Model 990 Computer
DX10 Poller Operations Manual

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TEXAS INSTRUMENTS

MANUAL REVISION HISTORY

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Preface

This manual provides operating instructions to the operator, and planning and installation instructions for the network administrator. The operators portion of this manual includes instructions and procedures for operating the Poller, as well as descriptions of operator commands. The intended audience for this portion of the manual is an operator familiar with operation of the DX10 operating system in a Model 990 Computer and with operation of Model 990 Computer peripheral devices. The operator is not necessarily trained in computer science or programming. The administators portion of this manual provides information for a network administrator or systems analyst who plans, installs, and modifies the Poller network. The network administrator must be a systems programmer familiar with DX10 and with communications systems. Specifically, communications systems include the DX10 3780 Emulator and DX10 Bubble Memory Terminal Support (BMTS). The network administrator should also be familiar with the TIBOL language and applications, and the Model 763, 765, 767, and 769 Bubble Memory Terminals.

The DX10 Poller collects data from and distributes data to intelligent terminals using switched lines. It executes under a DX10 operating system (Release 3.4.0 or later) and uses either 3780 or TTY protocol. The Poller can also perform limited processing of communicated data.

The manual contains the following sections and appendixes and a glossary of Poller terms:

Section

1 Overview — Presents an overview of the DX10 Poller application software. This section contains information for both operators and network administrators.

2 DX10 Operations — Describes the execution of the Poller. This section contains information for both operators and network administrators.

3 Operator Instructions — Describes operator commands and shows command formats. The commands described in this section control the Poller and its communication lines, specify and define manual operation of a line, perform transfers of data between media of the system, and display status information. This section contains operator information.

4 Network Administrator Instructions — Describes commands the network administrator uses to define the network to be polled. Specifically, these commands create, modify, delete, display, and print the data structures that define the network to the Poller. This section contains network administrator information.

5 Network Implementation — Provides worksheets to assist the network administrator in specifying the line hardware, memory, and disk space required for the Poller network. Also describes system generation requirements. This section contains network administrator information.

Appendix

A Summary of Poller Commands — Lists the Poller commands in a table.

B Poller Error/Status Messages and Error Recovery — Lists in a table the error and status messages issued by the Poller. Includes descriptions of status and error messages and of recovery procedures for error conditions.

C Remote Terminal Characteristics — Describes the characteristics of the terminals in the Poller network in terms of options required.

D ASCII Code Chart — Lists the characters of the ASCII code in a table.

E ASCII/EBCDIC Conversion — Lists the characters of the ASCII code with the corresponding characters of the EBCDIC code.

F Communications Cabling Diagrams — Shows cabling diagrams for interconnecting terminals, modems, automatic calling units (ACUs), and data access arrangements to provide Poller network communications.

The following manuals contain additional information related to DX10 Poller application software:

Title	Part Number
Model 990 Computer DX10 Operating System Concepts and Facilities Manual, Volume I	946250-9701
Model 990 Computer DX10 Operating System Production Operation Manual, Volume II	946250-9702
Model 990 Computer DX10 Operating System Application Programmer's Guide, Volume III	946250-9703
Model 990 Computer DX10 Operating System Developmental Operation Manual, Volume IV	946250-9704
Model 990 Computer DX10 Operating System Systems Programming Guide, Volume V	946250-9705
Model 990 Computer DX10 Operating System Error Reporting and Recovery Manual, Volume VI	946250-9706
Model 990 Computer DX10 Bubble Memory Terminal Support (BMTS-990) User's Guide	2276860-9701
Models 763/765 Operating Instructions	2203664-9701
Models 763/765 Memory Terminals Systems Manual	2203665-9701

Title	Part Number
Models 767 and 769 Electronic Data Terminals Operating Instructions	2207960-9701
Models 767 and 769 Electronic Data Terminals Systems Manual	2207961-9701
Model 990 DX 3780/2780 Emulator User's Guide	946289-9701

The following IBM manual contains related information:

OS Tape Labels	GC-6680-5

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Overview

1.1 INTRODUCTION

The DX10 Poller software, in combination with the associated hardware and systems software, provides a versatile computer-based communications system. This communications system serves as a central data collection, distribution, and control point for remote terminals operating primarily over a switched telephone line network. It can support simultaneous polling activities with various terminals on multiple lines. Meanwhile the operator controls and monitors Poller operation, and performs various other functions.

The Model 911 Video Display Terminal (VDT) serves as the user interface for both the operator and network administrator functions. An additional printer console (for example, a TI 810 printer) provides hard copies of any Poller reports and statistics the user desires.

Used as an add-on package under the DX10 operating system for the DS990 minicomputer systems, the Poller supports a wide range of disk drives. A minimum configuration requires the use of two DS10 disk drives. The following types of data are maintained on disk files:

- Poller configuration information (data bases)
- Status logs
- Source of received data and destination of transmitted data

1.2 LINE OPERATIONS

Each communications line can be configured to use any of the following three modes:

- Auto call
- Auto answer
- Manual call/answer

1.2.1 Auto Call

In auto call mode, which is the basic operating mode, the Poller automatically dials the remote terminals. When a connection is made, the Poller performs its specified polling activity according to the instructions contained in the activity template data base. The Poller then disconnects the line and automatically dials the next terminal using that line.

1.2.2 Auto Answer

In this mode, the remote terminal operator initiates a call into the Poller system. The Poller establishes a communications line to receive incoming calls and then waits for a call. When the remote terminal calls and a connection is made, the Poller begins the polling activity. Once a terminal completes a successful session with the Poller, it cannot call in to the system until the Poller is terminated and restarted. (See paragraph 5.5 for Poller Initialization (PIN) command options.)

1.2.3 Manual Call/Answer

In this mode, the Poller operator is responsible for establishing the communication link with the remote terminal. The operator can dial the remote terminal telephone number or instruct the Poller to dial it. When a connection with a remote terminal is established, the operator can manually issue all required commands to transmit data to and from the terminal or the operator can initiate an automatic polling activity with the terminal by utilizing an activity template data base.

NOTE

The Poller places no restrictions on the combinations of operating modes that can be active at the same time. For example, in a four-line Poller, two lines can be activated for AUTO CALL, one for AUTO ANSWER, and one for MANUAL CALL/ANSWER.

1.3 MAJOR FUNCTIONS

The Poller performs the following major functions in any of the three operating modes:

- Data collection
- Data distribution (such as messages, data files, and program files)
- Limited processing

1.3.1 Data Collection

The Poller collects data by transferring information stored on the storage medium (bubble memory or disk) of the remote terminal to the storage medium (disk) of the polling computer.

1.3.2 Data Distribution

The Poller distributes data by transmitting DS990 disk files to remote terminals. The central disk files can contain data that the terminal uses, program object files (executable programs), or messages that the remote terminal displays.

1.3.3 Limited Processing

The Poller provides you with the capability to add tasks to perform limited processing functions on the data files that are sent to or received from the remote terminals. The Poller invokes these tasks during the terminal session (while the terminal is connected to the Poller) to perform simple arithmetic or data verification functions.

1.4 TYPICAL TERMINAL POLLING

A terminal polling session may consist of the following activities:

- Connection — Poller calls the remote terminal.
- Data Collection — Poller retrieves an entire file from the remote terminal.
- Limited Processing — Poller invokes a user task on the DS990.
- Data Distribution — Poller sends an entire file to the remote terminal.
- Disconnection — Poller terminates the polling activity with the remote terminal and disconnects the line.

1.5 POLLER SOFTWARE STRUCTURE

The Poller application software consists of six parts, as shown in Figure 1-1. The following paragraphs briefly describe these parts.

1.5.1 Configuration Management Utilities

The configuration management utilities create, modify, delete and verify the data structures before a polling activity. The network administrator can access configuration management utilities through the DX10 System Command Interpreter (SCI). The data structures are in disk files and are verified as they are created. Individual data structures cannot be modified while they are being used by the Poller or by using the Text Editor. For details on the configuration management utilities, refer to Section 4.

1.5.2 Poller Operation Utilities

The Poller operation utilities control the operations of the Poller. Poller operation utilities can start, halt, restart, terminate, abort, or test the Poller. They are accessed through SCI commands and menus. Other operation utilities display the line, terminal or Poller status; move data to/from magnetic tape; or allow manual interfacing with the Poller and DX10. For details on the Poller operation utilities, refer to Section 3.

1.5.3 Poll Master Task (PMT)

The following list describes the major functions of the Poll Master Task:

- Initialize data structures, work areas, and resources
- Create data or commands for the appropriate terminal
- Direct data or commands to the appropriate communication subsystem
- Process data or command status received from the remote terminal via a communication subsystem
- Maintain information on polling activity

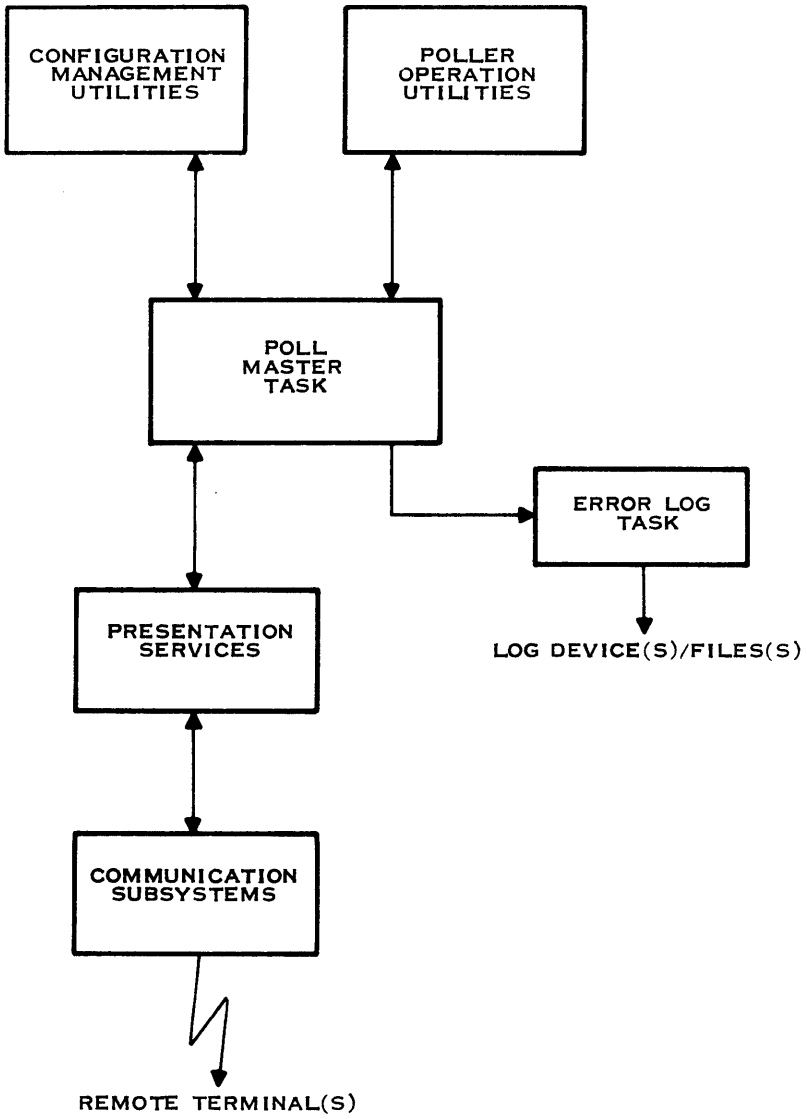

Figure 1-1. Poller Application Software Components

1.5.4 Error Logging Task

The error logging task records the various types of Poller errors, messages, and statistics to the files and/or devices specified by the network administrator in the Poller data base file. If the data is logged to a 911 VDT (STxx) or to a printer (LPxx), then the error logging task logs only the first 80 characters and converts all control characters (value less than 20 hexadecimal) to spaces. You can display or print the contents of the log files using the Show Log Files (SLF) and List Log File (LLF) commands described in paragraphs 3.6.5 and 3.6.6, respectively.

1.5.5 Presentation Service (PS) Tasks

The presentation service (PS) tasks convert the PMT commands to the appropriate protocol functions for the communication subsystem being used. The Poller software contains two different PS routines: PSTTY765 that supports the Model 763/765 terminals, and PS3780 that supports TI 767/769 and 990 terminals. The PS tasks are replicated for each line supporting its protocol and are assigned a priority of 1 to ensure prompt data handling.

1.5.6 Communication Subsystems

The communication subsystems transmit and receive data to and from the remote terminal. The BMTS-990 package handles transfers between the Poller and a Model 763 or 765 terminal; the DX10 3780 Emulator handles the interface between the Poller and remote 3780 devices (such as Models 767/769 or DS990). For details on the BMTS-990 and DX10 3780 packages, refer to the documents referenced in the Preface.

1.5.7 Poller Communications

The relationship between the PMT, the PS tasks, and the communication subsystems is shown in Figure 1-2. The configuration shown includes both PS tasks and both communication subsystems. When all the terminals are Models 763 and 765 terminals, only PSTTY765, the BMTS-990 package, and DSRTPD are required; when the network consists only of Models 767 and 769 terminals and/or 990 computers executing 3780 Emulators, only PS3780, EM3780, and 3780 DSR are required.

1.6 POLLER DATA STRUCTURES

The PMT uses data structures to determine which physical lines are available for use, which terminals can have activity sessions with the Poller, and what activities are to take place during the polling operation. The following data bases are created by the network administrator using the configuration management utilities to supply the required information to the PMT for use during the polling sessions:

- Terminal list
- Terminal data base
- Activity template
- Terminal procedure data base
- Poller data base

Each of these data bases is specified directly or indirectly for each Poller occurrence as shown in Figure 1-3.

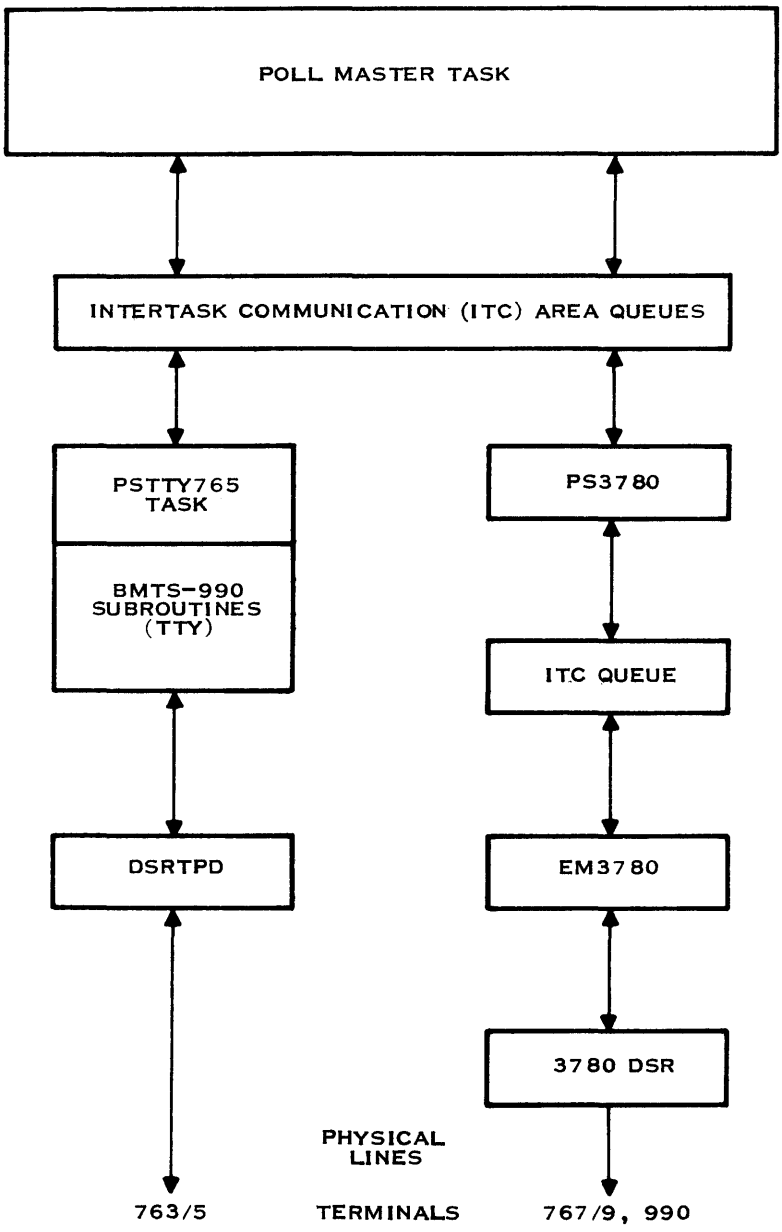

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Figure 1-2. Poller Communication Software

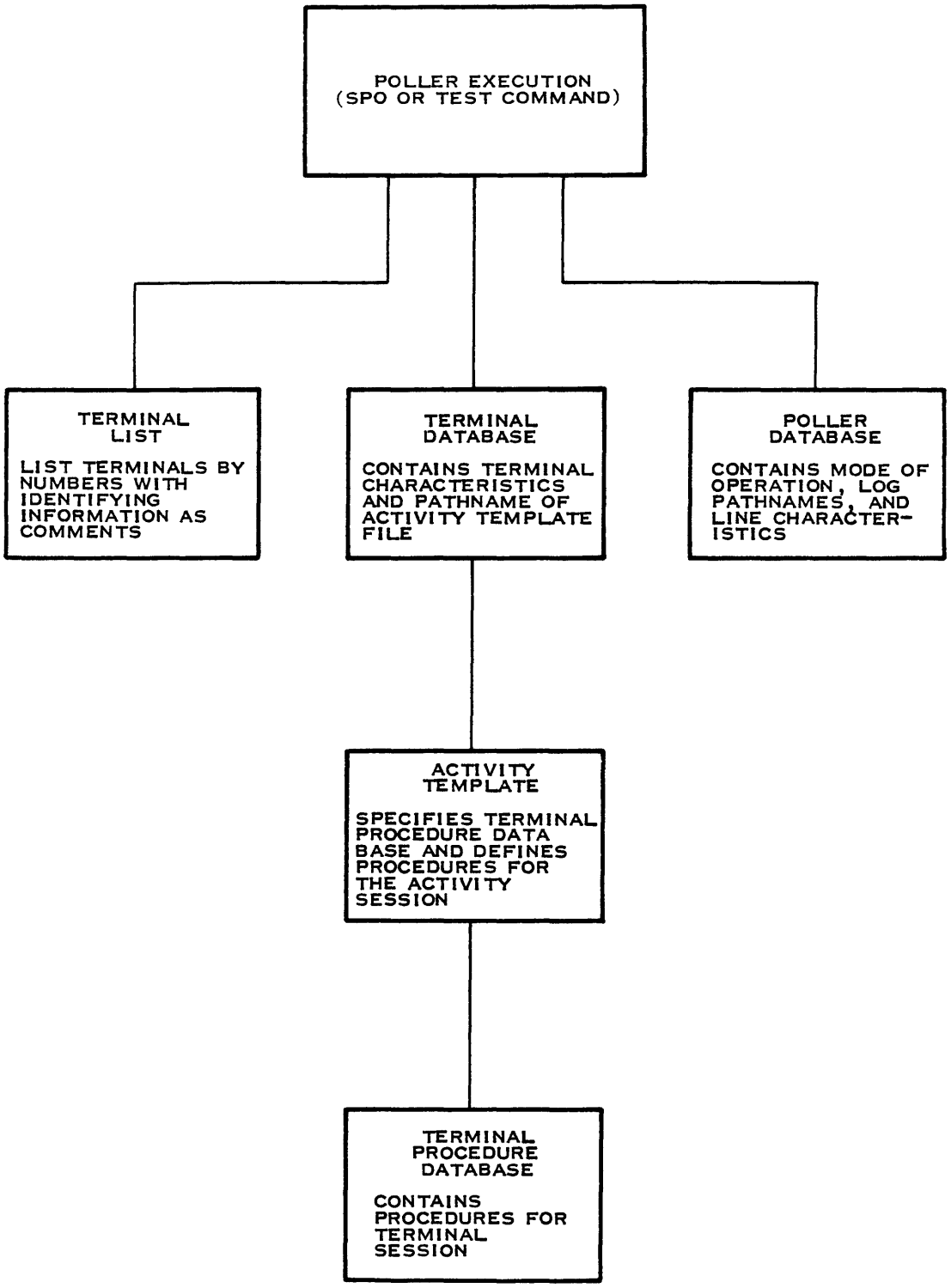


Figure 1-3. Data Structures for a Poller Occurrence

1.6.1 Terminal List

The terminal list is a list of the numbers of all remote terminals that can participate in a given polling activity. Each terminal in the terminal list must have a corresponding entry in the terminal data base. The order of the terminals in the terminal list is the order in which the Poller attempts to poll the terminals.

1.6.2 Terminal Data Base

The terminal data base is an ordered set (by remote terminal number) of physical attributes of each terminal in the terminal list. Each terminal entry references the activity template that is used during the polling activity with the terminal. Terminal data base entries for terminals not in the terminal list are ignored during the polling activity.

1.6.3 Activity Template

An activity template defines the generic procedures that the poller performs during a polling session with an individual terminal or group of terminals. This template references the terminal procedure data base that defines in detail the commands to be executed.

1.6.4 Terminal Procedure Data Base

The terminal procedure data base contains the specific Poller and terminal commands along with the DX10 or terminal file names needed to define Poller activity template procedures.

1.6.5 Poller Data Base

The Poller data base is the set of physical resources available to the Poller. These resources include the number of lines and their attributes (such as protocol, modem, and baud rate). The Poller data base also includes the log files and/or devices to be used and the type of information to be logged to each.

1.7 HARDWARE COMPONENTS

The following major hardware components comprise the minimum DS990 hardware system that supports the Poller software:

- Model 990/10 or 990/12 Computer
- Main memory with mapping, 256K bytes
- Model 911 VDT operator console
- Model 810 Impact Printer
- Disk drive(s) with the appropriate controller as follows:
  - — DS10 (9.4 megabytes) (two disk drives recommended)
  - — DS25 (22.3 megabytes)
  - — DS50 (44.6 megabytes)
  - — DS200 (169.5 megabytes)
  - — CD1400 (32 or 96 megabytes)
- At least one of the following kits:
  - — 990 communications interface
  - — Bell data set interface

NOTE

Refer to Section 5 for details on DS990 system configuration.

1.8 HARDWARE OPTIONS

The hardware options for a Poller package consist of the following kits:

- External automatic calling (ACU) unit interface
- Communications interface kits
- Internal synchronous modem (Bell 201 type) and ACU
- 979A tape drive (800 bpi or 1600 bpi)
- Additional 911 VDTs and controllers

Utilizing additional hardware from this list of system options may require the addition of an expansion chassis to the main processor chassis. Information regarding expansion chassis planning is contained in the Texas Instruments computer family catalogs. See the *TI Computer Family Catalog* (TI-557C-20M-1/81) and the *TI Computer Family Price List* (TI-551-20M-2/81).

1.8.1 External ACU and Communications Interface

The external ACU interface kit and communications interface kit can be used to connect the DS990 system to various types of external modems and automatic dialers.

1.8.2 Internal Synchronous Modem and Auto-Call Unit

The 201 modem and ACU kits can be utilized to support 3780 protocol only.

1.8.3 Model 979A Tape Drive

This 979A tape drive is recommended where an industry compatible tape is required for transferring data to a host system. If a 3780 Emulator is installed on the system, the Emulator can be used to transfer data to a host system.

1.9 REQUIRED SOFTWARE

The following software packages are necessary with the specified applications:

- DX10 operating system (Release 3.4.0 or later)
- DX10 EM3780 (3780 communications only) (Release 4.0.0 or later)
- BMTS-990 (TTY communications only)

2

DX10 Poller Operations

2.1 INTRODUCTION

The Poller application software executes under DX10. It supports a set of menus and commands that are implemented as System Command Interpreter (SCI) menus and commands. These menus and commands become available to an operator or network administrator through the POLL command described in a subsequent paragraph.

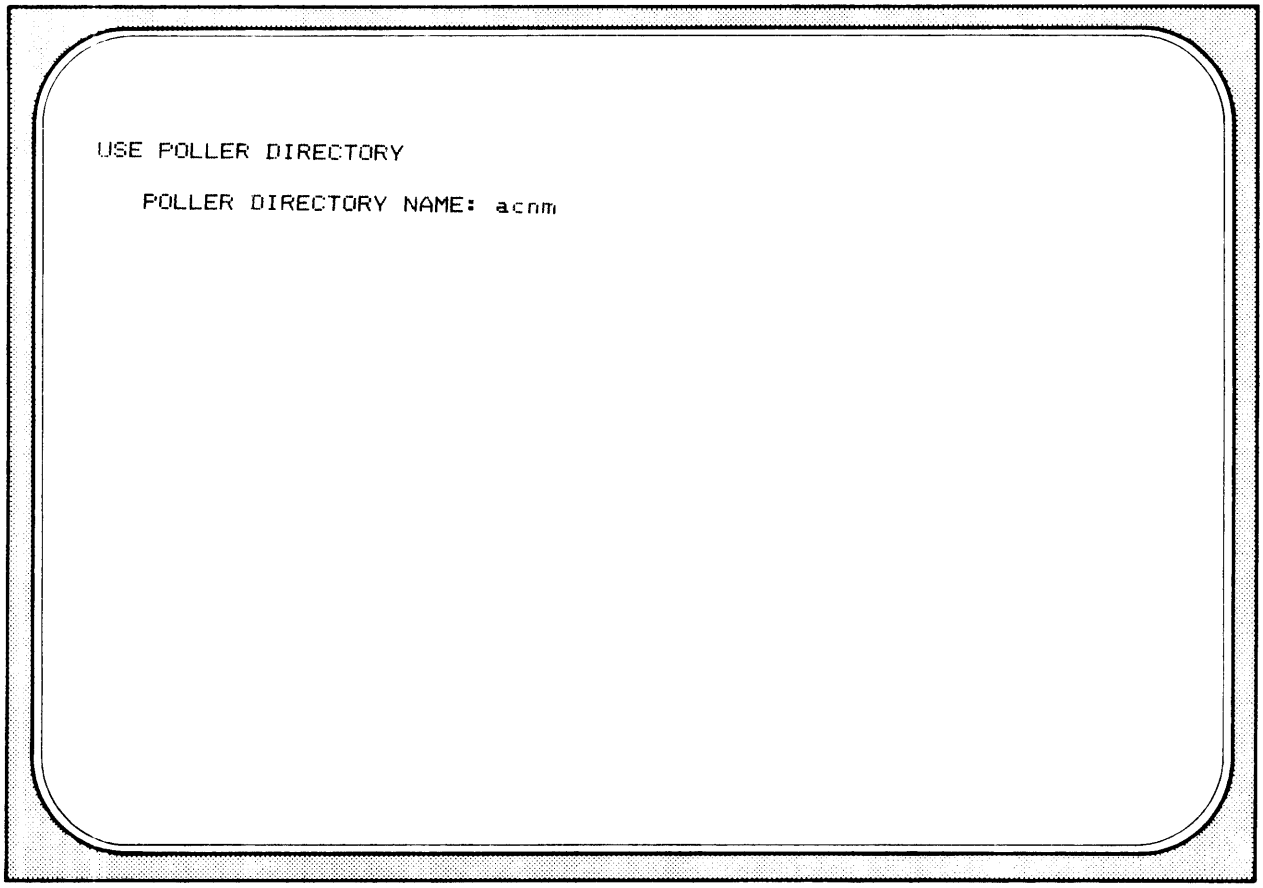
The command examples in this manual use the following symbol to represent the SCI request for input:

[]

The menus provided by the Poller are accessed by entering a mnemonic that begins with a slash (/). As in SCI, you may enter the desired command directly without first displaying the menu that lists the command.

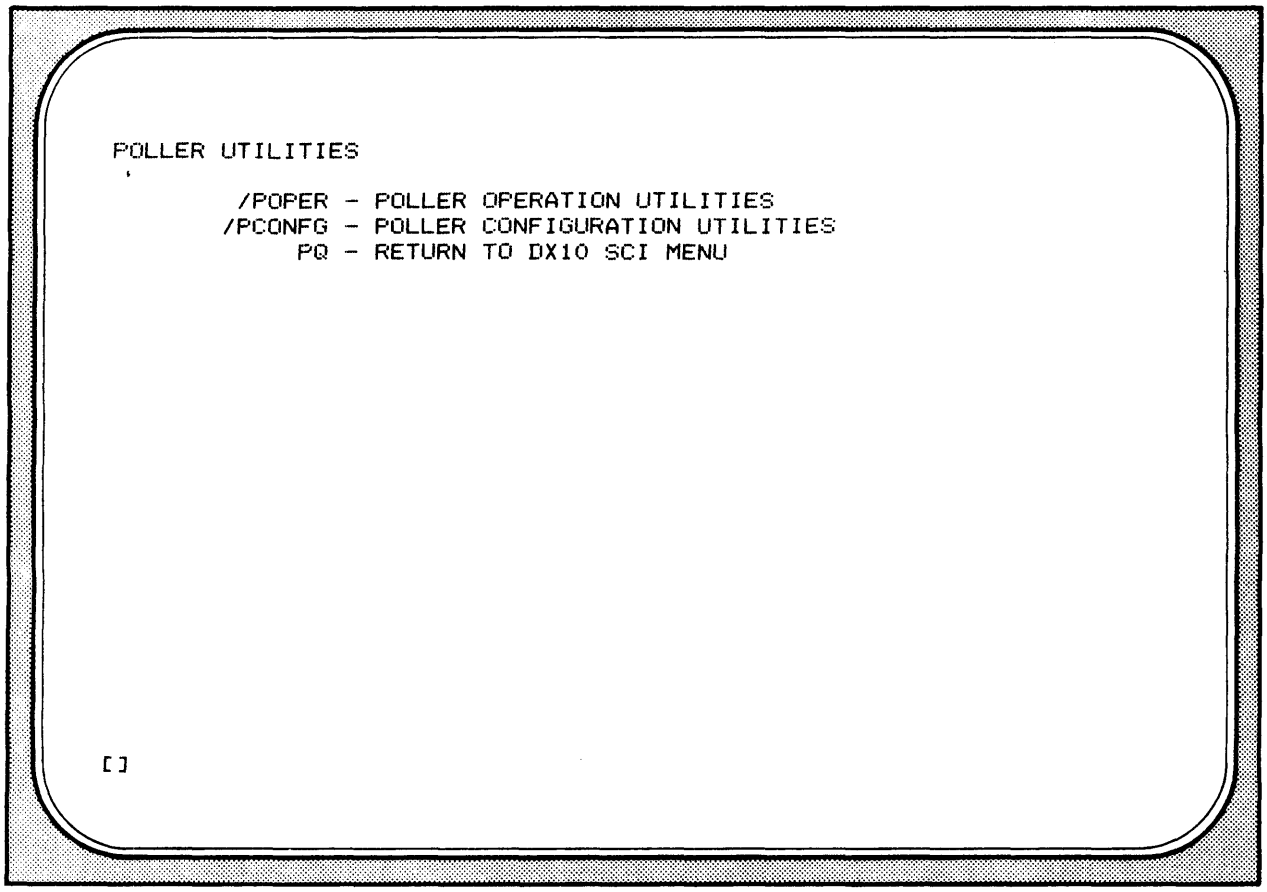
2.2 POLL COMMAND

The POLL command activates the Poller and enables the Poller commands and menus. The system displays the following screen when the command is entered:



POLLER DIRECTORY NAME is the pathname of the directory under which the Poller application software was installed.

The POLL command assigns synonym V to the pathname entered, assigns global LUNO >81 to Poller program file V.P$PROGA, and assigns global LUNO >82 to DX3780 program file .S$COMMPF. The command then displays the following menu:



The POLL command makes Poller commands as well as SCI commands available for execution at the terminal until the PQ command is entered.

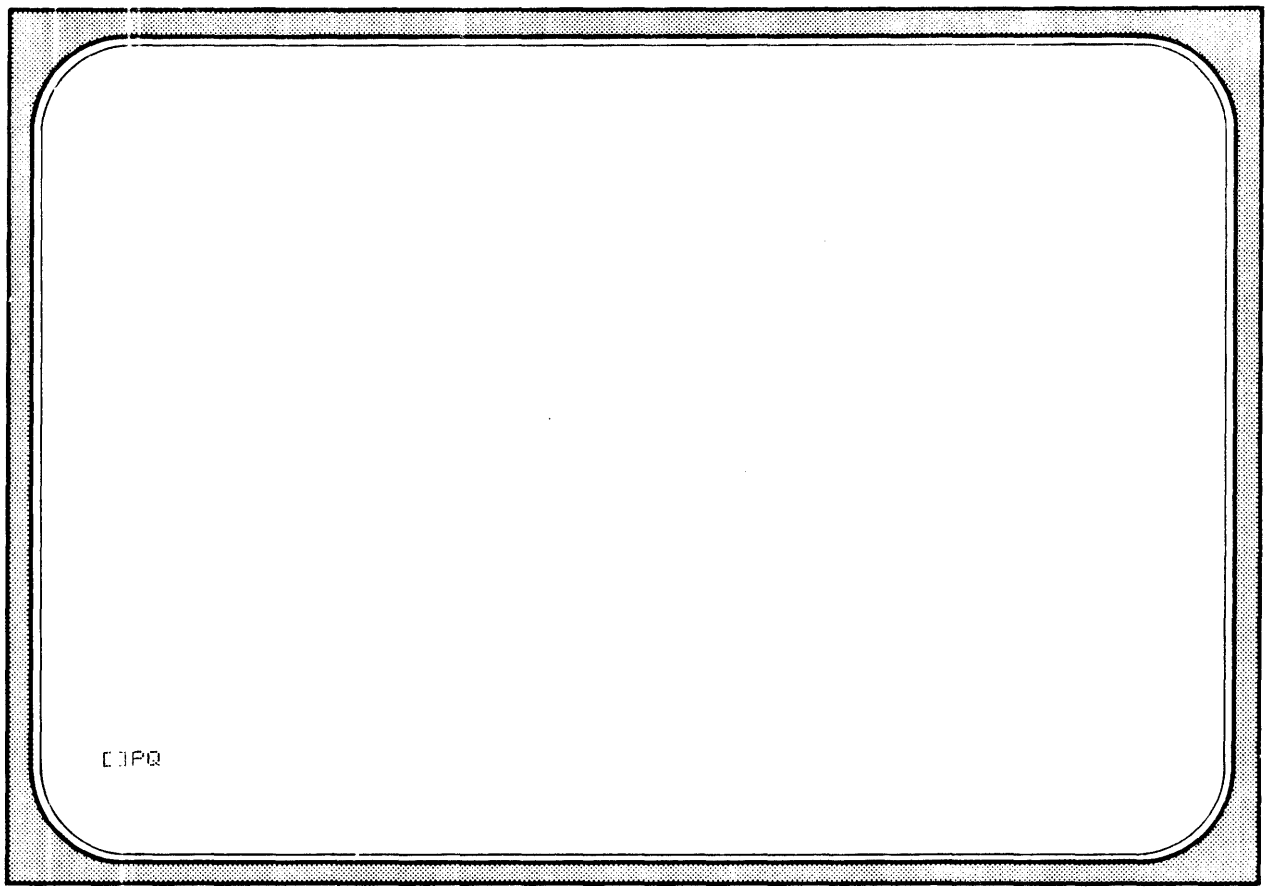
Where no 3780 Emulator is installed, the POLL command returns an error message. You can suppress this message by applying an optional patch described in the *DX10 Poller Application Software Object Installation Manual.*

The Poller operation utilities are used by the operator to control the Poller execution. These utilities are described in Section 3.

The Poller configuration utilities are used by the network administrator to set up and maintain the data bases required by the Poller. These utilities are described in Section 4.

2.3 PQ COMMAND

The PQ command returns to the main SCI menu. Poller commands are not available after execution of this command. Poller synonyms (except for two) are deleted. The PQ command is entered as follows:



The two Poller synonyms that remain after execution of the PQ command are V (assigned to the Poller software directory pathname) and OCC (assigned to the occurrence number, which is the run-time ID of the most recent execution of the Poller task). The command does not release global LUNOs >81 and >82.

3

Operator Instructions

3.1 POLLER OPERATION UTILITIES (/POPER)

The operator interfaces with the Poller by using the Poller operation utilities. These utilities are accessed via System Command Interpreter (SCI) menus and commands from a Model 911 VDT.

The operator uses the operation utilities to start, terminate, halt, restart, abort, or test an occurrence of the Poller. The operator uses another set of commands to terminate, abort, and restart the activities on an individual Poller line.

Other Poller operation utilities provide for the displaying or printing of line, terminal, or Poller status, as well as the displaying or printing of formatted reports of the Poller log files.

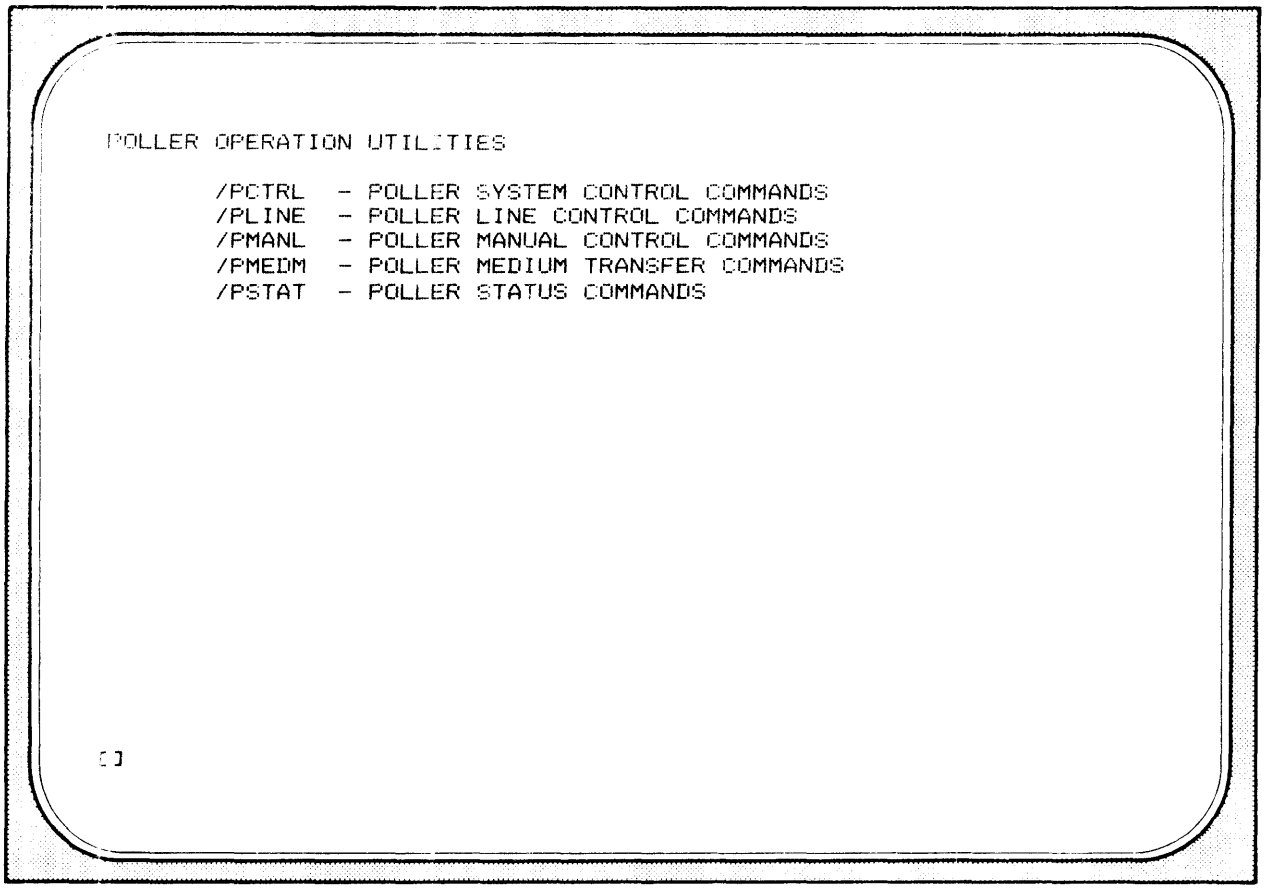
Additional operation utilities provide commands that allow the operator to manually interface with the Poller in order to test or debug the Poller network.

Finally, there is a set of Poller operation utilities for tranferring data between DX10 disk files and magnetic tapes. These tapes can then be processed on a host system.

Since operators at multiple Model 911 VDTs can execute Poller commands simultaneously, one VDT should be designated as the operator console and all commands which control the Poller (/PCTRL, /PLINE, /PMANL, /PMEDM) should be initiated from that terminal. The additional VDTs should therefore be used only for requesting reports through the Poller status commands (/PSTAT).

Most Poller operation utilities require input of the Poller occurrence number; this number is the run-time ID of the Poll Master Task (PMT). The concept of an occurrence of the Poller is used because status information from previous Poller occurrences is maintained on disk for later access by the user; this data is accessed by the Poller occurrence number. This number is provided as a default on the Model 911 VDT which starts the Poller (see SPO); at another station, you may determine this number by executing the RPS command.

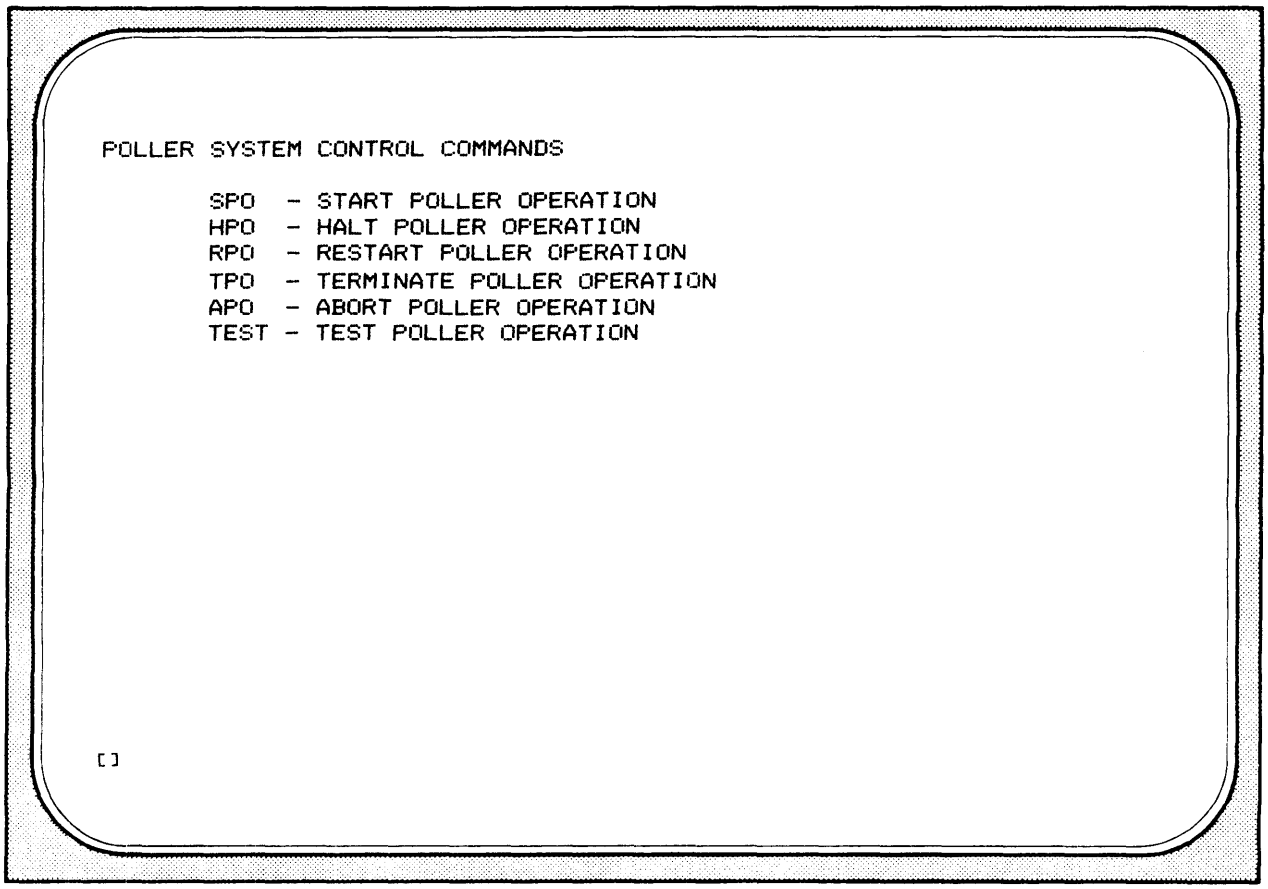
This section discusses the Poller operation utilities commands. When the operator enters the /POPER command, the following menu of Poller operations will be displayed:



3.2 POLLER SYSTEM CONTROL COMMANDS (/PCTRL)

The control commands govern the use of the Poller software package during a Poller occurrence. These commands are used to initially TEST the data bases to be used for a live occurrence. Then they are used to start, halt, restart, terminate, and/or abort an occurrence of the Poller. Only one Poller control command may be issued at a time; if more are issued, an error message will be generated. The exception to this rule is that APO may be issued to override an HPO or TPO command.

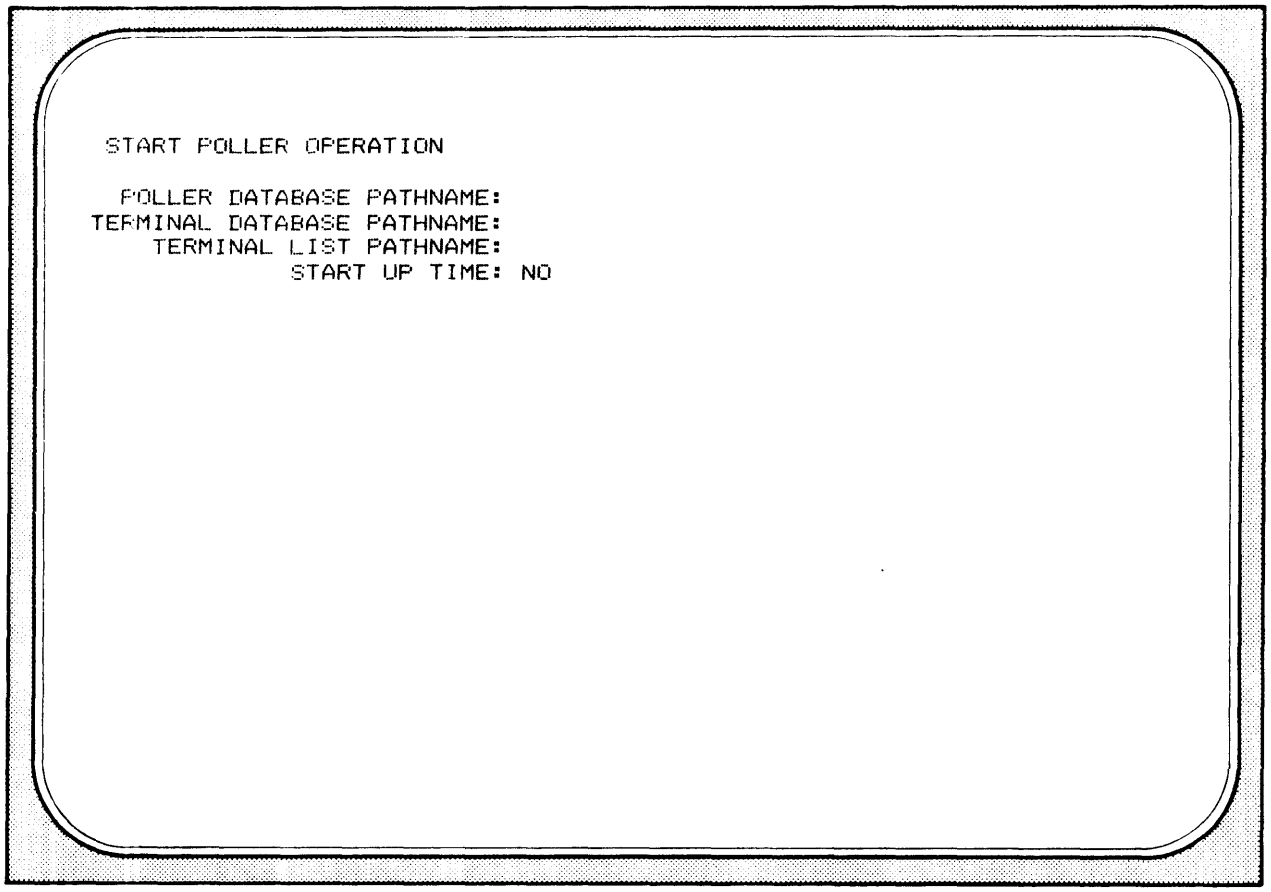
Operator input of the /PCTRL command causes the following menu of Poller system control commands to be displayed:



3.2.1 Start Poller Operation (SPO)

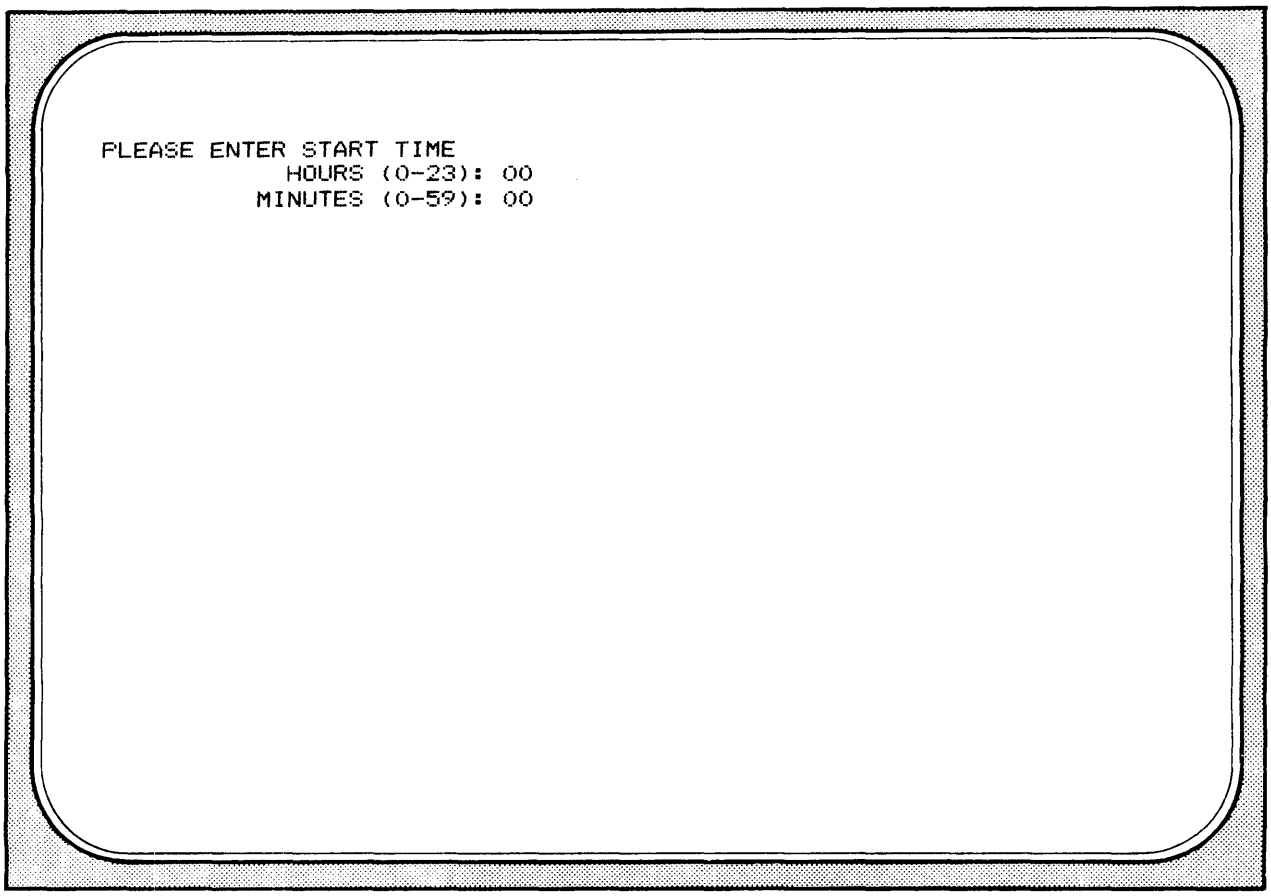
This command is used to start the Poller operation. Before this command is issued, the user must have already generated a complete set of data bases (via the /PCONFG utilities) and tested them using the TEST command. The SPO command starts a live occurrence of the Poller and expects the information in the data bases it prompts for to be both correct and complete.

Input of the SPO command generates the following display, prompting the operator for the pathnames of the data bases to be used by the Poller:



The Poller data base pathname, the terminal data base pathname, and the terminal list pathname are the pathnames of the DX10 disk files containing the information to be used by the Poller software to perform the desired polling activities. The network administrator normally provides these pathnames to the operator.

To start the Poller immediately, accept the default for the prompt START UP TIME (NO) by pressing the RETURN key. If a later start time is desired, key in YES and press the RETURN key. This produces the following display of prompts:



The hours and minutes represent the time of day when the Poller will be started, not the time to wait before starting the Poller. Execute an SDT command to obtain system time (which the SPO command uses) and determine the start time from system time. If the time entered is before the current time, the Poller will wait until the next day before starting the polling activities. If an error in specifying the time is made, the operator can abort SPO by executing a hard break sequence on the terminal which issued the SPO command. The hard break sequence for the 911 VDT consists of pressing the blank orange key followed by the CONTROL and X keys.

The SPO procedure may take a few minutes to complete, depending on the number of terminals in the terminal list. But, if the terminal data base is created in the same order as the terminal list, the time required to complete the Poller startup (SPO) will be greatly reduced. The terminal is not available for other activities until SPO completes.

After acquiring the specified data bases and successfully completing the start-up procedure, the Poller generates a message which displays the occurrence number (run-time ID of the Poller task).

```
0000      :  POLLER SPO COMPLETE; OCCURRENCE NUMBER IS: >XX
```

The initiating terminal retains the occurrence number in a synonym (OCC) which is used as the default response for all subsequent operator requests for Poller occurrence number at that terminal.

If the SPO procedure does not complete successfully, an error message will be displayed on the Model 911 VDT which issued the SPO request. This message will indicate the reason why the SPO command failed; additional details on these error messages may be found in Appendix B.

When the system is actively polling, all log messages are written directly to the disk file(s) and/or devices specified in the Poller data base. These log file(s)/device(s) must be available to the Poller when it is started and while it is executing because log data is not spooled to the files/devices.

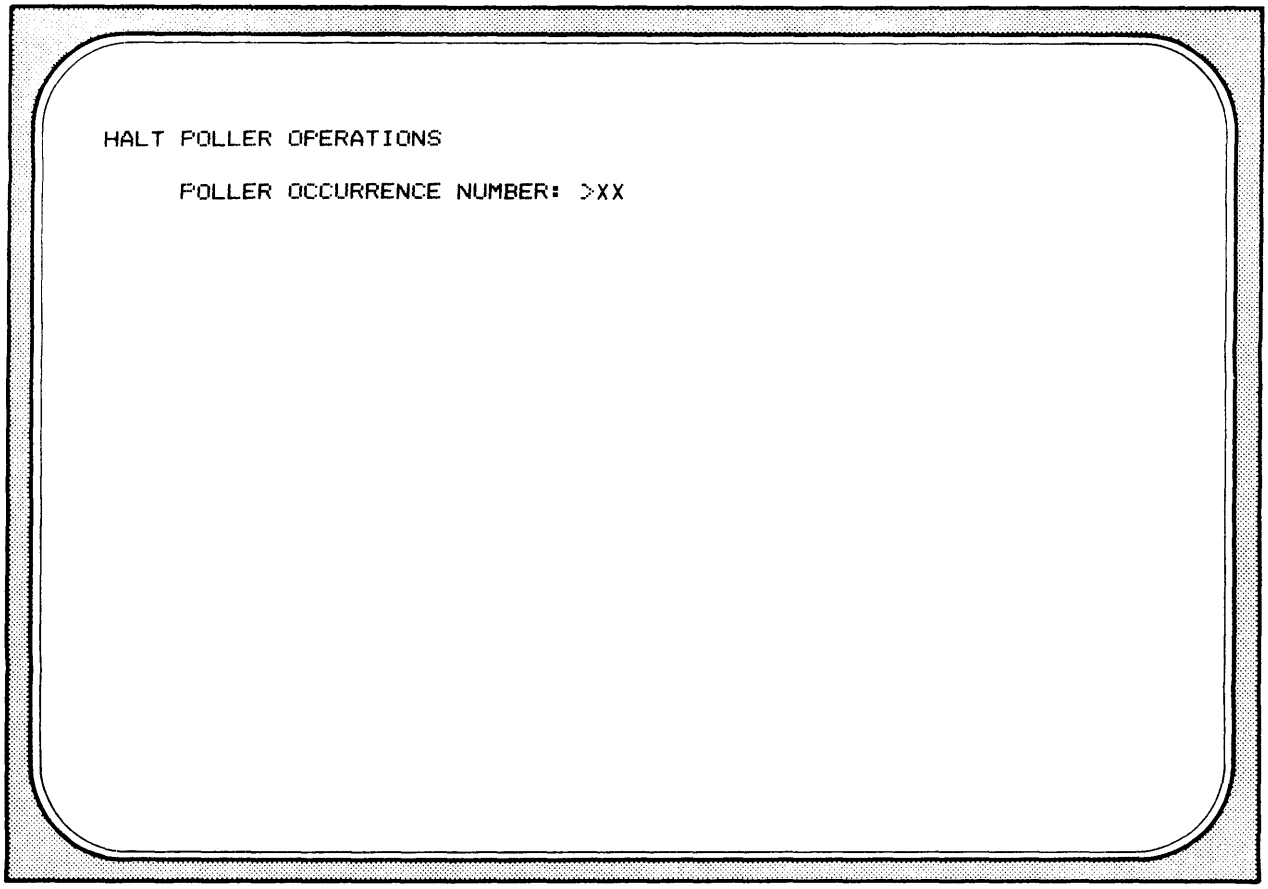
3.2.2 Halt Poller Operation (HPO)

The HPO command is used to suspend all Poller activity after all current terminal sessions have been completed. After the Poller is halted, it is possible for the user to modify any of the data bases being used by the Poller, with the exception of the terminal list. This command allows the user to change entries in the data bases after the Poller has been started, but without terminating the Poller. For example, the operator can halt the Poller to add or delete a line to/from the Poller data base, or to correct terminal information in the terminal data base, or to modify the commands in the activity template or terminal procedure data base. Note that any changes made to the terminal list data base will be ignored when the Poller is restarted.

The HPO command cannot complete if a line is in manual mode and has an answer-request outstanding (CALL SENT state), or current activity (BUSY).

The HPO command is not used in normal operations, but rather is used in exceptional circumstances. After an HPO command has completed, the Poller can be restarted via the RPO command or terminated via the TPO or APO command.

The HPO command produces the following prompt:



After the Poller occurrence number is entered, the display will read as follows:

46 : POLLER HPO REQUEST INITIATED

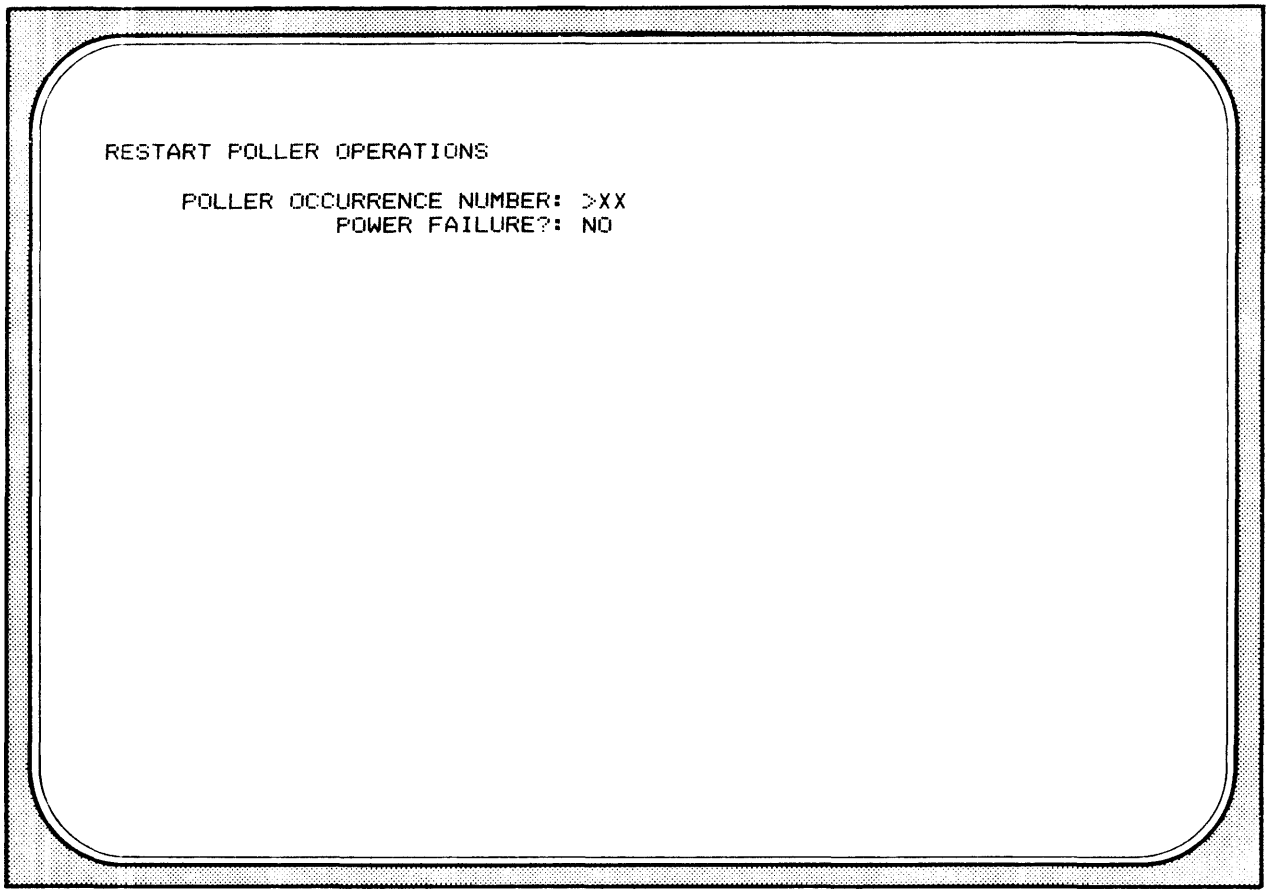
The HPO process could take several minutes to complete depending upon when the command is issued during the polling activity. When the request is completed the display will read as follows:

3500 : POLLER HPO COMPLETE

If the HPO command does not complete successfully, a Poller error message is displayed on the Model 911 VDT which issued the command. This message will indicate the cause of the failure; refer to Appendix B for further details on any Poller error.

3.2.3 Restart Poller Operation (RPO)

The RPO command restarts the Poller from a halted state (after an HPO command) or following recovery from a system power failure. When the restart procedure is completed, the Poller resumes operation with the next terminal in the terminal list. The RPO command produces the following prompts:



To restart the Poller after a system power failure, answer YES to the POWER FAILURE? prompt. After you respond to the prompts POLLER OCCURRENCE NUMBER and POWER FAILURE?, the display reads as follows:

FOREGROUND COMMAND EXECUTING

The display will then change to read as follows:

47 : POLLER RPO REQUEST INITIATED

When the normal restart procedure completes successfully, the following message will be displayed:

2A00 : POLLER RPO COMPLETE

If the response to POWER FAILURE? was YES, then the RPO completion message will read as follows:

2B00 : POLLER RPO POWER FAILURE COMPLETE

If the restart procedure does not complete successfully, an error message will be displayed which indicates the cause of the failure. Refer to Appendix B for details on the specific messages. If RPO fails, the Poller occurrence is left in the halted state so that when the problem that caused RPO to fail is corrected, another RPO command may be issued.

NOTE

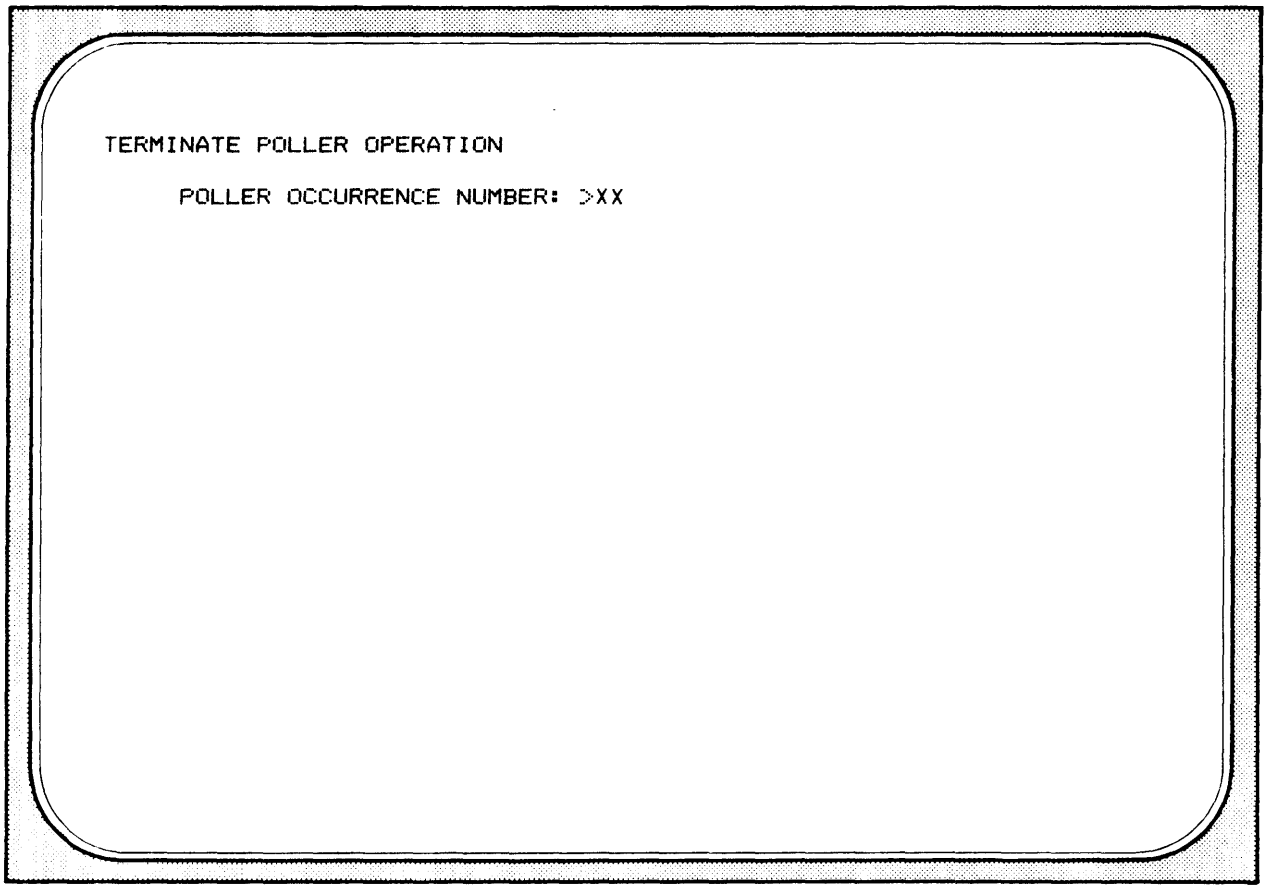
The data being transmitted to or received from the terminals actually connected to the Poller at the time of a power failure is assumed to be lost. The terminal sessions will be restarted either from the beginning of the activity template or from the beginning of the interrupted procedure as specified in the PIN command (paragraph 5.5).

3.2.4 Terminate Poller Operation (TPO)

This command causes a shutdown of a Poller occurrence after all the current terminal sessions have been completed. TPO is the normal command used to shut down the Poller.

After all polling activity has taken place, and if all lines are in call mode, the Poller will automatically execute a TPO to shut itself down. This feature is optional (see PIN command), but automatic TPO is enabled in the delivered software. If it is disabled, the operator will always be forced to issue a TPO command when the polling activity is completed.

The TPO command prompts for the Poller occurrence number, checks to ensure that the Poller is active, and terminates the Poller when the current terminal sessions are completed. After the TPO command is entered, the display will show the following:



When the Poller occurrence number is entered, the display will show:

```
48          :  POLLER TPO REQUEST INITIATED
```

The TPO process can take several minutes to complete depending upon when the command is issued during the polling activity. The Poller utilities SPA, RLS, RTS, and SLF are useful for monitoring the Poller shutdown process. Note that if a line is in manual mode and has an answer-request outstanding (CALL SENT state) or is BUSY, the TPO command cannot complete; the manual answer must be resolved and the line disconnected (via the MDISC command), or an ALO or APO command must be issued.

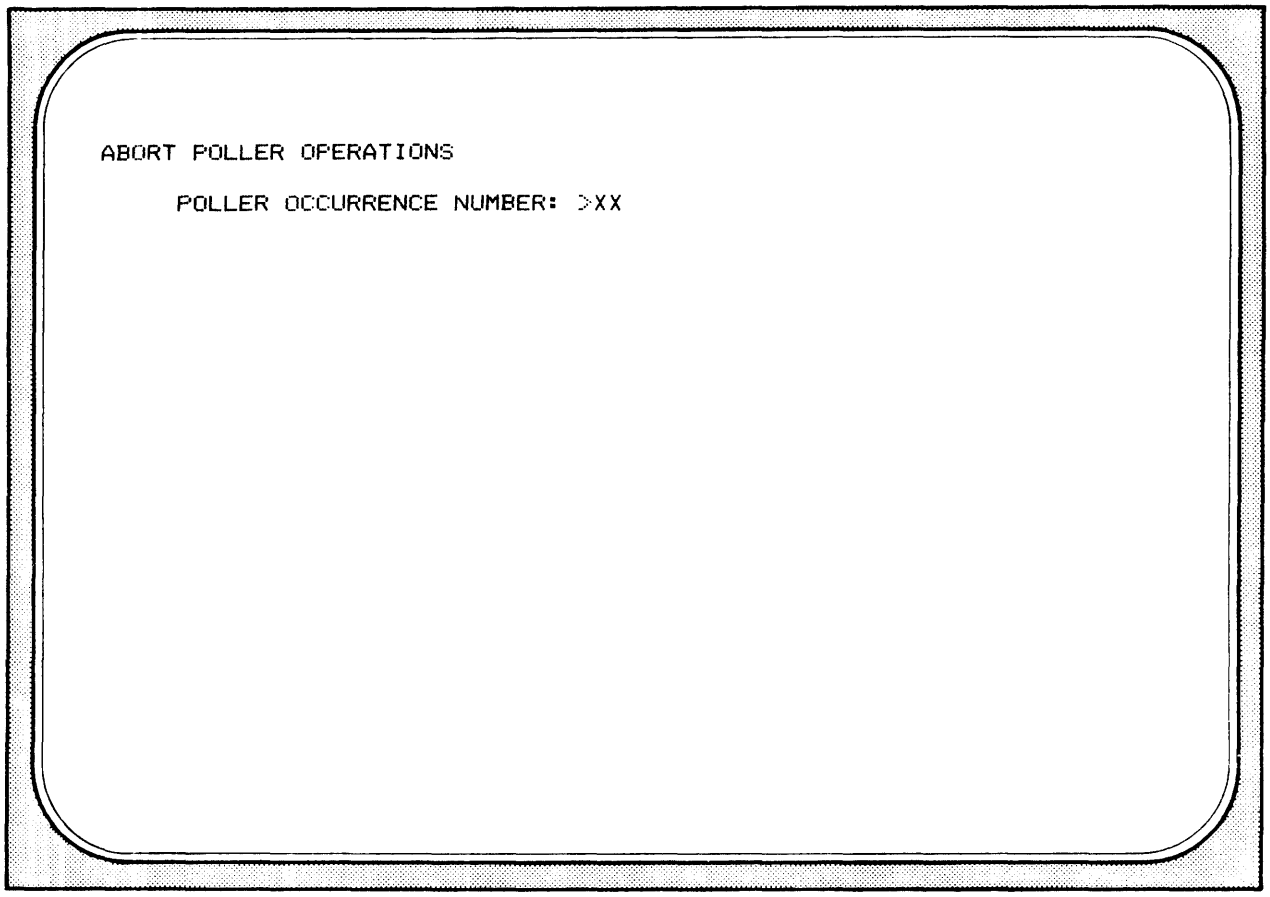
After the TPO command is completed the display will read:

```
3100        :  POLLER TPO COMPLETE
```

If the Poller Master Task is not executing and a TPO request is issued, Poller returns an error message; refer to Appendix B for details and possible error recovery. However, if the TPO cannot shut down the Poller, no message is returned; monitor the shutdown as described previously to determine the status of the shutdown and the problem, if any. If TPO fails to complete, you must issue an APO command to shut down the Poller.

3.2.5 Abort Poller Operation (APO)

The APO command is used to abort the Poller activities immediately under exceptional conditions. APO does not wait for the current terminal sessions to complete. Since all Poller activities are abruptly terminated, the APO command is not the recommended means for shutting down the Poller. However, if a Poller occurrence has a line in manual mode with an answer-request outstanding (CALL SENT state), then APO must be used to terminate that occurrence. Entering the APO command produces the following prompts:



When the Poller occurrence number is entered, the following message will be displayed:

49 : POLLER APO REQUEST INITIATED

After the command is completed the display will read:

3200 : POLLER APO COMPLETE

APO will complete successfully, unless the DX10 Intertask Communications fails. If this should happen, no APO completion message will be displayed and the Poller will become unoperational; only under these circumstances should the PMT task be killed via SCI. (Refer to paragraph 5.2.3 for details.)

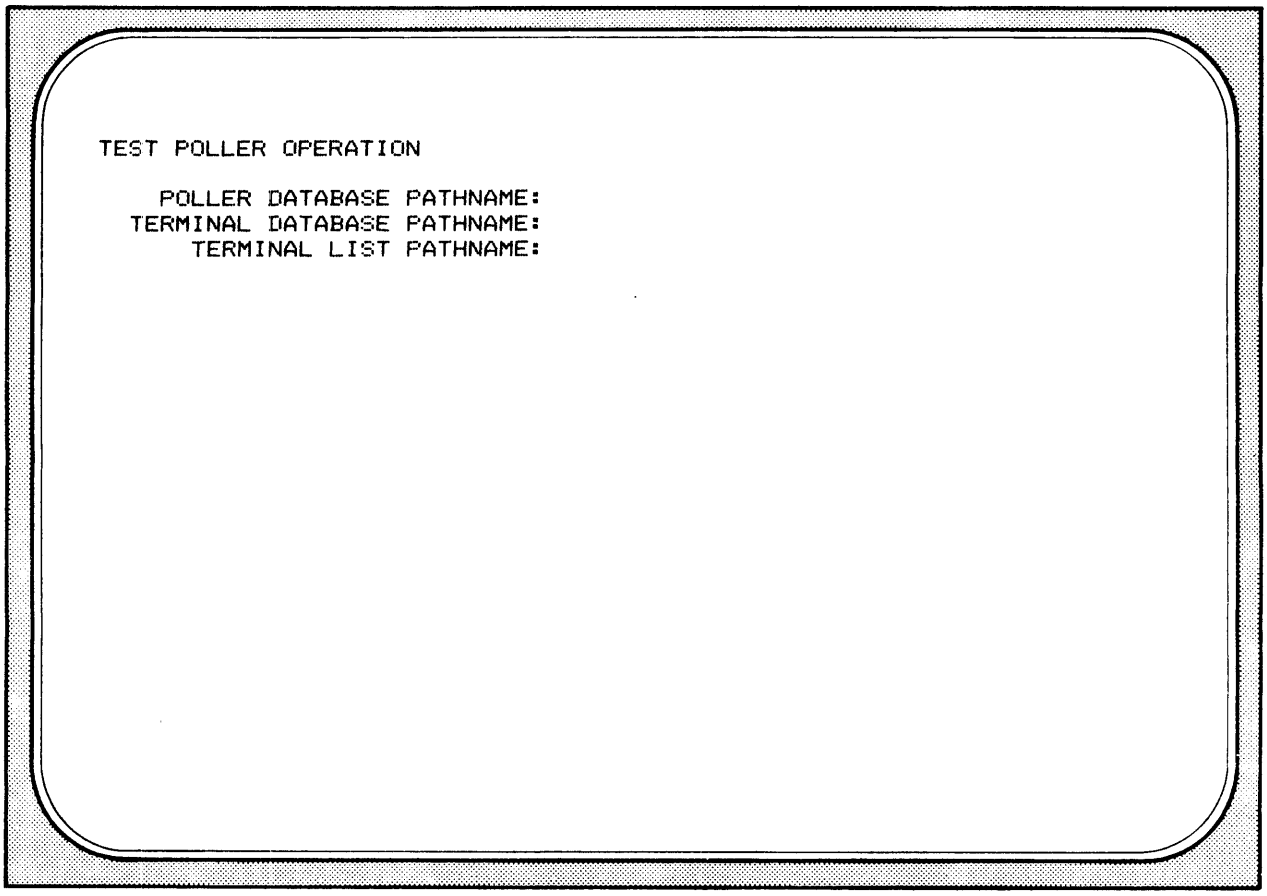
NOTE

All data from the already completed sessions remains intact and usable; only the data for the sessions aborted is of questionable integrity.

3.2.6 Test Poller Operation (TEST)

The TEST command is used to verify the validity of all the data bases for a Poller occurrence. The TEST command causes the Poller to perform the normal polling activities, except that no data or commands are actually transmitted over the communications links. In all other respects, this procedure executes exactly like a Start Poller Operation (SPO) command, and therefore requires the lines specified in the Poller data base to exist and be available. Under the TEST command the terminal sessions run very quickly, so the operator may not be able to monitor the progress of short sessions. However, the log files are generated as if for a normal Poller occurrence.

The prompts for the TEST command are as follows:



The Poller data base pathname, the terminal data base pathname, and the terminal list pathname are the pathnames of the DX10 files containing the Poller information to be tested. After the pathnames are entered, the display will read as follows:

FOREGROUND COMMAND EXECUTING

When the TEST startup is completed, the display will read as follows:

0000 : POLLER TEST COMPLETE; OCCURRENCE NUMBER IS: >XX

If the TEST procedure fails to complete successfully, an error message will be displayed on the Model 911 VDT that issued the TEST command indicating the cause of the failure. Refer to Appendix B for details.

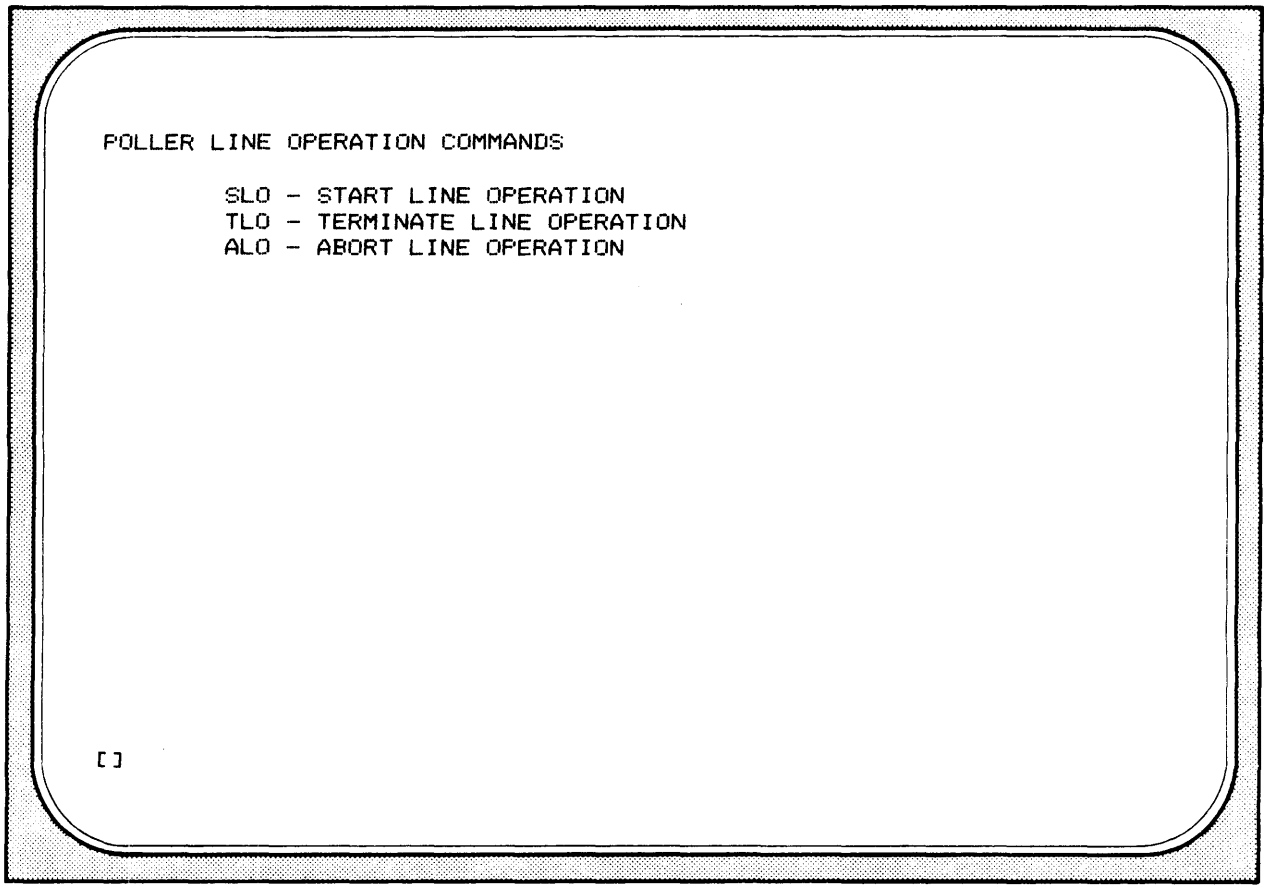
NOTE

Under the TEST command, no activity will occur for terminals with connection-type answer or on lines in answer mode.

3.3 POLLER LINE OPERATION COMMANDS (/PLINE)

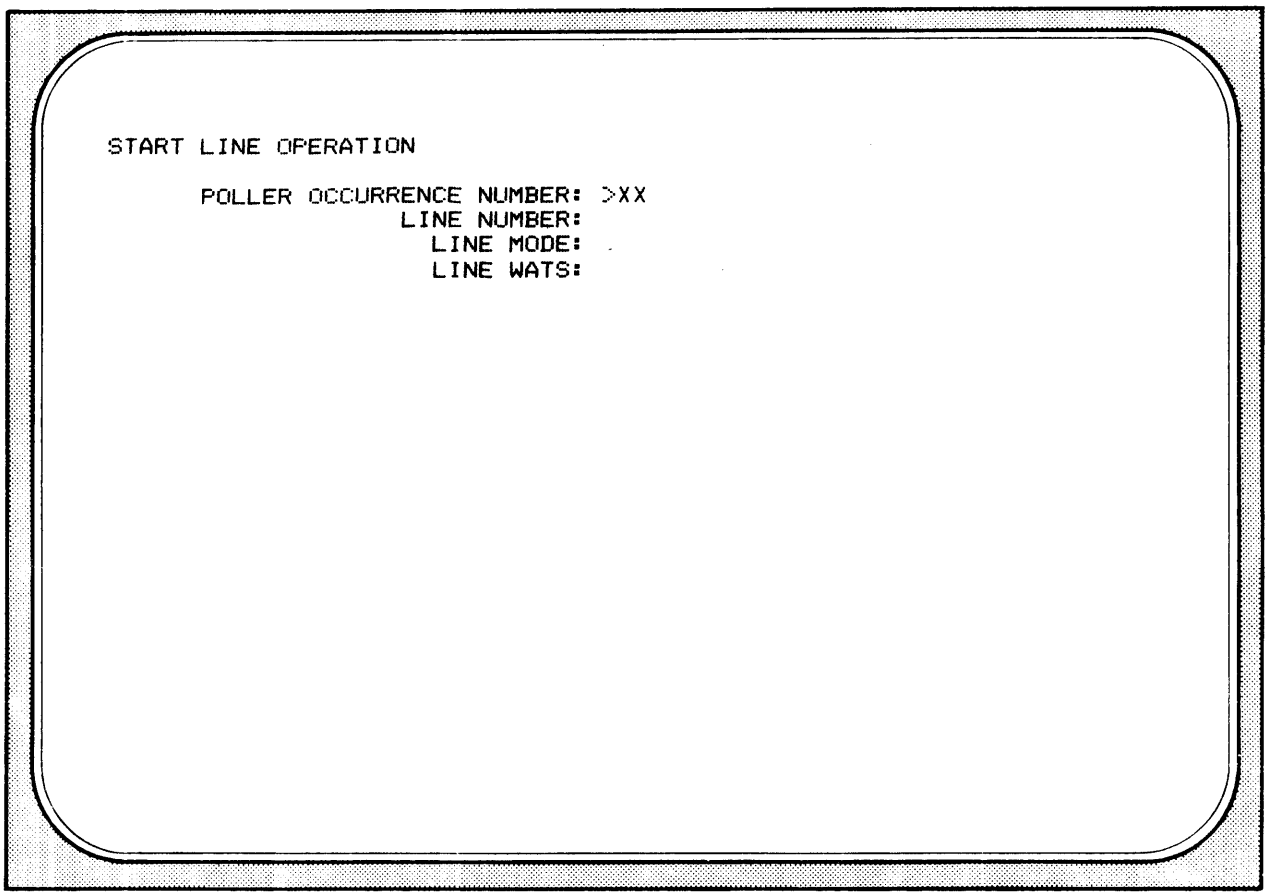
The line operation commands allow the operator to terminate, abort, or restart a particular line while the Poller is running. This provides the operator with a means of taking a line out of service or changing the characteristics of a line, without halting the Poller. However, after a Poller occurrence is started, a new line (not originally in the Poller data base) cannot be added with these commands.

Operator input of the /PLINE command causes the following menu to be displayed:



3.3.1 Start Line Operation (SLO)

This command is used to reactivate a line for use by the Poller after it has been deactivated by TLO or ALO. The SLO command can be used by the operator to change the mode or WATS characteristics of a line after the Poller has been started. The SLO command prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

Valid responses for the line mode are CALL, ANSWER, or MANUAL.

Valid responses for line WATS and their meanings are:

Space	Direct Distance Dialing (no WATS)
0	WATS band 0 (Intrastate)
1-6	WATS band 1-6

After the response to all prompts are entered, the display will show the following:

4C : POLLER SLO REQUEST INITIATED

When the request is completed, the display will show the following:

2800 XXXX: POLLER SLO COMPLETE

where:

XXXX is the line restarted (STXX or CMXX).

If the SLO command fails to complete successfully, an error message will be displayed that indicates the cause of the failure. Refer to Appendix B for clarification of the error and error recovery information.

NOTE

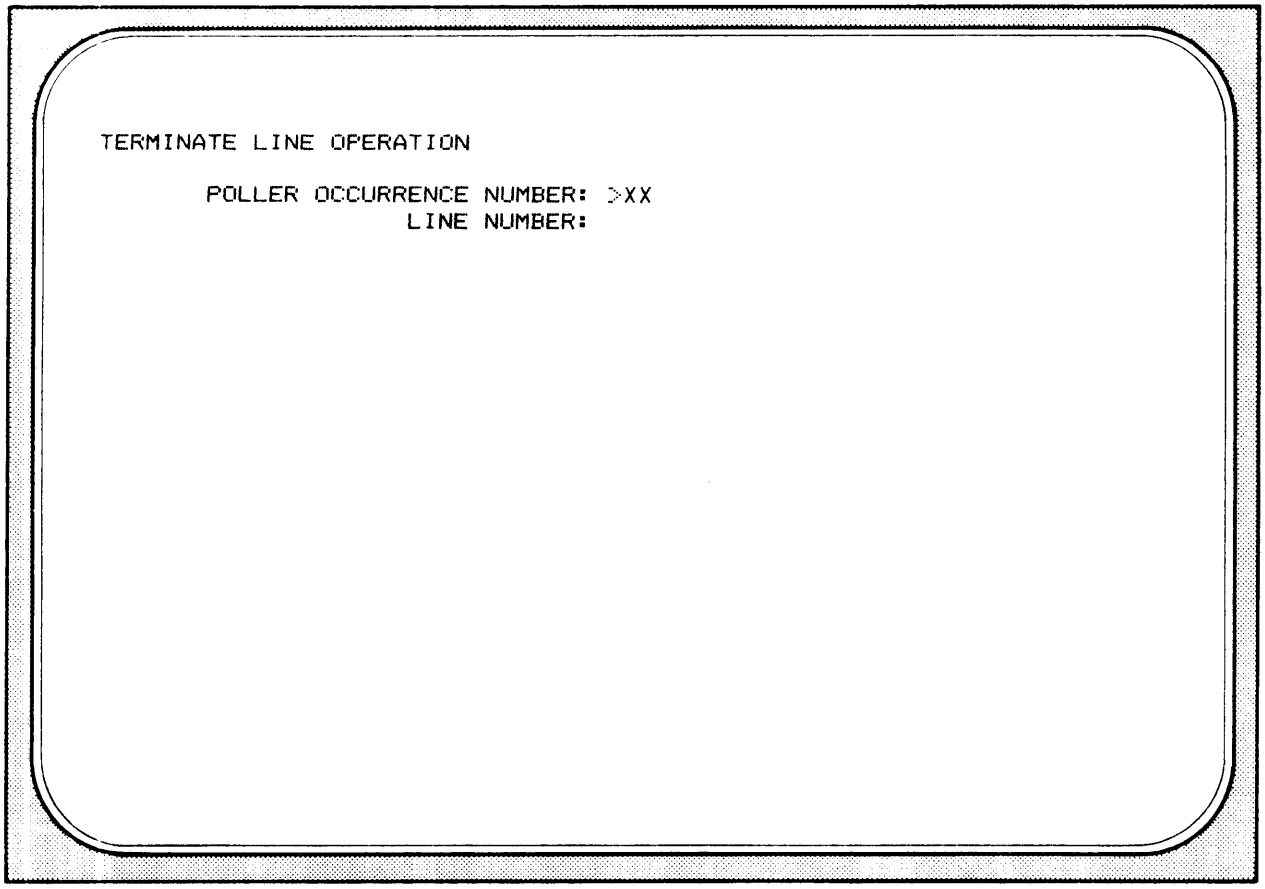
Whenever the Poller is started (SPO) or restarted (RPO), the lines utilized will return to those characteristics specified in the Poller data base file. This means all modifications made to lines after the initial startup will be lost if restarted; that is, the Poller data base file is not changed by an SLO command.

3.3.2 Terminate Line Operation (TLO)

The TLO command is used to shut down a line after the current terminal session is completed; the Poller occurrence must be active. If the line is busy, the current terminal session is allowed to complete before the line is deactivated. Once the line is deactivated, it may be used for other (non-Poller) purposes, or its characteristics may be changed and the line reactivated, via the SLO command. When the line is taken out of service, the Poller will continue to run as normal with the remaining line(s).

If a line is in manual mode with an answer-request outstanding (CALL SENT state) or with a session in progress (BUSY state), a TLO command will not deactivate the line until the answer is resolved and the session is disconnected (MDISC); otherwise, an ALO command must be used.

The TLO prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

When the Poller occurrence number and line number are entered, the display will show the following:

4B : POLLER TLO REQUEST INITIATED

When the line is successfully terminated, the display will show the following:

2600 XXXX: POLLER TLO COMPLETE

where:

XXXX is the line terminated (STXX or CMXX).

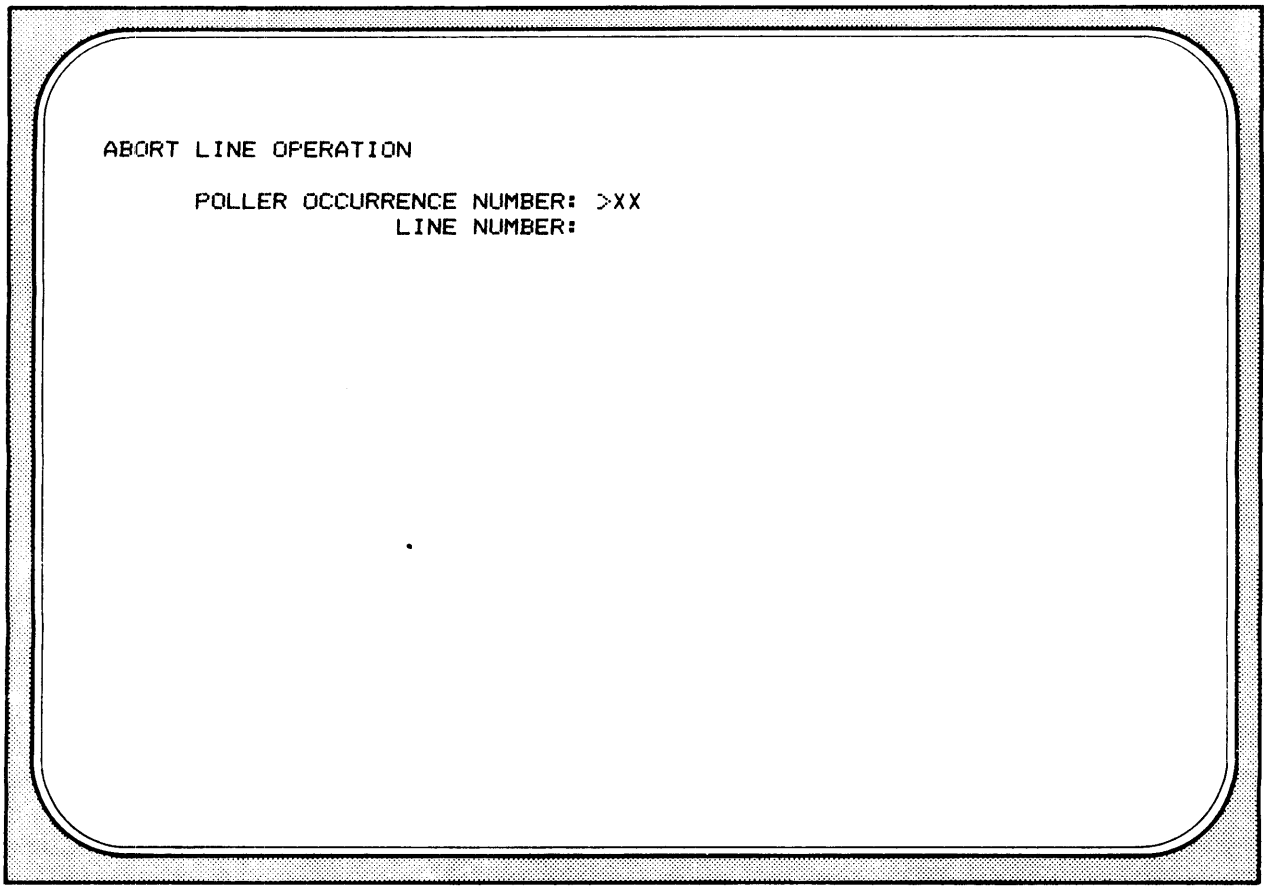
If the TLO command fails to complete successfully, an error message will be displayed which indicates the cause of the failure. Refer to Appendix B for clarification of the error and error recovery information.

3.3.3 Abort Line Operation (ALO)

The ALO command is used to deactivate a line immediately under exceptional conditions while a Poller is running. The ALO command shuts down a line without waiting for the terminal session to complete. The session is abruptly ended and any data being transmitted/received through this terminal session should be regarded as incomplete.

If a line is in manual mode with an answer-request outstanding (CALL SENT state) or with a session in progress (BUSY state), then only an ALO command can deactivate the line.

The prompts associated with the ALO command are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

When the Poller occurrence number and line number are entered, the display will show the following:

```
4A          :  POLLER ALO REQUEST INITIATED
```

When the abort processing is completed, the display will show the following:

```
2300 XXXX:  POLLER ALO COMPLETE
```

where:

XXXX is the line aborted (STXX or CMXX).

If the ALO command fails to complete successfully, an error message will be displayed which indicates the cause of the failure. Refer to Appendix B for clarification of the error and error recovery information.

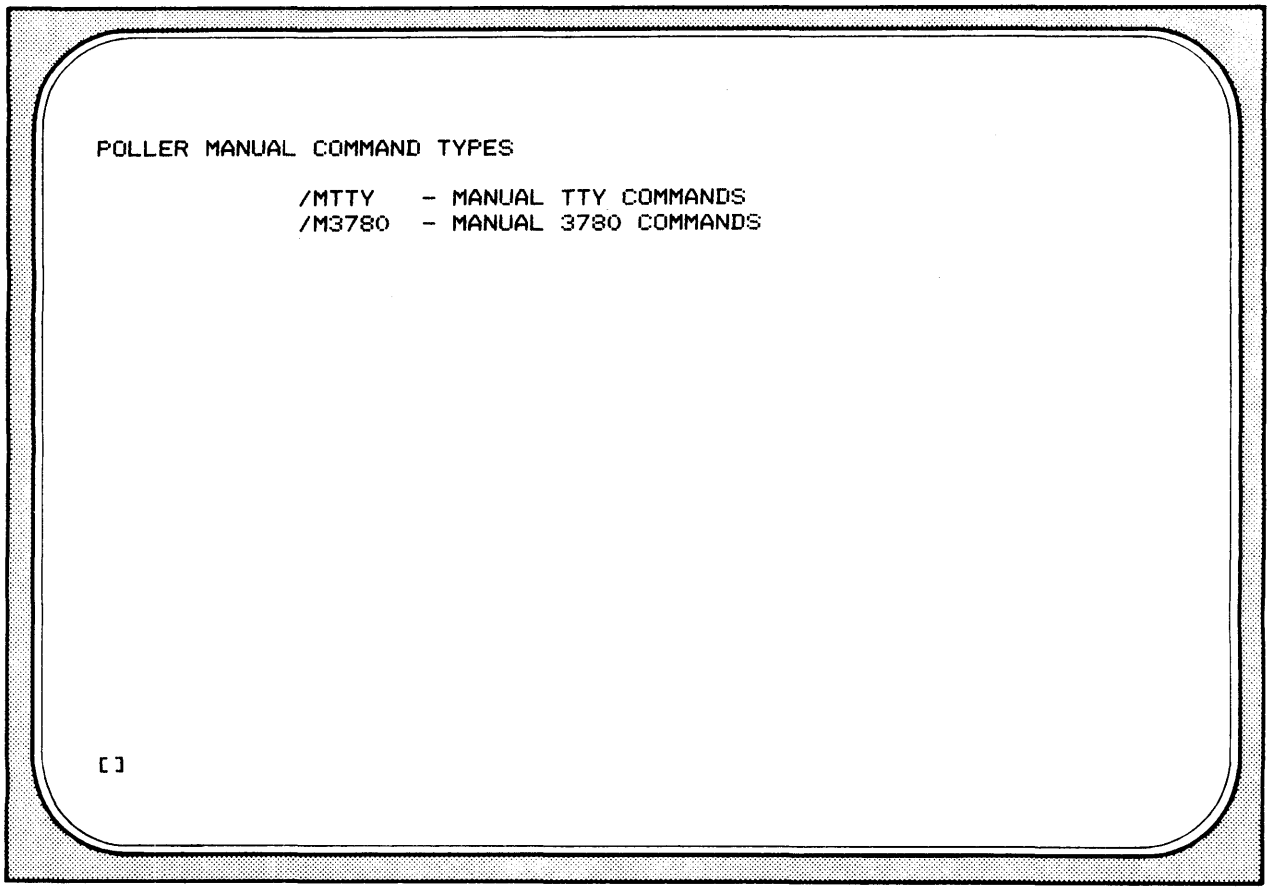
3.4 POLLER MANUAL COMMANDS (/PMANL)

The Poller manual commands provide the operator with a direct interface to the Poller. These commands may be used by an operator to manually control a session with a remote terminal on either a TTY or a 3780 line.

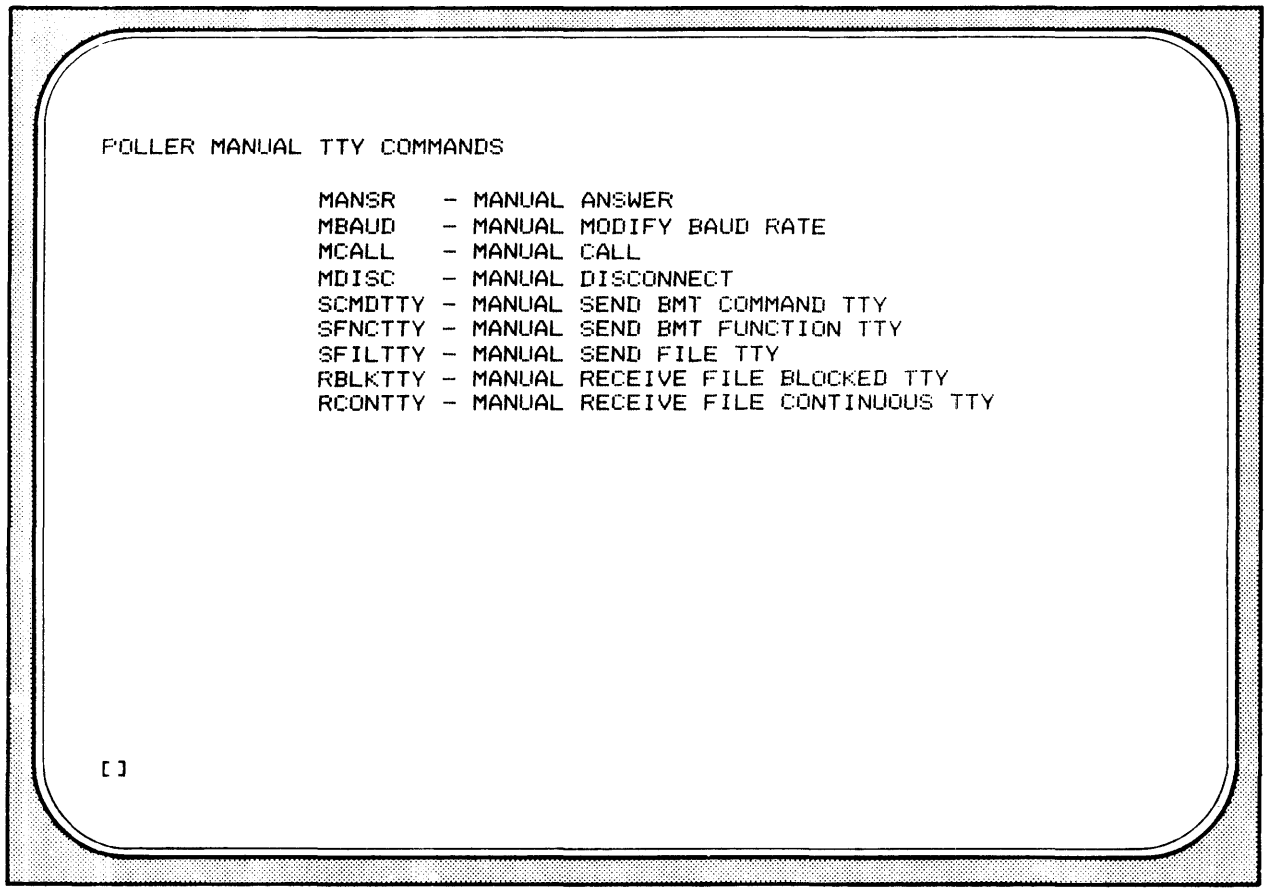
All of the Poller manual commands require that the line on which they will be executed be in manual mode. These commands provide the operator with the ability to manually call a remote terminal, establish a manual line to receive incoming calls from terminals, or to disconnect the session on a manual line. In addition, after the manual session is established, the remaining commands provide for the transmitting/receiving of files or commands to/from the remote terminal.

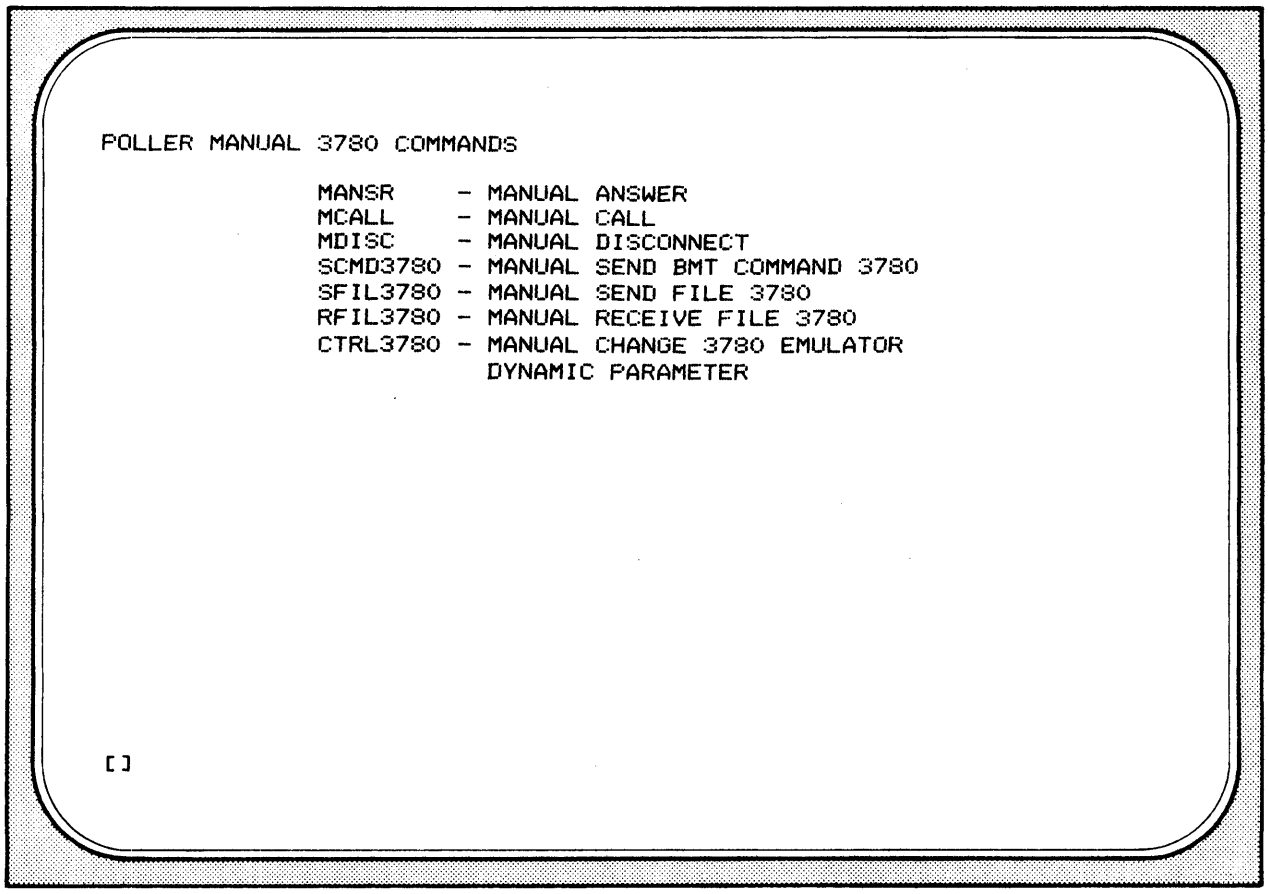
Manual operation of the Poller should not be the normal operating mode. However, the manual commands are useful when debugging and testing a terminal session, when trying to isolate a communication network problem, and when recovering from errors. As an example, the manual call command can be used to initiate terminal sessions when an ACU unit fails.

When the operator enters /PMANL, the following menu is displayed:



The operator selects from these two menus, depending upon whether a manually controlled TTY or 3780 line is used. The menus generated by both of these choices are shown below, and the various commands are described in the following sections. Some of these commands are the same for both TTY and 3780.

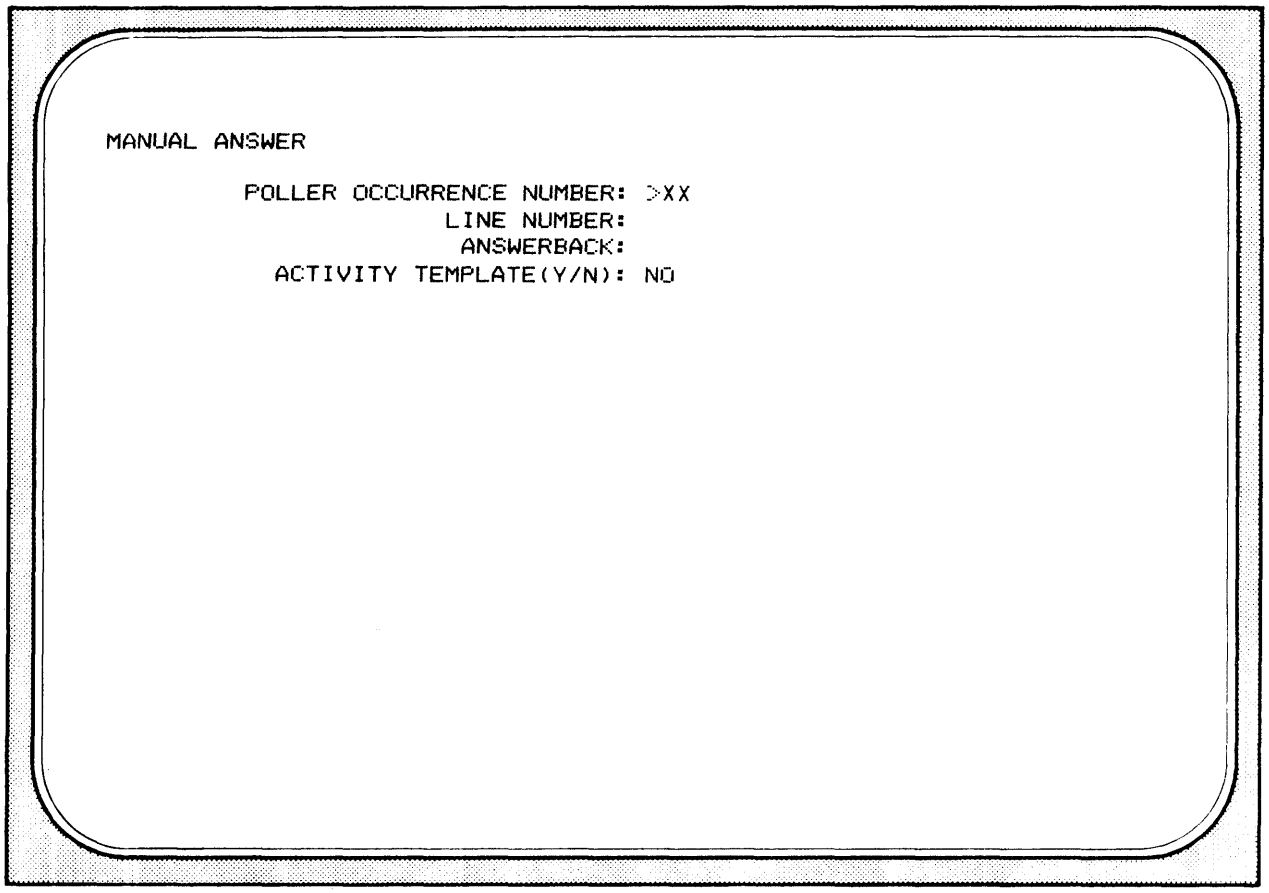




The completion status message from all manual commands includes the status from the BMTS-990 package (for TTY lines) or from the 3780 Emulator (for 3780 lines). This status is represented as XXXX in the completion messages in the following sections.

3.4.1 Manual Answer (MANSR)

The MANSR command is used to prepare a line in the manual mode for an incoming call from a remote terminal. Once executed, the manual answer remains in effect until a call is received or the request is cancelled by the operator through an ALO or APO operation. The format of the MANSR prompts is as follows:



The POLLER OCCURRENCE NUMBER prompt shows a default value if the Poller execution has been initiated (through SPO) from the operator's terminal.

The line number entered is the line (STXX or CMXX) on which the operator wishes to issue the answer.

The answerback may be specified if the operator knows which terminal will call in or wishes to allow only a specific terminal to call in. The Poller assumes that the last three characters of the terminal's answerback response is the terminal number, and that this terminal number is contained in the terminal list being used. If the terminal calls in and the terminal number is not in the terminal list, the connection will not be made, an error will be generated and another MANSR command will have to be issued.

The response to the ACTIVITY TEMPLATE(Y/N) prompt depends upon whether the activity template for the terminal calling in is to be used or not. If YES is entered the terminal session will begin as soon as the connection is made and will run through the entire activity template before returning to the operator. If the response to the ACTIVITY TEMPLATE(Y/N) prompt is NO, then it is assumed that the Poller operator will perform all functions manually with the terminal.

When the session is completed, the line is not automatically disconnected. The operator must execute a manual disconnect command (MDISC).

When all inputs are entered, the display will show the following:

```
4D          :  POLLER MANUAL REQUEST INITIATED
```

If the operation is completed successfully, the display shows the following:

```
1800 XXXX:  POLLER MANUAL ANSWER SUCCESSFUL
```

If the operation is unsuccessful, an error message appears on the display. The first two hexadecimal digits represent the Poller error, and the third and fourth digits indicate the status of the SVC shown as follows:

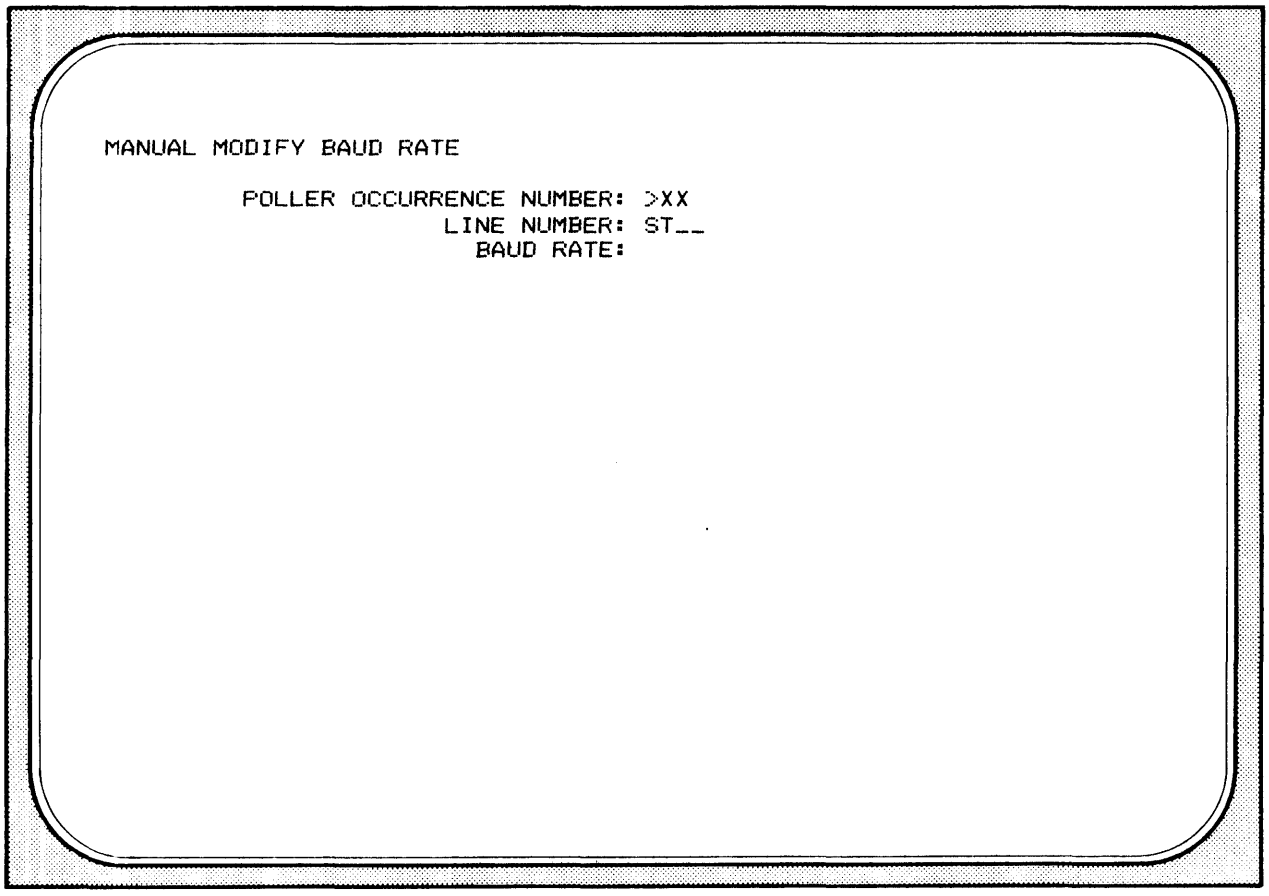
```
1AXX XXXX:  POLLER ANSWER; ATTEMPT TO CALL IN FAILED
```

If the answer attempt is unsuccessful, the attempt must be repeated.

3.4.2 Manual Modify Baud Rate (MBAUD)

The MBAUD command (TTY only) is used in conjunction with a TTY line, using a communications interface card, to set the proper baud rate for the next session. The baud rate change only sets the communications controller board in the DS990, and does not affect the modem setting, which must be manually changed (if possible). Enter the MBAUD command, when it is required, prior to entering MCALL or MANSR.

The format of the MBAUD command prompts is as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The baud rate can be set to 110, 300, 600, 1200, 2400, 4800, or 9600.

If the operation is successful the response is:

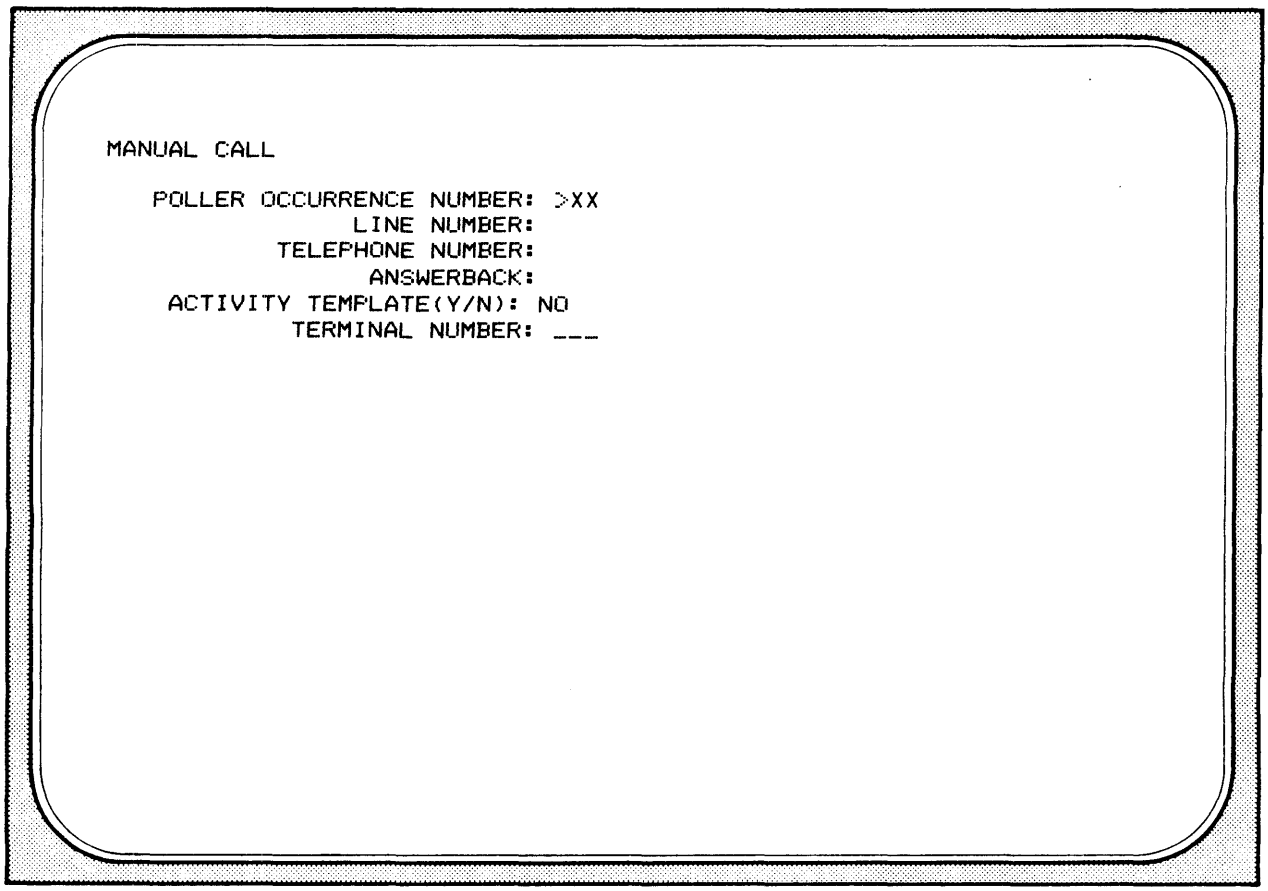
1C00 XXXX: POLLER MANUAL MODIFY BAUD SUCCESSFUL

If the operation is unsuccessful the response is:

19XX XXXX: POLLER MANUAL MODIFY BAUD UNSUCCESSFUL

3.4.3 Manual Call (MCALL)

The MCALL command is used to call a remote terminal either manually or via an ACU unit (with appropriate hardware). The format of the prompts is as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

If the telephone number is provided, the Poller will attempt to dial the number; if no number is provided, the Poller assumes that the operator will manually dial the number and simply waits (about one minute) for the line to connect to the terminal.

If an answerback is entered, it will be compared to the terminal's answerback following connection. If the terminal's activity template is to be used, the operator should respond to the ACTIVITY TEMPLATE(Y/N) with YES. If not, the Poller assumes that the operator will do all terminal commands manually. In either case, the operator must do a manual disconnect (MDISC) at the end of the session.

The operator must enter the three-digit terminal number of the terminal to be called; the terminal number must be in the terminal list that was used when the Poller occurrence was started.

If the manual call operation is successful, the response is:

1700 XXXX: POLLER MANUAL CALL SUCCESSFUL

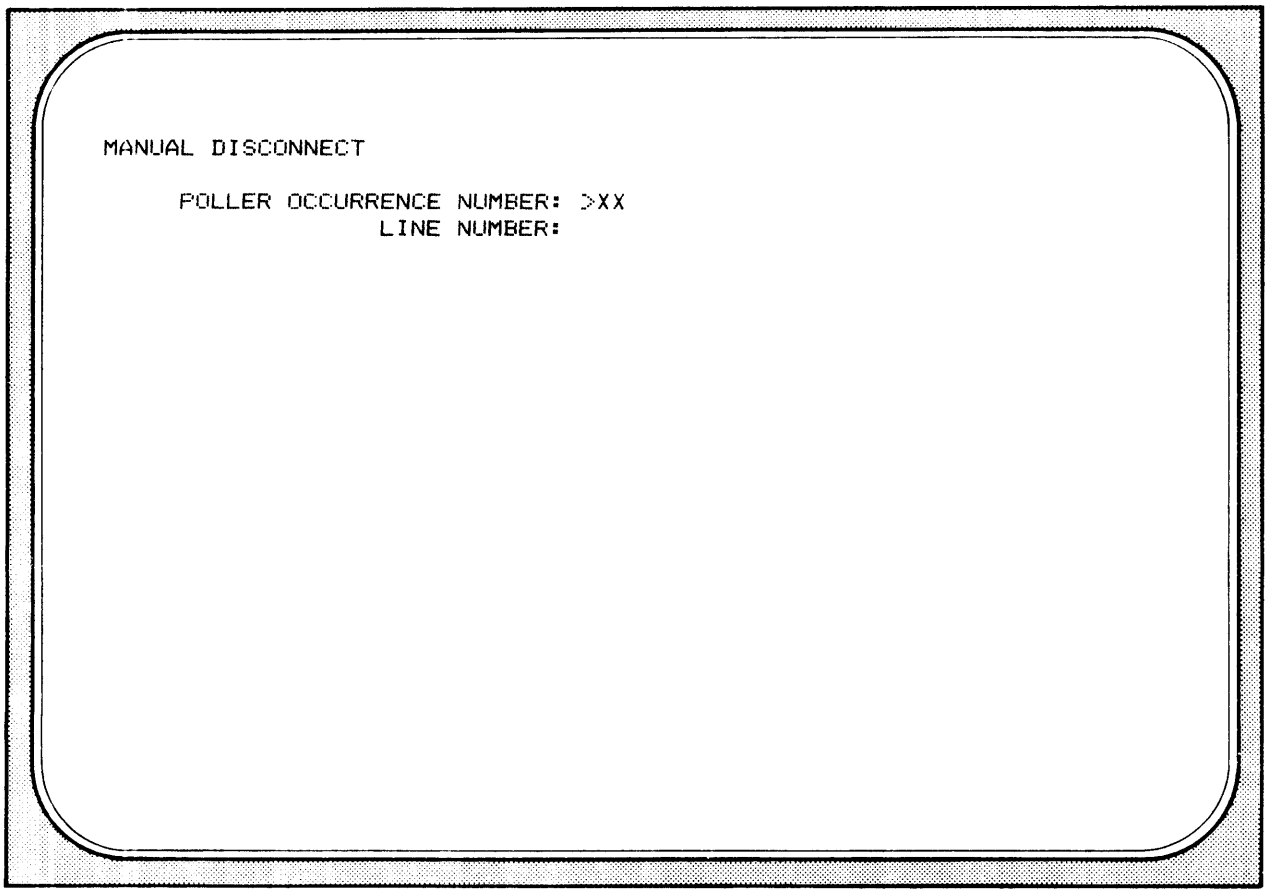
If the manual call command fails to complete successfully, the response is:

1BXX XXXX: POLLER MANUAL CALL UNSUCCESSFUL

3.4.4 Manual Disconnect (MDISC)

The MDISC command is used to terminate the connection with a terminal on a line in manual mode. A MDISC command must be issued at the end of any manual session (MCALL or MANSR) before the line or Poller can be terminated (TLO or TPO, respectively).

The MDISC prompts are shown as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

If the manual disconnect is successful, the response is:

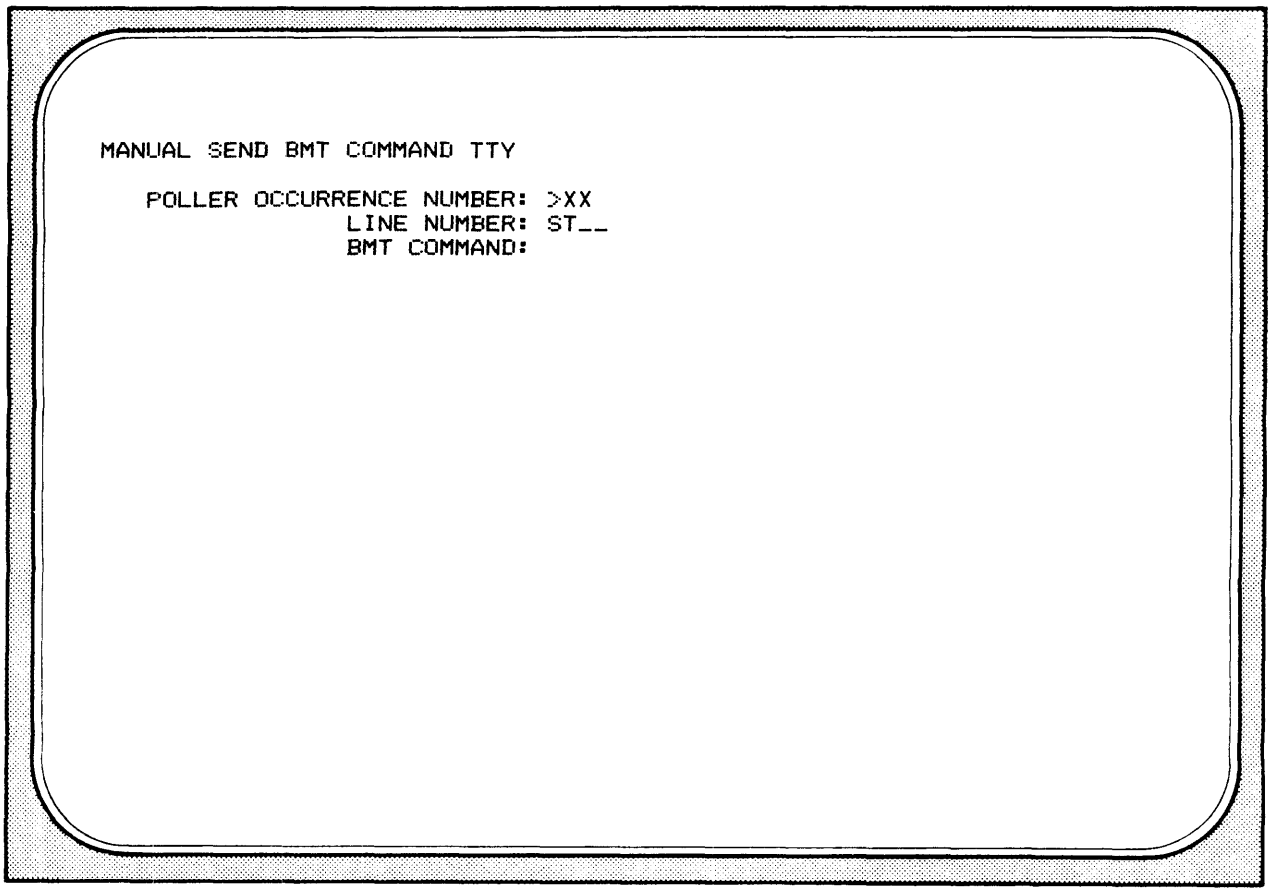
3700 XXXX: POLLER MANUAL DISCONNECT COMPLETE

If the manual disconnect is unsuccessful, the response is:

1DXX XXXX: POLLER MANUAL DISCONNECT UNSUCCESSFUL

3.4.5 Manual Send BMT Command TTY (SCMDTTY)

The SCMDTTY command (TTY only) is used to send valid commands to a 763/765 BMT while in manual mode. The prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The BMT COMMAND can be any of the following 763/765 BMT commands: CHANGE or CG, COPY or CP, CREATE or CF, DELETE, ERASE, FREE, LOCK, RUN, or EXECUTE or EXE. (Refer to the *Model 763/765 Bubble Memory Terminals, Operating Instructions*; Appendix A). Note however that no validity checking is done on the BMT command when entered. The string of characters is sent directly to the terminal, which interprets the command and sends back the appropriate response.

If the manual send operation is successful, the response is:

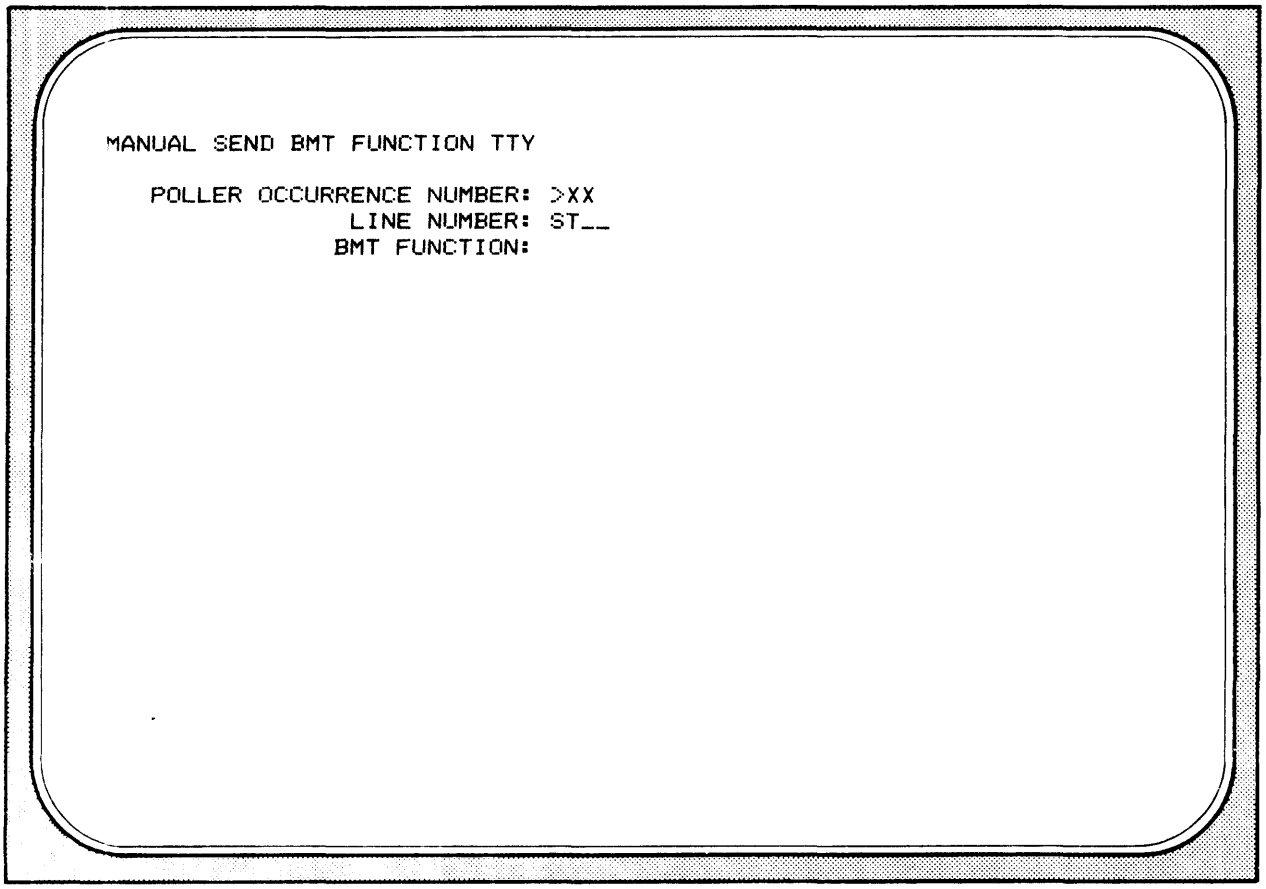
2E00 XXXX: POLLER MANUAL SEND SUCCESSFUL

If the manual send operation is unsuccessful, the response is:

2FXX XXXX: POLLER MANUAL SEND UNSUCCESSFUL

3.4.6 Manual Send BMT Function TTY (SFNCTTY)

The SFNCTTY command is used to send 763/765 BMT functions to a 763/765 BMT while in manual mode. Refer to the *DX10 Bubble Memory Terminal Support (BMTS-990) User's Guide* for descriptions of functions. The prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The BMT function can be any valid 763/765 BMT function; however, the input is not validated before being sent to the 763/765 BMT. To send multiple functions, enclose the response in parentheses and separate the functions with commas.

If the manual send operation is successful, the response is:

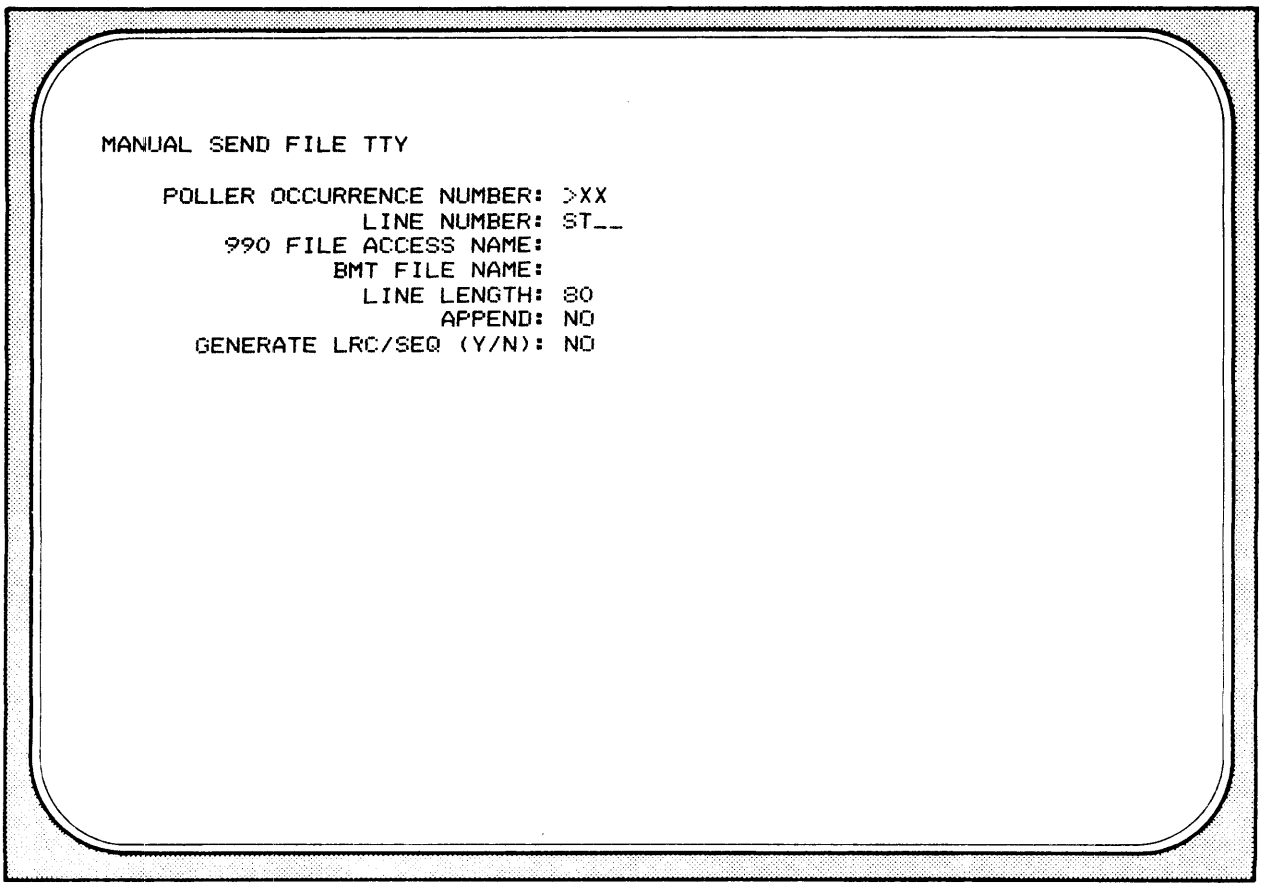
2E00 XXXX: POLLER MANUAL SEND SUCCESSFUL

If the manual send operation is unsuccessful, the response is:

2FXX XXXX: POLLER MANUAL SEND UNSUCCESSFUL

3.4.7 Manual Send File TTY (SFILTTY)

The SFILTTY command (TTY only) is used to send a data file from the DS990 to the 763/765 BMT while in manual mode. The prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The 990 file access name is the pathname of the DX10 disk file to be sent to the terminal.

The BMT file name is the name of the file on the 763/765 BMT in which the data is stored. The file on the BMT must already exist. However, if no file name is entered, the currently assigned record file in the 763/765 BMT is used.

The line length may be specified for those files which do not have 80 character record length, such as TIBOL program files (72) or data files.

To append the contents of the 990 file to the BMT file specified (or the record file), a YES response is entered for the APPEND prompt; otherwise, the receiving file is rewound to the beginning of file.

If the operator wants LRC and sequence number characters to be sent (they will replace the last two bytes of the 990 file when transmitted), the response should be YES to the GENERATE LRC/SEQ (Y/N) prompt. (Refer to the *DX10 Bubble Memory Terminal Support (BMTS-990) User's Guide* for details.)

If the manual send file operation is successful, the response is:

2E00 XXXX: POLLER MANUAL SEND SUCCESSFUL

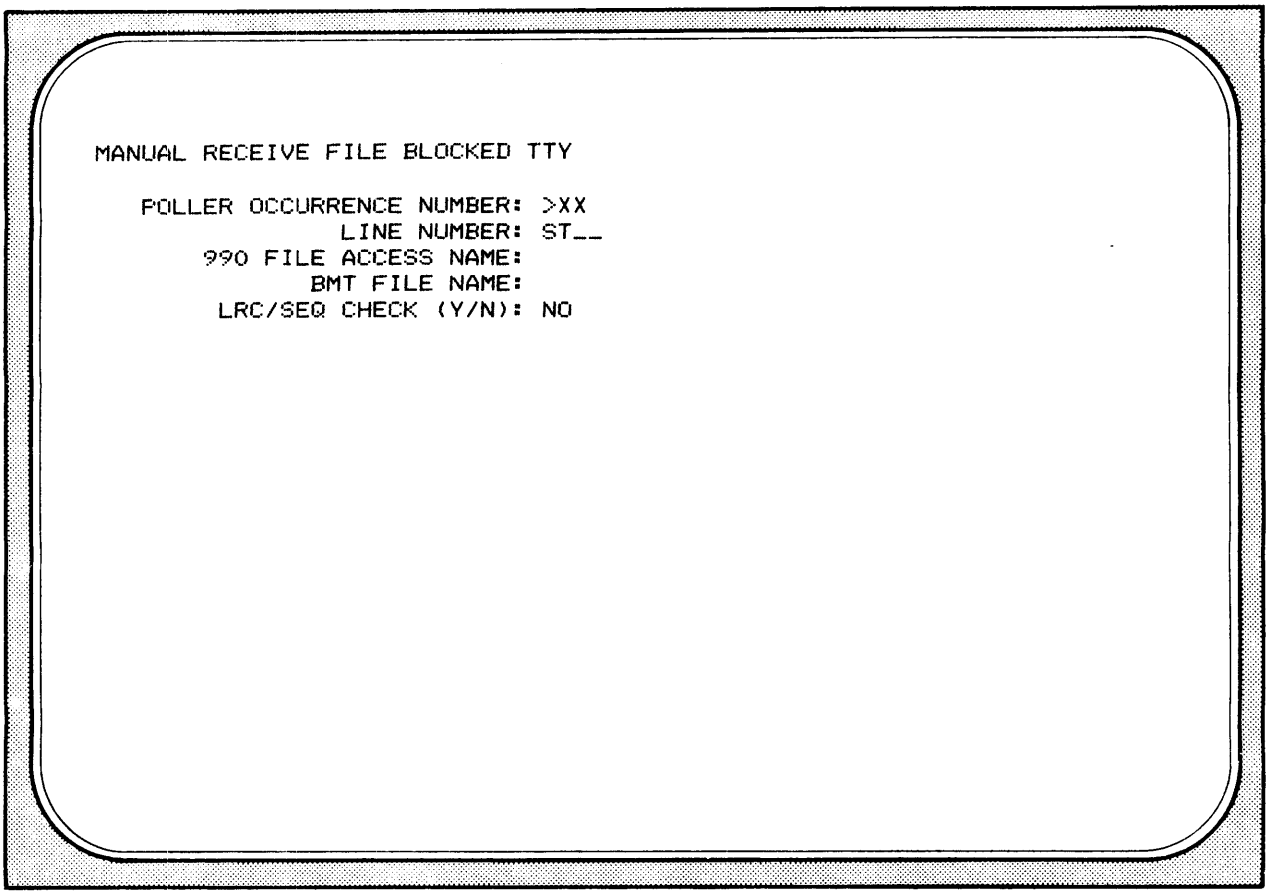
If the manual send file operation is unsuccessful, the response is:

2FXX XXXX: POLLER MANUAL SEND UNSUCCESSFUL

3.4.8 Manual Receive File Blocked TTY (RBLKTTY)

The RBLKTTY command (TTY only) is used to receive a data file from a 763/765 BMT while in manual mode. The RBLKTTY command is used for blocked data transfers (one record at a time) from a BMT terminal.

The prompts for the RBLKTTY command are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The 990 file access name is the pathname of the DX10 disk file where the received data will be stored; if the DX10 file does not exist, it will automatically be created.

The BMT file name is the name of the BMT file to be transmitted. If no file name is entered, the BMT terminal sends the currently defined playback file.

By entering YES in response to the LRC/SEQ CHECK (Y/N) prompt, The operator can specify that the data received is to be checked for proper LRC and sequence numbers. (Refer to the *BMTS-990 User's Guide* for details.)

If the manual receive file operation is successful, the response is:

1E00 XXXX: POLLER MANUAL RECEIVE SUCCESSFUL

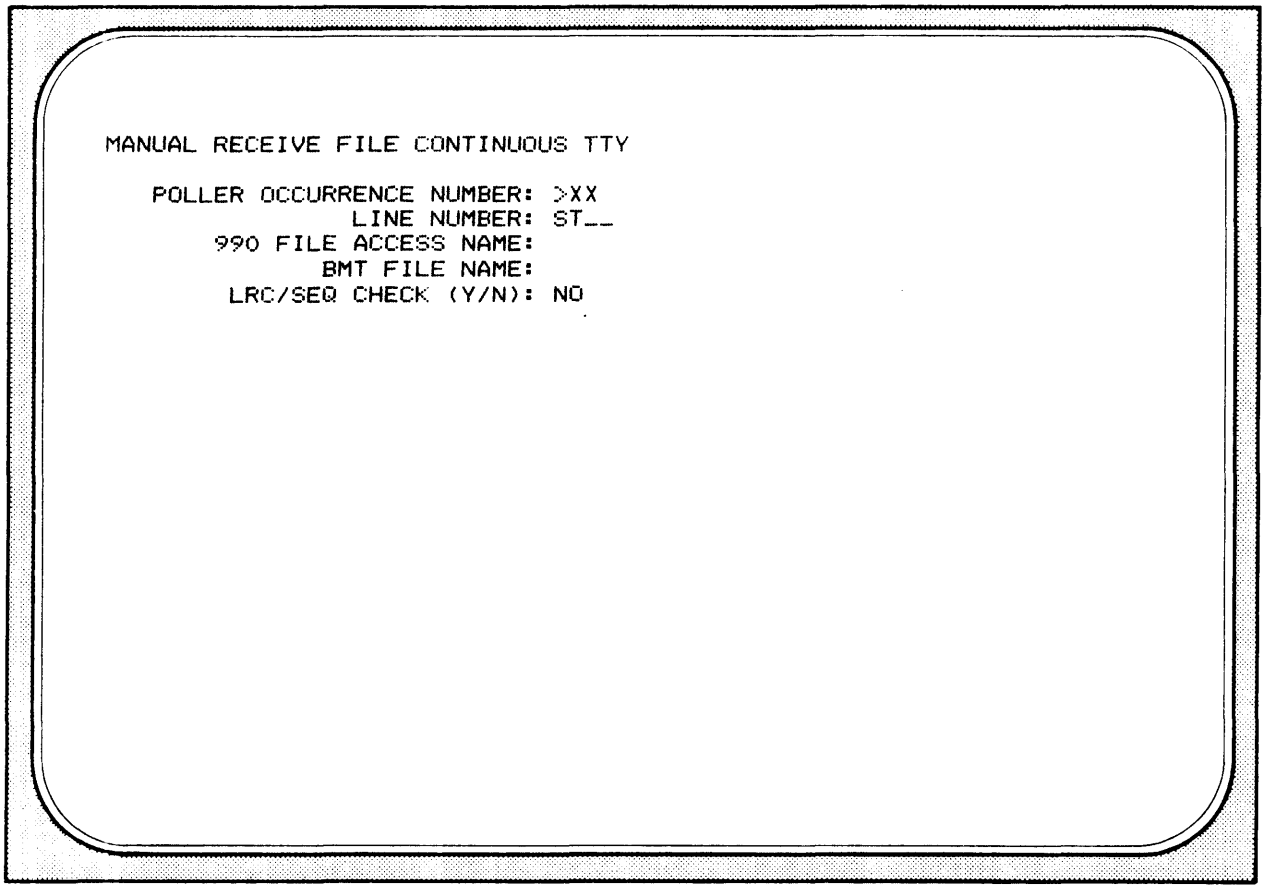
If the manual receive file operation is unsuccessful, the response is:

1FXX XXXX: POLLER MANUAL RECEIVE UNSUCCESSFUL

3.4.9 Manual Receive File Continuous TTY (RCONTTY)

The RCONTTY command (TTY only) is used to receive a data file from a 763/765 BMT while in manual mode. The RCONTTY command is used for continuous data transfers from a 763/765 BMT.

The prompts for the RCONTTY command are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The 990 file access name is the pathname of the DX10 disk file where the received data will be stored; if the DX10 file does not exist, it will automatically be created.

The BMT file name is the name of the BMT file to be transmitted. If no file name is entered, the BMT terminal sends the currently defined playback file.

By entering YES in response to the LRC/SEQ CHECK (Y/N) prompt, the operator can specify that the data received is to be checked for proper LRC and sequence numbers. (Refer to the *BMTS-990 User's Guide* for details.)

If the manual receive file operation is successful, the response is:

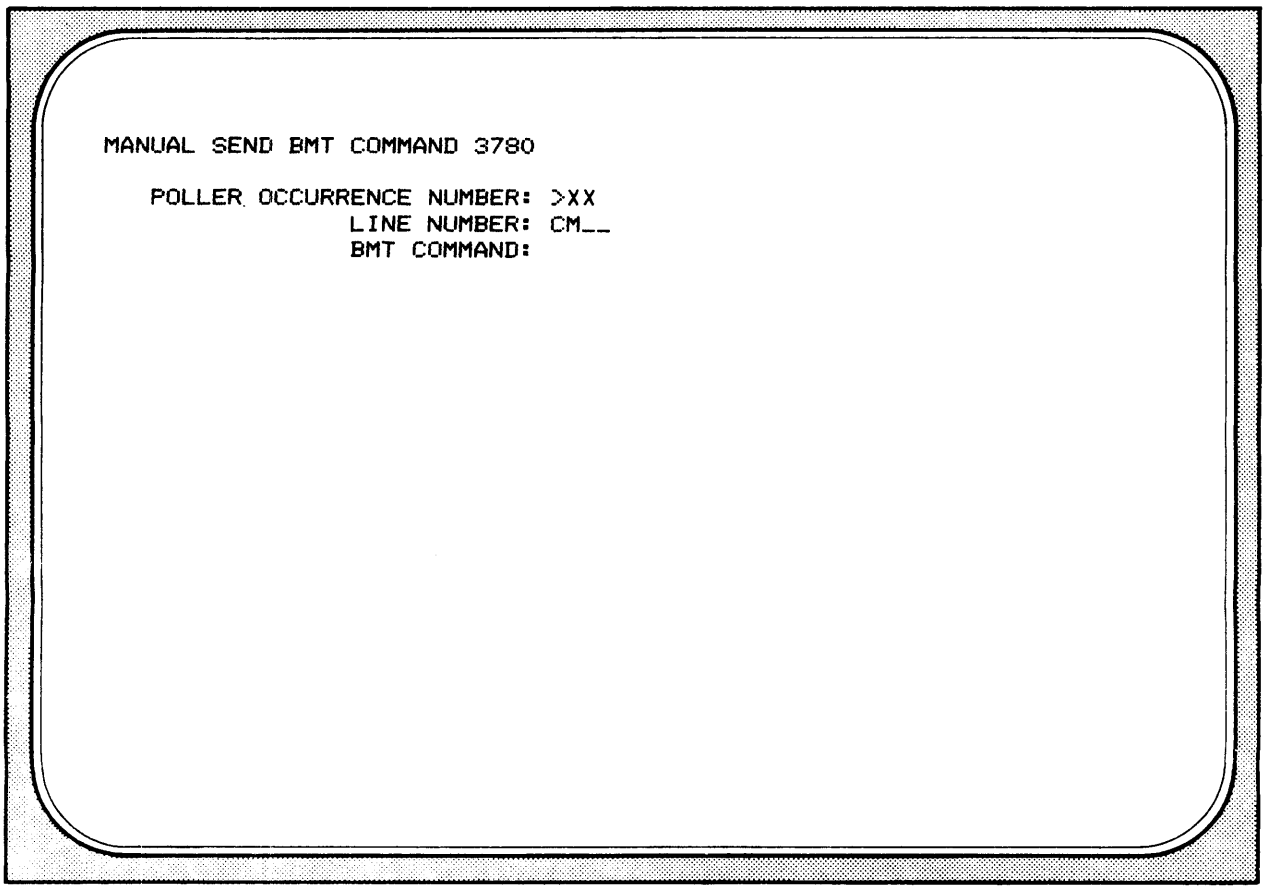
1E00 0000: POLLER MANUAL RECEIVE SUCCESSFUL

If the manual receive file operation is unsuccessful, the response is:

1FXX XXXX: POLLER MANUAL RECEIVE UNSUCCESSFUL

3.4.10 Manual Send BMT Command 3780 (SCMD3780)

The SCMD3780 command (767/769 only) sends commands to a 767/769 BMT while in manual mode. The prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The BMT command can be any valid 767/769 BMT command. (Refer to the *Model 767/769 Electronic Data Terminals, Operating Instructions*.) However, no validity checking is done on this BMT command; the string of characters is sent directly to the terminal which interprets the command and sends back the appropriate response.

If the manual send operation is successful, the response is:

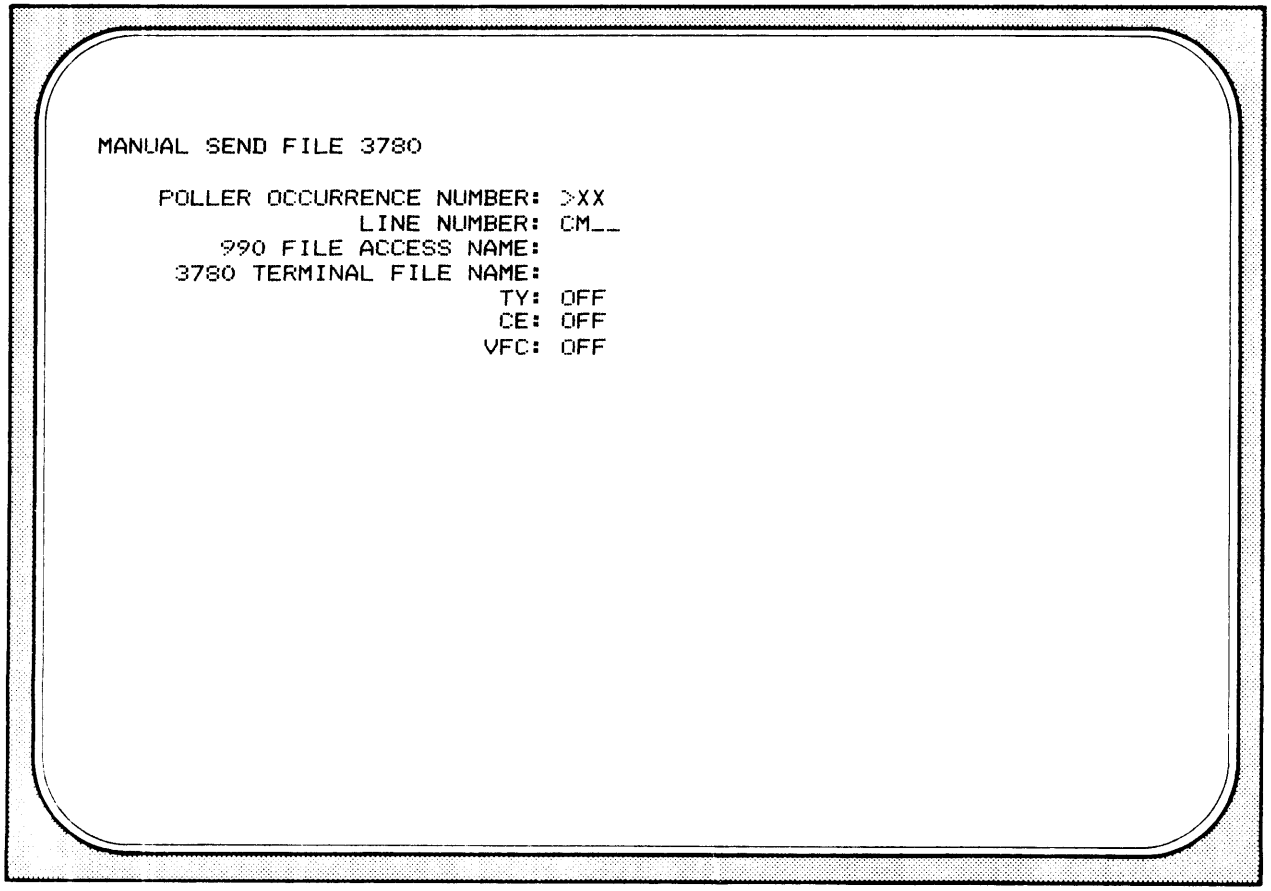
2E00 XXXX: POLLER MANUAL SEND SUCCESSFUL

If the manual send operation is unsuccessful, the response is:

2FXX XXXX: POLLER MANUAL SEND UNSUCCESSFUL

3.4.11 Manual Send File 3780 (SFIL3780)

The SFIL3780 command (3780 only) sends files from the DS990 to a 3780 terminal while in manual mode. The prompts are as follows:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The 990 file access name is the pathname of the DX10 disk file to be sent to the terminal.

The name of the file to receive the data is the 3780 terminal file name. The file must already exist on the remote 3780 terminal. If a 3780 terminal file name is not specified, the file will be sent to the currently-defined punch file. Note that if the punch file is not defined on the remote 3780 terminal, the file transfer will be lost.

The TY, CE and VFC prompts allow the operator to enable (ON) or disable (OFF) Transparency, Compression/Expansion, and Vertical Format Control respectively, when sending a file to the 3780 terminal. Refer to the *DX10 3780 Emulator User's Guide* for details.

If the manual send operation is successful, the response is:

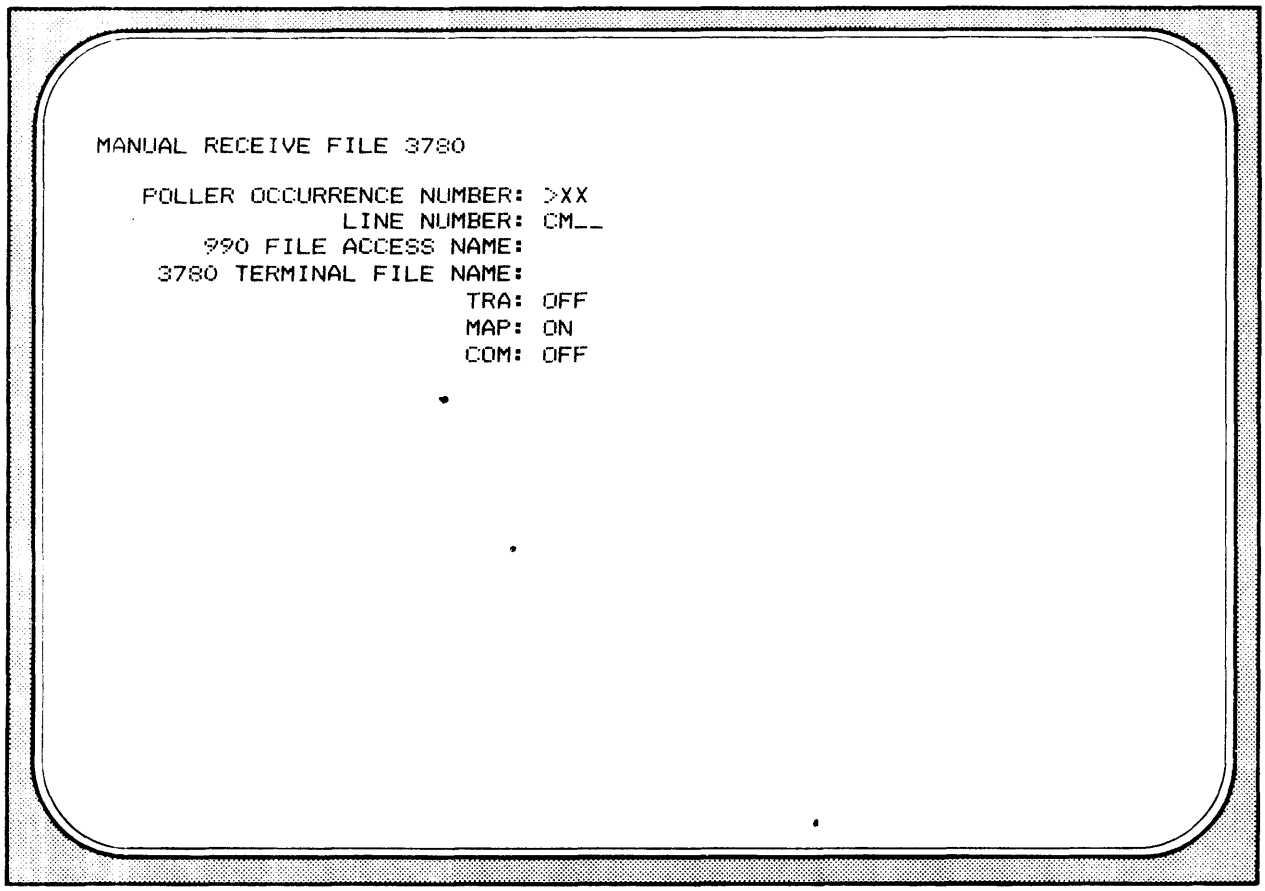
2E00 XXXX: POLLER MANUAL SEND SUCCESSFUL

If the manual send operation is unsuccessful, the response is:

2FXX XXXX: POLLER MANUAL SEND UNSUCCESSFUL

3.4.12 Manual Receive File 3780 (RFIL3780)

The RFIL3780 command (3780 only) receives a data file from a 3780 terminal while in manual mode. The RFIL3780 command produces the following prompts:



The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The 990 file access name is the pathname of the DX10 disk file into which the received data is to be stored. If the DX10 file does not exist, it will automatically be created.

The 3780 terminal file name is the name of the file from which the data is to be received. When polling a 767/769 BMT, if no 3780 terminal file name is specified, the 990 file access name is simply placed on the DX10 3780 receive print queue; no transmission occurs until the operator enters the 767/769 BMT command CHA 3780 REA=..... with the appropriate BMT file name specified. (See the SCMD3780 command.) When polling a 990 as the remote 3780 terminal, the 3780 terminal file name must be specified, or the Poller error (4E00) will be returned.

The TRA, MAP, and COM prompts allow the operator to enable (ON) or disable (OFF) transparency, ASCII-EBCDIC-ASCII mapping and compression/expansion on the transfer from a 767/769 BMT (only). Refer to the *767/769 BMT Systems Manual* for details.

If the manual receive operation is successful, the response is:

1E00 XXXX: POLLER MANUAL RECEIVE SUCCESSFUL

If the manual receive operation is unsuccessful, the response is:

1FXX XXXX: POLLER MANUAL RECEIVE UNSUCCESSFUL

3.4.13 Manual Change 3780 Emulator Dynamic Parameter (CTRL3780)

The CTRL3780 command allows the operator to change some of the dynamic 3780 parameters associated with a line in manual mode. This command alters the DX10 3780 Emulator parameters in the Poller system. The prompts for the CTRL3780 command are as follows:

```
MANUAL CHANGE 3780 EMULATOR DYNAMIC PARAMETER

    POLLER OCCURRENCE NUMBER: >XX
                 LINE NUMBER: CM__
DYNAMIC PARAMETER ASSIGNMENT:
```

The Poller occurrence referenced by the Poller occurrence number must be active.

The line referenced by the line number must be contained within the Poller data base being used.

The response for the dynamic parameter assignment is a single string from the following:

TY = ON or OFF
CE = ON or OFF
VFC = ON or OFF
TRAILB = ON or OFF
SRL = XXX (where XXX may be up to 255)
RPRRL = XXX (where XXX may be up to 255)

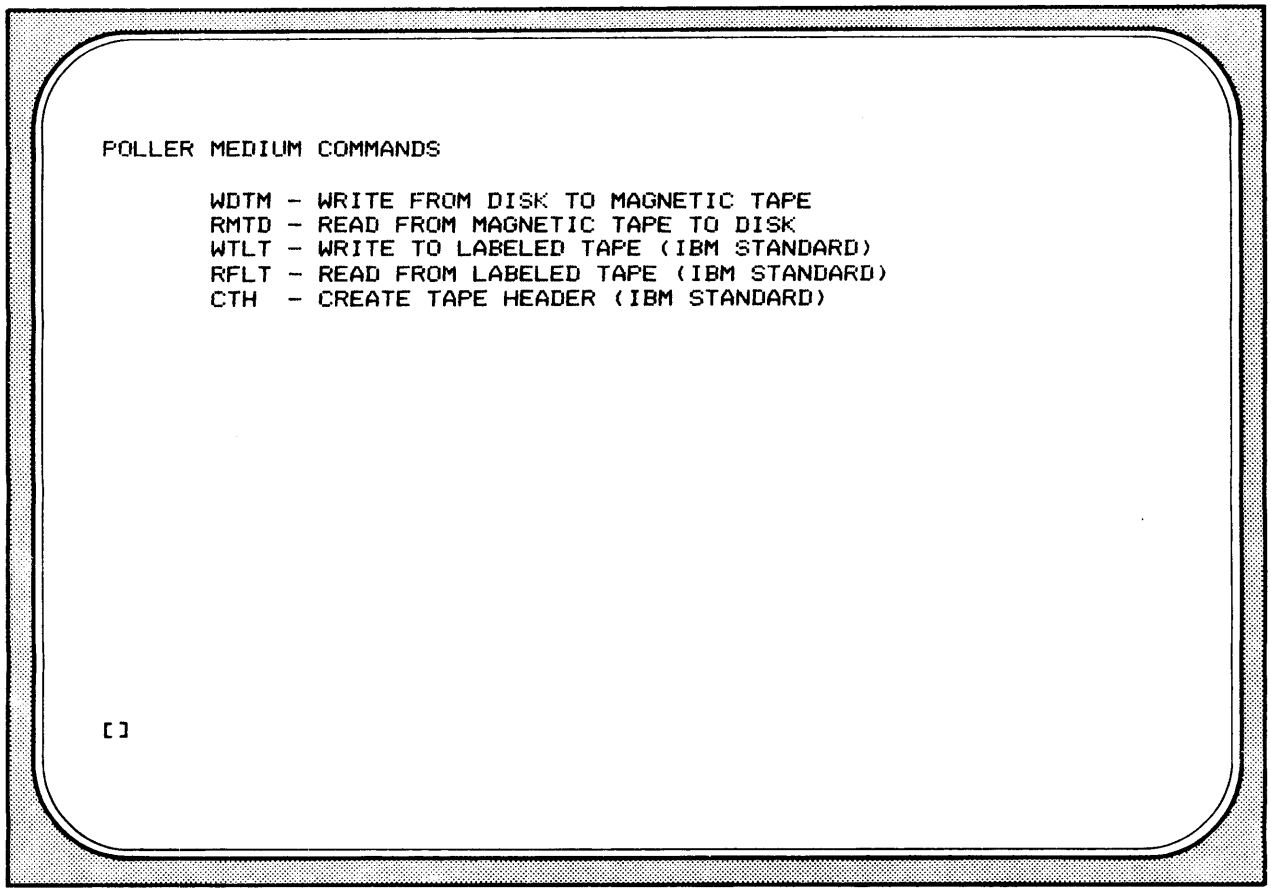
For further explanation of use of these parameters, refer to the *DX10 3780 Emulator User's Guide*.

3.5 POLLER MEDIUM COMMANDS (/PMEDM)

The /PMEDM commands provide the operator with a means of transferring DX10 data files to a magnetic tape which may then be processed on a host system.

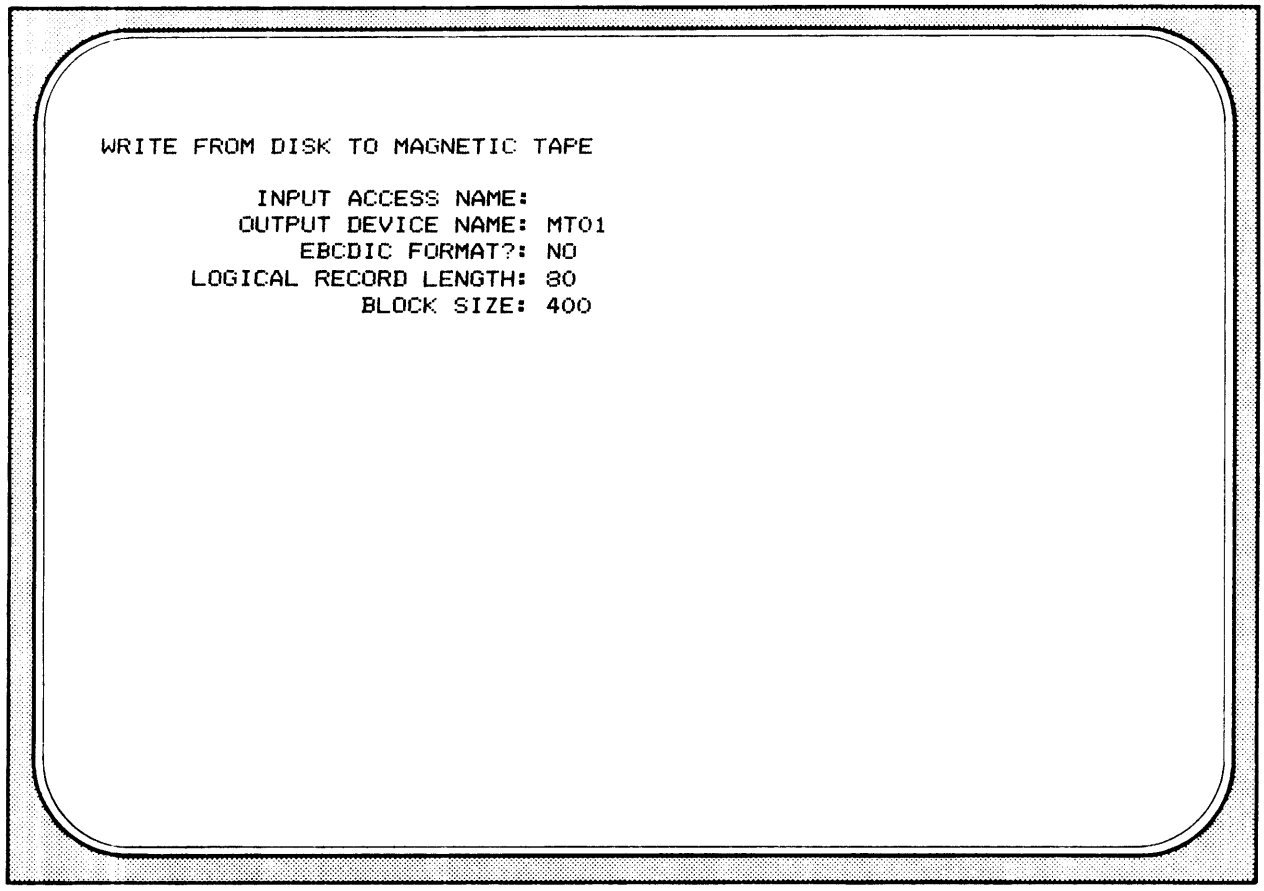
These commands allow the operator to either write or read an unlabeled ASCII or EBCDIC tape in blocked or unblocked format. They also allow for the writing or reading of IBM-standard labeled tapes (EBCDIC only) and for generating an IBM standard tape label. These commands are described in detail in the following sections.

Operator input of the command /PMEDM produces the following menu of Poller medium commands:



3.5.1 Write from Disk to Magnetic Tape (WDTM)

The WDTM command transfers the contents of a specified DX10 disk file to a magnetic tape in unlabeled format. The prompts for WDTM are as follows:



The input access name is the DX10 disk file containing the data to be stored on magnetic tape.

The output device name is the magnetic tape unit to which the data is to be written.

Operator input of YES in response to the EBCDIC FORMAT? prompt causes the ASCII data on the disk to be converted to EBCDIC before being written to the tape.

The block size (not to exceed 4000 bytes) must be a multiple of the logical record length; if the maximum is exceeded, the task terminates and an error message is displayed.

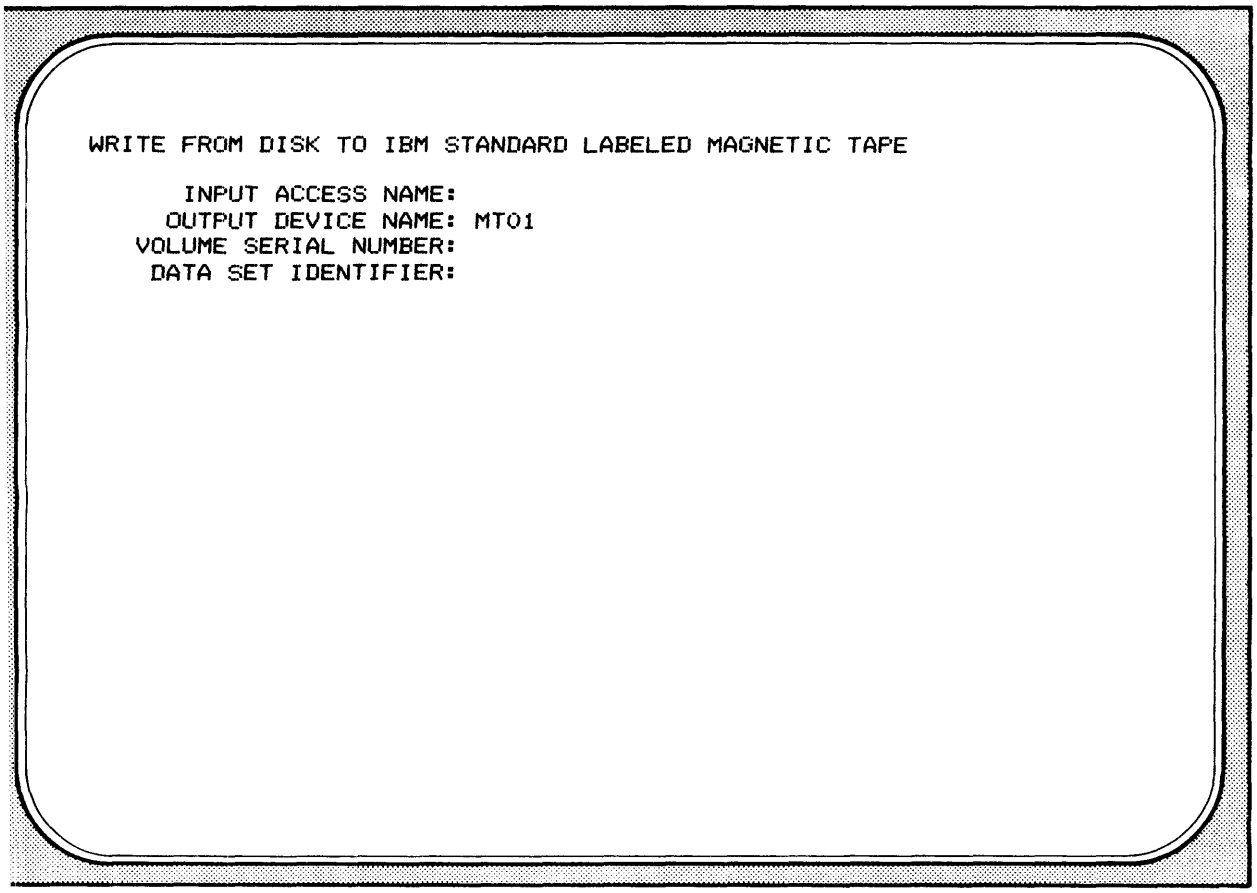
When an end-of-volume (EOV) condition is encountered, the tape is automatically unloaded and the operator is prompted for the next tape on which the writing of the data set is to continue. After the new tape is loaded, the operator can press any key to continue, except the dollar sign ($) key which will cause the task to terminate.

When an end-of-volume (EOV) condition is encountered, the tape is automatically unloaded and the operator is prompted for the next tape on which the data set is continued. After the new tape is loaded, the operator can enter any key to continue, except the dollar sign ($) key which will cause the task to terminate. If the task is terminated, the data read from preceding tapes is still intact within the output file.

The Poller tape utilities ensure that all data (including header, trailer and EOFs) are written within the boundaries of the reflective strips. If the tape is generated such that data is written past the reflective strip (only possible on non-TI990 systems), then that data will be lost when the RMTD utility reads the tape.

3.5.3 Write to IBM Standard Labeled Tape (WTLT)

The WTLT utility allows the operator to generate a labeled tape which can be processed on host systems which support IBM standard tapes. Operator input of the WTLT command produces the following prompts:

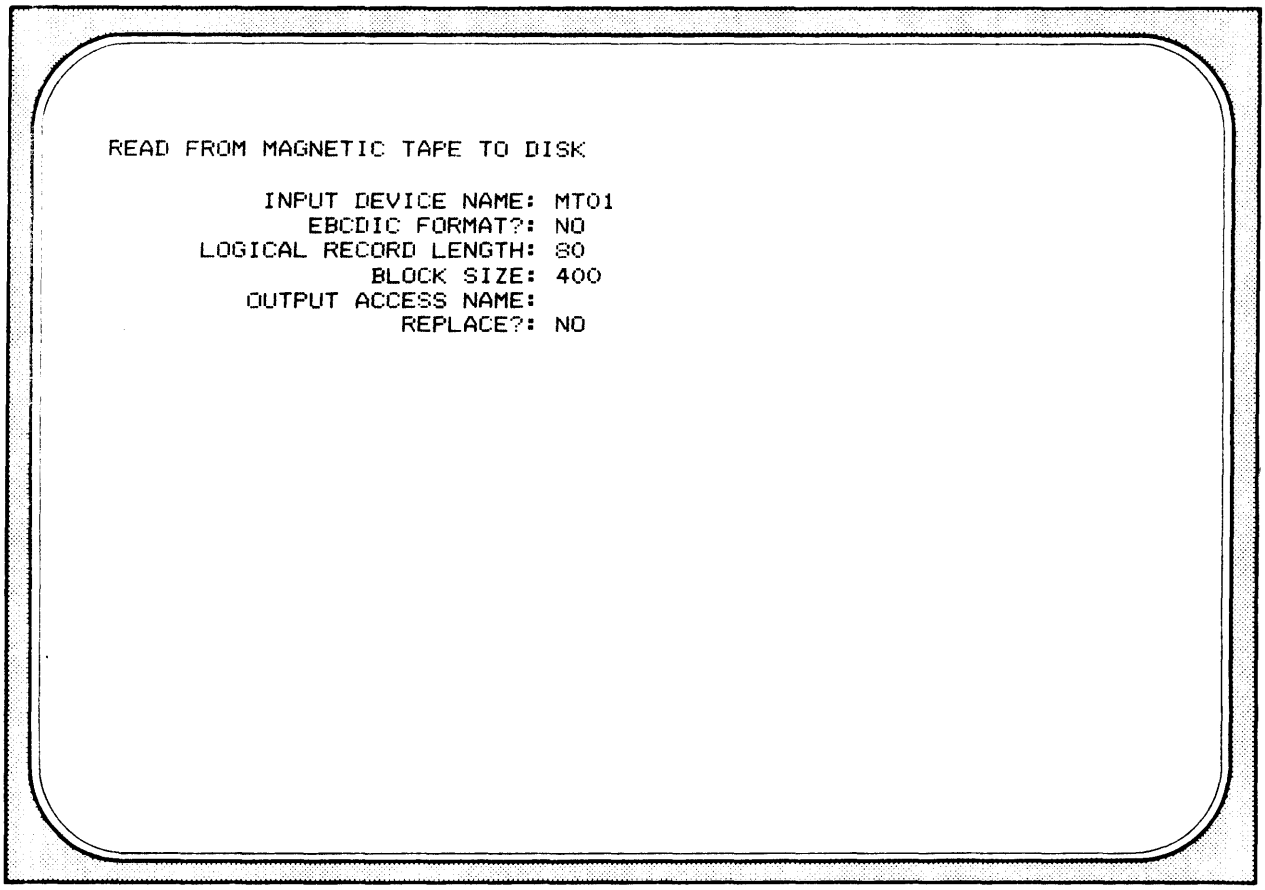


he input access name is the pathname of the DX10 disk file to be written to tape. The WTLT utility ssumes that the magnetic tape has been previously formatted to contain an IBM standard label see CTH command). The output device name is the magnetic tape unit to which the data is to be ritten.

If a write ring is not installed on the tape, the task prompts the operator to install one. The operator should unload and dismount the tape, install a write ring, mount and reload the tape. To continue, the operator can enter any key, except the dollar sign ($) key which will cause the task to terminate.

3.5.2 Read from Magnetic Tape to Disk (RMTD)

The RMTD command transfers the contents of a magnetic tape file in unlabeled format to a specified DX10 disk file. The prompts for RMTD are as follows:



The input device name is the magnetic tape unit from which the data is to be read.

If the tape contains EBCDIC data, then the response to EBCDIC FORMAT? must be YES to cause the EBCDIC data to be converted to ASCII before being written to disk. If NO is entered, the tape is assumed to contain ASCII data.

The logical record length and block size must be known for the tape. The block size must be a multiple of the logical record length but must not exceed 4000 bytes.

The output access name is the pathname of the DX10 disk file where data from the tape will be stored. If the file already exists, then the response to REPLACE? must be YES, or the task will terminate with an error.

If the operator enters a volume serial number (up to 6 alphanumerics) and/or a data set identifier (up to 17 alphanumerics), the task will check the entries against the corresponding values read from the tape. If there is a mismatch, the task terminates and logs an error to the operator. This checking procedure does not continue with each subsequent volume in a multivolume environment.

The task obtains the logical record length and block size from the label on the tape. If the block size exceeds 4000 bytes or is not a multiple of the logical record length, the task will terminate with an error message. The task automatically sets the block count to zeros; the tape density to 800 or 1600 bpi; and the tape recording technique to NRZI or PE. Other specific block information is also rewritten in the header labels of the first tape regardless of previous settings.

If an end-of-volume (EOV) condition is encountered, the tape is automatically unloaded and the operator is prompted for the next tape on which the data set is to continue. After the new tape is loaded, the operator can enter any key to continue, except the dollar sign ($) key which will cause the task to terminate.

On a volume change, the task converts the header labels into trailer labels and inserts the block count. The header labels from the first tape are copied to the next tape and the volume sequence number is incremented.

If a write ring is not installed on the tape, the task prompts the operator to install one. The operator should unload and dismount the tape, install a write ring, mount and reload the tape. To continue, the operator can enter any key, except the dollar sign ($) key which will cause the task to terminate.

3.5.4 Read from IBM Standard Labeled Tape to Disk (RFLT)

The RFLT utility allows the operator to transfer data from an IBM-standard labeled tape to a DX10 disk file. Operator input of the RFLT command produces the following prompts:

```
READ FROM IBM STANDARD LABELED MAGNETIC TAPE TO DISK

        INPUT DEVICE NAME: MT01
    VOLUME SERIAL NUMBER:
     DATA SET IDENTIFIER:
      OUTPUT ACCESS NAME:
        REPLACE?(YES/NO): NO
```

The input device name is the magnetic tape unit from which the labeled tape data is to be read.

If the operator enters a volume serial number (up to 6 alphanumerics) and/or a data set identifier (up to 17 alphanumerics), then these inputs will be checked against the corresponding information read from the label on the tape. The checking procedure continues with each subsequent volume in a multivolume environment. If a mismatch occurs on a subsequent volume, the data from the previous volume(s) is intact within the output file.

The output access name is the pathname of the DX10 disk file to which the data is to be written. The system creates the file if the file does not exist.

The response to the REPLACE (YES/NO) prompt specifies whether or not to overwrite an existing file.

The logical record length and block size are obtained by the task from the labels on the tape. The block size (not to exceed 4000 bytes) must be a multiple of the logical record length or the task will log an error to the operator and then terminate.

When an end-of-volume condition occurs, the tape is automatically unloaded and the operator is prompted for the next tape in the data set sequence. After the new tape is loaded, the operator can enter any key to continue, except the dollar sign ($) key which will cause the task to terminate. If the task is terminated, the data read from preceding tapes is left intact within the output file.

The Poller tape utilities ensure that all data (including header, trailer and EOFs) are written within the boundaries of the reflective strips. Data which is written past the reflective strip (only possible on non-TI990 systems) cannot be read by the RFLT utility and will be lost.

3.5.5 Create IBM Standard Label Tape Header (CTH)

The CTH utility allows the operator to create a tape header for an IBM standard labeled tape. The format of the header for an IBM standard labeled tape is shown in the IBM manual *OS Tape Labels*. A series of prompts input the required data; the data is then written to a DX10 disk file. This DX10 disk file may then be copied to the beginning of a tape.

The format of the CTH prompts is as follows:

```
CREATE IBM STANDARD LABEL TAPE HEADER

 VOLUME SERIAL NUMBER (1-6):
  OWNER NAME/ADDRESS (1-10):
 DATA SET IDENTIFIER (1-17):
 VOLUME SEQUENCE NUMBER (4): 0001
DATA SET SEQUENCE NUMBER (4): 0001
 EXPIRATION DATE (5) [YYDDD]: 99365
      DATA SET SECURITY (1): 0
  LOGICAL RECORD LENGTH (5): 00080
            BLOCK SIZE (5): 00400
 HEADER LABEL FILE PATHNAME:
                   REPLACE: NO
```

The volume serial number is a one to six digit number. The owner name/address is a one to ten alphanumeric entry. These two values are written into the VOL1 portion of the tape label.

The data set identifier is 1 to 17 alphanumerics. The volume sequence number is a four-digit number. The data set sequence number is a four-digit number. The expiration date is a five-digit date designation with the first two digits being the year and the last three digits being the Julian date. The data set security input is a single digit number. These five values are written into the HDR1 portion of the tape label.

The logical record length is a five-digit number. The block size is also a five-digit number but must be a multiple of the logical record length and must not exceed 4000 bytes. These two values are written into the HDR2 portion of the tape label.

Finally, the header label file pathname is the pathname of the DX10 disk file into which the tape label information is to be written. The response to the prompt REPLACE indicates whether the contents of the header label file pathname should be overwritten (if the file already exists).

After executing the CTH command, rewind a reel of magnetic tape to which the label is to be written. Then, execute a Write from Disk to Magnetic Tape (WDTM) command to write the label to the tape. Specify EBCDIC format, a logical record length of 80, and a block size of 80 for the WDTM command. You can now enter a Write to IBM Standard Labeled Tape (WTLT) command to write the tape file.

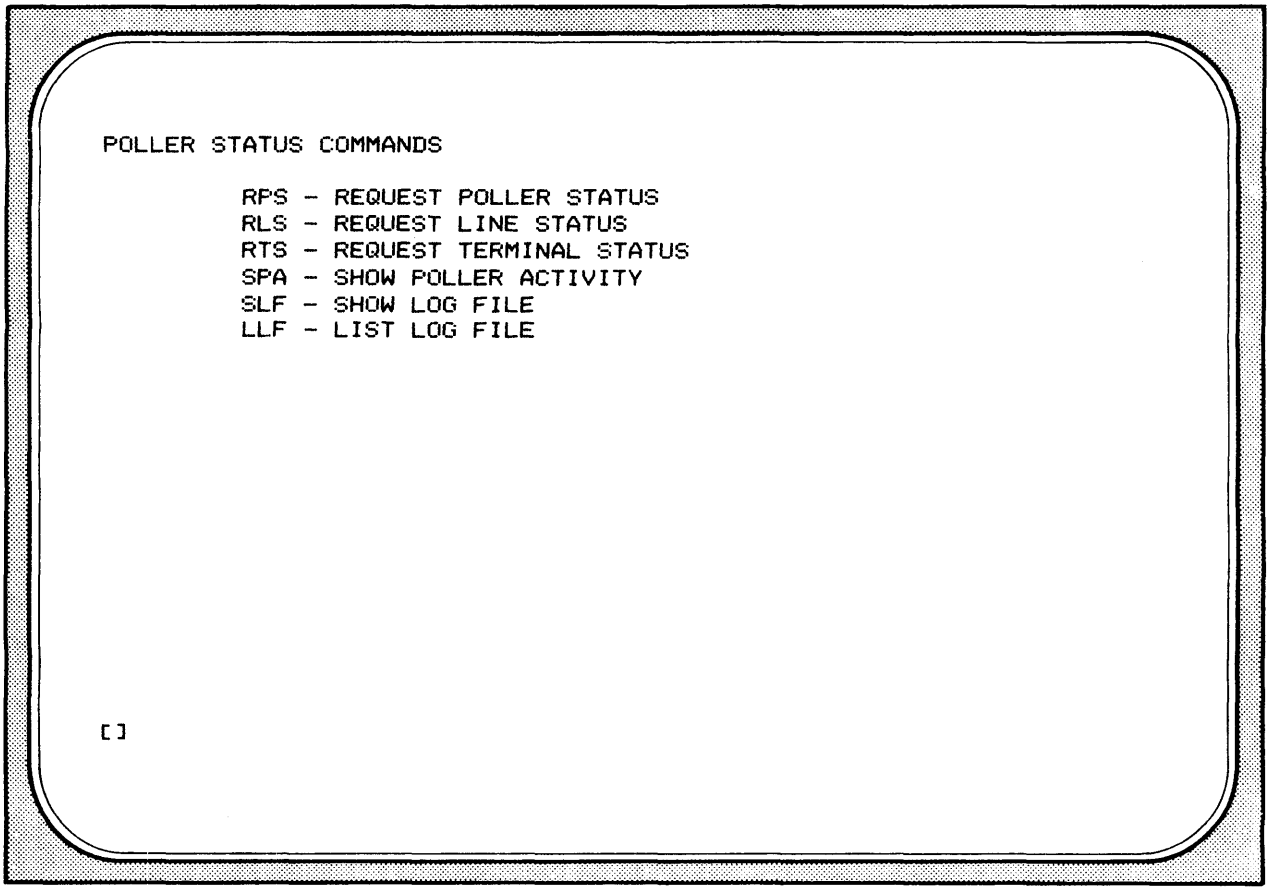
3.6 POLLER STATUS COMMANDS (/PSTAT)

The /PSTAT commands permit the operator to monitor the status of the poller, either during or after its execution. These commands can be used to check for errors and to produce completion reports following the Poller occurrence.

Some of the commands are used to request displays/listings of the status of the lines, the terminals, or the Poller itself. One task generates a dynamic display of the Poller status as it runs.

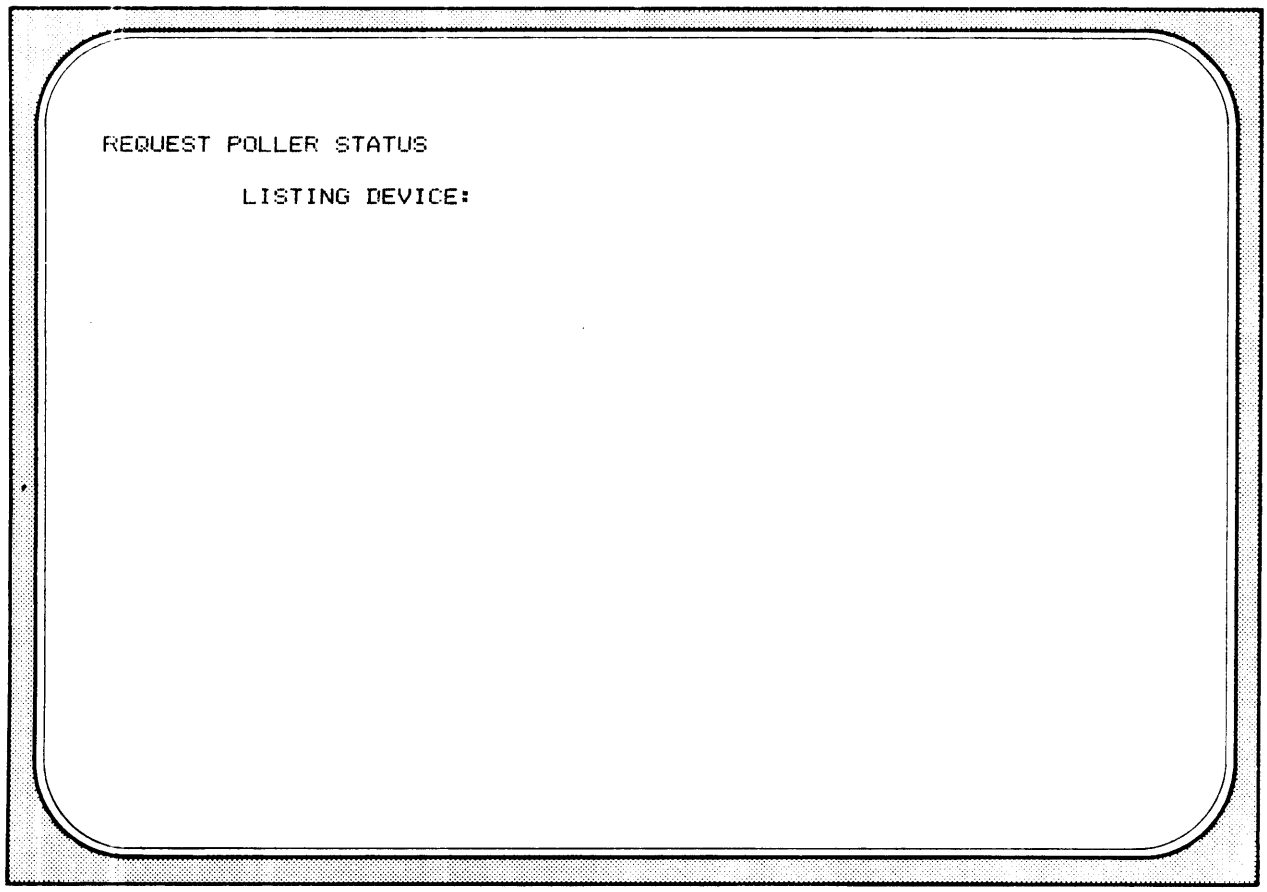
Finally, two other commands are used to produce formatted displays or listings from the raw log files. One of these commands generates a live display of the log file information while the Poller is running; the other generates a static summary-type report of a log file.

Operator input of the /PSTAT command produces the following menu:

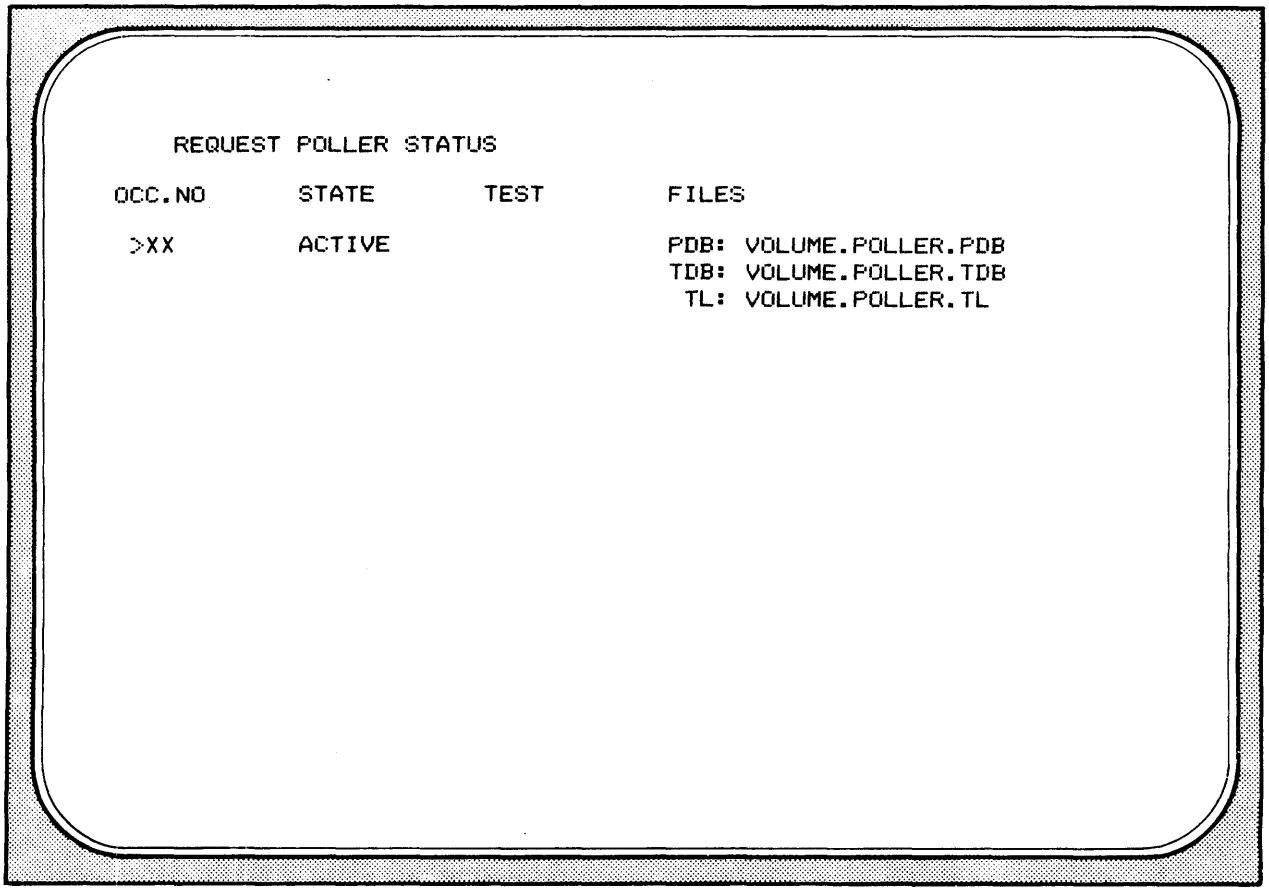


3.6.1 Request Poller Status (RPS)

The RPS command generates a display/listing of the overall status of the latest occurrence of the Poller. The operator is prompted only for the listing device to receive the status report as shown below:



The response to the RPS command is a display/listing in the following format:



```
    REQUEST POLLER STATUS

OCC.NO      STATE       TEST        FILES

 >XX        ACTIVE                  PDB: VOLUME.POLLER.PDB
                                    TDB: VOLUME.POLLER.TDB
                                     TL: VOLUME.POLLER.TL
```

The response terminology is as follows:

The Poller OCC. NO. is the run-time task ID of the Poller task.

The Poller STATE may be either ACTIVE, HALTED, or TERMinated. This reflects the results of the last executed Poller control command (SPO, HPO, TPO, etc.).

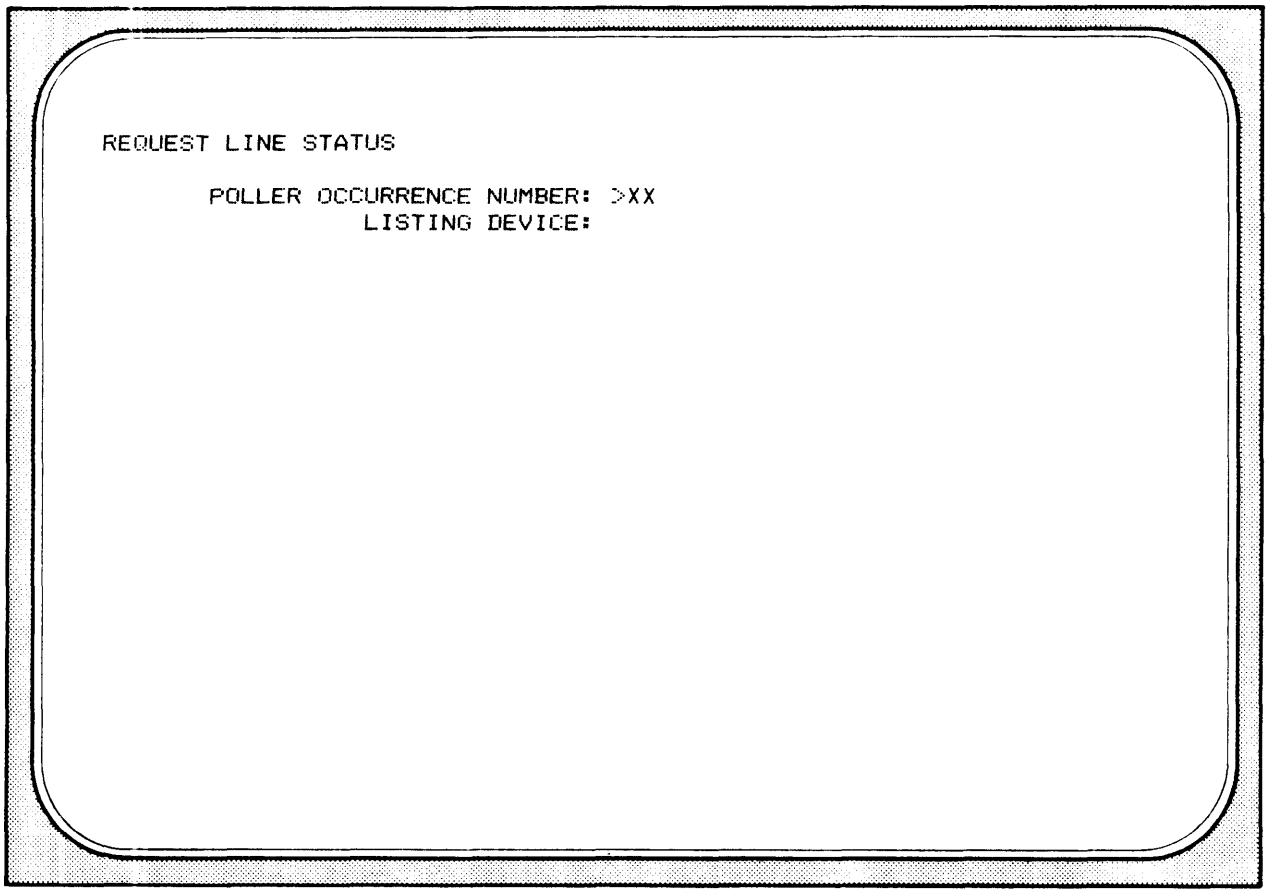
A T in the TEST column indicates that the Poller occurrence was initiated via the TEST command.

The FILES are those which were defined when the Poller was started.

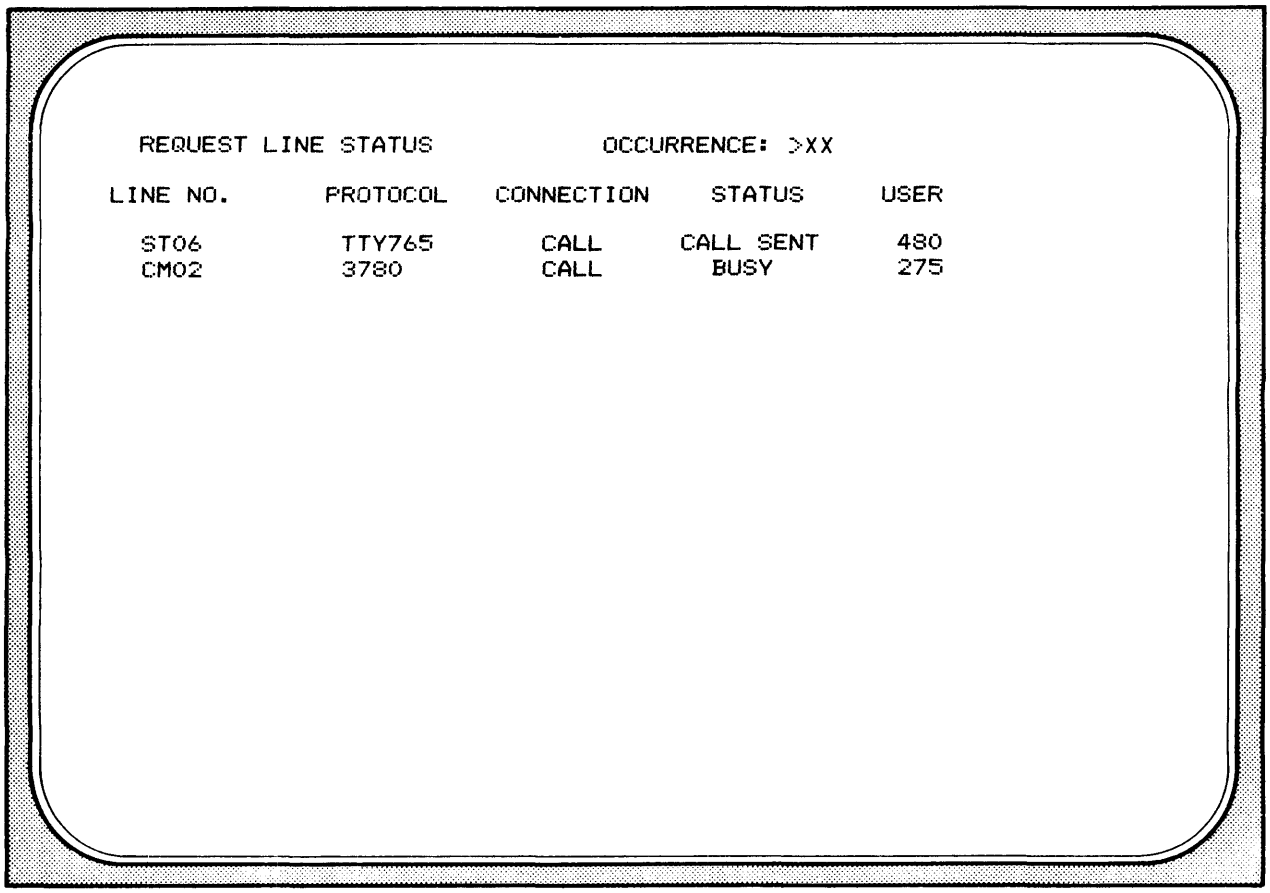
When RPS runs, it sets the synonym OCC to the current value of the Poller occurrence number.

3.6.2 Request Line Status (RLS)

The RLS command generates a display/listing of the most recent status of the lines associated with an occurrence of the Poller. The RLS command prompts the operator for the Poller occurrence number and a listing device. The Poller occurrence number may default to the current value, or may be changed to review the line status from a previous occurrence of the Poller. The listing device will be determined by the operator. The prompts are as follows:



The response to the RLS command is a display/listing in the following format:



```
  REQUEST LINE STATUS              OCCURRENCE: >XX

LINE NO.      PROTOCOL    CONNECTION     STATUS      USER

  ST06         TTY765         CALL      CALL SENT     480
  CM02         3780           CALL        BUSY        275
```

The response terminology is as follows:

The response to OCCURRENCE is the run-time ID of the Poller task.

The PROTOCOL may be either TTY765 (or TTY only) or 3780.

The line CONNECTION may be CALL, ANSWER, or MANUAL.

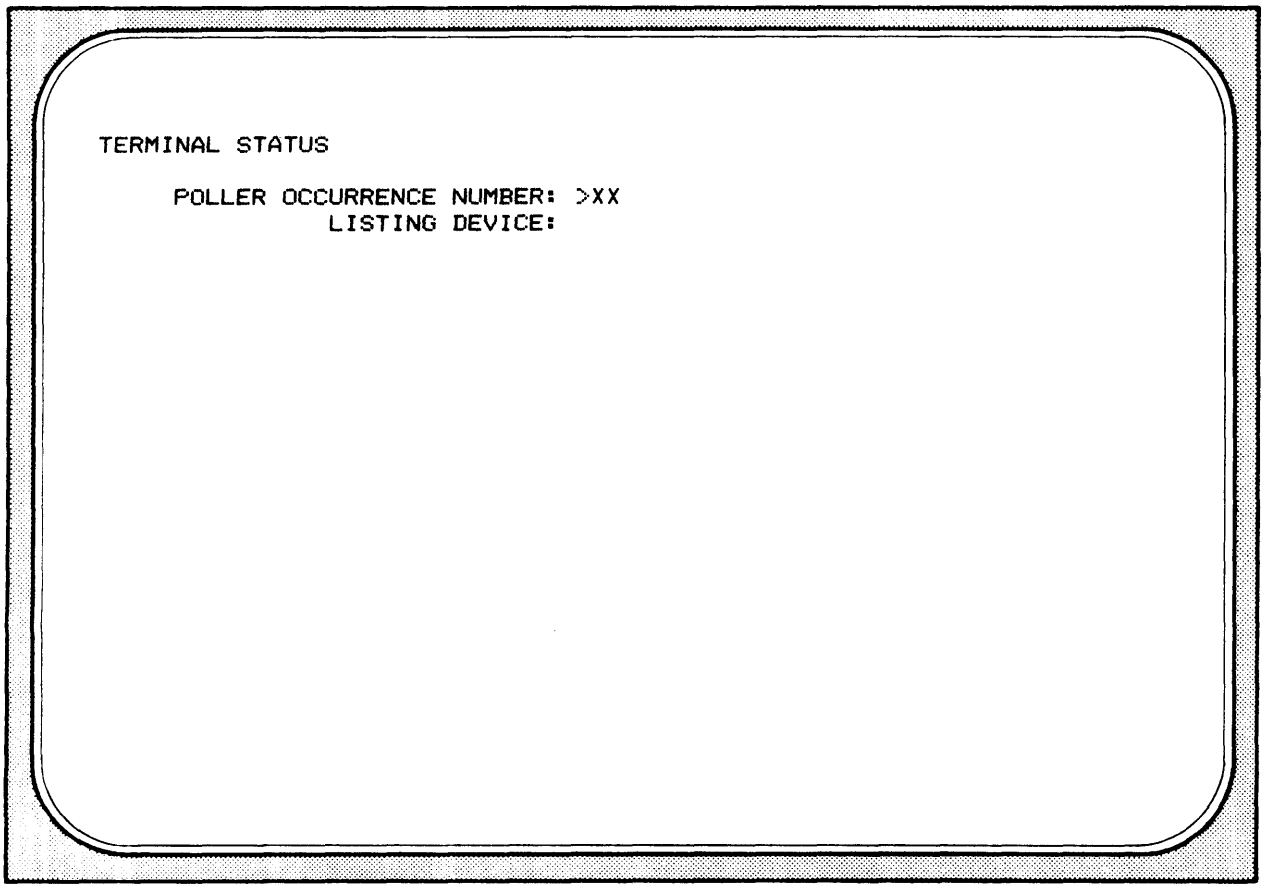
The line STATUS may be one of the following:

Line Status	Meaning
ACTIVATED	Line being put in service
SERVICE	Line available
CALL SENT	Call or answer request outstanding (pending)
BUSY	Terminal session in progress
DISCONNECTED	Terminal session being terminated
DEACT SENT	Line being taken out of service
DEACTIVATED	Line unavailable

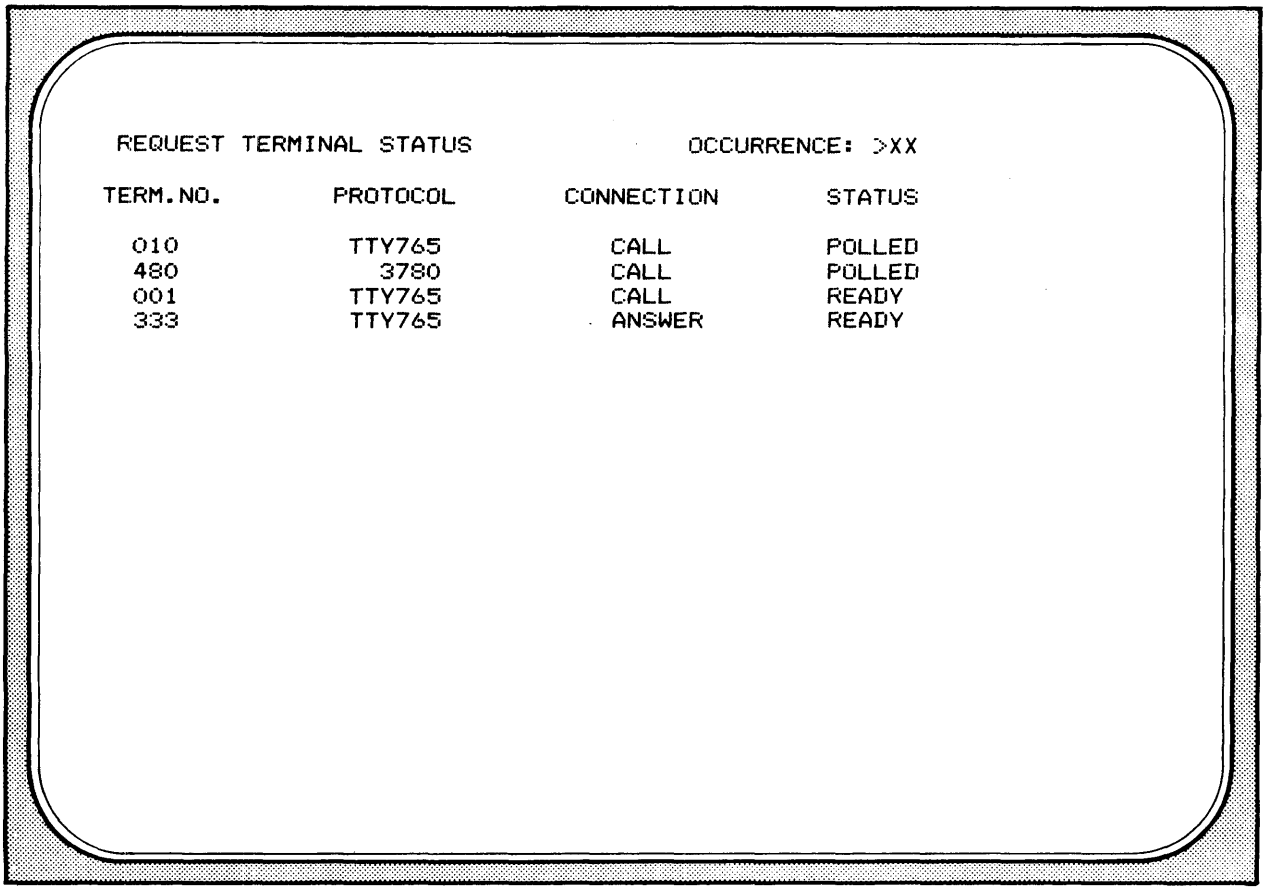
The USER is the terminal number of the currently connected terminal, if any.

3.6.3 Request Terminal Status (RTS)

The RTS command generates a display/listing of the most recent status of the terminals associated with an occurrence of the Poller. The RTS command prompts the operator for the Poller occurrence number and a listing device. The occurrence number may default to the current value, or may be changed to review the final terminal status from a previous occurrence of the Poller. The listing device will be determined by the operator. The prompts are as follows:



The response to the RTS command is a multipage display/listing in the following format:



```
REQUEST TERMINAL STATUS                    OCCURRENCE: >XX

TERM.NO.        PROTOCOL        CONNECTION        STATUS

  010            TTY765            CALL           POLLED
  480              3780            CALL           POLLED
  001            TTY765            CALL           READY
  333            TTY765            ANSWER         READY
```

The response terminology is defined as follows:

OCCURRENCE is the run-time task ID of the Poller task.

TERM.NO. is the terminal number.

PROTOCOL is either TTY765 (or TTY only) or 3780.

CONNECTION is CALL, ANSWER, or EITHER (call or answer).

The STATUS may be one of the following:

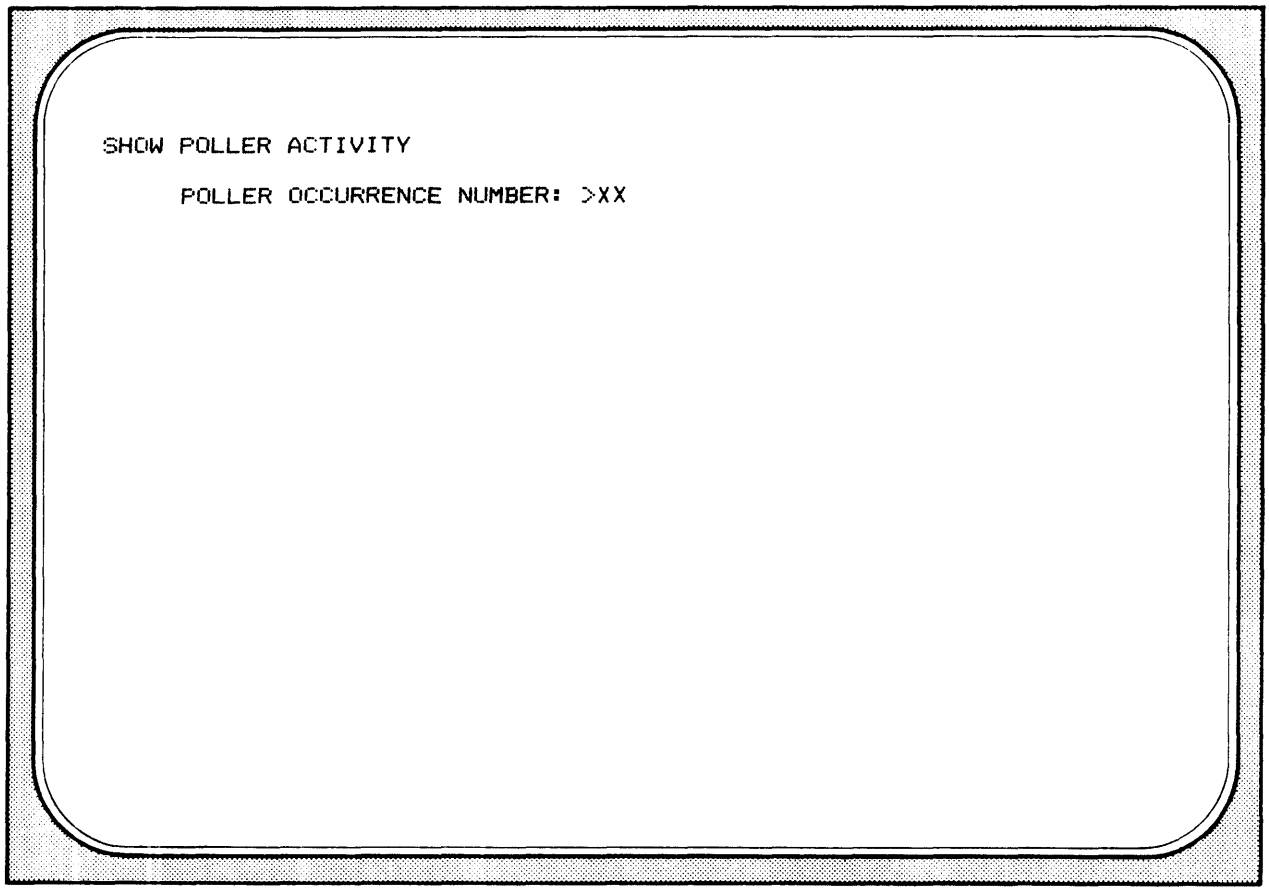
Status	Meaning
READY	Terminal available for polling
POLLED	Terminal currently in polling session
SUCC.CPLT	Terminal session completed successfully
DISC.TERM	Terminal session unsuccessful, disconnected by terminal
TERM.POLLER	Terminal session unsuccessful, disconnected by poller
ABORTED	Terminal session abnormally terminated
UNINITIABLE	Poller unable to establish connection with terminal

3.6.4 Show Poller Activity (SPA)

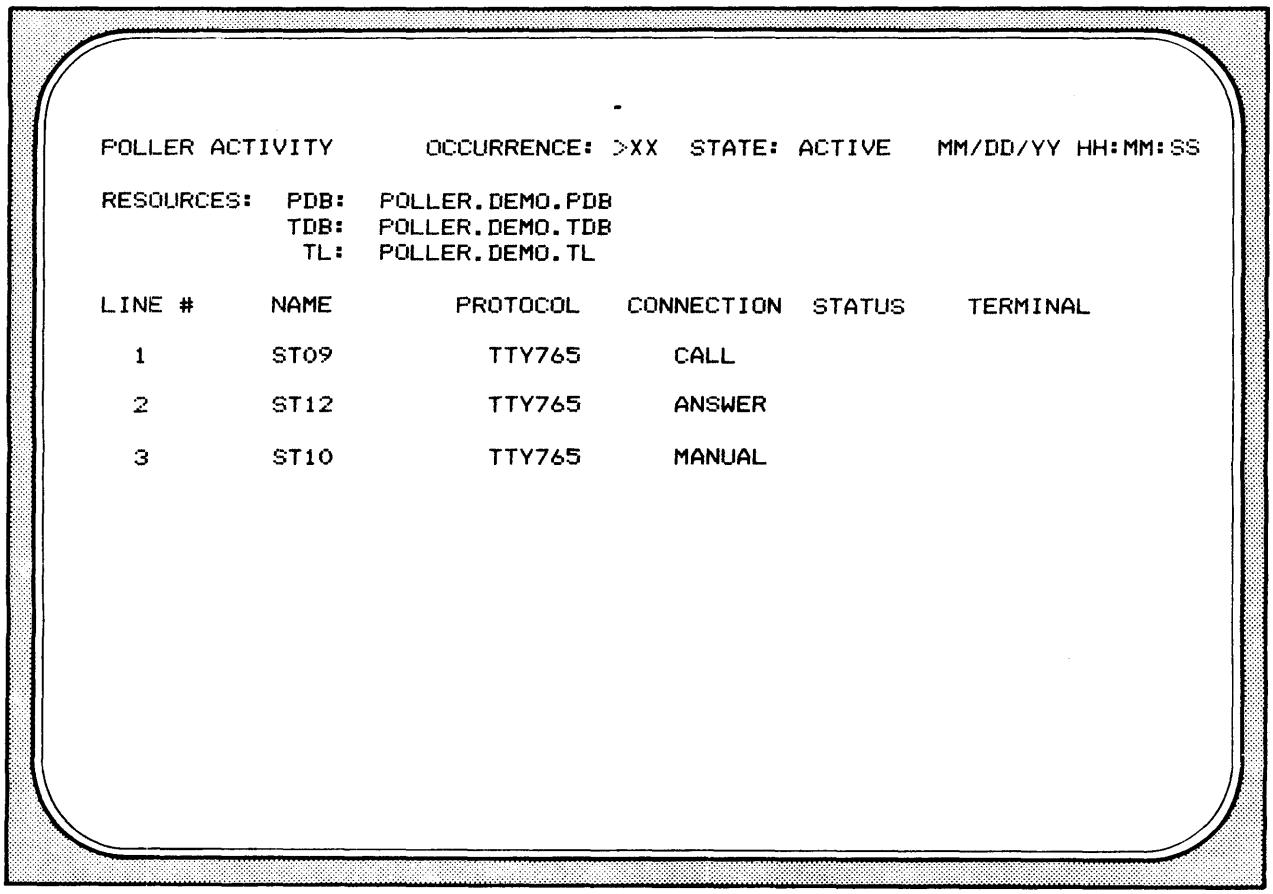
The SPA command generates a display on the requesting Model 911 VDT, showing all the current information of the polling activities. The information is updated approximately every five seconds, depending on system activity.

If the SPA task determines that the Poller occurrence is in the terminated state, SPA will automatically exit. The SPA command may be terminated at any time while it is running by pressing the CMD key.

The only prompt for the SPA is for the Poller occurrence number, formatted as follows:



The SPA command generates a screen with the following format:



```
POLLER ACTIVITY      OCCURRENCE: >XX  STATE: ACTIVE   MM/DD/YY HH:MM:SS

RESOURCES:  PDB:  POLLER.DEMO.PDB
            TDB:  POLLER.DEMO.TDB
             TL:  POLLER.DEMO.TL

LINE #      NAME        PROTOCOL    CONNECTION  STATUS    TERMINAL

  1         ST09          TTY765      CALL

  2         ST12          TTY765      ANSWER

  3         ST10          TTY765      MANUAL
```

The response terminology is as follows:

The Poller OCCURRENCE is the run-time task ID of the Poller task.

The RESOURCES are those files which were defined when the poller was started.

The Poller STATE is reported as ACTIVE, HALTED or TERMinated.

The PROTOCOL may be either TTY765 (or TTY only) or 3780.

The line CONNECTION may be either CALL, ANSWER, or MANUAL.

The line STATUS may be one of the following:

Line Status	**Meaning**
ACTIVATED	Line being put in service
SERVICE	Line available
CALL SENT	Call or answer request outstanding (pending)
BUSY	Terminal session in progress
DISCONNECTED	Terminal session being terminated
DEACT SENT	Line being taken out of service
DEACTIVATED	Line unavailable

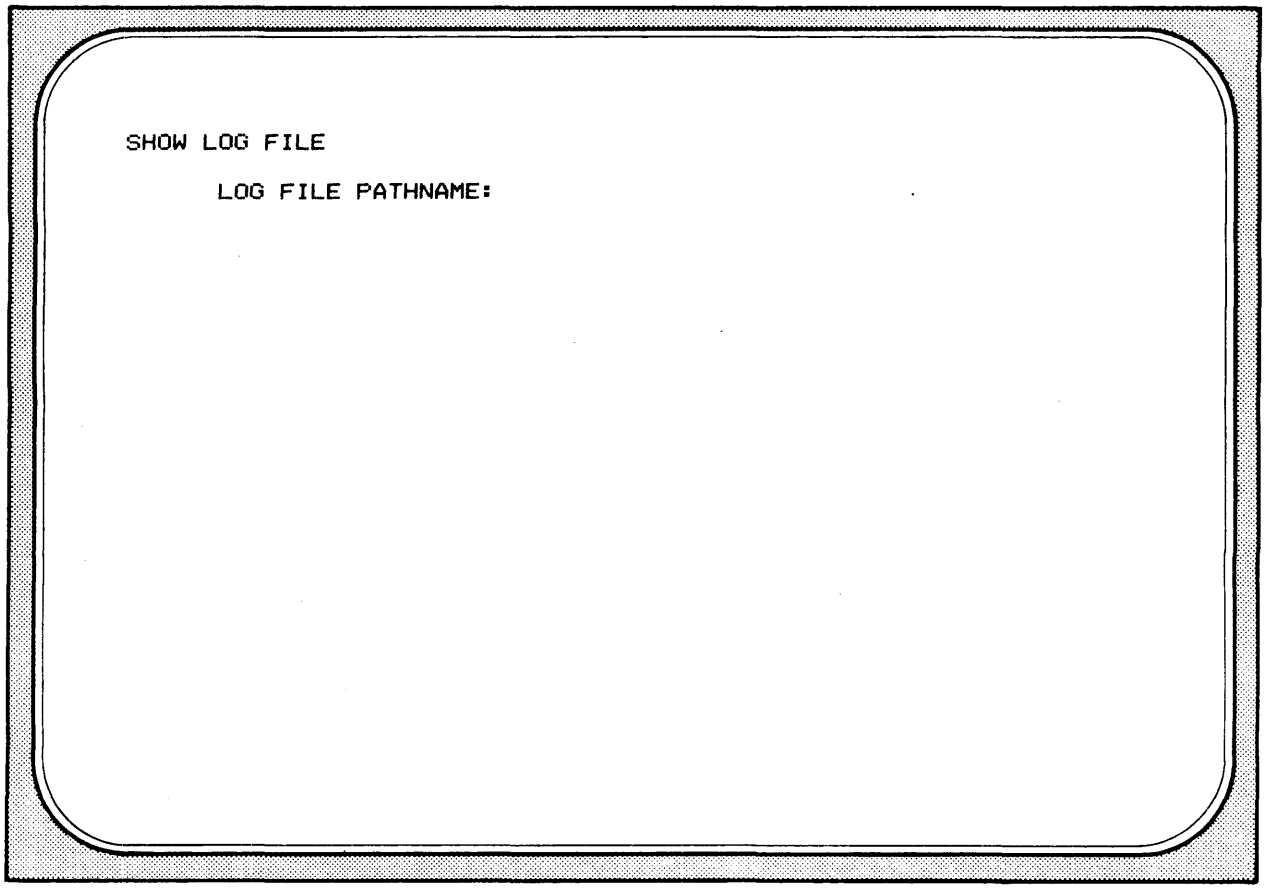
TERMINAL is the terminal number of the currently connected terminal, if any.

3.6.5 Show Log File (SLF)

The SLF command allows the operator to generate a live formatted display from the contents of any Poller log file as the file is being generated by the Poller. The report is continuously scrolled onto the screen of the requesting Model 911 VDT as the information is written into the log file. Therefore, the SLF utility is intended to be run while the Poller is executing.

When the Poller occurrence is terminated, the SLF utility will automatically terminate. The operator may also terminate the SLF utility at any time by pressing the CMD key.

The only prompt is for the log file pathname. The output goes to the requesting terminal and is displayed in the TTY mode. The prompt is formatted as follows:



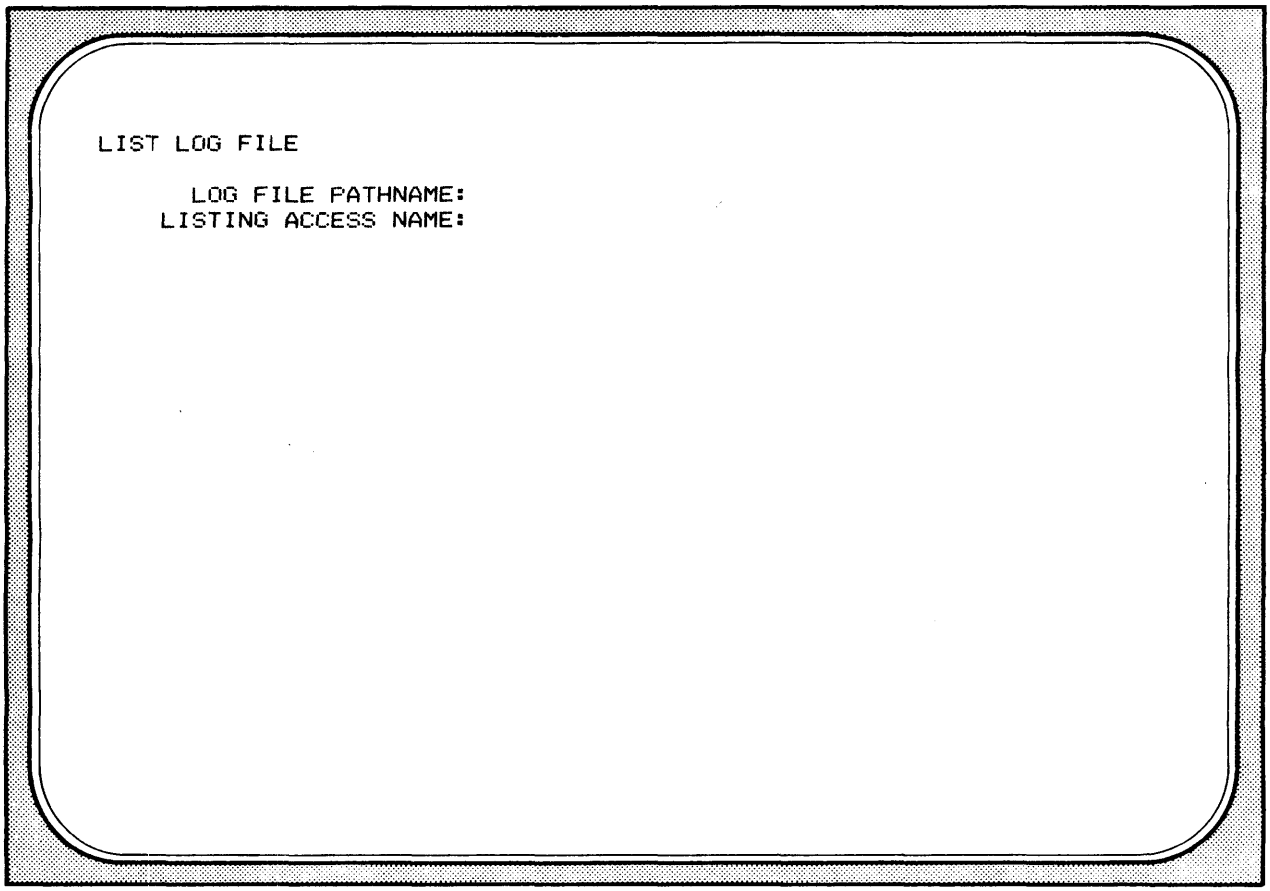
The following is an example SLF display of a Poller log file:

```
ACT-LINE                ST18
ACT-LINE                CM01
0000       :  POLLER SPO  COMPLETE; OCCURRENCE NUMBER IS: >1C
ANSWER                  ST18    001      LORI001
SEND-CMD                ST18    001      FREE DATAIN
SEND-CMD                ST18    001      DELETE DATAIN
SEND-CMD                ST18    001      CREATE DATAIN L 10 80
SEND-FILE               ST18    001      .POL.F1
*SUCCESSFUL             ST18    001
*USER STATS             ST18    001      ST=14:55:22  END=14:55:45  CALLS=00
DISCONNECT              ST18
*LINE STATS             CM01  3780       TOT=000:00:00  AT=  0  CP=  0  UN=  0
DEACT-LN                CM01
2600  CM01:  POLLER TLO COMPLETE
ACT-LINE                CM01
2800  CM01:  POLLER SLO COMPLETE
CALL             1009   CM01    002      BMT002
1B00  1009:  POLLER MANUAL CALL UNSUCCESSFUL
CALL             1009   CM01    002      BMT002
1B00  1009:  POLLER MANUAL CALL UNSUCCESSFUL
*LINE STATS             CM01  3780       TOT=000:00:00  AT=  2  CP=  0  UN=  0
DEACT-LN                CM01
2600  CM01:  POLLER TLO COMPLETE
ACT-LINE                CM01
2800  CM01:  POLLER SLO COMPLETE
```

3.6.6 List Log File (LLF)

The LLF command allows the operator to generate a formatted report from the raw contents of any Poller log file. The report may be output to a printer (LPxx) or displayed on a Model 911 VDT, where it can be viewed via the F1 and F2 function keys.

The only prompts are for the log file pathname and the listing access name, formatted as follows:



The log file pathname is the pathname of the DX10 disk file which contains the log information which is to be formatted. If the listing access name is left unspecified, the report will be output to the screen of the Model 911 VDT which issued the LLF request.

The following is an example LLF report of a Poller log file:

```
  10/02/81      LIST LOG FILE: .POL.TLOG                                  PAGE 1

COMMAND        ERROR     LINE    USER     DATA
-------------------------------------------------------------------------------

ACT-LINE                 ST18
ACT-LINE                 CM01
0000       :  POLLER SPO  COMPLETE; OCCURRENCE NUMBER IS: >1C
ANSWER                   ST18    001      LORI001
SEND-CMD                 ST18    001      FREE DATAIN
SEND-CMD                 ST18    001      DELETE DATAIN
SEND-CMD                 ST18    001      CREATE DATAIN L 10 80
SEND-FILE                ST18    001      .POL.F1
*SUCCESSFUL              ST18    001
*USER STATS              ST18    001      ST=14:55:22  END=14:55:45  CALLS=00
DISCONNECT               ST18
*LINE STATS              CM01   3780      TOT=000:00:00  AT=  0  CP=  0  UN=  0
DEACT-LN                 CM01
2600   CM01:  POLLER TLO COMPLETE
ACT-LINE                 CM01
2800   CM01:  POLLER SLO COMPLETE
CALL            1009     CM01    002      BMT002
1B00   1009:  POLLER MANUAL CALL UNSUCCESSFUL
CALL            1009     CM01    002      BMT002
1B00   1009:  POLLER MANUAL CALL UNSUCCESSFUL
*LINE STATS              CM01   3780      TOT=000:00:00  AT=  2  CP=  0  UN=  0
DEACT-LN                 CM01
2600   CM01:  POLLER TLO COMPLETE
ACT-LINE                 CM01
2800   CM01:  POLLER SLO COMPLETE
```

4

Network Administrator Instructions

4.1 CONFIGURATION MANAGEMENT UTILITIES (/PCONFG)

The network administrator uses the Poller configuration management utilities to create and maintain the data bases required for Poller operations. These utilities are accessed directly through the System Command Interpreter (SCI).

There are a minimum of five different data bases which must be created prior to performing an SPO or TEST command to begin Poller operation. The five types of files required are a terminal list (TL), terminal data base (TDB), Poller data base (PDB), at least one activity template (AT) data base, and at least one terminal procedure (TP) data base. Each of these data bases should be created and modified only through the utilities provided with the Poller; the DX10 Text Editor should not be used.

The relationship of these data bases to the Poller modules is shown in Figure 4-1.

4.1.1 Relationships Between Data Bases

It is important that the network administrator understand the information conveyed in each data base, as well as the relationships that exist among them. The following paragraphs present an overview; additional specific details are given in subsequent sections.

The resources (more specifically, the lines) used during the polling activity are specified in the Poller data base. An STxx-type device designates that TTY protocol (via the BMTS-990 package) is to be used on the line; a CMxx-type device designates that the 3780 protocol (via the DX3780 Emulator) is to be used. These devices must be included in the DX10 system via system generation (sysgen) before the Poller is started. A minimum of one resource is necessary for any polling activity. However, more resources should result in greater polling throughput. Note that the number of resources specified in the Poller data base must not exceed the maximum number provided for in the Poller; refer to the PIN command (paragraph 5.5) for details.

A Poller data base can contain a mixture of both STxx and CMxx lines. The mode of operation for each line must be defined as either call, answer, or manual. A line in the call mode is used to call terminals. A line in the answer mode is used by terminals that call the Poller. A line in the manual mode is used for terminal sessions that are manually controlled. The mode of the lines is dependent on the user's network configuration and communications hardware; that is, if auto-call hardware is available, then call lines are used; however, if the remote terminals are provided with originate-only modems, then answer lines must be used.

The terminal list contains a list of three-digit terminal numbers and defines the terminals that can participate in the polling activity. Only the terminals in the terminal list can be called by or call into the Poller. The terminal data base file contains entries for all the terminals in the terminal list; the terminal data base may also contain entries for terminals not found in the terminal list.

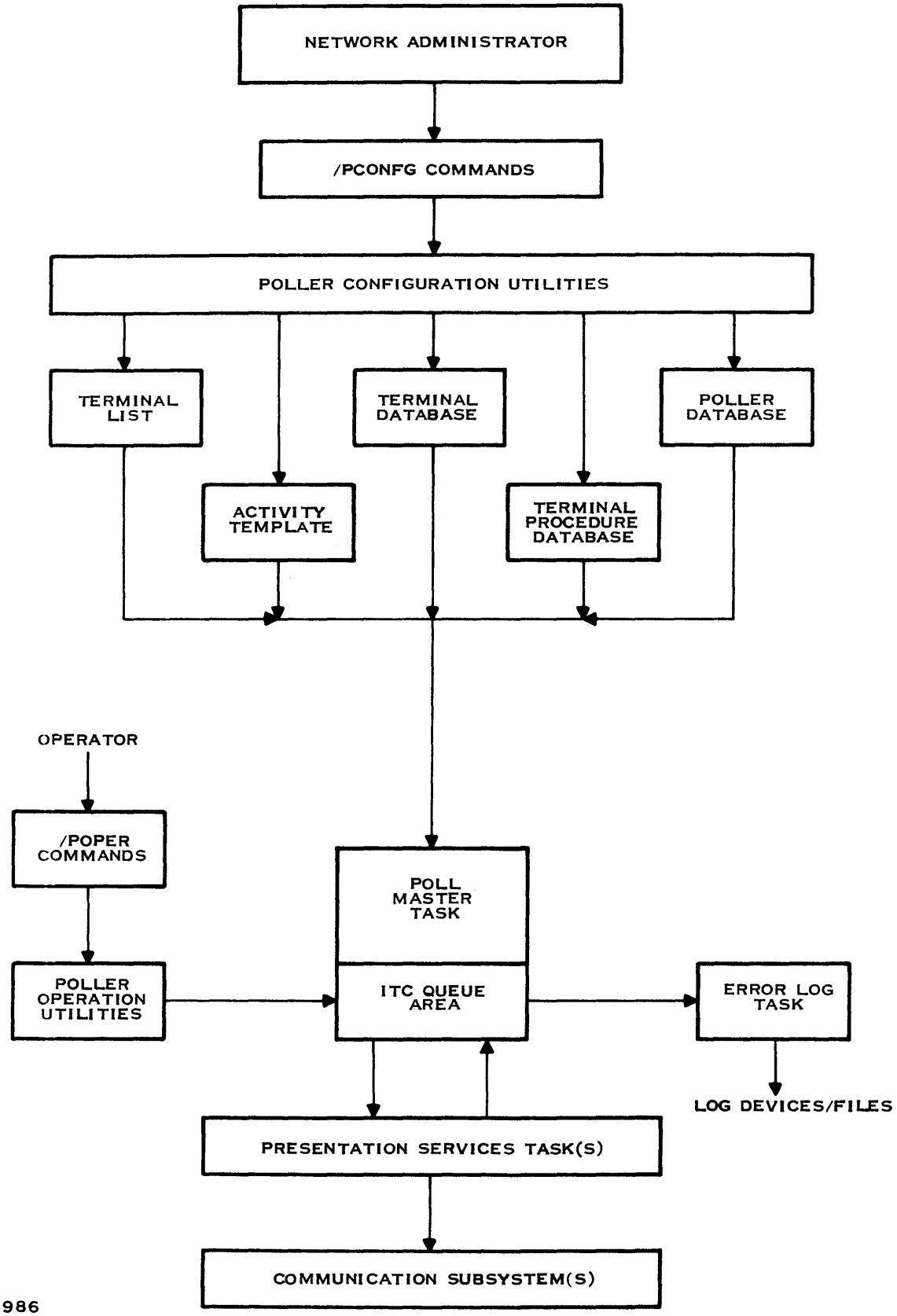


Figure 4-1. Poller Data Structures

A terminal data base entry contains the attributes that are associated with a particular terminal. The most important attribute in the terminal data base entry is the connection type (call, answer, or either) for the terminal. A terminal that can either call or be called by the Poller is connection type call. A terminal that calls the Poller is connection type answer. A terminal that can either call or be called by the Poller is connection type either. The type of connection associated with a terminal is defined by the network administrator based on the system objectives as well as the physical capabilities of the modem being used in conjunction with the terminal.

It is important to note the relationship that exists between a terminal is connection type and a resource is mode of operation. If a terminal connection type is call, then the Poller is expected to call the terminal; in order to do this, a line whose mode of operation is call must be designated in the Poller data base. Likewise, in order for a terminal to call into the Poller, a line must be provided whose mode of operation is answer. Also, since lines are defined as supporting either TTY or 3780 protocol, the protocol used by the terminal, as defined in its terminal data base entry, must match the protocol used by the line, as defined in the Poller data base. In addition, the modem-type and WATS band associated with the terminal must correspond to the same values for a line in the Poller data base. Otherwise, if these four criteria are not met, the terminal will not be polled.

If all the terminals within the terminal list have a connection type of call (or either), then the order of the list defines the order in which the Poller will attempt to call the terminals. The number of terminals that can be polled concurrently depends on the number of lines in call mode. When a line completes a terminal session, the next terminal in the terminal list, whose characteristics match those of the available line, is the terminal selected for polling. Before beginning a session, the Poller checks that the terminal has not already had a successful session (if connection type is either the terminal may have called in); if it has already completed the session, then the terminal is skipped. Any terminals with a connection type of answer are skipped when the Poller is determining which terminal to call next.

A line defined in the Poller data base as manual is ignored by the Poller unless the operator enters a manual command for that line. Lines in manual mode are not expected to be used in the normal operating environment. A manual line should only be used in exceptional conditions, for example: if auto-call hardware failed; when attempting to send/retrieve a file that was not transmitted automatically; or when trying to resolve a communications problem. A terminal session is initiated on manual lines by using the MCALL or MANSR command.

Once a successful connection is made between the Poller and the remote terminal, the Poller determines what actions to perform by accessing the activity template file associated with the terminal, as specified in the terminal data base. The exception is when the line is in manual mode and the operator chooses not to use the activity template.

An activity template file contains a generic description of the activity that is to occur when polling a terminal. Each terminal must have a corresponding activity template file; however, activity templates may be shared by several terminals. In some user applications, it is possible that all terminals will use the same activity template, but this is by no means a requirement. Regardless, the activity template associated with each terminal is specified in the terminal entry in the terminal data base.

Activity templates specify the names of the logical procedures that are to be performed with the terminal; the exact definitions of these procedures are resolved in a terminal procedure data base. The terminal procedure data base to be used in resolving the logical procedures is specified in the first command of the activity template. After this first terminal procedure data base is defined, the network administrator may redefine, at his discretion, the terminal procedure data base to be used to resolve subsequent logical procedures within the activity template. However, a single terminal procedure data base may contain the definitions for all logical procedures in a particular activity template or even for all activity templates in the system.

The procedures contained in the terminal procedure data base are composed of Poller keywords and specific terminal commands. These keywords and commands dictate the exact action to take place between the Poller and the remote terminal. Terminal procedure data bases, like activity template data bases, are sharable between terminals.

4.1.2 Overview of Poller Error Handling

Upon completing the execution of a command within the terminal procedure, the command and information relevant to the command is logged by the Poller via the ERRLOG task. The relevant information includes the completion status of the command, the terminal number, the line being used, and command-specific data.

The ERRLOG task can categorize command completions and other related information into one of six types of log events; these are ABORTS, NORMALS, ERRORS, STATISTICS, UNINITIABLES, and ALL. Each type of log event can be logged to a separate file and/or device. In the Poller data base, the network administrator specifies which log events to log and specifies either a DX10 disk file pathname or device name for each. You should not attempt to log more than one event type to the same file or device because unpredictable results may be obtained. However, you can log one event type to more than one file or device.

In addition to command completions being logged, whenever any Poller operation, such as SPO, is completed, a message is logged to reflect the completion. This includes the completion of all manual commands. If the command completes without error, it is logged only to the ALL log file or device. If an error occurs, the completion is logged to both the ERRORS and ALL log file(s) and/or device(s).

The event type ABORTS includes all aborted sessions, whether performed by the operator or the Poller due to an error.

Event type NORMALS includes all terminal sessions which completed successfully.

Event type UNINITIABLES includes all unsuccessful connections, regardless of whether the Poller failed in an attempt to call the terminal, or a terminal failed in an attempt to call in to the Poller, or if the ABMs did not compare; manual call and answer failures are also included.

Event type STATISTICS includes both the terminal and line statistics. Upon completion of a terminal session, starting and completion times are logged with the terminal number and the line used for the session. In addition, if the Poller called the terminal, the number of calls required are logged. Whenever a line is deactivated (by HPO, TPO, APO, TLO, or ALO), statistics for that line are logged; these include the total amount of time the line was active (doing terminal sessions), the number of attempted sessions on the line (both successful and unsuccessful), the number of sessions completed successfully, and the number of uninitiable sessions that were attempted on the line. The total number of sessions attempted minus the successful and uninitiable sessions yields the number of aborted sessions on the line. Whenever the line is started or restarted (via SPO, TEST, RPO, SLO), these counters are reset to zero.

Event type ERRORS includes all commands that completed with a nonzero status. Since the Poller receives error status back from many sources, it is sometimes difficult to interpret the error code. If the error occurs on a TTY line, the BMTS-990 documentation should be consulted first. If an error occurs on a 3780 line, the error most often is from the DX10 3780 Emulator, and that documentation should be consulted first. If the error is not found in the appropriate manual (by protocol) and if the first two digits of the four-digit error code are nonzero, you should determine whether the error is a Poller error by consulting Appendix B of this manual. If the first two digits are zero, but the last two are nonzero, then the error may have come directly from the terminal being polled. Lastly, and most rarely, if the error code still cannot be located, it should be treated as DX10 SVC error code, and the DX10 manuals referenced. Refer to Appendix B of this manual for additional information on isolating errors.

Event type ALL includes all of the above event types. The ALL log is most useful since it is a chronological listing of the completion of all commands as well as Poller messages. Whenever any data is logged to a specific log file, it is also logged to the ALL log, if one is provided.

4.1.3 Accessing the Poller Configuration Commands

When the operator inputs the /PCONFG command, a display is generated that contains a menu of the various types of Poller configuration commands available. The display contains the names of submenus for the terminal list, terminal data base, terminal procedure, activity template, and Poller data base edit utilities. The menu also displays the commands for deleting, printing, and showing a particular Poller data structure (file); these commands are analogous to the DX10 commands Delete File (DF), Print File (PF), and Show File (SF) and are included so that the network administrator can tailor these procedures to the specific requirements of his system.

The menu of the Poller configuration management commands is as follows:

```
POLLER CONFIGURATION UTILITIES

            /TL - TERMINAL LIST EDIT
            /TD - TERMINAL DATABASE EDIT
            /TP - TERMINAL PROCEDURE EDIT
            /AT - ACTIVITY TEMPLATE EDIT
            /PD - POLLER DATABASE EDIT
            DDS - DELETE DATA STRUCTURE
            PDS - PRINT DATA STRUCTURE
            SDS - SHOW DATA STRUCTURE

[]
```

NOTE

Any file currently being used by an active occurrence of the Poller cannot be modified.

4.2 TERMINAL LIST EDIT UTILITIES (/TL)

The terminal list utilities create and modify a terminal list. The significance of a terminal list file is that it defines which terminals can have an activity session with the Poller. The pathname of a terminal list is required when the Poller is started, via the SPO or TEST commands.

If each terminal in the terminal list is to be called, the Poller attempts to call the terminals in the order of the terminal list.

The terminal list utilities allow a terminal number to appear more than once in the terminal list. If the terminal is to be called by the Poller, multiple entries cause the terminal to be called more than once; this may cause previously transmitted or received data to be sent again or overwritten depending on the activities performed.

When you enter the /TL command the following menu of terminal list commands appears:

```
TERMINAL LIST EDIT UTILITIES

            CTL - CREATE TERMINAL LIST
            MTL - MODIFY TERMINAL LIST









[]
```

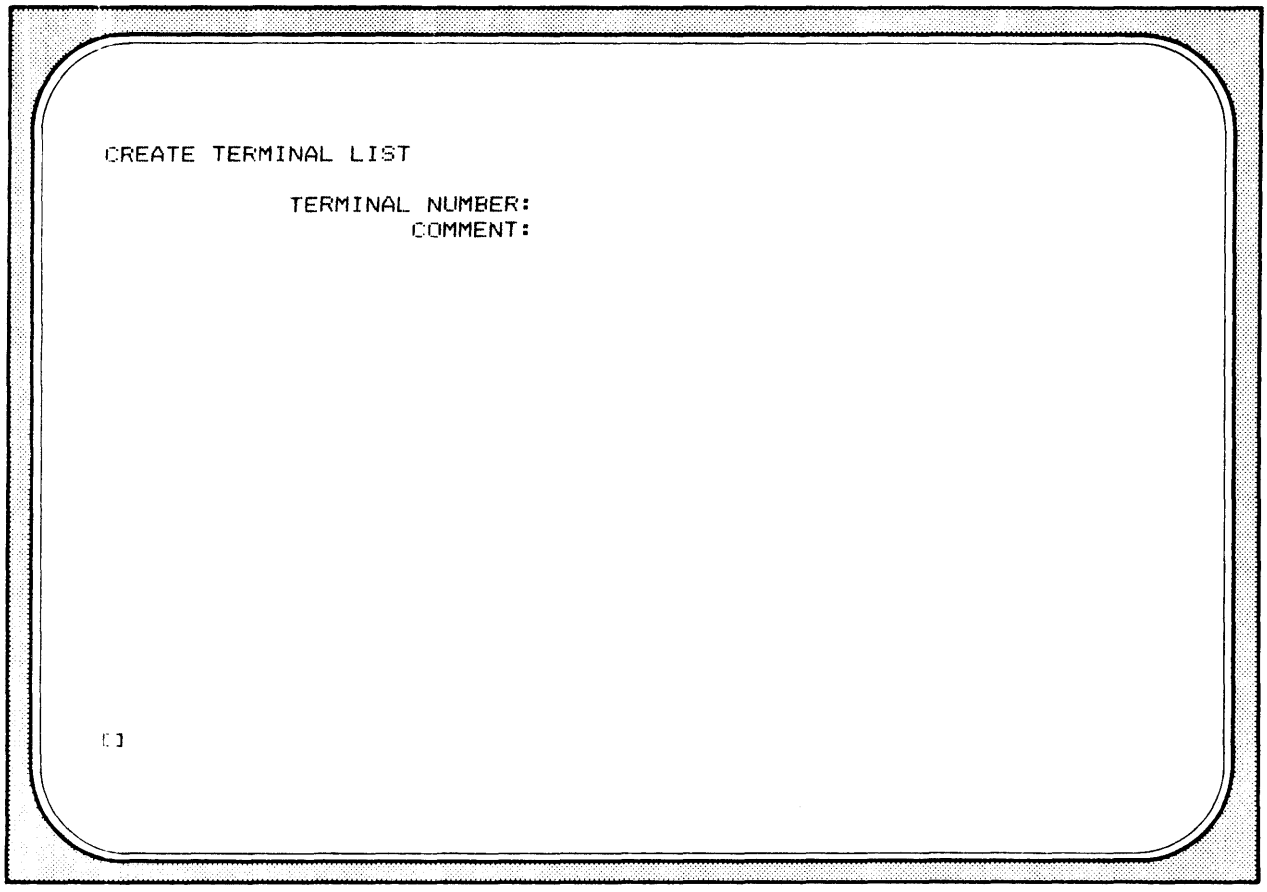
4.2.1 Create Terminal List (CTL)

The CTL utility allows you to create a terminal list file. The utility prompts for a terminal number and an optionally associated comment (maximum 53 characters).

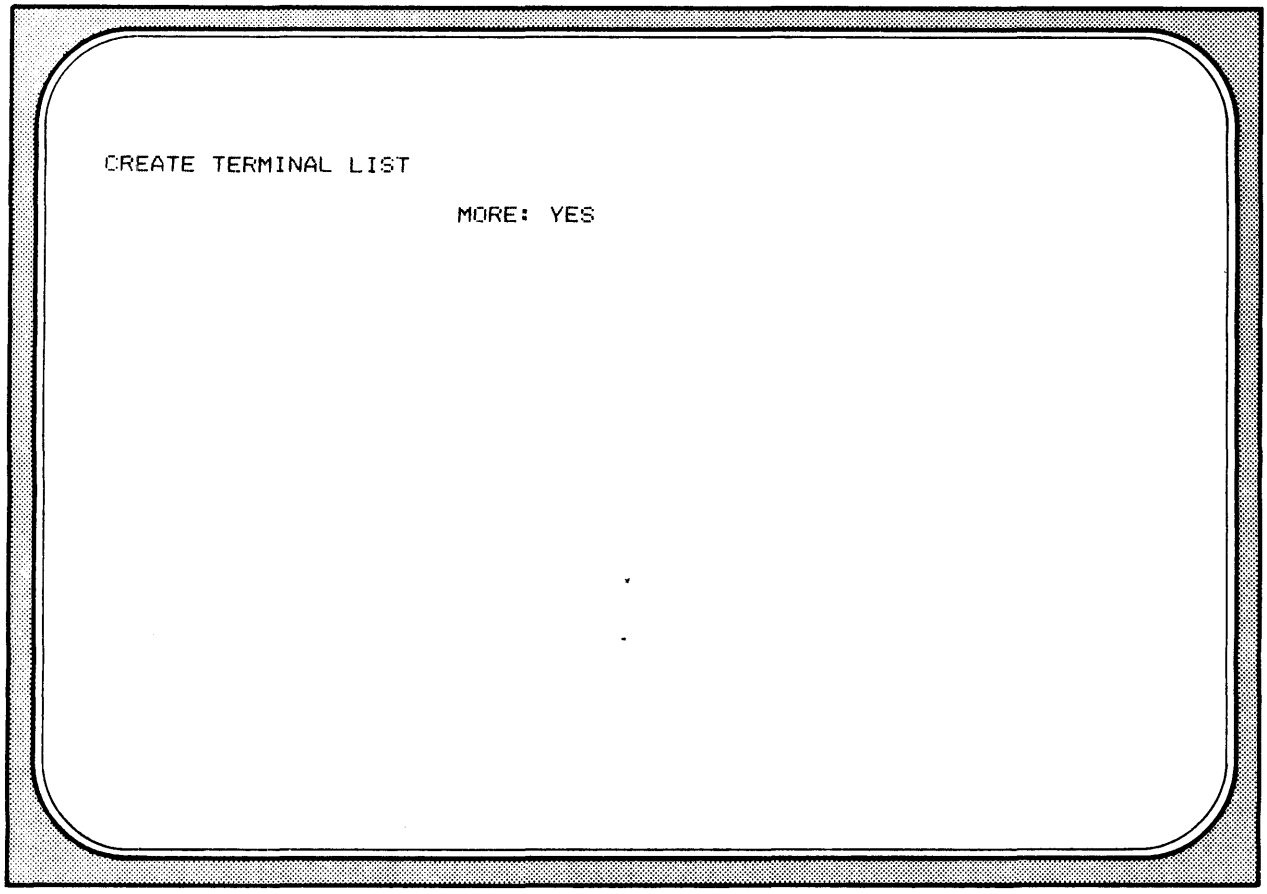
The CTL utility then displays the MORE prompt. If the response is YES, the utility again prompts for a terminal number and comment. This continues until you enter NO in response to the prompt MORE.

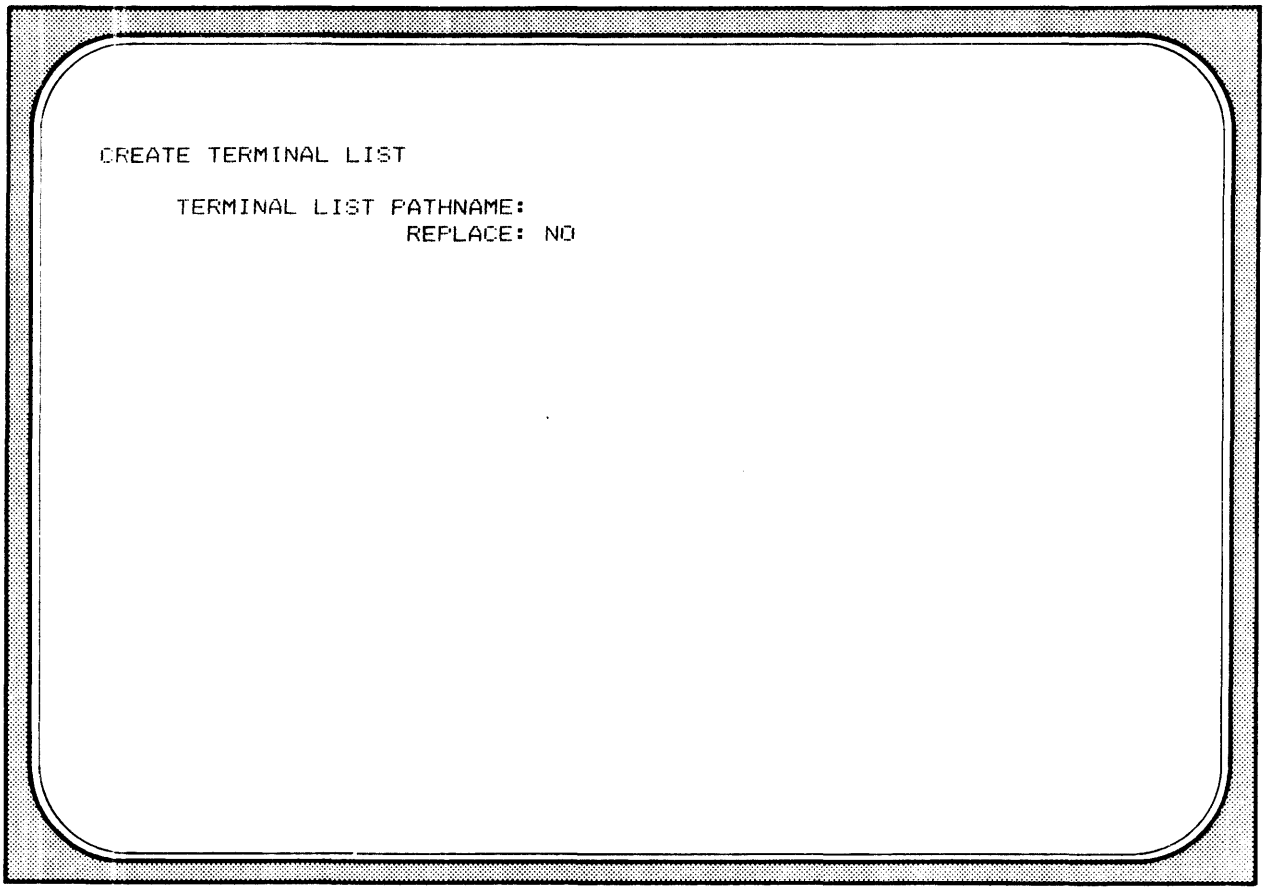
The CTL then displays the prompts TERMINAL LIST PATHNAME and REPLACE. The terminal list pathname is the DX10 disk file where the entered data is to be stored. The response to REPLACE specifies whether to replace an existing file. The CTL utility cannot replace a file that is currently in use.

The format of the CTL prompts is as follows:



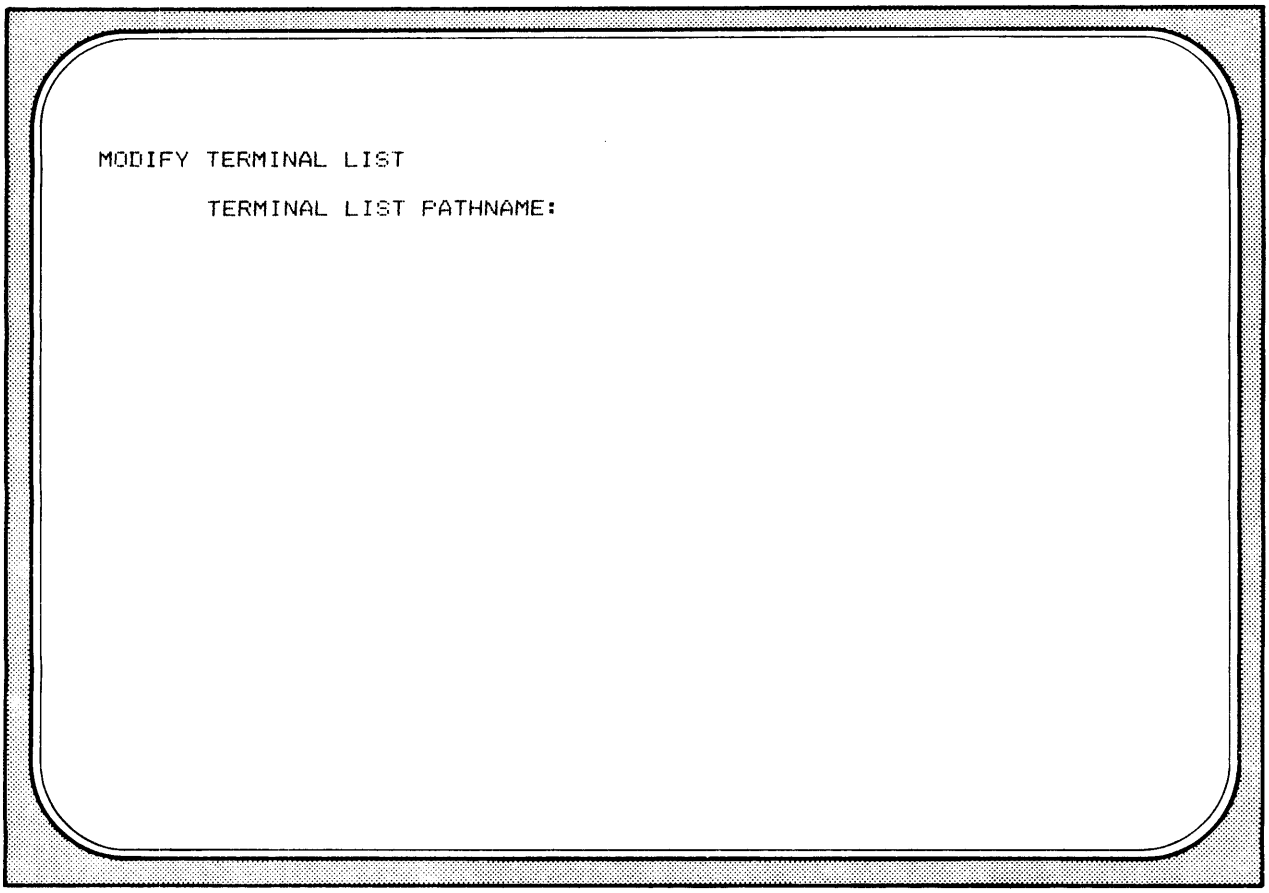
When the terminal list file is successfully created, the CTL program exits and the Poller menu appears. If the file creation is not successful, a standard DX10 error message is presented. The cause and correction of the error are found in of the *DX10 Operating System Error Reporting and Recovery Manual, Volume VI.*


CREATE TERMINAL LIST
MORE: YES


CREATE TERMINAL LIST
TERMINAL LIST PATHNAME:
REPLACE: NO

4.2.2 Modify Terminal List (MTL)

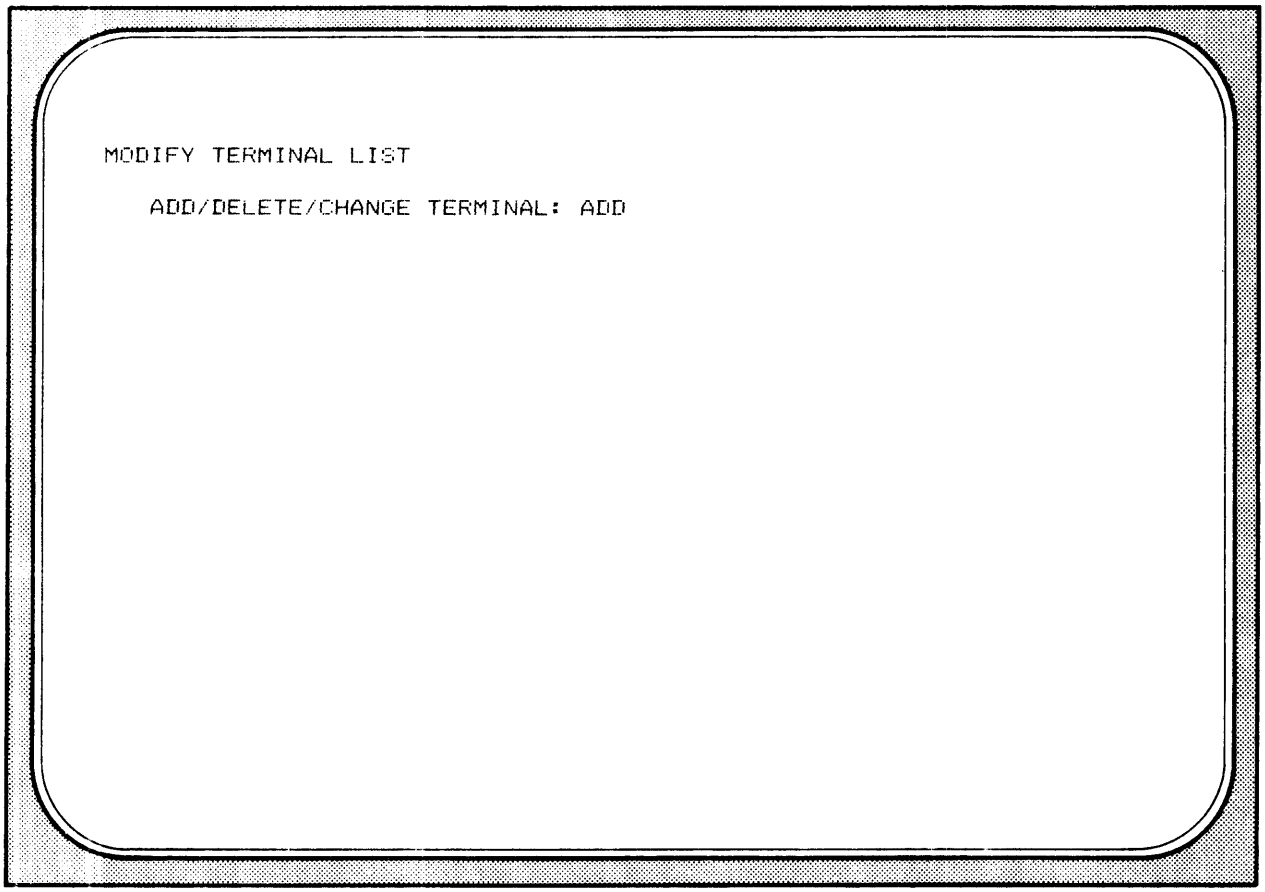
This command allows you to modify a terminal list by means of add, delete, or change functions. The first prompt is for the terminal list pathname; this is the DX10 pathname of the file that contains the terminal list data. The program then verifies that the file exists and is not currently in use. The format of the MTL prompts are as follows:

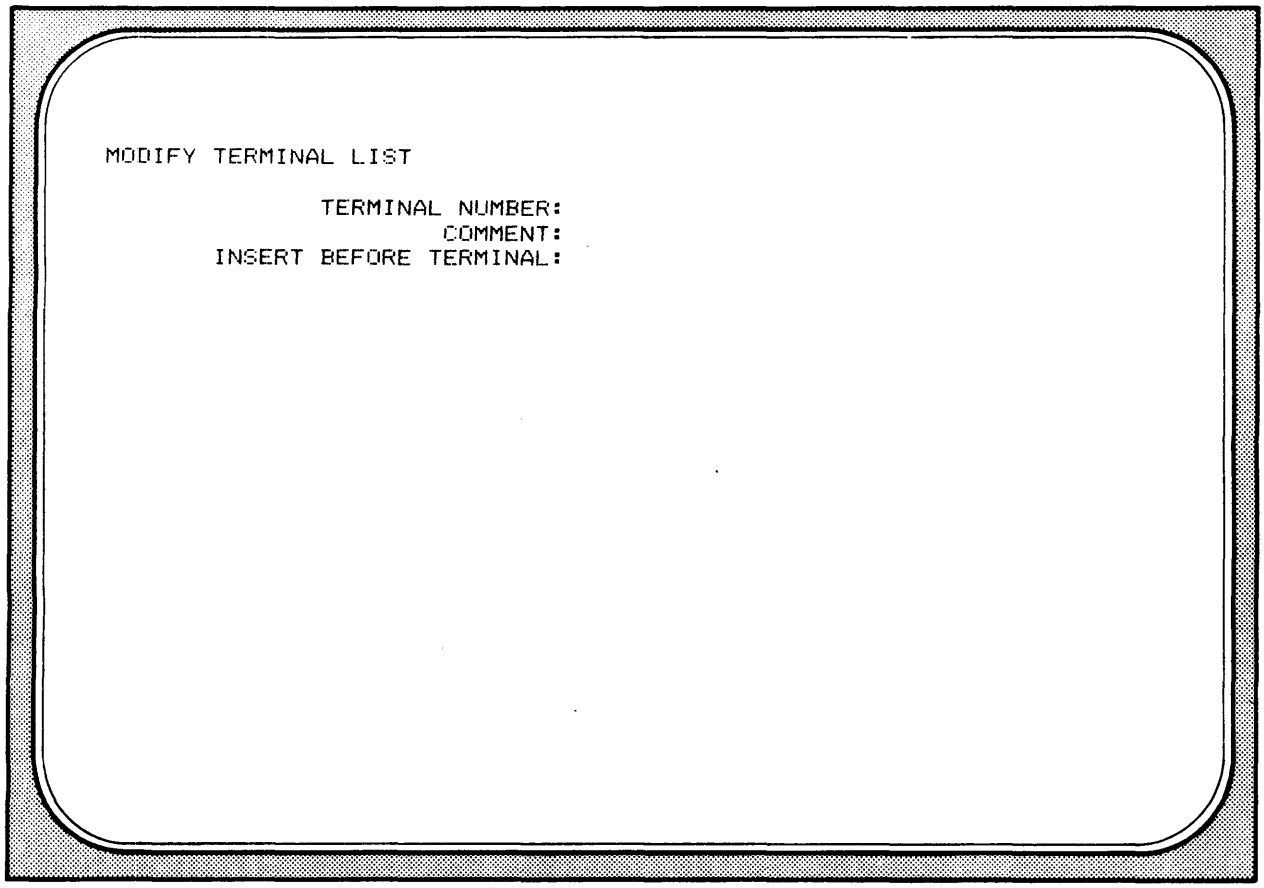


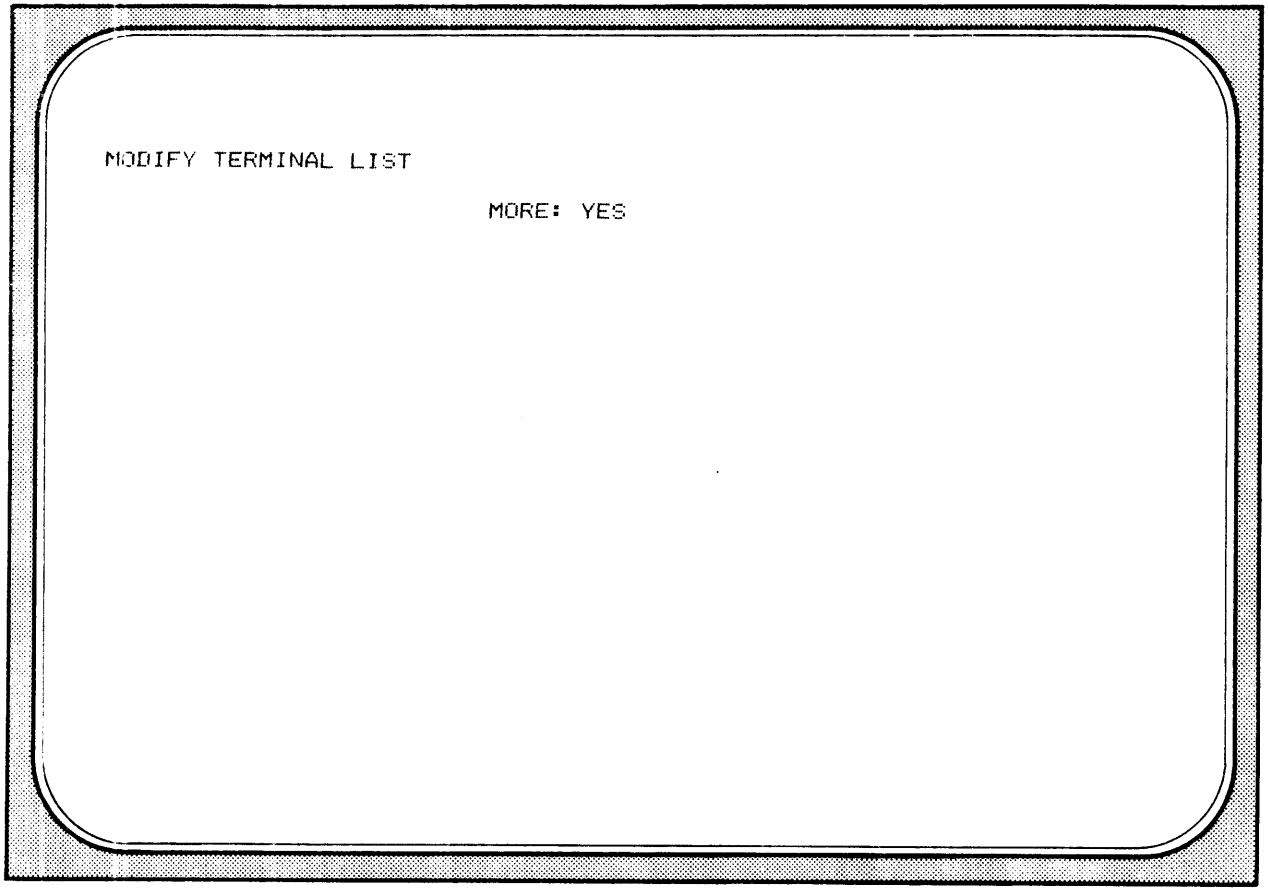
When you select the ADD function, MTL prompts for the terminal number (three digits), an optionally associated comment (maximum 53 characters), and an existing terminal number (already in the terminal list). The terminal number and comment are placed in the list before the specified terminal. If no terminal is specified, then the new entry is placed at the end of the terminal list.

When you select the DELETE function, only the terminal number is entered to delete the terminal from the terminal list. The function deletes the first terminal on the list with the specified terminal number.

When you select the CHANGE function, the MTL task prompts for the terminal number, checks the terminal list for an entry for that terminal, and (if found) displays the terminal number and comment to the operator for modification. When modified, the new data is written back to the file.


MODIFY TERMINAL LIST
ADD/DELETE/CHANGE TERMINAL: ADD

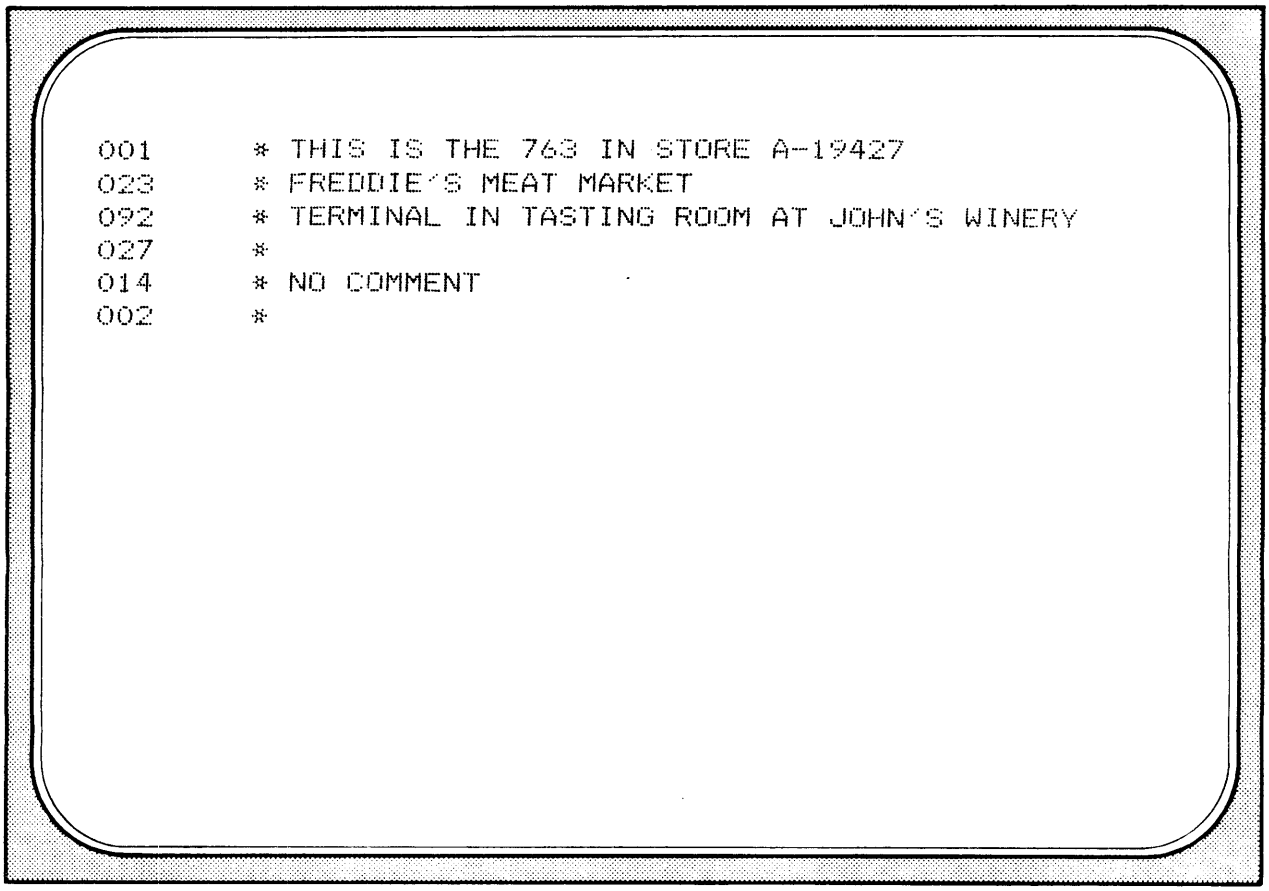

MODIFY TERMINAL LIST
TERMINAL NUMBER:
COMMENT:
INSERT BEFORE TERMINAL:


MODIFY TERMINAL LIST
MORE: YES

After performing each function, the prompt MORE appears. If the reply is YES, the MTL utility allows you to perform another add, delete, or change function. With a response of NO, the utility closes the terminal list file and returns to the Poller menu.

4.2.3 Terminal List Example

The following is an example of a terminal list. In this example, only these six terminals can have activity sessions with the Poller. If each terminal in this terminal list is in the call mode, the Poller attempts to call the terminals in the order of the terminal list.

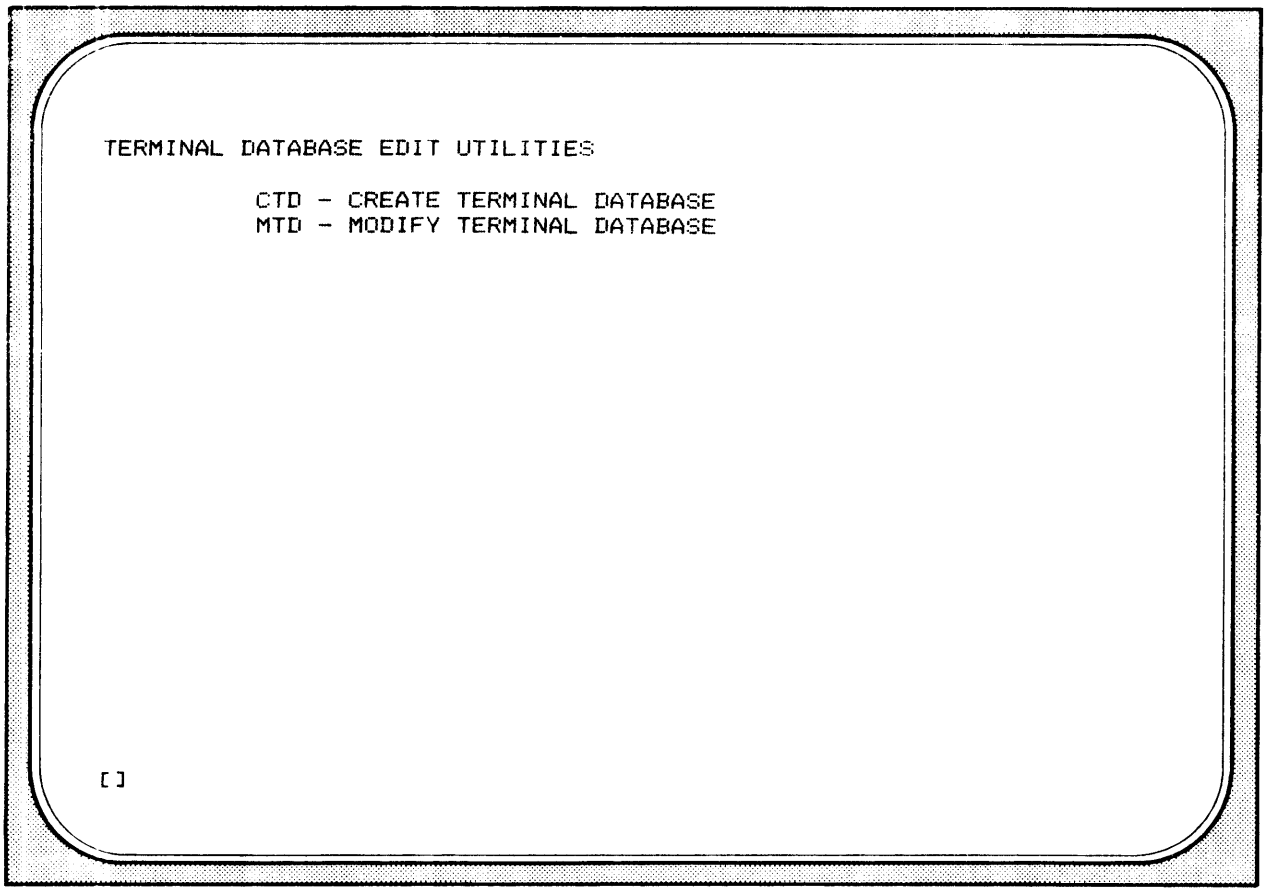


4.3 TERMINAL DATA BASE EDIT UTILITIES (/TD)

The terminal data base utilities create and modify a terminal data base file. Each terminal specified in the terminal list must have a corresponding entry in the terminal data base. The pathname of a terminal data base is required when the Poller is started via the SPO or TEST commands.

A terminal data base entry describes all the characteristics of the corresponding terminal. The characteristics of a terminal must be compatible with the characteristics of at least one line defined in the Poller data base file in order for the terminal to have an activity session with the Poller. In particular, the characteristics that must be compatible are the connection type of the terminal and the mode of the line, the protocol type, the WATS band, and the modem type.

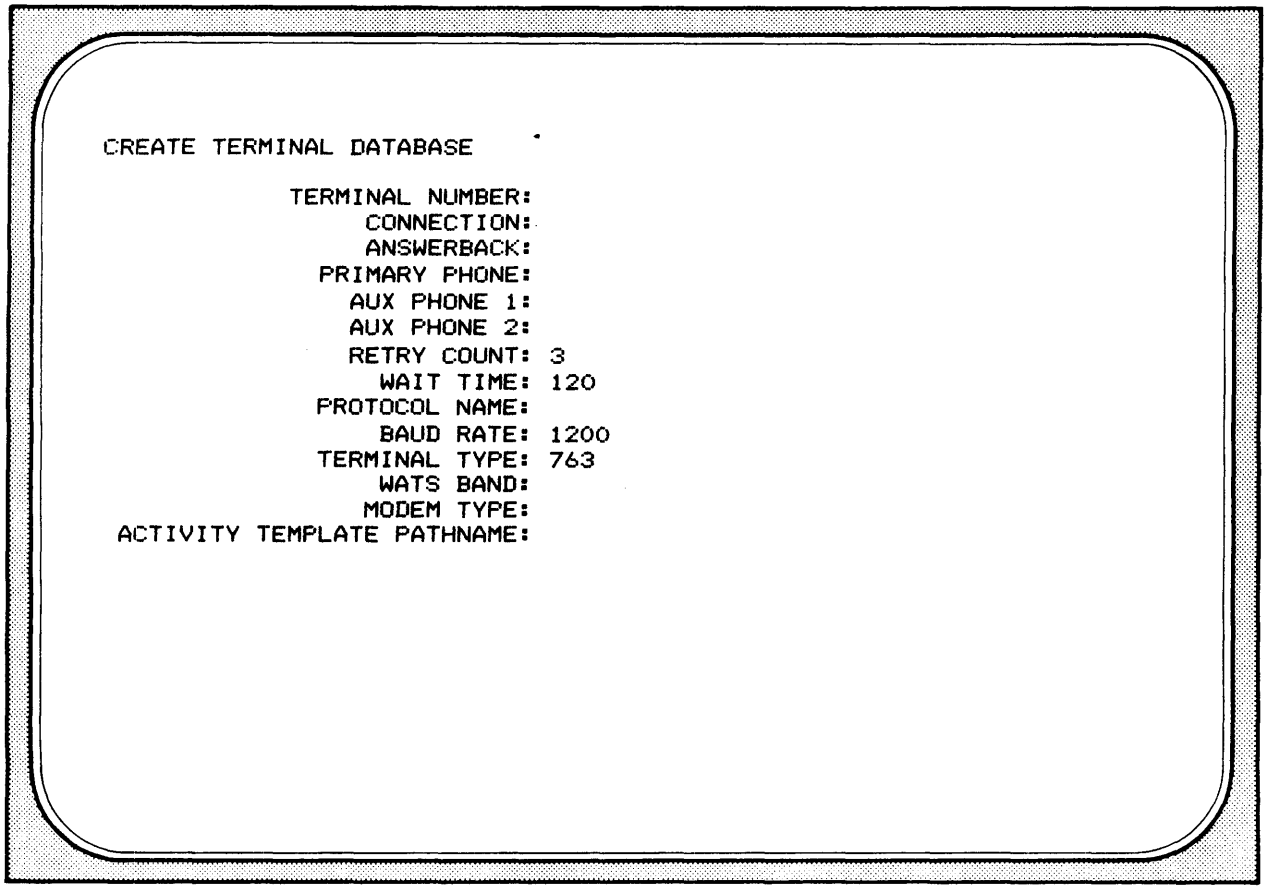
Operator input of the /TD command causes the following menu of terminal data base commands to be displayed:



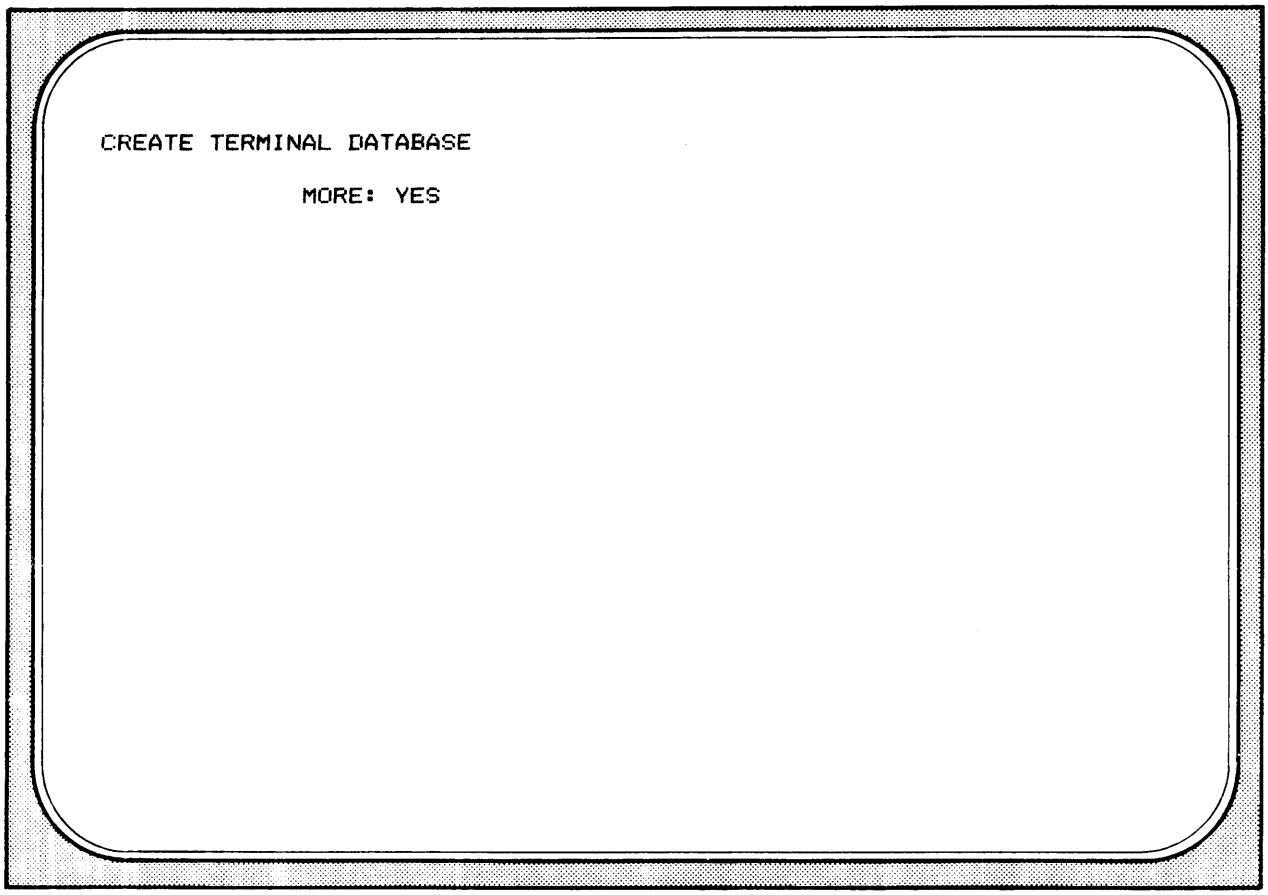
The next two sections describe the CTD and MTD commands followed by a detailed description of each of the terminal data base keywords.

4.3.1 Create Terminal Data Base (CTD)

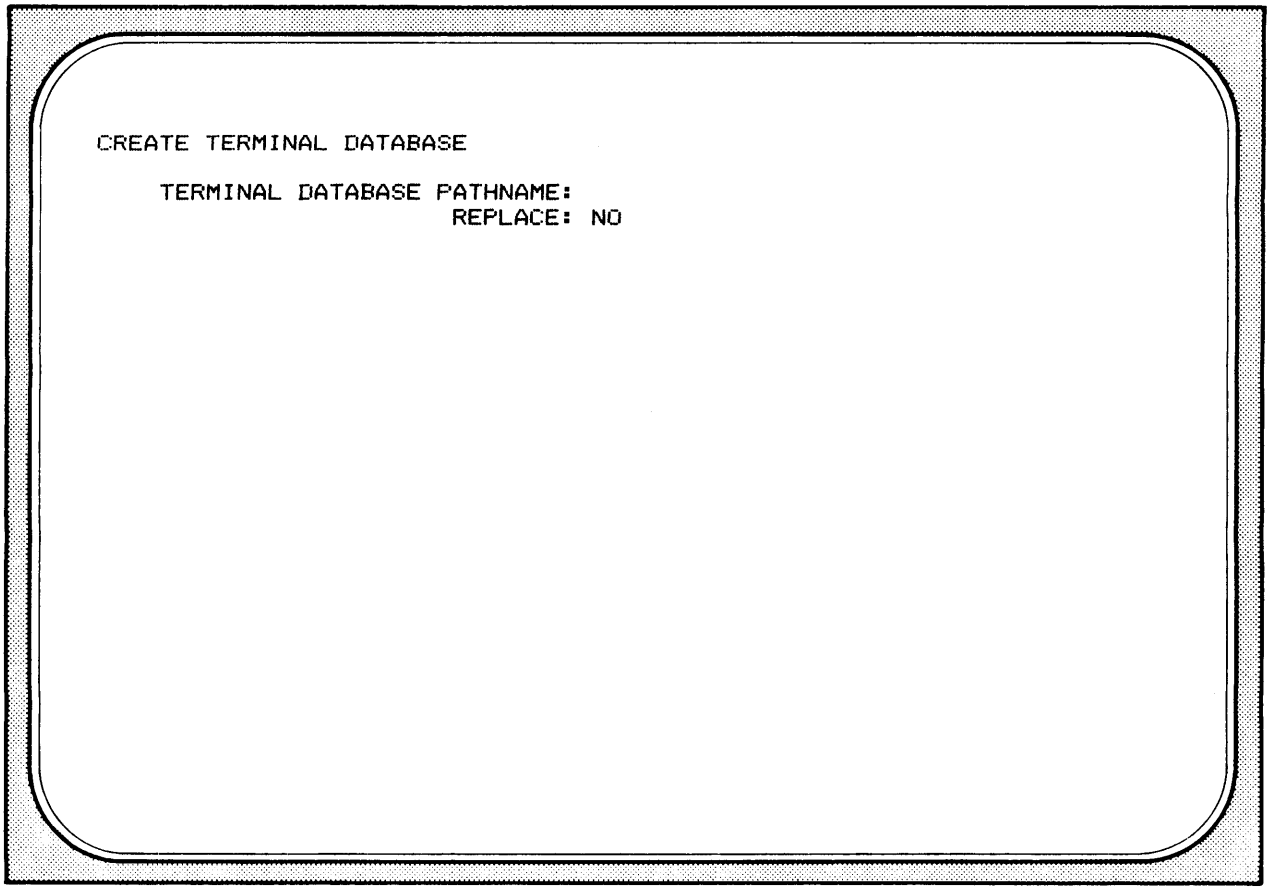
The CTD utility creates a terminal data base. The utility first creates a temporary file, then prompts for the data required for a terminal data base entry as follows:



The CTD utility then prompts for more entries as follows:



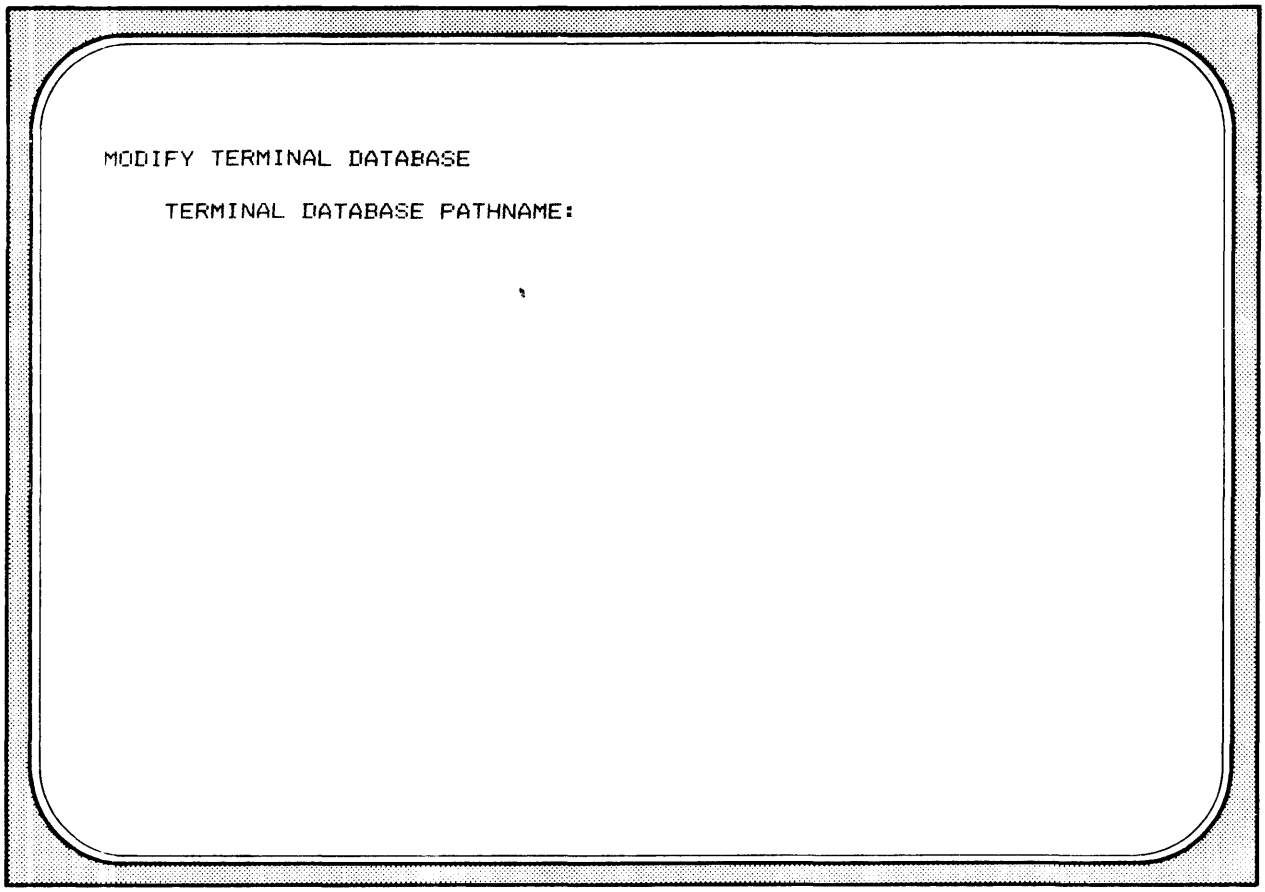
If the response is YES, the utility prompts for another terminal entry. When you enter NO, the utility displays the TERMINAL DATABASE PATHNAME and REPLACE prompts. The prompts are formatted as follows:

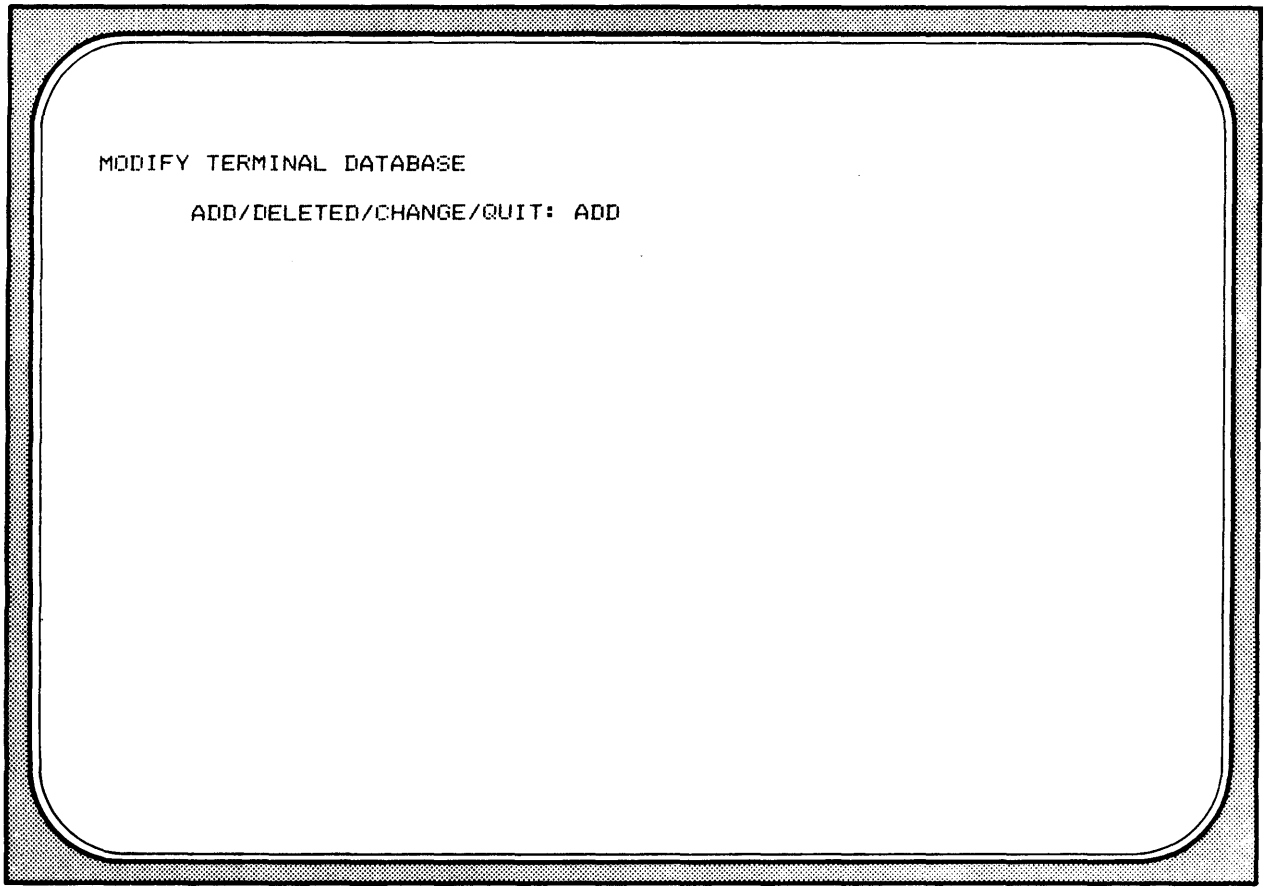


The terminal data base pathname is the pathname of the DX10 disk file in which the terminal data base information is to be stored. The response to REPLACE specifies whether to replace an existing file. The CTD utility cannot replace a file that is currently in use.

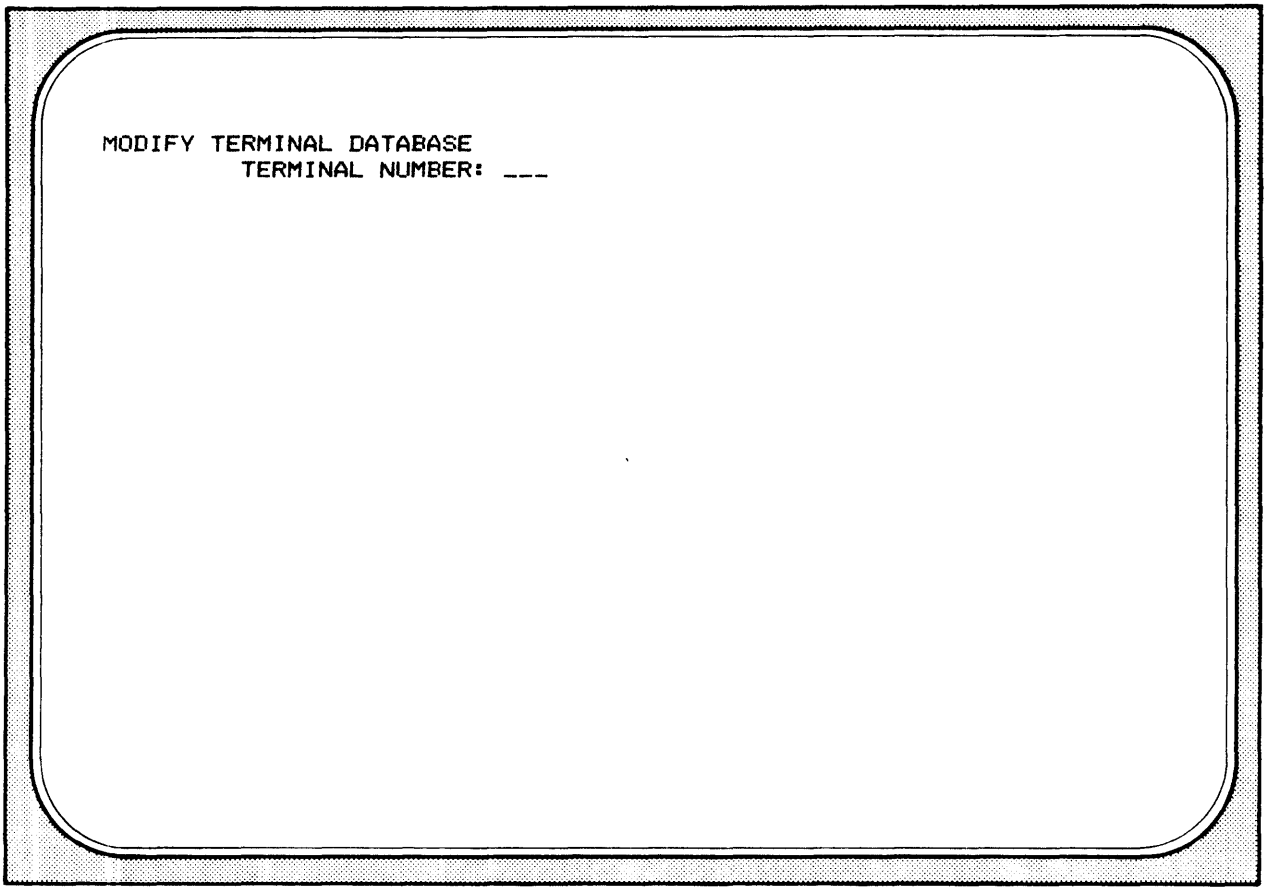
4.3.2 Modify Terminal Data Base (MTD)

This command allows you to modify a terminal data base file by adding, deleting, or changing entries in an existing file. If the file does not exist, an error is returned. A terminal data base which is currently in use cannot be modified. The utility then prompts to determine whether a terminal data base entry is to be added, deleted, or changed by displaying the following:




MODIFY TERMINAL DATABASE
ADD/DELETED/CHANGE/QUIT: ADD

If a terminal data base entry is to be deleted, the MTD utility prompts for the terminal number. The terminal data base entry corresponding to the terminal number provided is then deleted.



If a terminal data base entry is to be added, the utility prompts for the keywords as shown in the create terminal data base entry format.

If a terminal data base entry is to be changed, the utility displays the terminal entry data in the format previously shown for create terminal data base, but with the defaults set to the current value of each field as it appears in the terminal data base. The operator may then examine the value of each keyword and make changes to be incorporated in the file.

When each ADD, DELETE, or CHANGE function is completed, the MTD utility prompts with MORE. If the response is YES, the operator is prompted again to perform an ADD, DELETE, CHANGE or QUIT function. If the response to MORE is NO, the MTD will terminate; the QUIT function also terminates MTD.

4.3.3 Terminal Data Base Keywords

The following keywords are defined for each terminal data base entry:

Terminal Connection

Type	Meaning
CALL	Poller will call terminal
ANSWER	Terminal will call into the Poller
EITHER	Terminal can be called or call in

If the terminal connection type is ANSWER, then the prompts for phone number, retry count, and wait time are skipped since these are not required for answer-mode operation.

ANSWERBACK

The value of the answerback, if specified, is compared to the ABM (or terminal ID) received from the terminal and must match exactly or else the session is terminated and the line is disconnected. No control characters may be included in this answerback value. If the terminal is to dial into the Poller, the last three characters of the terminal's ABM must be the terminal number. The Poller uses these last three digits to determine whether the terminal number is in the terminal list, whether the terminal has called in previously, and whether it can have an activity session with the Poller.

PHONE NUMBERS

Up to three phone numbers may be presented for each terminal. The numbers are used in the specified order by the Poller to establish a connection with the terminal. The phone numbers may include the special symbols: equal sign (=), asterisk (*), pound sign (#), and minus sign (-), as supported by the BMTS-990 package or the DX10 3780 Emulator. A maximum of 40 digits and symbols are accepted. For 3780, no special symbols are required to dial long-distance; that is, only the digits of the phone number should be used.

RETRY COUNT

This value specifies the number of times to reattempt to establish a connection with the terminal using a particular phone number (in addition to the single initial attempt).

WAIT TIME

This value specifies the duration of time (in seconds) to wait before reattempting to establish a connection with the terminal in the event a previous call failed.

PROTOCOL

The protocol through which the terminal communicates with the Poller: TTY765 (or TTY) or 3780. There is no distinction made between TTY765 and TTY.

BAUD RATE

Baud rate is the speed at which the terminal communicates: generally 300 or 1200 for TTY protocol. Valid responses are 110, 300, 600, 1200, 2400, 4800, 9600 and FFFF (see BMTS-990 documentation for details). The Poller can use this baud rate to change only the speed on the communications interface (COMMIF) card; the setting does not affect the baud rate of the modem or the remote terminal. The BAUD RATE keyword applies only to TTY protocol.

TERMINAL TYPE

Valid responses are 763, 765, 767, 769, and 990. The 763 and 765 are TTY-type terminals; the 767, 769 and 990 are 3780-type terminals.

WATS BAND

WATS band value is used to match a resource (line) to the terminal which may be called using that resource. Acceptable values are as follows:

Value	**Meaning**
blank	DDD dialing
0	Intrastate WATS
1-6	Interstate WATS bands

Lines with 0 or (blank) WATS designations are always matched exactly to terminals with the same designation. Lines with WATS bands 1-6 may be matched exactly or may call any terminal with less than or equal WATS designations. This is an option selected through the PIN utility (see paragraph 5.5). WATS may be used to restrict the use of a line to only a subset of the terminals.

MODEM TYPE

This specifies the type of modem associated with the terminal. Zero through four characters may be used to specify the modem type. The modem type for the terminal, as specified in the terminal data base, must exactly match the modem type for the line, as specified in the Poller data base. Although the modem types may be compatible, such as Vadic 3451 and Bell 212A, the Poller will not consider these to be compatible since the types do not match exactly. Therefore, some description must be determined which can be used for both the terminal and the line modem types. Note that the MODEM TYPE is an optional prompt, and that a nonspecified terminal modem type is assumed to match a nonspecified line modem type.

ACTIVITY TEMPLATE PATHNAME

This entry specifies the DX10 pathname of the activity template to be used during the polling activity. DX10 synonyms are not supported in this pathname designation.

4.3.4 Terminal Data Base Example

The following is an example of an entry in a terminal data base:

```
023                  *** TERMINAL DATA BASE ENTRY ***
EITHER                                  * connection type
FREDDIES023                             * answerback
555-1212                                * primary phone #
                                        * aux phone #1
                                        * aux phone #2
2                                       * retry count
30                                      * wait time
TTY765                                  * protocol type
1200                                    * baud rate
765                                     * terminal type
0                                       * wats line
212A                                    * modem type
VOL1.DATABASE.AT                        * activity template file
```

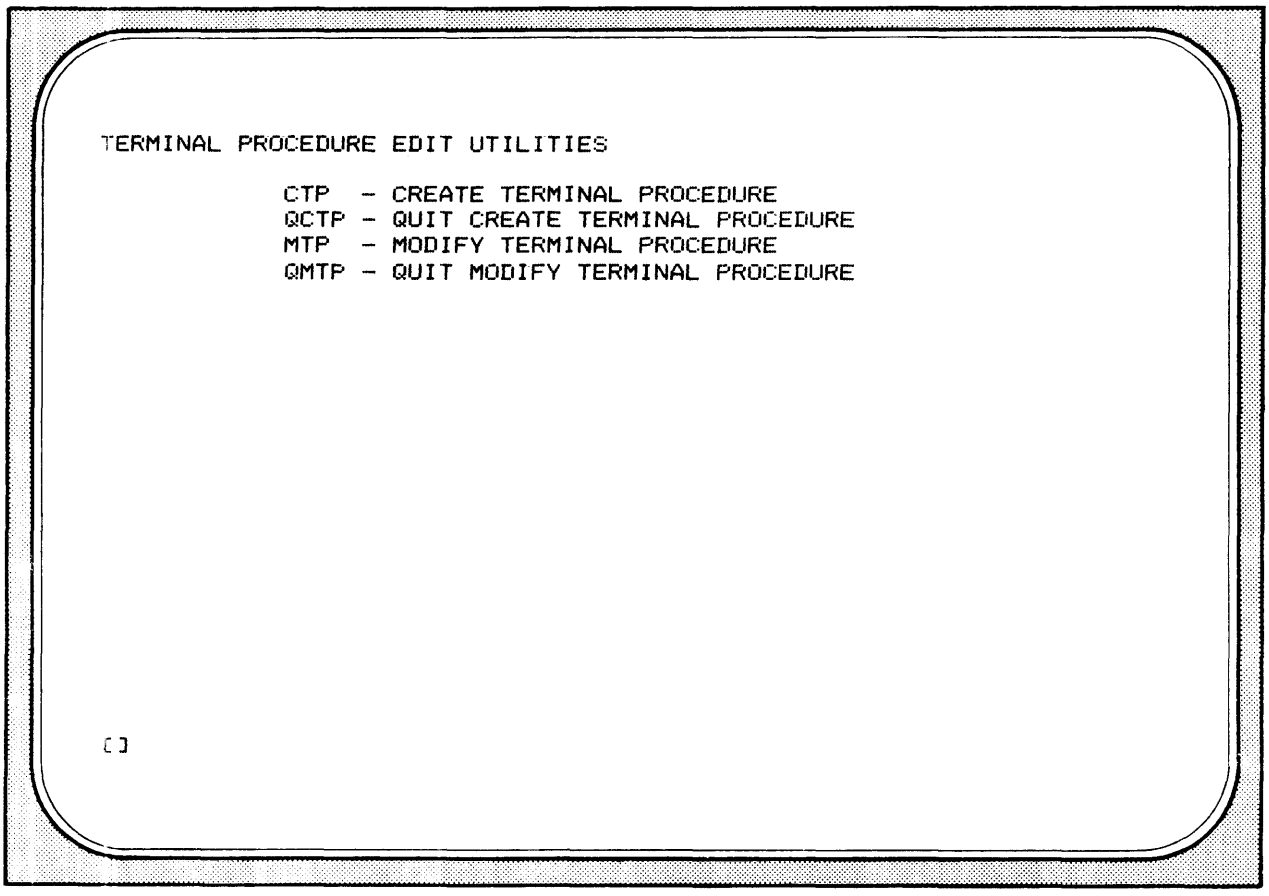
In the above example, the terminal number is 023 and the terminal can be called by the Poller or may call in (EITHER). The answerback for the terminal is FREDDIES023; note the terminal number on the end of the answerback. Only one phone number is provided for the terminal. If the initial attempt to connect to the terminal fails, the Poller software will retry 2 times, waiting 30 seconds between each attempt. The terminal uses TTY protocol and is set up to communicate at 1200 baud. The terminal is a 765 and communication with the terminal is to be via WATS band 0. The modem associated with the terminal is a 212A; presumably a Bell 212A-compatible modem. Once the connection is established with the terminal, the file VOL1.DATABASE.AT is to be used as the activity template for the session with the terminal.

4.4 TERMINAL PROCEDURE EDIT COMMANDS (/TP)

A terminal procedure data base is made up of one or more procedures (PROCs). Each PROC must start with a unique PROC name (1 to 8 characters long with the first character an alphabetic), followed by the string = BEGIN; this designates the start of the PROC. On subsequent lines, the user enters the various terminal procedure statements to perform the desired terminal function(s). The last statement (line) of each PROC is the keyword END.

Terminal procedure statements cannot be longer than a single line. Comments may be included in the file by preceding the text of the comment with an asterisk. Lines containing only comments are allowed. Blank lines may be used within a procedure and as delimiters between PROCs.

Operator input of /TP command displays a menu of terminal procedure commands. The various terminal procedure edit utilities are described first, followed by a detailed description of the keywords associated with a terminal procedure and examples.



CAUTION

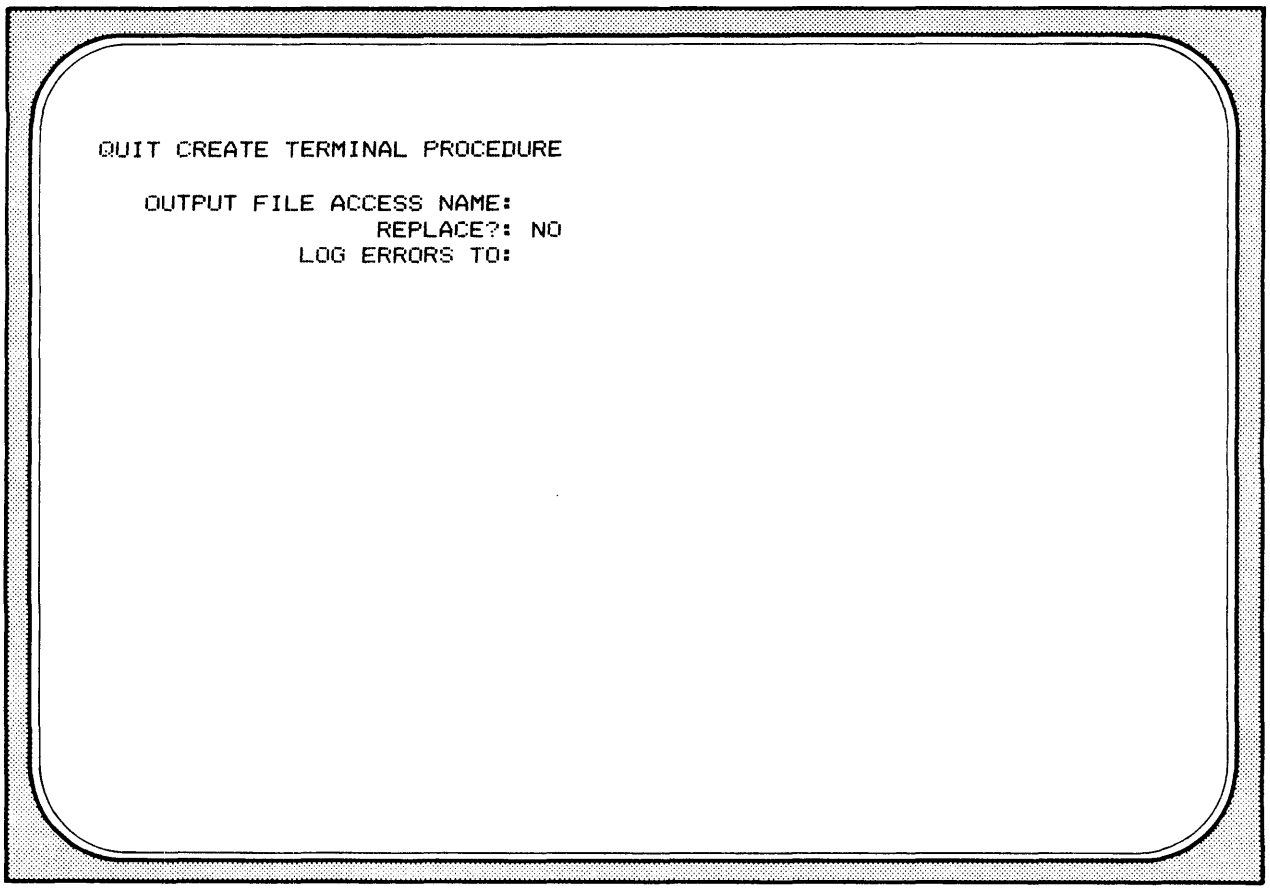
It is critical that all syntax errors be removed from a terminal procedure data base prior to its being used by the Poller, since unpredictable results will occur if syntax errors are present. Therefore, the DX10 Text Editor should not be used since it does not verify the syntax of the terminal procedure data base.

4.4.1 Create Terminal Procedure (CTP)

The CTP utility is used to create a terminal procedure data base. This utility does not prompt the operator; rather, the input is free-form similar to the DX10 Text Editor, and uses the same function keys and text edit commands. The only difference is in the terminate command, QCTP.

4.4.2 Quit Create Terminal Procedure (QCTP)

The QCTP command prompts the operator with ABORT. With the operator response of YES, the input is discarded. If the response is NO, the task displays the following prompts:



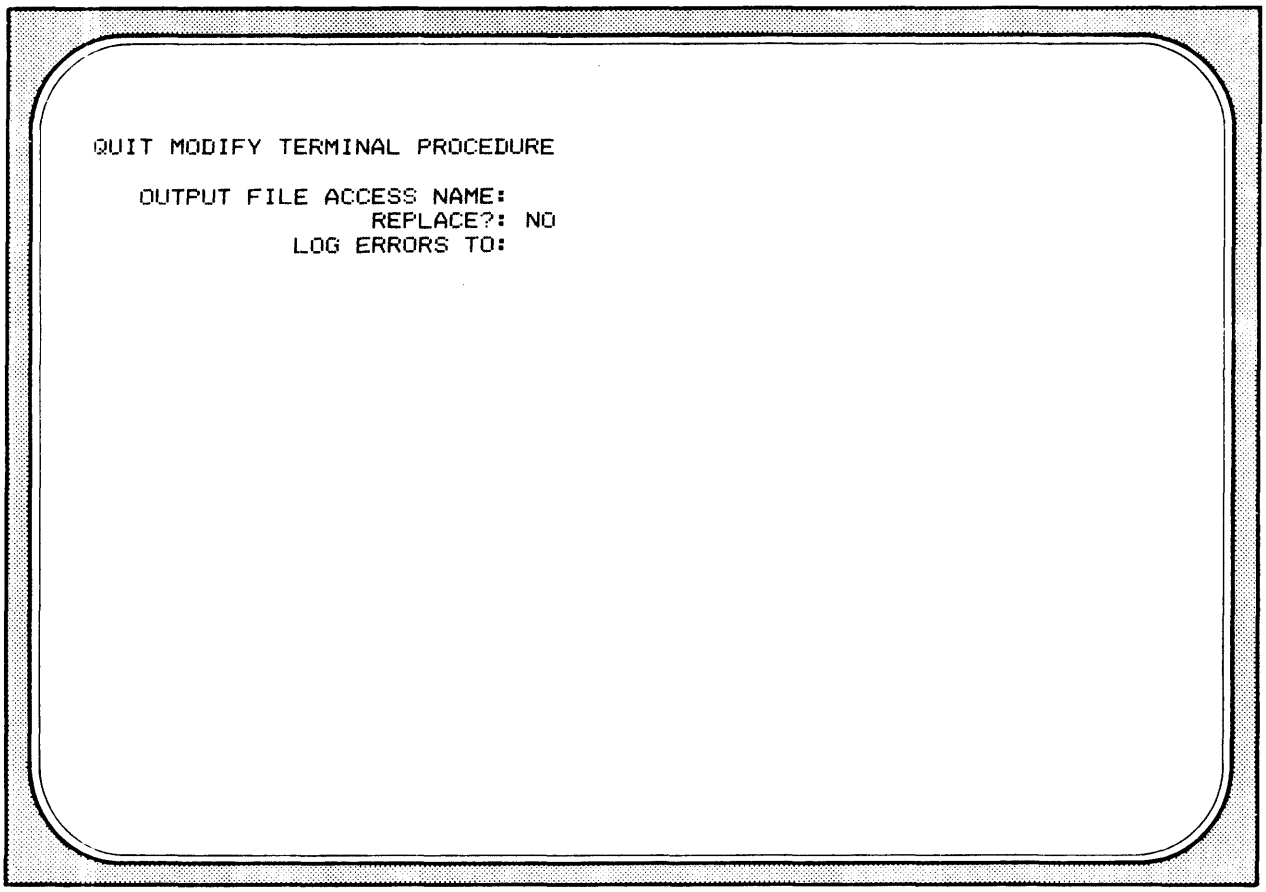
The utility will place the input text in the file specified, validate the syntax of the terminal procedure data, and log errors to the device/pathname specified.

4.4.3 Modify Terminal Procedure (MTP)

This command is used to modify a terminal procedure data base. MTP prompts for a file pathname, checks that the file exists, and that the file is not in use. The MTP supplies, as default, the entire contents of the file specified. The MTP uses the same function keys as the DX10 Text Editor and has an associated terminate command, QMTP.

4.4.4 Quit Modify Terminal Procedure (QMTP)

The QMTP is similar to the QCTP command, in that it prompts the operator with ABORT. If the response is NO, the following prompts are displayed:



QMTP places the modified terminal procedure data in the specified file, validates the syntax of the entire file and logs errors to the device/pathname specified.

4.4.5 Terminal Procedure Keywords

A terminal procedure is composed of Poller keywords and specific terminal commands which designate the action which is to take place between the Poller and the remote terminal. The following keywords are associated with entries in a terminal procedure data base:

BEGIN	RECEIVE
END	INVOKE
IFERR	WAIT
SEND	CTRL3780

4.4.5.1 BEGIN. The BEGIN keyword is a reserved word which specifies the beginning of a procedure within the terminal procedure data base. The format for beginning a procedure is as follows:

Procedure name = BEGIN

4.4.5.2 END. The END keyword is a reserved word used to terminate a procedure within the terminal procedure data base. The END phrase must be the last statement of a procedure.

4.4.5.3 IFERR. The IFERR keyword allows the procedure to recover from certain terminal error conditions during the polling session. If no IFERR is specified and an error occurs, the line will be disconnected by the Poller and the terminal will have a status of TERM.— POLL (terminated by Poller). The Poller will continue to run. The format for the IFERR allows for zero or more four-digit error codes (separated by commas) and a qualifier, which can be either ABORT, CONTinue, DISConnect, EXIT, or RETRY.

The format of an IFERR statement is as follows:

```
IFERR <XXXX,XXXX> ABORT
                  CONT
                  DISC
                  EXIT
                  RETRY
```

ABORT qualifier will cause the terminal session to be abruptly terminated and the terminal status to be changed to TERM.— POLL (terminated by Poller).

CONTinue tells the Poller to ignore the particular error (if specified), or any error (if no error code is specified) and to attempt to continue the terminal session.

DISConnect causes the terminal session to be terminated, but the terminal status will show SUCC.CPLT. (successful completion).

EXIT allows the user to exit the current procedure and begin executing the next procedure specified in the activity template. If no next procedure exists, the session will be disconnected as a successful session.

The RETRY qualifier causes the entire procedure to be reattempted; if after three retries the procedure is still in error, the terminal session is aborted, but the Poller will continue to run.

An example of IFERR keywords is as follows:

```
IFERR 4077 EXIT
IFERR 4024,4045 ABORT
IFERR CONT
```

The preceding IFERR example would cause the Poller to:

- Exit the procedure if error 4077 occurs
- Abort the terminal session if error 4024 or 4045 occurs
- Continue the session otherwise

When using successive IFERR commands, the user should be careful to ensure that the order of the IFERR commands indeed realizes the logic desired. Additionally, an IFERR statement may check for a successful status, 0000.

4.4.5.4 SEND. The SEND keyword causes the Poller to issue a command to the presentation service routine to begin the transfer of a DX10 data file to a precreated file in the remote terminal. Note that DX10 synonyms are not supported within the DX10 file pathnames associated with a SEND command. Optional parameters allow the network administrator to specify the terminal file name to receive the data and the length of the records to be sent (TTY only). If the DX10 file name ends with the string ???, it will cause the Poller to append the terminal number to the file name. If the file name ends with ??, it will cause the line number to be appended, (for example xx from CMxx). If more than one terminal is sharing the same terminal procedure, the ??? or ?? feature can be used to generate a unique file name for each terminal or line, respectively. The resulting file name must not exceed eight characters in length.

CAUTION

In systems using both CMxx and STxx lines for polling, do not use the ?? format for file names if the same number CM and ST lines are to be used (for example: CM04 and ST04) because the Poller will try to access the same file for both lines.

The format and examples of a SEND command for TTY and 3780 are as follows:

(A) TTY FORMAT: SEND DX10-FILENAME <TO BMT-FILE> <LL = 80> <APPEND> <LRC>
<A>

If <TO BMT-FILE> is not specified, it will default to the currently-defined RECORD file. If line length (LL) is not specified, it defaults to the maximum value, 80. If APPEND (or A) is not specified, the BMT-FILE will be rewound; otherwise, the contents of the DX10 file will be appended to the current contents of the BMT-FILE. If LRC is specified, then an LRC and sequence number are generated and sent in place of the last two characters of each record. (Refer to the *BMTS-990 User's Guide* for details on the file transfer to the 763/765 BMT.)

EXAMPLES

SEND POLLER.TEST.FILE1 — send to RECORD file on 763/765
— LL = 80 (or file record length)
— no LRC or seq.no.

SEND POLLER.TEST.FILE TO BMTEST LL = 36 LRC

SEND POLLER.TEST.SND??? — ??? REPLACED BY TERM.NO.

(B) 3780 FORMAT: SEND DX10-FILENAME <TO BMT-FILE> <DX10-3780-PARAMETERS>

If <TO BMT-FILE> is not specified, the file will be sent to the 3780 terminal's currently specified punch file. If <TO BMT-FILE> is specified, the Poller will change the 3780 terminal's punch file to the given file name. The only legal parameters for <DX10-3780-PARAMETERS> are TY, CE, and VFC, which can be set to ON or OFF. Refer to the CTRL3780 keyword for additional details and additional capabilities.

EXAMPLES

(1) SEND POLLER.T.F??

GENERATES:
SS*PU*POLLER.T.F?? — send to punch (default)
— replace ?? with line number
WAIT*S*

(2) SEND POLLER.TEST.FILE1 TO BMTFIL TY=OFF

GENERATES:
TY*OFF* — Be sure TY is off
S*<$$$$CHA 3780 PUN=BMTFIL>* — Set up punch file
SS*PU*POLLER.TEST.FILE1* — Send to punch file
WAIT*S*

(3) CHA 3780 PRINTER=BMTFIL [767 PARAMETERS]
SEND POLLER.T.S123 TO PRINTER

GENERATES:
S*<$$$$CHA 3780 PRI=BMTFIL [767 PARAMETERS]>*
SS*PR*POLLER.T.S123* — send to printer file
WAIT*S*

[767 PARAMETERS] are 3780 tuning parameters for the punch or printer devices; reference the *767/769 BMT Systems Manual* for details.

Punch	Printer	Description
PUM=ON (OR OFF)	PRM=ON (OR OFF)	Mapping
PUV=ON (OR OFF)	PRV=ON (OR OFF)	Vertical forms control
PUE=ON (OR OFF)	PRE=ON (OR OFF)	Compression/Expansion

Defaults for PUNCH and PRINTER are:

MAPPING and COMPRESSION/EXPANSION ON
VERTICAL FORMS CONTROL OFF

CAUTION

The terminal procedure (TP) command SEND DX10-FILE TO BMTFIL automatically generates a CHANGE 3780 PUN=BMTFIL command to the 767 terminal. Therefore, the user should not do his own CHANGE 3780 PUN=BMTFIL command when using this format, or redundant queuing in the 767 punch queue will result.

4.4.5.5 RECEIVE. The RECEIVE keyword causes the Poller to issue a command to the presentation service task to begin the transfer of a terminal file and to place the received data in the specified DX10 file. DX10 synonyms are not supported within the receive file pathname. If the DX10 file name ends with the string ???, it will cause the the Poller to append the terminal number to the file name. If the file name ends with ??, it will cause the line number to be appended (xx from CMxx). If more than one terminal is sharing the same terminal procedure, the ??? or ?? feature can be used to generate a unique file name for each terminal or line, respectively.

CAUTION

In systems using both CMxx and STxx lines for polling, do not use the ?? format for filenames if the same number CM and ST lines are to be used (for example: CM04 and ST04) because the Poller will try to access the same file for both lines.

The format and examples of receive commands are as follows:

(A) TTY FORMAT: RECEIVE DX10-FILENAME <FROM BMT-FILE> <BLOCKED> <LRC>
<B>
<CONT>
<C>

If <FROM BMT-FILE> is not specified, the file transfer will be assumed to come from the currently specified playback file. If BLOCKED (or B) is specified, then the file will be transferred one block at a time. If CONT (or C, or nothing) is specified, the file will be transferred continuously, which is the default. If LRC is specified, then LRC and sequence number checking is performed on the file records as they are received; otherwise, no checking is performed. (Refer to the *DX10 Bubble Memory Terminal Support BMTS-990 User's Guide* for details.)

EXAMPLES

(1) RECEIVE POLLER.TEST.RECFIL1 — Receive from PLAYBACK
— Default = CONTinuous
— No LRC or SEQ.NO. checking

(2) RECEIVE POLLER.TEST.RFILE001 FROM BMTEST BLOCKED LRC

(3) RECEIVE POLLER.TEST.RF??? — ??? replaced by terminal number.

(B) 3780 FORMAT: RECEIVE DX10-FILENAME <FROM BMT-FILE> <767 PARAMETERS>

When polling a 767/769 BMT and the <FROM BMT-FILE> is specified, the Poller will automatically perform a CHA 3780 REA = <BMT-FILE> sequence to initiate the file transfer. If any <767 PARAMETERS> are given, they are appended onto the end of the CHA command. When polling a 767/769 BMT and no <FROM BMT-FILE> is specified, the DX10-FILENAME is placed on the DX10 3780 print queue; the next command is expected to be a CHA 3780 REA = <BMT-FILE>. See example 3 below for the dual command format.

When polling a 990 as the 3780 terminal, a DX10 pathname must be specified as the <BMT-FILE>; if none is supplied, a Poller error (4E00) is returned during the polling and the receive is not performed.

EXAMPLES

(1) RECEIVE VOL1.TEST.RFIL1 FROM BMTFIL TRA = ON

GENERATES:
RPR*STATUS-FILE*
RPR*VOL1.TEST.RFIL1*
S*<$$$$CHA 3780 REA = BMTFIL TRA = ON>*
WAIT*RPR*

(2) RECEIVE POLL.TEST.RFIL1

GENERATES:
RPR*STATUS-FILE*
RPR*DX10-FILE*

(3) RECEIVE #DX10-FILENAME (Binary file)
CHANGE READER = BMTFIL [767 PARAMETERS]

GENERATES:
RPR*STATUS-FILE*
RPR*DX10-FILENAME*
S*<$$$$CHANGE 3780 READER = BMTFIL [767 PARAMETERS]>*
WAIT*RPR*

The status file is used internally by the Poller to receive completion codes from the BMT.

[767 PARAMETERS] are the 3780 tuning parameters for the reader device; refer to the *767/9 Systems Manual* for details.

Reader	Description
TRA = ON (OR OFF)	Transparency mode
MAP = ON (OR OFF)	ASCII-to-EBCDIC mapping
COM = ON (OR OFF)	Space compression
EOF = EMB (EMC,EMR,EBC)	End-of-file action

Defaults are transparency and compression OFF, mapping ON, and EOF set for EMB (end message and bid).

CAUTION

The resulting CHANGE 3780 READER = X plus the 767 parameters plus the four $ signs must be less than 48 bytes which is the limitation of the DX10 3780 Emulator for a single command. Using the most-compressed format, three 767 parameters should be able to be set. If the 48 byte limit is exceeded, the Poller error >4300 will be generated.

When receiving files from a remote 990 terminal, the current status of the 3780 port on the host 990 terminal (TY, CE, RPRRL) will affect how the file is received, since these status settings are used to form the command which causes the remote 990 terminal to send the file. For example, the terminal procedure data base commands:

```
CTRL3780 TY = ON
CTRL3780 CE = OFF
CTRL3780 RPRRL = 80
RECEIVE .FILEY FROM DSC2.FILEX
```

will generate the following 3780 Emulator commands:

```
RPR*.FILEY*
S*<$$$SSS*T*0*80*PR*DSC2.FILEX*>*
```

Finally, when using 3780 protocol, if the Poller attempts to receive a nonexistent or empty file from the remote terminal, the receive will fail with an idle error. Refer to the DX10 3780 Emulator User's Guide for details.

4.4.5.6 INVOKE. The INVOKE keyword, allows the operator to have the Poller execute a user-developed task during a terminal session. The user task is bid by the presentation service task. The session does not continue until the invoked task has completed, unless the optional CONTinue parameter is specified. This capability is intended to provide for minor processing during the terminal session. The Poller passes Poller-specific and user-defined data to the task through parameters (see description below). The invoked task can access this information through the S$PARMS subroutine call. See language manuals for high-level language interface with S$PARMS.

Only one task per line may be invoked at a time; if a second invoke is attempted while the previous task is still running, a Poller error (5500) will be issued and the second task will not be started.

If the DX10 task name ends with the string ???, it will cause the Poller to append the terminal number to the task name. If the task name ends with ??, it will cause the line number to be appended (xx from CMxx).

CAUTION

In systems using both CMxx and STxx lines for polling, be careful when using the ?? format with task names if the same number CM and ST lines are to be used (for example: CM04 and ST04) because the Poller will bid the same task for both lines.

The format and examples of INVOKE commands are as follows:

FORMAT: INVOKE LANGUAGE TASKNAME LUNO = >XX <PARMS = (XX,XX,XX,XX)> <CONTINUE>
<CONT>

LANGUAGES supported are ASSEMBLY, COBOL, FORTRAN, PASCAL.

TASKNAME is the user's task name.

LUNO is the global LUNO assigned to the user's program file which contains the TASKNAME.

A maximum of 4 parameters may be passed to the user-task via the PARMS = (, , ,) expression. These PARMS may be constants, flags, etc.; each parameter may be up to 8 characters long and any or all may be NULL. The data that may be retrieved by the user task includes additional data; the parameters in the INVOKE command are retrieved as system parameters 11 through 14. For example:

PARM 1 - PARM 8	— COBOL (ONLY)
PARM 9	— TERMINAL ID (XXX)
PARM 10	— STATION ID (XX)
PARM 11 — PARM 14	— USER PARAMETERS 1-4 (OPTIONAL)
PARM 15	— RETRY COUNT (X)

If CONTINUE (or CONT) is specified, the user task will be bid and the terminal session will continue to the next command in the terminal session. If CONTINUE (or CONT) is not specified, the user task will be bid and the terminal session will not continue until the user task has terminated. The latter is the recommended use of INVOKE. In either case, the user task can set the synonym $$CC to a completion code, which can be tested in the terminal procedure by an IFERR immediately after the INVOKE in the latter case, and following a WAIT in the former case. The $$CC synonym must be set as five bytes with the format 0XXXX, where XXXX is the completion status.

EXAMPLES

(1) INVOKE ASSEMBLY COMPAR1 LUNO = >44 — Poller waits until task is done

(2) INVOKE COBOL COMPAR2 LUNO = >44 CONT — Concurrent task

4.4.5.7 WAIT. The WAIT keyword will force the Poller to wait for the invoked task (invoke and continue) to complete. If the user task sets $$CC with a completion status, the user can test the completion status with an IFERR statement immediately after the WAIT command. The $$CC must be set as five bytes with the format 0XXXX, where XXXX is the completion status.

4.4.5.8 CTRL3780. During a polling session with a 3780-type terminal, it is often useful to be able to modify certain DX10 3780 Emulator dynamic parameters. The CTRL3780 keyword allows the following DX3780 parameters to be set from within a terminal procedure data base. (Refer to the *DX10 3780 Emulators User's Guide* for further description.)

```
TY = ON/OFF
CE = ON/OFF
VFC = ON/OFF
TRAILB = ON/OFF
SRL = XX     (MAX=255)
RPRRL = XX  (MAX=255)
```

The format of these commands in the terminal procedure data base is as follows:

```
CTRL3780 <PARAMETER>
```

Only one command is allowed per line. If the command is improper for any reason (format, syntax, etc.), a Poller error (5400) is returned. Care must be taken when using the send record length (SRL) command to send files with short record lengths, since the length set also affects the length of the commands sent.

Once any of the above dynamic parameters is changed, the change remains in effect until the dynamic parameter is explicitly changed again.

In the following terminal procedure data base example, a TIBOL program file (DS01.DEMO.PGM) is sent to a 767 file (PGM1). (Note the use of CTRL3780 commands.)

```
SENDHLTH = BEGIN
           CTRL3780 SRL=80
           DELETE FILE=PGM1
                  IFERR CONT
           CREATE FILE=PGM1 SIZE=90 LENGTH=72
           CHANGE 3780 PUNCH=PGM1 PUV=OFF
           CTRL3780 TY=ON
           CTRL3780 SRL=72
           SEND DS01.DEMO.PGM
           CTRL3780 SRL=80
           END
```

4.4.6 Terminal Procedure Data Base Example

The following examples are procedures for a 763/765 Bubble Memory Terminal. (Refer to the *Model 763/765 Memory Terminals, Operating Instructions*). The terminal specific commands used within the terminal procedures are 763/5 Bubble Memory Terminal commands.

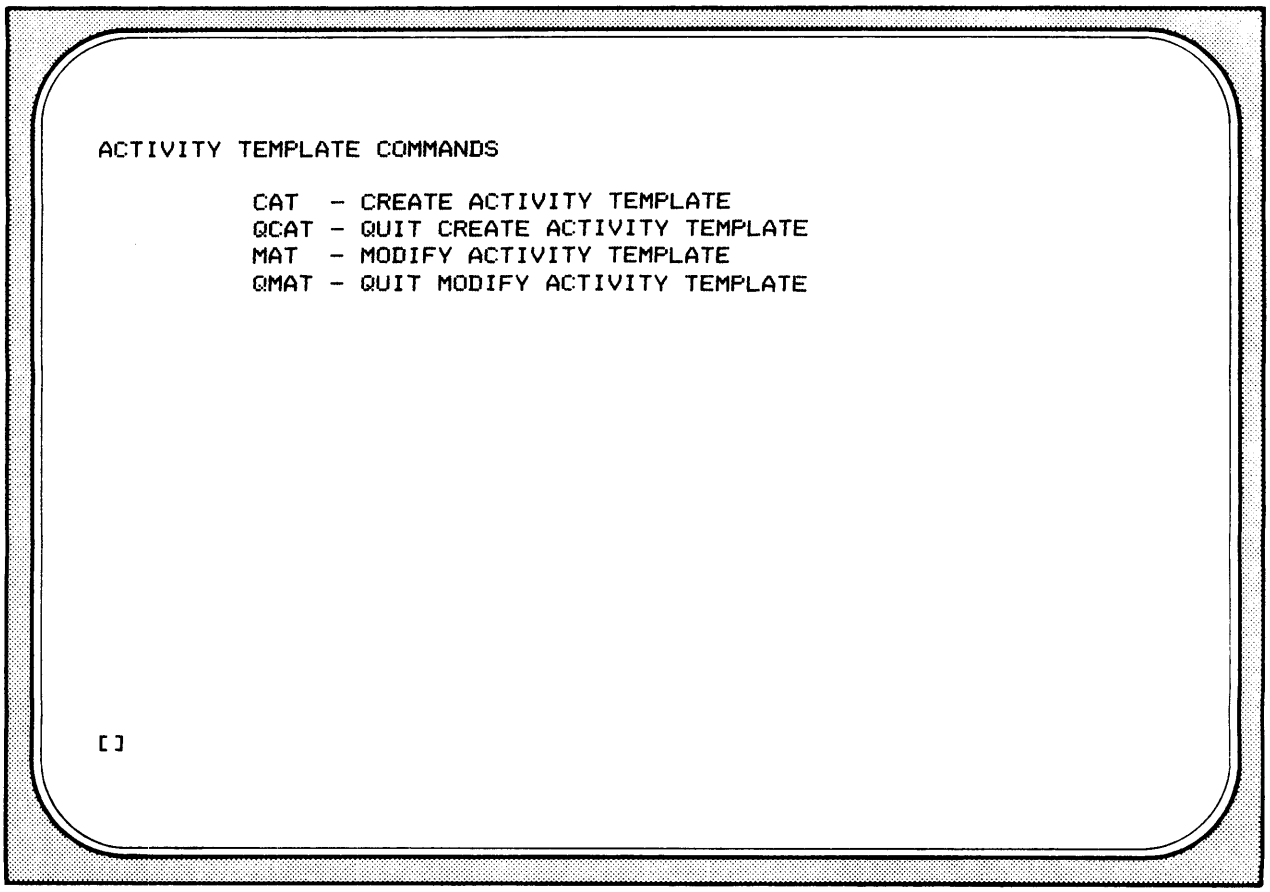
```
PROC1 =     BEGIN                              * Begin procedure.
            FREE DATAFL                        * This procedure sets
            DELETE DATAFL                      *  up the terminal to
            CREATE DATAFL L 20 72              *  receive the first
                  IFERR 4024 CONT              *  message file and sets
            CHANGE RECORD TO DATAFL            *  the record to that file.
            SEND VOL1.SEND.DATA                * Send DX10 file.
            LOCK DATAFL                        * Lock data file.
            END                                * End of procedure.

PROC2A =    BEGIN                              * Begin procedure.
            FREE MSGALL                        * Unlock file.
                  IFERR 4034 CONT              * Continue on error 4034.
            DELETE MSGALL                      * Delete the file.
                  IFERR 4034 CONT              * Continue on error 4034.
            CF MSGALL L 20 72                  * Create file.
            IFERR 4014,4021,4054 ABORT         * Abort on these errors.
            CG REC TO MSGALL                   * Change record file.
            SEND VOL1.SEND.MSG???              * Send terminal messages.
            LOCK MSGALL                        * Lock file.
            END                                * End of procedure.

PROC46 =    BEGIN                              * Begin procedure.
            CG PLAYBACK TO DATALL              * DATALL for transmission
            RECEIVE VOL1.RECEIVE.RCV???        *  to a DX10 file,
            INVOKE ASSEMBLY TASKA LUNO=>A0     *  bid task TASKA,
            CG REC TO RESULT                   *  and sends invoke task
            SEND VOL1.SEND.RESLT???            *  results to terminal.
            END                                * End of procedure.
```

4.5 ACTIVITY TEMPLATE EDIT COMMANDS (/AT)

An activity template file contains a generic description of the activity that is to occur when polling a terminal. Each terminal must have a corresponding activity template file; however, activity templates may be shared by several terminals. The activity template associated with each terminal is specified in the terminal's entry in the terminal data base.

An activity template specifies the names of the logical procedures that are to be performed with the terminal; the exact definition of these procedures is resolved in a terminal procedure file. The terminal procedure data base to be used in resolving the logical procedures is specified in the first command of the activity template.

Operator input of the /AT command displays the menu of activity template commands which follows. The various commands are explained first, followed by a detailed description of the activity template keywords and an example of an activity template.



CAUTION

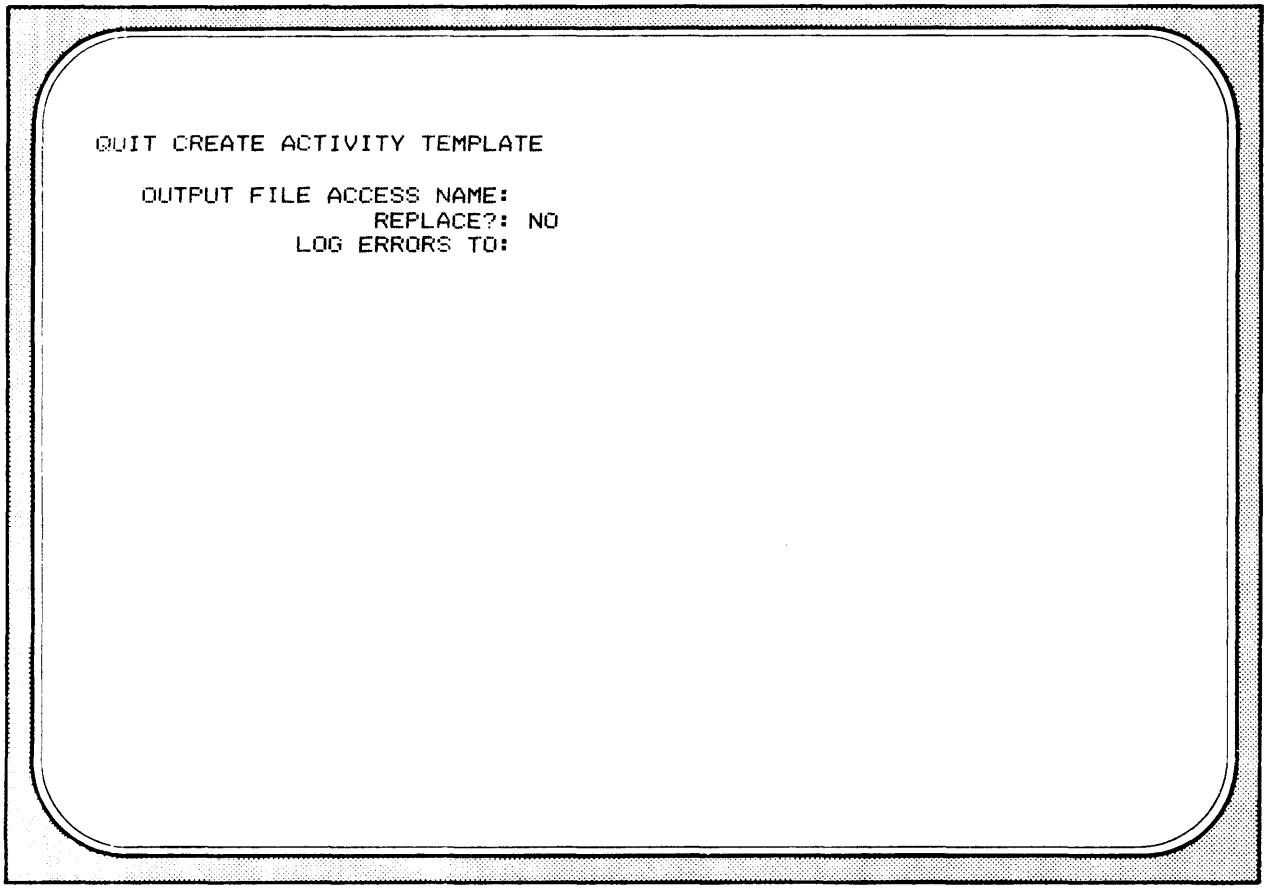
It is critical that all syntax errors be removed from an activity template data base prior to being used by the Poller. Therefore, the DX10 Text Editor should not be used since it will not verify the syntax of the activity template data base.

4.5.1 Create Activity Template (CAT)

The CAT utility allows the operator to create an activity template. This utility does not prompt the operator since the input is free-form similar to the DX10 Text Editor. This command uses the same editor function keys and has a terminate command named QCAT.

4.5.2 Quit Create Activity Template (QCAT)

This command prompts for the keyword ABORT. If the reply is YES, the input is discarded. If NO, the utility displays the following:



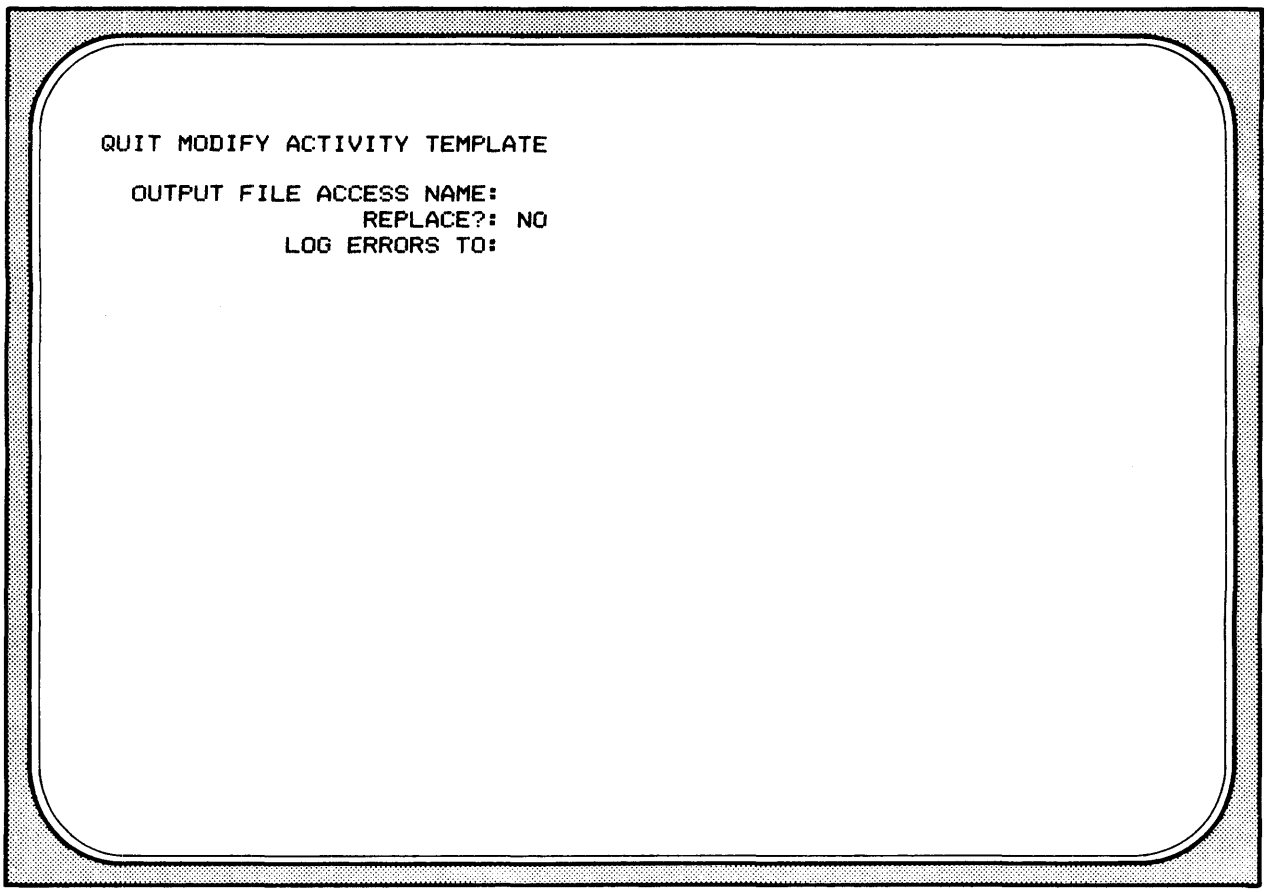
The input is saved in the specified pathname and the syntax of the AT statements is verified; any errors are logged to the device/pathname specified.

4.5.3 Modify Activity Template (MAT)

The MAT command allows the operator to modify an existing activity template. The utility verifies the file's existence and that it is not being used by the Poller. The MAT utility supplies, as default, the entire contents of the file specified. The MAT command is similar to the DX10 Text Editor, uses the same function keys, and has a terminate command named QMAT.

4.5.4 Quit Modify Activity Template (QMAT)

The QMAT command is similar to the QCAT command. It prompts for the keyword ABORT. If the response is YES, the modifications are discarded. If the response to ABORT is NO, the following prompts are displayed:



QMAT places the modified activity template data in the specified file validates the syntax of the entire file, and logs any errors to the device/pathname specified.

4.5.5 Activity Template Keywords

There are three types of commands that are allowed within an activity template: USE, DO, and DISC. Comments may be included in the AT file by preceding the text of the comment with an asterisk. Lines with only comments are allowed. Blank lines may also be used within the AT file; however, the first line may not be blank (see USE).

The following is a description of the keywords used within an activity template file:

4.5.5.1 USE. The USE keyword specifies the DX10 pathname of the terminal procedure data base to be used to resolve the procedure names in the activity template data base. Note that DX10 synonyms are NOT supported within the DX10 pathname specified with a USE statement. The USE keyword must be the first entry in the activity template. However, multiple USE statements may appear in an activity template data base, if desired. The format of the USE statement is as follows:

```
USE DX10-filename
```

4.5.5.2 DO. The DO keyword causes the Poller to search the currently defined terminal procedure data base for the named procedure and, if found, to perform whatever is contained therein. If the procedure is not found, an error is generated. A procedure name may be 1 to 8 characters in length, with the first character being alphabetic. The format of a DO statement is as follows:

```
DO Procedure-name
```

4.5.5.3 DISC. The DISC keyword signifies the end of the activity session, which terminates the polling session and disconnects the terminal. The format for a DISC statement is:

```
DISC
```

4.5.6 Activity Template Example

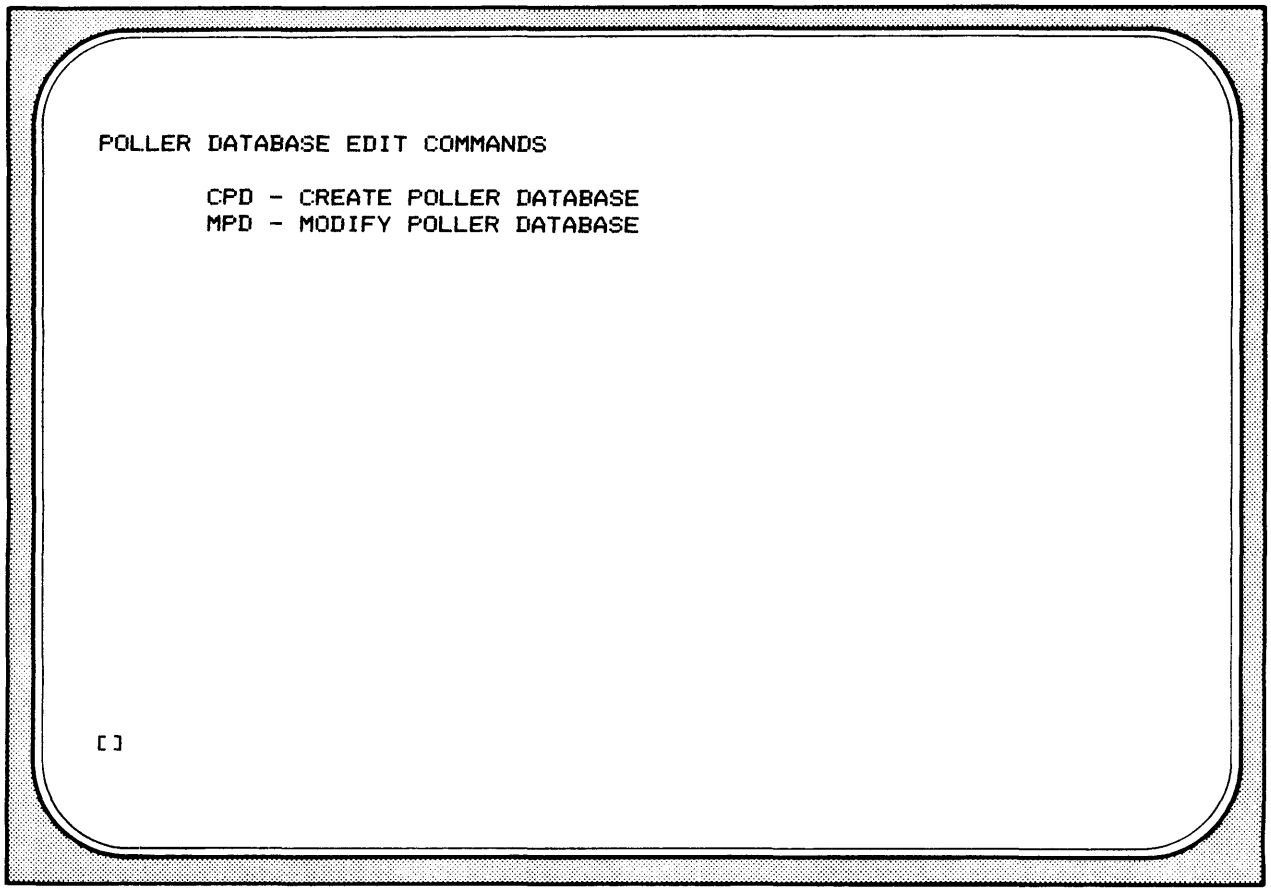
A complete activity template is shown in the following example:

```
USE VOL1.DATABASE.TP    * use specified procedure data base

DO PROC1                * perform procedure PROC1

DO PROC2A               * perform procedure PROC2A

DO PROC46               * perform procedure PROC46

DISC                    * disconnect terminal
```

4.6 POLLER DATA BASE EDIT COMMANDS (/PD)

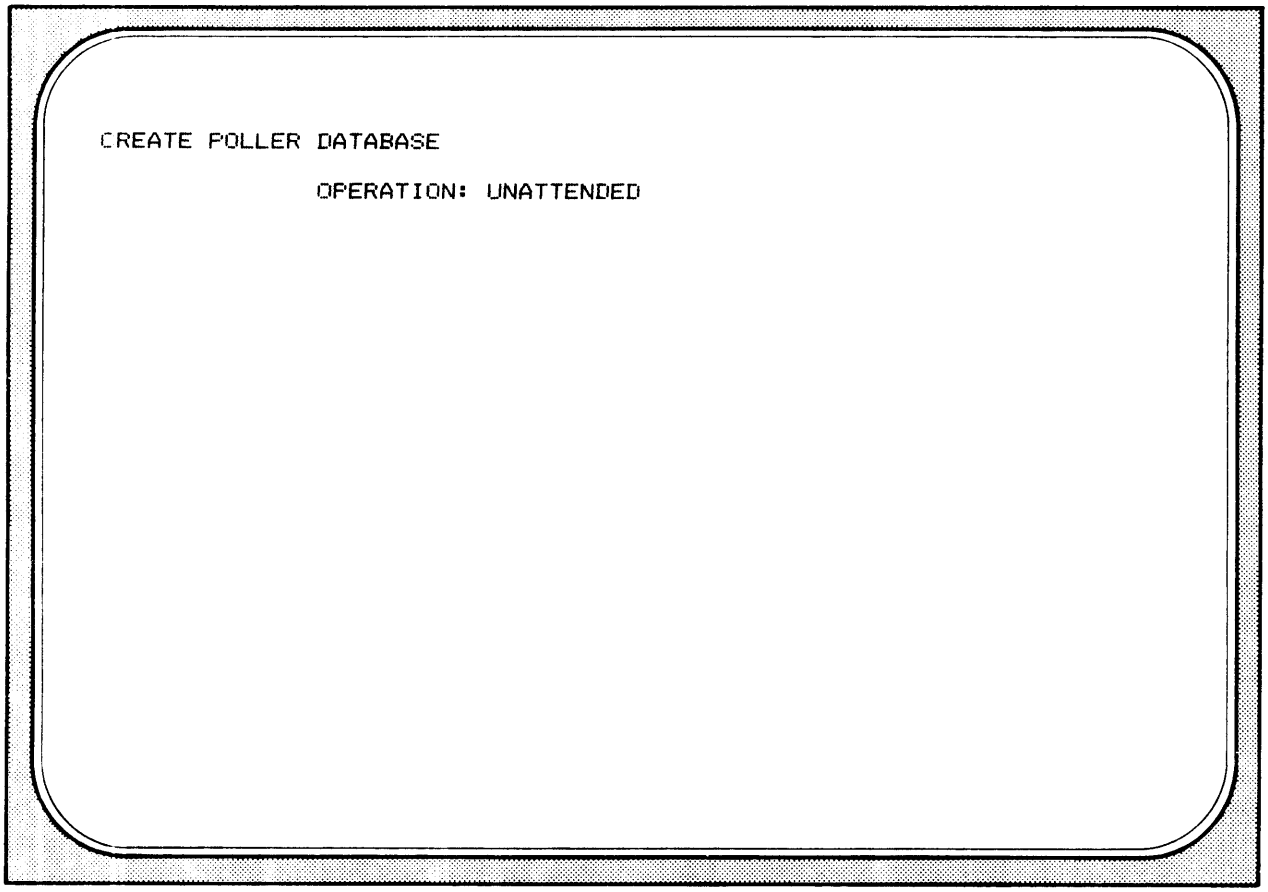
The Poller data base edit commands allow the operator to create and modify a Poller data base file. The information contained in the Poller data base includes whether the Poller is running attended or unattended; which devices and/or disk files to use to record the log information; and the resources available to the Poller (number of lines, protocol, mode, and modem supported by each line). The pathname of a Poller data base file is required when starting up the Poller via the SPO or TEST command.

Operator input of the /PD command will display the following menu of Poller data base commands:



4.6.1 Create Poller Data Base (CPD)

This command assists the operator in creating a Poller data base file. The prompting consists of a series of screens, as described below:

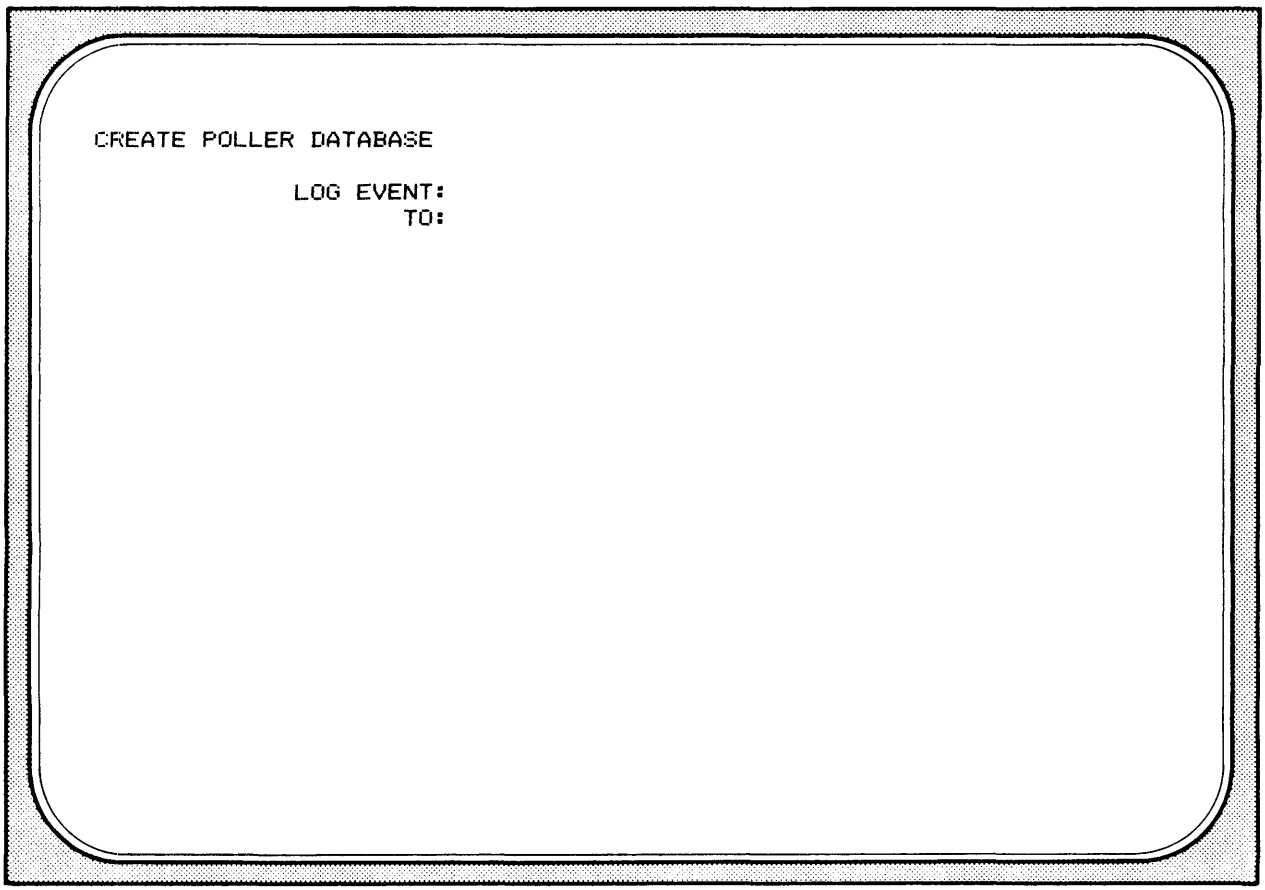


The first screen prompts only for the type of environment in which the Poller will be operating. The response for this prompt is either UNATTENDED, the default, or ATTENDED.

In unattended mode, the Poller will try to resolve all error conditions, based on the contents of the activity template and terminal procedure data bases (IFERR processing, etc.); if the error condition cannot be resolved, the Poller will abort the terminal session and go on to the next terminal. The normal mode of operation is unattended.

In attended mode, the Poller assumes that an operator will be available as the final point of resolution on error conditions. Therefore, if the error condition cannot be resolved, the Poller will log the error to the operator, change the line on which the error occurred to manual mode, and wait for the operator to complete the terminal session (using /PMANL commands). Multiline operation in this mode could be very confusing to the operator.

After the operator has entered a response to OPERATION, a new display is generated which prompts for the log file/device information. The display is formatted as follows:



The response to LOG EVENT is the type of log information to be logged; the response to TO is the DX10 device or file pathname to which the information is to be logged. Up to ten (10) files/devices may be assigned to log the various types or combinations of log information; DX10 synonyms may not be used in the log file/device descriptions. Entry of log event data is terminated upon a response of RETURN (only) to the LOG EVENT prompt, or when ten log files/devices have been entered.

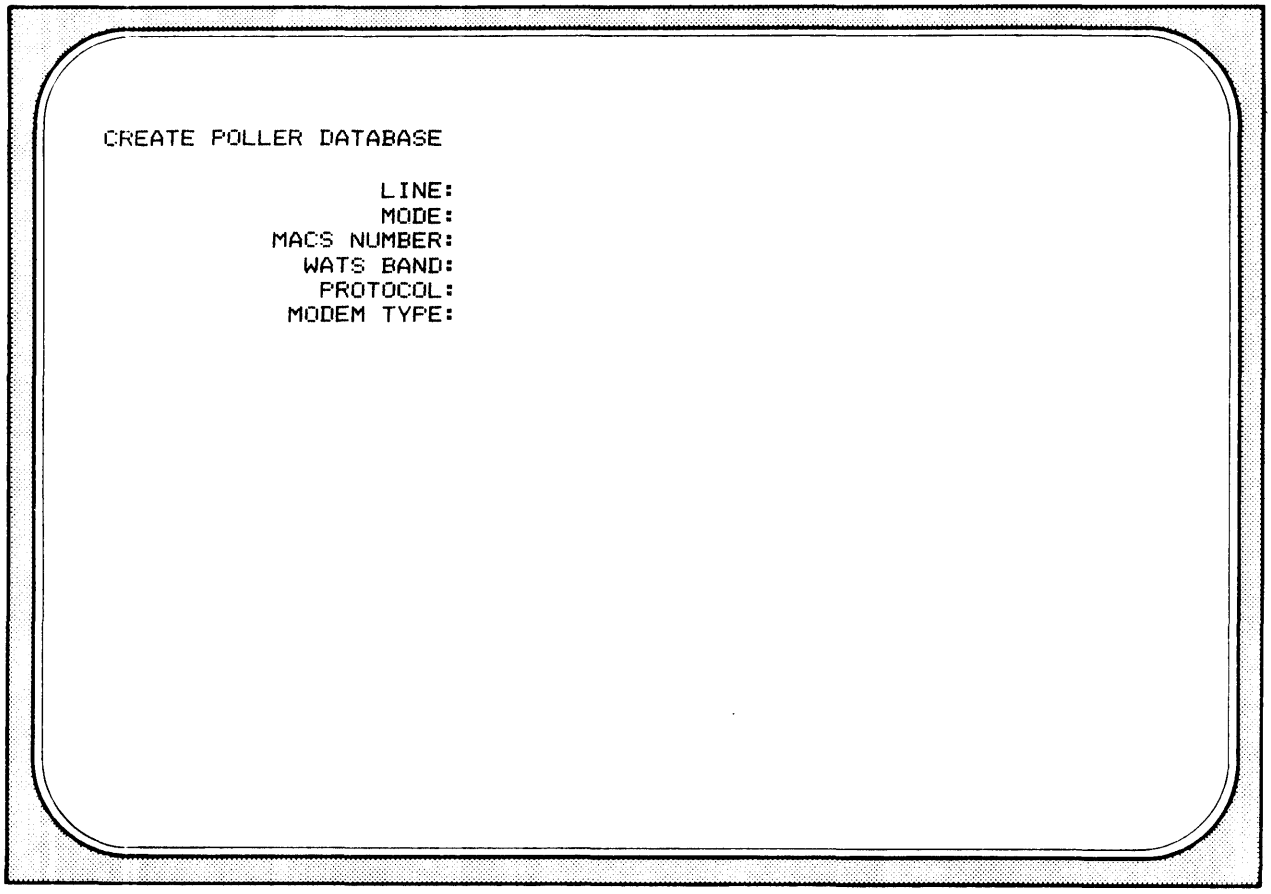
The allowed responses to LOG EVENT are:

Response	Log Contents
ALL	All Poller commands, errors, and messages
ABORTS	Aborted terminal sessions
ERRORS	Any Poller errors
NORMALS	All successfully completed sessions
STATISTICS	Terminal and line statistics
UNINITIABLES	Terminals which could not be reached (phone busy, bad ABM, etc.)

The same log information may be logged to multiple devices/files. The log files generated are unformatted; the utilities LLF and SLF should be used to generate a formatted listing or display.

Any device used for logging must be constantly available to the Poller since the log data is not spooled to the device. If the log device is a terminal (STxx) or a line printer (LPxx), then all control characters (those less than hexadecimal 20) are converted to spaces before being logged.

After the log information has been entered, a new series of displays is generated to input the physical resources to be used by the Poller. The prompts are as follows:



The response to LINE is a STxx line (for TPD devices) or CMxx line (for 3780-type devices) to be used by the Poller. These lines must previously have been defined to the DX10 operating system with the proper defaults for these device types; refer to paragraph 5.2 for details.

The response to MODE may be either CALL, ANSWER or MANUAL. This parameter tells the Poller how to initially use the line during the polling session. The operator may change this line mode during execution of the Poller via the Poller Line (/PLINE) utilities.

A response to MACS NUMBER is only required if a Vadic MACS chassis is being used in support of this particular line. If so, then the required input is two characters; the first is the MACS chassis number; the second is the position of the modem within the chassis. These two characters (followed by an " = " sign) will be sent prior to the telephone number whenever dialing is done on this line.

The WATS BAND response is a single character value, as follows:

Value	Meaning
blank	Direct distance dialing (DDD) or local line.
0	Intrastate WATS line.
1-6	Interstate WATS bands.

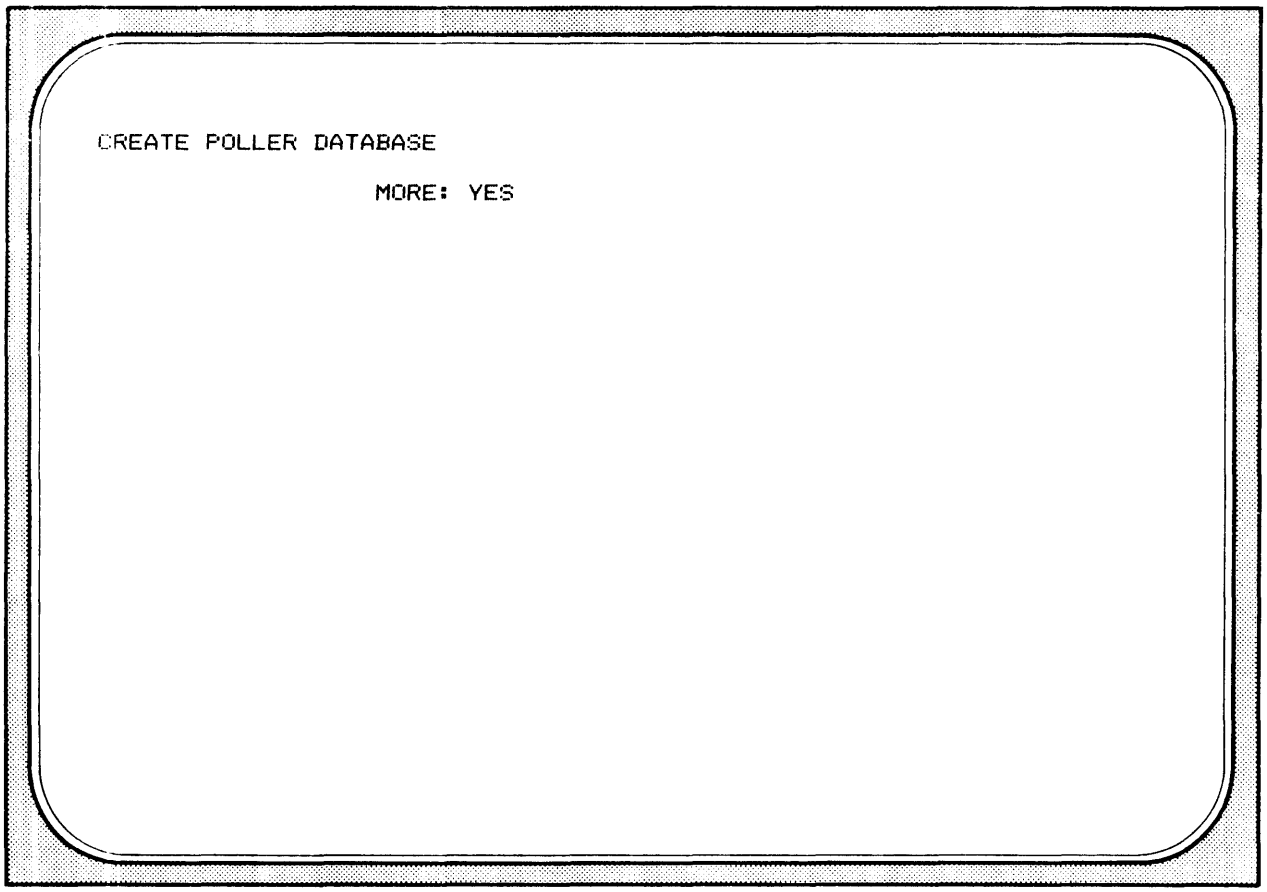
The response to PROTOCOL may be TTY765 (or TTY) or 3780. No checking is performed to make sure that the protocol is appropriate for the line. Note that there is no distinction made between TTY765 and TTY.

Finally, the modem type is a description of the modem associated with the line. The response is from zero to four characters in length.

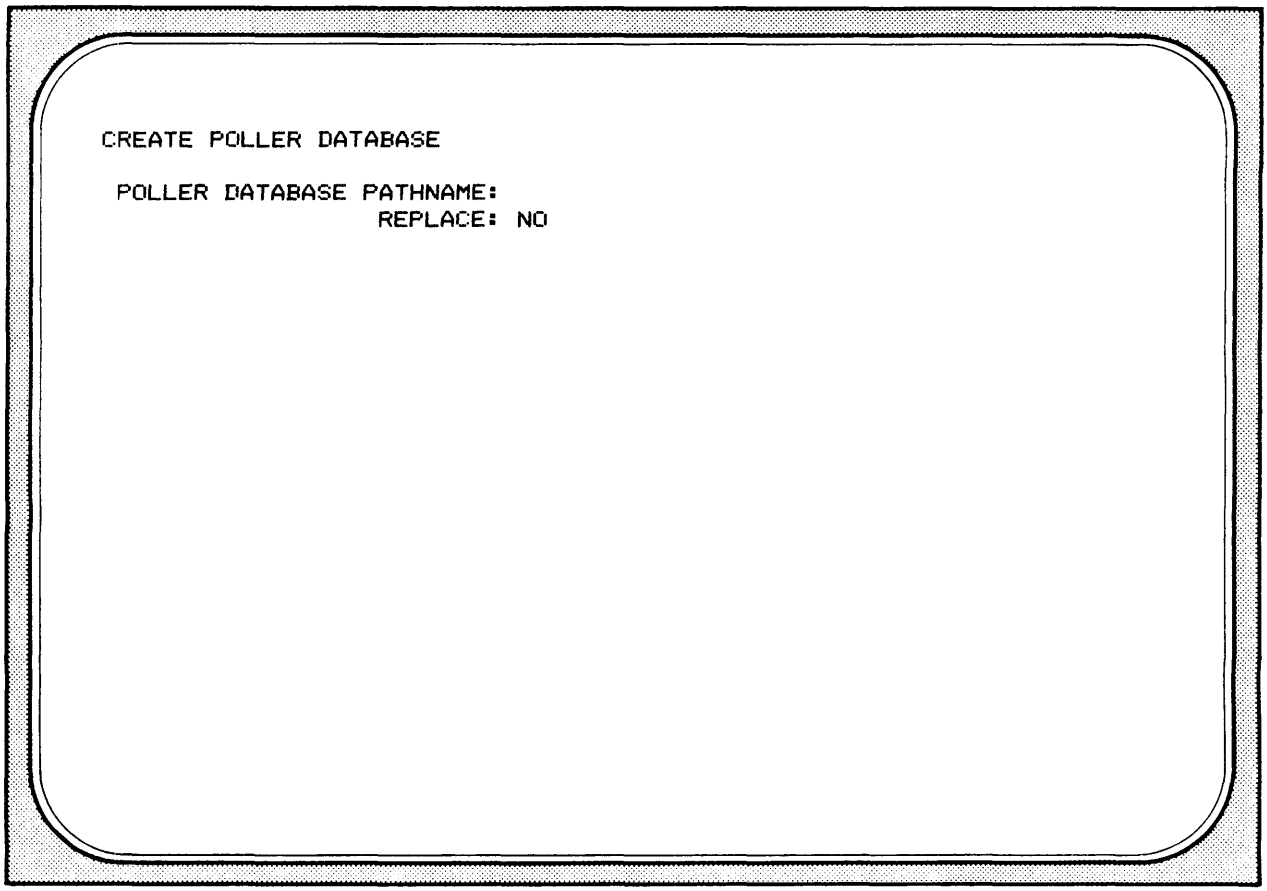
NOTE

The responses to MODE, WATS BAND, PROTOCOL, and MODEM TYPE for the line must match the corresponding characteristics in the terminal data base for each terminal that may be polled using the line.

When all the line prompts have been answered, the operator is prompted whether there is more line information to be entered, as follows:

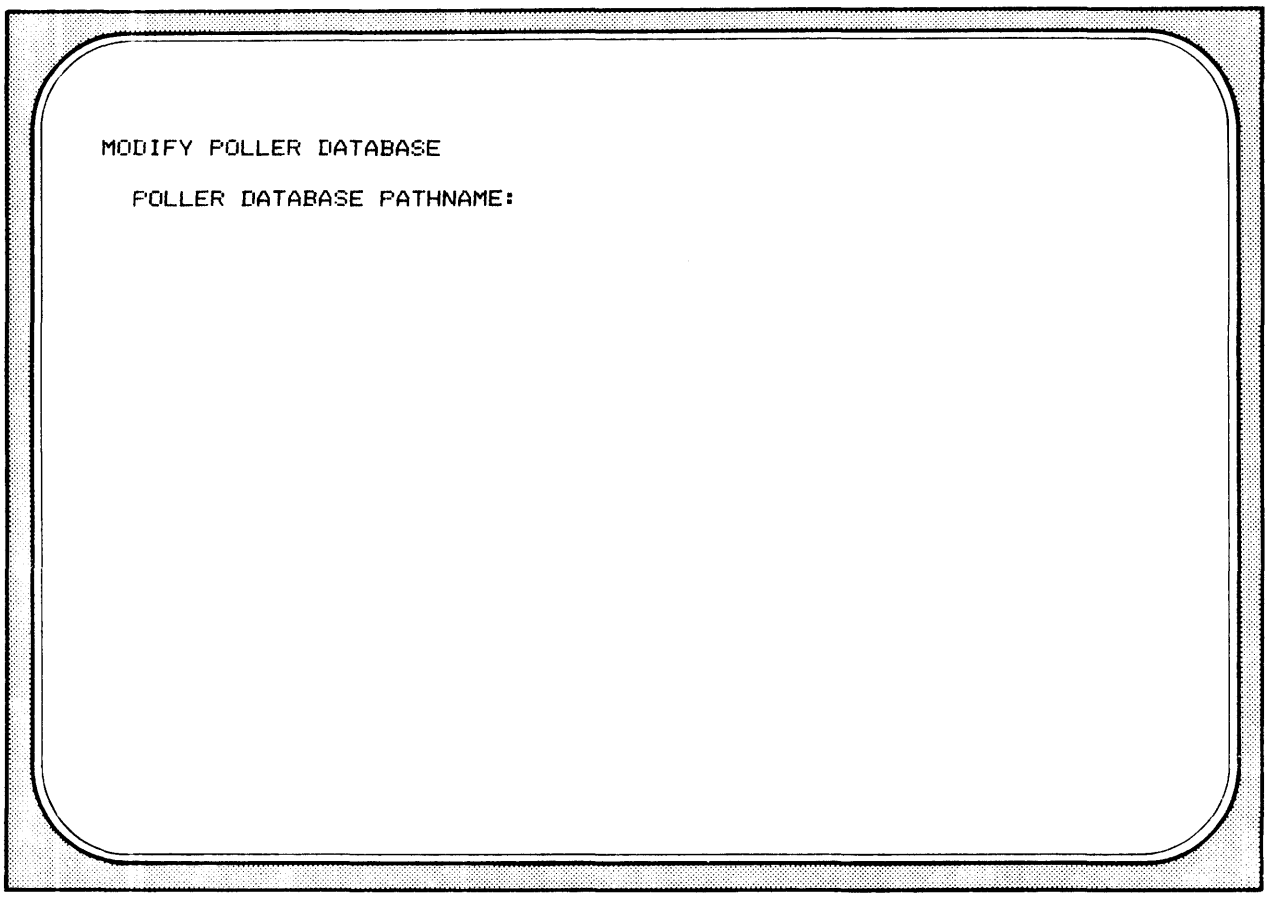


If YES is entered in response to MORE, then the Poller will prompt the operator for the information for an additional line. If the NO response is entered, the input session is assumed to be complete and the operator is prompted for the DX10 file pathname where the Poller data base file should be stored:

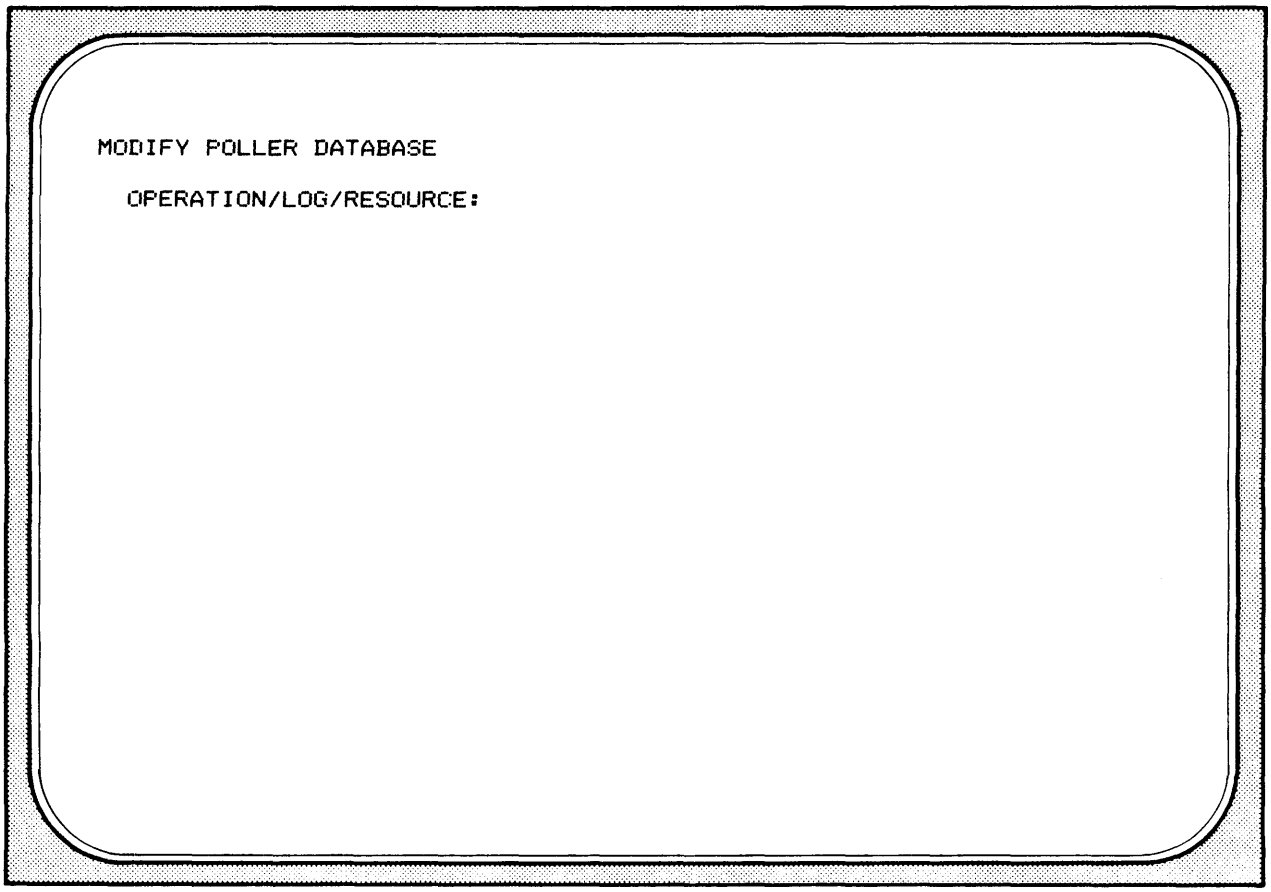


4.6.2 Modify Poller Data Base (MPD)

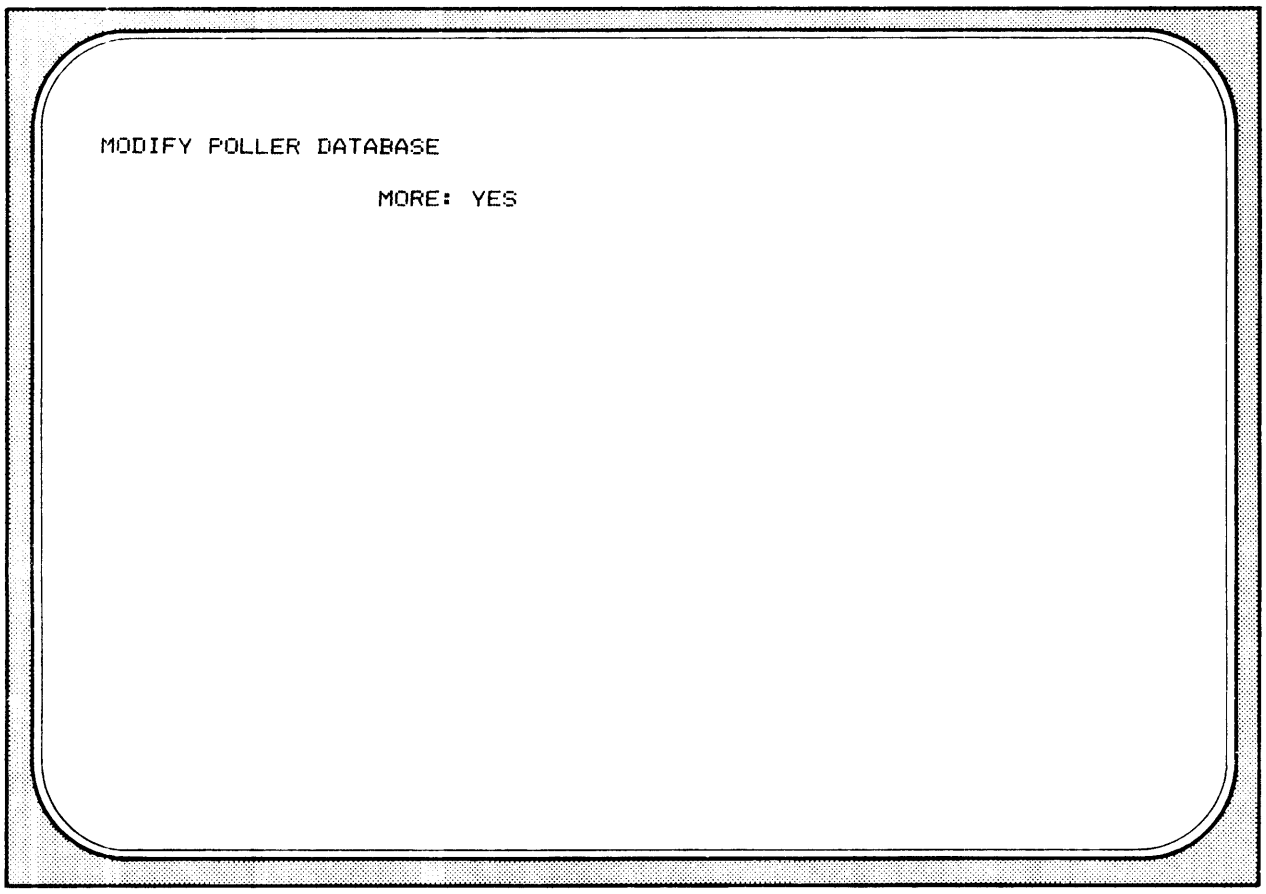
The MPD command allows the operator to modify the contents of a Poller data base file. The MPD utility prompts for the pathname of the data base file to be modified, as follows:



Once the pathname has been entered, the operator is prompted for the portion of the Poller data base to be modified:



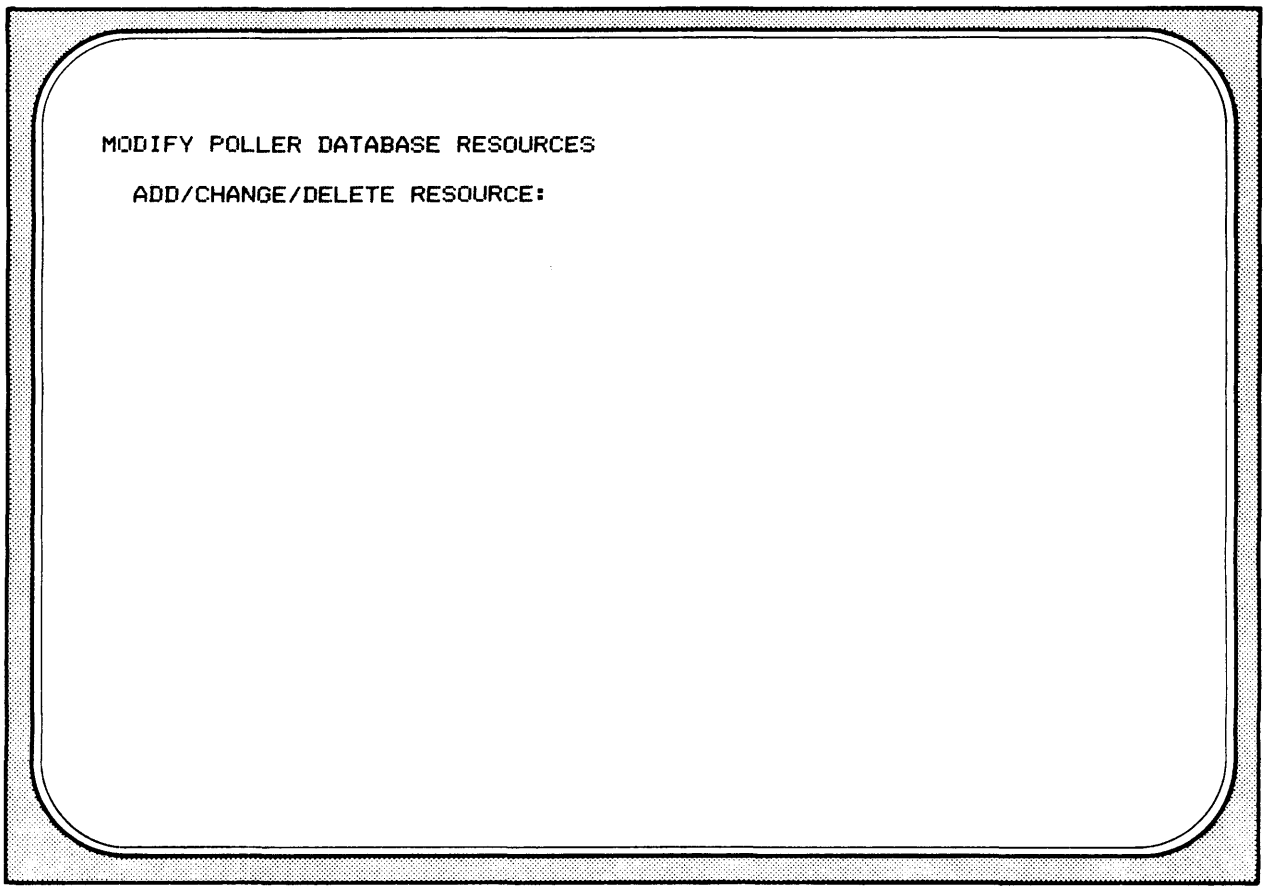
If the operator enters either OPERATION or O, a screen is generated which contains the previously entered response for the OPERATION keyword. When the operator accepts the previous response or enters a new response, the utility prompts whether more modifications are to be made, as follows:



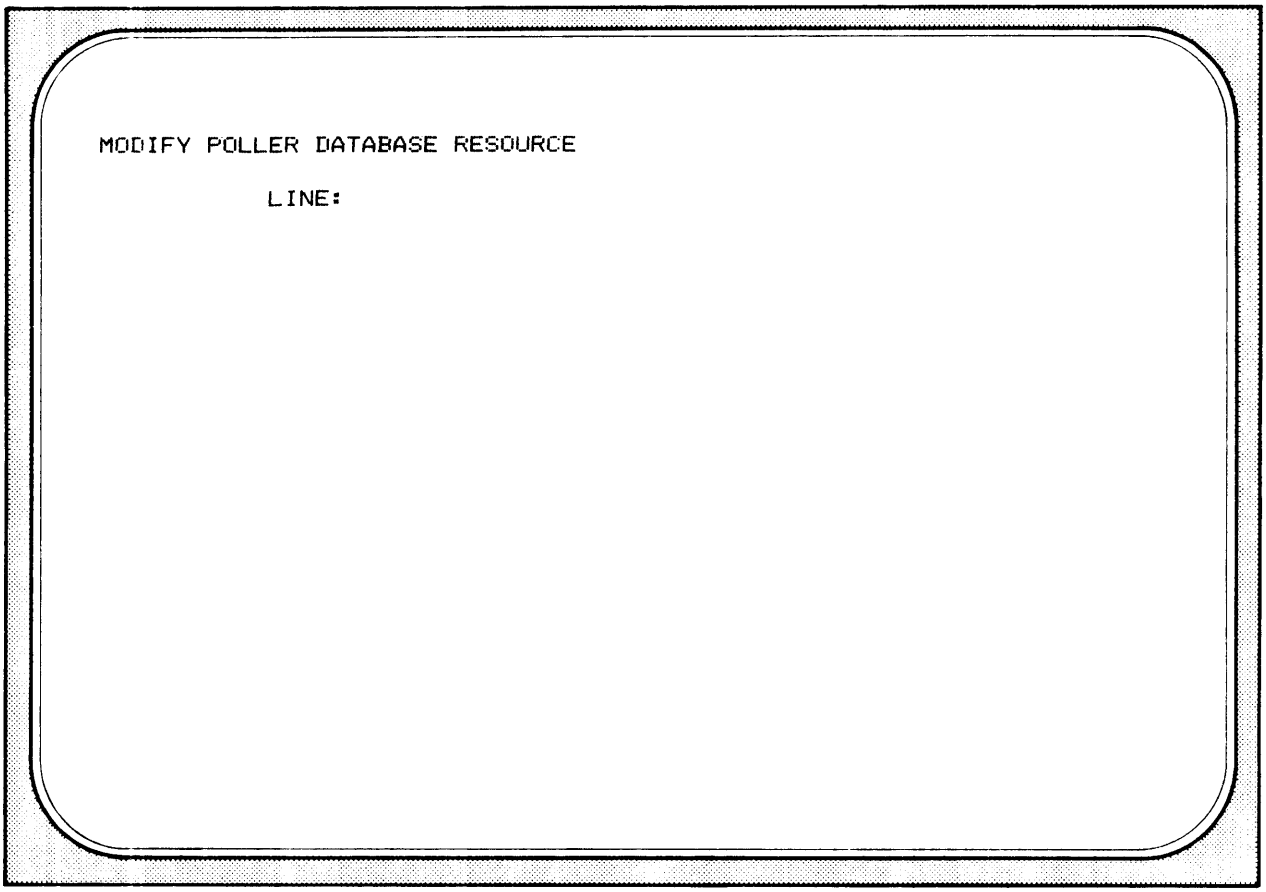
A response of NO causes the utility to exit; a YES response returns the display to the OPERATION/LOG/RESOURCE prompt.

If the operator's response to OPERATION/LOG/RESOURCE is LOG or L, then the utility scrolls through the previously entered log file/device assignments. The operator may accept the previous values by pressing the RETURN key or may change any value by entering the new data. When the last of the log file assignments has been displayed, the next display will show the prompts only; the operator may then assign additional log file/devices. A response of just the RETURN key terminates the log modifications and brings up the MORE prompt.

If the operator enters RESOURCE or R in response to the OPERATION/LOG/RESOURCE prompt, a new screen will be generated requesting whether a line is to be added, changed, or deleted:



If the CHANGE function is selected, the operator is prompted to enter the LINE for which the data is to be changed:



When the appropriate line name (STxx or CMxx) is entered, the utility checks that an entry for that line is already in the Poller data base, and if so, displays the previously entered values for that line. After the operator has performed the modifications, if any, to the line entry, the screen is returned to the MORE display.

If the ADD function is selected, then the operator is prompted for an entire line entry, as in Create Poller data base (CPD). After the entry has been entered, the display is returned to the MORE prompt.

If the DELETE function is selected, the operator is prompted to enter the LINE to be deleted. The utility checks that the entry for that line exists and then deletes the entry. The display returns to the prompt for MORE.

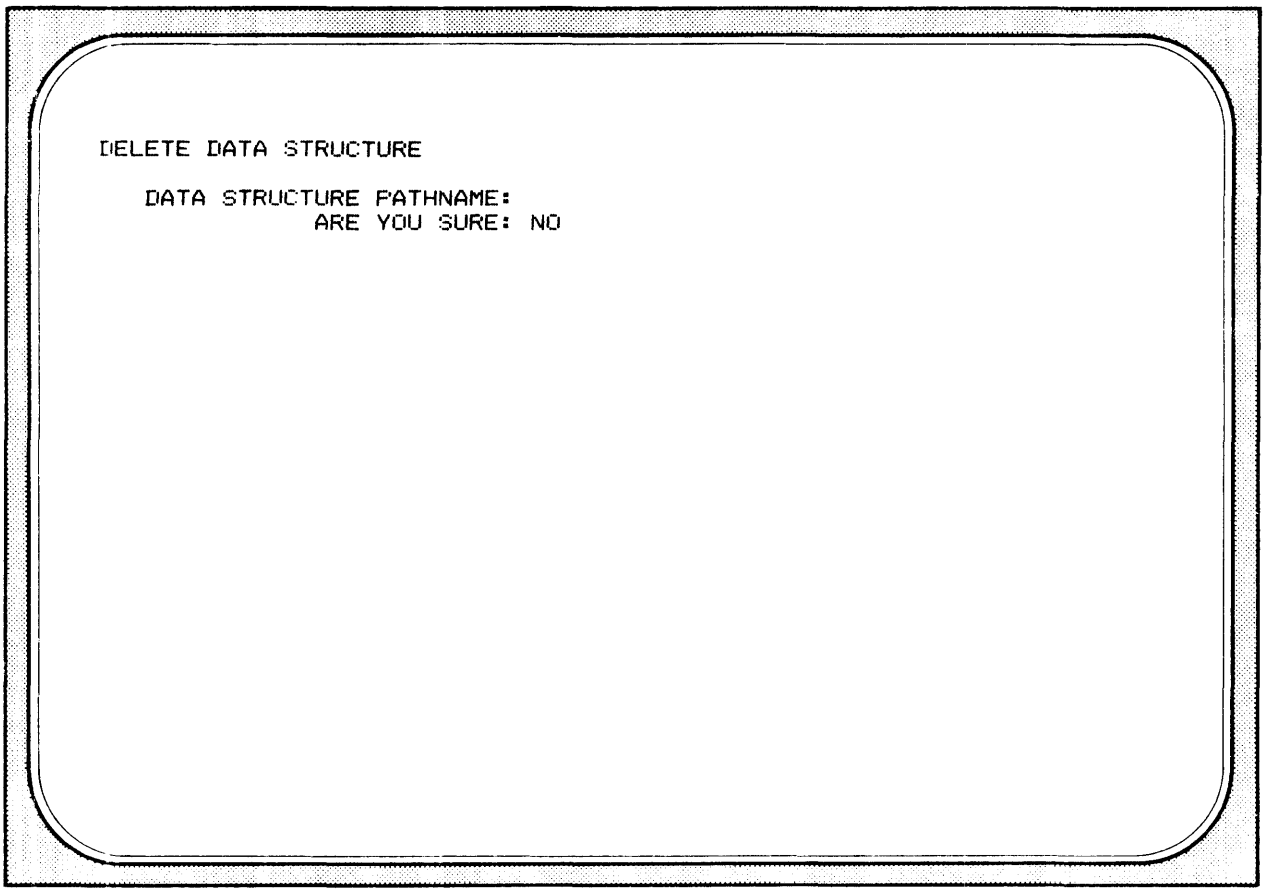
4.6.3 Poller Data Base Example

A complete example of a Poller data base file is as follows:

```
OPERATION:

UNATTENDED

LOG EVENT:                                TO:

ALL                                        VOL1.LOG.ALL
ABORTS                                     VOL1.LOG.ABORTS
ERRORS                                     VOL1.LOG.ERRORS
NORMALS                                    VOL1.LOG.NORMALS
STATISTICS                                 VOL1.LOG.STATS
UNINITIABLES                               VOL1.LOG.UNINITS
ALL                                        LP01
ERRORS                                     MT01


 LINE:      MODE:      WATS:     PROTOCOL:    MODEM:      MACS:

 ST01       CALL                  TTY765      3400        00
 CM01       ANSWER     6          3780        212A
 ST05       MANUAL                TTY         3400
```

4.7 DELETE DATA STRUCTURE (DDS)

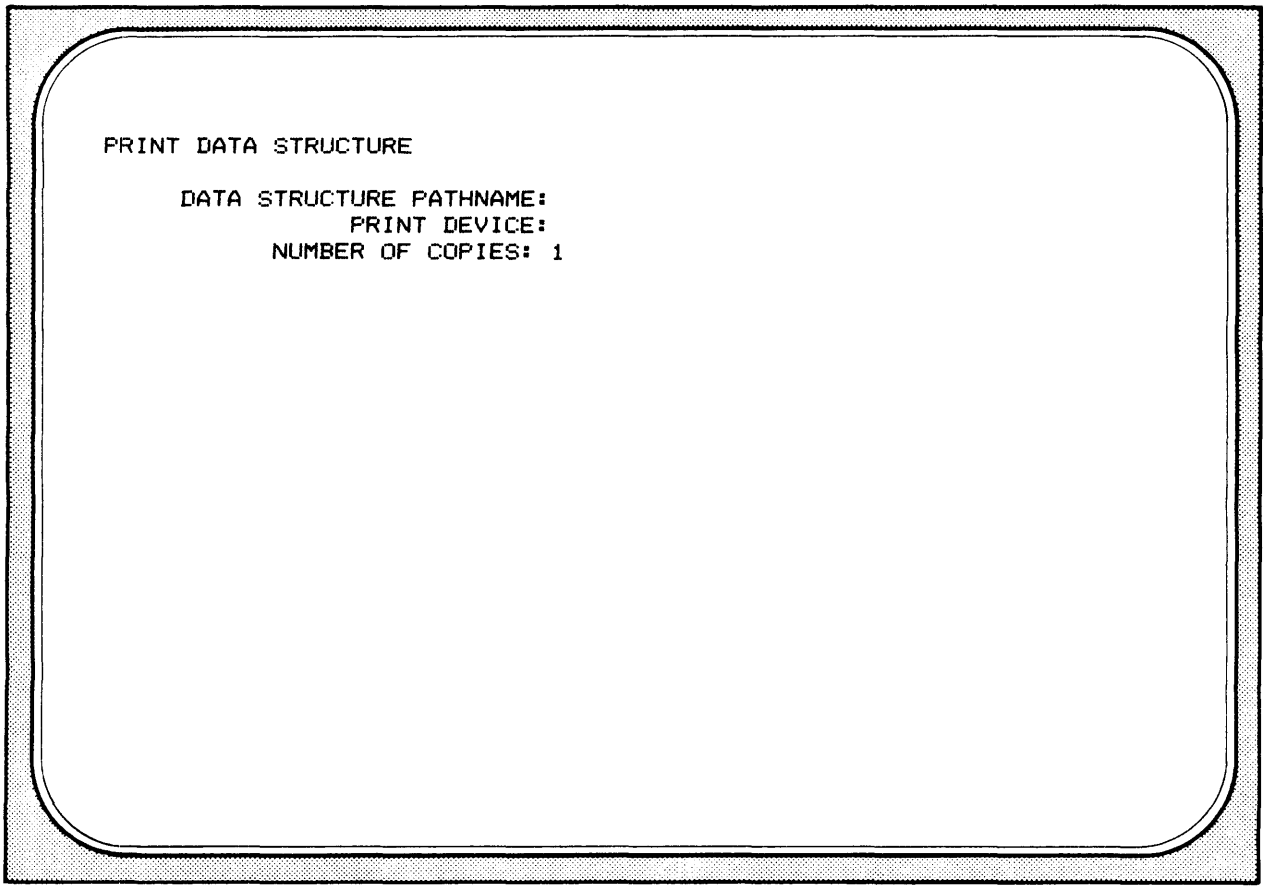
The DDS utility allows the operator to delete a Poller data structure. The DDS utility is analogous to the DX10 Delete File (DF) procedure; it is provided to allow the network administrator to tailor the delete function to the particular Poller requirements. The DDS utility then displays the prompts DATA STRUCTURE PATHNAME and ARE YOU SURE. The prompts are formatted as follows:



The utility makes certain that the file exists and is not in use. If the reply to ARE YOU SURE is YES, the specified data base file will be deleted.

4.8 PRINT DATA STRUCTURE (PDS)

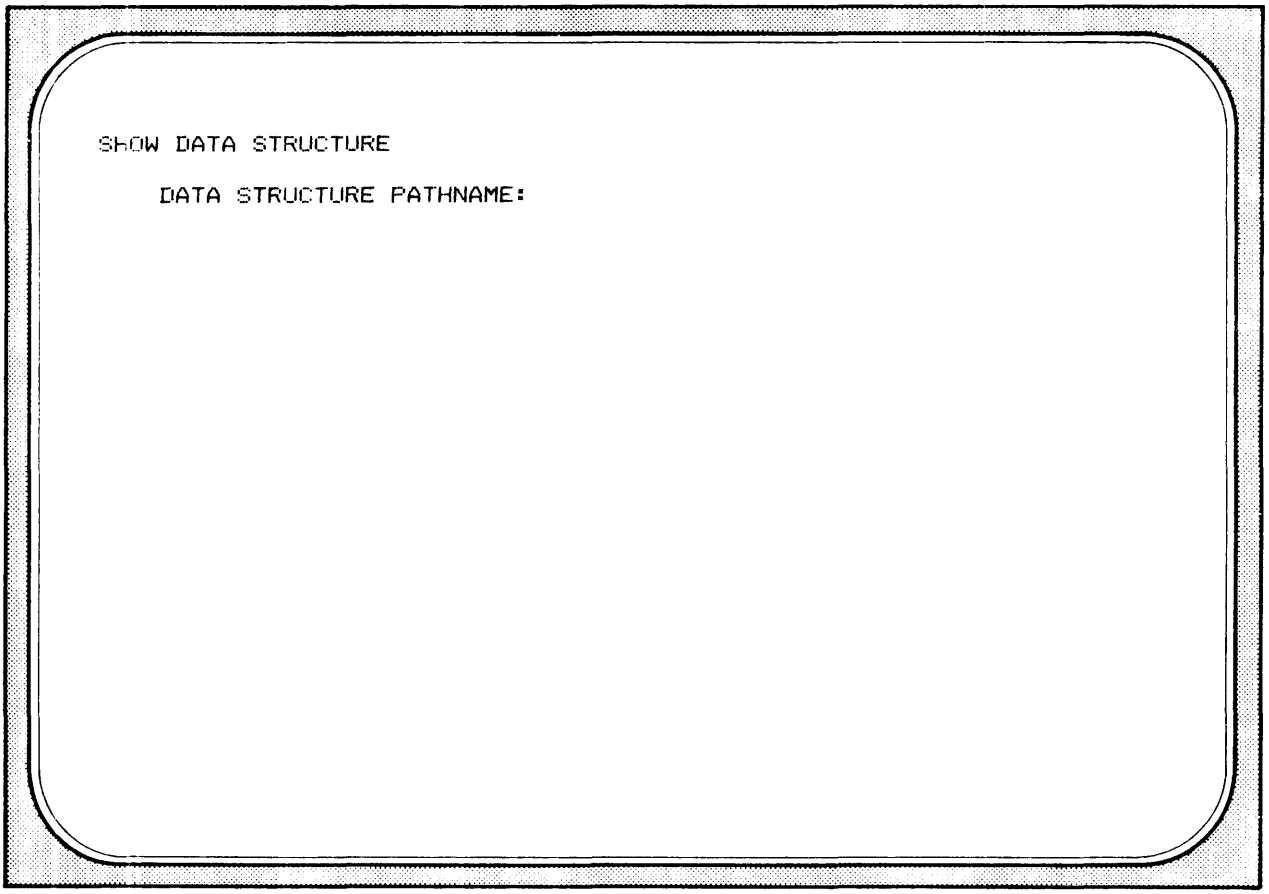
The PDS utility allows the operator to print a Poller data structure. The PDS utility is analogous to the DX10 Print File (PF) procedure; it is provided to allow the network administrator to tailor the print function to the particular Poller requirements. When the PDS utility is invoked, it prompts for a pathname, printing device, and the number of copies to be printed. The prompts are formatted as follows:



The file is then queued up for printing on the designated device.

4.9 SHOW DATA STRUCTURE (SDS)

The SDS utility allows the operator to display the contents of a Poller data structure on the Model 911 VDT. The SDS utility is analogous to the DX10 Show File (SF) procedure; it is provided to allow the network administrator to tailor the show function to the particular Poller requirements. The operator input of SDS displays the prompt for the data structure pathname as shown below.



5

Network Implementation

5.1 POLLER NETWORK

This section assists the network administrator or systems analyst in successfully implementing the polling network. This section presents information on system memory and data disk space requirements, user throughput constraints, and communication hardware requirements. The section also presents worksheets to aid in making these determinations and examples of their use. The network administrator must be capable of analyzing this data and determining the system configuration required, considering applications, operations, and appropriate tradeoffs in configuring the system.

5.1.1 Poller Network Planning

The network administrator must consider many factors when planning a polling network in order to properly utilize the physical communications hardware, system and disk storage, and DX10 system resources. It is not required that the system be configured and used only for the Poller; however, all guidelines provided in this section address Poller requirements only.

5.1.2 Terminal Network Planning

A major factor in Poller network planning is the number and type of terminals to be polled during a given polling session. This information, in addition to the allowable polling time, determines the number of physical lines that the Poller must support and the hardware that is needed to support the lines.

If the number of communication boards required to support these lines exceeds the space available in the main system chassis, then an additional (expansion) chassis is required. If the number of lines required exceeds the limits imposed by either the DX10 operating system or the Poller, then you must either relax the time constraint for the polling activity, or utilize additional polling systems.

The following is a worksheet used to estimate the number of TPD or 3780 lines required in a particular Poller configuration:

(1) NUMBER OF TERMINALS TO BE POLLED _____

(2) AVERAGE (OR MAXIMUM) DATA TO BE TRANSFERRED TO AND RECEIVED FROM EACH TERMINAL DURING THE POLLING SESSION (BYTES) _____

(3) TOTAL DATA VOLUME TO BE MOVED (LINE 1 X LINE 2) (BYTES) _____

(4) LINE TRANSFER RATE (CPS: CPS = BPS / 10) _____

(5) TOTAL SECONDS REQUIRED (LINE 3 / LINE 4) _____

(6) ALLOWABLE POLLING TIME (IN HOURS) _____

(7) POLLING TIME (IN SECONDS) (LINE 6 X 3600) _____

(8) NUMBER OF LINES REQUIRED (LINE 5 / LINE 7) _____

You should perform this calculation for both TPD and 3780 lines. The result is the total number of lines required in the Poller system. The total number of lines cannot exceed eight; DX10 system generation (SYSGEN) constraints may further limit the total, depending upon the number and type of other devices and the additional DX10 features the user's system includes.

5.1.3 Disk Storage Planning

Another factor you must consider when planning the Poller network is the amount of disk storage required to store all the data that is to be transmitted to and/or received from each terminal.

During the initial phase of disk storage planning, it is more important to calculate the maximum gross storage requirements for the network data files than the disk overhead requirements to support a directory structure. You can use the following worksheet to estimate the disk storage requirements:

(1) TOTAL NUMBER OF TERMINALS IN SYSTEM _____

(2) MAXIMUM AMOUNT OF DATA TO BE STORED ON DISK FOR EACH TERMINAL (FILES TO BE SENT AND RECEIVED) (BYTES) _____

(3) DATA VOLUME TO SUPPORT TERMINALS FOR ONE DAY (LINE 1 X LINE 2) _____

(4) NUMBER OF DAYS (OF DATA) THAT USER WISHES TO RETAIN ON DISK (MINIMUM 1: CURRENT DAY) _____

(5) TOTAL TERMINAL DATA TO BE RETAINED ON DISK (LINE 3 X LINE 4) _____

(6) TOTAL STORAGE REQUIREMENTS FOR NONTERMINAL SPECIFIC DATA (SUCH AS TIBOL PROGRAM FILES OR DEFAULT DATA FILE) _____

(7) TOTAL STORAGE REQUIREMENTS (LINE 5 + LINE 6) _____

NOTE

You should increase the total storage requirement by some percentage (such as 10 to 20 percent) to include miscellaneous files and directory overhead. You should then compare the resulting total to the available disk space other than on the system disk.

5.1.4 Magnetic Tape Planning

If you plan to utilize the optional Model 979A Magnetic Tape Drive in the system, you should review the characteristics of the device, as well as the operational aspects of the Poller tasks (WDTM, RMTD, RFLT, and WTLT) and any user-supplied task(s) that support the writing of data to the magnetic tape. You should also consider the format, blocking, and volume of the data that is written to the tape to ensure proper utilization in the application.

5.1.5 DX10 Usage Planning

The worksheets provided to estimate Poller system timing assume that only the Poller application software and supporting communication packages run in the system during the polling session. If the user has additional tasks executing in the system, then the estimates may not be meaningful since the load on the DX10 operating system resources cannot be accurately estimated. Any major activity degrades the operation of the Poller and decreases the data throughput.

5.1.6 DS990 Memory Planning

When you determine the required number of lines, you should estimate the system memory requirements to support simultaneous sessions on these multiple lines. The following worksheet assists in this estimation. (The provided task sizes in the worksheet are in bytes, not words.)

(1)	SYSTEM SIZE (FROM SYSGEN)		_____
(2)	POLL MASTER TASK SIZE		28K Bytes
(3)	NUMBER OF 3780 LINES:	_____	
(4)	SIZE OF PS3780 AND EM3780 TASKS (per line):	23K Bytes	
(5)	TOTAL FOR 3780 LINE SUPPORT (LINE 3 X LINE 4)		_____
(6)	NUMBER OF TPD LINES:	_____	
(7)	PSTTY765 TASK SIZE:	16K Bytes	
(8)	TOTAL FOR TPD LINE SUPPORT (LINE 6 X LINE 7)		_____
(9)	SIZE OF ERROR LOGGING TASK		__ 3K __
(10)	SIZE OF LARGEST OPERATOR INTERFACE TASKS (POPCP)		__ 8K __
(11)	SCI TASK PER VDT + INVOKE/LINE + OTHER SYSTEM TASKS (TOTAL MEMORY REQUIRED)		_____
(12)	SIZE OF OTHER TASKS THAT WILL BE EXECUTING SIMULTANEOUSLY TO POLLER OPERATION (TOTAL)		_____
(13)	TOTAL MEMORY REQUIREMENTS (LINE 1 + 2 + 5 + 8 + 9 + 10 + 11 + 12)	Total Bytes	_____

NOTE

For maximum data throughput, all Poller tasks should be in memory while the Poller is executing. If you do not provide enough memory to support all the tasks that should be operating simultaneously, then the Poller throughput is adversely affected.

5.2 DX10 SYSGEN CONSIDERATIONS

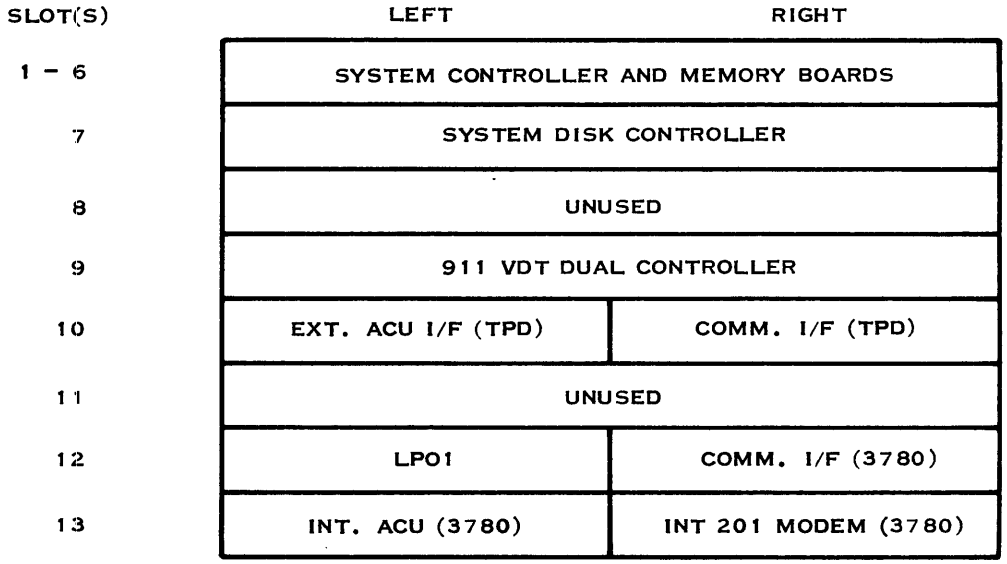
Before the user can integrate and use the Poller the DX10 SYSGEN must include certain Poller, BMTS-990 and/or EM3780 considerations.

You must determine the physical configuration of the hardware prior to beginning the SYSGEN process. Each line supporting teleprinter devices (TPDs) in the system requires two half-slots of chassis space. Each 3780 line in the system requires two or three half slots: two half slots if an external ACU and modem are used; three half-slots if internal ACU and modem are used.

For example purposes, assume that the Poller supports one TPD line and one 3780 line and that the communications hardware to support these lines is as follows:

- TPD Hardware (with External Modem and ACU):
  - Communications interface (I/F) card, slot 10 (right)
  - External ACU I/F card, slot 10 (left)
- 3780 Device Hardware (with Internal Modem and ACU):
  - Communications I/F card, slot 12 (right)
  - Internal 201 modem card, slot 13 (right)
  - Internal ACU I/F card, slot 13 (left)

Graphically, the chassis might appear as follows:



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5.2.1 TPD Definition

To ensure that the Poller supports Models 763/765 Bubble Memory Terminals (BMTs), the user must define the BMT line to the system during the SYSGEN process as a TPD. The following display shows the SYSGEN inputs required to define the TPD line discussed in the example in paragraph 5.2:

```
DEVICE: TPD
CRU: (>00) >0C0                    <--- THIS EXAMPLE
ACCESS TYPE: (RECORD)
TIME OUT: (0) 30                   <--- USER SPECIFIABLE
TERMINAL TYPE: (743) 763           <--- 763 OR 765 HANDLED THE SAME
ECHO: (YES) NO
MODEM DUPLEX: (FULL)
SWITCHED: (NO) YES
INTERFACE: (COMM)                   <--- THIS EXAMPLE
SPEED: (300) 1200                   <--- THIS EXAMPLE
ACU CRU: (NONE) >0E0                <--- THIS EXAMPLE
CHARACTER QUEUE SIZE: (6) 200 <--- AT LEAST 1 FULL BMT RECORD
INTERRUPT: (6) 11                   <--- THIS EXAMPLE
```

If the Poller is to use multiple lines, you must define each line supporting TPDs through the SYSGEN process as in the preceding example. For further explanation see DX10 SYSGEN procedures in the *DX10 Operating System Systems Programming Guide, Volume V* and in the *DX10 Bubble Memory Terminal Support (BMTS-990) User's Guide*.

5.2.2 3780 Device Definition

The following display shows the required SYSGEN inputs to define the 3780 line discussed in the example in paragraph 5.2:

```
                DEVICE: COM
CRU OR TILINE ADDRESS: >0040        (Example)
   NUMBER OF CHANNELS: 1
   CHANNEL 0 PROTOCOL: 3780
          BUFFER SIZE: 528
            INTERRUPT: 4
```

If the Poller is to use multiple lines, you must describe each port supporting 3780 devices via the SYSGEN process as in the preceding example.

The following display shows the recommended DX10 Build Emulator Task (BET) parameters for the 3780 task to support the Poller:

```
        PRINTER ACCESS NAME: LP$1        (Default)
          PUNCH ACCESS NAME: DUMY        (Default)
      NUMBER OF USER FLAGS: 16           (Default)
PENDING REC/SEND REQUESTS: 8             (Default)
                    TY ON?: NO           (Default)

      DISCONNECT ON ERROR?: NO           (Default)
         DISCONNECT REMOTE: YES

CALL CONNECT TIMEOUT (MIN): 0            (Default)
          CALL RETRY COUNT: 0
     CALL RETRY TIME (MIN): 3            (Default)
INTERDIGIT TIMEOUT (100MS): 10           (Default)
 DIAL TONE TIMEOUT (100MS): 10           (Default)
       PND TIMEOUT (100MS):  0           (Default)
```

```
                    RPN ON?: YES
                   RPN CODE: '$$$$'      (Default)
                    VFC ON?: NO          (Default)
                    SRQ ON?: YES
                   SRQ CODE: '$$$S'      (Default)

          TRAILING BLANKS?: YES
                   TBID ON?: NO          (Default)
              TASK BID CODE: '$BID'      (Default)
                   $OPR ON?: NO          (Default)
                $OPR CODE: '$OPR'        (Default)
        $-OPTION CHARACTER: '$'          (Default)

MAX TRANSMIT RECORD LENGTH: 256          (Default)
 MAX RECEIVE RECORD LENGTH: 256          (Default)
               SRL DEFAULT: 80           (Default)
             RPURL DEFAULT: 80           (Default)
             RPRRL DEFAULT: 80
```

The following display shows the recommended DX10 Build Communications DSR (BCD) parameters for 3780 lines which will support the Poller:

```
BID RESPONSE TIMEOUT (SEC): 03
 RECEIVE ACK TIMEOUT (SEC): 05
RECEIVE DATA TIMEOUT (SEC): 00       (Default)
   IDLE LINE TIMEOUT (SEC): 60

              TRANSMIT BID: 1
               RECEIVE ENQ: 15       (Default)
              TRANSMIT ENQ: 15       (Default)
               RECEIVE NAK: 00       (Default)
              TRANSMIT NAK: 00       (Default)
              RECEIVE DATA: 00
```

NOTE

For the Poller to operate properly, you should apply the optional 3780 patch, which allows the IDLE ERROR message to be generated without disconnecting the session.

For SYSGEN details refer to the *DX10 3780/2780 Emulator Object Installation Manual* as well as the *DX10 Operating System Systems Programming Guide, Volume V.*

5.2.3 Additional SYSGEN Considerations

You must consider these additional parameters during the SYSGEN process: system table area, maximum number of foreground and background tasks, additional input/output (I/O) buffer area, and intertask communication area. The proper allocation for these parameters is critical to the operation of the Poller.

You can calculate the system table size by using the worksheet provided in Appendix J of the *DX10 Operating System Systems Programming Guide, Volume V*. The guidelines stated there describe the minimum table size allocation.

When the Poller is executing, it has three foreground tasks for the main tasks and one additional foreground task for each line (two for 3780 lines) that it uses. If you want the Poller to invoke tasks, they should be included. You should add the total of all Poller tasks to the other tasks (such as reports and displays) you select, to arrive at the proper limit for foreground and background tasks in the system.

For each 3780 line that the system supports simultaneously, a 2128-byte buffer is required in the additional I/O buffer area. You should provide an intertask buffer area of approximately 2K-bytes to support the Poller intertask communications.

If an insufficient amount of intertask communication area (ITC) is requested when the system is generated, or if the needs of a combination of tasks requiring ITC exceeds that area, the Poller may become unoperational. The operator should first attempt to execute an Abort Poller Operation (APO) command. The APO command aborts the Poller tasks and purges the ITC queues used by the Poller. However, the APO command requires a small amount of ITC area, and fails when that area is not available.

If the APO command fails, you must execute a Kill Task (KT) command to abort the Poller task. You must know the run ID and the station number of the task, which is task PMT, installed ID >01. The Poller occurrence number is the run ID of task PMT. To obtain the station number, execute a Show Task Status (STS) command and note the terminal to which the task with installed ID >01 and run ID equal to the occurrence number is assigned. This is the station number to use in the KT command. Execute the command using the run ID and this station number.

The KT command aborts the Poll Master Task PMT, causing it to execute its end action routine. This routine terminates all the Poller tasks that are executing and purges the ITC queues being used by the Poller.

5.3 POLLER NETWORK IMPLEMENTATION

The network administrator must provide the data structures required for the terminal network and its applications. Before starting the first Poller occurrence, the network administrator must perform the following steps:

1. Install Poller software and patches.
2. Unless the defaults used in the delivered software apply, execute the Poller Initialization (PIN) command to change one or more of the following parameters:
   a. Maximum number of lines to be used by the Poller
   b. Number of passes through the polling list
   c. Number of seconds to wait between passes
   d. Matching specification for WATS lines
   e. Enabling of the automatic shutdown feature
   f. Restart point for interrupted terminal sessions
   g. Capability of multiple dial-ins
3. Execute the PATCH command as described in the object installation guide.
4. Execute the Create Terminal List (CTL) command to create terminal lists, which identify terminals.
5. Execute the Create Terminal Data Base (CTD) command to create terminal data bases, which define the terminals.
6. Execute the Create Activity Template (CAT) command to create an activity template for each required terminal activity.
7. Execute the Create Terminal Procedure (CTP) command to create terminal procedure data bases that contain the procedures called by the activity templates.
8. Execute the Create Poller Data Base (CPD) command to create Poller data bases to specify logs and to define lines.

5.4 POLLER SOFTWARE INSTALLATION

Procedures for the installation and checkout of the Poller are described in detail in the *DX10 Poller Application Software Object Installation Guide*. The installation of the BMTS-990 package and/or the DX10 3780 Emulator are described in their own respective installation guides.

NOTE

Do not install the Poller in directory .POLLER on the system disk. Directory .POLLER is reserved for use by the Poller.

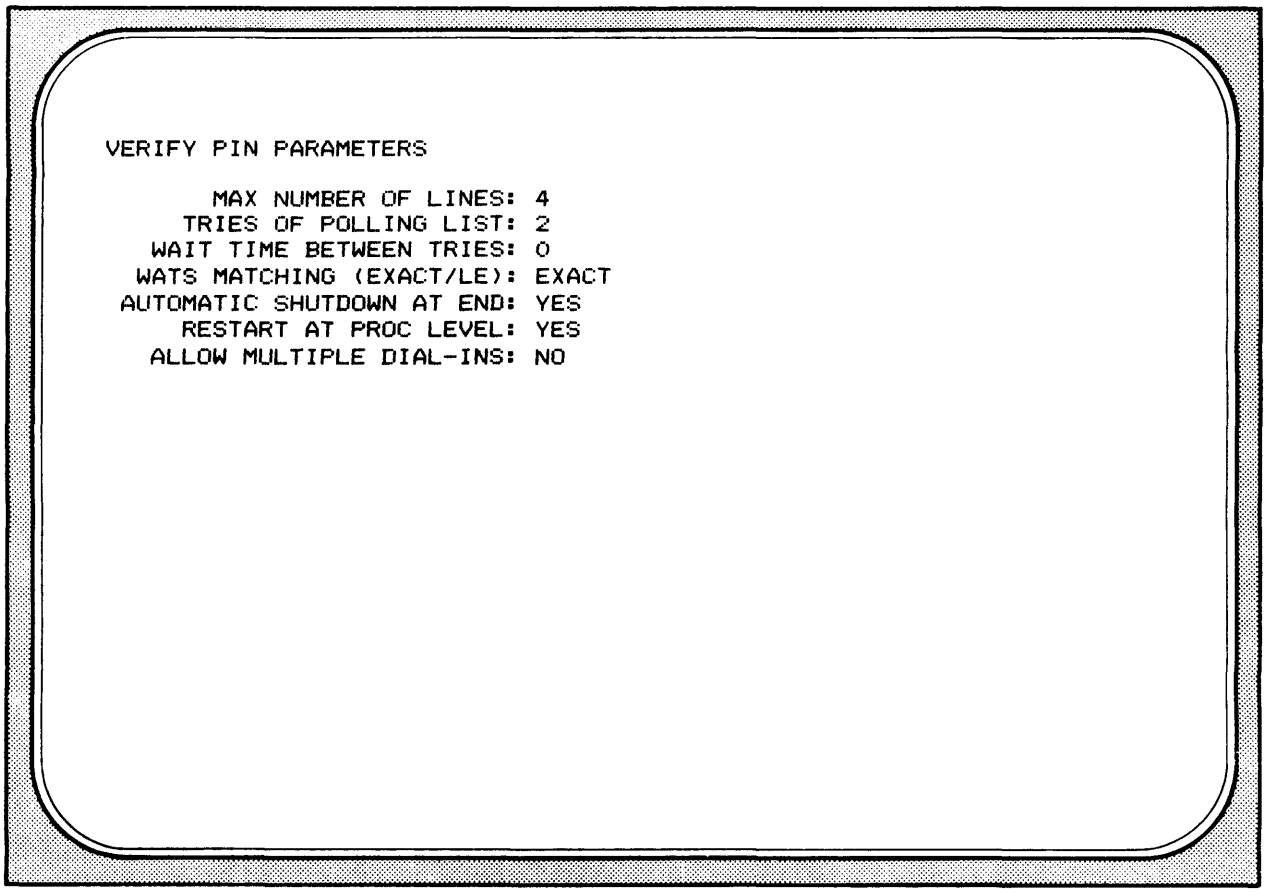
5.5 POLLER INITIALIZATION (PIN)

As delivered, the Poller supports up to four lines. If the system needs to accommodate more than four lines, the number of lines may be increased to the user's configuration, up to a maximum of eight lines.

To accomplish this customization, execute the PIN command. You must perform the steps listed in Section 2 to access the Poller first, and you must have a privilege level of 6 or higher to execute this command. When the Poller main menu is displayed, enter the command as follows:

```
[ ] PIN
```

Poller displays the following prompts:



The response to MAX NUMBER OF LINES prompt is the number of lines to be supported by the Poller software on the user's system. The range of values is from 1 to 8; the default is 4. You need not change this value unless more than four lines are required.

The response to the TRIES OF POLLING LIST prompt is the maximum number of times the Poller attempts to complete a session with each terminal on the terminal list. The Poller does not retry a session unless the session was prematurely terminated or was not successfully connected. The range of this response is from 1 to 5; the default is 2.

The response to the WAIT TIME BETWEEN TRIES prompt is the minimum time (in seconds) to wait before making the next pass through the terminal list. The response is a number from 0 to 999; the default is 0. The capability of waiting between passes is used in Europe; U. S. users should enter the default. A wait between passes causes some degradation of the Poller throughput.

The response to the WATS MATCHING (EXACT/LE) prompt controls the matching of terminals to lines. The WATS band of a line indicates the area limit for calls on the line. WATS band 0 consists of your state. Higher-numbered bands include successively larger areas. When you enter EXACT in response to this prompt, the Poller calls each terminal on a line having the same band number as the terminal. When you enter LE (for less than or equal), the Poller uses any line having a band number that allows calls to the terminal (that is, a band number less than or equal to that of the terminal). European users who do not have WATS service should use the default setting (EXACT) and set the WATS band of lines (in the Poller data base) and terminals (in the terminal data base) to the same band number.

A YES response to the AUTOMATIC SHUTDOWN AT END prompt causes the Poller to issue a Terminate Poller Operation (TPO) command after attempting to conduct sessions with all terminals. When you enter a NO response, you must manually terminate Poller operations. The Poller does not automatically terminate unless all lines are in the CALL mode (none in MANUAL or ANSWER mode). All of the following conditions must be met for automatic shutdown to occur:

- All the terminals have had successful sessions, or have been retried the maximum number of times.
- No line has any more activity waiting.

The response to RESTART AT PROC LEVEL prompt specifies the point at which to restart an interrupted session. When you enter YES, the Poller restarts the terminal session at the beginning of the procedure that was interrupted when the session was terminated. When you enter NO, the Poller restarts at the first procedure specified in the activity template for the terminal.

The response to the ALLOW MULTIPLE DIAL-INS prompt determines the number of calls allowed for terminals in the ANSWER mode during an occurrence. A YES response allows multiple dial-ins; a NO response (the default) allows only one successful session per terminal. You must be certain that a successive call in to the Poller does not overwrite previously received data or data to be transmitted if you allow multiple dial-ins.

The PIN process is a series of procedures (PROCS) and batch streams which prompts the user for specific configuration information and then assembles, links, and reinstalls the Poller Main Task (PMT) in the Poller program file. The entire process takes about 15 minutes on a DS990 Model 4 system.

Following successful completion of the PIN command, execute the PATCH command again as described in the object installation guide.

5.6 POLLER NETWORK EXAMPLE

The following paragraphs provide an example of the steps required to establish a polling network. First, assume the following polling network description:

- 400 Model 763 BMTs
- 20K bytes to be transmitted (total of send/receive)
- 1200 bits per second transmission speed (120 bytes/sec)
- 8 hours allowable polling time

5.6.1 Example Polling Line Calculation

With the preceding assumptions, you can determine the number of required lines to support this activity in the specified time period. (The line numbers reference the worksheet in paragraph 5.1.2.)

(1)	NUMBER OF TERMINALS:	__ 400 __		
(2)	AVERAGE DATA (bytes) PER TERMINAL:	_20,000_		
(3)	TOTAL DATA VOLUME (bytes):		8,000,000	
(4)	TRANSFER RATE (CPS):		__ 120 __	
(5)	TOTAL SECONDS REQUIRED (sec):			66,667
(6)	ALLOWABLE POLLING TIME (HRS):	___ 8 ___		
(7)	CONVERSION (1HR = 3600 sec):	8 X 3600	=	28,800
(8)	NUMBER OF LINES REQUIRED:			__ 2.32 __

The user should provide at least three lines. These lines will accomplish the polling task easily within the eight-hour period, even allowing for system overhead (such as dial/redial time, command transmission, error checking, and retries).

5.6.2 Example Disk Storage Calculation

For purposes of disk storage planning, assume the following configuration:

- 400 terminals to be polled each day
- 20,000 bytes sent/received per terminal per day
- All data must be retained on disk as received from the terminal for one day after received (two days total) for backup purposes.

Utilizing these assumptions, you can determine the disk requirements for this polling network:

(1)	NUMBER OF TERMINALS:	__ 400 __	
(2)	AVERAGE DATA (BYTES):	_20,000_	
(3)	TOTAL DATA VOLUME (BYTES):	8,000,000	
(4)	NUMBER OF DAYS TO STORE:	____2____	
(5)	DISK STORAGE FOR TERMINAL DATA:		16,000,000
(6)	ADDITIONAL STORAGE REQUIREMENTS:		2,000,000
(7)	TOTAL STORAGE REQUIREMENTS:		18,000,000

You should provide a minimum of 20,000,000 bytes of nonsystem disk storage to support this polling network.

Appendix A

Summary of Poller Commands

The following list contains the Poller commands, an expansion of their meanings, and the paragraph reference where the command is treated.

Command	Description	Paragraph
PQ	Return to DX10 SCI Menu	2.3
/POPER	Poller Operation Utilities	3.1
/PCTRL	Poller System Control Commands	3.2
SPO	Start Poller Operation	3.2.1
HPO	Halt Poller Operation	3.2.2
RPO	Restart Poller Operation	3.2.3
TPO	Terminate Poller Operation	3.2.4
APO	Abort Poller Operation	3.2.5
TEST	Test Poller Operation	3.2.6
/PLINE	Poller Line Commands	3.3
SLO	Start Line Operation	3.3.1
TLO	Terminate Line Operation	3.3.2
ALO	Abort Line Operation	3.3.3
/PMANL	Poller Manual Commands	3.4
/MTTY	Manual TTY Commands	3.4
/M3780	Manual 3780 Commands	3.4
MANSR	Manual Answer	3.4.1
MBAUD	Manual Modify Baud Rate	3.4.2
MCALL	Manual Call	3.4.3
MDISC	Manual Disconnect	3.4.4
SCMDTTY	Manual Send BMT Command TTY	3.4.5
SFNCTTY	Manual Send BMT Function TTY	3.4.6
SFILTTY	Manual Send File TTY	3.4.7
RBLKTTY	Manual Receive File Blocked TTY	3.4.8
RCONTTY	Manual Receive File Continuous TTY	3.4.9
SCMD3780	Manual Send BMT Command 3780	3.4.10
SFIL3780	Manual Send File to 3780 Terminal	3.4.11
RFIL3780	Manual Receive File from 3780 Terminal	3.4.12
CTRL3780	Manual Change 3780 Emulator Dynamic Parameter	3.4.13

Command	Description	Paragraph
/PMEDM	Poller Medium Commands	3.5
WDTM	Write from Disk to Magnetic Tape	3.5.1
RMTD	Read from Magnetic Tape to Disk	3.5.2
WTLT	Write to IBM Standard Labeled Tape	3.5.3
RFLT	Read from IBM Standard Labeled Tape	3.5.4
CTH	Create IBM Standard Label Tape Header	3.5.5
/PSTAT	Poller Status Commands	3.6
RPS	Request Poller Status	3.6.1
RLS	Request Line Status	3.6.2
RTS	Request Terminal Status	3.6.3
SPA	Show Poller Activity	3.6.4
SLF	Show Log File	3.6.5
LLF	List Log File	3.6.6
/PCONFG	Poller Configuration Utilities	4.1
/TL	Terminal List Edit Utilities	4.2
CTL	Create Terminal List	4.2.1
MTL	Modify Terminal List	4.2.2
/TD	Terminal Data Base Edit Utilities	4.3
CTD	Create Terminal Data Base	4.3.1
MTD	Modify Terminal Data Base	4.3.2
/TP	Terminal Procedure Edit Commands	4.4
CTP	Create Terminal Procedure	4.4.1
QCTP	Quit Create Terminal Procedure	4.4.2
MTP	Modify Terminal Procedure	4.4.3
QMTP	Quit Modify Terminal Procedure	4.4.4
/AT	Activity Template Edit Commands	4.5
CAT	Create Activity Template	4.5.1
QCAT	Quit Create Activity Template	4.5.2
MAT	Modify Activity Template	4.5.3
QMAT	Quit Modify Activity Template	4.5.4
/PD	Poller Data Base Edit Commands	4.6

Command	Description	Paragraph
CPD	Create Poller Data Base	4.6.1
MPD	Modify Poller Data Base	4.6.2
DDS	Delete Data Structure	4.7
PDS	Print Data Structure	4.8
SDS	Show Data Structure	4.9
PIN	Verify PIN Parameters	5.5

Appendix B

Poller Status Messages and Error Recovery

This appendix contains the general format of Poller messages followed by the specific messages and their explanation.

POLLER MESSAGES

The general format of all Poller messages is as follows:

PPXX YYYY: Poller message

where:

PP is the Poller status/error code listed below.

XX is the DX10 supervisor call error code (may be blank).

YYYY may be the line on which the error occurs (STXX or CMXX).
may be the communication subsystem (BMTS OR 3780) error code (manual commands only).
may be blank.

Specific messages and message explanations are listed below:

Code	Message	Action/Explanation
0000	POLLER SPO <TEST> COMPLETE OCCURRENCE NUMBER IS: >XX	SPO/TEST start-up completion message; >XX is the run-time ID of the Poller task.
01XX	POLLER TOCCUR ERROR	Poller failed when accessing the file .POLLER.TOCCUR. Check the DX10 SVC error (00XX).
02XX	POLLER S$ROUTINE ERROR	Poller error when accessing the TCA file; try command again.
03XX	POLLER OCCURRENCE STATE INVALID	Illegal sequence of commands, use RPS to verify Poller state.
04XX	POLLER PREVIOUS OPERATOR REQUEST PENDING	Operator request out of sequence (e.g., HPO after TPO). Poller waiting for previous request to complete.

Code	Message	Action/Explanation
05XX	POLLER INTERTASK COMMUNICATION FAILED	Intertask buffer area not large enough; generate system again.
06FA	POLLER OCCURRENCE ALREADY EXISTS	Previous occurrence is still running; use RPS to verify.
0700	POLLER START FAILED; UNABLE TO ACTIVATE LINE	SPO fatal error, be sure that there is no other activity on the line that failed. Can be a line in the PDB that is not in the system. Check the ALL or ERRORS log file for the cause of the error. Also, for 3780, Global LUNO >82 may not be assigned to the 3780 program file .S$COMMPF or the wrong release of DX3780 is being used (must be 4.0 or later).
0AXX	POLLER LINE NOT IN MANUAL MODE	Manual command issued to line that is not in manual mode.
0BXX	POLLER LINE NUMBER INVALID	Line number not in PDB.
0C01	POLLER BID PS TASK ERROR	SPO fatal error — PS task could not be bid; line is not in the system (see DX10 error >2B01) or an ST0x line is not provided for use by CM0x.
0DXX	POLLER MAX LINES EXCEEDS SDA	Number of lines in PDB is greater than number of lines provided at Poller initiation.
0EXX	POLLER MANUAL LINE STATE INVALID	Manual command out of sequence; for example, manual send attempted before MCALL issued.
0FXX	POLLER TERMINAL LIST DOES NOT CONTAIN TERMINAL NUMBER	Answer-mode error; number of terminal that called Poller is not in terminal list.
10XX	POLLER WORKING DATA STRUCTURE FILE ERROR	Working data structure file error. WDS is an internal Poller file in the .POLLER directory; check SVC error (00XX).
11XX	POLLER DATABASE FILE ERROR	Poller data base file error; check DX10 SVC error (00XX).

Code	Message	Action/Explanation
12XX	POLLER TERMINAL DATABASE FILE ERROR	Terminal data base file error; check DX10 SVC error (00XX).
13XX	POLLER TERMINAL LIST FILE ERROR	Terminal list file error; check DX10 SVC check DX10 SVC error (00XX).
14XX	POLLER SHARED DATA AREA FILE ERROR	Shared data area file error; SDA is an internal Poller file in the .POLLER directory; check DX10 SVC error (00XX).
15XX	POLLER TOCCUR FILE ERROR	Table of occurrence file error; check DX10 SVC error (00XX).
16XX	POLLER UNKNOWN MANUAL COMMAND	Operator entered invalid command; submit an STR.
1700	POLLER MANUAL CALL SUCCESSFUL	Satisfactorily completed.
1800	POLLER MANUAL ANSWER SUCCESSFUL	Satisfactorily completed.
1900	POLLER MANUAL MODIFY BAUD UNSUCCESSFUL	Check MBAUD inputs.
1A00	POLLER ANSWER; ATTEMPT TO CALL IN FAILED	Answer failed; modems may be incompatible, or the ABM was wrong (manual answer only).
1B00	POLLER MANUAL CALL UNSUCCESSFUL	Incorrect phone number, wrong ABM, line busy, etc.
1C00	POLLER MANUAL MODIFY BAUD SUCCESSFUL	Satisfactorily completed.
1D00	POLLER MANUAL DISCONNECT UNSUCCESSFUL	Poller was unable to disconnect manual line.
1E00	POLLER MANUAL RECEIVE SUCCESSFUL	Satisfactorily completed.
1F00	POLLER MANUAL RECEIVE UNSUCCESSFUL	Receive failed; consult the communication subsystem error code.
2000	POLLER TLO FAILED; PMT REQUEST PENDING	HPO, TPO, APO, or TLO, ALO pending

Code	Message	Action/Explanation
2100	POLLER SLO FAILED; PMT REQUEST PENDING	See 2000
2200	POLLER ALO ERROR; PMT REQUEST PENDING	See 2000
2300	POLLER ALO COMPLETE	Satisfactorily completed.
2400	POLLER UNABLE TO DIS-CONNECT LINE	Poller was unable to disconnect line; another disconnect is automatically sent by the Poller.
2500	POLLER SESSION ERROR; LINE SWITCHED TO MANUAL	Attended mode (only); operator must continue the session manually.
2600	POLLER TLO COMPLETE	Satisfactorily completed.
2700	POLLER UNKNOWN COMMAND COMPLETION FROM PS	Problem in PS or in intertask command area; submit STR.
2800	POLLER SLO COMPLETE	Satisfactorily completed.
2900	POLLER SLO ERROR; UNABLE TO ACTIVATE LINE	SLO command failed, see description for 0700.
2A00	POLLER RPO COMPLETE	Satisfactorily completed.
2B00	POLLER RPO POWER FAILURE COMPLETE	Satisfactorily completed.
2C00	POLLER UNABLE TO KILL OUTSTANDING CALL/ANSWER	Line could not be disconnected
2DXX	POLLER RPO POWER FAILURE COULD NOT COMPLETE	RPO after power failure failed; check log file, fix problem, and retry.
2E00	POLLER MANUAL SEND SUCCESSFUL	Satisfactorily completed.
2F00	POLLER MANUAL SEND UNSUCCESSFUL	Send command failed; see communication subsystem error.
30XX	POLLER ACTIVITIES ARE TERMINATED	SPO failed; check DX10 SVC error (00XX).
3100	POLLER TPO COMPLETE	Satisfactorily completed.
3200	POLLER APO COMPLETE	Satisfactorily completed.

Code	Message	Action/Explanation
33XX	POLLER RPO ERROR: UNABLE TO ACTIVATE LINE	RPO failed; check log file, fix problem, retry RPO.
34XX	POLLER RPO POWER FAILURE ERROR; UNABLE TO ACTIVATE LINE	RPOPF after power failure failed; check log file, fix problem, retry RPO.
3500	POLLER HPO COMPLETE	Satisfactorily completed.
3600	POLLER HPO ERROR; OPERATOR REQUEST PENDING	TPO, APO, or HPO pending.
3700	POLLER MANUAL DISCONNECT COMPLETE	Satisfactorily completed.
3800	POLLER DISCONNECT FAILED; LINE ALREADY DISCONNECTED	Satisfactorily completed.
3900	POLLER TERMINAL NUMBER HAS NO CORRESPONDING TDB ENTRY	Add terminal entry to TDB (terminal data base).
3AXX	POLLER UNABLE TO START "ERRLOG"	SPO failed; may have done SPO too soon after TPO or APO of previous Poller.
3B00	POLLER MANUAL ACTIVITY SESSION COMPLETED SUCCESSFULLY	Satisfactorily completed.
3C00	POLLER MANUAL ACTIVITY SESSION COMPLETED UNSUCCESSFULLY	Activity session had an error; check the log file.
3D00	POLLER TERMINAL NOT IN "CALL" OR "EITHER" MODE	Manual call attempted to a terminal in answer mode.
3E00	POLLER TERMINAL NOT IN "ANSWER" OR "EITHER" MODE	Manual answer attempted to a terminal in call mode.
3F00	POLLER ANSWER; SESSION ALREADY SUCCESSFUL OR IN PROGRESS	Terminal called which already had session, or multiple terminals have same terminal number. PIN can be done to allow multiple dial-ins.
4000	POLLER ANSWER; TERMINAL NUMBER NOT IN TERMINAL LIST	Terminal called Poller but was not in the terminal list being used.

Code	Message	Action/Explanation
4100	POLLER LINE NO LONGER USEABLE	Line taken out of service by Poller after multiple disconnects (three) failed.
42	POLLER OPERATION INVALID; NO POLLER CURRENTLY ACTIVE	No SPO has been done.
4300	POLLER BMT 3780 COMMAND LENGTH EXCEEDED 48 CHARACTERS	Length of 3780 BMT command exceeds 48 characters.
4307		See 5700
4400	POLLER HAS NO LINES SPECIFIED IN POLLER DATABASE FILE	SPO failed, no line entries in PDB file.
4500	POLLER ILLEGAL COMMAND FOR THIS TERMINAL TYPE	An illegal command for the type of terminal being polled was found in the terminal procedure data base.
46	POLLER HPO REQUEST INITIATED	HPO began satisfactorily.
47	POLLER RPO REQUEST INITIATED	RPO began satisfactorily.
48	POLLER TPO REQUEST INITIATED	TPO began satisfactorily.
49	POLLER APO REQUEST INITIATED	APO began satisfactorily.
4A	POLLER ALO REQUEST INITIATED	ALO began satisfactorily.
4B	POLLER TLO REQUEST INITIATED	TLO began satisfactorily.
4C	POLLER SLO REQUEST INITIATED	SLO began satisfactorily.
4D	POLLER MANUAL REQUEST INITIATED	Manual request began satisfactorily.

Code	Message	Action/Explanation
4E00	POLLER RECEIVE FROM FILE MUST BE SPECIFIED	When polling a remote 990, a FROM file must be specified.
4F00	POLLER 3780 EMULATOR NOT ACTIVE	The 3780 Emulator being used with a Poller line has been killed.
50XX	POLLER ASSIGNING LUNO TO "POLLMSGS" FILE UNSUCCESSFUL	Check that file POLLER.POLLMSGS exists; if not, then restore the file from the distribution media and write/delete protect file.
51XX	POLLER OPENING "POLLMSGS" FILE UNSUCCESSFUL	See 5000
52XX	POLLER READ ERROR ON "POLLMSGS" FILE	See 5000
53XX	POLLER READ ERROR ON "POLLMSGS"; ERROR CODE DOES NOT EXIST	Poller error not found in .POLLER.POLLMSGS. Submit STR.
5400	POLLER INVALID CTRL3780 COMMAND	An invalid CTRL3780 command was found in the terminal procedure data base.
5500	POLLER PREVIOUSLY INVOKED TASK STILL RUNNING	Terminal procedure data base error; a second invoke command was attempted prior to the first task terminating.
5600	POLLER TERMINAL ABMS DON'T MATCH	The supplied ABM for the terminal (TDB) did not match the received ABM; the session was terminated.
5700	POLLER GOT NO RESPONSE FROM 3780 EMULATOR	Activation of 3780 failed; probably wrong version of DX3780 (must be 4.0.x); see also Poller error 0700.

LOG FILE ERROR CODES

To interpret the errors returned in the ERROR column of the display/report generated by the List Log File (LLF) and Show Log File (SLF) tasks, consult the following reference documents:

Error	Source	Reference
00XX	763/765 767/769	*763/765 Operating Instructions* *767/769 Systems Manual*
40XX	TTY	*BMTS-990 User's Guide*
41XX	TTY	*DX10 Error Reporting and Recovery Manual (Vol VI)*
42XX	TTY	*BMTS-990 User's Guide*
XXXX	3780	*DX3780 Emulator User's Guide*
4307	POLLER	DX10 Poller Errors (see above)
4500	POLLER	
4E00	POLLER	
4F00	POLLER	
5400	POLLER	
5500	POLLER	
5600	POLLER	
5700	POLLER	
XXXX	DX10	*DX10 Error Reporting and Recovery Manual (Vol VI)*
000A	DX10	If this error occurs after an INVOKE on a TTY line, the BMTS-990 timed out the line operation and disconnected the line during the INVOKE.

Appendix C

Remote Terminal Characteristics

C.1 MODELS 763/765 BUBBLE MEMORY TERMINALS

The following display shows an appropriate status setting for Models 763/765 Bubble Memory Terminals using an external, 1200-baud, full-duplex modem to interface with the Poller via the Bubble Memory Terminal Support (BMTS-990) communications subsystem:

```
>STATUS
LINE MODE:        EIA/ 1200 BAUD/ EVEN PARITY/ FULL DUPLEX/
OPTIONS ON:       PCHECK/ AUTOABM/ EOTDIS/ EDC/ DC3/ DC1.3/ DC2.4/
OPTIONS OFF:      ABMPRT/ BUFFER/
ABM:              User specified
RECORD FILE:
PLAYBACK FILE:
TRANSMIT EOL:     cr
RECEIVE EOL:      cr
KEY:
```

NOTE

The ABM should include the terminal number (for example, BMT001, where 001 is the terminal number). The baud rate and duplex are dependent on the modem being used.

The following status is appropriate when communicating with a Model 765 terminal via the acoustic coupler:

```
>ST
LINE MODE:        INTERNAL/ 300 BAUD/ EVEN PARITY/ FULL DUPLEX/
OPTIONS ON:       PCHECK/ AUTOABM/ EOTDIS/ EDC/ DC3/ DC1.3/ DC2.4/
OPTIONS OFF:      ABMPRT/ BUFFER/
ABM:              BMT002
RECORD FILE:
PLAYBACK FILE:
TRANSMIT EOL:     cr
RECEIVE EOL:      cr
KEY:
```

C.2 MODELS 767/769 BUBBLE MEMORY TERMINALS

The following display shows the appropriate settings for polling a Model 767/769 Bubble Memory Terminal via the DX10 3780 Emulator:

```
>REP 3780 FILE = User determined
POR:  P1          ENQ:  20
SPE:  SYNC        BID:  20
DUP:  FULL        NAK:  20
MOD:  SLAVE       NOR:  POWUP
BLO:  512         ABN:  POWUP
DEL:  0           ALT:
NOA:  180         ID:   <terminal ID>
```

NOTE

Modems operating in full duplex include Bell 212A and Vadic 34XX. Modems operating in half duplex include Bell 201C compatible modems. File POWUP, which is specified for normal and abnormal disconnects, restarts the 3780 task. It might contain EXE 3780 FILE = CM3780, for example.

C.3 REMOTE 990 TERMINAL

The following list identifies the 3780 Emulator parameter settings required to enable a remote 990 terminal to communicate with the Poller:

VFC set to OFF
RPN set to ON
SRQ set to ON

The remote 990 must be executing the 3780 Emulator task with an Answer (ANS) command outstanding. The remote 990 terminal must detect an abnormal disconnect and reissue the ANS command.

When a terminal procedure for a remote 990 terminal includes the keyword SEND, it must specify a destination (TO) file or the data is sent to the default punch file.

When the Poller receives data files from a remote 990 terminal, the values of 3780 parameters RPRRL, TY, and CE supplied for the Poller determine how the file is received. When a terminal procedure includes the keyword RECEIVE, it must specify the source (FROM) file or the Poller issues an error message (>4E00).

Appendix D

ASCII Code Chart

Table D-1 shows the American National Standard Code for Information Interchange (ASCII) used in communications with remote terminals.

Table D-1. ASCII Code

Hexadecimal Value	Decimal Value	Character	Hexadecimal Value	Decimal Value	Character
00	00	NUL	23	35	#
01	01	SOH	24	36	$
02	02	STX	25	37	%
03	03	ETX	26	38	&
04	04	EOT	27	39	'
05	05	ENQ	28	40	(
06	06	ACK	29	41	)
07	07	BEL	2A	42	*
08	08	BS	2B	43	+
09	09	HT	2C	44	,
0A	10	LF	2D	45	-
0B	11	VT	2E	46	.
0C	12	FF	2F	47	/
0D	13	CR	30	48	0
0E	14	SO	31	49	1
0F	15	SI	32	50	2
10	16	DLE	33	51	3
11	17	DC1	34	52	4
12	18	DC2	35	53	5
13	19	DC3	36	54	6
14	20	DC4	37	55	7
15	21	NAK	38	56	8
16	22	SYN	39	57	9
17	23	ETB	3A	58	:
18	24	CAN	3B	59	;
19	25	EM	3C	60	<
1A	26	SUB	3D	61	=
1B	27	ESC	3E	62	>
1C	28	FS	3F	63	?
1D	29	GS	40	64	@
1E	30	RS	41	65	A
1F	31	US	42	66	B
20	32	SP	43	67	C

Table D-1. ASCII Code (Continued)

Hexadecimal Value	Decimal Value	Character	Hexadecimal Value	Decimal Value	Character
21	33	!	44	68	D
22	34	"	45	69	E
46	70	F	63	99	c
47	71	G	64	100	d
48	72	H	65	100	e
49	73	I	66	101	f
4A	74	J	67	102	g
4B	75	K	68	103	h
4C	76	L	69	104	i
4D	77	M	6A	106	j
4E	78	N	6B	107	k
4F	79	O	6C	108	l
50	80	P	6D	109	m
51	81	Q	6E	110	n
52	82	R	6F	111	o
53	83	S	70	112	p
54	84	T	71	113	q
55	85	U	72	114	r
56	86	V	73	115	s
57	87	W	74	116	t
58	88	X	75	117	u
59	89	Y	76	118	v
5A	90	Z	77	119	w
5B	91	[	78	120	x
5C	92	\	79	121	y
5D	93	]	7A	122	z
5E	94	^	7B	123	{
5F	95	—	7C	124	|
60	96	`	7D	125	}
61	97	a	7E	126	~
62	98	b	7F	127	DEL

Appendix E

ASCII/EBCDIC Conversion Chart

Table E-1 shows the conversion from American National Standard Code for Information Interchange (ASCII) to Extended Binary-Coded Decimal Interchange Code (EBCDIC).

Table E-1. ASCII-to-EBCDIC Conversion

ASCII VALUE	ASCII CHAR	EBCDIC VALUE	EBCDIC CHAR	ASCII VALUE	ASCII CHAR	EBCDIC VALUE	EBCDIC CHAR
00	NUL	00	NUL	20	SPACE	40	SPACE
01	SOH	01	SOH	21	!	5A	!
02	STX	02	STX	22	"	7F	"
03	ETX	03	ETX	23	#	7B	#
04	EOT	37	EOT	24	$	5B	$
05	ENQ	2D	ENQ	25	%	6C	%
06	ACK	2E	ACK	26	&	50	&
07	BEL	2F	BEL	27	'	7D	'
08	BS	16	BS	28	(	4D	(
09	HT	05	HT	29	)	5D	)
0A	LF	25	LF	2A	*	5C	*
0B	VT	0B	VT	2B	+	4E	+
0C	FF	0C	FF	2C	,	6B	,
0D	CR	0D	CR	2D	-	60	-
0E	SO	0E	SO	2E	.	4B	.
0F	SI	0F	SI	2F	/	61	/
10	DLE	10	DLE	30	0	F0	0
11	DC1	11	DC1	31	1	F1	1
12	DC2	12	DC2	32	2	F2	2
13	DC3	13	TM	33	3	F3	3
14	DC4	3C	DC4	34	4	F4	4
15	NAK	3D	NAK	35	5	F5	5
16	SYN	32	SYN	36	6	F6	6
17	ETB	26	ETB	37	7	F7	7
18	CAN	18	CAN	38	8	F8	8
19	EM	19	EM	39	9	F9	9
1A	SUB	3F	SUB	3A	:	7A	:
1B	ESC	27	ESC	3B	;	5E	;
1C	FS	1C	IFS	3C	<	4C	<
1D	GS	1D	IGS	3D	=	7E	=
1E	RS	1E	IRS	3E	>	6E	>
1F	US	1F	IUS	3F	?	6F	?

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Table E-1. ASCII-to-EBCDIC Conversion (Continued)

ASCII VALUE	ASCII CHAR	EBCDIC VALUE	EBCDIC CHAR
40	@	7C	@
41	A	C1	A
42	B	C2	B
43	C	C3	C
44	D	C4	D
45	E	C5	E
46	F	C6	F
47	G	C7	G
48	H	C8	H
49	I	C9	I
4A	J	D1	J
4B	K	D2	K
4C	L	D3	L
4D	M	D4	M
4E	N	D5	N
4F	O	D6	O
50	P	D7	P
51	Q	D8	Q
52	R	D9	R
53	S	E2	S
54	T	E3	T
55	U	E4	U
56	V	E5	V
57	W	E6	W
58	X	E7	X
59	Y	E8	Y
5A	Z	E9	Z
5B	[	4A	¢
5C	\	E0	\
5D	]	4F	|
5E	^	5F	¬
5F	-	6D	-

ASCII VALUE	ASCII CHAR	EBCDIC VALUE	EBCDIC CHAR
60	`	79	`
61	a	81	a
62	b	82	b
63	c	83	c
64	d	84	d
65	e	85	e
66	f	86	f
67	g	87	g
68	h	88	h
69	i	89	i
6A	j	91	j
6B	k	92	k
6C	l	93	l
6D	m	94	m
6E	n	95	n
6F	o	96	o
70	p	97	p
71	q	98	q
72	r	99	r
73	s	A2	s
74	t	A3	t
75	u	A4	u
76	v	A5	v
77	w	A6	w
78	x	A7	x
79	y	A8	y
7A	z	A9	z
7B	{	C0	{
7C	¦	6A	¦
7D	}	D0	}
7E	~	A1	~
7F	DEL	07	DEL

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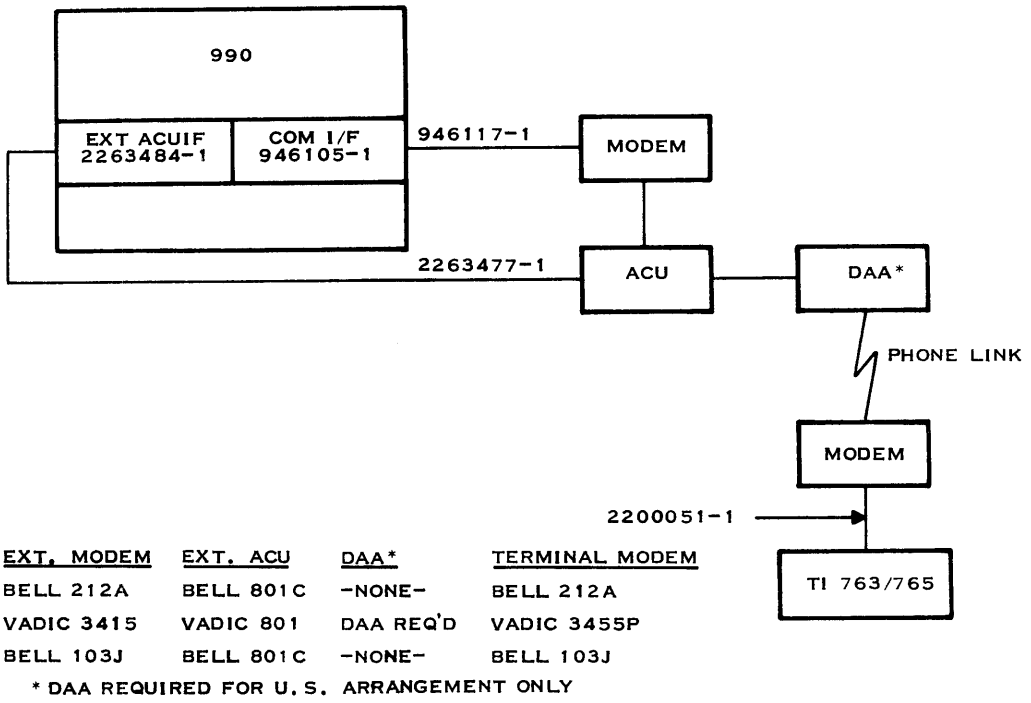
Appendix F

Communications Cabling Diagrams

This appendix includes diagrams of the various cabling configurations for terminals that communicate with the Poller. Refer to Figure F-1 when installing or testing the communications hardware for a Model 763/765 Bubble Memory Terminal. Refer to Figure F-2 for similar information related to an external modem and ACU for a Model 767/769 Bubble Memory Terminal. Figure F-3 shows the cabling configuration for an internal modem and ACU communicating with a Model 767/769 Bubble Memory Terminal.

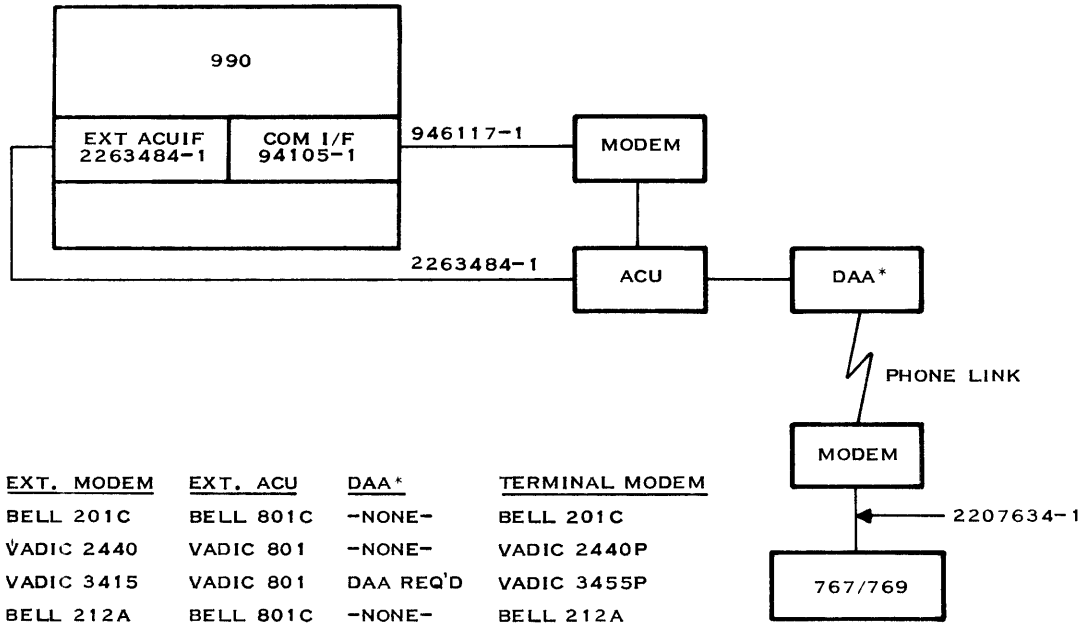


EXT. MODEM	EXT. ACU	DAA*	TERMINAL MODEM
BELL 212A	BELL 801C	-NONE-	BELL 212A
VADIC 3415	VADIC 801	DAA REQ'D	VADIC 3455P
BELL 103J	BELL 801C	-NONE-	BELL 103J

* DAA REQUIRED FOR U.S. ARRANGEMENT ONLY

2280983

Figure F-1. Cabling Diagram for Asynchronous, Full-Duplex TTY Communications



EXT. MODEM	EXT. ACU	DAA*	TERMINAL MODEM
BELL 201C	BELL 801C	-NONE-	BELL 201C
VADIC 2440	VADIC 801	-NONE-	VADIC 2440P
VADIC 3415	VADIC 801	DAA REQ'D	VADIC 3455P
BELL 212A	BELL 801C	-NONE-	BELL 212A

*DAA REQUIRED FOR U.S. ARRANGEMENT ONLY

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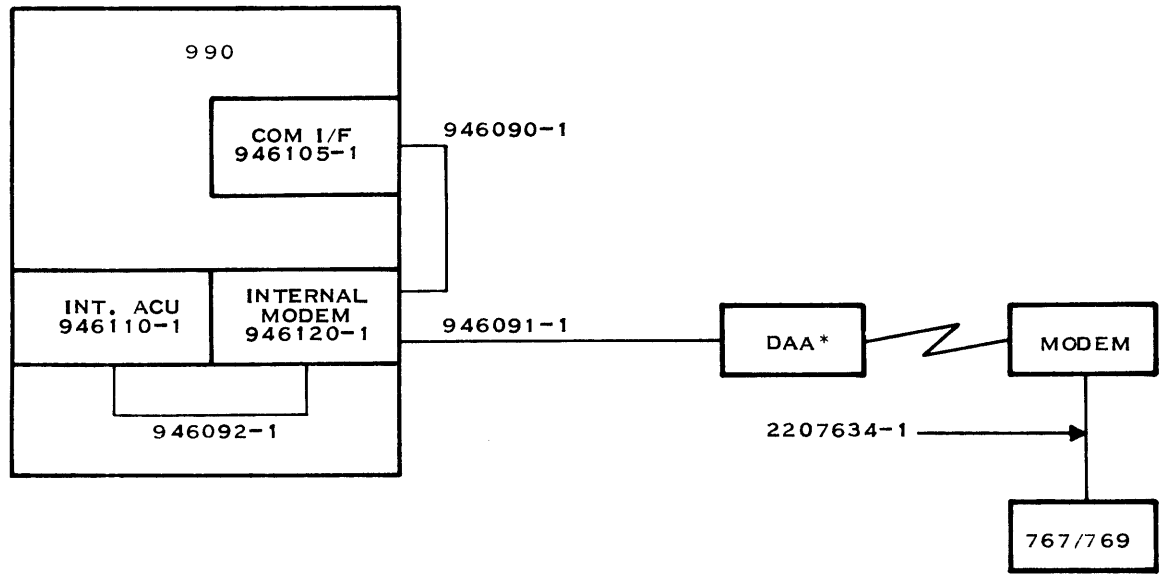
Figure F-2. Cabling Diagram for 3780 Emulator Using External ACU and Modem



INT. MODEM	INT. ACU	DAA*	TERMINAL MODEM
946120-0001	946110-0001	DAA REQ'D	BELL 201C COMPATIBLE

2280985 *DAA REQUIRED FOR U.S. ARRANGEMENT ONLY

Figure F-3. Cabling Diagram for 3780 Emulator Using Internal ACU and Modem

Glossary

This glossary contains Poller terms and other terms that have a special usage in this manual.

ABM — See Answerback Memory.

Activity Session — All commands and file data transferred between the Poller and the remote terminal. The activities are described by the activity template and the terminal procedure data base(s) for that terminal.

Activity Template — The DX10 disk file that contains the generic description of the activities (procedures) to be performed with the remote terminal during the activity session.

Answerback Memory — An identifying sequence of characters stored in the terminal and transmitted to identify the terminal. For dial-in operation with the Poller, the answerback memory must contain the terminal number as the last three characters.

Line — The communications line that the Poller uses to communicate with the remote terminal. The line is described to the Poller as a TTY line (STxx) or a 3780 line (CMxx).

Log Event — The type of data to be logged by the Poller to a particular log file or device. The specifiable types are all (everything), normal sessions, aborted sessions, uninitiable sessions, errors, and statistics.

Log File or Device — The DX10 disk file or device to which a specific type of log event data is logged. The device may be a 911 VDT (STxx), a line printer (LPxx) or a magnetic tape drive (MTxx).

Network Administrator — The person within the user organization who is responsible for maintaining the contents of the various Poller data bases.

Operator — The person within the user organization who is responsible for the day-to-day operations of the Poller.

Poller Data Base — A DX10 disk file that contains the list of physical resources (lines) and log files or log devices that the Poller uses during the polling activity.

Poller Occurrence Number — The run-time ID of the Poll Master Task (PMT) that DX10 assigns when the operator starts the Poller by entering a Start Poller Operation (SPO) or Test Poller Operation (TEST) command. The Poller occurrence number is a hexadecimal number that is retained in a synonym (OCC) for the user/terminal that started the Poller. Several of the Poller commands use this hexadecimal value as a response.

Polling Activity — All activity sessions that the Poller performs.

Port — See Line.

Procedure — An entity within the terminal procedure data base that details the exact actions to perform between the Poller and the remote terminal.

Remote Terminal — A terminal that communicates with the Poller.

Terminal Data Base — A DX10 disk file that contains the physical attributes of all terminals in the terminal list specified for the polling activity.

Terminal List — A DX10 disk file that contains a list of the numbers of the terminals to poll during the polling activity.

Terminal Number — A unique, three-digit number associated with a particular terminal in the user's network. Generally, the digits of the terminal number are also the last three characters of the answerback memory of the terminal. The range of terminal numbers is from 001 to 999.

Terminal Procedure Data Base — A DX10 disk file that contains the specific commands and DX10 or terminal file names for the activity session. These commands are organized into procedures that are referenced by the activity template associated with the particular terminal.

Alphabetical Index

Introduction

HOW TO USE INDEX

The index, table of contents, list of illustrations, and list of tables are used in conjunction to obtain the location of the desired subject. Once the subject or topic has been located in the index, use the appropriate paragraph number, figure number, or table number to obtain the corresponding page number from the table of contents, list of illustrations, or list of tables.

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The following index lists key words and concepts from the subject material of the manual together with the area(s) in the manual that supply major coverage of the listed concept. The numbers along the right side of the listing reference the following manual areas:

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  Tx-yy

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  Fx-yy

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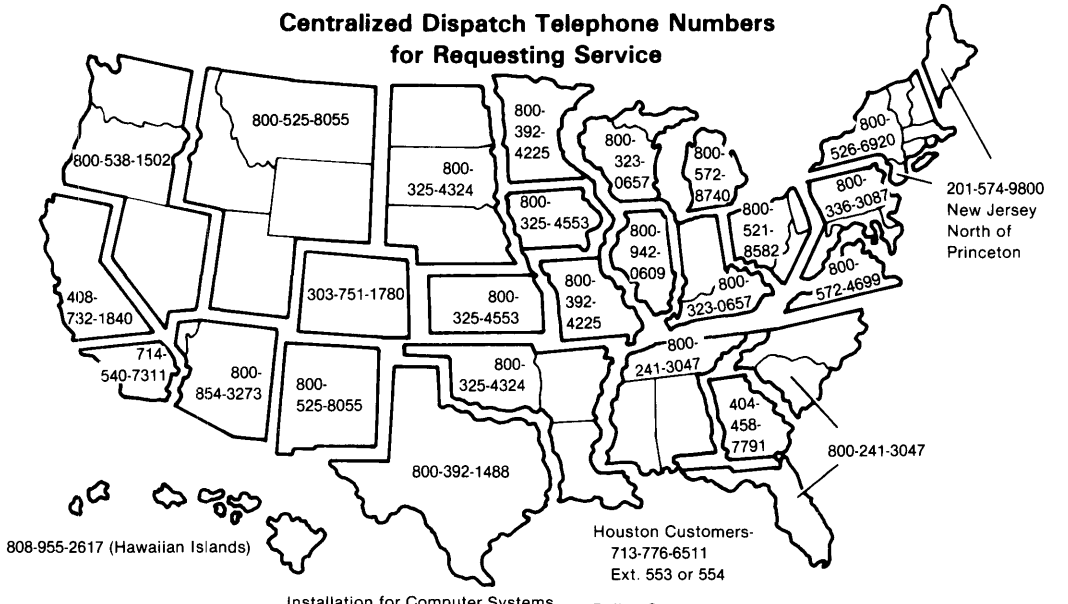

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