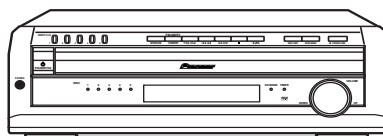


Service Manual



XV-HTD640

ORDER NO.
RRV2930

DVD/CD RECEIVER

XV-HTD640

XV-DV9

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

Model	Type	Power Requirement	Region No.	Remarks
XV-HTD640	KUCXJ	AC120V	1	
XV-DV9	DLXJ/NC	AC120-127/220-230/240V	3	
XV-DV9	DPWXJ	AC120-127/220-230/240V	4	



For details, refer to "Important symbols for good services" .

1234

SAFETY INFORMATION

A



This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

B

WARNING

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

Health & Safety Code Section 25249.6 – Proposition 65

C

NOTICE

(FOR CANADIAN MODEL ONLY)

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

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

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

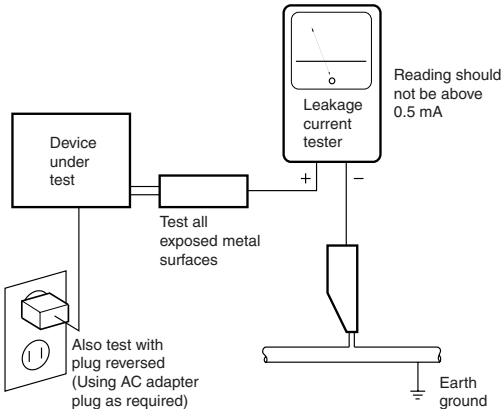
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

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



AC Leakage Test

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

2. PRODUCT SAFETY NOTICE

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

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

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

[Important symbols for good services]

In this manual, the symbols shown-below indicate that adjustments, settings or cleaning should be made securely. When you find the procedures bearing any of the symbols, be sure to fulfill them:

1. Product safety



You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.

2. Adjustments



To keep the original performances of the product, optimum adjustments or specification confirmation is indispensable. In accordance with the procedures or instructions described in this manual, adjustments should be performed.

3. Cleaning



For optical pickups, tape-deck heads, lenses and mirrors used in projection monitors, and other parts requiring cleaning, proper cleaning should be performed to restore their performances.

4. Shipping mode and shipping screws



To protect the product from damages or failures that may be caused during transit, the shipping mode should be set or the shipping screws should be installed before shipping out in accordance with this manual, if necessary.

5. Lubricants, glues, and replacement parts



Appropriately applying grease or glue can maintain the product performances. But improper lubrication or applying glue may lead to failures or troubles in the product. By following the instructions in this manual, be sure to apply the prescribed grease or glue to proper portions by the appropriate amount. For replacement parts or tools, the prescribed ones should be used.

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1. SPECIFICATIONS

Specifications

Amplifier Section

Continuous Power Output (RMS):
 Front,center,surround100 W per channel
 (1 kHz,10 %T.H.D.,6 Ω)
 Subwoofer100 W (100 Hz,10 %T.H.D.,6 Ω)

Disc section

Digital audio
 characteristics DVD fs:96 kHz,24-bit
 TypeDVD system,video CD system and
 compact disc digital audio system
 Frequency response 4 Hz to 44 kHz
 Wow and Flutter Limit of measurement
 (± 0.001 %W.PEAK)or less (EIAJ)

Tuner Section

FM tuner section

Frequency range..... 87.5 to 108 MHz
 Antenna..... 75 Ω,unbalanced

AM tuner section

Frequency range
 With 9 kHz step..... 531 kHz to 1,602 kHz
 With 10 kHz step..... 530 kHz to 1,700 kHz
 (Not applicable to the Saudi Arabian model)
 Antenna..... Loop antenna

Note:

- Specifications and design subject to possible modification without notice, due improvements.

Miscellaneous

Power Supply Section (XV-HTD640/KUCXJ)
 AC 120 V,60 Hz
 Power requirements. AC 120-127/220-230/
 (XV-DV9) 240 V (Switchable), 50/60 Hz
 Power consumption
 180 W
 Power consumption in standby
 0.5 W
 Dimensions ... 420 (W)x 126 (H)x 445 (D)mm/
 16-9/16 (W)x 4-15/16 (H)x 17-5/8 (D)in.
 Weight 9.8 kg/21 lb 10 oz

Accessories (DVD/CD receiver)

Remote control Unit 1
 AA/R6P dry cell batteries 2
 AM loop antenna 1
 FM antenna 1
 Video cord (yellow plugs) 1
 Mini jack cable 1
 Power cord 1

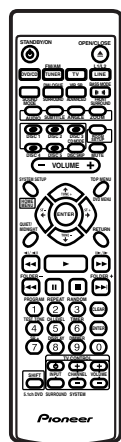
These operating instructions1
 Warranty Card (Noth America and Australian model only)... 1

* Manufactured under license from
 Dolby Laboratories. "Dolby", "Pro
 Logic", and the double-D symbol are
 trademarks of Dolby Laboratories.

** "DTS" and "DTS Digital Surround"
 are registered trademarks of Digital
 Theater Systems, Inc.

Accessories

- Remote Control Unit x 1
 (XXD3081)



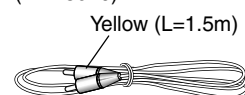
- FM Antenna x 1
 (ADH7030)



- AM Loop Antenna x 1
 (ATB7013)



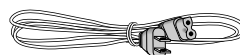
- Video Cord x 1
 (XDE3046)



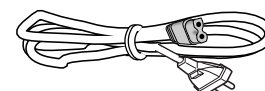
- AA/R6P Dry Cell
 Batteries x 2



- Power Cord x 1
 (XV-HTD640 : ADG7021)



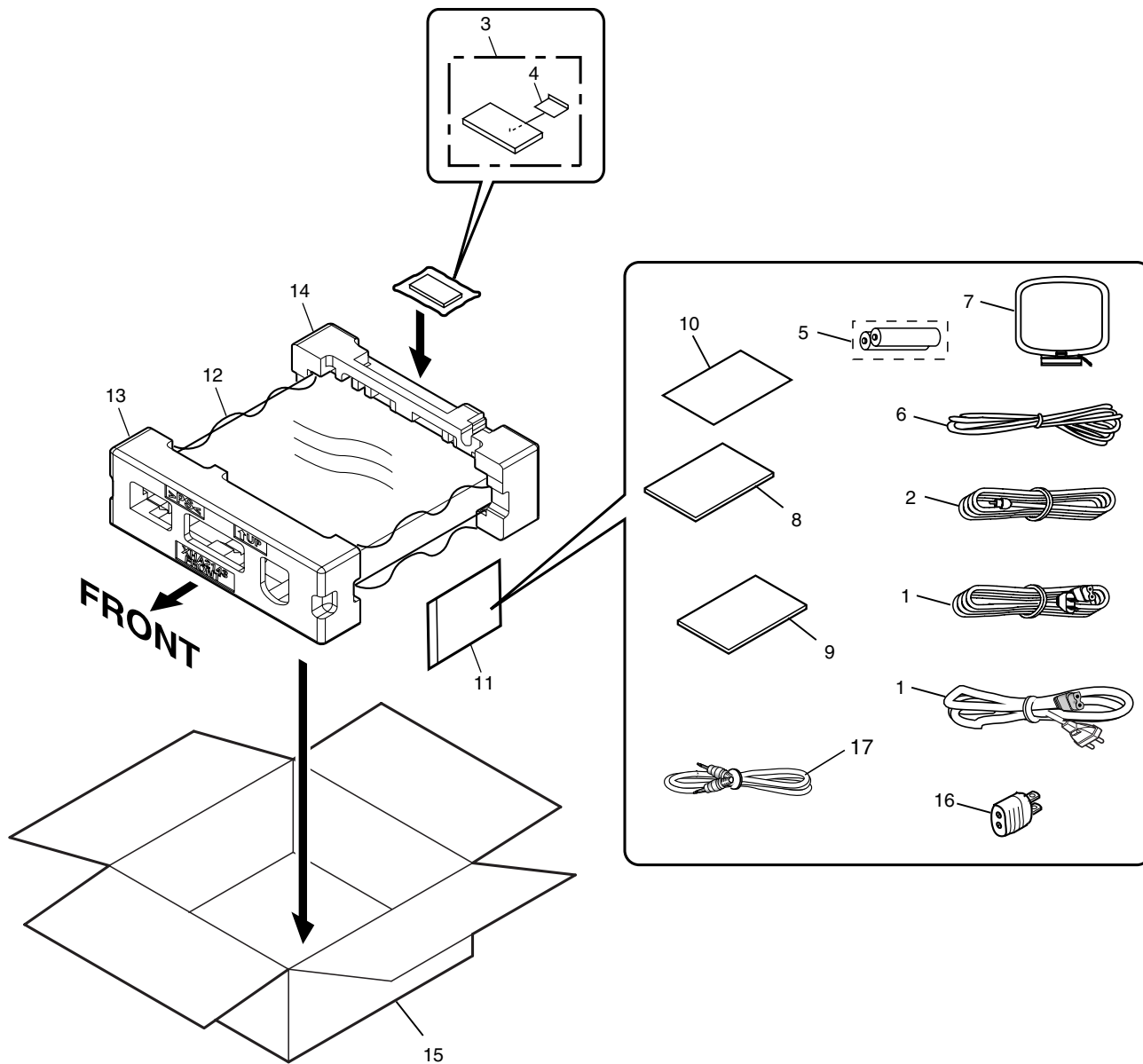
- Power Cord x 1
 (XV-DV9 : ADG1154)
 (XV-DV9 : ADG7099)



2. EXPLODED VIEWS AND PARTS LIST

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

2.1 PACKING



PACKING parts List

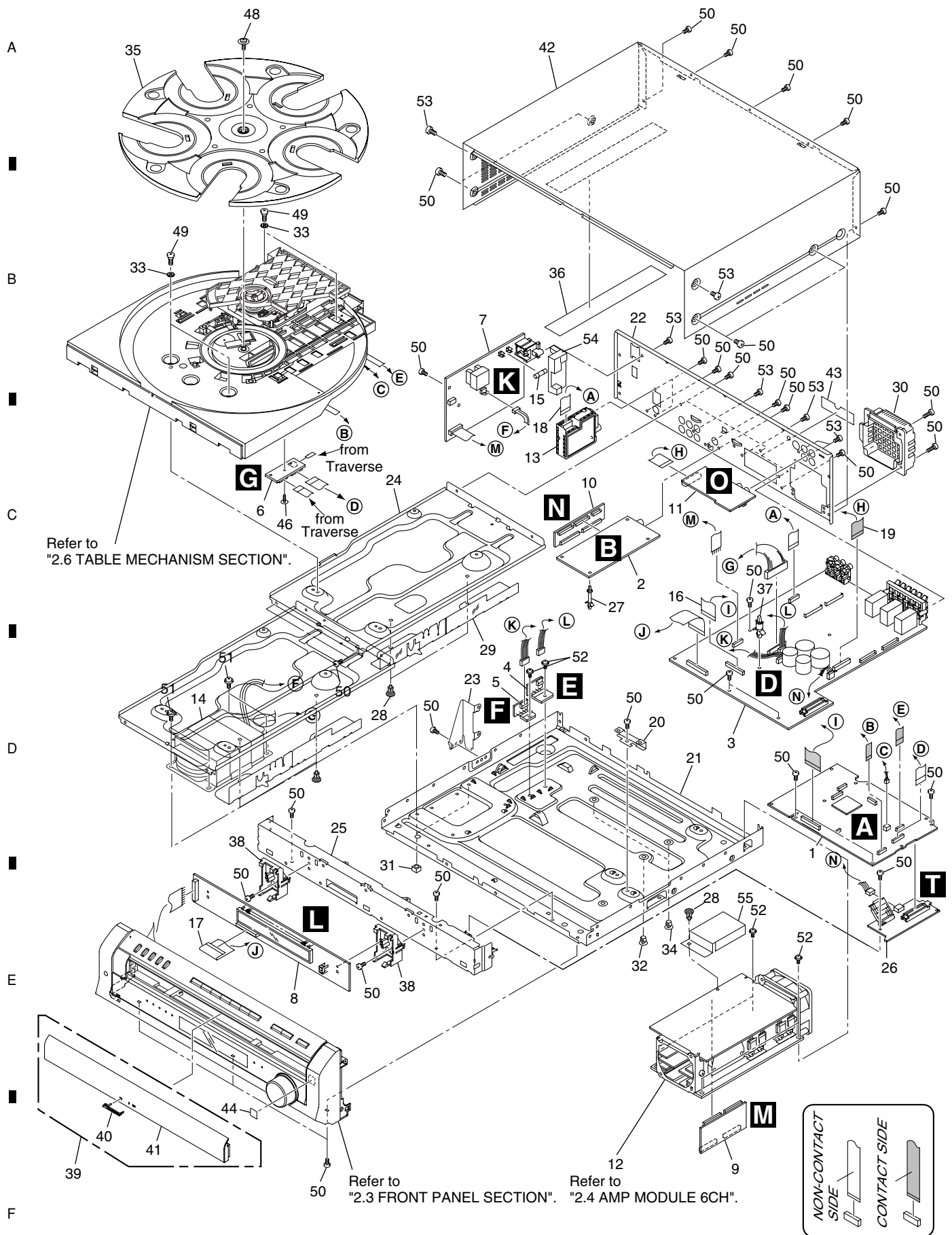
Mark No.	Description	Part No.	Mark No.	Description	Part No.
⚠ 1	Power Cord	See Contrast table(2)	NSP 10	Warranty Card	See Contrast table(2)
2	Video Cord (L = 1.5m)	XDE3046	NSP 11	Polyethylene Bag (0.03 x 230 x 340)	Z21-038
3	Remote Control Unit	XXD3080	12	Packing Sheet	AHG7010
4	Battery Cover	AZN7933	13	Front Pad (PS)	XHA3143
NSP 5	Dry Cell Battery (R6P, AA)	VEM1031	14	Rear Pad (PS)	XHA3144
6	FM Antenna Assy	ADH7030	15	Packing Case (PAP)	See Contrast table(2)
7	AM Loop Antenna Assy	ATB7013	16	Power Plug adapter	See Contrast table(2)
8	Operating Instructions	See Contrast table(2)	17	Mini Jack Cable(4P)	ADE7095
9	Operating Instructions	See Contrast table(2)			

(2) CONTRAST TABLE

XV-DV9/DLXJ/NC, DPWXJ and XV-HTD640/KUCXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		
			XV-HTD640 /KUCXJ	XV-DV9 /DLXJ/NC	XV-DV9 /DPWXJ
⚠	1	AC Power Cord	ADG7021	ADG1154	ADG7099
	8	Operating Instructions	XRB3034 (English)	XRB3035 (English)	XRB3035 (English)
	9	Operating Instructions	XRC3127 (French)	XRC3128 (Chinese)	Not used
NSP	10	Warranty Card	ARY7045	Not used	ARY7047
	15	Packing Case	XHD3419	XHD3425	XHD3427

2.2 EXTERIOR SECTION



EXTERIOR SECTION parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.	
1	DVDM Assy	See Contrast table(2)				
2	DSP Assy	AWX8251	28	Push Rivet	AEC7370	A
3	AF Assy	See Contrast table(2)	29	Barrier A HTL	AEC7469	
4	DIODE L Assy	See Contrast table(2)	30	Fan Cover HTL	AMR7451	
5	DIODE S Assy	XWZ3842	31	Disc Guard	PNM1245	
6	SSIB Assy	XWZ3843	NSP 32	PCB Holder HTL	PNW1706	
7	PRIMARY Assy	See Contrast table(2)	33	Mech. Spacer(T1.5)	VEB1339	
8	DISPLAY Assy	XWZ3846	NSP 34	PC Support	VEC1749	
9	AMP TRADE Assy	XWZ3847	35	Rotary Tray	VNK5558	
10	DSP TRADE Assy	XWZ3848				
11	VIDEO JACK Assy	XWZ3849	36	Bonnet Cushion	XEB3027	
NSP 12	6CH AMP Module	AXQ7254	NSP 37	PCB Support	XEC3020	B
13	FM/AM TUNER Module	See Contrast table(2)	38	PCB Holder	XMR3087	
⚠ 14	Power Transformer (T1)	See Contrast table(2)	NSP 39	Tray Cap Assy HTL	XXG3173	
⚠ 15	Fuse (FU1 :)	See Contrast table(2)	40	Name Plate	VAM1129	
16	F.F.C/60V	See Contrast table(2)	41	Tray Cap	XAK3449	
17	27P F.F.C/60V	ADD7412	42	Bonnet HTM	AZN7932	
18	11P F.F.C/30V (AF CN5701 - TUNER UNIT CN201)	XDD3152	43	Speaker Label HTL	AAX7976	
			NSP 44	Energy Star Label	AAX8022	
			45	• • • •		
19	21P F.F.C/30V (AF CN5701 - TUNER CN201)	XDD3153	46	Screw	Z39-019	C
20	DVD Angle HTL	ADD7457	47	• • • •		
			48	Screw	ABA7112	
NSP 21	Chassis HTL	XNA3020	49	Step Screw C	ABA7113	
22	Rear Panel HTL	See Contrast table(2)	50	Screw	BBZ30P060FTC	
23	PCB Angle	XNG3057	51	Screw	BBZ40P060FTC	
24	Mecha Frame HTL	XNG3121	52	Screw	IBZ30P080FTC	
25	Front Frame HTL	XNG3122	53	Screw	VPZ30P100FTC	
26	DVD TRADE Assy	See Contrast table(2)	54	VS Knob	See Contrast table(2)	
NSP 27	PCB Spacer	AEC1446	55	Barrier B HTM	See Contrast table(2)	D

(2) CONTRAST TABLE

XV-DV9/DLXJ/NC, DPWXJ and XV-HTD640/KUCXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		
			XV-HTD640 /KUCXJ	XV-DV9 /DLXJ/NC	XV-DV9 /DPWXJ
	1	DVDM Assy	AWM7882	AWM7881	AWM7881
	3	AF Assy	XWZ3838	XWZ3839	XWZ3839
	4	DIODE L Assy	XWZ3840	XWZ3841	XWZ3841
	7	PRIMARY Assy	XWZ3844	XWZ3845	XWZ3845
	13	FM/AM TUNER Module	AXX7172	AXX7173	AXX7173
⚠	14	Power Transformer	ATS7354	ATS7355	ATS7355
⚠	15	Fuse (FU1 :)	REK1069 (6.3A/125V)	REK1029 (5.0A/250V)	REK1029 (5.0A/250V)
	16	F. F. C./ 60V	ADD7414(30P)	ADD7409(18P)	ADD7409(18P)
	22	Rear Panel HTL	XNC3289	XNC3291	XNC3292
	26	DVD TRADE Assy	XWZ3858	Not used	Not used
	54	VS Knob	Not used	AAD7690	AAD7690
	55	Barrier B HTM	Not used	AEC7470	AEC7470

1 2 3 4

2.3 FRONT PANEL SECTION

A

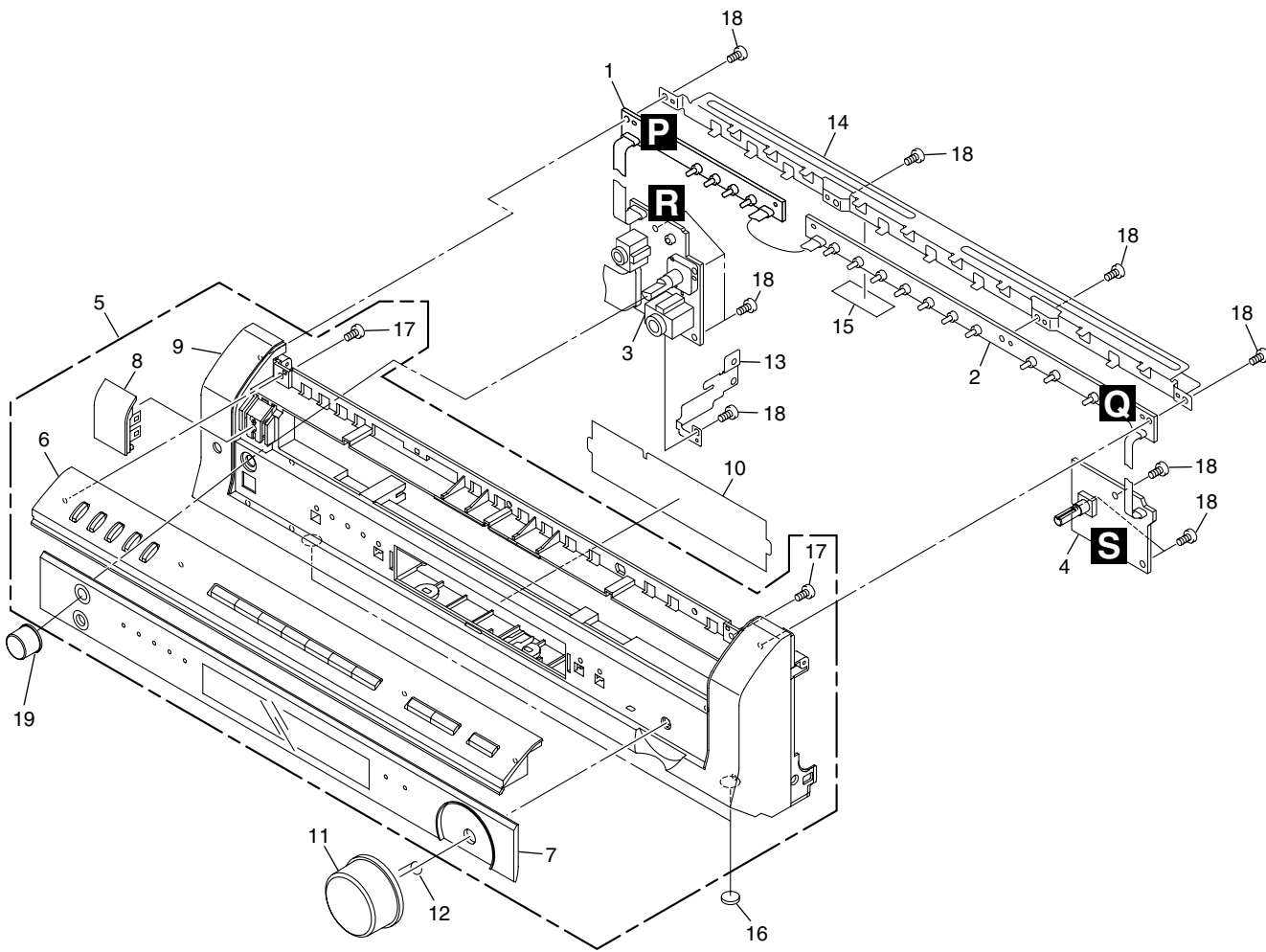
B

C

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E

F



FRONT PANEL SECTION parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	FUNCTION KEY Assy	XWZ3850	11	VOL Knob	XAA3027
2	DISC KEY Assy	XWZ3851	12	VOL Ring	ABH7230
3	H. P MIC Assy	See Contrast table(2)	13	GND Plate L	XNG3123
4	JOG Assy	XWZ3854	14	Top Frame	XNG3124
NSP 5	Front Panel Assy HTL	See Contrast table(2)	15	Sensor Cushion	XEB3040
6	Top Panel Assy	XZN3147	16	Leg	AEB7090
7	Display Window HTL	See Contrast table(2)	17	Screw	BPZ30P080FTC
8	Power Cap	XAK3460	18	Screw	VPZ30P100FTC
9	Front Panel	See Contrast table(2)	19	MIC Knob	See Contrast table(2)
10	FL Filter HTL	AAK8100			

(2) CONTRAST TABLE

XV-DV9/DLXJ/NC, DPWXJ and XV-HTD640/KUCXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		
			XV-HTD640 /KUCXJ	XV-DV9 /DLXJ/NC	XV-DV9 /DPWXJ
	3	H. P MIC Assy	XWZ3852	XWZ3853	XWZ3853
NSP	5	Front Panel Assy	XXG3181	XXG3182	XXG3182
	7	Display Window	XAK3465	XAK3466	XAK3466
	9	Front Panel	XMB3150	XMB3156	XMB3156
	19	MIC Knob	Not used	XAA3024	XAA3024

1 2 3 4

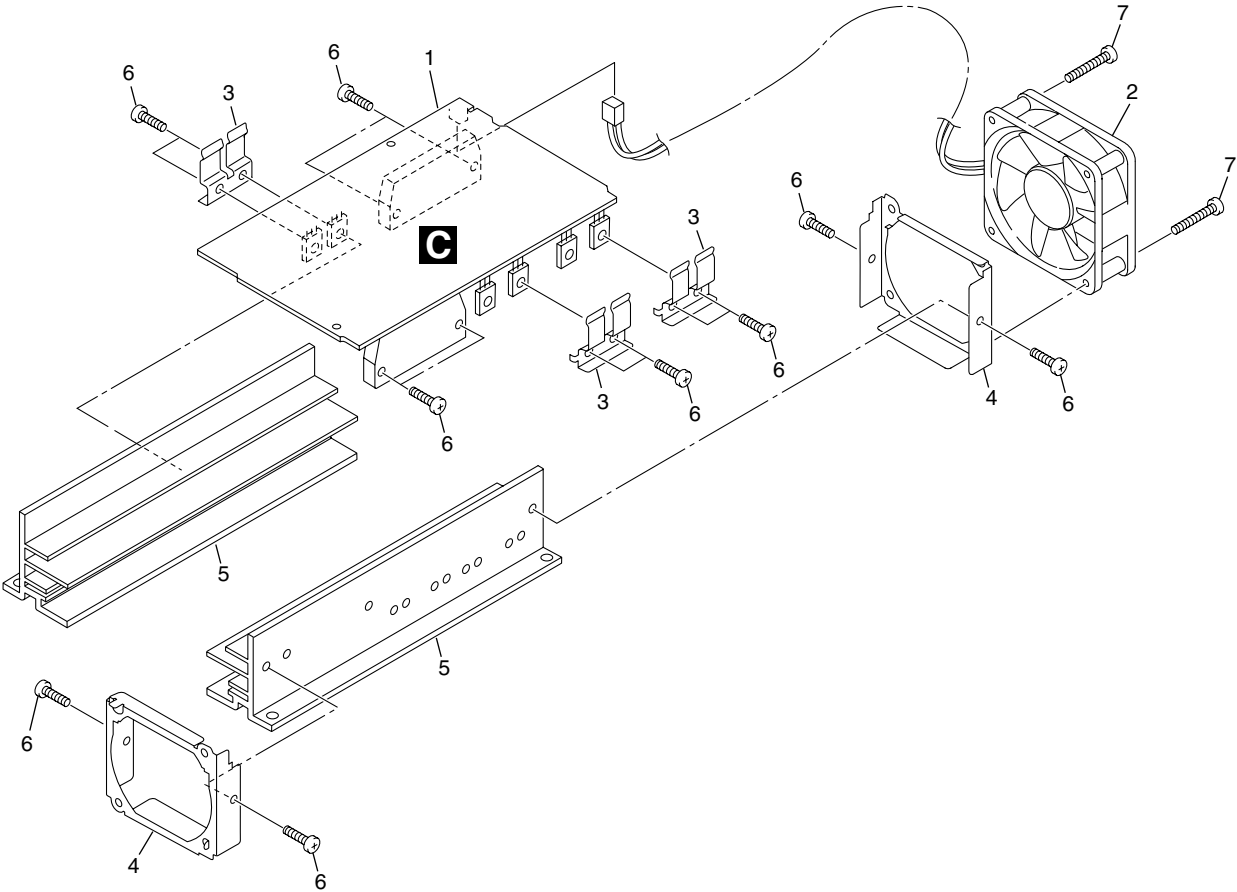
2.4 AMP POWER MODULE

A

B

C

D



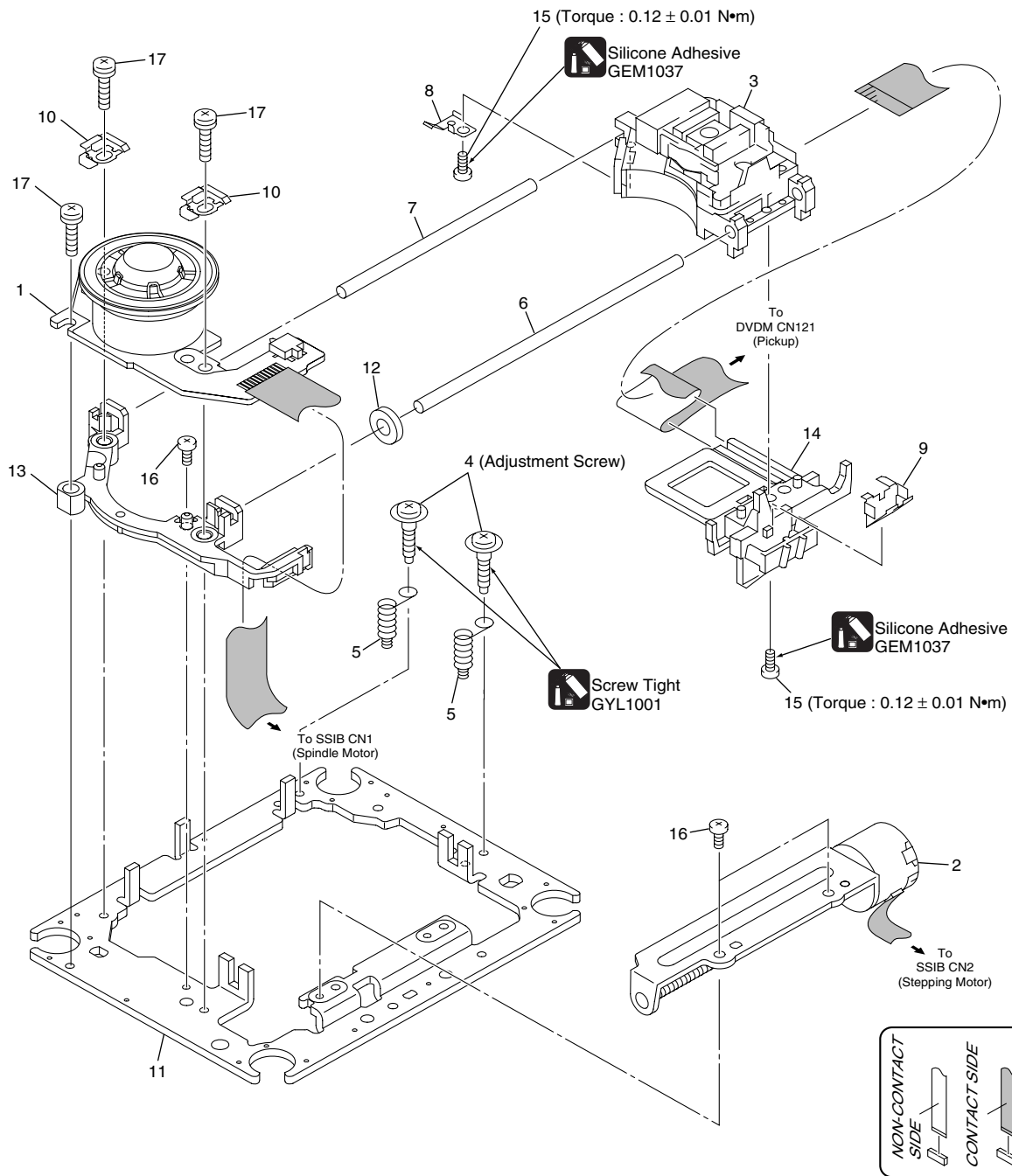
E

AMP POWER MODULE parts List

Mark No.	Description	Part No.
1	6CH AMP Assy (for service)	AZW7283
2	DC Fan Motor	AXM7025
3	FET Bracket A	ANG7418
4	Fan Plate	ANG7462
NSP 5	Heatsink	ANH7166
6	Screw	BBZ30P140FTC
7	Screw	BBZ30P300FTC

F

2.5 TRAVERSE MECHA ASSY 03-S



TRAVERSE MECHA ASSY 03-S parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Spindle Motor 04	VXM1112	NSP 11	Mechanism Chassis 04	VNE2244
2	Stepping Motor 04	VXM1113	12	Damper Sheet	VEB1335
3	Pickup assy-S	OXX8005	13	Spacer	VNL1913
4	Skew Screw 04	VBA1091	14	Joint 03	VNL1949
5	Skew Spring	VBH1335	15	Tapping Screw 04	VBA1092
6	Guide Bar	VLL1514	16	Screw	BBZ20P050FTC
7	Sub Guide Bar	VLL1515	17	Screw	PMA26P100FTC
8	Leaf Spring	VNC1023			
9	Joint Spring	VNC1019			
10	Support Spring	VNC1020			

2.6 TABLE MECHANISM SECTION

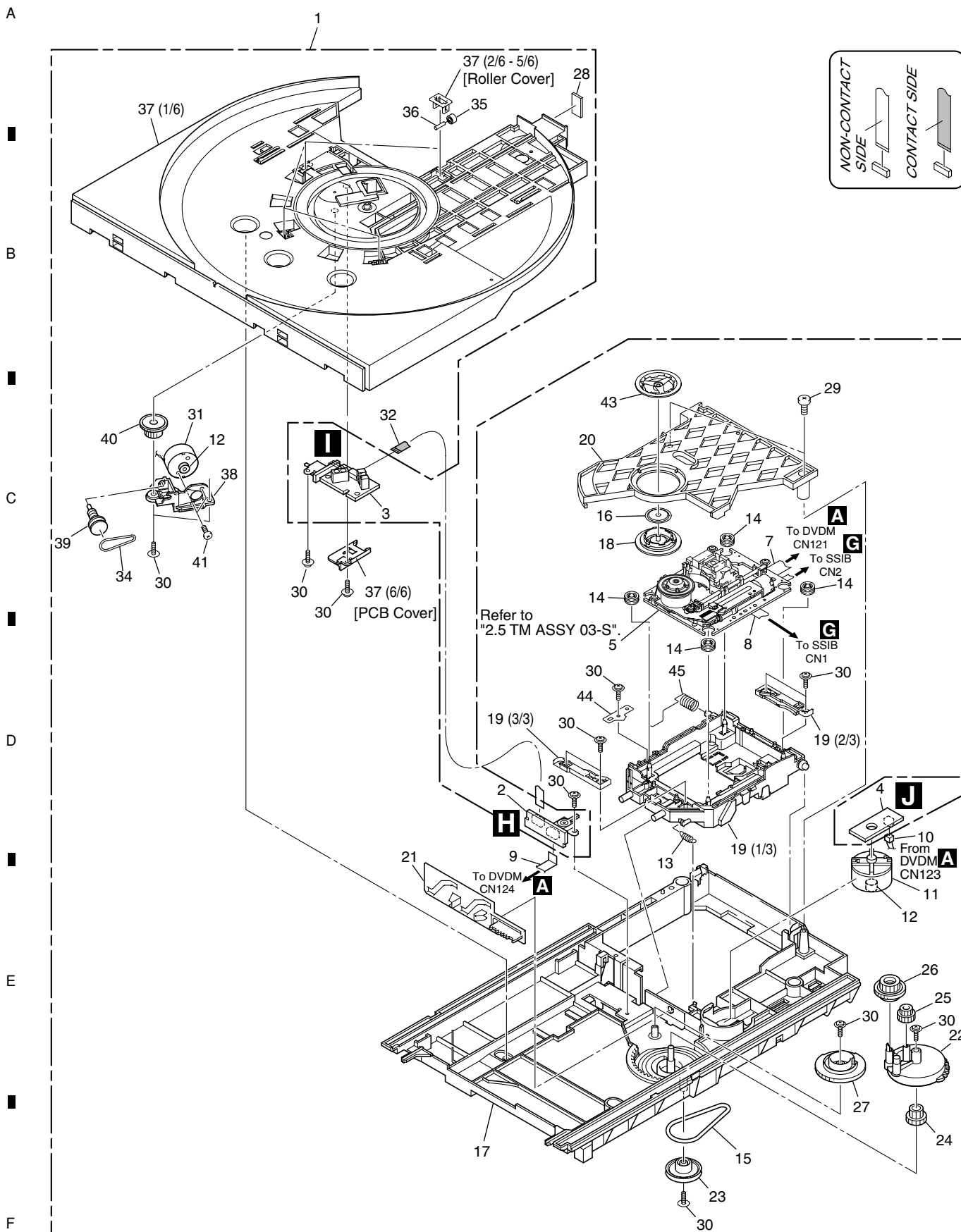


TABLE MECHANISM SECTION parts List

Mark No.	Description	Part No.	
NSP 1	5C Mech. Base Assy	AXA7134	A
2	TRSB Assy	XWZ3855	
3	SSRB Assy	XWZ3856	
4	LOMB Assy	XWZ3857	
5	Traverse Mecha. Assy03-S	VXX2909	
6	• • • •		
7	Flexible Cable 24P	ADD7418	
8	Flexible Cable 17P	ADD7419	
9	Flexible Cable 8P	ADD7420	
10	Housing Assy 2P	VKP2249	
11	Slider Motor (LOADING)	VXM1033	B
12	Motor Pulley	PNW3026	
13	Spring	VBH1333	
14	Floating Rubber	VEB1351	
15	Load Belt	VEB1316	
16	Clamper Plate 04	VNE2342	
17	Mech. Base	VNK5556	
18	Clamper	VNL1935	
19	Float Base	VNL1933	
20	Clamper Holder	VNL1939	C
21	Clamp Cam	VNL1934	
22	Planet Base	ANW7258	
23	Gear Pulley	ANW7261	
24	Loading Gear (1)	ANW7262	
25	Loading Gear (2)	ANW7263	
26	Drive Gear	ANW7264	
27	Change Gear	ANW7260	
28	CR cushion T2	XEB3020	
29	Screw	VPZ30P100FTC	D
30	Screw	VBA1094	
31	Motor (TRAY)	VXM1106	
32	Flexible Cable (7P)	VDA1835	
33	• • • •		
34	Tray Belt	VEB1317	
35	Rubber Roller	VEB1318	
36	Roller Shaft	VLL1511	
37	Slide Table	VNK5557	
38	Motor Holder	ANW7259	E
39	Worm Gear	ANW7269	
40	Tray Gear	ANW7265	
41	Screw	JGZ17P028FMC	
42	• • • • •		
43	Cap	VNL1936	
44	TM Stopper	ANG7460	
45	Thrust Spring	VBH1339	

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM DVD SECTION

A

B

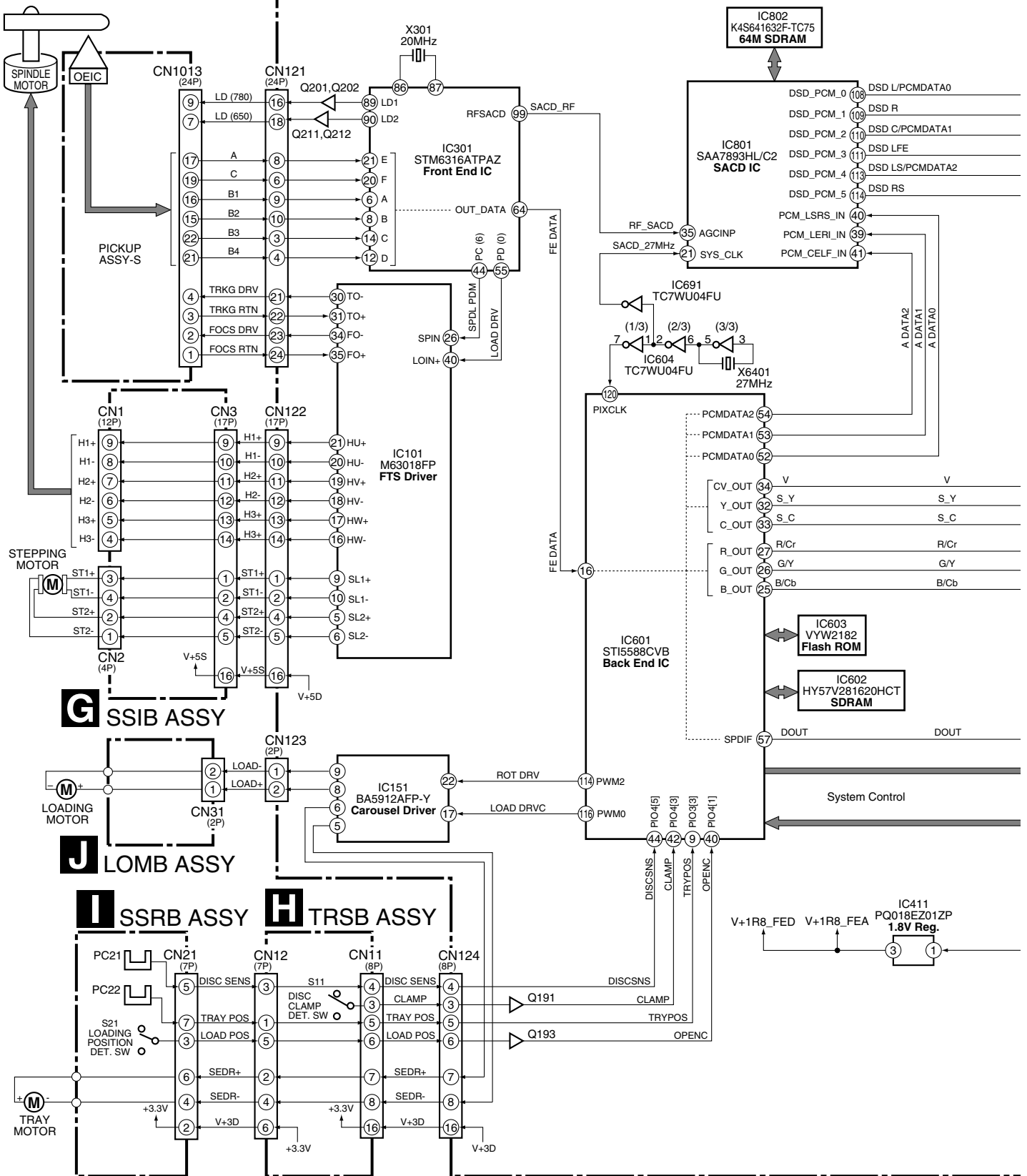
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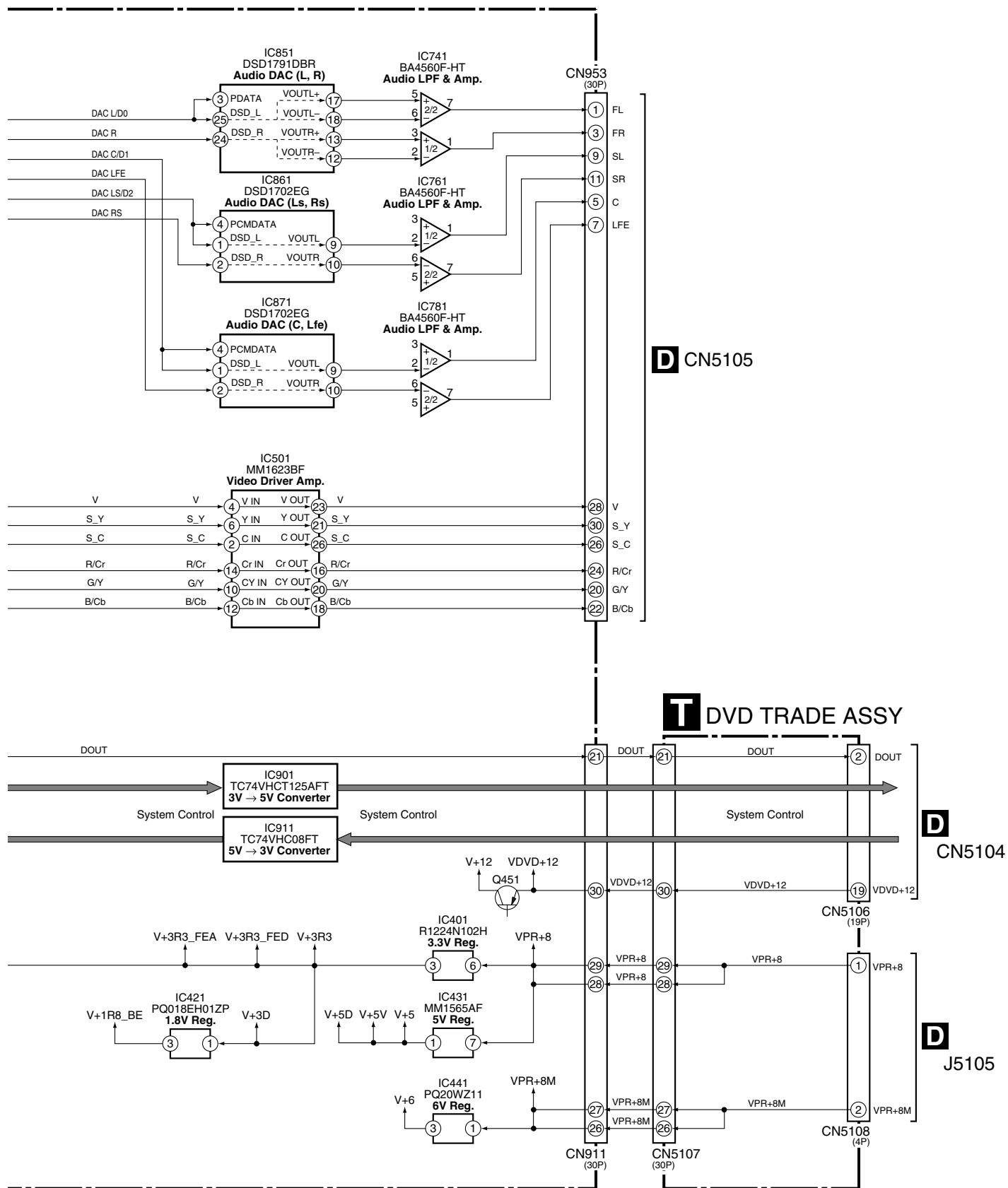
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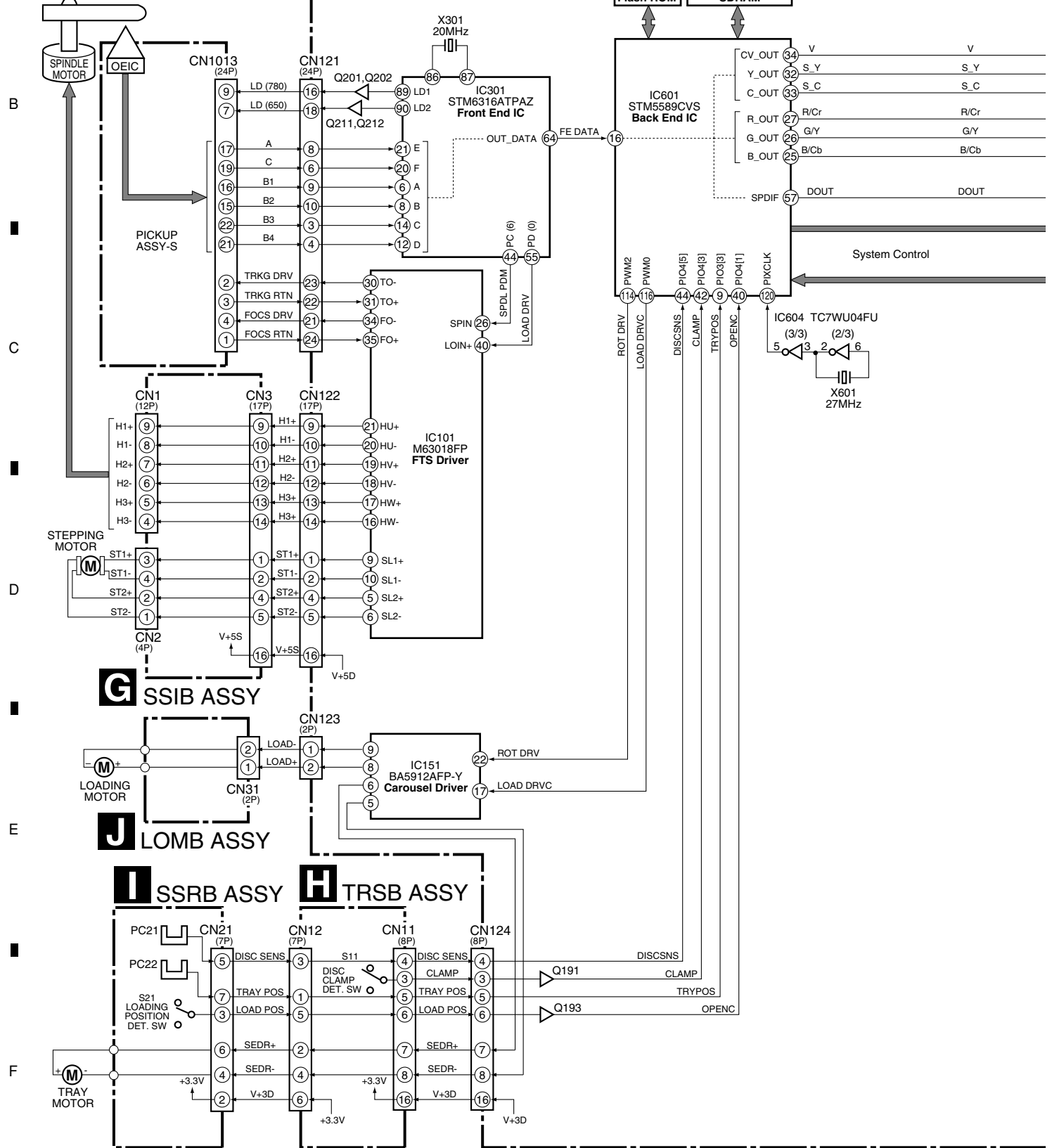
A DVDM ASSY (AWM7882)



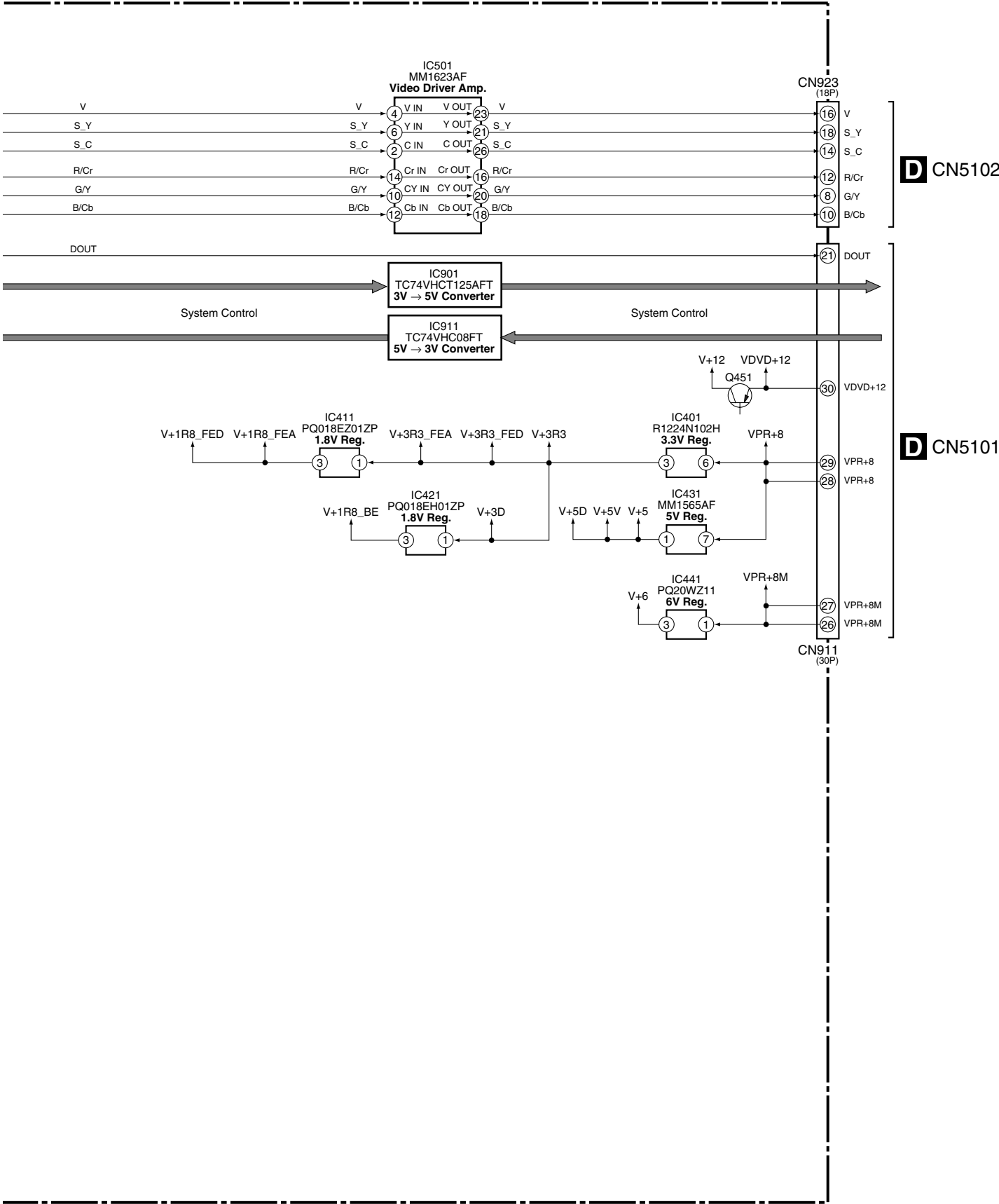
XV-HTD640



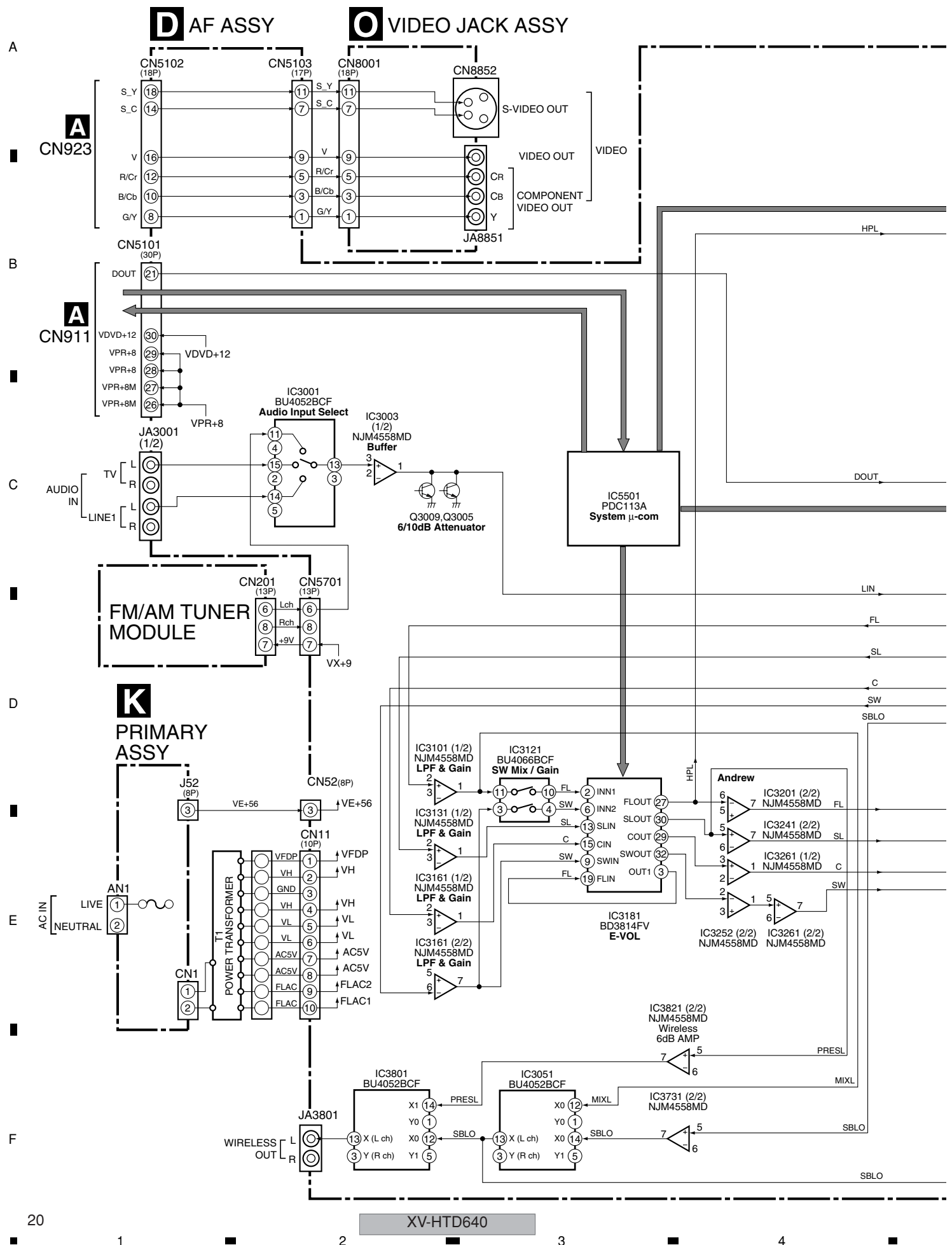
A DVDM ASSY (AWM7881)



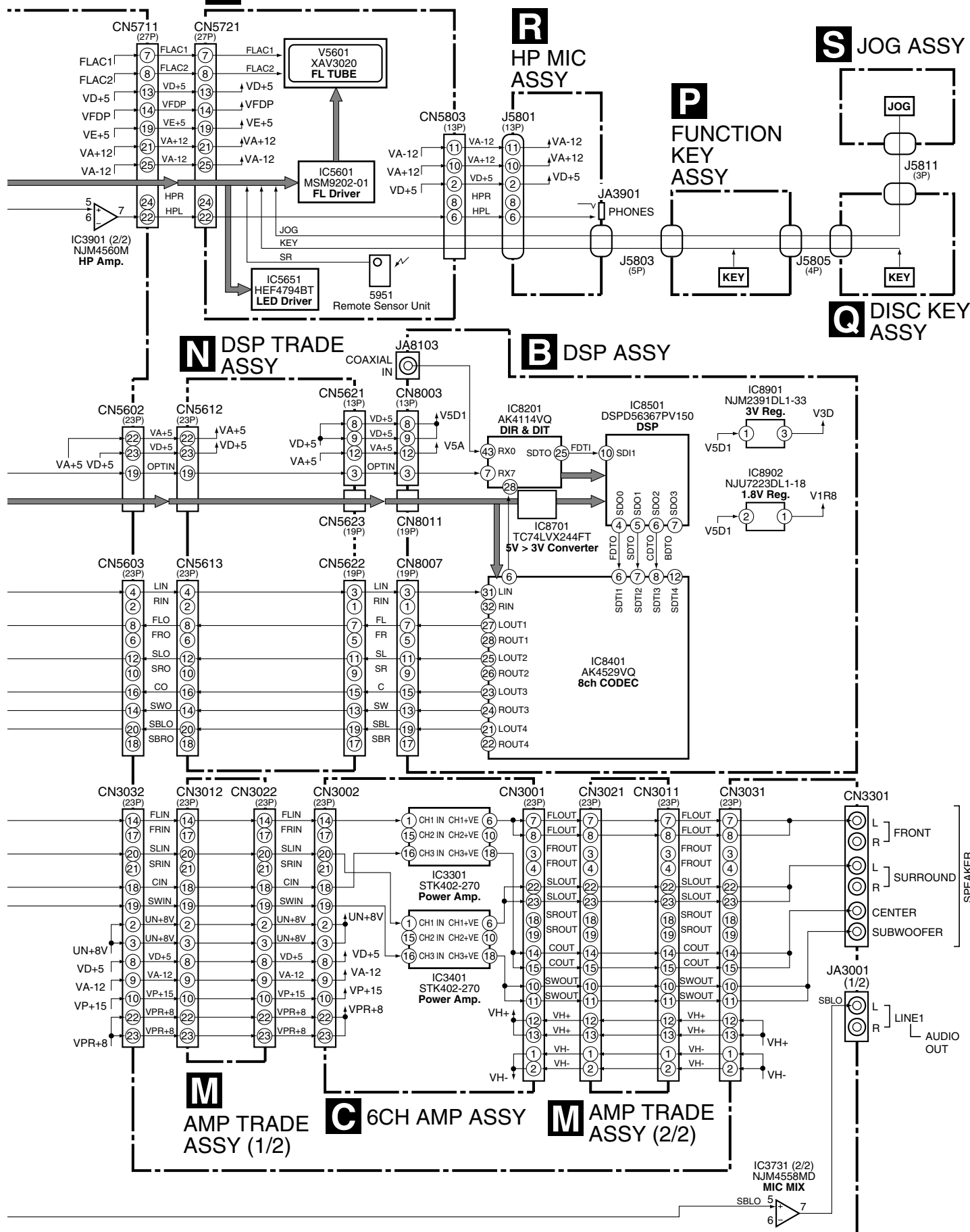
XV-DV9



3.2 BLOCK DIAGRAM MAIN SECTION

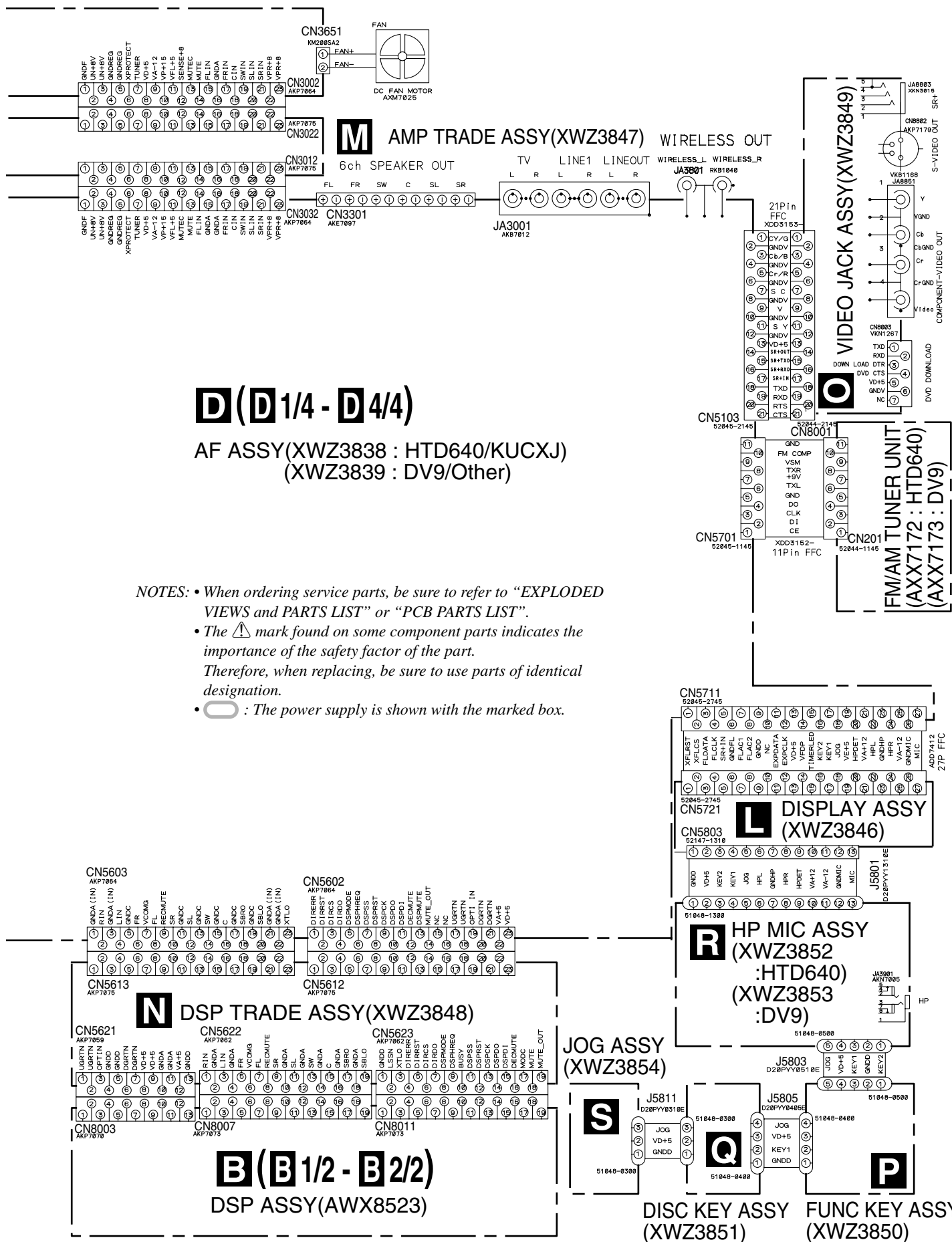


L DISPLAY ASSY



4



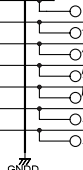
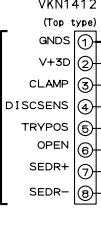


3.4 DVDM ASSY (1/4)

A

H
CN11

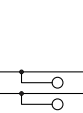
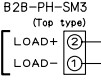
CN124
VKN1412
(Top type)



B

J
CN31

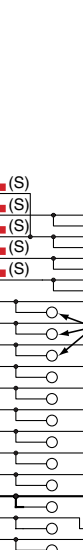
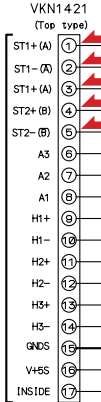
CN123
B2B-PH-SM3
(Top type)



C

G
CN3

CN122
VKN1421
(Top type)



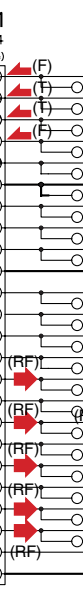
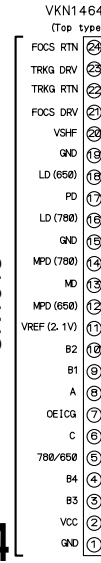
D

E

F

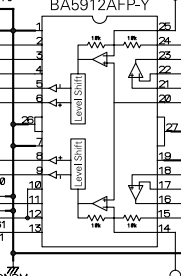
PICKUP ASSY-S
CN1013

CN121
VKN1464
(Top type)



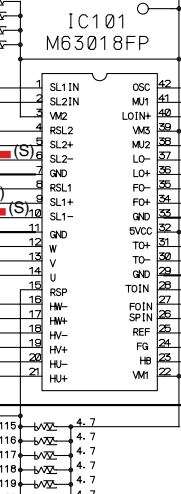
CAROUSEL DRIVER

IC151
BA5912AFP-Y



FTS DRIVER

IC101
M63018FP



3.5 DVDM ASSY (2/4)

A 2/4 DVDM ASSY (AWM7882 : HTD640)
(AWM7881 : DV9/Other)

A

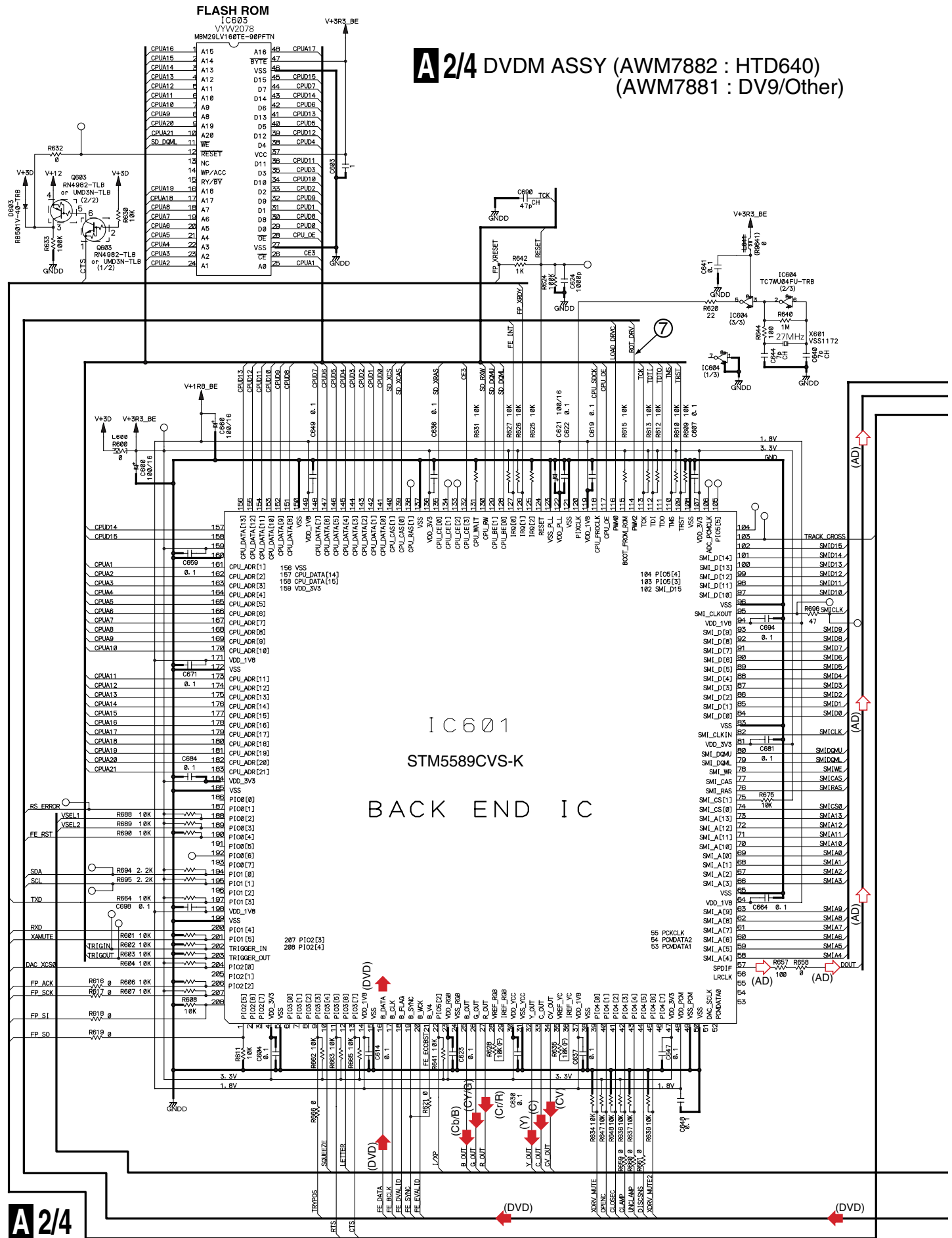
B

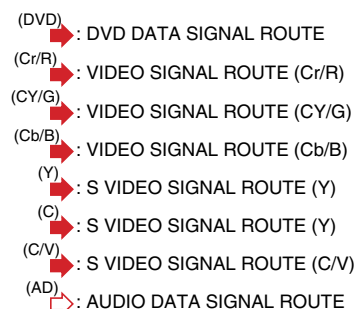
C

D

E

F





B

A $\frac{3}{4}$

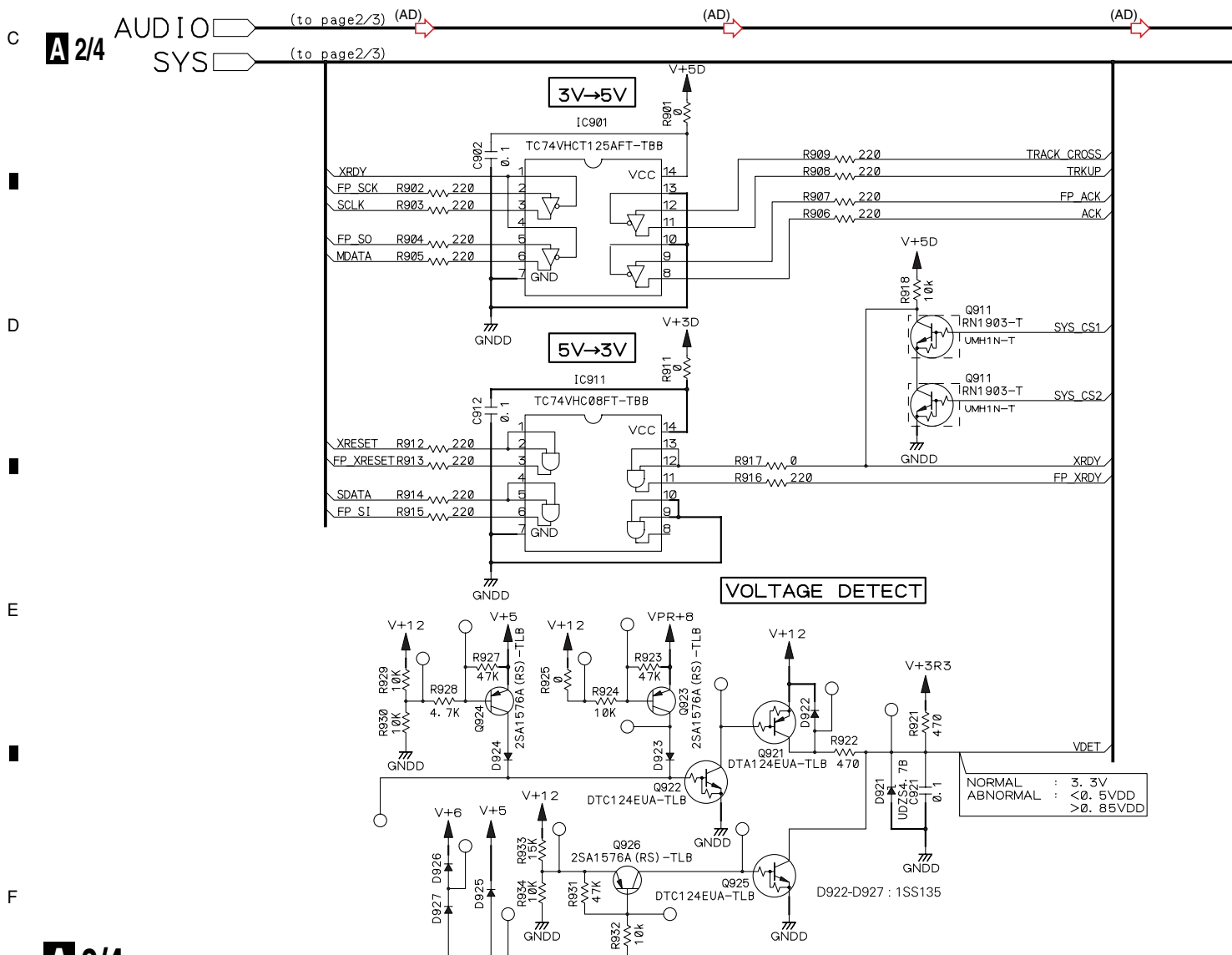
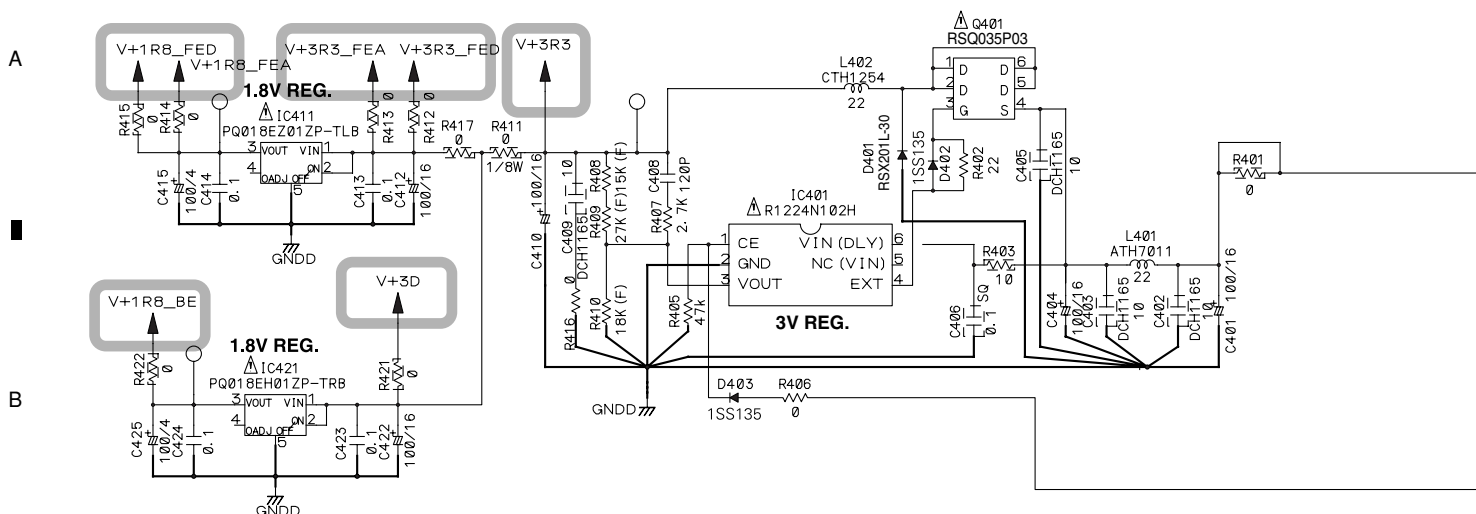


E

F

A 2/4

3.6 DVDM ASSY (3/4)



A 3/4

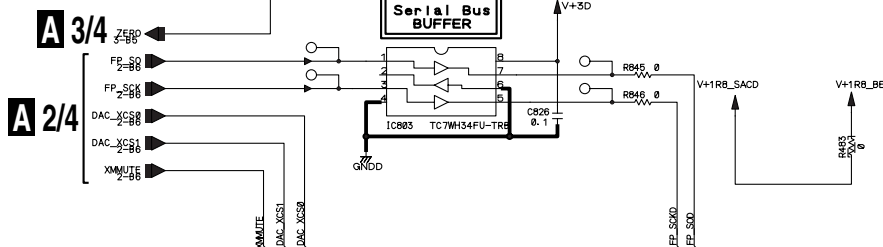
A



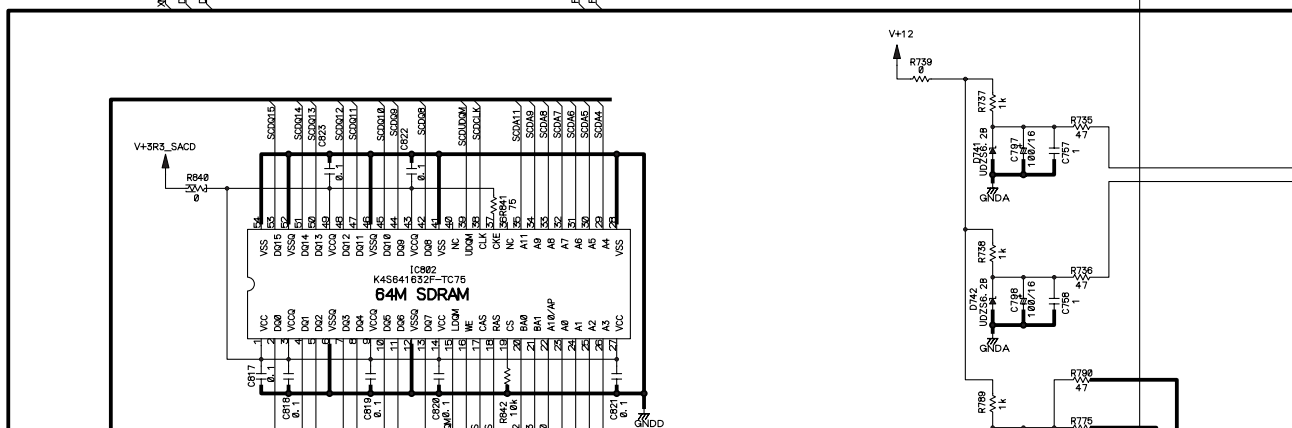
1

3.7 DVDM ASSY (4/4) HTD640 Only

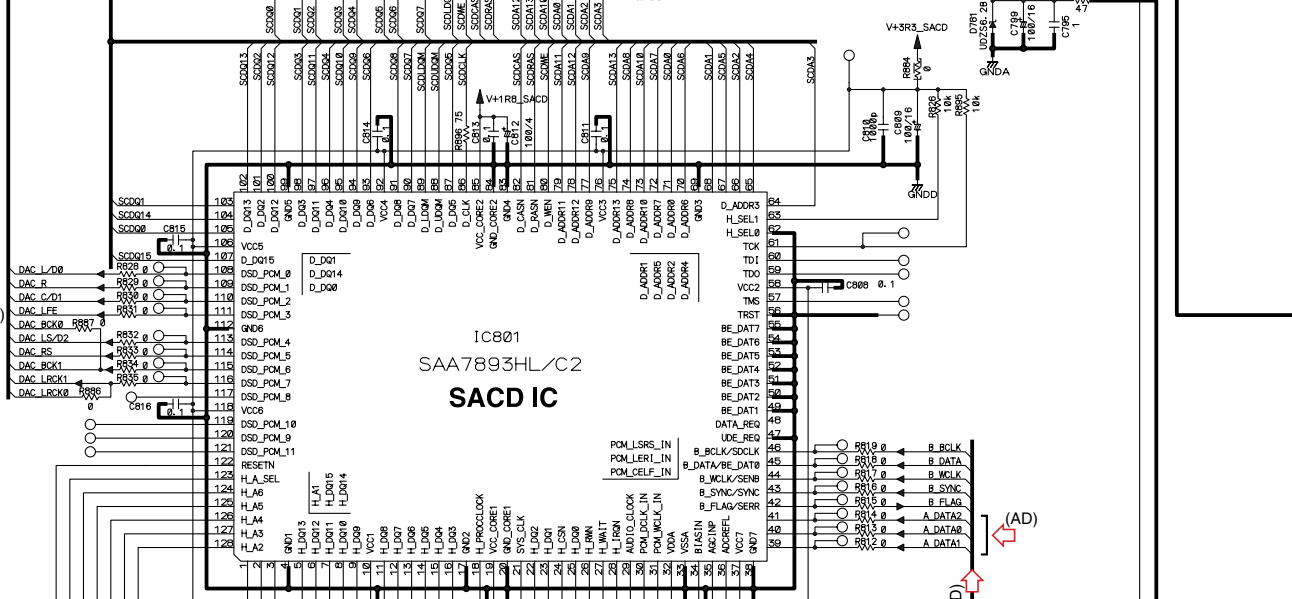
A



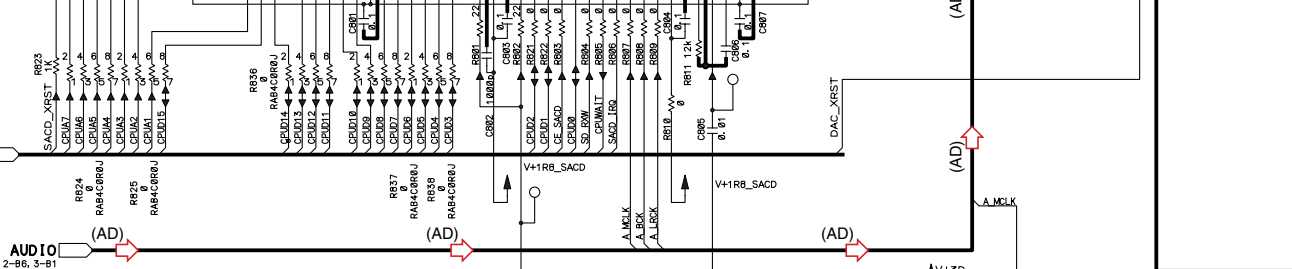
B



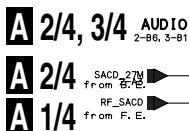
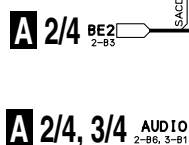
C



D

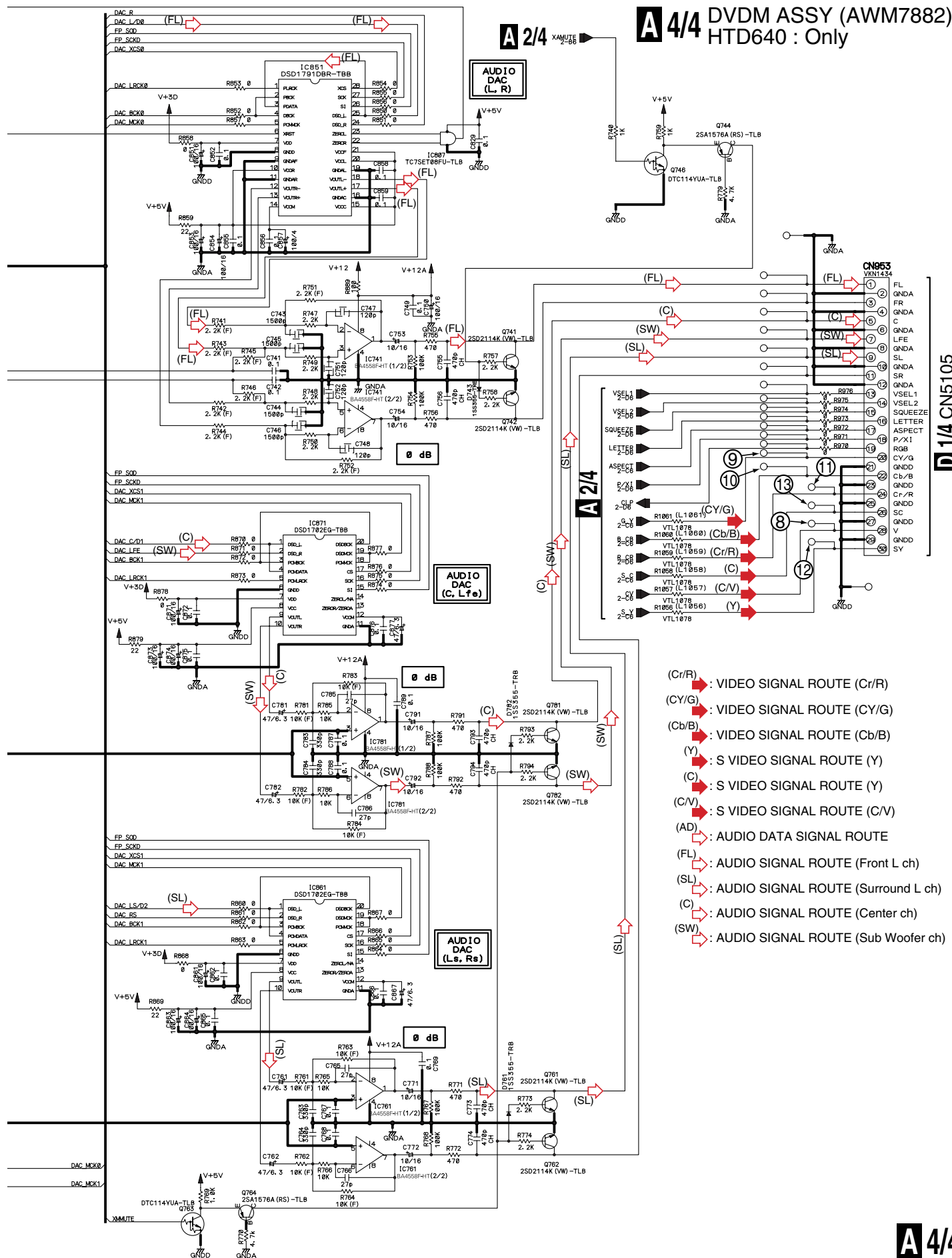


E



F





A

B

C

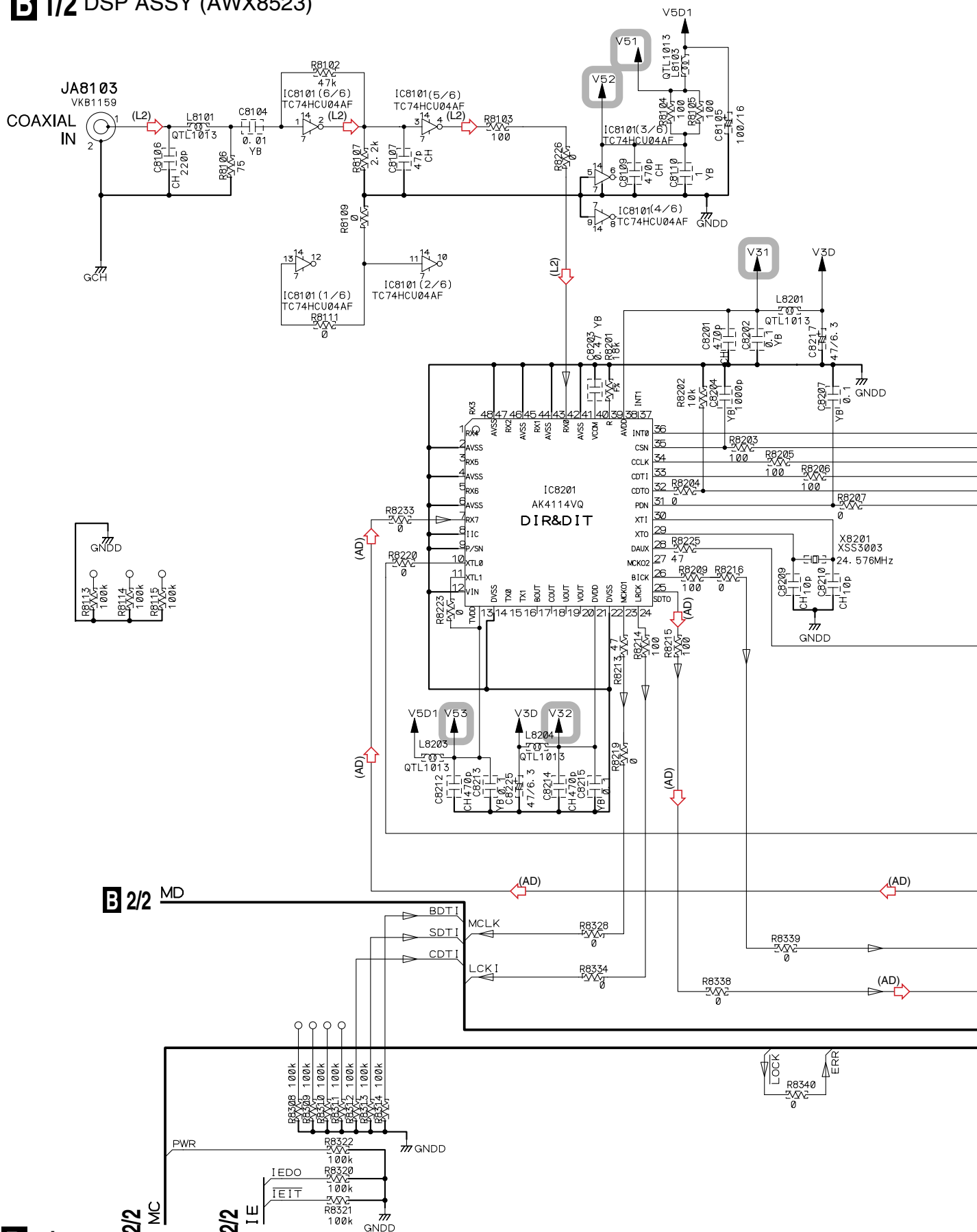
D

E

F

3.8 DSP ASSY (1/2)

B 1/2 DSP ASSY (AWX8523)





- (AD) → : AUDIO DATA SIGNAL ROUTE
- (L2) → : AUDIO SIGNAL ROUTE (LINE 2 COAXIAL)
- (FL) → : AUDIO SIGNAL ROUTE (Front L ch)
- (SL) → : AUDIO SIGNAL ROUTE (Surround L ch)
- (C) → : AUDIO SIGNAL ROUTE (Center ch)
- (SW) → : AUDIO SIGNAL ROUTE (Sub Woofer ch)

B

N CN5622

C

D

E

F

N CN5621**B 1/2**

△

A



C

D

F

F

34

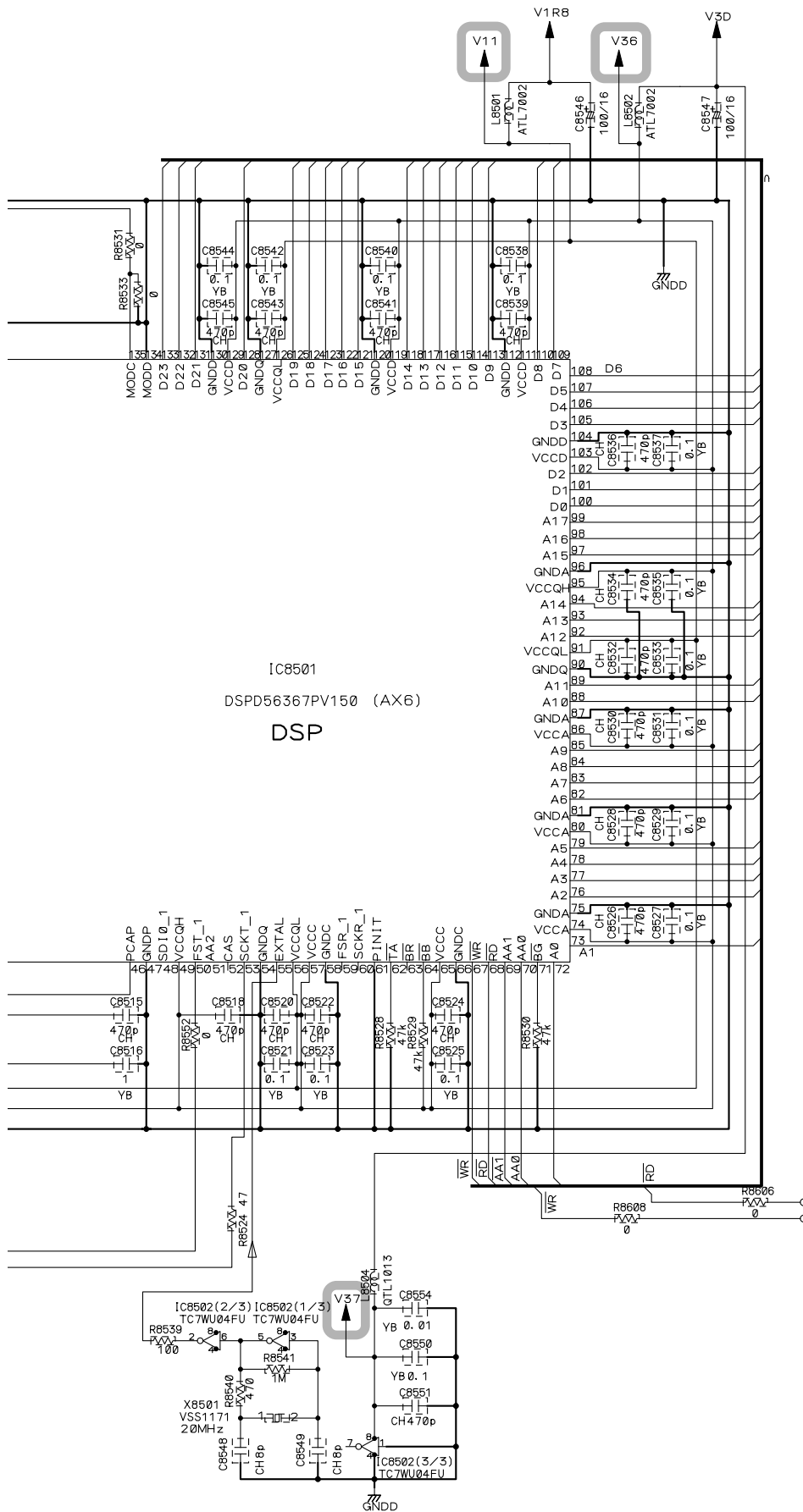
2

3

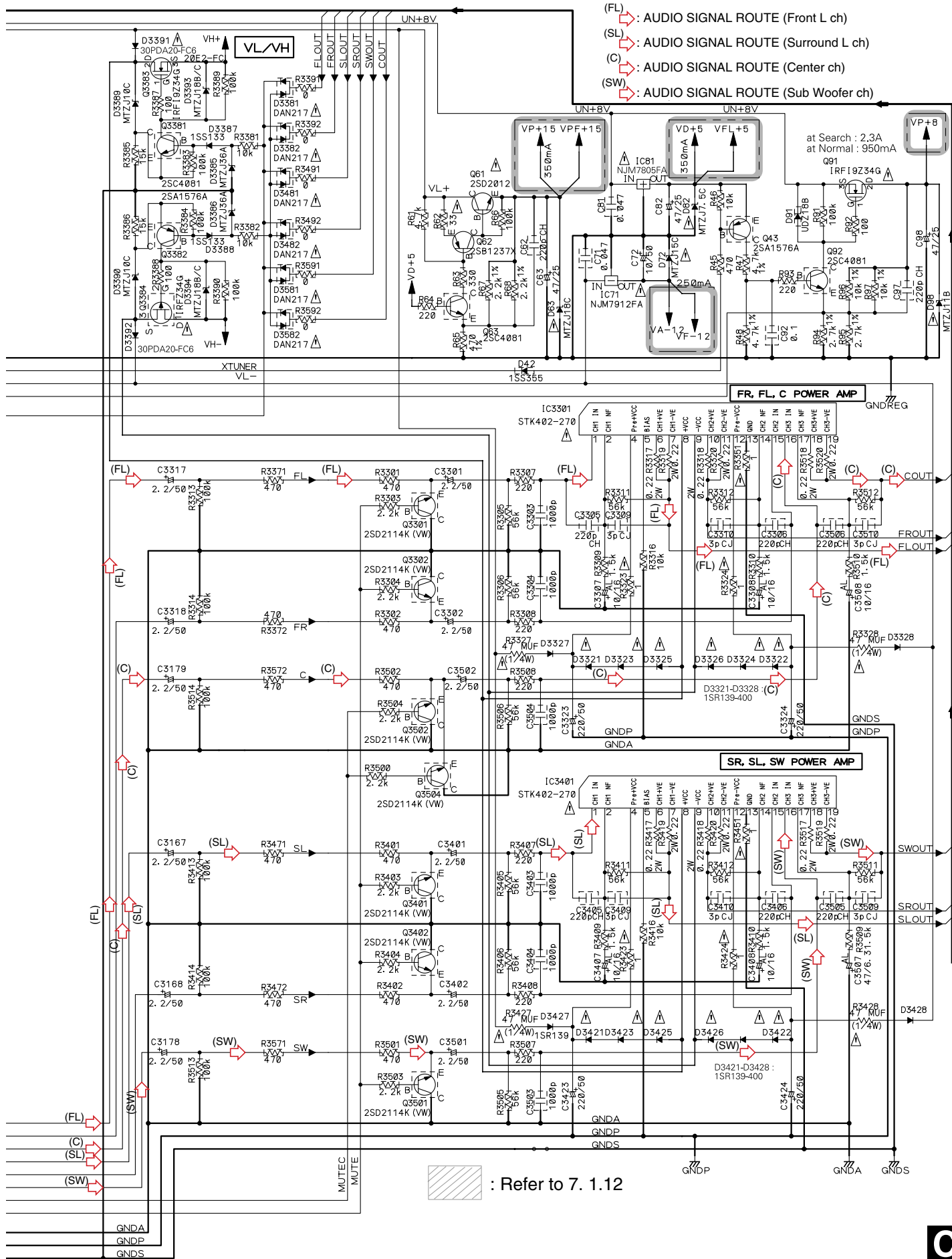
4

XV-HTD640

(AD) : AUDIO DATA SIGNAL ROUTE

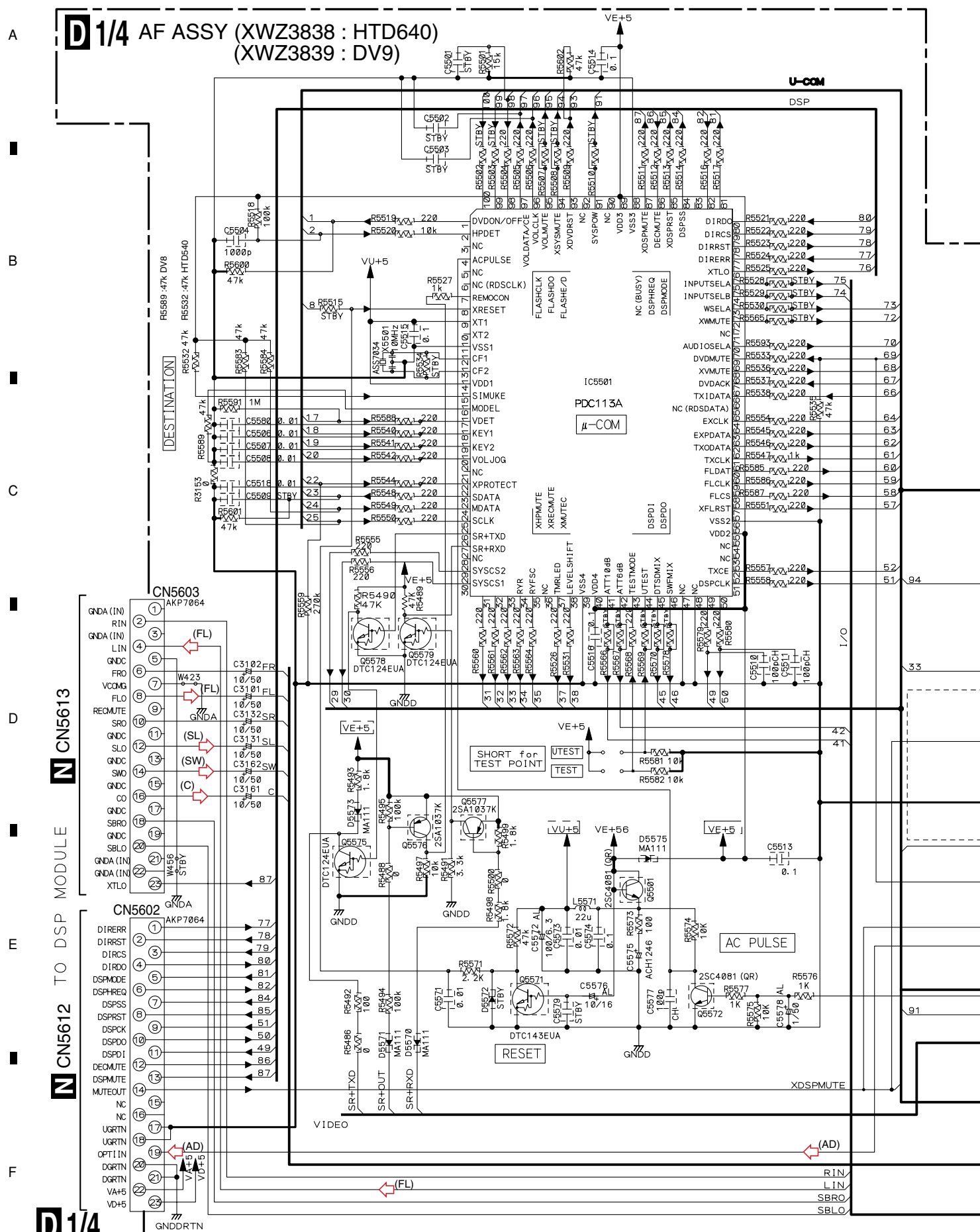


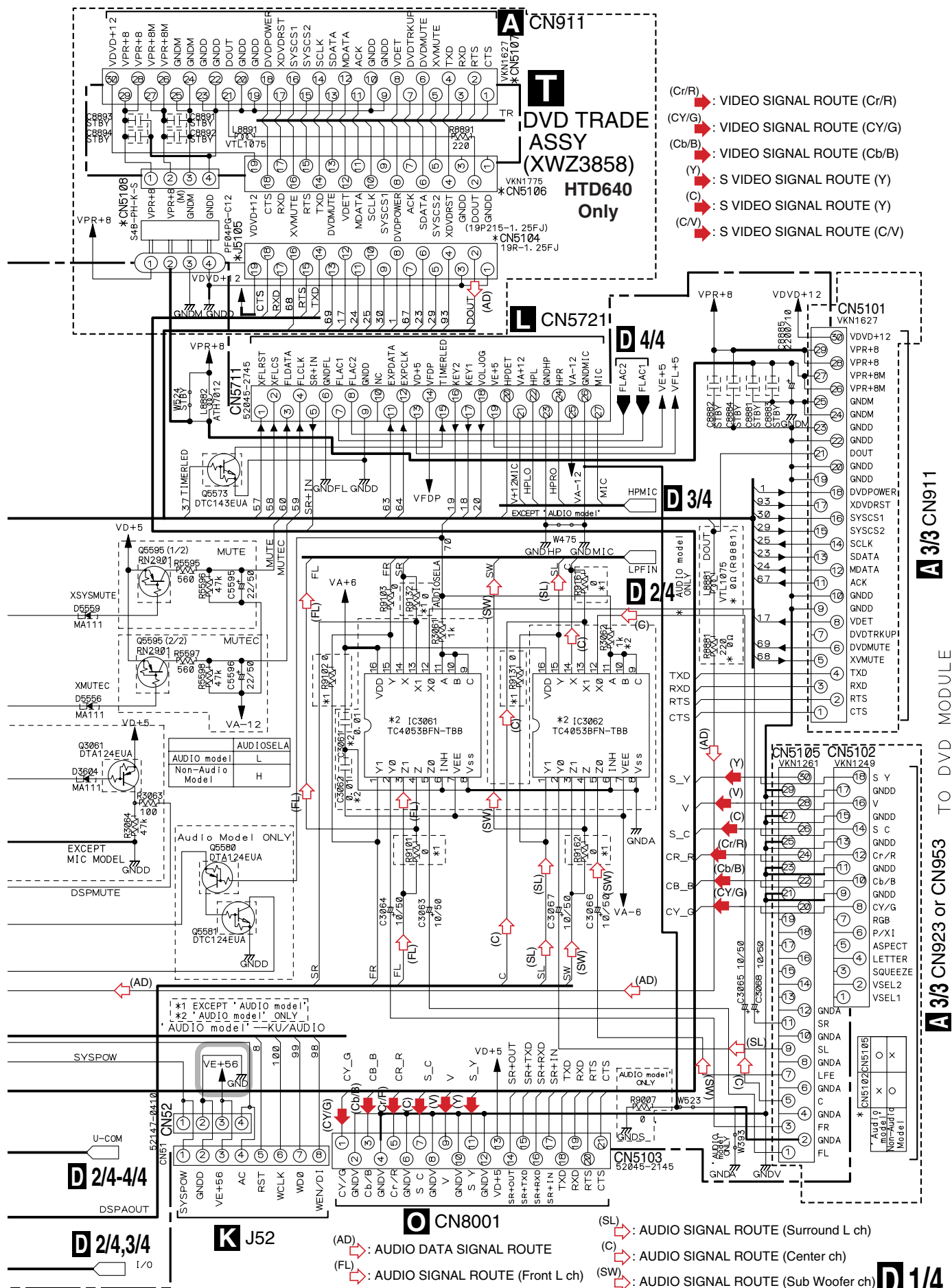
- (FL) : AUDIO SIGNAL ROUTE (Front L ch)
 (SL) : AUDIO SIGNAL ROUTE (Surround L ch)
 (C) : AUDIO SIGNAL ROUTE (Center ch)
 (SW) : AUDIO SIGNAL ROUTE (Sub Woofer ch)



A
 B
 C
 D
 E
 F

3.11 AF ASSY (1/4) and DVD TRADE ASSY(HTD640 Only)





3.12 AF ASSY (2/4)

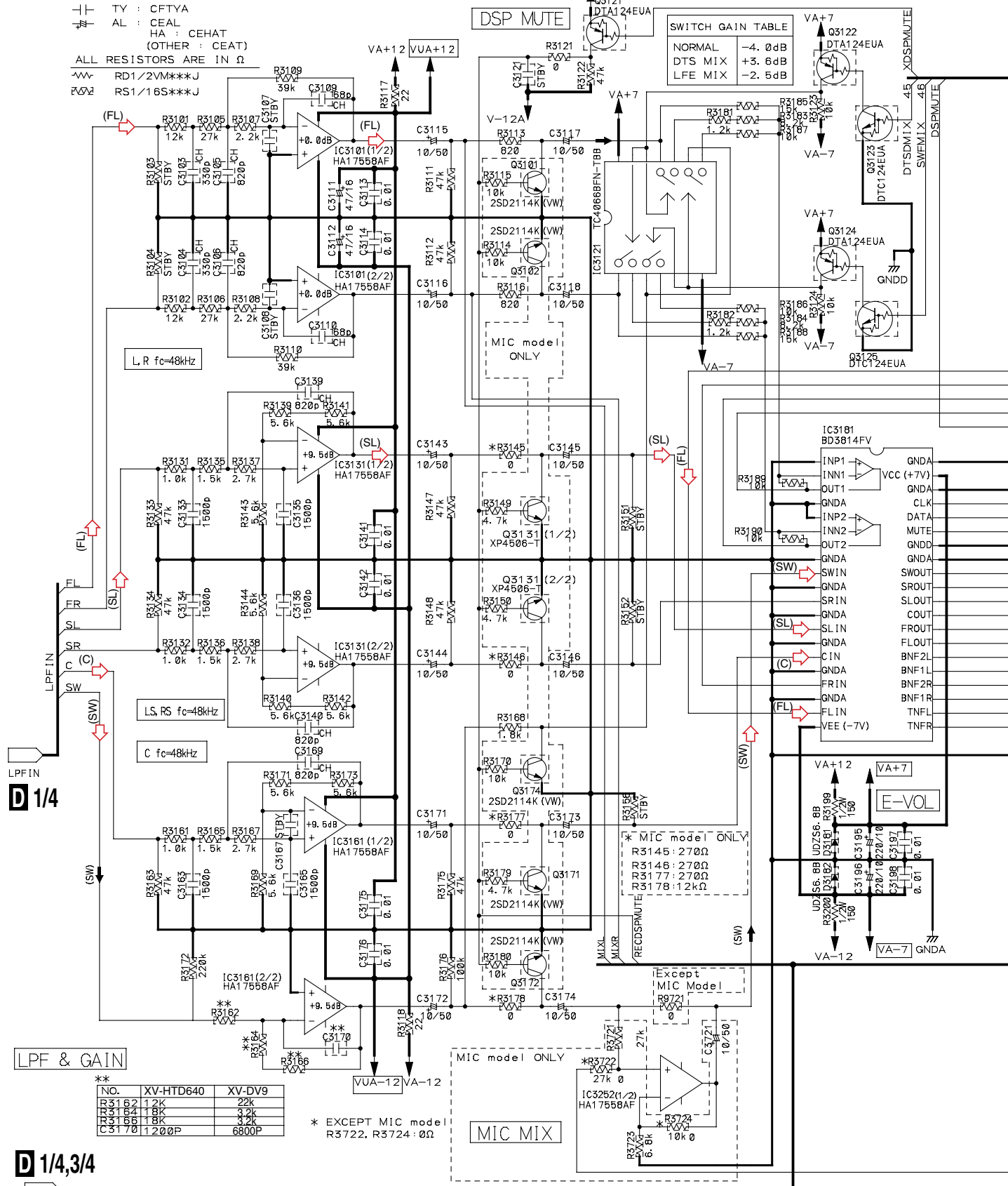
NOTES

ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED

CH : CCSRCH (OTHER : CKSRYB)
TY : CFTYA
AL : CEAL
HA : CEHAT
(OTHER : CEAT)

ALL RESISTORS ARE IN Ω

RD1/2VM***J
RS1/16S***J



NO.	XV-HTD640	XV-DV9
R3162	12K	22K
R3164	18K	33K
R3166	18K	33K
R3170	1200P	6800P

* EXCEPT MIC model
R3722, R3724: 0 Ω

D 1/4, 3/4

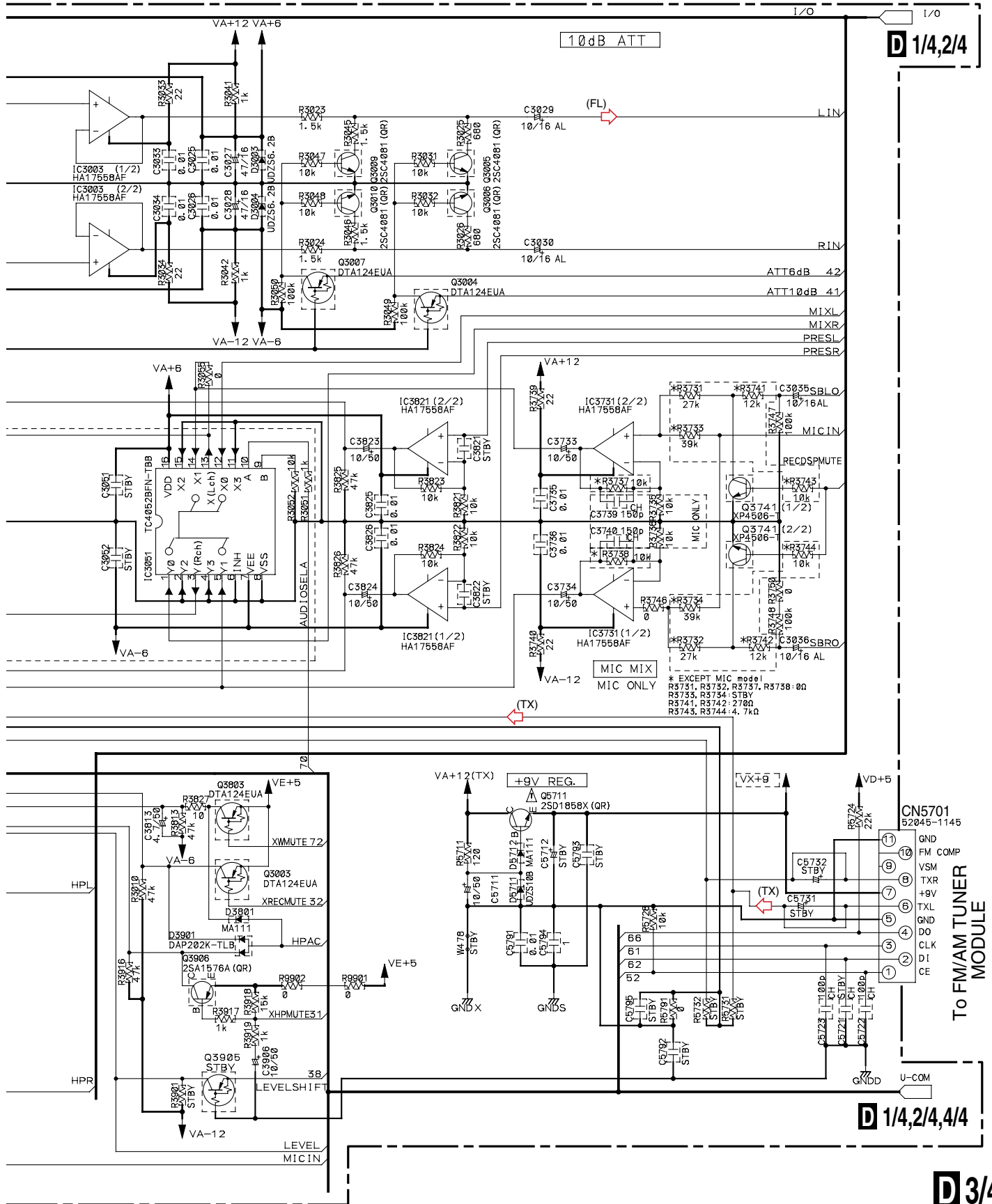
D 2/4

△



D3/4 AF ASSY (XWZ3838 : HTD640) (XWZ3839 : DV9)

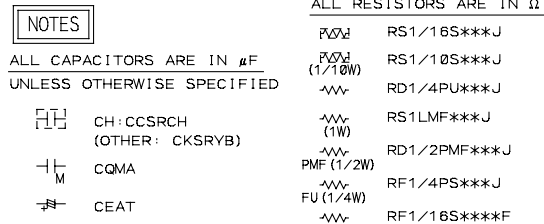
- (FL) : AUDIO SIGNAL ROUTE (Front L ch)
- (TV) : AUDIO SIGNAL ROUTE (TV L ch)
- (L1) : AUDIO SIGNAL ROUTE (LINE 1 L ch)
- (TX) : AUDIO SIGNAL ROUTE (Tuner L ch)



4

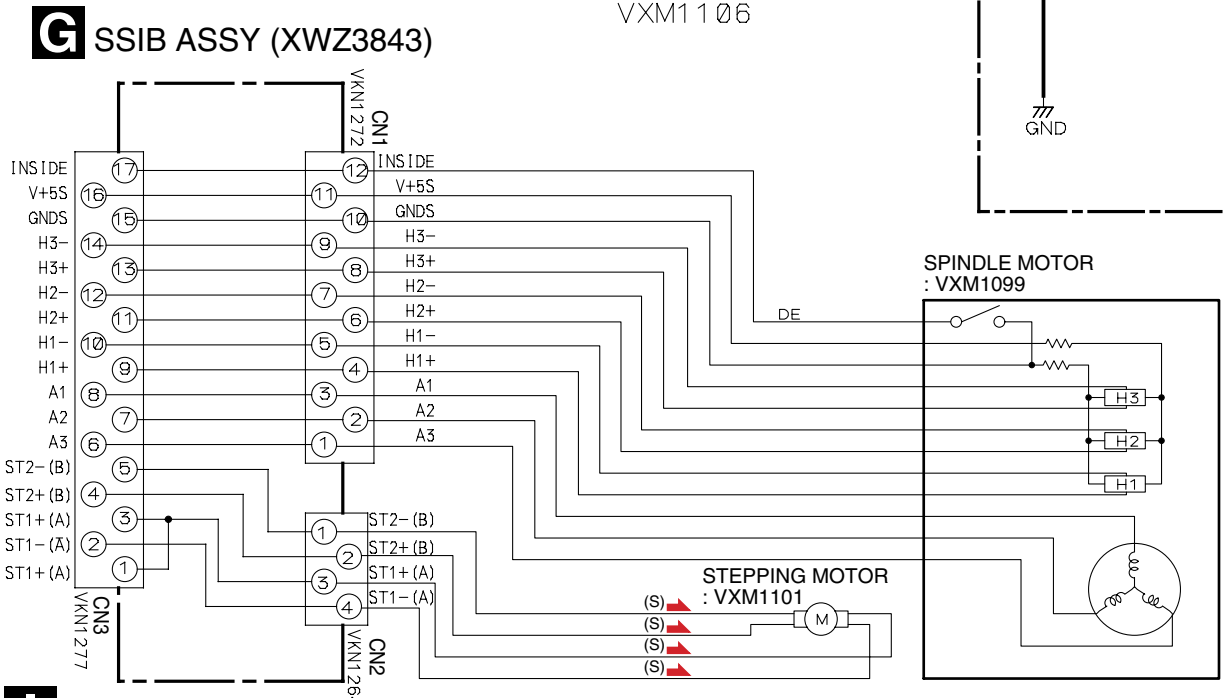
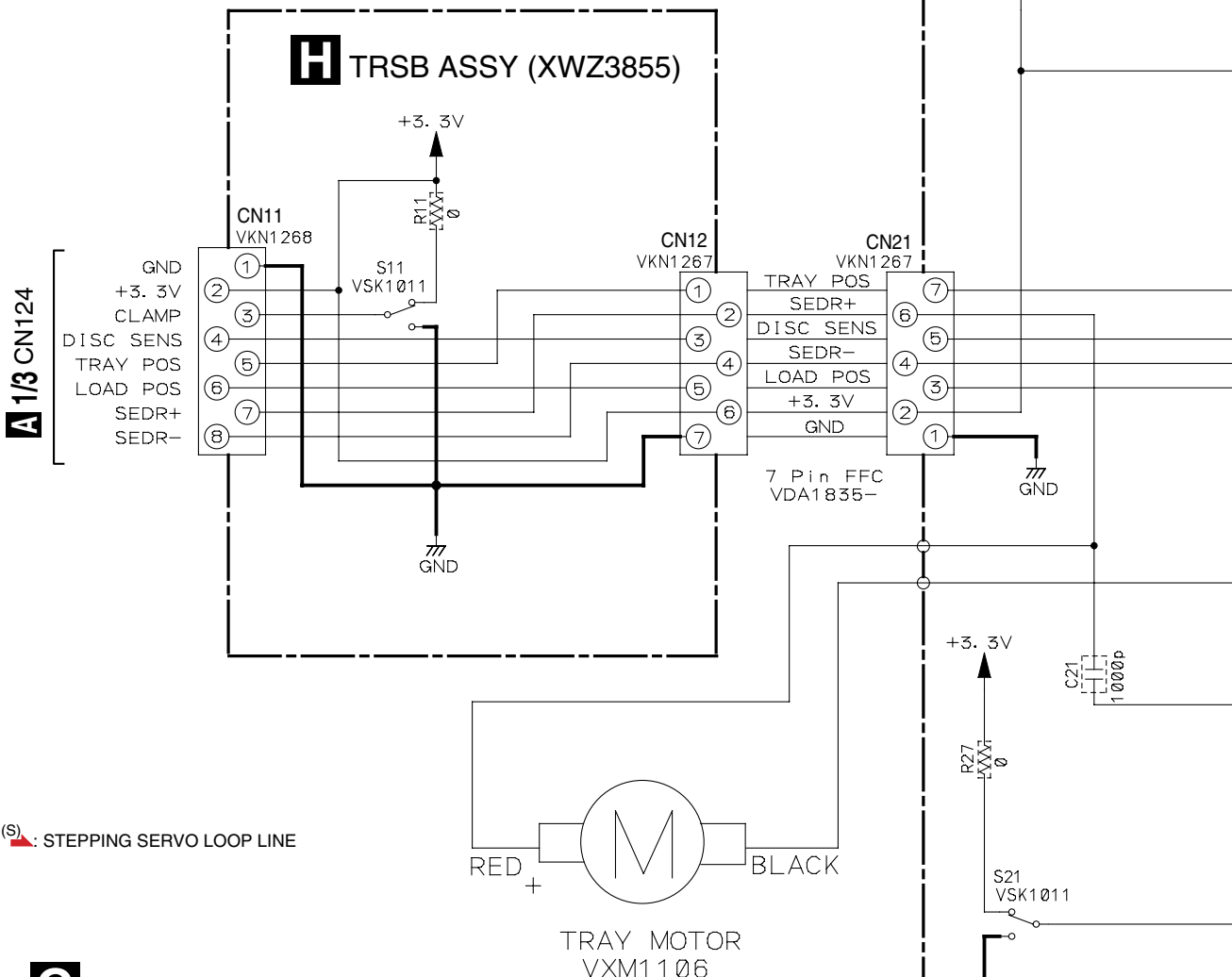


(FL) : AUDIO SIGNAL ROUTE (Front L ch)
 (SL) : AUDIO SIGNAL ROUTE (Surround L ch)
 (C) : AUDIO SIGNAL ROUTE (Center ch)
 (SW) : AUDIO SIGNAL ROUTE (Sub Woofer ch)



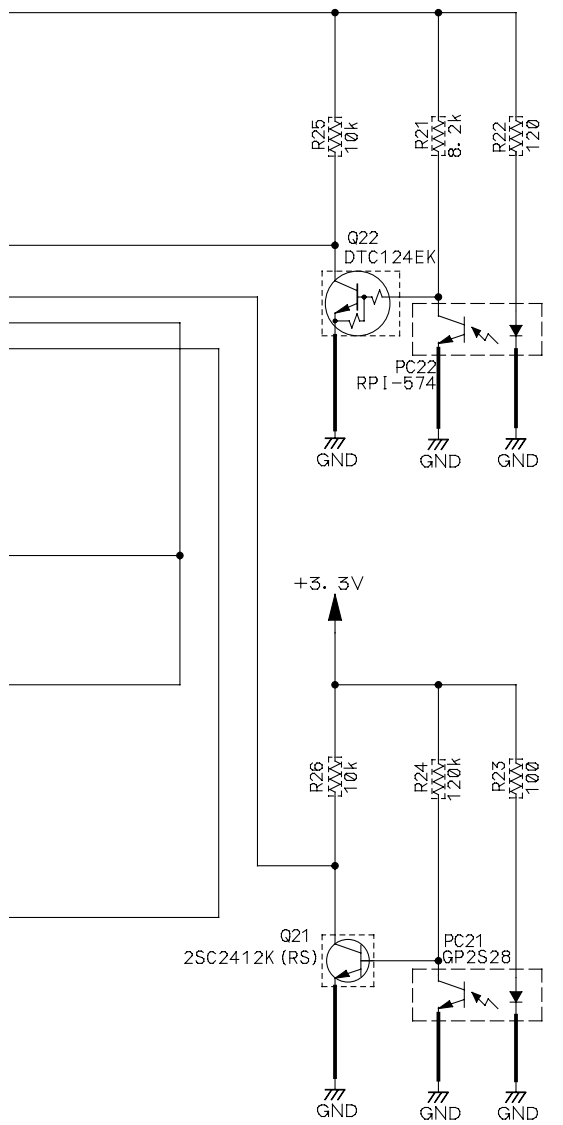
XV-HTD640

3.15 TRSB, SSRB, LOMB and SSIB ASSYS



G H I

SSRB ASSY (XWZ3856)



NOTES

ALL RESISTORS ARE IN Ω

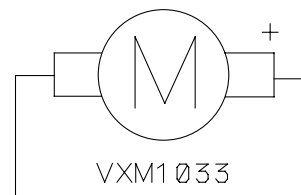
RXXX RS1/10S***J

ALL CAPACITORS ARE IN μF

UNLESS OTHERWISE SPECIFIED

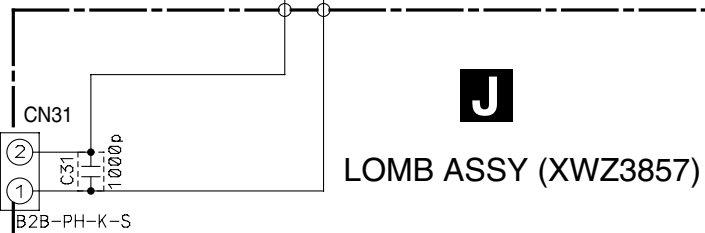
HH CKSQYB***K**

LOADING MOTOR



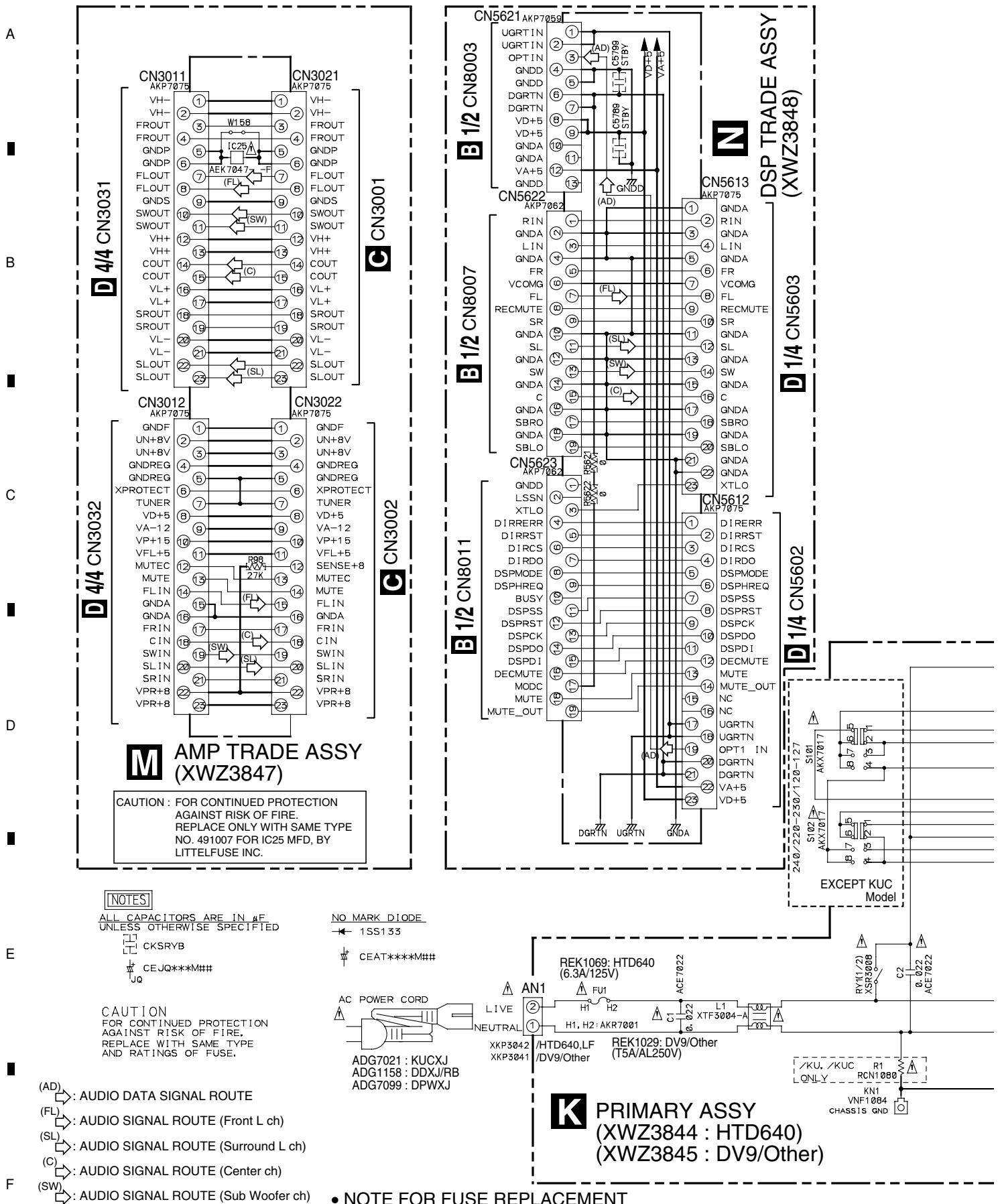
A 1/3 CN123

LOAD-
LOAD+



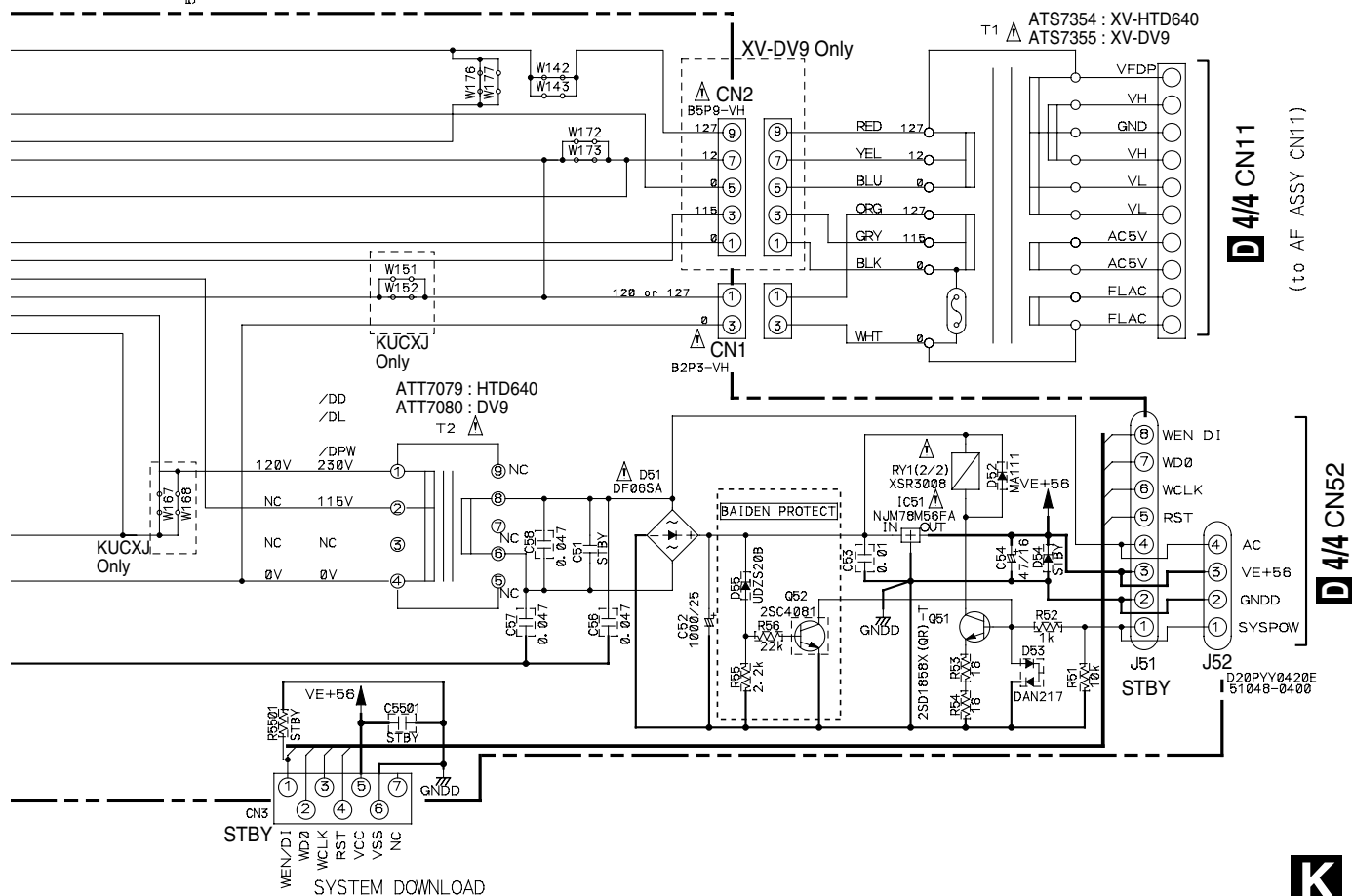
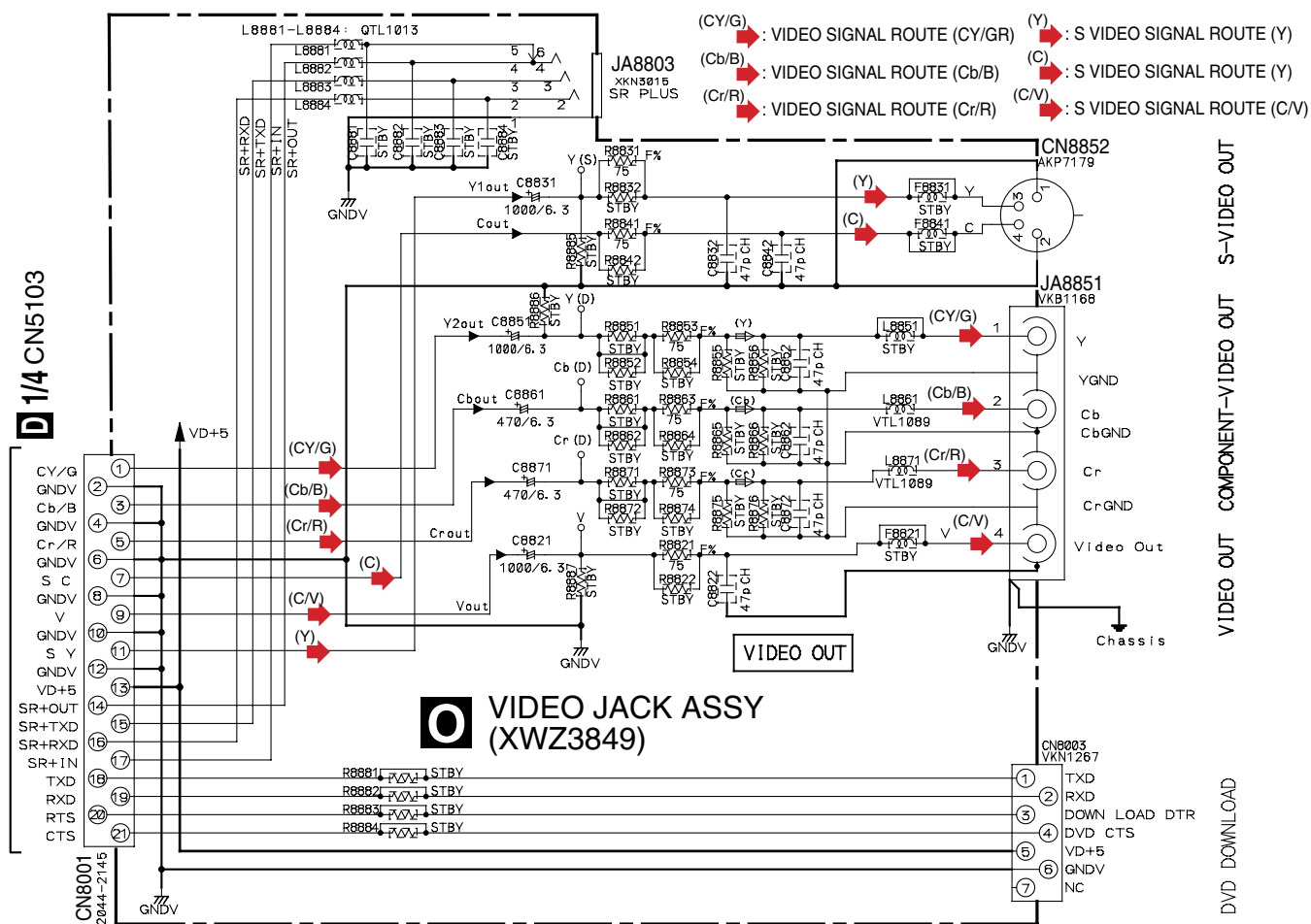
J
LOMB ASSY (XWZ3857)

3.16 PRIMARY, AMP TRADE, DSP TRADE and VIDEO JACK ASSYS

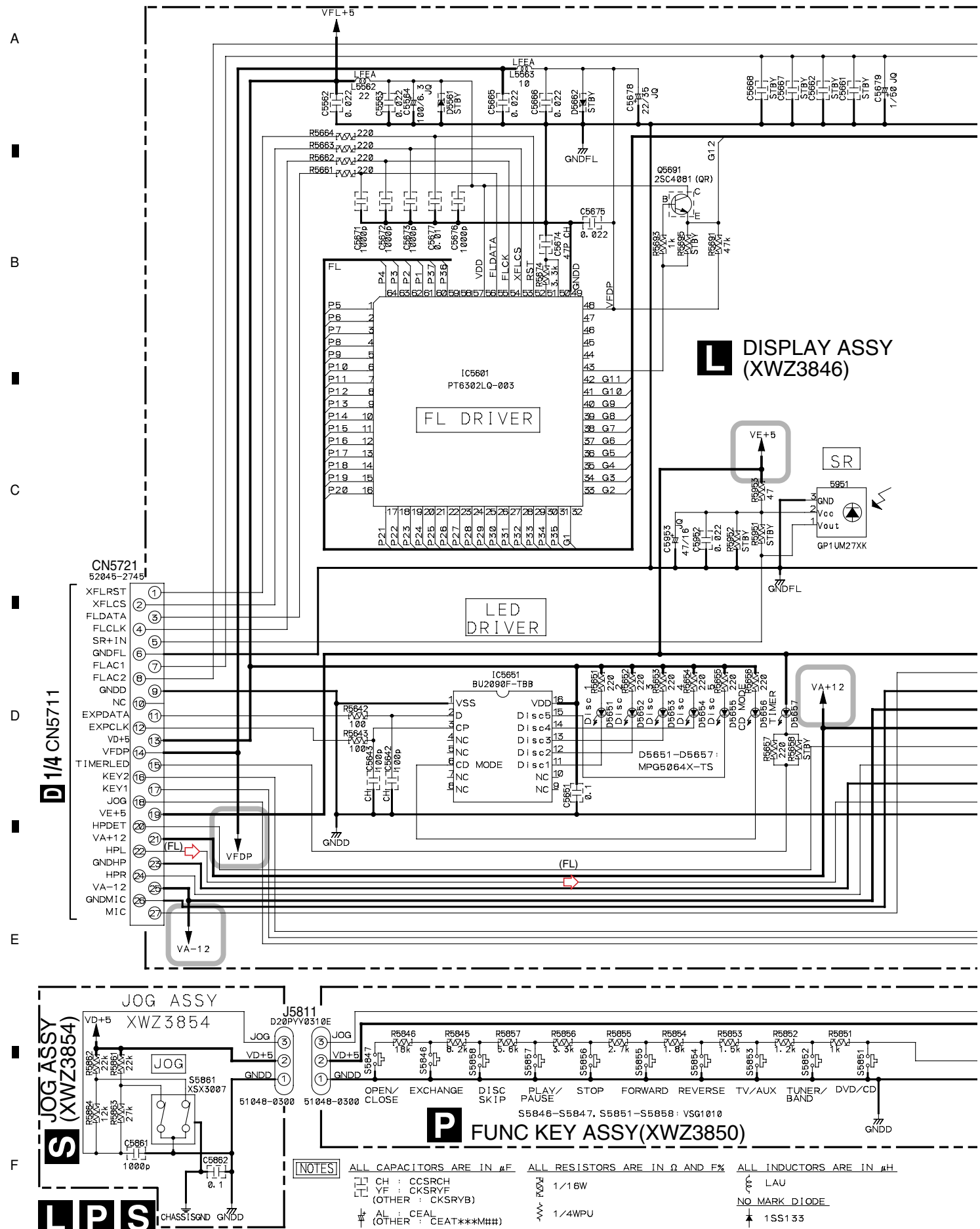


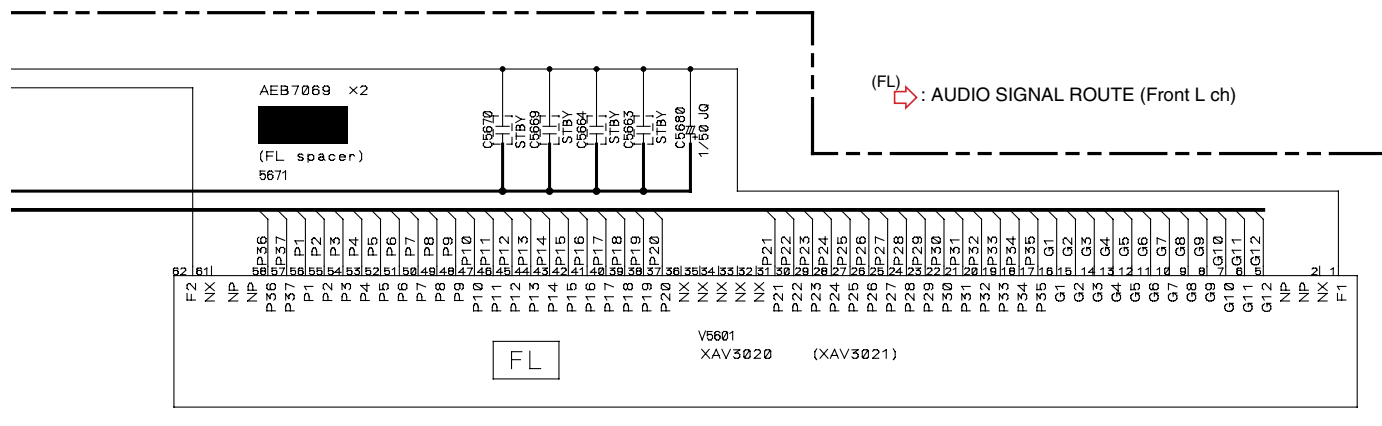
K M N

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS OF FUSE.



3.17 DISPLAY, FUNCTION KEY, DISC KEY, HP MIC and JOG ASSYS





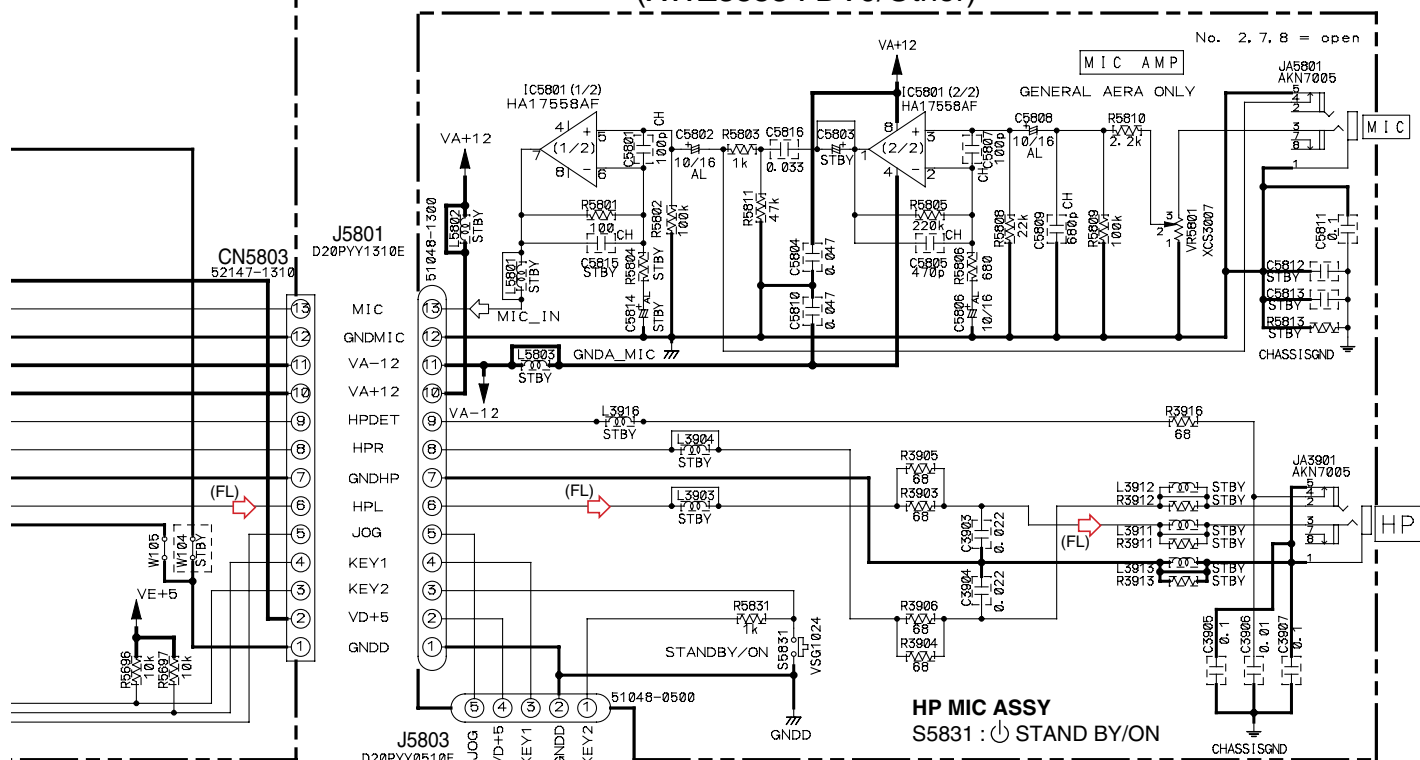
JOG ASSY

S5861 : VOLUME UP ↔ DOWN

DISC KEY ASSY

S5841 : DISC 1
S5842 : DISC 2
S5843 : DISC 3
S5844 : DISC 4
S5845 : DISC 5

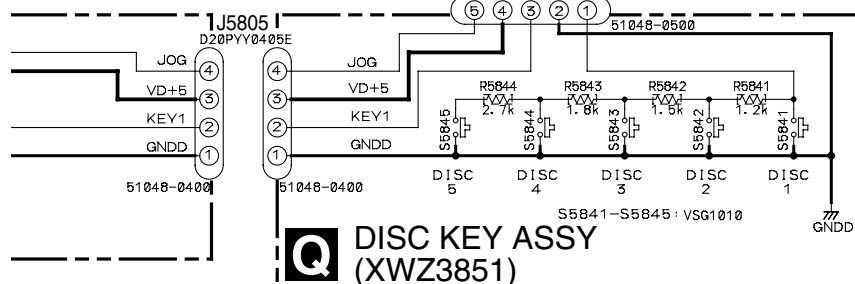
R HP MIC ASSY (XWZ3852 : HTD640) (XWZ3853 : DV9/Other)



FUNCTION KEY ASSY

S5851 : DVD/CD
S5852 : TUNER (FM/AM/ST.)
S5853 : TV/L1/L2
S5854 : ◀◀◀ (REVERSE)
S5855 : ▶▶▶ (FORWARD)
S5856 : ■ (STOP)
S5857 : ▶/|| (PLAY/PAUSE)
S5858 : DISC SKIP
S5846 : EXCHANGE
S5847 : OPEN/CLOSE (▲)

Q DISC KEY ASSY (XWZ3851)

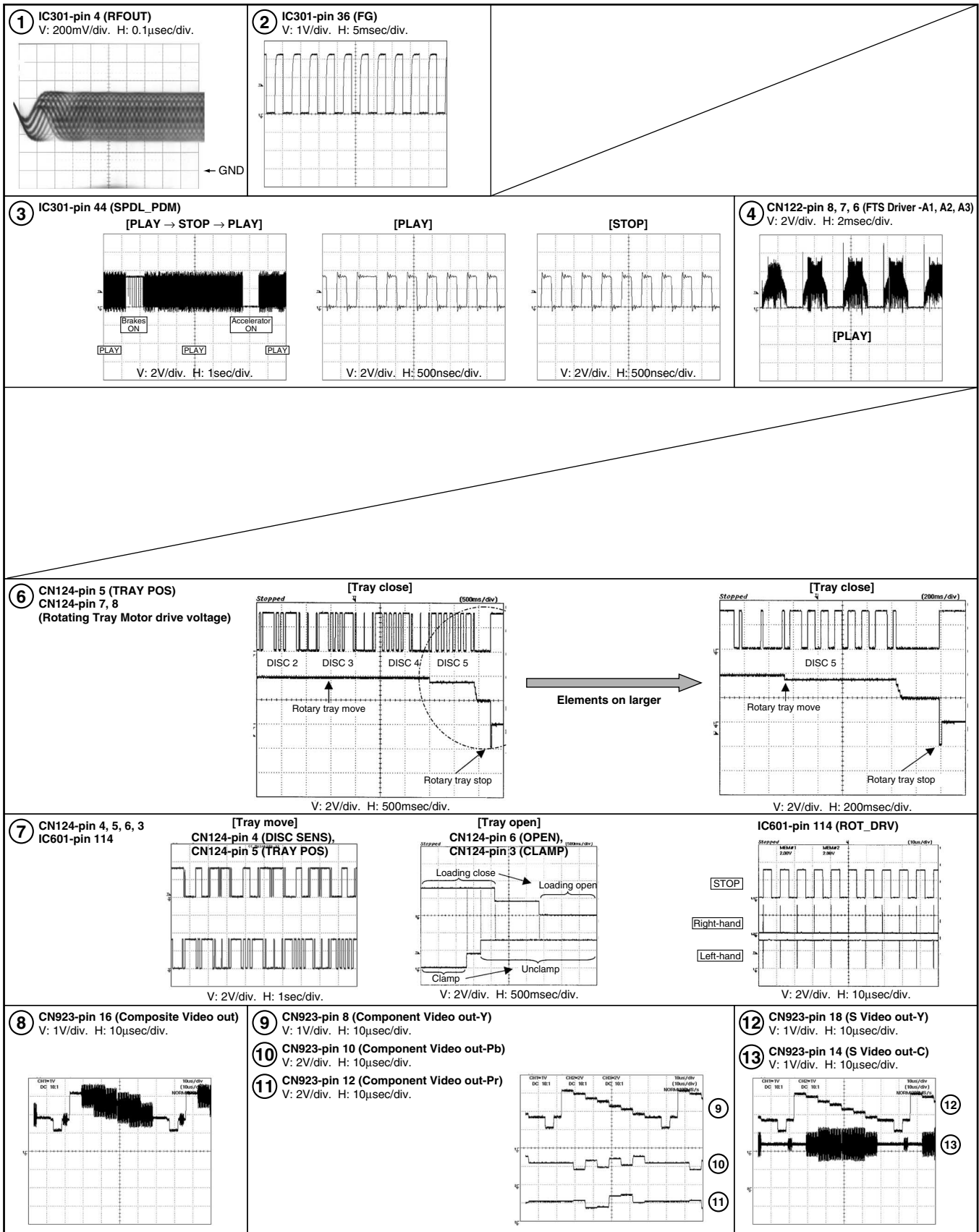


3.18 DVDM WAVEFORMS

A DVDM ASSY

Note : The encircled numbers denote measuring point in the schematic diagram.

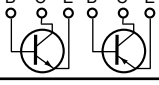
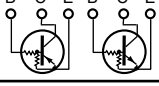
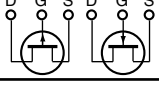
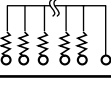
Measurement condition : No. 1 to 2 and 8 to 13 : reference A1 (DVD), T2-chp 19, Color -bar



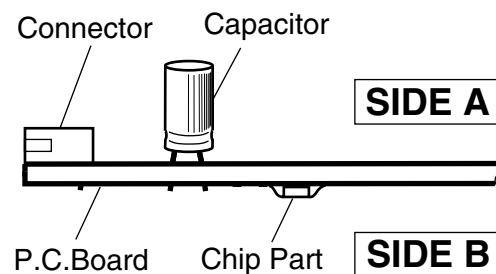
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



1 2 3 4

4.1 TRSB, SSRB and LOMB ASSYS

SIDE A

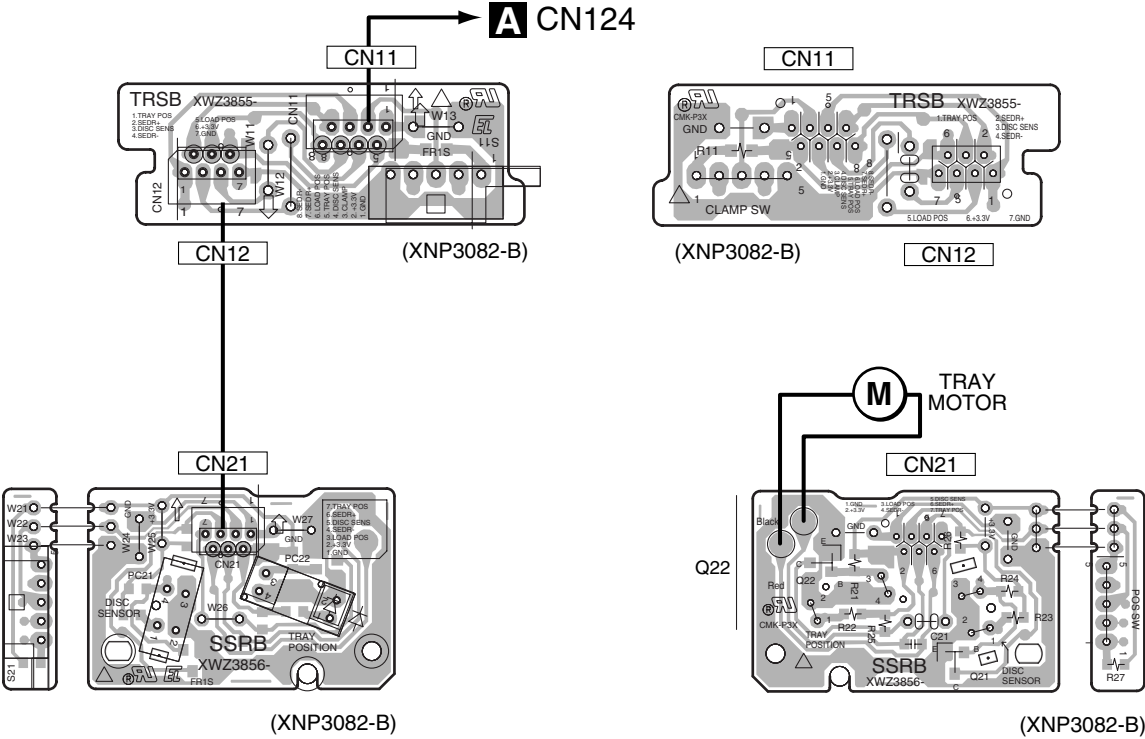
SIDE B

H

TRSB ASSY

H

TRSB ASSY



I

SSRB ASSY

I

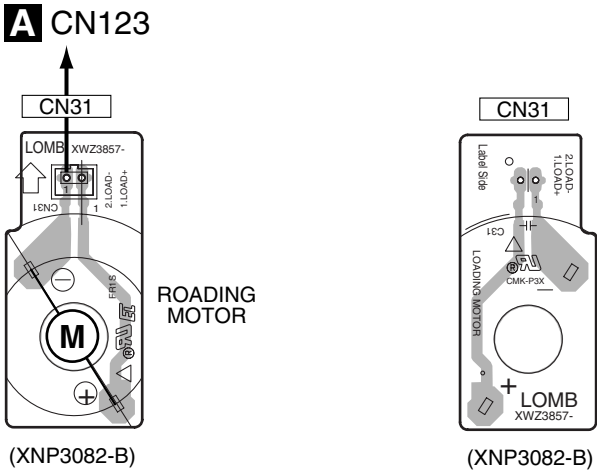
SSRB ASSY

J

LOMB ASSY

SIDE A

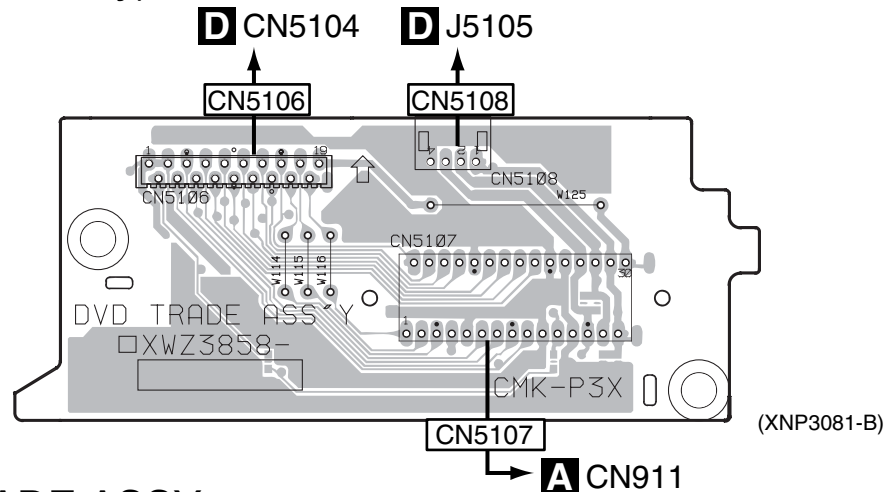
SIDE B



4.2 SSIB and DVD TRADE ASSYS

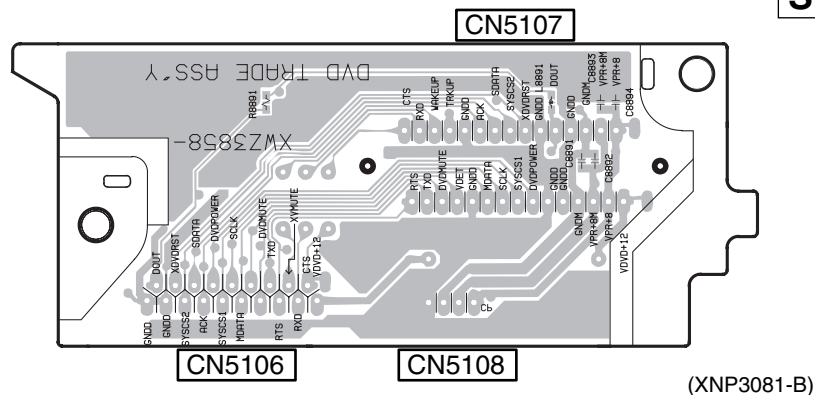
T DVD TRADE ASSY (HTD640 : Only)

SIDE A



T DVD TRADE ASSY

SIDE B

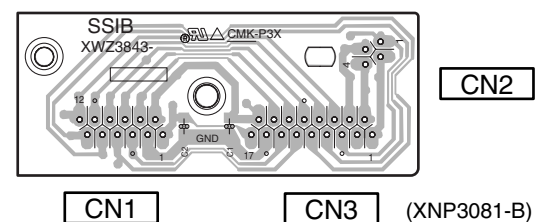
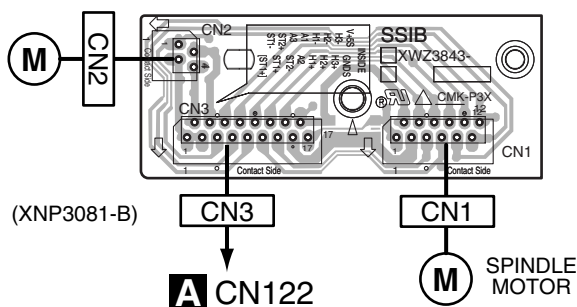


SIDE A

SIDE B

G SSIB ASSY

G SSIB ASSY



G T

G T

4.3 DVDM ASSY (HTD640 Only)

SIDE A

SIDE A

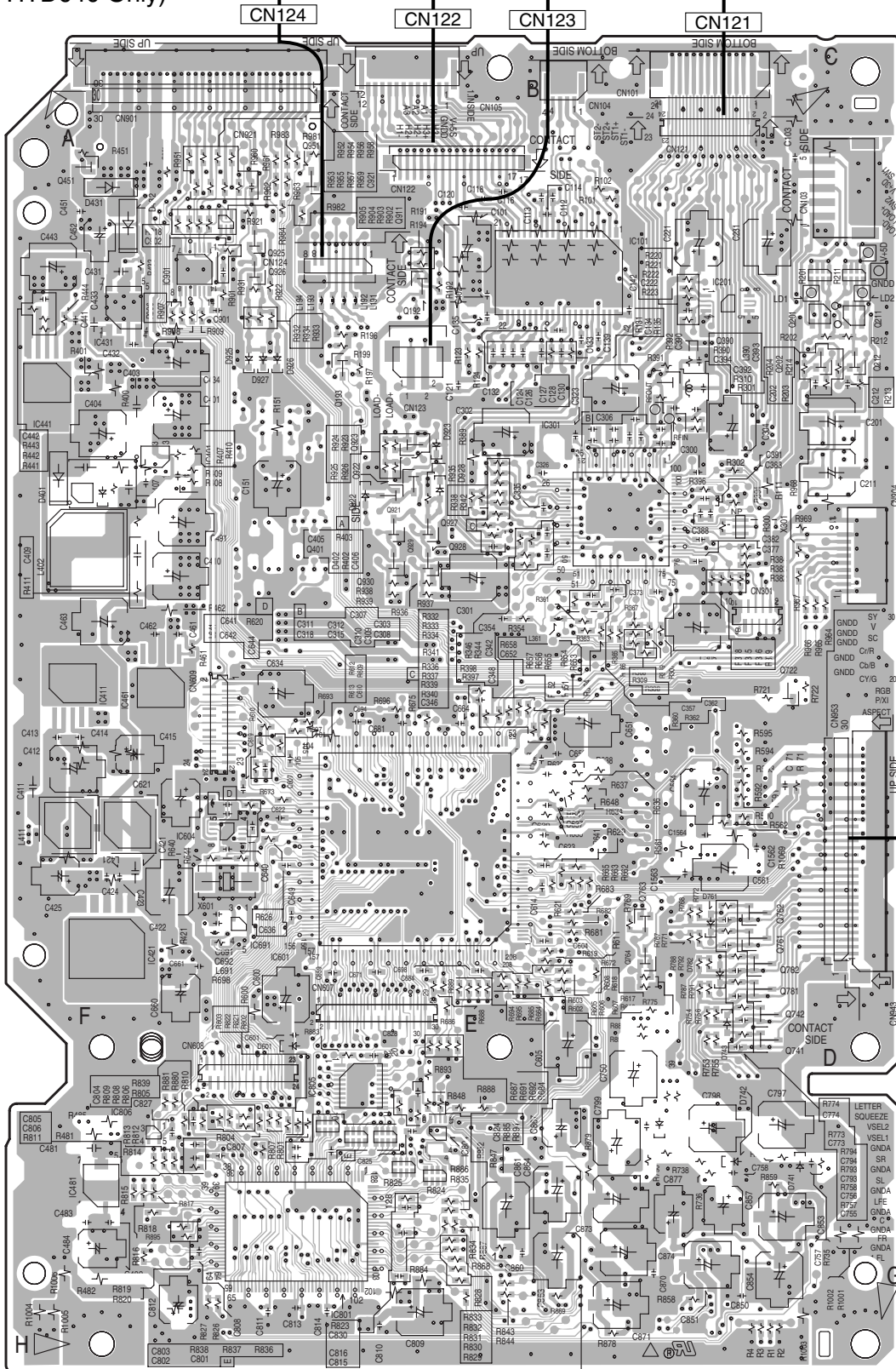
A DVDM ASSY
(XV-HTD640 Only)

H CN11

G CN3

J CN31

PICKUP ASSY



(VNP7480-A)

D CN5105

A

A

4.4 DVDM ASSY (DV9 / Other)

SIDE A

SIDE A

A DVDM ASSY
(XV-DV9 Only)

G CN3

PICKUP ASSY

H CN11

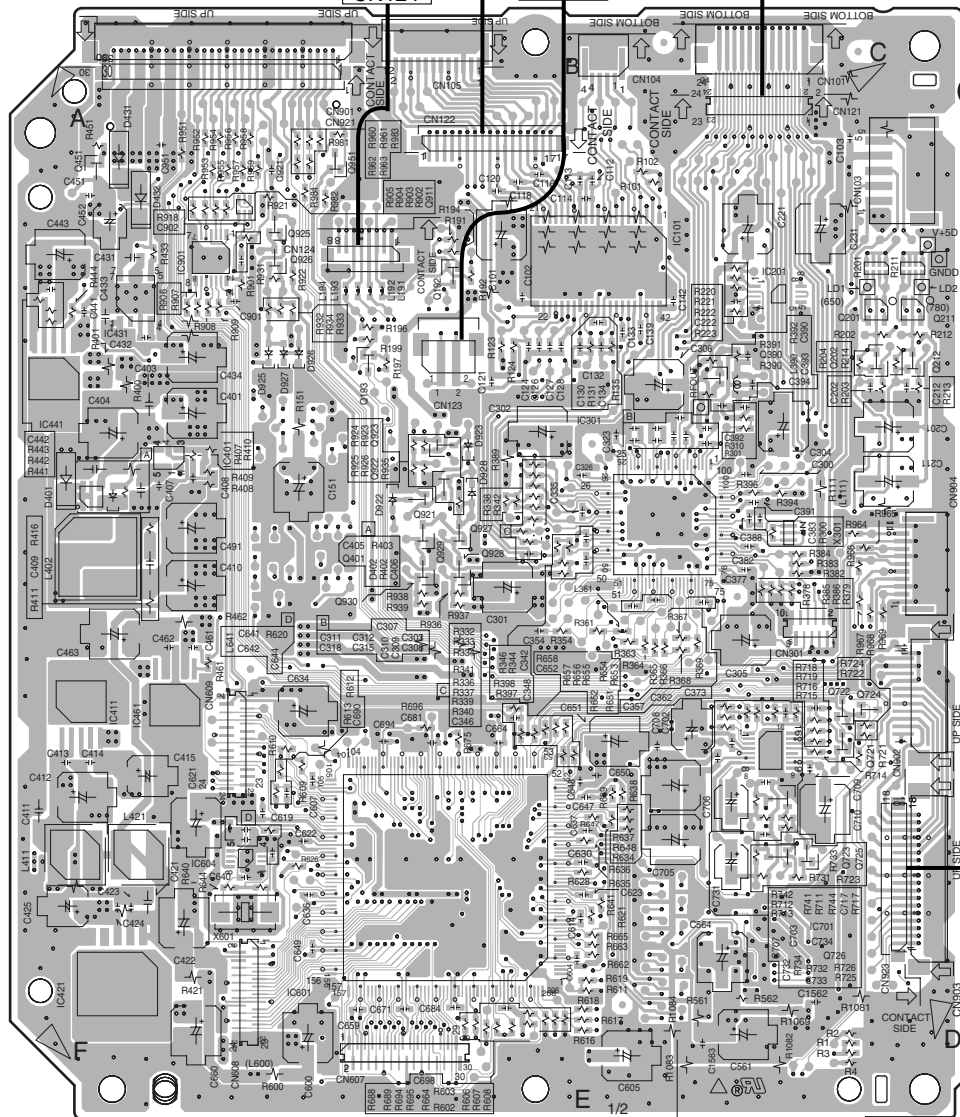
J CN31

CN122

CN121

CN124

CN123



(ANP7463-B)

4.5 AF ASSY

SIDE A

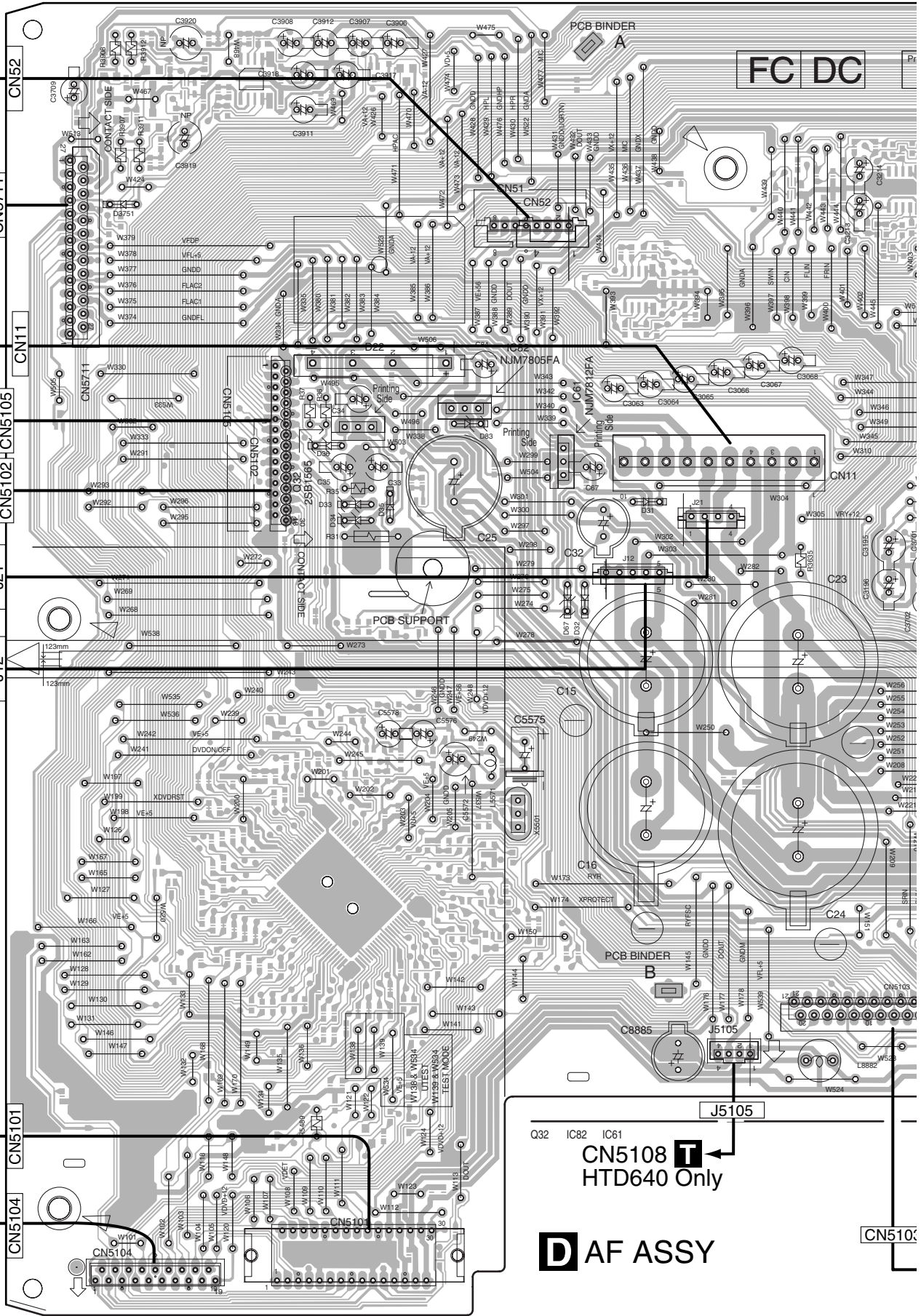
POWER L CN5721 K J52
TRANSFORMER

A CN953 HTD640
A CN923 DV9/Other

E J21A
F J12A

A CN911 DV9/Other
T CN5106 HTD640 Only

D



Q32 IC82 IC61
CN5108 T
HTD640 Only

D AF ASSY

XV-HTD640

1



SIDE B

A

IC3001 Q3004 Q3007
Q3904
Q3907
Q3902
Q3906

IC3003 Q3201 Q3901

IC3901

IC3261 Q3010 Q3009
IC3201 Q3741

Q3903

IC3252 Q3006 Q3005

IC3731 Q3001
IC3051 Q3002
IC3241 Q3061

Q3171
Q3121

IC3062 Q3172 Q3131

IC3161

IC3061 IC3131 Q5573

IC3181 Q3101 Q3174

Q3801 Q131

IC3801 IC3101 Q3102
IC3821

IC3121 Q3802

Q3122 Q3124 Q114
IC3701 Q3125
Q3123

Q3645 Q3635 Q3804 Q5571 Q5572
Q3642
Q3636

Q5501 Q5576
Q3612
Q3644
Q3611 Q3633

IC5501 Q3632 Q3631
Q3622 Q3639
Q3640
Q3638 Q3637

Q3803
Q5580
Q5578
Q3621
Q5575

Q5595

Q3601 Q3602
Q5581 Q3003
Q3905

Q5579

Q5577

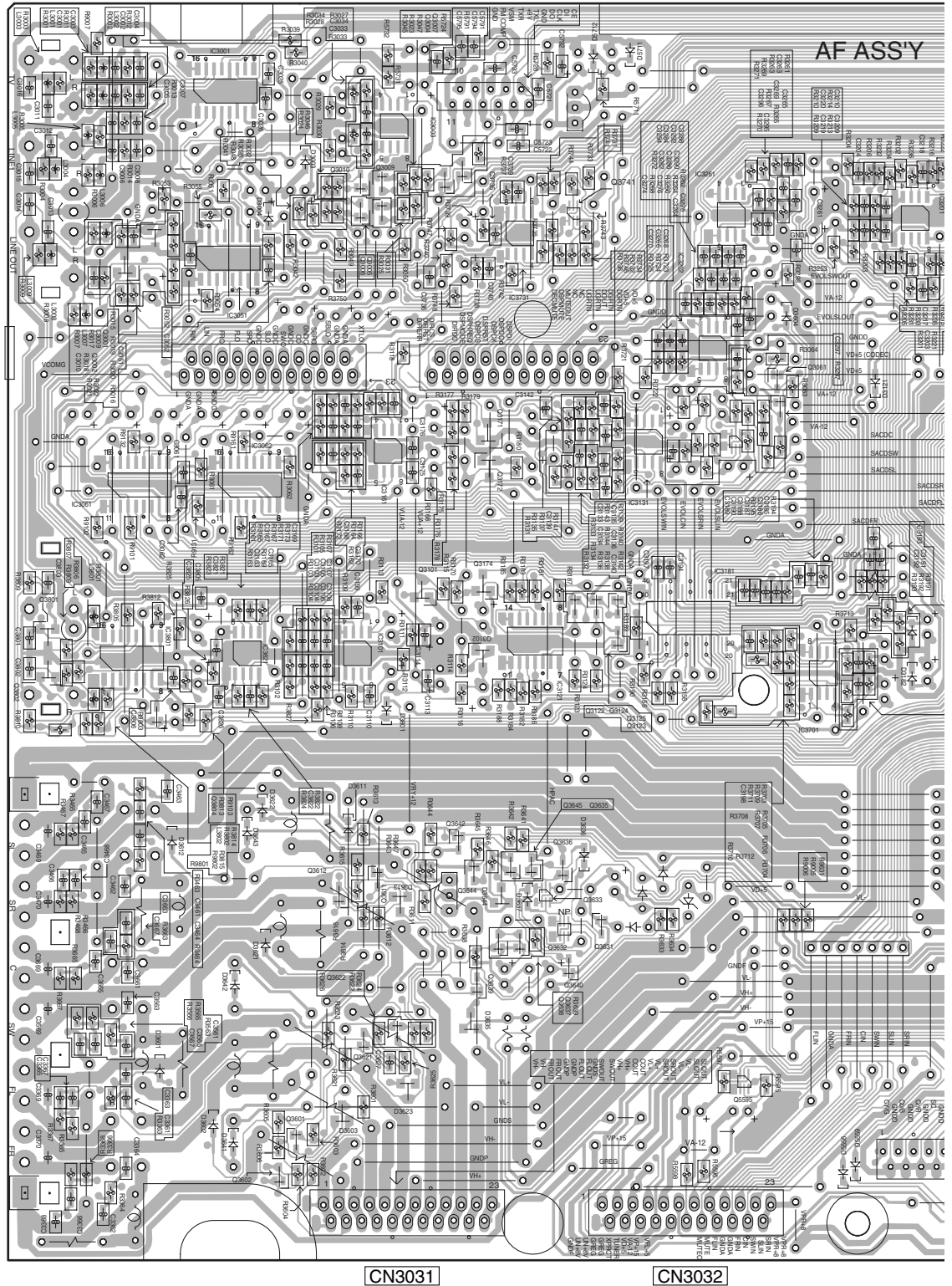
B

C

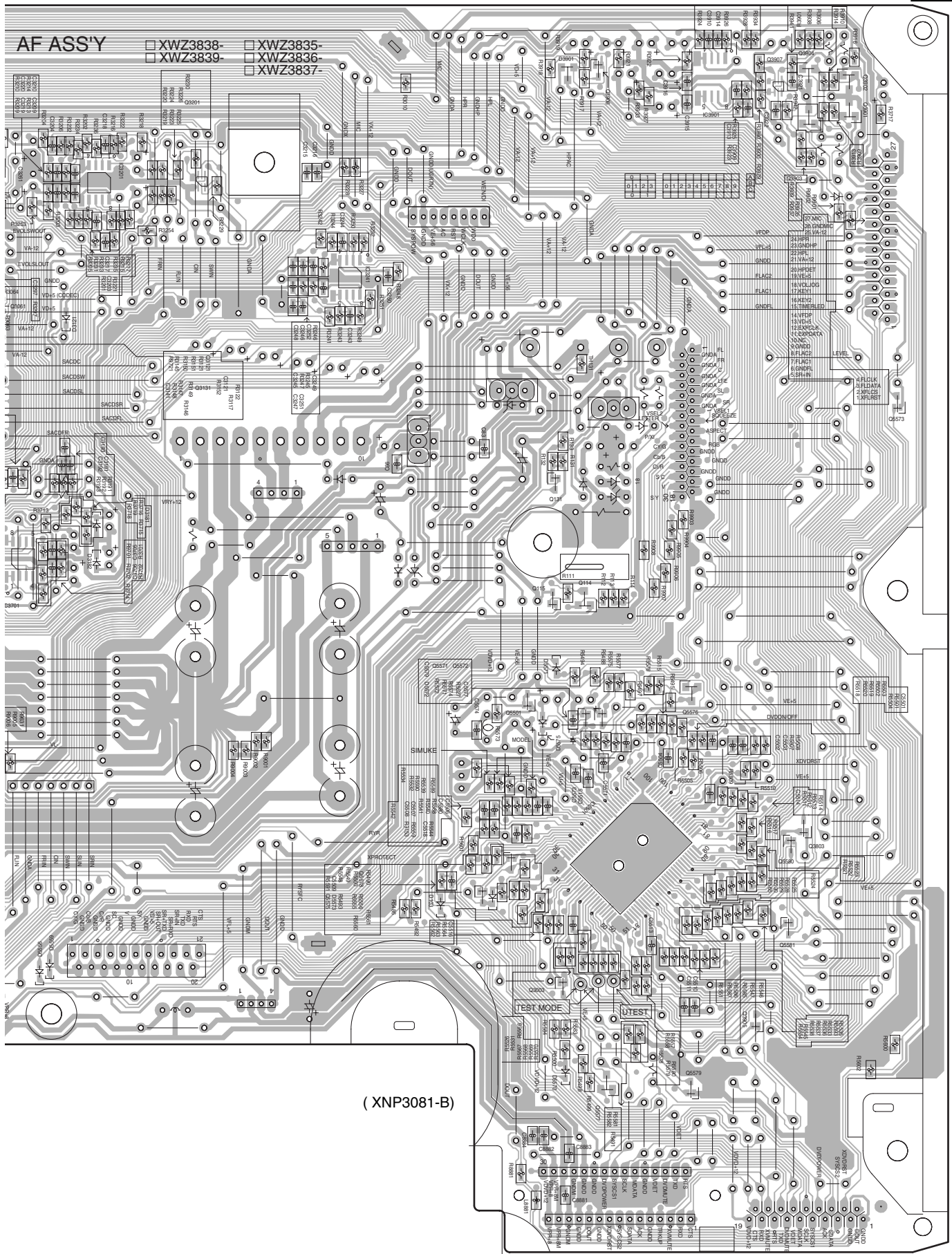
D

E

F

**D** AF ASSY**D**

SIDE B



A

B

C

D

E

F

D

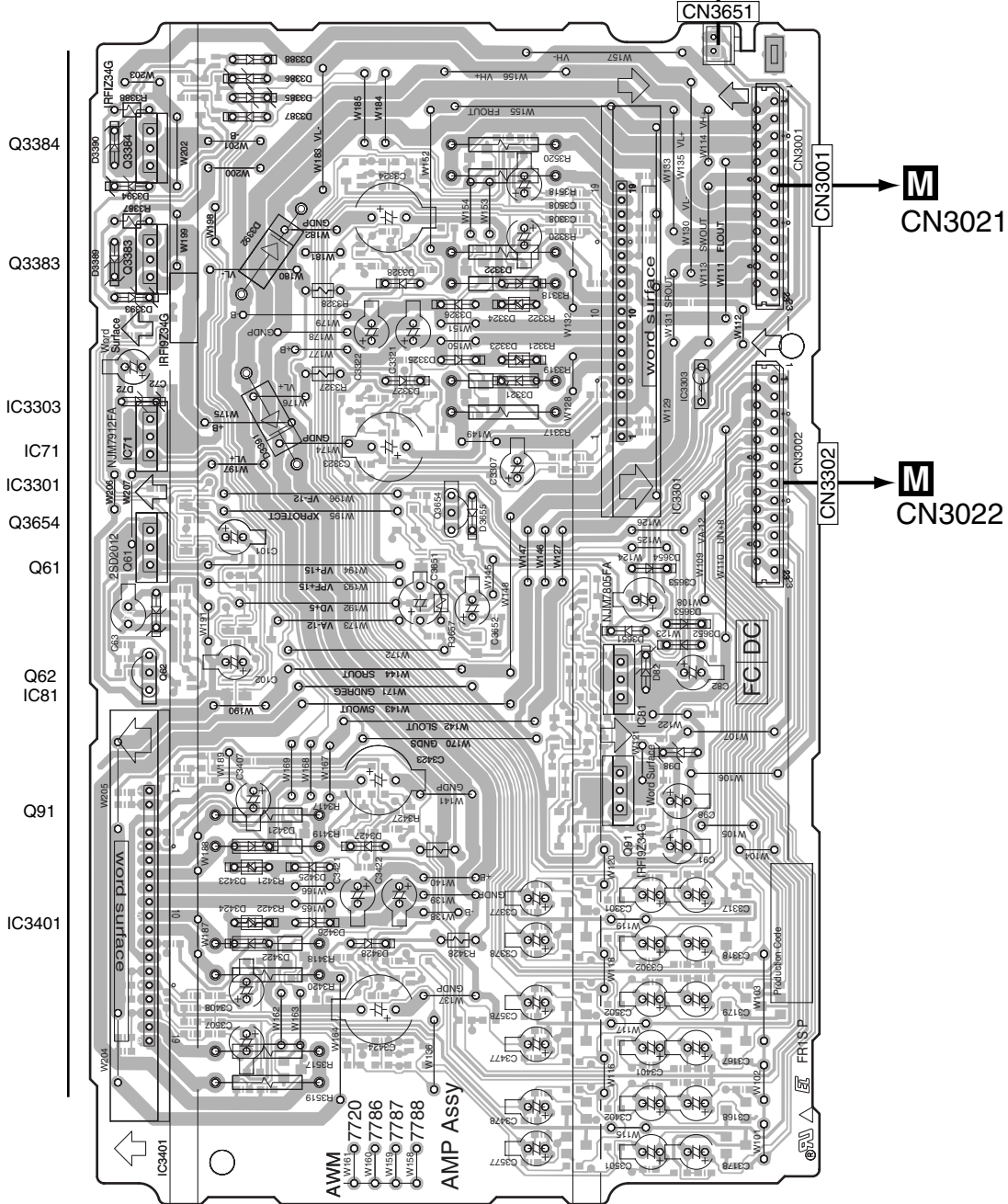
4.6 6CH AMP ASSY

SIDE A

SIDE A

6CH AMP ASSY

DC FAN MOTOR

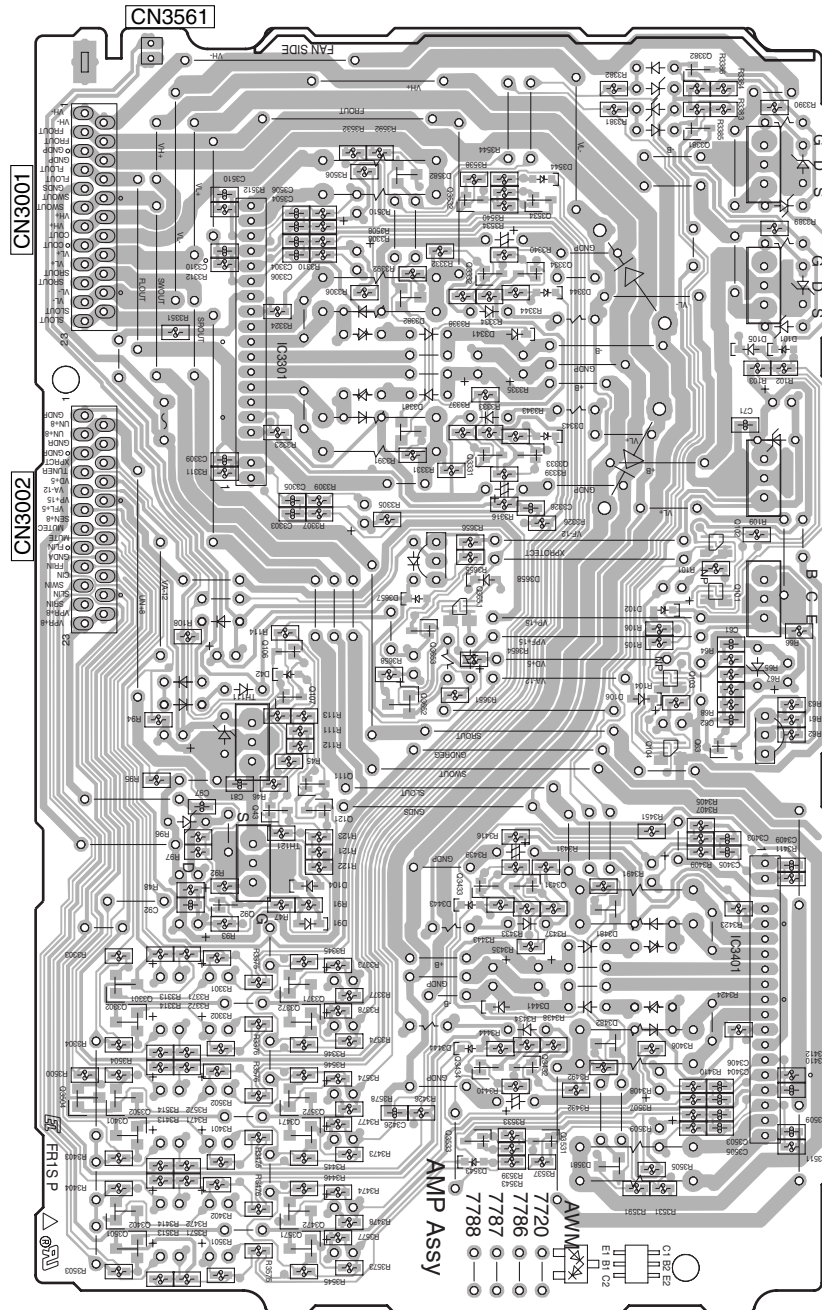


(ANP7461-A)

SIDE B

SIDE B

C 6CH AMP ASSY



- Q3382
- Q3381
- Q3532 Q3534
- Q3332 Q3334
- IC3301
- Q3331 Q3333
- Q102
- Q3651
- Q101
- Q3653
- Q106 Q103
- Q107 Q3652
- Q104 Q63
- Q111
- Q43 Q121
- Q3433 Q3431
- Q92 Q92
- IC3401
- Q3301 Q3371
- Q3302 Q3372
- Q3434 Q3432
- Q3504 Q3502 Q3572
- Q3401 Q3471
- Q3533 Q3531
- Q3402 Q3472
- Q3501 Q3571

(ANP7461-A)

C

C

4

SIDE A

A



C



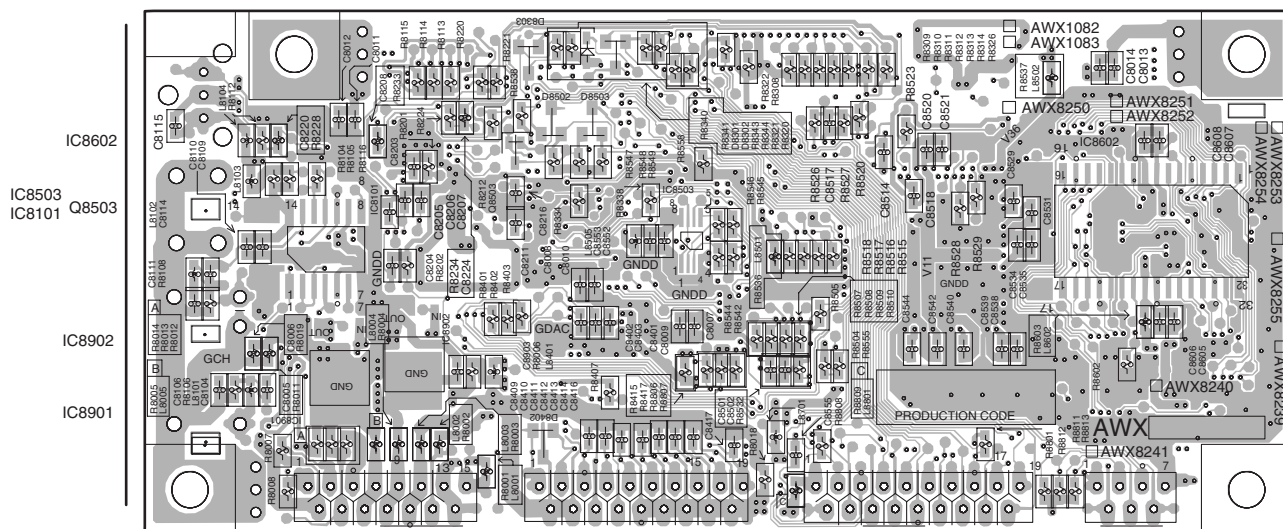
(XNP3082-B)



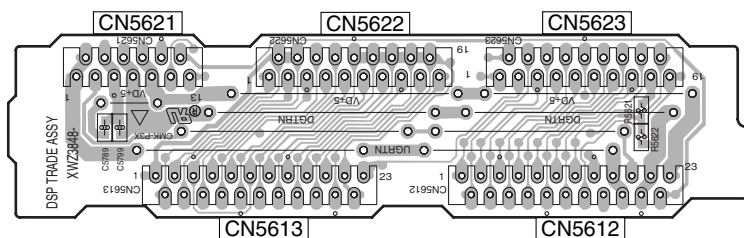
(XNP3082-B)

SIDE B

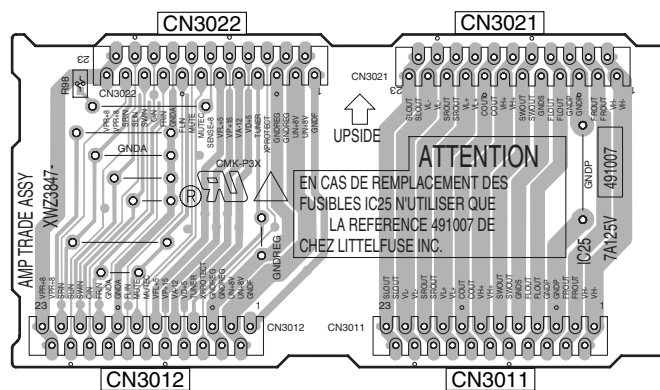
SIDE B

B DSP ASSY

(ANP2022-B)

N DSP TRADE ASSY

(XNP3082-B)

M AMP TRADE ASSY

(XNP3082-B)

B M N**B M N**

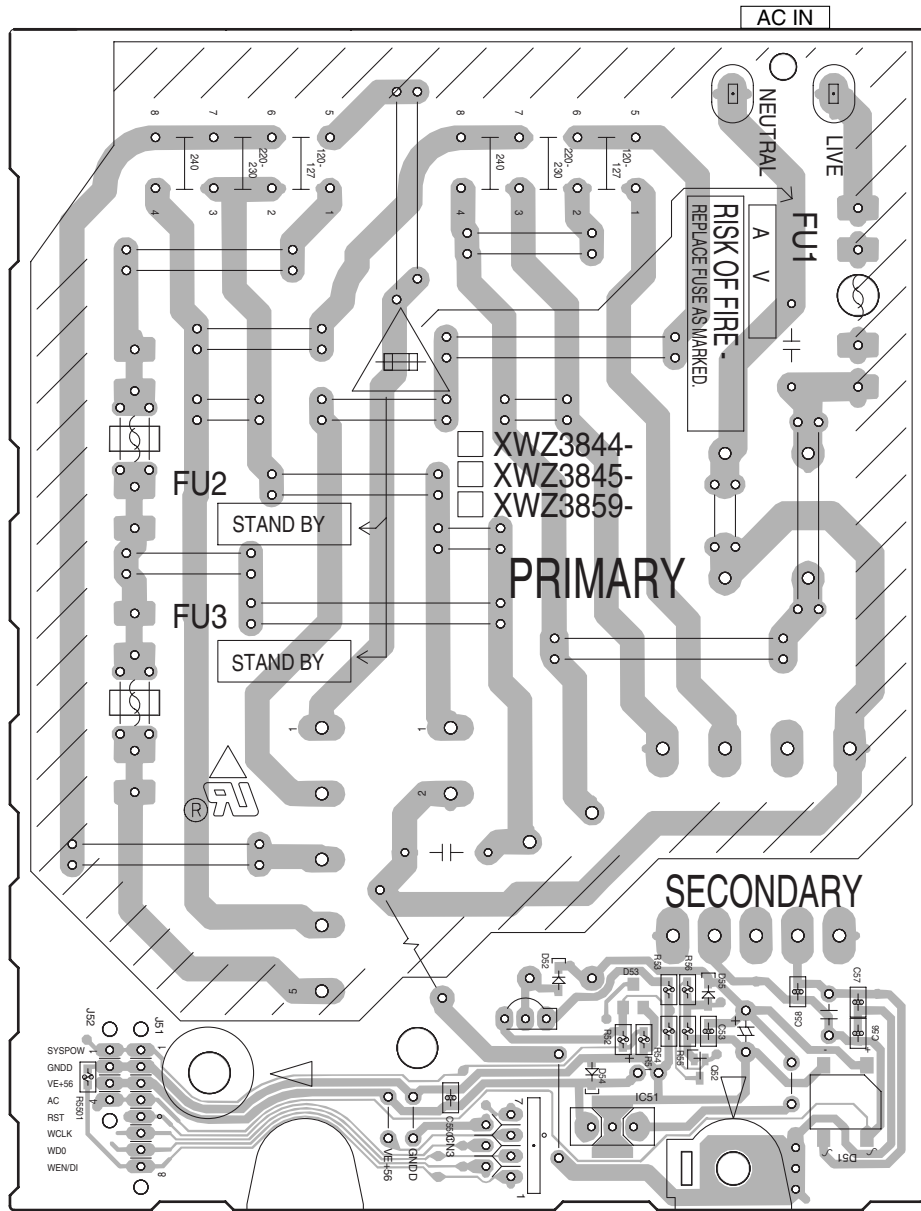
△

4

SIDE B

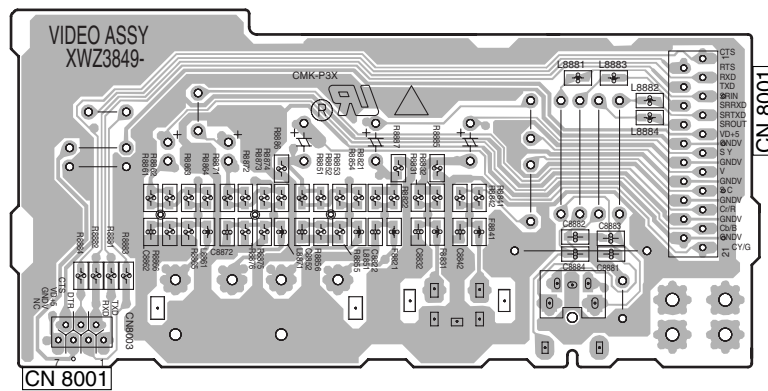
K PRIMARY ASSY

SIDE B



(XNP3082-B)

O VIDEO JACK ASSY



(XNP3082-B)

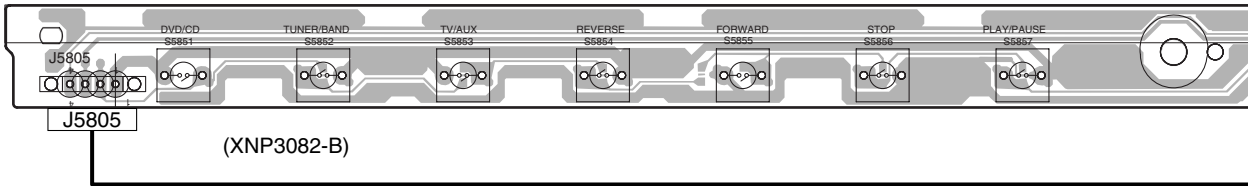
K **O**

K **O**

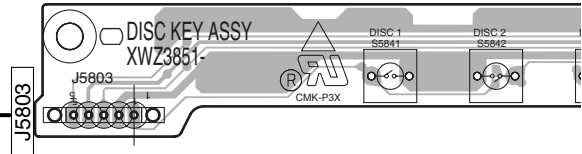
4.9 DISPLAY, JOG, DISC KEY, HP MIC, DIODE L, R and FUNC KEY ASSYS

SIDE A

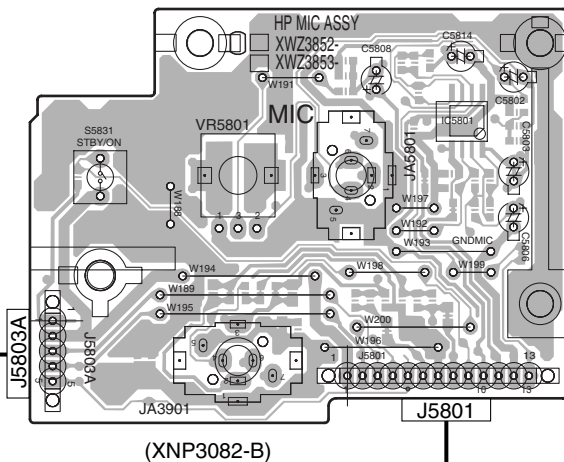
P FUNCTION KEY ASSY



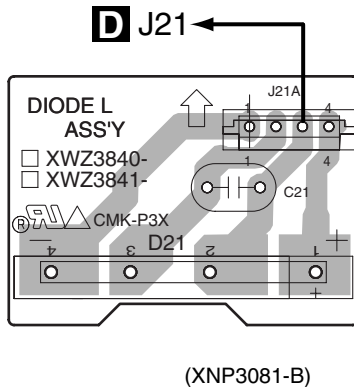
Q DISC KEY ASSY



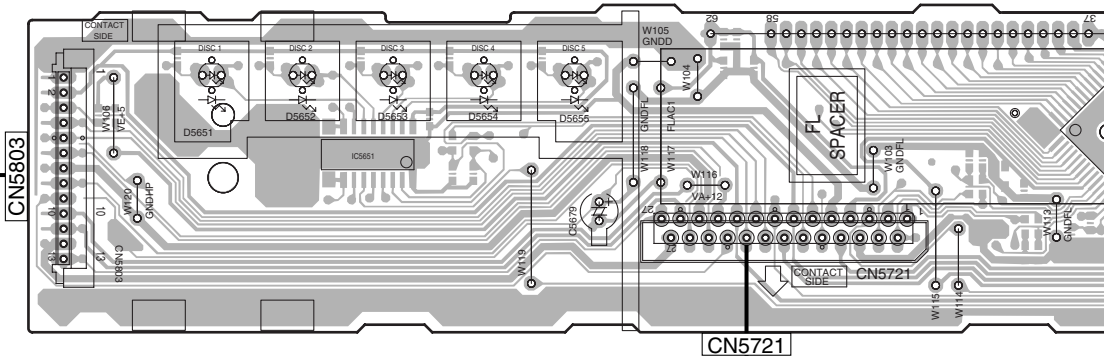
R HP MIC ASSY



E DIODE L ASSY



L DISPLAY ASSY



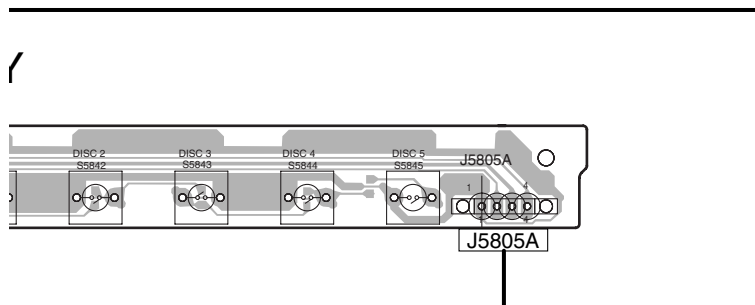
D CN5711

E L P Q R

XV-HTD640

SIDE A

A

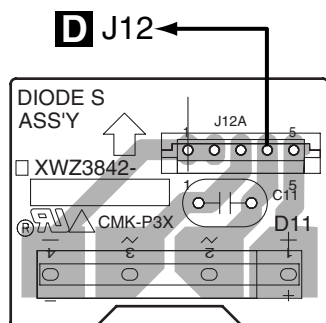
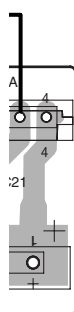


(XNP3082-B)

B

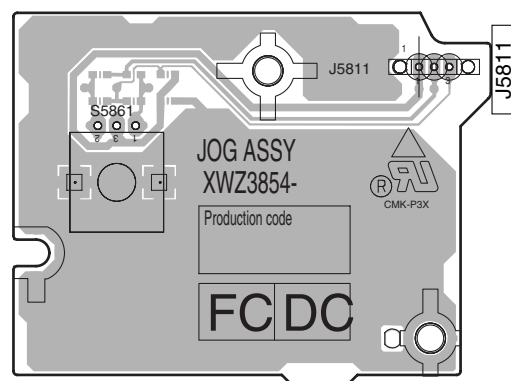
3SY

F DIODE S ASSY

S JOG ASSY

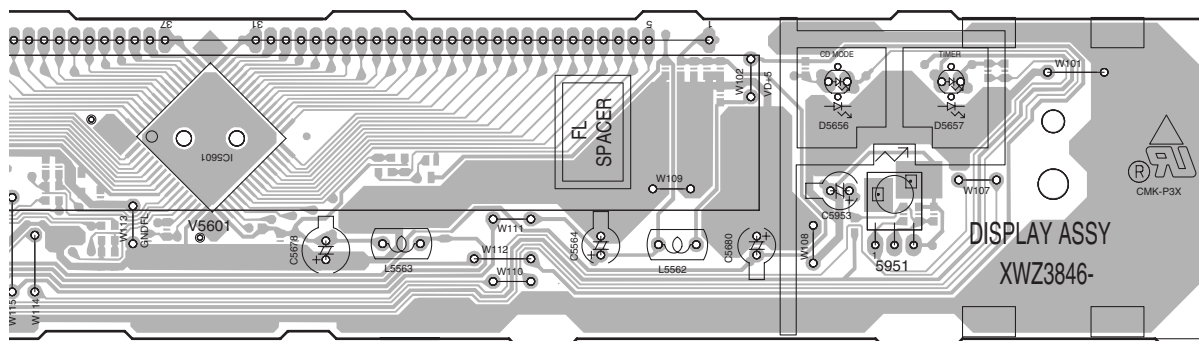
B)

(XNP3081-B)



(XNP3082-B)

D



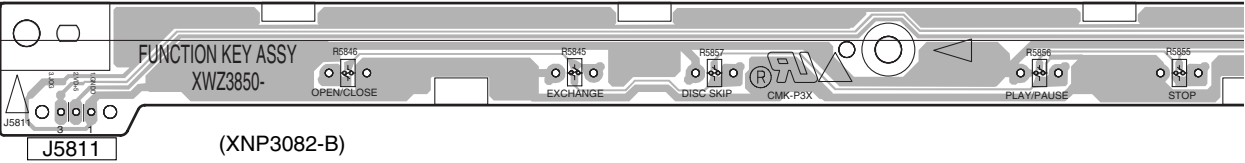
(XNP3082-B)

F

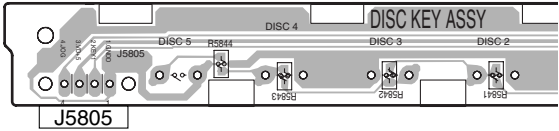
F L P Q S

SIDE B

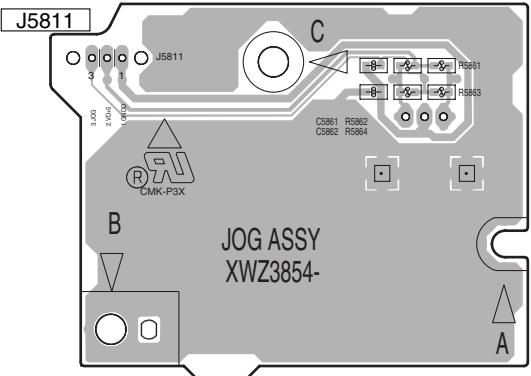
P FUNCTION KEY ASSY



Q DISC KEY ASSY

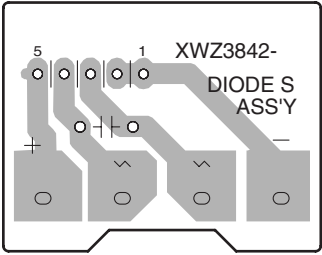


S JOG ASSY



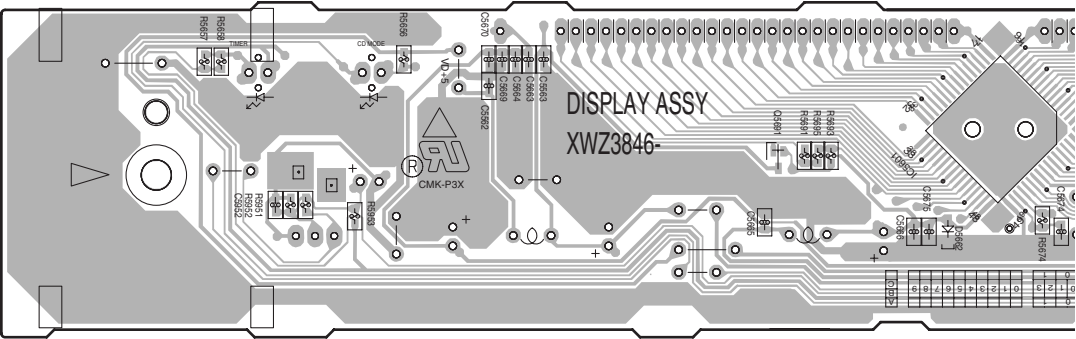
(XNP3082-B)

F DIODE S ASSY



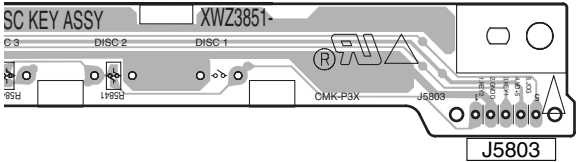
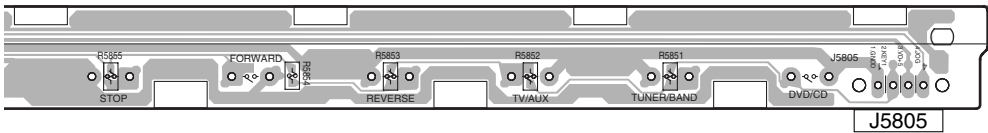
(XNP3081-B)

L DISPLAY ASSY



SIDE B

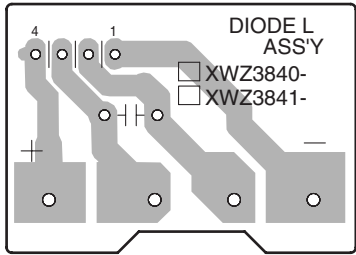
A



B

SSY

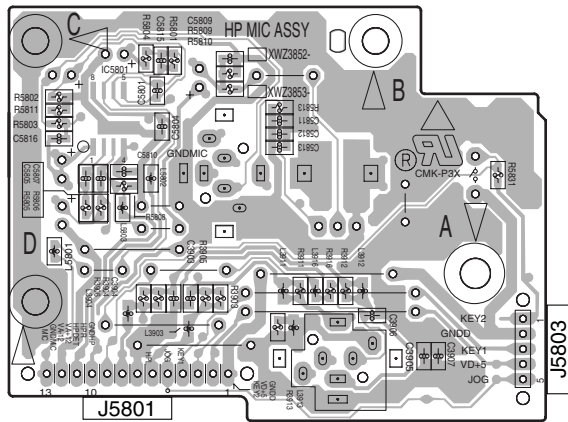
E DIODE L ASSY



B)

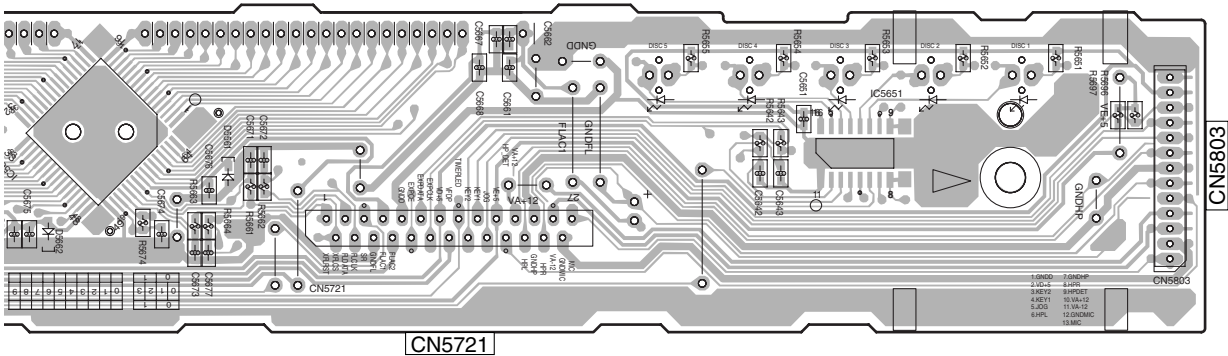
(XNP3081-B)

R HP MIC ASSY



C

(XNP3082-B)



IC5651

(XNP3082-B)

F

E L P Q R

1 2 3 4

5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
●The Δ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
●When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560 Ω $\rightarrow$ 56 x 10¹ $\rightarrow$ 561 RD1/4PU561J
47k Ω $\rightarrow$ 47 x 10³ $\rightarrow$ 473 RD1/4PU473J
0.5 Ω $\rightarrow$ R50 RN2H R50K
1 Ω $\rightarrow$ 1R0 RS1P 1R0K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω $\rightarrow$ 562 x 10¹ $\rightarrow$ 5621 RN1/4PC5621F

B

LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	XV-HTD640 /KUCXJ	XV-DV9 /DLXJ/NC	XV-DV9 /DPWXJ
NSP	1..FM/AM TUNER MODULE	AXX7172	AXX7173	AXX7173
	1..COMPLEX ASSY	XWM3236	XWM3237	XWM3237
	2..AMP TRADE ASSY	XWZ3847	XWZ3847	XWZ3847
	2..DSP TRADE ASSY	XWZ3848	XWZ3848	XWZ3848
	2..VIDEO JACK ASSY	XWZ3849	XWZ3849	XWZ3849
	2..PRIMARY ASSY	XWZ3844	XWZ3845	XWZ3845
	2..DISPLAY ASSY	XWZ3846	XWZ3846	XWZ3846
	2..JOG ASSY	XWZ3854	XWZ3854	XWZ3854
	2..DISC KEY ASSY	XWZ3851	XWZ3851	XWZ3851
	2..FUNCTION KEY ASSY	XWZ3850	XWZ3850	XWZ3850
	2..HP MIC ASSY	XWZ3852	XWZ3853	XWZ3853
	2..TRSB ASSY	XWZ3855	XWZ3855	XWZ3855
	2..SSRB ASSY	XWZ3856	XWZ3856	XWZ3856
	2..LOMB ASSY	XWZ3857	XWZ3857	XWZ3857
NSP	1..MAIN ASSY	XWM3234	XWM3235	XWM3235
	2..AF ASSY	XWZ3838	XWZ3839	XWZ3839
	2..DVD TRADE ASSY	XWZ3858	Not used	Not used
	2..DIODE L ASSY	XWZ3840	XWZ3841	XWZ3841
	2..DIODE S ASSY	XWZ3842	XWZ3842	XWZ3842
	2..SSIB ASSY	XWZ3843	XWZ3843	XWZ3843
	1..AMP MODULE 6CH	AXQ7242	AXQ7242	AXQ7242
	2..6CH AMP ASSY	AZW7283	AZW7283	AZW7283
	1..DSP ASSY	AWX8523	AWX8523	AWX8523
	1..DVDM ASSY	AWM7882	AWM7881	AWM7881

XWZ3839 and XWZ3838 are constructed the same except for the following :

Mark	Symbol and Description	XWZ3838	XWZ3839
	IC3003,IC3101,IC3131,IC3161,IC3201 IC3241,IC3252,IC3261,IC3731,IC3821 IC3701 IC3051 IC3061, IC3062	HA17558AF HA17558AF Not used TC4052BFN TC4053BFN	BA4558F-HT BA4558F-HT BA4558F-HT Not used Not used
	Q3061,Q5580,Q5581 Q3101,Q3102,Q3171,Q3172,Q3174 Q3131 D3604 D3751	DTA124EUA Not used Not used MA111 Not used	Not used 2SD2114K XP4506 Not used 1SS133
	C3017,C3018,C3063- C3068 C3061, C3062 C3170 C3269 C3705,C3706	CEAT100M50 CKSRYB103K50 CKSRYB122K50 Not used Not used	Not used Not used CKSRYB682K50 CKSRYB393K25 CKSRYB103K50
	C3709 C3721 C3739,C3740 L8881 R3051,R3061,R3062,R3193	Not used Not used Not used Not used RS1/16S102J	CEAT101M16 CEAT100M50 CCSRCH151J50 VTL1075 Not used
	R3052 R3201,R3202 R3053- R3055,R3718,R3719,R9101 R3063 R3064,R5590	RS1/16S103J RS1/16S122J Not used RS1/16S101J RS1/16S473J	Not used RS1/16S182J RS1/16S0R0J Not used Not used
	R3114,R3115,R3170,R3180,R3703 R3704-R3706,R3735,R3736 R3145,R3146, R3177 R3149,R3150,R3179 R3162	Not used Not used RS1/16S0R0J Not used RS1/16S123J	RS1/16S103J RS1/16S103J RS1/16S271J RS1/16S472J RS1/16S222J
	R3164,R3166 R3178 R3233,R3234 R3261 R3710,R3711,R3733,R3734	RS1/16S183J RS1/16S0R0J RS1/16S0R0J RS1/16S102J Not used	RS1/16S332J RS1/16S123J RS1/16S123J RS1/16S122J RS1/16S393J
	R3713,R3714 R3709,R3712 R3721 R3722,R3731,R3732 R3723	Not used RS1/16S0R0J Not used RS1/16S0R0J Not used	RS1/16S220J RS1/16S393J RS1/16S273J RS1/16S273J RS1/16S682J
	R3724,R3737,R3738 R3741,R3742 R3743,R3744 R5539 R5532	RS1/16S0R0J RS1/16S271J RS1/16S472J Not used RS1/16S473J	RS1/16S103J RS1/16S123J RS1/16S103J RS1/16S473J RS1/16S473J
	R5590 R8881 R9102,R9131,R9132,R9161,R9162 R9007,R9701,R9702,R9721,R9881 CN5101 B to B Connector 30P	RS1/16S683J RS1/16S0R0J Not used RS1/16S0R0J Not used	RS1/16S473J RS1/16S221J RS1/16S0R0J Not used VKN1627
	CN5102 FFC Connector 18P CN5104 1.25FJ Connector CN5105 FFC Connector 30P J5105 Connector Assy	Not used 19R-1.25FJ VKN1261 PF04PG-C12	VKN1249 Not used Not used Not used

Mark No. Description Part No.

A DVDMM ASSY (AWM7881)

SEMICONDUCTORS

A	IC151	BA5912AFP-Y
	IC602	HY57V641620HGT-H
	IC101	M63018FP
	△ IC431	MM1565AF
	IC501	MM1623BF

■	△ IC421	PQ018EH01ZP
	△ IC411	PQ018EZ01ZP
	△ IC441	PQ20WZ11
	△ IC401	R1224N102H
	IC601	STM5589CVS

B	IC301	STM6316ATPAZ
	IC911	TC74VHC08FT
	IC901	TC74VHCT125AFT
	IC604	TC7WU04FU
	IC603	VYW2195

■	Q192, Q194, Q390	2SA1576A
	△ Q451	2SA1576A
	Q923, Q924, Q926	2SA1576A
	Q191, Q193, Q202, Q212, Q452	2SC4081
	Q921	DTA124EUA

C	Q951	DTC114TUA
	Q724, Q977	DTC114YUA
	Q922, Q925	DTC124EUA
	Q201, Q211	HN1A01F
	Q911	RN1903

■	Q603	RN4982
	△ Q401	RSQ035P03
	D431, D432	1SR154-400
	D402, D403, D922-D927	1SS355
	D603	RB501V-40

D	D401	RSX201L-30
	D921	UDZS4.7B

COILS AND FILTERS

■	L401 Power Inductor	ATH7011
	L100, L111, L623	ATL7010
	Chip Beads	
	L402 Inductor	CTH1254
	L390	LCYA2R7J2520

CAPACITORS

E	C408	CCSRCH121J50
	C390	CCSRCH180J50
	C142	CCSRCH221J50
	C200	CCSRCH331J50
	C690	CCSRCH470J50

■	C392	CCSRCH560J50
	C393, C640, C644	CCSRCH7R0D50
	C452	CEVW100M16
	C101, C151, C401, C404, C410	CEVW101M16
	C412, C422, C443, C561, C564	CEVW101M16

F	C600, C621, C660	CEVW101M16
	C415, C425	CEVW101M4
	C201, C211	CEVW470M16
	C406	CKSQYB104K25
	C431	CKSQYB105K16

F	C433	CKSQYB225K10
	C127, C128, C381, C562, C563	CKSRYB102K50
	C624	CKSRYB102K50

Mark No. Description Part No.

C103, C112-C114, C124, C125	CKSRYB103K50
C130, C133, C134, C155, C158	CKSRYB103K50

C172, C182, C355	CKSRYB103K50
C102, C132, C139, C152	CKSRYB104K16
C160, C161, C163, C174, C176	CKSRYB104K16
C230, C232, C233, C300, C307	CKSRYB104K16
C309, C315, C318, C323, C326	CKSRYB104K16

C335, C342, C348, C357, C362	CKSRYB104K16
C373, C377, C388, C391	CKSRYB104K16
C413, C414, C423, C424	CKSRYB104K16
C441, C442, C451, C511, C531	CKSRYB104K16
C551, C565, C571, C604, C607	CKSRYB104K16

C614, C619, C622, C623	CKSRYB104K16
C626-C632, C636, C637, C641	CKSRYB104K16
C647-C649, C659, C664, C671	CKSRYB104K16
C681, C684, C694, C698, C902	CKSRYB104K16
C912, C921	CKSRYB104K16

C501, C521, C541, C603, C620	CKSRYB105K10
C625	CKSRYB105K10
C394	CKSRYB152K50
C126, C346	CKSRYB223K50
C202, C205, C212, C215	CKSRYB472K50

C402, C403, C405, C409 (10/16V)	DCH1165
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RESISTORS

R201	RAB4C220J
R211	RAB4C390J
R1011-R1013, R151, R210	RS1/10S0R0J
R387-R389, R412-R415, R417	RS1/10S0R0J
R421, R422, R561, R600	RS1/10S0R0J

R403	RS1/10S100J
R105, R106, R115-R120	RS1/10S4R7J
R104, R107	RS1/10S6R8J
R125, R144, R169, R172-R176	RS1/16S1002F
R179, R182, R330, R331, R628	RS1/16S1002F

R635	RS1/16S1002F
R168	RS1/16S1102F
R301	RS1/16S1202F
R502, R512, R522, R532, R542	RS1/16S1500F
R552	RS1/16S1500F

R408	RS1/16S1502F
R178	RS1/16S1602F
R410	RS1/16S1802F
R443	RS1/16S2001F
R409	RS1/16S2702F

R441	RS1/16S4701F
R101, R102, R123, R142, R143	RS1/16S5600F
R442	RS1/16S6801F
R411	RS1/8S0R0J
Other Resistors	RS1/16S###J

OTHERS

CN123 PH Connector	B2B-PH-SM3
7P Flexible Cable	VDA1681
CN124 8P FFC Connector	VKN1412
CN122 17P FFC Connector	VKN1421
CN923 18P FFC Connector	VKN1422

CN121 24P FFC Connector	VKN1464
CN911 B to B Connector	VKN1626
X601 (27MHz)	VSS1172
X301 (20MHz)	VSS1186

5	6	7	8
Mark No.	Description	Part No.	Mark No. Description Part No.
A DVDM ASSY (AWM7882)			
SEMICONDUCTORS			
IC741,IC761,IC781	BA4558F-HT	C690	CCSRCH470J50
IC151	BA5912AFP-Y	C755,C756,C773,C774	CCSRCH471J50
IC861,IC871	DSD1702EG	C793,C794	CCSRCH471J50
IC851	DSD1791DBR	C392	CCSRCH560J50
IC602	HY57V281620HCT	C393,C640,C644	CCSRCH7R0D50
IC802	K4S641632F-TC75	C452,C753,C754,C771,C772	CEVW100M16
IC101	M63018FP	C791,C792	CEVW100M16
⚠ IC431	MM1565AF	C101,C151,C401,C404,C410	CEVW101M16
IC501	MM1623BF	C412,C422,C443,C561,C564	CEVW101M16
⚠ IC421	PQ018EH01ZP	C600,C750,C797-C799,C809	CEVW101M16
⚠ IC411	PQ018EZ01ZP	C851,C853,C854,C861	CEVW101M16
⚠ IC441	PQ20WZ11	C863,C864,C871,C873,C874	CEVW101M16
⚠ IC401	R1224N102H	C415,C425,C621,C660,C812	CEVW101M4
IC801	SAA7893HL/C2	C857	CEVW101M4
IC601	ST15588CVB	C201,C211	CEVW470M16
IC301	STM6316ATPAZ	C761,C762,C781,C782,C867	CEVW470M6R3
IC911	TC74VHC08FT	C877	CEVW470M6R3
IC901	TC74VHCT125AFT	C406	CKSQYB104K25
IC807	TC7SET08FU	C431	CKSQYB105K16
IC691	TC7SU04FU	C433	CKSQYB225K10
IC803	TC7WH34FU	C127,C128,C381,C562,C563	CKSRYB102K50
IC604,IC804	TC7WU04FU	C624,C802,C810	CKSRYB102K50
IC603	VYW2182	C103,C112-C114,C124,C125	CKSRYB103K50
Q192,Q194,Q390	2SA1576A	C130,C133,C134,C155,C158	CKSRYB103K50
⚠ Q451	2SA1576A	C172,C182,C355,C805	CKSRYB103K50
Q744,Q764,Q923,Q924,Q926	2SA1576A	C102,C132,C139,C152	CKSRYB104K16
Q191,Q193,Q202,Q212,Q452	2SC4081	C160,C161,C163,C174,C176	CKSRYB104K16
Q741,Q742,Q761,Q762	2SD2114K	C300,C307,C309,C315,C318	CKSRYB104K16
Q781,Q782	2SD2114K	C323,C326,C335,C342,C348	CKSRYB104K16
⚠ Q401	CPH6314	C357,C362,C373,C377,C388	CKSRYB104K16
Q921	DTA124EUA	C391,C413,C414,C423,C424	CKSRYB104K16
Q951	DTC114TUA	C441,C442,C451,C511,C531	CKSRYB104K16
Q722,Q746,Q763,Q977	DTC114YUA	C551,C565,C571,C604,C607	CKSRYB104K16
Q922,Q925	DTC124EUA	C614,C619,C622,C623	CKSRYB104K16
Q201,Q211	HN1A01F	C626-C632,C636,C637,C641	CKSRYB104K16
Q911	RN1903	C647-C649,C659,C664,C671	CKSRYB104K16
Q603	RN4982	C681,C684,C691,C694,C698	CKSRYB104K16
D431,D432	1SR154-400	C741,C742,C749,C767-C769	CKSRYB104K16
D402,D403,D743,D761,D782	1SS355	C787-C789,C801,C803,C804	CKSRYB104K16
D922-D927	1SS355	C806-C808,C811,C813-C826	CKSRYB104K16
D401	RB051L-40	C829,C852,C855,C856	CKSRYB104K16
D603	RB501V-40	C858,C859,C862,C865,C866	CKSRYB104K16
D921	UDZS4.7B	C872,C875,C876,C902,C912	CKSRYB104K16
D741,D742,D781	UDZS6.2B	C921	CKSRYB104K16
COILS AND FILTERS			
L401 POWER INDUCTOR	ATH7011	C230,C232,C233,C501,C521	CKSRYB105K10
L100,L111,L413,L414,L623	ATL7010	C541,C603,C620,C625	CKSRYB105K10
CHIP BEAD		C757,C758,C795	CKSRYB105K10
L402 INDUCTOR	CTH1254	C394,C743-C746	CKSRYB152K50
L390	LCYA2R7J2520	C126,C346	CKSRYB223K50
L1056-L1061 CHIP BEAD	VTL1078	C202,C205,C212,C215	CKSRYB472K50
CAPACITORS			
C408,C747,C748,C751,C752	CCSRCH121J50	C402,C403,C405,C409	DCH1165
C390	CCSRCH180J50	RESISTORS	
C142	CCSRCH221J50	R824,R825,R836-R838	RAB4C0R0J
C765,C766,C785,C786	CCSRCH270J50	R201	RAB4C220J
C200,C763,C764,C783,C784	CCSRCH331J50	R211	RAB4C390J
		R1001-R1006,R1011-R1013,R1069	RS1/10S0R0J
		R151,R210,R387-R389,R412	RS1/10S0R0J
		R415,R417,R421,R422,R483	RS1/10S0R0J

Mark No. Description**Part No.****Mark No. Description****Part No.**

R485,R561,R600,R840,R884
R403
R105,R106,R115-R120
R104,R107

RS1/10S0R0J
RS1/10S100J
RS1/10S4R7J
RS1/10S6R8J

C8421
C8106
C8107
C8007, C8008, C8109, C8201, C8212

CCSRCH101J50
CCSRCH221J50
CCSRCH470J50
CCSRCH471J50

R125,R144,R169,R172-R176
R179,R182,R330,R331,R628
R635,R761-R764,R781-R784
R168
R301

RS1/16S1002F
RS1/16S1002F
RS1/16S1002F
RS1/16S1102F
RS1/16S1202F

C8214, C8404, C8409-C8414
C8416, C8417, C8419, C8505, C8507
C8509, C8511, C8512, C8515, C8518
C8520, C8522, C8524, C8526, C8528
C8530, C8532, C8534, C8536, C8539

CCSRCH471J50
CCSRCH471J50
CCSRCH471J50
CCSRCH471J50
CCSRCH471J50

R502,R512,R522,R532,R542
R552
R408
R178
R410

RS1/16S1500F
RS1/16S1500F
RS1/16S1502F
RS1/16S1602F
RS1/16S1802F

C8541, C8543, C8545, C8551, C8703
C8706
C8548, C8549
C8701, C8704
C8105, C8406, C8415, C8546, C8547

CCSRCH471J50
CCSRCH471J50
CCSRCH8R0D50
CEVW100M16
CEVW101M16

R443
R741-R746,R751,R752
R409
R441
R101,R102,R123,R142,R143

RS1/16S2001F
RS1/16S2201F
RS1/16S2702F
RS1/16S4701F
RS1/16S5600F

C8902, C8904
C8217, C8225, C8408
C8204, C8555
C8009, C8104, C8405, C8418, C8517
C8554

CEVW101M16
CEVW470M6R3
CKSRYB102K50
CKSRYB103K50
CKSRYB103K50

R442
R411
Other Resistors

RS1/16S6801F
RS1/8S0R0J
RS1/16S###J

C8010, C8202, C8207, C8213, C8215
C8407, C8420, C8422, C8504, C8513
C8521, C8523, C8525, C8527, C8529
C8531, C8533, C8535, C8537, C8538
C8540, C8542, C8544, C8550, C8702

CKSRYB104K16
CKSRYB104K16
CKSRYB104K16
CKSRYB104K16
CKSRYB104K16

OTHERS

CN123 CONNECTOR
0 FLEXIBLE CABLE
CN124 8P CONNECTOR
CN122 17P CONNECTOR
CN953 30P CONNECTOR

B2B-PH-SM3
VDA1681
VKN1412
VKN1421
VKN1434

C8705, C8901, C8903
C8110, C8516
C8514
C8203

CKSRYB104K16
CKSRYB105K6R3
CKSRYB333K16
CKSRYB473K50

CN121 24P CONNECTOR
CN911 CONNECTOR
X601 CRYSTAL RESONATOR
(27MHz)
X301 CERAMIC RESONATOR
(20MHz)

VKN1464
VKN1626
VSS1172
VSS1186

RESISTORS

R8506
R8201
Other Resistors

RAB4C101J
RS1/16S1802F
RS1/16S###J

OTHERS

X8501 (20MHz)
X8201 (24.576MHz)
CN8003 13P Socket
CN8007, CN8011 19P Socket
JA8103 1P Pin Jack

VSS1171
XSS3003
AKP7070
AKP7073
VKB1159

**B DSP ASSY
SEMICONDUCTORS**

IC8201
IC8401
IC8501
IC8901
IC8902

AK4114VQ
AK4628VQ
DSPD56367PV150
NJM2391DL1-33
NJU7223DL1-18

IC8101
IC8701
IC8702
IC8502
Q8504

TC74HCU04AF
TC74LVX244FT
TC74VHCT244AFT
TC7WU04FU
UMD2N

Q8503
D8501
D8401
D8402, D8502, D8503

UN5112
1SS355
DAN202K
DAP202K

**D AF ASSY(XWZ3838)
SEMICONDUCTORS**

IC3181
IC3003, IC3101, IC3131, IC3161, IC3201
IC3241, IC3252, IC3261, IC3731, IC3821
IC3901
⚠ IC82
⚠ IC61
IC5501
IC3001, IC3051, IC3801
IC3061, IC3062
IC3121

BD3814FV
HA17558AF
HA17558AF
NJM4565M
NJM7805FA

NJM7812FA
PDC113A
TC4052BFN
TC4053BFN
TC4066BFN

COILS AND FILTERS

L8002, L8004, L8501, L8502
Chip Solid Inductor
L8101, L8103, L8201, L8203, L8204
Chip Solid Inductor
L8401, L8402, L8504, L8701, L8702

ATL7002
QTL1013
QTL1013

Q5576, Q5577
Q3804, Q3906
⚠ Q32
Q131, Q3005, Q3006, Q3009, Q3010
Q3601, Q3602, Q3611, Q3612

2SA1037K
2SA1576A
2SB1565
2SC4081
2SC4081

CAPACITORS

C8209, C8210

CCSRCH100D50

Q3621, Q3622, Q3631, Q3637, Q3638
Q3642, Q3644, Q5501, Q5572
Q3641

2SC4081
2SC4081
2SD1858X

Mark No.	Description	Part No.
⚠ Q5711		2SD1858X
Q3801, Q3802		2SD2114K
Q114, Q3001, Q3002, Q3901-Q3904		2SD2114K
Q115, Q3003, Q3004, Q3007, Q3061		DTA124EUA
Q3803, Q5580		DTA124EUA
Q3121, Q3122, Q3124, Q3635, Q3639		DTA124EUA
Q3645		DTA143EUA
Q3123, Q3125, Q3636, Q3640, Q5575		DTC124EUA
Q5578, Q5579, Q5581		DTC124EUA
Q5571, Q5573		DTC143EUA
Q3633		RN1901
Q5595		RN2901
Q3632		UMB1N
Q3741		XP4506
D35, D3632-D3634		1SS133
⚠ D22		D5SBA20F20
D3635		DAN202K
D3644		DAN217
D3603, D3613, D3623, D3901		DAP202K
D103, D3601, D3602, D3604		MA111
D3611, D3612, D3621, D3622		MA111
D3636, D3637, D3641-D3643, D3801		MA111
D5556, D5559, D5570, D5571, D5573		MA111
D5775, D5712		MA111
D33, D34		MTZJ16A
D3631		MTZJ5.1A
D36		MTZJ6.8B
D83		MTZJ7.5C
⚠ D31, D32		S5688G
D5711		UDZS10B
D3003, D3004		UDZS6.2B
D3181, D3182		UDZS6.8B
⚠ TH131		NCP18WF104J03RB

COILS AND FILTERS

L3361, L3362, L3461, L3462, L3561	ATH-059
L3661 AF Choke Coil	ATH-059
L8882 Power Inductor	ATH7012
L5571	LAU220J

SWITCHES AND RELAYS

RY3641-RY3643 ASR7017

CAPACITORS

C5575 (0.047F/5.5V)	ACH1246
C23, C24 (5600uF/35V)	ACH7181
C15, C16 (2200uF/63V)	ACH7182
C25 (6800uF/25V)	ACH7183
C3191-C3193, C3913, C3914	CCSRCH101J50

C5510, C5511, C5577, C5722, C5723	CCSRCH101J50
C3001-C3008	CCSRCH221J50
C3103, C3104	CCSRCH331J50
C3294, C3909, C3910	CCSRCH470J50
C3109, C3110	CCSRCH680J50

C3009, C3010, C3105, C3106	CCSRCH821J50
C3139, C3140, C3169, C3801, C3802	CCSRCH821J50
C3029, C3030, C3035, C3036, C5576	CEAL100M16
C5572	CEAL101M6R3
C5578	CEAL1R0M50

C3919, C3920	CEANP470M16
C35, C3017, C3018, C3037, C3038	CEAT100M50
C3063- C3068, C3101, C3102	CEAT100M50

Mark No.	Description	Part No.
C3115- C3118, C3131, C3132		CEAT100M50
C3143- C3146, C3161, C3162		CEAT100M50
C3171- C3174, C3213, C3214, C3262		CEAT100M50
C3633, C3701, C3702, C3733, C3734		CEAT100M50
C3823, C3824, C3906, C3917, C3918		CEAT100M50
C5711		CEAT100M50
C34, C67, C84		CEAT220M50
C3195, C3196		CEAT221M10
C32		CEAT221M63
C8885		CEAT222M10
C3631		CEAT2R2M2A
C33		CEAT330M50
C3813		CEAT4R7M50
C3027, C3028, C3111, C3112		CEAT470M16
C3211, C3212, C3911, C3912		CEAT470M16
C3632		CEAT471M6R3
C5595, C5596		CEJQ220M50
C3276, C5504		CKSRYB102K50
C3025, C3026, C3033, C3034, C3061		CKSRYB103K50
C3062, C3113, C3114, C3141, C3142		CKSRYB103K50
C3175, C3176, C3197, C3198, C3826		CKSRYB103K50
C3209, C3210, C3249, C3250, C3825		CKSRYB103K50
C3295- C3298, C3735, C3736, C3803		CKSRYB103K50
C5506- C5508, C5518, C5571, C5573		CKSRYB103K50
C5580, C5791		CKSRYB103K50
C3014- C3016, C3185- C3188, C3219		CKSRYB104K16
C3220, C3290, C3288, C5513- C5516		CKSRYB104K16
C5574		CKSRYB104K16
C5794		CKSRYB105K10
C3170		CKSRYB122K50
C3217, C3218		CKSRYB123K50
C3133- C3136, C3163, C3165		CKSRYB152K50
C3251, C3252, C3261		CKSRYB153K50
C3243, C3244, C3263		CKSRYB182K50

C3276	CKSRYB222K50
C3361- C3364, C3461-C3464, C3561	CKSRYB223K50
C3563, C3661, C3663	CKSRYB223K50
C3243, C3244, C3263	CKSRYB272K50
C3266, C3282, C3292	CKSRYB273K16

C3282	CKSRYB333K16
C3189, C3190	CKSRYB472K50
C3284, C3286, C3365- C3368	CKSRYB473K50
C3465- C3468, C3565, C3567, C3665	CKSRYB473K50
C3667, C66, C83	CKSRYB473K50

C3245- C3248, C3265 CKSRYB683K16

RESISTORS

R3607, R3608, R3617, R3618	ACN7112
R3627, R3628 (0.1 Ohm , 2W)	ACN7112
R3199, R3200	RD1/2PMF151J
R3361, R3362, R3461, R3462, R3561	RD1/2PMF101J
R3661	RD1/2PMF101J

R31	RD1/2PMF332J
R36, R37	RD1/4PU101J
R3907, R3908, R3911, R3912	RD1/4PU330J
R3635	RD1/4PU332J
R3631, R3632	RD1/4PU333J

R35	RD1/4PU472J
R5489	RD1/4PU473J
R131	RS1/16S5600F

Mark No. Description**Part No.**R132
Other ResistorsRS1/16S6800F
RS1/16S###J**Mark No. Description****Part No.**⚠ D3381,D3382,D3481,D3482
⚠ D3581,D3582
D3389,D3390
⚠ D98
⚠ D72DAN217
DAN217
MTZJ10C
MTZJ11B
MTZJ15CD3393,D3394
⚠ D63
D3385,D3386
⚠ D82
D91MTZJ18B/C
MTZJ18C
MTZJ36A
MTZJ7.5C
UDZS18BD105,D106,D3658
TH111UDZS7.5B
NCP18WF104J03RB**CAPACITORS**C3305,C3306,C3405,C3406
C3505,C3506,C62,C97
C3309,C3310,C3409,C3410
C3509,C3510
C3307,C3308,C3407,C3408,C3508CCSRCH221J50
CCSRCH221J50
CCSRCJ3R0C50
CCSRCJ3R0C50
CEAL100M16C3507
C72
C3651
C101,C102
C3323,C3324,C3423,C3424CEAL470M6R3
CEAT100M50
CEAT101M25
CEAT1R0M50
CEAT221M50C3167,C3168,C3178,C3179
C3301,C3302,C3317,C3318
C3401,C3402,C3501,C3502
C3652,C63,C82,C98
C3653CEAT2R2M50
CEAT2R2M50
CEAT2R2M50
CEAT470M25
CEAT470M35C3303,C3304,C3403,C3404
C3503,C3504
C92
C71,C81CKSRYB102K50
CKSRYB102K50
CKSRYB104K16
CKSRYB473K50**RESISTORS**R3317-R3320,R3417-R3420
R3517-R3520
⚠ R3327,R3328,R3427,R3428
R3387,R3388
R3657ACN7122
ACN7122
RD1/4MUF470J
RD1/4PU101J
RD1/4PU330JR96,R97
⚠ R3323,R3324,R3351,R3423,R3424
⚠ R3451
R67,R68
R94,R95RS1/16S1002F
RS1/16S1R0J
RS1/16S1R0J
RS1/16S2201F
RS1/16S2701F⚠ R62
R65
R47,R48
Other ResistorsRS1/16S330J
RS1/16S4700F
RS1/16S4701F
RS1/16S###J**OTHERS**CN3001,CN3002 23P PLUG
CN3651 PLUG (2P)AKP7064
KM200SA2**DIODE L ASSY (XWZ3840)
SEMICONDUCTORS**

⚠ D21

D5SBA20(B)

**DIODE L ASSY (XWZ3841)
SEMICONDUCTORS****OTHERS**X5501 (10MHz)
CN5701 11P FFC Connector
CN5103 21P FFC Connector
CN5711 27P FFC Connector
CN52 4P Jumper ConnectorASS7034
52045-1145
52045-2145
52045-2745
52147-04103001 6P Pin Jack
CN3301 12P Speaker Terminal
CN3031, CN3032, CN5602, CN5603
23P Plug
CN11 10P-VH Connector
J21 Connector Ass'yAKB7012
AKE7097
AKP7064
B10P-VH
PF04NN-S22J5105 Connector Ass'y
J12 Connector Ass'y
PCB Binder
CN5105 30P FFC Connector
CN5104 1.25FJ ConectorPF04PG-C12
PF05NN-S22
VEF1040
VKN1261
19R-1.25FJ**T DVD TRADE ASSY(XWZ3858)
COILS AND FILTERS**

L8891 CHIP BEAD

VTL1075

RESISTORS

All Resistors

RS1/16S###J

OTHERSCN5108 KR CONNECTOR
CN5107 B TO B CONNECTOR 30P
CN5106 FJ CONNECTORS4B-PH-K
VKN1627
VKN1775**C 6CH AMP ASSY
SEMICONDUCTORS**⚠ IC81
⚠ IC71
⚠ IC3301,IC3401
Q3382,Q43
Q62NJM7805FA
NJM7912FA
STK402-270
2SA1576A
2SB1237XQ111,Q3381,Q63,Q92
⚠ Q61
Q3301,Q3302,Q3401,Q3402
Q3501,Q3502,Q3504
Q36542SC4081
2SD2012
2SD2114K
2SD2114K
2SD2144SQ107,Q3653
Q3652
Q106
⚠ Q3383,Q91
⚠ Q3384DTA124EUA
DTA124TK
DTC124EUA
IRFI9Z34G
IRFIZ34GQ3651
Q101,Q103
Q102,Q104
⚠ D3321-D3326
D3327,D3328RN1901
UMB1N
UMH1N
1SR139-400
1SR139-400⚠ D3421-D3426
D3427,D3428
D3387,D3388,D3651-D3655
D101,D102,D104,D3657,D42
⚠ D3391,D33921SR139-400
1SR139-400
1SS133
1SS355
30PDA20-FC6

5	6	7	8	
Mark No.	Description	Part No.	Mark No.	Description
⚠ D21		D5SBA20(B)	⚠ L1	Line Filter
C21		CQMA103K2E		
F	DIODE S ASSY		TRANSFORMERS	
SEMICONDUCTORS			⚠ T2 (XWZ3844 : Only)	ATT7079
⚠ D11		D3SBA20(B)	⚠ T2 (XWZ3845 : Only)	ATT7080
G	SSIB ASSY		SWITCHES AND RELAYS	
OTHERS			⚠ RY1	XSR3008
CN2 4P FFC Connector	VKN1264		⚠ S101, S102 (XWZ3845 : Only)	AKX7017
CN1 12P FFC Connector	VKN1272		CAPACITORS	
CN3 17P FFC Connector	VKN1277		⚠ C1, C2 (0.022uF/AC275V)	ACE7022
			C52	CEAT102M25
			C54	CEAT470M16
			C53	CKSRYB103K50
			C56- C58	CKSRYB473K50
H	TRSB ASSY		RESISTORS	
RESISTORS			⚠ R1 (2.2M, 1/2W) (XWZ3844 : Only))	RCN1080
Other Resistors	RS1/10S###J		Other Resistors	RS1/16S###J
OTHERS			OTHERS	
CN12 7P FFC Connector	VKN1267		4P Cable Holder	51048-0400
CN11 8P FFC Connector	VKN1268		H1, H2 Fuse Clip	AKR7001
Reaf Switch	VSK1011		⚠ CN1 2P-VH Connector	B2P3-VH
			J52 Jumper Wire	D20PYY0420E
			KN1 Wrapping Terminal	VNF1084
I	SSRB ASSY		⚠ AN1 1P AC Inlet	XKP3042
SEMICONDUCTORS				
Q21	2SC2412K		K	PRIMARY ASSY (XWZ3845)
Q22	DTC124EK		SEMICONDUCTORS	
PC21	GP2S28		⚠ IC51	NJM78M56FA
PC22	RPI-574		Q52	2SC4081
CAPACITORS			Q51	2SD1858X
C21	CKSQYB102K50		D53	DAN217
RESISTORS			⚠ D51	DF06SA
Other Resistors	RS1/10S###J		D52	MA111
OTHERS			D55	UDZS20B
CN21 7P FFC Connector	VKN1267		COILS AND FILTERS	
Reaf Switch	VSK1011		⚠ L1 Line Filter	XTF3004
J	LOMB ASSY		TRANSFORMERS	
CAPACITORS			⚠ T2	ATT7080
C31	CKSQYB102K50		SWITCHES AND RELAYS	
OTHERS			⚠ RY1	XSR3008
CN31 KR Connector	B2B-PH-K		⚠ S101,S102 Voltage Selector	AKX7017
K	PRIMARY ASSY(XWZ3844)		CAPACITORS	
SEMICONDUCTORS			⚠ C1, C2 (0.022uF/AC275V)	ACE7022
⚠ IC51	NJM78M56FA		C52	CEAT102M25
Q52	2SC4081		C54	CEAT470M16
Q51	2SD1858X		C53	CKSRYB103K50
D53	DAN217		C56- C58	CKSRYB473K50
⚠ D51	DF06SA		RESISTORS	
D52	MA111		Other Resistors	RS1/16S###J
D55	UDZS20B		OTHERS	
COILS AND FILTERS			4P Cable Holder	51048-0400
			H1, H2 Fuse Clip	AKR7001
			⚠ CN1 2P-VH Connector	B2P3-VH
			J52 Jumper Wire	D20PYY0420E
			KN1 Wrapping Terminal	VNF1084

Mark No. Description**Part No.**

△AN1 1P AC Inlet
△CN02 5P-VH Connector

XKP3041
B5P9-VH

L DISPLAY ASSY

SEMICONDUCTORS

IC5651
IC5601
Q5691
D5651-D5657

BU2090F
PT6302LQ-003
2SC4081
MPG5064X

COILS AND FILTERS

L5563
L5562

LFEA100J
LFEA220J

CAPACITORS

C5642, C5643
C5674
C5564
C5679, C5680
C5678

CCSRCH101J50
CCSRCH470J50
CEJQ101M6R3
CEJQ1R0M50
CEJQ220M35

C5953
C5671-C5673, C5676
C5677
C5651
C5562, C5563, C5665, C5666, C5675

CEJQ470M16
CKSRYB102K50
CKSRYB103K50
CKSRYB104K16
CKSRYB223K50

C5952

CKSRYB223K50

RESISTORS

Other Resistors

RS1/16S###J

OTHERS

CN5721 27P FFC Connector
CN5803 13P Jumper Connector
5671 FL Spacer
5951 Remote Receiver Unit
V5601 FL Tube

52045-2745
52147-1310
AEB7069
GP1UM27XK
XAV3020

M AMP TRADE ASSY

SEMICONDUCTORS

△IC25

AEK7047

RESISTORS

Other Resistors

RS1/16S###J

OTHERS

CN3011, CN3012, CN3021, CN3022
23P Socket
(24.576MHz)

AKP7075

N DSP TRADE ASSY

RESISTORS

All Resistors

RS1/16S###J

OTHERS

CN5621 13P PLUG
CN5622, CN5623 19P PLUG
CN5612, CN5613 23P SOCKET

AKP7059
AKP7062
AKP7075

O VIDEO JACK ASSY

Mark No. Description**Part No.****COILS AND FILTERS**

L8861, L8871 CHIP BEAD

VTL1089

CAPACITORS

C8822, C8832, C8842, C8852, C8862
C8872
C8821, C8831, C8851
C8861, C8871

CCSRCH470J50
CCSRCH470J50
CEAT102M6R3
CEAT471M6R3

RESISTORS

R8821, R8831, R8841, R8853, R8863
R8873

RS1/16S75R0F
RS1/16S75R0F

OTHERS

CN8001 17P CONNECTOR
JA8851 JACK
JA8802 JACK
CN8003 7P CONNECTOR

52044-1745
VKB1150
VKB1178
VKN1267

P FUNCTION KEY ASSY

SWITCHES AND RELAYS

S5846, S5847, S5851-S5858

VSG1010

RESISTORS

Other Resistors RS1/16S###J

OTHERS

3P Cable Holder
4P Cable Holder
J5805 Jumper Wire

51048-0300
51048-0400
D20PYY0405E

Q DISC KEY ASSY

SWITCHES AND RELAYS

S5841-S5845

VSG1010

RESISTORS

Other Resistors

RS1/16S###J

OTHERS

4P Cable Holder
5P Cable Holder
J5803 Jumper Wire

51048-0400
51048-0500
D20PYY0510E

R HP MIC ASSY (XWZ3852)

SWITCHES AND RELAYS

S5831

VSG1024

CAPACITORS

C3906
C3905, C3907
C3903, C3904

CKSRYB103K50
CKSRYB104K16
CKSRYB223K50

RESISTORS

Other Resistors

RS1/16S###J

OTHERS

5P Cable Holder
13P Cable Holder
JA3901 Mini Jack
J5801 Jumper Wire

51048-0500
51048-1300
AKN7005
D20PYY1310E

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
-----------------	--------------------	-----------------

RHP MIC ASSY (XWZ3853)
SEMICONDUCTOR

IC5801 BA4558F

SWITCHES AND RELAYS

S5831 ASG7013

CAPACITORS

C3906	CKSRYB103K50
C3905,C3907,C5811	CKSRYB104K16
C3903,C3904	CKSRYB223K50
C5801,C5807	CCSRCH101J50
C5802,C5808,C5806	CEAL100M16
C5804,C5810	CKSRYB473K50
C5805	CCSRCH471J50
C5809	CCSRCH681J50
C5816	CKSRYB333K25

RESISTORS

VR5801	XCS3007
All Resistors	RS1/16S###J

OTHERS

0 5P CABLE HOLDER	51048-0500
0 13P CABLE HOLDER	51048-1300
JA3901 MINI TURE JACK	AKN7005
J5801 JUMPER WIRE 13P	D20PYY1315E
JA5801 STEREO MINI JACK	AKN7005

S JOG ASSY
SWITCHES AND RELAYS

S5861 XSX3007

CAPACITORS

C5861	CKSRYB102K50
C5862	CKSRYB104K16

RESISTORS

Other Resistors RS1/16S###J

OTHERS

3P Cable Holder 51048-0300
J5811 Jumper Wire D20PYY0310E

1 2 3 4

6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

A

■ Adjustment Items

[Mechanism Part]

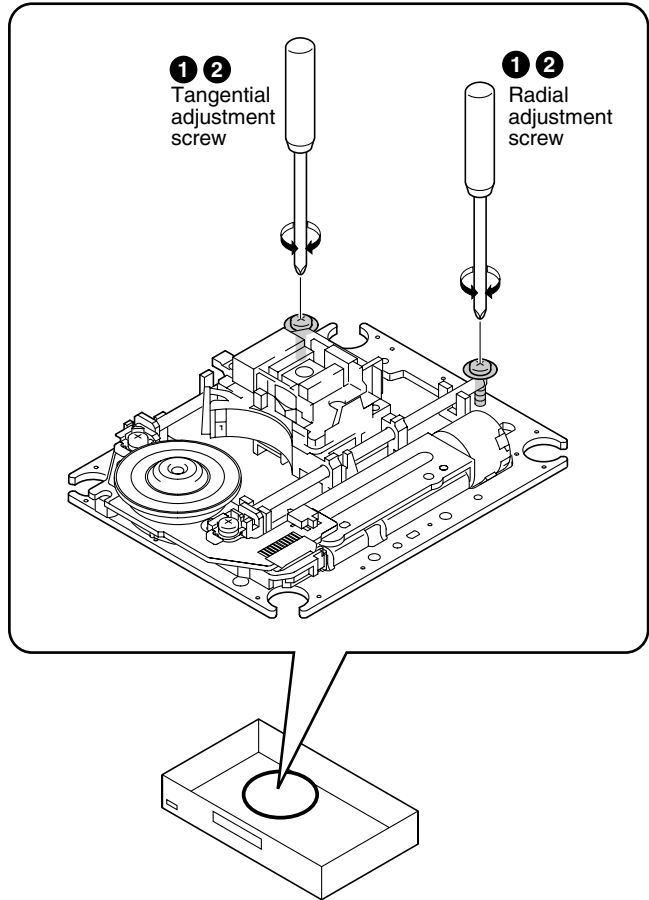
- 1 Tangential and Radial Height Coarse Adjustment
- 2 DVD Jitter Adjustment

[Electrical Part]

Electrical adjustments are not required.

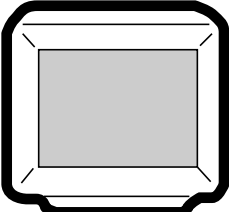
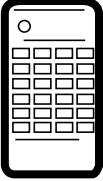
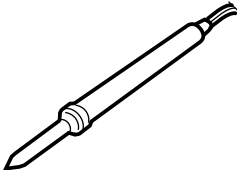
■ Adjustment Points (Mechanism Part)

Cautions: After adjustment, adjustment screw locks with the Screw tight.



D

6.2 JIGS AND MEASURING INSTRUMENTS

 ⊕ Screwdriver (large)	 ⊕ Screwdriver (medium)	 TV monitor	 Test mode remote control unit (GGF1381)
 ⊕ Precise screwdriver	 DVD test disc (GGV1025)	 Soldering iron	Screw tight (GYL1001)

5 6 7 8

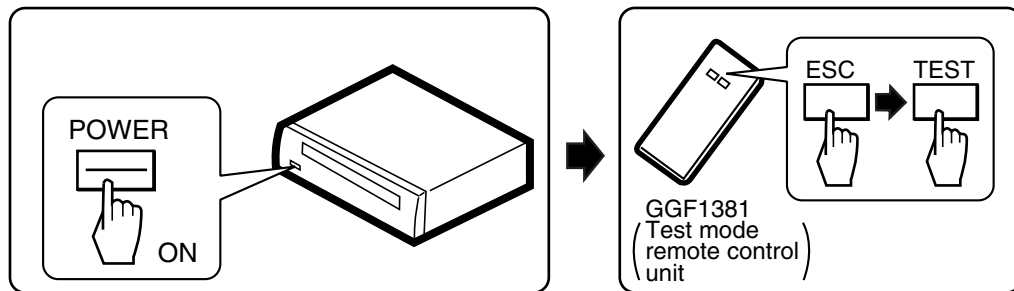
6.3 NECESSARY ADJUSTMENT POINTS

When		Adjustment Points		
■ Exchange Parts of Mechanism Assy				A
Exchange the Pickup		Mechanical point	①, ② * After adjustment, screw locks with the Screw tight.	
		Electric point	_____	■
Exchange the Traverse Mechanism		Mechanical point	_____	B
		Electric point	_____	
Exchange the Spindle Motor		Mechanical point	② * After adjustment, screw locks with the Screw tight.	■
		Electric point	_____	
■ Exchange PCB Assy				C
Exchange PC Board LOMB and DVDM ASSY		Mechanical point	_____	■
		Electric point	_____	

6.4 TEST MODE

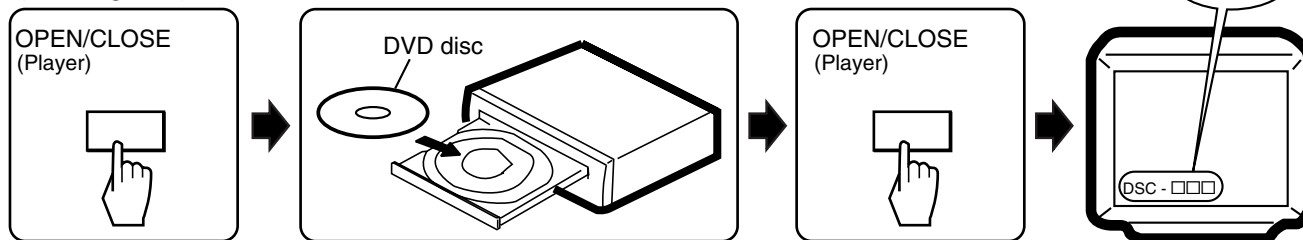
- The TEST MODE functions that are used only during adjustment are described here. For details, see "7.1.1 TEST MODE".

TEST MODE: ON



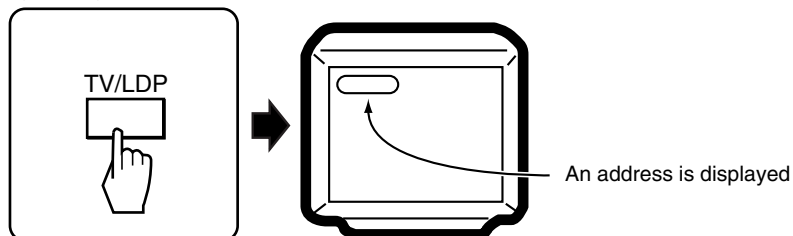
TEST MODE: DISC SET

<TRAY OPEN>



TEST MODE: PLAY

<PLAY>

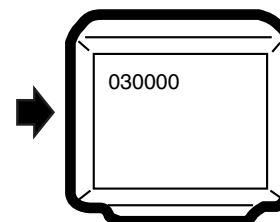


CAUTION:
Perform only trace, video and audio outputs are nothing.

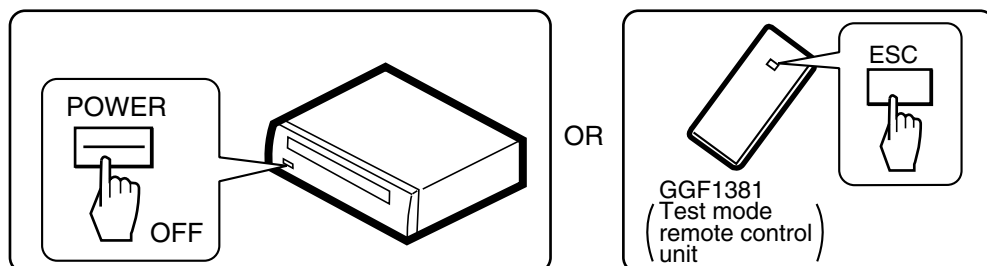
< When playback with the target address of disc (DVD)>

For example, when playback with # 30000

During PLAY **+10** **⇒** **3** **⇒** **0** **⇒** **0** **⇒** **0** **⇒** **0** **⇒** **CHP/TIM** Press keys in order



TEST MODE: OFF

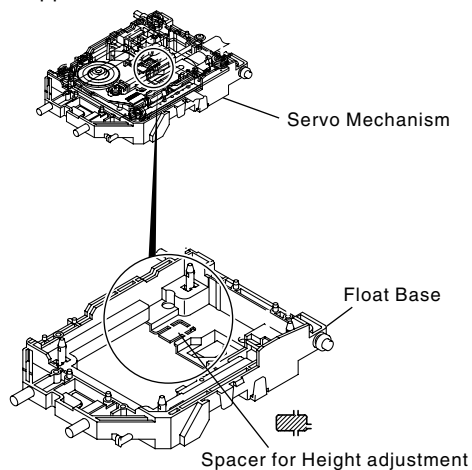




1 Tangential and Radial Height Coarse Adjustment

START

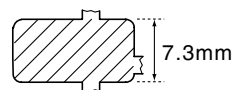
- Remove the servo mechanism.
- Remove a Spacer for height adjustment attached to the back side (shaded area) of the Servo Mechanism (Float Base) with nippers.



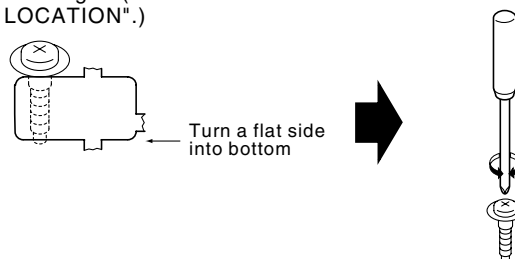
Note:
Turn the Short switch to Short side when removing the Pickup Flexible Cable.
(Refer to "7.1.13 DISASSEMBLY".)

Cautions:

Because there is not a Spacer for height adjustment in adjustment after the second time, will keep it at need.
(This parts is Traverse mechanism exclusive use of a model for 2003 years)



Put a spacer between a Tangential (or Radial) adjustment screw and Mechanism Base and turn each screw to adjust the height. (Refer to "6.2 ADJUSTMENT ITEMS AND LOCATION".)



2 DVD Jitter Adjustment

- Playback method of inner and outer address for the purpose is referred to "6.4 TEST MODE".
- Jitter indication of the monitor is referred to "7.1.2 DISPLAY SPECIFICATION OF THE TEST MODE".

Use disc: GGV1025

START

- Test mode
- Play the DVD test disc at outer track (around #200000)

Mechanism Assy

Adjust the Tangential Adjustment Screw so that jitter becomes minimum.

J : Min

- Play the DVD test disc at inner track (around #30000)

Mechanism Assy

Adjust the Radial Adjustment Screw so that jitter becomes minimum.

J : Min

- Play the DVD test disc at outer track (around #200000)

Mechanism Assy

Readjust the Tangential Adjustment Screw so that jitter becomes minimum.

J : Min

CHECK

Turn the POWER OFF in case of NG once, and perform the adjustment once again.

Confirm the error rate that is displayed "OK"

(Example ERROR RATE: 6.6×10^{-6} OK)

If error rate is OK, locks a root of tangential and radial adjustment screws with the Screw tight.



Screw tight: GYL1001

Disc playback normally.

- The measurement of block error rate



Test mode end

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TEST MODE

Test Mode Functional Specification

① Test mode entry

In the power ON state, press the [ESC] (A8-5F) key and [TEST / RANDOM] (A8-5E) key in order of the Test mode remote control unit.

- Light all FL and LEDs, and turns off the FL and LEDs when pressing any key.
- OSD displays test mode. Refer to "7.1.2 DISPLAY SPECIFICATION OF THE TEST MODE".

② Release the Test mode

- Turn off the power.
- Press the [ESC] (A8-5F) key of the remote control unit and reset it.

③ Tray open / close

- Press the [REPEAT A-B] (A8 - 48) key of the remote control unit.
- Press the [OPEN / CLOSE] key of the main unit during the stop state.

④ Playback stop

1. Press the [REPEAT] (A8 - 44) key of remote control unit during playback state.
2. Press the [STOP] key of the remote control unit or main unit during playback state.
(Playback stops, but the loaded disc keeps rotating.)

⑤ LD ON

DVD : Press the [TEST] (A8-5E) and [1] (A8-01) keys in order, and turn on the laser diode (650n).
CD : Press the [TEST] (A8-5E) and [4] (A8-04) keys in order, and turn on the laser diode (780n).

⑥ Focus on / sweep

1. Lock the focus by pressing the [TEST] (A8-5E) and [2] (A8-02) keys in order.
2. Repeat focus sweep by pressing the [TEST] (A8-5E) and [3] (A8-03) keys in order.

⑦ Spindle FG servo

CAV : Press the [TEST] (A8-5E) and [5] (A8-05) keys in order, then rise up the spindle and FG servo is turned on.
CLV : Press the [TEST] (A8-5E) and [9] (A8-09) keys in order, then rise up the spindle and FG servo is turned on.

⑧ Tracking open / close

1. Open tracking by pressing the [STEP FWD] (A8-54) key of remote control unit during play state.
2. Close tracking by pressing the [STEP REV] (A8-50) key of remote control unit during play state.

⑨ Slider servo on/off

1. Turn on the slider servo by pressing the [TEST] (A8-5E) and [CX] (A8-0E) keys in order.
2. Turn off the slider servo by pressing the [TEST] (A8-5E) and [TV/LDP] (A8-0F) keys in order.

⑩ Slider in / out

Slider in : In tracking off state, press the [SCAN REV] (A8-11) key of the remote control unit.
Slider out : In tracking off state, press the [SCAN FWD] (A8-10) key of the remote control unit.

⑪ Play (perform only ID search and trace to the specified location)

Press the [TV/LDP] (A8-0F) key of the remote control unit during stop state.
Only trace is performed, there are no video and audio outputs.

⑫ Screen display ON/OFF

1. Turn off the display by pressing the [AUDIO] (A8-1E) key of the remote control unit.
2. Turn on the display by pressing the [DISPLAY] (A8-43) key of the remote control unit.

⑬ Search

1. Search address input entry

- It enters to address input mode when pressing the [+10] (A8-1F) key. (Most significant digit of an address displays "<".)
- In this time, the last address is displayed as the initial state.

2. Search address input

- Press [0] to [9] (A8-00 to 09) keys of the remote control unit. In the DVD, set an address with hexadecimal.
- In the address input mode, turn to the hexadecimal input by pressing the [PROGRAM] (A8-4C) key (display a "*" mark), and [1] to [6] keys are each input as A to F.
- Hexadecimal input and decimal input can switch with toggle.
- In case of CD, only the absolute time search is performed.

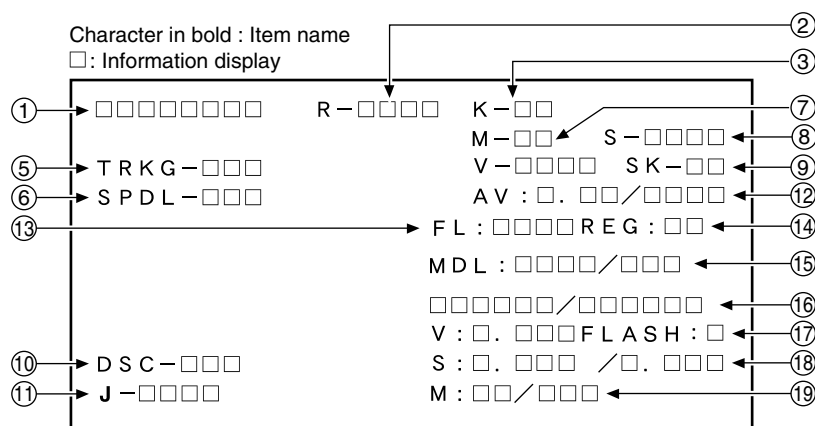
3. Search execution

- Press the [CHP/TM] (A8-13) key of the remote control unit.
- After the search, only trace is performed, there are no video and audio outputs.

4. Release the Search address input

- Clear the address by pressing the [CLEAR] (A8-45) key. Release from address input mode by pressing the [CLEAR] key once again.

7.1.2 DISPLAY SPECIFICATION OF THE TEST MODE



① Address indication

The address being traced is displayed in number.
(as for the DVD, indication of decimal number is possible.)
DVD : ID indication (hexadecimal number, 8 digits)
[*****]
CD : A-TIME (min. sec.) [0000****]

② Code indication of remote control unit [R-****]

In case of double code, display a 2nd code.

③ Main unit keycode indication [K-****]

⑤ Tracking status [TRKG-****]

Tracking on : [ON]
Tracking off : [OFF]

⑥ Spindle status [SPDL-****]

[OFF], [ACC/BRK], [CAV], [CLV]

⑦ Mechanism (loading) position value [M-****]

Unknown : [01] or [41]
Open state : [04]
Close state : [08]
During opening : [12]
During closing : [22]

⑧ Slider position [S-****]

In Side Switch ON : [01]
In Side Switch OFF : [00]

⑨ Output video system [V-****]

NTSC system : [NTSC]
PAL system : [PAL]
Automatic setting : [AUTO]

Scart terminal output [SK-****]

(Display only the WY model which can do the output setting of scart terminal.)

VIDEO : [00]
S-VIDEO : [01]
RGB : [02]

⑩ Disc sensing [DSC-****]

The type of discs loaded is displayed.
[DVD], [CD], [VCD], []

⑪ Jitter value [J-****]

⑫ Version of the AV-1 chip / version of firmware

[AV: ** / *****]

⑬ Version of the FL controller [FL: ****]

⑭ Region setting of the player [REG: *]

Setting value : [1] to [6]

⑮ Destination setting of the FL controller

[MDL: **** / ****]

Four characters in the front represent the type of model.
Three characters in the back represent the destination code.
J: /J, K: /KU, /KC, /KU/KC, R: /RL/RD, RAM: /RAM,
LB: /LB, WY: /WY

⑯ Part number of the flash ROM and system controller

[***** / *****]

⑰ Version of the flash ROM [V: *.****]

Flash ROM size [FLASH = ****]

⑱ Revision of the system controller [S: *.**** / *.****]

version . revision / build number of the ST core

⑲ Revision of the DVD mechanism controller

[M: ** / ****]

Kinds of version / firmware of the FE.
RAM or ROM

7.1.3 FUNCTIONAL SPECIFICAION OF THE SHORTCUT KEY

Only during normal playback, the following shortcut keys can be assigned by pressing a required key after pressing the ESC key of the remote control unit. To quit, press the ESC key

Command Contents	Conditions	Remote Control Key Name	Remote Control Code
Memory clear and resion / revision indication		CLEAR (*1)	A8-45
Average value measurement of DVD error rate		5 (*1)	A8-05
CD error rate measurement		5 (*1)	A8-05
Aspect : Pan scan		2	AF-A2
Aspect : Letter box		3	AF-A3
Aspect : Wide		4	AF-A4
Digital : AC3		5	AF-A5
Digital : AC-3 > PCM		6	AF-A6
Virtual surround : OFF	Only for models having the corresponding functions	7	AF-A7
Virtual surround : TruSurround		8	AF-A8
Digital output ON		REPEAT A	AF-E8
Digital output OFF		REPEAT B	AF-E4
DTS Digital output ON		STEP FWD	AF-B7
DTS Digital output OFF		STEP REV	AF-B8
Scart terminal output : VIDEO	WY, models equipped with Scart terminal	AUDIO	AF-BE
Scart terminal output : S-VIDEO		SUBTITLE	AF-36
Scart terminal output : RGB		ANGLE	AF-B5
Progressive OFF	Only for progressive models	R_SKIP	A3-9D
Progressive ON		F_SKIP	A3-9C
Audio 5.1 CH ON	Only for models having the corresponding functions	KD_ENTER	AF-EF
FL indication of EDC / ID error		CX (*1)	A8-0E
FL indication of ID number		STEREO (*1)	A8-4A
ZOOM ON (X4)		ZOOM	AF-37
ZOOM OFF		< X3 (*1)	A8-59
Service mode indication (error rate indication, etc.)		CHP/TIM (*1)	A8-13
Model information indication		CHAP (*1)	A8-40
Background color change		+10 (*1)	A8-1F
Audio last stage mute ON		9	AF-A9
Audio last stage mute OFF		0	AF-A0
Title search Input mode IN Title No. input Search execution		SIDE A (*1) Numbers (*1) PLAY (*1)	A8-4D A8-00 to A8-09 A8-17
Region confirmation mode		AUDIO (*1) Numbers (*1)	A8-1E A8-01 to A8-08

• Service mode indication (ESC + CHP/TIM keys)

*1 : Test mode remote control unit

ID Address

The error rate is always displayed in exponential notation, e.g., *** e - *, for both DVDs and CDs.

EDC/ID/AV 1 error history (ID Address, EDC/ID/AV 1 Error, last eight errors)

Self-diagnosis functions (If a mechanical error has occurred, the mechanical-error history is also displayed.)

• Calculation of the average error rate (ESC + "5" [Test mode remote control unit] keys)

The average of the last eight error rates is calculated and indicated in exponential notation. After the calculation is completed, "OK" or "NG" is displayed. If "NG" is displayed, the disc tray will open (for both DVDs and CDs)

For DVDs: OK with 5.0e-4 or less, for CDs: OK with 7.6e-3 or less

• Indication of model information (ESC + CHAP keys)

The items from 12 to 19 of the TEST MODE Indications are displayed. However, in the indications, S in the standard test mode is changed to B.E VERSION, and M is changed to F.E VERSION. For details, see 7.1.4.

• Change of the background colors (ESC + "+10" [Test mode remote control unit] keys)

Every time the keys are pressed, the background color is changed between blue and green alternately.

(The green background is used in SETUP NAVIGATOR.)

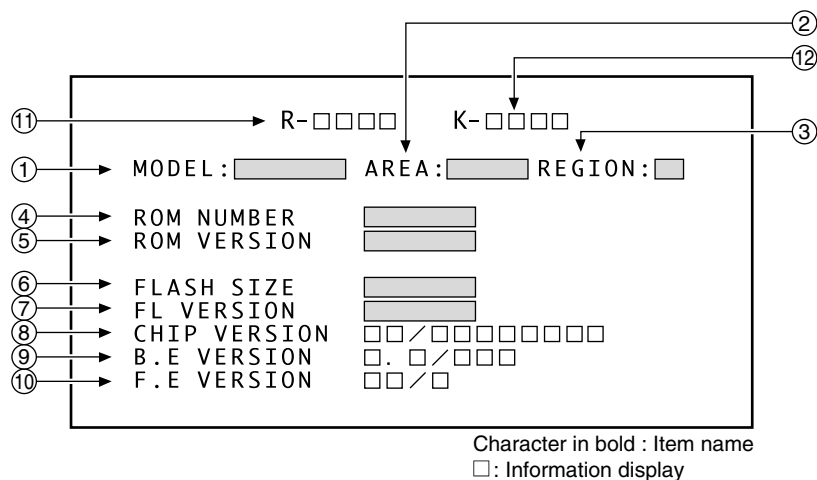
• Region confirmation mode (ESC + AUDIO [Test mode remote control unit] + "1"- "8" [Test mode remote control unit] keys)

After you press the AUDIO key while holding the ESC key pressed and then input the region number, if the number is different from that set in the unit, an error message is displayed, and the tray opens.

7.1.4 SPECIFICAION OF MODEL INFORMATION DISPLAY

To display model information : Press the ESC key then the CHAP key.
To close the model information display : Press the ESC key.

• Display contents



① **Model name**

Display it according to model information set from the FL controller.

② **Destination indication**

Display it according to model information set from the FL controller.

③ **Region No.**

④ **Part number**

⑤ **ROM version**

⑥ **Flash size**

⑦ **FL controller version**

⑧ **CHIP VERSION**

Version of ST CHIP

CUT ID / JTAG ID

↑ ↑
(two columns) (eight columns)

⑨ **B.E VERSION**

Version of BACK END (version of ST core software)

□.□ / □□□
softwareVersion . softwareRevision / buildNumber

⑩ **F.E VERSION**

Version of FRONT END (version of mechanism controller CHIP software)

□□ / □

MainVersion / Kinds of firmware RAM or ROM

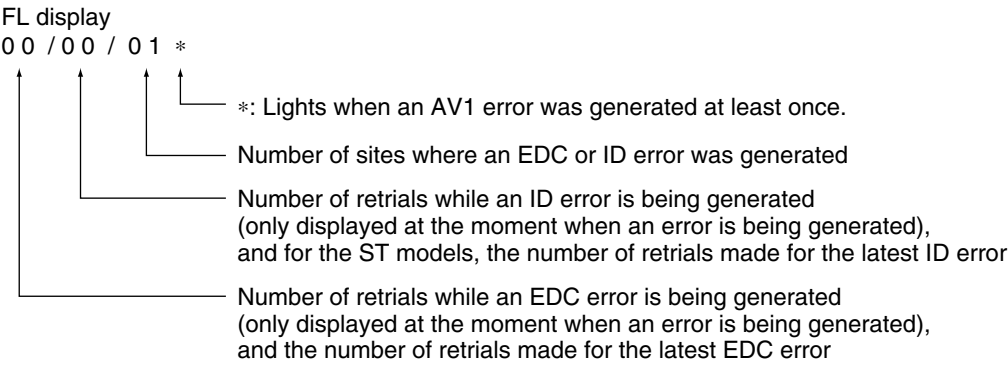
⑪ **Remote control code**

⑫ **Key code of Main unit**

7.1.5 FUNCTIONAL SPECIFICAION OF THE SERVICE MODE

• EDC / ID error FL display (shortcut function)

EDC/ID error is displayed on the FL display if you press the CX key while holding the ESC key on the TEST MODE remote control unit pressed. To quit while an EDC/ID error is displayed, press the ESC key.



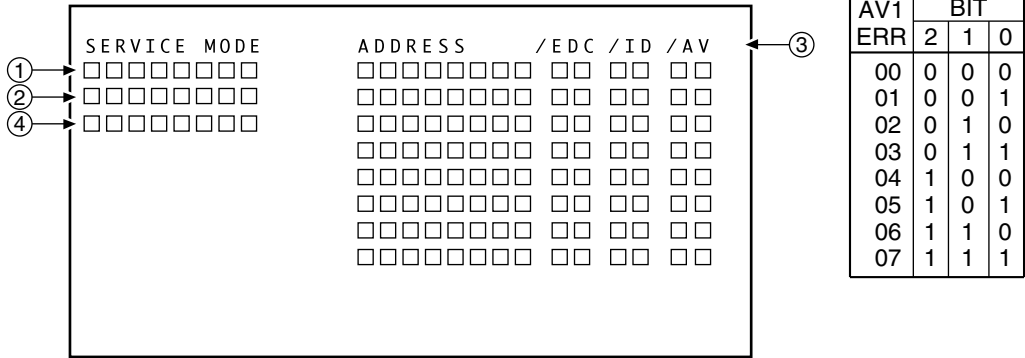
• Display during Service Mode

To enter Service Mode, press the CHP/TIM key while holding the ESC key pressed.
To quit, press the ESC key.

Service mode display

- ① ID Address
- ② Error rate (always displayed), in exponential notation
* * (* * * *)
Number of error rates
02: Indicates use of the same method as for the 02 models,
No indication: Indicates use of the method used for models before the 02 model
- ③ EDC/ID/AV1 error history (ID Address, EDC/ID/AV1 errors, last eight errors)
Description of AV1 errors
BIT0: In BE code, an EDC error, FEC I/F buffer overflow, or "not valid" is generated (B.E error)
BIT1: In BE code, the ID is different from that of the target (B.E error)
BIT2: An error was generated in FE-added 2-byte EDC data. (F.E error)
- ④ Self-diagnosis functions
Whether F.E is normal or not is checked.
FE OK: No abnormality in F.E
FE Error: Abnormality is recognized in F.E.
Pressing the CHP/TIM key again displays the mechanical error history. Each press of the CHP/TIM key changes the displays between the mechanical error history and the Service Mode display.
For details on the mechanical error history, refer to the addendum.

Indication plan contents



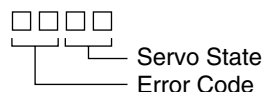
Character in bold : Item name
□ : Information display

Mechanical Error History

Only if a mechanical error (FE error) has been generated, a mechanical error history containing up to the last eight errors is displayed if you press the CHP/TIM key in Service Mode.
Errors are displayed in descending order, with the latest one at the top.

Description of the mechanical error history

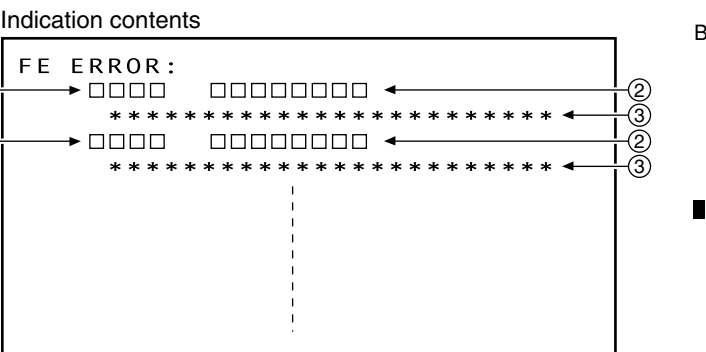
- ① Error number
The first two digits are for the error code, and the second two digits are for the servo state.



- ② Error number
The elapsed time from the time when the system was turned on until an error was generated is displayed.
Note: If a later error time is shorter than the previous error time, it means that the unit was turned off then on again.

- ③ Description of errors
Error messages are displayed.
Example: If the error code is 0x13 (Focus lost timeout) and the servo state is 0x05 (Disc judge), the message becomes "Focus lost timeout in Disc judge."

Note: When an error has been generated, if the servo state is "Disc judge," the disc tray opens, and if the servo state is other than "Disc judge," the unit stops (excluding a case of a device error with the error code 0xd*).



• List of the error codes

FOCUS ERROR	0x0*	FOCUS TIMEOUT	0x1*
Focus on error	0x01	Focus on timeout	0x11
Focus off error	0x02	Focus off timeout	0x12
Focus lost error	0x03	Focus lost timeout	0x13
Focus balance adjust error	0x04	Focus balance adjust timeout	0x14
Focus gain adjust error	0x05	Focus gain adjust timeout	0x15
Focus sweep error	0x06	Focus sweep timeout	0x16
Focus reflection error	0x07	Focus reflection timeout	0x17
TRACKING ERROR	0x2*	TRACKING TIMEOUT	0x3*
Tracking on error	0x21	Tracking on timeout	0x31
Tracking off error	0x22	Tracking off timeout	0x32
Tracking lost error	0x23	Tracking lost timeout	0x33
Tracking balance adjust error	0x24	Tracking balance adjust timeout	0x34
Tracking gain adjust error	0x25	Tracking gain adjust timeout	0x35
STEPPING ERROR	0x4*	STEPPING TIMEOUT	0x5*
Stepping on error	0x41	Stepping on timeout	0x51
Stepping off error	0x42	Stepping off timeout	0x52
Stepping lost error	0x43	Stepping lost timeout	0x53
Stepping move error	0x44	Stepping move timeout	0x54
SPINDLE ERROR	0x6*	SPINDLE TIMEOUT	0x7*
Spindle on error	0x61	Spindle on timeout	0x71
Spindle off error	0x62	Spindle off timeout	0x72
Spindle lost error	0x63	Spindle lost timeout	0x73
Spindle CAV error	0x64	Spindle CAV timeout	0x74
Spindle CLV error	0x65	Spindle CLV timeout	0x75
ACQUISITION ERROR	0x8*	ACQUISITION TIMEOUT	0x9*
PLL lost error	0x83	PLL lost timeout	0x93
DECODER ERROR	0xa*	DECODER TIMEOUT	0xb*
ID lost error	0xa3	ID lost timeout	0xb3
DEVICE ERROR	0xd*		
SRAM error	0xd1		

• List of the servo states

0x00	Reset
0x01	Stop (inside position)
0x02	Stop (any position)
0x03	Braking for stop
0x04	New disc
0x05	Disc judge
0x06	Reserved 1
0x07	Playing
0x08	Start up
0x09	Seeking
0x0A	Pausing
0x0B	Reading BCA
0x0C	Reserved 2
0x0D	
0x0E	Tray open
0x0F	Tray moving

Note : 0 x code
(Only this part is displayed to a display)

Error Code Table

Error Name	No.	Causes	Check Item	Possibility of Trouble	Remarks
FOCUS ERROR (0 x 0*)					
Focus on error	0 x 01	Focus on could not be completed	Are not there a dirt or a scratch in the Disc? Does LD become weak? Does the lens move up and down?	1. Pickup 2. Driver 3. Front End IC	
Focus off error	0 x 02	Focus off could not be completed	Unknown		
Focus lost error	0 x 03	Focus servo is lost	Are not there a dirt or a scratch in the Disc? Does LD become weak?	1. Pickup	
Focus balance adjust error	0 x 04	AFB on could not be completed			
Focus gain adjust error	0 x 05	Focus AGC could not be completed			
Focus sweep error	0 x 06				
Focus reflection error	0 x 07	Dimensions of S curve did not reach to the aim value	Does LD become weak?	1. Pickup	
FOCUS TIMEOUT (0 x 1*)					
Focus on timeout	0 x 11	Did timeout at focus on	Are not there a dirt or a scratch in the Disc? Does LD become weak? Does the lens move up and down?	1. Pickup 2. Driver 3. Front End IC	
Focus off timeout	0 x 12	Did timeout at focus off			
Focus lost timeout	0 x 13	Did timeout at focus backup			
Focus balance adjust timeout	0 x 14	Did timeout at AFB			
Focus gain adjust timeout	0 x 15	Did timeout at AGC			
Focus sweep timeout	0 x 16				
TRACKING ERROR (0 x 2*)					
Tracking on error	0 x 21	Tracking on could not be completed		1. Pickup 2. Driver 3. Front End IC	
Tracking off error	0 x 22	Tracking off could not be completed			
Tracking lost error	0 x 23	Tracking servo is lost		1. Pickup	
Tracking balance adjust error	0 x 24	ATB could not be completed		1. Pickup	
Tracking gain adjust error	0 x 25	AGC could not be completed		1. Pickup	
Tracking jump error	0 x 26	Tracking jump could not be completed			
TRACKING TIMEOUT (0 x 3*)					
Tracking on timeout	0 x 31	Did timeout at tracking on	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. Driver 3. Front End IC	
Tracking off timeout	0 x 32	Did timeout at tracking off			
Tracking lost timeout	0 x 33	Did timeout at tracking backup	Are not there a dirt or a scratch in the Disc?	1. Pickup	
Tracking balance adjust timeout	0 x 34	Did timeout at ATB		1. Pickup	
Tracking gain adjust timeout	0 x 35	Did timeout at AGC		1. Pickup	
Tracking jump timeout	0 x 36	Did timeout at tracking jump			
STEPPING ERROR (0 x 4*)					
Stepping on error	0 x 41	Stepping on could not be completed		1. Pickup 2. Driver 3. Front End IC	
Stepping off error	0 x 42	Stepping off could not be completed			
Stepping lost error	0 x 43	Stepping servo is lost			
Stepping move error	0 x 44	Stepping could not move	Do move to inner and outer periphery of the stepping in the test mode? Do indicate "S-04" at the most inner periphery of the stepping?	1. Stepping motor 2. Inside switch 3. Driver	
STEPPING TIMEOUT (0 x 5*)					
Stepping on timeout	0 x 51	Did timeout at stepping on		1. Pickup 2. Driver 3. Front End IC	
Stepping off timeout	0 x 52	Did timeout at stepping off			
Stepping lost timeout	0 x 53	Did timeout at stepping backup			
Stepping move timeout	0 x 54	Did timeout at stepping movement	Do move to inner and outer periphery of the stepping in the test mode? Do indicate "S-04" at the most inner periphery of the stepping?	1. Stepping motor 2. Inside switch 3. Driver	

Error Name	No.	Causes	Check Item	Possibility of Trouble	Remarks
SPINDLE ERROR (0 x 6*)					
Spindle on error	0 x 61	Spindle on could not be completed			
Spindle off error	0 x 62	Spindle off could not be completed			
Spindle lost error	0 x 63	Spindle lost control			
Spindle CAV error	0 x 64	CAV on could not be completed			
Spindle CLV error	0 x 65	CLV on could not be completed			
SPINDLE TIMEOUT (0 x 7*)					
Spindle on timeout	0 x 71	Did timeout at spindle on			
Spindle off timeout	0 x 72	Did timeout at spindle stop			
Spindle lost timeout	0 x 73	Did timeout at spindle backup	Are not there a dirt or a scratch in the Disc? Is FG output from the driver?	1. Spindle motor 2. Spindle driver	
Spindle CAV timeout	0 x 74	Did timeout at CAV on	Is spindle rotating? Is FG output from the driver? Is the PDM output from Front End?	1. Spindle motor 2. Spindle driver 3. Front End IC	
Spindle CLV timeout	0 x 75	Did timeout at CLV on			
ACQUISITION ERROR (0 x 8*)					
PLL lost error	0 x 83	PLL is lost	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. Front End IC	
ACQUISITION TIMEOUT (0 x 9*)					
PLL lost timeout	0 x 93	Did timeout at PLL backup	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. Front End IC	
DECODER ERROR (0 x a*)					
ID lost error	0 x a3	ID is not readable	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. Front End IC	
DECODER TIMEOUT (0 x b*)					
ID lost timeout	0xb3	Did timeout at ID backup	Are not there a dirt or a scratch in the Disc?	1. Pickup 2. Front End IC	
DEVICE ERROR (0 x d*)					
SRAM error	0 x d1	Cannot access SRAM	Power supply of SRAM Is not bus line short-circuiting?	1. SRAM 2. Front End IC 3. Front End-SRAM bus line	
FAILSAFE (0 x e*)					
Unexpected error	0 x e1	Unexpected error		1. software runaway 3. Software bug	

Protection Specifications and Service Mode

Protection Specifications

The system microcomputer (AF Assy IC5501) for this unit always monitors if abnormality of the power is generated, and as soon as an abnormality is detected shuts off the power. The specifications of the microcomputer terminal for monitoring are as follows:

Name of microcomputer terminal		XPROTECT (Pin 22)	VDET (Pin 17)
Monitoring item		Abnormality of AMP-system power Short-circuiting of the SP terminal, etc.	Abnormality of power inside the DVDM Assy
Voltage at terminal	In normal conditions	0.71 Vdd* or more	0.5 Vdd-0.85 Vdd*
	In abnormal conditions	0.36 Vdd-0.71 Vdd*	
	In failure	0.36 Vdd* or less	0.85 Vdd* or more 0.5 Vdd* or less
Monitoring start time		1.5 sec after power is turned on	Detection starts 0.5 sec after DVD module is turned on.
Time required for determining abnormality		0.5 sec after detection	0.5 sec after detection

*Vdd = Approx. 5 V (depending on the unit)

In abnormal conditions or in failure, the TIMER LED flashes after the power is shut off. If the power was shut off because of an abnormality, it can be turned on by pressing the STANDBY/ON key. However, if the power was shut off because of failure, for one minute after a shutdown the STANDBY/ON key is disabled in order to protect against possible ignition of fumes. If the AC power cord is pulled out during this one minute of standby, when the AC power cord is reconnected, the STANDBY/ON key will still be disabled until the remaining seconds have elapsed.

This unit has Service Test mode for analyzing the above power abnormality. Its specifications are as follows:

1. Specific conditions for Service Test mode

- VDET is neglected.
- XPROTECT is neglected.
- Even if the unit is urgently shut down in failure in Normal mode, you can turn it on without waiting for one minute.

2. How to enter Service Test mode

- While holding the "DISC 1 key" and "STOP key" pressed, connect AC power cord.

3. How to quit Service Test mode, and the conditions for quitting

- To quit Service Test mode, turn the power off or disconnect the AC power cord.
- When quitting Service Test mode, only RAM data related to protection are cleared.

4. Indications when Service Test mode starts

- Indications on the FL display when Service Test mode starts differ depending on whether the unit was turned off normally or if the unit was urgently shut down because of the abnormality of the power, as described below.

[After the power is turned off normally]

FL display **W e l c o m e !**
↓
FL display **V o l u m e 0**
↓
FL display **D V S E R V I C E**

[After the power is shut down because of an abnormality in the AMP system]

FL display **P R T C T W N G**
↓
FL display **V o l u m e 0**
↓
FL display **D V S E R V I C E**

[After the power is shut down because of a failure in the AMP system]

FL display **P R T C T E R R**
↓
FL display **V o l u m e 0**
↓
FL display **D V S E R V I C E**

[After the power is shut down because of a failure in the DVD system]

FL display **D V D P R T E C T**
↓
FL display **V o l u m e 0**
↓
FL display **D V S E R V I C E**

5. Operations during Service Test mode

- Basically, operations in Service Test mode are the same as in Normal mode. However, to clarify that it is in Service Test mode, during this mode, when functions are changed, the indications on the FL display become as follows:

[Functions]	[Indications on the FL display]	[Functions]	[Indications on the FL display]
DVD/CD	D V S E R V I C E	LINE2	L 2 S E R V I C E
TUNER	T X S E R V I C E	TV	T V S E R V I C E
LINE1	L 1 S E R V I C E		

5 6 7 8

6. Operations during DSP module error diagnosis function

A

[How to enter DSP module error diagnosis]

- Press "DISPLAY" button in service test mode to select the mode that DSP error messages are displayed.

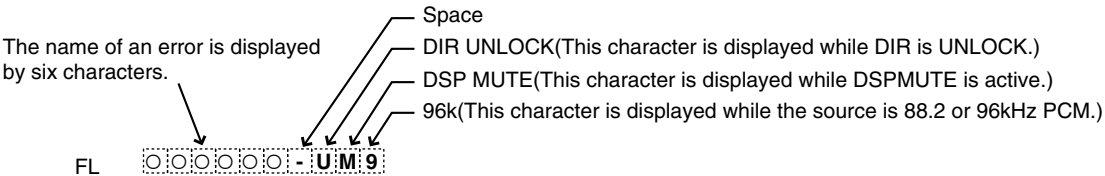
[How to quit DSP module error diagnosis]

- Press "DISPLAY" button again to select normal service test mode.

For this reason, the usual function of "display" is not effective during Service Test mode.

- DVD total running time/remaining time display is prohibited.
- OSD changing on TV is also prohibited.

■ Specification of DSP error display

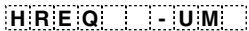


■

[Error]	[Indications on the FL display]
---------	---------------------------------

ERR_0	
-------	---

ERR_1	
-------	---

ERR_2	
-------	---

ERR_3	
-------	---

ERR_4	
-------	--

NO ERR (The source is 88.2/96kHz.)	
---------------------------------------	---

NO ERR (The source is not 88.2/96kHz.)	
---	---

Refer to "7.1.9 DSP TROUBLE SHOOTING".

7.1.7 ID NUMBER AND ID DATA SETTING

Caution:

For the DVD players compatible with DVD-RW, for playback of a DVD-RW disc (CPRM), it is necessary that an individual ID number and ID data are set for each player. If the ID number and ID data be not properly set in the manner described below, future operations cannot be guaranteed. The ID number is written on the yellow label at the rear panel of the player.

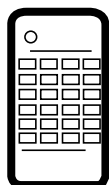
If there is no yellow label, before downloading FLASH ROM, take note of the ID number set following the procedures outlined in "ID Number Confirmation Mode" on the next page.

Note: Enter ID numbers while the unit is in Stop mode so that the values set will be immediately written to the flash ROM.

Setting an ID number or ID data is required in the following case:

If "No ID Number!" or "NO ID DATA!" is displayed on the TV screen and on the FL display for a few seconds immediately after the power to the player is turned on or during Stop mode.

JIGS AND MEASURING INSTRUMENTS



Service Remote Control Unit
[GGF1381]



DVD Data Disc
[GGV1174 (& GGV1133)]

Note) GGV1175 is to be released in May, 2004.

ID Number Input Mode

① To enter ID Number Input Mode, with no ID number set, such as in a case of immediately after upgrading the firmware, press the ESC key then the STEREO key.

Note: If a previous ID number and ID data, such as a factory-preset ID number and ID data, are maintained, the unit enters ID Number Confirmation Mode when the above keys are pressed. However, if only an ID number is maintained, the unit enters ID Data Input Mode.

② Enter a 9-digit ID number. The ID number is also displayed on the FL display.

③ By pressing the CLEAR key without having input a number, you can exit this mode. Each press of this key after a number has been input deletes one digit.

[Player's ID Number Setting]

ID Number ?

<CLEAR> Exit

Input ID Number !

④ After entering all 9 digits, if you press the PLAY key, the unit enters Compare mode. Enter the same ID number again. Only if your two input numbers match, the ID number is set. Compare mode helps eliminate mistyping of the ID number.

Note: If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ② without doing anything else.

⑤ After entering all 9 digits, if you press the SEARCH key, the unit unconditionally sets the input number as the ID number. Then the unit automatically enters Player's Data Input Mode. (The SEARCH key is not accepted after all 9 digits have been entered.)

[Player's ID Number Setting]

ID Number ?

0 0 0 0 0 0 0 0 1

④ <PLAY> Compare Mode

⑤ <SEARCH> Enter

Input ID Number !

⑥ This display appears when the PLAY key is pressed in Step 4. Enter a 9-digit number to compare. The number is also displayed on the FL display.

⑦ By pressing the CLEAR key without having input a number, the unit returns to Step ② without doing anything else. Each press of this key after a number has been input deletes one digit.

[Player's ID Number Setting]

ID Number ?

0 0 0 0 0 0 0 0 1

Compare

* * * * *

Input ID Number !

⑧ After entering all 9 digits, if you press the PLAY key, the unit compares the numbers input in Steps ② and ⑥, and only if the numbers match, that number is set as the ID. Then the unit automatically enters ID DATA Input Mode. If the numbers do not match, the disc tray is opened, and the unit exits ID Number Input Mode.

Note: If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ⑥ without doing anything else.

[Player's ID Number Setting]

ID Number ?

0 0 0 0 0 0 0 0 1

Compare

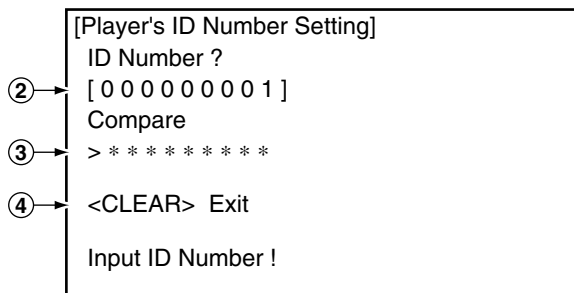
0 0 0 0 0 0 0 0 1

⑧ <PLAY> Enter

Input ID Number !

ID Number Confirmation Mode

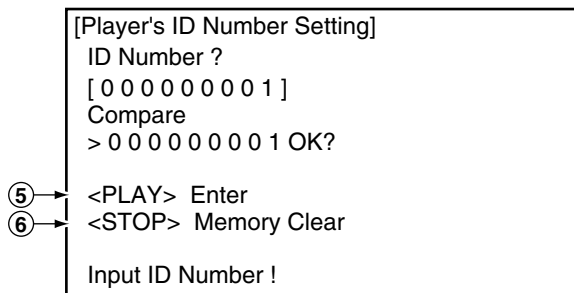
- ① To enter ID Number Confirmation Mode after the ID number and the ID data are set, press the ESC key then the STEREO key.
- ② The ID number already set is displayed.
(It is also displayed on the FL display.)
- ③ Enter a 9-digit number for comparison. This is not required when you only wish to check the ID number.
(The number is also displayed on the FL display.)
- ④ By pressing the CLEAR key without having input a number, you can exit this mode. Each press of this key after a number has been input deletes one digit.



- ⑤ After entering all 9 digits, if you press the PLAY key, the unit compares the number entered in Step ② with the ID number set, and only if the numbers match, the unit automatically exits ID Number Confirmation Mode. If an ID data has not been entered, the unit enters ID DATA Input Mode. If the numbers do not match, the disc tray is opened, and the unit exits ID Number Confirmation Mode.

Note: If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ④ without doing anything else.

- ⑥ After entering all 9 digits, if you press the STOP key, the unit compares the number entered in Step ③ with the ID number set, and only if the numbers match, the unit automatically deletes the ID number and exits this mode. If the numbers do not match, the disc tray opens, and the unit exits this mode. (The STOP key is not accepted after all 9 digits have been entered.)



• Indication of an ID number already set

An ID number already set is displayed in the following cases:

- 1) When the ESC key then the CLEAR key are pressed, user settings are cleared, then the ID number set is displayed on the screen. In this case, the ID number is not displayed on the FL display.
- 2) When the unit enters ID Number Confirmation Mode by pressing the ESC key then the CLEAR key, the ID number set is displayed. In this case, the ID number is also displayed on the FL display.

If you only need to confirm the ID number, you can exit this mode by pressing the CLEAR key or turning off the power.

• Indication when no ID number is set

If no ID number is set, the message "No ID Number!" flashes on the screen and FL display for a few seconds after the power is turned on or during Stop mode.

ID DATA Input Mode

① To enter ID DATA Input Mode, with the ID number set, press the ESC key then the STEREO key.

② When the STEREO key is pressed, the unit enters ID DATA Input Mode.

[Player's ID Number Setting]
ID Number ?
[0 0 0 0 0 0 0 1]
Compare
> * * * * *

<CLEAR> Exit
<STEREO> ID Data Setting Mode

Input ID Number !



③ If the DVD DATA DISC (GGV1174) is loaded in this mode, the unit automatically starts reading the data.
(If the ID DISC has already been loaded, the unit does not start reading the data. In this case, open the tray then close.)

④ To exit this mode, press the CLEAR key. While data are being read from the DVD DATA DISC (GGV1174), you cannot exit this mode.

[Player's Data Input Mode]

④ → <CLEAR> Exit

Insert The ID Data Disc !



⑤ When writing of the data read from the disc to flash ROM is completed, "Rom Write OK!" is displayed. After seeing this message, you can exit this mode by pressing the CLEAR key.

Note: Whether or not the data have been written to flash ROM can be confirmed by the message "Rom Write OK!" being displayed after the disc is read.

[Player's Data Input Mode]

⑤ → Rom Write OK!

<CLEAR> Exit



⑥ If the data cannot be read from the disc, "Disc Error!" is displayed on the screen, and the disc is ejected.

[Player's Data Input Mode]

⑥ → Disc Error!

<CLEAR> Exit

• Indication when the data have not been set

If no ID data are set after the ID number is changed, the message "NO ID DATA" flashes on the screen and FL display for a few seconds after the power is turned on or during Stop mode.

Microcomputer Section (AF Assy : IC5501)

Symptom	Possible Cause	Check Method
• The unit cannot be turned on.	The microcomputer was not reset.	Check if the level of the terminal XRESET (Pin 8) is "H." If it is not, check the RESET circuit.
	The AC pulse is not input.	Check if the AC pulse is input to Pin 4 of the AC input terminal. If it is not, check the AC pulse generation
	The oscillation circuit of the microcomputer does not function.	The microcomputer or the oscillation circuit is broken. Change the microcomputer or the oscillation circuit.
The unit shuts itself off soon after it is turned on.	- If the Function is DVD, the voltage of the VDET input (Pin 17) is either 0.5 Vdd or less or 0.85 Vdd or more. - The voltage of the PROTECT input (Pin 22) is 0.71 Vdd or less.	If the voltage at Pin 17 of the VDET terminal of the microcomputer is either 0.5 Vdd or less or 0.85 Vdd or more, adjust so that it stays between 0.5 and 0.85 Vdd.
- DVD does not operate at all. - Time is not displayed in FL display during DVD function.	Communication with the DVD microcomputer has not been established.	- Check that the terminal (Pins 23-25, 29, and 30) for communication with the DVD microcomputer is live, and if it is not, check if the flexible cable is disconnected. - Check if an "H" signal is output to Pin 93 of the XDVRST terminal.
All operation keys are disabled.	The unit recognizes that an operation key has already been pressed.	If no operation key has been pressed, check if the voltage at Pins 18 and 19 of the KEY input terminal is 5 V. If it is not, check if the operation switch on the line is in failure.

DVD Section

No.	Symptoms	Diagnosis Contents	Possible Defective Points
1	An opening screen is not displayed on the monitor (The FL display lights. The mechanism does not work.)	Is the level at both IC5501-pin 93 (XDVDRST) and pin 1 (DVD ON/OFF) on the AF Assy "H" ?	μcom (AF IC5501)
		Check the voltage of CN911-pin 28 and 29 (VPR+8) on the DVDM Assy.	DVDM Assy CN911
		Check that the following voltages are output : IC411-pin 3 : 1.8V, IC421-pin 3 : 1.8V and IC431-pin 1 : 5V on the DVDM Assy	Each regulator on the DVDM Assy
		Are resonators (27MHz, 20MHz) on the DVDM Assy oscillating ?	Crystal resonator (DVDM Assy X601 and X301)
		Refer to contents of an FE error displayed on the FL display. (SRAM defectiveness, I2C communication line defectiveness, etc.)	FRONT END IC (DVDM IC301)
		- Is a signal input into IC601-pin 132 (CE3) on the DVDM Assy ? (Is a signal fluctuating for several seconds after the power is turned on ?) → Communication with flash ROM - Are the signals input into IC602-pin 16 (SMIWE), pin 19 (SMICS0) and pin 38 (SMICLK) on the DVDM Assy ? (Is a signal fluctuating ?) → Communication with flash ROM	- BACK END IC (DVDM IC601) - Flash ROM (DVDM IC603) 64M SDRAM (DVDM IC602)
		Is a signal output from IC603-pin 28 (CPU_OE) on the DVDM Assy? (Is a signal fluctuating for several seconds after the power is turned on ?)	- BACK END IC (DVDM IC601) - Flash ROM (DVDM IC603)
		Is a signal input into IC5501-pin 67 (DVDACK) on the AF Assy ? (Is a signal fluctuating ?) → Communication with μcom	μcom (AF IC5501)
2	An opening screen is not displayed on the monitor (The FL display lights. The mechanism does not work.)	Is a signal output from IC5501-pin 29 and 30 (SYS_1, 2) on the AF Assy ? (Is a signal fluctuating in the range of 0-5V ?)	μcom (AF IC5501)
		Are the signals output from IC5501-pin 23, 24 and 25 on the AF Assy ? (in the range of 0-5V)	μcom (AF IC5501) – BACK END IC (DVDM IC601) communication line
3	A tray cannot be opened. (An opening screen is displayed on the monitor)	Check the video signal path between BACK END IC (DVDM IC601) and video-out terminal (see the block diagram)	DVDM Assy - Video circuit - after BACK END IC (IC601)
		- Are wires of CN123 on the DVDM Assy disconnected or damaged ? - Does the voltage of CN124 pin 3 to pin 6 on the DVDM Assy change normally ? - CN124 pin 6 (OPEN): Tray is fully closed: "H", Tray is fully opened: "L" - CN124 pin 3 (CLAMP): Clamping: "L", Releasing the clamber: "H"	Connector / wire LOADING SW (SSRB S21) CLAMP SW (TRSB S11)
4	Rotary tray does not turn (Opening screen is OK)	- Is a LOAD-DRVC signal reaching ? - Are the signals output from IC151 pin 9 and pin 8 on the DVDM Assy ? Pin 9: Approx. 6V during opening tray approx. 0V during closing tray. Pin 8: Approx. 0V during opening tray approx. 6V during closing tray. - Does the voltage of CN122 pin 17 change by pressing the Inside switch.	BACK END IC (DVDM IC601) Carousel driver (DVDM IC151) Inside switch
		- Check each cable (DVDM – TRSB/TRSB – SSRB/SSRB – TRAY motor) - Is a signal output from IC601-pin 114 (ROT DRV) on the DVDM Assy ? (Is a signal fluctuating of 0-3.3V ?) - Is the motor drive voltage output it at CN124 pin 7 and pin 8 ?	Connector / cable BACK END IC (DVDM IC601) IC151 and peripheral parts of the DVDM Assy

No.	Symptoms	Diagnosis Contents	Possible Defective Points
5	Initialization operation of the table mechanism is not completed. (Rotary tray does not stop at the right position.)	- While a tray rotates, is a signal output from CN124-pin 5 (TRAY POS) on the DVDM Assy ? (Is a signal fluctuating in the range of 0-3V ?) - While a tray rotates, is a signal outputting from CN124-pin 4 (DISC SENS) on the DVDM Assy ? (Is a signal fluctuating in the range of 0-3V ?)	Connector / cable Tray Position Sensor (SSRB PC22) Disc Sensor (SSRB PC21)
6	Playback impossible (no focusing)	Are the signals output from IC101-pin 34 (F_DRV) and pin 35 (F_RTN) on the DVDM Assy ?	FTS Driver IC (DVDM IC101)
		Does 650-nm LD emit light ? Does a pickup lens move up / down ? Does an actuator spring bend ?	Pickup
		- Are plastic parts damaged? Or is a shaft detached? - Is the turntable detached or tilted?	Mechanism section
		Is flexible cable of CN121 on the DVDM Assy disconnected or damaged ?	Flexible cable / connector
		Is signal output from IC301-pin 33 (FACT) on the DVDM Assy ? (Device control of about 2.6 V is output usually. It is fluctuated by about ± 100 mV with focus up / down.)	FRONT END IC (DVDM IC301)
7	Playback impossible (Spindle does not turn)	Are the signals output from IC101-pin 12 (A3), pin 13 (A2) and pin 14 (A1) on the DVDM Assy ? Is pin 41 fixed LOW and is pin 38 fixed HIGH ?	FTS Driver IC (DVDM IC101)
		Is there any part detached from the spindle motor? Or Is there any foreign object lodged in it?	Mechanism section (Spindle motor)
		Are wires of CN122 (DVDM Assy) and CN3 (SSIB Assy) disconnected or damaged ?	Flexible cable / connector
		Is signal output from IC301-pin 44 (SPDL_PDM) on the DVDM Assy ?	FRONT END IC (DVDM IC301)
8	Playback impossible (Playback stops)	Does 650-nm LD deteriorate ? If the voltage at both ends of R201 on the DVDM Assy is 0.7 V or more, the 650-nm LD is definitely deteriorated.	650-nm LD deteriorated. (When playback of a DVD is impossible)
		Does 780-nm LD deteriorate ? If the voltage at both ends of R211 on the DVDM Assy is 1.5 V or more, the 780-nm LD is definitely deteriorated.	780-nm LD deteriorated. (When playback of CD is impossible)
		Is there abnormality in FG waveform ?	FG output : FTS Driver IC (DVDM IC101)
		Are there scratches or dirt on the disc ?	Disc
9	Picture disturbance during playback (block noise, freeze, other)	Are there scratches or dirt on the disc ?	Disc
		Is there a problem with the format of the disc?	Disc
10	No sound (Picture is normal)	Is signal output from DOUT signal (CN911-pin 21) on the DVDM Assy ?	DVDM CN911-pin 21

Table Mechanism Section

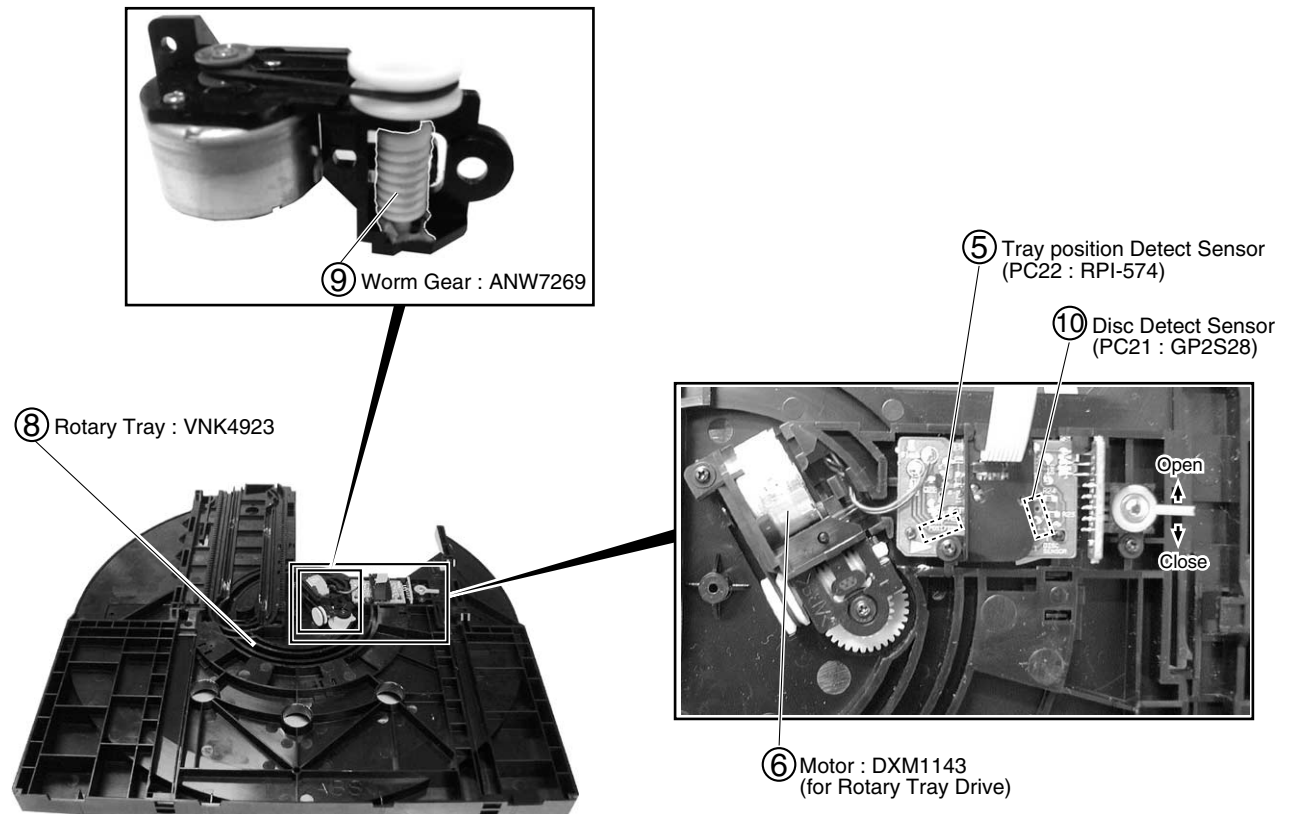
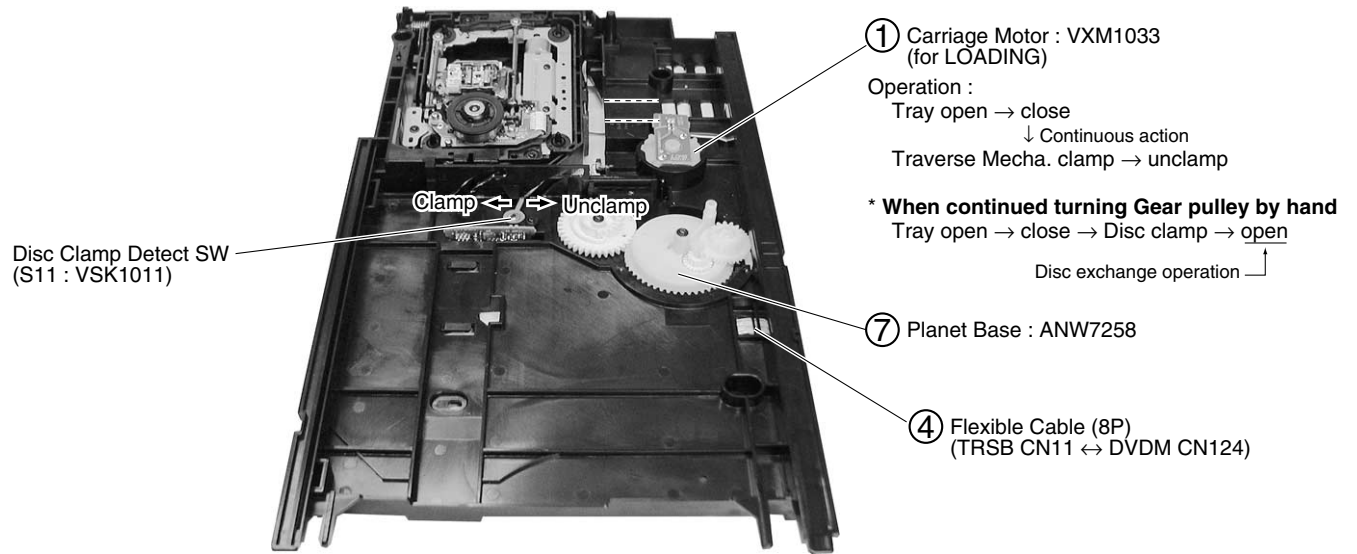
A

Symptom	Possible Cause	Location of Trouble
The tray does not open. (Nothing works) Press the (OPEN) key. → The "OPEN" indication does not disappear. Press the (PLAY) key. → The indication changes from "NO DISC" to "OPEN," and the unit does not operate. (When a disc is not loaded in the tray.)	• Damage of the loading motor • Disconnection, breaking, or damage of the jumper wire	①
The tray opens by itself when the power is turned on and stays open.	• Disconnection, breaking, or damage of the flexible cable (8P)	④
The rotary tray does not stop at its home position. (It may stop suddenly during rotation.)	• Breaking or damage of the tray position detect sensor (PC22)	⑤
The indication "CHANGE" does not change when the power is turned on. The rotary tray does not rotate. (Opening and closing of the tray are possible.)	• Damage of the motor for the rotary tray drive • Disconnection, breaking, or damage of the jumper wire	⑥
A clatter is heard when the disc is clamped.	• The gears of the planet base are not engaged correctly.	⑦
The rotation of the rotary tray does not stop after the power is turned on. Two or more disc loading indications light for tray Nos. 1 to 5. Examples: Normal condition: Abnormal condition:	The slit part on the bottom of the rotary tray is damaged.	⑧
The rotary tray rattles while rotating. When the rotary tray rotates, a rattling sound is heard.	• Damage of the worm gear • Insufficient lubricant	⑨
Even during playback, the indication "NO DISC" is displayed. It takes longer than normal until playback starts.	• Breaking or damage of the disc detect sensor (PC21)	⑩

E

F

Location



7.1.9 DSP TROUBLE SHOOTING

Detectable DSP Errors

The following conditions are premised,

in order to eliminate causes other than "DSP-assy" and "between DSP-assy and microcomputers".

- Electric power is correctly supplied to DSP-assy.
- The SPDIF signal is coming to the input port of DIR("COAX IN" RX0 & "OPT IN" RX3 & "DVD" RX7).
- There is no audio output from DSP-assy, or audio output is unusual.

• ERR_0 : -Cannot receive data from DIR-

FL DIRERR - UM

- Communication fault has occurred in somewhere between DIR(PinNo.32 CDTO)-Level Sifte(IC8702)-μ-com(PinNo.80 DIRDO).
- Communication fault has occurred in somewhere between the μ-com-port(*1) which has sent the signal to IC, and each IC.

• ERR_1 : -Cannot receive data from DSP-

FL DSPEER - UM

- Communication fault has occurred in somewhere between DSP(PinNo.144 DSDO)-Level Shifteer(IC8702)-μ-com(PinNo.50 DSPDO).
- Communication fault has occurred in somewhere between the μ-com-port(*1) which has sent the signal to IC, and each IC.
- Communication fault has occurred in somewhere between the DIR and DSP.

• ERR_2 : -There is no return value of HREQ-

FL HREQ - UM

- Communication fault has occurred in somewhere between DSP(PinNo.3 HREQ)-Level Shifteer(IC8702)-μ-com(PinNo.82 DSPHREQ).
- Communication fault has occurred in somewhere between the μ-com-port(*1) which has sent the signal to IC, and each IC.
- Communication fault has occurred in somewhere between the DIR and DSP.

• ERR_3 : -ERR information from DSP-

FL DSPNG - UM

- Communication fault has occurred in somewhere between the μ-com-port(*1) which has sent the signal to IC, and each IC. (especially the fault inside DSP)
- Communication fault has occurred in somewhere between the DIR and DSP.

• ERR_4 : -DECOMUTE continues being LOW(MUTE)-

FL DMUTE - M

- Communication fault has occurred in somewhere between DSP(PinNo.21 PB12)-Level Shifteer(IC8702)-μ-com(PinNo.86 DECMUTE).
- Communication fault has occurred in somewhere between the μ-com-port(*1) which has sent the signal to IC, and each IC.
- Communication fault has occurred in somewhere between the DIR and DSP.

Although the followings are not errors, since these are helpful for problem solution, displayed separately.

• ERR_5 : -DIRERR is HIGH(UNLOCK) in digital function-

If DIRERR continues being HIGH(UNLOCK) without the above-mentioned error display.

- Communication fault has occurred in somewhere between DIR(PinNo.36 INT0)-Level Sifter(IC8702)-μ-com(PinNo.77 DIRERR).

• ERR_6 : -DSPMUTE is LOW (MUTE)-

If DSPMUTE continues being LOW (MUTE) without the above-mentioned error display.

- Communication fault has occurred in somewhere between μ-com(PinNo.86 DSPMUTE)-connector(CN8011andCN8012 No.19MUTEOUT).

Notes :

- If the error is fundamental, a priority will become high.
- And the error with a high priority is displayed.

Since the μ-com has not received data from CODEC, a CODEC error is undetectable.

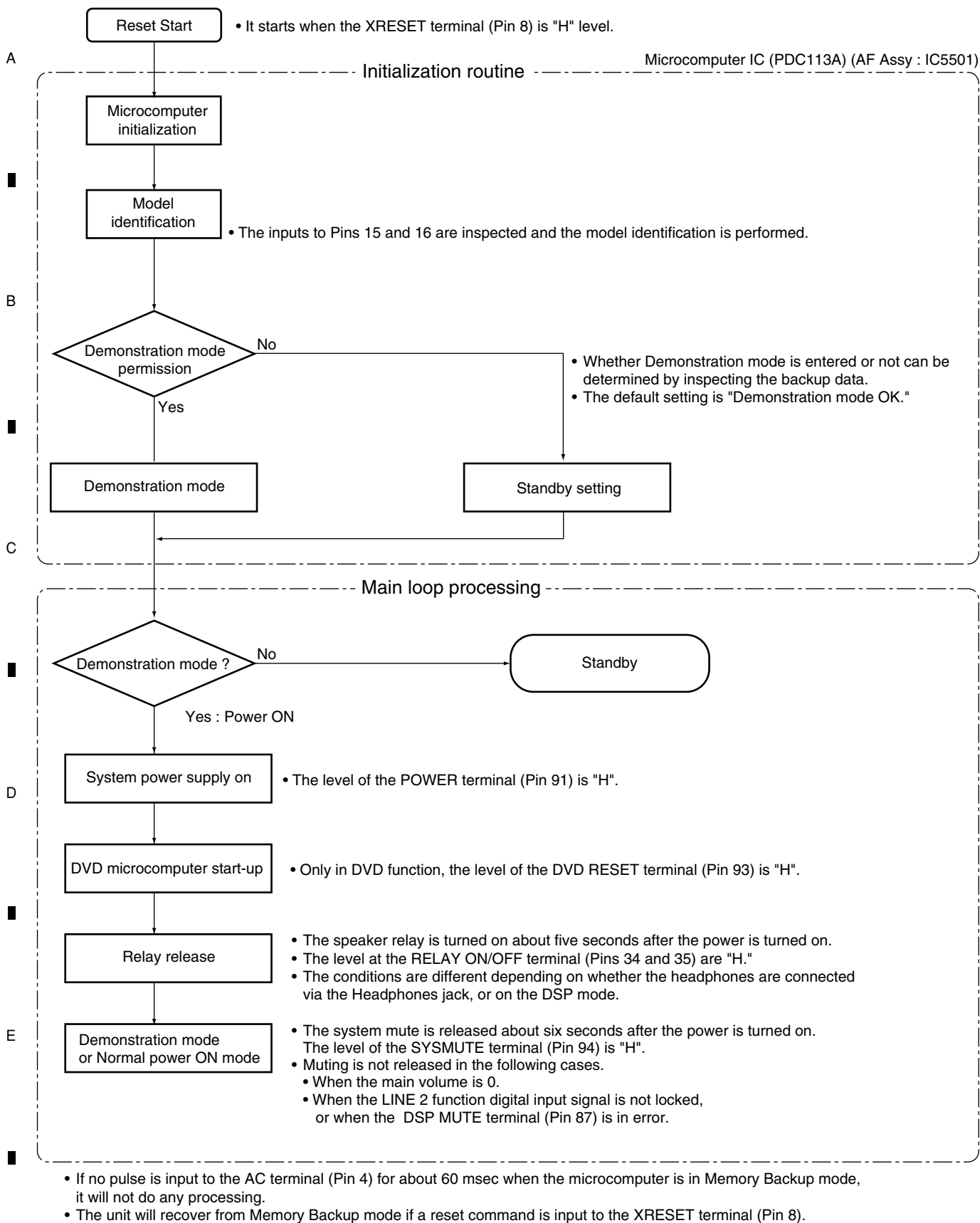
However, when the analog audio output of a DSP module is unusual without error information, we can surmise that CODEC (or its circumference) is out of order.

*1 : μ -com-port which has sent the signal to IC

μ -com port			DIR port		CODEC port	
Pin No.	Pin Name		Pin No.	Pin Name	Pin No.	Pin Name
No.51	DSPCK	————→	No.34	CCCLK	No.42	CCCLK
No.49	DSPDI	————→	No.33	CDTI	No.43	CDTI
No.79	DIRCS	————→	No.35	CSN	No.41	CSN
No.78	DIRRST	————→	No.31	PDN	No.17	PDN

μ -com port			DSP port	
Pin No.	Pin Name		Pin No.	Pin Name
No.51	DSPCK	————→	No.1	SCK
No.49	DSPDI	————→	No.143	MOSI
No.84	DSPSS	————→	No.2	SS
No.85	DSPRST	————→	No.44	RESET
No.81	DSPMODE	————→	No.137	MODA

7.1.10 POWER ON SEQUENCE

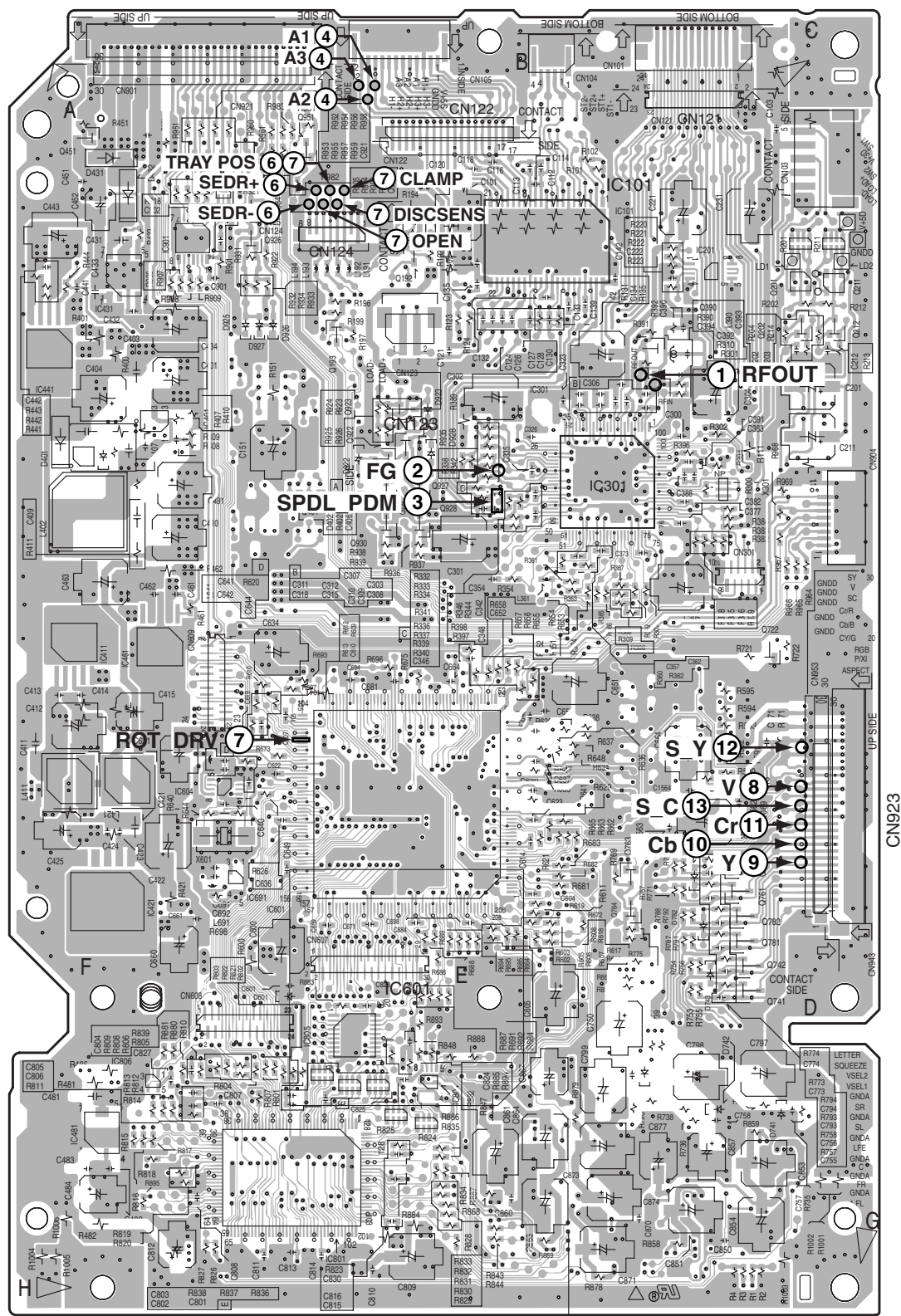


7.1.11 WAVEFORM POINTS LOCATION

SIDE A

SIDE A

A DVDMM ASSY (HTD640 /KUC)

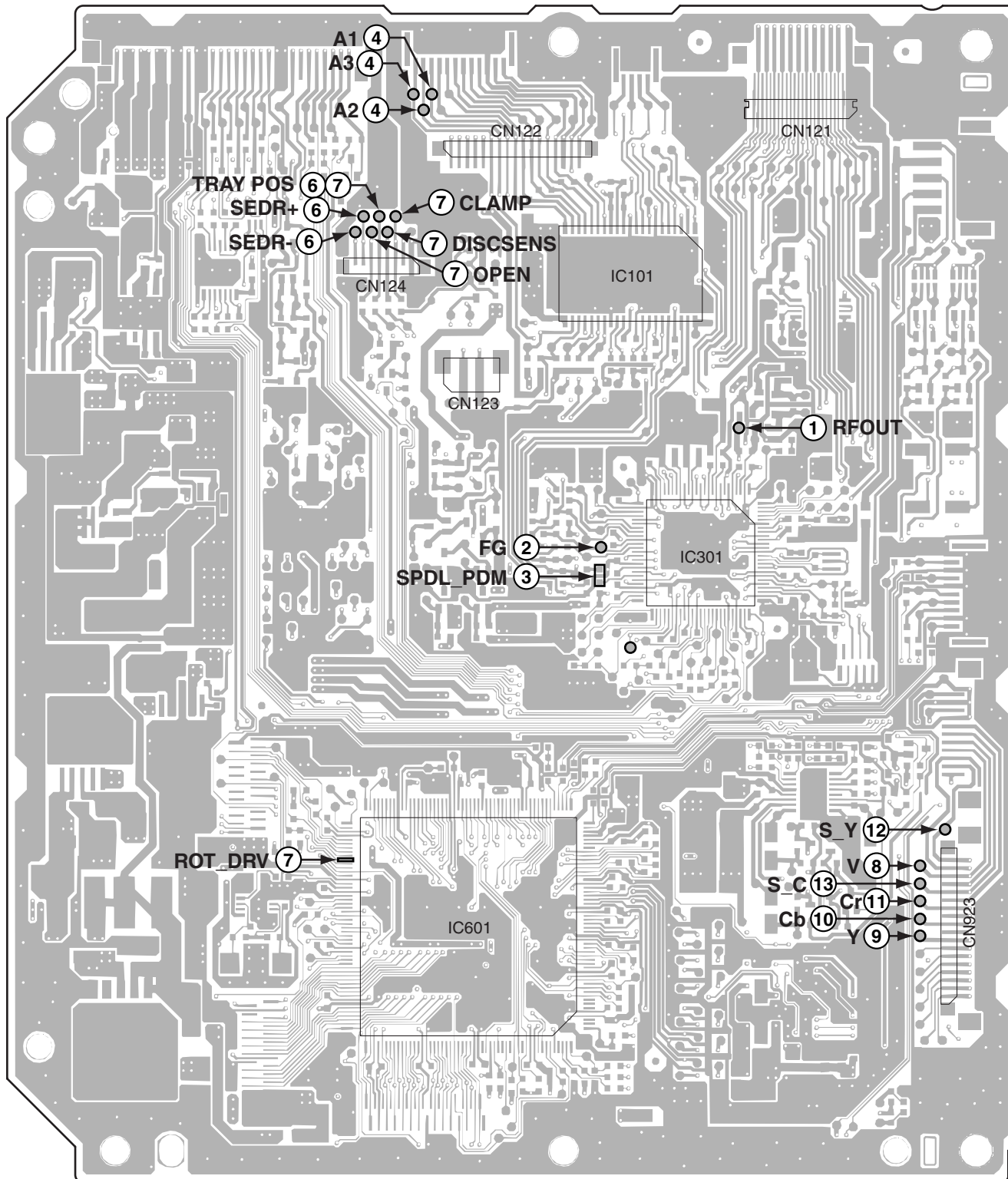


➔ Front Side

SIDE A

SIDE A

A DVDM ASSY (DV9 / Other)

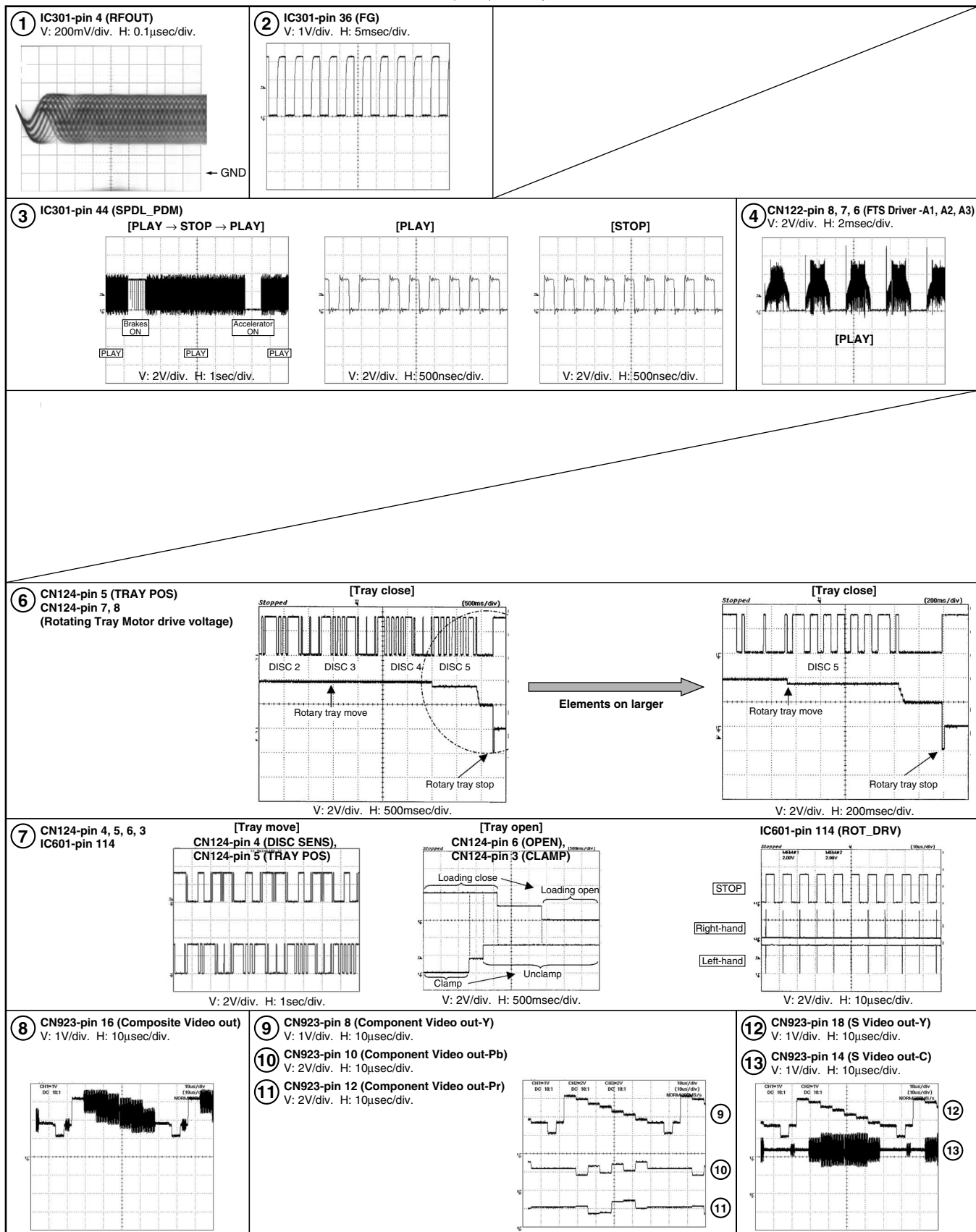


➡ Front Side

A DVDM ASSY

Note : The encircled numbers denote measuring point in the schematic diagram.

Measurement condition : No. 1 to 2 and 8 to 13 : reference A1 (DVD), T2-chp 19, Color-bar



1 2 3 4

7.1.12 PROTECTION CIRCUIT

If the TIMER LED on the front panel flashes, check the protection circuit.

Note: If the protection circuit activates, the unit will not recover for 60 seconds even if the AC power cord is disconnected then reconnected.

If you activate Service Test mode, the protection circuit becomes invalid, which makes diagnosis easy. (To activate Service Test mode, while holding the STOP key and the DISC 1 key pressed, press the STANDBY/ON key.)

There are three types of operations for the protection circuit, which are indicated on the FL display when Service Test mode is entered:

- PRTCT WNG: The unit was shut down because of an abnormality in the AMP system. (The PROTECT line operates at the MID level.)
- PRTCT ERR: The unit was shut down because of a failure in the AMP system. (The PROTECT line operates at the LO level.)
- DVD PRTECT: The unit was shut down because of a failure in the DVD system. (The VDET line operates at the HI or LO level.)

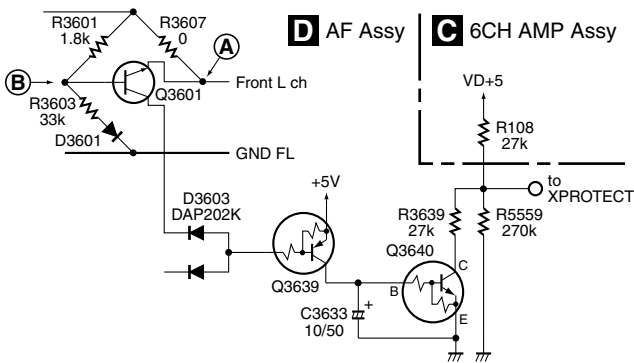
Conditions for the protect circuit operations

	Voltage		Conditions	FL display in Service Test mode
PROTECT	HI level	>3.55V	Normal	
	MID level	1.8V - 3.5V	The unit is shut down because of an abnormality.	PRTCT WNG
	LO level	<1.8V	The unit is shut down because of a failure.	PRTCT ERR
VDET	HI level	>4.25V	The unit is shut down because of a failure.	DVD PRTECT
	MID level	3.3V	Normal	
	LO level	<2.5V	The unit is shut down because of an abnormality.	DVD PRTECT

- The possible failures for each error message are as follows:
- PRTCT WNG:
- The Speaker terminal became overloaded because of short-circuit. (See ①.)
- PRTCT ERR:
- The main power supply became LO level because of short-circuit or disconnection of connectors. (See ②.)
 - Disconnection of the FAN connector or interruption of rotation of the fan (See ③.)
 - DC was generated at the output because of a failure in the AMP system, etc. (See ④.)
 - Abnormal temperature was detected by the thermistor. (See ⑤.)
- DVD PRTECT:
- An error was generated in the main power supply inside the DVDM. (See ⑥.)

Protection circuit that activates against a PRTCT WNG error

① When the Speaker terminal becomes overloaded

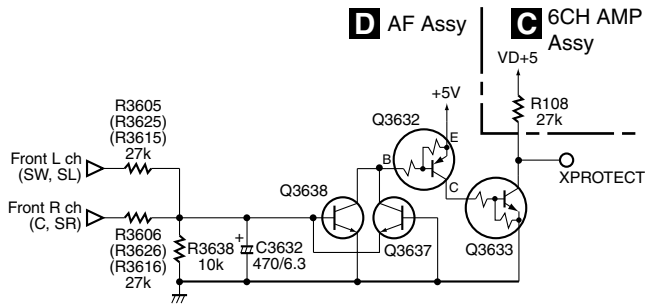


- In Normal mode, the speaker (6 ohms) is connected between the FL and GND FL points. Because the voltage at Point ① is higher than that at Point ②, Q3601 does not operate.
- If the resistance between the FL and GND FL points becomes 1.83 ohms or less, Q3601 begins to operate, Q3639 is turned on, Q3640 (E, C, and B) is turned on, and the level of XPROTECT becomes MID.
- The microcomputer detects the XPROTECT level and shuts the power to the unit off.

:

- ④ When DC is generated at the output because of a failure in the AMP system, etc.

A



B

- In Normal mode, both Q3637 and Q3638 are off.

- (1) When positive (+) DC voltage is generated at the SP terminal

When positive (+) DC voltage is generated at the L or R channel, and VB of Q3637 becomes higher than that at the operation point, Q3632 (E, C, B) is turned on, and the level of XPROTECT becomes low.

→ The microcomputer detects the XPROTECT level and shuts the power to the unit off.

- (2) When negative (-) DC voltage was generated at the SP terminal

C

Q3638 is turned on, and XPROTECT is activated.

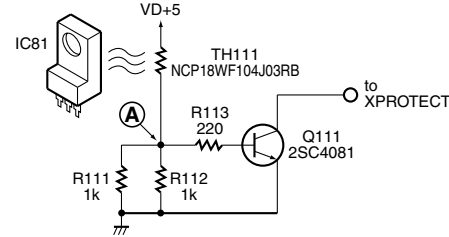
D

E

F

- ⑤ When abnormally high temperature is detected by the thermistor

- ⑤ -1 IC81 abnormal temperature detection circuit

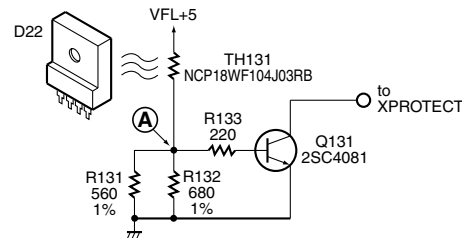


The voltage at Point A becomes the divided voltage of TH111 and R111//R112 (combined resistance of parallel-connected resistors R111 and R112.) In Normal mode, the resistance at TH111 is much higher than R111//R112, and Q111 is off. (Note that the resistance at TH111 becomes lower as the temperature increases.) If the solder temperature at IC81 increases abnormally, the temperature at TH111 (thermistor) mounted closest to the land of IC81 increases accordingly, and the resistance at TH111 decreases.

When the temperature at TH111 reaches 90-110_C (varying according to conditions,) the voltage at Point (A) becomes high enough to turn Q111 on, and the level of the XPROTECT line becomes low. The microcomputer detects the XPROTECT level and shuts the power to the unit off.

- ⑤ -2 D22 abnormal temperature detection circuit

If the solder temperature at D22 becomes abnormally high because of short-circuiting between AC - and +, or AC - and -, this protection circuit is activated.



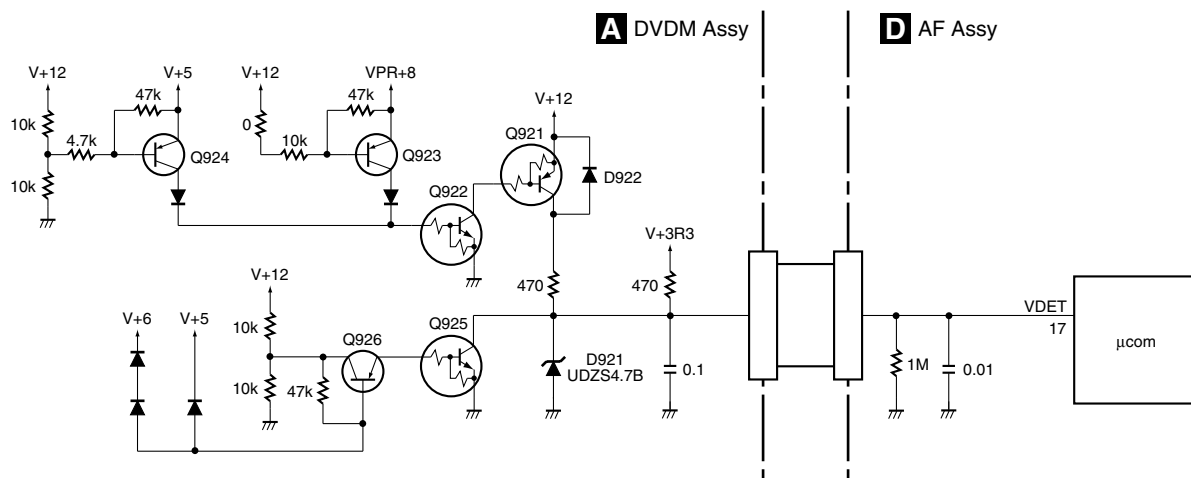
The voltage at Point A becomes the divided voltage of TH131 and R131//R132 (combined resistance of parallel-connected resistors R131 and R132.) In Normal mode, the resistance at TH131 is much higher than R131//R132, and Q131 is off. (Note that the resistance at TH131 becomes lower as the temperature increases.) If the solder temperature at D22 increases abnormally, the temperature at TH131 (thermistor) mounted closest to the land of D22 increases accordingly, and the resistance at TH131 decreases.

When the temperature at TH131 reaches 107-125_C (varying according to conditions,) the voltage at Point (A) becomes high enough to turn Q131 on, and the level of the XPROTECT line becomes low. The microcomputer detects the XPROTECT level and shuts the power to the unit off.

Protection circuit that activates against a DVD PRTECT error

⑥ The DVDM monitors the voltage of the main power supply by VDET signals.

In Normal mode, the VDET signal is at the MID level (3.3 V). In the following conditions, the VDET signal level becomes L or H, and the microcomputer is notified of this abnormality.



Items to be detected by VDET

(1) When the power voltages inside the DVDM become abnormal, as shown in the table below

Status	Power	Voltage	Operation								VDET voltage
			Q923	Q924	Q922	Q921	D921	D922	Q926	Q925	
In Normal mode			off	off	off	off	off	off	off	off	Mid
When an abnormality is generat	VDVD+12	<1V	(on)	(on)	(on)	(off)	off	on	off	off	L
		>15.5V	off	off	off	off	off	off	on	on	L
	VPR+8	<5.2V	–	off	off	off	off	–	on	on	L
		>12.6V	–	on	on	on	on	–	off	off	H
	V+6	<3V	–	–	–	–	–	–	on	on	L
	V+5	<3.6V	–	off	off	off	off	–	on	on	L
		>6.6V	–	on	on	on	on	–	off	off	H
	V+3R3	<2.5V	–	–	–	–	–	–	–	–	L
		>4.25V	–	–	–	–	(on)	–	–	–	H

(2) When the VDET signal to the microcomputer is interrupted because of defective soldering of the 30-pin connector or incomplete insertion of FFC

→ The VDET level is lowered by the pull-down resistor (1 Mohms) on the side of the microcomputer.

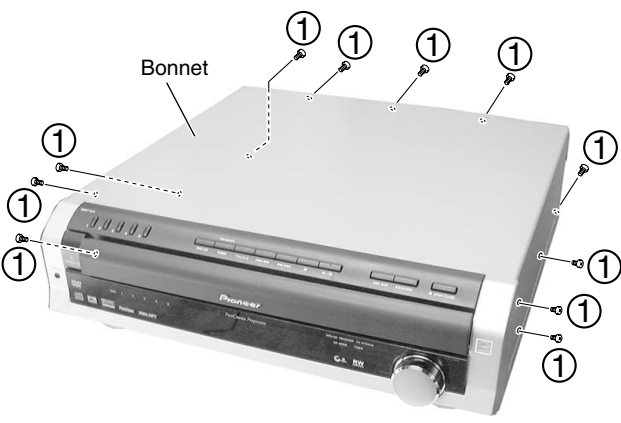
DIAGNOSIS OF PCBs

Note: For performing the diagnosis shown below, the following jig cables for service are required:

- GGD1160 (DV9 Only) • GGD1222 (HTD640 Only)
- GGD1228
- GGD1315 (x2)

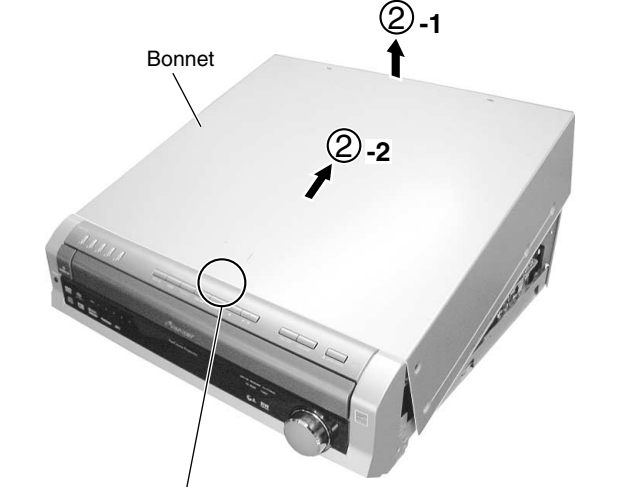
1 Bonnet and Tray Cap

① Remove the eleven screws.



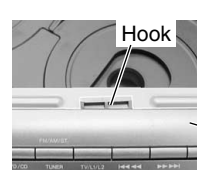
Bonnet

② Remove the bonnet.



Bonnet

Caution :
Remove the bonnet carefully because the hook of Front Panel Section may be damaged.
And be careful not to damage when installs it again.



Hook

Front Panel Section

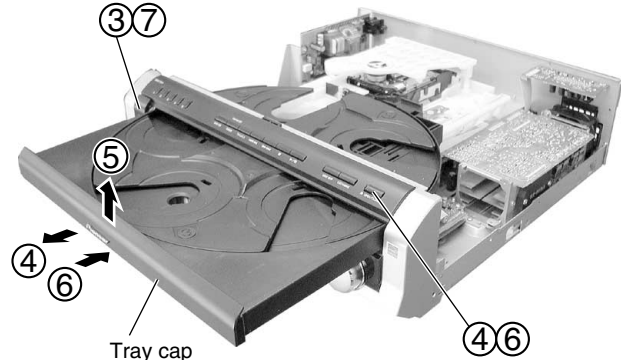
③ Press the STANDBY/ON button to turn on the power.

④ Press the OPEN/CLOSE button to open the tray.

⑤ Remove the tray cap.

⑥ Press the OPEN/CLOSE button to close the tray.

⑦ Press the STANDBY/ON button to turn off the power.

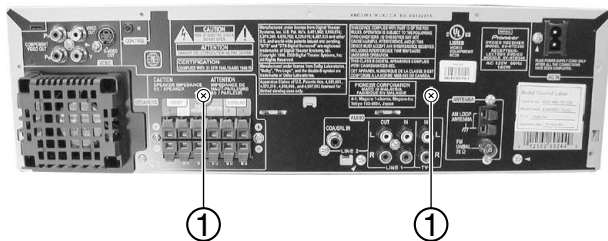


Tray cap

● How to open the Tray when the power cannot be on

- ① Remove the two screws.

● Rear view



- ② Create a little gap between the main unit and the Table Mechanism Section by holding and pulling up the rear side of the Table Mechanism Section by hand.

- ③ Insert your hand through the gap below the Table Mechanism Section.

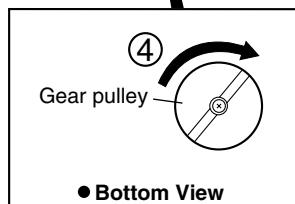
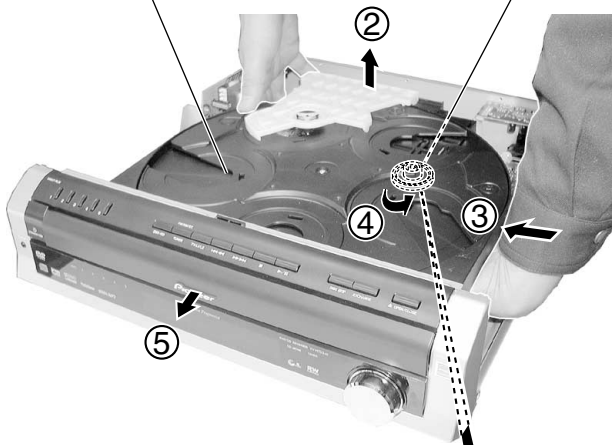
Note : When working, be careful not to injure yourself with a burr, etc..

- ④ Turn the gear pulley counterclockwise as viewed from the top.

- ⑤ If the tray pops out a little, fully pull it out by a hand.

Table Mechanism Section

Gear pulley

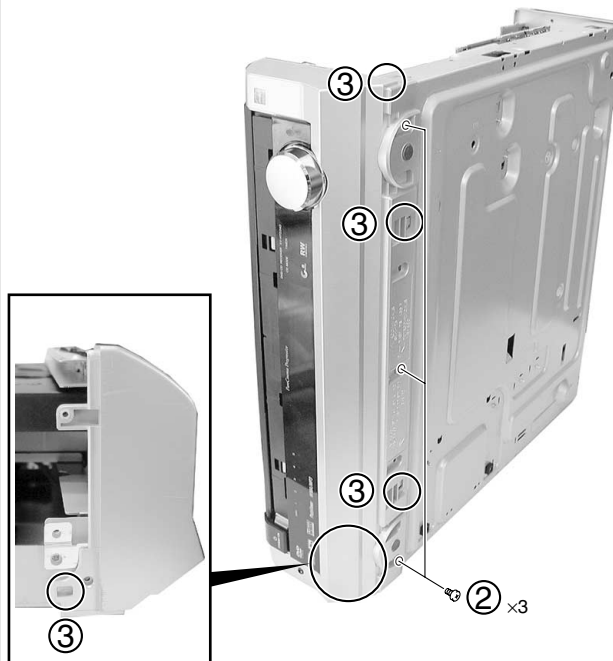


2 Front Panel Section

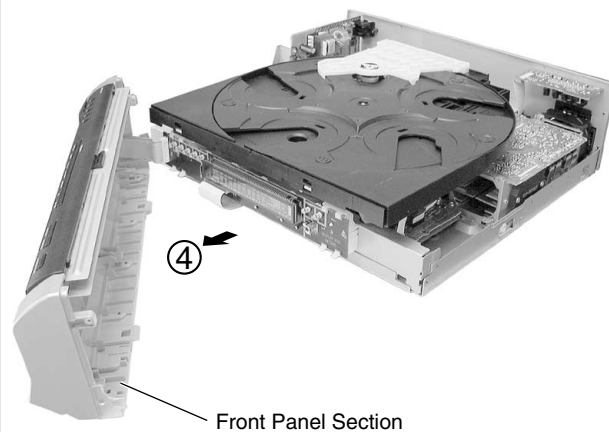
- ① Remove the bonnet and tray cap. (See Step 1.)

- ② Remove the three screws.

- ④ Unhook the four hooks.

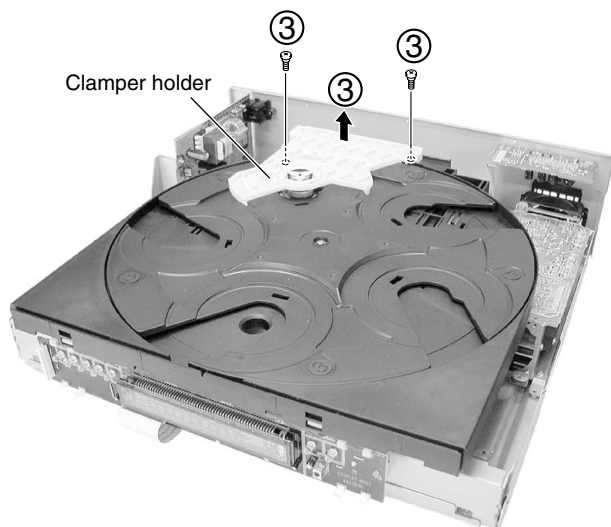


- ④ Remove the Front Panel Section.



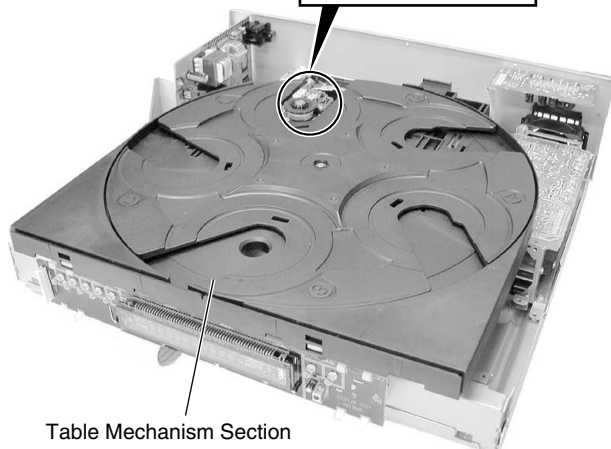
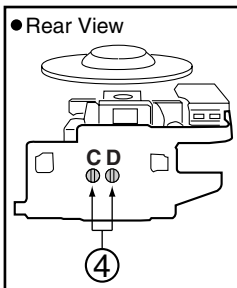
3 DVDM Assy

- ① Remove the bonnet and tray cap. (See Step 1.)
- ② Remove the Front Panel Section. (See Step 2.)
- ③ Remove the clamber holder by removing the two screws.

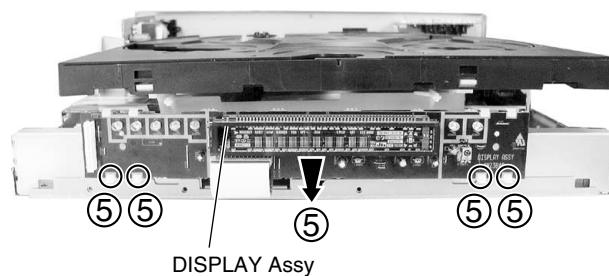


- ④ Short-circuit two points of C and D by soldering.

Note : After replacement, connect the flexible cable, then remove the soldered joint (open).

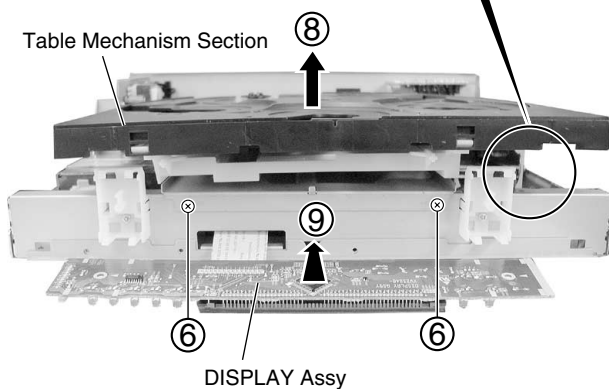
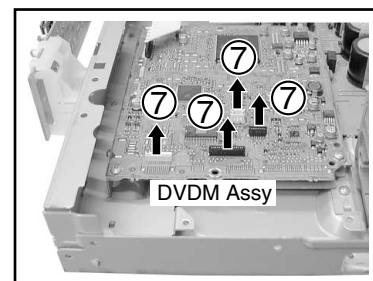
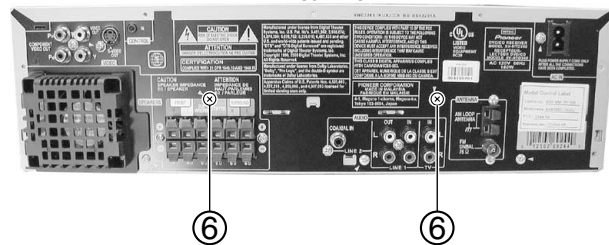


- ⑤ Remove the DISPLAY Assy by unhooking at the four points.



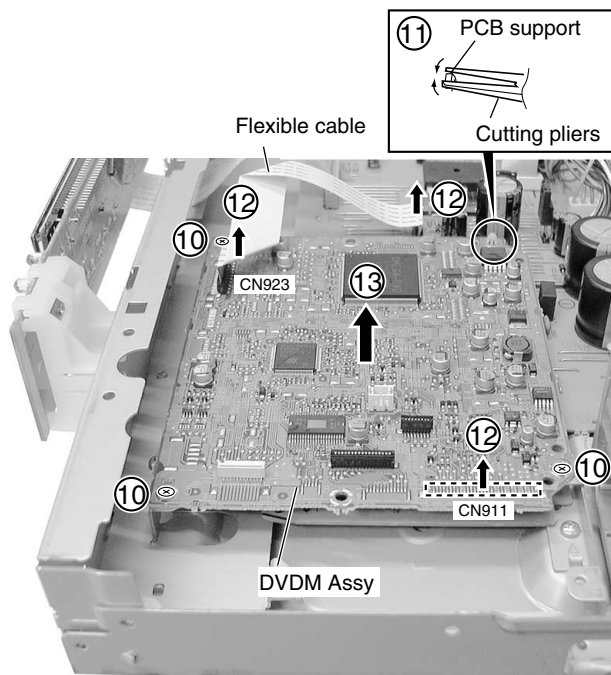
- ⑥ Remove the four screws.
- ⑦ Disconnect the three flexible cables and the one connector.
- ⑧ Remove the Table Mechanism Section.
- ⑨ Reattach the DISPLAY Assy.

● Rear view

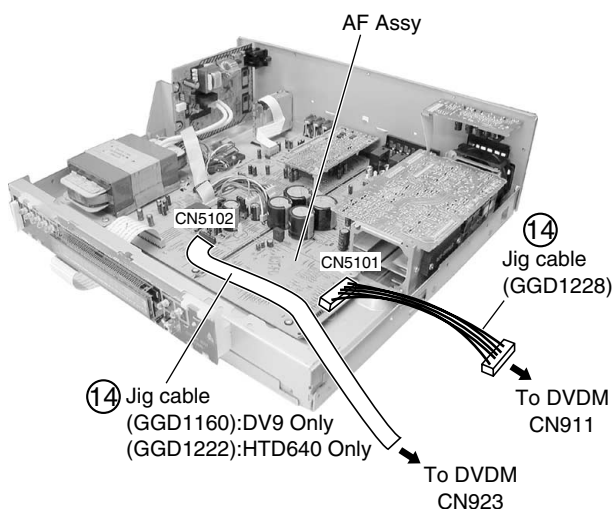


XV-DV9 Only

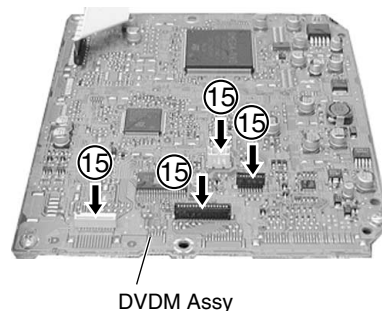
- ⑩ Remove the three screws.
 ⑪ Remove the PCB support.
 ⑫ Remove the flexible cable and disconnect the connector.
 ⑬ Remove the DVDM Assy.



- ⑭ Connect the two jig cables.

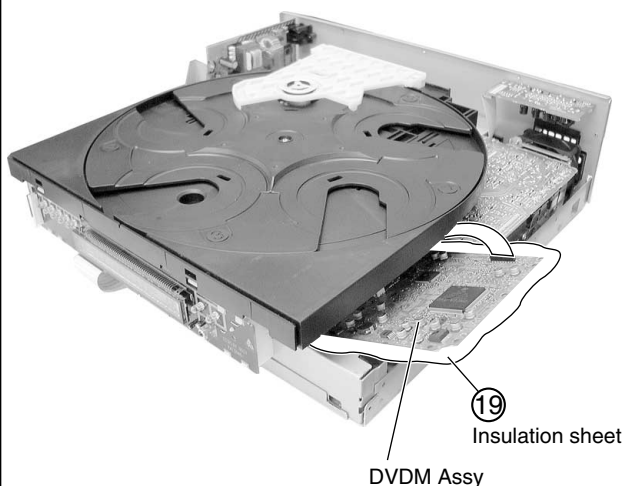


- ⑮ Reattach the three flexible cables and the one connector from the Table Mechanism Section.



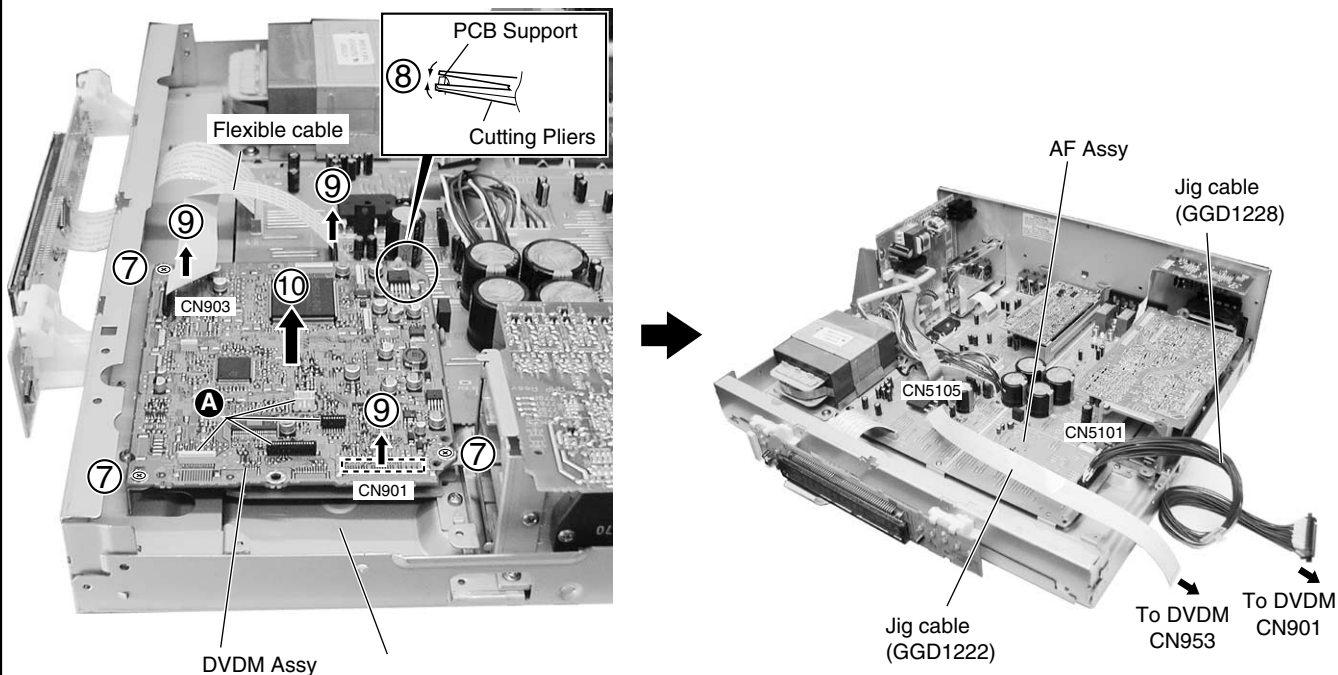
- ⑯ Reattach the Table Mechanism Section.
 (See Steps ⑨ to ⑤.)
 ⑰ Remove the soldered joint pickup short point.
 (See Step ④.)
 ⑱ Reattach the clamber holder by tighten the two screws.
 (See Step ③.)

- ⑲ Insert the insulation sheet between the DVDM Assy and the chassis.
 ⑳ Arrange the cables as shown in the photo below.



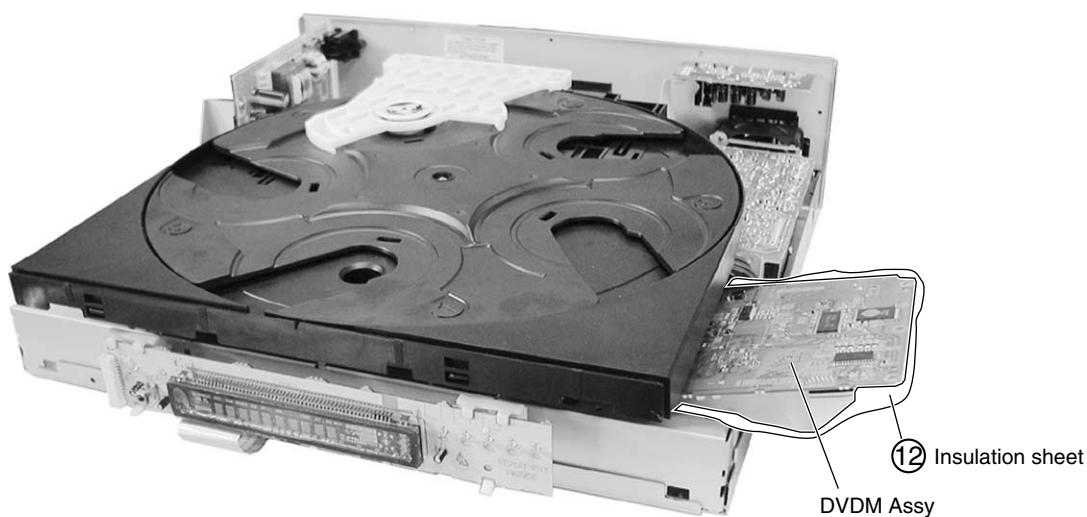
XV-HTD640 ONLY

- ⑦ Remove the three screws.
 ⑧ Remove the PCB support.
 ⑨ Remove the flexible cable and disconnect the connector.
 ⑩ Remove the DVDM Assy.
 ⑪ Connect the two jig cables.

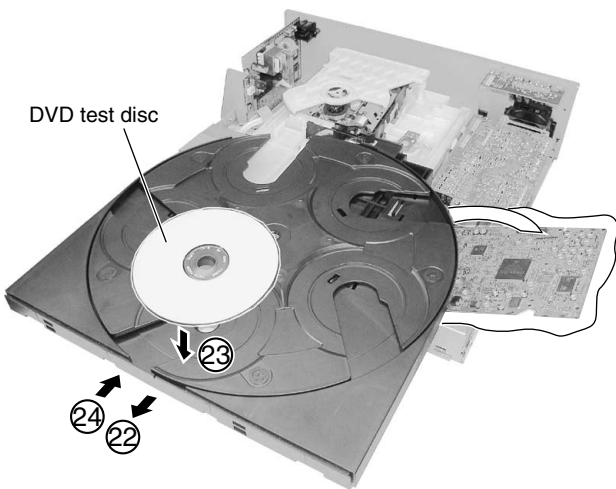
**Note:**

For clarity, in the photo above the flexible cables from the Table Mechanism Section are disconnected.
 In the actual operation, keep these flexible cables (A) connected.

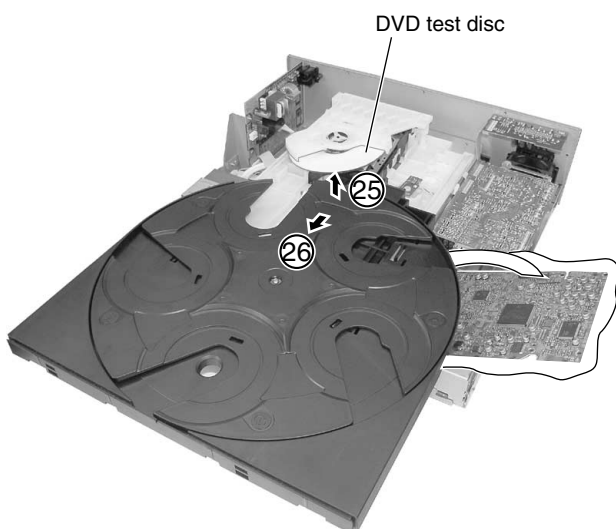
- ⑫ Insert the insulation sheet between the DVDM Assy and the chassis.
 ⑬ Arrange the cables as shown in the photo below.



- ②① Press the STANDBY/ON button to turn on the power.
 ②② Press the OPEN/CLOSE button to open the tray.
 ②③ Set the DVD test disc.
 ②④ Press the OPEN/CLOSE button to close the tray.



- ②⑤ Press the PLAY/PAUSE button.
 (DVD test disc is clamped.)
 ②⑥ Press the OPEN/CLOSE button.
 (Tray is opened.)

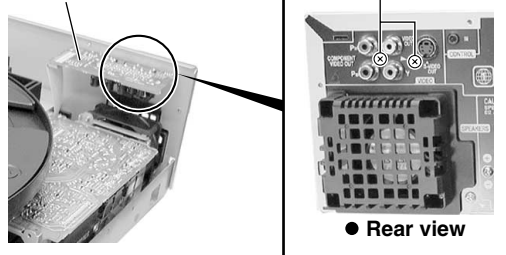


Diagnosis

4 AMP Module Section

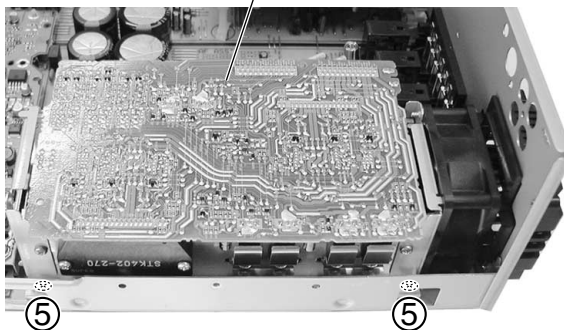
- ① Remove the bonnet and tray cap. (See Step 1.)
 ② Remove the Front Panel Section. (See Step 2.)
 ③ Remove the Table Mechanism Section. (See Step 3.)
(Do not disconnect the flexible cables that connects to the DVDM Assy.)
 ④ Remove the VIDEO JACK Assy by removing the two screws.

VIDEO JACK Assy

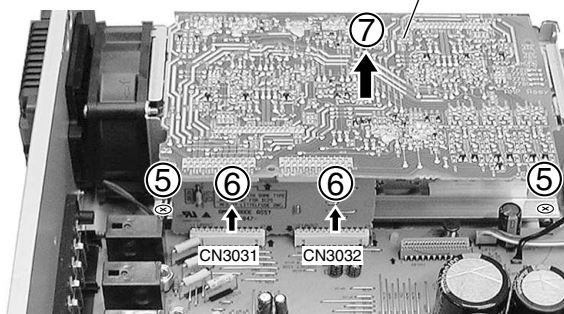


- ⑤ Remove the four screws.
 ⑥ Disconnect the two connectors.
 ⑦ Remove the AMP Module Section.

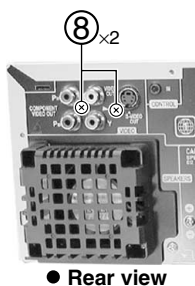
AMP Module Section



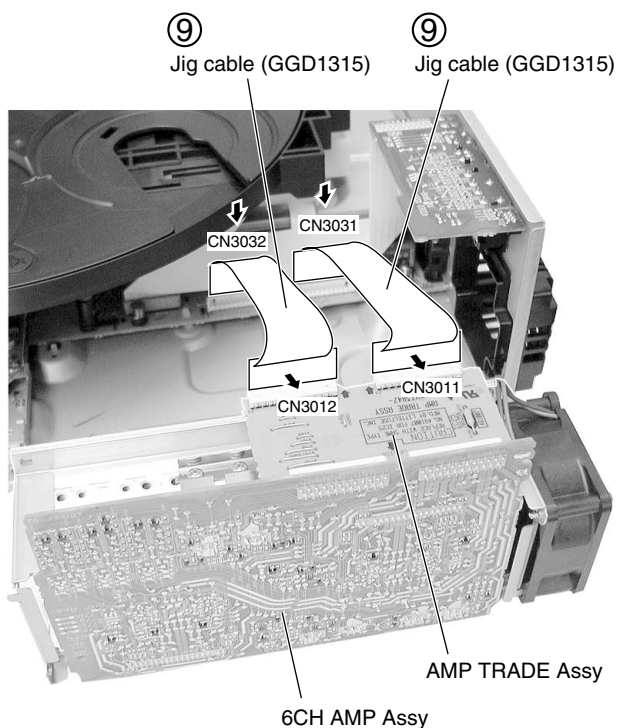
AMP Module Section



- ⑧ Reattach the VIDEO JACK Assy by tighten the two screws.



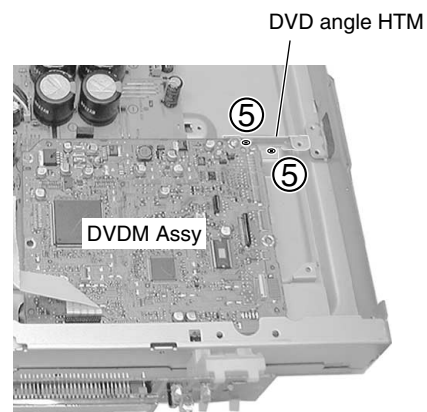
- ⑨ Connect the two jig cables.
⑩ Arrange the cables as shown in the photo below.



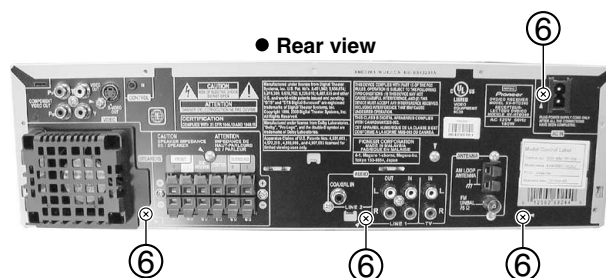
Diagnosis

5 AF Assy

- ① Remove the bonnet and tray cap. (See Step 1.)
② Remove the Front Panel Section. (See Step 2.)
③ Remove the Table Mechanism Section. (See Step 3.)
④ Remove the AMP Module Section. (See Step 4.)
⑤ Remove the DVD angle HTM by removing the two screws.

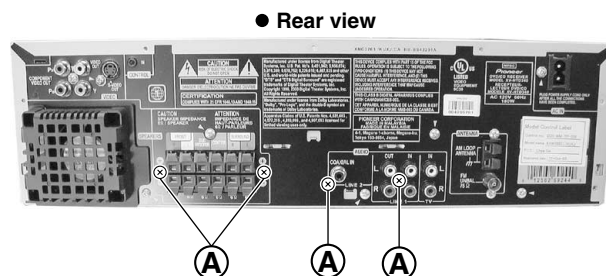


- ⑥ Remove the four screws.



⚠ Note on handling the rear panel

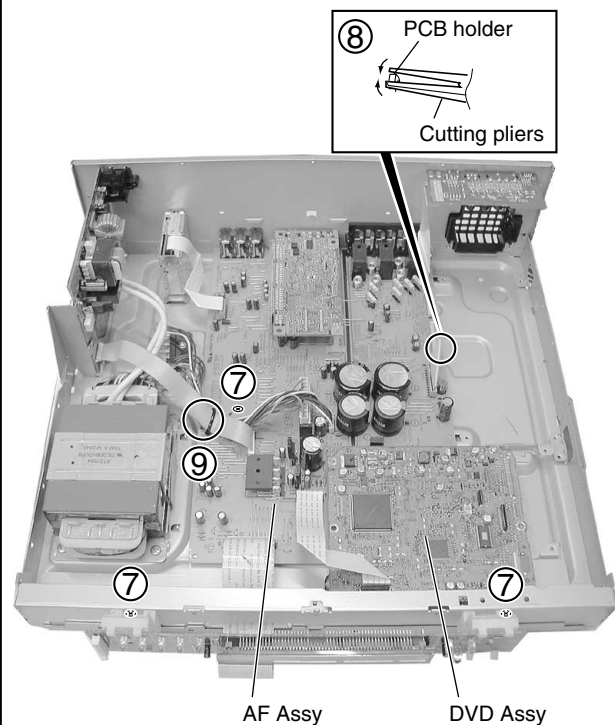
During diagnosis, be sure NOT to remove the four screws marked Ⓐ in the above photo. This unit will damage if the Audio Output connectors and the Speaker Output connectors of the AF Assy are separated from the rear panel, because that would damage the ICs in circuit.



⑦ Remove the three screws.

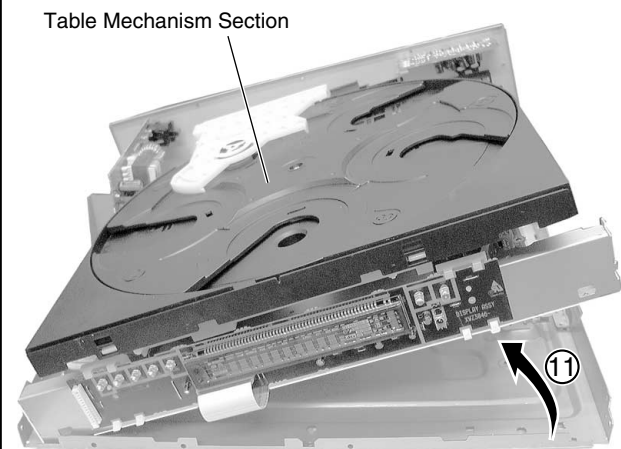
⑧ Remove the one PCB holder.

⑨ Loosen the cord holder.



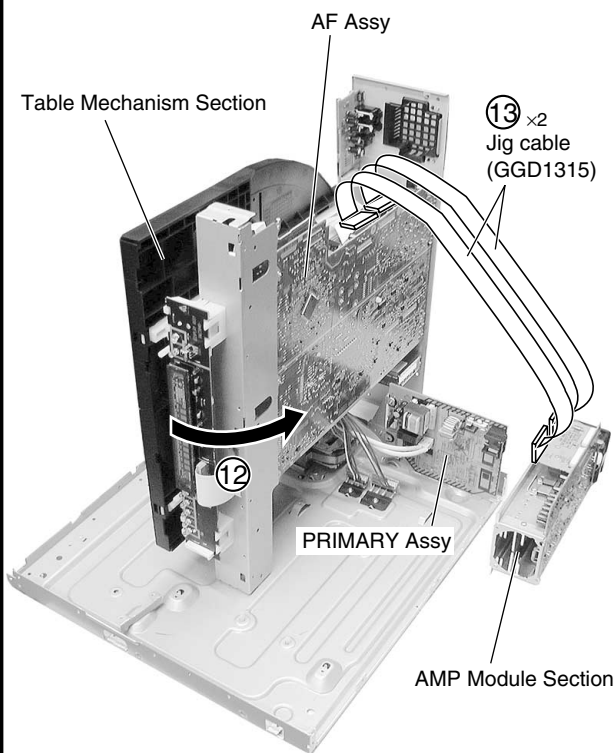
⑩ Reattach the Table Mechanism Section. (See Step 3.)
(Be sure to secure it in place with screws.)

⑪ Turn the AF Assy with the Table Mechanism Section attached to the upright position.



⑫ Arrange the cables as shown in the photo below.

⑬ Connect the AF Assy with the AMP Module Section using the two jig cables.



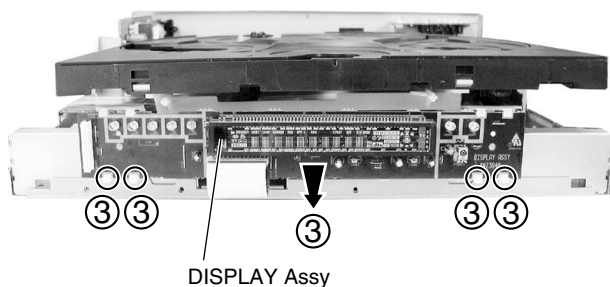
Diagnosis

TABLE MECHANISM SECTION

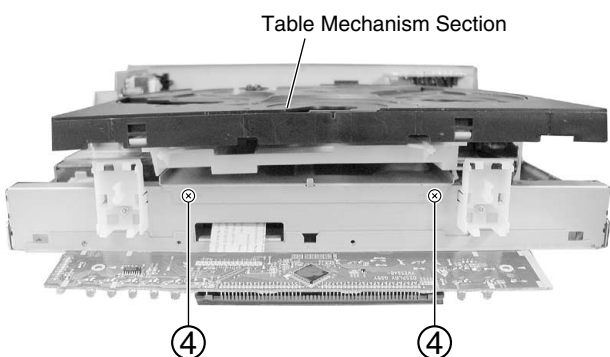
■ Traverse Mecha. Assy-S

Note : Be sure to set the Traverse Mechanism to Unclamp (down) mode.

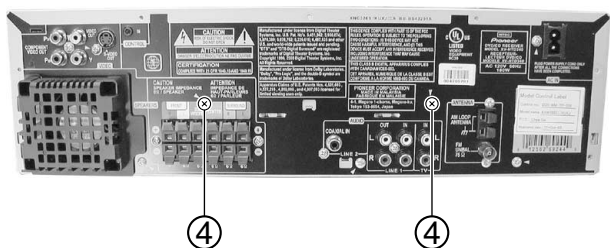
- ① Remove the bonnet and tray cap. (See Step 1.)
- ② Remove the Front Panel Section. (See Step 2.)
- ③ Remove the DISPLAY Assy by unhooking at the four points.



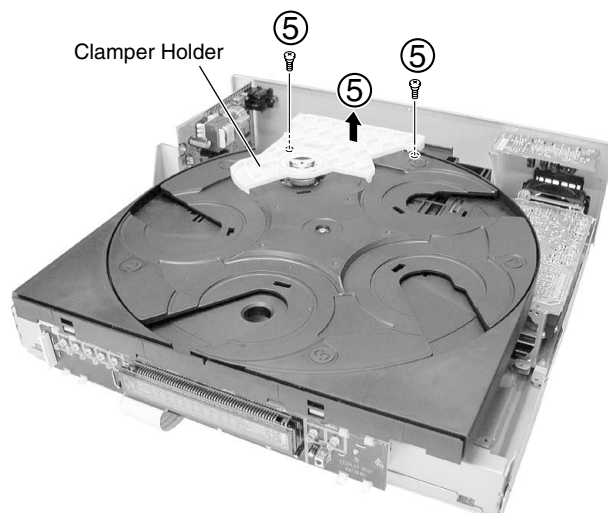
- ④ Remove the four screws.



● Rear view



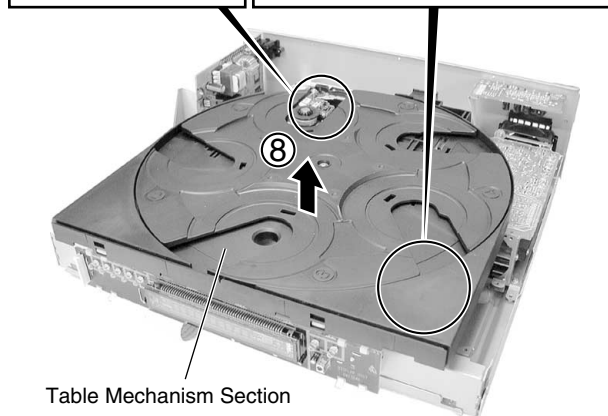
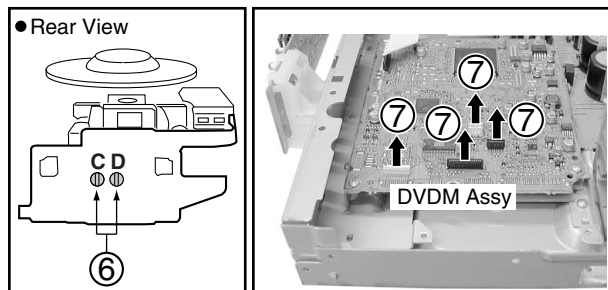
- ⑤ Remove the clamber holder by removing the two screws.



- ⑥ Short-circuit two points of C and D by soldering.

Note : After replacement, connect the flexible cable, then remove the soldered joint (open).

- ⑦ Disconnect the three flexible cables and the one connector.
- ⑧ Remove the Table Mechanism Section.



⑨ Open the tray by turning the gear pulley counterclockwise viewed from the top.
(After the tray pops out a little, fully pull it out by hand.)

⑩ Disconnect the flexible cable.

⑪ Remove the Table Mechanism Section by unhooking at the two points.

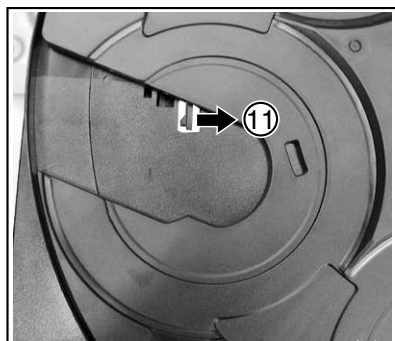
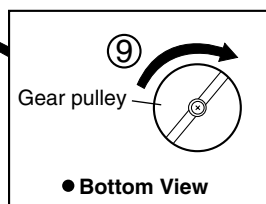
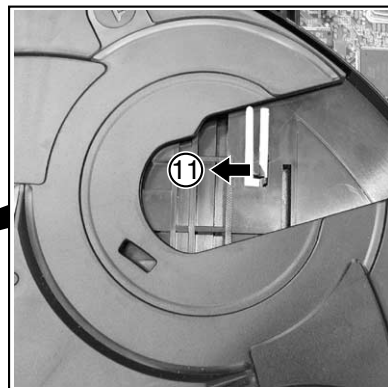
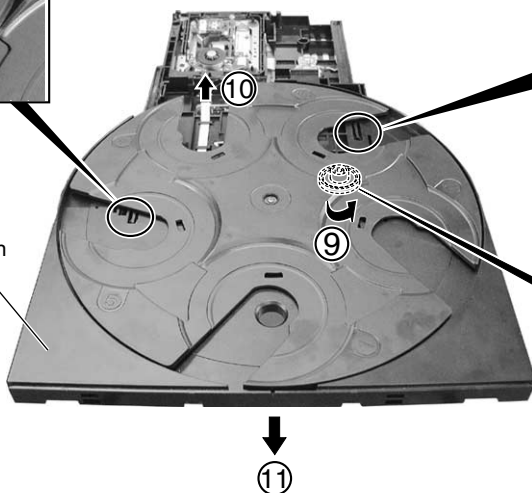


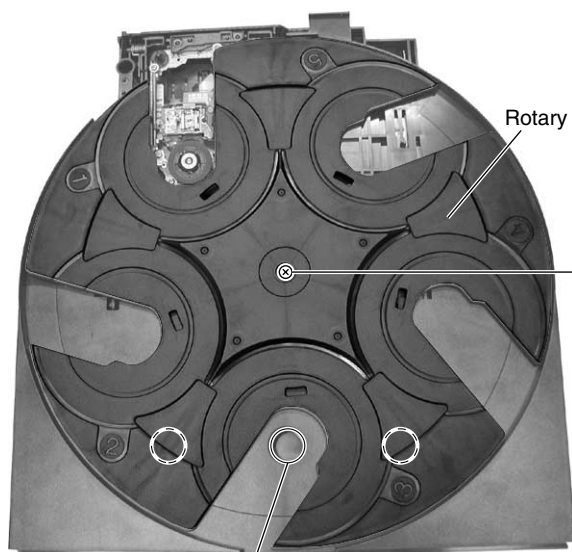
Table Mechanism Section



● If the Table Mechanism Section cannot be removed

Displacement of the rotary tray may be the cause. (If this is the case, in Step ⑪ above, the two hooks cannot be seen, because they are covered by the rotary tray.)

In this case, set the rotary tray in the correct position, following the steps below.



- ① Remove.
- ③ Tighten.

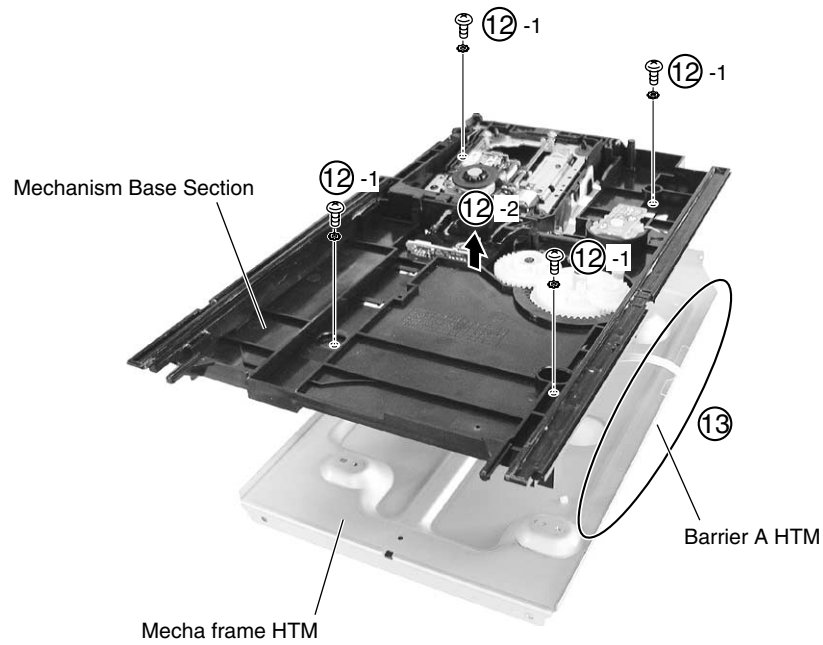
② Adjust the position of the rotary tray so that the center hole can be seen.

Note:

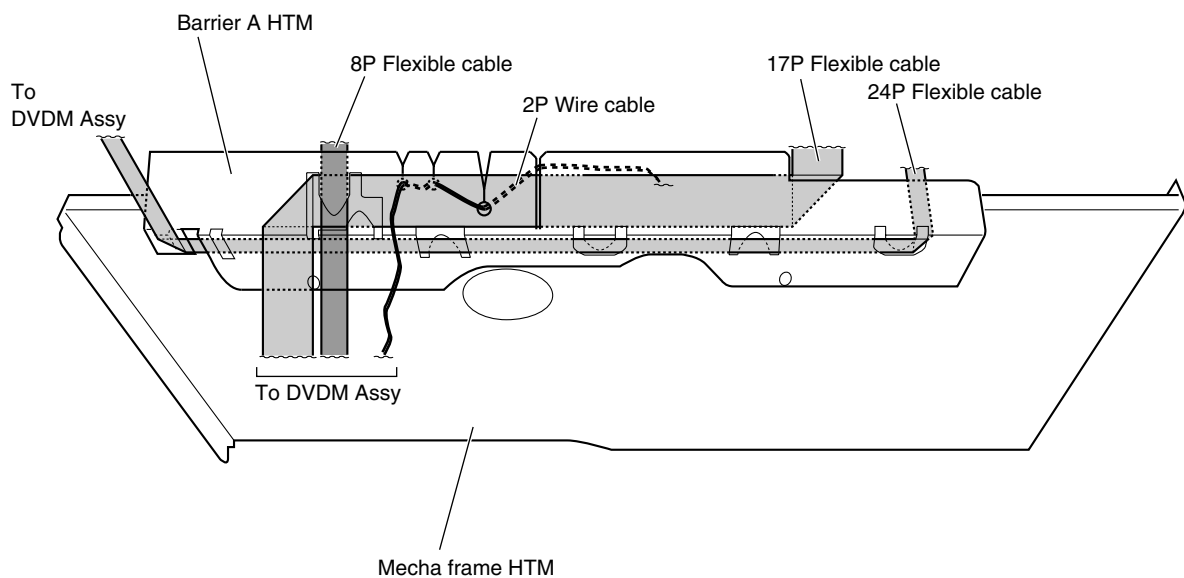
It is not necessary to set the Disc No. of the rotary tray, because the Automatic Disc No. Detection system will function.

⑫ Remove the Mechanism Base Section by removing the four screws.

⑬ Remove the flexible cables from the barrier A HTM.



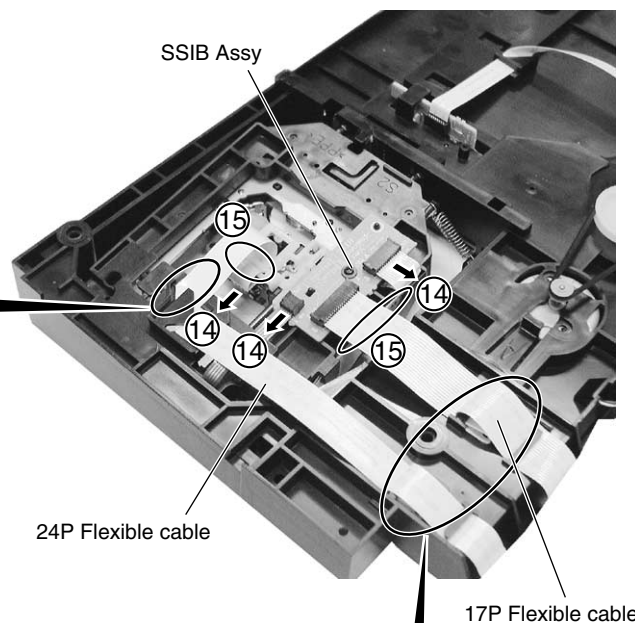
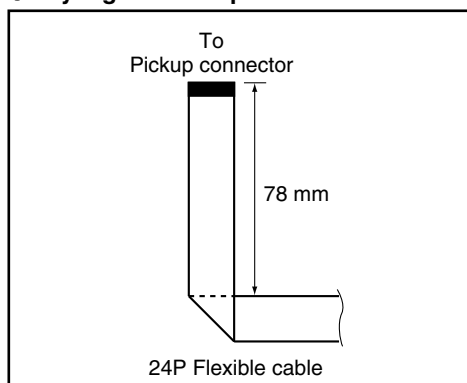
● Arrangement of the flexible cables when reassembling



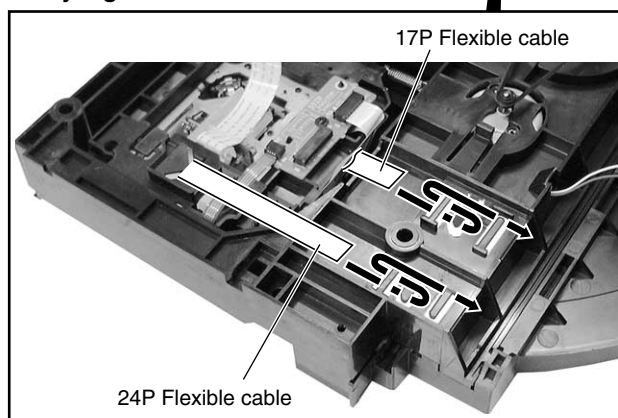
⑭ Remove the three flexible cables.

⑮ Set the arranged flexible cables out of the way.

● Styling the Pickup flexible cable

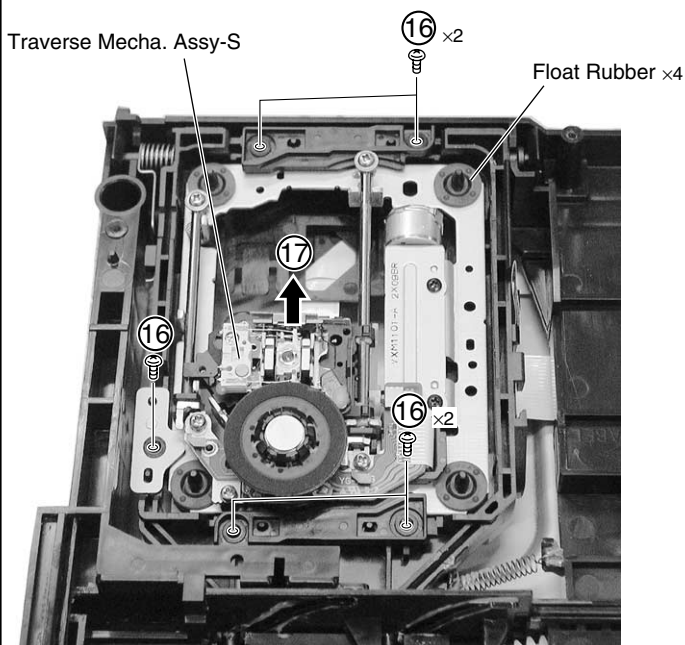


● Styling the flexible cable installation

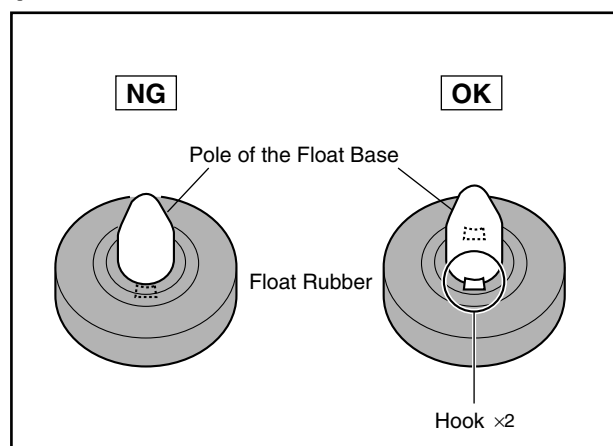


⑯ Remove the five screws.

⑰ Remove the Traverse Mecha. Assy-S.

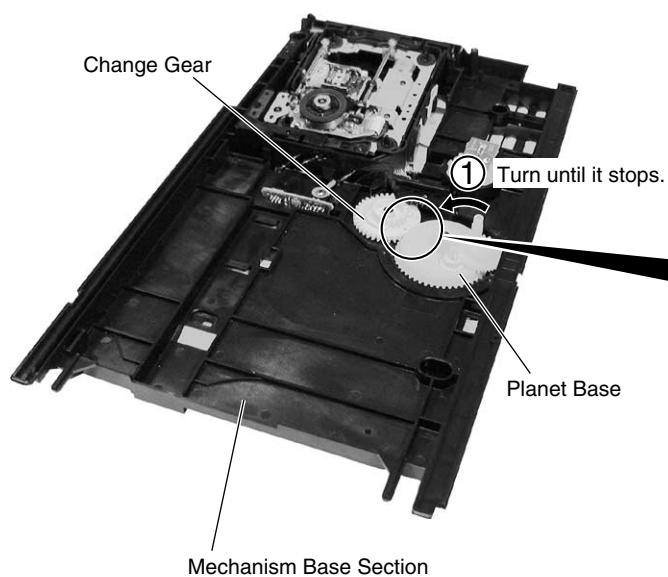


● Note on the Float Rubber Installation

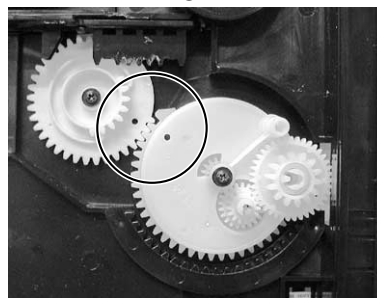


Procedures and Notes on Assembling the Table Mechanism Section

- ① Turn the planet base as shown below.

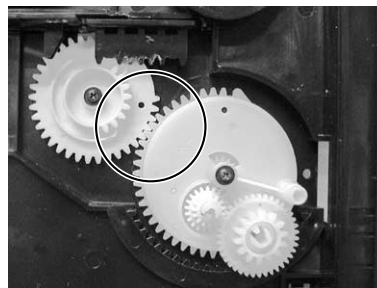


OK



If the first teeth (marked by dots) of the gears engage, it is OK.

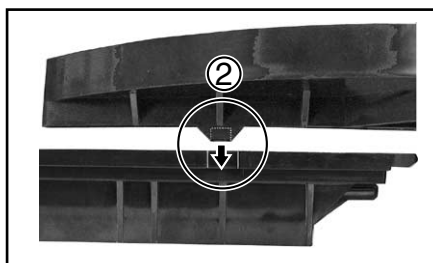
NG



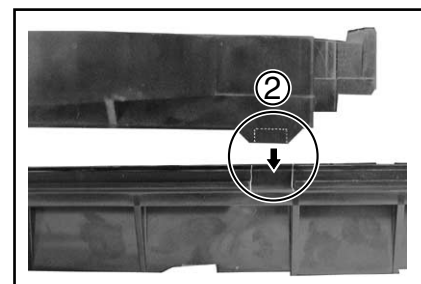
If the engaged teeth of the gears are displaced by two teeth or more, a strange sound is generated, and a problem occurs.



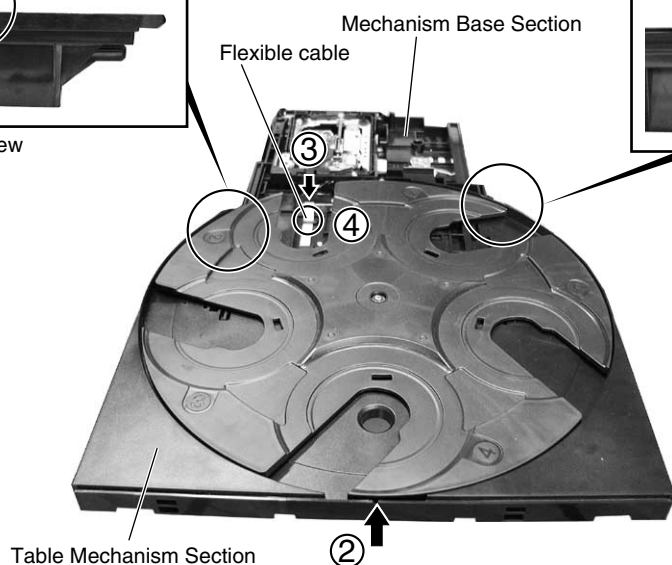
- ② Mount the Table Mechanism Section on the Mechanism Base Section.
 ③ Connect the flexible cable.
 ④ Bring an extra flexible cable close to the front side.



• Side View

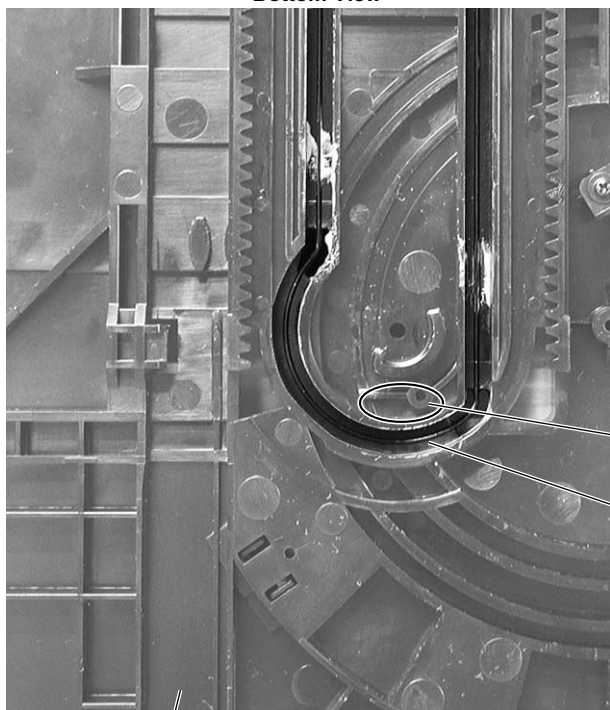


• Side View



● How to repair when the Table Mechanism Section does not function

● Bottom View



Procedures:

1. Flex the Table Mechanism Section and the Mechanism Base Section slightly in opposite directions by pulling up on the Table Mechanism Section and pressing down on the Mechanism Base Section. When pressing down on the Mechanism Base Section, grip it near the planet base.
2. Flex the Table Mechanism Section until the boss of the planet base goes over the wall of the cam (by approx. 5 mm).
3. Set the boss of the planet base into the cam groove of the Table Mechanism Section.

If the boss is set in this position, the unit does not operate correctly.

If the boss is set in the cam groove, the unit operates correctly.

Table Mechanism Section

Table Mechanism Section

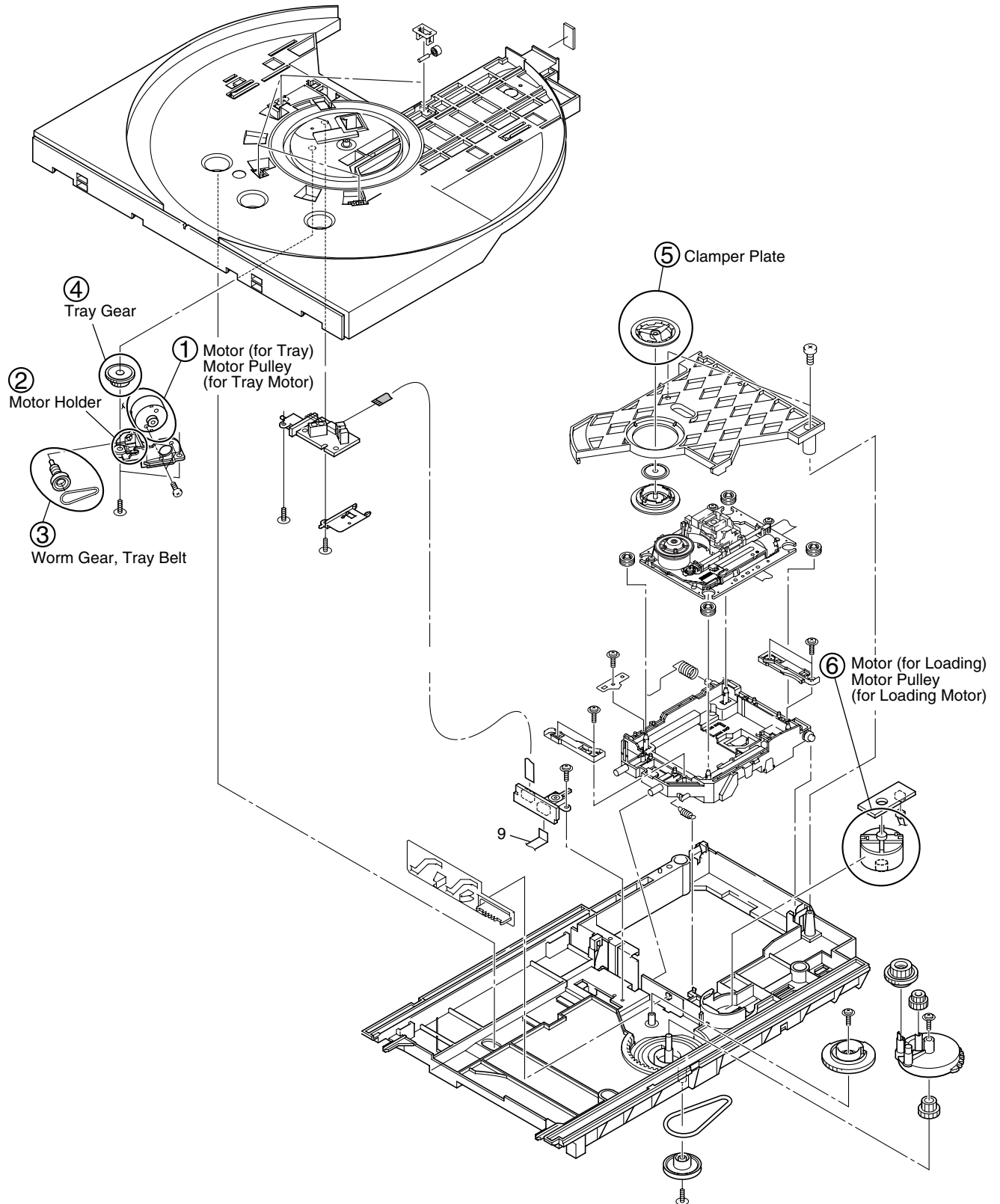
Cam groove

Mechanism Base Section

Planet Base

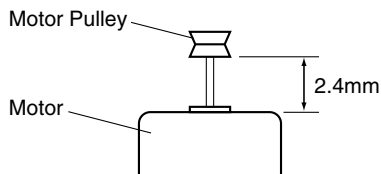
Boss part

● Notes on Assembling the Mechanism Section



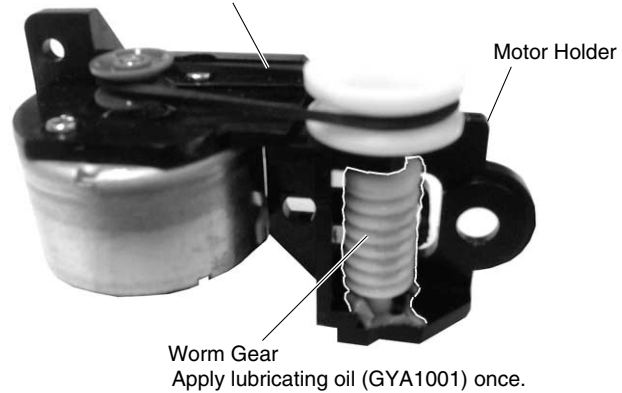
① Motor (for Tray), Motor Pulley (for Tray Motor)

Adjust the height of the motor pulley to 2.4mm.

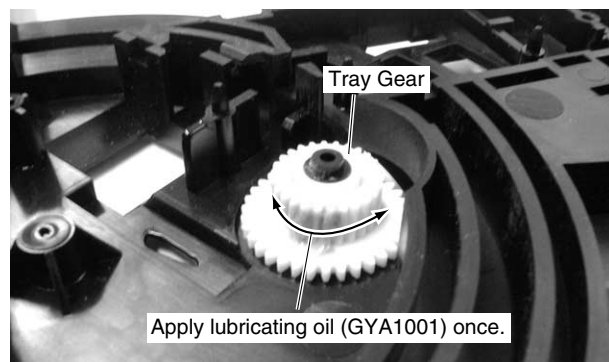


③ Worm Gear and Tray Belt

Tray Belt
Be carefull not to damage it when exchanging.



④ Tray Gear



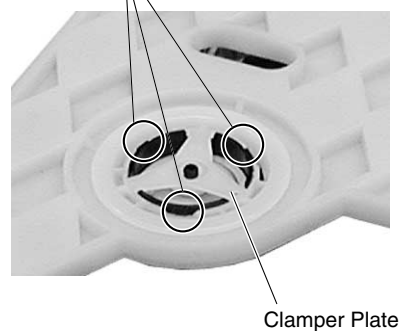
② Motor Holder

Apply lubricating oil (GYA1001) to the holder part.



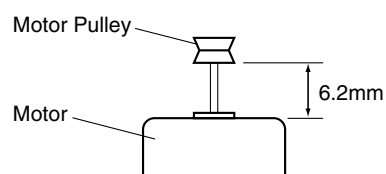
⑤ Clamper Plate

Apply adhesive on the inside of hooks.
(Prevention of dripping)



⑥ Motor (for Loading), Motor Pulley (for Loading Motor)

Adjust the height of the motor pulley to 6.2mm.



7.2 PARTS

7.2.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

• List of IC

PDC113A, PT6302LQ-003

■ PDC113A (AF ASSY : IC5501)

• System Control Microcomputer

● Pin Functions

No.	Mark	Pin Name	I/O	Function
1	PA3/WR#	DVDON/OFF	O	Control power supply for DVD module
2	PA4/RD#	HPDET	I	Detection of the headphone insertion
3	PA5/RS	NC	O	NC
4	P70 / INT0 / T0LCP / AN8	ACPULSE	I	AC PULSE input (Interruption)
5	P71 / INT1 / T0HCP / AN9	NC	O	NC
6	P72 / INT2 / T0IN	NC	O	NC
7	P73 / INT3 / T0IN	REMOCON	I	REMOCON signal input (Interruption)
8	RES#	XRESET	I	μ-com reset input
9	XT1 / AN10	XT1	–	(When this port is not used, please connect VDD)
10	XT2 / AN11	XT2	–	(When this port is not used, please set open)
11	VSS1	VSS1	–	
12	CF1	CF1	–	
13	CF2	CF2	–	
14	VDD1	VDD1	–	
15	P80 / AN0	SIMUKE	I	Destination distinction input
16	P81 / AN1	MODEL	I	model distinction input
17	P82 / AN2	VDET	I	DVD 3.3V detection input
18	P83 / AN3	KEY1	I	Key1 input
19	P84 / AN4	KEY2	I	Key2 input
20	P85 / AN5	VOLJOG	I	Volume JOG Key
21	P86 / AN6	NC	I	NC
22	P87 / AN7	XPROTECT	O	Protection and Fan Error detection input
23	P10/SO0	SDATA	O	System bus data output (AMP side output)
24	P11 / SI0 / SB0	MDATA	I	System bus data input (AMP side input)
25	P12 / SCK0	SCLK	I	System bus clock input
26	P13 / SO1	SR+Tx	O	UART Tx of SR+ function
27	P14 / SI1 / SB1	SR+Rx	I	UART Rx of SR+ function
28	P15 / SCK1	NC	O	NC
29	P16/T1PWML	SYSCS2	O	Chip select 2 for system bus
30	P17/T1PWMH/BUZ	SYSCS1	O	Chip select 1 for system bus
31	PE0	XHPMUTE	O	HP MUTE ON/OFF
32	PE1	XRECMUTE	O	REC OUTPUT MUTE ON/OFF
33	PE2	XMUTE	O	Cch MUTE ON/OFF
34	PE3	RYR	O	REAR RELAY ON/OFF
35	PE4	RYFSC	O	FRONT/SW/CENTER RELAY ON/OFF
36	PE5	(3/5 CONVERT)	O	3/5V convert control for SR+ function
37	PE6	TIMERLED	O	Control TIMER LED
38	PE7	(LEVELSHIFT)	O	VOL 0 - 5 : H
39	VSS4	VSS4		
40	VDD4	VDD4		

A

B

C

D

E

F

No.	Mark	Pin Name	I/O	Function
41	PF0	ATT10dB	O	Control ATT 10dB
42	PF1	ATT6dB	O	Control ATT 6dB
43	PF2	STEST	I	Set TEST MODE for Service
44	PF3	UTEST	I	Set UNIT CHECK for checker
45	PF4	DTSDMIX	O	Control of gain-up for dts down-mix
46	PF5	SWFMIX	O	Control for subwoofer mix
47	PF6	NC	I	(When this port is not used, please connect GND)
48	PF7	NC	I	(When this port is not used, please connect GND)
49	SI2P0/SO2	DSPDI	O	Data output to DSP(Motorola) and DIR, SIO2 : LSB first
50	SI2P1/SI2/SB2	DSPDO	I	Data input from DSP(Motorola)
51	SI2P2/SCK2	DSPCLK	O	Clock output to DSP(Motorola) and DIR
52	SI2P3/SCK20	TXCE	O	Chip enable for tuner LSI
53	PWM1	NC		NC
54	PWM0	NC		NC
55	VDD2	VDD2		
56	VSS2	VSS2		
57	P00	XFLRST	O	Reset for FL driver
58	P01	FLCS	O	Chip enable for FL driver
59	P02	FLCLK	O	Clock for FL driver
60	P03	FLDAT	O	Data for FL driver(serial data input)
61	P04	TXCLK	O	Clock for tuner LSI
62	P05	TXODATA	O	Data for tuner LSI
63	P06	EXPDATA	O	Data for expander of LED control
64	P07	EXPCLK	O	CLK for expander of LED control
65	P20/INT4/T1IN	NC	O	NC
66	P21/INT4/T1IN	TXIDATA	I	Input data from tuner LSI
67	P22/INT4/T1IN	DVDACK	I	Acknowledgement from DVD MODULE (Interruption)
68	P23/INT4/T1IN	XVMUTE	O	VIDEO MUTE request to DVD MODULE
69	P24/INT5/T1IN	DVDMUTE	I	Request of MUTE from DVD MODULE (Interruption)
70	P25/INT5/T1IN	AUDIOSELA	O	SW for AUDIO In DVD_A/SACD model
71	P26/INT5/T1IN	NC	O	NC
72	P27/INT5/T1IN	XWMUTE	O	WIRELESS MUTE request
73	P30	WSELA	O	WIRELESS OUTPUT SELECT A
74	P31	INPUTSELB	O	AUDIO INPUT SELECT B
75	P32	INPUTSELA	O	AUDIO INPUT SELECT A
76	P33	XTL0	O	Selection X'tal to DIR
77	P34	DIRERR	I	LOCK/UNLOCK from DIR
78	P35	DIRRST	O	Reset to DIR /CODEC
79	P36	DIRCS	O	Chip select to DIR/CODEC
80	PB7/D7	DIRDO	I	Data input from DIR/CODEC

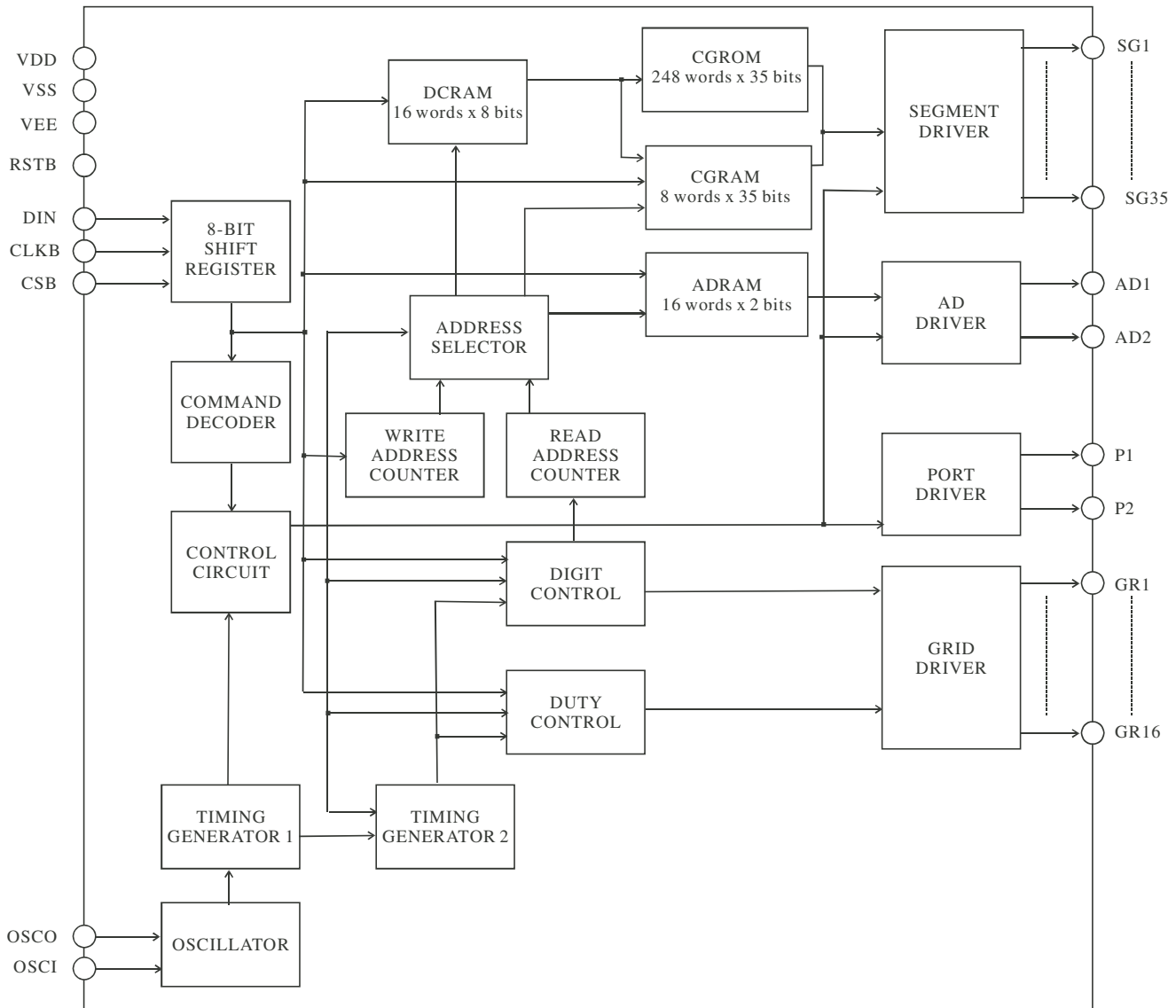
No.	Mark	Pin Name	I/O	Function
81	PB6/D6	DSPMODE	O	MODE selection (ROM/RAM) to DSP (MOTOROLA)
82	PB5/D5	DSPHREQ	I	Error detection from DSP (MOTOROLA)
83	PB4/D4	NC	O	NC
84	PB3/D3	DSPSS	O	Slave selection to DSP (MOTOROLA)
85	PB2/D2	XDSPRST	O	RESET to DSP (MOTOROLA) MODULE
86	PB1/D1	DECMUTE	I	Detection of 1st DSP boot success from DSP MODULE
87	PB0/D0	XDSPMUTE	O	MUTE request to DSP MODULE
88	VSS3	VSS3	—	
89	VDD3	VDD3	—	
90	PC7/A7	PASSANDREW	O	Control for bypass Andrew circuit
91	PC6/A6	SYSPOW	O	Control power supply of system
92	PC5/A5	NC	O	NC
93	PC4/A4	XDVDRST	O	RESET to DVD MODULE
94	PC3/A3	XSYSMUTE	O	Control mute of system
95	PC2/A2	(VOLMUTE)	O	(Control mute of E-vol IC)
96	PC1/A1	VOLCLK	O	Clock for E-vol IC
97	PC0/A0	VOLDATA/CE	O	Data/CE for E-vol IC
98	PA0/CS2#	FLASHE/D	—	for FLASH writing
99	PA1/CS1#	FLASHDO	—	for FLASH writing
100	PA2/CS0#	FLASHCLK	—	for FLASH writing

- Port0 (P00-P07) can be selected for input or output by each 4 bits (P00-P03,P04-P07). Set for input when reset. And it can be set C-MOS or Nch-OD by each 1 bit in option.
 - Port1 (P10-P17) can be selected for input or output by each 1 bit. Set for input when reset. And it can be set C-MOS or Nch-OD by each 1bit in option.
 - Port2 (P20-P27) can be selected for input or output by each 1 bit. Set for input when reset. And it can be set C-MOS or Nch-OD by each 1 bit in option.
 - Port3 (P30-P36) can be selected for input or output by each 1 bit. Set for input when reset. And it can be set C-MOS or Nch-OD by each 1 bit in option.
 - Port7 (P70-P73) can be selected for input or output by each 1 bit. Set for input when reset.
 - Port8 (P80-P87) can be selected for input or output by each 1 bit. Set for input when reset.
 - PortA (PA0-PA5) can be selected for input or output by each 1 bit. Set for input when reset. And it can be set C-MOS or Nch-OD by each 1 bit in option.
 - PortB (PB0-PB7) can be selected for input or output by each 1 bit. Set for input when reset. And it can be set C-MOS or Nch-OD by each 1 bit in option.
 - PortC (PC0-PC7) can be selected for input or output by each 1 bit. Set for input when reset. And it can be set C-MOS or Nch-OD by each 1 bit in option.
 - PortE and PortF can be selected for input or output by each 2 bits.
- In case of without RDS, it is best that RDSDATA and RDSCLK are assigned as I/O port which can be set output and output low level.

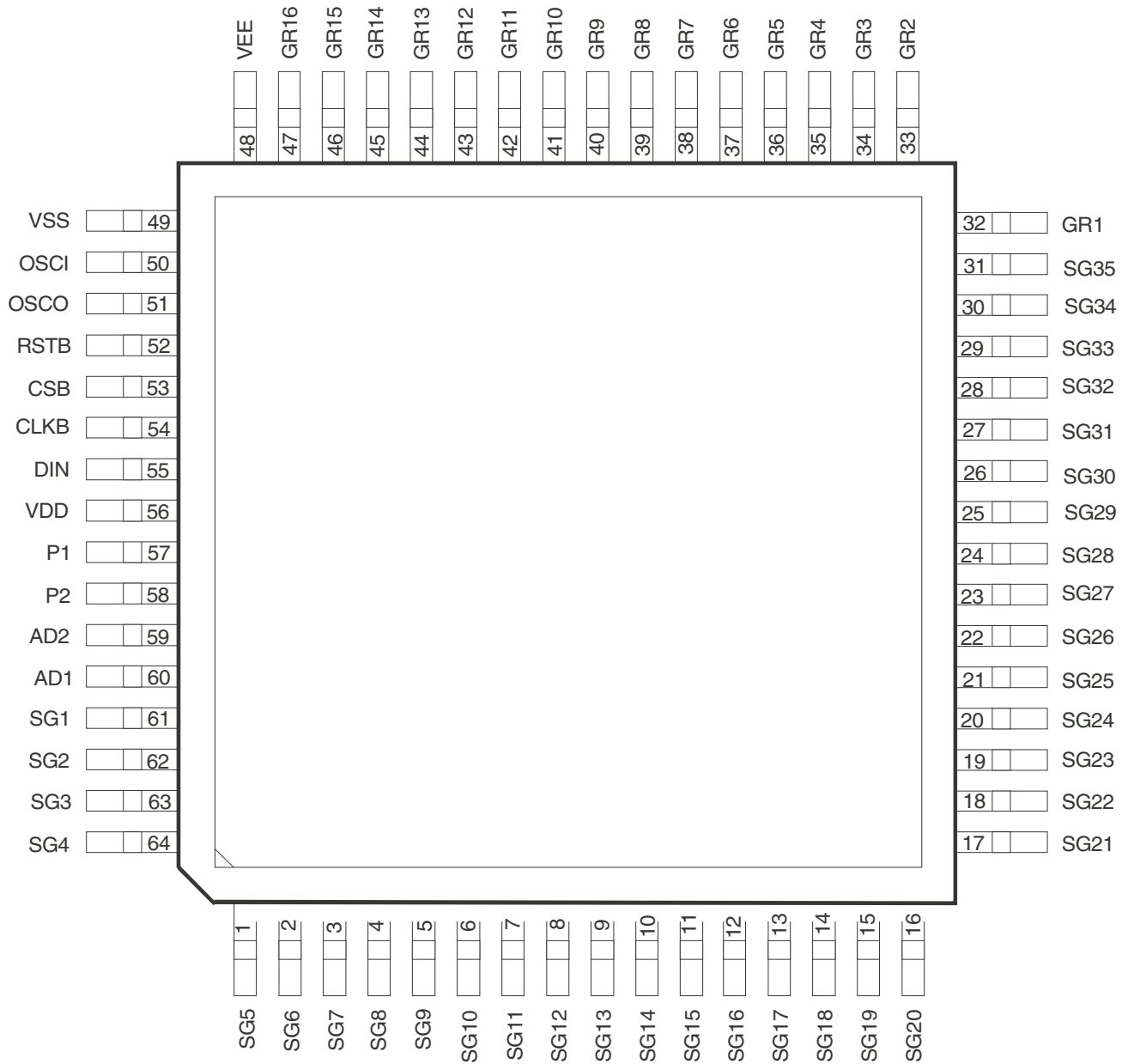
PT6302LQ-003 (DISPLAY ASSY : IC5601)

• FL Driver IC with character RAM

• BLOCK DIAGRAM



• PIN LAYOUT



A

• PIN FUNCTION

Pin Name	I/O	Description	Pin No.
			LQFP
SG5 to SG35 SG4 to SG1	O	Segment Driver Output Pin	1 ~ 31 64 ~ 61
GR1 to GR16	O	Grid Driver Output Pin	32 ~ 47
VEE	-	Power Supply	48
VSS	-	Ground Pin	49
OSCI	I	Oscillator Input Pin	50
OSCO	O	Oscillator Output Pin	51
RSTB	I	Reset Input Pin When this pin is set to "LOW", all functions are initialized.	52
CSB	I	Chip Select Input Pin When this pin is set to "High" Level, the serial data transfer is disabled.	53
CLKB	I	Shift Clock Input Pin The serial data is shifted at the rising edge of CLKB.	54
DIN	I	Serial Data Input Pin	55
VDD	-	Positive Power Supply	56
P1 to P2	O	General Purpose Output Pin	57 ~ 58
AD2 to AD1	O	Segment Driver Output Pin	59 ~ 60

E

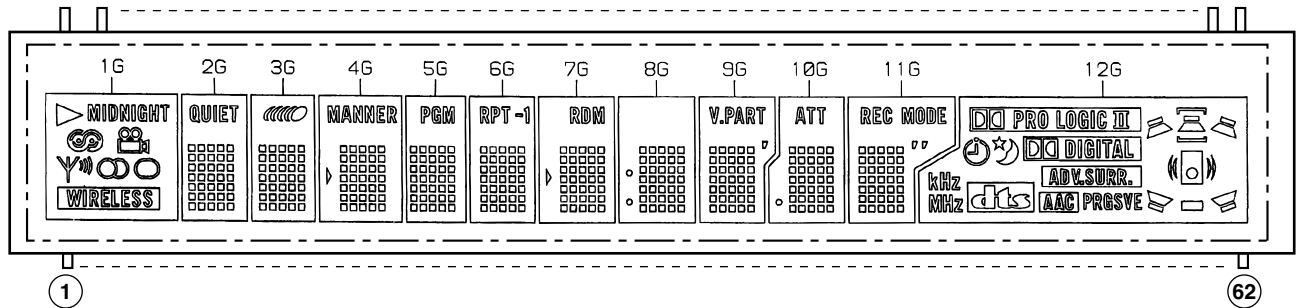
F

7.2.2 DISPLAY

■ XAV3020 (DISPLAY ASSY :V5601)

• FL DISPLAY

• Pin Assignment



• Anode Connection

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G
P1	MIDNIGHT	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	EX.PHONEX
P2		2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	
P3		3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	
P4		4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	DIGITAL
P5		5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	S5
P6		1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	S6
P7		2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	S7
P8	WIRELESS	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	S8
P9	-	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	S4
P10	-	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	S3
P11	-	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	S2
P12	-	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	S1
P13	-	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	
P14	-	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	ADV.SURR.
P15	-	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	AAC
P16	-	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	PRGSVE
P17	-	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	KHZ
P18	-	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	KHZ
P19	-	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	-
P20	-	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	-
P21	-	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	-
P22	-	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	-
P23	-	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	-
P24	-	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	-
P25	-	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	-
P26	-	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	-
P27	-	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	-
P28	-	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	-
P29	-	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	-
P30	-	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	-
P31	-	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	-
P32	-	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	-
P33	-	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	-
P34	-	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	-
P35	-	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	-
P36	-	QUIET	MANNER	PGM	RPT	RDM	col 1	V.PART	ATT	REC MODE	-	-
P37	-	-	-	-	-	-	-	-	-	-	-	-

• Pin Connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Connection	F1	NX	NP	NP	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	P35	P34	P33	P32	P31
Pin No.	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Connection	P30	P29	P28	P27	P26	P25	P24	P23	P22	P21	NX	NX	NX	NX	NX	P20	P19	P18	P17	P16	P15
Pin No.	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	
Connection	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	P37	P36	NP	NP	NX	F2	

Note

- (1) F1, F2 : Filament
- (2) NP : No pin
- (3) NX : No extend pin
- (4) DL : Datum Line
- (5) 1G to 12G : Grid

7.2.3 DISC / CONTENT FORMAT PLAYBACK COMPATIBILITY

Disc / content format playback compatibility

This player is compatible with a wide range of disc types (media) and formats. Playable discs will generally feature one of the following logos on the disc and/or disc packaging. Note however that some disc types, such as recordable CD and DVD, may be in an unplayable format—see below for further compatibility information.



- KODAK Picture CD
-  is a trademark of Fuji Photo Film Co. Ltd.

CD-R/RW compatibility

- This system will play CD-R and CD-RW discs recorded in CD Audio or Video CD format, or as a CD-ROM containing MP3, WMA or JPEG files. However, any other content may cause the disc not to play, or create noise/distortion in the output.
- This system cannot record CD-R or CD-RW discs.
- Unfinalized CD-R/RW discs recorded as CD Audio can be played, but the full Table of Contents (playing time, etc.) will not be displayed.

DVD-R/RW compatibility

- Compatible formats: DVD-Video, Video Recording (VR)*
* *Edit points may not play exactly as edited; screen may go momentarily blank at edited points.*
- Unfinalized playback: No
- WMA/MP3/JPEG file playback on DVD-R/RW: No

PC-created disc compatibility

Discs recorded using a personal computer may not be playable in this unit due to the setting of the application software used to create the disc. In these particular instances, check with the software publisher for more detailed information.

Discs recorded in packet write mode (UDF format) are not compatible with this player.

Check the DVD-R/RW or CD-R/RW software disc boxes for additional compatibility information.

Compressed audio compatibility

- Compatible formats: MPEG-1 Audio Layer 3 (MP3), Windows Media Audio (WMA)
- Sampling rates: 32, 44.1 or 48kHz
- Bit-rates: Any (128Kbps or higher recommended)
- VBR (variable bit rate) MP3 playback: Yes
- VBR WMA playback: No
- WMA lossless encoding compatible: No
- DRM (Digital Rights Management) compatible: Yes (DRM-protected audio files will *not* play in this player).
- File extensions: .mp3, .wma (these must be used for the player to recognize MP3 and WMA files – do not use for other file types)
- File structure: Up to 999 files per folder

About WMA



The Windows Media® logo printed on the box indicates that this player can playback Windows Media Audio content.

WMA is an acronym for Windows Media Audio and refers to an audio compression technology developed by Microsoft Corporation. WMA content can be encoded by using Windows Media® Player version 7, 7.1, Windows Media® Player for Windows® XP, or Windows Media® Player 9 Series.

Microsoft, Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

JPEG file compatibility

- Compatible formats: Baseline JPEG and EXIF 2.1* still image files up to 8 megapixels are supported (maximum resolution is 5120 x 5120 pixels).
* *File format used by digital still cameras*
- File extensions: .jpg (must be used for the player to recognize JPEG files – do not use for other file types)
- File structure: Up to 999 files per folder



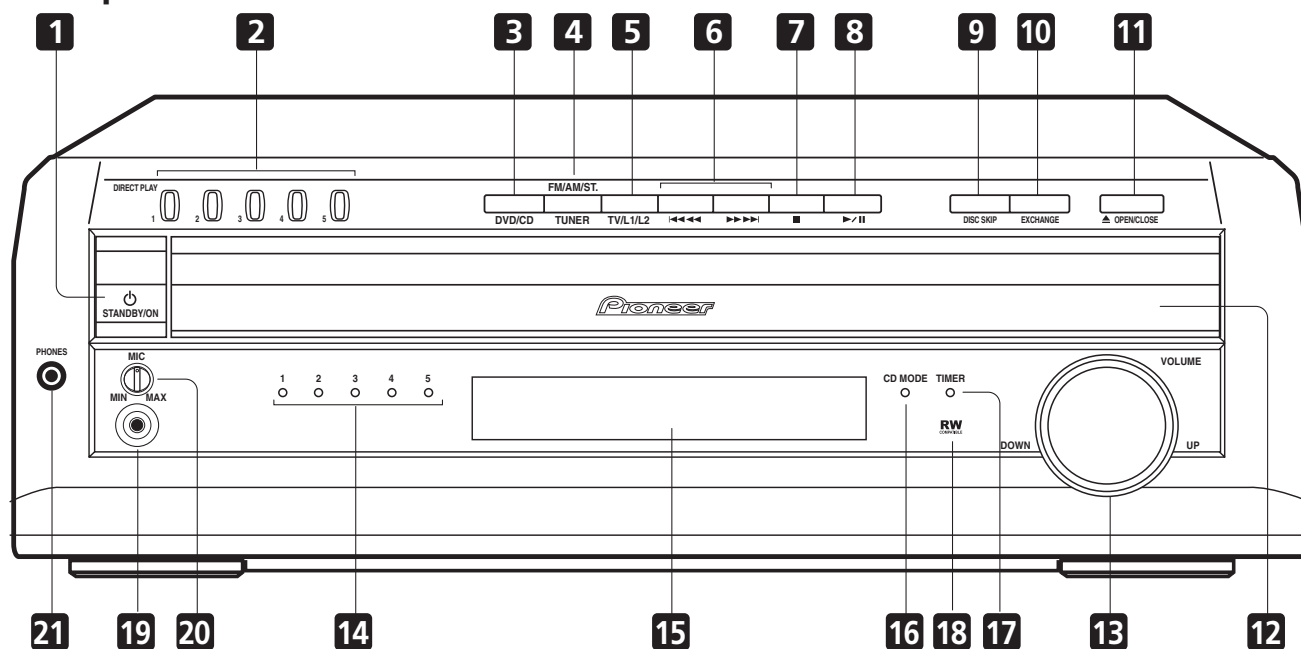
Before shipping out the product, be sure to clean the following positions by using the prescribed cleaning tools:

Position to be cleaned	Cleaning tools
Pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Position to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

8. PANEL FACILITIES

Front panel



1 STANDBY/ON

Press to switch the system on or into standby.

2 DIRECT PLAY buttons

Press to start playback of any disc in the player.

3 DVD/CD

Press to switch to the **DVD/CD** function. Also starts/pauses/resumes playback of the currently loaded disc.

4 TUNER FM/AM/ST.

Press to switch to the tuner function, then between bands and station presets.

5 TV /L1 / L2

Press to switch between the external sources, TV, LINE1(L1) and LINE2 (L2).

6 I<<< <<< and >>> I>>>

Press to skip tracks/chapters; press and hold to scan backwards/forwards.

- When in listening to the tuner, use to tune to stations or select presets.

7 ■

Press to stop playback.

8 ▶/II

Press to start or resume playback. During playback, press to pause; press again to restart playback.

9 DISC SKIP

- During playback, press to start playing the next disc in the player.

- If the disc tray is open while no disc is playing, the tray rotates one disc space.

- If the disc tray was opened using the **EXCHANGE** button, then pressing **DISC SKIP** rotates the disc tray two disc spaces.

10 EXCHANGE

Press during playback to open the disc tray without stopping playback. Press again to close the disc tray.

11 ▲ OPEN/CLOSE

Press to open / close the disc tray.

12 Disc tray

13 VOLUME control

Use to adjust the volume

14 DISC indicators

Shows which disc spaces are currently occupied.

15 Display

16 CD MODE indicator

Lights when the CD Mode is on.

In this mode, the system only plays audio CDs and WMA/MP3 discs.

17 Timer indicator

Lights when the timer is set.

18 RW

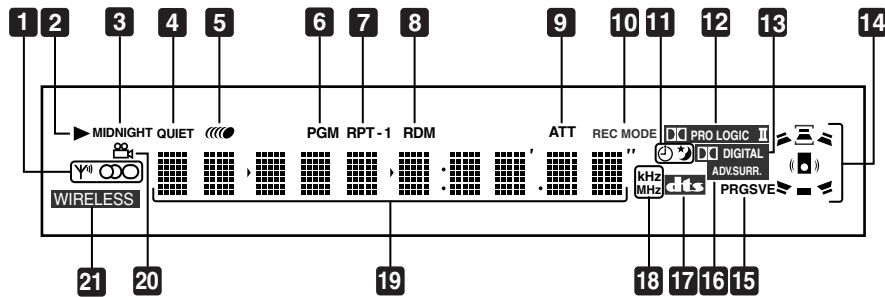
This mark indicates compatibility with DVD-RW discs recorded on a DVD recorder in Video Recording (VR) mode.

19 Mic jack (XV-DV9 Only)

20 MIC volume (XV-DV9 Only)

21 PHONES jack Headphone jack.

Display



"The display for the XV-HTD640 is shown in the illustration below"

1 Tuner indicators



Lights when a broadcast is being received.



Lights when a stereo FM broadcast is being received in auto stereo mode.



Lights when FM mono reception is selected.



Lights when a disc is playing.

3 MIDNIGHT

Lights when the Midnight mode is selected.

4 QUIET

Lights when the Quiet mode is selected.



Lights to indicate random or repeat play of all discs loaded.

6 PGM

Lights when a program list has been programmed.

7 RPT and RPT-1

RPT lights during repeat play. **RPT-1** lights during repeat one-track play.

8 RDM

Lights during random play.

9 ATT

Lights when the input attenuator is active for the currently selected analog input.

10 REC MODE

Lights when Rec Mode is on.

11 Timer indicators

⌚ Lights when the timer is set

★ Lights when the sleep timer is active

12 PRO LOGIC II

Lights during Dolby Pro Logic decoding.

13 DIGITAL

Lights during playback of a Dolby Digital source.

14 Speaker indicators

These show which speakers are being used to output the current source. The illustrations below show some example displays.



5.1 channel surround sound



Stereo (2.1 channel) sound



3.1 channel sound with Dialogue enhancement on the center channel



5.1 channel surround sound with Virtual Surround Back mode active

(When headphones are connected, none of the speaker indicators are lit.)

15 PRGSVE

Lights when progressive scan video output is selected.

16 ADV. SURR.

Lights when one of the Advanced Surround listening modes is selected.

17 DTS

Lights during playback of a DTS source.

18 kHz / MHz

Indicates the unit of the frequency shown in the character display (**kHz** for AM, **MHz** for FM)

19 Character display



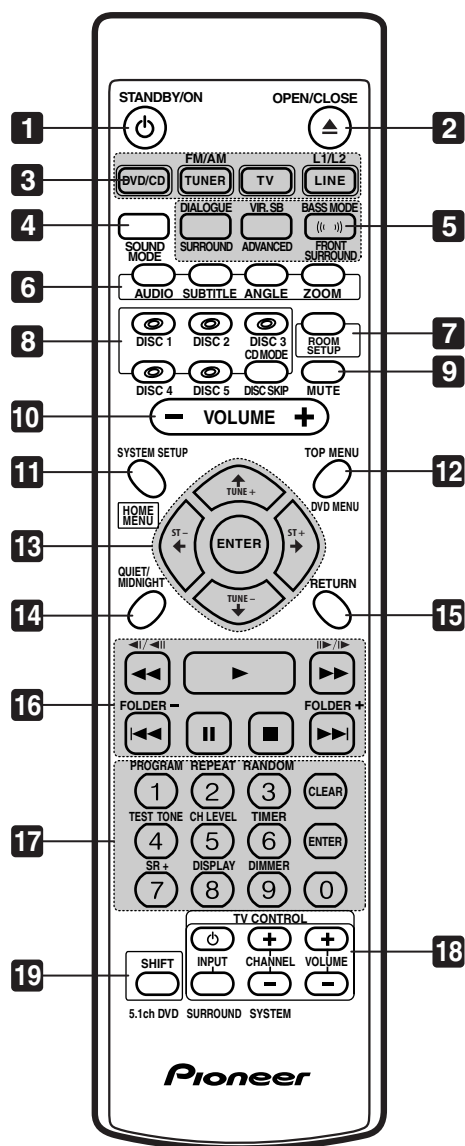
Lights during multi-angle scenes on a DVD disc.

21 WIRELESS

Lights when either the **W.Surr.** or **W.Stereo** mode is selected.

Remote control

"The remote control for the XV-HTD640 is shown in the illustration below"



Important

Functions printed in green on the remote control are accessed using the **SHIFT** button. Press the function button you want while holding down **SHIFT**.

1 **STANDBY/ON**

Press to switch the system on or into standby.

2 **OPEN/CLOSE**

Press to open/close the disc tray.

3 **Function select buttons**

Press to select the source you want to listen to (**DVD/CD**, **TUNER**, **TV**, **LINE**)

4 **SOUND MODE**

Press to access the sound menu, from which you can adjust the DSP effect level, bass and treble, etc. Also switches the recording mode on/off.

5 Surround sound and enhancement buttons

SURROUND

Use to select a Surround mode.

DIALOGUE (SHIFT + SURROUND)

Use to select a Dialogue mode.

ADVANCED

Use to select an Advanced Surround mode.

VIR. SB (SHIFT + ADVANCED)

Press to switch the Virtual Surround Back speaker effect on/off.

FRONT SURROUND

Use to select a Front Surround listening mode.

BASS MODE (SHIFT + FRONT SURROUND)

Use to select a Bass Mode.

6 DVD buttons

AUDIO

Press to select an audio channel or language.

SUBTITLE

Press to display/change the subtitle display.

ANGLE

Press to change the camera angle during DVD multi-angle scene playback.

ZOOM

Press to change the screen zoom level.

7 ROOM SETUP

Press to start Room Setup.

WIRELESS (SHIFT+ROOM SETUP)

Press to switch between surround modes with the wireless speaker system.

8 Disc selection buttons

DISC select buttons

Use to select discs in the player.

DISC SKIP / CD MODE

- During playback, press to start playing the next disc in the player.
- If the disc tray is open while no disc is playing, the tray rotates one disc space. If the disc tray was opened using the **EXCHANGE** button (front panel only), then pressing **DISC SKIP** rotates the disc tray two disc spaces.
- Use with **SHIFT** for **CD MODE**: Use to switch CD Mode on/off.

9 MUTE

Press to mute all sound from the speakers and headphones (press again to cancel).

10 VOLUME

Use to adjust the volume.

11 HOME MENU / SYSTEM SETUP

- Press to display (or exit) the on-screen menu for Initial Settings, Play Mode functions, etc.
- Use with **SHIFT** for **SYSTEM SETUP**: Use to make various system and surround sound settings.

12 DVD MENU / TOP MENU

- Press to display a DVD-Video disc menu, or the Disc Navigator if a VR mode DVD-RW, CD, Video CD /Super VCD, WMA/MP3 or JPEG disc is loaded.
- Use with **SHIFT** for **TOP MENU**: Use to display the top menu of a DVD disc in the play position (this may be the same as pressing **DVD MENU**).

13 Cursor buttons, ENTER and tuning buttons

Cursor buttons

Use the cursor buttons (↑ / ↓ / ← / →) to navigate on-screen displays and menus.

ENTER

Press to select an option or execute a command.

TUNE +/-

Use to tune the radio.

ST +/-

Use to select station presets when listening to the radio.

14 QUIET/MIDNIGHT

Use to select Quiet and Midnight listening modes.

15 RETURN

Press to return to a previous menu screen.

16 Playback controls



Press to start or resume playback.



Use for reverse slow motion playback, frame reverse and reverse scanning.



Use for forward slow motion playback, frame advance and forward scanning.



Press to jump to the beginning of the current chapter/track, then to previous chapters/tracks.

Press **SHIFT** + to jump to the beginning of the previous folder



Press to jump to the next chapter/track (or folder by pressing **SHIFT** +).



Press to pause playback; press again to restart.



Press to Stop playback.

17 Number buttons and SHIFT functions

Use the number buttons for selecting chapters /tracks from a disc directly; use with the **SHIFT** button to access the functions printed in green.

PROGRAM (SHIFT + 1)

Use to program/play a program list.

REPEAT (SHIFT + 2)

Use to select a repeat play mode.

RANDOM (SHIFT +3)

Use to select a random play mode.

TEST TONE (SHIFT + 4)

Use to output the test tone (for speaker setup).

CH LEVEL (SHIFT +5)

Use to adjust the speaker level.

TIMER (SHIFT +6)

Press to display the clock and to access the timer menu.

DISPLAY (SHIFT +8)

Press to display/change disc information shown on-screen.

DIMMER (SHIFT +9)

Press to switch between normal and dimmed front panel display.

CLEAR

Press to clear an entry.

ENTER

Press to select menu options, etc. (works exactly the same as the **ENTER** button in **13** above).

18 TV CONTROL buttons

These buttons are dedicated to control the TV assigned to the **TV** button.

- Use to turn on/off the power of the TV.**INPUT**
- Use to select the TV function.

TV CHANNEL +/-

Use to select channels.

TV VOLUME +/-

Use to adjust the volume on your TV.

19 SHIFT

Use to access the functions/commands printed in green on the remote (press the button for the function you want while holding down **SHIFT**).

Jigs list

A

Name	Jig No.	Remarks
Service Remote Control Unit	GGF1381	diagnosis
DVD Data Disc	GGV1174 (& GGV1133)	diagnosis (ID data setting) • GGV1174 is to be released in May, 2004. Use only GGV1174 after GGV1174 was released because GGV1174 includes all the data of GGV1133.
DVD Test Disc (DVD-Video)	GGV1025	Check of DVD-Video
CD Test Disc	STD-905	Check of CD
Jig Cable	GGD1160	diagnosis (DV9 Only)
Jig Cable	GGD1222	diagnosis (HTD640 Only)
Jig Cable	GGD1228	diagnosis
Jig Cable	GGD1315 (x2)	diagnosis

B

C

D

E

F