

MAP 1700: Fixed Disk Drive Start

Symptom Explanation	Conditions That Could Cause This Symptom
<p>You have entered this MAP because you received a 17XX error code, or you have been directed here from another MAP.</p>	<ul style="list-style-type: none"> • The fixed disk drive is failing. • The Fixed Disk Drive Adapter is failing. • The control/data cable is failing. • The system board is failing. • The power supply is failing.

001

Find your system type in the following figure and refer to the MAP indicated.

System Type	MAP
Personal Computer	MAP 1700: Fixed Disk Drive (PC)
Personal Computer XT	MAP 1700: Fixed Disk Drive (PC)
Portable PC	MAP 1700: Fixed Disk Drive (PC)
Personal Computer AT	MAP 1700: Fixed Disk Drive (AT)

Figure 1. System Identification

Notes:



MAP 1700: Fixed Disk Drive (PC)

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this MAP because you received a 17XX error message, or you suspect a problem with the fixed disk drive, or Fixed Disk Drive Adapter.	<ul style="list-style-type: none">• A fixed disk drive is failing.• The Fixed Disk Drive Adapter is failing.• The control/data cable is failing.• The system board is failing.

Warning:

Normal shipping and handling can result in permanent loss of all data and formatting on the fixed disk drive; refer to the operating system manual and back up all information.

This MAP may instruct you to remove the fixed disk drive to measure voltages on the fixed disk drive. If the drive is functioning, run the **(PREPARE SYSTEM FOR RELOCATION)** option of the Advanced Diagnostics diskette before removing the drive from the system.

Notes:

1. A terminating resistor must be installed on drive C. Drive D should not have a terminating resistor installed.
2. If the installed Fixed Disk Drive Adapter is equipped with switches, ensure they are set for the correct fixed disk drive type.

001

- Power off the system.
- Insert the Advanced Diagnostics diskette into drive A.
- Power on the system.

Note: You may receive a 17XX error code, disregard the error and continue with the POST.

(Step 001 continues)

001 (continued)

- When the Advanced Diagnostics menu appears, run the Fixed Disk Drive and Adapter tests. Use the **(RUN TESTS ONE TIME)** option. The following menu should appear.

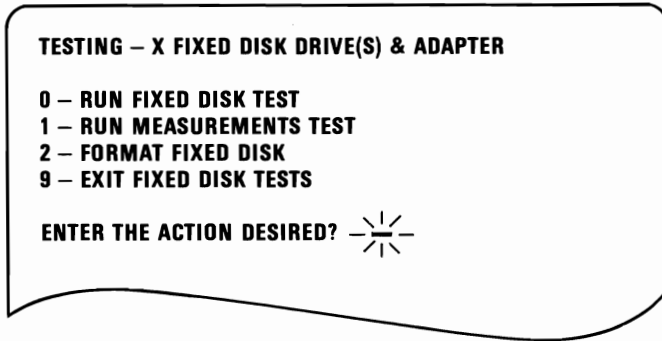


Figure 1. Fixed Disk Drive Tests

DID THE MENU APPEAR ON THE SCREEN (Figure 1)?

Yes No

002

Replace the fixed disk drive adapter.

003

ARE TWO FIXED DISK DRIVES INSTALLED?

Yes No

004

Go to Step 010 in this MAP.

005

- Power off the system.
- Disconnect the control/data cable from fixed disk drive D.
- Power on the system.
- Run the Fixed Disk Drive and Adapter tests on drive C. Use the **(RUN TESTS MULTIPLE TIMES)** option.

(Step 005 continues)

005 (continued)

DID THE TESTS RUN WITHOUT AN ERROR?

Yes No

|

006

Go to Step 013 in this MAP.

007

- Power off the system.
- Connect the control/data cable to drive D.
- Power on the system.
- Run the Fixed Disk Drive and Adapter tests on drive D. Use the **(RUN TESTS MULTIPLE TIMES)** option.

DID THE TESTS RUN WITHOUT AN ERROR?

Yes No

|

008

Go to Step 016 in this MAP.

009

Go to Step 021 in this MAP.

010

(From Step 004 in this MAP)

- Press **9 (EXIT FIXED DISK TESTS)**.
- Run the Fixed Disk Drive and Adapter tests on drive C. Use the **(RUN TESTS MULTIPLE TIMES)** option.

DID THE TEST RUN WITHOUT AN ERROR?

Yes No

|

011

Go to Step 013 in this MAP.

012

Go to Step 018 in this MAP.

013

(From Steps 006 and 011 in this MAP)

WAS THE MESSAGE "CHECK DRIVE C: AND ADAPTER" DISPLAYED?

Yes No

014

Go to Step 052 in this MAP.

015

Go to Step 018 in this MAP.

016

(From Step 008 in this MAP)

WAS THE MESSAGE "CHECK DRIVE D: AND ADAPTER" DISPLAYED?

Yes No

017

Go to Step 052 in this MAP.

018

(From Steps 012 and 015 in this MAP)

- Compare the 17XX error code displayed on the screen with the error codes listed in Figure 2.

Error Code	Action
1701 1702 1703 1704 1706 1708	Replace the Fixed Disk Drive
1730 1731 1732	Replace the Fixed Disk Drive Adapter

Figure 2. Error Codes

(Step 018 continues)

018 (continued)

IS THE ERROR CODE LISTED (Figure 2 on page 1700-4)?

Yes No

019

Go to Step 021 in this MAP.

020

Take the action indicated for the error code as shown in Figure 2 on page 1700-4.

021

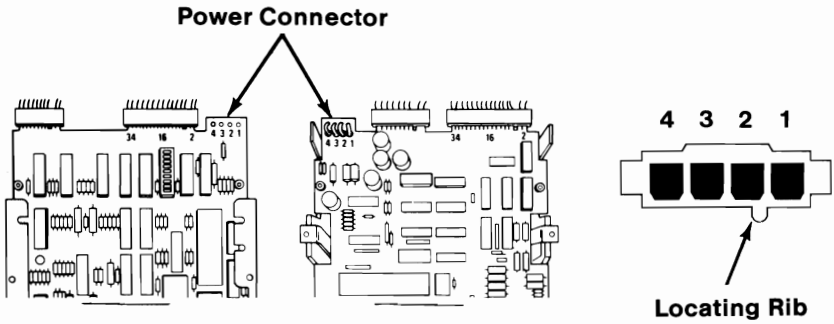
(From Steps 009 and 019 in this MAP)

- Power off the system.
- Remove the failing fixed disk drive and place it on top of the power supply (logic board side up).
- Connect all cables to the drive.
- Power on the system.
- Run the Fixed Disk Drive and Adapter tests. Use the **(RUN TESTS ONE TIME)** option.
- When the menu appears press **1 (RUN MEASUREMENTS TEST)**.
- Press **C** or **D (ENTER THE DRIVE ID)** to indicate the drive you removed.

Measurement Test 1 is now running.

(Step 021 continues)

- Refer to Figure 3 and measure the voltages indicated.



Test Description	Fixed Disk	Response
Measurement Test 1	+ Lead Power 4 - Lead Power 2	+4.8 to 5.2 Vdc
	+ Lead Power 1 - Lead Power 3	+11.5 to 12.6 Vdc

Figure 3. Measurement Test 1 - Power Supply Voltage Check

ARE THE VOLTAGES CORRECT?

Yes

No

022

Go to "MAP 0020: Power Start."

023

- With Measurement Test 1 still running, check the voltages in Tables A and B of Figure 4 on page 1700-7.

Notes:

1. Use the frame as ground.
2. J1 is the 34-pin connector. The locating key is between pins 4 and 6.

Test Description	Fixed Disk	Response
Measurement Test 1	J1-2*	0.1 to 0.5 Vdc (Low)
	J1-4	0.1 to 0.5 Vdc (Low)
	J1-14	0.1 to 0.5 Vdc (Low)
	J1-18	0.1 to 0.5 Vdc (Low)
	J1-26	0.1 to 0.5 Vdc (Low)

*Pin J1-2 may not be present on all fixed disk drives.

Table A

Test Description	Fixed Disk	Response
Measurement Test 1	J1-8	0.1 to 0.5 Vdc (Low)
	J1-10	0.1 to 0.5 Vdc (Low)
	J1-12	2.5 to 3.0 Vdc (High)
	J1-22	0.1 to 0.5 Vdc (Low)

Table B

Figure 4. Measurement Test 1

ARE THE VOLTAGES CORRECT?

Yes No

024

Go to Step 032 in this MAP.

025

- Press the space bar once to begin Measurement Test 2.
- Refer to Figure 5 on page 1700-8 and measure the voltages in Tables C and D.

Notes:

1. Use the frame as ground.
2. J1 is the 34-pin connector. The locating key is between pins 4 and 6.

Test Description	Fixed Disk	Response
Measurement Test 2	J1-24	0.1 to 0.5 Vdc (Low)
	J1-26	0.1 to 0.5 Vdc (Low)
	J1-34	0.1 to 0.5 Vdc (Low)

Table C

Test Description	Fixed Disk	Response
Measurement Test 2	J1-10	2.5 to 3.0 Vdc (High)
	J1-12	2.5 to 3.0 Vdc (High)

Table D

Figure 5. Measurement Test 2

ARE THE VOLTAGES CORRECT?

Yes No

026

Go to Step 038 in this MAP.

027

- Press the space bar once to begin Measurement Test 3.
- Refer to Figure 6 on page 1700-9 and measure the voltages in Tables E and F.

Notes:

1. Use the frame as ground.
2. J1 is the 34-pin connector. The locating key is between pins 4 and 6.

Test Description	Fixed Disk	Response
Measurement Test 3	J1-6	0.1 to 0.5 Vdc (Low)

Table E

Test Description	Fixed Disk	Response
Measurement Test 3	J1-12	2.5 to 3.0 Vdc (High)

Table F

Figure 6. Measurement Test 3

ARE THE VOLTAGES CORRECT?

Yes No

028

Go to Step 044 in this MAP.

029

The Measurement Tests failed to isolate a failure.

DID YOU RECEIVE A 17XX ERROR CODE WHEN YOU RAN THE FIXED DISK DRIVE AND ADAPTER TESTS?

Yes No

030

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

031

Replace the Fixed Disk Drive Adapter.

041

(From Step 039 in this MAP)

DID YOU HAVE INCORRECT VOLTAGE MEASUREMENTS FROM TABLE C ONLY (Figure 4 page 1700-7)?

Yes No

042

An incorrect voltage in Table D only, Figure 5 on page 1700-8, indicates that the fixed disk drive needs to be formatted. Go to Step 052 in this MAP to format the drive.

043

Go to Step 049 in this MAP.

044

(From Step 028 in this MAP)

DID YOU HAVE INCORRECT VOLTAGE MEASUREMENTS FROM BOTH TABLES E AND F (Figure 5 page 1700-8)?

Yes No

045

Go to Step 047 in this MAP.

046

Go to Step 049 in this MAP.

047

(From Step 045 in this MAP)

DID YOU HAVE INCORRECT VOLTAGE MEASUREMENTS IN TABLE E ONLY (Figure 5 page 1700-8)?

Yes No

048

An incorrect voltage in Table F only, Figure 6 on page 1700-9, indicates that the fixed disk drive needs to be formatted. Go to Step 052 in this MAP to format the drive.

049

(Step 049 continues)

052 (continued)

WERE YOU ABLE TO FORMAT THE DRIVE SUCCESSFULLY?

Yes No

053

Replace the fixed disk drive.

054

- Run the Fixed Disk Drive and Adapter tests on the drive you just formatted. Use the **(RUN TESTS MULTIPLE TIMES)** option.

DID THE DIAGNOSTIC TESTS RUN WITHOUT AN ERROR?

Yes No

055

Replace the fixed disk drive.

056

The fixed disk drive can now be prepared to accept data. Refer to an operating system manual for the needed commands. The backup data may then be loaded onto the fixed disk drive.

Notes:



MAP 1700: Fixed Disk Drive (AT)

Symptom Explanation	Conditions That Could Cause This Symptom
You have entered this MAP because you received a 17XX error message, or you suspect a problem with the fixed disk drive, or Fixed Disk and Diskette Drive Adapter.	<ul style="list-style-type: none">• The fixed disk drive is failing.• The Fixed Disk and Diskette Drive adapter is failing.• The signal cable is failing.• The data cable is failing.• The system board is failing.

Warning: Normal shipping and handling can result in permanent loss of all data and formatting on the fixed disk drive; refer to the operating system manual and back up all information, if possible.

Note: A terminating resistor must be installed on drive C. Drive D should not have a terminating resistor installed.

001

- Power off the system.
- Insert the Advanced Diagnostics diskette into drive A.
- Power on the system.

IS THE ADVANCED DIAGNOSTICS MENU DISPLAYED?

Yes No

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|
|
|
|

002

Go to Step 004 in this MAP.

003

Go to Step 009 in this MAP.

013

(From Step 020 in this MAP)

- Check the voltages at the failing fixed disk drive power connector as shown in Figure 1.

Voltage (Vdc)		Pins	
Minimum	Maximum	-Lead	+Lead
+ 4.8	+ 5.2	2	4
+11.5	+12.6	3	1

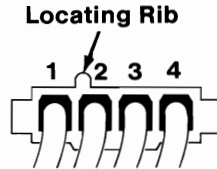


Figure 1. Power Connector

ARE THE VOLTAGES CORRECT?

Yes No

014

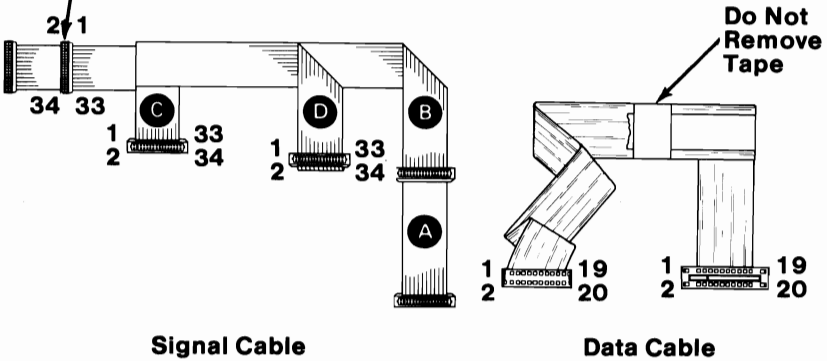
Go to "MAP 0020: Power Start."

015

- Check the fixed disk drive data and signal cables for continuity. The line numbers at one end of the cable match the line numbers at the other end, except for those listed in Figure 2 on page 1700-4

Diskette Drive C Signal Cable Connector		Diskette Drive D Signal Cable Connector	
Pin Numbering		Pin Numbering	
Drive End	Adapter End	Drive End	Adapter End
25	29	29	29
26	28	28	28
27	27	27	27
28	26	26	26
29	25	25	25

Fixed Disk Drive



Signal Cable

Data Cable

Figure 2. Data and Signal cables

DO ALL LINES HAVE CONTINUITY?

Yes No

016

Replace the failing cable.

017

(From Steps 007 and 010 in this MAP)

- Find the error code in Figure 3, and go to the step indicated.

Error Code	Go to:
1701	Step 021 in this MAP.
1702	Step 026 in this MAP.
1703	Step 031 in this MAP.
1704	Step 026 in this MAP.
1705	Step 031 in this MAP.
1706	Step 031 in this MAP.
1707	Step 031 in this MAP.
1708	Step 031 in this MAP.
1709	Step 031 in this MAP.
1710	Step 026 in this MAP.
1711	Step 031 in this MAP.
1712	Step 031 in this MAP.
1713	Step 031 in this MAP.
1714	Step 021 in this MAP.
1780	Step 021 in this MAP.
1781	Step 021 in this MAP.
1782	Step 026 in this MAP.

Figure 3. Error Codes

018

(From Step 012 in this MAP)

- The Fixed Disk Drives and Adapter multiple tests have finished without an error.
- Run the Fixed Disk Drives and Adapter tests. Use the **(RUN TEST ONE TIME)** option.
- Select tests **1, 2, 3, and 4.**

(Step 018 continues)

018 (continued)

DID YOU RECEIVE A 17XX ERROR MESSAGE?

Yes No

019

The Advanced Diagnostic tests could not find a failure with the drive selected. If a second fixed disk drive is installed and you have not already tested it, go to Step 011 in this MAP and test the other drive.

If all fixed disk drives have been tested and you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

020

Go to Step 013 in this MAP.

021

(From Step 017 in this MAP)

Error codes: **1701, 1714, 1780, or 1781**

- Check that all electrical connections are secure by disconnecting then reconnecting them.
- Reseat the Fixed Disk and Diskette Drive Adapter.
- Repeat the operation or diagnostic test that failed.

DID THE SAME FAILURE OCCUR?

Yes No

022

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

023

- Replace the failing fixed disk drive.

Note: Format the new fixed disk drive before running any diagnostic test or you will receive an invalid error.

- Repeat the operation or diagnostic test that failed.

(Step 023 continues)

023 (continued)

DID THE SAME FAILURE OCCUR?

Yes No

|

|

024

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

025

Replace the fixed disk adapter (Fixed Disk and Diskette Drive Adapter).

026

(From Step 017 in this MAP)

Error codes: **1702, 1704, 1710, or 1782.**

- Check that all electrical connections are secure by disconnecting then reconnecting them.
- Reseat the Fixed Disk and Diskette Drive Adapter.
- Repeat the operation or diagnostic test that failed.

DID THE SAME FAILURE OCCUR?

Yes No

|

|

027

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

028

- Replace the fixed disk adapter (Fixed Disk and Diskette Drive Adapter).
- Repeat the operation or diagnostic test that failed.

DID THE SAME FAILURE OCCUR?

Yes No

|

|

029

(Step 029 continues)

029 (continued)

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

030

Replace the system board.

031

(From Step 017 in this MAP)

Error Codes: **1703, 1705, 1706, 1707, 1708, 1709, 1711, 1712, or 1713.**

- Check that all electrical connections are secure by disconnecting then reconnecting them.
- Reseat the Fixed Disk and Diskette Drive Adapter.
- Repeat the operation or diagnostic test that failed.

DID THE SAME FAILURE OCCUR?

Yes No

|

032

You have successfully completed the Advanced Diagnostic tests. If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

033

- Power off the system.
- Use the following procedure to format the fixed disk drive.

Warning: Formatting results in a complete loss of data on the fixed disk drive; refer to the operating system manual and back up all information, if possible.

1. Insert the Advanced Diagnostics diskette into drive A.
2. Power on the system.

Note: If you receive an error during the POST, press the **F1** key to continue.

3. Run the Fixed Disk Drives and Adapter tests. Use the **(RUN TESTS ONE TIME)** option.

4. When the Fixed Disk Diagnostic menu appears, select option 7 (**FORMAT MENU**).
5. Select option 1 (**CONDITIONAL FORMAT**), and select the drive to be formatted (C or D).
6. Press Y or N (**ALL DEFECTS WILL BE SHOWN ON THE DISPLAY, THEY CAN ALSO BE PRINTED ON LPT1. IS A HARD COPY NEEDED?**) then **Enter**.
7. Press Y (**DO YOU WANT TO CONTINUE Y/N?**) then **Enter**.
8. Press Y (**THIS IS YOUR LAST CHANCE TO CANCEL**) then **Enter**.

Formatting may take up to 15 minutes.

WERE YOU ABLE TO FORMAT THE DRIVE SUCCESSFULLY?

Yes No

034

Replace the fixed disk drive then go to Step 038 in this MAP.

Note: Format the new fixed disk drive before running any diagnostic tests or you will receive an invalid error.

035

- Run the Fixed Disk Drive and Adapter tests on the drive you just formatted. Use the (**RUN TESTS MULTIPLE TIMES**) option.

DID THE DIAGNOSTIC TESTS RUN WITHOUT AN ERROR?

Yes No

036

Replace the fixed disk drive then go to Step 038 in this MAP.

Note: Format the new fixed disk drive before running any diagnostic tests or you will receive an invalid error.

037

(Step 037 continues)

037 (continued)

The fixed disk drive can now be prepared to accept data.

Note: The Advanced Diagnostics Format program is different from the operating system Format program. Before transferring information from backup diskettes to the fixed disk drive, format the fixed disk drive using the operating system diskette. Refer to the operating system manual for a description of the Format commands.

038

(From Steps 034 and 036 in this MAP)

- Repeat the operation or diagnostic test that failed.

DID THE SAME FAILURE OCCUR?

Yes No

|
039

You have successfully completed the Advanced Diagnostic tests. The fixed disk drive can now be prepared to accept data.

Note: The Advanced Diagnostics Format program is different from the operating system Format program. Before transferring information from backup diskettes to the fixed disk drive, format the fixed disk drive using the operating system diskette. Refer to the operating system manual for a description of the Format commands.

If you suspect an intermittent problem, start an error log.
If you need instructions, refer to the Reference manual.

040

Replace the fixed disk adapter (Fixed Disk and Diskette Drive Adapter).
