Pioneer
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Product Training Guide
4th Generation Plasma Models

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Pioneer
SERVICE

Rev. 1

Contents

Preface

This technical training guide will address the disassembly and adjustments of the Pioneer Generation 4 Plasma Display models.

This guide was designed as a servicing aid and is not intended to replace the service manual. The student should have the appropriate service manual on hand when when using this guide. Data in the service manual for this unit contains specific information on safety, parts and adjustments.

Safety information

Important safety data for this Pioneer model is contained in the service manual. Before returning the unit to the customer, complete all product safety obligations and tests. Technicians who bypass safety features or fail to carry out safety checks may expose themselves and others to possible injury, and may be liable for any resulting damages.

For more information on electronic circuits and block diagrams refer to the Service manual.

Lead in the solder used in this product is a known reproductive toxicant which may cause birth defects or other reproductive harm. (California Health and Safety Code Section 25249.5).

When servicing this or handling circuit boards and other components which contain solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

New Product information

- *Ultimate digital display*
  - ***Not* HDTV monitor *But* Full HDTV**
    - Built-in terrestrial DTV tuner
    - Comply with DTV CC
    - EPG for CH selection, program view and program record
  - **Perfect digital Process Display**
    - **All digital video process from the begin to end**
    - **Ultimate film reproduction with exclusive PureCinema**
  - ***Digital Interface***
    - *2 sets of HDMI/HDCP input*
    - *IEEE1394/DTCP*
- ***Improved User Interface***
  - *Home Menu GUI*
  - *Custom design EPG for terrestrial DTV*
- ***Elegant cosmetic design***
  - *Combined with speaker and stand*

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Product Line Up

Main Body

Pioneer Brand

50“ 43” Plasma System(Separate)
PDP-5040HD MP:2003 Sep.
PDP-4340HD MP:2003 Aug.

DTV Tuner Built in
Equipped with IEEE1394
2 sets of HDMI Digital Interface
New GUI with Home Menu
Speaker:Silver Short Type

Elite Brand

50“ 43” Plasma System(Separate)
PRO-1110HD MP:2003 Oct.
PRO-910HD MP:2003 Sep.

DTV Tuner Built in
Equipped with IEEE1394
2 sets of HDMI Digital Interface
New GUI with Home Menu
New Color Filter
Speaker:Black Long Type

ELITE Brand

50“ 43” Plasma Monitor
PRO-1000HDI
MP:2003 Oct(PET)
PRO-800HDI
MP:2003 OCT(PET)

HDMI Digital Interface

Options

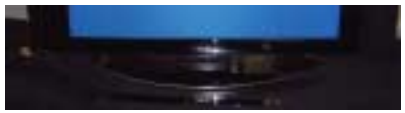


Table Top Stand
ELITE Brand
(Swivel)

Table Top Stand
Pioneer Brand
(Swivel)

Floating Stand

【MODEL : PRO-1110HD. PRO-910HD】

Panel Portion

Cosmetics	ELITE	REGULAR
Bezel	Heat Cycle + UV coating	Heat Cycle
Speaker	Black Flame+Black Jersey Grille(Long Type)	Molding Silver Paint (Short Type)
Stand	Black Painting	Silver Painting

Spec	ELITE	REGULAR
Color Filter	New (Improved Color Purity)	Same as current model
Speaker System	3 WAY	2 WAY
Speaker Setting	Layered or Flushed Out	Side or Under

Media Receiver Portion

	ELITE	REGULAR
Cosmetics	Hot Stamp Gloss Black	Silver Painting

Spec	ELITE	REGULAR
Customized Video Mode	ISF Mode	None
User Video Adjustment	Pro Setting(Detailed adjustment)	Normal
Terminal	Gold Plated(Composite/S)	Normal

User Menu differences between ELITE & REGULAR

	ELITE	REGULAR
ISF MODE	yes(ISF DAY, ISF NIGHT)	NO
PureCinema	Off/PureCinema/ Purecinema MAX	Off/PureCinema/ Purecinema MAX
COLOR TEMP CONTROL	HIGH(12000K)	HIGH(12000K)
	Mid High(10500K)	MID(9500K)
	MID(9500K)	LOW(6500K)
	Mid Low(8500)	NO
(Manual)	LOW(6500K)	
	R HIGH	
	G HIGH	
	B HIGH	
	R LOW	
	G LOW	
	B LOW	
MPEG NR	yes (Off/High/Mid/Low)	yes (Off/High/Mid/Low)
DNR	yes (Off/High/Mid/Low)	yes (Off/High/Mid/Low)
DRE (Dynamic Range Expander)	yes (Off/High/Mid/Low)	yes (Off/High/Mid/Low)
COLOR MANAGEMENT	R/Y/G/C/B/M	NO

ELITE EXCLUSIVE (ISF Mode)

Procedure

Enter into ISF adjustment mode trough RS232C

After Finish ISF adjustment mode, escape from adjustment mode

2 kinds of ISF mode will appear on AV selection in User Menu

If user select ISF mode, the Logo will appear and then, user can see the ISF adjusted image

ADJUSTABLE ITEM
CONTRAST
BRIGHT
COLOR
TINT
Y Delay
R HIGH
G HIGH
B HIGH
R LOW
G LOW
B LOW
SHARPNESS
Color Management Red
Color Management Yellow
Color Management Green
Color Management Cyan
Color Management Blue
Color Management Magenta

Image of LOGO for ISF mode

In User Menu(temporary)

isf DAY

isf NIGHT

SR+ (system control function)

Automatic Input select linked with AV amps SR+

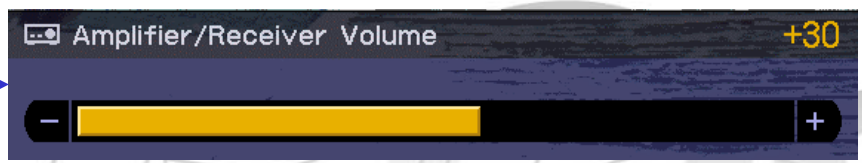
4 contact mini jack cable

VSA-C501(EX-500)
2003 new model

PRO-1110HD/910HD
PDP-5040/4340HD
2003 new model

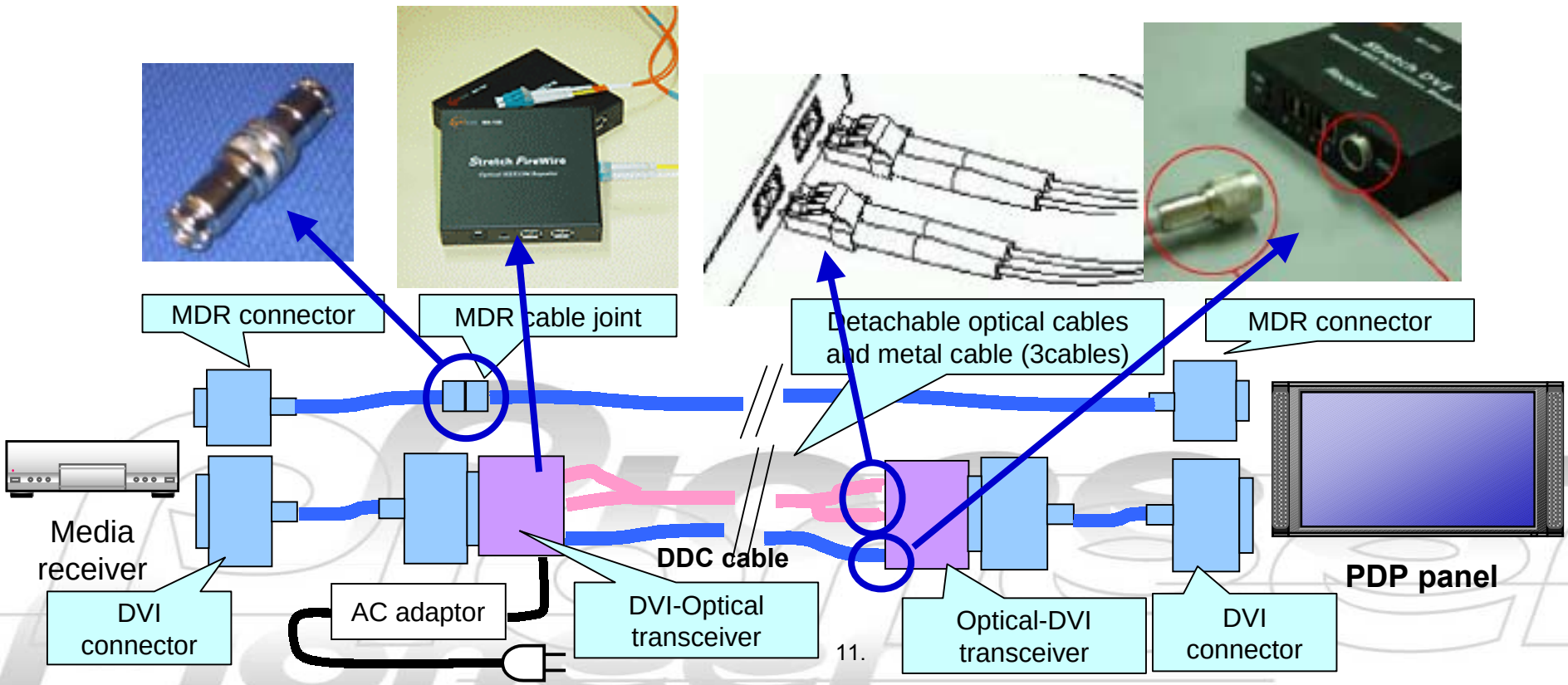
Following status of AV amp is displayed on PDP screen by link function between PDP and AV amp
Volume level / Surround mode
MCACC adjustment status / Sound field parameters

AV amp and consumer PDP support new SR function



Long system cable (Optical cable)

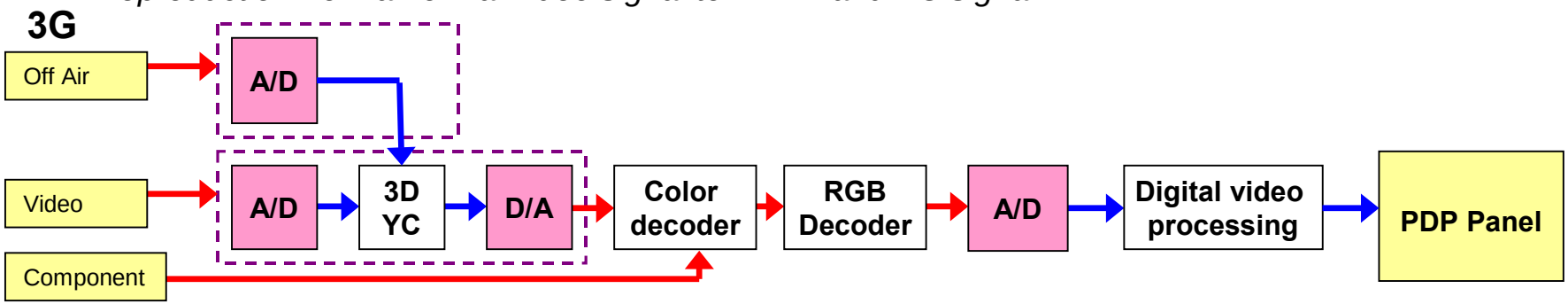
- 10m Metal long system cable PDA-H03/WL
  - Metal long system cable same with current PDA-H02
  - Length 7m(PDA-H02) -> 10m
- 30m Optical system cable PDA-H04

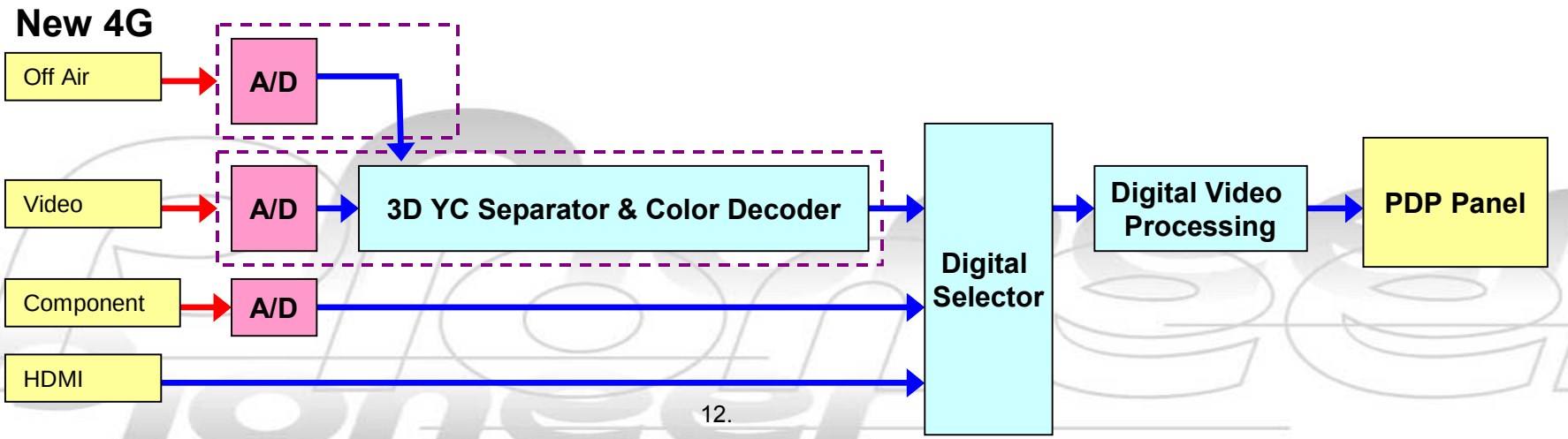


P.U.R.E. Drive:Perfect Digital Process

Industry first

- *In addition to the on air signal and video input signal, digital video signals will be all digital processed (No D-A conversion)*
- *Until this technology , systems required many A-D, D-A process and such process cause noise and decrease video quality.But P.U.R.E. drive is full digital video processing, and direct connection between each blocks, exclude the factor of decrease video quality, and achieve high quality video reproduction from a normal video signal to HDTV and PC signal.*

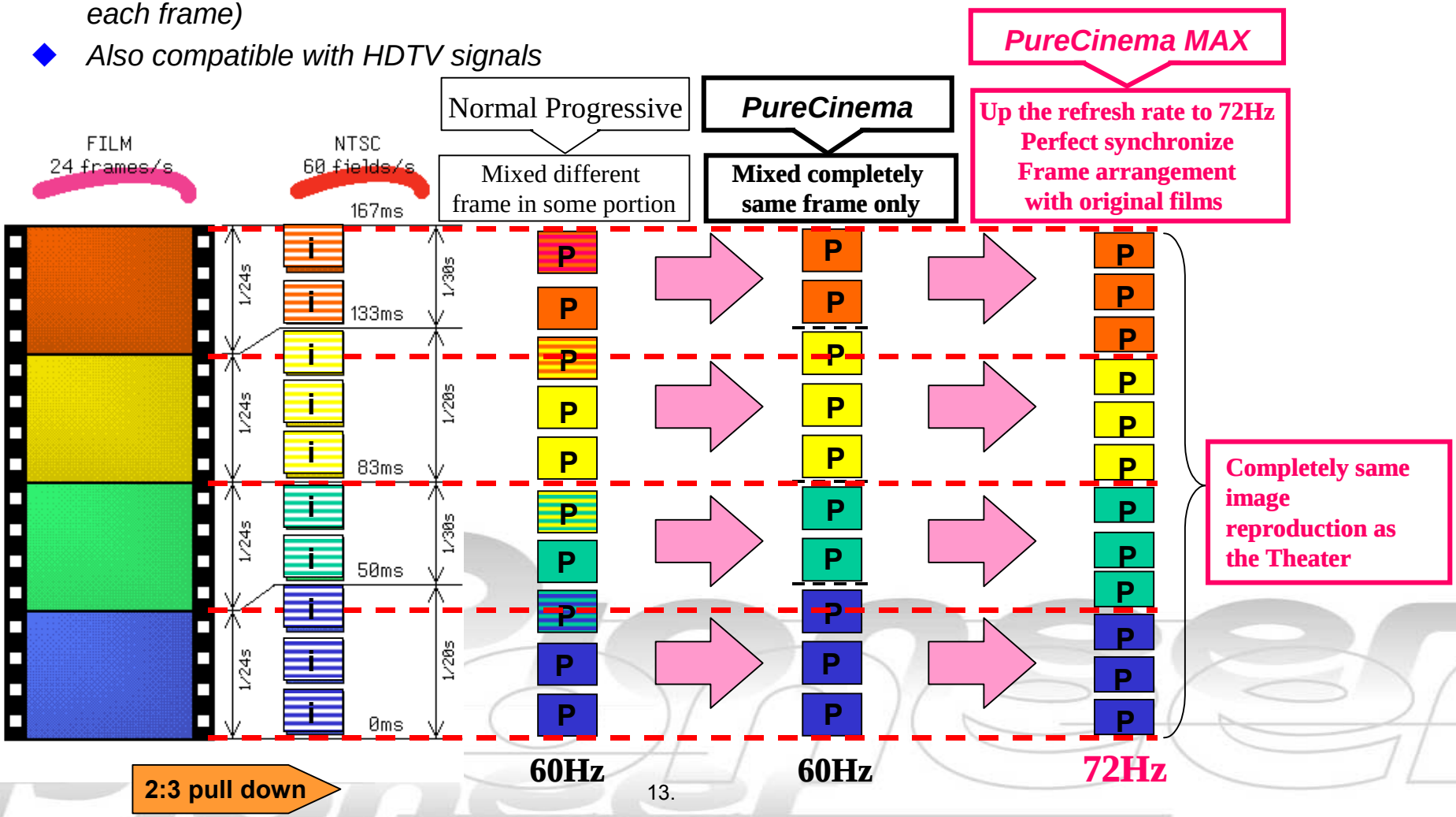




P.U.R.E. Drive : PureCinema MAX(NTSC)

Industry first

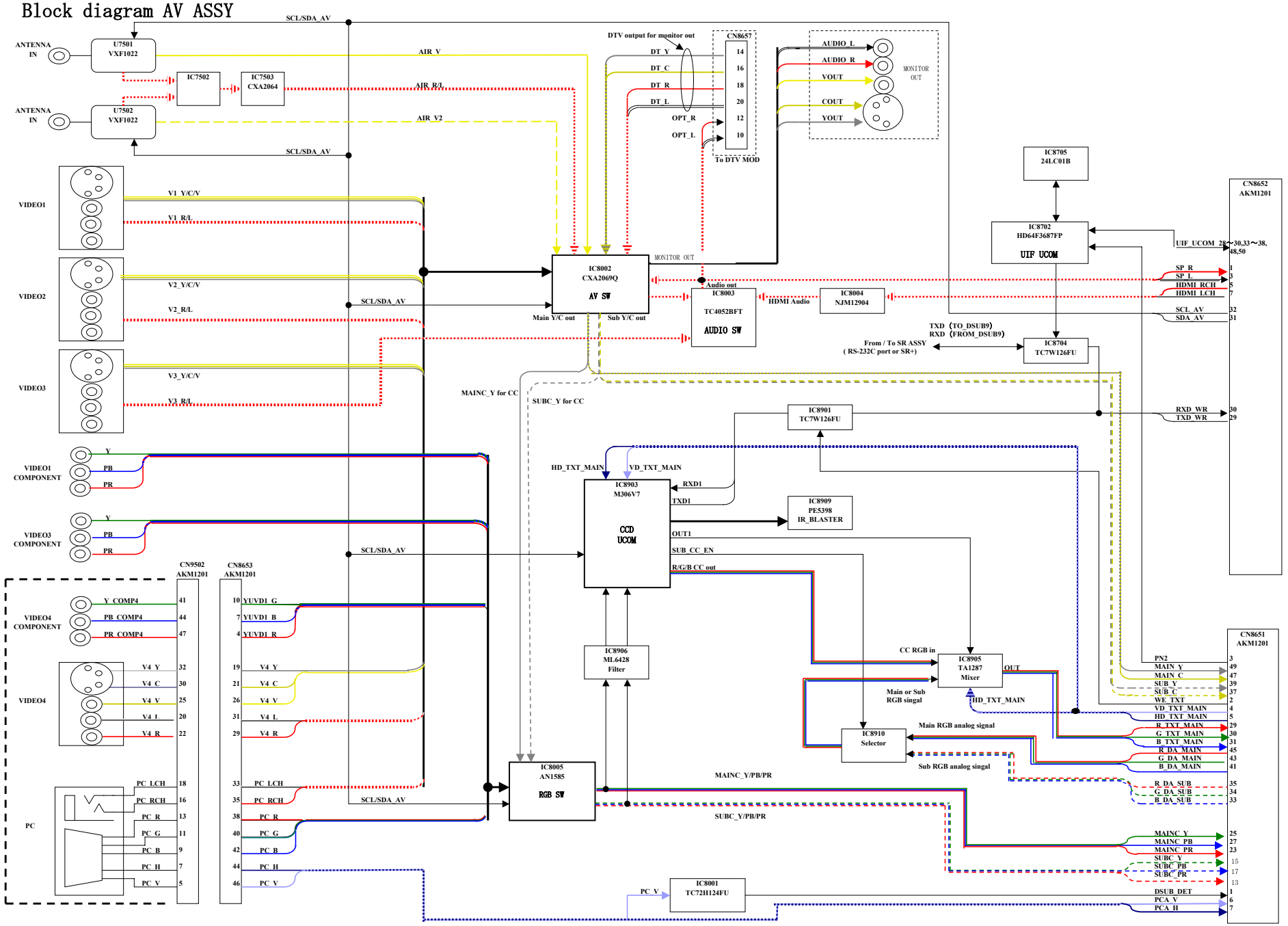
- *Automatic and seamless switching between video source(60Hz) and Movie(72Hz)*24 frame x3*
- *Detect converted progressive signal from DVD, and re-convert in PDP side in this new PureCinema MAX*
- *Completely same image reproduction in the theater because of same image procedure(2-3 shutter for each frame)*
- *Also compatible with HDTV signals*



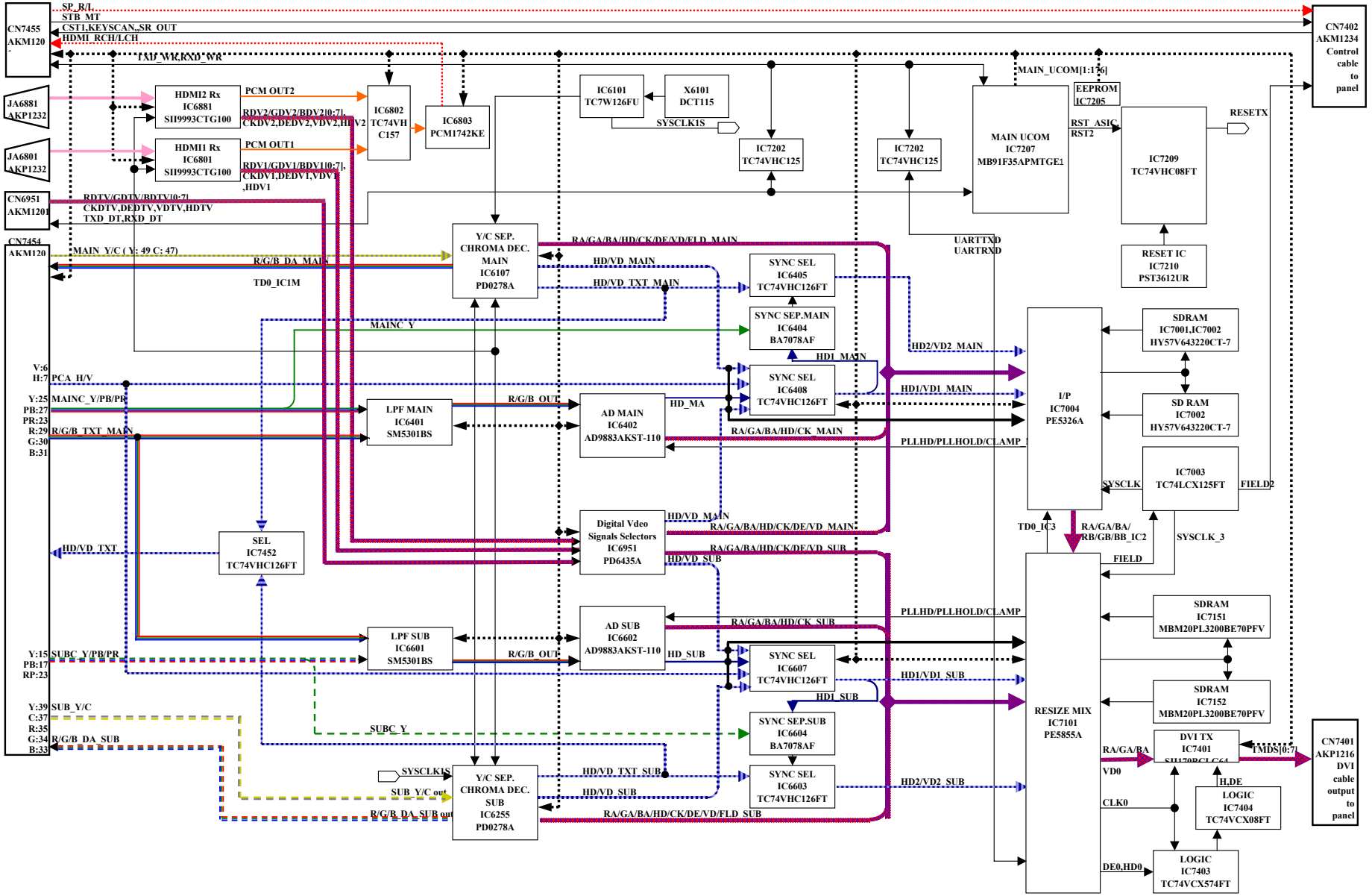
Media Receiver Section

PDP-R04U

Block diagram AV ASSY



Block diagram Main



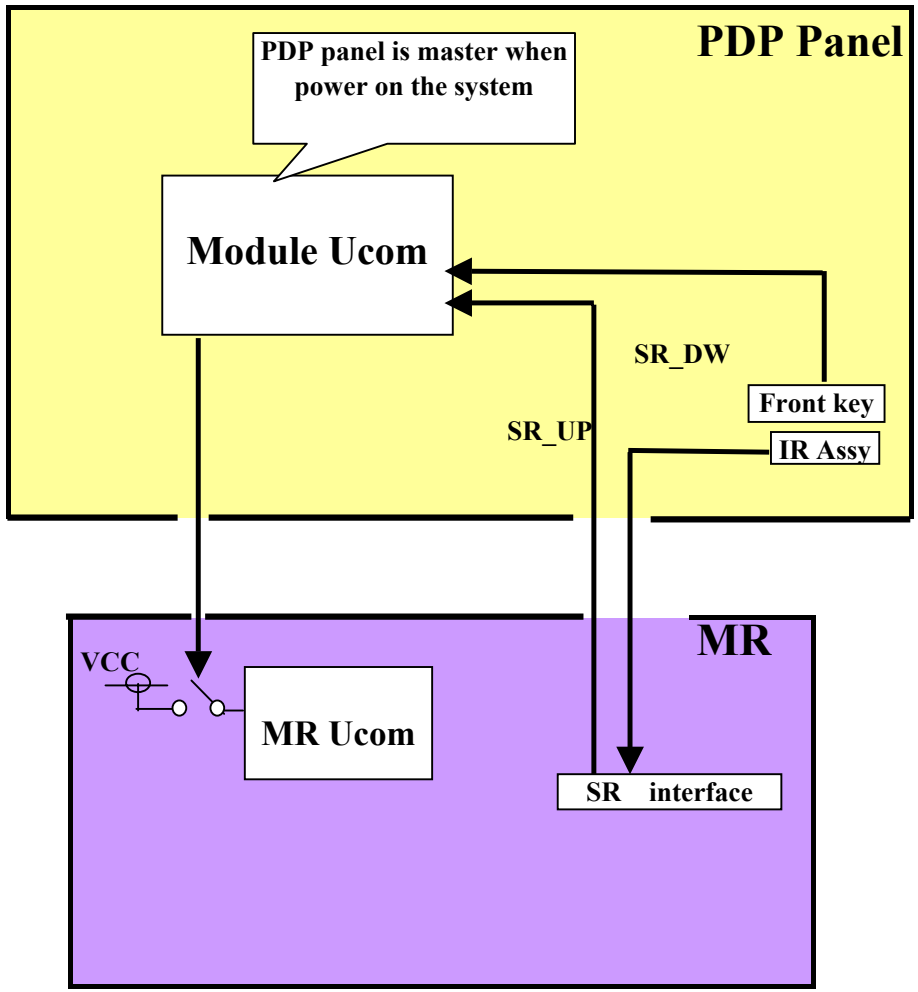
MR Main Assembly

AV Assembly

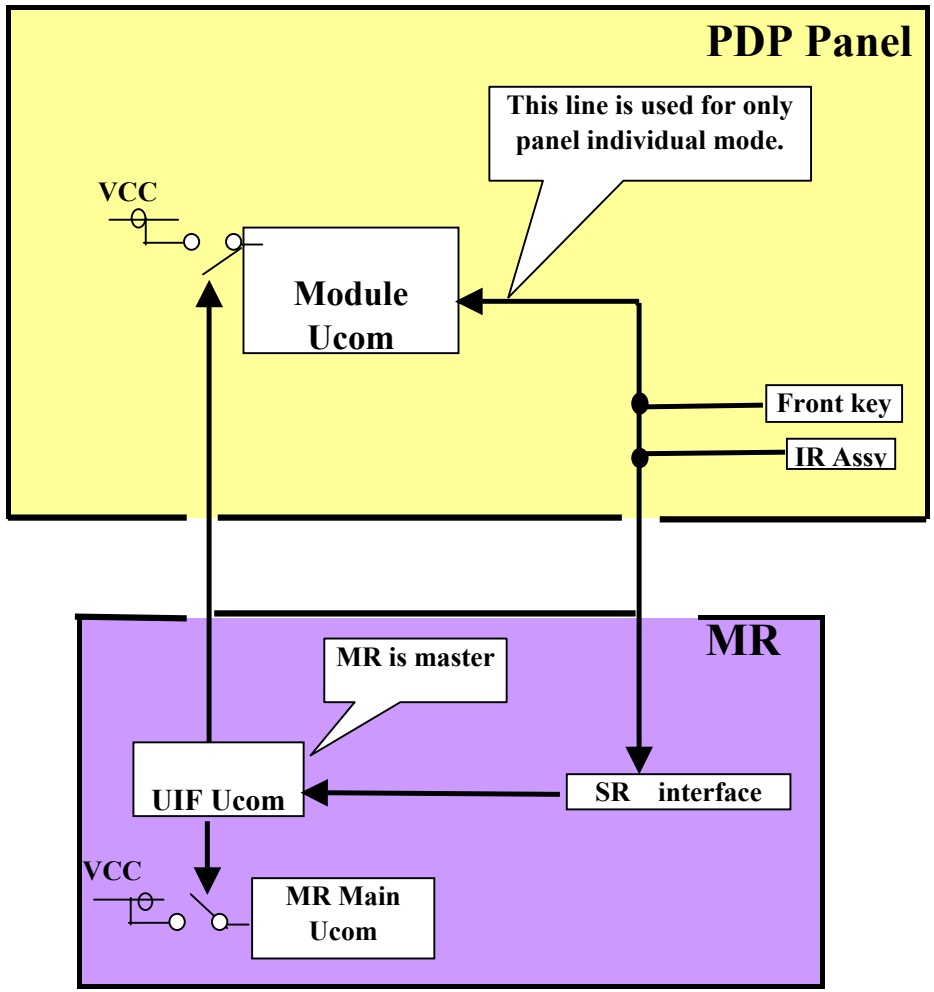
Power on sequence

Differences between G3 PDP and G4 PDP

G3 PDP Power on Sequence



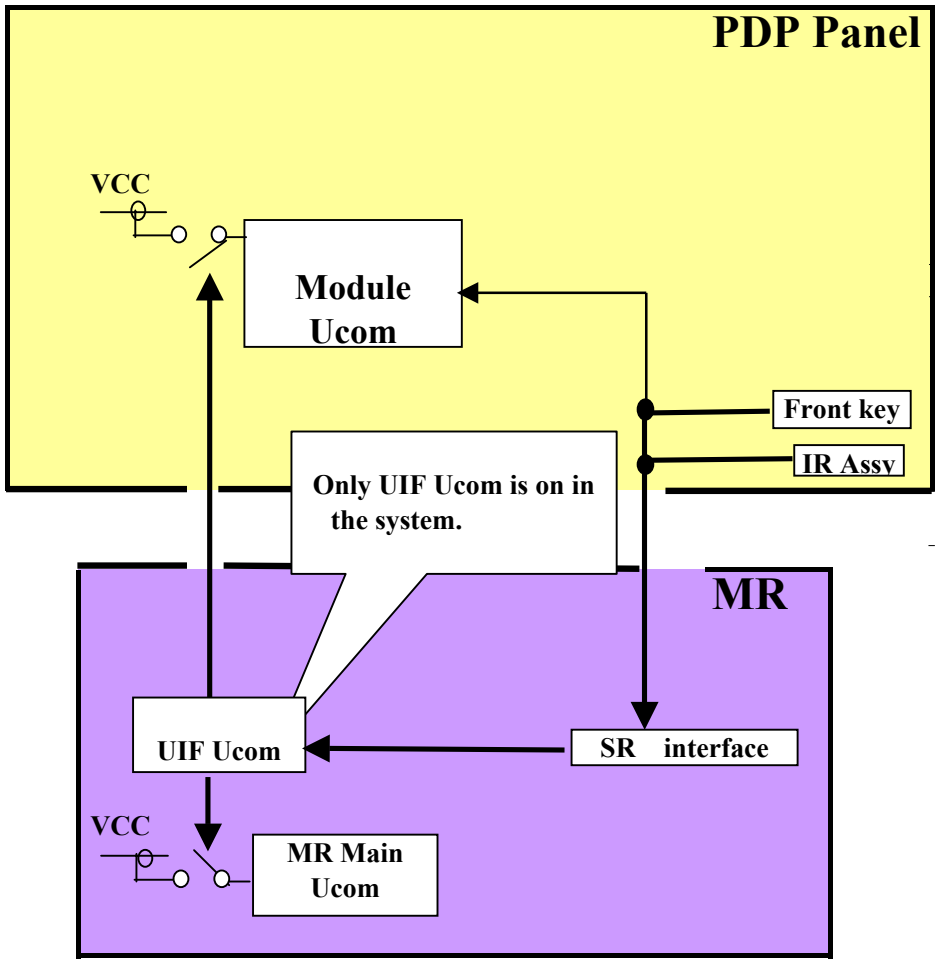
G4 PDP Power on Sequence



Power on sequence

Two stand-by modes

Passive Stand-By mode

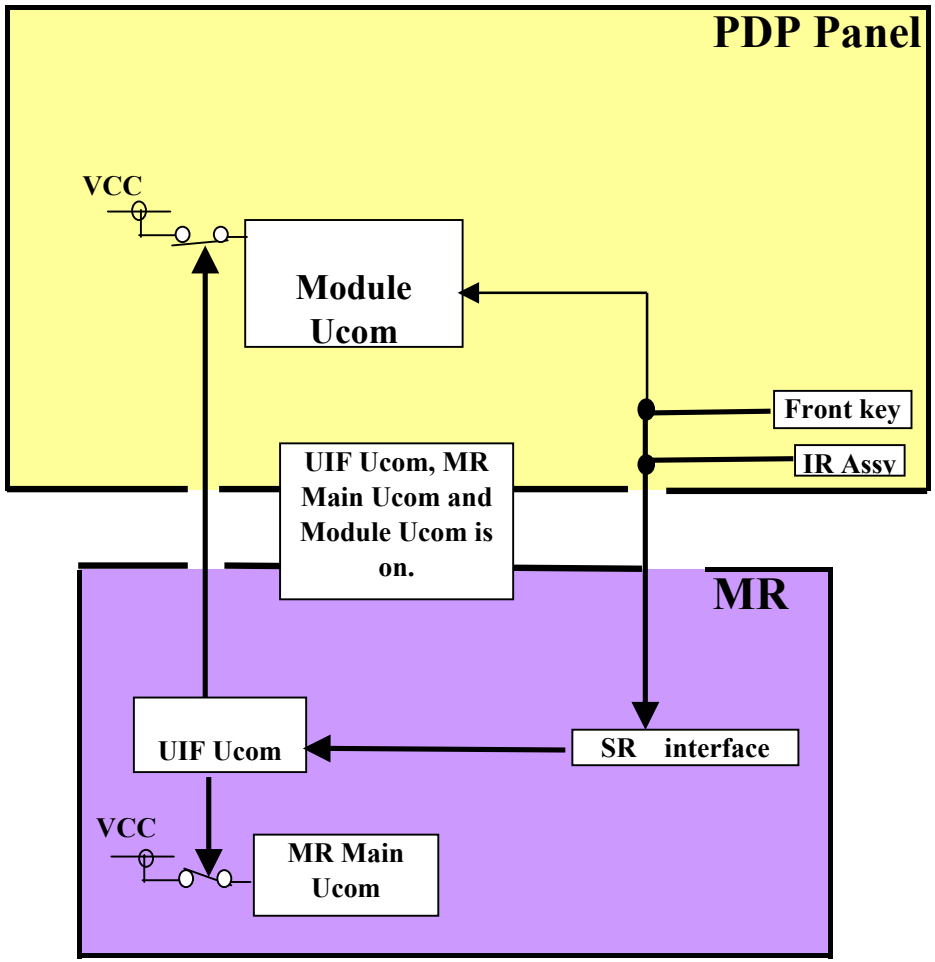


Normal Standby Condition□

□

UIF Micoprocessor on, and MR□
Main and Module Ucom waiting on □
IR power signal.

Active Stand-By mode

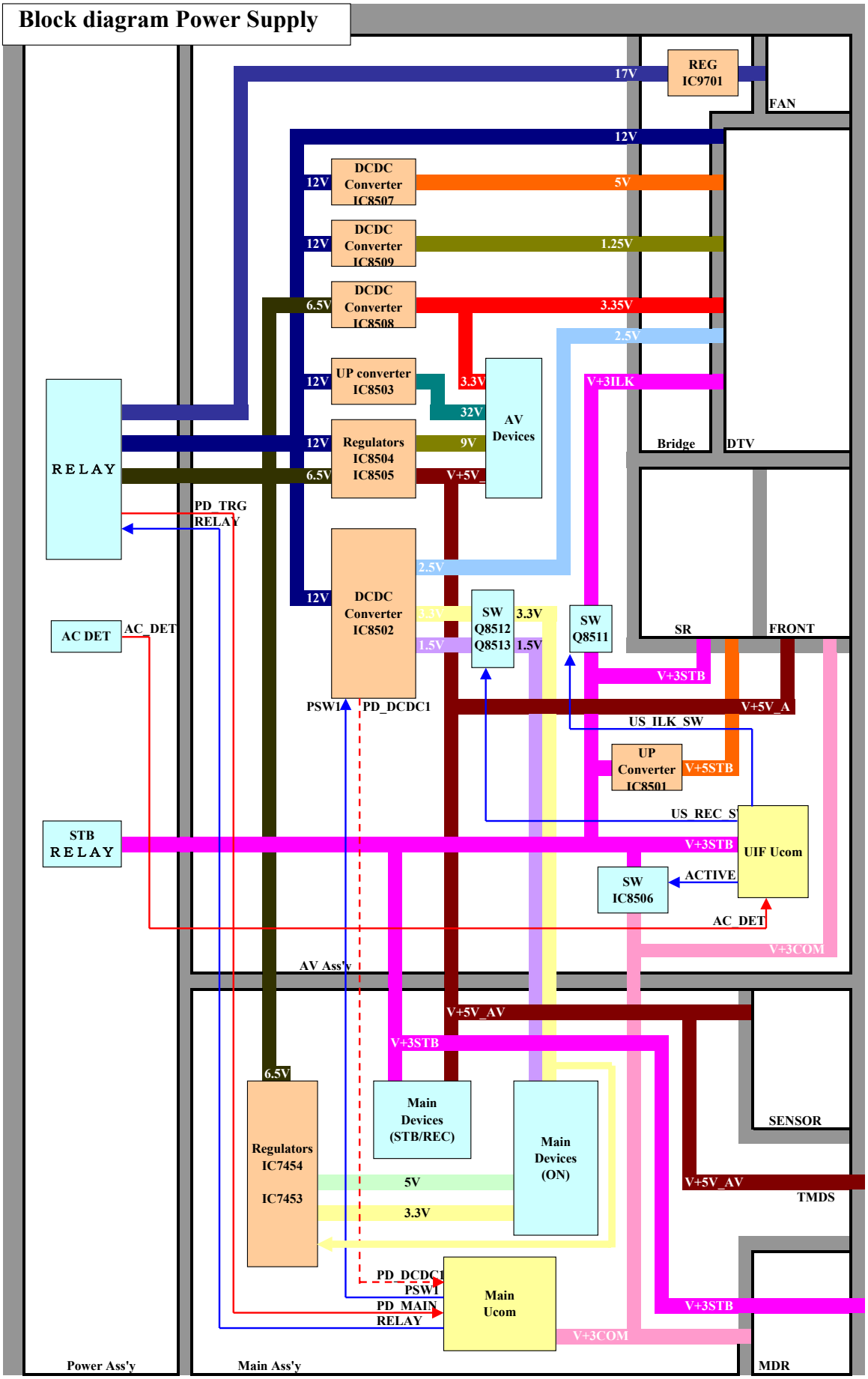


RS-232 Standby Condition□

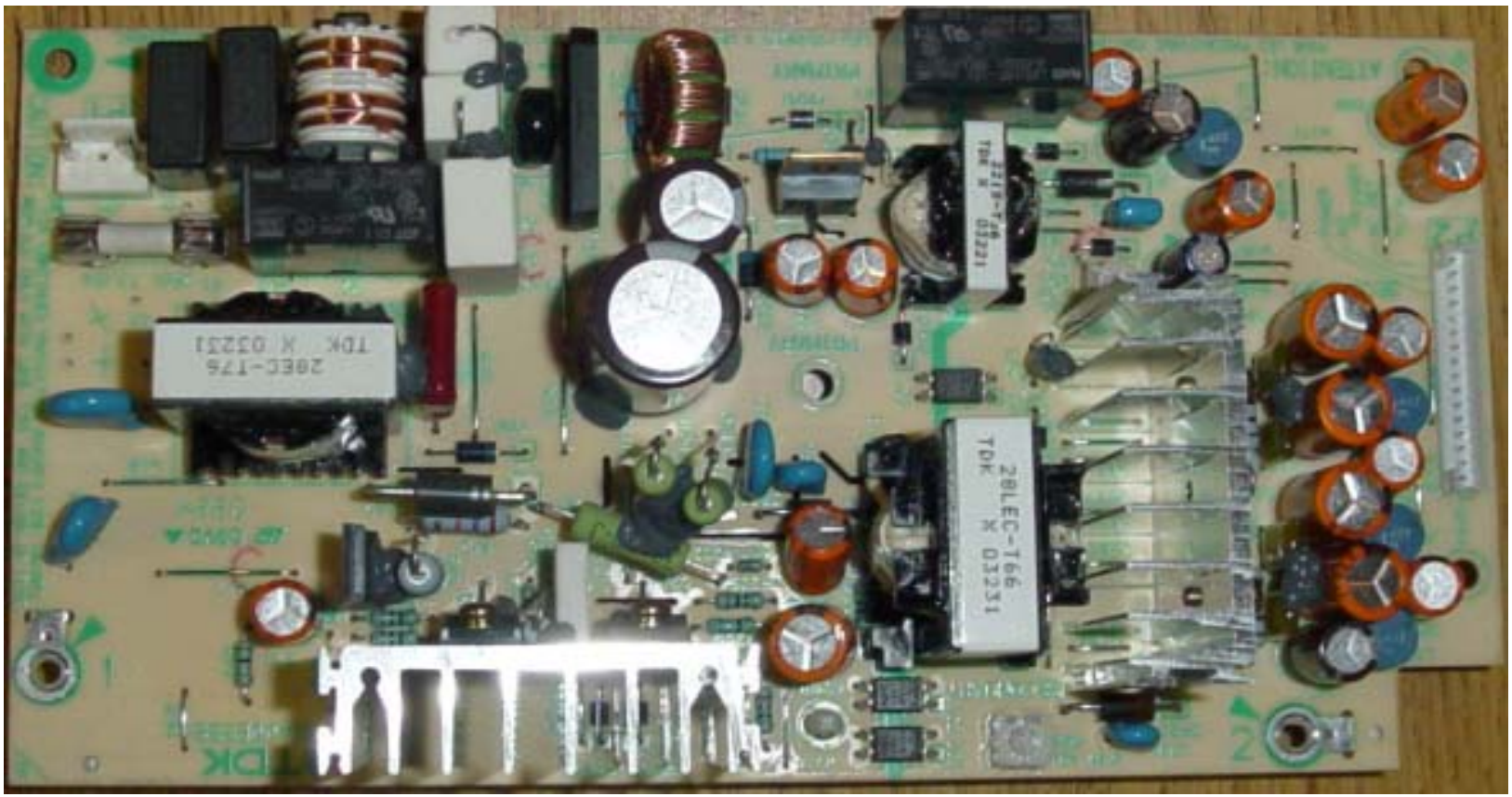
□

This state occurs after inputting□
a RS-232 command. □
Data can now be read out from□
the Media Receiver or Panel.

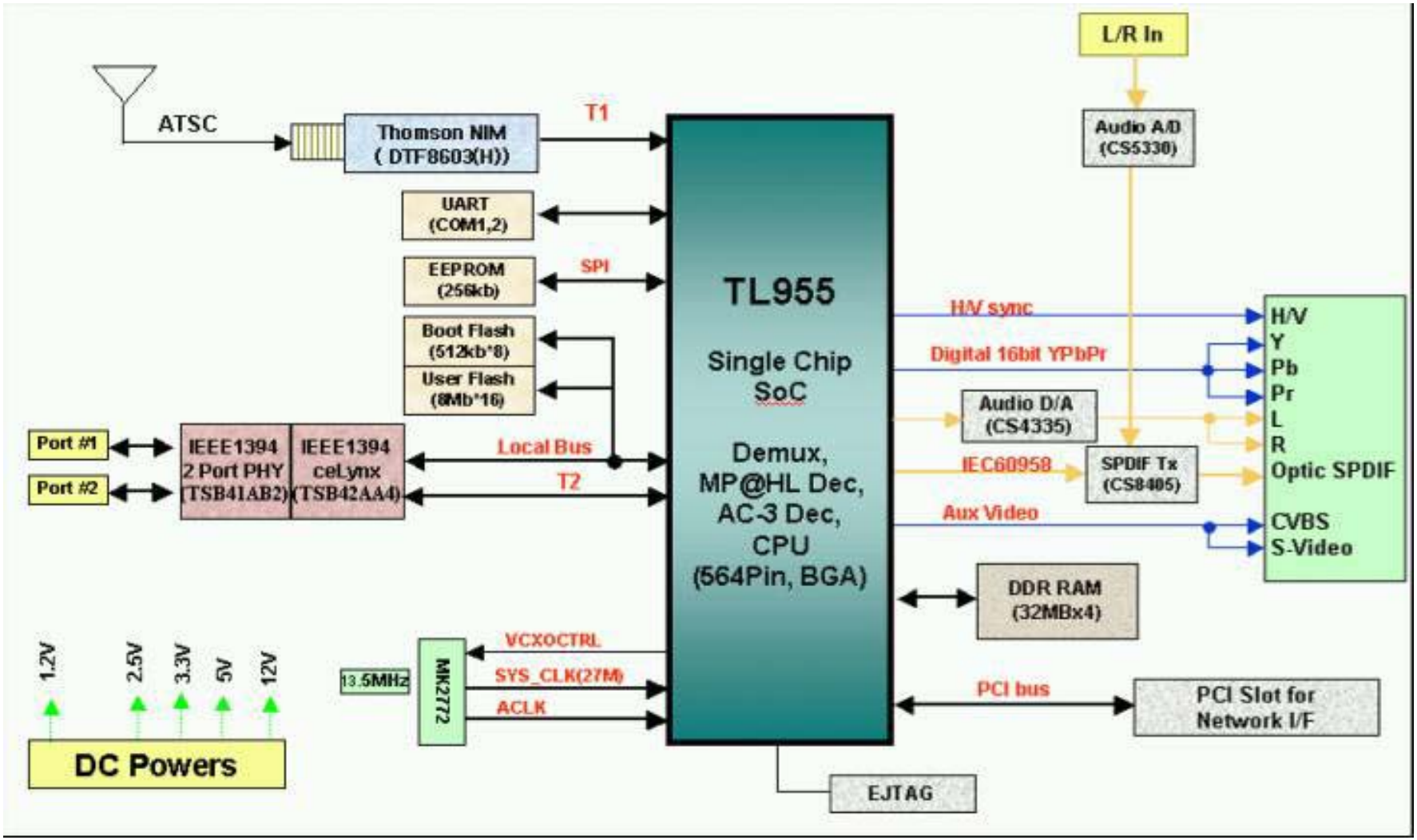
Block diagram Power Supply



Media Receiver
Main Power Supply

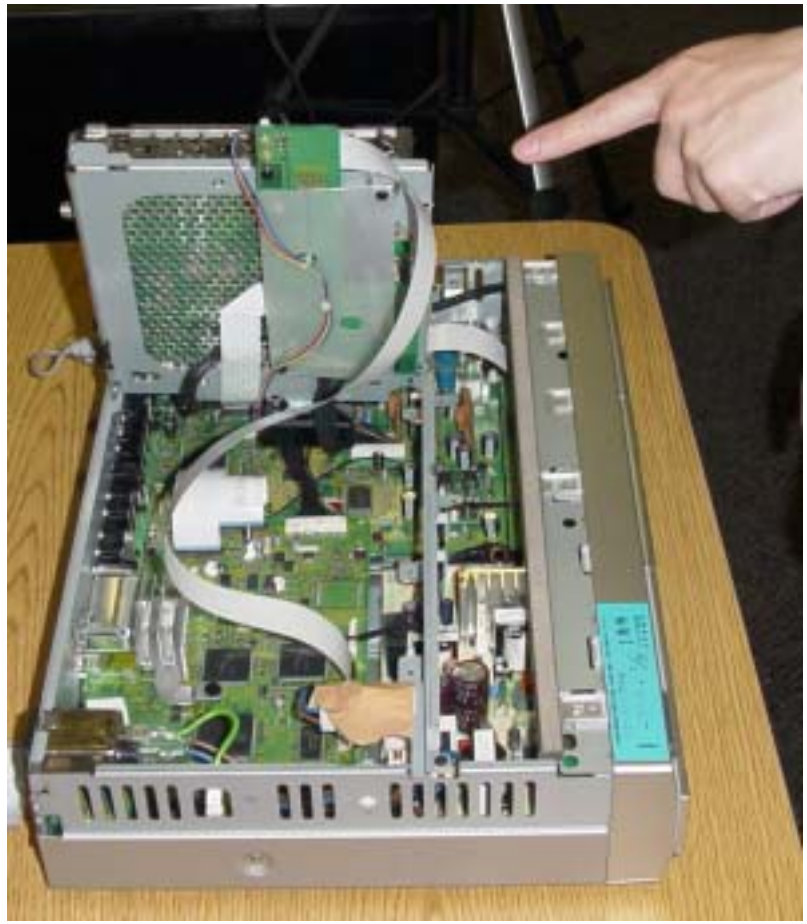


Block Diagram DTV tuner



DTV Tuner

Service Position



The DTV Tuner a non serviceable part can be
Relocated in the service position to gain access to the Main PCB

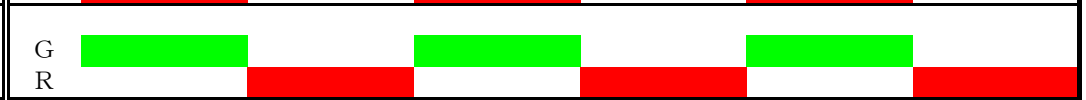
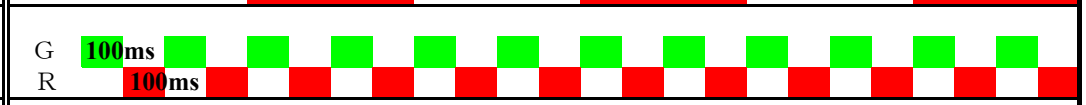
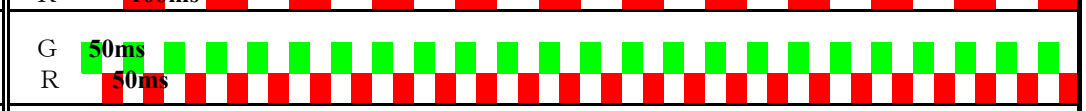
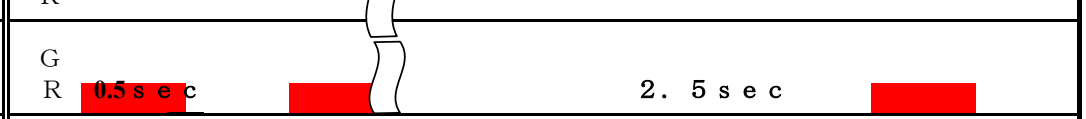
Media Receiver Major Replacement Parts List

Model ↓	DTV Tuner	AV Board	Power Supply	MR Main Assy
PDP-R04U	AXY1064	AWZ6802	AXY1065	AWV2028
PRO-R04U	↓	AWZ6819	↓	↓

See service manual for a complete parts list.

Trouble shooting

LED lighting pattern

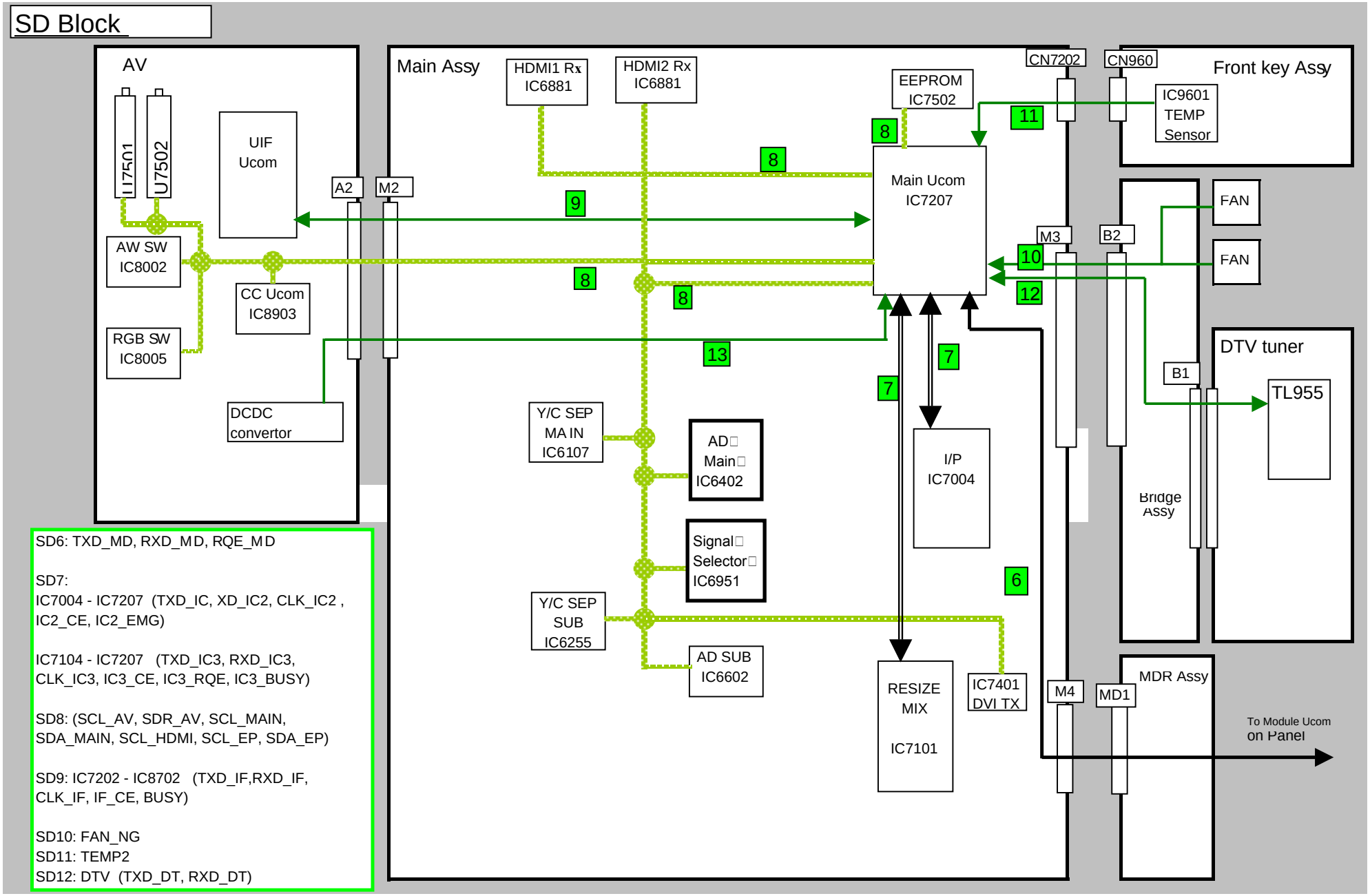
Unit state		LED Lighting Pattern
Stand-by Power management	RED light	
Power on	GREEN light	
STB with no PDP or MR	RED blinking	
Misconnection of system cable *1	RED/GREEN blinking	
Waiting for upgrading Ucom		
Upgrading Ucom		
Shut Down	Green X times (0.5+2.5sec)	
Power Down	Red X times (0.5+2.5sec)	
Trap SW working		

*1: At the same time, panel screen is displayed red / green alternately

Trouble shooting
Possible failure location from flashing a LED

Flash Times MR LED RED	GRN	SD/PD	Detected location	Possible failure location Explanation of expected failure parts	OSD comment when detecting SD
	GRN6	SD	Module Ucom	Short circuit of system cable Module Ucom on panel or around this Ucom Main Ucom (IC7207) Communication line error between Module Ucom on panel and IC7207 (TXD_MD、RXD_MD、REQ_MD)	None
	GRN7		Main Ucom 3 serial lines	IC7004 (IP Process IC) or around this IC Communication line error between IC7004 and IC7207 Main Ucom (TXD_IC2, RXD_IC2, CLK_IC2, IC2_CE, IC2_EMG) IC7101(RESIZE MIX IC) or around this IC Communication line error between IC7101and IC7207 Main Ucom (TXD_IC3, RXD_IC3, CLK_IC3, IC3_CE, C3_REQ, IC3_BUSY)	None
	GRN8		IIC bus line	IC8903 (CC Ucom) or around this IC IC6107 (CD_MAIN) or around this IC IC6255 (CD_SUB) or around this IC IC6402 (AD_MAIN) or around this IC IC6602 (AD_SUB) or around this IC IC6801 (HDMI_1) or around this IC IC6881 (HDMI_2) or around this IC IC6951 (BUS_SW) or around this IC IC7401 (TX) or around this IC U7501 (TU) or around this IC IC8002 (AV_SW) or around this IC IC8005 (RGB_SW) or around this IC IC7205 (E2P) or around this IC Communication line error between the above ICs and IC7202 Main Ucom (SCL_AV, SDA_AV, SCL_MAIN, SDA_MAIN, SCL_HDMI, SDA_HDMI, SCL_EP, SDA_EP)	None
	GRN9		Main Ucom	IC7202 (Main Ucom) Flexible cable failure between Main board and AV board Communication line error between IC7202 Main Ucom and IC8702 IF Ucom (TXD_IF, RXD_IF, CLK_IF, IF_CE, IF_BUSY)	None
	GRN10		FAN	Stop FAN due to fan failure or something is stuck in the fan	None
	GRN11		MR *or PDP (?)* having high temperature	Using units in high temperature location	Turn of the unit due to high temperature. Confirm temperature around MR [SD11]
	GRN12		DTV tuner	DTV Communication line error between DTV tuner and IC7207 Main Ucom (TXD_DT, RXD_DT)	None
	GRN13		ASIC Power (DC-DC)	Failure in U8502 (DD_CON on AV) or short circuit on another location	None
RED 1		**PD**	MR PWR	MR power Assy in failure or short circuit on another location	None

SD Block



SD6: TXD_MD, RXD_MD, RQE_MD

SD7:
IC7004 - IC7207 (TXD_IC, XD_IC2, CLK_IC2 , IC2_CE, IC2_EMG)

IC7104 - IC7207 (TXD_IC3, RXD_IC3, CLK_IC3, IC3_CE, IC3_RQE, IC3_BUSY)

SD8: (SCL_AV, SDR_AV, SCL_MAIN, SDA_MAIN, SCL_HDMI, SCL_EP, SDA_EP)

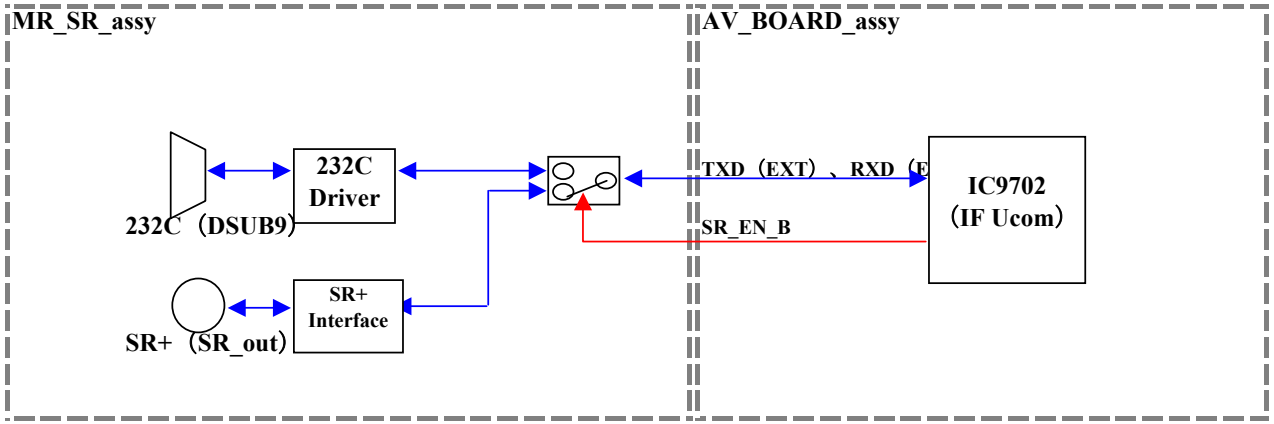
SD9: IC7202 - IC8702 (TXD_IF,RXD_IF, CLK_IF, IF_CE, BUSY)

SD10: FAN_NG
SD11: TEMP2
SD12: DTV (TXD_DT, RXD_DT)

How to use RS-232C port

For G4 PDP system, SR+ line and RS-232C line are used same data line to adopt SR+ system.
The following is the block diagram of SR+ and 232C lines.
SR+ is selected as factory default, therefore when using RS-232C port on MR,
After using RE232C side for repair, please surely return the line to SR+ line.

[Block diagram of SR+ and RS-232C line]



[Changing method of SR+ -> 232C]

By remote control
Press「Vol up (or down) key」and hold 3 to 10 sec -> Press [SPLIT] and hold 3 to 10 sec within 3 sec -> Press [ENTER] within 3 sec.
After that, line is changed 232C line. Communication speed is set the last used value.

By 232C
There is no method.

[Changing method of 232C -> SR+]

By remote control
Press「Vol up (or down) key」and hold 3 to 10 sec -> Press [SPLIT] and hold 3 to 10 sec within 3 sec -> Press [HOME MENU] within 3 sec.
After that, line is changed 232C line. Communication speed is set the last used value.

By 232C
Sending [BR0] command
After that, you cannot control to MR by RS-232C

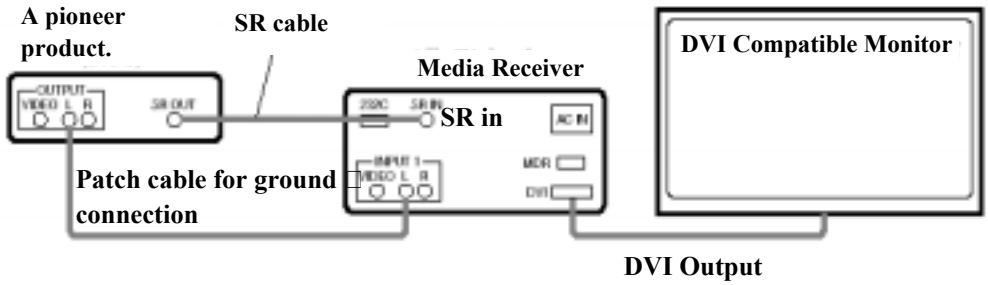
MR individual mode

For G4 PDP system, Media Receiver can work without the PDP panel by the following method.

Controlling by Remote control

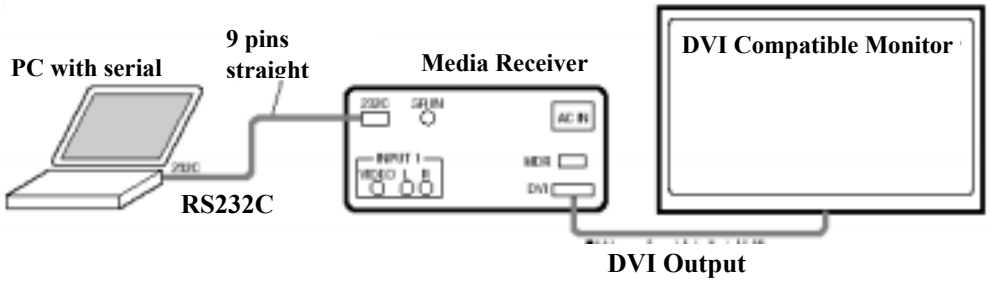
1) **Connect SR IN on MR to SR OUT on another PIONEER Product such as DVD player.**
   Because there is no IR sensor on MR, it is necessary to use remote control with no PDP panel.
   In this case, turn remote control towards the product, no the MR.
2) **Connect some another cable between MR and that product (audio cable or video cable)**
   Because there is no GND line in the SR cable, it is necessary to connect another cable to make same ground level.

If connecting PDP-434PU or PDP-504PU to MR by system cable (white one), MR output signal is displayed normally.
Do not connect the other system cable (gray one). Connector style is completely the same between G4 PDP system cable and G3 PDP system (PDP-433 or PDP-503), but data lines and power line are different. So the worst case, the unit might be broken.



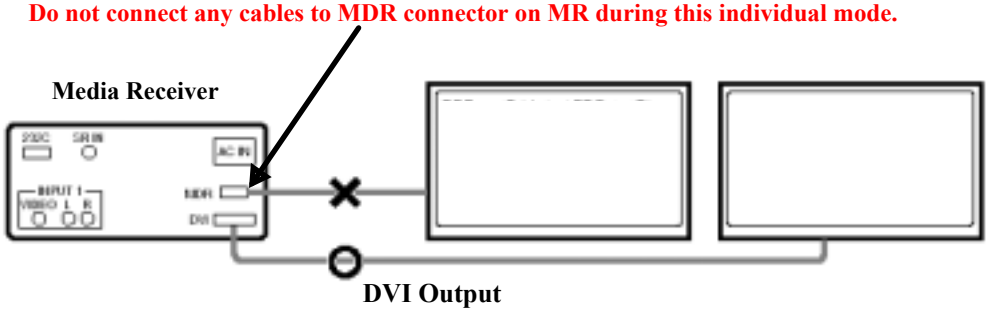
Controlling by PC via RS-232C

RS-232C port cannot be used by factory default due to SR+ function.
It is necessary to change to select RS-232C line. Please refer to "How to use RS-232C port ".
It also requires to use D-sub 9 pin straight cable.



Attention point with this mode

Do not connect any cables to MDR connector on MR during this individual mode.



Plasma Panel Section

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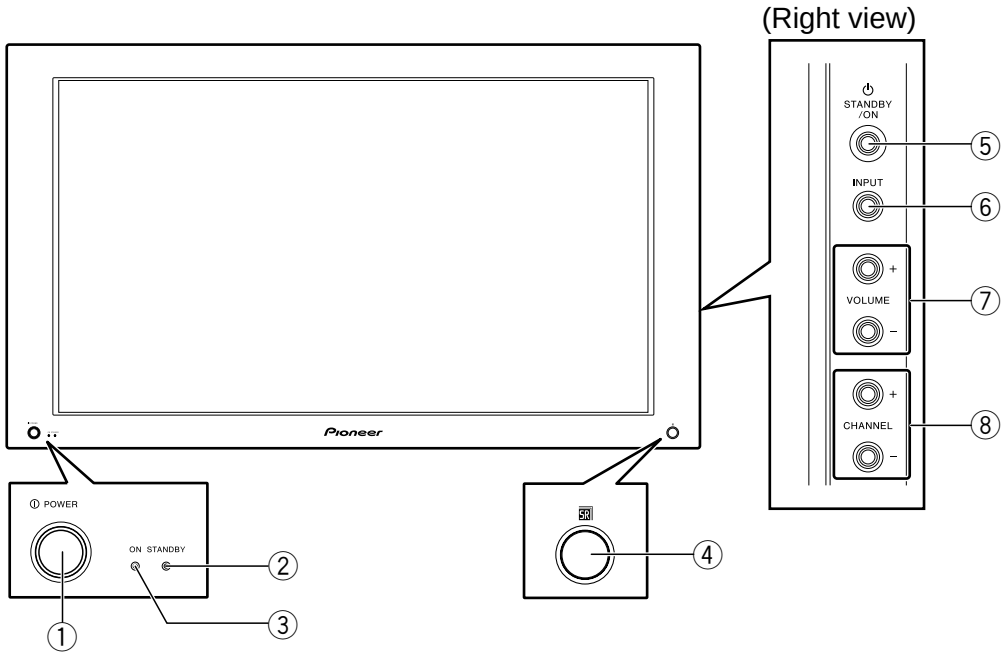
PANEL FACILITIES AND SPECIFICATIONS

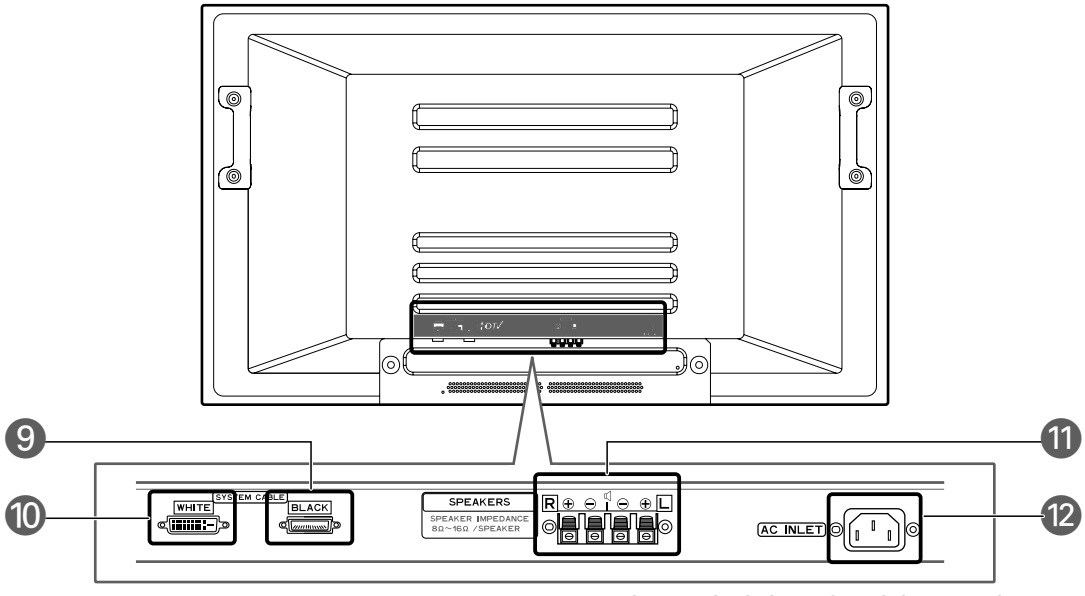
PLASMA DISPLAY (PDP-434PU)

• Front view



① POWER button
② STANDBY indicator
③ POWER ON indicator
④ Remote control sensor
⑤ STANDBY/ON button
⑥ INPUT button
⑦ VOLUME +/– buttons
⑧ CHANNEL +/– buttons

• Rear view



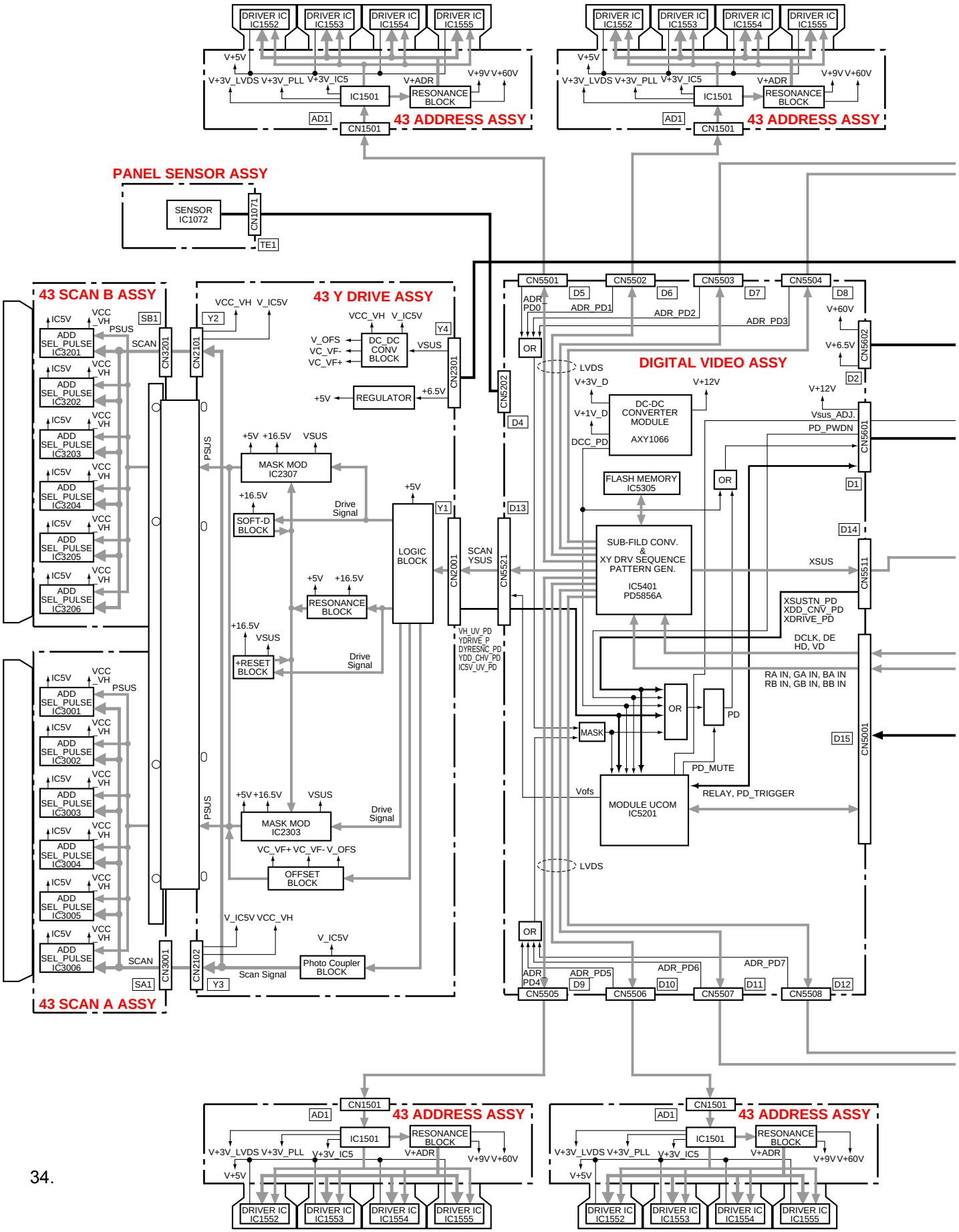
The terminals have faced downward.

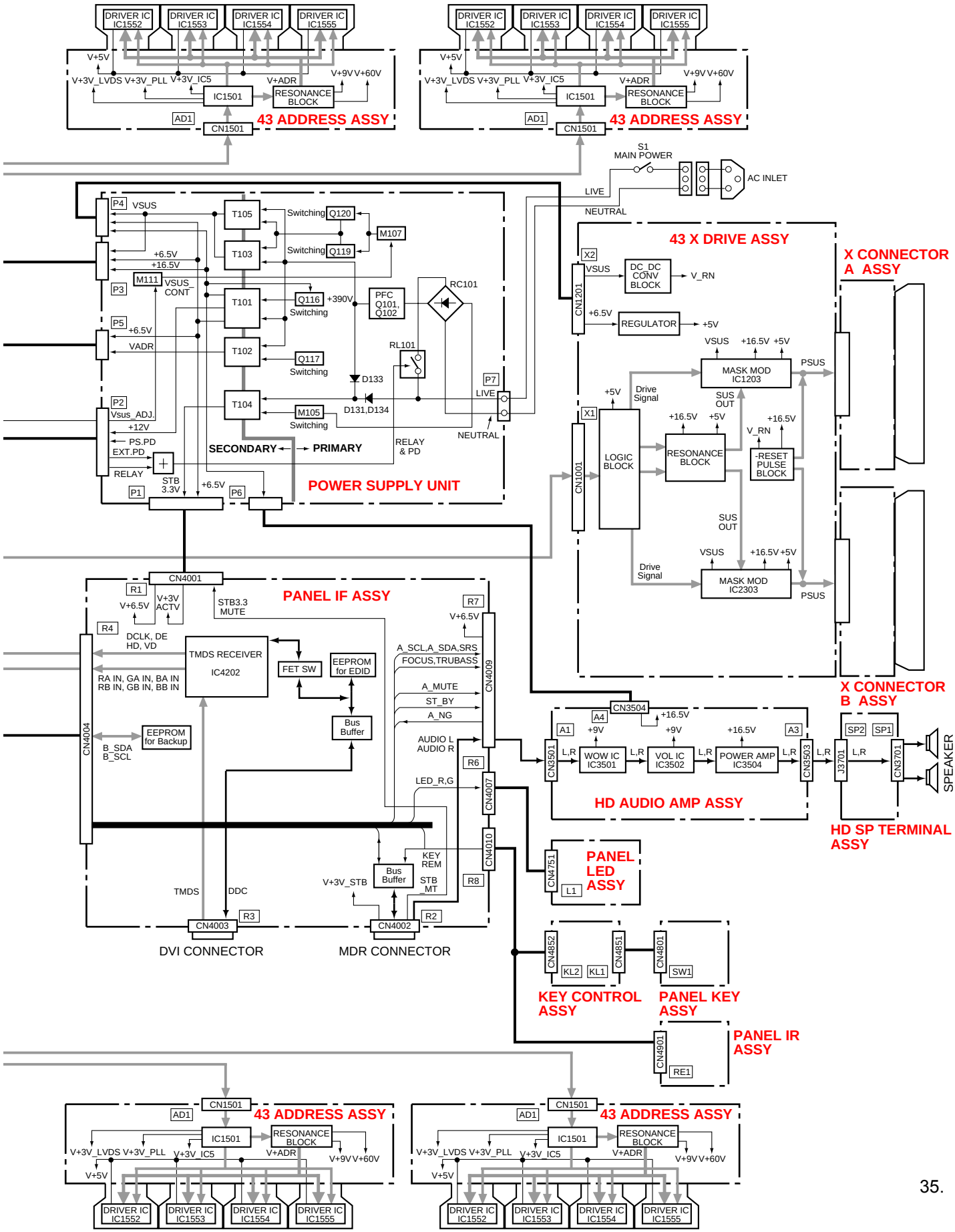
❾ SYSTEM CABLE terminal (BLACK)
❿ SYSTEM CABLE terminal (WHITE)
⓫ SPEAKER (right/left) terminals
⓬ AC INLET terminal

PDP Panel

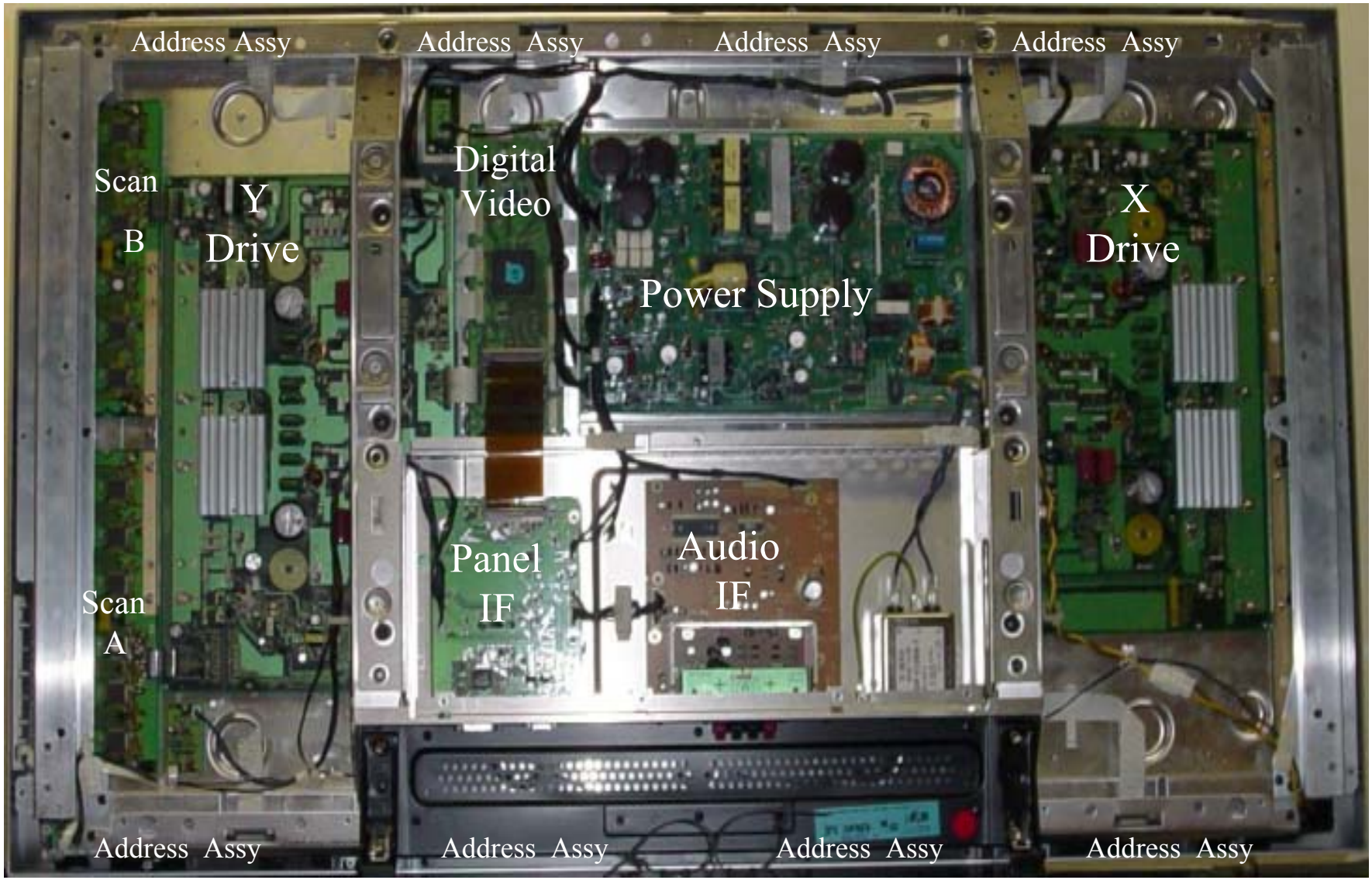
BLOCK DIAGRAM

OVERALL BLOCK DIAGRAM




DRIVER IC IC1552
DRIVER IC IC1553
DRIVER IC IC1554
DRIVER IC IC1555
V+5V
V+3V_LVDS V+3V_PLL V+3V_IC5
V+ADR
V+9V V+60V
IC1501
RESONANCE BLOCK
AD1
CN1501
43 ADDRESS ASSY
S1
MAIN POWER
AC INLET
LIVE
NEUTRAL
43 X DRIVE ASSY
X CONNECTOR A ASSY
X2
CN1201
VSUS
DC_DC CONV BLOCK
V_RN
+6.5V
REGULATOR
+5V
MASK MOD IC1203
PSUS
SUS OUT
+16.5V
Drive Signal
X1
CN1001
LOGIC BLOCK
RESONANCE BLOCK
-RESET PULSE BLOCK
MASK MOD IC2303
X CONNECTOR B ASSY
P4
VSUS
T105
Switching
Q120
M107
T103
Q119
+6.5V
+16.5V
P3
M111
VSUS_ CONT
T101
Q116
+390V
PFC Q101, Q102
RC101
P5
VADR
T102
Q117
RL101
D133
P7
LIVE
P2
Vsus_ADJ.
+12V
T104
M105
D131,D134
PS.PD
EXT.PD
RELAY
STB 3.3V
SECONDARY
PRIMARY
RELAY & PD
NEUTRAL
P1
P6
POWER SUPPLY UNIT
CN4001
PANEL IF ASSY
R1
V+6.5V
V+3V ACTV
STB3.3 MUTE
R4
DCLK, DE
HD, VD
TMDS RECEIVER IC4202
FET SW
EEPROM for EDID
RA IN, GA IN, BA IN
RB IN, GB IN, BB IN
EEPROM for Backup
B_SDA
B_SCL
Bus Buffer
CN4004
R7
V+6.5V
A_SCL,A_SDA,SRS
FOCUS,TRUBASS
A_MUTE
ST_BY
A_NG
CN4009
AUDIO L
AUDIO R
R6
LED_R,G
CN4007
CN4010
KEY REM
STB _MT
R8
V+3V_STB
TMDS
DDC
R3
R2
CN4003
CN4002
DVI CONNECTOR
MDR CONNECTOR
CN3504
A4
+16.5V
A1
+9V
A3
CN3501
L,R
WOW IC IC1501
VOL IC IC3502
POWER AMP IC3504
CN3503
J3701
SP2
SP1
CN3701
SPEAKER
HD AUDIO AMP ASSY
HD SP TERMINAL ASSY
CN4751
L1
PANEL LED ASSY
CN4852
KL2
KL1
CN4851
CN4801
SW1
KEY CONTROL ASSY
PANEL KEY ASSY
CN4901
RE1
PANEL IR ASSY

Circuit Board Locations



Panel Replacement Parts List

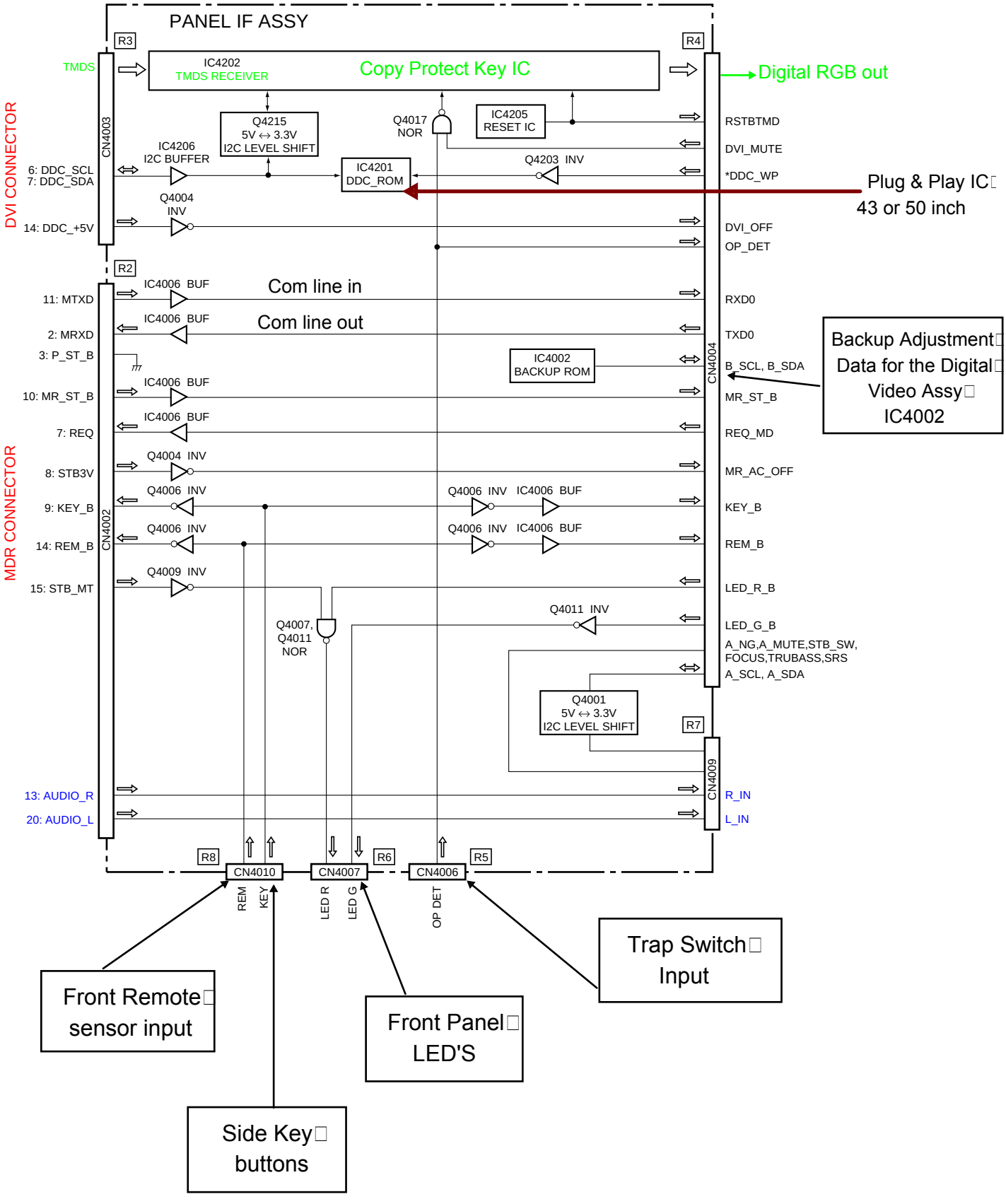
Model	X-Drive	Y-Drive	Power Supply	Panel IF	Digital Video Assy	Audio Amp
PDP-434PU	AWZ6794	AWV2022	AXY1068	AWZ6786	AWV2018	AWZ6834
PRO-434PU	↓	↓	↑	↑	↑	↑
PDP-504PU	AWZ6808	AWV2035				
PRO-504PU	↑	↑				

Model	Panel Sensor	HD SP Terminal	Scan IC	Panel LED	Panel Key	Key Control
PDP-434PU	AWZ6795	AWZ6792	SN755864APZP	AWZ6787	AWZ6788	AWZ6789
PRO-434PU	↑	↑	↓	↑	↑	↑
PDP-504PU			AN16003A			
PRO-504PU			↑			

See service manual for a complete parts list.

PANEL IF ASSY

Block Diagram



Panel IF Assembly

The Panel IF Assembly serves as the main interface to receive and distribute input signals from the Media Receivers DVI and MDR connectors. The digital video TMDS (Time Minimized Differential Signal) enters the module at the DVI connector and IC4202 receives the signals, checks the copy protect key data and converts the output to a 2 phase 10 bit RGB that will pass through connector CN4004 and onto the Digital Video Assembly. IC4201 (DDC_ROM) works as the Plug And Play device and with data information from the Digital Video Assembly it relays back to the Media Receiver the panel size information. (43 or 50 inch display.)

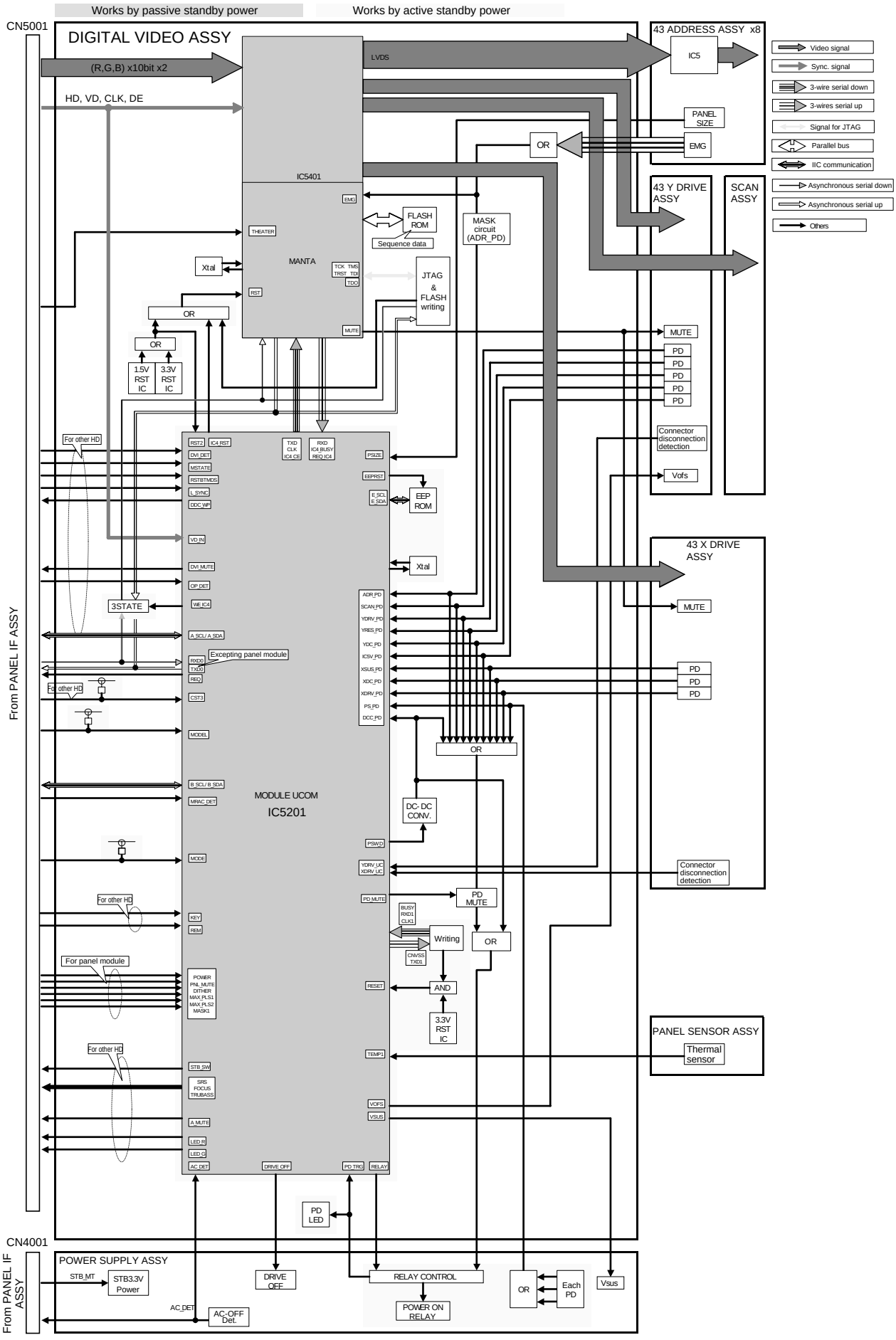
The MDR connector inputs analog Audio and control information from the Media Receiver and in addition it outputs remote control data and power on signals.

Backup adjustment data for the Digital Video Assembly is contained in IC4002 and can be restored into a replacement assembly therefore allowing this unit to require no adjustments when the Digital Video assembly has been replaced.

Trap switch input on CN4006 when activated will stop the TMDS receiver and send information to the Panel Microcomputer to shut down the panel display. At this time both the Red and Green LED’s on the Panel will be on and the resetting procedure must be followed.

DIGITAL VIDEO ASSY

Block Diagram



Digital Video Assembly

The 10 bit 2-phase digital RGB and sync signals input this assembly from the Panel IF board at CN5001. IC5401 processes the information and develops the X drive, Y drive, scan and addressing signals for each of the individual assembly's.

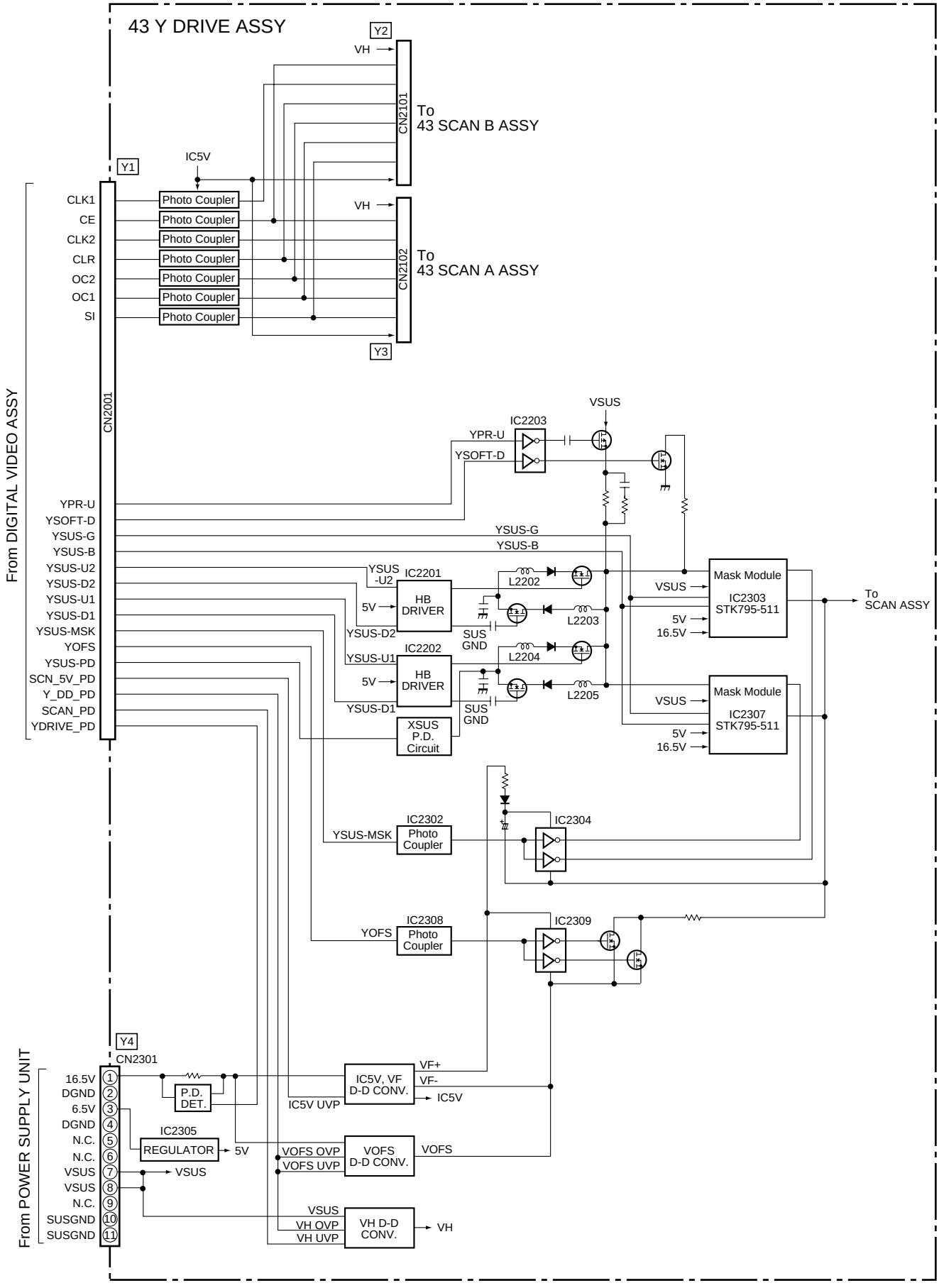
IC5201 (The Main Module Microcomputer) receives information from the Panel IF board for control of the Panel display. This IC also monitors all the Power Down defect lines from attached assemblies. If a Power Down defect line activates the Module Microcomputer will interpret the defect and take the appropriate action. Depending on the type of defect the unit will be put in Power Down mode or Shut Down mode. The Module Microcomputer IC will also flash the front panel LED's with a corresponding code to the defective area. (See LED troubleshooting section).

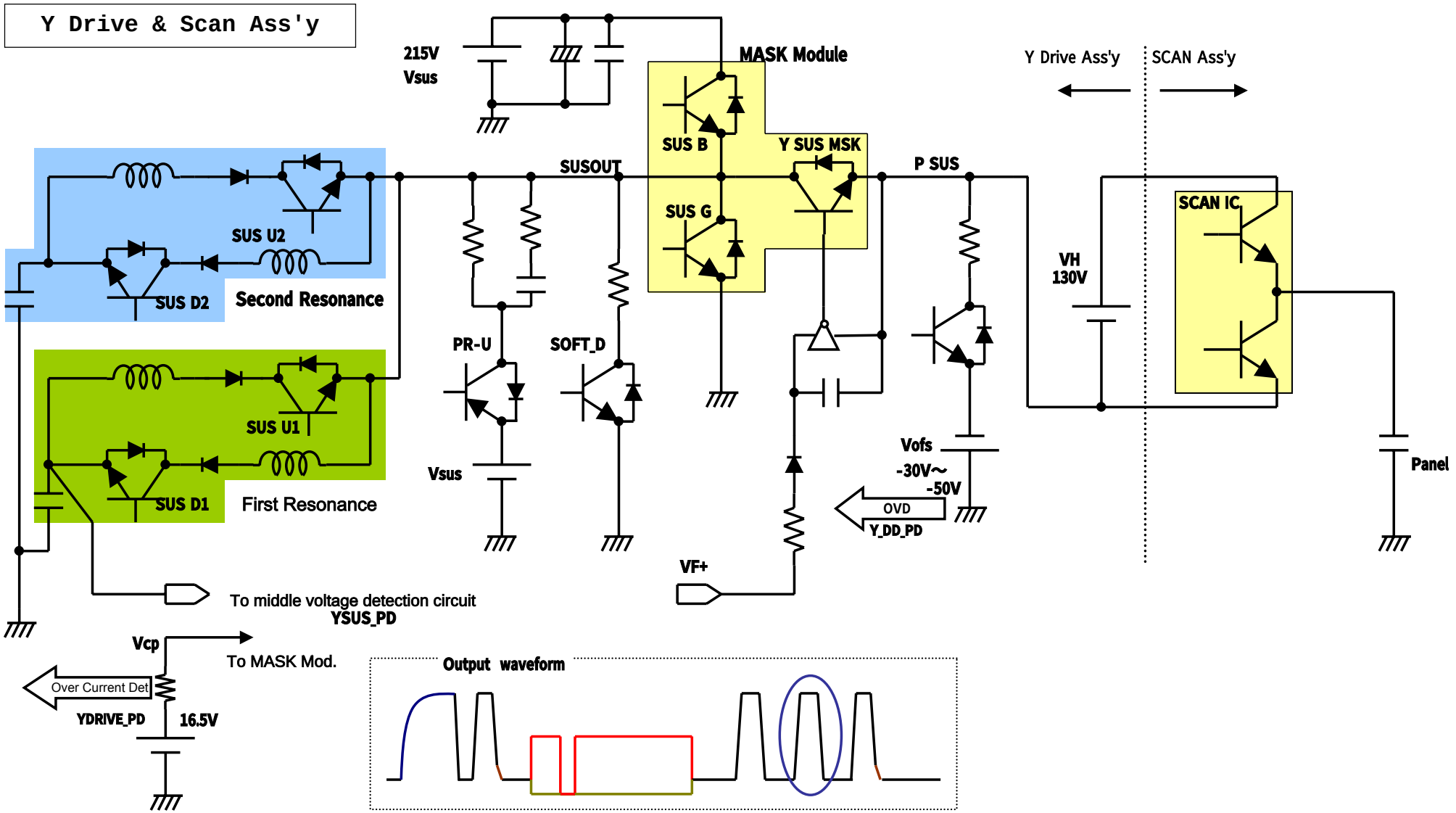
This assembly also contains a switch (S5201) that can be used to turn off all power supply voltages except the low voltage. This can be useful for troubleshooting, reading out data via RS232 and when updating firmware.

If replacing this assembly be sure to follow the restore procedure in the Factory Service Mode section.

43 Y DRIVE ASSY

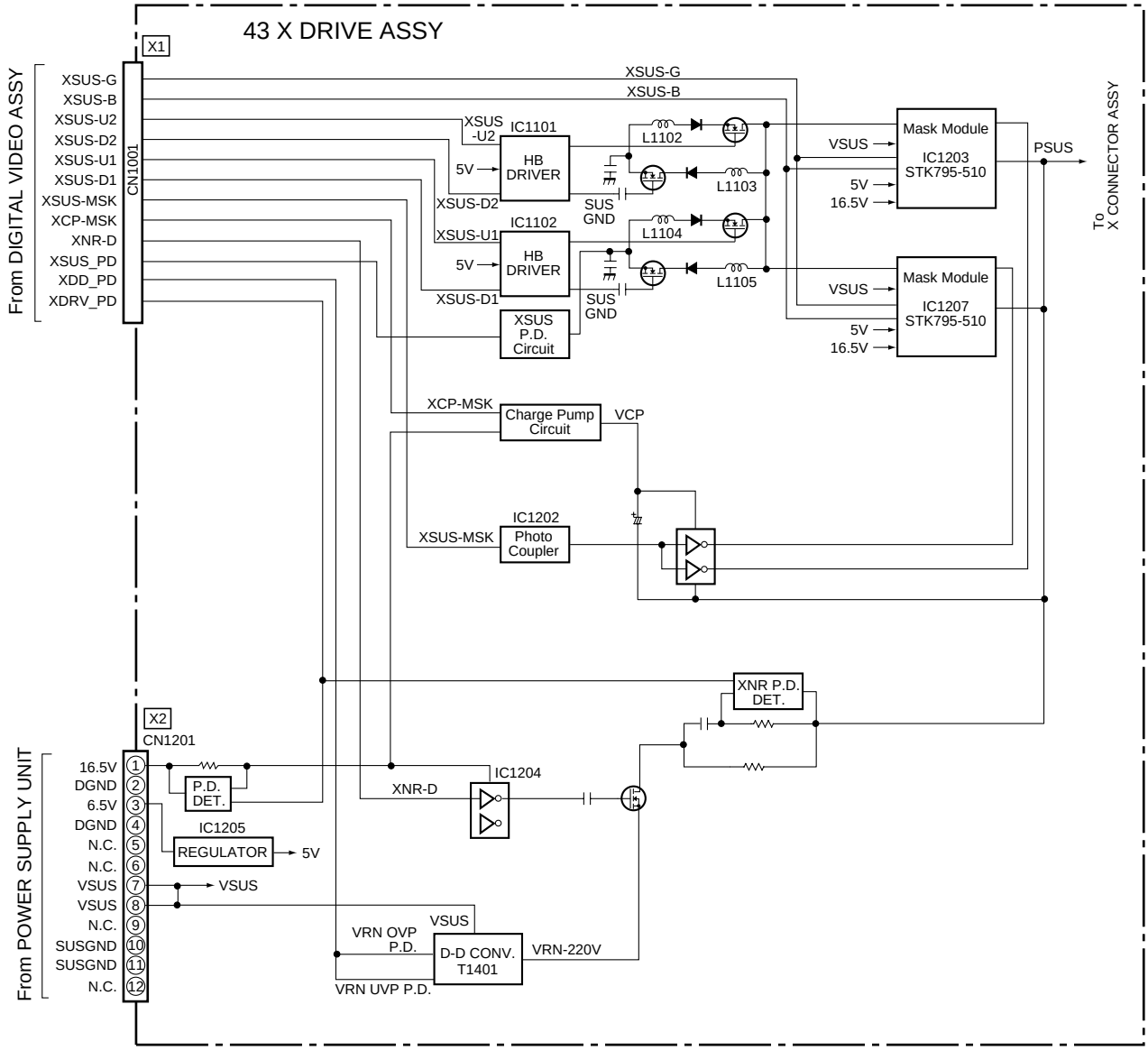
Block Diagram

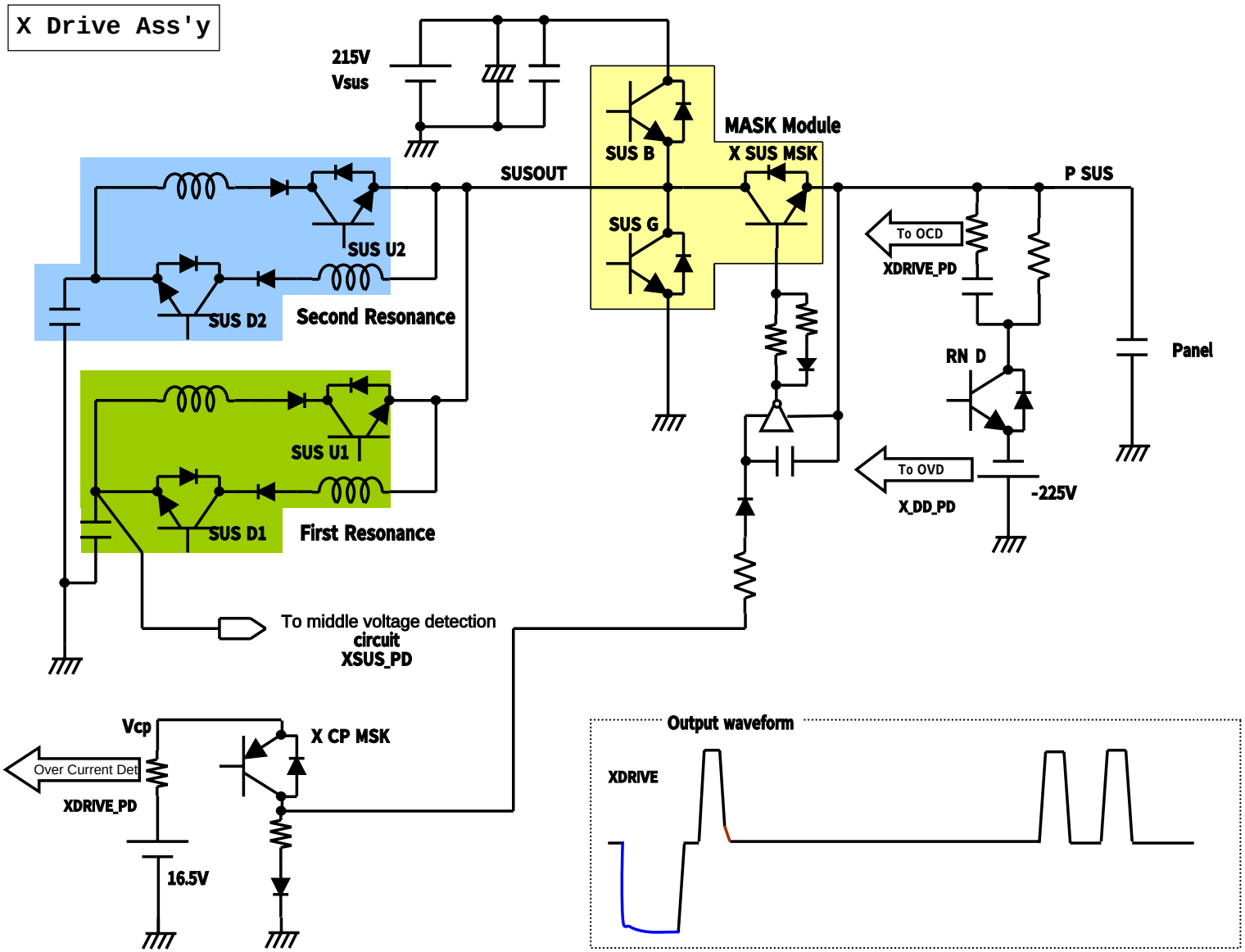



Y Drive & Scan Ass'y
215V
Vsus
MASK Module
SUS B
Y SUS MSK
SUS G
SUSOUT
P SUS
Y Drive Ass'y
SCAN Ass'y
SCAN IC
VH
130V
SUS U2
SUS D2
Second Resonance
PR-U
SOFT_D
SUS U1
SUS D1
First Resonance
Vsus
Vofs
-30V~
-50V
OVD
Y_DD_PD
Panel
VF+
To middle voltage detection circuit
YSUS_PD
Vcp
To MASK Mod.
Over Current Det
YDRIVE_PD
16.5V
Output waveform

43 X DRIVE ASSY

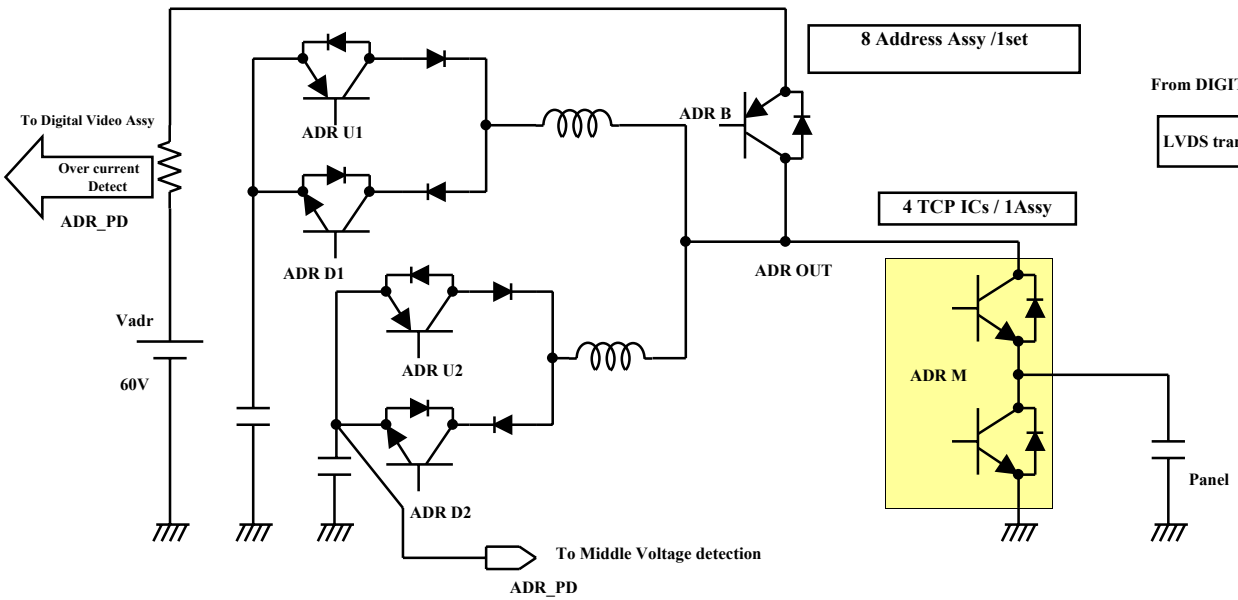
Block Diagram

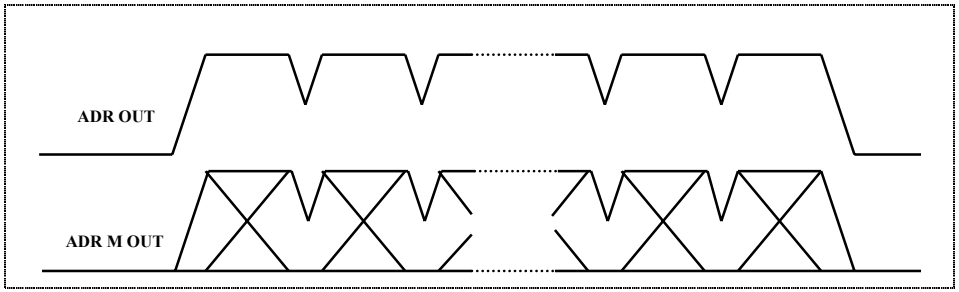



X Drive Ass'y
215V
Vsus
SUSOUT
MASK Module
SUS B
X SUS MSK
SUS G
P SUS
SUS U2
SUS D2
Second Resonance
To OCD
XDRIVE_PD
RN D
Panel
SUS U1
SUS D1
First Resonance
To OVD
X_DD_PD
-225V
To middle voltage detection
circuit
XSUS_PD
Vcp
X CP MSK
Over Current Det
XDRIVE_PD
16.5V
Output waveform
XDRIVE

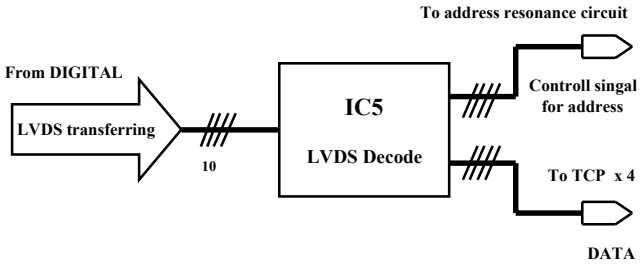
ADR Ass'y • ADR M

434 Adddress

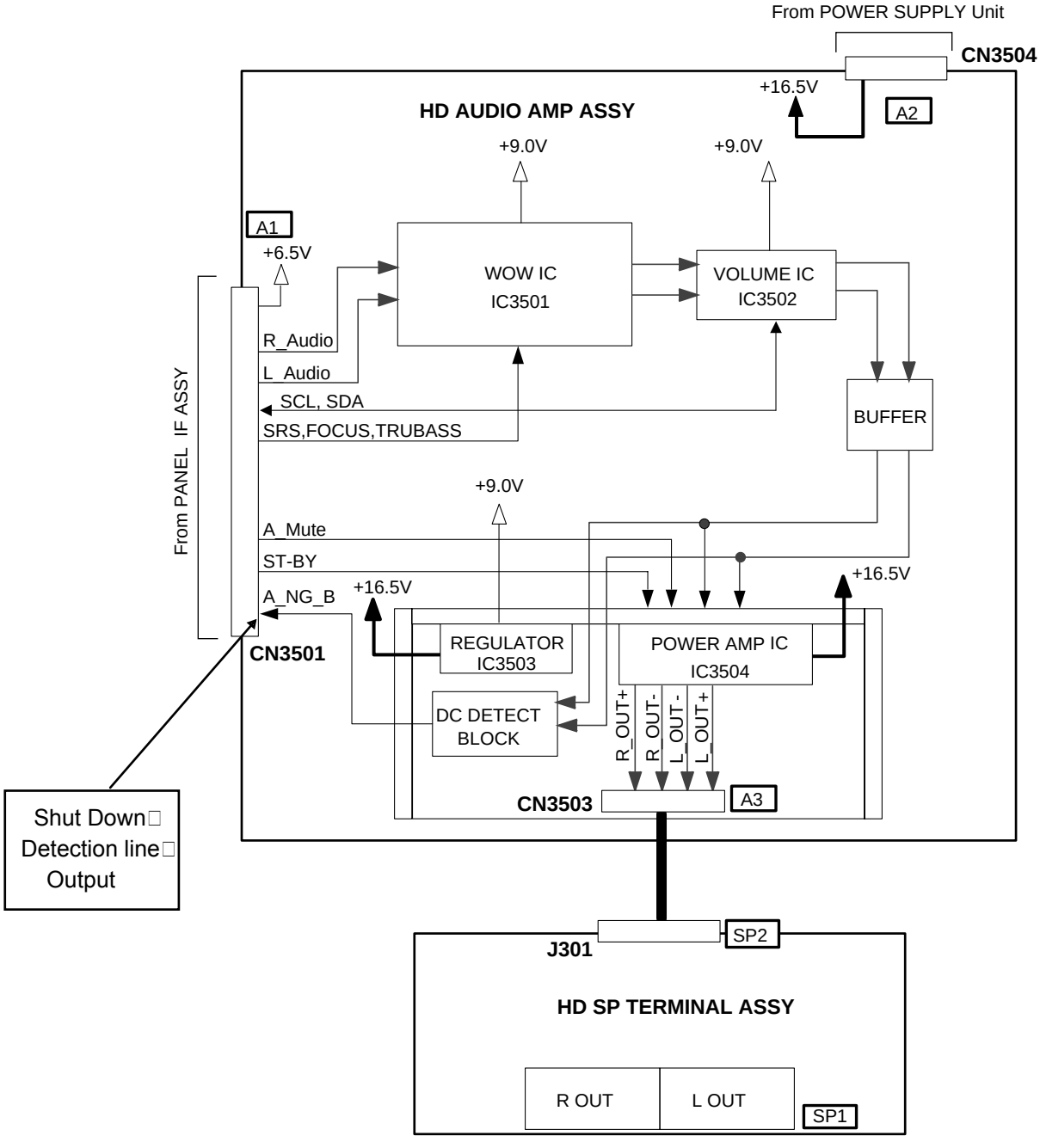




Control signal :



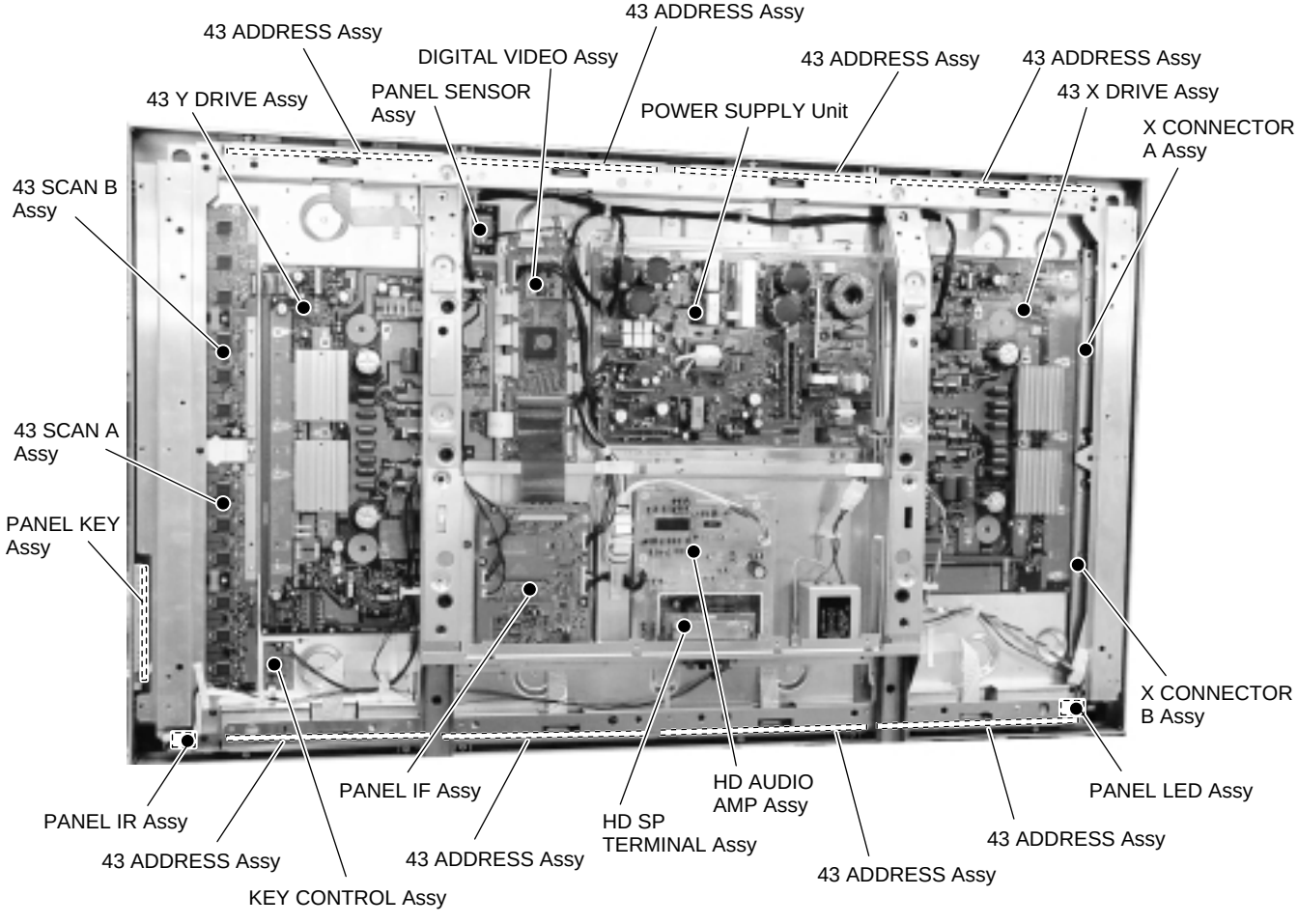
HD AUDIO AMP ASSY



Shut down detection from the audio section will cause the front panel LED to flash 2 times if the problem is communcation, 5 times if DC detect, speaker shorted or Power Amp IC.

Disassembling & Assembling

PCB LOCATION



Rear view

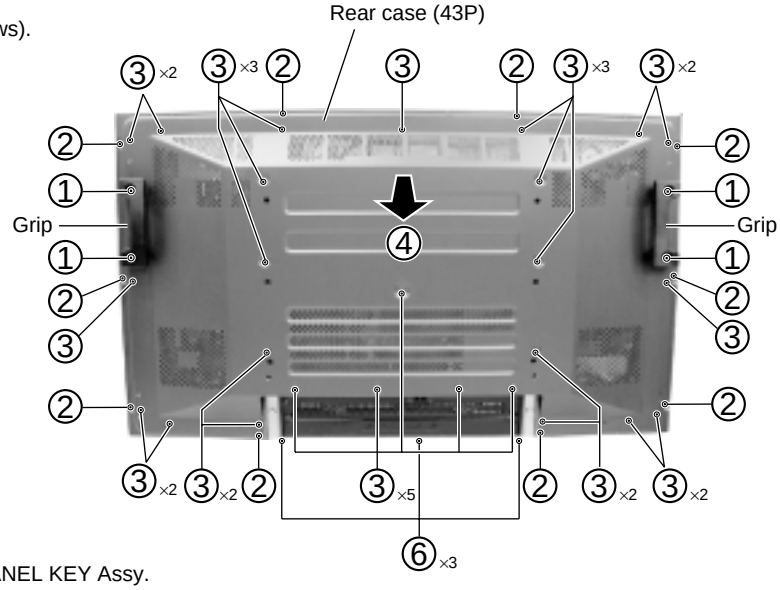
Rear case (43P), Front case Assy (43P)

① Remove the grip by removing the four screws.

② Remove the ten screws (B tight).

③ Remove the twenty six screws (M screws).

④ Remove the rear case (43P).

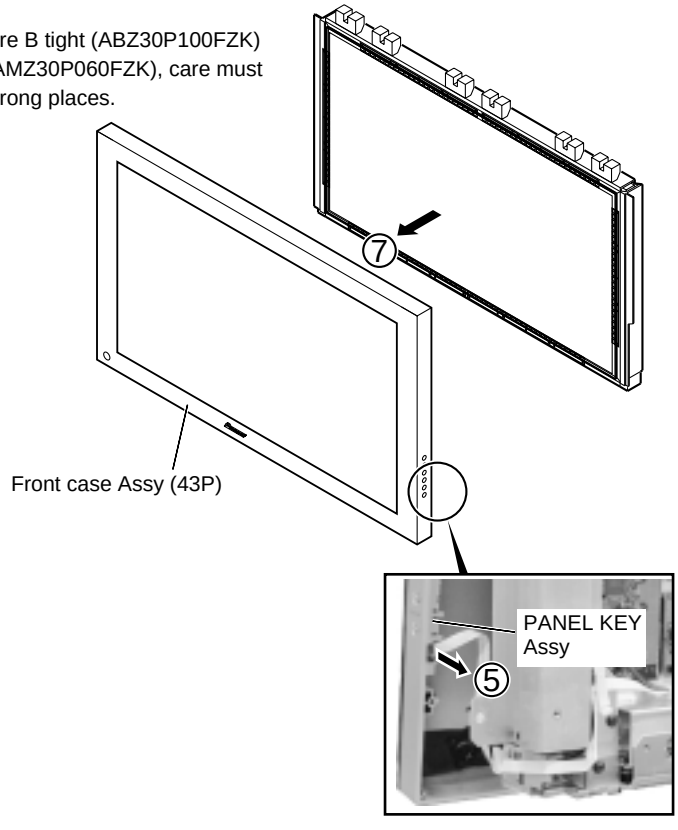


⑤ Remove the flexible cable from the PANEL KEY Assy.

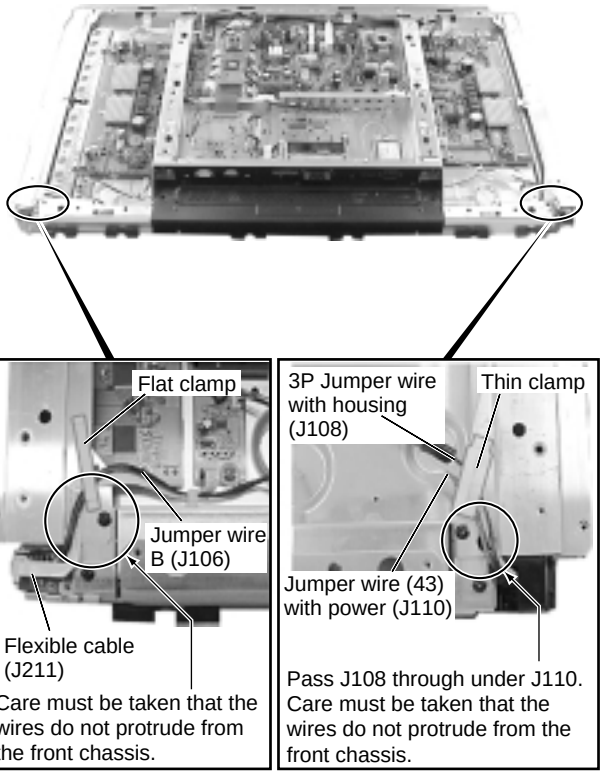
⑥ Remove the three screws (B tight).

⑦ Remove the front case assy (43P).

Note:
As the screws used for the front case are B tight (ABZ30P100FZK) and other screws used are M screws (AMZ30P060FZK), care must be taken not to use the screws in the wrong places.



• **Notes when reassembling the rear case (43P)**



Front chassis VL Assy (43), Front chassis VR Assy (43)

① Remove the front case, then remove the screw that secures the infrared-receiver holder.

② Remove the nylon rivet, then remove the infrared-receiver holder.

③ Remove the flat clamp, then remove the wires.

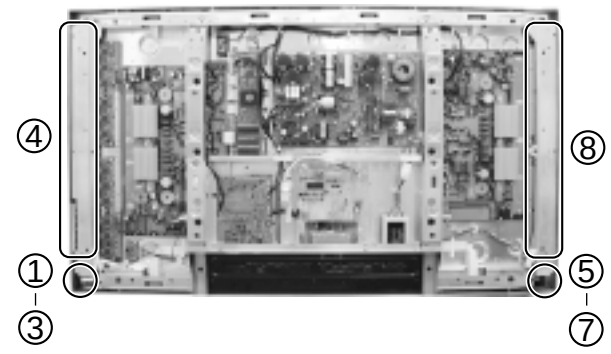
④ Remove the front chassis VL Assy (43), by removing the five screws (M screws).

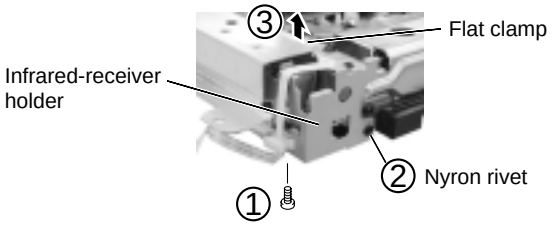
⑤ Remove the PANEL LED Assy, by removing the screw (B tight). If the screw is not removed, the connectors on the PANEL LED Assy may be damaged.

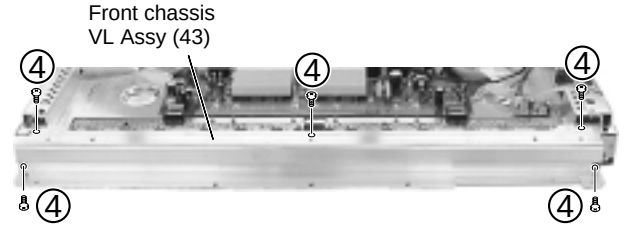
⑥ Remove the switch holder, by removing the screw (M screw).

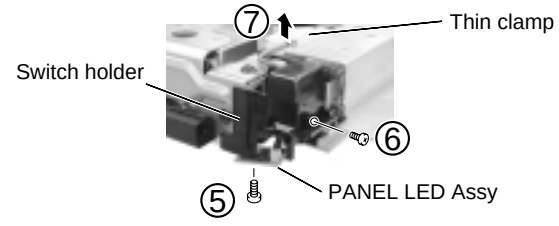
⑦ Remove the thin clamp, then remove the wires.

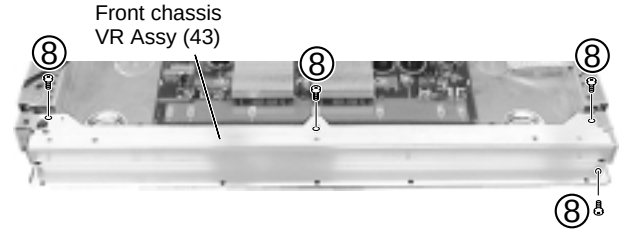
⑧ Remove the front chassis VR Assy (43), by removing the four screws (M screws).





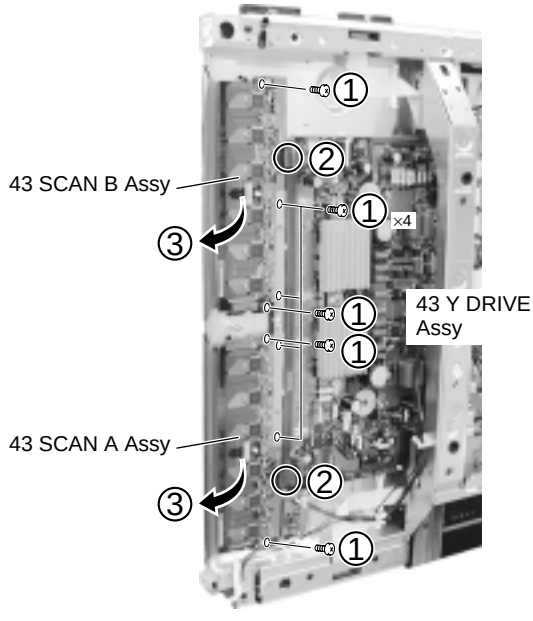




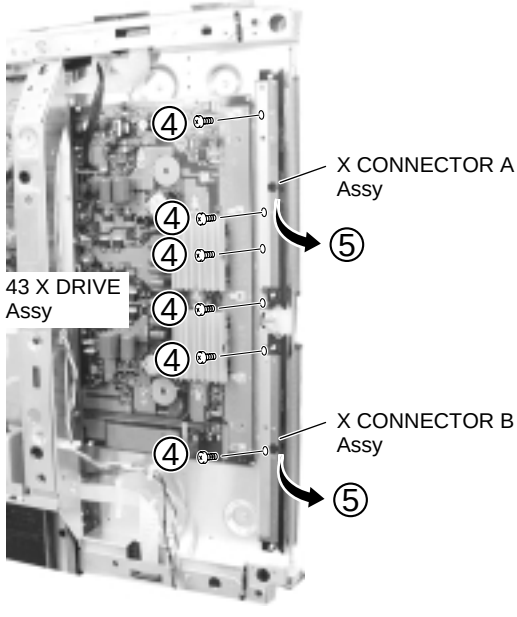


43 SCAN A, B, X CONNECTOR A and B Assemblies

① Remove the eight screws (M screws).
② Remove the two pin connectors.
③ Remove the 43 SCAN A and B Assemblies.

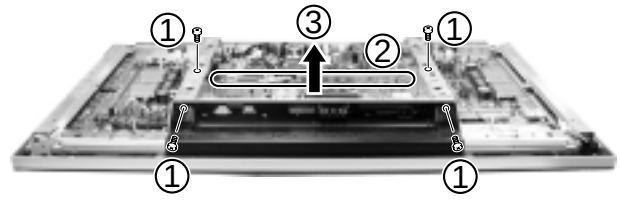


④ Remove the six screws (M screws).
⑤ Remove the X CONNECTOR A and B Assemblies.

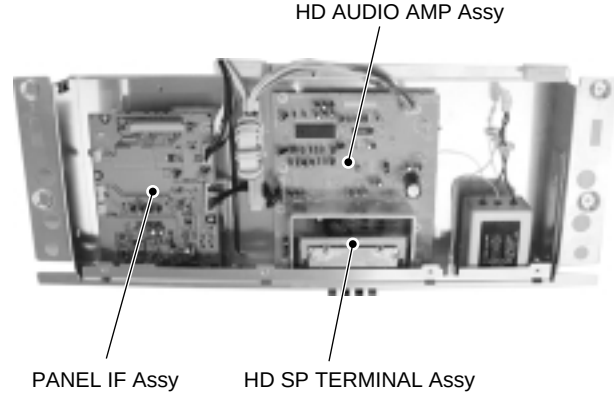


Multi base section

① Remove the four screws (M screws).
② Remove the some connectors.
③ Remove the multi base section.



• PCB Location for multi base section



Trouble shooting
Operation status indicated by LEDs

• Identification of locations having abnormality by the number of times the LEDs flash

On Shutdown and power-down

Shutdown

• Operation: When the microcomputer detects any abnormality, it forcibly turns off the unit.
• LED indication: The green LED flashes.

Power-down

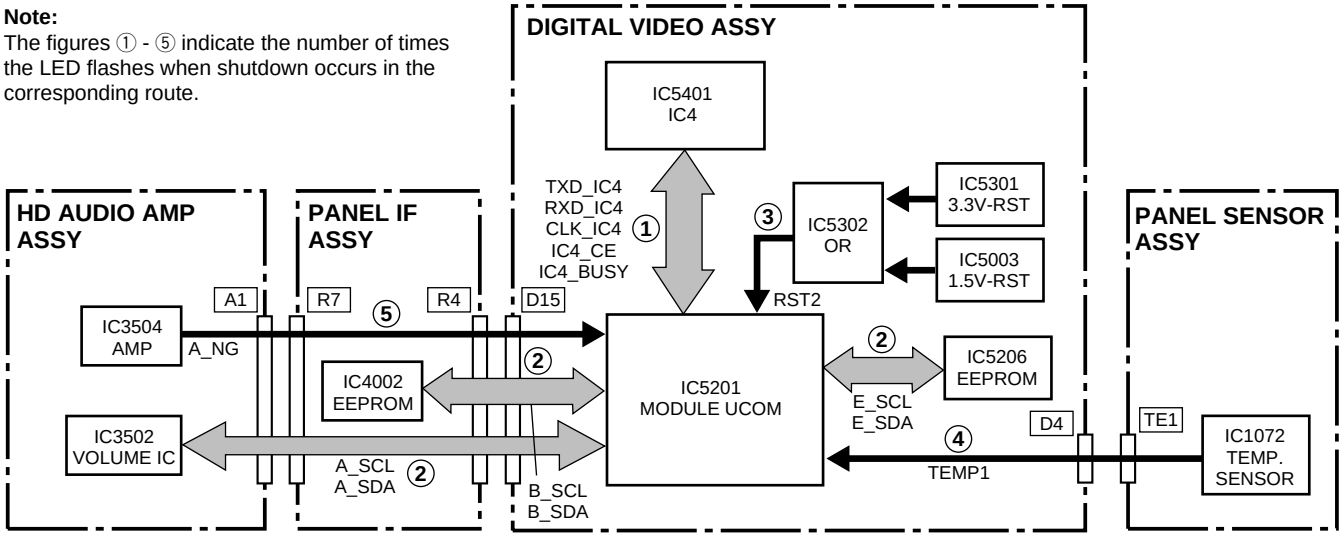
• Operation: When the unit is in emergency status, a protection circuit is activated, and the power is turned off.
• LED indication: The red LED flashes.

Category	MR-LED		PANEL-LED		Content	Unit's operation	Warning indication when the MR is connected
	STB	ON	STB	ON			
SD	Lit			1 time	Communication failure of the panel-drive IC	Immediate shutdown	
	Lit			2 times	Communication failure of the module IIC	Immediate shutdown	
	Lit			3 times	Power decrease of the digital DC-DC converter	Immediate shutdown	
	Lit			4 times	Panel having high temperature	Shutdown 30 seconds after warning	The unit is shut down because of high internal temperature. Check the surrounding temperature of the PDP. [SD04]
	Lit			5 times	Audio failure	Shutdown 3 seconds after warning	The internal protection circuit is activated, and the unit is shut down. Is a speaker cable short-circuited? [SD05]
		6 times	Lit		Communication failure of the module microcomputer	Immediate shutdown	
		7 times	Lit		Main 3-wire serial communication in failure	Immediate shutdown	
		8 times	Lit		Communication failure of the main IIC	Immediate shutdown	
		9 times	Lit		Communication failure of the main microcomputer	Immediate shutdown	
		10 times	Lit		Fan in failure	Immediate shutdown	
		11 times	Lit		MR or unit having higher temperature	Shutdown 30 seconds after warning	The unit is shut down because of high internal temperature. Check the surrounding temperature of the MR. [SD11]
		12 times	Lit		Communication failure of the digital tuner	Immediate shutdown	
		13 times	Lit		MR-ASIC power (DC-DC) in failure	Immediate shutdown	
		14 times	Lit		Communication failure of IF-EEPROM	Immediate shutdown	
PD	1 time		Lit		MR power supply	Immediate power-down	
	Lit		2 times		Panel-POWER SUPPLY	Immediate power-down	
	Lit		3 times		SCAN	Immediate power-down	
	Lit		4 times		SCAN-5V	Immediate power-down	
	Lit		5 times		Y-DRIVE	Immediate power-down	
	Lit		6 times		Y-DCDC	Immediate power-down	
	Lit		7 times		Y-SUS	Immediate power-down	
	Lit		8 times		ADDRESS	Immediate power-down	
	Lit		9 times		X-DRIVE	Immediate power-down	
	Lit		10 times		X-DCDC	Immediate power-down	
	Lit		11 times		X-SUS	Immediate power-down	
	Lit		12 times		DIGITAL-DCDC	Immediate power-down	
	Lit		15 times		UNKNOWN *	Immediate power-down	

* If the unit cannot identify which protection circuit was activated, even if a power-down had been detected, the red LED may flash 15 times.

• Block diagram of the shutdown signal system

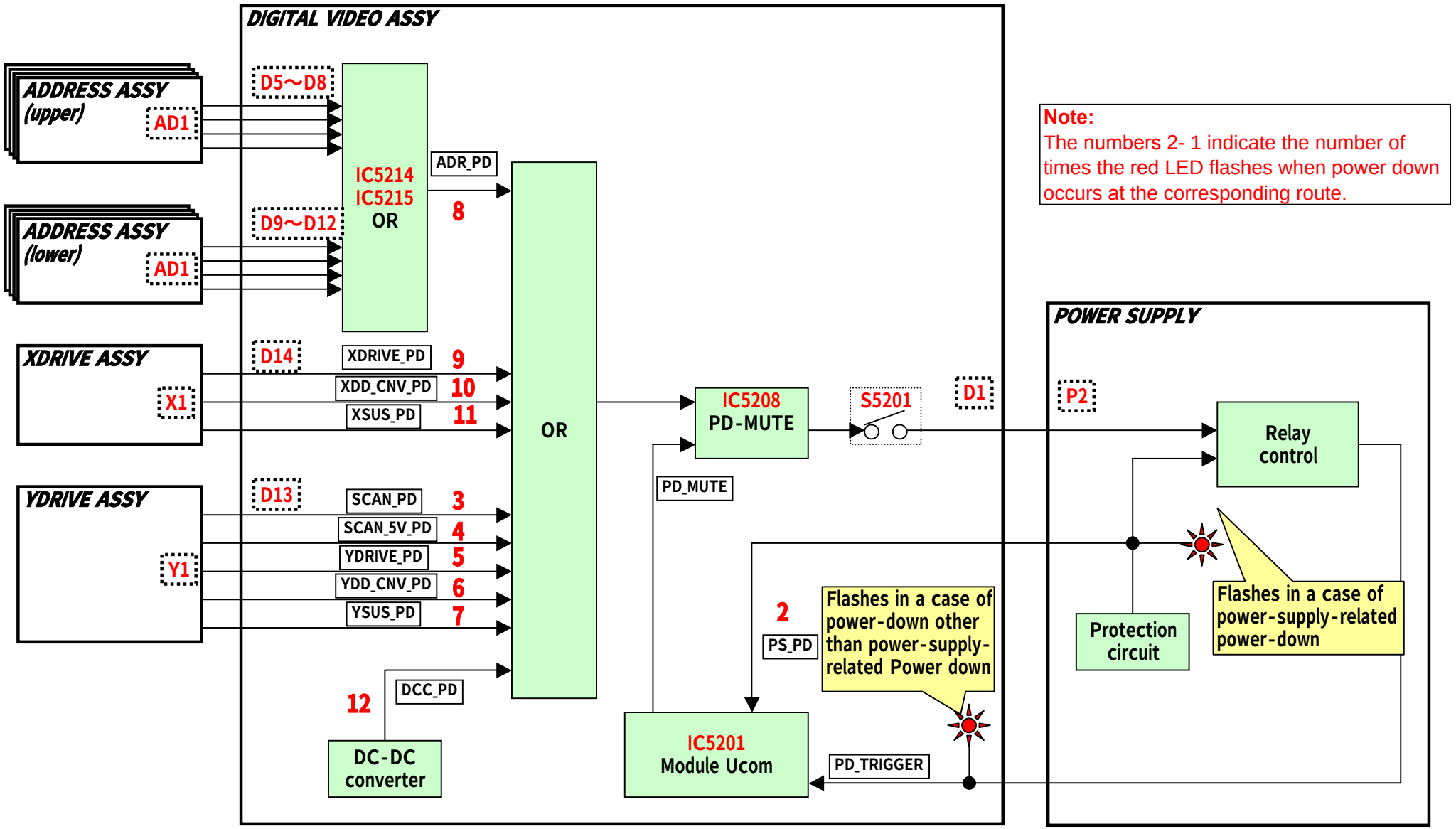
Note:
The figures ① - ⑤ indicate the number of times the LED flashes when shutdown occurs in the corresponding route.



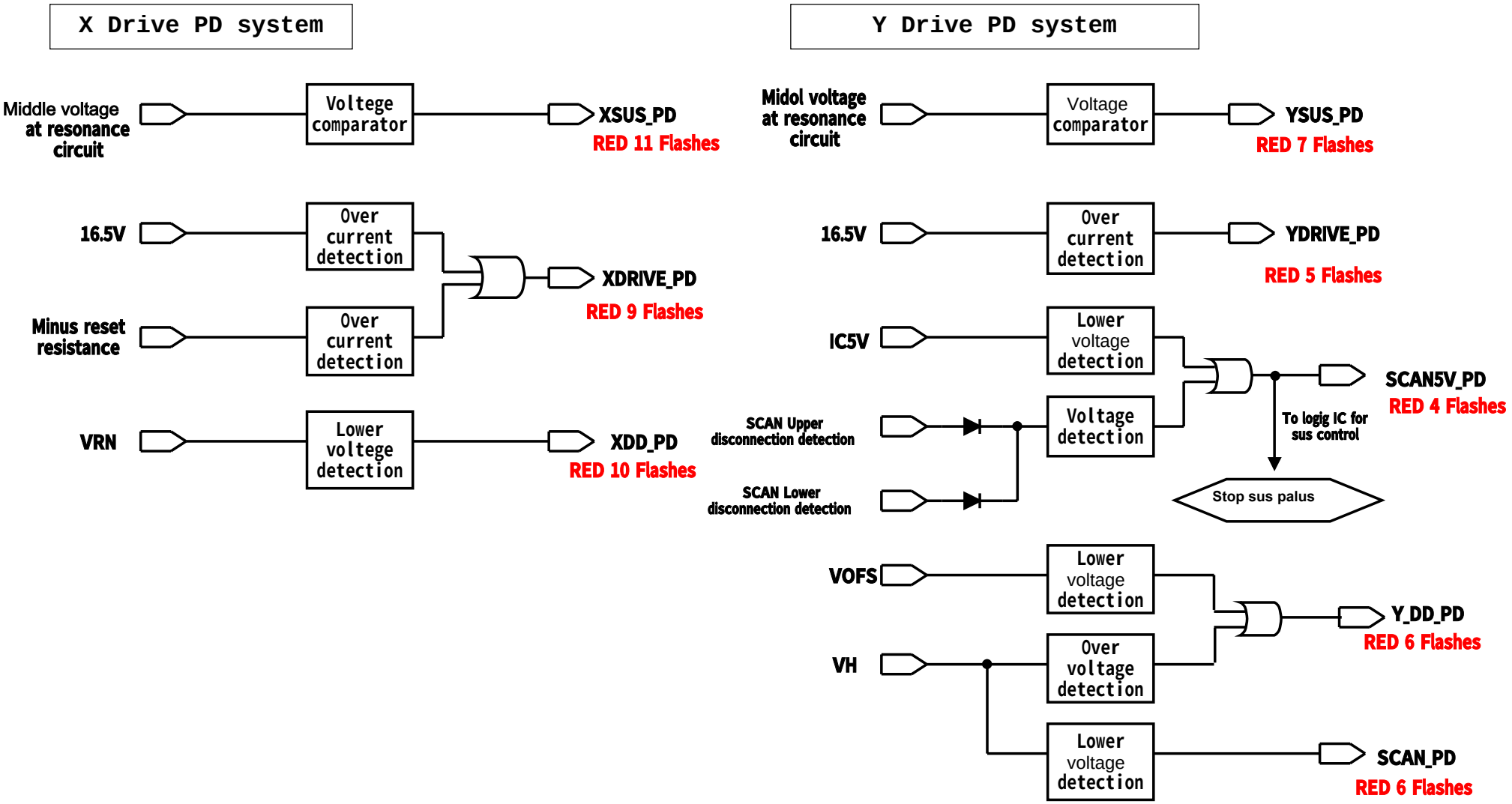
• Diagnosis of shutdown

LED	SD Circuit in Operation	Defective Assy	Reason for Shutdown	Point to be Checked	Possible Defective Part	Remarks
1 time	Communication failure of the panel-drive IC	DIGITAL VIDEO	Communication failure of IC4	IC4 BLOCK, PANEL FLASH BLOCK	IC5401, IC5305	
			Writing failure of IC4			After turning the unit on again, check if the data on the version can be read with the GS1 command.
2 times	Communication failure of the module IIC (Check the shutdown subcategory on the Factory menu.)	DIGITAL VIDEO	Communication failure of the EEPROM (4K)	MODULE UCOM BLOCK	IC5206	
		PANEL IF	Communication failure of the EEPROM (2K)	PANEL IF BLOCK	IC4002	
			Disconnection of cable	CN4009 - CN3501		Check if the cable is disconnected or not securely connected.
		HD AUDIO	Defective volume IC	HD AUDIO AMP Assy	IC3502	
			Defective 114-pin FPC	CN4004 - CN5001	ADY1081	Check if the 114-pin FPC is broken or not securely connected.
3 times	Power decrease of DIGITAL-DC-DC	DIGITAL VIDEO	Defective DC-DC converter	DIGITAL DD CON BLOCK	U5601	Check if 3.3 V, 2.5 V, and 1.5 V are activated.
			Defective RST IC	PANEL FLASH BLOCK	IC5301, IC5302, IC5303	
		POWER SUPPLY	No startup of 12 V			
4 times	Panel having higher temperature	DIGITAL VIDEO	Cable disconnected	CN5202 - CN1071		
			Panel having higher temperature	Surrounding temperature		Shutdown occurs when the sensor temperature becomes 77°C or more (PDP-434P) or 83°C or more (PDP-504P).
5 times	Audio failure		Speaker short-circuited	Speaker terminals		Check if the speaker cables are in contact with the chassis, etc.
		HD AUDIO	Defective AMP IC	HD AUDIO AMP ASSY	IC3504	
		HD AUDIO	Disconnection of cable	CN4009 - CN3501		Check if the cable is disconnected or not securely connected.

Block diagram of the power-down signal system



Detail of PD system in Y and X Drive circuits



Number of times the front RED LED on the Panel flashes indicates a Power down failure and areas to be □ checked are listed below.

RED	PD Circuit in operation	Defective Assy	Reason for Power-down	Point to be Checked	Possible Defective Part	Remarks
1	MR POWER					
2	POWER	POWER SUPPLY Unit				If the elapsed time from relay-on until the LED in the power supply unit lights is about 2-4 seconds, the defective assembly may be the 43 X or Y DRIVE.
		43 X DRIVE Assy	VSUS UVP	X SUS BLOCK	IC1203 - IC1207 (mask module)	
		43 Y DRIVE Assy	VSUS UVP	Y SUS BLOCK	IC2303 - IC2307 (mask module)	
3	SCAN	43 SCAN A, B Assy or Y 43 DRIVE Assy	VH UVP	SCAN IC	SCAN IC	
			VH UVP	VH DC/DC	IC2401, IC2402, IC2410, L2401	
			Disconnection of cable detected	CN2001, CN2301		
4	SCN-5V	43 SCAN A, B Assy or 43 Y DRIVE Assy	Disconnection of cable detected	CN2101, CN2102		
			IC5V UVP	SCAN IC, IC5V DC/DC Y SUS BLOCK	SCAN IC, Q2401, Q2402, IC2304, IC2309	
			IC5V OVP	IC5V DC/DC	IC2403, IC2411	
5	Y-DRIVE	43 Y DRIVE Assy	+16.5V OCP	Y SUS BLOCK	IC2303 - IC2307 (mask module), IC2301, IC2304, R2309	
6	Y-DCDC	43 Y DRIVE Assy	VOFS UVP	VOFS DC/DC	IC2404, IC2412, Q2404, Q2407	
			VOFS OVP	VOFS DC/DC	IC2404, IC2412	
			VH OVP	VH DC/DC	IC2402, IC2410	
7	Y-SUS	43 Y DRIVE Assy	Power-down caused by detection of middle-point voltage	Y RESONANCE BLOCK	Q2202, Q2203, Q2214, Q2205, Q2206, Q2208, Q2209, Q2211, Q2212, IC2201, IC2202, Control signal series resistors	
		DIGITAL VIDEO Assy	Power-down caused by detection of middle-point voltage	DIGITAL VIDEO Assy	IC5401, Control signal series resistors	
8	ADRS	43 ADDRESS Assy	Disconnection of cable detected	CN1501		
			Power-down caused by detection of a power surge	ADR RESONANCE BLOCK	R1631, Q1601, D1602	
			Power-down caused by detection of middle-point voltage	ADR RESONANCE BLOCK	Q1602, C1609, D1606, D1607	
9	X-DRIVE	43 X DRIVE Assy	Disconnection of cable detected	CN1001, CN1201		
			+16.5V OCP	X SUS BLOCK	IC1203, IC1207 (mask module), IC1204, IC1206, R1230	
			VRN OCP	X SUS BLOCK	Q1205, R1226, R1251	
10	X-DCDC	43 X DRIVE Assy	VRN OVP	VRN DC/DC	IC1403, IC1404	
			VRN UVP	VRN DC/DC	IC1402, IC1403, IC1404	
				X SUS BLOCK	Q1205, R1226, R1251	
11	X-SUS	43 X DRIVE Assy	Power-down caused by detection of middle-point voltage	X RESONANCE BLOCK	Q1102, Q1103, Q1114, Q1105, Q1106, Q1108, Q1109, Q1111, Q1112, IC1101, IC1102, Control signal series resistors	
		DIGITAL VIDEO Assy	Power-down caused by detection of middle-point voltage	DIGITAL VIDEO Assy	IC5401, Control signal series resistors	
12	DIG-DCDC	DIGITAL VIDEO Assy	DCDC +3.3V, +1.5V OVP	DC DC CONVERTER BLOCK	U5601 (DC DC CONVERTER Module)	

OVP : **O**ver **V**oltage **P**rotection
UVP : **U**nder **V**oltage **P**rotection
OCP : **O**ver **C**urrent **P**rotection

[PANEL IF Assy-related diagnosis]

Symptom	Error indication	What is happening? (defective soldering, data-transmission error, etc.)	Which pin must be checked? (What is to be checked?)	PD or SD? (How many times does the LED flash?)	In which condition does the symptom tend to appear?
No power		Incomplete connection of the FPC (114-pin) between the PANEL IF and DIGITAL assemblies. Incomplete connection between the POWER SUPPLY and PANEL IF assemblies.			
Power interrupted		The connection of the system cable may have been slightly loose.			
No display, abnormal display (abnormal LED)	Alternate flashing of the red and green LEDs	Incomplete connection of the system cable		Shutdown occurs 30 seconds after	
	Both the red and green LEDs lit	Incomplete connection between the TRAP switch and the PANEL IF Assy. Rear case opened	Check if Pin 1 of the CN4006 is low.		
	Green LED flashes twice	Incomplete connection between the AUDIO and PANEL IF assemblies		SD after the green LED flashes twice	
	Green LED flashes four times.	Panel having high temperature. Incomplete connection between the PANEL SENSOR and DIGITAL assemblies.		Shutdown occurs 30 seconds after the green LED flashes four times alerting of high-temperature operation	
	Defective lighting	Incomplete connection between the LED and PANEL IF Assy			
No key operation effective		Incomplete connection between the PANEL KEY and KEY CONTROL assemblies	Check if a pulse is output from Pin 2 of the CN4852 when the KEY button is pressed.		Vibration added
Operation of the remote control unit is not effective		Incomplete connection between the KEY CONTROL and PANEL IF assemblies	Check if a pulse is output from Pin 5 of the CN4010 when the KEY button is pressed.		
		Incomplete connection between the PANEL IR and PANEL IF assemblies	Check if a pulse is output from Pin 3 of the CN4010 when the KEY button is pressed.		
Sound interrupted		Incomplete connection between the AUDIO and PANEL IF assemblies			

[DIGITAL VIDEO Assy-related diagnosis]

Symptom	What is happening? (defective soldering, data-transmission error, etc.)	Possible defective part	Which pin must be checked? (What is to be checked?)
Abnormality in a one-eighth area of the screen		IC5401 (40-pin connector) of the ADDRESS Assy	Check if an abnormal area in the screen changes when the 40-pin FPC is replaced.
Abnormal screen	Data of every other dot are abnormal.	Incomplete connection of the 114-pin FPC	

[Diagnosis of abnormalities other than shutdown and power-down]

Symptom	Defective Assy	Possible Cause	Check Point	Possible Defective Part	Remarks
No power (both red and green LEDs unlit)		Cable disconnection	CN4001		Check if the connection between the POWER SUPPLY and PANEL IF assemblies is properly made.
No power (green LED not lit)		Defective 114-pin FPC	CN4004 - CN5001	ADY1081	Check if the FPC is broken or not securely inserted.
No power (both red and green LEDs lit)		Detection by the TRAP switch	CN4006		Check if the TRAP switch is properly set. (See "7.1.4 Canceling detection of the TRAP switch".)
		Defective TRAP switch		ASG1089	Check if the unit works properly when detection of the TRAP switch is canceled. (See "7.1.4 Canceling detection of the TRAP switch.")
The power is (sometimes) interrupted.		Defective system cables	CN4002, CN4003		Check if the system cables are securely connected. (See "7.1.5 Operation when the Media Receiver is not connected.")
The power is interrupted, and the red and green warning indications appear on the screen.		System cables not connected			Check connection of the system cables. (See "7.1.5 Operation when the Media Receiver is not connected.")
Key input not effective		Cable disconnection	CN4801 - CN4851	ADD1225	Check if the FPCs are properly connected. Check if imparting vibration to the unit affects key inputs. Check if a pulse is output when the key corresponding to Pin 2 of the CN4852 is pressed.
		Cable disconnection	CN4852 - CN4010		Check if the cables are disconnected or not securely connected. Check if a pulse is output when the key corresponding to Pin 5 of the CN4010 is pressed.
	KEY CONTROL	Defective KEY SCAN IC	KEY CONTROL Assy	IC4851	Check if a pulse is output when the key corresponding to Pin 2 of the CN4852 is pressed.
Remote control unit not effective		Cable disconnection	CN4901 - CN4010		Check if the cables are not connected or securely connected.
					Check if the FPCs are properly connected.
	PANEL IR	Defective infrared receiver	PANEL IR	U4901	Check if a pulse is output when the key corresponding to Pin 3 of the CN4010 is pressed.
Abnormality in a one-eighth area of the screen	DIGITAL VIDEO	Defective IC4	IC4 BLOCK	IC5401	Check if an abnormal area in the screen changes when the FPC connected to the address corresponding to the abnormal area is replaced with the one corresponding to the next address.
	ADDRESS				Check that an abnormal area in the screen does not change when the FPC connected to the address corresponding to the abnormal area is replaced with the one corresponding to the next address.
Abnormal screen (Data of every other dot are abnormal)		Defective 114-pin FPC	CN4004 - CN5001	ADY1081	Check if the FPC is broken or not securely inserted.

Power on / off function of high voltage line

Function: Only the power for the small-signal system (16.5 V, 12 V, and 6.5 V) is on, and the power for the large-signal system (VSUS, VADR) is off.

Usage: 1. Use when only an operational check for the small-signal system is required, such as when making repairs.
2. Use when rewriting of a program for each microcomputer is required.

Methods: 1 Set the slide switch (S5201) on the DIGITAL VIDEO Assy to its upper position (see Fig. below).
2. Send the "DRF" RS232C command to turn the large-signal system off.
3. Send the "DRN" RS232C command to turn the large-signal system on.

Notes:

- As the unit enters Power-Down and Muting On mode when Methods 1 and 2 are performed, and power-downs other than those caused by the power (PS_PD) and DC-DC-converter (DIGITAL_DC-DC) circuits are not activated.
- If the slide switch is set from OFF to ON while the power is on, a power-down will occur. Be sure to turn the power off before switching the slide switch.

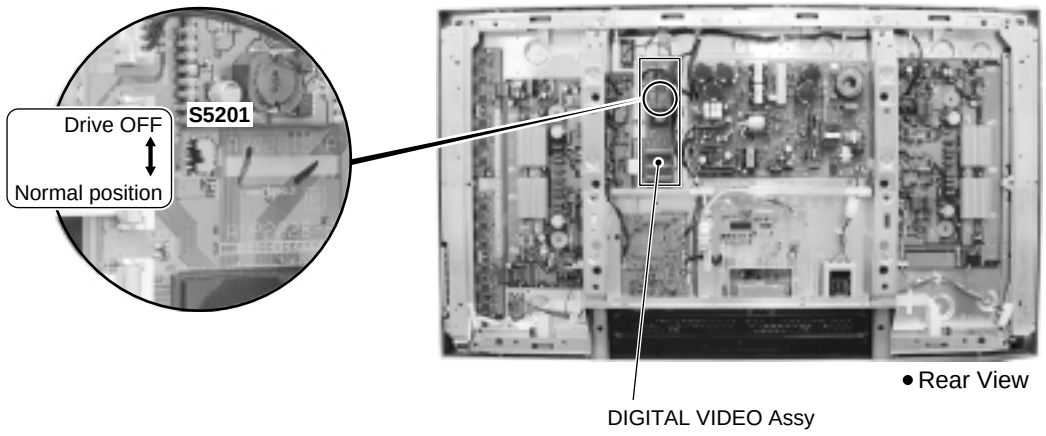
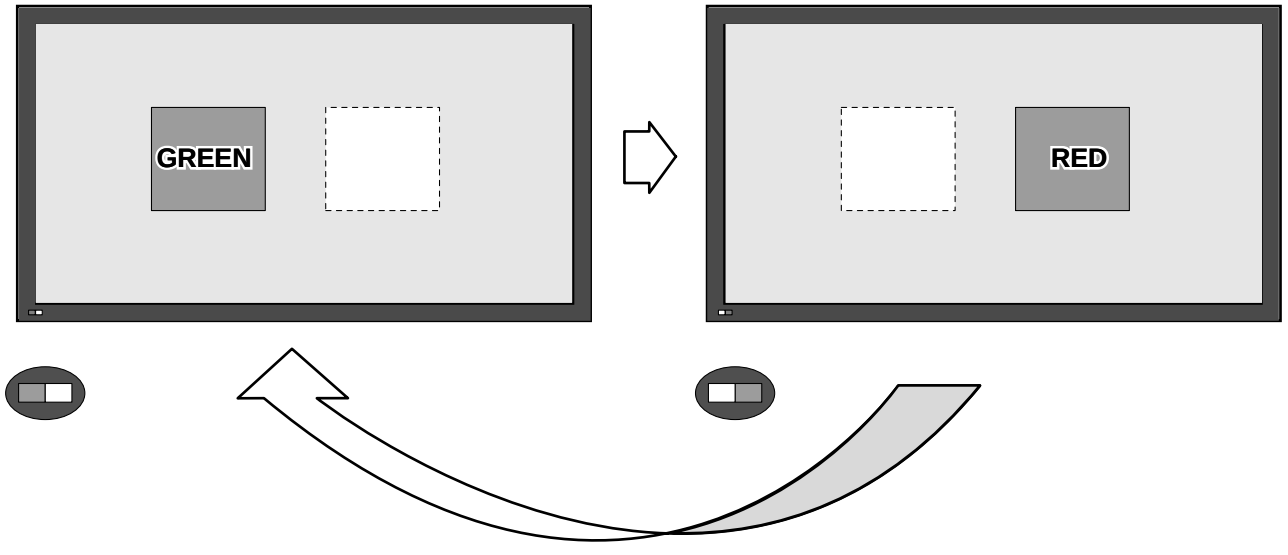


Fig. Drive OFF switch

OPERATION WHEN THE MEDIA RECEIVER IS NOT CONNECTED

As the connection conditions of the system cables (MDR cable, DVI cable) are usually detected, if no connection, such as cable disconnection, is detected, a warning indication (alternate flashing of the red and green areas) is displayed on the mask screen, and the red and green LEDs flash alternately. Then after about 30 seconds, the power is automatically turned off.

Note: Only when the power is turned on again, a warning indication on the mask screen restarts. During standby, only the red and green LEDs flash alternately.



Alternate flashing at intervals of about 1 second

To operate the panel without the Media Receiver, there are the following two ways:

1. Operation-without-the-Media-Receiver mode

Input the "SCN" RS232C command. The status of the LEDs changes to that in normal operation mode.

Note: Turning the AC switch to OFF then ON also maintains this mode. However, once the unit is connected with the Media Receiver using the MDR cable, this mode is automatically canceled.

2. DVI mode

Turn the unit on while PC and DVI SG signals are being input with only the DVI connecter connected. After a warning is displayed for about 5 seconds, the unit is ready to display the screen of the input signal. (Green LED lit)

Notes: • Although the output from XGA (43 inch) and WXGA (50 inch) can be input to the unit, this is not a mode open to general users. (With some signals, errors such as power-down may occur.)

• If a DE signal from the SG is not input during DVI mode, the green LED flashes (at intervals of 2 sec) for about 8 seconds, then the unit shifts to Power Management mode (the green LED lights).

TEMPERATURE-COMPENSATION FUNCTION OF THE DRIVE-SYSTEM VOLTAGE

Function: To control the DRIVE-system voltage according to the temperature (Temperature compensation functions such that the voltage is lowered on the lower-temperature side and the voltage becomes higher on the higher-temperature side.)

Purpose: For improving the yield by compensating for the temperature characteristics of the panel

Note: Temperature compensation is performed only for the VSUS voltage, and not for the VOFS voltage. This compensation is controlled by the software.

MDR Cable

Audio In

PC to Panel
Interface

RS232
To PC

DVI
Out

Personal Computer with RS232
And DVI outputs

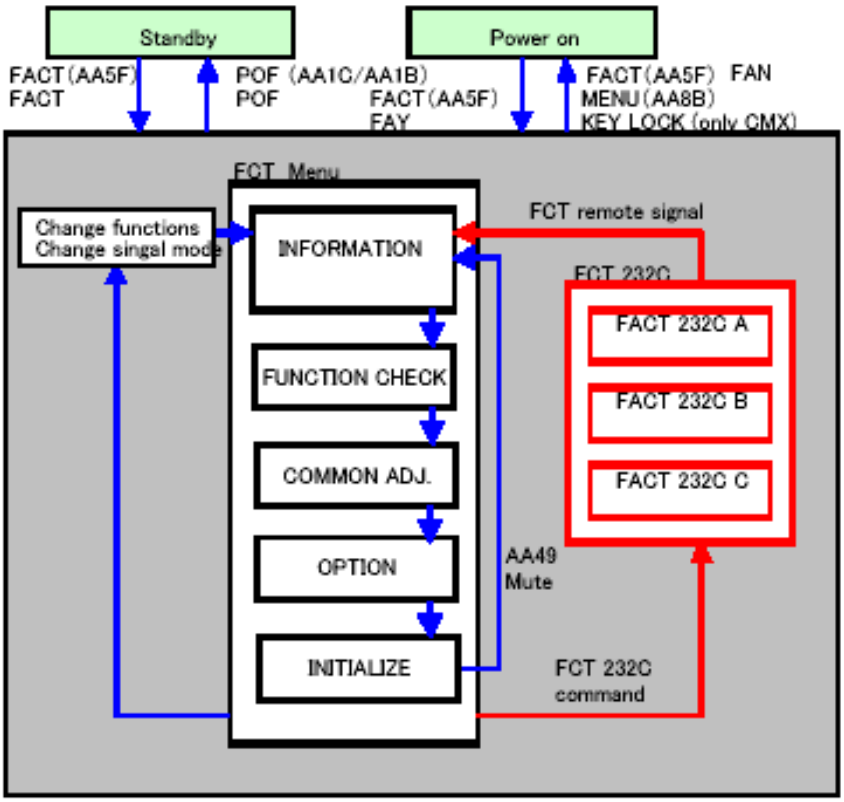
4G PDP

Factory Service Mode

Beginning

Perform the operations of Service Factory mode using the remote control unit provided with the plasma display.

Factory Menu State Transition Diagram



Factory input with remote control unit

At standby

Press Display (AA4A) key and wait 3 sec

↓

Press LEFT (AA94) key after 3 sec, within 10 sec

↓

Press UP (AA96) key

↓

Press LEFT (AA94) key

↓

Press RIGHT (AA95) key

↓

Press POWER (*1) key

↓

*1: <POWER> key is effective at AA1A/AA1B/AA1C

*2: It's Possible to enter factory mode during trap SW detected state

At this time, the unit preserves present state and back to trap detected mode after closing service factory mode.

Operation during Service/Factory Mode

i) Functions that will turn off

When in Factory mode (including while receiving FAY command), the following functions will be OFF.

2 screen movement, any 2 screen modes (function will be selected main input.)

P Zoom

STILL

Trap SW detection (EEPROM record preserved)

ii) User Setting Data

User setting data will follow the below functions.

Audio adjustment data and user adjustment data is not reflect (memory preserved)

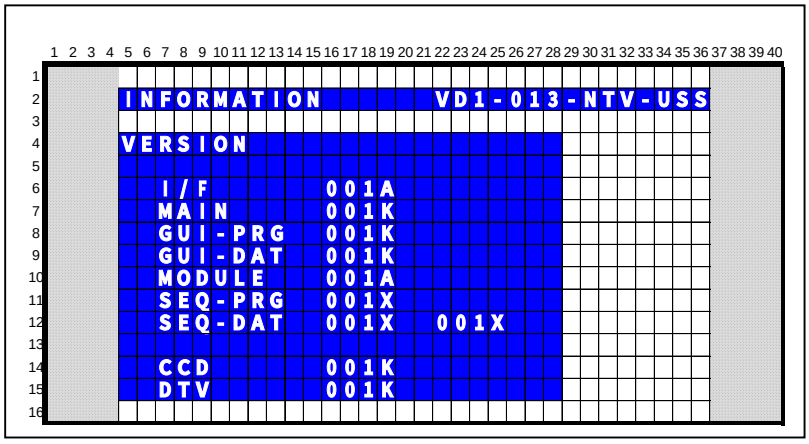
Place screen positioning data in default (memory preserved)

Remote Control Code during Service/Factory Mode

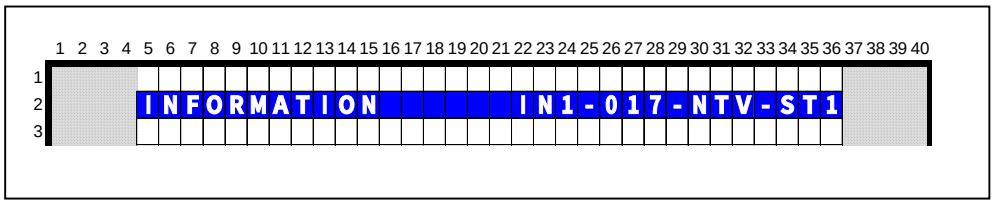
SR Function	Basic Function	Remarks
MUTE	Change main menu	Move to next main menu (top menu)
DOWN	Change second menu / detail menu	Move to next item (below item)
UP	Change second or detail items	Move to previous item (above item)
LEFT	Adjustment value UP	Increases adjustment level
RIGHT	Adjustment value DOWN	Decreases adjustment level
SET	Level movement	Move to above/below level
INPUT	Change Input	Input changes to next function
INPUTxx	Change Input	Input changes to xx
CH+	CH Up	Up preset CH preset (only able to selecte when inout is TV CH)
CH-	CH Down	Returns Preset CH (available during FunctionTV)
Number KEY	Function TV	Function TV (CH is last memory)
BS number KEY	Function BS	Function BS (CH is last memory)
POWER	Power OFF	Turns power OFF
FACTORY	Factory OFF	Turns Factory mode OFF
MENU	Menu ON	Turns Factory mode OFF, turns menu ON

Service Remote

Display during Service/Factory Mode



Display Main Menu



Displays four barometer

Display input function (first item) – SIGmode and screen size (second item)

- Color system and －kind of input singal (third item) – option(forth item)

(1) Input Function

Display location is the second line and 22 – 24 characters.

Input Function	OSD Display
IINPUT1	VID1
AIR A / B	ARA/ARB
CABLE A / B	CBA/CBB
DTV	DTV

(2) SIGmode and Display Size

Display location is the second line 26- 28

*Refer to “SIGmode chart

(3) COLOR SYSTEM and Signal Types

Didplay location is the second line 30 – 32 characters.

COLOR SYS and Signal Types		OSD Display
NTSC	Composite input	NTV / NTS
BLACK/WHITE	/ S Video input	BWV
Y/CB/CR		CBR
Y/PB/PR		PBR
RGB		RGB
Digital Video Signal		DIG

(4) Option (display suffix)

Display location is the second line 34 – 36 characters.

OPTION	OSD
US Reguler	ATS
US Elite	AHS

Information

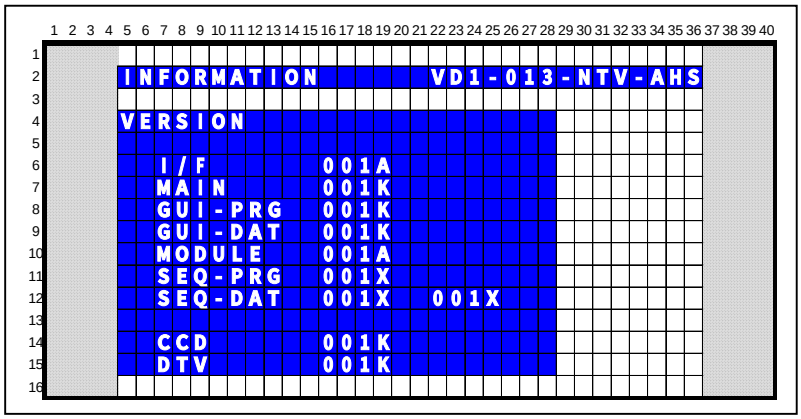
Basic Operation

No	Function/Display	Remarks
1	VERSION	Display version of each flash device
2	SERIAL	Display unit serial No (not use)
3	PANEL PD INFO.	PD and PD time information for panel
4	PANEL SD INFO.	SD and SD time information for panel
5	MR NG INFO.	PD, SD and time information for MR
6	TEMP INFO.	Temperature information
7	HOUR METER	Power on accumulate time of PD
8	MR HOUR METER	Power on accumulate time of MR
9	PULSE METER	Accumulation of discharing pluses
10	P ON COUNTER	Power on / off accumulation
11	DIGITAL EEPROM	State of Back up data in Module Ucom
12	TUNER SIGNAL INFO.	State of TV wave in GCR and IC1

Not Used

Factory Use Only

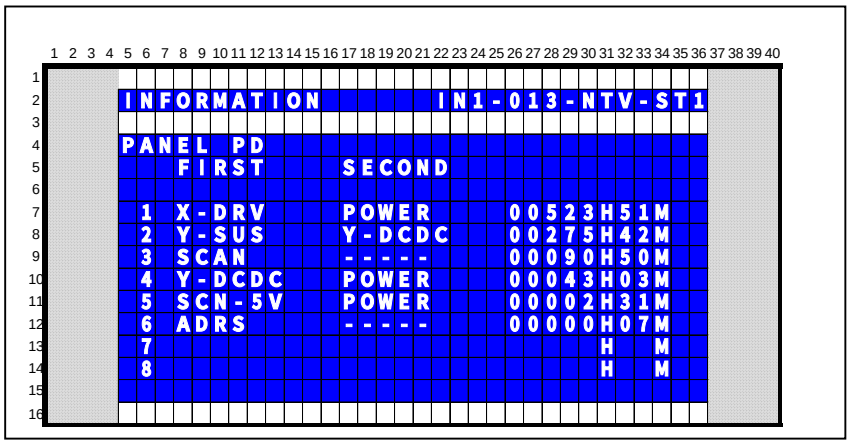
Version



Displays each flash device version

Common Flash Device	OSD Display	
User IF Ucom (MR:IC8702)	I/F	Media Receiver
Main Ucom (MR:IC7207)	MAIN	
Program for IC3 (MR:IC7101)	GUI-PRG	
GUI Data for IC3 (MR:IC7101)	GUI-DAT	
Module Ucom (PDP side)	MODULE	PDP Panel
Program for IC4 (PDP side)	SEQ-PRG	
Sequence data for IC4 (PDP side)	SEQ-DAT	

PANEL PD INFO

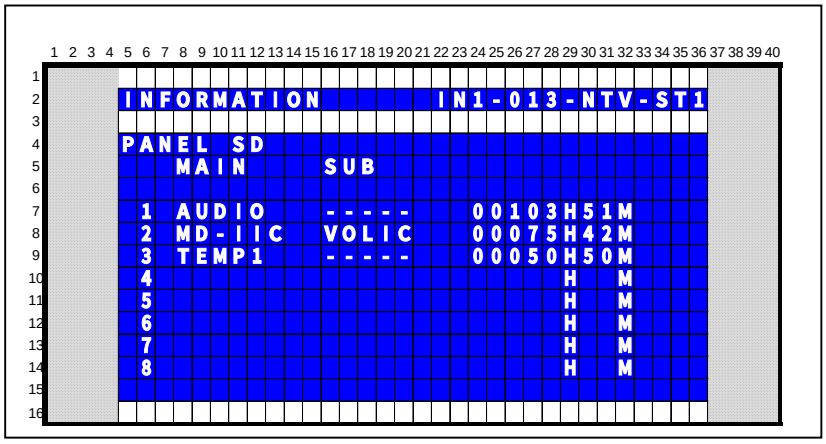


Only displays power down information for panel

Panel PD Display

No	PD Types	OSD Display	No	PD TYpes	OSD Display
1	No item	———	7	Y—SUS PD	Y—SUS
2	Panel-Power Supply PD	POWER	8	Address PD	ADRS
3	SCAN PD	SCAN	9	X—DRIVE PD	X—DRV
4	SCAN—5V PD	SCN—5V	A	X—DC/DC convertor PD	X—DCDC
5	Y—DRIVE PD	Y—DRV	B	X—SUS PD	X—SUS
6	Y—DC/DC Convertor PD	Y—DCDC	C	Dgital-DCDC PD	D—DCDC

PANEL SD INFO



Only displays shut down record of panel

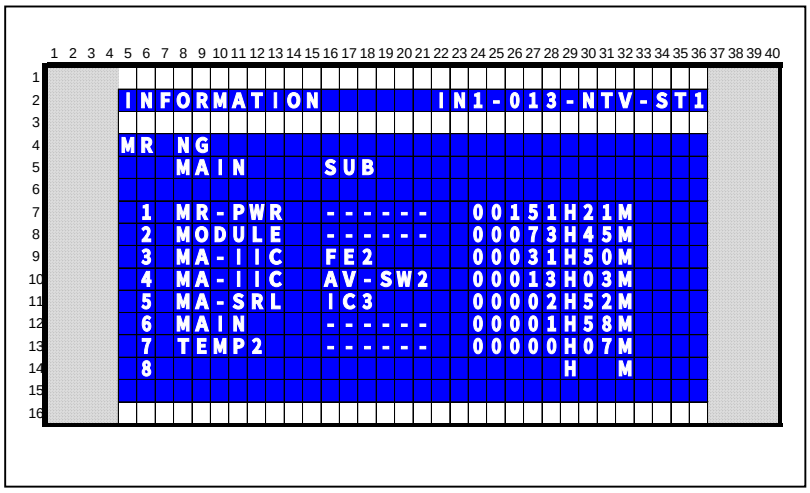
Panel SD Display

	SD Types	OSD Display (Main)	Remarks
1	IC4 communication error	IC4	
2	Module Ucom IIC Communication error	MD-IIC	Sub-category available
3	Detected dew in the unit	DEW	
4	Panel temperature error	TEMP1	
5	Shirt circuit in SP taminal	AUDIO	

Sub-category Display

SD Types	Sub-category	Remarks
MD－IIC	EEPROM4K、EROM2K、VOLIC	

MR NG INFO



Displays both PD and SD information from MR

Media Receiver NG Display

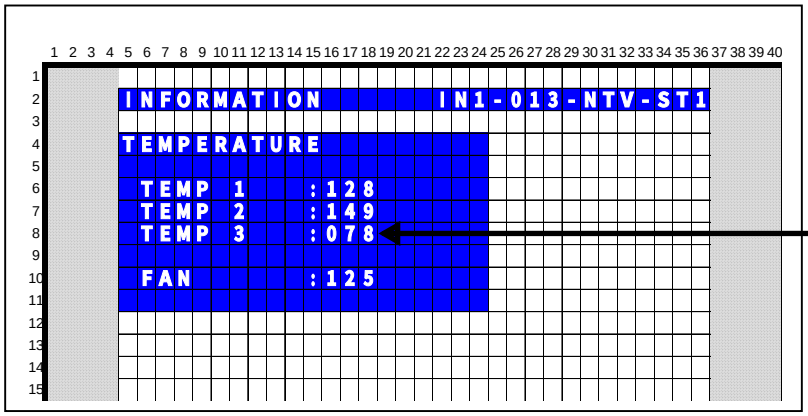
	NG Types	OSD Display (Main)	Remarks
1	MR Power PD	MR-PWR	
2	Module Ucom Communication	MODULE	
3	Communication error of 3 serial lines for Main Ucom	MA-SRL	Sub-category available
4	Main UcomIIC Communicatin error	MA-IIC	Sub-category available
5	Main Ucom Communication error	MAIN	
6	MR temperature error	TEMP2	
7	FAN stops	FAN	
8	Digital tuner communication error	BS-D	Sub-category available
9	MR ASIC Power	M-DCDC	

Sub-category Display

SD Types	Sub-category	Remarks
MA-SRL	Ifmicrocomputer、IC2、IC3	
MA-IIC	MA-EEP、IC1-M、IC1-S、AD-M、AD-S、IC6、CCD FE1、AV-SW1、AV-SW2、	

MA-EEP IC7205□
IC1-M IC6107□
IC1-S IC6255□
AD-M IC6402□
AD-S IC6602 □
FE1 & FE2 Communication Failure□
AV-SW1 IC8002□
AV-SW2 IC8005

TEMP INFO



TEMP1：Displays panel internal temperature sensor value at 000-255

* Refer to sevice manual for panel

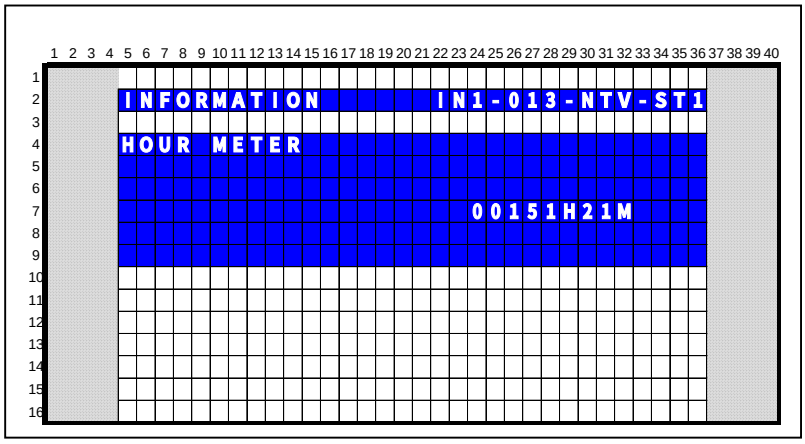
TEMP2：Displays media receiver internal temperature sensor value at 000-255

169 at 60℃, 131 at 35℃ (reference)

FAN ： **Shows FAN output.**

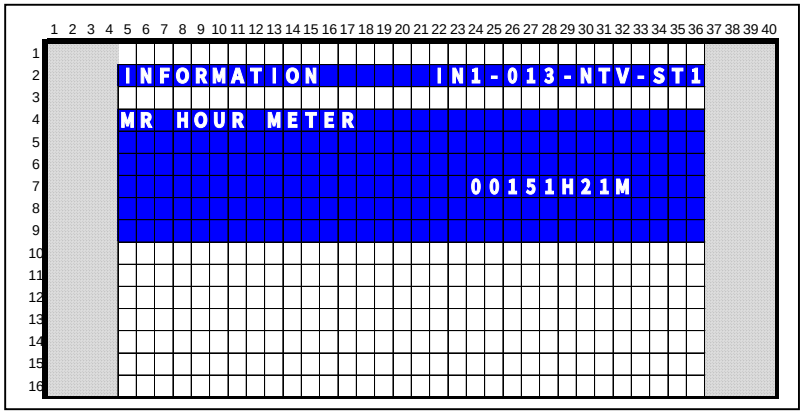
Temp 2□
2 speed fans in Media Receiver.□
93 and under = Slow Speed□
Over 94 = High Speed

HOUR METER



Displays panel accumulated usage hours

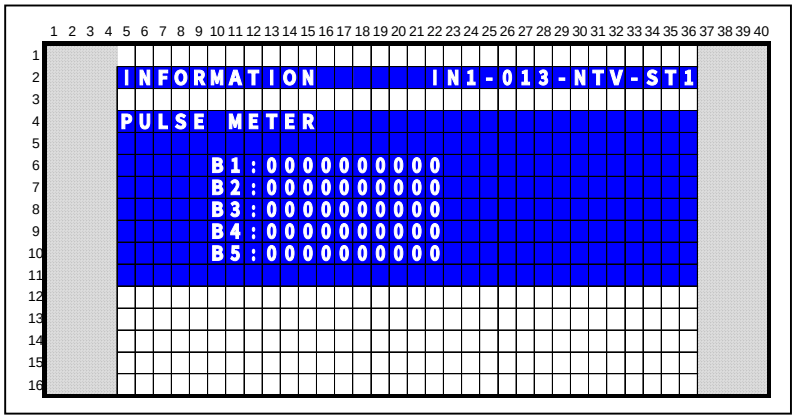
MR HOUR METER

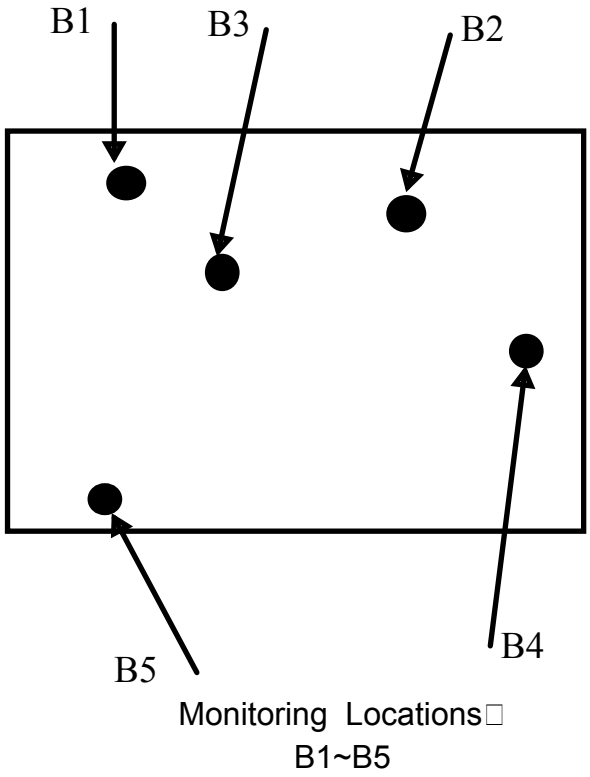


Displays MR accumulated usage hours

PULSE METER

(Sustain pulses)
R+B+G



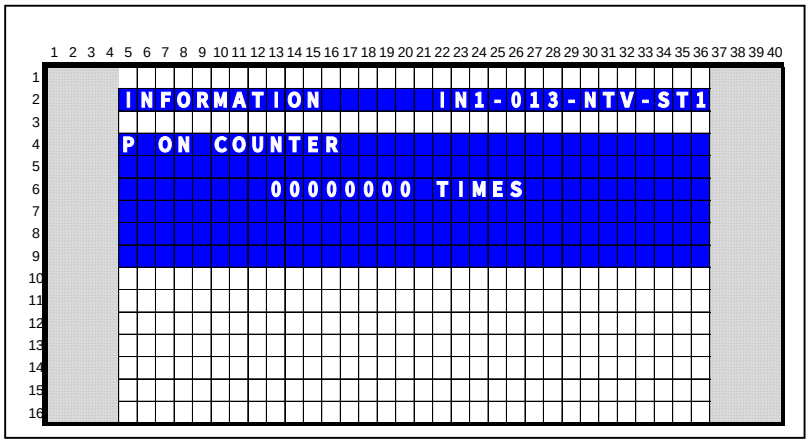


Monitoring Locations
B1~B5

Displays accumulated pulse count

* Refer to panel service manual

P ON COUNTER



Displays accumulated count for panel power on

Backup for PDP Digital assy Adjustment Value

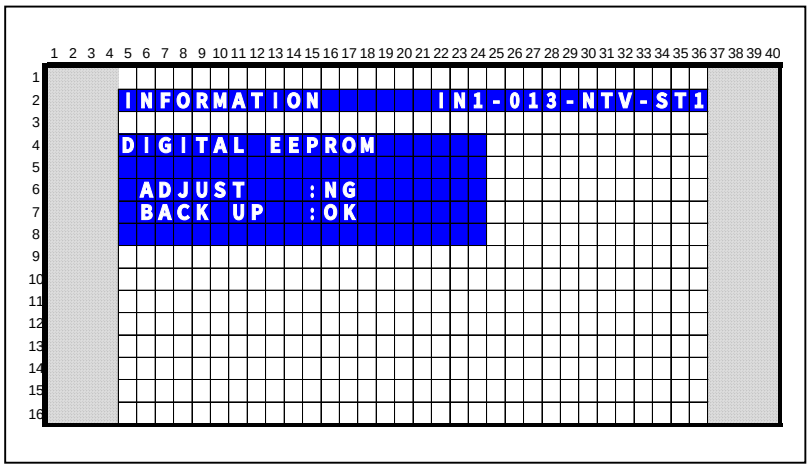
Temporarily saves adjustment value on backup ROM during PDP Digital assy exchange. After exchange, adjustment value is downloaded to new assy.

<Check Condition>

Displays if PDP Digital assy has been adjusted or not(service parts condition).

Displays if adjustment level is left on backup ROM

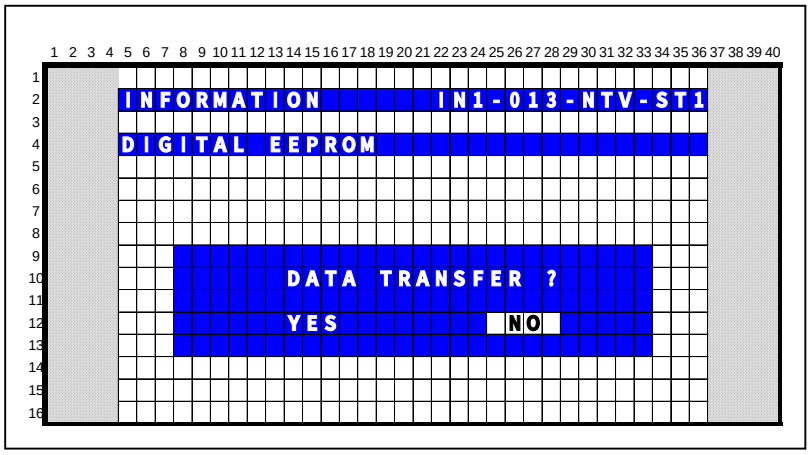
IC4002□
Panel IF Board
8 Pin ROM



<Backup> (during Digital assy exchange)

Press “select” key at above screen to go to below screen.

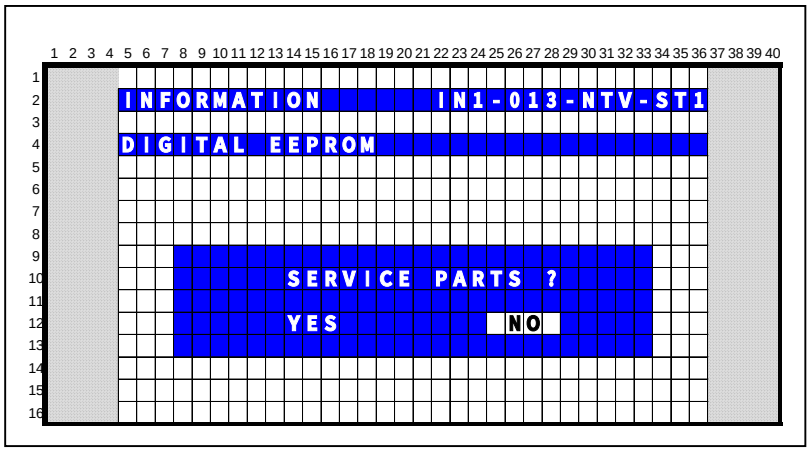
Adjust cursor to YES and press “select” key to download backup ROM data to new assy.



<Download from Backup ROM> (after Digital assy exchange)

Select YES or NO at above screen to go to below screen.

Adjust cursor to YES and press “select” key to download backup ROM data to new assy.



Backup Digital Video Data

Service Mode Information Page	New Digital Video Assembly	Test Part (Digital Video Assembly)	Action
DATA TRANSFER	YES	NO	If “Yes” the Panel IF EEPROM will Restore data To Digital Video Assy
SERVICE PARTS	NO	YES	If” Yes” no automatic backup at power off

Automatic Backup

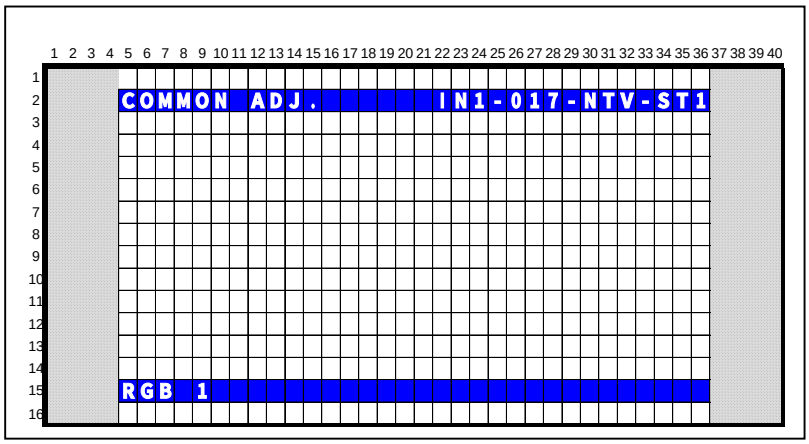
Data backup to the Panel IF board EEPROM is preformed every time The power is turned off (with the standby switch) from the Digital Video Assembly's EEPROM.

Restore Data

New Digital Video Assembly’s arrive with a data Flag bit Preventing automatic backup when going to standby mode. You must set the “Service Parts” to NO and “Data Transfer” To YES.

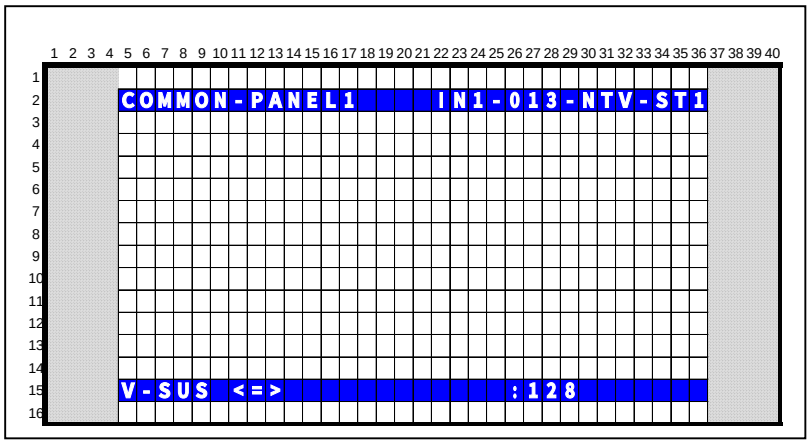
Note: You can test a Used Digital Video Assembly and just turn off the main Power switch or unplug the panel and no backup data will be sent to the Panel IF Board.

COMMON ADJ



No	Function/Display	Remarks
1	PANEL1 (+)	PDP drive related adjustment item
2	PANEL2 (+)	PDP RGB level related adjustment item

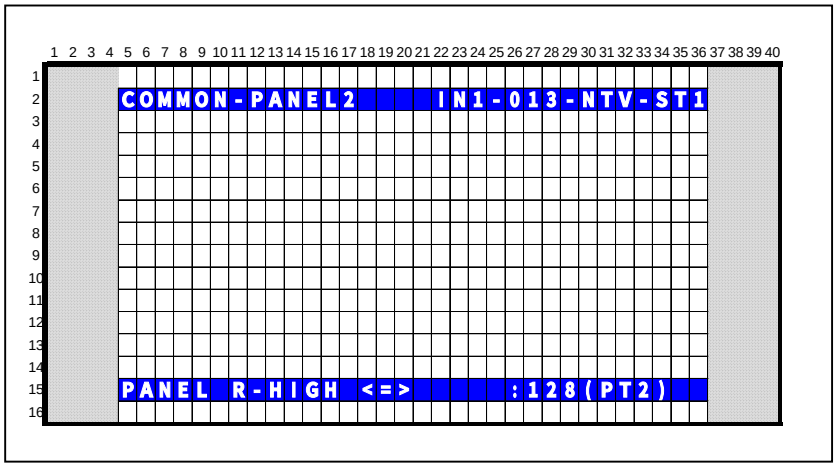
COMMON—PANEL1



No	Function/Display	Remarks	RS232C
1	X-SUS U1 <=> : ***	X SUS-U1 (up) palus adjustment (124-132)	XU1
2	X-SUS U2 <=> : ***	X SUS-U2 (up) palus adjustment (124-132)	XU2
3	X-SUS D1 <=> : ***	X SUS-D1 (down) palus adjustment (124-132)	XD1
4	X-SUS D2 <=> : ***	X SUS-D2 (down) palus adjustment (124-132)	XD2
5	Y-SUS U1 <=> : ***	Y SUS-U1 (down) palus adjustment (124-132)	YU1
6	Y-SUS U2 <=> : ***	Y SUS-U2 (down) palus adjustment (124-132)	YU2
7	Y-SUS D1 <=> : ***	Y SUS-D1 (down) palus adjustment (124-132)	YD1
8	Y-SUS D2 <=> : ***	Y SUS-D2 (down) palus adjustment (124-132)	YD2
9	Y-SUS D3 <=> : ***	Y SUS-D3 (down) palus adjustment (124-132)	YD3
10	Y-SUS D4 <=> : ***	Y SUS-D4 (down) palus adjustment (124-132)	YD4
11	VLT-SUS <=> : ***	V-SUS voltage adjustment (000-255)	VSU
12	VLT-OFS <=> : ***	V-offset voltage adjustment (000-255)	VOF

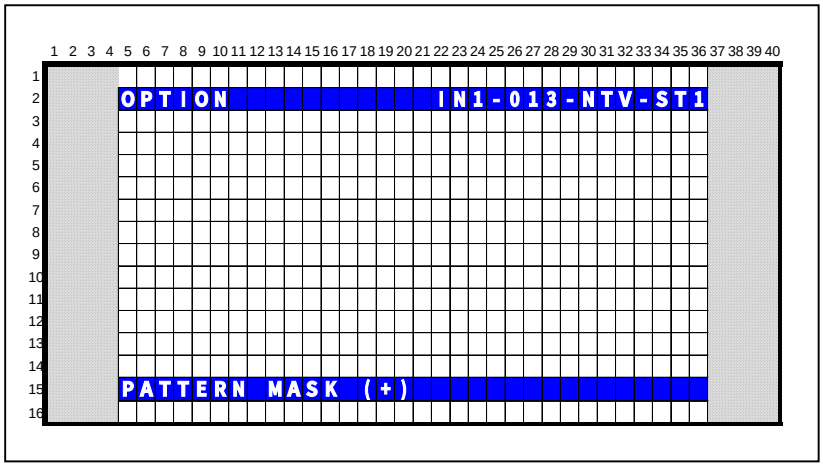
Only □ Adjustments □ needed when □ replacing panel

COMMON－PANEL2

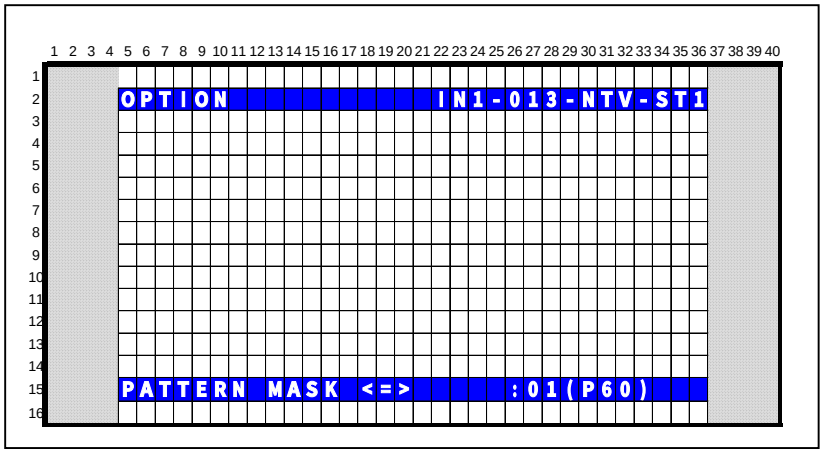


No	Function/Display	Remarks	232C
1	PANEL R HIGH <=> :***(PT○)	Panel W/B R-HIGH adjustment (000-511)	PRH***
2	PANEL G HIGH <=> :***(PT○)	Panel W/B G-HIGH adjustment (000-511)	PGH***
3	PANEL B HIGH <=> :***(PT○)	Panel W/B B-HIGH adjustment (000-511)	PBH***
4	PANEL R HIGH <=> :***(PT○)	Panel W/B R-LOW adjustment (000-999)	PRL***
5	PANEL G HIGH <=> :***(PT○)	Panel W/B R-LOW adjustment (000-999)	PGL***
6	PANEL B HIGH <=> :***(PT○)	Panel W/B R-LOW adjustment (000-999)	PBL***
7	ABL LEVEL <=> :***(AB✕)	Power save adjustment (000-255)	ABL***

OPTION



No	Function/Display	Remarks
1	PATTERN MASK (+)	Select pattern mask for IC4
2	FULL MASK (+)	Select luster mask for IC4



Toggle mask frequency with left/right cursor key (refer to below chart)

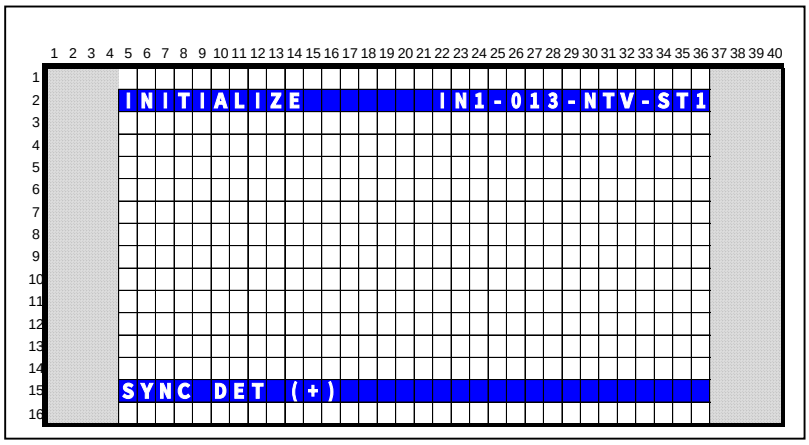
Toggle mask pattern with up/down cursor key

After above operation, mask screen will appear after about 2 seconds.

Frequency Selection during Mask Display

No	Function/Display	Remarks	232C
0	V50	Video50Hz sequence	F50
1	V60(initial value)	Video60Hz sequence	F60
2	P60	PC60Hz sequence	F61
3	P70	PC70Hz sequence	F70
4	V72	Video72Hz sequence	F72
5	V75	Video75Hz sequence	F75

INITIALZE



No	Function/Display	Remarks
1	SYNC DET (+)	IC1/GCR
2	DRIVE MODE (+)	
3	SIDE MASK LEV (+)	(
4	PANEL REVICE (+)	(
5	FINAL SETUP (+)	
6	C TEMP LOW (+)	
7	C TEMP MID LOW (+)	
8	C TEMP STD (+)	
9	C TEMP MID HIGH (+)	
10	C TEMP HIGH (+)	
11	BSD FACTORY (+)	(
12	UART SELECT <=>	1200-232C⇔ ⋯ ⇔38400-232C⇔9600-SR+
13	CVT AUTO <=>	DISABLE⇔ENABLE

Do not adjust

Do not adjust

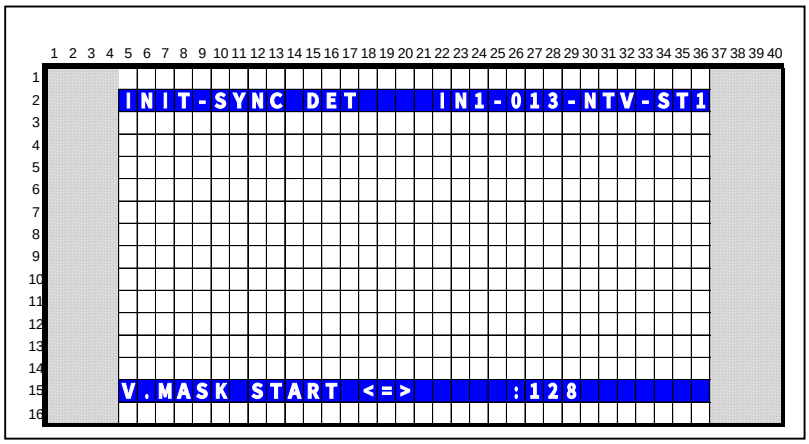
Leave on ENABLE

* If the unit detects trap SW OPEN, press [display] buttom and keep over 3 sec, the memory is clear.

(Close trap switch, go to Initialize mode, press Display button for more than 3 sec.)

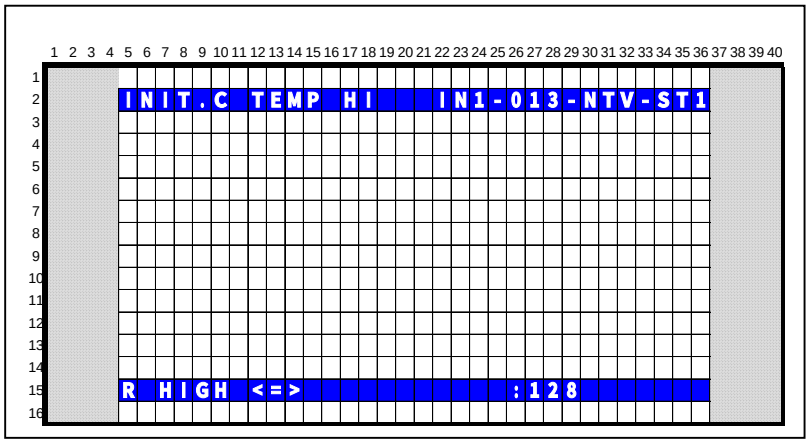
SYNC DET

Setting sync signal detection of the unit.



Technical examination item. Be careful not to change the adjustment value.

C TEMP



No	Function/Display	Remarks
1	R HIGH <=>	
2	G HIGH <=>	
3	B HIGH <=>	
4	R LOW <=>	
5	G LOW <=>	
6	B LOW <=>	
7	COLOR <=>	
6	TINT <=>	

UART Select

Select NO	Function/ Display	Operation/Control	Remarks	232C
1 (Default)	9600-SR+	Set SR+ (9600BPS)		BR0
2	1200-232C	Set RS-232C (1200BPS)		BR1
3	2400-232C	Set RS-232C (2400BPS)	Swtich SR+ connector or RS-232C port	BR2
4	4800-232C	Set RS-232C (4800BPS)		BR3
5	9600-232C	Set RS-232C (9600BPS)		BR4
6	19200-232C	Set RS-232C (19200BPS)		BR5
7	38400-232C	Set RS-232C (38400BPS)		BR6

<Reference> Setting instructions other than Factory mode

During standby, press + or - volume key of the remote control unit for 3-10 seconds.

Within 3 sec, press the 2 screen key of the remote control unit for 3-10 seconds.

After above operation, within 3 sec, set to 232C setting(BAUD RATE is last memory) with SET key of the remote control unit. Then set to SR+ setting with the MENU key.

SIG-MODE Chart

SIG-MODE Display

Display with 3 characters detail of present singal.

The first character: Display resolution of input singal. (Video signal is used tow digit letters and PC singal is used alfavetival letters.)

The second character: Groupping V frequency of input signal.

SIG-：**MODE** chart for Video (Resolution +V frequency)

SIG-MODE	Signa;l	V frequency fv (Hz)	H frequency fh (kHz)
13*	SDTV，525i	60.000	15.750
21*	SDTV，625i	50.000	15.625
33*	SDTV，525p	60.000	31.500
41*	HDTV，1125i	50.000	28.125
43*	HDTV 1080i	60.000	33.750
51*	SDTV，625p	50.000	31.250
61*	HDTV，750p	50.000	37.500
63*		60.000	45.000

SIG-**MODE** chart for PC (Resolution +V frequency)

SIG-MODE	Signal	V frequency fv (Hz)	H frequency fh (kHz)
A2*	720x400	56.000	24.825
A5*		70.087	31.469
A8*		85.050	37.861
B3*	640x480	59.940	31.469
B4*		66.666	35.000
B6*		72.809	37.861
B7*		75.000	37.500
B8*		85.000	43.300
C3*	852x480	60.000	31.680
D2*	800x600	56.250	35.156
D3*		60.317	37.879
D6*		72.188	48.077
D7*		75.000	46.875
D8*		85.061	53.674
E7*	832x624	74.550	49.725
F3*	1024x768	60.004	48.363
F5*		70.069	56.476
F7*		75.029	60.023
F8*		84.997	68.677
G2*	1280x768	56.250	45.113
G3*		59.833	47.986
G5*		70.000	56.137

• RS-232C Commands for the module microcomputer

Command Name			Function	Validity of direct numeric input		
				Validity	Lower limit	Upper limit
1	ABL	ABL ADJUSTMENT	Adjusting the upper limit of the power	❍	0000	255
2	AMN	AUDIO MUTE NO	Turning off the audio muting			
3	AMY	AUDIO MUTE YES	Turning on the audio muting			
4	BAL	BALANCE ADJUSTMENT	Adjusting the audio balance	❍	98	158
5	BAS	BASS ADJUSTMENT	Adjusting the audio bass	❍	121	135
6	BCP	BACKUP COPY	Copying the backup data in the EEPROM			
7	CTM	CLEAR TRAP MEMORY	Clearing the TRAP log that records detection of opening of the rear cover			
8	DRF	DRIVE OFF	Driving off			
9	DRN	DRIVE ON	Driving on			
10	F50	FREQENCY VIDEO 50Hz	Setting the frequency in Mask mode to 50 Hz			
11	F60	FREQENCY VIDEO 60Hz	Setting the frequency in Mask mode to 60 Hz (VIDEO)			
12	F61	FREQENCY PC 60Hz	Setting the frequency in Mask mode to 60 Hz (PC)			
13	F70	FREQENCY PC 70Hz	Setting the frequency in Mask mode to 70 Hz			
14	F72	FREQENCY THEATER 72Hz	Setting the frequency in Mask mode to 72 Hz			
15	F75	FREQENCY 75Hz	Setting the frequency in Mask mode to 75 Hz			
16	FAJ	FINISH ADJUSTMENT	Z-number F003 to 0003			
17	FCN	FOCUS NO	Turning the FOCUS function off			
18	FCY	FOCUS YES	Turning the FOCUS function on			
19	GAJ	GET ADJUSTMENT	Obtaining various adjustment values			
20	GPD	GET POWER-DOWN	Obtaining the power-down-point log			
21	GPW	GET PANEL WHITE BALANCE	Obtaining the panel white-balance adjustment values			
22	GS1	GET STATUS 1	Obtaining information on the unit, such as the software version			
23	GS2	GET STATUS 2	Obtaining information on the status of the unit, such as the temperature			
24	GSD	GET SHUT DOWN	Obtaining information on shutdown			
25	LNN	LOUDNESS NO	Turning the Loudness function off			
26	LNY	LOUDNESS YES	Turning the Loudness function on			
27	M00	MASK MODE 0	Turning the Mask function off			
28	M01	MASK MODE 1	White raster (change in luminance level)			
29	M02	MASK MODE 2	White raster--zigzag, exact reverse--scan--gray--white raster			
30	M03	MASK MODE 3	White raster--zigzag, exact reverse--scan--gray--white raster			
31	M10	MASK MODE 10	H ramp (slant 1)			
32	M11	MASK MODE 11	H ramp (slant 4)			
33	M12	MASK MODE 12	H ramp (slant 1 shifting)			
34	M13	MASK MODE 13	H ramp (slant 4 shifting)			
35	M14	MASK MODE 14	V ramp (slant 1)			
36	M15	MASK MODE 15	Slanting ramp			
37	M20	MASK MODE 20	Window (for WB adjustment, Hi = 870, Lo = 102)			
38	M21	MASK MODE 21	Window (for WB adjustment, Hi = 1023, Lo = 102)			
39	M22	MASK MODE 22	Window (for measuring the peak luminance during WB adjustment, Hi = 1023)			
40	M23	MASK MODE 23	Window (for measuring the peak luminance, Hi = 1023, 4%)			
41	M24	MASK MODE 24	Window (for measuring the peak luminance, Hi = 1023, 1.25%)			
42	M25	MASK MODE 25	Window (vertical line with 1/7-width for measuring the stress)			
43	M26	MASK MODE 26	Window (magenta, green, and stripe for check)			
44	M27	MASK MODE 27	Window (green,magenta, and stripe for checker)			
45	M28	MASK MODE 28	Window (black & white [1 x 8], checker, for EMG check)			
46	M29	MASK MODE 29	Window (for WB adjustment, magenta = 512, yellow = 512)			
47	M2E	MASK MODE 2E	Wiper for erasing afterimage			
48	M2F	MASK MODE 2F	Mask for warning of cable disconnection			
49	M30	MASK MODE 30	ColorBar			
50	M31	MASK MODE 31	Slanted lines (for checking cable disconnection)			
51	M51	MASK MODE 51	Raster-white			
52	M52	MASK MODE 52	Raster-red			
53	M53	MASK MODE 53	Raster-green			
54	M54	MASK MODE 54	Raster-blue			
55	M55	MASK MODE 55	Raster-black			
56	M56	MASK MODE 56	Raster-cyan 1023			
57	M57	MASK MODE 57	Raster-magenta 1023			
58	M58	MASK MODE 58	Raster-yellow 1023			
59	M59	MASK MODE 59	Raster-cyan 274			
60	M60	MASK MODE 60	Raster-flesh color_50			
61	M61	MASK MODE 61	Raster-light purple_50			
62	M62	MASK MODE 62	Raster-sky blue_50			
63	M63	MASK MODE 63	Raster-red 779			
64	M64	MASK MODE 64	Raster-cyan 218			
65	M65	MASK MODE 65	Raster-cyan 448			

Command Name			Function	Validity of direct numeric input		
				Validity	Lower limit	Upper limit
66	M66	MASK MODE 66	Raster-flesh color_43			
67	M67	MASK MODE 67	Raster-red 640			
68	M68	MASK MODE 68	Raster-magenta 98			
69	M69	MASK MODE 69	Raster-sky blue 1_43			
70	M70	MASK MODE 70	Raster-sky blue 2_43			
71	M71	MASK MODE 71	Raster-light purple_43			
72	M72	MASK MODE 72	Raster-blue 60			
73	M73	MASK MODE 73	Raster-gray 512 (reservation)			
74	M74	MASK MODE 74	Raster-gray 512 (reservation)			
75	MG0	MAGNIFY NO	Informing IC4 of "Cube function off"			
76	MG1	MAGNIFY 1	Informing IC4 of "in process of 4-screen Cube operation 1"			
77	MG2	MAGNIFY 2	Informing IC4 of "in process of 4-screen Cube operation 2"			
78	MG3	MAGNIFY 3	Informing IC4 of "in process of 4-screen Cube operation 3"			
79	MG4	MAGNIFY 4	Informing IC4 of "in process of 4-screen Cube operation 4"			
80	MMN	MIRROR MODE NO	Mirror mode off			
81	MMX	MIRROR MODE X	Mirror mode: left-right inversion display			
82	MMY	MIRROR MODE Y	Mirror mode: up-down inversion display			
83	MMZ	MIRROR MODE Z	Mirror mode: left-right and up-down inversion display			
84	MTN	MUTE NO	Canceling panel muting			
85	MTY	MUTE YES	Panel muting			
86	NMN	NEGATIVE MODE NO	Canceling negative-positive inversion display			
87	NMY	NEGATIVE MODE YES	Negative-positive inversion display			
88	PBH	PANEL BLUE HIGH	Panel white-balance adjustment: Blue highlight	❍	000	511
89	PBL	PANEL BLUE LOW	Panel white-balance adjustment: Blue low light	❍	000	999
90	PCN	PC RGB NO	Setting input-signal type to video			
91	PCY	PC RGB YES	Setting input-signal type to PC			
92	PGH	PANEL GREEN HIGH	Panel white-balance adjustment: Green highlight	❍	000	511
93	PGL	PANEL GREEN LOW	Panel white-balance adjustment: Green low light	❍	000	999
94	PLA	BRIGHT ENHANCE A	Center luminance-compensation function on (no correspondence with APL)			
95	PLB	BRIGHT ENHANCE B	Center luminance-compensation function on (in correspondence with APL)			
96	PLN	BRIGHT ENHANCE NO	Center luminance-compensation function off			
97	POF	POWER OFF	Power off			
98	PON	POWER ON	Power on			
99	PRH	PANEL RED HIGH	Panel white balance adjustment-red highlight	❍	000	511
100	PRL	PANEL RED LOW	Panel white-balance adjustment: Red low light	❍	000	999
101	SCN	SYSTEM CABLE NO	Prohibiting monitoring of cable-disconnection detection			
102	SCY	SYSTEM CABLE YES	Permitting monitoring of cable-disconnection detection			
103	SRN	SRS NO	SRS function off			
104	SRY	SRS YES	SRS function on			
105	TBN	TRUBASS NO	TruBass function off			
106	TBY	TRUBASS YES	TruBass function on			
107	TRE	TREBLE ADJUSTMENT	Audio treble adjustment	❍	121	135
108	TSN	TRAP SW NO	Prohibiting detection of opening of the rear case			
109	TSY	TRAP SW YES	Permitting detection of opening of the rear case			
110	UAJ	UN-ADJUSTMENT	Z-number 0003 to F003			
111	VOF	Vofs ADJUSTMENT	Vofs voltage reference-value adjustment	❍	000	255
112	VOL	VOLUME	Audio volume adjustment	❍	000	060
113	VSU	Vsus ADJUSTMENT	Vsus voltage reference-value adjustment	❍	000	255
114	XD1	XSUS-D-1	XSUS-D-1 adjustment	❍	000	255
115	XD2	XSUS-D-2	XSUS-D-2 adjustment	❍	000	255
116	XU1	XSUS-U-1	XSUS-U-1 adjustment	❍	000	255
117	XU2	XSUS-U-2	XSUS-U-2 adjustment	❍	000	255
118	YD1	YSUS-D1-1	YSUS-D1-1 adjustment	❍	000	255
119	YD2	YSUS-D1-2	YSUS-D1-2 adjustment	❍	000	255
120	YD3	YSUS-D2-1	YSUS-D2-1 adjustment	❍	000	255
121	YD4	YSUS-D2-2	YSUS-D2-2 adjustment	❍	000	255
122	YU1	YSUS-U-1	YSUS-U-1 adjustment	❍	000	255
123	YU2	YSUS-U-2	YSUS-U-2 adjustment	❍	000	255

The second No	V frequency	Remarks
_	---	NO SIGNAL
1	5 0	
2	5 6	
3	6 0	
4	6 6	
5	7 0	
6	70 or 75	Distinguish 70Hz and 75Hz
7	7 5	
8	8 5	
9 (reserve)	---	
?	---	OUT OF RANGE

The third charactor: Display a screen size

The third No	GUI (OSD)	VIDEO	PC	Remarks
0	DOT BY DOT	×	○	
1	4:3	○	○	
2	FULL (FULL1)	○	○	
3	ZOOM	○	×	
4	CINEMA	○	×	
5	WIDE	○	×	
6	FULL 14:9	○	×	
7	CINEMA 14:9	○	×	
8	FULL2	○	○	HDTV1035i
9	OVER SCAN	○	×	

Command description

Command	Function
GAJ	Obtaining various adjustment values
GPD	Obtaining power-down-point log
GPW	Obtaining panel white-balance adjustment values
GS1	Obtaining information on the unit, such as the software version
GS2	Obtaining information on the status of the unit
GSD	Obtaining information on shutdown

GAJ: Obtaining data on ABL setting values, electronic-control adjustment values, and drive-system adjustment values

Order	Data	Size	Remarks
1	ABL table currently used	3 bytes	AB1 - AB3
2	Upper limit of power	3 bytes	000 - 255
3	Vsus adjustment value	3 bytes	000 - 255
4	Vofs adjustment value	3 bytes	000 - 255
5	X-SUS-U1 adjustment value (XU1)	3 bytes	000 - 255
6	X-SUS-U2 adjustment value (XU2)	3 bytes	000 - 255
7	X-SUS-D2 adjustment value (XD2)	3 bytes	000 - 255
8	X-SUS-D1 adjustment value (XD1)	3 bytes	000 - 255
9	Y-SUS-U1 adjustment value (YU1)	3 bytes	000 - 255
10	Y-SUS-U2 adjustment value (YU2)	3 bytes	000 - 255
11	Y-SUS-D1-2 adjustment value (YD2)	3 bytes	000 - 255
12	Y-SUS-D1-1 adjustment value (YD1)	3 bytes	000 - 255
13	Y-SUS-D2-2 adjustment value (YD4)	3 bytes	000 - 255
14	Y-SUS-D2-1 adjustment value (YD3)	3 bytes	000 - 255

Note: Ignore the 2-byte checksum at the end.

GPD: Obtaining power-down-point log on the panel

Order	Data	Size	Remarks
1	Latest "1st PD" data	1 byte	0-C or F
2	Latest "2nd PD" data	1 byte	0-C or F
3	Data of hour meter for the latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
4	Data on temperature for the latest PD (TEMP1)	3 bytes	000 - 255
5	Second latest "1st PD" data	1 byte	0-C or F
6	Second latest "2nd PD" data	1 byte	0-C or F
7	Data of hour meter for the second latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
8	Data on temperature for the second latest PD (TEMP1)	3 bytes	000 - 255
9	Third latest "1st PD" data	1 byte	0-C or F
10	Third latest "2nd PD" data	1 byte	0-C or F
11	Data of hour meter for the third latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
12	Data on temperature for the third latest PD (TEMP1)	3 bytes	000 - 255
13	Fourth latest "1st PD" data	1 byte	0-C or F
14	Fourth latest "2nd PD" data	1 byte	0-C or F
15	Data of hour meter for the fourth latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
16	Data on temperature for the fourth latest PD (TEMP1)	3 bytes	000 - 255
17	Fifth latest "1st PD" data	1 byte	0-C or F
18	Fifth latest "2nd PD" data	1 byte	0-C or F
19	Data of hour meter for the fifth latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
20	Data on temperature for the fifth latest PD (TEMP1)	3 bytes	000 - 255
21	Sixth latest "1st PD" data	1 byte	0-C or F
22	Sixth latest "2nd PD" data	1 byte	0-C or F
23	Data of hour meter for the sixth latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
24	Data on temperature for the sixth latest PD (TEMP1)	3 bytes	000 - 255
25	Seventh latest "1st PD" data	1 byte	0-C or F
26	Seventh latest "2nd PD" data	1 byte	0-C or F
27	Data of hour meter for the seventh latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
28	Data on temperature for the seventh latest PD (TEMP1)	3 bytes	000 - 255
29	Eighth latest "1st PD" data	1 byte	0-C or F
30	Eighth latest "2nd PD" data	1 byte	0-C or F
31	Data of hour meter for the eighth latest PD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
31	Data on temperature for the eighth latest PD (TEMP1)	3 bytes	000 - 255

Notes: • Ignore the 2-byte checksum at the end. • For details, see "Description on power-down."

• Description on power-down

Data	Power-down Point
0	No power-down
1	Not used (for MR-POWER)
2	Panel-POWER SUPPLY
3	SCAN
4	SCN-5V
5	Y-DRIVE
6	Y-DCDC
7	Y-SUS
8	ADR
9	X-DRIVE
A	X-DCDC
B	X-SUS
C	DIG-DCDC
D	Reservation
E	Reservation
F	Power-down point unidentified

GPW: Obtaining panel white-balance adjustment values

Order	Data	Size	Remarks
1	W/B table currently used	3 bytes	PT1 - PT3
2	Main contrast	4 bytes	0000 - 0511
3	Red contrast of W/B adjustment value	4 bytes	0000 - 0511
4	Green contrast of W/B adjustment value	4 bytes	0000 - 0511
5	Blue contrast of W/B adjustment value	4 bytes	0000 - 0511
6	Main brightness	4 bytes	0000 - 1023
7	Red brightness of W/B adjustment value	4 bytes	0000 - 1023
8	Green brightness of W/B adjustment value	4 bytes	0000 - 1023
9	Blue brightness of W/B adjustment value	4 bytes	0000 - 1023

Note: Ignore the 2-byte checksum at the end.

GS1: Obtaining information on the unit, such as the software version

Order	Data	Size
1	Display data	3 bytes
2	Version of the module microcomputer	4 bytes
3	IC4-MANTA version	4 bytes
4	Sequence version (43VIDEO)	4 bytes
5	Sequence version (43PC)	4 bytes
6	Sequence version (50VIDEO)	4 bytes
7	Sequence version (50PC)	4 bytes
8	Version of the IF microcomputer	4 bytes
9	Version of the main microcomputer	4 bytes
10	IC3-MANTA version	4 bytes
11	Version of the OSD	4 bytes
12	Version of the DTV microcomputer	4 bytes
13	Version of the CC microcomputer	4 bytes
14	Version of the TEXT microcomputer	4 bytes

Note: Ignore the 2-byte checksum at the end.

(Reference) GS2: Obtaining information on the status of the unit

Order	Data	Size	Remarks
1	Notifying that the unit is shifting to Standby mode	1 byte	1: OK for shifting to Standby
2	Whether or not the main unit has been adjusted	1 byte	0: Adjusted, 1: Not adjusted
3	With/without backup for adjustment values	1 byte	0: With backup, 1: Without backup
4	Data on power-down	2 bytes	1st byte: 1stPD, 2nd byte: 2ndPD
5	Data on temperature (TEMP1)	3 bytes	0: Normal, 1: SD process completed, 2: In the process of SD warning
6	Abnormality in RST2 (power decrease of DC-DC converter)	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
7	IC4 communication failure	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
8	EEPROM communication failure	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
9	Audio failure	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
10	Volume IC communication failure	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
11	Backup ROM communication failure	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
12	Data on temperature (TEMP1) not obtained	1 byte	0: Normal, 1: SD process completed, 2: In the process of SD warning
13	Operational status of panel protection mechanism	1 byte	0: Protection mechanism not activated, 1: Protection mechanism activated
14	Reservation	9 bytes	*********
15	Hour meter	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute

Notes: • Ignore the 2-byte checksum at the end.
• The data expected to be used for service may be "5. Data on temperature" and "15. Hour meter".

GSD: Obtaining information on shutdown

Order	Data	Size	Remarks
1	Latest SD data	1 byte	0 - 5
2	Latest SD subcategory data	1 byte	0 - 2
3	Data of hour meter for the latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
4	Data on temperature for the latest SD (TEMP1)	3 bytes	000 - 255
5	Second latest SD data	1 byte	0 - 5
6	Second latest SD subcategory data	1 byte	0 - 2
7	Data of hour meter for the second latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
8	Data on temperature for the second latest SD (TEMP1)	3 bytes	000 - 255
9	Third latest SD data	1 byte	0 - 5
10	Third latest SD subcategory data	1 byte	0 - 2
11	Data of hour meter for the third latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
12	Data on temperature for the third latest SD (TEMP1)	3 bytes	000 - 255
13	Fourth latest SD data	1 byte	0 - 5
14	Fourth latest SD subcategory data	1 byte	0 - 2
15	Data of hour meter for the fourth latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
16	Data on temperature for the fourth latest SD (TEMP1)	3 bytes	000 - 255
17	Fifth latest SD data	1 byte	0 - 5
18	Fifth latest SD subcategory data	1 byte	0 - 2
19	Data of hour meter for the fifth latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
20	Data on temperature for the fifth latest SD (TEMP1)	3 bytes	000 - 255
21	Sixth latest SD data	1 byte	0 - 5
22	Sixth latest SD subcategory data	1 byte	0 - 2
23	Data of hour meter for the sixth latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
24	Data on temperature for the sixth latest SD (TEMP1)	3 bytes	000 - 255
25	Seventh latest SD data	1 byte	0 - 5
26	Seventh latest SD subcategory data	1 byte	0 - 2
27	Data of hour meter for the seventh latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
28	Data on temperature for the seventh latest SD (TEMP1)	3 bytes	000 - 255
29	Eighth latest SD data	1 byte	0 - 5
30	Eighth latest SD subcategory data	1 byte	0 - 2
31	Data of hour meter for the eighth latest SD	7 bytes	1st-5th byte: Hour, 6th-7th byte: Minute
32	Data on temperature for the eighth latest SD (TEMP1)	3 bytes	000 - 255

Notes: • Ignore the 2-byte checksum at the end.
• For details, see "Description on shutdown".

• Description of shutdown

Data	Factors of shutdown
0	No abnormality
1	IC4
2	Module microcomputer IIC
3	Abnormality in RST2 (power decrease of DC-DC converter)
4	Panel having high temperature
5	Audio failure (speakers short-circuited)
6	Reservation
7	Reservation
8	Reservation
9	Reservation
A	Reservation
B	Reservation
C	Reservation
D	Reservation
E	Reservation
F	Reservation

• Module microcomputer IIC: Data on SD subcategory

Data	Factors of shutdown
0	No subcategory
1	EEPROM (DIGITAL VIDEO Assy : IC5206)
2	EEPROM (PANEL IF Assy : IC4002)
3	Volume IC
4	Reservation
5	Reservation
6	Reservation
7	Reservation
8	Reservation
9	Reservation
A	Reservation
B	Reservation
C	Reservation
D	Reservation
E	Reservation
F	Reservation

GNG: Obtaining information on Power down / shut down in MR

Order	Data	Size
1	Latest PD / SD data	1byte
2	Latest SD subcategory data	1byte
3	Data of hour meter for the latest PD / SD	7bytes
4	Data of hour meter for the latest PD / SD	3bytes
5	Second latest PD / SD data	1byte
6	Second latest subcategory data	1byte
7	Data of hour meter for the second latest PD /SD	7bytes
8	Data of hour meter for the second latest PD /SD (TEMP2)	3bytes
9	Third latest PD / SD data	1byte
10	Third subcategory data	1byte
11	Data of hour meter for the the third latest PD / SD	7bytes
12	Data of hour meter for the third latest PD / SD (TEMP2)	3bytes
13	Fourth latest PD / SD data	1byte
14	Fourth subcategory data	1byte
15	Data of hour meter for the forth latest PD / SD	7bytes
16	Data of hour meter for the forth latest PD / SD (TEMP2)	3bytes

Order	Data	Size
17	The forth latest PD / SD data	1byte
18	The forth latest subcategory data	1byte
19	Data of hour meter for the forth latest PD / SD	7bytes
20	Data of hour meter for the forth latest PD / SD	3bytes
21	Sixth latest PD / SD data	1byte
22	Sixth latest subcategory data	1byte
23	Data of hour meter for the sixth latest PD / SD	7bytes
24	Data of hour meter for the sixth latest PD / SD (TEMP2)	3bytes
25	Seventh latest PD / SD data	1byte
26	Seventh subcategory data	1byte
27	Data of hour meter for the seventh latest PD / SD	7bytes
28	Data of hour meter for the seventh latest PD / SD (TEMP2)	3bytes
29	Eighth latest PD / SD data	1byte
30	Eighth subcategory data	1byte
31	Data of hour meter for the eighth latest PD / SD	7bytes
32	Data of hour meter for the eighth latest PD / SD (TEMP2)	3bytes

Description of shutdown

Data	Factors of shutdown
0	No abnormality
1	Power Supply Assy PD in MR
2	Communication failure of Module Ucm
3	Main 3-wire serial communication in failure
4	Communication failure of Main Ucom IIC line
5	Communication failure of Main IIC
6	MR having higher temperature
7	FAN stop
8	Communication failure of DTV unit
9	MR ASIC Power (DCDC) in failure

Main 3-wire serial communication: SD subcategory

Data	Factors of shutdown
0	No subcategory
1	Communication failure in UIF Ucom (IC8702)
2	Communication failure inIC2 (IC7004)
3	Communication failure in IC3 (IC7101)

Main Ucon IIC: Data on SD subcategory

Data	Factors of shudown
0	No subcategory
1	EEPROM(128k)
2	None
3	IC1 main (IC6107)
4	IC1 sub (IC6255)
5	AD-PLL Main (IC6402)
6	AD-PLL sub (IC6602)
7	IC6
8	HDMI 1
9	HDMI 2
A	7-3VIDEO SW (IC8002)
B	6-2RGB SW (IC8005)
C	Frontend 1
D	Frontend 2
E	CC Ucom
F	Reservation
G	Reservation
H	Reservation

Canceling detection by the TRAP switch

Outline: For video data transmission from the Media Receiver to the plasma display, digital signals are used. Therefore, this unit adopts the HDCP (High-bandwidth Digital Content Protection) system for copyright protection. This unit is also provided with a detection switch (TRAP switch) that will prohibit the unit from being turned on again if the rear case of the unit is opened, in order to prevent the panel technology from being leaked out.

Function: To deactivate the detection of the TRAP switch

Purposes: 1. During production of this unit, adjusting with the rear cover opened is possible.
2. During servicing or repairing, diagnoses of the assemblies are possible while the power is on.

Methods: For setting, use RS232C commands:
TSN: Ignore the monitoring of the switch
CTM: Clear the detection log of the switch
TSY: Reactivate monitoring of the switch

Notes:

- The TRAP switch is located on the chassis (see Fig. below).
- Once rear case opening is detected, send the TSN and CTM commands.
- Because the TSN command is not stored in memory, monitoring of the switch can be reactivated by turning the unit off then back on.
- The same setting is possible using the Factory menu.
- Because the output of the DVI receiver is controlled by the physical setting of the TRAP switch, if the TRAP switch is set to OPEN, the DVI signal cannot be output even if the TSN command is sent.
- When the Media Receiver is connected, detection by the TRAP switch can be canceled by entering Factory mode.

● How to enter Factory mode using the remote control unit

Press the OSD key, and after waiting for 3-10 seconds, press on the left side, then the upper side, the left side, then the right side of the cross key, in that order. Then, press the POWER key.

● How to clear the detection log of the TRAP switch

In the INITIALIZE layer, hold the OSD key on the remote control unit pressed for at least 3 seconds.

● After a power-down, to cancel detection of the TRAP switch using only the remote control unit, follow the procedures below.

First, fix the TRAP switch to its depressed position. After setting the drive ON/OFF switch in the DIGITAL VIDEO Assy to OFF, press the OSD key. After waiting 3-10 seconds, press on the left side, then the upper side, the left side, then the right side of the cross key, in that order. Then, press the POWER key. Press the MUTE key five times, then hold the OSD key pressed for at least 3 seconds. Set the AC switch on the panel to OFF. The log is also cleared. Then set the drive ON/OFF switch to ON.

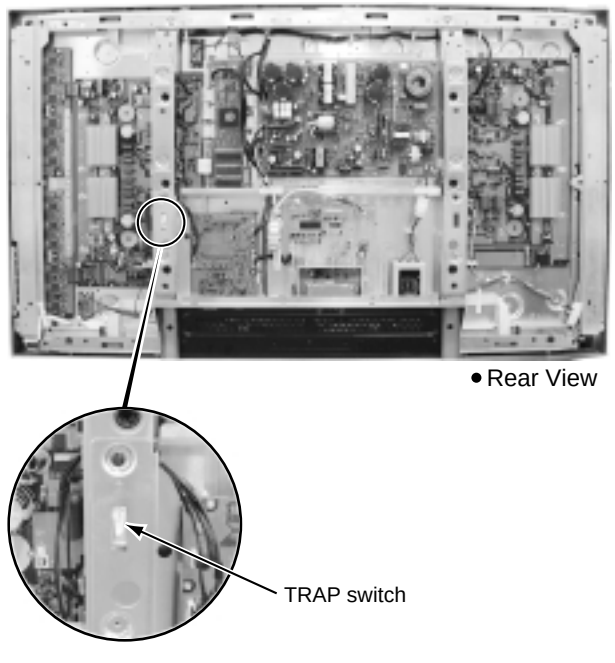


Fig. TRAP switch

BACKING UP THE ADJUSTMENT VALUES FOR THE MAIN UNIT

Outline

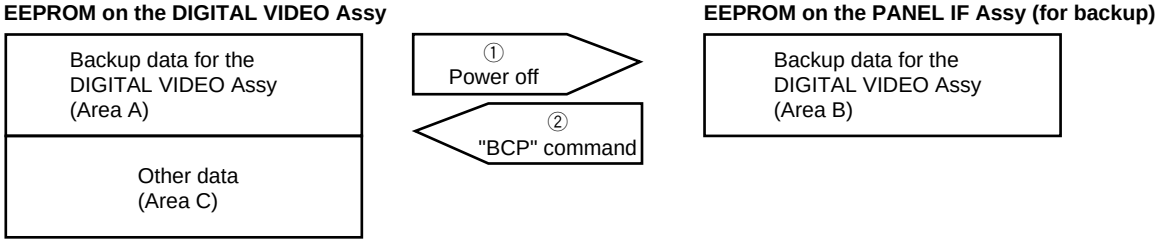
The data on the adjustment values for the main unit are stored in an EEPROM (IC5206, 4 kbits) on the DIGITAL VIDEO Assy. Part of the data (area A in the figure below) are automatically copied to an EEPROM (IC4002, 2 kbits) mounted on the PANEL IF Assy for backup. When the DIGITAL VIDEO Assy is replaced, the backup data on the adjustment values for the main unit stored in the PANEL IF Assy can be copied to the new DIGITAL VIDEO Assy, thus enabling you to omit newly performing adjustments on the main unit. The logs for the product (power-down log, etc.) can also be copied.

Data to be backed up in the digital EEPROM (area A)

- Margin adjustment values (Vsus, Vofset)
- Power upper-limit adjustment value (ABL)
- PANEL white-balance adjustment values
  (PANEL-R HIGH, PANEL-G HIGH, PANEL-B HIGH, PANEL-R LOW, PANEL-G LOW, PANEL-B LOW)
- Drive waveform adjustment values
  (X-SUS-U1, X-SUS-U2, X-SUS-D1, X-SUS-D2, Y-SUS-U1, Y-SUS-U2, Y-SUS-D1, Y-SUS-D2, Y-SUS-D3, Y-SUS-D4)
- Hour meter
- Pulse meter
- Number of times the power has been turned on
- PD/SD logs

Basic flow of automatic backup

Using a keyword, the data in areas A and B are judged as to whether they have been adjusted or not, then copying is performed.

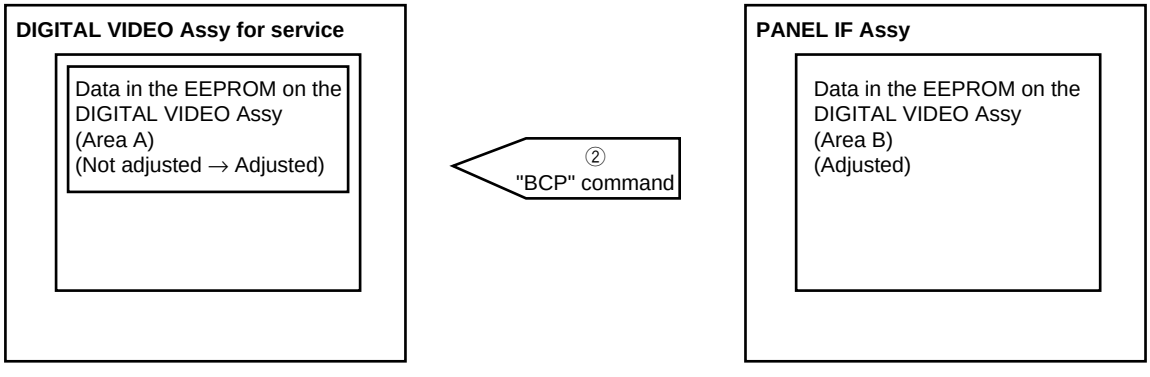


① The keyword on the DIGITAL VIDEO Assy is checked when the power is turned off, and if it is "adjusted", automatic backup is performed.
② If the keyword on the PANEL IF Assy (Area B) is "adjusted," copying can be performed with the "BCP" RS232C command.

Actual automatic backup operations

1. When the DIGITAL VIDEO Assy is replaced with an Assy for service

Changing of keywords is not required. Replace the DIGITAL VIDEO Assy with an Assy for service, and send the "BCP" RS232C command. Thus, the backup data in the EEPROM on the PANEL IF Assy are copied to the EEPROM on the DIGITAL VIDEO Assy for service.



2. When a repaired DIGITAL VIDEO Assy is mounted on another unit (reuse of the repaired DIGITAL VIDEO Assy)

The keyword of the DIGITAL VIDEO Assy to be reused must be changed to "not adjusted" using the "UAJ" RS232C command.

Note 1: If a repaired DIGITAL VIDEO Assy is mounted in another unit (Unit 2) without this change of keyword, and the power to the unit 2 is turned off, the data in force before the repair of the DIGITAL VIDEO Assy will be copied to Area B of the PANEL IF Assy of Unit 2, overwriting the data necessary for Unit 2. Once overwritten, the original data will not be restored.

3. When a repaired DIGITAL VIDEO Assy is mounted on the original unit (reuse of the repaired DIGITAL VIDEO Assy)
Changing of keywords is not required. After the repaired DIGITAL VIDEO Assy is mounted in the original unit, the unit can operate with its latest adjustment values.

4. When both the DIGITAL VIDEO Assy and PANEL IF Assy are simultaneously replaced with other assemblies
The automatic backup function of this unit will not work properly.

Note 2: Readjustment of the main unit is required.
Note 3: After readjustment of the main unit, send the "FAJ" RS232C command to change the keyword of the DIGITAL VIDEO Assy to "adjusted." Thus, when the unit is turned off, automatic backup of adjustment data is performed properly.
Note 4: If readjustment of the main unit is totally impossible, it can be omitted by installing the EEPROM (IC5206, 4 kbits) originally mounted on the DIGITAL VIDEO Assy for service.

Miscellaneous

If the white balance (W/B) value is largely shifted because of aging, etc., W/B adjustment is required. (As this may be a rare case, the adjustment procedures are described below, just for your reference.

[W/B-adjustment procedures]

The W/B adjustment can be performed with the RS232C commands with the Media Receiver not connected to this unit. The GGF1475 special communication tool and a Minolta CA-100 color difference meter are required.

① Enter Operation-without-the-Media-Receiver mode with the "SCN" RS232C command.

② Set the keyword for the DIGITAL VIDEO Assy to "not adjusted" with the "UAJ" RS232C command.

③ Obtain the current adjustment values in the two adjustment tables (see "6.2.1 RS232C commands").
- Shifting to Table 1: Send the "M51" and "F60" commands. Obtaining the adjustment values: Send the "GPW" command.
- Shifting to Table 2: Send the "M51" and "F75" commands. Obtaining the adjustment values: Send the "GPW" command.

④ Make settings for various functions.
Send the "PPN," "SDN," "SPN," and "WAY" commands.
Note: After adjustment, when the POWER switch is set to OFF, these settings will be reset to the initial values.

⑤ For each table, set the brightness.
- Adjustment in Table 1: After sending the "F60" command, perform adjustment.
- Adjustment in Table 2: After sending the "F75" command, perform adjustment.

For each table, change the RGB parameters so that the values measured using a Minolta color difference meter (CA-100) become as indicated below. In this case, any one of PRH, PGH, or PBH must be set to 256.

	Left side of Mask H	Right side of Mask H
x	–	284
y	–	292

"PRH***" : 0 - 511
"PGH***" : 0 - 511
"PBH***" : 0 - 511

⑥ Check after adjustment
- Shifting to Table 1: Send the "F60" command. Obtaining the adjustment values: Send the "GPW" command.
- Shifting to Table 2: Send the "F75" command. Obtaining the adjustment values: Send the "GPW" command.

Check that the adjustment data have been changed.

⑦ Change the keyword for the DIGITAL VIDEO Assy to "adjusted" by sending the "FAJ" RS232C command.

Note: Use a Minolta CA-100 color difference meter or the equivalent for measurement. Otherwise, the specifications of the product cannot be assured.