Pioneer

Service Manual

KRP-M01

ORDER NO.
ARP3508

MEDIA RECEIVER

KRP-M01

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Model	Type	Power Requirement	Remarks
KRP-M01	WYSIXK5	AC 220 V to 240 V	
KRP-M01	WYSXJ5	AC 220 V to 240 V	

This service manual should be used together with the following manual(s).

Model No.	Order No.	Remarks
KRP-M01	ARP3509	SCHEMATIC DIAGRAM, PCB CONNECTION DIAGRAM, PCB PARTS LIST, etc.

For details, refer to "Important Check Points for good servicing".

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SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains certain electrical parts contain chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 - Proposition 65

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols (fast operating fuse) and/or (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible (fusible de type rapide) et/ou (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

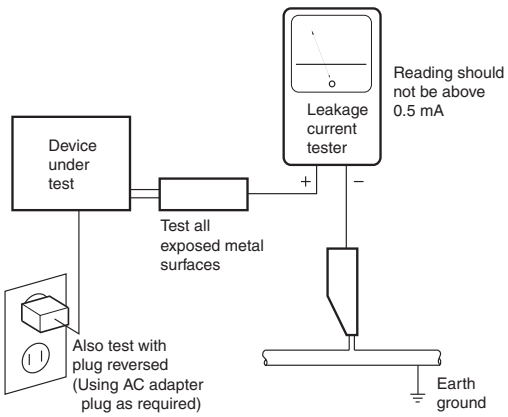
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120 V AC 60 Hz outlet and turn the AC power switch on. Anycurrent measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

1. SERVICE PRECAUTIONS

1.1 NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
  Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40 ºC.
  Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373 ºC in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Do NOT use a soldering iron whose tip temperature cannot be controlled.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:
- Parts numbers of lead-free solder:
  GYP1006 1.0 in dia.
  GYP1007 0.6 in dia.
  GYP1008 0.3 in dia.

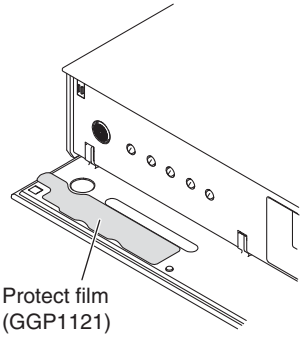
1.2 NOTES SPECIFIC TO THIS PRODUCT

1. Notes before starting repair

- The high-gloss resin parts of the exterior of this product are easily scratched. During disassembly and reassembly of this product, be careful not to scratch the exterior.

- If the door of this product is pressed firmly from the front or when the KEY Assy and LED Assy are reassembled, print of the front-panel operating section may be transferred to the inside surface of the door. To avoid this, be sure to attach the protect film to the inside surface of the door before repairing. If protect film is not available, slip a cleaning cloth or the like inside the door for protection.

- Remove the attached protect film after product installation is completed. If the repaired product is to be delivered to the customer' s home or a dealer, leave the protect film attached.



2. Note on Disassembly/Reassembly

1) Fixing screws for the HDMI connector and system cable connector

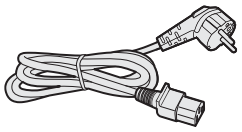
For tightening the screws for the HDMI connector and system cable connector, do not use an electric screwdriver. Tighten them manually. If they are tightened too forcefully with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be loosened/tightened any more.

2. SPECIFICATIONS
2.1 ACCESSORIES

• Power cable

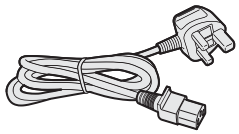
Only the power cable appropriate for your country or region is supplied:

(ADG1214)



For Europe, except UK and Republic of Ireland

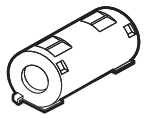
(ADG1223)



For UK and Republic of Ireland

WYSIXK5 only

• Ferrite core (ATX1039)



Ferrite core

Cable tie
(for ferrite core)

2.2 SPECIFICATIONS

Item			Media Receiver, model: KRP-M01
Colour System			PAL/SECAM/NTSC 3.58/NTSC 4.43/PAL 60
TV Function (Analogue)	Receiving System		B/G, D/K, I, L, L'
	Tuner	VHF/UHF	E2–E69 ch, F1–F6 ch, I21–I69 ch, IR A–IR J ch
		CATV	Hyper-band, S1–S41 ch
	Auto Channel Preset		99 ch, Auto Preset, Auto Label, Auto Sort
	STEREO		NICAM/A2
TV Function (Digital)	Receiving System		DVB-T(2K/8K COFDM)
	Tuner	VHF/UHF	VHF Band III (170 MHz to 230 MHz) and UHF Band IV, V (470 MHz to 862 MHz)
	Auto Channel Preset		999 ch, Auto Preset, Auto Label, Auto Sort
	STEREO		MPEG layer I/II, Dolby Digital, Dolby Digital Plus, HE-AAC v1
TV Function (Satellite)	Receiving System		DVB-S, DVB-S2
	IF Tuner		950 MHz to 2150 MHz
	Auto Channel Preset		5000 ch, Auto Preset, Auto Label, Auto Sort
	STEREO		MPEG layer I/II, Dolby Digital, Dolby Digital Plus, HE-AAC v1
Terminals	Rear	INPUT 1	SCART (AV in, RGB in, TV out), HDMI in *1
		INPUT 2	SCART (AV in/out, S-Video in, AV link *2), Component Video in, AUDIO in
		INPUT 3	SCART (AV in/out, S-Video in, RGB in, AV link *2), HDMI in *1
		INPUT 4	HDMI in *1
		CONTROL OUT	1
		SYSTEM CABLE	1
		Antenna	75 Ω Din Type for VHF/UHF in/SAT (Satellite) in
		AUDIO OUT	AUDIO out (Fixed)
		SUB WOOFER OUT	Variable
		DIGITAL OUT	Digital audio output (Optical)
		LAN (10/100)	1
	Front	INPUT 5	Video in, HDMI in *1
		PC INPUT	Analogue RGB
		INPUT 5/PC INPUT	Audio in
		USB	USB in *3
		PHONES	16 Ω to 32 Ω recommended
		COMMON INTERFACE	2, CA Module
		Power Requirements	220 V to 240 V AC, 50 Hz/60 Hz, 52 W (0.4 W Standby)
		Weight	4.5 kg (9.9 lbs)

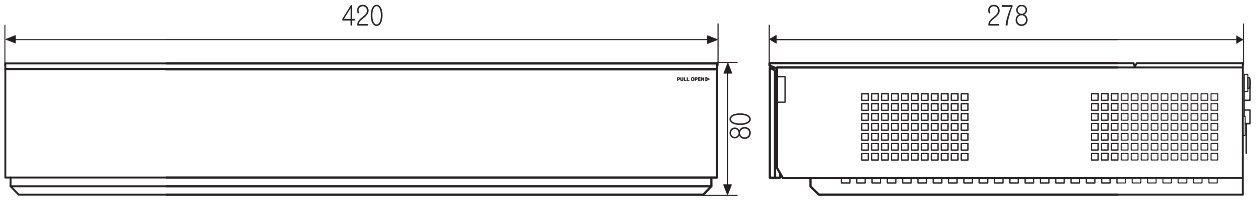
*1 This conforms to HDMI 1.3 (Deep Colour) and HDCP1.1. HDMI (High-Definition Multimedia Interface) is a digital interface that handles both video and audio using a single cable. HDCP (High-bandwidth Digital Content Protection) is a technology used to protect copyrighted digital contents that use the Digital Visual Interface (DVI).
*2 Switchable from menu.
*3 This conforms to USB 1.1 and 2.0 specifications.

Design and specifications are subject to change without notice.

Dimensions (Media Receiver)

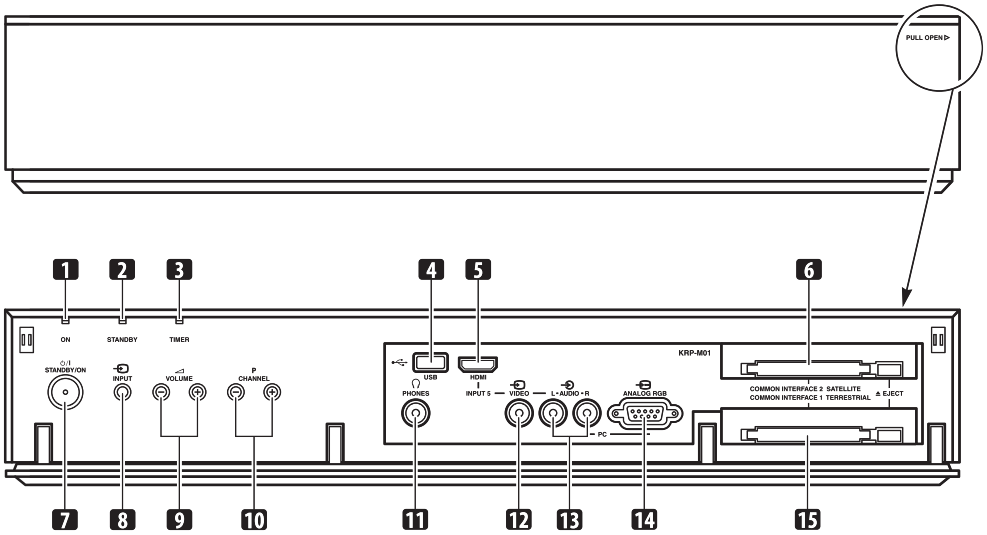
KRP-M01

Unit: mm



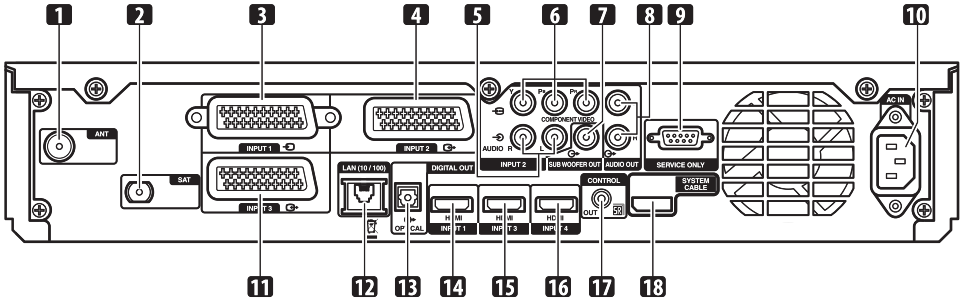
2.3 PANEL FACILITIES

(Front)



1 Power ON indicator
2 STANDBY indicator
3 TIMER indicator
4 USB port
5 INPUT 5 terminal (HDMI)
6 COMMON INTERFACE 2 SATELLITE slot
7 STANDBY/ON button
8 INPUT button
9 VOLUME Up/Down buttons
10 CHANNEL Up/Down buttons
11 PHONES output terminal
12 INPUT 5 terminal (Video)
13 INPUT 5/PC INPUT terminals (Audio)
14 PC INPUT terminal (Analogue RGB)
15 COMMON INTERFACE 1 TERRESTRIAL slot

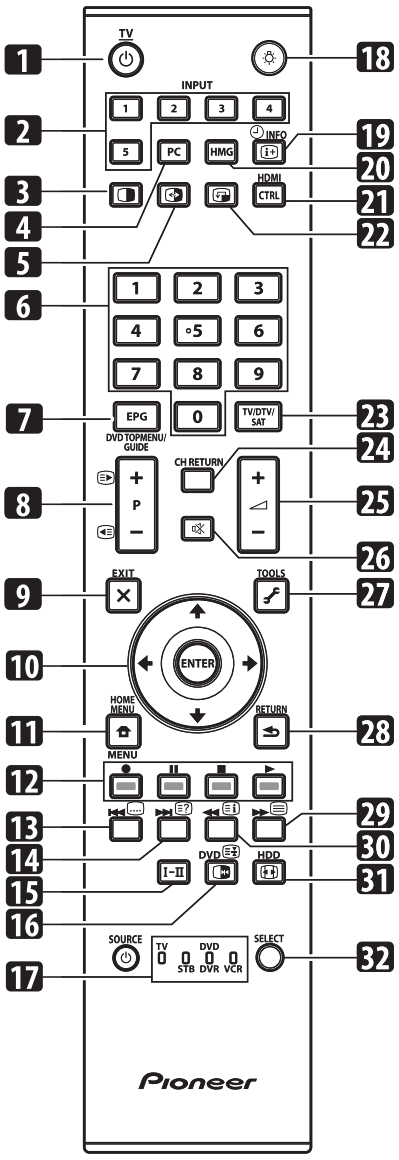
(Rear)



1 ANT (Antenna) input terminal
2 SAT (Satellite) input terminal
3 INPUT 1 terminal (SCART)
4 INPUT 2 terminal (SCART)
5 INPUT 2 terminals (Audio)
6 INPUT 2 terminals (COMPONENT VIDEO: Y, P_B, P_R)
7 SUB WOOFER OUT terminal
8 AUDIO OUT terminals
9 RS-232C terminal (SERVICE ONLY)
(used for factory setup)
10 AC IN terminal
11 INPUT 3 terminal (SCART)
12 LAN (10/100) port
13 DIGITAL OUT terminal (OPTICAL)
14 INPUT 1 terminal (HDMI)
15 INPUT 3 terminal (HDMI)
16 INPUT 4 terminal (HDMI)
17 CONTROL OUT terminal
18 SYSTEM CABLE terminal

Remote Control Unit

This section describes the functions of the buttons available when the TV mode has been selected by using the **SELECT** button.



1 **⏻TV :** Turns on the power to the flat screen TV or places it into the standby mode.

2 **INPUT:** Selects an input source of the flat screen TV. (“INPUT 1”, “INPUT 2”, “INPUT 3”, “INPUT 4”, “INPUT 5”)

3 **:** Switches the screen mode among 2-screen, picture-in-picture, and single-screen.

4 **PC:** Selects the PC terminal as an input source.

5 **:** Switches between the two screens when in the 2-screen or picture-in-picture mode.

6 **0 to 9:** TV/External input mode: Selects a channel.
Teletext mode: Selects a page.
Turns the power on when the STANDBY indicator lights red.

7 **EPG:** Displays the Electronic Programme Guide in DTV/SAT (Satellite) input mode.

8 **P+/P–:** TV/External input mode: Selects a channel.
/: Teletext mode: Selects a page.

9 **✕ EXIT:** Returns to the normal screen in one step.

10 **↑/↓/←/→:** Selects a desired item on the setting screen.
ENTER: Executes a command.

11 **HOME MENU:** Displays the HOME MENU screen.

12 **Colour (RED/GREEN/YELLOW/BLUE):**
Controls a BD player for HDMI Control functions only.

13 **:** Jumps to Teletext subtitle page.
Turns subtitle on and off in DTV input mode depending on the broadcast.

14 **:** Displays hidden characters.

15 **I–II:** Sets the sound multiplex mode.

16 **:** TV/External input mode: Freezes a frame from a moving image. Press again to cancel the function.
: Teletext mode: Stops updating Teletext pages. Press again to release the hold mode.

17 **TV, STB, DVD/DVR, VCR:** These indicators show the current selection and status when you control other connected equipment, using the supplied remote control unit.

18 **:** Lights up buttons.
Lights turn off if no operations are performed within five seconds. This is used for remote control use in dark locations.

19 **INFO:** Displays the channel information.
Displays the banner information.

20 **HMG (Home Media Gallery):** Displays the Home Media Gallery screen.

21 **HDMI CTRL:** Displays the HDMI Control menu.

22 **:** Moves the location of the small screen when in the picture-in-picture mode.

23 **TV/DTV/SAT:** Switches the mode among TV, DTV and SAT.

24 **CH RETURN:** Returns to the previous channel.

25 **+/–:** Sets the volume.

26 **:** Mutes the sound.

27 **TOOLS:** Displays the TOOLS Menu.

28 **RETURN:** Restores the previous menu screen.

29 **:** Selects the Teletext mode (all TV image, all TEXT image, TV/TEXT image).

30 **:** Displays an Index page for the CEEFAX/FLOF format.
Displays a TOP Over View page for the TOP format.

31 **:** Selects the screen size.

32 **SELECT:** Switches the selection among TV, STB, DVD/DVR, and VCR, so that you can control other connected equipment, using the supplied remote control unit.

Note

- When using the remote control unit, point it at the display panel.

3. BASIC ITEMS FOR SERVICE
3.1 CHECK POINTS AFTER SERVICING

Items to be checked after repair (PDP)

To ensure the quality of the product after repair, check the recommended items shown below:

No.	Procedures	Item to be checked
1	Check if all the symptoms pointed out by the customer have been addressed.	The symptoms in question must not be reproduced.
2	Connect the peripheral equipment.	Connect all external peripheral equipment as originally connected and check if the connections are correct.
3	Check the video and audio.	Tune in to the stations that the customer would normally receive and check if video and audio are normal.
4	Check the buttons and controls.	Use the buttons and controls on the remote control unit and main unit and check if they operate properly.
5	Check the cabinet.	Check for any scratches or dirt that have been made or attached on the cabinet after receiving the product for repair.

See the table below for the items to be checked regarding video and audio:

Item to be checked regarding video	Item to be checked regarding audio
Block noise	Distortion
Horizontal noise	Noise
Dot noise	Volume too low
Disturbed image (video jumpiness)	Volume too high
Too dark	Volume fluctuating
Too bright	Sound interrupted
Mottled color	

Cleaning

Name	Part No.	Remarks
Cleaning paper	GED-008	Used to fan cleaning. Refer to “9.3 BOTTOM SECTION.”

3.2 QUICK REFERENCE

Quick Reference upon Service Visit ①
Notes, PD/SD diagnosis, and methods for various settings

Notes when visiting for service

1. Notes when disassembling/reassembling

① **Rear case**
When reassembling the rear case, the screws must be tightened in a specific order. Be careful not to tighten them in the wrong order forcibly. For details, see "Rear Case" in "7. DISASSEMBLY".

② **Attaching screws for the HDMI and system cable terminals**
When attaching the HDMI and system cable terminals after replacing the Assembly, secure the terminals manually with a screwdriver, but not with an electric screwdriver.
If you tighten the screws too tightly with an electric screwdriver, the screw heads may be damaged, in which case the screws cannot be untightened/tightened any more.

2. On parts replacement

① **How to discharge before replacing the Assys**
A charge of significant voltage remains in the Plasma Panel even after the power is turned off. Safely discharge the panel before replacement of parts, in either manner indicated below:
A: Let the panel sit at least for 3 minutes after the power is turned off.
B: Turn the Large Signal System off before the power is turned off then, after 1 minute, turn the power off.
For details, see "5.6 [1] PANEL DRIVE-POWER ON/OFF FUNCTION".

② **On the settings after replacement of the Assys**
Some boards need settings made after replacement of the Assys. For details, see "8. EACH SETTING AND ADJUSTMENT".

3. On various settings

① **Setting in Factory mode**
After a Mask indication into the panel is performed, be sure to set the Mask setting to "OFF" then exit Factory mode.

PD

No. of LEDs flashing	MR
Red 1	MR_POWER
	Panel
Red 2	POWER
Red 3	SCAN
Red 4	SCN-5V
Red 6	Y-DCDC
Red 7	Y-SUS
Red 8	ADRS
Red 10	X-DCDC
Red 11	X-SUS
Red 12	DIG-DCDC
Red 15	UNKNOWN

SD

Panel	No. of LEDs flashing	MR
SQ_LSI	Blue 1	
Module Device communication	Blue 2	
DIGITAL-RST2	Blue 3	
Panel temperature	Blue 4	
Audio	Blue 5	Audio (MSP)
Module microcomputer communication	Blue 6	
	Blue 7	Main 3-wire serial communication
Panel main IIC communication	Blue 8	Main IIC communication
	Blue 9	Main microcomputer communication
FAN	Blue 10	FAN
Unit high temperature	Blue 11	Unit high temperature
	Blue 12	D-TUNER communication
DC-IN	Blue 13	RST2/RST4
Panel main EEPROM	Blue 15	Main EEPROM

Special LED Patterns

Panel	MR
PD (2-15) B R	PD (1) B R O
SD (1-15) B R	SD (7-15) B R O
System failure B R	Standalone operation (MRMS01) B R O
MR on standby (Red LED lit)	Rewriting of software (PC) B R O
Rewriting of software (PC) B R	Rewriting of software (USB) B R O
NO BACKUP B R	After rewriting is completed successfully, the orange LED goes dark.
For special patterns other than described here, see 5.1[1].	Rewriting of software failed (USB) B R O

Subcategory confirmation procedure

If the DISPLAY key is pressed during shutdown, the orange LED flashes. (MR only)

SD	SD Subcategory	
8	1	Tuner 1
	2	MSP/MAP
	3	AV Switch
	4	RGB Switch
	5	Main VDEC
	6	VDEC-SDRAM
	7	AD/PLL
	8	HDMI
	9	Display Port Tx
13	1	RST2
	2	RST4

Other SD main categories have subcategories.
For details, see 5.4[2].

Commands for shifting between standalone and system operations

Panel	MR
To Standalone operation: SYSS00	To Standalone operation: MRMS01
To System operation: SYSS01	To System operation: MRMS00

Note: After issuing a command, unplug then again plug in the AC power cord.

How to locate several items on the Factory menu

{ } : Item on the Factory menu
[ ] : Key on the remote control unit
" " : Screen indication

1. Confirmation of accumulated power-on time and power-on count
Select {INFORMATION} then {HOUR METER}.
(After entering Factory mode, press [⬇] four times.)

2. Confirmation of the Power-down and Shutdown histories

① **Panel system**
PD: Select {PANEL FACTORY} then {POWER DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] two times.)
SD: Select {PANEL FACTORY} then {SHUT DOWN}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] three times.)

② **MR section**
Select {INFORMATION} then {MAIN NG}.
(After entering Factory mode, press [⬇] two times.)

③ **Panel main section**
Select {PANEL MAIN FACTORY} then {PM NG INFO}.
After entering Factory mode, press [MUTING] twice, then press [ENTER/SET].

3. How to display the Mask indication

① **Mask indication in the panel side**
1. Select {PANEL FACTORY} then {RASTER MASK SETUP}.
(After entering Factory mode, press [MUTING] once, press [ENTER/SET], then press [⬇] 8 times.)
2. Press [ENTER/SET], then select a Mask indication, using [⬆] or [⬇].

Adjustments and Settings after replacement of the Assys (Procedures in Factory mode)

1. DIGITAL Assy (Panel): Transfer of backup data
① Select {PANEL FACTORY}, {ETC}, then {BACKUP DATA}. (After entering Factory mode, press [MUTING] once, press [ENTER/SET], press [⬇] seven times, then press [ENTER/SET].)
② Select {TRANSFER}, using [➡], then hold [ENTER/SET] pressed for at least 5 seconds.
③ After transfer of backup data is completed, {ETC} is automatically selected, and the LED on the front panel returns to normal lighting.

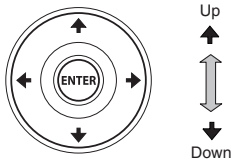
2. MAIN BLOCK Assy (MR), MAIN Assy (Panel): Execution of FINAL SETUP.
① Select {INITIALIZE} then {FINAL SETUP}, then press [ENTER/SET]. (After entering Factory mode, press [MUTING] three times, then press [⬇] four times.)
② Select "YES", using [➡]. Then hold [ENTER/SET] pressed for at least 5 seconds.
③ After "FINAL SETUP IS COMPLETE" is displayed on the screen, turn the POWER switch of the main unit off.

3. POWER SUPPLY Unit (Panel): Clearance of the accumulated power-on count and maximum temperature value
① Select {PANEL FACTORY}, {ETC}, then {P COUNT INFO}. (After entering Factory mode, press [MUTING] once, press [ENTER/SET], press [⬇] seven times, press [ENTER/SET], then press [⬇] six times.)
② Press [➡] to select "CLEAR". Hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, "ETC" is automatically selected. Clear the maximum temperature value (MAX TEMP) in the same manner.

4. Other Assys (Panel): Clearance of the maximum temperature value
① Select {PANEL FACTORY}, {ETC}, then {MAX TEMP}. (After entering Factory mode, press [MUTING] once, press [ENTER], press [⬇] seven times, press [ENTER/SET], then press [⬇] seven times.)
② Press [➡] to select "CLEAR". Hold [ENTER/SET] pressed for at least 5 seconds. After clearance is completed, "ETC" is automatically selected.

Quick Reference upon Service Visit ②
Mode transition and structure of layers in Service Factory mode

Mode transition in Service Factory mode



- To shift to another mode, press [MUTING].
- To shift to another item in a specific mode, press [⬆] or [⬇].
- To shift to the next nested layer below for an item with a "(+)" indication, press [ENTER/SET]. To return to the next nested layer above, also press [ENTER/SET].

INFORMATION mode
1. VERSION (1)
2. VERSION (2)
3. VERSION (3)
4. MAIN NG
5. TEMPERATURE
6. HOUR METER
7. HDMI SIGNAL INFO 1
8. HDMI SIGNAL INFO 2
9. VDEC SIGNAL INFO 1
10. VDEC SIGNAL INFO 2

MUTING

INITIALIZE mode
1. SIDE MASK LEVEL
2. FINAL SETUP
3. DTB SERVICE MENU
4. Wide XGA AUTO
5. AUTO ADJUSTMENT

MUTING

OPTION mode
1. CH PRESET
2. Digital AFT
3. SYNC DET
4. CTI

MUTING

PANEL FACTORY mode
1. PANEL INFORMATION
2. PANEL WORKS
3. POWER DOWN
4. SHUT DOWN
5. PANEL-1 ADJ
6. PANEL-2 ADJ
7. PANEL FUNCTION
8. ETC.
9. RASTER MASK SETUP
10. PATTEN MASK SETUP
11. COMBI MASK SETUP

MUTING

PANEL MAIN FACTORY mode
1. PM NG INFO
2. PM STATE INFO.
3. DP_RX INFO.
4. PM_SETUP

Structure of Layers in Service Factory Mode

INFORMATION mode	
├ 1. VERSION (1)	The software versions for each microcomputer
├ 2. VERSION (2)	The Flash memory versions for each device
├ 3. VERSION (3)	The software versions for display microcomputer
├ 4. MAIN NG	The shutdown message ID/event times (Going Clear mode by [ENTER/SET] key)
│ └ 4-1. CLEAR	Select Yes by [➡] key ➡ pushing and hold [ENTER/SET] key
├ 5. TEMPERATURE	The temperature/FAN rotating status
├ 6. HOUR METER	The HOUR METER/P-COUNT information
├ 7. HDMI SIGNAL INFO 1	The information of HDMI information files
├ 8. HDMI SIGNAL INFO 2	The information of HDMI information files
├ 9. VDEC SIGNAL INFO 1	The signal information of VDEC
├ 10. VDEC SIGNAL INFO 2	The signal information of VDEC
PANEL FACTORY mode	Refer to [PANEL FACTORY MODE]
PANEL MAIN FACTORY mode	
├ 1. PM NG INFO.	Shutdown history of the panel main
├ 2. PM STATE INFO.	The temperature/FAN rotating status/Room Light Sensor
├ 3. DP_RX INFO.	Indication of the DPRx ID
├ 4. PM_SETUP	Select the bezel color and clear the shutdown history of the panel main
OPTION mode	
├ 1. CH PRESET	For production line use
├ 2. Digital AFT	For production line use
├ 3. SYNC DET	For technical analysis
├ 4. CTI	For technical analysis
INITIALIZE mode	
├ 1. SIDE MASK LEVEL	For factory use
│ └ 1-1. SIDE MASK LEVEL	
├ 2. FINAL SETUP	Set to Factory default settings (it should perform after replacing a MAIN Assy)
│ └ 2-1. DATA RESET	
├ 3. DTB SERVICE MODE	Information for the Digital Tuner Service Menu is displayed
│ └ 3-1. MODE SHIFT	
├ 4. Wide XGA AUTO	For technical analysis
└ 5. AUTO ADJUSTMENT	

Structure of Layers in Panel Factory Mode 1

1. PANEL INFORMATION	Version indication of the panel
2. PANEL WORKS	Indications of the accumulated power-on time and power-on count of the panel
3. POWER DOWN	Indication of the Power-down history
4. SHUT DOWN	Indication of the Shutdown history
5. PANEL-1 ADJ (+)	
1. VOL SUS	Settings required after replacement of the panel
2. VOL OFFSET	
• • • • •	
10. RESET1ST_KSB	Items for factory use
• • • • •	
25. SUS FREQ	For AM noise prevention (Depending on the mode, brightness of the screen changes.) For confirmation of the result of the setting change, the unit must be turned off then back on again.
6. PANEL-2 ADJ (+)	
1. R-HIGH	For the WB adjustment of the panel and ABL adjustment. A setting table is available for each signal frequency.
2. G-HIGH	
• • • • •	
6. B-LOW	
7. ABL	
7. PANEL FUNCTION (+)	
1. R-LEVEL	Items for factory use
• • • • •	

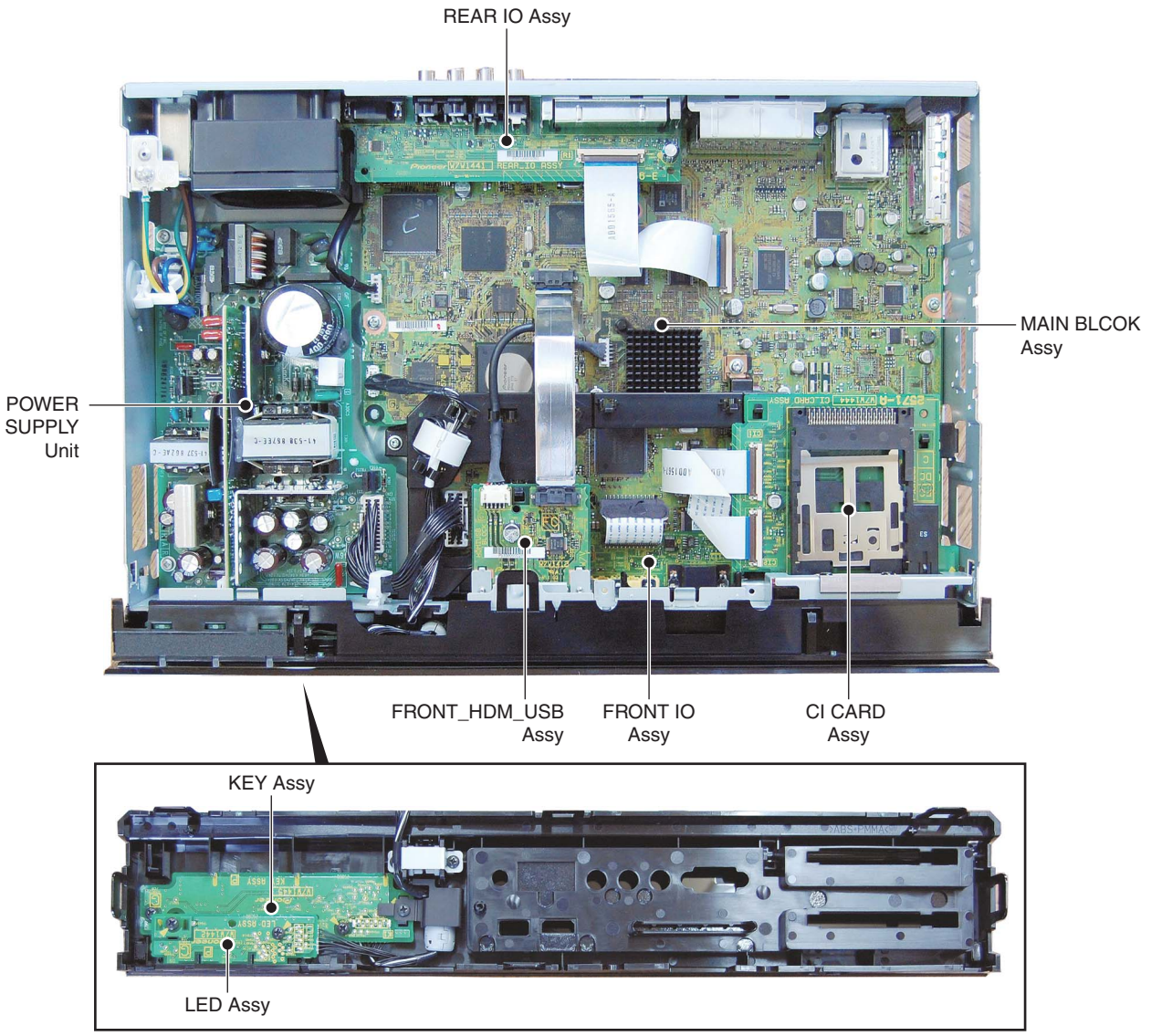
To "Structure of Layers in Panel Factory Mode 2"

Structure of Layers in Panel Factory Mode 2

8. ETC (+)	
1. BACKUP DATA	For transferring backup data (after replacement of the DIGITAL Assy)
2. DIGITAL EEPROM	Change the adjustment status of the DIGITAL Assy.
3. PD INFO.	For clearance of data for the corresponding items. The clearing method is the same: Select "CLEAR", then hold [ENTER/SET] pressed for at least 5 seconds.
4. SD INFO.	
5. HR-MTR INFO.	
6. PM/B1-B5	
7. P COUNT INFO.	
8. MAX TEMP.	
9. MIRROR	Switch the Mirror display mode.
10. CLS	Switch the function when checking the color sensor level.
9. RASTER MASK SETUP (+)	
1. MASK OFF	For use while the Raster Mask is displayed. Use [⬆] or [⬇] to select the type of mask. Use [➡] or [⬅] to select the sequence.
2. RST MASK 01	
• • • • •	
10. PATTERN MASK SETUP (+)	
1. MASK OFF	For use while the Pattern Mask is displayed. Use [⬆] or [⬇] to select the type of mask. Use [➡] or [⬅] to select the sequence.
2. PTN MASK 01	
• • • • •	
11. COMBI MASK SETUP (+)	
1. MASK OFF	For use while the Combination Mask is displayed. Use [⬆] or [⬇] to select the type of mask. Use [➡] or [⬅] to select the sequence.
2. CMB MASK 01	
• • • • •	

3.3 PCB LOCATIONS

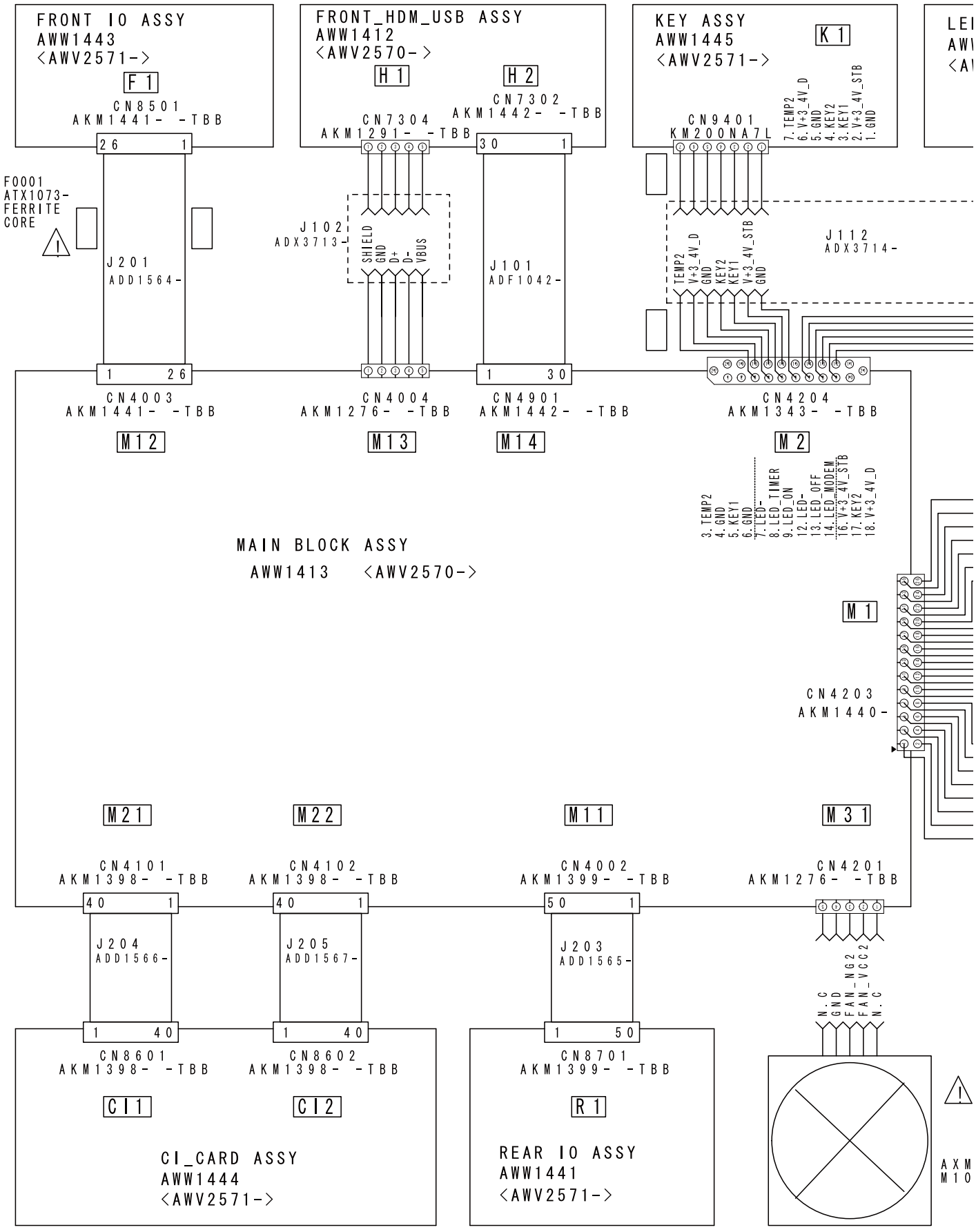
Note: The wiring shown in the photo is different from the actual wiring, because the product in the photo is a prototype. Upon servicing, be sure to restore the original wiring of the unit after repair work.



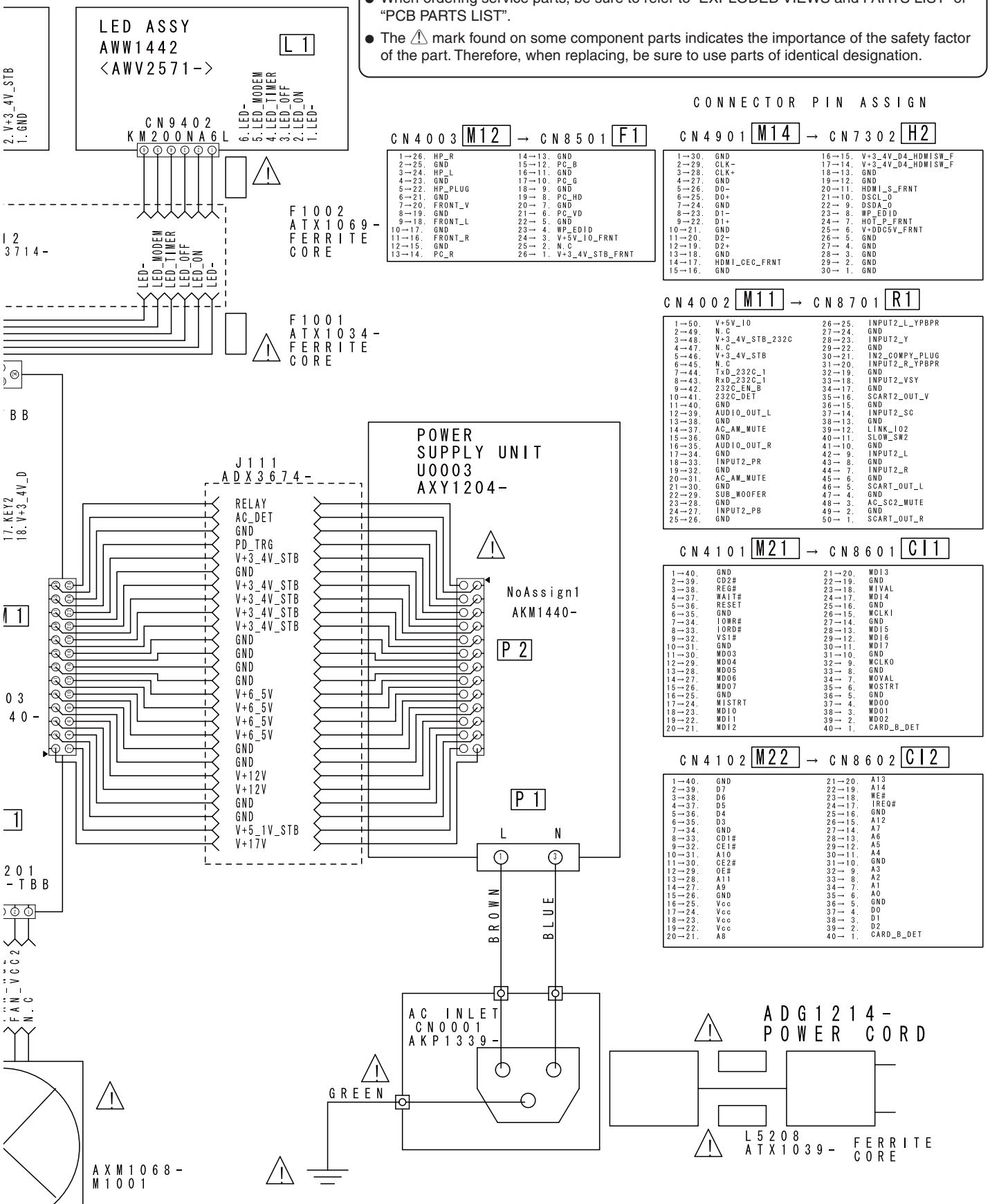
NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP	1	..MAIN ASSY	AWV2570
	2	..FRONT_HDM_USB ASSY	AWW1412
	2	..MAIN BLOCK ASSY	AWW1413
NSP	1	..FUKUGO ASSY	AWV2571
	2	..REAR IO ASSY	AWW1441
	2	..LED ASSY	AWW1442
	2	..FRONT IO ASSY	AWW1443
	2	..CI CARD ASSY	AWW1444
	2	..KEY ASSY	AWW1445
⚠	1	..POWER SUPPLY UNIT	AXY1204

4. BLOCK DIAGRAM
4.1 OVERALL WIRING DIAGRAM



- When ordering service parts, be sure to refer to “EXPLODED VIEWS and PARTS LIST” or “PCB PARTS LIST”.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.



CONNECTOR PIN ASSIGN

CN4003 M12 → CN8501 F1

1→26.	HP_R	14→13.	GND
2→25.	GND	15→12.	PC_B
3→24.	HP_L	16→11.	GND
4→23.	GND	17→10.	PC_G
5→22.	HP_PLUG	18→ 9.	GND
6→21.	GND	19→ 8.	PC_HD
7→20.	FRONT_V	20→ 7.	GND
8→19.	GND	21→ 6.	PC_VD
9→18.	FRONT_L	22→ 5.	GND
10→17.	GND	23→ 4.	WP_EDID
11→16.	FRONT_R	24→ 3.	V+5V_IO_FRNT
12→15.	GND	25→ 2.	N.C
13→14.	PC_R	26→ 1.	V+3_4V_STB_FRNT

CN4901 M14 → CN7302 H2

1→30.	GND	16→15.	V+3_4V_D4_HDMISW_F
2→29.	CLK-	17→14.	V+3_4V_D4_HDMISW_F
3→28.	CLK+	18→13.	GND
4→27.	GND	19→12.	GND
5→26.	D0-	20→11.	HDMI_S_FRNT
6→25.	D0+	21→10.	DSCL_0
7→24.	GND	22→ 9.	DSDA_0
8→23.	D1-	23→ 8.	WP_EDID
9→22.	D1+	24→ 7.	HOT_P_FRNT
10→21.	GND	25→ 6.	V+DDC5V_FRNT
11→20.	D2-	26→ 5.	GND
12→19.	D2+	27→ 4.	GND
13→18.	GND	28→ 3.	GND
14→17.	HDMI_CEC_FRNT	29→ 2.	GND
15→16.	GND	30→ 1.	GND

CN4002 M11 → CN8701 R1

1→50.	V+5V_IO	26→25.	INPUT2_L_YPBPR
2→49.	N.C	27→24.	GND
3→48.	V+3_4V_STB_232C	28→23.	INPUT2_Y
4→47.	N.C	29→22.	GND
5→46.	V+3_4V_STB	30→21.	IN2_COMPY_PLUG
6→45.	N.C	31→20.	INPUT2_R_YPBPR
7→44.	TxD_232C_1	32→19.	GND
8→43.	RxD_232C_1	33→18.	INPUT2_VSY
9→42.	232C_EN_B	34→17.	GND
10→41.	232C_DET	35→16.	SCART2_OUT_V
11→40.	GND	36→15.	GND
12→39.	AUDIO_OUT_L	37→14.	INPUT2_SC
13→38.	GND	38→13.	GND
14→37.	AC_AM_MUTE	39→12.	LINK_IO2
15→36.	GND	40→11.	SLOW_SW2
16→35.	AUDIO_OUT_R	41→10.	GND
17→34.	GND	42→ 9.	INPUT2_L
18→33.	INPUT2_PR	43→ 8.	GND
19→32.	GND	44→ 7.	INPUT2_R
20→31.	AC_AM_MUTE	45→ 6.	GND
21→30.	GND	46→ 5.	SCART_OUT_L
22→29.	SUB_WOOFER	47→ 4.	GND
23→28.	GND	48→ 3.	AC_SC2_MUTE
24→27.	INPUT2_PB	49→ 2.	GND
25→26.	GND	50→ 1.	SCART_OUT_R

CN4101 M21 → CN8601 CI1

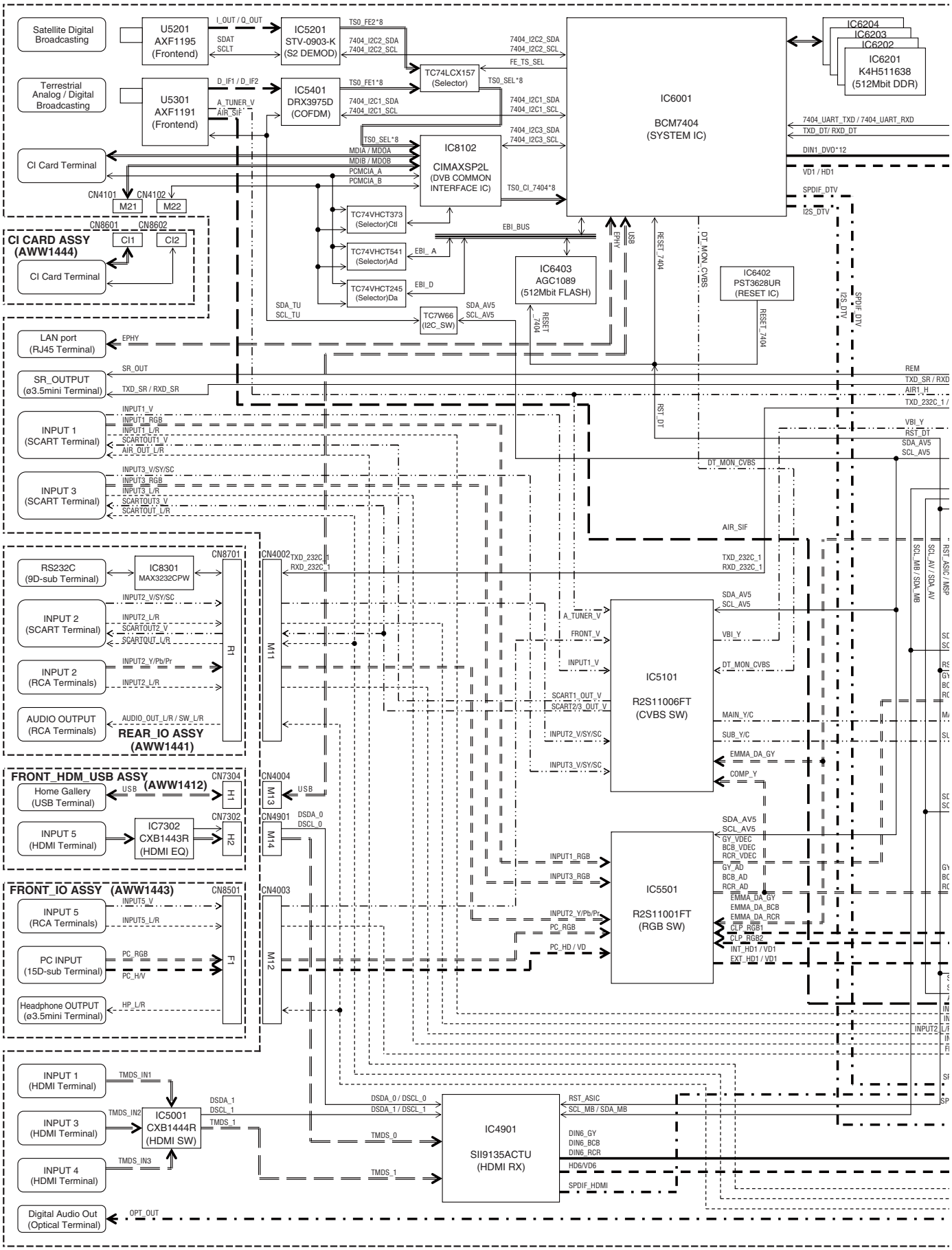
1→40.	GND	21→20.	MDI3
2→39.	CD2#	22→19.	GND
3→38.	REG#	23→18.	MIVAL
4→37.	WAIT#	24→17.	MDI4
5→36.	RESET	25→16.	GND
6→35.	GND	26→15.	MCLKI
7→34.	IOWR#	27→14.	GND
8→33.	IORD#	28→13.	MDI5
9→32.	VS1#	29→12.	MDI6
10→31.	GND	30→11.	MDI7
11→30.	MDO3	31→10.	GND
12→29.	MDO4	32→ 9.	MCLKO
13→28.	MDO5	33→ 8.	GND
14→27.	MDO6	34→ 7.	MOVAL
15→26.	MDO7	35→ 6.	MOSTRT
16→25.	GND	36→ 5.	GND
17→24.	MISTRT	37→ 4.	MDO0
18→23.	MDIO	38→ 3.	MDO1
19→22.	MDI1	39→ 2.	MDO2
20→21.	MDI2	40→ 1.	CARD_B_DET

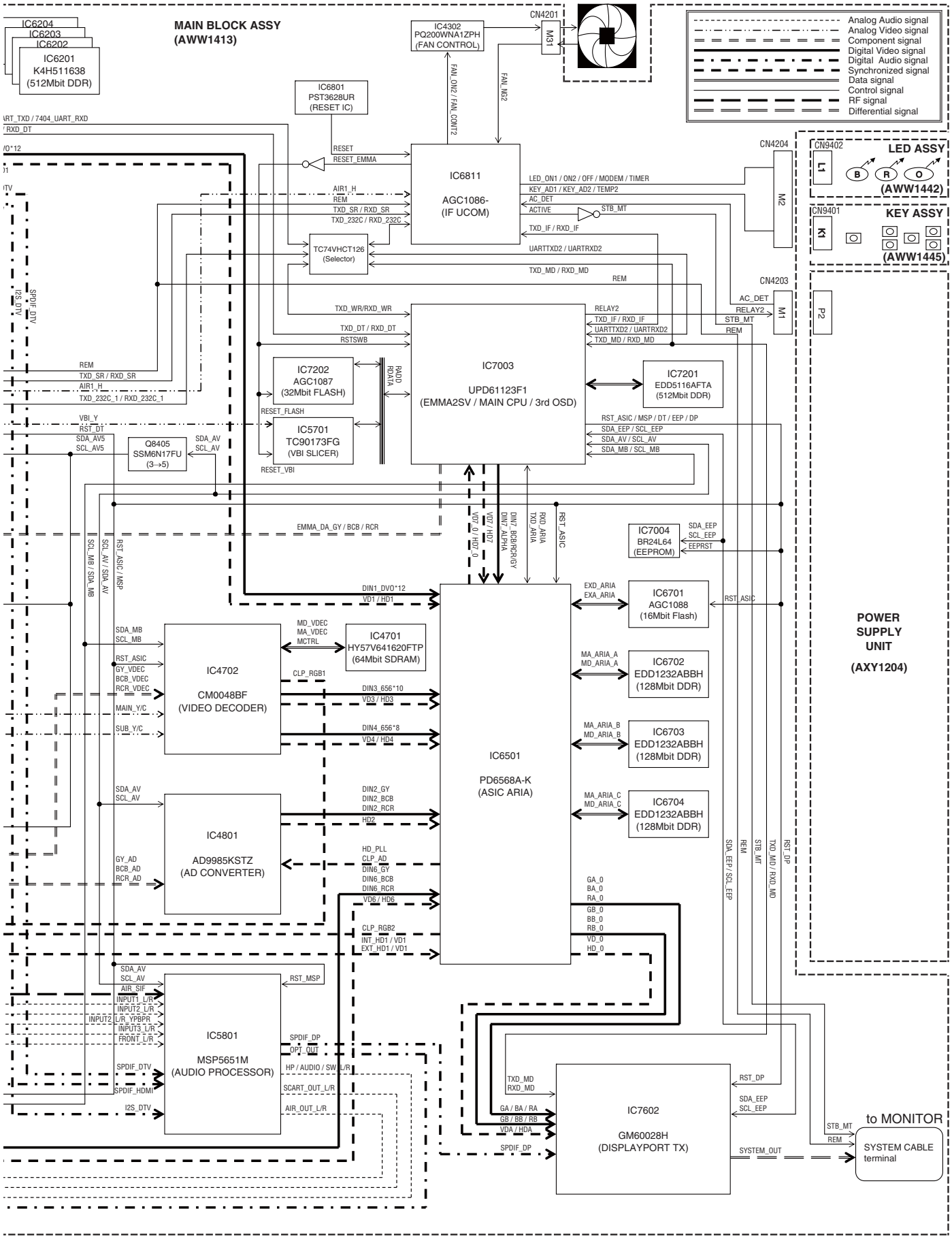
CN4102 M22 → CN8602 CI2

1→40.	GND	21→20.	A13
2→39.	D7	22→19.	A14
3→38.	D6	23→18.	WE#
4→37.	D5	24→17.	IREQ#
5→36.	D4	25→16.	GND
6→35.	D3	26→15.	A12
7→34.	GND	27→14.	A7
8→33.	CD1#	28→13.	A6
9→32.	CE1#	29→12.	A5
10→31.	A10	30→11.	A4
11→30.	CE2#	31→10.	GND
12→29.	OE#	32→ 9.	A3
13→28.	A11	33→ 8.	A2
14→27.	A9	34→ 7.	A1
15→26.	GND	35→ 6.	A0
16→25.	Vcc	36→ 5.	GND
17→24.	Vcc	37→ 4.	D0
18→23.	Vcc	38→ 3.	D1
19→22.	Vcc	39→ 2.	D2
20→21.	A8	40→ 1.	CARD_B_DET

OVERALL DIAGRAM
KRP-M01

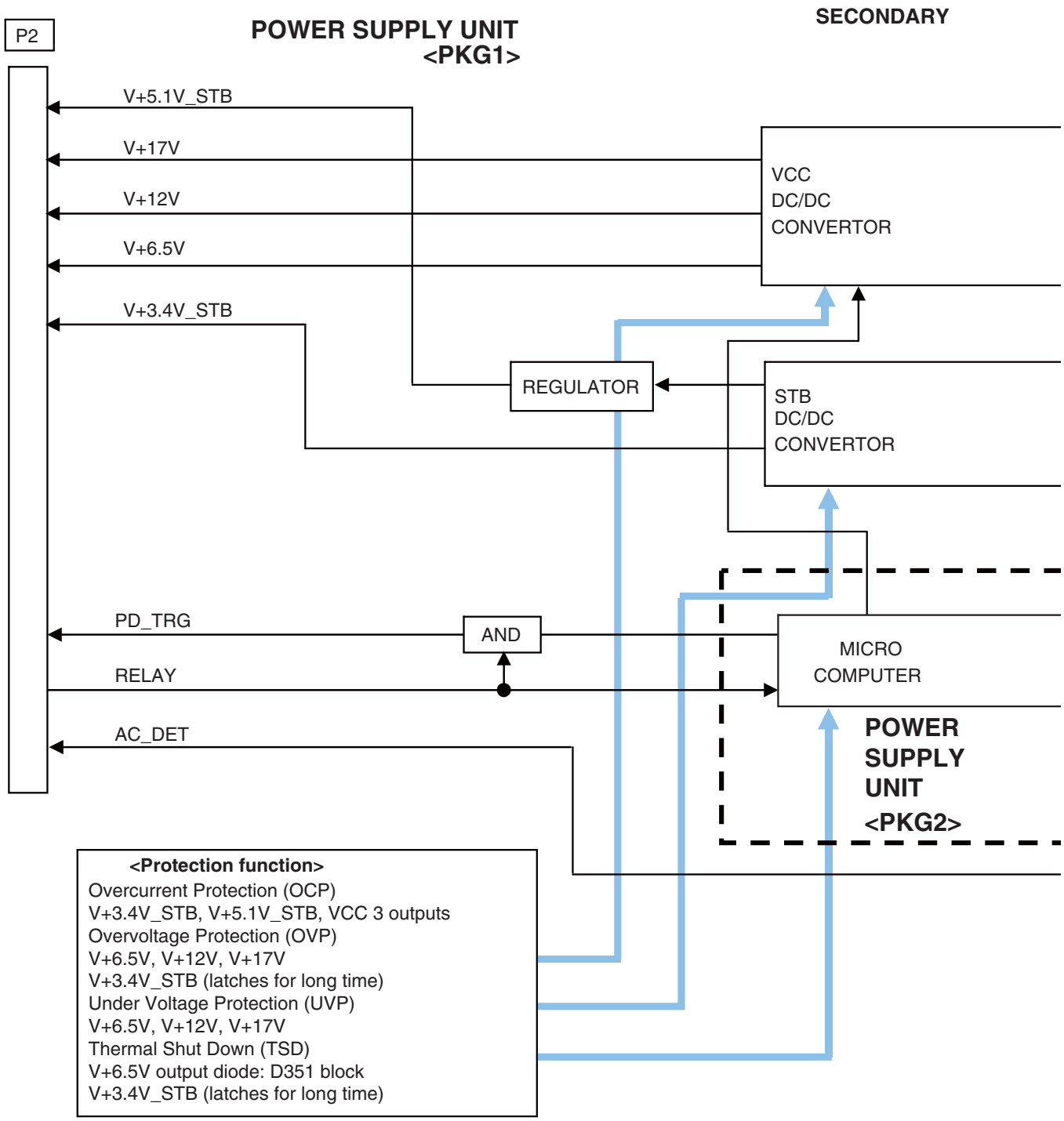
4.2 OVERALL BLOCK DIAGRAM

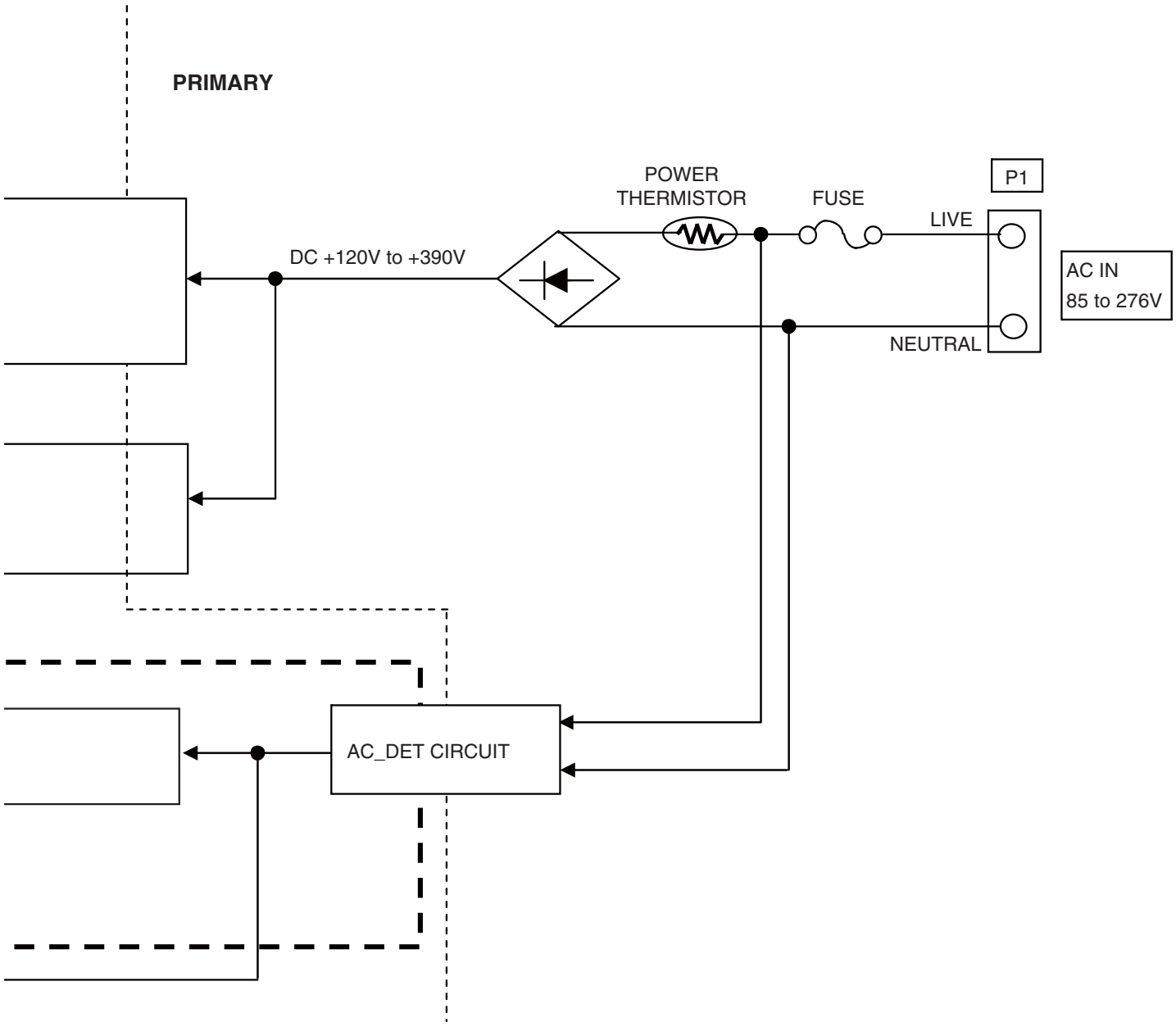




OVERALL DIAGRAM
KRP-M01

4.3 POWER SUPPLY UNIT



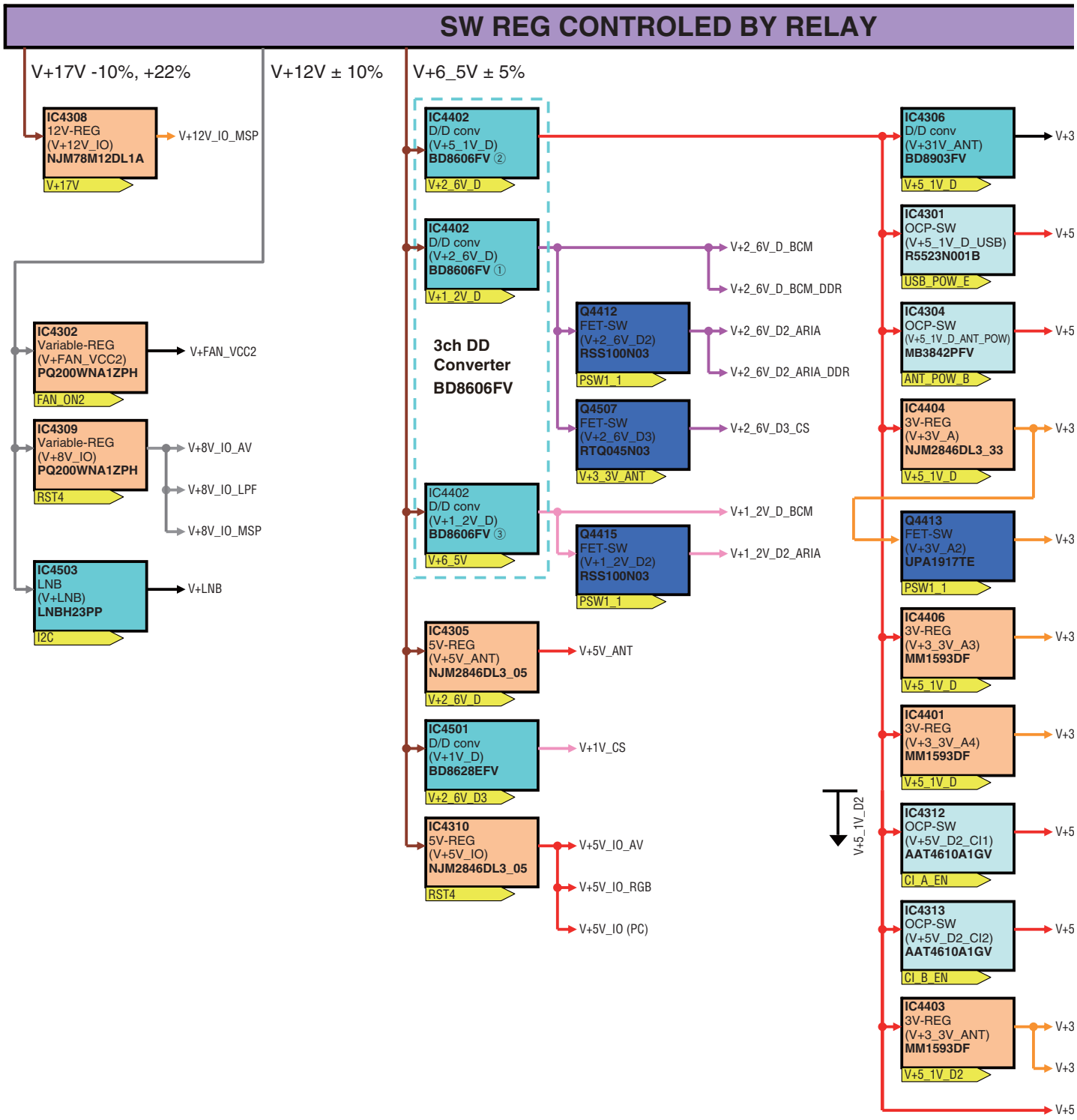


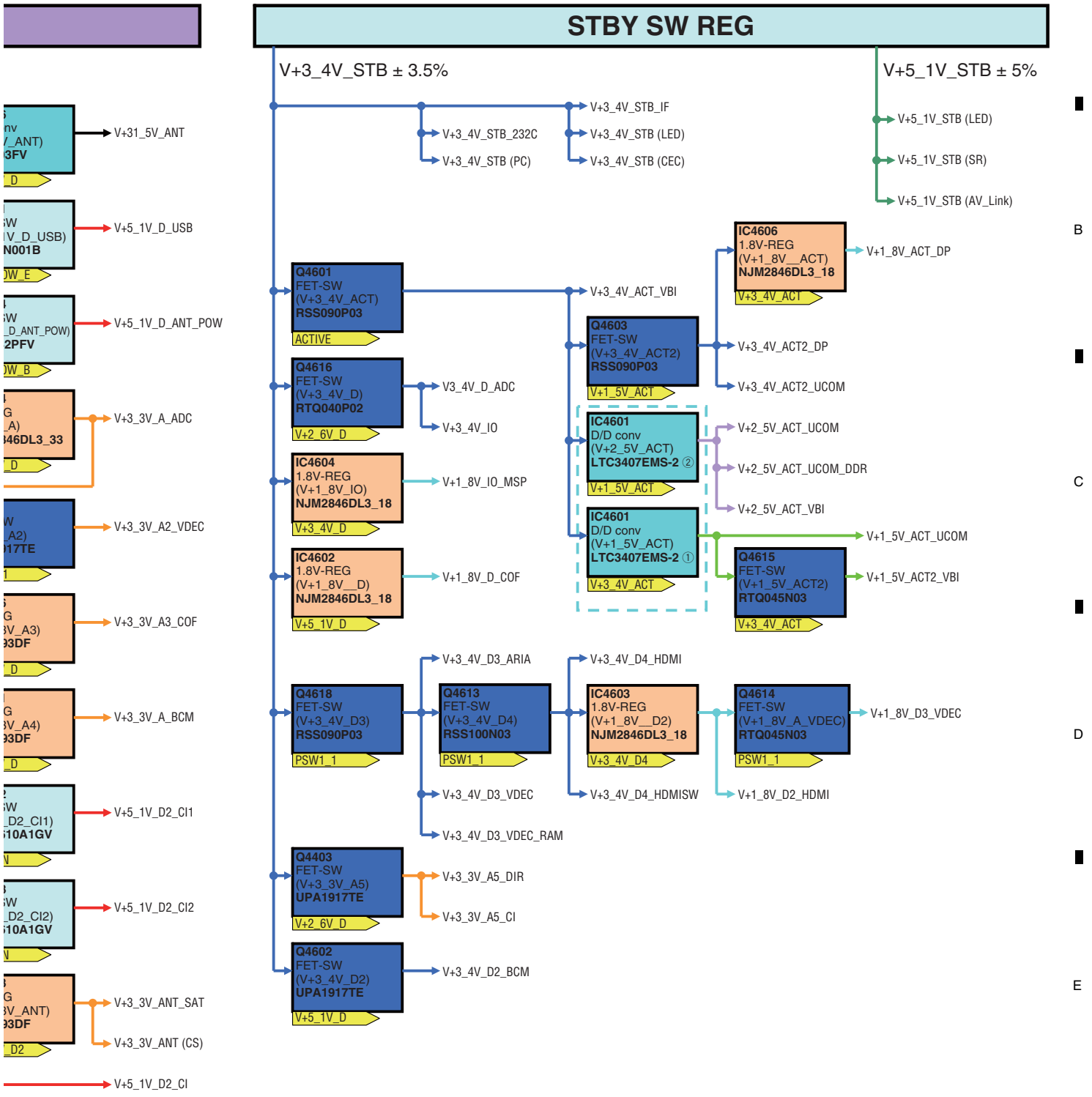
Logic Signal Specifications

[Logic level] H: STB3.4 V × (0.8 to 1.1), L: ≦ STB3.4 V × 0.2

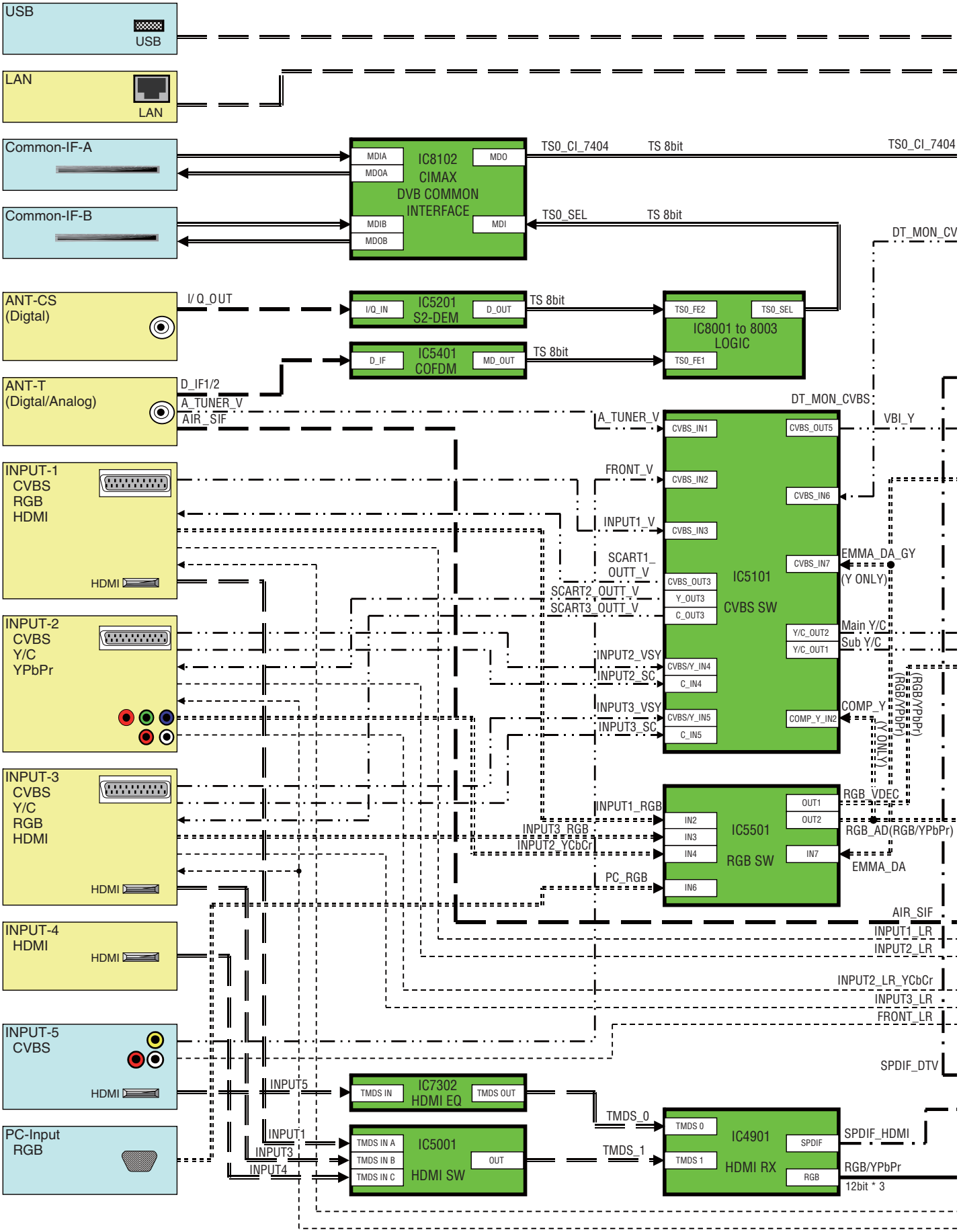
Signal Name	I/O	Function	Logic		Description
RELAY	IN	Relay ON/OFF	H	ON	For controlling ON/OFF of all output signals other than STB signals
			L	OFF	
			Open	OFF	
PD_TRG	OUT	Determination of abnormality inside the POWER SUPPLY Unit	H	Determination of abnormality	For sending a deterministic signal when an abnormality is generated inside the POWER SUPPLY Unit to shut off any output signals other than STB signals
			L	Normal	
AC_DET	OUT	AC detection	H	Present	For detecting the presence of the AC input voltage, regardless of ON/OFF of STB 3.4 V output
			L	Absent	

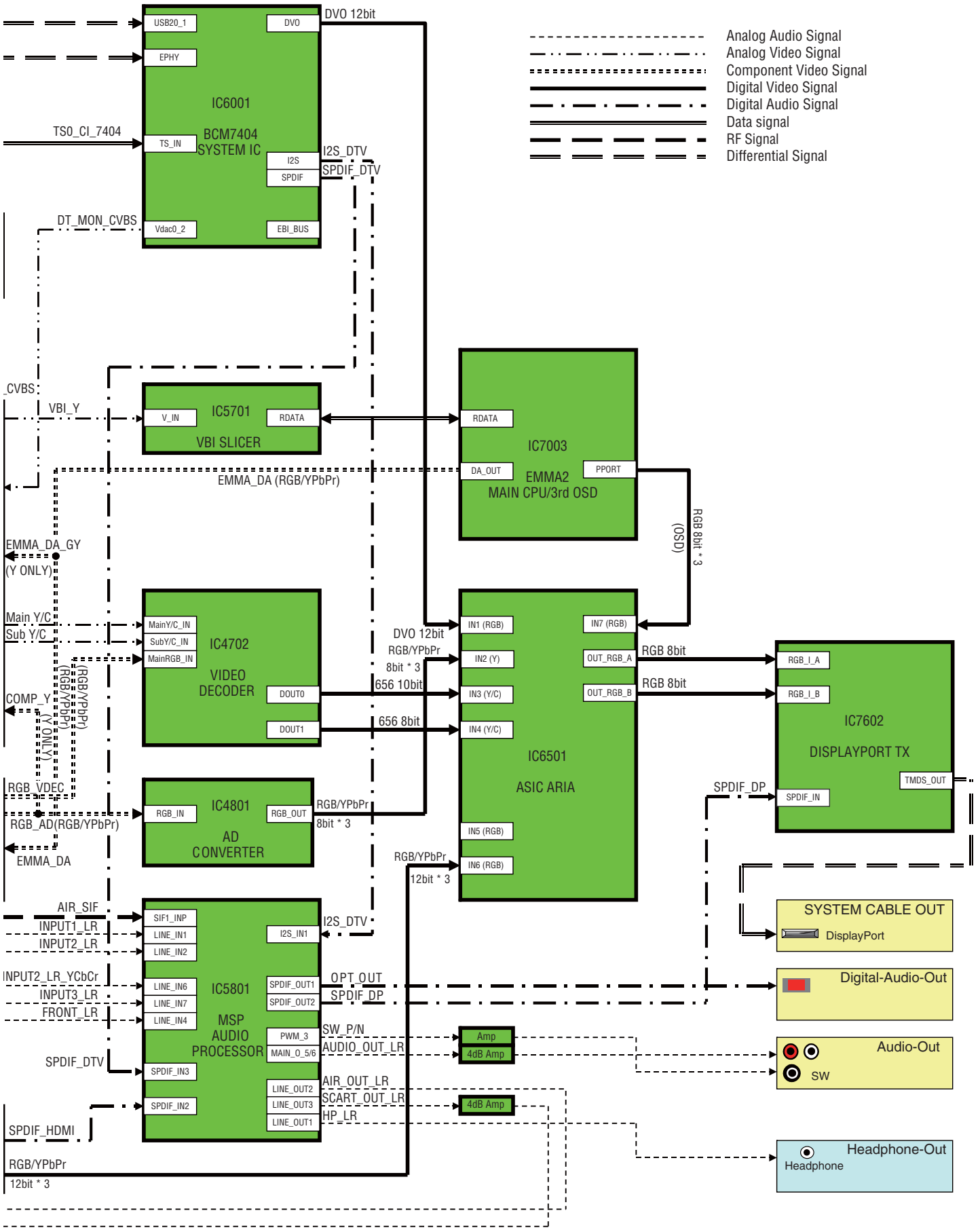
4.4 POWER SUPPLY BLOCK of MAIN BLOCK ASSY




STBY SW REG
V+3_4V_STB ± 3.5%
V+5_1V_STB ± 5%
V+3_4V_STB_IF
V+3_4V_STB_232C
V+3_4V_STB (LED)
V+3_4V_STB (PC)
V+3_4V_STB (CEC)
V+5_1V_STB (LED)
V+5_1V_STB (SR)
V+5_1V_STB (AV_Link)
Q4601
FET-SW
(V+3_4V_ACT)
RSS090P03
ACTIVE
V+3_4V_ACT_VBI
IC4606
1.8V-REG
(V+1_8V__ACT)
NJM2846DL3_18
V+3_4V_ACT
V+1_8V_ACT_DP
Q4603
FET-SW
(V+3_4V_ACT2)
RSS090P03
V+1_5V_ACT
V+3_4V_ACT2_DP
V+3_4V_ACT2_UCOM
Q4616
FET-SW
(V+3_4V_D)
RTQ040P02
V+2_6V_D
V3_4V_D_ADC
V+3_4V_IO
IC4601
D/D conv
(V+2_5V_ACT)
LTC3407EMS-2 ②
V+1_5V_ACT
V+2_5V_ACT_UCOM
V+2_5V_ACT_UCOM_DDR
V+2_5V_ACT_VBI
IC4604
1.8V-REG
(V+1_8V_IO)
NJM2846DL3_18
V+3_4V_D
V+1_8V_IO_MSP
IC4601
D/D conv
(V+1_5V_ACT)
LTC3407EMS-2 ①
V+3_4V_ACT
V+1_5V_ACT_UCOM
Q4615
FET-SW
(V+1_5V_ACT2)
RTQ045N03
V+3_4V_ACT
V+1_5V_ACT2_VBI
IC4602
1.8V-REG
(V+1_8V__D)
NJM2846DL3_18
V+5_1V_D
V+1_8V_D_COF
V+3_4V_D3_ARIA
V+3_4V_D4_HDMI
Q4618
FET-SW
(V+3_4V_D3)
RSS090P03
PSW1_1
Q4613
FET-SW
(V+3_4V_D4)
RSS100N03
PSW1_1
IC4603
1.8V-REG
(V+1_8V__D2)
NJM2846DL3_18
V+3_4V_D4
Q4614
FET-SW
(V+1_8V_A_VDEC)
RTQ045N03
PSW1_1
V+1_8V_D3_VDEC
V+3_4V_D3_VDEC
V+3_4V_D4_HDMISW
V+1_8V_D2_HDMI
V+3_4V_D3_VDEC_RAM
Q4403
FET-SW
(V+3_3V_A5)
UPA1917TE
V+2_6V_D
V+3_3V_A5_DIR
V+3_3V_A5_CI
Q4602
FET-SW
(V+3_4V_D2)
UPA1917TE
V+5_1V_D
V+3_4V_D2_BCM
V+31_5V_ANT
V+5_1V_D_USB
V+5_1V_D_ANT_POW
V+3_3V_A_ADC
V+3_3V_A2_VDEC
V+3_3V_A3_COF
V+3_3V_A_BCM
V+5_1V_D2_CI1
V+5_1V_D2_CI2
V+3_3V_ANT_SAT
V+3_3V_ANT (CS)
V+5_1V_D2_CI

4.5 AV BLOCK


USB
USB
LAN
LAN
Common-IF-A
Common-IF-B
MDIA
MDOA
MDIB
MDOB
IC8102
CIMAX
DVB COMMON
INTERFACE
MDO
MDI
TS0_CI_7404
TS 8bit
TS0_SEL
DT_MON_CV
ANT-CS
(Digtal)
I/Q_OUT
I/Q_IN
IC5201
S2-DEM
D_OUT
TS0_FE2
TS0_SEL
IC8001 to 8003
LOGIC
TS0_FE1
D_IF
IC5401
COFDM
MD_OUT
ANT-T
(Digtal/Analog)
D_IF1/2
A_TUNER_V
AIR_SIF
DT_MON_CVBS
VBI_Y
INPUT-1
CVBS
RGB
HDMI
HDMI
FRONT_V
INPUT1_V
CVBS_IN1
CVBS_IN2
CVBS_IN3
CVBS_IN6
CVBS_IN7
CVBS_OUT5
CVBS_OUT3
Y_OUT3
C_OUT3
IC5101
CVBS SW
SCART1_
OUTT_V
SCART2_OUTT_V
SCART3_OUTT_V
EMMA_DA_GY
(Y ONLY)
Main Y/C
Sub Y/C
Y/C_OUT2
Y/C_OUT1
INPUT-2
CVBS
Y/C
YPbPr
INPUT2_VSY
INPUT2_SC
CVBS/Y_IN4
C_IN4
INPUT3_VSY
INPUT3_SC
CVBS/Y_IN5
C_IN5
COMP_Y_IN2
COMP_Y
(RGB/YPbPr)
INPUT-3
CVBS
Y/C
RGB
HDMI
HDMI
INPUT1_RGB
INPUT3_RGB
INPUT2_YCbCr
PC_RGB
IN2
IN3
IN4
IN6
IN7
OUT1
OUT2
IC5501
RGB SW
RGB_VDEC
RGB_AD(RGB/YPbPr)
EMMA_DA
INPUT-4
HDMI
HDMI
AIR_SIF
INPUT1_LR
INPUT2_LR
INPUT2_LR_YCbCr
INPUT3_LR
FRONT_LR
INPUT-5
CVBS
HDMI
SPDIF_DTV
INPUT5
TMDS IN
IC7302
HDMI EQ
TMDS OUT
TMDS_0
PC-Input
RGB
INPUT1
INPUT3
INPUT4
TMDS IN A
TMDS IN B
TMDS IN C
IC5001
HDMI SW
OUT
TMDS_1
TMDS 0
TMDS 1
IC4901
HDMI RX
SPDIF
RGB
SPDIF_HDMI
RGB/YPbPr
12bit * 3


Analog Audio Signal
Analog Video Signal
Component Video Signal
Digital Video Signal
Digital Audio Signal
Data signal
RF Signal
Differential Signal
IC6001
BCM7404
SYSTEM IC
USB20_1
EPHY
TS_IN
DVO
I2S
SPDIF
Vdac0_2
EBI_BUS
DVO 12bit
TS0_CI_7404
I2S_DTV
SPDIF_DTV
DT_MON_CVBS
IC5701
VBI SLICER
V_IN
RDATA
VBI_Y
IC7003
EMMA2
MAIN CPU/3rd OSD
RDATA
DA_OUT
PPORT
EMMA_DA (RGB/YPbPr)
RGB 8bit * 3
(OSD)
EMMA_DA_GY
(Y ONLY)
IC4702
VIDEO
DECODER
MainY/C_IN
SubY/C_IN
MainRGB_IN
DOUT0
DOUT1
Main Y/C
Sub Y/C
COMP_Y
(RGB/YPbPr)
(Y ONLY)
IC6501
ASIC ARIA
IN1 (RGB)
IN2 (Y)
IN3 (Y/C)
IN4 (Y/C)
IN5 (RGB)
IN6 (RGB)
IN7 (RGB)
OUT_RGB_A
OUT_RGB_B
DVO 12bit
RGB/YPbPr
8bit * 3
656 10bit
656 8bit
RGB 8bit
RGB 8bit
IC7602
DISPLAYPORT TX
RGB_I_A
RGB_I_B
TMDS_OUT
SPDIF_IN
SPDIF_DP
RGB_VDEC
RGB_AD(RGB/YPbPr)
EMMA_DA
IC4801
AD
CONVERTER
RGB_IN
RGB_OUT
RGB/YPbPr
8bit * 3
RGB/YPbPr
12bit * 3
AIR_SIF
INPUT1_LR
INPUT2_LR
INPUT2_LR_YCbCr
INPUT3_LR
FRONT_LR
SPDIF_DTV
SPDIF_HDMI
RGB/YPbPr
12bit * 3
IC5801
MSP
AUDIO
PROCESSOR
SIF1_INP
LINE_IN1
LINE_IN2
LINE_IN6
LINE_IN7
LINE_IN4
SPDIF_IN3
SPDIF_IN2
I2S_IN1
SPDIF_OUT1
SPDIF_OUT2
PWM_3
MAIN_0_5/6
LINE_OUT2
LINE_OUT3
LINE_OUT1
I2S_DTV
OPT_OUT
SPDIF_DP
SW_P/N
AUDIO_OUT_LR
AIR_OUT_LR
SCART_OUT_LR
HP_LR
Amp
4dB Amp
4dB Amp
SYSTEM CABLE OUT
DisplayPort
Digital-Audio-Out
Audio-Out
SW
Headphone-Out
Headphone

5. DIAGNOSIS
5.1 POWER SUPPLY OPERATION

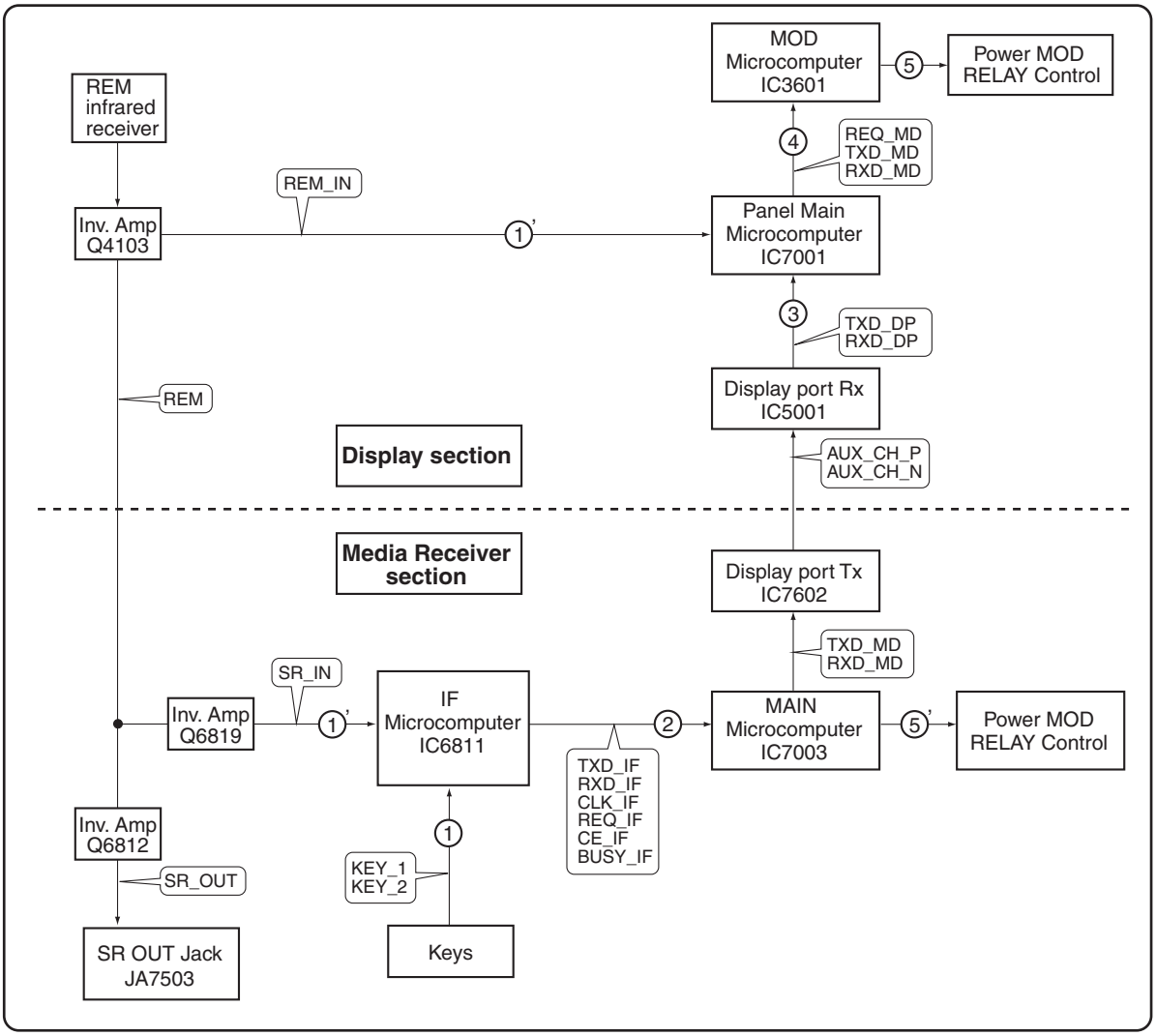
[1] LED DISPLAY INFORMATION

LED Pattern

Status	LED	LED Pattern / Remarks	
Standby Power Management	Blue Red Orange		
Power On	Blue Red Orange		
Power-Down	Blue Red Orange	Once / Twice / n times / 2.5s / Once 500ms	*1
Shutdown	Blue Red Orange	500ms Once / Twice / n times / 2.5s / Once	*2
Shutdown (Subcategory flashing)	Blue Red Orange	500ms Once / Twice / n times / 2.5s / Once 500ms	*2 *3
No digital adjustment data copied for backup	Blue Red Orange	200ms	
Updating the PC	Blue Red Orange	100ms 100ms	
During factory operation	Blue Red Orange		
During DTB communication inhibit	Blue Red Orange	100ms	
During USB update	Blue Red Orange	100ms 100ms	
Updating of USB is finished normally.	Blue Red Orange	100ms 100ms	
Updating of USB is abnormally finished.	Blue Red Orange	100ms 100ms 500ms Once / 500ms Twice / 500ms n times / 2.5s / 500ms	*4
Power ON of standalone mode (Screen ON)	Blue Red Orange	1000msec 1000msec 1000msec 1000msec	
Mode switch of system / standalone operation	Blue Red Orange	200ms	
Sleep timer	Blue Red Orange		
During reservation video recording (Unit: Standby)	Blue Red Orange		
During reservation video recording (Unit: ON)	Blue Red Orange		

*1: Notify upon the power-down content by Red LED flashing number of times.
*2: Notify upon the shutdown content by Blue LED flashing number of times
*3: Notify upon the subcategory number by Orange LED flashing number of times.
*4: Notify upon the abnormal state by Orange LED flashing number of times.

[2] POWER ON SEQUENCE

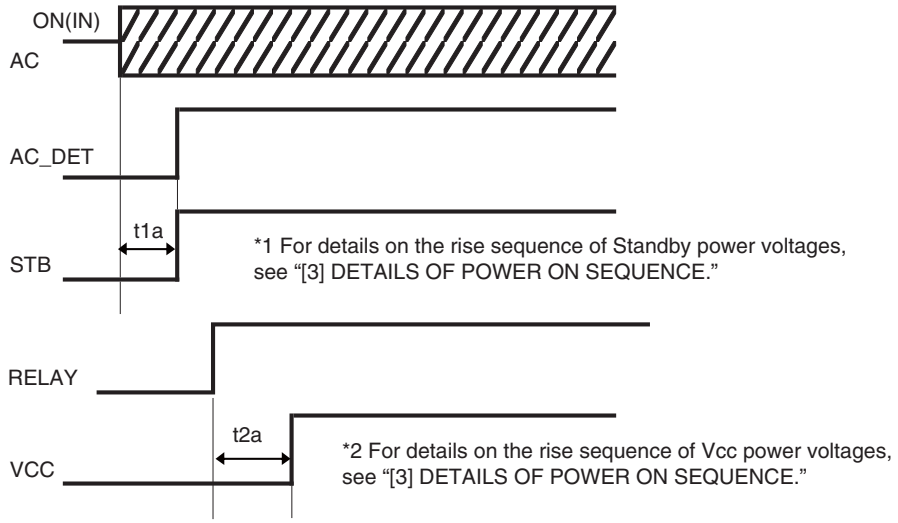


① : The KEY signal is input to the IF microcomputer.
①' : The remote control signal is input to the IF microcomputer and Panel main microcomputer.
② : The IF microcomputer sends the operation data of the remote control unit key to the main microcomputer.
③ : The main microcomputer issues a startup command (PON) to the panel main microcomputer through DP Tx and DP Rx.
④ : The panel main microcomputer issues a startup command (PON) to the MOD microcomputer.
⑤ : The MOD microcomputer controls a MOD relay of the POWER SUPPLY Unit (Display section), then the power is turned on.
⑤' : The main microcomputer controls a MOD relay of the POWER SUPPLY Unit (Media Receiver section), then the power is turned on.

OUTLINE OF POWER ON SEQUENCE

The rise of the output voltage is defined as the point at which 10% output voltage is reached, and the fall is defined as the output supply stop point.

Sequence of AC ON (IN)



(a) Relay signal: When the POWER key on the remote control unit is pressed after that on the unit is set to ON

AC ON	
Item	**Specified Time**
AC to STB	t1a ≦ 0.8s
RELAY to VCC	t2a ≦ 0.5s

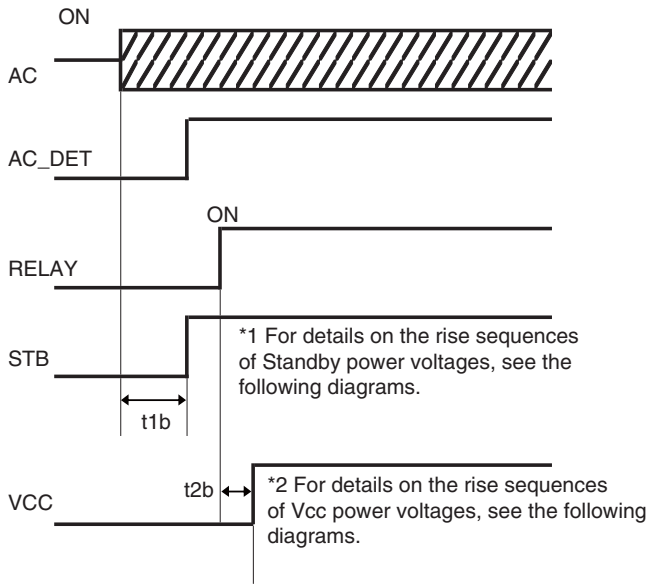
(b) Relay signal: When the POWER key on the remote control unit is pressed while the unit is OFF (in Standby mode)

AC ON	
Item	**Specified Time**
AC to STB	t1a ≦ 0.8s
Relay to VCC	t2a No specification

[3] DETAILS OF POWER ON SEQUENCE

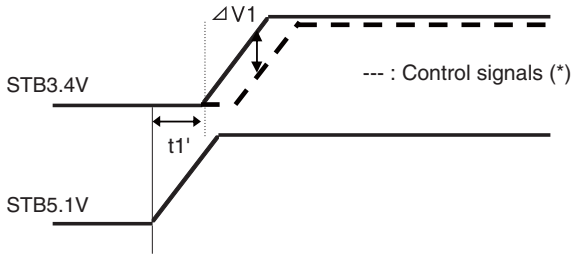
The rise of the output voltage is defined as the point at which 10% output voltage is reached.

1. Sequence of Relay ON (IN)



Relay ON	
Item	**Specified Time**
AC to STB	t1b ≦ 0.8s
RELAY to VCC	t2b ≦ 0.5s

2. Rise sequence of Standby power voltages

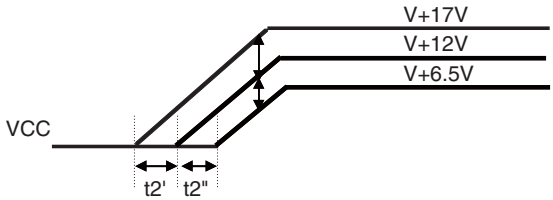


<Specified time and difference of voltages>

Rise	
Item	**Specified Time**
STB5.1V to STB3.4V	-50ms ≦ t1' ≦ 50ms
Item	**Specified difference of voltages**
STB3.4V - Control signal (*)	0 V ≦ ΔV 1

(*) Control signals (output signals) denote AC_DET and PD_TRG signals.

3. Rise sequences of Vcc power voltages



<Specified time of voltages>

Rise	
Item	**Specified time (at nominal load)**
V+17V to V+12V	0ms ≦ t2' ≦ 10ms
V+12V to V+6.5V	0ms ≦ t2" ≦ 10ms

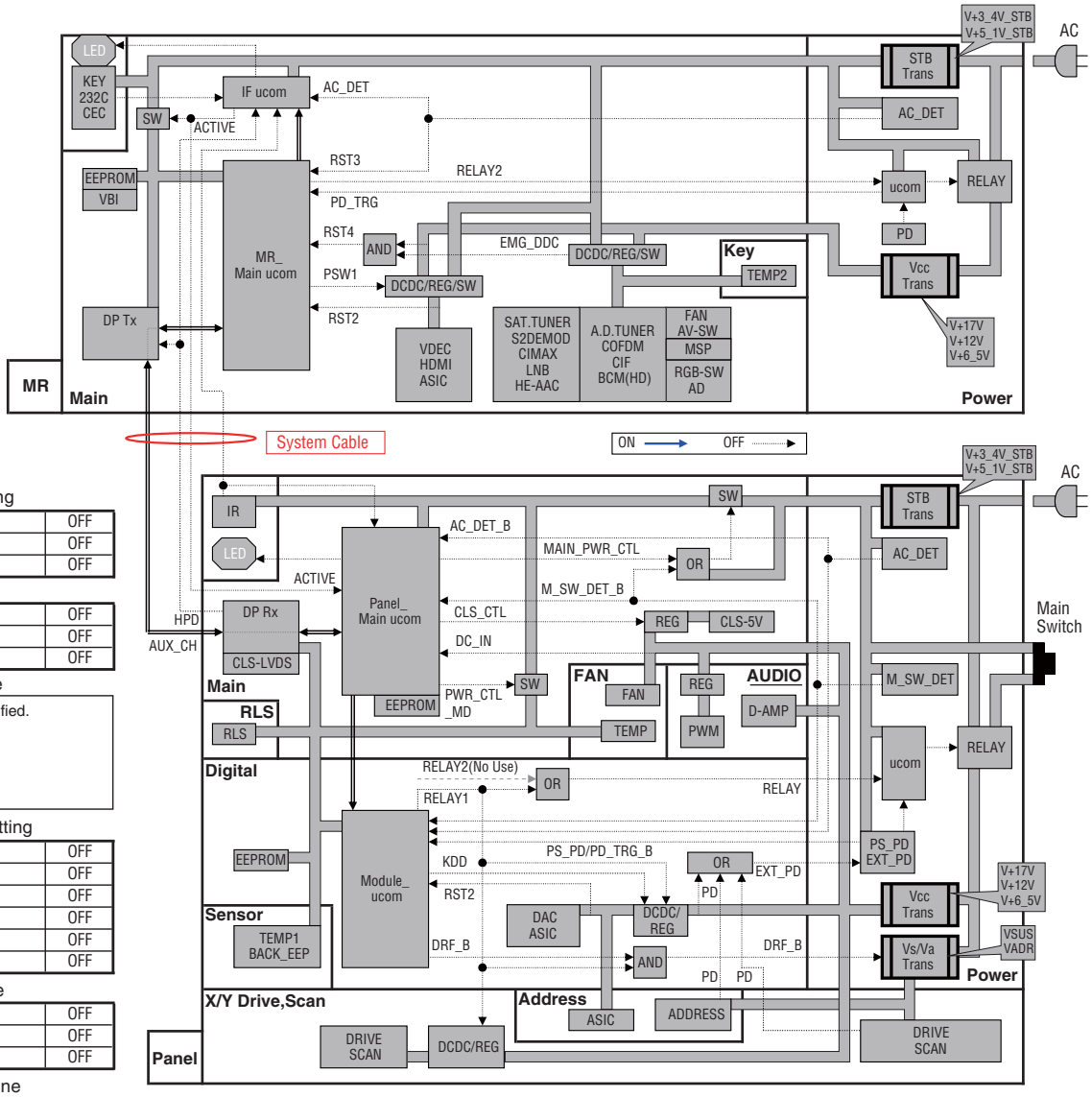
4. Specifications of the rise time of the output voltages (common to all sequences)

Note that there must not be any temporary voltage drop during rising.

Rise time (time required for reaching from 10% to 90% output voltage)	
Item	**Specified time**
STB 10% to STB 90%	tr_STB ≦ 100ms
VCC 10% to VCC 90%	tr_VCC ≦ 200ms

DETAILS OF POWER ON SEQUENCE

AC-OFF



(MR) Output port setting

IF: ACTIVE	OFF
MR Main: RELAY2	OFF
MR Main: PSW1	OFF

(MR) Input port state

MR Main: RST4	OFF
MR Main: RST2	OFF
MR Main: PD_TRG	OFF

(MR) Operation outline

All devices are not electrified.

(Panel) Output port setting

Panel Main: MAIN_PWR_CTL	OFF
Panel Main: PWR_CTL_MD	OFF
Panel Main: CLS_CTL	OFF
DP Rx: HPD	OFF
Module: RELAY1 / KDD	OFF
Module: DRF_B	OFF

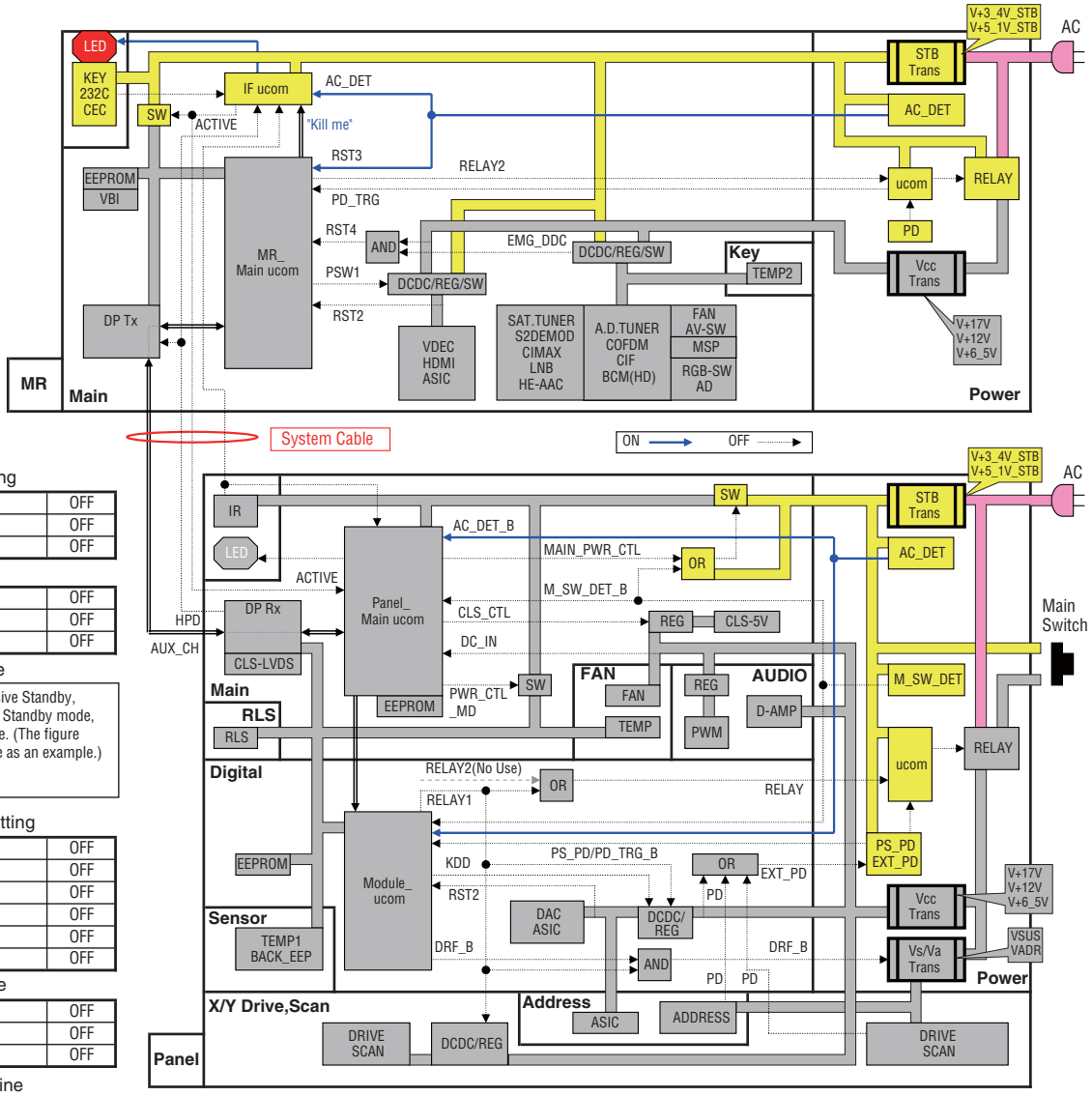
(Panel) Input port state

Main: DC_IN	OFF
Module: RST2	OFF
Module: PS_PD/PD_TRG_B	OFF

(Panel) Operation outline

All devices are not electrified.

Panel Main Power OFF



(MR) Output port setting

IF: ACTIVE	OFF
MR Main: RELAY2	OFF
MR Main: PSW1	OFF

(MR) Input port state

MR Main: RST4	OFF
MR Main: RST2	OFF
MR Main: PD_TRG	OFF

(MR) Operation outline

The unit will enter either Passive Standby, Active Standby, or Functional Standby mode, according to the circumstance. (The figure shows Passive Standby mode as an example.)

(Panel) Output port setting

Panel Main: MAIN_PWR_CTL	OFF
Panel Main: PWR_CTL_MD	OFF
Panel Main: CLS_CTL	OFF
DP Rx: HPD	OFF
Module: RELAY1 / KDD	OFF
Module: DRF_B	OFF

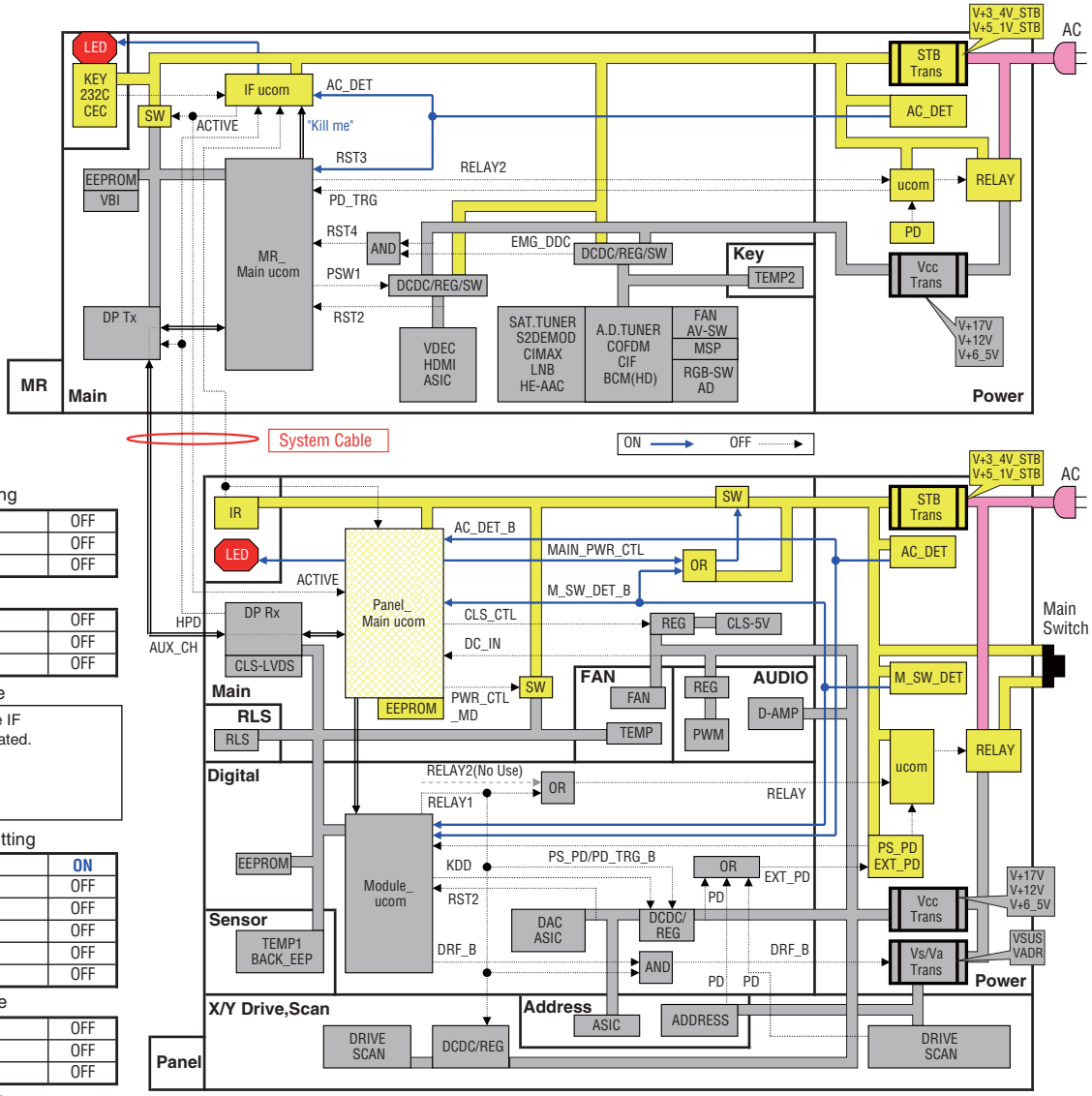
(Panel) Input port state

Main: DC_IN	OFF
Module: RST2	OFF
Module: PS_PD/PD_TRG_B	OFF

(Panel) Operation outline

Standby power is supplied from the Power Assy, but power to each device is interrupted.

Passive Standby



(MR) Output port setting

IF: ACTIVE	OFF
MR Main: RELAY2	OFF
MR Main: PSW1	OFF

(MR) Input port state

MR Main: RST4	OFF
MR Main: RST2	OFF
MR Main: PD_TRG	OFF

(MR) Operation outline

Only the periphery of the IF microcomputer are operated.

(Panel) Output port setting

Panel Main: MAIN_PWR_CTL	ON
Panel Main: PWR_CTL_MD	OFF
Panel Main: CLS_CTL	OFF
DP Rx: HPD	OFF
Module: RELAY1 / KDD	OFF
Module: DRF_B	OFF

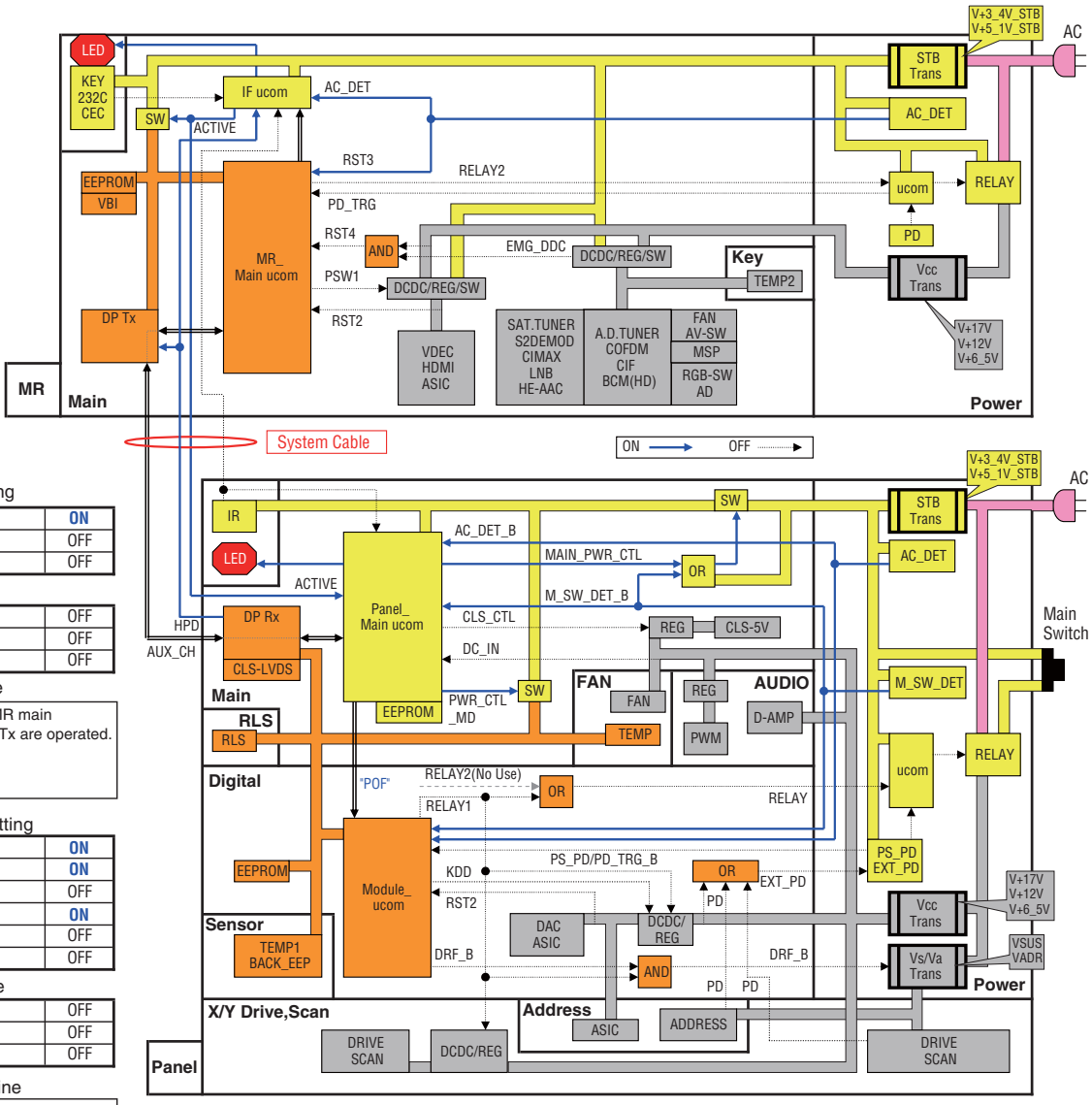
(Panel) Input port state

Main: DC_IN	OFF
Module: RST2	OFF
Module: PS_PD/PD_TRG_B	OFF

(Panel) Operation outline

Only the periphery of the Panel main microcomputer and IR are operated. In this time, panel main microcomputer is the sleep mode.

Active Standby



(MR) Output port setting

IF: ACTIVE	ON
MR Main: RELAY2	OFF
MR Main: PSW1	OFF

(MR) Input port state

MR Main: RST4	OFF
MR Main: RST2	OFF
MR Main: PD_TRG	OFF

(MR) Operation outline

Periphery of the IF and MR main microcomputers and DP Tx are operated.

(Panel) Output port setting

Panel Main: MAIN_PWR_CTL	ON
Panel Main: PWR_CTL_MD	ON
Panel Main: CLS_CTL	OFF
DP Rx: HPD	ON
Module: RELAY1 / KDD	OFF
Module: DRF_B	OFF

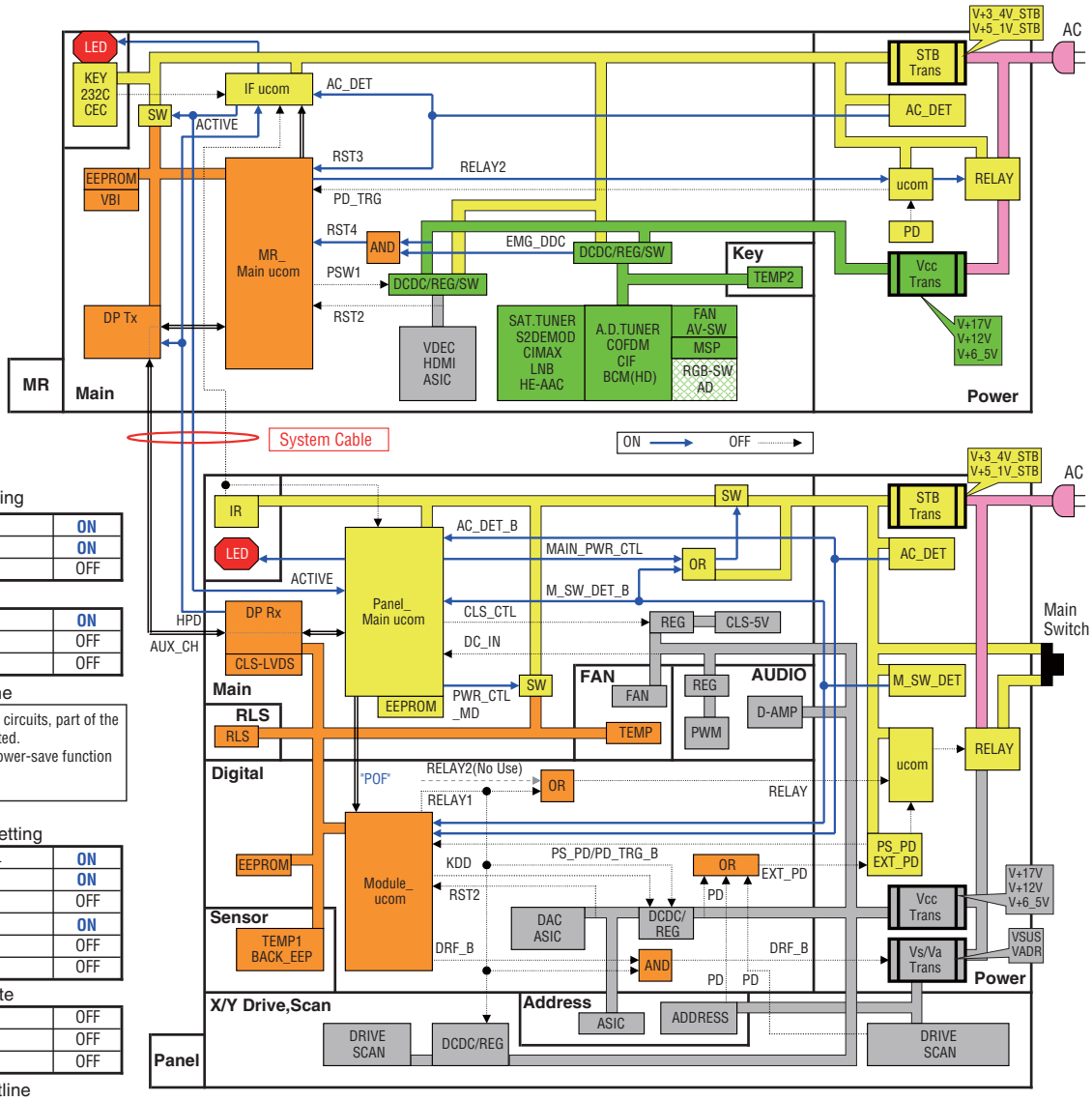
(Panel) Input port state

Main: DC_IN	OFF
Module: RST2	OFF
Module: PS_PD/PD_TRG_B	OFF

(Panel) Operation outline

Periphery of the Panel main microcomputer, IR, DP Rx and module microcomputer are operated.

Function Standby



(MR) Output port setting

IF: ACTIVE	ON
MR Main: RELAY2	ON
MR Main: PSW1	OFF

(MR) Input port state

MR Main: RST4	ON
MR Main: RST2	OFF
MR Main: PD_TRG	OFF

(MR) Operation outline

- Besides the standby power circuits, part of the Vcc circuits are also activated.
- RGB-SW/AD IC uses the power-save function of the IC.

(Panel) Output port setting

Panel Main: MAIN_PWR_CTL	ON
Panel Main: PWR_CTL_MD	ON
Panel Main: CLS_CTL	OFF
DP Rx: HPD	ON
Module: RELAY1 / KDD	OFF
Module: DRF_B	OFF

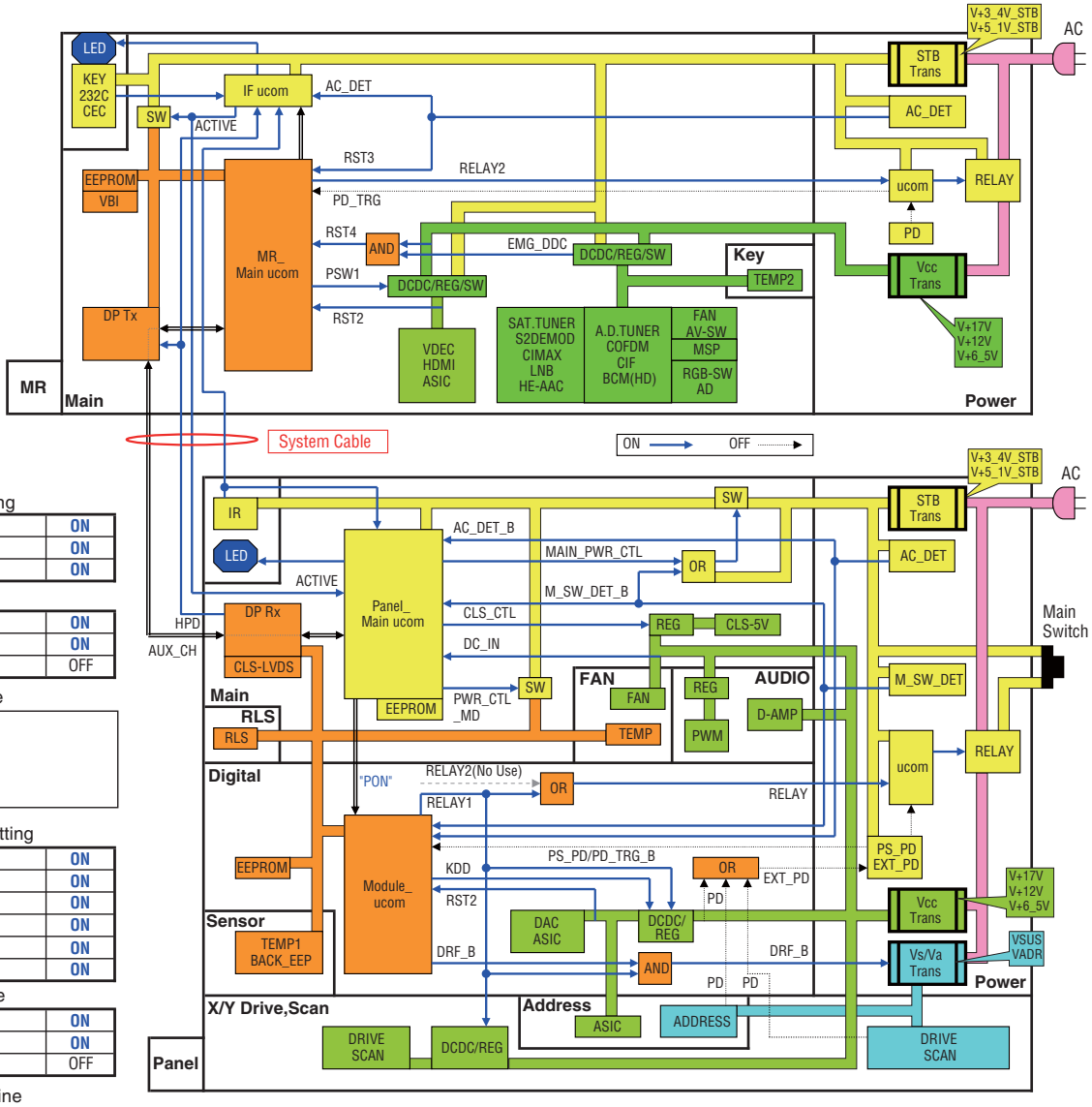
(Panel) Input port state

Main: DC_IN	OFF
Module: RST2	OFF
Module: PS_PD/PD_TRG_B	OFF

(Panel) Operation outline

Periphery of the Panel main microcomputer, IR, DP Rx and module microcomputer are operated.
(As same state as the active standby)

PDP Screen ON



(MR) Output port setting

IF: ACTIVE	ON
MR Main: RELAY2	ON
MR Main: PSW1	ON

(MR) Input port state

MR Main: RST4	ON
MR Main: RST2	ON
MR Main: PD_TRG	OFF

(MR) Operation outline

All devices are operated.

(Panel) Output port setting

Panel Main: MAIN_PWR_CTL	ON
Panel Main: PWR_CTL_MD	ON
Panel Main: CLS_CTL	ON
DP Rx: HPD	ON
Module: RELAY1 / KDD	ON
Module: DRF_B	ON

(Panel) Input port state

Main: DC_IN	ON
Module: RST2	ON
Module: PS_PD/PD_TRG_B	OFF

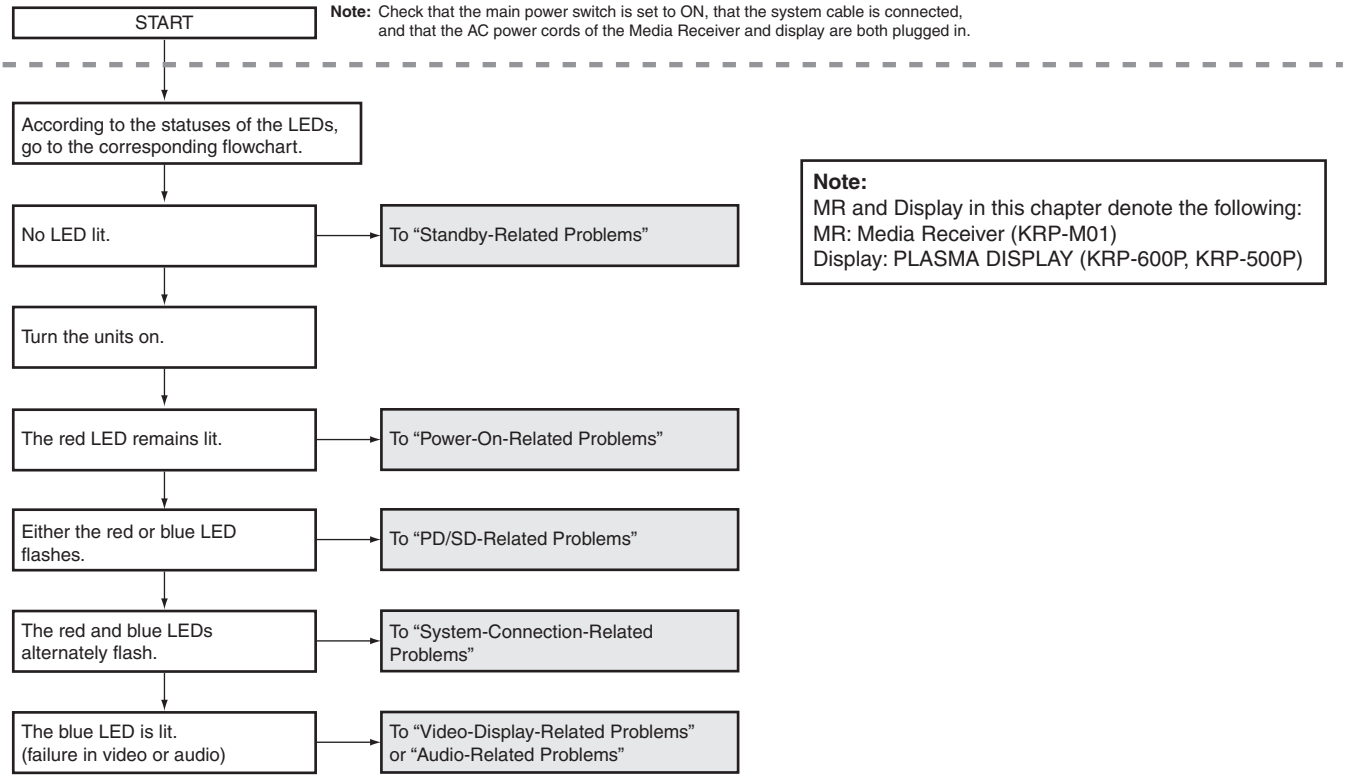
(Panel) Operation outline

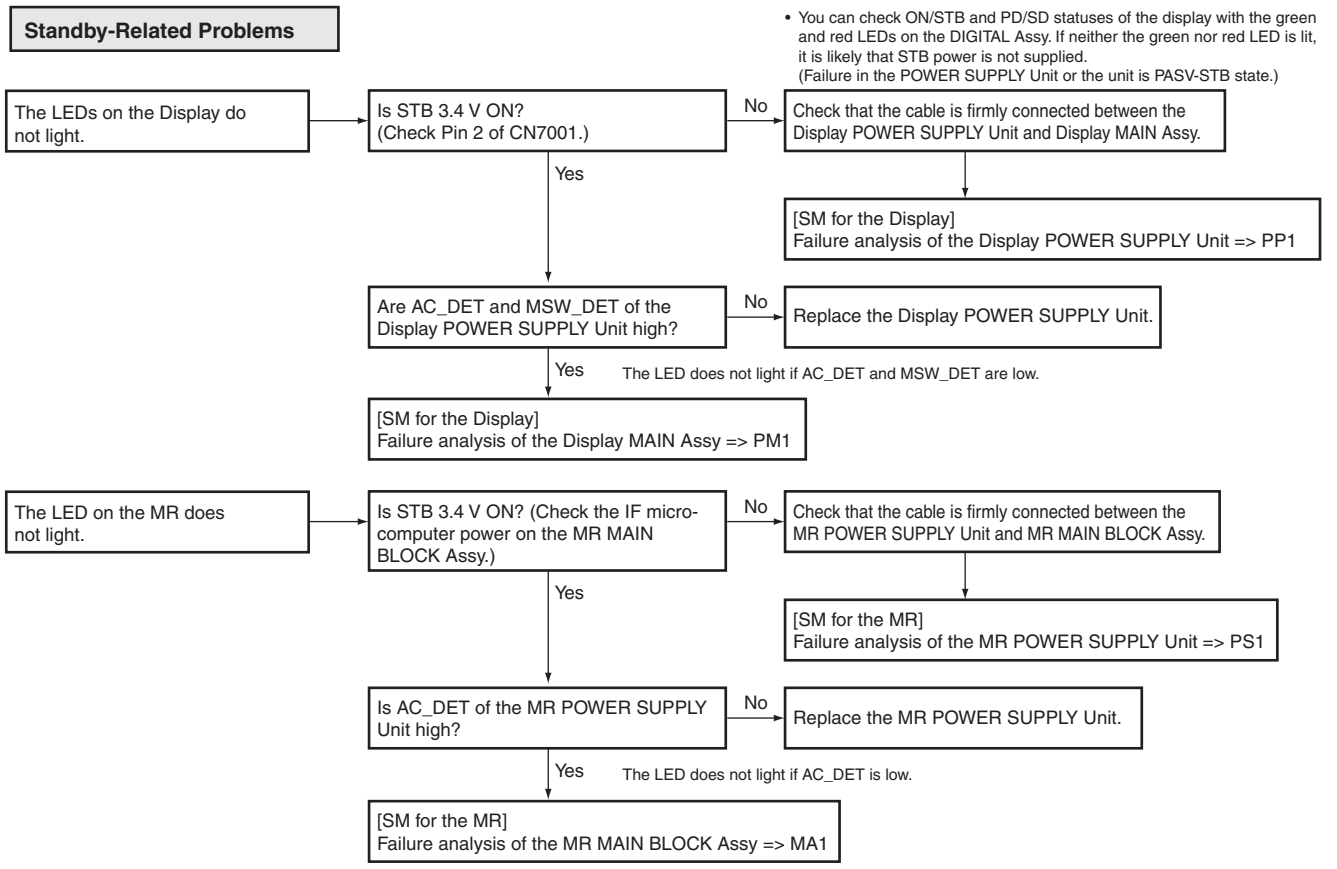
All devices are operated.

5.2 DIAGNOSIS FLOWCHART OF FAILURE ANALYSIS

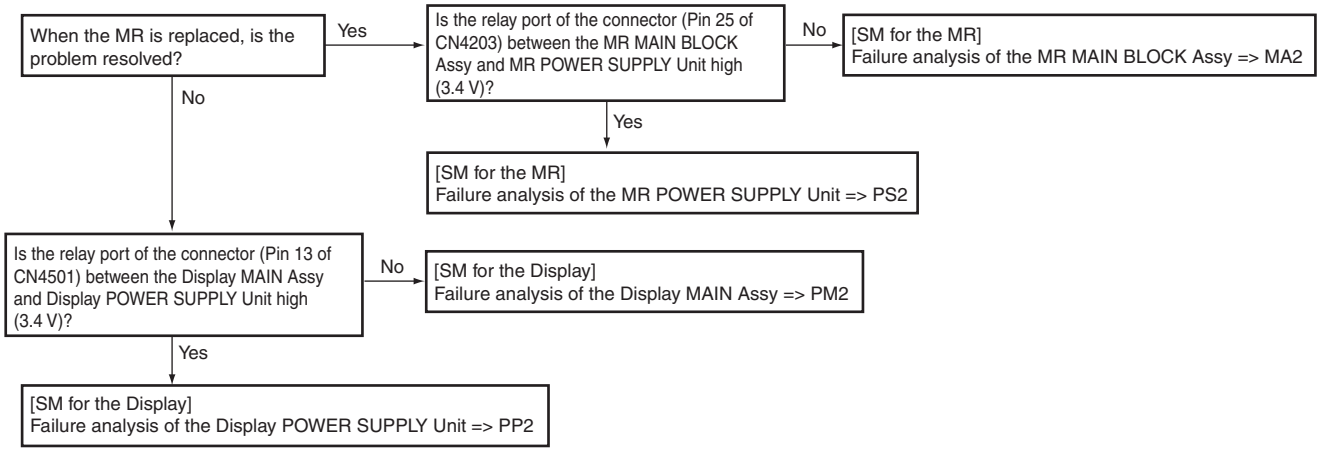
[1] WHOLE UNIT

Flowchart of Failure Analysis for The Whole Unit

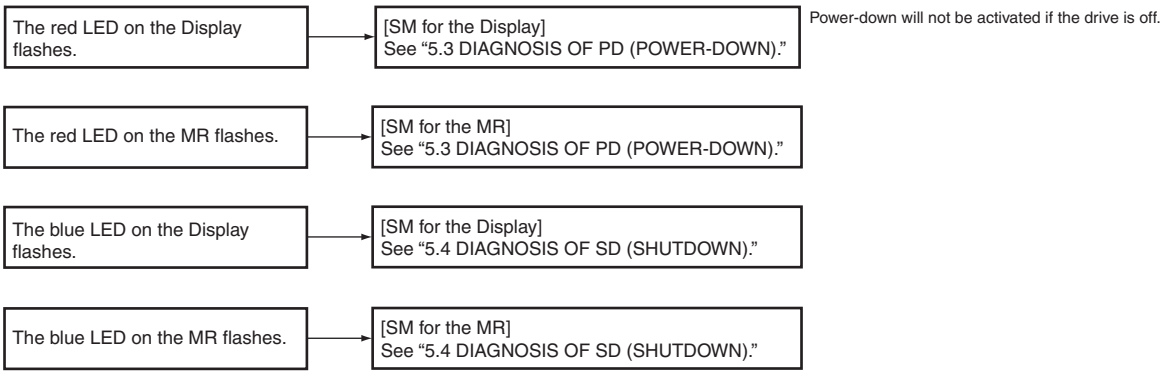




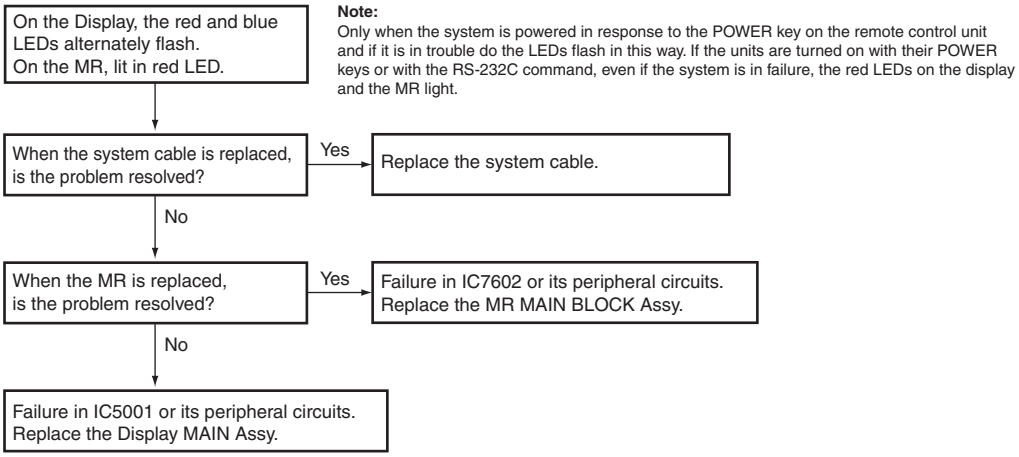
Power-On-Related Problems



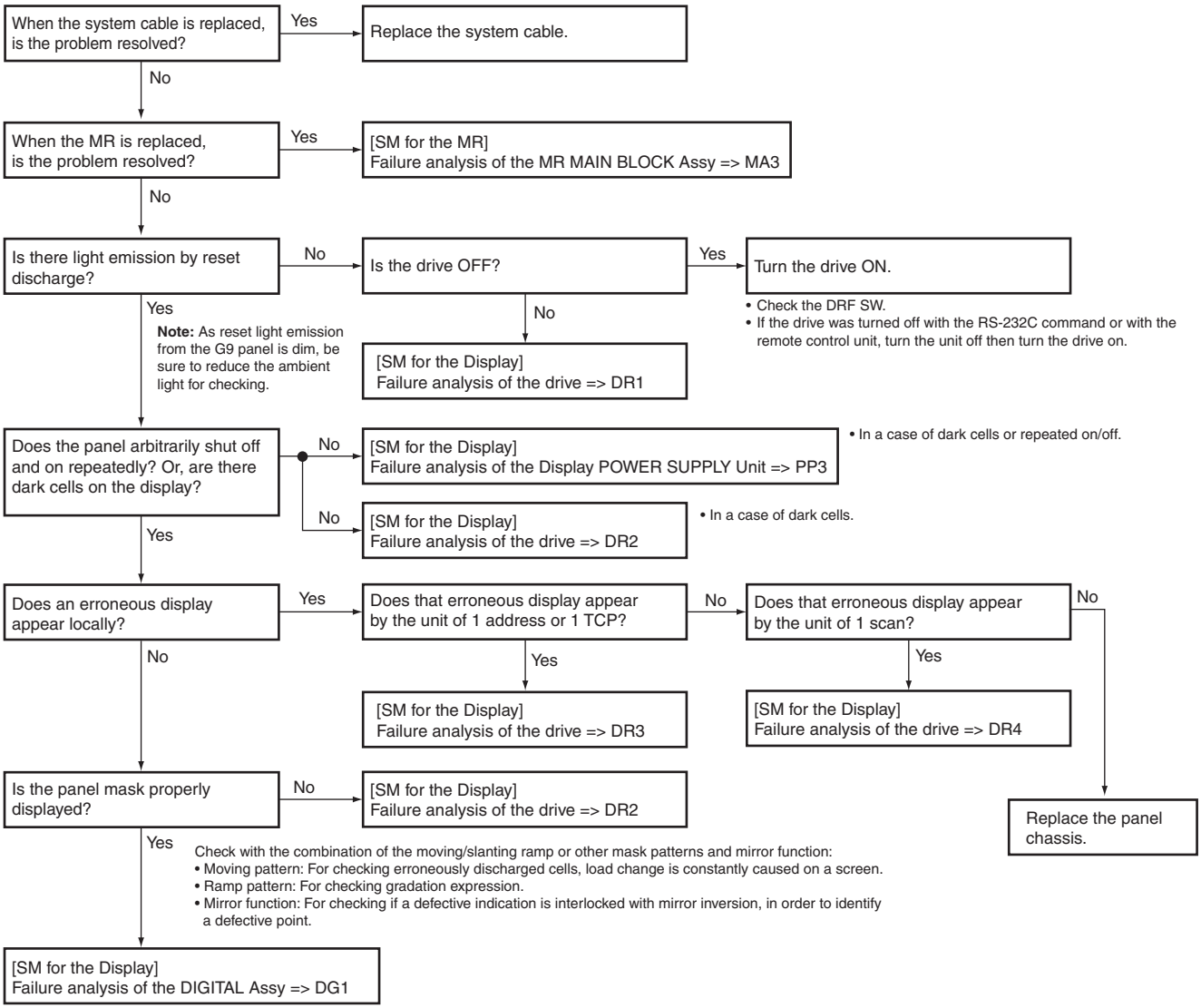
PD/SD-Related Problems



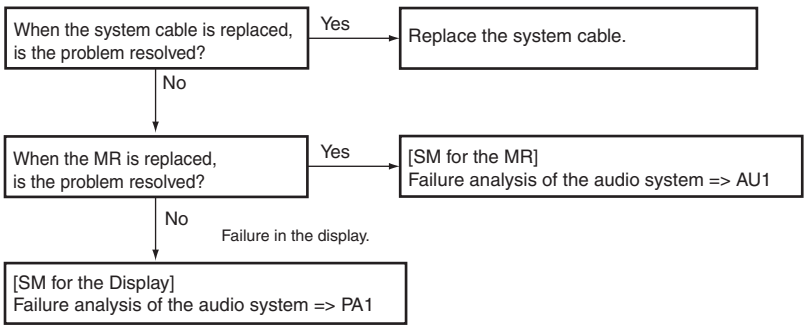
System-Connection-Related Problems



Video-Display-Related Problems

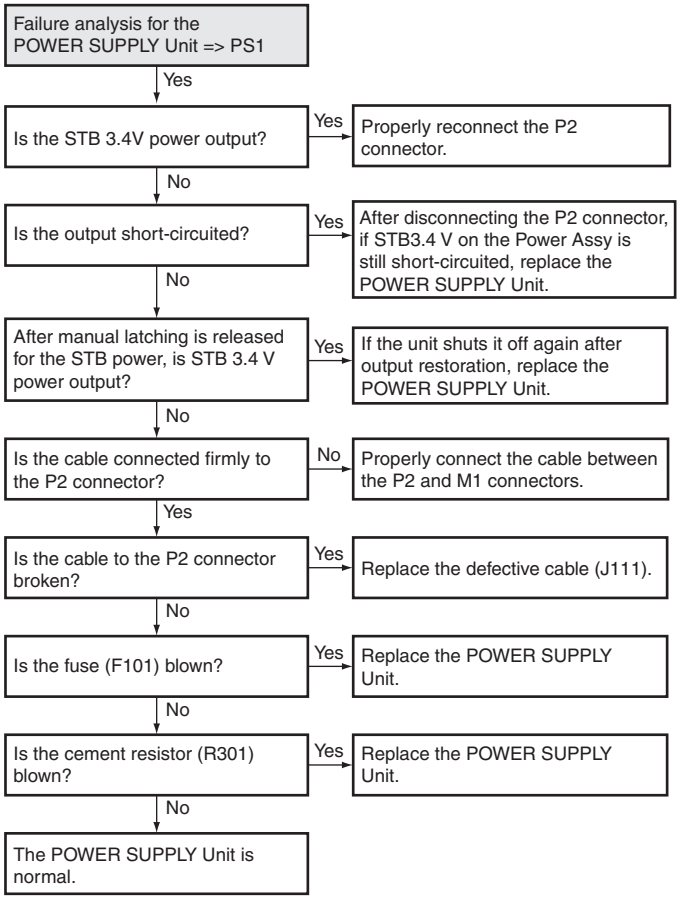


Audio-Related Problems

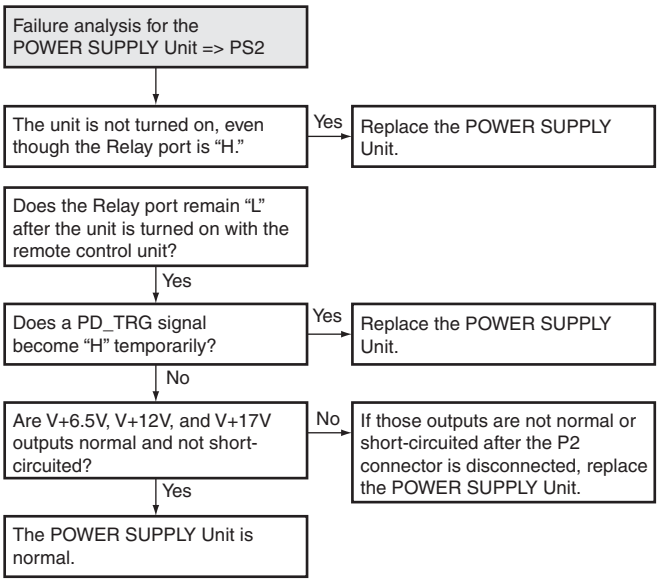


[2] POWER SUPPLY UNIT

Flowchart of Failure Analysis for The POWER SUPPLY Unit



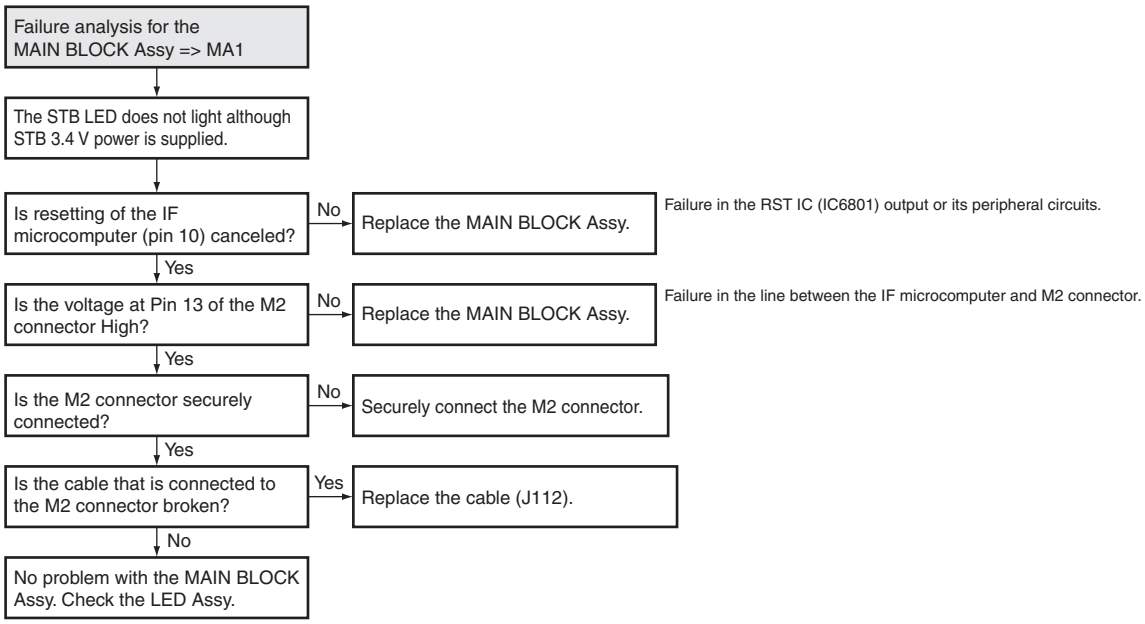
- A cause of failure may be that STB3.4 V voltage is below 3 V (does not reach the specified value).
- If STB3.4 V voltage is not output, other four voltages (STB5.1 V, V+6.5 V, V+12 V, and V+17 V) are not output.
- If Standby power is latched up for an extended period, the protection against over voltage or over heat for STB3.4 V has been activated.
- Check the voltage at the MAIN BLOCK Assy and POWER SUPPLY Unit.
- In this case, failure in the RC101 rectifier diode is suspected.
- Check the resistance between the two electrodes of the cement resistor, using a tester.
  If the resistor is damaged, a failure in Z121 (STB power IC) or Q301 (Vcc power switching FET) by short-circuiting is suspected.

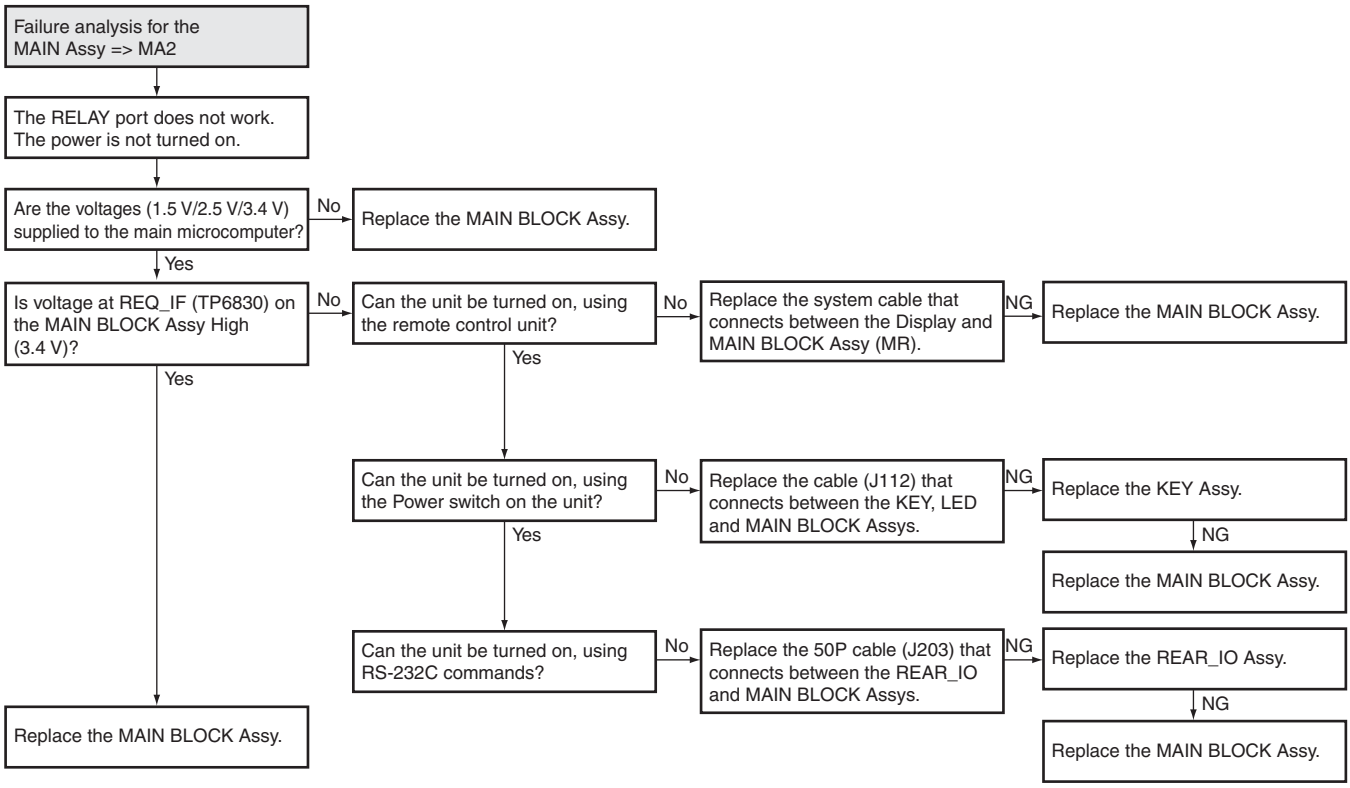


- Check the voltage at pin of the Relay (Pin 2 of P2). (Voltage: 3 to 3.4 V)
- If the protection circuit against either Under Voltage Protection (UVP), Over Current Protection (OCP), Over Voltage Protection (OVP), or Thermal Shut Down (TSD) for Vcc power is activated, the PD_TRG signal becomes “H.”
  => See “5.3 DIAGNOSIS OF PD (POWER-DOWN).”
- The PD_TRG signal is “H” only while the Relay signal is “H.”
  The PD_TRG signal becomes “H” only temporarily, because as soon as the main board detects that the PD_TRG signal has become “H,” it issues a command to set the Relay signal to “L.”

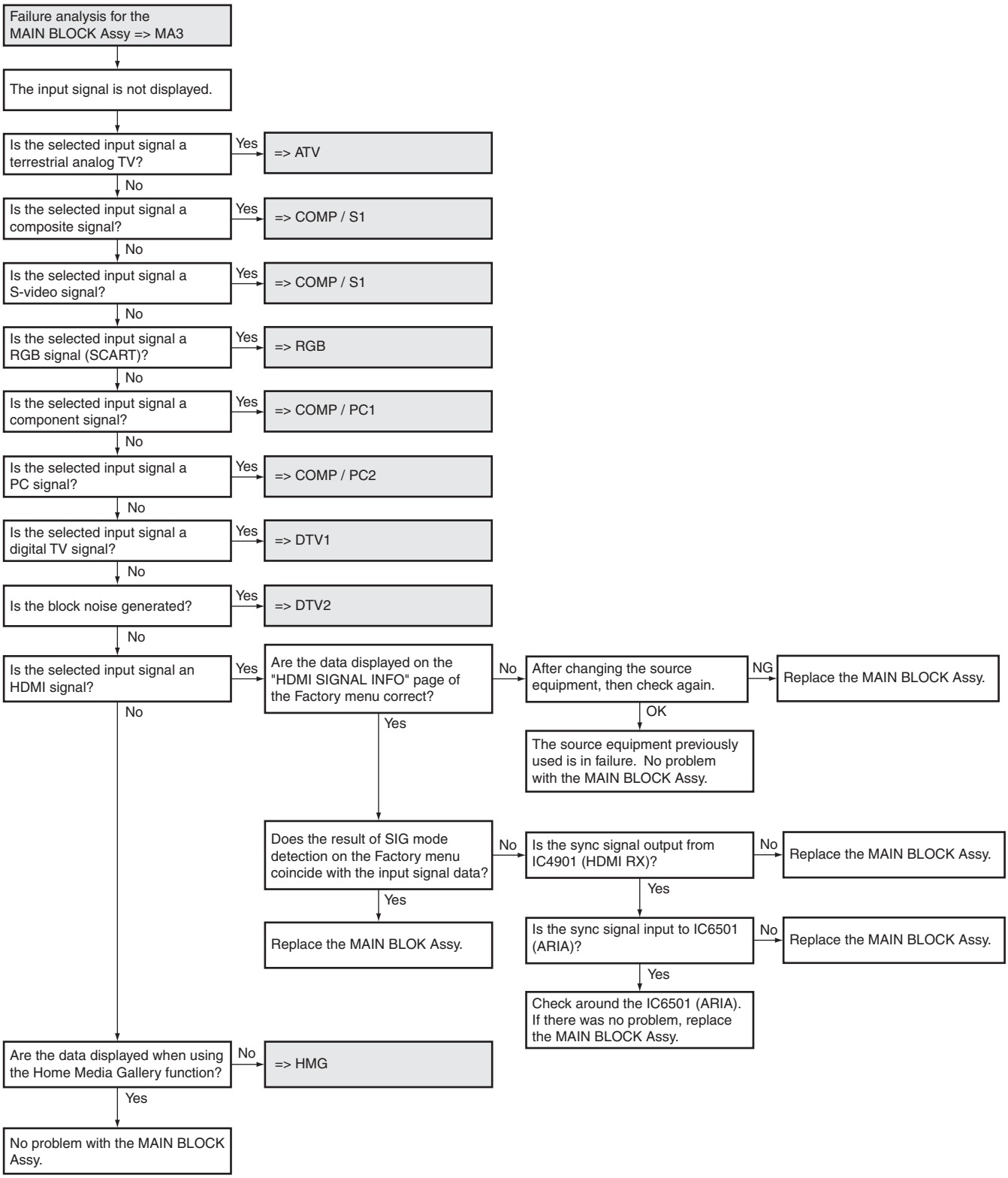
[3] MAIN BLOCK ASSY

Flowchart of Failure Analysis for The MAIN BLOCK Assy



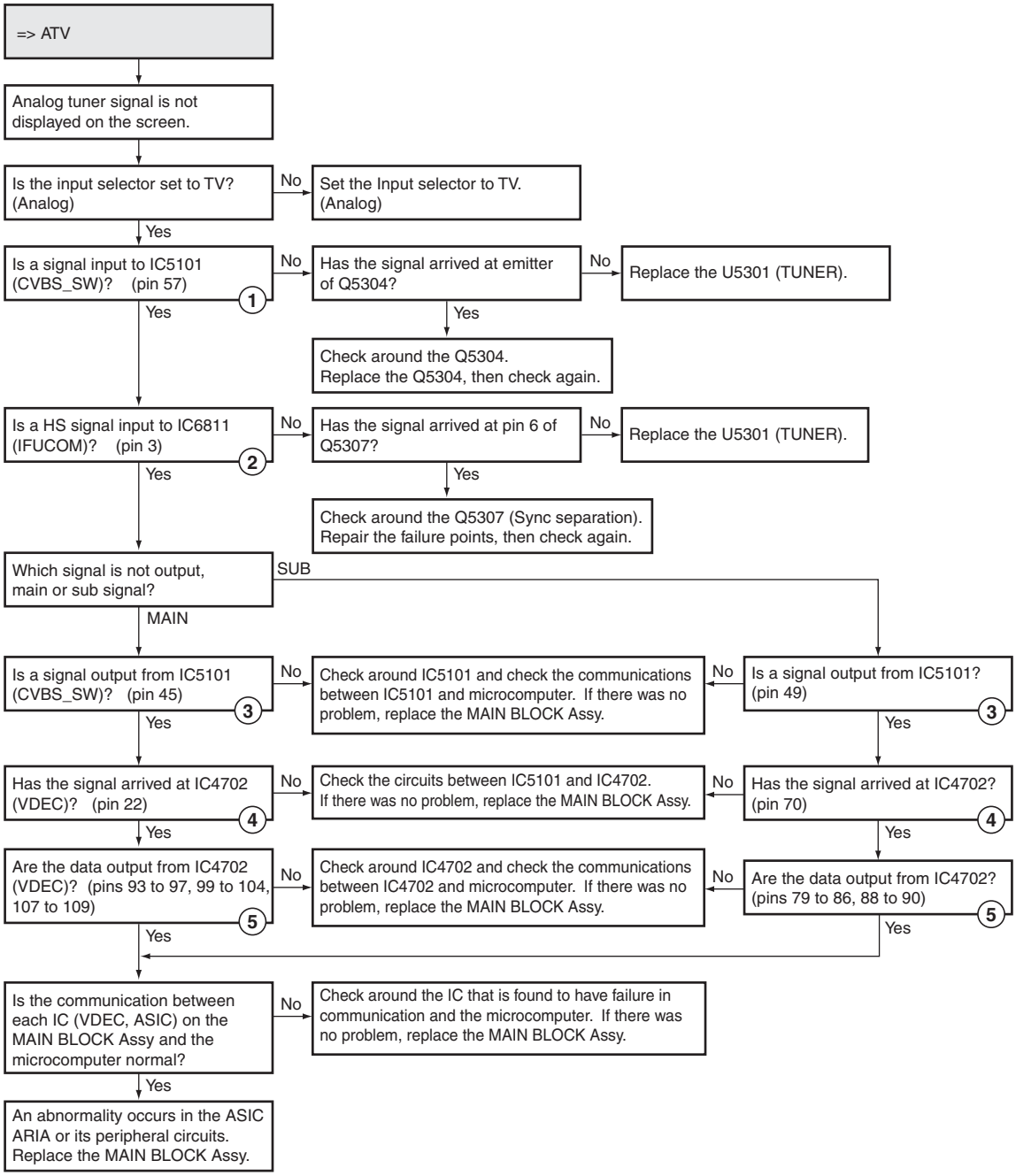


Flowchart of Failure Analysis for The MAIN BLOCK Assy



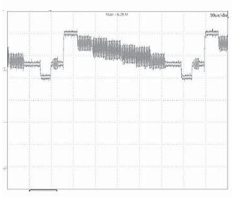
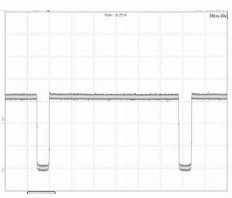
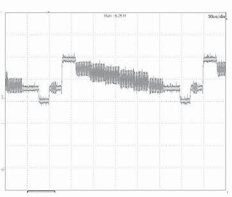
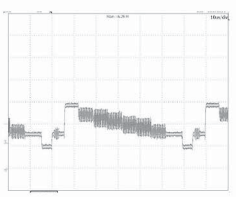
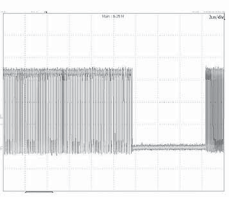
[4] VIDEO SYSTEM

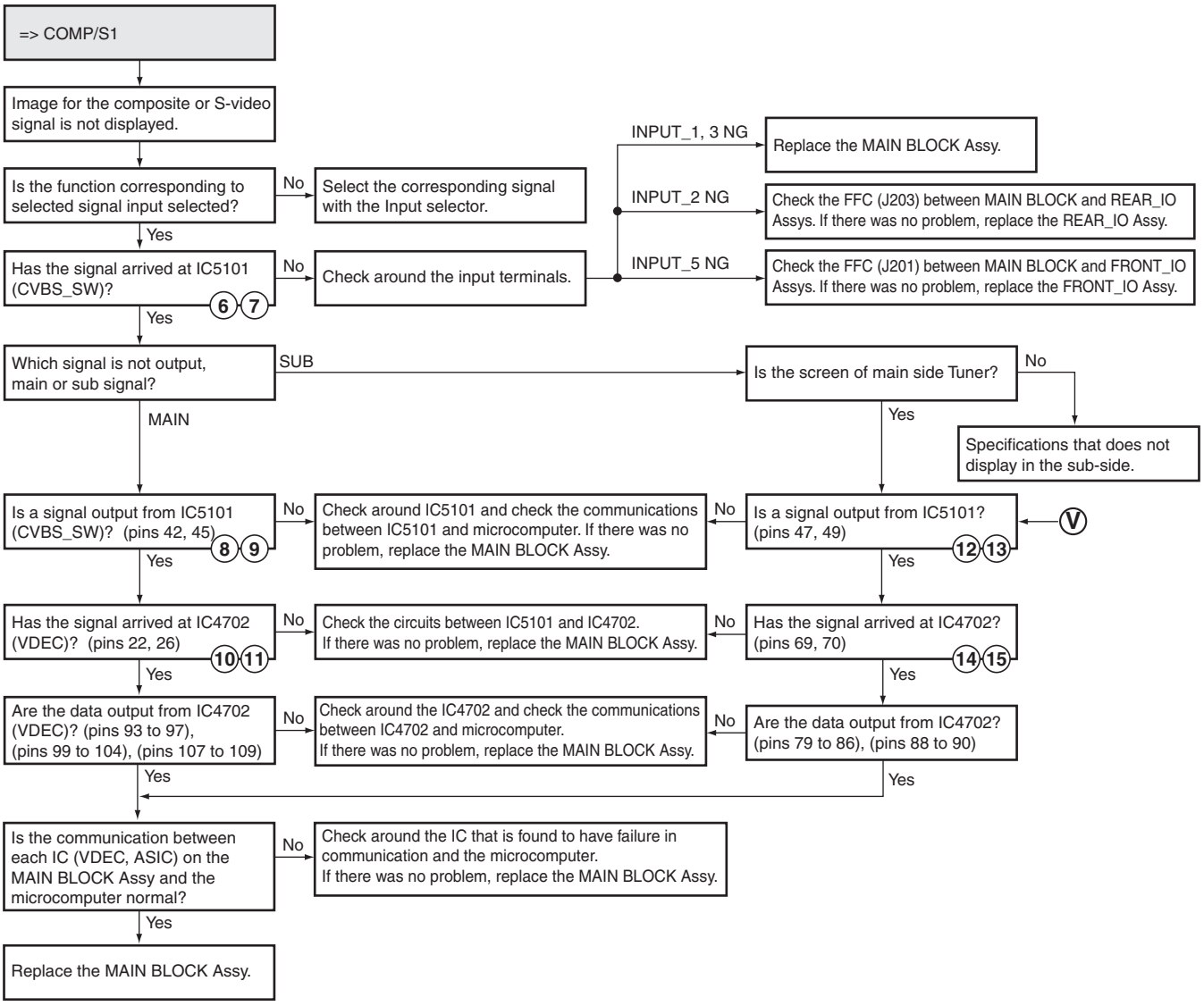
Flowchart of Failure Analysis for The Video System



● Waveforms

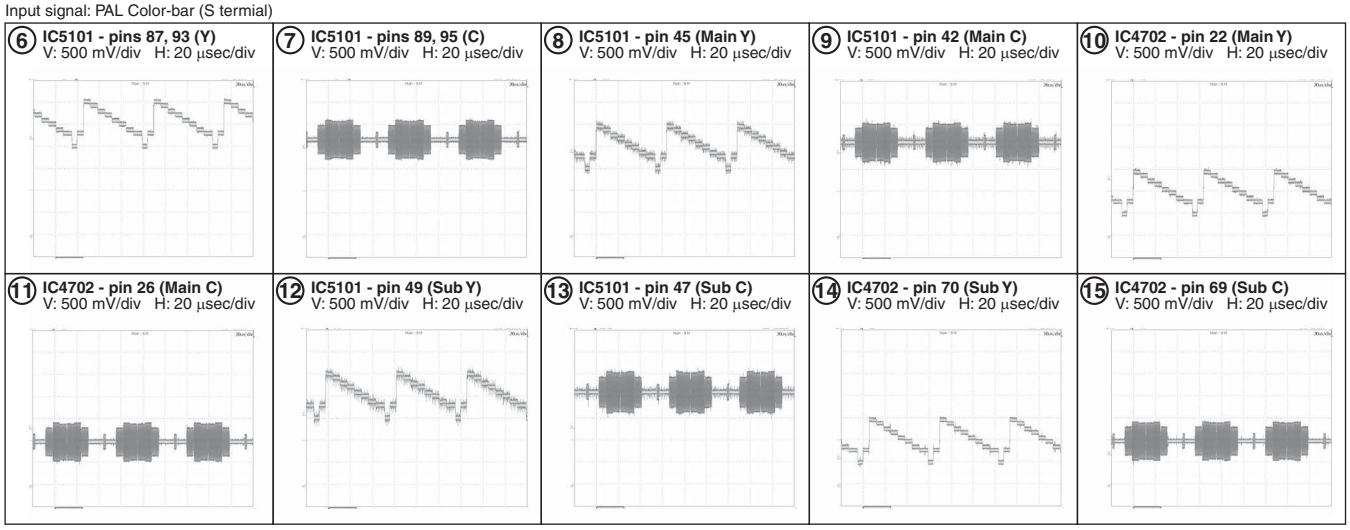
Input signal: PAL Color-bar (Analog tuner)

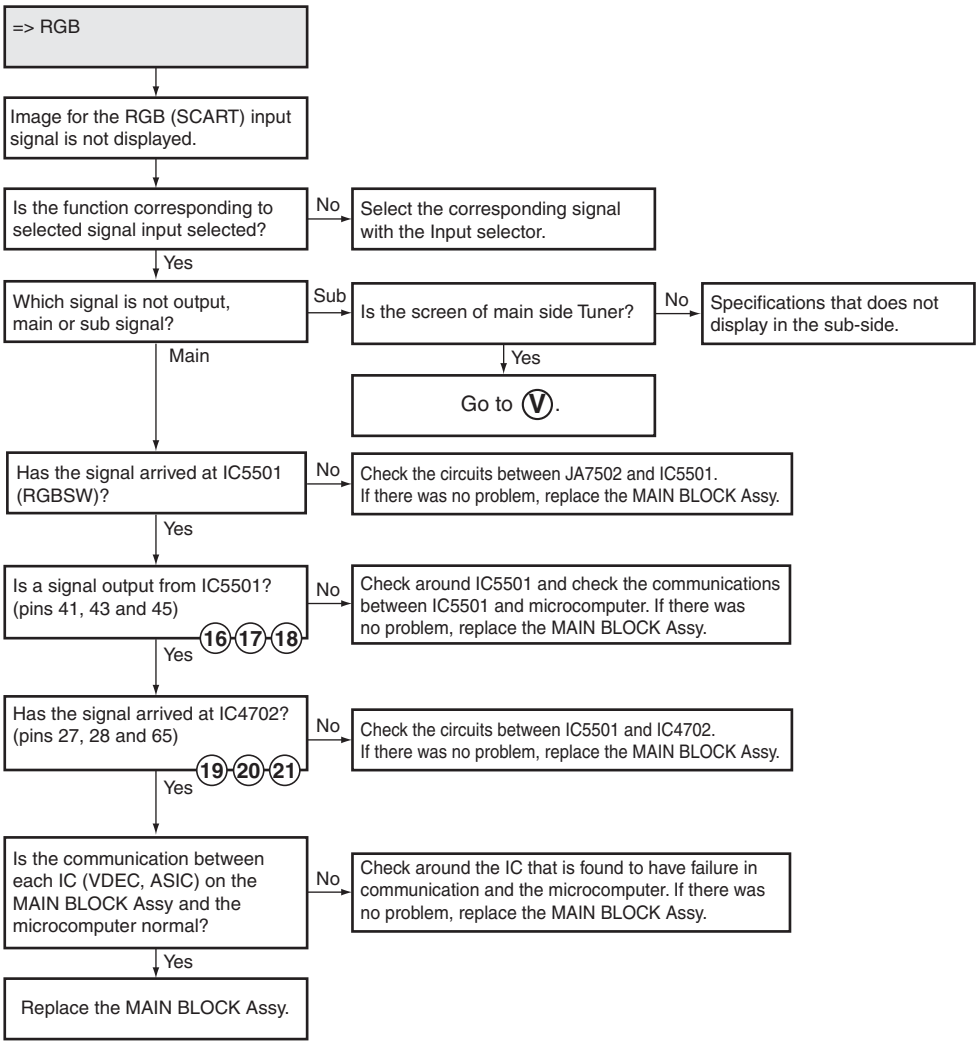
① IC5101 - pin 57 (in) V: 500 mV/div H: 10 μsec/div	② IC6811 - pin 3 V: 1 V/div H: 10 μsec/div	③ IC5101 - pins 45, 49 (out) V: 500 mV/div H: 10 μsec/div	④ IC4702 - pins 22, 70 V: 500 mV/div H: 10 μsec/div	⑤ IC4702 - pins 93, 79 (656 out) V: 1 V/div H: 2 μsec/div
				



● Waveforms

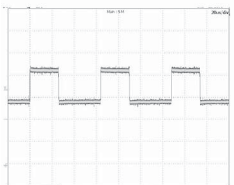
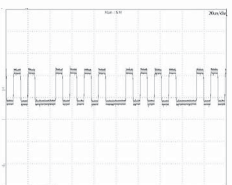
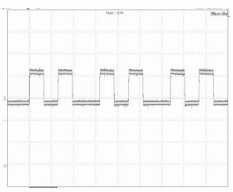
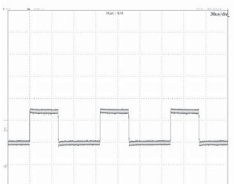
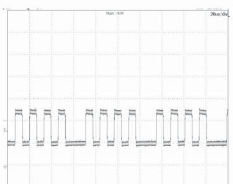
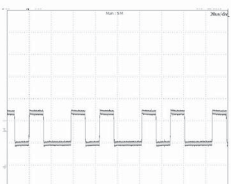
Input signal: PAL Color-bar (S termial)

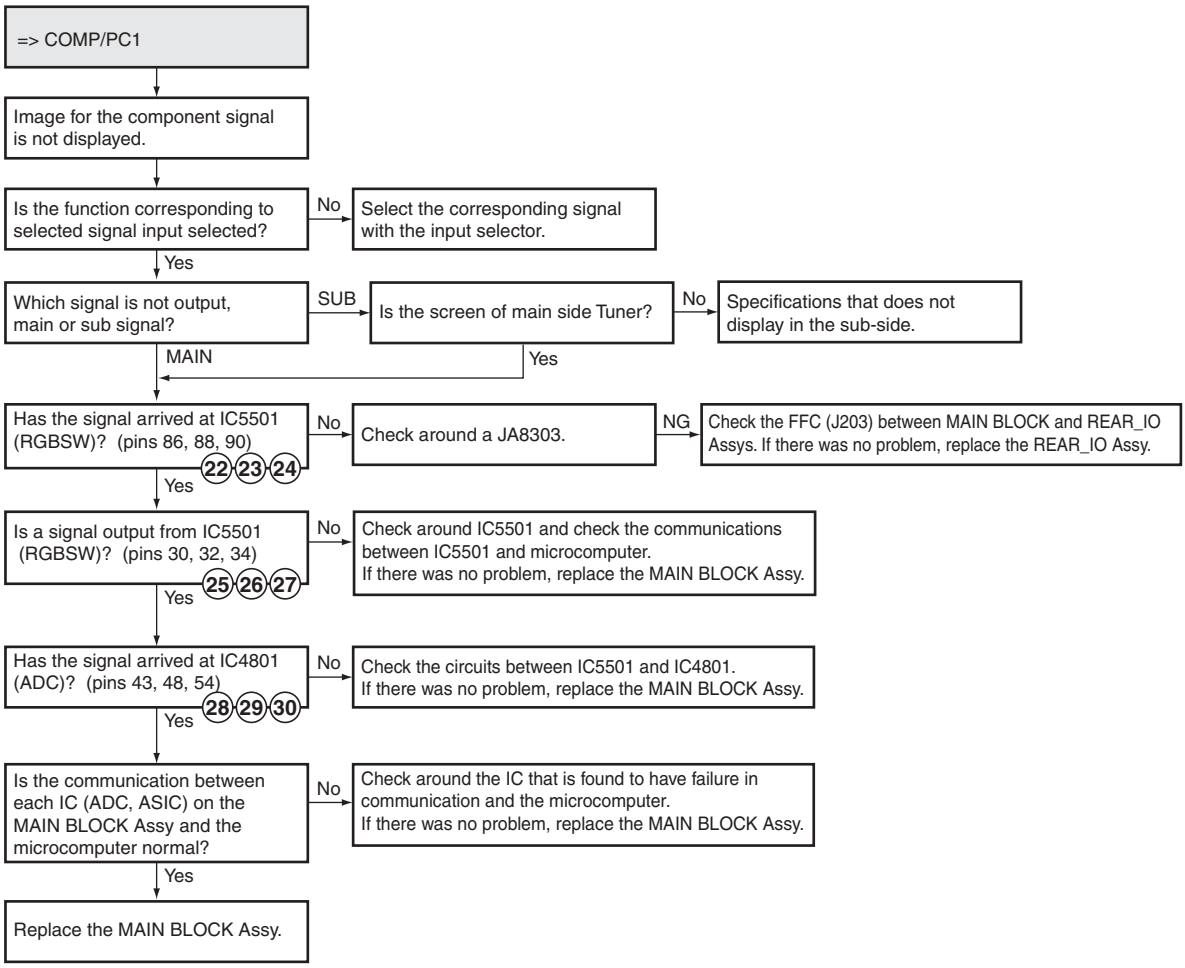




● Waveforms

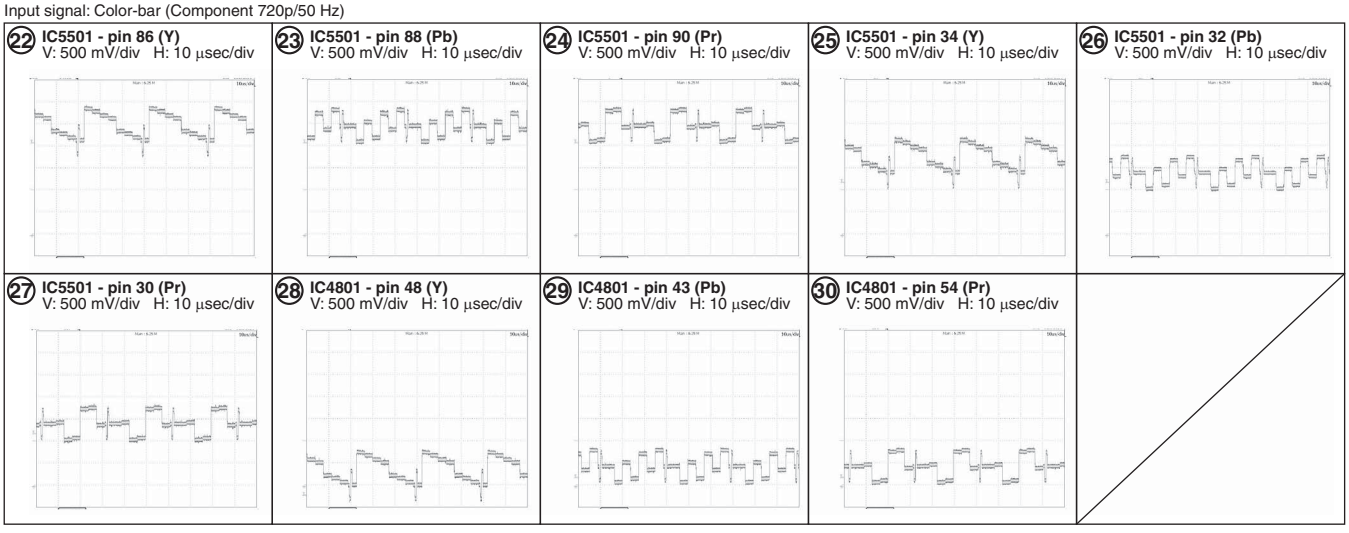
Input signal: PAL Color-bar (SCART RGB terminal)

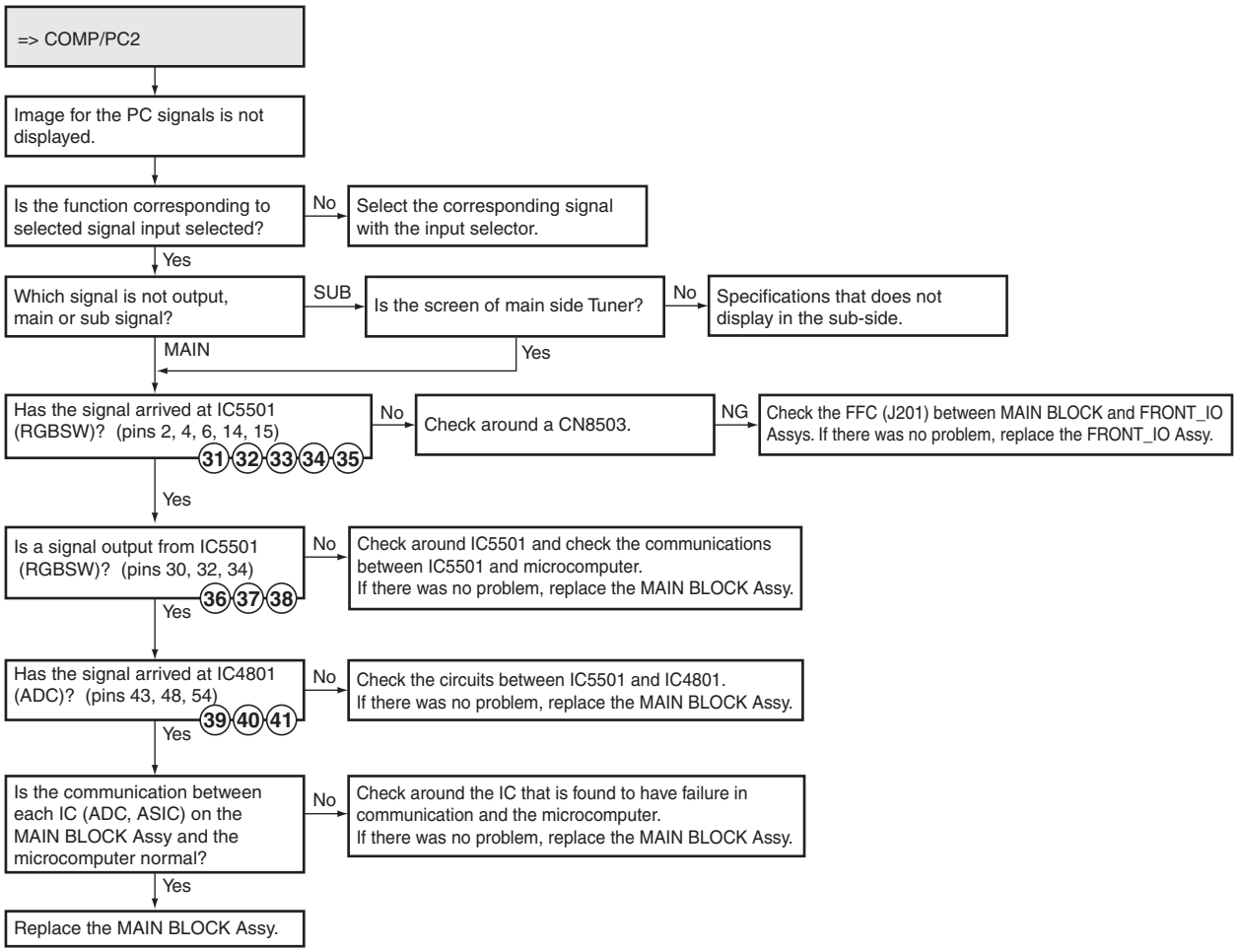
16 IC5501 - pin 45 (G out) V: 500 mV/div H: 20 µS/div	**17 IC5501 - pin 43 (B out)** V: 500 mV/div H: 20 µS/div	**18 IC5501 - pin 41 (R out)** V: 500 mV/div H: 20 µS/div
		
19 IC4702 - pin 65 (GY) V: 500 mV/div H: 20 µS/div	**20 IC4702 - pin 27 (BCB)** V: 500 mV/div H: 20 µS/div	**21 IC4702 - pin 28 (BCR)** V: 500 mV/div H: 20 µS/div
		



● Waveforms

Input signal: Color-bar (Component 720p/50 Hz)

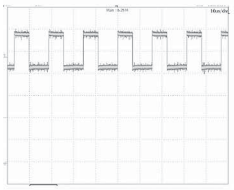




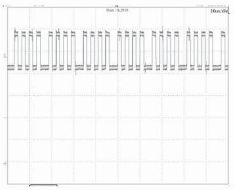
● Waveforms

Input signal: Color-bar (PC SXGA/60 Hz)

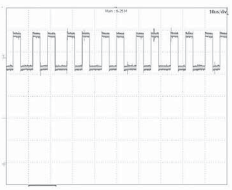
31 IC5501 - pin 2 (G in)
V: 500 mV/div H: 10 µsec/div



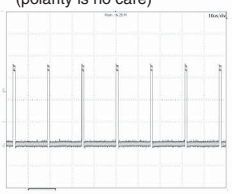
32 IC5501 - pin 4 (B in)
V: 500 mV/div H: 10 µsec/div



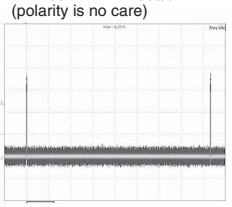
33 IC5501 - pin 6 (R in)
V: 500 mV/div H: 10 µsec/div



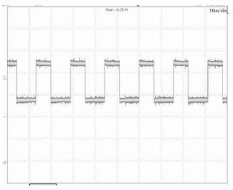
34 IC5501 - pin 14 (HD in)
V: 1 V/div H: 10 µsec/div
(polarity is no care)



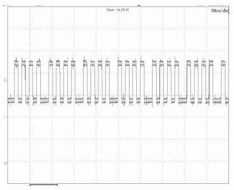
35 IC5501 - pin 15 (VD in)
V: 1 V/div H: 2 msec/div
(polarity is no care)



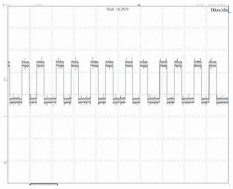
36 IC5501 - pin 34 (G out)
V: 500 mV/div H: 10 µsec/div



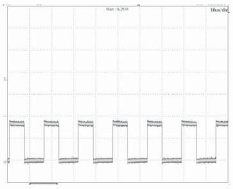
37 IC5501 - pin 32 (B out)
V: 500 mV/div H: 10 µsec/div



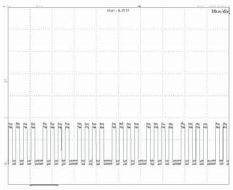
38 IC5501 - pin 30 (R out)
V: 500 mV/div H: 10 µsec/div



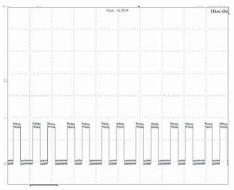
39 IC4801 - pin 48 (G)
V: 500 mV/div H: 10 µsec/div

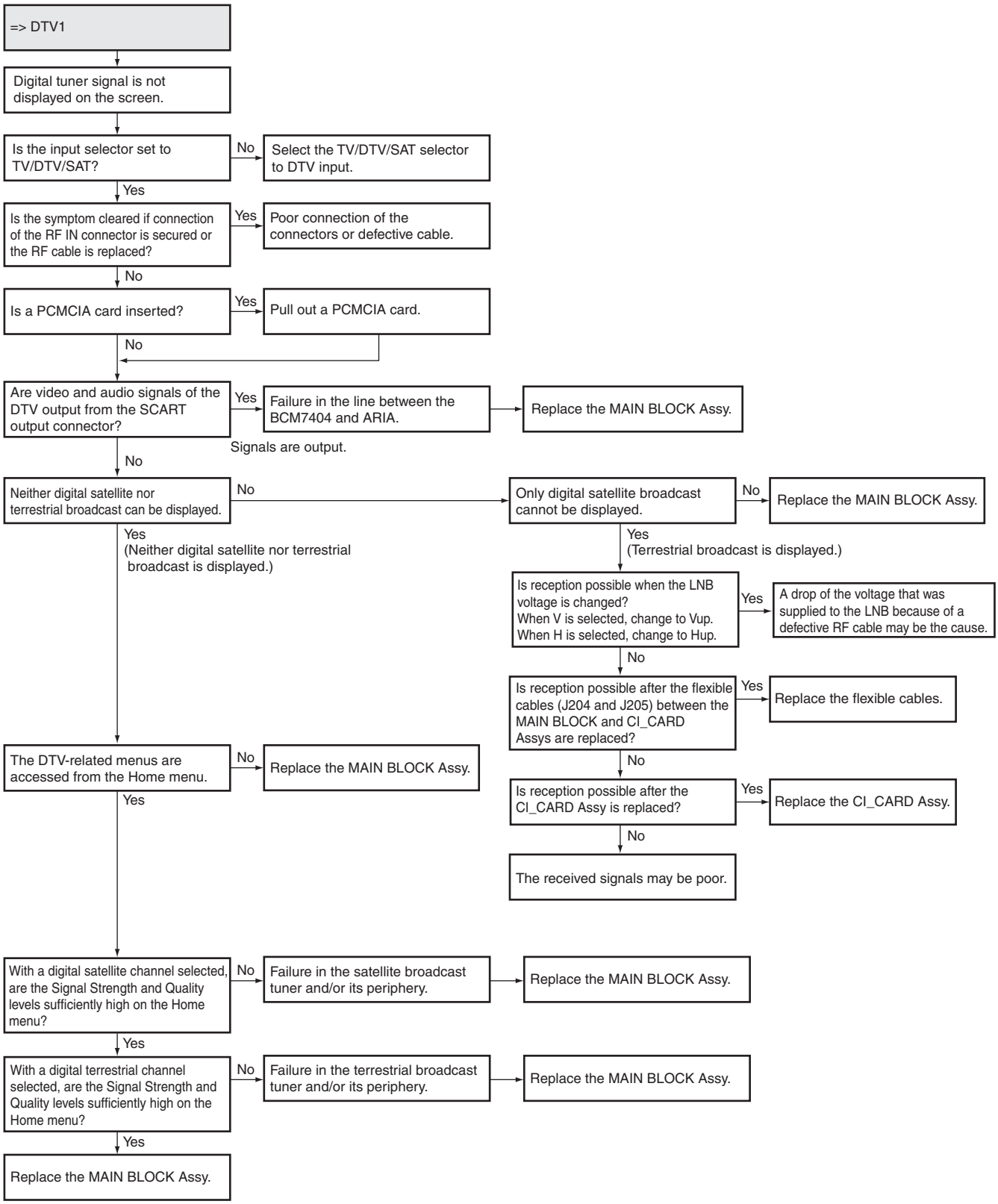


40 IC4801 - pin 43 (B)
V: 500 mV/div H: 10 µsec/div



41 IC4801 - pin 54 (R)
V: 500 mV/div H: 10 µsec/div



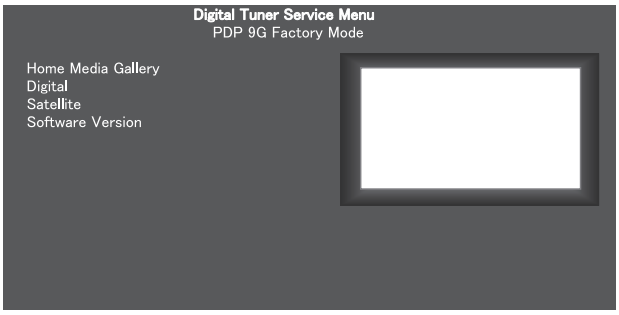

=> DTV1
Digital tuner signal is not displayed on the screen.
Is the input selector set to TV/DTV/SAT?
No
Select the TV/DTV/SAT selector to DTV input.
Yes
Is the symptom cleared if connection of the RF IN connector is secured or the RF cable is replaced?
Yes
Poor connection of the connectors or defective cable.
No
Is a PCMCIA card inserted?
Yes
Pull out a PCMCIA card.
No
Are video and audio signals of the DTV output from the SCART output connector?
Yes
Failure in the line between the BCM7404 and ARIA.
Replace the MAIN BLOCK Assy.
Signals are output.
No
Neither digital satellite nor terrestrial broadcast can be displayed.
No
Only digital satellite broadcast cannot be displayed.
No
Replace the MAIN BLOCK Assy.
Yes
(Neither digital satellite nor terrestrial broadcast is displayed.)
Yes
(Terrestrial broadcast is displayed.)
Is reception possible when the LNB voltage is changed?
When V is selected, change to Vup.
When H is selected, change to Hup.
Yes
A drop of the voltage that was supplied to the LNB because of a defective RF cable may be the cause.
No
Is reception possible after the flexible cables (J204 and J205) between the MAIN BLOCK and CI_CARD Assys are replaced?
Yes
Replace the flexible cables.
No
Is reception possible after the CI_CARD Assy is replaced?
Yes
Replace the CI_CARD Assy.
No
The received signals may be poor.
The DTV-related menus are accessed from the Home menu.
No
Replace the MAIN BLOCK Assy.
Yes
With a digital satellite channel selected, are the Signal Strength and Quality levels sufficiently high on the Home menu?
No
Failure in the satellite broadcast tuner and/or its periphery.
Replace the MAIN BLOCK Assy.
Yes
With a digital terrestrial channel selected, are the Signal Strength and Quality levels sufficiently high on the Home menu?
No
Failure in the terrestrial broadcast tuner and/or its periphery.
Replace the MAIN BLOCK Assy.
Yes
Replace the MAIN BLOCK Assy.

[Common to the DTVs 1 and 2]
How to Display the DTB Service Menu

As you can display the DTB Service Menu from Factory mode, you should have a remote control unit that supports Factory mode.

Step 1: Press the FACTORY key on the remote control unit to display the INFORMATION screen in Factory mode.
Step 2: Press the MUTING key on the remote control unit 4 times to display the INITIALIZE screen.
Step 3: Press the ⬇ key on the remote control unit twice so that DTB SERVICE MODE (+) is displayed at the bottom of the screen.
Step 4: Press the ENTER/SET key on the remote control so that MODE SHIFT <=> :No is displayed at the bottom of the screen.
Step 5: Press the ⬅ or ➡ key on the remote control so that MODE SHIFT <=> :YES is displayed at the bottom of the screen.
Step 6: Press the ENTER/SET key on the remote control unit for 5 sec or more to display the DTB Service Menu.

Top page of the DTB Service Menu

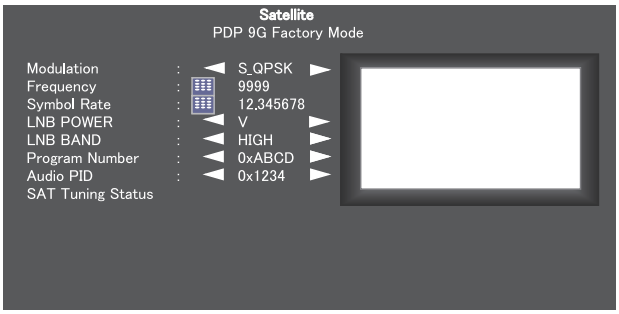


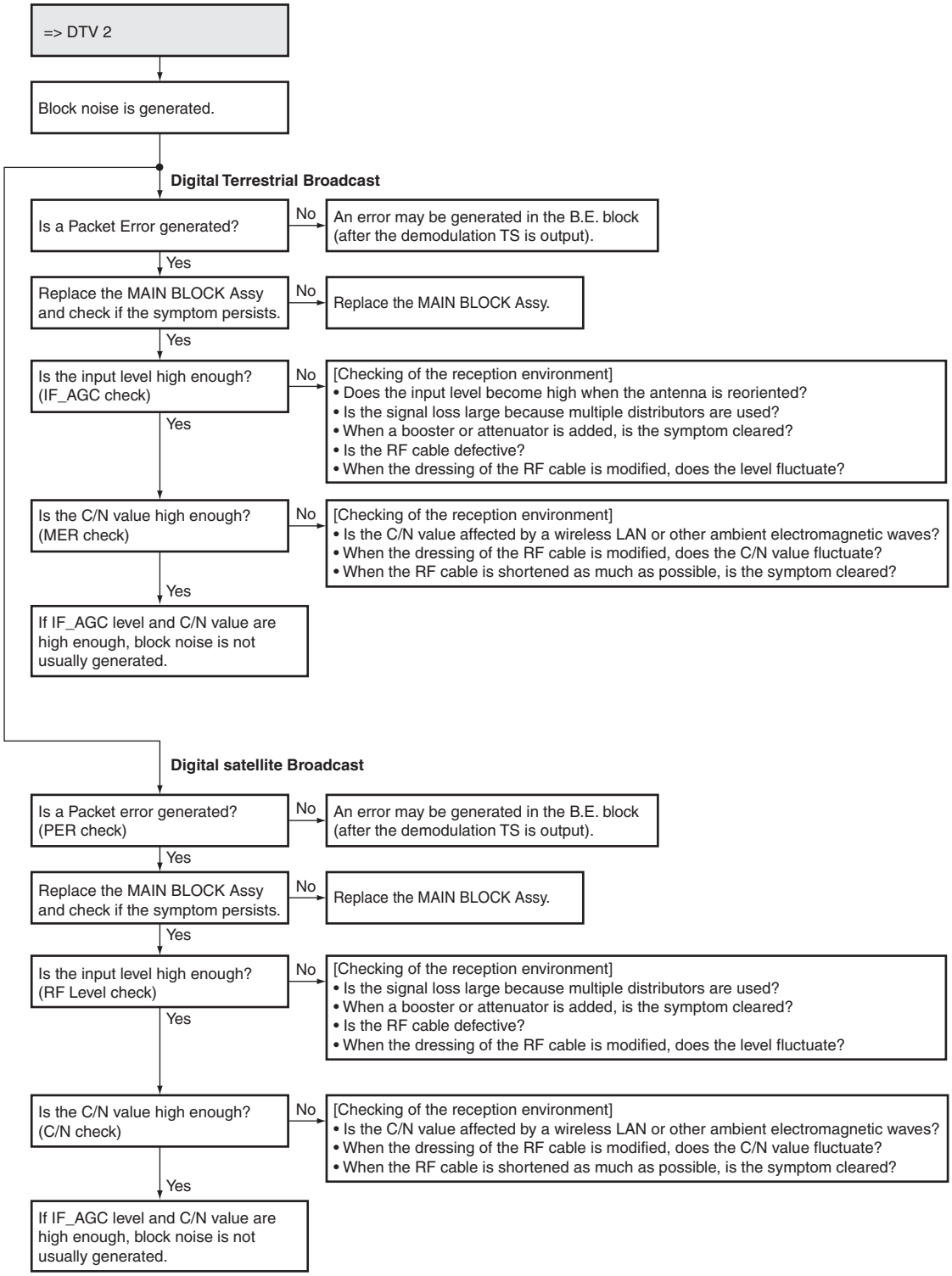
Digital : Service menu for digital terrestrial broadcast reception
Satellite : Service menu for digital satellite broadcast reception

■ How to Change the LNB Voltage on the DTV Service Menu

On the Satellite screen of the DTV Service menu below, move the cursor to LNB POWER by using the ⬇ key on the remote control unit then change the LNB voltage, using the ⬅ or ➡ key.

The LNB voltage values are as shown below:
V: 13 V (Typ.)
H: 18 V (Typ.)
Vup: V+1 V
Hup: H+1 V

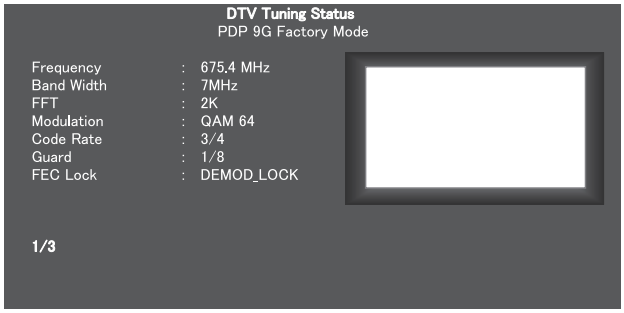



=> DTV 2
Block noise is generated.
Digital Terrestrial Broadcast
Is a Packet Error generated?
No
An error may be generated in the B.E. block (after the demodulation TS is output).
Yes
Replace the MAIN BLOCK Assy and check if the symptom persists.
No
Replace the MAIN BLOCK Assy.
Yes
Is the input level high enough? (IF_AGC check)
No
[Checking of the reception environment]
• Does the input level become high when the antenna is reoriented?
• Is the signal loss large because multiple distributors are used?
• When a booster or attenuator is added, is the symptom cleared?
• Is the RF cable defective?
• When the dressing of the RF cable is modified, does the level fluctuate?
Yes
Is the C/N value high enough? (MER check)
No
[Checking of the reception environment]
• Is the C/N value affected by a wireless LAN or other ambient electromagnetic waves?
• When the dressing of the RF cable is modified, does the C/N value fluctuate?
• When the RF cable is shortened as much as possible, is the symptom cleared?
Yes
If IF_AGC level and C/N value are high enough, block noise is not usually generated.
Digital satellite Broadcast
Is a Packet error generated? (PER check)
No
An error may be generated in the B.E. block (after the demodulation TS is output).
Yes
Replace the MAIN BLOCK Assy and check if the symptom persists.
No
Replace the MAIN BLOCK Assy.
Yes
Is the input level high enough? (RF Level check)
No
[Checking of the reception environment]
• Is the signal loss large because multiple distributors are used?
• When a booster or attenuator is added, is the symptom cleared?
• Is the RF cable defective?
• When the dressing of the RF cable is modified, does the level fluctuate?
Yes
Is the C/N value high enough? (C/N check)
No
[Checking of the reception environment]
• Is the C/N value affected by a wireless LAN or other ambient electromagnetic waves?
• When the dressing of the RF cable is modified, does the C/N value fluctuate?
• When the RF cable is shortened as much as possible, is the symptom cleared?
Yes
If IF_AGC level and C/N value are high enough, block noise is not usually generated.

■ How to Confirm the DTV Tuning Status on the Digital Tuner Service Menu

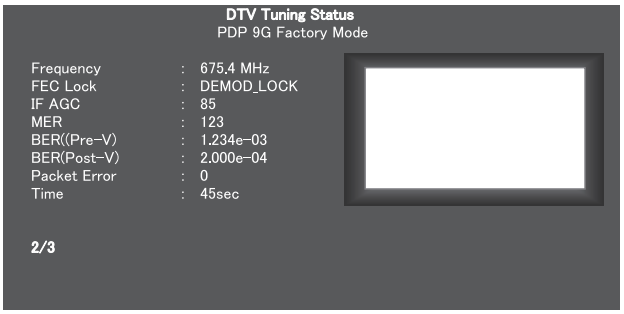
If block noise is generated, it is necessary to acquire the DTV Tuning Status for the reception frequency of the signal in which block noise is generated. For comparison, it is also necessary to acquire the DTV Tuning Status for another reception frequency of the signal in which block noise is not generated. The DTV Tuning Status page to be acquired is shown below:

DTV Tuning Status (1/3)



Frequency : Frequency of the signal currently being received.
Band Width : Bandwidth of the signal currently being received.
FFT : FFT mode of the signal currently being received (2K or 8K).
Modulation : Modulation method for the signal currently being received.
Code Rate : Code Rate of the signal currently being received.
Guard : Guard Interval of the signal currently being received.
FEC Lock : Current lock status of the receiver. The available lock statuses are as shown below:
DEMOD_LOCK
FEC_LOCK
DRX_LOCK
UNLOCK

DTV Tuning Status (2/3)



IF AGC : IF AGC level of the signal currently being received.
The AGC-level limits in normal reception are shown below.
Use the following values only as a guide, because they may be affected by the reception environment.

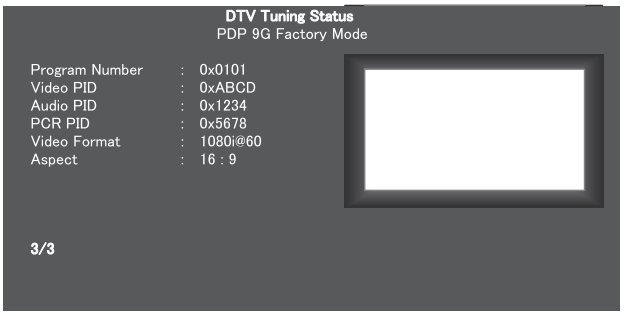
Modulation	Code Rate	Signal-level Limit in Normal Reception
QPSK	1/2	100
	2/3	100
	3/4	100
	5/6	100
	7/8	100
16QAM	1/2	100
	2/3	100
	3/4	100
	5/6	100
	7/8	100
64QAM	1/2	100
	2/3	58
	3/4	56
	5/6	55
	7/8	54

BER (Pre-V) : Pre-Viterbi Bit Error Rate of the signal currently being received.
BER (Post-V) : Post-Viterbi Bit Error Rate of the signal currently being received. If the value is 2.000E-04, block noise is not caused by a problem in the tuner.
Packet Error : Packet error count of the signal currently being received. If the packet error count is “0,” block noise caused by the tuner will not be generated.
Time : Measured duration of BER (Pre-V), BER (Post-V), or Packet Error. To reset the value to 0 and restart measuring, press the ⬅ or ➡ key on the remote control unit.

MER : Quality of the signal currently being received.
The signal qualities in normal reception are shown below.
Use the following values only as a guide.

Modulation	Code Rate	MER Limit in Normal Reception
QPSK	1/2	93
	2/3	85
	3/4	67
	5/6	76
	7/8	82
16QAM	1/2	98
	2/3	116
	3/4	127
	5/6	138
	7/8	145
64QAM	1/2	140
	2/3	170
	3/4	184
	5/6	197
	7/8	206

DTV Tuning Status (3/3)

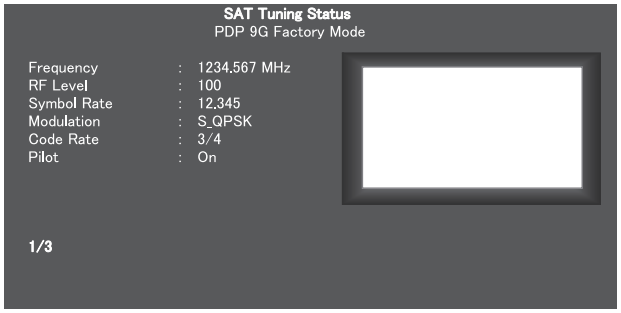


Program Number : No. of the program currently being received.
Video PID : Video PID of the program currently being received.
Audio PID : Audio PID of the program currently being received.
PCR PID : PCR PID of the program currently being received.
Video Format : Video Format of the program currently being received.
Aspect : Aspect ratio of the program currently being received.

■ How to Confirm the SAT Tuning Status on the Digital Tuner Service Menu

If block noise is generated, it is necessary to acquire the SAT Tuning Status for the reception frequency of the signal in which block noise is generated. For comparison, it is also necessary to acquire the SAT Tuning Status for another reception frequency of the signal in which block noise is not generated. The SAT Tuning Status page to be acquired is shown below:

SAT Tuning Status (1/3)

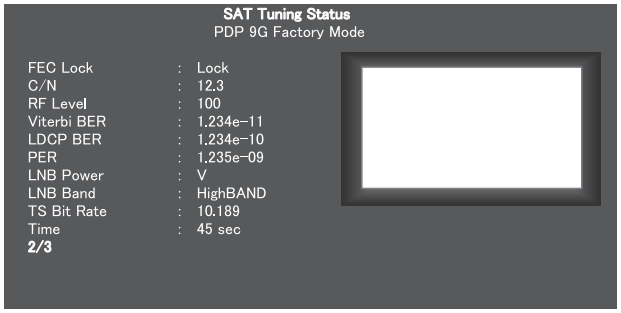


Frequency : Frequency of the signal currently being received.
RF Level : Level of the signal currently being received.
The signal-level limits in normal reception are shown below. Use the following values only as a guide, because they may be affected by the reception environment.

Modulation	Signal-level Limit in Normal Reception
S2_QPSK	50 to 75
S2_8PSK	50 to 75
S_QPSK	50 to 75

Modulation : Modulation method for the signal currently being received.
Symbol Rate : Symbol Rate of the signal currently being received.
Code Rate : Code Rate of the signal currently being received.
Pilot : On/off status of the Pilot signal currently being received.

SAT Tuning Status (2/3)



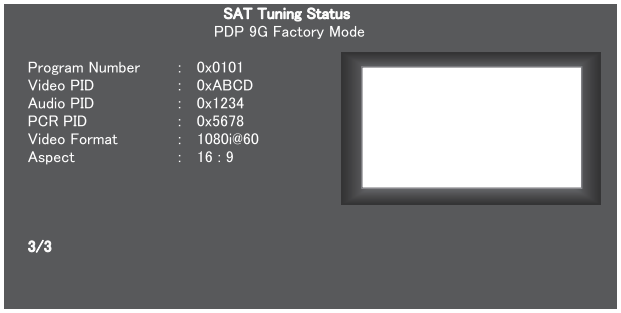
FEC Lock : Current lock/unlock status of the error-correction function of the receiver.
C/N : Current reception C/N. The limit C/Ns in normal reception are shown below. Use the following values only as a guide.

Limit C/N in normal reception

Modulation	Code Rate	Limit C/N in Normal Reception	Modulation	Code Rate	Limit C/N in Normal Reception
S2_QPSK	1/2	1.1	S2_8PSK	3/4	8.1
S2_QPSK	3/5	2.4	S2_8PSK	5/6	9.6
S2_QPSK	2/3	3.2	S2_8PSK	8/9	11.0
S2_QPSK	3/4	4.2	S2_8PSK	9/10	11.3
S2_QPSK	4/5	4.8	S_QPSK	1/2	5.2
S2_QPSK	5/6	5.3	S_QPSK	2/3	7.0
S2_QPSK	8/9	6.4	S_QPSK	3/4	8.0
S2_QPSK	9/10	6.6	S_QPSK	5/6	9.1
S2_8PSK	3/5	7.9	S_QPSK	7/8	9.8
S2_8PSK	2/3	8.0			

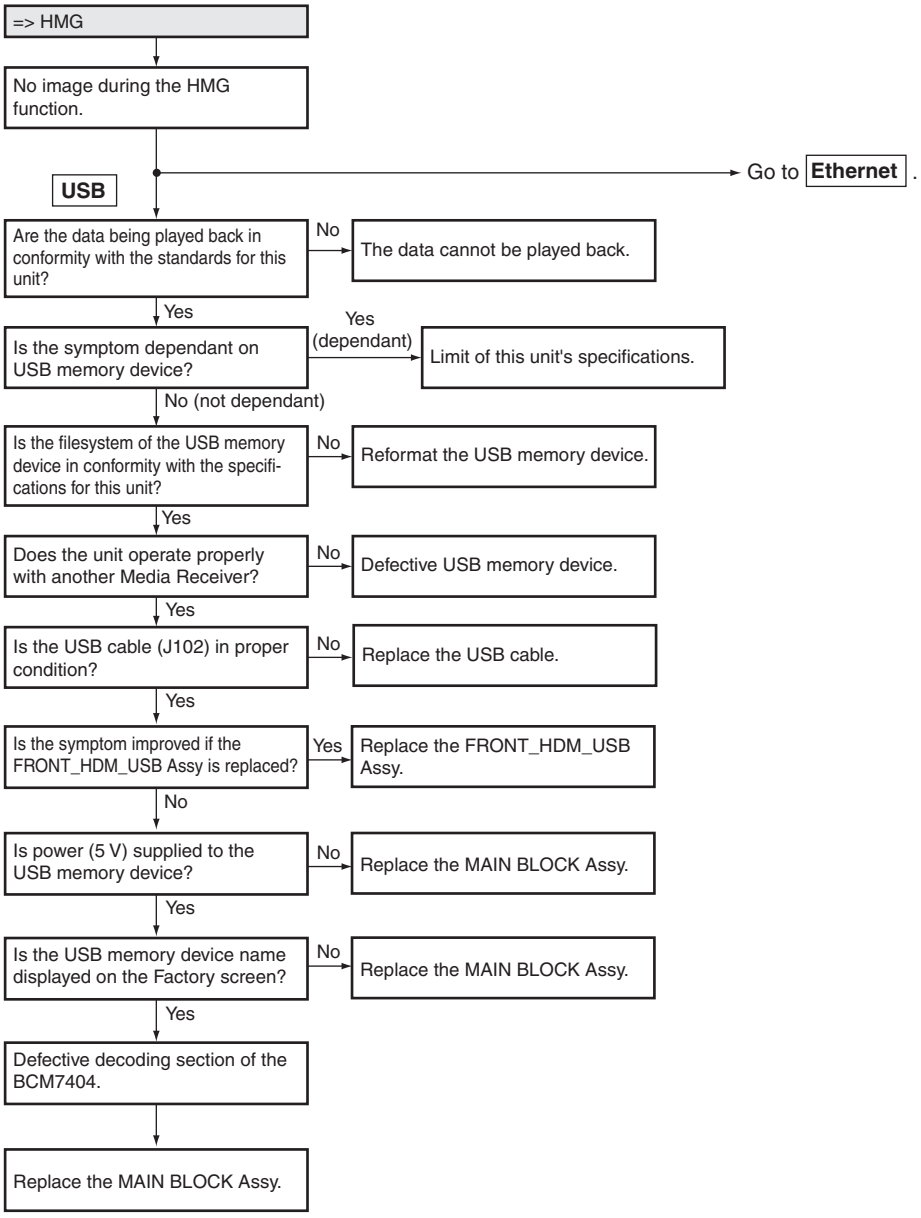
Viterbi BER : Bit error rate while the S_QPSK signal is being received. While the S2_QPSK or S2_8PSK signal is received, **** is displayed. If the value is 2e-4 or less, block noise is not caused by a problem in the tuner.
LDCP BER : Bit error rate while the S2_QPSK or S2_8PSK signal is being received. While the S_QPSK signal is received, **** is displayed.
PER : Packet error rate during reception. If the value is 0.000e-00, block noise is not caused by a problem in the tuner.
LNB POWER : Voltage currently being supplied to the LNB
LNB BAND : Frequency band that is currently set to the LNB
TS Bit Rate : TS Bit Rate of the signal currently being received
Time : Measured duration of Viterbi BER, LDCP BER, or PER. To reset the value to 0 and restart measuring, press the ⬅ or ➡ key on the remote control unit.

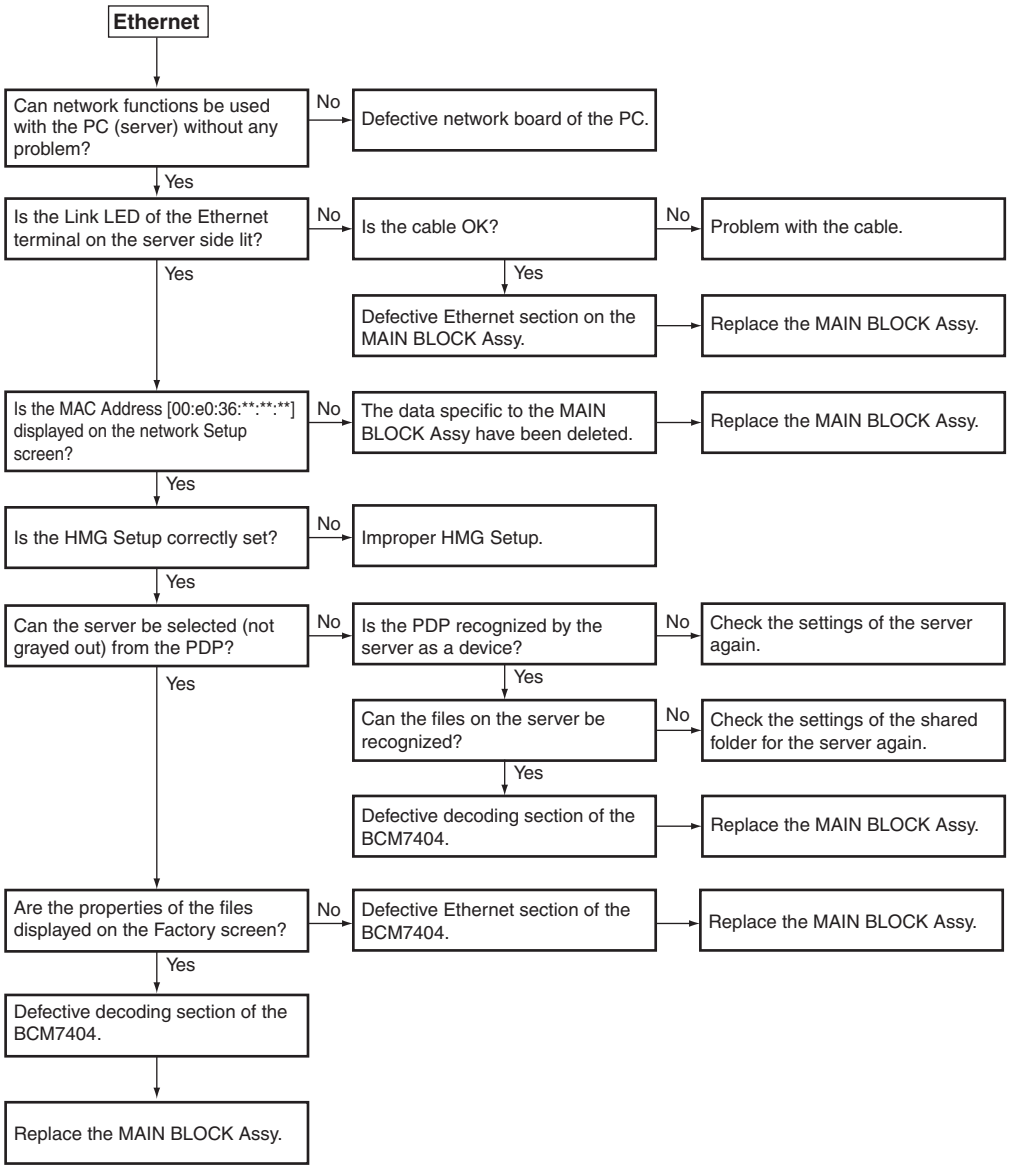
SAT Tuning Status (3/3)



Program Number : No. of the program currently being received.
Video PID : Video PID of the program currently being received.
Audio PID : Audio PID of the program currently being received.
PCR PID : PCR PID of the program currently being received.
Video Format : Video Format of the program currently being received.
Aspect : Aspect ratio of the program currently being received.

Flowchart of Failure Analysis for The HMG





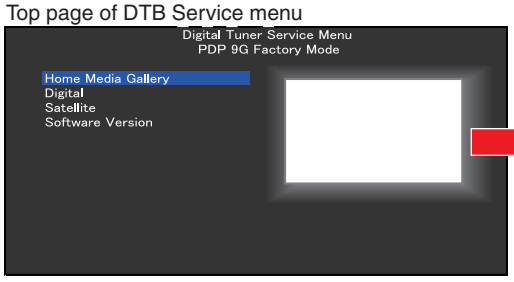
[HMG] How to enter DTB Service menu

Note: Use the remote control unit that supports Factory mode, because the DTB Service menu is accessible from Factory mode.

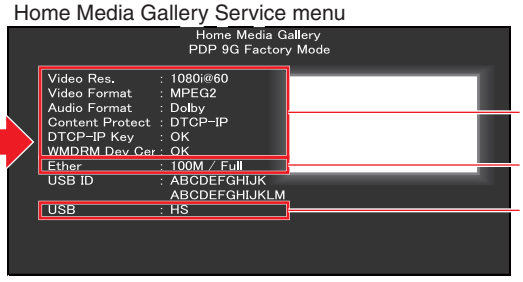
Step 1: Press the FACTORY key on the remote control unit to display the INFORMATION screen of Factory mode.
Step 2: Press the MUTING key on the remote control unit 4 times to display the INITIALIZE screen.
Step 3: Press the ⬇ key on the remote control unit twice to display the “DTB SERVICE MODE (+)” indication at the bottom of the screen.
Step 4: Press the ENTER/SET key on the remote control unit to display the “MODE SHIFT <=>: No” indication at the bottom of the screen.
Step 5: Press the ⬅ or ➡ key on the remote control unit until the “MODE SHIFT <=>: YES” indication is displayed at the bottom of the screen.
Step 6: Press and hold the ENTER/SET key on the remote control unit pressed for 5 seconds or more to activate DTB Service menu.

The Home Media Gallery (HMG) Service menu is indicated below:

Top page of DTB Service menu



Home Media Gallery Service menu



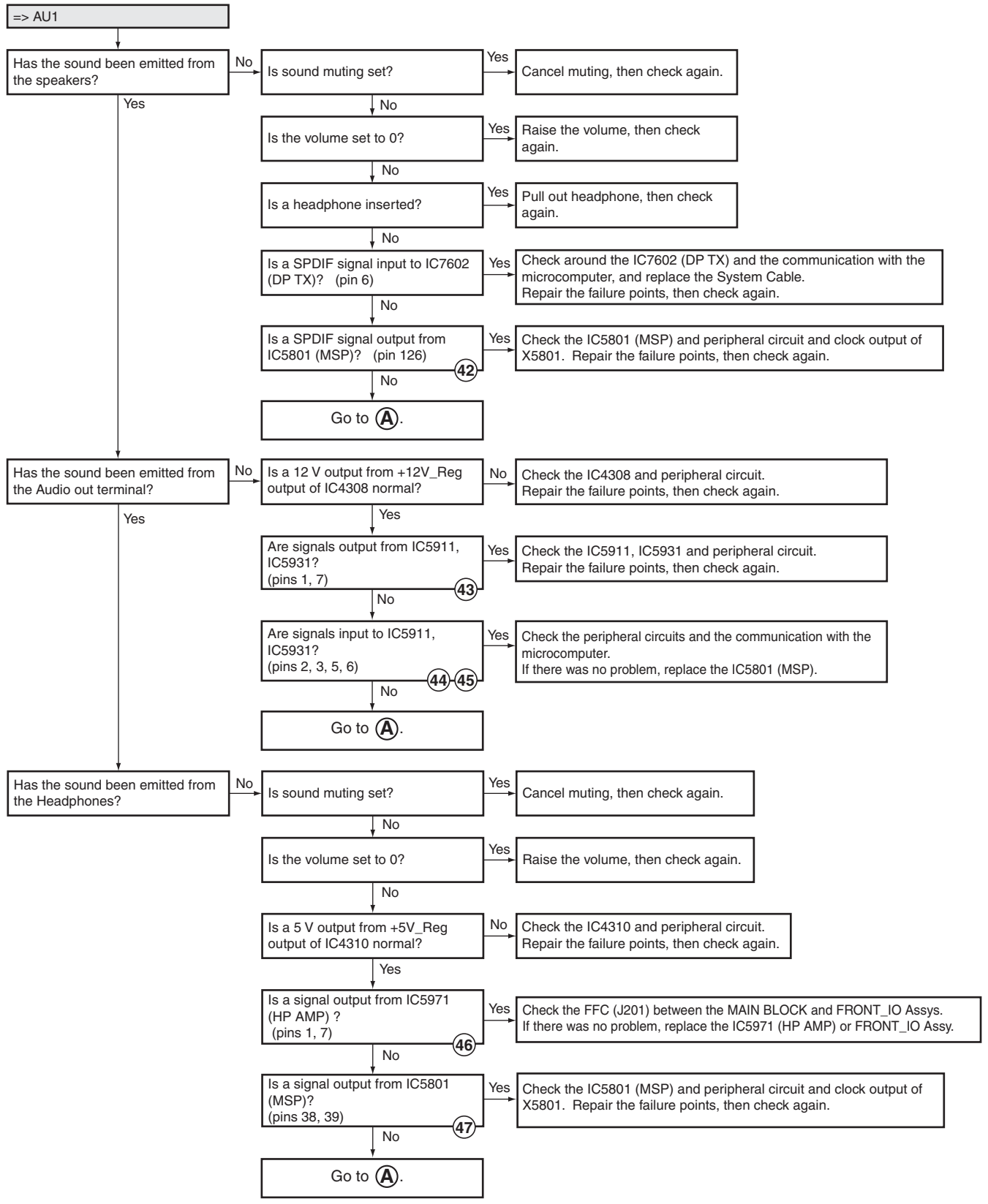
Content data

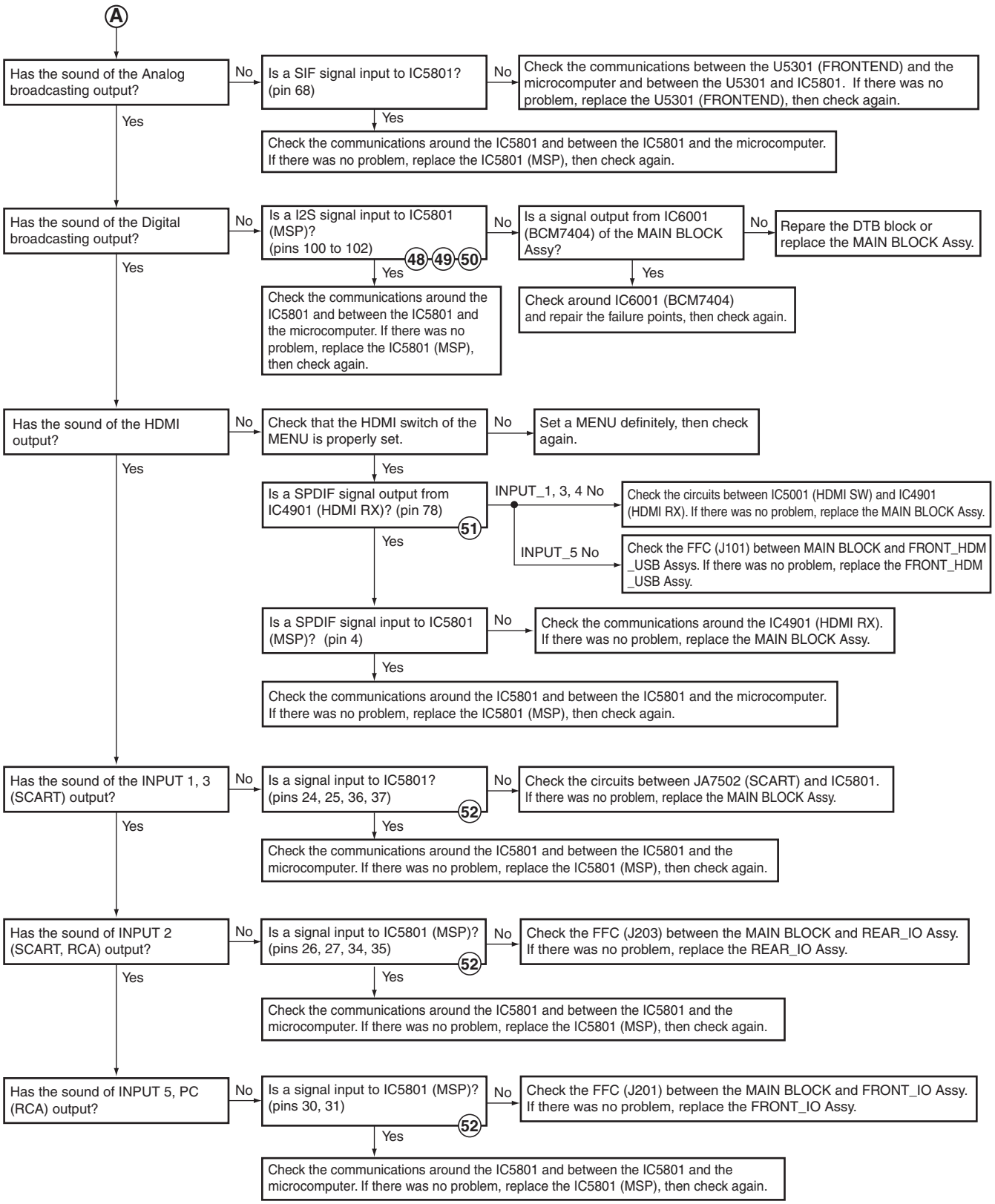
Ethernet connection information

USB device information

[5] AUDIO SYSTEM

Flowchart of Failure Analysis for The Audio System

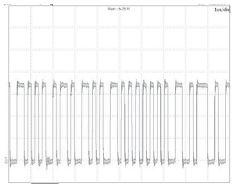



A
Has the sound of the Analog broadcasting output?
No
Is a SIF signal input to IC5801? (pin 68)
No
Check the communications between the U5301 (FRONTEND) and the microcomputer and between the U5301 and IC5801. If there was no problem, replace the U5301 (FRONTEND), then check again.
Yes
Yes
Check the communications around the IC5801 and between the IC5801 and the microcomputer. If there was no problem, replace the IC5801 (MSP), then check again.
Has the sound of the Digital broadcasting output?
No
Is a I2S signal input to IC5801 (MSP)? (pins 100 to 102)
48 49 50
No
Is a signal output from IC6001 (BCM7404) of the MAIN BLOCK Assy?
No
Repare the DTB block or replace the MAIN BLOCK Assy.
Yes
Yes
Check the communications around the IC5801 and between the IC5801 and the microcomputer. If there was no problem, replace the IC5801 (MSP), then check again.
Check around IC6001 (BCM7404) and repair the failure points, then check again.
Has the sound of the HDMI output?
No
Check that the HDMI switch of the MENU is properly set.
No
Set a MENU definitely, then check again.
Yes
Yes
Is a SPDIF signal output from IC4901 (HDMI RX)? (pin 78)
51
INPUT_1, 3, 4 No
Check the circuits between IC5001 (HDMI SW) and IC4901 (HDMI RX). If there was no problem, replace the MAIN BLOCK Assy.
INPUT_5 No
Check the FFC (J101) between MAIN BLOCK and FRONT_HDM _USB Assys. If there was no problem, replace the FRONT_HDM _USB Assy.
Yes
Is a SPDIF signal input to IC5801 (MSP)? (pin 4)
No
Check the communications around the IC4901 (HDMI RX). If there was no problem, replace the MAIN BLOCK Assy.
Yes
Check the communications around the IC5801 and between the IC5801 and the microcomputer. If there was no problem, replace the IC5801 (MSP), then check again.
Has the sound of the INPUT 1, 3 (SCART) output?
No
Is a signal input to IC5801? (pins 24, 25, 36, 37)
52
No
Check the circuits between JA7502 (SCART) and IC5801. If there was no problem, replace the MAIN BLOCK Assy.
Yes
Yes
Check the communications around the IC5801 and between the IC5801 and the microcomputer. If there was no problem, replace the IC5801 (MSP), then check again.
Has the sound of INPUT 2 (SCART, RCA) output?
No
Is a signal input to IC5801 (MSP)? (pins 26, 27, 34, 35)
52
No
Check the FFC (J203) between the MAIN BLOCK and REAR_IO Assy. If there was no problem, replace the REAR_IO Assy.
Yes
Yes
Check the communications around the IC5801 and between the IC5801 and the microcomputer. If there was no problem, replace the IC5801 (MSP), then check again.
Has the sound of INPUT 5, PC (RCA) output?
No
Is a signal input to IC5801 (MSP)? (pins 30, 31)
52
No
Check the FFC (J201) between the MAIN BLOCK and FRONT_IO Assy. If there was no problem, replace the FRONT_IO Assy.
Yes
Yes
Check the communications around the IC5801 and between the IC5801 and the microcomputer. If there was no problem, replace the IC5801 (MSP), then check again.

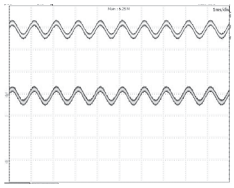
● Waveforms

Input signal: L/R 1 kHz, 0.5 Vrms (VOL 30)

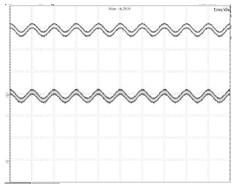
(42) IC5801 - pin 126
V: 1 V/div H: 1 μS/div



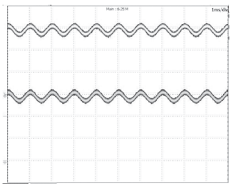
(43) IC5931 - pins 1, 7
V: 2 V/div H: 1 mS/div



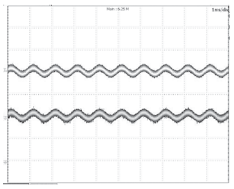
(44) IC5931 - pins 2, 3
V: 2 V/div H: 1 mS/div



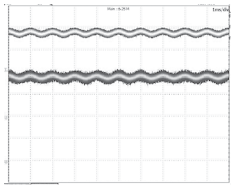
(45) IC5931 - pins 5, 6
V: 2 V/div H: 1 mS/div



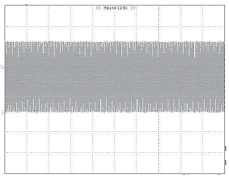
(46) IC5971 - pins 1, 7
V: 1 V/div H: 1 mS/div



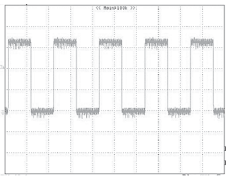
(47) IC5801 - pins 38, 39
V: 1 V/div H: 1 mS/div



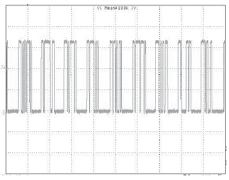
(48) IC5801 - pin 100
V: 1 V/div H: 10 μS/div



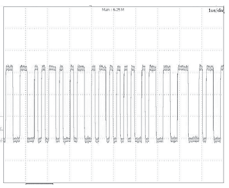
(49) IC5801 - pin 101
V: 1 V/div H: 10 μS/div



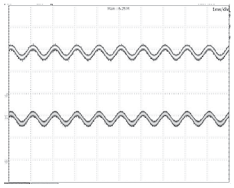
(50) IC5801 - pin 102
V: 1 V/div H: 10 μS/div



(51) IC4901 - pin 78
V: 1 V/div H: 1 μS/div



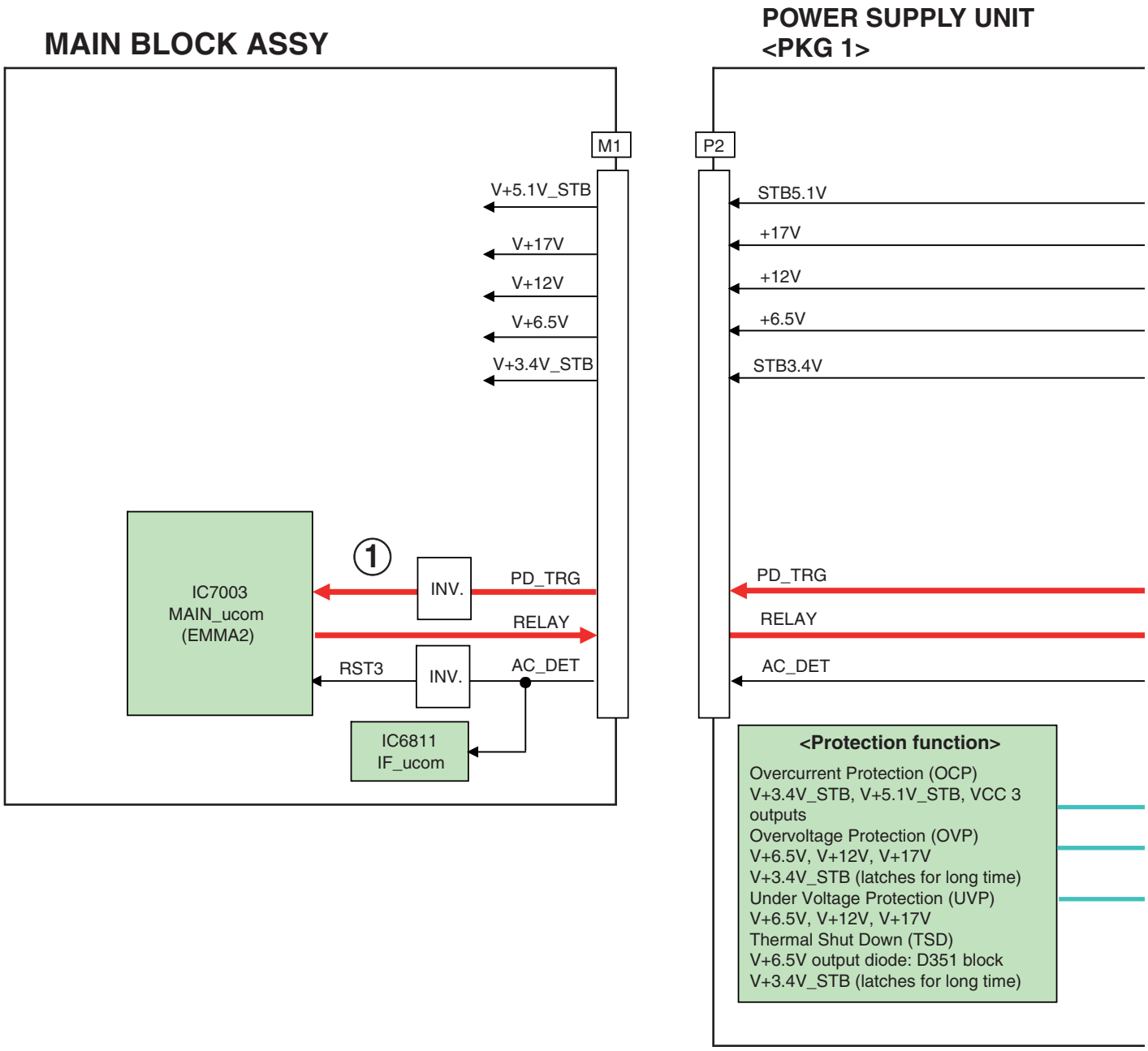
(52) IC5801 - pins 24, 25
V: 2 V/div H: 1 mS/div

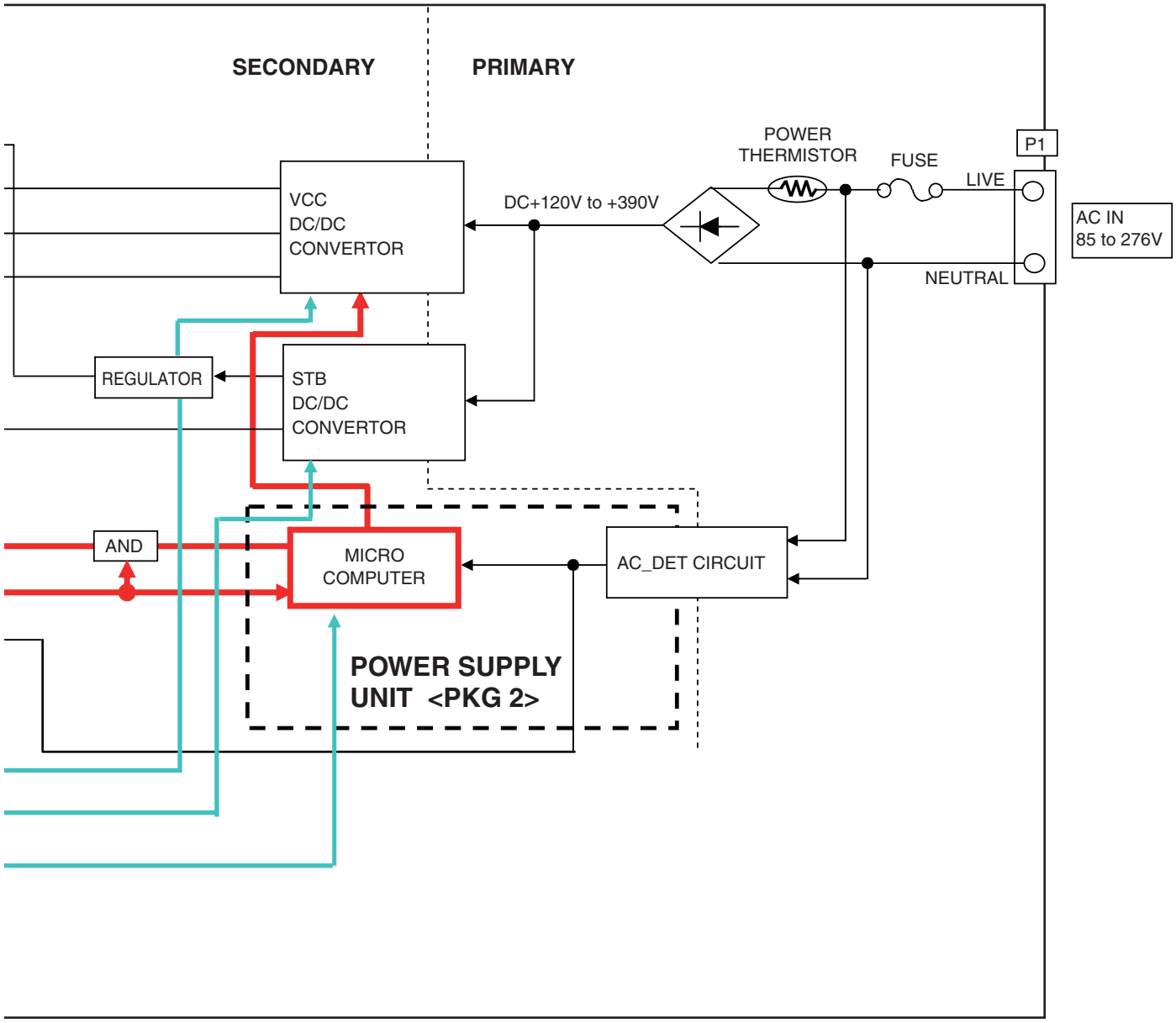


5.3 DIAGNOSIS OF PD (POWER-DOWN)

[1] BLOCK DIAGRAM OF THE POWER-DOWN SIGNAL

Note:
The figure ① indicate the number of times the Red LED flashes when power-down occurs in the corresponding route.




SECONDARY
PRIMARY
POWER
THERMISTOR
FUSE
P1
LIVE
AC IN
85 to 276V
VCC
DC/DC
CONVERTOR
DC+120V to +390V
NEUTRAL
REGULATOR
STB
DC/DC
CONVERTOR
AND
MICRO
COMPUTER
AC_DET CIRCUIT
POWER SUPPLY
UNIT <PKG 2>

[2] PD (POWER-DOWN) DIAGNOSIS OF FAILURE ANALYSIS

■ How to Distinguish the PD (Power-Down)

About the LED for checking causes of power-down

No LED for checking causes of power-down is provided for the POWER SUPPLY Unit of the MR.
However, by checking the waveforms at terminals of the microcomputer, whether a power-down was caused by failure in the POWER SUPPLY Unit, and if it was, which power system among the four was in failure can be inferred.
The points at which to check waveforms and how to distinguish power-down causes are described below:

<Points at which to Check Waveforms>

Waveforms between Pin 3 of CN801 and GND (secondary radiator, display chassis, etc.)
Refer to the section “Note on Removing the POWER SUPPLY Unit from the Chassis and Method for Resettig Standby Power Latchup” in the “7.2 DISASSEMBLY”.

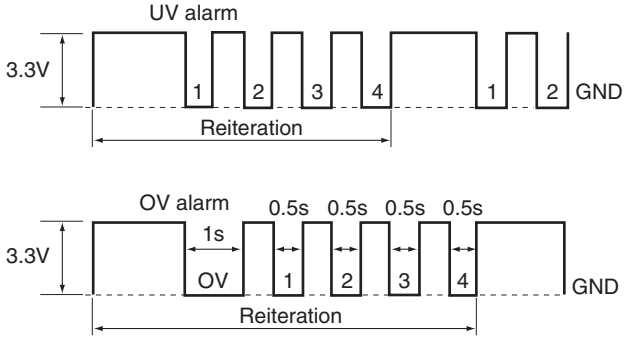
<How to Distinguish>

If a power-down was caused by failure in the POWER SUPPLY Unit, a pulse waveform is output at the above-mentioned points. (It is assumed that STB3.4 V power is properly output.)
By counting the frequency of “Lo” in the pulse waveform, the cause of power-down can be identified.

Frequency of “Lo”	Cause	
	Output Voltage	Overvoltage (OV) or Undervoltage (UV)
Once	+12V	OV or UV *
Twice	+17V	OV or UV *
3 times	+6.5V	OV or UV *
4 times	Protection against overheat	

***How to distinguish OV and UV:**
If the first “Lo” duration of a pulse is long (1 s), the cause is OV.
As the three output voltages are electromagnetically linked and interact with one another, the frequency may vary among 1-3, depending on the type of power-down.

Examples:



How to Diagnose the PD

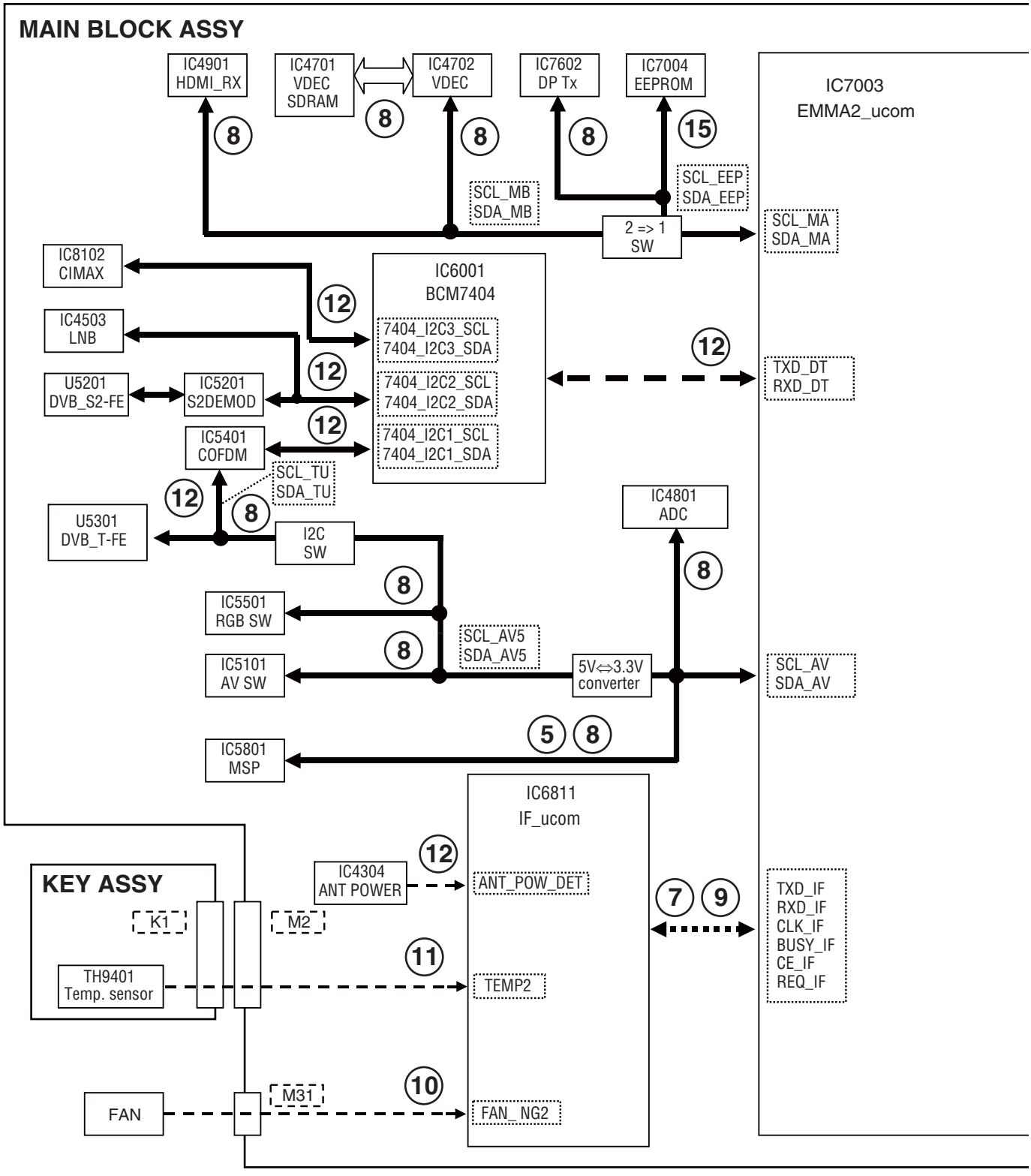
Frequency of LED Flashing	History Indication in Factory Mode	Assy	Cause of power-down (activated protection circuit)	Point to be Checked	Possible Defective Parts
Red, once	MR-PWR	MAIN BLOCK Assy	Overcurrent in 6.5 V power	5V_ANT-REG	IC4305, C4305
				5V_IO-REG	IC4310, C4301
				3CH-DD converter	IC4402 C4405, C4406, C4409, C4463, C4464, C4466 to C4468
				FET	Q4417, Q4416, Q4411
				1CH-DD converter	IC4501, C4517
			Overcurrent in 12 V power	FAN-REG	IC4302, C4342
				8V_IO-REG	IC4309, C4315
				LNB	IC4503
			Overcurrent in 17 V power	12V_IO-REG	IC4308, C4303
			Overcurrent in 3.4 V power	1.8V_IO-REG	IC4604, C4609 C4820, C8103
		POWER SUPPLY Unit	V+6.5V UVP	TP V+6.5V	Voltage drop due to overcurrent on the load side
			V+12V UVP	TP V+12V	Voltage drop due to overcurrent on the load side
			V+17V UVP	TP V+17V	Voltage drop due to overcurrent on the load side
			STB3.4V OCP	TP STB3.4V	C151, C153, C152, D152, or Z152, and abnormal current on the load side that is connected to STB3.4 V power
			STB5.1V OCP	TP STB5.1V	C155 and abnormal current on the load side that is connected to STB5.1 V power And abnormal current on the load side that is connected to STB5.1 V power
			VCC OCP	TP V+6.5V	D351, C351, C352, C353, and abnormal current on the load side that is connected to V+6.5V power
				TP V+12V	D352, C357, C358, and abnormal current on the load side that is connected to V+12V power
				TP V+17V	D353, C359, and abnormal current on the load side that is connected to V+17V power
			STB3.4V OVP	TP STB3.4V	PC121
			VCC OVP	TP V+6.5V TP V+12V	PC301, Breakage in the line to/from the P2 output connector
			STB3.4V TSD		Z121 control IC and abnormal current on the load side that is connected to STB3.4 V power
			V+6.5V Rectifier diode (D351) TSD		D351 or D352, and abnormal current on the load sides that is connected to V+6.5 V and V+12 V

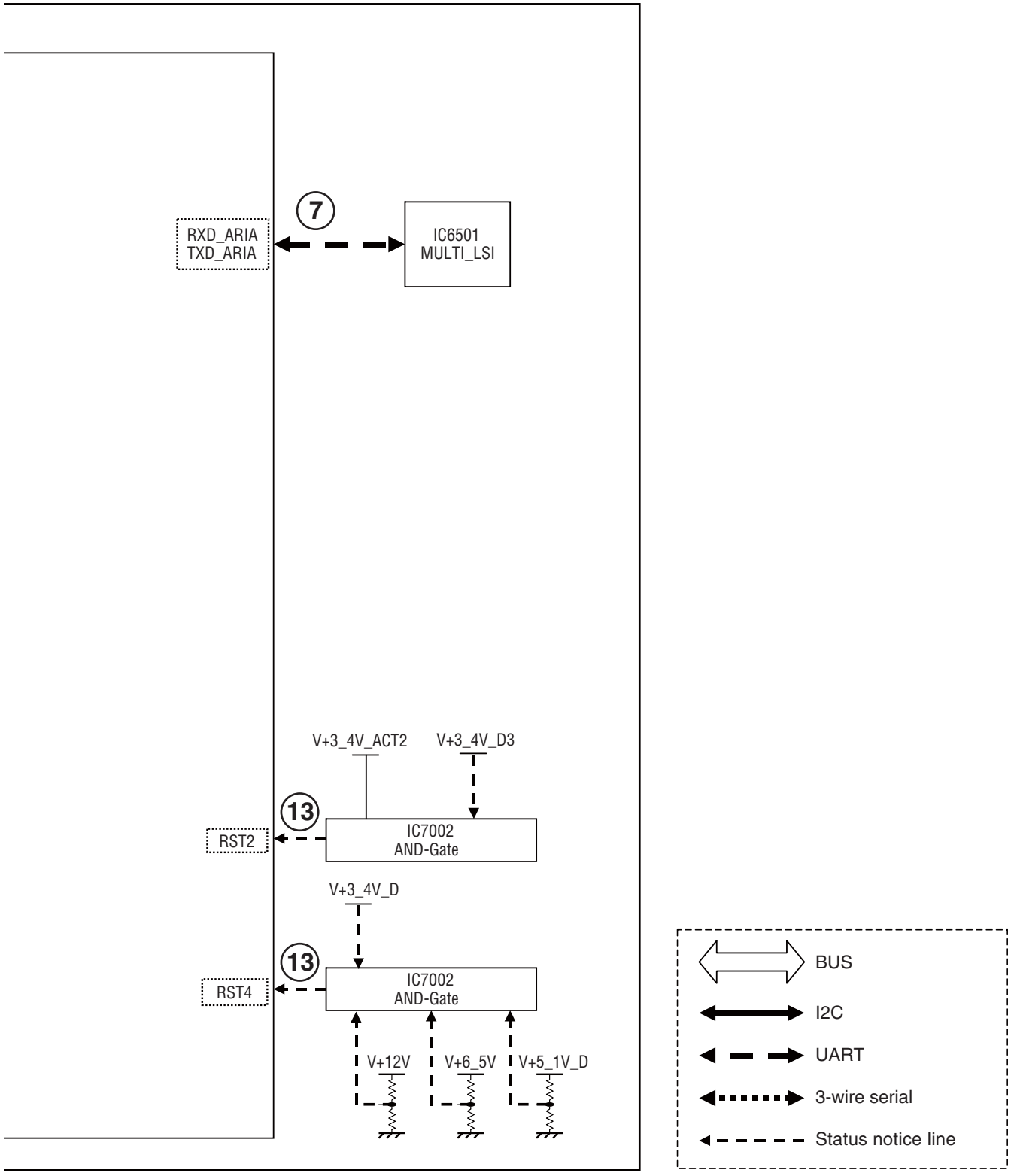
Note: Although replacement of the whole POWER SUPPLY Unit is required (replacement of only defective parts on the POWER SUPPLY Unit is not possible), the circuit symbols are described for reference

5.4 DIAGNOSIS OF SD (SHUTDOWN)

[1] BLOCK DIAGRAM OF THE SHUTDOWN SIGNAL

Note : The figures ① to ⑮ indicate the number of times the Blue LED flashes when shut-down occurs in the corresponding route. ⑫ LED is not flashed.




RXD_ARIA
TXD_ARIA
7
IC6501
MULTI_LSI
V+3_4V_ACT2
V+3_4V_D3
13
RST2
IC7002
AND-Gate
V+3_4V_D
13
RST4
IC7002
AND-Gate
V+12V
V+6_5V
V+5_1V_D
BUS
I2C
UART
3-wire serial
Status notice line

[2] SD (SHUTDOWN) DIAGNOSIS

Frequency of LED Flashing	Major Type	Detailed Type	Log Indication in Factory Mode		
			MAIN	SUB	
Blue 5	Audio	Abnormality in MSP	AUDIO	MSPMAP	
Blue 7	Failure in 3-wire serial communication with the main microcomputer	IF microcomputer	MA-3L	IF	
		MULTI		MULTI	
Blue 8	Failure in IIC communication with the main microcomputer	Tuner1	MA-IIC	FE1	
		MSP/MAP		MSPMAP	
		AV Switch		AV-SW	
		RGB Switch		RGB-SW	
		Main VDEC		VDEC	
		VDEC SDRAM		SDRAM	
		AD/PLL		ADC	
		HDMI		HDMI	
		DisplayPort Tx		DP-TX	
Blue 9	Failure in communication with the main microcomputer	–	MAIN	–	
Blue 10	Abnormality in FAN	FAN2	FAN	FAN2	
Blue 11	High temperature of the unit	–	TEMP2	–	
Blue 12 (Actually, Blue 12 LED is not flashed.)	Digital Tuner	DTV start up error	DTUNER	PS/RST	
		DTV communication error		RETRY	
		DEVICE ERR		DEVICE	
		Tuner1		DE-FE	
		DTV Antenna		D-ANT	
		Application		DTVAPP	
		COFDM		DEMOD	
		Tuner S2		DE-FES	
		S2DEMOD		DEMODS	
		LNB		DE-LNB	
		S2 Antenna		S-ANT	
Blue 13	Failure in the power supply	DC-DC Converter power decrease	RST-MA	M-DCDC	
		POWER SUPPLY		RELAY	
Blue 15	Main EEPROM	Main EEPROM communication error	MA-EEP	–	

Checkpoint	Possible Defective Part	Remarks
Power supply for MSP and MSP	IC5801, IC4604, Q4616	Check the MSP, its power and periphery parts (e.g. reset line).
Communication line between IF and MAIN	IC7003, IC6811	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF/REQ_IF)
Communication line between MULTI and MAIN	IC7003, IC6501	Check the communication lines (TXD_ARIA/RXD_ARIA)
IIC communication line between Tuner and MAIN	U5301, IC7003	Check the communication lines (SCL_TU/SDA_TU or SCL_AV/SDA_AV)
IIC communication line between MSP/MAP and MAIN	IC5801, IC7003	Check the communication lines (SCL_AV/SDA_AV)
IIC communication line between AV_SW and MAIN	IC5101, IC7003	Check the communication lines (SCL_AV5/SDA_AV5)
IIC communication line between RGB_SW and MAIN	IC5501, IC7003	Check the communication lines (SCL_AV5/SDA_AV5)
IIC communication line between M_VDEC and MAIN	IC4702, IC7003	Check the communication lines (SCL_MB/SDA_MB)
Communication line between VDEC and SDRAM	IC4701, IC4702	Check the communication lines (SDRAM), Failure in SDRAM
IIC communication line between ADC and MAIN	IC4801, IC7003	Check the communication lines (SCL_AV/SDA_AV)
IIC communication line between HDMI_RX and MAIN	IC4901, IC7003	Check the communication lines (SCL_MB/SDA_MB)
IIC communication line between DP_TX and MAIN	IC7602, IC7003	Check the communication lines (SCL_EEP/SDA_EEP)
Communication line between IF and MAIN	IC6811, IC7003	Check the communication lines (TXD_IF/RXD_IF/CLK_IF/BUSY_IF/CE_IF /REQ_IF)
Dirt attached to the fan motor		Check the fan. (SD10 does not detect it at the temperature that fans do not turn.)
Periphery of the FAN		FAN_NG
Periphery of the cable at M31		Check if cables are firmly connected.
Periphery of the fan control regulator	IC4302	Check that the voltage outputs it.
Ambient temperature		TEMP2 A shutdown occurs because of high temperature.
Temperature sensor or its periphery	TH9401	TEMP2
Periphery of the cable between M2 and K1	CN4204, CN9401	Check if cables are firmly connected.
Startup of BCM7404	IC6001	Check the startup of the BCM7404 and the communication line with MAIN
Communication line between BCM7404 and MAIN	IC6001	Check the startup of the BCM7404 and the communication line with MAIN
Periphery of the BCM7404	IC6001	
Front-end block	IC6001, U5301	Check the BCM7404, terrestrial tuner and periphery devices.
Antenna supply voltage	IC4304	Check the IC4304 (overcurrent detection IC), its periphery devices and antenna connection line.
DTV application	IC6001	
COFDM	IC5401	Check the communication line between BCM7404 and COFDM
Tuner S2	U5201	Check the communication line between S2DEMOD and F.E.
S2DEMOD	IC5201	Check the communication line between BCM7404 and S2DEMOD
LNB	IC4503	Check the communication line between BCM7404 and LNB IC, and check the periphery parts of LNB IC.
Antenna supply voltage	IC4503	Check the LNB IC and periphery parts, and antenna connection line.
RST2 V+3_4V_ACT2, V+3_4V_D3	IC7002	Check if each voltages are started.
RST4 V+12V, V+6_5V, V+5_1V_D, V+3_4V_D	IC7002	Check if each voltages are started.
V+12V, V+6_5V, V+17V	POWER SUPPLY Unit	Check if each voltages are started.
Check the cable M1	CN4203	Check if cables are firmly connected.
IIC communication line between EEPROM and MAIN	IC7004, IC7003	Check the communication lines (SCL_EEP/SDA_EEP)

5.5 NON-FAILURE INFORMATION

[1] INFORMATION ON SYMPTOMS THAT DO NOT CONSTITUTE FAILURE

Symptom	Cause, item to check, information
HDMI: Symptoms concerning the input format and settings	
The picture color for an INPUT 1 or 3 to 5 signal is not correct.	The color setting for INPUT 1 or 3 to 5 is not compatible with that of the output equipment. Check whether the color setting is YPbPr or RGB.
The video signal to INPUT 1 or 3 to 5 is not displayed, and a message is displayed.	A unsupported video signal is input.
The audio signal input to the INPUT 1 or 3 is not output. No HDMI signal is input.	The audio setting for INPUT 1 or 3 is any setting, and a video signal is not input. If the audio setting is any setting, to output an analog audio signal, the HDMI signal must be input. (If a DVI device is to be connected, use a DVI-HDMI conversion cable.) If the HDMI video signal is not input, the analog audio signal is not output.
No sound of signals to INPUT 1 or 3 to 5 is output.	The setting on the side of the HDMI output equipment is wrong. Example: Dolby Digital
The 1080p input signal is not displayed properly or at all, although the 1080i input signal is displayed properly.	Check that the connected cable supports HDMI Category 2. (As the clock frequency for the 1080p signal is triple that for the 1080i signal, signal degradation caused by a cable must not be neglected. A cable supporting HDMI Category 2 can be used for the 1080p signal. Although some conventional cables can support the 1080p signal, some others cannot.)
SCART video output	
The video output signal from the SCART connector is deteriorated. Or when the video output signal from the SCART connector is recorded, its playback picture is deteriorated.	The video signal output from the SCART connector is Macrovision protected.
The video signal is not output when the component signal is input to INPUT 2.	The video signal is not output from the SCART connector when the component signal is selected.
The video signal is not output when the video signal is input to INPUT 1 or 3 to 5.	The video signal is not output from the SCART connector when the HDMI signal is selected.
AUDIO OUT and SCART	
The image displayed on the PDP is not synchronized with the sound from the SCART.	The audio signal from the SCART connector is synchronized with the video output signal from the SCART connector. And the audio signal from the AUDIO OUT is synchronized with the video signal that is currently displayed.
DIGITAL OUT	
Playback of the signal from the DIGITAL audio output connector is possible, but recording is not possible.	The video signal output from the DIGITAL connector is copy-protected.
The digital audio output signal from the DIGITAL connector is not synchronized with that from the SCART video output.	The digital audio output signal from the DIGITAL connector is synchronized with the video signal that is currently displayed, and not with the SCART video output.
Miscellaneous	
The no-signal off function is not activated.	The no-signal off and no-operation off functions are effective only if video (composite, S video, component, HDMI [excluding PC]) input or TV input is selected.
The no-operation off function is not activated.	
Power management does not function.	Power Management is effective only while an analog PC signal is being input. It is not effective with HDMI-PC signal input.
The AUTO SETUP function is not activated.	The Auto Setup function is effective only while an analog PC signal is being input. This function does not work if an analog PC signal is not input, even if the INPUT PC is selected.
Control via the SR connector is not possible.	Wrong connection of the cable to the PC INPUT (AUDIO) connector is suspected.
The audio signal from the PC is not output.	Wrong connection of the cable to the SR connector is suspected.
The picture-quality setting (AV Selection) is not stored.	The picture-quality setting is stored for each input. As the setting is changed when another input is selected, the user may have a false idea that the setting is not stored.
The picture size changes arbitrary.	The Auto Size setting is set to ON.
The display position of the screen changes slightly while the screen is on.	The orbiter function for minimizing the effects of phosphor burn is activated. Although the setting for this function can be changed on the Home menu, retaining the factory setting is strongly recommended.
The video signal to the S video connector is not displayed.	As the signal input to the connector that has been selected on the INPUT SELECT submenu of the Home menu is selected (this does not apply to the connectors located on the side of the unit), check the menu setting. If the output signal is not available even if the input signal is properly selected, input a signal to other input functions, check the connecting cables, or check the settings for the connected equipment. Note that if cables are connected to both the HDMI connector and composite video connector of INPUT 5, the HDMI connector will have priority over the composite video connector.
The video signal to the composite video connector is not displayed.	

SUPPLEMENT: On the video setting for HDMI

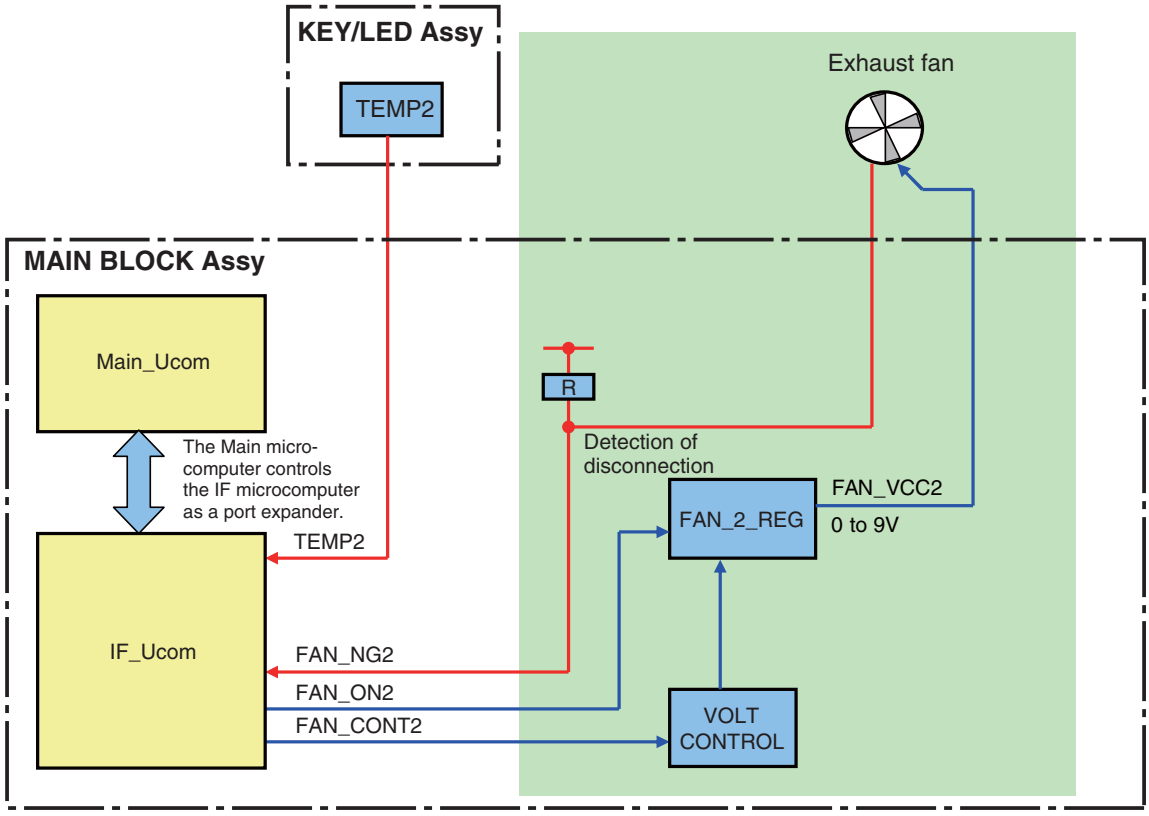
There are three types of HDMI output formats: color difference 4:4:4, color difference 4:2:2, and RGB4:4:4.
(The proportions, such as 4:4:4 and 4:2:2, represent those of the amount of data for video signal components. For example, as for color difference 4:4:4, the proportion of the amount of data as for Y, Cb, and Cr is 4:4:4.)

It is required to make the settings of the PDP according to the settings of the output equipment. For usual operation, however, set them to AUTO. If the color is inappropriate, make the settings manually.
In the HDMI system, video signals are coded at 24 bits per pixel and transmitted as a series of 24-bit pixels. In a case of color difference 4:4:4, Y, Cb, and Cr use 8 bits each. In a case of color difference 4:2:2, Y, Cb, and Cr use 12 bits each, but Cb and Cr are transmitted at a half sampling rate of Y. This unit is capable of processing the upper 10 bits out of 12 bits of video data. Recent high-end DVD players, such as Pioneer DV-79AVi, are capable of outputting 10-bit color-difference signals. In general, it is said that picture quality for color difference 4:2:2 format is assumed to be higher, because human eyes are more sensitive to luminance than to colors. In the case of RGB4:4:4, R, G, and B use 8 bits each.

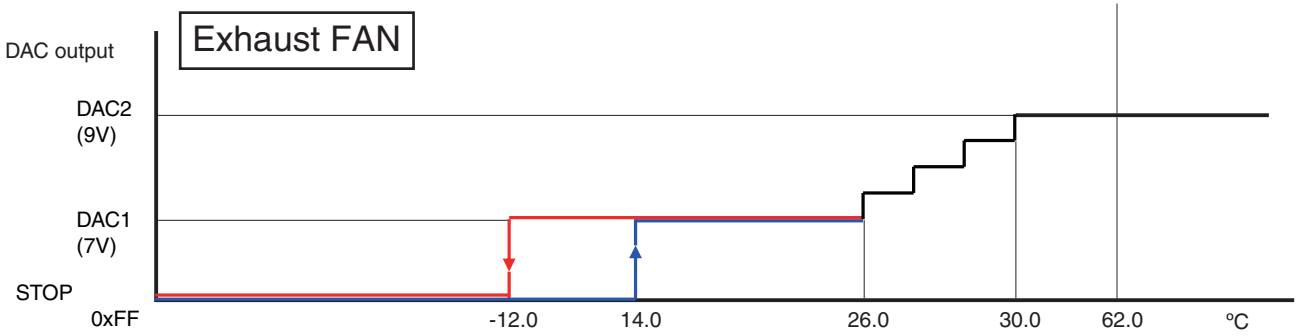
5.6 OUTLINE OF THE OPERATION

[1] SPECIFICATION OF THE FAN CONTROL

■ Block diagram



■ Operation specifications



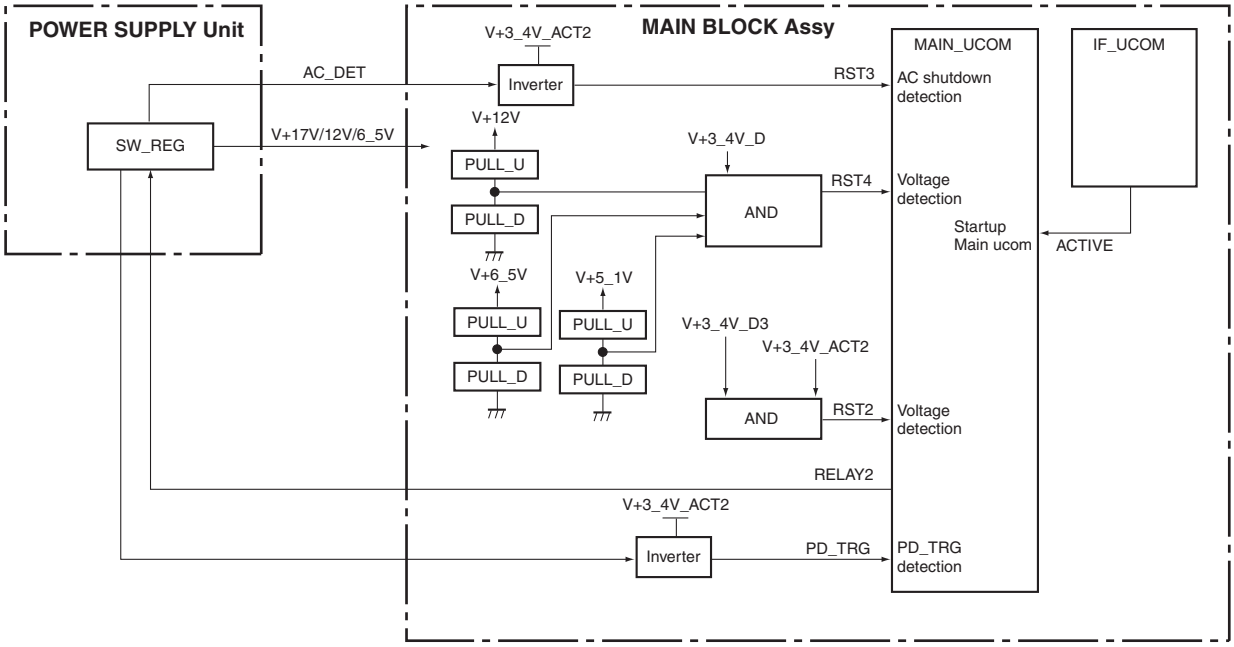
Notes:

- The operating temperature of the fan is different from the ambient temperature, because the sensor temperature is read by the microcomputer.
- The fan may not start rotating until the internal temperature of the unit reaches a certain level, such as immediately after the unit is turned on.
- When the temperature rises, the sensor voltage of TEMP2 decreases.
- When the voltage of the DAC output for exhaust FAN decreases, rotation speed of FAN rises.

[2] PROCESSING IN ABNORMALITY

Power supply and DC-DC converter

● Circuit configuration

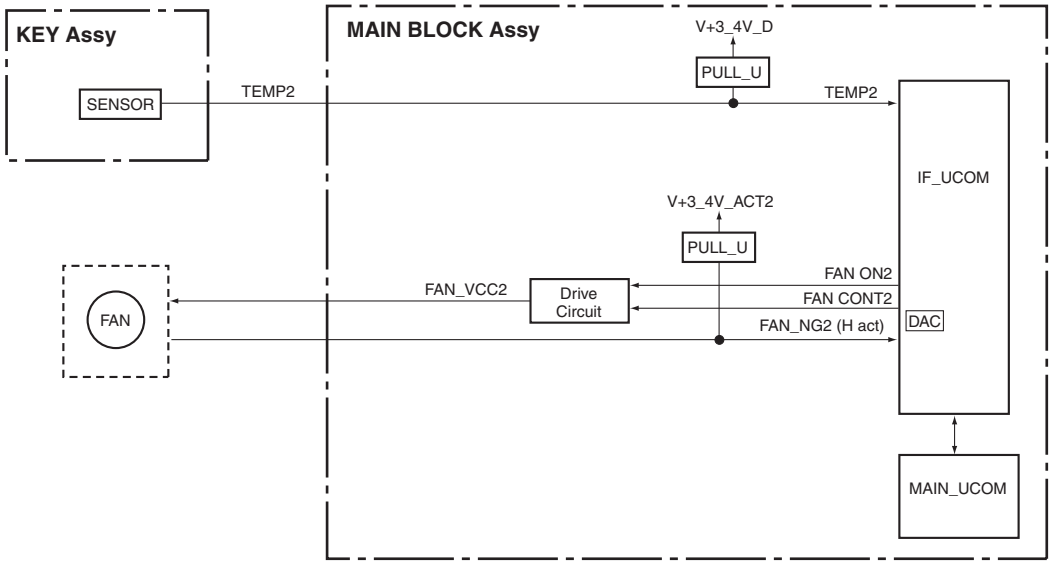


● Specifications for port monitoring

Port Name	SD/PD Indication	Determination Condition	Monitoring conditions	Operation
RST2	ASIC power (M-DCDC)	Shutdown occurs when the signal is "L." for 5 sec after PSW1 is ON. or for 2 sec while the unit is ON.	• Panel screen ON (RST4 = H and PSW1 = H) • While awaiting restoration of RST2 (RST2 = L)	Shutdown occurs immediately Blue LED flashes 13 times
RST3	—	—	Excepting passive standby	If "RST3 = H" (AC_OFF) is detected under the monitoring conditions, a power-off process starts. Monitoring of the RST3 port is continued, and monitoring of other ports is interrupted. Communication is controlled only by the IF microcomputer. The port outputs are set as specified. If the signal at the RST3 port continues to be H after 30 mS of waiting, monitoring is continued. If RST3 is L, a restoration process starts according to the latest power-on/-off status.
RST4	MAIN power (RELAY)	Shutdown occurs if the signal is "L." for 5 sec after RELAY2 is ON. or for 2 sec while the unit is ON or in Functional STB.	RELAY2 = ON (High)	Shutdown occurs immediately Blue LED flashes 13 times
PD_TRG	VCC power (MR-PWR)	Shutdown occurs when the signal is continuously "L" for 30msec * 3 times after RELAY2 is ON.	• RELAY2 = ON • Monitor it after 3 sec.	Power-down occurs immediately Red LED flashes once

Fan and temperature sensor

● Circuit configuration

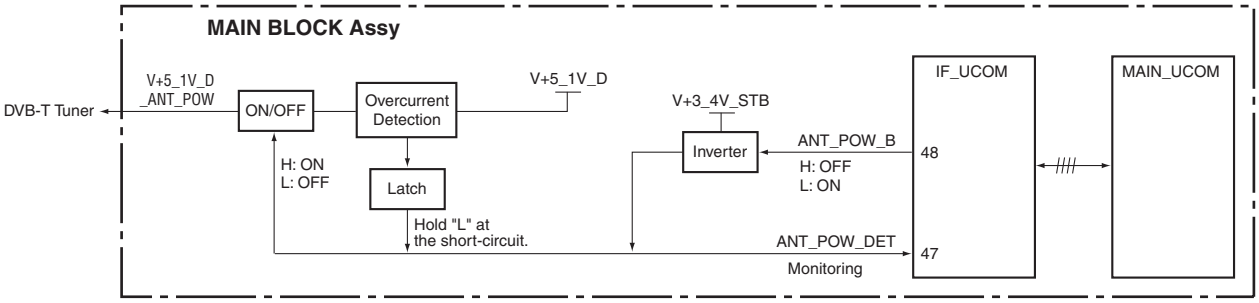


● Specifications for port monitoring

Port Name	SD/PD Indication	Determination Condition	Monitoring conditions	Operation
FAN_NG2	FAN	Shutdown occurs when the signal is "H." 1 S ∗ 3 times	RST4 = H and FAN_ON2 = H (Monitoring starts 3 sec after the above conditions are established.)	Shutdown occurs immediately Blue LED flashes 10 times
TEMP2	High temperature at MR	Shutdown occurs if any values equal to or greater than minimum to require a shutdown are detected. 1 S ∗ 3 times	RST4 = H (Monitoring starts 1 sec after the above conditions are established.)	In the Panel screen ON: Shutdown occurs after the warning indication is displayed for 30 sec. In the Functional STB: Shutdown occurs immediately Blue LED flashes 11 times

Power supply for DVB-T Antenna for Europe

● Circuit configuration



● Specifications for port monitoring

Port Name	SD/PD Indication	Determination Condition	Monitoring conditions	Operation
ANT_POW_DET	DTB antenna short-circuited	Warning message is displayed when the signal is L (100 mS, 3 times)	RST4 = H and ANT_POW_B = L (Monitoring starts 1 sec after the above conditions are established.)	Output of a warning message for 60 sec.

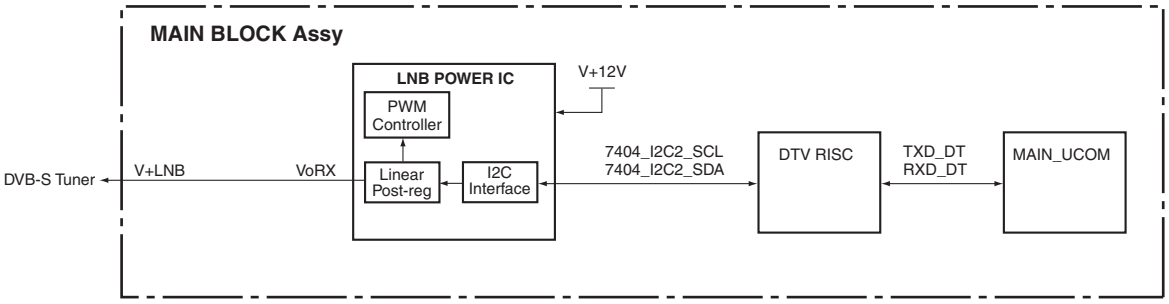
● Conditions of circuit reset

The circuit can be reset by unplugging then plugging the power cord back in (it will not be reset by Standby ON/OFF).

Power supply for DVB-S Antenna for Europe

● Circuit configuration

Note: Specifications for the output of warning-message indication will be added in the future.



● Specifications for port monitoring

Port Name	SD/PD Indication	Determination Condition	Monitoring conditions	Operation
—	S2 antenna short-circuited	Notification from DTV (at 7404_I2C2, OR of OLF bit and OTF bit of the LNB IC System Register is 1)	RST4: “H” and during reception of satellite broadcast	Output of a warning message for 60 sec. Only while a satellite broadcast program is displayed on the main screen.

● Conditions of circuit reset

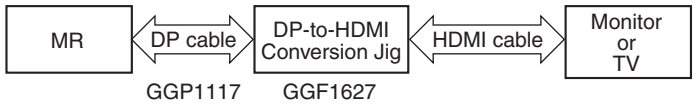
The circuit will be automatically reset after an error, such as short-circuiting of the antenna, is resolved and the unit is restored.

[3] HOW TO OPERATE THE MEDIA RECEIVER SEPARATELY

● Necessary items for operation

- Media Receiver
- DP-to-HDMI conversion jig: GGF1627 (with the AC adaptor)
  AC adaptor INPUT: 100 V to 240 V, 50/60 Hz, 0.3 A
  OUTPUT: DC 6 V, 1.8 A ⊖—◉—⊕
- Monitor or TV (with which an image with resolution of 1920 × 1080 p, 60 Hz can be displayed, with HDMI input)
  Note: When checking with DVI monitor, setting change of this jig is required.
- DP cable (GGP1117) and HDMI cable
- G8 or G9 remote control unit (in case of controlling by remote control unit)
- PC and RS-232C straight cable (in case of controlling by PC)
- HDMI -DVI cable (in case of connecting with DVI monitor)

● Connection



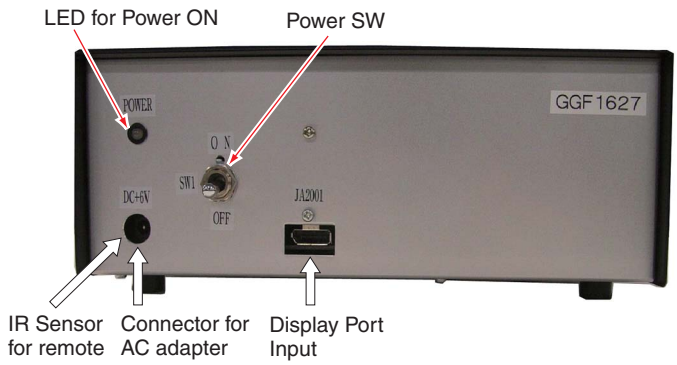


Fig.1 DP - HDMI Conversion tool (Front side)

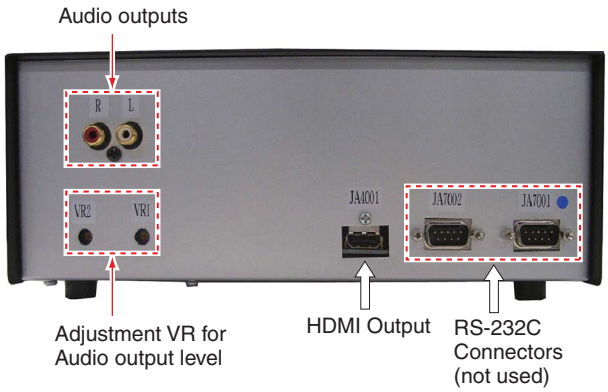
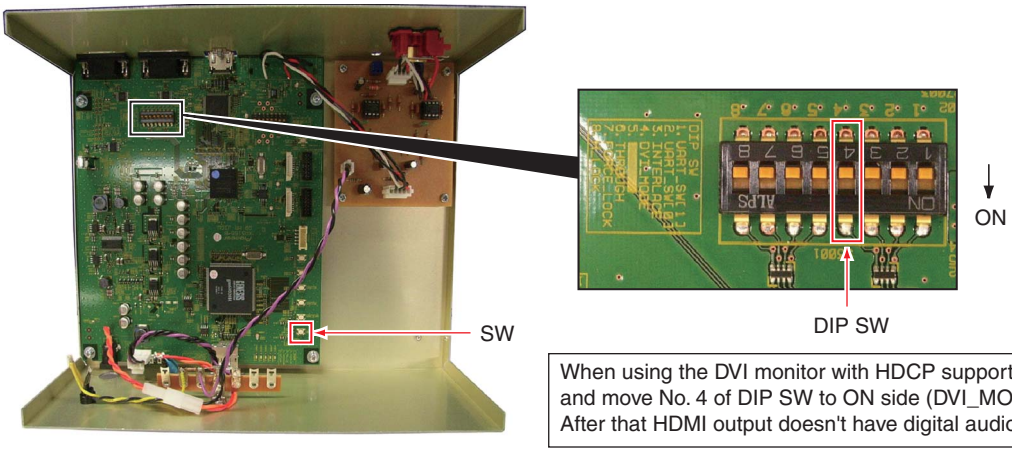


Fig.2 DP - HDMI Conversion tool (Rear side)



When using the DVI monitor with HDCP support, remove a bonnet and move No. 4 of DIP SW to ON side (DVI_MODE).
After that HDMI output doesn't have digital audio signal.

Fig.3 DP - HDMI Conversion tool
DIP SW Setting (output mode setting for HDMI connector)

● Preparation

• Set the MR from System Operation mode to Standalone Operation mode.
The MR is normally set to System Operation mode. If the MR is turned on in this mode, an error warning is issued (the red and blue LEDs alternately flash), and it cannot be operated properly.

To change to Standalone Operation mode, proceed as follows:

[With an RS-232C command]
1. Turn the MR on. (The red and blue LEDs alternately flash to warn of an error.)
2. In this state, send the MRMS01 command via RS-232C ports.
3. Turn the MR off.

When the MR is turned on next time or after, it will be in Standalone Operation mode.

[With the keys on the MR]
1. Set the MR to Standby mode.
2. Press and hold the INPUT key of the MR pressed for at least 5 seconds.
   (This step is for giving a startup trigger in a case where the MR was in Passive Standby mode.)
3. Within 5 seconds after the INPUT key is released, press and hold the CHANNEL - key of the MR for at least 10 seconds.
4. After the modes are changed, the red LED flashes twice then is lit (the unit enters Normal Standby mode).
5. Turn the unit off.

When the MR is turned on next time or after, it will be in Standalone Operation mode.

● Operation

After the setting in Preparation is completed, turn the units on in the following order then perform analysis:
1. Turn the monitor or TV on. (Set the input mode to HDMI.)
2. Turn the DP-to-HDMI conversion jig on.
3. Turn the MR on.
   If no image is displayed on the monitor or TV after the MR is turned on, press and hold the switch on the DP-to-HDMI conversion jig for about 1 sec.

● How to control the MR

• With the remote control unit:
The infrared receiver (IR) sensor for remote control unit is placed inside of the jig. Please point the remote towards the AC adaptor connector on the jig.
Unlike normal products, sensor reception of this tool is not so sensitive due to reduce interference with another Pioneer Plasma TV.
Please keep the distance between the remote control unit and the sensor less than 15cm.

• With RS-232C commands:
Connect a PC to the MR via their RS-232C ports and send RS-232C commands from the PC. (Baud rate: 9600 bps)

● After analysis is finished

After analysis in Standalone Operation mode is finished, before returning the MR to the customer, be sure to return the unit to System Operation mode, as shown in the procedures below.
If it remains in Standalone Operation mode, when it is connected with the customer's monitor, the monitor will detect a connection error and not operate properly, and no image will be displayed.

To set the MR to System Operation mode, proceed as follows:

[With an RS-232C command]

1. Turn the MR on.
2. Send the MRMS00 command via RS-232C ports.
3. Turn the MR off.
   When the MR is turned on next time or after, it will be in System Operation mode.
4. Connect the MR directly with the monitor and check that they operate properly.

[With the keys on the MR]

1. Set the MR to Standby mode.
2. Press and hold the INPUT key of the MR pressed for at least 5 seconds.
   (This step is for giving a startup trigger in a case where the MR was in Passive Standby mode.)
3. Within 5 seconds after the INPUT key is released, press and hold the CHANNEL + key of the MR for at least 10 seconds.
4. After the modes are changed, the red LED flashes twice then is lit (the unit enters Normal Standby mode).
5. Turn the unit off.
   When the MR is turned on next time or after, it will be in Standalone Operation mode.

● Products whose proper operation has been proved when HDMI connection is performed with this MR

Model Number	Manufacturer	Built-in Audio AMP
PDP-5000EX	Pioneer	○ (SP is required)
G8	Pioneer	○ (SP is required except 42 inch)
FP241WJ	BenQ	× (External audio amp and SP is required)
3008WFP	DELL	× (External audio amp and SP is required)
HD2441W	EIZO NANAO	× (External audio amp and SP is required)

● Attention point for audio volume

Audio output level is connected with MR volume level. If VR level of a MR is normal (around 10 - 15) and displayed HDMI TV or audio AMP is not so high level, sound level is very low. Please turn up the volume to appropriate level either or both units.
In case of turning up volume of MR to very high level during testing, turn down it to normal level and then turn off the unit. Otherwise when connecting the MR with panel, very loud sound is output from speakers and it might be a danger.

● Attention point when using another Pioneer Plasma TV

Please pay attention to interference of IR signal when using Pioneer plasma TV as HDMI monitor.
If remote signal is also received to Pioneer plasma TV when operating MR with this tool and remote, you might confuse of which unit is controlled by the remote.
The following methods are some of suggestions to control only MR with the conversion tool.
Using the remote control unit and the conversion tool (AC adaptor connector) as nearly as possible hiding remote sensor of the plasma TV temporally.

● Setting Method to connect with DVI monitor with HDCP support (DVI mode)

1. Open bonnet with power off condition.
2. Refer to Fig. 3, move the DIP SW No. [4] to ON side.

After this setting, DVI mode signal is output from HDMI output connector of HDMI.

Note: 1. Some of DVI monitors might not display output signal from this conversion tool.
2. Output signal does not contain digital audio signal.

5.7 OUTLINE OF RS-232C COMMAND

[1] PREPARED TOOLS

It is necessary to prepare the following one to use 232C command.
- PC
- Application for control
- 232C cable (straight)

∗ The setting of the Com port cannot be communicated if it doesn't do correctly.
(Please follow a set explanation of PC in the Com port)

[2] USING RS-232C COMMANDS

Individual ports are provided for RS-232C and SR+ connectors with this model. Therefore, unlike the case of previous models, which required switching of exclusive operation between these connectors on the Integrator menu, switching is no longer required.

5.8 LIST OF RS-232C COMMANDS

RS-232C command list

Command Name		Function	Last Memory	Effective only in Factory mode	Remarks
A					
AMT	S00	Audio mute OFF			
	S01	Audio mute ON			
C					
CHN	FWD	Changing tuner preset channel (1 step forward)			
	REV	Changing tuner preset channel (1 step reverse)			
CHM		Clearing data of the hour meter		●	Last memory is performed to the panel side.
CHR		Clearing data of the hour meter of MTB/MR side			Clear the hour meter of screen display of MAIN NG.
CNG		Clearing data of the SD history of MTB/MR side			
D					
DPT		Rewriting the Display Port Tx			
DW∗		To subtract ∗ to the adjustment value (∗ = 0 to 9, subtract 10 with DW0 and set to minimum value with DWF)			
F					
FAN		Factory mode: OFF		●	
FAY		Factory mode: ON			
FST	S35	Set each memory setting of MTB/MR side to the shipment state.		●	
I					
INA	***	Switching the terrestrial analog signal, direct tuning (***: channel number)	MAIN		
		Switching the terrestrial analog signal (Channnel is in the last.)	MAIN		
INC	***	Switching the terrestrial digital signal, direct tuning (***: channel number)	MAIN		
		Switching the terrestrial digital signal (Channnel is in the last.)	MAIN		
IND	***	Switching the satellite digital signal, direct tuning (***: channel number)	MAIN		
		Switching the satellite digital signal (Channnel is in the last.)	MAIN		
INH		Switching the Home Media Gallery / Home Gallery			
INP	S01	Input: INPUT1	MAIN		
	S02	Input: INPUT2	MAIN		
	S03	Input: INPUT3	MAIN		
	S04	Input: INPUT4	MAIN		
	S05	Input: INPUT5	MAIN		
	S06	Input: INPUT6 (PC)	MAIN		
M					
MRM	S00	Setting the mode to normal operation	MAIN	●	
	S01	Setting the mode to standalone operation	MAIN	●	
MST	S00	Display one screen			
	S01	PsideP (Main size: normal)			
	S02	PinP (Right down)			
	S03	PinP (Right up)			
	S04	PinP (Left down)			
	S05	PinP (Left up)			
	S08	SWAP (Exchanging sub-screen)			
O					
OSD	S00	OSD setting: OFF	MAIN		
	S01	OSD setting: ON	MAIN		
P					
POF		Power: OFF	MAIN		
PON		Power: ON	MAIN		
PUC	S00	PURE CINEMA: OFF	MAIN	●	
	S01	PURE CINEMA: Standard	MAIN	●	
	S02	PURE CINEMA: Advance	MAIN	●	
	S03	PURE CINEMA: Smooth	MAIN	●	
Q					
QMT		Acquiring temperature of MTB/MR side and Fan speed			
QNG		Acquiring shutdown information of MTB/MR side			
QS1		Acquiring unit data, such as the software version			
QSE		Acquiring unit data, such as the software version of MTB/MR side (specific destination)			

Command Name		Function	Last Memory	Effective only in Factory mode	Remarks
S					
SDF	S00	SRS DEFINITION: OFF			
	S01	SRS DEFINITION: DEFINITION1			
	S02	SRS DEFINITION: DEFINITION2			
	S03	SRS DEFINITION: DEFINITION3			
SML	***	Adjustment of the side mask level	MAIN	●	
SRS	S00	SRS: OFF			
	S01	SRS: SRS1			
	S02	SRS: SRS2			
	S03	SRS: SRS3			
SZM	S00	Setting the screen size to Dot by Dot	MAIN		
	S01	Setting the screen size to 4 :3	MAIN		
	S02	Setting the screen size to FULL or FULL 1080i	MAIN		
	S03	Setting the screen size to ZOOM	MAIN		
	S04	Setting the screen size to CINEMA	MAIN		
	S05	Setting the screen size to WIDE or WIDE1	MAIN		
	S06	Setting the screen size to FULL 14:9	MAIN		
	S07	Setting the screen size to CINEMA 14:9	MAIN		
	S11	Setting the screen size to AUTO	MAIN		
	S12	Setting the screen size to WIDE2	MAIN		
T					
TBS	S00	TRUBASS: OFF			
	S01	TRUBASS: TRUBASS1			
	S02	TRUBASS: TRUBASS2			
	S03	TRUBASS: TRUBASS3			
U					
UP*		To add * to the adjustment value (* = 0 to 9, add 10 with UP0 and set to maximum value with UPF)			
V					
VOL	UP*, DW*, ***	To adjust the volume			Use this command by designating the adjustment value *** (=000 to 060).
Z					
ZME	***	Initializing the video EEPROM data of the MTB/MR side		●	

5.9 DETAILS OF RS-232C COMMANDS

[1] QS1 (Software Version Information of the Microcomputer)

Model information and version information are returned.

Command Format	Effective Operation Modes	Function	Remarks
[QS1]	Every Time	Output of status	Return data: 3 (ECO) + 112 (DATA) + 2 (CS) = 117 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QS1
1	Resolution/Size	1 byte	F
2	Panel Generation	1 byte	9
3	Destination	1 byte	*
4	Grade	1 byte	*
5	Product Form	1 byte	A
6	Boot version of Module microcomputer	3 byte	-01A
7	Program version of Module microcomputer	8 byte	-01A ‘ ’ ’ ’
8	Boot version of sequence processor	3 byte	-01Z
9	Program version of sequence processor	8 byte	-01Z ‘ ’ ’ ’
10	Panel information	8 byte	G9_50F_2
11	Derivative operation identification	1 byte	*
12	Reserved (panel section)	7 byte	*******
13	, (comma)	1 byte	,
14	MTB generation	1 byte	9
15	MTB destination	1 byte	A
16	MTB grade	1 byte	H
17	MTB product form	1 byte	B
18	Program version of IF microcomputer	8 byte	-01A
19	Boot version of IF microcomputer	4 byte	01A
20	Program version of Main microcomputer	8 byte	-01A
21	Boot version of Main microcomputer	4 byte	01A
22	Common version of ASIC	8 byte	-01A
23	Boot version of ASIC	8 byte	01A
24	PRS version of ASIC	8 byte	-01A
25	PIC version of ASIC	8 byte	-01A
26	Common version of the Digital Tuner	8 byte	-0A
27	Boot version of the Digital Tuner	4 byte	01A
CS	2 Byte	2 byte	4A

11: Derivative Operation Identification	
*	Standard model operation
1	Derivative model operation

14: MTB Generation	
9	G9

15: MTB Destination	
A	North America
C	China
E	Europe
G	General
J	Japan
U	Australia

16: MTB Grade	
H	Elite/One body Europe HD /System Europe HD/One body Australia
T	Regular/One body Europe SD
D	Derivative Model
*	No Grade (Japan/General/China)

17: MTB Product Form	
B	One body model
S	System model

1: Resolution/Size	
F	50-FHD (1920*1080)
G	60-FHD (1920*1080)

2: Panel Generation	
9	G9

3: Destination	
*	Commonness

4: Grade	
*	Commonness
Z	Evaluation

5: Not used	
A	“A” fixed

10: Panel Information (8 Byte)		
1 to 2nd byte	G9	Generation information
4 to 5th byte	50	50 inch
	60	60 inch
6th byte	F	FHD
8th byte	3	50 inch 2nd PLANT (Reserved)
	2	50 inch 2nd PLANT
	1	50 inch 1st PLANT
	‘	Others

‘ = space

[2] QSE (DESTINATION PECULIAR INFORMATION)

Induce it peculiar, individual information is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QSE]	Every time	Output of status	Return data: 3 (ECO) + 32 (DATA) + 2 (CS) = 37 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QSE
1	Check flag for production	1 byte	E
2	Reserved	3 byte	***
3	DTB hardware version	4 byte	0342
4	User setting password	4 byte	1234
5	DP Tx firmware version	16 byte	123456789ABCDEFG
6	DP Tx hardware version	4 byte	ABCD
CS	Check Sum	2 byte	13

[3] QMT (STATUS INFORMATION OF MTB/MR SECTION)

Temperature information on the MTB/MR section is acquired.

Command Format	Effective Operation Modes	Function	Remarks
[QMT]	Every time	Output of status	Return data: 3 (ECO) + 8 (DATA) = 11 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QMT
1	A/D value of temperature of MTB/MR section	3 byte	276
2	Reserved (*1)	1 byte	1
3	Reserved	4 byte	****

*1 Although the numerics 0, 1, and 2 can be input, those input values are invalid.

[4] QNG (SHUTDOWN INFORMATION OF MTB SECTION)

The command QNG is for acquiring the data from the 8 latest shutdown (SD) logs of the MTB section.

Command Format	Effective Operation Modes	Function	Remarks
[QNG]	Every time	To acquire data on the shutdown (NG) logs of MTB side	Return data: 3 (ECO) + 96 (DATA) + 2 (CS) = 101 Byte

Data Arrangement		Data Length	Output Example
ECO		3 byte	QNG
1	Latest SD data	1 byte	1
2	Latest SD subcategory data	1 byte	0
3	Data from the MTB hour meter for the latest SD	7 byte	0752013
4	Reserved	3 byte	000 fixed
5	Second latest SD data	1 byte	5
6	Second latest SD subcategory data	1 byte	1
7	Data from the MTB hour meter for the second latest SD	7 byte	0495204
8	Reserved	3 byte	000 fixed
9	Third latest SD data	1 byte	A
10	Third latest SD subcategory data	1 byte	2
11	Data from the MTB hour meter for the third latest SD	7 byte	0365814
12	Reserved	3 byte	000 fixed
13	Fourth latest SD data	1 byte	5
14	Fourth latest SD subcategory data	1 byte	0
15	Data from the MTB hour meter for the fourth latest SD	7 byte	0256612
16	Reserved	3 byte	000 fixed
17	Fifth latest SD data	1 byte	7
18	Fifth latest SD subcategory data	1 byte	2
19	Data from the MTB hour meter for the fifth latest SD	7 byte	0105628
20	Reserved	3 byte	000 fixed
21	Sixth latest SD data	1 byte	B
22	Sixth latest SD subcategory data	1 byte	0
23	Data from the MTB hour meter for the sixth latest SD	7 byte	0003009
24	Reserved	3 byte	000 fixed
25	Seventh latest SD data	1 byte	C
26	Seventh latest SD subcategory data	1 byte	1
27	Data from the MTB hour meter for the seventh latest SD	7 byte	00002A9
28	Reserved	3 byte	000 fixed
29	Eighth latest SD data	1 byte	C
30	Eighth latest SD subcategory data	1 byte	4
31	Data from the MTB hour meter for the eighth latest SD	7 byte	0000012
32	Reserved	3 byte	000 fixed
CS	2 Byte	2 Byte	7D

< SD Information No. >

Frequency *	Shutdown Factor	Remarks (Operation)
1	Failure of Power Supply of VCC	Immediately Shutdown
5	Abnormality in MSP	Go to No. 5 Subcategory Information
6	Failure of communication with Module microcomputer	Immediately Shutdown
7	Failure in 3-wire serial communication of Main microcomputer	Go to No. 7 Subcategory Information
8	Failure in IIC communication of Main microcomputer	Go to No. 8 Subcategory Information
9	Failure in Communication of Main microcomputer	Immediately Shutdown
10(A)	Abnormality in FAN	Go to No. 10 Subcategory Information
11(B)	Abnormality in high temperature	Immediately Shutdown
12(C)	Failure in Digital Tuner	Go to No. 12 Subcategory Information
13(D)	Failure in Power Supply at MTB section	Go to No. 13 Subcategory Information
15(F)	Failure in Main EEPROM	Immediately Shutdown

*: Indicates the frequency of Blue LED flashing when the shutdown is occurred.

< No. 5 Subcategory Information on "Shutdown signal from D-Amp./short-circuit of speaker terminal" >

Value	Shutdown Factor	Remarks (Operation)
3	MSPMAP	Immediately Shutdown

< No. 7 Subcategory Information on "Failure in 3-wire serial communication of Main microcomputer" >

Value	Shutdown Factor	Remarks (Operation)
1	Communication error of IF microcomputer	Immediately Shutdown
2	Communication error of ARIA	Immediately Shutdown

< No. 8 Subcategory Information on "Failure in IIC communication of Main microcomputer" >

Value	Shutdown Factor	Remarks (Operation)
1	Tuner 1	Immediately Shutdown
2	MSP/MAP	Immediately Shutdown
3	AV-Switch	Immediately Shutdown
4	RGB-Switch	Immediately Shutdown
5	Main VDEC	Immediately Shutdown
6	VDEC-SDRAM	Immediately Shutdown
7	AD/PLL	Immediately Shutdown
8	HDMI	Immediately Shutdown
9	DisplayPortTx	Immediately Shutdown
B	US-MAP	Immediately Shutdown
C	GCR	Immediately Shutdown
D	COFDM	Immediately Shutdown

< No. 10 Subcategory Information on "Abnormally in FAN" >

Value	Shutdown Factor	Remarks (Operation)
1	FAN 1	Immediately Shutdown
2	FAN 2	Immediately Shutdown

< No. 12 Subcategory Information on "Failure in Digital Tuner" >

Value	Shutdown Factor	Remarks (Operation)
1	Starting error of the digital tuner	Communication stop
2	Communication error with the digital tuner	
3	DTB device error	
4	Abnormmally in BCM7038	
5	Fugue	
6	Audio Chip	
7	Tuner 1/Tuner 1 or 2	
8	Card I/F IC	
9	VBI Slicer	
B	Flash	
C	EEPROM	
D	EEPROM	
F	DTV Antenna	
G	Home Gallery	
I	Application	
J	DEMOD(US)/COFDM(EU)	
K	Tuner 2	
L	S2DEMOD	
M	LNB	
O	DTB ERROR	
P	Abnormally in DTB (S2) antenna	

< No. 13 Subcategory Information on "Failure in Power supply at MTB section" >

Value	Shutdown Factor	Remarks (Operation)
1	RST 2	Immediately Shutdown
2	RST 4	Immediately Shutdown

[5] FAY/FAN (ADJUSTMENT COMMANDS PERMISSION/PROHIBITION)

The commands FAY/FAN are for prohibiting/permitting panel/MTB-adjustment commands.

Command Format	Operation		Remarks
	Effective Operation Modes	Control	
[FAY]	Normal operation mode while the power is on	Adjustment command is valid.	For details, refer to the section “6.1 [3] FUNCTIONS WHEN ENTERING THE SERVICE FACTORY MODE”.
[FAN]	During FAY	Adjustment command is invalid.	

6. SERVICE FACTORY MODE
6.1 DETAILS OF THE SERVICE FACTORY MENU

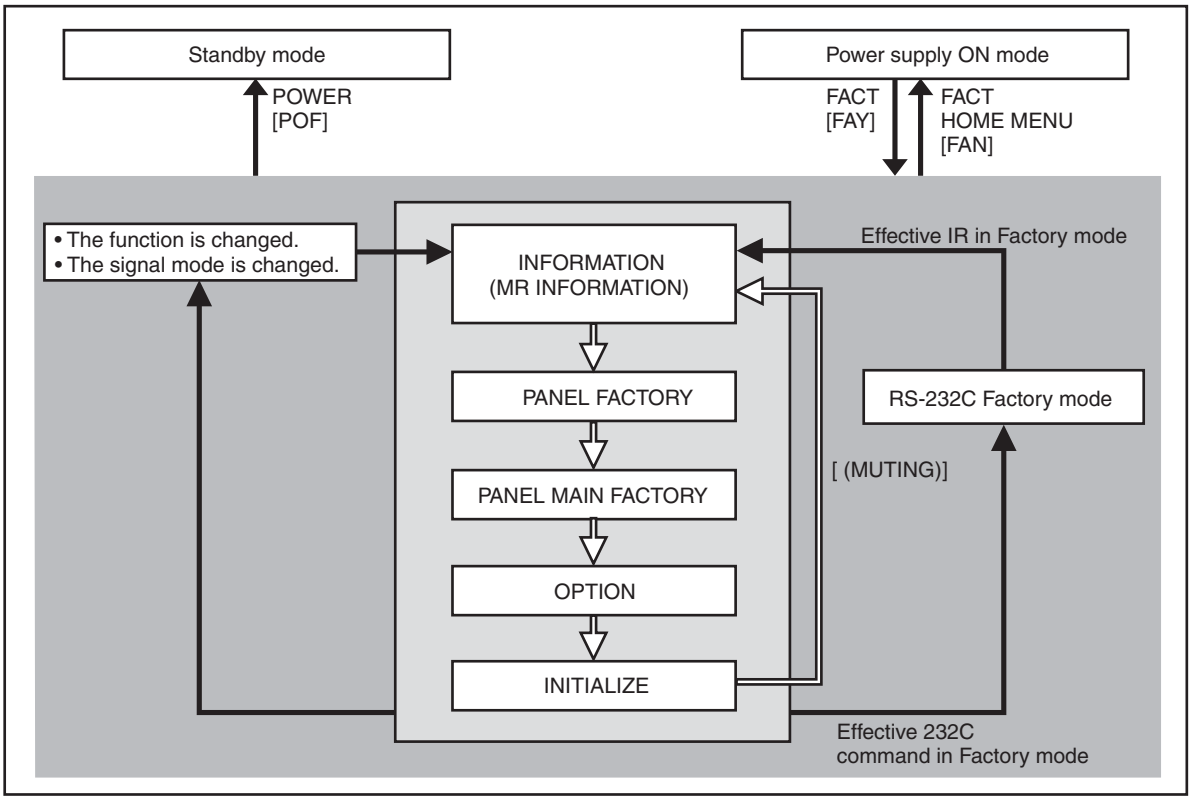
Operations during Service Factory mode are described here.

Before entering Factory mode of the PDP, make sure that the "HD AV Converter" setting on the PDP menu is set to "Disable." If it is set to "Enable," change it to "Disable" then enter Factory mode.

To confirm the "HD AV Converter" setting on the PDP menu, proceed as follows:
Select HOME MENU, Option, then HD AV Converter in HDMI Control Setting.

Note: If "HD AV Converter" is set to "Enable," the video/audio signals will not be displayed/output even if external equipment is connected via input connectors other than INPUT 4 of the PDP.

[1] SERVICE FACTORY MODE TRANSITION CHART



[2] HOW TO ENTER/EXIT SERVICE FACTORY MODE

■ **How to enter Service Factory Mode**

By using a PDP service remote control)
- PDP service remote control : Press [FACTORY] key.

By issuing RS-232C commands)
- During normal Standby mode : Issue [PON] then [FAY].
- During normal operation mode : Issue [FAY].

■ **How to exit Service Factory Mode**

By using a PDP service remote control)
- PDP service remote control : press [FACTORY] key.
- Supplied remote control unit : press [HOME MENU] key.

By issuing RS-232C commands)
- Issue [FAN].

■ **How to enter Service Factory Mode by Using the supplied Remote Control Unit**

- From this model, can not enter the Service Factory Mode by operating the supplied remote control unit keys.

[3] FUNCTIONS WHEN ENTERING THE SERVICE FACTORY MODE

■ Fuctions whose setting are set to OFF

The settings for the following functions are set to OFF when Service Factory mode is entered (including when the “FAY” command is received) :

Function	Remarks
2-Screen Operation	Input function set on the main side is selected.
FREEZE	
Auto size, Side Mask	It is not performed during Factory mode.
ORBITER, Mask control	Central value operation (ORBITER)
Sleep Timer	Cancel the operation.
Room light sensor	Turn off the detecting operation (Setting data will be retained.)
Blue LED dimmer	Turn off the operation (Setting data will be retained.)
Setting of Parental Control	When this is turned off, the block of the screen is released.
Power Control	Turn off the operation (However, the setting maintains it.)
Image Position	Central value operation

Note: Enter the factory after cancelling ACI because the ACI operation setting OFF and not done.

■ User data

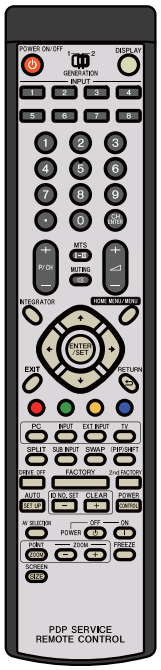
User data will be treated as follows :

- User data on picture-quality and audio-quality adjustments are not reflected, and factory-preset data are output (user data will be retained in memory). When the unit enters Service Factory mode, the current audio-quality adjustment data will be still be retained in memory.
- User-setting data will be applied to the various settings (items on the menus), signal formats, and the items that are associated with path change (HDMI settings, etc.).
- Data on screen (i.e., screen position; meaning clock dividers, and not including data on screen size). Are reset to the default values (data stored in memory will be retained). Screen size will be retained.

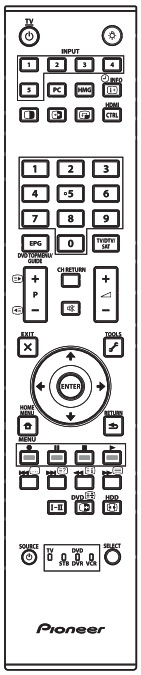
[4] REMOTE CONTROL CODE IN SERVICE FACTORY MODE

Remote Control Keys	Basic Functions	Remarks
MUTING	Switching the main items.	Shifting to the next main item (top).
⬇ (DOWN)	Switching the subtitled items.	Shifting downward to the next subtitiled item.
⬆ (UP)	Switching the subtitled items.	Shifting upward to the next upper layer.
⬅ (LEFT)	Decreasing the adjustment value.	Decreasing the adjustment value.
➡ (RIGHT)	Increasing the adjustment value.	Increasing the adjustment value.
ENTER/SET	Switching the layers.	Shifting downward or upward to the next lower or upper layer.
INPUT	Selecting INPUT.	Shifting the INPUT to the next function.
INPUTxx	Selecting INPUT.	Switching the INPUT to xx. (xx=1 to 5)
CH+/P+	Increasing the channel number.	
CH-/P-	Decreasing the channel number.	
Numeric Keys	Function: TV	Function: TV (previously selected channel number is selected)
POWER	Power OFF.	Turning the power off.
FACTORY	Factory OFF (Factory mode)	In Factory mode, turning Factory mode off.
	Factory ON (Non-Factory mode).	In Non-Factory mode, turn Fuctory mode on.
HOME MENU	Menu ON.	In Factory mode, turn Factory mode off.
VOLUME+	Volume UP.	Increasing 10 the adjustment value. (PANEL FACTORY)
VOLUME-	Volume DOWN.	Decreasing 10 the adjustment value. (PANEL FACTORY)
DRIVE OFF (Note1)	Drive Mode OFF.	Turning Drive mode off.
INTEGRATOR	INTEGRATOR MENU ON.	Enter INTEGRATOR MODE.

(Note 1) When ten seconds have passed since the [DRIVE OFF] key was pressed at the standby, it becomes invalid. Please press [POWER] key from the [DRIVE OFF] key pressing within ten seconds when you do power supply ON while driven OFF.



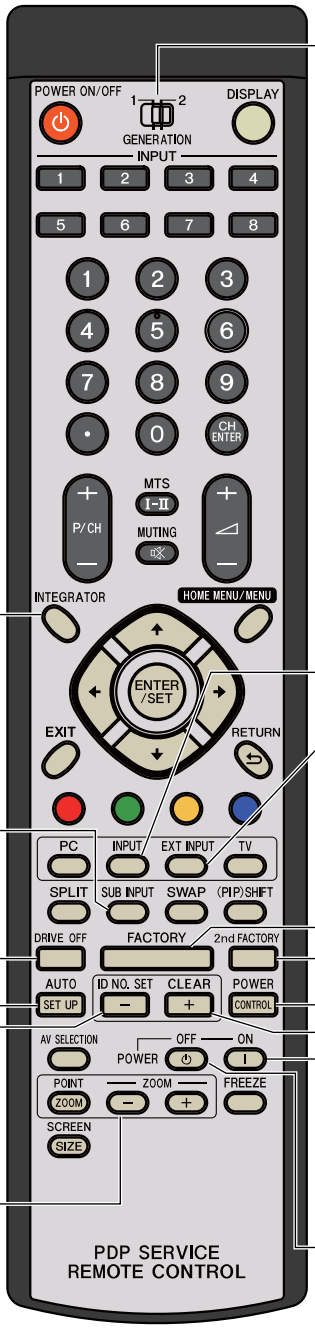
PDP service remote control



Supplied remote control

[5] PDP SERVICE REMOTE CONTROL

- The keys labeled with the same names on the service remote control unit have the same functions as those of the supplied remote control unit. (See "2.3 PANEL FACILITIES.")
- For the keys not provided on the supplied remote control unit, see the explanations below:



GENERATION switch for remote control codes
This switch selects the generation of remote control codes to be transmitted:
1: The old-generation codes are transmitted.
2: The new-generation codes are transmitted.
With this generation plasma display, set the switch to 2.

INTEGRATOR
Press this key to enter Integrator mode.

INPUT
Press this key to cyclically change the input source.

EXT INPUT
Press this key to cyclically change only the external input source.

SUB INPUT
Not used with this model.

DRIVE OFF
Press this key to turn off the panel drive.
For details on how to cancel this command, see the explanation for the DRV command.

FACTORY
Press this key to enter Factory mode.

2nd FACTORY
Not used with this model.

AUTO SETUP
Use this key for automatic setup, such as the display position setting when an analog PC signal is input.

ID NO. SET
Not used with this model.

POWER CONTROL
Not used with this model.

CLEAR
Not used with this model.

POWER ON
Press this key to turn on the unit.
This key cannot turn the unit off.

POWER OFF
Press this key to turn off the unit.
This key cannot turn the unit on.

POINT ZOOM
Not used with this model.

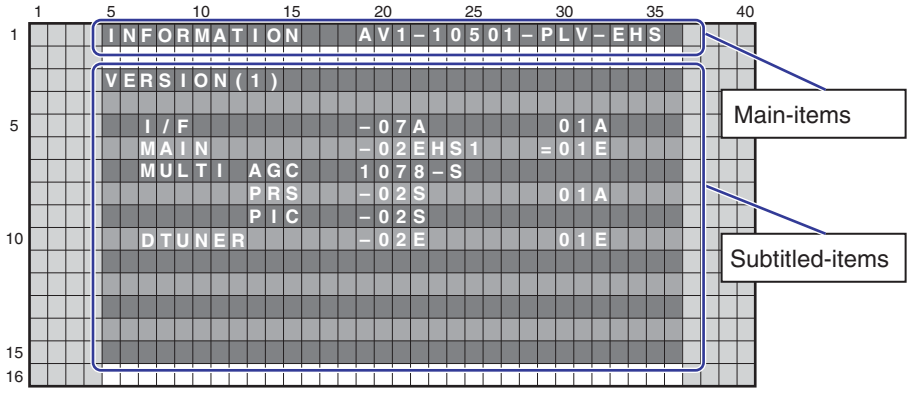
ZOOM +/-
Not used with this model.

[6] FACTORY HIERARCHICAL TABLE

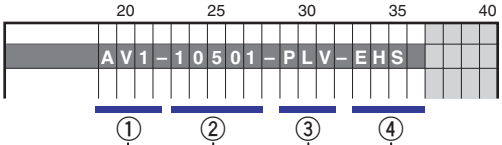
Large Item	Middle Item	Small Item	Variable / Adjustment Range	Remarks
6.2 [1] INFORMATION				
	[1-1] VERSION (1)			
	[1-2] VERSION (2)			
	[1-3] VERSION (3)			
	[1-4] MAIN NG	CLEAR <=>	NO <=> YES	
	[1-5] TEMPERATURE			
	[1-6] HOUR METER	CLEAR <=>	NO <=> YES	
	[1-7] HDMI SIGNAL INFO 1			
	[1-8] HDMI SIGNAL INFO 2			
	[1-9] VDEC SIGNAL INFO 1			
	[1-10] VDEC SIGNAL INFO 2			
6.2 [2] PANEL FACTORY (+) (*2)				
	[2-1] PANEL INFORMATION			
	[2-2] PANEL WORKS			
	[2-3] POWER DOWN			
	[2-4] SHUT DOWN			
	[2-5] PANEL-1 ADJ (+)			
	[2-6] PANEL-2 ADJ (+)			
	[2-7] PANEL FUNCTION (+)			
	[2-8] ETC (+)			
	[2-9] RASTER MASK SETUP (+)			
	[2-10] PATTERN MASK SETUP (+)			
	[2-11] COMBI MASK SETUP (+)			
6.2 [3] PANEL MAIN FACTORY (+) (*2)				
	[3-1] PM NG INFO			
	[3-2] PM STATE INFO			
	[3-3] DP_RX INFO			
	[3-4] PM_SETUP (+)			
6.2 [4] OPTION				
	[4-1] CH PRESET <=>		DISABLE <=> ENABLE	Exclusively used for production line
	[4-2] Digital AFT <=>		DISABLE <=> ENABLE	Exclusively used for production line
	[4-3] SYNC DET (+)			for the technical analysis
	[4-4] CTI (+)			for the technical analysis
6.2 [5] INITIALIZE				
	[5-1] SIDE MASK LEVEL (+)	SIDE MASK LEVEL <=>		
	[5-2] FINAL SETUP	DATA RESET <=>	NO <=> YES	
	[5-3] DTB SERVICE MODE	MODE SHIFT <=>	NO <=> YES	for the technical analysis (*1)
	[5-4] Wide XGA AUTO <=>		DISABLE <=> ENABLE	for the technical analysis
	[5-5] AUTO ADJUST. <=>	AUTO ADJUST. <=>	NO <=> YES	

(*1): Exit the Service Factory Menu and enter the Digital Tuner Service menu.
(*2): For details on the setting items, refer to the Service manual of the PLASMA DISPLAY (KRP-600P, KRP-500P).

[7] INDICATIONS IN SERVICE FACTORY MODE



■ Main-item indications



① Input function

Input Functions	OSD
AV 1 to 5	AV 1 to 5
Terrestrial Wave (Analog)	AIR
Terrestrial Wave (Digital)	ARD
Satellite didital broadcasting	SAT
Cable (Digital)	CBD
Home Media Gallery	HMG
PC	PC

② SIG mode and Screen size

Note: See SIG-Mode Tables. (See next page.)

③ Color system and Signal type

Color System and Signal Type	OSD	
	At Composite Input	At S-connector Input
NTSC	NTV	NTS
PAL	PLV	PLS
PAL M	PMV	PMS
PAL N	PNV	PNS
PAL 60	P6V	P6S
SECAM	SCV	SCS
4.43 NTSC	4NV	4NS
BLACK/WHITE	BWV	BWS
Y/CB/CR	CBR	
Y/PB/PR	PBR	
RGB	RGB	
Digital Video signal	DIG	

④ Option (Destination, Panel Generation, etc.)

Options	OSD
KRP-500P/WYSIXK5	EHS
KRP-600P/WYSIXK5	

② SIG Mode and Screen size (by User is displayed)

1st and 2nd characters : Resolution of the input signal
3rd and 4th characters : Refresh rate of the input signal
5th character : Selection of the screen size

■ Input signal mode table for video signals (resolutions and V frequencies)

1st to 4th Character		Signal Type	Fv (Hz)	Fh (kHz)
10	50	SDTV*625i	50.000	15.750
	60	SDTV*525i	60.000	15.750
20	50	SDTV*625p	50.000	31.500
	60	SDTV*525p	60.000	31.500
30	50	HDTV*1125i	50.000	33.750
	60	HDTV*1125i	60.000	33.750
40	50	HDTV*750p	50.000	45.000
	60	HDTV*750p	60.000	45.000
50	24	HDTV*1125p	24.000	27.000
	50	HDTV*1125p	50.000	56.250
	60	HDTV*1125p	60.000	67.500

Fv: Vertical Frequency, Fh: Horizontal Frequency

■ Input signal mode table for PC signals (resolutions and V frequencies)

1st to 4th Character		Signal Type	Fv (Hz)	Fh (kHz)
C1	70	720 x 400	70.087	31.469
C2	60	640 x 480	59.940	31.469
C4	60	800 x 600	60.317	37.879
C6	60	1280 x 720	60.000	44.800
C7	60	1024 x 768	60.004	48.363
C9	60	1360 x 768	60.015	47.712
D6	60	1280 x 1024	60.000	64.000

Fv: Vertical Frequency, Fh: Horizontal Frequency

■ Current selection of the screen size

5th Character	GUI Notation	VIDEO	PC	Remarks
0	DOT BY DOT	●	–	
1	4:3	●	●	
2	FULL	●	●	
3	ZOOM	●	–	
4	CINEMA	●	–	
5	WIDE	●	–	
6	FULL 14:9	●	–	
7	CINEMA 14:9	●	–	
9	WIDE1	●	–	
A	WIDE2	●	–	

●: supported, –: unsupported

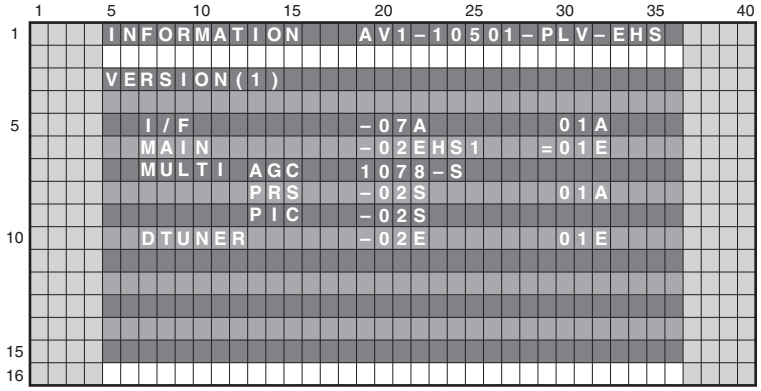
6.2 DETAILS OF THE FACTORY MENU

[1] INFORMATION

■ Operation items

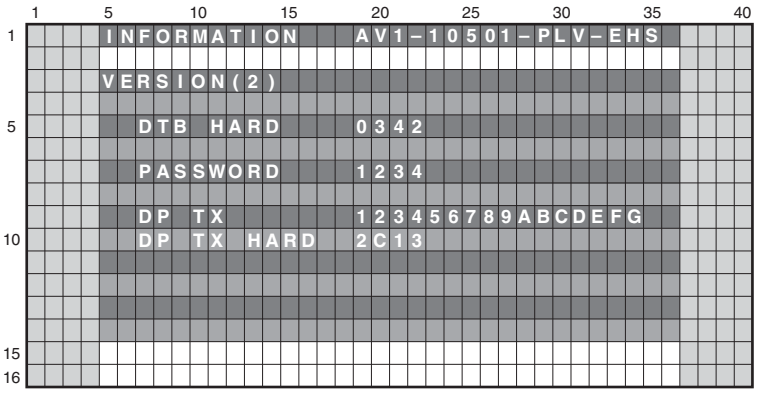
No.	Function	Content	RS-232C Command
[1-1]	VERSION (1)	The Flash memory versions for each device are displayed.	QS1
[1-2]	VERSION (2)	The Flash memory versions for each device are displayed.	QSE
[1-3]	VERSION (3)	The Flash memory versions for each device are displayed.	QSB
[1-4]	MAIN NG	The Shutdown NG information and Event Times in the MTB section are displayed.	QNG
[1-5]	TEMPERATURE	The present temperature and the FAN rotating status are displayed.	–
[1-6]	HOUR METER	The accumulation power ON count of the panel is displayed.	–
[1-7]	HDMI SIGNAL INFO 1	The status registers of HDMI receiver are displayed with hexadecimal.	–
[1-8]	HDMI SIGNAL INFO 2		
[1-9]	VDEC SIGNAL INFO 1	Display the signal information input to VDEC.	–
[1-10]	VDEC SIGNAL INFO 2		

[1-1] VERSION (1)



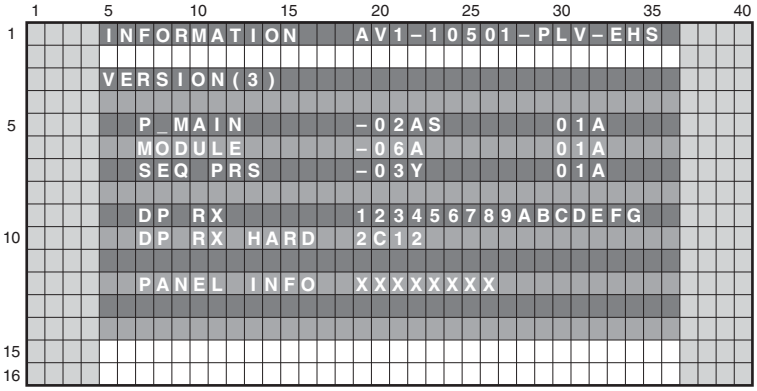
Display Item	Meaning	Display Example (Program)	Display Example (Boot)
I/F	I/F microcomputer	-07A	01A
MAIN	Main microcomputer	-02EHS1	=01E
MULTI AGC	AGC data of Multi processor	1078-S	
MULTI PRS	Program of Multi processor	-02S	01A
MULTI PIC	Picture quality data of Multi processor	-02S	
DTUNER	Software program of the Digital tuner	-02E	01E

[1-2] VERSION (2)



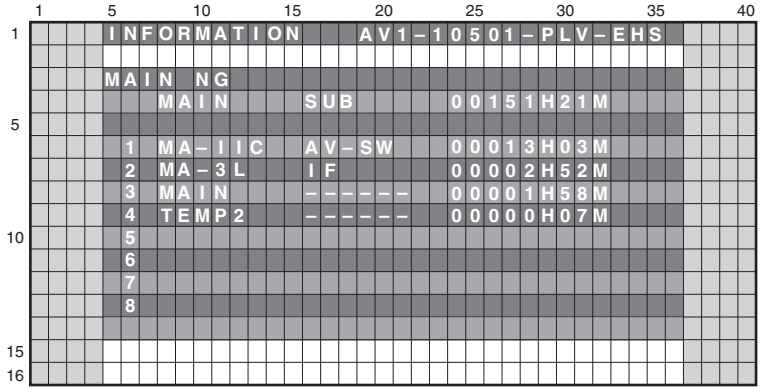
Display Item	Meaning	Display Example
DTB HARD	DTB Hardware Version	0342
PASSWORD	User setting password	1234
DP TX	DP TX Firmware Version	123456789ABCDEFG
DP TX HARD	DP TX Hardware Version	2C13

[1-3] VERSION (3)



Display Item	Meaning	Display Example (Program)	Display Example (Boot)
P_MAIN	Panel Main microcomputer	-02AS	01A
MODULE	Module microcomputer	-06A	01A
SEQ PRS	Program of the sequence processor	-03Y	01A
Display Item	**Meaning**	**Display Example**	
DP RX	DP RX Firmware Version	123456789ABCDEFG	
DP RX HARD	DP RX Hardware Version	2C12	
Display Item	**Meaning**		
PANEL INFO	It displays the generation of the panel, inchage and the type of the panel.		

[1-4] MAIN NG

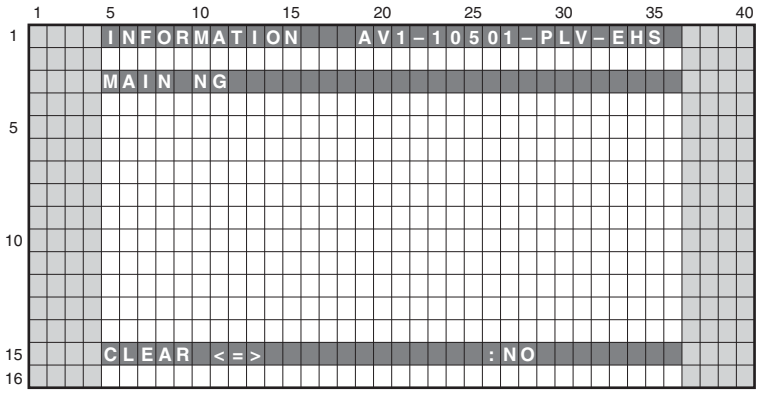


Shutdown NG information

Error Display: MAIN	Error Display: SUB	Cause of Shutdown
MR-PWR	----	Abnormally in VCC power
AUDIO	MSPMAP	Short-circuit of the speaker terminal or failure signal of audio amplifier (MSP)
MA-3L		3-wire Serial Communication error of Main microcomputer.
	IF	Communication error of IF microcomputer
	MULTI	Main communication error of Multi Processor
MA-IIC		IIC Communication error of Main microcomputer
	FE1	Tuner 1
	MSPMAP	MSP/MAP
	AV-SW	AV Switch
	RGB-SW	RGB Switch
	VDEC	Main VDEC
	SDRAM	VDEC - SDRAM
	ADC	AD/PLL
	HDMI	HDMI
	DP-TX	DisplayPort Tx
MAIN	----	Communication error of Main microcomputer
FAN		FAN abnormal
	FAN1	FAN1 abnormal stop
	FAN2	FAN2 abnormal stop
TEMP2	----	Abnormally high temperature
DTUNER		Failure in Digital Tuner
	PS/RST	DTB Starting error
	RETRY	Communication error with DTB
	DEVICE	DTB device error
	DE-FE	DTB device error (Tuner 1)
	D-ANT	Abnormally in DTB antenna
	DTVAPP	DTB device error (Application)
	DEMOD	DTB device error (DEMOD)
	DE-FES	DTB device error (Tuner S2)
	DEMONS	DTB device error (S2DEMOD)
	DE-LNB	DTB device error (LNB)
	DTVERR	DTB error
	S-ANT	Abnormally in DTB (S2) antenna
RST-MA		Abnormally in MTB power
	M-DCDC	Abnormally in ASIC power (DC-DC)
	RELAY	Power decrease of RELAY power

• Clear the MAIN NG history

To shift to the MAIN NG history clear screen, while the MAIN NG screen is displayed, press the ENTER/SET key.

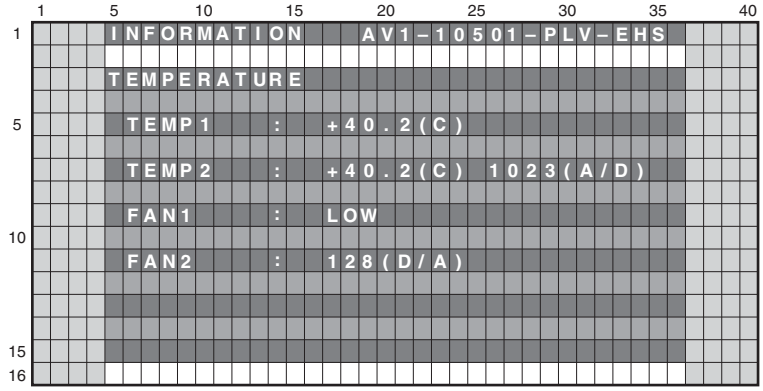


Operation:

- Even if [⬅] key or [➡] key is pressed, {CLEAR <=> :YES} ⇔ {CLEAR <=> :NO} is repeated.
- Selecting <NO> then pressing the ENTER/SET key will return the screen to the next higher layer, without doing anything.
- Selecting <YES> then holding the ENTER/SET key pressed for 5 seconds will clear the NG log data that are managed in MTB then return the screen to the next higher layer.

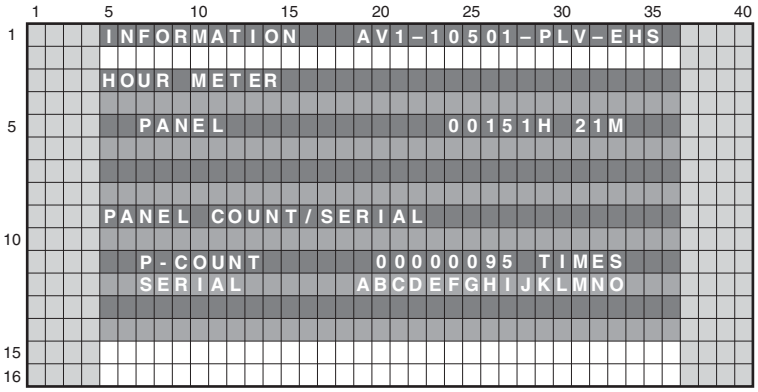
[1-5] TEMPERATURE

A present temperature and the FAN rotation are displayed.
If either [⬅] key or [➡] key is pressed, the display data is refreshed.



Display Item	Meaning
TEMP1	The temperature of the sensor on the panel side is displayed by the Centigrade (C).
TEMP2	The temperature conversion display is done with 10 bit the A/D input value of IF microcomputer. It is displayed by both the Centigrade (C) and 8 bit A/D value. Note: When temperature (C) of the sensor becomes more than a specified temperature, the shutdown start of processing.
FAN1	Although STOP, LOW, or HIGH may be displayed, they are meaningless. Ignore those displays.
FAN2	The value of the rotation state of FAN is displayed. During a rotation of FAN, 8bit D/A value output from IF microcomputer is displayed. It is displayed with OFF during a stop.

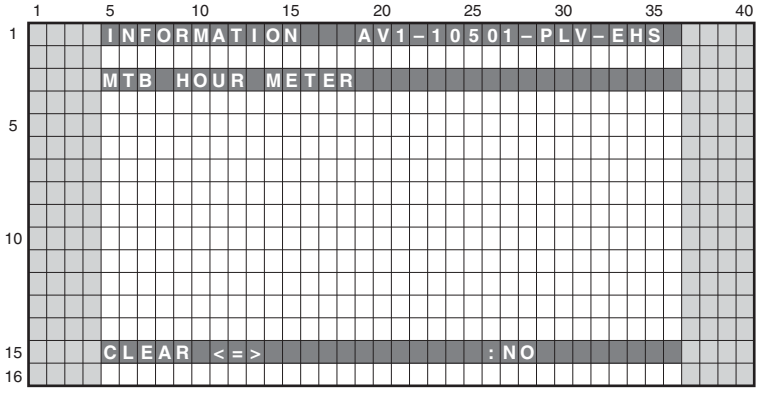
[1-6] HOUR METER



Display Item	Meaning	Display Example
PANEL	HOUR METER of the panel	00151H 21M
P-COUNT	Accumulation power ON count of the panel	00000095 TIMES
SERIAL	Serial number of the Display (panel)	ABCDEFGHIJKLMNO

• MTB HOUR METER

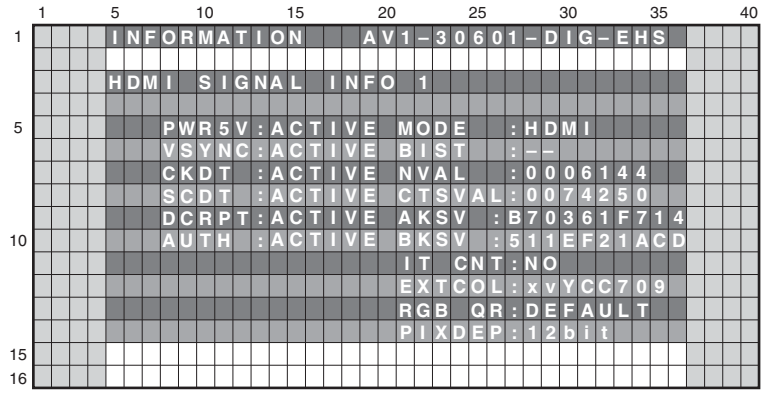
In HOUR METER screen on Factory Menu, press the [ENTER/SET] key, and then it moves to the screen to clear MTB HOUR METER. (MTB HOUR METER is cleared only.)



Operation:

- Even if [⬅] key or [➡] key is pressed, {CLEAR <=> :YES} ⇔ {CLEAR <=> :NO} is repeated.
- Selecting <NO> then pressing the ENTER/SET key will return the screen to the next higher layer, without doing anything.
- Selecting <YES> then holding the ENTER/SET key pressed for 5 seconds will clear the HOUR METER (HOUR METER while the MAIN NG screen is displaed) data that are managed in MTB then return the screen to the next higher layer.

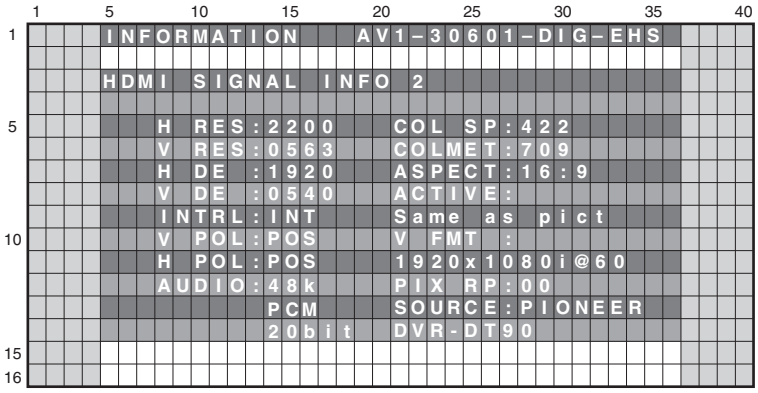
[1-7] HDMI SIGNAL INFO 1



Displays the input signal information of HDMI terminal

Display Item	Meaning
PWR5V	+5 V power detection (18 pin of HDMI terminal)
VSYNC	VSYNC detection
CKDT	Clock detection
SCDT	SYNC detection
DCRPT	HDCP decryption status
AUTH	HDCP authentication status
MODE	HDMI mode status
BIST	HDCP Key status (Always display it with "--".)
NVAL	N value
CTSVAL	CTS value
AKSV	Shadow AKSV value
BKSV	Shadow BKSV value
IT CNT	IT content (AVI info)
EXTCOL	Extension colorimetry (AVI info)
RGB QR	RGB range (AVI info)
PIXDEP	Number of pixel/bit

[1-8] HDMI SIGNAL INFO 2



Displays input signal status of HDMI terminal

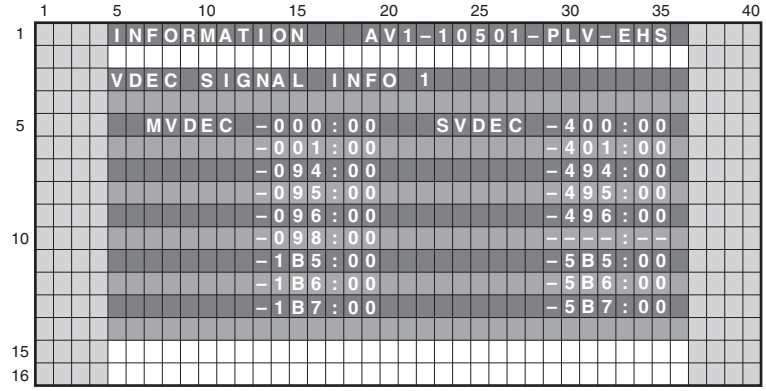
Display Item	Meaning
H RES	Number of horizontal pixels
V RES	Number of vertical lines
H DE	Number of effectively horizontal pixels
V DE	Number of effectively vertical lines
INTRL	Interlace (=INT) or progressive (=PRG)
V POL	VSYNC polarity
H POL	HSYNC polarity
AUDIO (first line)	Sampling frequency. (ex. DVD: 48kHz, CD: 44.1kHz) *1
AUDIO (second line)	Audio format PCM (PCM) or No PCM (no PCM)
AUDIO (third line)	Quantization bit
COL SP	Color space (AVI Info) 422 or 444 or RGB *2
COLMET	Colorimetry (AVI Info)
ASPECT	Aspect (AVI Info)
ACTIVE	Active format (AVI Info)
V FMT	Video format (AVI Info)
PIX RP	Pixel count
SOURCE (first line)	Vendor name of the emission device
SOURCE (second line)	Model name of the emission device

*1: Confirm if this item is displayed when the audio is not outputted.
*2: If may not match to the state of emission devices when the color is abnormal.

Display of HDMI FACTORY and correspondence of resolution
Please confirm the following items when the picture doesn't come out.

Input Signal	FACTORY Display				
	H RES	V RES	H DE	V DE	V FMT
480i (525i)@60	858	262 or 263	720	240	720x480i@60
480p (525p)@60	858	525	720	480	720x480p@60
1080i (1125i)@60	2200	562 or 563	1920	540	1920x1080i@60
720p (750p)@60	1650	750	1280	720	1280x720p@60
1080p (1125p)@60	2200	1125	1920	1080	1920x1080p@60
1080p (1125p)@24	2750	1125	1920	1080	1920x1080p@24
576i (625i)@50	864	312 or 313	720	288	720x576i@50
576p (625p)@50	864	625	720	576	720x576p@50
1080i (1125i)@50	2640	562 or 563	1920	540	1920x1080i@50
720p (750p)@50	1980	750	1280	720	1280x720p@50
1080p (1125p)@50	2640	1125	1920	1080	1920x1080p@50

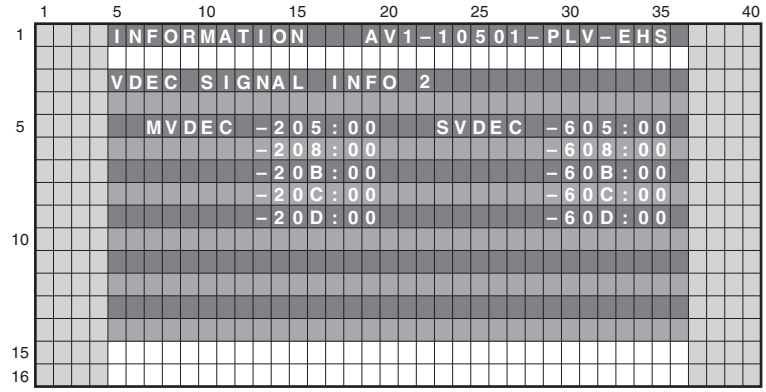
[1-9] VDEC SIGNAL INFO 1



Displays signal status that is input to VDEC.

Device	Sub Address (Main screen)	Sub Address (Sub screen)	Meaning
VDEC	000h	400h	Line system distinction result
	001h	401h	VTR distinction result
	094h	494h	Slot number
	095h	495h	Color system distinction result
	096h	496h	ACC coefficient
	098h	---	3D YC flag
	1B5h	5B5h	MV detection 1
	1B6h	5B6h	MV detection 2
	1B7h	5B7h	MV detection 3

[1-10] VDEC SIGNAL INFO 2



Displays signal status that is input to VDEC.

Device	Sub Address (Main screen)	Sub Address (Sub screen)	Meaning
VDEC	205h	605h	CC detection 1
	208h	608h	CC detection 2
	20Bh	60Bh	CC-CRI detection
	20Ch	60Ch	XDS content advisory 0
	20Dh	60Dh	XDS content advisory 1

[2] PANEL FACTORY (+)

■ Operation Items

No.	Function	Content	RS-232C
[2-1]	PANEL INFORMATION	———	———
[2-2]	PANEL WORKS	———	———
[2-3]	POWER DOWN	———	———
[2-4]	SHUT DOWN	———	———
[2-5]	PANEL-1 ADJ (+)	———	———
[2-6]	PANEL-2 ADJ (+)	———	———
[2-7]	PANEL FUNCTION (+)	———	———
[2-8]	ETC. (+)	———	———
[2-9]	RASTER MASK SETUP (+)	———	———
[2-10]	PATTERN MASK SETUP (+)	———	———
[2-11]	COMBI MASK SETUP (+)	———	———

Note: For details on the setting items, refer to the Service manual of the PLASMA DISPLAY (KRP-600P, KRP-500P).

[3] PANEL MAIN FACTORY (+)

■ Operation Items

No.	Function	Content	RS-232C
[3-1]	PM NG INFO	———	———
[3-2]	PM STATE INFO	———	———
[3-3]	DP_RX INFO	———	———
[3-4]	PM_SETUP (+)	———	———

Note: For details on the setting items, refer to the Service manual of the PLASMA DISPLAY (KRP-600P, KRP-500P).

[4] OPTION

Operation item

No.	Function	Content	RS-232C
[4-1]	CH PRESET <=>	Set the channel map for production line	SCP
[4-2]	Digital AFT <=>	Set AFT of the Satellite digital broadcasting	AFT
[4-3]	SYNC DET (+)	Set the synchronized signal detection of VDEC	———
[4-4]	CTI (+)	Set the synchronized signal detection of VDEC	———

[4-1] CH PRESET <=>

Exclusively used for production line.

[4-2] Digital AFT <=>

Exclusively used for production line.

[4-3] SYNC DET (+)

Exclusively used for technical analysis (details omitted).

[4-4] CTI (+)

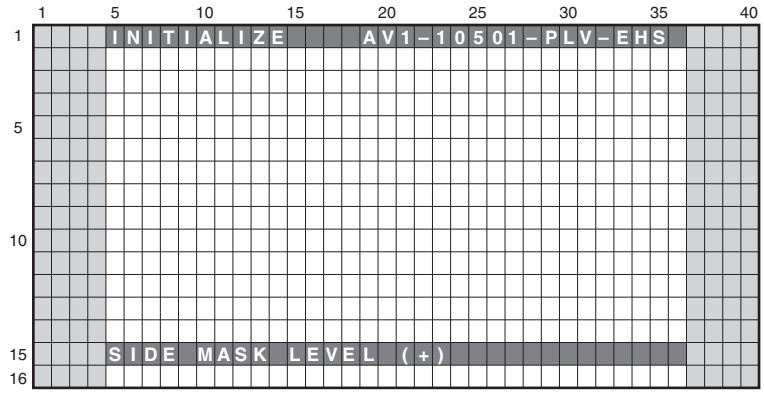
Exclusively used for technical analysis (details omitted).

[5] INITIALIZE

Operation item

No.	Function	Content	RS-232C
[5-1]	SIDE MASK LEVEL (+)	Configure the color of the side mask.	SML
[5-2]	FINAL SETUP	Initialize flash memorys on virgin product status	FST
[5-3]	DTB SERVICE MODE	Enter the Digital Tuner Service Menu	–––
[5-4]	Wide XGA AUTO <=>	Exclusively used for technical analsyis.	–––
[5-5]	AUTO ADJUST. <=>	Perform the auto-adjustment setting process	–––

[5-1] SIDE MASK LEVEL (+)

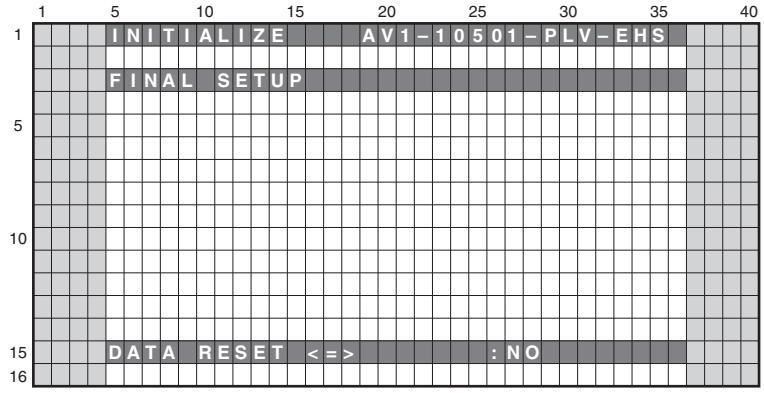


To configure sidemask level (To adjust the values, input signal is required).

Display Item	Content	RS-232C
SIDE MASK LEVEL <=>	Adjust Side Mask level (Adjustable range: 000 to 255, Initial value: 115)	SML

Note: In this mode (SIDE MASK LEVEL), adjustment value cannot changed with the VOLUME +/- keys.

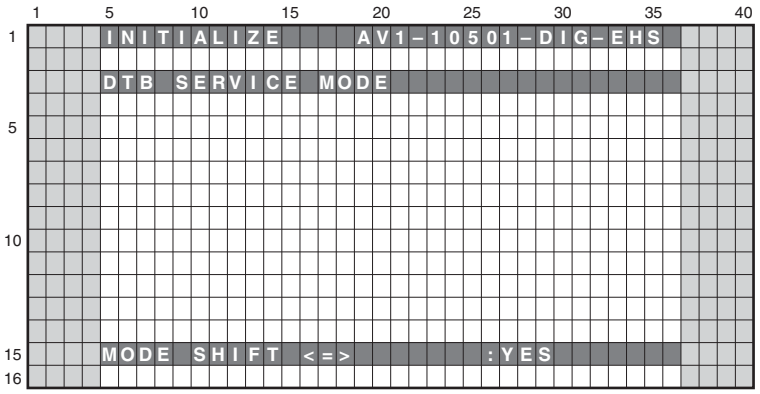
[5-2] FINAL SETUP



- To reset each memory values to factory default values. Factory command is "FST".
- When the configuration is set to <NO> and the [ENTER/SET] key is pressed, no action is taken and the menu returns to previous screen.
- When the configuration is set to <YES> and the [ENTER/SET] key is pressed for 5 seconds, the reset action executes.

Be sure to disconnect and connect the AC cable after FINAL SETUP.
When replacing the MAIN BLOCK Assy, the FINAL SETUP is required.

[5-3] DTB SERVICE MODE

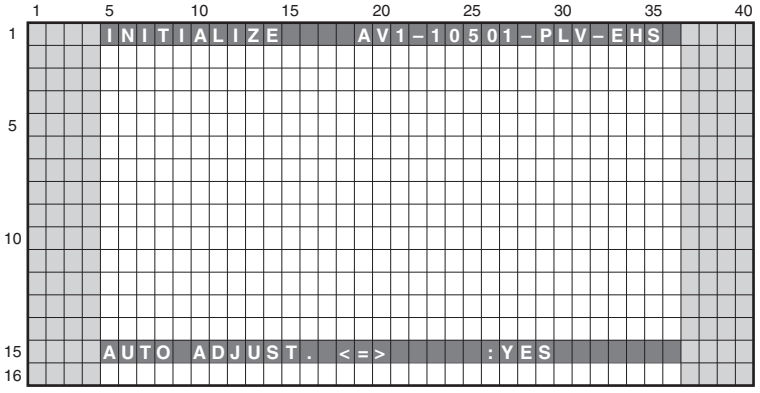


If the [ENTER/SET] key is kept on pressing for 5 second when the status of this menu is <YES>, shift to the DTB SERVICE mode screen. (Release from the SERVICE FACTORY mode.)

[5-4] WIDE XGA AUTO <=>

Exclusively used for technical analysis (details omitted).

[5-5] AUTO ADJUST. <=>



- When the configuration is set to <NO> and the [ENTER/SET] key is pressed, no action is taken and the menu returns to previous screen.
- When the configuration is set to <YES> and the [ENTER/SET] key is pressed for 5 seconds, the auto-adjustment action executes.

- **Be sure to power off with the remote control unit or disconnect and connect the AC cable after the auto-adjustment is completed.**
- **When some ICs on the MAIN BLOCK Assy are replaced individually, auto-adjustment is required. For details on IC numbers, see the list "■ Parts whose replacement is difficult" in "8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED."**
- **When this unit is used with the HD AV Converter, the interlocking setting with the HD AV Converter is released. Reset it after the auto adjustment is completed.**

6.3 DIGITAL TUNER SERVICE MENU

The Digital Tuner Service Menu is provided for collecting data for technological examination when the Digital Tuner has any problem in the market. This menu is introduced here just for reference.

[1] REMOTE CONTROL CODE IN DIGITAL TUNER SERVICE MENU

The following remote control cord is valid in the Digital Tuner Service Menu.

Remote Control Keys	Basic Functions	Remarks
⬇ (DOWN)	Selecting the menu items and shifting the pages.	Shifting downward to the next item. Moving to the next lower page.
⬆ (UP)		Shifting upward to the next item. Moving to the next upper page.
⬅ (LEFT)	Selecting the setting value.	Modifying the setting of selected items.
➡ (RIGHT)		
ENTER/SET	Shifting the menu layers	Shifting to the next menu screen.
RETURN		Shifting to the previous menu screen.
Numeric Keys	Numeric input	Input the numerical value.
POWER OFF	Power OFF	Turning the power off.
STANDBY/ON		
FACTORY	Factory ON/OFF	Release the Menu, then enter the Service Factory menu.
EXIT	MENU exit	After you exit the menu, the channel that was selected on the menu will be displayed.
MUTING	Muting	
HOME MENU	HOME MENU ON/OFF	

[2] HIERARCHICAL TABLE OF DIGITAL TUNER SERVICE MENU

Item Large Item Middle Item	Remarks
6.3 [3] Digital Tuner Service Menu	
6.3 [4] HMG Service Menu	
	Exclusively used for technical analysis: HomeMediaGallery-related information indication
6.3 [5] Digital	
Bandwidth	Exclusively used for technical analysis
Frequency	Exclusively used for technical analysis
Program Number	Exclusively used for technical analysis
Audio PID	Exclusively used for technical analysis
DTV Tuning Status	Exclusively used for technical analysis: Terrestrial digital broadcasting-related information indication
6.3 [6] Satellite	
Modulation	Exclusively used for technical analysis
Frequency	Exclusively used for technical analysis
Symbol Rate	Exclusively used for technical analysis
LNB POWER	Exclusively used for technical analysis
LNB BAND	Exclusively used for technical analysis
Program Number	Exclusively used for technical analysis
Audio PID	Exclusively used for technical analysis
SAT Tuning Status	Exclusively used for technical analysis: Satellite digital broadcasting-related information indication
6.3 [7] Software Version	
	Exclusively used for technical analysis: The software revision information that consists of it in DTB software

[3] DIGITAL TUNER SERVICE MENU SCREEN

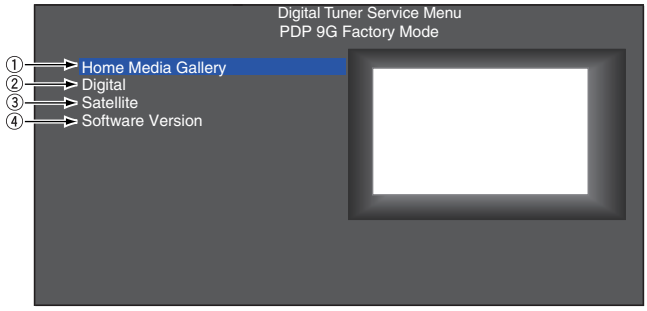


Fig.1 Digital Tuner Service Menu screen

Display a large item list of Digital Tuner Service Menu.
Select each item, and shift to each setting / information display screen.

① Home Media Gallary-related information indication
② Terrestrial digital-related setting / information indication
③ Satellite digital-related setting / information indication
④ Digital Tuner-related detailed software version indication

[4] HOME MEDIA GALLERY SCREEN

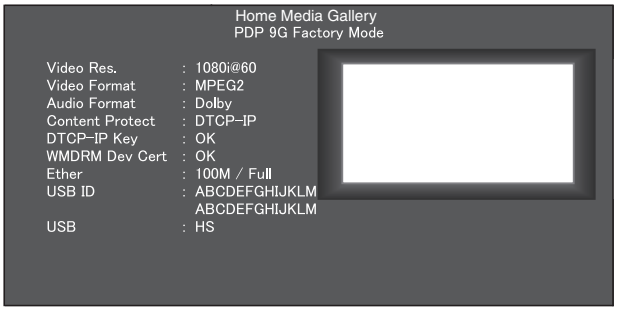


Fig.2 Home Media Gallery screen

Display the Home Media Gallary-related information.

[5] DIGITAL SCREEN

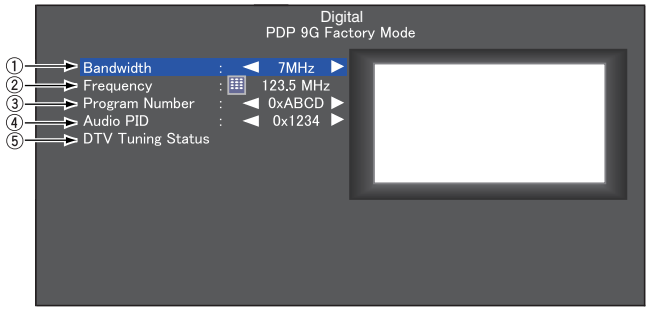


Fig.3 Digital screen

Display the Digital broadcasting-related setting / information indication.(except the satellite digital)

① The Bandwidth for receiving a digital broadcast can be selected. (7 MHz/8 MHz)
② The frequency can be set (up to 1 digit after the decimal point).
③ Program Number in the same stream: Service ID can be selected.
④ Audio PID in the same stream: Audio PID can be selected.
⑤ The DTV Tuning Status is displayed.

The data displayed on the DTV Tuning Status screen are as shown below:
The instructions for servicing using this screen is shown in "How to confirm the DTV Tuning Status on the Digital Tuner Service Menu" of section 5.2 [4]. Therefore, this screen is introduced here just for reference.

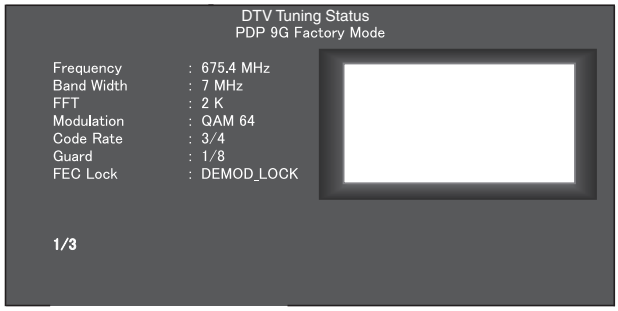


Fig.4 DTV Tuning Status (1/3) screen

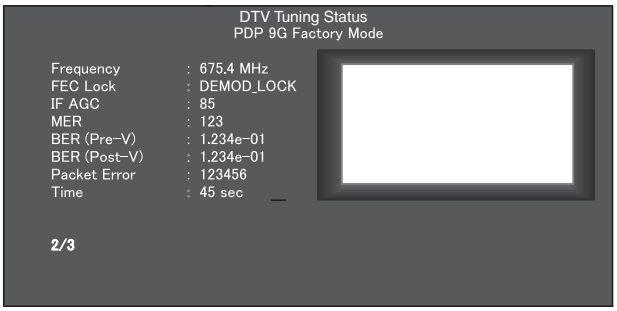


Fig.5 DTV Tuning Status screen (2/3) screen

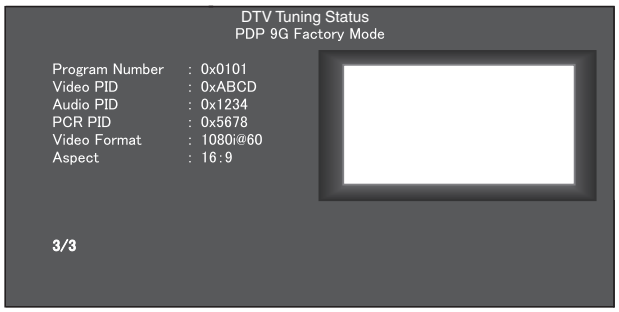


Fig.6 DTV Tuning Status screen (3/3) screen

[6] SATELLITE SCREEN

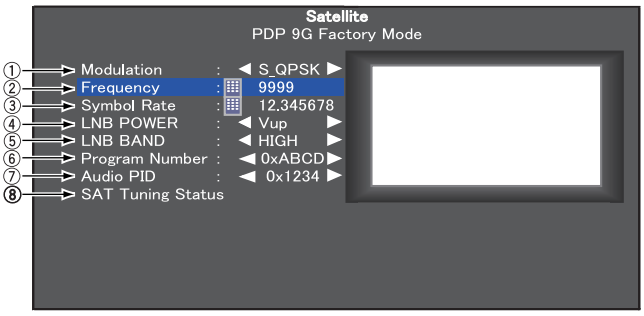


Fig.7 Satellite screen

Display the Satellite Digital broadcasting-related setting / information indication.

① The modulation method can be selected.
(S_QPSK/S2_QPSK/S2_8PSK)
② The frequency can be set (0001 to 9999).
③ The symbol Rate can be set (1.000000 to 99.999999)
④ The LNB power voltage can be selected. (OFF/V/H/Vup/Hup)
⑤ The LNB Bandwidth can be selected. (Low/High)
⑥ Program Number in the same stream: Service ID can be selected.
⑦ Audio PID in the same stream: Audio PID can be selected.
⑧ The Tuning Status of Satellite Digital is displayed.

The data displayed on the SAT Tuning Status screen are as shown below:
The instructions for servicing using this screen will be provided as service information.
Therefore, this screen is introduced here just for reference.

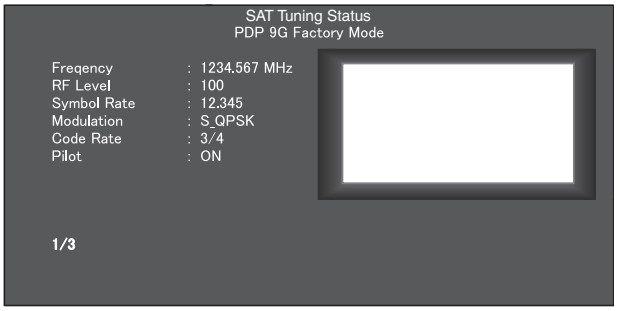


Fig.8 SAT Tunig Status (1/3) screen

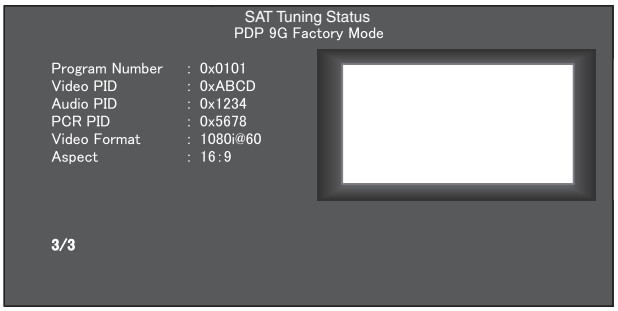


Fig.10 SAT Tunig Status (3/3) screen

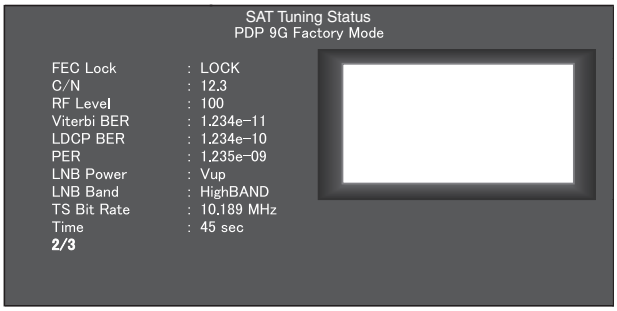


Fig.9 SAT Tunig Status (2/3) screen

[7] SOFTWARE VERSION SCREEN

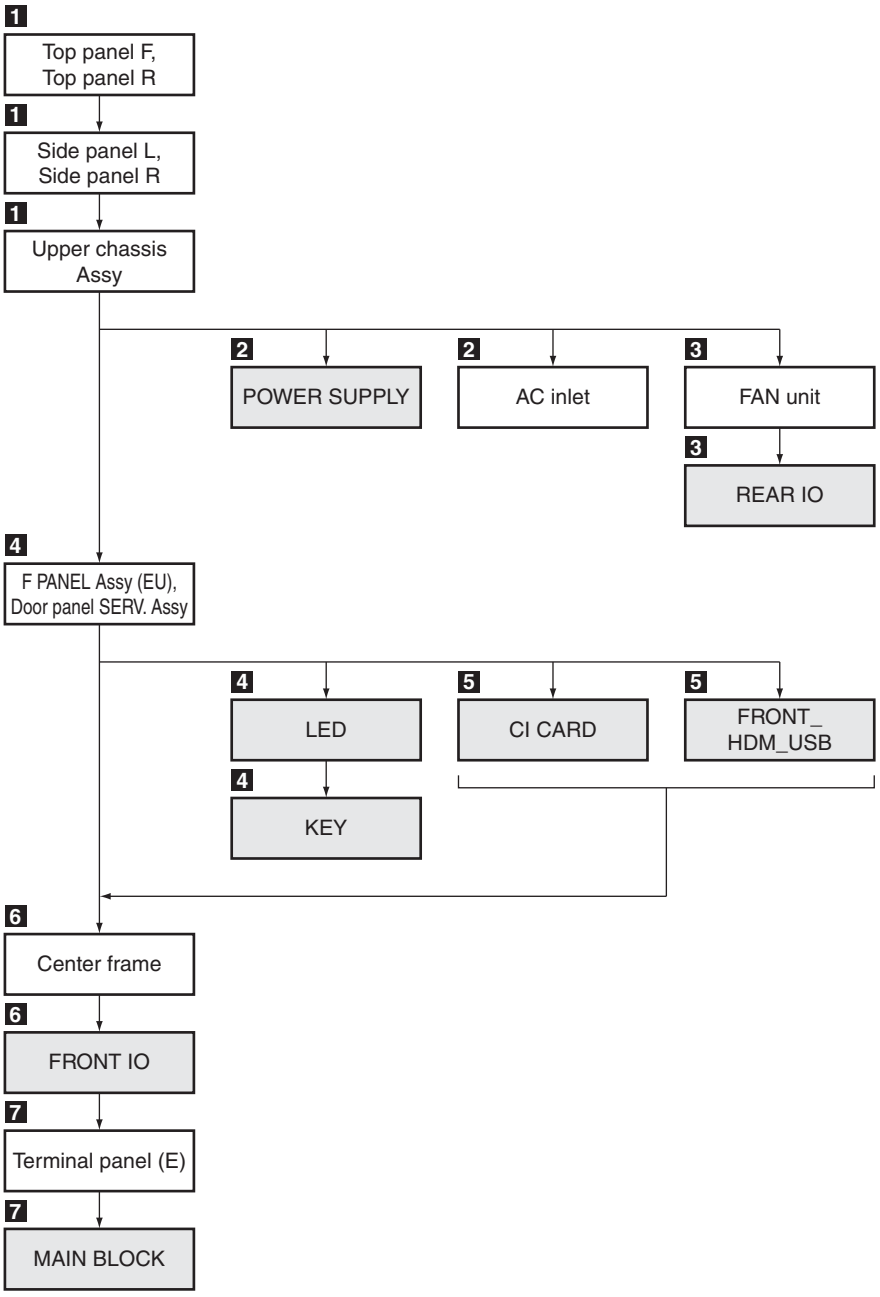
The details are not described here, as this is provided for technical examination.

7. DISASSEMBLY
7.1 FLOWCHART OF REMOVAL ORDER

Note: Even if the unit shown in the photos and illustrations in this manual may differ from your product, the procedures described here are common.

Flowchart of removal order for the main parts and boards

It is efficient to proceed with removal of the main parts and boards in the order shown in the chart below:



7.2 DISASSEMBLY

Disassembly

1 Exterior Section

The high-gloss resin parts of the exterior of this product are easily scratched.
During disassembly and reassembly of this product, be careful not to scratch the exterior.

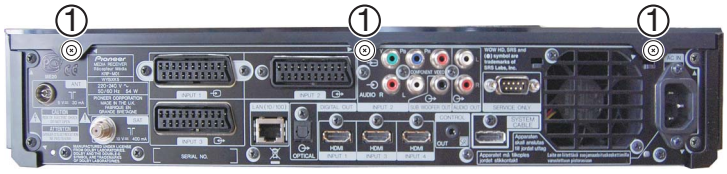
Attach the protect film (GGP1121) to the inside surface of the door.
(For details on the place at which the protect film is to be attached, see “1.2 NOTES SPECIFIC TO THIS PRODUCT.”)

● **Top panel F and R**

① Remove the three collar and three screws. (ABA1383)

• **Reference**

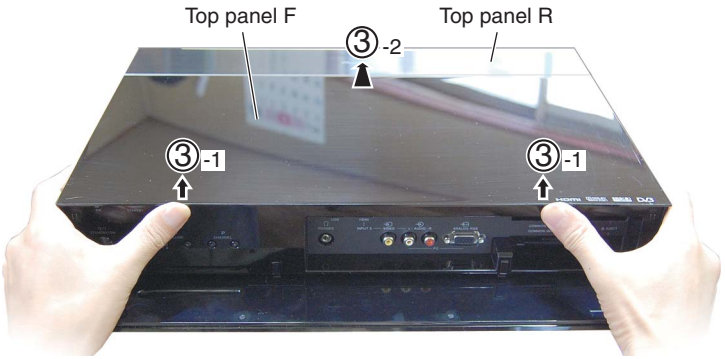
Collar	ABA1383
	



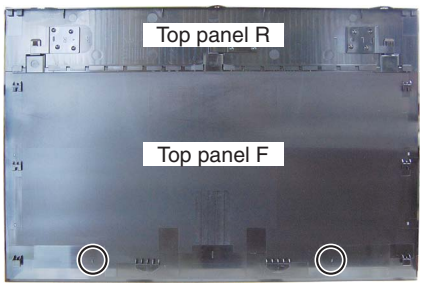
• **Rear view**

② Open the door panel Section.

③ While pushing up at two places of the top panel using your thumbs, as shown in the photo below, to unhook the top panel, remove it by sliding it toward the rear panel.



● **Positions of the hooks**

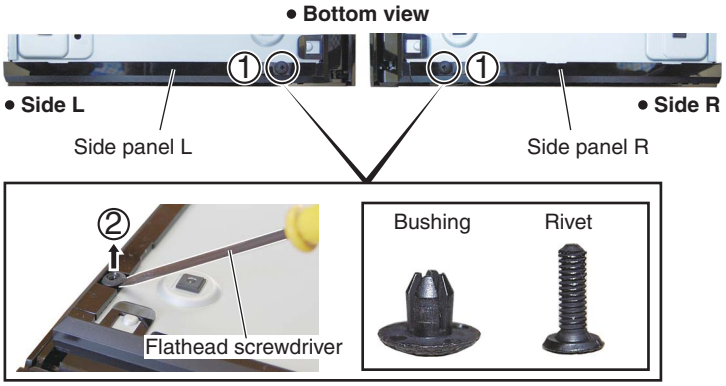


● **Bottom view**

● **Side panel L and R**

① Remove the two rivets.

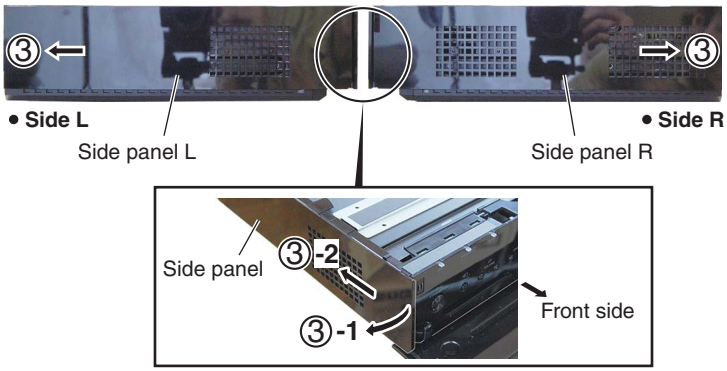
② Remove the two bushings, using a flathead screwdriver.



③ Remove the side panels L and R.

③-1 ③-2

Slide the side panel rearward, by stretching the front edge of the side panel outward, and remove it.



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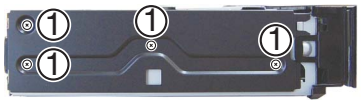
● **Upper chassis Assy**

① Remove the 14 screws. (BBZ30P060FTB)

● Rear view



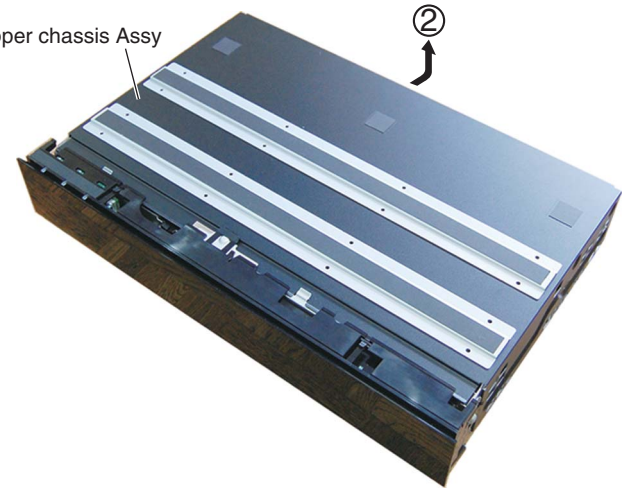
● Side L

● Side R

● **Screw tightening order**

The other screws are random order.

② Remove the upper chassis Assy.



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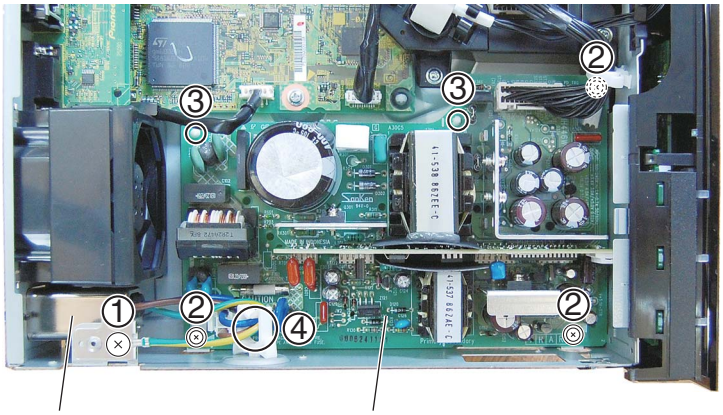
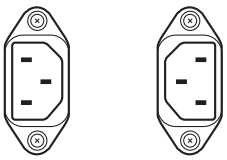
2 POWER SUPPLY Unit

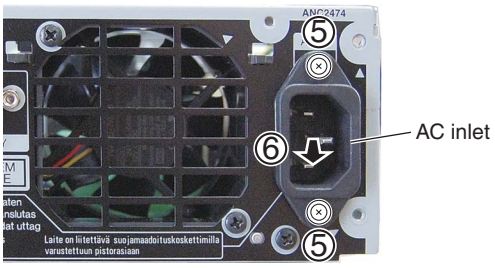
① Remove the one screw. (BMP40P080FSN)
② Remove the three screws. (BBB30P080FSN)
③ Remove the two circuit board spacers.
④ Release the jumper wire.



⑤ Remove the two screws. (ABZ30P080FTB)
⑥ Remove the AC inlet.

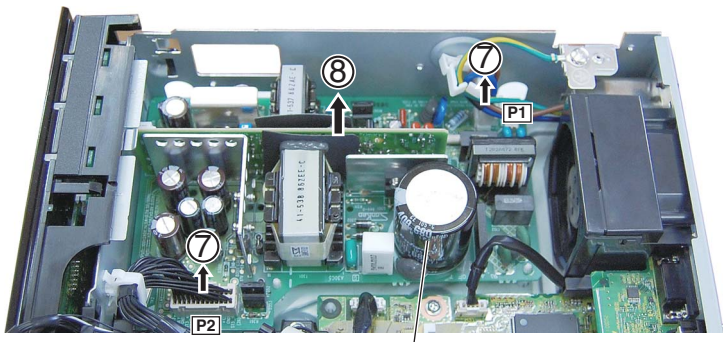
• An installation direction of the AC inlet





• Rear view

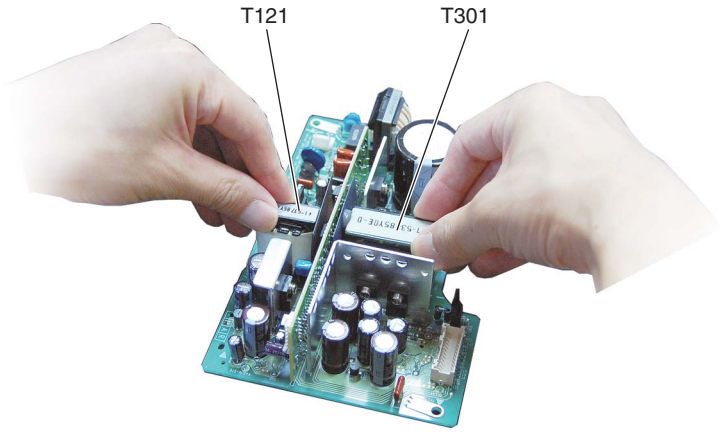
⑦ Disconnect the two connectors.
⑧ Remove the POWER SUPPLY Unit.



Notes on Removing the POWER SUPPLY Unit

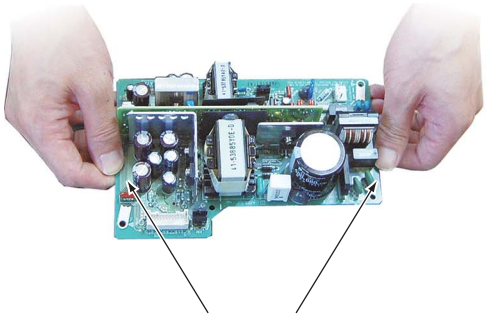
● How to lift up the POWER SUPPLY Unit

When you remove the POWER SUPPLY Unit from the chassis, first lift the board by pinching T121 and T301 transformers with your fingers. When the board is lifted up to a certain height, hold it by hand. NEVER hold the board by the radiator that is adjacent to the transformer.

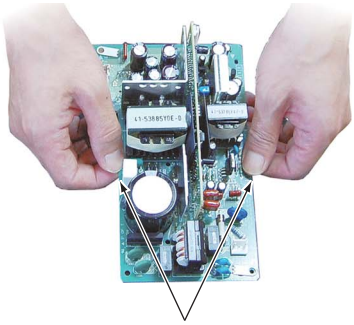


● How to hold the board after removing it from the chassis

The following two ways are recommended for holding the POWER SUPPLY Unit:

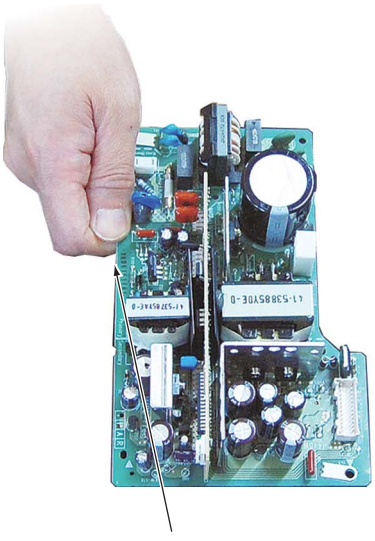


Hold at the center positions of both rims of the board.

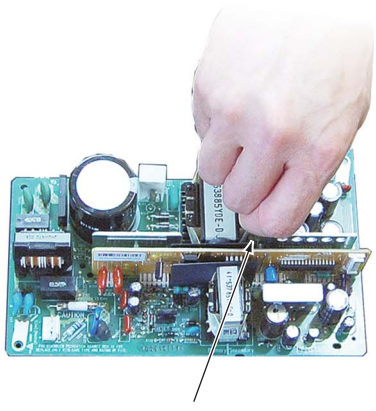


Hold at the center positions of both rims of the board.

Ways to be avoided:



NEVER hold a corner of the board with one hand.



NEVER hold the board by the radiator with one hand.

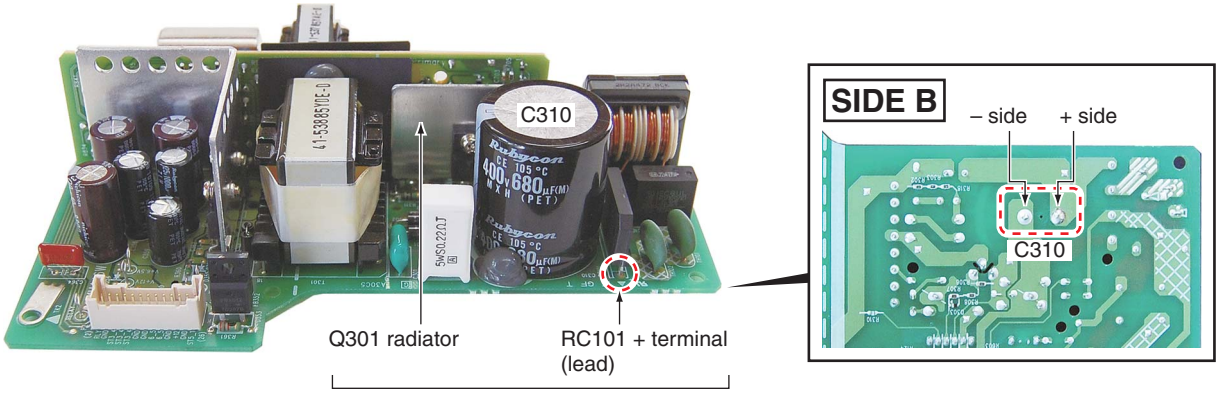
Note on Removing the POWER SUPPLY Unit from the Chassis and Method for Resetting Standby Power Latchup

For 3-5 minutes after the unit is turned off, residual electric charge remains in the C310 capacitor on the POWER SUPPLY Unit. Before removing the POWER SUPPLY Unit from the chassis, be sure to confirm that residual charge inside the POWER SUPPLY Unit has become sufficiently low. (Without forced discharge, residual charge that remains after 3-5 minutes will fall to one-tenth or less, which is still about 20 V. Therefore, even after the POWER SUPPLY Unit is removed, it is recommended to perform forced discharge on the POWER SUPPLY Unit, as shown below.)

For quick removal of residual charge, forced discharge is recommended, using two 220 ohm/10 W resistors (440 ohm/20 W).

● How to remove the POWER SUPPLY Unit

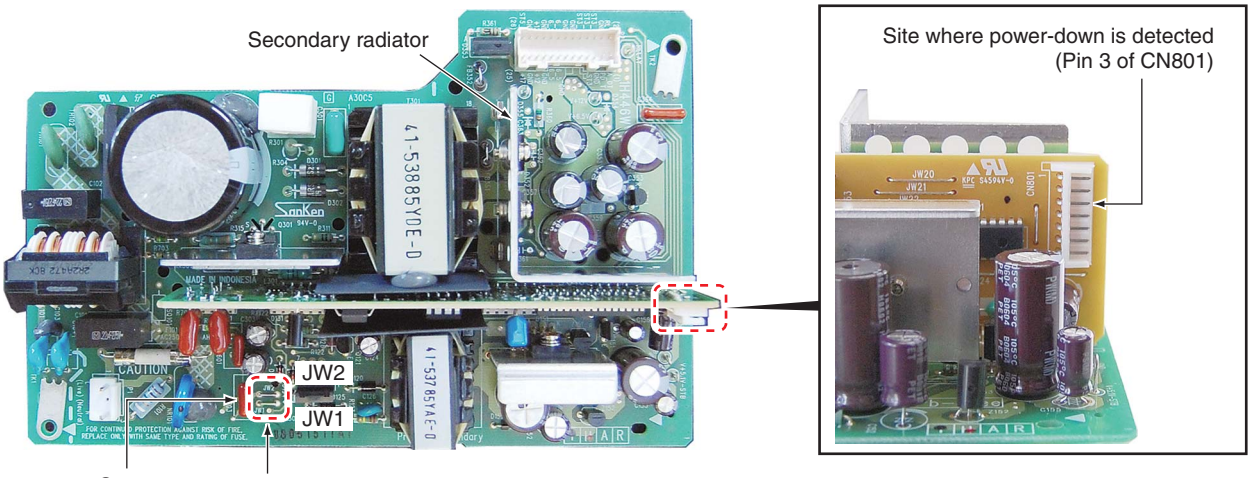
1. Make sure that the AC power cord is unplugged. Using a tester, check the voltage between the + terminal of RC101 bridge diode and Q301 radiator (equivalent to the voltage between two electrodes of C310).
2. Let the unit sit for more than 5 minutes until the voltage equivalent to that between two electrodes of C310 falls to under 20 V.
3. After checking that the voltage is under 20 V, disconnect the connectors of the POWER SUPPLY Unit and remove the POWER SUPPLY Unit.
4. Using two resistors mentioned above, completely discharge residual charge from C310.



After checking that the voltage at the measurement points (equivalent to the voltage between two electrodes of C310) is under 20 V, remove the POWER SUPPLY Unit.
Then, completely discharge residual charge, using resistors.

● How to reset Standby power latchup (In a case where the protection against Standby power excess voltage is activated)

1. After removing the causes of the malfunction, short-circuit between the JW1 and JW2 jumpers.
2. If the POWER SUPPLY Unit functions properly, after opening the above jumpers, the unit starts up.



To forcibly reset latchup of STBY3.4 V, short-circuit between JW1 and JW2 (near C603), using a flathead screwdriver or similar object.
If the causes of the malfunction are removed, after opening the jumpers, the unit starts up.

3 REAR IO Assy

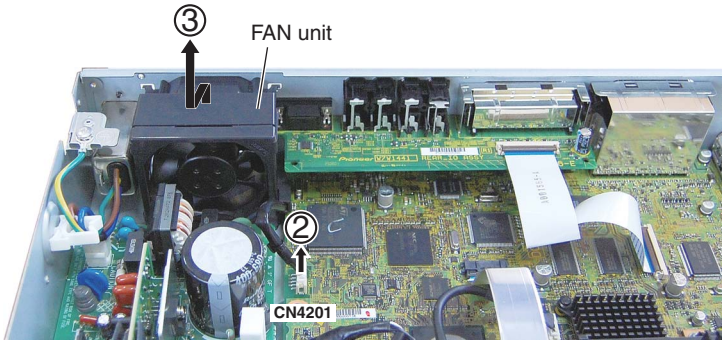
● **FAN unit**

① Remove the two screws. (BPZ30P080FTB)

• **Rear view**

② Disconnect the one connector.

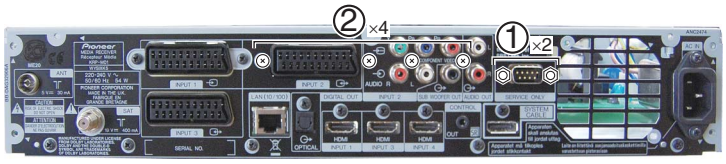
③ Remove the FAN unit.



● **REAR IO Assy**

① Remove the two hexagon headed screws. (ABA1382)

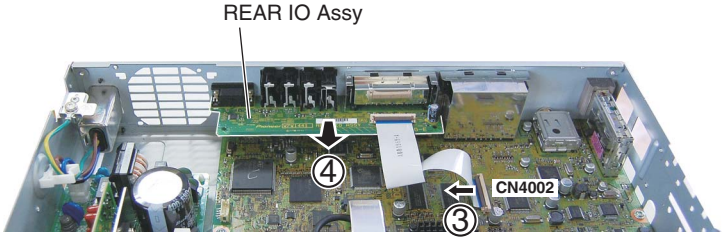
② Remove the four screws. (BPZ30P080FTB)



• **Rear view**

③ Disconnect the one flexible cable.

④ Remove the REAR IO Assy.



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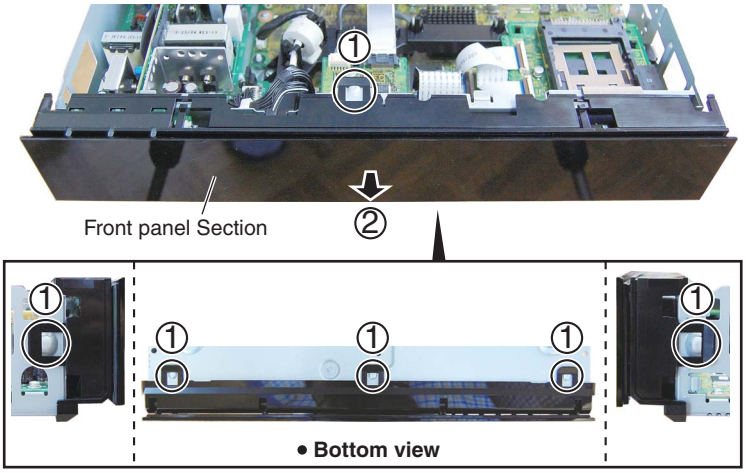
4 Front Panel Section

● **Front panel Section**

① Unhook the six hooks.

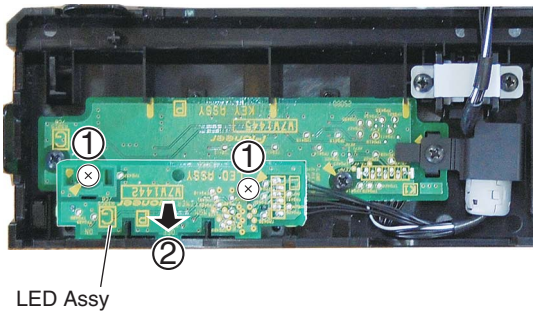
② Remove the front panel Section.



● **LED and KEY Assys**

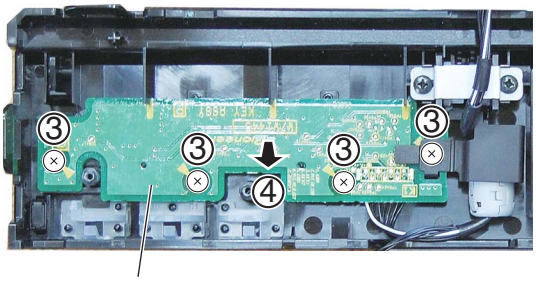
① Remove the two screws. (BPZ30P080FTB)

② Remove the LED Assy.



③ Remove the four screws. (BPZ30P080FTB)

④ Remove the KEY Assy.



Note:
Before tightening screws, make sure that the protect film has been attached.
(For details on the place at which the protect film is to be attached, see “1.2 NOTES SPECIFIC TO THIS PRODUCT.”)

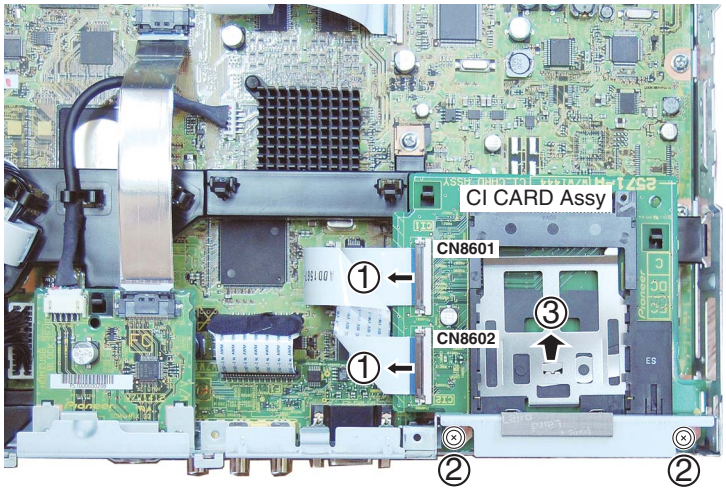
5 CI CARD and FRONT_HDM_USB Assys

● **CI CARD Assy**

① Disconnect the two flexible cables.

② Remove the two screws. (ABZ30P060FTC)

③ Remove the CI CARD Assy.

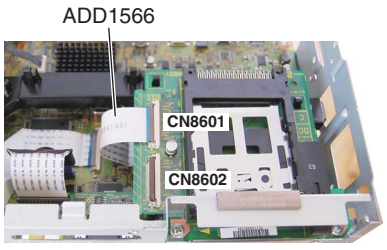


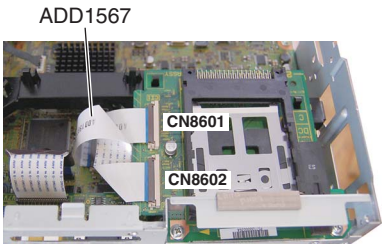
● **Note on Connection of the Flexible Flat Cable for the CI CARD Assy**

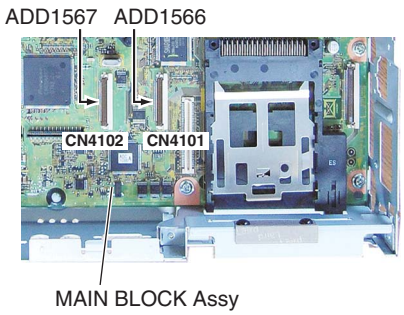
How to Check for Inverse Connection

After connecting the FFC cable for the CI CARD Assy, make sure that the part number printed on the upper surface of the cable is ADD1567.

ADD1567	Correctly connected
ADD1566	Inversely connected







Unit operation when the cable is inversely connected

	Activated operation	Unit operation
Unit	When activated	It starts up properly.
Slot 1: Lower slot (mounted on the MAIN BLOCK Assy)	When the circuits in the Card block are activated	They operate properly.
	When a card is inserted in Slot 1	They operate properly.
Slot 2: Upper slot (mounted on the CI CARD Assy)	When the circuits in the Card block are activated	They are not activated (no risk of being damaged, though).
	When a card is inserted in Slot 2	They are not activated (no risk of being damaged, though).

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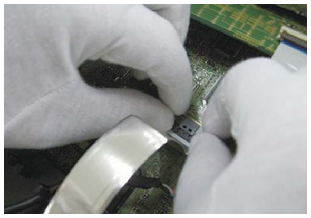
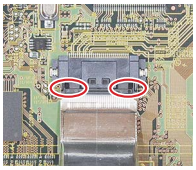
● **Notes on Connecting the Shielded Flexible Flat Cable**

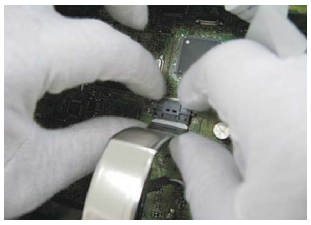
OK

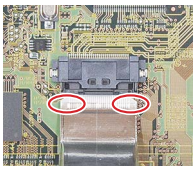




Push on the connector itself.

NG

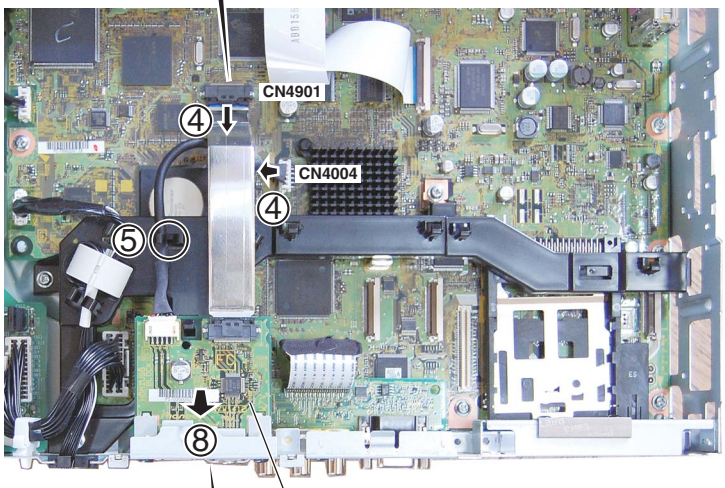




Do NOT connect the connector by pushing with the cable.

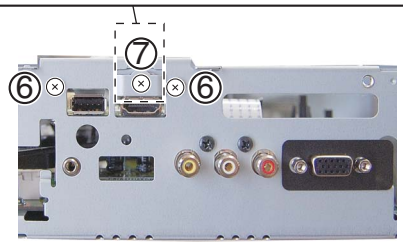
● **FRONT_HDM_USB Assy**

④ Disconnect the one flexible cable and one connectors.
⑤ Release the jumper wire.
⑥ Remove the two screws. (BBZ30P060FTB)
⑦ Remove the one screw. (VBA1088)
⑧ Remove the FRONT_HDM_USB Assy.



FRONT_HDM_USB Assy

Note:
Do not use an electric screwdriver.
If the screw is over-tightened, the screw thread may be damaged.



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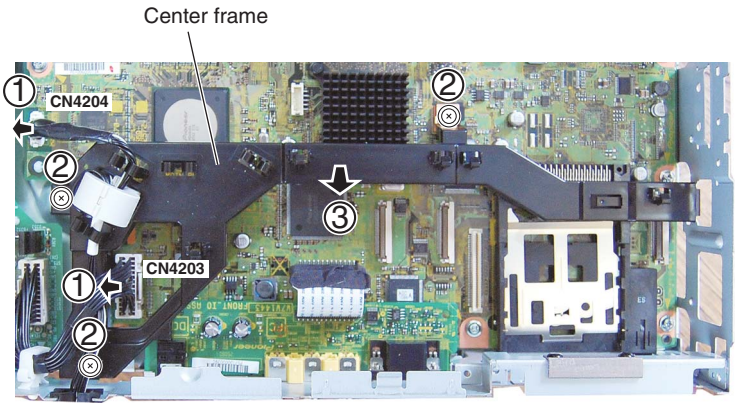
6 FRONT IO Assy

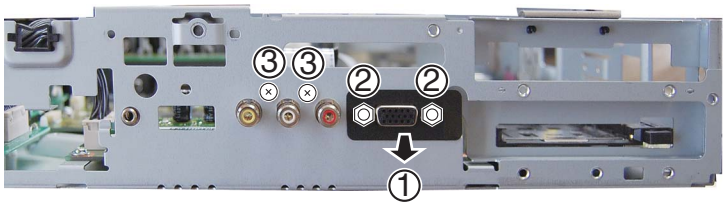
● **Center frame**

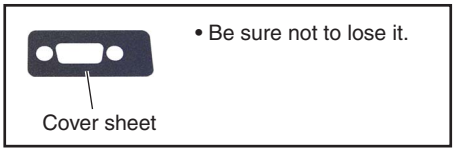
① Disconnect the two connectors.
② Remove the three screws. (ABA1383)
③ Remove the center frame.



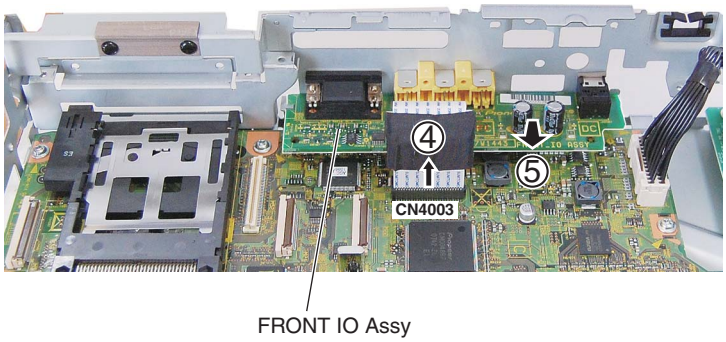
● **FRONT IO Assy**

① Remove the cover sheet.
② Remove the two hexagon headed screws. (ABA1382)
③ Remove the two screws. (BPZ30P080FTB)





④ Disconnect the one flexible cable.
⑤ Remove the FRONT IO Assy.



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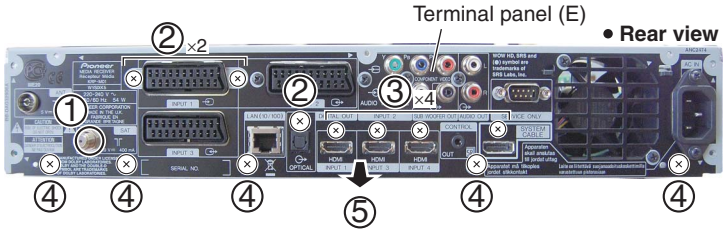
7 MAIN BLOCK Assy

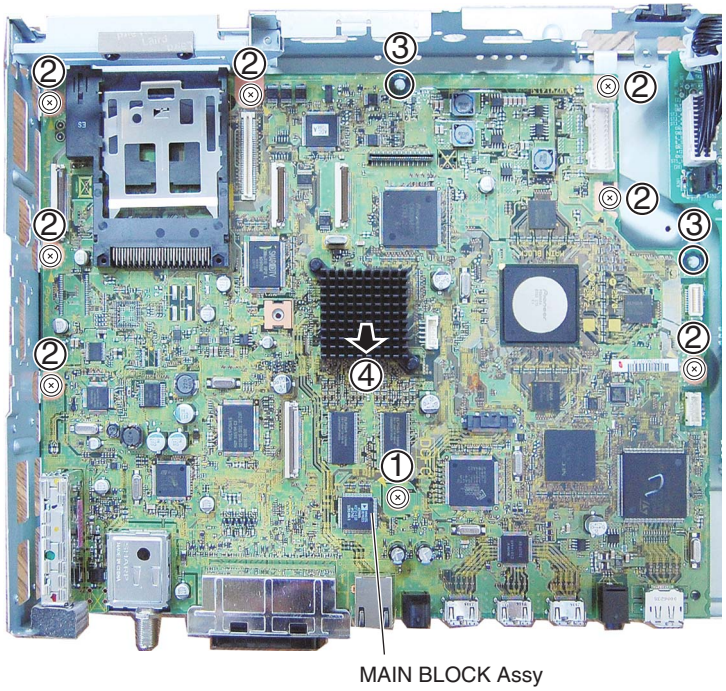
● **Terminal panel (E)**

① Remove the one nut. (BBN1005)
② Remove the three screws. (BPZ30P080FTB)
③ Remove the four screws. (BMZ30P060FTB)
④ Remove the five screws. (BBZ30P060FTB)
⑤ Remove the terminal panel (E).



● **MAIN BLOCK Assy**

① Remove the one screw. (AMZ30P060FTB)
② Remove the seven screws. (ABA1383)
③ Remove the two circuit board spacers.
④ Remove the MAIN BLOCK Assy.



8. EACH SETTING AND ADJUSTMENT

1. At shipment, the unit is adjusted to its best conditions. Normally, it is not necessary to readjust even if an assembly is replaced. If the adjustment is shifted or if it becomes necessary to readjust because of part replacement, etc., perform the adjustment as described below.
2. Any value changed in Service/Factory mode will be stored in memory as soon as it is changed. Before readjustment, take note of the original values for reference in case you need to restore the original settings.
3. Use a stable AC power supply.

8.1 ADJUSTMENT REQUIRED WHEN THE UNIT IS REPAIRED OR REPLACED

■ When any of the following assemblies is replaced

POWER SUPPLY Unit	➡	No adjustment required
MAIN BLOCK Assy (*)	➡	Execute section [5-5] AUTO ADJUSTMENT of 6.2 [5] INITIALIZE.
Other assemblies	➡	No adjustment required

(*) : When replacing the MAIN BLOCK Assy, be sure to perform the FINAL SETUP.

■ Replacement of the whole Assy is required when one of the following part on the corresponding Assy is in failure

PCB Assy No.	Assy Name	Ref No.	Function Name	Part No.	Reason
AXY1204	POWER SUPPLY Unit	U0003	—	—	The maker forbids Pioneer from repairing the Assy.
AWV2570 AWV2572	MAIN BLOCK Assy	IC6403	DTV Flash	S29GL512P10TFIR1 -K (AGC1089)	Because ID data (MAC address and data on keys) have been stored
		IC6001	SYSTEM IC (BCM7404)	BCM7404XKPB11G-K	Because adjustments and data writing at the level of production line are required after replacement
		IC5002	HDCP EEPROM	BR24L02FV-W	
		IC5003	HDCP EEPROM	BR24L02FV-W	
		IC5004	HDCP EEPROM	BR24L02FV-W	
		IC7301	FRONT HDCP EEPROM	BR24L02FV-W	
		IC7004	EMMA2 EEPROM	BR24L64F-W	
		IC6701	ARIA FLASH	S29GL016A90TFIR2 -K (AGC1088)	
		IC6811	IF UCOM	AGC1086	
		IC7202	EMMA2 FLASH	S29GL032N90TFIO4 -K (AGC1087)	
		IC6201	BCM DDR SDRAM	HY5DU121622DTP-D43-K	
		IC6202	BCM DDR SDRAM	HY5DU121622DTP-D43-K	
		IC6203	BCM DDR SDRAM	HY5DU121622DTP-D43-K	
		IC6204	BCM DDR SDRAM	HY5DU121622DTP-D43-K	
AWV2571 (AWW1443)	FRONT_IO Assy	IC8501	PC EEPROM	BR24L01AFJ-W	Because adjustments and data writing at the level of production line are required after replacement

■ Part whose replacement is difficult

PCB Assy No.	Assy Name	Ref No.	Function Name	Part No.	Reason
AWV2570 AWV2572	MAIN BLOCK Assy	IC7003	SYSTEM IC (EMMA2)	UPD61123F1-100KA3A-K	Because these ICs are packaged in BGA
		IC6501	ASIC (ARIA)	PD6568A-K	
		IC6702	DDR SDRAM (ARIA)	EDD1232ABBH-5C-E-K	
		IC6703	DDR SDRAM (ARIA)	EDD1232ABBH-5C-E-K	
		IC6704	DDR SDRAM (ARIA)	EDD1232ABBH-5C-E-K	
		IC4801	ADC	AD9985KSTZ	Because these ICs require readjustment after replacement
		IC5101	AV SW	R2S11006FT	
		IC5501	RGB SW	R2S11001FT	
		IC4702	VDEC	CM0048BF	
		U5301	DVB-T	AXF1191	Because the part has many pins (from G9, through-hole print will be adopted)
		U5201	DVB-S2	AXF1195	
		JA5601	CI connector	AKP1341	Because the part has many pins
		JA7502	Scart connector	AKP1265	
		JA8801	Scart connector	AKP1266	
		IC4901	HDMI	SII9135CTU-K	Because a radiation pad is provided
		IC5201	S2 demodulation IC	STV-0903	
		IC4601	Regulator	LTC3407EMSE-2	
		IC4501	Regulator	BD8624EFV	
		IC4503	LNB Regulator	LNBH23PP-TBB	

■ Adjustment Procedures After a Part that Requires Readjustment is Replaced

Execute section “[5-5] AUTO ADJUST. <=>” of “6.2 [5] INITIALIZE.”

8.2 HOW TO UPDATE USB

■ Preparation

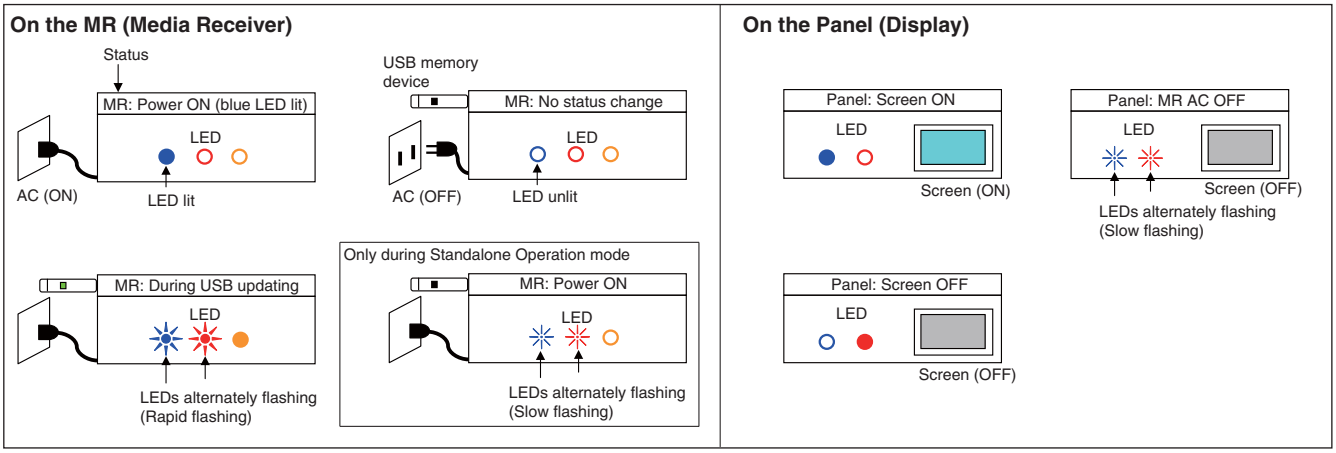
Expand the image-file folder for USB updating in the root directory of the USB memory device.

Example: Folder construction after expansion in the root directory of the USB memory device

(With the nonencrypted folder)	[update] ├ boot.img ├ update.ctl ├ update.iso └ update.lst
(With the encrypted folder)	[update] ├ boot.img ├ update.ctl ├ update.enc ├ update.key └ update.lst

An encrypted image-file folder for USB updating will be released for general users.

■ Description of the figures



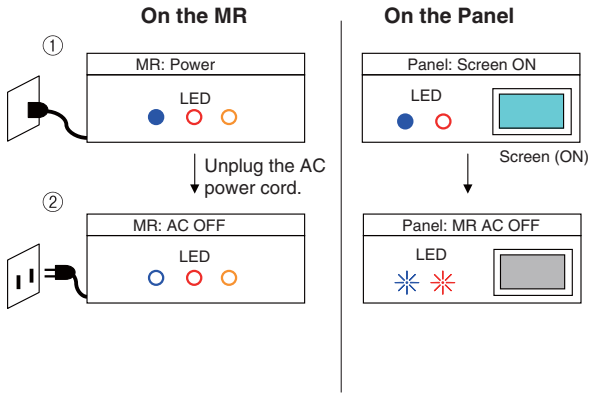
■ Procedures

The methods for USB updating in System Operation mode and Standalone Operation mode of the MR are described below.
Note: Make sure that the display is always set in System Operation mode.

System Operation mode: Normal mode
How to set: Issue the "MRMS00" RS-232C command to start setting.
Note: Make sure that the display is always set to ON.

(1) Setting before starting USB updating

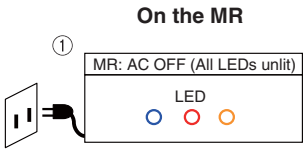
Set only the MR from last Standby ON to AC OFF.



Standalone Operation mode: Standalone Operation mode of the MR
How to set: Issue the "MRMS01" RS-232C command to start setting.

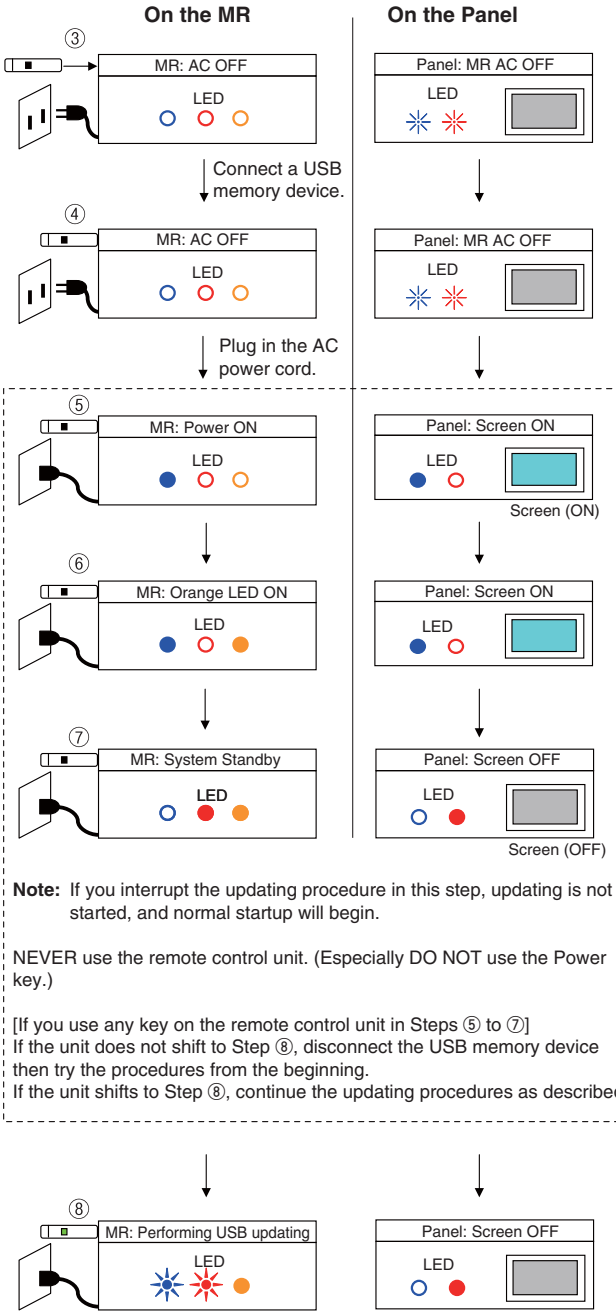
(1) Setting before starting USB updating

Disconnect the AC power cord.



(2) Procedures for USB updating

Connect a USB memory device, then plug in the AC power cord.



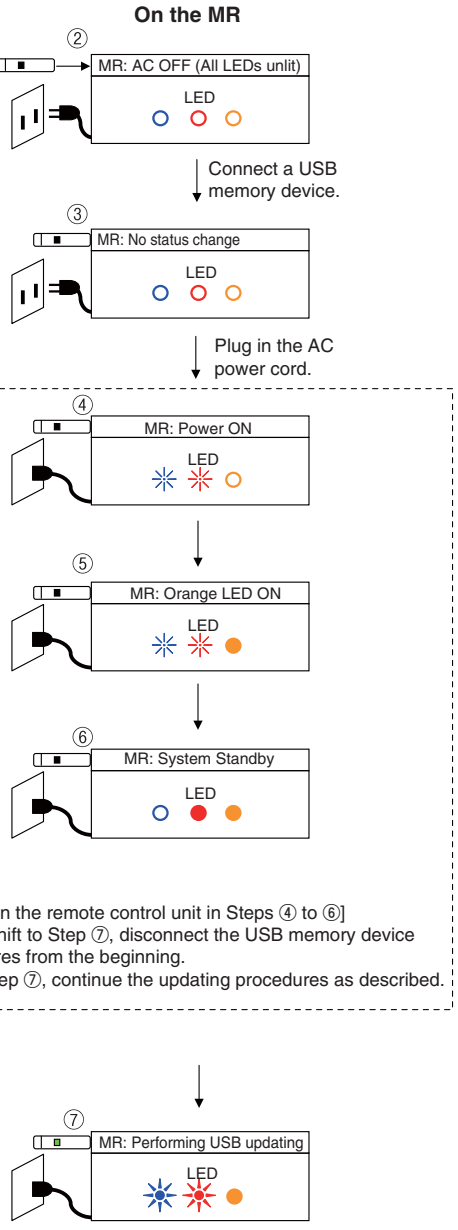
Note: If you interrupt the updating procedure in this step, updating is not started, and normal startup will begin.

NEVER use the remote control unit. (Especially DO NOT use the Power key.)

[If you use any key on the remote control unit in Steps ⑤ to ⑦]
If the unit does not shift to Step ⑧, disconnect the USB memory device then try the procedures from the beginning.
If the unit shifts to Step ⑧, continue the updating procedures as described.

(2) Procedures for USB updating

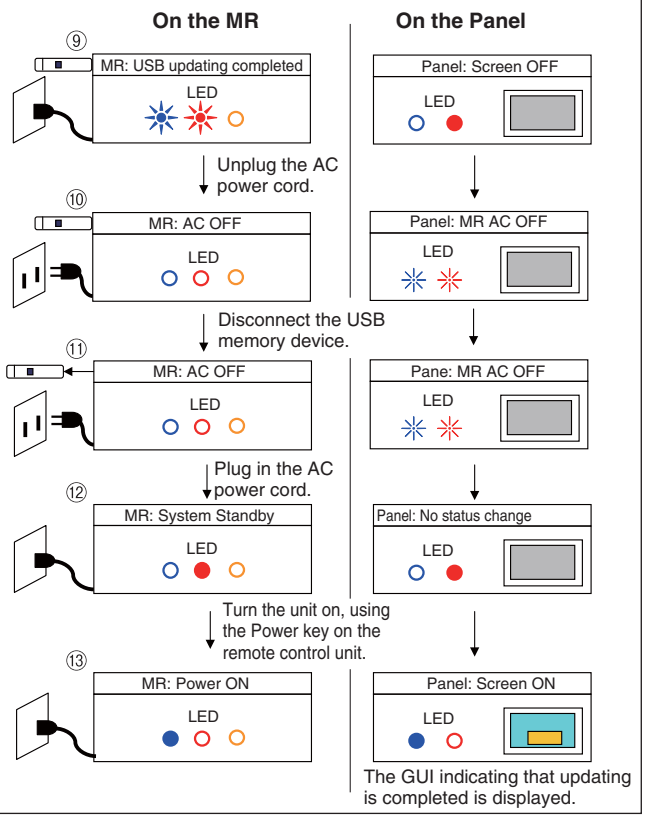
Connect a USB memory device, then plug in the AC power cord.



[If you use any key on the remote control unit in Steps ④ to ⑥]
If the unit does not shift to Step ⑦, disconnect the USB memory device then try the procedures from the beginning.
If the unit shifts to Step ⑦, continue the updating procedures as described.

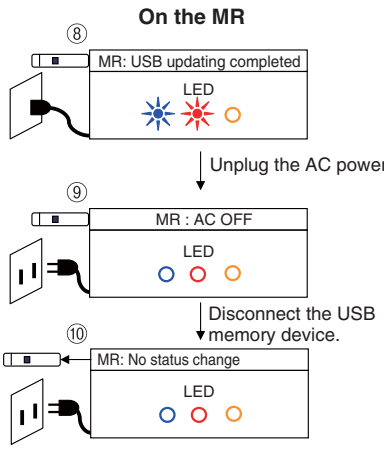
(3) Completion procedures for USB updating

After USB updating is completed, perform the following steps (unplug the AC power cord, disconnect the USB memory device, then plug the AC power cord back in).



(3) Completion procedures for USB updating

After USB updating is completed, perform the following steps (unplug the AC power cord, disconnect the USB memory device, then plug the AC power cord back in).

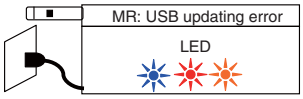


Return the MR to System Operation mode, by sending a command via the RS-232C connector.
How to set: Send the "MRMS00" command via the RS-232C connector.

In Standalone Operation mode of the MR, the GUI indicating that updating is completed is not displayed.

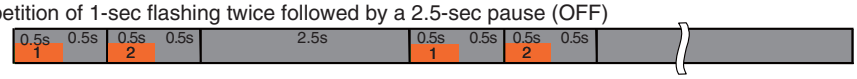
List of frequency of LED (orange) flashing when updating fails

If updating is interrupted, the orange LED flashes to warn you of the error.



Frequency of Orange LED Flashing	Error Content	Details
1	(Not used)	
2	Version error	The same version or a newer version of software has already been loaded.
3	USB update startup error	Startup of USB updating failed.
4	DTV Update Error	Updating of the DTV software failed.
5	MAIN Download Error	Updating of the MAIN microcomputer software failed.
6	ARIA Download Error	Updating of the ASIC software in the previous stage failed.
7	ZEUS Download Error	Updating of the ASIC software in the later stage failed.
8	Module Download Error	Updating of the module microcomputer software failed.
9	IF Download Error	Updating of the IF microcomputer software failed.
10	USB disconnection	Abnormality in the USB memory device
11 to 13	Reserved	-
14	Destination error	The software for a different destination (Europe/North America/Australia) was used for updating.

Example: In a case where the orange LED flashes twice (version error)
Repetition of 1-sec flashing twice followed by a 2.5-sec pause (OFF)



Under the following conditions, USB updating procedures will be interrupted at Step 5 above, and normal startup will begin, but the LED does not flash for error indication.

Conditions under which the LED will not flash for error indication

- Any USB updating file is damaged
- Not all USB updating files are stored in the USB memory device
- The USB updating files are modified
- The USB memory device is defective

8.3 HOW TO UPDATE DISPLAY PORT FIRMWARE

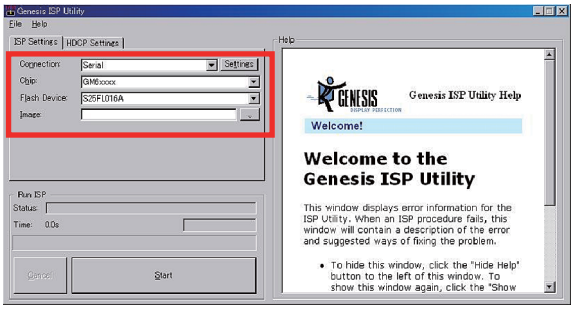
1. Preparation of Tools

1. Activate the “ISPUtility xxxxxxxx.exe” file to install the ISP Utility.
   On each screen, select “Next” until the installation wizard is finished.
2. Activate the “CGProbe Redistributable xxxx.exe” file.
   On each screen, select “Next” until the wizard is finished.
3. Place the following files in the designated paths:
   chip.xml
   C:¥Program Files¥Genesis Microchip¥ISP Utility¥
   SAFELite-ISP_S25FL016A.hex
   C:¥Program Files¥Genesis Microchip¥ISP Utility¥Isp¥safe-lite

Note: If you changed the program installation path, the above-mentioned paths may be different.

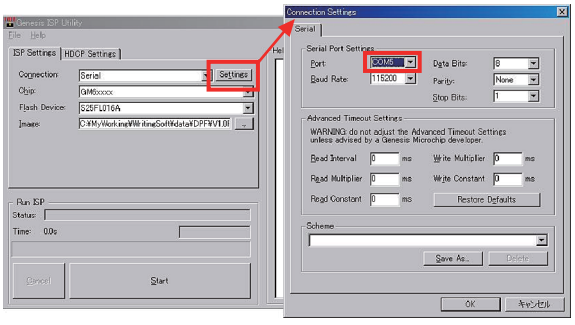
2. Updating

1. Connect the PC with the Media Receiver (MR) or Panel (Display), using an RS-232C straight cable.
2. Set the connected MR or Panel to Standby mode.
3. Disconnect the DP cable.
4. Start up the program for sending RS-232C commands:
   Baud rate: 9600
   COM port: Select, according to the environment of the PC.
5. Send the “UFW” command. Check that the red and blue LEDs flash.
6. Issue a command corresponding to the firmware to be updated.
   [In a case where the DP firmware on the MR is updated]
   Issue the “DPT” command.
   [In a case where the DP firmware on the display is updated]
   Issue the “DPR” command.
7. With the program for sending RS-232C commands, terminate the connection.
8. Start up the ISP Utility program and set up the ISP Settings screen.

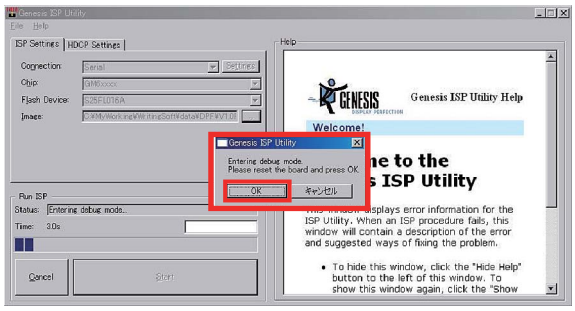


Connection: Serial
Chip: GM6xxxx
Flash Device: S25FL016A
Image: Select the “.hex” file to write to.

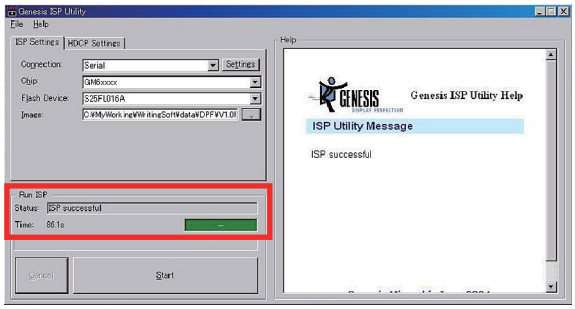
When “Serial” is selected in the “Connection” box, selection of Com ports is enabled. Click on “Settings” then select a Com port, according to the environment of the PC.



9. After all necessary settings are completed, click on Start to start updating.
10. When the following message is displayed, click on OK.

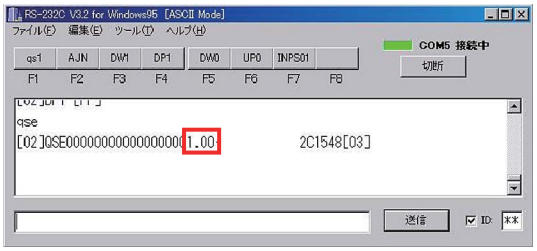


11. The current status is displayed in the “Status” box. When “ISP Successful” is displayed, updating is completed successfully.

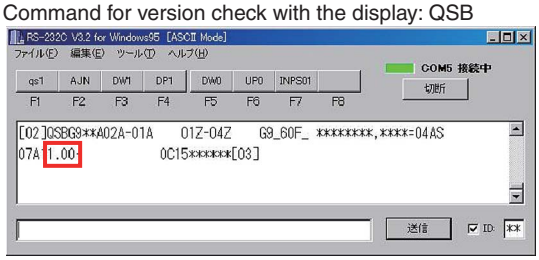


12. Terminate the utility program and turn the MR or display off then back on again.
    With the program for sending RS-232C commands, reestablish the connection. Then send the command for version check.

Command for version check With the MR: QSE



Command for version check with the display: QSB



13. Check that the version has been properly updated. This completes the updating procedures.

A

B

C

D

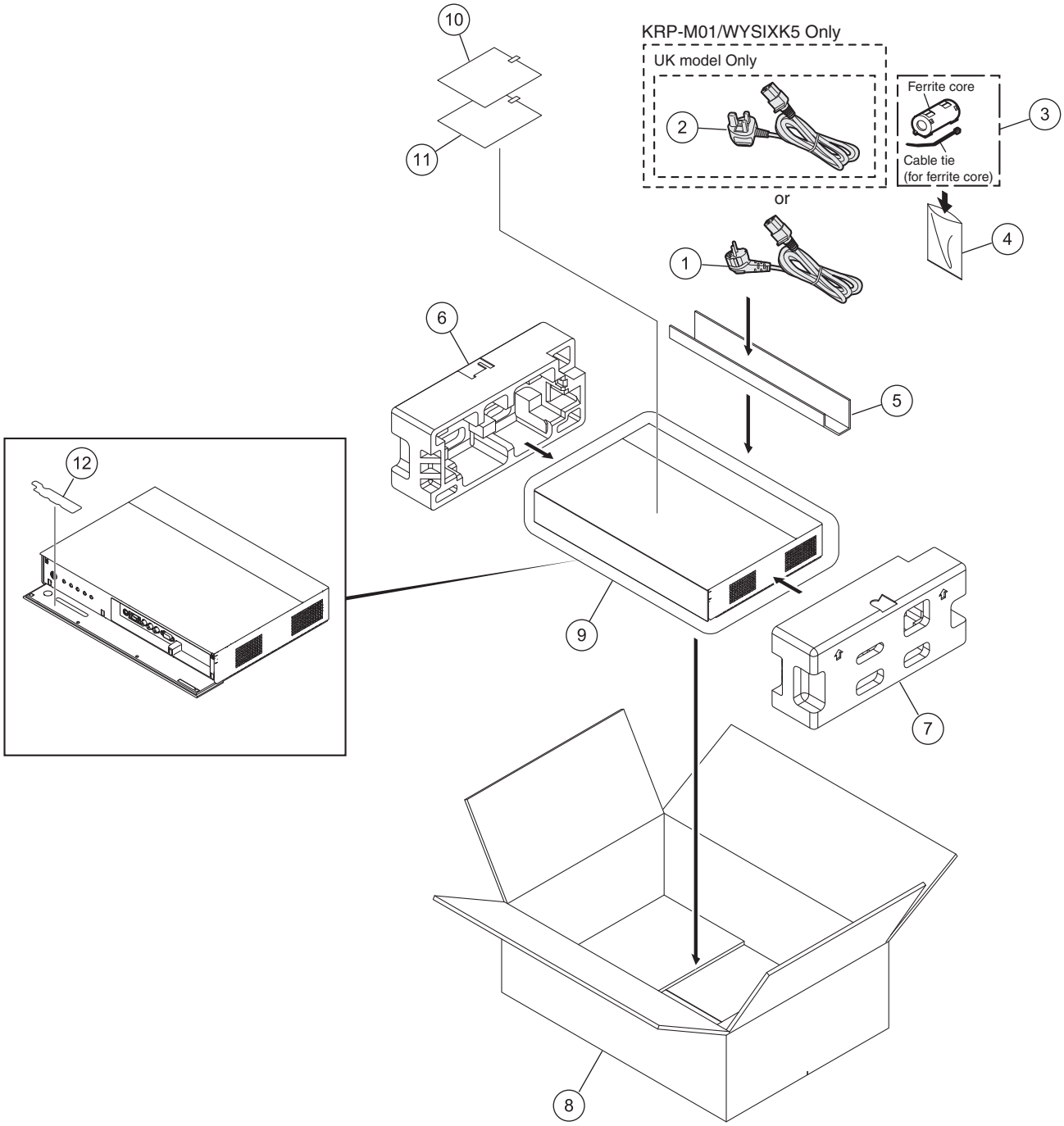
E

F

9. EXPLODED VIEWS AND PARTS LIST

NOTES: ● *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
● *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
● *Screws adjacent to ▼ mark on product are used for disassembly.*
● *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions, apply as you think it appropriate.)*

9.1 PACKING SECTION



(1) PACKING SECTION PARTS LIST

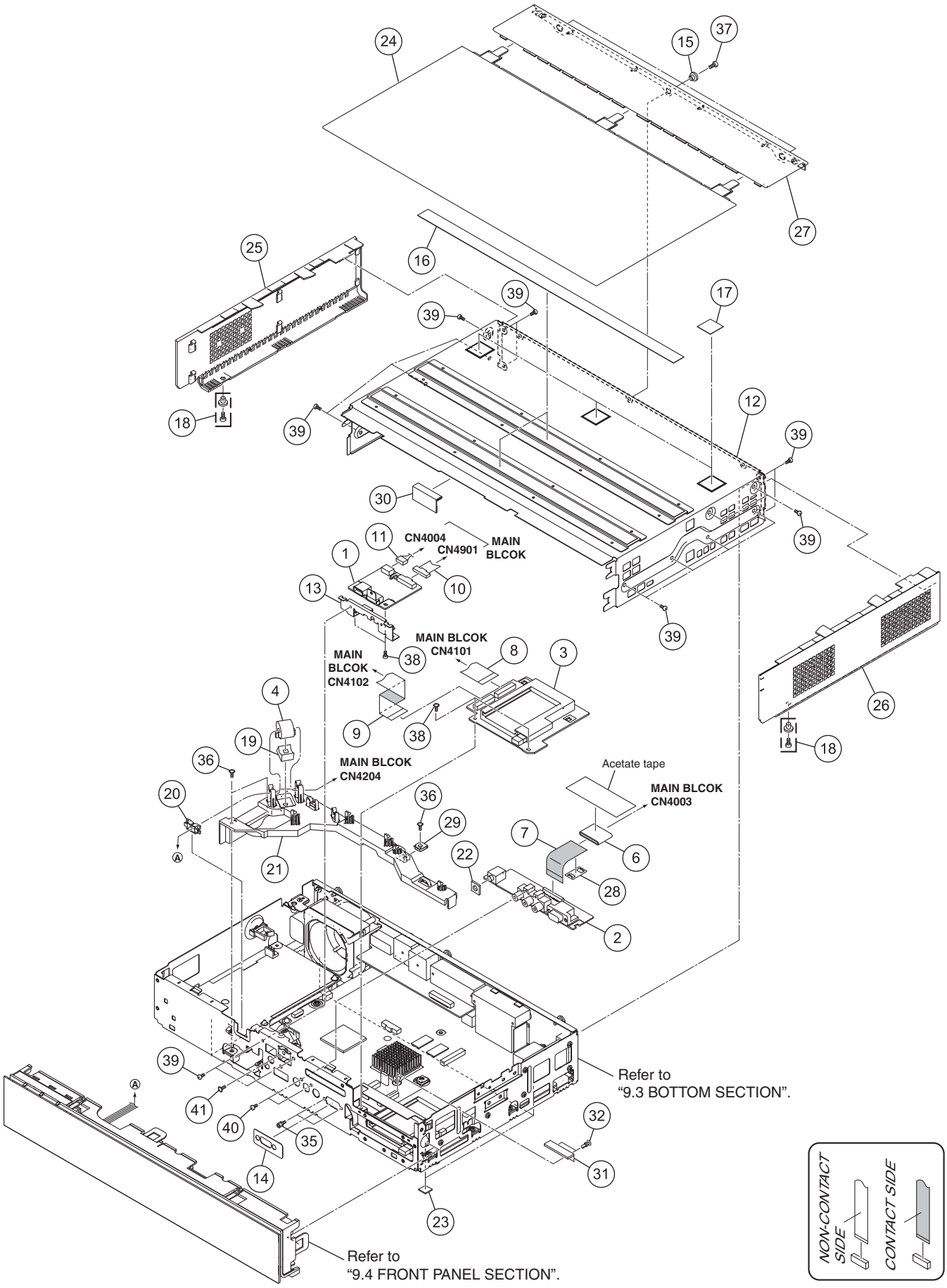
Mark	No.	Description	Part No.
⚠	1	Power Cable	ADG1214
⚠	2	Power Cable	See Contrast table (2)
⚠	3	Ferrite Core (L5208)	ATX1039
	4	Vinyl Bag	AHG1337
	5	ACC Carton	See Contrast table (2)
	6	Pad L	See Contrast table (2)
	7	Pad R	See Contrast table (2)
	8	Carton	See Contrast table (2)
	9	Mirror Mat	AHG1420
	10	Caution Card	See Contrast table (2)
	11	Film Caution Card	See Contrast table (2)
	12	Protect Film	GGP1121

(2) CONTRAST TABLE

KRP-M01/WYSIXK5 and WYSXJ5 are constructed the same except for the following:

Mark	No.	Symbol and Description	KRP-M01/WYSIXK5	KRP-M01/WYSXJ5
⚠	2	Power Cable	ADG1223	Not used
	5	ACC Carton (E)	AHD3677	Not used
	5	ACC Carton (G)	Not used	AHD3679
	6	Pad L (E)	AHA2735	Not used
	6	Pad L (G)	Not used	AHA2739
	7	Pad R (E)	AHA2736	Not used
	7	Pad R (G)	Not used	AHA2740
	8	Carton (E)	AHD3674	AHD3725
	10	Caution Card	ARM1439	ARM1440
	11	Film Caution Card	ARM1448	ARM1449

9.2 EXTERIOR SECTION



(1) EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	FRONT_HDM_USB Assy	AWW1412
	2	FRONT IO Assy	AWW1443
	3	CI CARD Assy	AWW1444
⚠	4	Ferrite Core (F1001)	ATX1034
	5	• • • • •	
⚠	6	Ferrite Core (F1)	ATX1073
	7	Flexible Cable (J201)	ADD1564
	8	Flexible Cable (J204)	ADD1566
	9	Flexible Cable (J205)	ADD1567
	10	30P Shield FFC (J101)	ADF1042
	11	USB Cable (J102)	ADX3713
	12	Upper Chassis Assy	See Contrast table (2)
	13	PCB Holder	See Contrast table (2)
	14	Cover Sheet	AAK2850
	15	Collar	ABN1095
	16	Upper Cushion	AEB1504
	17	Top Cushion	AEB1505
	18	Scrivet	AEC1657
	19	Ferrite Core Holder	AEC1818
	20	Edge Saddle	AEC1946
	21	Center Frame	AMR3844
⚠	22	Gasket HP	ANK1994
	23	Rubber Foot	VEB1349
	24	Top Panel F	AAK2940
	25	Side Panel L	AAK2941
	26	Side Panel R	AAK2942
	27	Top Panel R	AAK2946
	28	Ferrite Stopper	AEC1981
⚠	29	Earth Plate MAIN	ANG3219
⚠	30	Gasket UP2	ANK1999
⚠	31	Gasket CI	ANK1996
	32	Rivet A	BEC1158
	33	• • • • •	
	34	• • • • •	
	35	Hexagon Headed Screw	ABA1382
	36	Screw	ABA1383
	37	Screw	ABA1391
	38	Screw	ABZ30P060FTC
	39	Screw	BBZ30P060FTB
	40	Screw	BPZ30P080FTB
	41	Screw (FE)	VBA1088

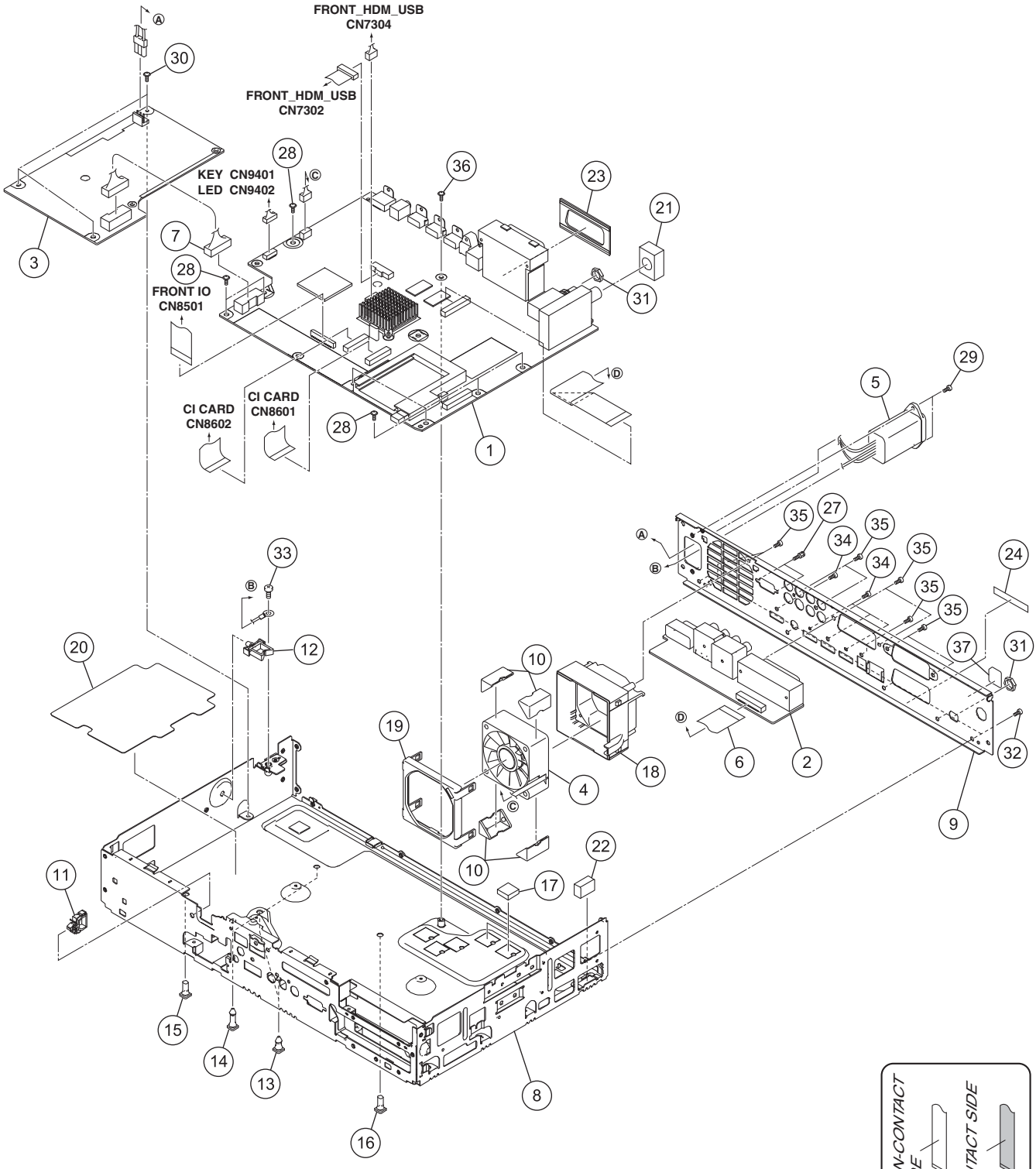
(2) CONTRAST TABLE

KRP-M01/WYSIXK5 and WYSXJ5 are constructed the same except for the following:

Mark	No.	Symbol and Description	KRP-M01/WYSIXK5	KRP-M01/WYSXJ5
	12	Upper Chassis Assy	ANA2187	ANA2224
	13	PCB Holder	ANG3186	ANG3217

9.3 BOTTOM SECTION

Cleaning paper :
GED-008



(1) BOTTOM SECTION PARTS LIST

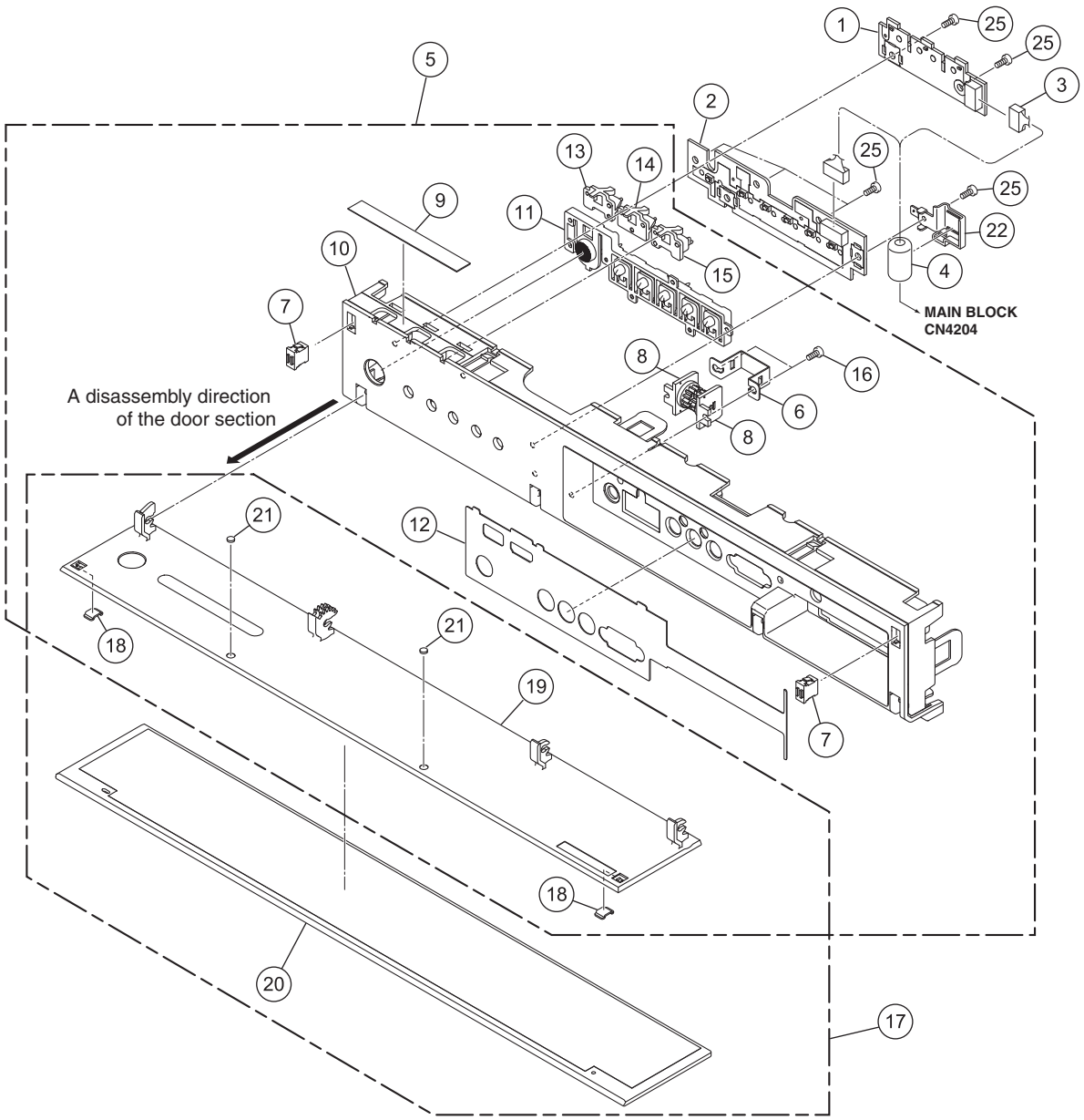
Mark	No.	Description	Part No.
	1	MAIN BLOCK Assy	AWW1413
	2	REAR IO Assy	AWW1441
⚠	3	POWER SUPPLY Unit	AXY1204
⚠	4	DC FAN Motor 60 x 25L	AXM1068
⚠	5	AC Inlet (CN1)	AKP1339
	6	Flexible Cable (J203)	ADD1565
	7	26P Housing Wire (J111)	ADX3674
	8	Base Chassis Assy	See Contrast table (2)
	9	Terminal Panel (E)	See Contrast table (2)
	10	Floating Rubber 60	AEB1410
	11	Reuse Clamp	AEC2129
	12	Reuse Wire Saddle	AEC2134
	13	Circuit Board Spacer	AEC2150
	14	Circuit Board Spacer	AEC2151
	15	Circuit Board Spacer	AEC2152
	16	Circuit Board Spacer	AEC2163
	17	Silicon Sheet	AEH1182
	18	FAN Holder 60 A	See Contrast table (2)
	19	FAN Holder 60 B	See Contrast table (2)
	20	Insulation Sheet	AMR3891
⚠	21	Gasket EU	ANK1972
	22	Gasket MA	ANK1985
⚠	23	Gasket SC	ANK1989
NSP	24	Serial Label	ARW1100
	25	•••••	
	26	•••••	
	27	Hexagon Headed Screw	ABA1382
	28	Screw	ABA1383
	29	Screw	ABZ30P080FTB
	30	Screw	BBB30P080FSN
	31	Washer Faced Nut	BBN1005
	32	Screw	BBZ30P060FTB
	33	Screw	BMP40P080FSN
	34	Screw	BMZ30P060FTB
	35	Screw	BPZ30P080FTB
	36	Screw	AMZ30P060FTB
NSP	37	Gost-R Label	ARW1126

(2) CONTRAST TABLE

KRP-M01/WYSIXK5 and WYSXJ5 are constructed the same except for the following:

Mark	No.	Symbol and Description	KRP-M01/WYSIXK5	KRP-M01/WYSXJ5
	8	Base Chassis Assy	ANA2186	ANA2225
	9	Terminal Panel (E)	ANC2474	ANC2480
	18	FAN Holder 60 A	AMR3845	AMR3918
	19	FAN Holder 60 B	AMR3846	AMR3919

9.4 FRONT PANEL SECTION



FRONT PANEL SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	LED Assy	AWW1442
	2	KEY Assy	AWW1445
	3	20P Housing Wire (J112)	ADX3714
⚠	4	Ferrite Core (F1002)	ATX1069
	5	F Panel Assy (EU)	AMB3114
NSP	6	Damper Holder	ANG3198
	7	Magnet Holder Assy	AEC1077
	8	Damper	AXA1022
NSP	9	Shading Sheet	AMR3903
NSP	10	Front Panel	AMB3083
NSP	11	Control Button	AAD4160
	12	Input Sheet (E)	AAL3037
NSP	13	Front LED Lens L	AMR3841
NSP	14	Front LED Lens C	AMR3904
NSP	15	Front LED Lens R	AMR3905
	16	Screw	BPZ30P080FTB
	17	Door Panel Service Kit	GXX1283
	18	Door Catcher	•••••
	19	Door Base	•••••
	20	Door Panel	•••••
	21	Door Cushion	AED1337
	22	Ferrite Holder	AMR3925
	23	•••••	
	24	•••••	
	25	Screw	BPZ30P080FTB

When Replacing the F PANEL Assy (E)

When replacing the F PANEL Assy (E), discard the following parts of the new Assy kit for service and use the parts from the original door panel:

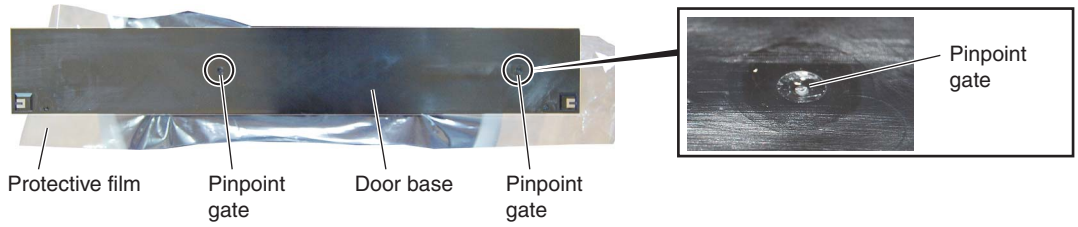
No.18 Door catcher
No.19 Door base
No.21 Door cushion

Reassembly Procedures for the Door Panel Service Kit

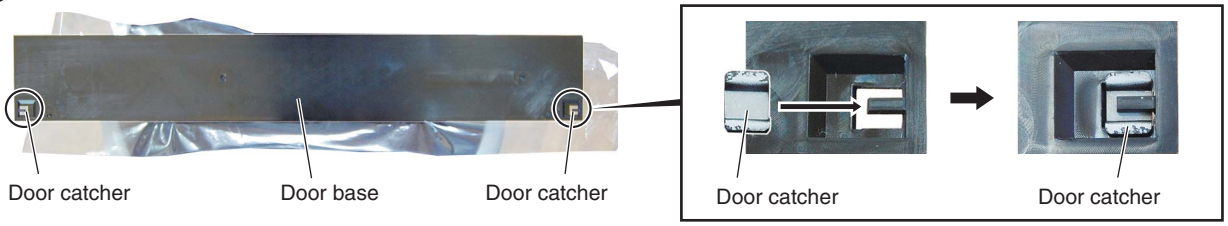
• Component parts of the GXX1283 Door Panel Service Kit

No.18 Door catcher (x2)
No.19 Door base (x1)
No.20 Door panel (x1)
No.21 Door cushion (x2)

① Check that two marks of pinpoint gates do not protrude from the surface of the door base to which the door panel is to be attached.
Do NOT peel off the protective film of the door base in this step.
Peel it off after all the reassembly procedures are completed.

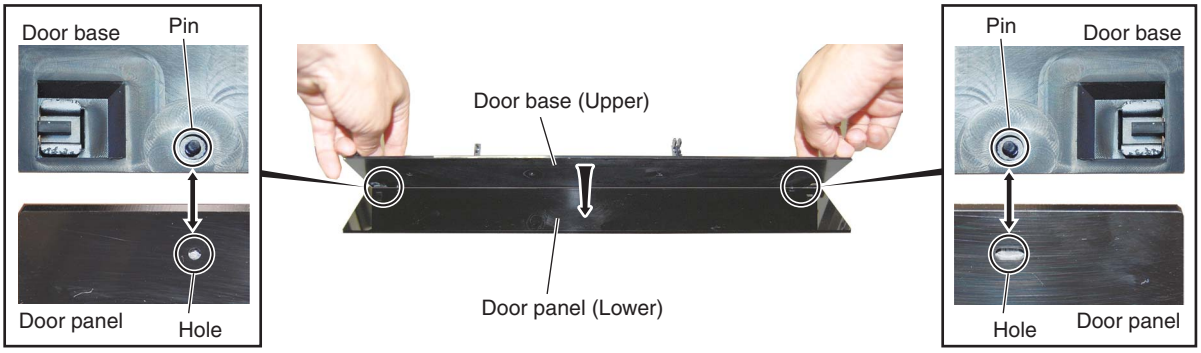


② Attach the two door catchers.

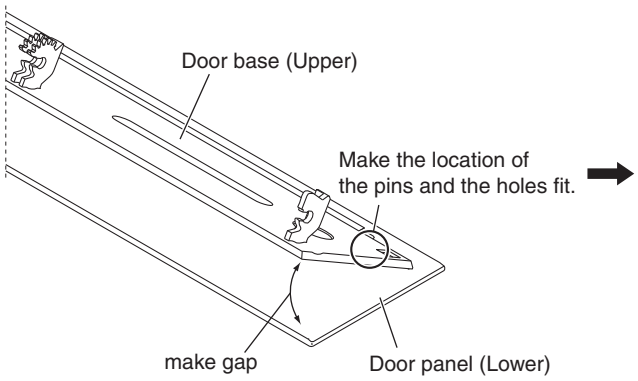


③ Peel off the separator of double-back tape on the door panel.
Do NOT peel off the protective film on the exterior surface of the door panel in this step.
Peel it off after all the reassembly procedures are completed.

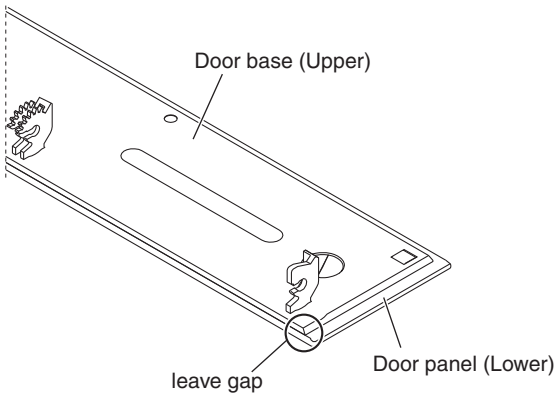
④ Align the two positioning pins of the door base with the holes in the door panel.
When positioning, leave gaps between the door panel and door base, as shown in the figure below:



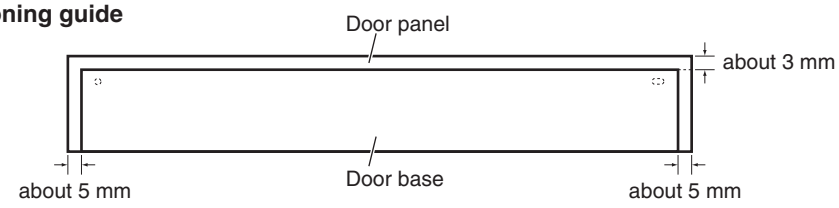
④ -1



④ -2



Positioning guide



⑤ Stick the door base and door panel together, by pressing them all over.

⑥ Attach the two door cushions.