FRONT

PICTURE 1

Part Number 91F8635
Form Number S15F-2197-01

FRONT_1 Special Notices

Subtopics
FRONT_1.1 Safety Information

FRONT_1 Special Notices

Subtopics
FRONT_1.1 Safety Information

FRONT_1.1 Safety Information

Refer to the *Hardware Maintenance Service General Information* pamphlet for
the following information:
    General Safety
    Electrical Safety
    Safety Inspection Guide.

Second Edition (June 1991)

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1.0 General Checkout

The advanced diagnostic tests are intended to test *only* IBM (*) products.
Non-IBM products, prototype cards, or modified options can give false
errors and invalid system responses.

IMPORTANT:
The system board for the 25-MHz Model 70 (80386 and 80486) consists of
two FRUs. If you are instructed to replace the system board, and that
does not correct the problem, reinstall the original system-board,
then replace the processor-board.
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.
If you do not receive any error codes, see if the error symptom is
listed in the "Symptom-to-FRU Index" in topic 12.0.
If an adapter or device consists of more than one FRU, an error code
may be caused by any of the FRUs. Before replacing the adapter or
device, remove the FRUs, one by one, to see if the symptoms change.

```
+---+
¦001¦
+---+
```
- Power-off the system and all external devices.
- Check all cables and power cords.
- Make sure there are no diskettes in the drives.
- Power-on all external devices.
- Power-on the system.

  Note: Watch the screen for a POST error code. If a POST error code
        occurs, write down the POST error code, then press F1 to
        continue.

ARE ANY EXTERNAL SCSI DEVICES ATTACHED TO THE SYSTEM?
Yes No
```
 ¦    ¦
 ¦    +---+
 ¦    ¦002¦
 ¦    +---+
 ¦    Go to Step 005.
 ¦
+---+
¦003¦
+---+
```
DID THE POWER-GOOD LIGHT ON ALL OF THE EXTERNAL DEVICES COME ON?
Yes No
```
 ¦    ¦
 ¦    +---+
 ¦    ¦004¦
 ¦    +---+
 ¦    Go to the external devices service pamphlet.
 ¦
 ¦
+---+
¦005¦
+---+
```
DID YOU RECEIVE A POST ERROR CODE?
Yes No
```
 ¦    ¦
 ¦    +---+
 ¦    ¦006¦
 ¦    +---+
 ¦    Continue with Step 014.
 ¦
+---+
¦007¦
+---+
```
**IS THE FIRST POST ERROR CODE WITHIN THE RANGE OF 02080000 190I TO 02410000
190I?**
Yes No
```
 ¦    ¦
 ¦    +---+
 ¦    ¦008¦
 ¦    +---+
 ¦    Continue with Step 014.
 ¦
+---+
¦009¦
+---+
```
- Start the Reference Diskette and verify that the "Enable" and "Disable"
  settings are correct. For more information, go to "Enable and Disable
  Settings" in topic 6.0. If you receive a warning on the screen
  regarding the "Keep" and "Remove" settings, follow the instructions on
  the screen before continuing.

DID YOU HAVE TO CORRECT ANY OF THE ENABLE AND DISABLE SETTINGS?
Yes No
¦   ¦
¦   +---+
¦   ¦010¦
¦   +---+
¦   Go to "Symptom-to-FRU Index" in topic 12.0. Before replacing any
¦   SCSI devices, verify there are no duplicate SCSI ID settings.
¦
+---+
¦011¦
+---+
- Remove the Reference Diskette and restart the system.
DID THE ERROR REMAIN?
Yes No
¦   ¦
¦   +---+
¦   ¦012¦
¦   +---+
¦   If you suspect another problem, or want to run system checkout,
¦   continue with Step 014.
¦
+---+
¦013¦
+---+
Go to "Symptom-to-FRU Index" in topic 12.0.

+---+
¦014¦
+---+
- Insert your Reference Diskette.
- Press Ctrl+Alt+Del and check for the following responses:
  1. One or two short beeps.
  2. IBM logo screen appears.
DID YOU RECEIVE THE RESPONSES LISTED ABOVE?
Yes No
¦   ¦
¦   +---+
¦   ¦015¦
¦   +---+
¦   Go to "Symptom-to-FRU Index" in topic 12.0.
¦   - or -
¦   If that does not correct the problem, go to "Undetermined Problem" in
¦   topic 4.0.
¦
+---+
¦016¦
+---+
- Advance to the Main Menu.
- Press Ctrl+A and run system checkout.

  Notes:

  1. If the system has incorrect keyboard responses, go to "Keyboard" in
      topic 9.0.

  2. If the printer has incorrect responses, go to "Printer" in
      topic 10.0.

  3. If the display has problems such as jittering, rolling, shifting, or
      being out-of-focus, go to "Display Self-Test" in topic 7.0.

  4. A minimum of 512KB of memory must be active to load the diagnostic
      tests.

IS THE LIST OF INSTALLED DEVICES CORRECT?
Yes No
¦   ¦
¦   +---+
¦   ¦017¦
¦   +---+
¦   Go to "Installed Devices List" in topic 2.0.
¦
+---+
¦018¦
+---+
- Run the diagnostic tests.
DID THE TESTS IDENTIFY A FAILURE?

**Note: If the test stops and you cannot continue, replace the last device
        being tested.**

Yes No

```
¦      ¦
¦    +---+
¦    ¦019¦
¦    +---+
¦    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.
¦
+---+
¦020¦
+---+
Follow the action described on the screen.  If that does not correct the
problem go to "Symptom-to-FRU Index" in topic 12.0.
--------------------------------------------------------------------------
```

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2.0 Installed Devices List

If an adapter or device is missing from 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 360KB External Diskette Drive
    adapter or another unrecognizable adapter.
    The missing device is defective.
    An adapter is defective.

Subtopics
2.1 Automatic Configuration
2.2 Device Type
2.3 SCSI Devices
2.4 Non-SCSI Devices

2.1 Automatic Configuration

Warning: A customized setup configuration (other than default settings)
may exist on the system you are servicing. Running Automatic
Configuration may alter those settings. Note the current configuration
settings (using the View Configuration option) and verify that the
settings are in place when service is complete. (For more information
about configuration, refer to the *Hardware Maintenance Reference* manual.)

2.2 Device Type

Run **Automatic Configuration** (see "Automatic Configuration" in topic 2.1
before continuing) and determine which type of device, SCSI or non-SCSI,
is missing from the Installed Devices List, then continue. (If SCSI and
non-SCSI devices both are missing, go to "Undetermined Problem" in
topic 4.0.)

2.3 SCSI Devices

The adapter supporting the missing device may be defective. If more than
one SCSI adapter is installed, isolate them one at a time.
1. Power-off the system and disconnect all internal and external cables
    attached to the SCSI adapter.
2. Terminate the adapter, as required.
Warning: See "Automatic Configuration" in topic 2.1 before continuing.

3. Power-on the system and run **Automatic Configuration**. If the adapter
    is not on the Installed Devices List, in Advanced Diagnostics, the
    adapter is defective. If the adapter is on the list, run the adapter
    diagnostic tests.
4. If the adapter fails the tests, replace it. If the adapter passes the
    tests, a different adapter may be defective.
5. Reconnect the cables to the SCSI adapter, then terminate the adapter,
    as required.
6. Go to "Undetermined Problem" in topic 4.0 to find the problem.

2.4 Non-SCSI Devices

The missing device is defective. If that does not correct the problem, go
to "Undetermined Problem" in topic 4.0.

Note: If the number of diskette drives shown on the list is incorrect, an
error can occur during the tests. Restart the system and verify
that the drive information on the **Set Configuration** menu is
correct, then continue testing.

3.0 Power-On Password

To service a system with an active, unknown, power-on password do one of
the following, depending on which battery and speaker assembly is
installed.
    On the type with two pins on the side of the speaker assembly, short
    the pins together.
    On the type with no pins, insert a meter lead into the connector
    (protruding from under the battery) and short the other end of the
    lead to frame ground.

Power-on the system and leave the assembly shorted until completion of
POST. This deactivates the password.

4.0 Undetermined Problem

1. Power-off the system.
2. Remove or disconnect one of the following adapters or devices.
   Non-IBM devices
   Any external device (modem, printer, or mouse)
   Math Coprocessor option (Model 70 386 only)
   Any adapter
   Fixed disk or diskette drive
   Memory module kits.
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.

5.0 Power Supply Voltages / Fan

Power-off the system. Remove the power supply and place it with the
connector facing up. Power-on the power supply and check for the voltages
listed below. If the voltages are not correct, check the power cord for
continuity. If the power cord is good, replace the power supply.

V dc Minimum	V dc Maximum	Ground (-) Pin	Positive (+) Pin
-9.0	-15.0	2	1
+9.0	+15.0	2	3
+3.7	+6.2	2	15

PICTURE 2

V dc Minimum	V dc Maximum	Ground (-) Pin	Positive (+) Pin

6.0 Enable and Disable Settings

To verify that the "Enable" and "Disable" settings are correct, select **Set and View SCSI Device Configuration** from the **Set Configuration** menu, and determine if there are any "Presence Error Reporting" devices listed. The settings must be as follows:

    Devices connected to the system must be set to "Enabled."
    Devices listed but not connected must be set to "Disabled."

Change the settings by pressing the F5 key; then save them by pressing the F10 key.

7.0 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, as described below (some shading may occur near the edges). If the screen differs, replace the display. If the display passes the test, replace the display adapter or the system board.

 8503, 8512, 8513, 8514: 2-20 mm (0.08-0.79 in.) wide on one or both sides.

 8506: 2-35 mm (0.08-1.38 in.) wide on the top, or bottom, or both.

 8507, 8508, 8515: 2-20 mm (0.08-0.79 in.) wide on the top, or bottom, or both.

 8604: 2-20 mm (0.08-0.79 in.) wide, on all four sides.

8.0 Display Adapter 8514/A

PICTURE 3

9.0 Keyboard

```
+---+
¦001¦
+---+
```
- Power-off the system.
- Disconnect the keyboard cable from the keyboard.
- Power-on the system and check the keyboard cable connector for the
  voltages shown. All voltages are ± 5%.

   PICTURE 4

ARE THE VOLTAGES CORRECT?
Yes No
```
 ¦     ¦
 ¦    +---+
 ¦    ¦002¦
 ¦    +---+
 ¦    Possible failing FRUs are:
 ¦    1.  Fuse, or keyboard cable
 ¦    2.  System board.
 ¦
+---+
¦003¦
+---+
```
Replace the keyboard.
```
------------------------------------------------------------------------
```

10.0 Printer
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.

11.0 Memory

Note: Power-off the system before removing or replacing parts.

000**11**00 indicates a system board parity check error.

   Remove all memory module kits except the one in position 1. (The
   system board memory positions for the reduced size system board, from
   left to right, are 3, 2, 1. For all others, the system board memory
   positions, from left to right, are 1, 2, 3, and, for the 80386 and
   80486, 25-MHz systems, 4.) If the problem remains, replace the kit in
   position 1. If the kit does not solve the problem, replace the system
   board.

   If the problem disappears after removing the memory module kits (you
   should still have a kit in position 1), install the kits, one at a
   time, until the problem returns. Replace the kit that caused the
   problem to return. If the kit does not solve the problem, replace the
   system board.

000**111**00 indicates a memory expansion adapter parity check error.

   Remove the memory expansion adapters from the expansion slots one at a
   time until you no longer get a 000**111**00 error. (If all of the
   adapters have been removed and you still have a 000**111**00 error,
   replace the system board.)

   Remove the memory expansion kits from the adapter that was removed
   last. Install the kits one at a time until the failure returns.
   Replace the kit that caused the error to return; if that does not
   solve the problem, replace the adapter.

000**215**00, 000**216**00 indicates a failing system board memory module kit.

   If the error message does not indicate the location of the failing
   kit, follow the procedure for a 000**110**00 error, described above.

12.0 Symptom-to-FRU Index

Error symptoms and the FRUs that might be responsible for the failure are
listed in the "Symptom- to-FRU index." The most-likely failing FRU is
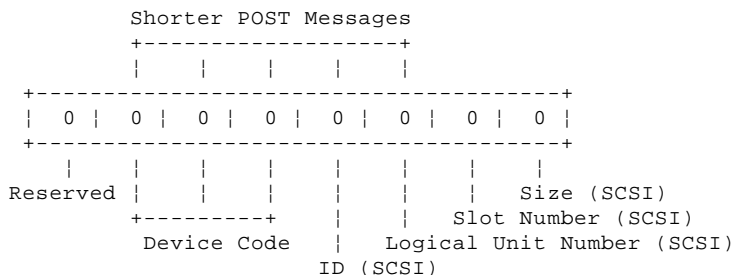listed first.

If the system displays an error message and gives an incorrect audio
response, start with the FRUs listed for that error message. An "X" in an
error message can be any number.

Note: If you are unable to find an error message, you have an IBM device
       with its own service manual or a device not supported by the
       advanced diagnostic tests. Refer to the manual for that device.

How to Read POST Error Messages

POST error messages are displayed on the screen as three, four, five, or
eight digits. The error messages that can be displayed as shorter POST
messages are highlighted in this index. Some digits will represent
different information for SCSI errors versus non-SCSI errors.

The following example shows which digits display the shorter POST error
messages and also defines the SCSI information in an eight-digit error
message.

```
              Shorter POST Messages
              +------------------+
              ¦    ¦    ¦    ¦    ¦
   +------------------------------------+
   ¦ 0 ¦ 0 ¦ 0 ¦ 0 ¦ 0 ¦ 0 ¦ 0 ¦ 0 ¦
   +------------------------------------+
     ¦    ¦    ¦    ¦    ¦    ¦    ¦    ¦
  Reserved ¦    ¦    ¦    ¦    ¦    ¦  Size (SCSI)
           +---------+    ¦    ¦  Slot Number (SCSI)
              Device Code ¦   Logical Unit Number (SCSI)
                       ID (SCSI)
```

All SCSI devices are set to a different SCSI ID. Duplicate SCSI ID
settings can generate a false error message. Use the SCSI ID to determine
whether the error message is coming from an internal or an external
device.

Note: The system board for the 25-MHz Model 70 (80386 and 80486) consists
       of two FRUs. If you are instructed to replace the system board,
       and that does not correct the problem, reinstall the original
       system-board, then replace the processor-board.

Symptom/Error	FRU/Action
One or more keys do not work	**Keyboard** Keyboard Cable System Board
Changing colors	**Display**
No beep and the system is otherwise functional.	**Speaker Assembly** System Board
No beep and nonfunctional system. (See "Undetermined Problem" in topic 4.0 before replacing any FRUs.)	**System Board** Power Supply
Continuous beep	**Power Supply** System Board
Repeating short beeps	**Keyboard (Stuck Key)** Power Supply System Board
One long and one short beep	**Display Adapter** System Board Power Supply

Symptom	FRU
One long and two short beeps	**Display Adapter** System Board Power Supply
One short beep and a blank or unreadable display. (See "Display Self-Test" in topic 7.0 before replacing any FRUs.)	**Display Adapter** System Board Power Supply Display
One short beep and diskette prompt or a program loads from the fixed disk drive	**Diskette Drive** System Board Power Supply Fixed Disk and Diskette Drive Bus Adapter
000**110**XX (See "Memory" in topic 11.0 before replacing any FRUs.)	**System Board Memory** **Module Kit** System Board
000**111**XX (See "Memory" in topic 11.0 before replacing any FRUs.)	**Memory Expansion Kit** Memory Expansion Adapter
000**112**XX, 000**113**XX	**Any Adapter** System Board
000**161**XX	**Battery**
000**162**XX (Verify the "enable," "disable" settings are correct before replacing any FRUs.) See "Enable and Disable Settings" in topic 6.0	**Any Device**
000**163**XX, 000**164**XX, 000**165**XX (See "Installed Devices List" in topic 2.0 for more information.)	**Set Configuration/Features** System Board
000**166**XX	**Any Adapter**
000**194**XX	**System Board** Memory Module
0001**XX**XX (not listed above)	**System Board**
000**201**XX	**System Board Memory** **Module Kit** or **Memory** **Expansion Adapter** or **Memory Expansion Kit** System Board
00**20X**XX (slot 0)	**System Board Memory** **Module Kit** System Board
00**20X**XX (slot 1 - 4)	**Adapter Memory** Memory Adapter
000**215**XX, 000**216**XX, 000**221**XX	

Symptom	FRU
(See "Memory" in topic 11.0 before replacing any FRUs.)	**System Board Memory Module Kit** System Board
000**225**XX	**System Board Memory Module Kit** System Board
000**301**XX, 000**302**XX	**Fuse (Some Models)** Keyboard Keyboard Cable Fuse
000**303**XX	**System Board** Keyboard Keyboard Cable
000**304**XX	**System Board** Keyboard
000**305**XX	**Keyboard Cable**
000**401**XX	**System Board**
000**602**XX	**Defective Diskette**
000**6XX**XX	**Diskette Drive** System Board Power Supply Fixed Disk and Diskette Drive Bus Adapter
000**7XX**XX (80386 systems)	**Math Coprocessor** System Board
000**7XX**XX (80486 systems)	**Processor Board**
00**1107**XX	**Communications Cable** System Board
00**11XX**XX (not listed above)	**System Board**
00**1207**XX	**Communications Cable** Dual Async Adapter/A
00**12XX**XX (not listed above)	**Dual Async Adapter/A** System Board
00**14XX**XX (See "Display Adapter 8514/A" in topic 8.0 before replacing any FRUs.)	**Printer** System Board
00**1780**XX, 00**1781**XX, 00**1782**XX	**Fixed Disk** Fixed Disk and Diskette Drive Bus Adapter System Board
00**1790**XX or 00**1791**XX	**Fixed Disk** Fixed Disk and Diskette

Error	FRU
	Drive Bus Adapter

0017XXXX
  (not listed above)
	Fixed Disk
	Fixed Disk and Diskette
	  Drive Bus Adapter
	System Board
	Power Supply

0024XXXX	**System Board**
002401XX, 002402XX (changing colors)	**Display** System Board
002401XX, 002402XX (no changing colors)	**System Board** Display
002409XX	**Display** System Board
002410XX	**System Board**
004611XX, 004630XX	**Multiport/2 Interface Board** Multiport/2 Adapter
004612XX, 004613XX, 004640XX, 004641XX	**Memory Module Package** Multiport/2 Adapter
004650XX	**Multiport Interface Cable**
0046XXXX	**Multiport/2 Adapter** Interface Board Memory Module Package
006402XX, 006405XX, 006405XX, 006411XX, 006412XX, 006416XX, 006417XX,	**Ethernet Adapter/A** System Board
006418XX, 006419XX, 006420XX, 006421XX, 006422XX, 006423XX, 006424XX, 006425XX	**Contact the LAN Administrator.**
0064XXXX (not listed above)	**Ethernet Adapter/A** System Board
00744XXX, 00745XXX, 00746XXX, 00747XXX (See "Display Adapter 8514/A" in topic 8.0 to determine failing module.)	**8514/A Memory Module**
0074XXXX (not listed above)	**Display Adapter 8514/A** System Board
007509XX	**Display** XGA Display Adapter/A
007510XX	**XGA Display Adapter/A** Video-Memory Module System Board
008601XX, 008602XX	**Pointing Device**
008603XX	**System Board**

Error Code	FRU List
008604XX	**System Board** Pointing Device
0096XXXX	**SCSI Adapter (with cache)** Any SCSI Device System Board
010007XX	**Communications Cable** Multiprotocol Adapter/A
0100XXXX (not listed above)	**Multiprotocol Adapter/A** System Board
0101XXXX (not listed above)	**Modem Adapter/A** System Board
010480XX, 010481XX, 010482XX, 010483XX	**Fixed Disk Drive** System Board Fixed Disk and Diskette Drive Bus Adapter
010490XX, 010491XX	**Fixed Disk Drive** Fixed Disk and Diskette Drive Bus Adapter

0104XXXX
  (not listed above)
	Fixed Disk Drive
	System Board
	Fixed Disk and Diskette
	  Drive Bus Adapter
	Power Supply

0107XXXX	**5.25 inch External Diskette**
	  Drive
	5.25 inch External Diskette
	  Drive Adapter/A

0112XXXX	**SCSI Adapter (without cache)** Any SCSI Device System Board
012102XX, 012106XX, 012108XX, 012109XX	**300/1200/2400 Modem/A** Any Serial Device
0121XXXX (not listed above)	**300/1200/2400 Modem/A** System Board
012901XX, 012902XX	**Processor Board** System Board
0147XXXX, 0152XXXX	**XGA Display Adapter/A** Video-Memory Module System Board
016500XX	**6157 Tape Attachment Adapter**
016520XX	**6157 Streaming Tape Drive**

```
+--------------------------------+----------------------------------+
¦ 016540XX                       ¦                                  ¦
¦                                ¦ 6157 Streaming Tape Drive        ¦
¦                                ¦ 6157 Tape Attachment Adapter     ¦
¦                                ¦                                  ¦
+--------------------------------+----------------------------------+
¦ 0166XXXX, 0167XXXX,            ¦                                  ¦
¦ (For diagnostic information refer ¦ Token-Ring Network Adapter/A  ¦
¦ to the Token-Ring Network      ¦ System Board                     ¦
¦ Adapter/A service information.) ¦                                 ¦
+--------------------------------+----------------------------------+
¦ 0200XXXX                       ¦                                  ¦
¦                                ¦ Image Adapter/A                  ¦
¦                                ¦ Video-Memory Module              ¦
¦                                ¦ System Board                     ¦
¦                                ¦                                  ¦
+--------------------------------+----------------------------------+
¦ 0208XXXX                       ¦ Any Device                       ¦
¦ (Verify there are no duplicate ¦                                  ¦
¦ SCSI ID settings.)             ¦                                  ¦
+--------------------------------+----------------------------------+
¦ 0210XXXA                       ¦ SCSI Fixed Disk Drive (60MB)     ¦
¦ 0210XXXB                       ¦ SCSI Fixed Disk Drive (80MB)     ¦
¦ 0210XXXC                       ¦ SCSI Fixed Disk Drive (120MB)    ¦
¦ 0210XXXD                       ¦ SCSI Fixed Disk Drive (160MB)    ¦
¦ 0210XXXE                       ¦ SCSI Fixed Disk Drive (320MB)    ¦
¦ 0210XXXU                       ¦ SCSI Fixed Disk Drive (Size      ¦
¦ (If the failing device is an   ¦ Undetermined)                    ¦
¦ external device, go to the     ¦ SCSI Adapter                     ¦
¦ external devices service       ¦ SCSI Cable                       ¦
¦ pamphlet.)                     ¦                                  ¦
+--------------------------------+----------------------------------+
¦ 0215XXXX                       ¦                                  ¦
¦ (If the failing device is an   ¦ SCSI CD-ROM Drive                ¦
¦ external device, go to the     ¦ SCSI Adapter                     ¦
¦ external devices service       ¦ SCSI Cable                       ¦
¦ pamphlet.)                     ¦                                  ¦
+------------------------------------------------------------------+
```

Symptom-to-FRU Supplemental Numbers:

13.0 How To Use This Parts Catalog

INDEX REFERENCE NUMBERS: Refer to the illustrations for index reference
numbers listed in the left margin of the parts listing.

SIMILAR ASSEMBLIES: If two assemblies contain a majority of identical
parts, they are broken down on the same list. Parts peculiar to one or
the other of the assemblies are listed separately and identified by
description.

AR: (As Required) indicates that the quantity is not the same for all
machines.

R: (Restricted) indicates that the part has a restricted availability.

INDENTURE the indenture is marked by a series of dots located before the
parts description. The indenture indicates the relationship of a part to
the next higher assembly. For example:

Indenture Relationship of Parts
(No dot) Main Assembly
(One dot)   Detail parts of a main assembly
(One dot)   Subassembly of the main assembly
(Two dot)   Detail part of a one-dot
               subassembly
(Two dot)   Subassembly of a one-dot
               subassembly

14.0 System Overview

PICTURE 5

14.0 System Overview

PICTURE 5

15.0 Parts

Note: When replacing a Math Coprocessor or memory module kit, order the
FRU appropriate for the system you are servicing.

Index	*System Unit*	
1	Cover	90X9288
8	Front Bezel/Logo (R)	15F7510
	(Exchange Basis Only)	
7	Drive Bezel Kit (AR)	15F7571
6	Blank Drive Bezel (AR)	72X8531
2	Support Structure	90X9289
3	**- 16-MHz Base Frame Assemblies -**	
	SN 1500000 to 1999999,	90X9351
	2500000 to 2511499,	
	4000000 to 4499999,	
	7000000 to 7143999	
	SN 2511500 to 2650000,	33F6065
	7144000 to 7999999,	
	DT5500A0001 to DT5500Z9999	
	23HBLTH to 23HXATL	
3	**- 20-MHz Base Frame Assemblies -**	
	SN 500000 to 999999,	90X9408
	3500000 to 3999999,	
	5500000 to 5505499,	
	8000000 to 8006999,	
	9000000 to 9062999	
	SN 5505500 to 5605500,	33F6064
	8007000 to 8999999,	
	9063000 to 9999999,	
	CF5500AA001 to CF5500ZZ999	
	23HXATM to 23KGVYA,	
	23KGVYK to 23LFGHC,	
3	25-MHz, 80386 Base Frame Assembly	15F8237
3	25-MHz, 80486 Base Frame Assembly	64F0134
	Cover Lock Assembly	72X8512
	Cover Lock Kit (AR)	72X8577
	Cover Lock Ring (Break-Away)	
	Cover Lock Pawl	
	Battery	72X8498
5	Battery/Speaker Assembly	72X8558
1	Battery/Speaker Assembly	33F5950
	with Attached Cable	
	Battery/Speaker Assembly Cable	72X8558
4	Power Supply/Fan Assembly	90X8626
	1MB Memory Module Kit, 16 or 20 MHz	90X8624
	2MB Memory Module Kit, 16 or 20 MHz	90X8625
	2MB Memory Module Kit, 25 MHz	15F7658
	80387 Coprocessor, 16 MHz	72X6673
	80387 Coprocessor, 20 MHz	90X7393
	80387 Coprocessor, 25 MHz (80386 only)	15F7661

System Unit (continued)
- Model E61, 16-MHz System Board -
SN 1500000 to 1999999, 2500000 to 2511499, 90X9355
    4000000 to 4499999, 7000000 to 7163999.
- Model E61, 16-MHz System Board -
SN 2511500 to 2650000, 7144000 to 7999999, 33F5834
    DT5500A0001 to DT5500Z9999, F001000 to F249999,
    AAAAA to ABLTG, BBBBB to BCMVH,
    Fuse (3 amp)   72X8561
- Model E81, 16-MHz System Board -
 System Board   33F5834
    Fuse (3 amp)   72X8561
- Models 061, and 121, 20-MHz System Board -
SN 500000 to 999999, 3500000 to 3999999,   90X8623
    5500000 to 5505499, 8000000 to 8006999,
    9000000 to 9075499
- Models 061, and 121, 20-MHz System Board -
SN 5505500 to 5605500, 8007000 to 8999999, 33F5835
    9075500 to 9999999,
    CF5500AA001 to CF5500ZZ999
    Fuse (3 amp)   72X8561
- Models 081, and 161, 20-MHz System Board -
 System Board   33F5835
    Fuse (3 amp)   72X8561
- 25-MHz System Board -
    Processor Board Standoffs (4)   15F7660
    Snap Tool   57F2859
 Models A81, A61, A21, and A16, 80386 System
 Board Assembly
 System Board   15F7657
 Processor Board   15F7659

Model B81, B61, B21, and B16, 80486 System
Board Assembly
```
 System Board                              64F0122
 Processor Board                           64F0123
16-MHz System Board
 and Speaker Assembly (R)                  8130296
20-MHz System Board
 and Speaker Assembly (R)                  8130297
101/102-Key Keyboard Cable                61X8898
Snap Tool                                 72X8547
Label Kit                                 72X8509
    Battery Ordering Label
    Power Supply Warning Label
Snap Kit                                  72X8526
    Snap Grommet
    Snap Plunger
Misc. Parts Kit (System)                  72X8525
    Base Foot
    Captive Screw
    4 mm Screw
Misc. Parts Kit (Options)                 72X8562
    Adapter Slot Cover
    Adapter Handle Bracket
```

Diskette Drive
```
Fixed Disk and Diskette Drive Bus Adapter  90X9287
1.44MB Diskette Drive (includes bezel)     64F0207
    Diskette Drive Slide                   72X8507
5.25-Inch Diskette Drive:
   360KB External (4869-001)               72X6759
   360KB External (4869-501)               72X6768
   360KB Feature Group with Adapter        72X6758
   1.2MB External (4869-002)               15F7993
   1.2MB External (4869-502)               15F7994
   5.25-Inch Diskette Drive Adapter/A      15F7996
```

Fixed Disk Drive
```
Fixed Disk and Diskette Drive Bus Adapter  90X9287
```

Note: The fixed disk drives listed below
 include the ESDI fixed disk drive controller and slides.
```
- 60MB Fixed Disk Drive -                  6128294
- 80MB Fixed Disk Drive -                  56F8894
- 120MB Fixed Disk Drive -                 6128291
- 160MB Fixed Disk Drive -                 56F8895
Fixed Disk Drive Slide Kit                 90X8628
```

Options and Adapters
```
Display Adapter 8514/A                     1887971
   Memory Module (for 1887971)             1887708
XGA Display Adapter/A                       75X5886
Video-Memory Module (for 75X5886)          75X5894
Image Adapter/A                             07F2508
Video-Memory Module (512KB)
(for 07F2508)                               07F4401
Video-Memory Module (1MB)
(for 07F2508)                               07F4403
Dual Async Adapter/A                        34F0008
Fixed Disk and Diskette Drive Bus Adapter  90X9287
Internal 60MB Adapter/A                     30F5273
  Adapter Cable (34 pin)                    34F2990
  Tape Cover Plate                          30F5275
  Formatted Blank Tape                      30F5277
Multiprotocol Adapter/A                     90X8995
Realtime Interface Coprocessor Multiport/2 09F1888
    8-port RS232-C Electrical Interface Board        09F1889
    4-port RS232-C Electrical Interface Board        09F1957
    4+4-port RS232-C RS422-A
     Electrical Interface Board            09F1890
    512KB Memory Module Package            16F2267
Multiprotocol Interface Cable (for 09F1888)          00F5524
Screen Reader Keypad                       1393515
Screen Reader Keypad Cable                 72X8537
SCSI Adapter/A With Cache                  85F0000
Terminator, External (for 85F0000)         33F8464
Terminator, Internal (for 85F0000)         34F0025
SCSI Adapter/A Without Cache               85F0002
Terminator, (for 85F0002)                  57F2870
Token-Ring Network Adapter/A               83X7488
RPL Module (for 83X7488)                   83X9180
Token-Ring 16/4 Adapter/A                  16F1144
```

```
Token-Ring 16/4 Adapter/A with RPL Module   53F7747
Ethernet Adapter/A                          64F0217
300/1200 Modem Adapter/A                    34F0006
Communications Cable (for 34F0006)          8285985
300/1200/2400 Modem Adapter/A               65X1253
Communications Cable (for 65X1253)          94X1540
3270 Connection                             74F3458
36/38 Emulation Adapter                     69X6281
6157 Tape Adapter                           92X1459
80386 Memory Expansion Adapter              72X6671
   Memory Expansion Kit (for 72X6671)       72X6672
2-8MB 80386 Memory Expansion Option         90X9556
   1MB Memory Module (for 90X9556)          90X8624
   2MB Memory Module (for 90X9556)          90X8625
80387 Coprocessor, 16 MHz                   72X6673
80387 Coprocessor, 20 MHz                   90X7393
80387 Coprocessor, 25 MHz (80386 only)      15F7661
```

Keyboard / 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
101/102-Key Keyboard Cable                  72X8537
Mouse                                       61X8923
Mouse Ball and Pop-Off Retainer             33F8461
Mouse Ball and Twist-Off Retainer           33F8462
```

8503 Monochrome Display (with Tilt/Swivel Stand)

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

8506 Monochrome Display (with Tilt/Swivel Stand)

```
110/125 V ac (US/Canada)                    39F8087
110/125 or 200/240 V ac (Northern Hemisphere)   39F8088
110/125 or 220/240 V ac (Southern Hemisphere)   39F8089
```

8507 Monochrome Display (with Tilt/Swivel Stand)

```
110/120 or 220/240 V ac (Universal Model)   6247808
```

8508 Monochrome Display (with Tilt/Swivel Stand)

```
110/125 V ac (US/Canada)                    6247838
110/125 or 200/240 V ac (Northern Hemisphere)   39F8067
110/125 or 220/240 V ac (Southern Hemisphere)   39F8068
```

8512 Color Display (without Tilt/Swivel Stand)

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

8513 Color Display (with Tilt/Swivel Stand)

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

8514 Color Display (without Tilt/Swivel Stand)

```
110/120 V ac                                75X5945
220/240 V ac (Northern Hemisphere)          75X5946
```

```
220/240 V ac (Southern Hemisphere)        75X5947
Tilt/Swivel Stand                         75X5907
```

8515 Color Display (with Tilt/Swivel Stand)
```
90/137 V ac (U.S. and Canada)             38F3911
90/265 V ac (Northern Hemisphere)         38F3912
180/265 V ac (Southern Hemisphere)        38F3913
90/137 V ac (Japan, S.Korea, Taiwan)      38F3914
```

8604 Monochrome Display (with Tilt/Swivel Stand)
```
110/120 V ac                              6398267
```

Power Cords

PICTURE 6

Index   Power Cords
```
           Warning:  Use the power cord
              certified for your country.
 1          Power Cord, Displays
           (except 8514), for:            68X3071
             Colombia, U.S., Venezuela
 2          Power Cord, System Unit, for: 62X1045
             Colombia, U.S., Venezuela
 3          Power Cord, System Unit, for: 8529341
             Hong Kong, Singapore, U.K.
 4          Power Cord, System Unit, for: 8529281
             France, Germany, Spain
 5          Power Cord, System Unit, for: 8529282
              Italy
 6          Power Cord, System Unit, for: 8529284
             Australia, New Zealand
```

Tools and Miscellaneous
```
 Tri-Connector Wrap Plug                  72X8546
 Wrap Plug                                59X4115
   (for 6157 Tape Attachment Adapter)
 Wrap Plug                                6165899
   (for Token-Ring Network Adapter/A)
 Wrap Plug
   (for Ethernet Adapter/A)              85F0036
 BNC T-Connector                          84F8207
 BNC 50-ohm Terminator                    85F0037
 Wrap Plug (for Realtime Interface        16F2478
   Coprocessor Multiport/2) 78-pin
 Wrap Plug (for Multiport Interface Cable) 6425494
   Direct Connect 25-pin, ports 0 and 1
 Wrap Plug (for Multiport Interface Cable) 09F1799
   Direct Connect 25-pin, ports 2 through 7
 Plastic Envelope (for Wrap Plug)         6138013
 Data Migration Facility                  61X8936
 Tool (for Key Cap Removal)               6110464
 Snap Tool (for Snap Removal)             72X8547
 Shipping Carton (Type 8570)              72X8590
```

Supplemental Part Numbers:

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