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1. Description

This document describes how to fix the MOD Drive.

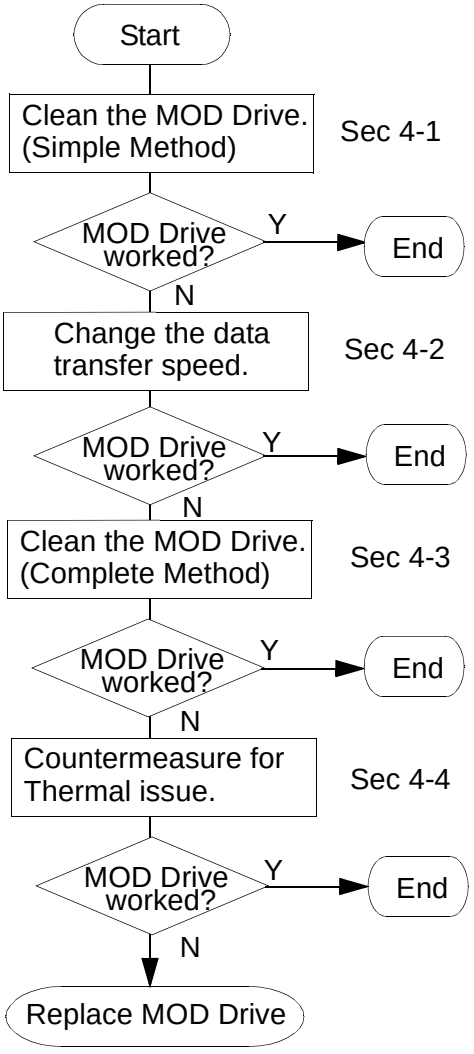
2. Problem

MOD Drive does not read the MOD media.
There are three major cause for this problem.

- Dust is gathered in MOD Drive.
- Data Transfer Speed is too fast.
- Thermal issue.

3. Flowchart

Perform the troubleshooting according to the following flowchart.



FLOWCHART
ILLUSTRATION 1

4. Solution

4-1 Clean the MOD Drive (Simple Method)

MOD Drive cleaning simple method is described in this procedure.
Air cleaner is used in this procedure.

1. Check that there is no MOD media in MOD Drive.
2. Insert a nozzle of air cleaner into MOD Drive slot.
3. Spray the air cleaner from right to left slowly. (About 4 seconds)
4. Check that the MOD works correctly. If not, perform “Change the data transfer speed.”

4-2 Change the data transfer speed

Default setting of SCSI pass speed is 20MB/s. However, this pass speed makes the system unstable since the SCSI cable length is more than 3m. This procedure describes how to change the pass speed to 5MB/s.

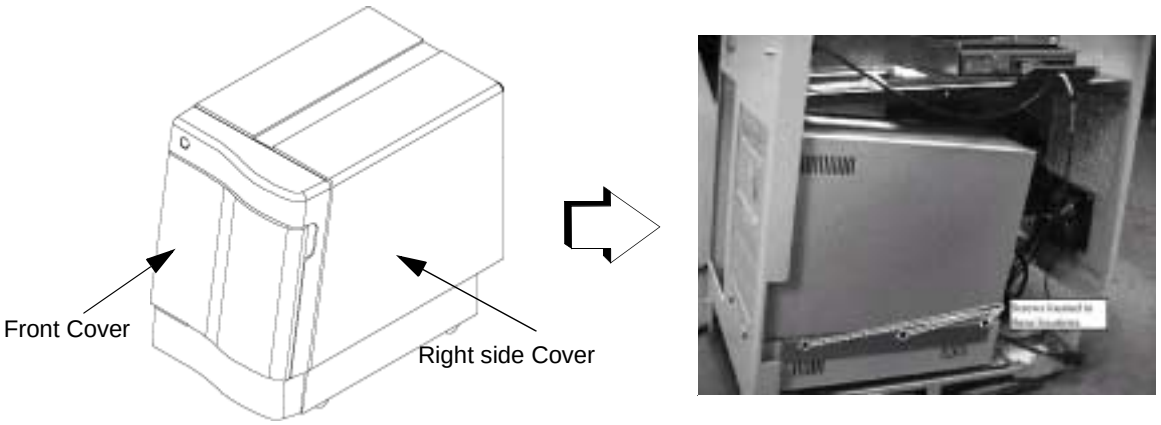
1. Perform login from root.
2. Select “Open Unix Shell” from tool menu at left upper of monitor and run the “C-Shell”.
3. Enter the following command.
   `cd /var/sysgen/system` **[Return]**
   `jot ql.sm` **[Return]**
4. Input as follows and save file.

```
DEVICE_ADMIN: /hw/node/xtalk/15/pci/0/scsi_ctlr/0 ql_sync_period=25
DEVICE_ADMIN: /hw/node/xtalk/15/pci/0/scsi_ctlr/0 ql_wide_enable=1
DEVICE_ADMIN: /hw/node/xtalk/15/pci/1/scsi_ctlr/0 ql_sync_period=50
DEVICE_ADMIN: /hw/node/xtalk/15/pci/1/scsi_ctlr/0 ql_wide_enable=0
DEVICE_ADMIN: /hw/node/xtalk/15/pci/1/scsi_ctlr/0 ql_selection_timeout=750
DEVICE_ADMIN: /hw/node/xtalk/13/pci/3/scsi_ctlr/0 ql_sync_period=50
DEVICE_ADMIN: /hw/node/xtalk/13/pci/3/scsi_ctlr/0 ql_wide_enable=0
DEVICE_ADMIN: /hw/node/xtalk/13/pci/3/scsi_ctlr/0 ql_selection_timeout=750
```

5. Input as follows and shutdown the system.
   `autoconfig` **[Return]**
6. Turn the system power ON.
7. Check that the MOD works correctly. If not, perform “Clean the MOD Drive (Complete Method)”

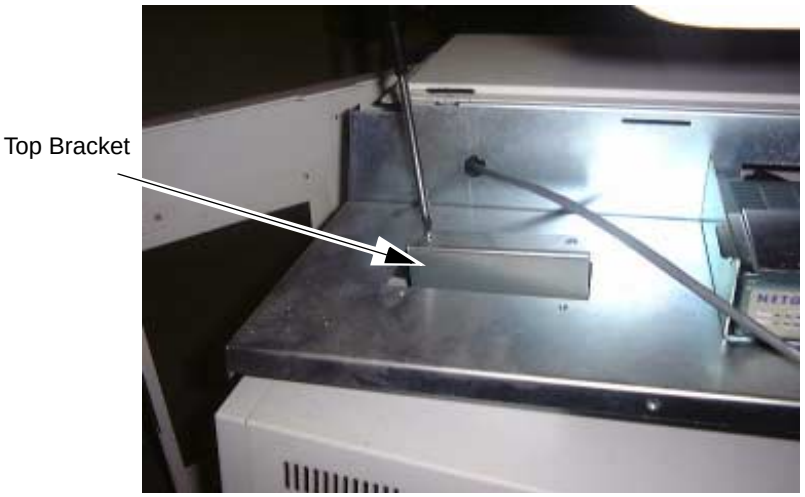
4-3 Clean the MOD Drive (Complete Method)

1. Shut down the system. Then, Turn the OW power OFF. Lock and tag the circuit breaker.
2. Remove the Workspace front and right side covers.



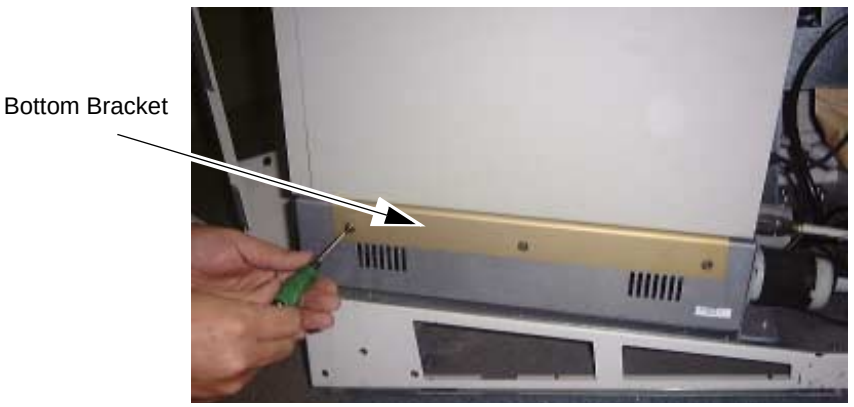
COVER REMOVAL
ILLUSTRATION 2

3. Remove two screws from top bracket.



TOP BRACKET
ILLUSTRATION 3

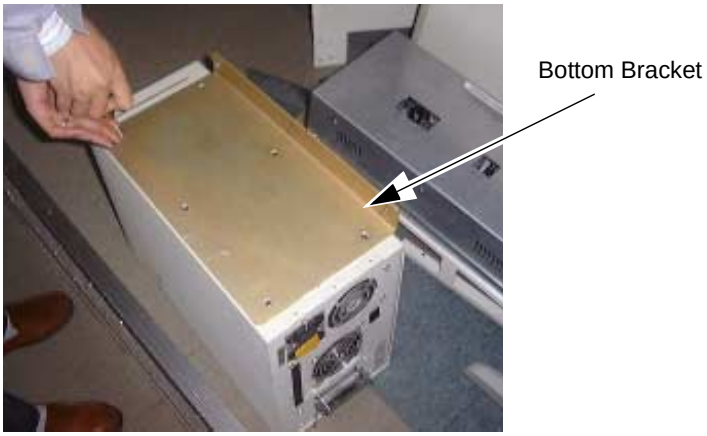
4. Remove three screws from bottom bracket.



BOTTOM BRACKET
ILLUSTRATION 4

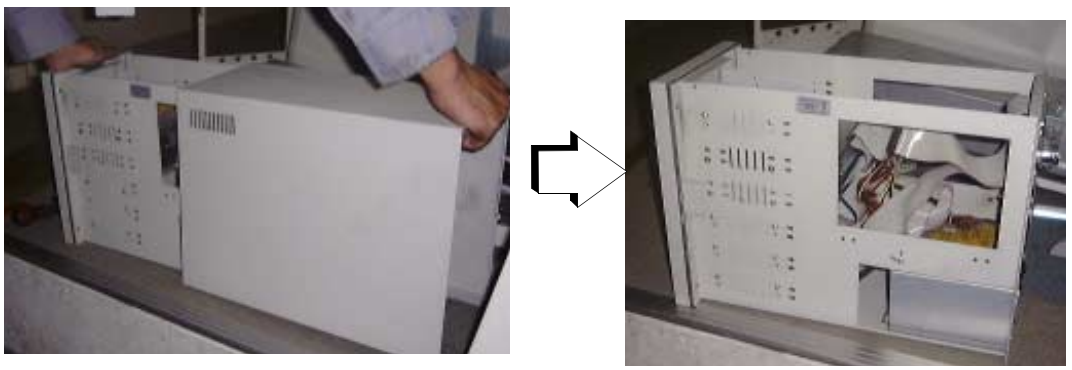
4-3 Clean the MOD Drive (Complete Method) (continued)

5. Remove power cable and SCSI cable from rear.
6. Slide and remove SCSI case.
7. Remove six screws from bottom bracket.



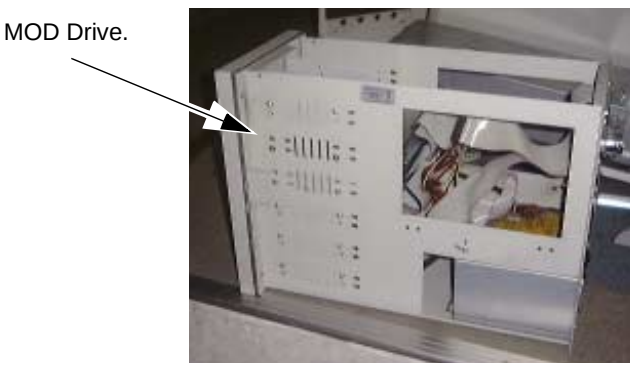
BOTTOM BRACKET REMOVAL
ILLUSTRATION 5

8. Slide SCSI case cover to the rear direction.



SCSI COVER REMOVAL
ILLUSTRATION 6

9. Remove MOD Drive from SCSI case.

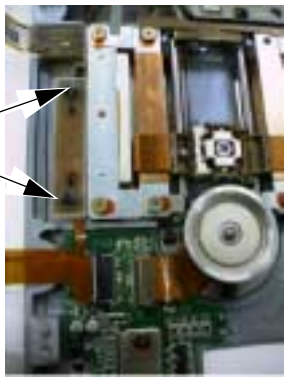


MOD DRIVE LOCATION
ILLUSTRATION 7

4-3 Clean the MOD Drive (Complete Method) (continued)

10.Clean the MOD Drive according to the following illustration.

Media cartridge detect sensor is located here.
Clean the sensor using air cleaner.



Write protect detect sensor is located here.
Clean the sensor using air cleaner.

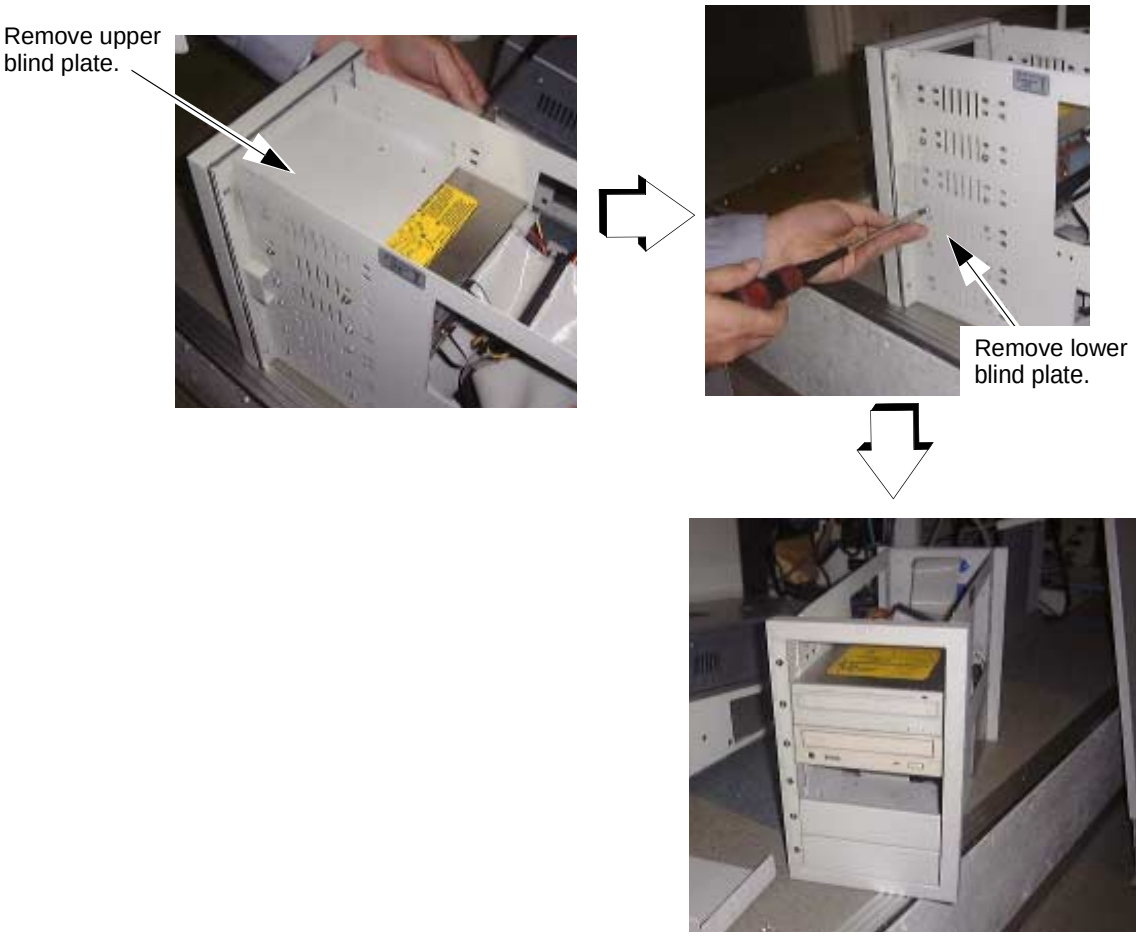
Inject the lubricating oil into here
using toothpick or something.

MOD CLEANING
ILLUSTRATION 8

11.Restore MOD Drive.
12.Restore SCSI case, power cable, and SCSI cable.
13.Turn the system power on and check that the fans are working and MOD Drive is working correctly. If MOD Drive works correctly, restore OW by reverse order.
If not, perform “Countermeasure for Thermal Issue”.

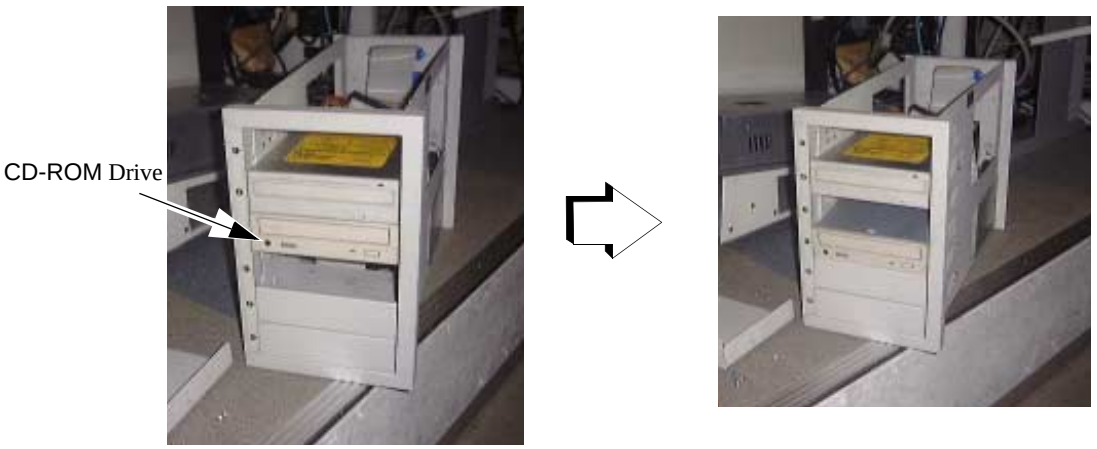
4-4 Countermeasure for Thermal Issue

1. Shut down the system. Then, Turn the OW power OFF. Lock and tag the circuit breaker.
2. Remove two blind plates.



BLIND PLATE REMOVAL
ILLUSTRATION 9

3. Remove the CD-ROM Drive and move it to the lower slot.



CD-ROM DRIVE
ILLUSTRATION 10

4-4 Countermeasure for Thermal Issue (continued)

4. Restore SCSI case, power cable, and SCSI cable.
5. Turn the system power on and check that the fans are working and MOD Drive is working correctly.
6. Shut down the system. Then, Turn the OW power OFF. Lock and tag the circuit breaker.
7. Remove the cables from the SCSI case. Restore all cables and covers.
8. Turn the system power on and check that the fans are working and MOD Drive is working correctly.

5. POWER UP LED ERROR CODE FLASHING DECODE TABLE

The following are error codes that are flashed on the drive's front LED on power up if a problem exists. The LED flashing sequence is:

Red -> off -> Color1 -> off -> Color2 -> off ->Color3 -> off -> Color4 -> off, then repeat until the error condition goes away or power is removed.

Error	Color 1	Color 2	Color 3	Color 4
RAM Test Failure	Orange	Orange	Orange	Orange
SCSI Reset Always Asserted (See Termination Probe).	Orange	Orange	Orange	Green
DSP Watchdog Timer Failure	Orange	Orange	Green	Orange
Microcode Checksum Failure	Orange	Orange	Orange	Green
SCSI Chip Test Failure	Orange	Green	Orange	Orange
ENDEC Chip test Failure	Orange	Green	Orange	Green
Power Supply Fault	Orange	Green	Green	Orange
Over Temperature Fault	Orange	Green	Green	Green
Disk Buffer Test Failure	Green	Orange	Orange	Orange
DSP ROM Checksum Failure	Green	Orange	Orange	Green
DSP RAM R/W Test Failure	Green	Orange	Green	Orange
Invalid Values Found in Non-Volatile Memory	Green	Orange	Green	Green
Loader Failure Or Eject	Green	Green	Orange	Orange
Spin-Up or Spin-Down Fault	Green	Green	Orange	Green

Revision History

Rev	Date	Author	Primary Reasons For Change
0	Feb. 13, 2002	Y.Masumo	Initial Release
1	Jul. 9, 2002	Y. Masumo	Page 8: Added Section 5.