the coin sensor or bucket sensors in the escrow assembly.

Action:	If the terminal displays `Coin Service not Available` or `Card Service Only`, yet a coin jam cannot be found, nor is the coin box full, contact the Millennium Manager support person to check the volume of the coin box on the system.
	
	• The terminal determines the contents of the coin box by calculating the volume.
	• If the switch which detects the presence of the coin box is defective, the terminal may not have noted the last collection.
	  The terminal will not return to normal operation until it can detect a valid collection.
	1. Simulate a coin collection and insert a new coin box.
	2. If the problem continues:
	  a) Replace the vault security module.
	  b) Simulate a coin collection to return the stats to zero.
	  c) Insert a new coin box.

Table A-2: Detailed description of alarms (continued)

31	**Message: Validator jam**
Description:	Occurs when the validator detects a blockage or coin jam near one of the two sensors or if there is a defective sensor. • one sensor is inside the top of the validator • the other is in front of the actuator. If either sensor is blocked, the terminal monitors it for a short time. If it does not clear, the terminal displays `Card Service not Available` or `Coin Service Only`, and sends the alarm to the Millennium Manager. If the blockage subsequently clears, the terminal returns to normal.

Action:	Check the validator for blockages of debris or jammed coins.
	
	If the problem continues:
	1. Send the CDRs to the Millennium Manager.
	2. Uninstall the terminal.
	3. Replace the validator.
	4. Run the INSTALL routine.
	5. Retest.
	6. If the problem continues
	    a) Replace the control PCP.
	    b) Perform the INSTALL routine.

A-18 Appendix A: List of alarms

Table A-2: Detailed description of alarms (continued)

32	**Message: Escrow jam**
Description:	Occurs when the escrow detects a blockage or coin jam near one of five sensors or if there is a defective sensor. • One sensor is at the top opening in the escrow. • One is at each exit opening in the bottom of the escrow. • Two sensors are used to detect the position of the escrow bucket. If the escrow detects a blockage at any sensor, the terminal monitors it for a short time. • If the blockage does not clear, the terminal displays **Coin Service not Available** or **Card Service Only**, and sends the alarm. • When the escrow detects a blockage it will cycle the motor in an attempt to clear the blockage. This continues even after the terminal displays **Coin Service not Available** or **Card Service Only.** ***Vintage note:*** MTR 1.9-based terminals will only allow the escrow to cycle for a limited time, to prevent motor burnout. • If the blockage clears, the terminal returns to normal.
Action:	1. Check the ribbon cable connecting the escrow to the validator for damage. 2. Check the escrow for blockages. If the problem continues: 3. Send the CDRs to the Millennium Manager. 4. Uninstall the terminal. 5. Replace the escrow. 6. Run the INSTALL routine. If the problem continues: 7. Replace the control PCP. 8. Perform the INSTALL routine.

Issue: 00.01 Status: Standard Date: June 1998

Table A-2: Detailed description of alarms (continued)

33	**Message: Validator hardware failure**
Description:	When the validator resets by being powered on or performing a self check, a number of parameters are checked, including ribbon cable continuity and the middle runway sensors (coils). If any of these are not operating correctly, OR if the memory is corrupted, the validator will produce this alarm.
Action:	1. Send the CDRs to the Millennium Manager. 2. Uninstall the terminal. 3. Perform the INSTALL routine, which will perform a coin test. If the problem continues 4. Check for blockages in the main runway. If the problem continues. 5. Upload CDRs. 6. Uninstall the terminal. 7. Replace the validator. 8. Run the INSTALL routine.
34	**Message: Central office (C.O.) line check failure**
Description:	Occurs when the terminal fails to detect a dial tone. • When the terminal goes off-hook, it performs a dial tone test. • The terminal notes test failures and monitors the situation. • After the allowable number of failures, the alarm is generated and the terminal displays **Out of service**. • The allowable number of failures is downloaded.
Action:	1. Check the C.O. line for adequate voltage and dial tone. 2. If there is voltage, but no dial tone, check the cables. 3. Check the connections to the rear terminal board, the control PCP, and the telephony PCP.
Action continues on the next page.	

A-20 Appendix A: List of alarms

Table A-2: Detailed description of alarms (continued)

Alarm 34 continued	
Action:	4. Check the handset by connecting a test unit to the telephony PCP and performing the C.O. line test. 5. Check the rear terminal board by connecting J28 to the test unit, and the test unit to the control PCP and performing a C.O. line test. If the problem continues: 6. Upload the CDRs to the Millennium Manager. 7. Replace the telephony PCP. 8. Perform a forced download (menu item 369).
35	**Message: Dialog failure**
Description:	Occurs after the terminal fails to complete a call to the Millennium Manager after the allowable number of failures. Possible problems include: • Modems may all be busy. • Millennium Manager may be down, • The terminal may have a control board problem.
Action:	1. Check that the terminal is dialing the correct Millennium Manager number. 2. Wait a few minutes and initiate a data call, such as a card call or a coin toll call. 3. If the modem still does not answer, contact the Millennium Manager system administrator to check the system status. 4. Check the central office line for tip and ring ground, tip/ring cross, and other line faults which can cause problems. 5. If none of the above work, run INSTALL, entering an alternate Millennium Manager number. At this point, any CDRs resident in the memory at the time of the failure will be lost. This event should be reported to the system administrator. 6. If the alternate Millennium Manager cannot be contacted, either, it could indicate a faulty modem chip; replace the control PCP and run INSTALL.

Issue: 00.01 Status: Standard Date: June 1998

Table A-2: Detailed description of alarms (continued)

37	**Message: Dialog failure(s) during collection session**
Description:	This alarm occurs when a data transfer to the collection system is interrupted.
Action:	1. Check for problem with the modem or noise on the line. 2. Re-try the transmission. 3. If it continues to fail, notify the collection center system administrator to check the status of the system.
99	**Message: Un-alarm**
Description:	This un-alarm message is sent automatically to the Millennium Manager when the terminal returns to normal after being `Out of Service` or in degraded service. • This alarm will not occur if the terminal is upgraded from `Out of Service` to degraded service. • Information alarms do not cause an un-alarm when cleared and do not put the terminal out of service.
Action:	None

A-22 Appendix A: List of alarms

Appendix B: Error codes

Table B-2 lists the error codes produced by the craft interface. Table B-2 gives a detailed description of the errors with suggested corrective actions.

Remember to upload CDRs before you start!	• If you are going to do any work on the boards inside of the terminal, upload the CDRs. • *Note:* If the terminal also has e-purse applications, ensure that the transaction records are also uploaded. • This procedure is imperative if you are going to replace the control or telephony PCPs, the firmware chips on the control PCP, the validator, or the escrow or any time you have to, or plan to, do an INSTALL procedure.
Electrostatic discharge (ESD) **Failure to follow these procedures may damage the electrostatic-sensitive components.**	• When doing maintenance inside the terminal, prevent damage to the electrostatic-sensitive devices by wearing your ESD wrist strap. Connect it to the ESD connection points inside the terminal. The strike plates, for instance. • Before disconnecting any cables, disconnect the power from the terminal. • **Do not reconnect the power until you are ready to close the terminal.** • If you put a module down outside the terminal, put it on an anti-static surface or into an anti-static bag. **Do not put boards on top of each other.**

Uninstall: When you replace the control PCP or firmware, or the escrow or validator, always uninstall the terminal before you start, and always run the INSTALL routine when you have completed the maintenance.

Download: After you replace the telephony PCP perform a forced download to repopulate the telephony memory with the power fail telephone numbers.

Desk terminal: Only the card reader, handset and cord, IAS module, and datajack connector can be replaced. If any other problems are indicated, replace the set.

Table B-1: List of error codes

Error code	What it means
00	Craft interface test passed with no problems
01-04	Successful download 01 - Card or Desk terminal; 02 - Multi-pay terminal, including e-purse applications; 03 - Coin basic terminals; 04 - Inmate terminal
11	Non-fatal board memory error
12	Non-recoverable error in the terminal; for example, physical damage to the RAM.
21	No dial tone Usually occurs during the call setup table download.
22	Destination Millennium Manager or modem pool is busy Usually occurs during the call set-up when obtaining a table download.
23	The carrier was lost
24	Data transmission problem with the Millennium Manager
25	The Millennium Manager failed to answer the call and the terminal wait time has expired
26	No ring-back signal
31	The terminal requested an abort command

Table B-1: List of error codes (continued)

Error code	What it means
32	Incorrect terminal download was received from the Millennium Manager
33	Attention call-back was received during the download process
34	Terminal will not go into service unless its tables are downloaded
35	CDRs are still present after the download was completed
36	Program logic error occurred
41	No voltage is present
42	CO line test failed because there is no dial tone
51	Answer supervision test failed.
61	Coin validator error has occurred
62	Valid but incorrect coin type was used
63	Invalid coin was used
64	Unknown code from coin validator
65	Time-out while waiting for a coin
66	EEPROM checksum error
67	Validator jam error
68	Escrow jam error
71	Possible read or write problem with the terminal memory (EEPROM)

Table B-2: Craft interface error codes

The error code number that displays on the VFD	
Encountered during:	When this error is likely to occur.
Description:	What the error is about.
Action:	What you need to do to return the terminal to service.
00	
Encountered during:	After craft interface tests
Description:	Indicates the test passed with no problems
Action:	None
01-04	
Encountered during:	After a successful download
Description:	Indicates terminal type 01 - Card or Desk terminal 02 - Multi-pay terminal, including e-purse applications 03 - Coin basic terminals 04 - Inmate terminal
Action:	None
11	
Encountered during:	Memory check
Description:	Indicates a non-fatal board memory error. Usually occurs when there is a software checksum error.
Action:	None. The error is self-clearing. If it does not clear, perform the INSTALL routine.

Table B-2: Craft interface error codes (continued)

12	
Encountered during:	Memory check
Description:	Indicates a non-recoverable error in the memory.
Action: *Note:* **CDRs may be lost.**	1. Uninstall the terminal, if possible. 2. Replace the control PCP. 3. Run the INSTALL routine.
21	
Encountered during:	Call to the Millennium Manager
Description:	Indicates no dial tone. Usually occurs during the call setup table download.
Action:	Check for dial tone on the line by connecting a butt-end set to the teladapt on the rear terminal PCP or on the line outside the terminal.
22	
Encountered during:	Call to the Millennium Manager
Description:	Indicates the destination Millennium Manager or modem pool is busy. Usually occurs during the call set-up when obtaining a table download.

Action	1. Try calling again. If several attempts fail, call the Millennium Manager with your butt-end set on the line and listen for a modem tone.
	
	  • If the modem tone cannot be heard, the problem is not in the terminal. Contact the Millennium Manager system administrator to confirm that the system and modems are operating properly.
	  • Once the modem tone is heard, retry the download.
	2. If the download is still unsuccessful:
	  a) Replace the control PCP.
	  b) Run the INSTALL routine.

Table B-2: Craft interface error codes (continued)

23	
Encountered during:	Call to the Millennium Manager
Description:	Indicates the carrier was lost.
	• Usually occurs during the call set-up when obtaining a table download.
	• The terminal was connected to the Millennium Manager, but the Millennium Manager dropped the carrier.
Action	1. Try calling again.
	2. If after several attempts the problem persists, call the Millennium Manager system manager and/or the network personnel to confirm that the Millennium Manager, modems, and CO line are operating.
	3. If all three are operating, try the download one more time.
	4. If the download is still unsuccessful:
	a) Uninstall the terminal.
	b) Replace the control PCP. **CDRs may be lost.**
	c) Run the INSTALL routine.
24	
Encountered during:	Call to the Millennium Manager
Description:	There are two situations that might cause this alarm.
	• If the alarm occurs immediately after Download in Process appears on the display, it indicates that the terminal tables are not in the Millennium Manager.
	• If the alarm occurs after Download in Process has displayed at least 30 seconds, it Indicates a data transmission problem with the Millennium Manager.
	Action continues on the next page.

Table B-2: Craft interface error codes (continued)

Error code 24 **Action:** **Note: CDRs may be lost.**	If the tables are not in the Millennium Manager, call the operating company system clerk and have the tables submitted to the database, then retry the download.
	If the second situation occurred:
	1. Try calling again. Normally, if the data is corrupted, the terminal retries the data transmission until it receives the correct data.
	2. If after several attempts the problem persists, contact the Millennium Manager system manager to confirm the terminal configurations.
	3. When the system manager confirms that the system configuration is okay, try the download again.
	4. If the download is still unsuccessful:
	a) Uninstall the terminal.
	b) Replace the control PCP.
	c) Run the INSTALL routine.
25	
Encountered during:	Call to the Millennium Manager
Description:	Indicates that the Millennium Manager failed to answer the call and the terminal wait time has expired.
	Usually occurs during the call set-up when obtaining a table download.
Action:	Refer to the action for **error code 23**.
26	
Encountered during:	Call to Millennium Manager
Description:	Indicates there is no ring-back signal.
	Usually occurs during the call set-up when obtaining a table download.
Action:	Refer to the action for **error code 23**.

Table B-2: Craft interface error codes (continued)

31	
Encountered during:	Millennium Manager download
Description:	The terminal requested an abort command.
Action:	Refer to the action for **error code 23**.
32	
Encountered during:	Millennium Manager download during the INSTALL
Description:	Indicates an incorrect terminal download was received from the Millennium Manager. For example, a download for a Card terminal was received for a Multi-pay terminal.
Action:	Retry the download. If that does not work, contact the Millennium Manager system manager and confirm the telephone number of the terminal and the Millennium Manager setup.
33	
Encountered during:	Millennium Manager download
Description:	Indicates an attention call-back was received during the download process.
Action:	None. The terminal will call in when in service
34	
Encountered during:	Millennium Manager download during the INSTALL
Description:	Occurs when a table the terminal requires is not downloaded from the Millennium Manager. Indicates a terminal will not go into service unless its tables are downloaded.
Action:	Contact the Millennium Manager system manager to correct the terminal configuration. Retry the install.

Table B-2: Craft interface error codes (continued)

35	
Encountered during:	Millennium Manager download during the INSTALL
Description:	Indicates the CDRs are still present after the download was completed.
Action:	Retry the download.
36	
Encountered during:	Millennium Manager download
Description:	Indicates a program logic error occurred.
Action:	Retry the download.
41	
Encountered during:	Central-office (CO) line check
Description:	Indicates no voltage is present.
Action	1. Check the CO line for voltage. • If the line voltage has been lost, follow the operating company procedures for restoring power. • If the line is okay, check that the handset plug is fully seated in the jack on the telephony PCP, and the tip and ring connections are secure. 2. Check the CO line for voltage. • If the line voltage has been lost, follow the operating company procedures for restoring power. • If the line is okay, check that the handset plug is fully seated in the jack on the telephony PCP, and the tip and ring connections are secure. 3. If the test still fails, connect a spare rear terminal PCP to the line and to the control PCP. 4. If the test still fails, replace the telephony PCP and do a table download. 5. If the test still fails, replace the control PCP and run the INSTALL routine.

B-10 Appendix B: Error codes

Table B-2: Craft interface error codes (continued)

42	
Encountered during:	Central office (CO) line check
Description:	Indicates the CO line test failed because there is no dial tone.
Action:	1. Check the line coming into the terminal for dial tone. • If there is no dial tone on the line, follow the operating company procedures for restoring the line. • If the line is okay, check that the handset plug is fully seated in the jack on the telephony PCP, and that the tip and ring connections are secure on the rear terminal PCP.
Error code 42 Action (continued):	2. If the test still fails, replace the telephony PCP and do a table download. 3. If the test still fails: a) Uninstall the terminal. ***Note:* CDRs may be lost.** b) Replace the control PCP. c) Run the INSTALL routine.

51	
Encountered during:	Answer supervision test – code 267.
Description:	Indicates the answer supervision test failed.
Action	1. Retry the answer supervision test. 2. If after several attempts the problem still persists: a) Use your butt-end set and voltmeter in parallel and look for a reversal in polarity when a call is connected. b) If the reversal is not seen. Contact your central office switch to check that the correct options for answer supervision have been selected on the switch.

Table B-2: Craft interface error codes (continued)

Error code 51 **Action (continued)**	c) If answer supervision is not available at the switch, you must install an inferred answer supervision (IAS) module.
	3. If you confirm that answer supervision is available on the line and the problem is still not corrected, try the following, retesting after each replacement:
	a) Replace the handset.
	If that does not work.
	b) Upload the CDRs, if possible.
	c) Uninstall the terminal.
	d) Replace the telephony and control PCPs.
	e) Run the INSTALL routine.

61

Encountered during:	Coin unit test
Description:	A coin validator error has occurred.
Action:	1. Check the cable connections to the escrow unit and control PCP.
	2. Retry the test.
	3. If the problem persists:
	a) Upload the CDRs if you have not already done so.
	b) Uninstall the terminal.
	c) Replace the coin validator.
	d) Run the INSTALL routine.
	If the test still fails
	e) Replace the escrow unit.
	f) Run the INSTALL routine.

Table B-2: Craft interface error codes (continued)

62	
Encountered during:	Coin unit test
Description:	Valid but incorrect coin type

Action:	1. Retry using several different coins.
	2. If the problem persists:
	    a) Upload the CDRs, if you have not already done so.
	    b) Uninstall the terminal.
	    c) Replace the coin validator.
	    d) Run the INSTALL routine.

63	
Encountered during:	Coin unit test
Description:	Invalid coin

Action:	1. Retry using several different coins.
	2. If the problem persists:
	    a) Upload the CDRs.
	    b) Uninstall the terminal.
	    c) Replace the coin validator.
	    d) Run the INSTALL routine.
	  If test still fails
	    e) Replace the escrow.
	    f) Run the INSTALL routine.

Table B-2: Craft interface error codes (continued)

64	
Encountered during:	Coin unit test
Description:	Unknown code from coin validator

Action:	1. Check the cable connections to the escrow unit and control PCP.
	2. Retry the test.
	3. If the problem persists:
	    a) Upload the CDRs.
	    b) Uninstall the terminal.
	    c) Replace the coin validator.
	    d) Run the INSTALL routine.
	    If test still fails
	    e) Replace the escrow.
	    f) Run the INSTALL routine.

65	
Encountered during:	Coin unit test
Description:	Time-out while waiting for a coin.
Action:	Retry test, inserting coins more quickly.
66	
Encountered during:	Coin unit test
Description:	EEPROM checksum error.

Action:
Note: **CDRs will be lost.**
	1. Re-INSTALL the terminal.
	2. If the problem persists:
	    a) Upload the CDRs.
	    b) Uninstall the terminal.
	    c) Replace the coin validator.
	    d) Run the INSTALL routine.
	                 Action continues on the next page.

Table B-2: Craft interface error codes (continued)

Error code 66 Action (continued):	If test still fails
	  e) Replace the escrow.
	  f) Run the INSTALL routine.

67	
Encountered during:	Coin unit test
Description:	Validator jam error.

Action:	1. Check for blockages in the coin validator and escrow unit.
	2. If the problem persists:
	  a) Upload the CDRs.
	  b) Uninstall the terminal.
	  c) Replace the coin validator.
	  d) Run the INSTALL routine.
	If test still fails
	  e) Replace the escrow.
	  f) Run the INSTALL routine.

68	
Encountered during:	Coin unit test
Description:	Escrow jam error.

Action:	1. Check for blockages in the escrow unit.
	2. If the problem persists:
	  a) Upload the CDRs.
	  b) Uninstall the terminal.
	  If test still fails
	  c) Replace the escrow.
	  d) Run the INSTALL routine.

Table B-2: Craft interface error codes (continued)

71	
Encountered during:	Memory check
Description:	Indicates possible read or write problem with the terminal memory (EEPROM). This problem usually occurs during the download procedure.
Action:	1. Retry the INSTALL routine. If that does not work: 2. Replace the control PCP. 3. Run the INSTALL routine.

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C-1

Appendix C: Special terminals

There are two styles of Millennium terminals which do not have permanent vacuum fluorescent displays (VFDs).

To perform maintenance on these terminals, a portable VFD must be installed, which requires entering the initial access code and PIN, and unlocking and opening the terminal without benefit of display prompts.

Once the portable display is installed, the procedures continue as they would with the other terminals, with the exception of some locking/unlocking procedures.

The exceptions to the normal routines are given below for both the:

- Inmate terminal
- Coin basic w/o display terminal

About the portable displays

There are two types of portable displays available for Millennium terminals.

- One is an external display, usually used with Inmate terminals.

  This display is contained in a solid housing which sits on top of the front housing during the INSTALL or maintenance procedures.

Since the terminal cannot be closed fully when this display is used, the housing tiebars must be manipulated during the locking/unlocking sequences of the procedure.

Figure C-1 shows an Inmate terminal connected to an external display.

Figure C-1: Portable VFD on Inmate terminal

Portable VFD displays maintenance menu and messages

◆ button erases VFD to correct entry errors

Enter access codes and menu commands using main keypad
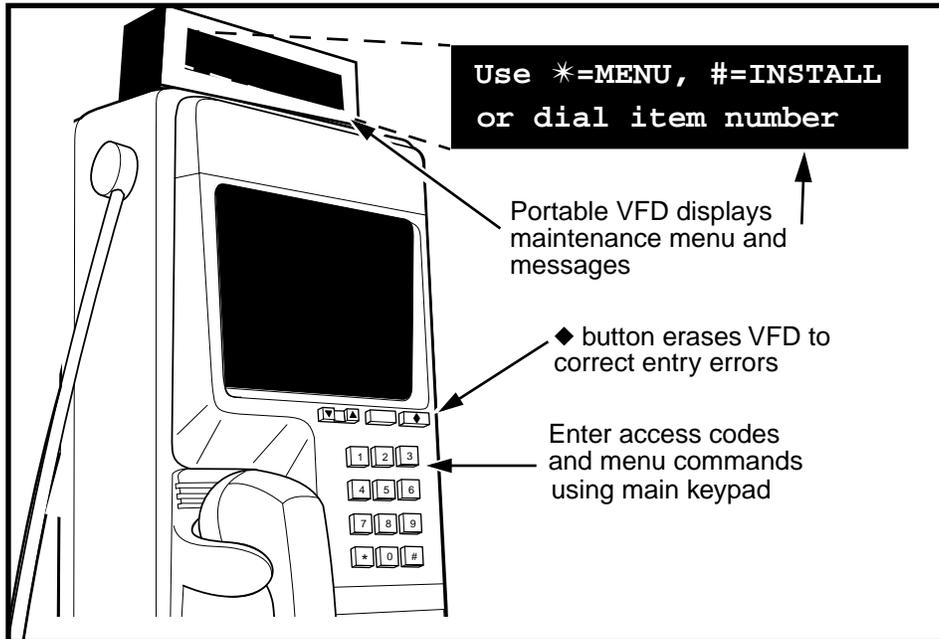
- The other type of portable display is an internal module, which is similar to the existing display located inside the Multi-pay and Card terminals.

  This display is contained in an enclosed, clear plastic housing which fits over the opening on the clamp plate inside the Coin basic w/o display terminal.

  In this case, the terminal can be opened and closed, as required, during the procedures.

Preparing for a maintenance session

To prepare for using a portable display for a maintenance session, the following sections describe:

- how to enter the craft interface and unlock and open the terminal

- how to install the portable display

- how to remove the portable display

Entering the craft interface

It does not matter whether you are attaching an external or an internal display, you initially have to enter the first level of the craft interface and unlock and open the terminal without visual prompts.

Warning ⚠	If you try opening and unlocking the terminal without going through these steps, the terminal will send an alarm message to the Millennium Manager and you will not be able to continue with the process. You must close and lock the terminal and begin again.

1. Enter the access code from your instruction card.

   Ensure the handset is on-hook during this procedure.

   If the terminal has never been installed before, enter the default access code.

2. Enter your personal identification number (PIN) code

   If you make a mistake, press the ◆ button, then re-enter the number.

3. Press ✳.

4. Unlock the housing with the key.

See this:	It is important to unlock and open the terminal quickly after entering your PIN. If you do not open the terminal within three minutes, the terminal times out and you must re-enter the access code and PIN number.

5. Release the housing locking mechanism with the T-tool.

Opening the Inmate terminal

This section describes how to open the housing of the Inmate terminal.

Refer to Figure C-2.

Figure C-2: Proper sequence to open the Inmate housing

1. Grasp the front housing at the top and bottom

2. Pull bottom of front housing away from rear housing

3. Pull top of front housing away from rear housing

4. Rotate front housing to your right
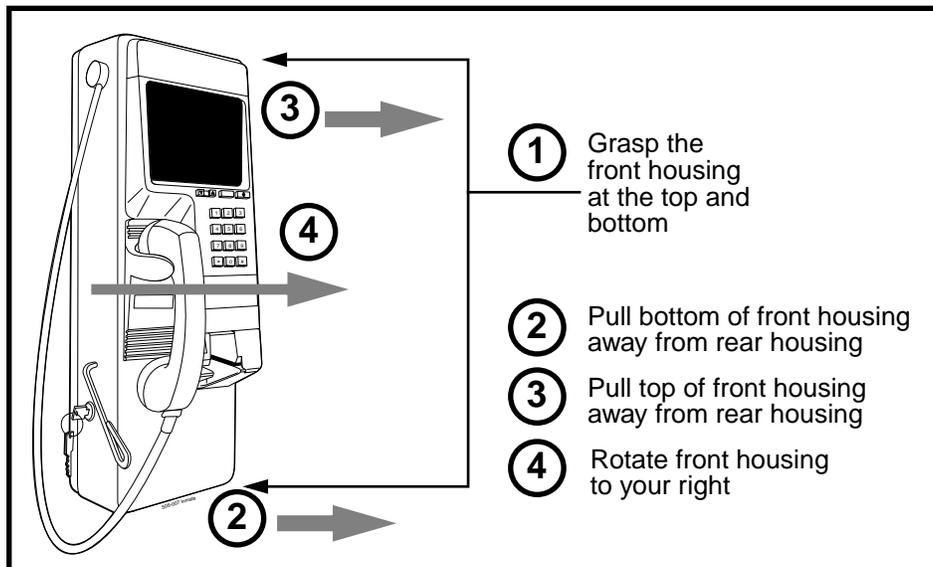
To open the housing:

1. Grasp the housing firmly by the top and bottom of the front housing.

2. Pull the bottom of the front housing away from the back housing.

3. As you pull it forward, rotate the housing assembly on its pivot points so the front of the assembly faces your right, as shown in Figure C-3.

4. Check that the hinges are still connected inside the terminal.

Figure C-3: Opening the housing, overhead view
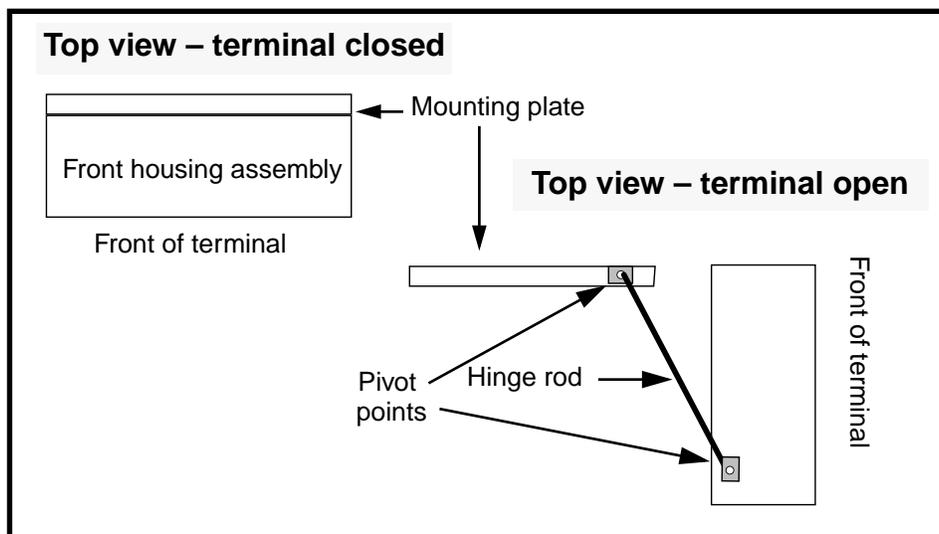
Installing the external portable display

The following procedure assumes you have correctly opened the terminal housing, and are ready to install the portable display in an Inmate terminal.

1. Connect your ESD strap to an ESD connection point inside the terminal.

ESD precautions ⚠	• To prevent damage to the electro-static-sensitive devices inside the terminal, wear your ESD wrist strap. • Attach your ESD strap to either the left or right strike plates inside of the rear housing assembly. **Failure to follow these precautions may damage electrostatic-sensitive devices.**

2. Disconnect the rear terminal PCP cable connector (J18) from the connector on the control PCP (J5).

3. Place the portable VFD unit on the top of the front housing of the terminal, as shown in Figure C-4. The unit has a magnet on the bottom.

Figure C-4: Installing the external portable VFD

Portable VFD installed on top of the terminal
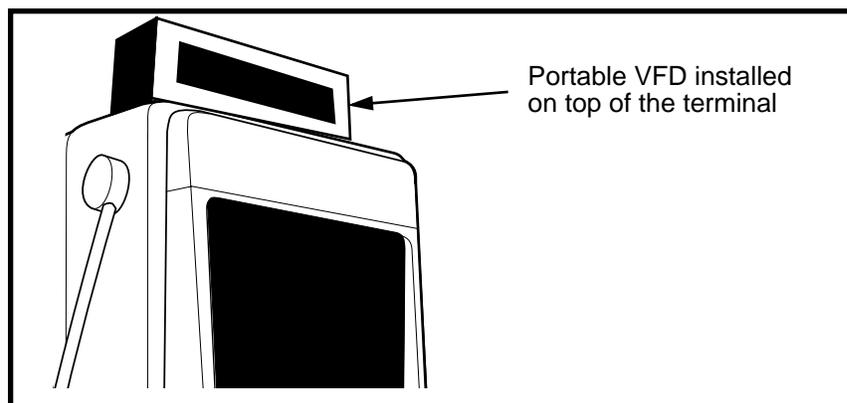
4. Attach the VFD cable to the VFD connector (J7) as shown in Figure C-5.

Figure C-5: Connecting the VFD to the control PCP
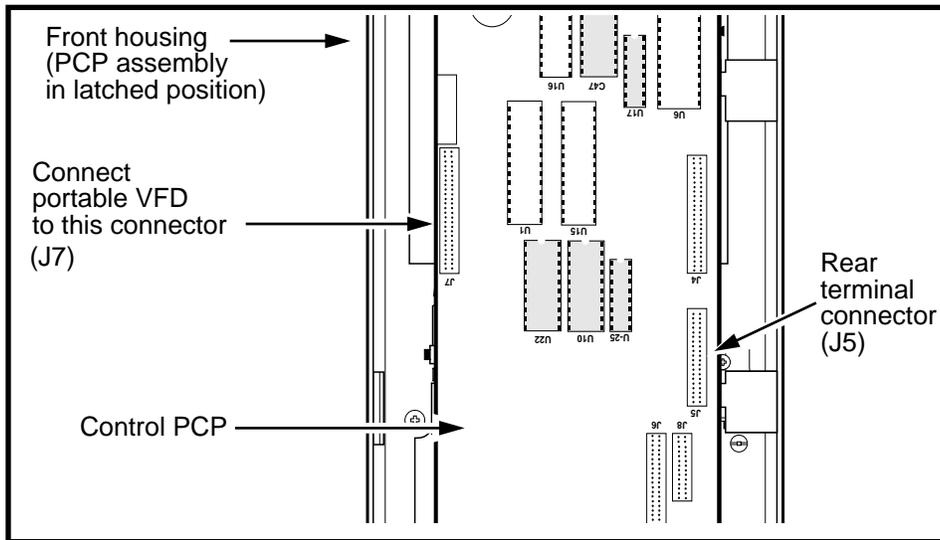
5. Reconnect the rear terminal cable (J18) to the connector on the control PCP (J5) to restore power to the terminal.

6. Partially close the housing so you have access to the keypad and can see the display clearly. Do not close it far enough to pinch the VFD ribbon cable.

7. Continue with the maintenance procedures given in Chapter 3.
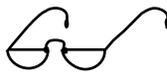
See this	To exit from the maintenance routine at any time, move the left side tiebar up to simulate locking the terminal.
	If you are finished with the craft interface, disconnect the power and remove the portable display at this juncture. A specific procedure for removing the portable display is given at the end of this section.

See this	If the terminal has timed out and the portable VFD is blank, refer to the **Re-entering the craft interface**, below.

Re-entering the craft interface

If the craft interface timed out while you were attaching the external portable VFD, simulate locking the terminal and return to the beginning of the craft interface process, as described below.

1. Open the housing and **pull up** the vertical locking tie-bar on the left side of the rear housing, to simulate closing and locking the terminal. Refer to Figure C-6.

Figure C-6: Locking/unlocking using the vertical tiebar
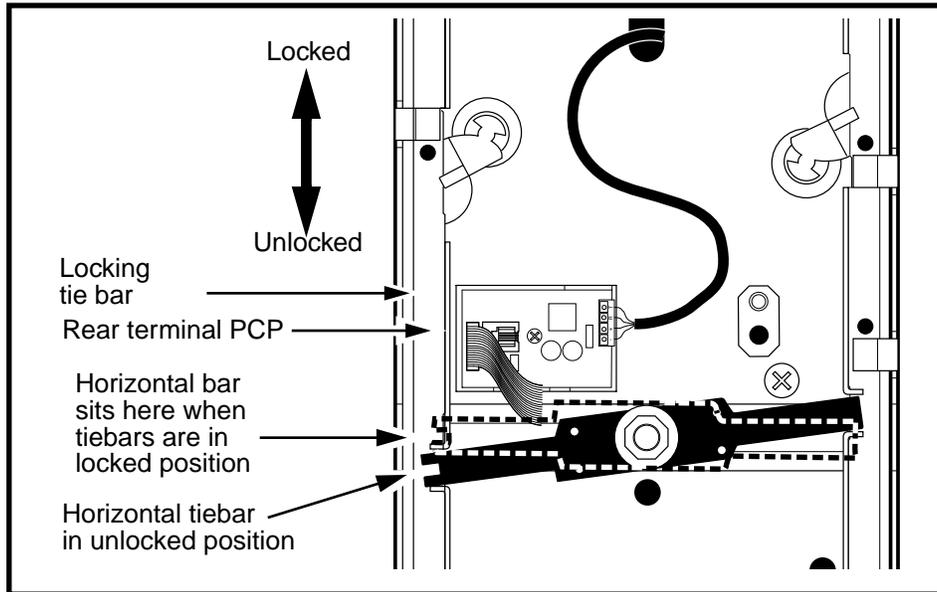
2. Close the terminal enough to access the keypad.

3. Enter the access code on your instruction card.

4. Enter your personal identification number (PIN) code.

5. Press ✳.

    This message appears on the VFD:

    ```
    Please use key now
    & open the terminal
    ```

6. Open the terminal housing again and slide the locking
    tiebar down, to simulate opening the terminal.

7. Depending on the prompt visible on the display, either
    continue with the maintenance procedures, or perform
    the INSTALL routine, as described in Chapter 2.

Removing the external portable display

The following section gives the recommended steps for re-
moving the portable display, including ensuring that the
craft interface is properly exited.

Do this procedure when you have finished working with the
craft interface and no longer need visual prompts.

1. **Slide up** the left vertical locking tiebar on the rear
    housing to simulate locking the terminal.

2. Re-enter the craft interface.

3. At the unlock prompt, **move down** the left locking tie-
    bar to simulate unlocking the terminal.

4. Open the housing so you have access to the control
    PCP.

5. Disconnect the rear terminal PCP cable (J18) from the
    connector on the control PCP (J5) to disconnect the
    power from the control PCP. Refer to Figure C-7.

6. Disconnect the portable VFD cable from J7 on the
    control PCP. Refer to Figure C-7.

Figure C-7: Disconnecting the VFD cable

Front housing (PCP assembly in latched position)

Disconnect portable VFD from this connector (J7)

Rear terminal connector (J5) disconnected

Control PCP

Card reader
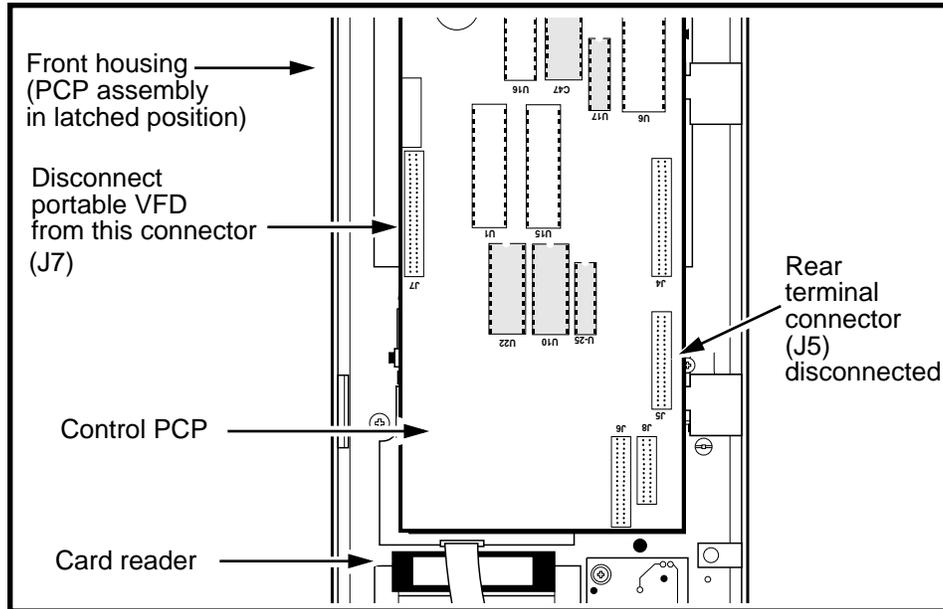
7. Reconnect the rear terminal PCP cable (J18) to the connector on the control PCP (J5) to reconnect the power to the control PCP. Refer to Figure C-7.

8. Refer to Figure C-8 and follow these steps to close the terminal housing:

   a) Ensure that:

   - the left tiebar is down; the terminal is in an unlocked state

   - the hinges are in place

   - all the cables are tucked away from the edges of the housing

   - your ESD wrist strap connection has been disconnected

   b) Grasp the front housing at the top and bottom and turn it so the front of the housing faces you.

   c) Lift the housing and position it squarely over the rear housing.

d) Fit the top of the housing squarely onto the rear housing.

e) Fit the bottom of the housing squarely onto the rear housing.

The front housing should fit snugly against the edge of the back housing. If this is not the case, remove the housing and try again from **Step 8c**.

CAUTION ⚠	Failure to close the terminal housing properly, as described in this section, may result in vulnerability to illegal entry to the terminal.

Figure C-8: Closing the Inmate terminal

Rear housing
Front housing
Line up the front housing squarely with the rear housing

Top of front housing
Rear housing
Fit the top of the front housing over the rear housing

Rear housing
Top of front housing
Fit the bottom housing over the rear housing.
Note: Housing must fit snugly.
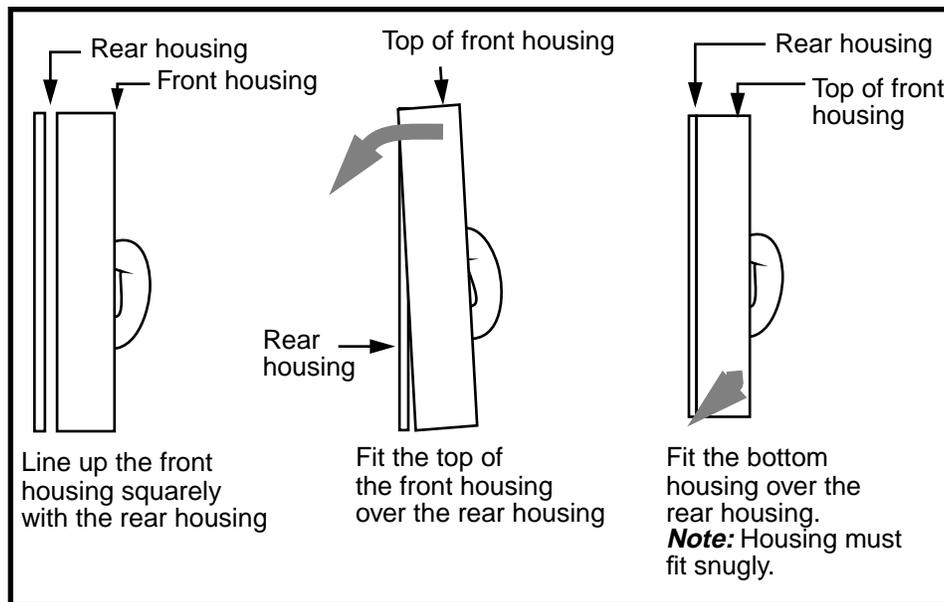
9. Lock the payphone by turning the T- or L-tool clockwise to secure the housing.
Turn the key counterclockwise until it stops.

10. Test all the functions of the terminal.

Installing the Coin basic portable display

To attach the **Coin basic portable display,** which is an internal display, you need to enter the first level of the craft interface and unlock and open the terminal.

Caution ⚠	If you try opening and unlocking the terminal without going through these steps, the terminal will send an alarm message to the Millennium Manager. You will not be able to enter the craft interface until you close and lock the terminal again.

1. While the handset is on-hook, use the keypad to enter the access code.

   If you make a mistake entering the code, press the ◆ button, then re-enter the number.

2. Enter your personal identification number (PIN) code.

3. Press ✳.

See this 👓	It is important to unlock and open the terminal quickly after entering your PIN. If you do not open the terminal within three minutes, the terminal times out.

4. Use the key to unlock the upper housing.

5. Use the T- or L-tool to release the housing locking mechanism. Rotate the tool clockwise to open, counterclockwise to lock.

6. Open the terminal housing.

Figure C-9: Display connectors on Multi-pay-based terminals
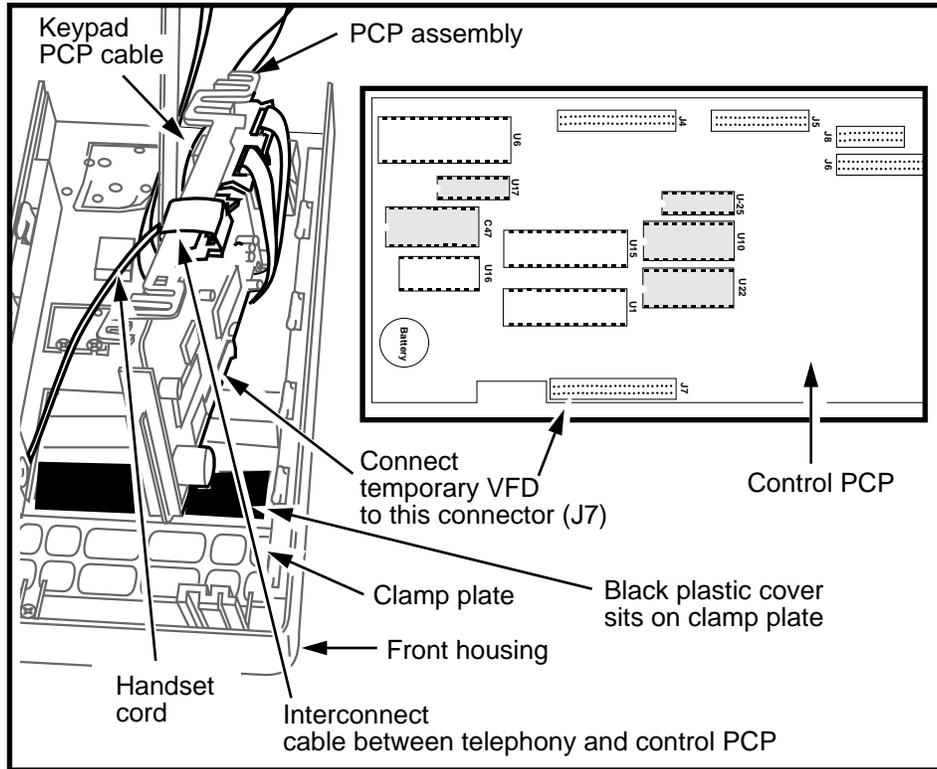
7. Connect your ESD strap inside the terminal. Refer to the ESD warning below.

See this ⚠	• To prevent damage to the electro-static-sensitive devices inside the terminal, wear your ESD wrist strap. • Attach your ESD strap to the unpainted metal housing tiebars inside of the rear housing. • Always disconnect power from the terminal before working inside the terminal.
Failure to follow these precautions may damage electrostatic-sensitive components.	

8. Disconnect the terminal block from the rear terminal PCP to disconnect power from the terminal.

Figure C-10: Disconnecting the power on the rear terminal PCP
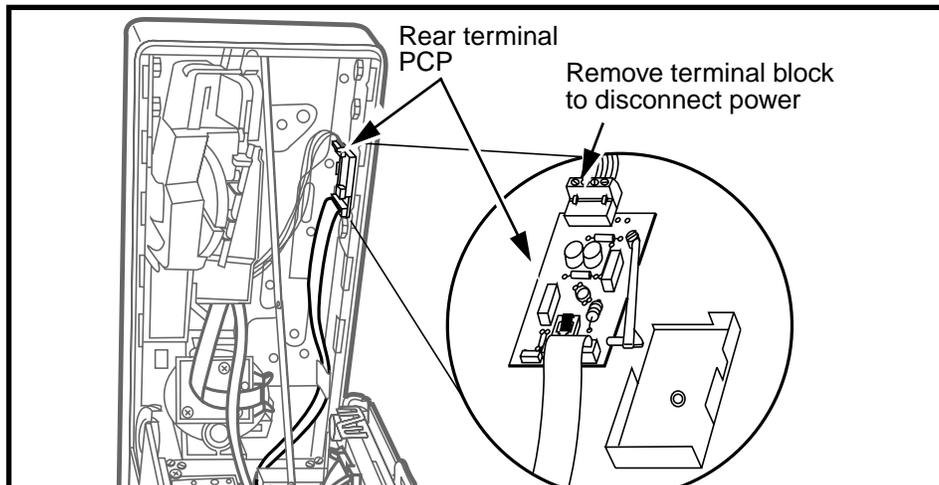
9. Attach the display:

   a) Lift the PCP assembly by the plastic frame.

      Note: You may need to disconnect the keypad cable (J1A) and the handset teladapt plug (J10B) if these cables are not long enough to allow you to lift the PCP assembly sufficiently to reach the display connector.

   b) Remove the black plastic window cover from the clamp plate and set aside.

      Note: If there is an internal instruction card:

         — remove the ID bezel

         — lift the clamp plate

         — remove the card

         — replace the clamp plate and ID bezel

   c) Connect the **Coin basic portable display** cable to the connector on the control PCP (J7). Refer to Figure C-9. Note that the cable sits under the PCP assembly.

d) Seat the temporary display over the four screw posts on the clamp plate. The edge of the display with the cable connector should be closest to the top of the terminal.

e) Reseat the PCP assembly in the brackets.

f) Reconnect any cables you disconnected.

10. Reconnect the power to the terminal.

11. Disconnect your ESD strap from inside the terminal.

12. Close the terminal housing but do not lock it.

13. If required, use the knuckle-saver suction cup to re-move the instruction card from the front of the terminal.

14. Continue with the regular maintenance tests as you would with any other Multi-pay terminal.

If the terminal has timed out of the craft interface, refer to **Re-entering the craft interface**, below.

Re-entering the craft interface

If the craft interface timed out while you were installing the portable display, follow these steps to re-enter the craft interface:

See this:	Before you enter the craft interface:
	• Ensure that the handset is on-hook.
	• Close the housing and lock with the T-tool
	If either of these conditions are not correct, you will not be able to enter the craft interface.

1. If the terminal is being installed for the first time, enter the default access code.

   If the terminal has been previously installed, enter the access code from your instruction card.

This message appears on the VFD:

```
Enter PIN: ■ ■ ■ ■ ■
◆=FIX, ✳=SAVE, #=STOP
```

If you make a mistake, press the ◆ button and re-enter the number.

2. Enter your PIN code.

    As you enter the digits, they appear on the VFD.
    If you make a mistake, press the ◆ button and re-enter the number.

    This message appears on the VFD:

    ```
    Please use key now
    & open the terminal
    ```
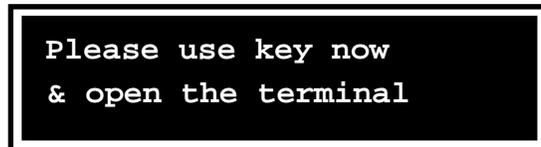
    Note: If you do not open the terminal within three minutes, the terminal times out and the idle prompt, **Please lift receiver,** reappears on the VFD.

    Note: At this point, an op code is also generated at the Millennium Manager to indicate that the terminal is being illegally entered.

3. Turn the T-tool clockwise to unlock the housing.
    DO NOT open the front housing.

4. Continue with the INSTALL, CDR upload, or maintenance procedures as with other Millennium terminals.

5. To end the procedure at any time, close the housing and lock the terminal with the T-tool.

6. When you are ready to remove the portable display, follow the procedure given in the next section.

Removing the Coin basic portable display

When you are ready to return the terminal to service, you need to remove the portable display. The following section describes this process.

1. Enter your access number and PIN.

2. Unlock the terminal.

3. Take handset off-hook and lower the front housing.

4. Connect your ESD strap inside the terminal.

5. Disconnect the terminal block from the rear terminal PCP to disconnect the power. Refer to Figure C-10.

6. Grasp the PCP assembly by the plastic frame and lift it out of the brackets just enough so you can access the VFD connector.

   Note: You may need to disconnect the keypad or handset cable from the telephony PCP to be able to lift the assembly enough to remove the display.

   Refer to Figure C-11.

Figure C-11: Disconnecting the portable display

Keypad cable

Handset cord

Disconnect temporary VFD to this connector (J7)

Black plastic cover sits on clamp plate

Clamp plate
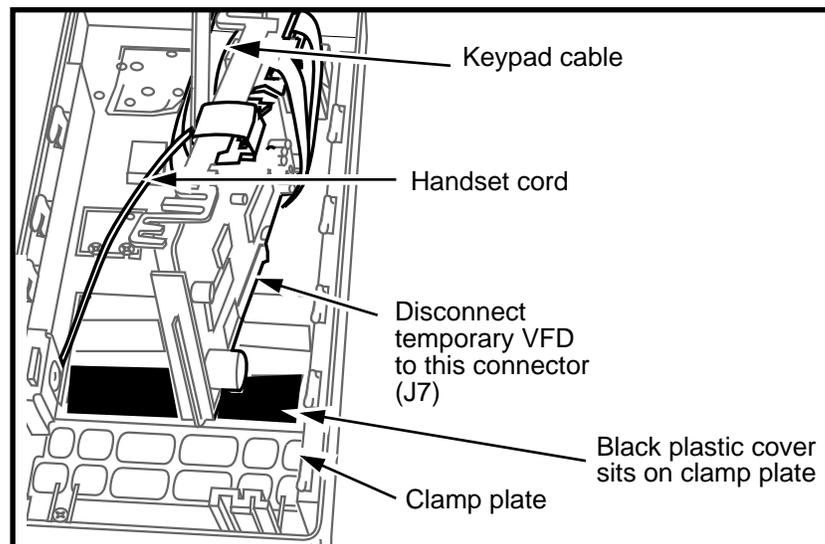
7. Disconnect the Coin basic portable display cable from the control PCP.

8. Remove the Coin basic portable display.

   Note: If the instruction card is an internal card, do the following:

   • remove the ID bezel

   • lift the clamp plate

   • replace the card

   • replace the clamp plate and ID bezel.

9. Seat the black plastic window cover over the screw posts of the clamp plate, covering the display cutout in the clamp plate.

10. Reseat the PCP assembly securely in its brackets.

11. Reconnect whichever cables you disconnected to lift the assembly.

12. Check that all the cables are fully seated in their connectors and excess cable is folded and tucked out of the way of the edges of the terminal.

13. Reconnect the terminal block to the rear terminal PCP to restore power to the terminal.

14. Disconnect your ESD strap from the terminal.

15. Close the terminal housing.

16. Ensure the handset is on-hook.

17. Lock the terminal with both the T-tool and the key.

18. If required, replace the external instruction card.

19. Perform operations tests to ensure the terminal is working.

Flowchart — working with the displays

The following flowchart describes the process of installing and removing the two types of portable displays.

Figure C-12: Flowchart — working with the portable displays, page 1
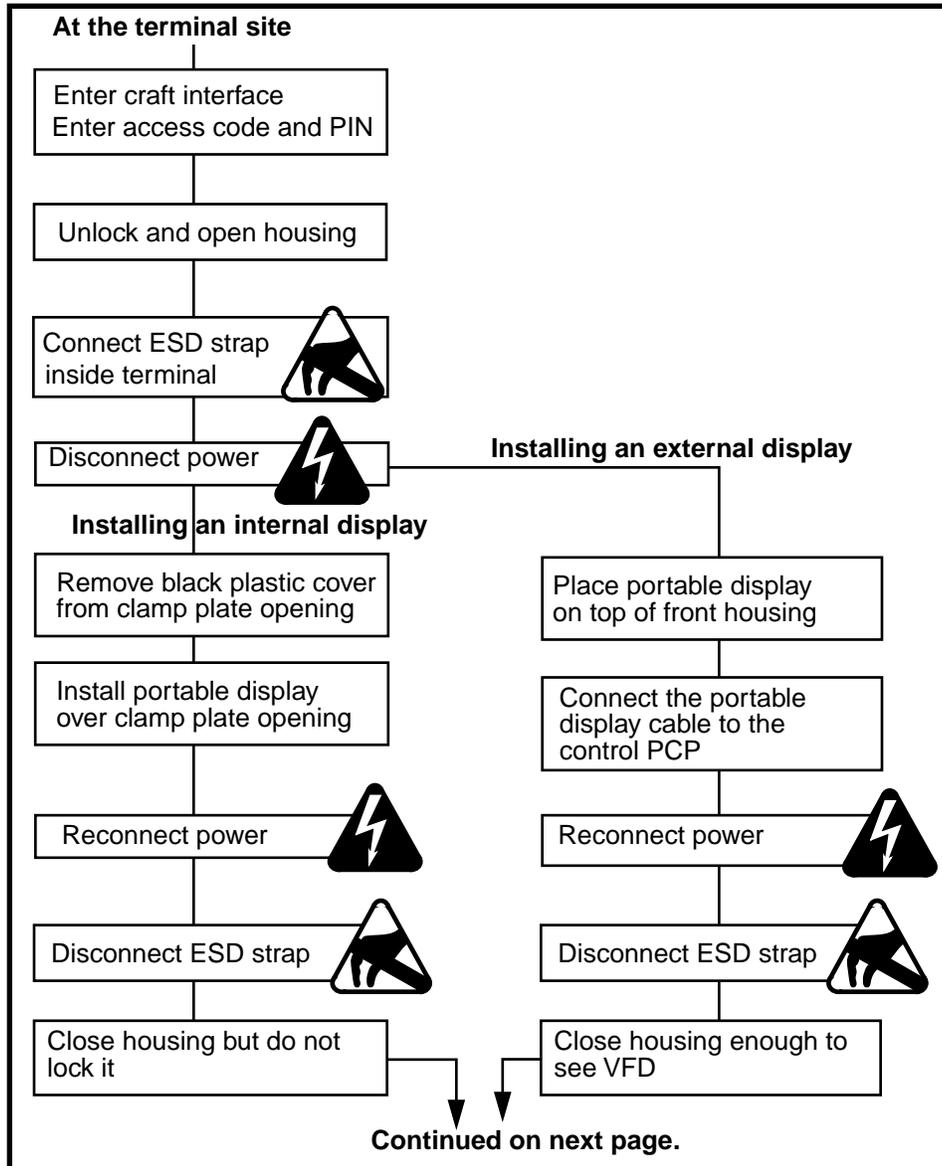
C-20 Appendix C: Special terminals

Flowchart — working with the portable displays, page 2

Continued from previous page

Upload CDRS
You may need to re-enter
the craft interface

Do
you need to
run craft
interface
tests?   No

Yes

Run craft interface
maintenance tests

Are
you replacing
control PCP
or firmware?   No

Yes

Uninstall the terminal

Open terminal housing

Connect ESD strap
inside terminal

Disconnect power

Change required modules

Reconnect power

Run whatever
craft interface procedures
are necessary to bring
the terminal back to
operation

**Internal
display**   **External
display**

Continued on next page.

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Internal display

External display

Close and lock the terminal with the T-tool

Slide the locking tiebar up to simulate locking the terminal.

Re-enter the craft interface. Unlock the terminal when prompted.

Re-enter the craft interface. Slide the locking tiebar down to simulate unlocking the terminal.

Disconnect power

Disconnect power

Disconnect and remove portable VFD

Disconnect portable VFD and remove from terminal

Replace black plastic cover over hole in clamp plate

Reconnect power

Disconnect ESD strap

Close and lock terminal

Perform function tests

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Appendix D: INSTALL routine quick reference

Table D-1 gives an overview of the INSTALL routine. For detailed information, refer to Chapter 2.

Table D-1: INSTALL routine quick reference

Step	Display	Action
1.	`*  out of service  *`	With the handset is on-hook, enter the default access code.
2.	`Enter PIN: ■ ■ ■ ■ ■` `◆=Fix,✳=Save, #=STOP`	Enter five-digit personal identification number (PIN) code.

3.	*Multi-pay/Card terminals:*
	`Please use key now`
	`& open the terminal`
	
	Desk terminal:
	`Please insert the`
	`key card now`
		Unlock and open the terminal

4.	*Uninstalled terminal*
	`Not installed`
	`Use # to INSTALL`
	
	Installed terminal
	`Use ✳=MENU, #=INSTALL`
	`or dial item number`
		Press #.

5.	`CO line check` `Go offhook`	Lift the handset off-hook.

Table D-1: INSTALL routine quick reference (continued)

Step	Display	Action
	`Checking CO` `connection`	
6.	`Completed     00` `To continue, press *`	Press ✳.
7.	`Go back onhook`	Place the handset on-hook.
8.	■■■ - ■■■ - ■■■■ `Enter line tel. num.`	Enter the telephone number of the terminal.
9.	■■■ - ■■■ - ■■■■ `Use ◆=FIX,  *=SAVE`	Press ✳.
10.	■■■■■■■■■■ `Enter serial number`	Enter the ten-digit serial number of the terminal.
11.	■■■■■■■■■■ `Use ◆=FIX,  *=SAVE`	Press ✳.
12.	■■■■■■■■■■■ `Enter NCC tel. number`	Enter the telephone number of the Millennium Manager.
13.	■■■■■■■■■■■ `Use ◆=FIX,  *=SAVE`	Press ✳.
14.	`Answer detect check` `Go offhook`	Lift the handset off-hook
	`Checking answer` `detection`	
15.	`Completed:     00` `To continue, press *`	Press ✳.
16.	`Go back onhook`	Put the receiver back on-hook.
17.	`Press * to start NCC` `download`	Press ✳.
	`*    Please wait   *`	
	`Download in progress` `*    Please wait    *`	

Table D-1: INSTALL routine quick reference (continued)

Step	Display	Action
18.	`Completed:      0X` `To continue, press *`	Press $*$.
19.	`Go offhook, press all` `buttons, then onhook`	Lift the handset off-hook.
20.	`(keypad character)` `Go on hook when done`	Press each keypad button.
21.		Put the handset on-hook.
22.	`Please insert and` `remove your card`	Insert your test card, a valid mag-stripe card.
23.	`*  Please remove  *` ` your card`	Remove the card.
24.	`(card mag stripe #)` `To continue, press *`	Press $*$
25.	`Deposit a` `calibration coin`	Deposit calibration coin number one.
26.	`Deposit a` `calibration coin`	Deposit calibration coin number two.
27.	`Deposit a coin` `to test escrow unit`	Deposit calibration coin number three.
28.	`Completed:      0X` `To continue, press *`	Press $*$.
29.	`Install is complete` `Close terminal now`	*Multi-pay/Card terminals:* Lock housing and key lock. *Desk terminal:* Press #.

D-4 Appendix D: INSTALL routine quick reference

E-1

Appendix E: Maintenance level quick reference

Table E-1 gives a quick reference overview about how to access the craft interface.

For detailed information, refer to Chapter 3.

Table E-1: Accessing the maintenance menu

Step	Display	Action
1.		With the handset is onhook, enter the default access code.
2.	**Enter PIN: ■ ■ ■ ■ ■** **◆=Fix,✳=Save, #=STOP**	Enter five-digit personal identification number (PIN) code.
3.	*Multi-pay/Card terminals:* **Please use key now** **& open the terminal** *Desk terminal:* **Please insert the** **key card now**	Unlock and open the terminal
4.	**Use ✳=MENU, #=INSTALL** **or dial item number**	Press ✳.
5.	**227. Check cardreader** **Use 1=DO IT, ✳=NEXT**	Scroll through menu or enter code number.

Table E-2 gives a quick reference overview of the mainte-
nance level menu and prompts for each menu item.

Table E-2: Using the maintenance menu prompts

Menu	Display	Action
277	`227. Check cardreader` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	`Please insert and` `remove your card`	Insert and remove mag stripe test card.
	`(card mag stripe #)` `To continue, press `✳	Press ✳.
264	`264. Check coin unit` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	`Deposit a` `calibration coin`	Insert coin.
	`Deposit a` `calibration coin`	Insert coin.
	`Deposit a coin` `to test escrow unit`	Insert coin.
	`Completed:      00` `To continue, press `✳	Press ✳.
546	`546. Check C.O. line` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	`C.O. line check` `Go offhook`	Take handset offhook.
	`Checking C.O.` `connection`	
	`Completed:      00` `To continue, press `✳	Press ✳.
	`Go back onhook`	Replace handset onhook.
347	`347. Check display` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.

Table E-2: Using the maintenance menu prompts (continued)

Menu	Display	Action
	All the pixels are displayed for five seconds. Then the screen blanks out. The pixels in each character space may form the shape of a diamond or rectangle. Then, one at a time, the pixels turn on and off.	
539	`539. Check dialpad` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	`Go offhook, press all` `buttons, then onhook`	Take handset offhook and press keypad, quick access keys and special keys.
	`Go onhook when done`	Replace handset onhook.
225	`225. Make/Answer call` `Use 1=DO IT, T=NEXT`	Press 1 to start the test.
	`Please lift receiver`	Take handset offhook.
	`Please insert card` `OR dial the number`	Make call. Replace handset onhook when done.
835	`835. Show tel. number` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	■ ■ ■ – ■ ■ ■ – ■ ■ ■ ■ `To continue, press ` ✳	Press ✳
	`622. Show NCC number` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	■ ■ ■ ■ ■ ■ ■ ■ ■ ■ `To continue, press ` ✳	Press ✳
673	`673. Enter op codes` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.
	`Enter op code: ` ■ ■ ■ ◆`=FIX, `✳`=SAVE, #=STOP`	Enter op code. Press ✳ to save the code. When done, press #.
369	`369. Force download` `Use 1=DO IT, `✳`=NEXT`	Press 1 to start the test.

E-4 Appendix E: Maintenance level quick reference

Table E-2: Using the maintenance menu prompts (continued)

Menu	Display	Action
	`Press ✳ to start NCC` `download`	Press ✳
	`* Please wait *`	
	`Download in progress` `* Please wait *`	
	`Completed: 0X` `To continue, press ✳`	Press ✳
732	`732. Call records` `Use 1=DO IT, ✳=NEXT`	Press 1 to start the test.

	`Call records present`
	`Press ✳ for NCC call`
	
	`or`
	`No call records`
	`To continue, press ✳`
		Press ✳

	`* Please wait *`	
	`Download in progress` `* Please wait *`	
	`Completed: 00` `To continue, press ✳`	Press ✳
267	`267. Answer detection` `Use 1=DO IT, ✳=NEXT`	Press 1 to start the test.
	`Answer detect check` `Go offhook`	Take handset offhook.
	`Checking answer` `detection`	
	`Completed: 00` `To continue, press ✳`	Press ✳
274	`274. VFD brightness` `Use 1=DO IT, ✳=NEXT`	Press 1 to start the test.

Table E-2: Using the maintenance menu prompts (continued)

Menu	Display	Action
	`Choose level: 1 - 100%` `2 - 75%, 3 - 50%`	Press appropriate number.
636	`636. Check memory` `Use 1=DO IT, ✳=NEXT`	Press 1 to start the test.
	`*   Please wait   *`	
	`Completed:      00` `To continue, press ✳`	Press ✳
688	`688. Out of service` `Use 1=DO IT, ✳=NEXT`	Press 1 to start the test.
	`Press 1 = card reader` `2 = coin, 3 = whole set`	Press appropriate number.
	`Message activated` `Op code sent to NCC`	Close and lock the terminal.
349	`349. Fix telephone #` `Use 1=DO IT, #=BACK`	Press 1 to start the test.
	`■■■■■■■■■■` `Use ◆=FIX, #=BACK`	Enter the correct telephone number for the terminal. Press ✳.
362	`362. Fix NCC number` `Use 1=DO IT, #=BACK`	Press 1 to start the test.
	`■■■■■■■■■■` `Use ◆=FIX, #=BACK`	Enter the correct Millennium Manager modem pool number for the terminal. Press ✳.
737	`737. Fix String` `Use 1=DO IT, #=BACK`	Press 1 to start the test.
	`■■■■■■■■` `Use ◆=FIX, #=BACK`	Enter the correct pre-dial string (1 to 8 digits) Press ✳.

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