

SECTION 6 TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press **[TITLE]**, **[CLEAR]**, **[POWER]** buttons on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed.

To execute each function, select the desired menu and press its number on the remote commander.

To exit from the Test Mode, press the **POWER** button.

```

Test Mode Menu

0. Syscon Diagnosis
1. Drive Auto Adjustment
2. Drive Manual Operation
3. Mecha Aging
4. Emergency History
5. Version Information
6. Video Level Adjustment
    Exit: Power Key
-
Model      : DPX13xxxx
Revision   : 1.xxxx
    
```

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander.

On the Test Mode Menu screen, press **[0]** key on the remote commander, and the following check menu will be displayed.

```

### Syscon Diagnosis ###
Check Menu

0. Quit
1. All
2. Version
3. Peripheral
4. Servo
5. Supply
6. AV Decoder
7. Video
8. Audio
-
    
```

0. Quit

Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All

All items continuous check

This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```

### Syscon Diagnosis ###

Diag All Check
No. 2 Version

2-3. ROM Check Sum
Check Sum = xxxx

Press NEXT Key to Continue
Press PREV Key to Repeat
-
    
```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.

Following the message, press **[NEXT]** key to go to the next item, or **[PREV]** key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press **[STOP]** or **[ENTER]** key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```

### Syscon Diagnosis ###

3-2. EEPROM Check
Error 03: EEPROM Write/Reed N
Address   : 00000001
Write Data : 2492
Read Data  : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
-
    
```

Press **[STOP]** key to quit the diagnosis, or **[PREV]** key to repeat the same item where an error occurred, or **[NEXT]** key to continue the check from the item next to faulty item.

Submenu

Selecting 2 and subsequent items calls the submenu screen of each item.

For example, if "5. Supply" is selected, the following submenu will be displayed.

```

### Syscon Diagnosis ###
Check Menu
No. 5 Supply

0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check
-
    
```

0. Quit

Quit the submenu and return to the main menu.

1. All

All submenu items continuous check

This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.

Selecting 2 and subsequent items executes respective menus and outputs the results.

For the contents of each submenu, see “Check Items List”.

General Description of Checking Method

2. Version

(2-2) Revision

ROM revision number is displayed.

Error: Not detected.

The revision number defined in the source file of ROM (IC104) is displayed with four digits.

(2-3) ROM Check Sum

Check sum is calculated.

Error: Not detected.

The data are added of ROM (IC104) and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.

(2-4) Model Type

Model code is displayed.

Error: Not detected.

The model code is displayed with 2-digit hexadecimal number.

	Model Type	
	0	7
DVP-S336 (KR)	0	7
DVP-S345 (CH)	0	6
DVP-S345 (HK, SP)	0	7
DVP-S360 (US, CND, E)	0	0
DVP-S365 (PX)	0	0
DVP-S560D (US, CND, E)	1	0
DVP-S570D (US, CND)	2	0
DVP-S745D (HK, SP, KR)	2	3
DVP-S745D (CH)	2	6

• Abbreviation

CH : Chinese

CND: Canadian

HK : Hong Kong

KR : Korea

SP : Singapore

(2-5) Region

Region code is displayed.

Error: Not detected.

The region code determined from the model code is displayed.

3. Peripheral

(3-2) EEPROM Check

Data write → read, and accord check

Error 03: EEPROM write/read discord

Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-3) Gate Array Check

Data write → read, and accord check

Error 02: Gate array write/read discord

(3-4) NAND Flash Check

Data clear → write → read, and accord check

This check is conducted to the DVP-S570D/S745D only.

Error 04: Clear error

05: Write error

06: Read data discord

21: Faulty blocks exceed 10

The data clear, write, read, and check are executed to the block 0 of Flash memory (IC802).

In case of a faulty block, its address is displayed.

4. Servo

(4-2) Servo DSP Check

Data write → read, and accord check

Error 12: Read data discord

(4-3) DSP Driver Test

Test signal data → DSP Driver

Error: Not detected.

5. Supply

Caution: Do not conduct this check with a mechanical deck connected.

An access is made to the stream supply and servo control IC (IC302) and external RAM (IC303) using check data. If mechanical deck is connected, the motor and optics could be damaged. This check is also executed by the “All” menu item.

Supplement: How to disconnect mechanical deck

Disconnect flexible flat cables connected to the CN201 and CN202 of MB-86 board. Also, disconnect flat cable from the CN401.

(5-2) ARP Register Check

Data write → read, and accord check

Error 08: ARP register write, and read data discord

(5-3) ARP to RAM Data Bus

Data write → read, and accord check

Error 09: ARP ↔ RAM data bus error

Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus

Data write → other address read discord check

Error 10: ARP → RAM address bus error

Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).

Before starting the test, all addresses of RAM (IC303) are cleared to 0x0000.

First, 0xA55A is written to the address 0x000000, and the address data are read and checked from addresses 0x000001 to 0x800000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x000001, and read and checked in the same manner. This check is repeated up to the address 0x800000 while shifting the address data by 1 bit each.

If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading. The following display, for example,

```
### Syscon Diagnosis ###

5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address   : 0000A55A
Write Data: 00000000
Read Data : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat
-
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check

Data write → read, and accord check

Error 11: ARP RAM read data discord

The program code data stored in ROM are copied to all areas of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

(6-2) 1930 RAM

Data write → read, and accord check

Error 13: AVD RAM read data discord

The program code data stored in ROM (IC104) are copied to all areas of RAM (IC504, IC505) connected to the AVD (IC502) through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 13, and the test is suspended.

(6-3) 1930 SP

ROM → AVD RAM → Video OUT

Error: Not detected.

The data including sub picture streams in ROM (IC104) are transferred to the RAM (IC504, IC505) in AVD (IC502), and output as video signals from the AVD (IC502).

They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

7. Video

(7-2) Color Bar

AVD color bar command write → Video OUT

Error: Not detected.

The command is transferred to the AVD, and the color bar signals are output from video terminals.

They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

8. Audio

(8-2) ARP → 1930

Error 14 : ARP → 1930 video NG

15 : ARP → 1930 audio NG

(8-3) Test Tone

A pink noise signal is output from the AVD (IC502) through optical coaxial digital terminal and analog audio terminal. Error: Not detected.

All channels → 2ch Left → 2ch Right → Front Left → Front Right → Rear Left → Rear Right → Center → Sub Woofer are checked in this order.

Caution: Sub Woofer is checked only for low-frequency components, and no sound will be heard unless a proper super woofer is connected.

Check Items List

- 2) Version
 - (2-2) Revision
 - (2-3) ROM Check Sum
 - (2-4) Model Type
 - (2-5) Region
- 3) Peripheral
 - (3-2) EEPROM Check
 - (3-3) Gate Array Check
 - (3-4) NAND Flash Check
(DVP-S570D/S745D)
- 4) Servo
 - (4-2) Servo DSP Check
 - (4-3) DSP Driver Test
- 5) Supply
 - (5-2) ARP Register Check
 - (5-3) ARP to RAM Data Bus
 - (5-4) ARP to RAM Address Bus
 - (5-5) ARP RAM Check
- 6) AV Decoder
 - (6-2) 1930 RAM
 - (6-3) 1930 SP
- 7) Video
 - (7-2) Color Bar
- 8) Audio
 - (8-2) ARP → 1930
 - (8-3) Test Tone

Error Codes List

- 00: Error not detected
- 01: RAM write/read data discord
- 02: Gate array NG
- 03: EEPROM NG
- 04: Flash memory clear error
- 05: Flash memory write error
- 06: Flash memory read data discord
- 08: ARP register read data discord
- 09: ARP ↔ RAM data bus error
- 10: ARP ↔ RAM address bus error
- 11: ARP RAM read data discord
- 12: Servo DSP NG
- 13: 1930 SDRAM NG
- 14: ARP → 1930 video NG
- 15: ARP → 1930 audio NG
- 16: 1939 UCODE download NG
- 17: System call error (function not supported)
- 18: System call error (parameter error)
- 19: System call error (illegal ID number)
- 20: System call error (time out)
- 21: NAND Flash faulty blocks exceed 10
- 90: Error occurred
- 91: User verification NG
- 92: Diagnosis cancelled

6-4. DRIVE AUTO ADJUSTMENT

On the Test Mode Menu screen, press **[1]** key on the remote commander, and the drive auto adjustment menu will be displayed.

```
## Drive Auto Adjustment ##

      Adjustment Menu

0. ALL
1. DVD-SL
2. CD
3. DVD-DL
4. SACD

Exit: RETURN
```

Normally, **[0]** is selected to adjust DVD (single layer), CD, DVD (dual layer), and SACD in this order. But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen.

The disc used for adjustment must be the one specified for adjustment. However, for SACD disc, use the player with initial data if the disc is not available.

0. ALL

You will be asked if EEPROM data are initialized or not, and for this prompt, select **[0]** and press the **[ENTER]** key, and the servo set data in EEPROM will be initialized. Then, 1. DVD-SL disc, 2. CD disc, 3. DVD-DL disc, and 4. SACD disc are adjusted in this order. Each time one disc was adjusted, it is ejected. Replace it with the specified disc following the message. Though the message to confirm whether discs other than SACD disc are adjusted is not displayed, you can finish the adjustment if pressing the **[STOP]** button. The S curve level, RF level, and jitter value can be confirmed during adjustment, and if OK, press the **[ENTER]** key and continue adjustment. (If NG, press the **[STOP]** button) During adjustment of each disc, the measurement for disc type judgment is made. As automatic adjustment does not judge the disc type unlike conventional models, take care not to insert wrong type discs. Also, do not give a shock during adjustment.

1. DVD-SL (single layer)

Select **[1]**, insert DVD single layer disc, and press **[ENTER]** key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. SLED TILT Reset
2. Disc Check Memory SL
3. Wait 500 msec
4. Set Disc Type SL
5. LD ON
6. Spdl Start
7. Wait 1 sec
8. Focus Search ON
9. Focus Search OFF
10. Focus Servo ON 1
11. Auto Track Offset Adjust
12. Tracking ON
13. CLVA ON
14. Wait 1 sec
15. Sled ON
16. Check CLV Lock
17. Auto LFO Adjust
18. Auto Focus Offset Adjust
19. Auto Tilt Position Adjust
20. Auto Focus Gain Adjust
21. Auto Focus Offset Adjust
22. EQ Boost Adjust
23. Auto LFO Adjust
24. Auto Track Gain Adjust
25. All Servo Stop
26. Eep Copy Loop Filter Offset

2. CD

Select [2], insert CD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Tilt Rest
2. Disc Check Memory CD
3. Wait 500 msec
4. Set Disc Type CD
5. LD ON
6. Spdl Start
7. Wait 1 sec
8. Focus Search ON
9. Focus Search OFF
10. Focus Servo ON 1
11. Auto Track Offset Adjust
12. Tracking ON
13. (TC Display Start)
14. CLVA ON
15. Wait 1 sec
16. Jitter Display Start
17. Sled ON
18. Check CLV ON
19. Auto LFO Adjust
20. Auto Focus Offset Adjust
21. Auto Focus Gain Adjust
22. Auto Focus Offset Adjust
23. Eq Boost Adjust
24. Auto LFO Adjust
25. Auto Track Gain Adjust
26. All Servo Stop

3. DVD-DL (dual layer)

Select [3], insert DVD dual layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Tilt Reset
2. Disc Check Memory DL
3. Wait 500 msec
4. Set Disc Type DL
5. LD ON
6. Spdl Start
7. Wait 1 sec
Layer 1 Adjust
8. Focus Servo ON 1
9. Auto Track Offset Adjust
10. Tracking ON
11. Clva ON
12. Wait 1 sec
13. Sled ON
14. Check CLV Lock
15. Auto Loop Filter Offset Adjust
16. Auto Focus Offset Adjust
17. Auto Focus Gain Adjust
18. Auto Focus Offset Adjust
19. Eq Boost Adjust
20. Auto Loop Filter Offset
21. Auto Track Gain Adjust
Layer 0 Adjust
22. Fj (L1 → L0)
23. Auto Track Offset Adjust L0
24. Tracking ON
25. Clva ON
26. Wait 1 sec
27. Sled ON
28. Check CLV Lock
29. Auto Loop Filter Offset Adjust
30. Auto Focus Offset Adjust
31. Auto Focus Gain Adjust
32. Auto Focus Offset Adjust
33. Eq Boost Adjust
34. Auto Loop Filter Offset
35. Auto Track Gain Adjust
36. All Servo Stop

4. SACD

Select [4], insert SACD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM. However, if SACD disc is not available, use the player with initial data, skipping the SACD adjustment. In this case, you can finish the adjustment if pressing the [STOP] button.

SACD Adjustment Steps

1. Sled Tilt Reset
2. Set Disc Type CD
3. LD ON
4. Spdl Start
5. Wait 1 sec
6. Focus Servo ON 0
7. Auto track Offset Adjust
8. Tracking ON
9. CLVA ON
10. Wait 1 sec
11. Sled ON
12. Check CLV ON
13. Auto LFO Adjust
14. Auto Focus Offset Adjust
15. Auto Focus Gain Adjust
16. Auto Focus Offset Adjust
17. Eq Boost Adjust
18. Auto LFO Adjust
19. Auto Track Gain Adjust
20. All Servo Stop

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select [2], and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```
## Drive Manual Operation ##

          Operation Menu
1. Disc type
2. Servo Control
3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment
6. Memory Check

0. Disc Check Memory

          Exit: Return
```

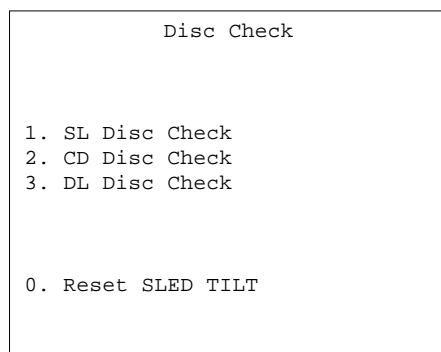
In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

1. Set correctly the disc type to be used on the Disc Type screen.
The disc type must be set after a disc was loaded.
The set disc type is cleared when the tray is opened.
2. After power ON, if the Drive Manual Operation was selected, first perform "Reset SLED TILT" by opening 1. Disc Type screen.
3. In case of an alarm, immediately press the [STOP] button to stop the servo operation, and turn the power OFF.

Basic operation (controllable from front panel or remote commander)

[POWER]	Power OFF
[STOP]	Servo stop
[OPEN/CLOSE]	Stop+Eject/Loading
[RETURN]	Return to Operation Menu or Test Mode Menu
[NEXT], [PREV]	Transition between sub modes of menu
[1] to [9], [0]	Selection of menu items
Cursor UP/DOWN	Increase/Decrease in manually adjusted value

0. Disc Check Memory



On this screen, the mirror time is measured to judge the disc and it is written to the EEPROM. First load DVD SL disc and press [1], next load CD disc and press [2], and finally load DVD DL disc and press [3].

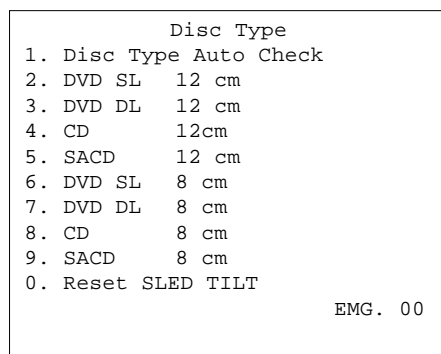
The adjustment must be executed more than once after default data were written. External vibration or shock to the player must not be given. Reference value for DVD is from 10 to 20, and for CD, from 28 to 4F.

Check that the value of CD is larger than that of DVD.

When those values are beyond a range perform this adjustment again.

From this screen, you can go to another mode by pressing [NEXT] or [PREV] key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

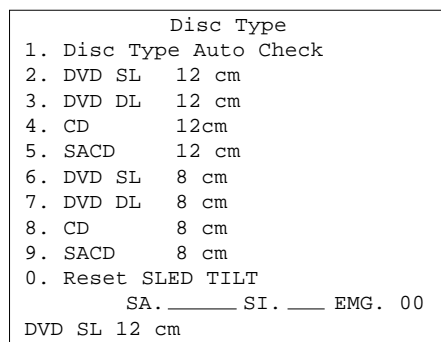
1. Disc Type



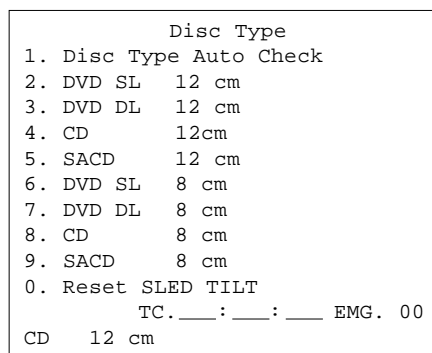
On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting [1] automatically selects and displays the disc type. In case of wrong display, retry "Disc Check Memory". Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading.

In performing manual operation, the disc type must be set.

Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.



Display when DVD SL 12cm disc was selected



Display when CD 12cm disc was selected

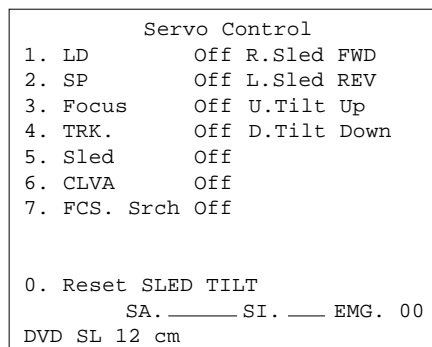
[0] Reset SLED TILT Reset the Sled and Tilt to initial position.

[1] Disk Type Check Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct.

If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).

[2] to [9] Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if [1] was selected.

2. Servo Control



On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked.

The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

- 0 Reset SLED TILT Reset the Sled and Tilt to initial position.
- 1 LD Turn ON/OFF the laser.
- 2 SP Turn ON/OFF the spindle.
- 3 Focus Search the focus and turn on the focus.
- 4 TRK Turn ON/OFF the tracking servo.
- 5 Sled Turn ON/OFF the sled servo.
- 6 CLVA Turn ON/OFF normal servo of spindle servo.
- 7 FCS. Srch Apply same voltage as that of focus search to the focus drive to check the focus drive system.
- Sled FWD Move the sled outward. Perform this operation with the tracking servo turned off.
- ← Sled REV Move the sled inward. Perform this operation with the tracking servo turned off.
- ↑ Tilt UP Move the tilt upward.
- ↓ Tilt DOWN Move the tilt downward.

The following menus are normally not used.

- 3. Track/Layer Jump
- 4. Manual Adjustment
- 5. Auto Adjustment

The persons who do not know well about these menus should not use them.

6. Memory Check

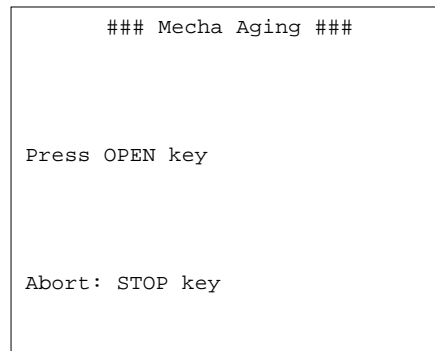
EEPROM DATA					
	CD	SACD	SL	L0	L1
Focus Gain	xx	xx	xx	xx	xx
TRK. Gain	xx	xx	xx	xx	xx
Focus Offset	xx	xx	xx	xx	xx
TRK. Offset	xx	xx	xx	xx	xx
L. F. Offset	xx	xx	xx	xx	xx
Analog FRSW	xx	xx	xx	xx	xx
PLL DAC Gain	xx	xx	xx	xx	xx
EQ Boost	xx	xx	xx	xx	xx
Jitter	xx	xx	xx	xx	xx
Mirror Time	xx		xx	xx	
—	CLEAR: Default Set				

This screen displays current servo adjusted data stored in the EEPROM. Though adjusted data can be initialized with the [CLEAR] key, they cannot be restored after initialization.

So, before clearing, make a note of the adjusted data.

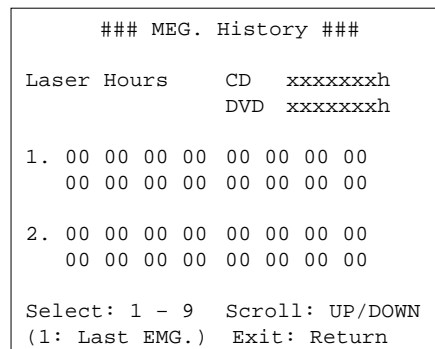
For reference, the drive has been designed so that the gain center value is 20 and offset value is 80. Other values will be in a range of 10 to 80. If extreme value such as 00 or FF is set, adjustment will be faulty. In such a case, check for disc scratch or cable disconnection, then perform adjustment again.

6-6. MECHA AGING



On the Test Mode Menu screen, selecting [3] executes the aging of mechanism. First, open the tray and load a disc. Press the [PLAY] key, and the aging will start. When the tray is closed, the disc type and size are judged and displayed. During aging, the repeat cycle is displayed. Aging can be aborted at any time by pressing the [STOP] key. After the operation has stopped, unload the disc and press again the [STOP] key or the [RETURN] key to return to the Test Mode Menu.

6-7. EMERGENCY HISTORY



On the Test Mode Menu screen, selecting [4] displays the information such as servo emergency history. The history information from last 1 up to 10 can be scrolled with [↑] key or [↓] key. Also, specific information can be displayed by directly entering that number with ten keys.

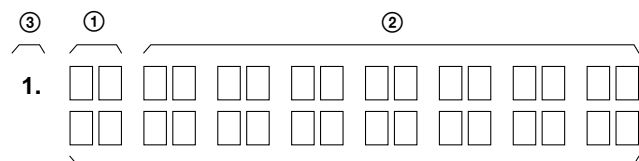
The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information

- Clearing laser hours
 - ⊙ Press [DISPLAY] and [CLEAR] keys in this order. Both CD and DVD data are cleared.
- Clearing emergency history
 - ⊙ Press [TITLE] and [CLEAR] keys in this order.
- Initializing set up data
 - ⊙ Press [DVD] and [CLEAR] keys in this order.

The data have been initialized when "Set Up Initialized" message is displayed. The EMG. History screen will be restored soon.

How to see Emergency History



①: Emergency Code

②: Don't Care

These codes are used for verification of software designing.

③: Historical order 1 to 9

Emergency Codes List

- 10: Communication to IC201 (MB-86 board) failed.
- 11: Each servo for focus, tracking, and spindle is unlocked.
- 12: Communication to EEPROM, IC101 (MB-86 board) failed.
- 13: Writing of hours meter data to EEPROM, IC101 (MB-86 board) failed.
- 14: Communication to Servo DSP IC404 (MB-86 board) failed, or Servo DSP is faulty.
- 20: Initialization of tilt servo and sled servo failed. They are not placed in the initial position.
- 21: Tilt servo operation error
- 22: Syscon made a request to move the tilt servo to wrong position.
- 23: Sled servo operation error
- 24: Syscon made a request to move the sled servo to wrong position.
- 30: Tracking balance adjustment error
- 31: Tracking gain adjustment error
- 32: Focus balance adjustment error
- 33: Focus bias adjustment error
- 34: Focus gain adjustment error
- 35: Tilt servo adjustment error
- 36: RF equalizer adjustment error
- 37: RF group delay adjustment error
- 38: Jitter value after adaptive servo operation is too large.
- 40: Focus servo does not operate.
- 41: With a dual layer (DL) disc, focus jump failed.50: CLV (spindle) servo does not operate.
- 51: Spindle does not stop.
- 60: With a DVD disc, Syscon made a request to seek nonexistent address.
- 61: With a CD disc, Syscon made a request to seek nonexistent address.
- 62: With a CD disc, Syscon made a request to seek nonexistent track No. and index No.
- 63: With a DVD disc, seeking of target address failed.
- 64: With a CD disc, seeking of target address failed.
- 65: With a CD disc, seeking of target index failed.
- 70: With a DVD disc, physical information data could not be read.
- 71: With a CD disc, TOC data could not be read.
- 80: Disc type judgment failed.
- 81: As disc type judgment failed, retry was repeated.
- 82: As disc type judgment failed, a measurement error occurred.
- 83: Disc type could not be judged within the specified time.
- 84: Illegal command code was received from Syscon.
- 85: Illegal command was received from Syscon.

6-8. VERSION INFORMATION

```

## Version Information ##
IF con.   Ver. x. xxx (xxxx)
          Group    00

SYScon.   Ver. x. xxx (xxxx)
          Model    xx
          Region   0x
Servo DSP. Ver. 1. xxxxx

Exit: RETURN
    
```

On the Test Mode Menu screen, selecting **[5]** displays the ROM version and region code.

The parenthesized hexadecimal number in version field is checksum value of ROM.

6-9. VIDEO LEVEL ADJUSTMENT

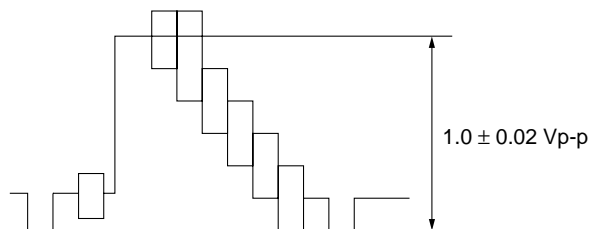
On the Test Mode Menu screen, selecting **[6]** displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

Measurement point : LINE OUT VIDEO
(75 Ω terminating resistance)

Measuring instrument : Oscilloscope

Adjustment device : RV501 on MB-86 board

Specified value : 1.0 ± 0.02 Vp-p



6-10. IF CON SELF DIAGNOSTIC FUNCTION

1. AI-17 BOARD (IF CON) TEST MODE

The front board test mode is the IF CON self diagnostic mode. The IF CON can diagnose the functions of the front panel boards that the IF CON controls. Normally, the IF CON makes a serial communication with the SYSTEM CONTROL and operates following the commands from the SYSTEM CONTROL, but in the Test mode, the IF CON operates independently from the SYSTEM CONTROL.

In the Test mode, the following functions can be checked.

1. Button function
2. Remocon receiving function
3. SYSTEM CONTROL-IF CON serial communication
4. Click shuttle function
5. Fluorescent display tube lighting check
 - Grid check
 - Anode check
6. LED control function

In the Test mode, the set operates same as usual, except voltage monitoring, communication monitoring, display of fluorescent display tube, and LED control.

1. The routine that monitors +3.3 V (PCONT) of MB-86 board is not provided.
2. The monitoring timer for serial communication with the SYSTEM CONTROL is not provided. The set is not placed in the Standby mode, even if the communication with SYSTEM CONTROL is normal.
3. Display of fluorescent display tube (normally, display is made following the commands from SYSTEM CONTROL)
4. LED control (normally, control is made following the commands from SYSTEM CONTROL)

2. OPERATION OF SELF CHECK MODE

The Self Check mode is the function to conduct the basic test to the FL display and DVD panel section.

2-1. Self Check Mode Transition Processing

At the AC Power ON after IF CON was reset, the input to 8pin (P60) is judged and if "Low" is entered, the main unit transits to the Self Check mode. In this port input judgment, the result of 3-time attempts must be same (assuming that the MB-86 board is not connected). While pressing the **[STOP]** key on the main unit with the IF CON in STANDBY mode, enter **[RETURN]** → **[DISPLAY]** (or **[SET UP]**) on the remote commander, and the unit transits to the Self Check Mode. The Self Check mode terminates when the IF CON transits to the STANDBY mode.