Table of Contents

Introduction

- Majority of calls received on the 6085 relate to diagnostics and/or recovery procedures.
- This two-day training session should cover the diagnostic and troubleshooting routines you will be performing with the customer when you assume support of the 6085 and 6085-2.
- Focus of training will be on the external customer.

Objectives

- Allow you to become more familiar with the 6085.
- Brief overview of the hardware (some may already be familiar with the boards)
- Discuss software
- How to diagnose and correct hardware and/or software problems
- At the end of training, you will be able to:
  - Recognize hardware and software failures and the procedures you need to perform in order to correct them.
  - Format and partition a rigid drive
  - Load workstation and application software
  - Install and run file check

Hardware (6085 Model 1)

- Before troubleshooting, it's helpful to know the components of a system and their function.
- This part of the training will give an overview of the 6085's hardware.
- Generally, discussion of processor boards relate to the 6085-1.
- The 6085-2 has some differences that will be discussed at the end.
- The 6085 has the usual components -- Display, Keyboard, Optical Mouse, and Floppy Drive.
- Some customers may also have a Cartridge Tape Drive. What you need to remember on this is that the tape drive and floppy drive share the same connection to the 6085 processor. That means they cannot be used at the same time. Also, network services are unavailable during tape operation.
- Front of processor has the B-Reset Button and the Power On/Off Switch. The boot sequence always start with the Pre-Boot Diagnostics.
- Pre-boot is the first program to run. The Pre-Boot Indicators are the three red LEDs. They indicate the status as the system goes through a specified program.
- A pre-boot error is signaled by an audible tone and

the LEDs will indicate the troubleshooting entry. Don't be surprised, however, if your customer doesn't hear the sound! ***(Distribute pre-boot indicators and discuss)***

- If pre-boot diagnostics pass, all three red LEDs will be off and only one green LED above them will be on.

*****

- Next sequence in boot process is the appearance of boot softkeys.

- Keys will be displayed for 20 seconds. You may select either diagnostic or non-diagnostic boot devices by pressing the appropriate function key.

- If no selection is made within 20 seconds, the default boot device (usually the rigid, which is F1) will be used.

F2 - boot from floppy
F3 - Many customers never see - don't have network
F5 - tend not to use
F6 - Floppy diagnostics - most accurate

- ***Distribute boot soft key representation and discuss. Make note of the F9 key. Explain how it can be used. Also, explain that normally we do not use the F5 key to run diagnostics.***

if not config for floppy - hold F9 key which brings up the F keys

*****

- Back of processor contains several circuit boards where the cables are connected. We'll review each one briefly.

- C1 Slot - DCM (Display Control and Memory) - Display cable is plugged into this one. It contains the display controller and the main memory, which consists of display memory and system memory. Up to 1.0MB of system memory (in 512Kbyte blocks) is

a Mod 2 don't have MEB

on the DCM. Additional system memory is on the Memory Expansion Board.

- C2 Slot - MEB (Memory Expansion Board) - An optional board for the 6085-1. Contains additional system memory. Can be viewed as one memory unit which has five memory banks of 512Kbytes each.

  - Works in conjunction with the DCM.

  - With each row (bank) of chips added to the board, the memory will be increased by 512Kbytes.

  - Standard 6085 has 1.1 memory. One row of chips on the MEB, increases memory to 1.6.

  - Two rows = 2.1

  - Three rows = 2.6

  - Four Rows = 3.1

  - Five Rows = 3.7 (maximum amount on 6085-1)

- C3 Slot - MPB (Mesa Processor Board) - Contains the high speed central processor.

  - Standard control store is composed of twenty-four 4K x 4 bit RAM chips arranged in two banks of twelve for a total of 4K.

  - An optional kit (75D) can be purchased and installed to increase the control store to 8K. Kit contains 12 chips that are installed by a technician. The Support Center does ***not*** assist

customers with installing any type of hardware since Xerox could be held liable. We do, however, at times have to assist the technicians with this. After installation, configuration must be changed to reflect the additional 4K. New microcode is also needed. ***(Will be covered later)***

- C4 Slot - IOP (Input/Output Processor) - Main function is to control all the I/O devices associated with 6085. Contains the circuitry for the following controllers: Rigid Disk, Floppy Disk, Keyboard and Mouse, Ethernet and RS232C.

  - The C4 board contains an Ethernet Host Address PROM, which is a unique 48 bit identifier which provides network address recognition. **Note: This is key to remember for customers whose 6085 is being used as a LAN host. If the host workstation has its IOP replaced, the tech should remove this network address chip from the old board and put it on the new board. Failure to do so will cause problems. However, there is a workaround which is documented in the Basic LAN documentation.**

- C5 - Dual purpose slot. Customers can have one or both of the following: PCE (Personal Computer Emulation) and LPO/SPO (Local Printing Option/Scanner Printing Option) boards.

  - An additional option that must be purchased. Without this board and the accompanying software, customers cannot read MS-DOS formatted floppy diskettes. The PCO board is located on the top of the C5 board.

a few customers to use PCE

During Diagnostics - if have LPO then 4045 needs to be on Diagnostics knows something is suppose to be there, so it checks. If the printer is off, then Diagnostics fails.

- The LPO is needed if the customer has a local 4045 attached to the processor. The SPO is used by the customer who has purchased a 7650 Scanner in addition to the 4045. Two external ports are provided on the board. One is dedicated to the printing application and the other is to connect the scanner.

- C7 - This is where the primary storage device (rigid drive) is housed. mostly 80's & a few 100's what we support 40 Meg to 190

***** 190 may not be supported

6085-2

only takes 15 minutes to do a file check on 6085-1 – takes a couple hours

- Hardware Differences:

  - New version of DCM. Combines the functions of the DCM and MEB. The DCM features 4MB of RAM.

  - New version of MPB. Features 16KControl Store. Software only uses 12K, however. That's why when you see the Mesadaybreak file for a 6085-2 it has 12k in its name, rather than 16k. ***That will be discussed later.***

  - New version of IOP. Features updated boot and rigid disk controller PROMs that operate with the hardware and software enhancements.

  - Larger disk drives available -- 100MB and 190MB

  - These boards will be marked with the name of the board on the spine and a "-2" after it.

- Software Differences:

  - Disk operating system is a new version of Pilot (15.0)

  - Features track buffering which enables the drive to read a whole track of data instead of waiting for a particular section to come around. This increases the speed of disk data access.

  - Data recovery is more reliable with this version of the operating system. File check takes a much shorter period of time (usually around 1/2 hour).

  - The 6085-2 only runs ViewPoint 2.0 or higher.

- Diagnostic Differences:

  - Only applicable for 2.0 Version

  - User interface and most functions of the diagnostics for the 6085-2 remain the same

  - Boot Diagnostics, Version 3.0, can be used on all models of the 6085.

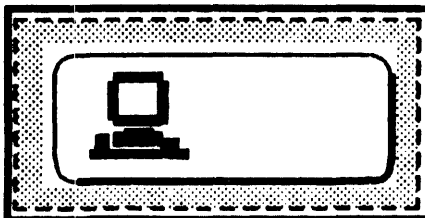
  - Off-Line Diagnostics, Version 3.0, is unique to the 6085-2 and is not compatible with earlier models of the 6085.

  - On-Line Diagnostics are the the same as VP 2.0

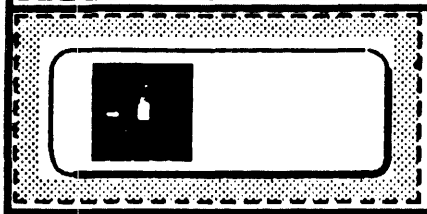
End of hardware module. Check (1)

Table 2-1 Pre-Boot Failure Indicators / Repair Analysis	
Indicators*	**Component(s) to replace**
■ ■ ■	(Not a failure status)
■ ■ □	IOP (4.12)
■ □ ■	IOP (4.12)
■ □ □	Keyboard, IOP (4.12)
□ ■ ■	Keyboard, IOP (4.12)
□ ■ □	IOP (4.12)
□ □ ■	IOP, Host ID PROM (4.12)
* ■ = Indicator On, □ = Indicator Off	

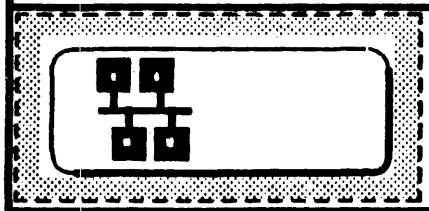
4.12 - a Technician procedure



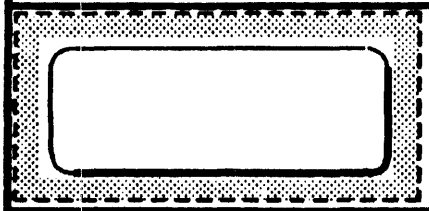
<F1> - the system (application) software on the rigid of the 6085 PCS boots.



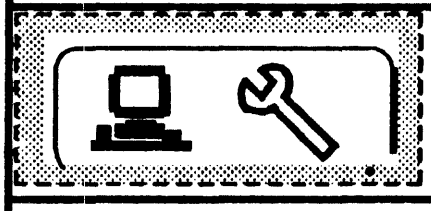
<F2> - a software application or routine is loaded from a floppy (inserted in the floppy disk drive of the 6085 PCS).



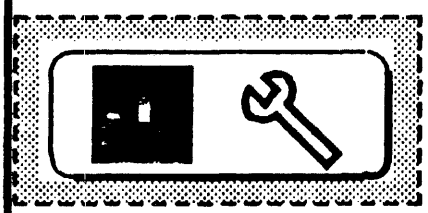
<F3> - the system boots the Network Executive menu from the Ethernet network.



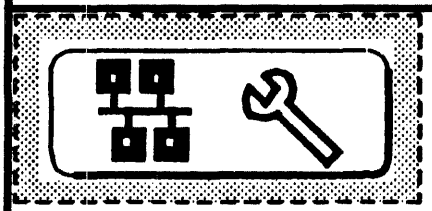
<F4> - (Currently not implemented.)



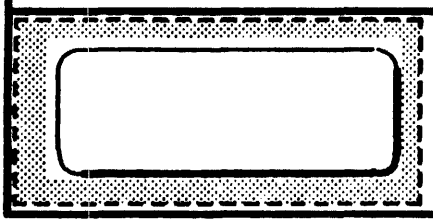
<F5> - the Boot Diagnostics run from the rigid disk drive of the 6085 PCS. Pressing this key once runs the short boot diagnostics. Pressing this key twice runs the long boot diagnostics.



<F6> - the Boot Diagnostics run from the Boot Diagnostics Floppy (inserted in the floppy disk drive of the 6085 PCS). Pressing this key once runs the short boot diagnostics. Pressing this key twice runs the long boot diagnostics.



<F7> - the Boot Diagnostics run from the Ethernet. Pressing this key once runs a short boot. Pressing this key twice runs a long boot.



<F8> - (Currently not implemented.)
<F9> - (Currently not implemented.)
<F10> - (Currently not implemented.)

Progress Check (1) - Hardware

1. What two hardware components share a connection on back of the 6085 processor? ***(Floppy drive and cartridge tape)***

2. What two boards share the same "cookie sheet"? ***PCE and LPOISPO***

3. Where is the 6085's main memory stored? ***DCM***

4. What does MEB stand for and what does it doe? ***Memory Expansion Board. Holds system memory over the 1MB on the DCM.***

5. If the customer turned the 6085 on and didn't get the boot soft keys, what would you look at first? ***The three red LEDs***

6. How would you perform the long version of Extended Boot Diagnostics from the boot soft keys? ***F6 2x rapidly from floppy or F7 2x rapidly from net***

7. When the boot soft keys appear at the bottom of the screen, you notice that the F2 key is blank. What does that mean? How would you get around this if you needed the customer to run diagnostics from floppy? ***Means that the floppy is not installed properly or the system was not configured to show the presence of the floppy drive. Reboot the workstation and press the <F9> key until all the soft keys are visible.***

Lab Exercise:

1. Remove the appropriate board and determine how much memory is installed on your 6085. LEB - 2

2. Make note of which optional PWBs are installed on your workstation, if any.

3. Run the short version of Boot Diagnostics from the rigid. Record how long the procedure took. F5

4. Run the long version of Boot Diagnostics (either from floppy or the net). F6 F7
Observe the numbers on the screen as the system goes through the diagnostic procedures. What happens at the end of the routine?

Diagnostics (General)

- This section discusses the various diagnostic routines.
- Most common used on the phone with the customers are Boot Diagnostics and Off-Line Diagnostics
- **Importance of running diagnostics prior to taking any recovery action cannot be stressed enough. Probability of recovering customer's data is increased when diagnostics are run first. Usual course of action is to run Confidence Test followed by the Extended Boot Diagnostics. (Both will be discussed in detail later)**
- Pre-Boot Diagnostics:
  - Discussed briefly earlier when talking about the 6085 processor.
  - Designed to perform a series of sequential tests of the components needed to boot other software or diagnostic routines from the rigid or floppy disk.
  - Contained in one of the Programmable Read Only Memory (PROM) chips on the IOP.
  - Run automatically when you press the B-Reset button or turn the processor on.

extended boot diagnostics to check the board

- Boot Diagnostics:
  - Provide a comprehensive set of tests for all hardware necessary to load the operational software.
  - Can be loaded (run) from the rigid, floppy, or over the net. ***(Check to see if they know which one is which)***
  - If you suspect the rigid disk may be at fault, it is better not to run the boot diagnostics from the rigid. **Good rule of thumb is that the diagnostic results are more reliable when performed by floppy.**
  - Two versions of Boot Diagnostics -- short and long. Long is also known as Extended Boot Diagnostics.
  - Both versions validate the major electronic portions of the processor.
  - Boot Diagnostic Program checks processor's configuration.
  - Short Boot is normally used for routine checks, while long boot is used when intermittent problems are suspected.
  - With the long boot diagnostics, additional and more extensive tests are performed, particularly memory tests.

m button moves codes to bottom

r - report card - 4 digit
- space bar goes back to codes

- Long version takes approximately 12 minutes to run.

- When tests are successful, soft keys return to the display. Unlike a B-Reset or power on, the default F1 key will not highlight after 20 seconds. The softkeys will remain on the screen until a boot selection is made.

- If the system fails a test, the test stops at that test number. The cursor box then alternates with two sets of numbers. These are called Error Codes which should be recorded for future reference. By pressing the "R" key (for report), four numbers and letters will be shown in the Cursor Box. This new code is called a Report Code, which should also be recorded. By depressing the spacebar, the Report Code will flip back to the Error Codes. **Note: If customer is having a problem reading the numbers on the top of the screen, you can depress the "M" key to move it to the bottom of the screen.**

- Before placing a service call, you should check the Boot Diagnostics Cursor Codes to see which test failed. There may be times when a configuration change can fix the problem that made the test fail. ***(Distribute hand-out and discuss)***

- **Note: Customers with an attached 4045 must turn the printer on. If the printer is off, the diagnostics will fail (1D00/0008, Report Code 5021). Another one to note is 1C00/0009, Report Code 402D. If the customer has PCE, verify that they are configured for PCE and the board is installed. If the customer has Companion 386,**

they have to run Extended Boot diagnostics from the floppy boot diagnostics version 2.1. They cannot run this test from the rigid, network,or floppy using 2.0 diagnostics or it will fail to the above codes.

- Off-Line Diagnostics F2 - by Floppy F3 - by net
  a different set of diagnostics
  - Programs are menu driven and require a minimum amount of typing by the user.
  - Different test selections with various capabilities are provided for the User, System Administrator and Technical Support.
  - SA and Technical Support levels require passwords.
    - SA password is RGMSN
    - Technical Support password is REXIFSN

have to be Tech to change the control store

  - Tests are accessed via floppy or over the net, if the customer has Boot Service.
    - By floppy you would use System Bootfile Disks. For VP 2.0, there are two diskettes. For XGV 3.x, there are 3. The diskette labeled "Workstation Diagnostics" contains the Off-Line Diagnostic programs. With the appropriate disk inserted in the floppy drive, you would press <F2> By net, you would boot <F3> and choose "Diagnostics" from the main menu (rather than Installer).
    - Don't confuse these with the Boot Diagnostics.

Boot

Running Off-Line require that you use either <F7> by net or <F6> by floppy (one diskette, labeled Boot Diagnostics. → checks the boards

- On-Line Diagnostics
  → mostly mouse & keyboard tests
  - Another set of tools for troubleshooting workstation. Menu-driven.
  - As name implies, diagnostics are run while the system is up and **on-line.**
  - Provide diagnostic programs for testing the Display, Keyboard, Mouse, Floppy Disk Drive, Ethernet, RS232C Ports, Laser Printer Option, 7650 Pro Imager, and Cartridge Tape.
    & scanner
  - Programs are stored on the rigid disk and are accessed through the operating software.
  - All of the available tests are shown on an initial menu accessed by selecting [Test] from the Desktop Auxiliary Menu.
  - Individual tests are selected from this main menu. Each test has a separate window for information and procedures.
  - All tests are self-explanatory. **Refer to Chapter 6 of the 6085 PCS Diagnostics Handbook for details.**

End of General Diagnostics Discussion. Check (2)

often when have trouble w/ not getting bouncing at log off
goes right to logon
Keyboard problem - often key 5
Pull out plug, & put back in

2.0 EXTENDED BOOT DIAGNOSTICS

Disks needed: • 6085 Offline Diagnostics
Boot Diagnostics
Primary - Bootable - Press F6

NOTE: Make sure local printer is on to run this test.
Other versions of Boot Diagnostics may differ slightly.

	Options given	Action to take
1.	Need to run Extended Boot Diagnostics	Insert Boot Diagnostics disk press **B** reset button
2.	Softkeys on screen	Press **F6** key **2** times
3.	System will black out and will display codes and test patterns.	Note: Test takes approximately 15 minutes.
	If **Passed:** Softkeys appear on screen.	Ok to continue with file check or other tests as appropriate.
	If Failed: Codes cycling on screen.	Press **R** for repair code -To return to cycling codes press **space bar** - Record cycling codes and repair code - Call Customer Support Center

Boot Diagnostics Cursor Codes

The following list provides a description of the individual cursor codes. It contains very few troubleshooting or recovery action procedures.

The terms contained within this list are used by the developers, and are not intended to be fully understood by Service Representatives or Systems Analysts. This list should be considered as additional reference material.

▮*NOTE: Repair Analysis Procedures can be found in Section 2 of the Xerox 6085 PCS Service Manual.*▮

Code	Description
0D00	Ethernet, 1 Pass, 1A Set up.
0D01	Ethernet, 1 Pass, Configure, Dump Command.
0D02	Ethernet, 1 Pass, Transmit with Receive.
0D03	Ethernet, 1 Pass, Transmit without Receive.
0D04	Ethernet, 1 Pass, Transmit with Receive, interface loop-back.
0D05	Ethernet, 1 Pass, Transmit without Receive, interface loopback.
0D06	Ethernet, 1 Pass, Diagnose command.
0D07	Ethernet, 1 Pass, 1A Set-up.
0D08	Ethernet, 1 Pass, Configure, Dump command.
0D09	Ethernet, 1 Pass, Transmit with Receive.
0D0A	Ethernet, 1 Pass, Transmit without Receive.
0D0B	Ethernet, 1 Pass, Transmit with Receive, interface loopback.
0D0C	Ethernet, 1 Pass, Transmit without Receive.

0D0D	Ethernet, 1 Pass, Transmit with Receive (connect to net or loopback cable).
0D0E	Ethernet, 1 Pass, Transmit without Receive (connect to net or loopback cable).
0D0E	Ethernet, 1 Pass, All test, Net loopback (connect to net or loopback cable).
0D0F	Ethernet, 1 Pass, Diagnose command.
0E00	Floppy, 1 Pass, FDC No Connection Test.
0E01	Floppy, 1 Pass, Recalibrate.
0E02	Floppy, 1 Pass, Read ID.
0E03	Floppy, 1 Pass, Write.
0E04	Floppy, 1 Pass, Read.
0E05	Floppy, 1 Pass, Write deleted data.
0E06	Floppy, 1 Pass, Read deleted data.
0E07	Floppy, 1 Pass, FDC No Connection Test.
0E08	Floppy, 1 Pass, Recalibrate.
0E09	Floppy, 1 Pass, Format.
0E0A	Floppy, 1 Pass, Write.
0E0B	Floppy, 1 Pass, Read.
0F00	RS232C, 1 Pass, Async, Polling (connect loopback cable).
0F01	RS232C, 1 Pass, Async, Polling (connect loopback cable).
0F02	RS232C, 1 Pass, Async, Polling (connect loopback cable).
0F03	RS232C, 1 Pass, Async, Polling (connect loopback cable).
0F04	RS232C, 1 Pass, Async, Polling (connect loopback cable).
0F05	RS232C, 1 Pass, Async, Polling (connect loopback cable).
0F06	RS232C, 1 Pass, Async, Interrupts (connect loopback cable).
0F07	RS232C, 1 Pass, SDLC, Interrupts (connect loopback cable).

0F08	RS232C, 1 Pass, SDLC, Interrupts (connect loopback cable).
0F09	RS232C, 1 Pass, SDLC, Interrupts (connect loopback cable).
1A00	System, CP.
1A01	System, Display VI, Floppy, RS232, Ethernet.
1A02	System, CP.
1A03	System, Display VI, Floppy, RS232, Ethernet, CP.
1A04	System, Display VI, Floppy, RS232, Ethernet, CP.
1A05	System, Display VI, Floppy, Ethernet, CP.
1A06	System, Floppy, CP.
1A07	System, Format Floppy.
1B00	Disk, FIFO Test.
1B01	Disk, Non-Destructive Disk Test.
1B02	Disk, Format Read Check.
1B03	Disk, Write, Read Log.
1B04	Disk, Full Format, Write, Read Log.
1B05	Disk, Seek Read Headers on Cylinder 0.
1B06	Disk, Seek Read Headers on Diagnostic Cylinder.
1B07	Disk, Seek Safe Landing Zone.
1C00	PCO Test. (System Configuration check.)
1C01	PCO Test: I/O Trapper Test
1C02	PCO Test: Memory Pattern Test
1C03	PCO Test: Memory Address Test
1C04	PCO Test: Memory Bank Test
1C05	PCO Test: Display Trapper Test
1C06	PCO Test: PCE Programmable Interrupt Controller (PIC) Test

1C07	PCO Test: PCE Programmable Interval Timer (PIT) Test
1C08	PCO Test: Speaker Port Test
1C09	PCO Test: Upper Chip Select (UCS) Test
1C0A	PCO Test: Run All Tests
1D00	Maintenance Mode Byte Test. (System Configuration check.) Double check printer is turned on
1D01	Maintenance Mode Word Test.
1D02	Printer Word Test.
1D03	Printer Byte Test.
1D04	Fault Interrupt Test.
1E00	LPO Maintenance register word loopback test. (System Configuration check.)
1E01	LPO Maintenance register word loopback test.
1E02	LPO/SPO Print-Out on Printer Port, word mode test.
1E03	LPO/SPO Print-Out on Printer Port, byte mode test.
1E04	LPO Fault Interrupt test.
1E05	SPO Print-Out on Scanner Port, word mode test.
1E06	SPO Print-Out on Scanner Port, byte mode test.
1E07	SPO Printer Port hard reset test.
1E08	SPO Data register word loopback test.
1E09	PPO Fault Interrupt test for SPO.
1E0A	SPO Scanner Port hard reset test.
1E0B	SPO Initialize - WS-Communication test.
1F00	PCX Test: PCX186/Mailbox Test
1F01	PCX Test: Trap Registers and DspSwRtn Test
1F02	PCX Test: Memory Pattern Test
1F03	PCX Test: Memory Address Test
1F04	PCX Test: Memory Bank Test

1F05	PCX Test: Peripheral Interrupt Controller (PIC) Test
1F06	PCX Test: Keyboard Driver Self Test
1F07	PCX Test: Keyboard Driver Echo Test
1F08	PCX Test: Serial Controller Internal Loopback Test (using polling)
1F09	PCX Test: Serial Controller Internal Loopback Test (using interrupts)
1F0A	PCX Test: Serial Controller Internal Loopback Test (using DMA and interrupts)
1F0B	PCX Test: Timer 2 Test
1F0C	PCX Test: Serial Controller Break/Parity Test
1F0D	PCX Test: Serial Controller Overrun Test
1F0E	PCX Test: Serial Controller Channel B Internal Loopback Test (using polling)
A400	Boot File, Daybreak Display Vertical Event Interrupt.
A401	Boot File, Daybreak IOP/PCO Map Reg Test.
A402	Boot File, Daybreak Host Prom Test.
A403	Boot File, Daisy Shift Reg Test.
A404	Boot File, Dove CS, Constant data (0000) Test.
A405	Boot File, Dove CS, Constant data (FFFF) Test.
A406	Boot File, Dove CS, Constant data (AAAA) Test.
A407	Boot File, Dove CS, Constant data (5555) Test.
A408	Boot File, Dove CS, Address data Test.
A409	Boot File, Dove CS, Random data Test.
A40A	Boot File, Dove CS, Bank Test.
B500	Boot File, Daybreak CP, MoonBus or Daisy CP, Moonrise 1.
B501	Boot File, Daybreak CP, MoonSun or Daisy CP, Moonrise1.
B502	Boot File, Daybreak CP, MoonSun or Daisy CP, Moonrise2.

B503	Boot File, Daybreak CP, MoonSun3 or Daisy CP, Moonrise3.
B504	Boot File, Daybreak CP, MoonSun4 or Daisy CP, Moonrise4.
B505	Boot File, Daybreak CP, MoonSun or Daisy CP, Moonrise5.
B506	Boot File, Daybreak CP, Real Time Clock or Daisy CP, Moonrise6.
B507	Boot File, Daybreak CP, Memory Interface, MoonMR or Daisy CP, Memory Interface, Moonrise7.
B602	Boot File, Daisy CP, Moonrise2.
B603	Boot File, Daisy CP, Moonrise3.
B704	Boot File, Daisy CP, Moonrise4.
B705	Boot File, Daisy CP, Moonrise5.
B800	Boot File, Daybreak CP, MoonBus.
B801	Boot File, Daybreak CP, MoonSun1.
B802	Boot File, Daybreak CP, MoonSun2.
B903	Boot File, Daybreak CP, MoonSun3.
B904	Boot File, Daybreak CP, MoonSun4.
B905	Boot File, Daybreak CP, MoonSun5.
BB06	Boot File, Daybreak CP, Real Time Clock, MoonTime.
BB07	Boot File, Daybreak CP, Memory Interface, MoonMR.
BC06	Boot File, Daisy CP, Moonrise6.
BC07	Boot File, Daisy CP, Memory Interface, Moonrise7.
CA00	Memory, 1 Pass Block Data = 0000, Display Off, CP, Write only, ignore Parity Error.
CA01	Memory, 1 Pass Block Data = 0000, Display On, CP.
CA02	Memory, 1 Pass Block Data = FFFF, Display On, CP.
CA03	Memory, 1 Pass Block Data = AAAA, Display On, CP.
CA04	Memory, 1 Pass Block Data = 5555, Display On, CP.

CA05	Memory, 1 Pass Block Data = AAAA, Display On, IOP.
CA06	Memory, 1 Pass Block Data = 5555, Display On, IOP.
CA07	Memory, 128 Passes Inc Block Data = AAAA, Display On, CP.
CA08	Memory, 4 Passes Address Test, Display On, CP.
CA09	Memory, 1 Pass Address Test, Display On, IOP.
CA0A	Memory, 4 Passes Address Test, Display On, IOP and CP.
CA0B	Memory, 2 Passes Bank Test, Display On, CP.
CA0C	Memory, 1 Pass Bank Test, Display On, IOP.
CA0D	Memory, 2 Passes Address Test, Display On, IOP and CP.
CA0E	Memory, 128 Passes Random Data = ABCD, Display On, CP.
CA0F	Memory, 2 Passes Random Data = ABCD, Display On, IOP and CP.
CA10	Memory, 128 Passes Random Data = 1234, Display On, CP.
CA11	Memory, 5 Passes Map Inc Data Type Inc Data = DCBA, Display On, CP.
CA12	Memory, 1 Pass Map Read only Data = E0BE, Display On, IOP.
CA13	Memory, 5 Passes Map Inc Data Type Inc Data = 4321, Display On, IOP and CP.
CA14	Memory, 1 Pass Memory Size, Display Off, IOP and CP.

Normal User

1 - Ethernet Tests 1 - Echo Test ..... 2 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Do the Ethernet Echo Test
2 - Floppy Disk Tests 1 - Clean Floppy Heads ..... 2 - Standard Tests (Use floppy diskette labeled 'Workstation Diagnostics') ..... 3 - Display Floppy Error Log ..... 4 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Cleans floppy drive heads. Performs non-destructive diagnostics. Displays the current Diagnostic Error Log.
3 - Floppy Disk Utility 1 - Diskette Copy And Checksum Utility ..... 1 - Read Master ..... 2 - Make Copy ..... 3 - Calculate Checksum ..... 4 - Quit 2 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Makes copies of diskettes; calculates checksums for diskettes. Reads master for a file. A master must be read before "Make Copy" can be executed. Copies master to diskette, verifies new diskette, calculates checksum for new diskette. Reads diskette and calculates its checksum.
4 - Formatter, Scavenger and Bad Page Utility Is this disk formatted? Y 1 - Run Physical Volume Scavenger ..... 2 - Bad Page Utilities ..... 1 - Display Bad Page Table ..... 2 - Scan Disk For New Bad Pages ..... Please enter the number of times to scan the disk: 1 Number of retries per pass: 9 3 - Page Scavenger ..... Please enter page to be scavenged: 4 - Go To Previous Menu 3 - Head Retraction ..... 4 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Checks the integrity of the physical volume. Returns the physical volume to a consistent state. Provides various utilities to handle bad pages. Displays the contents of the existing Bad Page Table. Scans the entire disk surface for bad pages. Attempts to make an unreadable page readable. To be used before moving or shipping, this utility moves the rigid disk heads to a safe landing zone prior to powering off the 6085.

Normal User

5 - Rigid Disk Tests Examining whether the disk was already formatted or not. 1 - Confidence Test ..... 2 - Display Options ..... 1 - Display Error Log ..... 2 - Display Encountered Soft Errors ..... 3 - Go To Previous Menu 3 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	 Does a thorough nondestructive verification of the disk. [No option of # of passes.] Display the Display Options Menu. Displays errors encountered from a circular table. Displays the soft errors encountered while running.
6 - Keyboard/Display/Mouse/Beeper Tests 1 - Keyboard, Mouse and Beeper Tests ..... 2 - Fill Screen With H, E, @, OR Slanted Lines ..... 3 - Cross-Hair Pattern ..... 4 - Display X-Y Alignment ..... 5 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	 Tests keyboard, mouse and beeper. NEXT displays the next pattern, if any; SPACE inverts the display; STOP exists the test. Prints a cross-hair pattern on the data field. Allows one to adjust the position of the data field on the screen. [The Display Alignment command is not supported for this system.]
7 - System Configuration Utility 1 - Set Configuration ..... 2 - Show Configuration ..... 3 - Go To Previous Menu	 Enables one to display and modify the current configuration.

1 - Ethernet Tests	
1 - Echo Test	Do the Ethernet Echo Test
2 - Interface Test	Run LSI diagnostics, Internal Loopback and TDR test automatically.
3 - Ethernet Datalink LSI Diagnostic	This command diagnose Data Link Controller on IOP PWBA.
4 - Ethernet Internal Loopback Test	This command tests serial interface of Data Link Controller using Internal Loopback.
5 - Communication Turnaround Test	This command will determine the Transceiver Cable,Transceiver and IOP PWBA. Communication Turnaround Plug is required.
6 - Go To Previous Menu	
Test data will be deleted upon exit. Is this OK? N	
2 - Floppy Disk Tests	
1 - Format the diskette as Pilot file system	Formats a floppy diskette
2 - Clean Floppy Heads	Cleans floppy drive heads.
3 - Standard Tests (Use floppy diskette labeled 'Workstation Diagnostics')	Performs non-destructive diagnostics.
4 - Exerciser test (Destructive - use scratch diskette) .	Performs a destructive diagnostic.
5 - Display Floppy Error Log	Displays the current Diagnostic Error Log.
6 - Go To Previous Menu	
Test data will be deleted upon exit. Is this OK? N	
3 - Floppy Disk Utility	
1 - Diskette Copy And Checksum Utility	Makes copies of diskettes; calculates checksums for diskettes.
1 - Read Master	Reads master for a file. A master must be read before "Make Copy" can be executed.
2 - Make Copy	Copies master to diskette, verifies new diskette, calculates checksum for new diskette.
3 - Calculate Checksum	Reads diskette and calculates its checksum.
4 - Quit	
2 - Go To Previous Menu	
Test data will be deleted upon exit. Is this OK? N	
4 - Formatter, Scavenger and Bad Page Utility	
Is this disk formatted? Y	
1 - Format Rigid Disk	Formats rigid disk, creates physical volume Rd0 and logs bad pages.
2 - Run Physical Volume Scavenger	Checks the integrity of the physical volume. Returns the physical volume to a consistent state.
3 - Bad Page Utilities	Provides various utilities to handle bad pages.
1 - Display Bad Page Table	Displays the contents of the existing Bad Page Table.
2 - Scan Disk For New Bad Pages	Scans the entire disk surface for bad pages.
Please enter the number of times to scan the disk: 1	
Number of retries per pass: 9	

3 - Manual Entry of Bad Pages ..... Is the spot length in bits? 1 - Enter By Page Number ..... 2 - Enter by Manufacturer's Error Map ..... 3 - Go To Previous Menu ..... 4 - Page Scavenger ..... Please enter page to be scavenged: 5 - Fix Bad Page Headers ..... 6 - Reset Bad Page Table ..... 7 - Test Bad Pages ..... Please enter a page number: Number of passes: 10 Number of retries of pass: 10 More to go? Y 8 - Go To Previous Menu 4 - Head Retraction ..... 5 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Adds entries to the bad page table by page number or manufacturer's error map. Adds a specific bad page to the BAD PAGE TABLE. Converts manufacturer's error map entries into page numbers and adds them to the BAD PAGE TABLE. Attempts to make an unreadable page readable. Saves the data on the track with the bad page header, reformats the track and restores the good pages. Destroys disk data and creates new physical volume. Display the Rigid Disk parameters. To be used before moving or shipping, this utility moves the rigid disk heads to a safe landing zone prior to powering off the 6085.
5 - Rigid Disk Tests Examining whether the disk was already formatted or not. 1 - Confidence Test ..... Passes to run: 2 - Display Options ..... 1 - Display Error Log ..... 2 - Display Trace Table ..... 3 - Display Encountered Soft Errors ..... 4 - Rigid Disk Parameters 5 - Go To Previous Menu 3 - Verify Disk Surface ..... 4 - New disk check out ..... 5 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Does a thorough nondestructive verification of the disk. Display the Display Options Menu. Displays errors encountered from a circular table. Displays the executed commands and status from a circular table. Displays the soft errors encountered while running. Displays the Rigid Disk parameters. Verifies the disk surface against the bad page table. Does a thorough destructive verification of the disk.
6 - Keyboard/Display/Mouse/Beeper Tests 1 - Keyboard, Mouse and Beeper Tests ..... 2 - Borders And Data Field ..... 3 - Vertical and Horizontal Bars	Tests keyboard, mouse and beeper. Displays borders and the Data Field. Draws vertical, horizontal and slanted lines. VERTICAL and HORIZONTAL bars of various widths are displayed.

4 - Cross-Hair Pattern ..... 5 - Fill Screen With H, E, @, OR Slanted Lines ..... 6 - Display X-Y Alignment ..... 7 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Prints a cross-hair pattern on the data field. NEXT displays the next pattern, if any; SPACE inverts the display; STOP exists the test. Allows one to adjust the position of the data field on the screen. [The Display Alignment command is not supported for this system.]
7 - System Configuration Utility 1 - Set RAM Bad Table 2 - Set Boot Device Parameters 3 - Set Default Boot Diagnostics Parameters 4 - Set Display Parameters 5 - Set Floppy Disk Parameters 6 - Set Keyboard Parameters 7 - Set Memory Size 8 - Set PC and Other Option Boards Parameters 9 - Set Rigid Disk Parameters * 10 - Set VM and Control Store Parameters 11 - Set Hardware Version Number 12 - Recalculate And Display EEPROM Checksum 13 - Read actual EEPROM contents and abort all modification 14 - Read actual EEPROM contents (in HEX format) to be written * 15 - Show modified EEPROM contents to be written 16 - Write EEPROM With Manufacturing Defaults * 17 - Write EEPROM 18 - Go To Previous Menu	

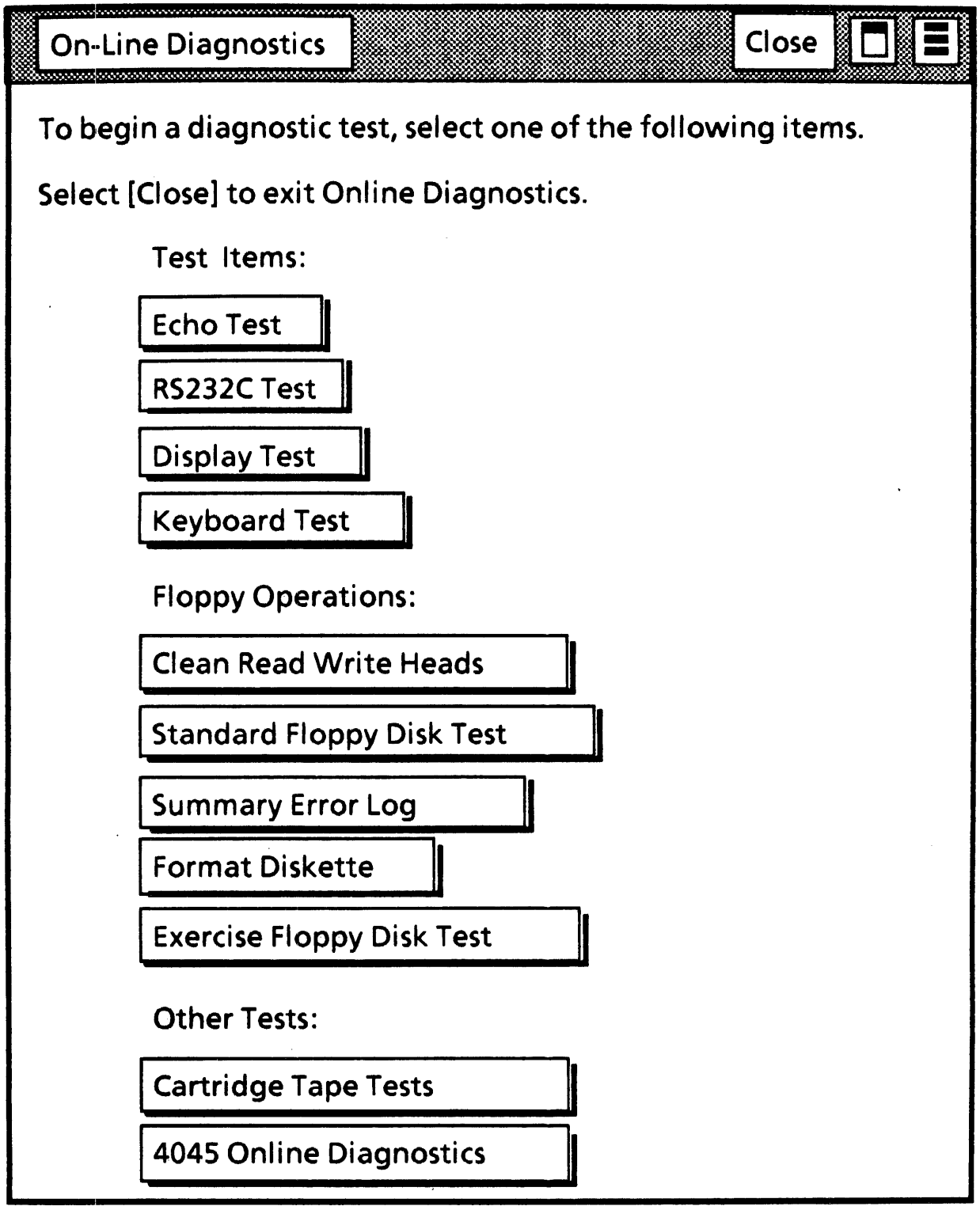
System Administrator

1 - Ethernet Tests	
1 - Echo Test	Do the Ethernet Echo Test
2 - Interface Test	Run LSI diagnostics, Internal Loopback and TDR test automatically.
3 - Go To Previous Menu	
Test data will be deleted upon exit. Is this OK? N	
2 - Floppy Disk Tests	
1 - Format the diskette as Pilot file system	Formats a floppy diskette
2 - Clean Floppy Heads	Cleans floppy drive heads.
3 - Standard Tests (Use floppy diskette labeled 'Workstation Diagnostics')	Performs non-destructive diagnostics.
4 - Exerciser test (Destructive - use scratch diskette) .	Performs a destructive diagnostic.
5 - Display Floppy Error Log	Displays the current Diagnostic Error Log.
6 - Go To Previous Menu	
Test data will be deleted upon exit. Is this OK? N	
3 - Floppy Disk Utility	
1 - Diskette Copy And Checksum Utility	Makes copies of diskettes; calculates checksums for diskettes.
1 - Read Master	Reads master for a file. A master must be read before "Make Copy" can be executed.
2 - Make Copy	Copies master to diskette, verifies new diskette, calculates checksum for new diskette.
3 - Calculate Checksum	Reads diskette and calculates its checksum.
4 - Quit	
2 - Go To Previous Menu	
Test data will be deleted upon exit. Is this OK? N	
4 - Formatter, Scavenger and Bad Page Utility	
Is this disk formatted? Y	
1 - Format Rigid Disk	Formats rigid disk, creates physical volume Rd0 and logs bad pages.
2 - Run Physical Volume Scavenger	Checks the integrity of the physical volume. Returns the physical volume to a consistent state.
3 - Bad Page Utilities	Provides various utilities to handle bad pages.
1 - Display Bad Page Table	Displays the contents of the existing Bad Page Table.
2 - Scan Disk For New Bad Pages	Scans the entire disk surface for bad pages.
Please enter the number of times to scan the disk: 1	
Number of retries per pass: 9	
3 - Manual Entry of Bad Pages	Adds entries to the bad page table by page number or manufacturer's error map.
1 - Enter By Page Number	Adds a specific bad page to the BAD PAGE TABLE.
2 - Enter by Manufacturer's Error Map	Converts manufacturer's error map entries into page numbers and adds them to the BAD PAGE TABLE.
Is the spot length in bits?	
3 - Go To Previous Menu	

4 - Page Scavenger ..... Please enter page to be scavenged: 5 - Fix Bad Page Headers ..... 6 - Reset Bad Page Table ..... 7 - Test Bad Pages ..... Please enter a page number: Number of passes: 10 Number of retries of pass: 10 More to go? Y 8 - Go To Previous Menu 4 - Head Retraction ..... 5 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Attempts to make an unreadable page readable. Saves the data on the track with the bad page header, reformats the track and restores the good pages. Destroys disk data and creates new physical volume. Determines if a page has soft or hard errors. To be used before moving or shipping, this utility moves the rigid disk heads to a safe landing zone prior to powering off the 6085.
5 - Rigid Disk Tests Examining whether the disk was already formatted or not. 1 - Confidence Test ..... 2 - Verify Disk Surface ..... 3 - Display Options ..... 1 - Display Error Log ..... 2 - Display Trace Table ..... 3 - Display Encountered Soft Errors ..... 4 - Go To Previous Menu 4 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Does a thorough nondestructive verification of the disk. [No option of # of passes.] Verifies the disk surface against the bad page table. Display the Display Options Menu. Displays errors encountered from a circular table. Displays the executed commands and status from a circular table. Displays the soft errors encountered while running.
6 - Keyboard/Display/Mouse/Beeper Tests 1 - Keyboard, Mouse and Beeper Tests ..... 2 - Fill Screen With H, E, @, OR Slanted Lines ..... 3 - Cross-Hair Pattern ..... 4 - Display X-Y Alignment ..... 5 - Go To Previous Menu Test data will be deleted upon exit. Is this OK? N	Tests keyboard, mouse and beeper. NEXT displays the next pattern, if any; SPACE inverts the display; STOP exists the test. Prints a cross-hair pattern on the data field. Allows one to adjust the position of the data field on the screen. [The Display Alignment command is not supported for this system.]
7 - System Configuration Utility 1 - Set RAM Bad Table 2 - Set Boot Device Parameters 3 - Default Boot Diagnostics Parameters	

System Administrator

4 - Set Display Parameters 5 - Set Floppy Disk Parameters 6 - Set Keyboard Parameters 7 - Set Memory Size 8 - Set PC and Other Option Boards Parameters 9 - Set Rigid Disk Parameters 10 - Set VM and Control Store Parameters 11 - Set Hardware Version Number 12 - Recalculate And Display EEPROM Checksum 13 - Read actual EEPROM contents and abort all modification 14 - Read actual EEPROM contents (in HEX format) to be written 15 - Show modified EEPROM contents to be written 16 - Write EEPROM With Manufacturing Defaults 17 - Write EEPROM 18 - Go To Previous Menu	


On-Line Diagnostics
Close
To begin a diagnostic test, select one of the following items.
Select [Close] to exit Online Diagnostics.
Test Items:
Echo Test
RS232C Test
Display Test
Keyboard Test
Floppy Operations:
Clean Read Write Heads
Standard Floppy Disk Test
Summary Error Log
Format Diskette
Exercise Floppy Disk Test
Other Tests:
Cartridge Tape Tests
4045 Online Diagnostics

Progress Check 2 - General Diagnostics

1. Which diagnostics are automatically run when you B-Reset the machine? ***Pre-Boot***

2. Boot Diagnostics can be loaded from three devices. Name them. ***Rigid, Floppy, Network***

3. With the aid of your Diagnostics Cursor Codes, what specific questions might you ask the customer if diagnostics failed to the 1C00 code? ***Questions on PC Emulations; ie, are you configured for it, has it been loaded, is the board installed?***

4. Why is the longer version of boot diagnostics (extended boot) better to run than the shorter version? ***Extended boot runs more extensive tests, particularly memory tests.***

5. If the boot soft keys don't appear after running diagnostics, what should you look for? ***Alternating sets of two numbers/letters***

6. If the boot soft keys don't appear, should you place a service call? Why or why not? ***Check the codes in the Diagnostics Cursor Codes. It may be a simple configuration problem that can be corrected. Saves the customer time and money.***

7. What are the steps to access off-line diagnostics from floppy? ***At the boot soft keys, insert the System Bootfile Disk #1, and press F2. Insert System Bootfile #2 when the 2222 code is displayed. Then insert the disk labeled Offline Diagnostics Workstation Diagnostics.***

8. What are the steps to access off-line diagnostics from the net? ***At the boot soft keys, press F3. Once the main menu is displayed, choose the option for Diagnostics.***

9. Where are the on-line diagnostics stored? ***On the rigid***

10. If you are going to have a customer run Extended Boot Diagnostics, why is it important to know whether there is a local 4045 attached to the 6085? ***If the printer is not turned on, the diagnostics will fail. BONUS....what codes?***

Lab Exercise: normal user

1. Run the on-line echo test and record the results.

2. Run the on-line keyboard/mouse/beeper test.

3. Using off-line diagnostics, make a copy of the Boot Diagnostics diskette. Check to make sure it's a good copy by running the short version of boot diagnostics, using your copy of the disk.

MOST USED OFF-LINE DIAGNOSTICS

SYSTEM CONFIGURATION UTILITY

- System Configuration Utility must be used to set workstation's configuration whenever you: SCU
  - Upgrade a 6085 component
  - Install a new system
  - Install a new rigid
  - Install or remove options
  - Install or remove additional RAM
- SCU records a description of a particular system's configuration for use by the software into the EEPROM on the IOP.
- Whenever a rigid disk is formatted or the System Configuration Utility is updated with level 2.0.1 diagnostics or higher, a description of the disk is written to the EEPROM **and** to Cylinder 0, Page 14 (the SDD - self describing disk page) of the rigid disk.
- If at all possible, it is good practice to "Show" configuration prior to running the Confidence Test (discussed later) and the Extended Boot Diagnostics.
  - It will tell you important information that you may need when you are trying to analyze test results.

- Many customers do not know what size rigid they have. Knowing this information you will be better able to determine in which volume a bad page resides.

- Also helpful in knowing if customer has additional options. It can serve as a reminder to you to make sure the customer turns the printer on, if they're configured for LPO/SPO.

- In the majority of cases, you will have the customer select the "Normal User" mode to "Show" or "Set" Configuration.

- Exception to this would be configuring the system for the additional 4K Control Store. Normally, the service rep should do this but sometimes it is necessary to "walk" the customer through this procedure.

  - Choose Technical Support Mode from the diagnostics menu.

  - Choose System Configuration Utility

ask them to read the option

  - Choose Set VM and Control Store Parameters (should be Option #10)

  - Select 8K as Control Store Size.

  - Return to previous menu

  - Choose the option to **Write EEPROM** (should be Option #17). If you do not write the eeprom, the change will not take effect. ***(Look for EEPROM***

successfully written and then reboot)

- Reboot the workstation.

- Boot the installers and choose the option to Load Microcode only. **(this will be covered in the Software section also)**

- When setting configuration in Normal User mode, you can Return through the items you are not going to change.

- For some MP (Maintenance Panel) codes, sometimes just going through the "Set" configuration routine will clear up a problem.

End of System Configuration Utility. Check (3)

Show Configuration

The following is a sample window of the User Level selection, Show Configuration.

```
    1 - Return To The Previous Menu
Enter selection choice: 1
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
                    CURRENT CONFIGURATION
    Keyboard:                 U.S.
    Rigid Disk Drive:         20 MB - Model 3
    Memory:                   1.1 MB
    Floppy Disk Drive:        360 KB
    Network Connection:       Yes
    Cartridge Tape Drive:     Yes
    PC Option:                No
    Universal Option:         Not Present
    Automatic Diagnostics:    No
    Virtual Memory Size:      Twenty-three bits
```

Figure 5-39 Show Configuration

Progress Check (3) - System Configuration Utility

1. Your customer just purchased and installed a PCO board. The PC Emulation Software was loaded into the Application Loader. However, attempting to "Run" it, gives an error message. What will your steps be to correct this problem? ***Load off-line diagnostics. Choose Normal User Mode, and then System Configuration Utility from the main menu. Select the option to "Show" configuration. Verify that the system shows the PC option.***

2. Under what circumstances would you use the Technical Support Mode of the System Configuration Utility? ***To change the control store to 8K.***

3. Name two reasons why it's important to know the system configuration. ***Find out the rigid disk drive size, determine what options were installed, find out how much memory the system has installed, determine the VM.***

Lab Exercise:

1. Do a "Show Configuration" on your 6085. Record the information.

2. Change your configuration to reflect that the system has more RAM than it actually does.

3. Run Extended Boot Diagnostics. What happens?

4. Reset the configuration back to the appropriate memory and run Extended Boot again.

MOST USED OFF-LINE DIAGNOSTICS

Rigid Disk Tests

- Another sub-set of Off-Line Diagnostics
- Used frequently in assisting customers
- ***EXTREMELY IMPORTANT THAT YOU RUN THE CONFIDENCE TEST AND IT PASSES BEFORE PROCEEDING TO A FILE CHECK*** (Scavenger) — also do Extended Boot
- Rigid Disk tests are primarily used to test the functionality of the rigid disk hardware and to isolate rigid disk problems.
- Rigid disk is the most critical component because this is where the customer's data is stored.
- The Rigid Disk Test (Confidence Test) is run when a disk problem is suspected. takes about 4 minutes
- Again, always run prior to a file check. P's or F's Pass or Fails
- Test should be run in the Normal User mode.
- After selecting "Rigid Disk Tests" from the main menu, choose the *Confidence Test* option.
  - Confidence Test does a thorough, non-destructive verification of the rigid disk drive.
  - Test looks for hard errors and excessive soft errors.

- Presents the user with either a PASSED or FAILED message at the end of the test.

- Test normally takes approximately 4 minutes to run. (Smaller disk drives only take approximately 2 minutes to run)

- After starting the test, there is no user intervention.

- If the test fails, a Failure Code will be displayed. ***(Distribute Failure Code listing and discuss)***

- Failure Codes:

  - Identify and prioritize Field Replaceable Units (FRUs) to repair.

  - Customer support typically only deals with Failure Codes 4 and 6. ← we can deal w/ rest call the Tech

4: bad page Failure Code of 4 indicates a bad page was found that is not in the bad page table. *(Will be discussed in the Bad Page Utilities module)*

Will tell the Bad Page

6: Physical Volume - Failure Code of 6 is indicative of a Physical Volume problem. This is ***possibly*** repairable by executing the Physical Volume Scavenger.

if can fix - take 5 to 10 minutes

  - If it fails to Codes 1, 2, 3, 5, 7, and 8, you should place a service call.

End of Rigid Disk Tests. Check (4)

2.0 CONFIDENCE TEST

Disks needed:

- 6085 Offline Diagnostics
  System bootfile
  Primary Bootable - Press F2

1989

2 disks

- 6085 Offline Diagnostics
  Workstation Diagnostics
  Secondary - Insert after booting
  System Bootfile

NOTE: Other versions of ViewPoint Diagnostics may differ slightly

	Options given	Action to take
1.	Confidence Test needs to be run	Insert System Bootfile disk Press **B reset**
2.	Softkeys on screen	Press **F2** key
3.	Msg: Offline diagnostics Version 2.0 Running: Is the Required Disk now loaded?	Insert floppy disk Labeled: *Workstation Diagnostics* press **<return>**
4.	What class of user do you belong to? 1 - Normal User 2 - System Administrator 3 - Technical Support	Choose: Normal user press **1 <return>**
5.	Available Selections 1 - Ethernet Tests 2 - Floppy Disk Tests 3 - Floppy Disk Utility 4 - Formatter, Scavenger and Bad Page Utility 5 - Rigid Disk Tests 6 - Keyboard/Display/Mouse/Beeper Tests 7 - System Configuration Utility	Choose: Rigid disk test press **5 <return>**
	Msg: *Please Wait! Getting time from time server.* *Local Daylight Savings time requirement*	Note: A networked machine will automatically get the time. Skip to step 19.
6.	First day of daylight Savings time (usually = 121):	**98 <return>**
7.	Last day of daylight Savings time (usually = 305):	**305 <return>**

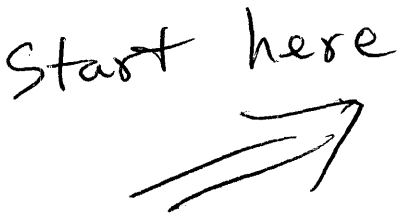
2.0 CONFIDENCE TEST

8.	Time zone from Greenwich: **-5** = Eastern <return> **-7** = Mountain <return> **-6** = Central <return> **-8** = Pacific <return>	Choose time zone and <return> Example: **-5 <return>** for Eastern time zone
9.	Minute offset (standard = 0):	**0 <return>**
10.	Present year:	Enter year Example: **1992 <return>**
11.	Present month:	Enter numeric month Example: **05<return>** if month is May
12.	Present day:	Enter day Example: **10 <return>** if day is the 10 of month
13.	Is this correct y?	Press **Y <return>**
14.	Hour:	Enter in military time Example: **14 <return>** if hour is 2:00 p.m.
15.	Minute:	Enter minutes past hour Example: **15 <return>** if 15 minutes past hour.
16.	Second:	**00 <return>**
17.	Is this correct (yes/no) Y	**Y <return>**
18.	Is the below Date and Time correct (yes/no): Y	**Y <return>**
19.	Test selection: 1 - Confidence 2 - Display Options 3 - Go to Previous Menu	Choose: Confidence test press **1 <return>** Note: -Run time is usually 4 minutes -A series of messages appears on screen during the test -When finished, screen will display "Passed" or "Failed"
	If: **PASSED:**	If Extended Boot Diagnostics have already been run and passed, it's ok to run File Check

17. Offline workstation diagnostics

This chapter contains the step-by-step procedures for running the offline diagnostics tests for the 6085-2 workstation.

Accessing workstation diagnostics



Follow these steps to access workstation diagnostics:

1. Insert the floppy disk labeled **6085-2 Offline Diagnostics 3.X, System Bootfile # 1** into the floppy drive.
2. Press the B Reset button on the front of the processor to boot the system.
3. When the boot soft keys display at the bottom of your screen, press <F2>. Within a few moments, a maintenance code of 2222 is displayed.
4. As soon as the red floppy drive light goes out, insert the floppy disk labeled **6085-2 Offline Diagnostics 3.X, System Bootfile # 2** into the floppy drive.

   Within a few moments, you are given the option to insert a third floppy disk for the type of diagnostics you want to run.

```
Offline Diagnostics Version 3.X of 22-DEC-89 9:25:11
Copyright (C) Fuji Xerox and Xerox Corporations 1985, 1986, 1987, 1988, 1989. All rights reserved.

Running:

Is the Required Disk now loaded?: Y
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
Insert Floppy Disk Labeled:

6085-2 Offline Diagnostics Disk for Workstation Diagnostics.
6085-2 Offline Diagnostics Disk for Pro Imager Diagnostics.
6085-2 Offline Diagnostics Disk for VP Cartridge Tape Diagnostics.
```

5. Insert the Workstation Diagnostics floppy disk and press the return key. You see the message "Loading diagnostics from the current floppy disk" and then a menu displays.

```
Offline Diagnostics Version 3.X of 22-DEC-89 9:25:11
Copyright (C) Fuji Xerox and Xerox Corporations 1985, 1986, 1987, 1988, 1989. All rights reserved.

What class of user do you belong to?
   1 - Normal User
   2 - System Administrator
   3 - Technical Support
Please enter selection:
```

6. Type **1** and press the return key to select the Normal User option. The Offline Workstation Diagnostics Menu displays.

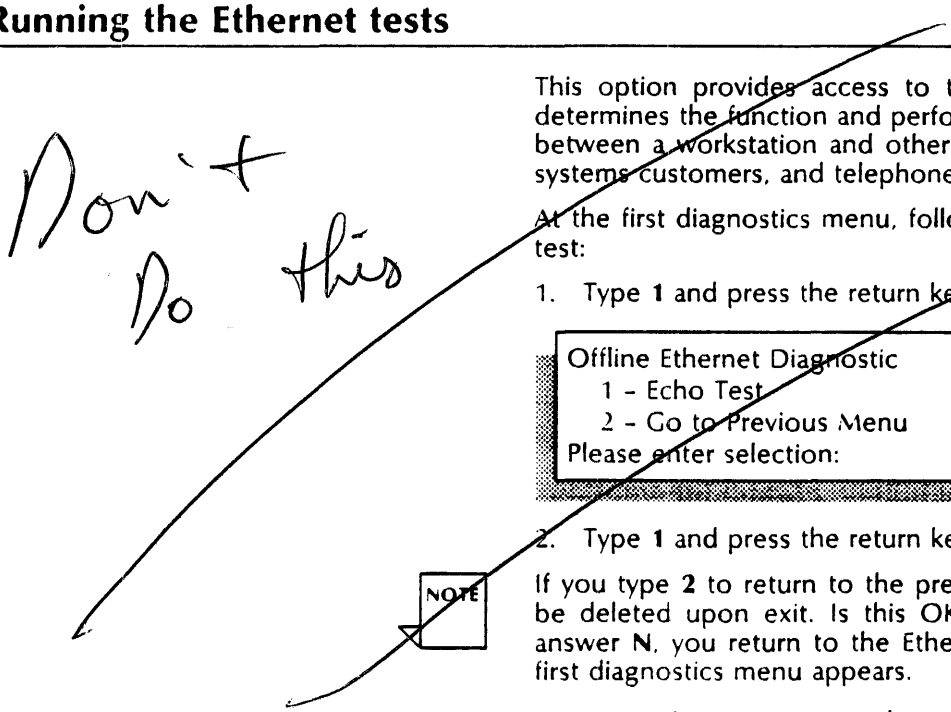
```
Available Selections

   1 - Ethernet Tests
   2 - Floppy Disk Tests
   3 - Floppy Disk Utility
   4 - Formatter, Scavenger and Bad Page Utility
   5 - Rigid Disk Tests
   6 - Keyboard/Display/Mouse/Beeper Tests
   7 - System Configuration Utility

Please enter selection:
```

Continue with the following sections to run the offline diagnostics you need.

Running the Ethernet tests



This option provides access to the echo test. The echo test determines the function and performance of communication links between a workstation and other workstations, servers, Ethernet systems customers, and telephone lines.

At the first diagnostics menu, follow these steps to run the echo test:

1. Type **1** and press the return key to select the Ethernet Tests.

```
Offline Ethernet Diagnostic
   1 - Echo Test
   2 - Go to Previous Menu
Please enter selection:
```

2. Type **1** and press the return key to access the echo test.

NOTE

If you type **2** to return to the previous menu, the "Test data will be deleted upon exit. Is this OK? N" prompt appears. If you answer **N**, you return to the Ethernet menu. If you type **Y**, the first diagnostics menu appears.

You can choose to start the echo test, view or change the properties of the test, or quit the echo test and return to the Ethernet menu.

Running the rigid disk tests

Continue here

At the first diagnostics menu, follow these steps to access the rigid disk tests:

1. Type **5** and press the return key to select the Rigid Disk Tests. The system examines the disk to see if it is already formatted.

```
TEST SELECTION
    1 - Confidence Test
    2 - Display Options
    3 - Go to Previous Menu
Please enter selection:
```

This menu provides access to these diagnostics:

Confidence Test - This program runs several subtests to check how the rigid disk is functioning. It displays various test descriptions as it runs through the tests. A message gives a rough estimate of how long the test will take. The time varies, depending on the size of the disk.

Display Options - This selection provides these additional choices:

Display Error Log - Displays detailed information about errors in the order encountered.

Display Encountered Soft Errors - Displays table listing rigid disk pages for which soft errors were encountered.

2. Type the number of the selection you want to make and press the return key.
3. Follow the prompts to return to the first diagnostics menu.

When to run rigid disk diagnostics

The rigid disk is the most critical component because it stores your data. If you suspect problems, for example, if files are damaged or lost, you should run the rigid disk tests. Detecting problems early can prevent serious damage to the rigid disk. The rigid disk tests take about 15 minutes to run.

Run rigid disk diagnostics when:

- The maintenance code XX45 (X being any number) appears, and you cannot boot diagnostics from the rigid disk.
- You initially install the workstation or move it to another location.
- You exchange or replace the rigid disk component.
- A disk-related problem occurs (such as when the system starts reporting bad disk pages), when it reports that a file check is necessary, or when files have been damaged and cannot be used.
- You wish to ensure proper function of the rigid disk after a problem has occurred and boot diagnostics pass.

Results of rigid disk diagnostics

If you get passed then do file Check

At the completion of the tests, a PASS or FAIL message appears. Your actions are as follows:

- If **PASS** appears, press the B Reset button on the workstation's front panel, and then press <F1> after the boot soft keys appear to perform a normal boot. You can use the workstation after the bouncing keyboard displays.
- If **FAIL** appears, the specific test that failed will be shown on the display. Note the message that displays and contact your System Administrator, or the Systems Customer Support Center. **Do not reboot or attempt to use your workstation.**

When to run a file check

You must run a file check when any of the following occurs:

- The 7511 maintenance code indicates system hang up during a normal boot.
- The system message "VP Volume Needs Scavenging" displays.
- Bad pages are found in the user area or on the system volume of a rigid disk.

CAUTION: Run the extended boot diagnostics and confidence test for the 6085-2 workstation before running file check. Irrecoverable data loss can occur if you do not check the stability of the hardware.

NOTE

The time needed to complete the file check procedure varies, depending upon the size of the processor and the number of problems the system corrects. The approximate time necessary to run a file check for each disk capacity is:

- 5 to 10 minutes for a 40-megabyte disk workstation
- 10 to 15 minutes for a 100-megabyte disk workstation
- 15 to 20 minutes for a 190-megabyte disk workstation

These are estimated times only and file check should **never** be interrupted.

Booting the installer and accessing the recovery scripts

Boot the installer software as required to replace damaged software and access the recovery scripts. The recovery scripts contain necessary error recovery commands used to replace damaged software.

You may boot the installer from a floppy disk or from the network.

NOTE

The ability to boot the installer from the network is a customer-purchased option. Consult your System Administrator if you are having difficulty booting from the network.

Booting the installer from a floppy disk

Start here →

1. Insert the floppy disk labeled **6085-2 Xerox ViewPoint 2.X, Installer # 1**.
2. Press the B Reset button on the front panel of the workstation. When the boot soft keys display at the bottom of your screen, press <F2>.

NOTE

Viewpoint 2.X refers to the latest version of ViewPoint Release 2 software.

After a few moments, a maintenance code of 2222 is displayed.

3. Insert the floppy disk labeled **6085-2 Xerox ViewPoint 2.X, Installer # 2**.

   After a few moments, you see the "Please load the floppy labeled 6085-2 Xerox ViewPoint: Installer # 3" prompt.

4. Insert the floppy disk labeled **6085-2 Xerox ViewPoint 2.X, Installer # 3**.

5. When the main menu appears, type the number to select the **ViewPoint: 6085-2 Special Installation and Error Recovery Commands** option and press the return key.

Booting the installer from the network

Just use the floppies

1. Press the B Reset button on the front panel of the workstation. When the boot soft keys display at the bottom of your screen, press <F3>.
2. When the menu appears on your screen, type the number to select the installer and press the return key.
3. When the logon request appears, type your fully qualified name (user name:domain:organization), and press the return key.
4. Type your password and press the return key.
5. When the main menu appears, type the number to select the **ViewPoint: Special Installation and Error Recovery Commands** option and press the return key.

Installing and using file check software

If a 7511 maintenance code appears, you need to install and run the file check software. The following procedure describes how to install file check software by floppy disks or over the network, and how to complete a file check.

CAUTION: Run the extended boot diagnostics and confidence test before running file check. Irrecoverable data loss can occur if you do not check the stability of the hardware.

Installing and running file check software

Continue here

1. Boot the installer and access the recovery scripts. After you select the **ViewPoint: Special Installation and Error Recovery Commands** option, continue with step 2. (See the "Booting the installer and accessing the recovery scripts.")
2. Type the number for the **Install file check software** option and press the return key. If installing from floppy disk, follow the displayed instructions and respond to the prompts as required.

   A message appears when the installation of file check software is complete. If you receive the message "Please Scavenge the Volume First," continue with step 3.

3. Type the number for the **Run file check** option and press the return key. A message appears telling you not to start a file check unless Xerox ViewPoint software was installed and startup was attempted.

If Xerox ViewPoint software was not installed, contact your System Administrator.

4. Type **Y** to confirm and press the return key.
5. Type **Y** for the second confirmation and press the return key. The 7500 code appears indicating that the file check is running properly. Upon completion, the system automatically starts up the workstation.

Completing a file check

At the completion of the process, the file check software does the following:

- Whenever possible, corrects any software user file errors, and then displays the bouncing keyboard on networked workstations.

For standalone or remote workstations, refer to the "Completing a file check on standalone or remote workstations" section.

- Checks for damaged files. If an essential part of the software is missing, then a series of maintenance codes cycles. Table 15-2 lists the maintenance codes that identify the damaged applications so you can reinstall them.

  Refer to the "Startup maintenance problems" section for information on how to replace the damaged software.

- Creates a lost and found desktop for files which cannot be properly assigned to a user. Proceed as follows to properly allocate these files.

  1. At the logon sheet select the auxiliary menu and highlight "List Local Desktops."
  2. If a lost and found desktop is listed, select the auxiliary menu next to the user name and highlight the lost and found option.
  3. Select <Start>.
  4. When the desktop appears, open the folder and review the contents to determine the status of files. Good files can be copied to floppy disks.
  5. Log off and delete the lost and found desktop.

Completing a file check on standalone or remote workstations

Reinstall the set time utility by floppy disk or over the network as follows:

1. Boot the installer and access the recovery scripts. After you select the **ViewPoint: Special Installation and Error Recovery Commands** option, continue with step 2. (See the section "Booting the installer and accessing the recovery scripts.")
2. Type the number for the **Install Set Time Utility on Remote/Standalone workstation** option and press the return key.
3. When recovery scripts reappear, select the option to start the 6085-2 system.

Recovering from rigid disk crashes

If a XX45 (7545, 7645, 7745, 7845, 8045) or 7531 maintenance code appears among the cycling codes after your workstation crashes, your system cannot access an area on the rigid disk. Replacing software will not solve the problem when this message occurs.

Follow these steps:

1. Make a note of what occurred at the workstation just before the crash.
2. Write down the entire sequence of cycling codes from one 9999 message to the next 9999 message.

2.0 INSTALLER MENUS (FROM FLOPPY)

MAIN MENU

1. HOW TO USE INSTALLER
2. ViewPoint: 6085 Install ViewPoint Software (from floppies)
3. ViewPoint: 6085 Partition Workstation Disk
4. ViewPoint: 6085 Add LAN Services (from floppies)
5. ViewPoint: 6085 Special Installation and Error Recovery Command (from floppies)

SPECIAL INSTALLATION AND ERROR RECOVERY MENU

1. Make Room to Install ViewPoint Basic Workstation on 6085 Workstation
2. Install ViewPoint Basic Workstation on 6085 Workstation
3. Make Room to Install Common Software on 6085
4. Install VP Netcom Common Software and VP Common Software on 6085 Workstation
5. Install ViewPoint Remotecom Common Software and ViewPoint Common Software on 6085 Workstation
6. Install ViewPoint Standalone Common Software and ViewPoint Common Software on 6085 Workstation
7. Install 6085 Extended Language Option Common Software
8. Install File Check Software on 6085 Workstation
9. Run File Check on 6085 Workstation
10. Delete all 6085 System Data Files Except Applications
11. Delete all 6085 System Data Files Including Applications
12. Install Set Time Utility on Remote 6085 Workstation
13. Install Set Time Utility on Standalone 6085 Workstation
14. Install Set Time Utility on 6085 Workstation Running LAN Services
15. Set 6085 Remote Workstation in Half-Duplex Mode
16. Set 6085 Remote Workstation in Full-Duplex Mode
17. Start 6085 System.
18. Start 6085 System with Auto-Run temporarily disabled on all Applications
19. Start Network System with Remote Debugging (for Xerox personnel only)
20. Start Standalone or Remote 6085 Workstation with option to Change Workstation Administrator
21. Start Dashlink Workstation to Show Profile Commands
22. Enable Echo
23. Disable Echo
24. Remove Help Folder from Workstation
25. Convert Remotecom, Standalone or Dashlink Workstation to Netcom
26. Convert Netcom or Standalone to Remotecom
27. Convert Netcom or Remotecom to Standalone
28. Enable/Disable Xerox Pro Illustrator Performance Enhancement
29. Change System Start-up to Create New Basic Icons
30. Change System Start-up to Retain Existing Basic Icons
31. Install ViewPoint Basic Workstation Microcode only on 6085 Workstation
32. Install ViewPoint Basic Workstation Bootfile only on 6085 Workstation
34. Install ViewPoint Basic Workstation Data Files only on 6085 Workstation
35. List Microcode and Bootfiles
36. Return to Main Menu

2.0 INSTALLER MENUS FOR 6085-2

The following are the Installer Menus (Main Menu and ViewPoint: **6085-2** Special Installation and Error Recovery Commands **(from TAPE)**

MAIN MENU

1. HOW TO USE INSTALLER
2. ViewPoint: 6085-2 Install ViewPoint Software (from floppies)
3. ViewPoint: 6085-2 Install ViewPoint Software (from TAPE)
4. ViewPoint: 6085-2 Install Pro Print Service (from floppies)
5. ViewPoint: 6085-2 Partition Workstation Disk
6. ViewPoint: 6085-2 Special Installation and Error Recovery Command (from floppies)
7. ViewPoint: 6085-2 Special Installation and Error Recovery Command (from TAPE)
8. ViewPoint: 6085-2 Add LAN Services (from floppies)

SPECIAL INSTALLATION AND ERROR RECOVERY MENU (from Floppies) is the same as the 6085 Menu

SPECIAL INSTALLATION AND ERROR RECOVERY MENU (from TAPE)

1. Make Room to Install ViewPoint Basic Workstation on 6085-2 Workstation
2. Install ViewPoint Basic Workstation on 6085-2 Workstation
3. Make Room to Install Common Software on 6085-2 Workstation
4. Install VP NetCom Common Software and VP Common Software on 6085-2 Workstation
5. Install ViewPoint RemoteCom Common Software and ViewPoint Common Software on 6085-2 Workstation
6. Install ViewPoint Standalone Common Software and ViewPoint Common Software on 6085-2 Workstation
7. Install 6085-2 Extended Language Option Common Software
8. Install File Check Software on 6085-2 Workstation
9. Run File Check on 6085-2 Workstation
10. Delete all 6085-2 System Data Files Except Applications
11. Delete all 6085-2 System Data Files Including ALL Applications
12. Install Set Time Utility on Remote 6085-2 Workstation
13. Install Set Time Utility on Standalone 6085-2 Workstation
14. Install Set Time Utility on 6085-2 Workstation Running LAN Services
15. Set 6085-2 Remote Workstation in HALF-DUPLEX Mode
16. Set 6085-2 Remote Workstation in FULL-DUPLEX Mode
17. Start 6085-2 System.
18. Start 6085-2 System with Auto-Run temporarily disabled on all Applications
19. Start Network System with Remote Debugging (for Xerox personnel only)
20. Start Standalone or Remote 6085-2 System with option to Change Workstation Administrator
21. Start Dashlink Workstation to Show Profile Commands
22. Enable Echo
23. Disable Echo
24. Remove Help Folder from Workstation
25. Convert RemoteCom, Standalone to NetCom Workstation
26. Convert NetCom or Standalone to RemoteCom Workstation
27. Convert NetCom or RemoteCom to Standalone Workstation
28. Enable/Disable Xerox Pro Illustrator Performance Enhancement
29. Change System Start-up to Create New Basic Icons
30. Change System Start-up to Retain Existing Basic Icons
31. Install ViewPoint Basic Workstation Microcode only on 6085-2 Workstation
32. Install ViewPoint Basic Workstation Bootfile only on 6085-2 Workstation
33. Install ViewPoint Basic Workstation Data Files only on 6085-2 Workstation
34. Install All Files from a Floppy
35. List Microcode and Bootfiles
36. Install Automatic Loader Upgrade Capability
37. Return to Main Menu

2.0 CONFIDENCE TEST

	If **FAILED:**	-Record failure code -Record bad page numbers if applicable -Call Customer Support Center

Failure Codes

Failure Codes identify and prioritize the Field Replaceable Units (FRUs) to repair. Failure Codes are presented to all users running the Rigid Disk Diagnostics.

Failure Code	Description
1	Replace the IOP PWB.
2	Replace the IOP PWB.
3	Replace the IOP PWB. Drive media problem, possibly repairable with the scavenger, or the formatter, plus rebuilding the disk.
4	Bad page not in bad page table. Possibly repairable with Scavenger or the Bad Page Utility.
5	Reserved.
6	Physical Volume problem. Possibly repairable with Physical Volume Scavenger. Or, is the user running the wrong diagnostic test? (One cannot run the Confidence Test or Surface Verification without a Physical Volume).

Back up & select option 4 - Formatter, Scavenger & Bad Page Utility

If can't read page 0 - call hardware

Failure Code	Description
7	Software problem. Call the Systems Analyst. Theoretically you should never get this code, and if you do, chances are that it is a bad Mesa Processor Board (MPB).
8	Real Time Clock error. If there is an Ethernet, run the Ethernet Diagnostic. If there is no Ethernet or the Ethernet Diagnostics run and the problem persists, replace IOP, MPB.

Progress Check 4 - Rigid Disk Tests

1. What does the rigid disk test do? ***Tests the functionality of the rigid and isolates any problems found on the rigid.***

2. A customer call indicates that when booting the workstation, it stops at 7511 (this mean the system needs a file check). What steps should you take to correct this problem? ***Run Confidence Test and Extended Boot Diagnostics. If both pass, Install and Run File Check.***

3. What does a Failure Code of 4 indicate? ***There is a bad page on the rigid that is not in the bad page table.***

Lab Exercise:

1. Run a Confidence Test. Watch the messages being posted to the screen. Write down at least one or two words you saw as the test was executing.

2. How long did the procedure take?

3. Did the workstation Pass or Fail?

MOST USED OFF-LINE DIAGNOSTICS

Formatter, Scavenger, Bad Page Utilities

- Introduction:
  - Part of Off-Line Diagnostics
- Formatter
  - Rigid disk drive consists of one or more platters.
  - Platters are divided into cylinders, tracks, and sectors (Pages). A cylinder penetrates all platters. A track is a circular tracing on a platter. Tracks are divided into sectors (pages). The number of cylinders, tracks and pages depend on the size of the rigid.
  - When a drive is formatted, it:
    - Creates a physical volume
    - Allocates disk space for the bad page table
    - Write all page headers

- Prepares and clears all page label and data fields

- Checks Cylinder 0

- Each rigid disk contains a physical volume with one or more logical volumes. Physical volume refers to the entire rigid disk. It contains pilot data structures required for the system to function. These data structures are:

  - Physical Volume Root Page (Page 0) - It contains information about the physical volume and the logical volumes contained on the disk.

  - Bad Page Table (Page 1): It can contain up to 128 pages. Bad pages may be manually entered into this table but cannot be removed (with the exception of formatting with the option to rebuild the table.

  - Self Describing Disk (SDD) page (Page 14): Rigid disk drive type and parameters are written on this page. When the 6085 is booted, the system looks to see if there is an SDD page present on the rigid disk. If so, the system uses the parameters recorded on the disk. If the

SDD page is not present, the parameters recorded in the EEPROM on the IOP are used.

- All of these are on the first cylinder (Cylinder 0) of the drive. Cylinder 0 is guaranteed error free from the vendor.

- Format Option is not available to the "Normal User". Need to use Technical Support mode to format a rigid.

- ***Suggestion: Before formatting a drive, it's a good idea to Display the Bad Page Table and record the pages listed in the table. The system will ask if you want to "add" any new bad pages to the table that it finds during the formatting process. You should answer Yes to this question. Then -- just to be sure -- display the bad page table again to make sure the original bad pages are in the table.***

- ***REMEMBER: FORMATTING DOES NOT FIX BAD PAGES!!!***

- SCAVENGER

  - Specifically refers to a physical volume scavenge. (Physical volume refers to the entire rigid)

  - Executed when Confidence Test fails to a Failure Code of 6.

  - Checks the integrity of the Physical Volume. If there is an inconsistency, it will attempt to repair it.

  - This scavenge repairs the critical pages of a physical volume that describe the layout of the physical volume and logical volumes that reside on it.

  - Errors are raised if the damage to the physical volume data structures is so great that the physical volume cannot be reconstructed.

  - Message usually associated with this procedure is "Unable to read pilot data structures" Or "Unknown error on Cylinder 0."

-If asks about risky repairs - call Tech

- If that message is received, call a service technician.

- Normally, the scavenge completes in a very short period of time. On a healthy workstation, it will be done in just a few seconds.

- There have been cases when the scavenge takes a considerably longer time. ***Good rule of thumb: Don't interrupt until it's completed!***

- Bad Page Utilities

  - This option is selected from the menu when you suspect there are problems with the rigid. (Usually selected after a Confidence Test fails with a Code 4, which indicates a bad page.

  - Most used selections are: *Display Bad Page Table* and *Scan Disk for New Bad Pages.*

  - Display Bad Page Table displays the contents of the existing Bad Page Table. This is used to verify that the bad pages logged in by the manufacturer are still listed. The manufacturer's list of bad pages should be stored in a plastic pocket inside

the processor's cover (Usually attached to the compartment housing the rigid drive)

- Scan Disk for New Bad Pages scans the entire disk surface for bad pages.

- Once you select the option to scan, you will be prompted for the number of times to scan the disk. The default is one; but the disk examination will be more thorough as the number of passes increases.

- Each scan pass will take 5-15 minutes, depending on the size of the disk and the number of retries. In Normal User Mode, the default number of retries is 9. That means if during the 1st scan, it detects an error, it will re-scan that page to see if the error still exists. ***In most instances, we change the number of retries from 9 to 0. This is especially true when the customers are complaining of constant crashes. Purpose is to find out all the suspect bad pages.***

9 ⇒ 0

- When the scan disk is performed, the page number(s) reported to be bad should be consistent. For example, if the number of scan is set to 3 and the scan finds pages 10234, 12965,

and 52386 bad on the first scan, it should list those pages for each of the remaining two scans. If the results are not consistent, it could indicate a board is bad, and not the drive.

- Each page on the rigid disk consists of a header, a label and a data field. Each occupies a set amount of space for each page.

  - Header describes the cylinder, head, and section location information.

  - Label identifies the content of the page. It describes the file where the sector belongs and the relative position of the sector in the file.

  - Data field contains the client data (user data, system software, etc.)

- After scanning the disk, you should make a list of the page numbers and then "Test" the bad pages so you can find out what kind of error exists -- header, label, and/or data crc.

- You also need to make a note of the page number so you can determine which volume

contains the damaged page. ***(Distribute and discuss the Rigid Disk Layout)***

- Special consideration needs to be taken into account if the page is either page 14 on Cylinder 0 (SDD page) or if they are root pages. ***Note: The underlined page numbers are root pages. As a general rule, if the bad page is a root page, the tech should be called. We also place a service call if the page is + or - 5 disk pages from the root page. If Page 14 is bad, it possibly can be fixed using the Page Scavenger routine. Depending on the customer, we may call a tech rather than take a chance.***

- Normal recovery for bad pages in the User Volume is run the Extended version of boot diagnostics and the Confidence Test. If both pass, install and run file check.

- There are times when the system will crash out of file check. There are certain problems which can be resolved by repeating the File Check several times, especially if a rolling error code is displayed. Normally, the customer should be advised to repeat the File Check. ***File Check will***

reinstall File check

be discussed in more detail in the Software section.

Distribute and discuss Recovery Actions from the Technical Manual

End of Formatter, Scavenger, Bad Page Utilities. Check (5).

— the underline are root pages

Table 4-1 Rigid Disk Layout

Workstation	Cylinder "0"	Scavenger	User
10MB Mod 1	000-0127	0128-02328	02329 +
10MB Mod 2	000-063	064-02264	02265 +
20MB Mod 1	000-0159	0160-02860	02861 +
20MB Mod 2	000-0127	0128-02828	02829 +
20MB Mod 3	000-0191	0192-02892	02893 +
20MB Mod 4	000-0127	0128-02828	02829 +
T20MB Mod A	000-0159	0160-03160	03161 +
T20MB Mod B	000-0127	0128-03128	03129 +
T20MB Mod C	000-0191	0192-03192	03193 +
T20MB Mod D	000-0127	0128-03128	03129 +
40MB Mod 1	000-0255	0256-04056	04057 +
40MB Mod 2, 3	000-0159	0160-03960	03961 +
40MB Mod 4	000-0191	0192-03992	03993 +
T40MB Mod C	000-0159	0160-04560	04561 +
T40MB Mod D	000-0191	0192-04592	04593 +
80MB Mod 1	000-0255	0256-06356	06357 +
100 MB	000-0287	0288-07388	7389 +

Table 3. Header CRC Recovery Actions

Volume	Recommended recovery action
Cylinder "0"	• If Page 0, 1, 2, 3, or 4 run **PV Scavenger** • **Fix Bad Page Header:** If corrected: Reinstall VP Software (using the Install/Recovery Procedure). If not corrected: Call for assistance before replacing the drive.
Scavenger	• **Scan for New Bad Pages. Test and Repair.** If corrected: Reboot the workstation. If not corrected: Mark the bad page. Reboot the workstation. If necessary, reload applicable software (according to the error code). • Install, but do not run, **File Check Software**. Reboot the workstation.
User	• **Scan for New Bad Pages. Test and Repair.** If corrected: Run **File Check**. If necessary, reload applicable software (according to the cursor code). Reboot the workstation. If not corrected: Mark the bad page. Run **File Check**. Reboot the workstation. If necessary, reload applicable software (according to the error code).

Table 4. Label CRC Recovery Actions

Volume	Recommended Recovery Action
Cylinder "0"	• If Page 0, 1, 2, 3, or 4 run **PV Scavenger** • **Fix Bad Page Header:** If corrected: Reinstall VP Software (using the Install/Recovery Procedure). If not corrected: Call for assistance before replacing the drive.
Scavenger	• **Scan for New Bad Pages. Test and Repair.** If corrected: Reboot the workstation. If not corrected: Mark the bad page. Reboot the workstation. If necessary, reload applicable software (according to the error code). • Install, but do not run, **File Check Software**.
User	• **File Check:** If corrected: Reboot the workstation. If necessary, reload applicable software (according to the error code). If not corrected: Mark the bad page. Repeat **File Check**. Reboot the workstation. If necessary, reload applicable software (according to the error code).

Table 5. Data CRC Recovery Actions

Volume	Recommended Recovery Action
Cylinder "0"	• If Page 0, 1, 2, 3, or 4 run **PV Scavenger** • **Fix Bad Page Header:** If corrected: Reinstall VP Software (using the Install/Recovery Procedure). If not corrected: Call for assistance before replacing the drive
Scavenger	• **Scan for New Bad Pages. Test and Repair.** If corrected: Reboot the workstation. If not corrected: Mark the bad page. Reboot the workstation. If necessary, reload applicable software (according to the error code). • Install, but do not run, **File Check Software**.
User	• **File Check:** If corrected: Reboot the workstation. If necessary, reload applicable software (according to the error code). If not corrected: Mark the bad page. Repeat **File Check**. Reboot the workstation. If necessary, reload applicable software (according to the error code).

Progress Check 5 - Formatter, Scavenger, Bad Page Utilities

1. The Formatter, Scavenger, and Bad Page Utilities are part of what diagnostic programs? ***Off-Line***

2. The rigid disk drive consists of one or more platters. These platters are divided into three areas. Name them. ***Cylinder, Tracks, and Sectors***

3. Name on thing "formatting" a drive does. ***(a) Prepares and clears all page label and data fields; (b) Creates a physical volume, (c) allocates disk space for the bad page table, (d) writes all page headers, (e) Checks Cylinder 0***

4. What does the Physical Volume refer to? ***The entire rigid***

5. When would you run a Physical Volume Scavenger? ***When the Confidence Test fails to a Code 6***

6. What action would you take if your customer received the message "Unable to Read Pilot Data Structures" after invoking the command to scavenge the physical volume? ***Call the tech***

7. If you wanted to see what pages were marked bad and put into the Bad Page Table, what option would you choose in the Off-Line Diagnostics? Be specific. ***Formatter, Scavenger, Bad Page Utilities from the Main Menu, Bad Page Utilities Option, and finally Display Bad Page Table***

8. If you ran a Confidence Test and it failed to a Code 4, what course of action would you take? ***Run the option to Scan Disk for New Bad Pages, Determine the volume the bad pages are in, and follow appropriate procedure. In User Volume, run diagnostics and install and run file check. In Scavenger Volume, repair the page, the install but don't run file check.***

9. When scanning the disk for new bad pages what should you look for? ***Consistent results. Pages that come up each time for each scan.***

10. Why is it a good idea to set the number of retries to 0? ***So you can have the system report all "suspect" bad pages.***

11. A disk page, or sector, is divided into three sections. Name them. ***Header, label, and data.***

12. What is the normal recovery procedure for bad pages in the User Volume? ***Run Confidence Test, Extended Boot Diagnostics and if all pass, install and run file check.***

Lab Exercise:

4, Yes, 1 one second

1. Run a Physical Volume Scavenge. How long did this procedure take? Record the message(s) that were posted to the screen.

2. Display the Bad Page Table. Compare the list displayed on the screen with the list in the back of the processor. Are they the same?

3. Run Scan Disk for New Bad Pages. Scan the disk 3 times with 0 retries. Did the system find any new bad pages?

SOFTWARE

- This module discusses the software that makes the system run, more commonly referred to as the Operating System software.
- In this section, we will also discuss partitioning.
- Operating system used by Xerox is called Pilot. Can be compared to other Operating Systems such as MS-DOS, UNIX, etc. The Operating System software manages the disk and input/output operation.
- Pilot implements virtual memory.
- Virtual memory (VM) is a resource designed to be shared dynamically by any number of application programs running on the 6085.
- Pilot Operating system manages both main memory and active software in one integrated virtual memory system.
- A mechanism in Pilot swaps software in and out of main memory to and from the rigid disk as required by the applications in use.
- The main memory (ie, the real memory determined by the system's memory board) and the rigid disk storage space work together to form a single virtual memory system.
- Since VM is dynamic, occasionally there are times when there is not enough VM space for the software swapping to occur.

- When this happens, an insufficient space message will appear.

- Rebooting the system should clear this problem.

- A good way to cut down on VM usage is to only load those applications you actually need on the workstation. Even "IDLE" applications still occupy some VM, though not as much as it would if it were running.

- XGV 3.2 requires that the VM be set to 24 bits.

- If XGV 3.2 users are still crashing frequently even with the VM set to 24 bits, you can have them install and run the VM Expansion Utility located on the XWS 3.2 Tools disk packaged with the XWS Tools and Utilities. This application must "run" when the system first boots up. After installing it, customers need to make sure it is set to Auto-Run = Yes and the workstation rebooted.

- PARTITIONING:

  - If you remember from the last module, formatting a rigid creates a Physical Volume.

  - The Physical Volume (drive) is then partitioned into Logical Volumes.

  - The logical volume is a portion of the disk delineated by page numbers.

  - A disk can have as many logical volumes as practical (ie, Scavenger, User, XDE, Co-Pilot, etc.)

- The Page limit boundaries are predetermined by software and are set up during software installation.

- On a 6085 (in a customer's environment) the Physical Volume is partitioned into two Logical Volumes -- Scavenger and User

- Each Logical Volume contains its own Root Page, Accelerator Files and Marker Page.

- The root page is always the first page in each logical volume. It contains the name of the volume, where the volume starts and ends, and points to accelerator files contained in that logical volume. It also specifies locations of files required to boot from that volume.

- Accelerator Files are quick reference files to the location of all segments of a given file. Data is not always stored in contiguous sectors and these files are used by the system to speed access to all the data of a given file.

- The Marker Page is the last page of the Logical Volume. It contains the size of the logical volume preceding it and where the volume begins and ends.

- SCAVENGER VOLUME

  - This is the logical volume that contains file check software, set time utility (on stand alone and remote workstations) and backing store (or a place to store temporary files.)

- File Check software is used to invoke a logical volume scavenge of the ***USER*** volume. A file check ***does not*** scavenge the scavenger volume.

- Once the File Check software is installed on 40MB and larger disk drives, it remains there.

- However, you should always have the customer go through the process of re-installing the file check software. This is because the installation scripts instruct the system to erase the scavenger volume. Sometimes this volume is too full and it's better to start off with a clean volume so the system has room to do the scavenge.

- The Set Time Utility software is actually a boot file which allows the correct date and time to be entered manually during the booting process.

- Since you are having your customers reinstall file check software, this file will be erased since it resides in the Scavenger Volume.

- **That means after File Check has completed on a standalone or remote workstation, the 6085 will not boot up to the bouncing globe. The system will stop at 7700 until you have the customer go through the process of reinstalling the set time utility.**

If standalone need to install set time utility 7700 If don't - boot to

- The Backing Store is an area where the Operating System stores data files temporarily until permanently stored by the User. It's sometimes referred to as the "scratch" area.

- USER VOLUME

  - This is the Logical Volume where boot files, Xerox Global View & System Data Files, Emulated Fixed Disk and User Files, XGV application software, Software Options and User data files are stored.

  - Boot files are installed when initial software is loaded on the workstation. They are the first files that are loaded and executed in the process of bringing up a workstation or running diagnostics. All boot files are located in the User Volume except for initial microcode which is located on Cylinder 0.

  - XGV Software & System Data Files include Basic workstation software, common software, basic icons, mailing, printing, filing, etc.

  - Emulated Fixed Disk and User Files include desktops and all MS-DOS related software stored in the DOS partition using PCE on the 6085. **Note: Before formatting or partitioning a drive you should make sure the customer is not using PCE. This will destroy not only their data but also their PC software as well. Some customers may have their PC software "locked" to the rigid and erasing it may require that they purchase new software.**

  - XGV application software includes all optional applications which the customer has purchased.

- Software Options are the enabling codes for software applications the customer has purchased.

- All 6085s should show four files in the User Volume. You can verify the files exist by choosing the Special Installation and Error Recovery commands from the Main Installer Menu and then choosing the option to List Microcode and Boot Files. The four files are:

  - Diagnostic Microcode
  - Pilot Microcode
  - Germ
  - Boot File

  } should be in every User Volume

- On 6085 model 1s, these files have "Dove" in their name; a 6085-2 is labeled "Duke" and XGV-PCs are called "Bounty".

- Each of these files should be preceded by a (PV) on a networked workstation. This indicates the system should use this file when booting.

- The (PV) indicator will be omitted from the Boot file on a standalone or remote workstation however the file should still show in the User Volume.

- On standalone and remote, the Scavenger Volume will have an additional boot file with a PV designator. This boot file is called "SetTimeDove.boot". This file instructs the system to stop and prompt for time, then pass control to the boot file (BWSDove.Boot) in the User Volume.

- On a networked workstation, you'll see the message "No Boot File" found in the Scavenger Volume. Don't be alarmed. This is the way it should be.

- The information following each of the files described earlier indicates the source from which the file was retrieved. This information will be different depending on the path name of the Installation Drawer used by the customer or if the software was installed by floppy.

- There are times when the PV indicator is somehow removed from the boot file on a networked workstation. Don't forget.....if it's a standalone or remote, the PV should not be present.

- One symptom may be that the workstation will not boot past 0920. You can select the option to **Install Bootfile Only on a 6085** from the Special Installation and Error Recovery menu and this should correct the problem.

- The Pilot Microcode file is often checked to determine if the customer has the correct file loaded. If your customer has purchased the additional 4K control store option (making it 8K), the correct file is Mesadaybreak8k.db. A normal 4K workstation will have the file Mesadaybreak.db. **This applies to 6085 model 1 only. The 6085-2 will display a file named MesaDuke12k.db since the standard for that model is 16K of control Store.**

- This is why after installing the control store kit, changing the configuration and writing the EEPROM customers must select the option to load microcode only. The system will check the configuration and load the correct microcode file automatically. **Having the incorrect microcode file will cause the workstation not to boot.**

End of Software. Check (6)

File Check

Disks needed:

- 6085 Xerox ViewPoint Installer #1
- 6084 Xerox ViewPoint Installer #2
- 6085 Xerox ViewPoint File check #1
- 6085 Xerox ViewPoint File check #2

	Options given	Action to take
1.		Insert Installer disk #1
2.	Softkeys on screen	press **F2** softkeys
3.	msg: Please load the floppy labeled Xerox 6085 ViewPoint Installer #2 Ready (y/n)Y	Insert Installer disk #2 **<return>**
	msg: Locating Time Server...Time is not set!	
	Set Time Utility	
4.	Time Zone Offset from Greenwich -5 Eastern -7 Mountain -6 Central -8 Pacific	choose correct time zone and return example: if in Eastern time zone type **-5 <return>**
5.	Minute Offset [0..59]:00	type number **0 <return>**
6.	First day of Daylight Savings Time [0..366]:98	**98 <return>**
7.	Last day of Daylight Savings Time [0..366]:305	**305 <return>**
8.	Please enter the date and 24 hour time (DD-MMM-YY HH:MM:SS)	day-month-year *space* hour:minute:seconds example: 01-Jan-92 13:15:00 **<return>**
	Main Menu	Choose: **5 <return>** 5. Viewpoint:6085 Special Installation and Error Recovery command (from floppies)

File Check

	Options given	Action to take
9.	Special Installation and error recovery menu	Choose: **8 <return>** 8. Install file check software on 6085 Workstation
10.	Ready to install File - Check Y	**Y<return>**
11.	Insert 6085 Xerox Viewpoint File check #1 <return> *Install file check software...*	Insert file check #1 disk **<return>**
12.	Load 6085 Xerox Viewpoint file check #2 <return> *installation is continuing...*	Insert file check #2 disk **<return>**
13.	msg: Please Scavenge the Volume first	**Y<return>**
14.	Main menu	take disk out Choose: #9 **<return>** 9. Run file check on 6085 Workstation
15.	2 questions will follow	**Y<return>** 2 to both questions
	System will run for 2 to 4 hours	7700 file check is completed. if on standalone If on network system will go back to bouncing keyboard
	if on standalone workstation	go to 7700 after file check instructions

INSTALLING SET TIME UTILITY ON 2.0 STANDALONE WORKSTATION

Disks needed:
- 6085 Xerox Viewpoint Installer #1
- 6085 Xerox Viewpoint Installer #2
- 6085 VP Standalone Common Software

NOTE: Other versions of ViewPoint Installers may differ slightly.

	Options given	Action to take
1.	File Check has finished (7700 on screen)	Insert installer #1 press **B** reset
2.	Softkeys on screen	press **F2** key
3.	msg: *Please load the floppy labled* *Xerox 6085 ViewPoint Installer #2 Ready (y/n)Y*	Insert installer #2 **<return>**
	msg: *Locating Time Server... Time is not set!*	
4.	Time Zone Offset from Greenwich -5 Eastern -7 Mountain -6 Central -8 Pacific	choose correct time zone and return example: if in Eastern time zone type **-5 <return>**
5.	Minute Offset [0..59]:00	type number **0 <return>**
6.	First day of Daylight Savings Time [0..366]:98	**98 <return>**
7.	Last day of Daylight Savings Time [0..366]:305	**305 <return>**
8.	Please enter the date and 24 hour time (DD-MMM-YY HH:MM:SS)	day-month-year *space* hour:minute:seconds example: 01-Jan-92 13:15:00 **<return>**
9.	Main Menu	Choose: **5 <return>** 5. Viewpoint:6085 Special Installation and Error Recovery command (from floppies)
10.	Special Installation and Error Recovery Menu	Choose: **#13 <return>** 13. Install Set Time Utility on Standalone 6085 Workstation

INSTALLING SET TIME UTILITY ON 2.0 STANDALONE WORKSTATION

	Options given	Action to take
11.	msg: *Ready to install Set Time Utility on Standalone 6085 Workstation Y*	Insert 6085 VP Standalone Common Software disk Press **<return>**
12.	Special Installation and Error Recovery Menu	take disk out. Reboot the system with the B reset button
13.	Softkeys	press **f1**
14.	msg: *Locating Time Server... Time is not set!*	go to steps 5 through 9
15.	System will then boot normally to a bouncing keyboard. Takes about 15 minutes.	log onto system as normal

Progress Check 6 - Software

1. What is the operating system used by Xerox called? ***Pilot***

2. What does the Operating System do? ***Manages the disk, IIO operations and VM.***

3. If the 6085 runs out of Virtual Memory, what message may be posted? ***Insufficient System Resources***

4. If you get the "Out of VM message" t, what's a "short term" fix? What could you have the customer do to avoid the problem in the future? ***Short term is just reboot the workstation. To avoid the problem have the customer load and run only those applications absolutely necessary.***

5. What diagnostic procedure would you use to set the VM? What is the required VM setting for XGV 3.2? ***Off-Line Diagnostics, System Configuration. XGV 3.2 requires 24 bits of VM***

6. What does partitioning a rigid do? ***Divides Physical Volume into two Logical Volumes***

7. What volumes would you normally find on a customer"s 6085? ***Scavenger and User***

8. What are the steps required to access the partitioning command? ***From the net, choose F3 and choose the Installer option. From the main menu, select Partition Rigid Disk. From floppy, insert the Installer Disk #1 and boot from F2. When prompted, insert the Installer Disk #2. At the main menu, select the option to Partition the 6085.***

9. Where would the Set Time Utility file be stored? ***Scavenger Volume***

10. If you were to install File Check Software, in which volume would it be placed? ***Scavenger Volume***

Lab Exercise:

1. ***Don't actually partition the workstation.....***but write down the steps needed to perform this activity by floppy. Remember **don't** actually execute the partition command.

2. Access the Special Installation and Error Recovery scripts. Select the option to list microcode, boot files, etc. List the information that is displayed when you execute this command.

RECOVERY

- Most data recovery due to hardware or software failure can be accomplished with diagnostics and the installers (floppy or net).

- **Most important thing to remember is that you should not attempt data recovery until you are certain that the hardware is stable.**

- That is accomplished by performing the Extended Boot Diagnostics and the Confidence Test.

- Problems generally are broken down into two areas of concentration:

  - The system stops booting and a 4-digit code is displayed

  - Or the system "crashes" either while it's booting up or it's already up and running with cycling crash codes. These codes begin and end with 9999.

- The 4 digit code is often referred to as an MP Code (from the old 8010 days...for Maintenance Panel).

- For the most part, these "static" codes usually are hardware related. Some possible exceptions are:

  - 0920: As explained earlier. The problem may be correctable if your troubleshooting reveals that the PV is not listed on the appropriate boot file.

- 7700: Standalone or remote system that came out of file check and needs the set time utility software installed.

- 7800: May be a hardware problem. If the system "sticks" on 7800 for longer than normal, you could check the VM to make sure it's set to 24 bits. Also may be a software problem too.

- 7511: System needs a file check.

- 7504: Either it's a new install and the volume needs to be initialized (holding down I & V keys simultaneously) or the system needs a file check if it's not a new install.

- 7604: Some system files have been deleted and need to be reinstalled.

- The other "static" codes you will deal with are described in your handout. Also included, is a flow chart listing the recovery procedures. ***(Distribute and discuss Common MP and Cursor Codes and flowcharts)***

some of the copies of floppies don't have all the files

- Cycling Codes

  - If the workstation "crashes", the system will display a series of cycling crash codes. These codes are used to help determine what software may be at fault.

  - The codes always begin and end with 9999. You should have the customer record all the codes in the cycle.

tell customer to record the number reboot & try again

- If this is the first time the workstation crashed, the first step in recovery is to reboot the workstation and have the customer repeat the operation. It may have been a user error or a "one time" problem. If it crashes constantly to the same codes, you will need to proceed to the next level of troubleshooting.

- A key to the problem software lies with the first four digits after the 9999 in the majority of cases.

  - A 76xx code indicates a problem with basic workstation software if a lot - make room for basic WS soft & reinstall

  - A 77xx code indicates a problem with the common software if a lot - make room & reinstall

- A 78xx code indicates optional application software problems. check to see what been recently loaded boot w/ idle run one application at a time

- If the system is up and running when the system crashes, the first four digits will usually be 80xx.

- The xx numbers are identified on your "Debugger Substitute MP Codes" handout. ***(Distribute and discuss)***

- **The codes you need to pay special attention are the "45" codes, eg, 7645, 7745, 7845, 8045. The 45 indicates a disk error. Instead of determining what software should be replaced, you should proceed directly with Diagnostics. In most circumstances, you will find that the system will fail one of the hardware tests.**

9999 8049 8049 — 8049 999
If long sequence of codes - may be a bad page
mark as a bad page
& run a File check

- While the 6085 Diagnostics Handbook list some of the most common cycling crash codes and what software is at fault, deciphering them yourself is not difficult.

- Crash code sequences decode to plain English phrases that identify the software that failed. Here's how it works: First, imagine that every four-digit code that appears on the screen is actually a pair of two-digit codes. Each two digits refers to a corresponding letter in the alphabet (starting with the four digits after 76xx, 77xx, 78xx, or 80xx.

- Again, refer to your Debugger Substitute Code handout. For example: 7840 0415 0302 0119 0903 spells out DOC BASIC. This would indicate that you should probably replace Document Editor.

- It's important to remember that even though you generally only use these 8 digits (4 sets of 2), you should still have the customer record all the numbers.

- Sometimes you will see that the workstation cycles more codes than "usual" before ending with the 9s. When this happens, we sometimes suspect a bad page. One that may not have showed up during a scan. After all normal means of recovery have been taken, we look at the last four digits and perform a page scavenge on just that page.

- **It should be pointed out here, that whenever you "fix" a bad page (repair, scavenge, or mark bad), you should always follow it with a file check.**

- Software replacement is accomplished through the Installers. Unless you are "starting from scratch" and reloading all the software, you will be accessing the Special Installation and Error Recovery Commands.

- To replace the Basic Workstation (76 codes), you would first select the option to Make Room to Install Basic Workstation Software. **Do not touch the keyboard until the workstation reboots. Let the F1 key highlight by itself in order for the delete process to work properly.** After it reboots, it will stop at 7604. At this point, you reboot the workstation again with the installers, go back into Special Installation and Error Recovery commands, and then choose the Option to Install Basic Workstation. **Remember, it's a two-step process.....first you make room, then you install.**

- To replace common software (77xx), the process is the same. First you make room to install common and then you install it after the 7604 code appears.

- If the damaged software is an optional application, for example List Manager, you will need to replace it by doing the following:

    - If the workstation is already "down" you can access the special installation commands and choose the option to start the workstation with auto-run temporarily disabled on all

apps. The workstation will boot up faster... staying on 7800 for just a short time. Then, go into the Application Loader and delete the damaged application. Remember, the application cannot be running if you want to delete it. Then re-copy it back into the Loader. The customer will also have to manually run the other applications.

- Scavenges

to test for backs ask them to read the header

  - There are three types of scavenges that can be performed on the volumes of a disk.

    - Physical Volume Scavenge, which has been discussed already.

Don't use

    - Pilot Level Scavenge. This is the scavenge that is performed through Command Mode. It is not typically used with the customer.

Filecheck better - do Pilot Level stuff & do parent child relationship

    - Client Level Scavenge, more commonly referred to as File Check.

  - A file check performs the following:

    - Reconstructs the Pilot file system.
    - Read each sector and reconstructs the Logical Volume root page and accelerator files. (Points to actual location or layout)
    - Reconstructs the directory system (hierarchy of files) and determines which documents belong in which file folders.
    - Repairs damaged file in the User area if possible. Otherwise, it deletes them.

normally 2-4 hours can take longer

after a couple days - if still going - put hand on 6085 if still vibrating, then let keep going

950 = system is doing a physical volume scavenge
= OK, let alone - take a while - hours

- A file check is necessary when:

  - A system is interrupted during normal operation that scatters or erases system or software files (eg, power surges). System will hang at 7511

  - Incurring a 0915 code during a normal boot.

  - Encountering a system message of "VP Volume Needs Scavenging".

    Note: There are times when customers are installing file check that they receive a message "Please Scavenge the Volume First. Command Aborted" after loading the second file check disk. If this happens, you should proceed with "running" the file check software. The software will be resident on the system, at this point.

  - When bad pages are found in the User Volume on a rigid disk. ***AGAIN, DON'T FORGET TO RUN DIAGNOSTICS BEFORE RUNNING THE FILE CHECK.***

- Performing a File Check is also a two step process. First you have to load the File Check software and then you have to choose the option to run it. Both are accessed through the Special Installation and Error Recovery commands.

- There is no "fixed" time limit for a file check to complete. It depends on the size of the drive, the number of desktops stored on the drive, and how badly the file system is fragmented. Customers almost always ask for an approximate time. For an 80MB the average time is approx. 4 hours. But it could take longer. **The important thing to remember is to NOT interrupt a file check. It does NOT speed up the process. In fact, the system has to start all over again.**

- Once the file check has completed, the system will boot to the bouncing globe on networked workstations. On standalones, it will stop at 7700 and you will have to reinstall the Set Time Utility.

- There are times when the system will crash out of file check. The codes will start with 75xx. In most cases, you have to repeat the process of installing and running file check. What you want to check for is the *time* the file check runs. It should increase each time.

- Pay particular attention to cycling codes that end with 0068 0105 and 0085 0110. The 68/105 codes indicate a Disk Label Check. The usual course of action is repeating the file check over and over again. If a Xerox tech is involved, you can have the tech do a command mode scavenge and follow it with a regular file check. But this may take a long time too. The only other alternative for the customer is partitioning the rigid and starting over. It's faster but if the customer is not

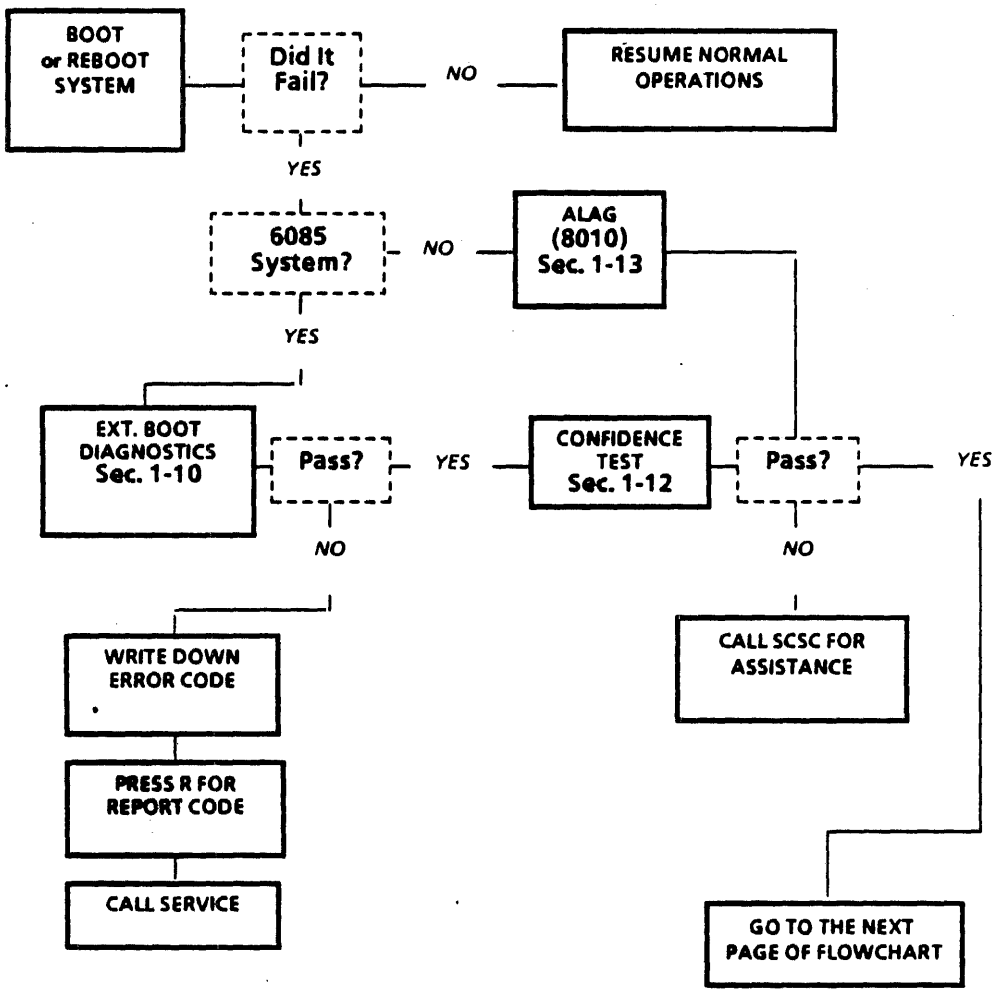
backed up, it's not usually an option. The 85/110 codes indicate a hardware problem. You should run diagnostics before proceeding with another file check.

End of Recovery. Check (7)

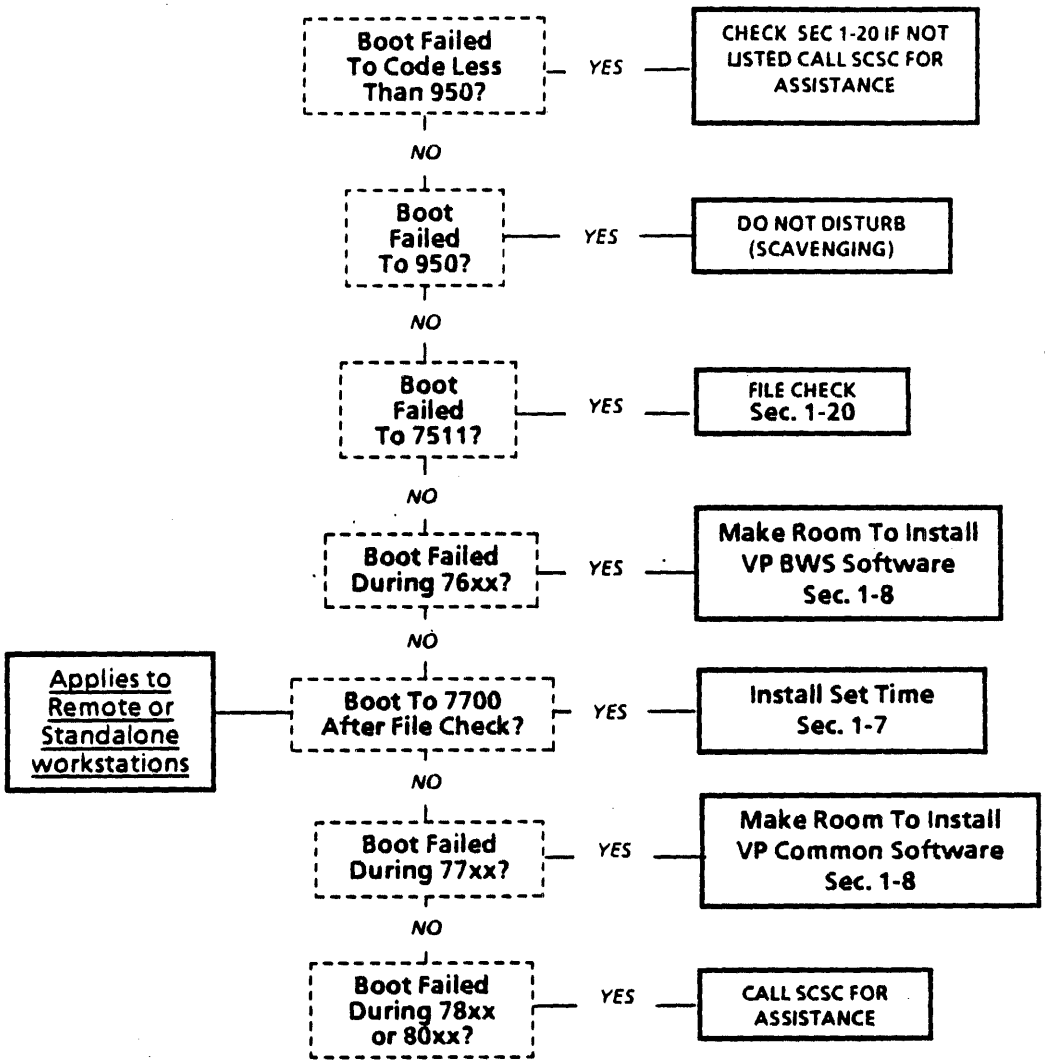
ViewPoint Software Error Recovery

ViewPoint Diagnostics Flowchart

Note: If your system has been up, and you were working inside an application when it crashed; write down the crash codes starting at 9999, then try re-booting first. **Reference Appendix 02 for Common MP and Cursor Codes.**



ViewPoint Diagnostics Flowchart (continued)



ViewPoint Software
Error Recovery

Special Installation and Recovery

Background

The Error Recovery Commands are obtained by booting from <F2> the Installer #1 and #2 diskettes. After the second diskette is booted, the Installer's Main Menu is displayed. From this menu, recovery scripts can be accessed by selecting the option of **"Special Installation and Error Recovery Commands"**.

When this option is selected, a resulting menu of several recovery choices are displayed. Below are a few of those choices with notations of when to use certain Recovery Scripts.

Before doing any reloading of software, the user should **write down** the MP or Cursor codes and **reboot**. If the system comes up; then no reloading is necessary. If the system fails with the same codes; try reloading software. If reloading does not resolve the problem, contact the **SCSC** with the codes.

The reload process was designed to be used if the workstation crashed during boot up after a File Check or during the normal boot process. If your system fails while using an application, try rebooting first.

Note that if you crash with **xx45**; where **xx** is 76, 77, 78 or 80, you don't reload software. You should run Diagnostics (Reference *Sec. 1-10 / Extended Boot Diagnostics*, *Sec. 1-12 / Confidence Test*) and run File Check (Reference *Sec. 1-2 / File Check*). **The xx45 code means you have an unrecoverable disk error.**

When to Make Room To Install ViewPoint Basic Workstation Software

When the workstation fails to **boot** and the cursor codes **9999 / 76xx / +** cycles on the screen, the boot files (Basic Workstation Software) is either:

- Damaged
- Missing, or
- Installed improperly

Selecting this script will allow a user to delete the Basic Workstation Software without affecting the Common Software, Essential Applications, or the VP Series Application Software.

When the software is deleted, a code of **7604** appears on the screen. **Reboot** the workstation to obtain the Error Recovery Scripts as before; and select the option to **"Install ViewPoint Basic Workstation Software"**. The system will prompt you step-by-step through the reinstallation successfully.

When to Make Room To Install ViewPoint Common Software

When the workstation fails to **boot** and the cursor codes **9999 / 77xx / +** cycles on the screen, the NetCom Common, Standalone Common, RemoteCom Common and ViewPoint Common Software is either:

- Damaged
- Missing, or
- Installed improperly

Selecting this script will allow a user to delete the Common Software without affecting the Basic Workstation Software, Essential Applications, or the VP Series Application Software.

When the software is deleted, a code of **7604** appears on the screen. **Reboot** the workstation to obtain the Error Recovery Scripts and **select** the option to **"Install the ViewPoint:**

Special Installation and Recovery (continued)

NetCom Common and View Point Common, or

Standalone Common and View Point Common, or

RemoteCom Common and View Point Common Software".

The system will prompt you step-by-step through the reinstallation successfully.

When to Delete All System Data Files INCLUDING All Applications

When the workstation **crashes** and the cursor codes **9999 /78xx or 80xx / + XXXX XXXX XXXX XXXX** cycles on the screen, and the maintenance start up codes, **(XXXX)** suggests an **unspecified** piece of software file is either:

- Damaged
- Missing, or
- Installed improperly

Selecting this script will allow a user to delete all of the system files along with VP Series Application software from the rigid disk.

When the software is deleted, a code of **7604** appears on the screen. **Reboot** the workstation to obtain the Main Menu Scripts and select the option to **"Install ViewPoint Software on 6085/ or 8010"**. The system will prompt you step-by-step through the System Software Files reinstallation successfully.

When complete, **reboot** the workstation to copy all of the VP Series Application Software back into the Application Loader.

When to Delete All System Data Files EXCEPT Applications

When the workstation crashes and the cursor codes **9999 / 77xx + XXXX XXXX or 80xx / + XXXX XXXX** cycles on the screen, and the maintenance start up codes, **(XXXX)** suggests a **specific** piece of software file is either:

- Damaged
- Missing, or
- Installed improperly

Selecting this script will allow a user to delete all of the system files from the rigid disk. When the software is deleted, a code of **7604** appears on the screen.

Reboot the workstation to obtain the Main Menu Scripts and select the option to **"Install ViewPoint Software on 6085 / 8010"**. The system will prompt you step-by-step through the System Software reinstallation successfully

The VP Series Applications, such as Spelling Checker, List Manager, Data Driven Graphics, and Screen Fonts are not affected by the execution of this script and will remain in the loader.

ViewPoint Software Diagnostics

Common MP and Cursor Codes

0149

Wait Boot File. This is an early code during the booting sequence and should remain only a few seconds during a normal booting process.
Possible causes: nonexistent device, no Initial Microcode installed on rigid or floppy, code is stored in the wrong place, no Initial Microcode installed on boot server, bad checksum on boot server's Initial Microcode, not connected to net during net boot.
ACTION: Follow the flowcharts labeled, "Unable to boot from 0149/0151".

0151

Boot device Error. Initial Microcode cannot be fetched from the boot device.
Possible causes: The system will time out to this code if no action is taken to correct the 0149.
ACTION: Follow the flowcharts labeled, "Unable to boot from 0149/151".

0200

Boot Code. Interpret Boot File.
ACTION: Follow the flowchart labeled, "Unable to boot past 0200 coded".

0201

Boot Code. The Mesa Microcode and Germ (or Diagnostic Microcode) cannot be fetched from the boot device (essential software cannot be accessed from boot device).
Possible causes: same as for code 0149.
ACTION: Unable to boot past 0201.

0322 (8010 Workstations)

Executing Ethernet loop back test. The workstation is checking that it can successfully communicate with the transceiver. The system displays this cursor code until the connection is made or the <NEXT> key is pressed for Standalone or Remote systems.
ACTION: For Standalone or Remote systems, pres the <NEXT> key. Check the Ethernet connections. Run Diagnostics. If diagnostics fails, contact the System Administrator.

0912

Boot loader not compatible with MakeBoot used for boot file.
Possible causes: Floppy disk or floppy drive may be damaged.
ACTION: Follow the flowchart labeled, "Unable to boot past F2: 0912 Code".

0915

Ethernet Debugger Server in control. The system is waiting to talk to a remote Ethernet debugger. A local debugger is not being used because it is too early in initialization to find the local debugger.
ACTION: Follow the flowchart labeled, "Unable to boot past 0915 code".

0919

Boot loader has transferred control, but it is hung.
Possible causes: Incompatible software has been loaded. Boot service does not contain the correct version of software.
ACTION: Follow the flowchart labeled, "Unable to boot past 0919 code".

0921

Boot Loader device error on device being booted.
Possible causes: System is missing the set time utility on a standalone, remote or Dashlink system. Hardware changes are not reflected

Common MP and Cursor Codes (continued)

on the system configurations.
ACTION: Follow the flowchart labeled, "Unable to boot past 0921 code".

0934

Bootfile's StartList contains bad data.
Possible causes: System configuration has not been updated following hardware changes.
ACTION: Follow the flowchart labeled, "Unable to boot past 0934 code".

0935

Boot device is been asked to perform as a debugger.
ACTION: Follow the flowchart labeled, "Unable to boot past 0935 code".

0937

Attempting to locate time via Ethernet or hardware clock. Pilot is attempting to get the time of day from an Ethernet Time Server. If none responds, it attempts to get the time from the hardware clock. The system displays this cursor code until the time is available from one of these sources.
ACTION:

Note: On **Standalone** and **Remote** workstations, install Set Time Utility. (Reference *Sec. 1.3 / Installing Set Time Utility*).

0950

Logical Volume being scavenged. If a Logical Volume being booted or opened is in an inconsistent state, Pilot will display this code while it scavenges (verifies the contents of the volume). The amount of time required depends on the size, occupancy and fragmentation of the Logical Volume being scavenged. **DO NOT INTERRUPT THIS CODE.**

Note: See the **Special Considerations** section at the end of the File Check section on page 1-5.

7500

The File Check Software is running. This code remains displayed until File Check completes. The amount of time required depends on the size, occupancy and fragmentation of the Logical Volume being scavenged. **DO NOT INTERRUPT THIS CODE.**

Note: See the **Special Considerations** section at the end of the File Check section on page 1-5.

7504 (ViewPoint)

Volume needs Initializing.
ACTION: This code normally indicates the user file system must be initialized. However, if this appears after a workstation has completed booting once, **DO NOT initialize this volume.** Follow the flowchart labeled, " Unable to boot past 7504 code".

7511 (ViewPoint)

System is requesting a File Check be performed on the logical volume.
ACTION: Follow the flowchart labeled, " Unable to boot past 7511 code".

7530 / +

Unsuccessful File Check was attempted.
ACTION: Follow the flowchart labeled, " Unable to boot past 7511 code".

7545

Unrecoverable Disk Error. There is a disk page that contains invalid data.

ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

This usually indicates rigid disk problem.
ACTION: Follow the flowchart labeled, "Unable to boot past 7545 code".

7600

Xerox ViewPoint software is being booted.
ACTION: Follow the flowchart labeled, "Unable to boot past 7600 code".

7604

System files have been deleted from the rigid disk.
ACTION: Follow the flowchart labeled, "Unable to boot past 7604 code".

7700

Xerox NetCom, VP RemoteCom or VP Standalone software is starting.
ACTION: Follow the flowchart labeled, "Unable to boot past 7700 code".

7800

All VP Series Applications that have been specified to load automatically at workstation boot time are now being loaded.
ACTION: Follow the flowchart labeled, "Unable to boot past 7800 code".

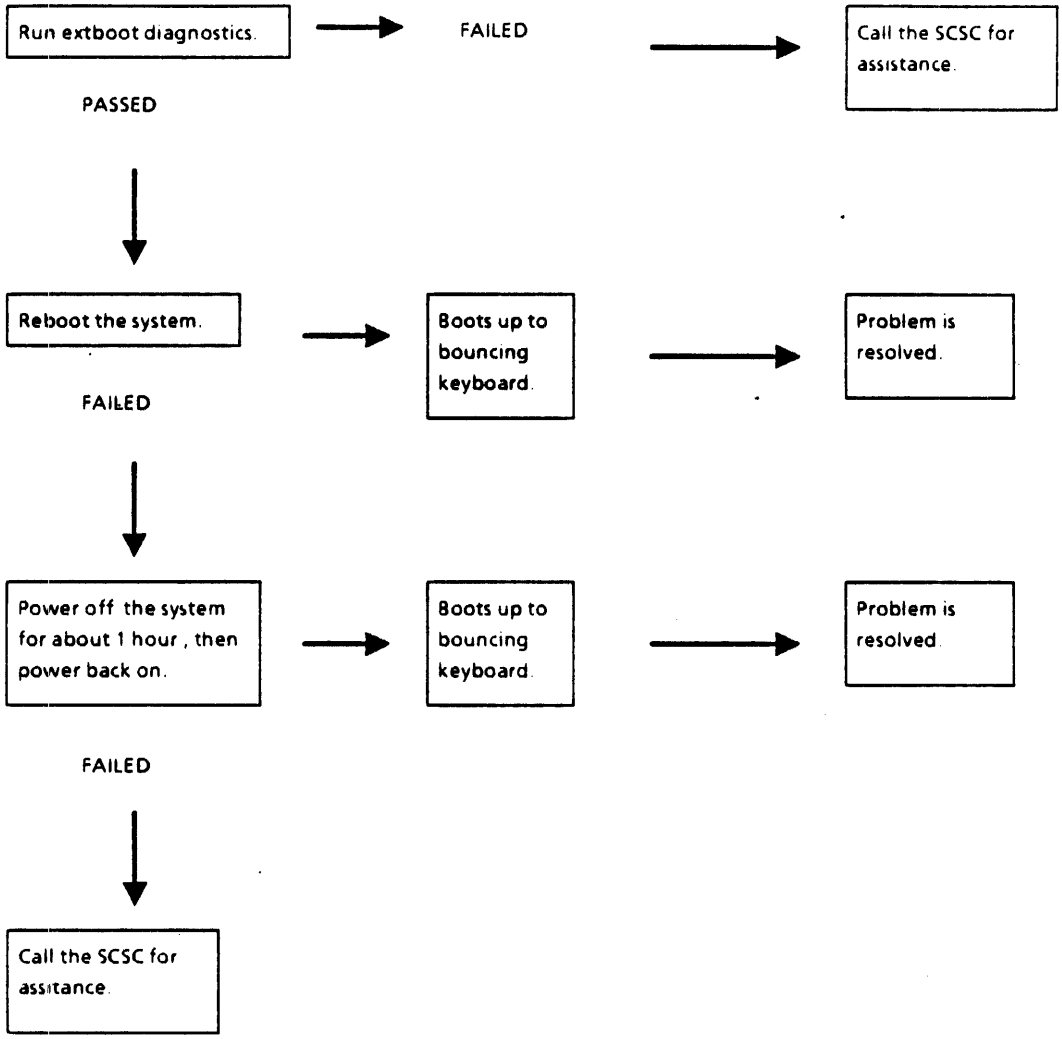
8000

System is working fine.
ACTION: No Action Required.

Common MP and Cursor Codes (continued)

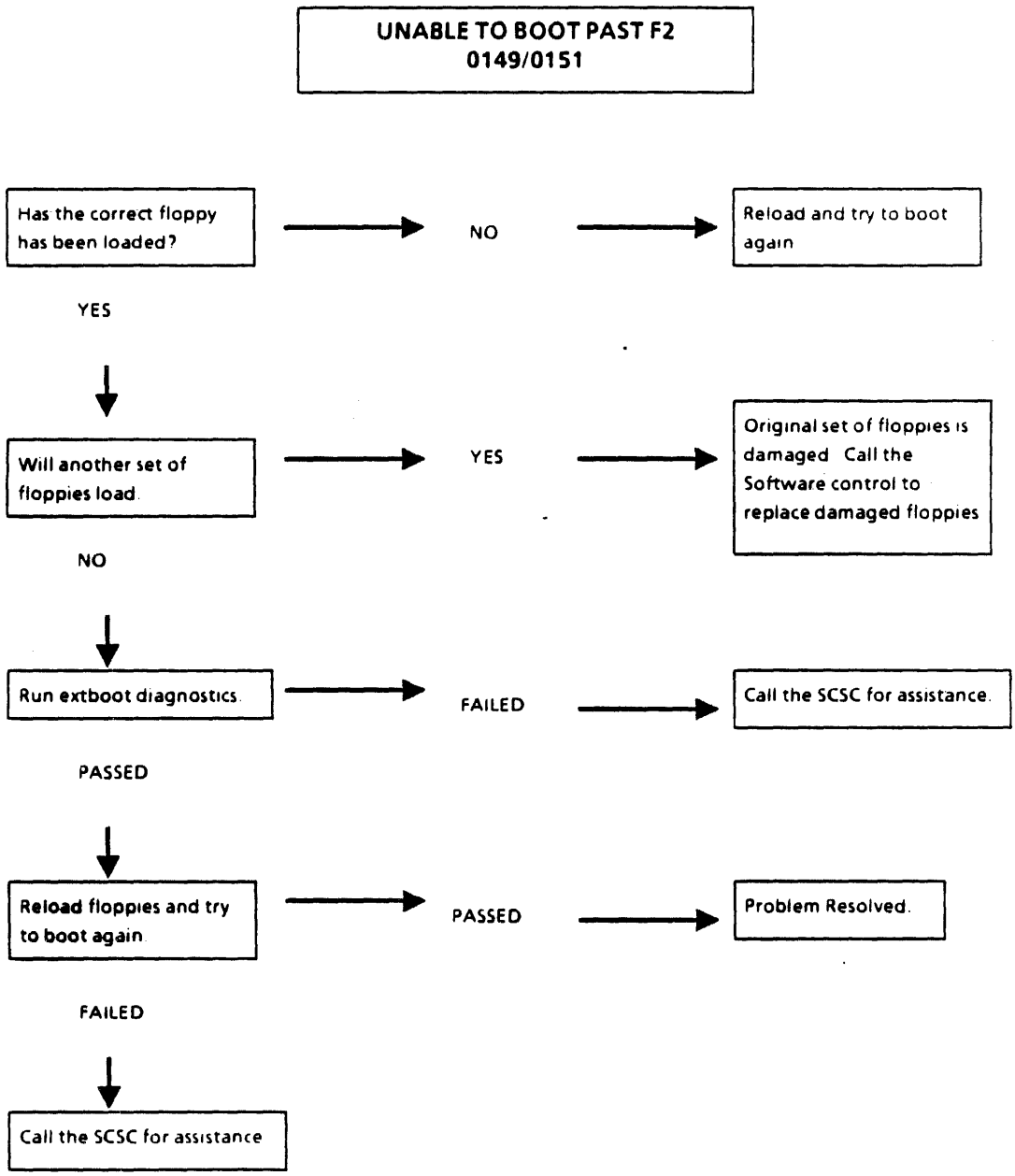
- some time have 149 when floppy & Try to boot from floppy floppy have wrong
If booting from net boot service may be down

UNABLE TO BOOT FROM F1 PAST 0149/0151

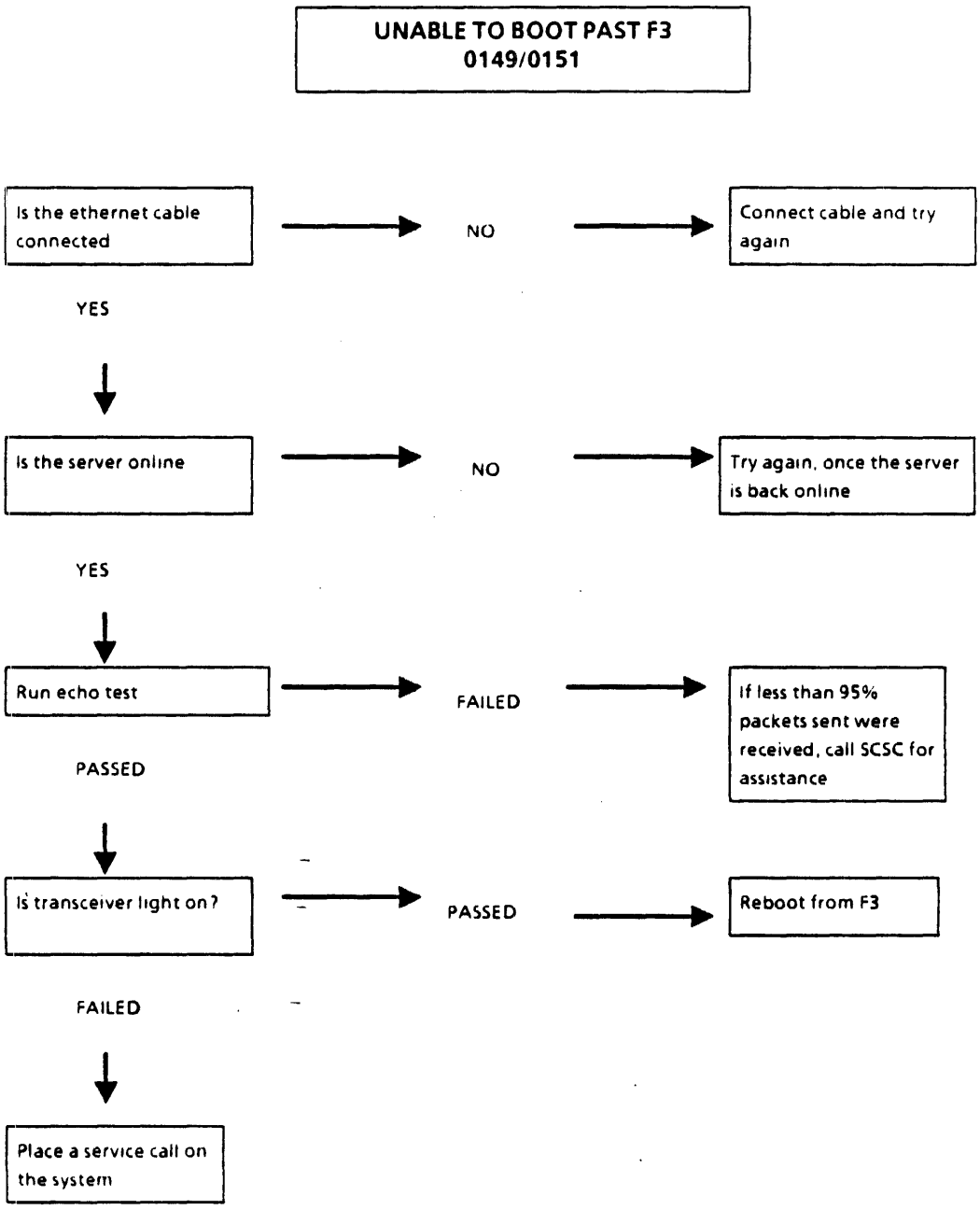


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

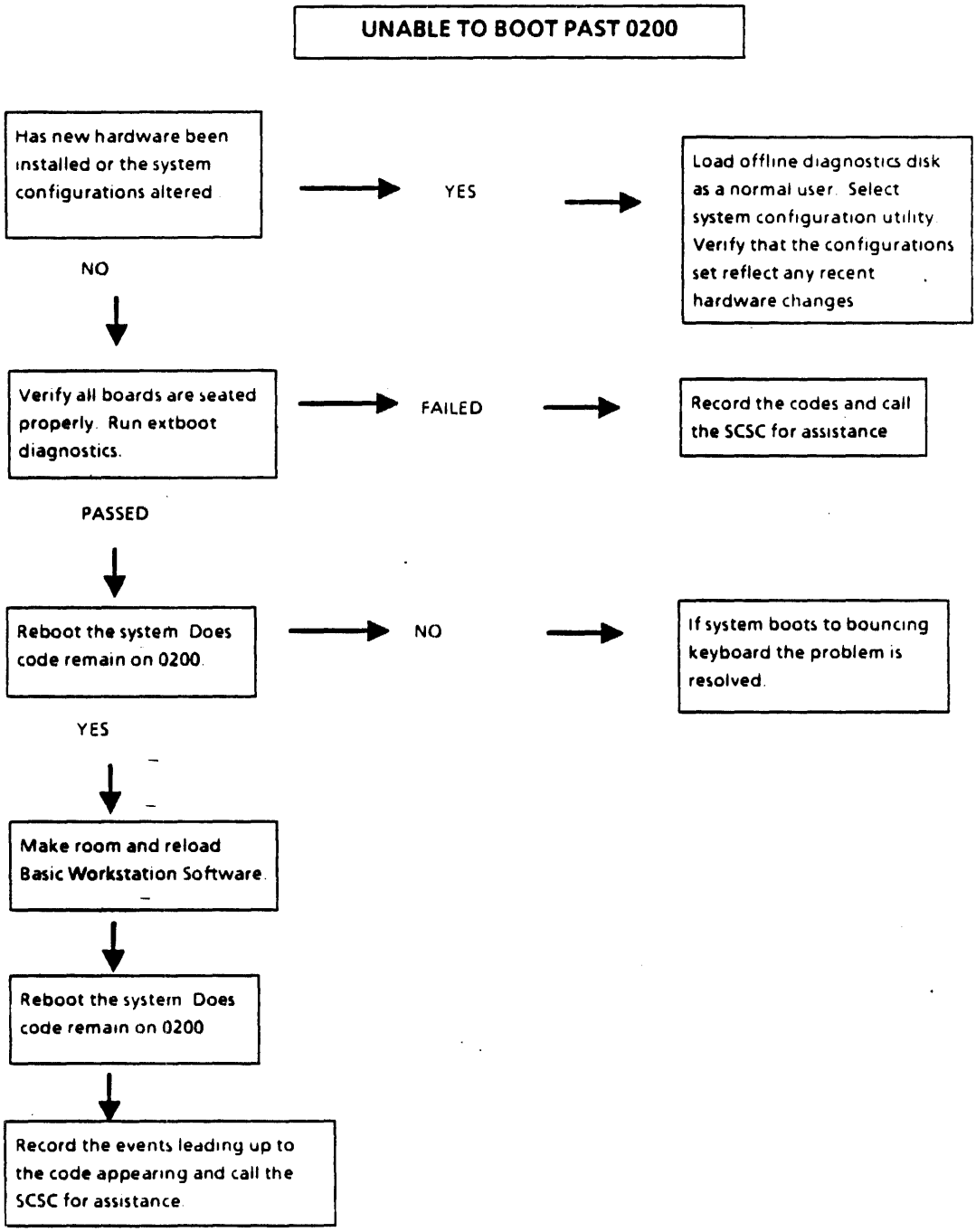


Common MP and Cursor Codes (continued)

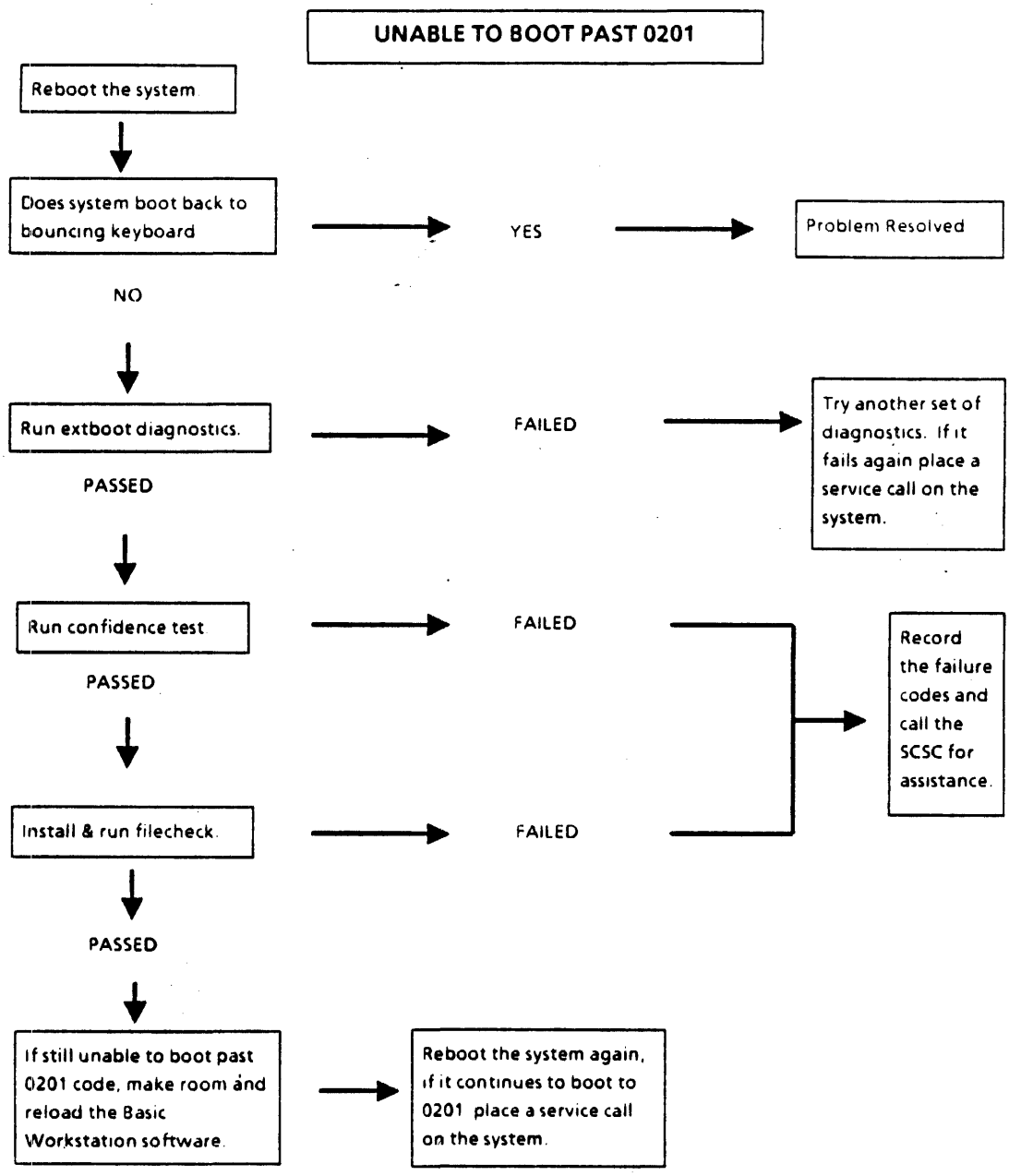


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

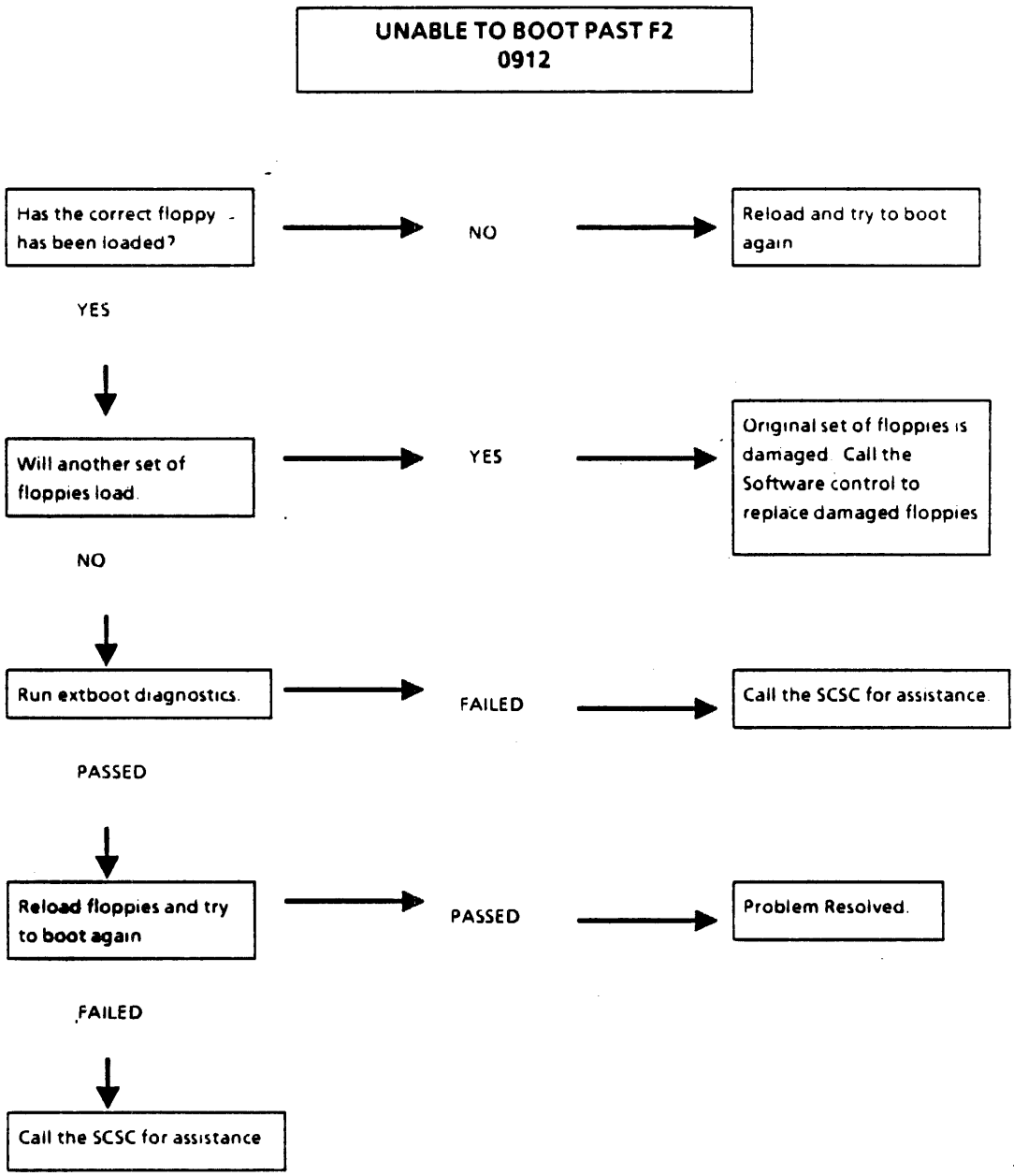


Common MP and Cursor Codes (continued)

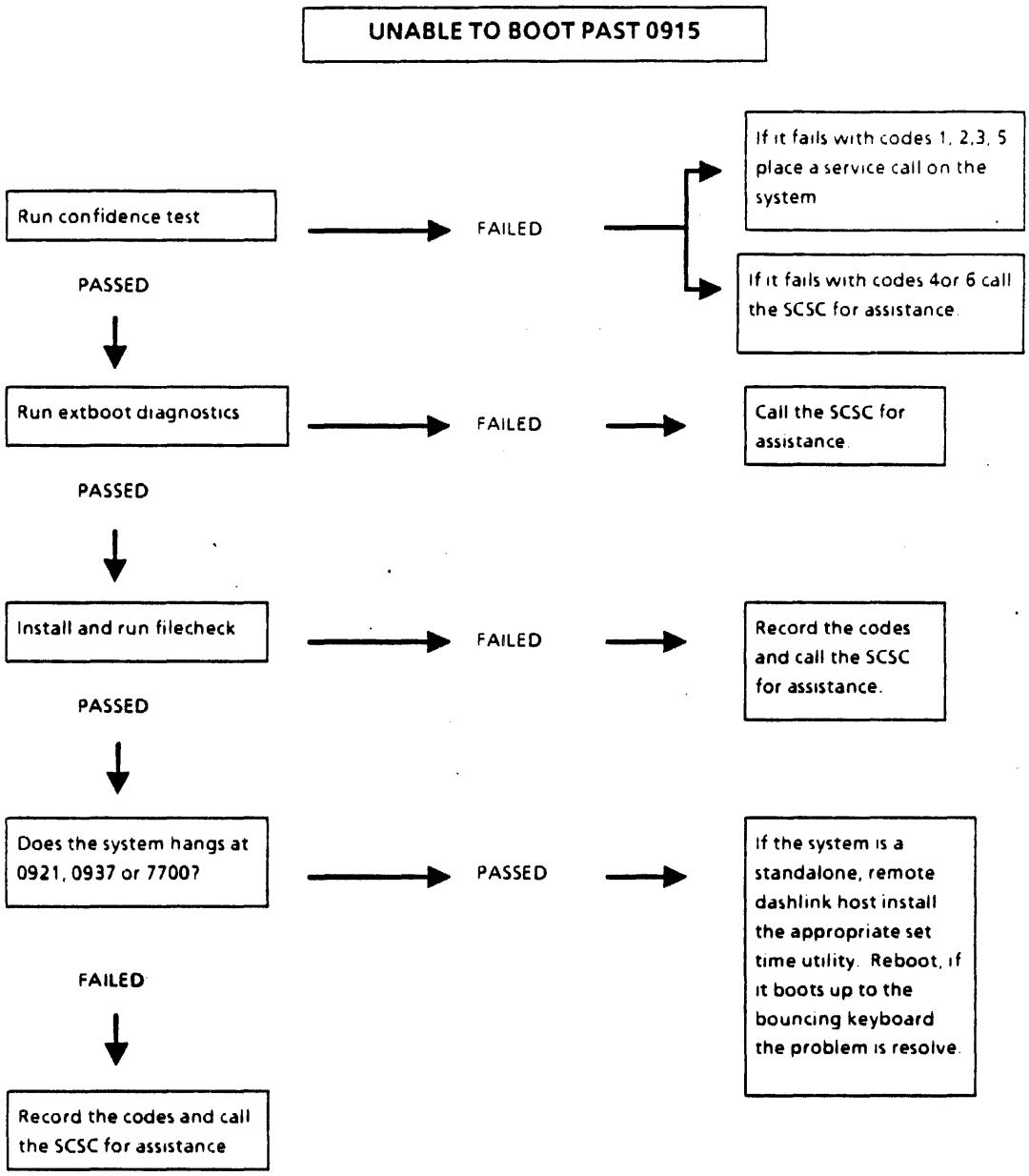


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

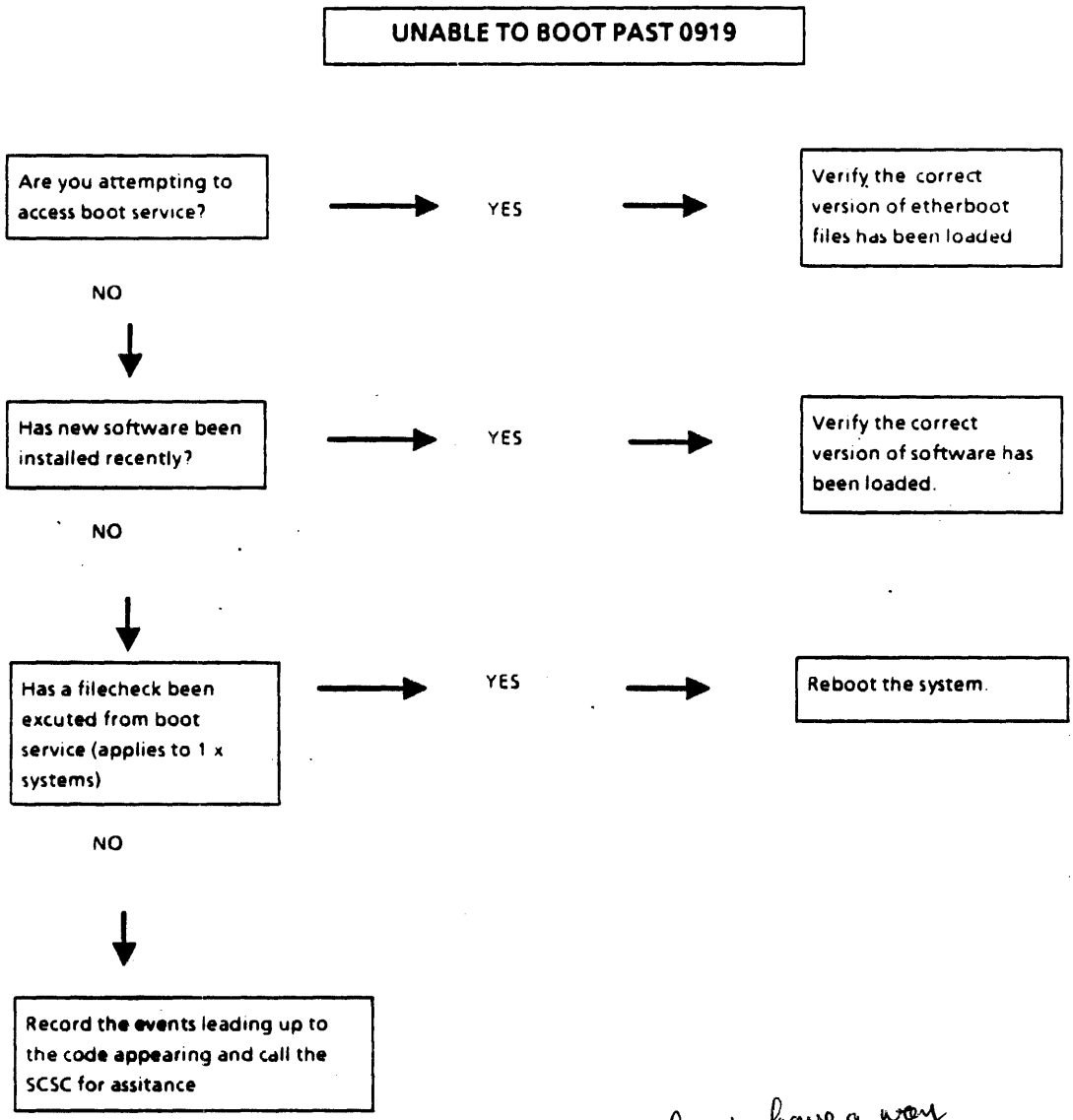


Common MP and Cursor Codes (continued)



ViewPoint Software Diagnostics

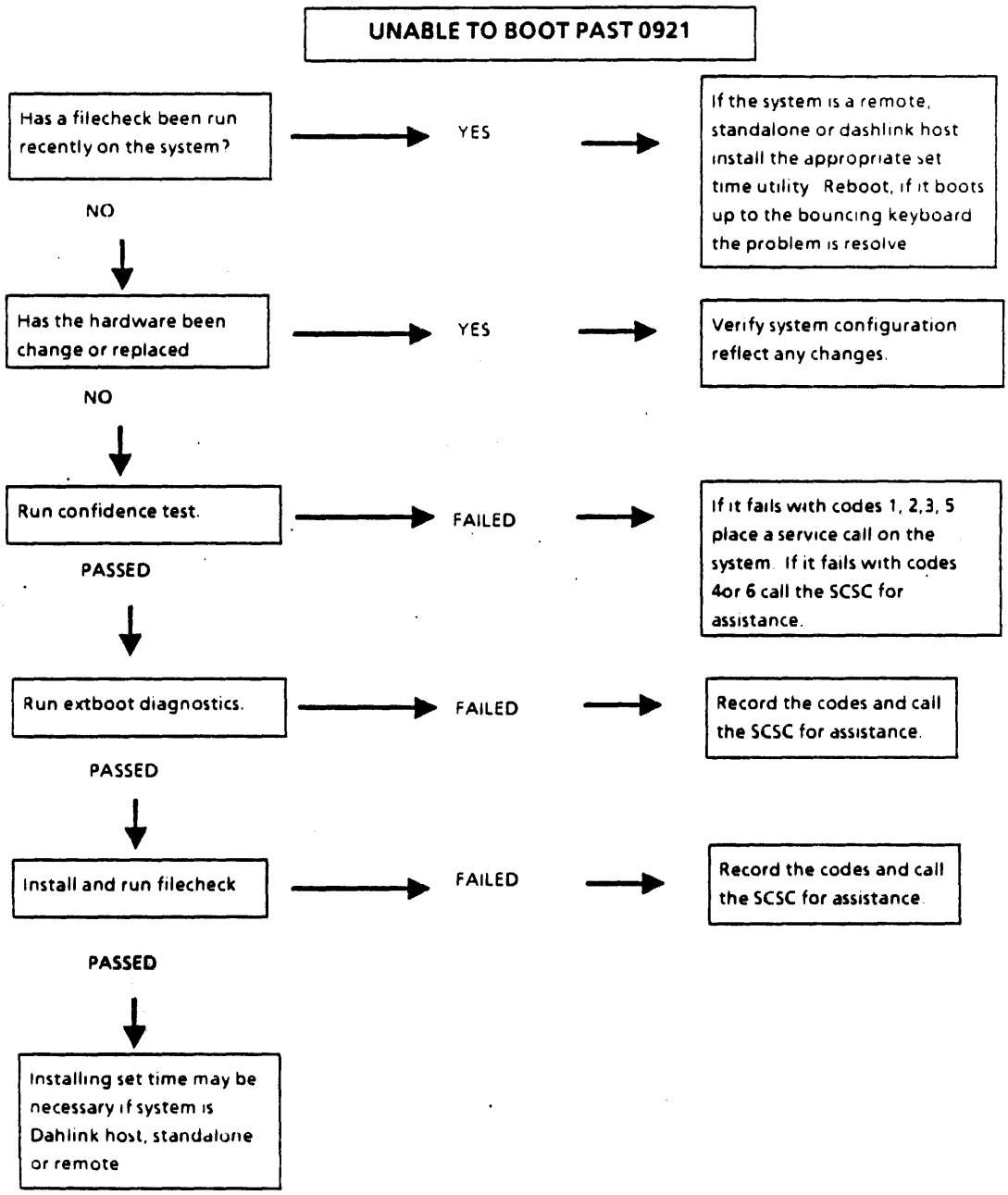
Common MP and Cursor Codes (continued)



for remote - don't have a way to boot w/ applications not running

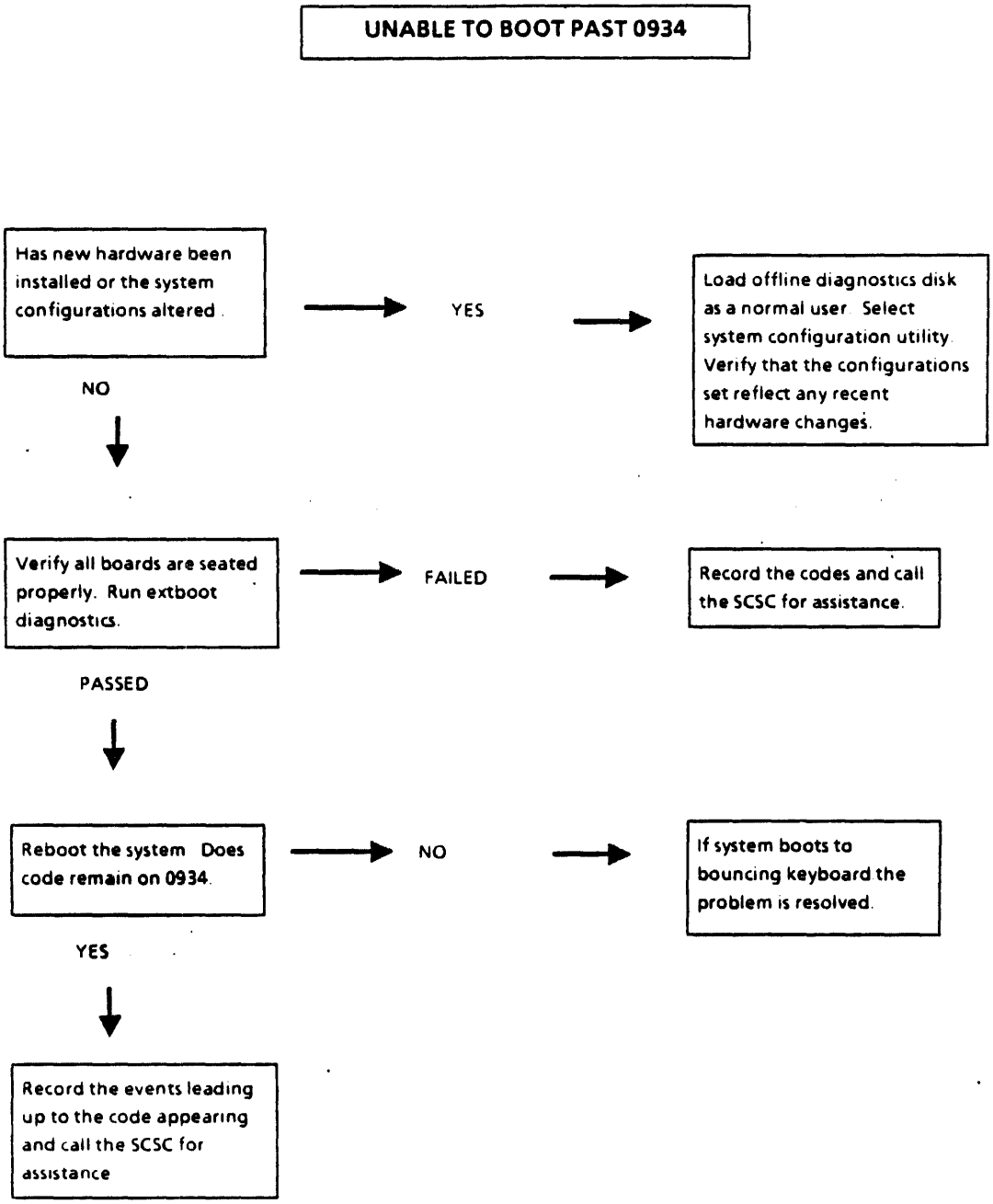
if have bad font - printer font
no way to get rid of
have to repartition the drive

Common MP and Cursor Codes (continued)

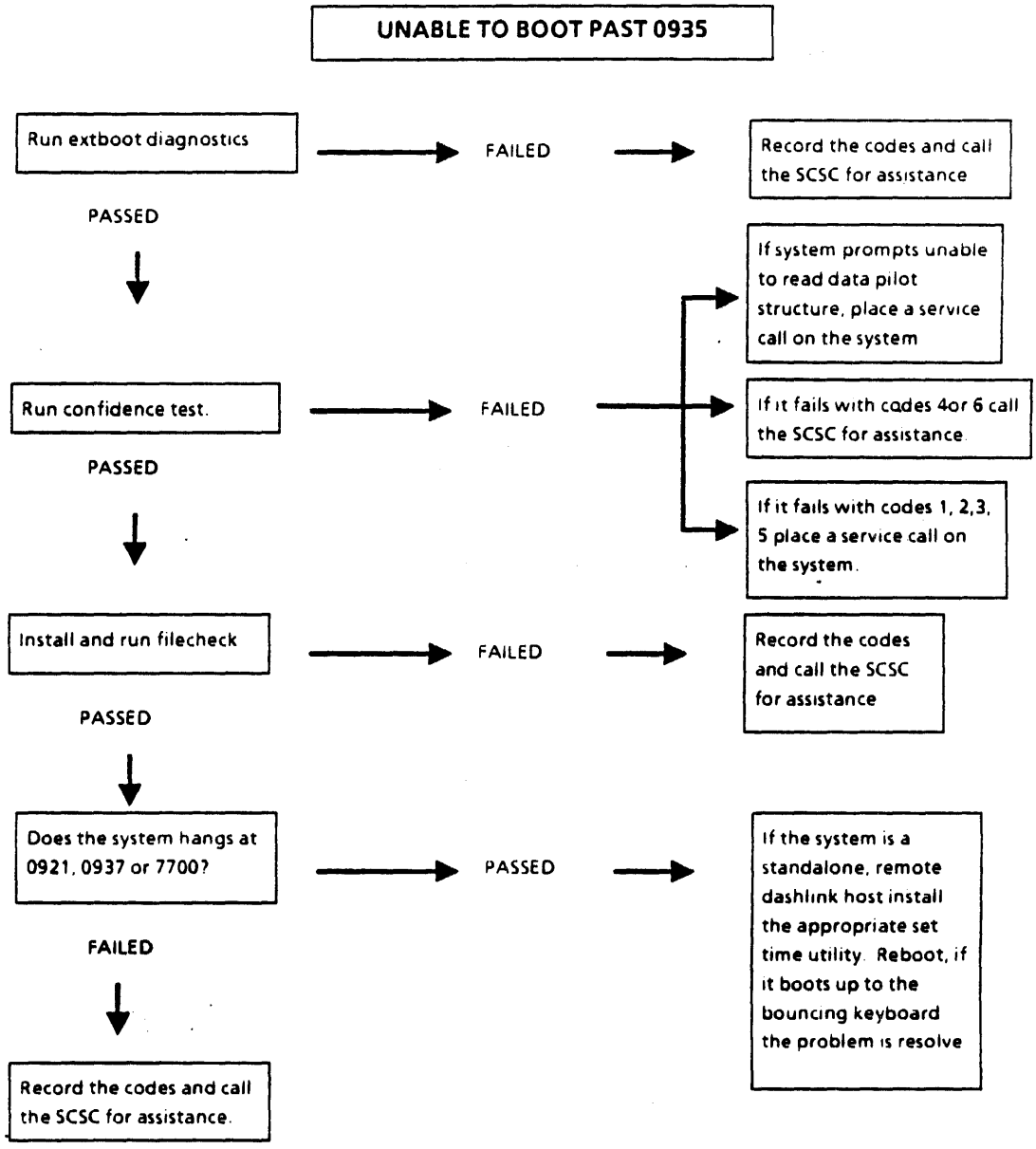


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

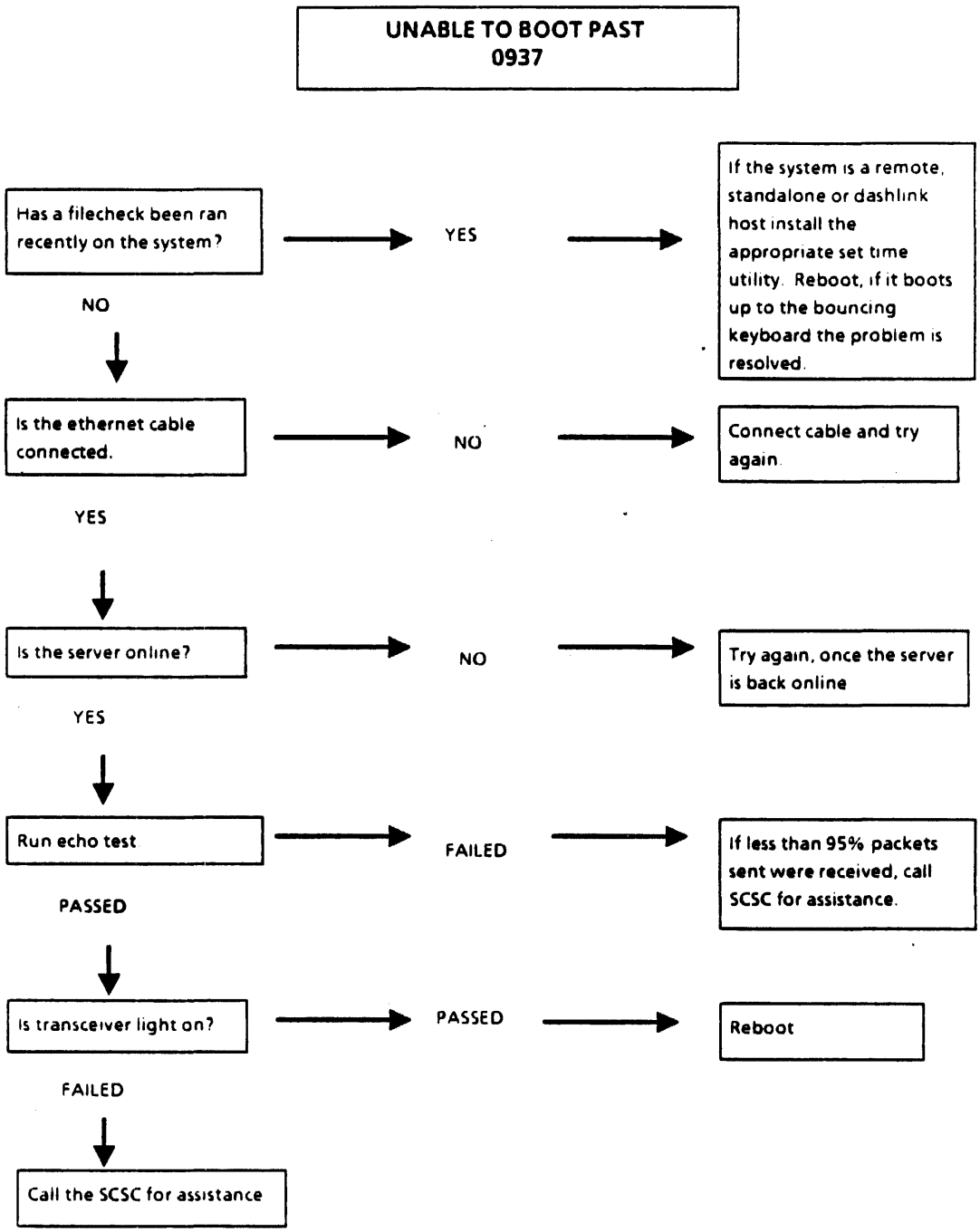


Common MP and Cursor Codes (continued)

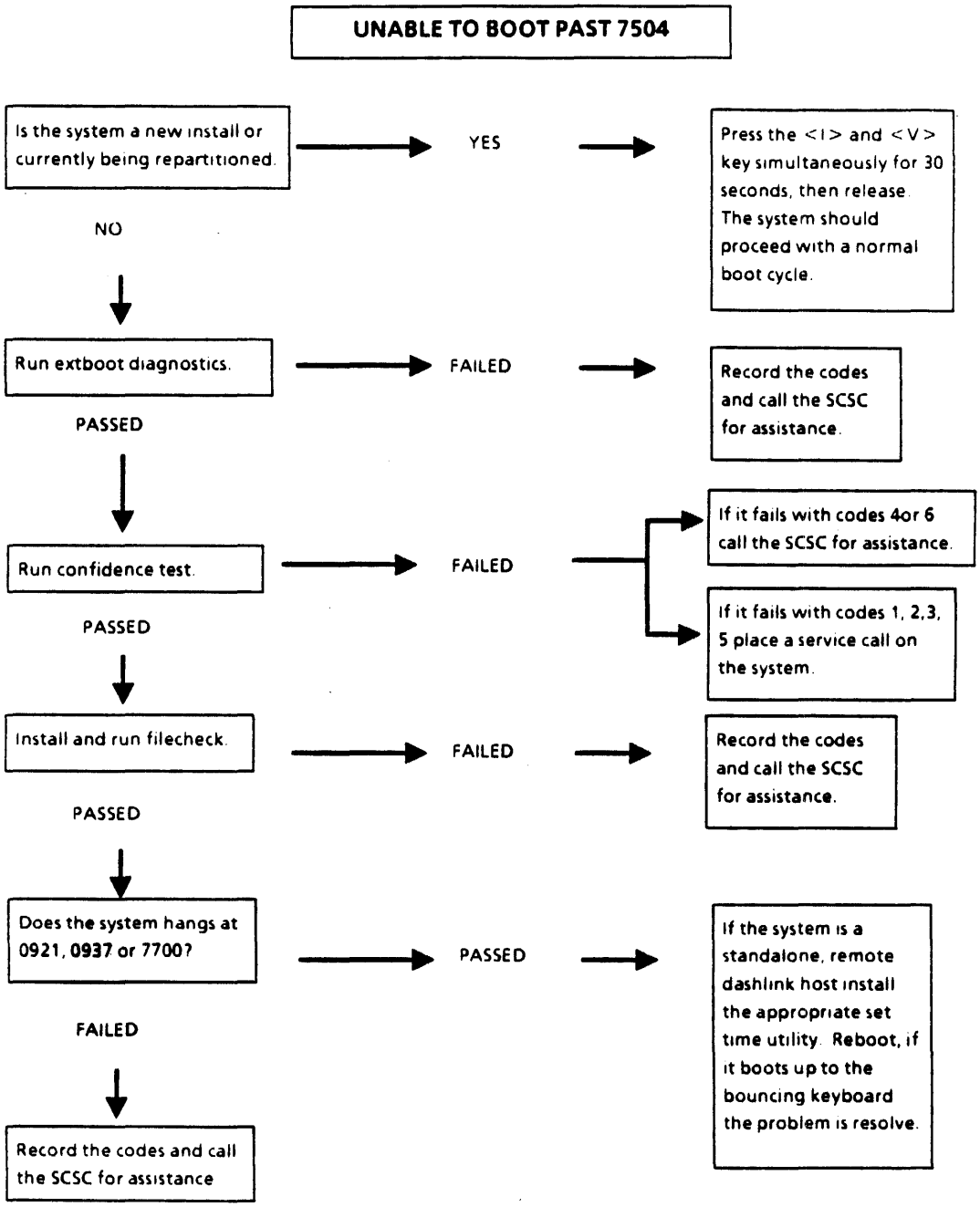


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

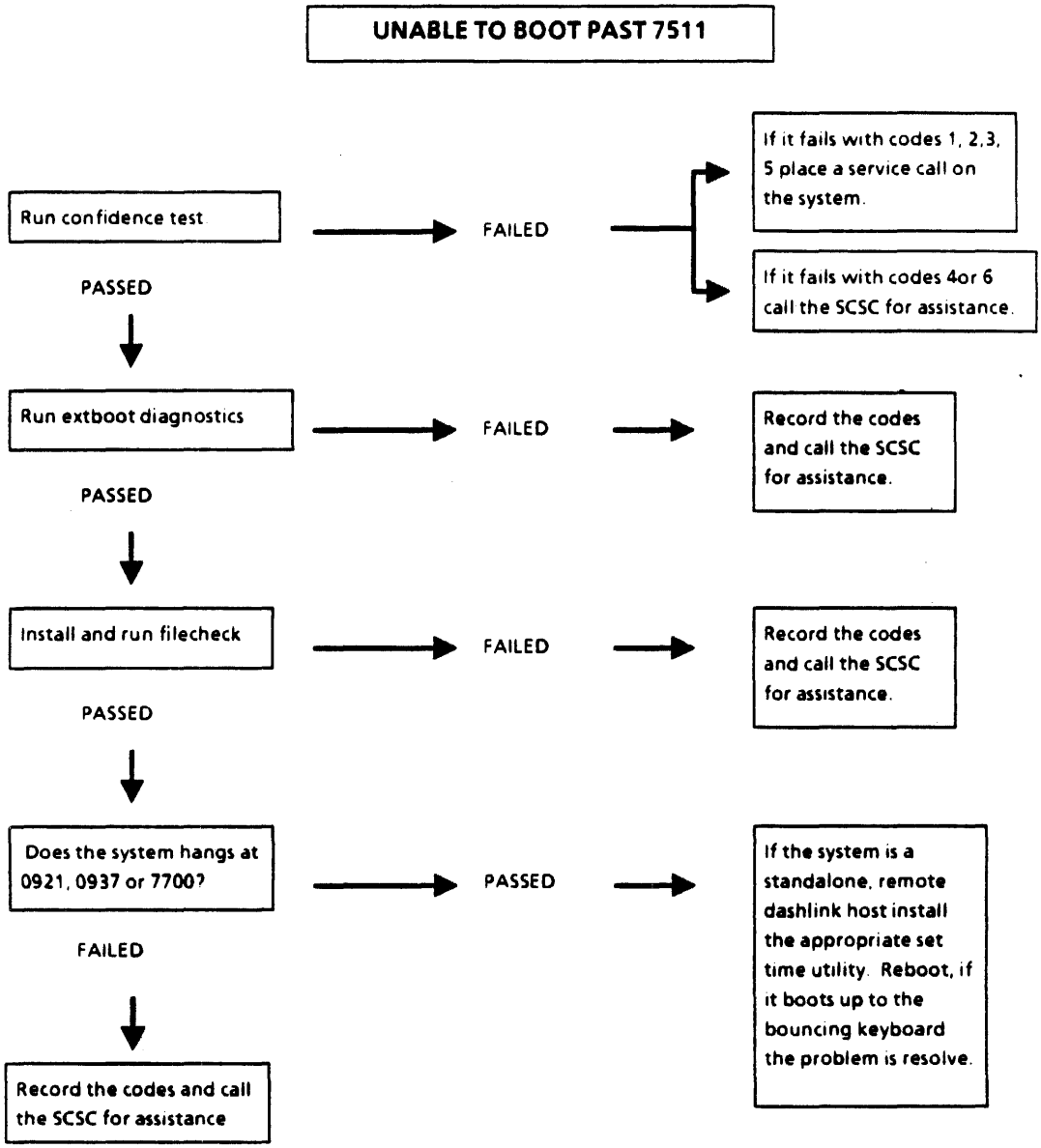


Common MP and Cursor Codes (continued)

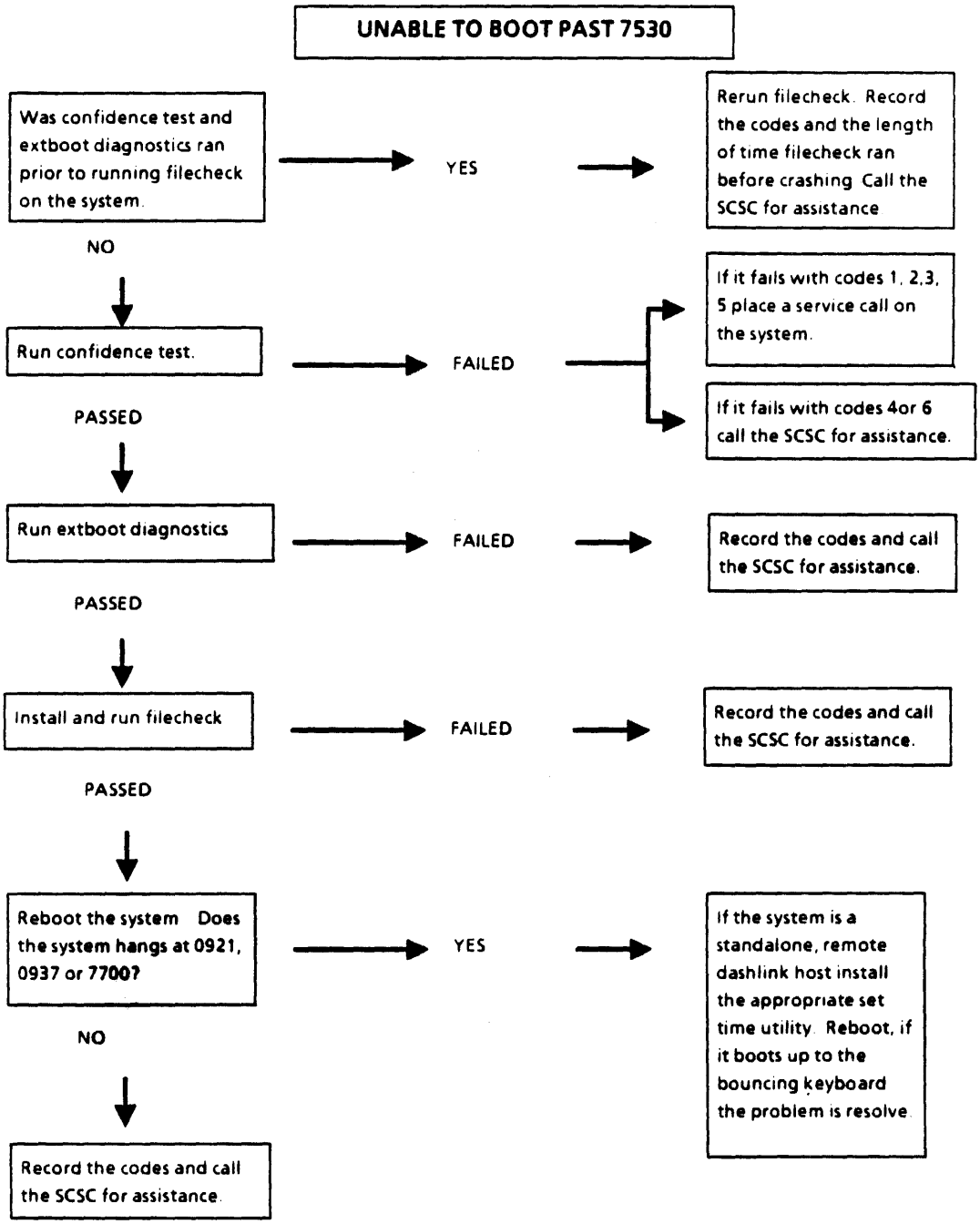


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

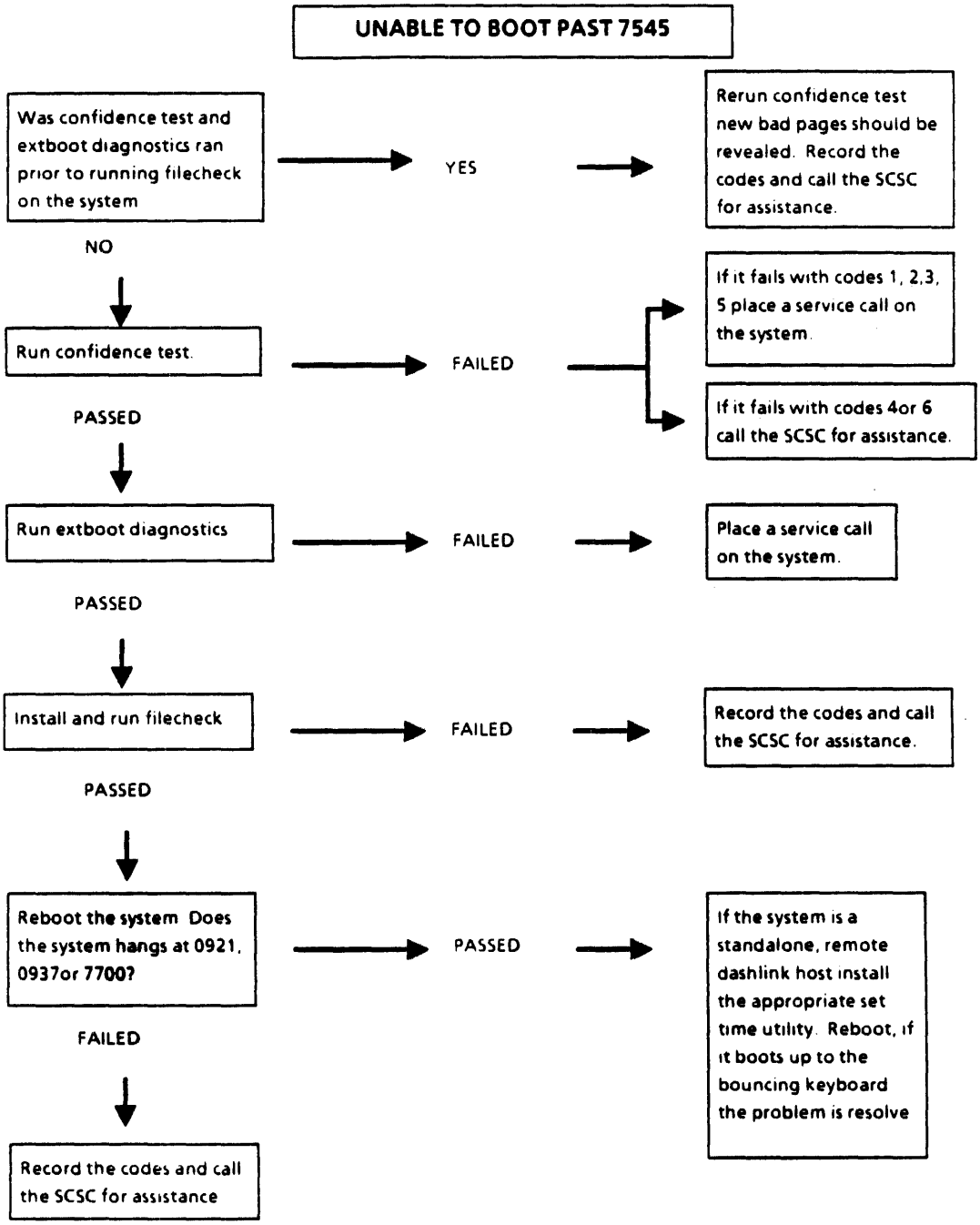


Common MP and Cursor Codes (continued)

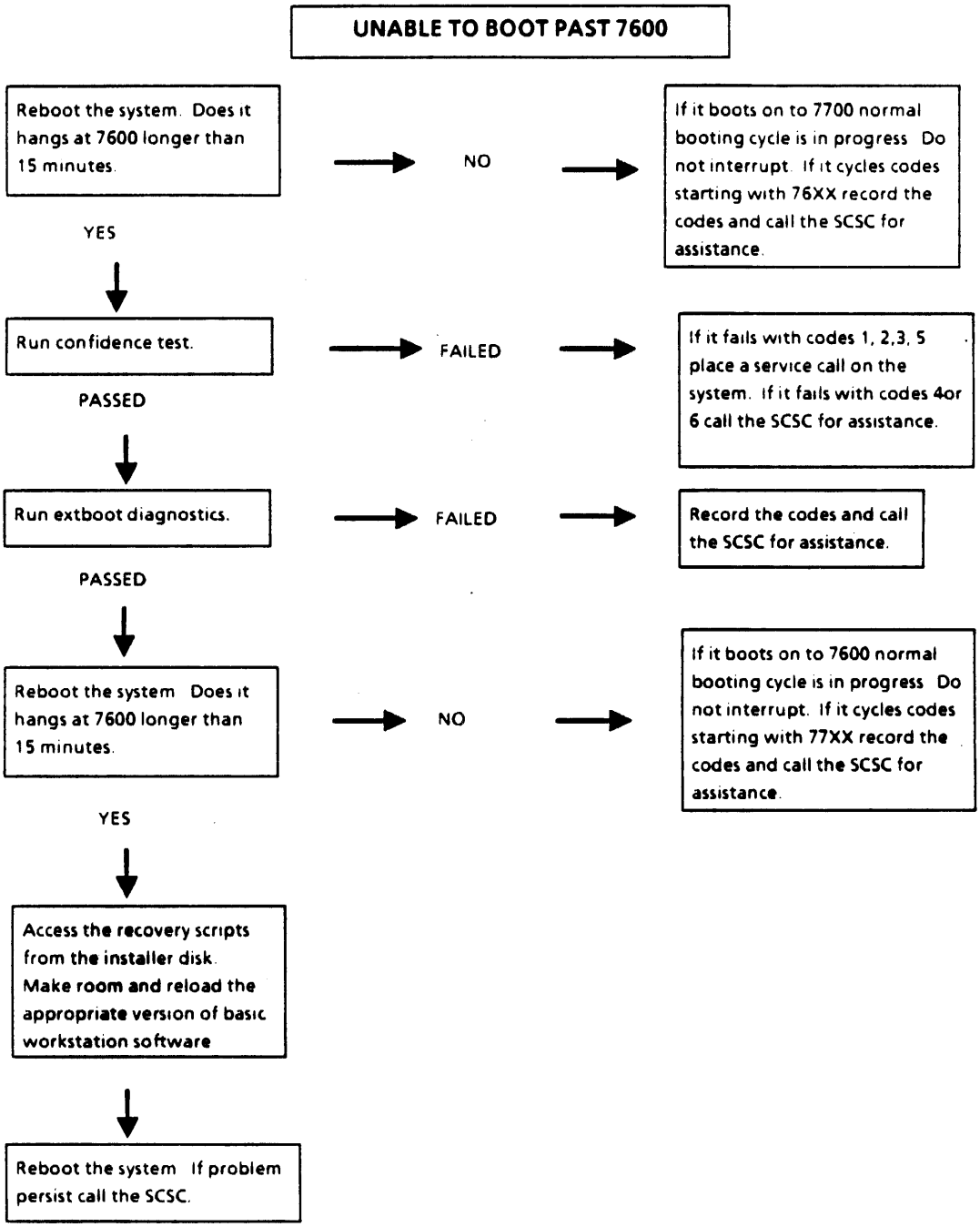


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

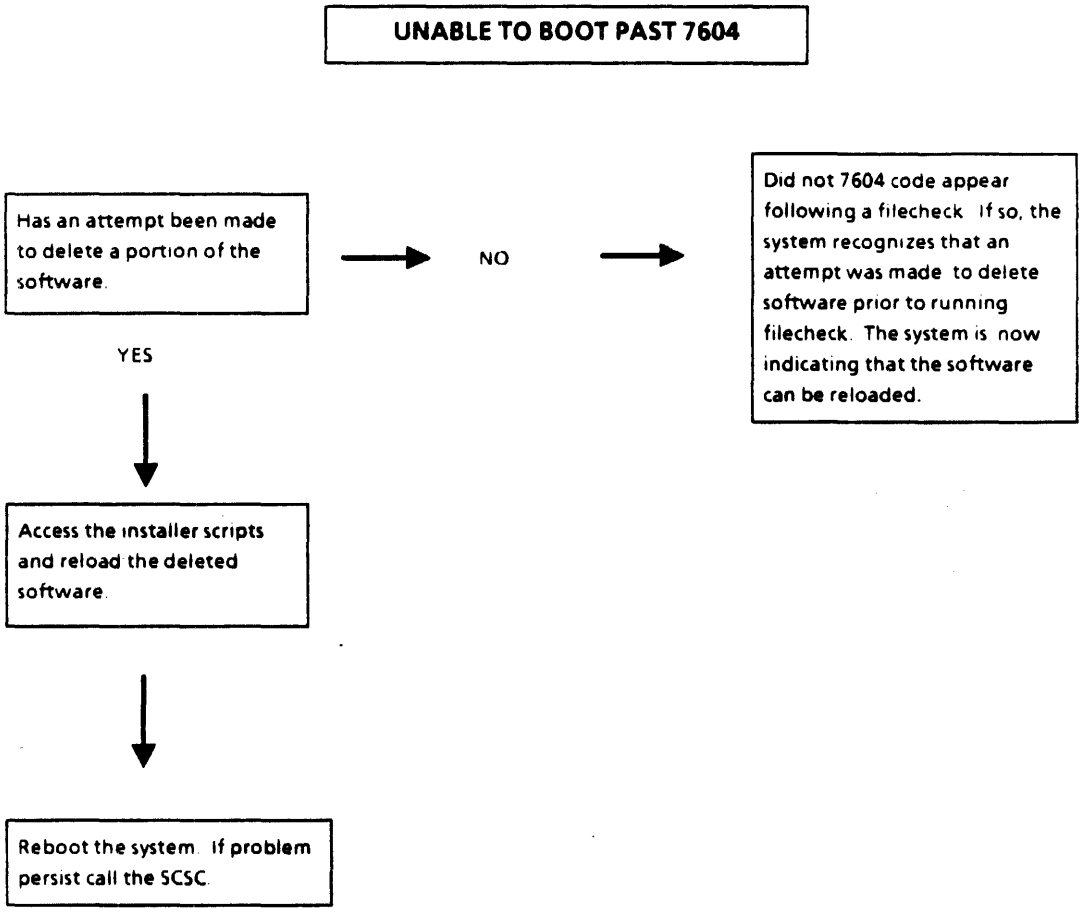


Common MP and Cursor Codes (continued)

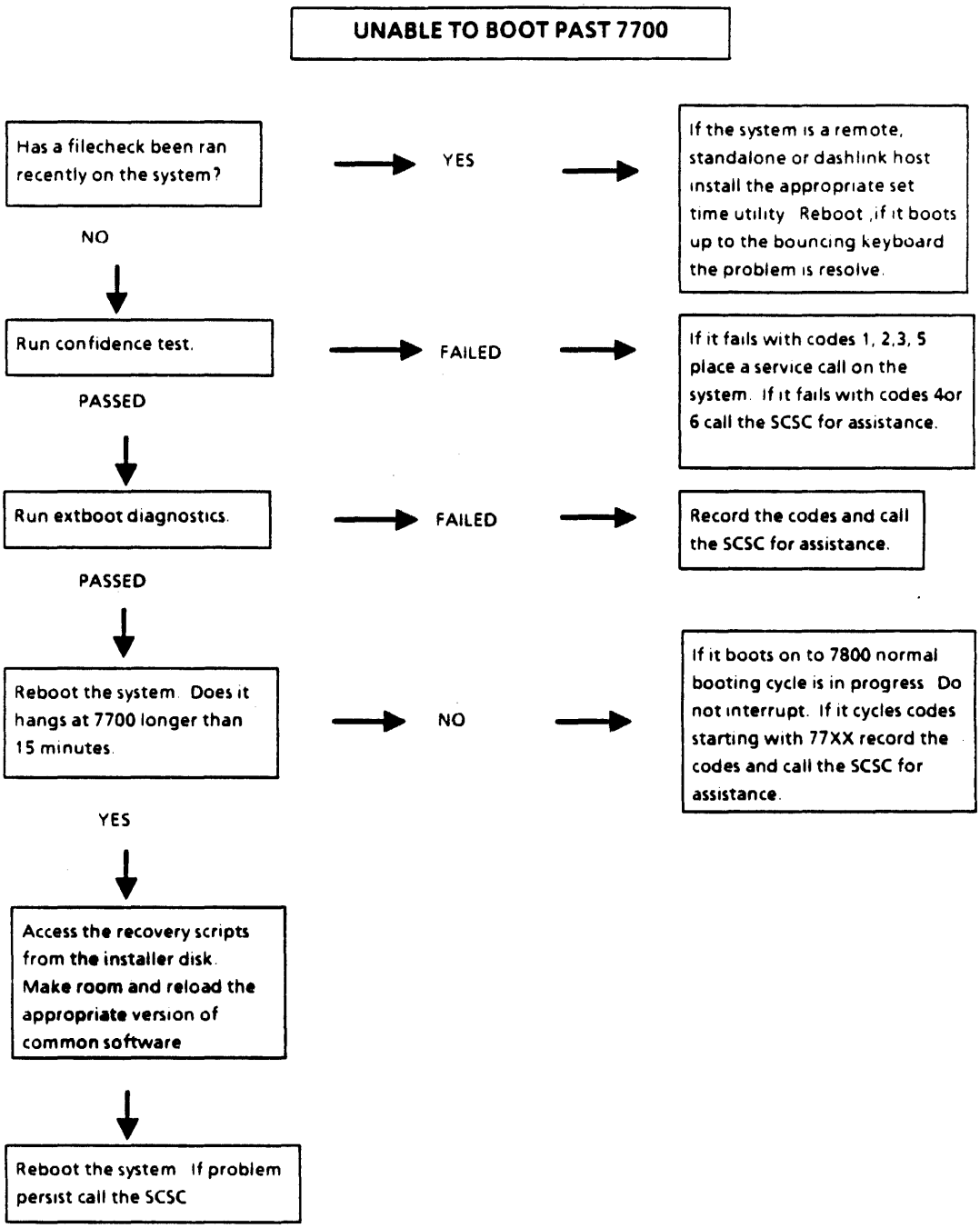


ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)

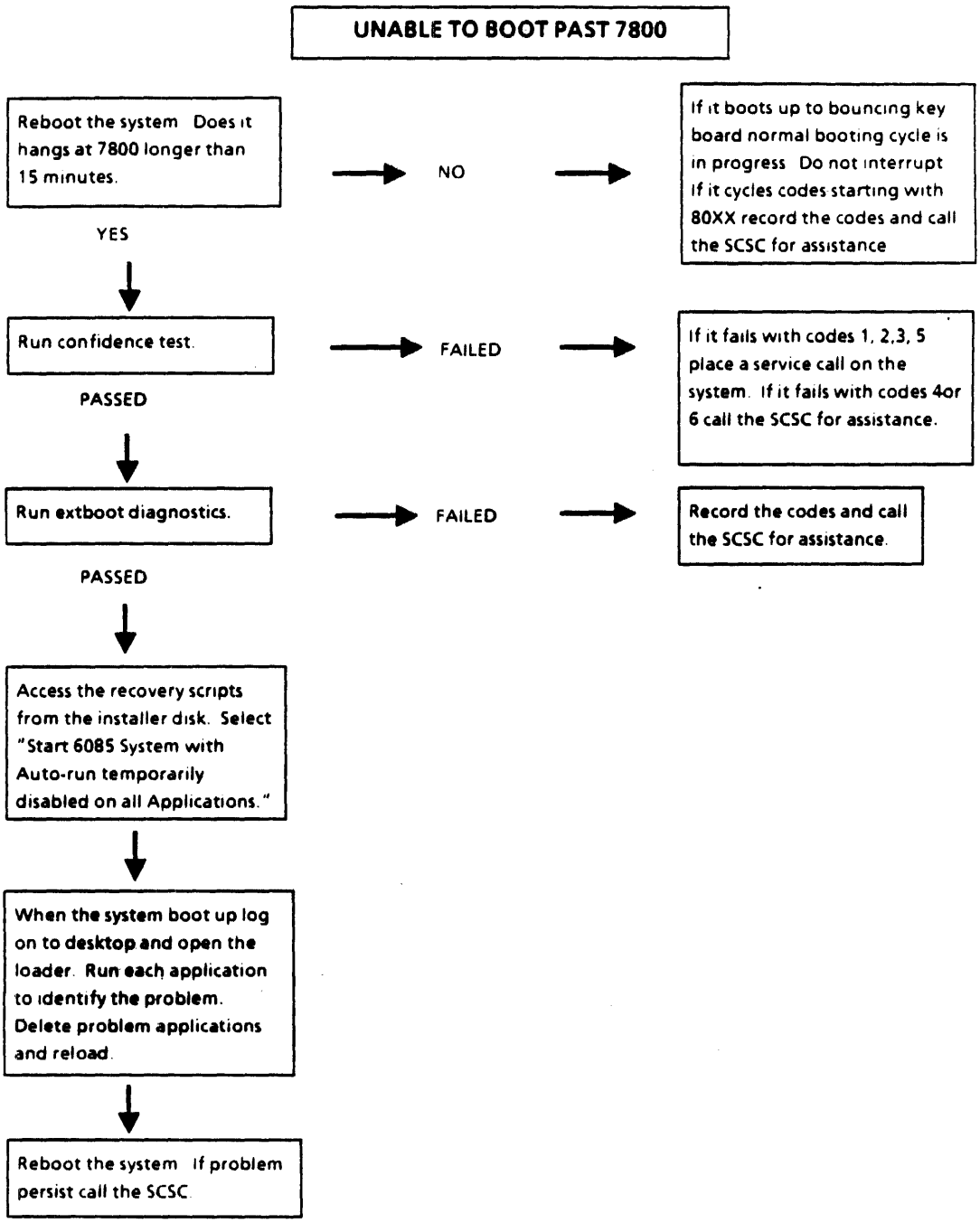


Common MP and Cursor Codes (continued)



ViewPoint Software Diagnostics

Common MP and Cursor Codes (continued)



Debugger Substitute MP Codes

9999 76 -- Boot
9999 77 -- Common Software
9999 78 -- Applications
9999 80 -- Post Startup

-- 40 Address Fault
-- 41 Break Point
-- 42 Bug
-- 43 Call Debugger
-- 44 Map Log
-- 45 Disk Error

-- 46 Interrupt
-- 47 Return
-- 48 Return Aborted
-- 49 Uncaught Signal
-- 50 Visit Debugger
-- 51 Write Protect Fault

7649 - BWS- Replace BWS
7749 - BWS - Replace Common
7849 - BWS - Start with Auto-Run temp. disabled
8049 - BWS - Start with Auto-Run temp. disabled

stacker - a mismatch of common softwa
if get
If get 43, ignore the 1st 8 letters
look at what rest spells out
may get something like
out of VM

45 run confidence test
& extended scavenge

A - 1	N - 14
B - 2	O - 15
C - 3	P - 16
D - 4	Q - 17
E - 5	R - 18
F - 6	S - 19
G - 7	T - 20
H - 8	U - 21
I - 9	V - 22
J - 10	W - 23
K - 11	X - 24
L - 12	Y - 25
M - 13	Z - 26

Progress Check 7 - Recovery

1. Before any data recovery is attempted, what should you do? ***Run Confidence Test and Extended Boot Diagnostics***

2. What does the MP Code of 950 mean? ***System is doing a Logical Volume Scavenge. It should not be interrupted***

3. The code 7511 is displayed on your workstation. What steps would you perform to fix this problem: ***(1) Run all diagnostics (2) Install File Check Software (3) Run File Check software***

4. If the workstation stops booting at 0149 would you immediately call the tech? Why or why not? ***Verify that the customer is choosing the correct boot soft key andlor the correct floppy***

5. What's the normal recovery procedure for an MP Code of 0915? ***File Check***

6. If the workstation stopped at 7504 and it's not a newly partitioned disk, what steps would you take? ***Run diagnostics and install and run file check***

7. If you had cycling codes that with 9999 xx45 what would that indicate? ***Hardware problem, usually a bad page.***

8. What does the code 7604 indicate? How would you recover from it? ***Some of the underlying software (either basic or common) is missing. Try to find out what the customer did. If you can't determine what software was deleted, it's best to delete all system data file except all applications and then reload all the software. If you do this, rather than going through the Special Installation and Error Recovery Commands you would choose the option to Install ViewPoint Software from the Installer's Main Menu.***

9. Your customer's workstation is constantly crashing to 7649 etc. codes. What would you do? ***Go into Special Installation and Error Recovery Commands, choose the option to Make Room to Install Basic Software, let the workstation reboot, at 7604 access the installers again and choose Install Basic Software from the special installation scripts.***

10. If the workstation was crashing to codes that pointed to damaged Free Hand drawing application what would you do? ***Reboot the workstation with the option to start system with auto-run temporarily disabled. After the system comes up, open the Loader, highlight the application and delete it. Then, reinstall the application.***

Lab Exercise:

1. Access the Special Installation and Error Recovery Command. Install File Check software.

2. After installation of file check software, start 6085 with applications temporarily disabled. How long did it stay on 7800? Check the loader. What do you see?