

APPENDIX A USING THE PDT-11/150 SYSTEM EXERCISER

The PDT-11/150 system exerciser is designed to verify system performance while making extensive worst-case demands on all major components. It serves a purpose like that of the MiniMINC self-test but is more thorough and attacks more obscure problems.

The system exerciser produces output only on the console terminal. If your terminal is a VT105, you should closely monitor the output. You must be prepared to note error messages produced by the exerciser, before they scroll off the screen.

If you have access to a "hard copy" terminal, such as a DECwriter II or DECwriter IV, we recommend that you connect it temporarily to the CONSOLE port, replacing the VT105. Doing so will allow you to run the system exerciser without close observation. The resulting listing of the test results can be reviewed after completion of the test.

To run the system exerciser, proceed as follows:

1. Power down system.
2. Remove any program diskettes from drives 0 and 1.
3. Load CVKDAC PDT-11/150 System Exerciser in drive 0 (top drive).
4. Set mode switch on rear panel to NORMAL.

APPENDIX A

5. Power up system and wait for lamp 2 to cycle to its steady ON state (lamp 1 off).
6. Press SETUP key, then 5 key. Move cursor with arrow keys until located over digit 1 of group 1. Press 6 key to enter jump-scroll mode. Press SETUP key to return to normal text mode.
7. Press "@" ("SHIFT/2") on the keyboard two or three times at half-second intervals to allow the MiniMINC chassis to match the baud rate of the VT105. The system will respond with:

CVKDAC PDT-11/150 SYSTEM EXERCISER

SWR = 000000 NEW =

8. Type "112000 **RET**". The system will respond with:

DEVM = 000017 NEW =

9. Respond to "NEW =" with "100017 **RET**". The system will respond with the display shown in Figure 8.

CVKDAC PDT-11/150 SYSTEM EXERCISER

SWR = 000000 NEW = 112000

DEVM = 000017 NEW = 100017

30K MEMORY PRESENT

PRINTER TESTING DROPPED

PRINTER NOT PRESENT

INSERT SCRATCH DISKS, TYPE 'P' FOR NORMAL TESTING

'240G' FOR NORMAL RESTARTS

'250G' TO COPY SYS EXERCISER DISK

'260G' FOR COMPATABILITY PASS 1: WRITE

'270G' FOR COMPATABILITY PASS 2: READ

004072

■

MR-S-203-79

Figure 8. System Response to Configuration Input

10. Remove the system exerciser diskette and load each drive with an initialized diskette.

CAUTION

BE SURE TO REMOVE THE SYSTEM EXERCISER DISKETTE BEFORE PROCEEDING. Be

sure also to load the drives with diskettes that do not contain useful program or data files. The system exerciser is about to write test data over the entire surface of both diskettes. It will obediently write over any diskette that happens to be in the drives when you proceed.

11. Type "SHIFT/P". The system will proceed with its testing and generate a display like that shown in Figure 9.

```

MEM TESTS DONE
EIS-FIS TESTS DONE
CLOCK RUNNING
SYNC COMM DONE
ASYNC COMM RUNNING
TERM #1 RUNNING
TERM #2 RUNNING
TERM #3 RUNNING
DX0 TRK      0 DONE
DX1 TRK      0 DONE
DX0 TRK      1 DONE
DX1 TRK      1 DONE
DX0 TRK      2 DONE
DX1 TRK      2 DONE
DX0 TRK      3 DONE
DX1 TRK      3 DONE
DX0 TRK      4 DONE
DX0 DATA PATT DONE
DX1 TRK      4 DONE
DX1 DATA PATT DONE
DX0 TRK     40 DONE
DX1 TRK     40 DONE
DX0 TRK     41 DONE
DX1 TRK     41 DONE
DX0 TRK     42 DONE
DX1 TRK     42 DONE
DX0 TRK     43 DONE
DX1 TRK     43 DONE
DX0 TRK     44 DONE
DX0 DATA PATT DONE
DX1 TRK     44 DONE
DX1 DATA PATT DONE
DX0 TRK     72 DONE
DX1 TRK     72 DONE
DX0 TRK     73 DONE
DX1 TRK     73 DONE
DX0 TRK     74 DONE
DX1 TRK     74 DONE
DX0 TRK     75 DONE
DX1 TRK     75 DONE
DX0 TRK     76 DONE
DX0 DATA PATT DONE
DX1 TRK     76 DONE
DX1 DATA PATT DONE
DX0 RANDOM SEEKS DONE
DX1 RANDOM SEEKS DONE

```

```

END PASS #      1      TOTAL ERRORS:      0
                        TOTAL SOFT ERRORS:    0

```

APPENDIX A

```

TOTAL ERRORS THIS PASS:      0
SOFT ERRORS THIS PASS:      0

MEM TESTS DONE
EIS-FIS TESTS DONE
CLOCK RUNNING
SYNC COMM DONE
ASYNC COMM RUNNING
TERM #1 RUNNING
TERM #2 RUNNING
TERM #3 RUNNING
DX0 TRK      0 DONE
DX1 TRK      0 DONE
DX0 TRK      1 DONE
DX1 TRK      1 DONE
DX0 TRK      2 DONE
DX1 TRK      2 DONE
MR-S-204-79
```

Figure 9. Typical System Exerciser Display

The system will execute a short pass through the disk test which, if successful, will take about 5 1/2 minutes. This will be followed by a much longer pass in which every track on both disks will be tested. If successful, this pass will take about half an hour.

If the long pass (Pass Number 2) is successful, the test is repeated indefinitely. To stop the system exerciser after a successful test, turn off the power switch on the PDT chassis and remove the scratch diskettes.

If an error is encountered during either the first or subsequent passes, the system will issue an error message, sound the bell on the console, and then halt. Write down the error message, then type "SHIFT/P" to proceed with the test.

Note that errors can be caused by two unrelated problems: faults in the disk drive(s) or bad blocks on the diskette(s). If the test reaches a point where nearly every track on one diskette generates an error halt, halt the system by depressing BREAK key and then load the diskettes into drives opposite to those in which they were previously running and repeat Step 10 by typing "240SHIFT/G". If the errors recur but are associated with the opposite disk drive, the problem is with the diskette, not the drives. Replace the defective diskette and start over. If the errors recur on the same drive as before, power down the system and contact your MINC Customer Support Center (see *MiniMINC Release Notes*).

APPENDIX B

VT105 INTERACTIVE GRAPHIC TEST PROCEDURE

INTRODUCTION

The VT105 self-test procedure tests the alphanumeric features of the VT105 terminal. The VT105 self-test is discussed in the section "Troubleshooting" in this manual. The self-test does not test the graphic features of the VT105 terminal.

This appendix describes an interactive test procedure that can be used to diagnose graphic malfunctions of the VT105 terminal.

If, after running the VT105 self-test, you suspect a malfunction of the terminal's graphic hardware, follow the test procedures described in this appendix.

If one of the test procedures fails to produce the illustrated display, make a record of the test procedure that failed and of the final screen condition. Then contact your MINC Customer Support Center (see *MiniMINC Release Notes*).

Note the following rules for using the test procedures:

1. Before trying the test procedures, put your terminal in LOCAL mode and be sure that the automatic repeat feature is turned on. For details, see the section "Changing Operating Modes on the MiniMINC Terminal (Setup)" in this manual.
2. To perform a particular operation during a test procedure, you type a series of characters. The space character (generated by the space bar) is shown explicitly by the word SPACE. Unless this word appears, DO NOT type spaces; type only the characters that are shown.

APPENDIX B

3. Remember to use the SHIFT key to produce such symbols as #. The CAPS LOCK key produces upper-case letters but does not shift the nonalphabetic keys.
4. If you may a typing mistake, you can initialize the test by typing the following sequences:

A SPACE SPACE

I 0

I SPACE "

After initializing the test, go back to the beginning of the test procedure and retype the required characters.

5. Within a test procedure, each operation either leaves the screen blank or produces a graphic display.

If the result of an operation should be a blank screen, the word BLANK appears.

If a graphic display should appear, consult the figure referred to in the operation. If the figure does not match the appearance of your screen, make sure you have typed the correct characters (that is, try the test procedure again). If repeated trials do not produce the correct result, stop, make a record of the test procedure and screen condition, and contact your MINC Customer Support Center.

6. If characters appear on the screen BEFORE you begin these test procedures, they will remain there.

PREPARE FOR INTERACTIVE GRAPHIC TEST

Follow these procedures before beginning any other test.

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enter LOCAL mode	SETUP 4 SETUP	BLANK
[Be sure automatic repeat feature is on.]		
Enter graphic mode	ESC 1	BLANK

Enter rectangular
format I SPACE SPACE BLANK

Enable test I SPACE " BLANK

Follow these procedures after preparing for the test.

TEST PROCEDURES

Test Graph 0, Shaded Graph 0, and Graph 0 Brands

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable graph 0	A #	10
Enable shaded graph 0	A)	11
Enable graph 0 brands	I \$	12
Disable graph 0 brands	I SPACE	11
Disable shaded graph 0 and graph 0	A SPACE	BLANK

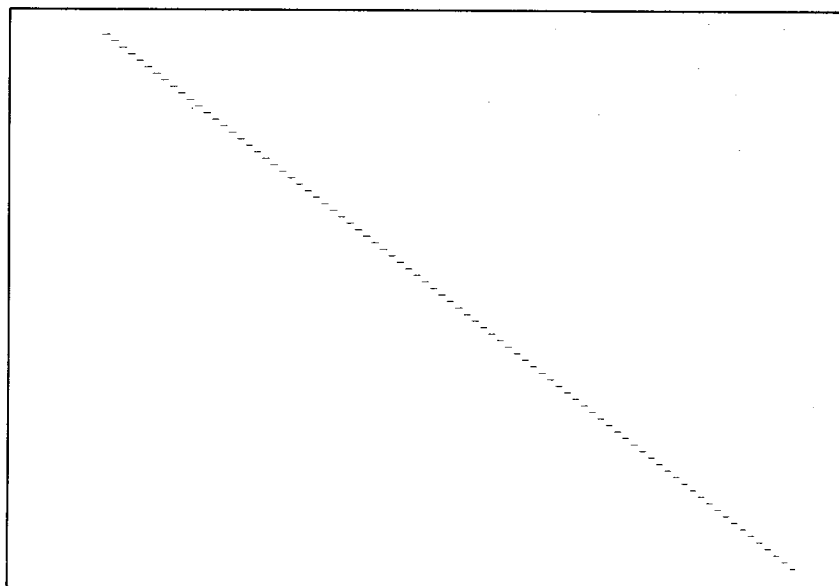


Figure 10. Graph Test Pattern

MR-S-205-79

APPENDIX B

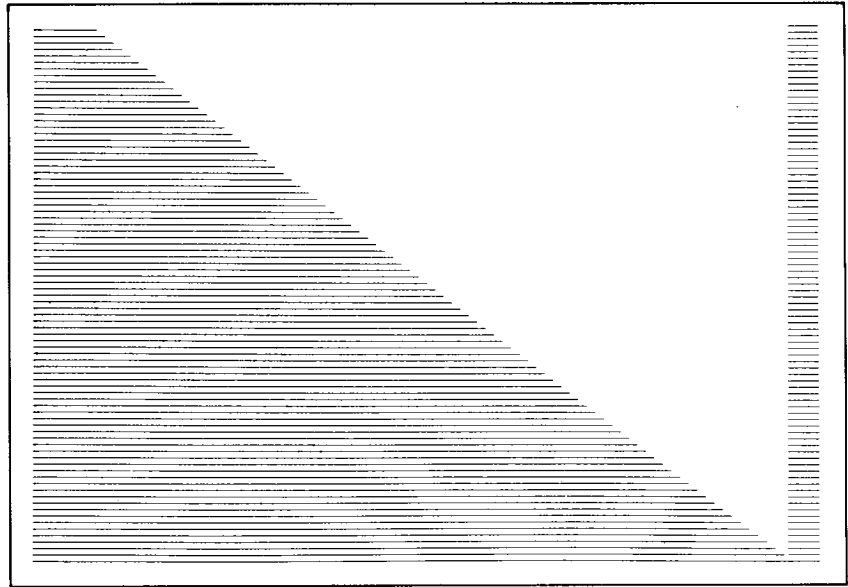


Figure 11. Shaded Graph Test Pattern

MR-S-206-79

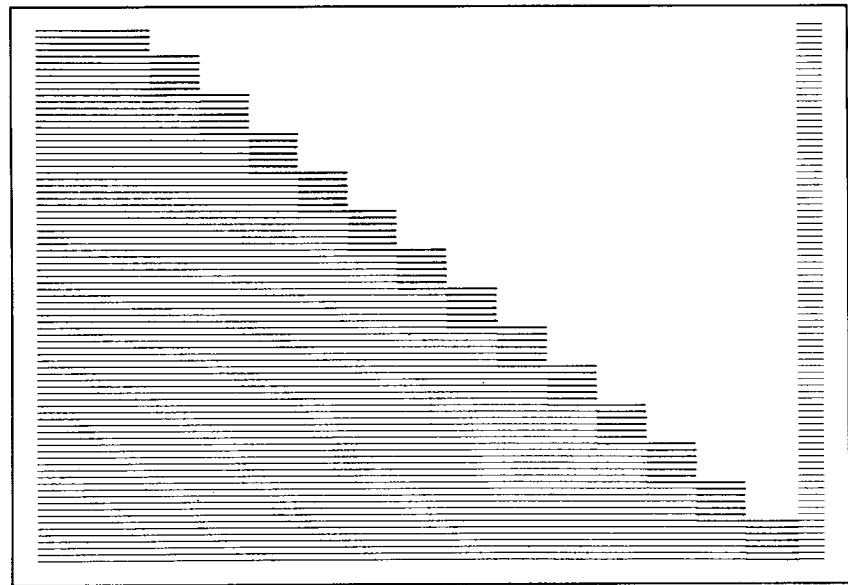


Figure 12. Brand Test Pattern

MR-S-207-79

Test Graph 1, Shaded Graph 1, and Graph 1 Brands

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable graph 1	A %	10
Enable shaded graph 1	A 1	11
Enable graph 1 brands	I (12
Disable graph 1 brands	I SPACE	11
Disable shaded graph 1 and graph 1	A SPACE	BLANK

Test Horizontal Lines

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable display	A !	BLANK
Enable horizontal lines	I !	13
Disable horizontal lines	I SPACE	BLANK

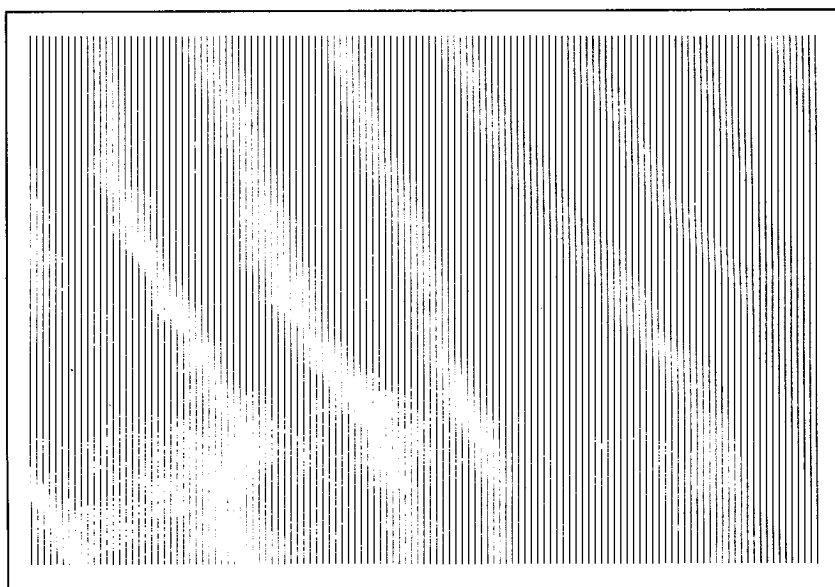


Figure 13. Horizontal Line Test Pattern

MR-S-208-79

NOTE

The horizontal line test pattern (Figure 13) should appear to contain vertical lines.

Test Vertical Lines

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable display	A !	BLANK
Enable vertical lines	I "	14
Disable vertical lines	I SPACE	BLANK

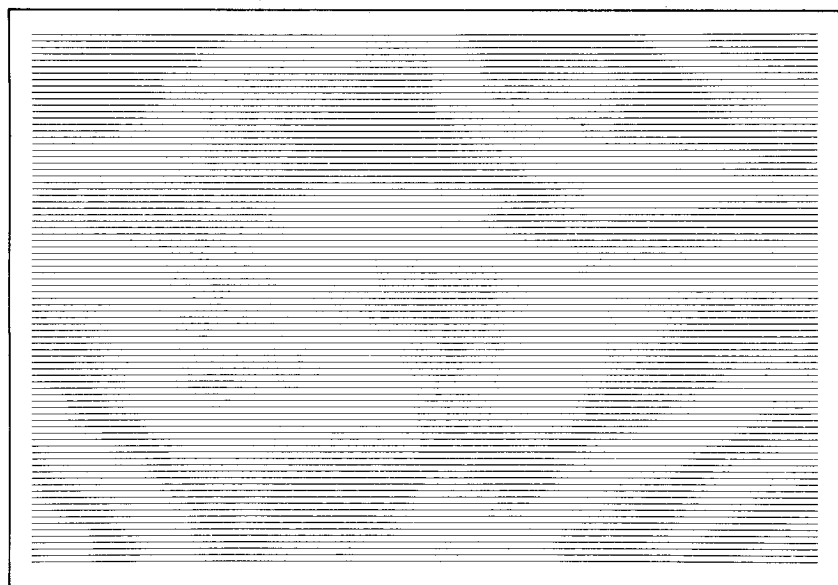


Figure 14. Vertical Line Test Pattern MR-S-209-79

NOTE

The vertical line test pattern (Figure 14) should appear to contain horizontal lines.

Test Shade Line 0

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable graph 0 and shade line 0	A # "	11

Load shade line	@ 1 1	
	2 2	
	3 3	15
	4 4	
	5 5	
	6 6	
	SPACE SPACE	11

Disable graph 0 and shade line	
0	A SPACE SPACE BLANK

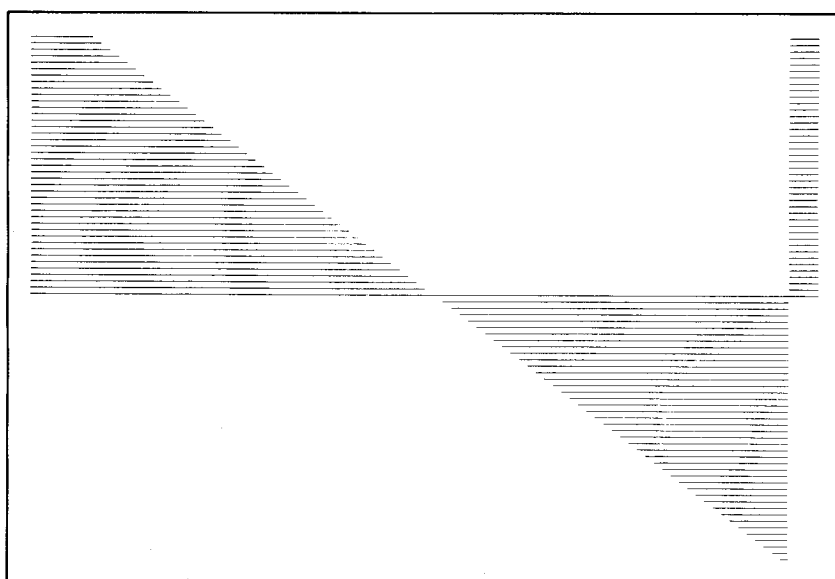


Figure 15. Shade Line Test Pattern

MR-S-210-79

NOTE

The shade line moves upward as you perform the operation "Load shade line." Figure 15 shows the position of the shade line after you enter the characters 3 3.

Test Shade Line 1

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable graph 1 and shade line		
1	A % %	11
Load shade line	@ 1 1	
	2 2	
	3 3	15

APPENDIX B

4 4
5 5
6 6
SPACE SPACE 11

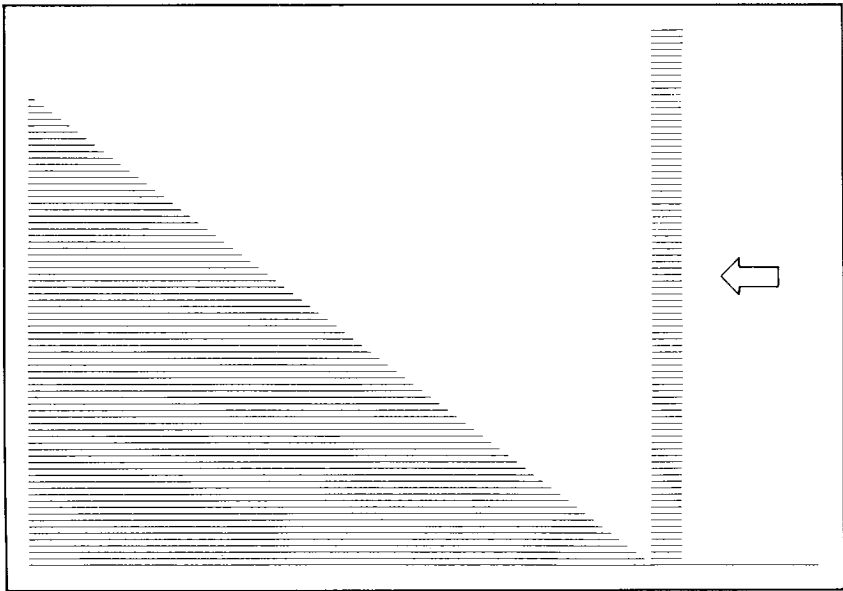
Disable graph 1 and shade line
1 A SPACE SPACE BLANK

Test Strip Chart 0

Operation	Type	Figure
Enable test	I SPACE "	BLANK
Enable graph 0, shaded graph 0, and strip chart 0	A + (11
Load X at right margin	H ??	11
Enable load graph 0	B	11

[Any sequence of two numbers will now cause graph to move from right to left. Holding down the SPACE bar enters zeroes, producing the display shown in Figure 16.]

Disable graph 0, shaded graph 0, A SPACE SPACE BLANK and strip chart 0



NOTE

Figure 16 shows the result of holding down the SPACE bar after the operation "Enable load graph 0." If you hold down a different key, such as one of the numeric keys, the strip-chart action will occur with different Y values added at the right margin.

Test Strip Chart 1

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Enable test	I SPACE "	BLANK
Enable graph 1, shaded graph 1, and strip chart 1	A 5 (11
Load X at right margin	H ? ?	11
Enable load graph 1	J	11

[Any sequence of two numbers will now cause graph to move from right to left. Holding down the SPACE bar will enter zeroes, creating the display shown in Figure 16.]

Disable graph 1, shaded graph 1, and strip chart 1 A SPACE SPACE BLANK

Exit Graphic Test

Follow these procedures at the conclusion of any graphic test, before returning to normal use of the terminal.

<i>Operation</i>	<i>Type</i>	<i>Figure</i>
Exit test, initialize memories	I 0 SPACE	BLANK
Clear register 0	A SPACE SPACE	BLANK
Clear register 1	I SPACE SPACE	BLANK
Exit graphic mode	ESC 2	BLANK

APPENDIX B

Test for alpha mode	Any characters	Characters appear on screen normally
Exit LOCAL mode	SETUP 4 SETUP	Normal screen

INDEX

- Character throughput
 - calculating, 10
- Characters
 - acquiring from terminal, 37
 - collecting from device, 6
 - sending to device, 11
- CIN routine, 6
- COUT routine, 11
- CTS signal, 17
- Cursor
 - changing position of, 33
- Data processing routines, 19
- Device protocol, 1
- DSR signal, 17
- DTR signal, 17
- FFT routine, 19
- FIND_CURSOR routine, 33
- Fourier transforms, 19
- GET_CHAR routine, 37
- Graphic terminal test, 67
- PAUSE routine, 28
- PDP-11/150 system exerciser, 63
- POWER routine, 23
- Power spectra, 23
- Program control routines, 25
- Protocol
 - device, 1
- RS-232C standard, 1
- RTS signal, 17
- SCHEDULE routine, 25
- Serial ASCII programming, 1
 - CIN routine, 6
 - collecting characters, 6
 - COUT routine, 11
 - device protocols, 1
 - RS-232C standard, 1
 - sending characters, 11
 - setting line attributes, 3
 - SET_SERIAL routine, 3
 - summary of routines, 2
- SET_SERIAL routine, 3
- Specifications, 55
- System exerciser program, 63
- Throughput
 - calculating character, 10
 - limitations, 2, 15
- VT105 graphic test, 67

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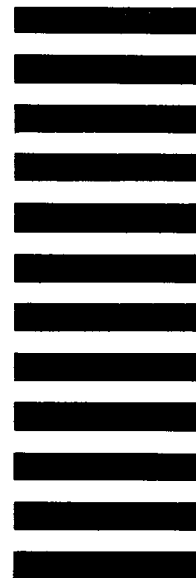
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