TOPS–10
Remote Station Guide

AA–D783B–TB

July 1982

This manual is for use at a PDP–11–based remote station that has access to a TOPS–10 host. It contains information on both hardware and software for users and remote station operators.

This manual supersedes the *TOPS–10 DN200 Remote Station Guide*, AA–D783A–TB.

OPERATING SYSTEM: TOPS–10 V7.01

SOFTWARE: CHK11 V3(66)
DN82/DN200 V23(152)
NETLDR V3(144)
OPR V4(344)
GLXLIB V1(767)

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CONTENTS

CHAPTER 1 INTRODUCTION

1.1 TOPS-10 REMOTE STATIONS AND CONCENTRATORS 1-1
1.1.1 The DN80-Series Remote Station and Concentrator 1-2
1.1.2 The DN200 Remote Station 1-2

CHAPTER 2 OPERATOR PROCEDURES

2.1 STARTUP 2-1
2.1.1 Starting the Station 2-2
2.1.2 Restarting the Station 2-3
2.1.3 Logging in at the TOPS-10 Host from the Remote Station 2-4
2.1.4 The Operator Interface 2-5
2.1.5 Relocating Your Station Devices 2-8
2.1.6 Starting Printer Scheduling 2-9
2.1.7 Starting Card Reader Scheduling 2-9
2.1.8 Starting Both Printer and Card Reader Scheduling 2-10
2.1.9 Using OPSER 2-10
2.2 AVAILABLE EQUIPMENT 2-11
2.2.1 LA36, the Operator's Console 2-11
2.2.2 Card Reader 2-13
2.2.3 Printer 2-16
2.2.4 Terminals 2-18

CHAPTER 3 USER PROCEDURES

3.1 USER FACILITIES 3-1
3.2 THE NETWORK COMMAND 3-2
3.3 PRINTING OUTPUT 3-2
3.4 SUBMITTING BATCH JOBS 3-3

CHAPTER 4 TROUBLE-SHOOTING

4.1 NORMAL OPERATION 4-1
4.2 WHEN PROBLEMS OCCUR 4-2

APPENDIX A ROM SWITCHES

CONTENTS (Cont.)

APPENDIX B NETLDR COMMAND STRINGS

B.1 DEFAULT LOAD REQUESTS B-2
B.2 LOADING EXAMPLES B-2

APPENDIX C PUNCHED CARD CODES

APPENDIX D GLOSSARY

APPENDIX E REMOTE STATION OPR COMMANDS

APPENDIX F USING SPECIAL PRINT FORMS

FIGURES

FIGURE 1-1 The DN82 Remote Station 1-2
1-2 DN82 Control Panel 1-2
1-3 The DN200 Remote Station 1-2
1-4 DN200 Control Panel 1-3
2-1 The System Operator 2-6
2-2 The Host Operator 2-6
2-3 The Remote Operator 2-6
2-4 Card Reader 2-14
2-5 Front Panel of Card Reader 2-14
2-6 Back Panel of Card Reader 2-15
2-7 LP05 Line Printer 2-17
B-1 A Default Load Path B-2
B-2 Using an Alternate Load Path B-3
C-1 A Punched Card C-1

TABLES

TABLE 1-1 Remote Station Components 1-1
2-1 Mode and Baud Rate Switches 2-12
2-2 Console Lamps 2-13
2-3 Card Reader Switches and Lamps 2-14
2-4 Card Reader Back Panel Switches 2-15
2-5 Printer Alarm Indicators 2-18
4-2 Station Messages 4-3
A-1 Remote Station ROM Switches A-1
B-1 NETLDR Bootstrap Switches B-1
C-1 ASCII Character Set C-2
C-2 ASCII Characters by Punched Rows C-5
E-1 OPR Command Functions E-1
E-2 OPR Objects E-2
E-3 OPR Commands E-4
F-4 LPFORM.INI Switches F-1

PREFACE

This guide provides information on using and operating PDP-11-based remote stations that can be connected to a host system running TOPS-10. Everyone using the remote station should read Chapter 1, "Introduction"; operators should read Chapter 2, "Operator Procedures," and Chapter 4, "Trouble-Shooting." Users can benefit from reading Chapter 3, "User Procedures," Sections 2.1.3, "Logging in at the TOPS-10 Host from the Remote Station," and 2.2.4, "Terminals." The appendixes contain descriptions of ROM switches, the NETLDR program, how to read dump files, punched card codes, a glossary, procedures for using special print forms, and OPR commands that can be issued at a remote station.

SUPPORTING DOCUMENTATION

Not all the TOPS-10 Software Notebooks will normally be available at the remote site, but the following documents should be:

Getting Started with DECsystem-10 (TOPS-10)	[DEC-10-XGSDA-A-D]
Operating System Commands Manual	[AA-0916D-TB]

The following documents describe other aspects of the system:

Networks Software Installation Guide	[AA-5156E-TB]
and its update	[AD-5156E-T1]
TOPS-10/TOPS-20 Batch Reference Manual	[AA-H374A-TK]
Operator's Guide	[AA-H283A-TB]
and its updates	[AD-H283A-T1]
	[AD-H283A-T2]
	[AD-H283A-T3]
Operator's Command Language Reference Manual	[AA-H599A-TB]
DDT11 Manual	[AA-J495A-TB]
INITIA System Initialization CUSP	[Software Notebooks]

NETLDR Remote Node Load and Dump Utility [Software Notebooks]

OPSER Operator Service Program [Software Notebooks]

CHK11 Reference Manual (System Programming Procedures and Techniques) [Software Notebooks]

The following symbols have been used in this manual:

Symbol	Meaning
(RET)	The RETURN key on the operator's console.
.	The TOPS-10 prompt character.
<key>	A key on the DN82 or DN200 control panel.
::=	Symbol indicates "is defined as" (in syntax specifications).
△	Required space in syntax specifications.
[]	An optional entry (in syntax specifications).
...	An entry of the previous type can be repeated (in syntax specifications).
<entry>	An entry in syntax specifications.
	Grey-shaded entries pertain to the DN200 only.
red print	What you type on your terminal.
black print	In examples, the system response.

REVISION HISTORY

This manual supersedes the TOPS-10 DN200 Remote Station Guide. It provides guidance for using and operating PDP-11-based remote stations connected to a TOPS-10 host system. It further provides extensive information on remote stations and concentrators, with specifics on two types:

1. The DN80-series remote station and concentrator

2. The DN200 remote station and concentrator

The major differences between this manual and the one preceding are the updating of TOPS-10 Version 6.03A to TOPS-10 Version 7.01, and the resulting software updates:

CHK11	Version 3 (66)
DN82/DN200	Version 23 (152)
NETLDR	Version 3 (144)
OPR	Version 4 (344)
GLXLIB	Version 1 (767)
GALAXY	Version 4.1

The previous manual did not include details on the Operator Interface which is a new feature of the GALAXY system. It also did not include the following essential Appendices:

"Glossary"
"Remote Station OPR Command"
"Using Special Print Forms"

This manual eliminates the Appendix, "Reading Dump Files," that was in the previous manual.

Information about the GALAXY batch and spooling system is also updated to reflect changes from Version 2 to Version 4.1. Some of those changes are discussions on OPR found in this manual:

1. "The Operator Interface," Section 2.1.4

   a. System Operators

   b. Host Operators

   c. Remote Operators

2. "Remote Station OPR ommands," Appendix E covers OPR commands available to operators.

CHAPTER 1

INTRODUCTION

1.1 TOPS-10 REMOTE STATIONS AND CONCENTRATORS

Two types of remote stations/terminal concentrators based on PDP-11 hardware can be connected over a synchronous line to a host system running TOPS-10. When these remote stations contain terminals, they are also called remote concentrators. The DN82 is a remote station and concentrator based on a PDP-11/40; as a remote station alone (containing only a card reader and a line printer), it is called a DN80; as a concentrator alone, it is called a DN81. The DN200 is a remote station and concentrator based on a PDP-11/34.

A systems programmer or installer at the TOPS-10 host assembles the software for each remote station, and stores the resulting binary file on disk at the host. (Assembly of the software at the TOPS-10 host site is described in the Networks Software Installation Guide.) An operator at the remote station can then initiate a request to the TOPS-10 host to down-line load the remote station software over the synchronous line.

At a DN200, the remote station operator initiates the load request by turning on the station or by pressing the <BOOT> button. Once he turns on the station, the ROM in the station containing the bootstrap program starts running and sends a load request to the host. At a DN80-series station, the remote station operator must start the station at the bootstrap address (see Section 2.1.1, "Starting the Station"). When the host loads the software into the remote station, the station can operate and terminals attached to the station can communicate with the TOPS-10 host.

The maximum number of components that can be placed at remote stations are listed in Table 1-1.

Table 1-1
Remote Station Components

Unit	DN80 Series	DN200
Printer	1	1
Card Reader	1	1
Terminals and Asynchronous Lines	32	32
Synchronous Lines (to network nodes)	4	2
Operator's Console (LA36)	1	1

Because you can obtain synchronous lines for these remote stations in a variety of speeds, consult your Field Service or Sales Representative for information on the maximum speed possible with your lines.

1.1.1 The DN80-Series Remote Station and Concentrator

The DN80-series remote station and concentrator (see Figure 1-1) has a processor (PDP-11/40), a control panel (see Figure 1-2), an operator's console (LA36), and a bootstrap ROM (read-only memory). It can also have various peripherals (see Table 1-1).

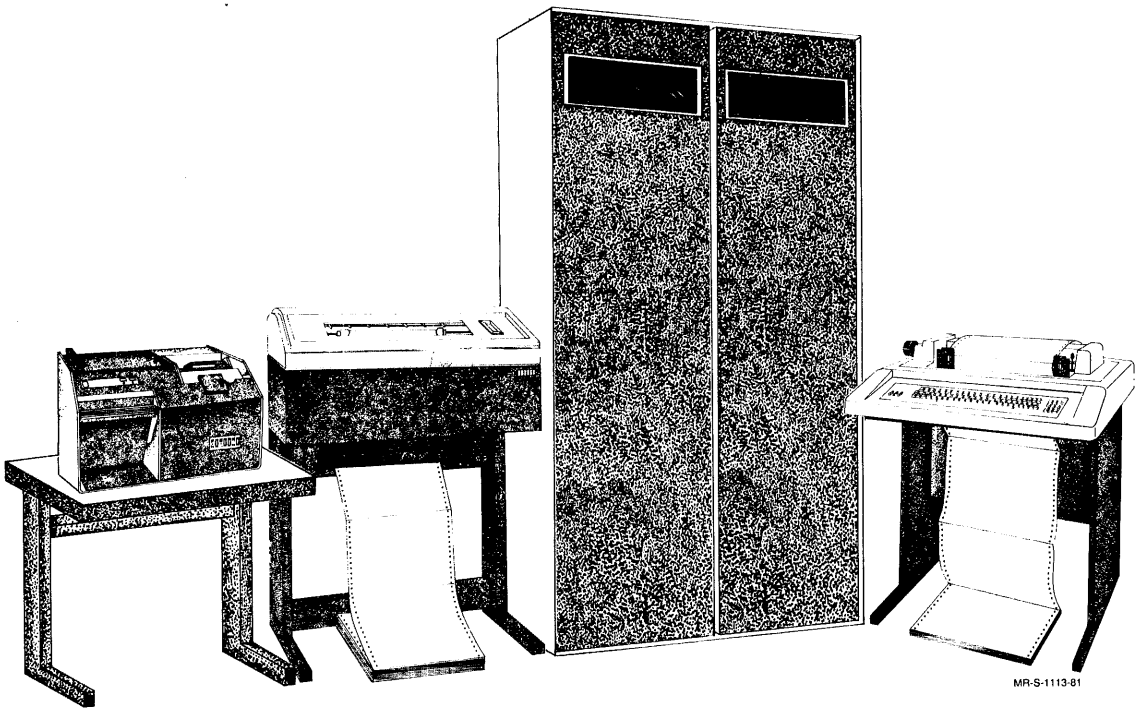

Figure 1-1 The DN82 Remote Station

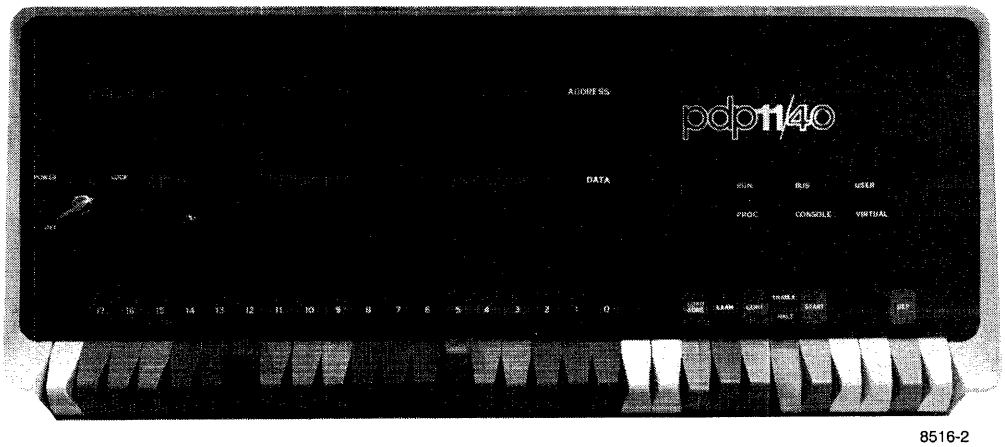

Figure 1-2 DN82 Control Panel

1.1.2 The DN200 Remote Station

The DN200 remote station and concentrator (see Figure 1-3) has a processor (PDP-11/34), a control panel (see Figure 1-4), an operator's console (an LA36), and a bootstrap ROM (read-only memory). It can also contain various peripherals (see Table 1-1).

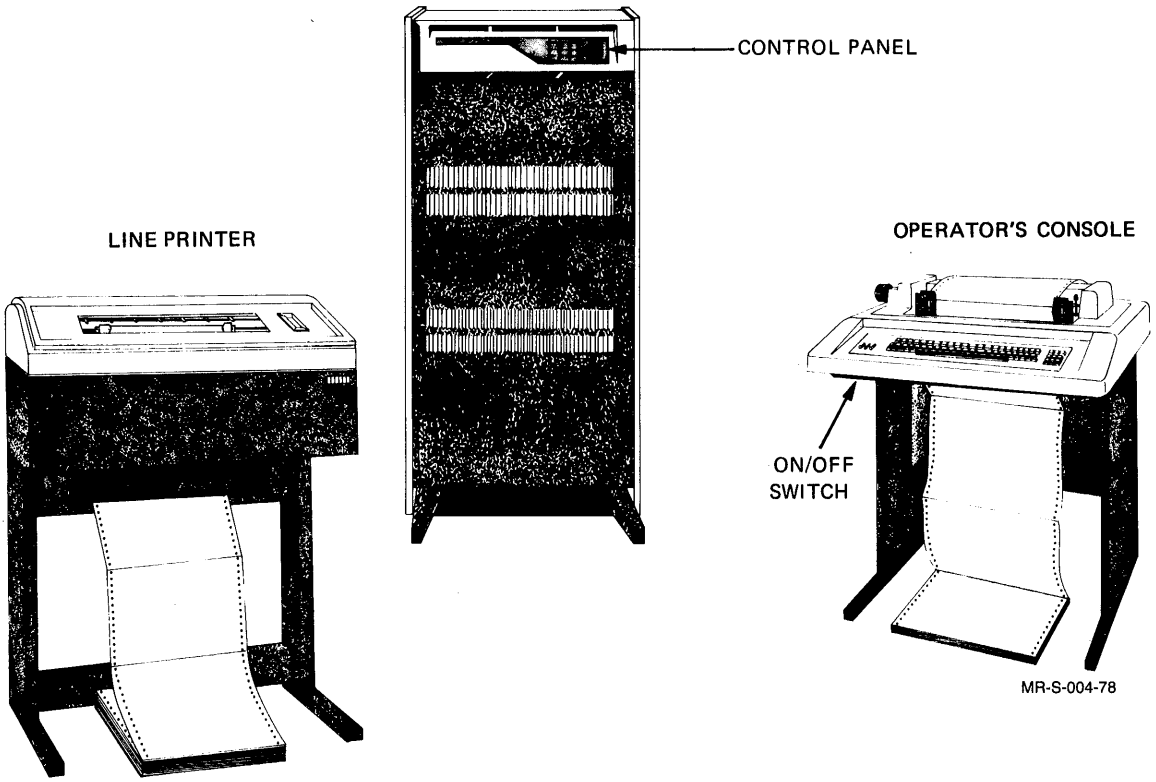

Figure 1-3 The DN200 Remote Station

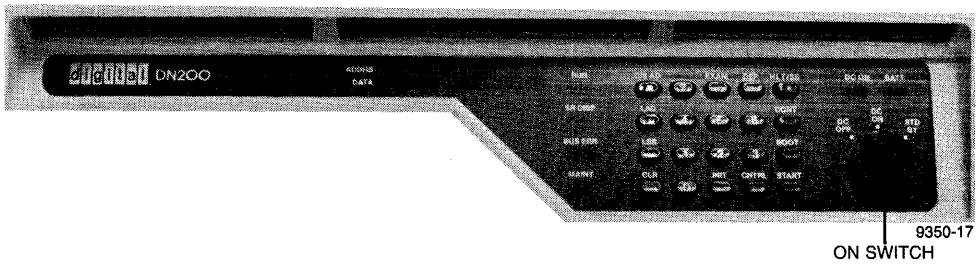

Figure 1-4 DN200 Control Panel

CHAPTER 2

OPERATOR PROCEDURES

2.1 STARTUP

The DN80-series or DN200 remote station is a minicomputer that allows remote connections to a TOPS-10 host. The station is in operation when its operator turns on and starts the station, and after the host loads the station with the appropriate software.

At a DN200 station, when the operator turns on the station, the station begins the bootstrap operation by executing a boot program in its ROM. This boot program cooperates with the network loading program, NETLDR, to copy the remote station software from the disk at the TOPS-10 host into the remote station and to start the remote station running. This process is called "bootstrapping" because the station loads itself by its own efforts. (The network and remote station software have previously been stored at the TOPS-10 host site.)

At a DN80-series station, the operator must turn on the station and start the station at the starting address. Once a DN80-series station is started at its starting address, the bootstrap operation begins.

Once the bootstrap loading process is complete, CHK11, a hardware checking program, runs to verify that the hardware components are attached and working. When CHK11 is done, it passes control to the remote station software.

The remote station continues to run until:

1. The operator turns off its power.
2. The operator halts its processor.
3. A power failure occurs.
4. A software-detected error causes a 'crash' followed by a halt.
5. A hardware error causes the processor to halt.

NOTE

On the DN200, the RUN lamp may be lit even when the station cannot communicate with a TOPS-10 host.

If a DN200 remote station halts, you can:

1. Reboot (turn power off, then on again, or press <CNTRL> <BOOT>).

2. Restart (load the start address and press the START button -- see Section 2.1.2).

Normally, for all remote stations, a reboot occurs automatically after a crash; and a restart occurs automatically after a power failure.

If a DN80-series remote station halts, you can restart it at the starting address.

After failures of the remote station hardware or software that alter memory or change the code, the software must be reloaded into the remote station from the TOPS-10 host.

2.1.1 Starting the Station

To start your remote station for the first time, begin by turning on your operator's console (LA36) and the station power. The switch for the operator's console is at the left of the console keyboard. You turn on the power for the DN80-series stations with the cylindrical key on the control panel, while the power switch for the DN200 is on its control panel (see Figures 1-2 and 1-4). The operator's console must be filled with paper and its '300' switch must be down. (All other switches on the left side of the operator's console should be up.) The modem through which the remote station is to communicate with the TOPS-10 host must be properly connected, and its power must be on.

When you turn on your DN200 remote station, the bootstrap program in its ROM starts to execute. The ROM sends a carriage return and line feed to your console and waits for you to type on the console.

After you turn on your DN80-series remote station, you can start it at its starting address. When you enter its starting address, its ROM bootstrap program starts to execute. You can type switches to the ROM and/or a command string to be forwarded to NETLDR. (ROM switches are described in Appendix A; NETLDR commands, in Appendix B.) With ROM switches, you can specify a synchronous line number, a host node number, and a remote station serial number, or you can also use all defaults. The command string for NETLDR can contain a file specification and switches to specify whether to load, or to load and start the remote station. When you type on the console, use the following form:

command ::=<ROM switches> <NETLDR command string>

To use all defaults (that is, to use a predefined set of switches and NETLDR command string), press (RET) or wait (about two minutes) for the station to time-out and send the default load request.

When you type ROM switches and a NETLDR command string, type ROM switches first. If you enter ROM switches and NETLDR switches together, separate the two types of switches with a space.

NOTE

Always follow ROM switches with a space, even when not entering NETLDR switches.

To correct a typing mistake before you press (RET), press the DELETE key to delete the entire line. If you make an error and do not realize it until after you have pressed (RET), either wait until you get an error message and enter the correct values or use the restart procedure.

After you type in NETLDR switches and press (RET), current console type-in at your remote station ends. When console type-in ends, the ROM sends a load request to an adjacent node along the synchronous line you have selected. The adjacent node then attempts to load your remote station.

As your DN200 remote station is loaded and started, messages are output on your console. Messages seen during a typical start-up operation are shown below.

```
/N10 DN200 (RET)                (CONSOLE TYPEIN)
%%LOAD REQ ON NODE DS401B LINE:0 FOR DN200 SER:0
     FILE:DN200
"NODE DS401B LINE0 LOADING FROM DSK:DN200.BIN
"NODE DS401B LINE0 LOADED
"NODE DS401B LINE0 STARTING AT ADDRESS 2402
```

As your DN80-series remote station starts, and as the DN200 continues, you obtain output from the hardware-checking program, CHK11, a "STARTING" message, and the TOPS-10 host prompt as follows:

```
Initializing DN200 V21(131) 25-Dec-79--CTCH22(22)

  100000 bytes of memory
    MF11-UP
    KW11-L
    KG11-A
  1 DL11-A
  1 CR11
  1 LP11
 LP11 #0  Not ready
  2 DM11-BB's
  2 DH11's
  2 DQ11's
Restarting DN200 V21(131) 25-Dec-79--CTCH22(22)
```

Host is available.

For more information on CHK11, see the CHK11 Reference Manual.

2.1.2 Restarting the Station

At a DN80-series station, once your station has been loaded, started, and has been successfully running, it continues to run until a power failure or a software crash occurs. The station recovers automatically from these conditions, generally being reloaded from the host site whenever necessary.

To restart your station manually, be sure the power is on and press:

```
ENABLE/HALT
address LOAD ADRS
START
```

You must enter the starting address in the switch register with the Switch Register switches.

At a DN200, once your station has been loaded, started, and has been successfully running, it can be restarted using the switches on the control panel of the DN200 (see Figure 1-4).

To restart your DN200 remote station, be sure the power switch is ON and press:

```
<CNTRL><HLT>
addr<LAD>
<CNTRL><START>
```

The value of "addr" is the starting address of the remote station software. To determine this value, examine your operator's console output; find the entry that states:

```
"NODE...LINE...STARTING AT ADDRESS...
```

or examine the contents of location 24 as follows:

<CNTRL><HLT>	Halt the DN200.
<CLR>	Clear the DN200 switch register.
24 <LSR>	Load 24 into the switch register.
<EXAM>	Press the EXAMINE switch to examine the contents of location 24. The value displayed (0000, 2402 or some other value) is the starting address.
<LAD>	Load the starting address.
<CNTRL><START>	Start the DN200 at the entered address.

2.1.3 Logging in at the TOPS-10 Host from the Remote Station

To use your operator's console and issue any commands, you must log in at the TOPS-10 host. To do so, you must see the TOPS-10 prompt (.) on the console. The prompt normally appears automatically as soon as your station comes up. If the system operator at the host has set up your TTY.INI commands to do so, the INITIA program logs you in to your operator directory (project-programmer number) and you can proceed simply by typing I (RET) on your terminal.

If you do not see the TOPS-10 prompt, follow these steps:

1. Check your console. It must be on and filled with paper. The switches on the left side, except for the '300' switch, should all be in the 'up' position. The '300' switch should be down.

2. Press (CTRL/C) . The TOPS-10 prompt appears below the following type of message:

```
Host is available.
Connecting to host system.
      ---System herald---TTY215 system...
Connected to Node CTCH22(22) Line #0
DSKB: ...

.
```

3. Type the word LOGIN and press (RET) on your terminal. A number prompt (#) appears.

4. Type your project-programmer number (PPN) and press (RET) . (Remote station operators often log in under the [PPN]=[1nn,2], where nn is their station number [also called node number].) To determine your PPN, contact the System Administrator. The Password: prompt appears.

5. Type your password, which is not printed, and press (RET) on your terminal. (You can abbreviate these steps by typing LOGIN PPN password (RET)).

6. The TOPS-10 host then sends you a message containing the time, the date, and the day of the week. You may also receive system messages sent from the central site. The TOPS-10 host may also run OPR, the operator interface, for you automatically. In this case, the OPR prompt, OPR>, appears.

7. You are now logged in and can perform your normal duties.

The following lines illustrate your output:

```
.LOGIN
#172,2
Password:
12:00    11-Sep-80    Thur

.
```

or

```
.LOGIN 172,2
.R OPR
OPR>
```

The operator's console at the remote station must be kept on and filled with paper whenever the station is operating.

2.1.4 The Operator Interface

In a TOPS-10 network, there can be three types of operators, each with specific privileges. The system administrator at the host assigns these privileges to your operator's PPN with the system program REACT. As a remote station operator, you obtain these privileges when you log in with your operator's PPN. The three types of operators are:

- System operators
- Host operators
- Remote operators

A system operator has the most global privileges and capabilities. The system operator can control all devices anywhere in the network controlled by his host, both at the central site and at remote sites. An operator who logs in as [1,2] automatically receives system operator privileges. (See Figure 2-1.)

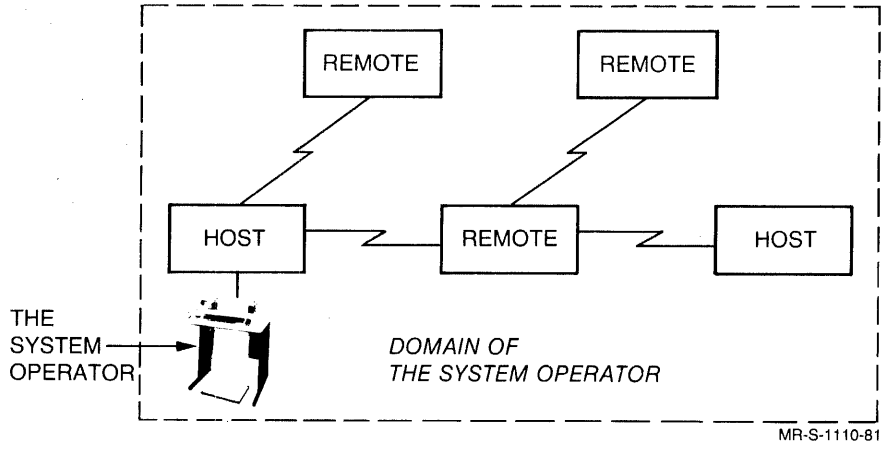

Figure 2-1 The System Operator

A host operator is an operator who can control all devices at the host where he is physically located. He cannot control devices at any other host or at any remote node. (See Figure 2-2.)

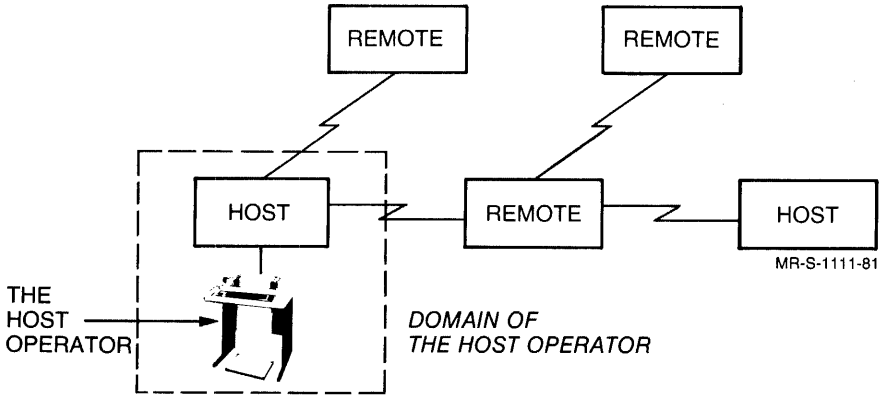

Figure 2-2 The Host Operator

A remote operator can control all devices at the remote node where his terminal is connected; he cannot control devices at the central host or at any other remote node. (See Figure 2-3.)

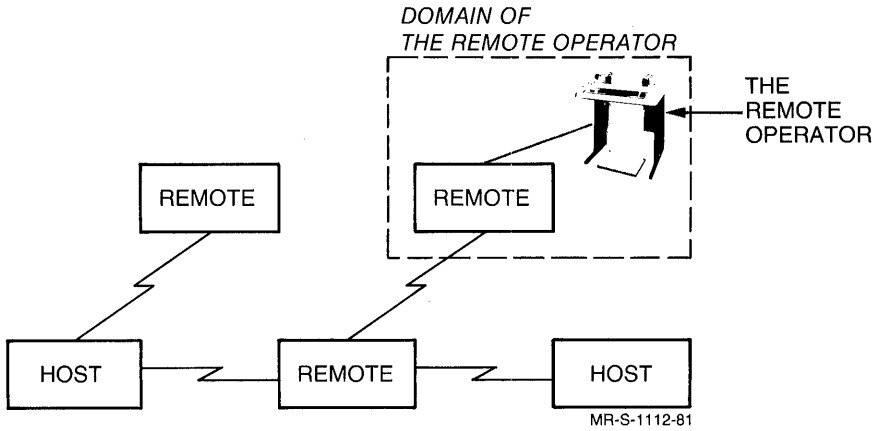

Figure 2-3 The Remote Operator

As the operator at a remote station, you run OPR to control your local line printer and card reader, and perform any other operator duties. OPR is the Operator Interface through which you communicate with ORION. ORION, in turn, communicates with other components of GALAXY and the TOPS-10 operating system. You issue commands to OPR to communicate with the TOPS-10 operating system, to control the devices at your remote station, and to control the jobs that are sent from and received at your remote station.

If your host does not automatically start OPR for your remote station, you can start OPR with the following commands. To run OPR you must be logged into a privileged account.

```
.R OPR (RET)
```

The system returns the OPR prompt:

```
OPR>
```

See Appendix E for descriptions of the OPR commands available to remote operators.

At the TOPS-10 host, the operator runs LPTSPL and CDRIVE. The usual spoolers at the host support the devices at your station.

As you issue OPR commands, they are sent to ORION. ORION puts a timestamp on each command, logs the command in the operator's log file (normally stored in [3,3]OPERAT.LOG), and executes the command. When execution is complete, ORION sends you a message of the following form:

```
hh:mm:ss          OPR object  --action--

or

hh:mm:ss          --informational message--
```

For example, when you issue a command to start your printer, the following prompts appear:

```
OPR> START (object) PRINTER (Unit Number) 0  RET
OPR>
hh:mm:ss Printer 0  [nodename (node number)]--Startup Scheduled--
OPR>
```

If you misspell an OPR command, or give an incomplete command, an error message preceded by a question mark appears. OPR error messages of this type are all self-explanatory. You can obtain the valid part of an incorrect command by pressing CTRL/H . For example, say you are running OPR and issue the following incomplete command:

```
OPR>SHOW STATUS P    RET
```

OPR sends you the following message:

```
OPR>SHOW STATUS P
?CONFIRMATION Required

OPR>
```

If you type CTRL/H , the valid part of the command appears:

```
OPR>  CTRL/H
OPR> SHOW STATUS
```

You can type ? to see what arguments are valid.

```
OPR> SHOW STATUS ? one of the following:
BATCH-STREAM    NETWORK-NODE    PRINTER      READER
OPR>SHOW STATUS
```

In addition, you may use escape recognition when typing OPR commands. The ESCape key allows recognition input and guide words to appear on your console when you give an OPR command.

The ESCape key may be labeled ESC, SEL, PRE, or ALT, depending on the type of console terminal your installation is using. Type the OPR command START with the use of the ESCape key for recognition and guide words.

```
          ESC                ESC
           ↓                  ↓
OPR>START (object) PRINTER (unit number) 0  RET

OPR>
hh:mm:ss Printer 0 [nodename (nodenumber)]--Startup Scheduled

OPR>
```

If the terminal bell rings, you have not typed enough characters to uniquely identify a command. If this happens, type another character of the command and press the ESCape key. Continue to do this until the characters you typed are unique for the specific command.

The operations that you can perform with OPR at your remote station include:

- scheduling jobs for your devices
- suspending the scheduling of jobs
- setting parameters for your devices
- displaying the status of devices and jobs
- canceling jobs
- controlling output on your printer
- enabling and disabling the display of system messages

2.1.5 Relocating Your Station Devices

You can use the LOCATE monitor command to specify another node as your logical node, to establish your job at that node. Type the following:

LOCATE node number (RET)

The node number is the number of the node where you want to locate the input/output devices for your job. It must be a node number recognized by the host. It acts as the default node number for all subsequent PRINT and SUBMIT commands. You can verify the node number for the other node with the NETWORK command, which lists all nodes defined in the network. After giving the LOCATE command, you can have devices at the new logical node perform the input and output for your jobs. For example, the following command relocates input and output at node 22 (not your node):

```
.LOC 22 (RET)
Node CTCH22 (22)     DN82     V23(152)     16-Jan-81     Located
.
```

To relocate devices at your own physical location, reissue the LOCATE monitor command with no arguments.

If, during your session, the node to which you have LOCATED becomes inaccessible, you are returned to your physical location. You can use the SHOW STATUS NETWORK-NODE or the NETWORK command to check on other nodes in your system.

As a remote operator, you cannot execute the ROUTE command to direct output to another node in the system. You must ask the operator at the host to perform routing. You may wish to have some or all of your output routed to another node if, for example, your line printer is out of service or a job requires special forms not available at your node. (See also Appendix F, Using Special Print Forms.)

2.1.6 Starting Printer Scheduling

Before you start scheduling jobs for your printer, the TOPS-10 host operator should have a copy of LPTSPL (the line printer spooler) running. One copy of LPTSPL can handle up to 15 local and remote printers. Only the TOPS-10 host operator can start the spoolers. You can issue commands to start scheduling at any time, but requests are processed only if the spoolers are running. To verify that LPTSPL is running, type the following:

```
SYS [1,2] (RET)
```

All the OPR jobs running on the host are listed; LPTSPL should be among them. If not, contact the system operator at the host.

For example:

```
.SYS [1,2](RET)
1    DET    INITIA    6+11    SL       8
      .
      .
      .
11   DET    LPTSPL    37+34   HB    1:00
      .
      .
      .
```

This runs the SYSTAT program to display jobs on the system.

To run OPR and start printer scheduling, follow these steps:

1. At the OPR prompt, type START PRINTER 0 (RET) to start scheduling.

2. Verify that your printer is on.

The following lines illustrate your output:

```
.R OPR (RET)
OPR>START PRINTER 0 (RET)
OPR>
hh:mm:ss Printer 0 [nodename (node number)]--Startup Scheduled--
OPR>
```

2.1.7 Starting Card Reader Scheduling

Before you start scheduling jobs for your card reader, the TOPS-10 host operator must have a copy of CDRIVE (the card reader spooler) running. One copy of CDRIVE can handle up to 15 local and remote card readers.

To start scheduling for your card reader, you must also communicate with OPR.

To start scheduling, type the following:

R OPR (RET)

1. At the OPR> prompt, type

   START READER 0 (RET)

2. Verify that your card reader is on.

Your output will look as follows:

```
OPR>START READER 0
OPR>
hh:mm:ss Reader 0 [nodename (node number)]--Startup Scheduled--
OPR>
```

2.1.8 Starting both Printer and Card Reader Scheduling

You can run OPR at your remote station to start scheduling for both the printer and card reader as follows:

```
.R OPR (RET)
OPR>START PRINTER 0 (RET)
OPR>
hh:mm:ss Printer 0 [nodename (node number)]--Startup Scheduled--
OPR>START READER 0 (RET)
OPR>
hh:mm:ss Reader 0 [nodename (node number)]--Startup Scheduled--
OPR>
```

The system operator at the host can also place printer and card reader commands in the system file [1,4]SYSTEM.CMD. This file is called with a TAKE command from the system file [1,4]OPR.ATO. With your startup commands in a system file on the host, scheduling for your devices should occur automatically. If not, contact the system operator at the host.

For more information on OPR, see Appendix E, "Remote Station OPR Commands," and the Operator's Command Language Reference Manual.

2.1.9 Using OPSER

Generally, you should run OPR at your operator terminal and perform other duties from another terminal. However, if you wish to use your operator terminal for several functions, you can use OPSER. With OPSER you can run up to 14 subjobs from a single terminal. (For more information on OPSER, see the OPSER help file (type HELP OPSER (RET)) or see the TOPS-10 Operating System Commands Manual.)

To use OPSER to run OPR and perform some other functions, follow these steps:

1. Type the following:

   R OPSER (RET)

   This runs the OPSER program and initiates an OPSER job. The OPSER prompt (*) appears.

2. Type the following:

```
:LOGIN PPN (RET)
```

(Commands to OPSER always start with a colon.) Use your own PPN. This logs in a subjob which you will use to run OPR. Output of the following form appears:

```
hh:mm:ss (0)
Job xx          system name        TTYno.
[LGNJSP         Other jobs same PPN:xx]
hh:mm:ss                              date day
[ ]
.
```

3. Type:

```
:DEFINE OPREM= (RET)
```

This names your subjob OPREM. (You can use another name but it cannot contain more than five characters.)

4. Type:

```
OPREM-R OPR (RET)
```

(Commands to OPSER subjobs do not need colons.) This loads OPR under control of the subjob. Output of the following form appears:

```
*OPREM-R OPR
!hh:mm:ss  (OPREM)
        OPR>
!
```

5. Enter OPR commands for your remote station devices. The help facility is also available to you at this command level. Precede each command with the name of your subjob followed by a hyphen. For example,

```
OPREM-START PRINTER 0 (RET)
```

or

```
OPREM-START READER 0 (RET)
```

6. To issue more commands to OPSER, precede each with a colon (:).

7. To see the state of each of your subjobs, use :WHAT ALL. To kill all your subjobs, use :KILL ALL. To kill a specific subjob, use :KILL subjob-name.

2.2 AVAILABLE EQUIPMENT

The typical TOPS-10 remote station contains an operator's console (LA36); it can also contain a card reader, a line printer and user terminals. These pieces of equipment are briefly described in this chapter and in supporting hardware documents that are provided with your equipment.

2.2.1 LA36, the Operator's Console

Your operator's console is an LA36, a 30-character per second printer with a keyboard. To turn your console on, press the rocker switch on the left side of the keyboard to the on position. All the switches on the left side of the keyboard except for the one labeled '300' must be in the 'up' position. The '300' switch must be pressed down.

NOTE

Your LA36 must always be filled with paper or you may lose data when it goes into a paper-out condition. Check the paper supply periodically and replenish it before it runs out.

The switches at the left of the keyboard are two-position switches (like the shift-lock key on a typewriter) and indicate operating mode and baud rate as listed in Table 2-1.

Table 2-1
Mode and Baud Rate Switches

Switch	Up/Down	Indicates
LINE LOC.	Up	Console communicating on its asynchronous line.
LINE LOC.	Down	Console in local state. No communication occurs on asynchronous line.
FDX HDX.	Up	Communication is full-duplex (normal mode on line to DN200).
FDX HDX.	Down	Communication is half-duplex (not normally used).
110	Down	Communication on line to DN200 is at 110 baud.
300	Up	
110	Up	Communication on line to DN200 is at 300 baud (standard position).
300	Down	
110	Down	Communication on line to DN200 is at 150 baud.
300	Down	
ALT CHAR SET	Up	Standard character set is in use (normal position). STD.CHARACTER SET lamp is lit.
ALT CHAR SET	Down	Alternate character set is in use. ALT.CHARACTER SET lamp is lit.
CHAR SET LOCK	Always Up	Standard character set is normally used.
AUTO LF	Up	LA36 is automatically controlled by DN200 and TOPS-10.
AUTO LF	Down	When LA36 is in local mode, paper advances one line when LF (line feed) switch is pressed.
HERE IS	Always Up	

Lamps on the operator's console are described below.

Table 2-2
Console Lamps

Lamp	When Lit, Indicates
STD. CHARACTER SET	The standard character set is in use (ALT CHAR SET switch is up).
ALT. CHARACTER SET	The alternate character set is in use (ALT CHAR SET switch is down). For normal operation, the ALT CHAR SET switch must be up.
PAPER OUT	The LA36 is out of paper. Replenish the paper supply. (Open the inner cover of the LA36, open the pinfeed gates, thread paper from below the printer past the gates, and hook the perforations over the pins. Close the gates and the printer cover.) To resume operations, you must either press the LINE/LOC. switch down, and then reset it in the upper position, or turn your LA36 off then on again. Data may be lost by these operations.
DEVICE SELECT	This lamp should always be out. If on, call your Field Service representative.
SELECT AVAIL	This lamp should always be out. If on, call your Field Service representative.

2.2.2 Card Reader

The card reader (see Figure 2-4) at the remote station reads 80-column punched cards at a rate of 285 cards per minute.

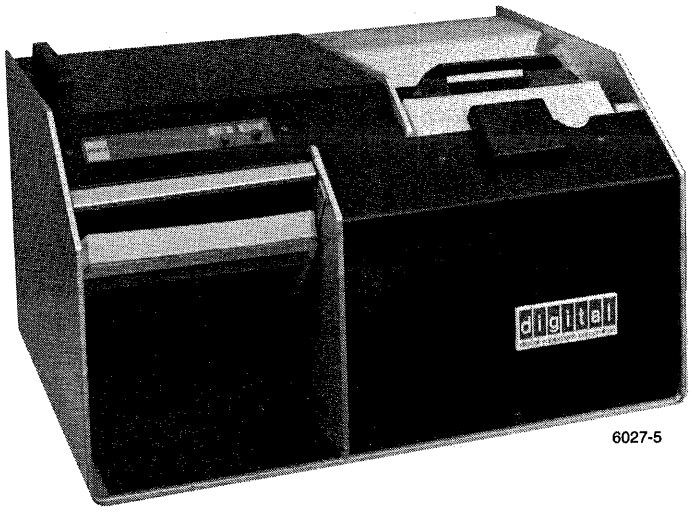

Figure 2-4 Card Reader

It has an input hopper (upper right), an optical card-reading station, an output hopper (lower left), switches to control its operation (on front panel), and indicator lamps. Toggle switches on its back panel are used to turn on and set up the card reader (see Figures 2-5 and 2-6).

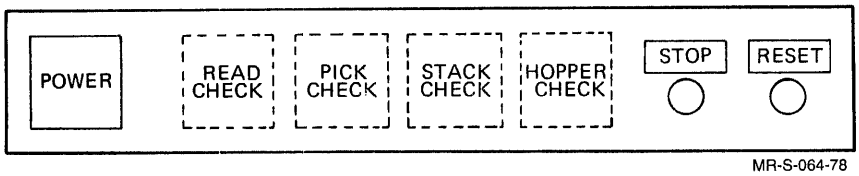

Figure 2-5 Front Panel of Card Reader

The switches and lamps on the front panel of the card reader are explained in Table 2-3.

Table 2-3
Card Reader Switches and Lamps

Switch/Lamp	When Lit, Indicates	Corrective Action
POWER	Power is on.	None.
READ CHECK	Card just encountered may be damaged.	Remove (and repunch) faulty card and press RESET. Reread the card.
PICK CHECK	Card just encountered may be damaged, deck may be warped or reader may need cleaning.	Correct card or deck condition and press RESET. Reread the card.
STACK CHECK	Card just read may be damaged, or there may be a card jam.	Clear jam or repunch damaged card. Press RESET and reread the last card.
HOPPER CHECK	Either:	
	Input hopper is empty and no EOF card has been encountered	Reread the last card followed by an EOF card.
	Or:	
	Output hopper is full.	Empty the output hopper and press RESET to continue. Reread the last card read.

Table 2-3 (cont.)
Card Reader Switches and Lamps

Switch/Lamp	When Lit,Indicates	Corrective Action
STOP switch and red lamp		Press to stop reading cards. Red lamp is lit, RESET green lamp goes out.
RESET switch and green lamp		Press to light green lamp, start blower and start reading cards.

Figure 2-6 illustrates switches on the back panel of the card reader and Table 2-4 explains their use.

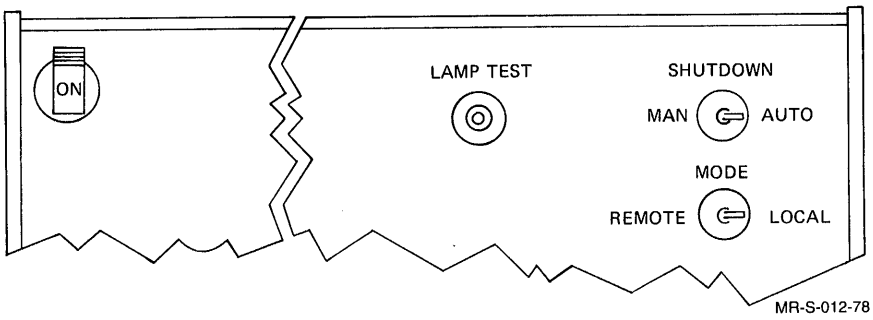

Figure 2-6 Back Panel of Card Reader

Table 2-4
Card Reader Back Panel Switches

Switch	Use
POWER	Raise to turn on card reader.
LAMP TEST	Press to light indicators on front panel (checks for faulty lamps).
SHUTDOWN	Set to specify operation of input hopper blower at: MANual to operate blower continuously. AUTOmatic to shut off blower when not reading cards.
MODE	Set mode to specify on-line and off-line reader operation at: REMOTE to place reader on-line under program control when RESET is pressed. LOCAL to use RESET and STOP switches to operate the reader off-line for testing.

To operate the card reader, perform the following steps:

1. Turn on card reader power.
2. Load input hopper with cards (face down, column 1 to left); up to 550 cards can be accommodated at one time.
3. Place the card weight on top of the cards in the hopper.
4. Press RESET.

You can load and unload cards continuously while the reader is in operation.

If you use your card reader almost continuously, clean it once a week. Wipe the exterior with a soft cloth and vacuum the card dust out of the card path (turn off the power, blow out the path from the input hopper to the stacker, and vacuum it).

2.2.3 Printer

An LP05 printer can be attached to your remote station (see Figure 2-7).

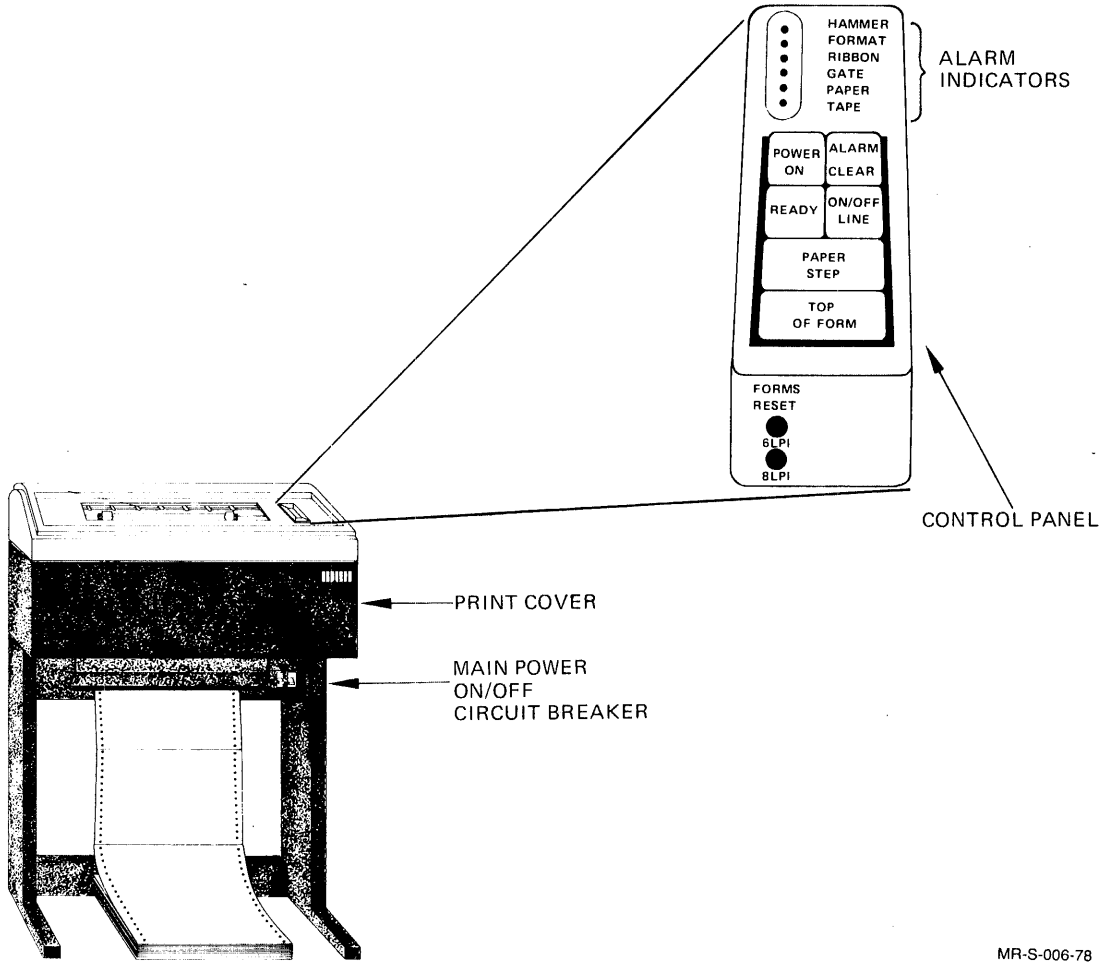

Figure 2-7 LP05 Line Printer

This printer can be either uppercase only or have upper/lowercase capability. It uses 132-column pinfeed paper, has a rotating character drum, and permits forms alignment (horizontally and vertically) and adjustments for forms thickness. Each printer is provided with a small booklet, an "OPERATORS GUIDE," which describes how to load and adjust paper and change ribbons. This booklet can be found in the pocket provided for it inside the cover (lift the cover; the pocket is on the right side of the drum gate).

Once you have installed paper and ribbon, you are ready to operate your line printer. To operate your printer:

1. Push the main power circuit breaker (beneath the main printing mechanism on the front of the printer) to the ON position.

2. The POWER ON lamp on the control panel should light up after a few seconds.

3. If necessary, make adjustments for paper alignment or ink density (see your "OPERATORS GUIDE" for information on these procedures).

4. Press the ON LINE switch. It should light up. Pressing this switch places the printer on-line so that it can receive data for printing. The ON LINE switch must be lit for the printer to operate.

   If the ALARM lamp is lit, a malfunction has occurred. In such a case, the printer halts and generally goes off-line (it stops receiving and printing data). To restart the printer you must determine the cause of the malfunction, correct the problem, press the CLEAR switch (the ALARM lamp must go out), and press the ON LINE switch. When the ALARM lamp is lit, lift the printer cover and examine the lamps above the control panel. The names of these lamps and suggested corrective action are listed in Table 2-5, "Printer Alarm Indicators."

Table 2-5
Printer Alarm Indicators

Lamp	When Lit, Indicates	Corrective Action
HAMMER	A print hammer has malfunctioned.	Press CLEAR. The print buffer is cleared. If the lamp fails to go out or reappears, contact Field Service.
FORMAT	A mechanical malfunction has caused too many line feeds. The printer goes off-line.	Press CLEAR. Check and adjust paper position, and push the FORMS RESET toggle switch (under the control panel).
RIBBON	A ribbon jam or snag has occurred. The printer goes off-line.	Correct ribbon feeding. Press CLEAR.

Table 2-5 (cont.)
Printer Alarm Indicators

Lamp	When Lit,Indicates	Corrective Action
GATE	Drum gate is not latched. Printer buffer is cleared.	Latch the gate properly and press CLEAR.
PAPER	There is a paper jam, paper out or paper runaway condition. The printer goes off-line.	Fix the paper condition and press CLEAR.
TAPE	An invalid tape channel command has occurred. Printer goes off-line.	Press CLEAR.

2.2.4 Terminals

You can have many types of terminals attached to your remote station to operate as user terminals. The LA36 is described in Section 2.2.1, "LA36, the Operator's Console." Other terminals are fully described in their accompanying booklets. The log-in procedure for a video display terminal is the same as that described for the operator in Section 2.1.3, "Logging in at the TOPS-10 Host," (turn on your terminal, issue the command LOGIN, respond to prompts with your PPN and your password).

To log off the TOPS-10 host, type the following:

K/F (RET)

To exit from an OPSER subjob, type K/F (RET) to the OPSER subjob. To exit from OPSER, type :EXIT to OPSER.

The TOPS-10 host sends a sign-off message of the following form:

```
Job 40  User OPERATOR [172,2]
Logged-off TTY235  at 11:06:31  on 25 Dec-79
Runtime:...KCS:...Connect time:...
Disk Reads:..., Writes:..., Blocks saved:...
```

Do not turn off your CTY even after you log off so that it remains available to receive messages sent to the remote site.

CHAPTER 3

USER PROCEDURES

3.1 USER FACILITIES

A user at a remote station with a terminal has access to all the system commands and programs that are available to a user at a TOPS-10 host. The remote site user can also use the physical facilities at the host, such as magnetic tapes and plotters, by issuing the appropriate commands and making requests to the operator at the host site. Users at remote sites with a card reader can also submit jobs on punched cards.

For information about TOPS-10 commands and system programs, see the TOPS-10 Operating System Commands Manual; for information about commands on punched cards and use of the batch system, see the TOPS-10/TOPS-20 Batch Reference Manual.

Use the normal log-in procedure to log in on the TOPS-10 host from a remote station. For example, your output might look as follows after completion of login:

```
(CTRL/C)

Host is available.
Connecting to host system.
--- SR10 ---  10:43:10    TTY212 system
Connected to Node CURLY (47) LINE# 2
Please LOGIN or ATTACH

.LOGIN  PPN (RET)
JOB 61  RZ51B  --SR10-- TTYxx
Password:
12:00     5-May-80     Mon

.
```

If the system herald is not for the host where you wish to log in, use the SET HOST command to connect to the right host as follows:

```
.SET HOST 71 (RET)
---KL1090---  10:54:06  TTY212 system
Connected to Node CTCH22 (22) Line # 2
Please LOGIN or ATTACH

.
```

To see the node numbers for other network nodes, use the NETWORK command.

3.2 THE NETWORK COMMAND

To see what nodes are in the network, use the NETWORK command:

```
.NETW (RET)

Node KL1026 (26) RZ51B KL  #1026/1042  05-14-80
Node KS4101 (76) RS051A KS #4101  05-14-80
Node KI514  (14) RX051A KI #514/546  05-14-80
Node SOFDCP (77) DN82 V20C(E)
Node TWINKY (71) Twinky 701/021C  04-10-80
Node CTCH22 (22) DN82 V21(131)  25-Dec-79
Node NOVA   (31) DN87S V22(137)  1-May-80
Node JINX   (34) DN20 V22(136)  24-Apr-80

.
```

The NETWORK output is divided into columns showing:

- .the nodename
- .the node number (in parentheses)
- .system-generated herald, version information, and date.

You can use the NETWORK command before you log in.

3.3 PRINTING OUTPUT

When you type a command on your terminal from a remote station, the command travels to the TOPS-10 host where you are logged in, and is executed on that host. The response returns automatically to your remote site terminal. When you use a PRINT or QUEUE command to print output at your remote station printer, the TOPS-10 monitor queues your listing for the printer at your remote station.

For example, to print a listing TEXT.MAC on your remote station printer, use the following command:

```
.PRINT  TEXT.MAC (RET)
[Job TEXT Queued, Request-ID 421, Limit 36]

.
```

Because you executed the command from a terminal at the remote site, the print request automatically is queued for the printer at your remote site.

To see the printer queue, use the PRINT command with no arguments.

```
.PRI (RET)

Printer Queue:
Job Name   Req#   Limit      User
 *TEXT      421     36     USER[PPN]    On Unit:0 /Dest:CTCH22(22)
  Started at 16:28:25, printed 0 of 36 pages
There is 1 Job in the Queue (1 in Progress)

.
```

To print the listing TEXT.MAC at another site, use the /DEST:nodename switch in your print command:

```
.PRINT TEXT.MAC/DEST:KL1026 (RET)
[Job TEXT Queued, Request-ID 422, Limit 36]

.
```

The job in the print queue looks as follows:

```
.PRI (RET)

Printer Queue:
Job Name   Req#   Limit      User
 *TEXT      422    36     USER[PPN]    On Unit:0/Dest:KL1026(26)
  Started at 16:40:15, printed 0 of 36 pages
There is 1 Job in the Queue (1 in Progress)

.
```

With a PRINT command, you can use any switches normally associated with this command as documented in the TOPS-10 Operating System Commands Manual. For example, use the /COPIES switch to print multiple copies of a file, or use the /PRIORITY switch to specify a nondefault priority for a print request. (The default priority is 10, set by your system administrator; as a user you can change the priority of your print requests to any value from 1 (print files in the order queued) to 20 (the maximum a user can set). Higher values receive service first. Your remote operator can set higher priorities or change the allowed range of priorities.)

3.4 SUBMITTING BATCH JOBS

To submit a batch job to be executed on the TOPS-10 host from your remote station, use a SUBMIT command. You must be logged in on the host where your batch job is to execute. For example, to have the control file TSTMAK.CTL execute on your host, use the following command:

```
.SUBMIT TSTMAK (RET)
[Batch Job TSTMAK Queued, Request-ID 804, Limit 0:05:00]

.
```

(The default file extension for the SUBMIT command is CTL.)

To see what jobs are in the batch input queue, type SUB (RET)

```
.SUB (RET)

Batch Queue:
Job Name        Req#     Run Time        User
 TSTMAK          804     00:05:00     USER[PPN]

.
```

The batch log file associated with your job is automatically printed at your remote printer.

NOTE

Do not use the /PROC switch to the SUBMIT command; this switch is used only to submit a job to an IBM host. A job submitted to a host other than the host where you are logged in appears in your system's batch input queue and waits there forever.

With a SUBMIT command, you can use any switches normally associated with this command. For example, use the /DEPENDENCY and /MODIFY switches to execute files in a specified order, or use the /OUTPUT:NOLOG switch to suppress printing of your log file.

For more information on the SUBMIT command and the switches you can use with it, see the descriptions under SUBMIT and QUEUE in the TOPS-10 Operating System Commands Manual.

CHAPTER 4

TROUBLE-SHOOTING

4.1 NORMAL OPERATION

When you start your remote station, CHK11, the hardware verification program, runs to provide a cursory check of the hardware components. If CHK11 executes completely and issues no error messages, your hardware is probably functioning properly, and your station should operate normally. If CHK11 indicates that your station has some hardware problems, you can try to restart it once more. If the problems persist, contact your Field Service representative.

When the remote station is loaded and started for the first time, the hardware diagnostic program CHK11 runs. This program tries to use each component of the remote station and issues a message describing the results. The following illustrates typical CHK11 output on a DN200.

```
INITIALIZING DN200 V17(67) 29-DEC-79 --

   160000 BYTES OF MEMORY
     MF11-UP
     KW11-L
   1 DL11-A
   1 CR11
   1 LP11
LP11 #0 NOT RDY
   1 DMC11

STARTING DN200 V17(67) 29-DEC-79--
```

The number of bytes of memory is an octal value representing the number of available bytes in the remote station processor (160000=28K words; 100000=16K words).

If there is a hardware failure, CHK11 outputs a message:

```
ERROR DETECTED AT PC xxx
```

where xxx is the program counter.

A message preceding the PC address message gives the name of the device that has failed. For example, if your synchronous line interface (DMC11) has failed, CHK11 provides a message of the following form:

```
              .
              .
              .
              .
        1 DMC11
    ?DMC11 #0 (ADR=160540)
      ERROR DETECTED AT PC 54522
```

When such errors occur, contact your Field Service representative to isolate and correct your hardware problems.

For more information on CHK11, see the CHK11 Reference Manual.

4.2 WHEN PROBLEMS OCCUR

If the remote station starts, but you do not receive the TOPS-10 system prompt, the TOPS-10 site may not be operating or an intermediate node may be down. (An intermediate node is a node between your remote station and the TOPS-10 host.) If an intermediate node is down, you must usually wait until it returns to the network. If there is an alternate path by which you can contact the TOPS-10 host, the system automatically connects the remote station by that path. For information on alternate paths, see Appendix B of this manual, "NETLDR Command Strings."

At a remote station, your operator's console can receive a variety of error messages. These messages can be issued by the TOPS-10 monitor, by the programs running at the host site under control of the monitor, by GALAXY programs such as LPTSPL, and by the programs run at the remote station (the remote station code and CHK11). If you are running OPR, messages from TOPS-10 and from GALAXY are trapped by OPR. If a program running at the host gets into a nonfunctioning condition and issues a stopcode, it presents error messages that contain information on the crash block and the module that has had a problem. The message always starts with a message of the following form:

```
timestamp -- Program xxx     --
       Job xx [PPN] name at Terminal yyy
     ? Stop code - zzz - in module name
       Reason:  explanation
       Program is program name
     Contents of the ACs
             .
             .
             .
     Last stack locations
             .
             .
             .
```

You may also see messages of the following form when there are problems with GALAXY running at the host:

```
OPR>
hh:mm:ss     -- QUASAR is not running --
OPR
```

A user may see a message of the following form:

```
%QMRMBR  Send has failed, Message Being Re-sent
```

If you have problems with the spoolers or other GALAXY components, contact the TOPS-10 system operator.

Messages that can appear at your remote station are listed in Table 4-2. These messages are generated primarily by the remote station software and the network interface software.

Table 4-2
Station Messages

Message	Meaning	Corrective Action
BREAK POINT INSTRUCTION @PC=...	An unusual circumstance has halted the remote station. This is a fatal error.	None. The station is automatically reloaded and restarted.
BUS TRAP @PC=...	A failure has caused the remote station to halt. This is a fatal error.	None. The station will be automatically reloaded and restarted.
Character Not Stored	The buffer in the remote station is full, so the character you just typed could not be stored and is lost.	Retype the lost character.
Connect sent	An attempt has been made to connect to a host.	Wait until you see the system herald or log-in prompt.
Connecting to host system	The remote station has sent a "connect initiate" message to the host but has not yet received a "connect confirm."	Wait until the host confirms the connection.
EMT INSTRUCTION @PC=...	An unusual circumstance has halted the remote station. This is a fatal error.	None. The station will be automatically reloaded and restarted.
FATAL ERROR	The remote station has halted.	None. The station will be automatically reloaded and restarted.

Table 4-2 (cont.)
Station Messages

Message	Meaning	Corrective Action
hdw has more sync lines than software	The assembled software does not fit the hardware at the station.	Contact the system programmer at the TOPS-10 site to reassemble the software. You can use all the active synchronous lines that are recognized by the software.
Host is available	A host to which you can connect is available for log in.	Log in on the host.
Host Sent Disconnect	The host your line is connected to has timed out waiting for you to LOGIN or ATTACH	Type any character to reestablish the connection and attach to the host, or SET HOST to another host.
Host Went Away	The host you are using has left the network.	Either wait until the host returns to the network, or type any character to attempt to connect to a host.
ILL INSTRUCTION @PC=...	An unusual circumstance has halted the remote station. This is a fatal error.	None. The station will be automatically reloaded and restarted.
?INVALID NCL SUBMSG LENGTH	[1]Transmission error between host and remote station.	Contact the systems programmer at the TOPS-10 host site.
IOT INSTRUCTION @PC=...	An unusual circumstance has halted the remote station. This is a fatal error.	None. The station will be automatically reloaded and restarted.
% LINE PRINTER OFF-LINE	The line printer attached to the remote station cannot receive or print data.	Turn on the printer and press the ON-LINE switch. The ON-LINE lamp should be on. If trouble persists, follow the instructions in Section 3.1.3, "Printer."

[1]Appears only if the remote station software has been assembled with the DGUTS switch on (see the Networks Software Installation Guide).

Table 4-2 (cont.)
Station Messages

Message	Meaning	Corrective Action
Local Input Buffer Full	The buffer in the communications front end or remote station is full. If you type more characters, they are lost.	Wait until the buffer has been emptied.
?LOST MSG, INCONSISTENT LENGTHS	[1]Transmission error between host and remote station.	Contact the systems programmer at the TOPS-10 host site.
MEMORY PARITY ERROR MP.REG=...	A hardware error has caused the remote station to halt. This is a fatal error.	Contact your Field Service representative.
?MSG LOST, DDCMP OVERLOAD	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.
?MSG NOT REQUESTED LOST	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.
?MSG WITH ILL TYPE LOST	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.
?NCL CAN'T BE FORWARDED	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.
?NCL FORMAT BAD, MSG LOST	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.
?NCL MSG GEN FAILED	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.
?NODE TRAFFIC OVERLOAD	[1]Transmission error between the TOPS-10 host and the remote station.	Contact the systems programmer at the TOPS-10 host site.

[1]Appears only if the remote station software has been assembled with the DGUTS switch on (see the Networks Software Installation Guide).

Table 4-2 (cont.)
Station Messages

Message	Meaning	Corrective Action
No Host Available	There is no host in the network which you can contact.	None. You must wait until a suitable host returns to the network.
??no synchronous lines??	The software has been incorrectly assembled. There appear to be no working synchronous lines; the program halts.	Contact the systems programmer at the TOPS-10 host site or your Field Service representative.
?OUT OF SCB STORAGE	[1]Network log jam.	Contact the systems programmer at the TOPS-10 host site.
RESTARTING	The station has been restarted.	None. When the TOPS-10 system prompt appears, you can enter commands.
?STORAGE ALLOCATION FAILURE	[1]Network problems are occurring.	Contact the systems programmer at the TOPS-10 host site.
TRAP @PC=...	A failure has caused the remote station to halt.	None. The station will be automatically reloaded and restarted.
Path to host system was lost	Connection between the remote station and the TOPS-10 host has been broken. Either the TOPS-10 host or an intermediate node is down.	None. You must wait until the host or the intermediate node returns to the network. When the connection is reestablished, the TOPS-10 system prompt appears with the message "Please LOGIN or ATTACH."
Waiting for Connect Confirm	Temporary wait period.	None. Wait until the station connects.

[1]Appears only if the remote station software has been assembled with the DGUTS switch on (see the Networks Software Installation Guide).

APPENDIX A

ROM SWITCHES

A remote station console command must be of the following form:

```
remote station-console-command    ::=<ROM switches>#<NETLDR command string>
                                  or <ROM switches>#
                                  or <NETLDR command string>
                                  or nothing
```

where:

```
#                          ::=space
<ROM switches>             ::=<[/Lsyn#][/Nnn][/Sser]>
<NETLDR command string>    ::=<filespec [/switch][/switch]...>
                           or </switch[/switch]...[filespec]>
```

The ROM switches that can be used with the remote station are listed in Table A-1. NETLDR command strings are defined in Appendix B.

NOTE

Always follow ROM switches with a space.

Table A-1
Remote Station ROM Switches

Switch	Function
/Lsyn#	Specifies the synchronous line number (syn#) over which the ROM is to transmit load requests. The default is 0.
/Nnn	Specifies the node number (nn) of the host where the software for the remote station is stored. The host at the specified node must also contain NETLDR, which is used to down-line load the software. The default is any host; if either nn or the entire switch is omitted, the remote station accepts loads from any host.
/Sser	Specifies the serial number of the remote station. The default is 0.

APPENDIX B

NETLDR COMMAND STRINGS

A command string to be forwarded to NETLDR at the TOPS-10 host can contain a filespec and/or NETLDR switches. The form of the NETLDR command string is defined below.

```
<NETLDR command string> ::=<filespec[/switch][/switch]...>
                          or
                           </switch[/switch]...[filespec]>
                          or
                           <filespec[/switch]...,filespec[/switch]...
```

where:

```
<filespec>  ::=<[dev:]filename.ext][PPN]>
<switch>    ::=<[/IMAGE][/LOAD][/PACKED][/START:addr]>
filespec    ::= dev:filename.ext[PPN]
```

A filespec is optional, but if present, at least filename must appear. Other filespec arguments default to SYS:, .BIN, and [PPN]=[0,0], respectively. The third form for NETLDR command strings is valid only when the string appears in SYS:NETLDR.INI. In this system file, the first filespec is for the file to contain the dump of the stations, and the second filespec is for the file to load into the station. For more information on NETLDR, see the NETLDR specification in the Software Notebooks.

The optional switches you can send to NETLDR are listed in Table B-1.

Table B-1
NETLDR Bootstrap Switches

Switch	Meaning
/IMAGE	Read the file in image (unpacked) mode. (This is the default mode for a PDP-8 node.)
/LOAD	Load the specified file into the remote station; do not start the program running.
/PACKED	Read the file in packed mode (four 8-bit frames per KL10 word). (This is the default mode for a PDP-11 node.)
/START:addr	Start the program at address addr. If your command string does not include a filespec, NETLDR starts the program currently in memory. This switch is not needed if filespec appears and the program is to start at its default start address.

B.1 DEFAULT LOAD REQUESTS

If the operator uses no switches or filespecs, the load request that is sent over the synchronous line is for a PDP-11 in packed mode, with serial number 0, on line 0. Loading occurs from line 0 of the remote station, but the network sees the loading operation from the line on the adjacent node that performs the loading.

The load request looks for a match with a specification at any TOPS-10 host in SYS:NETLDR.INI that contains these values. If a match is found, the command string in NETLDR.INI is used to load the remote station. If there is no match, an error message is issued at the remote station CTY.

B.2 LOADING EXAMPLES

The simplest procedure uses all the available defaults. At a DN200, the operator turns on the station. The console types a carriage return and line feed. The operator presses (RET) or waits for the console to time out. The ROM then sends out a load request to the adjacent node attached to synchronous line 0 of the remote station (see Figure B-1).

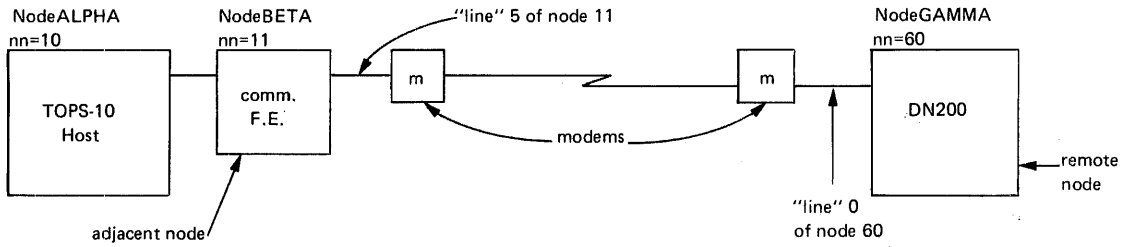

Figure B-1 A Default Load Path

At the TOPS-10 site, the file SYS:NETLDR.INI contains an entry of the following form:

```
/NODE:BETA/LINE:5/TYPE:DN200=XPNN:D2C60?/D,SYS:D2C060
```

This entry causes NETLDR to dump remote station memory up-line into a file called D2C60?.LSD (where ? is incremented by 1 for each new dump) on device XPNN: and then to down-line load remote station memory with the file D2C060.BIN from SYS:.

As NETLDR loads the remote station, the following messages appear on the console at the remote station:

```
%%LOAD REQ ON NODE BETA(11) LINE:5 FOR DN200 SER:0
FILE:SYS:D2C060
" NODE BETA(11) LINE 5 DUMPING ONTO XPNN:D2C600.LSD
" NODE BETA(11) LINE 5 DUMPED FROM 0 THROUGH 157776
" NODE BETA(11) LINE 5 LOADING FROM SYS:D2C060
" NODE BETA(11) LINE 5 LOADED
" NODE BETA(11) LINE 5 STARTING AT ADDRESS 2000

INITIALIZING DN200 V17(67) 21-AUG-78 --

   160000 BYTES OF MEMORY
     MF11-UP
     KW11-L
       .
       .
       .
   (CHK11 output)

RESTARTING DN200 V17(67) 21-AUG-78 --
```

The "RESTARTING..." message appears as the software in the remote station begins to execute. CHK11 output is described in Section 4.1, "Using CHK11 to Check the Hardware."

ROM switches give you flexibility in establishing alternate load paths. For example, if your remote station can communicate over more than one synchronous line, you can send your load request over a specific line by using the /L ROM switch. Given a configuration of two hosts as in Figure B-2, and a failure in node BETA, you can load your node GAMMA from host OMEGA as follows:

```
/L1/N14 (RET)
```

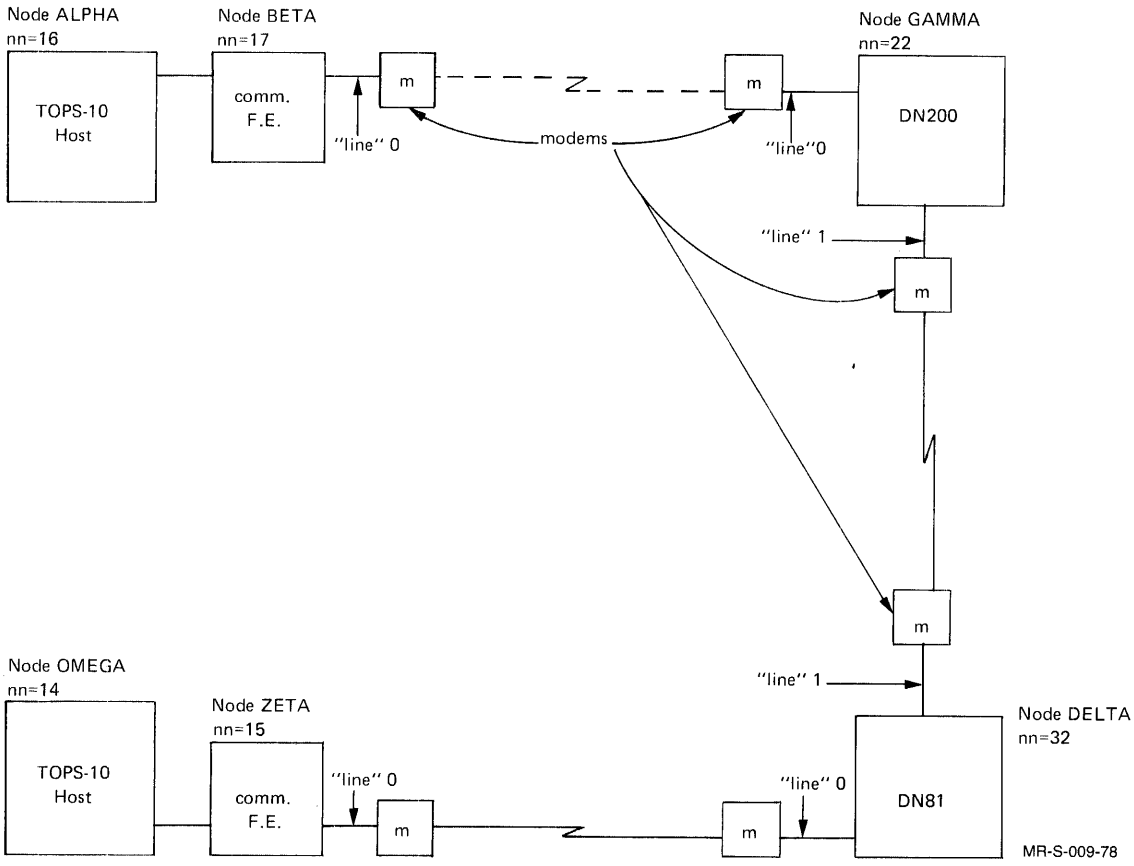

Figure B-2 Using an Alternate Load Path

This routes the load request through node DELTA. Node DELTA creates a station control message for rerouting to the host node OMEGA, adding its own nodename and the number of the synchronous line leading back to the requesting DN200. It then forwards the message to the host at node OMEGA.

If the network contains more than one host, you can use the /N switch to specify which host is to run NETLDR.

To specify a particular file to be loaded from the host, use a filespec and any necessary NETLDR switches. For example, issuing the following ROM switches and NETLDR command string from node GAMMA (Figure B-1) loads node GAMMA with the program SYS:COMM.BIN. This program is stored at node ALPHA and is down-line-loaded by NETLDR. The switches and command string are:

```
/N10 COMM/LOAD (RET)
```

(NETLDR ignores blanks between switches or filespecs.)

To load a file and start the program executing, use:

```
/N10 SYS:COMM.BIN (RET)
```

APPENDIX C

PUNCHED CARD CODES

ASCII data on cards is punched in a specified format. Punched cards are 80 columns wide (usually numbered 1 through 80) and 12 rows high (rows are numbered, top to bottom, as 12, 11, and 0 to 9) (see Figure C-1). All the ASCII characters, including printing characters and nonprinting control characters, can be represented by the appropriate punches on a card. In some cases where the punching device does not have specific keys for punching the code for a particular character, overpunching or multipunching is used to create the desired punches. All possible combinations of punches can be achieved by using the numerics (which punch rows 0 to 9), the minus (which punches row 11), and the ampersand (&) (which punches row 12). (Some keypunch machines use other symbols to punch in the upper card rows.) Each character occupies a single column on the card; up to 5 punched holes may be required to completely specify the code for a character.

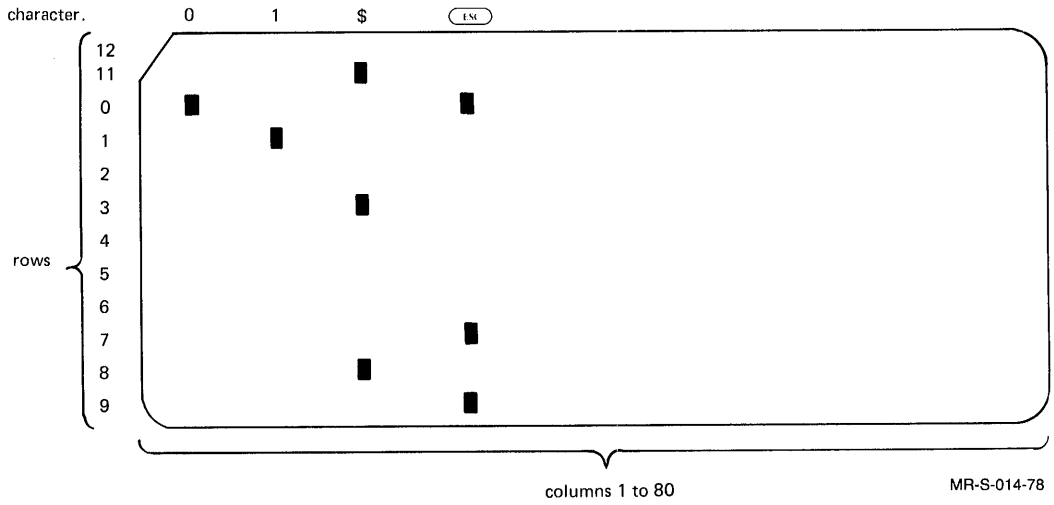

Figure C-1 A Punched Card

Table C-1 lists the ASCII characters in order by their octal representation. Each character is followed by a list of rows that must be punched in the card to represent the character. For example, to represent a 1, row 1 of the card must contain a punched hole; to represent a $, rows 11, 3 and 8, must contain punched holes. Table C-2 lists the ASCII characters according to the punched rows required to represent them.

PUNCHED CARD CODES

Table C-1
ASCII Character Set

Octal Value	Character	Punches	Octal Value	Character	Punches
000	NUL	12 0 9 8 1	100	@	8 4
001	SOH	12 9 1	101	A	12 1
002	STX	12 9 2	102	B	12 2
003	ETX	12 9 3	103	C	12 3
004	EOT	9 7	104	D	12 4
005	ENQ	0 9 8 5	105	E	12 5
006	ACK	0 9 8 6	106	F	12 6
007	BEL	0 9 8 7	107	G	12 7
010	BS	11 9 6	110	H	12 8
011	HT	12 9 5	111	I	12 9
012	LF	0 9 5	112	J	11 1
013	VT	12 9 8 3	113	K	11 2
014	FF	12 9 8 4	114	L	11 3
015	CR	12 9 8 5	115	M	11 4
016	SO	12 9 8 6	116	N	11 5
017	SI	12 9 8 7	117	O	11 6
020	DLE	12 11 9 8 1	120	P	11 7
021	DC1	11 9 1	121	Q	11 8
022	DC2	11 9 2	122	R	11 9
023	DC3	11 9 3	123	S	0 2
024	DC4	9 8 4	124	T	0 3
025	NAK	9 8 5	125	U	0 4
026	SYN	9 2	126	V	0 5
027	ETB	0 9 6	127	W	0 6
030	CAN	11 9 8	130	X	0 7
031	EM	11 9 8 1	131	Y	0 8
032	SUB	9 8 7	132	Z	0 9
033	ESC	0 9 7	133	[	12 8 2
034	FS	11 9 8 4	134	\	0 8 2
035	GS	11 9 8 5	135	]	11 8 2
036	RS	11 9 8 6	136	^	11 8 7
037	US	11 9 8 7	137	—	0 8 5
040	space	None	140	`	8 1
041	!	12 8 7	141	a	12 0 1
042	"	8 7	142	b	12 0 2
043	#	8 3	143	c	12 0 3
044	$	11 8 3	144	d	12 0 4
045	%	0 8 4	145	e	12 0 5
046	&	12	146	f	12 0 6
047	'	8 5	147	g	12 0 7
050	(	12 8 5	150	h	12 0 8
051	)	11 8 5	151	i	12 0 9
052	*	11 8 4	152	j	12 11 1
053	+	12 8 6	153	k	12 11 2
054	,	0 8 3	154	l	12 11 3
055	-	11	155	m	12 11 4
056	.	12 8 3	156	n	12 11 5
057	/	0 1	157	o	12 11 6
060	0	0	160	p	12 11 7
061	1	1	161	q	12 11 8
062	2	2	162	r	12 11 9
063	3	3	163	s	11 0 2
064	4	4	164	t	11 0 3
065	5	5	165	u	11 0 4
066	6	6	166	v	11 0 5
067	7	7	167	w	11 0 6
070	8	8	170	x	11 0 7
071	9	9	171	y	11 0 8
072	:	8 2	172	z	11 0 9
073	;	11 8 6	173	{	12 0
074	<	12 8 4	174	|	12 11
075	=	8 6	175	}	11 0
076	>	0 8 6	176	~	11 0 1
077	?	0 8 7	177	DEL	12 9 7

MR-S-2285-82

Table C-2
ASCII Characters by Punched Rows

Punches	Character	Punches	Character
None	space	12 0 4	d
12	&	12 0 5	e
11	-	12 0 6	f
0	0	12 0 7	g
1	1	12 0 8	h
2	2	12 0 9	i
3	3	12 9 1	SOH
4	4	12 9 2	STX
5	5	12 9 3	ETX
6	6	12 9 5	HT
7	7	12 9 7	DEL
8	8	12 8 2	|
9	9	12 8 3	.
12 11	|	12 8 4	<
12 0	{	12 8 5	(
12 1	A	12 8 6	+
12 2	B	12 8 7	!
12 3	C	11 0 1	~
12 4	D	11 0 2	s
12 5	E	11 0 3	t
12 6	F	11 0 4	u
12 7	G	11 0 5	v
12 8	H	11 0 6	w
12 9	I	11 0 7	x
11 0	}	11 0 8	y
11 1	J	11 0 9	z
11 2	K	11 9 1	DC1
11 3	L	11 9 2	DC2
11 4	M	11 9 3	DC3
11 5	N	11 9 6	BS
11 6	O	11 9 8	CAN
11 7	P	11 8 2	]
11 8	Q	11 8 3	$
11 9	R	11 8 4	*
0 1	/	11 8 5	)
0 2	S	11 8 6	;
0 3	T	11 8 7	^
0 4	U	0 9 5	LF
0 5	V	0 9 6	ETB
0 6	W	0 9 7	ESC
0 7	X	0 8 2	\
0 8	Y	0 8 3	,
0 9	Z	0 8 4	%
9 2	SYN	0 8 5	—
9 7	EOT	0 8 6	>
8 1	`	0 8 7	?
8 2	:	9 8 4	DC4
8 3	#	9 8 5	NAK
8 4	@	9 8 7	SUB
8 5	'	12 9 8 3	VT
8 6	=	12 9 8 4	FF
8 7	"	12 9 8 5	CR
12 11 1	j	12 9 8 6	SO
12 11 2	k	12 9 8 7	SI
12 11 3	l	11 9 8 1	EM
12 11 4	m	11 9 8 4	FS
12 11 5	n	11 9 8 5	GS
12 11 6	o	11 9 8 6	RS
12 11 7	p	11 9 8 7	US
12 11 8	q	0 9 8 5	ENQ
12 11 9	r	0 9 8 6	ACK
12 0 1	a	0 9 8 7	BEL
12 0 2	b	12 11 9 8 1	DLE
12 0 3	c	12 0 9 8 1	NUL

MR-S-2286-82

APPENDIX D

GLOSSARY

This glossary contains terms that are used in this document.

Term	Meaning
assemble	To take a program written in the assembly language of a computer and prepare a program in the machine language of that computer. (For example, to take a MACRO program and create a binary program from it.)
asynchronous line	A line (cable) over which asynchronous communications occur. Such lines are often used to connect terminals to a processor. Asynchronous transmission is data transmission in which time intervals between transmitted characters need not be of equal length. Asynchronous transmission is typically done at moderate rates of speed.
binary file	A file stored on a computer in which all entries are in a binary format.
bootstrap	A routine that initiates the reading of another routine and whose first instructions bring in the rest of the routine. Bootstrapping makes it possible for a tiny routine (one stored, for example, in a bootstrap ROM) to initiate the automatic loading of a larger routine.
down-line load	To load a program from a host processor over a line to a remote processor. The direction of transmission is away from the host.
host	A complete computer facility with a central processor, mass storage devices (such as disks), peripherals (such as printers), and a monitor command routine (MCR) or command decoder. The MCR is part of the TOPS-10 operating system.
load request	The message sent by the remote station ROM to a host. It asks the host to load the remote station and can specify the route for loading over the network.

GLOSSARY

Term	Meaning
modem	A device that modulates and demodulates signals transmitted over communications circuits. Some modems are also called data sets.
node	A processor in the TOPS-10 network. Every processor in the network is a node, whether it is a remote station, a communications front end, or a host itself.
remote station	Equipment that communicates with a host, but that is distant from it. A remote station normally has at least a card reader and a printer; it can also have interactive terminals.
ROM	Read-Only Memory, a memory that can be read but never written into. The ROM in the remote station contains a bootstrap program that brings in another program from the host. The program from the host runs the remote station.
synchronous line	A line (cable) over which synchronous communications occur. Such lines are used to connect processors. Synchronous transmission is data transmission in which time intervals between transmitted characters are of equal length. Synchronous transmission is typically done at relatively high speeds.
TOPS-10	The total operating system. TOPS-10 manages all hardware and software resources.
up-line dump	To send a core-image dump from a remote location to a host.

APPENDIX E

REMOTE STATION OPR COMMANDS

This appendix contains all OPR commands that you can use as the remote operator at a remote station if your PPN has the appropriate privileges. The system administrator at the host must use REACT to give the PPN where you log in remote operator privileges.

OPR provides a help facility with command recognition (use of the (ESC) key) and command help (use of the question mark (?)). You use OPR commands to control the printer and card reader at your remote station, to direct OPR output, to obtain information, to communicate in the network, and to control jobs. You should cooperate with the system operator at the host where you log in as remote station operator to set up the system files (such as SYS:SYSTEM.CMD and SYS:LPFORM.INI) for optimum use of your remote station. The system operator can also place commands you can issue from your remote station in SYSTEM.CMD for execution when the host system is brought up.

The OPR commands are listed by function in Table E-1, and explained briefly in Tables E-2 and E-3. Each OPR command is more fully explained in the remainder of this appendix.

Table E-1
OPR Command Functions

Use	Command	Inverse
To use with your printer	ABORT	
	ALIGN	
	BACKSPACE	FORWARDSPACE
	CANCEL	
	CONTINUE	STOP
	FORWARDSPACE	BACKSPACE
	HOLD	RELEASE
	NEXT	
	RELEASE	HOLD
	REQUEUE	
	SET PRINTER	
	SHUTDOWN	START
	START	SHUTDOWN
	STOP	CONTINUE
	SUPPRESS	

Table E-1 (cont.)
OPR Command Function

Use	Command	Inverse
To use with your card reader	ABORT	
	CONTINUE	STOP
	HOLD	RELEASE
	RELEASE	HOLD
	NEXT	
	SHUTDOWN	START
	START	SHUTDOWN
	STOP	CONTINUE
To direct OPR output	DISABLE OUTPUT-MESSAGES	
	ENABLE OUTPUT-MESSAGES	
	SET TERMINAL	
To obtain information	HELP^1	
	SHOW ALLOCATION	
	SHOW CONTROL FILE	
	SHOW MESSAGES[1]	
	SHOW OPERATORS[1]	
	SHOW PARAMETERS[1]	
	SHOW QUEUES[1]	
	SHOW ROUTE-TABLE[1]	
	SHOW STATUS[1]	
	SHOW SYSTEM-LISTS	
	SHOW TIME	
To communicate in the network	REPORT	
	RESPOND	
	SEND	
To control jobs	MODIFY JOBS	
	TAKE	
To exit from OPR	EXIT	

The objects shown below indicate the device or queue on which a given OPR command operates. These objects can be specified in some of the commands described in subsequent sections.

[1] If you SET TERMINAL KEYPAD on a VT52, this command executes when you press one key.

Table E-2
OPR Objects

Object	Meaning
BATCH-STREAM	Batch input stream, controlled by BATCON.
PRINTER	Line printer spooler, controlled by the output spooler.
READER	Card reader spooler, controlled by the input spooler.
ALL-JOBS	All jobs waiting or held in all queues in the system.
BATCH-JOBS	All jobs or a specified job waiting in the batch input queue; the queue is the list of jobs waiting to be processed by the GALAXY batch system.
PRINTER-JOBS	All jobs or a specified job waiting in the printer output queue.
READER-JOBS	All jobs or a specified job waiting in the card reader input queue.

From remote stations, you cannot execute action commands containing the following OPR objects:

BATCH-STREAM
CARD-PUNCH
PAPER-TAPE-PUNCH
PLOTTER

If you issue an OPR action command with one of the above objects, OPR sends you an error message, for example,

-- Batch commands not allowed from remote nodes --

or

-- System operator privilege required --

You can get help on all commands and OPR parses all commands, but OPR will not execute commands that require system operator privileges.

Table E-3
OPR Commands

Command	Function	Restrictions
ABORT	Terminates a currently running job.	Only aborts jobs queued for your remote site devices.
ALIGN	Prints an alignment file to allow you to align forms.	Only prints on the printer at your remote site.
BACKSPACE	Backspaces a print file queued to the line printer to allow repeating the printing of a job, file, or page(s).	Only backspaces a file on the printer at your remote site.
CANCEL	Cancels a job or jobs in a queue.	Only cancels jobs initiated at your remote site and queued for your remote site devices.
CONTINUE	Restarts a device temporarily stopped by the STOP command.	Only continues your remote site devices.
DISABLE	Stops the output of various types of messages.	Only disables messages with your remote site as destination.
ENABLE	Allows the output display of various types of messages.	Only enables messages with your remote site as destination.
EXIT	Exits from OPR.	Only exits from the OPR you are running from the remote site.
FORWARDSPACE	Spaces a print file forward on the line printer to allow you to skip the printing of a job, file, or page(s).	Only forward spaces for a file printing on the printer at your remote site.
HELP	Displays information about OPR commands.	Does not distinguish between information applicable at the host and at the remote site.

Table E-3 (cont.)
OPR Commands

Command	Function	Restrictions
HOLD	Stops scheduling jobs for a given device.	Only holds devices for your remote site devices.
MODIFY	Changes the priority of a job request.	Only modifies jobs initiated at your remote site and for your remote site devices.
NEXT	Changes the sequence of a job request	Only affects jobs initiated at your remote site
RELEASE	Starts scheduling jobs held in a GALAXY queue with a HOLD command.	Only starts jobs initiated at your remote site and for your remote site devices.
REPORT	Places a comment in the system error file ERROR.SYS.	None.
REQUEUE	Terminates a job queued to an I/O device and reschedules it for processing later.	Only reschedules jobs initiated at your remote site and your remote site devices.
RESPOND	Answers a message that has been sent to you.	Gives one-line response to messages sent to you.
SEND	Sends text messages.	Sends one-line message only.
SET	Sets parameters for OPR objects.	Only sets parameters for printers and terminals at your remote site.
SHOW	Displays system information.	Mostly displays information that pertains to your remote site.
SHUTDOWN	Terminates scheduling for devices.	Only terminates scheduling for devices at your remote site.

Table E-3 (cont.)
OPR Commands

Command	Function	Restrictions
START	Starts scheduling for devices.	Only starts devices at your remote site.
STOP	Temporarily stops devices.	Only stops devices at your remote site.
SUPPRESS	Suppresses blank lines on the printer.	Only suppresses printer at your remote site, and only one file or job.
TAKE	Takes OPR commands from a previously made file.	The file can contain only OPR commands valid for your remote station.

ABORT: ABORTING JOBS

The ABORT command terminates a currently running job. At the remote station, you can only abort jobs queued for your own devices.

Format:

```
                 {PRINTER}                [ /PURGE           ]
ABORT            {READER }n               [ /REASON:comment  ]
                                          [ /REQUEST-ID:nnnn ]
```

Where:

PRINTER	The printer at your remote station.
READER	The card reader at your remote station.
n	0 for remote station card readers, 0 for remote station printers.
/PURGE	Remove the job from the system. Also aborts all output from the job. For a printer job, no header and/or trailer pages are kept.^1
/REASON:comment	Record a comment indicating why you aborted the job. When you abort a printer job, this command appears in the user's log file or on the printed output. The comment cannot exceed a single line.

You cannot use the following keywords and switches to this command with remote operator privileges:

BATCH-STREAM
CARD-PUNCH
/NODE
PAPER-TAPE-PUNCH
PLOTTER

Example:

```
OPR>ABORT READER 0 (RET)
OPR>
09:34:45          Reader 0 [DN200 (20)]          -- Aborting --

OPR>
```

ALIGN: ALIGNING PRINTER PAPER

The ALIGN command halts the line printer and allows you to print a file to align forms in the printer. You can only use this command when a job is active. Use this command when you must align special forms such as payroll checks or invoices.

Format:

```
ALIGN PRINTER n  [ Alignment Filespec
                 /PAUSE:nnn
                 /REPEAT-COUNT:nnnn
                 /STOP ]
```

Where:

PRINTER	The printer at your remote station.
n	0 for remote station printers.
Alignment Filespec	Name of file (name and type) used to align the forms. The default file specification is SYS:forms.ALP, where "forms" contains the form name (for example, SYS:NARROW.ALP).
/PAUSE:nnn	Time in seconds (nnn) for the printer to wait before reprinting the alignment file. Default: 10 seconds.
/REPEAT-COUNT:nnnn	Number of times to print the file. Default: 25
/STOP	Switch to resume normal printing or stop aligning forms on the line printer.

You cannot use the following switch for this command with remote operator privileges:

/NODE

Example:

```
OPR>ALIGN PRINTER 0 /PAUSE:30 (RET)
OPR>
10:34:03          Printer 0 [DN200 (20)]    -- Alignment Scheduled --

OPR>
```

BACKSPACE: BACKSPACING WITHIN A JOB

The BACKSPACE command backspaces a print request destined for your printer to allow you to repeat the printing of a job, file, or page(s) of a file. For example, if forms become jammed in the printer, this command enables you to backspace the print file to repeat the damaged pages.

Format:

```
BACKSPACE PRINTER n    { /COPIES:nn }
                       { /FILE      }
                       { /PAGES:nnn }
```

Where:

PRINTER	The printer at your remote station.
n	0 for remote station printers.
/COPIES:n	Number of additional copies to be printed; this number is added to the number previously queued with the PRINT command.
/FILE	Switch to indicate that one file is to be backspaced and printed again.
/PAGES:nnn	Number of pages to backspace a file currently being printed.

If you do not specify either /COPIES or /FILE, you must specify /PAGES.

You cannot use the following switch for this command with remote operator privileges:

/NODE

Example:

```
OPR>BACKSPACE PRINTER 0 /PAGES:12 (RET)
OPR>
10:23:50      Printer 0 [DN200 (20)]      -- Backspaced 12 Pages --

OPR>
```

CANCEL: CANCELING REQUESTS

The CANCEL command cancels job requests for jobs currently processing or waiting to be processed. If an active request is canceled, that request is aborted automatically. At the remote station, you can cancel requests that are to be sent to your printer, and you can cancel requests in the batch input queue that were initiated at the remote station.

Format:

```
                 {BATCH-REQUEST  }   {nnnn  }
CANCEL           {PRINTER-REQUEST}   {[PPN] }
                                     {*     }
```

Where:

BATCH-REQUEST	Request in the batch input queue.
PRINTER-REQUEST	Request in the printer queue.
nnnn	Request number assigned by the system. Use request number to cancel an active job or a request in the queue.
[PPN]	Project-programmer number that identifies the user whose jobs are to be canceled.
*	All requests in the given queue.

You cannot use the following keywords to this command with remote operator privileges:

```
CARD-PUNCH-REQUEST
MOUNT-REQUEST
PAPER-TAPE-PUNCH-REQUEST
PLOTTER-REQUEST
```

Example:

```
OPR>CANCEL BATCH-REQUEST * (RET)
OPR>
12:05:41                    -- 10 Jobs Canceled --

OPR>
```

CONTINUE: RESTARTING A STOPPED DEVICE

The CONTINUE command continues processing on a device temporarily stopped by the STOP command. At the remote station, you can continue processing only for your own devices.

Format:

```
          {PRINTER}
CONTINUE  {READER }n
```

Where:

PRINTER — The printer at your remote station.

READER — The card reader at your remote station.

n — 0 for remote station card readers, 0 for remote station printers; or x:y, a range of devices.

You cannot use the following keywords, switches, and parameters to this command with remote operator privileges:

BATCH-STREAM
CARD-PUNCH
PAPER-TAPE-PUNCH
PLOTTER
/NODE

Example:

```
OPR>CONTINUE PRINTER 0 (RET)
OPR>
11:40:23          Printer 0 [DN200 (20)]          -- Continued --

OPR>
```

DISABLE: STOPPING MESSAGE DISPLAYS

The DISABLE command allows you to control the messages that you receive. You can disable the display of messages for any of your devices, or you can disable messages by message type (for example, JOB-MESSAGES). A simple way to select only certain messages is to DISABLE OUTPUT-DISPLAY of ALL-MESSAGES and then ENABLE OUTPUT-DISPLAY of only those you wish to see. (See the ENABLE command to OPR.)

Note that with remote operator privileges you can DISABLE or ENABLE only message output; you are not able to restrict or permit other system activities.

Format:

```
                    { ALL-MESSAGES                          }
                    { BATCH-MESSAGES                        }
                    { CARD-PUNCH-MESSAGES                   }
                    { CARD-READER-INTERPRETER-MESSAGES      }   [ /INFORMATION-MESSAGES ]
DISABLE OUTPUT-DISPLAY { MOUNT-MESSAGES                     }   [ /JOB-MESSAGES         ]
                    { PAPER-TAPE-PUNCH-MESSAGES             }   [ /OPR-ACTION-MESSAGES  ]
                    { PLOTTER-MESSAGES                      }
                    { PRINTER-MESSAGES                      }
                    { READER-MESSAGES                       }
                    { USER-MESSAGES                         }
```

Where:

ALL-MESSAGES	Disables all messages sent to this OPR.
BATCH-MESSAGES	Disables messages about batch jobs.
CARD-PUNCH-MESSAGES	Disables messages about card punch jobs at the host.
CARD-READER-INTERPRETER-MESSAGES	Disables messages about the card reader interpreter.
MOUNT-MESSAGES	Disables all messages about mounting structures and tapes.
PAPER-TAPE-PUNCH-MESSAGES	Disables messages about the paper tape punch.
PLOTTER-MESSAGES	Disables messages about the plotter at the host.
PRINTER-MESSAGES	Disables messages about printer jobs.

READER-MESSAGES	Disables messages about card reader jobs.
USER-MESSAGES	Disables user messages.
/INFORMATION-MESSAGES	Disables informational messages for the specified device or message type.
/JOB-MESSAGES	Disables messages about jobs for the specified device or message type.
/OPR-ACTION-MESSAGES	Disables messages for which operator action is needed for the specified device or message type.

Example:

```
OPR> DISABLE OUTPUT-DISPLAY USER-MESSAGES /JOB-MESSAGES (RET)
OPR>
```

ENABLE: STARTING MESSAGE DISPLAYS

The ENABLE command allows you to control the messages displayed at your OPR terminal.

Note that with remote operator privileges you can DISABLE or ENABLE only message output; you are not able to restrict or permit other system activities.

Format:

```
                    ( ALL-MESSAGES                          )
                    | BATCH-MESSAGES                        |
                    | CARD-PUNCH-MESSAGES                   |
                    | CARD-READER-INTERPRETER-MESSAGES      |   [ /INFORMATION-MESSAGES ]
ENABLE OUTPUT-DISPLAY { MOUNT-MESSAGES                      }   [ /JOB-MESSAGES         ]
                    | PAPER-TAPE-PUNCH-MESSAGES             |   [ /OPR-ACTION-MESSAGES  ]
                    | PLOTTER-MESSAGES                      |
                    | PRINTER-MESSAGES                      |
                    | READER-MESSAGES                       |
                    ( USER-MESSAGES                         )
```

Where:

ALL-MESSAGES — Enables the display of all messages for the OPR you are running.

BATCH-MESSAGES — Enables the display of messages about batch jobs.

CARD-PUNCH-MESSAGES — Enables the display of messages about the card punch at the host.

CARD-READER-INTERPRETER-MESSAGES — Enables the display of messages about the card reader interpreter. Such messages occur when cards are in the wrong format or contain illegal commands.

MOUNT-MESSAGES — Enables the display of messages about mounting tapes and disks.

PAPER-TAPE-PUNCH-MESSAGES	Enables the display of messages about the paper tape punch at the host.
PLOTTER-MESSAGES	Enables the display of messages about the plotter at the host.
PRINTER-MESSAGES	Enables the display of messages about printer jobs.
READER-MESSAGES	Enables the display of messages about card reader jobs.
USER-MESSAGES	Enables the display of user messages.
/INFORMATION-MESSAGES	Enables the display of informational messages about a specified device or type of message.
/JOB-MESSAGES	Enables the display of messages about jobs destined for a specified device or type of message.
/OPR-ACTION-MESSAGES	Enables the display of messages that require operator action (for example, please or forms-change requests).

Example:

```
OPR> ENABLE OUTPUT-DISPLAY PRINTER-MESSAGES /JOB-MESSAGES (RET)
OPR>
```

EXIT: LEAVING OPR

The EXIT command removes you from OPR command level and returns you to TOPS-10 monitor level.

When you exit from OPR, any messages intended for your remote station are routed to the operator at the TOPS-10 host. It is good practice to have the operator's console at your remote station dedicated to running OPR and not to exit from OPR while your station is running.

Format:

```
EXIT
```

Example:

```
OPR>EXIT (RET)

.
```

FORWARDSPACE: SKIPPING PRINT FILES

The FORWARDSPACE command skips forward in a file destined for the printer to omit printing an entire job, a file, or a specified number of pages. If you require only a portion of some printed output, this command lets you save paper and print only the output you need.

Format:

```
FORWARDSPACE PRINTER n  {/COPIES:nnnn}
                        {/FILE       }
                        {/PAGES:nnn  }
```

Where:

PRINTER	The printer at your remote station.
n	0 for remote station printers.
/COPIES:nnnn	Skip the indicated number of copies; this number is subtracted from the number of copies queued with the PRINT command.
/FILE	Skip one file.
/PAGES:nnnn	Skip the indicated number of pages in the file currently being printed.

You must specify either /COPIES, /FILE, or /PAGES with the FORWARDSPACE command.

You cannot use the /NODE switch to this command with remote operator privileges.

Example:

```
OPR> FORWARDSPACE PRINTER 0 /COPIES:15 (RET)
OPR>
13:21:09          Printer 0 [DN200(20)]     -- Forward Spaced 15 Copies --

OPR>
```

HELP: OBTAINING INFORMATION

The HELP command displays information about any of the OPR commands on your terminal. If you type HELP, OPR displays a list of available OPR commands. To obtain information about a specific OPR command, type HELP and the command name. For information about all OPR commands, type HELP *. You can obtain HELP information on all OPR commands from your remote station, not just on commands useful at the remote station. HELP is also available through the question mark (?) and (ESC) key. The question mark prompts you to fill in your command line properly; the (ESC) key fills in what it can, and provides guidewords.

Format:

HELP [command / *]

Where:

command — Any OPR command name.

Examples:

```
OPR>HELP RESPOND (RET)
OPR>
        The RESPOND command allows you to reply to any message
        that requires a response.

        The format is:

        RESPOND <message-number> response

        where <message-number> is an outstanding message number

        followed by a single or multiple line response.

OPR>
```

HOLD: HOLDING JOBS IN A QUEUE

The HOLD command stops scheduling jobs that are waiting in a GALAXY queue. After you issue a HOLD command, jobs can be submitted, but they are not scheduled for processing until you issue a RELEASE command. If a job has already been processed, it cannot be held.

At the remote station, you can only use the HOLD command to hold batch jobs submitted from your station and printer jobs destined for your remote station.

Format:

```
HOLD  {BATCH-JOBS  }  {nnnn  }
      {PRINTER-JOBS}  {[PPN] }
                      {*     }
```

Where:

BATCH-JOBS	Jobs in the batch input queue.
PRINTER-JOBS	Jobs in the print queue.
nnnn	Request number assigned by the system.
[PPN]	Project-programmer number that identifies the user.
*	All job requests in the specified queue.

You cannot use the following keywords and switch to this command with remote operator privileges:

```
CARD-PUNCH-JOBS
PAPER-TAPE-PUNCH-JOBS
PLOTTER-JOBS
/NODE
```

Example:

```
OPR>HOLD PRINTER-JOBS * (RET)
OPR>
13:19:04          -- 10 Jobs Held --

OPR>
```

MODIFY: MODIFYING REQUESTS

The MODIFY command allows you to change the priority of a batch job or printer request. Higher priority numbers are processed first. At the remote station, you can change only the priority of jobs queued for your line printer and the priority of jobs in the batch input queue initiated at your remote station.

Format:

```
MODIFY  {BATCH-REQUEST  }  {nnnn  }        PRIORITY nn
        {PRINTER-REQUEST}  {[PPN] }
                           {*     }
```

Where:

BATCH-REQUEST	A request in the batch input queue.
PRINTER-REQUEST	A request in the print queue.
nnnn	Request number assigned by the system.
[PPN]	Project-programmer number that identifies the user.
*	All job requests held in the queue for your station.
PRIORITY nn	The priority (nn) you assign to the request.

When a user makes a print request (issues a PRINT command), the request receives the system default priority (nn), normally 10, specified by the system administrator at the host. As the remote station operator, you can use the MODIFY command to change the priority of a print request.

The system recognizes priorities in the range 1 to 63, with higher numbers receiving service first. A job with a priority outside the allowed range is queued but not serviced (printed or executed). You can change the range of priorities for the printer with the SET PRINTER PRIORITY-LIMITS command, and you can change the priority of a specific job with the OPR MODIFY command. Users can change the priorities of their own jobs with the /PRIORITY switch to the PRINT or SUBMIT command. A user can specify priority only as high as 20; you can use priority 1 to print files in the order you queue them, rather than smallest first. For batch jobs, priority 1 has the same effect, but may delay the running of the job until the queue is empty of all other jobs. For batch jobs, it is preferable to use the /DEPENDENCY switch with the /MODIFY and SUBMIT commands to have batch jobs run in a specific order.

You cannot use the following keywords and switch to this command with remote operator privileges:

ACTIVE-SWAPPING-LIST
CARD-PUNCH-REQUEST
CRASH-DUMP-LIST
/NODE
PAPER-TAPE-PUNCH-REQUEST
PLOTTER-REQUEST
SYSTEM-SEARCH-LIST

Example:

```
OPR>MODIFY PRINTER-REQUEST [27,5117] PRIORITY 5 (RET)
OPR>
14:01:29          -- 10 Requests Modified --

OPR>
```

NEXT: SPECIFYING THE NEXT JOB IN THE QUEUE

The NEXT command allows you to move one job ahead of the rest in the queue. Using the NEXT command does not alter the priority or sequence of other jobs in the queue. If another job is currently printing, the request you specify starts as soon as the current request is printed.

FORMAT:

NEXT PRINTER 0 REQUEST-ID nnnn

Where:

nnnn	is the request-identification number

The following keywords are not available with remote operator privileges:

BATCH-STREAM
CARD-PUNCH
PAPER-TAPE-PUNCH
PLOTTER

Example:

A user (SEN) requests that her print job be moved to the top of the print queue to be printed when a printer is available. You must examine the print queue to obtain the request-identification number for her print request. Then you use the NEXT command to place her request next in the queue.

```
OPR> SHOW QUEUES PRINTER (RET)

OPR>
11:35:43                    -- System Queues Listing --

Printer Queue:
Job Name        Req     Limit              User
--------       ------  -------  --------------------------------
* BREAK          14      200    KOVALCIN, D [10,4635]      On Unit:0
   Started at 11:30:44, printed 20 of 200 pages
  MAIL          145       35    MAROTTA, M [27,5555]
  SNOOPY         10       65    SEN, M   [443,2520]        /After:29-MAY-82 12:00
   There are 3 jobs in the queue (1 in progress)

        (ESC)              (ESC)
          |                  |
OPR> NEXT (job on)  PRINTER (unit number)  0 REQUEST-ID 10 (RET)

OPR>
11:36:17   Printer 0 -- NEXT request 10 scheduled --

OPR>
```

RELEASE: RELEASING JOBS IN THE QUEUE

The RELEASE command restarts the scheduling of jobs for your station. Any jobs held with the HOLD command are scheduled for processing after you issue the RELEASE command.

At the remote station, you can use the RELEASE command to release only print jobs queued for your station and jobs in the batch queue initiated from your station.

Format:

```
RELEASE  {BATCH-JOBS }  {nnnn  }
         {PRINTER-JOBS}  {[PPN] }
                         {*     }
```

Where:

BATCH-JOBS	Jobs in the batch input queue.
PRINTER-JOBS	Jobs in the print queue.
nnnn	Request number assigned by the system.
[PPN]	Project-programmer number that identifies the user.
*	All job requests held in the queue.

You cannot use the following keywords to this command with remote operator privileges:

```
CARD-PUNCH-JOBS
/NODE
PAPER-TAPE-PUNCH-JOBS
PLOTTER JOBS
```

Example:

```
OPR>RELEASE BATCH-JOBS * (RET)
OPR>
14:23:45          -- 2 Jobs Released --

OPR>
```

REPORT: RECORDING COMMENTS

The REPORT command allows you to report existing conditions in the system log file named ERROR.SYS. REPORT is useful when you do not wish to specify a reason with the /REASON switch to an ABORT or REQUEUE command.

When you issue a REPORT command, your message is placed in the ORION log file [3,3]OPERAT.LOG and in ERROR.SYS.

You can enter a single- or multiple-line message. To enter a single line comment, enter the text and terminate it with (RET) . To enter a multiline comment, press (RET) before entering your text, then enter the text and terminate your message with (CTRL/Z) .

Format:

```
REPORT [user Name] [device] [text]
```

Where:

User Name	User name to identify the person making the report.
Device	The device that is the subject of this report. (Omit the device name if the report does not concern a device.)
Text	A comment describing the condition to be logged.

Examples:

```
OPR>REPORT OP170 CDR170:  too many pick checks (RET)
OPR>
hh:mm:ss -- ERROR.SYS entry made by the REPORT Command --

OPR>REPORT (by) OP170 PTR ?  confirm for multiple line response
    or single line response
OPR>REPORT OP170 PTR (RET)
    Enter Text and Terminate with ^Z
The printer at this station is giving a lot of print hammer
alarms.  F.S.  has been called.  (RET)
 (CTRL/Z)

OPR>
hh:mm:ss -- ERROR.SYS entry made by the REPORT Command --

The SYSERR entry has the following form:

sequence-number.  hh:mm:ss  SYSTEM LOG ENTRY BY OP170 FOR  DEVICE
PRT on TTY # XXX

     MESSAGE:  (text of message)
```

REQUEUE: RESCHEDULING JOBS

The REQUEUE command terminates a job currently in the printer queue and reschedules it for processing at a later time. The requeued job is held and its current processing terminates. To reschedule the job, issue a RELEASE command.

At the remote station, you can only requeue jobs queued for your own printer.

Format:

```
                                  [/REQUEST-ID:nnnn          ]
                                  [                 {COPY}   ]
REQUEUE PRINTER n                 [BEGINNING-OF     {FILE}   ]
                                  [                 {JOB }   ]
                                  [CURRENT-POSITION          ]
                                  [/REASON:comment           ]
```

Where:

PRINTER	The printer at your remote station.
n	0 for remote station printers.
/REQUEST-ID:nnnn	Request number assigned by the system.
BEGINNING-OF COPY	Requeue from the beginning of the copy originally queued with a /COPIES switch. (Also see the BACKSPACE and FORWARDSPACE commands).
BEGINNING-OF FILE	Requeue from the beginning of the current file.
BEGINNING-OF JOB	Requeue from the beginning of the current job. With the JOB parameter, the entire job is requeued.
CURRENT-POSITION	Requeue from the current position of the current job on your printer.
/REASON:comment	Record a comment indicating why you requeued the job. The comment is recorded in the OPR log file [3,3]OPERAT.LOG.

You cannot use the following keywords and switch to this command with remote operator privileges:

```
BATCH-STREAM
CARD-PUNCH
PAPER-TAPE-PUNCH
PLOTTER
/NODE
```

Example:

```
OPR>REQUEUE PRINTER 0 BEGINNING-OF JOB (RET)
OPR>
15:51:06          Printer 0 [DN200(20)]  -- Requeued --

OPR>
```

RESPOND: ANSWERING MESSAGES

The RESPOND command allows you to answer a message sent from a user waiting for a response. When a user sends a message that requires a response, OPR assigns a number to the message so that you can keep track of it. Your response can be a single line or multiple lines. View outstanding messages with the SHOW MESSAGES command.

With remote operator privileges, you can respond only to messages that have been sent to your station.

Format:

```
RESPOND nnn Text
```

Where:

nnn	Outstanding message number.
Text	Response to the outstanding message.

Examples:

```
OPR>SHOW MESSAGES (RET)
hh:mm:ss      -- System Messages Outstanding --

   <2>        Printer 0 [DN200(20)]
              Please Load Forms Type 'NARROW'
              Type 'RESPOND <NUMBER> CONTINUE' WHEN READY

OPR>RESPOND 2 CONTINUE (RET)
              Printer 0 [DN200(20)] -- LOADING VFU WITH 'NARROW' --

OPR>RESPOND 2 (RET)
    multiple
    line
    response
      (CTRL/Z)
OPR>
```

SEND: SENDING MESSAGES

The SEND command sends messages to the operator at the host, to a job, to a terminal, or to all terminals in the network. To send a single line message, enter the text and terminate it with (RET). To enter a multiline message, press (RET) before entering your text, then enter the text and terminate your message with (CTRL/Z).

Format:

```
SEND  { ALL              }  [/NODE:nodename]  Text
      { JOB:nnnn         }
      { OPERATOR         }
      { TERMINAL nnnn    }
```

Where:

ALL	Sends the message to all terminals in the network.
JOB:nnnn	Sends the message to the job with the specified number.
OPERATOR	Sends the message to the operator at the host.
TERMINAL nnnn	Sends the message to the terminal with the specified number.
/NODE:nodename	Sends the message to the node given.
Text	Contains the text of the message to be sent.

You cannot use the following keyword to this command with remote operator privileges:

BATCH-STREAM

Example:

```
OPR> SEND OPERATOR please send the new stand-alone schedule (RET)
OPR>
14:22:50          --SEND Command Completed--

OPR>
```

At the central site, the operator's terminal buzzer sounds and the following message is displayed:

```
OPR>
hh:mm:ss From Operator DN200(20):
         => please send the new stand-alone schedule
OPR>
```

SET PRINTER: SETTING PRINTER CHARACTERISTICS

The SET PRINTER command sets characteristics for the printer at your remote station. You can specify the name of a FORMS-TYPE, the action to take when a job exceeds the output line limit that you specify, the PAGE-LIMITS, and the PRIORITY-LIMITS for jobs in the queue for your printer. Use the SHOW PRINTER PARAMETERS command to see what values have been set. Some are initially set by default. You cannot set parameters for a printer at another node.

With remote operator privileges you cannot use the SET command to set parameters for other system devices and activities, except for your terminal. (See SET TERMINAL command.)

Format:

```
                                  { FORMS-TYPE name                                  }
                                  {                                                  }
                                  { LIMIT-EXCEEDED-ACTION {ABORT }                   }
                                  {                       {ASK   }                   }
SET PRINTER      n                {                       {IGNORE}                   }
                                  {                                                  }
                                  { PAGE-LIMITS {nnnn}                               }
                                  {             {n:m }                               }
                                  {                                                  }
                                  { PRIORITY-LIMITS {nn }                            }
                                  {                 {n:m}                            }
```

Where:

PRINTER — The printer at your remote station.

n — 0 for remote station printers.

FORMS-TYPE name — The name of the form you should put in the printer. The name is specified by your systems programmer, or system administrator, in SYS:LPFORM.INI.

LIMIT-EXCEEDED-ACTION — Action to take if the print job exceeds the specified output page limit. Specify the action to take as follows:

- ABORT — The print job terminates.
- ASK — You are asked what to do (abort or continue).
- PROCEED — The print job continues and the page limit is ignored.

PAGE-LIMITS — Maximum number of pages allowed for printed output specified as a number (nnnn), or minimum to maximum number of pages given as a range (n:m). If you give a minimum, jobs containing less than that number of pages are not printed; if you give a maximum, jobs containing more than that number of pages are not printed.

PRIORITY-LIMITS	Priority limits of a particular printer. A normal printer job for your printer receives the system default priority (nn) specified by your system administrator. As the printer operator, you can give a priority range for your printer with the SET command. The priority must be in the range 1-63, with higher numbers receiving service first. The user can modify the priority of a job with the MODIFY command or set the priority of a job with a /PRIORITY switch. A job with priority outside the allowed range is queued but not printed. An unprivileged user can specify priority only as high as 20; he can use priority 1 to print files in the order entered, not smallest first.

Example:

```
OPR> SET PRINTER 0 LIMIT-EXCEEDED-ACTION ASK (RET)
OPR>
```

SET TERMINAL: SETTING TERMINAL CHARACTERISTICIS

The SET TERMINAL command sets the characteristics of the terminal from which you are running OPR at your remote station. You can specify your terminal type and whether you wish to use the keys on your terminal keypad as function keys to issue OPR commands. (The keypad is the block of 15 keys, usually at the right, separate from the typewriter keyboard on your terminal.)

Format:

```
SET TERMINAL  { KEYPAD      }
              { NOKEYPAD    }
              { TYPE   type }
```

Where:

KEYPAD (VT52 and VT100 terminals only) — Activates the keypad. The active keys issue the following OPR commands:

Key		Command
<ENTER>	=	? help (lists all OPR commands)
1	=	SHOW STATUS
2	=	SHOW QUEUES
3	=	SHOW PARAMETERS
4	=	SHOW MESSAGES
5	=	SHOW ROUTE TABLE
7	=	clears screen
8	=	SHOW OPERATORS
9	=	SHOW QUEUE MOUNT-REQUESTS

NOTE

When you activate the keypad, you must press (ESC) twice each time you use recognition.

NOKEYPAD — Deactivates the keypad.

TYPE type — Gives your terminal type with the following characteristics:

Type	Characteristics
33	Teletype (R) Model 33, with no formfeed, no tab, uppercase only, 72 characters wide, 66 lines long.
35	Teletype (R) Model 35, with formfeed, tab, uppercase only, 72 characters wide, 66 lines long.
LA36	No formfeed, no tab, both uppercase and lowercase, 132 characters wide, 66 lines long.

Type	Characteristics
LA120	Both uppercase and lowercase, 132 characters wide, 66 lines long.
VT05	No formfeed, with tab, uppercase only, 72 characters wide, 20 lines long.
VT50	No formfeed, no tab, uppercase only, 80 characters wide, 12 lines long.
VT52	No formfeed, with tab, both upper and lowercase, 80 characters wide, 24 lines long.
VT61	No formfeed, with tab, both upper and lowercase, 80 characters wide, 24 lines long, local text editing.
VT100	No formfeed, with tab, both upper and lowercase, 80 or 132 characters wide, 24 lines long, smooth low-speed scroll, XON, XOFF.

Example:

```
OPR>SET TERMINAL TYPE LA36 (RET)
```

Example using the keypad on a VT52:

```
OPR>SET TERMINAL KEYPAD (RET)

OPR> <8>

OPR>

14:03:31          --Operators--

 Node      Type      Terminal    Job        User

KL1026    system        221      61    USER [67,1001]
CTCH22    remote          4       2    OPR[122,2]

OPR>
```

SHOW: DISPLAYING SYSTEM INFORMATION

The SHOW command displays information about the system.

Use it to display the date and time, the outstanding messages for your remote station, the parameters set for your printer, the queues and route tables, the network operators, and the status of printers and card readers. You can obtain information about a specific node with the /NODE switch. Because this command has several keywords with several switches and parameters, each keyword applicable at a remote station is described separately.

Format:

SHOW Keyword [/NODE:nodename]

Where:

Keyword
- ALLOCATION
- CONTROL-FILE
- MESSAGES
- OPERATORS
- PARAMETERS
- QUEUES
- ROUTE-TABLE
- STATUS
- SYSTEM-LISTS
- TIME

nodename — The name of the node about which you want information. Always follow a nodename with a double colon (::); you can obtain the double colon with (ESC).

SHOW ALLOCATION: Displaying Allocations

The SHOW ALLOCATION command displays disk and magnetic tape allocations assigned at the host.

Format:

```
SHOW ALLOCATION  { ALL-REQUESTS                    }
                 { BATCH-REQUEST [request-id]      }
                 { JOB  job-number                 }
```

Where:

request-id	The request-id of a specific batch request. If omitted, allocations for all batch requests appear.
job-number	The number of a specific job.

Example:

```
OPR>SHO ALLOC ALL
OPR>
15:50:51        -- Mountable Device Allocations --

Allocation for job 4 OPSER [1,2]
Volume set      Resource        Type            All     Own
----------      --------        ----            ---     ---
DSKB            DSKB            Structure       1       1
DSKC            DSKC            Structure       1       1

Allocation for batch request 38 KILGORE [30,5000]
Volume set      Resource        Type            All     Own
----------      --------        ----            ---     ---
---             RP20            Disk unit       1       1
DSKP            DSKP            Structure       1       1

Allocation for job 59 COLBATH [10,10000]
Volume set      Resource        Type            All     Own
----------      --------        ----            ---     ---
---             9TK 800/1600    Magtape unit    1       0
DSKB            DSKB            Structure       1       1
DSKC            DSKC            Structure       1       1
MTA-DK68H5      ATC8            Magtape vol.    1       0
```

SHOW CONTROL-FILE: Displaying Batch-Stream Control Files

The SHOW CONTROL-FILE command displays the correct contents of the control in use from a particular batch stream.

Format:

```
SHOW  CONTROL-FILE  BATCH-STREAM  m [LINES:m]
```

Where:

n	The number of the batch stream.
m	The number of lines to display from the control file (1 to 15).

Example:

```
OPR> SHO  CONTROL-FILE  BA  0  /LINES:3
OPR>
16:06:22        Batch-Stream 0 JOB #55  --Show control file--
                JOB ONE Req #789 for USER [30,4000]
                *Input from DSKP:TEST.CTL [30,4000]*
                *FORERR.RLS=FORERR.MAC
                .;..DIRECT/CHECKSUM

OPR>
```

SHOW MESSAGES: Displaying Messages

The SHOW MESSAGES command displays any outstanding messages for your remote station. Use the RESPOND command to reply to a message, or simply take the indicated action. To use SHOW MESSAGES, you must ENABLE OUTPUT-DISPLAY of ALL-MESSAGES (the default) or ACTION-MESSAGES.

At the remote station, only the messages outstanding for your station are displayed.

Format:

```
SHOW MESSAGES [nnnn]  [/NODE:nodename]
```

Where:

nnnn	Outstanding message number (0 to 9999). If no number is entered, all outstanding messages, with their sequence numbers, are displayed.
nodename	The name of the node about which you want information.

Examples:

```
OPR>SHOW MESSAGES (RET)
OPR>
12:31:29   -- SYSTEM MESSAGES OUTSTANDING --

12:30:30  <47>  Batch-stream 1   JOB #19
                SPRINT: Please START the card reader.
                SEND message to User: [27,5117] when done.

OPR>SHO M   /N:CTCH22:: (RET)

12:40:10   -- No Messages for Node CTCH22(22) --

OPR>
```

NOTE

You can use recognition (with (ESC)) on all keywords, but you cannot use recognition on a nodename.

SHOW OPERATORS: Displaying Network Operators

The SHOW OPERATORS command displays information about all users in the network who are running OPR. You can use the /NODE switch to display only the users who are running OPR at a given node.

Format:

```
SHOW OPERATORS [/NODE:nodename]
```

Where:

nodename Specifies the name of a node.

Example:

```
OPR>SHOW OPERATORS

OPR>
14:03:31   --Operators--

 Node      Type      Terminal    Job      User
KL1026    system       221       61   USER[67,1001]
CTCH22    remote       354        2   OPR[170,2]

                                    .
                                    .
                                    .
OPR>
```

SHOW PARAMETERS: Displaying Printer Parameters

The SHOW PARAMETERS command displays the parameters set for a printer on a batch stream.

Format:

```
                          {BATCH-STREAM}
SHOW PARAMETERS           {PRINTER     }  n    [/NODE:nodename::]
```

Where:

PARAMETERS	Printer and batch stream characteristics for which values can be set.
BATCH-STREAM	The batch streams established on your host.
PRINTER	The printer.
n	Unit number of the OPR object; 0 for your remote station printer, 0 to system limit for batch streams.

Example:

```
OPR>SHOW PARAMETERS PRINTER 0 (RET)
OPR>

07:35:07                -- System Device Parameters--

Printer Parameters:
  Unit    Node       Page Limits  Form     Prio  Lim-Ex  Dev-Chars
  ----  ---------  -----------  ----     ----  ------  ---------
   0      DN200(20)     1:500   NORMAL   1:63   Ask      Lower

OPR> SHOW PARAMETERS BATCH-STREAM 0 (RET)

OPR>
14:18:55             --System Device Parameters--

Batch-Stream Parameters:

 Strm  Minutes   Prio   Opr-Intvn
   0   0:3600    1:63      Yes

OPR>
```

SHOW QUEUES: Displaying Queued Jobs

The SHOW QUEUES command displays the list of jobs that are waiting in a queue to be processed and any jobs that have been held for rescheduling. You can display all jobs for your remote station or only batch or printer jobs. If a job for which a HOLD command has been specified is displayed, the /HOLD switch is also displayed.

Format:

```
SHOW QUEUES  [ALL-JOBS                ]  [/ALL                 ]
             [BATCH-JOBS              ]  [/NODE:nodename::     ]
             [CARD-PUNCH-JOBS         ]  [/SHORT               ]
             [MOUNT-REQUESTS          ]  [/USER:[p,pn]         ]
             [PAPER-TAPE-PUNCH-JOBS   ]
             [PLOTTER-JOBS            ]
             [PRINTER-JOBS            ]
```

Where:

ALL-JOBS	All jobs in all system queues.
BATCH-JOBS	Only jobs in the batch input queue.
CARD-PUNCH-JOBS	Jobs queued for the host card punch.
MOUNT-REQUESTS	Requests to mount a structure.
PAPER-TAPE-PUNCH-JOBS	Jobs queued for the host paper tape punch.
PLOTTER-JOBS	Jobs queued for the host plotter.
PRINTER-JOBS	Jobs queued for the printers.
/ALL	Displays complete information on the queued job or request.
/NODE:nodename::	Displays information on a job or request at the given node.
/SHORT	Displays an abbreviated version of the information.
/USER:[PPN]	Displays information on jobs or requests for a specific [PPN].

Examples:

```
OPR> SHOW QUEUES PRINTER-JOBS (RET)
OPR>
14:26:16          -- System Queues Listing --

Printer Queue:
Job Name   Req#   Limit          User
--------   ----   -----   --------------------
  LPTEST    317    108    ACARLSON                /Lower  /Dest:DN200
There is 1 Job in the Queue (None in Progress)

OPR>SHO Q/BA

OPR>
14:31:40              --System Queues Listing--
Batch Queue:
*ELAPSE      15      01:00:00      User[PPN]
 BACKUP      13      00:05:00      User[PPN]

OPR>
```

SHOW ROUTE-TABLE: Displaying Node Routing Tables

The SHOW ROUTE-TABLE command displays the routing tables of the nodes whose output has been transferred with the ROUTE command. At the remote station, you can display only the routing that has been performed for your station by the system operator at the host.

Example:

```
OPR> SHOW ROUTE-TABLE

OPR>
15:04:17          -- System Device Routing Table --

Printer 0 [COMET(70)] Routed to Printer 0 [NEXT(27)]

OPR>
```

SHOW SYSTEM-LISTS: Displaying Dump, Swapping and Search Lists

The SHOW SYSTEM-LISTS command displays lists of structures that contain the crash dumps, active swapping, and the system search lists at the TOPS-10 host.

Format:

```
SHOW  SYSTEM-LISTS
```

Example:

```
OPR> SHO  SYS (RET)
OPR>
16:40:21        -- System lists --

                Crash Dump List:        DSKN:, DSKC:, DSKB:, BLKX:
                Active Swapping List:   RPB0:, RPA3:, RPB5:, RND2:
                System Search List:     DSKC:, DSKB:

OPR>
```

SHOW STATUS: Displaying Device/System Information

The SHOW STATUS command displays the current status of batch streams, devices, and nodes in the network. You can use this command to determine whether your devices are active or idle, and if network nodes are on-line or off-line. If you omit the PRINTER or READER keyword, all devices at your station for which scheduling has been started are displayed.

Format:

```
                  [BATCH-STREAM    ]
                  [CARD-PUNCH      ]
                  [DISK-DRIVE      ]
                  [NETWORK-NODE    ]
                  [PAPER-TAPE-PUNCH]
                  [PLOTTER         ]
SHOW STATUS       [PRINTER         ]    [/NODE:nodename::] [/SHORT]
                  [READER          ]
                  [STRUCTURE       ]
                  [TAPE-DRIVE      ]
```

Where:

BATCH-STREAM	Specifies a batch input stream.
CARD-PUNCH	Specifies a card punch.
DISK-DRIVE	Specifies a disk drive.
NETWORK-NODE	Specifies a node in the network.
PAPER-TAPE-PUNCH	Specifies a paper tape punch.
PLOTTER	Specifies a plotter.
PRINTER	Specifies a printer.
READER	Specifies a card reader.
STRUCTURE	Specifies a disk structure.
TAPE-DRIVE	Specifies a tape drive.
nodename::	Gives status of the given node.
/SHORT	Displays an abbreviated version of the status. If /SHORT is not specified, complete information is displayed.

Examples:

```
OPR>SHOW STATUS PRINTER (RET)

                    -- System Device Status --

Printer Status:
  Unit     Node       Status  Jobname   Req#      User
  ----   ---------    ------  -------   ----   ---------
   0     DN200(20)    Active     NRM      14    [27,5117]
    Started at 19:28:55, printed 0 of 27 pages
```

NOTE

The last three columns appear only if there is an active device.

```
OPR>SHO ST NET (RET)

OPR>
14:43:13                --System Network Status--

     Node Name     Status
     KL1026(26)    On-line
     COMET(70)     Off-line

     (There are 2 Nodes in the Network)

OPR>SHO ST NET /NODE: COMET:: (RET)
```

SHOW TIME: Displaying Date and Time

The SHOW TIME command displays the current date and time. The date is shown in the form dd-mmm-yy (day, month, year) and the time in the form hh:mm:ss (hour, minutes, seconds).

Format:

```
SHOW TIME
```

Example:

```
OPR>SHOW TIME (RET)
 1-Dec-80 11:55:34

OPR>
```

SHUTDOWN: TERMINATING DEVICE SCHEDULING

The SHUTDOWN command terminates scheduling for a specified device at your remote station. When you issue a SHUTDOWN command, the current job that is processing continues until it is completed. Then scheduling of jobs for the device terminates, and no further jobs that require the device are processed.

With remote operator privileges for your remote station, you can terminate scheduling only for your own printer or card reader.

Format:

```
                 {PRINTER}
SHUTDOWN         {READER }     n
```

Where:

PRINTER — The printer at your remote station.

READER — The card reader at your remote station.

n — 0 for remote station card readers, 0 for remote station printers.

Example:

```
OPR>SHUTDOWN PRINTER 0 (RET)
OPR>
16:23:07          Printer 0 [DN200(20)]  -- Shutdown Scheduled --

OPR>
```

You cannot use the following keywords to this command with remote operator privileges:

```
BATCH-STREAM
CARD-PUNCH
NODE
PAPER-TAPE-PUNCH
PLOTTER
/NODE
```

START: STARTING DEVICE SCHEDULING

The START command starts scheduling for your printer or card reader. Use it to restart scheduling terminated by a SHUTDOWN command. With remote operator privileges at the remote station, you can start scheduling only for your own line printer or card reader.

Format:

```
START  {PRINTER}
       {READER}   n
```

Where:

PRINTER	The printer at your remote station.
READER	The card reader at your remote station.
n	0 for remote station card readers, 0 for remote station printers.

Example:

```
OPR> START PRINTER 0 (RET)
OPR>
20:03:09          Printer 0 [DN200(20)]   -- Startup Scheduled --

OPR>
```

You cannot use the following keywords and switch to this command with remote operator privileges:

BATCH-STREAM
CARD-PUNCH
NODE
PAPER-TAPE-PUNCH
PLOTTER
/NODE

STOP: STOPPING DEVICES TEMPORARILY

The STOP command temporarily stops your printer or card reader. The device remains active. It is not shutdown and jobs requesting that device can still be scheduled. Restart a stopped device with a CONTINUE command.

Format:

```
          {PRINTER}
STOP      {READER }n
```

Where:

PRINTER — The printer at your remote station.

READER — The card reader at your remote station.

n — 0 for remote station card readers, 0 for remote station printers.

Example:

```
OPR>STOP READER 0  (RET)
OPR>
21:04:37          Reader 0 [DN200(20)]   -- Stopped --

OPR>
```

You cannot use the following keywords and switch to the command with remote operator privileges:

BATCH-STREAM
CARD-PUNCH
PAPER-TAPE-PUNCH
PLOTTER
/NODE

SUPPRESS: SUPPRESSING CARRIAGE CONTROL

The SUPPRESS command suppresses the printing of blank lines on your printer. When you issue a SUPPRESS command, all formfeed and blank lines in the job to be printed are ignored. All output is single-spaced.

Format:

```
SUPPRESS PRINTER n    [/FILE]
                      [/JOB ]
                      [/STOP]
```

Where:

PRINTER	The printer at your remote station.
n	0 for the printer at a remote station.
/FILE	Suppresses blank lines for the file currently being printed.
/JOB	Suppresses blank lines for the current job being printed, regardless of how many files were specified when the job was originally queued to print. This is the default.
/STOP	Resumes normal printing. The job currently printing reverts back to the print format in effect before the SUPPRESS command was issued.

Example:

```
OPR> SUPPRESS PRINTER 0 /FILE (RET)
OPR>
18:23:45          Printer 0 [DN200(20)]    -- Suppressed --

OPR>
```

You cannot use the following switch to this command with remote operator privileges:

/NODE

TAKE: USING A COMMAND FILE

Use the TAKE command to execute the commands in a previously made file. The file must contain OPR commands that are valid for your remote station.

Format:

```
TAKE    filespec    [/DISPLAY]
                    [/NODISPLAY]
```

Where:

filespec	The file specification of the file containing OPR commands to be executed.
/DISPLAY	Displays events and messages on your terminal as the command file executes. This is the default.
/NODISPLAY	Does not display output as the command file executes.

Example:

Prepare a file called TEST.OPR with any editor containing the following lines:

```
sho sta ba 0
sho q pri
```

Run OPR and use the following command:

```
OPR>TAKE TEST.OPR (RET)

OPR>
17:04:22        -- System Device Status --

Batch-Stream Status
Strm    Status    Jobname    Req#       User
----    ------    -------    ----    --------------
  0     Active      NEW      831     USER [50,2000]
    Job 19 Running MOUNT Runtime 0:00:01

17:04:22        -- System Queues Listing --

Printer Queue:
Jobname     Req#    Limit       User
-------     ----    -----    --------------
*LDDN22     915     225      USER [50,2000]    On Unit:0
    -- Waiting for Operator Intervention --
*15649      924     147      ASG [60,3000]     On Unit:1

[There are 2 jobs in the queue (2 in progress)]

OPR>
```

APPENDIX F

USING SPECIAL PRINT FORMS

Using special forms at a remote site is no different from using special forms at the host. You place specifications describing forms to be printed on your printer in SYS:LPFORM.INI, the file at the host that contains the specifications for the special forms. The system administrator must set up the file protection for LPFORM.INI so that you, as the remote operator, can alter it. SYS:LPFORM.INI must always exist.

Each line in LPFORM.INI is of the form:

```
formname/SW/SW/SW...

    or

formname:locator/SW/SW/SW...
```

Where:

formname — is a 1- to 6-character (SIXBIT) form name. Use form names descriptive of the forms needed at your site.

:locator — names the printer whose form the line in LPFORM.INI describes. The locator can be:

ALL	all printers (default)
LOCAL	local host printer
REMOTE	all remote station printers
LPTxxy	printer unit y at node xx

/SW — specifies one or more switches (see Table E-4)

Table F-4
LPFORM.INI Switches

Switch	Function
/ALCNT:n	The number of times (n) to print the alignment file. The default is 5 times; the switch is optionally used with the /ALIGN switch.
/ALIGN[:filespec]	A 1- to 6-character (SIXBIT) alignment file name used to position the specified form. If the filespec is omitted, the default is formname.ALP; if the extension is omitted, the default extension is .ALP.

Table F-4 (cont.)
LPFORM.INI Switches

Switch	Function
/ALSLP:n	The number of seconds to sleep between each printing of the alignment file. The default is about 7 seconds; the switch is optionally used with the /ALIGN switch.
/BANNER:nn	The number of banner (job header) pages (nn) to print. The default is 2.
/CHAIN:xxx or /DRUM:xxx	A 1- to 6-character (SIXBIT) string giving the name (xxx) of a chain or drum to use on the printer. When the form is scheduled, the name of the chain or drum appears on your terminal.
/HEADER:nn	The number of header pages (nn) to print. The default is 2.
/LINES:nn	The number of lines (nn) to print on each page. The default is 60.
/NOTE:note	A note of up to 50 characters that appears on your OPR terminal when the form is scheduled.
/RAM:filespec	A 1- to 6-character (SIXBIT) filespec containing the translation RAM needed for a 64- or 96-character printer with a loadable RAM. Standard RAM files are distributed with the system software. You cannot change them.
/RIBBON:name	A 1- to 6-character string that names the type of ribbon to use on your printer. The ribbon name appears on your terminal when the form is scheduled.
/TRAILER:nn	The number of trailer pages (nn) to print at the end of each job.
/WIDTH:nnn	The width of the line to print on the banner, header, and trailer pages. LPTSPL converts the value (nnn) to a width class. It prints these identifying pages in one of three widths: Class — Value(nnn) — Characters Per Line 1 — 0 to 60 — up to 66 2 — 61 to 100 — up to 90 3 — 101 to 132 — up to 129

When a request for a new form is made, LPTSPL searches LPFORM.INI for the first line containing the requested formname and the appropriate locator. When a match is found, the switches specified are used. LPTSPL uses the first correct match it finds, reading LPFORM.INI line-by-line.

The user at a remote site terminal can type:

```
PRINT filename/FORMS:narrow (RET)
```

(A user at any other site must use the /DEST switch to print at your remote station.) Executing this PRINT command places a print request in the queue for the printer at your remote station. As the operator at the remote station, you can check the print queue periodically to see if any requests are waiting.

For example, you can use the SHOW QUEUE PRINTER command to see the queue:

```
OPR> SHO Q PRI (RET)
OPR>
15:19:18        -- System Queues Listing --

Printer Queue
Job Name    Req#    Limit    User
SWITCH       657       7    USER [27,5000]/FORMS:NARROW/DEST:COMET(20)

There is 1 job in the queue (none in progress)

OPR>
```

When you see a print request waiting, issue a SET PRINTER FORMS-TYPE command to activate use of the system file SYS:LPFORM.INI. For example, your host system area contains an LPFORM.INI file with a forms specification as follows:

```
NARROW:LPT200/VFU:NORMAL/WIDTH:72
                                  width of form
                          vertical format unit
                    printer unit number
               node number
        form name
```

When a print request for the special form appears in the queue, execute your SET command. For example,

```
OPR> SET PRINTER 0 FORMS-TYPE NARROW (RET)
OPR>
14:13:21        Printer 0  -- Set Accepted --
OPR>
14:13:21        Printer 0  -- Begin --
                Job LPTSPL Req #657 for USER [27,5000]
OPR>
14:13:21  <26> Printer 0
                Please load forms type 'NARROW'
                Type 'Respond <number> CONTINUE' When Ready
```

The message you see gives a message number (<26> in the example) and shows the form name (NARROW). This must be the same name as given by the user in his print request. If no job is currently printing on your printer, the messages appear immediately at your terminal; otherwise, they appear only after your current job is completed. The system operator or host operator at the site where you log in can also place SET commands in the system file SYS:SYSTEM.CMD. For example, SYSTEM.CMD might contain the following set command for your site:

```
SET PRINTER 0/NODE:20::  PAGE-LIMIT 2000
```

node number

unit number

When you see the "load forms type" message, go to the printer and insert the appropriate forms. Be sure to place the printer on line when done. Then issue a RESPOND command to restart printing; for example, use the following:

```
OPR>RES 26 CONTINUE (RET)
OPR>
14:15;14        Printer 0  -- Loading VFU with 'NORMAL' --
OPR>
14:16:44        Printer 0  -- End --
OPR>
14:16:44        Printer 0  -- End --
                Job LPTSPL Req #657 for USER [27,5000]
OPR>
```

To return to normal forms, use:

```
SET  PRIN  0  FORM  NORMAL
```

and repeat the above procedure, changing the form and issuing the RESPOND command. These are the normal procedures for controlling forms at your remote site.

INDEX

ABORT command, E-7
ALIGN command, E-8
Aligning printer forms, E-8
Allocations,
  displaying, E-33
Alternate load path, B-4
ASCII character set, C-2

Back panel,
  card reader, 2-17
Back panel switches,
  card reader, 2-17
BACKSPACE command, E-9
Backspacing print requests, E-9
Batch control files,
  displaying, E-34
Batch jobs,
  submitting, 3-3
Baud rate switches, 2-13
BOOT, 1-1, 2-1
Bootstrap switches,
  NETLDR, B-1
Bootstrapping, 2-1

CANCEL command, E-10
Canceling print requests, E-10
Card,
  punched, C-1
Card reader, 2-15
  back panel, 2-17
  back panel switches, 2-17
  front panel, 2-16
  lamps, 2-16
  operations, 2-18
  starting, 2-10
  switches, 2-16
Carriage control,
  suppressing, E-48
CDRIVE, 2-7
Character set,
  ASCII, C-2
Characters,
  Ascii, C-5
CHK11, 4-1
CHK11 messages, 4-1
Command,
  ABORT, E-7
  ALIGN, E-8
  BACKSPACE, E-9
  CANCEL, E-10
Command (Cont.)
  CONTINUE, E-11
  DISABLE, E-12
  ENABLE, E-14
  EXIT, E-16
  FORWARDSPACE, E-17
  HELP, E-18
  HOLD, E-19
  LOCATE, 2-9
  MODIFY, E-20
  NETWORK, 3-2
  NEXT, E-22
  PRINT, 3-2
  QUEUE, 3-2
  RELEASE, E-23
  REPORT, E-24
  REQUEUE, E-25
  RESPOND, E-26
  Route, 2-9
  SEND, E-27
  SET HOST, 3-1
  SET PRINTER, E-28
  SET TERMINAL, E-30
  SHOW, E-32
  SHOW ALLOCATION, E-33
  SHOW CONTROL-FILE, E-34
  SHOW MESSAGES, E-35
  SHOW OPERATORS, E-36
  SHOW PARAMETERS, E-37
  SHOW QUEUES, E-38
  SHOW ROUTE-TABLE, E-40
  SHOW status, E-42
  SHOW STATUS NETWORKS, 2-9
  SHOW SYSTEM-LISTS, E-41
  SHOW TIME, E-44
  SHUTDOWN, E-45
  START, E-46
  START PRINTER, 2-10
  STOP, E-47
  SUBMIT, 3-3
  SUPPRESS, E-48
  TAKE, E-49
Command file,
  using a, E-49
Command functions,
  OPR, E-1
Commands,
  OPR, E-4
Comments,
  recording, E-24
Components,
  DN200, 1-3
  DN80-series, 1-2
  remote station, 1-1
Concentrator,
  DN200, 1-3

Concentrator (Cont.)
  DN80-series, 1-2
Concentrators,
  remote, 1-1
Console,
  lamps, 2-15
  operator's, 2-13
CONTINUE command, E-11
Control files,
  displaying batch, E-34
Control panel,
  DN200, 1-3
  DN82, 1-2

Date and time,
  displaying, E-44
Default load path, B-2
Default load requests, B-2
Device,
  displaying information, E-42
  relocating station, 2-9
  restarting, E-11
  starting, 2-11
  stopping, E-47
Device scheduling,
  starting, E-46
  terminating, E-45
DISABLE command, E-12
Displaying,
  allocations, E-33
  batch control files, E-34
  date and time, E-44
  device information, E-42
  messages, E-35
  network operators, E-36
  printer parameters, E-37
  queued jobs, E-38
  routing, E-40
  system information, E-32, E-42
  system lists, E-41
DN200, 1-1
  components, 1-3
  concentrator, 1-3
  control panel, 1-3
  remote station, 1-3
  starting the, 1-1
DN80, 1-1
DN80-series,
  components, 1-2
  concentrator, 1-2
  remote station, 1-2
  starting the station, 1-1
DN80-series station,
  starting the, 1-1
DN82, 1-1
  control panel, 1-2
  remote station, 1-2

ENABLE command, E-14
Error,
  hardware, 4-1
  messages, 4-2
  reporting, E-24
  system messages, 4-2
Error messages,
  OPR, 2-8
<ESC> key, 2-8
EXIT command, E-16
Exiting from subjob, 2-20
Exiting OPR, E-16

File,
  using a command, E-49
Files,
  skipping print, E-17
Forms,
  aligning printer, E-8
  special print, F-1
FORWARDSPACE command, E-17
Front panel,
  card reader, 2-16
Functions,
  OPR command, E-1

Glossary, D-1

Hardware, 2-12
  error, 4-1
HELP command, E-18
HOLD command, E-19
Holding queued jobs, E-19
Host,
  operator, 2-6
  system, 1-1
  TOPS-10, 1-1

Information,
  displaying device, E-42
  displaying system, E-32, E-42
  obtaining, E-18

Installation,
  software, 1-1

Jobs,
  displaying queued, E-38
  holding queued, E-19
  releasing queued, E-23
  rescheduling, E-25
  specifying queued, E-22
  terminating, E-7

Key,
  <ESC>, 2-8

LA36 terminal, 2-13
Lamps,
  card reader, 2-16
  console, 2-15
Line printer,
  LP05, 2-18
Lists,
  displaying system, E-41
Load path,
  alternate, B-4
  default, B-2
Load requests,
  default, B-2
LOCATE command, 2-9
Logging in, 2-4
  subjobs, 2-12
Logging in subjob, 2-12
Logging out, 2-20
Logout messages, 2-20
LP05 line printer, 2-18
LPFORM.INI, F-1
  switches, F-1
LPTSPL, 2-7

Message,
  starting displays, E-14
  stopping displays, E-12
Messages, 2-3
  CHK11, 4-1
  displaying, E-35
  error, 4-2
  logout, 2-20
  NETLDR, B-3
  OPR error, 2-8
  ORION, 2-7
  responding to, E-18, E-26
  sending, E-27
Messages (Cont.)
  startup, 2-3, 2-5
  Station, 4-3
  system error, 4-2
Mode switches, 2-13
MODIFY command, E-20
Modifying requests, E-20

NETLDR bootstrap switches,
    B-1
NETLDR messages, B-3
NETLDR program, 2-1
NETLDR.INI, B-2
NETWORK command, 3-2
Network operators,
  displaying, E-36
NEXT command, E-22

Objects,
  OPR, E-3
Obtaining information, E-18
Operations,
  card reader, 2-18
  printer, 2-19
Operator, 2-6
  host, 2-6
  privileges, 2-6
  remote, 2-7
  system, 2-6
Operator procedures, 2-1
Operator's console, 2-13
Operators,
  displaying network, E-36
OPR,
  error messages, 2-8
  exiting, E-16
  starting, 2-7
OPR command functions, E-1
OPR commands, E-4
OPR objects, E-3
OPSER, 2-11
ORION messages, 2-7

Parameters,
  displaying printer, E-37
  setting printer, E-28
  setting terminal, E-30
Path,
  alternate load, B-4
  default load, B-2
PDP-11, 1-1
PRINT command, 3-2

Print files,
  skipping, E-17
Print forms,
  special, F-1
Print requests,
  backspacing, E-9
  canceling, E-10
Printer,
  alarm indicators, 2-19
  alarm lamp, 2-19
  LP05 line, 2-18
  operations, 2-19
  starting, 2-10
Printer forms,
  aligning, E-8
Printer parameters,
  displaying, E-37
  setting, E-28
Printing, 3-2
Privileges,
  operator, 2-6
Procedures,
  operator, 2-1
Program,
  NETLDR, 2-1
Punched card, C-1

QUEUE command, 3-2
Queued jobs,
  displaying, E-38
  holding, E-19
  releasing, E-23
  specifying, E-22

Reader,
  card, 2-15
Recognition,
  Using, 2-8
Recording comments, E-24
RELEASE command, E-23
Releasing queued jobs, E-23
Relocating station device,
    2-9
Remote,
  concentrators, 1-1
  operator, 2-7
  station components, 1-1
Remote station, 1-1
  DN200, 1-3
  DN80-series, 1-2
  DN82, 1-2
  ROM switches, A-1
  starting, 2-1
Remote station DN82, 1-2
Remote station ROM switches,
    A-1
Remote station tasks, 2-9
REPORT command, E-24
Reporting,
  error, E-24
Requests,
  default load, B-2
  modifying, E-20
REQUEUE command, E-25
Rescheduling jobs, E-25
RESPOND command, E-26
Responding to messages,
    E-18, E-26
Restarting device, E-11
Restarting station, 2-4
ROM, 1-1, 2-1
ROM switches,
  Remote station, A-1
Routing,
  displaying, E-40

Scheduling,
  starting device, E-46
  terminating device, E-45
SEND command, E-27
Sending messages, E-27
Set,
  ASCII character, C-2
SET HOST command, 3-1
SET PRINTER command, E-28
SET TERMINAL command, E-30
Setting,
  printer parameters, E-28
  terminal parameters, E-30
SHOW ALLOCATION command,
    E-33
SHOW command, E-32
SHOW CONTROL-FILE command,
    E-34
SHOW MESSAGES command, E-35
SHOW OPERATORS command,
    E-36
SHOW PARAMETERS command,
    E-37
SHOW QUEUES command, E-38
SHOW ROUTE-TABLE command,
    E-40
SHOW status command, E-42
SHOW STATUS NETWORKS
    command, 2-9
SHOW SYSTEM-LISTS command,
    E-41
SHOW TIME command, E-44
SHUTDOWN command, E-45
Skipping print files, E-17

Software installation, 1-1
Special print forms, F-1
Specifying queued jobs, E-22
START command, E-46
START PRINTER command, 2-10
START READER, 2-10
Starting,
  card reader, 2-10
  device, 2-11
  device scheduling, E-46
  messages displays, E-14
  OPR, 2-7
  printer, 2-10
  remote station, 2-1
  station, 2-2
  the DN200, 1-1
  the DN80-series station, 1-1
Startup messages, 2-3, 2-5
Station,
  messages, 4-3
  remote, 1-1
  restarting, 2-4
  starting, 2-2
  starting the DN80-series, 1-1
Station components,
  remote, 1-1
Station device,
  relocating, 2-9
Status command,
  SHOW, E-42
STOP command, E-47
Stopping,
  device, E-47
  message displays, E-12
Subjob,
  exiting from, 2-20
  logging in, 2-12
Subjobs, 2-11
SUBMIT command, 3-3
Submitting batch jobs, 3-3
SUPPRESS command, E-48
Suppressing carriage control, E-48
Switches,
  baud rate, 2-13
  card reader, 2-16
  card reader back panel, 2-17
  LPFORM.INI, F-1
  mode, 2-13
  NETLDR bootstrap, B-1
  Remote station ROM, A-1
System,
  displaying information, E-42
  host, 1-1
  operator, 2-6
System information,
  displaying, E-32
System lists,
  displaying, E-41

TAKE command, E-49
Tasks,
  remote station, 2-9
Terminal,
  LA36, 2-13
Terminal parameters,
  setting, E-30
Terminating,
  device scheduling, E-45
  jobs, E-7
Time,
  displaying date and, E-44
TOPS-10 host, 1-1
Trouble-shooting, 4-2

Using,
  a command file, E-49
  recognition, 2-8

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