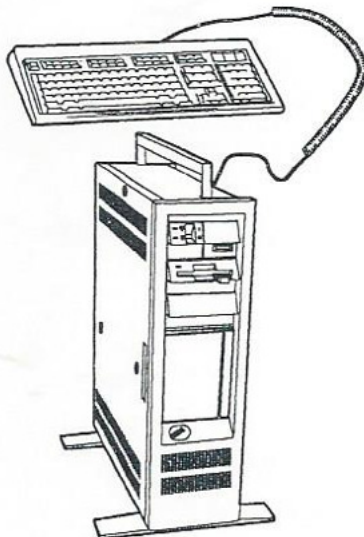


## 8580 Service Summary

This summary contains a Symptom-to-FRU Index, summaries for FRU isolation, and a partial parts listing for the IBM Personal System/2® Model 80 (Type 8580).

It should be used with the IBM Personal System/2 *Hardware Maintenance Service* manual (part number 68X2222, form number S68X-2222), and IBM Personal System/2 *Hardware Maintenance Reference* manual (part number 68X2221, form number S68X-2221).

**Important:** If more than one error code is displayed, diagnose the first error code first. The cause of the first error code can cause false error codes to be displayed.



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This card is a component of the PS/2 SIM SBOF 2480.

## General Checkout

001

- Power off the system.
- Check all cables and power cords.
- Insert your Reference Diskette.
- Power on the system and check for the following responses:
  1. Memory test counts to 512KB minimum.
  2. One or two short beeps.
  3. IBM logo screen appears.

### Are all three responses correct?

Yes No

002

Go to the "Symptom-to-FRU Index."

- or -

If that does not correct the problem, go to "Undetermined Problem."

003

- Advance to the Main Menu.
- Press Ctrl-A and run System checkout.

**Note:** Incorrect keyboard responses, go to "Keyboard Isolation."

### Is the list of installed devices correct?

Yes No

004

Go to "Installed Devices."

005

- Run the diagnostic tests.

### Did the tests identify a failure?

Yes No

006

You may have an intermittent problem:

- Check for damaged cables and connectors.
- Reseat all adapters, drives, and modules.
- Check the system unit fan for proper operation.
- Start an error log and run the tests multiple times.

007

Follow the action described on the screen. If that does not correct the problem, go to the "Symptom-to-FRU Index."

## Undetermined Problem

1. Power off the system.
2. Remove or disconnect one of the following adapters or devices:
  - a. Non-IBM devices
  - b. External modem, printer, or mouse
  - c. Math coprocessor
  - d. Any adapter.
3. Power on the system.
4. If the symptom remains, repeat steps 1, 2, and 3 until you find the failing adapter or device.
5. If all adapters and devices have been removed and the problem remains, check the power supply voltages. If the voltages are correct, replace the system board. If the voltages are not correct, replace the power supply.

## Installed Devices

If an adapter or device is missing from the list of installed devices and you **cannot add it to the list**, you may have one of the following conditions:

- Your Reference Diskette does not contain the module of code required to support that device.
- The missing device is a 5.25-Inch External Diskette Drive Adapter or another unrecognizable adapter.
- The device missing from the list is defective.

If an incorrect number of drives is shown on the list, an error can occur during the diagnostic tests. Restart the system and verify that the drive information on the Set Configuration menu is set correctly, then continue with the diagnostic tests.

## Display Self-Test

1. Power off the system unit and display.
2. Disconnect the display signal cable.
3. Power on the display.
4. Turn the contrast to its maximum position.
5. Turn the brightness control to the center detent position.

The screen should be white with a black margin, 2 – 20 mm (0.08 – 0.79 in), on one or both sides. If the screen is different, replace the display.

## System Unit Fan

An inoperative fan can cause heat to build up, resulting in intermittent problems.

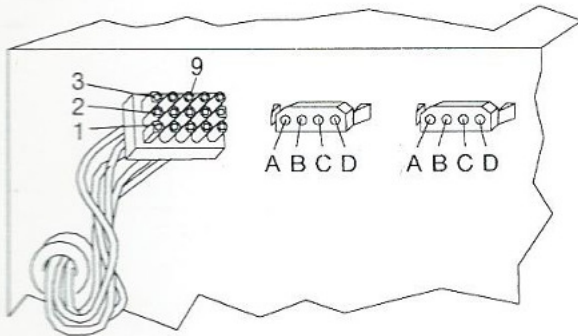
If the fan is not running, replace the power supply.

## Power Supply Voltages

If the voltages are not correct, replace the power supply.

Vdc Minimum	Vdc Maximum	- Lead Pin	+ Lead Pin
-9.0	-15.0	2	9
+9.0	+15.0	2	3
+3.7	+6.2	2	1
+3.7 *	+6.2 *	B	D
+9.0 *	+15.0 *	C	A

\* The 15-pin connector must be disconnected from the system board before taking this reading.

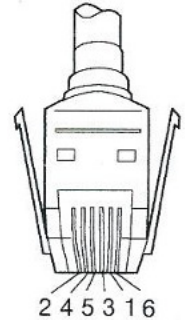


## Keyboard Isolation

001

- Disconnect the keyboard cable from the keyboard.
- Power on the system and check the keyboard cable connector for the voltages shown. All voltages are  $\pm 5\%$ .

Pin	Voltage (Vdc)
1	+5.0
2	0 (Not Used)
3	Ground
4	+5.0
5	+5.0
6	0 (Not Used)



### ARE THE VOLTAGES CORRECT?

Yes No

002

Possible failing FRUs are:

1. Keyboard cable
2. System board.

003

Replace the keyboard.

## Printer Isolation

1. Make sure the printer is properly connected and powered on.
2. Run the printer self-test.

If the printer self-test does not run correctly, the problem is in the printer. Refer to the printer service manual.

If the printer self-test runs correctly, install a wrap plug on the parallel port and run the advanced diagnostic tests to determine which of the following FRUs is failing:

- System Board
- Parallel Adapter
- Printer Cable.

## Memory Isolation

**110** indicates a system board parity check. If there are two system board memory expansion kits installed, remove the kit in connector J15. If the problem disappears, replace the kit removed from J15. If the problem remains, replace the kit in J16. If that does not solve the problem, replace the system board.

**111** indicates a memory adapter parity check. Remove the memory adapters from the expansion slots one at a time until the error goes away. Remove the memory expansion kits from the last adapter removed. Install the memory expansion kits one at a time until the error returns. Replace the last memory expansion kit installed. If that does not solve the problem, replace the adapter.

**215** indicates a failing system board memory expansion kit. Replace the kit(s). If that does not solve the problem, replace the system board.

**216** or **221** indicates a failing system board memory expansion kit located in connector J16. Replace the kit located in J16. If that does not solve the problem, replace the system board.

## Symptom-to-FRU Index

The Symptom-to-FRU Index lists error symptoms and the FRUs that could be responsible. The most likely failing FRU is listed first. Use this index to help you determine which FRUs you should have available when servicing a system. To determine exactly which FRU is failing, you must use "MAP 0000: Start" in the service manual.

If the system displays an error message and gives an incorrect audio response, the most likely failing FRUs are those listed for the error message. An X in an error message can be any number.

Symptom/Error	Possible FRUs
One or more keys do not work	<b>Keyboard</b> Keyboard Cable System Board
Changing Colors	<b>Display</b>
No beep	<b>System Board</b> Power Supply
Continuous beep	<b>Power Supply</b> System Board
Repeating short beeps	<b>Power Supply</b> System Board Keyboard (Stuck Key)

Symptom/Error	Possible FRUs
One long and one short beep	<b>System Board</b> Display Option Adapter Power Supply
One long and two short beeps	<b>System Board</b> Power Supply
One short beep and a blank or unreadable display (See "Display Self-Test")	<b>System Board</b> Power Supply Display
One short beep and diskette prompt or a program loads from the fixed disk drive	<b>Diskette Drive</b> System Board Power Supply
110 (See "Memory Isolation")	<b>System Board Memory</b> System Board
111 (See "Memory Isolation")	<b>Adapter Memory</b> Memory Adapter
112, 113	<b>Any Adapter</b> System Board
161	<b>Battery</b>
162	<b>Any Device</b>
163, 164, 165 (See "Installed Devices")	<b>Set Configuration/Features</b> System Board
166	<b>Any Adapter</b>
1XX (Not listed above)	<b>System Board</b>
201 (Run Advanced Diagnostic Tests)	<b>System Board Memory</b> Adapter Memory
215, 216, 221 (See "Memory Isolation")	<b>System Board Memory</b> System Board
301, 302	<b>Keyboard</b> Keyboard Cable
303	<b>System Board</b> Keyboard Keyboard Cable
304	<b>System Board</b> Keyboard
305	<b>Keyboard Cable</b>
401	<b>System Board</b>
602	<b>Defective Diskette</b>
6XX	<b>Diskette Drive</b> System Board Power Supply
7XX	<b>Math Coprocessor</b> System Board

Symptom/Error	Possible FRUs
1102, 1106	<b>System Board</b> Any Serial Device
1107	<b>Communications Cable</b> System Board
1108, 1109	<b>System Board</b> Any Serial Device
11XX (Not listed above)	<b>System Board</b>
1202, 1206	<b>Dual Async Adapter/A</b> Any Serial Device
1207	<b>Communications Cable</b> Dual Async Adapter/A
1208, 1209	<b>Dual Async Adapter/A</b> Any Serial Device
12XX (Not listed above)	<b>Dual Async Adapter/A</b> System Board
14XX (See "Printer Isolation")	<b>Printer</b> System Board
1780	<b>Fixed Disk Drive C</b> Fixed Disk Drive Adapter System Board
1781	<b>Fixed Disk Drive D</b> Fixed Disk Drive Adapter System Board
1782	<b>Fixed Disk Drive Adapter</b> System Board
1790	<b>Fixed Disk Drive C</b> Fixed Disk Drive Adapter
1791	<b>Fixed Disk Drive D</b> Fixed Disk Drive Adapter
17XX (Not listed above)	<b>Fixed Disk Drive C or D</b> Fixed Disk Drive Adapter System Board Power Supply
2401, 2402 (Changing colors)	<b>Display</b>
2401, 2402 (No changing colors)	<b>System Board</b> Display
2409	<b>Display</b>
2410	<b>System Board</b>
4611, 4630	<b>Multiport/2 Interface Board</b> Multiport/2 Adapter
4612, 4613, 4640, or 4641	<b>Memory Module Package</b> Multiport/2 Adapter
4650	<b>Multiport Interface Cable</b>

Symptom/Error	Possible FRUs
46XX	<b>Multiport/2 Adapter</b> Multiport/2 Interface Board Memory Module Package
744X, 745X, 746X, 747X	<b>8514 Memory Module</b>
74XX (Not listed above)	<b>Display Adapter 8514/A</b> System Board
8601, 8602	<b>Pointing Device</b>
8603	<b>System Board</b>
8604	<b>System Board</b> Pointing Device
10002, 10006	<b>Multiprotocol Adapter/A</b> Any Serial Device
10007	<b>Communications Cable</b> Multiprotocol Adapter/A
10008, 10009	<b>Multiprotocol Adapter/A</b> Any Serial Device
100XX (Not listed above)	<b>Multiprotocol Adapter/A</b> System Board
10102, 10106, 10108, 10109	<b>Modem Adapter/A</b> Any Serial Device
101XX (Not listed above)	<b>Modem Adapter/A</b> System Board
10480	<b>Fixed Disk Drive C</b> Fixed Disk Drive Adapter (ESDI) System Board
10481	<b>Fixed Disk Drive D</b> Fixed Disk Drive Adapter (ESDI) System Board
10482	<b>Fixed Disk Drive Adapter (ESDI)</b> Fixed Disk Drive C System Board
10483	<b>Fixed Disk Drive Adapter (ESDI)</b> System Board
10490	<b>Fixed Disk Drive C</b> Fixed Disk Drive Adapter (ESDI)
10491	<b>Fixed Disk Drive D</b> Fixed Disk Drive Adapter (ESDI)
104XX (not listed above)	<b>Fixed Disk Drive C or D</b> Fixed Disk Drive Adapter (ESDI) System Board Power Supply
16500	<b>6157 Tape Attachment Adapter</b>
16520	<b>6157 Streaming Tape Drive</b>
16540	<b>6157 Streaming Tape Drive</b> 6157 Tape Attachment Adapter

**Keyboards/Mouse**

Belgian	1392012
Canadian French	1392011
Danish	1392005
Dutch	1392013
French	1392000
German	1392001
Italian	1392002
Norwegian	1392007
Portuguese	1392008
Spanish	1392003
Spanish/Latin	1392015
Swedish	1392009
Swiss/French/German	1392010
U.K. English	1392004
U.S. English	1392090
Cable	72X8537
Mouse	61X8923

**8503 Monochrome Display**

110/120 Vac	68X3045
220/240 Vac (Northern Hemisphere)	68X3046
220/240 Vac (Southern Hemisphere)	72X7878
Tilt/Swivel Stand	68X3061

**8512 Color Display**

110/120 Vac	61X8924
220/240 Vac (Northern Hemisphere)	61X8928
220/240 Vac (Southern Hemisphere)	61X8927
Tilt/Swivel Stand	61X8925

**8513 Color Display**

110/120 Vac	68X3088
220/240 Vac (Northern Hemisphere)	72X7870
220/240 Vac (Southern Hemisphere)	72X7877
Tilt/Swivel Stand	68X3061

**8514 Color Display**

110/120 Vac	75X5945
220/240 Vac (Northern Hemisphere)	75X5946
220/240 Vac (Southern Hemisphere)	75X5947
Tilt/Swivel Stand	75X5907

**Part Number Supplement:**

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## Parts

### System Unit

80387 Coprocessor (041, 071)	72X6673
80387 Coprocessor (111, 311)	90X7393
Battery	72X8498
Battery/Speaker Assembly	72X8511
Power Supply	72X6669
System Board (041, 071)	72X6668
• 1MB System Board Memory Kit	72X6670
System Board (111, 311)	90X7390
• 2MB System Board Memory Kit	90X7391

### Diskette

1.44MB Diskette Drive	72X8523
5.25-Inch External Diskette Drive, 110/120 Vac	72X6759
5.25-Inch External Diskette Drive, 220/240 Vac	72X6768
5.25-Inch External Diskette Drive Feature Group with Adapter	72X6758
Diskette Drive Cable	72X8543

### Fixed Disk

44MB Fixed Disk Drive	72X8541
70MB Fixed Disk Drive ESDI	72X8519
115MB Fixed Disk Drive ESDI	90X7392
314MB Fixed Disk Drive ESDI	90X8745
ESDI Fixed Disk Drive Adapter	90X9063
Fixed Disk Drive Adapter	72X8540
Control Cable	72X8542
Power Cable	72X8521
Signal Cable, Drive C	72X8545
Signal Cable, Drive D	72X8567

### Adapters

300/1200 Modem Adapter	34F0006
6157 Tape Adapter	92X1459
8514/A Display Adapter	1887971
• Memory Expansion Module	1887708
80386 Memory Expansion Adapter	72X6671
• Memory Kit	72X6672
Dual Async Adapter/A	34F0008
Multiprotocol Adapter/A	90X8995

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