

FRONT

PICTURE 1

Security Switch and Parts Update

December 1992

This package contains a supplement to the IBM Personal System/2 *Hardware Maintenance Manual* (part number 52G9971, form number S52G-9971-00).

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Part Number 60G9487
Form Number S60G-9487-00

1.0 General Checkout (Micro Channel)

This general checkout procedure supports the following PS/2 Models:

- 8550, 8555, 8560, 8565, 8570, 8573, 8580, 8590, 8595, 9556, 9557, 9576, and 9577.
- Before using this General Checkout procedure, be sure to read the information under "Introduction" on page 1.

+----+
|001|
+----+

- Power-off the system and all external devices.
- Check all cables and power cords.
- Make sure there are no diskettes in the drives.
- Set all display controls to the middle position.
- Power-on all external devices.
- Power-on the system.

Notes:

1. On systems with tamper-evident switches, when the cover is off, the switches must be in the "up" or "on" position to supply power to the system. Also, the switches might be out of adjustment (not making contact). Remove the switches to form the contacts.
2. If you get a POST error code, press the pause key (while the error code is on the screen). Write down any error codes that are displayed, then press F1 to continue.
3. If the system hangs with a POST error, go to "Symptom-to FRU Index (Micro Channel)" on page 22.

- Check for the following responses:

1. One or two short beeps.
2. Readable instructions or the Main Menu.

DID YOU RECEIVE THE CORRECT RESPONSES?

Yes No

| |
| |
| +----+
| |002|
| +----+
| Find the failure symptom in the "Symptom-to FRU Index (Micro
| Channel)" on page 22.
| |

+----+
|003|
+----+

ARE ANY EXTERNAL SCSI DEVICES ATTACHED TO THE SYSTEM?

Yes No

| |
| |
| +----+
| |004|
| +----+
| Go to Step 007 on page 16.
| |

+----+
|005|
+----+

DID THE POWER-ON GOOD INDICATOR FOR ALL OF THE EXTERNAL SCSI DEVICES COME ON?

Yes No

| |
| |
| +----+
| |006|
| +----+
| Check the voltages. Go to "Related Service Procedures" on page 51.
| |

+----+
|007|
+----+

DID YOU RECEIVE A POST ERROR CODE?

Yes No

| |
| |
| +----+
| |008|
| +----+
| **Note:** You might have an intermittent failure. Go to "System Error
| Log " on page 21 to see if any errors are logged. If no
| errors are logged, or if the error log is not supported, go to
| Step 022 on page 17.
| |

|
+----+
| 009 |
+----+

IS THE FIRST POST ERROR CODE 0106XXXX, 0166XXXX, OR 0167XXXX?

Yes No

| |
| +----+
| | 010 |
| +----+
| Go to Step 012
|

+----+
| 011 |
+----+

There is a network communication problem. Go to "Symptom-to FRU Index (Micro Channel)" on page 22 and find the error code. If you suspect another type of network problem, or you just want to test the network adapter, go to "Network Adapters" on page 45.

+----+
| 012 |
+----+

DOES THE SYSTEM HAVE A SCSI ADAPTER OR DEVICE INSTALLED OR CONNECTED EXTERNALLY?

Yes No

| |
| +----+
| | 013 |
| +----+
| Go to Step 022.
|

+----+
| 014 |
+----+

Go to Step 015.

+----+
| 015 |
+----+

IS THE FIRST POST ERROR CODE WITHIN THE RANGE OF 02080000 190I TO 02470000 190I?

IMPORTANT: If your error code is not in the range or is not followed by a 190I, answer *No*.

Yes No

| |
| +----+
| | 016 |
| +----+
| Go to Step 022.
|

+----+
| 017 |
+----+

- Start the system programs.

Note: For instructions on starting the system programs, see "Starting the System Programs" on page 78.

- Verify that the "Enable/Disable" settings are correct. (If you are not familiar with these settings, see "SCSI Device Default Settings" on page 56.)

Note: If you receive a warning on the screen regarding the "Keep/Remove" settings, follow the instructions on the screen before continuing.

DID YOU HAVE TO CORRECT ANY OF THE ENABLE/DISABLE SETTINGS?

Yes No

| |
| +----+
| | 018 |
| +----+
| Go to "Symptom-to FRU Index (Micro Channel)" on page 22. Before replacing any SCSI devices, verify there are no duplicate SCSI ID settings.
|

+----+
| 019 |
+----+

- Restart the system (power-off, then on).

DID THE POST ERROR REMAIN?

Yes No

| |
| +---+
| |020|
| +---+
|

If you suspect another problem, or you want to run System Checkout,
go to Step 022.

+---+
|021|
+---+

Go to "Symptom-to FRU Index (Micro Channel)" on page 22.

+---+
|022|
+---+

- Start the system programs.

Note: For instructions on starting the system programs, see "Starting
the System Programs" on page 78.

- If you are not at the Main Menu, follow the instructions on the screen
to advance to the Main Menu, then press **Ctrl+A** and run system checkout.

Go to "Related Service Procedures" on page 51 for:

- Undetermined Problems (system hangs)
- Incorrect keyboard responses
- Incorrect printer responses
- Incorrect display responses (jittering, rolling, shifting, changing
colors, or out-of-focus)

Note: If a minimum of 896KB of memory is not active, the diagnostic
tests cannot be loaded.

IS THE DEVICES LIST CORRECT?

Yes No

| |
| +---+
| |023|
| +---+
|

Go to "Devices List" on page 19. If that does not correct the
problem, go to "Undetermined Problems" on page 65.

+---+
|024|
+---+

- Run the advanced diagnostic tests.

DID THE TESTS IDENTIFY A FAILURE?

Note: If the tests start but do not complete and you cannot continue,
replace the device that was being tested.

Yes No

| |
| +---+
| |025|
| +---+
|

Note: If you noticed an error symptom or if you received any POST
error codes when the system was powered-on, go to "Symptom-to
FRU Index (Micro Channel)" on page 22.

You might have an intermittent problem:

- Check for damaged cables or connectors.
- Reseat all adapters, drives, and modules.
- Check the system fan.
- Check the power supply voltages.
- Start an error log and run the tests multiple times.
- If you did not find a problem, go to "Undetermined Problems" on
page 65.

+---+
|026|
+---+

Follow the instructions on the screen. If that does not correct the
problem, go to "Symptom-to FRU Index (Micro Channel)" on page 22.

2.0 Models 56, 76 (9556, 9576) Parts

PICTURE 2

Index	System Unit (9556, 9576)	
1	Cover Lock Assembly	92F0003
	Pawl (required for 92F0003)	79F3459
2	Front Cover Logo (R)	
	9576 (PS/2 76 486)	92F0245
	9576 (PS/2 76 486DX2)	92F0408
	9556 (PS/2 56 486SLC2)	96F7770
	9556 (PS/2 56LS 486SLC2)	96F7771
3	Top Cover Assembly (no lock)	92F0252
	Cover Screw (Thumbscrew)	79F3463
4	(see DASD)	
5	Hard Disk Shelf	96F7776
6	Retainer Plate	92F0242
7	Power Supply (118 Watt)	79F3443
8	Rear Panel (9576)	92F0246
8	Rear Panel (9556)	96F7772
9	Base Frame Assembly (R)	96F7767
	Cable Shield (top of bay)	95F5607
	Tamper-Resistant Rear Cable-locking Cover Assembly (option)	96F7773
10	(see DASD)	
11	(see DASD)	
12	Card Guide/Speaker Bracket (9576)	92F0244
12	Adapter Guide/Tamper-Evident Switch Assembly (9556)	92F0243
13	System Boards (no memory)	
	486SLC2-50/25 MHz (9556)	39G6407
	486SX-33 MHz (9576)	39G5698
	486DX2-66/33 MHz(9576)	39G6086
	2MB Memory Module Kit (70ns)	92F0102
	4MB Memory Module Kit (70ns)	92F0105
	8MB Memory Module Kit (70ns)	64F3606
	Optional Microprocessors	
	P23T 25/50 MHz	92F0147
	P23T 33/66 MHz	92F2582
	Math Coprocessor Socket	10G3975
14	Bus Adapter (with battery) (9556)	79F7210
14	Bus Adapter (with battery) (9576)	87F4833
	Battery	33F8354
15	Bus Adapter Support	96F7777
16	Control Assembly	96F7769
	(Power Switch, Cable, Speaker)	
	Power Switch Button Alone	79F3460
17	Hard Disk Cable	96F7766
18	Diskette Drive Cable	96F7768
	Floor Stand	79F3458
	Miscellaneous Parts Kit	79F7209
	(screw (1), 3.5mm steel screws (6) I/O brackets (3), rubber feet (4) clip (1))	

Index	DASD (9556, 9576)	
10	Diskette Drive Tray	85F0097
11	1.44MB 3.5-Inch Diskette Drive	85F0050
11	2.88MB 3.5-Inch Diskette Drive	64F4148
11	2.88MB 3.5-Inch Diskette Drive (with electronic eject)	92F0132
	Bezel (Bay 1, for 92F0132)	92F0146
	Bezel (Bay 2, for 92F0132)	92F0133
	DASD Guides for Drive Bays	92F0014
	1.2MB 5.25-Inch Drive	64F4102
	Rail Kit (for 64F4102)	85F0041
	(left/right rails, screws)	
	Diskette Drive Cable	96F7768
	3.5-Inch Diskette Drive Bezel (Bay 1)	85F0093
	3.5-Inch Diskette Drive Bezel (Bay 1) (with electronic eject)	92F0146
	3.5-Inch Diskette Drive Bezel (Bay 2)	92F0133
	(with electronic eject)	
	3.5-Inch Diskette Drive Bezel (Bay 2)	85F0003
	5.25-Inch Blank Bezel (Bay 1)	79F3450
	5.25-Inch Blank Bezel (Bay 2)	85F0091
	5.25-Inch Diskette Drive Bezel (Bay 2)	64F4125
4	40MB Hard Disk Drive (SCSI)	56F8866
4	60MB Hard Disk Drive (SCSI)	6128296
4	80MB Hard Disk Drive (SCSI)	56F8854
4	104MB Hard Disk Drive (SCSI)	95F4748
4	212MB Hard Disk Drive (SCSI)	95F4749
4	320MB Hard Disk Drive (SCSI)	85F0011

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4	400MB Hard Disk Drive (SCSI)	85F0012
	Drive Snap-In Shelf	96F7776
	Drive Cable (two device connectors)	96F7766

3.0 Models 57, 77, M57, M77 (9557, 9577) Parts

PICTURE 3

Index	System Unit (9557, 9577)	
1	Cover Lock	92F0003
2	Front Cover Logo (R)	
	PS/2 77 486	92F0249
	PS/2 77 486DX2	92F0272
	PS/2 M77 486	92F0250
	PS/2 M77 486DX2	92F0250
	PS/2 57 486SLC2	96F7763
	PS/2 M57 486SLC2	96F7764
	PS/2 M57 DV 486SLC2	42G2780
	PS/55 M57 486SLC2	42G2781
	PS/55 M57 DV 486SLC2	92F0409
3	Top Cover Assembly (without lock)	96F7640
4	Rear Panel Cover	96F0247
	Cover Assembly, Cable-Locking (option)	92F0248
4	Rear Panel Cover (DV Model)	96F7755
5	Power Supply (197 Watt)	92F0058
6	Frame Assembly (R)	92F0138
	Cover (for underside of frame)	85F0086
	I/O Slot Assembly (rear of frame)	10G3971
7	(see DASD)	
8	(see DASD)	
9	(see DASD)	
10	Adapter Guide and Tamper-Evident Switch Assembly (9557)	96F7758
10	Adapter Guide (9577)	92F0042
11	Bus Adapter (9577)(with battery)	87F4836
11	Bus Adapter (9557)(with battery)	41G3877
	Battery	33F8354
12	System Boards (no memory)	
	486SLC2-50/25 MHz (9557)	39G6407
	486SX-33 MHz (9577)	39G5698
	486DX2-66/33 MHz(9577)	39G6086
	2MB Memory Module Kit (70ns)	92F0102
	4MB Memory Module Kit (70ns)	92F0105
	8MB Memory Module Kit (70ns)	64F3606
13	Control Assembly:	
	Assy, Without Volume Control)	92F0002
	(Power Switch, Cable, Speaker)	
	With Volume Control)	92F0109
	(Power Switch, with button, Cable, and Speaker)	
	Pedestal	92F0000
	Miscellaneous Parts Kit	92F0015
	(thumb screws (2), retainer clips (2) ground clips (3), I/O brackets (5) 3.5mm steel screws (10), brackets (5) rubber feet (4), finger guards (3))	
Index DASD (9557, 9577)		
8	Drive Tray, 3.5-Inch Drive (Bays 1,2,3)	85F0097
	5.25-Inch Bay Drive Guides (2)	92F0014
9	1.44MB Diskette Drive	85F0050
9	2.88MB Diskette Drive	64F4148
9	2.88MB 3.5-inch (with electronic eject)	92F0132
	Bezel (Bay 1, for 92F0132)	92F0146
	Bezel (Bays 2 and 3, for 92F0132)	92F0133
	Diskette Drive Cable	96F7756
	1.2MB Internal Drive	64F4102
	Rail Kit (for 64F4102)	85F0041
	(left/right rails, screws)	
7	40MB Hard Disk Drive	56F8866
7	60MB Hard Disk Drive	6128296
7	80MB Hard Disk Drive	56F8854
7	104MB Hard Disk Drive	95F4748
7	212MB Hard Disk Drive	95F4749
7	320MB Hard Disk Drive	85F0011
7	400MB Hard Disk Drive	85F0012
	Drive Cable (Three connector)	96F7649
	Drive Slide	96F7775
14	3.5-Inch Blank Bezel (Bay 4)	85F0092
	Bezel Insert (for 85F0092)	85F0095
15	5.25-Inch Louvered Bezel (Bay 3)	85F0094
	Bezel Insert (for 85F0094)	85F0096
16	3.5-Inch Diskette Drive Bezel (Bay 2,3)	84F0003
	5.25-Inch Diskette Drive Bezel (Bay 2,3)	64F4125
	5.25-Inch Blank Bezel (Bay 2)	85F0091
	CD-ROM Drive Bezel (Bay 2,3)	64F4102
17	3.5-Inch Diskette Drive Bezel (Bay 1)	85F0093

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18	Retainer Plate	85F0098
19	Diskette Drive Cable	96F7756
20	Hard Disk Drive Cable	96F7649

Index *Ultimedia (9557, 9577)*

	CD ROM	92F0084
	ACPA Adapter	92F1256
	ActionMedia II Adapter	69F9733
	ActionMedia II to Monitor Cable	69F9737
21	Cable (Control Assy to Audio Card)	92F0113
22	Cable (Control Assy to System Board)	96F7762
	Cable (ACPA to ActionMedia II)	42G2779

4.0 Security

There are several security features to help protect the system, the internal hardware, and the information stored on the hard disk. To determine which features are supported on the system you are servicing, refer to "Product Description Matrix" on page 232. Security features include:

Subtopics

- 4.1 U-Bolt
- 4.2 Cover Lock and Tamper-Evident Switches
- 4.3 Rear-Panel Security Option
- 4.4 Passwords

4.1 U-Bolt

Some systems have two holes at the rear of the system to allow a U-bolt to be used with a cable or chain to secure the system to a desk or table.

4.2 Cover Lock and Tamper-Evident Switches

Some systems have an electro-mechanical cover lock. In the locked position, it mechanically prevents the cover from being removed. If the covers are forced open, the tamper-evident cover switches detect the intrusion. The next time the system is powered-on, POST displays a message informing the user that the system covers have been tampered with, and that you must select **Automatic configuration** to continue.

Note: When the cover is removed, power is removed from the system. If you want to run the system with the cover off, you must move the security switch to the "up" or "on" position.

4.3 Rear-Panel Security Option

If this option is installed on the system, it prevents cables from being removed from the back of the system, and prohibits connecting other systems or devices to unused connectors on the back of the system.

4.4 Passwords

Any combination of up to 7 alphanumeric characters (A-Z, a-z, and 0-9) is supported.

Note: If the wrong password is typed three times, the system logs an error in the system error log and you cannot continue without restarting the system.

Subtopics

4.4.1 Removing a Power-On Password

4.4.1 Removing a Power-On Password

The method used to erase a power-on password varies, and so does the location of the password jumper (known as the *override jumper*.) When you erase the power-on password, you erase NVRAM. Make sure you either backup, or make note of, the current configuration before you erase the password. After service, follow the instructions on the screen, and reset the date, time, and any customized configuration data (You can use Backup/Restore to save it, or Automatic Configuration after service.)

To erase the power-on password, do the following:

Models 25, 30, 35, 40, L40, 56, 57, 76, 77, 90, 95 Override Jumper

The override jumper is located on the system board.

System	Jumper Location
Models 25 SX	J2
Models 25, 30 (286)	J13
Models 8535, 8540	J14
Models 9535, 9540	J20
Model L40 (8543)	J23
Models 8556, 8557	J18
Models 9556, 9557, 9576, 9577	JMP1
Model 90	J10
Model 95	J16

1. Power-off the system and unplug the power cord.
2. Remove the system-unit cover.
3. Move the password jumper to connect the center pin and the pin on the opposite end of the connector.
4. Power-on the system. The system senses the change in the jumper position and erases the password. There is no need to move the jumper back to the previous position.

(Part Number 61G1114)