

START – AT

Place the hard-tab page labeled "START – AT" in place of this page, then discard this page.



MAP 0000: Start (AT)

This is the entry point for all IBM PERSONAL COMPUTER AT® MAPs. The MAPs will help you determine the failing field replaceable unit (FRU).

The Advanced Diagnostics program is intended to test *only* IBM products. Non-IBM products, prototype cards, or modified options can give false errors and invalid system responses.

All voltages in the MAPs are positive unless otherwise shown.

001

Before you begin:

1. Power off the system.
 2. Ensure all connectors are installed correctly.
 3. Ensure any jumpers or switches are set correctly.
 4. Ensure the 115/230 Vac selector switch is set for the voltage available at the outlet.
 5. Verify the options are correctly set by running the Setup program. After running the Setup program (or if you cannot run the Setup program) continue with Step 001.
- Insert the Advanced Diagnostics diskette into drive A.
 - Power on the system.

IS THE POWER SUPPLY FAN RUNNING?

| | |
|-----|----|
| Yes | No |
|-----|----|

| | |
|--|---|
| | <p>002</p> <p>Go to Step 058 in this MAP.</p> |
|--|---|

003

- Listen carefully for any audio responses during the power-on self test (POST).

DID YOU HEAR ONE SHORT BEEP AT THE END OF THE POST?

| | |
|-----|----|
| Yes | No |
|-----|----|

| | |
|--|-----------------------------|
| | <p>(Step 004 continues)</p> |
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014

Go to "MAP 0300: Keyboard Start."

015

Go to Step 034 in this MAP.

016

(From Step 009 in this MAP)

- Make a note of any error messages on the screen.
- Press the **F1** key.

DID THE MESSAGE (RESUME = "F1" KEY) GO AWAY WHEN THE F1 KEY WAS PRESSED?

Yes No

017

Go to "MAP 0300: Keyboard Start."

018

Note: If you receive the message (SYSTEM OPTIONS NOT SET), press Enter.

DID THE ADVANCED DIAGNOSTICS MENU APPEAR?

Yes No

019

Go to "MAP 0600: Diskette Drive Start."

020

- Press **4** (SETUP).
- Follow the instructions on the screen to run the Setup program.

DID YOU RECEIVE A 16X ERROR AFTER RUNNING THE SETUP PROGRAM?

Yes No

021

Go to Step 034 in this MAP.

(Step 022 continues)

028

(From Step 026 in this MAP)

**DID THE SYSTEM CHECKOUT MENU APPEAR AT THE
END OF TESTING?****Yes No**

|

|

029

Go to "MAP 0020: Power Start."

030**DID YOU NOTICE ANY FAILURE SYMPTOMS?****Yes No**

|

|

031

Go to Step 033 in this MAP.

032

Go to Step 074 in this MAP.

033

(From Step 031 in this MAP)

The Advanced Diagnostic tests have finished without detecting a failure.

- If you are still experiencing a failure:
 - Check all jumper positions
 - Check all switch settings
 - Check all cables and connectors for proper installation.
 - Run the Advanced Diagnostic tests on all devices. Use the **(RUN TESTS ONE TIME)** option. If you receive an error, go to the MAP indicated by the error code. For example, if you receive the error code 7XX, go to "MAP 0700: Math Coprocessor."
 - If you are experiencing a problem with a device not supported by this manual, refer to that device's service manual for special testing instructions.
 - If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.
-

034

(From Steps 005, 015, and 021 in this MAP)

DID THE ADVANCED DIAGNOSTICS MENU APPEAR?

Yes No

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|
|

035

Go to Step 074 in this MAP.

036

- Select **0 (SYSTEM CHECKOUT)**.

Note: Depending upon the options installed in the system, questions about attached devices may appear on the screen. Press **Y** or **N** as required, then **Enter**.

(Step 036 continues)

036 (continued)

DID THE INSTALLED DEVICES MENU APPEAR?

Yes No

| |

037

Go to Step 065 in this MAP.

038

- Compare the list to the options installed *inside* the system.

Note: The Installed Devices list displays only those devices supported by this manual. If a device is missing from the list and is not supported by this manual, press **Y (IS THE INSTALLED DEVICES LIST CORRECT?)** then **Enter** to continue the diagnostic tests. Go to Step 049 in this MAP.

DOES THE INSTALLED DEVICES LIST CORRECTLY IDENTIFY THE DEVICES INSTALLED INSIDE THE SYSTEM?

Yes No

| |

039

Go to Step 041 in this MAP.

040

Go to Step 049 in this MAP.

041

(From Step 039 in this MAP)

Follow the instructions on the screen and attempt to correct the Installed Devices list.

Note: A 199 error indicates you answered "No" to the question about the Installed Devices list. Disregard the error.

COULD YOU CORRECT THE INSTALLED DEVICES LIST?

Yes No

| |

(Step 042 continues)

042

Go to Step 044 in this MAP.

043

Go to Step 049 in this MAP.

044

(From Step 042 in this MAP)

IS THE OPTION MISSING FROM THE INSTALLED DEVICES LIST?

Yes No

|

045

Press **Y** (**IS THE INSTALLED DEVICES LIST**

CORRECT?) then **Enter** to continue the diagnostic tests.

Go to Step 049 in this MAP.

046

- Make sure all switches and jumpers are correctly set for the missing option. Be sure to check the system board video switch as well as the option switches and jumper positions.

ARE THE SWITCHES AND JUMPERS SET CORRECTLY?

Yes No

|

047

Reset any incorrect jumper or switch settings. Go to Step 001 in this MAP to verify system operation.

048

Go to the appropriate MAP for the missing device.

049

(From Steps 038, 040, 043, and 045 in this MAP)

- Follow the instructions on the screen to run the tests one time. Select the options you want to test, or press **Enter** to run all tests.

Note: If you received a 199 error or you have an undetermined problem, run all tests.

(Step 049 continues)

057

(From Step 055 in this MAP)

The Advanced Diagnostic tests have finished without detecting a failure.

- If you are still experiencing a failure:
 - Check all jumper positions
 - Check all switch settings
 - Check all cables and connectors for proper installation.
- If you are experiencing a problem with a device not supported by this manual, refer to that device's service manual for special testing instructions.
- If you suspect an intermittent problem, start an error log. If you need instructions, refer to the Reference manual.

058

(From Step 002 in this MAP)

IS THE POWER CORD PLUGGED INTO A FUNCTIONING, PROPERLY GROUNDED ELECTRICAL OUTLET?

| | |
|-----|----|
| Yes | No |
|-----|----|

| | |
|--|------------|
| | 059 |
|--|------------|

- | | |
|--|---|
| | <ul style="list-style-type: none"> - Attach the system to a functioning, properly grounded electrical outlet. Return to Step 001 in this MAP to verify system operation. |
|--|---|

060

- | | |
|--|--|
| | <ul style="list-style-type: none"> - Power off the system. - Disconnect the power cord from the electrical outlet then from the system unit. - Check the system unit power cord for continuity. |
|--|--|

DOES THE POWER CORD HAVE CONTINUITY?

| | |
|-----|----|
| Yes | No |
|-----|----|

| | |
|--|------------|
| | 061 |
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| | |
|--|----------------------|
| | (Step 061 continues) |
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061 (continued)
Replace the power cord.

062

- Reconnect the power cord.
- Power on the system.
- Check for a voltage of 2.4 to 5.2 Vdc between pins 1 and 5 (ground) at power supply connector P8.

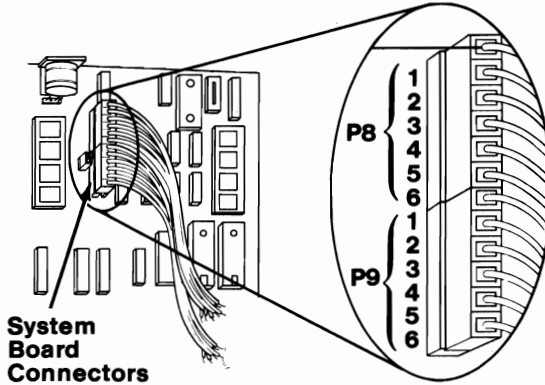


Figure 1. System Board Power Connector

IS THE VOLTAGE 2.4 TO 5.2 VDC?

Yes No

063

Go to "MAP 0020: Power Start."

064

Replace the power supply.

065

(From Step 037 in this MAP)

DID YOU RECEIVE AN ERROR MESSAGE INDICATING A DISKETTE DRIVE READ ERROR?

Yes No

066

Go to Step 068 in this MAP.

(Step 067 continues)

073

(From Step 012 in this MAP)

Find your error in the following figure and take the action indicated.

Note: If an error message and incorrect audio response occur, take the action indicated for the error message.

| POST Error: | Action: |
|---|----------------------------------|
| No Beep and: | |
| Blank Display..... | MAP 0020: Power Start |
| Blinking Cursor..... | MAP 0020: Power Start |
| Unreadable Display..... | MAP 0020: Power Start |
| Machine Functioning Properly..... | MAP 0020: Power Start |
| 1XX Error..... | MAP 0100: System Board Start |
| 1 Long and 1 Short Beep..... | Replace System Board |
| 1 Long and 2 Short Beeps..... | Go to Step 075 in this MAP |
| 1 Long and 3 Short Beeps..... | Go to Step 075 in this MAP |
| 2 Short Beeps and: | |
| Blank or Unreadable Display..... | Go to Step 075 in this MAP |
| Distorted Display Image..... | Go to Step 075 in this MAP |
| 1XX Error..... | MAP 0100: System Board Start |
| XXXXXX XXXX 201 Error..... | MAP 0200: Memory Start |
| 30X Error..... | MAP 0300: Keyboard Start |
| XX30X Error..... | MAP 0300: Keyboard Start |
| 601 Error..... | MAP 0600: Diskette Drive Start |
| 17XX Error..... | MAP 1700: Fixed Disk Drive Start |
| 30XX Error..... | MAP 3000: PC Network |
| 31XX Error..... | MAP 3100: Alt. PC Network |
| C8000 ROM Error..... | Replace Fixed Disk Drive Adapter |
| IO ROM CC0000..... | MAP 3000: PC Network |
| ROM Error..... | Replace System Board |
| IO ROM XXXXXX (IO Adapter Failure)..... | MAP 0020: Power Start |
| Continuous Beep..... | MAP 0020: Power Start |
| Repeating Short Beeps..... | MAP 0020: Power Start |
| Any Errors Not Shown Above..... | Go to Step 083 in this MAP |

Figure 2. POST Errors

074

(From Steps 032, 035, and 056 in this MAP)

Find your error in the following figure and take the action indicated.

| Symptom: | Action: |
|---|--|
| Incorrect Memory Size Displayed During the POST..... | MAP 0200: Memory Start |
| Display Problems: | |
| Incorrect Colors | Go to Step 075 in this MAP |
| No High Intensity..... | Go to Step 075 in this MAP |
| Missing, Broken, or Incorrect Characters..... | Go to Step 075 in this MAP |
| Blank Display (Dark) | Go to Step 075 in this MAP |
| Blank Display (Bright)..... | Go to Step 075 in this MAP |
| Distorted Image | Go to Step 075 in this MAP |
| Unreadable Display..... | Go to Step 075 in this MAP |
| Other Display Problems | Go to Step 075 in this MAP |
| Flashing Cursor Only..... | Go to Step 078 in this MAP |
| BASIC Screen Appears | MAP 0600: Diskette Drive Start |
| Loads Program from Fixed Disk..... | MAP 0600: Diskette Drive Start |
| Loads Program from Remote Station..... | MAP 0600: Diskette Drive Start |
| Diskette Boot Failure | MAP 0600: Diskette Drive Start |
| PARITY CHECK..... | MAP 0200: Memory Start |
| Keyboard Problem..... | MAP 0300: Keyboard Start |
| Cannot Finish Diagnostic Tests | MAP 0020: Power Start |
| Printer Problems..... | Refer to the Service Manual for the Printer. |
| Network Problems | Refer to the Service Manual for the Network. |

Figure 3. Failure Symptoms

075

(From Steps 073 and 074 in this MAP)

IS AN ENHANCED GRAPHICS ADAPTER INSTALLED?

Yes No

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|
076

Refer to the MAP for the failing display adapter.

077

Go to "MAP 2400: Enhanced Graphics Adapter."

078

(From Step 074 in this MAP)

IS A MATH COPROCESSOR INSTALLED?

Yes No

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|
079

Go to "MAP 0600: Diskette Drive Start."

080

- Power off the system.
- Remove the math coprocessor from the system board.
- Power on the system.

DID THE FAILING SYMPTOM REMAIN?

Yes No

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081

Replace the math coprocessor.

082

Reinstall the math coprocessor, then go to "MAP 0600: Diskette Drive Start."

083

(From Step 073 in this MAP)

Go to the MAP indicated by the error code. For example, if you receive the error code 7XX, go to "MAP 0700: Math Coprocessor."

Note: If you are unable to find the MAP that corresponds to your error code, you have an IBM device with its own service manual or a device not supported by IBM diagnostic tests.
