FRONT

PICTURE 1

IBM PS/2 3.5"
Rewritable Optical Drives

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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IBM PS/2 3.5"
Rewritable Optical Drives

1.0 Rewritable Optical Drives

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1.1 Laser Compliance Statement

The IBM PS/2 3.5" Rewritable Optical Drives are laser products. The
optical drives have a label that identifies their classification. The
label, located on the drives, is shown below.

PICTURE 2

The IBM PS/2 3.5" Rewritable Optical Drives are certified in the U.S. to
conform to the requirements of the Department of Health and Human Services
21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class I
laser products. Elsewhere, the drives are certified to conform to the
requirements of the International Electrotechnical Commission (IEC) 825
(1st edition 1984) and CENELEC HD 482-S1 (EN 60 825:1991) for Class 1
laser products.

PICTURE 3

CAUTION:
Do not open the drive; no user adjustments or serviceable parts are
inside.

Class I (1) laser products are not considered to be hazardous. The IBM
PS/2 3.5" Rewritable Optical Drives contain internally a Class 3b
gallium-arsenide laser that is nominally 30 milliwatts at 830 nanometers.
The MD3125A and MD3125B design incorporates a combination of enclosures,
electronics, and redundant interlocks such that there is no exposure to
laser radiation above a Class I level during normal operation, user
maintenance, or servicing conditions.

1.2 General Information

The IBM* Personal System/2 (*) Rewritable Optical Drives can read, write, and erase data on a 128MB (1MB equals approximately 1 000 000 bytes) rewritable cartridge. The formatted capacity of the rewritable optical cartridge is 127.1 million bytes of data. The drives can also read, write, and erase data on a partial read-only memory (P-ROM) cartridge, and read data from an optical read-only memory (O-ROM) cartridge.

The drives conform to the American National Standards Institute (ANSI) standard for the Small Computer System Interface (SCSI). The SCSI standard allows up to seven SCSI devices to be connected to a single SCSI adapter. Each device connected to a SCSI adapter must be assigned a unique identification (ID) number.

The media conforms to the International Organization for Standardization (IOS)/International Electrotechnical Commission (IEC) standard.

 (*) IBM and Personal System/2 are trademarks of the
     International Business Machines Corporation.

1.3 Option Compatibility

SCSI devices must be used only with SCSI adapters. See the *Hardware Maintenance Service* manual parts catalog for the IBM SCSI adapter.

1.4 Setting the SCSI ID for Internal Installation

The SCSI ID of a new drive must match the ID of the drive being replaced.
The following procedure describes how to set the ID jumpers:

1. Locate the three sets of pins on the top of the new drive (the jumpers
    are pre-set to SCSI ID 3). Remove a jumper by pulling it straight up.
    Install a jumper, by aligning the two holes in the jumper with the
    appropriate two pins on the drive. Then push the jumper onto the pins
    until the jumper is completely seated and covers both pins.

    PICTURE 4

2. Refer to the figure below and set the SCSI ID (represented by black
    rectangles) to correspond with the ID of the drive being replaced.

```
+-----------------------------------------------------------------------+
| SCSI       |   Setting     |             |   SCSI      |   Setting     |
|   ID       |   Position    |             |     ID      |   Position    |
+------------+---------------+-------------+-------------+---------------+
|   6        | |  |  :   |    |             |     2       |  :  |  :      |
+------------+---------------+-------------+-------------+---------------+
|   5        | |  :  |   |    |             |     1       |  :  :  |      |
+------------+---------------+-------------+-------------+---------------+
|   4        | |  :  :   |    |             |     0       |  :  :  :      |
+------------+---------------+-------------+-------------+---------------+
|   3        | :  |  |   |    |             |             |               |
+-----------------------------------------------------------------------+
```

   Note: Remove the jumpers when the optical drive is to be installed in
              a Model 3510.

1.5 Model 3125B Security Jumper

The security jumper is the middle jumper on the left side of the drive
shown in the following figure.

Do not remove the security jumper unless you have a PS/2 system with the
security feature and the privileged-access password is enabled. If the
jumper is removed, and the privileged-access password is *not* enabled, you
will not be able to load or eject the media.

To enable the security feature, remove the jumper from the middle set of
pins.

Note: The drive you are servicing may have an additional jumper block
located next to the jumper block containing the security jumper.

PICTURE 5

1.6 Removing the Terminators

If more than one device is connected to the SCSI adapter cable, all
devices in the chain, except the last device, must have the terminators
removed. To remove the three terminators on the top of the drive you are
installing, locate the tabs that have "T-RES" printed on them and pull
them straight up.

Note: Remove the terminators when the optical drive is to be installed in
        a Model 3510 SCSI Enclosure.

                        PICTURE 6

1.7 Diagnostic Information

The diagnostic programs contained on the option diskette update the
programs on the Reference Diskette or the system programs on the hard disk
drive to test the optical drive. If an error is detected, the diagnostic
program will indicate the failing FRU.

The optical drive requires a minimum amount of air flow through it.
Always install the system covers before performing a long continuous drive
test.

1.8 Repair Information

PICTURE 7

CAUTION:
Do not open the drive, no user adjustments or serviceable parts inside.

The optical drive removal and replacement is the same procedure as the
fixed disk drive (front bay) removal and replacement.

A contaminated-optical lens will cause the optical drive to be slow in
reading an optical disk, or could cause a drive failure. Use the optical
lens cleaning cartridges (PN 38F8681 and 38F8682) to clean the drive lens.

If the system loses power while an optical cartridge is loaded in the
drive, the cartridge can be manually ejected. Insert a straight object,
such as a small screwdriver, through the manual cartridge eject opening in
the cover plate and press. The optical cartridge will manually eject.

1.9 Locations

Subtopics
1.9.1 Front View (Bezel)
1.9.2 Rear View

1.9.1 Front View (Bezel)

```
   1   Optical cartridge slot
   2   Activity indicator
   3   Eject button
   4   Manual Cartridge eject opening (If the opening is not visible,
remove the bezel.)
```

```
   PICTURE 8
```

1.9.2 Rear View

    1   Power connector
    2   SCSI cable connector
    3   SCSI remote ID switch connector

PICTURE 9

1.10 Nominal Operating Current

```
+------------------------------------------------------------------------+
¦ Media Storage                   ¦            Current                   ¦
¦     Device                      ¦ +5V        +12V                      ¦
+---------------------------------+--------------------------------------¦
¦ Rewritable Optical Drive:       ¦                                      ¦
¦   Model MD3125A                 ¦ 0.9A         1.4A                    ¦
¦   Model MD3125B                 ¦ 1.0A         1.5A                    ¦
¦                                 ¦                                      ¦
+------------------------------------------------------------------------+
```

1.11 Symptom-to-FRU Index

Error symptoms and the FRUs that might be responsible for the failure are
listed below. The most-likely failing FRU is listed first.

Symptom	FRU/Action
0**217XXXA**	**Rewritable Optical Drive** SCSI Adapter SCSI Cable
0**217XXXB**	**Enhanced Rewritable Optical Drive** SCSI Adapter SCSI Cable

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1.12 Parts

```
 Rewritable Drive                            92F0426
 Enhanced Rewritable Optical Drive           92F0167
 Mounting Tray                               92F0269
 Mounting Tray/Bezel for 3510                92F0268
 Drive Bezel Assembly for
     Models 56, 57, 76, 77                   92F0159
     Models 60, 65, 80                       92F0156
     Model 90 B-Bay                          92F0157
     Model 90 D-Bay                          92F0158
     Model 90 Filler
     Bezel Assembly                          33F5961
     Model 95                                92F0155
 Supply Item:
  Rewritable Optical Cartridge               38F8645
  Objective Lens Cleaner                     38F8681
  Lens Cleaner Cartridges                    38F8682
```