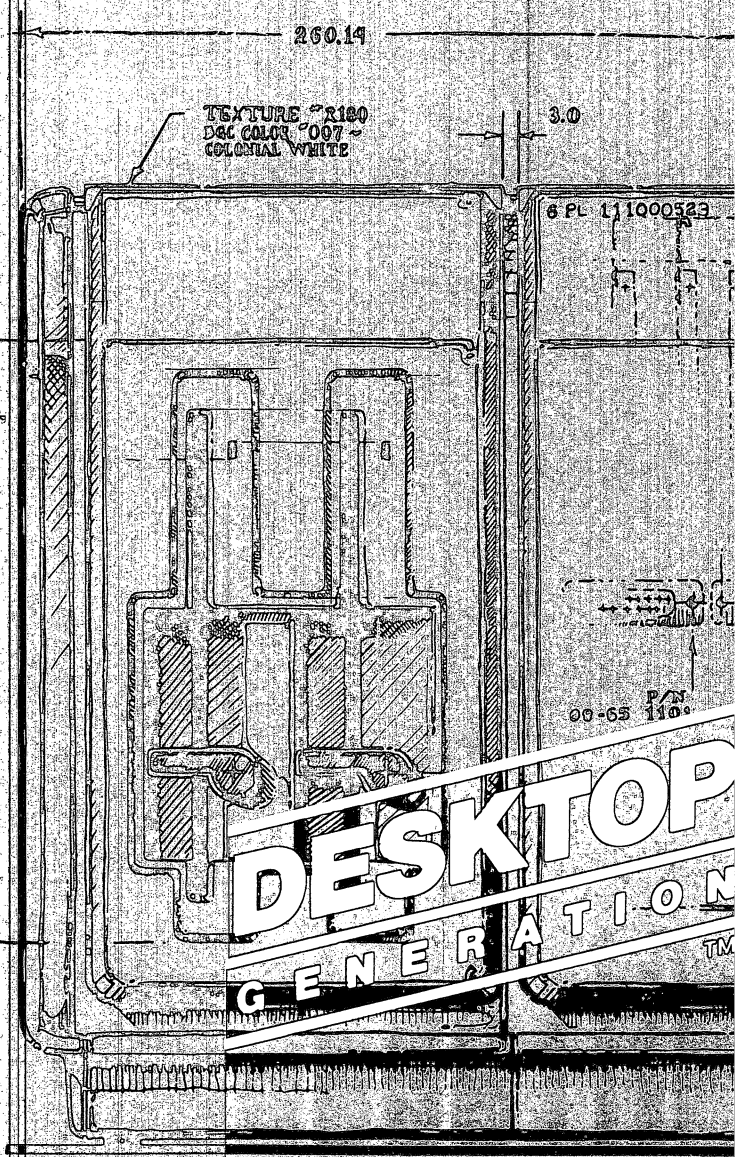
Data General



Testing Model 20 and 30 Systems

Addendum

042-000103-00

This addendum updates manual 014-000905-03 to:

014-000905-04

The addendum provides information on the revision to Customer Mode Diagnostics. This revision supports the optional 38 MB disk drive, up to four USAM cards, two additional printers -- the Model 6215 and Model 4433 -- and the D220 display terminal and the D470C display workstation.

On-line and power-up tests for these additional printers and terminals are in the user's manual shipped with the device.

Update your manual by removing pages and replacing with the change pages as follows:

Remove	**Insert**
Old Notice page	New Notice page
Preface i, ii	Preface i, ii
1-1, 1-2	1-1, 1-2
3-1 through 3-6	3-2 through 3-6
3-23 through 3-28	3-23 through 3-28

014-000905-04

Notice

Data General Corporation (DGC) has prepared this document for use by DGC personnel, customers, and prospective customers. The information contained herein shall not be reproduced in whole or in part without DGC's prior written approval.

DGC reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult DGC to determine whether any such changes have been made.

THE TERMS AND CONDITIONS GOVERNING THE SALE OF DGC HARDWARE PRODUCTS AND THE LICENSING OF DGC SOFTWARE CONSIST SOLELY OF THOSE SET FORTH IN THE WRITTEN CONTRACTS BETWEEN DGC AND ITS CUSTOMERS. NO REPRESENTATION OR OTHER AFFIRMATION OF FACT CONTAINED IN THIS DOCUMENT INCLUDING BUT NOT LIMITED TO STATEMENTS REGARDING CAPACITY, RESPONSE-TIME PERFORMANCE, SUITABILITY FOR USE OR PERFORMANCE OF PRODUCTS DESCRIBED HEREIN SHALL BE DEEMED TO BE A WARRANTY BY DGC FOR ANY PURPOSE, OR GIVE RISE TO ANY LIABILITY OF DGC WHATSOEVER.

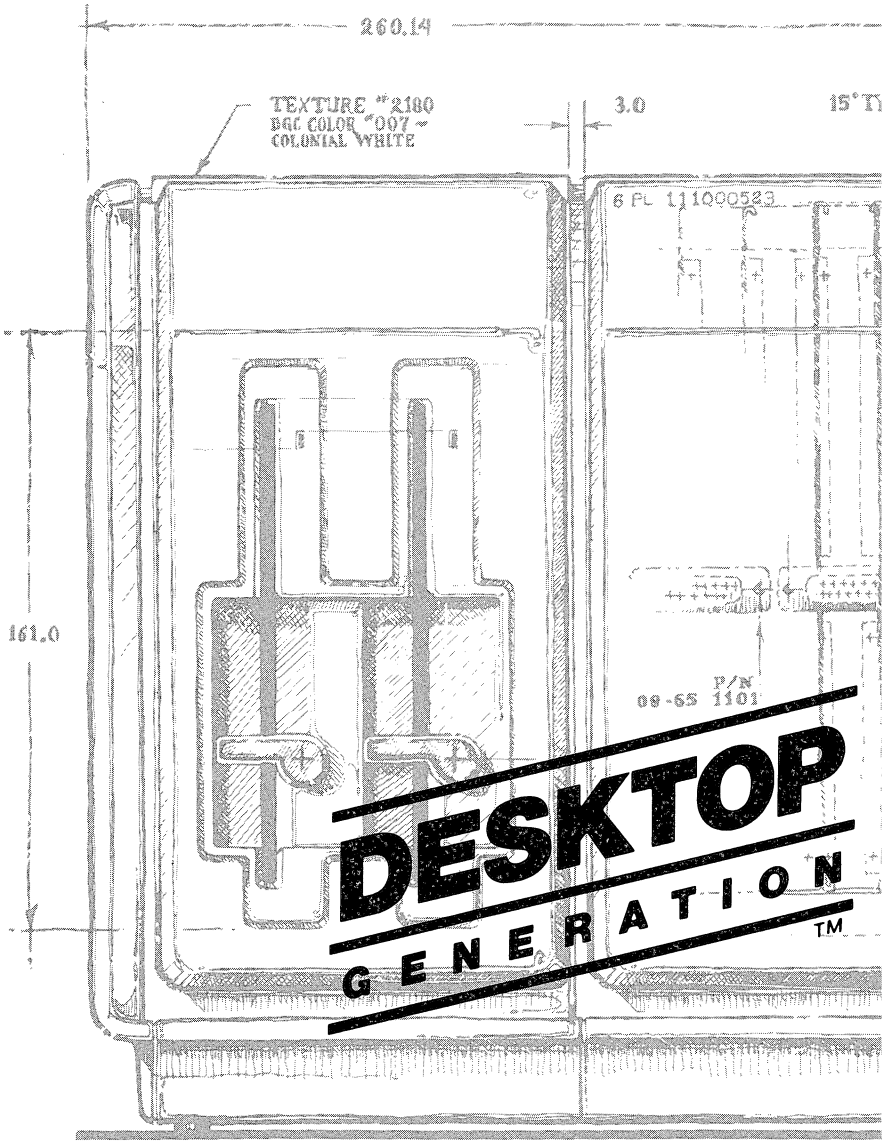
IN NO EVENT SHALL DGC BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOST PROFITS) ARISING OUT OF OR RELATED TO THIS DOCUMENT OR THE INFORMATION CONTAINED IN IT, EVEN IF DGC HAS BEEN ADVISED, KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES.

Ordering No. 014-000905

Printed in the United States of America
Rev. 04, July 1984

014-000905-04

DataGeneral



Testing Model 20 and 30 Systems

Notice

Data General Corporation (DGC) has prepared this document for use by DGC personnel, customers, and prospective customers. The information contained herein shall not be reproduced in whole or in part without DGC's prior written approval.

DGC reserves the right to make changes in specifications and other information contained in this document without prior notice, and the reader should in all cases consult DGC to determine whether any such changes have been made.

The terms and conditions governing the sale of DGC hardware products and the licensing of DGC software consist solely of those set forth in the written contracts between DGC and its customers. No representation or other affirmation of fact contained in this document including but not limited to statements regarding capacity, response-time performance, suitability for use or performance of products described herein shall be deemed to be a warranty by DGC for any purpose, or give rise to any liability of DGC whatsoever.

In no event shall DGC be liable for any incidental, indirect, special or consequential damages whatsoever (including but not limited to lost profits) arising out of or related to this document or the information contained in it, even if DGC has been advised, knew or should have known of the possibility of such damages.

CEO, DASHER, DATAPREP, ECLIPSE, ENTERPRISE, INFOS, microNOVA, NOVA, PROXI, SUPERNOVA, ECLIPSE MV/4000, ECLIPSE MV/6000, ECLIPSE MV/8000, TRENDVIEW, MANAP, SWAT, GENAP, and **PRESENT** are U.S. registered trademarks of Data General Corporation, and **AZ-TEXT, DG/L, DG/XAP, ECLIPSE MV/10000, GW/4000, GDC/1000, REV-UP, UNX/VS, XODIAC, DEFINE, SLATE, DESKTOP GENERATION, microECLIPSE, BusiPEN, BusiGEN** and **BusiTEXT** are U.S. trademarks of Data General Corporation.

Ordering No. 014-000905

Printed in the United States of America
Rev. 03, February 1984

Preface

This book is part of a how-to series that teaches you the fundamental operation of your DESKTOP GENERATION™ computer, its peripheral components, and system software. The series is intended for both new and experienced computer users, and contains the information you need to (1) unpack and install your DESKTOP GENERATION system; (2) operate the computer and some optional equipment; (3) test your hardware and handle any problems that may arise; and (4) put your operating system and other software to productive use.

This manual, the third in the series, shows you how to verify the operation of your DESKTOP GENERATION computer and some optional peripherals. The simple text and diagrams help you use Customer Diagnostic software to troubleshoot customer-replaceable components. Also included are problem report forms and phone numbers to call for Data General assistance.

This book assumes that you have used the installation and operating guides to set up your system and get acquainted with its hardware. These and other books in the DESKTOP GENERATION series are described under "Related Manuals" in this preface.

NOTE *Testing procedures for some DESKTOP GENERATION peripherals are listed in the user's manual packed with the peripheral.*

Organization

This book contains nine chapters, an index, and two forms. It is organized so that portions of it can be read selectively.

- Chapter 1 explains how to use the book; outlines testing strategies using simple flowcharts; and describes the help plans Data General offers for servicing DESKTOP GENERATION systems.
- Chapter 2 describes the system power-up test and tells you what to do if the test does not pass.
- Chapter 3 tells you when and how to use Customer Diagnostics to test system operation or to diagnose a problem with the system.
- Chapter 4 explains simple off-line tests you can perform to verify that a D210 or D211 terminal is operating as it should. Procedures for correcting terminal problems are included as well.
- Chapter 5 contains simple off-line tests you can perform to verify a D410 or D460 terminal's operation. Also included are steps for correcting problems with the terminal.
- Chapter 6 tells how to test the Model 4434 dot matrix printer and explains how to correct printer problems.
- Chapter 7 tells how to test the Model 4433 dot matrix printer and how to correct printer problems.
- Chapter 8 explains how to test the Model 4518 letter-quality printer and how to correct any problems that may arise.
- Chapter 9 explains how to test the Model 4435 plotter and what to do if problems arise.
- The index alphabetically lists the concepts and terms used in this book.

A Problem Report Form follows the index. It provides a simple format for recording information about system and equipment failures and reporting this information to your Data General service representative.

A second form — the Documentation Comment Form — invites you to help Data General improve its publications by commenting on this book.

Related Manuals

A comprehensive documentation set supports all the hardware and software products available for the DESKTOP GENERATION computer. The manuals listed below are meant to be read in sequence by anyone who owns a DESKTOP GENERATION system.

Installing Model 20 and 30 Systems

The first book a Model 20 or 30 owner should read, explains how to unpack and install either system and its optional peripherals. Accessibly written and illustrated for users at any level of experience. DGC ordering no. 014-000904.

Operating Model 20 and 30 Systems

Follows Model 20 and 30 installation, leading you from powering up the system and its optional peripherals through routine operations such as loading paper in a printer and inserting or removing diskettes. Brings you to the point of loading the system software. The simple instructions and generous illustrations are suitable for any reader. DGC ordering no. 014-000903.

Using DG/RDOS on DESKTOP GENERATION Systems

Follows the installation, operating, and testing guides with instructions for loading and using the DG/RDOS operating system and other software. Exercises and examples get you started with DG/RDOS. DGC ordering no. 069-000056.

Using AOS on DESKTOP GENERATION Systems

Follows the installation, operating, and testing guides with instructions for loading and using the AOS operating system and other software. Exercises and examples lay the groundwork for working with AOS. DGC ordering no. 069-000058.

Your source for other DESKTOP GENERATION and Data General publications is TIPS: the Technical Information and Publications Service. To order the TIPS catalog of publications, obtain order forms or information, write or call:

Data General Corporation
Attn: Educational Services/TIPS F019
4400 Computer Drive
Westboro, MA 01580
Tel. (617) 366-8911 ext. 4032

Contents

2 System Power-Up Test

3 Customer Diagnostics

4 Testing Your D210 or D211 Terminal

5 Testing Your D410 or D460 Terminal

6 Testing Your Model 4434 Printer

7 Testing Your Model 4433 Printer

8 Testing Your Model 4518 Printer

9 Testing Your 4435 Plotter

Testing Guidelines

1

The information in this manual will help you diagnose and solve problems you may have with your DESKTOP GENERATION™ computer system.

If, after carefully following the procedures in this manual, you are not able to solve the problem, Data General offers a variety of help plans. This chapter explains how to use the manual, gives basic testing procedures, and describes Data General's warranty, telephone assistance, and service plans.

NOTE *Testing procedures for some peripherals are listed in the user's manual packed with the peripheral.*

Using This Manual

Before you use the testing procedures in this manual, make sure that the system is correctly installed and that you are familiar with all basic procedures for operating it. Depending on your equipment, you should know how to:

- Power up the system
- Locate and interpret indicator lights
- Handle diskettes and cartridge tapes
- Use the system console and user terminals
- Load paper and install ribbons and print thimbles or pens in your printer and/or plotter.

The manual *Operating Model 20 and 30 Systems* explains how to do all these things. Keep it handy in case you need to refer to it. The manual *Installing Model 20 and 30 Systems* tells you how to install your computer unit and connect optional equipment to your system.

Problem Solving Aids

You can diagnose and solve most problems that occur with your equipment by using the following problem solving aids:

- System power-up test
- Customer Diagnostics
- Off-line tests.

System Power-Up Test

The system power-up test is a short but comprehensive sequence of tests that your computer unit runs to verify that it can properly perform basic operations. It runs the power-up test each time you turn it on. If the test is successful, your system console prompts you for input.

If any part of the power-up test does not complete successfully, the test stops and displays a message on your system console. You can use this message to diagnose and solve problems. Chapter 2 explains how to use the system power-up test to solve problems.

Customer Diagnostics

Customer Diagnostics contain easy-to-use programs for testing the computer unit, system console, and any terminals, printers, or plotters in your system; formatting and copying diskettes; cleaning the diskette drive heads; and preparing systems with disk drives for movement to another location. Chapter 3 tells you how to use Customer Diagnostics for testing.

Off-Line Testing

You can run tests on certain equipment when it is *off-line* — that is, not communicating with the computer — to verify its operation and solve any problems. Most of the terminals and printers and the plotter allow you to test their mechanical and electronic functions independently of your computer system. Chapters 4 through 9 give simple procedures for testing these devices off-line and for correcting any problems with them.

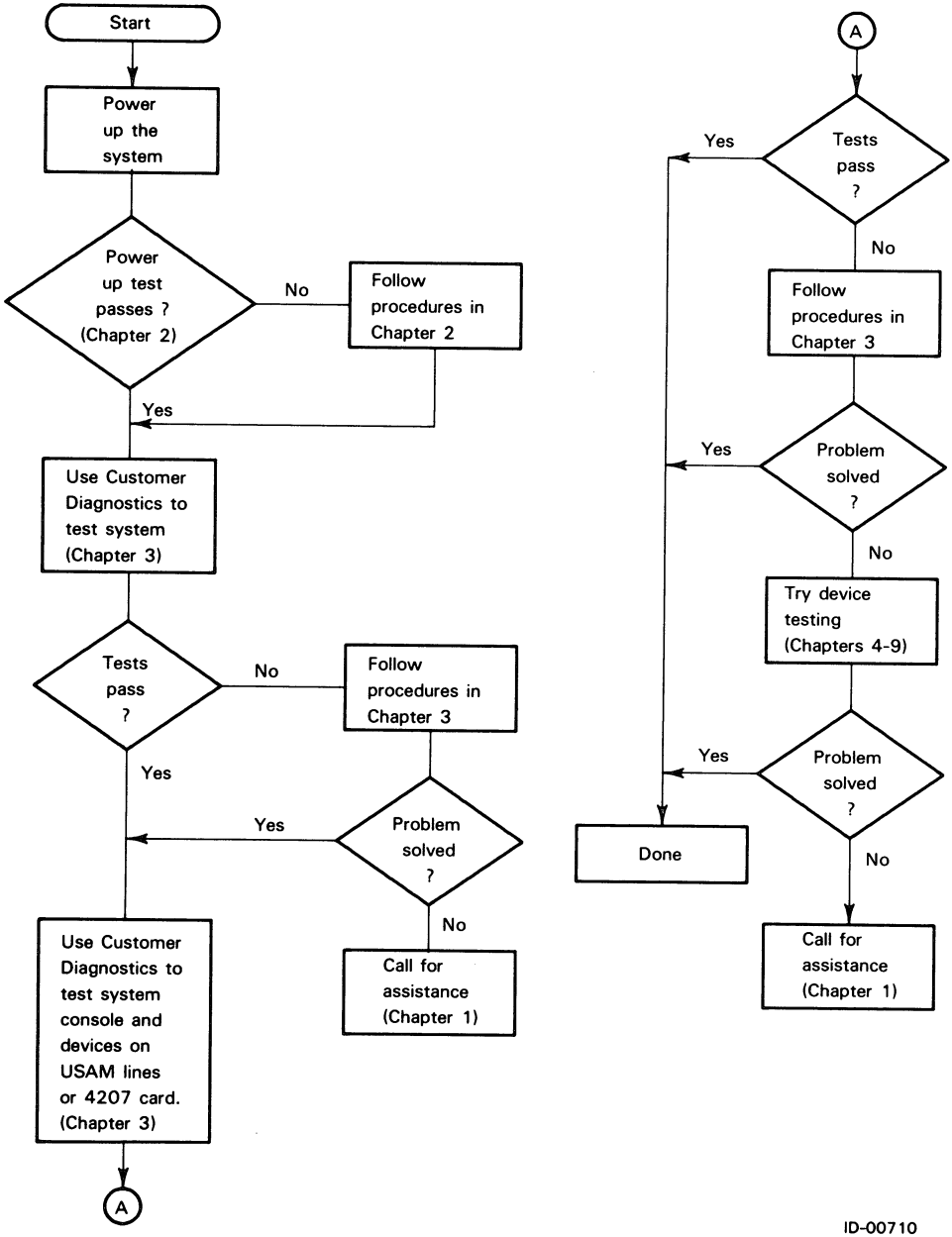
Basic Testing Strategy

The basic testing strategy uses the system power-up test, Customer Diagnostics, and off-line tests as problem solving aids. The strategy varies depending on whether you are (a) installing your system or removing or replacing equipment; (b) performing daily maintenance; (c) having problems with the system console or a device on a USAM line or 4207 card; or (d) having problems with the system in general.

The flow diagrams ahead illustrate each testing strategy, directing you to the chapters in this manual that will help you find the cause of a problem. The following table directs you to the appropriate diagram based on your particular testing needs.

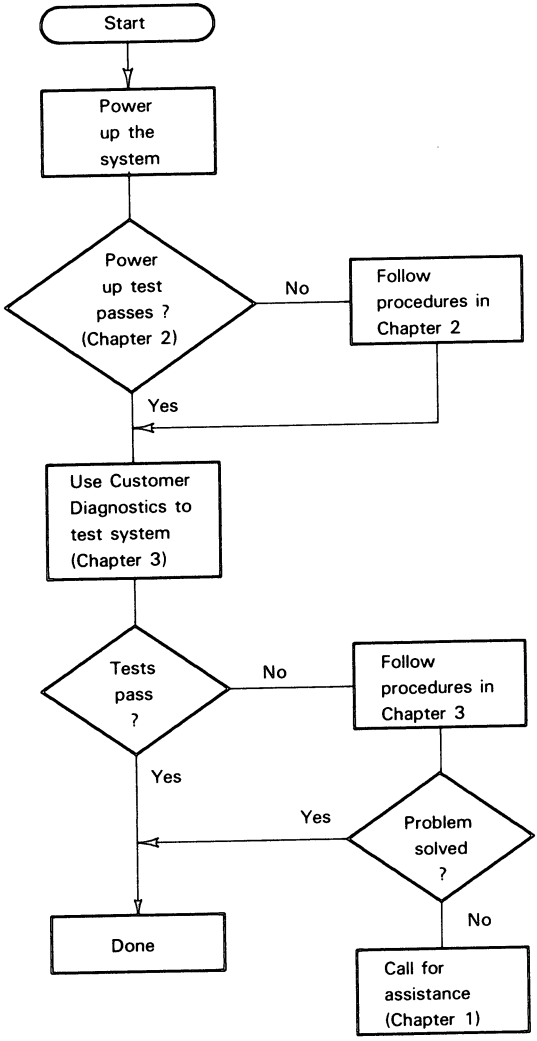
Testing Strategy	Diagram
Initial installation	1
Replacing equipment	1
Daily verification	2
System console problem	3
Other device problem	4
System problem	5

Diagram 1 Installing or Replacing Equipment



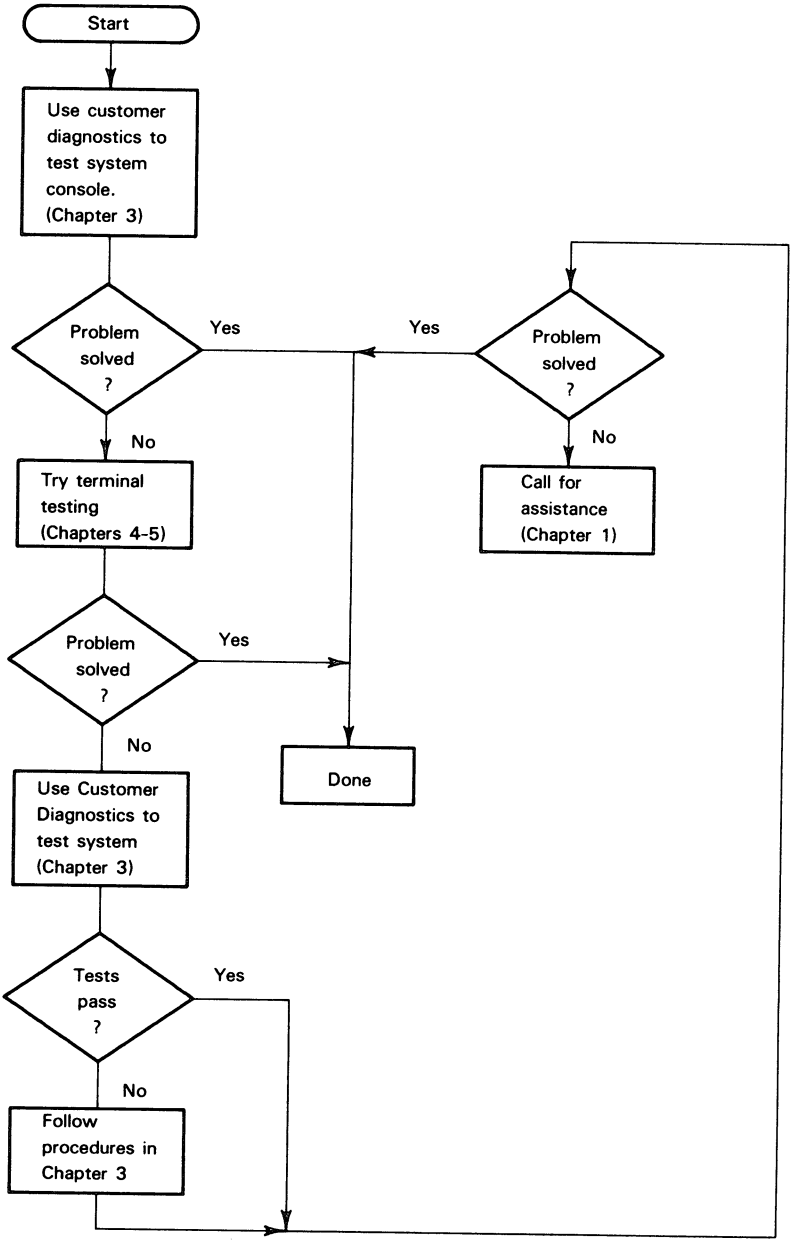
ID-00710

Diagram 2 Daily Verification



ID-00706

Diagram 3 System Console Problem



ID-00711

Diagram 4 Other Device Problem

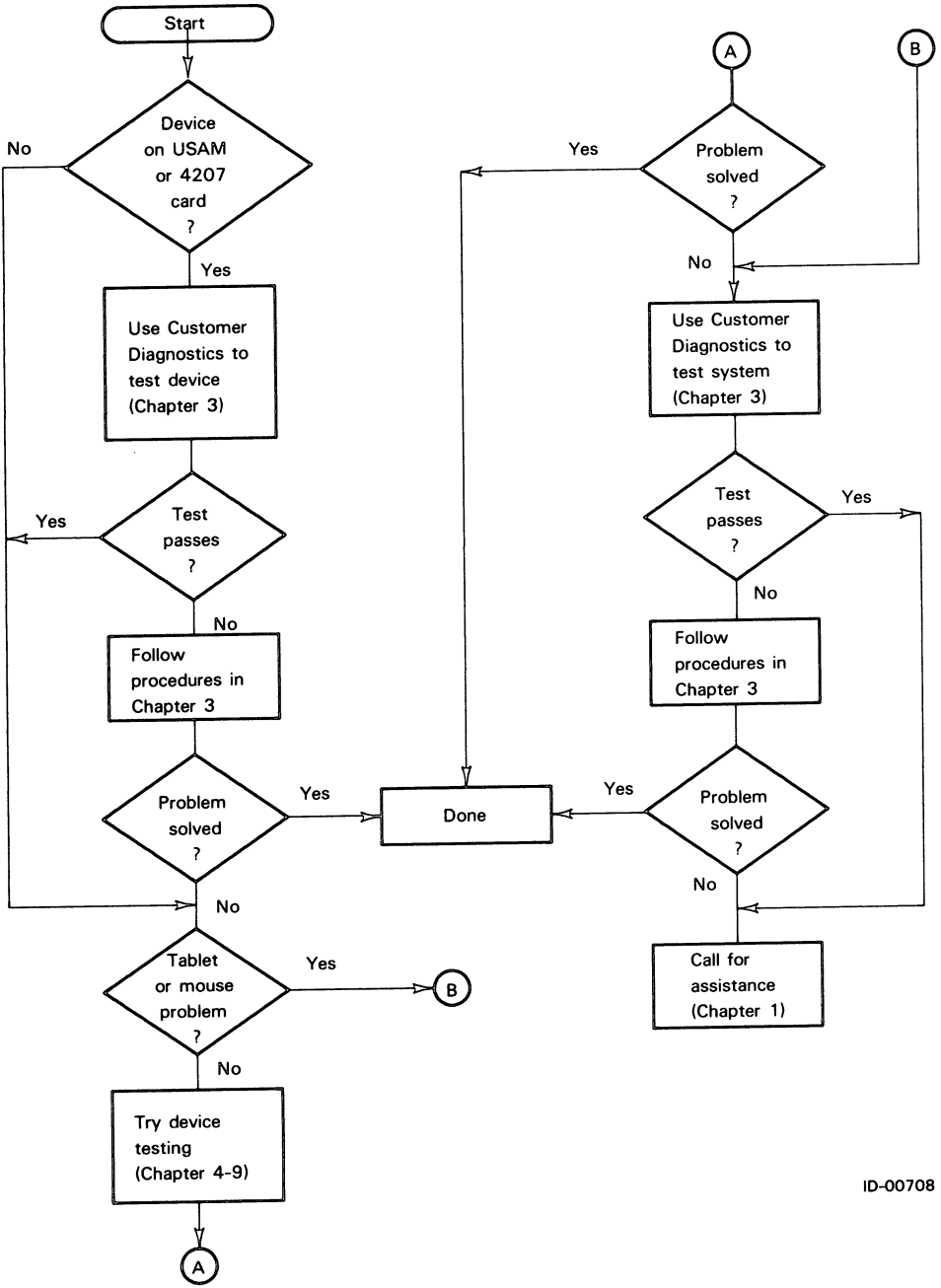
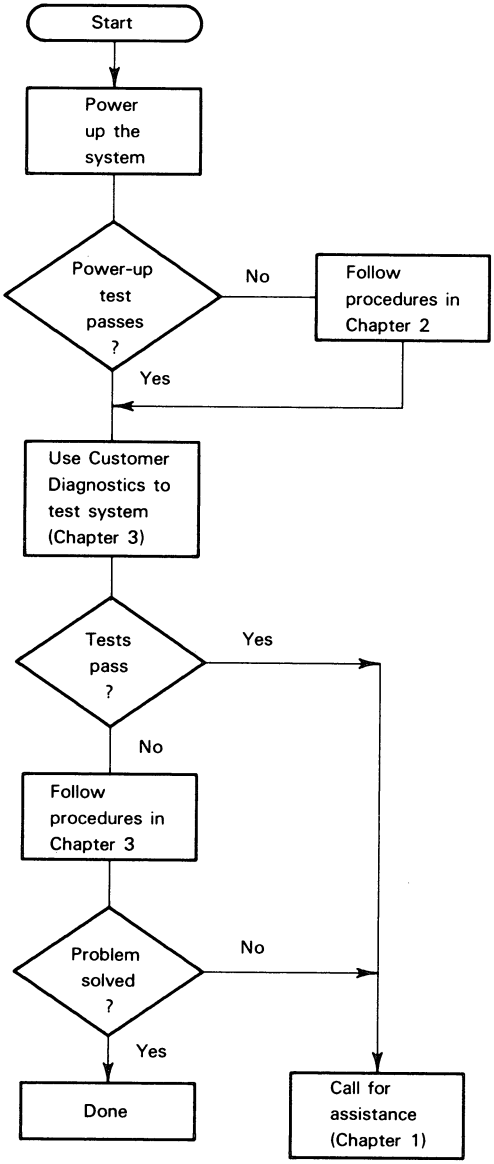


Diagram 5 System Problem



ID-00709

Help Plans

Data General offers several forms of support in the event that you cannot solve a problem with the aid of this manual. These help plans include:

- Warranties
- Telephone assistance
- Service plans

Warranties

Your computer system comes with a standard warranty that replaces, free of charge, any failing part during the warranty period. You can obtain a copy of the warranty terms from your sales representative or dealer. In addition, a renewable, extended 12-month warranty is available. For more information on the extended warranty plan, contact the Data General National Service Information Line:

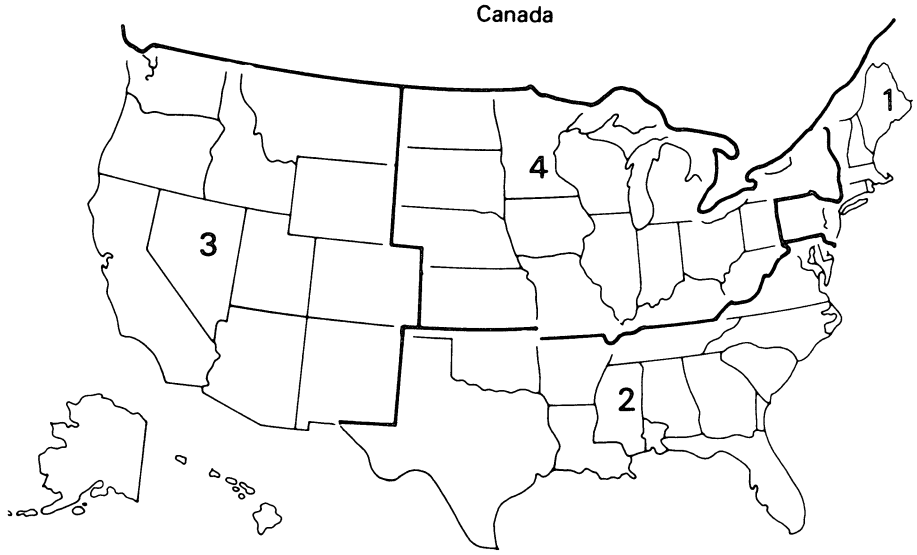
Within Massachusetts:	1-800-451-1014
Outside Massachusetts:	1-800-325-3065

Besides the warranty on your computer equipment, Data General also warrants the software diskettes it supplies for 90 days from the date of purchase. This coverage extends to any manufacturing defect. Data General replaces your diskette on a one-time basis if it fails during the warranty period.

Telephone Assistance

Data General offers toll-free assistance during the warranty period for any problem you may have with your system. If you are unable to solve a problem with the help of this manual, call the nearest Service Operations Center. The Service Operations Center will tell you where to call for assistance. Questions such as, "If one terminal isn't working, should I try connecting it to another USAM line?" can usually be answered by calling the toll-free numbers listed ahead. Telephone lines are open from 8:30 a.m. to 8:30 p.m., Eastern Standard, Monday through Friday.

The regional map and table ahead help you find the addresses and telephone numbers of all Data General's Service Operations Centers. If you need service after your warranty has expired, call the Service Operations Center nearest you.



DG-25956

Data General Service Operations Centers

Area 1	50 Maple Street Milford, MA 01757
	617-478-4000 (local) 1-800-322-1173 (in state) 1-800-343-2335 (outside Massachusetts)
Area 2	6420 Atlantic Blvd. Suite 200 Norcross, GA 30071
	404-446-0909 (local) 1-800-282-3066 (in state) 1-800-241-3647 (outside Georgia)
Area 3	1500 Rosecrans Avenue Manhattan Beach, CA 90266
	213-536-0440 (local) 1-800-343-2051 (in state) 1-800-343-1296 (outside California)
Area 4	1501 Woodfield Road Schaumberg, IL 60195
	312-364-3000 (local) 1-800-942-9106 (in state) 1-800-323-0806 (outside Illinois)
Canada	2155 Leanne Blvd. Mississauga, Ontaria L5K2K8
Toronto	416-823-3541
Quebec	1-800-268-5319
British Columbia	112-800-268-5342
Canada-wide	1-800-268-5342

Service Plans

Data General offers the following service plans:

- On-site Services.
- Mail-in Services.
- Cooperative Services.

These plans and their several options are briefly described here. To learn more about any of them, call the Data General National Service Information Line:

Within Massachusetts:	1-800-451-1014
Outside Massachusetts:	1-800-325-3065

On-Site Services

On-Site service plans ensure that a Data General field engineer services your equipment on your premises. If you have a problem, fill out one of the Problem Report Forms in the back of this manual and call the nearest Service Operations Center. With the form already completed, you will be able to answer most of the questions your service representative asks. (It is a good idea to make some copies of the form and keep them on hand.) If a quick solution cannot be found, a field engineer will arrive on your site within four hours.

For one monthly charge, this on-site service plan gives you toll-free telephone assistance before a field engineer is dispatched, preventive maintenance, all parts and labor, and engineering changes (changes in the design of your computer).

Alternatively, you can elect one of four other on-site service plans.

24-Hour Service

A field engineer arrives at your site within 24 hours instead of four. There is a proportionate discount for this service.

On-Call Multidevice Service

You must have 20 or more DESKTOP GENERATION workstations to use this option and delay your service request until three or more of them need service. Then a field engineer fixes all of them at once. However, you continue to receive service every month whether or not the minimum number of failing units has been reached.

Per-Call Service

A field engineer arrives at your premises within eight hours. You pay only for labor and materials used.

Fixed-Rate Service Like per-call service, a field engineer responds to your service request within eight hours, and you pay only for labor and materials used. But you also receive a solid estimate of your bill before an engineer arrives.

Mail-In Services The module or card mail-in plan allows you to mail your defective equipment to a product repair center, or depot, where repairs are completed within 10 working days. Payment can be arranged according to labor and materials used or at a fixed rate.

Cooperative Services Cooperative services allow you to take part in the care and servicing of your computer by providing the labor required to repair it. Cooperative services are available with two options: extended warranty and modular mail.

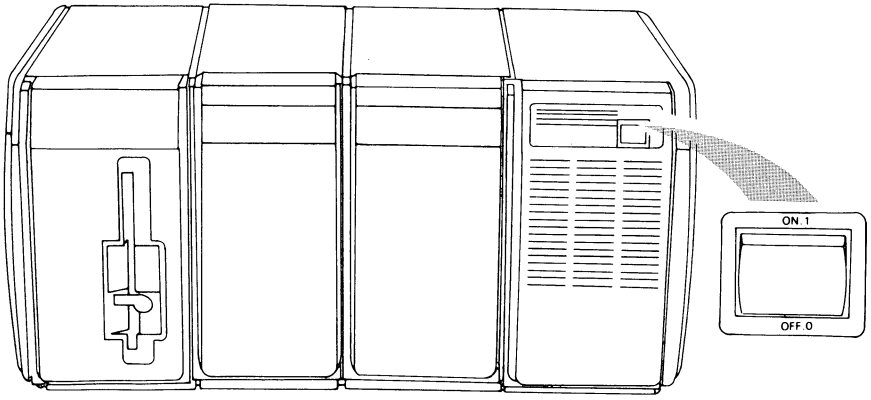
For one annual fixed fee, the extended warranty gives you toll-free telephone assistance, covers any replacement parts, and provides free overnight shipment of all parts.

Modular Mail gives you toll-free telephone assistance, parts on a swap basis at swap prices, free 72-hour shipment, and optional overnight shipment.

System Power-Up Test

2

This chapter describes the system power-up test and tells you what to do if the system does not pass it. First each sequence of the test is summarized, and, if all goes smoothly, you are directed to Chapter 3. In the event of a problem, the rest of the chapter asks questions to help you diagnose it and steps you through possible solutions.



DG-25500

Testing Sequence

When you turn on the power switch at the front of your computer unit, the computer begins a short sequence of power-up tests to verify that it can perform basic operations. If this sequence of tests passes, an exclamation point (!) appears on the display screen of your system console. This exclamation point is the virtual console prompt; it signals that the system is awaiting your input — in this case, a command that instructs your computer to load software from a specific device.

If the virtual console prompt appears on your screen, the computer has passed its power-up test sequence and you can continue testing with Customer Diagnostics, as described in Chapter 3.

If anything other than a virtual console prompt appears on the screen, turn your computer off and then on again. If the computer still does not pass the power-up test, your display screen contains one of the following:

Nothing (it is blank)

Meaningless characters

A single letter — I, H, or M.

The remaining sections of this chapter tell you what to do in each of these situations.

Blank Screen

If your screen is blank, answer the questions below. If the answer to a question is no, see the next question. If your answer is yes, follow each procedure listed under the question in order of appearance. If your screen remains blank, contact the Service Operations Center nearest you. If the virtual console prompt appears after you perform a procedure, the power-up test has passed and you can continue to Chapter 3. If a single letter appears after you perform a procedure, the next section tells you how to proceed.

Is the system console turned off?

- Turn on the console's power switch.

Is the system console off line?

- Put the system console on line by holding down the CMD key and pressing the ON LINE key.

Is the console's display intensity turned down?

- Turn up the intensity with the brightness control knob on the front of the display unit.
- Make sure the system console cable is securely plugged in and tighten any loose cable screws.

Is the fan in the power supply module silent?

- Turn off the computer's main power switch and the system console's power switch. Make sure that the ac power cords for the computer unit and console are plugged in securely. Turn on the main power switch and then the system console's power switch.
- Turn off the main power switch. Using a lamp or similar appliance, make sure the ac outlets for the computer unit and console are supplying power. Then turn on the main power switch.
- Turn off the main power switch and unplug the ac power cord behind the power supply module. Remove the fuse from the back of the power supply module and make sure its voltage and amp ratings match those listed for F1 on the label attached to the module's back cover. Reinstall the fuse. Plug in the ac power cord and turn on the main power switch.

Is no red light glowing on the back of each supply in the power supply module?

- Turn off the main power switch and wait five minutes before continuing.

WARNING *Because high voltages exist within the power supply, always wait five minutes after turning off the power and before removing the metal grid inside.*

- Remove the plastic cover and metal grid on the rear of the power supply module and make sure the CPU module's dc cables are securely plugged into the power supply's connectors. Replace the metal grid and plastic cover. Turn on the main power switch. If the screen remains blank, the power supply module is probably faulty. Fill out a Problem Report Form and call your nearest Service Operations Center.

Is the screen still blank after performing all the relevant procedures?

- Turn off the main power switch and remove the front plastic and metal covers from the CPU logic module.
- Press gently but firmly against the edge of each printed circuit card to ensure its proper connection.
- Replace the front metal and plastic covers of the CPU logic module.
- Turn on the main power switch.

If the screen remains blank, you may have a failing display unit or SPU card. Of these parts, the console's display unit is the most likely failing unit and the SPU card, the least likely. Fill out a Problem Report Form and contact your nearest Service Operations Center.

Meaningless Characters

If your screen contains meaningless characters, are all connecting cables securely fastened?

- Make sure that the system console cable is plugged in securely and tighten any loose cable screws. Turn the main power switch off and then on again.

If meaningless characters still appear, you may have a failing display unit or SPU card. Of these two, the display unit is the most likely to fail and the SPU card, the least likely. Fill out a Problem Report Form and contact your nearest Service Operations Center.

Single Letter

As the power-up test runs, does the display screen show a single letter — I, H or M?

- Try to run the system test. First press and hold down the CMD key and press the BREAK key. An exclamation point (!), the virtual console prompt, should appear, signaling that the system is awaiting your input. Then insert the Customer Diagnostics diskette into drive 0 (the right drive) and close the latch.

  Type 20H to load Customer Diagnostics. Try running the system test as described in Chapter 3.

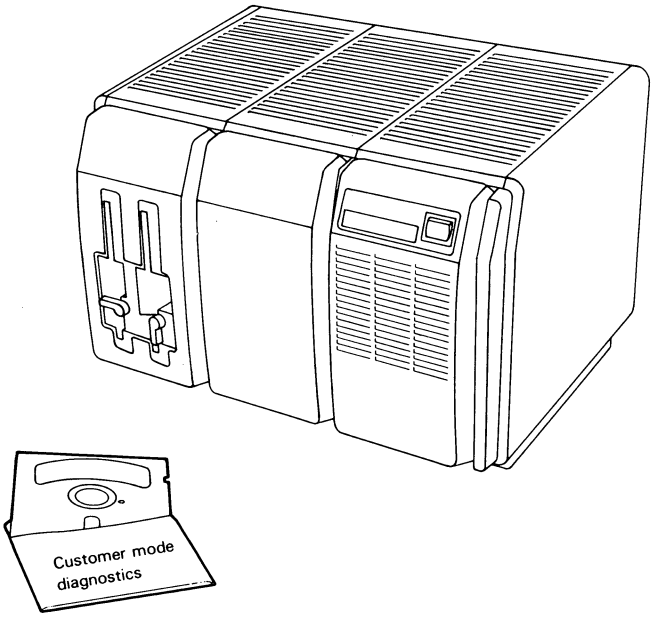
If you cannot run the system test or are unable to solve the problem after running it, the letter displayed on the screen can help you determine the problem. The table ahead lists each letter and the most likely failing part. After you determine this part, fill out a Problem Report Form and contact your nearest Service Operations Center.

Letter	Area Tested	Probable Failing Part
I	Input/output	SPU card
H	Virtual console memory	SPU card
M	First 64 Kbytes of user memory	First memory card

Customer Diagnostics

3

This chapter tells you when and how to run Customer Diagnostics. It also explains how to use these diagnostics to troubleshoot a problem with your computer system. Stored on a diskette, the diagnostics include programs that allow you to test the functioning of your system as a whole or of an individual device such as a terminal, printer, or plotter.



DG-25957

You should use Customer Diagnostics:

Immediately after installing your system for the first time or when adding or removing components in a previously installed system,

Daily, to verify correct operation of the system,

Whenever you suspect a problem with the system.

Loading Customer Diagnostics

To load Customer Diagnostics, simply insert the diskette labeled *Customer Diagnostics* into drive 0 (the right drive) and power up the system.

CAUTION *The system test destroys data on the second diskette and cartridge tape. Insert a formatted scratch diskette into drive 1 (the left drive) and a scratch tape into the cartridge tape drive (if present).*

If your computer asks what device to load from, enter 20H as you normally would to load software.

If 20H does not appear on your display screen as you enter it, make sure the keyboard cable is plugged in securely and tighten any loose cable screws. If the display screen still fails to reflect your entry, the keyboard or SPU card is probably faulty. Fill out a Problem Report Form and contact your nearest Service Operations Center.

After you load the diagnostic system, it determines how many Kbytes (KB) of memory your system has and displays the amount on the system console's screen. If you have already used Customer Diagnostics to create a list of your equipment, the system also displays this list on your screen.

If you are using Customer Diagnostics for the first time, a series of questions appears below the amount of memory, asking you to describe your system. These questions and your answers allow the diagnostic software to create an equipment list for your system.

```
AMOUNT OF MEMORY FOUND: XXXKB

PLEASE DESCRIBE YOUR SYSTEM...

SYSTEM TYPE (DG10, DG20, OR DG30) [DG30]?
SYSTEM MEMORY SIZE (128KB TO 2048KB) [XXXX]?
DEVICE USED AS SYSTEM CONSOLE (?FOR DEVICE LIST) [XXXX]?
NUMBER OF DISKETTE DRIVES IN SYSTEM (1 OR 2) [X]?
NUMBER OF DISK DRIVES IN SYSTEM (0, 1, OR 2) [X]?
DISK CAPACITY (15KB OR 38KB) [XX]?
NUMBER OF CARTRIDGE TAPE DRIVES IN SYSTEM (0 OR 1) [X]?
NUMBER OF USAM CARDS IN SYSTEM (0, 1, 2, 3, OR 4) [X]?
LINES ARE SET TO USA (7 BIT) OR INTERNATIONAL (8 BIT) CHARACTERS, (7 OR 8) [X]?
     NUMBER OF LINES ON USAM CARD 1 (1 OR 4) [X]?
          DEVICE ON LINE 1 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 2 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 3 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 4 (? FOR DEVICE LIST) [XXXX]?
     NUMBER OF LINES ON USAM CARD 2 (1 OR 4) [X]?
          DEVICE ON LINE 1 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 2 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 3 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 4 (? FOR DEVICE LIST) [XXXX]?
     NUMBER OF LINES ON USAM CARD 3 (1 OR 4) [X]?
          DEVICE ON LINE 1 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 2 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 3 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 4 (? FOR DEVICE LIST) [XXXX]?
     NUMBER OF LINES ON USAM CARD 4 (1 OR 4) [X]?
          DEVICE ON LINE 1 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 2 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 3 (? FOR DEVICE LIST) [XXXX]?
          DEVICE ON LINE 4 (? FOR DEVICE LIST) [XXXX]?

4207 INTERFACE CARD IN SYSTEM (YES OR NO) [YY]?
          DEVICE CONNECTED (? FOR DEVICE LIST) [XXXX]?
```

If the message does not appear in *about* five minutes, use another copy of the Customer Diagnostic diskette in drive 0 (the right drive). If the message still does not appear, then the SPU card is probably faulty. Fill out a Problem Report Form and contact the nearest Service Operations Center.

Answer these questions according to the equipment in your system, pressing the New Line key after each answer. Valid answers are indicated in parentheses except for the model numbers of the devices on your communication lines or 4207 card. A list of valid numbers follows — the same list that the program displays if you type a model number incorrectly.

```
VALID DEVICES ARE:

DEVICE   DESCRIPTION
------   -----------

  0      NO DEVICE ON THIS LINE
  1      THIS LINE IS A SYNC LINE
4433     DATA PROCESSING DOT MATRIX PRINTER
4434     MULTIFUNCTION DOT MATRIX PRINTER
4435     GRAPHICS PLOTTER
4436     GRAPHICS DATA ENTRY MOUSE
4437     GRAPHICS DATA ENTRY TABLET
4518     LETTER-QUALITY PRINTER
4531     132 COL MULTIFUNCTION PRINTER
6215     DASHER GPS PRINTER
6242     D210 DISPLAY TERMINAL
6243     D211 DISPLAY TERMINAL
6255     D410 DISPLAY WORKSTATION
6256     D460 DISPLAY WORKSTATION
6284     D220 DISPLAY TERMINAL
6308     D470C DISPLAY TERMINAL
```

After you anwer all of the questions, the program displays the equipment list, revised according to your answers. Depending on your equipment, the screen might appear as follows:

```
AMOUNT OF MEMORY FOUND:    256KB

CURRENT INVENTORY LIST
----------------------

DG20 SPU WITH FIRMWARE FLOATING POINT
256KB OF MEMORY
2 368KB DISKETTE DRIVES
2 38KB DISK DRIVES
1 CARTRIDGE TAPE DRIVE

5 COMMUNICATION CARDS

IS THIS INVENTORY LIST CORRECT (YES or NO)?
```

Check the new list for accuracy. If it is still incorrect, type NO, press the New Line key and the program will repeat the same sequence, asking you to describe your system and displaying the revised equipment list. This sequence continues until you answer YES when the program asks, "Is the list correct?"

If you listed communication lines with devices attached, the system displays this list when you type YES.

```
            COMMUNICATION INVENTORY LIST

5 COMMUNICATION CARDS
     CARD 1 IS MODEL 4463
          LINE 1: MODEL XXXX    LINE 2: MODEL XXXX
          LINE 3: MODEL XXXX    LINE 4: MODEL XXXX
     CARD 2 IS MODEL 4463
          LINE 1: MODEL XXXX
     CARD 3 IS MODEL 4463
          LINE 1: MODEL XXXX    LINE 2: MODEL XXXX
          LINE 3: MODEL XXXX    LINE 4: MODEL XXXX
     CARD 4 IS MODEL 4463
          LINE 1: MODEL XXXX
     CARD 5 IS MODEL 4207
          LINE 1: MODEL XXXX
ALL LINE ARE SET TO INTERNATION (8 BIT) CHARACTERS

IS THIS INVENTORY LIST CORRECT (YES OR NO)?
```

When the equipment list is accurate, you can skip ahead to "Run System Test." Your new equipment list is stored on the diagnostic diskette for use the next time you load Customer Diagnostics or choose to inventory equipment.

If you have already used Customer Diagnostics to create a list of your equipment, the system displays the amount of memory and the list of equipment on your screen when you load the diagnostic system. Make sure that the memory size in the equipment list is accurate and the same as the size given in the first line of the message.

If the memory size does not check out, your system is faulty. If the amount of SIZED MEMORY is less than the amount of memory in the equipment list or less than the amount your system actually has, then the memory card containing the 32KB beyond the KB listed under SIZED MEMORY is faulty. If the SIZED amount is greater than the listed or actual amount, then the SPU card is probably faulty. Fill out a Problem Report Form and contact your nearest Service Operations Center.

If the memory size checks out, then make sure the rest of the list is accurate — *the system cannot be properly tested if it is not.* Then type YES, press the New Line key, and skip ahead to "Run System Test."

Customer Diagnostic Menu

After you verify that the equipment list is correct, the system displays the main menu on your system console. The following figure shows what you will see.

```
        DG SERIES DIAGNOSTIC SYSTEM
        REVISION 1.00
        COPYRIGHT (C) DATA GENERAL CORPORATION 1983, 1984
        ALL RIGHTS RESERVED

          1 - RUN SYSTEM TEST
          2 - DISPLAY DEVICE TEST MENU
          3 - DISPLAY DISKETTE MENU
          4 - INVENTORY EQUIPMENT
          5 - PREPARE DISK FOR MOVING
          6 - RUN EXTENDED SYSTEM TEST
          7 - LEAVE DIAGNOSTIC SYSTEM

ENTER NUMBER OF ACTION DESIRED:
```

Items 1, 2, and 6 of the menu execute programs that allow you to test the operation of your system. Item 4 runs programs that allow you to change the equipment list for your system without reloading Customer Diagnostics. You should select

1-RUN SYSTEM TEST — when you first install your system or add or remove equipment; once daily to verify your system's operation; and whenever you have any problem with the system.

6-RUN EXTENDED SYSTEM TEST	when you have an intermittent problem that you cannot diagnose using the system test.
4-INVENTORY EQUIPMENT	when you add or remove equipment from your system.
2-DISPLAY DEVICE TEST MENU	when you have a problem with the system console, or device such as a terminal, tablet, mouse, printer or plotter.

The sections ahead tell you what happens when you select items 1, 2, 4, or 6 on the menu. If an error occurs while the system is performing any of these Customer Diagnostic sequences, a message like the following one appears:

```
SYSTEM ERROR
FAULT CODE X-Y-Z
PRESS NEWLINE TO RETURN TO MAIN MENU.
```

X, Y, and Z are numbers that together form a code that you can use to identify the most likely cause of an error. The section Fault Codes at the end of this chapter lists the problem or part associated with each possible error code.

Run System Test

Item 1 on the Customer Diagnostic menu lets you run the system test to diagnose a problem. To select this action, wait for the main menu to appear; then type 1 and press the New Line key.

If your system contains two diskette drives or a tape drive, the system test warns your that it may erase valued information on a diskette or tape.

```
                *** WARNING ***

SYSTEM TEST DESTROYS DATA ON:
   SECOND DISKETTE -- INSERT FORMATTED SCRATCH DISKETTE INTO DRIVE 1.
   CARTRIDGE TAPE  -- INSERT SCRATCH TAPE INTO DRIVE.

PRESS NEW LINE.
```

If your system has two diskette drives, insert a formatted scratch diskette in drive 1 (the left drive); if your system has a cartridge tape drive, insert a scratch tape into this drive. After inserting a scratch diskette or tape, press the New Line key. The system test begins with the following message:

```
STARTING SYSTEM TEST
WILL TAKE 15 MINUTES...
TEST HAS RUN X MINUTES.
```

The program updates the number of minutes (X) as the test progresses. When the test is completed, the following message appears on your screen.

```
TEST FINISHED. NO ERRORS FOUND.
PRESS NEWLINE TO RETURN TO MAIN MENU.
```

If a fault code appears on your screen instead, refer to the section "Fault Codes" at the end of this chapter.

If after 5 minutes the system test has not updated the number of minutes it has run, or printed a fault code on your screen, turn power to the computer unit off and check that:

- all computer unit and peripheral cables are plugged in securely and screws tightened;
- the diskette drive latches and cartridge tape drive door are closed;
- all peripheral equipment is on line, functioning properly, and free of any paper jams or obstructions.

Turn power to the computer unit on and try running the system test again. If you have the same problem, try running the extended system test as described ahead.

If the extended system test updates the number of minutes it runs, leave the test after 15 minutes by pressing the New Line key. If the test does not update the number of minutes, or print a fault code on your screen, turn off power to the computer unit. Reload Customer Diagnostics (if necessary) and select Item 4 (Inventory Equipment) from the main menu. When the inventory list appears and the program asks you if the list is correct, type NO and press the New Line key. When the series of questions about your system appears on the screen, specify a minimum system by indicating a memory size of 128 Kbyte, the system console type, 1 diskette drive, and *no other equipment.*

If you had to turn off power to the computer unit to leave the extended system test, attempt to run the extended system test again for 15 minutes. If you were able to leave the extended system test by only pressing the New Line Key, attempt to run the system test. If you are still unable to determine the problem, fill out a Problem Report Form and call the nearest Service Operations Center.

Run Extended System Test

Item 6 on the Customer Diagnostic menu is the extended system test, a useful tool when the system test is insufficient to diagnose a problem. The extended system test runs until you stop it by pressing the New Line key. If your system's problem is an intermittent one, you can run the extended system test for several hours or overnight.

To execute the extended system test, wait for the main menu to appear; then type 6 and press the New Line key. The extended system test begins with the following message:

```
STARTING EXTENDED SYSTEM TEST.
TO STOP TEST, PRESS NEWLINE.
TEST HAS RUN X MINUTES.
```

The program updates the number of minutes (X) as time passes. When you stop the test, the program displays this message:

```
TEST FINISHED. NO ERRORS FOUND.
PRESS NEWLINE TO RETURN TO MAIN MENU.
```

If a fault code appears on your screen instead, refer to the section "Fault Codes" at the end of this chapter.

If after 5 minutes the extended system test has not updated the number of minutes it has run, or printed a fault code on your screen, turn power to the computer unit off and on again. Reload Customer Diagnostics and try running the system test using the procedures described previously in the "Run System Test" section.

Inventory Equipment

In order for the system test to operate correctly, you must change the equipment list each time you add or remove equipment from your system. You can change your equipment list without reloading Customer Diagnostics by selecting item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu. This program displays the number of Kbytes in your system's memory and the current equipment list, and then asks you if the list is correct. If you answer NO, it asks the same questions about your system's equipment as it does when you run the system test.

Display Device Test Menu

If you suspect a problem with your system console, terminal, printer, plotter, tablet, or mouse, you can test its operation by selecting item 2, DISPLAY DEVICE TEST MENU, from the Customer Diagnostic menu. When you choose this action, the program displays a menu which, depending on the equipment in your inventory list, might look as follows.

```
DEVICE TEST MENU
----------------

1 - RETURN TO MAIN MENU
3 - RUN TERMINAL TEST
4 - RUN PRINTER TEST
5 - RUN PLOTTER TEST
6 - RUN TABLET TEST
7 - RUN MOUSE TEST

ENTER DESIRED OPERATION:
```

You will see operations 3 through 7 listed only if you have a terminal, printer, plotter, tablet, or mouse in your equipment list. If the DEVICE TEST menu does not agree with the equipment you have in your system, return to the main menu and choose item 4, INVENTORY EQUIPMENT.

Enter the number of the desired operation and press the New Line key. The program tells you what it will test and then performs the test.

If your system contains more than one device of a particular type, the test displays another menu that lists each individual device and asks you to choose one for testing.

For example, if your system contains a user terminal in addition to your system console and you choose item 3, the test might display

```
    MULTIPLE DEVICES FOUND
    ----------------------

1 - RETURN TO MAIN MENU
2 - RETURN TO DEVICE TEST MENU
3 - TEST TERMINAL MODEL 6106 ON USAM CARD 1, LINE 2
4 - TEST SYSTEM CONSOLE
5 - TEST ALL DEVICES LISTED ABOVE

ENTER DESIRED OPERATION:
```

Enter the number of the desired operation and press the New Line key. The program then tells you what it will test and immediately performs the test.

NOTE *Item 5 does not apply for tablet or mouse testing.*

If the system is unable to perform an operation, it displays a fault code at your system console. When this happens, refer to the section "Fault Codes" at the end of the chapter. If you continue to have problems after performing an operation, use the information in Chapters 6 through 9 to test your terminal, printer, or plotter.

You will find each operation described below.

Run Terminal Test

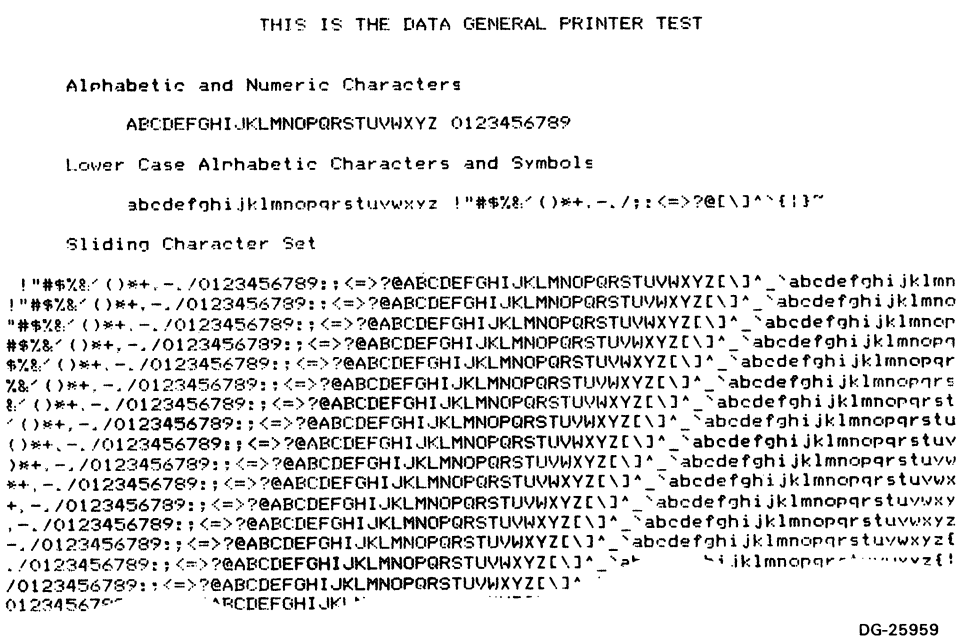
Operation 3 tests the functioning of a system console or user terminal. The test displays all upper and lower case alphabetic characters and all symbols and numbers. It also displays a sliding character set and tests the terminal's attributes. Each attribute word displayed characterizes the attribute it describes. Thus, the word BLINK is blinking; the word DIM is dim; the word REVERSE is in reverse-video, and underlined. The word ALL has all the previous attributes: it is blinking, dim, reverse-video, and underlined. (Since ALL is in reverse video, the underline appears as a dark line.) The word NORMAL has none of the previous attributes: its letters are green on a dark background.

When the test completes successfully, it displays the following message on the terminal or system console tested.

```
                    THIS IS THE DATA GENERAL TERMINAL TEST

TERMINAL ATTRIBUTES - BLINK DIM REVERSE UNDERLINE ALL NORMAL

Upper Case Alphabetic and Numeric Characters

     ABCDEFGHIJKLMNOPQRSTUVWXYZ 0123456789

Lower Case Alphabetic Characters and Symbols

     abcdefghijklmnopqrstuvwxyz !''#$%&'()*+,-./:;<=>?@[\]^-'{|}~

Sliding Character Set
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefgh
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghi
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghi
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijk
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijkl
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklm
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmn
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnc
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopc
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqr
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrs
```

Run Printer Test

Operation 4 causes the printer to print the following test pattern.



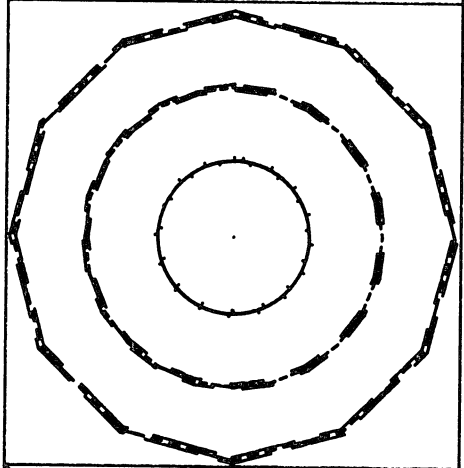
DG-25959

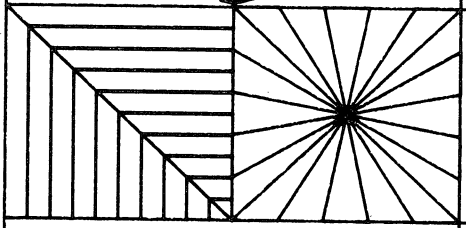
Test the Plotter

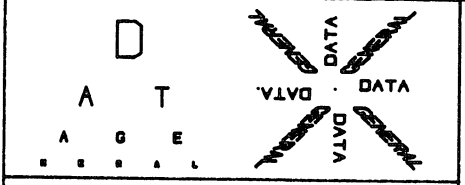
Operation 5 causes the plotter to print the test pattern on the next page. The pattern takes about six minutes to print. Both plotter stalls should contain pens of different colors in order to print the pattern with its full effect.

The test pattern consists of two columns: a left column of special characters, symbols, and designs; and a right explanation column that describes the features being tested in the left column and what characteristics you should look for in that column.

The plotter first draws the outside and middle lines. Then it draws the left column, one color in one section at a time. Finally, it draws the second column from start to finish. The plotter draws all headings and parts of designs with the right pen and the rest with the left pen.







. PLOTTER TEST COMPLETED.

CHARACTER SET TEST
TESTS:
THE ABILITY TO SELECT DIFFERENT CHARACTER SETS AND PENS.
DRAWS:
THE ENTIRE FIRST CHARACTER SET AND THE CHARACTERS OR SYMBOLS WHICH VARY IN THE REMAINING CHARACTER SETS. THE HEADINGS FOR EACH SET ARE DRAWN BY THE LEFT PEN AND THE CHARACTERS OR SYMBOLS ARE DRAWN BY THE RIGHT PEN. PENS SHOULD BE DIFFERENT COLORS.

CIRCLE AND LINE TEST
TESTS:
THE ABILITY TO DRAW CIRCLES WITH VARYING LENGTH LINES USING THREE DIFFERENT INSTRUCTIONS. THE PLOTTER'S ABILITY TO USE DIFFERENT LINE STYLES IS ALSO TESTED.
DRAWS:
THREE GROUPS OF CIRCLES WITH VARYING SMOOTHNESS. THE SMALL CIRCLES ARE THE SMOOTHEST AND THE OUTER CIRCLES HAVE DISTINCT CORNERS. EACH GROUP CONTAINS THREE CIRCLES, TWO DRAWN BY THE LEFT PEN AND ONE DRAWN BY THE RIGHT PEN.

TICK AND LINE DIRECTION TESTS
TESTS:
THE ABILITY TO DRAW X AND Y TICKS OF VARYING LENGTHS AND TO DRAW LINES IN ALL DIRECTIONS.
DRAWS:
VERTICAL AND HORIZONTAL LINES MEETING ON A DIAGONAL LINE AND A SERIES OF LINES MEETING IN A SINGLE POINT.

CHARACTER SIZE AND DIRECTION
TESTS:
THE ABILITY TO PRINT CHARACTERS IN ALL SIZES AND DIRECTIONS.
DRAWS:
THE LETTERS "DATAGENERAL" SPACED IN A TRIANGULAR SHAPE WITH THE LETTERS GETTING SMALLER NEAR THE BOTTOM AND THE WORDS "DATA" AND "GENERAL" PRINTED IN VARYING DIRECTIONS WITH VARYING SLOPES.

DG-25960

Run Tablet Test

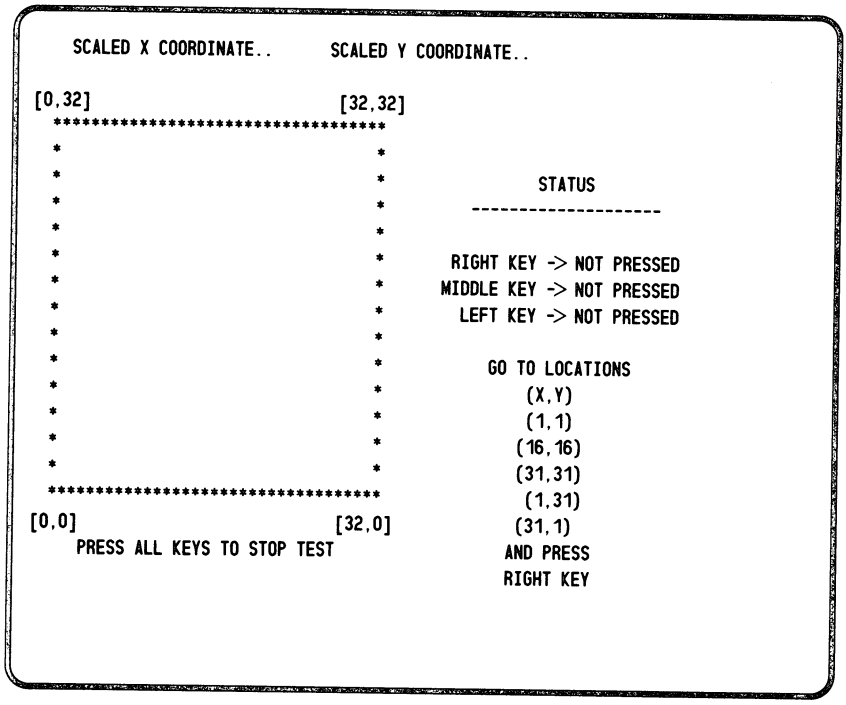
Operation 6 tests the functioning of the data tablet and input device. The test displays detailed instructions for testing the tablet and device and then displays a screen that represents the X and Y coordinates of the tablet's surface.

Follow the instructions, being careful not to move the input device outside the area marked with a black line on the tablet's surface. If you move the input device outside the marked area for more than five seconds, the test displays a fault code on the screen. If this happens; press the New Line key to get the main menu; select DISPLAY DEVICE TEST MENU; and try again.

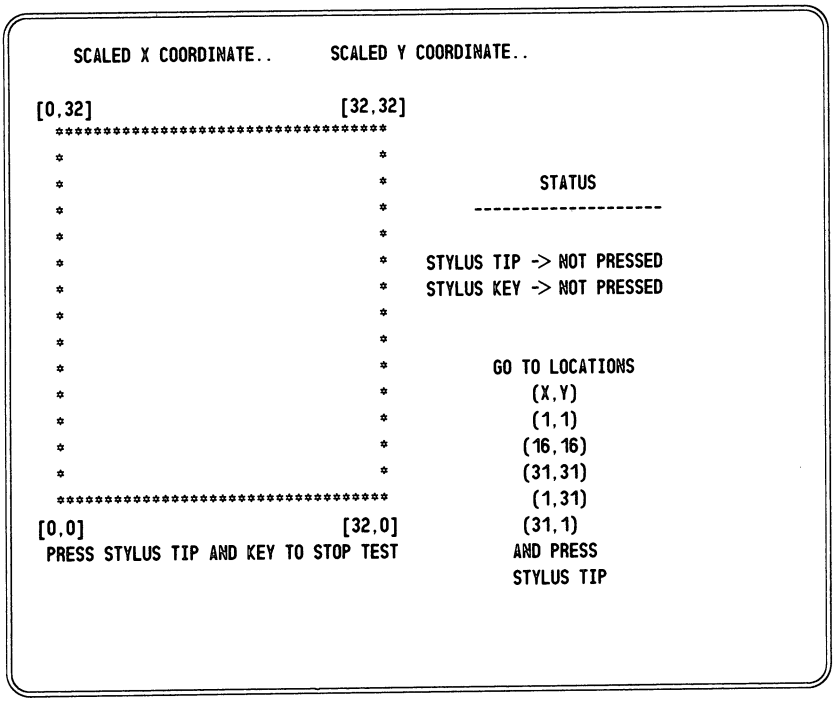
The instructions for testing the tablet appear on your screen as follows.

```
THE TEST IS ON THE NEXT SCREEN. THE BOX ON THE SCREEN REPRESENTS THE TABLET
SURFACE AND THE + SHOWS THE CURRENT LOCATION OF THE INPUT DEVICE (CURSOR PUCK
OR STYLUS). YOU WILL ALSO SEE A LIST OF LOCATIONS SPECIFIED BY X AND Y
COORDINATES.

WHEN THE SCREEN APPEARS, MOVE THE INPUT DEVICE TO THE FIRST LOCATION (1,1),
AND PRESS THE RIGHT KEY. LOCATION (1,1) WILL BE DELETED FROM THE LIST WHEN YOU
DO THIS. TO HELP YOU FIND THE LOCATION, THE CURRENT X AND Y COORDINATES ARE
DISPLAYED AT THE TOP OF THE SCREEN. CONTINUE MOVING THE INPUT DEVICE UNTIL ALL
THE LOCATIONS ARE DELETED FROM THE LIST. WHEN YOU HAVE DONE THIS, YOU
AUTOMATICALLY RETURN TO THE DEVICE TEST MENU. YOU CAN ALSO RETURN TO THIS MENU
BY SIMULTANEOUSLY PRESSING THE THREE KEYS ON THE CURSOR PUCK OR THE STYLUS TIP
AND KEY, AND ANSWERING Y WHEN ASKED "DO YOU REALLY WANT TO STOP THE TEST (Y OR
N)?"

CAUTION:        THE INPUT DEVICE MUST STAY WITHIN THE MARKED AREA
                ON THE TABLET SURFACE.

ARE YOU USING A CURSOR PUCK (Y OR N)?
```

If you are using a cursor puck, the testing screen appears as follows.



If you are using a stylus, the testing screen looks like this.



Run Mouse Test

Operation 7 tests the functioning of the mouse and pad. The test displays detailed instructions for testing the mouse and pad and then displays a screen which represents the X and Y coordinates of the pad's surface.

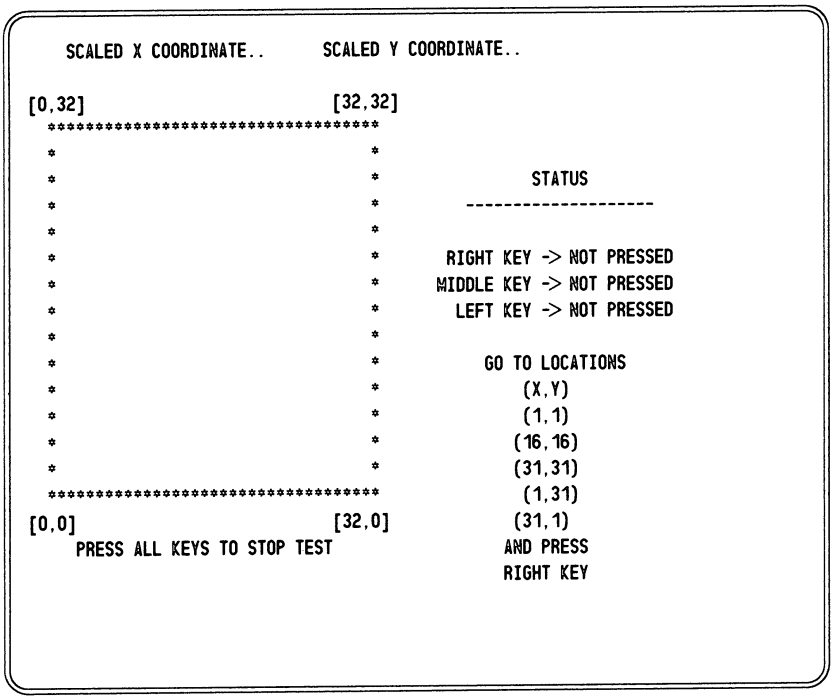
Be sure the mouse is calibrated before you begin the test. If you start to test an uncalibrated mouse, the program displays the following message.

```
THE TEST CANNOT CONTINUE UNTIL YOU CALIBRATE THE MOUSE. TO CALIBRATE THE MOUSE,
MOVE IT DIAGONALLY ACROSS THE PAD, AND THEN ENTER A Y TO CONTINUE. ANY OTHER
ENTRY RETURNS YOU TO THE DEVICE TEST MENU.

                ENTER Y TO CONTINUE TEST.
```

The instructions for testing the mouse appear on your screen as follows.

```
THE TEST IS ON THE NEXT SCREEN. THE BOX ON THE SCREEN REPRESENTS THE MOUSE
PAD AND THE + SHOWS THE CURRENT LOCATION OF THE MOUSE. YOU WILL ALSO SEE A LIST
OF LOCATIONS SPECIFIED BY X AND Y COORDINATES.

WHEN THE SCREEN APPEARS, MOVE THE MOUSE TO THE FIRST LOCATION AND
PRESS THE RIGHT KEY. LOCATION (1,1) WILL BE DELETED FROM THE LIST WHEN YOU
DO THIS. TO HELP YOU FIND THE LOCATION, THE CURRENT X AND Y COORDINATES ARE
DISPLAYED AT THE TOP OF THE SCREEN. CONTINUE MOVING THE MOUSE  UNTIL ALL
THE LOCATIONS ARE DELETED FROM THE LIST. WHEN YOU HAVE DONE THIS, YOU
AUTOMATICALLY RETURN TO THE DEVICE TEST MENU. YOU CAN RETURN TO THIS MENU
AT ANY TIME BY PRESSING ALL THREE MOUSE KEYS TOGETHER AND ANSWERING Y WHEN YOU
ARE ASKED "DO YOU REALLY WANT TO STOP THE TEST (Y OR N)?"

BEFORE CONTINUING TO THE TEST, MOVE THE MOUSE DIAGONALLY ACROSS THE PAD TO
CALIBRATE IT. (FROM UPPER RIGHT TO LOWER LEFT)

                HIT ANY KEY TO CONTINUE.
```

The testing screen looks like this.



Fault Codes

When a program in Customer Diagnostics cannot complete a test or operation because of a failure with the system, it displays a fault code on the terminal:

```
FAULT CODE X-Y-Z
```

X,Y, and Z are numbers that together provide information identifying the likely problem or failing part. The table ahead lists the most likely cause for each fault code. If one of several parts may have caused a fault, the parts are listed in order of likeliness of failure — the most likely failing part is listed first, the next likely failing part is listed second, and so on. Wherever a problem is identified, the table tells you how to solve it. If a part is at fault, fill out a Problem Report Form and contact your nearest Service Operations Center.

Fault Code	Probable Cause
0-0-0, 0-0-10 through 0-0-17, 0-0-20 through 0-0-27, 0-0-30 through 0-0-37, 0-0-40 through 0-0-47, 0-0-50 through 0-0-57, 0-0-60	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
1-0-1 through 1-0-10	Priority switch settings or SPU card For correct settings, see the section on priority switches in the card installation chapter of *Installing Model 20 and 30 Systems.*
4-1-0 through 4-1-4	SPU card
4-2-X	Memory card X is the number of the 32 Kbyte block of memory that failed, starting with block 0. The memory card closest to the SPU card contains the lowest numbered blocks. A 256 Kbyte memory card contains eight blocks; a 512 Kbyte memory card contains sixteen blocks.
5-1-0 through 5-1-9	SPU card
5-2-X	Memory card X is the number of the 32 Kbyte block of memory that failed, starting with block 0. The memory card closest to the SPU card contains the lowest numbered blocks. A 256 Kbyte memory card contains eight blocks; a 512 Kbyte memory card contains sixteen blocks.

Fault Code	Probable Cause
6-6-0	Inventory list Execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and check number of communication lines.
6-6-1X through 6-6-17X	USAM card or devices connected to USAM card X is the number of the USAM card. Card number — Device code 1 — 34 2 — 74 3 — 55 4 — 56
7-0-0	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
7-0-2, 7-0-3	SPU card
7-0-4	Priority switch settings For correct settings, see the section on priority switches in the card installation chapter of *Installing Model 20 and 30 Systems.*
7-0-5	SPU card
7-0-7	Priority switch settings or device failure For correct settings, see the section on priority switches in the card installation chapter of *Installing Model 20 and 30 Systems.* If the switch settings are correct, execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and remove both disks from the equipment list. Rerun the failing test. If no failure occurs, the disk module is probably faulty. If a failure occurs, remove the second diskette from the inventory list (if listed), and rerun the test. If the test still fails, the SPU card or the diskette module is probably faulty. Be sure to restore the equipment list to its original state.

Fault Code	Probable Cause
7-0-8	Memory card
7-0-9 through 7-0-19	SPU card
7-0-20	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
7-0-21	Diskette or diskette module Use another Customer Diagnostic diskette in drive 0 (right drive).
7-0-22, 7-0-24	SPU card
7-0-120	Diskette module
7-0-122	Cartridge tape module
7-0-126	Computer disk unit
7-0-220	Diskette module
7-0-222	Cartridge tape module
7-0-226	Computer disk unit
7-1-1 through 7-1-9	SPU card
7-2-X	Memory card X is the number of the 32 Kbyte block of memory that failed, starting with block 0. The memory card closest to the SPU card contains the lowest numbered blocks. A 256 Kbyte memory card contains eight blocks; a 512 Kbyte memory card contains sixteen blocks.

Fault Code	Probable Cause
7-3-0 through 7-3-4	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
7-3-5 through 7-3-9	Diskette Use another formatted scratch diskette in drive 1 (left drive).
7-3-10 through 7-3-19	Diskette module
7-3-20 through 7-3-24	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
7-3-25 through 7-3-29	Diskette Use another formatted scratch diskette in drive 1 (left drive).
7-3-30 through 7-3-39	Diskette module
7-3-40 through 7-3-44	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
7-3-45 through 7-3-49	Diskette Use another formatted scratch diskette in drive 1 (left drive).
7-3-50 through 7-3-54	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).
7-3-55 through 7-3-59	Diskette Use another formatted scratch diskette in drive 1 (left drive).

Fault Code	Probable Cause
7-3-60 through 7-3-79, 7-3-200, 7-3-201	Diskette module
7-4-0 through 7-4-4	15MB disk module in computer unit
7-4-5 through 7-4-9	15MB expansion disk unit
7-4-10 through 7-4-14	15MB disk module in computer unit
7-4-15 through 7-4-19	15MB expansion disk unit
7-4-20 through 7-4-24	15MB disk module in computer unit
7-4-25 through 7-4-29	15MB expansion disk unit
7-4-30 through 7-4-34	15MB disk module in computer unit
7-4-35 through 7-4-39	15MB disk module in computer unit or expansion disk unit
7-4-40 through 7-4-44	15MB disk module in computer unit

Fault Code	Probable Cause
7-4-45 through 7-4-49	15MB expansion disk unit
7-4-50 through 7-4-54	15MB disk module in computer unit
7-4-55 through 7-4-59	15MB expansion disk unit
7-4-60 through 7-4-69	15MB disk module in computer unit or SPU card
7-4-70 through 7-4-74	15MB disk module in computer unit
7-4-75 through 7-4-79	15MB expansion disk unit
7-4-200	15MB disk module in computer unit
7-4-201	15MB disk module in computer unit or expansion disk unit
7-8-11 through 7-8-18	Cartridge tape module
7-8-21 through 7-8-28	Cartridge tape module
7-8-31 through 7-8-38	Tape Use another scratch tape.

Fault Code	Probable Cause
7-8-41 through 7-8-48	Cartridge tape module
7-8-51 through 7-8-58	Tape or cartridge tape module Use another scratch tape.
7-8-61 through 7-8-68	Cartridge tape module
7-8-71 through 7-8-78	Tape Use another scratch tape.
7-8-81 through 7-8-88	Tape Use another scratch tape.
7-8-91 through 7-8-98	Cartridge tape module
7-8-200	Tape Use another scratch tape.
7-13-0 through 7-13-4	38MB disk module in computer unit
7-13-5 through 7-13-9	38MB expansion disk unit
7-13-10 through 7-13-14	38MB disk module in computer unit
7-13-15 through 7-13-19	38MB expansion disk unit
7-13-20 through 7-13-24	38MB disk module in computer unit
7-13-25 through 7-13-29	38MB expansion disk unit

Fault Code	Probable Cause
7-13-30 through 7-13-34	38MB disk module in computer unit
7-13-35 through 7-13-39	38MB disk module in computer unit or expansion disk unit
7-13-40 through 7-13-44	38MB disk module in computer unit
7-13-45 through 7-13-49	38MB expansion disk unit
7-13-50 through 7-13-54	38MB disk module in computer unit
7-13-55 through 7-13-59	38MB expansion disk unit
7-13-60 through 7-13-69	38MB disk module in computer unit or SPU card
7-13-70 through 7-13-74	38MB disk module in computer unit
7-13-75 through 7-13-79	38MB expansion disk unit
7-13-200	38MB disk module in computer unit
7-13-201	38MB disk module in computer unit or expansion disk unit
9-1-0	Diskette Run the device test again. Use another Customer Diagnostic diskette in drive 0 (right drive).
9-5-0	Keyboard Make sure the keyboard cable is plugged in securely and the connector screws are tightened before replacing the keyboard.

Fault Code	Probable Cause
9-7-0	Printer's device cable Make sure cable is plugged in securely and the connector screws are tightened. Printer's configuration settings For correct settings, see the appropriate printer chapter in *Installing Model 20 and 30 Systems.* SPU card 4207 card Make sure the jumpers for the card are set correctly before replacing the card. For correct settings, see the 4207 card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-7-1	Printer's device cable Make sure cable is plugged in securely and the connector screws are tightened. Printer's configuration settings. For correct settings, see the appropriate printer chapter in *Installing Model 20 and 30 Systems.* USAM card Make sure configuration switches for line controlling the printer are set correctly before replacing card. For correct settings, see the USAM card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-7-2, 9-7-3	Inventory list Execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and check for incorrect equipment listing. Device cable Make sure you are using the correct device cable with the printer. For correct cables, see the device cables section in the unpacking chapter of *Installing Model 20 and 30 Systems.* Printer Check for paper jam. Make sure the printer is receiving proper ac power and operating correctly. Check the appropriate printer chapter in this manual.

Fault Code	Probable Cause
9-9-0	Plotter's device cable Make sure cable is plugged in securely and the connector screws are tightened. Plotter's configuration switch settings For correct settings, see the plotter chapter in *Installing Model 20 and 30 Systems.* SPU card 4207 card Make sure the jumpers for the card are set correctly before replacing the card. For correct settings, see the 4207 card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-9-1	Plotter's device cable Make sure cable is plugged in securely and the connector screws are tightened. Plotter's configuration switch settings For correct settings, see the plotter chapter in *Installing Model 20 and 30 Systems.* USAM card Make sure configuration switches for line controlling the plotter are set correctly before replacing card. For correct settings, see the USAM card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-9-2, 9-9-3	Inventory list Execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and check for incorrect equipment listing. Device cable Make sure you are using the correct device cable with the plotter. For correct cables, see the device cables section in the unpacking chapter of *Installing Model 20 and 30 Systems.* Plotter Check for paper jam. Make sure the plotter is receiving proper ac power and operating correctly. Refer to the plotter chapter in this manual.

Fault Code	Probable Cause
9-10-0	Mouse's device cable Make sure the cable is plugged in securely and the connector screws are tightened. SPU card 4207 card Make sure the jumpers for the card are set correctly before replacing the card. For correct settings, see the 4207 card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-10-1	Mouse's device cable Make sure the cable is plugged in securely and the connector screws are tightened. USAM card Make sure configuration switches for line controlling the mouse are set correctly before replacing card. For correct settings, see the USAM card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-10-2, 9-10-3	Inventory list Execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and check for incorrect equipment listing. Device cable Make sure you are using the correct device cable with the mouse. For correct cables, see the device cables section in the unpacking chapter of *Installing Model 20 and 30 Systems.* Mouse Make sure the mouse is receiving proper ac power by checking the rightmost red light on its bottom surface.

Fault Code	Probable Cause
9-11-0	Tablet's device cable Make sure the cable is plugged in securely and the connector screws are tightened. Make sure you operate the positioning device within the correct area on the tablet. SPU card 4207 card Make sure the jumpers for the card are set correctly before replacing the card. For correct settings, see the 4207 card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-11-1	Tablet's device cable Make sure the cable is plugged in securely and the connector screws are tightened. Make sure you operate the positioning device within the correct area on the tablet. USAM card Make sure configuration switches for line controlling the tablet are set correctly before replacing card. For correct settings, see the USAM card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-11-2, 9-11-3	Inventory list Execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and check for incorrect equipment listing. Device cable Make sure you are using the correct device cable with the tablet. For correct cables, see the device cables section in the unpacking chapter of *Installing Model 20 and 30 Systems.* Tablet Make sure the tablet is receiving proper ac power. Make sure you operate the positioning device within the correct area on the tablet.

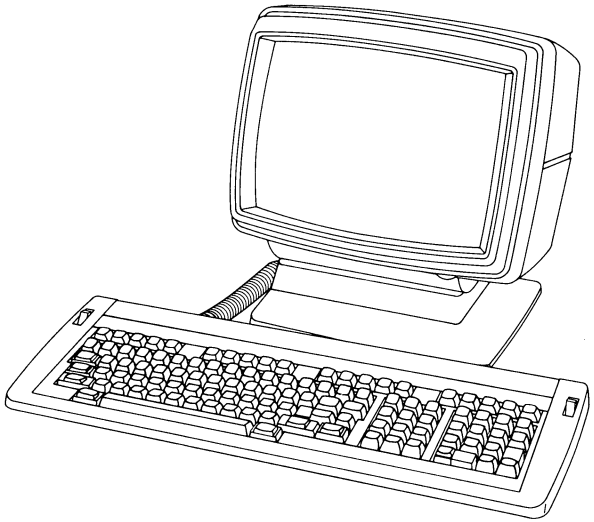
Fault Code	Probable Cause
9-12-0	Terminal's device cable Make sure cable is plugged in securely and the connector screws are tightened. Terminal's configuration settings For correct settings, see the appropriate terminal chapter in *Installing Model 20 and 30 Systems.* SPU card 4207 card Make sure the jumpers for the card are set correctly before replacing the card. For correct settings, see the 4207 card section in the card installation chapter of *Installing Model 20 and 30 Systems.*
9-12-1	Terminal's device cable Make sure cable is plugged in securely and the connector screws are tightened. Terminal's configuration settings. For correct settings, see the appropriate terminal chapter in *Installing Model 20 and 30 Systems.* USAM card Make sure configuration switches for line controlling the terminal are set correctly before replacing card. For correct settings, see the USAM card section in the card installation chapter of *Installing Model 20 and 30 Systems.*

Fault Code	Probable Cause
9-12-2, 9-12-3	Inventory list Execute item 4, INVENTORY EQUIPMENT, on the Customer Diagnostic menu and check for incorrect equipment listing. Device cable Make sure you are using the correct device cable with the terminal. For correct cables, see the device cables section in the unpacking chapter of *Installing Model 20 and 30 Systems*. Terminal Make sure the terminal is receiving proper ac power and operating correctly. Check the appropriate terminal chapter in this manual.
12-0-1	Computer type Computer not a DESKTOP GENERATION system.
12-0-2	Inventory list Execute item 4, INVENTORY EQUIPMENT, on Customer Diagnostic menu and check number of diskette and disk drives.
12-0-3	Inventory list Execute item 4, INVENTORY EQUIPMENT, on Customer Diagnostic menu and check number of communication lines.
12-3-1	Diskette in drive Make sure the diskette is formatted and inserted properly. Make sure the diskette latch is closed.
14-0-4 through 14-0-7	Diskette Use another Customer Diagnostic diskette in drive 0 (right drive).

Testing Your D210 or D211 Terminal

4

This chapter tells you how to verify terminal operation by turning on the power and performing simple off-line tests. It also includes simple problem solving procedures that you can use if you have trouble with the terminal.



DG-25876

Power-Up Test

The terminal performs a power-up test whenever you turn it on. This test checks certain terminal functions, such as the bell and the keyboard lights.

Take the following steps to run the power-up test.

1. Turn on the power switch.

2. Make sure that the following actions take place:

- The bell rings and the ON LINE and ALPHA LOCK lights on the keyboard glow.
- The bell rings a second time, the ALPHA LOCK light turns off, and the ON LINE light remains on. If the terminal is not connected to the computer, the ON LINE light blinks until you press the CMD and ON LINE keys to take the terminal off line. If the terminal is connected to the computer over a telephone line, the ON LINE light blinks until the equipment is ready to communicate with the computer.
- The cursor appears in the upper left corner, followed by the message "D210 Self Test OK" or "D211 Self Test OK."

If any of the above actions do not take place or an error message appears, contact the Service Operations Center nearest you.

Off-Line Test

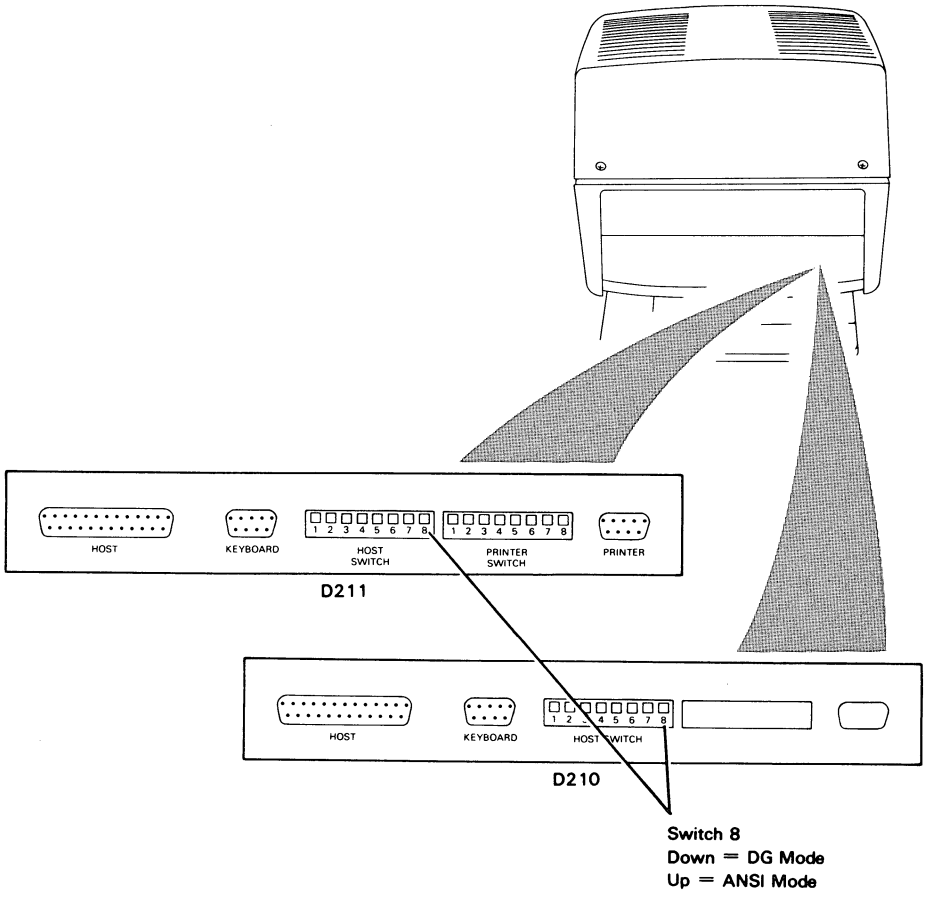
The off-line test allows you to check functions that the terminal can perform without communicating with the computer. This test is especially useful when you cannot determine if a problem is caused by the terminal itself or by some other part of the system.

Take the following steps to perform the off-line test.

1. If the ON LINE light glows steadily or blinks, take the terminal off-line by pressing and holding down the CMD key and pressing the ON LINE key.

2. Locate switch 8 of the host switches on the rear of the terminal. Then select Data General (DG) mode by setting this switch down, to

the 0 position. Put the terminal on-line and then off-line to initialize DG mode. If you are using the terminal in ANSI mode, be sure to reset switch 8 up, to the 1 position, then put the terminal off-line and then on-line after you finish the off-line test.



DG-25877

3. Perform the following procedures in the exact sequence given, checking for the expected result. If you do not get this result, your terminal needs service. Fill out a Problem Report Form and contact the Service Operations Center nearest you.

Off-line test

Procedure	Expected Result
Check the ON LINE light.	ON LINE light is off.
Press the ALPHA LOCK key.	ALPHA LOCK light turns on.
Enter text.	Text is uppercase.
Press the ALPHA LOCK key.	ALPHA LOCK light turns off.
Enter more text.	Text is lowercase, unless you press SHIFT key.
Press the CR key.	Cursor returns to left margin of same line.
Press and hold down the CTRL key and press the G key.	Bell sounds.
Press and hold down the CTRL key and press the T key; release the CTRL key. Enter text.	Text is underlined.
Press and hold down the CTRL key and press the \ key; release the CTRL key. Enter text.	Text is dimmed and underlined.
Press and hold down the CTRL key and press the N key; release the CTRL key. Enter text.	Text is blinking, dimmed, and underlined.
Press and hold down the CTRL key and press the U key; release the CTRL key. Enter text.	New text is not underlined; original text remains underlined.
Press and hold down the CTRL key and press the] key; release the CTRL key. Enter text.	New text is bright; original text remains dim.
Press and hold down the CTRL key and press the O key; release the CTRL key. Enter text.	New text is not blinking; original text continues to blink.
Press and hold down the CTRL key and press the D key.	All text stops blinking.
Press each of the four cursor keys marked with arrows.	Cursor moves in the direction of each arrow.

Off-line test (continued)

Procedure	Expected Result
Press the HOME key.	Cursor moves to the upper left corner of the screen.
Press and hold down the CTRL key and press the S key. Enter text. Repeatedly press the NEW LINE key until the cursor moves past the bottom of screen.	Cursor moves to the bottom of screen, jumps to the top, and continues moving downward. Text is unaffected.
Press and hold down the CTRL key and press the R key. Repeatedly press the NEW LINE key until the cursor moves past the bottom of the screen.	Cursor moves to the bottom of screen; then text moves up one line each time you press the NEW LINE key.
Press and hold down the CTRL key and press the T key. Press and hold down the CTRL key and press the / key. Press and hold down the CTRL key and press the C key. Press and hold down the CTRL key and press N; release the CTRL key. Enter text.	Text is underlined, dimmed, and blinking.
Press and hold down the CTRL key and press the L key; release the CTRL key. Enter text.	Screen clears; new text is not underscored, dimmed, or blinking.
Move cursor to the middle of your previously entered line of text; press the ERASE EOL key.	Characters from cursor position to end of line are erased.
Enter text in the lower part of the screen. Repeatedly press the NEW LINE key until the cursor moves past the bottom of the screen.	Cursor moves to the bottom of screen; then text moves up in one-line increments.
Enter text. Press and hold down the NEW LINE and REPT keys.	Text quickly moves up and off screen.

Off-line test (continued)

Procedure	Expected Result
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase D. Enter text.	Text appears in reverse-video: dark characters on light green.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase E.	Text is normal, not reverse-video.
Move cursor to the beginning of your original text. Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FF.	All text is erased, leaving the screen clear.

Problem Solving Procedures

This section contains easy procedures you can perform if you are having problems with your terminal. If you do not get results or your terminal shows symptoms other than those described here, the terminal needs service. Fill out a Problem Report Form and contact your nearest Service Operations Center.

Problem solving procedures

Symptom	Solution
Nothing happens when you turn the terminal on.	Make sure the power cord is plugged in. Using a lamp or similar device, make sure the ac outlet is supplying power.
Bell does not ring or lights on the keyboard do not glow when you turn on the terminal.	Check keyboard's cable connection to the monitor.
The cursor does not appear on the screen within 5 to 15 seconds after you turn on the terminal.	Adjust brightness control to make sure the cursor is not too faint for viewing.

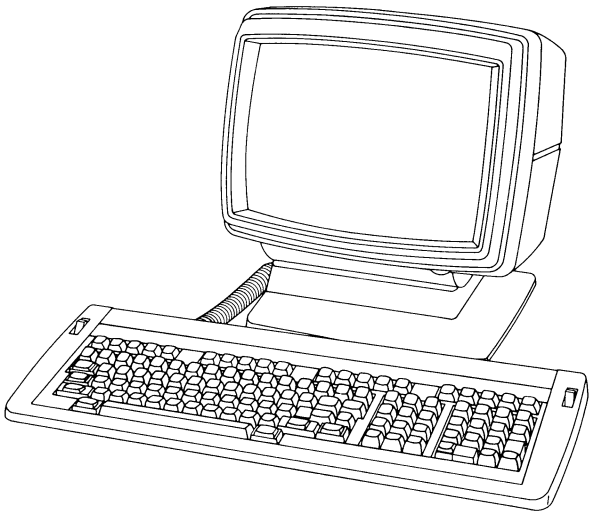
Problem solving procedures (continued)

Symptom	Solution
An error message is displayed when you turn on the terminal.	Contact your nearest Service Operations center. Even though a message appeared, the problem may not prevent the terminal from operating. Try using the terminal.
The terminal does not come on-line; that is, the ON LINE light is blinking.	Check device cable connections to terminal and computer.
Data entered at the keyboard is not displayed when the terminal is on line.	Press and hold the CTRL key and press the Q key to unfreeze data transmission from the computer.
Data entered at the keyboard is not the same as data displayed.	Make sure the baud rate and parity selected with the terminal's host switches are set correctly. (See *Installing Model 20 and Model 30 Systems* for information about the switches.) Before resetting the host switches, take the terminal off line by pressing and holding the CMD key and then pressing the ON LINE key.
Screen flickers.	Make sure the switch that selects ac line frequency is set correctly. (See *Installing Model 20 and 30 Systems* for information about the switch.) Before resetting the switch, take the terminal off line by pressing and holding the CMD key and then pressing the ON LINE key. Make sure the terminal is not too close to other terminals, printers, plotters, or the system's power supply.

Testing Your D410 or D460 Terminal

5

This chapter tells you how to verify the terminal's operation by turning on the power and performing simple off-line tests. It also includes simple problem solving procedures that you can use if you have trouble with your terminal.



DG-25876

Power-Up Test

The terminal performs a power-up test whenever you turn it on. This test checks certain terminal functions, such as the bell and the keyboard lights. The complete power-up test takes 10 to 15 seconds.

To run the power-up test:

1. Turn on the power switch.

2. Make sure that the following actions take place:

- A bright line appears across the middle of the screen for half a second.
- The bell rings and the ON LINE and ALPHA LOCK lights on the keyboard glow.
- The bell rings a second time, the ALPHA LOCK light turns off, and the ON LINE light remains on. If the terminal is not connected to the computer, the ON LINE light blinks until you press the CMD and ON LINE keys to take the terminal off-line. If the terminal is connected to the computer over a telephone line, the ON LINE light blinks until the equipment is ready to communicate with the computer.
- Several seconds after you turn on the power switch, the cursor appears in the upper left corner of your display screen, followed by the message "D410 Self Test OK" or "D460 Self Test OK."

If any of the above actions do not take place or an error message appears, contact the Service Operations Center nearest you.

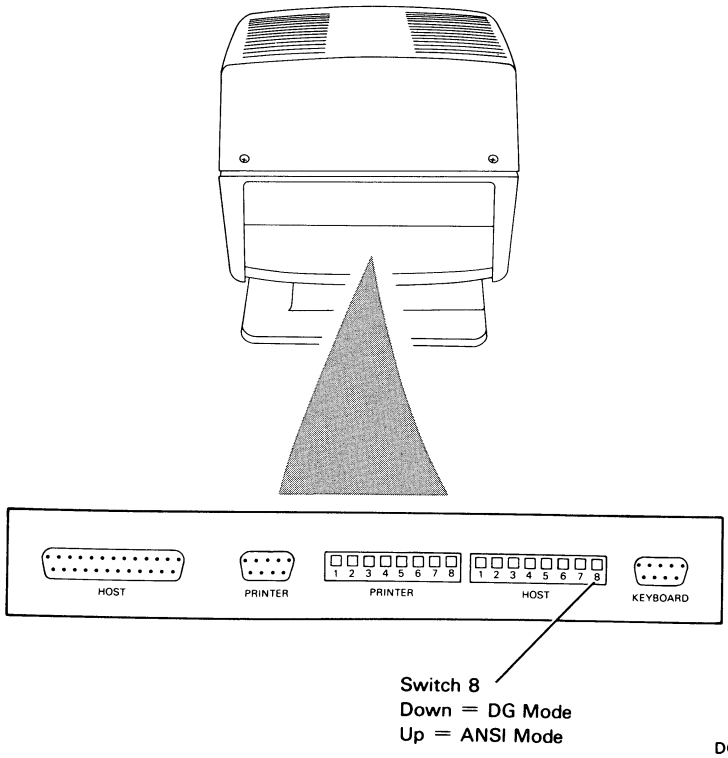
Off-Line Test

The off-line test allows you to check functions that the terminal can perform without communicating with the computer. This test is especially useful when you cannot determine if a problem is caused by the terminal itself or by some other part of the system.

Take the following steps to perform the off-line test.

1. If the ON LINE light glows steadily or blinks, take the terminal off-line by pressing and holding down the CMD key and pressing the ON LINE key.

2. Locate switch 8 of the host switches on the rear of the terminal. Select Data General (DG) mode by setting this switch down, to the 0 position. Put the terminal on-line and then off-line to initialize DG mode. If you are using the terminal in ANSI mode, be sure to reset switch 8 up, to the 1 position, then put the terminal off-line and then on-line after you finish the off-line test.



3. Perform the procedures below in the exact sequence given, checking for the expected result. If you do not get the expected result, your terminal needs service. Fill out a Problem Report Form and contact your nearest Service Operations Center.

Off-line test

Procedure	Expected Result
Check the ON-LINE light.	ON LINE light is off.
Press the ALPHA LOCK key.	ALPHA LOCK light turns on.
Enter text.	Text is uppercase.
Press the ALPHA LOCK key.	ALPHA LOCK light turns off.
Enter more text.	Text is lowercase unless you press the SHIFT key.
Press the CR key.	Cursor returns to the left margin of the same line.
Press and hold down the CTRL key and press the G key.	Bell sounds.
Press and hold down the CTRL key and press the T key; release the CTRL key. Enter text.	Text is underlined.
Press and hold down the CTRL key and press the \ key; release the CTRL key. Enter text.	Text is dimmed and underlined.
Press and hold down the CTRL key and press the N key; release the CTRL key. Enter text.	Text is blinking, dimmed, and underlined.
Press and hold down the CTRL key and press the U key; release the CTRL key. Enter text.	New text is not underlined; original text remains underlined.
Press and hold down the CTRL key and press the] key; release the CTRL key. Enter text.	New text is bright; original text remains dim.
Press and hold down the CTRL key and press the O key; release the CTRL key. Enter text.	New text is not blinking; original text continues to blink.
Press and hold down the CTRL key and press the D key.	All text stops blinking.

Off-line test (continued)

Procedure	Expected Result
Press each of the four cursor keys marked with arrows.	Cursor moves in the direction of each arrow.
Press the HOME key.	Cursor moves to the upper left corner of the screen.
Press and hold down the CTRL key and press the S key; release CTRL key. Enter text. Repeatedly press the NEW LINE key until the cursor moves past the bottom of the screen.	Cursor moves to the bottom of the screen, jumps to the top, and continues moving downward. Text is unaffected.
Press and hold down the CTRL key and press the R key; release the CTRL key. Repeatedly press the NEW LINE key until the cursor moves past the bottom of the screen.	Cursor moves to bottom of screen; then text moves up one line each time you press the NEW LINE key.
Press and hold down the CTRL key and press the T key. Press and hold down the CTRL key and press the / key. Press and hold down the CTRL key and press the C key. Press and hold down the CTRL key and press N; release the CTRL key. Enter text.	Text is underlined, dimmed, and blinking.
Press and hold down the CTRL key and press the L key; release the CTRL key. Enter text.	Screen clears; new text is not underscored, dimmed, or blinking.
Move the cursor to the middle of your previously entered line of text; press the ERASE EOL key.	Characters from the cursor's position to the end of the line are erased.
Enter text; press the NORM/COMP key several times.	The text alternates between normal and compressed formats each time the key is pressed.

Off-line test (continued)

Procedure	Expected Result
Press the HOLD key; enter some text.	The HOLD light turns on; new text does not appear.
Press the HOLD key again.	The HOLD light turns off and the text you previously entered appears.
Enter text in the lower part of the screen; repeatedly press the NEW LINE key until the cursor moves past the bottom of the screen.	Cursor moves to the bottom of the screen then text moves up in one-line increments.
Enter text; press and hold down the NEW LINE and REPT keys.	Text moves quickly up and off screen.
Press the SCRLL RATE key. Enter text. Press and hold down the NEW LINE and REPT keys.	Text scrolls smoothly and slowly up and off the screen.
Press the SCRLL RATE key. Enter text. Press and hold down the NEW LINE and REPT keys.	Text scrolls smoothly off the screen, but scroll speed increases.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase D.	Text is reverse-video; dark characters on light green.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase E.	Text is normal, not reverse-video.
Enter text; press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FV. Press and hold down the CMD key and press BREAK ESC. Enter uppercase FL; enter more text. Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FM.	Both texts are normal. Your first text entry is unprotected; your second entry is protected. (The cursor will not enter a protected area.)

Off-line test (continued)

Procedure	Expected Result
Position the cursor at the start of the first text you entered during the previous text step. Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FF.	Your first text entry is erased; your second entry remains.
Press the ERASE PAGE key.	All text is erased, leaving the screen clear.
Enter at least a full line of text; press and hold down the CMD key and press the BREAK ESC key. Enter FX28:1 with FX in uppercase.	Text shifts to the left 40 columns, with the cursor in the left column of the screen. The right and left margins are now set to columns 40 and 161 respectively.
Press and hold down the CMD key and press the BREAK ESC key. Enter FD28 with FD in uppercase.	Text shifts to the right 40 columns.
Press the NEW LINE key.	Cursor moves to the next line in column 40.
Enter text beyond the rightmost column on the screen.	Text scrolls to the left one column for each character that your entered beyond the rightmost column until column 161, then the screen "pops" back to the left margin.
Press and hold down the CMD key and press the BREAK ESC key. Enter F] with F in uppercase. Enter text.	Cursor moves right and then disappears off the right of the screen.
Press and hold down the CMD key and press the BREAK ESC key. Enter F↑ with F in uppercase.	Text shifts to the left and the cursor appears, along with the text that you entered in the previous step.
Press and hold down the CMD key and press the BREAK ESC key. Enter FX3050 with FX in uppercase.	Cursor moves to a new left margin. (Margins are set to columns 48 and 80.)
Press the ERASE PAGE key.	All text is erased, leaving the screen clear; the cursor is in the left margin of the top line.

Off-line test (continued)

Procedure	Expected Result
Enter text at the top and bottom of the screen. Press and hold down the CMD key and press the BREAK ESC key. Enter FB0<00<1 with FB in uppercase.	Cursor moves to the upper left corner of the screen. The screen splits into two windows; text in the top window is normal, with the left margin in column 0 of the screen; text in the bottom window is compressed, with the left margin shifted to the right of column 0.
Press the NEW LINE key repeatedly.	Cursor moves to the bottom of the top window; text in this window scrolls up one line each time you press the NEW LINE key.
Press and hold down the CMD key and press the BREAK ESC key. Enter FP300< with FP in uppercase.	Cursor moves to the top row of the bottom window (row 12) and to the right margin of this window.
Enter text in the bottom window if none is there. Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase I.	Text in the bottom window scrolls up one line.
Move the cursor to the middle of a line of text in the bottom window. Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase J.	Blank space is inserted in the text at the cursor's position. All characters to the right shift one position to the right.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FH.	A blank row is inserted at the row containing the cursor. Rows below the cursor scroll down.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FI.	The blank row inserted in the previous step is deleted. Rows below the cursor scroll up.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase K.	The character at the cursor's position is deleted. All characters to the right shift one position left.

Off-line test (continued)

Procedure	Expected Result
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase FA.	Bell sounds and all text is erased, leaving the screen clear; the cursor is in the upper left corner of the screen.
Press and hold down the CMD key and press the BREAK ESC key. Enter uppercase N. Enter text.	Data General international characters appear if terminal is configured for a data length of 8 bits.
Press and hold down the CMD key and press ERASE PAGE.	The screen clears, the bell sounds, and the cursor appears in the upper left corner of the screen followed by the messages "D410 Self Test OK" or "D460 Self Test OK."

If your terminal is a D460 model, continue to check its off-line functions according to the following procedures.

D460 off-line test

Procedure	Expected Result
Press and hold down the CMD key and press the ON-LINE key.	The ON LINE light glows.
Press and hold down the CMD key and press the BREAK ESC key. Enter FeO; with F in uppercase and e in lowercase.	Although there are no visible results, the DDL (downline loaded) character sets have been reserved for graphics.
Press and hold down the CMD key and press the BREAK ESC key. Enter Fd, with F in uppercase and d in lowercase.	9]J appears, indicating that 938 characters are reserved for graphics. If 9@@ appears, repeat the previous step and this one again.
Press and hold down the CMD key and press the BREAK ESC key. Enter L@@@@@@@@X_@Q_ with L, X, and Q in uppercase. Press and hold down the CTRL key and press SHIFT. Press the 2 key.	The cursor disappears and a line is drawn from the lower left to the upper right corner of the screen. The cursor reappears.
Press and hold down the CMD key and press the BREAK ESC key. Enter Fd, with F in uppercase and d in lowercase.	9ZH appears, indicating that 840 characters are still reserved for graphics.
Press and hold down the CMD key and press ERASE PAGE.	The screen clears, a bell sounds, and the cursor appears in the upper left corner of the screen followed by the message "D460 Self Test OK."

Problem Solving Procedures

This section contains easy procedures that you can perform if you are having problems with your terminal. If these procedures do not solve the problem or your terminal shows symptoms other than the ones described here, the terminal needs service. Fill out a Problem Report Form and contact your nearest Service Operations Center.

Problem solving procedures

Symptom	Solution
Nothing happens when you turn on the terminal.	Make sure the power cord is plugged in. Using a lamp or similar device, make sure the ac outlet is supplying power.
The bell does not ring or keyboard lights do not glow when you turn on the terminal.	Check the keyboard's cable connection to the monitor.
The cursor does not appear on the screen within 10 to 15 seconds after you turn the terminal on.	Adjust the brightness control to make sure the cursor is not too faint for viewing.
An error message is displayed when you turn on the terminal.	Contact your nearest Service Operations Center. Even if an error message appears, the problem may not prevent the terminal from operating. Try using the terminal.
The terminal does not come on-line, that is, the ON LINE light blinks.	Check the device cable connections to the terminal and computer.
Data entered at the keyboard is not displayed when the terminal is on-line.	Press and hold the CTRL key and press the Q key to unfreeze data transmission from the computer.

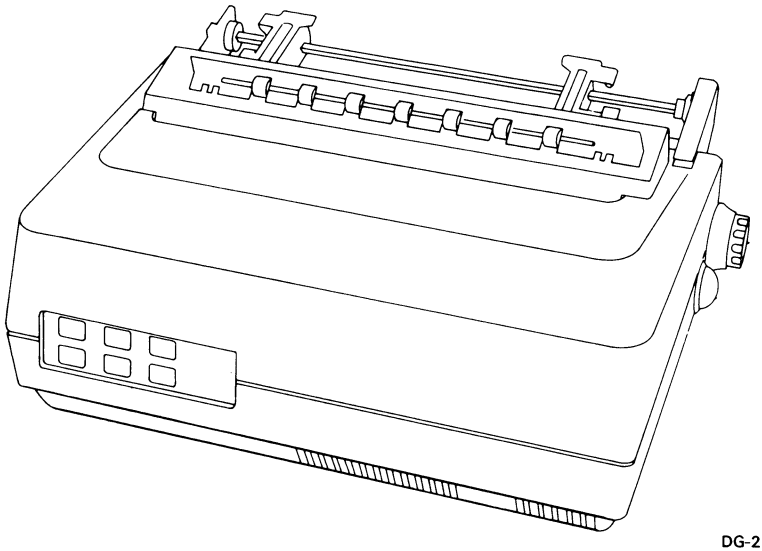
Problem solving procedures

Symptom	Solution
The data you entered at the keyboard is not the same as the data displayed.	Make sure the baud rate and parity are correctly set by the terminal's host switches. (See *Installing Model 20 and 30 Systems* for information about these switches.) Before resetting the host switches, taken the terminal off line by pressing and holding the CMD key and then pressing the ON LINE key.
The display screen flickers.	Make sure the switch that selects ac line frequency is set correctly. (See *Installing Model 20 and 30 Systems* for information about this switch.) Before resetting a switch, take the terminal off line by pressing and holding the CMD key and then pressing the ON LINE key. Make sure the terminal is not too close to other terminals, printers, plotters, or the system's power supply.

Testing Your Model 4434 Printer

6

This chapter tells you how to verify your printer's operation by running the printer's self-test. It also includes simple problem solving procedures that you can use if you have trouble with the printer.



DG-25879

Self-Test

The self-test allows you to check functions that the printer can perform without communicating with the computer. This test is especially useful when you cannot determine if a problem is caused by the printer itself or by some other part of the system.

Take the following steps to run the self-test.

1. Make sure there is paper in the printer. Turn on the printer.

2. If the yellow On Line light is lit, place the printer off line by pressing the On/Off Line switch.

3. Press the Test switch. The printer then prints out all the printable characters, including the foreign symbols, in a pattern that looks like this:

```
23456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿
3456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`
456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨
56789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´
6789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´Á
789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀ
89:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂ
9:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃ
:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃÇ
;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃÇÈ
<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃÇÈÊ
=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃÇÈÊË
>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃÇÈÊËÍ
?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~¢¡¿`¨´ÁÀÂÃÇÈÊËÍÌ
```

DG-25880

4. Allow the printer to run the test pattern for a few lines.

5. Press the Test switch a second time. The printer prints out a half-density graphics test pattern, which looks like this:

DG-25881

6. Press the Test switch a third time. The printer prints out a full-density graphics test pattern, which looks like this:

DG-25882

7. Press the On/Off Line switch to stop the self-test.

8. Remove the printout and examine it for fully formed characters, proper line feed operations, and print quality.

If the printer fails to perform the self-test properly, turn it off, unplug it and contact the Service Operations Center nearest you.

Problem Solving Procedures

This section contains easy procedures you can perform if your printer has problems with one of the following:

Power,

Print head movement,

Print quality,

Ribbon and paper,

Printer-computer communications.

The problem solving procedures assume that your printer is correctly installed and that you are familiar with all operating procedures, including loading paper, changing the ribbon, and setting printer characteristics. Keep your *Operating Model 20 and Model 30 Systems* manual handy in case you need to refer to it.

Each problem solving procedure starts with a question. If the answer to a question is yes, follow the corrective steps until you solve the problem. If the answer to a question is no, proceed to the next question. If you cannot solve the problem, fill out a Problem Report Form and contact the Service Operations Center nearest you.

Power Problems

Is the printer completely inactive when you turn on the power switch?

- Make sure the power cord is properly installed.
- Using a lamp or similar appliance, make sure the ac outlet is supplying power.
- Check the fuse in the rear of the printer. If it is blown, replace it with a fuse of the exact size and value. If fuses blow continually, your printer needs service.

Print Head Movement Problems

When you turn on the power switch and the power light glows, does the print head fail to move to the "home" position?

- If your printer is a 220/240V unit, unplug the power cord, lift the printer, and make sure the voltage selection switch underneath the printer is set to 220/240V.

Does the print head stop moving and the FAULT light blink?

- Clear any paper jam.
- Load paper if the printer is out of paper.
- Make sure the print head is not secured by the ties used to hold it in place when it was shipped to you.

Does printing stop in the middle of an operation, or is there unusual or excessive noise during printing?

- The printer needs service. Fill out a Problem Report Form and contact the Service Operations Center nearest you.

Print Quality Problems

Is the print too faint?

- Replace the ribbon.
- Turn the paper thickness adjustment knob clockwise, to a lower number, if the ribbon is new.

Is the print smearing or blurring?

- Turn the paper thickness adjustment knob counterclockwise, to a higher number.
- Check the ribbon for correct operation.

Ribbon and Paper Problems

Does the print fade after several lines or the ribbon fail to advance?

- Replace the ribbon.

Does the paper fail to advance?

- Reload the paper, checking the paper path.

Is the paper tearing?

- Realign the paper on the tractors, making sure that the top edge of the paper is parallel to the platen.
- Move the tractors closer together.
- Make sure rollers are not down.

Are lines of printing bunching?

- Move the tractors closer together.

Printer-Computer Communication Problems

After performing the self-test, does the printer fail to print when the computer program tells it to?

- Make sure that the cables connecting the printer to the computer are firmly plugged in and the screws tightened.
- Check the current printer characteristics. Make sure you have selected the correct baud rate. 9600 is selected by default.

Does the printer print only question marks?

- Check the current printer characteristics. Make sure you have selected the correct parity. NONE is selected by default.

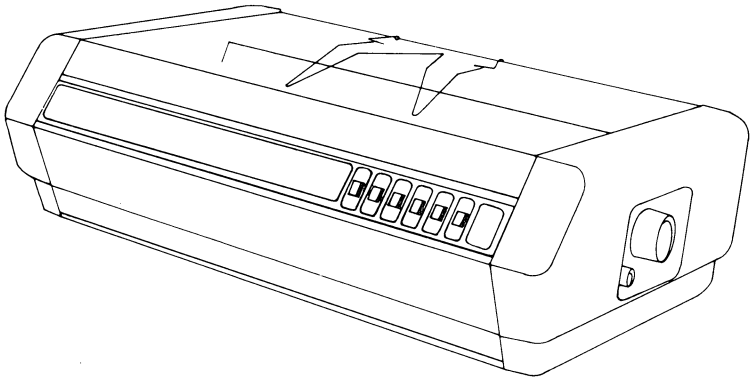
Does the printer print question marks mixed with random letters and numbers?

- Check the current printer characteristics. Make sure you have selected the correct number of data bits. 8 is selected by default.

Testing Your Model 4433 Printer

7

This chapter tells you how to verify your printer's operation by running the printer's self-tests. It also includes problem solving procedures that you can use if you have trouble with the printer.



DG-25883

Self-Test

The self-test allows you to check the functions that the printer can perform without communicating with the computer. This test is especially useful when you cannot determine if a problem is caused by the printer itself or by some other part of the system.

There are two self-tests, an 80-column test and a 136-column test. Both tests check the electrical and mechanical components for printing. The 80-column test also checks the electrical components for receiving data from the computer, called the *serial interface.*

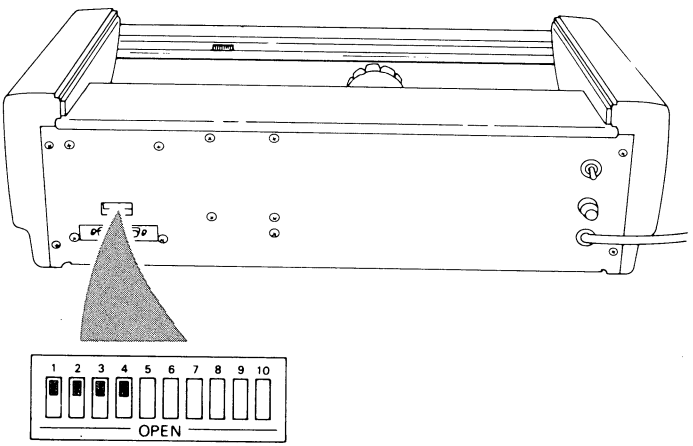
Run the 80-column test first. If it runs successfully, the printer is operating well and should print data received from the computer when operating on line. If the 80-column test does not run properly, run the 136-column test to determine if the problem is with the printing mechanisms or the serial interface.

80-Column Test

1. Turn the power on. Make sure the printer is off line. (The ON LINE light should be off.)

2. Make sure the paper is properly loaded and the FORMS light is off.

3. Note the position of the first four serial interface switches and then set them to the closed position.



DG-25884

4. Place the printer on line. It starts printing the following rotating pattern.

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmno
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnop
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopq
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqr
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrs
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrst
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstu
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuv
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvw
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwx
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxy
+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz
```

DG-25874

5. Let the test print a few lines, then press the ON LINE switch to stop the test.

6. Reset the four serial interface switches to their original settings.

7. If the printer fails the test, perform the 136-column test.

136-Column Test

1. Make sure that the printer is off line and turn on the power.

2. Make sure the paper is loaded properly and the FORMS light is off.

3. Press and hold the STEP switch; then press the TOP OF FORM switch. Release both switches. The printer starts printing the following rotating pattern.

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqr
HIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:
pqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`ab
89:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*
`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQR
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz
PQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@AB
xyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghij
@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./012
hijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"
XYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJ
```

DG-25873

4. Let the test print a few lines, then press the RESET switch to stop the test.

If the 136-column test runs properly but the 80-column test does not, the printer's serial interface is probably faulty. In this case, see the section "Status Lights" later in this chapter.

If both test patterns fail to perform properly, either the printing mechanism or the printer's electronics are faulty. In this case, take the printer off line, turn it off and unplug it, fill out a Problem Report Form, and contact your nearest Service Operations Center.

Problem Solving Procedures

This section contains easy procedures you can perform if your printer has problems with one of the following:

Power,

Print head movement,

Print quality,

Ribbon and paper,

Printer-computer communications.

These procedures assume that your printer is correctly installed and that you are familiar with all operating procedures including loading paper, changing the ribbon, and setting printer characteristics. Keep your *Operating Model 20 and 30 Systems* manual handy in case you need to refer to it.

Each problem solving procedure starts with a question. If the answer is yes, follow the corrective steps until you solve the problem. If the answer is no, proceed to the next question. If you cannot solve the problem, fill out a Problem Report Form and contact the Service Operations Center nearest you.

Power Problems

Is the printer completely inactive when you turn the power on?

- Make sure the power cord is plugged in.
- Using a lamp or similar applicance, make sure the ac outlet is supplying power.
- Check the fuse in the rear of the printer. If it is blown, replace it with a fuse of the exact size and value. If fuses blow continually, your printer needs service.

Does the printer fail to print, although the power light is on?

- Make sure the printer is on line. (The ON LINE light should be on.)

Does the printer fail to print, even though the ON LINE light is on?

- If the FORMS light is on, make sure the paper is loaded correctly.
- If the forms light remains on, press the FORMS switch until the page in the printer has finished printing.

Print Head Movement Problems

When you turn on the power and the power light glows, does the print head fail to move to the "home" position (left margin)?

- Check for foreign objects in the printer, such as clips or staples that might interfere with print head movement. Also make sure that any shipping restraints have been removed.
- If the forms light is on, make sure the paper is loaded correctly.
- If the forms light remains on, press the FORMS switch until the page in the printer has finished printing.

Print Quality Problems

Is the print too light?

- Replace the ribbon.
- Turn the print head adjustment knob clockwise, if the ribbon is new.

Is the print smeared or blurry?

- The print head adjustment knob may not be set correctly. Turn it counterclockwise.

Are dots missing in random positions from printed characters?

- The print head needs replacing. Fill out a Problem Report Form and contact the Service Operations nearest you.

Ribbon and Paper Problems

Does the print fade after several lines, or does the ribbon fail to advance?

- Replace the ribbon.

Does the paper fail to advance?

- Reload the paper, making sure the paper path is free of obstructions.
- Realign the paper on the tractors, making sure that the top edge of the paper is parallel to the platen.
- Move the tractors closer together.

Are lines of print bunching?

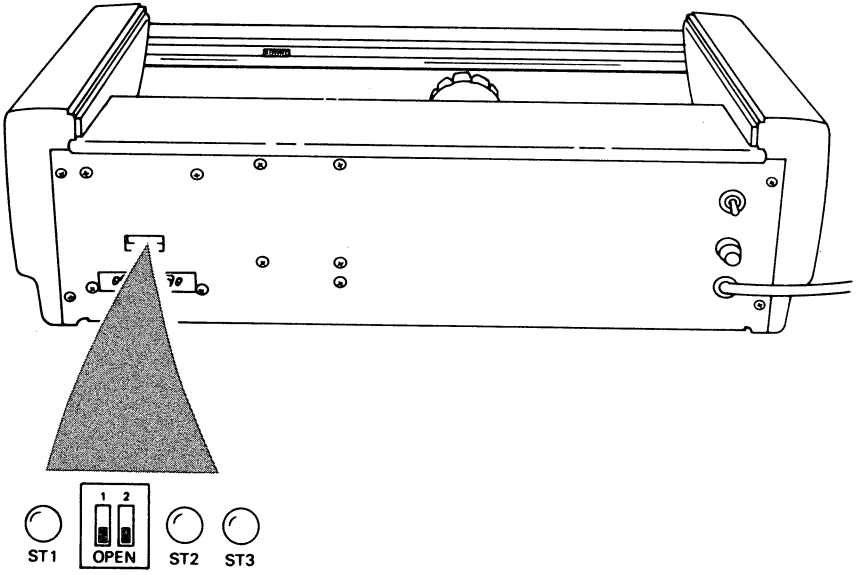
- Move the tractors closer together.

Printer-Computer Communication Problems

After printing the test pattern, does the printer fail to print what the computer tells it to?

- Make sure the cable connecting the printer to the computer is firmly plugged in and the screws tightened.
- Make sure the printer's switches are correctly set.
- If you have followed all of the corrective steps and are still unable to solve the problem, check the status lights described next.

Status Lights



Status lights DG-25885

Three status lights (ST1, ST2, ST3) on the rear of the printer give information about the printer's operation. If you cannot fix a problem with your printer, check the status lights and note which ones are on.

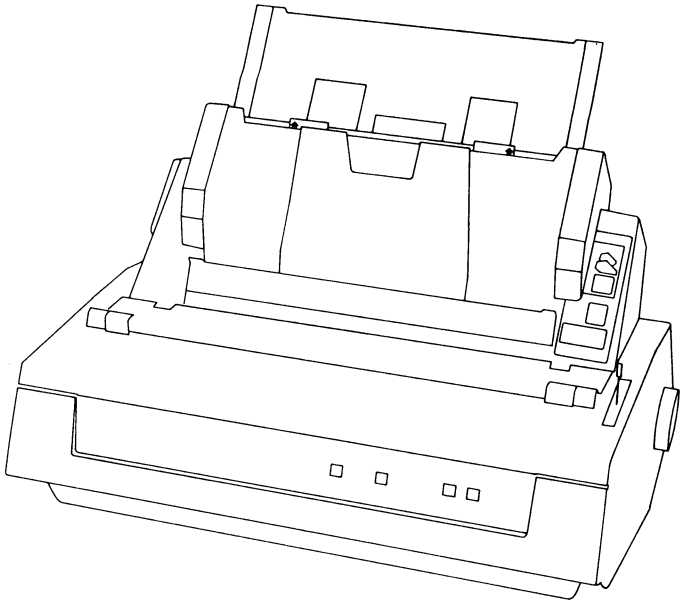
If ST1, ST2, and ST3 are all on there is no failure in the printer. If ST1 and ST3 are both on there is also no failure.

If these lights are in any other state, note the condition of each one. Then turn the printer off and on, and try printing again. If the printer still does not operate properly and the status lights remain in the same state, immediately contact the nearest Service Operations Center.

Testing Your Model 4518 Printer

8

This chapter tells you how to verify printer operation by turning on the power and running the printer's self-tests. Problem solving procedures are also included in case you have a problem with your printer or forms handling option.



DG-25526

Power-Up Test

The printer performs a power-up test whenever you turn it on. To activate this test, take the following steps.

1. Turn the printer's power switch to the ON position.

2. Check the printer for the following actions:

- Fan operates.
- Print head moves left to the first print position.
- Print thimble rotates to its "home" position. (A square hole on the bottom of the print thimble, directly to the right of the thimble post, indicates this position.)
- Ribbon retracts to the "down" position.

If any of the above actions do not take place, turn off the printer and unplug it, fill out a Problem Report Form, and contact the Service Operations Center nearest you.

Self-Test

The self-test allows you to check the functions that the printer can perform without communicating with the computer. This test is especially useful when you cannot determine if a problem is caused by the printer itself or by some other part of the system.

There are two types of self-test; a self-function test and a self-printing test.

The self-function test causes the printer to slowly perform a stored sequence of operations. This test lets you check thimble and carriage movements, paper feed, and ribbon movement.

The self-printing test prints a stored message line-by-line in a repetitive pattern. This test lets you check print character quality and the printer's line feed, spacing, and ribbon feed operations.

Self-Function Test

1. Turn off the printer.
2. Make sure there is paper in the printer.
3. Set the Form Length switches to 00.
4. Set the Test switch to the on position (up).
5. Turn the printer on.
6. Make sure the printer is in local mode (the local light should be lit) by pressing the Local switch.
7. Allow the printer to run the self-function test for several minutes. (It takes 30 seconds to complete the test once.) Make sure the printer performs the following functions in sequence:

- Tabs horizontally every 32 columns and then returns the print head to the left margin,
- Rotates the thimble to the right 16 characters and then to the left 16 characters,
- Moves the thimble up and down twice,
- Moves the ribbon cartridge up and down twice,
- Moves the paper up three lines and down three lines.

When the printer has completed these functions, it types the message "PRINTER READY" and returns the print head to the left margin.

If any of the above functions do not occur, turn off the printer and unplug it, fill out a Problem Report Form, and contact your nearest Service Operations Center.

Self-Printing Test

1. Turn off the printer.
2. Load 16-inch wide continuous form paper.
3. Set the Form Length switches to 13.

4. Turn the printer on.

5. Make sure the printer is in local mode (the local light should be lit) by pressing the LOCAL switch.

6. Set the Test switch to the on position (up). The printer will print the following repetitive test pattern.

```
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 123 456 7890 +-X:=$%()   The quick
```

DG-25862

7. Allow the printer to run the test pattern for five minutes.

8. Turn off the printer.

9. Remove the printout and examine it for fully formed characters of even density that are easily readable, and evenly spaced lines.

If the self-printing test fails to perform correctly, turn off the printer and unplug it, fill out a Problem Report Form, and contact the Service Operations Center nearest you.

Problem Solving Procedures

This section contains easy procedures you can perform if you have problems with one of the following:

Power,

Printing,

Print quality,

Indicator lights or buzzers,

Cut sheet guide,

Cut sheet feeder,

Bidirectional forms tractor,

Envelope adapter.

The problem solving procedures assume that your printer and forms handling option are correctly installed and that you are familiar with all operating procedures for both the printer and forms handling option. Keep your *Operating Model 20 and 30 Systems* manual handy in case you need to refer to it.

Each problem solving procedure starts with a question. If the answer to a question is yes, follow the corrective steps until you solve the problem. If the answer to a question is no, proceed to the next question. If you cannot solve the problem, fill out a Problem Report Form and call the Service Operations Center nearest you.

Your letter quality printer has a built-in error monitoring feature to help you find a problem. This monitoring feature uses a buzzer system and warning light along with the Test switch and Form Length thumbwheels to help you find and solve certain printer problems. For more information on this feature, refer to the Maintenance Service Guide *Letter Quality Printer, Model 4518* (DGC No. 015-000145).

Power Problems

Does the printer fail to turn on when you turn on the Power switch?

- Make sure the power cord is plugged in.
- Using a lamp or similar appliance, make sure the ac outlet is supplying power.

Printing Problems

If not in the "home" position, does the print head fail to move when you turn on the Power switch?

- Check for anything blocking the print head path.

Print Quality Problems

Are the printed characters poorly formed or indistinct?

- Remove and reinstall the ribbon cartridge.

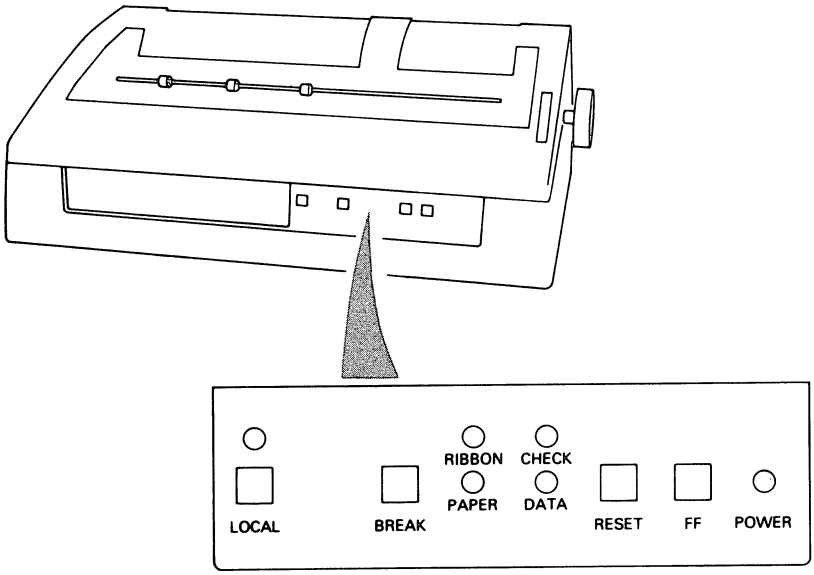
Does the ribbon cartridge appear damaged or worn?

- Replace or turn over the ribbon cartridge.

Are the printed characters poorly formed or indistinct?

- Remove and reinstall the print thimble.
- Replace the print thimble.

Indicator Lights or Buzzer Problems



DG-25886

Does the Power light fail to glow when you turn on the printer?

- Make sure the power cord is plugged in.
- Using a lamp or similar appliance, make sure the ac outlet is supplying power.

Is the Ribbon light on, and has the buzzer sounded for 1/2 second?

- Change or turn over the ribbon cartridge.
- Make sure that the rubber belt has been swapped and the ribbon switch moved into position if you flipped over the cartridge.
- Examine the ribbon cartridge for damage.
- Press the Reset switch to clear the ribbon fault.

Is the Check light on, and has the buzzer sounded for 1/2 second?

- Close the printer's top cover and dust cover completely.

Is the Paper light on, and has the buzzer sounded for 1/2 second?

- Load paper in the printer if paper is out.
- Clear any paper jam.

NOTE *The printer senses a paper jam or paper out condition only when you use one of the forms handling options.*

Does the buzzer sound intermittently?

- Turn the Power switch off and then on again.
- If the buzzer continues to sound, the printer is malfunctioning. Refer to the documentation shipped with the printer or fill you a Problem Report Form and contact your nearest Service Operations Center.

Is the Data light on, and has the buzzer sounded for 1/2 second?

- Press the Reset switch.
- If the Data light remains on and the buzzer sounds, the printer has received erroneous data from the computer. Refer to the documentation shipped with the printer or fill out a Problem Report Form and contact the Service Operations Center nearest you.

Cut Sheet Guide Problems

Does the sheet of paper advance unevenly?

- Use the proper paper type and insert the paper into the paper tray evenly.

Does the Paper Out buzzer sound, even though the paper is not out?

- Center the sheet at 0 on the paper width scale.
- Clear any paper jam.

Does the Paper Out buzzer sound and printing stop when only 3/4 of the page is completed?

- Disable the paper out function by setting the Paper Out Defeat switch to the up position.

Does the printer print on one or both sides of the platen instead of the paper?

- Set correct margins by referring to your text editing manual.

Does the printer eject the sheet of paper before printing is complete, or continue printing off the bottom of the sheet?

- Make sure you have correctly set the Form Length switch and switch 1, position 7 (1-7). Switch 1-7 on the printer's front control panel allows you to eject paper according to the setting on the Form Length switch (switch 1-7 must be in the down position). You may also eject the sheet by pressing the Form Feed switch (switch 1-7 must be in the up position). Refer to *Operating Model 20 and 30 Systems* to be sure switch 1-7 is set correctly.

Cut Sheet Feeder Problems

Is the cut sheet feeder's Alarm light on?

- Replace the paper in the hopper.
- Clear any paper jam in the cut sheet feeder or printer.
- Press the Feed switch.

Does the paper fail to feed, or does it feed unevenly?

- Remove the paper from the hopper tray and riffle the sheets, line up the edges of the stack, and reinsert it in the center of the hopper tray.
- Make sure the paper release lever is in the center position.

Does the printer print past the last line on the sheet?

- Check the Form Length switch on the feeder for the correct setting.
- Make sure the Top of Form switch is set correctly.

Bidirectional Forms Tractor Problems

Does the paper become torn or damaged during printing?

- Loosen or tighten the tension bar adjustment.
- Check the distance between the tractors and correct it if necessary.
- Make sure the correct forms are used.
- Check the center guide setting.
- Make sure the paper release lever is set to the front position.

Does the printer print across the paper tear line, or does the paper tear line end up in the wrong place?

- Check for the correct setting of the Form Length switch.
- Check for the correct Top of Form setting.

Envelope Adapter Problems

Does the envelope become jammed or not feed properly?

- Check that the side plates are properly positioned for the envelope size.

Does the cut sheet feeder's Alarm light go on?

- Replace the envelopes in the feeder.
- Press the Feed switch.
- Clear the envelope jam in the feeder.

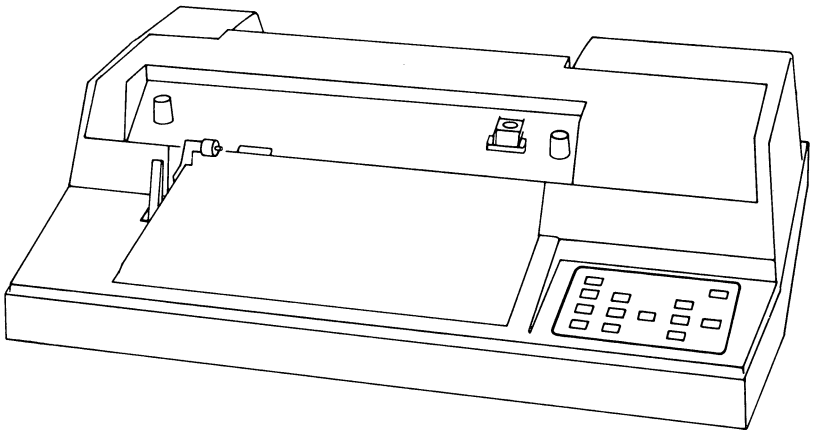
Does the printer print past the last line on the envelope?

- Make sure the Form Length switch on feeder is set to the length of the envelope.

Testing Your 4435 Plotter

9

This chapter shows you how to verify your plotter's operation by turning on the power and running the plotter self-test. It also includes simple problem solving procedures that you can use if you have trouble with your plotter.



DG-25875

Power-Up Test

The plotter performs a power-up test whenever you turn it on. This test sets certain plotter functions, such as the plotter default conditions. Default conditions are conditions assumed by the plotter in the absence of an actual computer instruction.

To run the power-up test:

1. Turn on the power switch.

2. Make sure the following actions take place:

- Error light turns on momentarily.
- Penholder moves to the left pen stall to check for a pen.
- Penholder moves to the right pen stall to check for a pen.
- Penholder returns to a point near the right side of the plotting surface, whether or not pens were found in the stalls.

NOTE *If the paper loading lever is in the Paper Load position, the Error light remains on after the plotter completes its power-up test.*

If any of the above actions do not take place, turn off the plotter, unplug it, and contact the Service Operations Center nearest you.

Self-Test

The self-test allows you to check the functions that the plotter can perform without communicating with the computer. This test is especially useful when you cannot determine if a problem is caused by the plotter itself or by some other part of the system.

Take the following steps to run the self-test.

1. Make sure the plotter is turned off.

2. Press the Up switch while turning on the plotter.

3. Release the Up switch when the pen holder starts to move.

4. After completing the power-up test, the plotter should perform the following actions:

- Move the penholder to the right and move the paper back.
- Pick up the left pen, move it to the right and then left while moving the paper forward.
- Return the left pen to the left pen stall.
- Pick up the right pen, move it to the left, and draw an asterisk(*).
- Move the paper all the way back and then all the way forward.
- Return the right pen to the right pen stall and move the penholder all the way to the left.

5. Turn off the plotter after the asterisk is drawn.

NOTE *If you do not turn the plotter off, it repeats the self-test approximately every 55 seconds — until 80 asterisks are drawn in the first column and until a full page is filled. Unless you suspect an intermittent problem, it is not necessary to continue the self-test beyond the first cycle.*

If any of the above actions do not take place, turn off the plotter, unplug it, and contact your nearest Service Operations Center.

Problem Solving Procedures

This section contains easy procedures that you can perform if your plotter has problems with one of the following:

Power,

Operator control,

Plotting,

Pen.

The problem solving procedures assume that your plotter is correctly installed and that you are familiar with all operating procedures, including loading paper and pens and setting plotter characteristics. Keep you *Operating Model 20 and 30 Systems* manual handy in case you need to refer to it.

Each problem solving procedures starts with a question. If the ansewr to a question is yes, follow the corrective steps until you solve the problem. If the answer to a question is no, proceed to the next question. If you cannot solve the problem, fill out a Problem Report Form and contact the Service Operations Center nearest you.

Power Problems

Does the plotter fail to respond when you set the Power switch to ON?

- Make sure the power cord is plugged in.
- Using a lamp or similar appliance, make sure the ac outlet is supplying power.
- Check the fuse on the rear of the plotter. If it is blown, replace with a fuse of the same size and value. If fuses blow repeatedly, the plotter needs service.

Operator Control Problems

Does the plotter fail to respond to the operator's controls on the front panel?

- Remove anything blocking the penholder's path.
- Turn the plotter off and then on again.

Does the Error light glow steadily?

- Lower the plotter's pinch wheels by placing the Paper Load lever in a forward position.
- Unlatch the View button by pressing it in.

Is the Error light bright and blinking?

- Refer to your plotter programming manual for information on how to determine the plotter's error status.

Plotting Problems

Does the plotter fail to plot where expected?

- Reset the P1 and P2 values if desired.
- Return P1 and P2 to their default values by turning the plotter off and then on again.
- Make sure that the paper is properly positioned against the paper stop when you lower the plotter's wheels.

Is the plotter drawing lines off the paper?

- Make sure the A4/US switch is set to US if you are using 8.5-inch by 11-inch paper. If the A4/US switch is incorrectly set, correct the setting. Then move the Paper Load lever back and press the Enter and View switches simultaneously. This establishes the new switch setting without turning off the plotter.

Pen Problems

Does the pen fail to write?

- Remove the pen and write with it to start ink flowing to its tip.
- If the pen is still dry, dip its tip in a drop of water or shake it like a thermometer.
- Replace the used pen.

Does the line width vary?

- Make sure you are using the correct pens for the medium. Use pens marked "P" with paper only, and pens marked "T" with transparency film only.

Is the line width too narrow or too wide?

- Make sure you are using a pen of 0.3 mm width for narrow lines and a pen of 0.6 or 0.7 mm width for wide lines.
- Replace the pen when it no longer produces a narrow line.

Problem Report Form

Name _____ Date _____

Address _____ Phone _____

Problem Equipment Serial Number

_____ _____

_____ _____

_____ _____

_____ _____

Problem

Program running when problem occured: _____

_____

Error message displayed when program failed: _____

_____

Description of problem: _____

_____

_____

_____

System Power-Up Test

Completed successfully? Yes _____ No _____

If no, last message displayed on system console: _____

_____

Customer Diagnostics

System test passed? Yes _____ No _____

If no, fault code displayed: _____

Extended system test passed? Yes _____ No _____

If no, fault code displayed: _____

Printer test passed? Yes _____ No _____

Type of printer: _____

Printer problem: _____

Plotter test passed? Yes _____ No _____

Plotter problem: _____

Problem Report Form (cont'd)

Customer Diagnostics (cont'd)

Terminal test passed? Yes _____ No _____

Type of terminal: _____

Terminal problem: _____

Tablet test passed? Yes _____ No _____

Tablet problem: _____

Mouse test passed? Yes _____ No _____

Mouse problem: _____

Off-Line Testing

Device tested: _____

Tests passed? Yes _____ No _____

If no, describe problem: _____

_____

_____

State of any status lights when problem occurred: _____

_____

Other observations: _____

_____

_____

_____

Device tested: _____

Test passed? Yes _____ No _____

If no, describe problem: _____

_____

_____

State of any status lights when problem occured: _____

_____

Other observations: _____

_____

_____

_____

_____

Index

Within the index, the *f*, following a page entry indicates *and the following page;* the letters *ff* following a page entry indicate *and the following pages.*

S

T

Documentation Comment Form

Manual Title _____

Manual No. _____

Your Name _____

Your Title _____

Company _____

Street _____

City _____ State _____ Zip _____

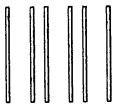
Please help us improve our future publications by answering the questions below. Use the space provided for your comments. Thank you.

	Yes	No
Is this manual easy to read?	☐	☐
Is it easy to understand?	☐	☐
Are the topics logically organized?	☐	☐
Is the technical information accurate?	☐	☐
Can you easily find what you want?	☐	☐
Does it tell you everything you need to know?	☐	☐
Do the illustrations help you?	☐	☐

If you wish to order manuals, contact your sales representative or dealer.

fo[illegible]re

Comments:



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

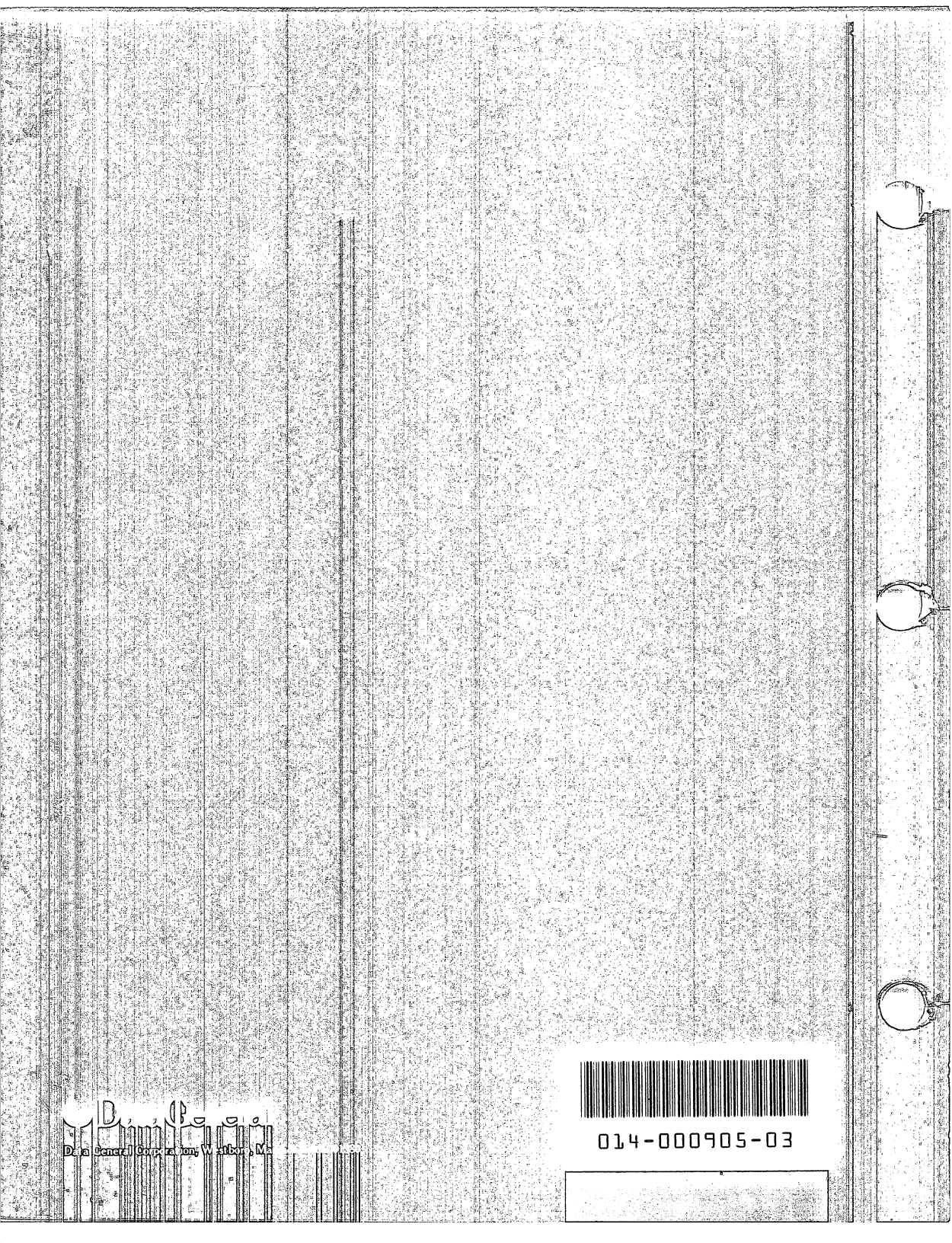
BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 26 SOUTHBORO, MA 01772

Postage will be paid by addressee

Data General

Design Services
M.S. E-219
4400 Computer Drive
Westboro, MA 01581


014-000905-03