

RWZ21 Magneto-Optical Disk Unit

Maintenance Guide

EK-RWZ21-MG.001

Contents

1. Error Code
 - Sense Key
 - Additional Sense Code
2. Parts List

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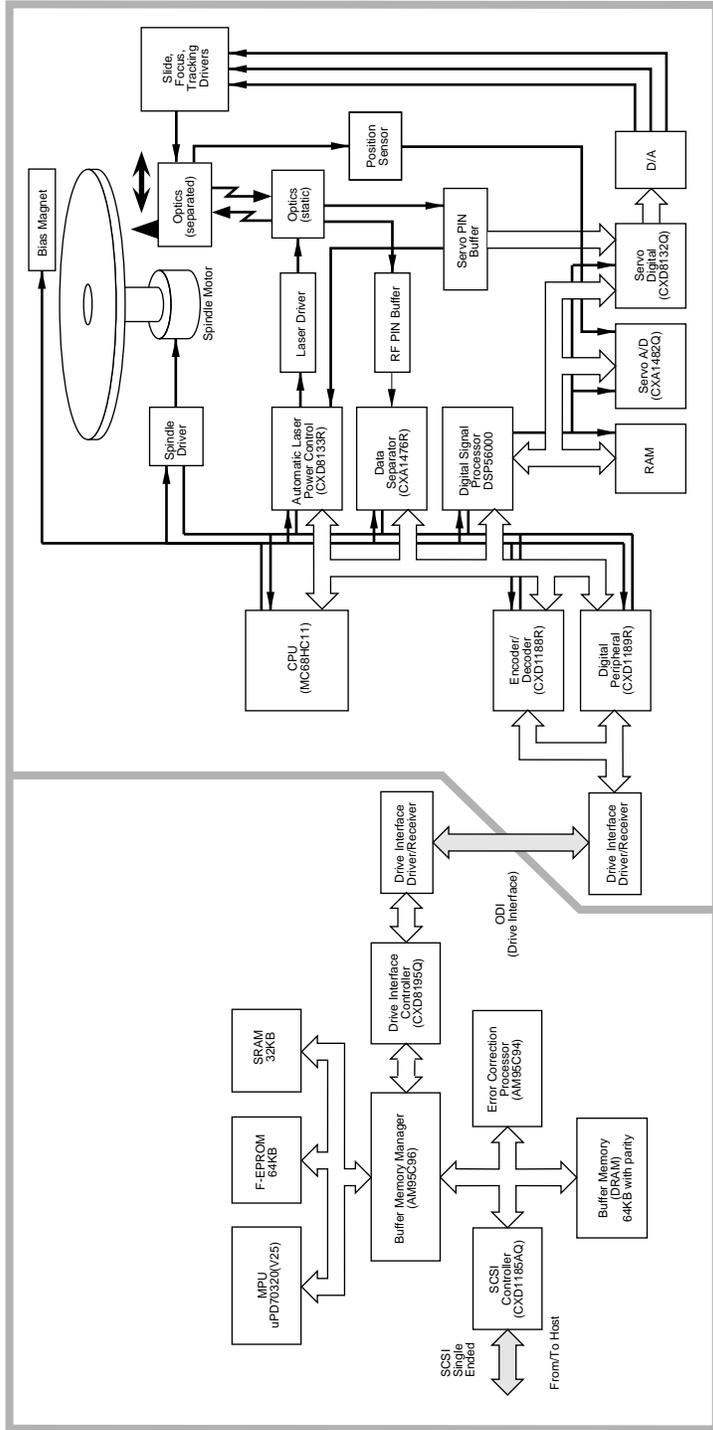
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Drive Block

Controller Block

RWZ21 Block Diagram

1.1 Sense Key

The Sense Key in the Extended Sense Data reports the detected error or the drive condition. The following Sense Keys are implemented in the RWZ21.

Sense Key	Description
0H	NO SENCE Indicates that there is no specific sense key information to be reported for the designated logical unit. This sense key is returned when the command is completed successfully.
1H	RECOVERED ERROR Indicates that the last command was completed successfully with some recovery action performed by the SMO-C301.
2H	NOT READY Indicates that the logical unit cannot be accessed.
3H	MEDIUM ERROR Indicates that the command terminated with an unrecovered error condition that was caused by the medium defect.
4H	HARDWARE ERROR Indicates that the controller detected a hardware error.
5H	ILLEGAL REQUEST Indicates that there was an illegal parameter in the command descriptor block or in the additional parameters supplied as data for some commands.
6H	UNIT ATTENTION Indicates that the medium has been loaded, the unit has been reset, or the Mode Select parameters has been changed.
7H	DATA PROTECT Indicates that a command that writes the medium cannot be performed by the Write Protect condition of the medium cartridge switch.
8H	COPY ABORTED Indicates a COPY or COPY AND VERIFY command was aborted due to an error condition on the source device, the destination device, or both.
BH	ABORTED COMMAND Indicates that the SMO-C301 aborted the last command. The initiator may be able to recover by trying the command again.

Error Code

1.2 Additional Sense Code

1.2 Additional Sense Code

The Additional Sense Code indicates the detailed error information or the device condition. The followings are the implemented Additional Sense Codes and the related Sense Key.

Code	Description
00H	No Additional Sense Information (NO SENSE) There is no error to repeat.
02H ³	No SOID Command Complete (HARDWARE ERROR) SOID command complete was not returned from the drive unit.
03H	Write Fault (HARDWARE ERROR) Write command failed. The logical block address where the fault was detected may be returned in the Logical Block Address field or the Information Byte field of the sense data.
04H	Drive Not Ready (NOT READY) The READY signal of SODI was negated. (The medium in the drive unit is not spun up, the focus or slide servo was unlocked.)
05H	Drive Not Selected (NOT READY) The drive unit is not selected.
07H	Multiple Drives Selected (HARDWARE ERROR) Multiple drives responded for a same drive number.
08H	Logical Unit Communication Failure (HARDWARE ERROR) Error was detected during the communication between the drive unit and the controller unit(e.g. parity error).
09H	Track Following Error (HARDWARE ERROR) Still-jump failed and the optical head couldn't stay in the same track.
0AH ⁴	No Disk (NOT READY) A medium is not inserted into the drive unit.
0BH ⁴	Load/Unload Failure (HARDWARE ERROR) A failure was detected during loading or unloading the cartridge.
0CH ⁴	Spindle Failure (HARDWARE ERROR) The spindle servo was not locked with the reference signal and the medium was not rotated correctly.
0DH ⁴	Focus Failure (HARDWARE ERROR) The focus servo was missed. Issue START/STOP UNIT command with its Start bit set to 1 to restart the drive.
0EH ⁴	Tracking Failure (HARDWARE ERROR) Tracking servo couldn't be locked.
0FH ⁴	Bias Magnet Failure (HARDWARE ERROR) The bias magnet of the drive failed.
10H	ID CRC Error (HARDWARE ERROR) The controller detected the error of ID cyclic check code transferred from the drive unit.
11H	Unrecovered Read Error of Data Blocks (MEDIUM ERROR) The data errors couldn't be corrected by the error correction code. The logical block address where the fault was detected may be returned in the Logical Block Address field or Information Byte field of the sense data.
15H	Seek Positioning Error (HARDWARE ERROR) Seeking to the specified track failed after a few retrievals.

³These codes are newly added or have a different meaning from that of *CCS Rev 4B*.

⁴These codes are newly added or have a different meaning from that of *CCS Rev 4B*.

Error Code 1.2 Additional Sense Code

Code	Description
18H	Recovered Read Data with ECC Procedure (RECOVERED ERROR) There was an interleave which contains 7 or 8 bytes in error. Error correction succeeded.
20H	Invalid Command Operation Code (ILLEGAL REQUEST) The specified command operation code is not implemented or an invalid command is requested.
21H	Illegal Logical Block Address (ILLEGAL REQUEST) The specified logical block address was outside the valid area.
23H ⁵	Illegal Function for Medium Type (ILLEGAL REQUEST) The format parameter is invalid for the medium type.
24H	Illegal Field in CDB (ILLEGAL REQUEST) There was an error in the received Command Descriptor Block(CDB). This Additional Sense Code is returned in the following situations. <ul style="list-style-type: none"> – Reserved field in CDB is not zero. – Invalid combination of parameters (e.g. Both the eject bit and the start bit are set in the START/STOP UNIT command). – Illegal parameter at that state(e.g. A command using the relative address(RelAdr) bit is set to 1 is issued after the command that link bit is not set to 1).
25H	Invalid LUN (ILLEGAL REQUEST) LUN 2 through 7 is specified or the specified LUN(0 or 1)does not respond to the selection from the controller unit.
26H	Invalid Field in Parameter List (ILLEGAL REQUEST) There was an error in the received parameters.
27H	Write Protected (DATA PROTECT) Erasing or writing was aborted because the write protect switch of the cartridge is on.
28H	Medium Changed (UNIT ATTENTION) The medium was loaded. This Additional Sense Code is used to notify the initiator that the medium has been changed since the execution of the last command. This code implies Mode Select Parameters changed(2AH).
29H	Power On or Reset or Bus Device Reset Occurred (UNIT ATTENTION) This Additional Sense Code is used to notify the initiator that the RESET condition has happened since last command. This code implies Mode Select Parameters changed.
2AH	Mode Select Parameters Changed (UNIT ATTENTION) This Additional Sense Code in used to notify the initiator that the mode select parameters have been changed since the execution of the last command(2AH).
30H	Incompatible Cartridge (MEDIUM ERROR) ID hole of the cartridge is invalid.
31H ⁶	Medium Format Corrupted (MEDIUM ERROR) PEP, SFP, the format information sector in the CDA, or DDS is invalid.
32H	No Defect Spare Location Available (MEDIUM ERROR) The number of defect sectors listed in the PDL and SDL exceeded 1024, or the number of defect sectors listed in the SDL exceeded the specified value calculated by the number of groups and spare blocks per group.

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Error Code

1.2 Additional Sense Code

Code	Description
38H ⁶	Recovered with Automatic Reallocation (RECOVERED ERROR) Automatic write reallocation is executed successfully.
39H ⁶	Automatic Reallocation Failure (MEDIUM ERROR) Automatic write reallocation failed after retrying three times.
3AH ⁶	Defect List Update Failure (MEDIUM ERROR) Updating of the defect table failed after the successful sparing of the data sector.
3DH ⁶	Defect List Not Available (MEDIUM ERROR OR RECOVERED ERROR) Specified defect list is not available.
42H	Power On Diagnostic Failure (HARDWARE ERROR) Power on diagnostic failed.
43H	Message Reject Error (HARDWARE ERROR OR ABORTED COMMAND) The command was aborted because the initiator rejected the message from the SMO-C301 by issuing MESSAGE REJECT message.
44H	Internal Controller Error (HARDWARE ERROR OR ABORTED COMMAND) The controller detected an related to the controller hardware or firmware.
47H	SCSI Interface Parity Error (HARDWARE ERROR OR ABORTED COMMAND) The command was aborted due to parity error on the SCSI bus.
48H	Initiator Detected Error (HARDWARE ERROR OR ABORTED COMMAND) The command was aborted because the INITIATOR DETECTED ERROR message was sent from the initiator.
49H	Inappropriate/Illegal Message (HARDWARE ERROR OR ABORTED COMMAND) The command was aborted due to the inappropriate illegal message from the initiator.
80H ⁷	Limited Laser Life (HARDWARE ERROR) Over-current is detected in the laser diode or the laser power is below the lower limit.
81H ⁷	Focus Coil Over-current Failure (HARDWARE ERROR) Over-current is detected in the focus coil of the optical pick up. The coil is protected by a relay.
82H ⁷	Tracking Coil Over-current Failure (HARDWARE ERROR) Over-current is detected in the tracking coil of the optical pick up. The coil is protected by a relay.
83H ⁷	Temperature Alarm (HARDWARE ERROR) Internal temperature of the drive exceeds the limit(55 degree C).

⁶These codes are newly added or have a different meaning from that of *CCS Rev 4B*.

⁷These codes are newly added or have a different meaning from that of *CCS Rev 4B*.

1.3 Notice

Test 75 in VAX ROM diagnostics is not for the RWZ21. Therefore the test may fail.

Parts List

The tables in this chapter include a parts list for RWZ21, a SCSI cable list, and power cord list.

Table 2–1 RWZ21 Parts List

Part name	Order number	Source
Magneto-Optical Disk Unit	RWZ21-AA	–
RWZ21 Magneto-Optical Disk Unit User's Guide	EK-RWZ21-UG	–
Optical disk cartridge	RWX4K-01	○
MOA-L33 Lens cleaning cartridge kit	RWX2H-AA	○
MOA-F33 Air Filter	RWX2F-AA	○
MOA-D31 Manual disk cleaner for RWX4K-01	RWX2M-AA	○
SCSI Terminator	12-30552-01	○

Source
 – Part of the basic RWZ21
 ○ Available as an option

Table 2–2 SCSI Cable List

Connection	Order number	Source
VAXstation3100—RWZ21	BC56H-03 (3 feet)	○
DECstation3100—RWZ21	BC56H-03 (3 feet)	○
DECstation5000—RWZ21 PCTAZ for DECpc—RWZ21	BC09D-06 (6 feet)	*
RWZ21—RWZ21 PCXAZ, PC4XR-CC, PCTAZ-AA for DECpc— RWZ21	BC19J-1E/06 (1.5/6 feet)	○

Source
 – Part of the basic RWZ21
 ○ Available as an option
 * Provided with the DECstation 5000.

Parts List

Table 2-3 Power Cord List

Order number	Description	Source
BN19A-2E	UK/Ireland-240 Vac	○
BN19C-2E	Central Europe-220 Vac	○
BN19E-2E	Switzerland-220 Vac	○
BN19H-2E	Australia/New Zealand-240/230 Vac	○
BN19K-2E	Denmark-220 Vac	○
BN19M-2E	Italy-220 Vac	○
BN19S-2E	India,South Africa-220 Vac	○
BN19U-2E	Israel-240 Vac	○

Source
– Part of the basic RWZ21
○ Available as an option