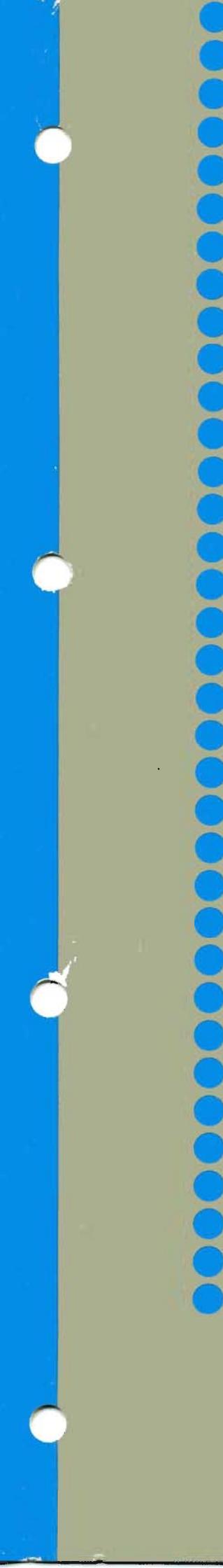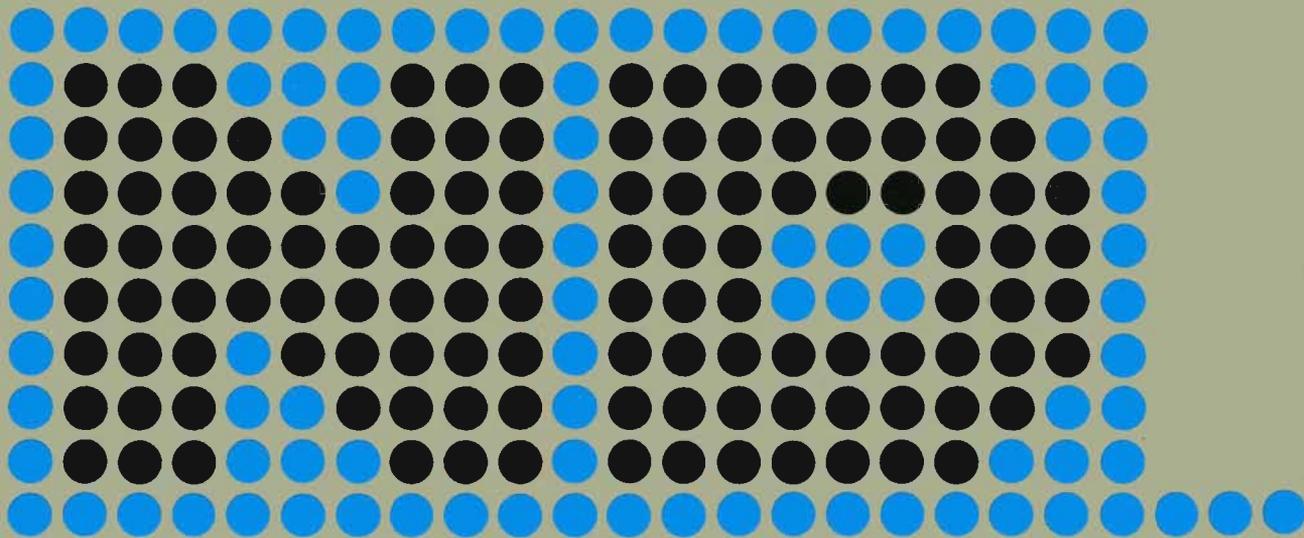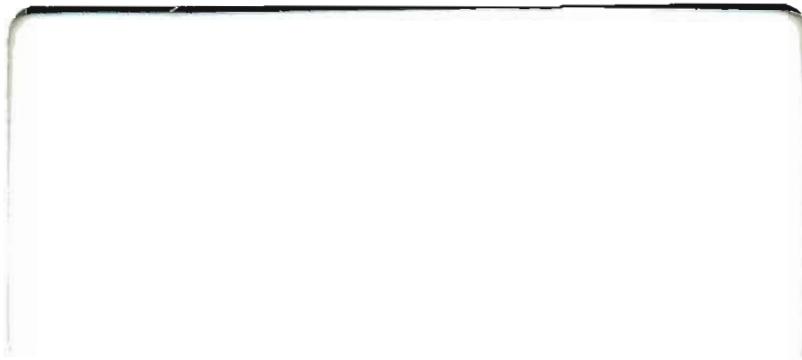# Norsk Data

TELEFIX-MINI
Reference Manual

ND-60.239.1 EN

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Reference Manual

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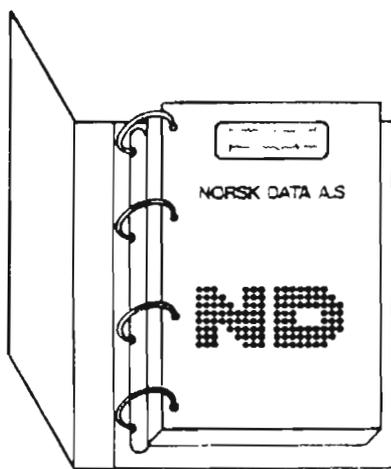
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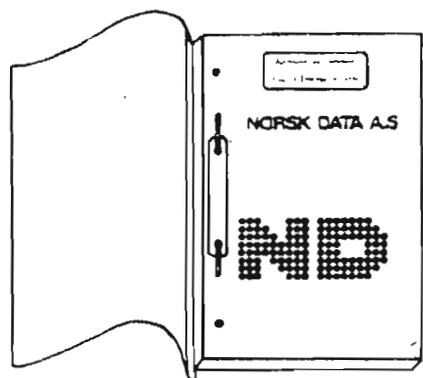
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Preface:

THE PRODUCT

This manual describes the product:

> **TELEFIX-MINI**   ND-10773B

Telefix-mini is a stripped version of Telefix, an internal ND tool for hardware and software maintenance on ND computers.

PREREQUISITE KNOWLEDGE

The user of this manual should be familiar with SINTRAN III and the hardware and software to be tested.

RELATED MANUALS

All manuals for the systems you want to test.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1 INTRODUCTION

The Telefix-mini program is a stripped version of the ND TELEFIX
system. It allows you to operate remote computers, from the computer
where Telefix-mini is installed, through standard telephone line
connections with modems. To make the connection possible, the remote
machine must have a control panel with Telefix, or be equipped with
an ND-375 Telefix adaptor, connected to a modem attached to the public
network. Telefix-mini enables you to:

- Enter into direct contact with a remote system.

- Transfer files to and from a remote system while SINTRAN III
  is running.

- Place stand-alone binary programs in a remote computer's main
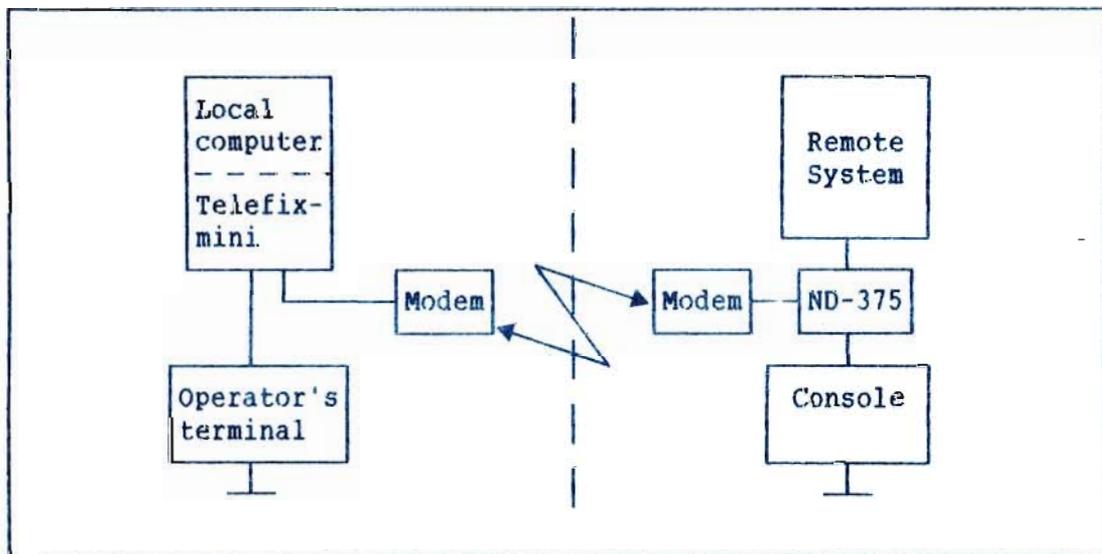 memory while it is in stop mode.

Figure 1. Telefix-mini installation.

The Telefix adaptor, ND-375, allows you to enter the remote system
through the terminal 1 interface, the system console. You may enter
through any terminal line, but in order to place a binary program into
the remote system's main memory you must enter through terminal line
1.

CHAPTER 2

INSTALLATION

2 INSTALLATION

2.1 Hardware installation

The following equipment is required:

On the local computer
- An ND-100 computer with asynchronous line interfaces (ND-271, ND-272) switched to V24 mode.

- Asynchronous modem, corresponding to the transfer speed needed, connected to the public network and to the ND-100 interfaces.

- Terminals from which to run the system. Any terminal is suitable, but it must have a working speed greater than the corresponding modem transfer speed.

- The necessary number of modems and terminals according to the expected work load. One Telefix-mini work station uses one terminal and one modem.

On the remote computer
- An ND-375 Telefix adaptor connected to the ND-100 interface, the console and a modem.

- Asynchronous modem corresponding to the transfer speed needed, connected to the public network and to the ND-375 Telefix adaptor.

- The hardware installations on the remote site and the use of the Telefix adaptor are described in an ND-375 Telefix adaptor reference card.

2.2 Software installation

The Telefix-mini programs are delivered on two diskettes:

Telefix-mini ND-10773   To be installed on local site

Telefix files for user site ND-10375   To be installed on remote site

The procedure for installing the programs both on the local and the remote computer is explained on the Program Description sheet which comes with the diskettes.

C H A P T E R   3

USING TELEFIX-MINI

3 USING TELEFIX-MINI

This chapter gives a summary of the Telefix-mini commands and brief,
proposed solutions to different error situations.

3.1 The Telefix-mini commands

Telefix-mini commands are treated the same way as the commands in
SINTRAN III, that is the parameters are separated by a space or a
comma and missing parameters are asked for.

```
HELP            <command>

CONNECT-LINE    <device number>

DISCONNECT-LINE

STATUS

DEFINE-SINTRAN-PROMPT

SEND-FILE   <destination> <source> <from page>

GET-FILE    <destination> <source> <from page>

PLACE-BINARY   <BPUN file name>

CHANGE-EXIT-CHARACTER

MANUAL-MODE

EXIT

@<SINTRAN command>
```

Table 1. The Telefix-mini commands.

3.2 File transfer

The file transfer is done by the help of two programs in the remote
computer, a receiver program and a transmitter program. Data packets
are used for the transmission, and the packet size is automatically
adjusted according to the quality of the communication line. To
transfer files, use the commands SEND-FILE and GET-FILE.

3.3 SEND-FILE and GET-FILE initialization

Before executing the transfer file commands, SEND-FILE and GET-FILE,
Telefix-mini will log in on the remote system and start the receiver
or transmitter program.

The log-in procedure is displayed on the operator's terminal screen.
The log-in may fail if the remote system's background processor is
already working. You should then enter the manual mode and stop the
running program before restarting the transfer command.

3.4 Transmission errors

The communication protocol handles transmission errors by making
renewed attempts. Each time an error is detected, the packet size is
reduced to about half its previous value. It will be increased again
when 5 consecutive packets have been transmitted without errors, and
the total number of retransmissions has not exceeded a value which
depends on the last used packet size.

> The program allows a maximum of 4 attempts for each packet.

> The operator's terminal bell is activated when transmission
> errors are detected.

> The command STATUS will list the numbers of attempts made during
> the last file transfer.

When a transfer command (that is SEND-FILE or GET-FILE) is terminated,
the receiver and the transmitter program will normally be aborted
regardless of what caused the termination. But should either of these
programs "hang", it may be stopped by sending 3 consecutive ESCAPEs on
the communication line, using the manual mode.

3.5 No answer on remote connection

After the physical connection has been established, with the command
CONNECT-LINE, it is advisable to try the MANUAL-MODE to see if the
communication works correctly. Do not forget the EXIT character which
will allow you to leave the manual mode. The EXIT character may be
listed with the command STATUS.

If the remote system does not react to ESCAPE while SINTRAN runs, or
to any other key while in stop mode, the following must be checked:

> - Is the line lost? Check if carrier signals from the
>   modem are still present. This is done by looking
>   directly at the modem indicators.

> - At the remote site: Make sure that the Telefix
>   adaptor is correctly connected and in REMOTE mode.
>   Check if the system is in the expected state, if
>   SINTRAN III is running, or if the system is stopped

and OPCOM active.

- The transfer speeds for the remote system console
  channel, the two modems, and the local system's
  communication line are the same.

- Interface and driver on both sites are compatible
  with regard to the number of data bits, stop bits,
  and parity.

- Modems on both sites are compatible. The connection
  is established in both directions, and not only in a
  single one.

- Modem cables are correctly connected. Communication
  interface on the local computer is set up in V24 mode
  and not in current loop mode.

- The quality of the telephone may be bad. Try to call
  again, in order to get another line from the public
  network.

3.6 Disturbance during transfer

If the communication runs, but with rubbish or lost characters, do as
follows:

- Check the modem compatibility, interface, and driver
  compatibility for frame configuration.

- Try to call again in order to obtain another
  public network line.

- Try a lower transmission speed if possible.

It is also possible to perform a modem test with the command
TEST-MODEM. The modem at the local site may be tested alone if it is
possible to place it in a test mode configuration (control signals
active, data out and in looped together). If the modem at the remote
site is placed in test mode, the two modems plus the communication
line are tested.

3.7 Communication dead

The communication may suddenly be interrupted due to hardware failures
in the line itself, because the public network line has gone down or
due to the modems having lost connection.

3.8 No reaction to SINTRAN commands to the remote system

It may happen that although the communication is established, the
remote system doesn't execute SINTRAN commands given from the local
system. No error message is received, and the echo returned from your
input looks correct.

The reason could be that non-printable codes are inserted in your
command string. These are extra ASCII DEL codes (all one bit) coming
from signals injected into the telephone line, probably at the remote
system site. This happens with special electronic switchboards which
have a scanning system for lines, made of signals with about the same
frequency as the modem carrier. If you have this problem, you must, in
order to use Telefix-mini, install an extra telephone line outside the
switchboard.

C H A P T E R   4

THE TELEFIX-MINI COMMANDS

4 THE TELEFIX-MINI COMMANDS

This chapter contains the Telefix-mini commands in alphabetical order, with explanations to each command.

Command name : *CHANGE-EXIT-CHARACTER*		
No:	Parameter Name:	Default Value:
1	⟨NO PARAMETERS⟩	

EXPLANATION: The exit character is used to return to the local machine when one is working online in manual mode on the remote system. All other characters are transmitted via the communication line. The exit character is predefined as ASCII NUL (CTRL+@). The command CHANGE-EXIT-CHARACTER allows you to change this character.

Command name : *CONNECT-LINE*	
No:	**Parameter Name:**	**Default Value:**
1	<device number>	

Related Commands: DISCONNECT-LINE
                   TEST-MODEM

EXPLANATION: Enables the communication with the remote system.

<device number>   -   The SINTRAN logical unit number corresponding to
                          the asynchronous line which is to be used for the
                          communication. If nothing else is specified the
                          number is by default treated as decimal. An octal
                          number must be followed by the letter B.

```
+--------------------------------------------------------------------+
|                                                                    |
|   Command name : DEFINE-SINTRAN-PROMPT                             |
|                                                                    |
+-----+----------------------------------+---------------------------+
| No: | Parameter Name:                  | Default Value:            |
+-----+----------------------------------+---------------------------+
|  1  | <NO PARAMETERS>                  |                           |
+-----+----------------------------------+---------------------------+
```

Related Commands: SEND-FILE
                  GET-FILE

EXPLANATION: When one of the transfer file commands is used, either
SEND-FILE or GET-FILE, or when working in remote mode, Telefix-mini
has to log in on the remote system. When logging in, Telefix-mini must
be able to recognize the SINTRAN prompt. If the SINTRAN prompt on the
remote machine is something else than the usual @, this prompt must be
made known to Telefix-mini through the command DEFINE-SINTRAN-PROMPT.

Command name : *DISCONNECT-LINE*		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Related Commands: CONNECT-LINE

EXPLANATION: Disconnects the line previously specified with the
command CONNECT-LINE.

Command name : *EXIT*		
No:	Parameter Name:	Default Value:
1	⟨NO PARAMETERS⟩	

EXPLANATION: Terminates the Telefix-mini program and returns you to
SINTRAN. Disconnects the communication line, if connected.

```
┌─────────────────────────────────────────────────────────────────────────┐
│                                                                           │
│   Command name : GET-FILE                                                 │
│                                                                           │
├────┬────────────────────────────────┬─────────────────────────────────────┤
│    │                                │                                     │
│ No:│  Parameter Name:               │  Default Value:                     │
│    │                                │                                     │
├────┼────────────────────────────────┼─────────────────────────────────────┤
│ 1  │  <destination>                 │                                     │
│ 2  │  <source>                      │                                     │
│ 3  │  <from page>                   │  <0>                                │
│    │                                │                                     │
└────┴────────────────────────────────┴─────────────────────────────────────┘
```

Related Commands: SEND-FILE

EXPLANATION: Transfers a file in the remote system to a specified file
in the local system. The transmitter program in the remote system will
be used and must be available. Any file type of any length may be
transferred. The transfer progress is constantly displayed on the
operator's terminal. The transfer may be aborted with ESCAPE.

<destination>   - Name of the destination file.
                     The following format must be used:

                     (Directory:user)filename:type;version

                     If no directory/user is given, the file will be
                     transferred to the area of the user presently
                     running Telefix-mini. New files must be specified in
                     quotation marks. Default file type is :SYMB.

<source>   - Consists of log-in information and file name of the
                     file to be transferred.
                     The following format must be used:

User(password:project password).(directory:user)filename:type;version

                                    │
├──────── log-in information ──────►│◄──────── source file name ─────────►│

                     If nothing is entered as log-in information, the
                     user name given in the source file name will be
                     entered as log-in user. If no user at all is
                     specified, FLOPPY-USER is entered as default.

<from page>   - The transfer will be started from the specified page
                     number in the file.

If the console on the remote site is a paper printer terminal, it may
be advisable to turn it off during file transfer. The reason for this
is to avoid getting a printout of all the control codes following the
file transfer, and of the file being transferred.

Command name : *HELP*	
No: **Parameter Name:**	**Default Value:**
1 \<command\>	\<all commands\>

EXPLANATION: Lists the available commands in Telefix-mini.

Command name : *MANUAL-MODE*		
No:	Parameter Name:	Default Value:
1	<NO PARAMETERS>	

Related Commands: CONNECT-LINE

EXPLANATION: Makes a direct connection between the operator's terminal
and the line specified in the command CONNECT-LINE, i.e., enables a
direct contact to the remote system.

You go out of the manual-mode with the EXIT character (CTRL+@ if
nothing else is defined).

If characters have already been received in the input buffer when
entering the manual-mode, a message is displayed asking if you want to
clear the buffer.

```
+-----------------------------------------------------------------+
|                                                                 |
|    Command name : PLACE-BINARY                                  |
|                                                                 |
+------+--------------------------------+-------------------------+
|      |                                |                         |
| No:  | Parameter Name:                | Default Value:          |
|      |                                |                         |
+------+--------------------------------+-------------------------+
|      |                                |                         |
|  1   | <BPUN file name>               |                         |
|      |                                |                         |
+------+--------------------------------+-------------------------+
```

Rules . . . . . : This command may only be used if the connection into
                  the remote system is through the terminal 1
                  interface.

EXPLANATION: Loads a stand-alone program into the remote system, which
must be stopped and have OPCOM active. Transfers the file <BPUN file
name> to the remote system. When the binary file transfer and load are
finished, the remote system stops and the PLACE-BINARY command is
terminated. You may now enter the **MANUAL-MODE** and start the
transferred program. A continue command (!) will start the program
execution.

The command executes the following:

A small program taken from the file TELEFIX--BOOT:BPUN is loaded with
OPCOM to the remote system's memory address 0 and started. A receiver
program from the file TELEFIX--BPUN:BPUN is loaded through this
bootstrap program. The receiver program handles the communication
procedure. It will establish communication with Telefix-mini and
transfer the file <BPUN file name>. The remote CPU's B register has
been loaded with the program start address, and the P register points
to the instruction JMP B.

The receiver program working stand-alone in the remote system may be
interrupted by sending three consecutive ESCAPEs to the remote system.

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│     Command name : SEND-FILE                                      │
│                                                                   │
├─────┬──────────────────────────────────┬──────────────────────────┤
│ No: │  Parameter Name:                 │  Default Value:          │
├─────┼──────────────────────────────────┼──────────────────────────┤
│  1  │  <destination>                   │                          │
│  2  │  <source>                        │                          │
│  3  │  <from page>                     │  <0>                     │
└─────┴──────────────────────────────────┴──────────────────────────┘
```

Related Commands: GET-FILE

EXPLANATION: Transfers the file specified in the parameter <source> to
the remote system. The receiver program in the remote system will be
used and must be available. Any file type of any length may be
transferred. The transfer progress is constantly displayed on the
operator's terminal. The transfer may be aborted with ESCAPE.

<destination>   - Log-in information for the remote system and name of
                     the destination file.

                     The following format must be used:

User(password:project password).(directory:user)filename:type;version

```
                            |
 •────── log-in information ────→|←──── destination file-name ─────→
```

                     If nothing is entered as log-in information, the
                     user name appearing in the destination file name
                     will be entered as log-in user. If no user at all is
                     specified, FLOPPY-USER will be entered as default.
                     Default file type is SYMB.

<source>   File name of the file to be transferred. The
                   following format must be used:

                   (Directory:user)filename:type;version

                   If no directory/user is given, the file will be
                   looked for in the area of the user presently running
                   Telefix-mini.

<from page>   - The transfer will be started from the specified page
                     number in the file.

If the console on the remote site is a paper printer terminal, it may
be advisable to turn it off during file transfer. The reason for this
is to avoid getting a printout of all the control codes following the
file transfer, and of the file being transferred.

Command name : *STATUS*		
No:	Parameter Name:	Default Value:
1	⟨NO PARAMETERS⟩	

EXPLANATION: Displays current state information. The following
information is given:

      The device number of the connected line.

      The value of the exit character.

      The value of the remote system SINTRAN prompt.

      The number of attempts made during the last file transfer
      command execution.

```
+-------------------------------------------------------------------+
|                                                                   |
|    Command name : TEST-MODEM                                       |
|                                                                   |
+------+------------------------------------+-----------------------+
| No:  | Parameter Name:                    | Default Value:        |
+------+------------------------------------+-----------------------+
|  1   | <NO PARAMETERS>                    |                       |
+------+------------------------------------+-----------------------+
```

Related Commands: CONNECT-LINE

EXPLANATION: Tests the modems.

If it is possible to place the modem at the local site in a test mode
configuration (control signals active, data out and data in looped
together), it may be tested alone.

If the modem at the remote site is placed in a test mode, the two
modems plus the communication line are tested.

Index

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