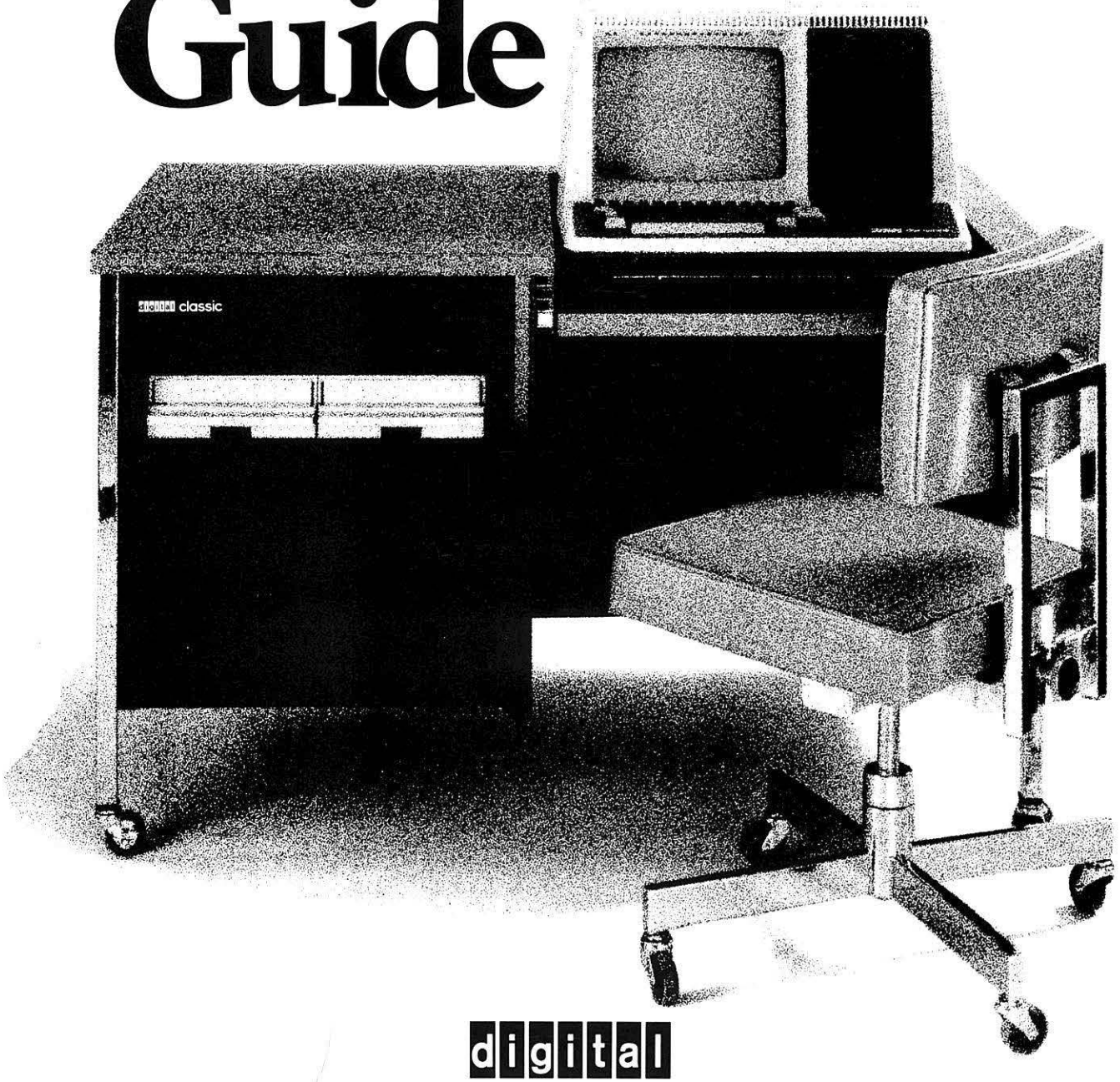
The Classic Installation & Maintenance Guide



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CLASSIC Installation and Maintenance Guide

DEC-08-ECIMA-B-D

prepared

by

Course Development Group

Educational Services Department

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Preface

This book is part of a three-volume set which documents the CLASSIC system. The three volumes in this set are:

(1) *The CLASSIC Primer: A Self-Teaching Guide*

Order No. DEC-08-ECPGA-B-D

(2) *The CLASSIC User's Reference Guide*

Order No. DEC-08-ECUGA-B-D

(3) *The CLASSIC Installation and Maintenance Guide*

Order No. DEC-08-ECIMA-B-D

The *Primer* is designed to assist the novice user in learning to operate CLASSIC and write programs in the BASIC language. The *User's Reference Guide* consists primarily of alphabetical directories of all the commands recognized by CLASSIC with explanations and examples of each command. The *Installation and Maintenance Guide* provides step-by-step guidance for installing the CLASSIC system and a detailed procedure for correcting minor problems.

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Chapter 1

Installing Your Classic System

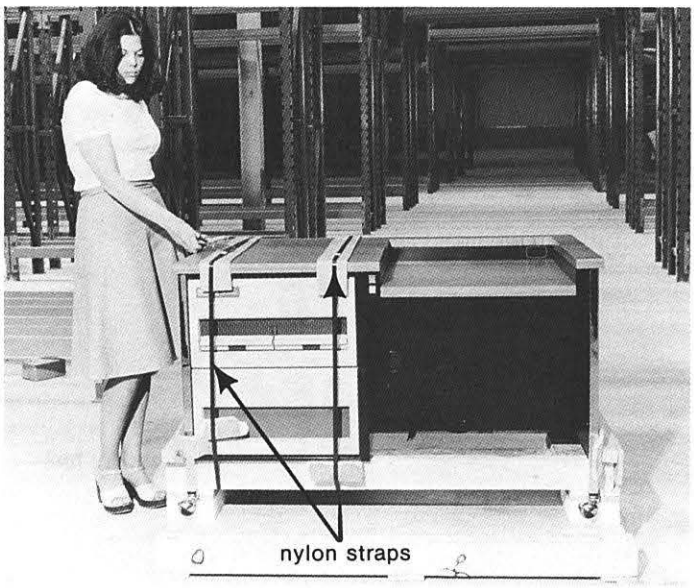
UNCRATING THE CLASSIC DESK

Uncrate the CLASSIC desk by following these directions:

(1) Cut nylon straps □

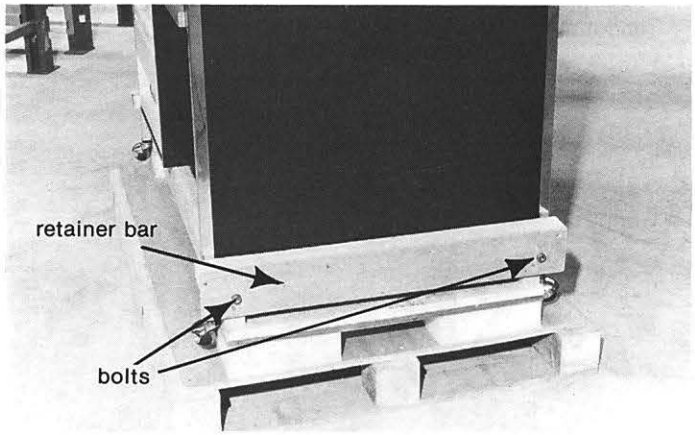
BE SURE THAT EVERYONE STANDS AWAY FROM THE CRATE WHILE CUTTING, AS THE STRAPS WILL SNAP BACK WHEN CUT.

Cut the two nylon straps that hold the desk to the wooden base.

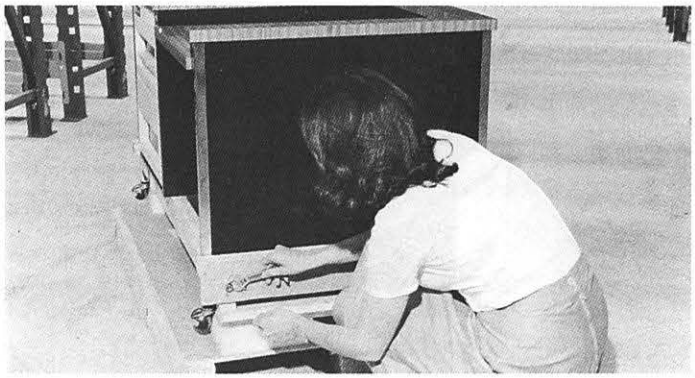


(2) Remove bolts □

Find the retainer bar held down by two bolts, located at one end of the desk.



Place the end of the adjustable wrench around the head of one of the bolts and rotate it counterclockwise until the bolt is removed. Do the same for the other bolt.



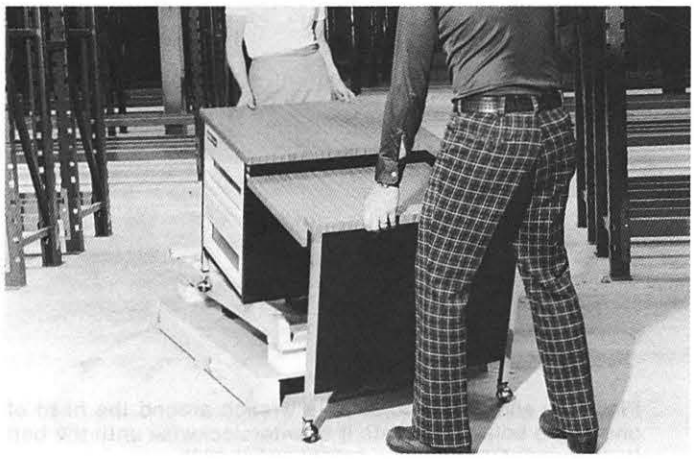
(3) Remove retainer bar □

Remove the retainer bar that was held down by the bolts from the wooden base and move it out of the way.

(4) Push desk off wooden base ☐

With one person at each end of the desk slide the desk along the base until two casters drop off the base onto the floor.

Keep pushing slowly until both pairs of casters are off the base onto the floor. Then roll the desk away from the base, and move the base out of the way.



UNPACKING THE TERMINAL

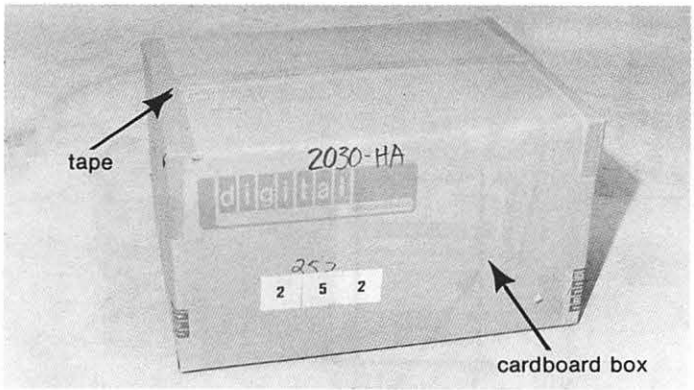
Before attempting to remove the terminal from its box:

- Select an area to work in near your CLASSIC desk.
- Find an assistant to help you.
- Gather the following tools:
  - Knife
  - Pen or Pencil
- Read each step carefully and make sure you understand what is to be done before trying it. Place a checkmark in the box next to each step after you complete it.

HANDLE THE TERMINAL WITH CARE. IT WILL BE DAMAGED IF DROPPED.

(1) Place terminal box ☐

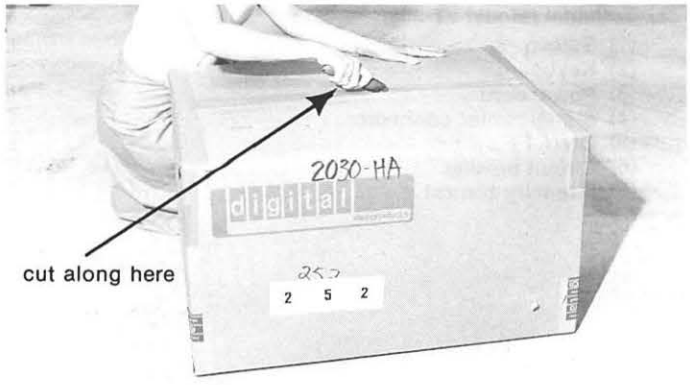
Place the terminal box in your selected working area.



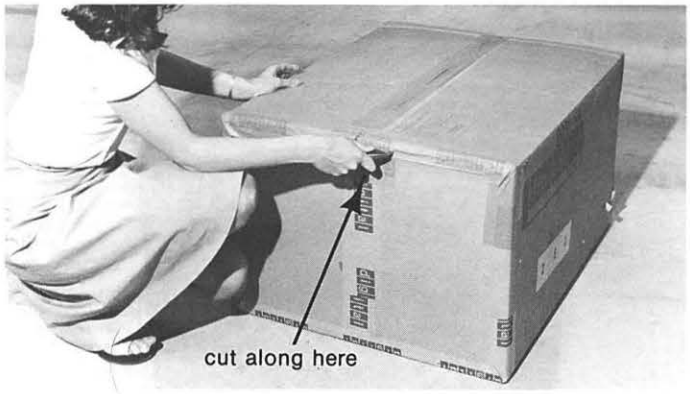
(2) Cut tape ☐

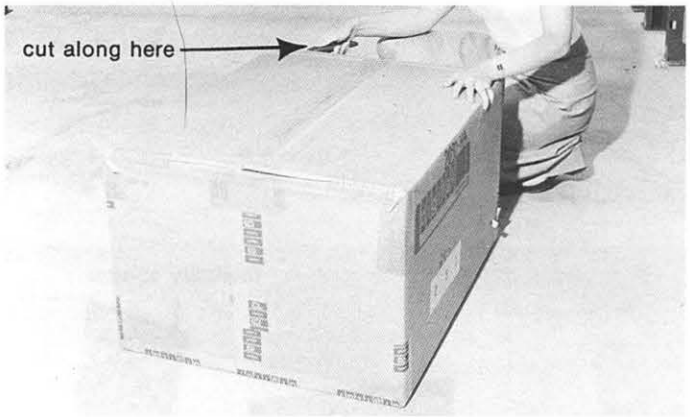
FORCING THE BLADE OF THE KNIFE MORE THAN 2 INCHES INTO THE CARDBOARD BOX MAY DAMAGE THE UNIT.

Cut the strip of tape across the top of the cardboard box.



Cut the strips of tape along the ends of the box.





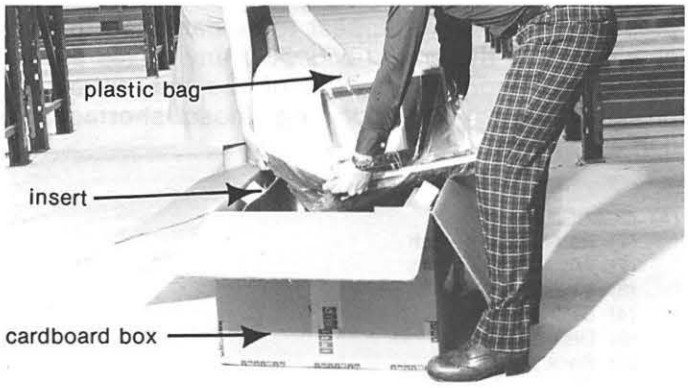
(3) Open flaps □

Open the flaps on the top of the cardboard box.

(4) Remove terminal from box □

DO NOT TILT THE UNIT FORWARD. TILTING WILL APPLY PRESSURE TO THE CONTROLS AND MAY DAMAGE THE UNIT.

The terminal is in a plastic bag. With one person holding each end of the terminal remove it from the cardboard box, leaving the insert in the box, and place the terminal on the floor.



(6) Remove terminal from bag □

On the floor, slide the terminal out of the plastic bag.

(7) Place terminal on desk □

Keeping the terminal level and lifting from underneath, place the terminal on the desk as shown.

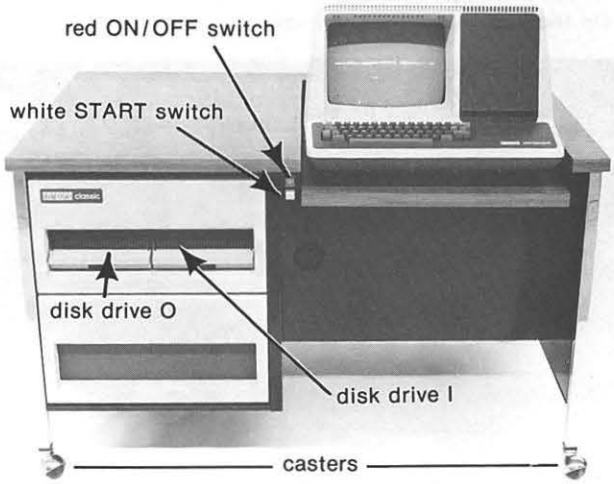
CLASSIC PARTS CHECKLIST

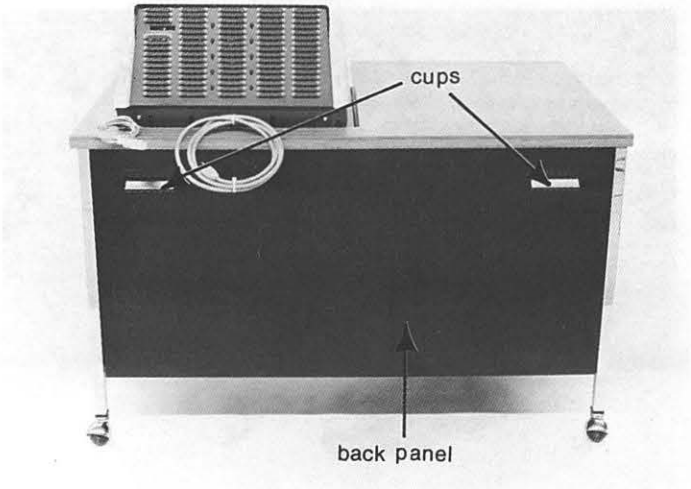
The purpose of this section is twofold:

(1) to familiarize you with the parts (or **components**) of your CLASSIC, identifying them by name and
(2) to check your CLASSIC for any shortages or damages.

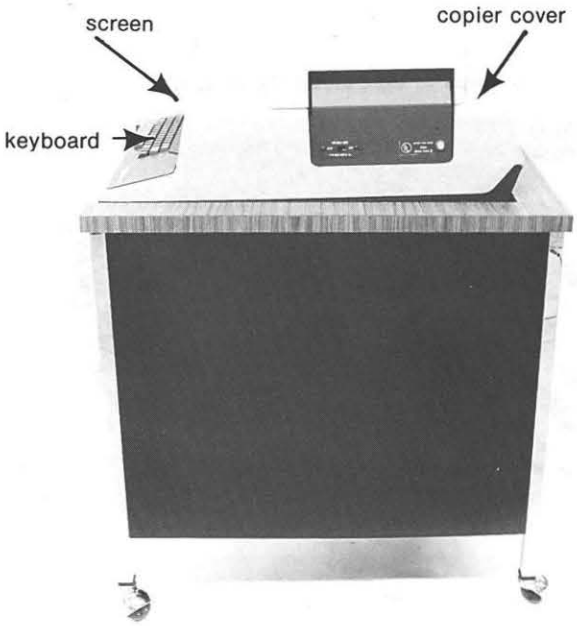
Using the following list, verify that each component is contained in your CLASSIC. If the component is present and does not appear to be damaged, place a checkmark in the box provided. If any boxes are left unchecked upon completion of the list, follow the procedure given for reporting those shortages or damages.

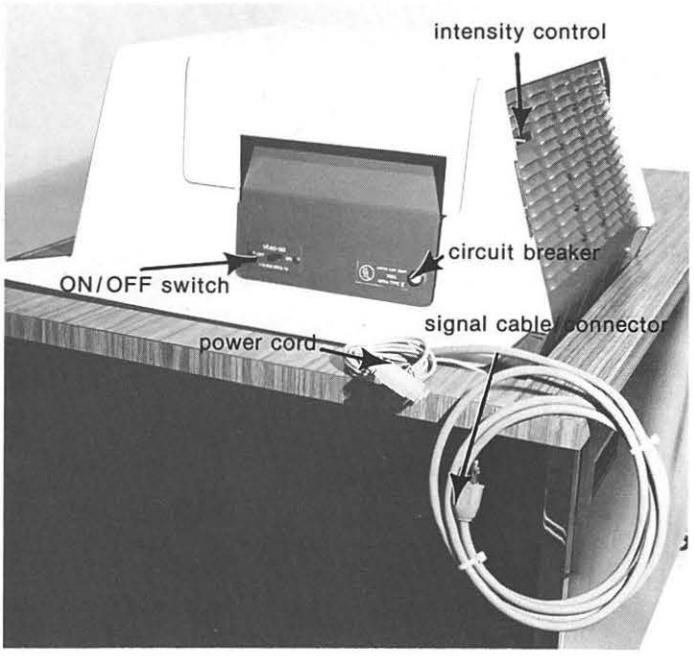
(A) CLASSIC Desk ☐
- (1) Red on/off switch ☐
- (2) White start switch ☐
- (3) 4 casters ☐
- (4) Disk drive 0 ☐
- (5) Disk drive 1 ☐
- (6) Back panel ☐
- (7) Cup ☐





(B) Terminal (Model VT-50) ☐
- (1) Screen ☐
- (2) Keyboard ☐
- (3) Power cord ☐
- (4) Signal cable/ connector ☐
- (5) ON/OFF switch ☐
- (6) Circuit breaker ☐
- (7) Intensity control ☐

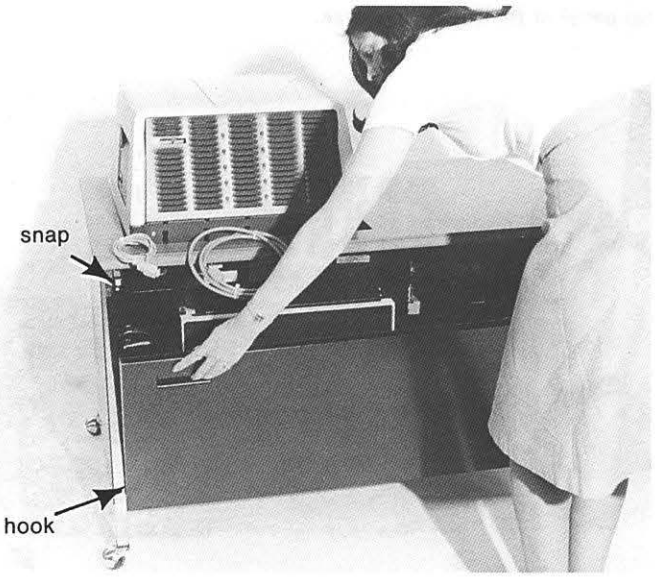


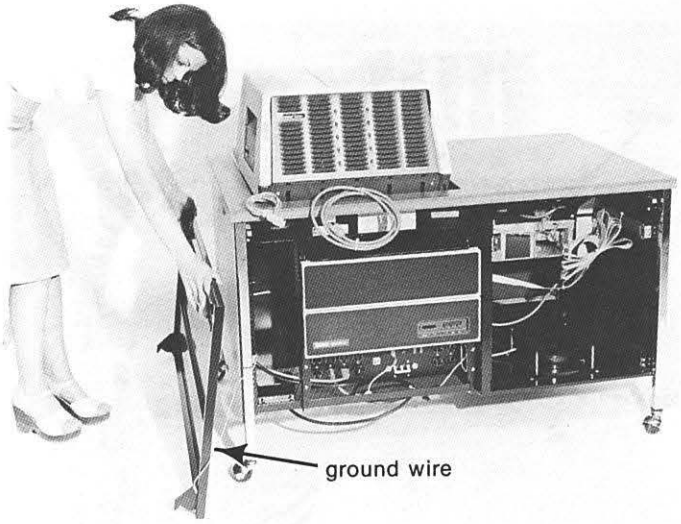


Remove back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

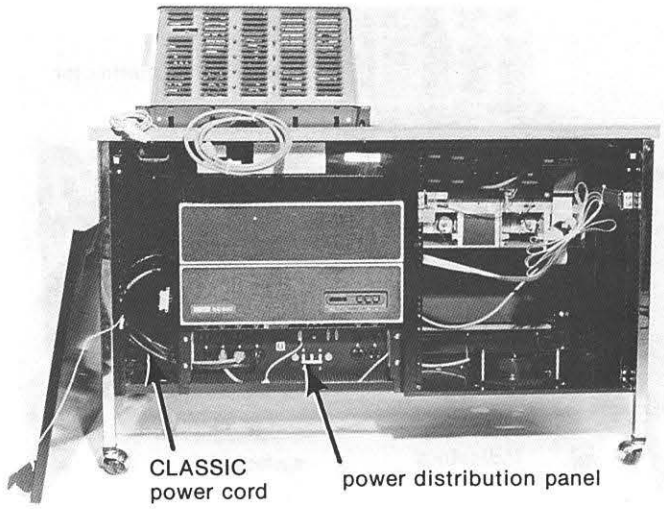
Holding the back panel by its two handles, pull away from the desk to unsnap the top of the panel from the desk. Then lift the panel to unhook it from the bottom of the desk. Now swing the back panel around to the left side of the desk and lean it against the desk.





(C) Power distribution panel (Model H861) ☐

(1) 3-holed sockets ☐
  (a) 8 used
  (b) 4 unused
(2) REMOTE/OFF/LOCAL switch ☐
(3) 2 Indicators ☐
(4) Circuit breaker ☐
(5) ON/OFF switch cable connector ☐
(6) CLASSIC power cord ☐



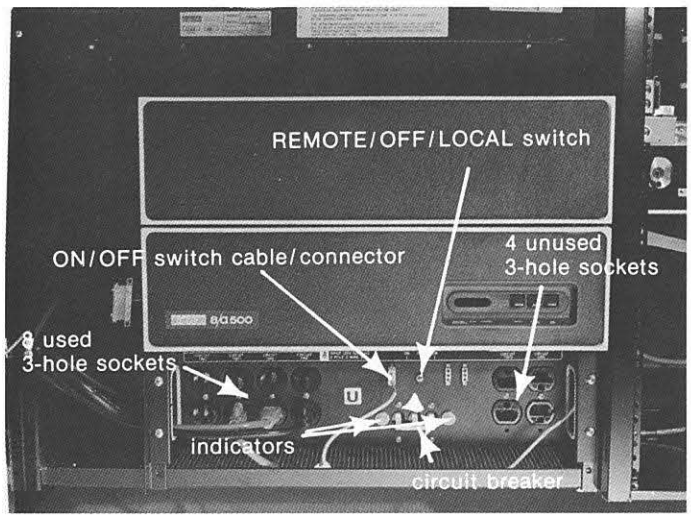
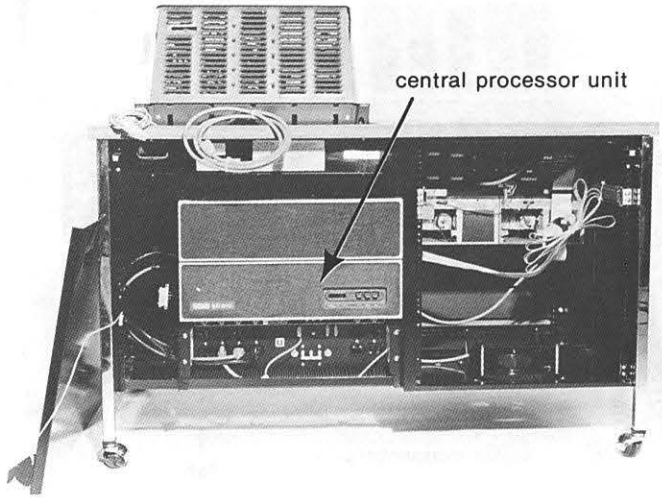
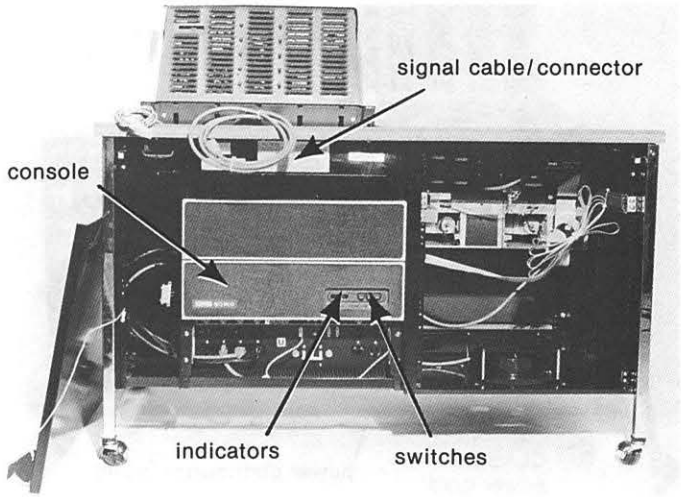


Figure 1-26

(D) Central processor unit (Model PDP-8A) ☐

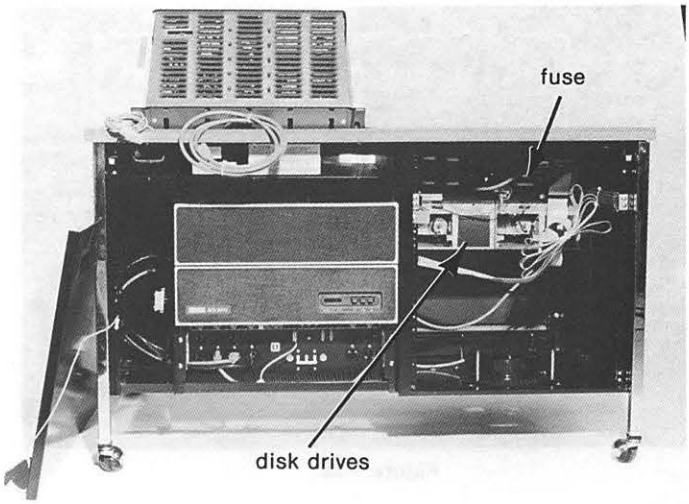
(1) Signal cable/connector ☐
(2) Console ☐
  (a) 3 indicators ☐
  (b) 3 switches ☐





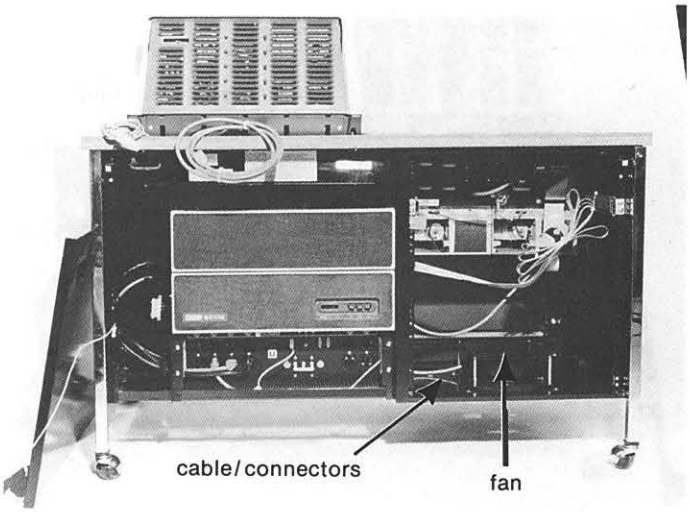
(E) Disk drives (Model RX01) ☐

(1) Fuse ☐



(F) Fan ☐

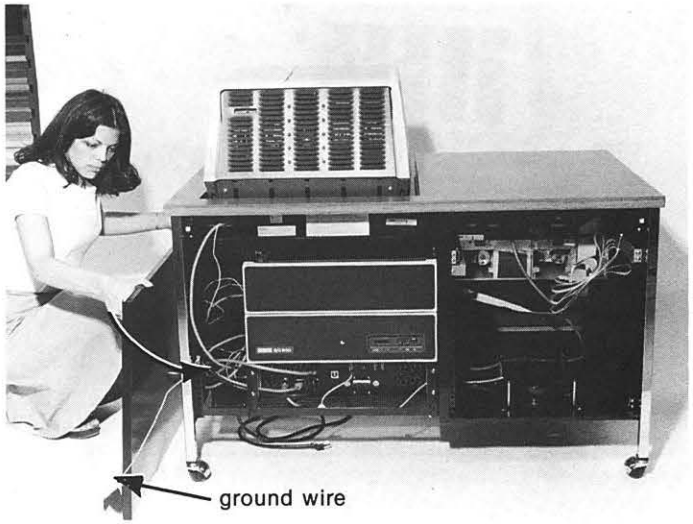
(1) Cable/connector ☐

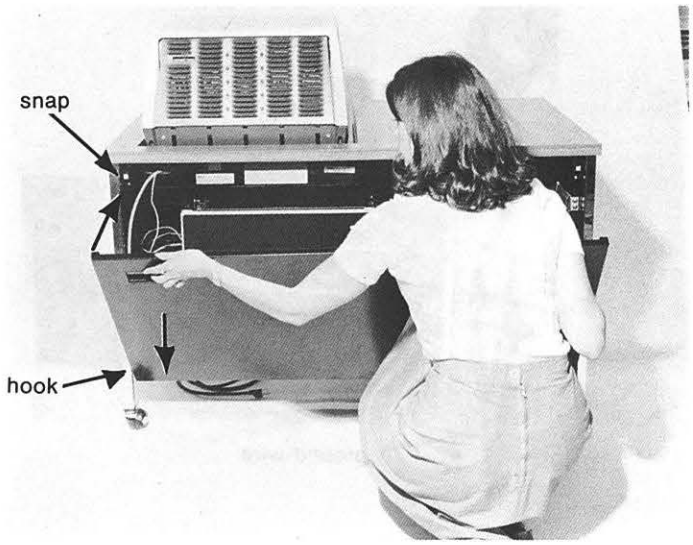


Replace back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Swing the back panel around to the back of the desk. Holding the back panel by its two handles, lift the panel and hook it at the bottom of the desk. Then push the panel towards the desk to snap the panel at the top of the desk.



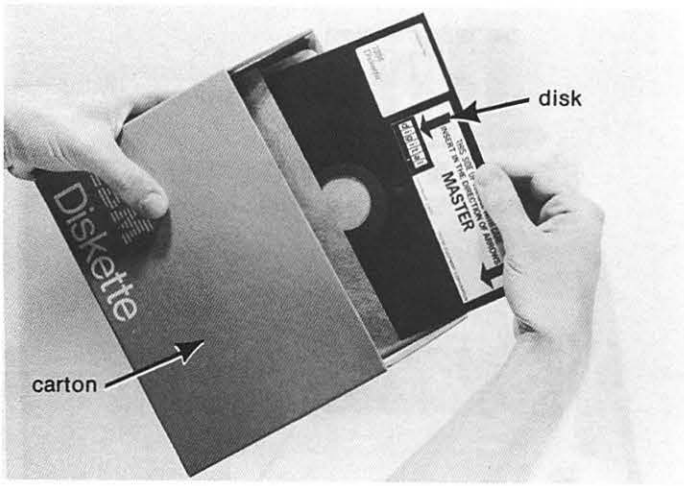


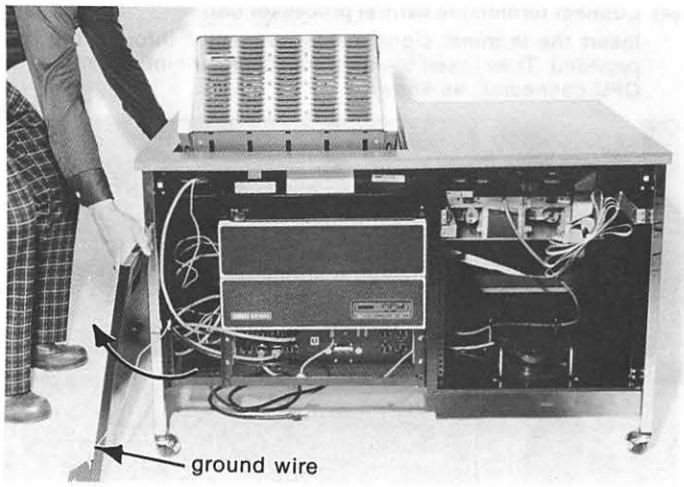
(G) Supply box ☐

Examine the contents of the supply box, using the checklist found in the box.

Remove disks

At this time, take all of the disks (in their envelopes) out of the carton and set them aside. Note the time at which you do this. (The disks must sit for one hour to adjust to room temperature before they can be used.)





If any of the boxes are left unchecked, you should "place the carrier on notice". This involves:

(1) calling to notify the carrier that your CLASSIC is damaged or missing a component, and

(2) writing to the carrier, listing the conditions that exist. Contact DIGITAL for any assistance.

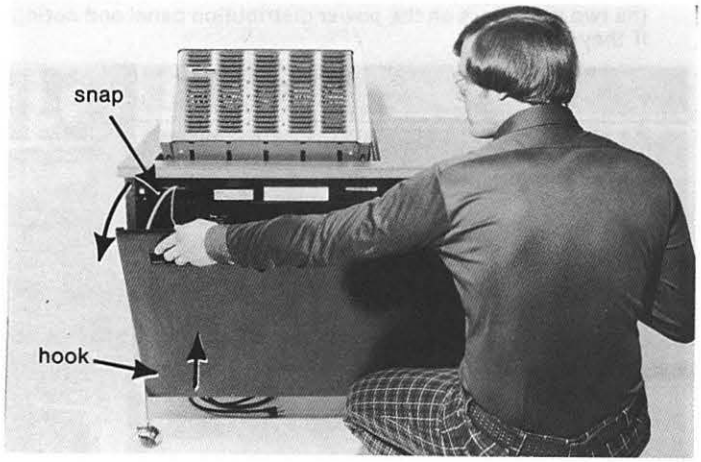
ASSEMBLING THE CLASSIC

BEFORE ATTEMPTING TO ASSEMBLE YOUR CLASSIC, read each step carefully and make sure you understand what is to be done before trying it. Place a checkmark in the box next to each step after you complete it.

(1) Remove back panel ☐

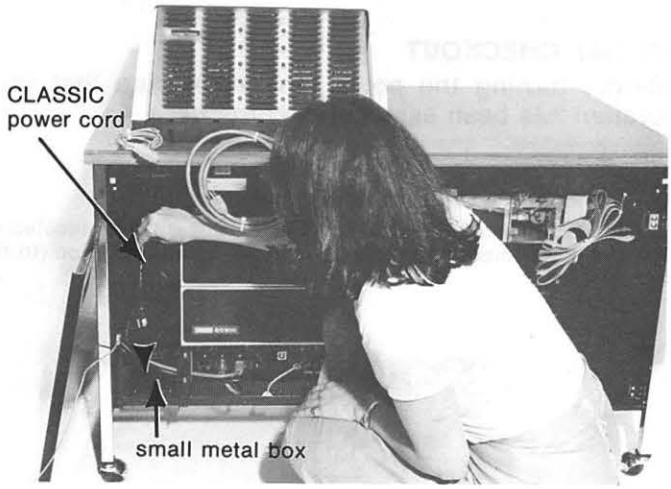
DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Holding the back panel by its two handles, pull away from the desk to unsnap the top of the panel. Then lift the panel to unhook it from the bottom of the desk. Now swing the back panel around to the left side of the desk and lean it against the desk.



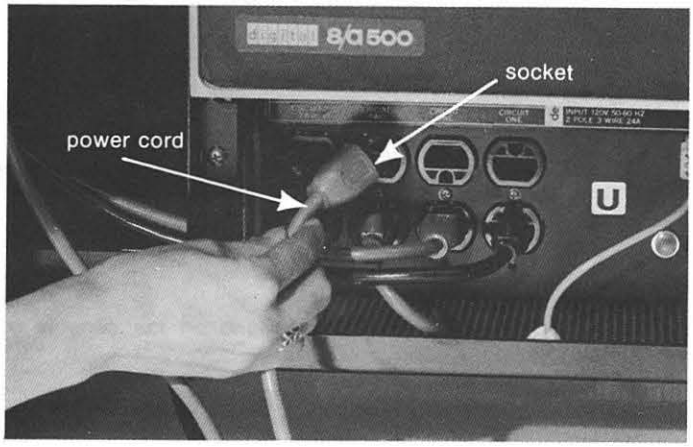
(2) Bring out power cord ☐

To bring out the CLASSIC power cord, first locate the power cord in the left-hand portion of the back of the desk. Then locate the small metal box found in that same area of the desk. Insert the plug of the cord through the hole provided in the metal box and pull the cord out the bottom of the desk.



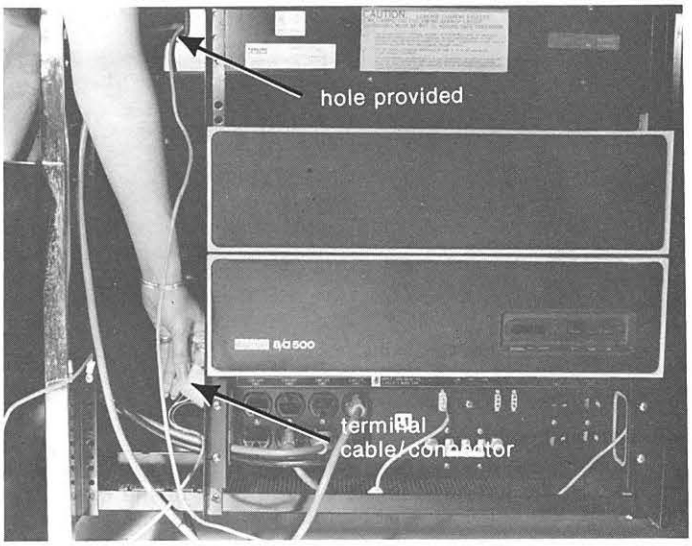
(3) Connect terminal power cord to panel ☐

Insert the terminal power cord through the hole provided. Then insert the 3-pronged plug into a 3-hole socket in the area indicated on the power distribution panel.



(4) Connect terminal to central processor unit ☐

Insert the terminal signal cable/connector through the hole provided. Then insert the terminal connector into its mate, the CPU connector, as shown.

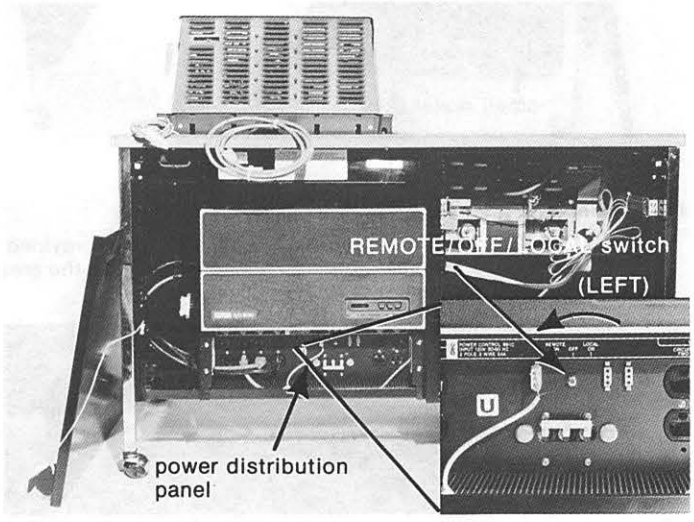


INITIAL CHECKOUT

Before turning the power on, make sure that your system has been assembled correctly.

(1) Set REMOTE/OFF/LOCAL switch into REMOTE ☐

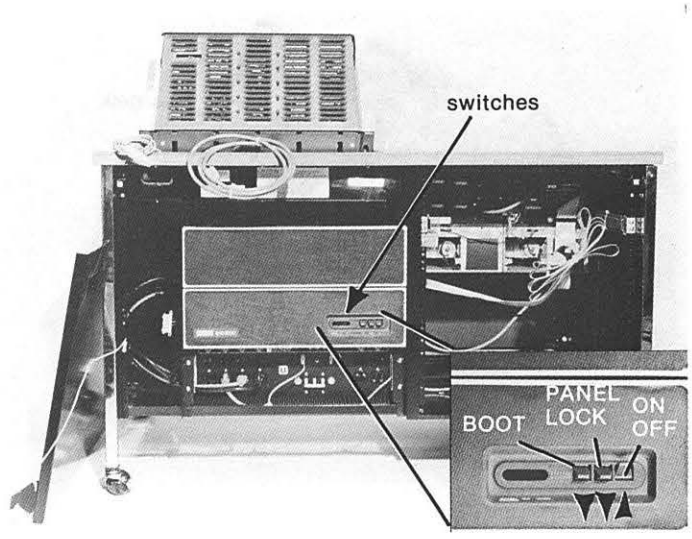
Make sure that the REMOTE/OFF/LOCAL switch, located on the power distribution panel, is in the remote position (to the left).



(2) Set console switches ☐

Make sure that the 3 switches found on the console are set as follows:

(a) Boot is off (down)
(b) Panel lock is off (down)
(c) ON/OFF is on (up)



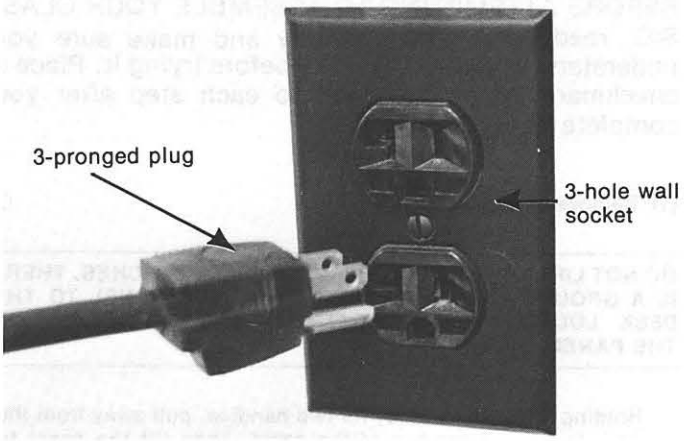
(3) Recheck assembly ☐

Recheck the CLASSIC assembly procedure on pages 1-7 to 1-8.

POWER CHECKOUT

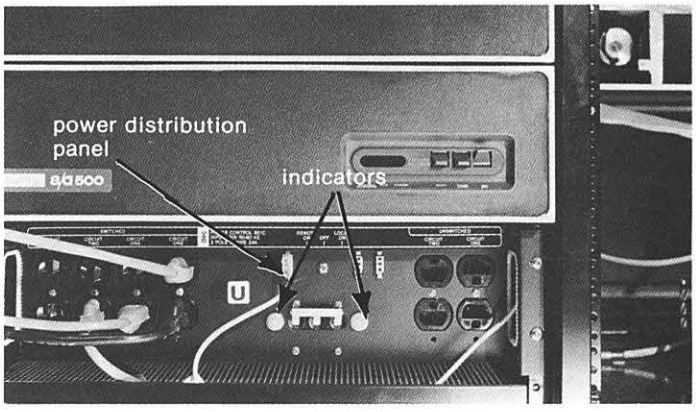
(1) Plug in power cord ☐

Insert the 3-pronged plug on the CLASSIC power cord into a 3-hole wall socket.



(2) Is power coming into CLASSIC? ☐

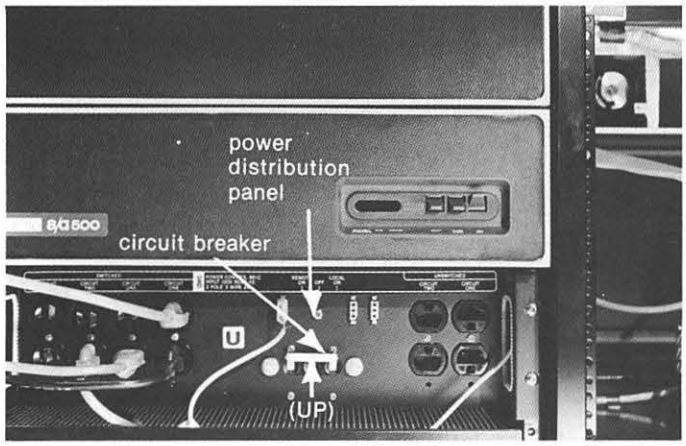
Determine if power is coming into the CLASSIC by locating the two indicators on the power distribution panel and noting if they are lit.



If not, make certain that the plug is securely in the wall socket. If the indicators are still not lit, it may be that your wall outlet is not functioning. To determine whether this is the problem, try plugging the CLASSIC into another wall socket that you know is working. If the indicators are still not lit, contact your DIGITAL Field Service Representative.

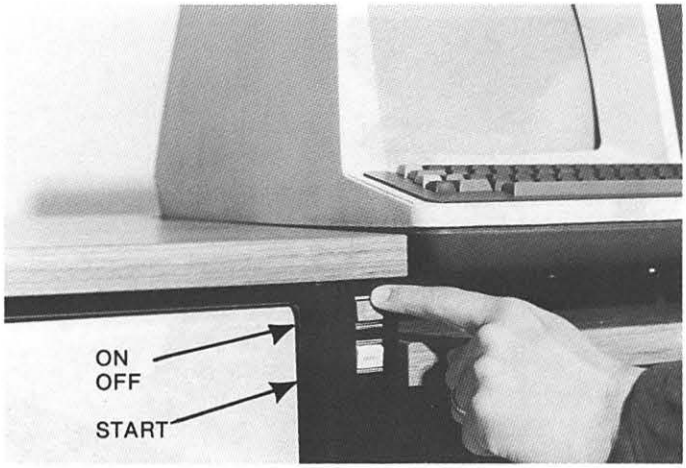
(3) Set circuit breaker □

Make certain that the circuit breaker, located on the power distribution panel, is set in the ON position (up).



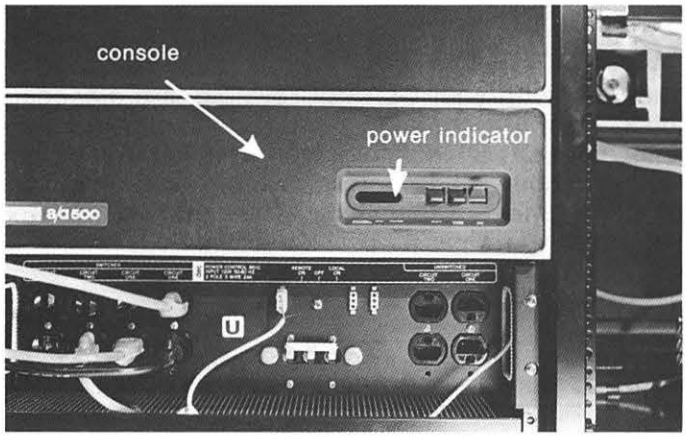
(4) Turn power on □

Turn the power on by pressing the top of the red ON/OFF button, located at the front of the desk.



(5) Does CLASSIC have power? □

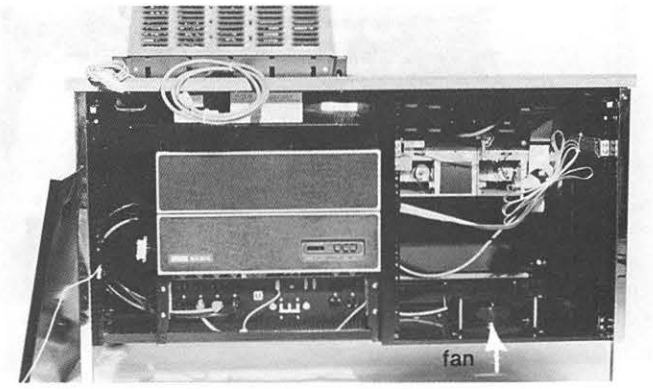
Determine if the CLASSIC has power by locating the power indicator found on the console and noting if it is lit.



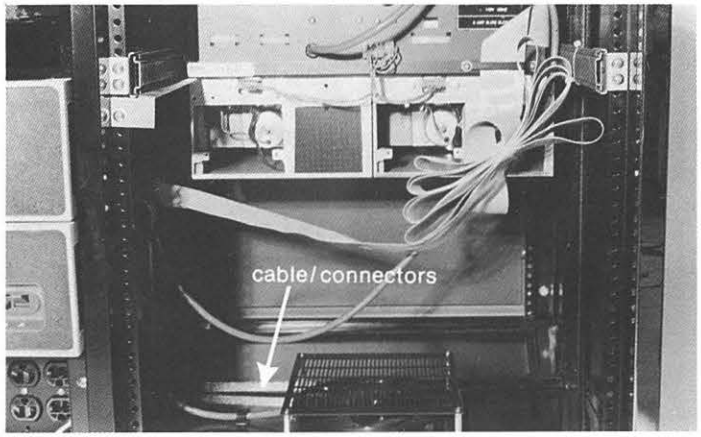
If not, press the bottom of the red ON/OFF button. Now repeat the entire "Assembling the CLASSIC" procedure starting on page 1-7. If the indicator is still not lit, contact your DIGITAL Field Service Representative.

(6) Is the fan working? □

Determine if the fan is working by locating the fan and listening for its rotation.



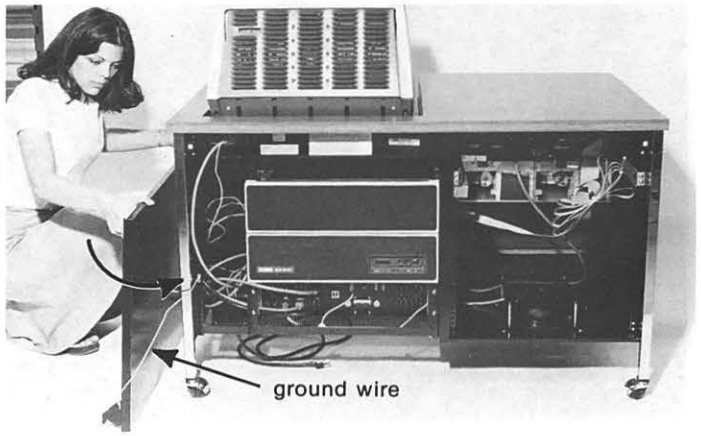
If not, make sure that the cable/connector is connected to the fan. If the fan is still not rotating, press the bottom of the ON/OFF button and contact your DIGITAL Field Service Representative.



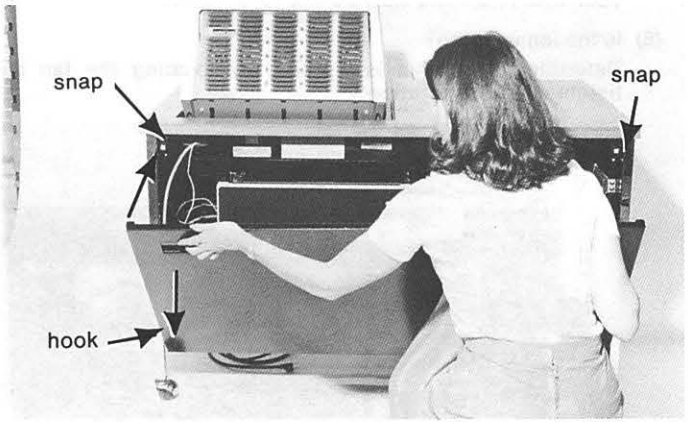
(7) Replace back panel □

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Swing the back panel around to the back of the desk.

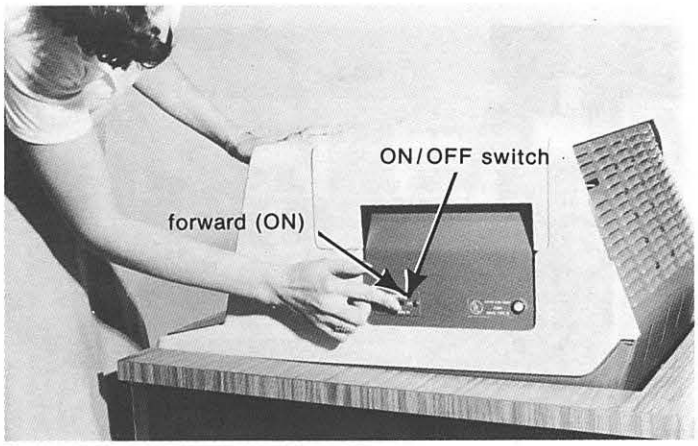


Holding the back panel by its two handles, lift the panel and hook it at the bottom of the desk. Then push the panel towards the desk to snap the panel at the top of the desk.



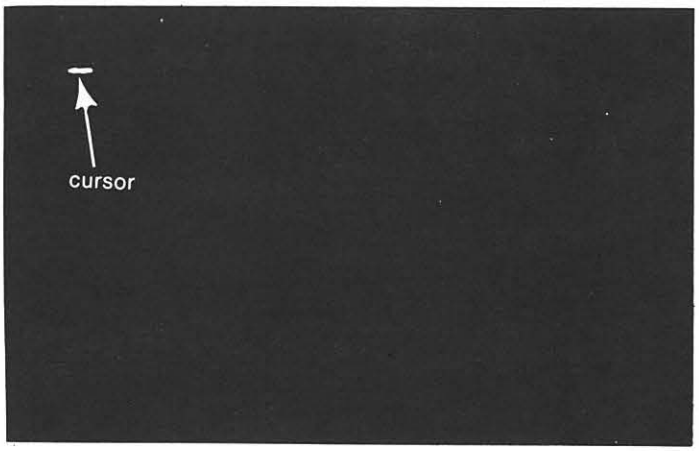
(8) Turn the terminal on ☐

Turn the terminal on by sliding the ON/OFF switch (located on the copier side of the terminal) to the ON position (forward).

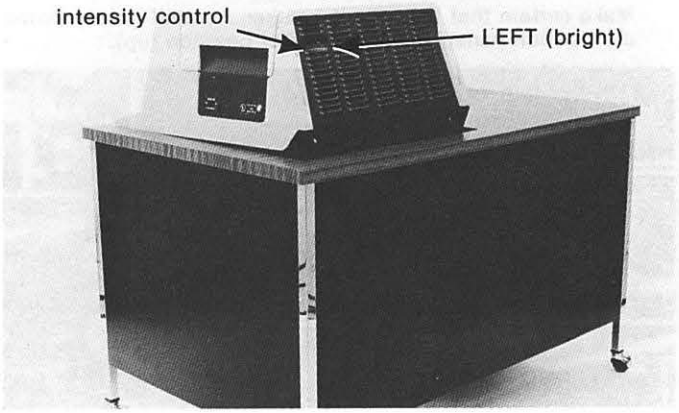


(9) Does the terminal have power? ☐

Determine if the terminal has power by allowing one minute for it to warm up and then noting if a short flashing line appears in the upper lefthand corner of the screen. (This is called the **cursor**.)

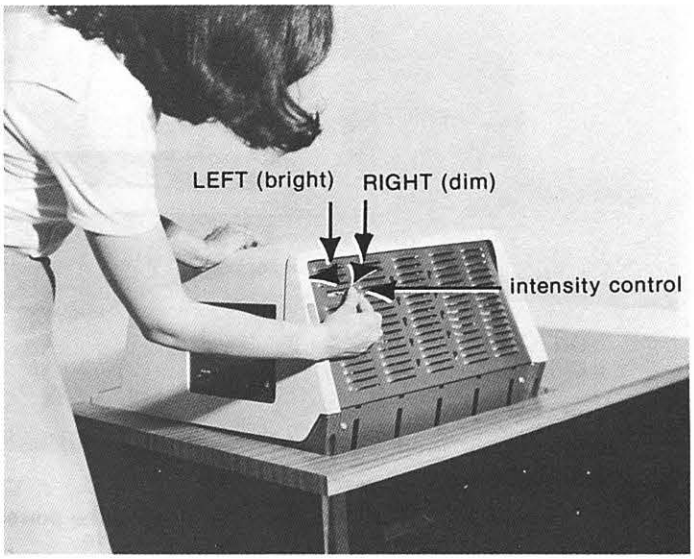


If the cursor does not appear, adjust the intensity control found at the rear of the terminal. Standing at the rear of the desk, move the lever to the left to brighten the cursor. If it still does not appear, repeat the entire procedure of "Assembling the CLASSIC," starting on page 1-7. If the cursor still does not appear, turn to step 40 in the Trouble-shooting section, found on page 3-8.



(10) Adjust cursor intensity ☐

Adjust the intensity control (found at the rear of the terminal) to set the brightness of the cursor to your liking. Standing at the rear of the desk move the level to the right to dim the cursor or to the left to brighten the cursor.

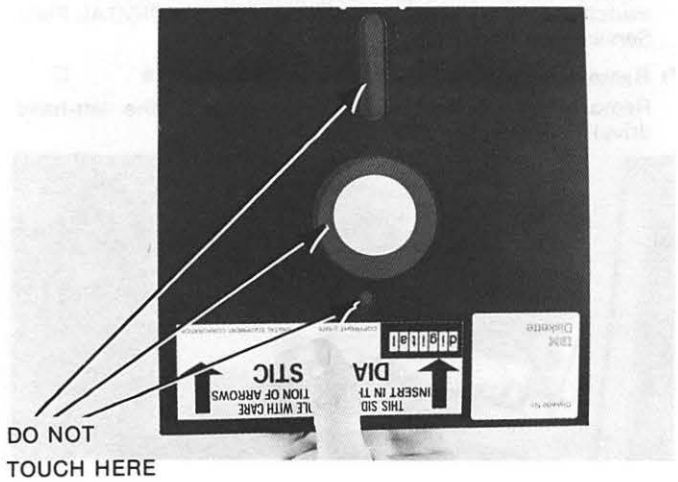


TESTING THE SYSTEM

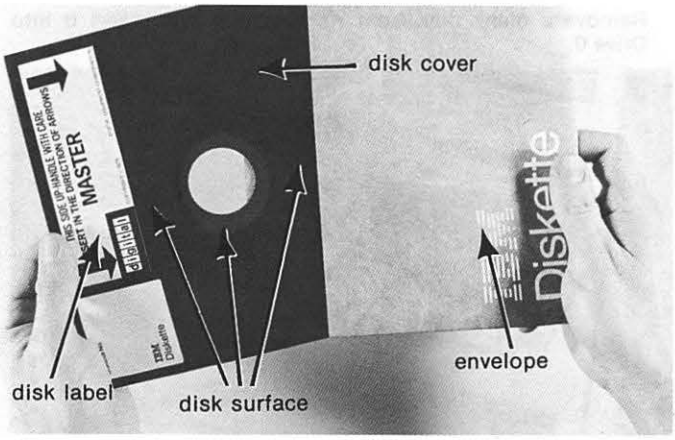
Included with your CLASSIC system is a diagnostic disk. This disk contains a set of computer programs called "DEC/X8" that are useful in locating problems within your system. This section will lead you through running DEC/X8 to assure that your system is operating properly.

(1) Get diagnostic disk ☐

DO NOT TOUCH THE AREAS OF THE DISK THAT ARE EXPOSED THROUGH THE OPENINGS IN THE COVER.



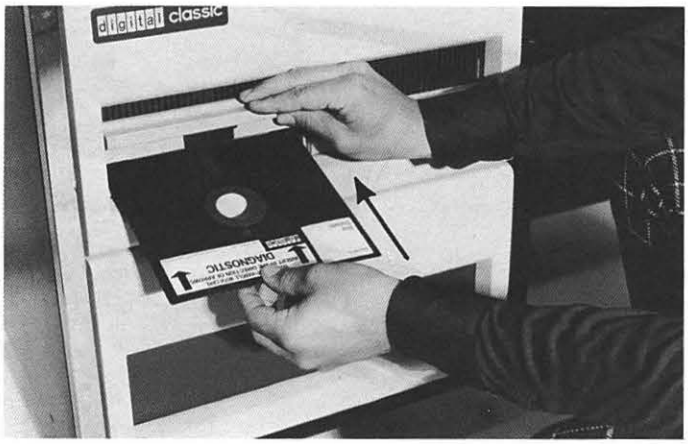
Take the disk labeled "Diagnostic Disk" out of its envelope by placing your thumb on the label.



(2) Insert disk in drive □

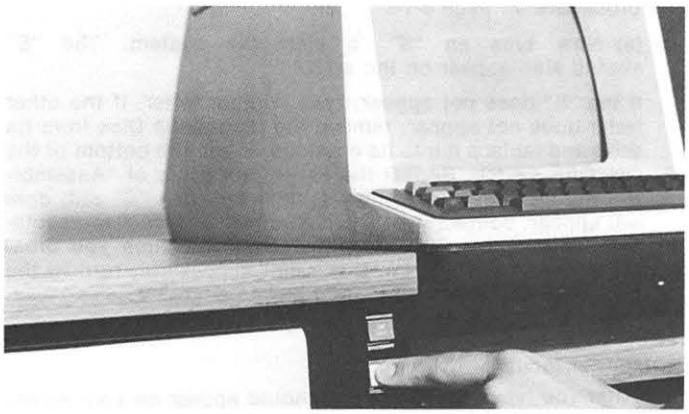
DO NOT FORCE THE DISK INTO THE DRIVE.

Insert the Diagnostic Disk into drive 0 by opening the left-hand disk door, sliding the disk into the drive (label side up), and closing the door over the disk. The door will click when properly closed.



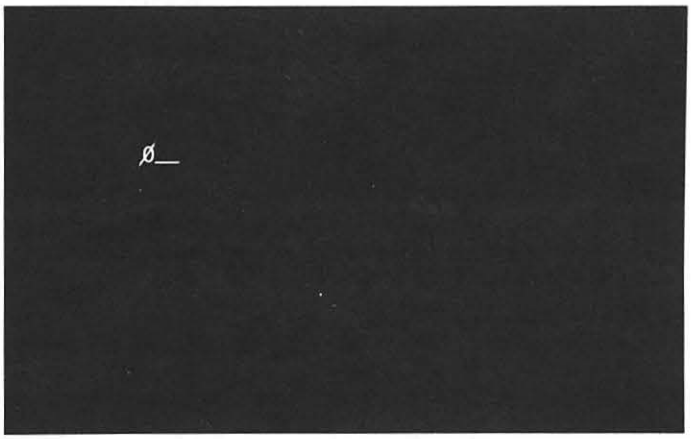
(3) Press START button □

Push the white START button on the front of the CLASSIC desk.



(4) System pretest □

The following events should occur when the START button is pressed:



(a) A "0" should appear on the screen. This indicates that the terminal and the computer are connected.

If a "0" does not appear, press the white START button again. If a "0" still does not appear, press the bottom of ON/OFF button. Now repeat the entire procedure of "Assembling the CLASSIC" starting on page 1-7. If a "0" still does not appear, turn to Step 60 of the troubleshooting procedure on page 3-12.

(b) A "1" should then appear on the screen. This indicates that the computer is working properly.

If a "1" does not appear, remove the Diagnostic Disk from the drive and replace it in its envelope. Press the bottom of ON/OFF switch to turn the system off. Repeat the entire procedure of "Assembling the CLASSIC," starting on page 1-7. If a "1" still does not appear, contact your DIGITAL Field Service Representative.

(c) A "2" should then appear on the screen. This indicates that the computer's memory is properly connected.

If a "2" does not appear, remove the Diagnostic Disk from the drive and replace it in its envelope. Press the bottom of the ON/OFF switch to turn the system off. Repeat the entire procedure of "Assembling the CLASSIC" starting on page 1-7. If a "2" still does not appear, contact your DIGITAL Field Service Representative.

(d) A "3" should then appear on the screen. This indicates that the disk drives are working properly.

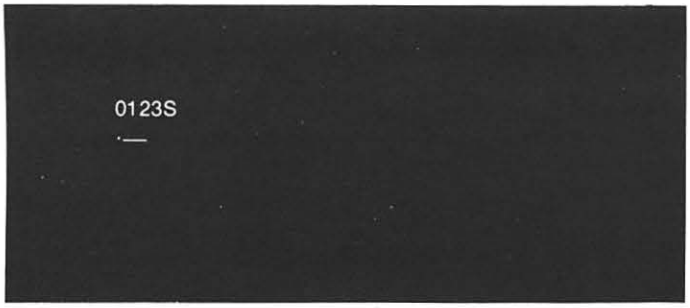
If a "3" does not appear, repeat the entire procedure of "Assembling the CLASSIC" starting on page 1-7. If a "3" still does not appear, turn to Step 80 of the troubleshooting procedure on page 3-14.

(e) Now type an "S" to start the system. The "S" should also appear on the screen.

If the "S" does not appear, type another letter. If the other letter does not appear, remove the Diagnostic Disk from its drive and replace it into its envelope. Press the bottom of the ON/OFF switch. Repeat the entire procedure of "Assembling the CLASSIC" starting on page 1-7. If a "S" still does not appear, contact your DIGITAL Field Service Representative. This system pretest will occur every time you press the white START button. If it is not successful, turn to the troubleshooting procedure starting on page 3-2.

(5) Monitor loads □

After you typed an "S", a dot should appear on your screen below the system pretest. This indicates that the system monitor is loaded.



If the dot does not appear, type another letter. If the dot still does not appear, turn to Step 100 in the troubleshooting procedure found on page 3-16.

(6) Run DEC/X8 □

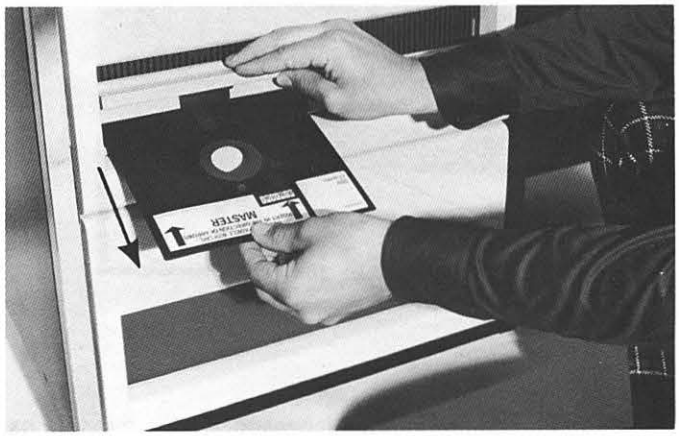
Run the system diagnostic program DEC/X8 by typing "R DECX8A" after the dot.

The system should respond ".^C" and "!" on successive lines.

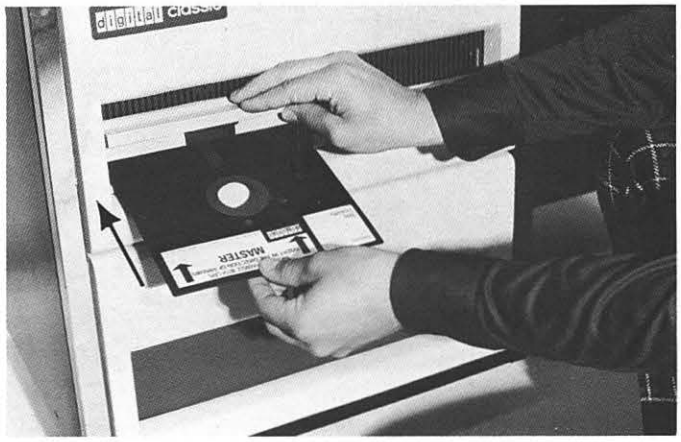
If the system does not respond in this manner, type "R DECX8A" again. If you still do not see the correct response, remove the Diagnostic Disk from its drive and replace it in its envelope. Press the bottom of the ON/OFF switch to turn the system off and contact your DIGITAL Field Service Representative

(7) Remove Diagnostic Disk and insert 2 blank disks □

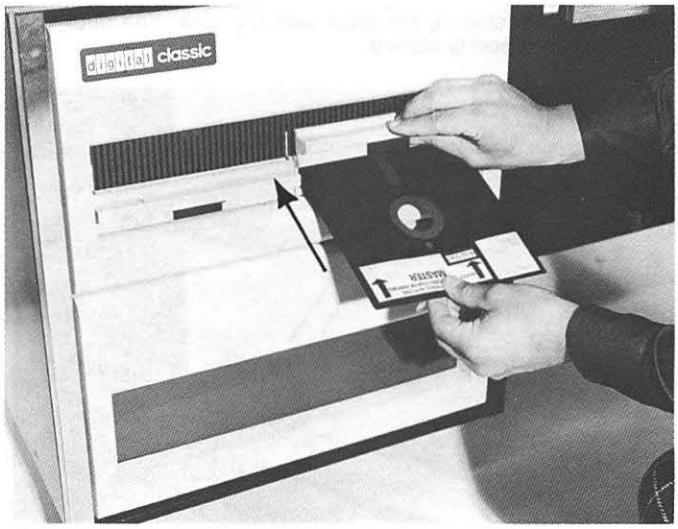
Remove the Diagnostic Disk from drive 0 (the left-hand drive).



Remove a blank disk from its envelope and insert it into Drive 0.



Remove a blank disk from its envelope and insert it into Drive 1 (the right-hand drive).



(8) Run the System Diagnostic Program □

Type "AR" and press the RETURN key. Then hold down the CTRL key and type an "R".

```
Ø123S
.RDECX8A
.^C
!AR
```

```
Ø123S
.R DECX8A
.^C
!AR
!^R_
```

The system should respond with the message shown in the figure at the right.

```
Ø123S
.R DECX8A
.^C
!AR
!^R
TIMERA-J01 FLD 0 ET:0 00 00_
```

If either of these two responses is not received, hold down the CTRL key and type "X". The system should respond with "!". Then type "Y". Do this as many times as necessary until the dot reappears. Then repeat this procedure from Step 6 on page 1-12. If you have further problems remove the disks from the drives and replace them in their envelopes, press the bottom of the ON/OFF switch to turn the system off, and contact your DIGITAL Field Service Representative.

(9) Status report □

Immediately following the previous response, a **status report** will appear on your screen. This status report will resemble the table shown below:

Rotate 1663
DEC/X8

JOB	MODULE	MAINDEC	**FLD**	PRI	STATE	**CNTR**
01	TIMERA	DIDKA-D	**0**	00	R	**7716**
03	MRI08A	DIKAA-A	**0**	04	R	**0141**
12	FLOPPY	DARXA-A	**1**	01	R	**3121**
14	OPRATE	DIKAC-B	**1**	07	R	**0110**
21	RANMRI	DIKAB-A	**2**	05	R	**1075**
24	OPRATE	DIKAC-B	**2**	03	R	**0113**
32	FLOPPY	DHRXA-A	**3**	02	R	**0574**
33	NOTFUN	DIKAD-B	**3**	06	R	**7162**

The only differences between your report and the sample shown above should be in the number after the word ROTATE and the entries in the FLD and CNTR columns.

If a status report is not displayed, hold down the CTRL key and type "X". The system should respond with "!". Then type "Y". Do this as many times as necessary until the dot reappears. Then repeat this procedure from Step 6 on page 1-12. If you have further problems, remove the disks from the drives and replace them in their envelopes, press the bottom of the ON/OFF switch to turn the system off, and contact your DIGITAL Field Service Representative.

(10) Errors □

The diagnostic program is now running. If there are problems with your CLASSIC, an **Error Message** will appear on your screen.

There are two types of errors:

A **Status Error** will have the following format:

"STAT ERR IN J32 MOD:FLOPPY FLD:1 CNTR:0171 RPC:0342 CODE:0004 SA:0200 SB:0070 SC:0000 SD:0103 SE: 0017 SF:7765"

A Data Error will have the following format:

"DATA ERR IN J03 MOD:MRI08A FLD:3 CNTR:1731 RPC:0025 CODE:0002 SA:0310 SB:5610 SC:0017 SD:1017 SE:2037 SF:7374
DA:5600 DB:1274 DC:0000
DA:5601 DB:3415 DC:0000
DA:5602 DB:0437 DC:0000"
DA:5603 DB:3557 DC:0000"
TALLY:0343

If an error message appears, hold down the CTRL key and type "C" after the error message is displayed. The system should respond with "!". Now copy the error message. Then turn to Step 120 in the troubleshooting procedure on page 3-17.

(11) Stop DEC/X8 □

After about 15 minutes and several status reports, a response will appear on your screen that looks like this:

```
JOB   MODULE   MAINDEC   FLD   PRI   STATE CNTR
Ø1    TIMERA   DIDKA-D   3     ØØ    R     7716
Ø3    MRI08A   DIKAA-A   Ø     Ø4    R     Ø141
12    FLOPPY   DHRXA-A   Ø     Ø1    R     3121
14    OPRATE   DIKAC-B   3     Ø7    R     Ø11Ø
21    RANMRI   DIKAB-A   1     Ø5    R     ØØ1Ø
24    OPRATE   DIKAC-B   Ø     Ø3    R     Ø271
32    FLOPPY   DHRXA-A   2     Ø2    R     Ø113
33    NOTFUN   DIKAD-B   3     Ø6    R     7162

TIMERA-JØ1 FLD 3 ET:Ø ØØ 15__
```

```
ROTATE 4712

DEC/X8                                        state column
                                                    ▼
JOB   MODULE   MAINDEC   FLD   PRI   STATE CNTR
Ø1    TIMERA   DIDKA-D   3     ØØ    R     7716
Ø3    MRI08A   DIKAA-A   Ø     Ø4    R     Ø141
12    FLOPPY   DHRXA-A   Ø     Ø1    R     3121
14    OPRATE   DIKAC-B   3     Ø7    R     Ø11Ø
21    RANMRI   DIKAB-A   1     Ø5    R     ØØ1Ø
24    OPRATE   DIKAC-B   Ø     Ø3    R     0271
32    FLOPPY   DHRXA-A   2     Ø2    R     Ø113
33    NOTFUN   DIKAD-B   3     Ø6    R     7162
                                              ▲
                                        CNTR column
```

"TIMERA-J01 FLD:0 ET:0 00 15"

(The last number indicates the amount of time that the diagnostic program has been running, 15 minutes.)

Look for the message:

*"*NO CHG Jxx"(xx will be a 2-digit number)*

If this message appears, let DEC/X8 continue running for another 15 minutes until the "TIMERA" message appears again followed by "ET:0 00 30." If "NO CHG Jxx" appears again, hold down the CTRL key and then type "C". The system will repsond with "!". Then remove the disks from the drives, replace them in their envelopes, press the bottom of the ON/OFF switch to turn the system off, and contact your DIGITAL Field Service Representative.

If this message does not appear, hold down the CTRL key and type "C" to stop DEC/X8.

```
03    MRI08A   DIKAA-A   Ø     Ø4    R     Ø141
12    FLOPPY   DHRXA-A   Ø     Ø1    R     3121
14    OPRATE   DIKAC-B   3     Ø7    R     Ø11Ø
21    RANMRI   DIKAB-A   1     Ø5    R     ØØ1Ø
24    OPRATE   DIKAC-B   Ø     Ø3    R     Ø271
32    FLOPPY   DHRXA-A   2     Ø2    R     Ø113
33    NOTFUN   DIKAD-B   3     Ø6    R     7162

TIMERA-JØ1 FLD 3 ET:Ø ØØ 15
^C
!__
```

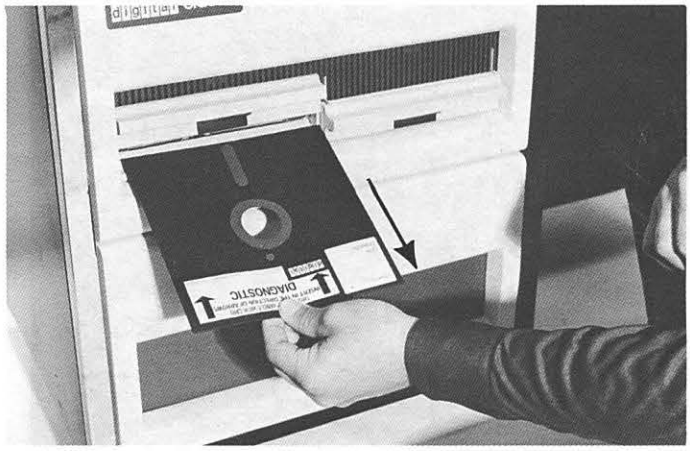
(12) Examine status report □

Examine the last status report that appeared on the screen. The STATE column should contain all "R"s, and the CNTR column should contain all non-zero numbers.

If the STATE column contains a "K" or the CNTR column contains a 0, repeat this procedure from step 9, found on page 1-13. If you still have problems, remove the disks from the drives and replace them in their envelopes, press the bottom of the ON/OFF switch to turn the system off, and contact your DIGITAL Field Service Representative.

(13) Remove blank disks □

Remove the disk from Drive 0, and replace it in its envelope.



Remove the disk from Drive I, and replace it in its envelope.

Your CLASSIC System is operating properly and you should now proceed to copy your system disk as described on the following pages.

COPYING THE CLASSIC DISKS

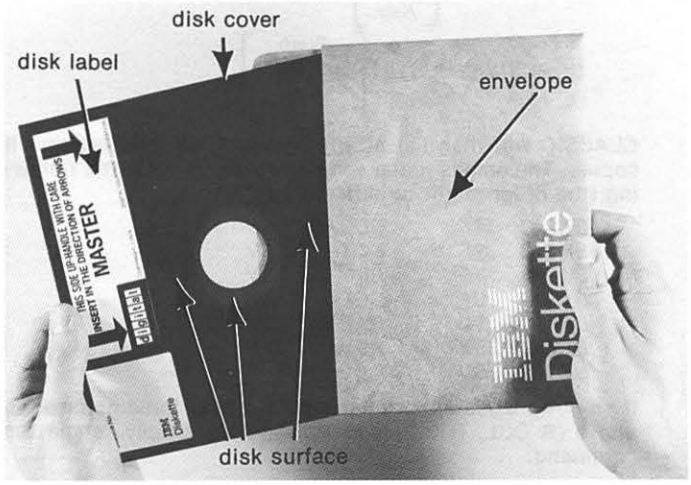
The BASIC System Disk will be needed by everyone who uses CLASSIC. It is possible to erase the files on this disk and thereby make the system unusable, so **YOU MUST COPY THIS DISK,** store the original in its envelope in a locked cabinet as a back-up and allow users to run the system only from the copy, not the original. It is **HIGHLY RECOMMENDED** that you make several copies of the System so that you have them when needed.

Copying the BASIC System Disk

To copy the BASIC System disk, follow these steps:

(1) Remove the System Disk from its envelope ☐

Take the BASIC System disk out of its envelope by placing your thumb on the label.



DO NOT TOUCH THE BROWN PARTS of the disk that appear through the holes in the cover. Always hold the disk by its cover.

(2) Insert disk in Drive 0 ☐

Lift the left-hand disk drive door on the front of the CLASSIC by pinching its latch between your thumb and forefinger. Slide the BASIC System disk into the drawer, label side up.

DO NOT FORCE THE DISK into the drawer in any way. It should slide in smoothly.

If the disk does not slide in smoothly, make sure that you have lifted the door all the way up. If you still cannot slide it in, remove the disk completely and try again. If you have further problems call DIGITAL Field Service.

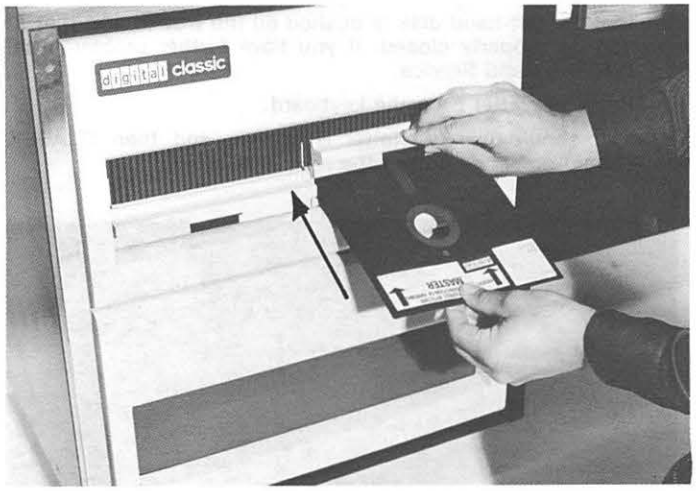
(3) Close disk drive door ☐

Close the drive door by pushing it down, but **DO NOT FORCE THE DOOR** in any way. The door latch will "click" when it is closed properly.

If the door will not close, make sure that the disk is pushed all the way in. If you still cannot close the door, remove the disk completely and try again. If you have further problems, call DIGITAL Field Service.

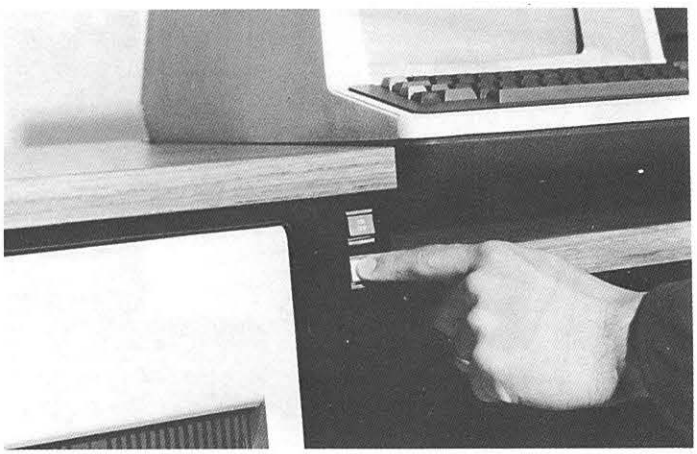
(4) Insert a blank disk in Drive 1 ☐

Take a blank (unlabelled) disk out of its envelope and slide it into the right-hand drawer just as you did with the BASIC System disk. Close the right-hand door over the second disk so that it clicks. If you have difficulty, remove the disk completely and try again. If problems persist, contact DIGITAL Field Service.

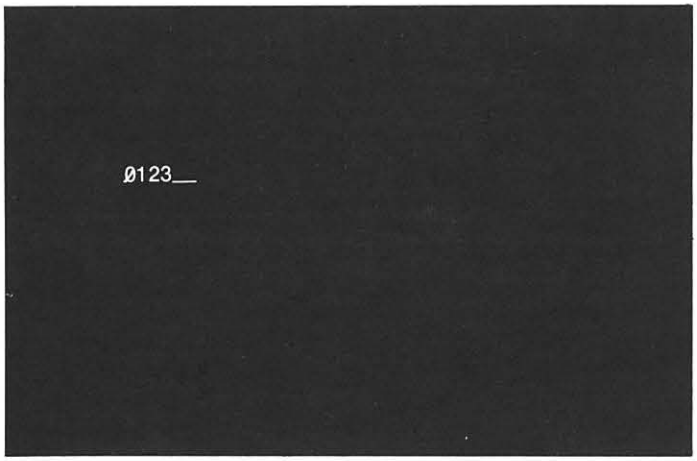


(5) Start system ☐

Push the top of the white START button on the front on the machine and let it go again.



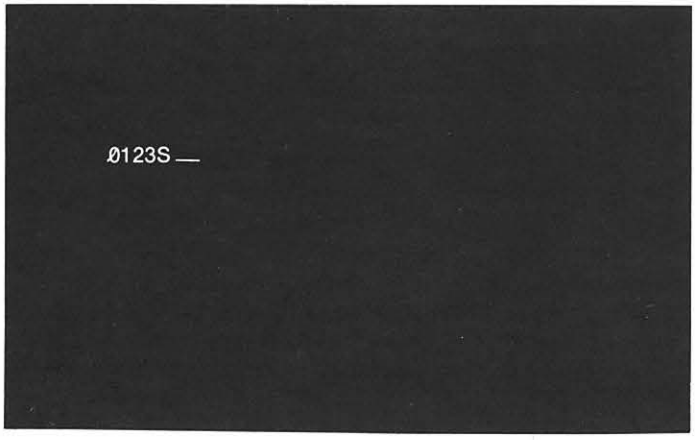
You should now see the numbers 0123 appear on the screen.



If you do not see all of these numbers, press the white START button again. If they still do not appear, make sure that the left-hand disk is pushed all the way in and that its door is properly closed. If you have further problems call DIGITAL Field Service.

Press the letter S on the keyboard.

You should see the letter S appear, and then CLASSIC should display a dot on the next line.



If the S does not appear on the screen, press the S key again. If the dot does not appear, turn back to "Start System" and repeat the procedures described.

If you have further probems, call DIGITAL Field Service.

(6) Enter Commands □

To copy the System disk, type the following command lines. (The dot or asterisk at the beginning of each line is underlined because it is displayed by the system and is not typed by you.)

_.R CCL [Push RETURN Key]

_.R PIP [Push RETURN Key]

_*RXA1: (YZ) [Push ESC Key]

_.COPY RXA1: <SYS: [Push RETURN Key]

CLASSIC will then list all the names of all the files that it copies. The names listed should include at least the following (the order might be different):

BASIC .AF	BLOAD .SV
BASIC .SF	FOTP .SV
BASIC .FF	PIP .SV
BASIC .UF	CCL .SV
DIRECT .SV	BASIC .SV
BCOMP .SV	RESEQ BA
BRTS .SV	

If any messages are printed after the first three commands above (R CCL, R PIP, and RXA1:(YZ)), simply retype the command.

If any of the file names listed above are not displayed, repeat this step using the copy of the System disk in your Installation Kit. If you have further problems, call DIGITAL Field Service.

(7) Test the new copy □

Remove the original BASIC System disk from drive 0. Transfer the copy that you have just made from drive 1 to drive 0. Start the system again as you did in step 5 above. If the dot appears, your copy is a good System disk. Use it to make at least one other copy of the System disk. Store the original System disk and all but one copy in their envelopes in a cool, clean, dry place.

If the dot does not appear when the new System disk is in drive 0, repeat step 6 above with a different blank disk. If you have further problems, call DIGITAL Field Service.

(8) Label new disk □

Using only a soft, felt-tipped pen, write "BASIC System Disk" on the labels of each of the copies that you have made.

Copying the BASIC Program Demonstration Disk

The final procedure that you must follow before allowing students to use CLASSIC involves copying the BASIC Program Demonstration Disk that is included in your Installation Kit. The original copy of this disk should be stored in a cool, clean, dry place, and users should only be allowed to run the system with the copy, not the original. It is recommended that you make several copies of the BASIC Program Demonstration Disk so that you have them when needed.

Before copying the Demonstration Disk, be sure that an hour has elapsed since you took it out of its box. As previously noted, this time is necessary for the disk to adjust to the temperature and humidity in your room. If an hour has not elapsed, wait until it has before you go on.

To copy the BASIC Program Demonstration Disk, follow these steps:

(9) Insert System Disk in Drive 0 □

If a copy of the System Disk is not already in the left-hand disk drive, insert one as described in steps 1-3 on page 1-15.

(10) Insert BASIC Program Demonstration Disk in Drive 1 □

Insert the Demonstration Disk in the right-hand disk drive just as you did with a blank disk in step 4 on page 1-15.

(11) Start system □

Start the system as explained in step 5 on page 1-15.

(12) Copy Demonstration Programs onto System Disk □

Type the following command line:

.COPY SYS:.DM<RXA1:* [Push RETURN Key]

CLASSIC will then print the message FILES COPIED: and list the names of all the files that it copies. The names listed should include at least the following (the order might be different):

ACEY02.BA
ATTEND.BA
ATTSET.BA
CALC.BA
EASY02.BA
EASY03.BA
GUESS.BA
HMRABI.BA
HURKLE.BA
HURK02.BA
MORGAG.BA
QUADEQ.BA
QUAD02.BA
QUAD03.BA
SYNONY.BA
SYNSET.BA
WTDAVG.BA

If any message other than FILES COPIED: is printed, simply retype the command. If any of the above file names is not displayed, contact DIGITAL Field Service.

(13) Insert a blank disk in Drive 1 □

Remove the BASIC Program Demonstration Disk from the right-hand disk drive and insert a blank disk in its place.

(14) Copy Demonstration Programs onto new disk □

With a blank disk inserted in Drive 1, type the following command:

.ZERO RXA1: [Push RETURN Key]

If the message ZERO SYS? is displayed, type N and then retype the above command. (Be sure to use the 1 key at the upper left-hand corner of the keyboard to type 1.)

When the dot reappears, type

.COPY RXA1:.BA<*.DM* [Push RETURN Key]

The system will respond:

FILES COPIED:

ACEY02.DM
ATTEND.DM
ATTSET.DM
CALC.DM
EASY02.DM
EASY03.DM
GUESS.DM
HMRABI.DM
WTDAVG.DM
HURKLE.DM
HURK02.DM
MORGAG.DM
QUADEQ.DM
QUAD02.DM
QUAD03.DM
SNYONY.DM
SYNSET.DM

(16) Label new disk and make additional copies

Remove the copy that you have just made from drive 1 and label this disk with a soft, felt-tipped pen.

Make additional copies of the BASIC Program Demonstration Disk by repeating steps 13-15 above.

(17) Erase demonstration programs from System Disk

Erase the Demonstration Programs from the System disk by typing:

*.DELETE *.DM* [Push RETURN Key]

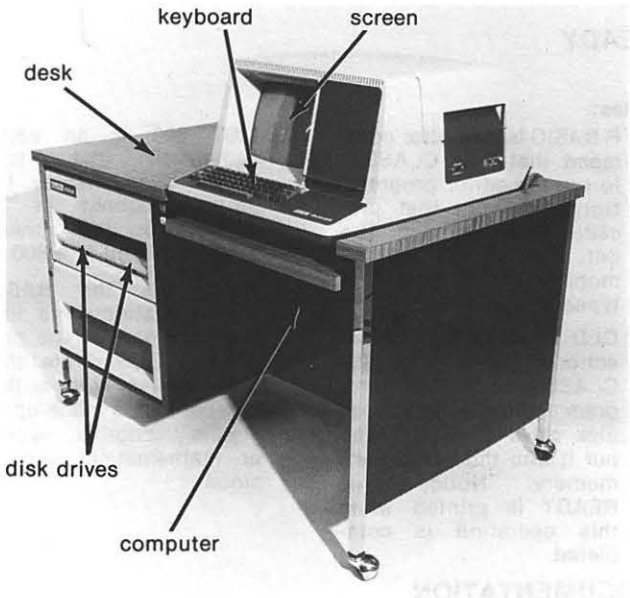
CLASSIC is now ready for use by students.

Chapter 2

Using Classic

WHAT IS CLASSIC?

CLASSIC is a computer system that is made up of three parts: hardware, software, and documentation. The **hardware** is that part of the system that you can see and touch and bump into. The **software** is made up of programs that control how the computer works. (Think of a television set: the set itself is hardware, but the programs that you see and hear are software.) This guide is part of the CLASSIC **documentation** which explains how to use the system. Each of these three parts is described below in more detail.



CLASSIC Hardware

HARDWARE

The CLASSIC hardware consists of four units (or devices):

(1) the desk,
(2) the keyboard/screen,
(3) the disk drives, and
(4) the central processor unit.

Desk. Your computer system is housed completely within a movable desk. All the parts needed for CLASSIC to work are put together so that the system may be moved from one classroom to another quickly and easily.

Keyboard/screen. The CLASSIC keyboard and screen are used to "talk" or interact with the computer. When the computer is running, you press keys on the keyboard and those letters or numbers will appear on the screen. The keyboard looks like a standard typewriter; the screen is like a small television. These two devices together are usually called the computer **terminal.**

Disk drives. CLASSIC comes with several flexible disks that can store your work in much the same way that tapes for tape recorders store music. Some of these disks are **pre-recorded** and are needed to make the system work. Other disks are blank, allowing you to store your own work. To be used, the disks must be placed in the disk drives just as records must be placed on a record player before you can listen to them.

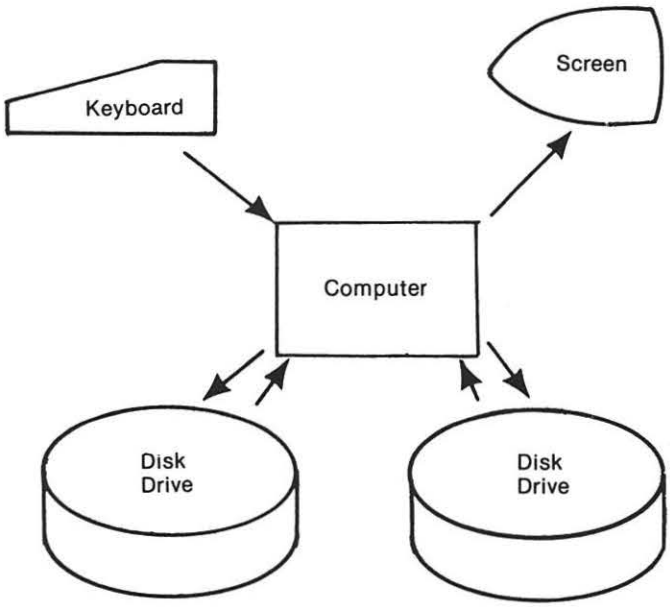
Central Processor Unit. The "heart" of your CLASSIC system is the central processor unit which is hidden at the very back of the desk. The CPU is like the system's motor: it must run for the system to do anything at all. The CPU is sometimes referred to simply as the computer.

The figure shows how the CLASSIC hardware units relate to each other. Directions for using each unit are given in the *CLASSIC User's Reference Guide.* Suggestions for keeping the hardware working properly and correcting minor problems are presented in the *CLASSIC Installation and Maintenance Guide.*

SOFTWARE

CLASSIC can run three different types of programs: the monitor program, the editor program, and BASIC language programs.

When you push the white START button, CLASSIC automatically runs the **monitor** program. You can tell when this program is running because it prints a dot (.) or an asterisk(*) when it is waiting for you to type. The lines that you type when the monitor program is running are called **monitor commands.** For example, the line R BASIC typed after the dot is a monitor command. Monitor commands are used to perform certain operations such as copying programs from one disk to another.



Relationships Among CLASSIC Hardware Units

By typing the monitor command R BASIC, you ask CLASSIC to run the **editor** program. The lines that you type when the editor program is running are called **editor commands.** For example, the line OLD RXA1:GUESS is an editor command. The editor program does **not** print a dot, but does print the word READY after it completes certain jobs. Editor commands are used to write, change, and run **BASIC language programs.**

BASIC language programs differ from the other types of CLASSIC programs because you can write them. BASIC is a language similar to English, and writing a program in BASIC is like writing directions in English. You may think of a BASIC language program as a recipe that tells the computer how to do a specific job, and each statement line in the program as like a single step in that recipe. To display the statements that make up a BASIC language program stored in the computer's memory on the screen, you can use the editor LIST command.

The following example demonstrates the difference between monitor commands, editor commands, and BASIC language statements. Underlined commands are typed by the user.

```
.R BASIC                                        NOTE 1
NEW OR OLD--OLD RXA1:GUESS                      NOTE 2

READY
LIST 800                                        NOTE 3

GUESS  BA  3.0

800 REM   ****   TOO LOW OR TOO HIGH
810 REM
820 PRINT " TOO "
830 IF G > N THEN 860
840 PRINT "LOW";
850 GOTO 870
860 PRINT "HIGH";                               NOTE 4
870 PRINT " GUESS AGAIN "
880 PRINT
890 LET K = K + 1
900 GOTO 630
910 END

READY
```

Notes:

(1) R BASIC is a **monitor command** that tells CLASSIC to run the editor program. Notice the dot that precedes this command. The dot was printed by the monitor program, not typed by the user.

(2) OLD RXA1:GUESS is an **editor command** that tells CLASSIC to find the program called GUESS on disk drive 1 (RXA1) and put it into the computer's memory. Notice that READY is printed when this operation is completed.

(3) LIST 800 is an **editor command** that tells CLASSIC to display the program stored in its memory on the screen, beginning with line 800.

(4) These are the BASIC language statements that make up part of the program GUESS. Note that each begins with a line number and is made up of simple English words or mathematical expressions.

DOCUMENTATION

The CLASSIC documentation is made up of three Guides:

(1) CLASSIC Installation and Maintenance Guide
(2) The CLASSIC Primer: A Self-Teaching Guide
(3) CLASSIC User's Reference Guide

These guides contain all the information that you will need to work with CLASSIC, from installing it to writing BASIC language computer programs to correcting minor problems.

CLASSIC Installation and Maintenance Guide. The CLASSIC system is designed so that it can be installed by anyone who carefully reads and follows the directions. The installation involves uncrating the system, connecting its units, testing its operation, and copying the BASIC system disk. The *CLASSIC Installation and Maintenance Guide* provides step-by-step instructions for each of these four processes and contains a complete maintenance section to help you keep your CLASSIC in top working order and direct you in correcting minor problems.

The CLASSIC Primer: A Self-Teaching Guide. The CLASSIC Primer will help you teach yourself how to work with CLASSIC. The first few chapters will lead you through the use of the CLASSIC software, and the last chapter will help you discover some of the many ways to use CLASSIC and find further information on computer uses in instruction. (If you have the optional FORTRAN IV software but have never used a computer before, it is recommended that you teach yourself BASIC before you try to learn FORTRAN.)

CLASSIC User's Reference Guide. Once you have learned to use CLASSIC you will often need a reference to help you remember rules and the meanings of error messages. This information is collected in the *CLASSIC User's Reference Guide.*

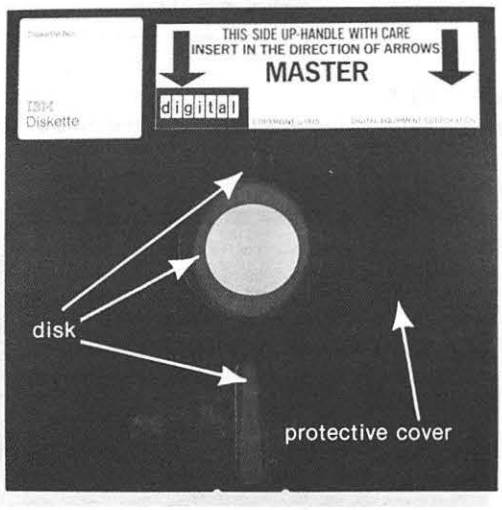
If you have the optional FORTRAN IV software, you will also need the *OS/8 Handbook* (order number DEC-08-OSHBA-A-D). Pages 1-78 to 1-92 of the *OS/8 Handbook* explain how to create a FORTRAN program file with the Symbolic Editor. Pages 8-1 to 8-64 describe how a FORTRAN program is compiled, loaded, and executed, and pages 8-65 to 8-124 discuss the various statements which make up the FORTRAN IV language.

USING THE CLASSIC SOFTWARE

As you learn to work with CLASSIC, you will make mistakes. Some of your mistakes will be minor and can be easily corrected. Others will be major and may even destroy part of the CLASSIC software. To correct these major errors, you will need a back-up or duplicate copy of your system disks. Therefore, **BEFORE YOU DO ANY WORK ON YOUR SYSTEM, MAKE SURE THAT YOU HAVE A BACK-UP.** Instructions for backing-up your system are on 1-15.

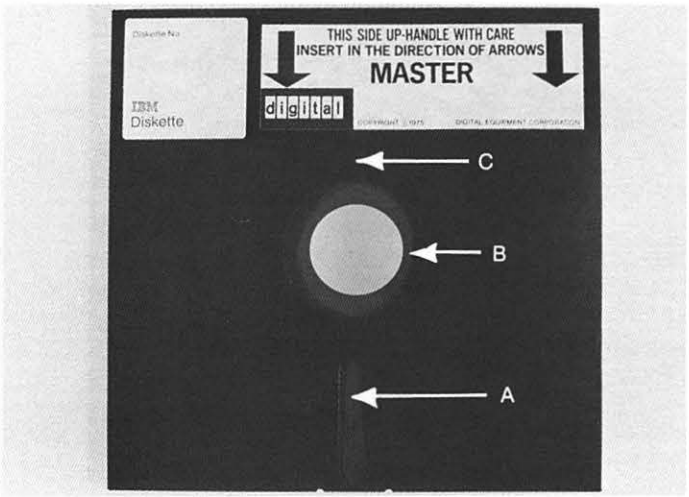
USING THE DISKS

Included with your CLASSIC system is a thin, flexible, circular disk enclosed in an eight-inch square protective cover. The disk itself should never be removed from its protective cover.

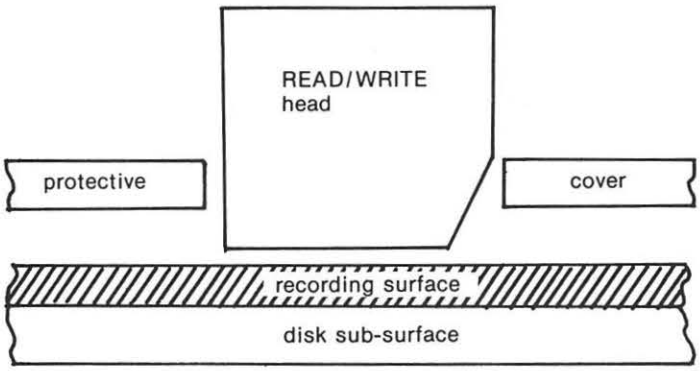


NEVER TOUCH THE EXPOSED PORTION OF THE DISK WITH YOUR FINGERS OR ANY OTHER OBJECT. THE DISK MUST BE HANDLED ONLY BY THE EDGES.

The protective cover has an elongated hole, a center hole, and a small hole. The elongated hole (point A) is used to provide access to the recording surface. The center hole (point B) is used to allow the motor in the disk drive to rotate the disk. The small hole (point C) provides a starting point on the disk.



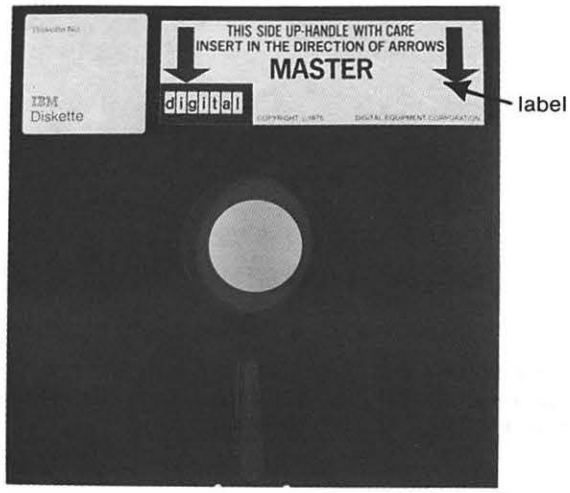
The recording portion of the disk is made of plastic with an easily magnetized coating. When inserted in a disk drive, the disk rotates inside its protective cover at a rate of 360 times a minute. As it rotates, it passes under the read/write head inside the drive. The read/write head is used to record data from the computer in the same manner as a conventional tape recorder and to detect data that was previously recorded.



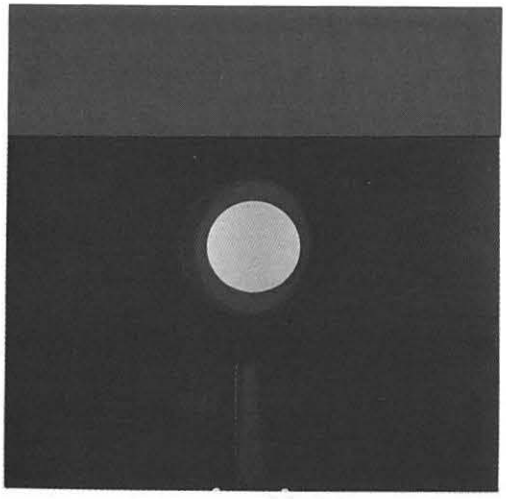
DO'S AND DONT'S

Whenever you handle your disks, observe the following Do's and Don'ts.

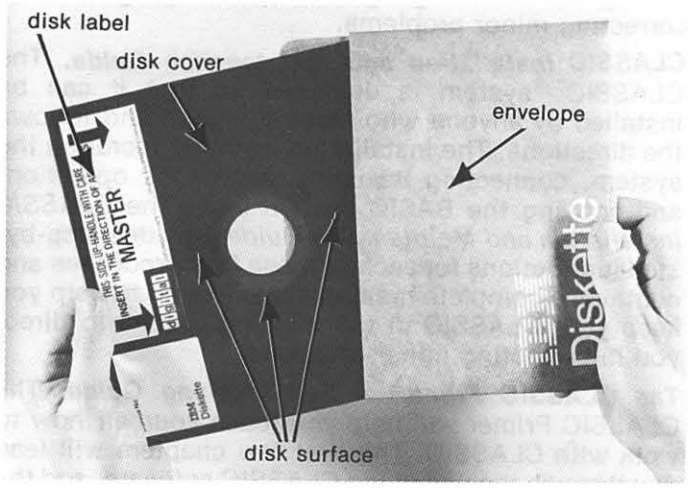
DO: Use only labels that can be peeled off cleanly.



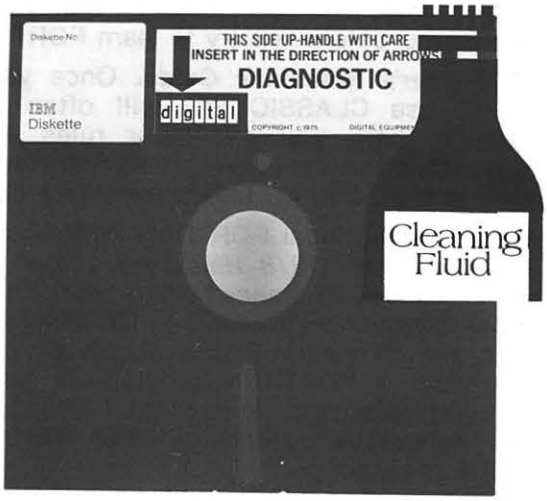
DO: Handle this disk carefully. Touch only the areas that are shaded in the figure below.



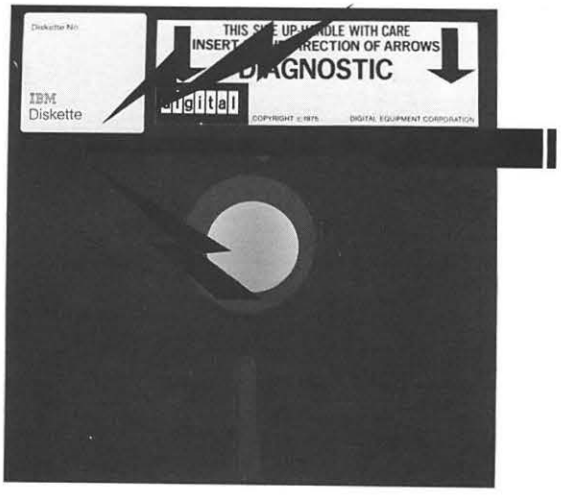
DO: Store all disks in their original envelopes and keep them in a dust free storage area such as a file cabinet, brief case or a desk drawer. Replace storage envelopes as they become dirty or torn.



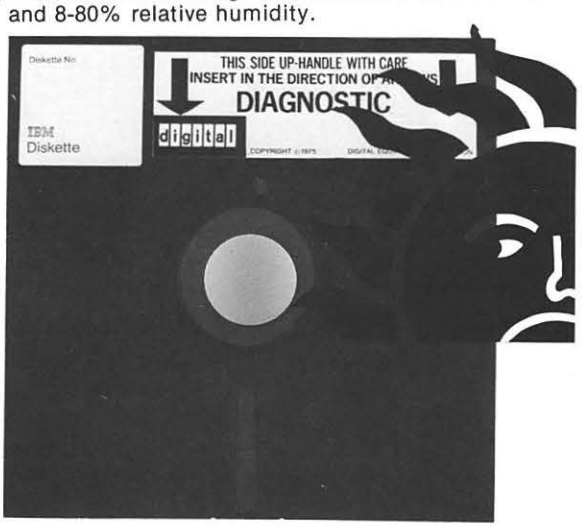
DON'T: Don't attempt to clean the disk surface. The protective cover self-cleans the disk as it rotates. Wiping the surface or applying cleaning fluid will damage the recording surface.



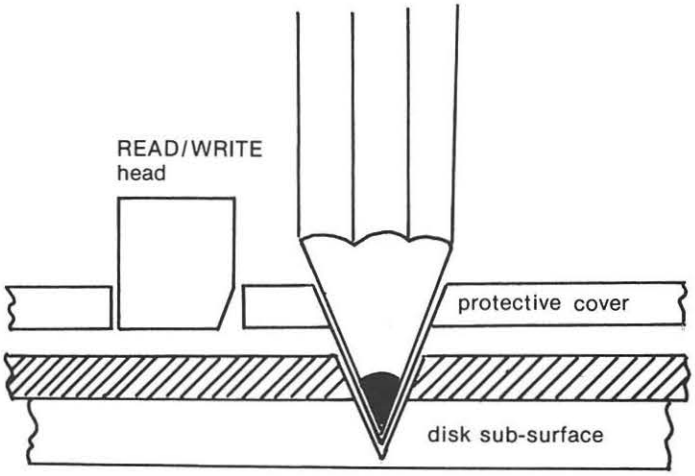
DON'T: Don't expose the disk to magnetic devices (screwdrivers, electric motors, etc.), as magnetic drives will destroy data previously written on the disk.



DON'T: Don't expose the disk to direct sunlight, heat, or high humidity. The ideal disk storage environment is between 40-92°F (4-38°C) and 8-80% relative humidity.



DON'T: Don't write on the protective cover with a pen or pencil. The pressure required to mark the cover will cause a depression in the disk surface and will make the disk unusable. Write on the label only with a soft, felt-tipped pen.



DON'T: Don't bend the disk as this may damage the surface.

USING THE KEYBOARD/SCREEN

THE SCREEN

The screen of your terminal is used by CLASSIC to display programs and data. It can display up to twelve eighty-character lines at once.

Warm up. When you press the red ON/OFF switch, turning on your CLASSIC, the blinking cursor should appear in the upper left-hand corner of your screen. However, since your screen has to "warm up" (like a television set), it may take about a minute before you see the cursor.

Brightness. If you do not see the cursor, or if you can just barely see it, try adjusting the intensity (brightness). This is done by moving the intensity control lever, which is on the back of your terminal in the upper left-hand corner. Standing behind the terminal, move this lever to the left. If this does not solve the problem, you may have a hardware malfunction (see page 3-2).

Cursor movement. The cursor underlines the position where the next character will be displayed. After a character (or space) is displayed, the cursor moves one position to the right. When the 73rd character is typed, a buzzer sounds to let you know that you are almost at the end of the line.

THE KEYBOARD

The keyboard on your terminal allows you to enter data to the computer.

Standard typewriter keys. Most of the keyboard is identical to a typewriter keyboard, and works exactly as you would expect. That is, it enters to the computer the letter or number on the key.

If there are two symbols on a key (!/1, @/2, #/3, etc.) you can transmit the symbol on top by holding down the SHIFT key while striking the other key, just as you would with a typewriter.

However, CLASSIC does not deal in upper-case and lower-case letters as a typewriter does (all letters are displayed as capitals). Holding down the SHIFT key while striking a letter does not usually have any effect. Exceptions to this statement are discussed elsewhere in this manual.

The TAB key moves the cursor to the next tab stop; stops are positioned every eight spaces through the 72nd space, then every space to the 80th. The tab key has no effect when the cursor is at the 80th position. Furthermore, it does not work when the editor program is running.

Special characters. You will notice several unfamiliar characters on your CLASSIC keyboard:

(1) the exponentiation sign (∧), above the number 6;
(2) the left and right square brackets ([and]), next to the P;
(3) the backslash (\), next to the square brackets; and
(4) the left and right angle brackets (< and >), above the comma and period, respectively.

These characters have special functions when used in monitor and editor commands and program statements and are discussed elsewhere.

The LINE FEED key. This key is used when entering monitor command lines. It allows you to see how a line appears to the monitor after it has been corrected.

The RETURN key . This key is used to terminate editor command lines, monitor command lines, program statements, and responses to program input queries.

The DELETE key. This key is used for correcting typing errors made while entering editor command lines, monitor command lines, and program statements.

The BACKSPACE key. This key moves the cursor one position to the left. It does not work when the editor program is running.

The CTRL key. This key is always used in combination with another key. The CTRL key is held down while the other key is pressed. In this manual, such a combination is shown by using a slash (/) between CTRL and the other key. For example: CTRL/U, CTRL/P, etc. The effect of these combinations is shown in the following table:

CTRL/BREAK	Clears the screen and returns the cursor to "home" position.
CTRL/C	Returns control from a BASIC program to the editor. Returns control from the editor to the monitor. Terminates execution of some monitor commands.
CTRL/O	Stops the display of characters on the copier and screen. However, the command or program currently executing continues to run. To resume display, press CTRL/O again.
CTRL/P	Terminates execution of some monitor commands.
CTRL/Q	Resumes the activity that was halted by CTRL/S.
CTRL/S	Halts execution of a program or monitor command that is currently displaying data, but does not terminate the program or command.
CTRL/U	Deletes a line typed to the monitor or editor.

The ESC key. This key has two functions:

(1) it terminates the monitor R PIP command; and
(2) it deletes a line typed to the BASIC editor (if pressed before the RETURN key is pressed).

Chapter 3

Troubleshooting the Classic System

INTRODUCTION

Your CLASSIC comes with a 60-day warranty, which includes parts and labor. If any problems occur during the first 60 days, contact your local DIGITAL office.

After the 60 day warranty has expired, you have two options for obtaining maintenance service:

(1) Obtain a maintenance contract from your local DIGITAL office. Typically, a contract is for one year, for which you pay a fixed monthly fee.
(2) Pay separately for each visit made by a DIGITAL Field Service Representative.

Your CLASSIC is designed to operate with a minimum of maintenance. However, in time, certain hardware problems may arise. This chapter has been written to help you deal with them. With the aid of your Diagnostic Disk, you can diagnose many troubles. This will decrease the amount of time that your CLASSIC is inoperable, and perhaps decrease the cost of maintenance, also.

This chapter includes a step-by-step troubleshooting procedure, followed by a condensed version of the procedure in flowchart form.

TROUBLESHOOTING OVERVIEW

A computer program written to test the proper operation of a system's component is called a **diagnostic program.** If a problem exists in that component, information concerning the cause of the trouble can be output in the form of an error message. Your Diagnostic Disk contains several of these programs for the CLASSIC's components.

A program can be written to test the interaction of the components within a system. For the CLASSIC, this program is called the DEC/X8 SYSTEM EXERCISER. DEC/X8 is also contained on your Diagnostic Disk.

DEC/X8 is composed of several small diagnostic programs called modules. When these modules are run by DEC/X8, they are identified by job numbers.

To troubleshoot your system, first run all the jobs contained in DEC/X8. If a failure occurs, an error message will appear on the screen, indicating which job and module has failed.

At this point, the failure could be due to a component's malfunction or to its interaction with the other components. You should now run only the job that failed, to determine the cause.

If the single job again fails, it indicates a component failure. Here you would run the specific diagnostic program for that component. This will even further isolate the malfunction.

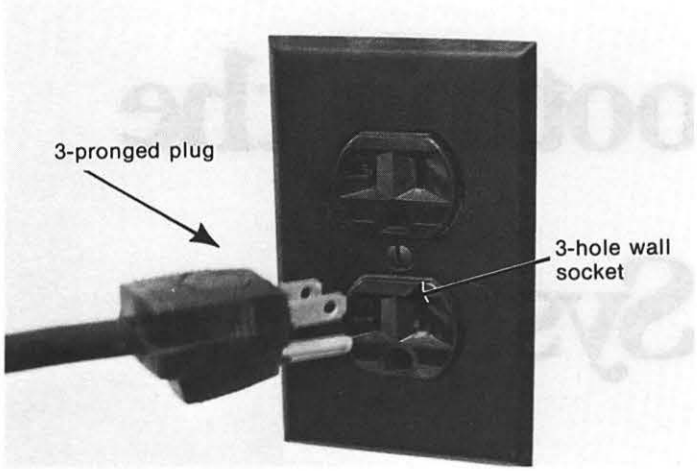
Being able to help locate problems for your DIGITAL Field Service Representative will decrease the time it will take to get your CLASSIC operating again.

The following is a step-by-step description of the procedure to diagnose hardware problems. If it is necessary to contact your DIGITAL Field Service Representative, explain everything you have done and be as specific as possible.

RUNNING DEC/X8

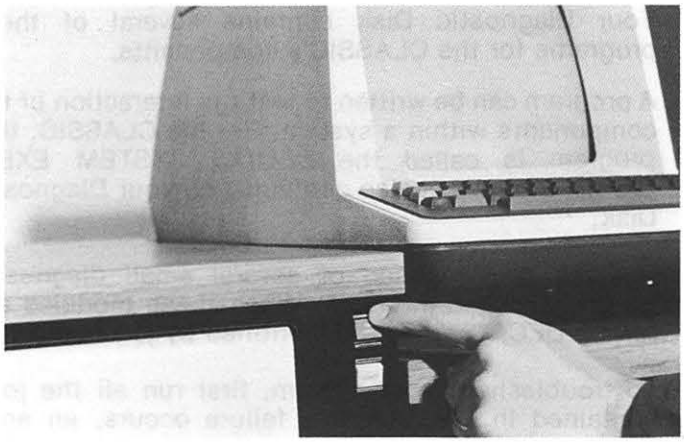
(1) System plugged in

Make sure the CLASSIC power cord is plugged into a 3-holed socket.



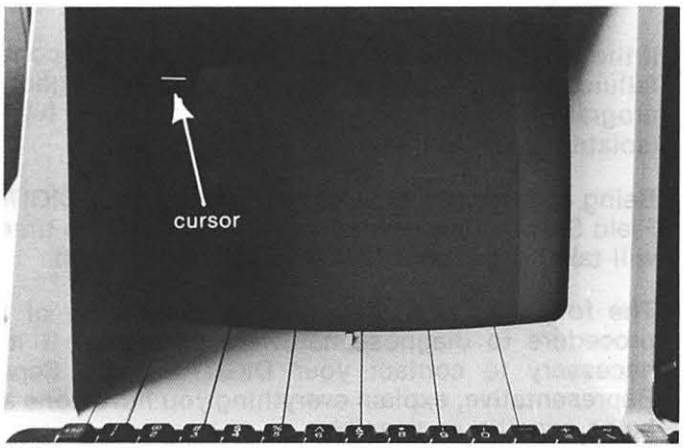
(2) Turn on system

Press the upper part of the red ON/OFF button, located on the front of the desk.



(3) Does "_" appear?

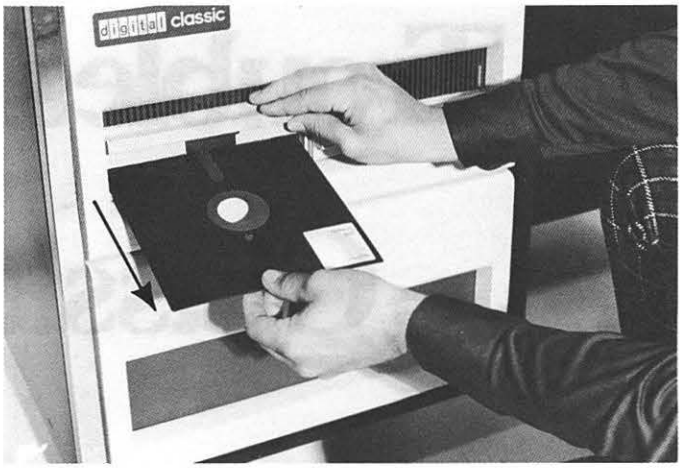
Allow a couple of minutes for warm-up and then determine if the CLASSIC has power by noting if a short flashing line appears in the upper left-hand corner of the screen (called a **cursor**).

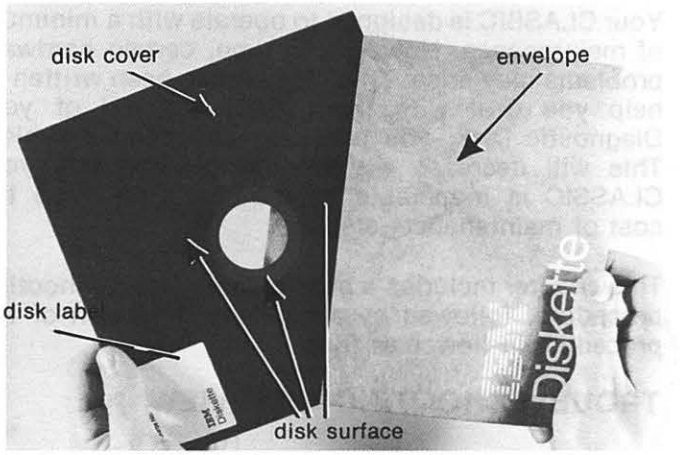


If not, press the upper part of the red ON/OFF button again. If the cursor still does not appear, turn to Step 40 (page 3-8).

(4) Remove other disks

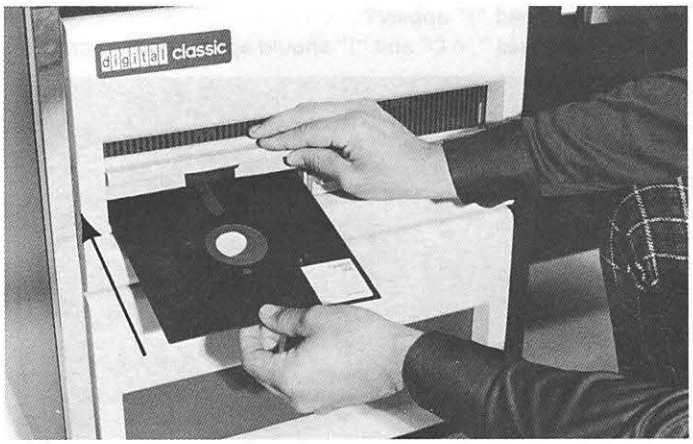
Remove any disks from Drive 0 (left) and Drive 1 (right) and replace them in their envelopes.





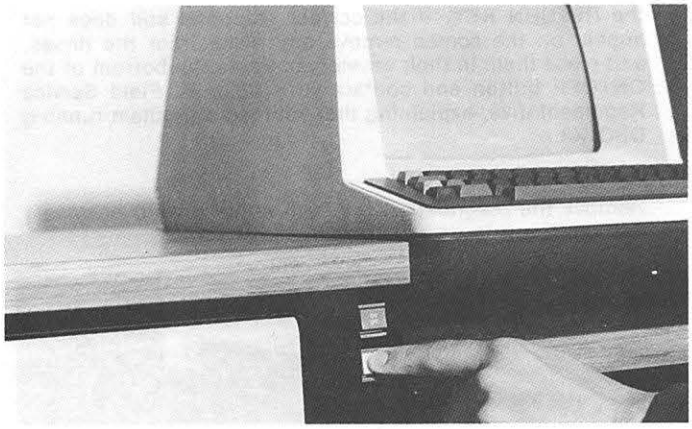
(5) Load Diagnostic Disk

Remove the Diagnostic Disk from its envelope and place it in Drive 0 (left).



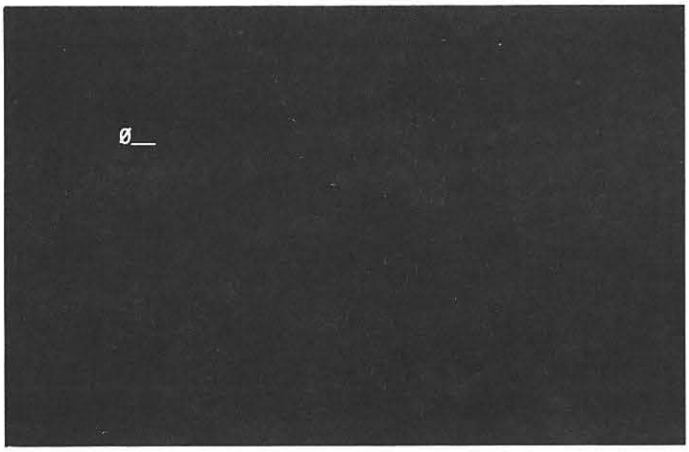
(6) Start system

To start your CLASSIC, press the white START button, located on the front of the desk.



(7) Does "0" appear?

To determine if communciation can take place between the VT-50 and the PDP-8A, note if a "0" appears on the screen.

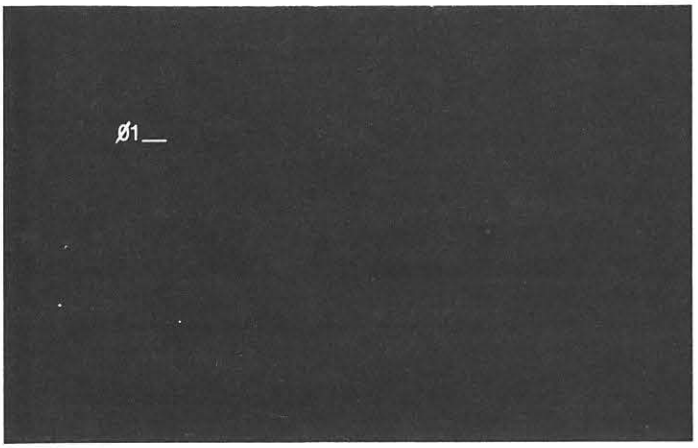


If a "0" does not appear, press the START button again. If "0" still does not appear, turn to step 60 found on page 3-12.

(8) Does "1" Appear?

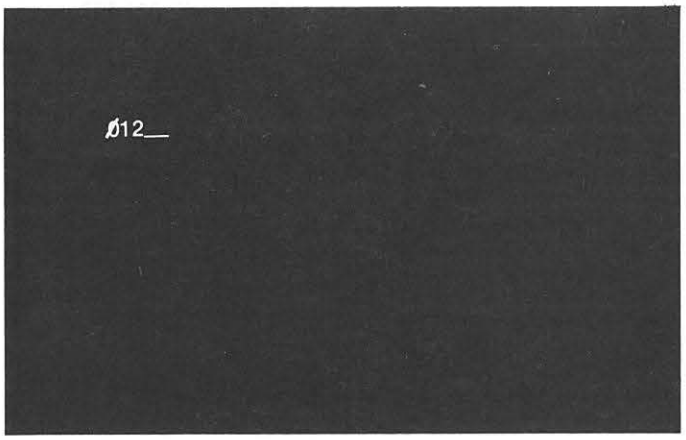
To determine if the PDP-8A is working note if a "1" appears on the screen.

If a "1" does not appear, most likely you have a problem with your PDP-8A. Remove any disks from the drives and place them in their envelopes. Press the bottom of the ON/OFF button and contact your DIGITAL Field Service Representative.



(9) Does "2" appear?

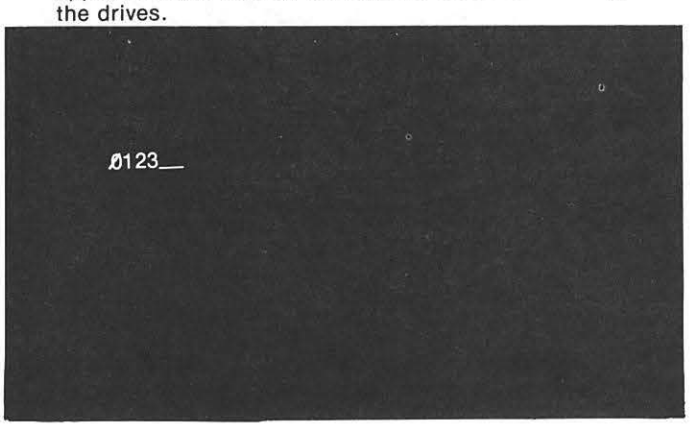
To determine if the memory is working note if a "2" appears on the screen.



If a "2" does not appear, most likely you have a problem with memory. Remove any disks from the drives and place them in their envelopes. Press the bottom of the ON/OFF button and contact your DIGITAL Field Service Representative.

(10) Does "3" appear?

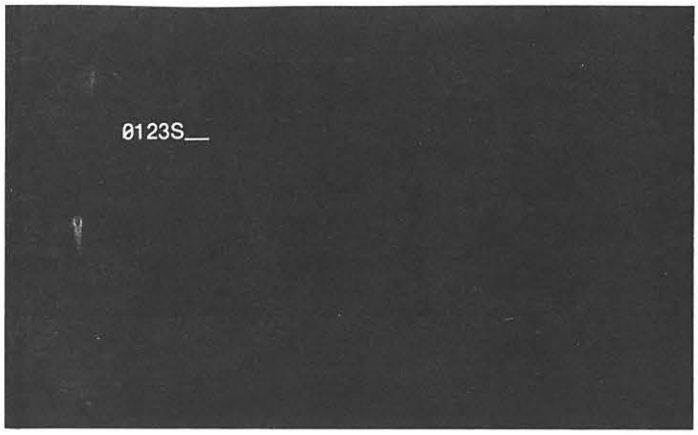
To determine if the disk drives are working, note if a "3" appears on the screen. You should also hear clicking from the drives.



If a "3" does not appear, turn to step 80 found on page 3-14.

(11) Load Diagnostic System monitor

To load the Diagnostic System monitor into memory, type "S".



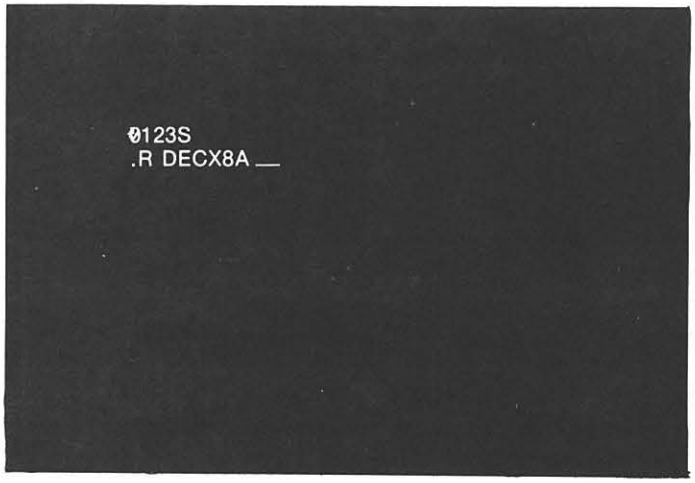
(12) Does dot (".") appear?

To determine if the system monitor was loaded from the disk, note if a "." appears on the screen.

If a "." does not appear, type another letter. If the dot still does not appear, turn to step 100 found on page 3-16.

(13) Call DEC/X8

To call DEC/X8, type "R DECX8A" and press the RETURN key.



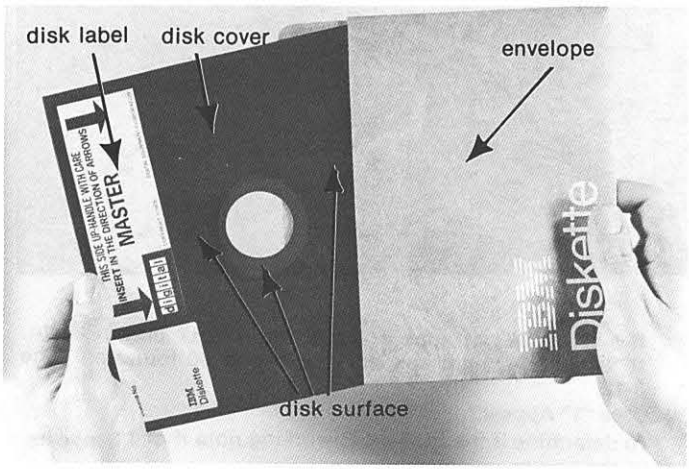
(14) Do ". Λ C" and "!" appear?

The responses ". Λ C" and "!" should appear on the screen.

If these do not appear, type "R DECX8A" again and press the RETURN KEY. If the correct response still does not appear on the screen remove any disks from the drives, and place them in their envelopes. Press the bottom of the ON/OFF button and contact your DIGITAL Field Service Representative, explaining that you had a problem running DEC/X8.

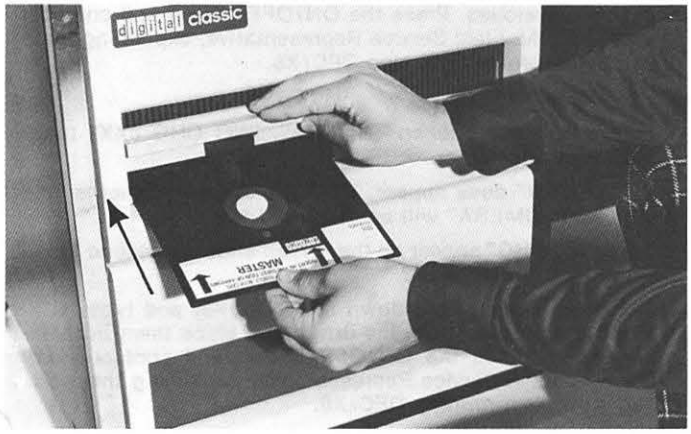
(15) Remove Diagnostic Disk

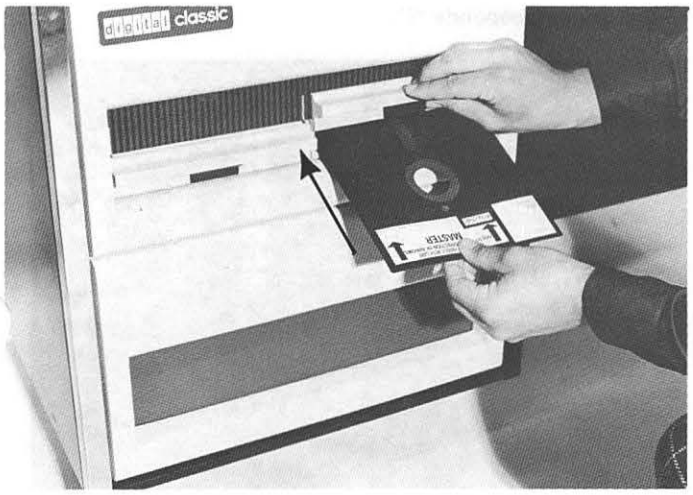
Remove the Diagnostic Disk from either drive 0 or drive 1 and replace it in its envelope.



(16) Load Blank Disks

Remove two blank disks from their envelopes. Load one disk into drive 0 and the other disk into drive 1.





(17) Start DEC/X8

Start DEC/X8 by typing "AR" and pressing the RETURN key.

(18) Does "!" appear?

An exclamation point ("!") should appear on the screen.

If "!" does not appear, type "AR" and press the RETURN key. If "!" still does not appear, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative explaining that you had a problem running DEC/X8.

(19) Run DEC/X8

To run DEC/X8, hold down the CTRL key and type "R".

(20) Does "TIMERA" appear?

The following response should appear on the screen:

"TIMERA-J01 FLD:0 ET: 0 00 00"

If it does not appear, hold down the CTRL key and type "R" again. If the correct response still does not appear, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative, explaining that you had a problem running DEC/X8.

(21) Status report

Immediately following "TIMERA", a "Status Report" should appear on the screen. The status report will look like this:

"Rotate 1663
DEC/X8

JOB	MODULE	MAINDEC	FLD	PRI	STATE	CNTR
01	TIMERA	DIDKA-D	0	00	R	7716
03	MRI08A	DIKAA-A	0	04	R	0141
12	FLOPPY	DARXA-A	1	01	R	3121
14	OPRATE	DIKAC-B	1	07	R	0110
21	RANMRI	DIKAB-A	2	05	R	1075
24	OPRATE	DIKAC-B	2	03	R	0113
32	FLOPPY	DHRXA-A	3	02	R	0574
33	NOTFUN	DIKAD-B	3	06	R	7162"

If a Status Report does not appear, hold down the CTRL key and type "C" to halt DEC/X8. Remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative, explaining that you had a problem running DEC/X8.

(22) Does an error message appear?

DEC/X8 is now running. If there are problems with your CLASSIC, an error message will appear on your screen.

There are two types of errors. A Status error should look like this:

"STAT ERR IN J32 MOD:FLOPPY FLD:1 CNTR:0171 RPC:0342 CODE:0014
SA:0200 SB:0070 SC:0000 SD:0103 SE:0017 SF:7756

A Data error should look like this:

"DATA ERR IN J03 MOD:MRI08A FLD:3 CNTR;1731 RPC:0025 CODE:0002
SA:0310 SB:5610 SC:0017 SD:1017 SE:2037 SF:7374
DA:5600 DB:1274 DC:0000
DA:5601 DB:3415 DC:0000
DA:5602 DB:0437 DC:0000
DA:5603 DB:3557 DC:0000
TALLY:0343

If an error message does appear, let the message finish. Then hold down the CTRL key and type "C", to halt DEC/X8. Now copy the error message. Turn to step 120, found on page 3-17.

(23) Does "TIMERA" appear?

After about 15 minutes, several status reports will be displayed. Then a response will appear on the screen looking like this:

```
JOB   MODULE   MAINDEC   FLD   PRI   STATE CNTR
01    TIMERA   DIDKA-D   3     00    R     7716
03    MRI08A   DIKAA-A   0     04    R     0141
12    FLOPPY   DHRXA-A   0     01    R     3121
14    OPRATE   DIKAC-B   3     07    R     0110
21    RANMRI   DIKAB-A   1     05    R     0010
24    OPRATE   DIKAC-B   0     03    R     0271
32    FLOPPY   DHRXA-A   2     02    R     0113
33    NOTFUN   DIKAD-B   3     06    R     7162

TIMERA-J01 FLD 3 ET:0 00 15__
```

"TIMERA-J01 FLD:0 ET:0 00 15"

If "TIMERA" does not appear, hold down the CTRL key and type "C". Remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative, explaining that you had a problem running DEC/X8.

(24) Does "NO CHG" appear?

Following the response "TIMERA", "NO CHG JXX" may appear on the screen.

If "NO CHG" does appear, let DEC/X8 run for another 15 minutes. "TIMERA" will be displayed again.

Does "NO CHG" appear on the screen after the second time "TIMERA" is displayed?

If it does appear, hold down the CTRL key and type "C". Remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative, explaining that you had a problem running DEC/X8.

(25) Stop DEC/X8

To stop DEC/X8, hold down the CTRL key, type "C" until the system responds "!".

```
03    MRI08A   DIKAA-A   0     04    R     0141
12    FLOPPY   DHRXA-A   0     01    R     3121
14    OPRATE   DIKAC-B   3     07    R     0110
21    RANMRI   DIKAB-A   1     05    R     0010
24    OPRATE   DIKAC-B   0     03    R     0271
32    FLOPPY   DHRXA-A   2     02    R     0113
33    NOTFUN   DIKAD-B   3     06    R     7162

TIMERA-J01 FLD 3 ET:0 00 15
^C
!__
```

(26) Examine Status Report

Examine the latest Status Report.

```
ROTATE 4712

DEC/X8                                   state column
                                              ▼
JOB   MODULE   MAINDEC   FLD   PRI   STATE CNTR
01    TIMERA   DIDKA-D   3     00    R     7716
03    MRI08A   DIKAA-A   0     04    R     0141
12    FLOPPY   DHRXA-A   0     01    R     3121
14    OPRATE   DIKAC-B   3     07    R     0110
21    RANMRI   DIKAB-A   1     05    R     0010
24    OPRATE   DIKAC-B   0     03    R     0271
32    FLOPPY   DHRXA-A   2     02    R     0113
33    NOTFUN   DIKAD-B   3     06    R     7162
                                              ▲
                                         CNTR column
```

The "STATE" column should not contain any K's. It should contain only R's. The "R" indicates the module or job was ready to be run. A "K" indicates the job was not ready to be run. The "CNTR" column should contain only non-zero numbers, indicating that module or job has run at least once.

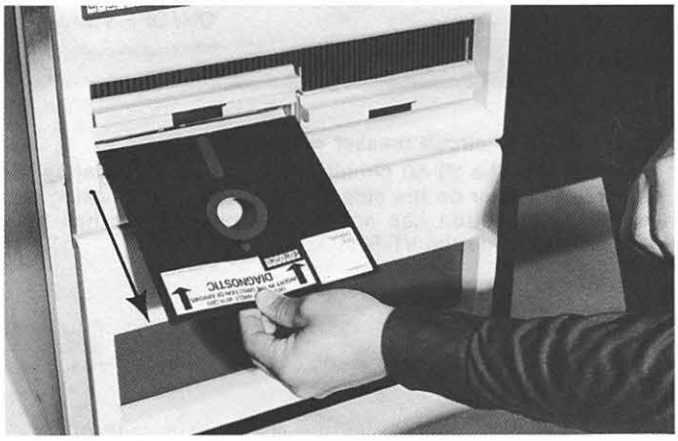
(27) Did all the jobs run?

Did the "STATE" column contain all R's and did the "CNTR" column contain all non-zero numbers?

If all of the jobs did not run, go back and repeat steps 18-28 of this procedure. If all the jobs still do not run, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative, explaining that you had a problem running DEC/X8.

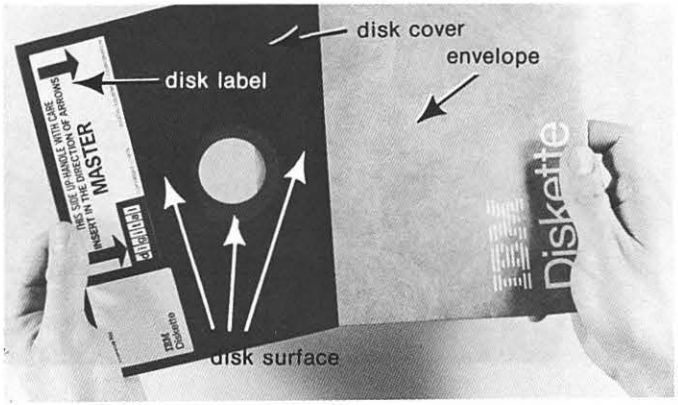
(28) Remove blank disks

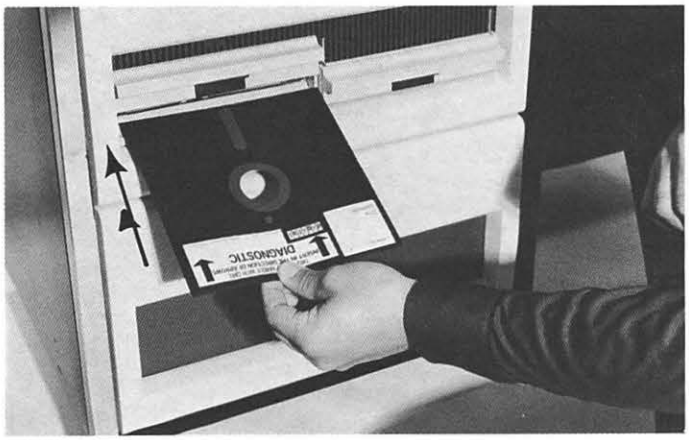
Remove the blank disks from drive 0 and drive 1. Then replace them in their envelopes.



(29) Load BASIC System Disk

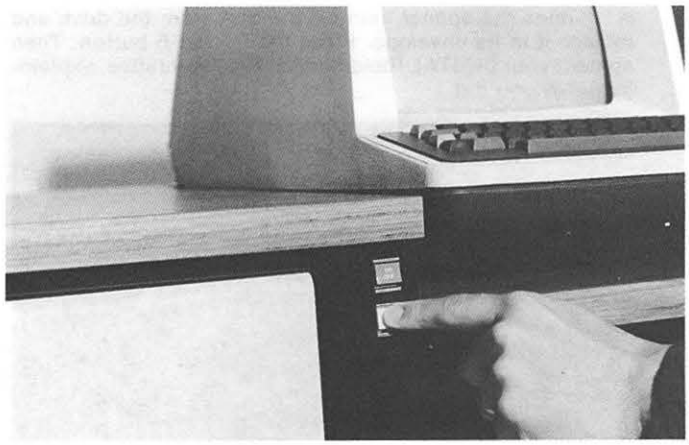
Take the BASIC System disk out of its envelope and load it into drive 0.





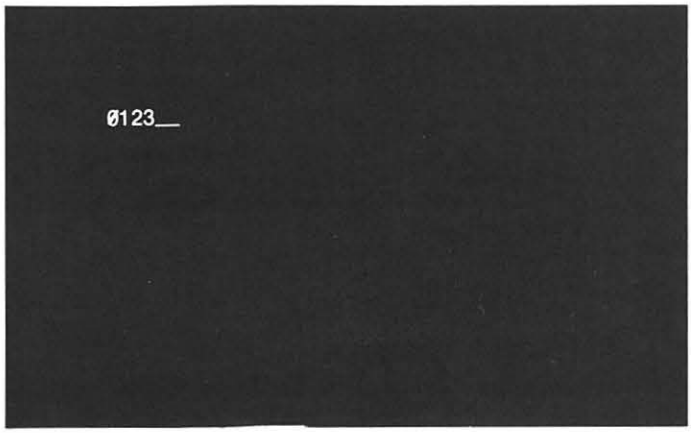
(30) Start system

To start the system press the white START button.



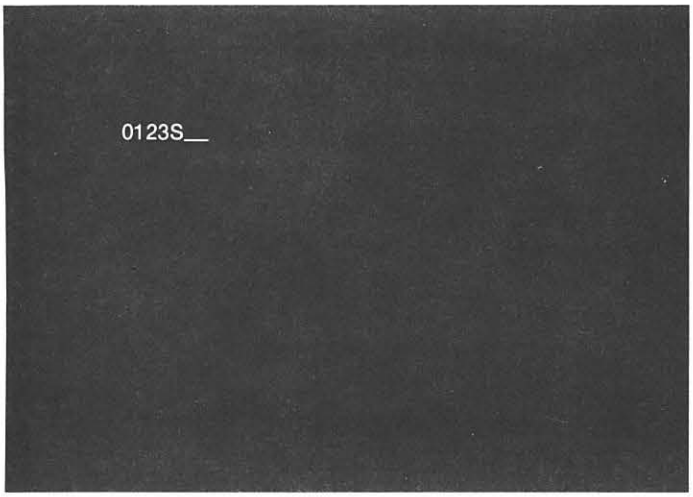
(31) Does "0123" appear?

If "0123" does not appear, remove the disk from the drive and replace it in its envelope. Press the ON/OFF button. Then contact your DIGITAL Field Service Representative, explaining what you did.



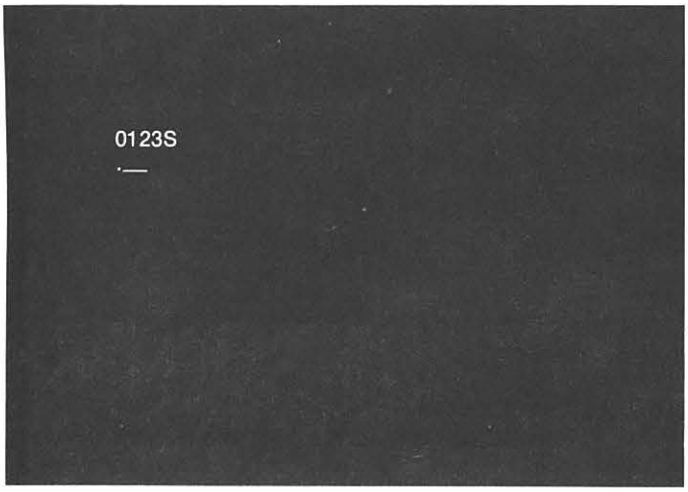
(32) Load monitor

To load the monitor, type "S".



(33) Does "." appear?

If "." does not appear, remove the disk from the drive and replace it in its envelope. Press the ON/OFF button. Then contact your DIGITAL Field Service Representative, explaining what you did.



(34) Resume operation

You have successfully run DEC/X8, indicating your system hardware is fully operable. Now you can resume whatever you were doing before you noted the trouble.

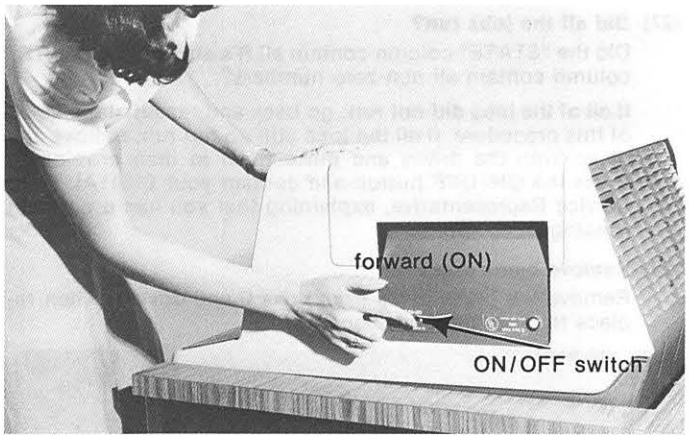
If you still have a problem, remove any disks from the drives and replace them in their envelopes. Press the ON/OFF button. Then contact your DIGITAL Field Service Representative explaining what you did.

CLASSIC POWER TROUBLE

You have entered this section because the cursor did not appear on the screen when you pressed the ON/OFF button.

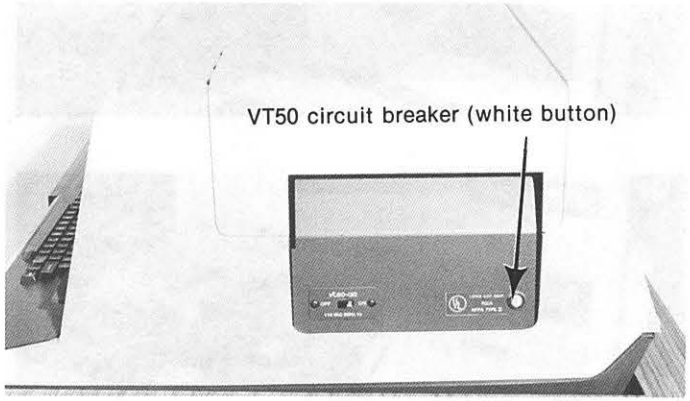
(40) Is the VT-50 on?

Make sure the VT-50 is on by locating the ON/OFF switch on the side of the VT-50 and checking that the switch is moved forward into the ON position.



(41) Is the VT-50 circuit breaker set?

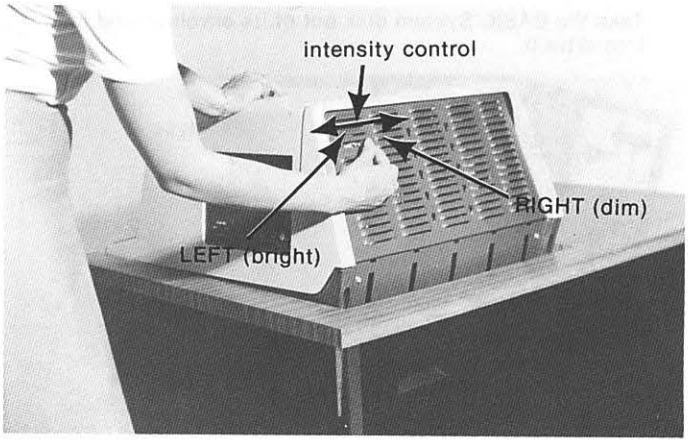
Make sure the VT-50 circuit breaker is set by locating the circuit breaker on the side of the VT-50 and checking that the white button has not popped outside but has been pressed inside the VT-50.



If the button pops out again, press the ON/OFF button. Contact your DIGITAL Field Service Representative and explain that you had electrical problems with your VT-50.

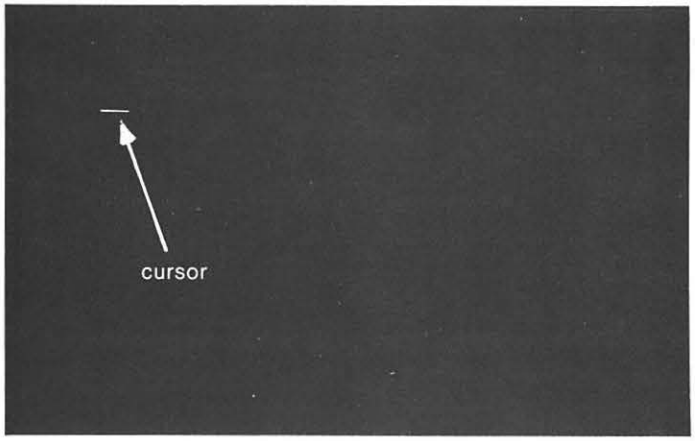
(42) Is the VT-50 cursor intensity adjusted?

It may be that the cursor is not visible due to intensity setting. Locate the intensity control found on the rear of the VT-50. Standing behind the VT-50, move the lever to the left to make it brighter.



(43) Does "_" appear?

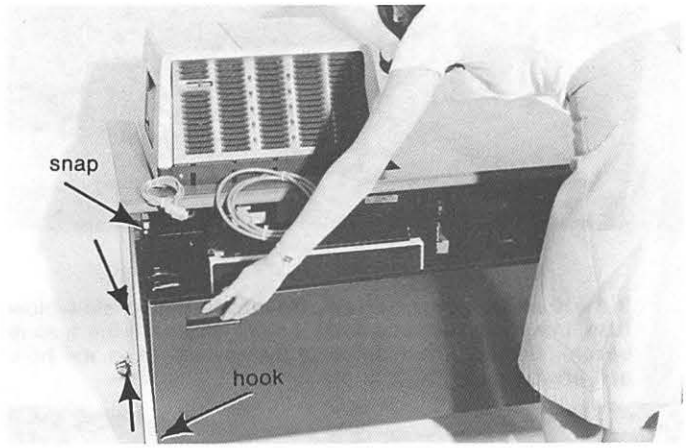
Now, does the cursor appear on the upper left-hand corner of the screen? **If "_" does appear,** return to Step 4.

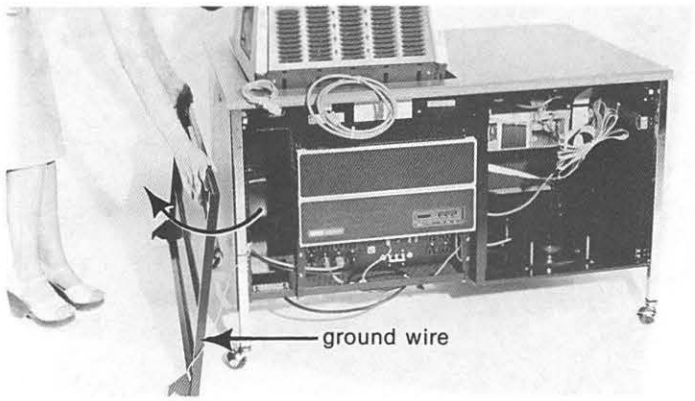


(44) Remove back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

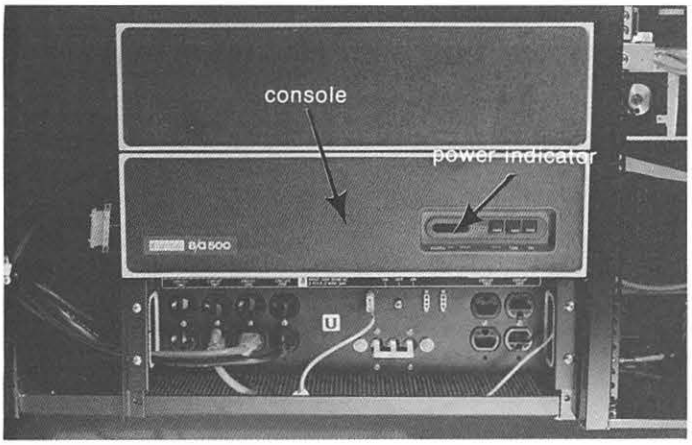
Holding the back panel by its two handles, pull away from the desk to unsnap the top of the panel from the desk. Lift the panel to unhook it from the bottom of the desk. Now, swing the back panel around to the left side of the desk and lean it against the desk.





(45) If the PDP-8A power indicator on?

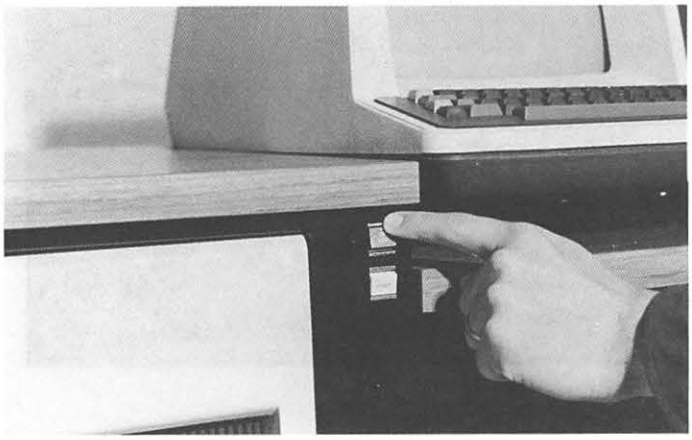
Determine if the PDP-8A has power by locating the PDP-8A indicator and noting if it is lit.



If it is lit, most likely you have a VT-50 problem. Remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your DIGITAL Field Service Representative.

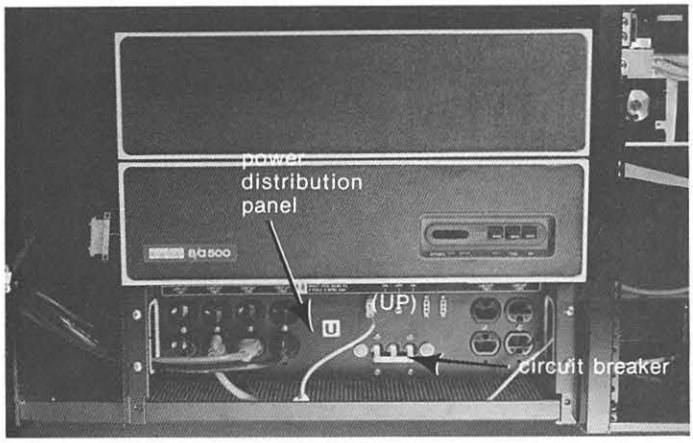
(46) Turn power off

To turn power off, press the red ON/OFF button located on the front of the desk.



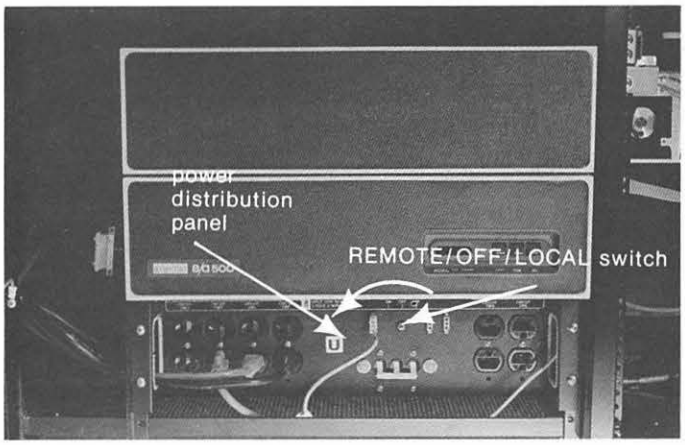
(47) Is the H861 circuit breaker set?

Locate the circuit breaker on the H861 power distribution panel, and make sure that it is set (upward).



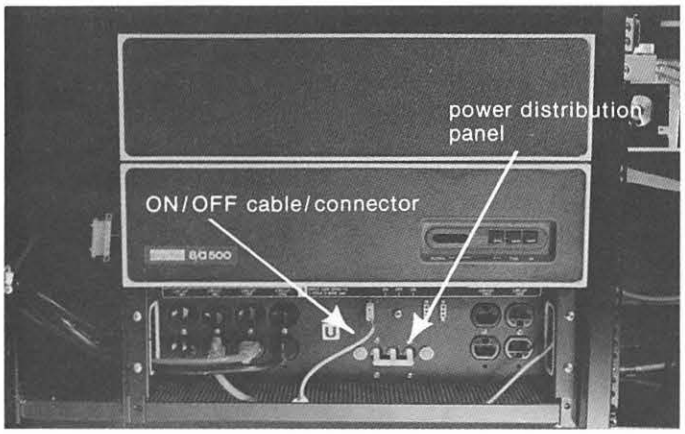
(48) Is the H861 switch in remote?

Make certain the H861 remote/off/local switch is in remote, by locating that switch on the power distribution panel and making sure that it is in the remote positon (left).



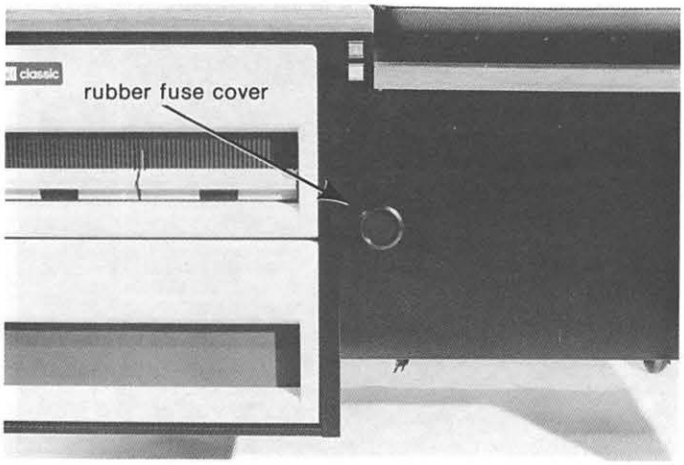
(49) Is the ON/OFF cable connected?

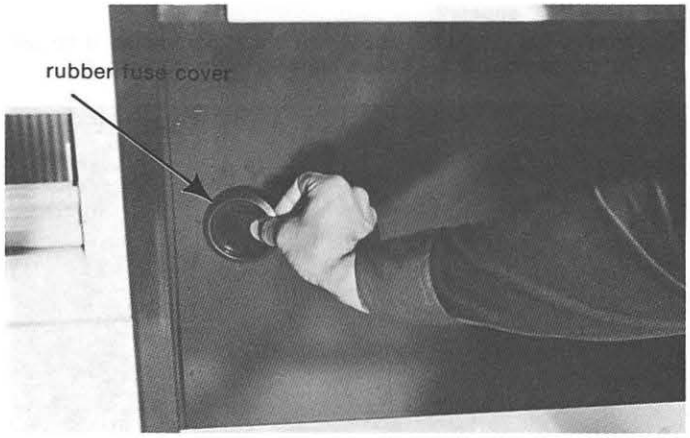
Locate the ON/OFF switch cable on the H861 power distribution panel and make certain that cable is connected.



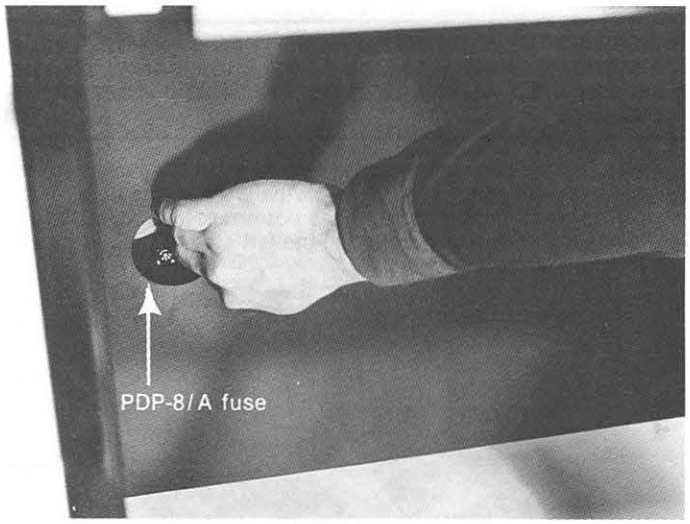
(50) Is the PDP-8A fuse blown?

Locate the rubber fuse cover, in the kneewell portion of the desk. Remove the fuse cover by grasping the edge and separating it from the desk.

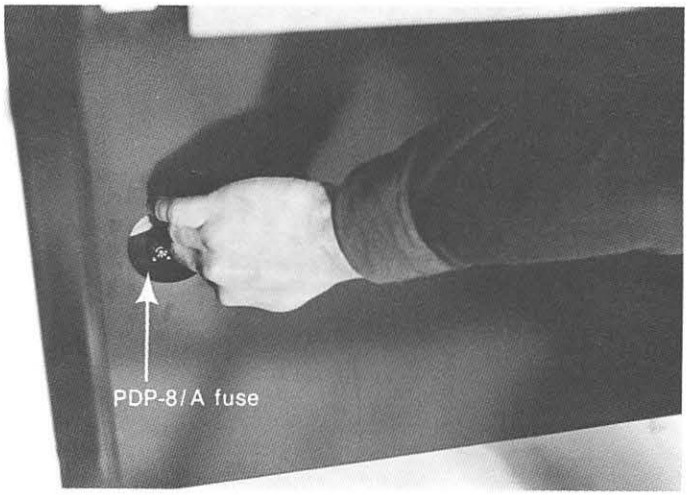


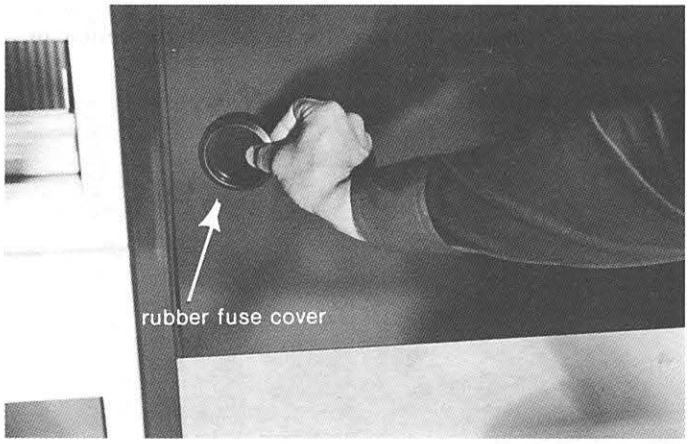


Locate the fuse inside the hole and twist it counter-clockwise to remove it. Examine the fuse to see if it is blown by noting if the filament is broken.



If the fuse is blown, replace it with an 8-amp slow-blow fuse. Insert the fuse and twist it clockwise until the fuse is secure. Replace the fuse cover by inserting it in the hole and pressing to lock it in place.



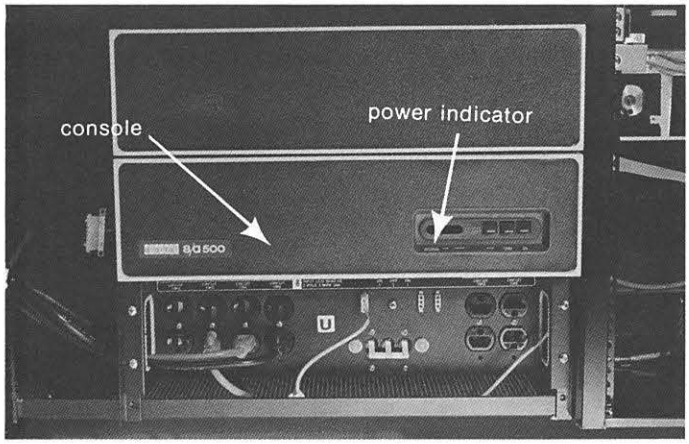


(51) Turn power on

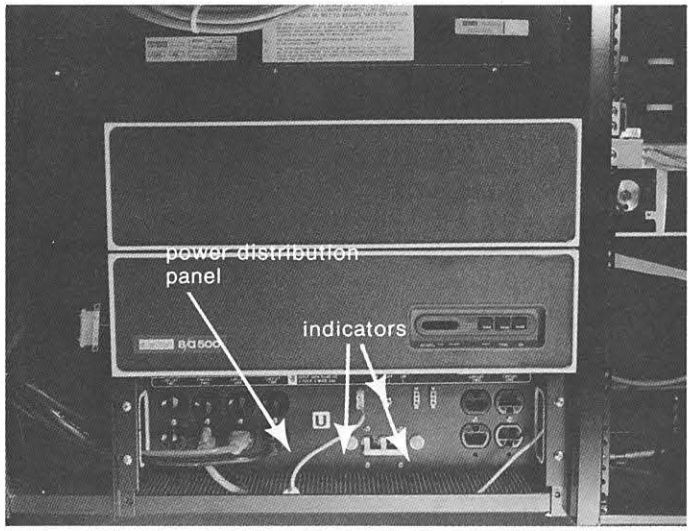
To turn power on, press the red ON/OFF button located on the front of the desk.

(52) Is the PDP-8A power indicator on?

Determine if the PDP-8A has power by locating the PDP-8A power indicator and noting if it is lit.



If the light is not on, determine if the H861 power control panel has power by locating its indicators and noting if they are lit.



If the indicators are not lit, most likely you have a H861 problem.

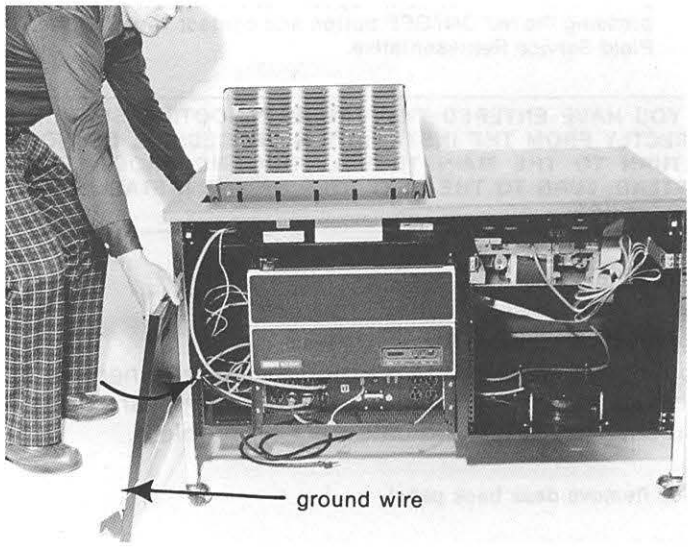
If the indicators are lit, most likely you have a PDP-8A problem.

In either case, replace the back panel (see Step 53), remove any disks from the drives, and place them in their envelopes. Turn the power off by pressing the red ON/OFF button and contact your DIGITAL Field Service Representative.

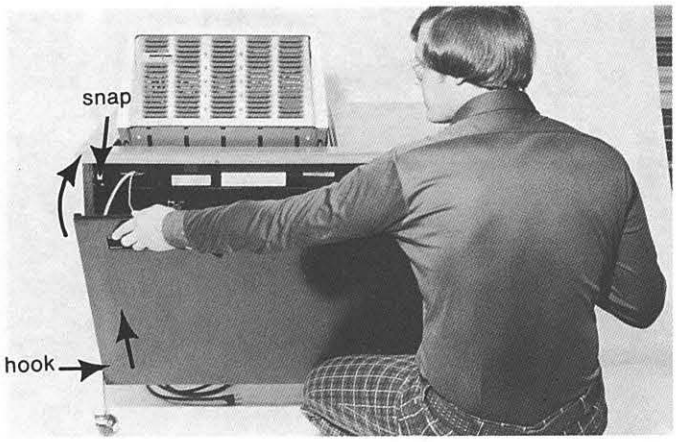
(53) Replace desk back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Swing the back panel around to the back of the desk.

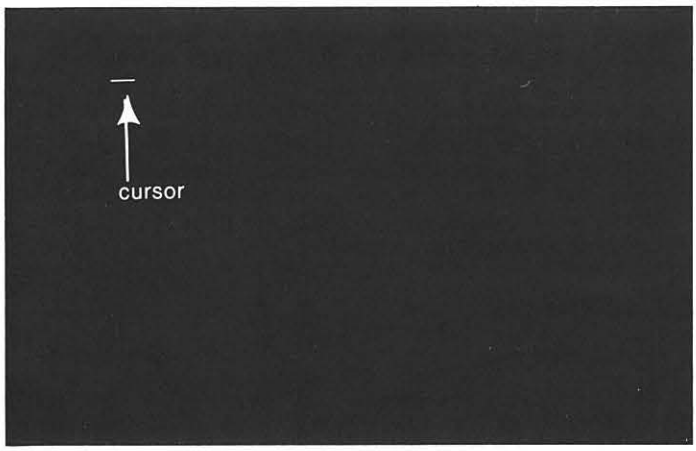


Holding the back panel by its two handles, lift the panel and hook it at the bottom of the desk. Then push the panel towards the desk to snap the panel at the top of the desk.



(54) Does "_" appear?

Does the cursor appear in the upper left-hand corner of the screen?



If "_" does not appear, most likely you have a problem with your VT-50. Remove any disks from the drives and place them in their envelopes. Turn the power off by pressing the red ON/OFF button and contact your DIGITAL Field Service Representative.

IF YOU HAVE ENTERED THIS TROUBLESHOOTING SECTION DIRECTLY FROM THE INSTALLATION PROCEDURE, DO NOT RETURN TO THE MAIN TROUBLESHOOTING PROCEDURE. INSTEAD, TURN TO THE NEXT STEP OF THE INSTALLATION PROCEDURE.

(55) Turn to Step 4.

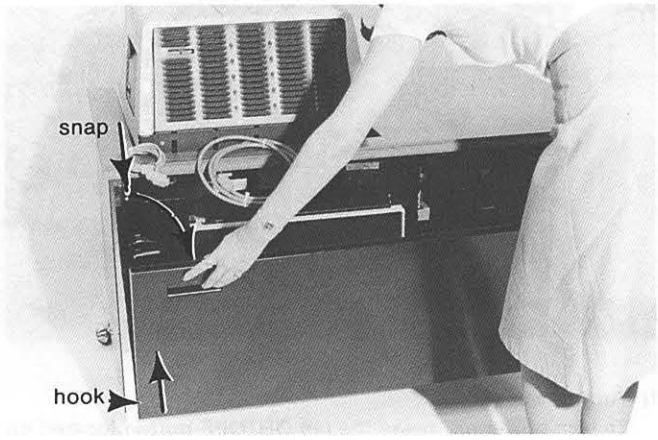
CLASSIC OPERATING TROUBLE

You have entered this section because when you pressed the start button, a "0" did not appear on the screen. This might indicate a VT-50 problem.

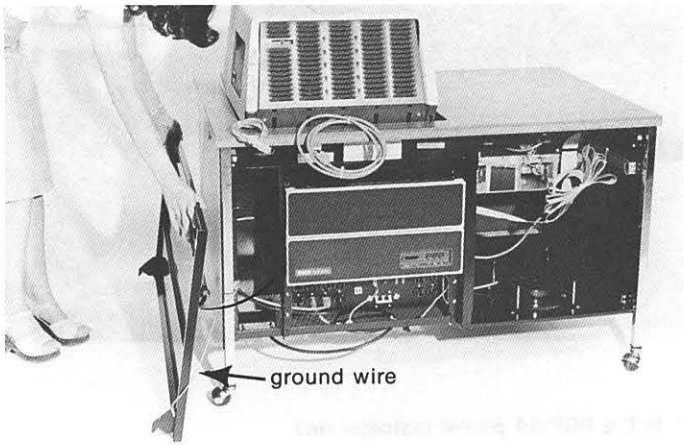
(60) Remove desk back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Holding the back panel by its two handles, pull away from the desk to unsnap the top of the panel from the bottom of the desk.

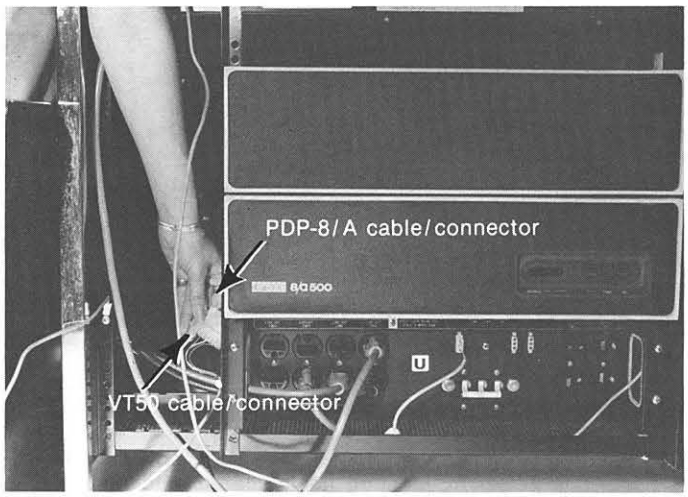


Now swing the back panel around to the left side of the desk and lean it against the desk.



(61) Make sure VT-50 cable is connected

Locate the VT-50 cable found at the back of the desk. Make certain that the connector is snapped securely to its mate (the PDP-8A cable and connector).



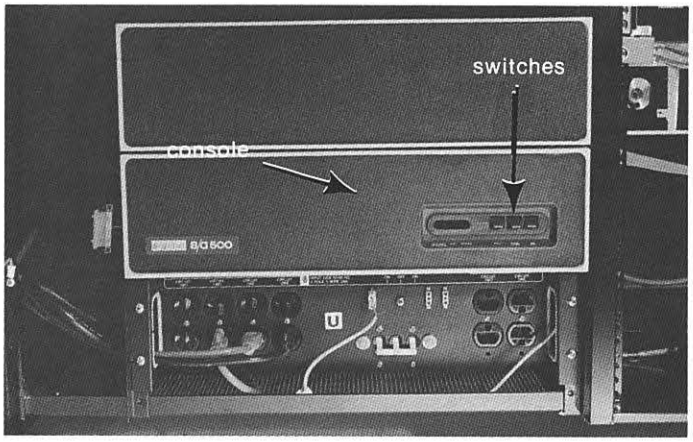
(62) Make sure the PDP-8 switches are set

Make certain that the PDP-8A switches located on the console are set, as follows:

a) Boot is off (down)

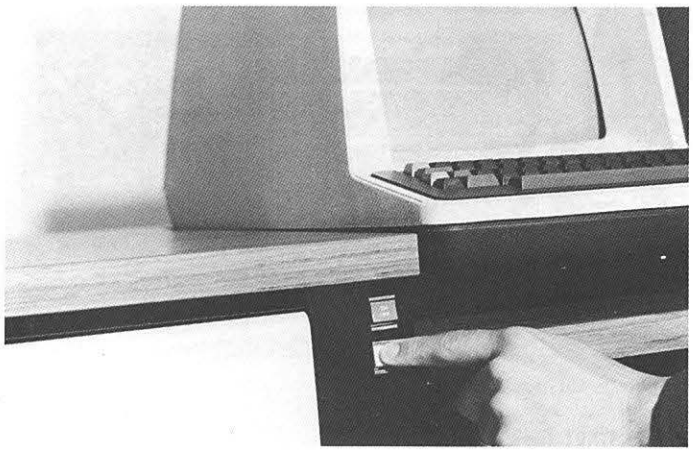
b) Panel lock is off (down)

c) ON/OFF is on (up)



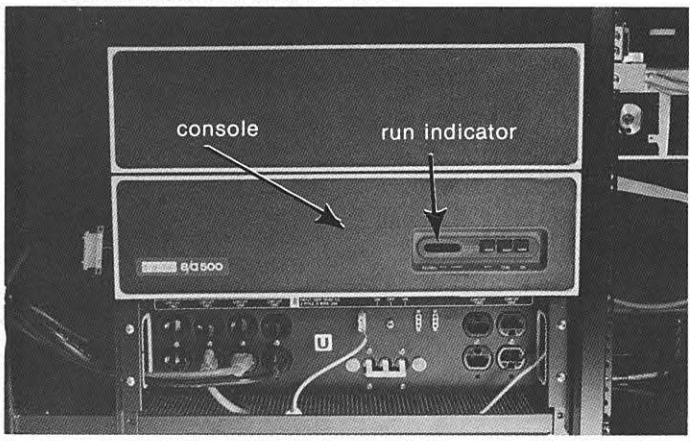
(63) Start system

To start the system, press the white start button, located on the front of the desk.



(64) Is the PDP-8A run indicator on?

To determine if the PDP-8A has started, locate the PDP-8A run indicator and note if it is lit.

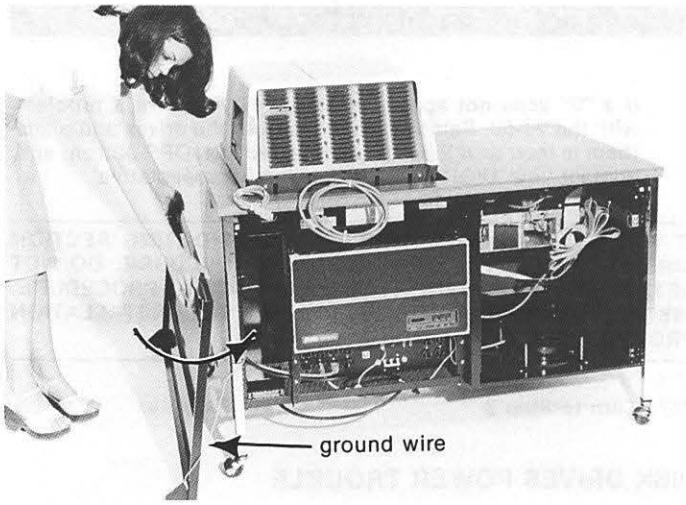


If the run indicator is not on, most likely you have a problem with your PDP-8A. Replace the desk back panel (see Step 65). Remove any disks from the drives and replace them in their envelopes. Press the red ON/OFF button and contact your DIGITAL Field Service Representative.

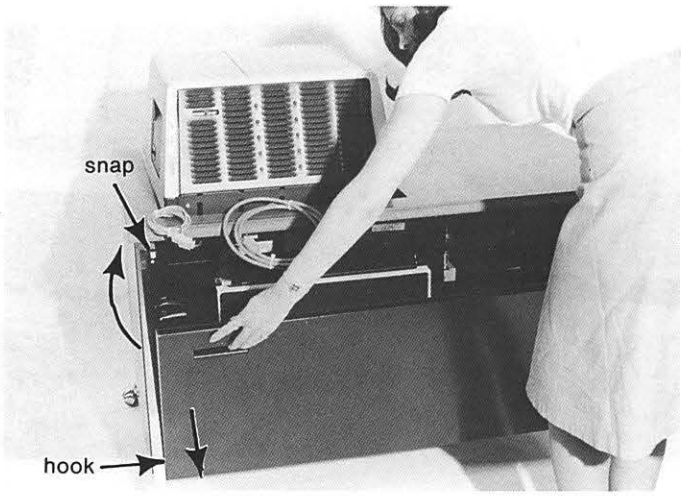
(65) Replace desk back panel

DO NOT LIFT UP THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Swing the back panel around to the back of the desk.

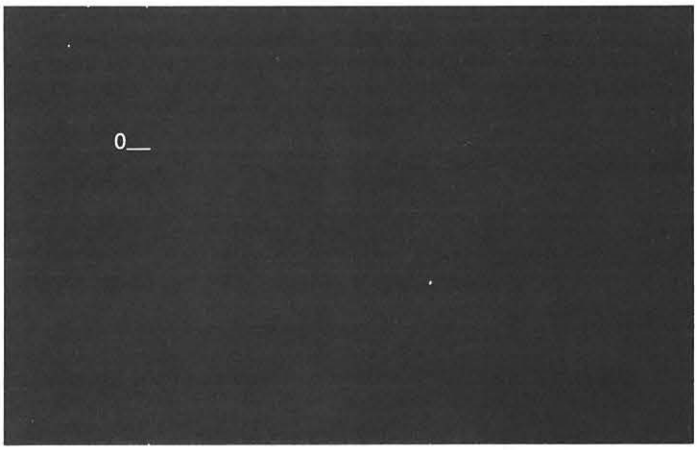


Holding the back panel by its two handles, lift the panel and hook it at the bottom of the desk. Then push the panel towards the desk to snap the panel at the top.



(66) Does "0" appear?

To determine if communication can take place between the VT-50 and the PDP-8A, note if a "0" appears on the screen.



If a "0" does not appear, most likely you have a problem with the VT-50. Remove any disks from the drives and place them in their envelopes. Press the red ON/OFF button, and contact your DIGITAL Field Service Representative.

IF YOU HAVE ENTERED THIS TROUBLESHOOTING SECTION DIRECTLY FROM THE INSTALLATION PROCEDURE, DO NOT RETURN TO THE MAIN TROUBLESHOOTING PROCEDURE. INSTEAD, TURN TO THE NEXT STEP OF THE INSTALLATION PROCEDURE.

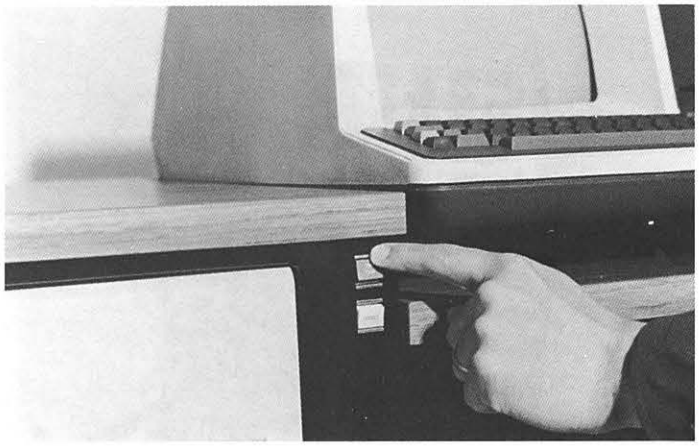
(67) Turn to Step 8

DISK DRIVES POWER TROUBLE

You have entered this section because when you pressed the start button, the "012" appeared, but not the "3". This might indicate an RX01 problem.

(80) Turn off system

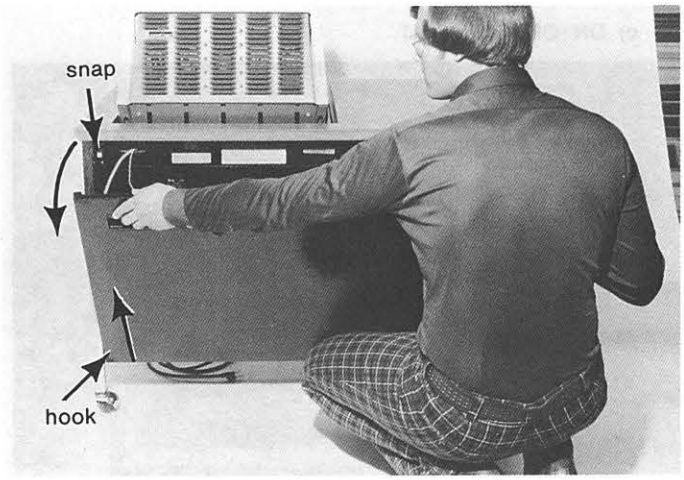
Press the lower part of the red ON/OFF button, located on the front of the desk.

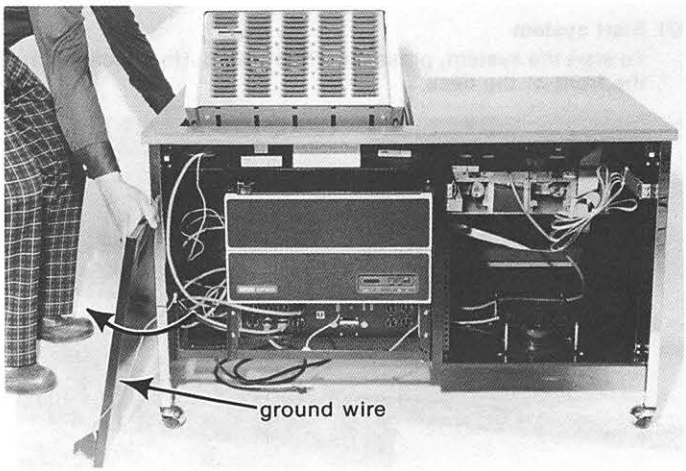


(81) Remove back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

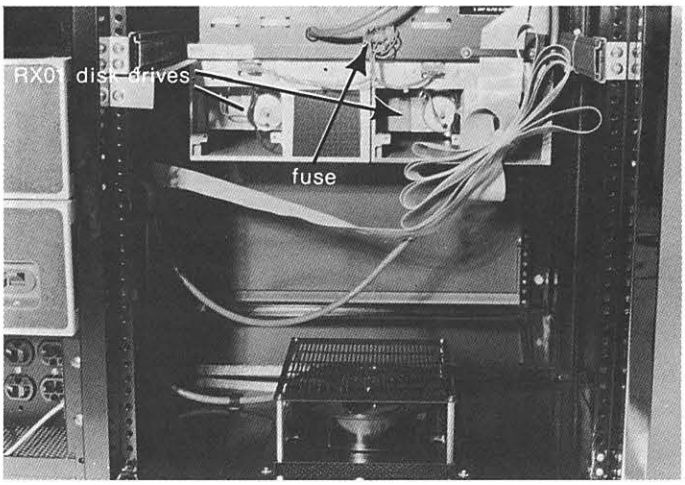
Holding the back panel by its two handles, pull away from the desk to unsnap the top of the panel from the desk. Then lift the panel to unhook it from the bottom of the desk. Now, swing the back panel around to the left side of the desk and lean it against the desk.

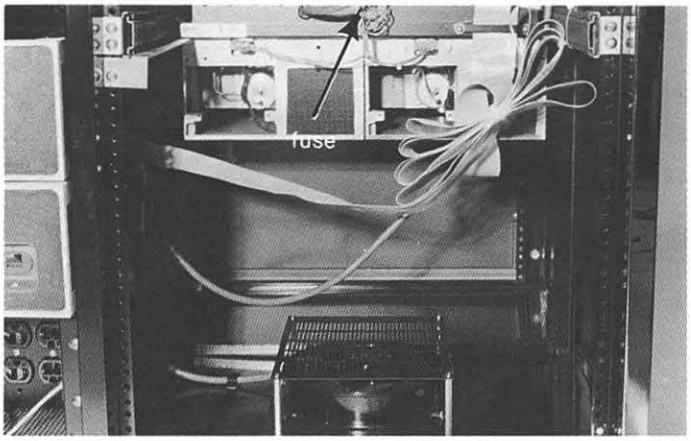




(82) Is RX01 fuse blown?

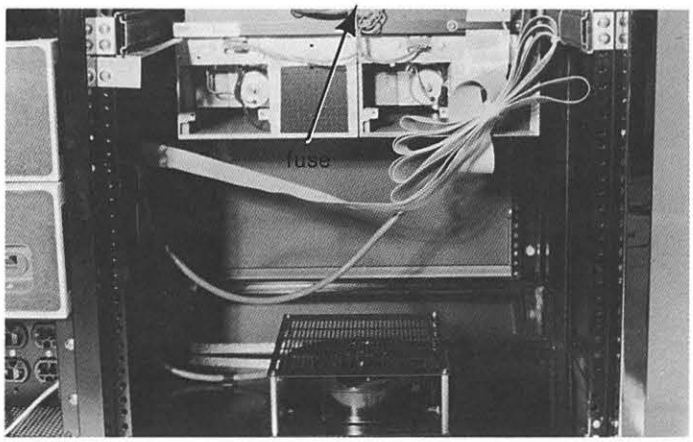
To determine if the fuse for the RX01 is blown, locate the fuse in the back of the desk. Then twist it counterclockwise until the fuse comes out and examine the fuse to see if it is blown; that is, if the filament is broken.





If the fuse is blown, replace it with a 2-amp slow-blow fuse.

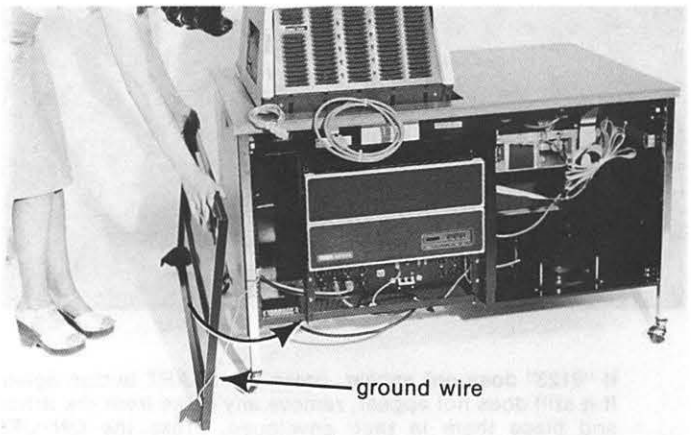
Insert the fuse and twist it clockwise until the fuse is secure.



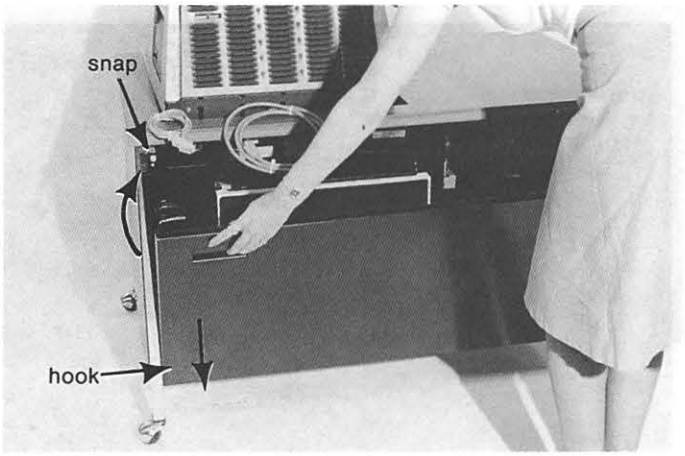
(83) Replace back panel

DO NOT LIFT THE BACK PANEL MORE THAN 6 INCHES. THERE IS A GROUND WIRE ATTACHING THE BACK PANEL TO THE DESK, LOCATED AT THE BOTTOM LEFT-HAND CORNER OF THE PANEL.

Swing the back panel around to the back of the desk.

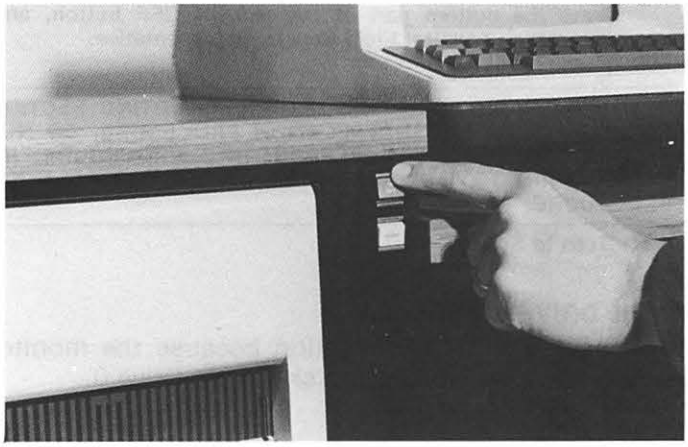


Holding the back panel by its two handles, lift the panel and hook it at the bottom of the desk. Then push the panel towards the desk to snap the panel at the top of the desk.



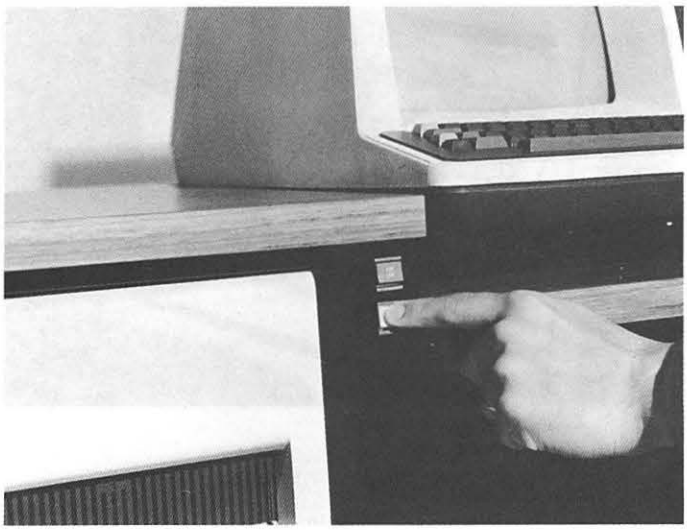
(84) Turn on system

Press the upper part of the red ON/OFF button, located on the front of the desk.



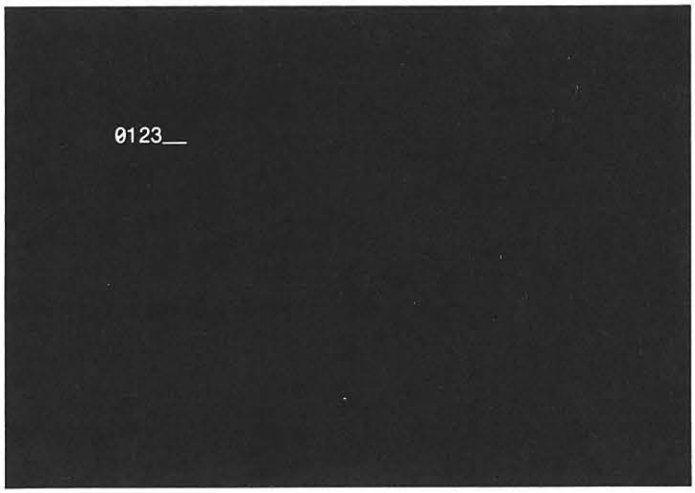
(85) Start system

Press the white START button, located on the front of the desk.



(86) Now, does "0123" appear?

To determine if the RX01 is working, does "0123" appear on the screen?



If "0123" does not appear, most likely you have a problem with your RX01. Remove any disks from the drives and place them in their envelopes.

Press the bottom part of the red ON/OFF button, and contact your Digital Field Service Representative.

IF YOU HAVE ENTERED THIS TROUBLESHOOTING SECTION DIRECTLY FROM THE INSTALLATION PROCEDURE, DO NOT RETURN THE MAIN TROUBLESHOOTING PROCEDURE. INSTEAD, TURN TO THE NEXT STEP OF THE INSTALLATION PROCEDURE.

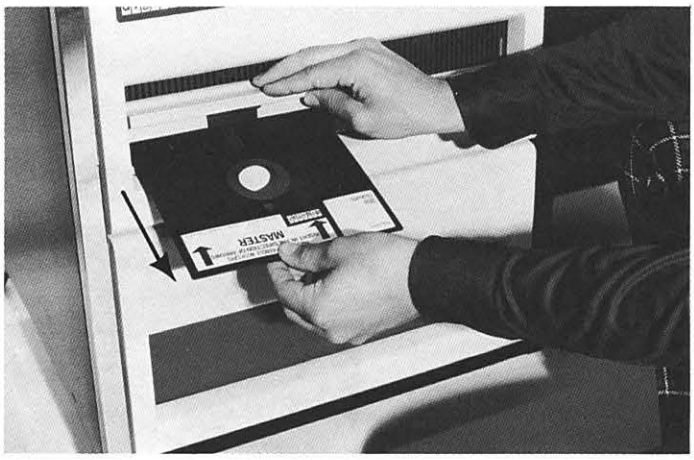
(87) Turn to Step 11

DISK DRIVE 0 TROUBLE

You have entered this section because the monitor would not load while the disk was in Drive 0.

(100) Remove disk from Drive 0

Remove the Diagnostic Disk from Drive 0 (left).

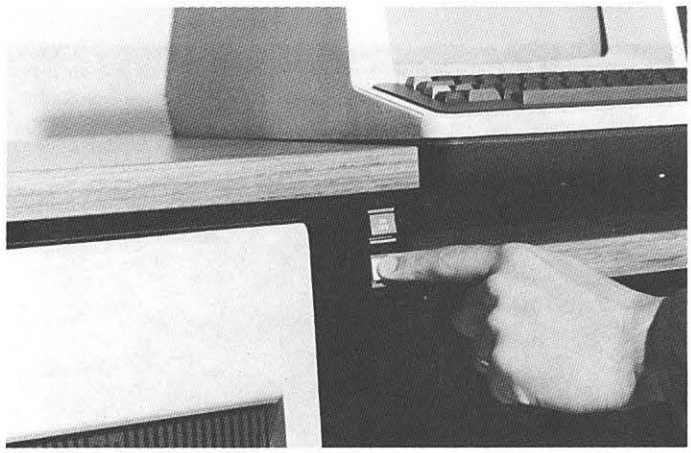


(101) Place disk into Drive 1

Place the Diagnostic Disk in Drive 1 (right).

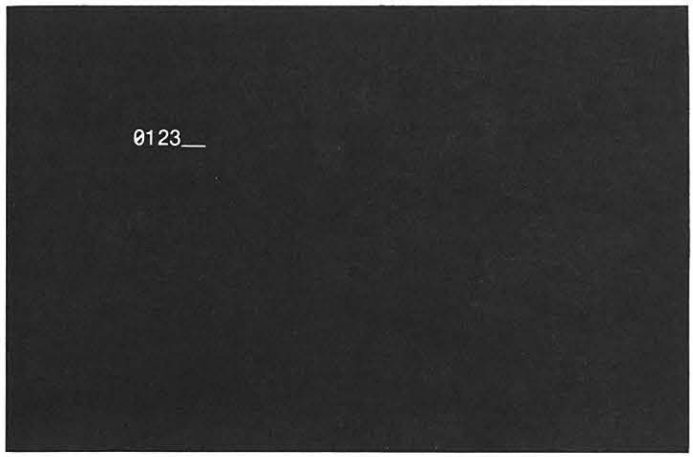
(102) Start system

Press the white START button located on the front of the desk.



(103) Does "0123" appear?

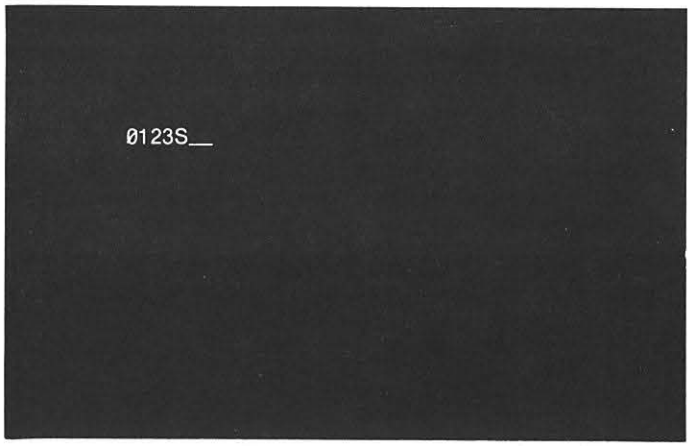
Determine if your system is working by noting if "0123" appears on the screen.



If "0123" does not appear, press the START button again. If it still does not appear, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining what you did.

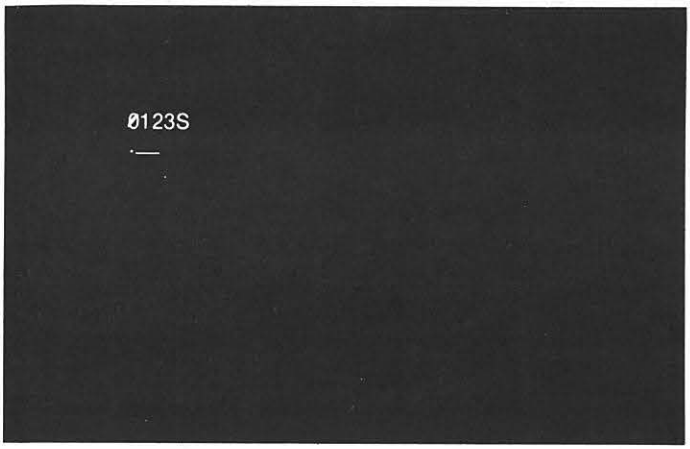
(104) Load system monitor

To load the system monitor, type "S".



(105) Does "." appear?

To determine if the system monitor was loaded from the disk, note if a dot appears on the screen.



If a dot does not appear, most likely there is a problem with the disk drives (RX01). Remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining what you did.

(106) Remember that Drive 0 is bad

Now, continue to troubleshoot your system remembering that disk Drive 0 has a problem.

IF YOU HAVE ENTERED THIS TROUBLESHOOTING SECTION DIRECTLY FROM THE INSTALLATION PROCEDURE, DO NOT RETURN TO THE MAIN TROUBLESHOOTING PROCEDURE. INSTEAD, THEN TO THE NEXT STEP OF THE INSTALLATION PROCEDURE.

---

(107) Turn to Step 13

RUNNING A SINGLE DEC/X8 JOB

You are in this section because while running DEC/X8 an error message appeared. Now you will run just the job that failed.

(120) Examine the Error Message

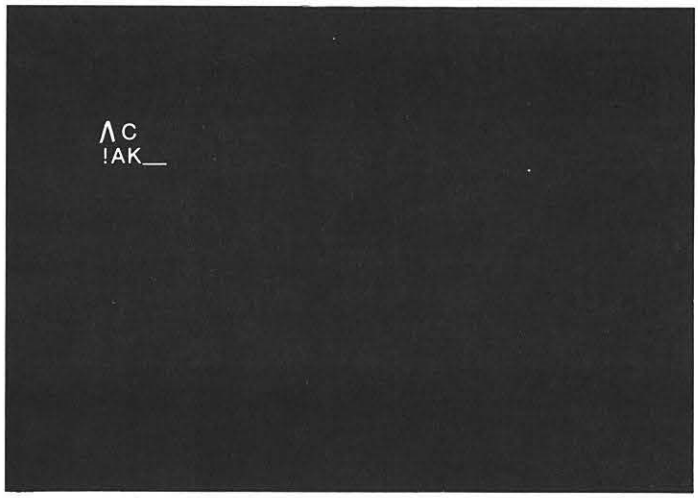
Examine the error message, to determine which job had the error.

"STAT ERR IN J32 MOD:FLOPPY FLD:1 ENTR:0171 RPC:0347 CODE:0004 SA:0200 SB:0070 SC:0100 SD:0101 SE:0017 SF:7765"

JOB

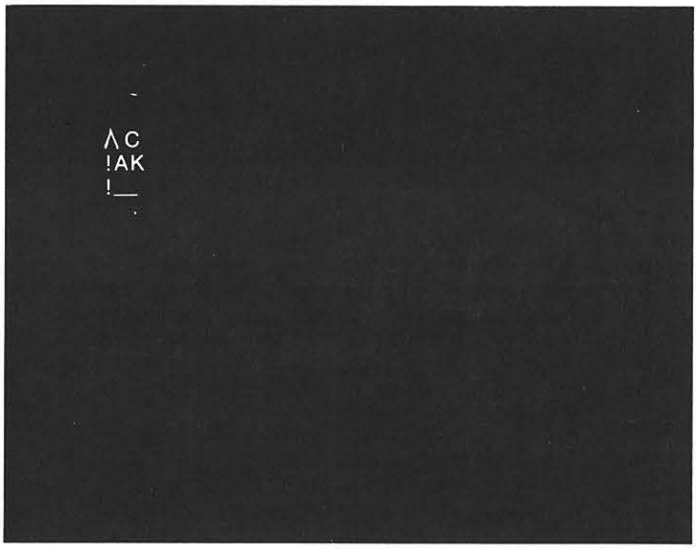
(121) Kill jobs

First, stop all unnecessary DEC/X8 jobs from running by typing "AK" and pressing the RETURN key.



(122) Does "!" appear?

The correct response "!" should appear on the screen.



If "!" does not appear, type "AK" and press the RETURN key again. If "!" still does not appear, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you had problems running a single job of DEC/X8.

(123) Run DEC/X8

To run DEC/X8, hold down the CTRL key and type "R". The system will display "^R".

```
^C
!AK
!^R_
```

(124) Status Report

Immediately following "^ R", a status report will appear on the screen.

(125) Stop DEC/X8

Upon the completion of that status report, hold down the CTRL key and type "C". The system will respond with "!".

```
JOB  MODULE   MAINDEC   FLD  PRI   STATE CNTR
01   TIMERA   DIDKA-D   3    00    R     7716
03   MRI08A   DIKAA-A   0    04    K     0141
12   FLOPPY   DHRXA-A   0    01    K     3121
14   OPRATE   DIKAC-B   3    07    K     0110
21   RANMRI   DIKAB-A   1    05    K     0010
24   OPRATE   DIKAC-B   0    03    K     0271
32   FLOPPY   DHRXA-A   2    02    K     0113
33   NOTFUN   DIKAD-B   3    06    K     7162

^C
!_
```

(126) Were jobs killed?

Examine the "STATE" column of the status report. All the jobs should have the KILL status, indicated by a "K", except J01 which should contain an "R". This job can not be killed.

```
ROTATE 4712

DEC/X8                                   state column
                                                ↓
JOB  MODULE   MAINDEC   FLD  PRI   STATE CNTR
01   TIMERA   DIDKA-D   3    00    R     7716
03   MRI08A   DIKAA-A   0    04    K     0141
12   FLOPPY   DHRXA-A   0    01    K     3121
14   OPRATE   DIKAC-B   3    07    K     0110
21   RANMRI   DIKAB-A   1    05    K     0010
24   OPRATE   DIKAC-B   0    03    K     0271
32   FLOPPY   DHRXA-A   2    02    K     0113
33   NOTFUN   DIKAD-B   3    06    K     7162
```

If those jobs were not killed, meaning that they are still in the RUN status, as indicated by an "R", go back and repeat steps 121-125 of this procedure again. If an "R" still appears in any job other than J01, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you had problems running a single job of DEC/X8.

(127) Start the job that failed

To start just the job that had the error, type "RJXX", and press the RETURN key. Replace the X's with the specific job number.

```
JOB  MODULE   MAINDEC   FLD  PRI   STATE CNTR
01   TIMERA   DIDKA-D   3    00    R     7716
03   MRI08A   DIKAA-A   0    04    K     0141
12   FLOPPY   DHRXA-A   0    01    K     3121
14   OPRATE   DIKAC-B   3    07    K     0110
21   RANMRI   DIKAB-A   1    05    K     0010
24   OPRATE   DIKAC-B   0    03    K     0271
32   FLOPPY   DHRXA-A   2    02    K     0113
33   NOTFUN   DIKAD-B   3    06    K     7162

^C
!RJ32
```

(128) Does "!" appear?

The correct response, "!" should appear on the screen.

If "!" does not appear, type "RJXX" and press the RETURN key again. If "!" still does not appear, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative.

```
03   MRI08A   DIKAA-A   0    04    K     0141
12   FLOPPY   DHRXA-A   0    01    K     3121
14   OPRATE   DIKAC-B   3    07    K     0110
21   RANMRI   DIKAB-A   1    05    K     0010
24   OPRATE   DIKAC-B   0    03    K     0271
32   FLOPPY   DHRXA-A   2    02    K     0113
33   NOTFUN   DIKAD-B   3    06    K     7162

^C
!RJ32
!_
```

(129) Run DEC/X8

To run DEC/X8, hold down the CTRL key and type "R". The system will display "^ R".

```
03    MRI08A    DIKAA-A  0    04    K    0141
12    FLOPPY    DHRXA-A  0    01    K    3121
14    OPRATE    DIKAC-B  3    07    K    0110
21    RANMRI    DIKAB-A  1    05    K    0010
24    OPRATE    DIKAC-B  0    03    K    0271
32    FLOPPY    DHRXA-A  2    02    K    0113
33    NOTFUN    DIKAD-B  3    06    K    7162

^C
!RJ32
!^R
```

(130) Status Report

A status report should now appear on the screen looking like this:

"ROTATE 1663

DEC/X8

JOB	*MODULE*	*MAINDEC*	*FLD*	*PRI*	*STATE*	*CNTR*
01	*TIMERA*	*DIDKA-D*	*0*	*00*	*R*	*7716*
03	*MRI08A*	*DIKAA-A*	*0*	*04*	*K*	*0141*
12	*FLOPPY*	*DHRXA-A*	*1*	*01*	*K*	*3121*
14	*OPRATE*	*DIKAC-B*	*1*	*07*	*K*	*0110*
21	*RANMRI*	*DIKAB-A*	*2*	*05*	*K*	*1075*
24	*OPRATE*	*DIKAC-B*	*2*	*03*	*K*	*0113*
32	*FLOPPY*	*DHRXA-A*	*3*	*02*	*R*	*0574*
33	*NOTFUN*	*DIKAD-B*	*3*	*06*	*K*	*7162"*

If a status report does not appear, hold down the CTRL key and type "R" again. If the status report still does not appear, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you had problems running a single job of DEC/X8.

(131) Does an Error Message appear?

DEC/X8 is now running. If there is a problem within that job, an error message will appear on the screen. There are two types of errors. A status error should look like this:

"STAT ERR IN J32 MOD:FLOPPY FLD:1 CNTR:0171 RPC:0342 CODE:0004 SA:0200 SB:0070 SC:0000 SD:0103 SE:0017 SF:7756"

A data error should look like this:

"DATA ERR IN J03 MOD:MRI08A FLD:3 CNTR:1731 RPC:0025 CODE:0002 SA:0310 SB:5610 SC:0017 SD:1017 SE:2037 SF:7374

DA:5600	*DB:1274*	*DC:0000*
DA:5601	*DB:3415*	*DC:0000*
DA:5602	*DB:0437*	*DC:0000*
DA:5603	*DB:3557*	*DC:0000*
TALLY:0343"		

If an error message does appear, let the error message finish. Then hold down the CTRL key and type "C". The system should respond with "!". Copy the error message. Now you are going to determine which component this job represents. Then you will run the lower level diagnostics associated with that component. Save the error message and turn to step 150, found on page 3-20.

(132) Halt DEC/X8

After about 15 minutes and several status reports, hold down the CTRL key and type "C". The system will respond "!". This will halt DEC/X8.

```
JOB   MODULE    MAINDEC   FLD  PRI  STATE CNTR
01    TIMERA    DIDKA-D   3    00   R     7716
03    MRI08A    DIKAA-A   0    04   K     0000
12    FLOPPY    DHRXA-A   0    01   K     0000
14    OPRATE    DIKAC-B   3    07   K     0000
21    RANMRI    DIKAB-A   1    05   K     0000
24    OPRATE    DIKAC-B   0    03   K     0000
32    FLOPPY    DHRXA-A   2    02   R     7532
33    NOTFUN    DIKAD-B   3    06   K     0000

^C
!_
```

(133) Examine Status Report

Examine the latest status report.

The "STATE" column should contain all K's except for the specific job you ran and J01, which should contain R's.

The "CNTR" column should contain all zeros, except for the specific job you ran and J01, which should contain non-zero numbers.

This indicates that only those jobs ran.

```
ROTATE 4712

DEC/X8
                                    state column
                                         ▼
JOB   MODULE    MAINDEC   FLD  PRI  STATE CNTR
01    TIMERA    DIDKA-D   3    00   R     7716
03    MRI08A    DIKAA-A   0    04   K     0000
12    FLOPPY    DHRXA-A   0    01   K     0000
14    OPRATE    DIKAC-B   3    07   K     0000
21    RANMRI    DIKAB-A   1    05   K     0000
24    OPRATE    DIKAC-B   0    03   K     0000
32    FLOPPY    DHRKA-A   2    02   R     7532
33    NOTFUN    DIKAD-B   3    06   K     0000
                                         ▲
                                    CNTR column
```

(134) Did the desired job run?

The status report should contain an "R" and a non-zero number, for the job you ran.

If that job did not run, go back and repeat steps 121-134 of this procedure. If that job still did not run, remove any disks from the drives and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you had a problem running a single job of DEC/X8.

(135) Contact Digital

This is as far as you can go without the help of a Digital Field Service Representative. Now remove any disks from the drives and place them in their envelopes. Press the ON/OFF button.

Contact your Digital Field Service Representative and explain the following:

(a) you ran all of the DEC/X8 jobs and an error message appeared.

(b) you ran just that specific job in which the error occurred and it ran successfully.

This indicates that the component associated with that job most likely has an interaction problem as a part of your CLASSIC system.

SELECTING THE LOWER LEVEL DIAGNOSTICS

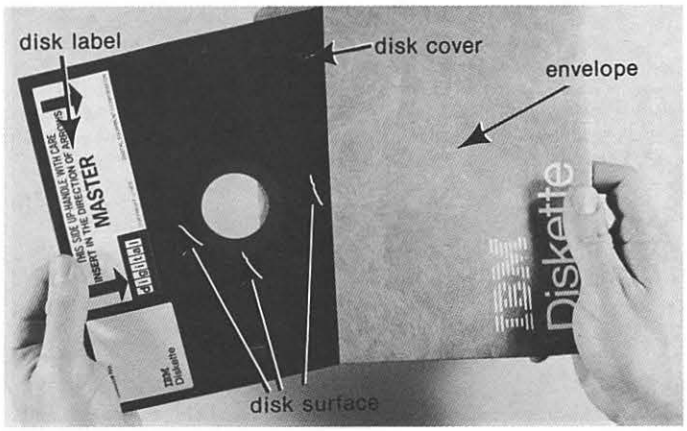
You are in this section because, after running a single job of DEC/X8, an error message appeared. This would indicate that there is a problem with the component represented by that specific job. Now let's run the lower level diagnostics associated with that component.

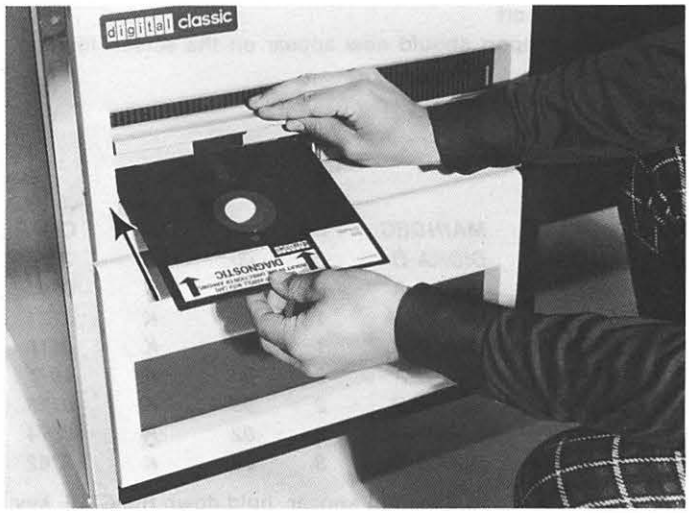
(150) Remove disks

Remove any disks from the disk drives and place them in their envelopes.

(151) Load Diagnostic

Remove the Diagnostic Disk from its envelope and load it into drive 0 (left)

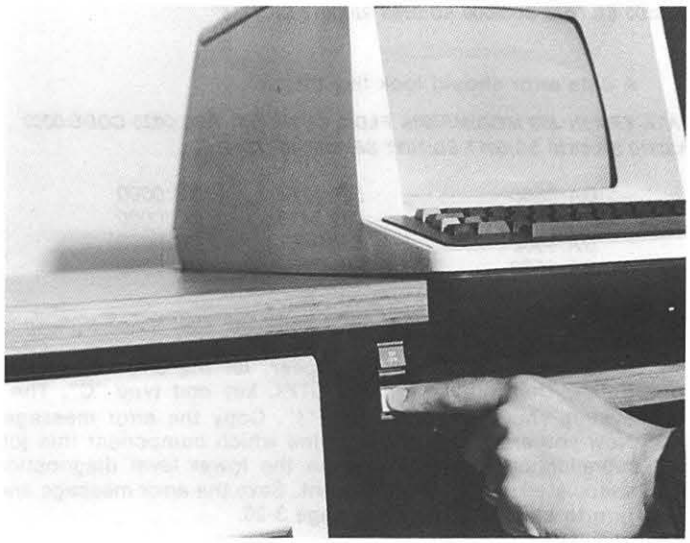




If drive 0 is bad, as previously noted, don't load the Diagnostic Disk. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you could not run the lower level diagnostics because drive 0 was bad.

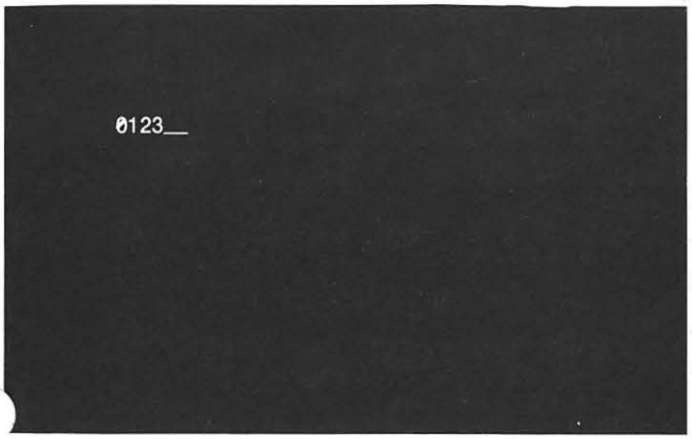
(152) Start CLASSIC

To start the CLASSIC press the START button, located on the front of the desk.



(153) Does "0123" appear?

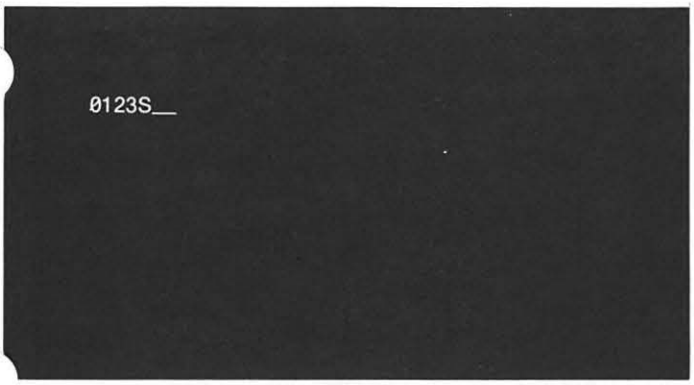
To indicate the system pretest was successful, "0123" should appear on your screen.



If "0123" does not appear, press the START button again. If "0123" still does not appear remove any disks and place them in their envelopes. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you had a problem starting the system before running the lower level diagnostics.

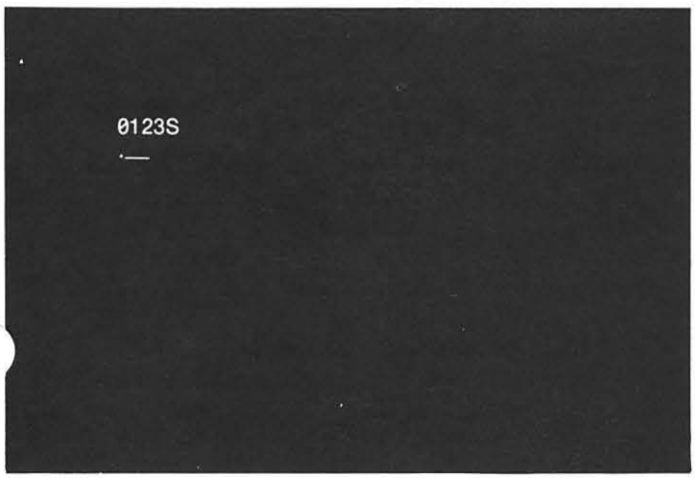
(154) Load monitor

To load the system monitor into memory, type "S".



(155) Does "." appear?

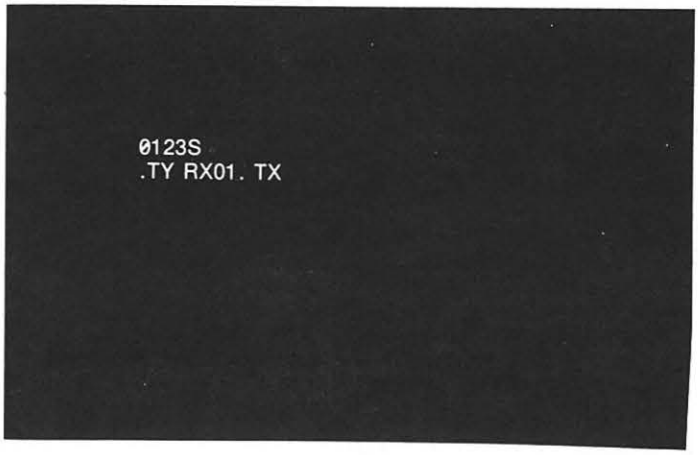
To determine if the monitor has loaded into memory, note if a "." appears on the screen.



If "." does not appear, type another letter. If the dot still does not appear, remove the Diagnostic Disk from drive 0 place it in its envelope. Press the ON/OFF button and contact your Digital Field Service Representative, explaining that you could not load the system monitor from the Diagnostic Disk to run the lower level diagnostics.

(156) Copy list of Diagnostics

To get a copy of the list of diagnostics contained on the Diagnostic Disk, type "TY RX01. TX" and press the RETURN key. You should now see a list on the screen similar to that shown below. This will be helpful in running the diagnostic programs.



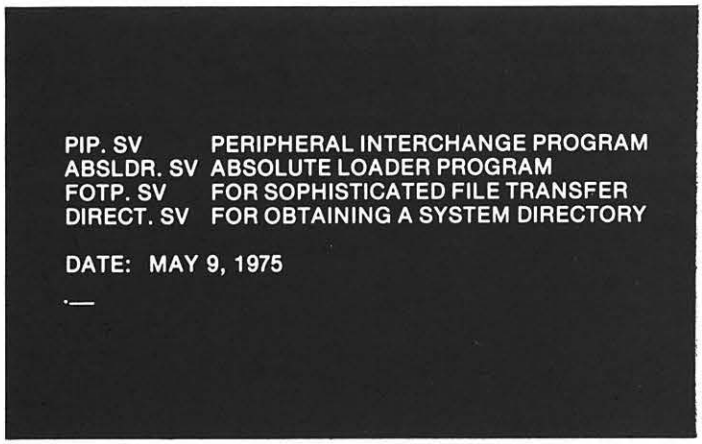

```
.TY RX01.TX
                RX01 MEDIA SOFTWARE
                -------------------

* INDICATES MODIFIED FOR CONSOLE PACKAGE

FILE NAME       MAINDEC NO.             PROGRAM NAME
---------       -----------             ------------

DHMEAA          -08-DHMEA-A             MULTI-MEDIA GUIDE
*DJKKBA         -08-DJKKB-A             PDP8/A CPU TEST
*DJEXCA         -08-DJEXC-A             4-32K PROCESSOR EXERCISER

*DJCLAA         -08-DJCLA-A             OPTION TEST 1 AND 2
*DHKMAB         -08-DHKMA-B             EXTENDED MEMORY CHECKERBOARD
*DHKMCA         -08-DHKMC-A             EXTENDED MEMORY ADDRESS TEST

*DIRXAB         -08-DIRXA-B             RX01 FLOPPY DIAGNOSTIC
*DIRXBB         -08-DIRXB-B             RX01 FLOPPY RELIABILITY
*DHVTCB         -08-DHVTC-B             VT50 TERMINAL TEST

DECXA                                   DEC/X8 CUSTOMIZED EXERCISER #1
                                         (MINIMUM CONFIGURATION)
-------------------------------------------------------------------------

DECXC                                   DEC/X8 CUSTOMIZED EXERCISER #2
                                        (CUSTOMIZED VERSION)

*DILABC         -08-DILAB-C             LA36/LA35 TERMINAL TEST
*DILPAC         -08-DILPA-C             LE8/LP08 LINE PRINTER TEST
*DILPEB         -08-DILPE-B             LP08/LP05 LINE PRINTER TEST

*DHLSAC         -08-DHLSA-C             LS8-E LINE PRINTER TEST
DHCMAB          -08-DHCMA-B             CM8-F CARD READER TEST
DHKGAB          -08-DHKGA-B             KG8-E REDUNANCY TEST
DHDPAC          -08-DHDPA-C             DP8-E ASYNCHRONOUS MODEM TEST

RX01.TX                                 THIS FILE
CCL.SV                                  COMMAND CONTROL LANGUAGE
PIP.SV                                  PERIPHERAL INTERCHANGE PROGRAM
ABSLDR.SV                               ABSOLUTE LOADER PROGRAM
FOTP.SV                                 FOR SOFHISTICATED FILE TRANSFER
DIRECT.SV                               FOR OBTAINING A SYSTEM DIRECTORY


                DATE: MAY 27,1975
```

ONLY THOSE PROGRAMS LISTED ABOVE THE DOTTED LINE WILL BE USED WITH CLASSIC.

If the list does not appear, type "TY RX01. TX" again. If the list still does not appear, you may be having a problem with this function. Now try to run the diagnostics.

(157) Does "." appear?

Upon the completion of the list, a dot will appear on the screen.



If the dot does not appear, you may have a problem with this function. Now try to run the diagnostics.

(158) Examine the error Messages

Examine the error messages from steps 23 and 131 to determine which lower level diagnostic should be run. Note the module name and field, as indicated below:

"STAT ERR IN J32 MOD:FLOPPY FLD:1 CNTR:0171 RPC:0342 CODE:0004 SA:02000 SB:0070 SC:0100 SD:0101 SE:0017 SF:7765"

MODULE *FIELD*

(159) Did both errors occur in the same field?

Note the fields in which both errors occurred. Were they in the same field?

If both errors were in the same field; you might have a memory problem. Now, run the memory diagnostics. Note also the module in which the error occurred, because if memory proves to be working, you will have to run the diagnostics associated with that module. Now turn to step 170, found on page 3-22.

(160) Did the "FLOPPY" module fail?

Note the module in which the errors occurred.

If the error occurred in the "FLOPPY" module, you probably have a problem with the RX01 disk drives. Now let's run the RX01 diagnostics. Turn to step 180, found on page 3-24.

(161) Did the "NOTFUN" module fail?

Note the module in which the errors occurred.

If the errors occurred in the "NOTFUN" module, you probably have an interaction problem among the components of the CLASSIC system, since this module is used for that purpose. Now remove the Diagnostic Disk and place it in its envelope. Press the ON/OFF button and contact your Digital Field Service Representative, explaining what you did.

(162) A Central Processor problem

The rest of the DEC/X8 modules are associated with the PDP-8A Central Processor Unit (CPU). Now let's run the PDP-8A diagnostics. Turn to step 200 found on page 3-29.

RUNNING THE MEMORY DIAGNOSTICS

You are in this section because while running all of the jobs of DEC/X8 and a single job of DEC/X8 an error message appeared in the same field of memory. This indicated you might have a problem with memory.

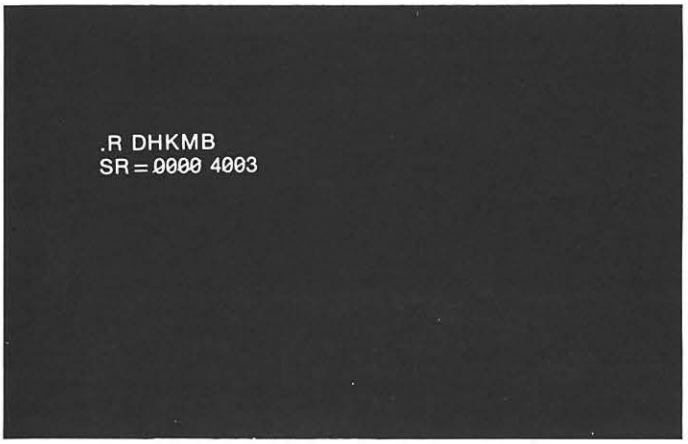
(170) Run the memory address test

To run the memory address test, type "R DHKMB" and press the RETURN key.

The response should be "SR=0000".

(171) Initialize the diagnostic

To initialize the diagnostic type "4003". Your diagnostic program is now running.



(172) Any error messages?

If there is a problem with memory, an error message will appear on the screen.

There are two types of errors.

A test error should look like this:

"PR	*LOC*	*ADDR*	*GOOD*	*BAD*	*TEST*
16704		*06432*	*1743*	*0475*	*2*
16723		*31202*	*3476*	*6767*	*2"*

A relocation error should look like this:

"16753 RELOCATION ERROR AT LOCATION 34170"

If an error message does appear, once the message has completed "WAITING" will appear on your screen. Now hold down the CTRL key and type "C". A "." should appear.

Copy the error message. When the screen has been completely copied, turn to Step 194.

(173) Successful pass

After about a minute, "DHKMB-A PASS 0001" will appear on the screen. This indicates the diagnostic ran successfully. Now hold down the CTRL key and type "C" to stop the program. The system should respond with "."

```
.R DHKMB
SR=0000 4003

OHKMB-A PASS 0001

^C
.
```

(174) Run the Memory Data & Checkerboard Test

To run the Memory Data & Checkerboard Test type "R DHKMA" and press the RETURN key.

```
.R DHKMB
SR=0000 4003

DHKMB-A PASS 0001

^C
.R DHKMA
SR=0000
```

The response should be "SR=0000"

(175) Initialize the diagnostic

To initialize the diagnostic, type "4003". Your diagnostic is now running.

```
.R DHKMB
SR=0000 4003

DHKMB-A PASS 0001

^C
.R DHKMA
SR=0000 4003
```

(176) Any error messages?

If there is a problem with memory, an error message will appear on the screen.

There are three types of errors.

A test error should look like this:

"PR	*LOC*	*FAIL*	*ADR*	*GOOD*	*BAD*	*PATTERN*
46732		*01721*		*0123*	*0273*	*NC*
46507		*03542*		*4672*	*4703*	*1C"*

A relocation error should look like this:

"16703 RELOCATION ERROR AT LOCATION 14740"

A parity error should look like this:

"PARITY ERROR, LOC0=1378 TSTAD=14670"

OR

"INTERRUPT FROM KEYBOARD"

OR

"UNWANTED INTERRUPT OCCURRED"

If an error message does appear, the word "WAITING" will appear on your screen after the message. Now hold down the CTRL key and type "C". The system should respond with "." Copy the error message. When the screen has been completely copied, turn to step 179.

(177) Successful pass

After about one minute "DHKMA-B PASS 0001" will appear on the screen. This indicates that the diagnostic ran successfully. Now hold down the CTRL key and type "C", to stop the program. The system should respond with ".".

```
.R DHKMB
SR=0000 4003

DHKMB-A PASS 0001

^C
.R DHKMA
SR=0000 4003

DHKMA-B PASS 0001

^C
.
```

(178) Did both diagnostics pass?

If no error messages appeared while running either diagnostic then probably you do not have a problem with memory. At this time we would like you to run those diagnostics associated with the specific module of DEC/X8 that failed. Turn to step 160 found on page 3-22 to determine which diagnostic to run.

(179) Contact Digital

This is as far as you can go without the help of a Digital Field Service Representative. Now remove any disks from the drives and place them in their envelopes. Press the ON/OFF button.

Contact your Digital Field Service Representative and explain the following:

(a) you ran all of the DEC/X8 jobs and an error message appeared.

(b) you ran just that job of DEC/X8 in which your error occurred and another error message appeared in the same field of memory.

(c) you ran the memory diagnostics and another error appeared.

Be specific in naming the jobs, modules, diagnostics and errors you have encountered.

If you had any problems running the memory diagnostics, repeat this procedure again. If you still have a problem, remove any disks and place them in their envelopes. Press the ON/OFF button. Now contact your Digital Field Service Representative, explaining that you completed (a) & (b) above but could not run the memory diagnostics.

RUNNING THE DISK DIAGNOSTICS

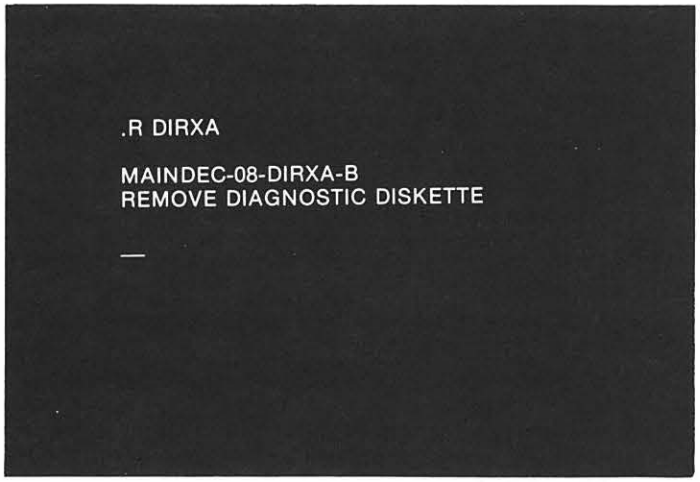
You are in this section because, while running DEC/X8 an error message appeared from the "FLOPPY" module. Then while running that specific job another error message appeared. If both errors occurred in the same field of memory, then you would have run the memory diagnostics successfully. This indicated your problem was not with memory.

(180) Run the RX01 Diagnostic Program

To run the RX01 Diagnostic Program, type "R DIRXA" and press the RETURN key.

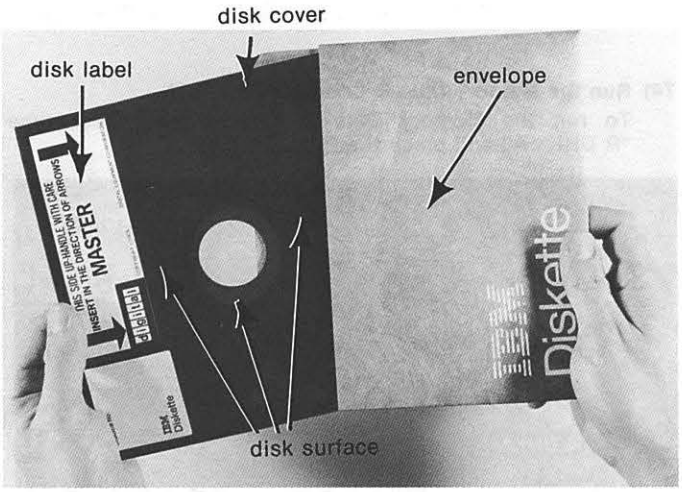
The response looks like:

"MAINDEC-08-DIRXA-B
REMOVE DIAGNOSTIC DISKETTE"



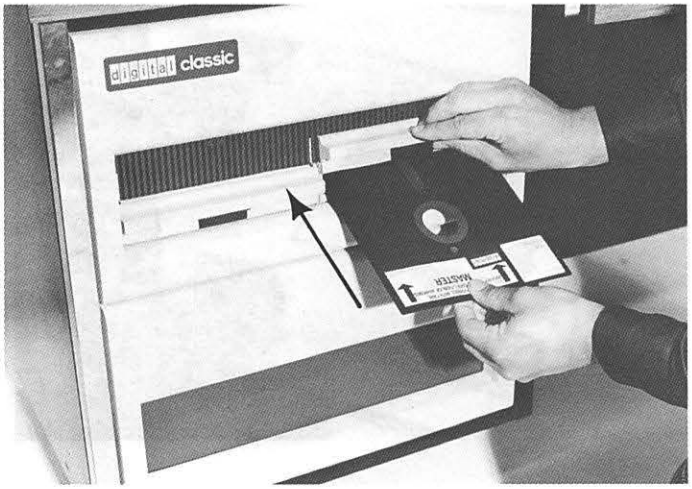
(181) Remove Diagnostic Disk

Remove the Diagnostic Disk from drive 0 and place it in its envelope.



(182) Load blank disks

Remove two blank disks from their envelopes. Load one into drive 0 and the other into drive 1.



(183) Initialize the Diagnostic

To initialize the Diagnostic, hold down the CTRL key and type "E". Then press the RETURN key. The system will respond:

"SELECT PARAMETERS ***(INCLUDING DEVICE CODE)*** *SR = 0000"*

```
.R DIRXA

MAINDEC-08-DIRXA-B
REMOVE DIAGNAOSTIC DISKETTE

^E
```

```
.R DIRXA

MAINDEC-08-DIRXA-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT PARAMETERS (INCLUDING DEVICE CODE)
SR = 0000 __
```

Now type "0500"

```
.R DIRXA

MAINDEC-08-DIRXA-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT PARAMETERS (INCLUDING DEVICE CODE)
SR = 0000 0500
```

The response should be:

"TEST PARAMETERS:0500
SR = 0000"

```
.R DIRXA

MAINDEC-08-DIRXA-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT PARAMETERS (INCLUDING DEVICE CODE)
SR = 0000 0500

TEST PARAMETERS:0500
SR = 0000 __
```

Now type "4001" to run the program.

```
.R DIRXA

MAINDEC-08-DIRXA-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT PARAMETERS (INCLUDING DEVICE CODE)
SR = 0000 0500

TEST PARAMETERS: 0500
SR = 0000 4001
```

(184) Any error messages?

If there is a problem with the disk drives, an error message will appear on the screen.

There are four types of errors: An Interface/Control related error should look like this:

```
"ERR    FAT    FAST   —   FAC   GOOD   PASS
 13742  03051  31420  6   1671  0742
 13668  01760  31421  3   1432  3476          "
```

A Drive/Data related error should look like this:

```
"CMND  XDR   CODE  RSTA  START  TARGET  PASS
 0014  0100  1200  4300  HOME   HOME          "
```

A Write-CRC and Data error should look like this:

```
"CMND  XDR   CODE  RSTA  START  TARGET  PASS
 0026  0001  0200  0201  100,30  100,1
WRITE-CRC AND DATA ERROR
WORD  GOOD  BAD
  4   5435  5473
  5   6617  5437
  6   6303  4606
SUM CHECK IS 1253
TOTAL BAD=60   "
```

A Read-CRC and Data error should look like this:

```
"CMND  XDR   CODE  RSTA  START  TARGET  PASS
 0026  0001  0200  0201  100,30  100,1
READ-CRC AND DATA ERROR
WORD  GOOD  BAD
  4   5435  5477
  5   6617  5437
  6   6303  5406
SUM CHECK IS 1257
TOTAL BAD=60   "
```

If an error message does appear, once the message has completed, "WAITING" will appear on your screen. Now hold down the CTRL key and type "C"; a dot (".") should appear. Copy the error message. When the screen has been completely copied, turn to step 186.

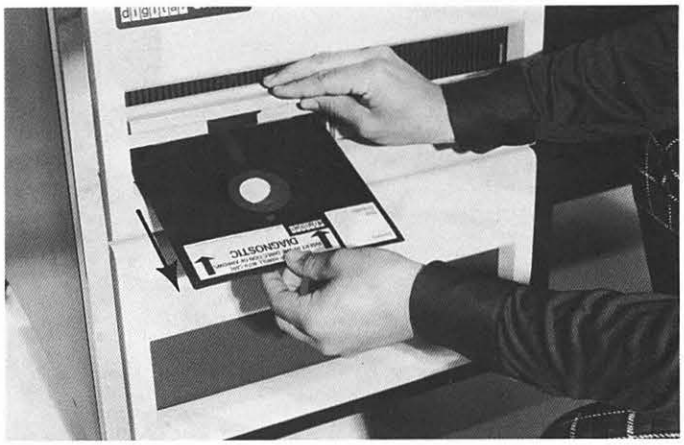
(185) Successful pass

After about one minute, "DIRXA-B PASS 0001" will appear on the screen. This indicates the diagnostic ran successfully. Now hold down the CTRL key and type "C" to stop the program. The system should respond with a dot.

```
^E
SELECT PARAMETERS (INCLUDING DEVICE CODE)
SR=0000 0500

TEST PARAMETERS: 0500
SR=0000 4001

DIRXA-B PASS 0001

^C
.
```

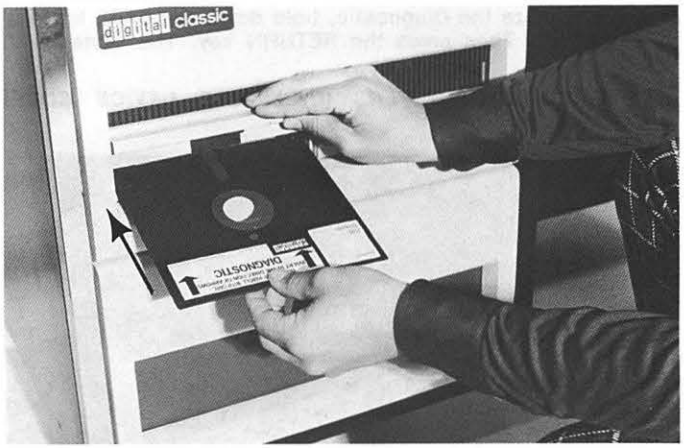
(186) Remove blank disk

Remove the blank disk from drive 0 and place it in its envelope.



(187) Load Diagnostic Disk

Remove the Diagnostic Disk from its envelope and load it into drive 0.



(188) Run the RX01 Data Reliability Program

To run the RX01 Data Reliability Program type "R DIRXB" and press the RETURN key.

```
^E
SELECT PARAMETERS (INCLUDING DEVICE CODE)
SR=0000 0500

Test Parameters: 0500
SR=0000 4001

DIRXA-B PASS 0001

^C
.R DIRXB
```

The response should look like:

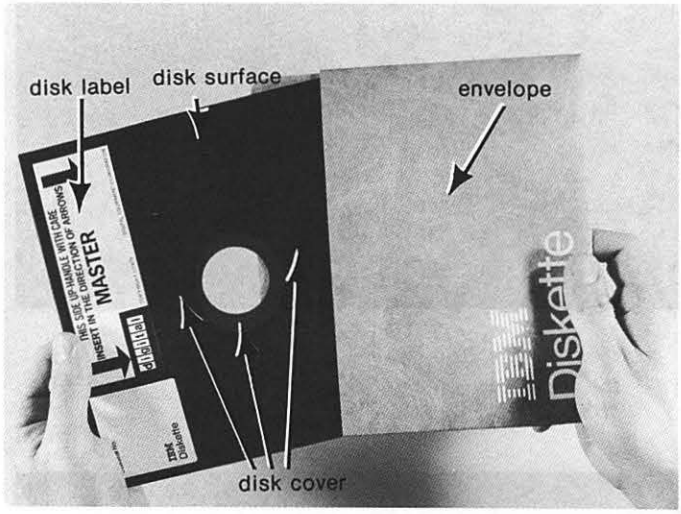
"MAINDEC-8-DIRXA-B
REMOVE DIAGNOSTIC DISKETTE"

```
TEST PARAMETERS: 0500
SR = 0000 4001

DIRXA-B PASS 0001

^C
.R DIRXB

MAINDEC-08-DIRXB-B
REMOVE DIAGNOSTIC DISKETTE

_
```

gure 3-125

(189) Remove Diagnostic Disk

Remove the Diagnostic Disk from drive 0 and place it in its envelope.



(190) Load blank disk

Remove a blank disk from its envelope and load it into drive 0.

(191) Initialize the Diagnostic

To initialize the diagnostic:

(a) hold down the CTRL key and type "E". Then press the RETURN key.

```
TEST PARAMETERS: 0500
SR = 0000 4001

DIRXA-B PASS 0001

^C
.R DIRXB

MAINDEC-08-DIRXB-B
REMOVE DIAGNOSTIC DISKETTE

^E
```

(b) the response should be:
"SELECT DISKETTE DRIVES
SR = 0000"

```
DIRXA-B PASS 0001

^C
.R DIRXB

MAINDEC-08-DIRXB-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT DISKETTE DRIVES
SR = 0000 _
```

(c) then type "6000"

```
DIRXA-B PASS 0001

^C
.R DIRXB

MAINDEC-08-DIRXB-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT DISKETTE DRIVES
SR=0000 6000
```

(d) the response should be:
"DRIVE SELECTED:0,1
SELECT TEST PARAMETERS
SR=6000"

```
MAINDEC-08-DIRXB-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT DISKETTE DRIVES
SR=0000 6000

DRIVE SELECTED: 0,1
SELECT TEST PARAMETERS
SR=6000 __
```

(e) then type "0000"

```
MAINDEC-08-DIRXB-B
REMOVE DIAGNOSTIC DISKETTE

^E

SELECT DISKETTE DRIVES
SR=0000 6000

DRIVE SELECTED: 0,1
SELECT TEST PARAMETERS
SR=6000 0000
```

(f) the response should be:
"TEST PARAMETERS:0000
SR=0000"

```
^E

SELECT DISKETTE DRIVES
SR=0000 6000

DRIVE SELECTED: 0,1
SELECT TEST PARAMETERS
SR=6000 0000

TEST PARAMETERS:0000
SR=0000 __
```

(g) now type "4100"

```
^E

SELECT DISKETTE DRIVES
SR=0000 6000

DRIVE SELECTED:0,1
SELECT TEST PARAMETERS
SR=6000 0000

TEST PARAMETERS:0000
SR=0000 4100
```

(h) the response should be:
"RX8 DEVICE IS 6750"

```
SELECT DISKETTE DRIVES
SR=0000 6000

DRIVE SELECTED:0,1
SELECT TEST PARAMETERS
SR=6000 0000

TEST PARAMETERS:0000
SR=0000 4100

RX8 DEVICE IS 6750
```

The program is now running.

(192) Any Error Messages?

If there is a problem with the disk drives, an error message will appear on the screen. There are three types of errors.

A SEEK error should look like this:

"CMND XDR CODE RSTA START TARGET TEST(X) PASS
0014 0100 0120 0300 HOME HOME"

A WRITE-CRC and DATA error should look like this:

"CMND XDR CODE RSTA START TARGET TEST(X) PASS
0026 0001 0200 0201 100,30 100,1
WRITE-CRC AND DATA ERROR
WORD GOOD BAD
4 5435 5477
5 6617 5437
6 6303 5406
SUM CHECK IS 1257
TOTAL BAD = 60"

A READ-CRC and DATA error should look like this:

"CMND XDR CODE RSTA START TARGET TEST(X) PASS
0026 0001 0200 0201 100,30 100,1
READ-CRC AND DATA ERROR
WORD GOOD BAD
4 5435 5477
5 6617 5437
6 6303 5406
SUM-CHECK IS 1257
TOTAL BAD = 60"

If an error message does appear, it will be followed by the word "WAITING". Hold down the CTRL key and type "C"; a (".") should appear. Copy the error message. When the screen has been completely copied, turn to step 194.

(193) Successful pass

After about one minute "DIRXB-B PASS 0001" will appear on your screen. This indicates that the diagnostic ran successfully. Now hold down the CTRL key and type "C" to stop the program. The system should respond with "." .

(194) Contact Digital

This is as far as you can go without the help of a Digital Field Service Representative. Now remove any disks from the drives and place them in their envelopes. Press the ON/OFF button.

Contact your Digital Field Service Representative and explain the following:

(a) you ran all the DEC/X8 jobs and an error message appeared from the "FLOPPY" module, either JOB 12 or 32.

(b) you ran that job in which your error occurred and another error message appeared.

(c) you ran the RX01 diagnostics and either they ran successfully or other error messages appeared (depending on your situation).

Be specific in naming the jobs, modules, diagnostics and errors you have encountered.

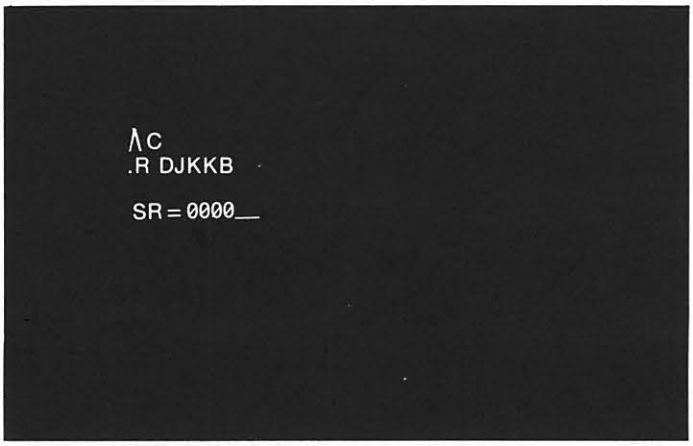
If you had any problems running the RX01 diagnostics, repeat steps 180-193. If you still have a problem, remove any disks and place them in their envelopes. Press the ON/OFF button. Now contact your Digital Field Service Representative explaining that you completed (a) & (b) above but could not run the RX01 diagnostics.

RUNNING THE CENTRAL PROCESSOR (CPU) DIAGNOSTICS

You are in this section because while running DEC/X8, an error message appeared from one of the PDP-8A CPU modules. Then while running that specific job, another error message appeared. If both errors occurred in the same field of memory, then you would have run the memory diagnostics successfully. This indicates your problem is not with memory.

(200) Run the PDP-8A CPU test

To run the PDP-8A CPU test, type "R DJKKB" and press the RETURN key.



The response should be "SR = 0000"

(201) Initialize diagnostic

To initialize the diagnostic type "0000". Now the program is running.

(202) Any error messages?

If there is a problem with the CPU, an error message will appear on the screen.

All errors should look like this:

"DJKKB FAILED PC:1374 AC:4612 MQ:0131 FL:5432"

If an error message does appear, the word "WAITING" will appear on your screen when the message has been completed. Now hold down the CTRL key and type "C". A dot (".") should appear. Copy the error message. When the screen has been completely copied, turn to step 204.

(203) Successful pass

After about one minute, "DJKKB-B PASS 0001" will appear on the screen. This indicates the diagnostic ran successfully. Now hold down the CTRL key and type "C", to stop the program. The system should respond with ".".

```
^C
.R DJKKB

SR=0000 0000

DJKKB-A PASS 0001

^C
.
```

(204) Run the PDP-8A Processor Exerciser

To run the PDP-8A Processor Exerciser, type "R DJEXC" and press the RETURN key.

```
^C
.R DJKKB

SR=0000 0000

DJKKB-A PASS 0001

^C
.R DJEXC

SR=0000
```

The response should be "SR=0000".

(205) Initialize diagnostic

To initialize the diagnostic, type "0000". Now the program is running.

```
^C
.R DJKKB

SR=0000 0000

DJKKB-A PASS 0001

^C
.R DJEXC

SR=0000 0000
```

(206) Any error messages?

If there is a problem with your CPU, an error message will appear on your screen.

All errors should look like this:

"DJEXC FAILED PC:1374 AC:4612 MQ:0131 FL:5432"

If an error message does appear, it will be followed by the word "WAITING". Hold down the CTRL key and type "C" The system will respond with a dot. Copy the error message. When the screen has been completely copied, turn to step 208.

(207) Successful pass

After about one minute, "DJEXC-A PASS 0001" should appear on the screen. This indicates the diagnostic ran successfully. Now hold down the CTRL key and type "C" to stop the program. The system should respond with ".".

```
DJKKB-A PASS 0001

^C
.R DJEXC

SR=000 0000

DJEXC-A PASS 0001

^C
.
```

(208) Run the PDP-8A Option Test 1 and 2

To run the PDP-8A Option Test 1 and 2, type "R DJCLA" and press the RETURN key.

The response should be "SR=0000"

```
^C
.R DJEXC

SR=0000 0000

DJEXC-A PASS 0001

^C
.R DJCLA

SR=0000
```

(209) Initialize diagnostic

To initialize the diagnostic, type "0000". Now the program is running.

```
^C
.R DJEXC

SR = 0000 0000

DJEXC-A PASS 0001

^C
.R DJCLA

SR = 0000 0000
```

(210) Any error messages?

If there is a problem with your CPU, an error message will appear on your screen.

All errors will look like this:
"DJCLA FAILED PC:1374 AC:4612 MQ:0131 FL:5432"

If an error message does appear, it will be followed by the word "WAITING". Hold down CTRL key and type "C". The system will respond with a dot. Copy the error message by pressing the COPY key. When the copier stops, the screen has been completely copied. Now turn to step 212.

(211) Successful pass

After about one minute, "DJCLA-A PASS 0001" should appear on the screen. This indicates the diagnostic ran successfully. Now hold down the CTRL key and type "C" to stop the program. The system should respond with ".".

```
DJEXC-A PASS 0001

^C
.R DJCLA

SR = 0000 0000

DJCLA-A PASS 0001

^C
.
```

(212) Contact Digital

This is as far as you can go without the help of a Digital Field Service Representative. Now remove any disks from the drives and place them in their envelopes. Press the ON/OFF button.

Contact your Digital Field Service Representative and explain the following:

(a) you ran all the DEC/X8 jobs and an error message appeared from one of the CPU jobs or modules

(b) you ran that job in which your error occurred and another message appeared.

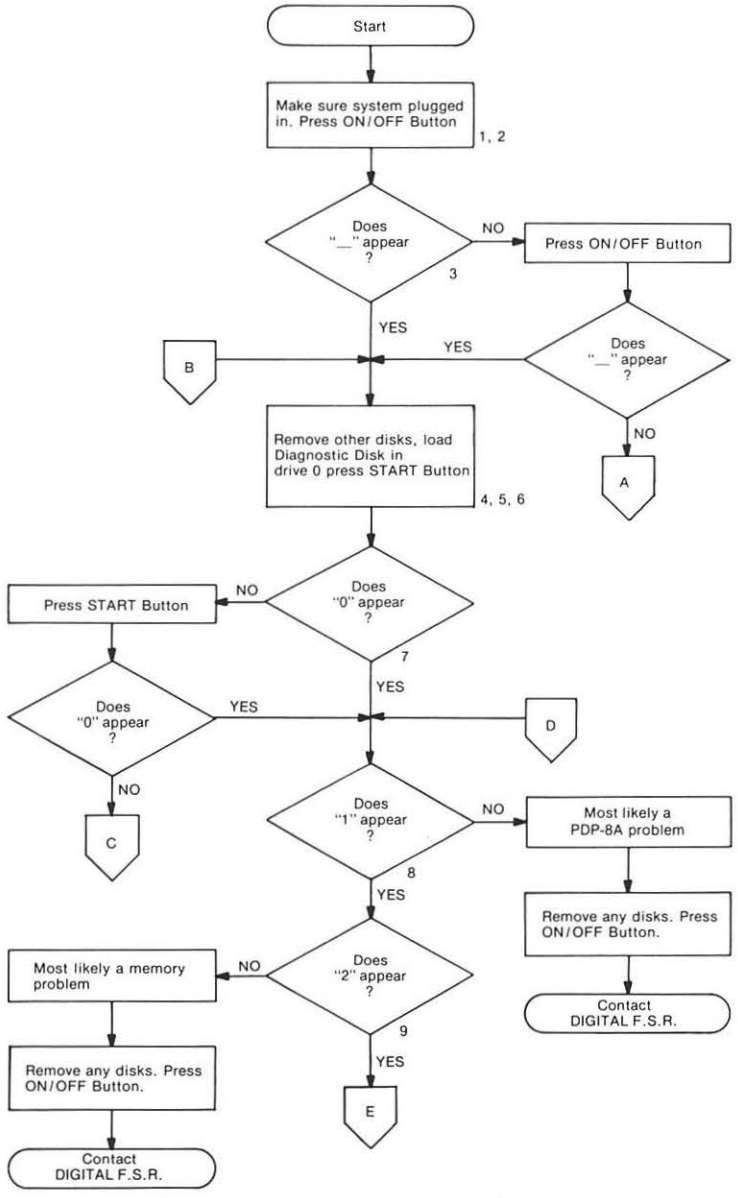
(c) you ran the Central Processor Diagnostics and either they ran successfully or other error messages appeared (depending on your situation).

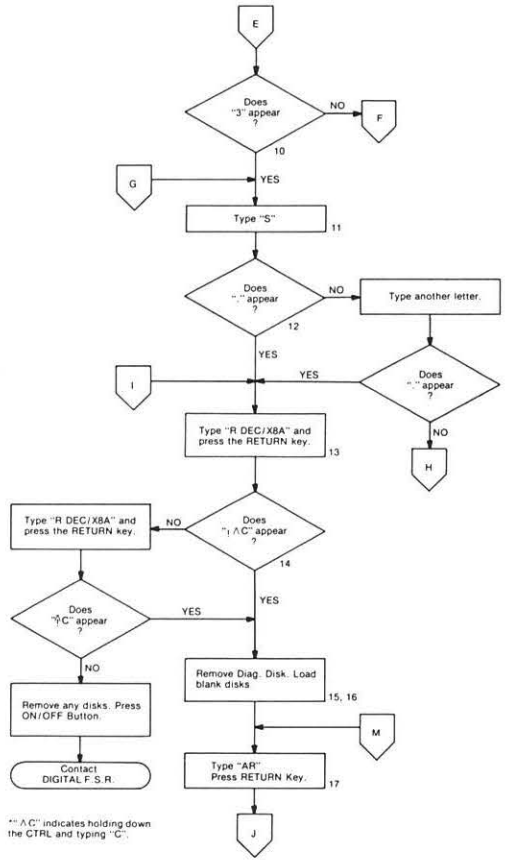
Be specific in naming the jobs, modules, diagnostics and errors you have encountered.

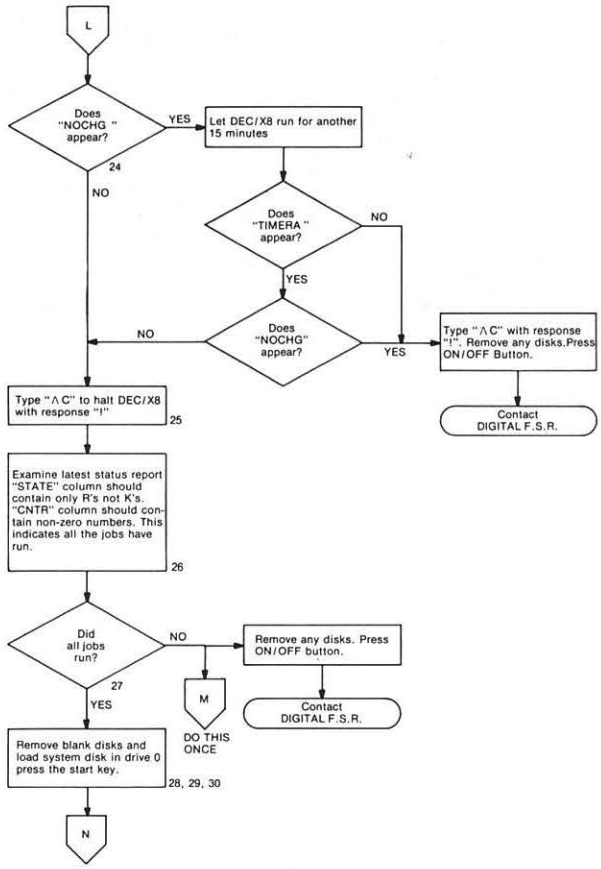
If you had any problems running the CPU diagnostics, repeat steps 200-211. If you still have a problem, remove any disks from the drives, and place them in their envelopes. Press the ON/OFF button. Now contact your Digital Field Service Representative, explaining that you completed (a) & (b) above, but could not run the CPU diagnostics.

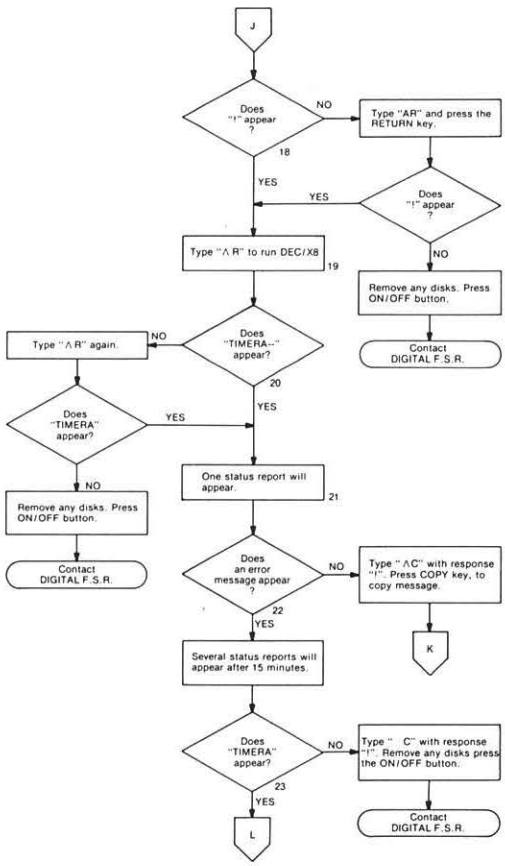
TROUBLESHOOTING FLOWCHART

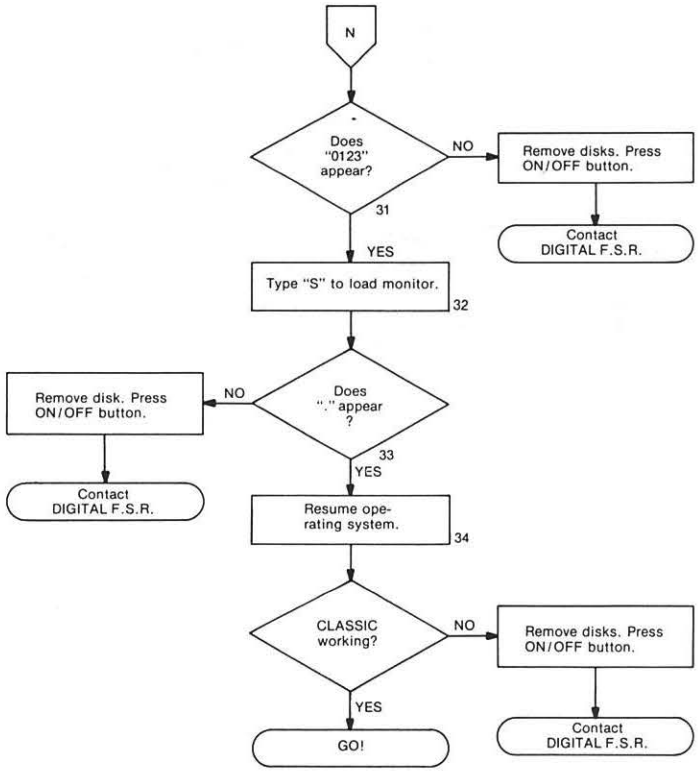
This flowchart has been constructed to help you in troubleshooting your CLASSIC. Digital recommends that you use it in conjunction with the material previously covered in this chapter. Along with each activity and decision within the flowchart, a number is given referring to its specific step(s) in the troubleshooting procedure.

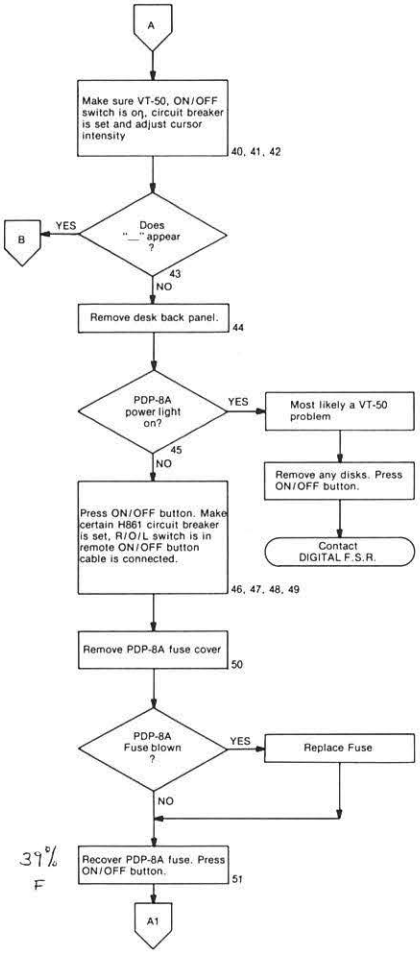


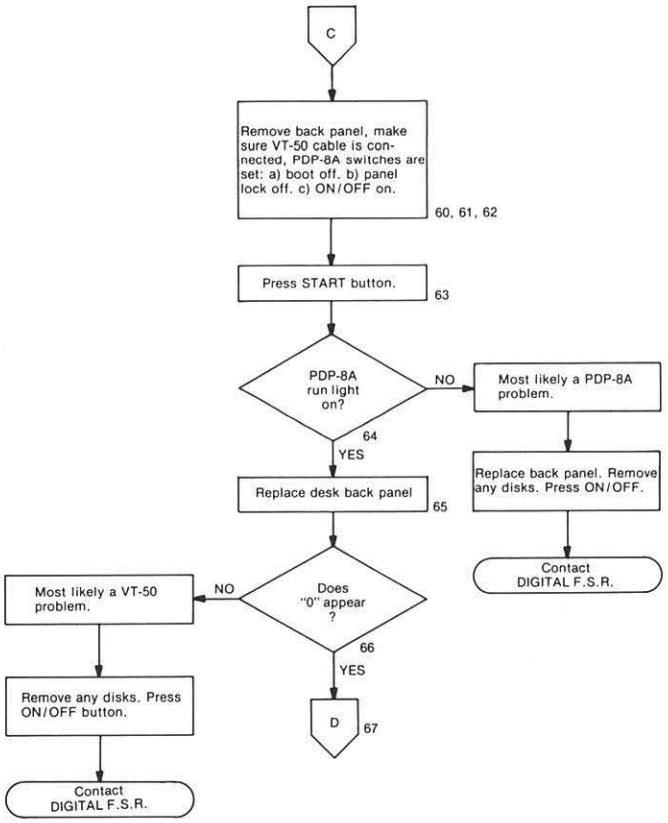

E
Does "3" appear ?
NO
F
10
G
YES
Type "S"
11
Does "." appear ?
NO
Type another letter.
12
YES
I
YES
Does "." appear ?
NO
H
Type "R DEC/X8A" and press the RETURN key.
13
Type "R DEC/X8A" and press the RETURN key.
NO
Does "↑C" appear ?
14
YES
Does "↑C" appear ?
YES
NO
Remove Diag. Disk. Load blank disks
15, 16
Remove any disks. Press ON/OFF Button.
M
Contact DIGITAL F.S.R.
Type "AR" Press RETURN Key.
17
J
*"↑C" indicates holding down the CTRL and typing "C".

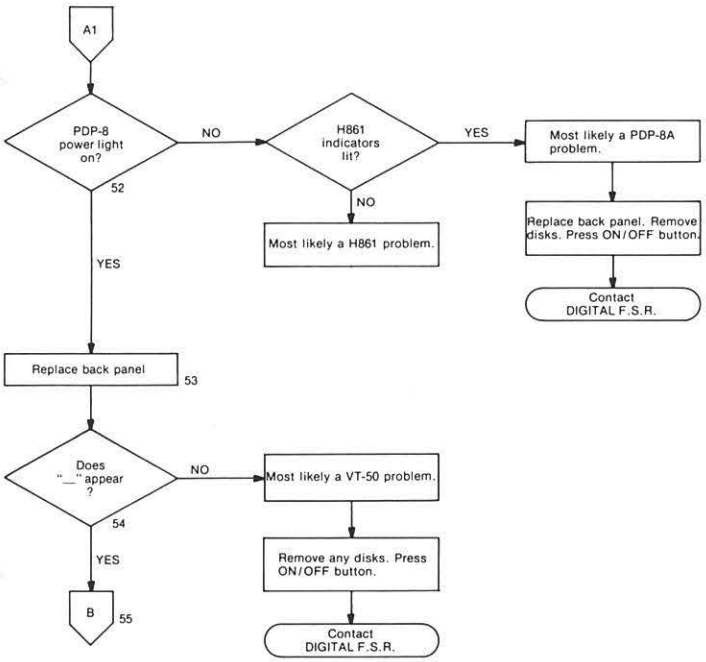

L
Does "NOCHG " appear?
YES
Let DEC/X8 run for another 15 minutes
24
NO
Does "TIMERA " appear?
NO
YES
Does "NOCHG" appear?
NO
YES
Type "↑C" with response "!". Remove any disks.Press ON/OFF Button.
Contact DIGITAL F.S.R.
Type "↑C" to halt DEC/X8 with response "!"
25
Examine latest status report "STATE" column should contain only R's not K's. "CNTR" column should contain non-zero numbers. This indicates all the jobs have run.
26
Did all jobs run?
NO
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
27
M
DO THIS ONCE
YES
Remove blank disks and load system disk in drive 0 press the start key.
28, 29, 30
N

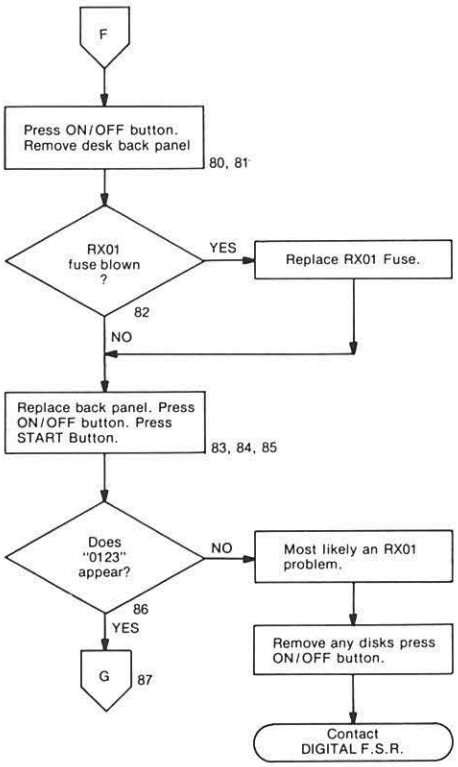

J
Does "!" appear ?
NO
Type "AR" and press the RETURN key.
18
YES
YES
Does "!" appear ?
NO
Type "↑R" to run DEC/X8
19
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
Type "↑R" again.
NO
Does "TIMERA--" appear?
20
YES
Does "TIMERA" appear?
YES
NO
One status report will appear.
21
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
Does an error message appear ?
NO
Type "↑C" with response "!". Press COPY key, to copy message.
22
YES
K
Several status reports will appear after 15 minutes.
Does "TIMERA" appear?
NO
Type "↑C" with response "!". Remove any disks press the ON/OFF button.
23
YES
Contact DIGITAL F.S.R.
L

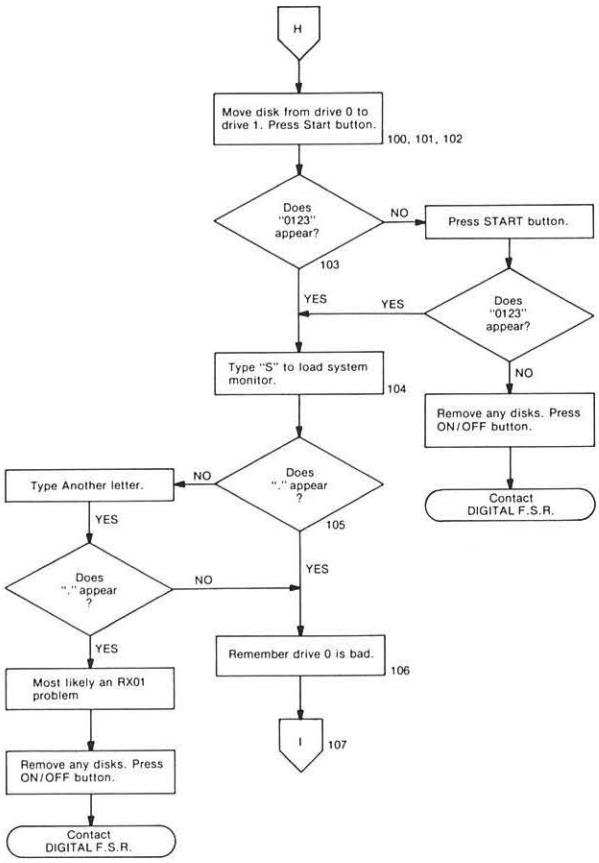

N
Does "0123" appear?
NO
Remove disks. Press ON/OFF button.
31
Contact DIGITAL F.S.R.
YES
Type "S" to load monitor.
32
Remove disk. Press ON/OFF button.
NO
Does "." appear ?
33
YES
Contact DIGITAL F.S.R.
Resume operating system.
34
CLASSIC working?
NO
Remove disks. Press ON/OFF button.
YES
Contact DIGITAL F.S.R.
GO!

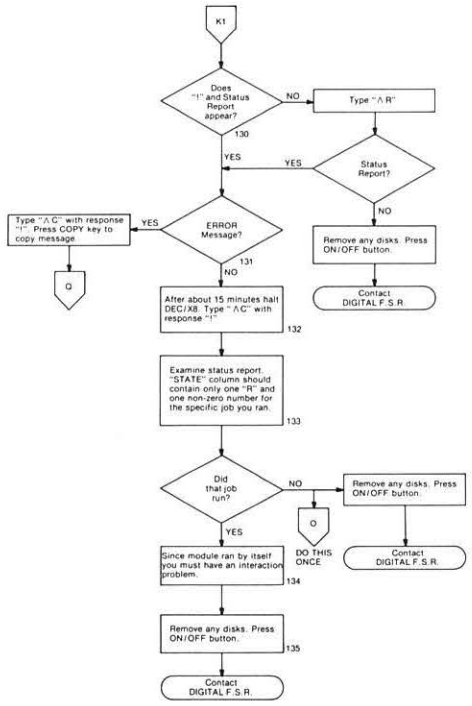

A
Make sure VT-50, ON/OFF switch is on, circuit breaker is set and adjust cursor intensity
40, 41, 42
B
YES
Does "_" appear ?
43
NO
Remove desk back panel.
44
PDP-8A power light on?
YES
Most likely a VT-50 problem
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
45
NO
Press ON/OFF button. Make certain H861 circuit breaker is set, R/O/L switch is in remote ON/OFF button cable is connected.
46, 47, 48, 49
Remove PDP-8A fuse cover
50
PDP-8A Fuse blown ?
YES
Replace Fuse
NO
Recover PDP-8A fuse. Press ON/OFF button.
51
A1

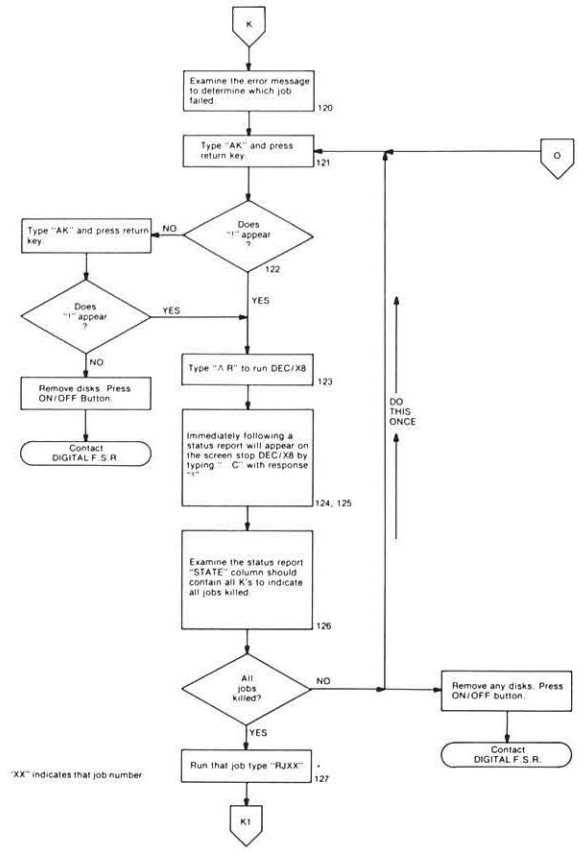

C
Remove back panel, make sure VT-50 cable is connected, PDP-8A switches are set: a) boot off. b) panel lock off. c) ON/OFF on.
60, 61, 62
Press START button.
63
PDP-8A run light on?
NO
Most likely a PDP-8A problem.
Replace back panel. Remove any disks. Press ON/OFF.
Contact DIGITAL F.S.R.
64
YES
Replace desk back panel
65
Does "0" appear ?
NO
Most likely a VT-50 problem.
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
66
YES
D
67

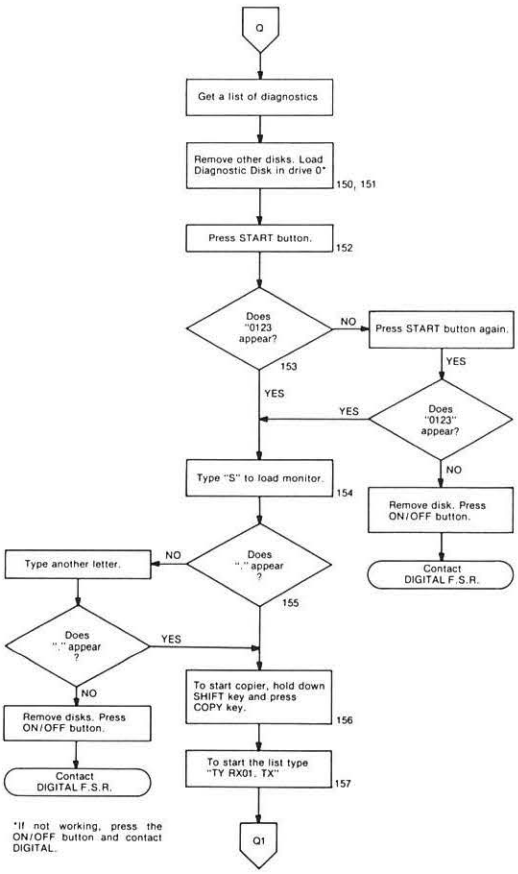

A1
PDP-8 power light on?
NO
H861 indicators lit?
YES
Most likely a PDP-8A problem.
Replace back panel. Remove disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
NO
Most likely a H861 problem.
52
YES
Replace back panel
53
Does "_" appear ?
NO
Most likely a VT-50 problem.
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
54
YES
B
55

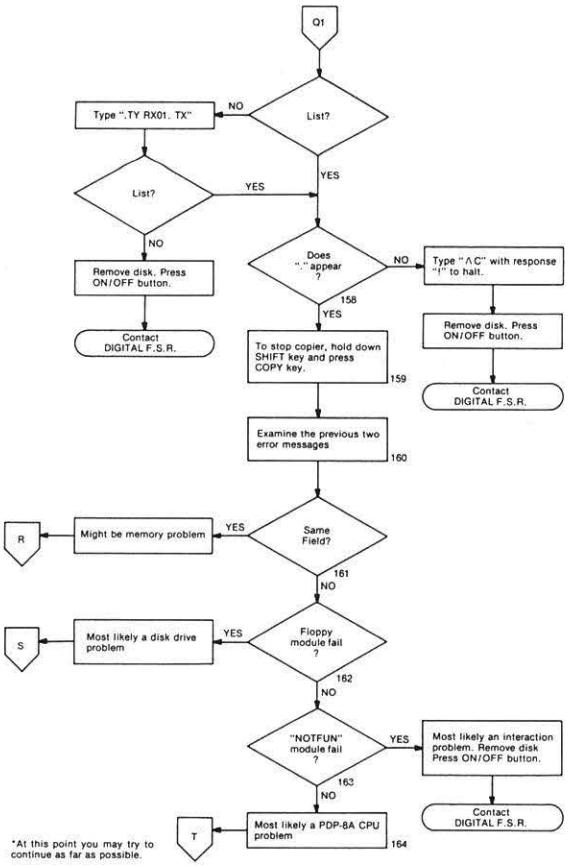

F
Press ON/OFF button. Remove desk back panel
80, 81
RX01 fuse blown ?
YES
Replace RX01 Fuse.
82
NO
Replace back panel. Press ON/OFF button. Press START Button.
83, 84, 85
Does "0123" appear?
NO
Most likely an RX01 problem.
Remove any disks press ON/OFF button.
Contact DIGITAL F.S.R.
86
YES
G
87

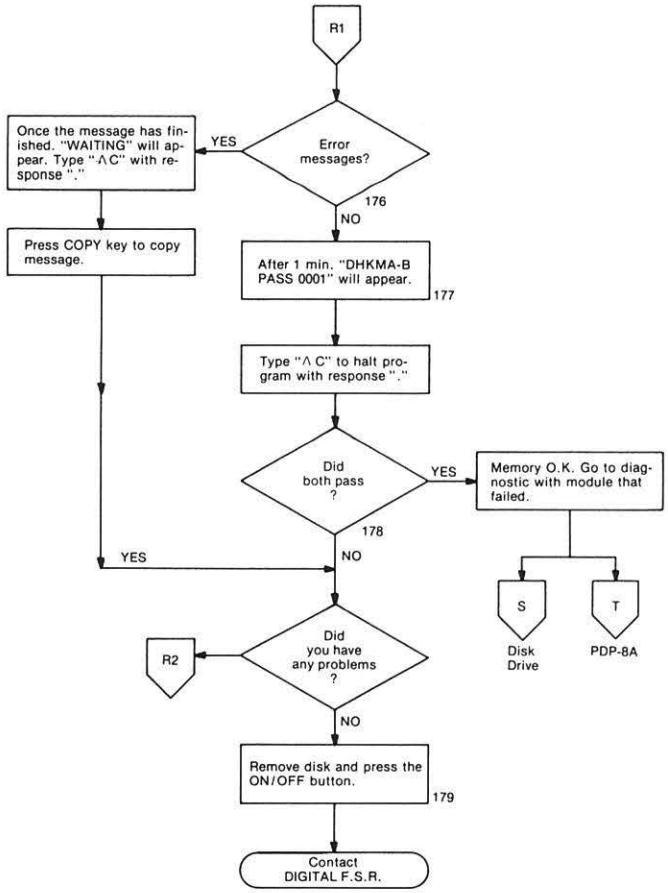

H
Move disk from drive 0 to drive 1. Press Start button.
100, 101, 102
Does "0123" appear?
103
NO
Press START button.
YES
YES
Does "0123" appear?
NO
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
Type "S" to load system monitor.
104
Does "." appear ?
105
NO
Type Another letter.
YES
Does "." appear ?
NO
YES
YES
Remember drive 0 is bad.
106
I
107
Most likely an RX01 problem
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.

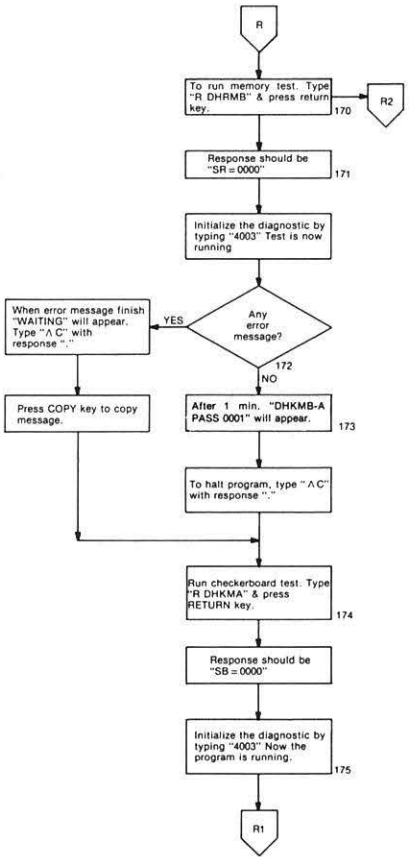

K1
Does "!" and Status Report appear?
130
NO
Type "^R"
YES
YES
Status Report?
NO
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
Type "^C" with response "!". Press COPY key to copy message.
YES
ERROR Message?
131
NO
Q
After about 15 minutes halt DEC/X8. Type "^C" with response "!"
132
Examine status report. "STATE" column should contain only one "R" and one non-zero number for the specific job you ran.
133
Did that job run?
NO
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
O
DO THIS ONCE
YES
Since module ran by itself you must have an interaction problem.
134
Remove any disks. Press ON/OFF button.
135
Contact DIGITAL F.S.R.

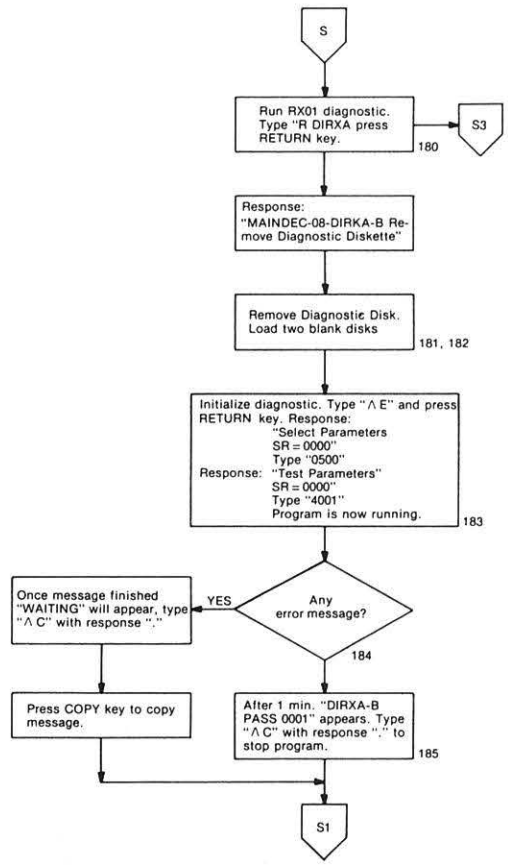

K
Examine the error message to determine which job failed.
120
Type "AK" and press return key.
121
O
Type "AK" and press return key.
NO
Does "!" appear ?
122
Does "!" appear ?
YES
YES
NO
Remove disks. Press ON/OFF Button.
Contact DIGITAL F.S.R.
Type "^R" to run DEC/X8
123
DO THIS ONCE
Immediately following a status report will appear on the screen stop DEC/X8 by typing "^C" with response "!"
124, 125
Examine the status report "STATE" column should contain all K's to indicate all jobs killed.
126
All jobs killed?
NO
Remove any disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
YES
Run that job type "RJXX"
127
K1
"XX" indicates that job number

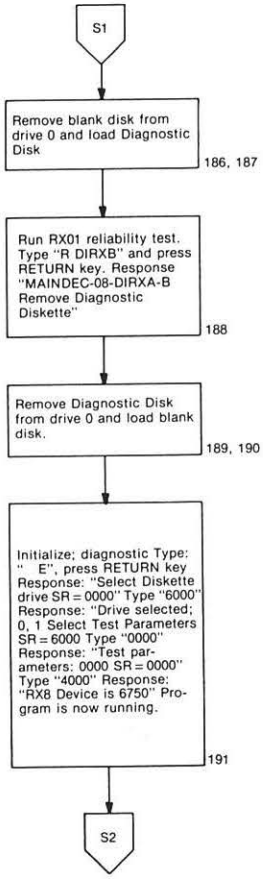

Q
Get a list of diagnostics
Remove other disks. Load Diagnostic Disk in drive 0*
150, 151
Press START button.
152
Does "0123 appear?
153
NO
Press START button again.
YES
YES
YES
Does "0123" appear?
NO
Type "S" to load monitor.
154
Remove disk. Press ON/OFF button.
Contact DIGITAL F.S.R.
Type another letter.
NO
Does "." appear ?
155
Does "." appear ?
YES
NO
Remove disks. Press ON/OFF button.
Contact DIGITAL F.S.R.
To start copier, hold down SHIFT key and press COPY key.
156
To start the list type "TY RX01: TX"
157
Q1
*If not working, press the ON/OFF button and contact DIGITAL.

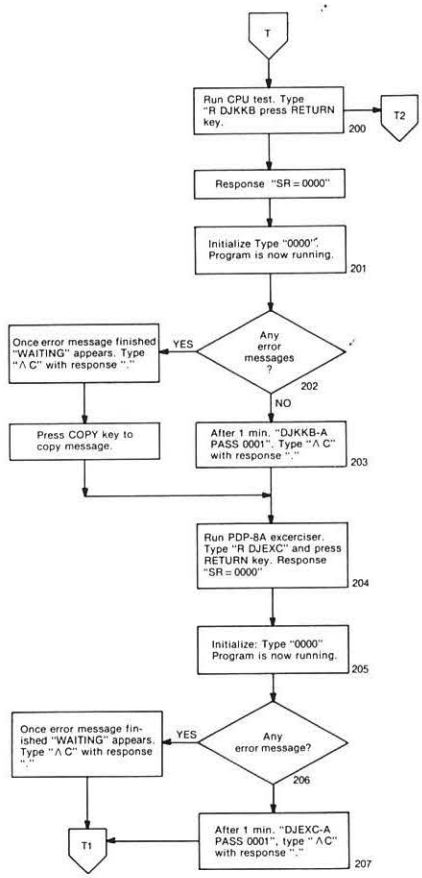

Q1
List?
NO
Type ".TY RX01. TX"
List?
YES
NO
Remove disk. Press ON/OFF button.
Contact DIGITAL F.S.R.
YES
Does "." appear ?
158
NO
Type "^C" with response "!" to halt.
Remove disk. Press ON/OFF button.
Contact DIGITAL F.S.R.
YES
To stop copier, hold down SHIFT key and press COPY key.
159
Examine the previous two error messages
160
R
Might be memory problem
YES
Same Field?
161
NO
S
Most likely a disk drive problem
YES
Floppy module fail ?
162
NO
"NOTFUN" module fail ?
YES
Most likely an interaction problem. Remove disk Press ON/OFF button.
Contact DIGITAL F.S.R.
163
NO
T
Most likely a PDP-8A CPU problem
164
*At this point you may try to continue as far as possible.

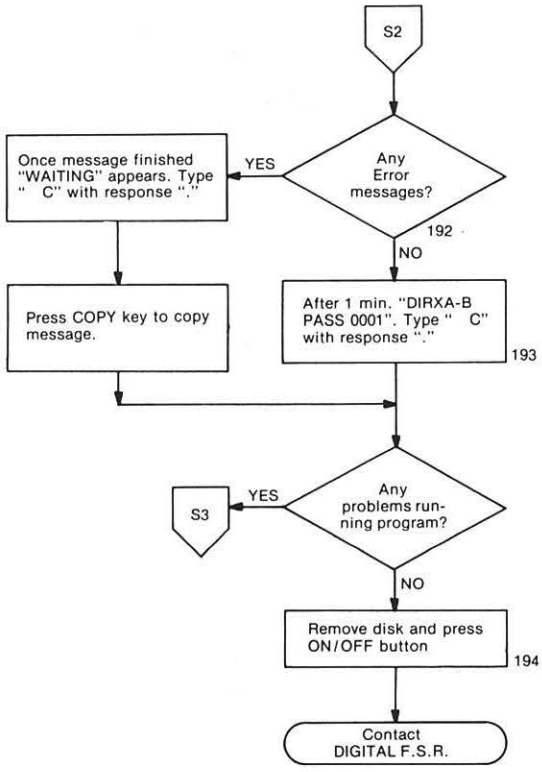

R1
Error messages?
YES
Once the message has finished. "WAITING" will appear. Type "^C" with response "."
176
NO
Press COPY key to copy message.
After 1 min. "DHKMA-B PASS 0001" will appear.
177
Type "^C" to halt program with response "."
Did both pass ?
YES
Memory O.K. Go to diagnostic with module that failed.
178
YES
NO
S
T
Disk Drive
PDP-8A
R2
Did you have any problems ?
NO
Remove disk and press the ON/OFF button.
179
Contact DIGITAL F.S.R.

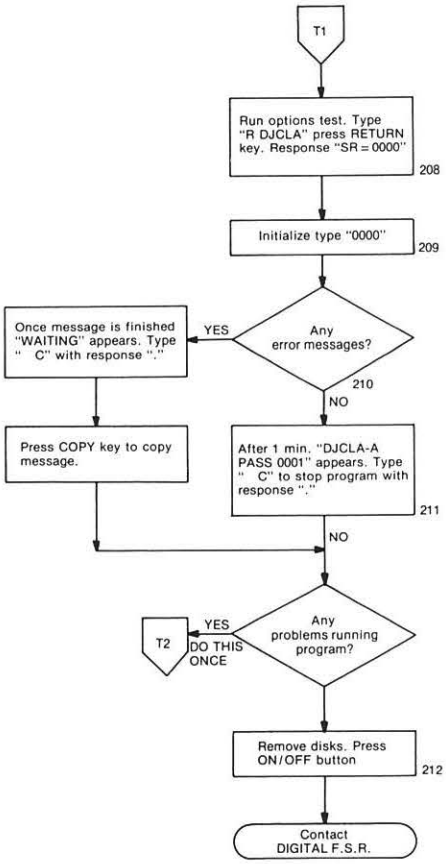

R
To run memory test. Type "R DHRMB" & press return key.
170
R2
Response should be "SR = 0000"
171
Initialize the diagnostic by typing "4003" Test is now running
When error message finish "WAITING" will appear. Type "^C" with response "."
YES
Any error message?
172
NO
Press COPY key to copy message.
After 1 min. "DHKMB-A PASS 0001" will appear.
173
To halt program, type "^C" with response "."
Run checkerboard test. Type "R DHKMA" & press RETURN key.
174
Response should be "SB = 0000"
Initialize the diagnostic by typing "4003" Now the program is running.
175
R1


S
Run RX01 diagnostic. Type "R DIRXA press RETURN key.
180
S3
Response: "MAINDEC-08-DIRKA-B Remove Diagnostic Diskette"
Remove Diagnostic Disk. Load two blank disks
181, 182
Initialize diagnostic. Type "^E" and press RETURN key. Response:
"Select Parameters
SR = 0000"
Type "0500"
Response: "Test Parameters"
SR = 0000"
Type "4001"
Program is now running.
183
Once message finished "WAITING" will appear, type "^C" with response "."
YES
Any error message?
184
Press COPY key to copy message.
After 1 min. "DIRXA-B PASS 0001" appears. Type "^C" with response "." to stop program.
185
S1


S1
Remove blank disk from drive 0 and load Diagnostic Disk
186, 187
Run RX01 reliability test. Type "R DIRXB" and press RETURN key. Response "MAINDEC-08-DIRXA-B Remove Diagnostic Diskette"
188
Remove Diagnostic Disk from drive 0 and load blank disk.
189, 190
Initialize; diagnostic Type: " E", press RETURN key Response: "Select Diskette drive SR = 0000" Type "6000" Response: "Drive selected; 0, 1 Select Test Parameters SR = 6000 Type "0000" Response: "Test parameters: 0000 SR = 0000" Type "4000" Response: "RX8 Device is 6750" Program is now running.
191
S2


T
Run CPU test. Type "R DJKKB press RETURN key.
200
T2
Response "SR = 0000"
Initialize Type "0000". Program is now running.
201
Any error messages ?
202
YES
Once error message finished "WAITING" appears. Type "^C" with response "."
Press COPY key to copy message.
NO
After 1 min. "DJKKB-A PASS 0001". Type "^C" with response "."
203
Run PDP-8A excerciser. Type "R DJEXC" and press RETURN key. Response "SR = 0000"
204
Initialize: Type "0000" Program is now running.
205
Any error message?
206
YES
Once error message finished "WAITING" appears. Type "^C" with response "."
T1
After 1 min. "DJEXC-A PASS 0001", type "^C" with response "."
207


S2
Any Error messages?
192
YES
Once message finished "WAITING" appears. Type " C" with response "."
NO
Press COPY key to copy message.
After 1 min. "DIRXA-B PASS 0001". Type " C" with response "."
193
Any problems running program?
YES
S3
NO
Remove disk and press ON/OFF button
194
Contact DIGITAL F.S.R.


T1
Run options test. Type "R DJCLA" press RETURN key. Response "SR = 0000"
208
Initialize type "0000"
209
Any error messages?
210
YES
Once message is finished "WAITING" appears. Type " C" with response "."
NO
Press COPY key to copy message.
After 1 min. "DJCLA-A PASS 0001" appears. Type " C" to stop program with response "."
211
NO
Any problems running program?
YES
T2
DO THIS ONCE
Remove disks. Press ON/OFF button
212
Contact DIGITAL F.S.R.

Appendix A
Ordering Supplies

ORDERING SUPPLIES

If you wish to order supplies for your CLASSIC system, a sales representative can place an order for additional disks, any of the CLASSIC Guides and programmed disks.

If you are interested in the CLASSIC hardware, maintenance manuals and engineering drawings are also available.

Appendix B
Reporting Software Problems

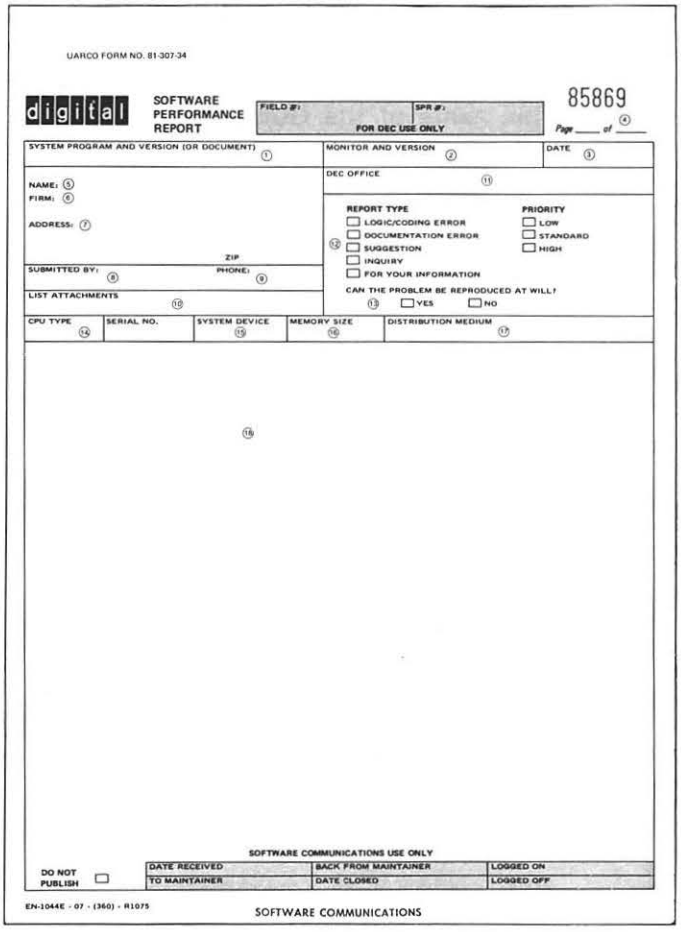
REPORTING SOFTWARE PROBLEMS

If you have problems which you believe to be caused by the CLASSIC software or inaccuracies in the CLASSIC Documentation, you should report these problems to DIGITAL by filling out a Software Performance Report (SPR).

Figure B-1 is a copy of an SPR, with a circled number in each block that you are required to fill out. Leave all other blocks blank.

The information to be written in each block is explained below. Underlined words should be entered exactly as they appear.

1. CLASSIC
2. CLASSIC
3. The day you send in the form.
4. If several pages are required, fill in the number of this page and the total number of pages used.
5. Your system manager's name.
6. The name of your school or company.
7. The business address of your system manager.
8. & 9. Your own name and phone number.


UARCO FORM NO. 81-307-34

digital SOFTWARE PERFORMANCE REPORT

FIELD #: SPR #: FOR DEC USE ONLY

85869

Page ___ of ④

SYSTEM PROGRAM AND VERSION (OR DOCUMENT) ①

MONITOR AND VERSION ②

DATE ③

NAME: ⑤

FIRM: ⑥

ADDRESS: ⑦

ZIP

SUBMITTED BY: ⑧

PHONE: ⑨

LIST ATTACHMENTS ⑩

DEC OFFICE ⑪

REPORT TYPE ⑫

- LOGIC/CODING ERROR
- DOCUMENTATION ERROR
- SUGGESTION
- INQUIRY
- FOR YOUR INFORMATION

PRIORITY

- LOW
- STANDARD
- HIGH

CAN THE PROBLEM BE REPRODUCED AT WILL? ⑬ YES NO

CPU TYPE ⑭ | SERIAL NO. | SYSTEM DEVICE ⑮ | MEMORY SIZE ⑯ | DISTRIBUTION MEDIUM ⑰

⑱

SOFTWARE COMMUNICATIONS USE ONLY

DO NOT PUBLISH

DATE RECEIVED	BACK FROM MAINTAINER	LOGGED ON
TO MAINTAINER	DATE CLOSED	LOGGED OFF

EN-1044E - 07 - (360) - R1075

SOFTWARE COMMUNICATIONS

10. A list of the documents that you are sending with the form. Any report of a software problem should be accompanied by a terminal printout, if you have a line printer. If a BASIC language program was running when the problem occurred, include a listing of the program. For a typical SPR describing a software problem, this block would therefore contain "printout" or "printout and program listing".

11. The location of your local DIGITAL sales office.
12. If you're reporting a software problem, check "LOGIC/CODING ERROR". If the problem seems to be with any of the Guides, check "DOCUMENTATION ERROR".
13. If you can cause this problem to occur at any time by entering certain characters or running a specific program, check "YES". If not, check "NO".
14. 8/A
15. RX01
16. 16K
17. FLEXIBLE DISK
18. In this area, describe the problem, including all circumstances surrounding the occurrence of the problem. Try to isolate the problem as much as possible.
    - If material in any of the Guides is involved, indicate the name of the Guide and the page number.
    - If you have attached any materials, show how they relate to the problem.
    - If you believe you know the cause and remedy for the problem, describe them here in the form:

      PROBLEM

      DIAGNOSIS:

      CURE:

Only one problem should be reported on a single SPR form.

When the form is completed, keep the bottom copy for your records and send the remainder to:

Software Communications
P. O. Box F
Maynard, Mass. 01754

There is a number printed in red in the upper right-hand corner of your form. Keep a record of this number and use it in any communications involving the SPR.

Appendix C
Glossary

B

back panel: the sheet of metal that covers the back of the desk

back-up: a duplicate copy of a disk, kept in case the original disk is damaged or the information it contains is lost

BASIC editor: that part of the CLASSIC software that is used to create and execute BASIC language programs

BASIC language: a set of commands, parameters and rules that may be used to write a computer program on CLASSIC

BASIC language program: a list of BASIC statements that tells the computer how to do a specific job

BASIC Program Demonstration Disk: a disk containing sample BASIC language program for you to run

BASIC System Disk: a disk containing the CLASSIC system software

blank disk: a disk coming without any pre-recorded information or containing no important information that must be preserved

C

cable: a wire used to supply electrical power to a component

cable/connector: the cable and its connector

Central Processor Unit: that part of the CLASSIC system that performs all calculations and controls the operation of the other hardware units.

character: a number, letter or symbol that can appear on the screen or affect the operation of the screen

circuit breaker: a safety feature of the H861 and the VT-50. When too much electrical power comes into a component, the circuit breaker stops all power from entering.

CLASSIC: your system. An acronym for **CLASS**room **I**nteractive **C**omputer.

CNTR column: a column on the DEC/X8 Status Report, that indicates how many times jobs have run.

component: a piece of hardware that is a part of a system

computer: an electronic machine that can be programmed to process data

computer program: (see program)

connector: a piece of hardware used to link two cables

console: part of a computer — a panel on which switches and indicators are located

CPU: central processor unit

cursor: a flashing line on the screen that indicates where the next typed or printed character will appear.

D

data: numbers and words that the computer needs to execute your program

DEC/X8: a selected group of small diagnostic programs, used to determine if CLASSIC, is in proper working order.

device: a unit of hardware that can be used to enter, display or store programs or data

Diagnostic Disk: a prerecorded disk containing DEC/X8 and several lower level diagnostic programs

diagnostic program: a program written to test the proper operation of a component in a system

diagnostics: a set of lower-level diagnostic programs written specifically for one component of a system

disk: a circular piece of magnetized plastic used for storing data or programs.

disk carton: the cardboard box in which you receive your disks

disk cover: the square paper sleeve that is a permanent part of your disk and protects the recording surface

disk drive: the device that reads information from your disks and writes information on your disks

disk envelope: the paper folder in which your disk should be stored; it is designed to protect your disk when it is not in use.

documentation: written material describing a system or program and how to use it.

drive 0: the left-hand disk drive

drive 1: the right-hand disk drive

E

editor: (see BASIC editor)

editor commands: lines that are immediately executed when the editor program is running

error message: an output of a diagnostic program that indicates a harware problem and provides information to fix that trouble.

execute a program: cause the computer to carry out the operations described in the program

F

field: a section of the computer's memory

flowchart: a diagram that shows how a group of activities and decisions is carried out

fuse: a safety feature used in the PDP-8A and the RX01. When too much electrical power comes into a compon-

ent, the filament in the fuse burns out. This stops all power from entering.

ground cable: a safety wire attached to the desk

Guides: the three books that make up the CLASSIC documentation:
(1) *The CLASSIC Primer: A Self-Teaching Guide*
(2) *The CLASSIC User's Reference Guide*
(3) *The CLASSIC Installation and Maintenance Guide*

H

handles: two slots in the back panel used in removing and replacing the back panel.

hardware: pieces of electronic and mechanical equipment

hold screen mode: a state in which the computer halts output when the screen is full.

home: the upper left-hand corner of the screen at which the cursor first appears.

H861: the model number for the power distribution panel

I

indicators: lights used to show the status of a component. Both the H861 and the PDP-8A have indicators

input: data that comes into the computer's memory from the keyboard or a disk

installation: the process of uncrating the system, connecting its units, testing its operation and copying the BASIC system disk.

intensity: the brightness of the display on the screen.

Intensity Control: the lever used to regulate the brightness of the display on the screen.

interaction: the communication between the components of the system

J

job: the number used to represent a module as a part of DEC/X8

K

keyboard: that part of your system that resembles a standard typewriter keyboard and is used to interact with the computer.

keyboard/screen: the keyboard and screen

L

lower-level diagnostics: diagnostic programs used in troubleshooting components of your system

M

maintenance: what you have to do to keep a machine in top working order: troubleshooting and correcting minor problems.

memory: that part of the computer in which programs and data are stored

module: one of the small diagnostic programs that make up DEC/X8

monitor: that part of the system software that displays a dot and executes such commands as DIRECT, R BASIC, RUN and SQUISH.

monitor commands: lines that can be understood by the monitor

O

ON/OFF Switch: the red switch on the front of your CLASSIC desk that causes electrical power to be supplied to the system. The VT-50 also has an ON/OFF switch that controls the electrical power to the terminal.

output: data that a program causes to be displayed on the screen or written on a disk.

P

parameters: words, numbers, or symbols that tell the computer how a command should be carried out.

pre-recorded: a disk that contains data or programs when you receive them.

print: action taken by the system to display lines on the screen or line printer.

print-out: output that is displayed on the screen or line printer.

PDP8A: the model number of the CPU

power cord: a wire used to supply electrical power to your system. The VT-50 also has a power cord that supplies electrical power terminal.

power distribution panel: the component that supplies electrical power to the other components of your system

pretest: the part of the system software that displays "0123" when the START button is pressed. This indicates the system is working.

program: a list of statements that tells the computer how to do a specific job

R

read head: the part of the disk drive that actually detects previously recorded information on the disk.

read/write head: the read head and write head

recording surface: the side of the disk on which information is stored

REMOTE/OFF/LOCAL switch: the three-position switch used for turning the H861 on and off.

run a program: (see execute a program)

RX01: the model number for the disk drives

S

scratch disk: (see blank disk)

screen: the part of your system that looks like a small television and is used to interact with the system

scroll: display an output line on the bottom of the screen causing the top line to disappear and all other lines to move up.

signal cable: a wire used for communication between the CPU and a device

signal cable/connector: a signal cable with its connector

software: the programs that control how the computer works

Software Performance Report: a form used to report software or documentation problems.

START switch: the white switch on the front of your CLASSIC desk that causes system Pretest and the monitor program to be run.

statement: an instruction to the computer; part of a program

STATE column: a column on the DEC/X8 status report that indicates which jobs are ready to be run.

Status Report: an output from DEC/X8 that lists the jobs and current information about them

system: a computer, with all of its devices, software and documentation

System disk: (see BASIC System Disk)

System Exercisor: (see DEC/X8)

system manager: the person in charge of your CLASSIC

system monitor: (see monitor)

T

terminal: the CLASSIC keyboard, screen and copier

troubleshooting: the series of activities and decisions used to locate hardware problems

V

VT-50: the model number for the terminal

W

warm-up: the wait between the time when you press the red ON/OFF button and when the cursor appears on the screen.

write head: the part of the disk drive that actually records the information on the disk.

Please cut along this line.

READER'S COMMENTS

NOTE: This form is for document comments only. Problems with software should be reported on a Software Problem Report (SPR) form.

Did you find errors in this manual? If so, specify by page.

Did you find this manual understandable, usable, and well-organized? Please make suggestions for improvement.

Is there sufficient documentation on associated system programs required for use of the software described in this manual? If not, what material is missing and where should it be placed?

Please indicate the type of user/reader that you most nearly represent.

- ☐ Assembly language programmer
- ☐ Higher-level language programmer
- ☐ Occasional programmer (experienced)
- ☐ User with little programming experience
- ☐ Student programmer
- ☐ Non-programmer interested in computer concepts and capabilities

Name _____ Date _____

Organization _____

Street _____

City _____ State _____ Zip Code _____
or
Country

If you require a written reply, please check here. ☐

---------- Fold Here ----------

---------- Do Not Tear - Fold Here and Staple ----------

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