# ■ SELF-DIAGNOSTIC FUNCTION

There are 10 main menu items, each of which has sub-menu items.

Listed in the table below are main menu items and sub-menu items.

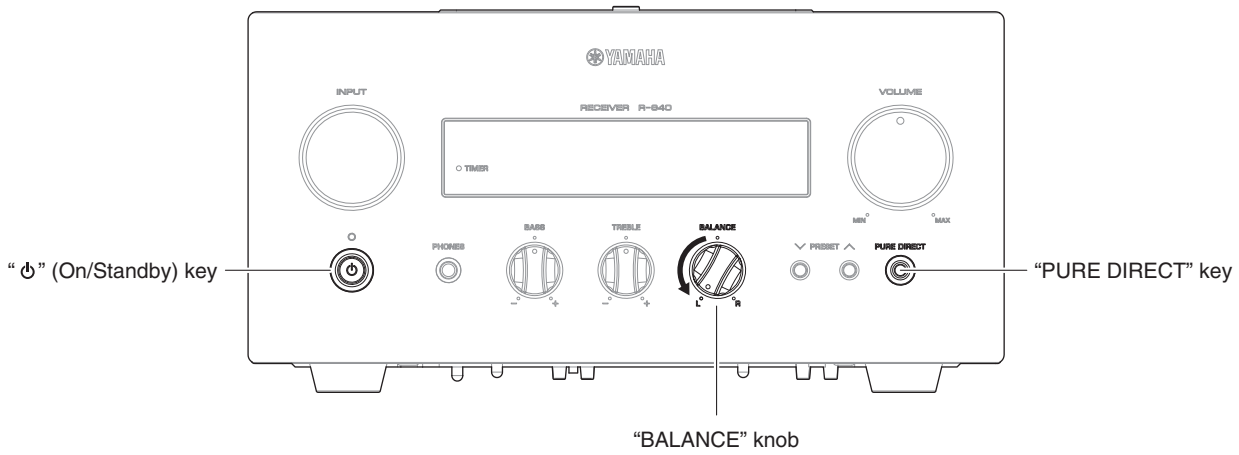
| MAIN MENU | | SUB-MENU | |
|---|---|---|---|
| 1 | VER/DEST/SUM | 1 | FIRMWARE VERSION / DESTINATION |
| | | 2 | CHECKSUM |
| | | 3 | DAB MODULE VERSION (A, B models) |
| 2 | DISPLAY CHECK | 1 | MENU DISPLAY |
| | | 2 | VFD DISPLAY OFF |
| | | 3 | VFD DISPLAY ALL |
| | | 4 | VFD DIMMER 1 (100 %) / 2 (50 %) / 3 (25 %) |
| 3 | FACTORY PRESET | 0 | PRESET INH / RSRV |
| 4 | AD DATA CHECK | 1 | PS1 PROTECTION |
| | | 2 | PS2 PROTECTION |
| | | 3 | DC PROTECTION |
| | | 4 | THM PROTECTION |
| | | 5 | VOL (VOLUME) |
| | | 6 | BAS (TONE CONTROL: BASS) |
| | | 7 | TBL (TONE CONTROL: TREBLE) |
| | | 8 | BAL (BALANCE L/R) |
| | | 9 | CNT (CENTER) |
| | | A | KEY |
| | | B | DST (DESTINATION) |
| 5 | PROTECTION HISTORY | 0 | DISPLAY / RESET |
| | | 1 | HISTORY 1 |
| | | 2 | HISTORY 2 |
| | | 3 | HISTORY 3 |
| | | 4 | HISTORY 4 |
| 6 | EEPROM CHECK | 1 | EEPROM CHECK |
| 7 | iPod CHECK | 1 | iPod CONNECTOR CHECK |
| | | 2 | iPod ACCESSORY POWER (DET_IPAP) |
| | | 3 | iPod DETECTION (N_DET_IP) |
| | | 4 | iPod PLAY/PAUSE KEY CHECK |
| 8 | AUDIO CHECK | 1 | AUDIO MUTE ON |
| | | 2 | SP RELAY OFF |
| | | 3 | HP MUTE ON |
| | | 4 | BASS MAX (100Hz +10dB) |
| | | 5 | BASS MIN (100Hz -10dB) |
| | | 6 | TRE MAX (10kHz +10dB) |
| | | 7 | TRE MIN (10kHz -10dB) |
| 9 | POWER OFF FACTOR HISTORY | 1 | LAST |
| | | 2 | HISTORY 1 |
| | | 3 | HISTORY 2 |
| | | 4 | HISTORY 3 |
| | | 5 | HISTORY 4 |
| A | SYSTEM CONNECTOR CHECK | 1 | SYSTEM CONNECTOR LOOP BACK CHECK |
| | | 2 | SYSTEM CONNECTOR POWER LOW / HIGH (for CD-640) |

## ● Starting Self-Diagnostic Function

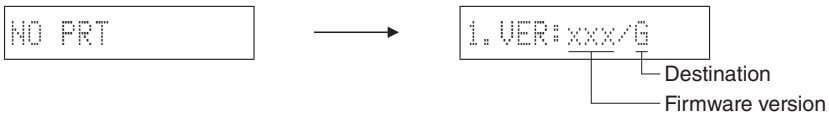
Turn the “BALANCE” knob counterclockwise fully and then while pressing the “PURE DIRECT” key of this unit as shown in the figure below, press the “⏻” (On/Standby) key to turn on the power.

The self-diagnostic function mode is activated.

**Keys of this unit**




**Display**




## ● Starting Self-diagnostic function in the protection cancel mode

If the protection function works and causes hindrance to trouble shoot, cancel the protection function as described below, and it will be possible to enter the self-diagnostic function mode.
(The protection functions other than the PRI function will be disabled.)

Turn the “BALANCE” knob counterclockwise fully and then while pressing the “PURE DIRECT” key of this unit as shown in the figure above, press the “⏻” (On/Standby) key to turn on the power and keep pressing the “PURE DIRECT” key for 4 seconds or longer.

The self-diagnostic function mode is activated with the protection functions disabled.

In this mode, the “SLEEP” segment of the FL display of this unit flashes to indicate that the mode is self-diagnostic function mode with the protection functions disabled.

**CAUTION!**
Using this product with the protection function disabled may cause further damage to itself. Use special care when using this mode.

## ● Canceling Self-diagnostic function

① Before canceling self-diagnostic function, execute setting for FACTORY PRESET of main menu No. 3 (Memory initialization inhibited or Memory initialized).

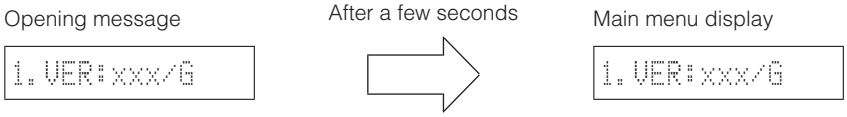
* In order to keep the user memory preserved, be sure to select PRESET INH (Memory initialization inhibited).

② Press the “⏻” (On/Standby) key of this unit to turn off the power.

## ● Display provided when Self-Diagnostic Function started

The FL display of this unit displays the history of protection function data then the main menu (sub-menu FIRMWARE VERSION/DESTINATION of main menu No. 1 VER/DEST/SUM) a few seconds later.

**When there is no history of protection function:**

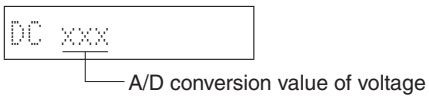



**When there is a history of protection function:**

**When there is a history of protection function due to abnormal voltage in the power supply section.**


For details of protection functions, refer to the main menu No. 4-1 PS1 / 4-2 PS2.

**When there is a history of protection function due to abnormal DC output from the amplifier.**




For details of protection functions, refer to the main menu No. 4-3 DC.

**When there is a history of protection function due to abnormal temperature.**


For details of protection functions, refer to the main menu No. 4-4 THM.

### ● History of protection function

When the protection function has worked, its history is stored in memory with a backup. Even if no abnormality is noted while servicing the unit, an abnormality which has occurred previously can be defined as long as the backup data has been stored.

The history of the protection function will be initialized when self-diagnostic function is cancelled by selecting No. 3 PRESET RSRV (Memory initialized) / No. 5 PROTECTION HISTORY (History reset) or when the backup data is erased.

## ● Operation procedure of Main menu and Sub-menu

There are 10 main menu items, each of them having sub-menu items.

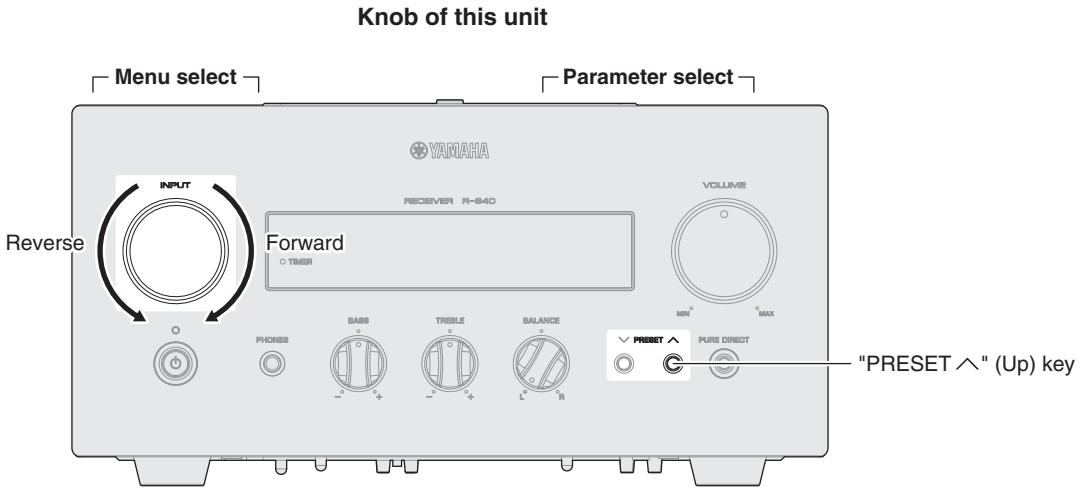
### Main menu and Sub-menu selection

Both main menu and sub-menu can be selected by using the “INPUT” knob.

### Parameter selection

The parameter can be selected by using the “PRESET ∧” (Up) key.






## ● Functions in Self-Diagnostic Function mode

In addition to the self-diagnostic function menu items, functions as listed below are available.

- Power on/off
- Master volume

* Functions related to the tuner and the set menu are not available.

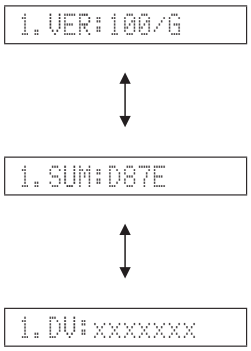
## ● Details of Self-Diagnostic Function menu

### 1. VER/DEST/SUM

This menu is used to display the firmware version, checksum and destination.

The checksum is obtained by adding the data at every 8-bit for each program area and expressing the result as a 4-figure hexadecimal data.

* Numeric values in the figure example are for reference.




**1-1. FIRMWARE VERSION/DESTINATION**

The firmware version of microprocessor (IC101 of FUNCTION P.C.B.) and destination are displayed.

**1-2. CHECKSUM**

The checksum value of microprocessor (IC101 of FUNCTION P.C.B.) is displayed.

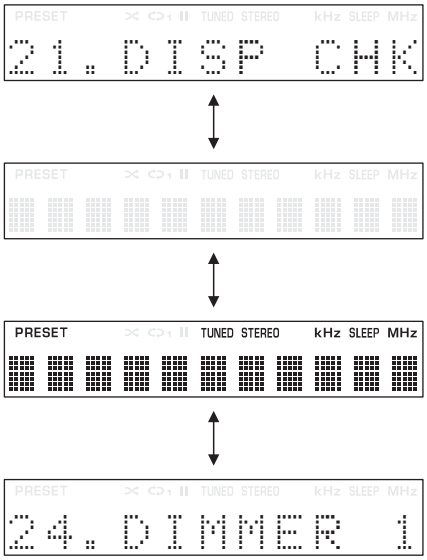
**1-3. DAB MODULE VERSION (A, B models)**

The Firmware version of DAB module is displayed.

## 2. FL DISPLAY CHECK

This menu is used to check the FL display section/indicators for displaying/indicating.

Using the sub-menu, the display condition changes as shown below.




**2-1. Initial display**

"⏻" (On/Standby) indicator: On (Green)

PURE DIRECT indicator: Off

**2-2. All segments Off**

"⏻" (On/Standby) indicator: Off

PURE DIRECT indicator: Off

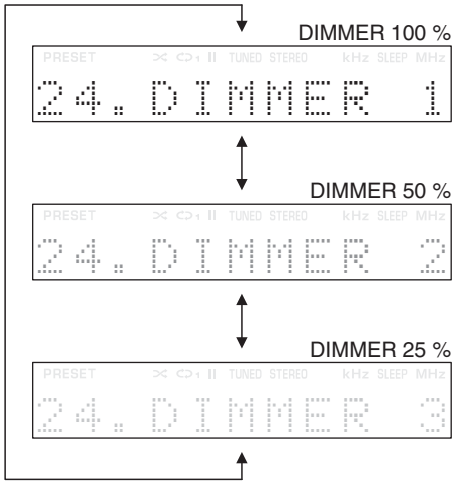
**2-3. All segments On**

"⏻" (On/Standby) indicator: On (Orange)

PURE DIRECT indicator: On

**2-4. DIMMER 100 % / 50 % / 25 %**

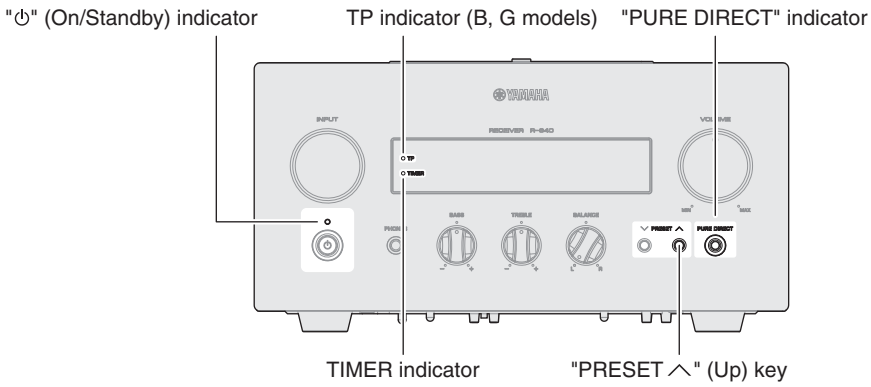
Select this menu and press the "PRESET ∧" (Up) key to change display.




TP indicator: On (B, G models)
TIMER indicator: Off

TP indicator: Off (B, G models)
TIMER indicator: On

TP indicator: Off (B, G models)
TIMER indicator: Off



## 3. FACTORY PRESET

This menu is used to reserve/inhibit initialization of the back-up IC.

Select this menu and press the "PRESET ∧" (Up) key to change display.

30. PRT INH



30. PRT RSRV

**PRESET INHIBIT** (Initialization inhibited)

Back-up IC initialization is not executed.

Select this sub-menu to protect the values set by the user.

**PRESET RESERVED** (Initialization reserved)

Initialization of the back-up IC is reserved. (Actually, initialization is executed the next time the power is turned on.)

Select this sub-menu to reset to the original factory settings or to reset the back-up IC.

Any protection history will be initialized.

## 4. AD DATA CHECK

This menu is used to display the A/D conversion value of the microprocessor which detects panel keys of this unit and protection functions by using the sub-menu. (Reference voltage: 5.0 V = 1023)

### 4-1. PS1

Power supply voltage protection 1 detection

Voltage detects: ±B, +VP and +9T.

Normal value: 366 to 687
(Reference voltage: 5.0 V = 1023)

41.PS1:0519

* If PS1 becomes out of the normal value range, the protection function works to turn off the power.

### 4-2. PS2

Power supply voltage protection 2 detection

Voltage detects: +9T, ±7V and +3.3DAB (A, B models).

Normal value: 366 to 679
(Reference voltage: 5.0 V = 1023)

42.PS2:0519

* If PS2 becomes out of the normal value range, the protection function works to turn off the power.

### 4-3. DC

Power amplifier DC (DC voltage) output detection

Normal value: 0 to 500
(Reference voltage: 5.0 V = 1023)

43.DC :0036

* If DC becomes out of the normal value range, the protection function works to turn off the power.

### 4-4. THM

Temperature detection

Temperature of the heatsink is detected by IC501 of the MAIN P.C.B..

Normal value: 41 to 317
(Reference voltage: 5.0 V = 1023)

```
44.THM: 0186
```

* If THM becomes out of the normal value range, the protection function works to turn off the power.

### 4-5. VOLUME

VOLUME knob position detection

The voltage at 97 pin (I-VOL) of microprocessor IC101 is displayed.

Normal value: 0 (MIN) to 1010 or more (MAX)
(Reference voltage: 5.0 V = 1023)

```
45.VOL:0000
```

### 4-6. BASS

BASS knob position detection

The voltage at 94 pin (I-BAS) of microprocessor IC101 is displayed.

Normal value: 0 (-) to 1010 or more (+)
(Reference voltage: 5.0 V = 1023)

```
46.BAS:0502
```

### 4-7. TBL

TREBLE knob position detection

The voltage at 95 pin (I-TRE) of microprocessor IC101 is displayed.

Normal value: 0 (-) to 1010 or more (+)
(Reference voltage: 5.0 V = 1023)

```
47.TBL:0502
```

### 4-8. BAL

BALANCE knob position detection

The voltage at 93 pin (I-LRBAL) of microprocessor IC101 is displayed.

Normal value: 0 (L) to 1010 or more (R)
(Reference voltage: 5.0 V = 1023)

```
48.BAL:0502
```

### 4-9. CNT

Center position detection of BASS, TREBLE and BALANCE knobs

Normal value: 470 to 552
(Reference voltage: 5.0 V = 1023)

```
49.CNT:0502
```

### 4-A. KEY

Panel keys detection

The voltage at 74 pin (I-KEY0) of microprocessor IC101 is displayed.

(Reference voltage: 5.0 V = 1023)


Key detection for A/D port

Key input (A/D) pull-up resistance 10 k-ohms

| Ohm | 0 | +1.2 k | +91 k |
|---|---|---|---|
| V | 0 – 0.2 | 0.3 – 0.8 | 4.0 – 5.0 |
| A/D value (5V=1023) | 0 – 40 | 60 – 165 | 820 – 1023 |
| I-KEY0 (91 pin) | PRESET UP | PRESET DOWN | PURE DIRECT |

### 4-B. DST

Destination detection

The voltage at 81 pin (DEST) of microprocessor IC101 is displayed.

(Reference voltage: 5.0 V = 1023)


Destination detection for A/D port

Destination input (A/D) pull-up resistance 10 k-ohms

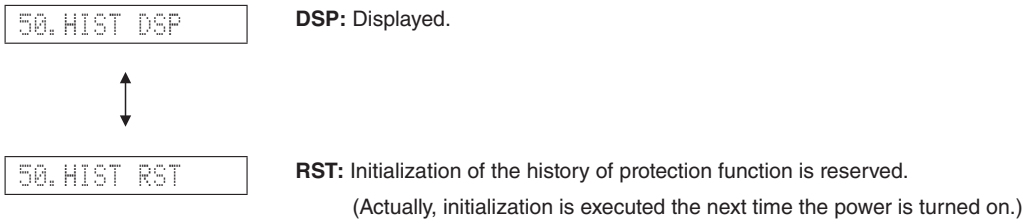
| Ohm | 1.2 k | 4.7 k | 6.8 k | 15.0 k | 24.0 k | 47.0 k | 100.0 k |
|---|---|---|---|---|---|---|---|
| V | 0.2 – 1.0 | 1.1 – 1.8 | 1.9 – 2.5 | 2.6 – 3.2 | 3.3 – 3.8 | 3.9 – 4.3 | 4.4 – 4.8 |
| A/D value (5V=1023) | 40 – 205 | 225 – 370 | 390 – 510 | 530 – 655 | 675 – 780 | 800 – 880 | 900 – 985 |
| DEST (81 pin) | C | V | T, K | A | B | G | L |

## 5. PROTECTION HISTORY

This menu is used to display the history of protection function.

### 5-0. DSP / RST

Select this menu and press the "PRESET ∧" (Up) key to change display.

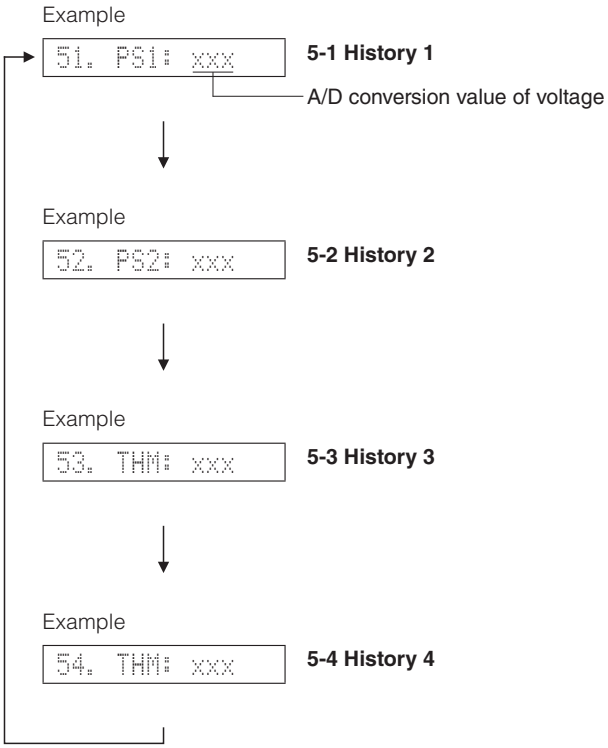



**DSP:** Displayed.

**RST:** Initialization of the history of protection function is reserved.
(Actually, initialization is executed the next time the power is turned on.)

### 5-1. History 1 to 4

Select this menu and press the "PRESET ∧" (Up) key to change display.




For details of the protection function, see "4. AD DATA CHECK".

## 6. EEPROM CHECK

This menu is used to check the communicating condition between the microprocessor (IC101) and the EEPROM (IC102) on the FUNCTION P.C.B..

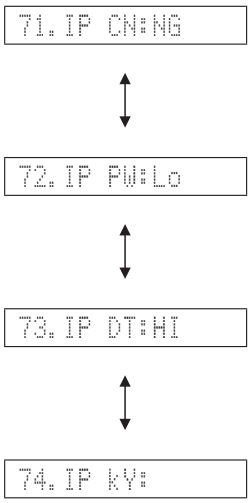

OK : No error detected
NG : An error detected



## 7. iPod

This menu is used to check the connecting condition of the iPod terminal.

Before starting check, connect the iPod to the iPod terminal of this unit.




**7-1. The iPod terminal loop-back check**

Not applied to this model.

**7-2. The iPod Accessory Power (DET_IPAP) is detected**

Not applied to this model.

**7-3. The iPod installation (N_DET_IP) is detected**

HI: Undetect iPod

LO: Detect iPod

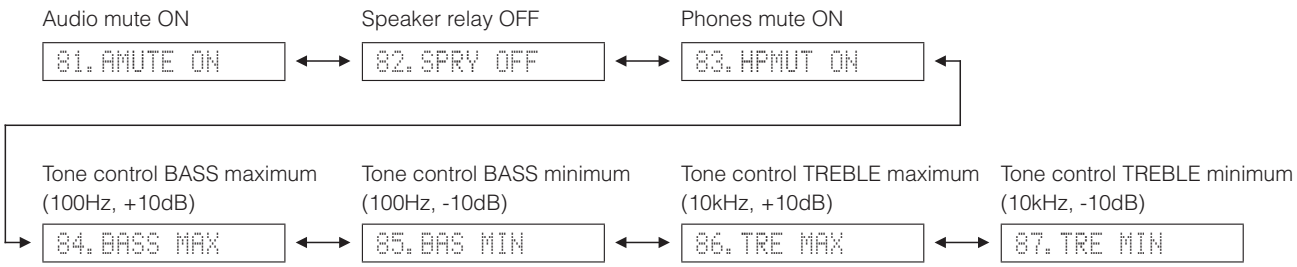
**7-4. The "iPod ►/▮▮" (iPod Play/Pause) key detection**

ON: "iPod ►/▮▮" (iPod Play/Pause) key of this unit is pressed

---: NO detection key

## 8. AUDIO CHECK

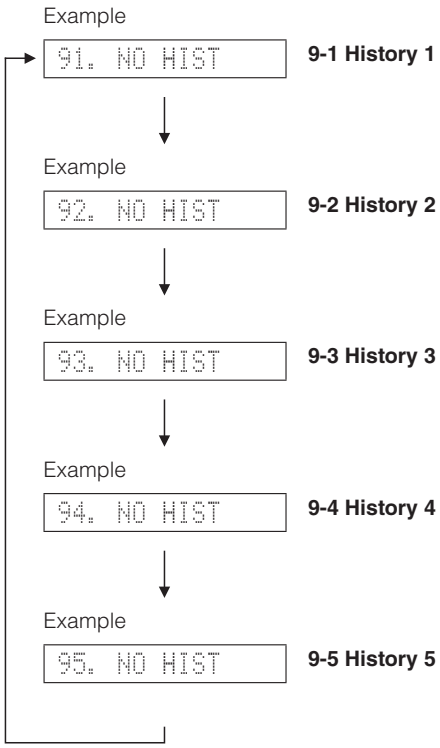
This menu is used to check the MUTE status and volume level setting.



## 9. POWER OFF FACTOR HISTORY

This menu is used to display the history of power off factor.

Select this menu and press the "PRESET ∧" (Up) key to change display.




Power off factor display are as follows.

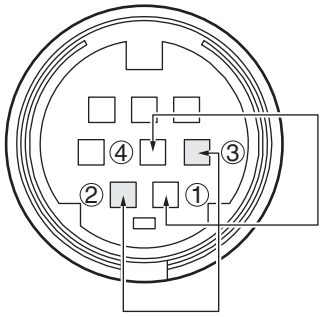
| | |
|---|---|
| 9x. PWR DN | Power down |
| 9x. PRT | Protection |
| 9x. SLEEP | SLEEP timer |
| 9x. PANEL SW | "⏻" (On/Standby) key of this unit |
| 9x. RC KEY | "⏻" (On/Standby) key of the remote control |
| 9x. SYS LINK | System link to player |
| 9x. AT STBY | Auto standby |
| 9x. TIMER | Timer play ends |
| 9x. NO HIST | No history |

## A. SYSTEM CONNECTOR

This menu is used to check the SYSTEM connector without connecting the BD/DVD/CD player to this unit.

With the power to this unit turned off, short between pins No. 1 (SYS_MOSI) and No. 4 (SYS_MISO), between pins No. 2 (SYS_PL_EN) and No. 3 (SYS_RE_EN).

**SYSTEM CONNECTOR**




**Note) Be sure to return the shorted pins to their original condition after executing this check.**

Start up the self-diagnostic function and select this menu.

### A-1. SYSTEM CONNECTOR Loop back check

System control line loop back check is executed.

| | |
|---|---|
| SYS LB NG | System control line loop back check<br>OK : No error detected<br>NG : An error is detected |

### A-2. SYS POW (System connector power supply detection)

The output status at 5 pin (PLAYER_S10) of the SYSTEM connector is displayed.

| | |
|---|---|
| SYS POW LOW | Power supply control line loop back check<br>LOW : Player undetected<br>HIGH : Player detected |