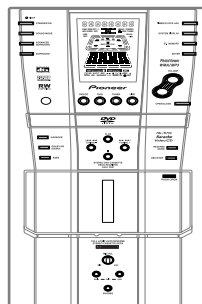


Service Manual



XV-EV61

ORDER NO.
RRV2793

STEREO DVD TUNER DECK RECEIVER

XV-EV61

XV-EV31

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

Model	Type	Power Requirement	Regional restriction codes (Region No.)	The voltage can be converted by the following method.
XV-EV61	DLXJ/NC	110-127V/220-230V/240V	3	With the voltage selector
XV-EV31	DLXJ/NC	110-127V/220-230V/240V	3	With the voltage selector

This product is component of system.

Component	System	System	Service manual
MINI SYSTEM	X-EV61D	X-EV31D	
Stereo DVD Tuner Deck Receiver	XV-EV61	XV-EV31	RRV2793(This manual)
Speaker System	S-EV61V	S-EV31V	RRV2776(EV61), RRV2800(EV31)



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

SAFETY INFORMATION



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

WARNING !

THE AEL (ACCESSIBLE EMISSION LEVEL) OF THE LASER POWER OUTPUT IS LESS THAN CLASS 1 BUT THE LASER COMPONENT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS 1.
A SPECIALLY INSTRUCTED PERSON SHOULD DO SERVICING OPERATION OF THE APPARATUS.

LASER DIODE CHARACTERISTICS

FOR DVD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 650 nm
FOR CD : MAXIMUM OUTPUT POWER : 7 mW
WAVELENGTH : 780 nm

LABEL CHECK

CAUTION : VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
VORSICHT : SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN!
ADVARSEL : SYNLIG OG USYNLIG LASERSTRÅLING VED ÅPNING. UNNGÅ UDSÆTTELSE FOR STRÅLING.
VARNING : SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN.
VARO! : AVATTAESSA ALISTUT NÄKYVÄ JA NÄKYMÄTTÖMÄLLE LASERSATEIL YLLE. ÄLÄ KATSO SÄTEESÄN.
VHV1699

**CLASS 1
LASER PRODUCT**

(Printed on the Rear Panel B)

XV-EV61/DLXJ/NC

Additional Laser Caution

1. Laser Interlock Mechanism
 - Loading switch (S101 on the LOAB Assy) is used for interlock mechanism of the laser.
When this switch turned ON in SW2 (XCLOSE) side (OPEN signal is 0V and XCLOSE signal is 3.5V), a laser becomes the status which can completely oscillation.
Furthermore, the laser completely oscillates in the disc judgment and disc playback.
When player is power ON state and laser diode is not completely oscillating, 780nm laser diode is always oscillating by half power.
 - Laser diode is driving with Q101 (650nm LD) and Q102 (780nm LD) on the DVD M Assy.
Therefore, when short-circuit between the emitter and collector of these transistors or the base voltage is supplied for transistors turn on, the laser oscillates. (failure mode)
 - In the test mode *, there is the mode that the laser oscillates except for the disc judgment and playback. LD ON mode in the test mode oscillates with the laser forcibly.
The interlock mechanism mentioned above becomes invalid in this mode.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

* : See page 107

[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.

Discs compatible with this player

Any disc that displays one of the following logos should play in this player. Other formats, including DVD-Audio, DVD-RAM, DVD-ROM, CD-ROM (except those that contain MP3 and WMA files), SACD will not play.



DVD-Video



DVD-R



DVD-RW



Audio-CD



Video-CD



CD-R *



CD-RW *



Super Video CD (Super VCD)



Fuji Color-CD



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1. SPECIFICATIONS

Specifications

Amplifier Section

X-EV61DVD model

Continuous power output:

Front	75 W per channel (1kHz, 10 % T.H.D., 6 Ω)
Center	75 W (1kHz, 10 % T.H.D., 6 Ω)
Surround	75 W per channel (1kHz, 10 % T.H.D., 6 Ω)
Subwoofer	75 W (100Hz, 10 % T.H.D., 6 Ω)
<i>X-EV31DVD model</i>	
Front	75 W + 75W (1 kHz, 10 % T.H.D., 6 Ω)
Subwoofer	100 W (100Hz, 10 % T.H.D., 6 Ω)

Disc section

Digital audio characteristics	DVD fs: 96 kHz, 24-bit
Type	DVD system, Video CD/Super VCD system and Compact Disc digital audio system
Frequency response	4 Hz to 44 kHz
S/N ratio	.95 dB
Dynamic range	.95 dB
Total harmonic distortion	0.005 %
Wow and Flutter	Limit of measurement (± 0.001 % W.PEAK) or less (JEITA)

Cassette deck section

Systems	4 track, 2-channel stereo
Heads	Recording/playback head x 1 Erasing head x 1
Motor	DC servo motor x 1
Tape types	Type I (Normal)

FM tuner section

Frequency range	87.5 – 108MHz
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
Antenna	Loop antenna

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

Miscellaneous

Power requirements	AC 110-127/220-230/ 240 V (switchable), 50/60 Hz
--------------------	---

Power consumption

<i>X-EV61DVD model</i>	192 W
------------------------	-------

X-EV31DVD model

	160 W
Power consumption in standby mode	0.5 W

Dimensions:

DVD Tuner Deck Receiver	170 (W) x 350.5 (H) x 335 (D) mm
-------------------------	----------------------------------

Weight:

DVD Tuner Deck Receiver	
XV-EV61	8.3 kg
XV-EV31	8.2 kg

Accessories (Stereo DVD Cassette Deck Receiver)

Remote control	1
Power cord	1
Video cord	1
AM loop antenna	1
FM antenna	1
Dry cell batteries (AA/R6)	2
Operating instructions	2

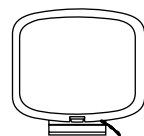


Note

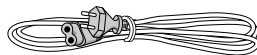
- Specifications and design subject to possible modification without notice, due to improvements.

"DTS" and "DTS Digital Surround" are registered trademarks of Digital Theater Systems, Inc. Manufactured under license from Digital Theater Systems, Inc.

Accessories



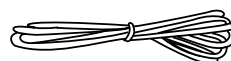
AM loop antenna
(ATB7009)



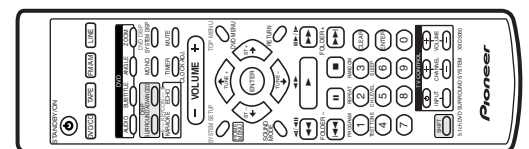
AC Power Cord
(ADG1154)



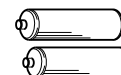
Video Cord
(VDE1065)



FM wire antenna
(ADH7004)



Remote control unit
(XXD3060 : EV61)
(XXD3061 : EV31)



AA size IEC R6P
Dry cell batteries (x2)

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.

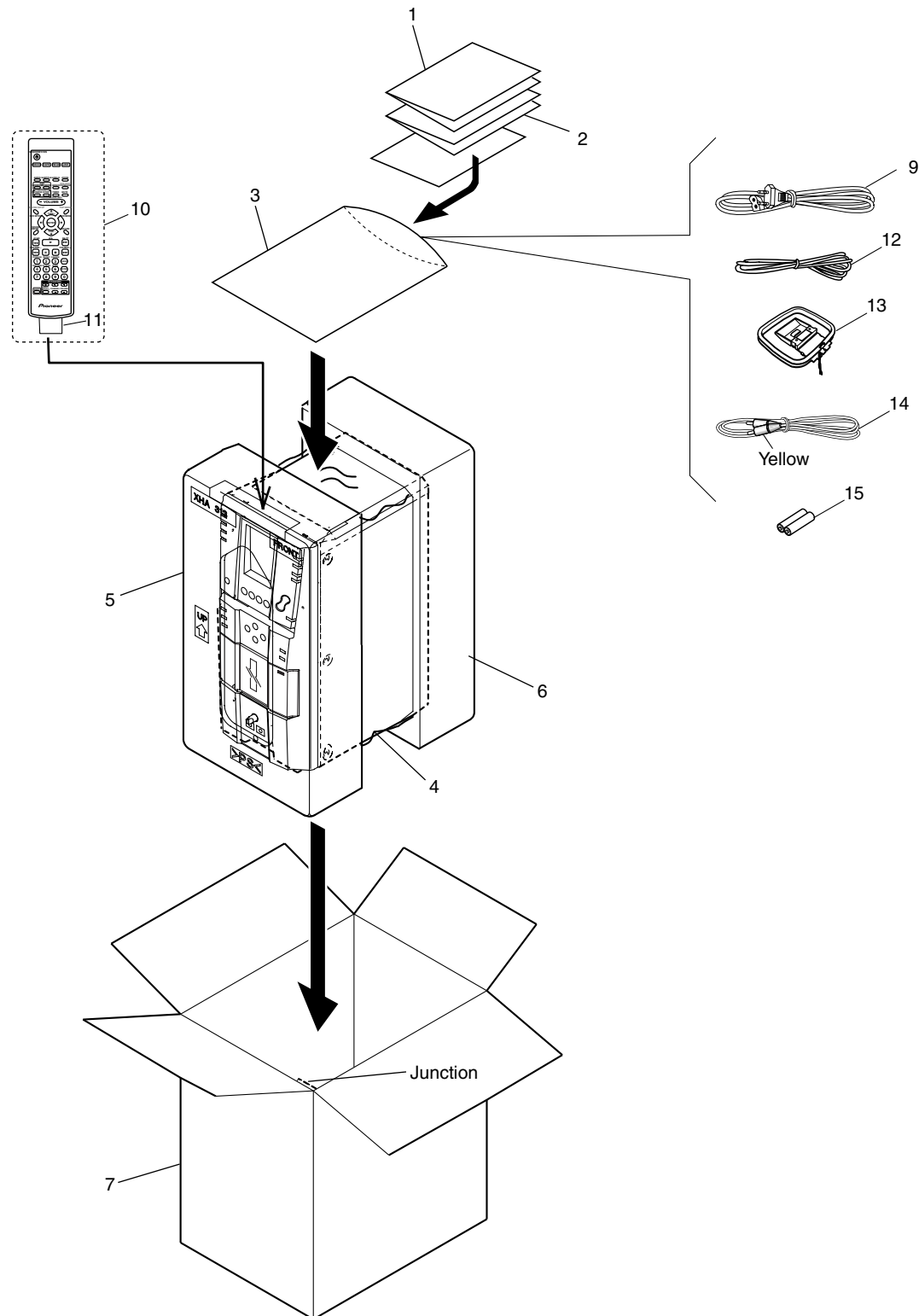
Therefore, when replacing, be sure to use parts of identical designation.

● 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

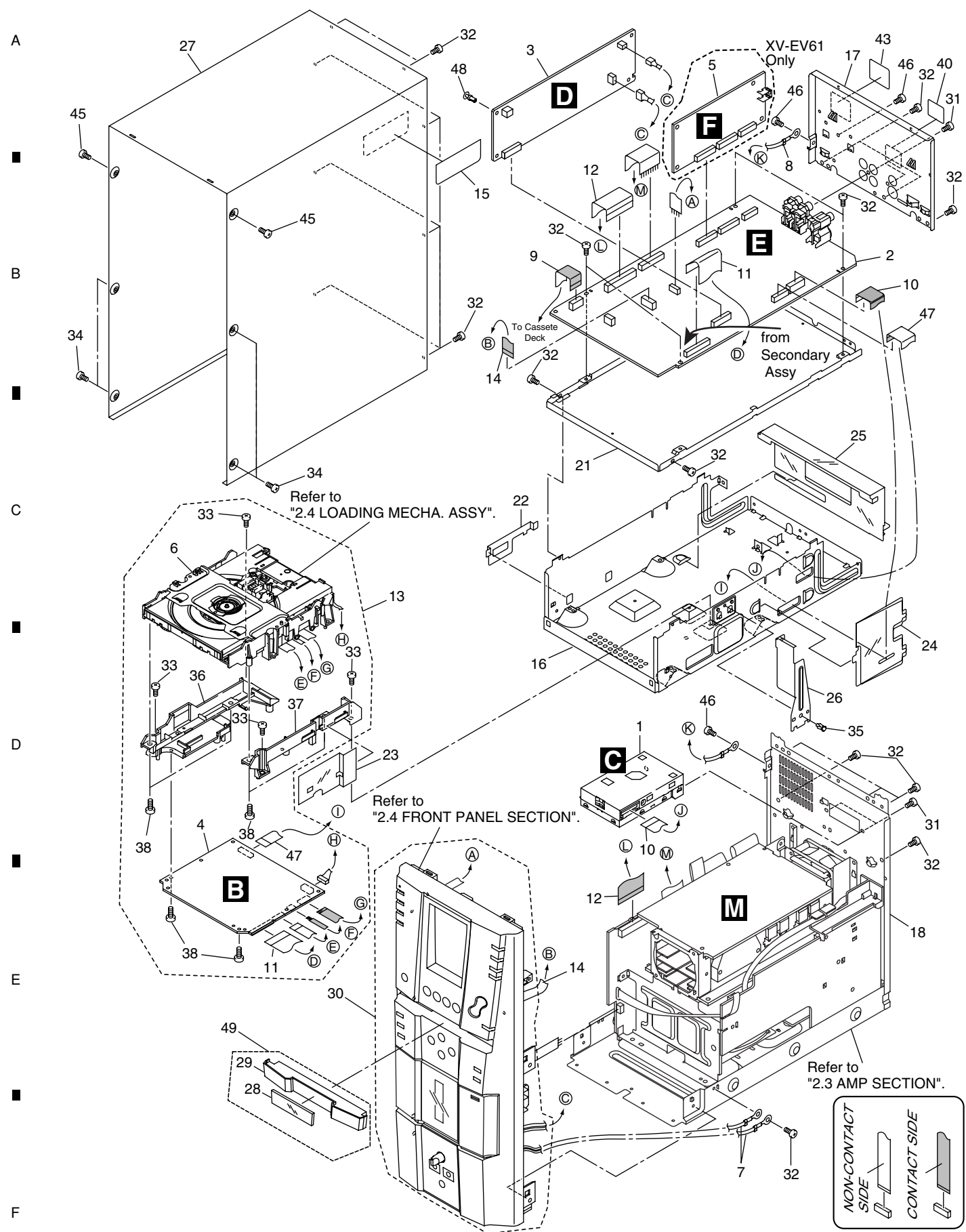
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Operating Instructions (English)	XRB3026	8	• • • •	
2	Operating Instructions (Chinese)	XRC3109	9	AC Power Cord	ADG1154
NSP 3	Polyethylene Bag (0.03 x 230 x 340)	AHG1180	10	Remote Control Unit	See Contrast table (2)
4	Packing Sheet	XHG3010	11	Battery Cover	AZA7424
5	Front Pad	XHA3136	12	FM Antenna	ADH7004
6	Rear Pad	XHA3137	13	AM Loop Antenna	ATB7009
7	Packing Case	See Contrast table (2)	14	Video Cord (Yellow 1P)	VDE1065
			NSP 15	Dry Cell Battery (AA/R6)	VEM1031

(2) CONTRAST TABLE

XV-EV61/DLXJ/NC and XV-EV31/DLXJ/NC are constructed the same except for the following :

Mark	No.	Symbol and Description	XV-EV61/DLXJ/NC	XV-EV31/DLXJ/NC
	7	Packing Case	XHD3355	XHD3360
	10	Remote Control Unit	XXD3060	XXD3061

2.2 EXTERIOR SECTION



EXTERIOR SECTION parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	FM/AM TUNER Module	AXQ7228	26	DECK PCB Holder	XNG3115
2	IF_AF Assy	See Contrast table (2)	27	Bonnet Case	XZN3132
3	DECK Assy	See Contrast table (2)	NSP 28	Tray Panel	XAK3398
4	DVDM Assy	See Contrast table (2)	NSP 29	Tray Cap	XAK3397
5	DSP Assy	See Contrast table (2)	30	Front Panel Assy	See Contrast table (2)
NSP 6	LOADING MECHA Assy	VWT1208	31	Screw	VPZ30P080FZK
NSP 7	Earth Lead Wire	DE007VF0	32	Screw	BBZ30P080FZK
NSP 8	Earth Lead Wire	DE015VF0	33	Screw	BBZ30P080FMC
9	11P Flat Flexible Cable	XDD3142	34	Screw	BBZ30P080FNI
10	13P Flat Flexible Cable	XDD3140	35	Push Rivet	XEC3034
11	30P Flat Flexible Cable	XDD3137	36	Adaptor 02 L	ANW7267
12	30P Flat Flexible Cable	XDD3143	37	Adaptor 02 R	ANW7268
NSP 13	DVD ASSY	See Contrast table (2)	38	Screw	BPZ30P080FMC
14	12P Flat Flexible Cable	XDD3141	39	• • • •	
NSP 15	Laser Caution Label	VRW1699	NSP 40	SISIR Label	XAX3397
16	Mecha Frame	XNG3102	41	• • • •	
17	Rear Panel A	See Contrast table (2)	42	• • • •	
18	Rear Panel B	See Contrast table (2)	NSP 43	ID Label	VXW1002
19	• • • •		44	• • • •	
20	• • • •		45	Screw	BPZ30P080FNI
21	DVD Shield	XNG3103	46	Screw	BCZ30P060FMC
22	Pri Holder	XMR3084	NSP 47	FFC Cable	See Contrast table (2)
23	Barrier S	AEC7429	48	Rivet	AEC7205
24	FFC Barrier A	XEC3048	49	Tray Cap Assy	XXG3155
25	FFC Barrier B	XEC3053			

(2) CONTRAST TABLE

XV-EV61/DLXJ/NC and XV-EV31/DLXJ/NC are constructed the same except for the following :

Mark	No	Symbol and Description	XV-EV61/ DLXJ/NC	XV-EV31/ DLXJ/NC
NSP	2	IF_AF Assy	XWZ3726	XWZ3733
	3	DECK Assy	XWX3072	XWX3073
	4	DVDM Assy	AXM7808	AXM7809
	5	DSP Assy	AWX8254	Not used
	13	DVD Assy	AXA7121	AXA7122
NSP	17	Rear Panel A	XNC3205	XNC3226
	18	Rear Panel B	XNC3206	XNC3233
	30	Front Panel Assy	XXG3156	XXG3158
	47	FFC Cable	XDD3138	XDD3139

2.3 AMP SECTION

A

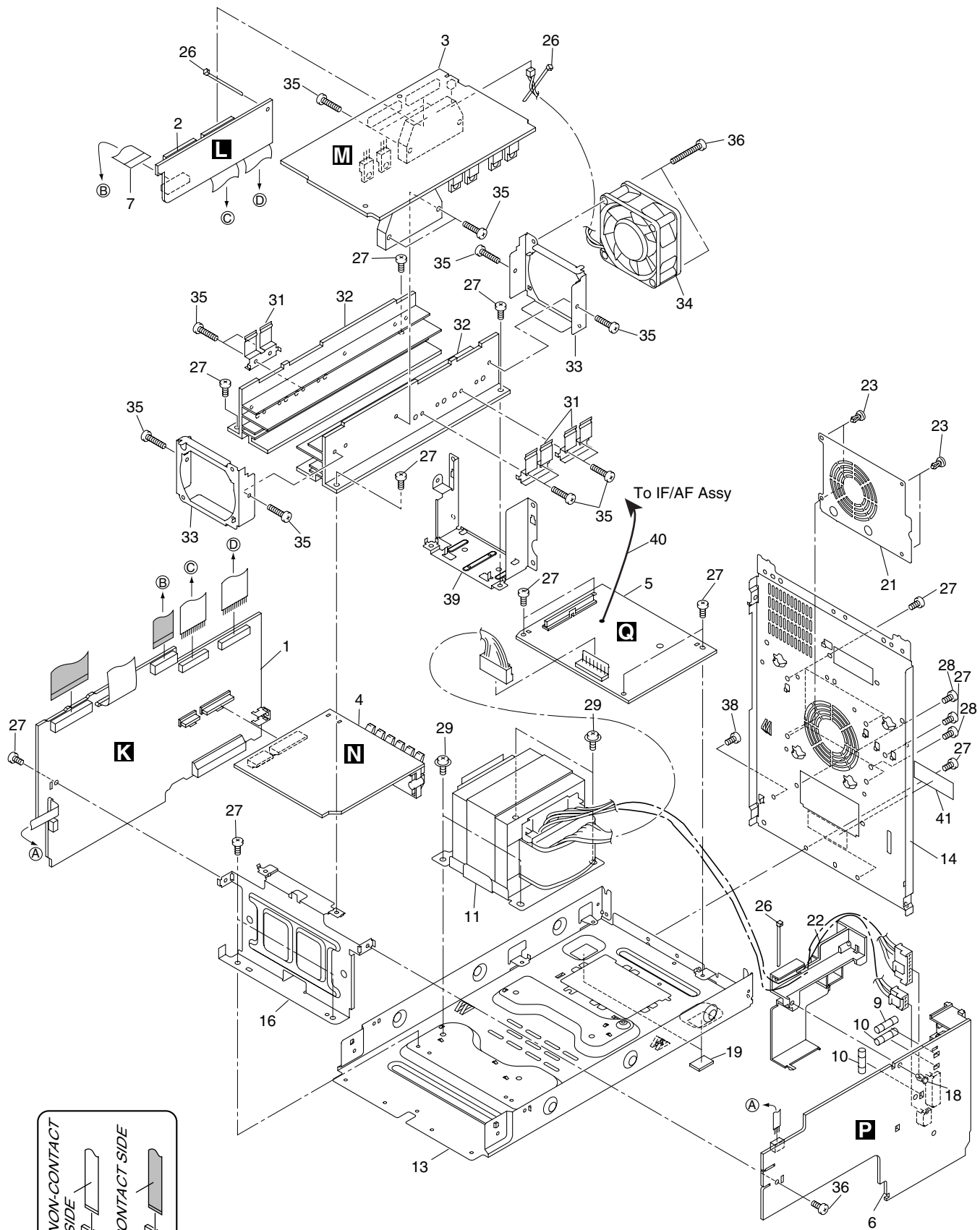
B

C

D

E

F



AMP SECTION parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	E-VOL Assy	See Contrast table (2)	25		
2	TRADE Assy	See Contrast table (2)	26	Binder	ZCA-SKB90BK
3	AMP Assy	See Contrast table (2)	27	Screw	BBZ30P080FZK
4	SP-TERMINAL Assy	See Contrast table (2)	28	Screw	VPZ30P080FZK
5	SECONDARY Assy	See Contrast table (2)	29	Screw	ASZ40P060FMC
6	PRIMARY Assy	XWZ3738	30	FAN Holder	ANG7417
7	16P F. F. C./30V	XDD3144	31	FET Bracket A	ANG7418
8	13P Jumper Connector	52151-1310	32	Heat Sink	ANH7159
⚠ 9	Fuse (FU1 : T5A)	REK1029	33	FAN Plate	ANG7462
⚠ 10	Fuse (FU2, FU3 : T2.5A)	See Contrast table (2)	34	DC FAN Motor	AXM7025
⚠ 11	Power Transformer (T1)	See Contrast table (2)	35	Screw	BBZ30P140FMC
12	14P Jumper Connector	52151-1410	36	Screw	BBZ30P300FZK
NSP 13	Chassis	XNA3016	37		
14	Rear Panel B	See Contrast table (2)	38	Screw	BCZ30P060FMC
15			39	Module Holder R	XNG3113
16	Module Holder F	XNG3112	40	J1 Wire Cable	XDX3065
17	4P Jumper Connector	52151-0410	41	Speaker Label	See Contrast table (2)
18	Push Rivet	AEC7120			
19	Leg Cushion	XEB3028			
20					
21	FAN Barrier	XEC3050			
22	Primary Holder	XMR3084			
23	Push Rivet	XEC3034			
24					

(2) CONTRAST TABLE

XV-EV61/DLXJ/NC and XV-EV31/DLXJ/NC are constructed the same except for the following :

Mark	No	Symbol and Description	XV-EV61 /DLXJ/NC	XV-EV31 /DLXJ/NC
	1	E-VOL Assy	XWZ3736	XWZ3741
	2	TRADE Assy	XWZ3740	XWZ3745
	3	AMP Assy	AWM7720	AWM7787
	4	SP-TERMINAL Assy	XWZ3737	XWZ3742
	5	SECONDARY Assy	XWZ3739	XWZ3743
⚠	10	Fuse (FU2, FU3)	AEK1058 (2.5A/250V)	AEK1059 (3.15A/250V)
⚠	11	Power Transformer (T1)	XTS3070	XTS3071
	14	Rear Panel A	XNC3205	XNC3226
	41	Speaker Label	XAX3401	Not used

2.4 FRONT PANEL SECTION

A

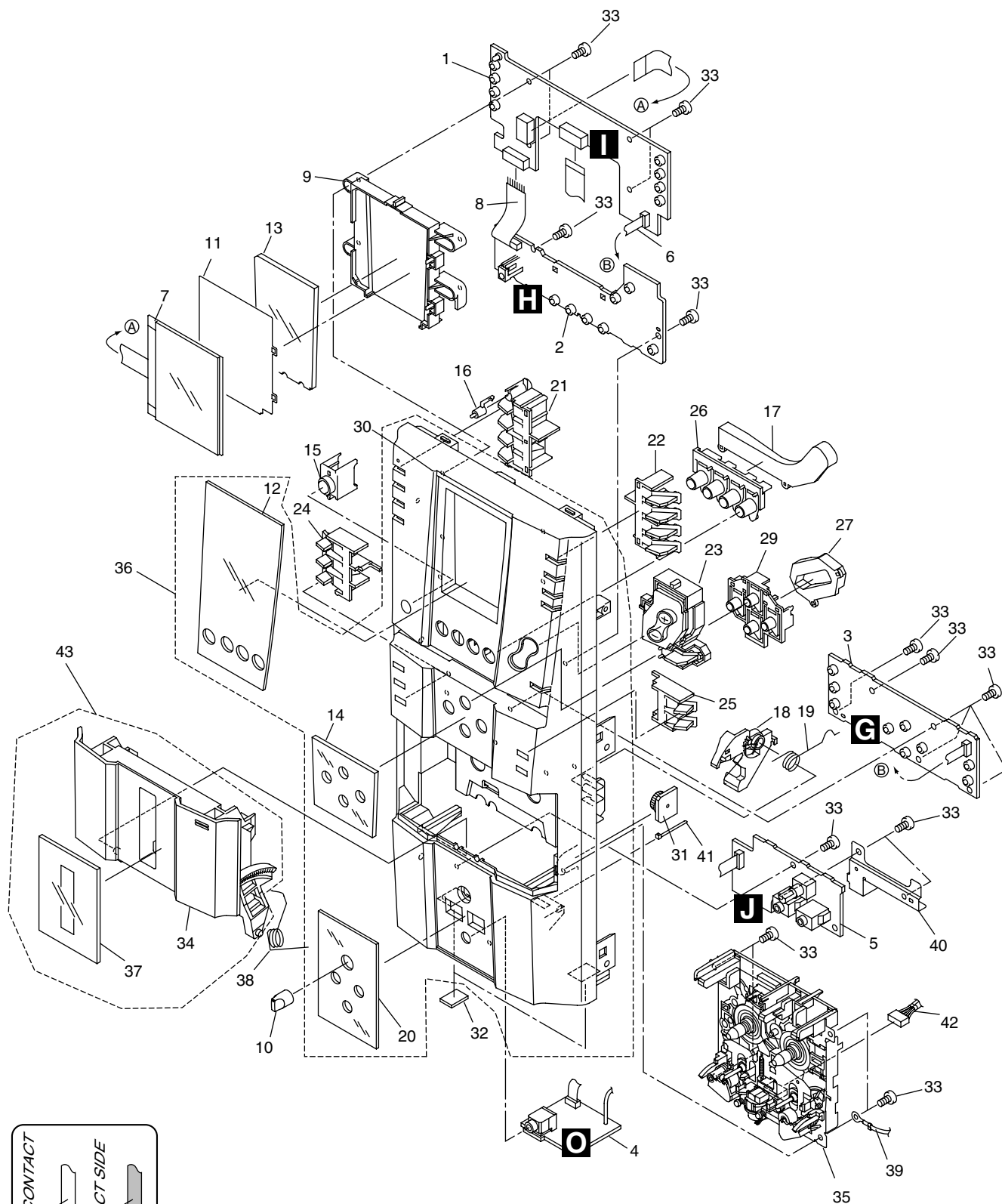
B

C

D

E

F



FRONT PANEL SECTION parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	DISP 1 Assy	XWZ3727	23	VOL. Button Assy	XXG3159
2	DISP 2 Assy	XWZ3728	24	Dolby Button L	XAD3167
3	DISP 3 Assy	XWZ3729	25	Dolby Button R	XAD3168
4	H.P Assy	XWZ3731			
5	MIC Assy	See Contrast table (2)	26	FUNC. Button	XAD3169
			27	Play LT Cond	XAK3402
6	4P Jumper Connector	D20PYY0420E	28	• • • •	
7	LCD	XAV3017	29	Play Button	XAD3171
8	8P Jumper Connector	D20PYY0805E	NSP 30	Front Panel	See Contrast table (2)
9	LCD Holder	XMR3074			
10	MIC Knob	XAA3024	31	Damper Assy	AXA7052
			32	Leg Cushion	XEB3028
11	Diffusion Sheet	XAK3400	33	Screw	VPZ30P080FZK
NSP 12	Display Window	XAK3392	NSP 34	DECK Door	XAN3052
13	LCD LT Cond	XAK3399	35	DECK Mechanism Unit	XYM3016
NSP 14	Grille Panel A	See Contrast table (2)			
15	Sensor Cover	XAK3396	36	Front Panel Assy	See Contrast table (2)
			NSP 37	DECK Panel	XAK3394
16	Timer Lens	XAK3403	38	Door Spring R	XBH3002
17	FUNC. LT Cond	XAK3401	39	Earth Led Wire	DE007VEO
18	Ratch Mold R	XMR3002	40	GND Plate	XNG3104
19	Ratch Spring R	ABH7131			
NSP 20	Grille Panel B	XAK3395	41	Binder	ZCA-SKB90BK
			42	DECK Shield Wire	XDE3062
21	Display Button L	XAD3165	43	DECK Door Assy	XZN3136
22	Display Button R	XAD3166			

(2) CONTRAST TABLE

XV-EV61/DLXJ/NC and XV-EV31/DLXJ/NC are constructed the same except for the following :

Mark	No.	Symbol and Description	XV-EV61/DLXJ/NC	XV-EV31/DLXJ/NC
	5	MIC Assy	XWZ3730	XWZ3734
	14	Grille Panel A	XAK3393	XAK3420
NSP	30	Front Panel	XMB3123	XMB3125
	36	Front Panel ASSY	XZN3134	XZN3135

2.5 LOADING MECHANISM ASSY

Note:



" Application of Lubricant"

Daifree
GEM1036

Lubricating Oil
GYA1001

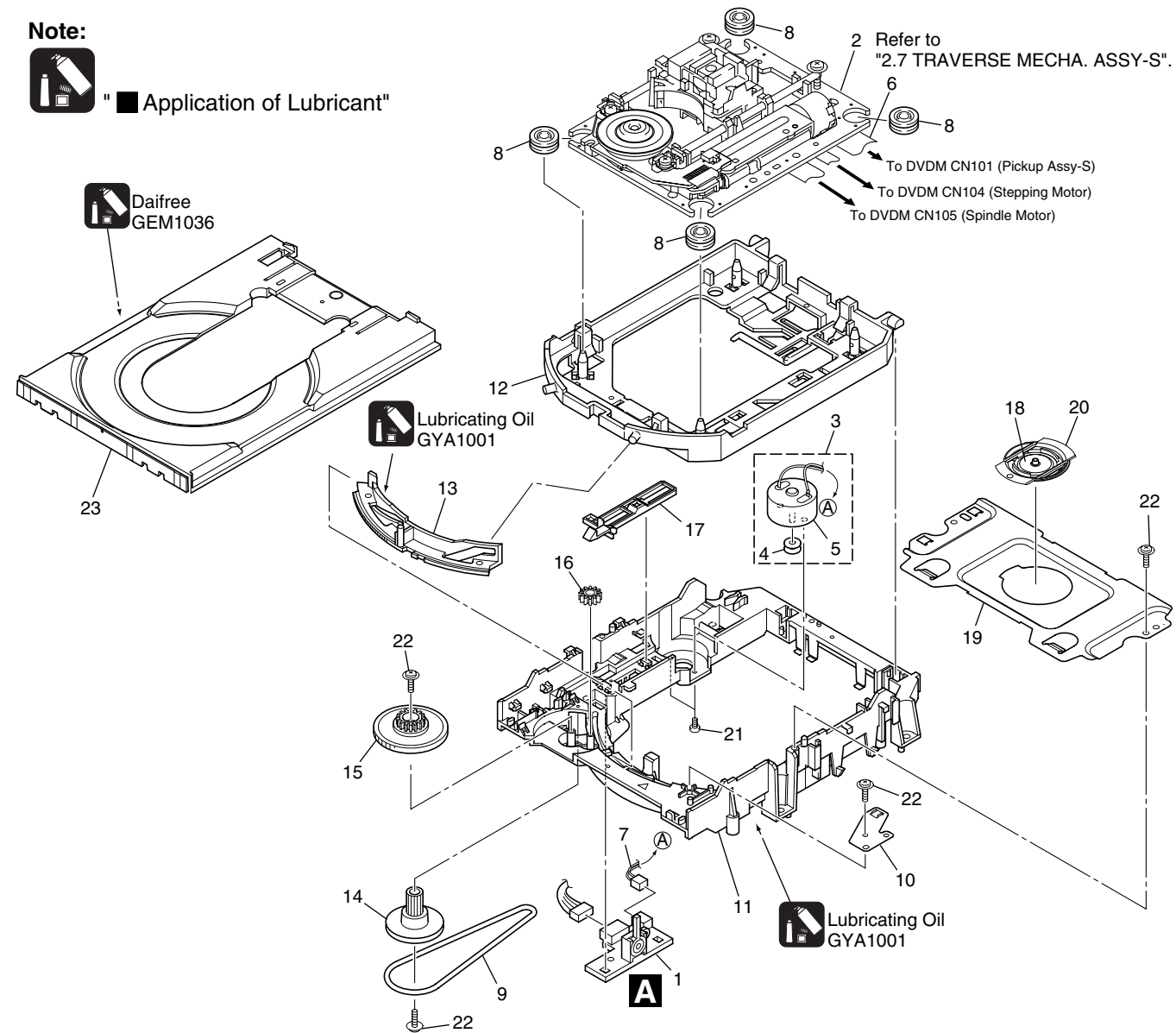
Lubricating Oil
GYA1001

2 Refer to
"2.7 TRAVERSE MECHA. ASSY-S".

To DVDM CN101 (Pickup Assy-S)

To DVDM CN104 (Stepping Motor)

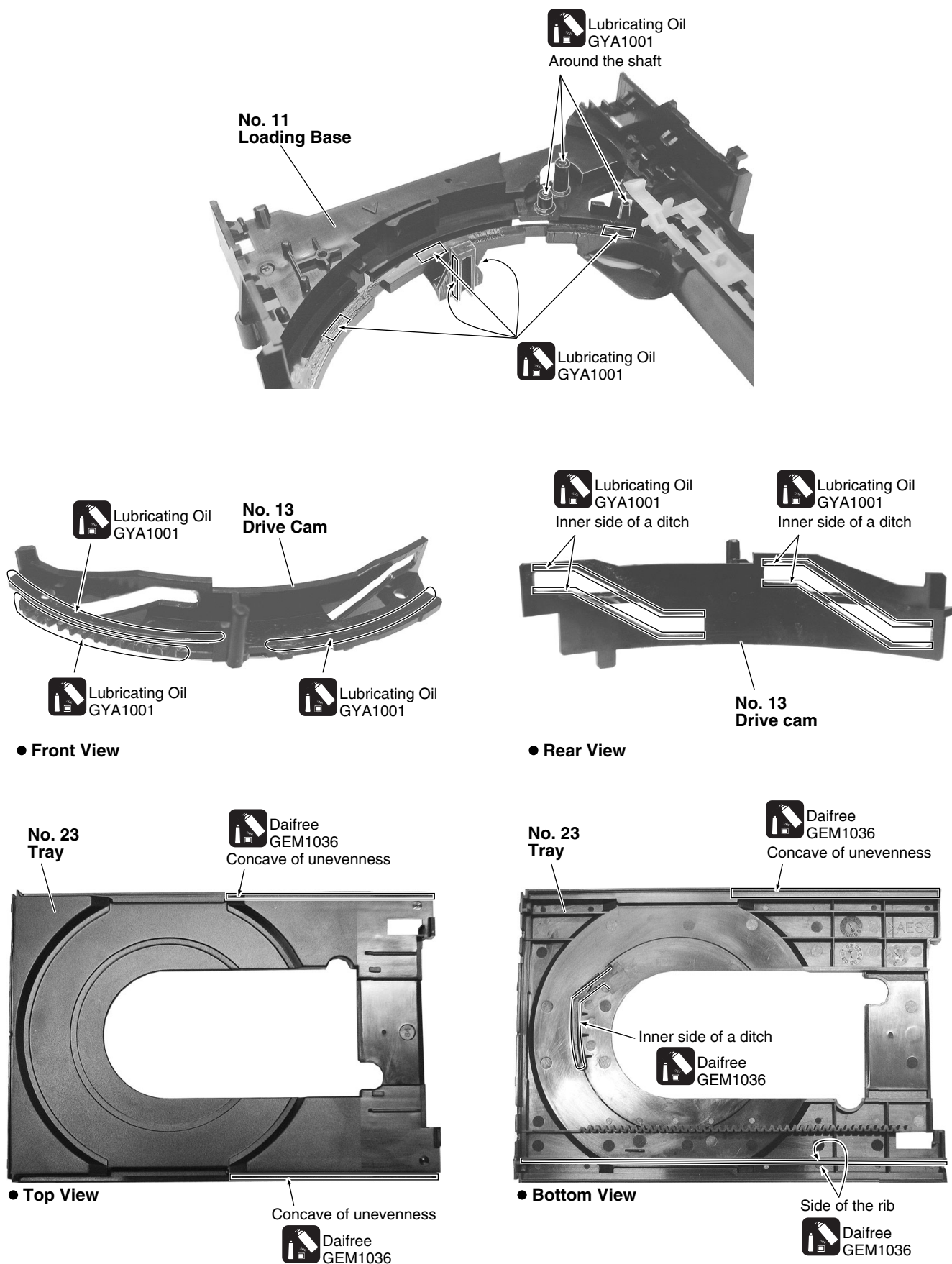
To DVDM CN105 (Spindle Motor)



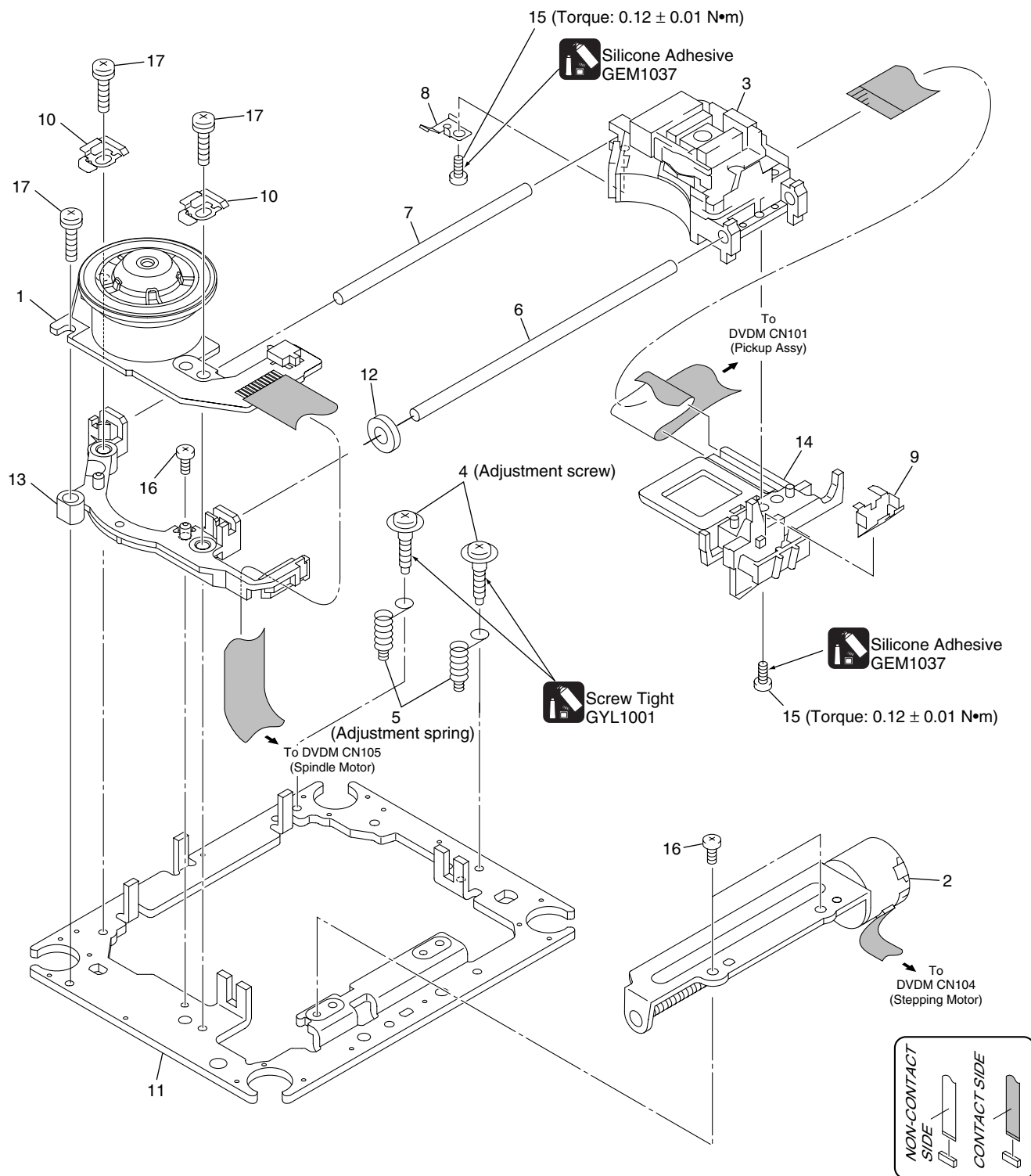
LOADING MECHANISM ASSY parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
NSP 1	LOAB Assy	VWG2346	16	Drive Gear	VNL1923
2	Traverse Mechanism Assy-S	VXX2871	17	SW Lever	VNL1925
3	Loading Motor Assy	VXX2872	18	Clamper Plate	VNE2251
4	Motor Pulley	PNW1634	19	Bridge	VNE2252
5	Carriage DC Motor / 0.3W	VXM1105	20	Clamper	VNL1924
6	Flexible Cable (26P)	VDA1944	21	Screw	JGZ17P028FMC
7	Connector Assy 2P	VKP2286	22	Screw	Z39-019
8	Float Rubber	VEB1351	23	Tray	VNL1920
9	Belt	VEB1330			
10	Stabilizer	VNE2253			
11	Loading Base	VNL1917			
12	Float Base DVD	VNL1918			
13	Drive Cam	VNL1919			
14	Gear Pulley	VNL1921			
15	Loading Gear	VNL1922			

Application of Lubricant



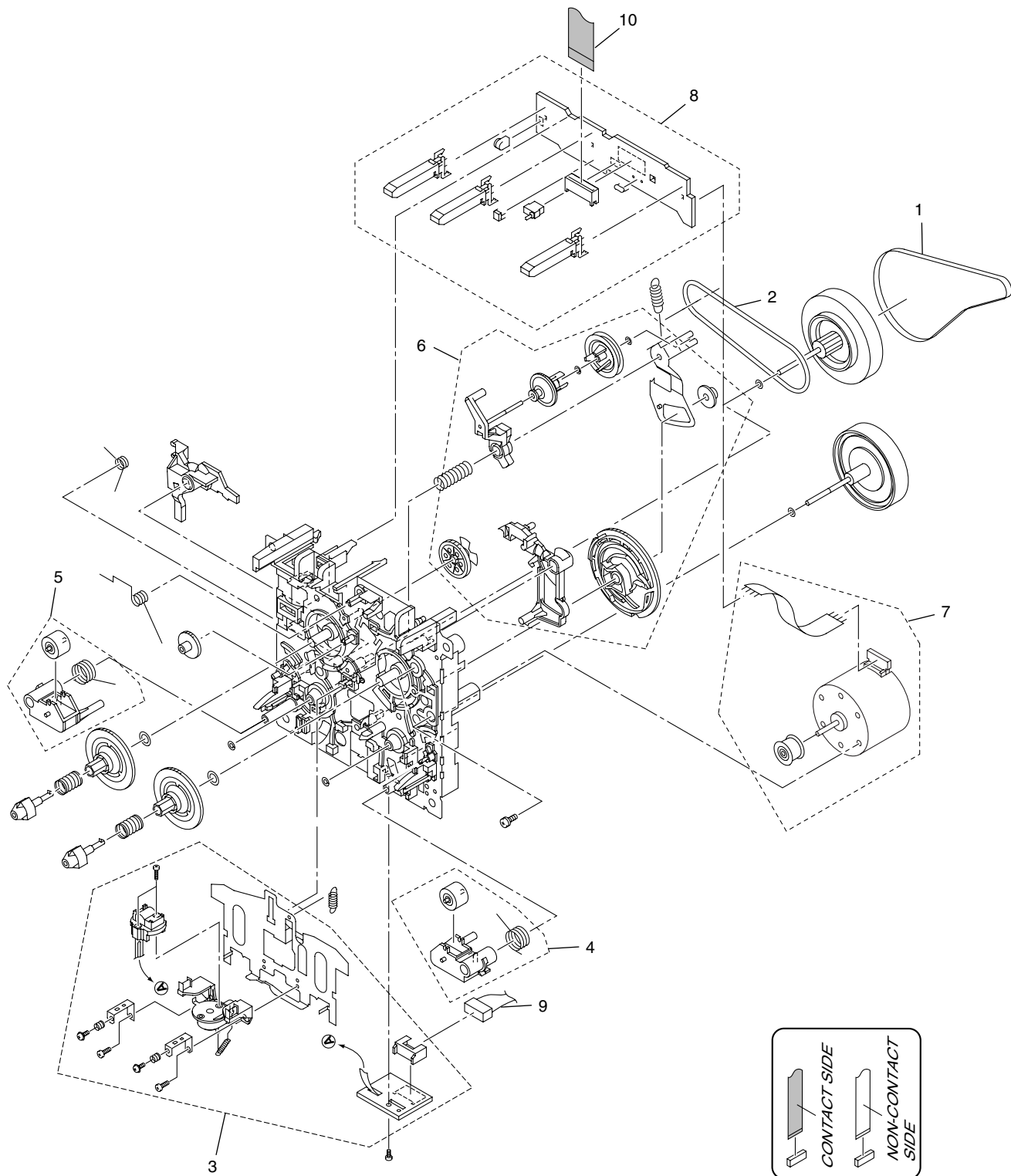
2.6 TRAVERSE MECHANISM ASSY



TRAVERSE MECHANISM ASSY parts List

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	Spindle Motor	VXM1099
2	Stepping Motor	VXM1101
 3	Pickup Assy-S	OXX8005
4	Skew Screw	VBA1080
5	Skew Spring	VBH1335
6	Guide Bar	VLL1514
7	Sub Guide Bar	VLL1515
8	Leaf Spring	VNC1023
9	Joint Spring	VNC1019
10	Support Spring	VNC1020
NSP 11	Mechanism Chassis	VNE2248
12	Damper Sheet	VEB1335
13	Spacer	VNL1913
14	Joint 03	VNL1949
15	Tapping Screw	OBA8021
16	Screw	BBZ20P050FZK
17	Screw	PMA26P100FMC

2.7 DECK MECHANISM ASSY

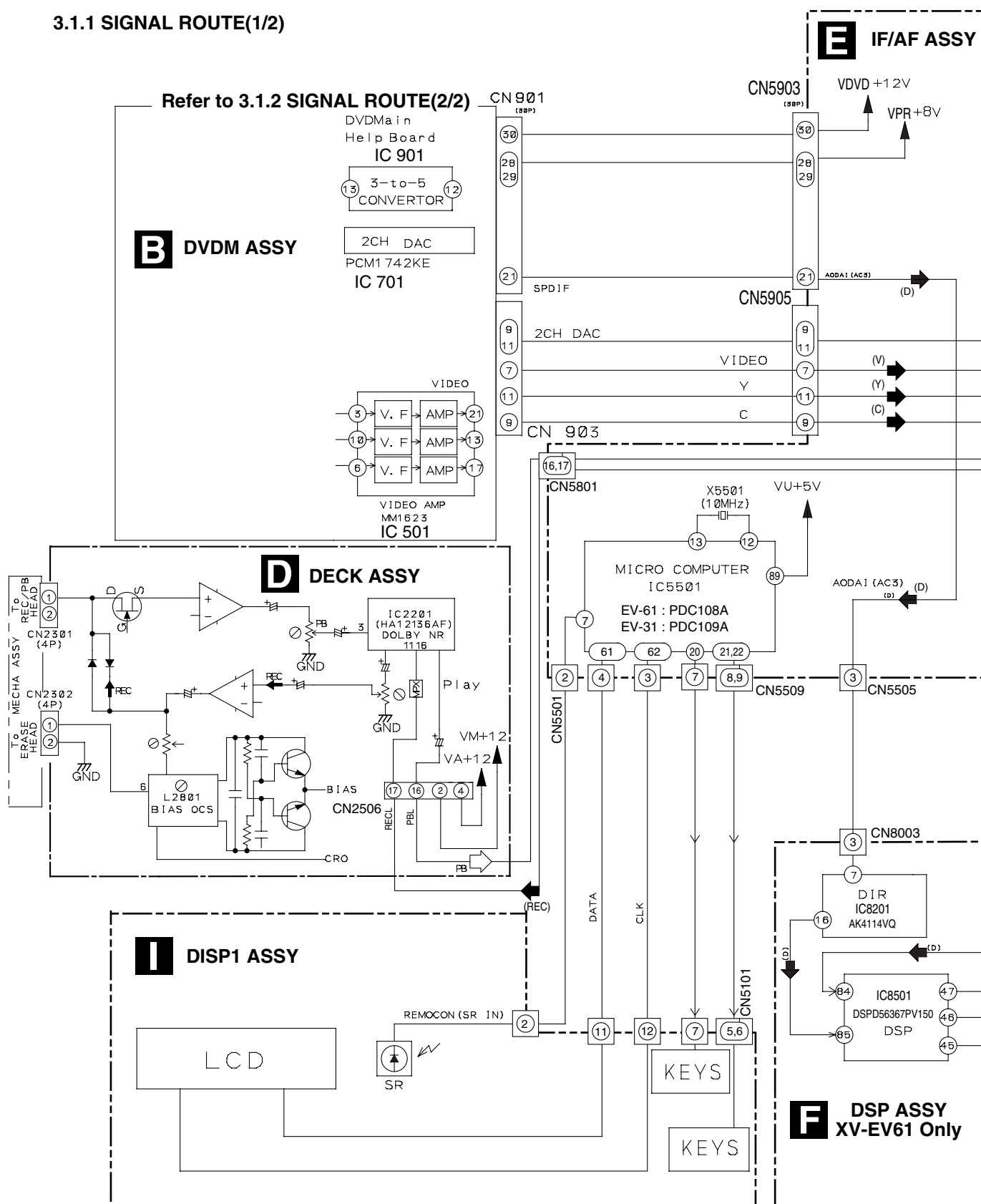


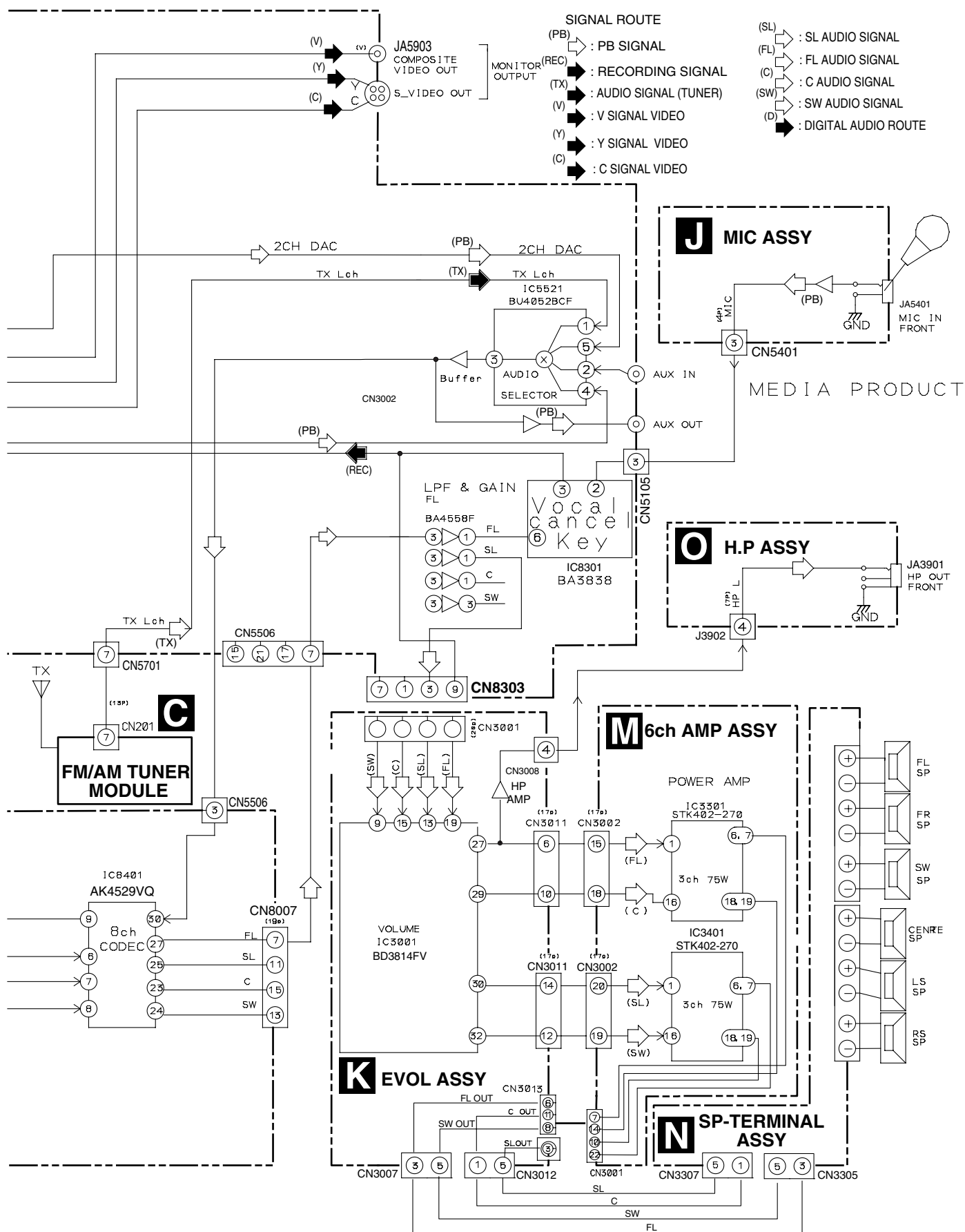
DECK MECHANISM ASSY parts List

<u>Mark No.</u>	<u>Description</u>	<u>Part No.</u>
1	Main Belt	FF19N-22
2	F/R Belt	FF19S-31
3	Plate HD Blk	F513-847
4	Roller Pinch Blk R	F514-133
5	Roller Pinch Blk L	F514-134
6	Clutch Assy Blk	F522-063
7	Motor Main Blk	F525-334
8	PCB Control Blk	F567-705
9	11P F. F. C / 30V	XDD3142
10	18P F. F. C / 30V	XDD3138

3.1 OVERALL BLOCK DIAGRAM

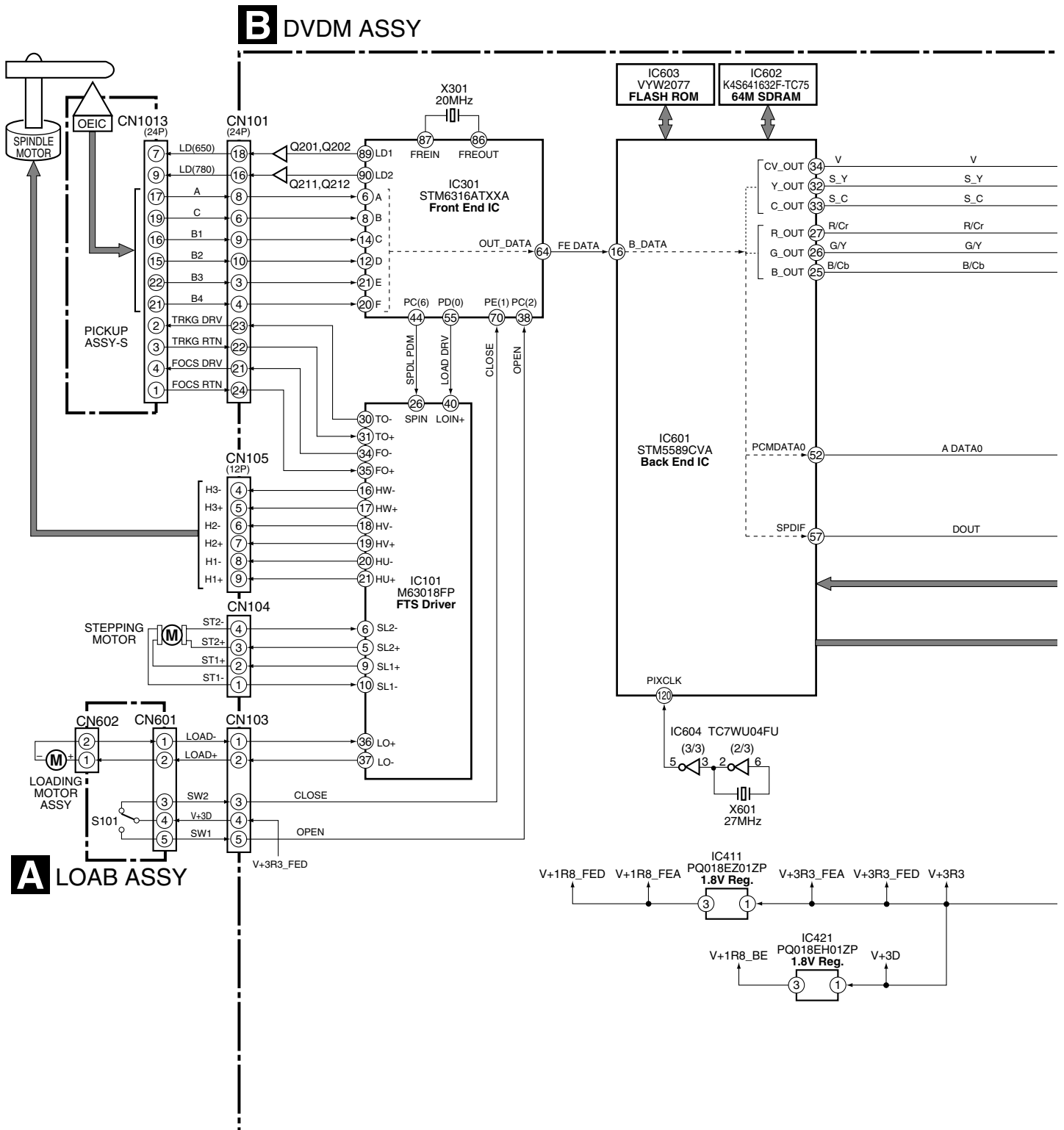
F IF/AF ASSY

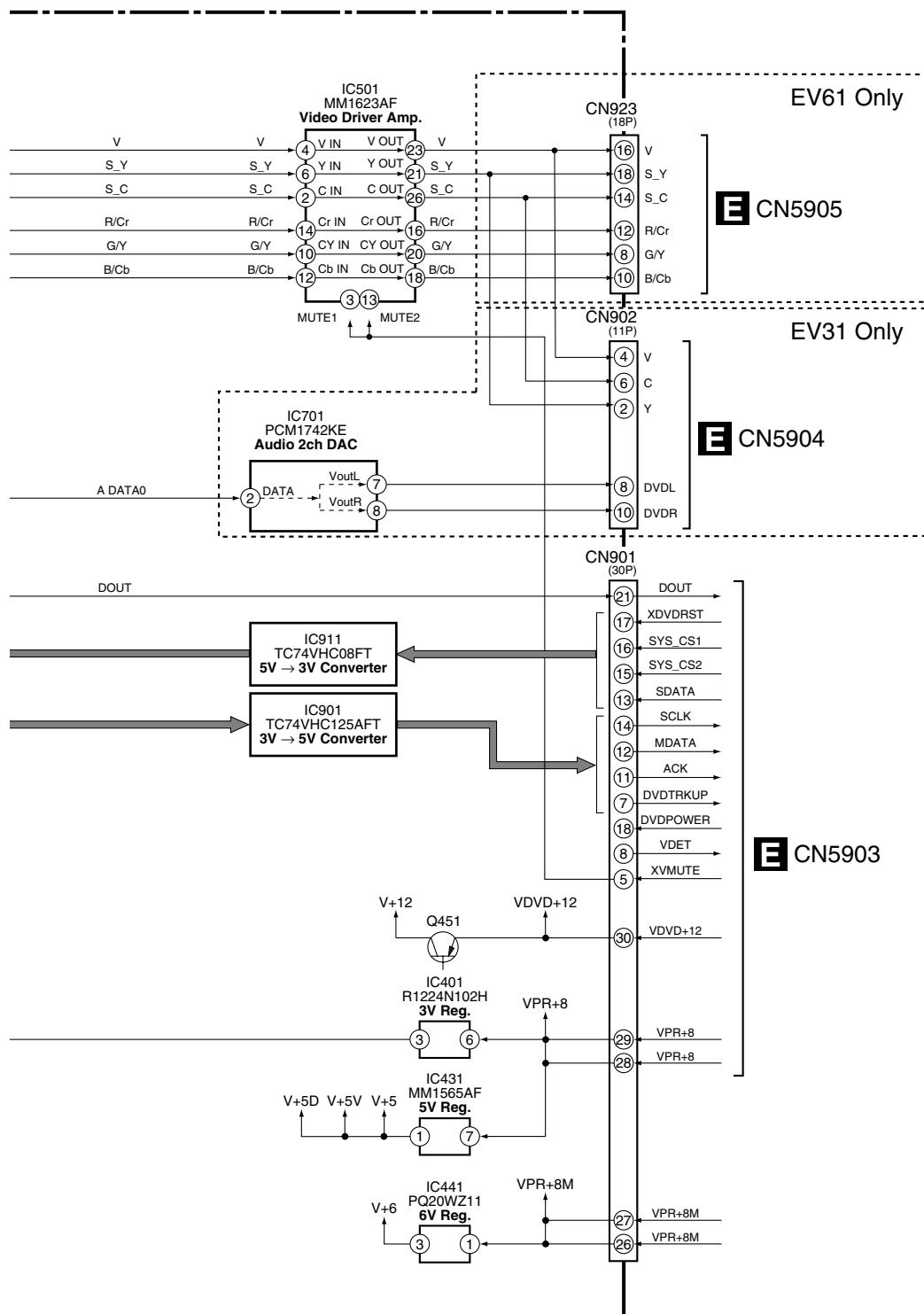




3.2 DVD SECTION BLOCK DIAGRAM

3.1.2 SIGNAL ROUT(2/2)





3.3 OVERALL WIRING DIAGAM

A

3.3.1 OVERALL WIRING DIAGRAM (1/2)

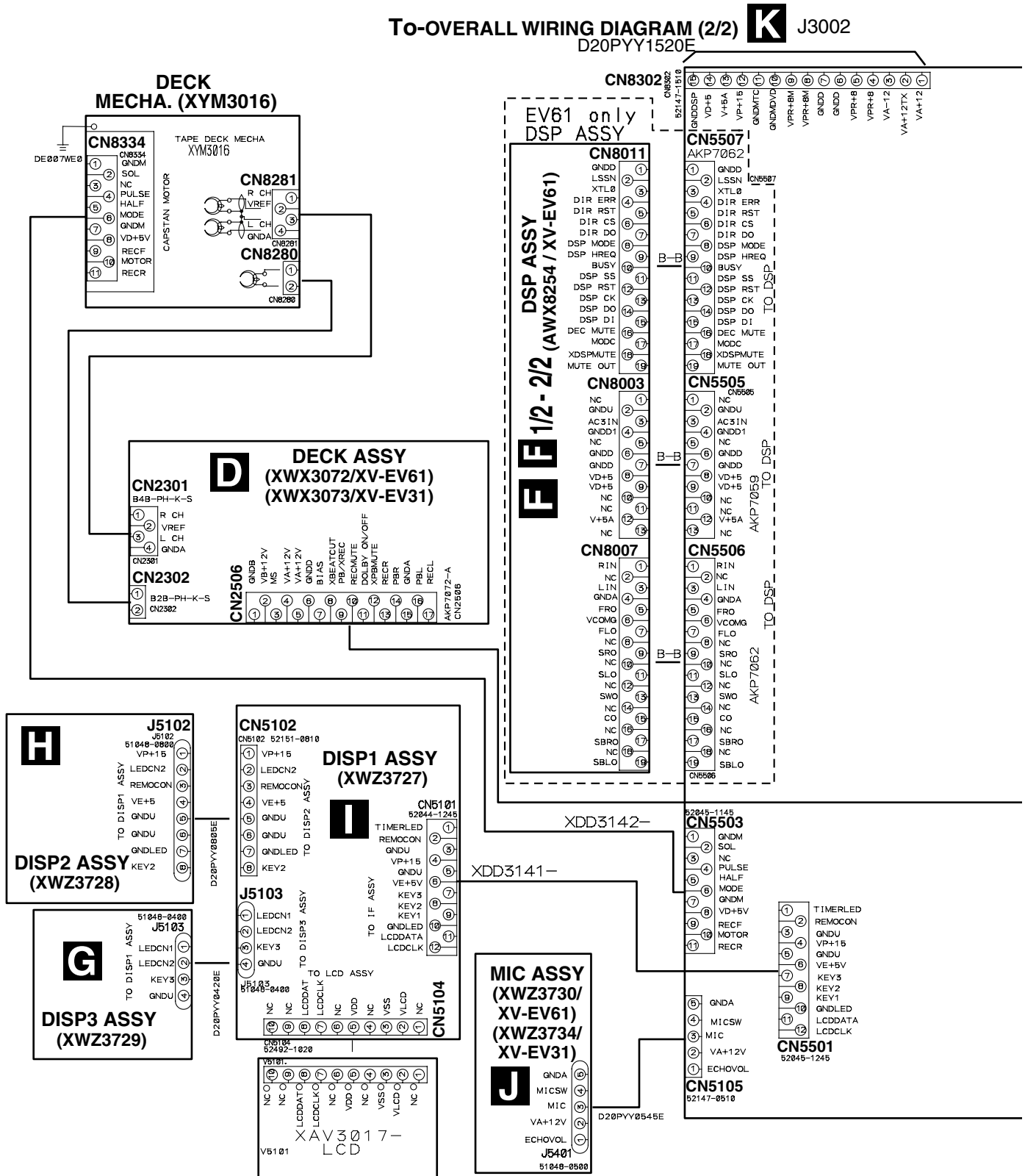
B

C

D

E

F



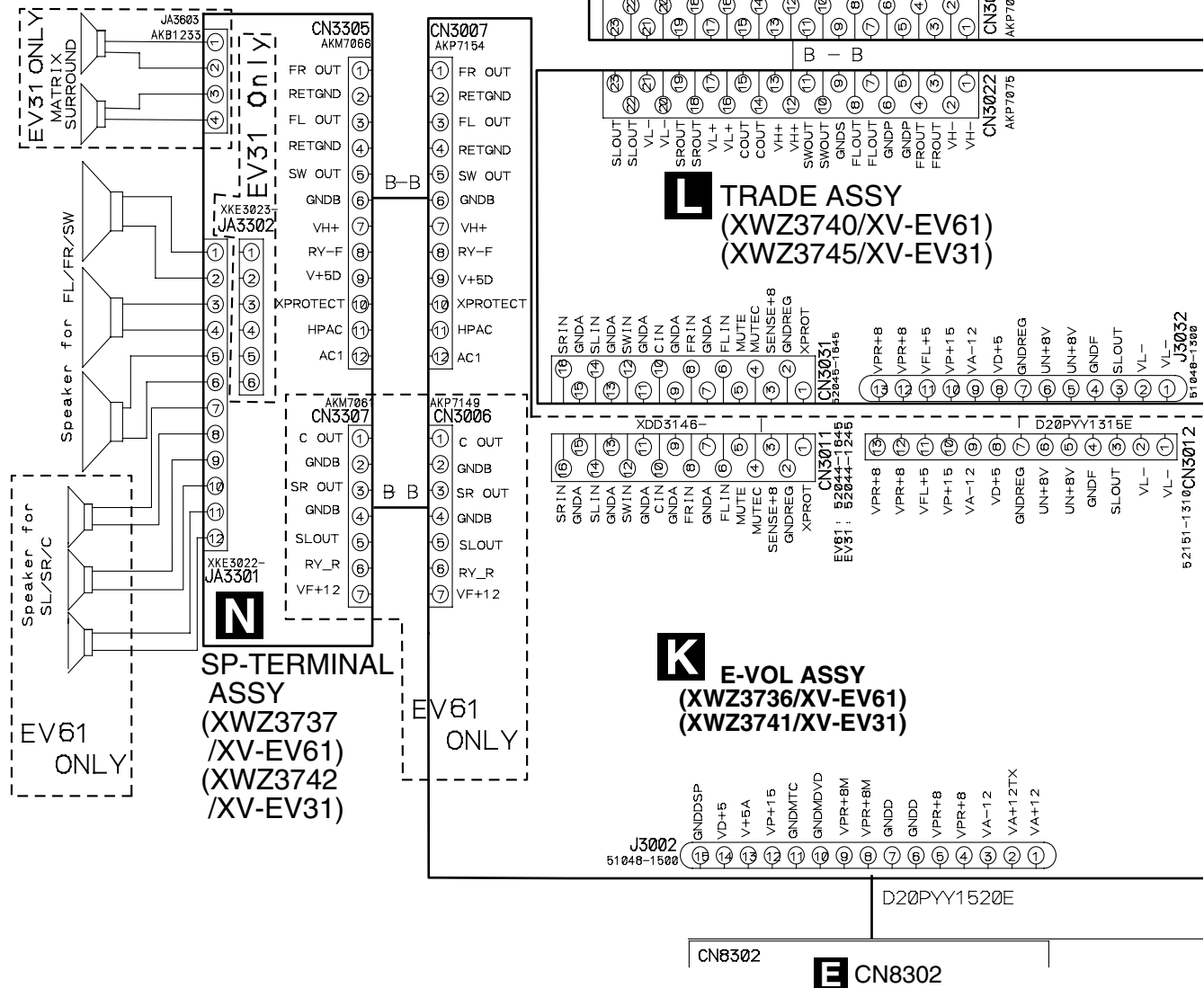
3.3.2 OVERALL WIRING DIAGRAM (2/2)

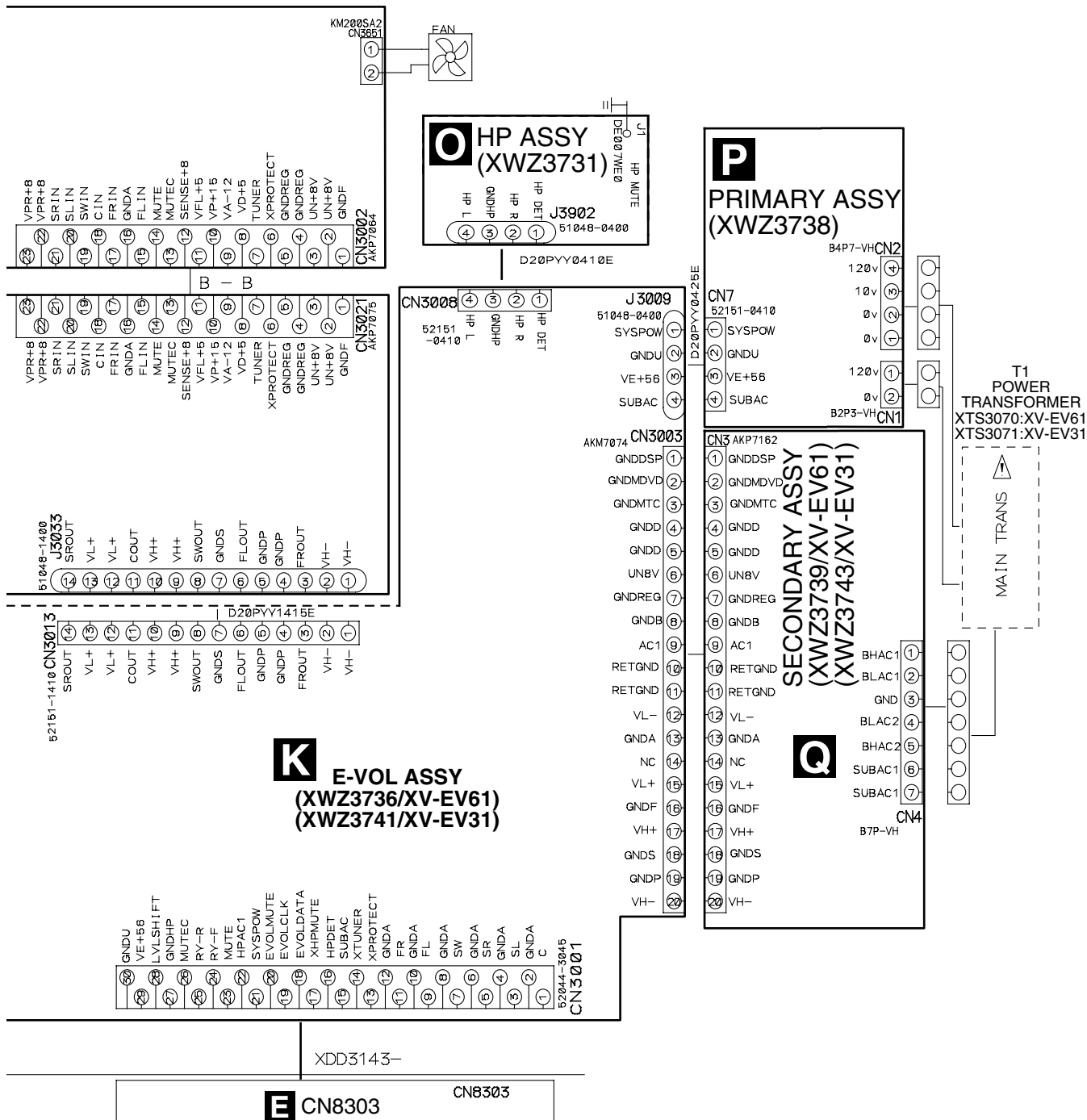
M AMP MODULE ASSY
(AWM7720 / XV-EV61)
(AWM7787 / XV-EV31)

L TRADE ASSY
(XWZ3740/XV-EV61)
(XWZ3745/XV-EV31)

K E-VOL ASSY
(XWZ3736/XV-EV61)
(XWZ3741/XV-EV31)

E IF/AF ASSY





Notes

1. RESISTORS

Indicated in Ω , $1/16W \pm 5\%$ Tolerance unless otherwise noted K:K Ω , M:M Ω .

2. CAPACITORS

Indicated in Capacity (μ F)/VOLTAGE (V) unless otherwise noted P:PF.

3. DIODES

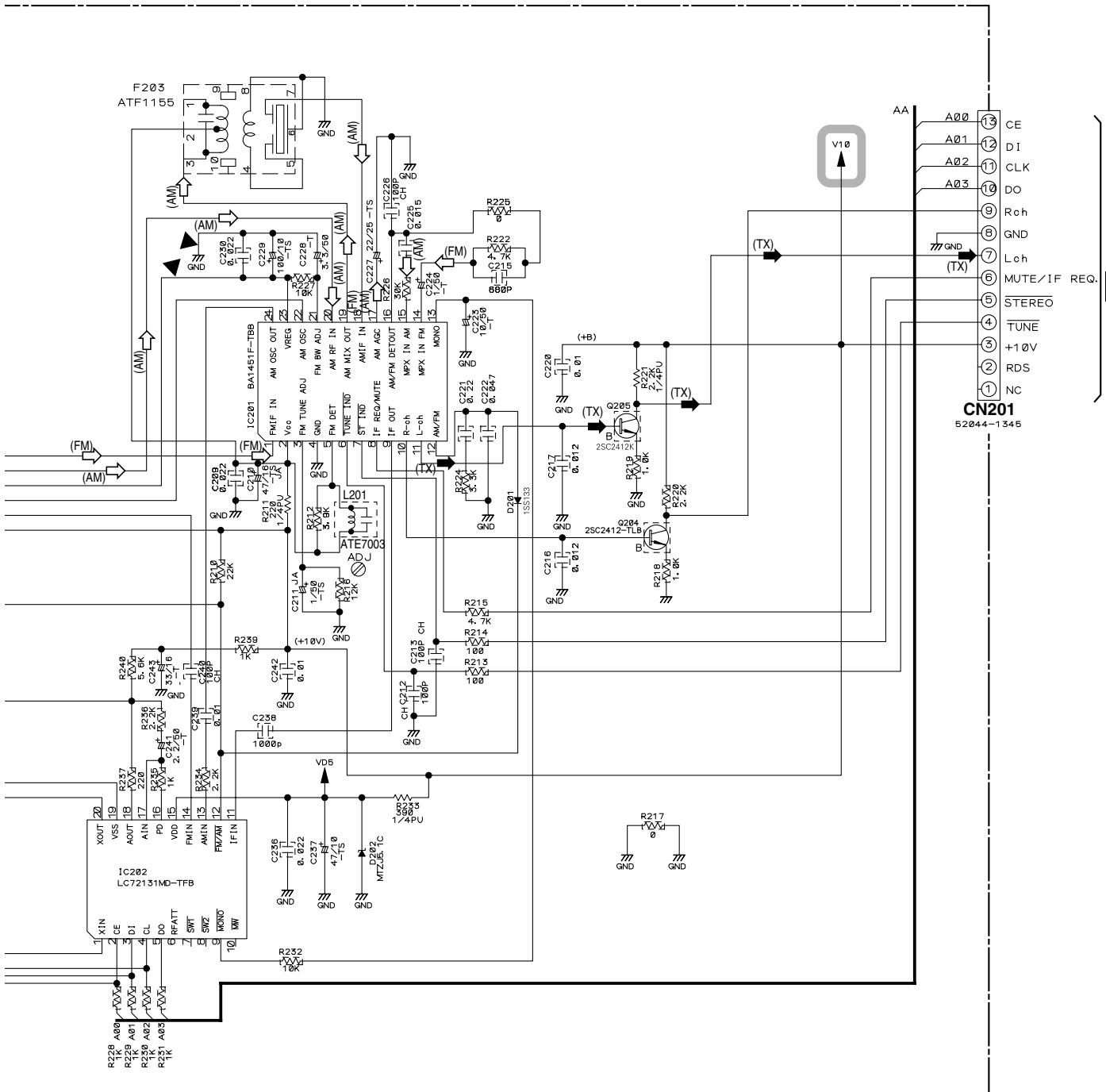
No mark diode is 1SS133.

 : The power supply is shown with the marked box.

(TX)  : AUDIO SIGNAL ROUTE (TUNER)

(AM)  : AM SIGNAL ROUTE

(FM)  : FM SIGNAL ROUTE



3.5 DVDM ASSY(1/3)

A

B 1/3 DVDM ASSY (AWM7808/XV-EV61) (AWM7809/XV-EV31)

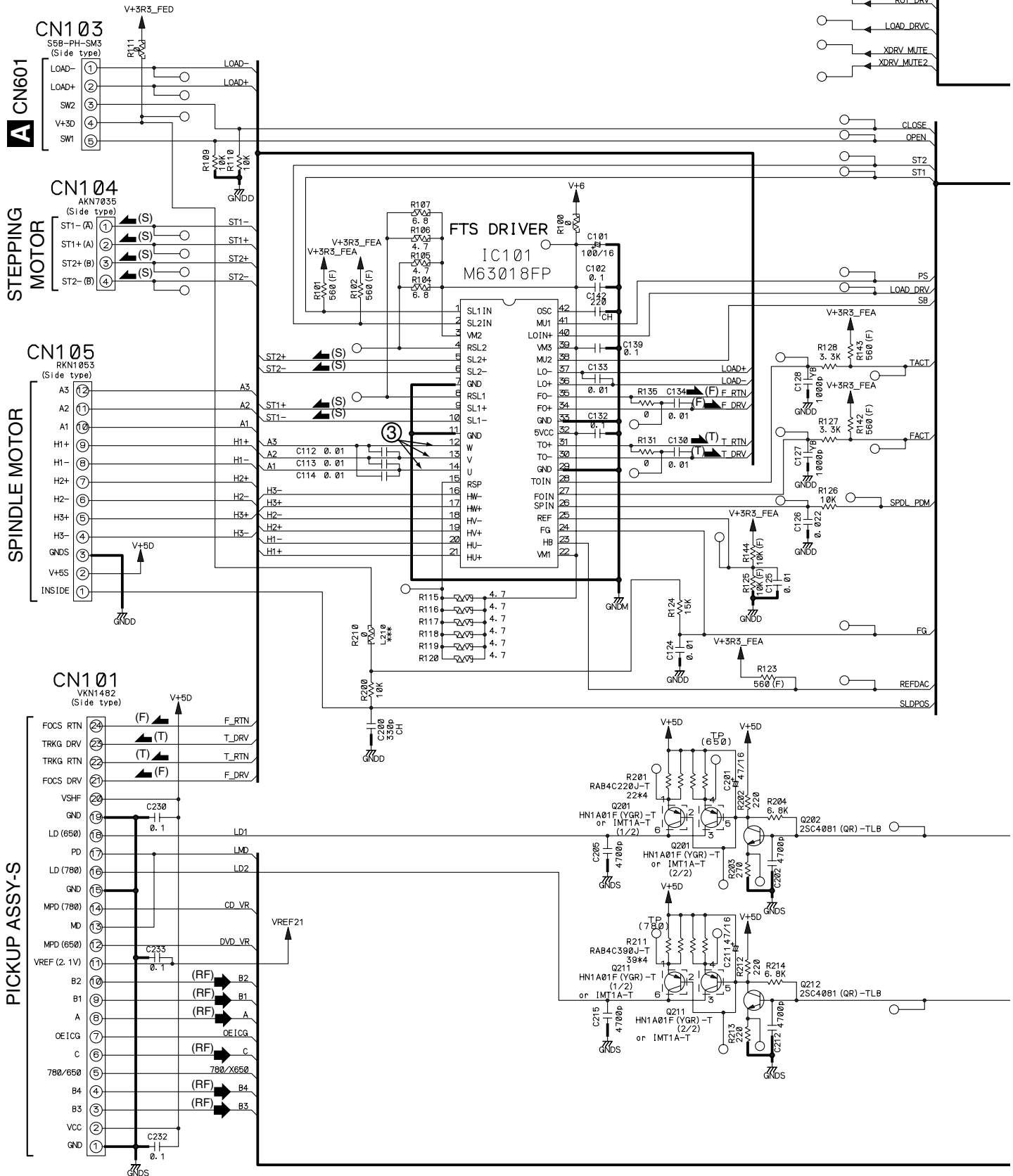
B

C

D

E

F



B 1/3

- B 2/3**



4

A



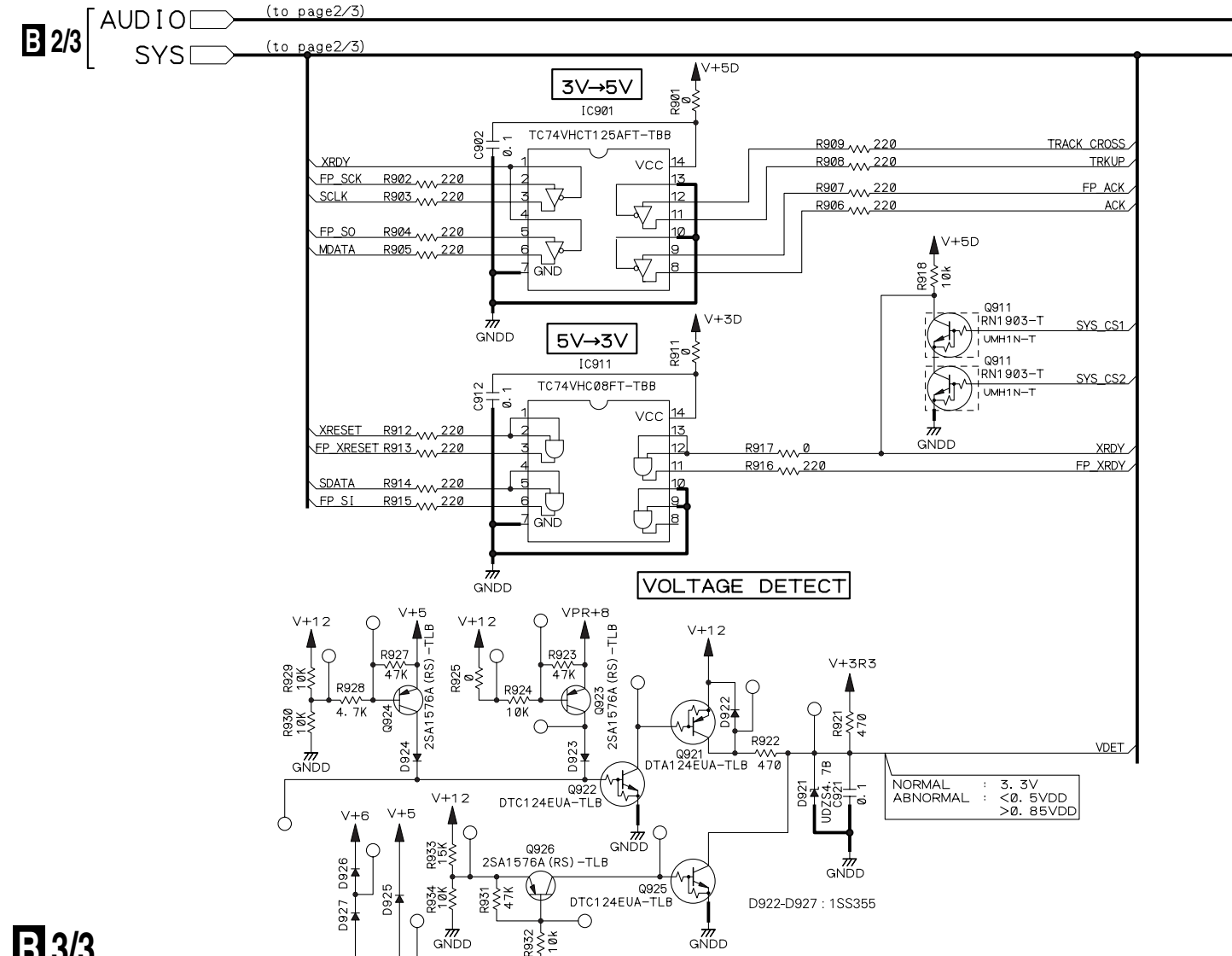
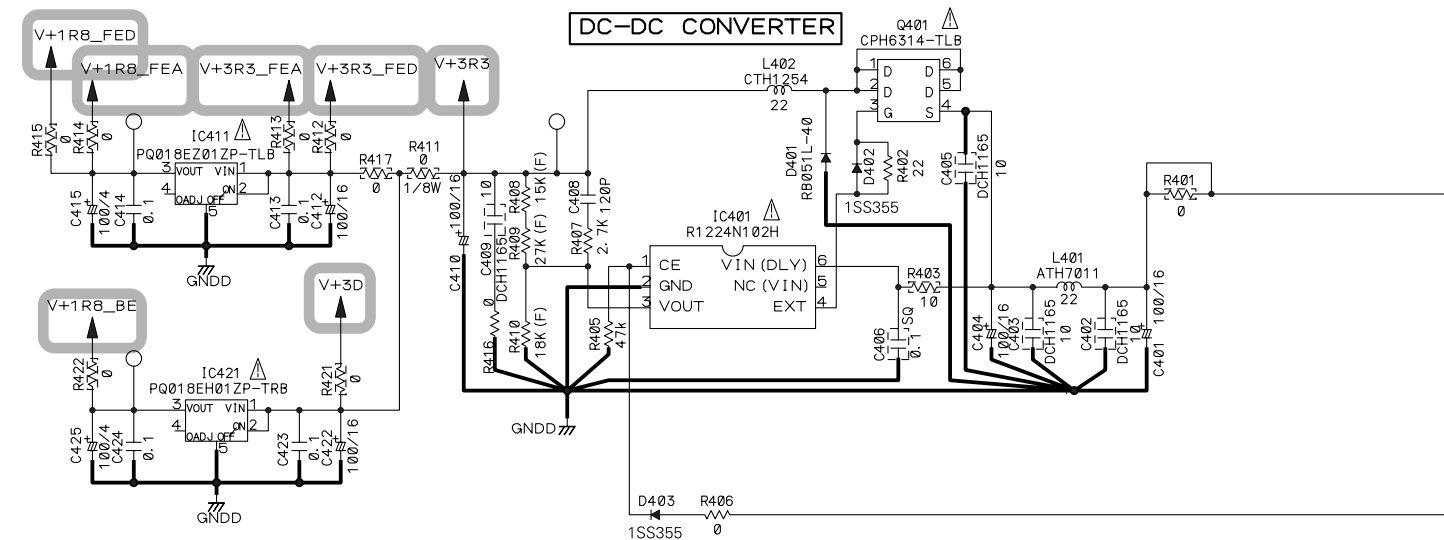
C

D

F

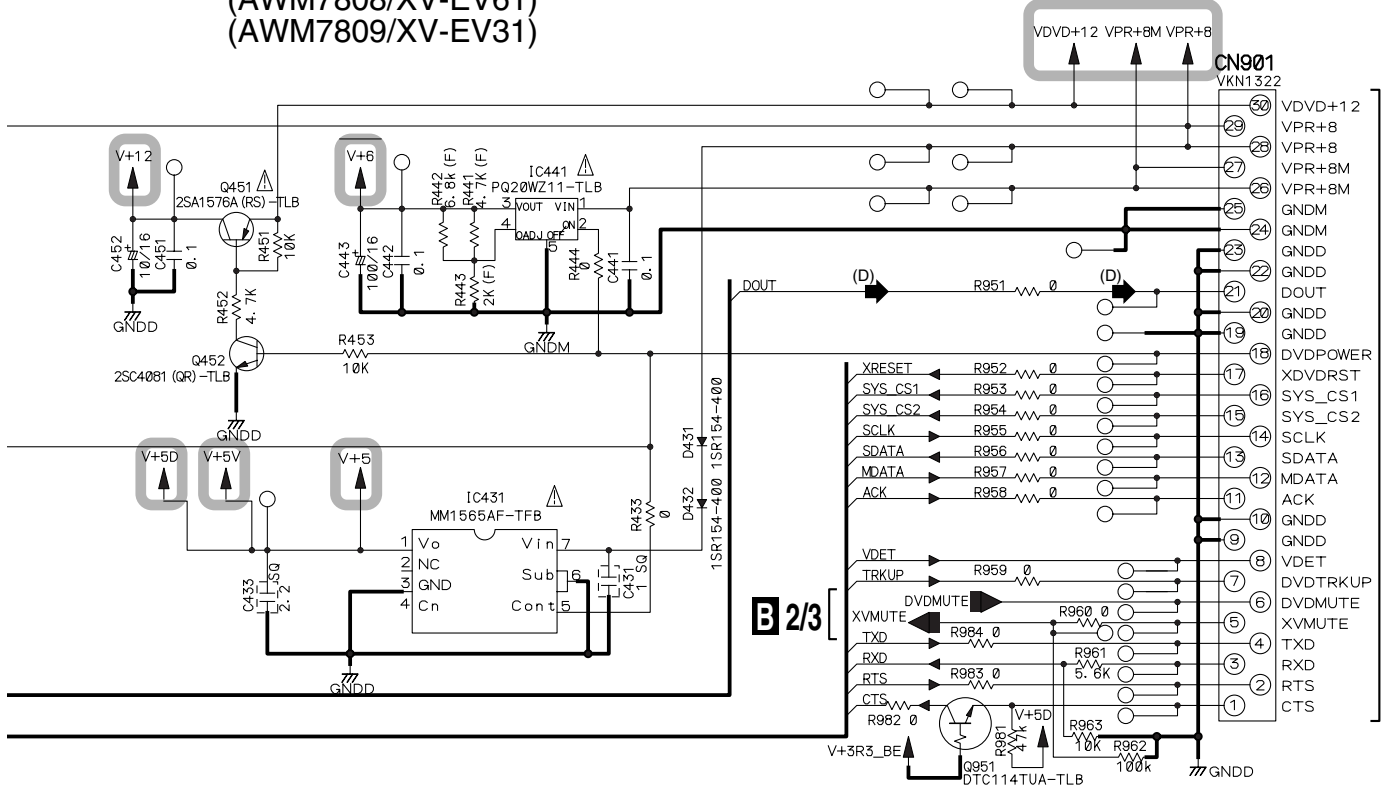
F

3.7 DVDM ASSY(3/3)

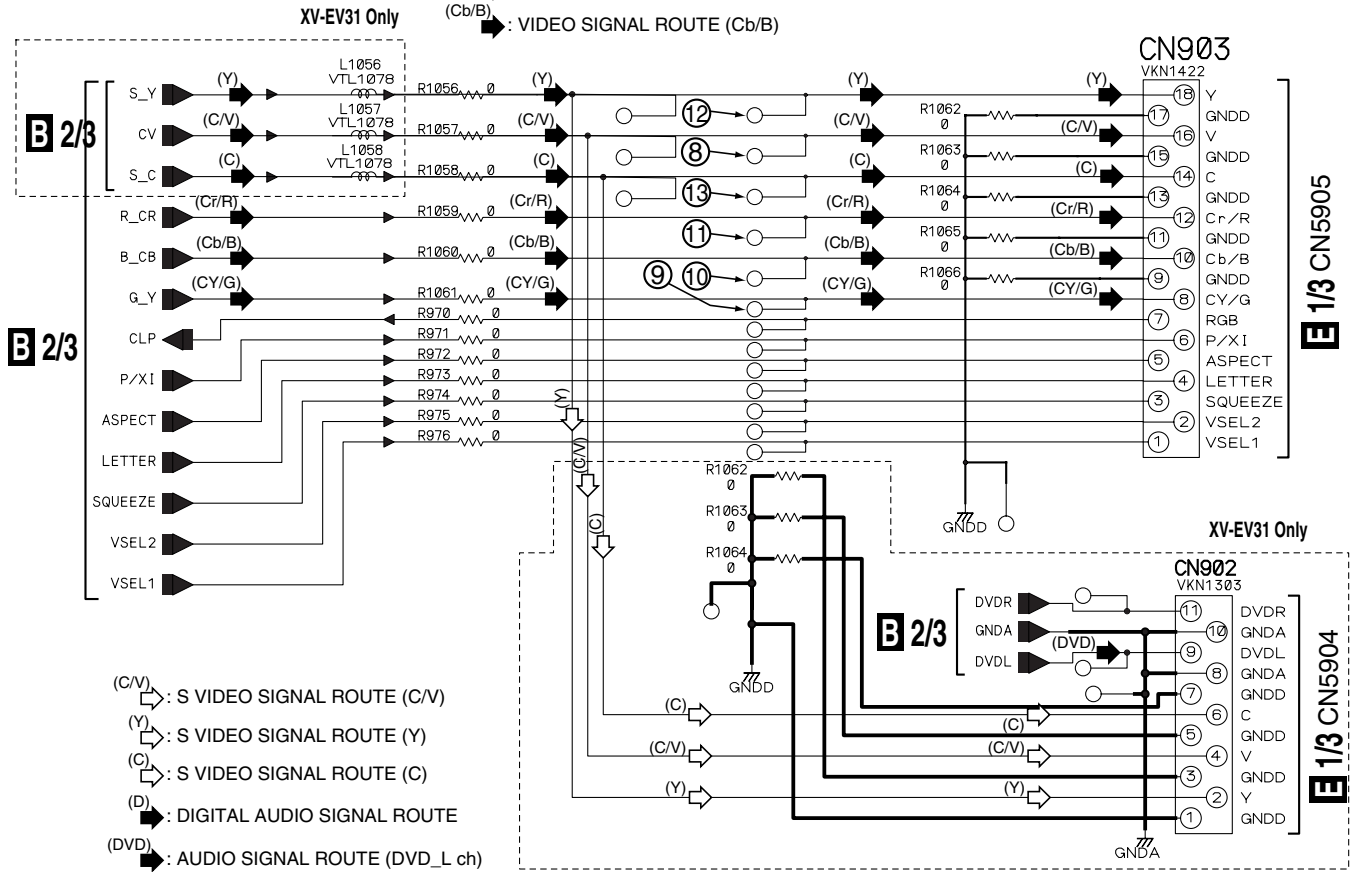


B 3/3 DVDM ASSY (AWM7808/XV-EV61) (AWM7809/XV-EV31)

 : The power supply is shown with the marked box.



(Cr/R) : VIDEO SIGNAL ROUTE (Cr/R)
(CY/G) : VIDEO SIGNAL ROUTE (CY/G)
(Cb/B) : VIDEO SIGNAL ROUTE (Cb/B)



B 3/3

3.8 DECK ASSY

A

B

C

D

E

F

D DECK ASSY
(XWX3072/XV-EV61)
(XWX3073/XV-EV31)

PB AMP

REC EQ AMP

BIAS OSC.
105KHz

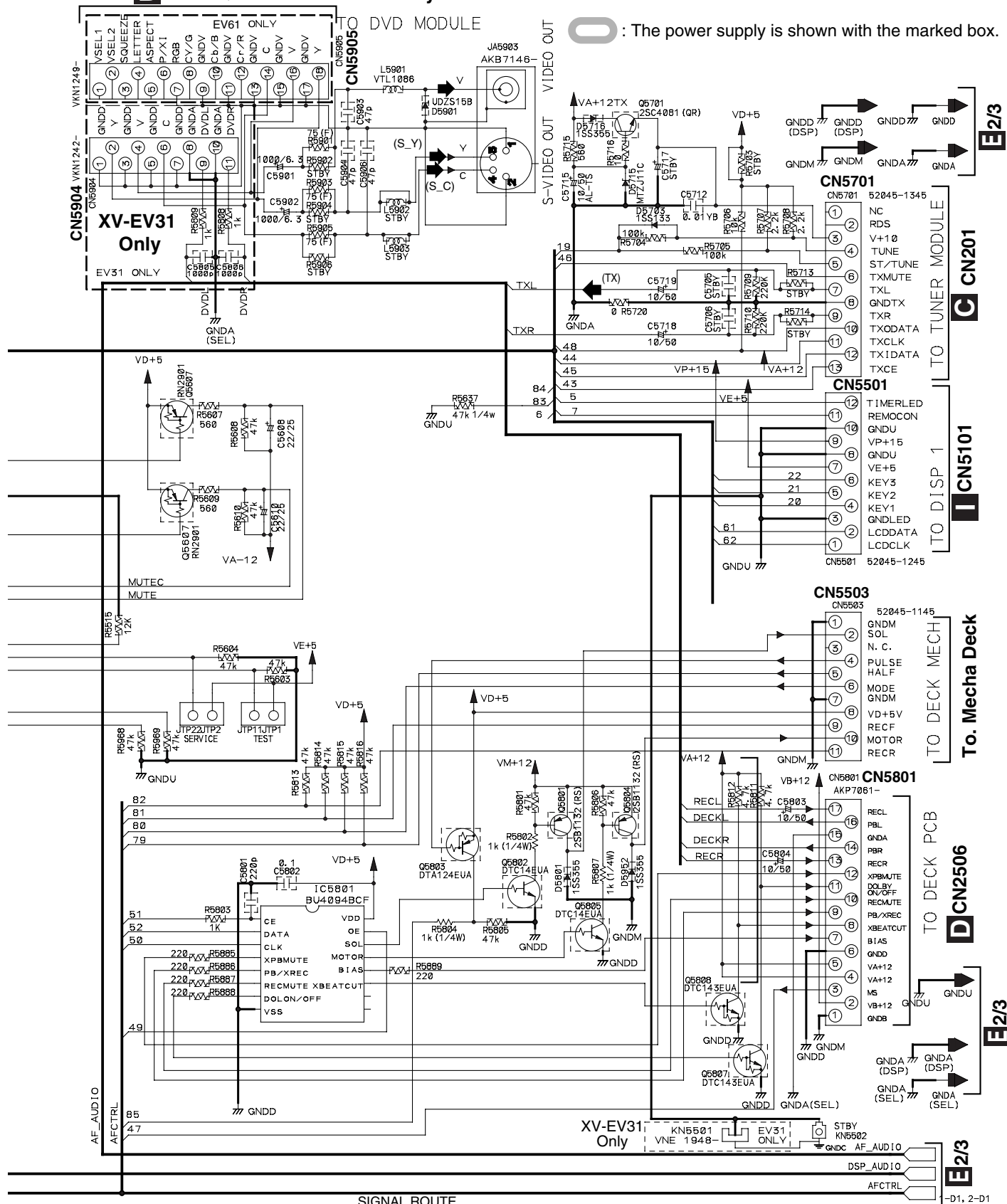
NOTES

ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED
CH:CCSRCH***
YF:CKSRYF***
OTHER:CKSRYB***
M:CQMA***
HA:CQHA***
MB:CQMA***
TS:CE*****TS
JQ:CEJQ*****
AL:CEAL*****
(OTHER : CEAT*****)

XV-EV61

B CN903,CN902 XV-EV61 Only

O : The power supply is shown with the marked box.



SIGNAL ROUTE

- (CD) : CD AUDIO SIGNAL ROUTE
- (TX) : AUDIO SIGNAL ROUTE (TUNER)
- (D) : DIGITAL SIGNAL ROUTE
- (V) : V SIGNAL ROUTE
- (S.C) : S-VIDEO OUT C SIGNAL ROUTE
- (S.Y) : S-VIDEO OUT Y SIGNAL ROUTE



A

B

C

D

E

F





F

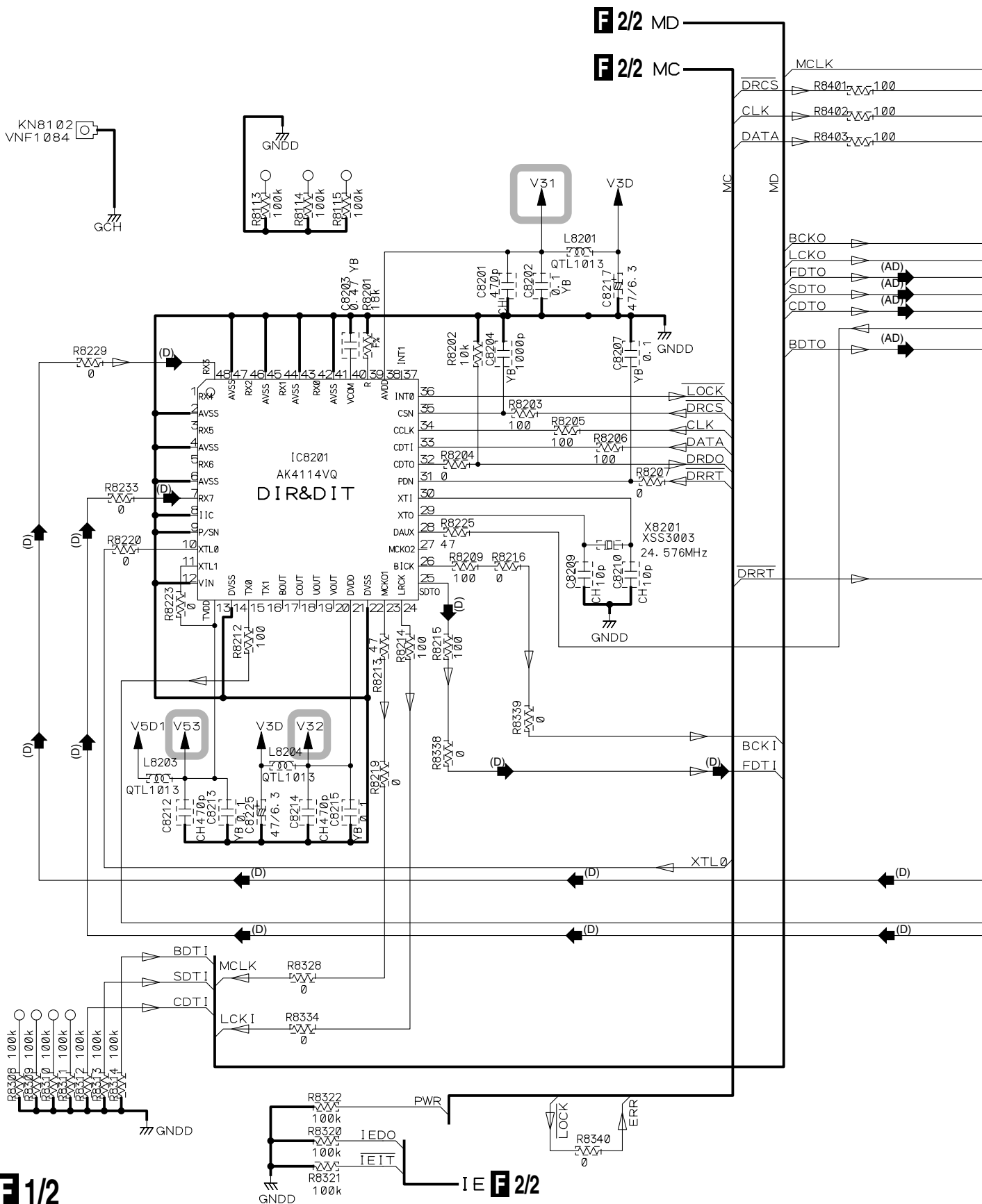
F

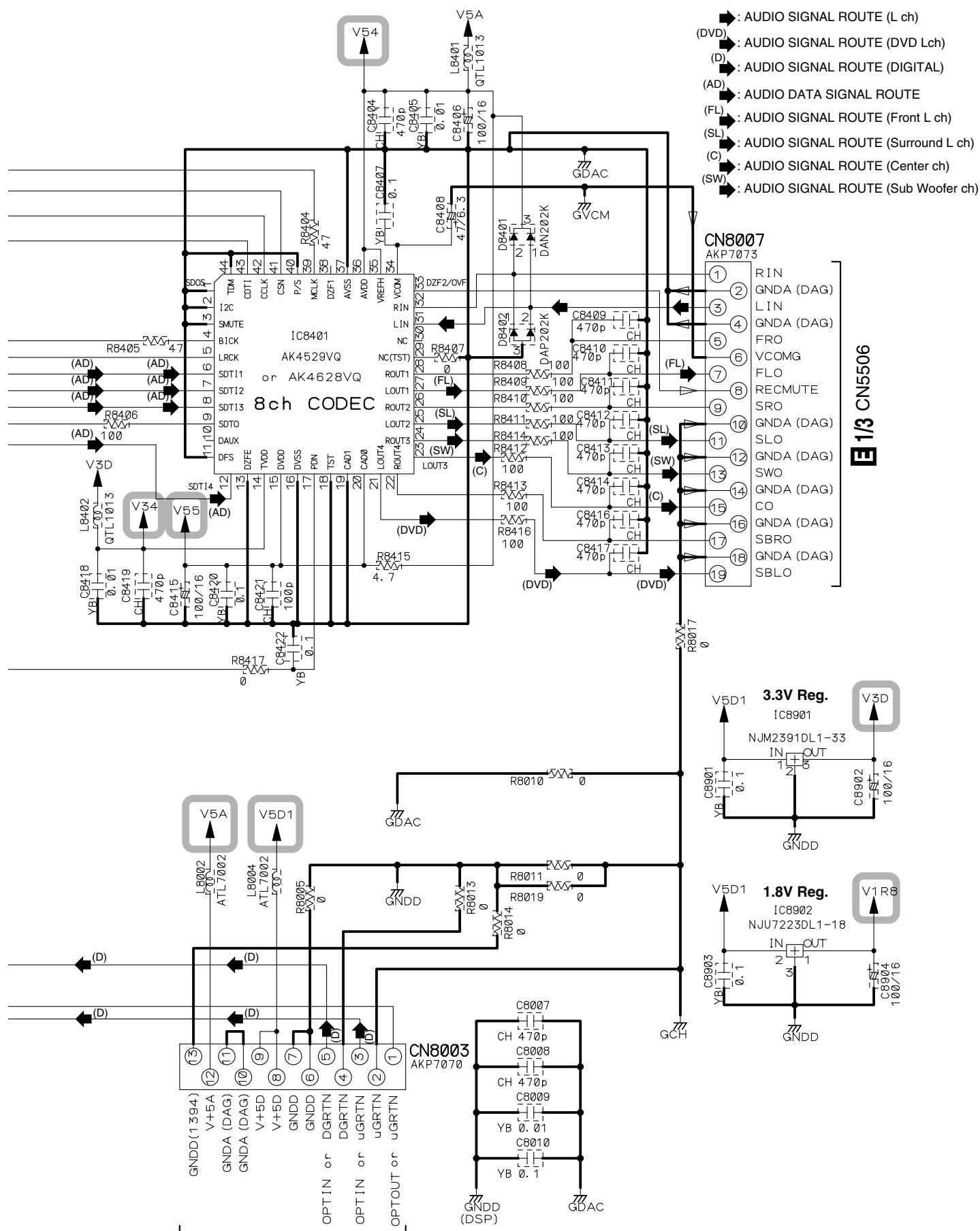


E 3/3

3.12 DSP ASSY(1/2)

F 1/2 DSP ASSY (AWX8254)
XV-EV61 : Only





A

B

C

D

E

F



3.14 DISP ASSY

NOTES

ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED

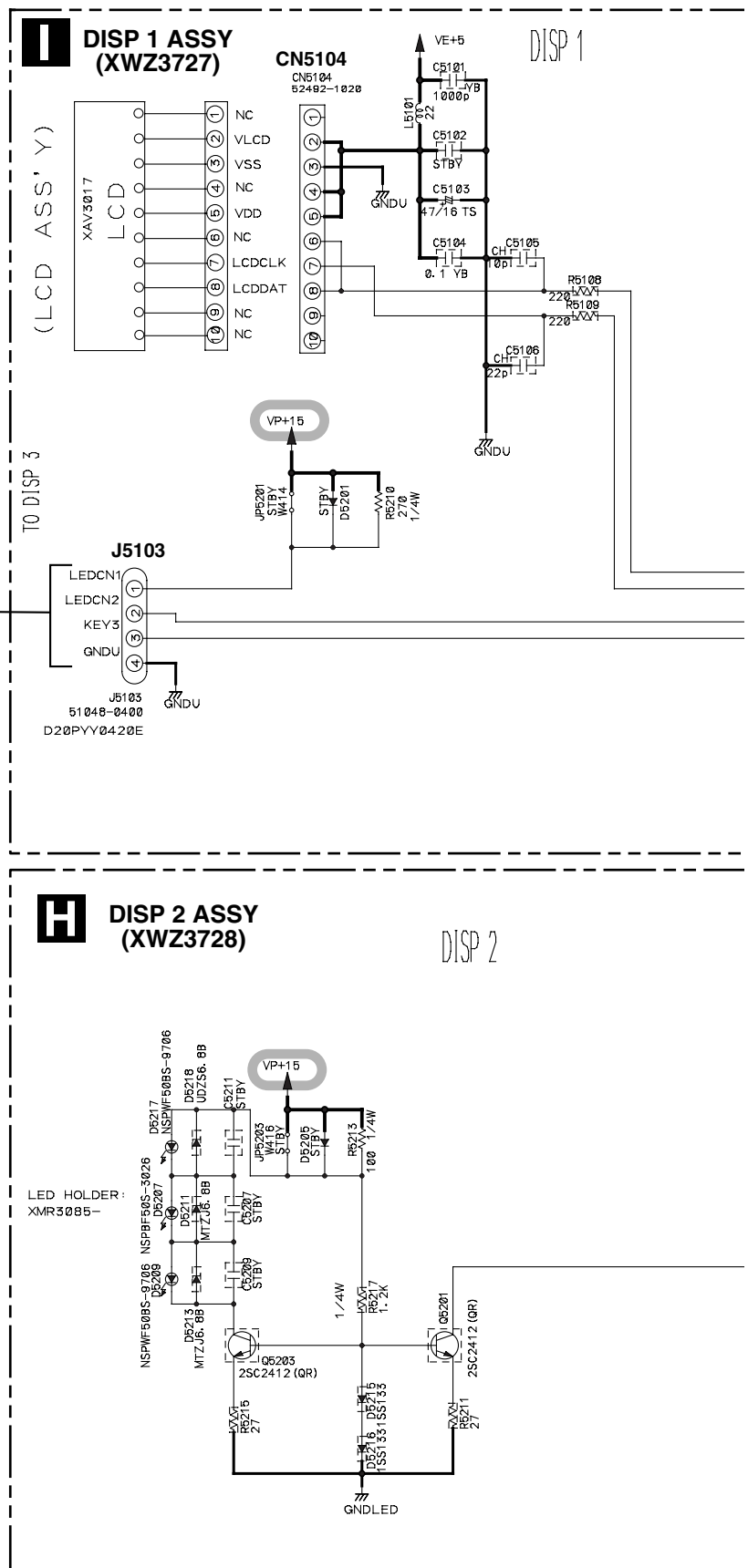
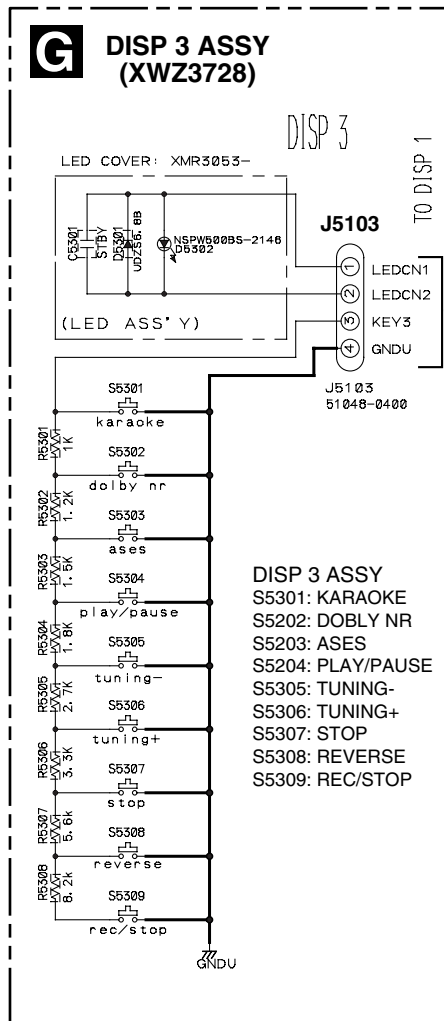
	CH : CCSRCH (OTHER : CKSRVB)
	TY : CFTYA
	AL : CEAL (OTHER : CEAT)

ALL RESISTORS ARE IN Ω

ALL DIODE

11:1 SS355

→ : 1SS133



A



F

3.15 MIC ASSY

NOTES

ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED

ALL RESISTORS ARE IN Ω
UNLESS OTHERWISE SPECIFIED.

CH:CCSRCH*** (OTHER:CKSRYB***)

RS1/16S***J

TS:CE***M##-TS

RD1/4PU***J

JQ:CEJQ***M##-*

DIODES

AL:CEAL***M##-*

MTZJ***

OTHER : CEAT***M##

ALL INDUCTORS ARE IN μ H
UNLESS OTHERWISE SPECIFIED.

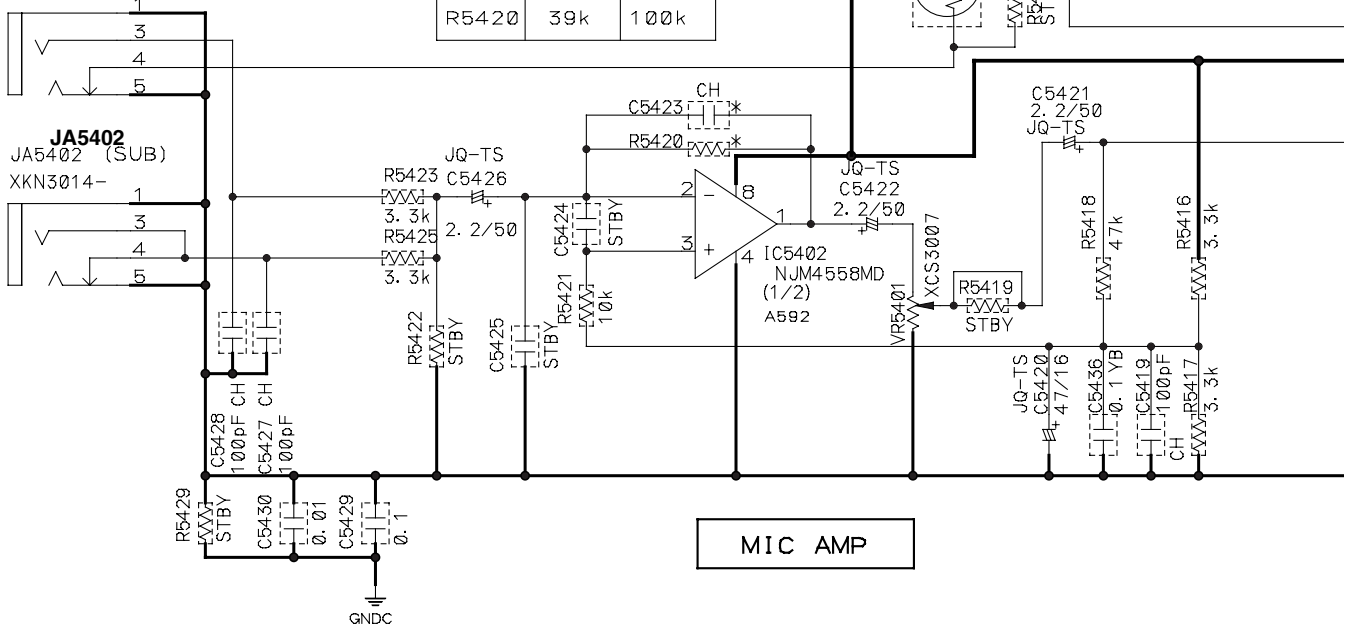
LAU***J

JA5401

	EV61	EV31
C5423	1000pF	330pF
R5420	39k	100k

JA5401 (MAIN)
XKN3014-

JA5402 (SUB)
XKN3014-



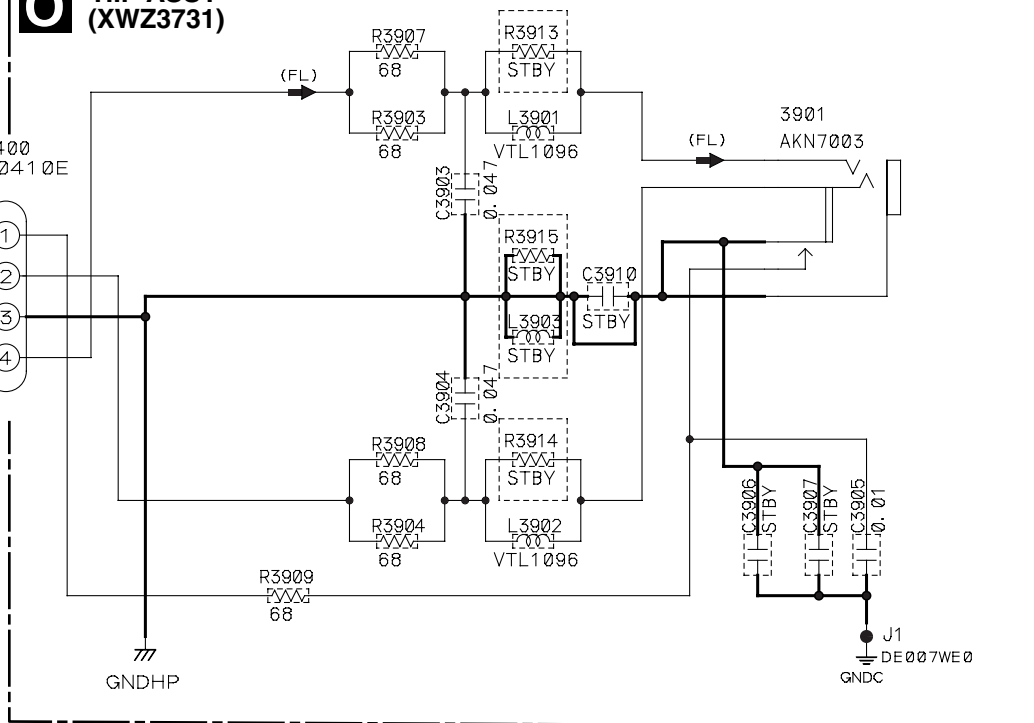
H.P ASSY
(XWZ3731)

51048-0400
D20PYY0410E
J3902

CN3008

HPDET
HP R
GNDHP
HP L

TO EVOL ASSY



XV-EV61

3.16 EVOL ASSY

A

B

C

D

E

F

K

NOTES

ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED
CH : CCSRCH (OTHER : CKSRBY)
TY : CFTYA
AL : CEAL (OTHER : CEAT)

ALL DIODE
1SS355
1SS133

ALL RESISTORS ARE IN Ω

RD1/2PU***J

RD1/4PU***J

RS1/16S***J

52044-3045

CN3001

52044-3045

C

GND A

SL

GND A

SR

GND A

SW

GND A

FL

GND A

FR

GND A

XPROTECT

XTUNER

SUBAC

HPDET

XHPMUTE

E DATA

E CLK

E MUTE

SYSPOW

HPAC1

MUTE

RY_F

RY_F

RY_F

MUTE

GNDHP

LVLSHIFT

VE+56

GNDU

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

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VA+12TX

VA+12

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VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

VA+12

VA+12TX

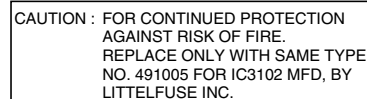
VA+12

VA+12TX

CN3 TO SECONDARY ASSY

J3902 TO HP ASSY

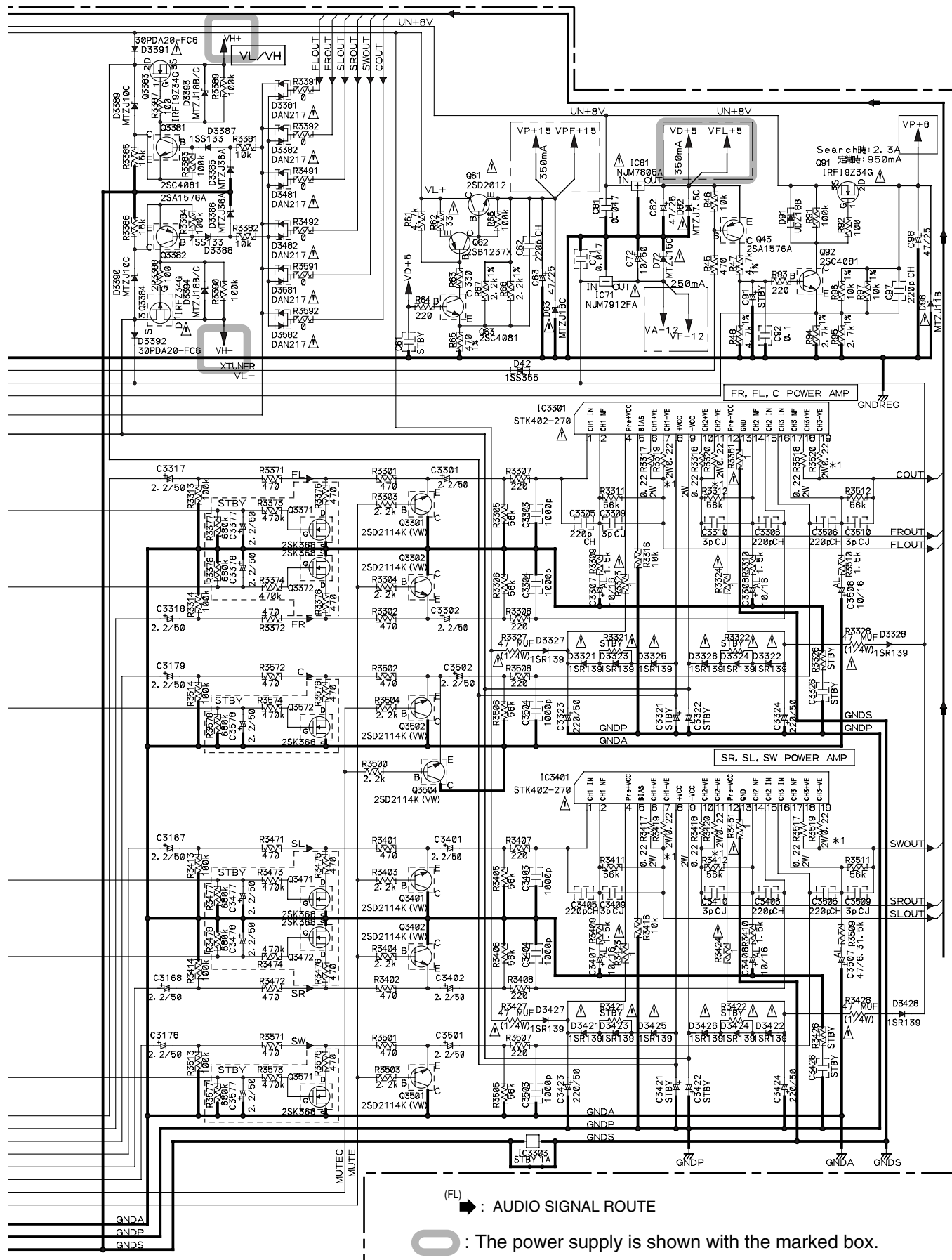
XV-EV61



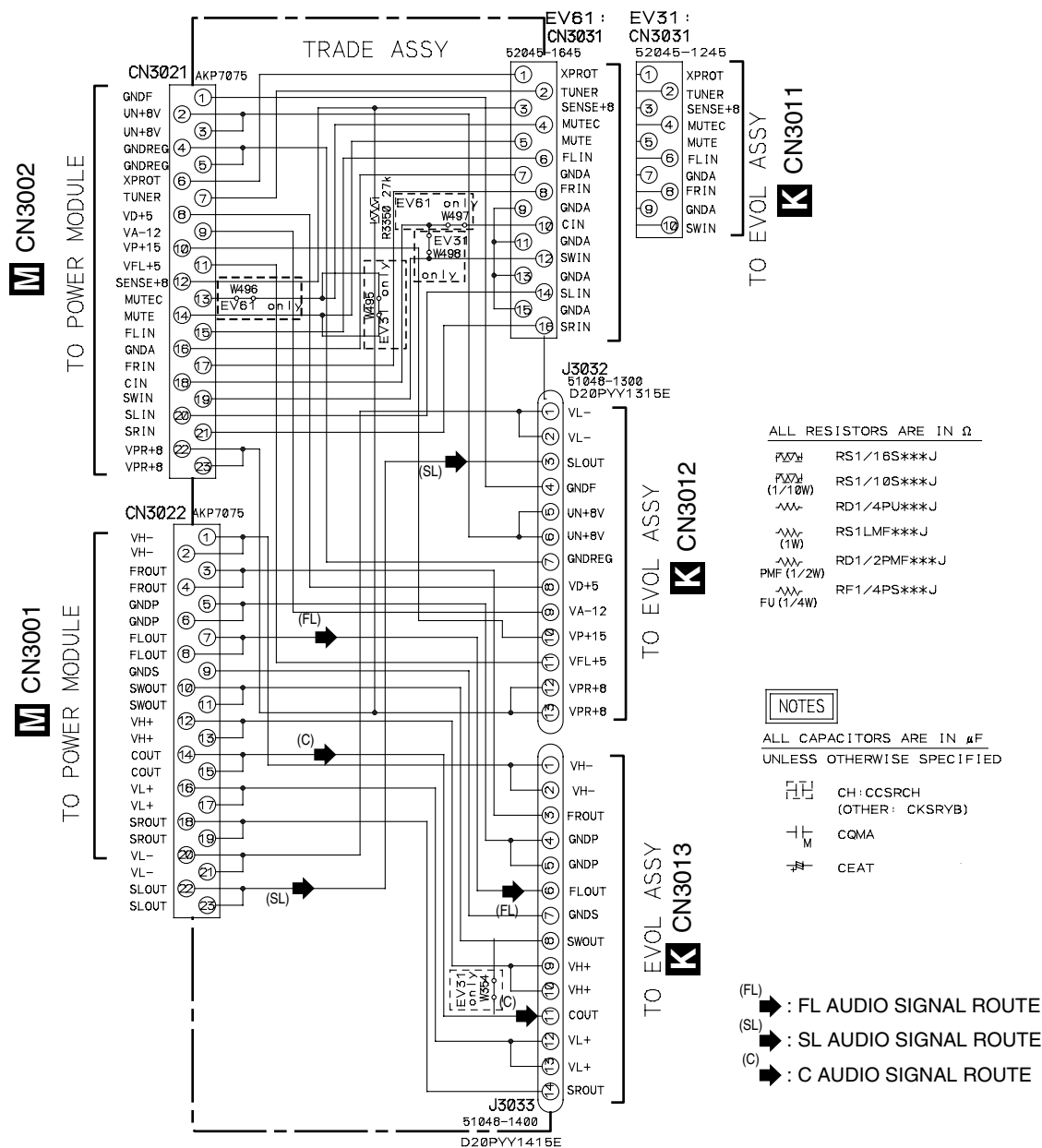
: The power supply is shown with the marked box.

M MOD. AMP ASSY
(AWM7720/XV-EV61)
(AWM7787/XV-EV31)





L TRADE ASSY
(XWZ3740 / XV-EV61)
(XWZ3745 / XV-EV31)



ALL RESISTORS ARE IN Ω

RS1/16S***J

RS1/10S***J

RD1/4PU***J

RS1LMF***J

RD1/2PMF***

PMF (1/2W) DE1 /4PS*** I

FU (1/4W)

NOTES

ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED

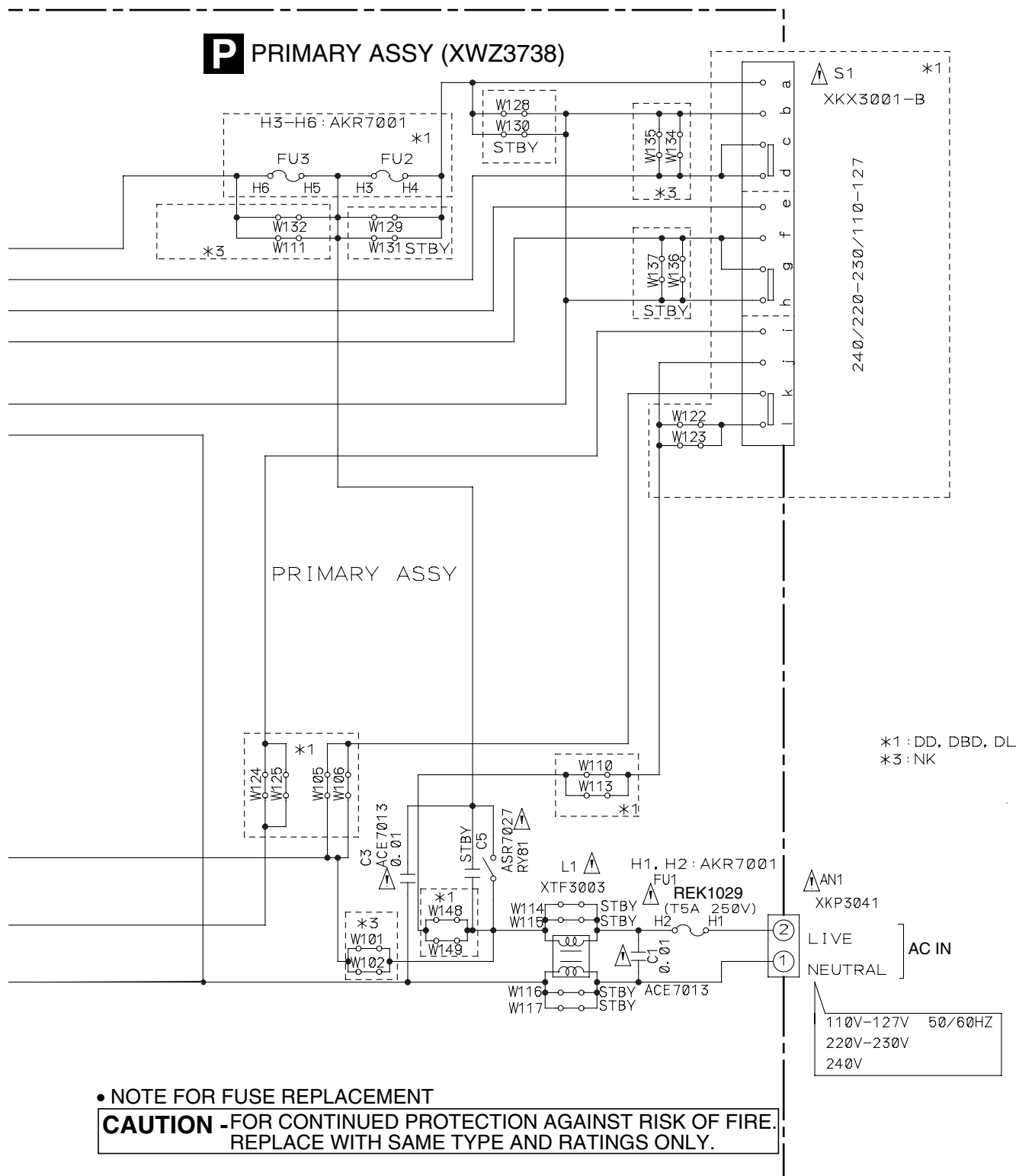
CH:CCSRCH
(OTHER: CKSRYB)

—||— CQMA

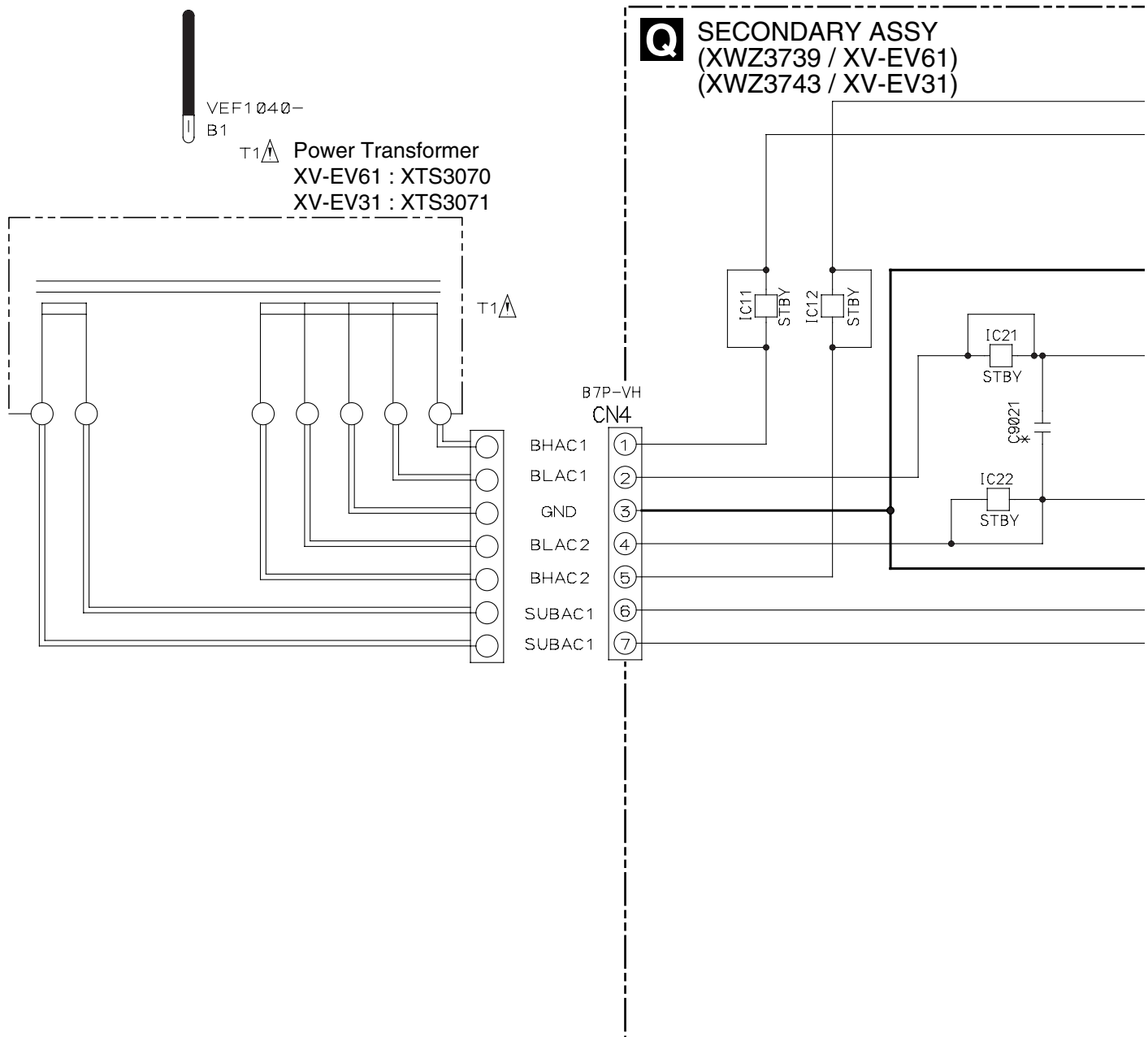
 CEAT

(FL) ➡ : FL AUDIO SIGNAL ROUTE
(SL) ➡ : SL AUDIO SIGNAL ROUTE
(C) ➡ : C AUDIO SIGNAL ROUTE

	T1	FU1	FU2, FU3
EV61	XTS3070	AEK1061 (5A) 250V	AEK1058 (2.5A) 250V
EV31	XTS3071	AEK1061 (5A)	AEK1059 (3.15A) 250V



3.20 SECONDARY ASSY



NOTES

ALL CAPACITORS ARE IN μ F
UNLESS OTHERWISE SPECIFIED

YF : CKSRYF
(OTHER : CKSRYB)

M : CQ MBA

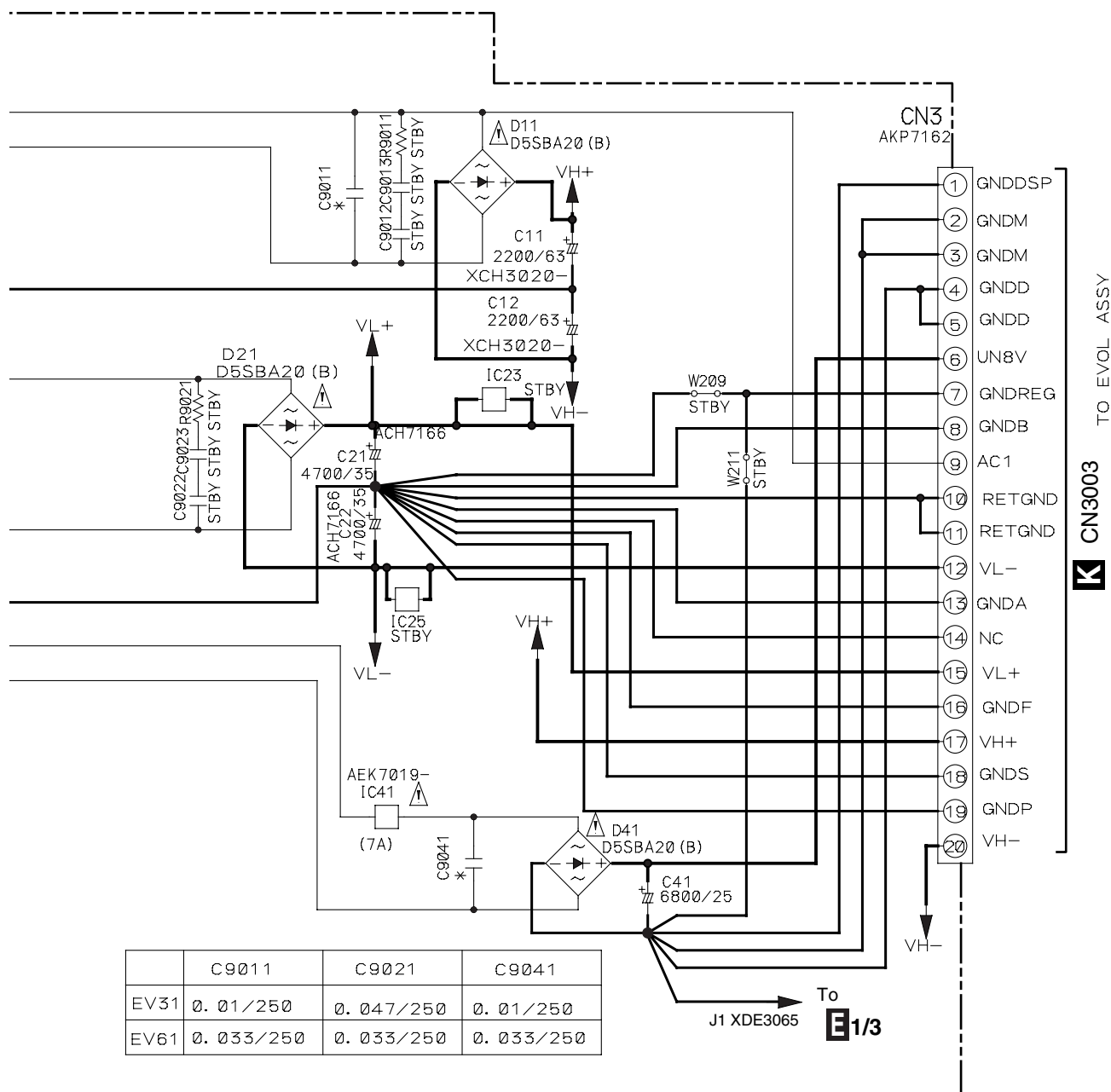
AL : CEAL
(OTHER : CEAT**M##)

ALL RESISTORS ARE IN Ω

1/16W
1/4WPU

DIODE

1SS133
1SS355



CAUTION : FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE
NO. 491005 FOR IC31 AND IC41
MFD, BY LITTELFUSE INC.

CAUTION : FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE
NO. 491007 FOR IC21 AND IC22
MFD, BY LITTELFUSE INC.

CAUTION : FOR CONTINUED PROTECTION
AGAINST RISK OF FIRE.
REPLACE ONLY WITH SAME TYPE
NO. 491010 FOR IC11 AND IC12
MFD, BY LITTELFUSE INC.

4. PCB CONNECTION DIAGRAM

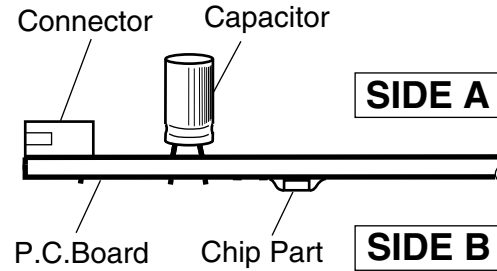
4.1 LOAB ASSY

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

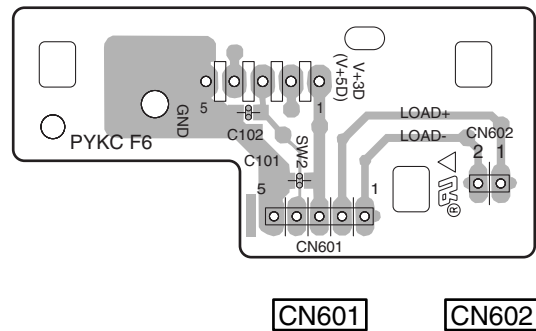
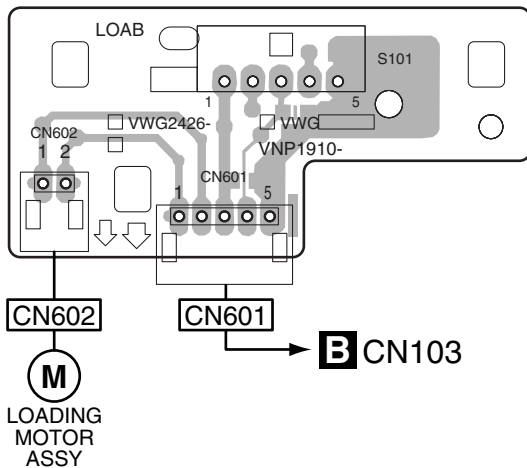
3. The parts mounted on this PCB include all necessary parts for several destinations.
- For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.



SIDE A

SIDE B

A LOAB ASSY (VNP1910-A)



4.3 DVDM ASSY

SIDE A

SIDE A

B DVDM ASSY

E

CN5903

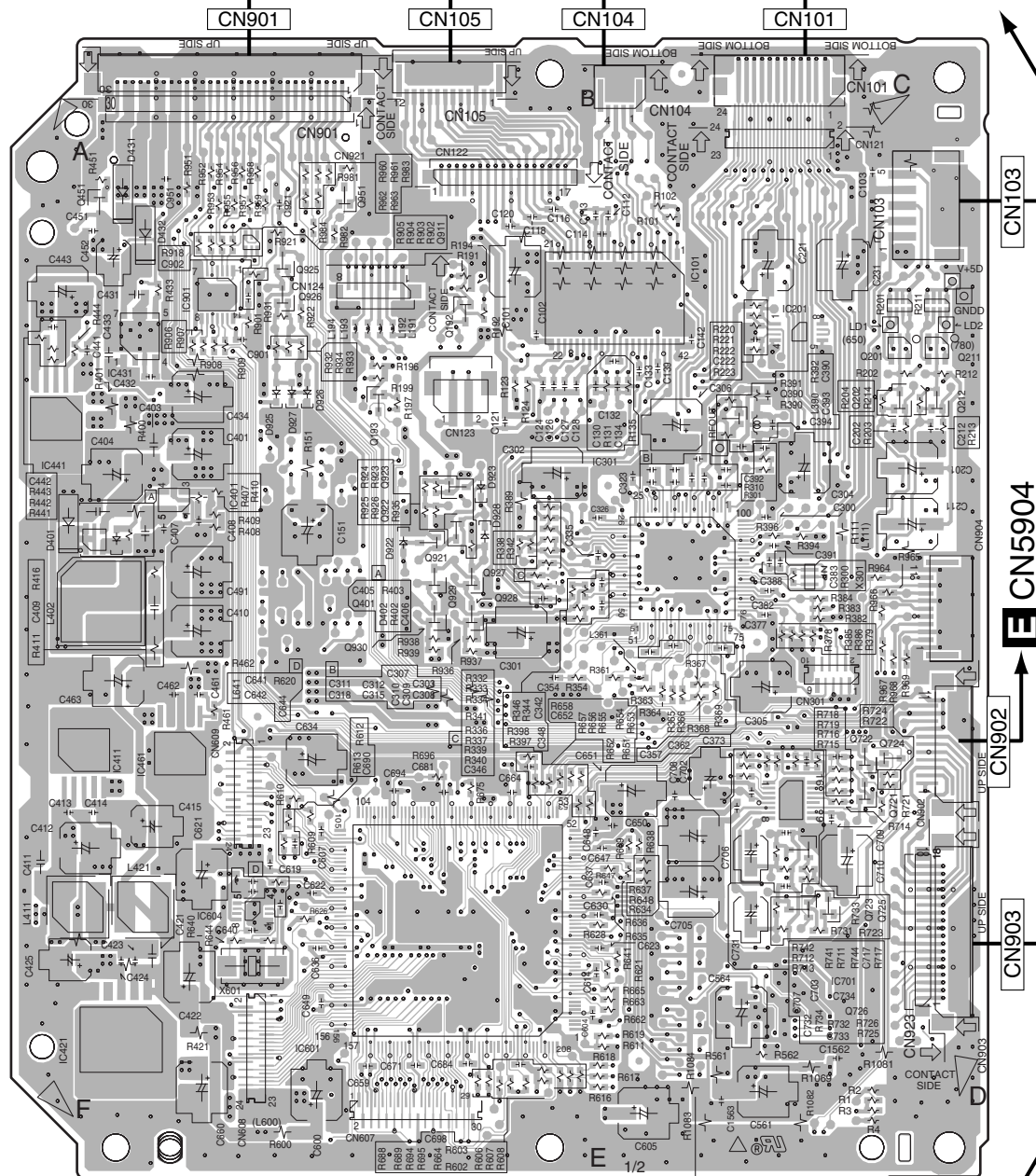
SPINDLE MOTOR

STEPPING MOTOR

PICKUP ASSY

CN1013

A CN601



(ANP7463-B)

E

CN5905

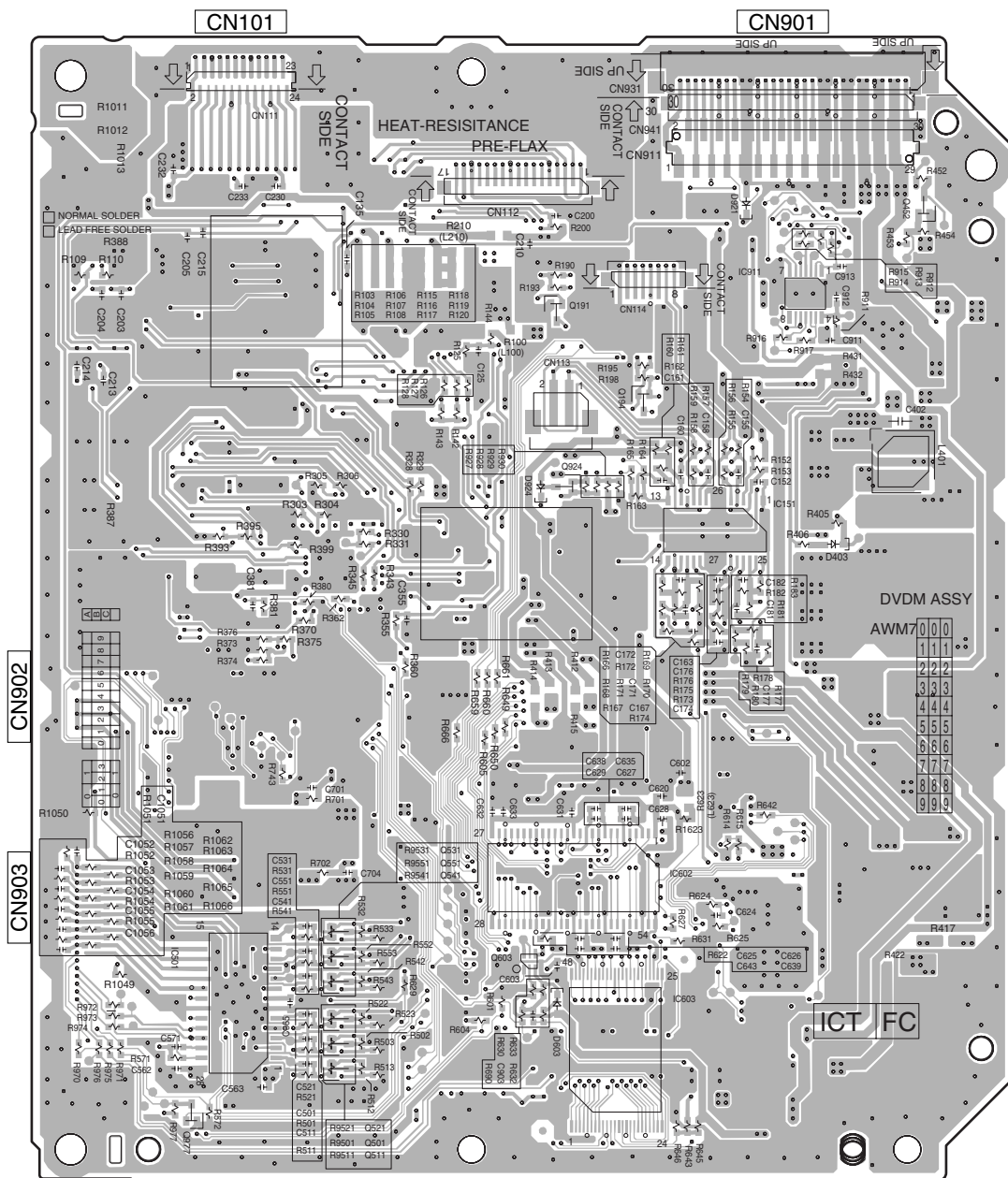
B

B

SIDE B

SIDE B

B DVDM ASSY



(ANP7463-B)

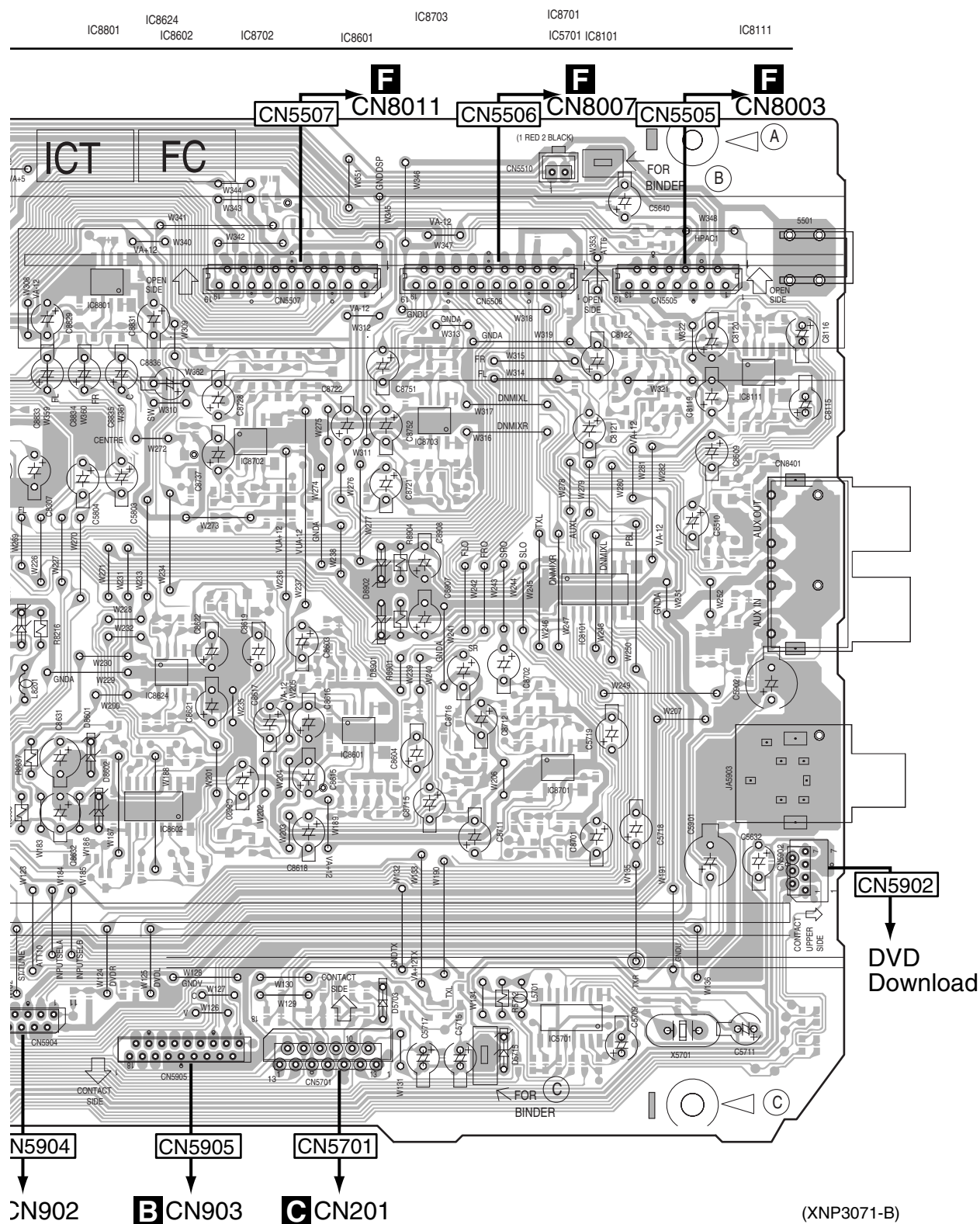
- IC603
- Q603 Q452 IC501
- Q541 IC602 IC911
- Q551
- Q531
- Q191
- Q194
- Q924
- IC151
- IC151
- Q924
- Q194
- Q191
- Q531
- Q551
- Q541 IC911 IC602
- IC501
- Q452 Q603
- IC603
- Q977 Q521
- Q501
- Q511

B

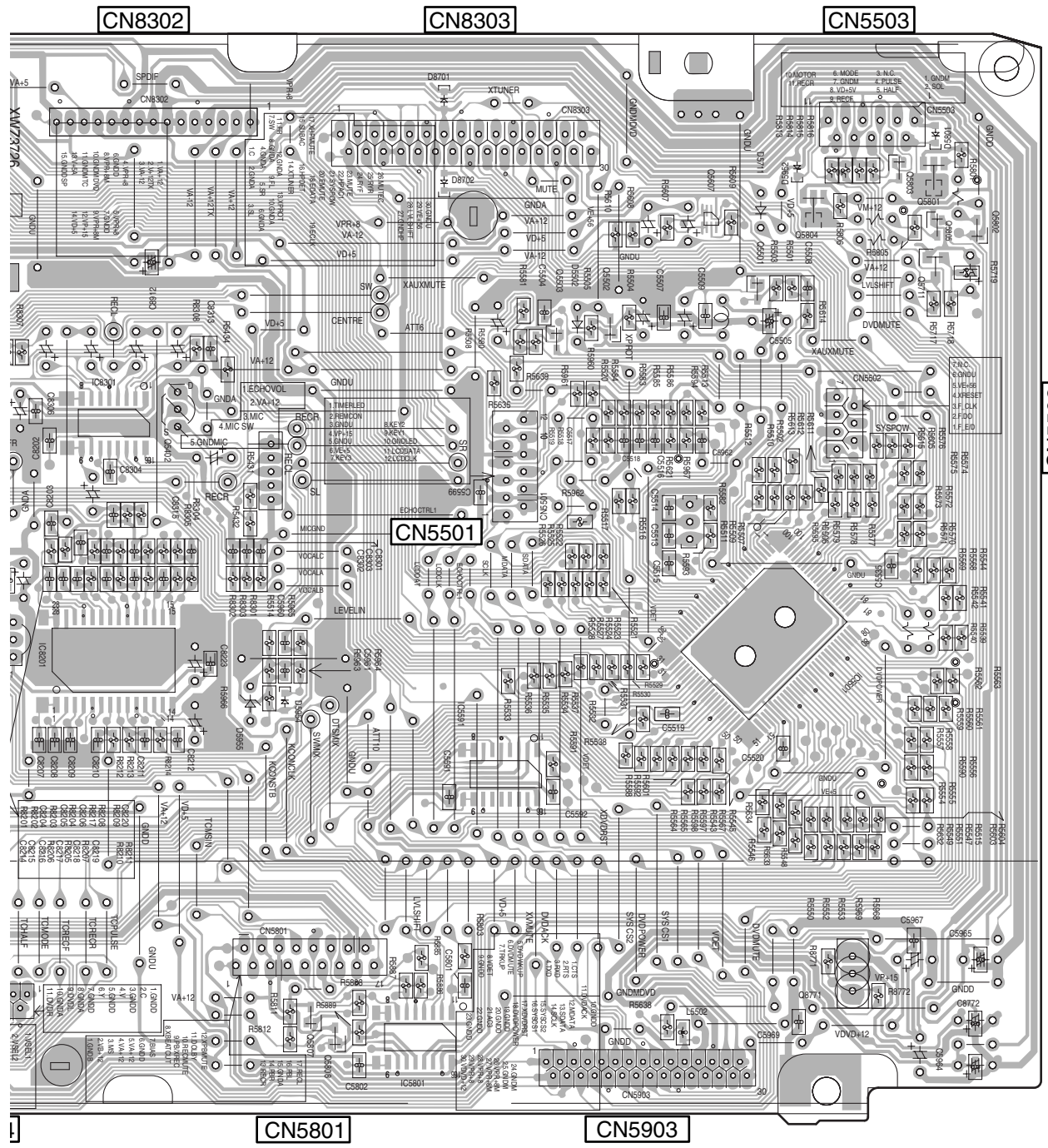
B

SIDE A

A



IC8201	IC8301	Q5807	Q5808	IC5801	IC5591	Q5503	Q5502	Q5607	Q8771	IC5501	Q5711	Q5803	Q5801	Q5805	Q5802
--------	--------	-------	-------	--------	--------	-------	-------	-------	-------	--------	-------	-------	-------	-------	-------



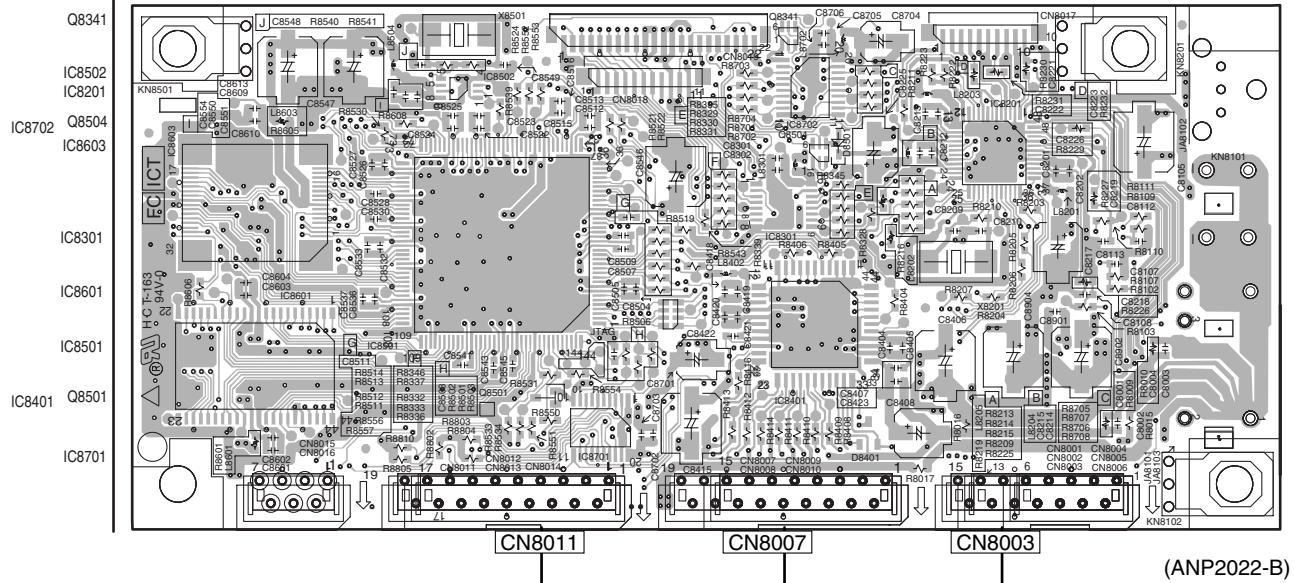
(XNP3071-B)

4.5 DSP ASSY (XV-EV61 Only)

SIDE A

SIDE A

F DSP ASSY(XV-EV61_Only)

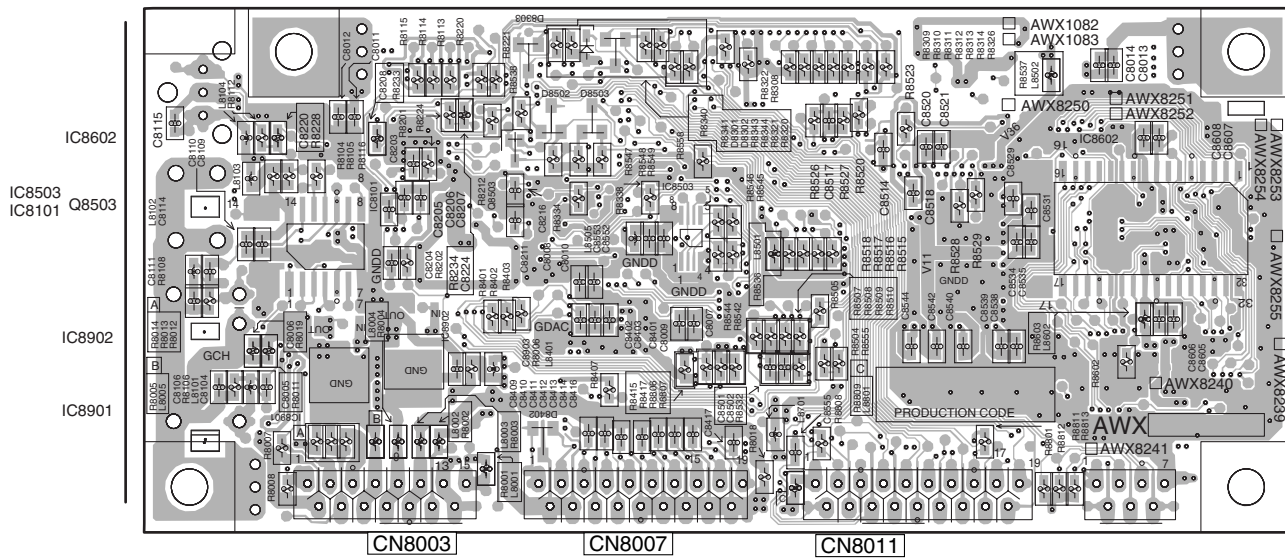


E CN5507

E CN5506

E CN5505

SIDE B



(ANP2022-B)

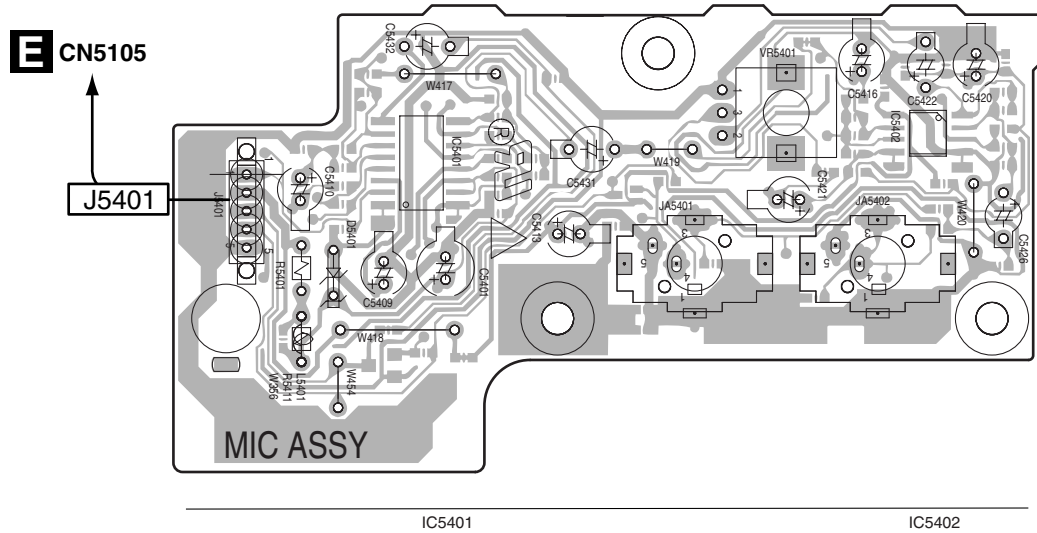
XV-EV61

4.6 MIC ASSY

SIDE A

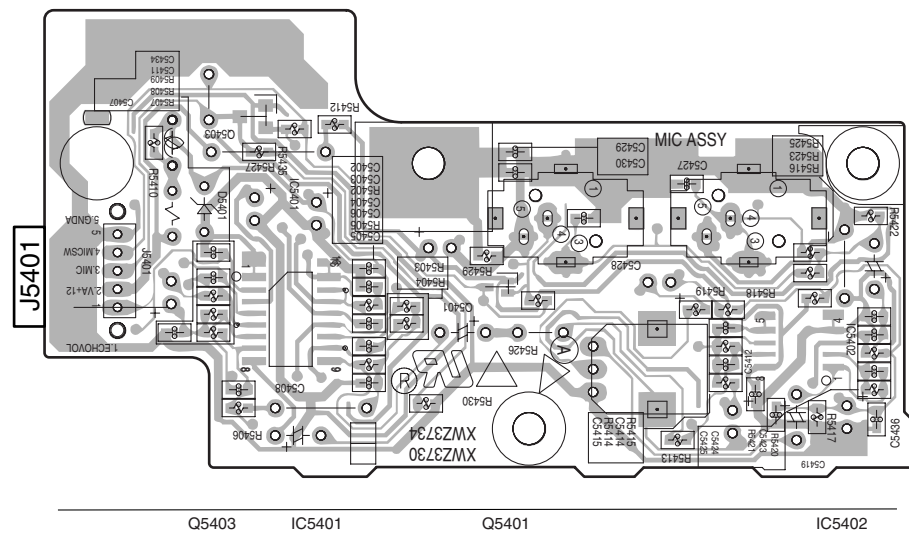
SIDE A

J MIC ASSY



(XNP3071-B)

SIDE B



(XNP3071-B)

J

J

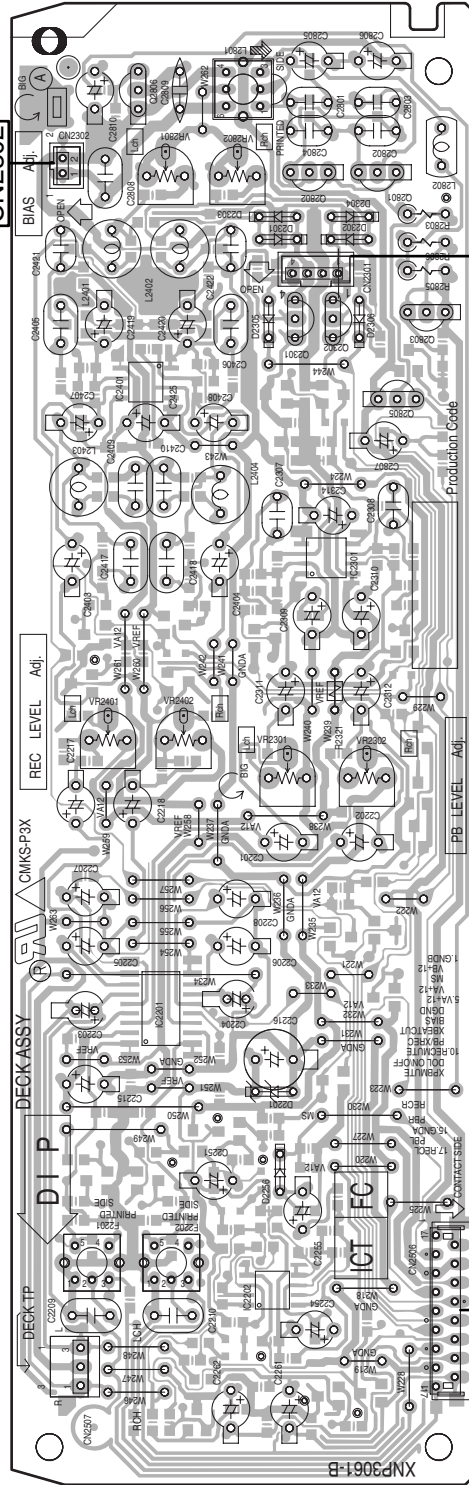
4.7 DECK ASSY

SIDE A

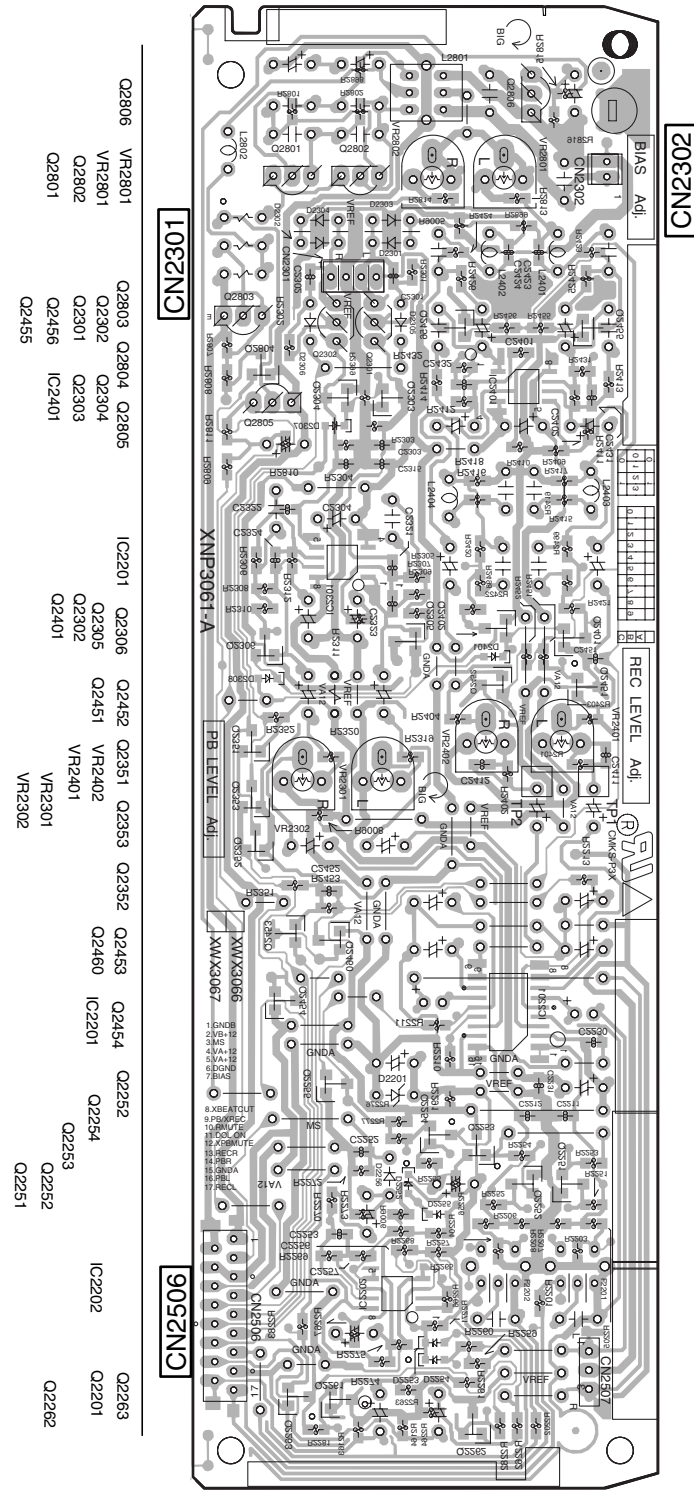
DECK ASSY

DECK MECHA

DECK MECHA



(XNP3061-B)

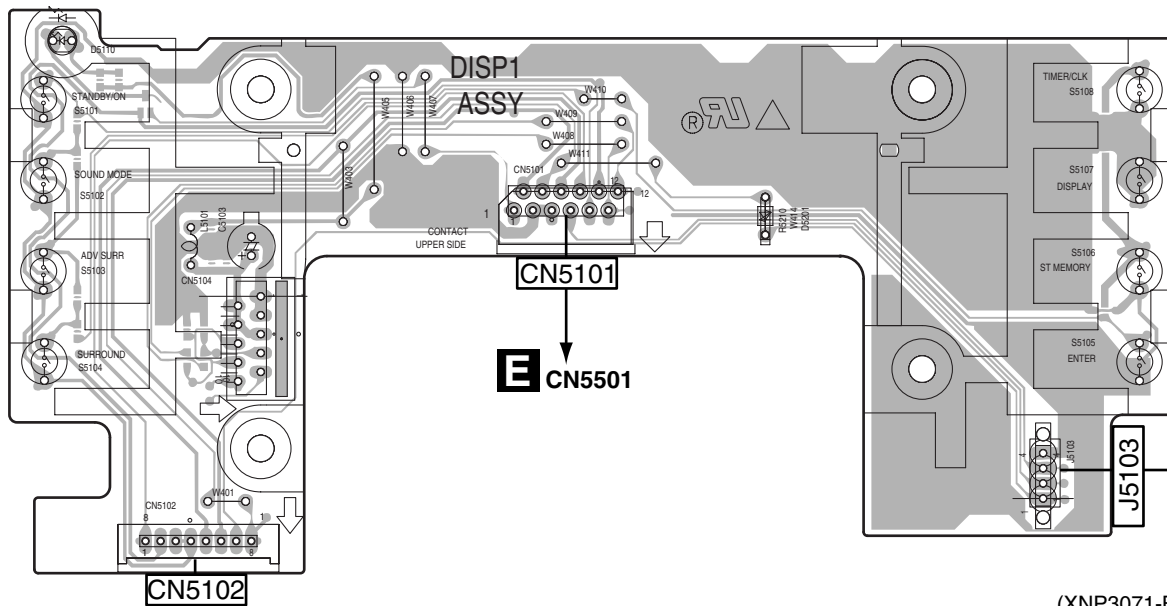


(XNP3061-B)

4.8 DISP1, DISP2 and DISP3 ASSYS

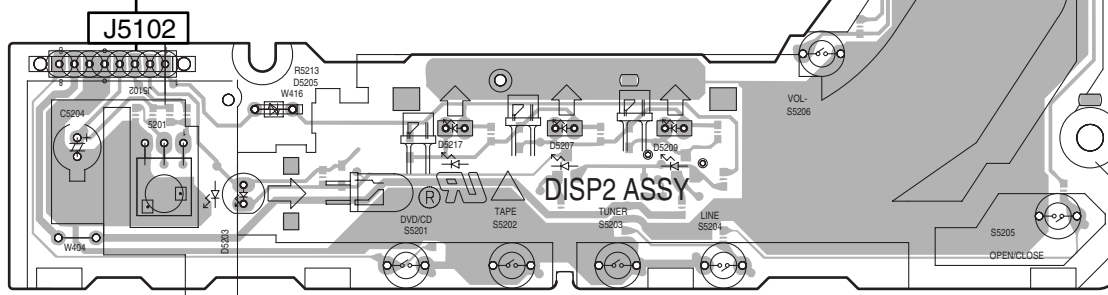
SIDE A

I DISP1 ASSY



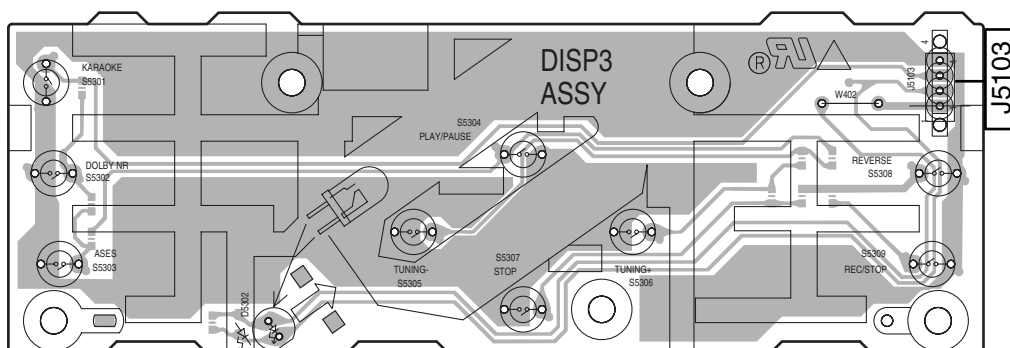
(XNP3071-B)

H DISP2 ASSY



(XNP3071-B)

G DISP3 ASSY



(XNP3071-B)

A



G



F

SIDE A

IC3071 IC3072
 IC3057
 IC



SIDE B

A

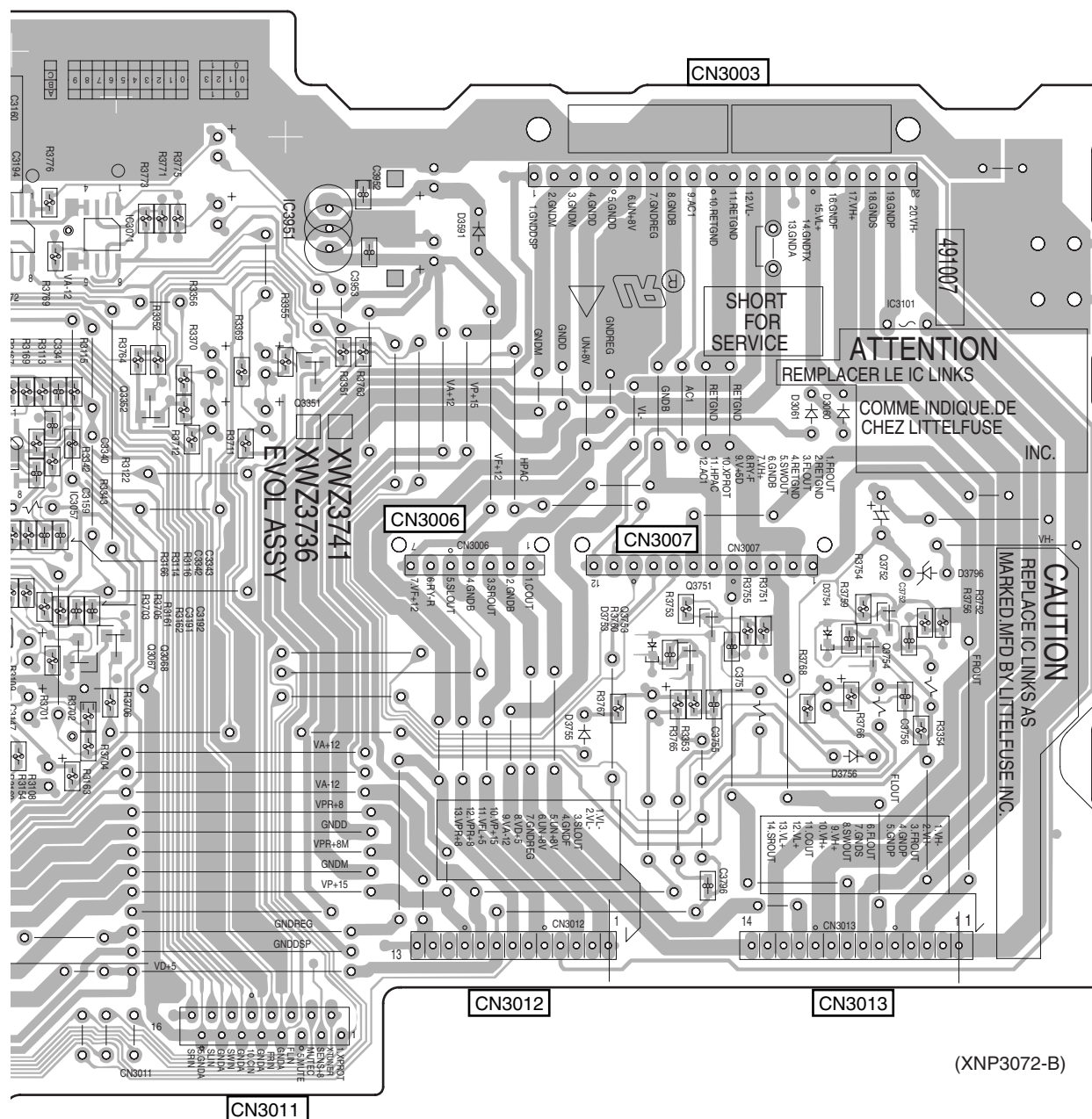
IC3071
Q3352
IC3057 Q3067

IC3951
Q3351

Q3753 Q3751

Q3752

Q3754



(XNP3072-B)

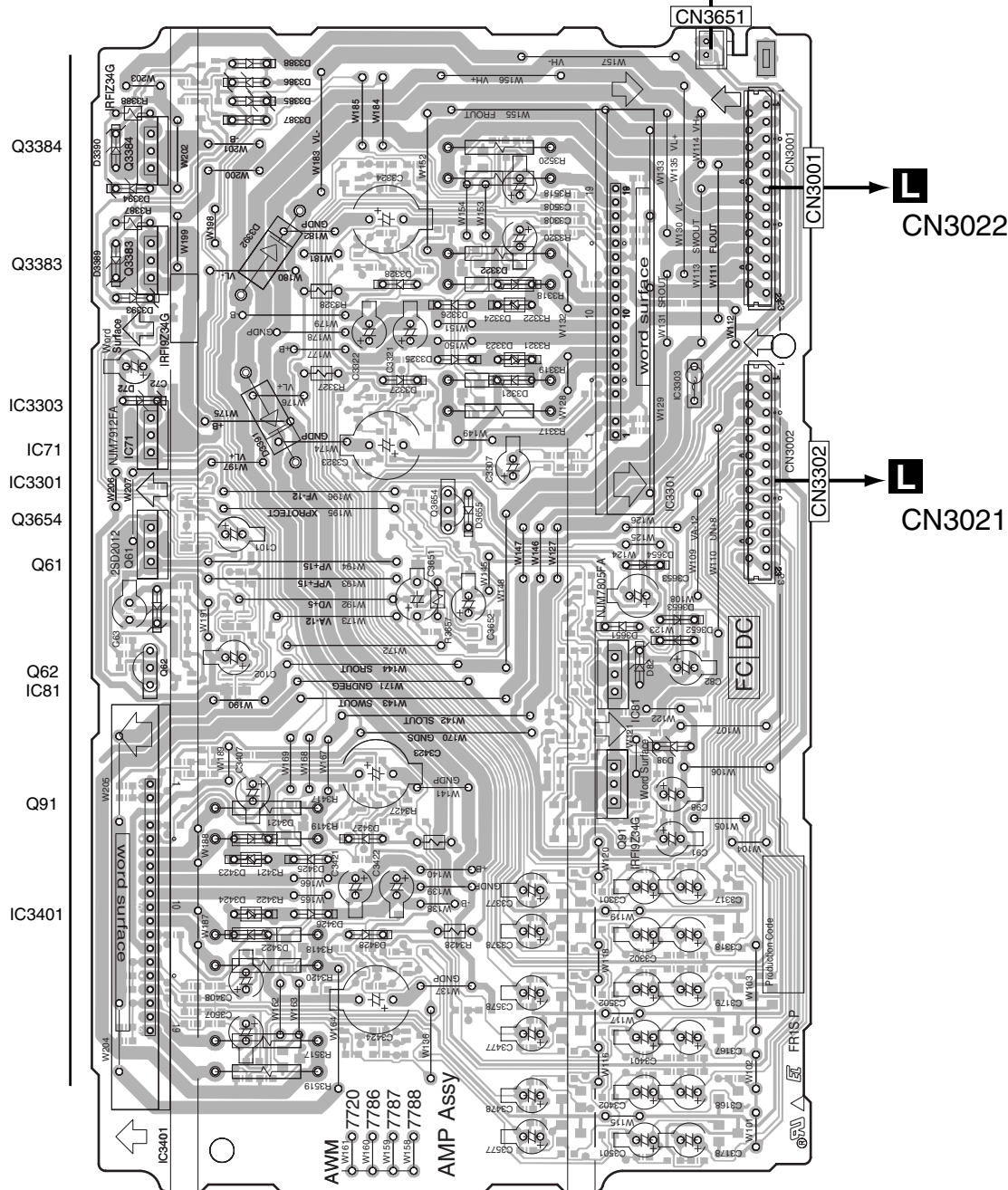
4.11 MOD. AMP ASSY

SIDE A

SIDE A

M MOD. AMP ASSY

DC FAN MOTOR



(ANP7461-A)

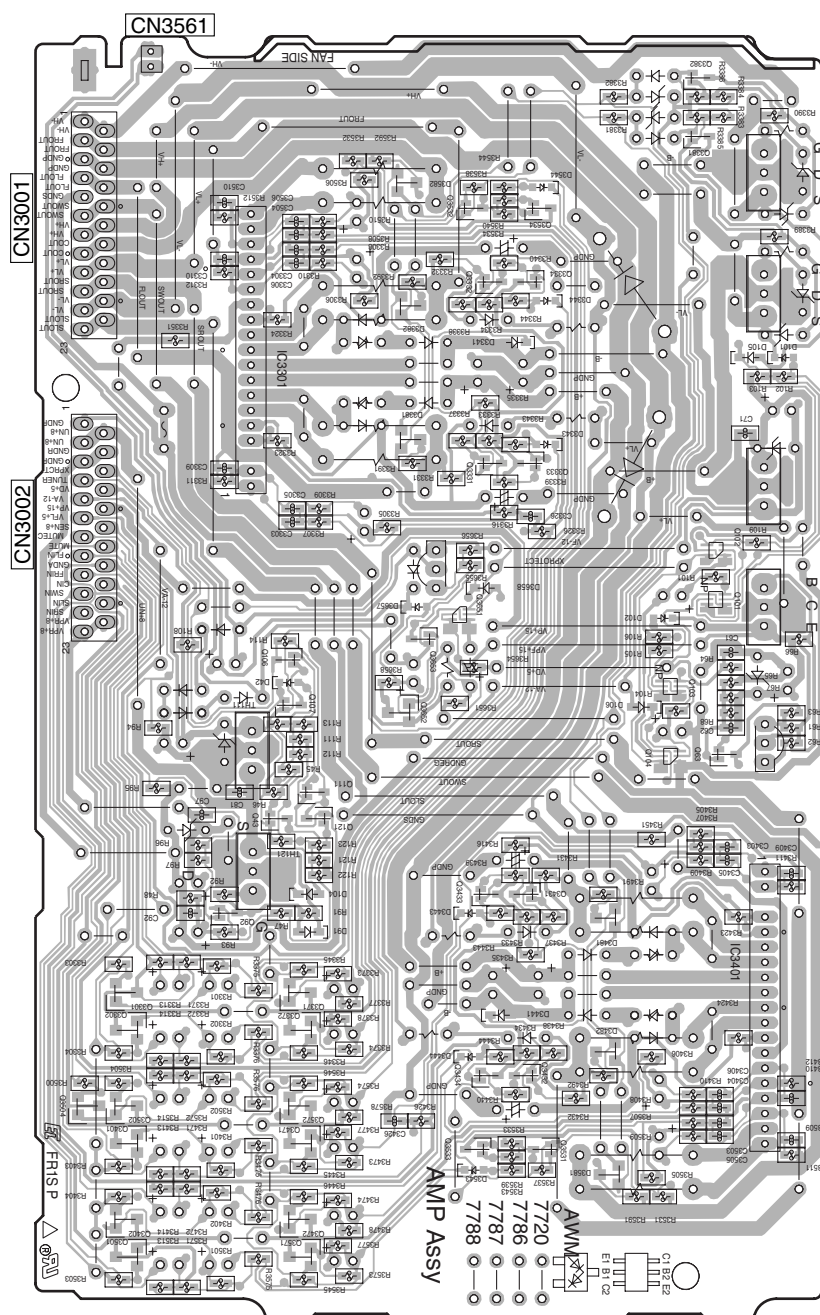
M

M

SIDE B

SIDE B

M MOD. AMP ASSY



(ANP7461-A)

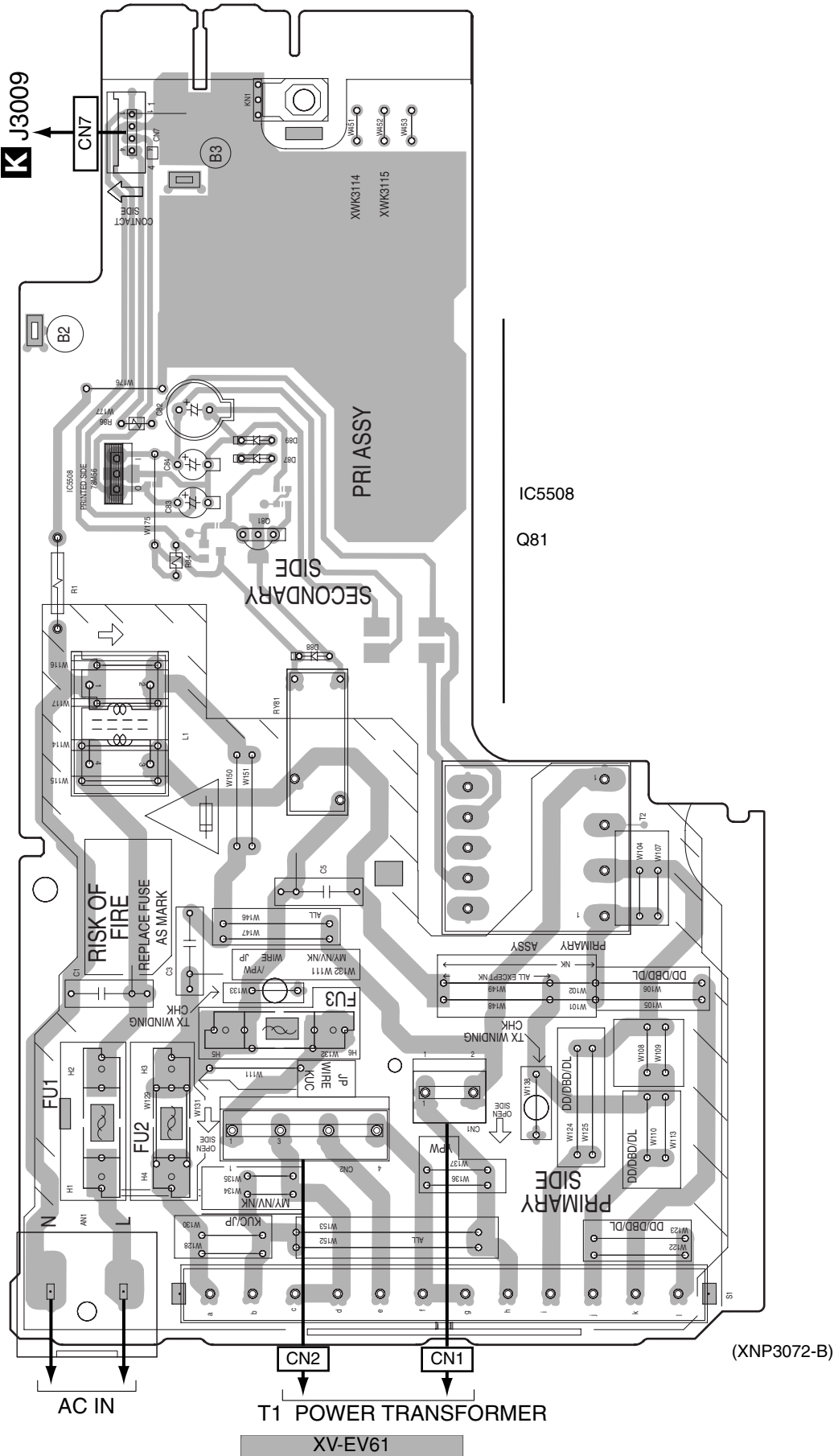
Q3382
Q3381
Q3532 Q3534
Q3332 Q3334
IC3301
Q3331 Q3333
Q102
Q3651
Q101
Q3653
Q106 Q103
Q107 Q3652
Q104 Q63
Q111
Q43 Q121
Q3433 Q3431
Q92 Q92
IC3401
Q3301 Q3371
Q3302 Q3372
Q3434 Q3432
Q3504 Q3502 Q3572
Q3401 Q3471
Q3533 Q3531
Q3402 Q3472
Q3501 Q3571

4.12 PRIMARY ASSY

SIDE A

SIDE A

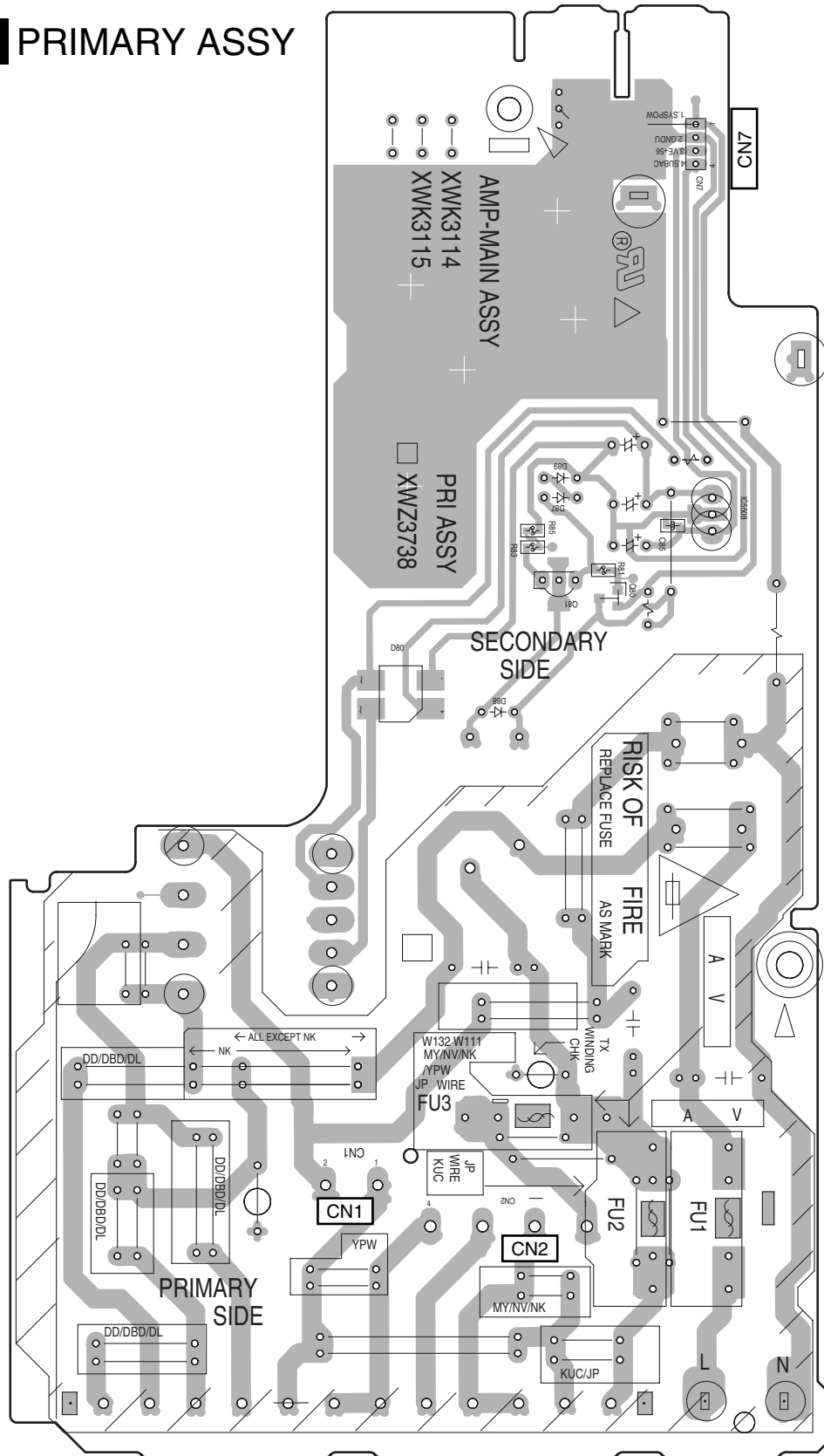
P PRIMARY ASSY



SIDE B

SIDE B

P PRIMARY ASSY



(XNP3072-B)

P

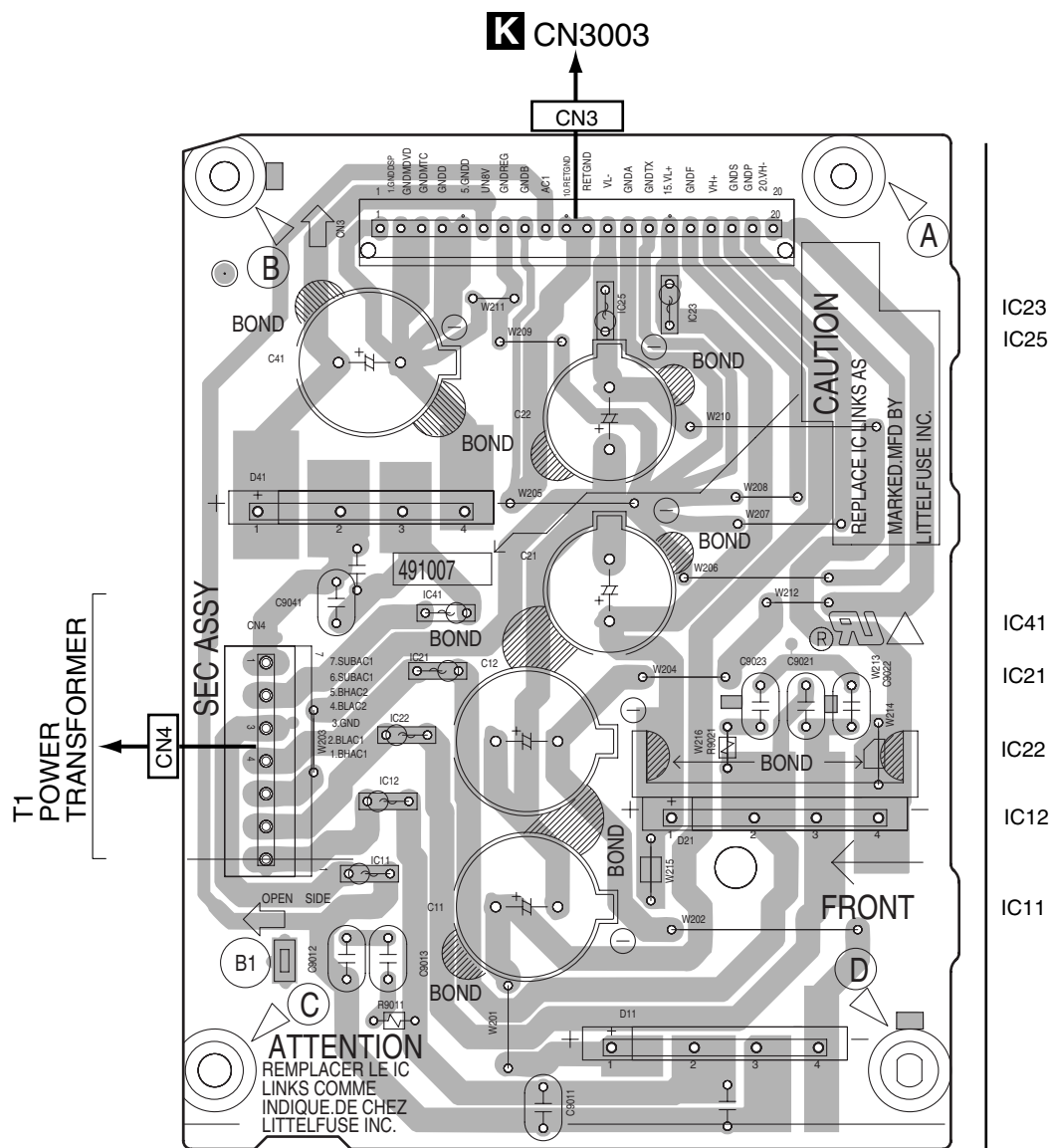
P

4.13 SECONDARY

SIDE A

SIDE A

Q SECONDARY ASSY

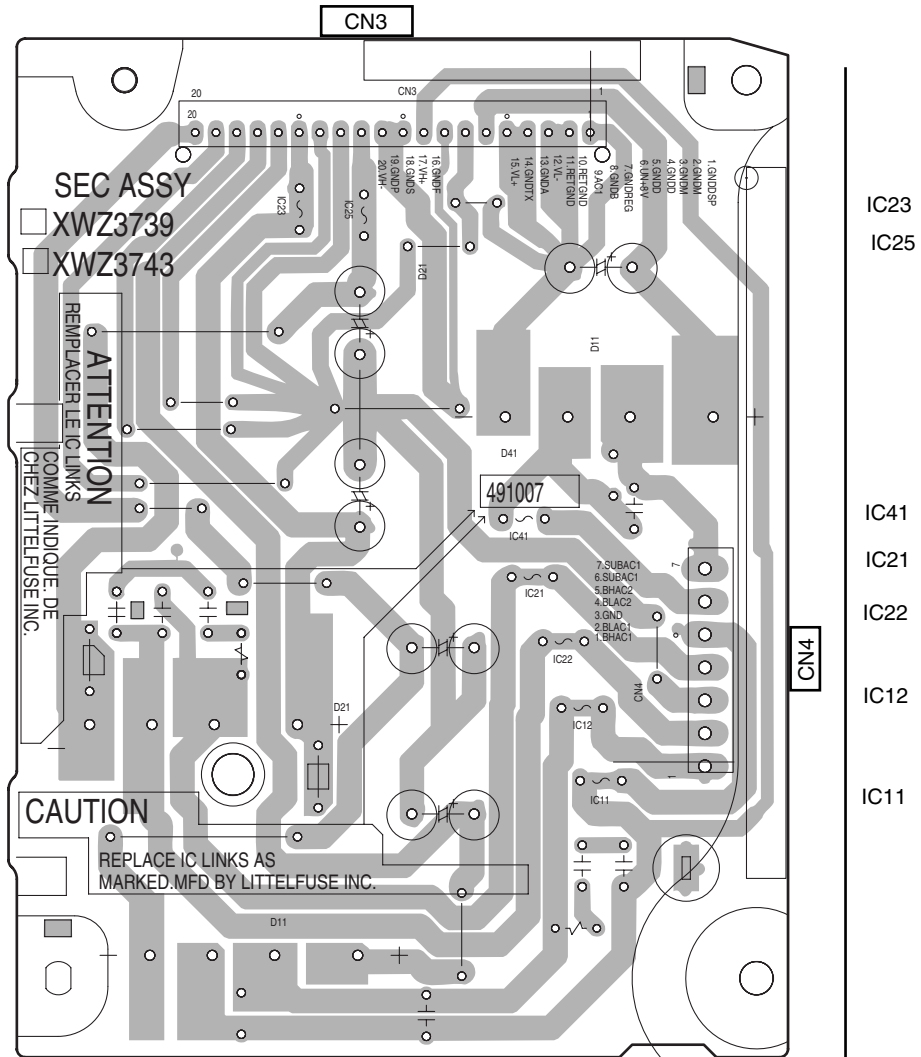


(XNP3072-B)

SIDE B

SIDE B

Q SECONDARY ASSY



(XNP3072-B)

Q

XV-EV61

Q

87

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 10^1 $\rightarrow$ 561 RD1/4PU $\overline{561}$ J

47k Ω $\rightarrow$ 47 x 10^3 $\rightarrow$ 473 RD1/4PU $\overline{473}$ J

0.5 Ω $\rightarrow$ R50 RN2H $\overline{R50}$ K

1 Ω $\rightarrow$ 1R0 RS1P $\overline{1R0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω $\rightarrow$ 562 x 10^1 $\rightarrow$ 5621 RN1/4PC $\overline{5621}$ F

Mark No. Description Part No.

LIST OF ASSEMBLIES

XV-EV61/DLXJ/NC
1..DSP ASSY AWX8254

NSP 1..MEDIA ASSY XWM3226
2..IF/AF ASSY XWZ3726
2..DISP 1 ASSY XWZ3727
2..DISP 2 ASSY XWZ3728
2..DISP 3 ASSY XWZ3729
2..MIC ASSY XWZ3730
2..H.P ASSY XWZ3731

NSP 1..AMP ASSY XWK3114
2..E-VOL ASSY XWZ3736
2..SP-TERMINAL ASSY XWZ3737
2..PRIMARY ASSY XWZ3738
2..SECONDARY ASSY XWZ3739
2..TRADE ASSY XWZ3740

1..DECK ASSY XWZ3072

NSP 1..DVD ASSY AXA7121
2..DVDM ASSY AWM7808

NSP 1..LOADING MECHANISM ASSY VWT1208
NSP 2..LOAB ASSY VWG2347

1..AMP MODULE AXQ7242
2..6CH AMP ASSY AWM7720

1..FM/AM TUNER MODULE AXQ7228

XV-EV31/DLXJ/NC

NSP 1..MEDIA ASSY XWM3228
2..IF/AF ASSY XWZ3733
2..DISP 1 ASSY XWZ3727
2..DISP 2 ASSY XWZ3728
2..DISP 3 ASSY XWZ3729
2..HP ASSY XWZ3731
2..MIC ASSY XWZ3734

NSP 1..AMP ASSY XWK3115
2..E-VOL ASSY XWZ3741
2..SP-TERMINAL ASSY XWZ3742
2..PRIMARY ASSY XWZ3738
2..SECONDARY ASSY XWZ3743
2..TRADE ASSY XWZ3745

1..DECK ASSY XWZ3073

NSP 1..DVD ASSY AXA7122
2..DVDM ASSY AWM7809

Mark No. Description Part No.

NSP 1..LOADING MECHANISM ASSY VWT1208
NSP 2..LOAB ASSY VWG2346

1..AMP MODULE AXQ7248
2..3CH AMP ASSY AWM7787

1..FM/AM TUNER MODULE AXQ7228

Mark No. Description Part No.

A LOAB ASSY

OTHERS

CN602 KR Connector S2B-PH-K
CN601 KR Connector S5B-PH-K
PCB BORD VNP1836
101 Reaf SWITCH VSK1011

C FM/AM TUNER MODULE

SEMICONDUCTORS

IC201 BA1451F
IC202 LC72131MD
Q201, Q204, Q205 2SC2412K
Q202 DTA124ES
Q203 DTC124EK

D201 1SS133
D202 MTZJ5.1C

COILS AND FILTERS

L201 (FM Detector coil) ATE7003
F202 (Ceramic filter) ATF-107
F201 (Ceramic filter) ATF-119
F203 (AM Ceramic filter) ATF1155

CAPACITORS

C206 CCSRCH100D50
C212, C213, C226, C233-C235 CCSRCH101J50
C240 CCSRCH101J50
C231, C232 CCSRCH150J50
C223 CEAT100M50

C229 CEAT101M10
C224 CEAT1R0M50
C227 CEAT220M25
C241 CEAT2R2M50
C243 CEAT330M16

C228 CEAT3R3M50

Mark No.	Description	Part No.
C237		CEAT470M10
C211		CEJA1R0M50
C210		CEJA470M16
C204, C238, C602		CKSRYB102K50
C101, C102, C208, C220, C239		CKSRYB103K50
C242, C601		CKSRYB103K50
C216, C217		CKSRYB123K50
C225		CKSRYB153K50
C201, C205, C209, C214, C230		CKSRYB223K50
C236, C603		CKSRYB223K50
C221		CKSRYB224K10
C202, C222		CKSRYB473K16
C215		CKSRYB681K50

RESISTORS

R211	RD1/4PU221J
R221	RD1/4PU222J
R233	RD1/4PU391J
R243	RS1/10S0R0J
R103	RS1/10S331J
R104	RS1/10S391J
Other Resistors	RS1/16S###J

OTHERS

CN201 13P Connector	52044-1345
BN201 4P Terminal	AKA7003
Shield Case T	ANK7072
Shield Case B	ANK7073
X201 Crystal RES.(7.2MHz)	ASS1093



SEMICONDUCTORS

IC8111, IC8801	AN4558NS
IC8301	BA3838F
IC8101	BU4052BCF
IC8602	BU4066BCF
IC5591, IC5801	BU4094BCF
IC8201	M65847AFP
IC8601, IC8624, IC8701-IC8703	NJM4558MD
IC5501	PDC108A
Q5801, Q5804	2SB1132
Q5502, Q5503, Q5701, Q8111-Q8114	2SC4081
Q8201	2SD1858X
Q8771	2SD2012
Q5711, Q8501, Q8502, Q8621, Q8622	2SD2114K
Q8719, Q8720, Q8743, Q8745	2SD2114K
Q5402	2SJ103
Q5803, Q8115, Q8116, Q8503, Q8623	DTA124EUA
Q8625, Q8762	DTA124EUA
Q8624, Q8626	DTC124EUA
Q5501, Q5802, Q5805, Q5807, Q5808	DTC143EUA
Q5607	RN2901
D5502, D5703, D5711	1SS133
D5716, D5801, D5952, D5954, D8501	1SS355
D8701, D8702	1SS355
D5715	MTZJ11C
D5955, D8201, D8901, D8902	MTZJ5.6B
D8601, D8602	MTZJ6.8B
D5901	UDZS15B

Mark No.	Description	Part No.
COILS AND FILTERS		
L5501		LAU220J
L5502		VTL1075
L5901		VTL1086

CAPACITORS

C5501 (0.047F/5.5V)	ACH1246
C5504, C8212	CCSRCH101J50
C5592, C5801, C8401, C8402	CCSRCH221J50
C5903, C5904, C5906, C8723	CCSRCH470J50
C8761, C8762	CCSRCH470J50
C8611, C8612	CCSRCH680J50
C5511, C5715, C5718, C5719	CEAT100M50
C5803, C5804, C8115, C8116	CEAT100M50
C8121, C8122, C8221, C8509, C8510	CEAT100M50
C8603, C8604, C8617-C8620	CEAT100M50
C8701, C8702, C8711, C8712	CEAT100M50
C8715, C8716, C8721, C8722, C8728	CEAT100M50
C8737, C8751, C8752, C8833-C8835	CEAT100M50
C5502	CEAT101M10
C5640, C8615, C8616	CEAT101M16
C5901, C5902	CEAT102M6R3
C5506, C8773	CEAT1R0M50
C5608, C5610	CEAT220M25
C5716	CEAT220M50
C8305, C8308-C8310	CEAT2R2M50
C5963, C5966, C5968, C8201, C8213	CEAT470M16
C8222, C8307, C8771, C8907, C8908	CEAT470M16
C8910	CEAT470M16
C8631, C8632	CEAT470M50
C8312	CEAT4R7M50
C5433	CEJQR22M50
C8220	CKSRYB102K50
C5505, C5508, C5516-C5518, C5712	CKSRYB103K50
C5962, C8101, C8103, C8107, C8108	CKSRYB103K50
C8203-C8205, C8218, C8313	CKSRYB103K50
C8713, C8714, C8733, C8735, C8828	CKSRYB103K50
C8830, C8912	CKSRYB103K50
C5639, C5964, C5965, C5967	CKSRYB104K16
C8613, C8614, C8623, C8624	CKSRYB104K16
C5507, C5515, C5591, C5802, C5960	CKSRYB104K25
C8301-C8303, C8763, C8764	CKSRYB104K25
C8219	CKSRYB122K50
C8703, C8704, C8709, C8710, C8725	CKSRYB152K50
C8731	CKSRYB152K50
C5961, C8214, C8215, C8304	CKSRYB224K16
C8605, C8606, C8753, C8754	CKSRYB331K50
C8726	CKSRYB332K50
C8217, C8516, C8517, C8705, C8706	CKSRYB471K50
C8216	CKSRYB472K50
C8202, C8223, C8306, C8772	CKSRYB473K25
C8207-C8209	CKSRYB683K25
C8607, C8608, C8727, C8757, C8758	CKSRYB821K50
C8206	CKSRYB822K50

RESISTORS

R5802, R5804, R5807, R8216	RD1/4PU102J
R8637, R8638, R8901, R8904	RD1/4PU102J
R5636	RD1/4PU223J
R5637	RD1/4PU473J
R5903-R5906	RS1/16S1500F

Mark No.	Description	Part No.
R5901	Other Resistors	RS1/16S75R0F
		RS1/16S###J

OTHERS

CN5503	11P FFC CONNECTOR	52045-1145
CN5501	12P FFC CONNECTOR	52045-1245
CN5701	13P FFC CONNECTOR	52045-1345
CN8303	30P FFC CONNECTOR	52045-3045
CN5105	5P JUMPER CONNECTOR	52147-0510

CN8302	15P JUMPER CONNECTOR	52147-1510
CN8401	4P PIN JACK	AKB7015
JA5903	COMB. JACK	AKB7146
CN5505	13P PLUG	AKP7059
CN5801	17P PLUG	AKP7061

CN5506, CN5507	19P PLUG	AKP7062
X5501	CRYSTARL RESO.	ASS7034
CN5502	7P FFC CONNECTOR	HLEM7S-1
0 - 3	PCB BUNDER	VEF1040
CN5905	18P FFC CONNECTOR	VKN1249

CN5903	30P FFC CONNECTOR	VKN1261
CN5902	7P CONNECTOR	VKN1267

IF/AF ASSY(XWZ3733)

SEMICONDUCTORS

IC8111, IC8801	AN4558NS
IC8301	BA3838F
IC8101	BU4052BCF
IC5801	BU4094BCF
IC8201	M65847AFP

IC5501	PDC109A
Q5801, Q5804	2SB1132
Q5502, Q5503, Q5701, Q8111, Q8112	2SC4081
Q8201	2SD1858X
Q8771	2SD2012

Q5711, Q8501, Q8502	2SD2114K
Q5402	2SJ103
Q5803, Q8115, Q8503	DTA124EUA
Q5501, Q5802, Q5805, Q5807, Q5808	DTC143EUA
Q5607	RN2901

D5502, D5703, D5711	1SS133
D5716, D5801, D5952, D5954, D8501	1SS355
D8701, D8702	1SS355
D5715	MTZJ11C
D5955, D8201, D8901, D8902	MTZJ5.6B

D5901	UDZS15B
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COILS AND FILTERS

L5501	LAU220J
L5901	VTL1086

CAPACITORS

C5501 (0.047F/5.5V)	ACH1246
C5504, C8212	CCSRCH101J50
C5801, C8401, C8402	CCSRCH221J50
C5903, C5904, C5906	CCSRCH470J50
C5511, C5715, C5718, C5719	CEAT100M50

C5803, C5804, C8115, C8116	CEAT100M50
C8121, C8122, C8221, C8509, C8510	CEAT100M50
C8833, C8834	CEAT100M50
C5502	CEAT101M10
C5901, C5902	CEAT102M6R3

Mark No.	Description	Part No.
C5506, C8773		CEAT1R0M50
C5608, C5610		CEAT220M25
C5716		CEAT220M50
C8305, C8308-C8310		CEAT2R2M50
C5963, C5966, C5968, C8201, C8213		CEAT470M16
C8222, C8307, C8771, C8907, C8908		CEAT470M16
C8910		CEAT470M16
C8312		CEAT4R7M50
C5433		CEJQR22M50
C5805, C5806, C8220		CKSRYB102K50
C5505, C5508, C5516-C5518, C5712		CKSRYB103K50
C5962, C8101, C8103, C8107, C8108		CKSRYB103K50
C8203-C8205, C8218, C8313		CKSRYB103K50
C8623, C8624, C8828, C8830, C8912		CKSRYB103K50
C5964, C5965, C5967, C8763, C8764		CKSRYB104K16
C5507, C5515, C5802, C5960		CKSRYB104K25
C8301-C8303		CKSRYB104K25
C8219		CKSRYB122K50
C5961, C8214, C8215, C8304		CKSRYB224K16
C8217, C8516, C8517		CKSRYB471K50
C8216		CKSRYB472K50
C8202, C8223, C8306, C8772		CKSRYB473K25
C8207-C8209		CKSRYB683K25
C8206		CKSRYB822K50

RESISTORS

R5802, R5804, R5807, R8216, R8901	RD1/4PU102J
R8904	RD1/4PU102J
R5636	RD1/4PU223J
R5637	RD1/4PU473J
R5903-R5906	RS1/16S1500F

R5901	RS1/16S75R0F
Other Resistors	RS1/16S###J

OTHERS

CN5503	11P FFC CONNECTOR	52045-1145
CN5501	12P FFC CONNECTOR	52045-1245
CN5701	13P FFC CONNECTOR	52045-1345
CN8303	30P FFC CONNECTOR	52045-3045
CN5105	5P JUMPER CONNECTOR	52147-0510

CN8302	15P JUMPER CONNECTOR	52147-1510
CN8401	4P PIN JACK	AKB7015
JA5903	COMB. JACK	AKB7146
CN5801	17P PLUG	AKP7061
X5501	CRYSTARL RESO.	ASS7034

CN5502	7P FFC CONNECTOR	HLEM7S-1
0-3	PCB BUNDER	VEF1040
CN5904	10P FFC CONNECTOR	VKN1242
CN5903	30P FFC CONNECTOR	VKN1261
CN5902	7P CONNECTOR	VKN1267

D8901, D8902	MTZJ6.8B
D8601, D8602	UDZS6.8B

Mark No.	Description	Part No.
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DECK ASSY(XWZ3072)

SEMICONDUCTORS

IC2202, IC2301, IC2401	BA4558F-HT
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Mark No.	Description	Part No.
IC2201		HA12136AF
Q2254		2SA1037K
Q2801, Q2802, Q2805		2SC1815
Q2806		2SC2240
Q2251-Q2253		2SC2412K
Q2261, Q2262, Q2451, Q2452		2SD2114K
Q2301, Q2302		2SK373
Q2351, Q2460		DTA124EK
Q2303, Q2304		DTC114TK
Q2255, Q2352, Q2353, Q2453		DTC124EK
Q2263		DTC143EK
D2256, D2301-D2306		1SS133
D2252-D2255, D2307		1SS355
D2201		MTZJ6.2A

COILS AND FILTERS

L2802	LFA121J
L2801	RTD1082
L2401, L2402	RTF1004
L2403, L2404	RTF1021
F2201, F2202	RTF1217

CAPACITORS

C2809	CCCSL151K2H
C2301, C2302	CCSRCH100D50
C2423, C2424	CCSRCH221J50
C2253	CCSRCH271J50
C2256, C2257, C2321-C2324	CCSRCH470J50
C2401, C2402	CCSRCH470J50
C2303, C2304	CCSRCH681J50
C2807	CEAL470M6R3
C2203, C2204, C2207, C2311, C2312	CEAT100M50
C2215	CEAT101M16
C2201, C2202, C2217, C2218, C2255	CEAT1R0M50
C2404, C2419, C2420	CEAT1R0M50
C2251	CEAT220M50
C2216	CEAT221M16
C2254	CEAT2R2M50
C2309, C2310, C2407, C2408	CEAT330M50
C2425	CEAT470M16
C2261, C2262	CEAT4R7M50
C2208	CEATR10M50
C2205, C2206	CEATR22M50
C2403	CEJQ1R0M50
C2805, C2806, C2810	CEJQ330M10
C2314	CEJQ470M16
C2315	CKSRYB102K50
C2231	CKSRYB103K50
C2431, C2432	CKSRYB122K50
C2211, C2212	CKSRYB152K50
C2252	CKSRYB334K10
C2808	CQHA822J2A
C2801	CQMA123J50
C2421, C2422	CQMA152J50
C2409, C2410	CQMA223J50
C2803, C2804	CQMA472J50
C2802	CQMA682J50
C2209, C2210	CQMA103J50
C2307, C2308	CQMA682J50
C2405, C2406	CQMA683J50

Mark No.	Description	Part No.
RESISTORS		
R2805		RD1/2VM161J
R2803		RD1/2VM4R7J
VR2301, VR2302, VR2401, VR2402		PCP1028
VR2801, VR2802		PCP1032
Other Resistors		RS1/16S###J

OTHERS

CN2506	17P SOCKET	AKP7072
CN2302	CONNECTOR POST	B2B-PH-K
CN2507	3P CONNECTOR	B3P-SHF-1AA
CN2301	KR CONNECTOR	B4B-PH-K

I DISP1 ASSY

SEMICONDUCTORS

Q5110	DTC143EUA
D5110	SLR-343MC

COILS AND FILTERS

L5101	LAU220J
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SWITCHES AND RELAYS

S5101-S5108	VSG1009
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CAPACITORS

C5105	CCSRCH100D50
C5106	CCSRCH220J50
C5103	CEAL470M16
C5101	CKSRYB102K50
C5104	CKSRYB104K16

RESISTORS

R5210	RD1/4PU271J
Other Resistors	RS1/16S###J

OTHERS

0	4P CABLE HOLDER	51048-0400
CN5101	12P FFC CONNECTOR	52044-1245
CN5102	8P JUMPER CONNECTOR	52151-0810
CN5104	10P FFC CONNECTOR	52492-1020

H DISP2 ASSY

SEMICONDUCTORS

Q5201, Q5203	2SC2412K
D5215, D5216	1SS355
D5207	NSPBF50S-3026
D5203	NSPW500BS-2146
D5209, D5217	NSPWF50BS-9706
D5202, D5211, D5213	UDZS6.8B

SWITCHES AND RELAYS

S5201-S5207	VSG1009
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CAPACITORS

C5204	CEAL101M10
C5202	CKSRYB103K50

RESISTORS

R5213	RD1/4PU101J
Other Resistors	RS1/16S###J

OTHERS

0	8P CABLE HOLDER	51048-0800
J5102	8P WIRE	D20PYY0805E

Mark No. Description

5201 REMOTE CONTROL UNIT

Part No.

GP1UM28XK

G DISP3 ASSY**SEMICONDUCTORS**

D5302

D5301

NSPW500BS-2146

UDZS6.8B

SWITCHES AND RELAYS

S5301-S5309

VSG1009

RESISTORS

Other Resistors

RS1/16S###J

OTHERS

0 4P CABLE HOLDER

J5103 4P WIRE

51048-0400

D20PYY0420E

J MIC ASSY (XWZ3730)**SEMICONDUCTORS**

IC5401

IC5402

Q5401

D5401

M65855FP

NJM4558MD

DTA143EUA

MTZJ5.1B

COILS AND FILTERS

L5401

LAU100J

CAPACITORS

C5419, C5427, C5428

C5423

C5409

C5416, C5422, C5426

C5431, C5432

CCSRCH101J50

CCSRCH102J50

CEAL220M16

CEAL2R2M50

CEAL4R7M50

C5401

C5421

C5420

C5410

C5404, C5408, C5411, C5430

CEJQ101M16

CEJQ2R2M50

CEJQ470M16

CEJQR47M50

CKSRYB103K50

C5402, C5412, C5429, C5436

C5414

C5405

C5406

C5407

CKSRYB104K25

CKSRYB122K50

CKSRYB123K50

CKSRYB472K50

CKSRYB473K25

RESISTORS

R5401

VR5401

Other Resistors

RD1/4PU681J

XCS3007

RS1/16S###J

OTHERS

0 5P CABLE HOLDER

J5401 5P WIRE

JA5401, JA5402 MIC JACK

51048-0500

D20PYY0545E

XKN3012

O HP ASSY**COILS AND FILTERS**

L3901, L3902

VTL1096

CAPACITORS

C3905

C3903, C3904

CKSRYB103K50

CKSRYB473K25

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

Other Resistors

RS1/16S###J

OTHERS

0

4P CABLE HOLDER

51048-0400

3901

MINI JACK

AKN7003

J3902

4P WIRE

D20PYY0410E

K EVOL ASSY(XWZ3736)**SEMICONDUCTORS**

⚠ IC3101

IC3071, IC3072

IC3062

IC3055-IC3058

IC3901

AEK7021

AN4558NS

BD3814FV

NJM4558MD

NJM4560M

⚠ IC3951

Q3909

Q3751, Q3752

Q3901, Q3902, Q3905, Q3906

Q3351, Q3352

NJM7812FA

2SA1576A

2SC4081

2SD2114K

2SK368

Q3753, Q3754, Q3903

D3755, D3756

D3753, D3754

D3901

D3796

DTA124EUA

1SS133

1SS355

DAP202K

MTZJ3.3B

D3052, D3053

UDZS6.8B

CAPACITORS

C3129-C3133, C3913, C3914

C3168, C3909, C3910

C3189

C3906, C3918

C3951

CCSRCH101J50

CCSRCH470J50

CEAL100M16

CEAL100M50

CEAL1R0M50

C3954

C3753, C3754

C3063, C3064, C3095, C3096

C3173, C3174, C3190, C3917

C3923, C3924

CEAL470M16

CEALR47M50

CEAT100M50

CEAT100M50

CEAT100M50

C3925, C3926

C3795

C3955

C3111, C3112, C3197, C3198

C3757, C3758

CEAT101M16

CEAT101M63

CEAT102M25

CEAT1R0M50

CEAT1R0M50

C3113, C3114

C3149, C3911, C3912

C3150

C3901, C3902

C3115, C3116, C3147, C3148

CEAT221M10

CEAT470M16

CEJQ470M16

CKSRYB102K50

CKSRYB103K50

C3171, C3172

C3159, C3160, C3169, C3170

C3180, C3181, C3186, C3796

C3121-C3124, C3915, C3916

C3283

CKSRYB103K50

CKSRYB104K16

CKSRYB104K16

CKSRYB104K25

CKSRYB123K50

C3138

C3223, C3224

C3182

C3235, C3236

C3267, C3268

CKSRYB152K50

CKSRYB153K50

CKSRYB224K16

CKSRYB273K16

CKSRYB332K50

C3176, C3183, C3279

CKSRYB333K25

Mark No.	Description	Part No.
C3125, C3126, C3755, C3756		CKSRYB472K50
C3177, C3179		CKSRYB473K25
C3255, C3256		CKSRYB822K50

RESISTORS

R3118, R3119	RD1/2PM151J
R3757, R3758	RD1/4PU103J
R3164, R3177, R3206	RD1/4PU220J
R3796	RD1/4PU223J
R3901, R3902, R3911, R3912	RD1/4PU330J

Other Resistors	RS1/16S###J
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OTHERS

0	4P CABLE HOLDER	51048-0400
CN3011	16P FFC CONNECTOR	52044-1645
CN3001	30P FFC CONNECTOR	52044-3045
CN3008	4P JUMPER WIRE	52151-0410
CN3012	13P JUMPER WIRE	52151-1310
CN3003	20P CONNECTOR PLUG	AKM7074
CN3006	7P CONNECTOR SOCKET	AKP7149
CN3007	12P CONNECTOR SOCKET	AKP7154
J3009	4P WIRE	D20PYY0425E
J3002	15P WIRE	D20PYY1520E
3001	SCREW TERMINAL	VNE1948

N SP-TERMINAL ASSY(XWZ3737)

SEMICONDUCTORS

Q3639	2SA1576A
Q3601, Q3602, Q3611, Q3612	2SC4081
Q3621, Q3622, Q3631, Q3637, Q3638	2SC4081
Q3642, Q3644	2SC4081
Q3641	2SD1858X
Q3635	DTA124EUA
Q3645	DTA143EUA
Q3636, Q3640	DTC124EUA
Q3633	RN1901
Q3632	UMB1N
D3632-D3634	1SS133
D3601, D3602, D3611, D3612	1SS355
D3621, D3622, D3636, D3637	1SS355
D3641-D3643	1SS355
D3635	DAN202K
D3644	DAN217
D3603, D3613, D3623	DAP202K
D3631	MTZJ5.1A

COILS AND FILTERS

L3361, L3362, L3461, L3462	ATH-959
L3661	ATH-059

SWITCHES AND RELAYS

RY3641-RY3643	ASR7008
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CAPACITORS

C3631	CEAL2R2M50
C3633	CEAT100M50
C3632	CEAT471M6R3
C3668	CKSRYB103K50
C3361-C3364, C3461-C3464	CKSRYB223K50
C3561-C3564	CKSRYB223K50
C3365-C3368, C3465-C3468, C3565	CKSRYB473K50

Mark No.	Description	Part No.
C3567, C3665, C3667		CKSRYB473K50
C3369, C3370, C3469, C3470, C3569		XCG3008
C3669		XCG3008

RESISTORS

R3607, R3608, R3617, R3618	ACN7112
R3627, R3628 (0.1ohm, 2W)	ACN7112
R3361, R3362, R3461, R3462, R3561	RD1/2PMF101J
R3661	RD1/2PMF101J
R3668	RD1/4PU223J

R3634	RD1/4PU272J
R3635	RD1/4PU332J
R3631, R3632	RD1/4PU472J
R3633	RD1/4PU682J
R3365-R3368, R3465-R3468	RS1/10S220J

R3565, R3566, R3665, R3667	RS1/10S220J
Other Resistors	RS1/16S###J

OTHERS

CN3307	7P CONNECTOR PLUG	AKM7061
CN3305	12P CONNECTOR	AKM7066
JA3301	12P SPEAKER TERMINAL	XKE3022

P PRIMARY ASSY

SEMICONDUCTORS

△ IC5508	NJM78M56FA
Q81	2SD1858X
Q80	DTC124EK
D87-D89	1SS133
D80	DF06SA

COILS AND FILTERS

△ L1	XTF3003
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SWITCHES AND RELAYS

△ RY81	ASR7027
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CAPACITORS

△ C1, C3 (0.01/AC275V)	ACE7013
C84	CEAT100M50
C82	CEAT102M25
C83	CEAT1R0M50
C85	CKSRYB103K50

RESISTORS

Other Resistors	RS1/16S###J
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OTHERS

CN7	4P JUMPER CONNECTOR	52151-0410
H1 - H6	FUSE CLIP	AKR7001
△ T2	SUB TRANS FORMER	ATT7080
CN1	2P-VH CONNECTOR	B2P3-VH
CN2	4P-VH CONNECTOR	B4P7-VH

0	PCB BINDER	VEF1040
△ AN1	1P AC INLET	XKP3041
△ S1	VOLTAGE SELECTOR	XKX3001

Q SECONDARY ASSY

SEMICONDUCTORS

△ IC41 (7A)	AEK7021
D11, D21, D41	D5SBA20(B)

Mark No.	Description	Part No.
CAPACITORS		
C21, C22 (4700uF/35)		ACH7166
C41		CEAT682M25
C9011, C9021, C9041		CQMA333K2E
C11, C12 (2200uF/63)		XCH3020
OTHERS		
CN3 20P CONNECTOR		AKP7162
CN4 7P-VE CONNECTOR		B7P-VH
0 PCB BINDER		VEF1040

L TRADE ASSY(XWZ3740)

RESISTORS		
Other Resistors		RS1/16S###J

OTHERS		
0 13P CABLE HOLDER		51048-1300
CN3031 16P FFC CONNECTOR		52045-1645
CN3021, CN3022 23P SOCKET		AKP7075
J3032 13P WIRE		D20PYY1315E
J3033 14P WIRE		D20PYY1415E

M MOD.AMP ASSY(AWM7720)

SEMICONDUCTORS		
⚠ IC81		NJM7805FA
⚠ IC71		NJM7912FA
⚠ IC3301, IC3401		STK402-270
Q3382, Q43		2SA1576A
Q62		2SB1237X
Q111, Q3381, Q63, Q92		2SC4081
⚠ Q61		2SD2012
Q3301, Q3302, Q3401, Q3402		2SD2114K
Q3501, Q3502, Q3504		2SD2114K
Q3654		2SD2144S
Q107, Q3653		DTA124EUA
Q3652		DTA124TK
Q106		DTC124EUA
⚠ Q3383, Q91		IRFI9Z34G
⚠ Q3384		IRFIZ34G
Q3651		RN1901
Q101, Q103		UMB1N
Q102, Q104		UMH1N
⚠ D3321-D3326		1SR139-400
D3327, D3328		1SR139-400
⚠ D3421-D3426		1SR139-400
D3427, D3428		1SR139-400
D3387, D3388, D3651-D3655		1SS133
D101, D102, D104, D3657, D42		1SS355
⚠ D3391, D3392		30PDA20-FC6
⚠ D3381, D3382, D3481, D3482		DAN217
⚠ D3581, D3582		DAN217
D3389, D3390		MTZJ10C
⚠ D98		MTZJ11B
⚠ D72		MTZJ15C
D3393, D3394		MTZJ18B/C
⚠ D63		MTZJ18C
D3385, D3386		MTZJ36A
⚠ D82		MTZJ7.5C
D91		UDZS18B
D105,		

Mark No.	Description	Part No.
TH111		NCP18WF104J03RB
CAPACITORS		
C3305, C3306, C3405, C3406		CCSRCH221J50
C3505, C3506, C62, C97		CCSRCH221J50
C3309, C3310, C3409, C3410		CCSRCJ3R0C50
C3509, C3510		CCSRCJ3R0C50
C3307, C3308, C3407, C3408, C3508		CEAL100M16
C3507		CEAL470M6R3
C72		CEAT100M50
C3651		CEAT101M25
C101, C102		CEAT1R0M50
C3323, C3324, C3423, C3424		CEAT221M50
C3167, C3168, C3178, C3179		CEAT2R2M50
C3301, C3302, C3317, C3318		CEAT2R2M50
C3401, C3402, C3501, C3502		CEAT2R2M50
C3652, C63, C82, C98		CEAT470M25
C3653		CEAT470M35
C3303, C3304, C3403, C3404		CKSRYB102K50
C3503, C3504		CKSRYB102K50
C92		CKSRYB104K16
C71, C81		CKSRYB473K50

RESISTORS		
R3317-R3320, R3417-R3420		ACN7122
R3517-R3520 (0.22ohm, 2W)		ACN7122
⚠ R3327, R3328, R3427, R3428		RD1/4MUF470J
R3387, R3388		RD1/4PU101J
R3657		RD1/4PU330J
R96, R97		RS1/16S1002F
⚠ R3323, R3324, R3351, R3423, R3424		RS1/16S1R0J
⚠ R3451		RS1/16S1R0J
R67, R68		RS1/16S2201F
R94, R95		RS1/16S2701F
⚠ R62		RS1/16S330J
R65		RS1/16S4700F
R47, R48		RS1/16S4701F
Other Resistors		RS1/16S###J

OTHERS		
CN3001, CN3002 23P PLUG		AKP7064
CN3651 PLUG(2P)		KM200SA2

B DVD MAIN ASSY(AWM7808)

SEMICONDUCTORS		
IC602		K4S641632F-TC75
IC101		M63018FP
⚠ IC431		MM1565AF
IC501		MM1623AF
⚠ IC421		PQ018EH01ZP
⚠ IC411		PQ018EZ01ZP
⚠ IC441		PQ20WZ11
⚠ IC401		R1224N102H
IC601		STM5589CVA
IC301		STM6316ATXXA
IC911		TC74VHC08FT
IC901		TC74VHCT125AFT
IC604		TC7WU04FU
IC603		VYW2096
Q390		2SA1576A
⚠ Q451		2SA1576A

Mark No. Description**Part No.**

Q923, Q924, Q926
Q202, Q212, Q452
⚠ Q401
Q921

2SA1576A
2SC4081
CPH6314
DTA124EUA

Q951
Q724, Q977
Q922, Q925
Q201, Q211
Q911

DTC114TUA
DTC114YUA
DTC124EUA
HN1A01F
RN1903

Q603
D431, D432
D402, D403, D922–D927
D401
D603

RN4982
1SR154-400
1SS355
RB051L-40
RB501V-40

D921

UDZS4.7B

COILS AND FILTERS

L401
L402
L390
L1056-L1061

ATH7011
CTH1254
LCYA2R7J2520
VTL1078

CAPACITORS

C408
C390
C142
C200
C690

CCSRCH121J50
CCSRCH180J50
CCSRCH221J50
CCSRCH331J50
CCSRCH470J50

C392
C393, C640, C644
C452
C101, C401, C404, C410, C412
C422, C443, C561, C564, C600

CCSRCH560J50
CCSRCH7R0D50
CEV100M16
CEV101M16
CEV101M16

C621, C660
C415, C425
C201, C211
C406
C431

CEV101M16
CEV101M4
CEV470M16
CKSQYB104K25
CKSQYB105K16

C433
C127, C128, C381, C562, C563
C624
C112-C114, C124, C125, C130
C133, C134, C355

CKSQYB225K10
CKSRYB102K50
CKSRYB102K50
CKSRYB103K50
CKSRYB103K50

C102, C132, C139, C230
C232, C233, C300, C307, C309
C315, C318, C323, C326, C335
C342, C348, C357, C362, C373
C377, C388, C391, C413, C414

CKSRYB104K16
CKSRYB104K16
CKSRYB104K16
CKSRYB104K16
CKSRYB104K16

C423, C424, C441, C442, C451
C511, C531, C551, C565, C571
C604, C607, C614, C619
C622, C623, C626–C632
C636, C637, C641, C647–C649

CKSRYB104K16
CKSRYB104K16
CKSRYB104K16
CKSRYB104K16
CKSRYB104K16

C659, C664, C671, C681, C684
C694, C698, C902, C912, C921
C501, C521, C541, C603, C620
C625
C394

CKSRYB104K16
CKSRYB104K16
CKSRYB105K10
CKSRYB105K10
CKSRYB152K50

C126, C346
C202, C205, C212, C215
C402, C403, C405, C409 (10u/25)

CKSRYB223K50
CKSRYB472K50
DCH1165

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

R201
R211
R100, R1011-R1013, R111, R210
R387–R389, R412–R415, R417
R421, R422, R561, R600, R623

RAB4C220J
RAB4C390J
RS1/10S0R0J
RS1/10S0R0J
RS1/10S0R0J

R403
R105, R106, R115–R120
R104, R107
R125, R144, R330, R331, R628
R635

RS1/10S100J
RS1/10S4R7J
RS1/10S6R8J
RS1/16S1002F
RS1/16S1002F

R301
R502, R512, R522, R532, R542
R552
R408
R410

RS1/16S1202F
RS1/16S1500F
RS1/16S1500F
RS1/16S1502F
RS1/16S1802F

R443
R409
R441
R101, R102, R123, R142, R143
R442

RS1/16S2001F
RS1/16S2702F
RS1/16S4701F
RS1/16S5600F
RS1/16S6801F

R411
Other Resistors

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

OTHERS

CN104 4P CONNECTOR
CN105 12P FFC CONNECTOR

AKN7035
RKN1053

CN103 PH FFC CONNECTOR
0 FLEXIBLE CABLE
CN903 18P FFC CONNECTOR
CN901 30P FFC CONNECTOR
CN101 24P CONNECTOR

S5B-PH-SM3
VDA1681
VKN1310
VKN1322
VKN1482

X601 RESO. (27MHz)
X301 RESO. (20MHz)

VSS1172
VSS1186

F DSP ASSY (EV61 Only)**SEMICONDUCTORS**

IC8201
IC8401
IC8501
IC8901
IC8902

AK4114VQ
AK4628VQ
DSPD56367PV150
NJM2391DL1-33
NJU7223DL1-18

IC8701
IC8702
IC8502
Q8504
Q8503

TC74LVX244FT
TC74VHCT244AFT
TC7WU04FU
UMD2N
UN5112

D8501
D8401
D8402, D8502, D8503

1SS355
DAN202K
DAP202K

COILS AND FILTERS

L8002, L8004, L8501, L8502
L8201, L8203, L8204, L8401, L8402
L8504, L8702
X8501 RESO. (20MHz)
X8201 RESO. (24.576MHz)

ATL7002
QTL1013
QTL1013
VSS1171
XSS3003

CAPACITORS

C8209, C8210

CCSRCH100D50

Mark No.	Description	Part No.
C8421		CCSRCH101J50
C8007, C8008, C8201, C8212, C8214		CCSRCH471J50
C8404, C8409-C8414, C8416, C8417		CCSRCH471J50
C8419, C8505, C8507, C8509		CCSRCH471J50
C8511, C8512, C8515, C8518, C8520		CCSRCH471J50
C8522, C8524, C8526, C8528, C8530		CCSRCH471J50
C8532, C8534, C8536, C8539, C8541		CCSRCH471J50
C8543, C8545, C8551, C8703, C8706		CCSRCH471J50
C8548, C8549		CCSRCH8R0D50
C8701, C8704		CEV100M16
C8406, C8415, C8546, C8547, C8902		CEV101M16
C8904		CEV101M16
C8217, C8225, C8408		CEV470M6R3
C8204, C8555		CKSRYB102K50
C8009, C8405, C8418, C8517, C8554		CKSRYB103K50
C8010, C8202, C8207, C8213, C8215		CKSRYB104K16
C8407, C8420, C8422, C8504, C8513		CKSRYB104K16
C8521, C8523, C8525, C8527, C8529		CKSRYB104K16
C8531, C8533, C8535, C8537, C8538		CKSRYB104K16
C8540, C8542, C8544, C8550, C8702		CKSRYB104K16
C8705, C8901, C8903		CKSRYB104K16
C8516		CKSRYB105K6R3
C8514		CKSRYB333K16
C8203		CKSRYB473K50

RESISTORS

R8506	RAB4C101J
R8201	RS1/16S1802F
Other Resistors	RS1/16S####J

OTHERS

CN8003	13P SOCKET	AKP7070
CN8007, CN8011	19P SOCKET	AKP7073
8101	SCREW TERMINAL	VNE1948

M 3CH AMP ASSY (AWM7787)

SEMICONDUCTORS

⚠ IC81	NJM7805FA
⚠ IC71	NJM7912FA
⚠ IC3301	STK402-270
Q3382, Q43	2SA1576A
Q62	2SB1237X
Q111, Q3381, Q63, Q92	2SC4081
⚠ Q61	2SD2012
Q3301, Q3302, Q3502, Q3504	2SD2114K
Q3654	2SD2144S
Q107, Q3653	DTA124EUA
Q3652	DTA124TK
Q106	DTC124EUA
⚠ Q3383, Q91	IRFI9Z34G
⚠ Q3384	IRFI9Z34G
Q3651	RN1901
Q101, Q103	UMB1N
Q102, Q104	UMH1N
⚠ D3321-D3326	1SR139-400
D3327, D3328	1SR139-400
D3387, D3388, D3651-D3655	1SS133
D101, D102, D104, D3657, D42	1SS355
⚠ D3391, D3392	30PDA20-FC6
⚠ D3381, D3382, D3582	DAN217

Mark No.	Description	Part No.
D3389, D3390		MTZJ10C
⚠ D98		MTZJ11B
⚠ D72		MTZJ15C
D3393, D3394		MTZJ18B/C
⚠ D63		MTZJ18C
D3385, D3386		MTZJ36A
⚠ D82		MTZJ7.5C
D91		UDZS18B
D105, D106, D3658		UDZS7.5B
TH111		NCP18WF104J03RB

CAPACITORS

C3305, C3306, C3506, C62, C97	CCSRCH221J50
C3309, C3310, C3510	CCSRCJ3R0C50
C3307, C3308, C3508	CEAL100M16
C72	CEAT100M50
C3651	CEAT101M25
C101, C102	CEAT1R0M50
C3323, C3324	CEAT221M50
C3179, C3301, C3302, C3317, C3318	CEAT2R2M50
C3502	CEAT2R2M50
C3652, C63, C82, C98	CEAT470M25
C3653	CEAT470M35
C3303, C3304, C3504	CKSRYB102K50
C92	CKSRYB104K16
C71, C81	CKSRYB473K50

RESISTORS

R3317-R3320, R3518, R3520	ACN7122
⚠ R3327, R3328	RD1/4MUF470J
R3387, R3388	RD1/4PU101J
R3657	RD1/4PU330J
R96, R97	RS1/16S1002F
⚠ R3323, R3324, R3351	RS1/16S1R0J
R67, R68	RS1/16S2201F
R94, R95	RS1/16S2701F
⚠ R62	RS1/16S330J
R65	RS1/16S4700F
R47, R48	RS1/16S4701F
Other Resistors	RS1/16S####J

OTHERS

CN3001, CN3002	23P PLUG	AKP7064
CN3651	2P PLUG	KM200SA2

B DVDM ASSY (AWM7809)

SEMICONDUCTORS

IC602	K4S641632F-TC75
IC101	M63018FP
⚠ IC431	MM1565AF
IC501	MM1623AF
IC701	PCM1742KE
⚠ IC421	PQ018EH01ZP
⚠ IC411	PQ018EZ01ZP
⚠ IC441	PQ20WZ11
⚠ IC401	R1224N102H
IC601	STM5589CVA
IC301	STM6316ATXXA
IC911	TC74VHC08FT
IC901	TC74VHCT125AFT
IC604	TC7WU04FU

Mark No. Description**Part No.**

IC603

VYW2096

Q390

2SA1576A

⚠ Q451

2SA1576A

Q723, Q923, Q924, Q926

2SA1576A

Q202, Q212, Q452

2SC4081

Q725, Q726

2SD2114K

⚠ Q401

CPH6314

Q921

DTA124EUA

Q951

DTC114TUA

Q721,

Q922, Q925

DTC124EUA

Q201, Q211

HN1A01F

Q911

RN1903

Q603

RN4982

D431, D432

1SR154-400

D402, D403, D922-D927

1SS355

D401

RB051L-40

D603

RB501V-40

D921

UDZS4.7B

COILS AND FILTERS

L401

ATH7011

L402

CTH1254

L390

LCYA2R7J2520

L1056-L1058

VTL1078

CAPACITORS

C733, C734

CCSRCH102J50

C408

CCSRCH121J50

C390

CCSRCH180J50

C142

CCSRCH221J50

C200

CCSRCH331J50

C690

CCSRCH470J50

C392

CCSRCH560J50

C393, C640, C644

CCSRCH7R0D50

C452, C731, C732

CEV100M16

C101, C401, C404, C410, C412

CEV101M16

C422, C443, C561, C564, C600

CEV101M16

C621, C660, C705, C706

CEV101M16

C415, C425, C702

CEV101M4

C201, C211

CKSQYB104K25

C406

CKSQYB104K25

C431

CKSQYB105K16

C433

CKSQYB225K10

C127, C128, C381, C562, C563

CKSRYB102K50

C624

CKSRYB102K50

C112-C114, C124, C125, C130

CKSRYB103K50

C133, C134, C355

CKSRYB103K50

C102, C132, C139, C230

CKSRYB104K16

C232, C233, C300, C307, C309

CKSRYB104K16

C315, C318, C323, C326, C335

CKSRYB104K16

C342, C348, C357, C362, C373

CKSRYB104K16

C377, C388, C391, C413, C414

CKSRYB104K16

C423, C424, C441, C442, C451

CKSRYB104K16

C511, C531, C551, C565, C571

CKSRYB104K16

C604, C607, C614, C619

CKSRYB104K16

C622, C623, C626-C632

CKSRYB104K16

C636, C637, C641, C647-C649

CKSRYB104K16

C659, C664, C671, C681, C684

CKSRYB104K16

C694, C698, C703, C704, C707

CKSRYB104K16

C709, C902, C912, C921

CKSRYB104K16

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

C501, C521, C541, C603, C620

CKSRYB105K10

C625

CKSRYB105K10

C394

CKSRYB152K50

C126, C346

CKSRYB223K50

C202, C205, C212, C215

CKSRYB472K50

C402, C403, C405, C409 (10u/25)

DCH1165

RESISTORS

R201

RAB4C220J

R211

RAB4C390J

R100, R1011-R1013, R111, R210

RS1/10S0R0J

R387-R389, R412-R415, R417

RS1/10S0R0J

R421, R422, R561, R600, R623

RS1/10S0R0J

R403

RS1/10S100J

R105, R106, R115-R120

RS1/10S4R7J

R104, R107

RS1/10S6R8J

R125, R144, R330, R331, R628

RS1/16S1002F

R635

RS1/16S1002F

R301

RS1/16S1202F

R502, R512, R522, R532, R542

RS1/16S1500F

R552

RS1/16S1500F

R408

RS1/16S1502F

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

CN104

4P CONNECTOR

AKN7035

CN105

12P FFC CONNECTOR

RKN1053

CN103

PH CONNECTOR

S5B-PH-SM3

0

FLEXIBLE CABLE

VDA1681

CN902

11P FFC CONNECTOR

VKN1303

CN901

30P FFC CONNECTOR

VKN1322

CN101

24P CONNECTOR

VKN1482

X601

RESO. (27MHz)

VSS1172

X301

RESO. (20MHz)

VSS1186

D DECK ASSY(XWZ3073)**SEMICONDUCTORS**

IC2202, IC2301, IC2401

BA4558F-HT

IC2201

HA12136AF

Q2254

2SA1037K

Q2801, Q2802, Q2805

2SC1815

Q2806

2SC2240

Q2251-Q2253

2SC2412K

Q2261, Q2262, Q2451, Q2452

2SD2114K

Q2301, Q2302

2SK373

Q2351, Q2460

DTA124EK

Q2303, Q2304

DTC114TK

Q2255, Q2352, Q2353, Q2453

DTC124EK

Q2263

DTC143EK

D2256, D2301-D2306

1SS133

D2252-D2255, D2307

1SS355

D2201

MTZJ6.2A

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

COILS AND FILTERS

L2802		LFA121J
L2801	OSC COIL	RTD1082
L2401, L2402	10mH	RTF1004
L2403, L2404	4.7mH	RTF1021
F2201, F2202	MPX COIL	RTF1217

CAPACITORS

C2809	CCCSL151K2H
C2301, C2302	CCSRCH100D50
C2423, C2424	CCSRCH221J50
C2253	CCSRCH271J50
C2256, C2257, C2321-C2324	CCSRCH470J50

C2401, C2402	CCSRCH470J50
C2303, C2304	CCSRCH681J50
C2807	CEAL470M6R3
C2203, C2204, C2207, C2311, C2312	CEAT100M50
C2215	CEAT101M16

C2201, C2202, C2217, C2218, C2255	CEAT1R0M50
C2404, C2419, C2420	CEAT1R0M50
C2251	CEAT220M50
C2216	CEAT221M16
C2254	CEAT2R2M50

C2309, C2310, C2407, C2408	CEAT330M50
C2425	CEAT470M16
C2261, C2262	CEAT4R7M50
C2208	CEATR10M50
C2205, C2206	CEATR22M50

C2403	CEJQ1R0M50
C2805, C2806, C2810	CEJQ330M10
C2314	CEJQ470M16
C2315	CKSRYB102K50
C2231	CKSRYB103K50

C2431, C2432	CKSRYB122K50
C2211, C2212	CKSRYB152K50
C2252	CKSRYB334K10
C2808	CQHA822J2A
C2801	CQMA123J50

C2421, C2422	CQMA152J50
C2409, C2410	CQMA223J50
C2803, C2804	CQMA472J50
C2802	CQMA682J50
C2209, C2210	CQMBA103J50

C2307, C2308	CQMBA682J50
C2405, C2406	CQMBA683J50

RESISTORS

R2805	RD1/2VM161J
R2803	RD1/2VM4R7J
VR2301, VR2302, VR2401, VR2402	PCP1028
VR2801, VR2802	PCP1032
Other Resistors	RS1/16S###J

OTHERS

CN2506	17P SOCKET	AKP7072
CN2302	KR CONNECTOR	B2B-PH-K
CN2507	3P TOP POST	B3P-SHF-1AA
CN2301	KR CONNECTOR	B4B-PH-K

I DISP1 ASSY

SEMICONDUCTORS

Q5110	DTC143EUA
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Mark No. **Description** **Part No.**

D5110	SLR-343MC(NPQ)
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COILS AND FILTERS

L5101	LAU220J
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SWITCHES AND RELAYS

S5101-S5108	VSG1009
-------------	---------

CAPACITORS

C5105	CCSRCH100D50
C5106	CCSRCH220J50
C5103	CEAL470M16
C5101	CKSRYB102K50
C5104	CKSRYB104K16

RESISTORS

R5210	RD1/4PU271J
Other Resistors	RS1/16S###J

OTHERS

0	4P CABLE HOLDER	51048-0400
CN5101	12P FFC CONNECTOR	52044-1245
CN5102	8P JUMPER CONNECTOR	52151-0810
CN5104	10P FFC CONNECTOR	52492-1020

H DISP2 ASSY

SEMICONDUCTORS

Q5201, Q5203	2SC2412K
D5215, D5216	1SS355
D5207	NSPBF50S-3026
D5203	NSPW500BS-2146
D5209, D5217	NSPWF50BS-9706

D5202, D5211, D5213	UDZS6.8B
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SWITCHES AND RELAYS

S5201-S5207	VSG1009
-------------	---------

CAPACITORS

C5204	CEAL101M10
C5202	CKSRYB103K50

RESISTORS

R5213	RD1/4PU101J
Other Resistors	RS1/16S###J

OTHERS

0	8P CABLE HOLDER	51048-0800
J5102	8P WIRE	D20PYY0805E
5201	REMOTE CONTROL UNIT	GP1UM28XK

G DISP3 ASSY

SEMICONDUCTORS

D5302	NSPW500BS-2146
D5301	UDZS6.8B

SWITCHES AND RELAYS

S5301-S5309	VSG1009
-------------	---------

RESISTORS

Other Resistors	RS1/16S###J
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OTHERS

0	4P CABLE HOLDER	51048-0400
J5103	4P WIRE	D20PYY0420E

Mark No. Description**Part No.****O HP ASSY****COILS AND FILTERS**

L3901, L3902

VTL1096

CAPACITORSC3905
C3903, C3904CKSRYB103K50
CKSRYB473K25**RESISTORS**

Other Resistors

RS1/16S###J

OTHERS0 4P CABLE HOLDER
3901 MINI JACK
J3902 4P WIRE51048-0400
AKN7003
D20PYY0410E**J MIC ASSY (XWZ3734)****SEMICONDUCTORS**IC5401
IC5402
Q5401
D5401M65855FP
NJM4558MD
DTA143EUA
MTZJ5.1B**COILS AND FILTERS**

L5401

LAU100J

CAPACITORSC5419, C5427, C5428
C5423
C5409
C5416, C5422, C5426
C5431, C5432CCSRCH101J50
CCSRCH331J50
CEAL220M16
CEAL2R2M50
CEAL4R7M50C5401
C5421
C5420
C5410
C5404, C5408, C5411, C5430CEJQ101M16
CEJQ2R2M50
CEJQ470M16
CEJQR47M50
CKSRYB103K50C5402, C5412, C5429, C5436
C5414
C5405
C5406
C5407CKSRYB104K25
CKSRYB122K50
CKSRYB123K50
CKSRYB472K50
CKSRYB473K25**RESISTORS**R5401
VR5401 ROTARY ENCODER
Other ResistorsRD1/4PU681J
XCS3007
RS1/16S###J**OTHERS**0 5P CABLE HOLDER
J5401 5P WIRE
JA5401, JA5402 MIC JACK51048-0500
D20PYY0545E
XKN3012**K EVOL ASSY (XWZ3741)****SEMICONDUCTORS**⚠ IC3101
IC3071, IC3072
IC3062
IC3055-IC3058
IC3901AEK7021
AN4558NS
BD3814FV
NJM4558MD
NJM4560M**Mark No. Description****Part No.**⚠ IC3951
Q3909
Q3751, Q3752
Q3901, Q3902, Q3905, Q3906
Q3351, Q3352NJM7812FA
2SA1576A
2SC4081
2SD2114K
2SK368Q3753, Q3754, Q3903
D3755, D3756
D3753, D3754
D3901
D3796DTA124EUA
1SS133
1SS355
DAP202K
MTZJ3.3B

D3052, D3053

UDZS6.8B

CAPACITORSC3129-C3133, C3913, C3914
C3336, C3337
C3168, C3909, C3910CCSRCH101J50
CCSRCH221J50
CCSRCH470J50C3906, C3918
C3189, C3197, C3198, C3951
C3954
C3753, C3754
C3063, C3064, C3173, C3174, C3917CEAL100M50
CEAL1R0M50
CEAL470M16
CEALR47M50
CEAT100M50C3923, C3924
C3925, C3926
C3795
C3955
C3111, C3112, C3190, C3757, C3758CEAT100M50
CEAT101M16
CEAT101M63
CEAT102M25
CEAT1R0M50C3113, C3114
C3149, C3911, C3912
C3150
C3901, C3902
C3115, C3116, C3147, C3148CEAT221M10
CEAT470M16
CEJQ470M16
CKSRYB102K50
CKSRYB103K50C3159, C3160, C3170-C3172
C3334, C3335
C3180, C3181, C3183, C3186, C3796
C3121-C3124, C3340-C3343
C3915, C3916CKSRYB103K50
CKSRYB103K50
CKSRYB104K16
CKSRYB104K25
CKSRYB104K25C3138
C3182
C3176
C3184, C3185
C3125, C3126, C3755, C3756CKSRYB152K50
CKSRYB224K10
CKSRYB333K25
CKSRYB393K25
CKSRYB472K50

C3177, C3179

CKSRYB473K25

RESISTORSR3118, R3119
R3757, R3758
R3164, R3177, R3206
R3796
R3901, R3902, R3911, R3912RD1/2PM151J
RD1/4PU103J
RD1/4PU220J
RD1/4PU223J
RD1/4PU330J

Other Resistors

RS1/16S###J

OTHERS0 4P CABLE HOLDER
CN3011 12P FFC CONNECTOR
CN3001 30P FFC CONNECTOR
CN3008 4P JUMPER WIRE
CN3012 13P JUMPER WIRE51048-0400
52044-1245
52044-3045
52151-0410
52151-1310CN3003 20P CONNECTOR
CN3007 12P CONNECTOR SOCKET
J3009 4P WIREAKM7074
AKP7154
D20PYY0425E

Mark No.	Description	Part No.
J3002	15P WIRE	D20PYY1520E
3001	SCREW TERMINAL	VNE1948

Mark No.	Description	Part No.
C9011, C9041		CQMA103K2E
C9021		CQMA473K2E
C11, C12 (2200uF/63)		XCH3020

N SP-TERMINAL ASSY(XWZ3742)

SEMICONDUCTORS

Q3639	2SA1576A
Q3601, Q3602, Q3621, Q3631	2SC4081
Q3637, Q3644	2SC4081
Q3641	2SD1858X
Q3635	DTA124EUA

Q3645	DTA143EUA
Q3636, Q3640	DTC124EUA
Q3633	RN1901
Q3632	UMB1N
D3632-D3634	1SS133

D3601, D3602, D3621, D3636, D3637	1SS355
D3641, D3642	1SS355
D3635	DAN202K
D3644	DAN217
D3603, D3623	DAP202K

D3631	MTZJ5.1A
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COILS AND FILTERS

L3361, L3362, L3561	ATH-059
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SWITCHES AND RELAYS

RY3641, RY3642	ASR7008
----------------	---------

CAPACITORS

C3631	CEAL2R2M50
C3633	CEAT100M50
C3632	CEAT471M6R3
C3668	CKSRYB103K50
C3361-C3364, C3561, C3563	CKSRYB223K50

C3365-C3368, C3565, C3567	CKSRYB473K50
C3369,	

RESISTORS

R3607,	
R3361, R3362, R3561	RD1/2PMF101J
R3668	RD1/4PU223J
R3634	RD1/4PU272J
R3635	RD1/4PU332J

R3631, R3632	RD1/4PU472J
R3633	RD1/4PU682J
R3365-R3368, R3565, R3566	RS1/10S220J
Other Resistors	RS1/16S###J

OTHERS

3603	2P PIN JACK	AKB1233
CN3305	12P CONNECTOR PLUG	AKM7066
JA3302	6P SPEAKER TERMINAL	XKE3023

Q SECONDARY ASSY(XWZ3743)

SEMICONDUCTORS

⚠ IC41 (7A)	AEK7021
D11, D21, D41	D5SBA20(B)

CAPACITORS

C21, C22 (4700uF/35)	ACH7166
C41	CEAT682M25

OTHERS

CN3	20P CONNECTOR SOCKET	AKP7162
CN4	7P-VH CONNECTOR	B7P-VH
0	PCB BINDER	VEF1040

L TRADE ASSY(XWZ3745)

RESISTORS

Other Resistors	RS1/16S###J
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OTHERS

0	13P CABLE HOLDER	51048-1300
CN3031	12PFFC CONNECTOR	52045-1245
CN3021, CN3022	23P SOCKET	AKP7075
J3032	13P WIRE	D20PYY1315E
J3033	14P WIRE	D20PYY1415E

6. ADJUSTMENT

6.1 DECK SECTION

6.1.1 Adjustment condition



■ Adjustment Condition

- (1) The ground at the time of adjustment shall be W166.
(Refer to Fig. 6-3).
- (2) Clean the heads and demagnetize them using a head eraser.
- (3) Set the measurement level to 0 dBV = 1 Vrms.
- (4) Use the specified tape for adjustment. Use the labeled (A) side of the test tape.

NCT-111 : For Tape Speed adjustment
 NCT-112 : For Playback adjustment
 STD-633 : Normal blank tape

* As the reference recording level is 250 nwb/m for NCT-112, the recording level will be higher than 4 dB for NCT-112 (160nwb/m). When adjusting, pay carefully attention to the type of tape used.

- (5) Provide yourself with the following measuring devices:
 - AC millivoltmeter
 - Low-frequency oscillator
 - Attenuator
 - Oscilloscope
- (6) Adjust both right and left channels unless other wise specified.
- (7) Turn the DOLBY NR switch off unless otherwise specified.
- (8) Warm up the unit for several minutes before adjustment. In particular, be sure to warm up the unit in the REC/PLAY mode for 3 to 5 minutes before starting recording/playback frequency characteristics adjustment.
- (9) Always follow the indicated adjustment order.
 Otherwise, a complete adjustment may not be achieved.

■ List of Adjustments

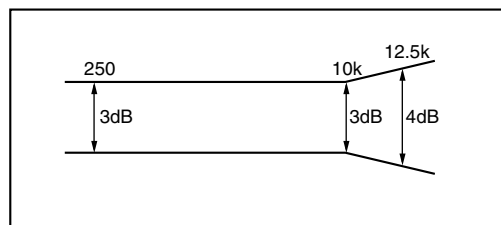
● Playback Section

- (1) Tape Speed Confirmation
- (2) Head Azimuth Adjustment
- (3) Playback Level Adjustment

● Recording Section

- (1) Recording Bias Adjustment
- (2) Recording Level Adjustment

PLAY BACK



RECORDING

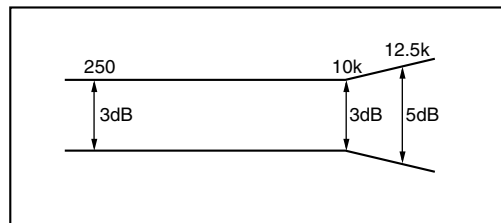


Fig. 6-1 Frequency Characteristics

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
 "DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

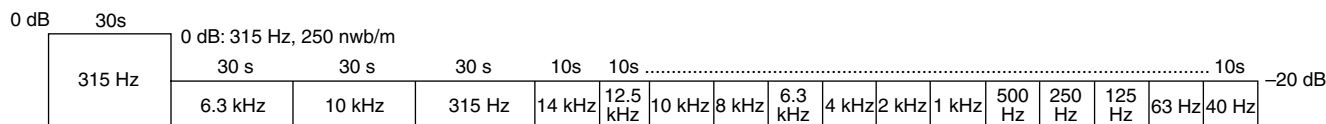


Fig. 6-2 Test Tape NCT-112

6.1.2 Playback and Recording section

■ Playback Section

(1) Tape Speed Confirmation

No.	Mode	Input Signal/Test Tape	Adjustment Points	Measurement Points	Adjustment Value	Remarks
1	PLAY	NCT-111 (3 kHz)	VR2701 (DECK ASSY) (Refer to Fig. 6-3)	P1 R (CN2507) (DECK ASSY)	3000 Hz $\begin{smallmatrix} +10 \\ -10 \end{smallmatrix}$ Hz	FWD adjustment REV Confirmation (3000 Hz $\begin{smallmatrix} +40 \\ -40 \end{smallmatrix}$ Hz)

(2) Head Azimuth Adjustment

- This unit is equipped with auto tape selector.
- Do not switch between forward and reverse operation with the screwdriver inserted.

No.	Mode	Input Signal/Test Tape	Adjustment Points	Measurement Points	Adjustment Value	Remarks
1	PLAY	NCT-110 test tape (Playback: 10 kHz, -20 dB)	Head azimuth adjustment Screw (Refer to Fig. 6-3)	P3 L (CN2507) P1 R (CN2507) (DECK ASSY)	Max. Playback signal level	After adjustment, apply silicon bond to the head azimuth adjustment screw.

(3) Playback Level Adjustment

- Since this adjustment determines playback DolbyNR level, Perform it carefully.

No.	Mode	Input Signal/Test Tape	Adjustment Points		Measurement Points	Adjustment Value	Remarks
1	PLAY	NCT-112 test tape (Playback: 315 Hz, 4 dB)	L ch	VR2301	P3 L (CN2507) P1 R (CN2507) (DECK ASSY)	-3.7 dBV	
			R ch	VR2302			

■ Recording Section

(1) Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

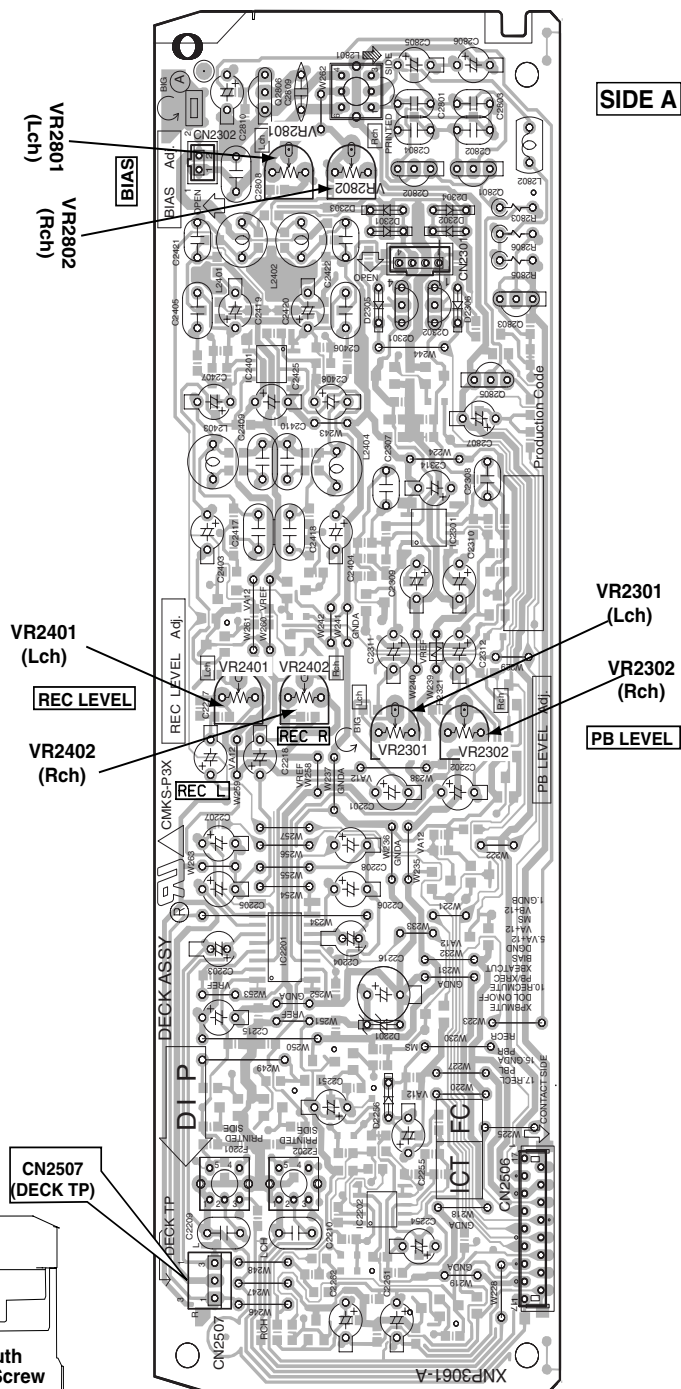
No.	Mode	Input Signal/Test Tape	Adjustment Points		Measurement Points	Adjustment Value	Remarks
1	REC/ PAUSE	Input a 315Hz signal to the LINE - IN terminal. *	Input signal level		P3 L (CN2507) P1 R (CN2507) (DECK ASSY)	-23.7 dBV	
2	REC → PLAY	Load the STD-633 test tape and record/playback the 315Hz and 10kHz signals. (see the Note below)	L ch	VR2801		Repeat adjustment until playback level of the 10kHz signal is within 0dBV ±0.5dB from that of the 315Hz signal.	
			R ch	VR2802			

Note: Set the 10kHz input signal level to the same value as the 315Hz input signal level of step 1.

(2) Recording Level Adjustment

No.	Mode	Input Signal/Test Tape	Adjustment Points		Measurement Points	Adjustment Value	Remarks
1	REC/ PAUSE	Input a 315Hz signal to the LINE-IN terminal.*	Input signal level		P3 L (CN2507) P1 R (CN2507) (DECK ASSY)	-7.7 dBV	
2	REC → PLAY	STD-633 test tape and record/playback the 315Hz signal.	L ch	VR2401		Repeat recording, playback and adjustment until playback level of the 315Hz signal becomes -7.7dBV±0.5dB.	
			R ch	VR2402			

● DECK ASSY **D**



● MECHANISM UNIT

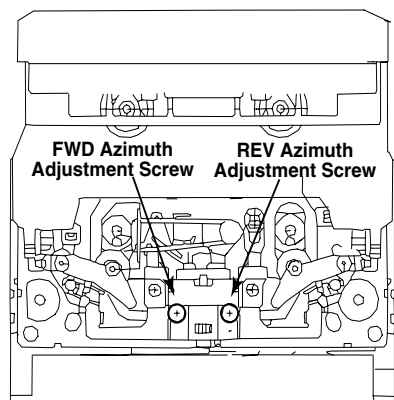


Fig. 6-3 Adjustment and Measurement Points

6.2 TUNER SECTION



AM Tuner Section

- There is no adjustment in the AM tuner.

FM Tuner Section

- Set the mode selector to FM BAND.
- Connect the wiring as shown in Fig. 1.

Step No.	Adjustment Title	ANT. Input level and signal condition			Adjustment	
		Frequency (MHz)	Modulation	Input Level (dBμV)	Adjust point	Contents
1	T-METER Adjustment	98	OFF	80	L201	Adjust L201 so that the DC voltage between Pin 21 and Pin 23 of IC201 (Test point Vtm) gets within 0 ± 50mV.

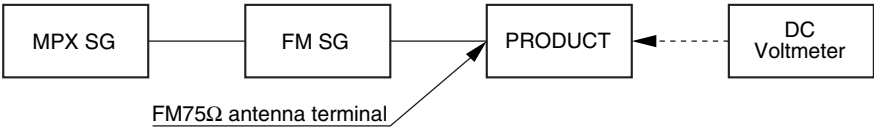


Fig.1 Adjustment Wiring Diagram

FM/AM TUNER MODULE

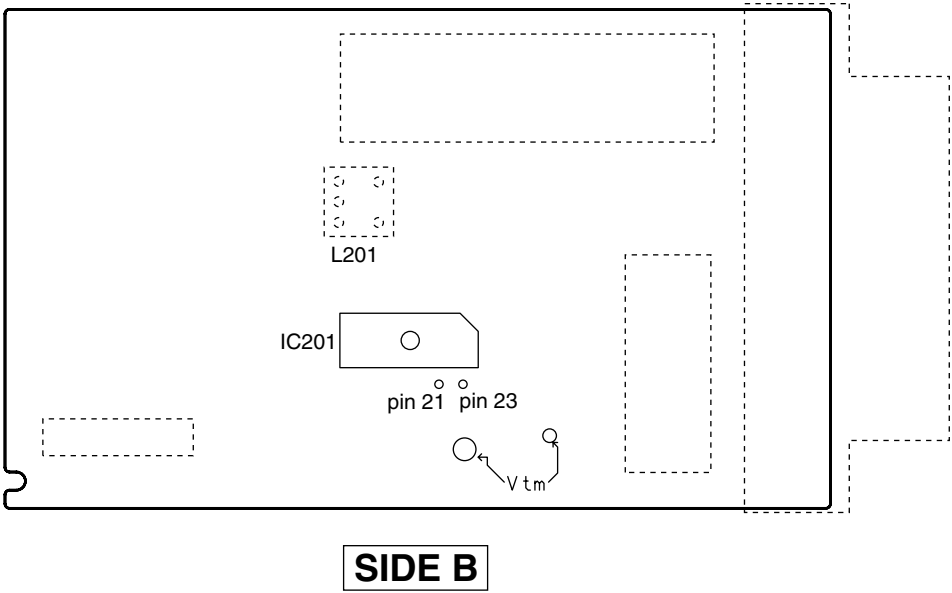


Fig.2 Adjustment Point

6.3 DVD SECTION ADJUSTMENT ITEMS ana LOCATION

■ Adjustment Items

[Mechanism Part]

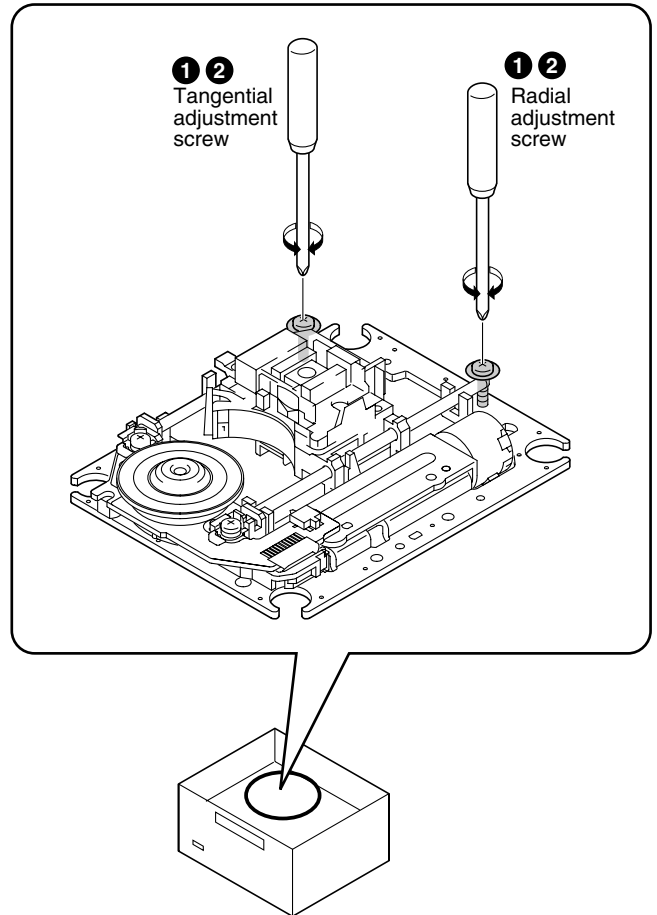
- ❶ Tangential and Radial Height Coarse Adjustment
- ❷ DVD Jitter Adjustment

[Electrical Part]

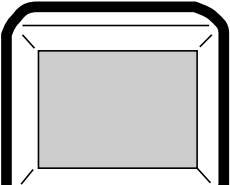
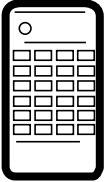
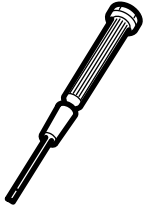
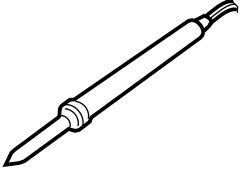
Electrical adjustments are not required.

■ Adjustment Points (Mechanism Part)

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



6.4 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)

6.5 NECESSARY ADJUSTMENT POINTS

A

When

Adjustment Points

■ Exchange Parts of Mechanism Assy

Exchange the Pickup	Mechanical point	①, ②	* After adjustment, screw locks with the Screw tight.
	Electric point		
Exchange the Traverse Mechanism	Mechanical point		
	Electric point		
Exchange the Spindle Motor	Mechanical point	②	* After adjustment, screw locks with the Screw tight.
	Electric point		

C

■ Exchange PCB Assy

Exchange PC Board	Mechanical point		
LOAB and DVDM ASSY	Electric point		

D

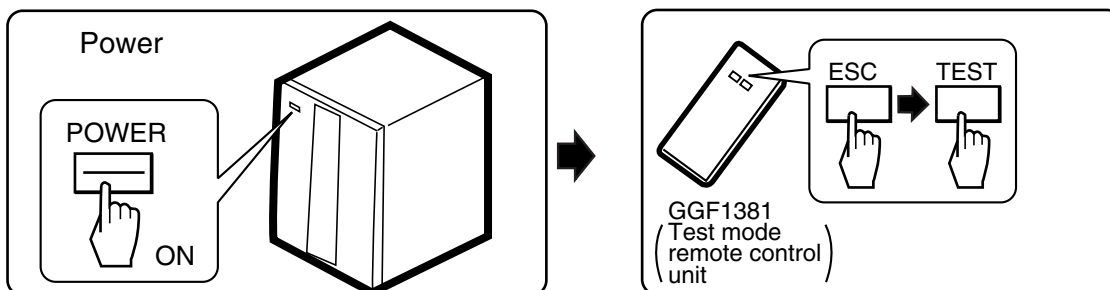
E

F

6.6 TEST MODE

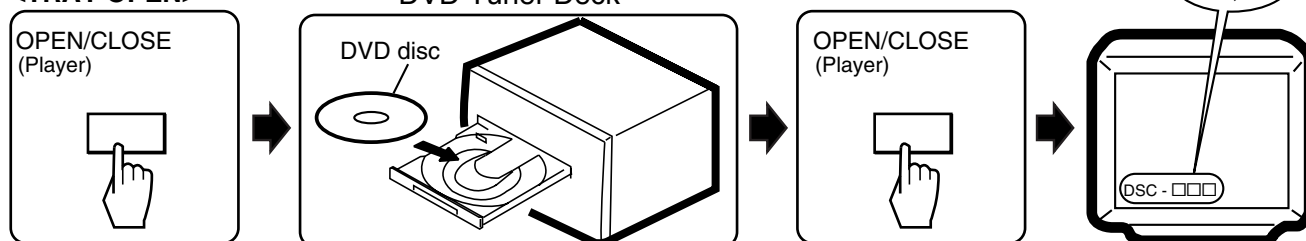
- The TEST MODE functions that are used only during adjustment are described here. For details, see "7.1.1 TEST MODE".

TEST MODE: ON



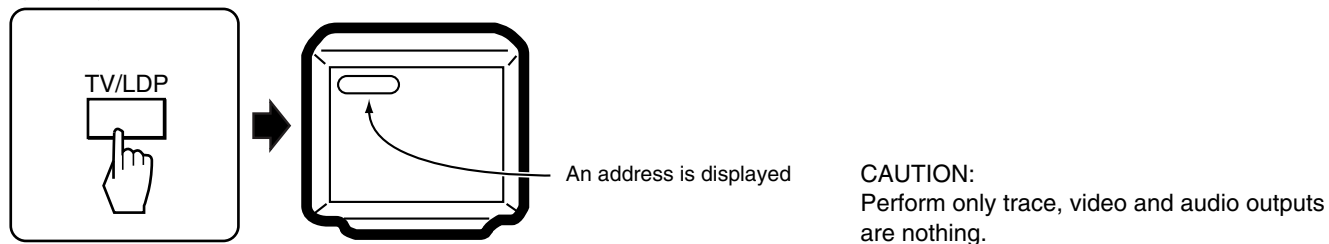
TEST MODE: DISC SET

<TRAY OPEN>



TEST MODE: PLAY

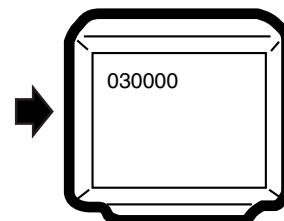
<PLAY>



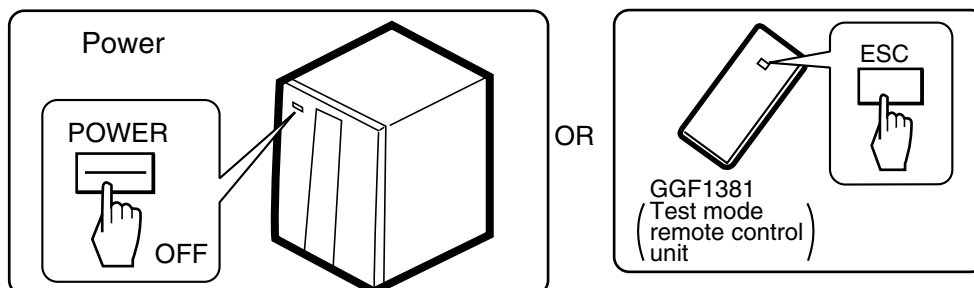
< When playback with the target address of disc (DVD)>

For example, when playback with # 30000

During PLAY [+10] → [3] → [0] → [0] → [0] → [0] → [CHP/TIM] Press keys in order



TEST MODE: OFF



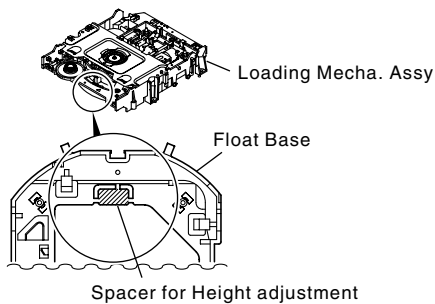
6.7 MECHANISM ADJUSTMENT



1 Tangential and Radial Height Coarse Adjustment

START

- Remove the Loading Mecha. Assy.
- Remove a Spacer for height adjustment attached to the back side (shaded area) of the Loading Mecha. Assy (Float Base) with nippers.

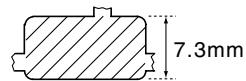


Note:

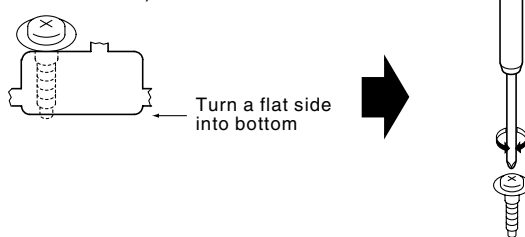
Before removing the flexible cable for the pickup, soldering of the pickup circuit is necessary.
For details, see "7.1.13 DISASSEMBLY".

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 "6.3 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

Confirm the error rate that is displayed "OK"

(Example ERROR RATE: 6.6×10^{-6} OK)

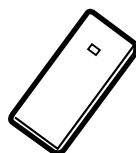
Turn the POWER OFF in case of NG once, and perform the adjustment once again.

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 the all FL and LEDs, and goes out the FL and LEDs when pressing the keys of something.
- OSD displays test mode. Refer to the "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 from the stop state.

④ Playback stop

1. Press the [REPEAT] (A8 - 44) key of the remote control unit from the playback state.
2. Press the [STOP] key of the remote control unit or main unit from the 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 (650nm).
CD : Press the [TEST] (A8-5E) and [4] (A8-04) keys in order, and turn on the laser diode (780nm).

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

⑧ Tracking open / close

1. Open tracking by pressing the [STEP FWD] (A8-54) key of the remote control unit in the play state.
2. Close tracking by pressing the [STEP REV] (A8-50) key of the remote control unit in the 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 the tracking off state, press the [SCAN REV] (A8-11) key of the remote control unit.
Slider out : In the tracking off state, press the [SCAN FWD] (A8-10) key of the remote control unit.

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

- Press the [TV/LDP] (A8-0F) key of the remote control unit from the stop state.
Perform only trace, video and audio outputs are nothing.

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

2. Search address input

- Press the [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, perform only the absolute time search.

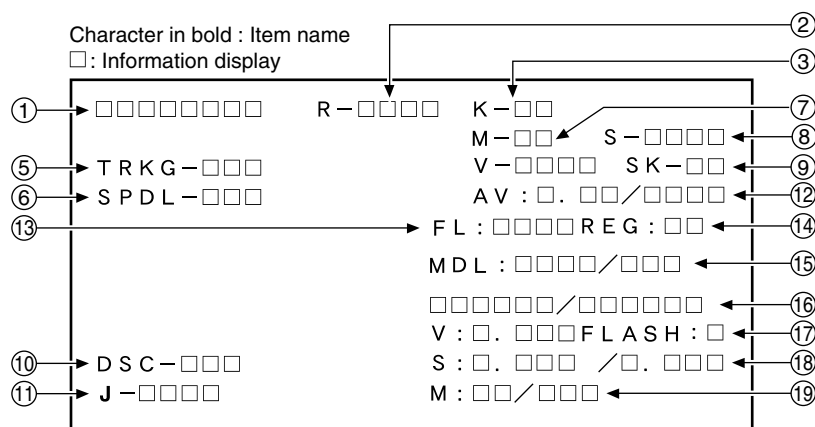
3. Search execution

- Press the [CHP/TM] (A8-13) key of the remote control unit.
- After the search, perform only trace and video and audio outputs are nothing.

4. Release the Search address input

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

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.) [0 0 0 *****]

⑩ Disc sensing [DSC - ***]

The type of discs loaded is displayed.

[DVD], [CD], [VCD], []

⑪ Jitter value [J - ***]

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

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

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

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

③ Main unit keycode indication [K - **]

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

⑤ Tracking status [TRKG - ***]

Tracking on : [ON]

Tracking off : [OFF]

⑭ Region setting of the player [REG: *]

Setting value : [1] to [6]

⑥ Spindle status [SPDL - ***]

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

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

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

Unknown : [01] or [41]

Open state : [04]

Close state : [08]

During opening : [12]

During closing : [22]

⑯ Part number of the flash ROM and system controller

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

⑧ Slider position [S - ****]

In Side Switch ON : [01]

In Side Switch OFF : [00]

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

Flash ROM size [FLASH = **]

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]

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

Functional Specification 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.)

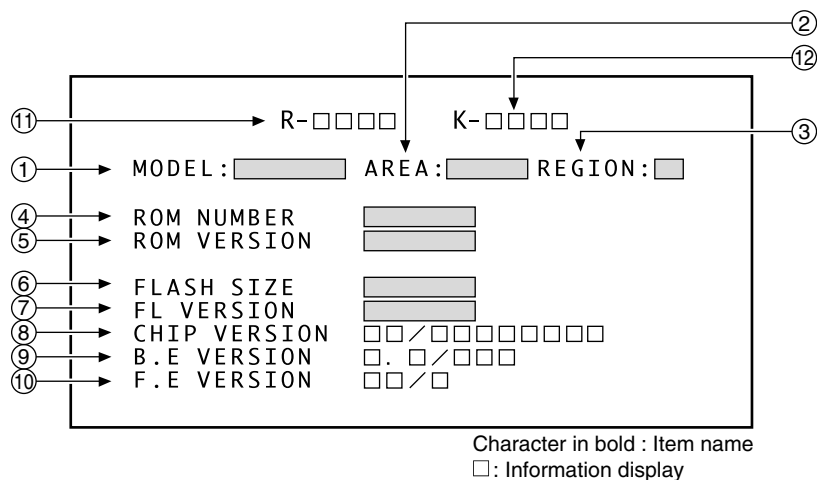
• Region confirmation mode (ESC + AUDIO [Test mode remote control unit] + "1"- "8" [Test mode remote control unit] keys)

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.

■ Specification 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

Functional Specification 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.

FL display

0 0 / 0 0 / 0 1 *

↑ ↑ ↑ ↑
*: Lights when an AV1 error was generated at least once.

↑ ↑ ↑ ↑
Number of sites where an EDC or ID error was generated

↑ ↑ ↑ ↑
Number of retrials while an ID error is being generated
(only displayed at the moment when an error is being generated),
and for the ST models, the number of retrials made for the latest ID error

↑ ↑ ↑ ↑
Number of retrials while an EDC error is being generated
(only displayed at the moment when an error is being generated),
and the number of retrials made for the latest EDC error

• 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

AV1 ERR	BIT		
	2	1	0
00	0	0	0
01	0	0	1
02	0	1	0
03	0	1	1
04	1	0	0
05	1	0	1
06	1	1	0
07	1	1	1

7.1.2 DISPLAY OF THE MECHANISM ERROR HISTORY

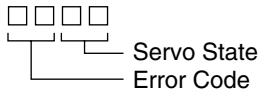
Mechanical Error History

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.



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*)..

② Error number

The elapsed time from the time when the system was turned on until an error was generated is displayed.

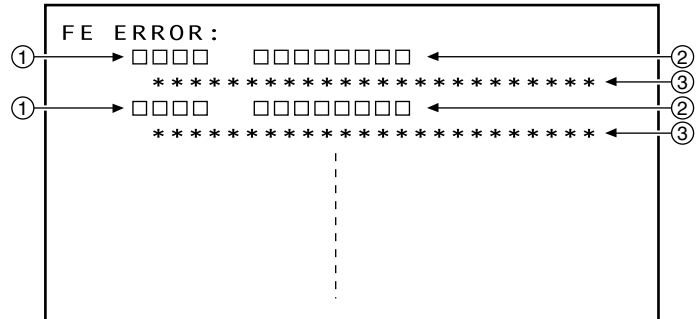
Note: If a later error time is shorter than the previous error time, it means that the unit was turned off then on again.

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."

Indication contents



• 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	

7.1.3 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.

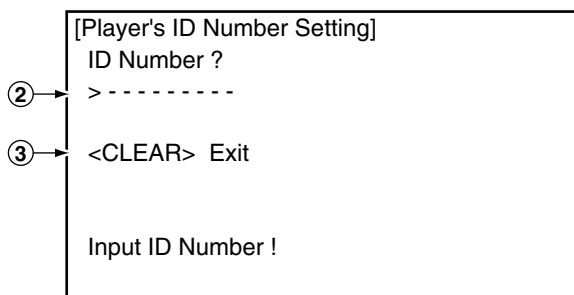
Note: Enter ID numbers while the unit is in Stop mode so that the values set will be immediately written to the flash ROM. The following operations are all made with the TEST MODE remote control unit (GGF1381).

■ 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.

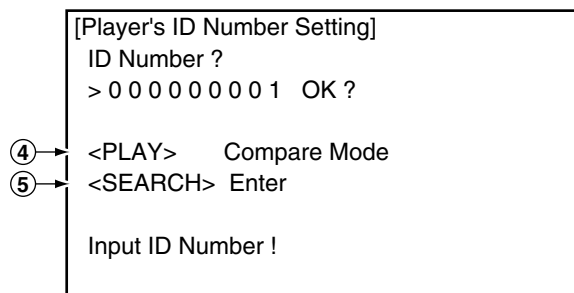
- ② Enter a 9-digit ID number. The ID number is also displayed on the FL display.
- ③ By pressing the CLEAR key without having input a number, you can exit this mode. Each press of this key after a number has been input deletes one digit.



- 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.

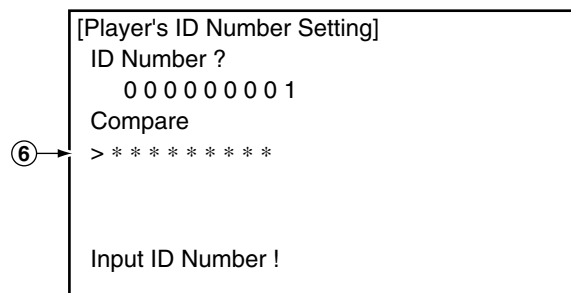
Note: If you press the PLAY button before inputting a 9-digit ID number, the unit returns to Step ② without doing anything else.

- 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.)



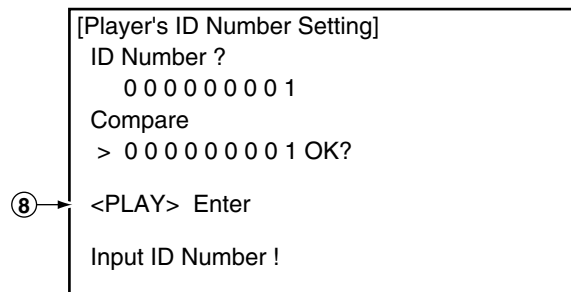
- ⑥ This display appears when the PLAY key is pressed in Step 4. Enter a 9-digit number to compare. The number is also displayed on the FL display.

- 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.



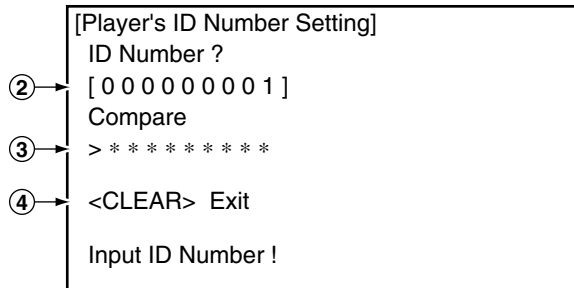
- ⑧ After entering all 9 digits, if you press the PLAY key, the unit compares the numbers input in Steps ② and ⑥, and only if the numbers match, that number is set as the ID. Then the unit automatically enters ID DATA Input Mode. If the numbers do not match, the disc tray is opened, and the unit exits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



ID Number Confirmation Mode

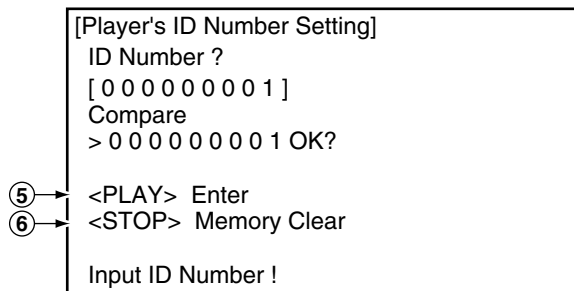
- ① To enter ID Number Confirmation Mode after the ID number and the ID data are set, press the ESC key then the STEREO key.
- ② The ID number already set is displayed.
(It is also displayed on the FL display.)
- ③ Enter a 9-digit number for comparison. This is not required when you only wish to check the ID number visually.
(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 is opened, 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 your 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.

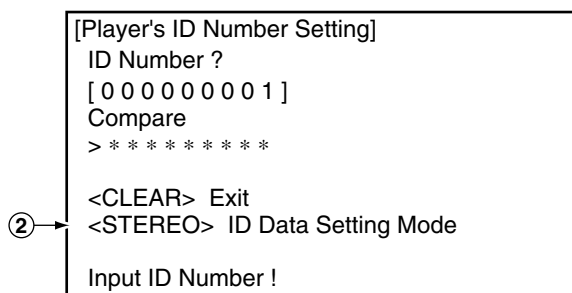
If you only need to confirm the ID number, you can exit this mode by pressing the CLEAR key or turning off the power.

• Indication when no ID number is set

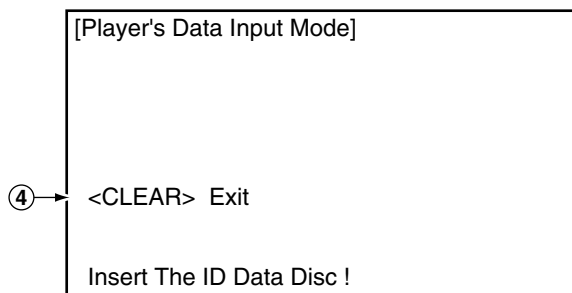
If no ID number is set, the message "No ID Number!" flashes on the screen and FL display for a few seconds after the power is turned on or during Stop mode.

■ 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.

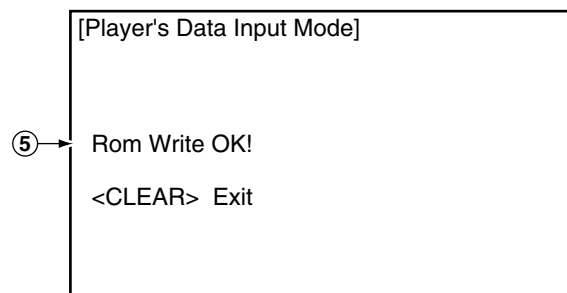


- ③ If the DVD DATA DISC (GGV1085) is loaded in this mode, the unit automatically starts reading the data.
(If the ID DISC has already been loaded, the unit does not start reading the data. In this case, open then close the tray.)
- ④ To exit this mode, press the CLEAR key. While data are being read from the DVD DATA DISC (GGV1085), you cannot exit this mode.

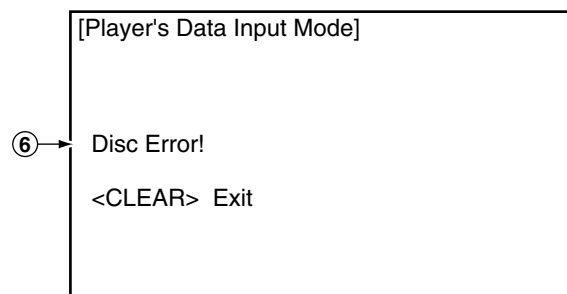


- ⑤ When writing of the data read from the disc to flash ROM is completed, "Rom Write OK!" is displayed. After seeing this message, you can exit this mode by pressing the CLEAR key.

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



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



• 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.

7.1.4 TROUBLE SHOOTING

Microcomputer Section (IF/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 circuit.
	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 of the KEY input terminal is 5 V. If it is not, check if the operation switch on the line is in failure.

* Vdd= Approx. 5V (depending on the unit)
 ex.) $0.85V_{dd} = 0.85 \times 5 \text{ (V)}$
 $= 4.25 \text{ (V)}$

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 67(XDVDRST) and pin66 (DVDON/OFF) on the CONTROL Assy "H" ?	μcom (IF/AF IC5501)
		Check the voltage of CN901-pin 28 and 29 (VPR+8) on the DVDM Assy.	DVDM Assy CN901
		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 70 (DVDACK) on the CONTROL Assy? (Is a signal fluctuating ?) → Communication with μcom	μcom (IF/AF IC5501)
		Is a signal output from IC5501-pin 57 and 58 (SYS_1, 2) on the AF Assy ? (Is a signal fluctuating in the range of 0-5V ?)	μcom (IF/AF IC5501)
		Are the signals output from IC5501-pin 23, 24 and 25 on the CONTROL Assy? (in the range of 0-5V)	μcom (AF IC5501) – BACK END IC (DVDM IC601) communication line
2	An opening screen is not displayed on the monitor (The FL display lights. The mechanism does not work.)	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)
3	A tray cannot be opened. (An opening screen is displayed on the monitor)	• Are wires of CN103 on the DVDM Assy disconnected or damaged ?	Connector / wire LOADING SW (LOAB S101)
		- Is a LOAD-DRVC signal reaching ? - Does the voltage of CN105 pin 1 change by pressing the Inside switch.	BACK END IC (DVDM IC601) Inside switch

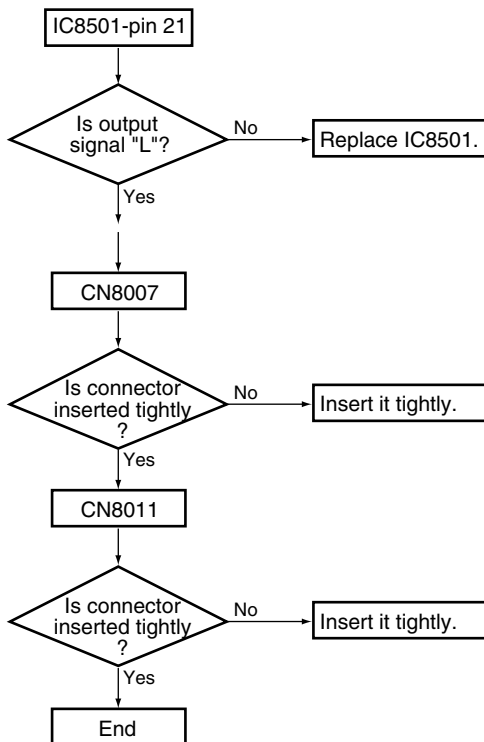
No.	Symptoms	Diagnosis Contents	Possible Defective Points
A 4	Playback impossible (no focusing)	Are the signals output from IC101-pin 34 (F_DRV) and pin 35 (F_RTN) on the DVDM Assy ?	FTS Driver IC (DVDM IC101)
		Does 650-nm LD emit light ? Does a pickup lens move up / down ? Does an actuator spring bend ?	Pickup
		• Are plastic parts damaged? Or is a shaft detached? • Is the turntable detached or tilted?	Mechanism section
		Is flexible cable of CN101 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)
B 5	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 CN105 (DVDM 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)
C 6	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
7	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
8	No sound (Picture is normal)		
		Is signal output from DOUT signal (CN901-pin 21) on the DVDM Assy ?	DVDM CN901-pin 21

7.1.5 DSP TROUBLE SHOOTING (XV-EV61 Only)

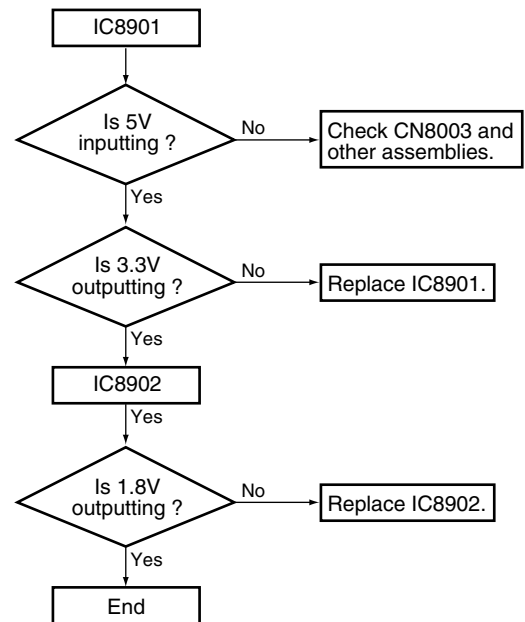
■ XV-EV61 Type Only

- When a sound is not out in the surround mode with the digital signal input.
- Suppose C,R parts to be poor contact and that is not damaged.
- This shows failure analysis of DSP Assy.

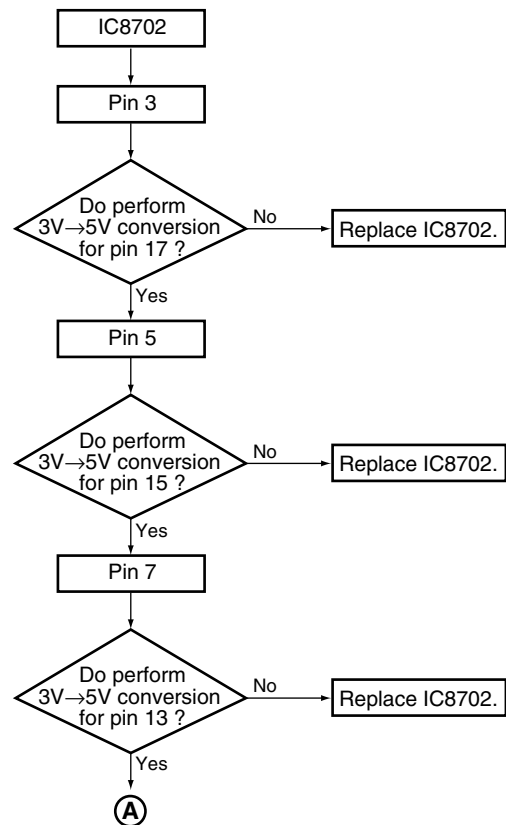
Step 1



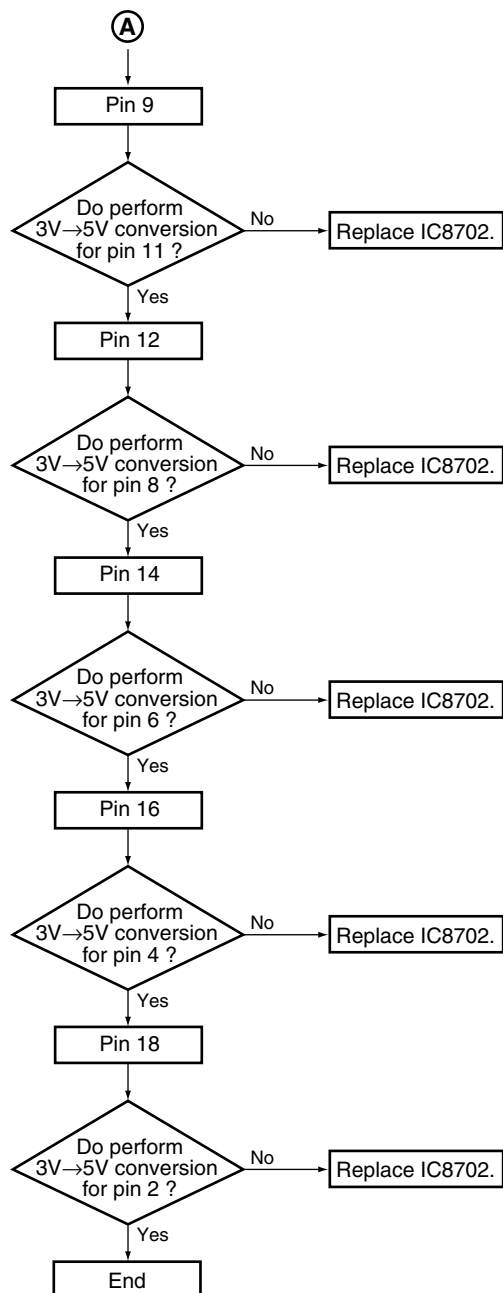
Step 2



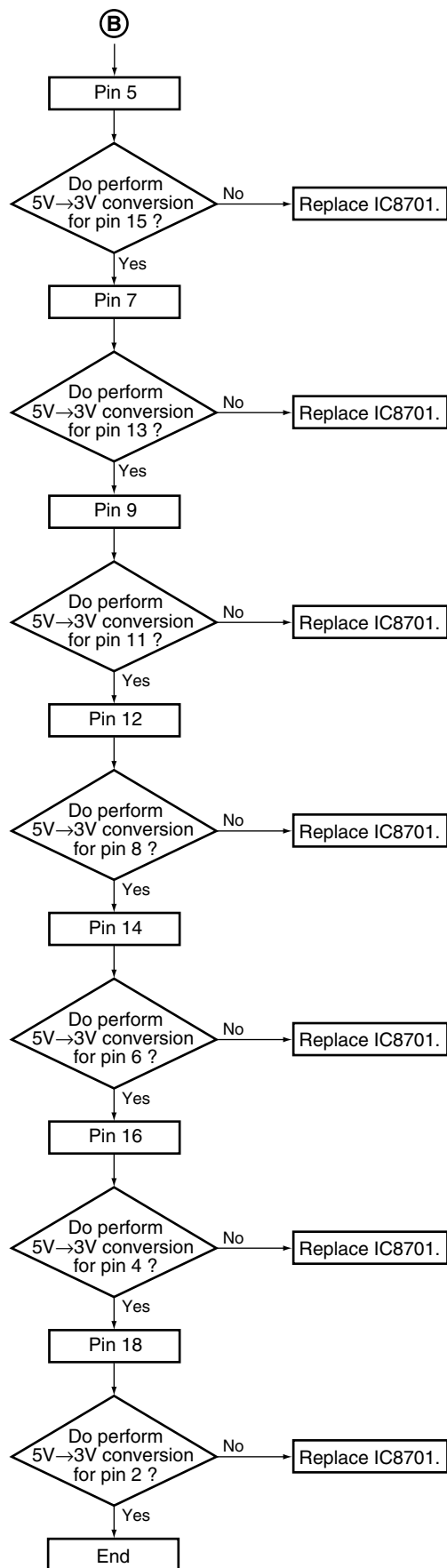
Step 3



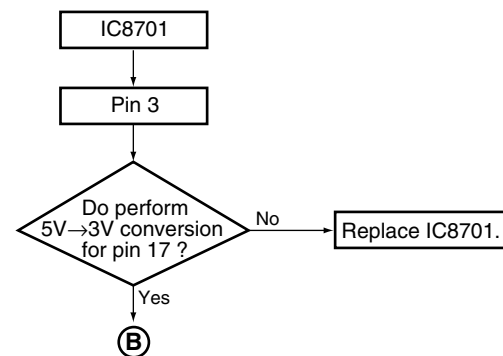
A



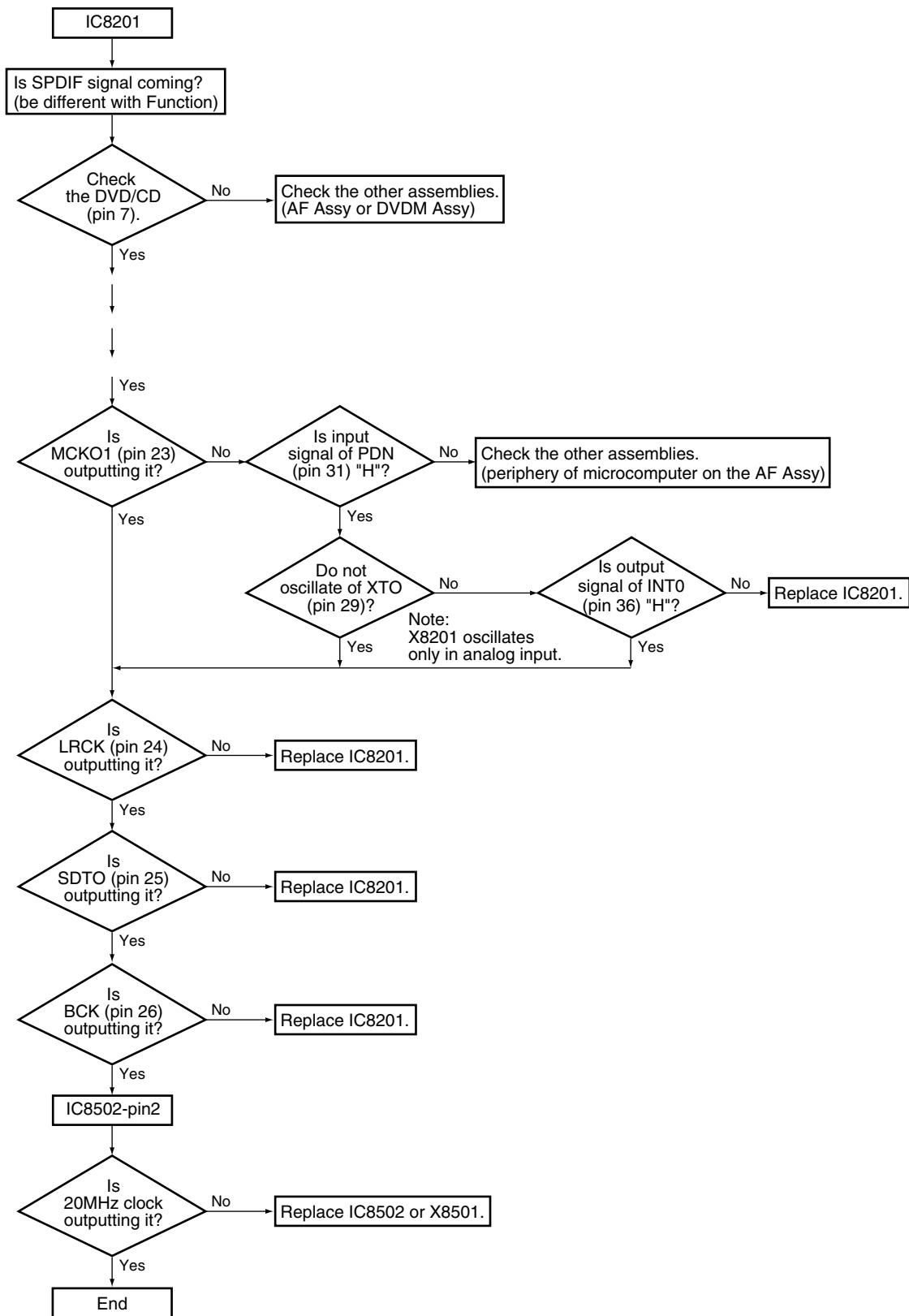
B



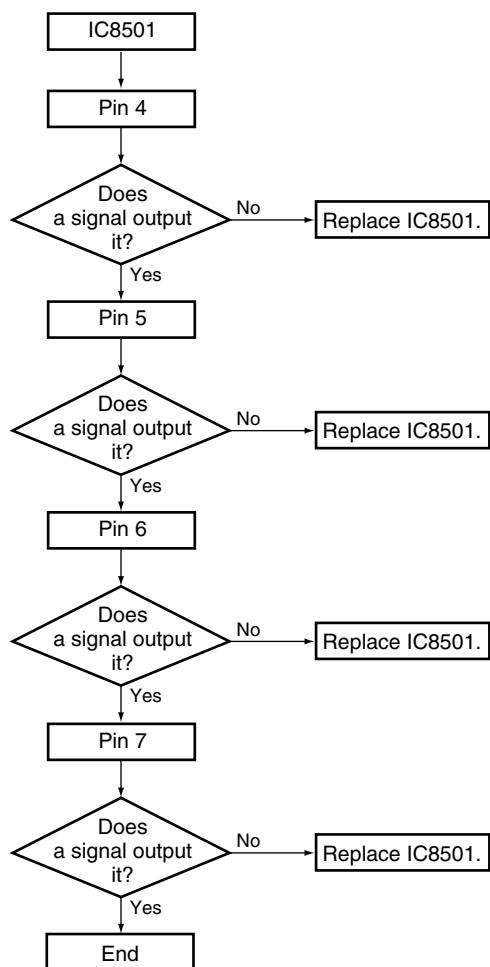
Step 4



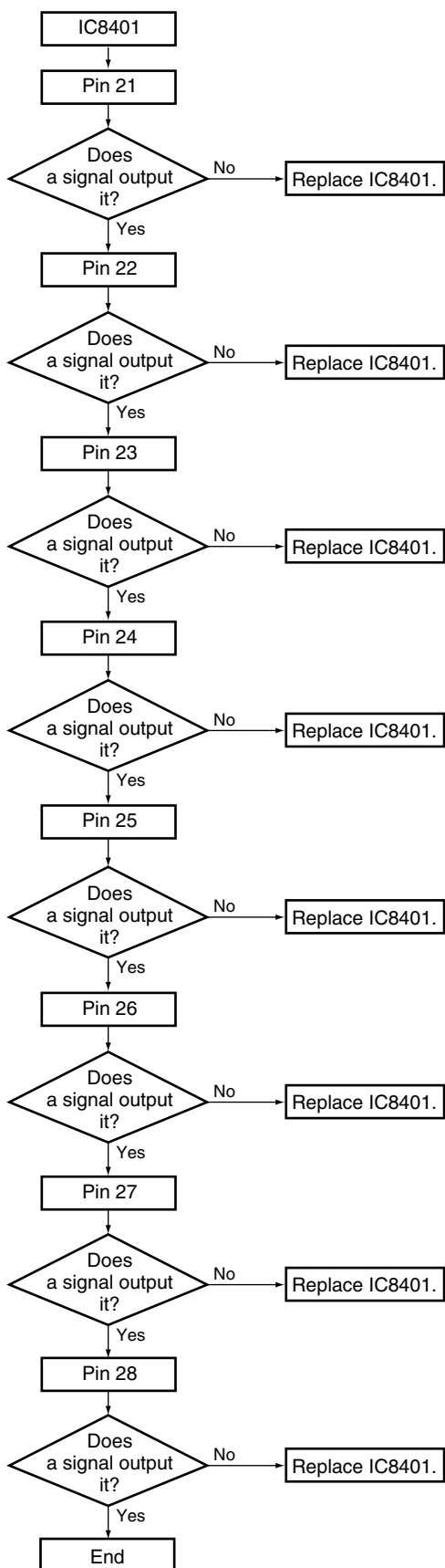
Step 5



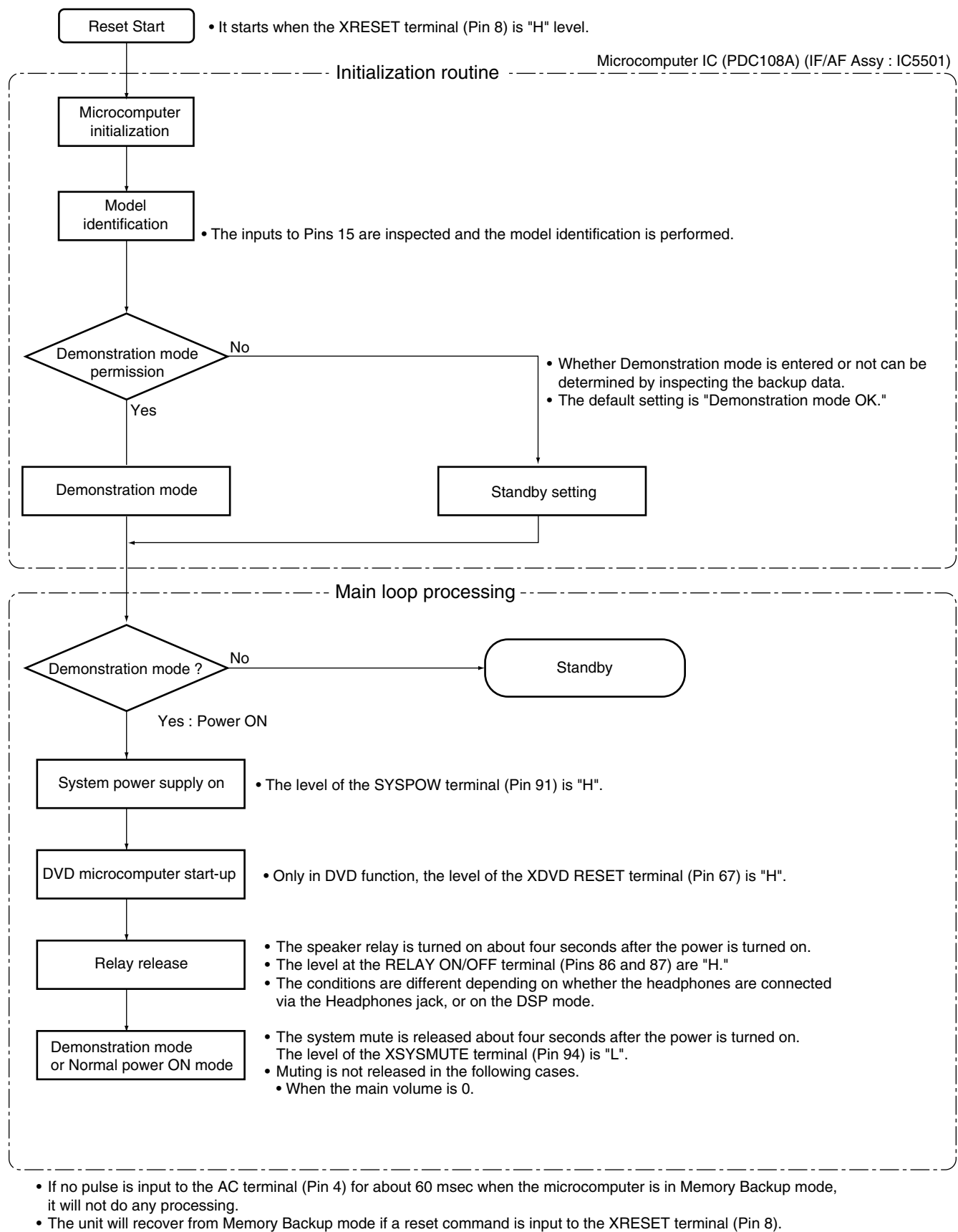
Step 6



Step 7



7.1.6 SEQUENCE AFTER POWER ON



7.1.7 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 connecting SERVICE port (IC5501 pin69) to "+5V", connect AC power cord.)

There are three types of operations for the protection circuit, which are indicated on the LCD display when Service Test mode is entered:
(Short W138 and W139)

POW WNG: The unit was shut down because of an abnormality in the AMP system. (The PROTECT line operates at the MID level.)

POW ERR: The unit was shut down because of a failure in the AMP system. (The PROTECT line operates at the LO level.)

DVD ERR: 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.	
	LO level	<1.8V	The unit is shut down because of a failure.	POW ERR
VDET	HI level	>4.25V	The unit is shut down because of a failure.	DVD ERR
	MID level	3.3V	Normal	
	LO level	<2.5V	The unit is shut down because of an abnormality.	DVD ERR

The possible failures for each error message are as follows:

POW ERR:

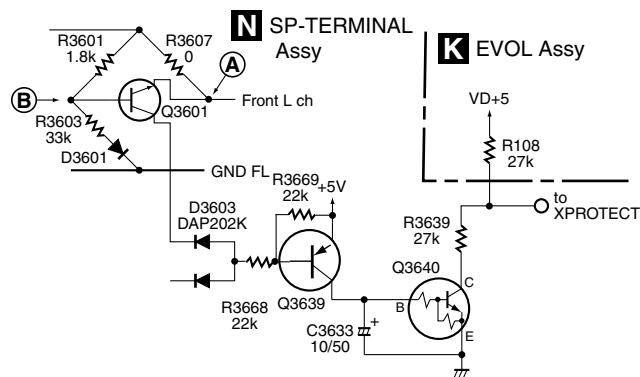
- The Speaker terminal became overloaded because of short-circuit. (See ①.)
- The main power supply became LO level because of short-circuit or disconnection of connectors. (See ②.)
- Disconnection of the FAN connector or interruption of rotation of the fan (See ③.)
- DC was generated at the output because of a failure in the AMP system, etc. (See ④.)
- Abnormal temperature was detected by the thermistor. (See ⑤.)

DVD ERR:

- An error was generated in the main power supply inside the DVDM. (See ⑥.)

Protection circuit that activates against a POW ERR 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.
- After power off, unit recovers. (no need to unit for 60 seconds)

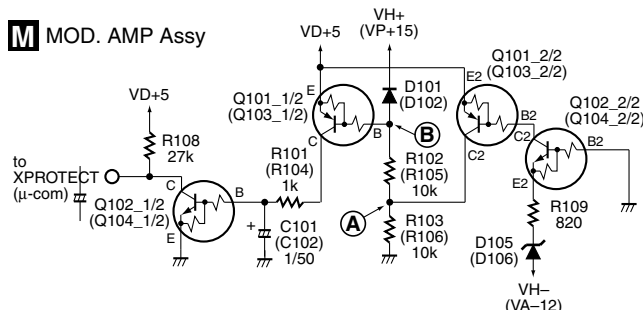
■ Protection circuit that activates against a POW ERR error

- ② When the main power supply becomes LO level because of short-circuit or disconnection of connectors

② -1 Short-circuit-detection circuit for the amplifier power circuit (+15 V[VP+15], VD+5, -12 V [VA-12])

Circuit for shutting the power off when VP+15, VD+5, or VA-12 is short-circuited to ground (GND)

M MOD. AMP Assy



- In Normal mode, as Q101 (Q103) (E2, B2, C2) and Q102 (Q104) (E2, B2, C2) are on, the voltage at Point (A) is about 5 V. The voltage at Point (B) is therefore about the same. As Q101 (Q103) (E, C, B) is off, Q102 (Q104) (E, C, B) is also off.

(1) When VH+(VP+15) is short-circuited to GND

As the voltage at Point (B) becomes almost ground potential, and Q101 (Q103) (E, C, B) then Q102 (Q104) (E, C, B) are turned on, the level of XPROTECT becomes low.

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

(2) When VH-(VA-12) is short-circuited

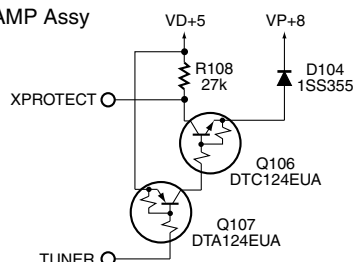
As the electric potential of VE at Q102 (Q104) (E2, C2, B2) becomes the same as that at VB, Q102 (Q104) (E2, C2, B2) is turned off. Following this, Q101 (Q103) (E2, B2, C2) is turned off, which changes the voltage at Points (A) and (B) to a value other than 5 V. Therefore, Q101 (Q103) (E, C, B) then Q102 (Q104) (E, C, B) are turned on, the level of XPROTECT becomes low.

(3) When VD+5 is short-circuited

The level of the XPROTECT line becomes low. The microcomputer detects the XPROTECT level and shuts the power to the unit off.

② -2 Short-circuit-detection circuit for the DVD power supply (VP+8)

M MOD. AMP Assy

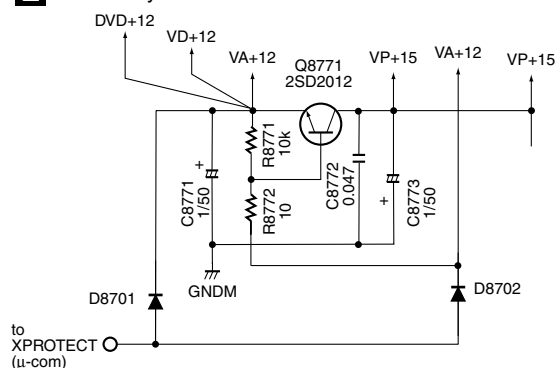


As the TUNER line is fixed to GND level, Q107 is always on. If the level at VP+8 falls to GND level because of short-circuit, etc., Q106 is turned on, and the level of the XPROTECT line becomes low.

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

- ② -3 Checking for VA+12 or VM+12 is short to Gnd or Not.

E IF/AF Assy

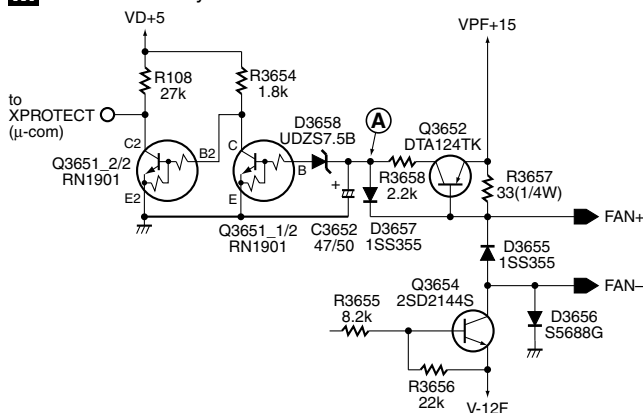


If VFDP is short-circuited to GND, or if the DC electric potential at FL AC1 becomes GND level (in Normal mode: about -27 V) because of a failure in the DC bias circuit of FL AC1, Q107 then Q115 are turned on, and the level of XPROTECT becomes low.

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

- ③ When the FAN connector is disconnected or when rotation of the fan is interrupted

M MOD. AMP Assy

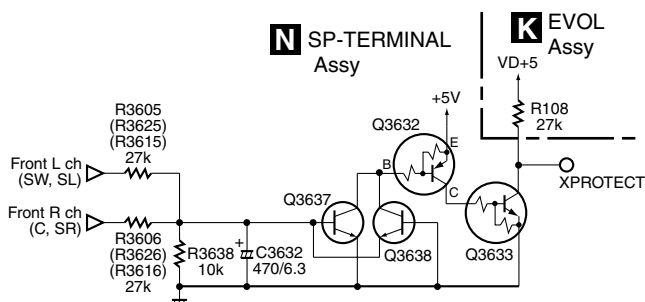


If no fan is connected between FAN+ and FAN-, or when the fan cannot rotate because of a foreign object caught in the blades, the BASE of Q3652 becomes OPEN, and Q3652 and Q3651 (E, C, B) are turned off. Then Q3651 (E2, B2, C2) is turned on, and the level of XPROTECT becomes low.

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

When FAN+ and FAN- are short-circuited, the electric potential at Point (A) becomes higher than GND level by the addition of the values at D3656 and D3657. As this value is lower than that at D3658, Q3651 (E, C, B) is turned off, Q3651 (E2, B2, C2) is turned on, and the level of XPROTECT becomes low.

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



• 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.

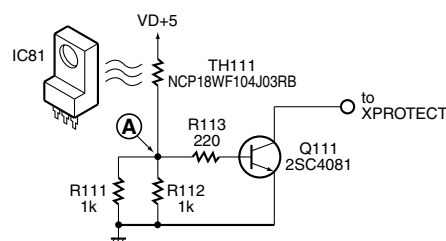
→ The microcomputer detects the XPROTECT level and shuts the power to the unit off.

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

Q3638 is turned on, and XPROTECT is activated.

⑤ When abnormally high temperature is detected by the thermistor

⑤ -1 IC81 abnormal temperature detection circuit

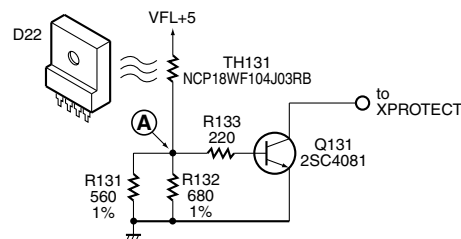


The voltage at Point (A) becomes the divided voltage of TH111 and R111//R112 (combined resistance of parallel-connected resistors R111 and R112.) In Normal mode, the resistance at TH111 is much higher than R111//R112, and Q111 is off. (Note that the resistance at TH111 becomes lower as the temperature 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.



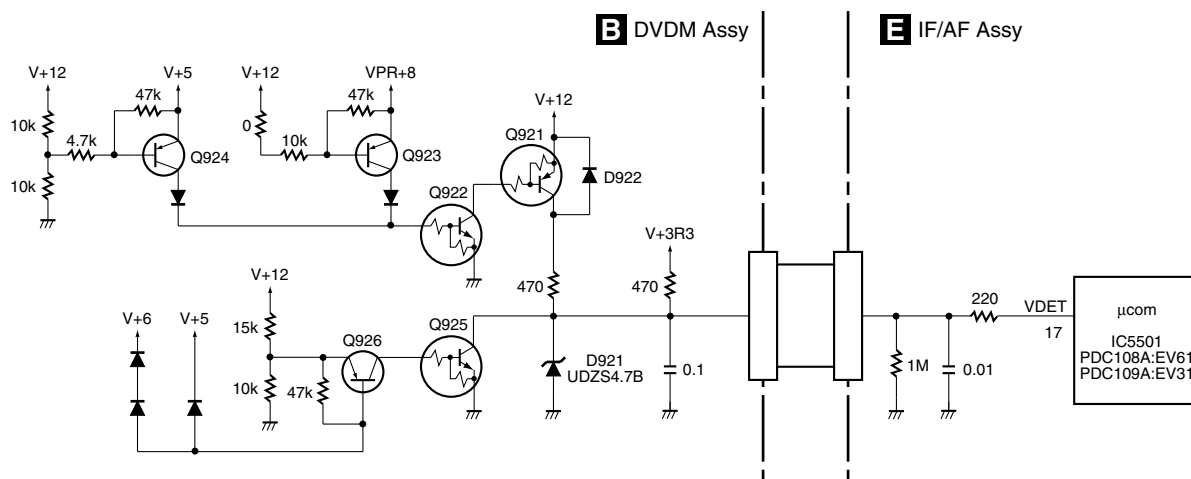
The voltage at Point (A) becomes the divided voltage of TH131 and R131//R132 (combined resistance of parallel-connected resistors R131 and R132.) In Normal mode, the resistance at TH131 is much higher than R131//R132, and Q131 is off. (Note that the resistance at TH131 becomes lower as the temperature 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 ERR 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 generated.	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

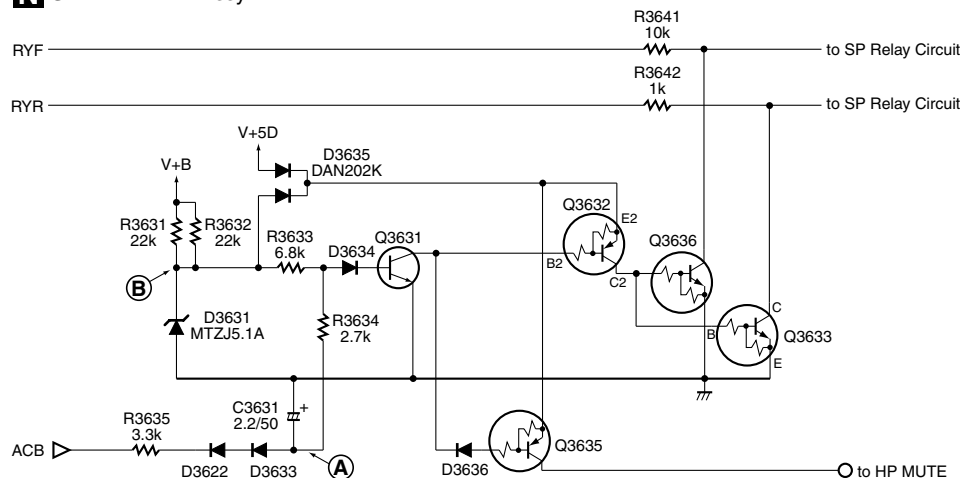
→ The VDET level is lowered by the pull-down resistor (1 Mohms) on the side of the microcomputer.

Other protection circuit

AC detection circuit

This is a protection circuit that prevents popping sounds in the Speaker and Headphones output when the AC power cord is connected or disconnected.

SP-TERMINAL Assy



- The voltage at Point ① is a DC voltage which has been generated by half-wave rectification on the minus side of the AC power.
- The voltage at Point ② is approx. 5 V.

- The base voltage at Q3631 is a voltage between Points ① and ② divided by R3633 and R3634. As this voltage is negative (-) in Normal mode, Q3631 is off.
When the AC power cord is disconnected and there is no AC power input, the base voltage at Q3631 becomes +0.6 V or more, and Q3631 is turned on. Then, the operations below follow.

(1) SP Relay

Q3632 (E2, C2, B2), Q3633, and Q3636 (E, C, B) are turned on, the line to activate the SP relay becomes low level, and the SP Relay is turned off.

(2) HP MUTE

Q3635 is turned on, and the MUTE circuit for HP is turned on.

■ Protection Specifications and Service Mode

● Protection Specifications

The system microcomputer (CONTRL 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	$0.71 \times V_{dd}^*$ or more	$0.5 \times V_{dd} - 0.85 \times V_{dd}^*$
	In abnormal conditions	$0.36 \times V_{dd} - 0.71 \times V_{dd}^*$	
	In failure	$0.36 \times V_{dd}^*$ or less	$0.85 \times V_{dd}^*$ or more $0.5 \times V_{dd}^*$ or less
Monitoring start time		1.5 sec after power is turned on	1.5 sec after power is turned on
Time required for determining abnormality		0.5 sec after detection	0.5 sec after detection

*V_{dd} = 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 connecting STEST port (IC5501 Pin69) to "+5V", connect AC power cord. (See next page.)

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 data on protection in RAM are cleared.

4. Indications when Service Test mode starts

- Indications on the LCD 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 the abnormality of the power, as described below.

[After the power is shut down because of an failure/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: P:O:W: E:R:R: :

[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:D: E:R:R: :

5. Operations during Service Test mode

- Basically, operations in Service Test mode are the same as in Normal mode.

■ Service Test mode connecting point

A

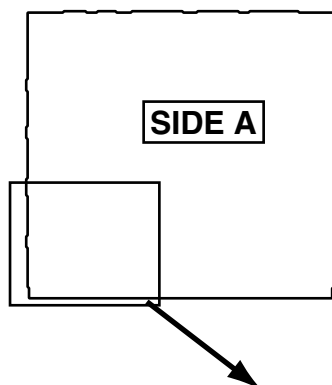
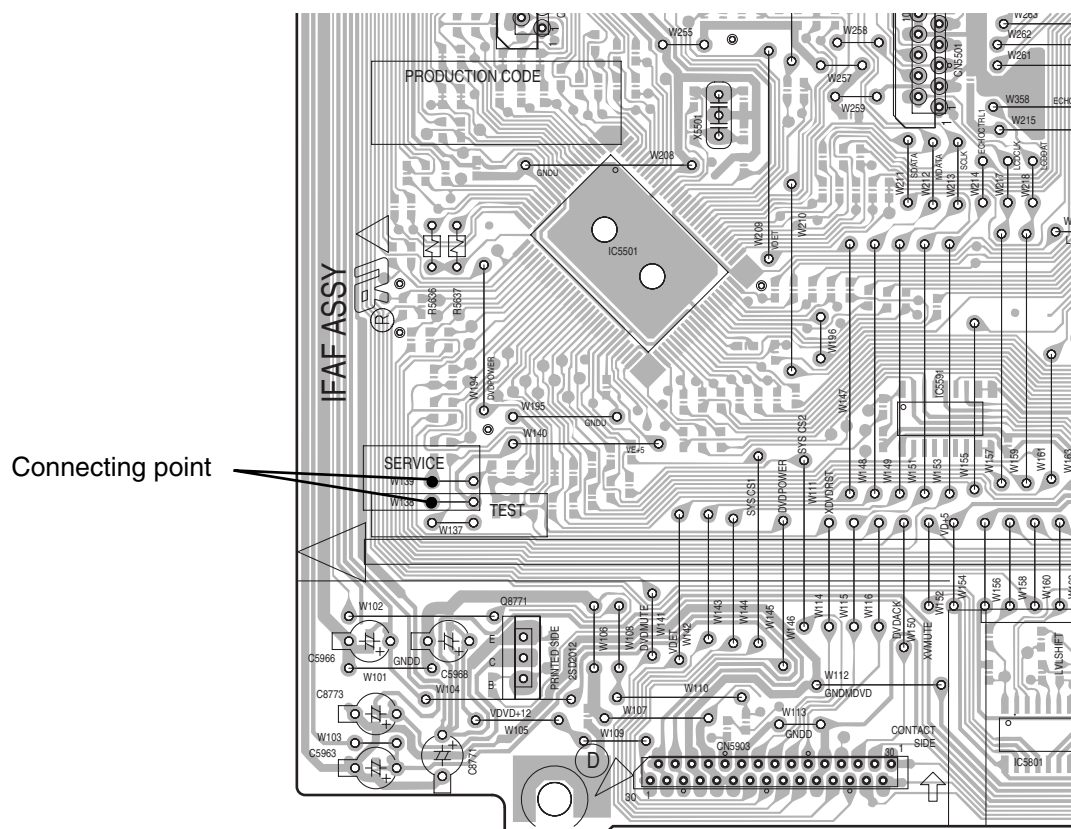
B

C

D

E

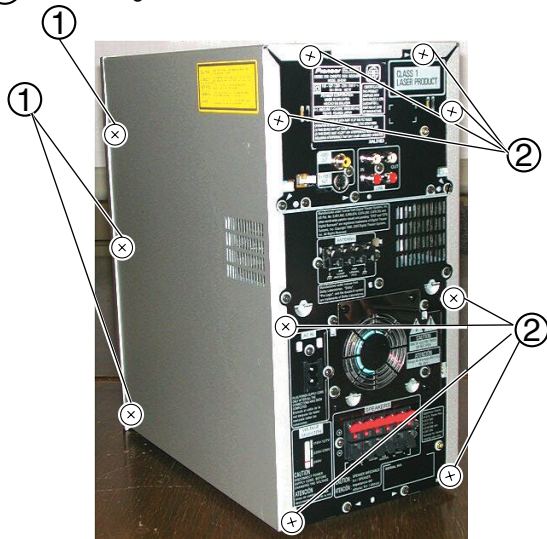
F

**E** IF/AF ASSY**SIDE A**

7.1.8 DISASSEMBLY

1 Remove of Bonnet Section

- ① Remove the Bonnet L and R (up VPZ30P080FNI x2)
Remove the Bonnet L and R (below BBZ30P080FNI x4)
- ② Remove eight screws

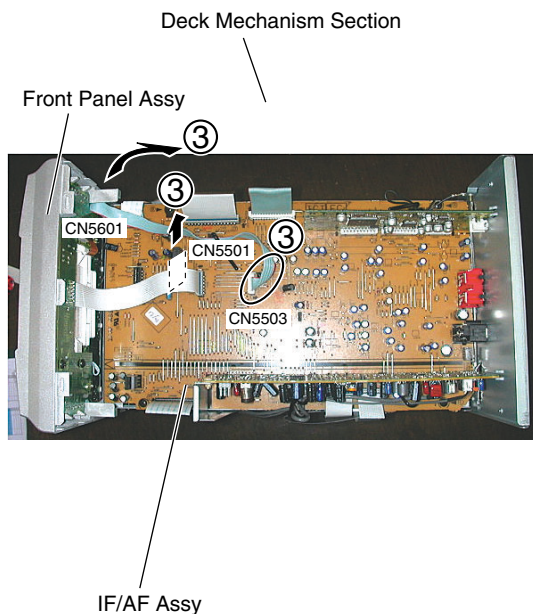


● Rear View



2 Front Panel and Deck Section

- ③ Remove the Front Panel Section
(FFC × 2, connectors × 1)

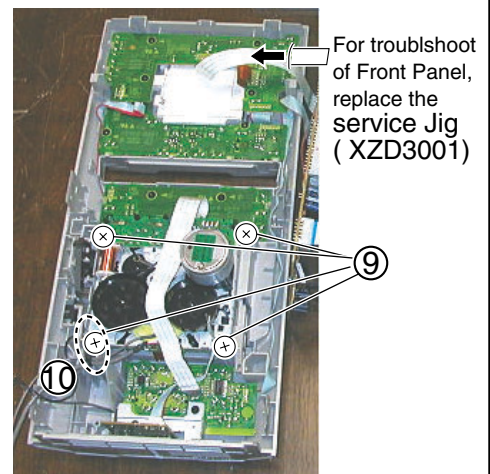
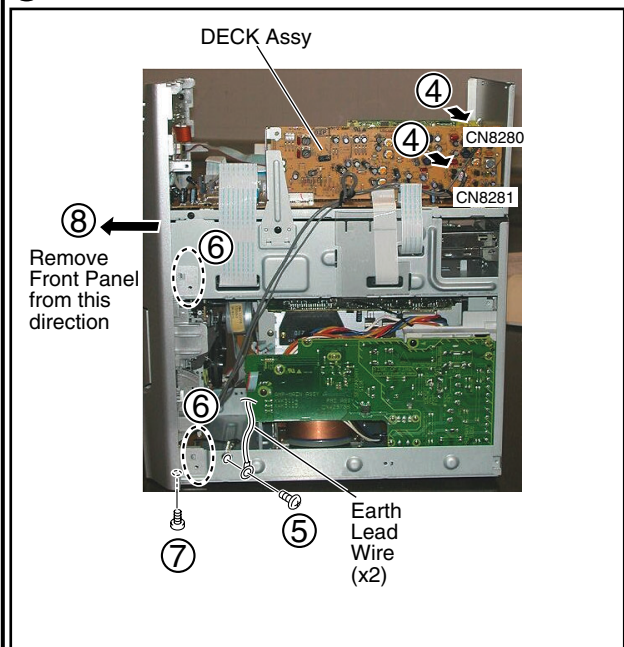


Note : Operation check of the main unit is possible even if removes the Deck Mechanism Section.



2 Front Panel and Deck Section

- ④ Remove two cable from deck PCB
- ⑤ Remove the screw
- ⑥ Remove X4 screw from bottom of Front Panel
- ⑦ Remove × 4 catches



- ⑨ Remove x4 screw
- ⑩ Cut the cable binder

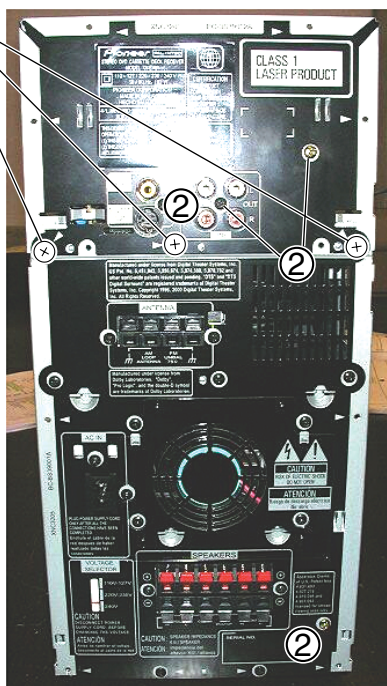
Note : Front Panel can removes with the state which Tray Panel was attached to it.
In this time, remove bottom part of the Front Panel first so that the Tray Panel is not caught.



3 AF/IF PCB Section

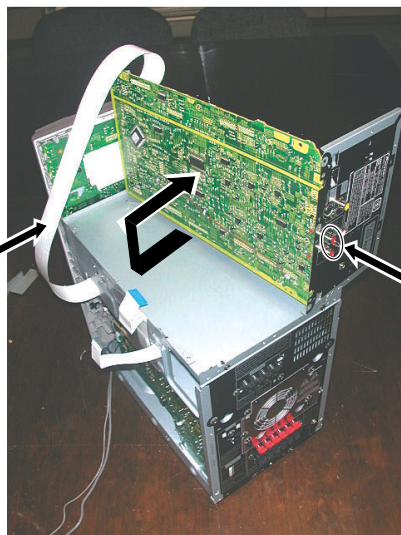
① Remove three screws

● Rear View



② CAUTION

Do not remove any screw from the output terminator connect-this will cause no grounding.



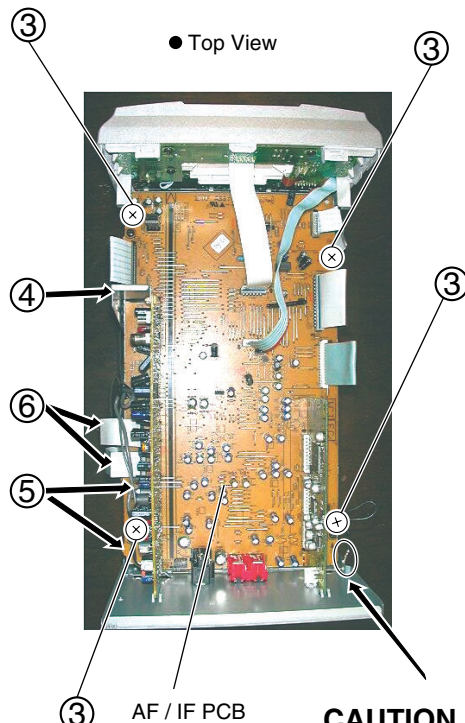
For 6CH Only

Troubleshooting AF/IF,
Replacc with Jig cable
(GGD1222)

Turn the PCB with Rear Panel to as shown above

③ Remove four screws

● Top View



④ Remove Deck holder

⑤ Disconnect x2 cables

⑥ Disconnect x2 FFC

CAUTION

Do not remove the ground wire between the two rear panel.

Note :

If the Power is turned On when the DSP Holder (DSP GND) is not connected to the rear panel (chassis), the parts below may be destroyed at the DSP ASSY.

IC8702 : TC74VHCT244AFT
IC8401 : AK4529VQ
R8415 : 4.7Ω

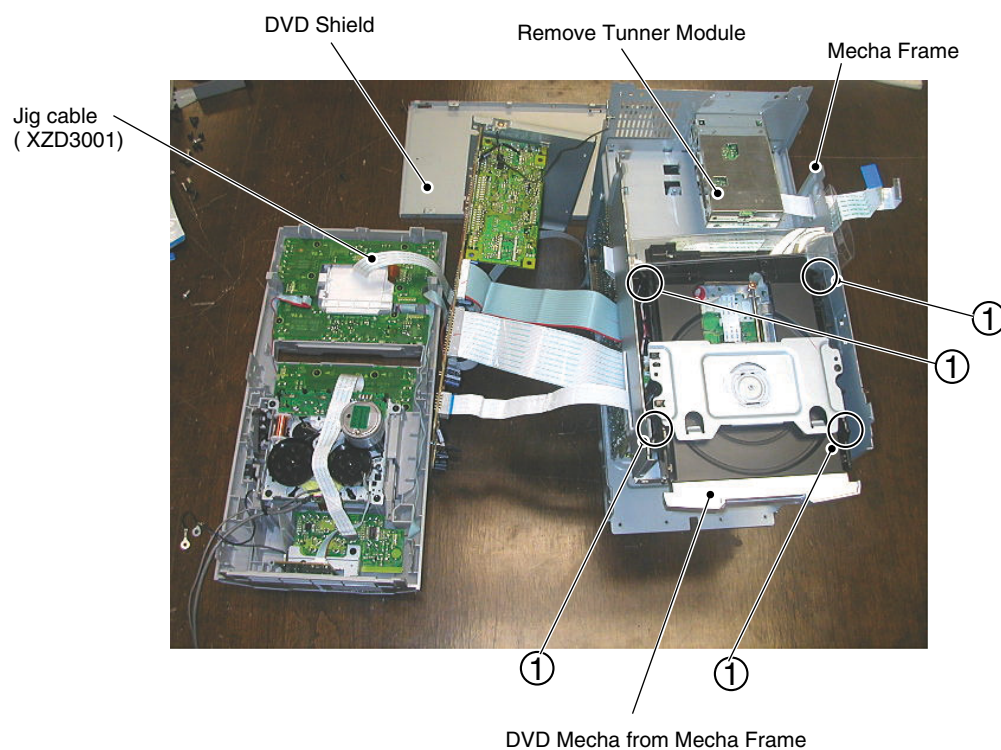
If the above parts are destroyed, the audio signal can not be out.

For 3CH Only

For troubleshooting of AF/IF,
disconnect all FFC and connect to Line Input

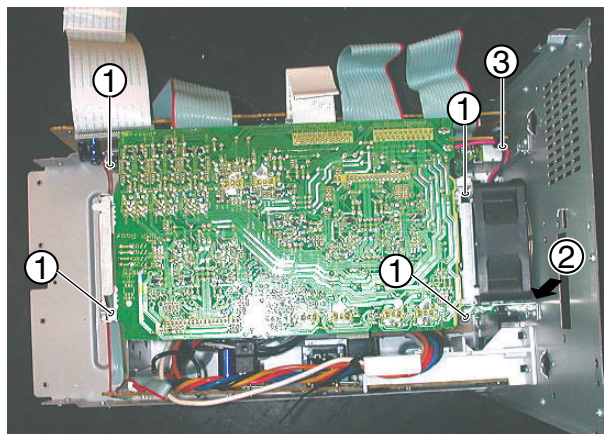
4 Remove of DVD Mecha Section

- ① Remove x4 screws.



5 Remove of Power Module Section

- ① Remove (screws x4).
 ② Remove the Module Holder R .
 ③ Cut the cable binder



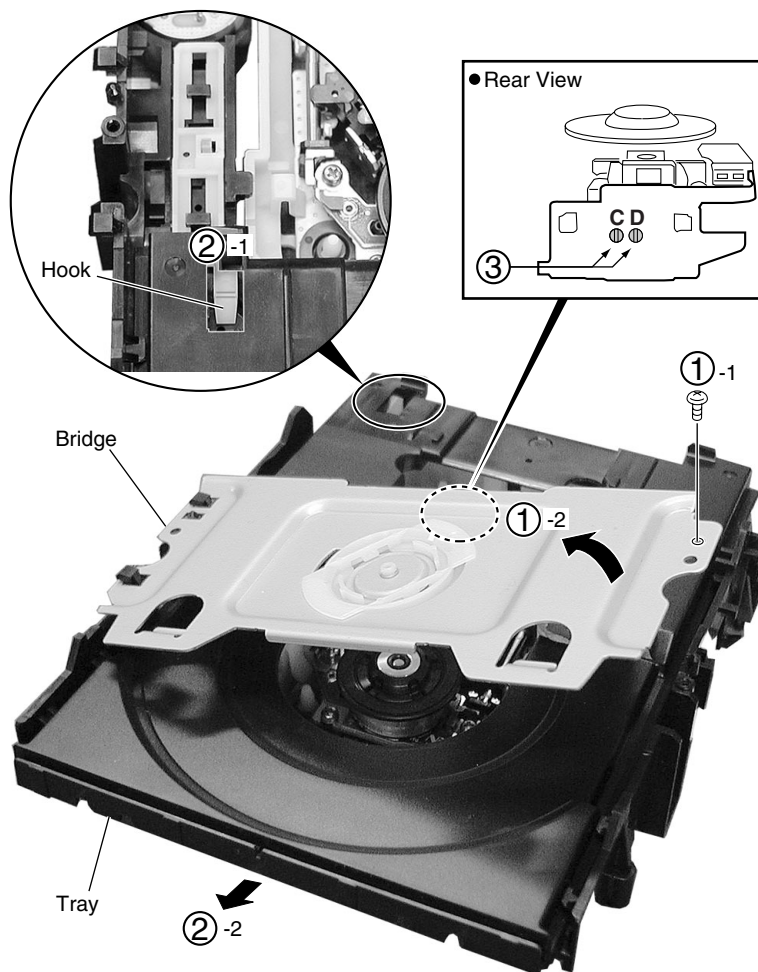
Removing the Traverse Mecha. Assy-S and Pickup Assy

1 Loading Mecha. Assy

- ① Remove the bridge by removing the one screw
- ② Pull out the tray, then remove it by pressing the hook
- ③ Short-circuit two points of C and D by soldering

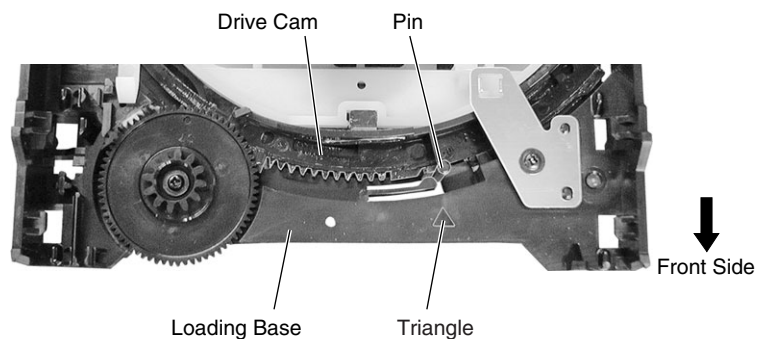
Note: After replacement, connect the flexible cable, then remove the soldered joint (open).

- ④ Remove the four connectors from the Loading Mecha. Assy
- ⑤ Remove the four screws that secure the Loading Mecha. Assy to the unit



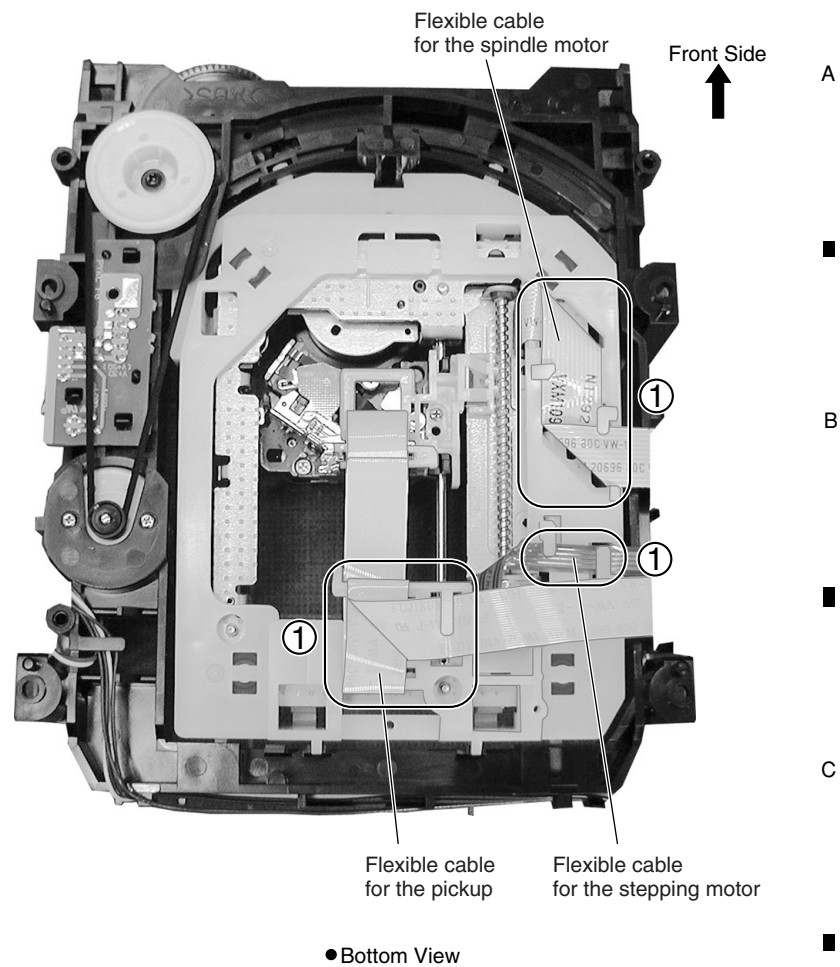
Note when reinserting the Tray

When reinserting the Tray, first align the triangle printed on the Loading Base and the pin of the Drive Cam, then insert the Tray.

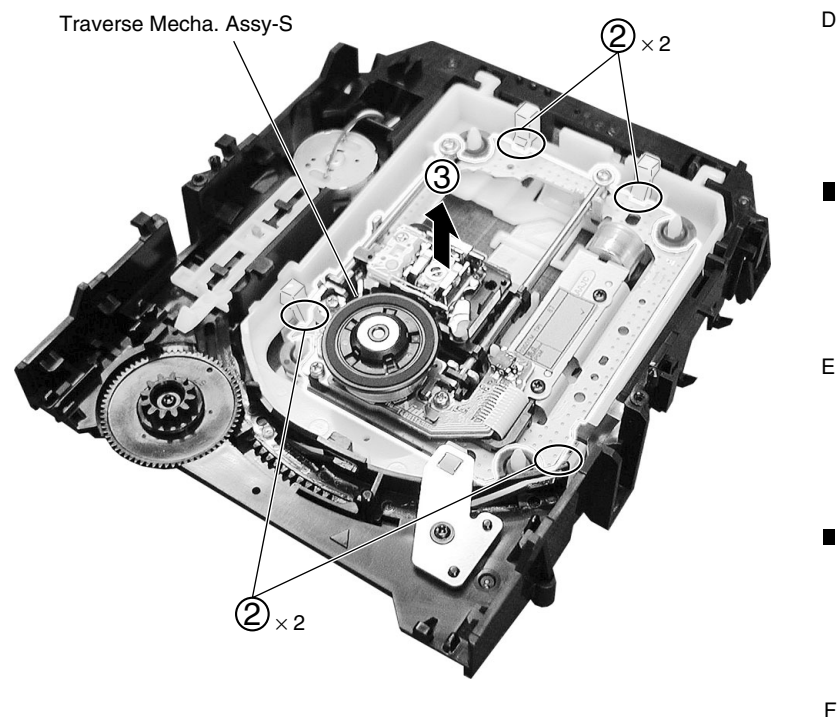


2 Traverse Mecha. Assy-S

- ① Dislodge the flexible cables from their packaged placement



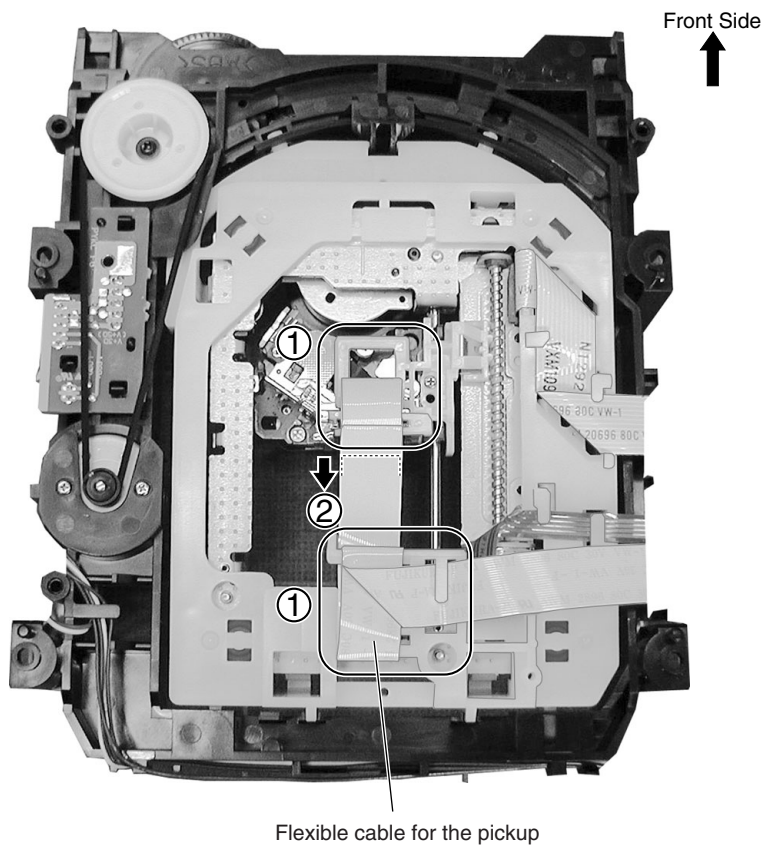
- ② Remove the four hooks
- ③ Remove the Traverse Mecha. Assy-S



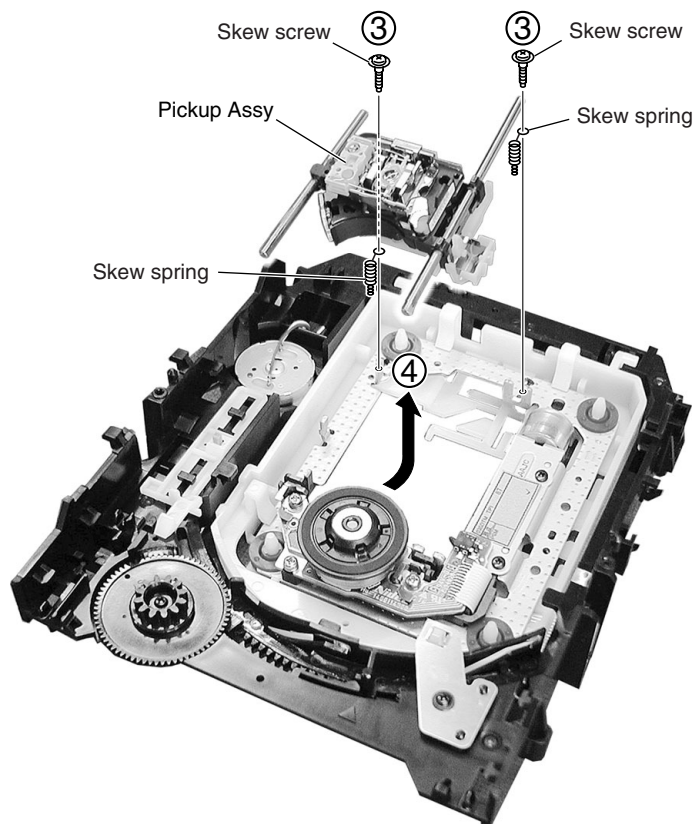
3 Pickup Assy

Note: The Pickup Assy can be removed without removing the Traverse Mecha. Assy-S. (shown as Step 2.)

- ① Dislodge the flexible cable for the pickup from its packaged placement
- ② Remove the flexible cable for the pickup

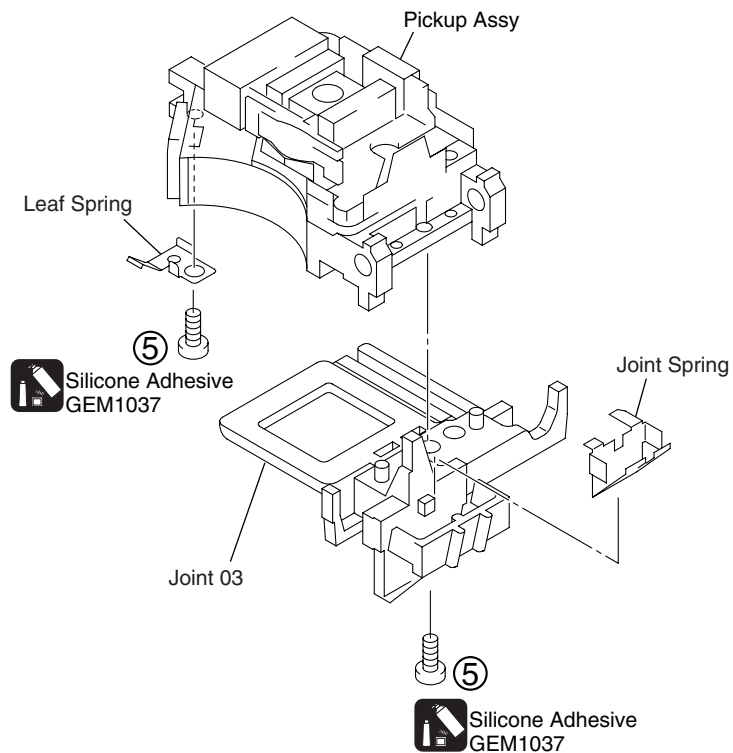


- ③ Remove the two skew screws and two skew springs
- ④ Remove the Pickup Assy



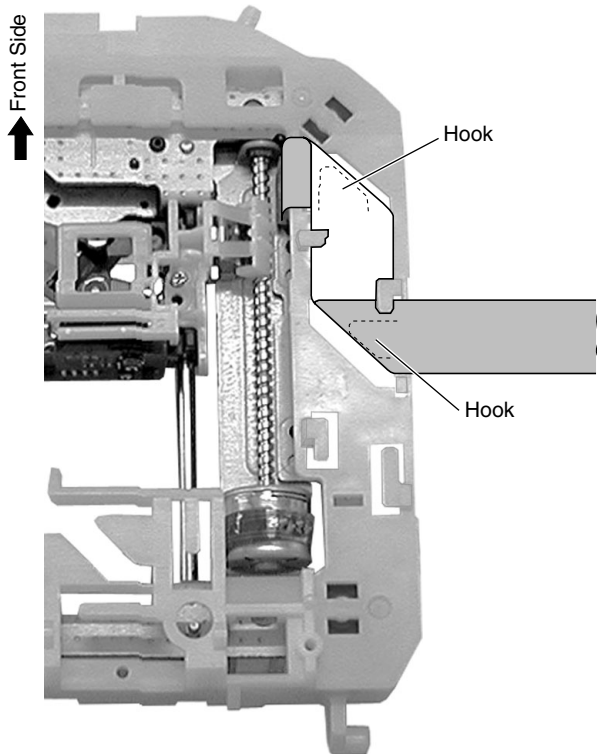
⑤ Remove the two screws

Note: The screws are secured with epoxy.
Make sure to apply epoxy after reattaching the screws.



Arrangement of the flexible cable for the spindle motor

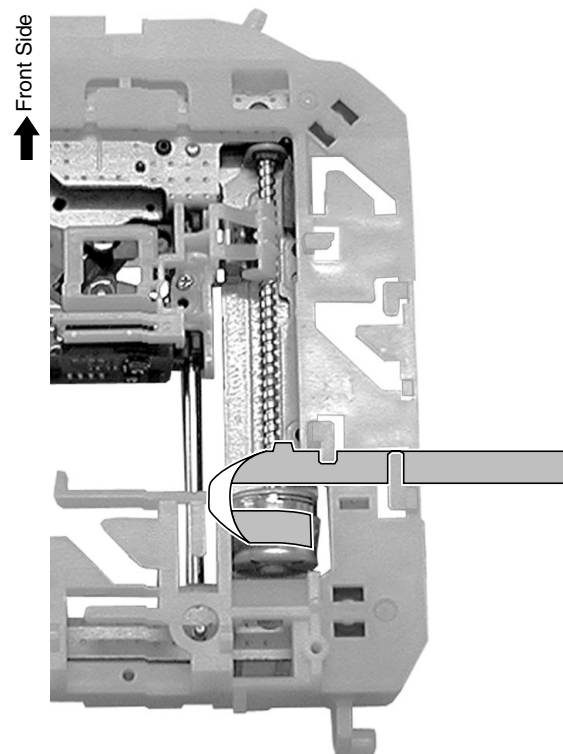
■ : Conductive surface



● Bottom View

Arrangement of the flexible cable for the stepping motor

■ : Conductive surface



● Bottom View

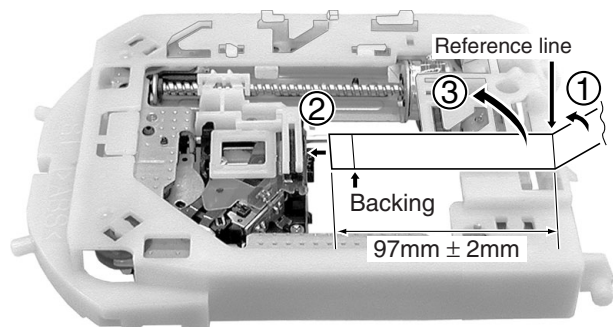
Arrangement of the flexible cable for the pickup

■ : Conductive surface

Note:

Be sure to move the Pickup Assy to the innermost perimeter.

- ① Fold the flexible cable inward at the position of the reference line
- ② Attach the flexible cable of the pickup to the connector
- ③ Fold the flexible cable of the pickup with the backing inward

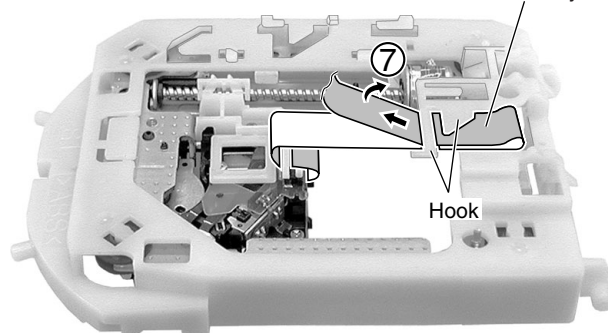


Front Side ←

● Bottom View

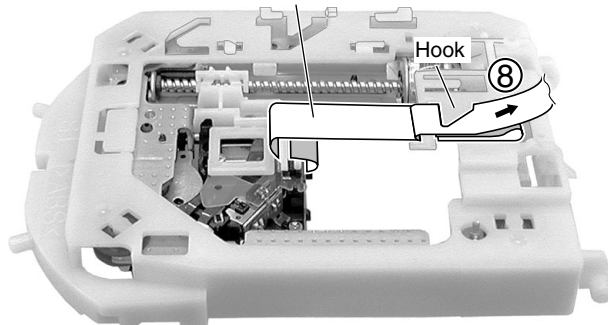
- ⑦ Pass the flexible cable below the hook, and fold it back

Make sure that the cable does not have any slack

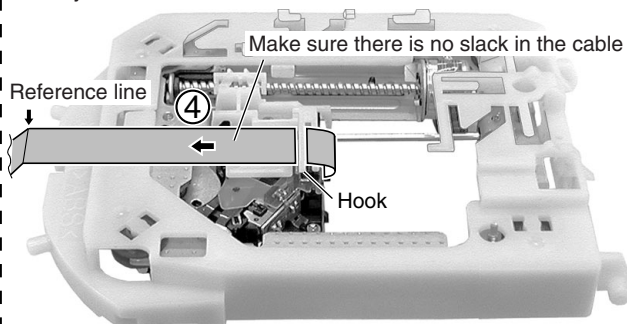


- ⑧ Fold the flexible cable back at the hook

Make sure that the cable is loose

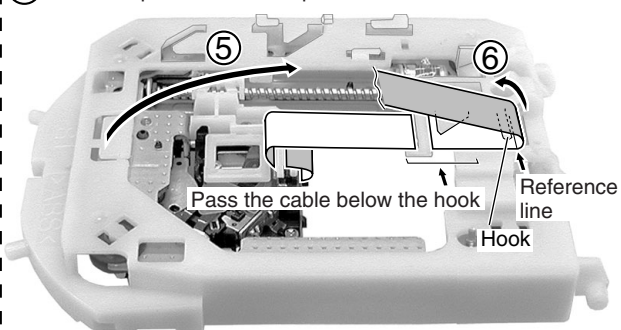


- ④ Pass the flexible cable through the hook not allowing any slack

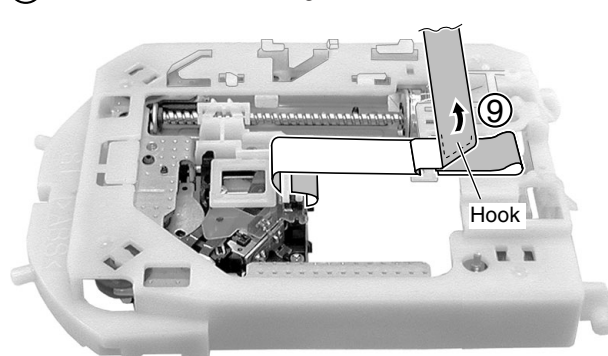


- ⑤ Fold the flexible cable as indicated in the photo

- ⑥ Hook the part folded in Step ① to the hook



- ⑨ Fold the flexible cable along the hook



7.2 PARTS

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

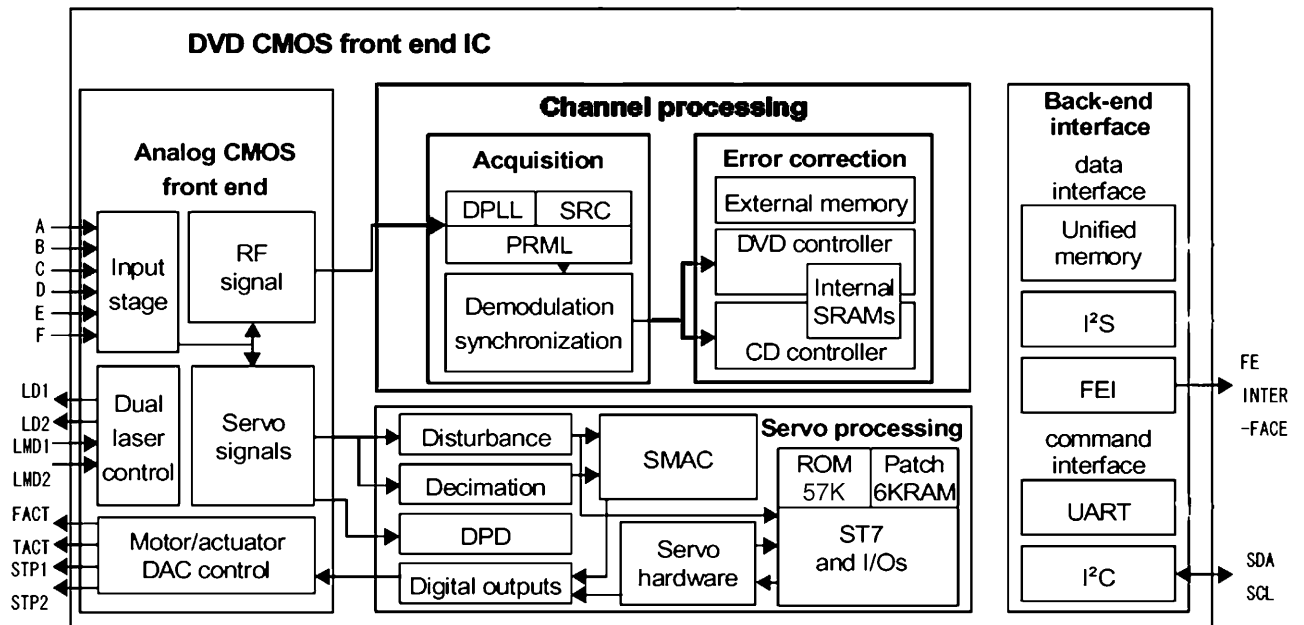
• List of IC

STM6316ATXXA, STM5589C, PDC108A

■ STM6316ATXXA (DVDM ASSY : IC301)

• FRONT END IC

● Block Diagram



● Pin Function

No.	PIN name	description	detail
1	IREF	12.7kF	Analog block reference part
2	GNDAI	GNDA	analog gnd
3	RFIN	capacitor	RF signal C association input to a demodulation block
4	RFOUT	capacitor	B1+B2+B3+B4 mixture listing from an analog block
5	VCCA18	1V8A	analog 1V8
6	A	B1	PU - B1 input
7	GNDMN	GNDA	analog gnd
8	B	B2	PU - B2 input
9	VCC33MN	3V3A	analog 3V3
10	REFD	to pick up	2V1 output for PU
11	VCC18MN	1V8A	analog 1V8
12	D	B4	PU - B4 input
13	VCCA18IS	1V8A	analog 1V8
14	C	B3	PU - B3 input
15	VCCA33IS	3V3A	analog 3V3
16	GNDAIS	GNDA	analog gnd
17	VCC33SD	3V3A	analog 3V3
18	VCC18SD	1V8A	analog 1V8
19	GNDSD	GNDA	analog gnd
20	F	C	PU-3 beam C input
21	E	A	PU-3 beam A input
22	VSHIELDIS	GNDA	analog gnd
23	VCC18ADC	1V8A	analog 1V8
24	GNDADC	GNDA	analog gnd
25	VSHIELDADC	GNDA	analog gnd
26	VCC33DAC	3V3A	analog 3V3
27	GNDDAC	GNDA	analog gnd
28	SPINDLE	560ohm(st2)	DAC current listing for stepper drive
29	SLEDGE	560ohm(st1)	DAC current listing for stepper drive
30	REFEXT	20K1%	Reference for DAC
31	REFGND	refext	analog gnd
32	REFDAC	560ohm1%	DAC reference
33	FACT	560ohm1%	DAC current listing for focus
34	TACT	560ohm1%	DAC current listing for tracking
35	VCC18DAC	1V8A	analog 1V8
36	PC0	FG	FG pulse input
37	PC1	PS	Driver control signal
38	PC2	tray SW1(open)	SW input for tray OPEN position
39	PC3	SB	Driver control signal
40	PC4	SLD position	Inside SW input

No.	PIN name	description	detail
41	VSS	GNDD	digital gnd
42	VDD33	3V3D	digital 3V3
43	PC5	780/X650	780nm/650nmLD change control signal
44	PC6	spinde PDM	Control PDM listing for spindle drive
45	PC7	opicgain	OEIC gain control signal
46	PD7	03PU/X02PU	Pull-up settlement
47	VSS	GNDD	digital gnd
48	VDD18	1V8D	digital 1V8
49	PD6	(debug)	test
50	PD5	(debug)	test
51	PD4	(DSPclk)	test
52	PD3	(DSPdata)	test
53	PD2	(DSPstrb1)	test
54	PD1	error monitor	Terminal for TRKG error monitor (30KHzLPF add need)
55	PD0	tray PDM drive	Control PDM signal for tray drive
56	VSS	GNDD	digital gnd
57	VDD33	3V3D	digital 3V3
58	OUT_ERR	RS_ERROR	BE DATA I/F
59	OUT_EVALID	RS_ERR_EN	BE DATA I/F
60	VSS	GNDD	digital gnd
61	OUT_CLK	RS_BCLK	BE DATA I/F
62	VDD18	1V8D	digital 1V8
63	OUT_DVALID	RS_DVALID	BE DATA I/F
64	OUT_DATA	RS_DATA	BE DATA I/F
65	OUT_SYNC	RS_ECCBST	BE DATA I/F
66	PE5	SCL(DMA)	FE routine download input
67	PE4	SDA(DMA)	FE routine download input
68	PE3	SCL	BE command I/F
69	PE2	SDA	BE command I/F
70	PE1	tray SW2(close)	SW input for tray CLOSE position
71	PE0	DXXINT	FE status propagation signal
72	VSS	GNDD	digital gnd
73	VDD33	3V3D	digital 3V3
74	PF1	10K-pullup	Built-in facility setting terminal
75	PF0	10K-pulldown	Built-in facility setting terminal
76	VSS	GNDD	digital gnd
77	VDD18	1V8D	digital 1V8
78	PG1	to EMULATOR	Built-in facility setting terminal
79	PG0	to EMULATOR	Built-in facility setting terminal
80	TEST	10K-pulldown	test

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No.	PIN name	description	detail
81	RESET_N	RESET	RESET input
82	VSSADC	GNDA	analog gnd
83	VDD18ADC	1V8A	analog 1V8
84	GNDPLL	GNDA	analog gnd
85	PLLOFF	GNDA	analog gnd
86	FREOUT	20MXtal	SYSTEMCLK oscillating circuit
87	FREIN	20MXtal	SYSTEMCLK oscillating circuit
88	VCC18PLL	1V8A	analog 1V8
89	LD1	650nmLD	650nmLD driving signal
90	LD2	780nmLD	780nmLD driving signal
91	VCCA33	3V3A	digital 3V3
92	TWSEL	CD_VR/GND	Monitor diodes VR junction terminal for CD
93	LMD1	LMD/LMD1	Monitor voltage junction terminal
94	LMD2	DVD_VR/LMD2	Monitor diodes VR junction terminal for DVD
95	GNDL	GNDA	analog gnd
96	TST_PM	nc	tset
97	TST_SLICE	nc	test
98	TST_ADC	nc	test
99	RFSACD	SACD_IC	RF signal output
100	VBGFILT	capacitor	Condenser junction terminal for inside reference stability

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■ STM5589CVA (DVDM ASSY : IC601)

• BACK END IC

● Pin Function

No.	Pin Name	Dir.	Pin Function
1	FP_SO	OUT	Front Panel / DAC interface. Serial transfer data output.
2	A_DATA3	OUT	reserved
3	VCLK	OUT	reserved
4	VDD_3V3	-	3.3 V Power supply
5	VSS	-	Ground
6	B_DATA	OUT	reserved
7	B_BCLK	OUT	reserved
8	B_FLAG	OUT	reserved
9	TRYPOS	OUT	It is not connected except 5 Disc Changer.
		IN	Only 5 Disc Changer. Tray rotation pulse input. CAPTURE_IN0 can be used.
10	SQUEEZE	OUT	Output signal for S-Video output S1/S2 control. 'H' : squeeze output mode.
11	RTS	OUT	UART(RS-232C) Request To Send signal output.
12	LETTER	OUT	Output signal for S-Video output S1/S2 control & EURO(SCART) connector (FUNCTION SWITCHING) signal. 'H' : letter-box output mode.
13	CTS	IN	UART(RS-232C) Clear To Send signal input.
14	VDD_1V8	-	1.8 V Power supply
15	VSS	-	Ground
16	FE_DATA	IN	Front-End L6316 stream interface. Serial data input.
17	FE_BCLK	IN	Front-End L6316 stream interface. Serial clock input.
18	FE_DVALID	IN	Front-End L6316 stream interface. Data valid flag input.
19	FE_SYNC	IN	Front-End L6316 stream interface. Serial synchronize flag input.
20	FE_EVALID	IN	Front-End L6316 stream interface. Error valid flag for RS_split.
21	FE_ECCBST	IN	Front-End L6316 stream interface. ECC block start flag for RS_split.
22	I/XP	OUT	Output signal for a change of interlace/Progressive output for video driver. 'L' : progressive 'H' : interlace
23	VDD_RGB	-	RGB circuit 3.3 V Power supply
24	VSS_RGB	-	RGB circuit Ground
25	B_OUT	OUT	B / Cb
26	G_OUT	OUT	G / Y
27	R_OUT	OUT	R / Cr
28	VREF_RGB	IN	RGB DAC reference
29	IREF_RGB	IN	RGB DAC current reference
30	VDD_YCC	-	YC circuit 3.3 V Power supply
31	VSS_YCC	-	YC circuit Ground
32	Y_OUT	OUT	Y
33	C_OUT	OUT	C
34	CV_OUT	OUT	CV
35	VREF_YCC	IN	YCC DAC reference
36	IREF_YCC	IN	YCC DAC current reference
37	VDD_1V8	-	1.8 V Power supply
38	VSS	-	Ground

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No.	Pin Name	Dir.	Pin Function
39	XDRVMUTE	OUT	It is not connected except 5 Disc Changer.
			Only 5 Disc Changer. Output signal for motor driver muting. 'L' : muting
40	OPEN	OUT	It is not connected except 5 Disc Changer.
		IN	Only 5 Disc Changer. Input signal for tray position. 'H' : complete OPEN position.
41	CLOSE	OUT	It is not connected except 5 Disc Changer.
		IN	Only 5 Disc Changer. Input signal for tray position. 'H' : complete CLOSE position.
42	CLAMP	OUT	It is not connected except 5 Disc Changer.
		IN	Only 5 Disc Changer. Input signal for showing disc clamp position. 'H' : complete disc clamp position.
43	UNCLAMP	OUT	It is not connected except 5 Disc Changer.
		IN	Only 5 Disc Changer. Input signal for showing disc un-clamp position. 'H' : complete disc clamp position.
44	DISC_SNS	OUT	It is not connected except 5 Disc Changer.
		IN	Only 5 Disc Changer. Input signal for disc existing. 'L' : existing
45	XDRVMUTE2	OUT	reserved
46	TP-x	OUT	reserved
47	VDD_3V3	-	3.3 V Power supply
48	VDD_PCM	-	1.8 V Power supply
49	VSS_PCM	-	Ground
50	VSS	-	Ground
51	A_BCK	OUT	Audio DAC clock
52	A_DATA0	OUT	Audio DAC Front L,R data
53	A_DATA1	OUT	reserved
54	A_DATA2	OUT	reserved
55	A_MCLK	OUT	Audio DAC Master clock
56	A_LRCK	OUT	Audio DAC L/R clock
57	A_DOUT	OUT	S/PDIF(IEC60958) digital audio output.
58	SMI_A4	OUT	SMI SDRAM Address
59	SMI_A5		
60	SMI_A6		
61	SMI_A7		
62	SMI_A8		
63	SMI_A9		
64	VDD_1V8	-	1.8 V Power supply
65	VSS	-	Ground
66	SMI_A3	OUT	SMI SDRAM Address
67	SMI_A2		
68	SMI_A1		
69	SMI_A0		
70	SMI_A10		
71	SMI_A11		
72	SMI_A12		
73	SMI_A13		

No.	Pin Name	Dir.	Pin Function
74	SMI_CS0	OUT	SMI SDRAM chip select 'L'.
75	SMI_CS1	OUT	reserved
76	SMI_RAS	OUT	SMI SDRAM RAS 'L'
77	SMI_CAS	OUT	SMI SDRAM CAS 'L'
78	SMI_WE	OUT	SMI SDRAM Write Enable 'L'
79	SMI_DQML	OUT	SMI SDRAM Lower DQM 'L': Lower select
80	SMI_DQMU	OUT	SMI SDRAM Upper DQM 'L': Upper select
81	VDD_3V3	-	3.3 V Power supply
82	SMI_CLKIN	IN	External SDRAM clock input.
83	VSS	-	Ground
84	SMI_D0	I/O	SMI SDRAM Data
85	SMI_D1		
86	SMI_D2		
87	SMI_D3		
88	SMI_D4		
89	SMI_D5		
90	SMI_D6		
91	SMI_D7		
92	SMI_D8		
93	SMI_D9		
94	VDD_1V8	-	1.8 V Power supply
95	SMI_CLKOUT	OUT	SDRAM clock output.
96	VSS	-	Ground
97	SMI_D10	I/O	SMI SDRAM Data
98	SMI_D11		
99	SMI_D12		
100	SMI_D13		
101	SMI_D14		
102	SMI_D15		
103	TRACK_CROSS	OUT	reserved
104	DSD_XPCM	OUT	reserved
105	DAC_XRST	OUT	reserved
106	ADC_PCMCLK	OUT	reserved
107	VDD_3V3	-	3.3 V Power supply
108	VSS	-	Ground
109	XTRST	IN	Diagnostic Control Unit interface
110	TMS	IN	Diagnostic Control Unit interface
111	TDO	OUT	Diagnostic Control Unit interface
112	TDI	IN	Diagnostic Control Unit interface
113	TCK	IN	Diagnostic Control Unit interface
114	ROTDRV	OUT	Only 5 disc changer. PWM output for tray rotation.
115	BOOT_FROM_ROM	IN	Boot select 'L' : Boot from DCU. 'H' : Boot from ROM.
116	LOAD_DRV	OUT	Only 5 disc changer. PWM output for tray Open/Close drive.
117	CPU_OE	OUT	OE signal for 16M bits FLASH memory for firmware. 'L': enable

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No.	Pin Name	Dir.	Pin Function
118	CPU_SDCK	OUT	CLOCK for 64M bits SDRAM for debugging firmware.
119	VDD_1V8	-	1.8 V Power supply
120	PIXCLK	IN	Master 27MHz system clock input.
121	VSS	-	Ground
122	VDD_PLL	-	Clock PLL circuit 1.8 V Power supply
123	VSS_PLL	-	Clock PLL circuit Ground
124	XRESET	IN	Power ON system RESET signal. 'L': reset
125	SACD_IRQ	IN	reserved
126	FP_XRDY	IN	Front Panel interface. Hand-shake input.
127	FE_INT	IN	Interrupt input signal from Front-End L6316.
128	F_XWE, SD_DQML	OUT	Flash memory write enable. Debug SDRAM/SRAM Lower DQM. 'L': enable, Lower select.
129	SD_DQMU	OUT	Debug SDRAM/SRAM Upper DQM 'L':upper select
130	SD_RXW	OUT	Debug SDRAM Read/Write 'L':write, 'H':read
131	CPU_WAIT	IN	CPU wait 'H' input
132	CE_FLASH	OUT	Flash memory Chip Enable 'L'.
133	CPU_CE2	OUT	reserved
134	CPU_CE1	OUT	reserved
135	SD_XRAS	OUT	Debug SDRAM RAS 'L' Debug SRAM chip enable 'L'
136	VDD_3V3	-	3.3 V Power supply
137	VSS	-	Ground
138	CPU_RAS1	OUT	reserved
139	SD_XCAS	OUT	Debug SDRAM CAS 'L'
140	SD_XCS	OUT	Debug SDRAM Chip Select 'L'
141	CPU_D0	I/O	FLASH, Debug SDRAM/SRAM data
142	CPU_D1		
143	CPU_D2		
144	CPU_D3		
145	CPU_D4		
146	CPU_D5		
147	CPU_D6		
148	CPU_D7		
149	VDD_1V8	-	1.8 V Power supply
150	VSS	-	Ground
151	CPU_D8	I/O	FLASH, Debug SDRAM/SRAM data
152	CPU_D9		
153	CPU_D10		
154	CPU_D11		
155	CPU_D12		
156	CPU_D13		
157	CPU_D14		
158	CPU_D15		
159	VDD_3V3	-	3.3 V Power supply
160	VSS	-	Ground

No.	Pin Name	Dir.	Pin Function
161	CPU_A1	OUT	FLASH, Debug SDRAM/SRAM Address
162	CPU_A2		
163	CPU_A3		
164	CPU_A4		
165	CPU_A5		
166	CPU_A6		
167	CPU_A7		
168	CPU_A8		
169	CPU_A9		
170	CPU_A10		
171	VDD_1V8	-	1.8 V Power supply
172	VSS	-	Ground
173	CPU_A11	OUT	FLASH, Debug SDRAM/SRAM Address
174	CPU_A12		
175	CPU_A13		
176	CPU_A14		
177	CPU_A15		
178	CPU_A16		
179	CPU_A17		
180	CPU_A18		
181	CPU_A19		
182	CPU_A20		
183	CPU_A21		
184	VDD_3V3	-	3.3 V Power supply
185	VSS	-	Ground
186	XEXPE	OUT	reserved
187	FE_ERROR	IN	Front-End L6316 stream interface. ECC Error flag
188	VSEL1	OUT	EURO(SCART) connector (BLINKING) output signal 'L' : RGB output disable 'H' : RGB output enable
189	VSEL2	OUT	EURO(SCART) connector V/Y, R/C signal. 'L' : VRGB output = YCGB 'H' : VRGB output = VRGB
190	FE_RST	OUT	Front-End L6316. Hardware reset output. 'L' : reset
191	SACD_XRST	OUT	reserved
192	XMMUTE	OUT	reserved
193	B_SYNC	OUT	reserved
194	SDA	I/O	Front-End L6316 command interface I2C bus serial data line.
195	SCL	OUT	Front-End L6316 command interface I2C bus serial clock line.
196	B_WCLK	OUT	reserved
197	TXD	OUT	UART(RS-232C) data output
198	VDD_1V8		1.8 V Power supply
199	VSS	-	Ground
200	RXD	IN	UART(RS-232C) data input

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No.	Pin Name	Dir.	Pin Function
201	XAMUTE	OUT	Output signal for analog audio output line muting. 'L' : muting
202	TRIGIN	IN	Diagnostic Control Unit interface
203	TRIGOUT	OUT	Diagnostic Control Unit interface
204	DAC_XCS0	OUT	Chip enable for audio DAC serial control. 'L' : enable
205	DAC_XCS1	OUT	reserved
206	FP_ACK	OUT	Front Panel / DAC interface. Hand-shake (acknowledge) output 'H'.
207	FP_SCK	OUT	Front Panel / DAC interface. Serial transfer clock output.
208	FP_SI	IN	Front Panel interface. Serial transfer data input.

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■ PDC108A (IF/AF ASSY : IC5501)

- System Control Microcomputer

● Pin Functions

No.	Mark	Pin Name	I/O	Function
1	PA3/WR#	XHPMUTE	O	Control of Headphone mute
2	PA4/RD#	HPDET	I	Detect to insert headphone
3	PA5/RS	ATT6	O	Control for ATT 6dB
4	P70 / INT0 / T0LCP / AN8	ACPULSE	I	AC PULSE input (Interruption)
5	P71 / INT1 / T0HCP / AN9	TIMER LED	O	Control mute of timer LED
6	P72 / INT2 / T0IN	RDS CLK	I	Clock input from RDS decoder
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 don't use , please connect VDD)
10	XT2 / AN11	XT2	–	(When this port don't use , 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	LEVELIN	I	Level meter signal input
17	P82 / AN2	VDET	I	DVD 3.3V detection input
18	P83 / AN3	XPROTECT	I	Protection and Fan Error detection input
19	P84 / AN4	ST/TUNE	I	STEREO tuned detection input
20	P85 / AN5	KEY 1	I	key1 input
21	P86 / AN6	KEY 2	I	Key 2 input
22	P87 / AN7	KEY 3	I	Key 3 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	DSPDI	O	Data output to DSP (MOTOROLA) and DIR
27	P14 / SI1 / SB1	DSPDO	I	Data input from DSP (MOTOROLA)
28	P15 / SCK1	DSPCK	O	Clock output to DSP (MOTOROLA) and DIR
29	P16/T1PWML	XDSPMUTE	O	MUTE request to DSP module
30	P17/T1PWMH/BUZ	DEC MUTE	I	Detection of 1st DSP boot success from DSP module
31	PE0	DSPRST	O	RESET to DSP(MOTOROLA) Module
32	PE1	DSPSS	O	Slave selection to DSP(MOTOROLA)
33	PE2	BUSY	I	For MCACC
34	PE3	DSPHREQ	I	Error detection from DSP(MOTOROLA)
35	PE4	DIRERR	I	LOCK/UNLOCK from DIR
36	PE5	DIRDD	I	Data input from DIR/CODEC
37	PE6	DIRCS	O	Data output to DIR/CODEC
38	PE7	DIRRST	O	Reset to DIR /CODEC
39	VSS4	VSS4		
40	VDD4	VDD4		

No.	Mark	Pin Name	I/O	Function
41	PF0	DSPMODE	O	MODE selection(ROM/RAM) to DSP(MOTOROLA)
42	PF1	XTL0	O	Selection X'tal to DIR
43	PF2	TXCE	O	Chip enable for tuner LSI
44	PF3	TXCLK	O	Clock for tuner LSI
45	PF4	TXIDATA	O	Data for tuner LSI
46	PF5	TXMUTE	O	Control mute of tuner
47	PF6	TCMSIN	I	Input MS signal
48	PF7	TXODATA	I	input data from tuner LSI
49	SI2P0/SO2	TCEXPOE	O	Output enable to EXPAND IC for deck
50	SI2P1/SI2/SB2	TCEXPCLK	O	Clock to EXPAND IC for deck
51	SI2P2/SCK2	TCEXPCE	O	Chip enable to EXPAND IC for deck
52	SI2P3/SCK20	TCEXPDAT	O	Data toEXPAND EXPAND IC for deck
53	PWM1	NC		NC
54	PWM0	NC		NC
55	VDD2	VDD2		
56	VSS2	VSS2		
57	P00	SYS_CS2	O	Chip select 2 for system bus
58	P01	SYS_CS1	O	Chip select 1 for system bus
59	P02	EXPOE	O	Output enable to EXPAND IC for Vocal fader, level shift and echo
60	P03	EXPCE	O	Chip enable to EXPAND IC for Vocal fader, level shift and echo
61	P04	LCDDAT	O	Data for tuner FL(LCD) driver
62	P05	LCDCLK	O	Clock for tuner FL(LCD) driver
63	P06	VOCALC	O	Control for vocal C
64	P07	VOCALB	O	Control for vocal B
65	P20/INT4/T1IN	VOCALA	O	Control for vocal A
66	P21/INT4/T1IN	DVDPOWER	O	Control power supply for DVD module
67	P22/INT4/T1IN	XDVRST	O	Control mute of AUX output
68	P23/INT4/T1IN	TESTMODE	I	Set TEST MODE for product line (service) and unit checker
69	P24/INT5/T1IN	SERIVCE	I	Set SELF CHECK for service
70	P25/INT5/T1IN	DVDACK	I	Acknowledgement from DVD MODULE (Interruption)
71	P26/INT5/T1IN	XVMUTE	O	Wake up request to DVD MODULE
72	P27/INT5/T1IN	EHCNT1	O	Control of echo level 1
73	P30	EHCNT2	O	Control of echo level 2
74	P31	KCONSTB	O	Strobe for Key Control IC
75	P32	KCONCLK	O	Clock for Key Control IC
76	P33	KCONDATA	O	Data for Key Control IC
77	P34	INPUTSELB	O	AUDIO source SELECT B
78	P35	INPUTSELA	O	AUDIO source SELECT A(CD,TUNER,TAPE,AUX) BU4052
79	P36	TCHALF	I	Input switch of mecha half
80	PB7/D7	TCMODE	I	Input switch of mecha mode

No.	Mark	Pin Name	I/O	Function
81	PB6/D6	TCRECF	I	Input switch of mecha during recording forward
82	PB5/D5	TCRECR	I	Input switch of mecha during recording reverse
83	PB4/D4	RDSPOW	I	Control power supply of RDS (L : POWER ON)
84	PB3/D3	RDSDATA	O	Input RDS data
85	PB2/D2	TCPULSE	O	Input pulse of TC reel
86	PB1/D1	RYR	O	REAR RELAY ON/OFF
87	PB0/D0	RYFSC	O	FRONT / SW / CENTER RELAY ON/OFF
88	VSS3	VSS3	–	
89	VDD3	VDD3	–	
90	PC7/A7	XAUXMUTE	O	Control mute AUX output
91	PC6/A6	SYSPOW	O	Control power supply of system
92	PC5/A5	DVDMUTE	I	Control mute of DVD MODULE(Interruption)
93	PC4/A4	XMUTEC	O	C ch MUTE ON/OFF
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.

7.3 CLEANING



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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

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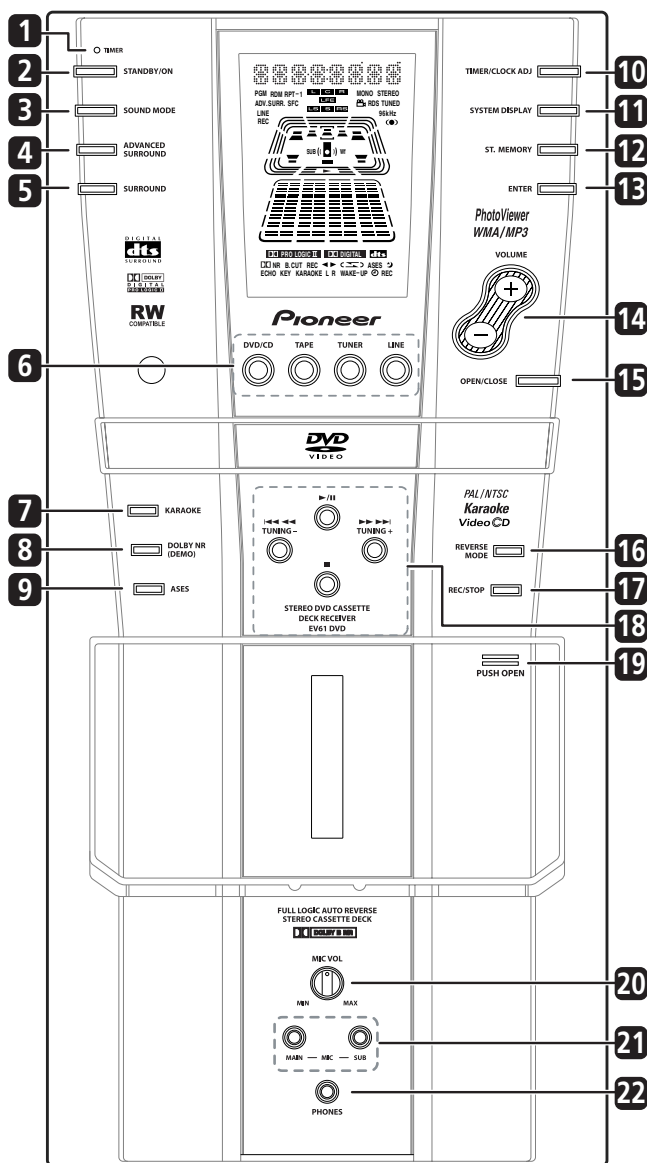
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8. PANEL FACILITIES

Front panel

The front panel controls for the EV61DVD model are shown in the illustrations below.



1 TIMER indicator

Lights in standby when the timer has been set

2 STANDBY/ON

Switches the player on or into standby

3 SOUND MODE

Adjusts the tone. Also use to adjust the balance (EV31DVD model only) and DSP controls (EV61DVD model only)

4 ADVANCED SURROUND

(EV61DVD model)

Selects an advanced listening mode

VIRTUAL SURROUND (EV31DVD model)

Switches the Virtual Surround effect on or off

5 SURROUND (EV61DVD model)

Selects a surround listening mode

SFC (EV31DVD model)

Selects sound modes or custom settings from the Sound Field Control

6 Function select buttons

Selects the source you want to listen to

7 KARAOKE

Selects audio channels for karaoke

8 DOLBY NR (DEMO)

Switches Dolby Noise Reduction on or off

9 ASES

Press for CD-to-tape synchro recording

10 TIMER/CLOCK ADJ.

Use for setting the clock, as well as for setting and checking the timers

Remote control

11 SYSTEM DISPLAY

Switches between information and clock displays .

12 ST. MEMORY

Use for saving and listening to station presets

13 ENTER

Select an option or execute a command

14 VOLUME +/-

Adjusts the volume level

15 OPEN/CLOSE

Opens/closes the disc tray

16 REVERSE MODE

Selects the playback mode for tapes.

17 REC/STOP

Starts/stops recording on the tape deck

18 TUNING and playback control buttons

The tuning/scan/skip buttons are used for tuning into stations, skipping or scanning tracks on discs or tapes. The playback control button is used for playing, pausing and stopping playback.

19 PUSH OPEN indicator

Pressing down on this side on the cassette door will open the tape deck

20 MIC VOL

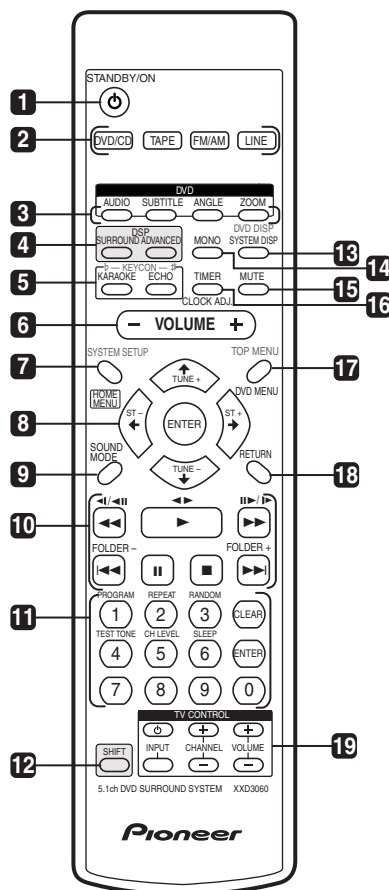
Controls the volume of the karaoke mics

21 MIC input jacks

22 PHONES jack

Headphone jack

The remote control for the EV61DVD model is shown in the illustration below.



1 STANDBY/ON (⏻)

Switches the player on or into standby

2 Function select buttons

Selects the source you want to listen to

3 DVD control buttons

AUDIO

Selects the audio channel or language

SUBTITLE

Selects a subtitle display

ANGLE

Changes the camera angle during DVD multi-angle scene playback

ZOOM

Changes the zoom level

4 DSP buttons(EV61DVD model)

SURROUND

Use to select a surround mode

ADVANCED

Use to select an Advanced surround mode

Sound Field buttons(EV31DVD model)

SFC

Selects sound modes or custom settings from the Sound Field Control

VIRT. SURR.

Switches the Virtual Surround effect on or off

5 KARAOKE buttons

KARAOKE

Selects audio channels for karaoke

ECHO

Changes the echo level on the karaoke mics

KEYCON (SHIFT+KARAOKE/ECHO)

Lowers/raises the pitch of the backing track

6 VOLUME

Adjusts the volume level

7 HOME MENU

Press to display (or exit) the on-screen menu for Initial Settings, Play Mode functions, etc.

SYSTEM SETUP (SHIFT+HOME MENU)

(EV61DVD model)

Use to make various system and surround sound settings

8 ENTER TUNE & cursor control buttons

Navigates on-screen displays and menus.

ENTER selects an option or executes a command.

9 SOUND MODE

Adjusts the tone. Also use to adjust the balance (EV31DVD model only) and DSP controls (EV61DVD model only)

10 Playback controls

▶ and ◀▶

Starts/resumes playback

◀◀ and ◀◀/◀◀

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

▶▶ and ▶▶/▶▶

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

▶▶▶

Jumps to the next chapter or track

◀◀◀

Jumps to the beginning of the current chapter or track, then to previous chapters/tracks

||

Pauses playback; press again to restart

■

Stops playback

11 Number buttons and SHIFT functions

The number buttons can be used for selecting tracks directly, the functions above the buttons are accessed by pressing **SHIFT** at the same time as the button.

PROGRAM (SHIFT+1)

Use to program/play a program list

REPEAT (SHIFT+2)

Selects a repeat play mode

RANDOM (SHIFT+3)

Selects a random play mode

TEST TONE (SHIFT+4)

(EV61DVD model only)

Press to output the test tone for speaker setup

A

CH LEVEL (SHIFT+5)*(EV61DVD model only)*

Use to adjust the speaker level

SLEEP (SHIFT+6)

Switches the sleep timer on or off

CLEAR

Clears an entry

ENTERSelects menu options, etc. (works exactly the same as the **ENTER** button in 8 above)**12 SHIFT**

Press to access the functions/commands written in green on the remote

13 SYSTEM DISP

Switches between information and clock displays

DVD DISP (SHIFT+SYSTEM DISP)

Changes the information shown in the display

14 MONO

Press to listen to a stereo FM broadcast in mono (sound quality is usually improved)

15 MUTE

Mutes the volume

16 TIMER/CLOCK ADJ.

Use for setting the clock , as well as for setting and checking the timers

17 DVD MENU

Displays the DVD menu (for CDs, Video CD/ Super VCDs, and WMA/MP3 discs, the Disc Navigator screen appears)

TOP MENU (SHIFT+DVD MENU)

Displays the top menu of a DVD disc

18 RETURN

Press to return to a previous menu screen

19 TV CONTROL

Switches the TV on or into standby

INPUT

Switches the TV input

CHANNEL +/-

Selects channels

VOLUME +/-

Adjusts the volume on the TV

**Note**

- Refer to Setting up the remote to control your TV on to use these controls with your TV.

B

C

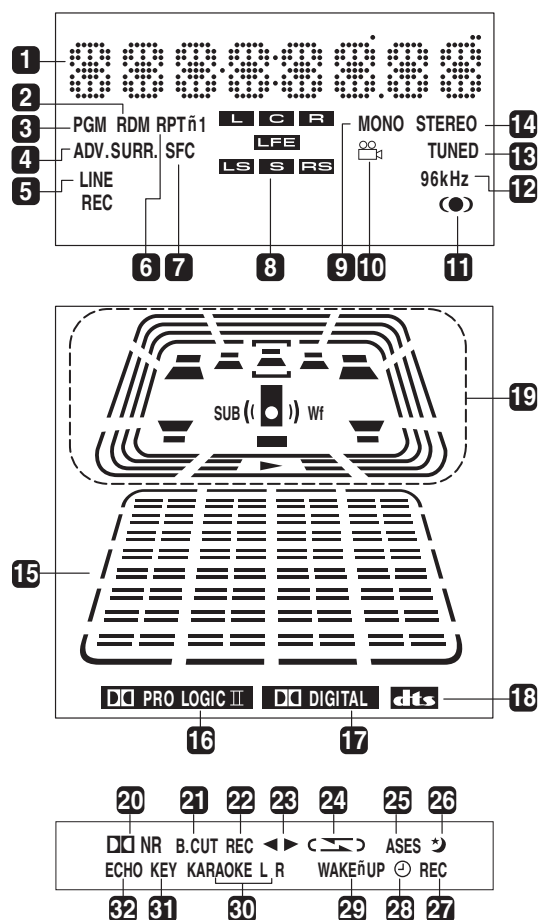
D

E

F

Display

The front panel display for the EV61DVD model is shown in the illustration below.



1 Character display

2 RDM

Lights during random playback

3 PGM

Lights during program play

4 ADV. SURR. (EV61DVD model only)

Lights when one of the Advanced Surround listening modes is selected

5 LINE REC (EV61DVD model only)

Lights when the line recording mode is switched on (see *Recording mode* on page 60).

6 RPT-1

RPTlights during repeat play (RPT-1lights during repeat one-track play)

7 SFC (EV31DVD model only)

Lights when one of the Sound Field Control listening modes is selected

8 Format indicator (EV61DVD model only)

These indicators will light according to which channels are encoded on the Dolby Digital or DTS multichannel disc currently in the player. LFElights when the disc has an LFE channel.

9 MONO

Lights when FM mono reception is selected



Lights during multi-angle scenes on a DVD disc

11 (●) (EV31DVD model only)

Lights when Virtual Surround is switched on

12 96 kHz

Lights when a 96kHz source is detected (may not light correctly if the source is copy-protected)

13 TUNED

Lights when a broadcast is being received

14 STEREO

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

15 Level meter

Shows the sound levels of the source selected

16 PRO LOGIC II (EV61DVD model only)

Lights during Dolby Pro Logic decoding

17 DIGITAL

Lights during playback of a Dolby Digital signal

18 DTS (EV61DVD model only)

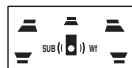
Lights during playback of a DTS source

19 Speaker and playback indicators

The playback indicator (▶) lights during playback, and the speaker indicators show which speakers are being used to output the current source. The illustrations below show some example displays.



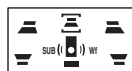
5.1 channel surround sound
with Extra Power mode or Extra
Power Surround mode active
(EV61DVD model only)



5.1 channel surround sound
(EV61DVD model only)



Stereo (2.1 channel) sound (with
subwoofer)



5.1 channel surround sound
with Dialogue enhancement
and the Virtual Surround Back
mode active (EV61DVD model
only)

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

20 NR

Lights when Dolby Noise Reduction is on

21 B.CUT

Lights when the beat cut mode has been switched to **B.CUT 2**

22 REC

Lights when recording to the tape deck

23

Indicates the direction of tape playback

24 ◀▶

Indicates the reverse mode:

- ◀ – Single side playback
- ▶ – Auto-reverse playback: stops after finishing playback in the 'reverse' (◀) direction

- ▶ – Continuous playback (up to 16 complete plays)

25 ASES

Lights during ASES recording

26 ⌚

Lights when the sleep timer is active

27 REC

Lights when the record timer is set and flashes when the timer starts recording

28 ⌚

Lights when either timer is set and flashes when they activate

29 WAKE-UP

Lights when the wake-up timer is set and flashes when the wake-up timer activates

30 KARAOKE L R

Lights when one of the Karaoke modes is selected:

- KARAOKE**(Vocal cancel) – Vocals in the backing track are partially eliminated using EQ.
- L** – Left channel only. Use for tracks that have a vocal recorded in the right channel.
- R** – Right channel only. Use for tracks that have a vocal recorded in the left channel.
- L R** – Use to put a single-channel vocal track into the center of the mix.

31 KEY

Lights when the Karaoke pitch control is selected

32 ECHO

Lights when the Karaoke **ECHO** effect is selected