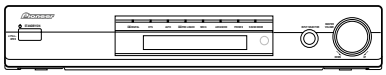
Pioneer sound.vision.soul

Service Manual



VSX-50

ORDER NO.
RRV2797

AUDIO/VIDEO MULTI-CHANNEL RECEIVER

VSX-50

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

Model	Type	Power Requirement	Remarks
VSX-50	KUXU/CA	AC120V	

This product is a system(s) component.

Component	System	Service Manual	Remarks
DVD RECEIVER	EX-500	RRV2798	
AUDIO/VIDEO MULTI-CHANNEL RECEIVER	VSX-50	RRV2797	This Manual
DVD PLAYER	DV-50A	RRV2740	

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

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

T-ZZK JULY 2003 printed in Japan

SAFETY INFORMATION

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

WARNING

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

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

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

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

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

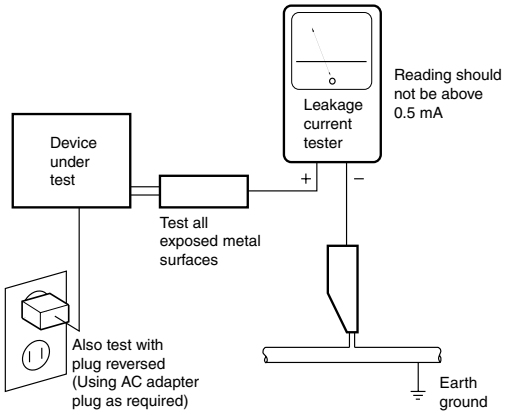
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

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

LEAKAGE CURRENT CHECK

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



AC Leakage Test

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

2. PRODUCT SAFETY NOTICE

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

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

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

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

1. Product safety

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

2. Adjustments

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

3. Cleaning

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

4. Shipping mode and shipping screws

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

5. Lubricants, glues, and replacement parts

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

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1. SPECIFICATIONS

Amplifier section

Continuous average power output of 42 watts* per channel, min., at 6 ohms, from 20 Hz to 20,000 Hz with no more than 0.9 % total harmonic distortion (front).**

Continuous Power Output (STEREO mode)

Front. . . . . 42 W + 42 W
(FTC 20–20 kHz, THD 0.9 %, 6 Ω)

RMS Power Output

Front. . . . . .100 W/ch (1 kHz, THD 10 %, 6 Ω)
Center . . . . . .100 W (1 kHz, THD 10 %, 6 Ω)
Surround. . . . . .100 W/ch (1 kHz, THD 10 %, 6 Ω)
Surround back . . . . . 100 W (1 kHz, THD 10 %, 6 Ω)

Audio section

Input (Sensitivity/Impedance). . . . . .200 mV/47 kΩ
Output (Level/Impedance)
DVR/VCR. . . . . .200 mV/2.2 kΩ

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.
** Measured by Audio Spectrum Analyzer.

Video section

Input (Sensitivity/Impedance). . . . . .1 Vp-p/75 Ω
Output (Level/Impedance). . . . . 1 Vp-p/75 Ω

FM tuner section

Frequency Range . . . . . 87.5 MHz to 108 MHz
Usable Sensitivity. . . . . .Mono:13.2 dBf, IHF (1.3 µV/ 75 Ω)
50 dB Quieting Sensitivity . . . . . .Mono: 20.2 dBf
Stereo: 38.6 dBf
Signal-to-Noise Ratio. . . . . .Mono: 76 dB (at 85 dBf)
Stereo: 72 dB (at 85 dBf)
Distortion. . . . . Stereo: 0.6 % (1 kHz)
Alternate Channel Selectivity . . . . . 60 dB (400 kHz)
Stereo Separation. . . . . 40 dB (1 kHz)
Frequency Response . . . . . 30 Hz to 15 kHz (±1dB)
Antenna Input (DIN). . . . . .75 Ω unbalanced

AM tuner section

Frequency Range . . . . . 530 kHz to 1,700 kHz (10 kHz step)
Sensitivity (IHF, Loop antenna). . . . . .350 µV/m
Selectivity . . . . . 30 dB
Signal-to-Noise Ratio. . . . . .50 dB
Antenna. . . . . .Loop antenna

Miscellaneous

Power Requirements . . . . . AC 120 V, 60 Hz
Power Consumption. . . . . 170 W
In standby . . . . . 0.3 W
Dimensions. . . . . 16 9/16 (W) x 2 13/16 (H) x 15 1/8 (D) in.
Weight (without package) . . . . . .15 lb.

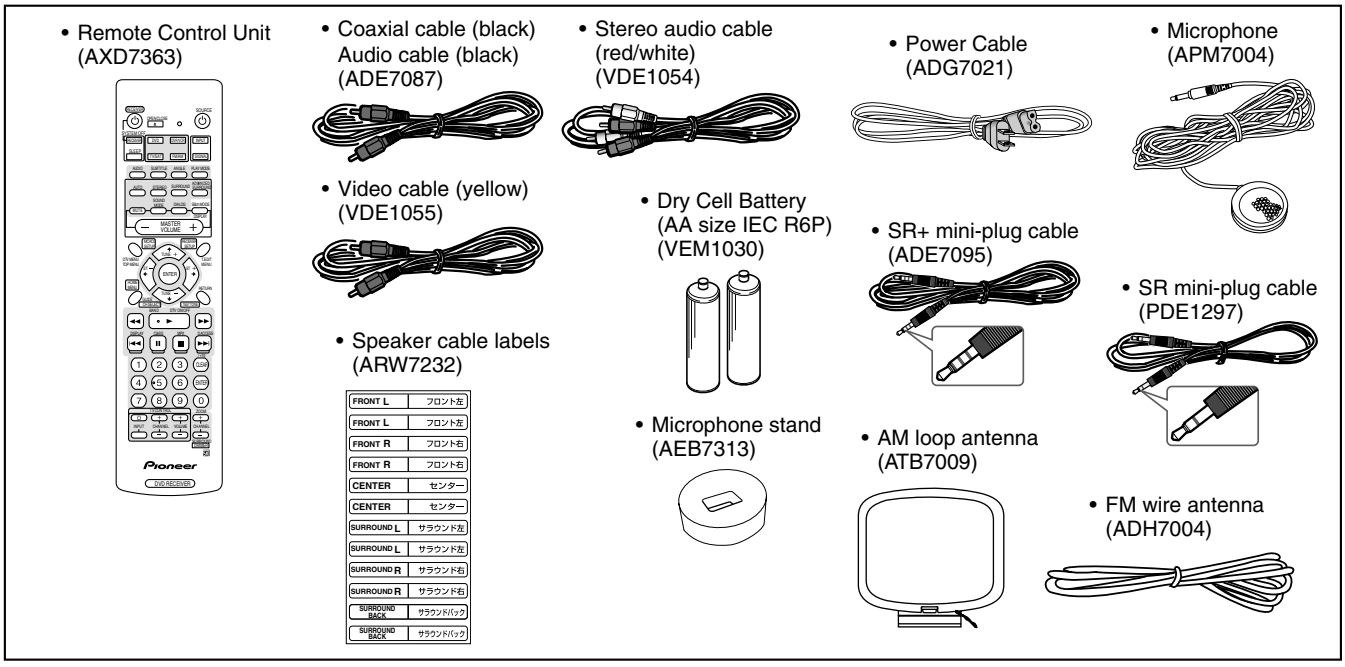
Furnished parts

Microphone 1
Microphone stand. 1
Coaxial cable (black). 1
Video cable (yellow). 2
Audio cable (black). 4
Stereo audio cable (red/white). 1
SR mini-plug cable 1
SR+ mini-plug cable. 1
AM loop antenna. 1
FM wire antenna 1
Power cable. 1
Dry cell batteries (AA size IEC R6P) 2
Remote control unit 1
Operating instructions 1
Quick Setup Guide 1
Speaker cable labels. . . . . .1 sheet
Warranty card 1

Note

- Specifications and the design are subject to possible modifications without notice, due to improvements.

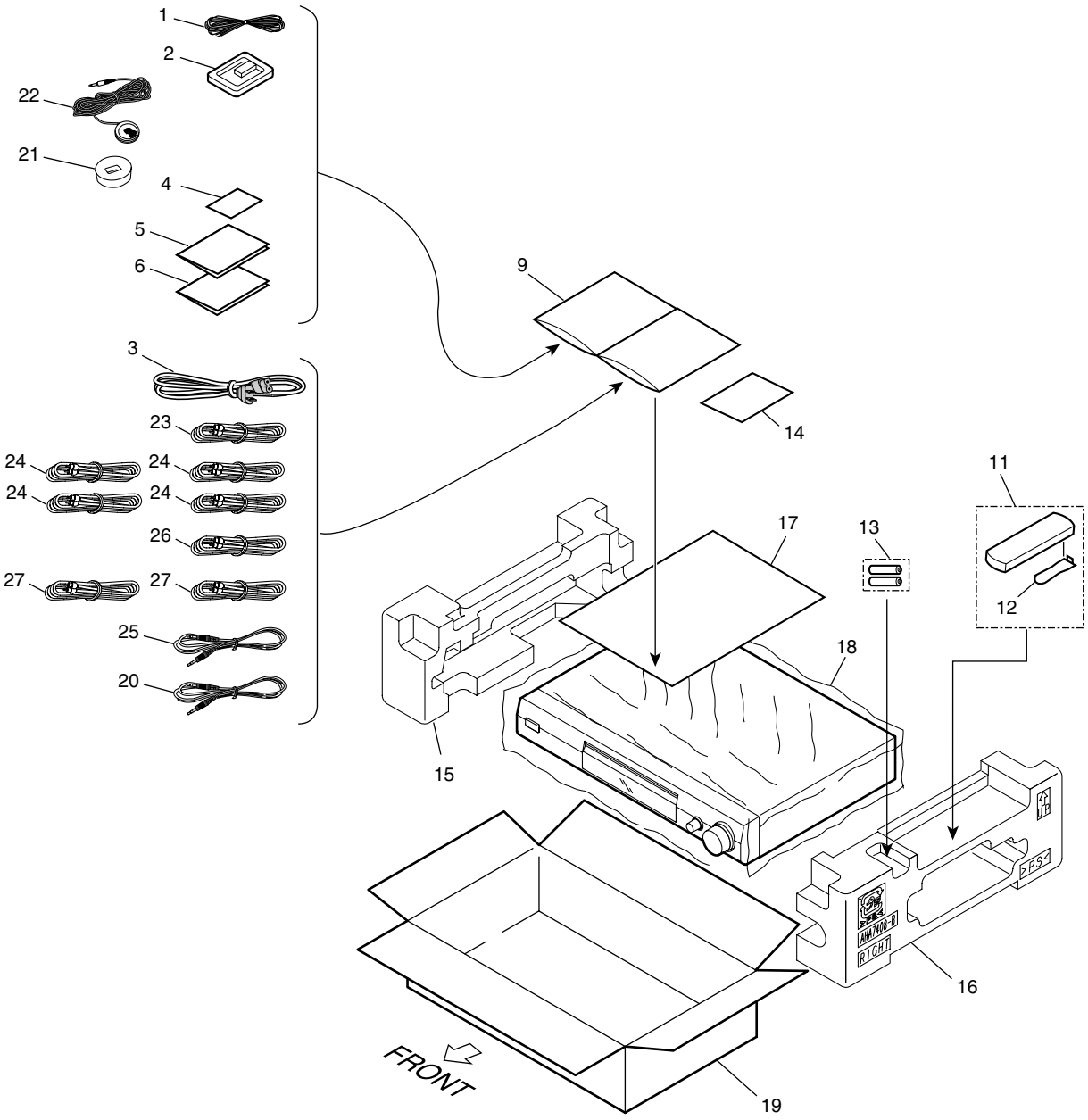
● Accessories



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.)*

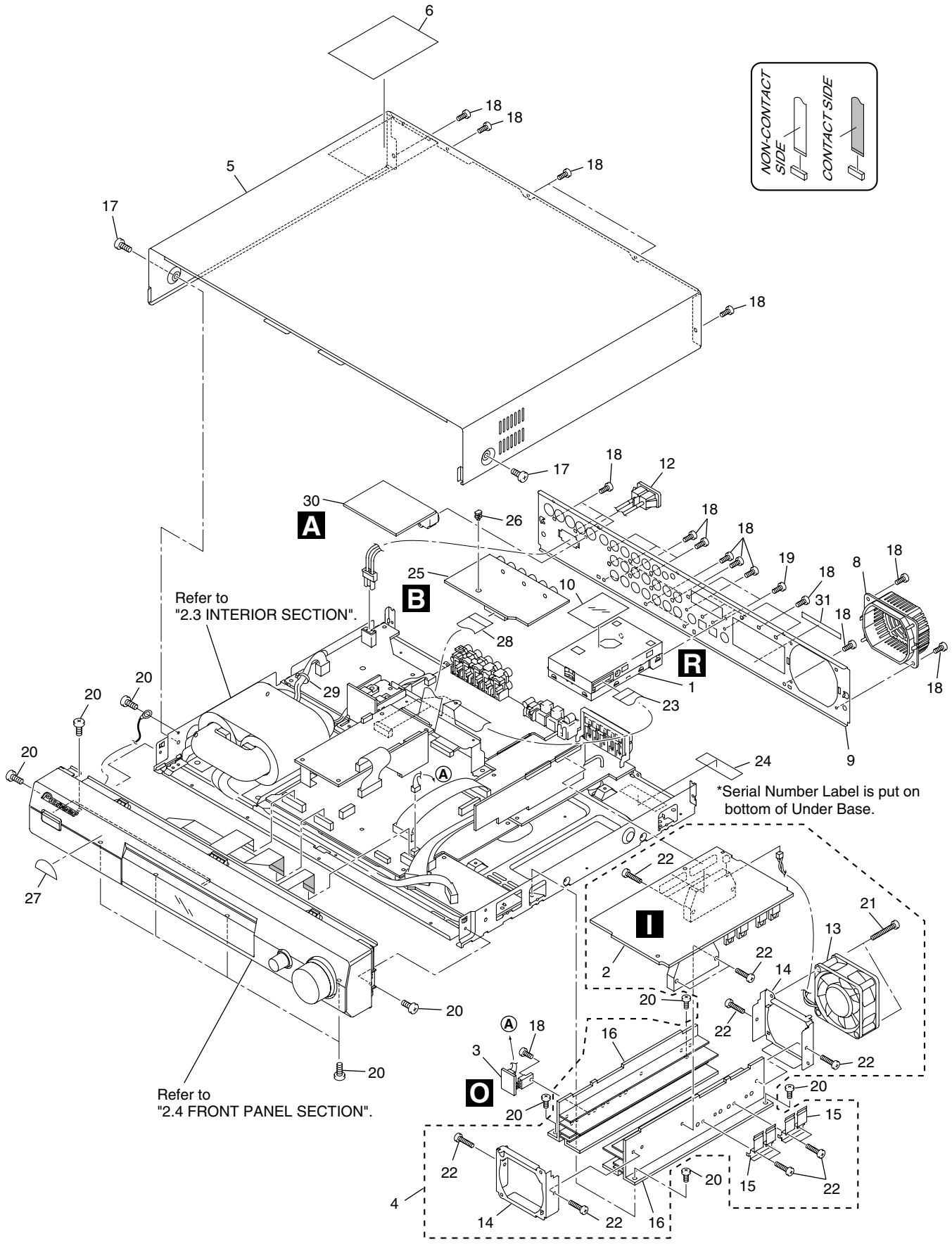
2.1 PACKING



PACKING parts List

Mark	No.	Description	Part No.
	1	FM Wire Antenna	ADH7004
	2	AM Loop Antenna	ATB7009
⚠	3	Power Cable	ADG7021
	4	Speaker Cable Label	ARW7232
	5	Operating instructions (English)	ARB7288
	6	Quick Setup Guide (English)	ARH7079
	7	••••••	
	8	••••••	
NSP	9	Polyethylene Bag (A4x2)	AHG7097
	10	••••••	
	11	Remote Control Unit	AXD7363
	12	Battery Cover	AZA7424
NSP	13	Dry cell batteries (R6P,AA)	VEM1030
NSP	14	Warranty Card	ARY7007
	15	Left Pad 301	AHA7407
	16	Right Pad 301	AHA7408
	17	Spacer	AHB7088
	18	Packing Sheet	AHG7015
	19	Packing Case	AHD8169
	20	SR+ mini-plug cable	ADE7095
	21	Microphone stand	AEB7313
	22	Microphone	APM7004
	23	Coaxial Cable	ADE7087
	24	Audio cable	ADE7087
	25	SR mini-plug cable	PDE1297
	26	Stereo audio cable	VDE1054
	27	Video cable	VDE1055

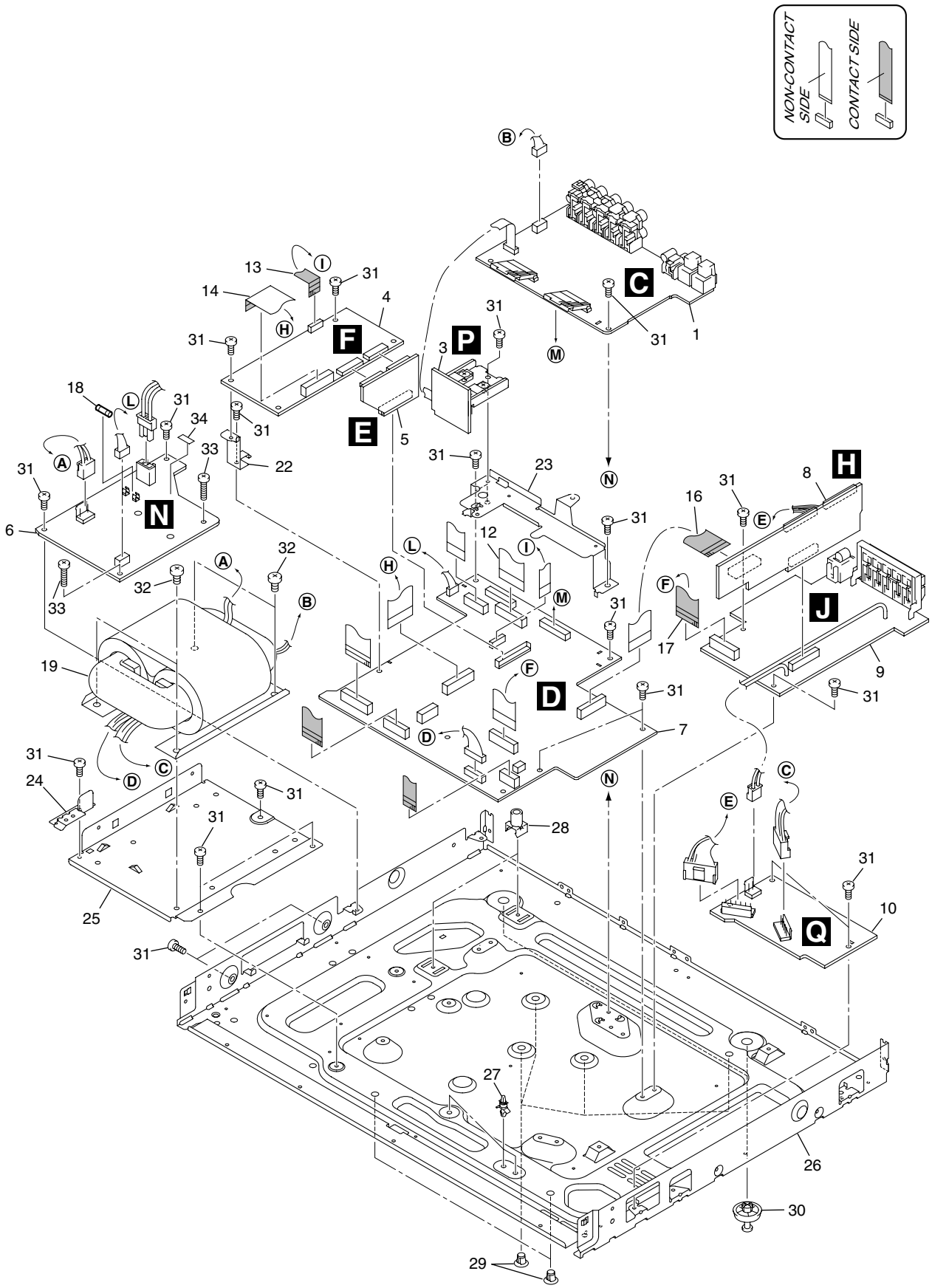
2.2 EXTERIOR SECTION



EXTERIOR SECTION parts List

Mark	No.	Description	Part No.
	1	FM/AM TUNER MODULE	AXQ7245
	2	6CH AMP Assy	AWM7786
	3	D5V Assy	AWX8224
NSP	4	AMP MODULE 6CH	AXQ7247
	5	Bonnet Case	AZN7934
	6	Label	ARW7223
	7	••••••	
	8	Fan Cover	AMR7446
	9	Rear Panel 501SKU	ANC8163
	10	Tuner Barrier	AEC7383
	11	••••••	
⚠	12	AC Inlet Assy	VKP2126
	13	DC Fan Motor	AXM7025
	14	Fan Plate	ANG7462
	15	FET Bracket A	ANG7418
NSP	16	Heat Sink	ANH7161
	17	Screw	BCZ40P060FNI
	18	Screw	BBZ30P080FZK
	19	Screw	PPZ30P100FZK
	20	Screw	BBZ30P060FMC
	21	Screw	BBZ30P300FZK
	22	Screw	BBZ30P140FMC
	23	J1905 13P FFC/60V	ADD7402
NSP	24	Label	VRW1629
	25	VIDEO Assy	AWX8248
NSP	26	PCB Spacer	AEC7156
NSP	27	Energy Star Label	AAX7876
	28	J1911 19P FFC/60V	ADD7422
NSP	29	Binder	ZCA-BK1
	30	S-VIDEO Assy	AWX8185
	31	SP Terminal Label	ARW7229

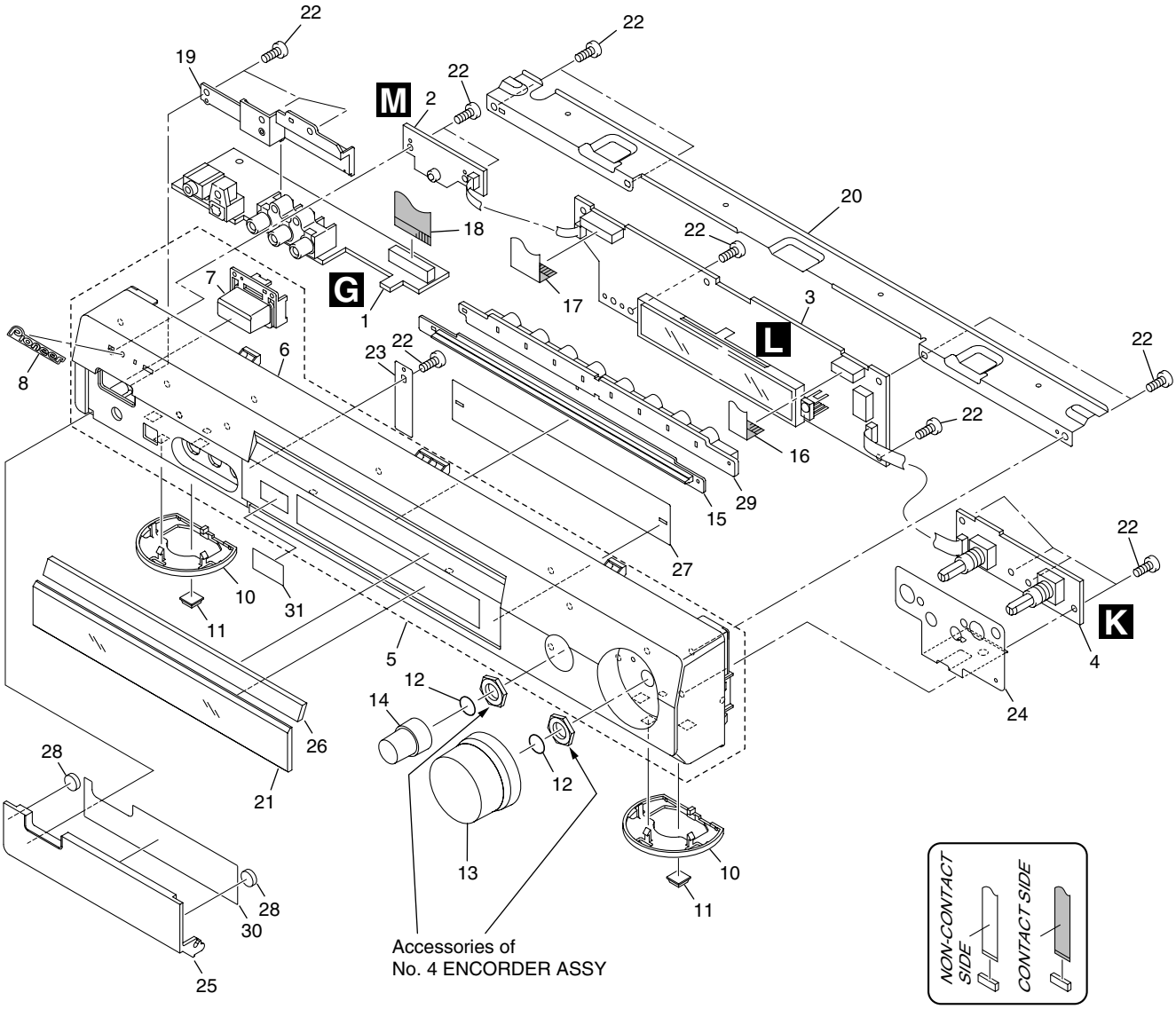
2.3 INTERIOR SECTION



INTERIOR SECTION parts List

Mark	No.	Description	Part No.
	1	AUDIO-INPUT Assy	AWX8228
	2	••••••	
	3	12V Assy	AWX8170
	4	DSP Assy	AWX8239
	5	DSP KAWA Assy	AWX8257
	6	PRIMARY Assy	AWX8244
	7	MOTHER Assy	AWX8212
	8	AMP KAWA Assy	AWX8223
	9	AMP OUT Assy	AWX8229
	10	VHVL Assy	AWX8260
	11	••••••	
	12	J1911 19P FFC/60V	ADD7422
	13	J1906 10P FFC/60V	ADD7405
	14	J1909 19P FFC/60V	ADD7422
	15	••••••	
	16	J1901 17P FFC/60V	ADD7398
	17	J1904 17P FFC/60V	ADD7401
⚠	18	FU1 Fuse (6.3A)	REK1069
⚠	19	T1 Power Transformer	ATS7351
	20	••••••	
	21	••••••	
	22	Core Stay A	ANG7447
	23	Core Stay B	ANG7448
	24	Jack Stay	ANG7450
	25	Trans Frame	ANG7446
NSP	26	Under Base	ANA7151
	27	PCB Support	AEC7365
	28	PCB Mold	AMR2533
NSP	29	PC Support	VEC1749
	30	Foot	REC-434
	31	Screw	BBZ30P060FMC
	32	Screw	BCZ40P060FNI
	33	Screw	BBZ30P180FMC
NSP	34	Fuse Card	AAX2374

2.4 FRONT PANEL SECTION



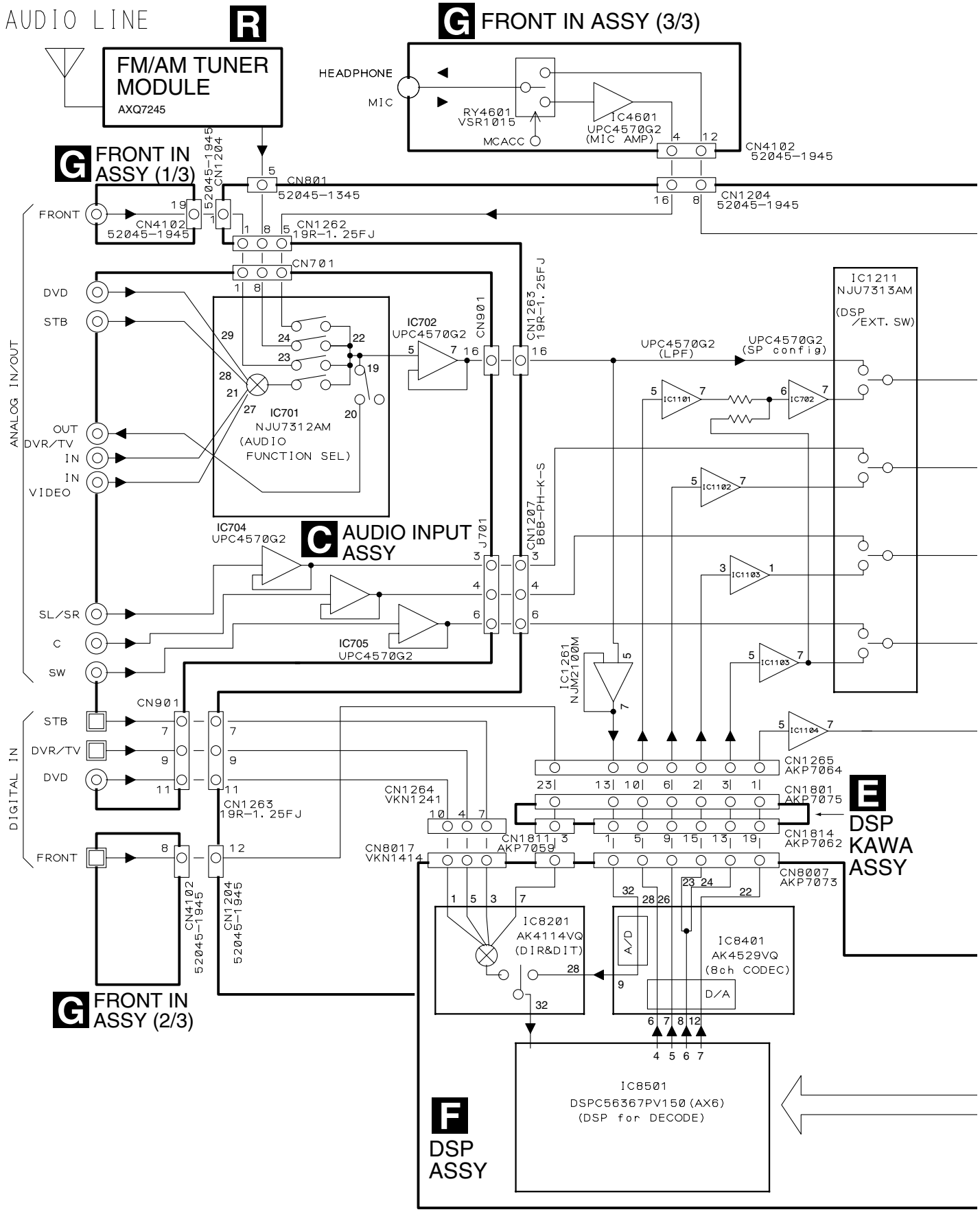
FRONT PANEL SECTION parts List

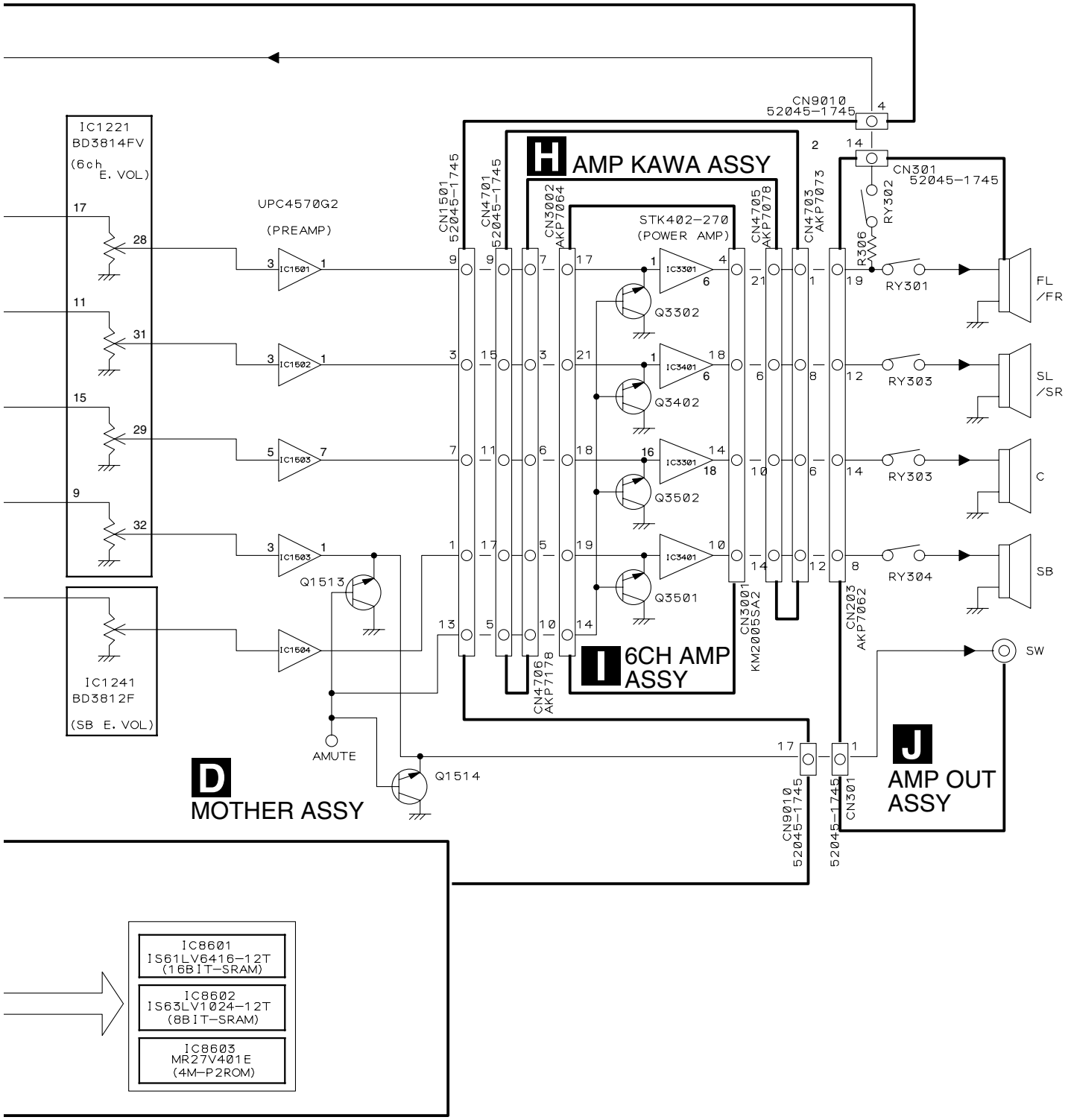
Mark	No.	Description	Part No.
	1	FRONT IN Assy	AWX8246
	2	1P-SW Assy	AWX8206
	3	FRONT Assy	AWX8214
	4	ENCODER Assy	AWX8207
	5	Front Panel Assy	AXG7194
NSP	6	Front Panel	AMB7843
NSP	7	Power Button	AAD7696
	8	Name Plate B	PAN1376
	9	••••••	
	10	Insulator Ring	AAK8091
	11	Rubber Foot	VEB1325
	12	VOL Ring	ABH7220
	13	Volume Knob S Assy	AAB7258
	14	Select Knob S Assy	AAB7259
	15	LED Lens 501	AAK8088
	16	J1903 9P FFC/60V	ADD7400
	17	J1902 15P FFC/60V	ADD7399
	18	J1911 19P FFC/60V	ADD7422
	19	Jack Cover	AMR7447
	20	Front Frame	ANG7445
	21	FL Lens 501	AAK8087
	22	Screw	PPZ30P080FMC
	23	Door Spring	ABK7041
	24	Earth Plate	ANG7466
	25	Door 501	AAK8090
	26	LED Plate 501KU	AAK8094
	27	FL Filter	AAK8104
	28	Rubber Sheet	AEB7054
	29	LED Lens Holder	AMR7448
	30	Door Sheet	AMR7449
	31	Hologram Label	ARW7239

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

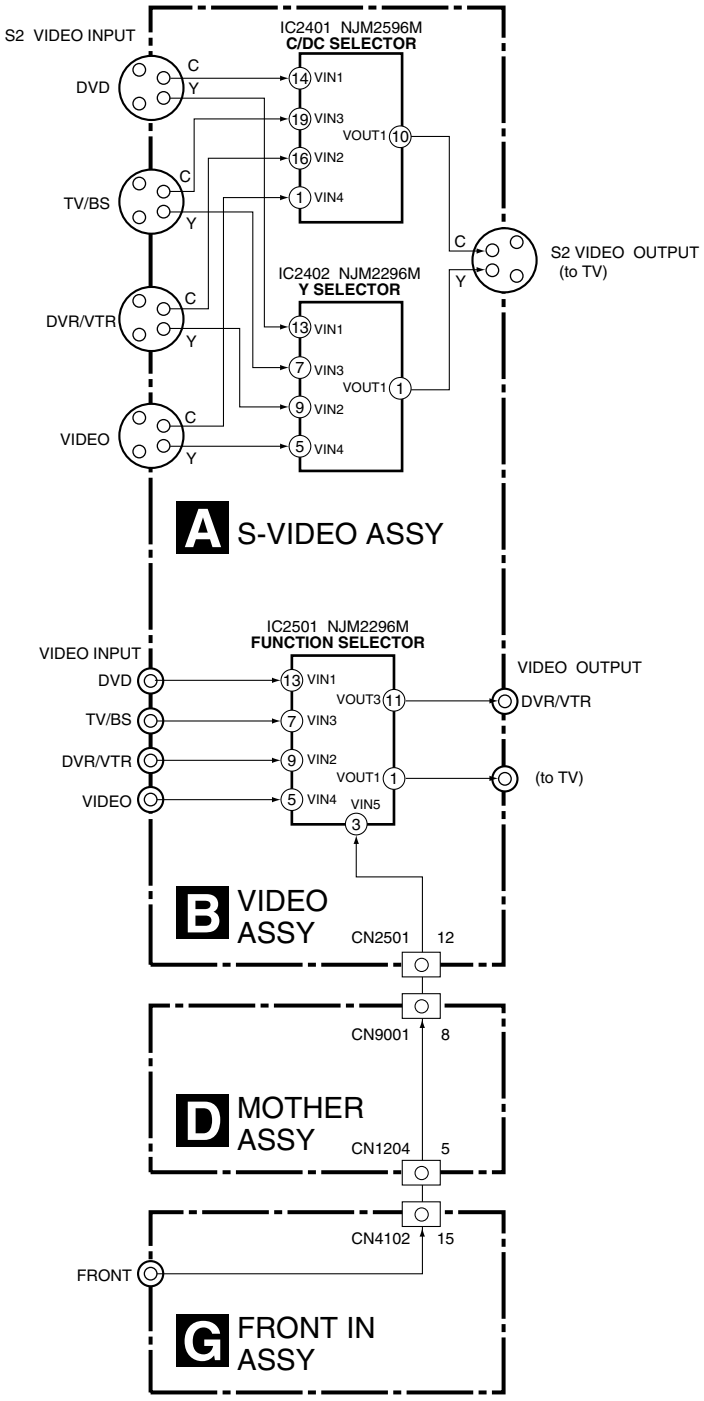
3.1.1 AUDIO BLOCK



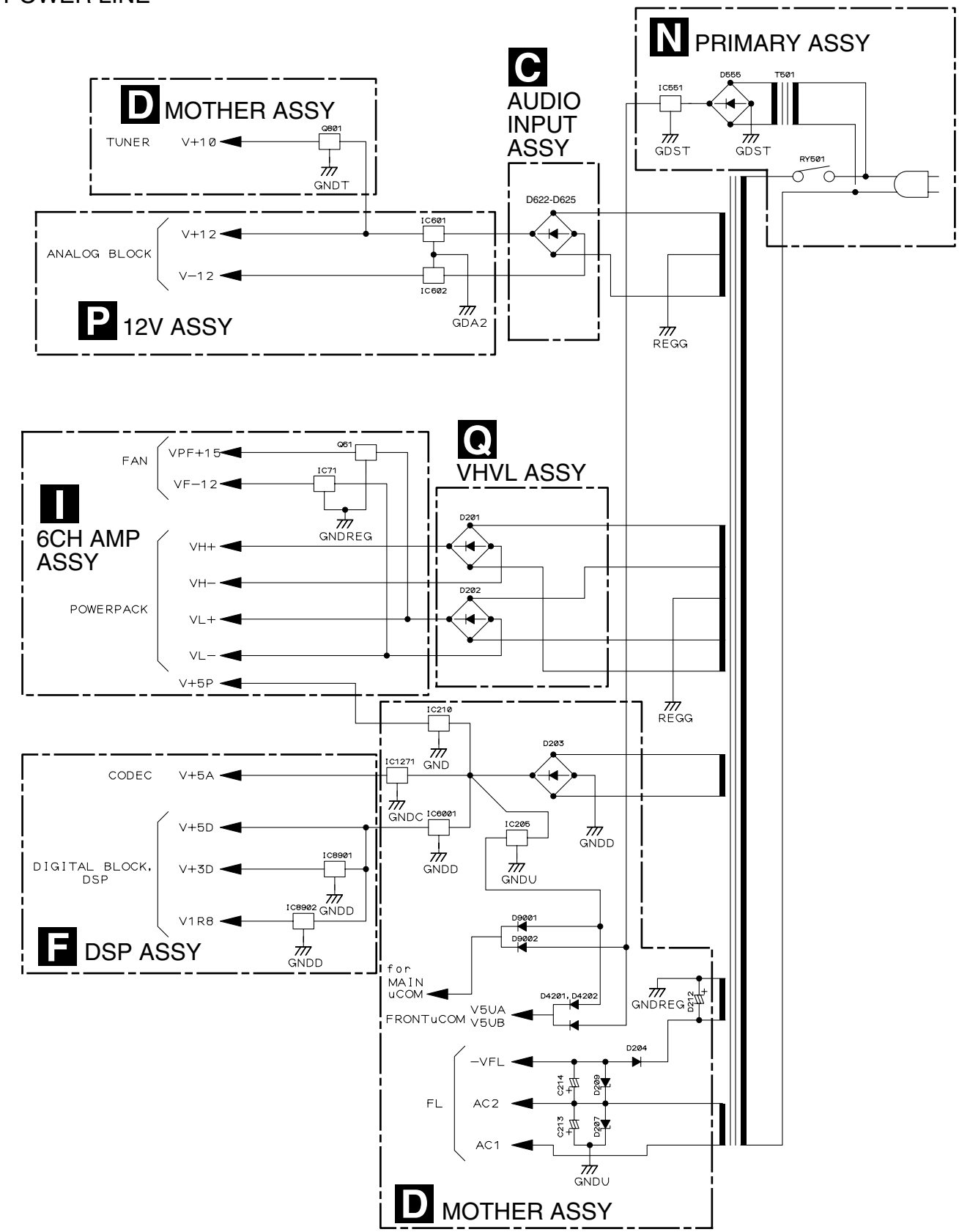

IC1221
BD3814FV
(6ch E. VOL)
IC1241
BD3812F
(SB E. VOL)
UPC4570G2
(PREAMP)
IC1501
IC1502
IC1503
IC1504
Q1513
Q1514
AMUTE
D
MOTHER ASSY
CN1501
52045-1745
CN4701
52045-1745
CN3002
AKP7064
STK402-270
(POWER AMP)
CN4705
AKP7078
CN4703
AKP7073
CN4706
AKP7178
CN3001
KM2005SA2
CN203
AKP7062
H
AMP KAWA ASSY
I
6CH AMP
ASSY
Q3302
Q3402
Q3502
Q3501
IC3301
IC3401
CN9010
52045-1745
CN301
52045-1745
RY302
R306
RY301
RY303
RY304
FL
/FR
SL
/SR
C
SB
SW
J
AMP OUT
ASSY
IC8601
IS61LV6416-12T
(16BIT-SRAM)
IC8602
IS63LV1024-12T
(8BIT-SRAM)
IC8603
MR27V401E
(4M-P2ROM)

3.1.2 VIDEO AND POWER SUPPLY BLOCKS

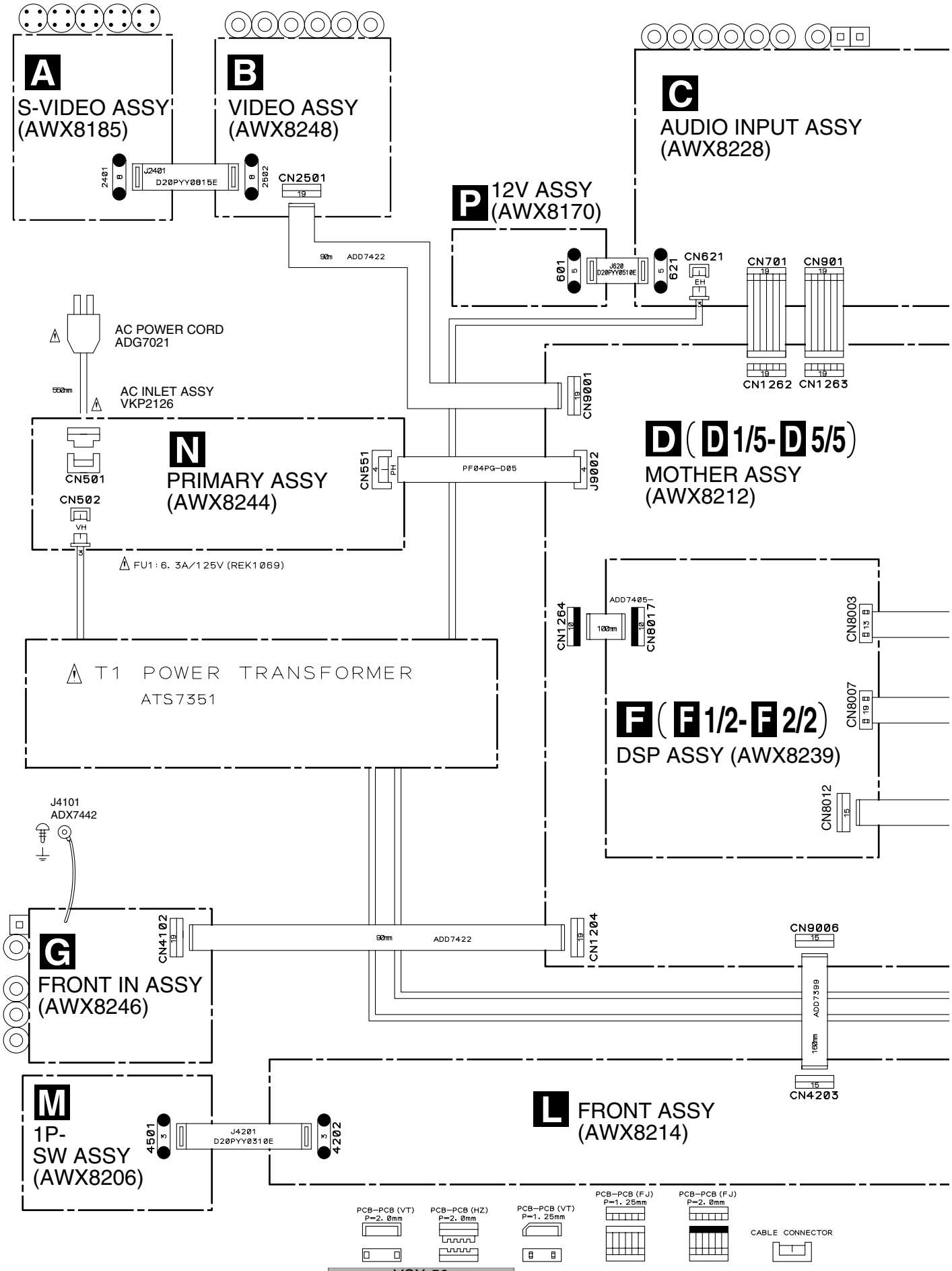
VIDEO LINE



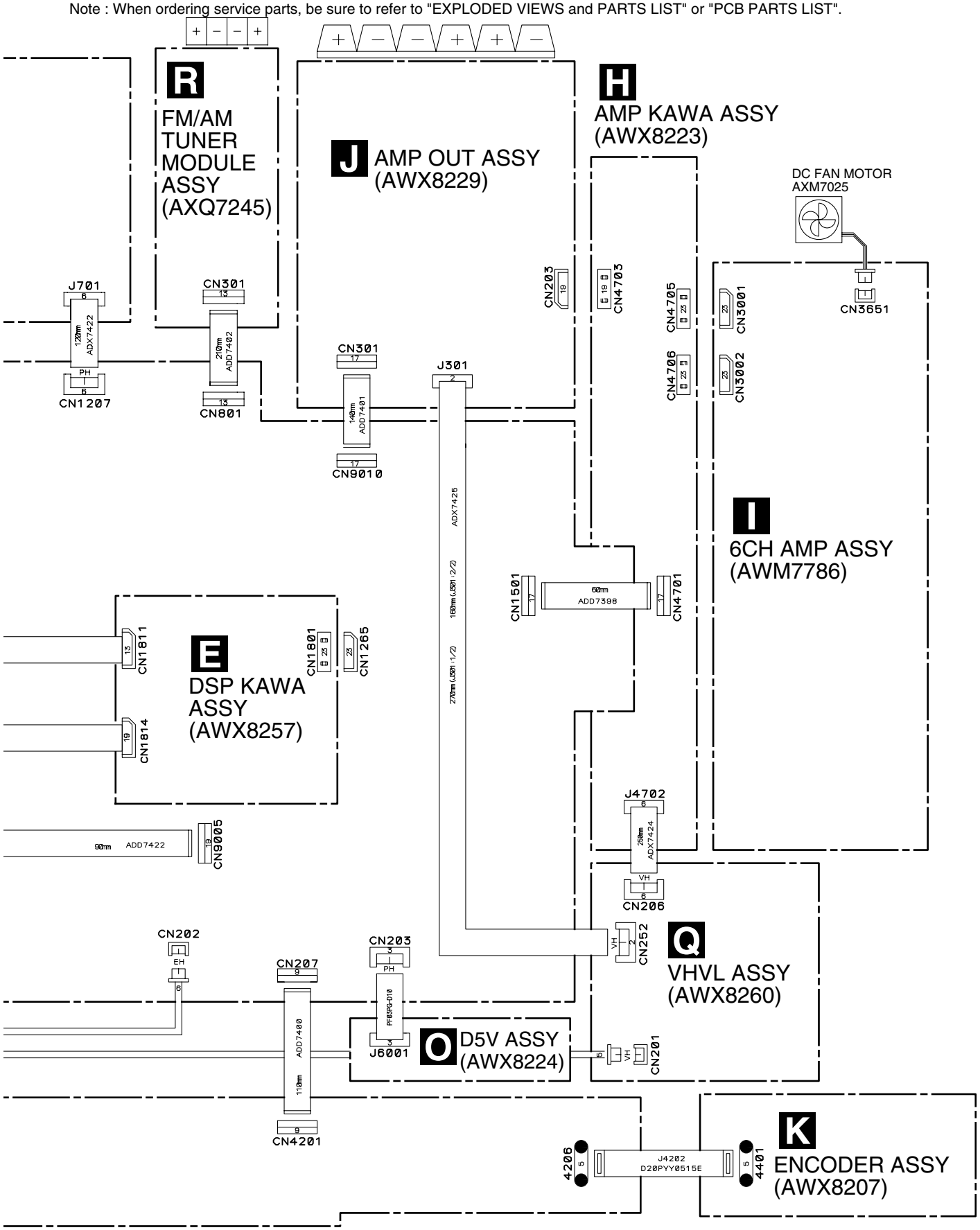
POWER LINE


N PRIMARY ASSY
IC551
D555
T501
GDST
GDST
RY501
C AUDIO INPUT ASSY
D622-D625
REGG
D MOTHER ASSY
TUNER
V+10
Q801
GNDT
IC601
IC602
ANALOG BLOCK
V+12
V-12
P 12V ASSY
GDA2
Q VHVL ASSY
D201
D202
REGG
I 6CH AMP ASSY
FAN
VPF+15
VF-12
Q61
IC71
GNDREG
POWERPACK
VH+
VH-
VL+
VL-
V+5P
IC210
GND
IC1271
GNDC
IC6001
GNDD
D203
IC205
GNDD
GNDU
CODEC
V+5A
DIGITAL BLOCK, DSP
V+5D
V+3D
V1R8
IC8901
IC8902
GNDD
F DSP ASSY
D9001
D9002
for MAIN uCOM
FRONTuCOM
V5UA
V5UB
D4201, D4202
GNDREG
D212
D204
-VFL
FL
AC2
AC1
C214
C213
D209
D207
GNDU
D MOTHER ASSY

3.2 OVERALL WIRING DIAGRAM

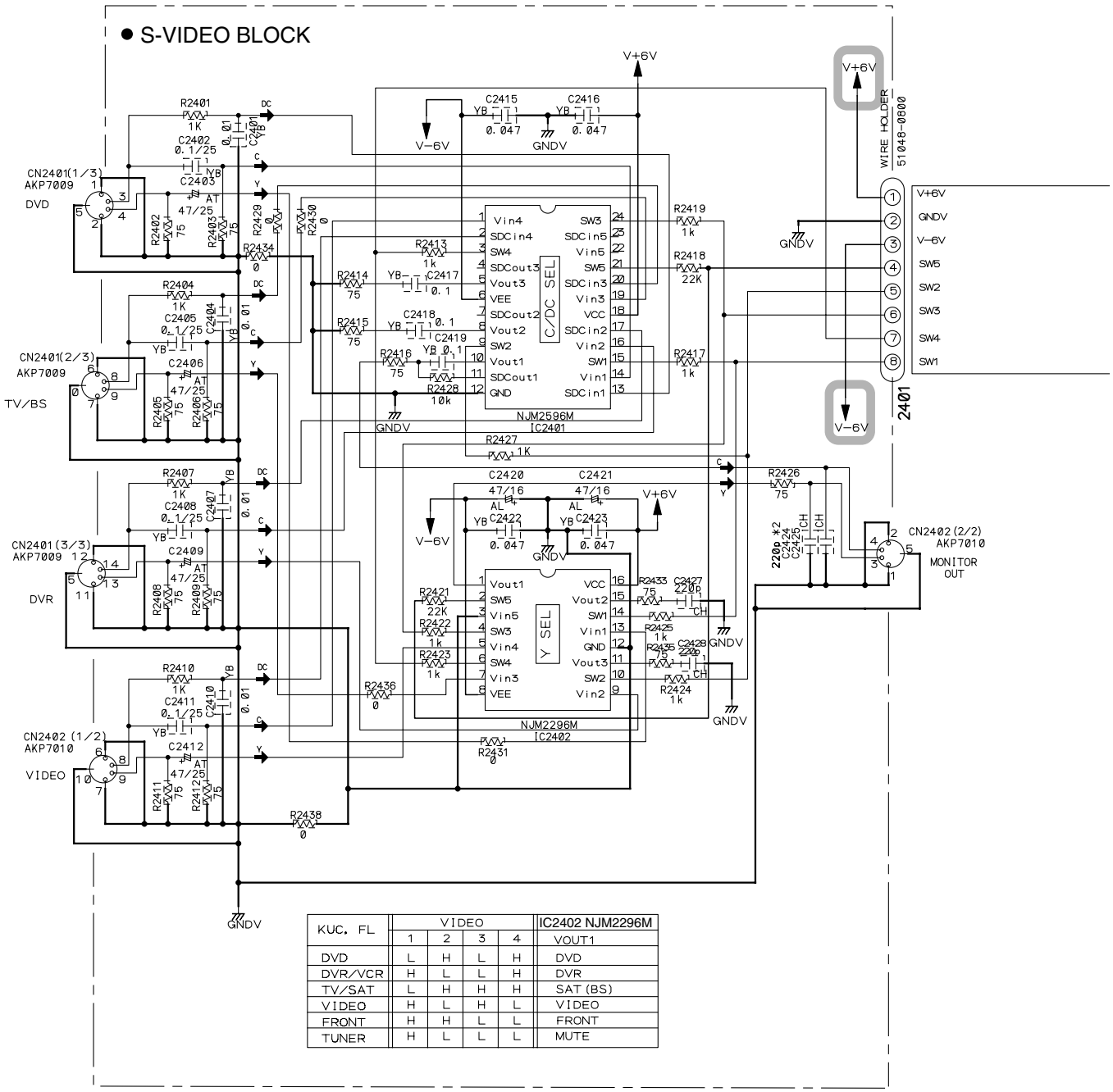


Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



3.3 VIDEO ASSY

A S-VIDEO ASSY (AWX8185)

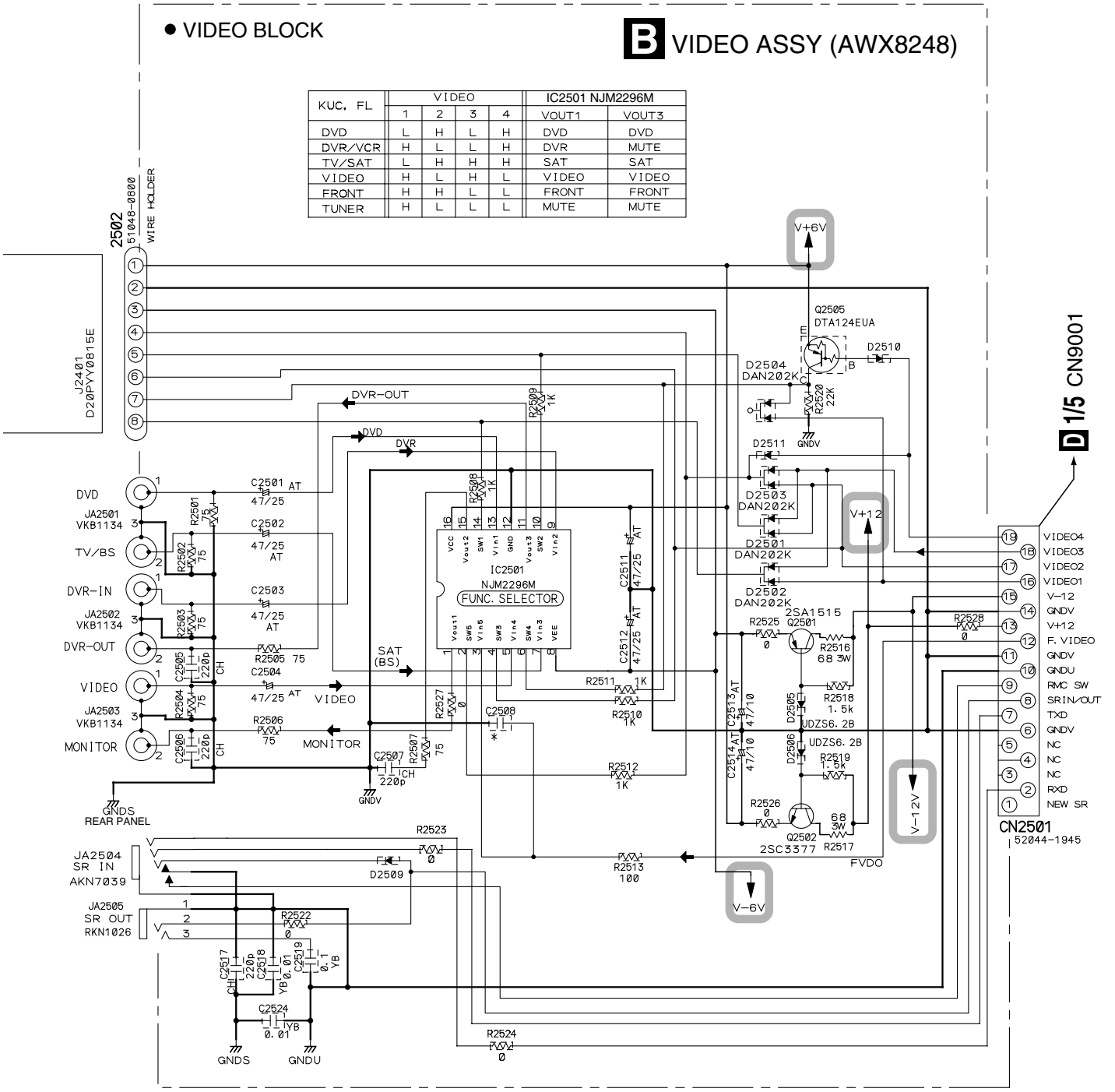


KUC. FL	VIDEO				IC2402 NJM2296M
	1	2	3	4	VOUT1
DVD	L	H	L	H	DVD
DVR/VCR	H	L	L	H	DVR
TV/SAT	L	H	H	H	SAT (BS)
VIDEO	H	L	H	L	VIDEO
FRONT	H	H	L	L	FRONT
TUNER	H	L	L	L	MUTE

● VIDEO BLOCK

B VIDEO ASSY (AWX8248)

KUC, FL	VIDEO				IC2501 NJM2296M	
	1	2	3	4	VOUT1	VOUT3
DVD	L	H	L	H	DVD	DVD
DVR/VCR	H	L	L	H	DVR	MUTE
TV/SAT	L	H	H	H	SAT	SAT
VIDEO	H	L	H	L	VIDEO	VIDEO
FRONT	H	H	L	L	FRONT	FRONT
TUNER	H	L	L	L	MUTE	MUTE



NOTES

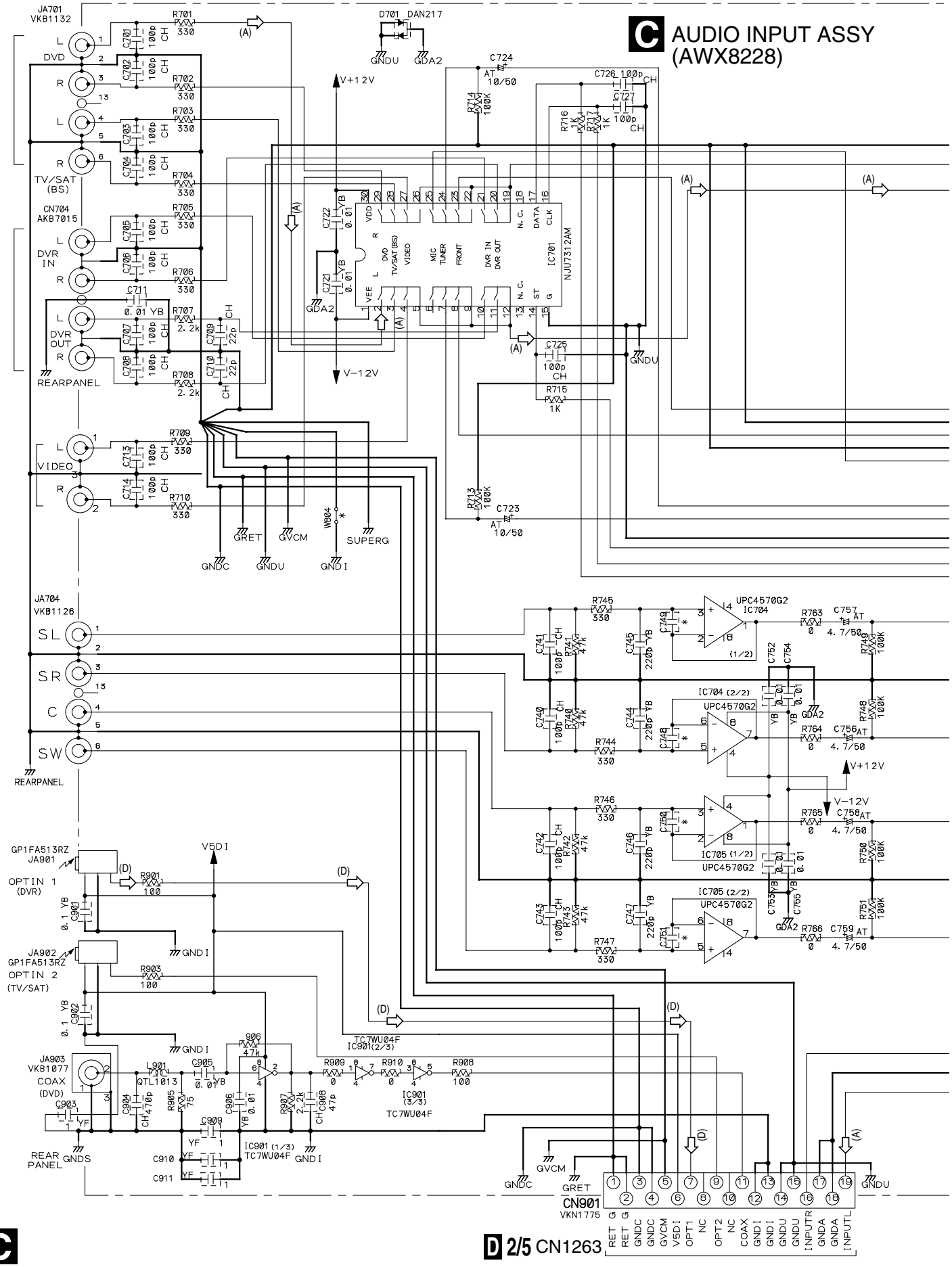
1. RESISTORS
   Unit: k—kΩ, M—MΩ or Ω unless otherwise noted.
   Rated power: 1/16W unless otherwise noted.
   Tolerance: (J)±5% unless otherwise noted.
2. CAPACITORS
   Unit: p—pF or μF unless otherwise noted.
   Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.
   AT:CEAT
   Rated Voltage: 50V expect for electrolytic capacitors.
3. DIODES
   Indicated in 1SS355.

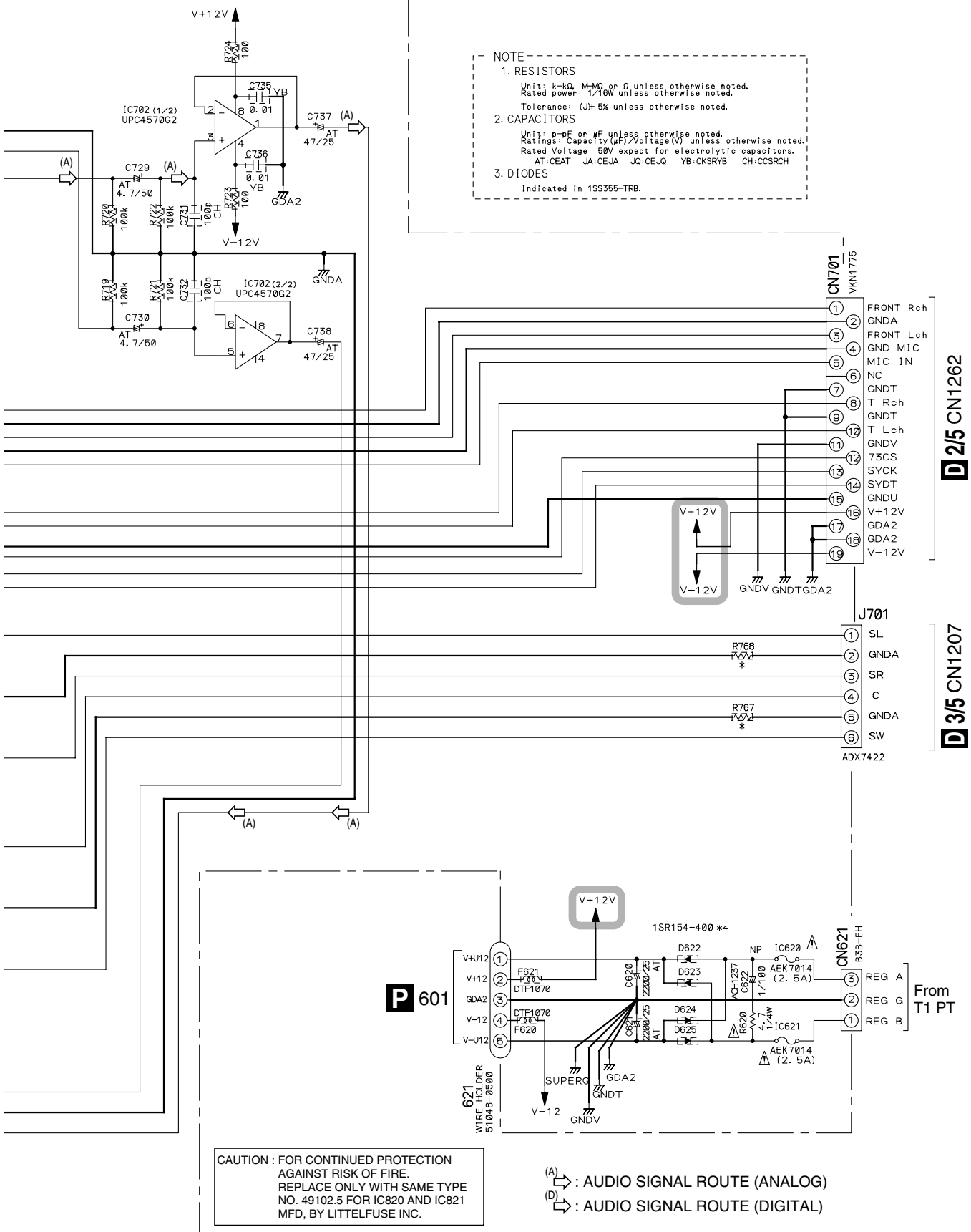
➡ : VIDEO SIGNAL ROUTE

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

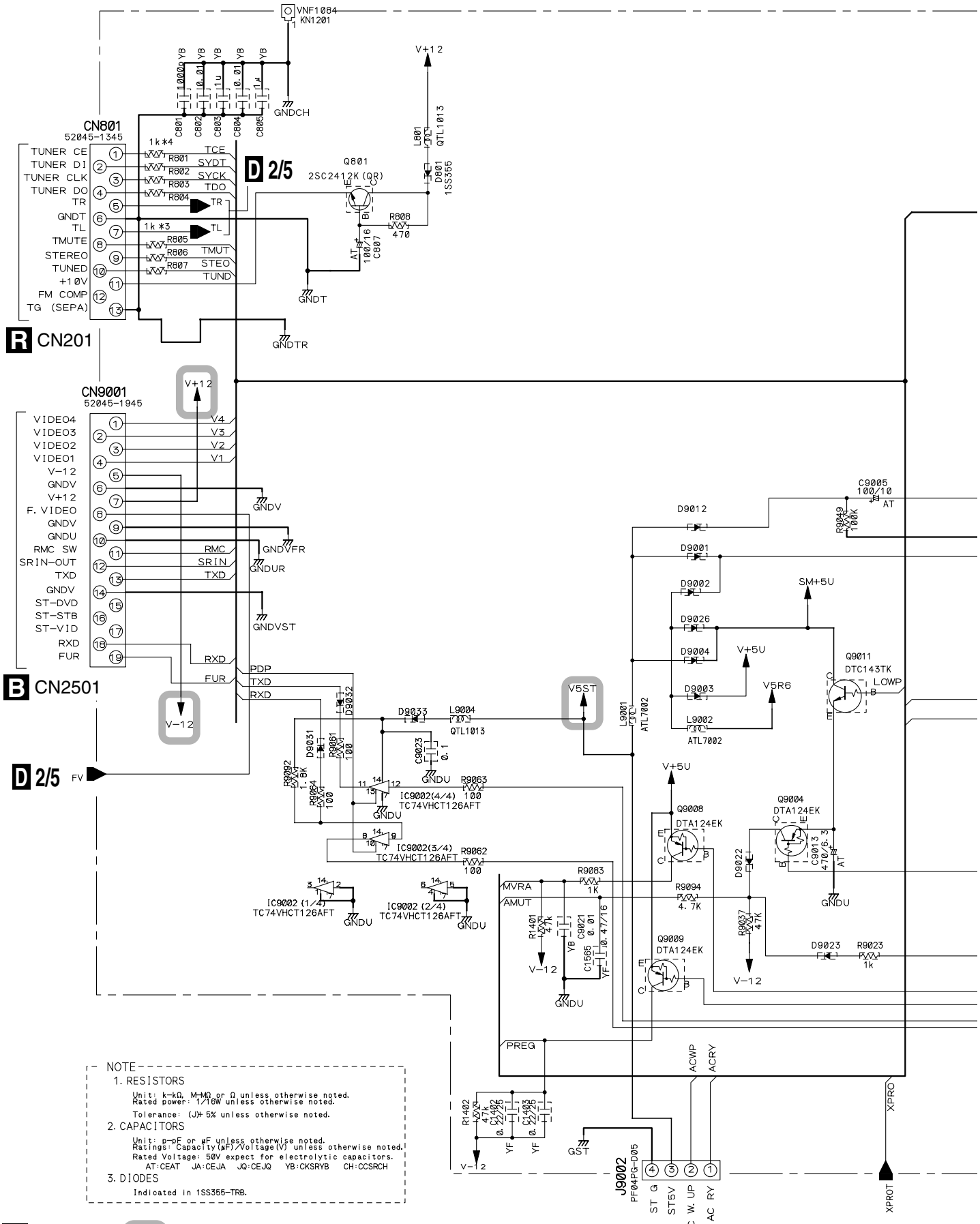
B

3.4 AUDIO INPUT ASSY



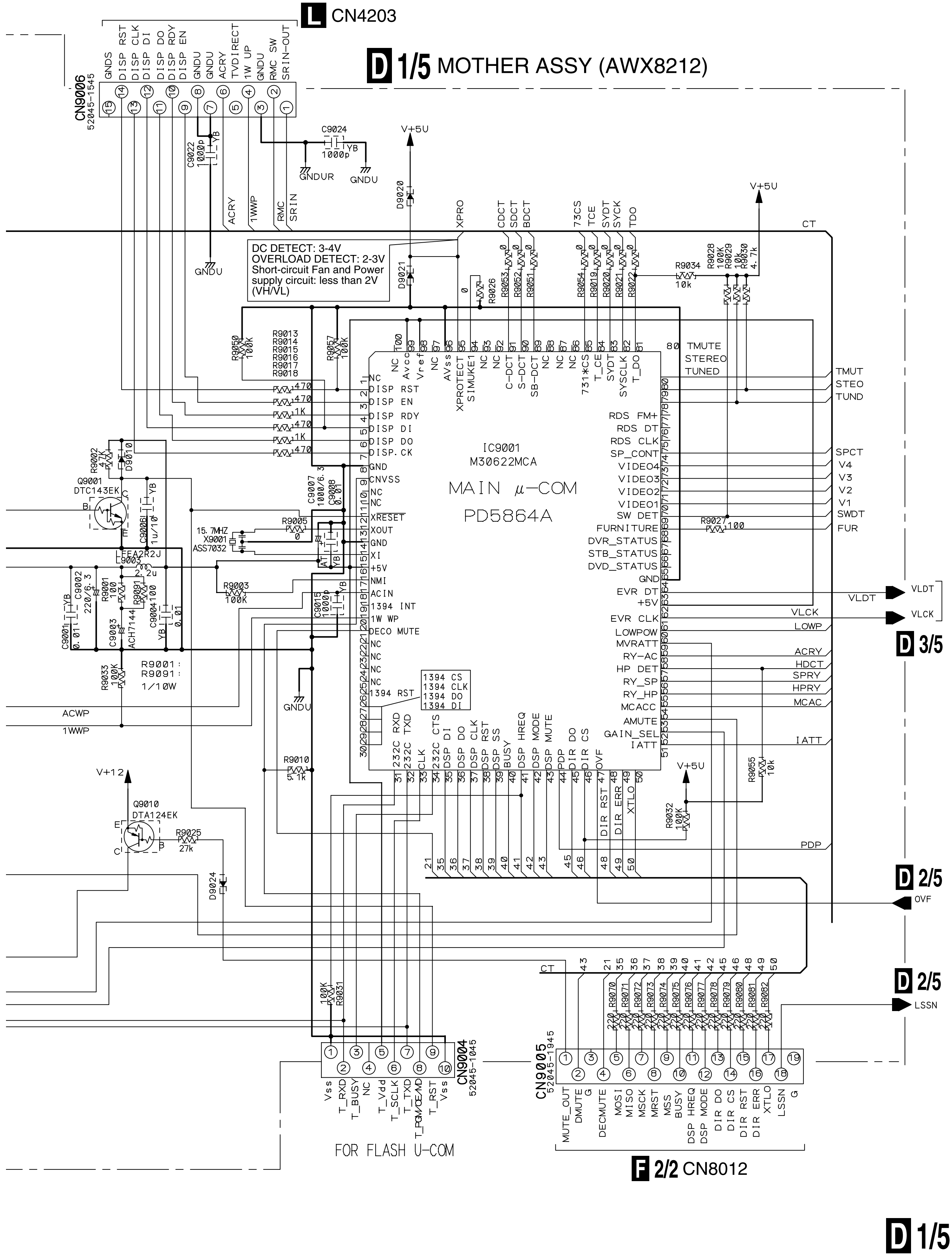

NOTE
1. RESISTORS
Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.
Rated power: 1/16W unless otherwise noted.
Tolerance: (J)± 5% unless otherwise noted.
2. CAPACITORS
Unit: p-pF or μF unless otherwise noted.
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.
Rated Voltage: 50V expect for electrolytic capacitors.
AT:CEAT JA:CEJA JQ:CEJQ YB:CKSRYB CH:CCSRCH
3. DIODES
Indicated in 1SS355-TRB.
V+12V
V-12V
GNDA
GDA2
IC702 (1/2) UPC4570G2
IC702 (2/2) UPC4570G2
CN701
VKN1775
FRONT Rch
GNDA
FRONT Lch
GND MIC
MIC IN
NC
GNDT
T Rch
GNDT
T Lch
GNDV
73CS
SYCK
SYDT
GNDU
V+12V
GDA2
GDA2
V-12V
D 2/5 CN1262
GNDV
GNDT
J701
SL
GNDA
SR
C
GNDA
SW
D 3/5 CN1207
ADX7422
R768
R767
P 601
V+U12
V+12
GDA2
V-12
V-U12
F621
F620
DTF1070
C620
C622
D622
D623
D624
D625
IC620
IC621
AEK7014 (2.5A)
CN621
B3B-EH
REG A
REG G
REG B
From T1 PT
621 WIRE HOLDER 51048-0500
SUPERG
GDA2
GNDT
V-12
GNDV
1SR154-400 *4
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 49102.5 FOR IC820 AND IC821 MFD, BY LITTELFUSE INC.
(A) : AUDIO SIGNAL ROUTE (ANALOG)
(D) : AUDIO SIGNAL ROUTE (DIGITAL)
: The power supply is shown with the marked box.

3.5 MOTHER ASSY (1/5)



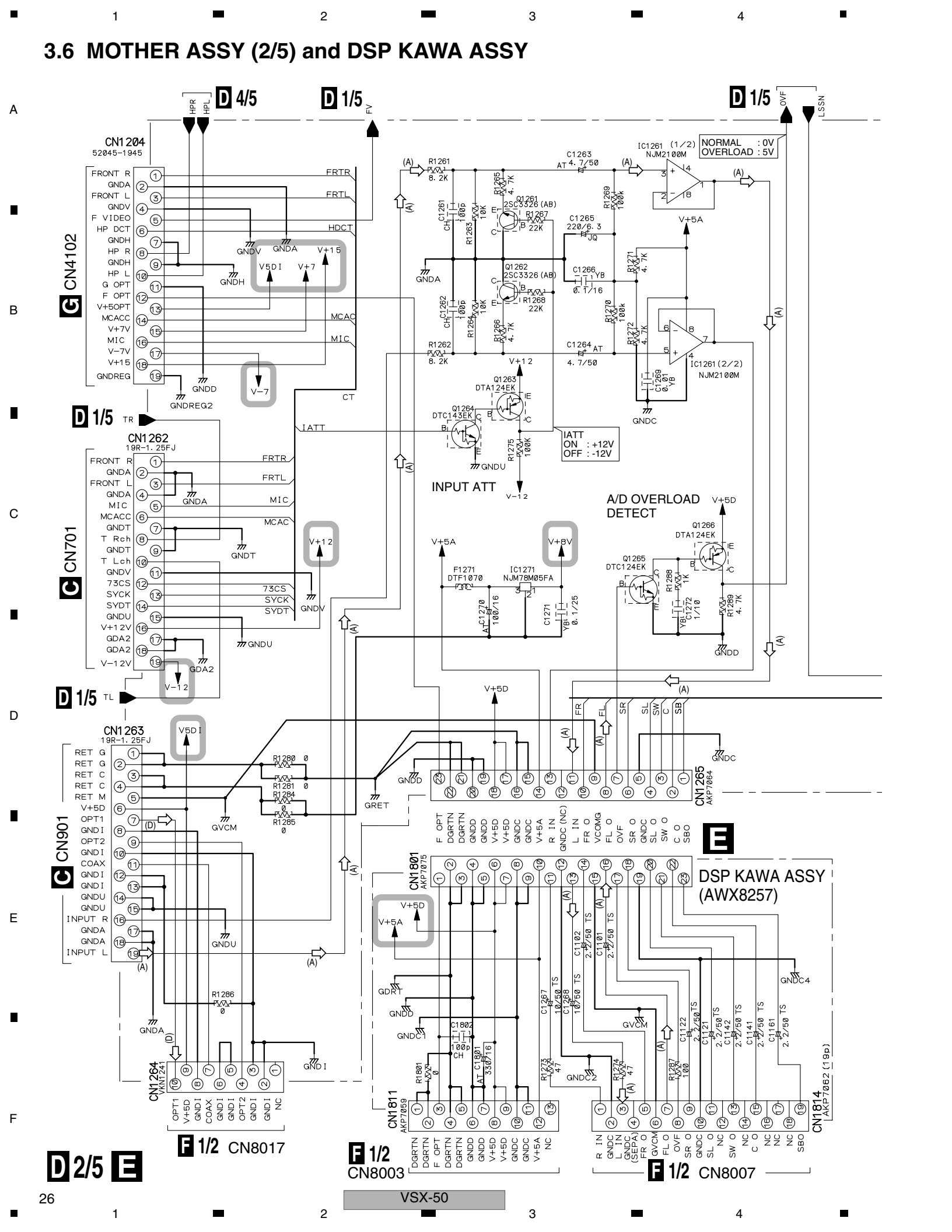
D 1/5

: The power supply is shown with the marked box.

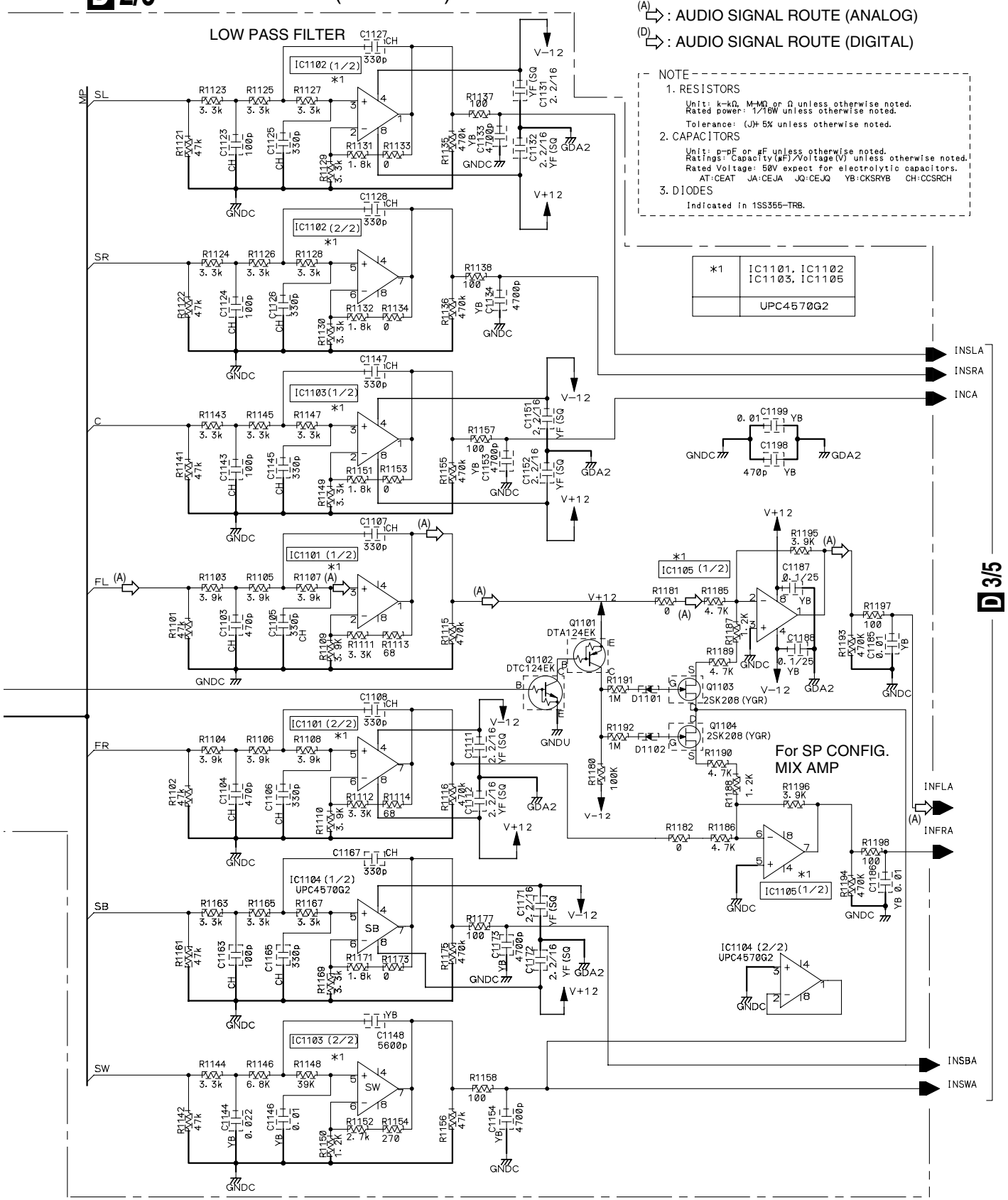


L CN4203
D 1/5 MOTHER ASSY (AWX8212)
CN9006
52045-1545
GNDS
DISP RST
DISP CLK
DISP DI
DISP DO
DISP RDY
DISP EN
GNDU
GNDU
ACRY
TVDIRECT
1W UP
GNDU
RMC SW
SRIN-OUT
C9024
1000p
C9022
1000p
GNDUR
GNDU
V+5U
D9020
XPRO
CDCT
SDCT
BDCT
73CS
TCE
SYDT
SYCK
TDO
CT
DC DETECT: 3-4V
OVERLOAD DETECT: 2-3V
Short-circuit Fan and Power supply circuit: less than 2V (VH/VL)
D9021
R9034
10k
R9028
100K
R9029
10k
R9030
4.7k
IC9001
M30622MCA
MAIN μ-COM
PD5864A
NC
DISP RST
DISP EN
DISP RDY
DISP DI
DISP DO
DISP.CK
GND
CNVSS
XRESET
XOUT
XI
+5V
NMI
ACIN
1394 INT
1W WP
DECO MUTE
1394 RST
1394 CS
1394 CLK
1394 DO
1394 DI
Avcc
Vref
AVss
XPROTECT
SIMUKE1
C-DCT
S-DCT
SB-DCT
731*CS
T_CE
SYDT
SYSCLK
T_DO
TMUTE
STEREO
TUNED
RDS FM+
RDS DT
RDS CLK
SP_CONT
VIDEO4
VIDEO3
VIDEO2
VIDEO1
SW DET
FURNITURE
DVR_STATUS
STB_STATUS
DVD_STATUS
EVR DT
EVR CLK
LOWPOW
MVRATT
RY-AC
HP DET
RY_SP
RY_HP
MCACC
AMUTE
GAIN_SEL
IATT
232C RXD
232C TXD
CLK
232C CTS
DSP DI
DSP DO
DSP CLK
DSP RST
DSP SS
BUSY
DSP HREQ
DSP MODE
DSP MUTE
PDP
DIR DO
DIR CS
OVF
DIR RST
DIR ERR
XTLO
TMUT
STEO
TUND
SPCT
V4
V3
V2
V1
SWDT
FUR
R9027
100
VLDT
VLCK
LOWP
ACRY
HDCT
SPRY
HPRY
MCAC
IATT
PDP
D 3/5
D 2/5
OVF
D 2/5
LSSN
Q9001
DTC143EK
D9010
R9002
47K
C9006
1u/10
LFFA2R2J
L9005
2.2u
C9001
0.01
C9002
220/6.3
C9003
ACH7144
R9001
100
R9091
100
C9004
0.01
R9001: R9091: 1/10W
R9033
100K
ACWP
1WWP
15.7MHZ
X9001
ASS7032
R9005
0
R9003
100K
C9007
1000/6.3
C9008
0.01
C9015
1000p
R9050
100K
R9057
100K
R9013
R9014
R9015
R9016
R9017
R9018
GNDU
R9010
9.1k
V+12
Q9010
DTA124EK
R9025
27k
D9024
R9032
100K
R9055
10k
R9031
100K
CN9004
52045-1045
Vss
T_RXD
T_BUSY
NC
T_Vdd
T_SCLK
T_TXD
T_PGM/CE/MD
T_RST
Vss
FOR FLASH U-COM
CN9005
52045-1945
MUTE_OUT
DMUTE
G
DECMUTE
MOSI
MISO
MSCK
MRST
MSS
BUSY
DSP HREQ
DSP MODE
DIR DO
DIR CS
DIR RST
DIR ERR
XTLO
LSSN
G
F 2/2 CN8012
D 1/5

3.6 MOTHER ASSY (2/5) and DSP KAWA ASSY



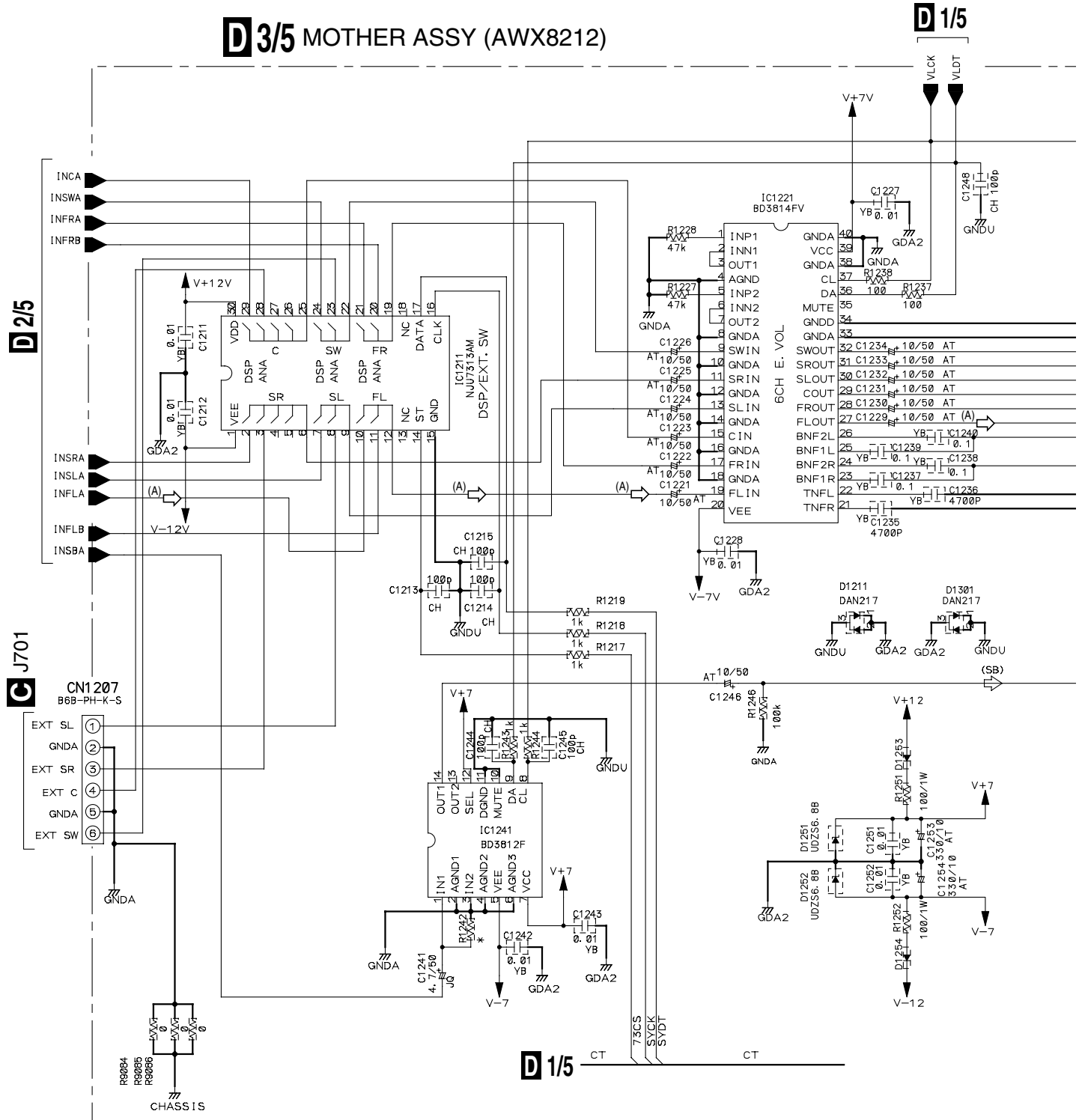
D 2/5 MOTHER ASSY (AWX8212)

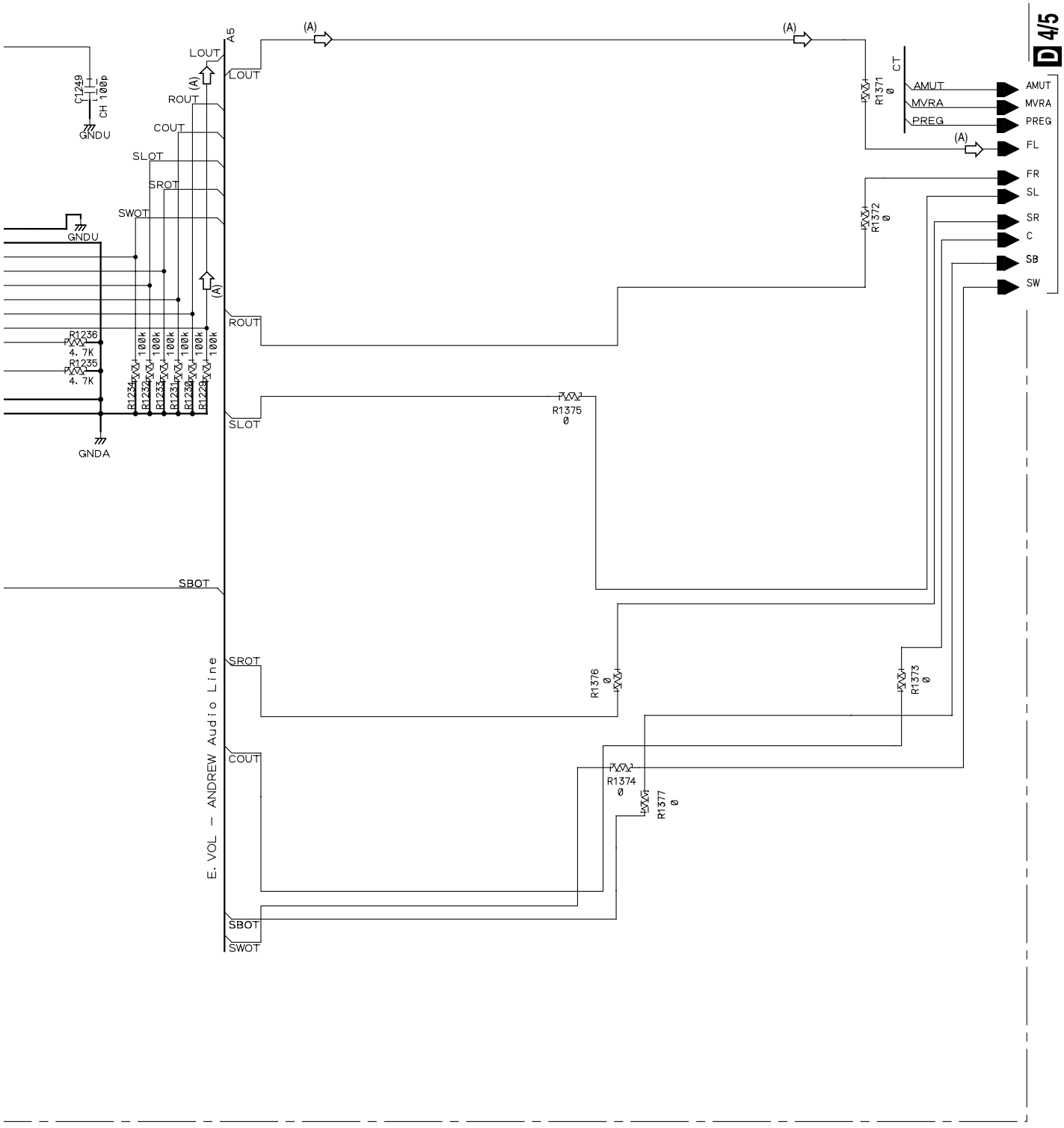


: The power supply is shown with the marked box.

D 2/5

3.7 MOTHER ASSY (3/5)





NOTE

1. RESISTORS

Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.
Rated power: 1/16W unless otherwise noted.

Tolerance: (J)± 5% unless otherwise noted.

2. CAPACITORS

Unit: p-pF or μF unless otherwise noted.
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.
Rated Voltage: 50V expect for electrolytic capacitors.
AT:CEAT JA:CEJA JQ:CEJQ YB:CKSRYB CH:CCSRCH

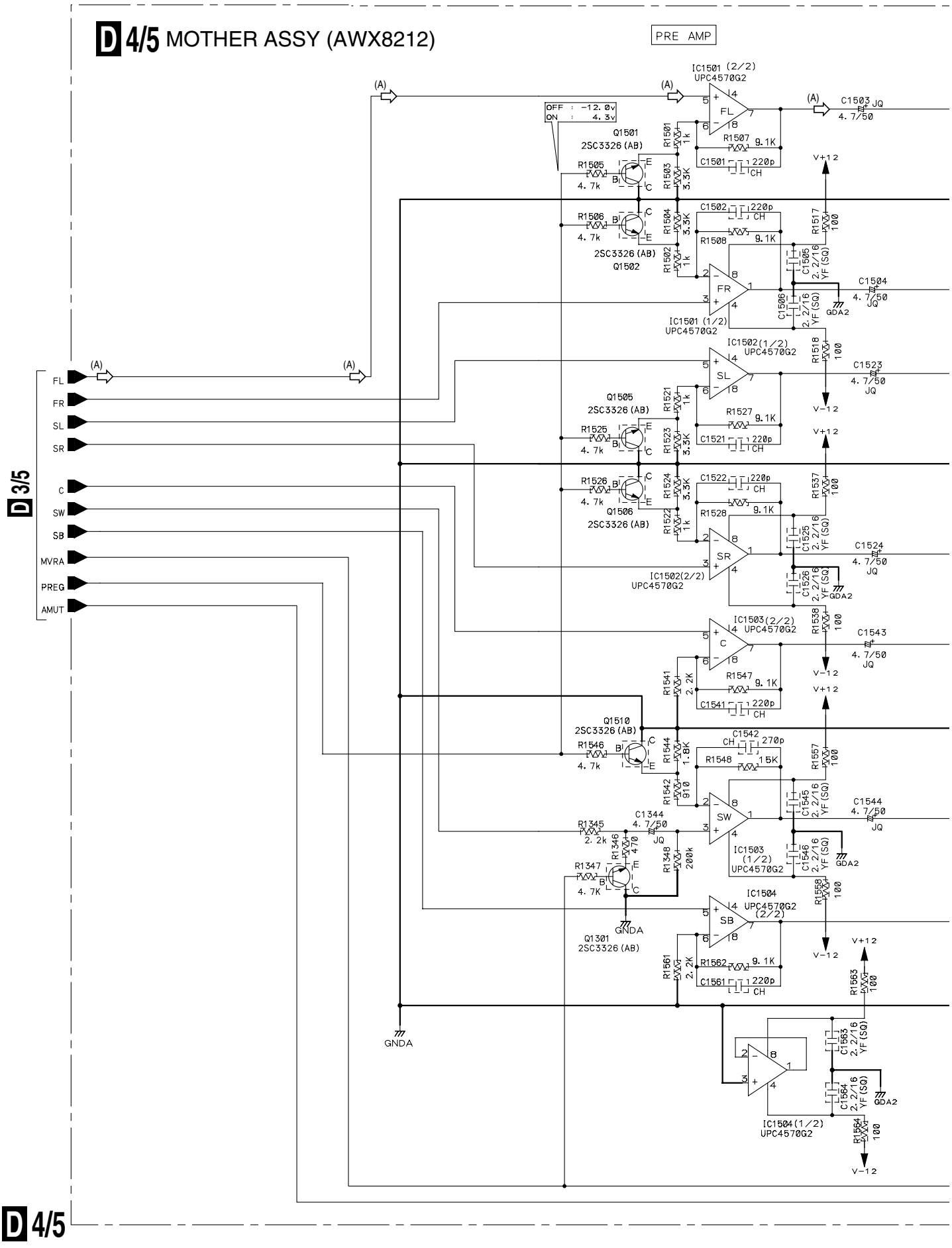
3. DIODES

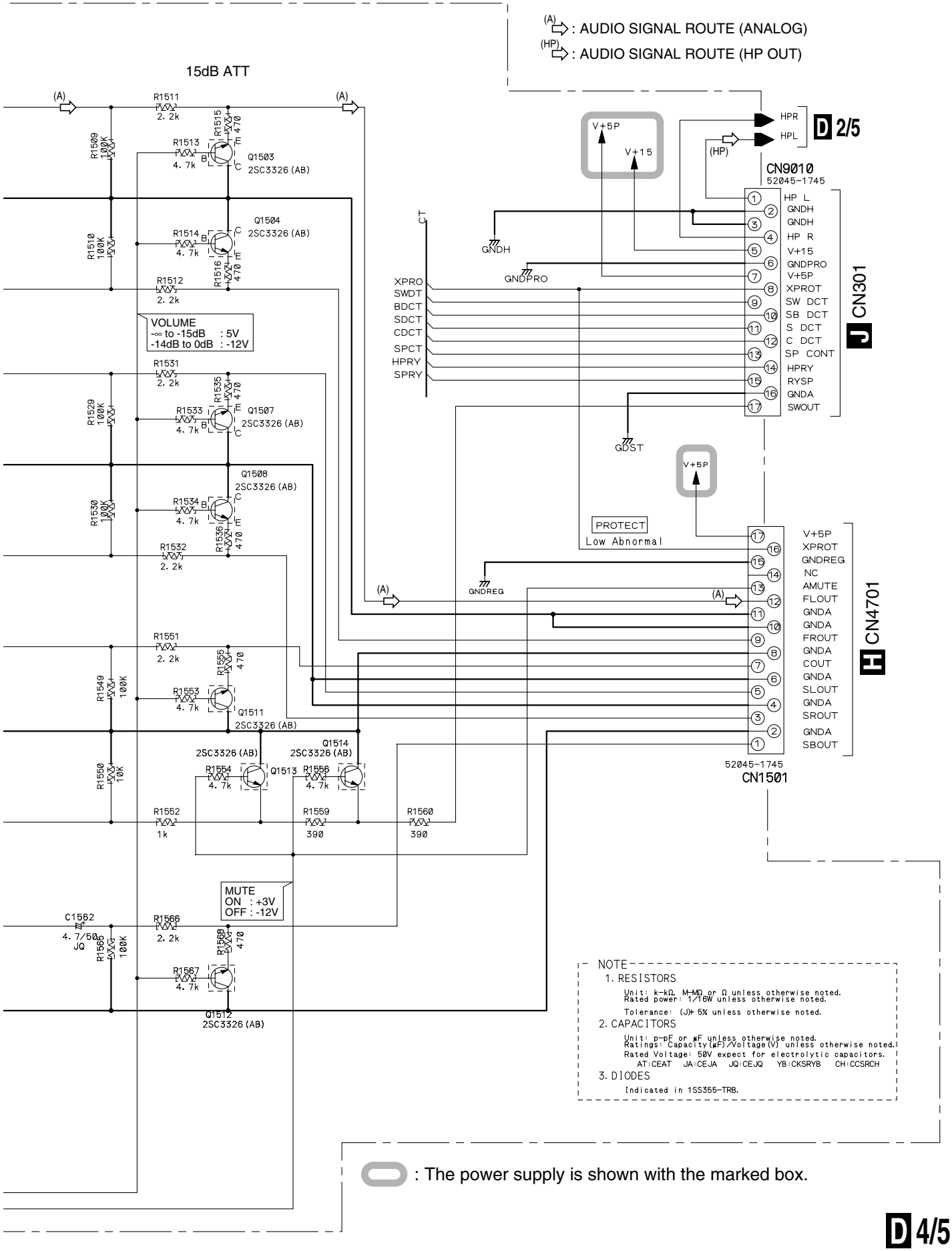
Indicated in 1SS355-TRB.

(A) ⇨ : AUDIO SIGNAL ROUTE (ANALOG)

D 3/5

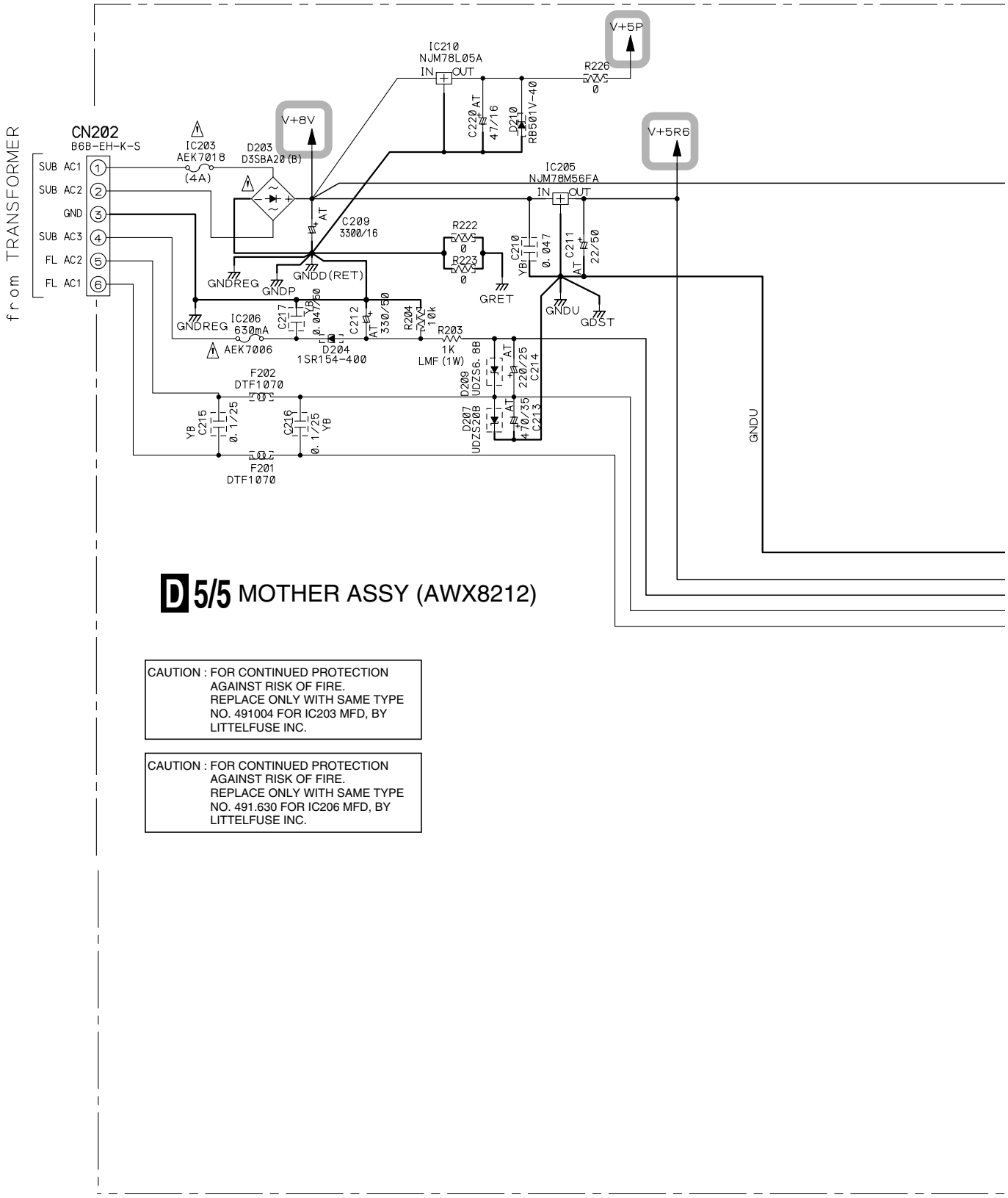
3.8 MOTHER ASSY (4/5)




(A) : AUDIO SIGNAL ROUTE (ANALOG)
(HP) : AUDIO SIGNAL ROUTE (HP OUT)
15dB ATT
VOLUME
-∞ to -15dB : 5V
-14dB to 0dB : -12V
MUTE
ON : +3V
OFF : -12V
PROTECT
Low Abnormal
HPR
HPL
D 2/5
CN9010
52045-1745
J CN301
H CN4701
52045-1745
CN1501
V+5P
V+15
GNDH
GNDPRO
GNDREG
GDST
XPRO
SWDT
BDCT
SDCT
CDCT
SPCT
HPRY
SPRY
HP L
GNDH
GNDH
HP R
V+15
GNDPRO
V+5P
XPROT
SW DCT
SB DCT
S DCT
C DCT
SP CONT
HPRY
RYSP
GNDA
SWOUT
V+5P
XPROT
GNDREG
NC
AMUTE
FLOUT
GNDA
GNDA
FROUT
GNDA
COUT
GNDA
SLOUT
GNDA
SROUT
GNDA
SBOUT
Q1503 2SC3326 (AB)
Q1504 2SC3326 (AB)
Q1507 2SC3326 (AB)
Q1508 2SC3326 (AB)
Q1511 2SC3326 (AB)
Q1512 2SC3326 (AB)
Q1513 2SC3326 (AB)
Q1514 2SC3326 (AB)
R1509 100K
R1510 100K
R1511 2.2k
R1512 2.2k
R1513 4.7k
R1514 4.7k
R1515 470
R1516 470
R1529 100K
R1530 100K
R1531 2.2k
R1532 2.2k
R1533 4.7k
R1534 4.7k
R1535 470
R1536 470
R1549 100K
R1550 10K
R1551 2.2k
R1552 1k
R1553 4.7k
R1554 4.7k
R1555 470
R1556 4.7k
R1559 390
R1560 390
R1565 100K
R1566 2.2k
R1567 4.7k
R1568 470
C1562 4.7/50 JQ
NOTE
1. RESISTORS
Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.
Rated power: 1/16W unless otherwise noted.
Tolerance: (J)± 5% unless otherwise noted.
2. CAPACITORS
Unit: p-pF or μF unless otherwise noted.
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.
Rated Voltage: 50V expect for electrolytic capacitors.
AT:CEAT JA:CEJA JQ:CEJQ YB:CKSRYB CH:CCSRCH
3. DIODES
Indicated in 1SS355-TRB.
: The power supply is shown with the marked box.

D 4/5

3.9 MOTHER ASSY (5/5)

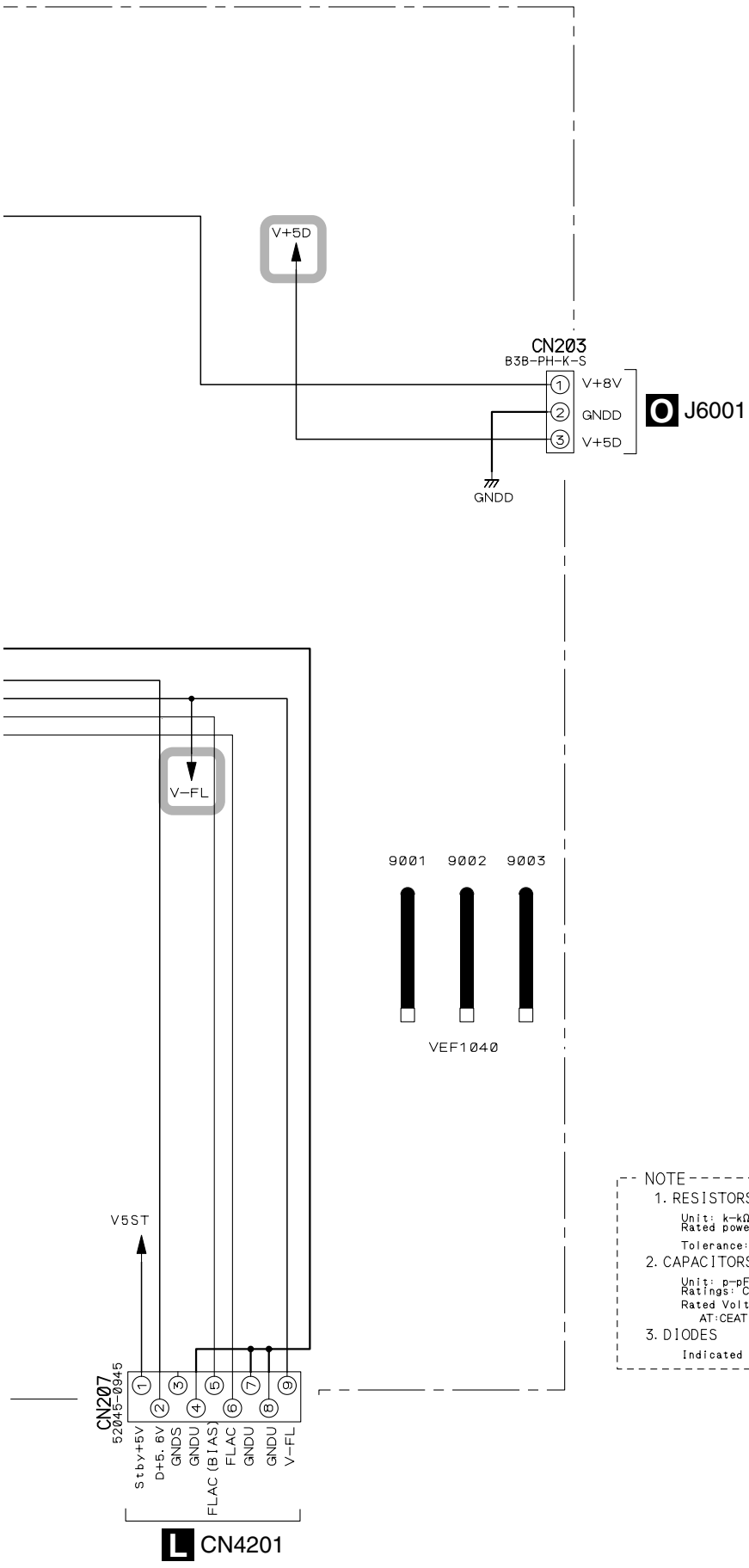


D 5/5 MOTHER ASSY (AWX8212)

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491004 FOR IC203 MFD, BY LITTELFUSE INC.

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.630 FOR IC206 MFD, BY LITTELFUSE INC.

: The power supply is shown with the marked box.



NOTE

1. RESISTORS

Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.
Rated power: 1/16W unless otherwise noted.

Tolerance: (J)± 5% unless otherwise noted.

2. CAPACITORS

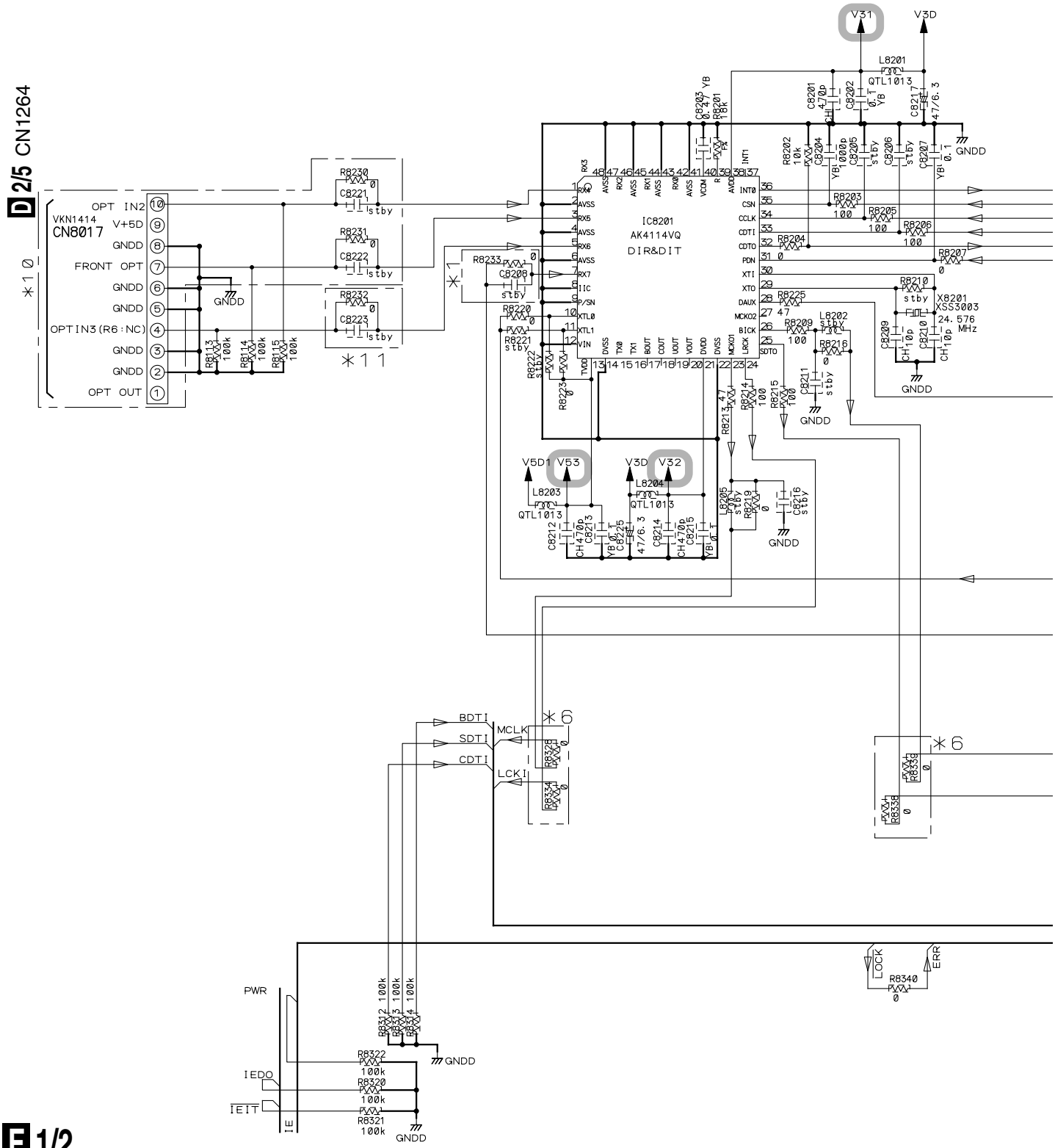
Unit: p-pF or μF unless otherwise noted.
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.
Rated Voltage: 50V expect for electrolytic capacitors.
AT:CEAT JA:CEJA JQ:CEJQ YB:CKSRYB CH:CCSRCH

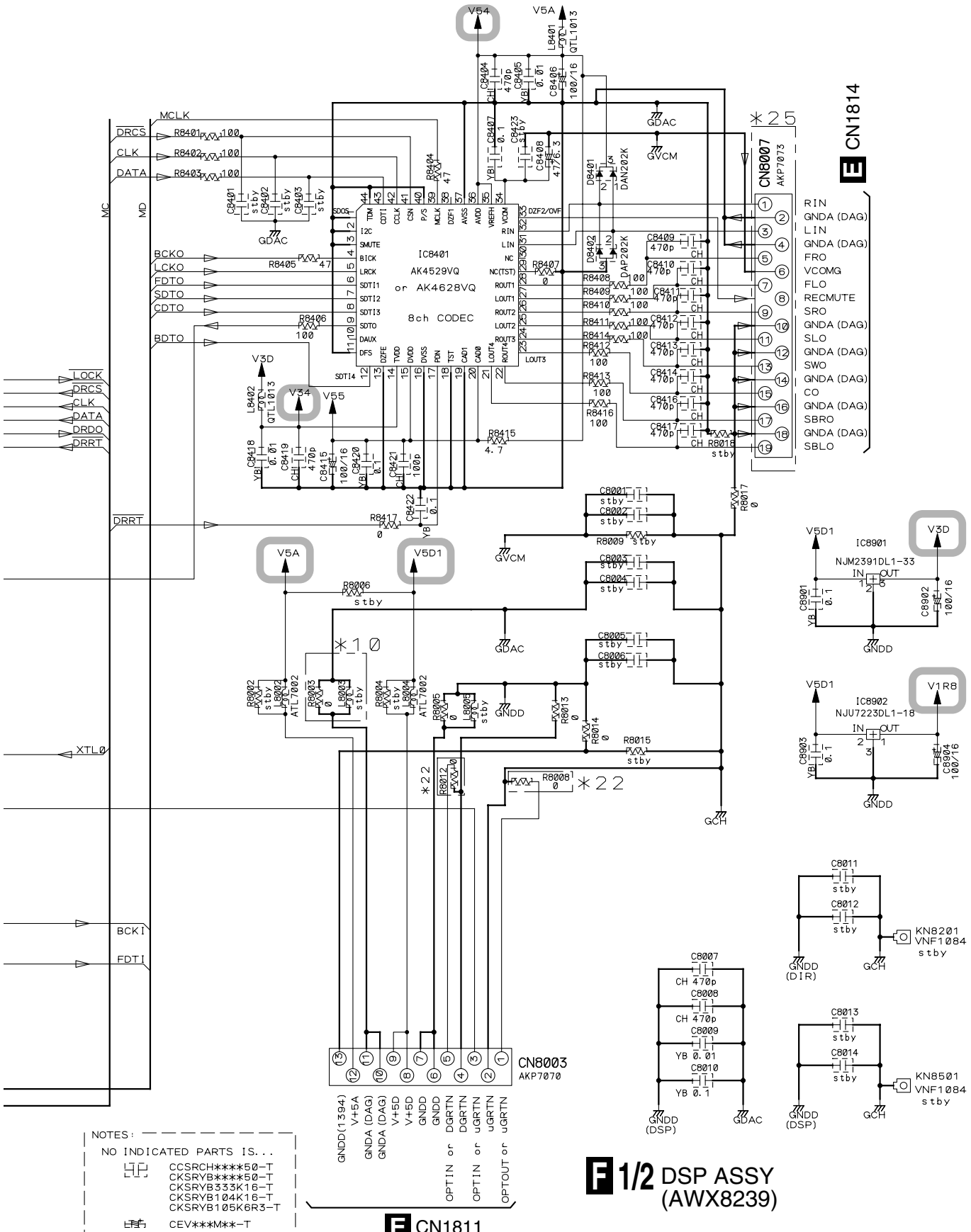
3. DIODES

Indicated in 1SS355-TRB.

D 5/5

3.10 DSP ASSY (1/2)





NOTES:

NO INDICATED PARTS IS...

CCSRCH****50-T
CKSRYB****50-T
CKSRYB333K16-T
CKSRYB104K16-T
CKSRYB105K6R3-T

CEV***M**-T

RS1/16S***J-T

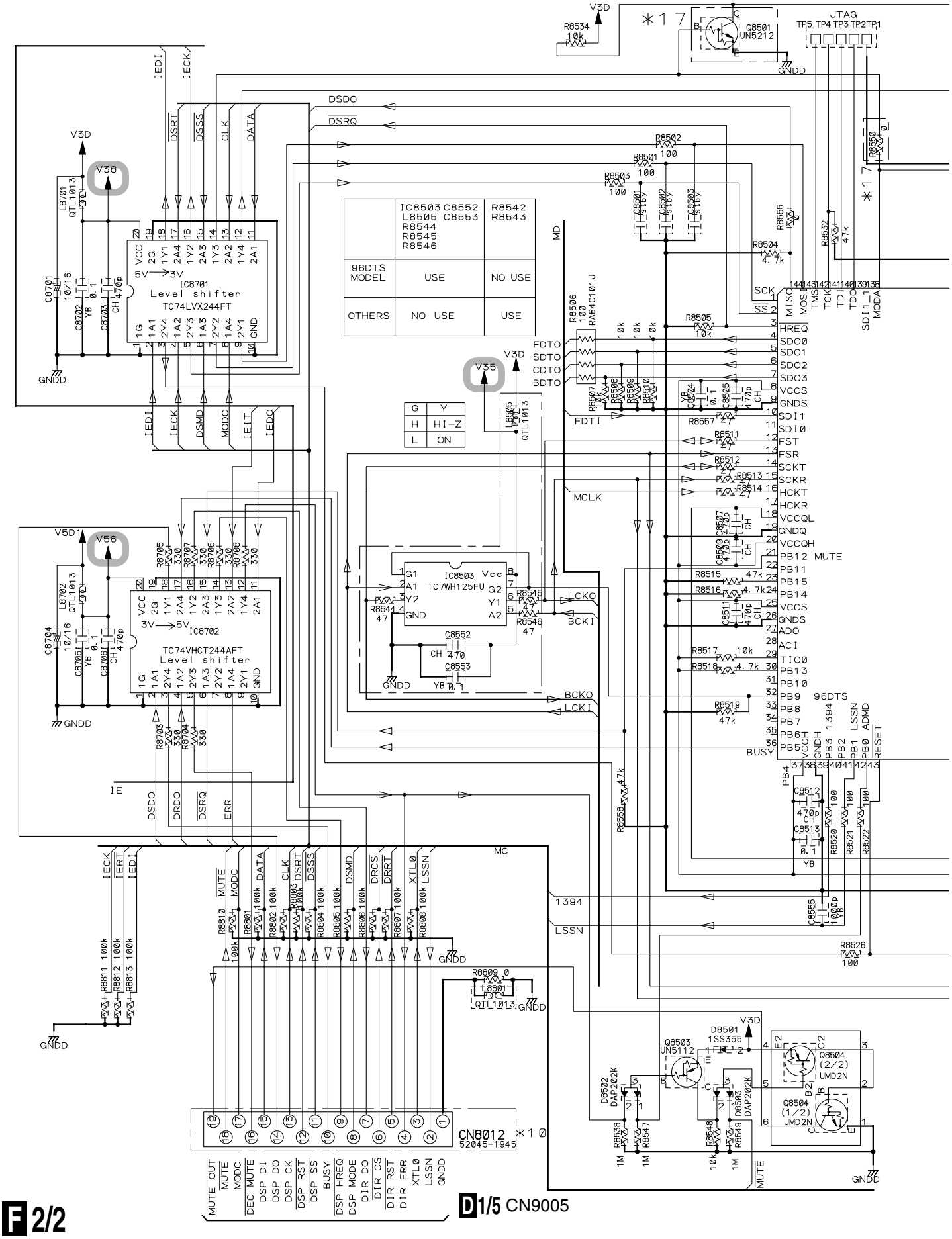
UNLESS OTHERWISE NOTED

F 1/2 DSP ASSY (AWX8239)

: The power supply is shown with the marked box.

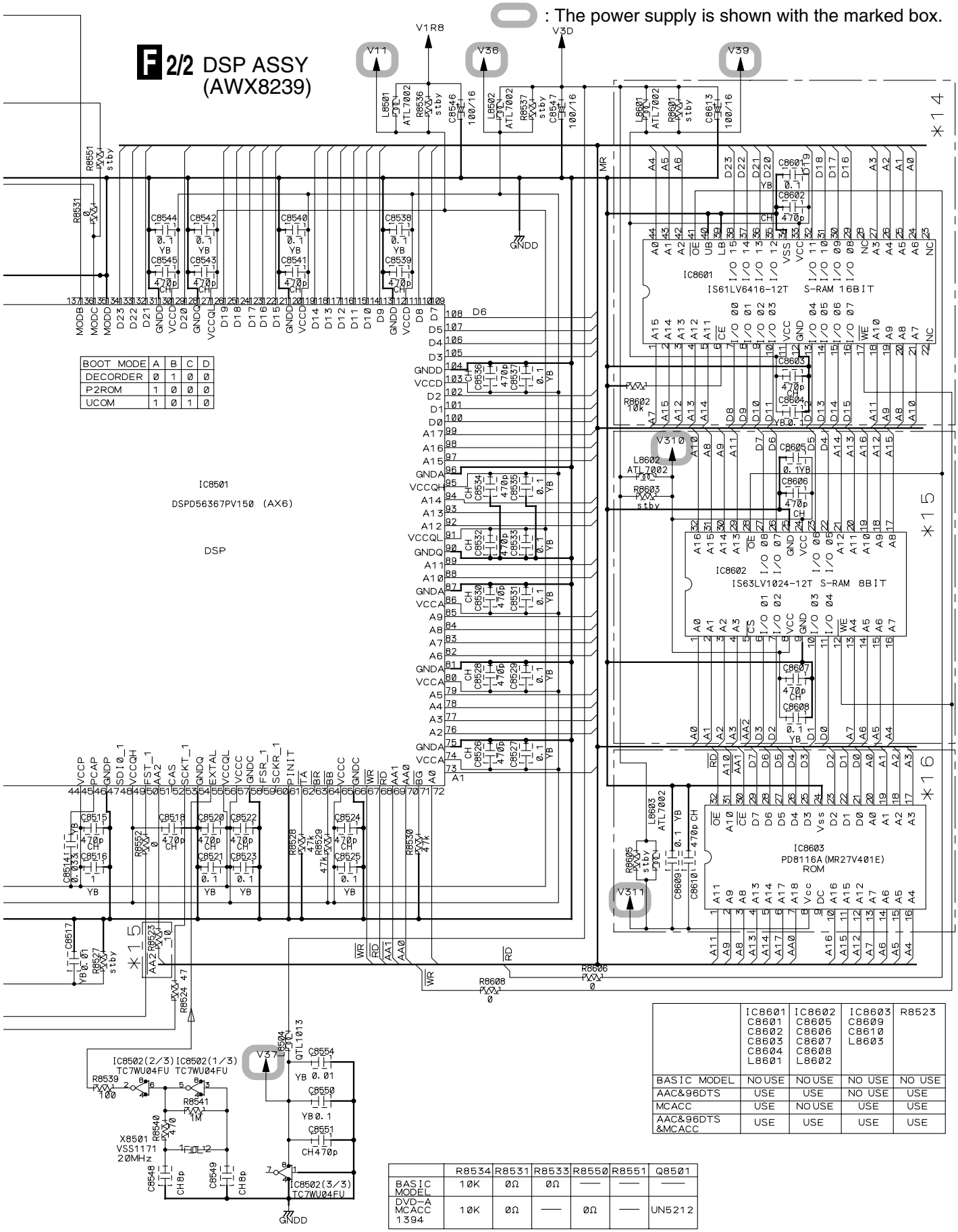
F 1/2

3.11 DSP ASSY (2/2)



: The power supply is shown with the marked box.

F 2/2 DSP ASSY (AWX8239)

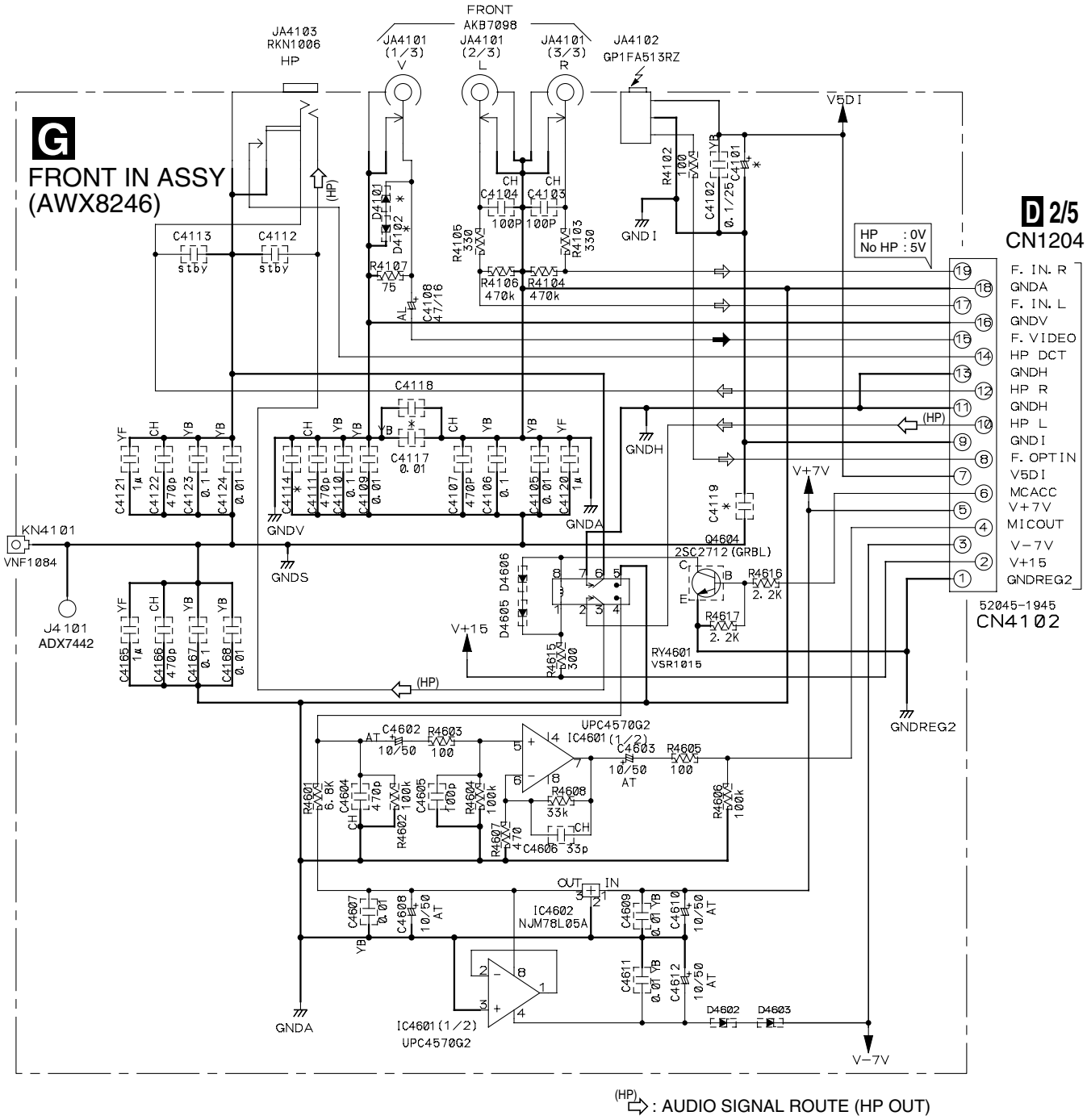


	IC8601 C8601 C8602 C8603 C8604 L8601	IC8602 C8605 C8606 C8607 C8608 L8602	IC8603 C8609 C8610 L8603	R8523
BASIC MODEL	NO USE	NO USE	NO USE	NO USE
AAC&96DTS	USE	USE	NO USE	USE
MCACC	USE	NO USE	USE	USE
AAC&96DTS &MCACC	USE	USE	USE	USE

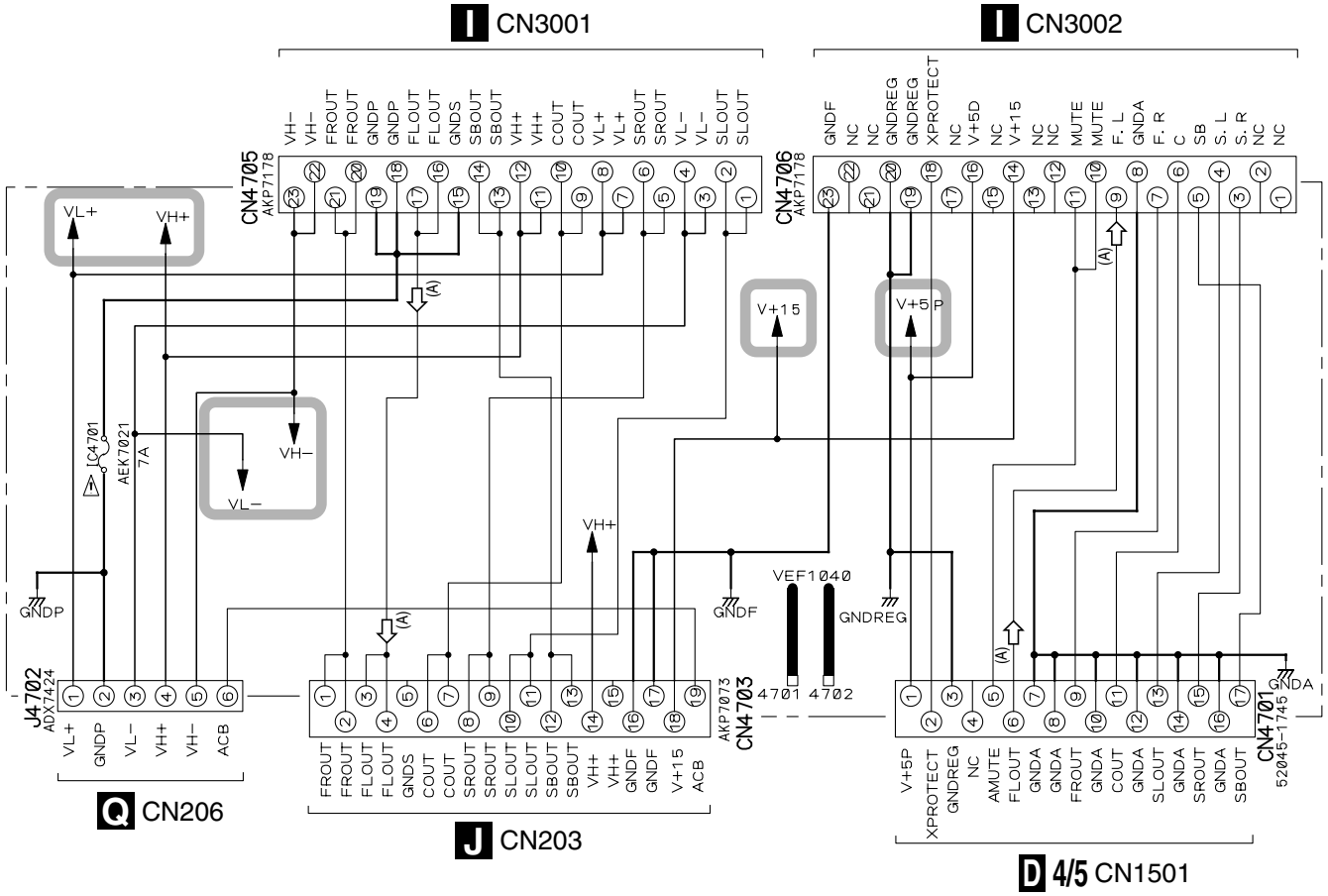
	R8534	R8531	R8533	R8550	R8551	Q8501
BASIC MODEL	10K	0Ω	0Ω	—	—	—
DVD-A MCACC 1394	10K	0Ω	—	0Ω	—	UN5212

F 2/2

3.12 FRONT IN and AMP KAWA ASSYS



H AMP KAWA ASSY (AWX8223)



(A) ⇨ : AUDIO SIGNAL ROUTE (ANALOG)

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

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491007 FOR IC4701 MFD, BY LITTELFUSE INC.

NOTE

1. RESISTORS

Unit: k-kΩ, M-MΩ or Ω unless otherwise noted.
Rated power: 1/16W unless otherwise noted.

Tolerance: (J)± 5% unless otherwise noted.

2. CAPACITORS

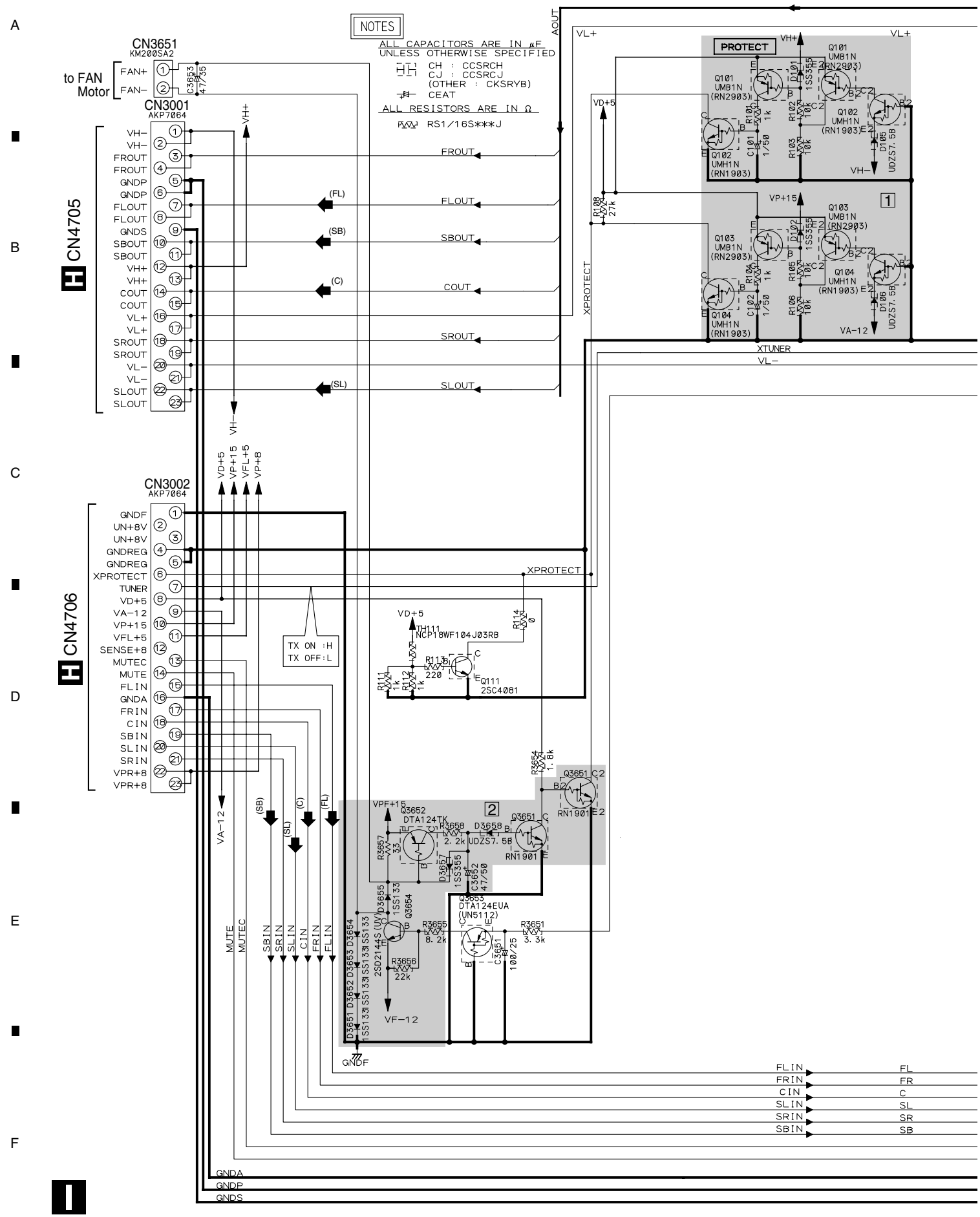
Unit: p-pF or μF unless otherwise noted.
Ratings: Capacity(μF)/Voltage(V) unless otherwise noted.
Rated Voltage: 50V expect for electrolytic capacitors.
AT:CEAT JA:CEJA JQ:CEJQ YB:CKSRYB CH:CCSRCH

3. DIODES

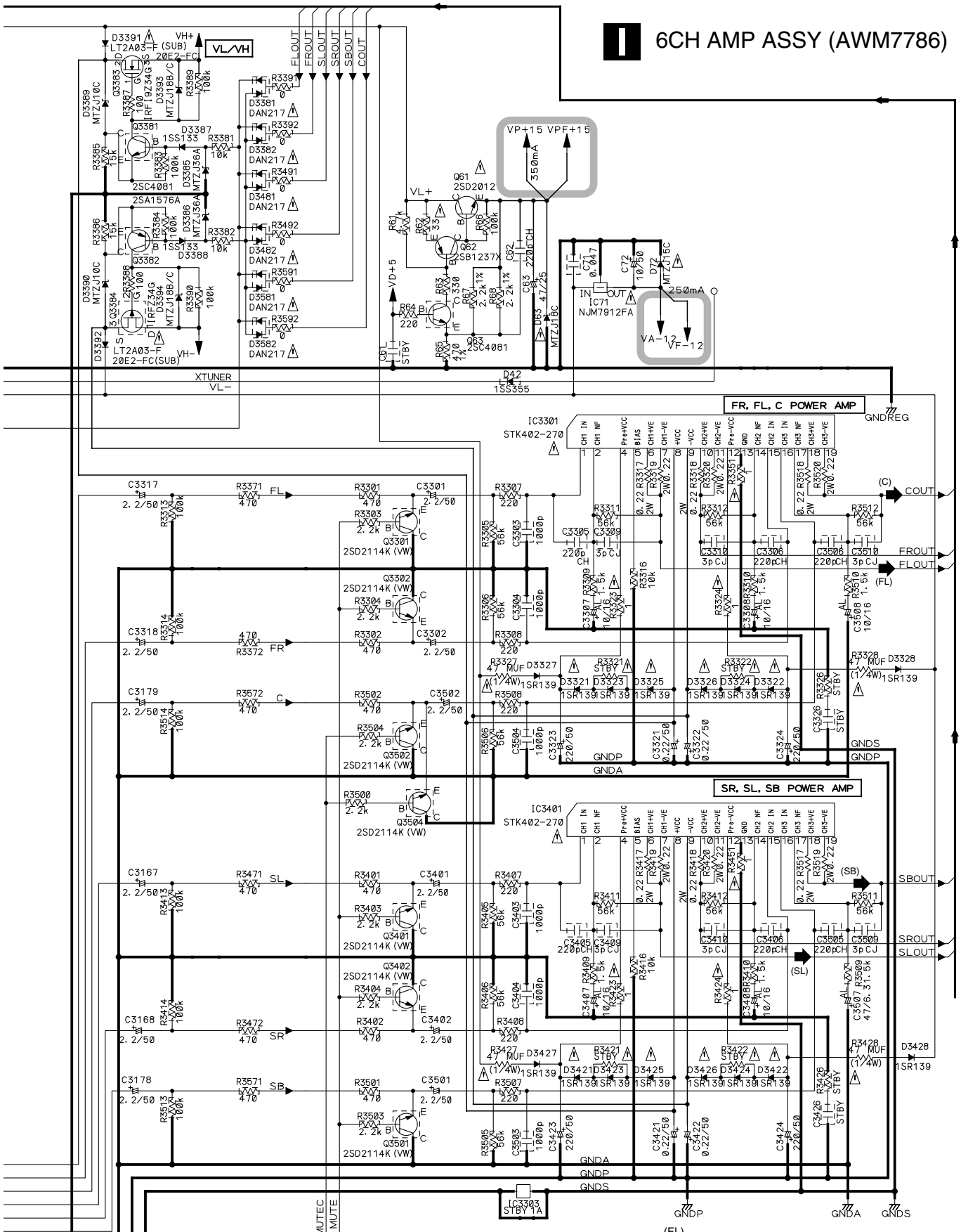
Indicated in 1SS355-TRB.

H

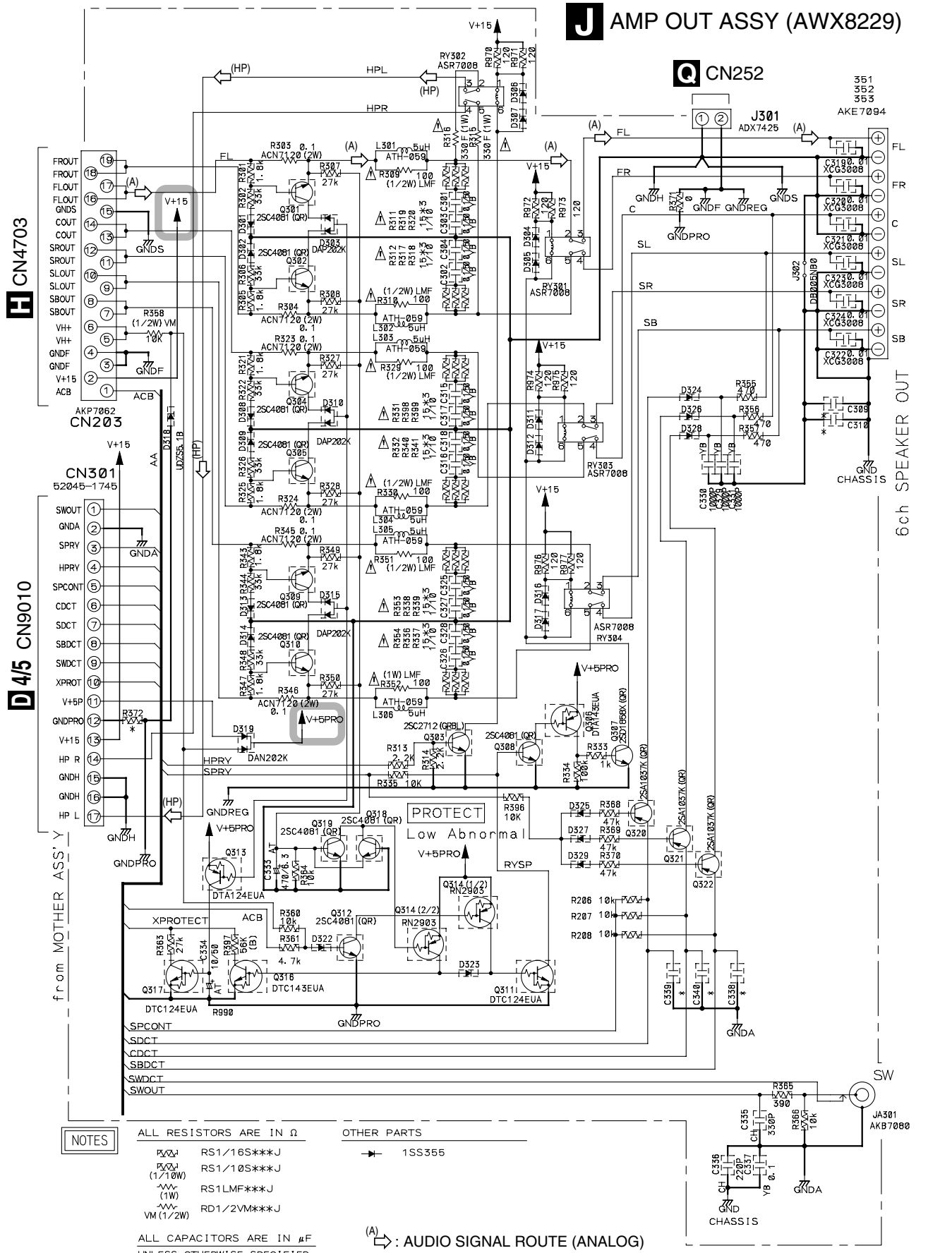
3.13 6CH AMP ASSY



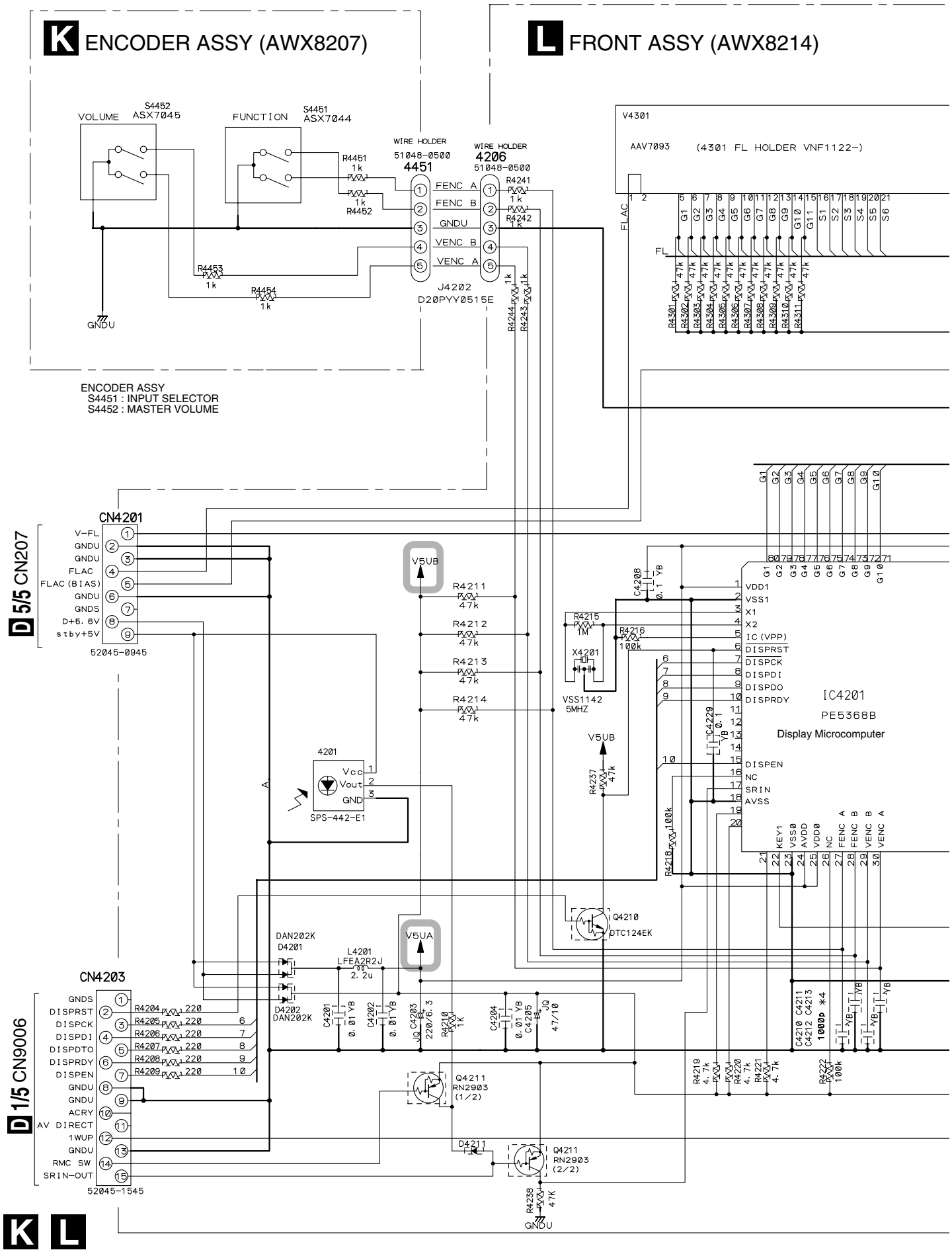
6CH AMP ASSY (AWM7786)

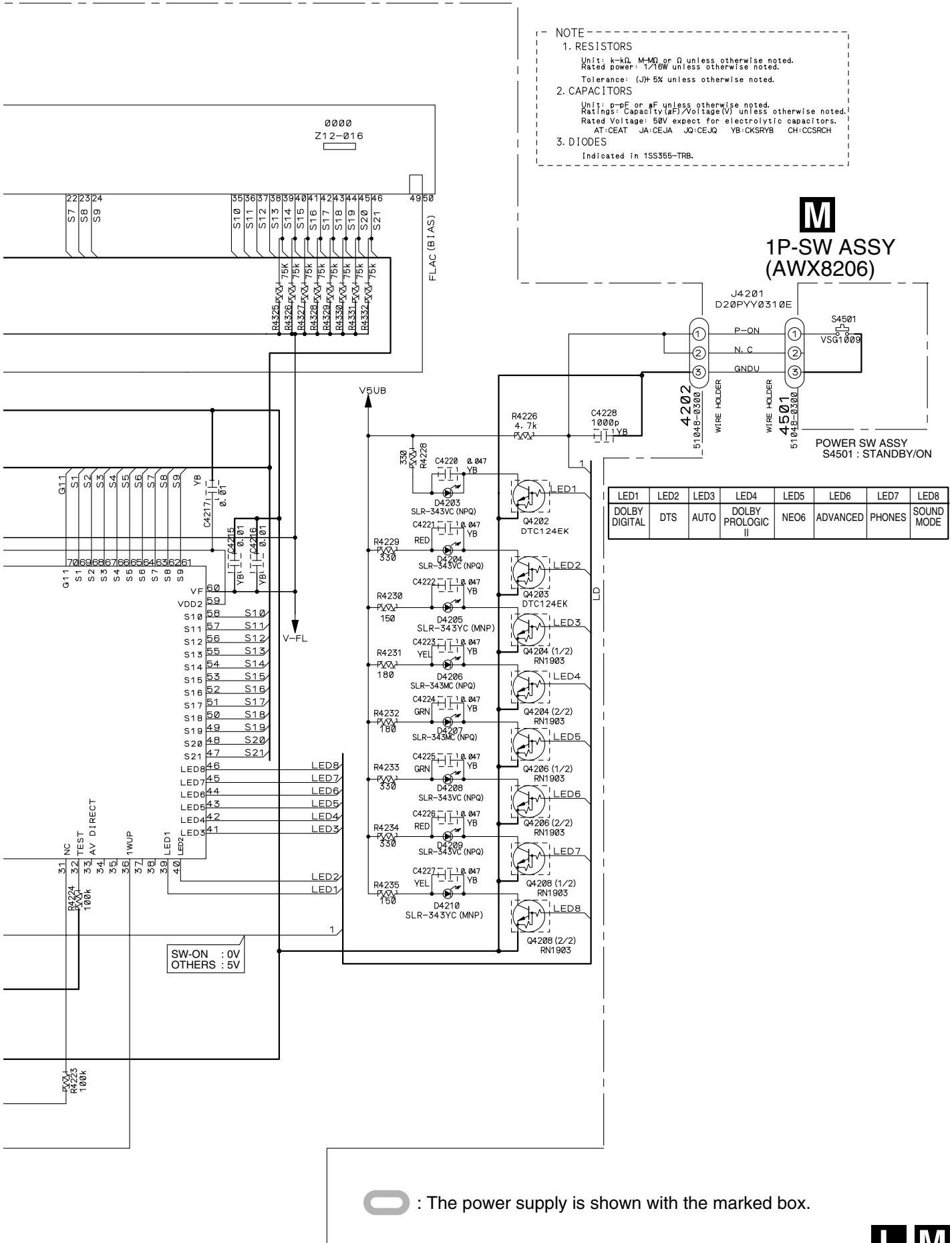


3.14 AMP OUT ASSY



3.15 ENCODER, FRONT and 1P-SW ASSYS

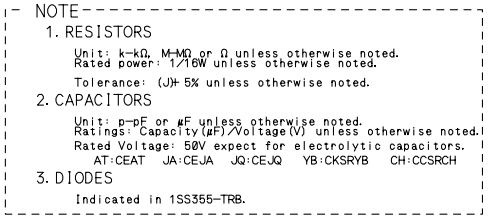


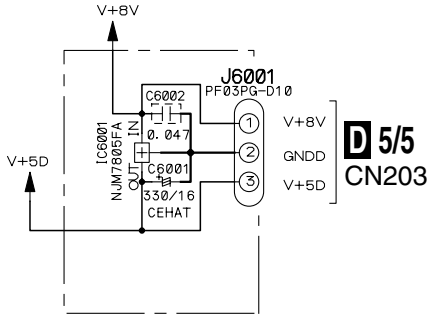


LED1	LED2	LED3	LED4	LED5	LED6	LED7	LED8
DOLBY DIGITAL	DTS	AUTO	DOLBY PROLOGIC II	NEO6	ADVANCED	PHONES	SOUND MODE

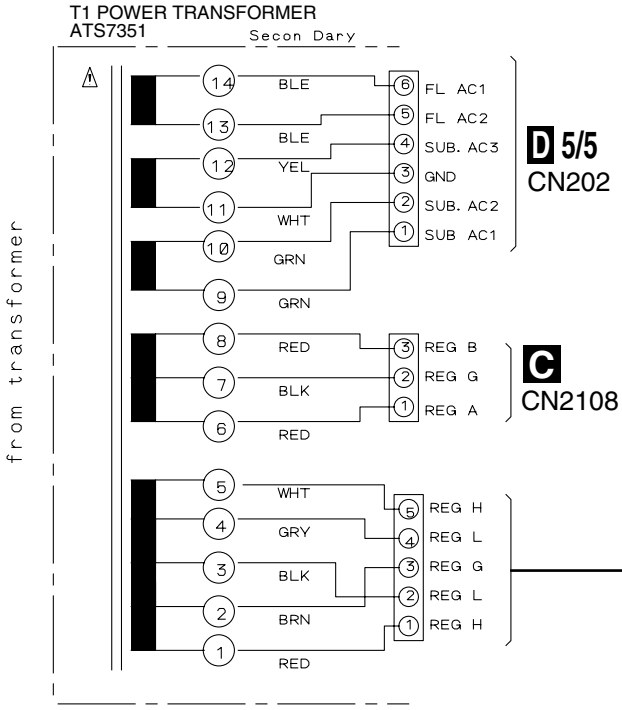
: The power supply is shown with the marked box.

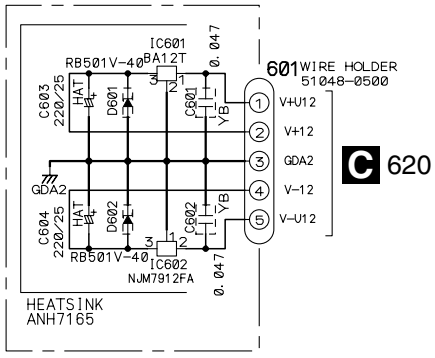
3.16 PRIMARY, D5V, 12V and VHVL ASSYS





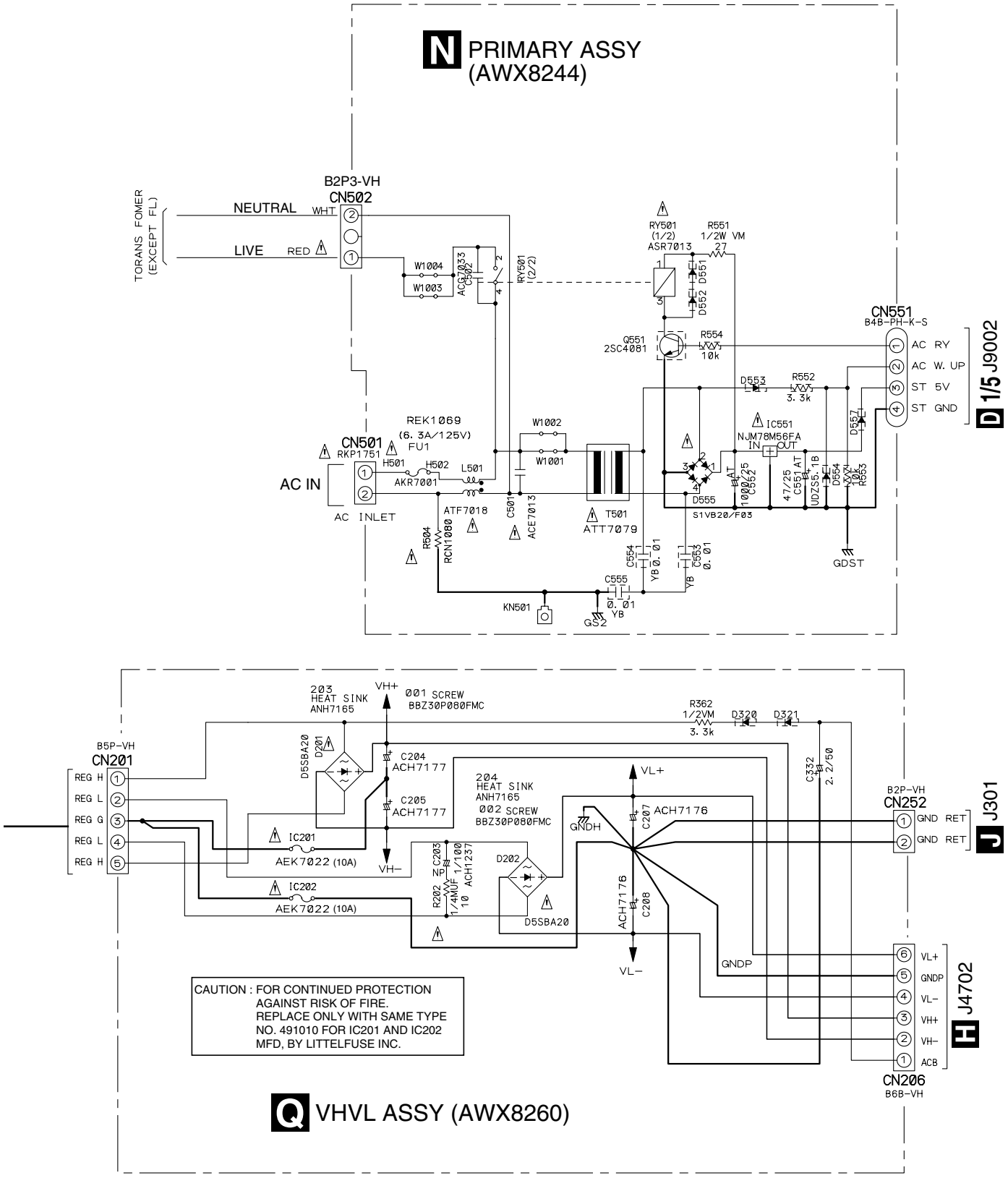
O D5V ASSY (AWX8224)





P 12V ASSY (AWX8170)

O **P**



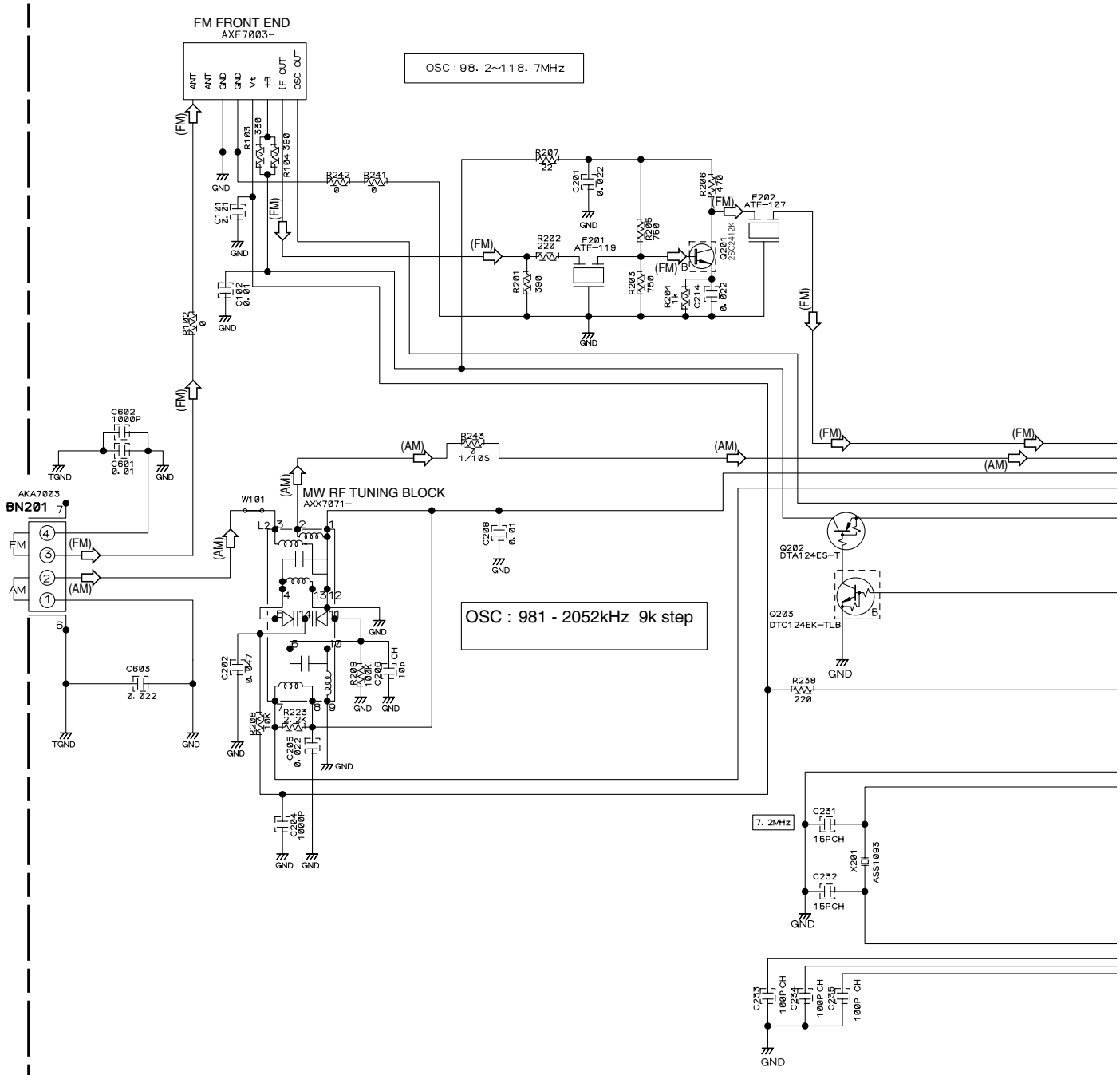
• NOTE FOR FUSE REPLACEMENT

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

N Q

3.17 FM/AM TUNER MODULE

R FM/AM TUNER MODULE (AXQ7245)



Notes

1. RESISTORS

Indicated in Ω, 1/16W±5% Tolerance unless otherwise noted K;KΩ, M;MΩ.

2. CAPACITORS

Indicated in Capacity(μF)/VOLTAGE(V) unless otherwise noted P;PF.

3. DIODES

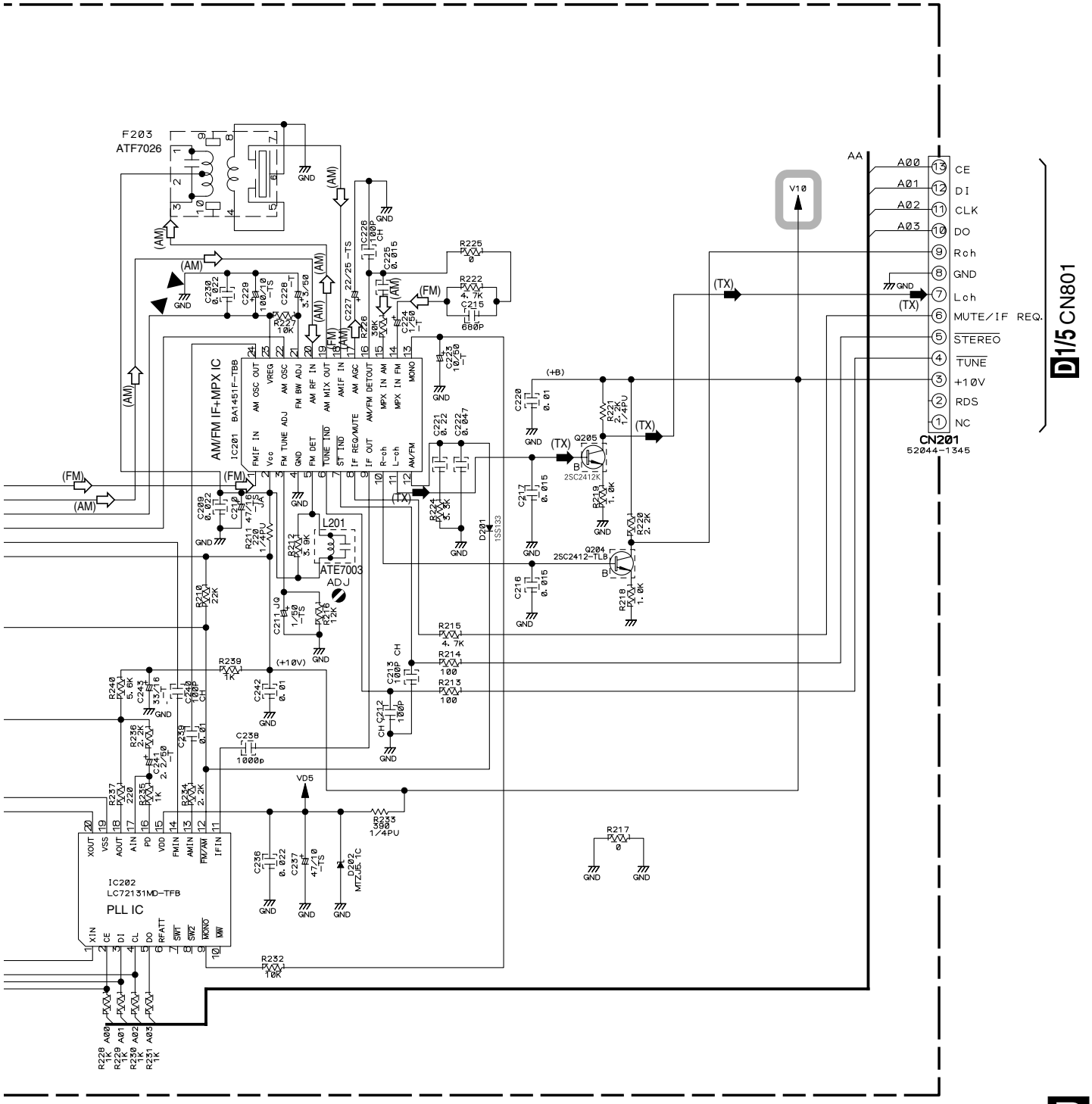
No mark diode is 1SS133.

: The power supply is shown with the marked box.

(TX) : AUDIO SIGNAL ROUTE (TUNER)

(AM) : AM SIGNAL ROUTE

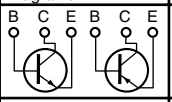
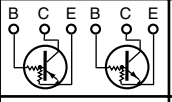
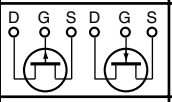
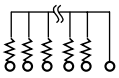
(FM) : FM SIGNAL ROUTE



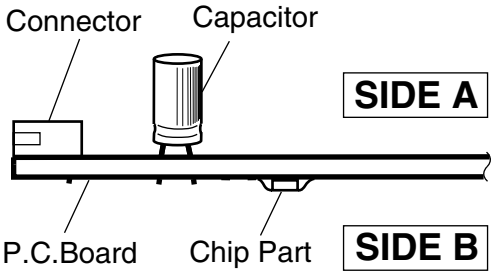
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

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

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

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

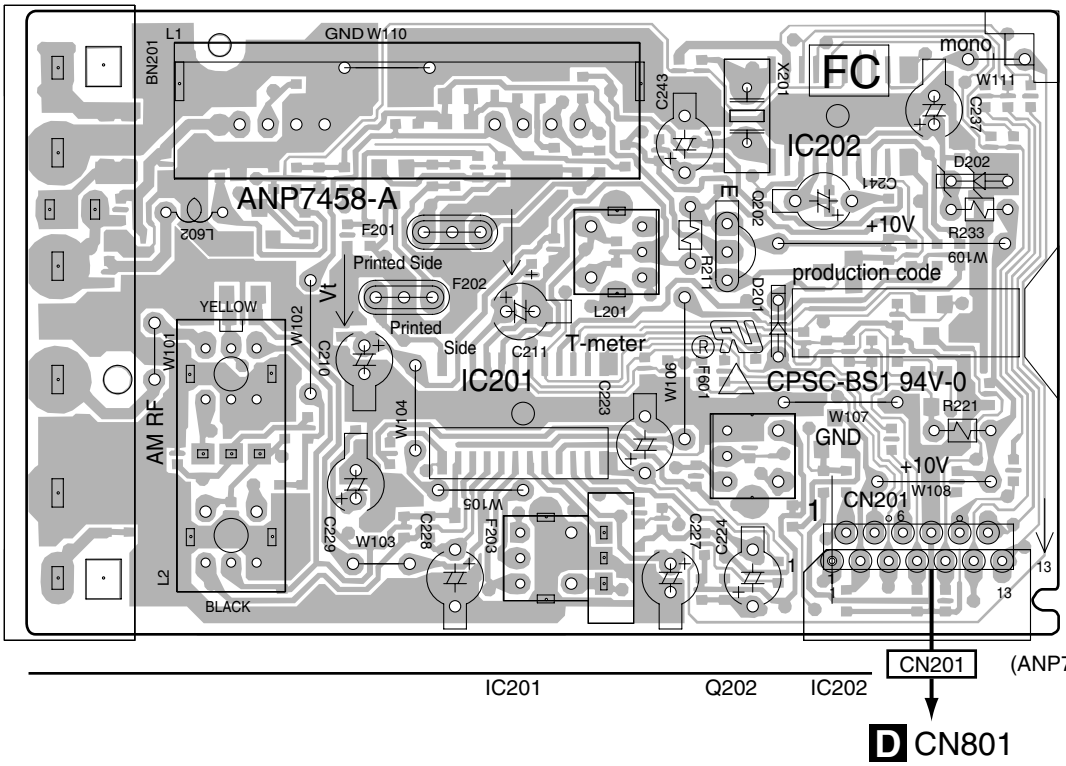


4.1 FM/AM TUNER MODULE

SIDE A

SIDE A

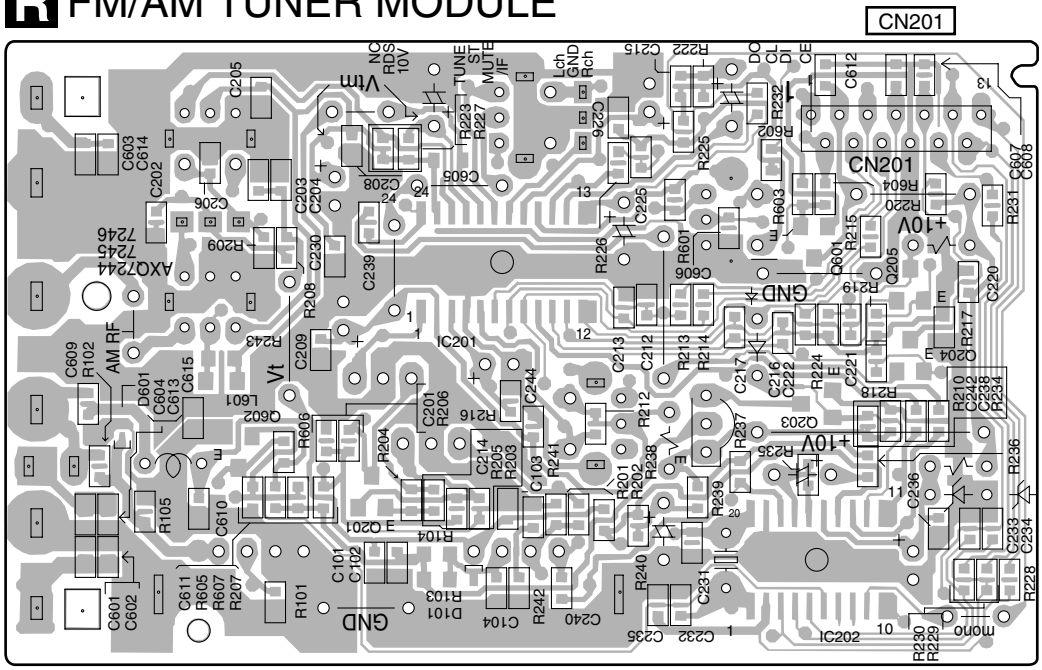
R FM/AM TUNER MODULE



SIDE B

SIDE B

R FM/AM TUNER MODULE



R

R

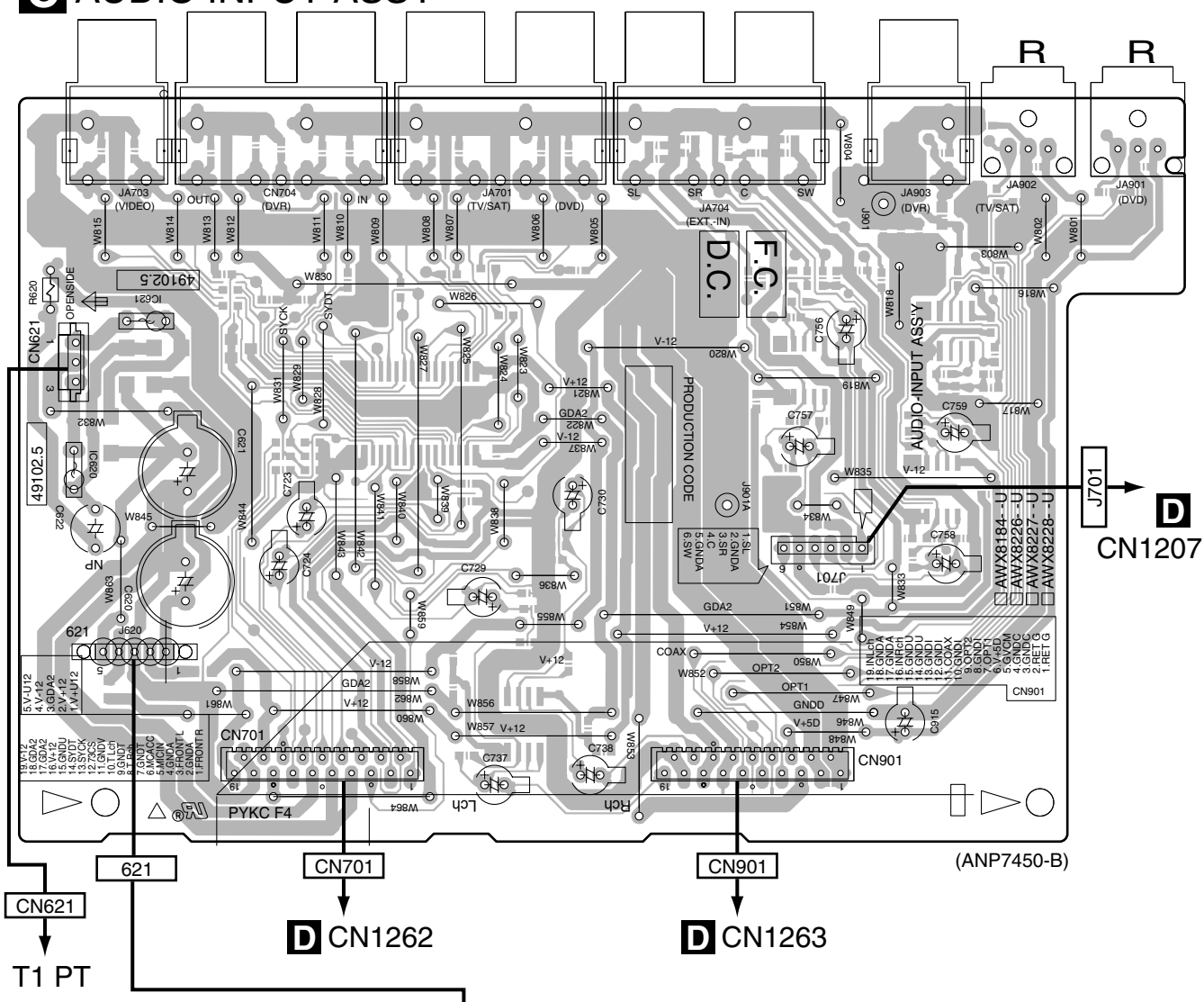
4.2 AUDIO INPUT and 12V ASSYS

SIDE A

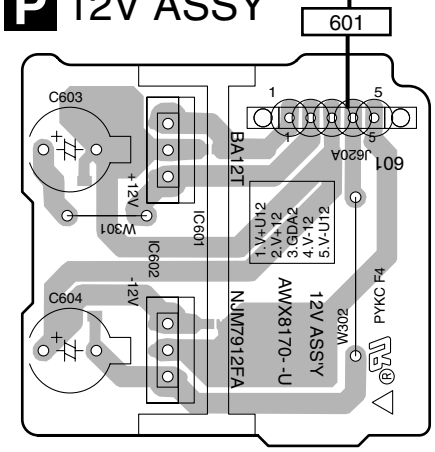
SIDE A

IC620 IC621

C AUDIO INPUT ASSY



P 12V ASSY



IC601
IC602

C P

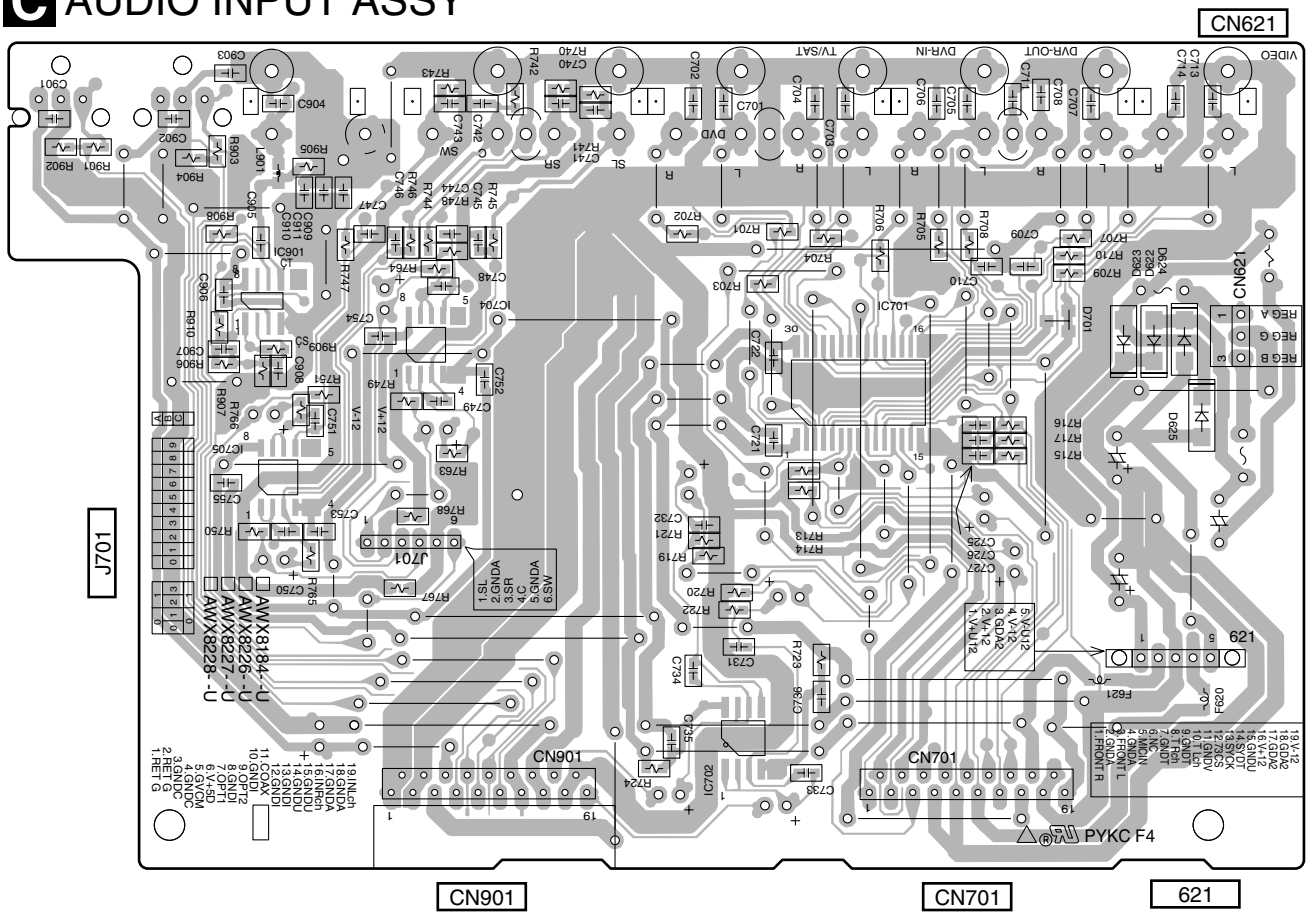
C P

SIDE B

SIDE B

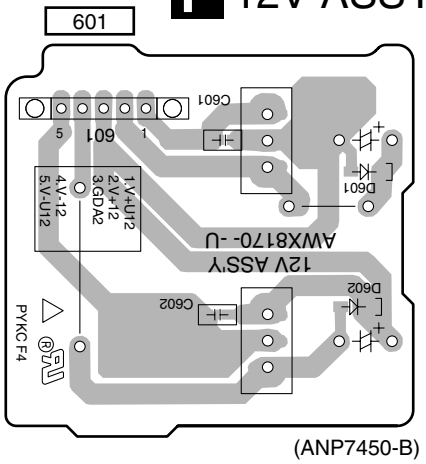
IC901 IC704 IC701
IC705 IC702

C AUDIO INPUT ASSY



(ANP7450-B)

P 12V ASSY

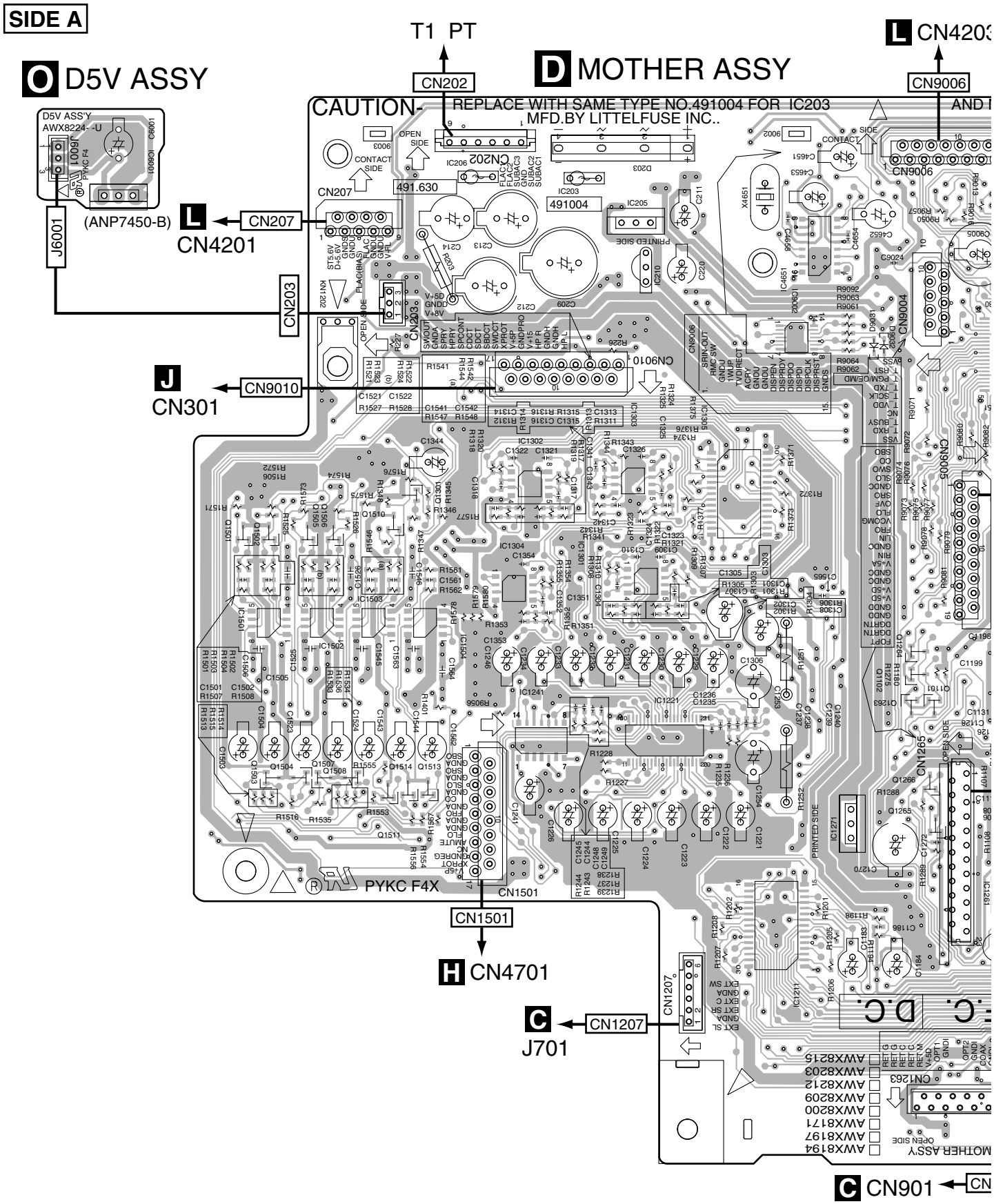


(ANP7450-B)

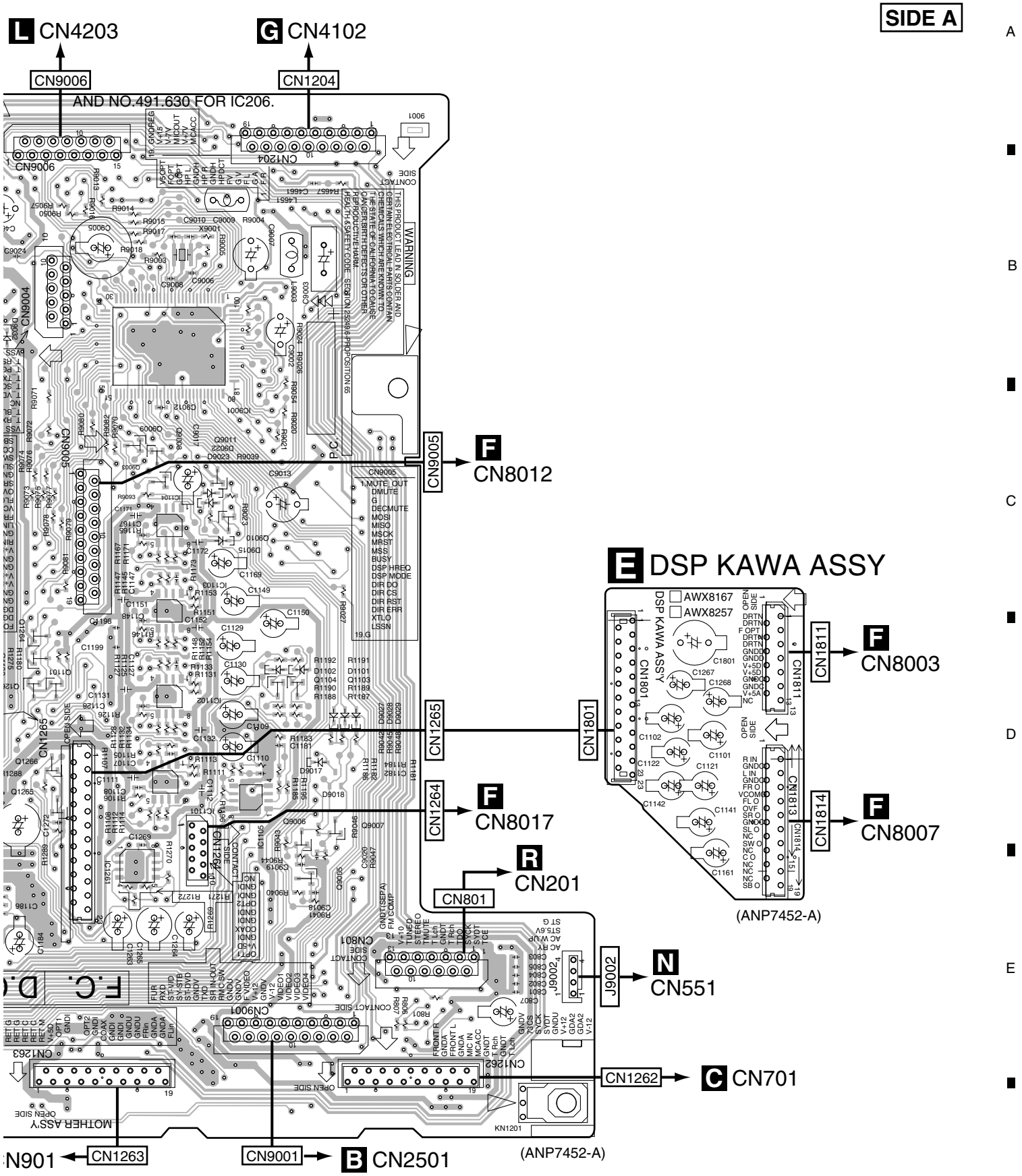
C P

C P

4.3 MOTHER, DSP KAWA and D5V ASSYS



SIDE A

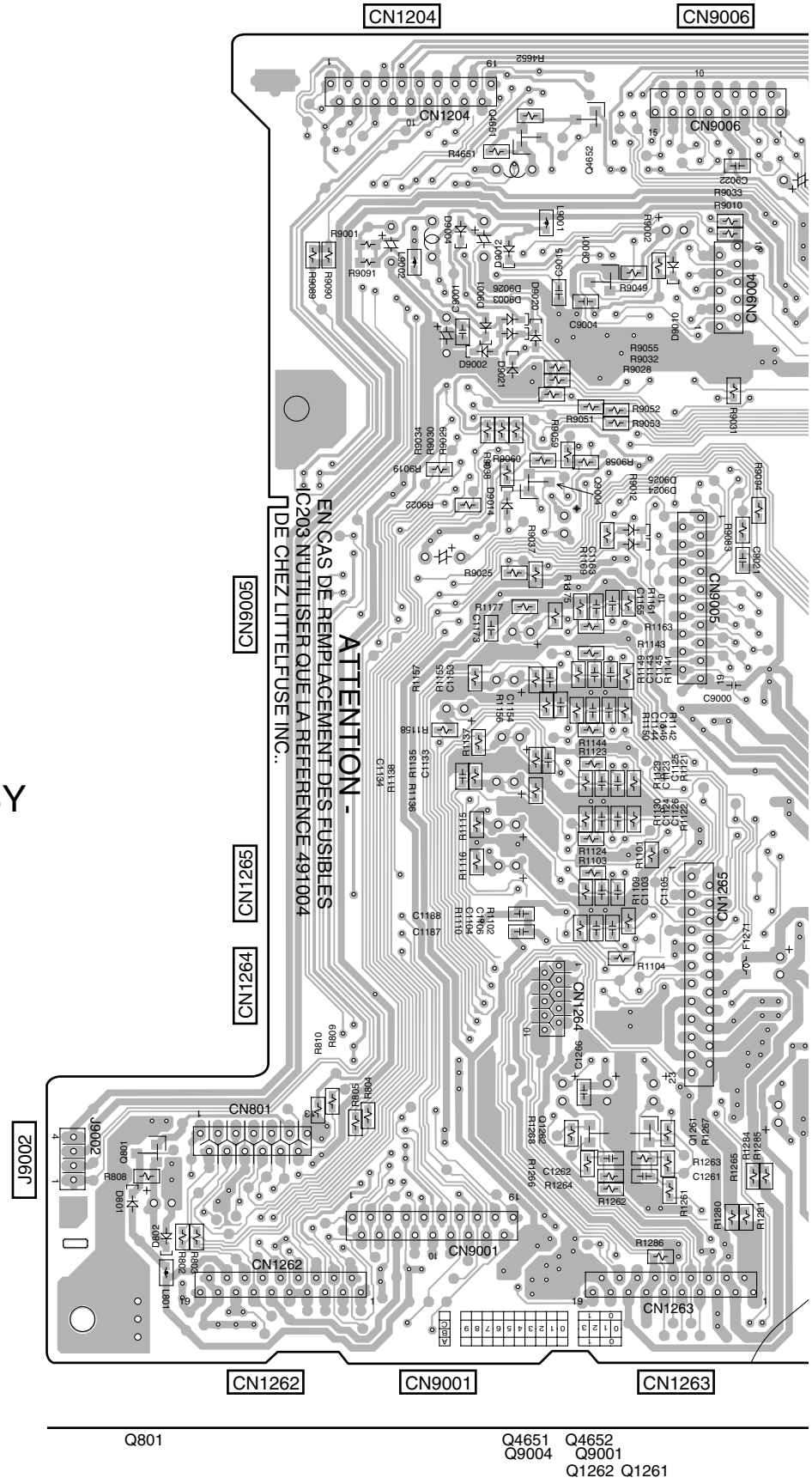


IC9001
Q1264 Q9009 Q9008 Q9011
Q1102 Q9003 Q9010 Q1104 Q1103
Q1263 Q1101 IC1101-IC1104 IC1105 Q9006 Q9007
Q1266 Q1265 IC1261 Q9005

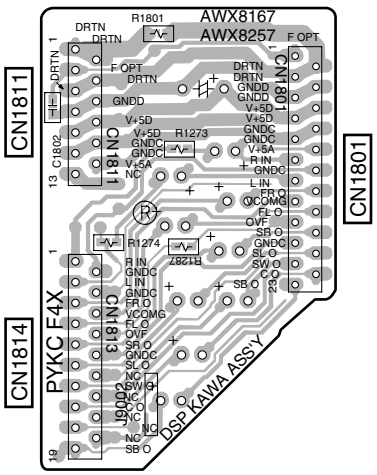
D E

SIDE B

D MOTHER ASSY



E DSP KAWA ASSY



(ANP7452-A)

D E

SIDE B

A

B

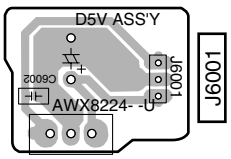
C

D

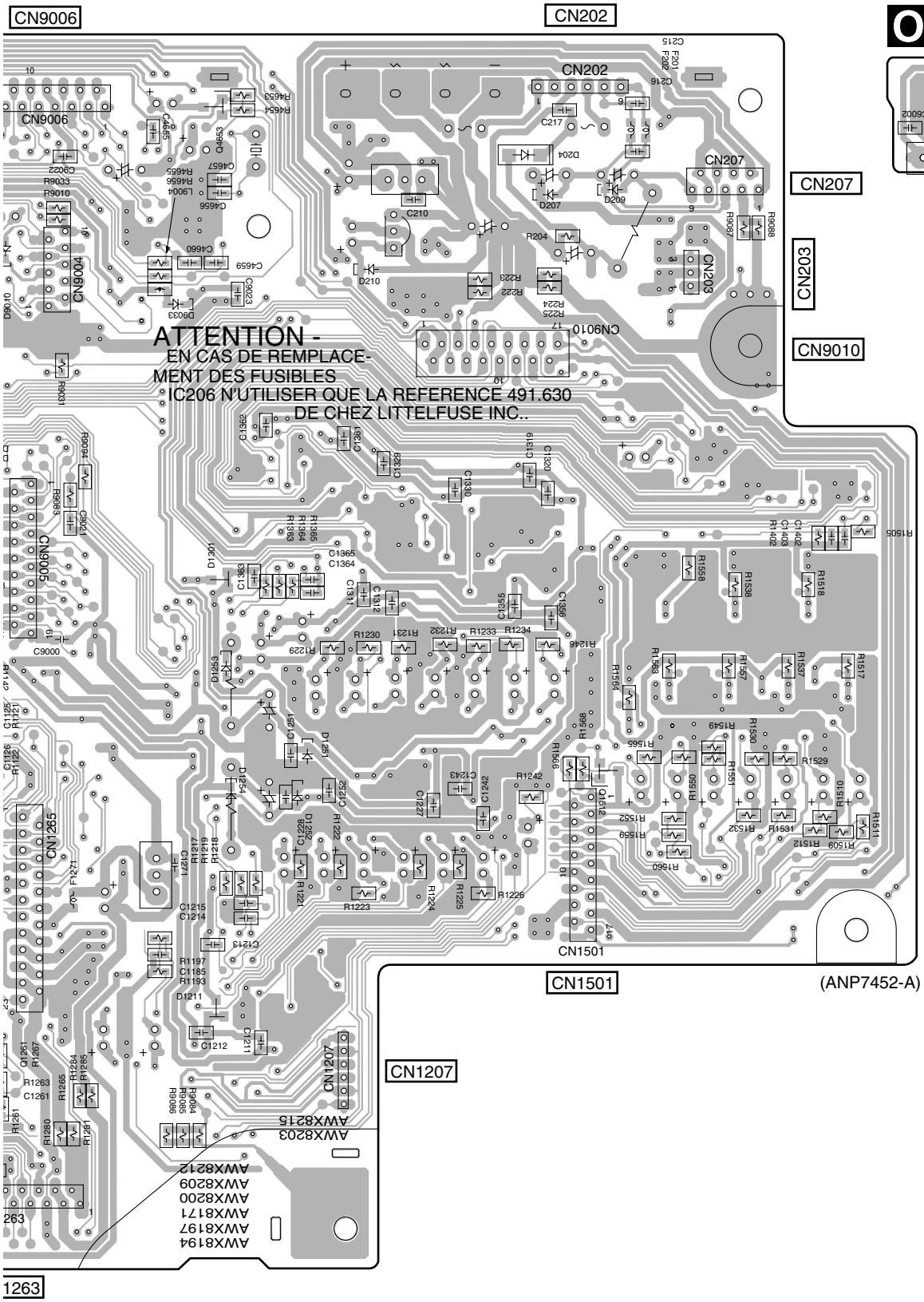
E

F

O D5V ASSY



(ANP7450-B)



(ANP7452-A)

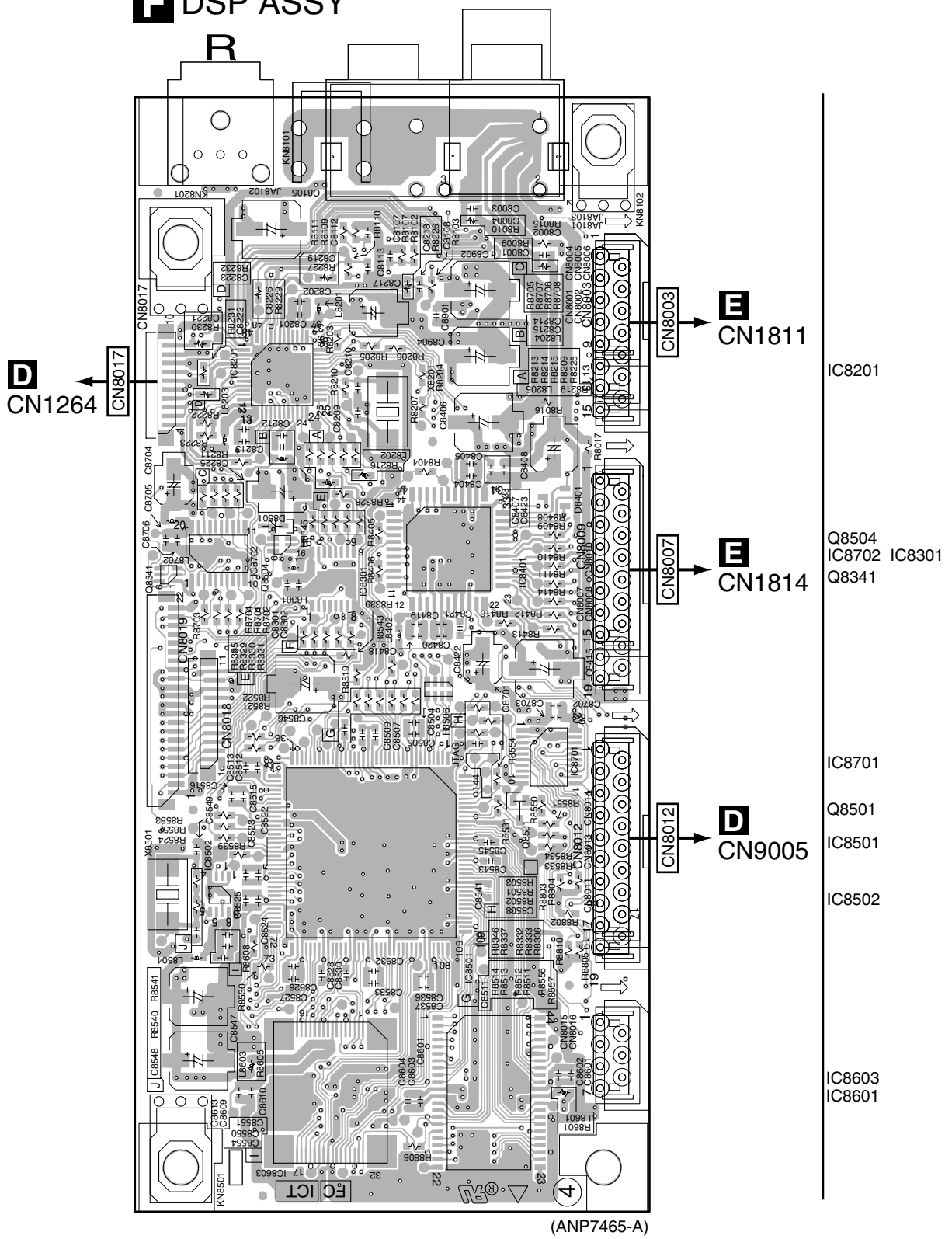
Q4653 Q1512

4.4 DSP ASSY

SIDE A

SIDE A

F DSP ASSY



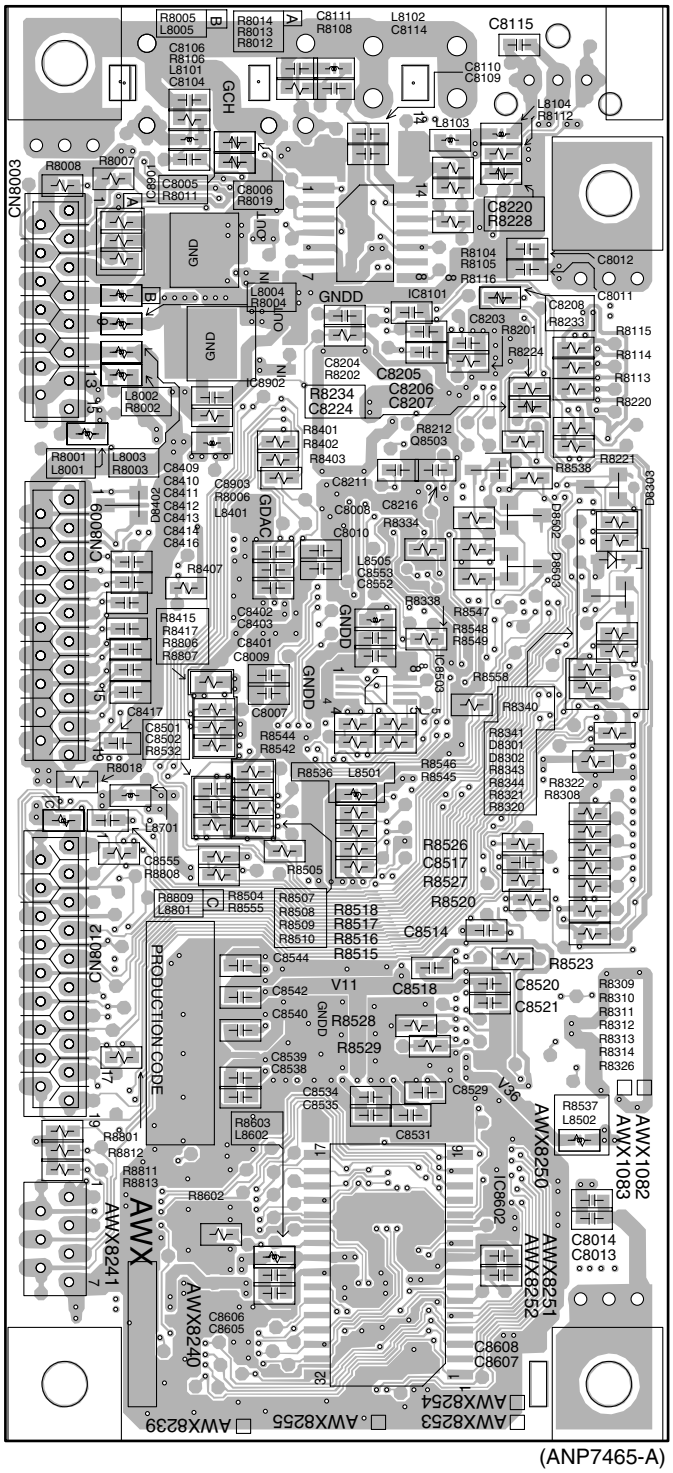
(ANP7465-A)

F

F

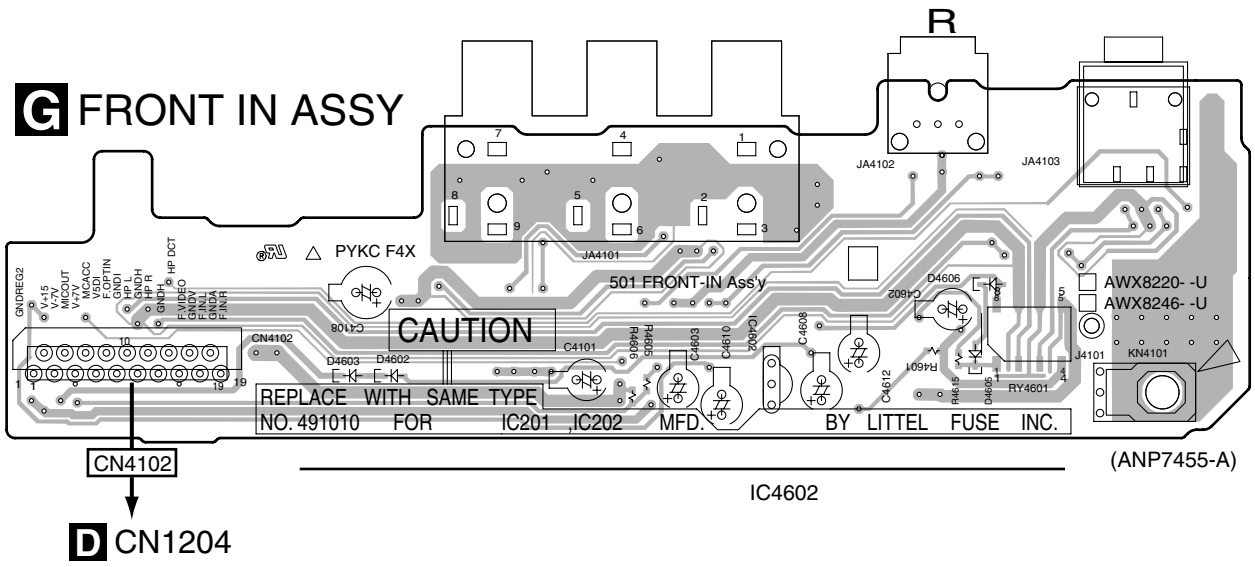
SIDE B

F DSP ASSY

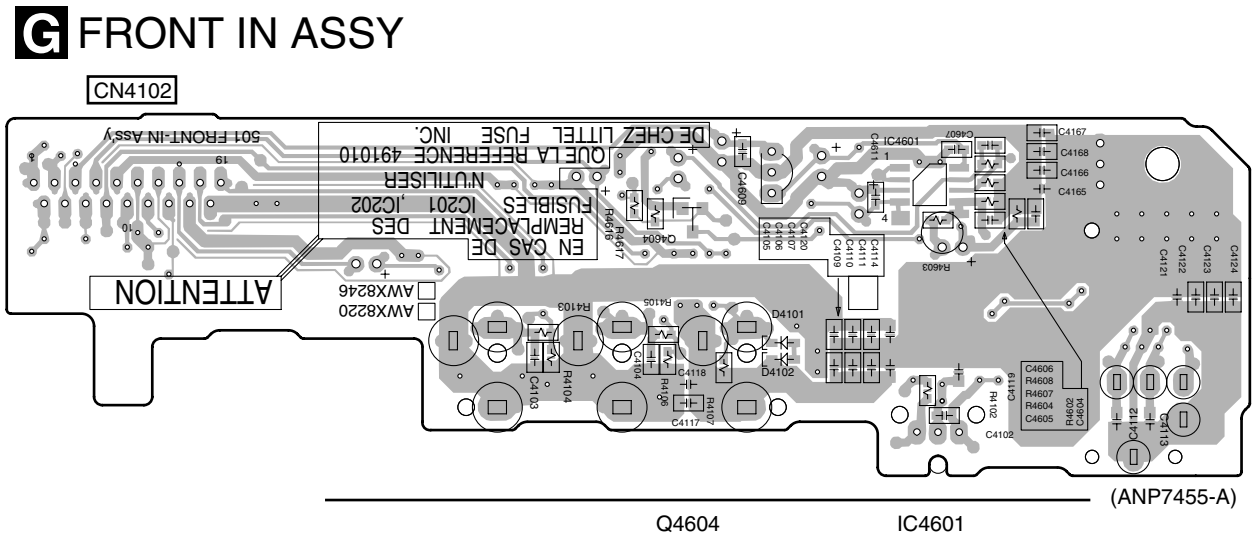


4.5 FRONT IN ASSY

SIDE A

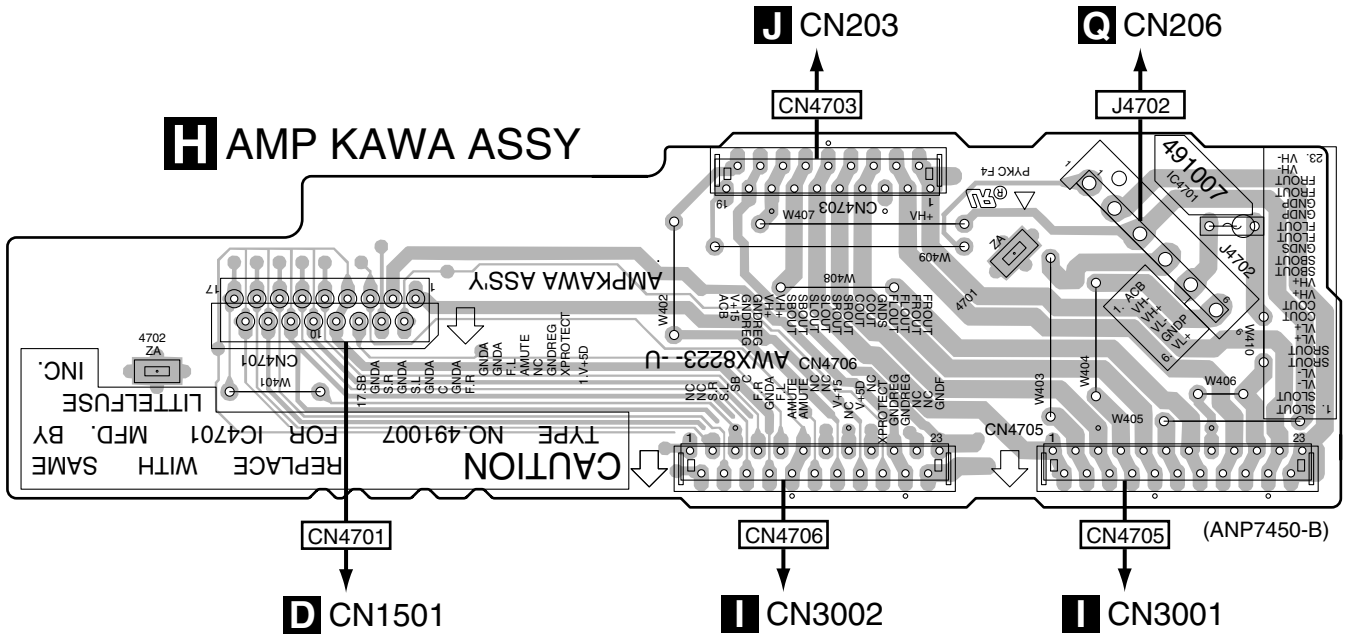


SIDE B

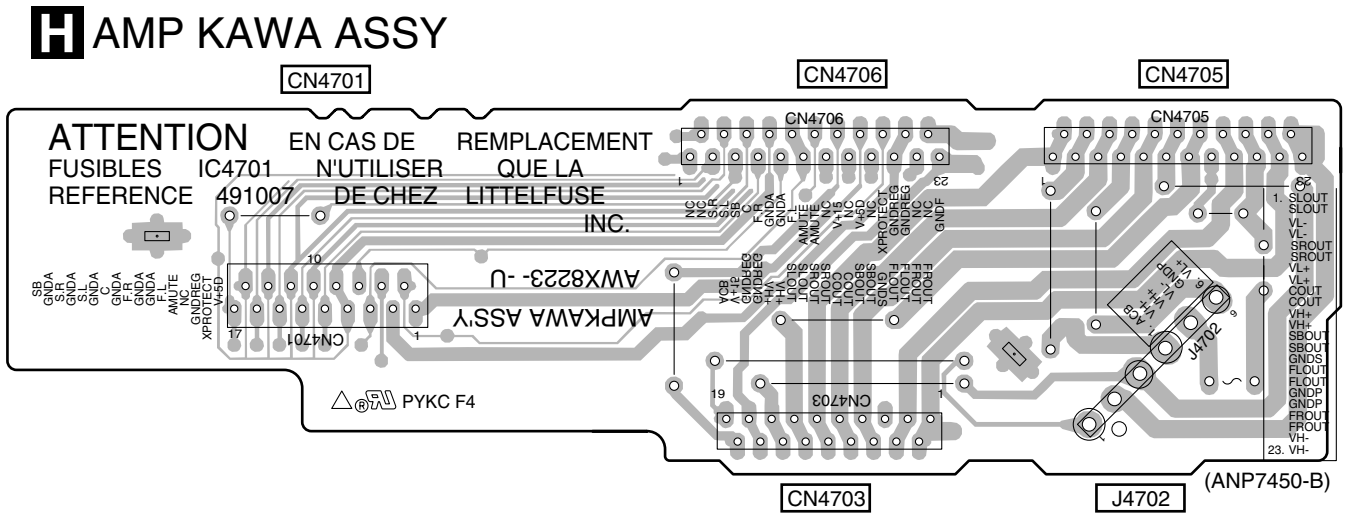


4.6 AMP KAWA ASSY

SIDE A



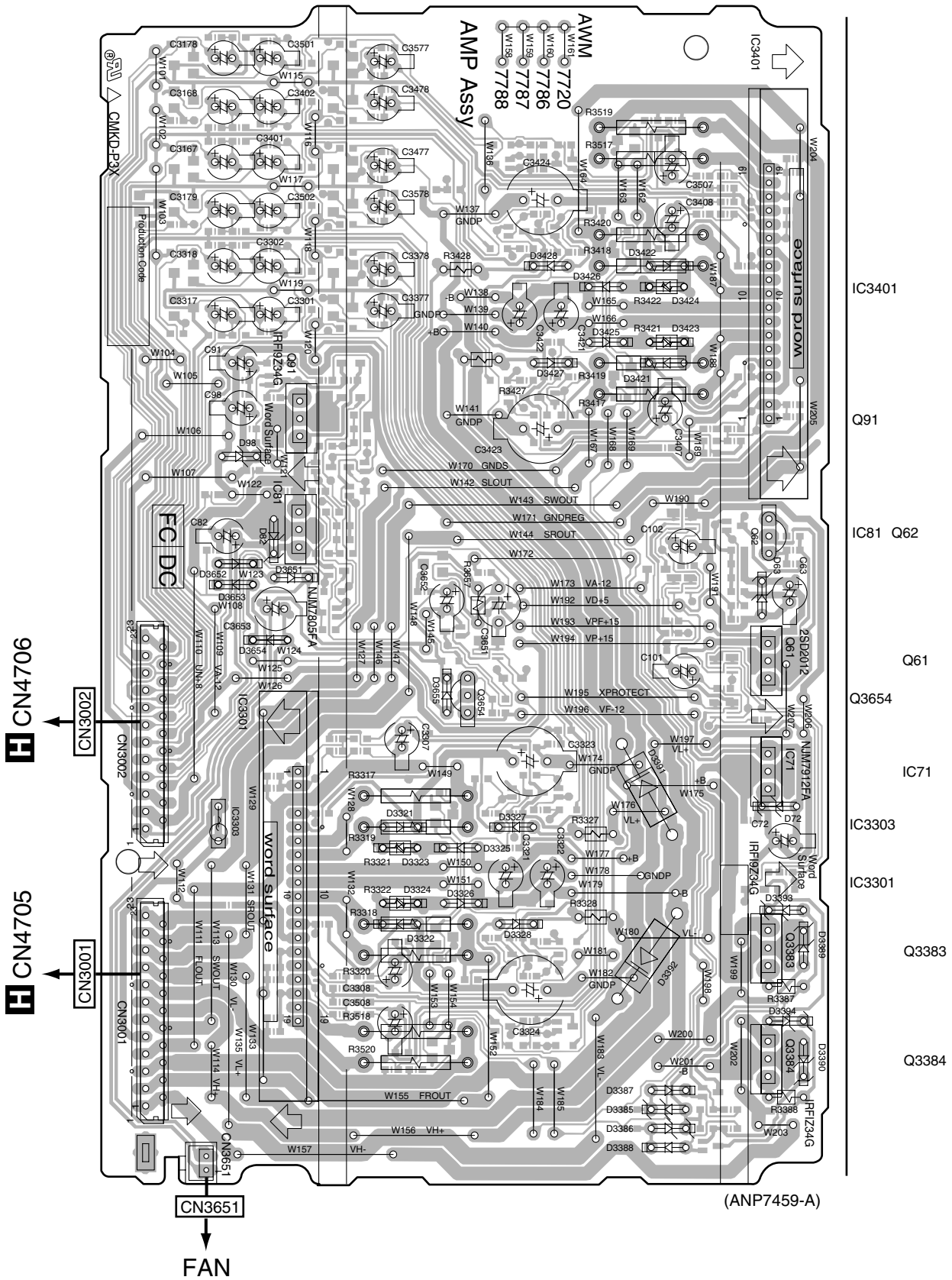
SIDE B



4.7 6CH AMP ASSY

SIDE A **SIDE A**

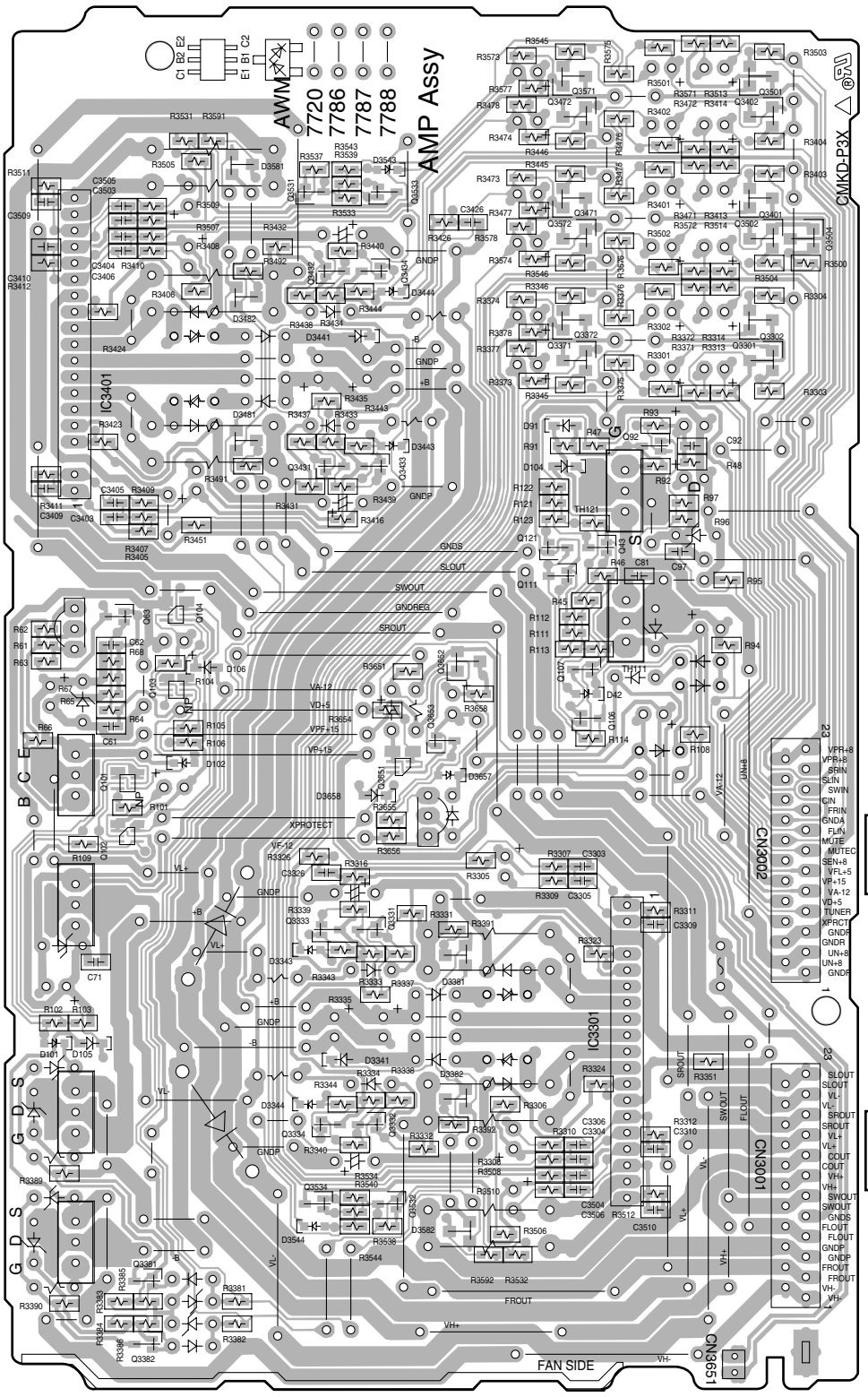
6CH AMP ASSY



SIDE B

SIDE B

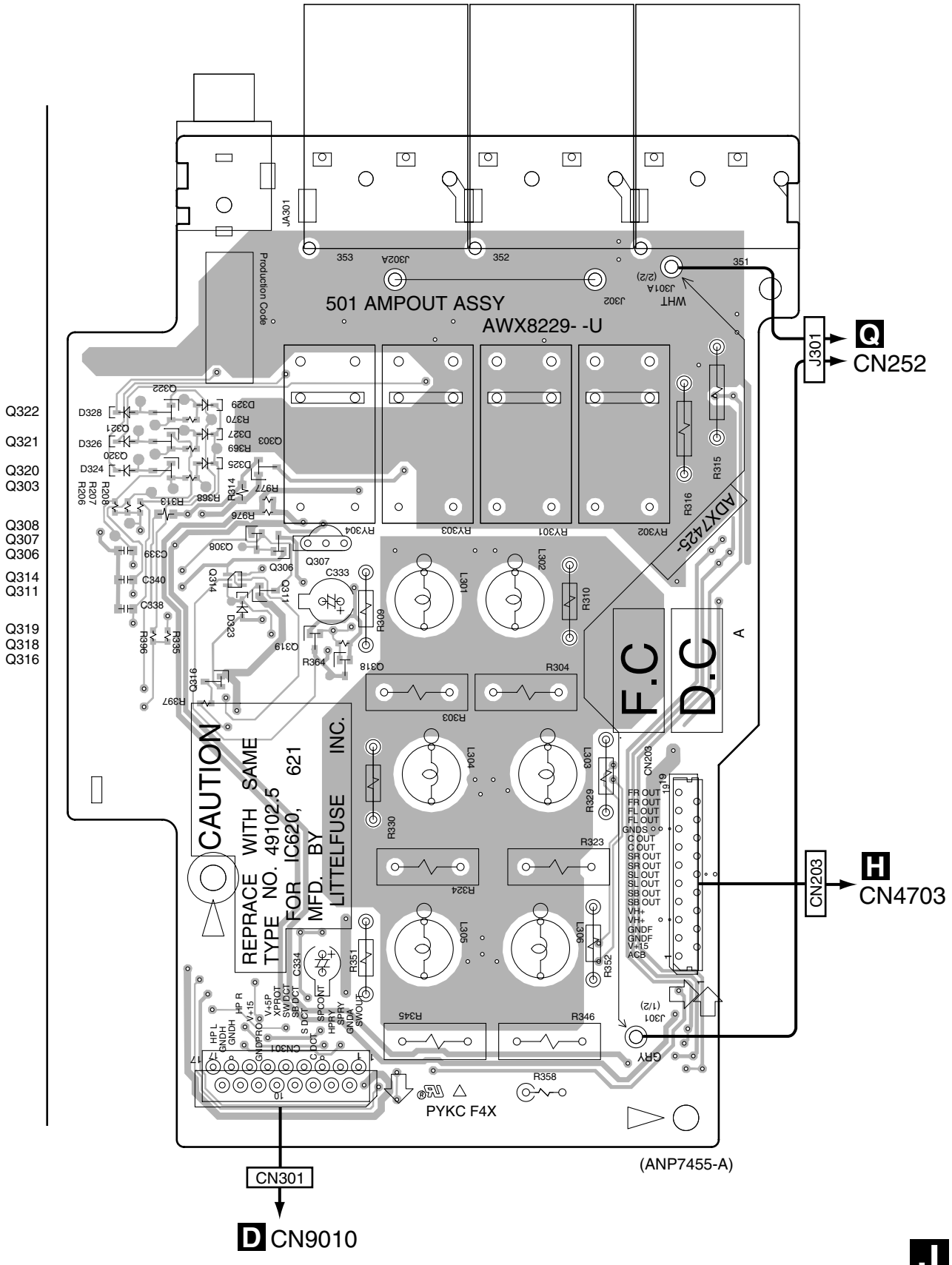
6CH AMP ASSY



4.8 AMP OUT ASSY

SIDE A **SIDE A**

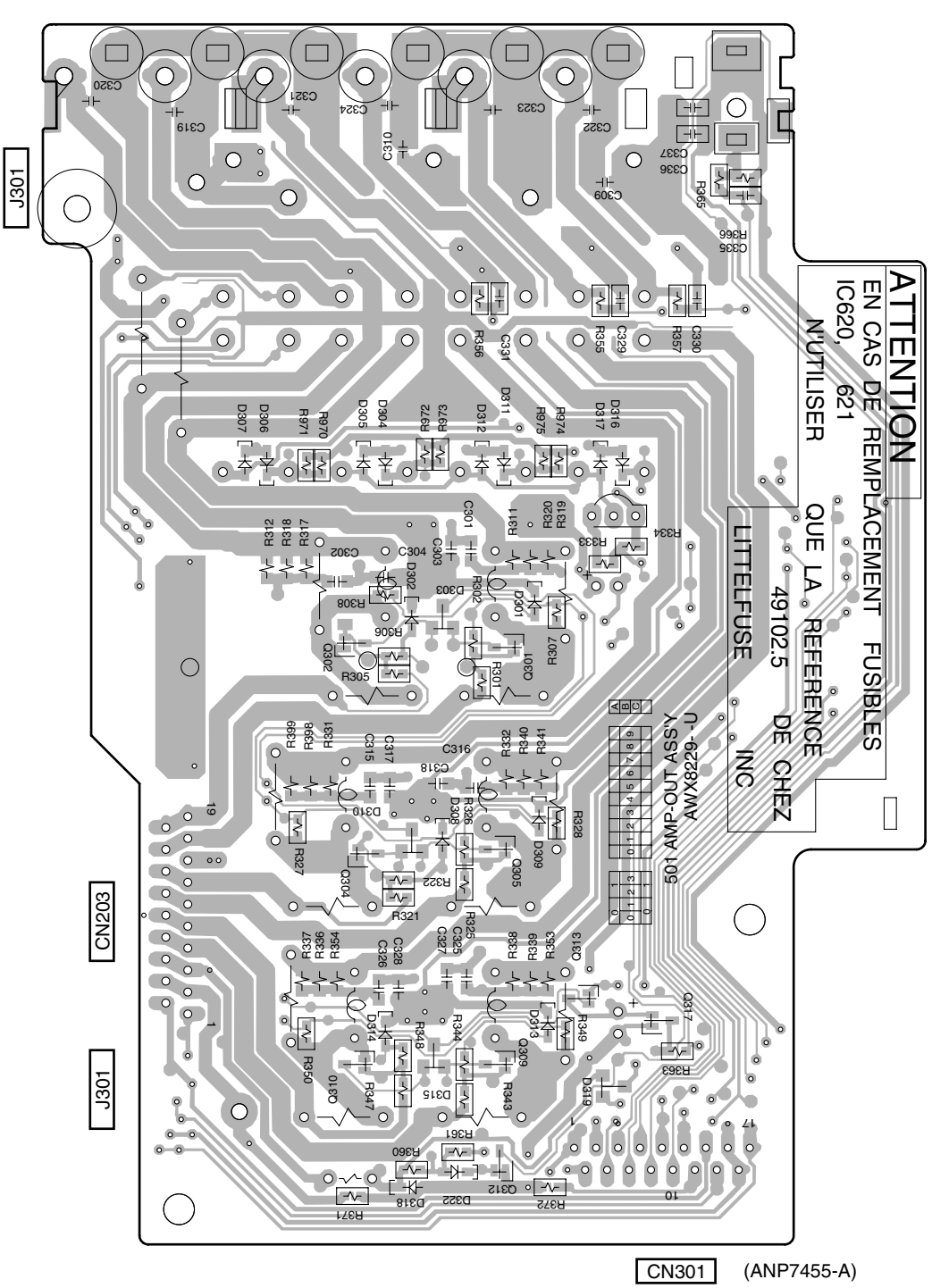
J AMP OUT ASSY



SIDE B

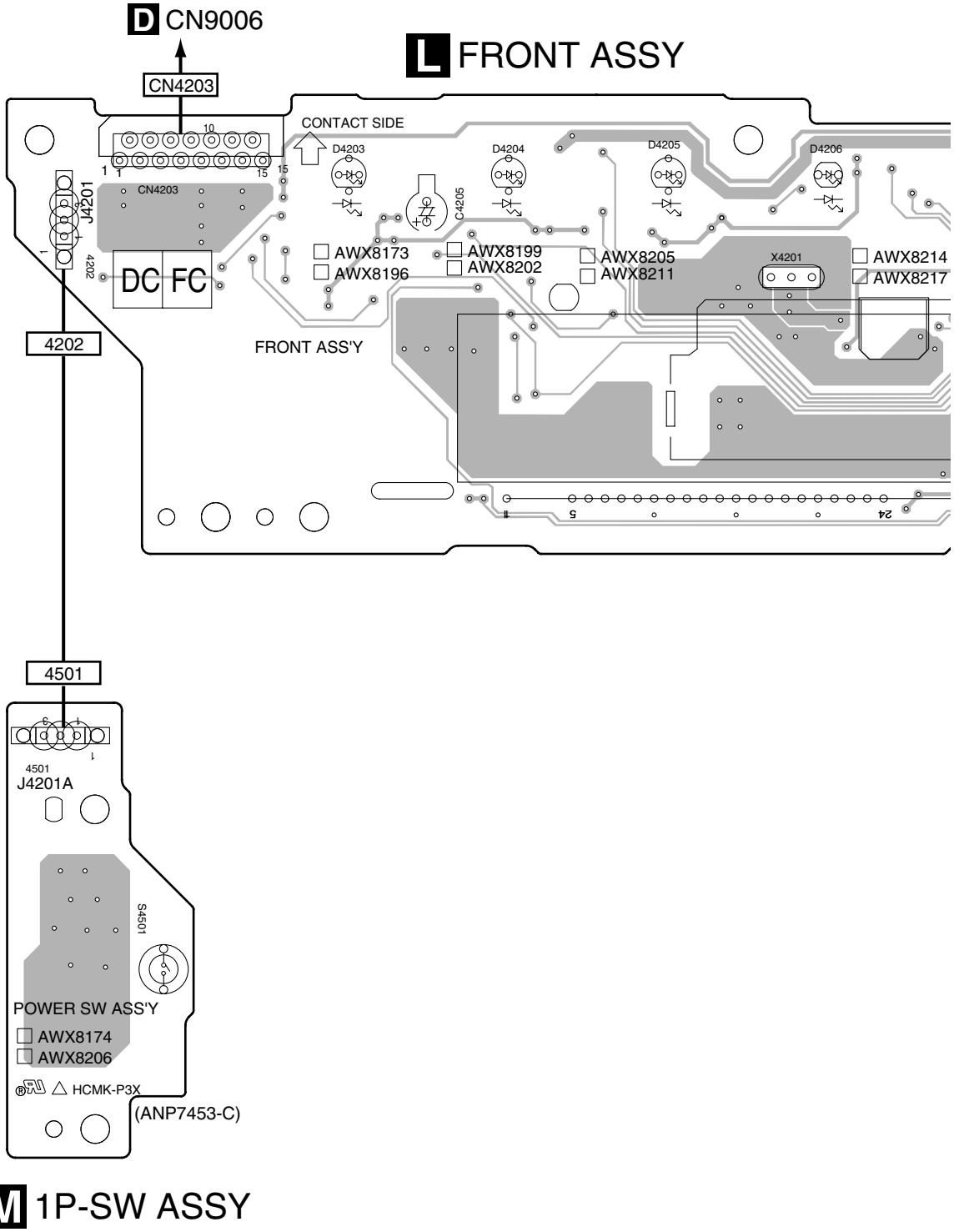
SIDE B

J AMP OUT ASSY



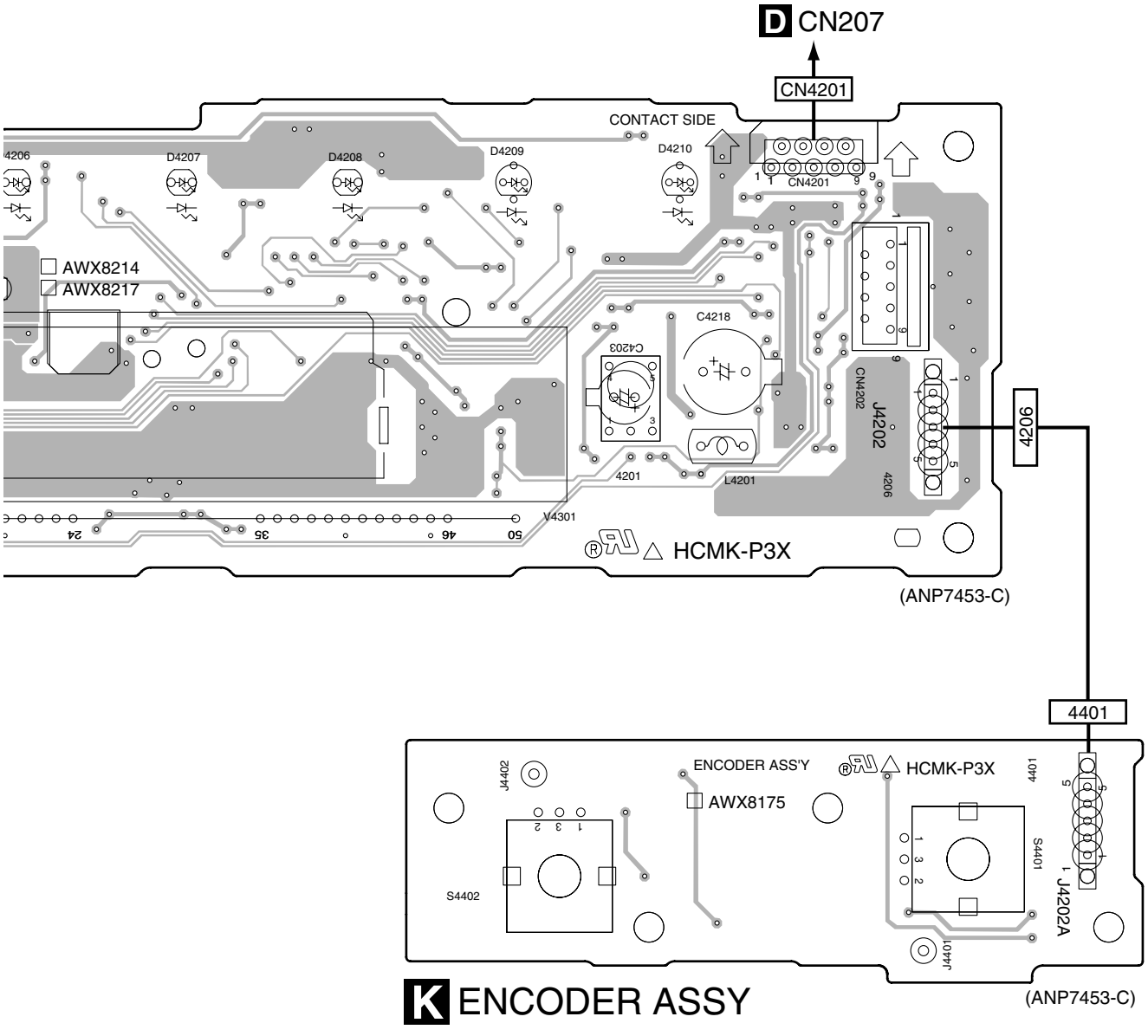
4.9 ENCODER, FRONT and 1P-SW ASSYS

SIDE A



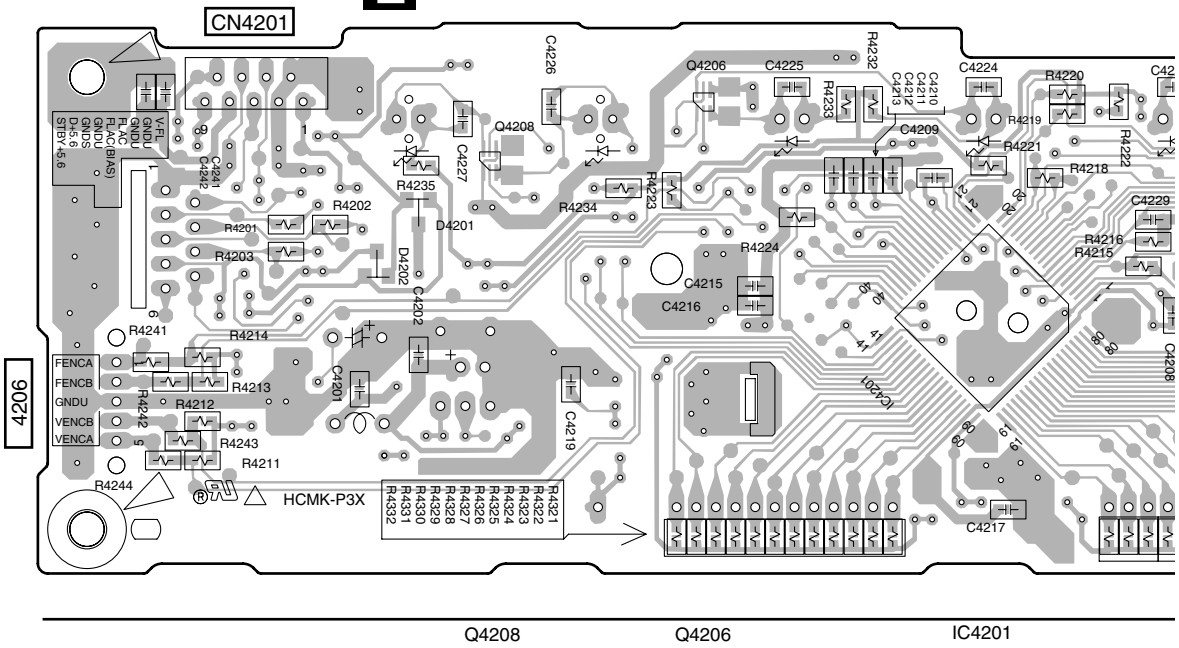
L M

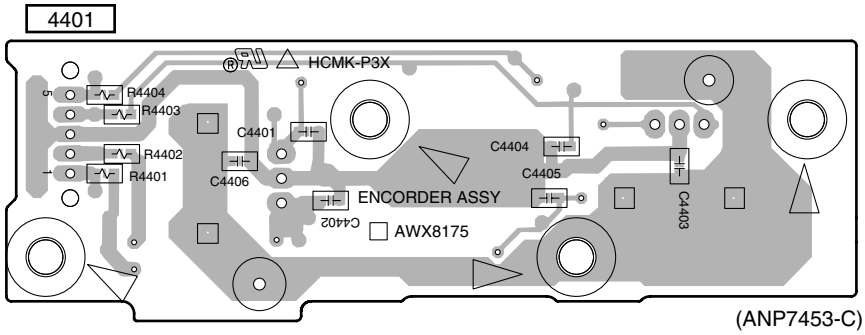
SIDE A


D CN207
CN4201
CONTACT SIDE
D4206
D4207
D4208
D4209
D4210
CN4201
AWX8214
AWX8217
C4218
C4203
CN4202
J4202
4206
4201
L4201
V4301
HCMK-P3X
(ANP7453-C)
4401
ENCODER ASS'Y
AWX8175
HCMK-P3X
J4402
S4402
S4401
J4202A
J4401
(ANP7453-C)
K ENCODER ASSY

SIDE B

L FRONT ASSY

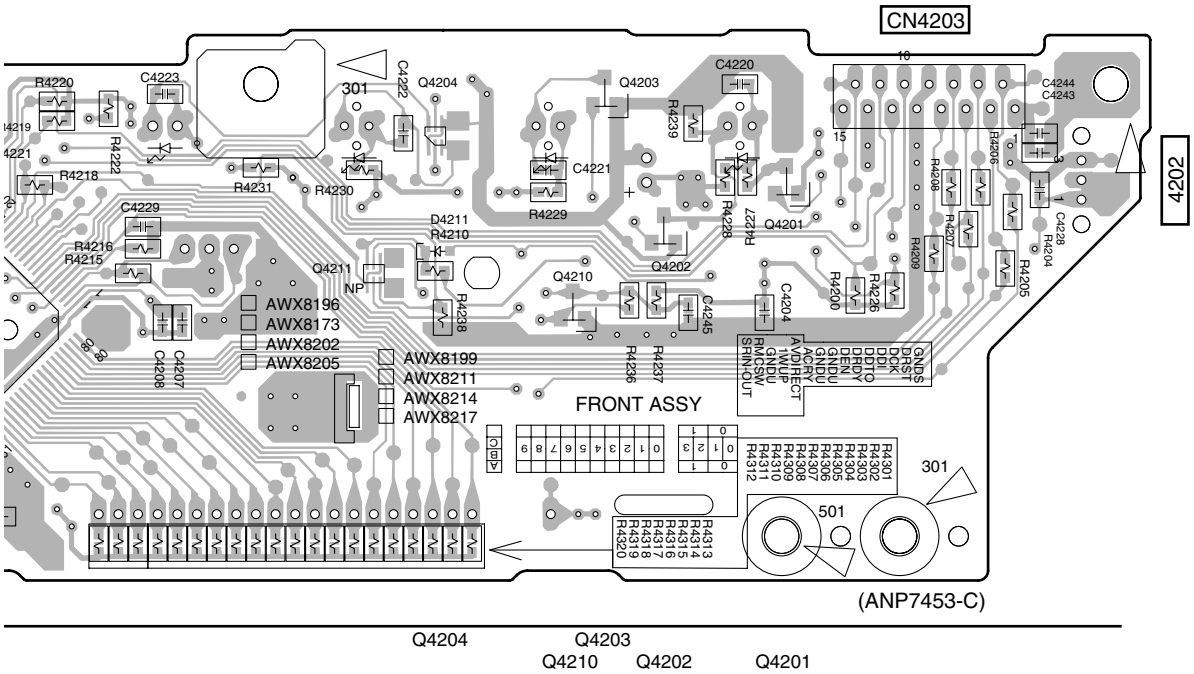




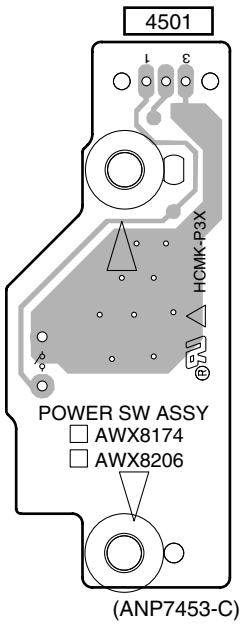
(ANP7453-C)

K ENCODER ASSY

SIDE B



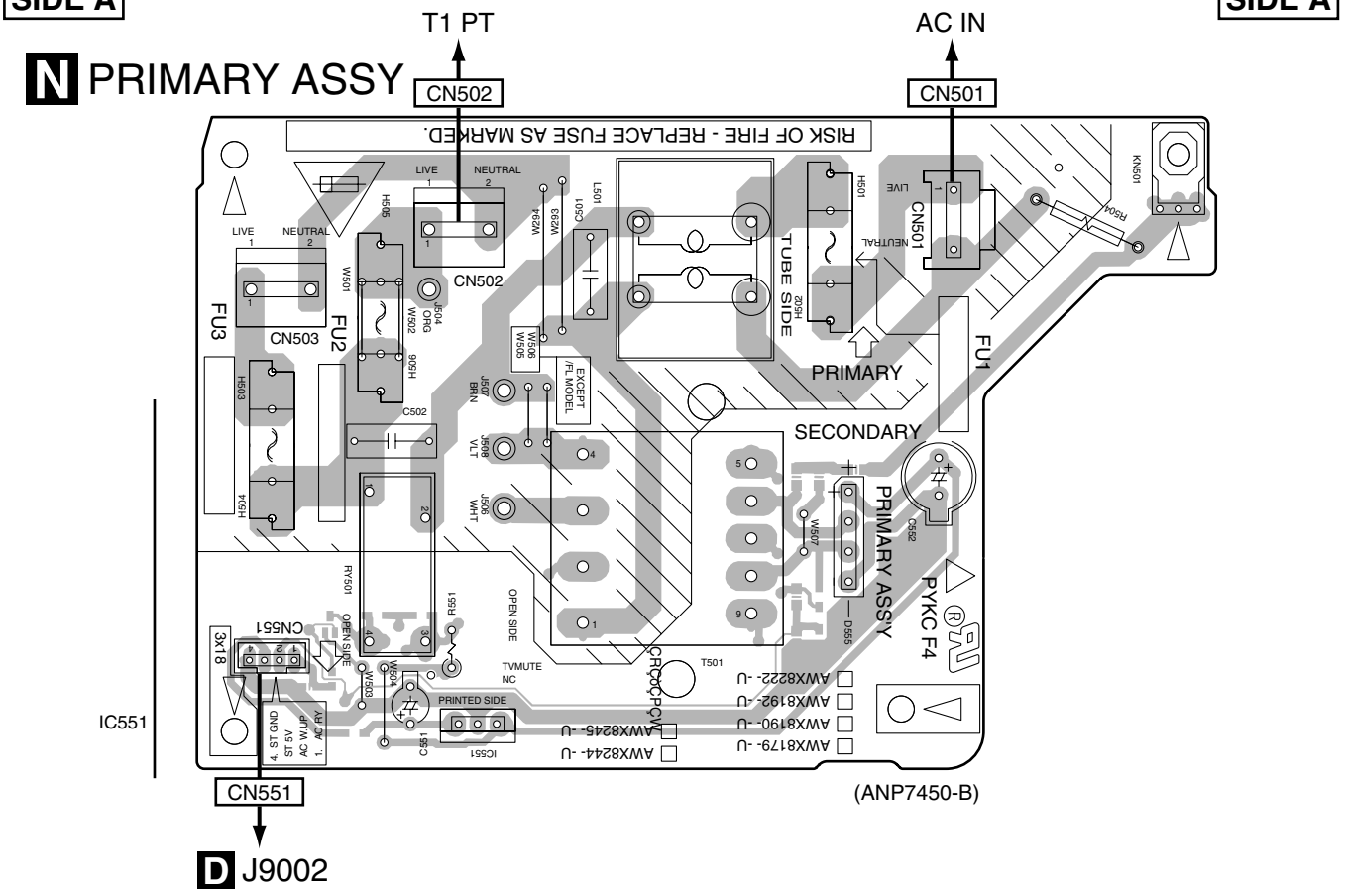
Q4204 Q4203
Q4210 Q4202 Q4201



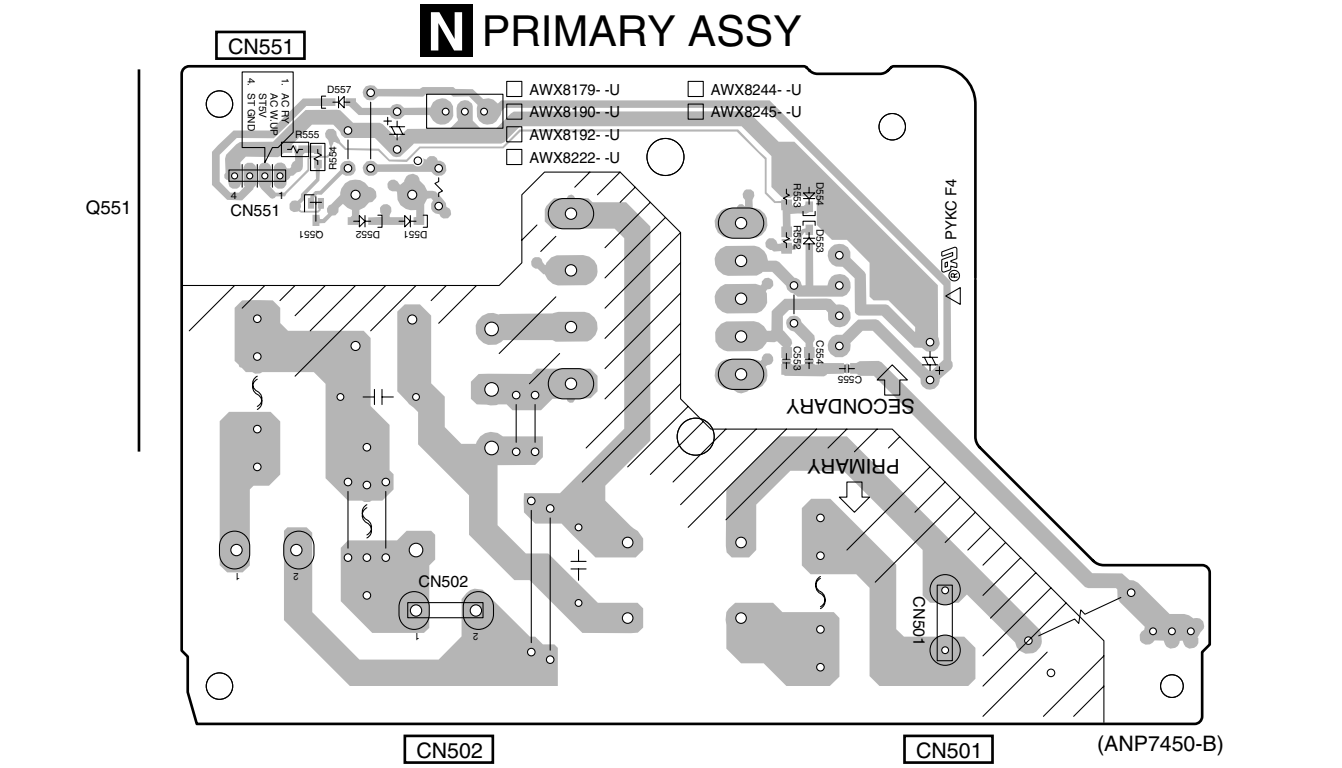
M 1P-SW ASSY

4.10 PRIMARY ASSY

SIDE A

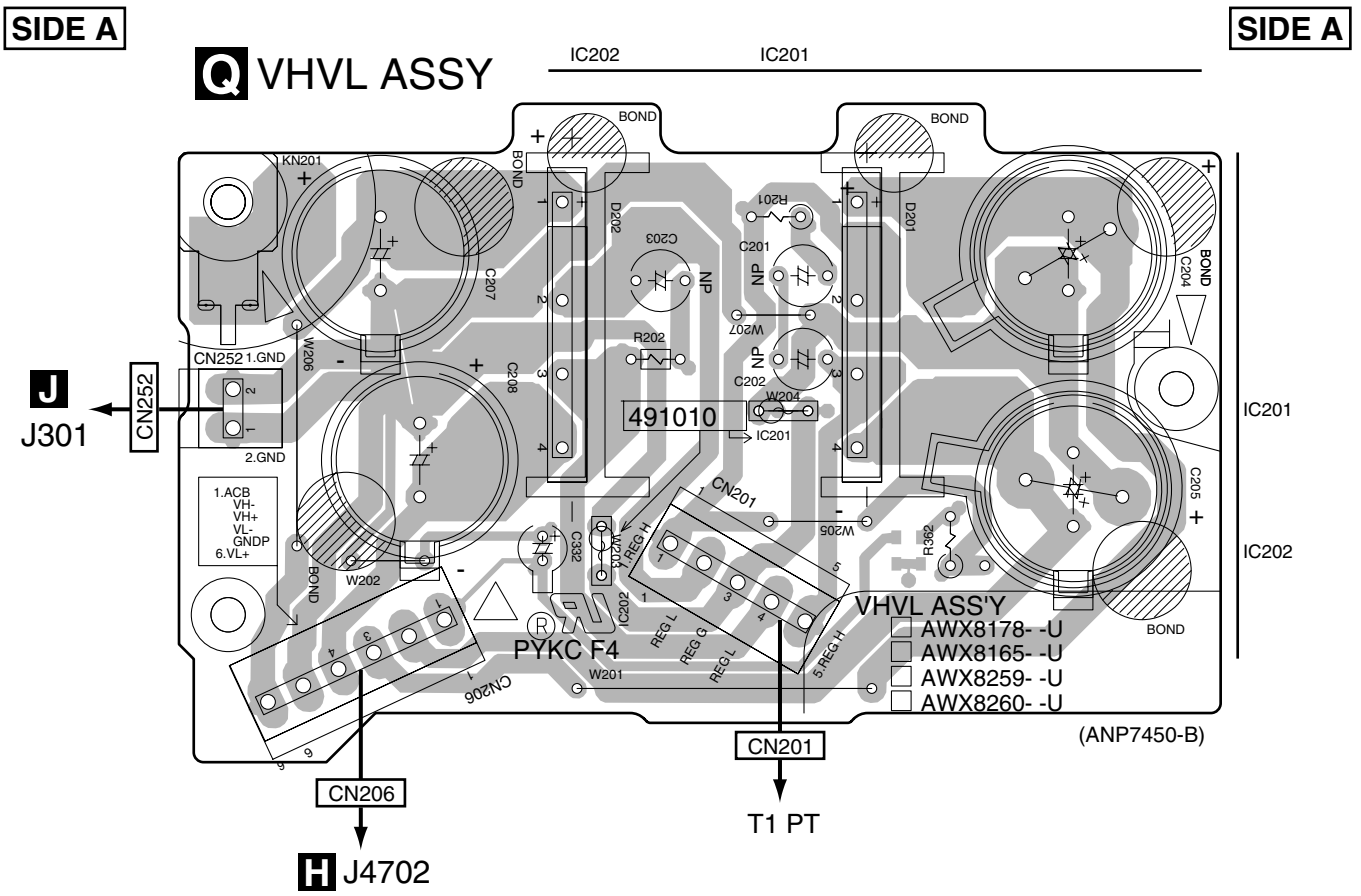


SIDE B



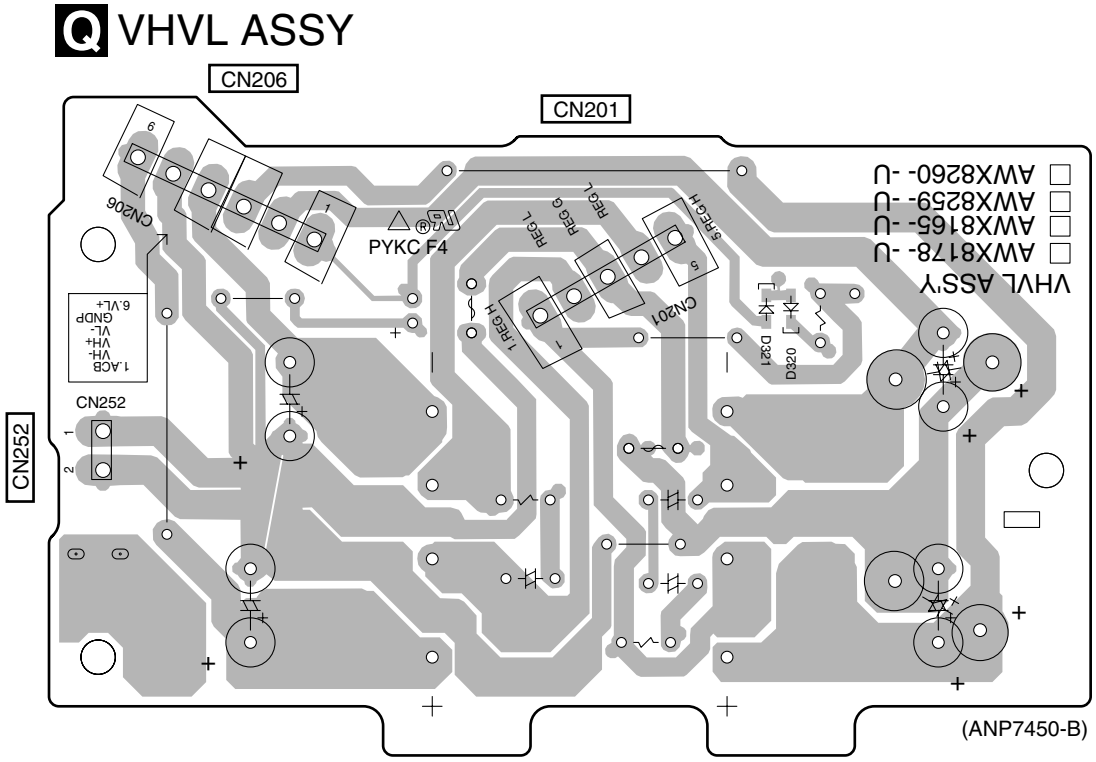
N **N**

4.11 VHVL ASSY



SIDE B

SIDE B

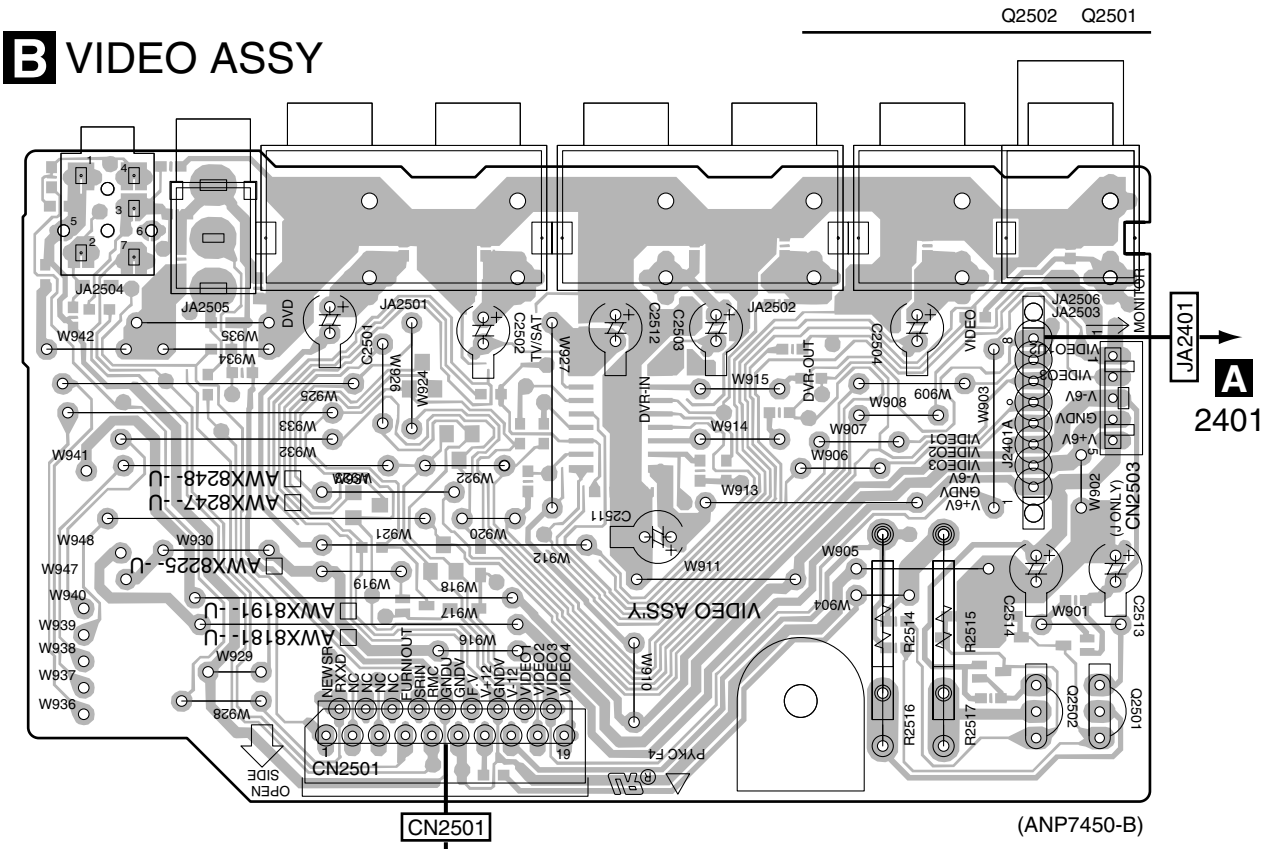


Q Q

4.12 VIDEO ASSYS

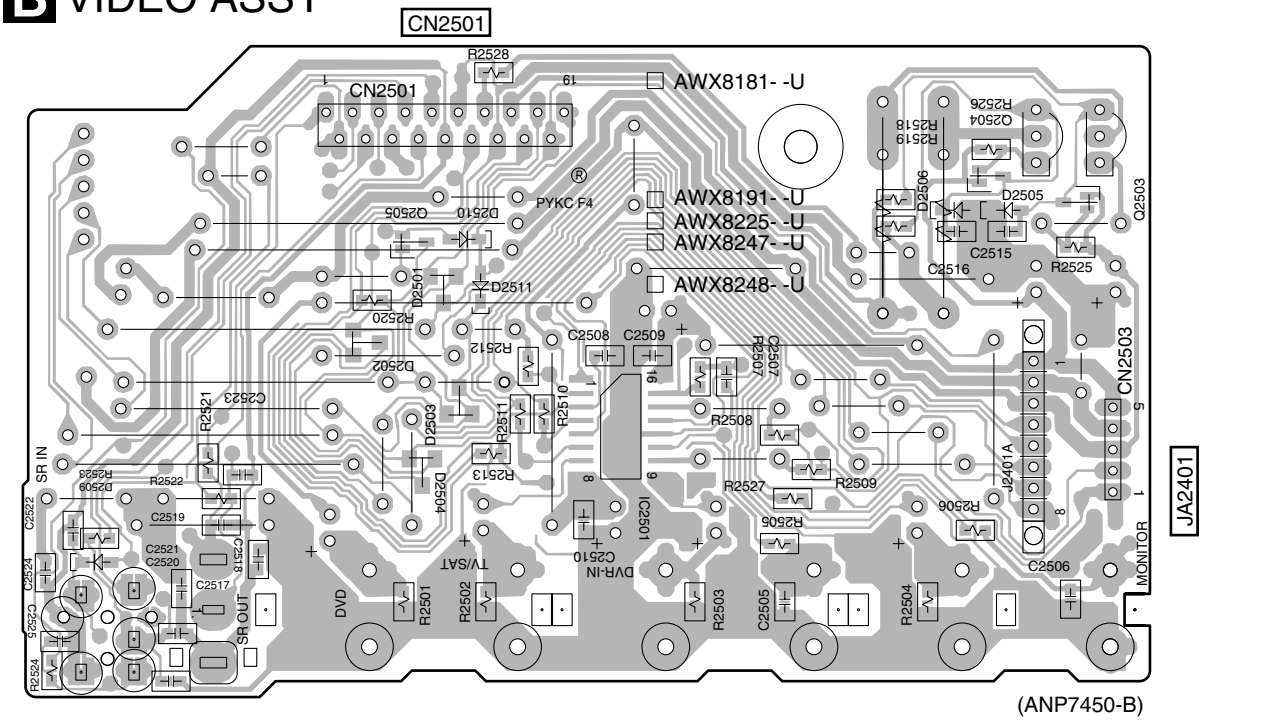
SIDE A **SIDE A**

B VIDEO ASSY



SIDE B **SIDE B**

B VIDEO ASSY



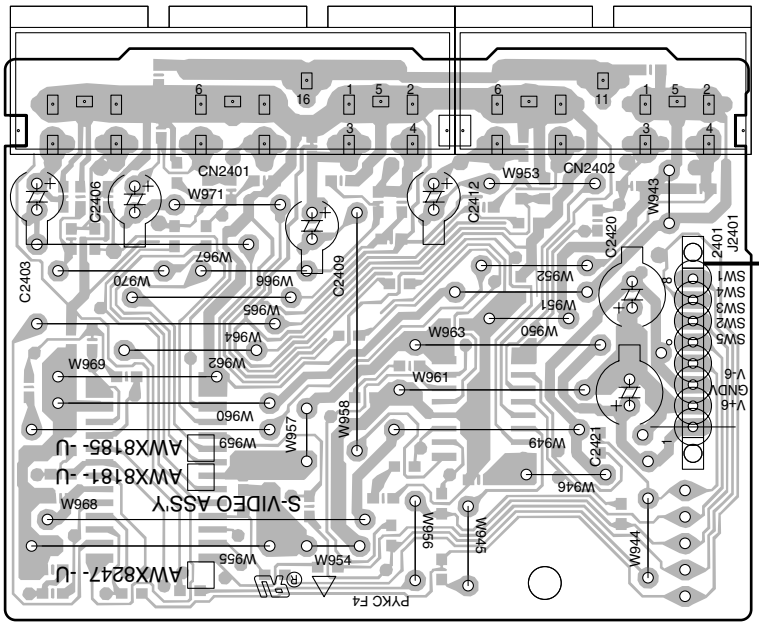
B **B**

4.13 S-VIDEO ASSYS

SIDE A

SIDE A

A S-VIDEO ASSY

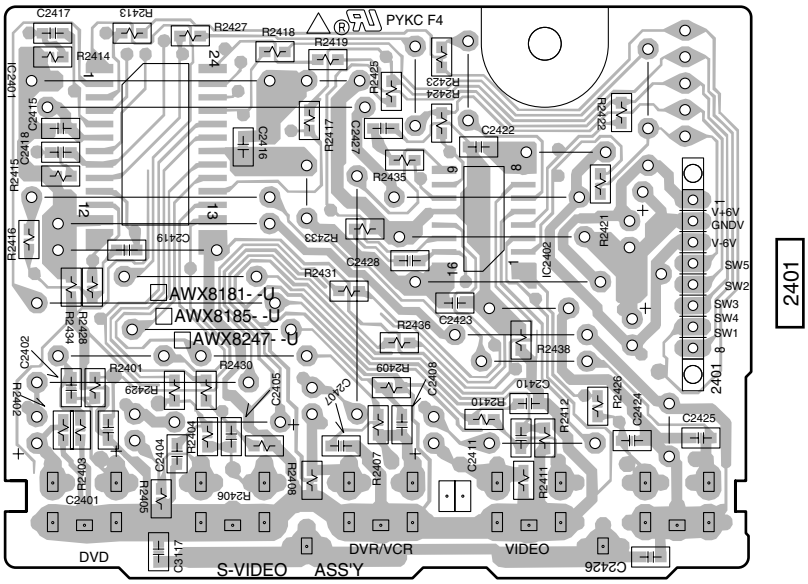


(ANP7450-B)

SIDE B

SIDE B

A S-VIDEO ASSY



(ANP7450-B)

IC2401 IC2402

5. PCB 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.*
● *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	→ *56 x 10[1]* →	*561*	····· *RD1/4PU 5 6 1 J*
47k Ω	→ *47 x 10[3]* →	*473*	····· *RD1/4PU 4 7 3 J*
0.5 Ω	→ *R50*		····· *RN2H R 5 0 K*
1 Ω	→ *1R0*		····· *RS1P 1 R 0 K*

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

5.62k Ω	→ *562 x 10[1]* →	*5621*	····· *RN1/4PC 5 6 2 1 F*

LIST OF ASSEMBLIES

NSP	1..COMPLEX ASSY	AWM7771
	2..12V ASSY	AWX8170
	2..S-VIDEO ASSY	AWX8185
	2..AMP KAWA ASSY	AWX8223
	2..D5V ASSY	AWX8224
	2..AUDIO INPUT ASSY	AWX8228
	2..PRIMARY ASSY	AWX8244
	2..VIDEO ASSY	AWX8248
	2..VHVL ASSY	AWX8260
NSP	1..MOTHER ASSY	AWM7776
	2..MOTHER ASSY	AWX8212
	2..DSP KAWA ASSY	AWX8257
NSP	1..FRONT ASSY	AWM7781
	2..1P-SW ASSY	AWX8206
	2..ENCODER ASSY	AWX8207
	2..FRONT ASSY	AWX8214
NSP	1..D-VIDEO ASSY	AWM7824
	2..AMP OUT ASSY	AWX8229
	2..FRONT-IN ASSY	AWX8246
NSP	1..AMP MODULE 6CH	AXQ7247
	2..6CH AMP ASSY	AWM7786
	1..FM/AM TUNER MODULE	AXQ7245
	1..DSP ASSY	AWX8239

A S-VIDEO ASSY

Mark No.	Description	Part No.
SEMICONDUCTORS		
	IC2402	NJM2296M
	IC2401	NJM2596M
CAPACITORS		
	C2424,C2425,C2427,C2428	CCSRCH221J50
	C2420,C2421	CEAL470M16
	C2403,C2406,C2409,C2412	CEAT470M25
	C2401,C2404,C2407,C2410	CKSRYB103K50
	C2402,C2405,C2408,C2411	CKSRYB104K25
	C2417-C2419	CKSRYB104K25
	C2415,C2416,C2422,C2423	CKSRYB473K50
RESISTORS		
	All Resistors	RS1/16S###J

B VIDEO ASSY

Mark No.	Description	Part No.
SEMICONDUCTORS		
	IC2501	NJM2296M
	Q2501	2SA1515
	Q2502	2SC3377
	Q2505	DTA124EUA
	D2509-D2511	1SS355
	D2501-D2504	DAN202K
	D2505,D2506	UDZS6.2B
CAPACITORS		
	C2505-C2507,C2517	CCSRCH221J50
	C2513,C2514	CEAT470M10
	C2501-C2504,C2511,C2512	CEAT470M25
	C2518,C2524	CKSRYB103K50
	C2519	CKSRYB104K25
RESISTORS		
	R2516,R2517	RS3LMF680J
	Other Resistors	RS1/16S###J
OTHERS		
	2502 8P CABLE HOLDER	51048-0800
	CN2501 19P CONNECTOR	52044-1945
	JA2504 MINI JACK	AKN7039
	JA2505 REMOCON JACK	RKN1026
	JA2501-JA2503 2P PIN JACK	VKB1134

C AUDIO-INPUT ASSY

Mark No.	Description	Part No.
SEMICONDUCTORS		
⚠	IC620, IC621 PROTECTOR(2.5A)	AEK7014
	IC701	NJU7312AM
	IC901	TC7WU04F
	IC702, IC704, IC705	UPC4570G2
	D622–D625	1SR154-400
	D701	DAN217
COILS AND FILTERS		
	F620, F621 CHIP BEADS	DTF1070
	L901 CHIP SOLID INDUCTOR	QTL1013
OTHERS		
	2401 8P CABLE HOLDER	51048-0800
	CN2401 3-4P MINI DIN SOCKET	AKP7009
	CN2402 2-4P MINI DIN SOCKET	AKP7010
	J2401 JUMPER WIRE	D20PYY0815E

Mark No.	Description	Part No.
CAPACITORS		
	C622 (1/100V)	ACH1237
	C701–C708, C713, C714	CCSRCH101J50
	C725–C727, C731, C732	CCSRCH101J50
	C740–C743	CCSRCH101J50
	C709, C710	CCSRCH220J50
	C908	CCSRCH470J50
	C904	CCSRCH471J50
	C723, C724	CEAT100M50
	C620, C621	CEAT222M25
	C737, C738	CEAT470M25
	C729, C730, C756–C759	CEAT4R7M50
	C711, C721, C722, C735, C736	CKSRYB103K50
	C752–C755, C905, C906	CKSRYB103K50
	C901, C902	CKSRYB104K25
	C903, C909–C911	CKSRYB105K10
	C744–C747	CKSRYB221K50
RESISTORS		
⚠	R620	RD1/4MUF4R7J
	Other Resistors	RS1/16S###J
OTHERS		
	621 5P CABLE HOLDER	51048-0500
	J701 BOARDIN LEAD WIRE	ADX7422
	CN704 4P PIN JACK	AKB7015
	CN621 3P TOP POST	B3B-EH
	JA703 2P PIN JACK	BKB1017
	J620 JUMPER WIRE 5P	D20PYY0510E
	JA901, JA902 OPT. LINK IN	GP1FA513RZ
	JA903 1P PIN JACK	VKB1077
	JA704 4P PIN JACK	VKB1126
	JA701 4P PIN JACK	VKB1132
	CN701, CN901 19P CONNECTOR	VKN1775

D MOTHER ASSY

Mark No.	Description	Part No.
SEMICONDUCTORS		
⚠	IC206 PROTECTOR(630mA)	AEK7006
⚠	IC203 PROTECTOR(4A)	AEK7018
	IC1241	BD3812F
	IC1221	BD3814FV
	IC1261	NJM2100M
	IC210	NJM78L05A
	IC1271	NJM78M05FA
	IC205	NJM78M56FA
	IC1211	NJU7313AM
	IC9001	PD5864A
	IC9002	TC74VHCT126AFT
	IC1101-IC1105,IC1501-IC1504	UPC4570G2
	Q801	2SC2412K
	Q1261,Q1262,Q1301,Q1501-Q1508	2SC3326
	Q1510-Q1514	2SC3326
	Q1103,Q1104	2SK208
	Q1101,Q1263,Q1266,Q9004	DTA124EK
	Q9008-Q9010	DTA124EK
	Q1102,Q1265	DTC124EK
	Q1264,Q9001	DTC143EK
	Q9011	DTC143TK
	D204	1SR154-400
	D1101,D1102,D1253,D1254,D801	1SS355
	D9001-D9004,D9010,D9012	1SS355
	D9020-D9024,D9026,D9031-D9033	1SS355
⚠	D203	D3SBA20
	D1211,D1301	DAN217
	D210	RB501V-40
	D207	UDZS20B
	D1251,D1252,D209	UDZS6.8B
COILS AND FILTERS		
	L9001,L9002 CHIP FELITE BEADS	ATL7002
	F1271,F201, F202 CHIP BEADS	DTF1070
	L9003 RADIAL INDUCTOR	LFEA2R2J
	L801, L9004 CHIP SOLID INDUCTOR	QTL1013
CAPACITORS		
	C9003 (0.22F/5.5V)	ACH7144
	C1123,C1124,C1143,C1163	CCSRCH101J50
	C1213-C1215,C1244,C1245	CCSRCH101J50
	C1248,C1249,C1261,C1262	CCSRCH101J50
	C1501,C1502,C1521,C1522,C1541	CCSRCH221J50
	C1561	CCSRCH221J50
	C1542	CCSRCH271J50
	C1105-C1108,C1125-C1128,C1145	CCSRCH331J50
	C1147,C1165,C1167	CCSRCH331J50
	C1103,C1104	CCSRCH471J50
	C1221-C1226,C1229-C1234,C1246	CEAT100M50
	C9005	CEAT101M10
	C1270,C807	CEAT101M16
	C9007	CEAT102M6R3
	C211	CEAT220M50
	C214	CEAT221M25
	C9002	CEAT221M6R3
	C1253,C1254	CEAT331M10
	C212	CEAT331M50
	C209	CEAT332M16
	C220	CEAT470M16
	C213	CEAT471M35
	C9013	CEAT471M6R3
	C1263,C1264	CEAT4R7M50
	C1503,C1504,C1523,C1524	CEJQ220M35
	C1543,C1544,C1562	CEJQ220M35
	C1265	CEJQ221M6R3
	C1241,C1344	CEJQ4R7M50
	C1111,C1112,C1131,C1132	CKSQYF225Z16
	C1151,C1152,C1171,C1172	CKSQYF225Z16
	C1505,C1506,C1525,C1526	CKSQYF225Z16
	C1545,C1546,C1563,C1564	CKSQYF225Z16
	C801, C9015,C9022,C9024	CKSRYB102K50
	C1146,C1185,C1186,C1199	CKSRYB103K50
	C1211,C1212,C1227,C1228	CKSRYB103K50
	C1242,C1243,C1251,C1252,C1269	CKSRYB103K50
	C802, C804, C9001,C9004,C9008	CKSRYB103K50
	C9021	CKSRYB103K50
	C1266	CKSRYB104K16
	C1187,C1188,C1237-C1240,C1271	CKSRYB104K25
	C215, C216, C9023	CKSRYB104K25
	C1272,C803, C805, C9006	CKSRYB105K10
	C1144	CKSRYB223K50
	C1198	CKSRYB471K50
	C1133,C1134,C1153,C1154,C1173	CKSRYB472K50
	C1235,C1236	CKSRYB472K50

Mark No.	Description	Part No.
C210, C217		CKSRYB473K50
C1148		CKSRYB562K50
C1402,C1403		CKSRYF224Z25
C1565		CKSRYF474Z16
RESISTORS		
R9001,R9091		RS1/10S101J
R1251,R1252		RS1LMF101J
R203		RS1LMF102J
Other Resistors		RS1/16S###J
OTHERS		
CN1262,CN1263	19P CONNECTOR	19R-1.25FJ
CN207	9P FFC CONNECTOR	52045-0945
CN9004	10P FFC CONNECTOR	52045-1045
CN801	13P FFC CONNECTOR	52045-1345
CN9006	15P FFC CONNECTOR	52045-1545
CN1501,CN9010	17P FFC CONNECTOR	52045-1745
CN1204,CN9001,CN9005	19P FFC CONNECTOR	52045-1945
CN1265	23P PLUG	AKP7064
CN203	3P CONNECTOR POST	B3B-PH-K
CN202	6P CONNECTOR	B6B-EH-K
CN1207	6P CONNECTOR POST	B6B-PH-K
J9002	CONNECTOR ASSY	PF04PG-D05
9001-9003	PCB BINDER	VEF1040
CN1264	10P FFC CONNECTOR	VKN1241
KN1201	EARTH METAL FITTING	VNF1084
X9001	CERAMIC RESONATOR (15.7 MHz)	ASS7032

E DSP KAWA ASSY

Mark No.	Description	Part No.
CAPACITORS		
C1802		CCSRCH101J50
C1267,C1268		CEAT100M50
C1101,C1102,C1121,C1122		CEAT2R2M50
C1141,C1142,C1161		CEAT2R2M50
C1801		CEAT331M16
RESISTORS		
All Resistors		RS1/16S###J
OTHERS		
CN1811	13P PLUG	AKP7059
CN1814	19P PLUG	AKP7062
CN1801	23P SOCKET	AKP7075

F DSP ASSY

Mark No.	Description	Part No.
SEMICONDUCTORS		
IC8201		AK4114VQ
IC8401		AK4628VQ
IC8501		DSPD56367PV150
IC8601		IS61LV6416-12T
IC8602		IS63LV1024-12T
IC8901		NJM2391DL1-33
IC8902		NJU7223DL1-18
IC8603		PD8116A
IC8701		TC74LVX244FT
IC8702		TC74VHCT244AFT
IC8503		TC7WH125FU
IC8502		TC7WU04FU
Q8504		UMD2N
Q8503		UN5112
Q8501		UN5212
D8501		1SS355
D8401		DAN202K
D8402,D8502,D8503		DAP202K
COILS AND FILTERS		
L8002,L8004,L8501,L8502		ATL7002
L8601-L8603	CHIP FELITE BEADS	ATL7002
L8201,L8203,L8204,L8401,L8402		QTL1013
L8504,L8505,L8701,L8702	CHIP SOLID INDUCTOR	QTL1013
CAPACITORS		
C8209,C8210		CCSRCH100D50
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,C8552		CCSRCH471J50
C8602,C8603,C8606,C8607,C8610		CCSRCH471J50
C8703,C8706		CCSRCH471J50
C8548,C8549		CCSRCH8R0D50
C8701,C8704		CEV100M16
C8406,C8415,C8546,C8547,C8613		CEV101M16
C8902,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,C8553		CKSRYB104K16
C8601,C8604,C8605,C8608,C8609		CKSRYB104K16
C8702,C8705,C8901,C8903		CKSRYB104K16
C8516		CKSRYB105K6R3
C8514		CKSRYB333K16
C8203		CKSRYB473K50
RESISTORS		
R8506		RAB4C101J
R8201		RS1/16S1802F
Other Resistors		RS1/16S###J
OTHERS		
CN8012	19P FFC CONNECTOR	52045-1945
CN8003	13P SOCKET	AKP7070
CN8007	19P SOCKET	AKP7073
CN8017	10P FFC CONNECTOR	VKN1414
X8501	CRYSTAL RESONATOR (20MHz)	VSS1171
X8201	CRYSTAL RESONATOR (24.576MHz)	XSS3003

G FRONT-IN ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC4602		NJM78L05A
	IC4601		UPC4570G2
	Q4604		2SC2712
	D4602,D4603,D4605,D4606		1SS355
	SWITCHES AND RELAYS		
	RY4601		VSR1015
	CAPACITORS		
	C4103,C4104,C4605		CCSRCH101J50
	C4606		CCSRCH330J50
	C4107,C4111,C4122,C4166,C4604		CCSRCH471J50
	C4108		CEAL470M25
	C4602,C4603,C4608,C4610,C4612		CEAT100M50
	C4105,C4109,C4117,C4124,C4168		CKSRYB103K50
	C4607,C4609,C4611		CKSRYB103K50
	C4102,C4106,C4110,C4123,C4167		CKSRYB104K25
	C4120,C4121,C4165		CKSRYF105Z10
	RESISTORS		
	All Resistors		RS1/16S###J
	OTHERS		
	CN4102	19P FFC CONNECTOR	52045-1945
	J4101	BOARD IN LEAD WIRE	ADX7442
	JA4101	PIN JACK(3P)GOLD	AKB7098
	JA4102	OPT. LINK IN	GP1FA513RZ
	JA4103	HEADPHONE JACK	RKN1006
	KN4101	EARTH METAL FITTING	VNF1084

H AMP KAWA ASSY

Mark	No.	Description	Part No.
	SEMICONDUCTORS		
⚠	IC4701	PROTECTOR(7A)	AEK7021
	OTHERS		
	CN4701	17P FFC CONNECTOR	52045-1745
	J4702	LEAD WITH HOUSING	ADX7424
	CN4703	19P SOCKET	AKP7073
	CN4705,CN4706	23P SOCKET	AKP7178
	4701,4702	PCB BINDER	VEF1040

I 6CH AMP ASSY

Mark	No.	Description	Part No.
	SEMICONDUCTORS		
⚠	IC71		NJM7912FA
⚠	IC3301,IC3401		STK402-270
	Q3382		2SA1576A
	Q62		2SB1237X
	Q111, Q3381,Q63		2SC4081
⚠	Q61		2SD2012
	Q3301,Q3302,Q3401,Q3402		2SD2114K
	Q3501,Q3502,Q3504		2SD2114K
	Q3654		2SD2144S
	Q3653		DTA124EUA
	Q3652		DTA124TK
⚠	Q3383		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, D3657,D42		1SS355
⚠	D3391,D3392		30PDA20-FC6
⚠	D3381,D3382,D3481,D3482		DAN217
⚠	D3581,D3582		DAN217
	D3389,D3390		MTZJ10C
⚠	D72		MTZJ15C
	D3393,D3394		MTZJ18B
⚠	D63		MTZJ18C
	D3385,D3386		MTZJ36A
	D105, D106, D3658		UDZS7.5B
	TH111		NCP18WF104J03RB
	CAPACITORS		
	C3305,C3306,C3405,C3406		CCSRCH221J50
	C3505,C3506,C62		CCSRCH221J50
	C3309,C3310,C3409,C3410		CCSRCJ3R0C50
	C3509,C3510		CCSRCJ3R0C50
	C3307,C3308,C3407,C3408		CEAL470M6R3
	C3507,C3508		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		CEAT470M25
	C3653		CEAT470M35
	C3321,C3322,C3421,C3422		CEATR22M50
	C3303,C3304,C3403,C3404		CKSRYB102K50
	C3503,C3504		CKSRYB102K50
	C71		CKSRYB473K50
	RESISTORS		
	R3317-R3320,R3417-R3420		ACN7122
	R3517-R3520 (0.22/2W)		ACN7122
⚠	R3327,R3328,R3427,R3428		RD1/4MUF470J
	R3387,R3388		RD1/4PU101J
	R3657		RD1/4PU330J
⚠	R3323,R3324,R3351,R3423,R3424		RS1/16S1R0J
⚠	R3451		RS1/16S1R0J
	R67, R68		RS1/16S2201F
⚠	R62		RS1/16S330J
	R65		RS1/16S4700F
	Other Resistors		RS1/16S###J
	OTHERS		
	CN3001,CN3002	23P PLUG	AKP7064
	CN3651	PLUG(2P)	KM200SA2

J AMP OUT ASSY

Mark	No.	Description	Part No.
	SEMICONDUCTORS		
	Q320		2SA1037K
⚠	Q321		2SA1037K
	Q322		2SA1037K
	Q303		2SC2712
	Q301, Q302, Q304, Q305		2SC4081

Mark	No.	Description	Part No.
	Q308–Q310, Q312, Q318, Q319		2SC4081
	Q307		2SD1858X
	Q313		DTA124EUA
	Q306		DTA143EUA
	Q311, Q317		DTC124EUA
	Q316		DTC143EUA
	Q314		RN2903
	D301, D302, D304–D309		1SS355
	D311–D314, D316, D317		1SS355
	D322–D329		1SS355
	D319		DAN202K
	D303, D310, D315		DAP202K
	D318		UDZS5.1B

COILS AND FILTERS

	L301–L306 AF CHOCKCOIL	ATH-059

SWITCHES AND RELAYS

	RY301–RY304	ASR7008

CAPACITORS

	C336	CCSRCH221J50
	C335	CCSRCH331J50
	C334	CEAT100M50
	C333	CEAT471M6R3
	C301–C304, C315–C318	CKSQYB104K50
	C325–C328	CKSQYB104K50
	C329–C331	CKSRYB102K50
	C337	CKSRYB104K25
	C319–C324	XCG3008

RESISTORS

	R303, R304, R323, R324	ACN7120
	R345, R346 (0.1/ 2W)	ACN7120
⚠	R309, R310, R329, R330	RD1/2LMF101J
⚠	R351, R352	RD1/2LMF101J
	R358	RD1/2VM103J
⚠	R311, R312, R317–R320	RS1/10S150J
⚠	R331, R332, R336–R341	RS1/10S150J
⚠	R353, R354, R398, R399	RS1/10S150J
	R313, R314	RS1/10S222J
⚠	R315, R316	RS1LMF331J
	Other Resistors	RS1/16S###J

OTHERS

	CN301 17P FFC CONNECTOR	52045-1745
	J301 2P CONNECTOR ASSY	ADX7425
	JA301 PIN JACK(1P)	AKB7080
	351–353 SPEAKER TERMINAL4-P	AKE7094
	CN203 19P PLUG	AKP7062

K ENCODER ASSY

SWITCHES AND RELAYS

	S4451	ASX7044
	S4452	ASX7045

RESISTORS

	All Resistors	RS1/16S###J

OTHERS

	4451 5P CABLE HOLDER	51048-0500

Mark	No.	Description	Part No.

L FRONT ASSY

SEMICONDUCTORS

	IC4201	PE5368B
	Q4202,Q4203,Q4210	DTC124EK
	Q4204,Q4206,Q4208	RN1903
	Q4211	RN2903
	D4211	1SS355
	D4201,D4202	DAN202K
	D4206,D4207	SLR-343MC
	D4203,D4204,D4208,D4209	SLR-343VC
	D4205,D4210	SLR-343YC

COILS AND FILTERS

	L4201 RADIAL INDUCTOR	LFEA2R2J

CAPACITORS

	C4203	CEJQ221M6R3
	C4205	CEJQ470M10
	C4210-C4213,C4228	CKSRYB102K50
	C4201,C4202,C4204,C4215-C4217	CKSRYB103K50
	C4208,C4229	CKSRYB104K25
	C4220-C4227	CKSRYB473K50

RESISTORS

	All Resistors	RS1/16S###J

OTHERS

	4202 3P CABLE HOLDER	51048-0300
	4206 5P CABLE HOLDER	51048-0500
	CN4201 9P FFC CONNECTOR	52045-0945
	CN4203 15P FFC CONNECTOR	52045-1545
	V4301 FL TUBE	AAV7093
	J4201 JUMPER WIRE 3P	D20PYY0310E
	J4202 JUMPER WIRE 5P	D20PYY0515E
	4201 REMOTE RECEIVER UNIT	SPS-442-E1
	4301 FL HOLDER	VNF1122
	X4201 CERAMIC RESONATOR(5MHz)	VSS1142

M 1P-SW ASSY

SWITCHES AND RELAYS

	S4501	VSG1009

OTHERS

	4501 3P CABLE HOLDER	51048-0300

N PRIMARY ASSY

SEMICONDUCTORS

⚠	IC551	NJM78M56FA
	Q551	2SC4081
	D551–D553, D557	1SS355
⚠	D555	S1VB20/F03
	D554	UDZS5.1B

COILS AND FILTERS

⚠	L501 LINE FILTER	ATF7018

TRANSFORMERS

⚠	T501 STANDBY TRANSFORMER	ATT7079

SWITCHES AND RELAYS

⚠	RY501	ASR7013

Mark No.	Description	Part No.
CAPACITORS		
⚠	C501 (0.01/AC275V)	ACE7013
⚠	C502 (10000P/AC250V)	ACG7033
	C552	CEAT102M25
	C551	CEAT470M25
	C553–C555	CKSRYB103K50
RESISTORS		
⚠	R504 (2.2M/ 1/2W)	RCN1080
	R551	RD1/2VM270J
	Other Resistors	RS1/16S###J
OTHERS		
	H501, H502 FUSE CLIP	AKR7001
⚠	CN502 2P-VH CONNECTOR	B2P3-VH
	CN551 4P CONNECTOR	B4B-PH-K
⚠	CN501 AC CORD SOCKET	RKP1751
	KN501 EARTH METAL FITTING	VNF1084

O D5V ASSY

SEMICONDUCTORS		
	IC6001	NJM7805FA
CAPACITORS		
	C6001	CEHAT331M16
	C6002	CKSRYB473K50
OTHERS		
	J6001 CONNECTOR ASSY	PF03PG-D10

P 12V ASSY

SEMICONDUCTORS		
	IC601	BA12T
	IC602	NJM7912FA
	D601, D602	RB501V-40
CAPACITORS		
	C603, C604	CEHAT221M25
	C601, C602	CKSRYB473K50
OTHERS		
	601 5P CABLE HOLDER	51048-0500

Q VHVL ASSY

SEMICONDUCTORS		
⚠	IC201, IC202 PROTECTOR(10A)	AEK7022
	D320, D321	1SS355
⚠	D201, D202	D5SBA20
CAPACITORS		
	C203 (1/100V)	ACH1237
	C207, C208 (5600/35V)	ACH7176
	C204, C205 (2700/63V)	ACH7177
	C332	CEAT2R2M50
RESISTORS		
	R362	RD1/2VM332J
⚠	R202	RD1/4MUF100J
OTHERS		
	CN252 2P-VH CONNECTOR	B2P-VH
	CN201 5P-VH CONNECTOR	B5P-VH
	CN206 6P-VH CONNECTOR	B6P-VH

R 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	ATF7026
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
	C237	CEAT470M10
	C211	CEJQ1R0M50
	C210	CEJQ470M16
	C204, C238, C602	CKSRYB102K50
	C101, C102, C208, C220, C239	CKSRYB103K50
	C242, C601	CKSRYB103K50
	C216, C217, 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 TERMINAL 4-P	AKA7003
	(SHIELD CASE T)	ANK7072
	(SHIELD CASE B)	ANK7073
	X201 CRYSTAL RESONATOR (7.2MHz)	ASS1093
	FM FRONTEND	AXF7003
	AM RF TUNING BLOCK	AXX7071

6. ADJUSTMENT
6.1 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.

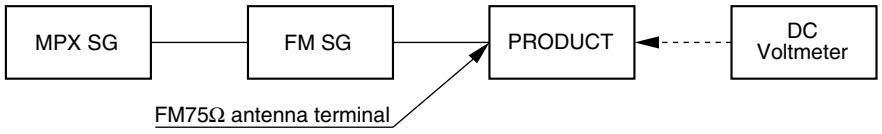


Fig.1 Adjustment Wiring Diagram

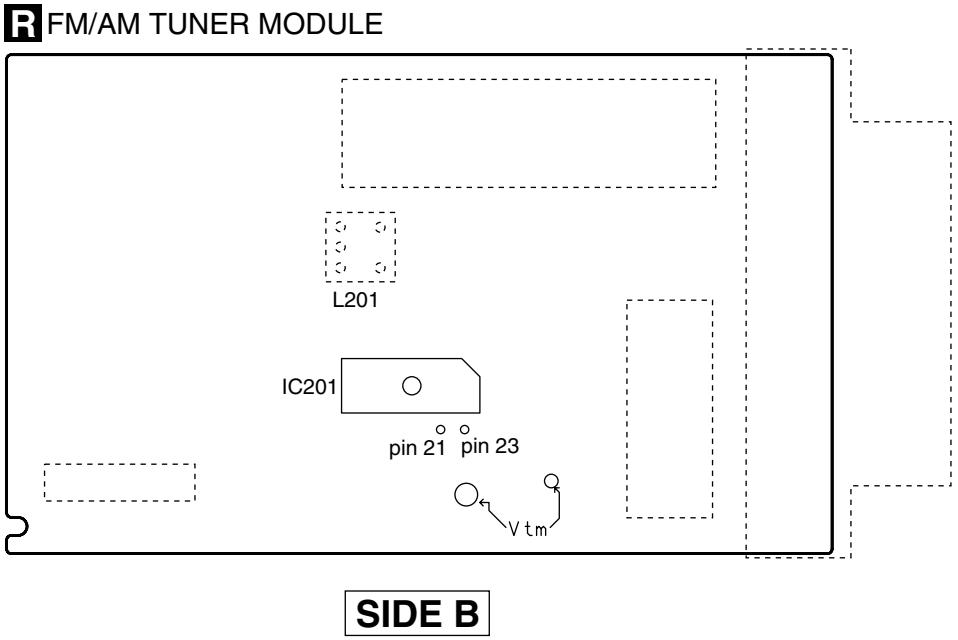


Fig.2 Adjustment Point

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 Test Mode

• How to Enter the Test Mode

With the attached Remote Control Unit

1. Test mode ON "MENU" key

When Test mode is entered, "TEST" is indicated for 5 seconds. Settings other than those described below return to the factory-preset values.

- Function: TV/SAT
- Signal select: AUTO
- Settings for the speakers: All large, SW ON
- No automatic speaker detection
- PRO LOGIC2 EMU mode
- The tuner is preset for Test mode.
- SOUND MODE: OFF

The Protection process (Key Mask for 1 min.) is canceled.

2. Test mode OFF "9" key

When the code is received, Test mode is terminated, and all settings return to the factory-preset values.
With "RECEIVER ⏻ " key, Test mode is also terminated, and all settings return to the factory-preset values.

3.FL/LED check "0" key

Each time the remote control code is received, the indications on the FL and LED change cyclically, as shown below.
All segments on the FL and LED light. → All segments on the FL and LED go off. → "ABCDEFGH" are displayed on the FL, and 1, 3, 5, 7 are displayed on the LED. → "IJKLMNOP" are displayed on the FL, and 2, 4, 6, 8 are displayed on the LED. → Usual display → . . . .
When the code is first received, all segments light.

4. SP relay change "1" key

Each time the remote control code is received, the SP relay is turned off then back on. When the code is first received, the SP relay is turned off.

5. DOLBY Pro Logic2 mode "2" key

When the code is received, settings other than those described below return to the factory-preset values.

- Function: DVD/LD
- Signal select: AUTO
- Distance of Front speaker & Center speaker: 10 feet
- Distance of Rear speaker: 5 feet
- STANDARD (PRO LOGIC2 EMU) mode
- Speaker setting: LLLLY

7. MASTER VOL CHANGE "4" key

Each time the remote control code is received, the master volume is changed as follows: minus infinity → 0 dB → . . . .
Each trim becomes 0 dB.
When the code is first received, the master volume becomes minus infinity (MUTE.)

8. MIC check "6" key

- Function: TV/SAT
- Signal Select: Analog

When the code is received while the microphone input is being checked, the data for the Function, Listening mode, and Signal Select are returned to those immediately before Microphone Input Check mode was entered, then Microphone Input Check mode is terminated.

- If you wish to hear the sound picked up by the microphone from the speakers, set NJU7312AM to MIC.

9. Automatic detection of speakers "7" key

When the remote control code is received, detection of speakers starts automatically. The results (C_S_B_W_) will be displayed for 5 seconds. The symbol "O" means the speaker is connected, and "×" means the speaker is not connected.

10. Analog input check "8" key

When the remote control code is received, Forced Analog Input, and 2-channel STEREO mode are set for all functions.

- Settings for the speakers: All large, SW ON
- When Analog Input Check mode is entered, "SIG:ANA" is displayed for 5 seconds.

11. Digital input check "3" key

When the remote control code is received, Forced Digital Input, and 2-channel STEREO mode are set for all functions.

- Settings for the speakers: All large, SW ON
- When Digital Input Check mode is entered, "SIG:DIG" is displayed for 5 seconds.

12. Bidirectional UART check "STOP" key

TXD (Pin 31) is for output, and RXD (Pin 32) is for input. The unit checks if the input is "L" when the "L" signal is output, and if the output is "H" when the "H" signal is output. After the unit confirms the above, it displays the confirmation "UART OK" for 5 seconds.

13. Version display "1" key *

* This key is effective at the standby state.
When the code is received, the versions of the main microcomputer, display microcomputer, and DSP are displayed. After the versions of microcomputers are displayed for 5 seconds, DSP version is displayed for 5 seconds.
Examples:
"M011F001": Main microcomputer: Ver. 011, display microcomputer: Ver. 001
"PPP. 031": DSP: Ver. 031

14. MULTI-CH mode "2" key

- Function: DVD/LD
- Signal select: 5.1ch INPUT
- Speaker setting: LLLLY

The settings besides the above return to the factory-preset values.

15. 6ch STEREO mode "3" key

- Function: DVD/LD
- Signal select: AUTO
- Distance of Front speaker & Center speaker: 10 feet
- Distance of Rear speaker: 5 feet
- 6ch STEREO mode
- Speaker setting: LLLLY

The settings besides the above return to the factory-preset values.

Note : Test mode of No. 1-11 is Preset ID 150.
Test mode of No. 12-15 is Preset ID 156.

7.1.2 Protection Circuit

● DC detection

Detection method	XPROTECT port (A/D)R397: 56 K-ohms Less than 0.6-0.8 Vdd
Detection start time	2.8 sec after
Process	Mute: On Speaker Relay: Off Shifting to STBY after 3 sec
Display	"AMP ERR" flashes for 3 sec
Recovery	Hold the STANDBY key pressed for 10 sec.
Remarks	The unit will recover if the duration of detection is 3 sec or less.

● Overload detection

Detection method	XPROTECT port (A/D)R363: 27 K-ohms 0.4-0.6 Vdd
Detection start time	2.8 sec after
Process	Mute: On Speaker Relay: Off Shifting to STBY after 3 sec
Display	"OVERLOAD" flashes for 3 sec
Recovery	Press the STANDBY key.
Remarks	

● Fan (temperature) and short-circuit of the power supply circuit

Detection method	XPROTECT port (A/D) 0.4 Vdd or less
Detection start time	1.0 sec after
Process	Mute: On Speaker Relay: Off Shifting to STBY
Display	No display
Recovery	Hold the STANDBY key pressed for 10 sec.
Remarks	

● Fan stop

Detection method	XPROTECT port (A/D) 0.4 Vdd or less
Detection start time	1.0 sec after
Process	Mute: On Speaker Relay: Off Shifting to STBY
Display	No display
Recovery	Hold the STANDBY key pressed for 10 sec.
Remarks	

7.1.3 Specifications of Speaker Detection

1. Purposes

Automatic detection of connected speakers and automatic selection of settings appropriate for the detected speakers allow you to easily play surround-sound without your making cumbersome speaker settings.

2. Speaker detection method

Automatic detection of connected speakers starts 1120 ms after the power is turned on.

• Detection of the center and surround speakers

The microcomputer sends a detection signal and reads the logic of the response signal to judge whether the speaker is connected or not. The response signal is read at A/D input, and a voltage of 3 V or more is judged as no speaker connected.

• Detection of the subwoofer

The logic of the signal from the phono jack with a switch is read by the microcomputer to judge whether a speaker is connected or not.

3. Speaker settings

According to the results of detection, speaker settings are made as shown below.

Rules: The setting for the front speakers depends on whether a subwoofer is connected or not. If a subwoofer is connected, the setting for the front speakers is "small." Settings for other speakers are "small" or "not connected" depending on the results of detection. Settings for the surround back speakers are in effect only when surround speakers are connected.

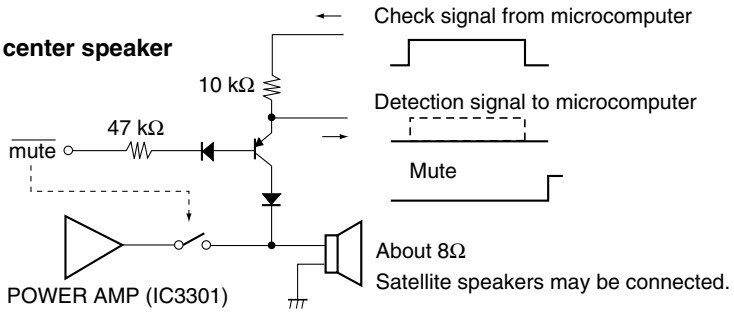
Results of the Detections				Speaker Setting				
Center SP	Surround SP	Surround Back SP	Sub-woofer	Front SP	Center SP	Surround SP	Surround Back SP	Sub-woofer
Connected	Connected	Connected	Connected	Small	Small	Small	Small	ON
Connected	Connected	Not connected	Connected	Small	Small	Small	Not connected	ON
Connected	Connected	Connected	Not connected	Large	Small	Small	Small	OFF
Connected	Connected	Not connected	Not connected	Large	Small	Small	Not connected	OFF
Connected	Not connected	Connected	Connected	Small	Small	Not connected	Not connected	ON
Connected	Not connected	Not connected	Connected	Small	Small	Not connected	Not connected	ON
Connected	Not connected	Connected	Not connected	Large	Small	Not connected	Not connected	OFF
Connected	Not connected	Not connected	Not connected	Large	Small	Not connected	Not connected	OFF
Not connected	Connected	Connected	Connected	Small	Not connected	Small	Small	ON
Not connected	Connected	Not connected	Connected	Small	Not connected	Small	Not connected	ON
Not connected	Connected	Connected	Not connected	Large	Not connected	Small	Small	OFF
Not connected	Connected	Not connected	Not connected	Large	Not connected	Small	Not connected	OFF
Not connected	Not connected	Connected	Connected	Small	Not connected	Not connected	Not connected	ON
Not connected	Not connected	Not connected	Connected	Small	Not connected	Not connected	Not connected	ON
Not connected	Not connected	Connected	Not connected	Large	Not connected	Not connected	Not connected	OFF
Not connected	Not connected	Not connected	Not connected	Large	Not connected	Not connected	Not connected	OFF

4 User's settings

More detailed speaker settings can be made in Setup mode. Once the user's settings are made in Setup mode, those settings have priority. However, if the configuration of connected speakers changes, then the detection results become valid and have priority over the user's settings until new user's settings are made.

5 Detection circuit for the center speaker

Detection of the center speaker

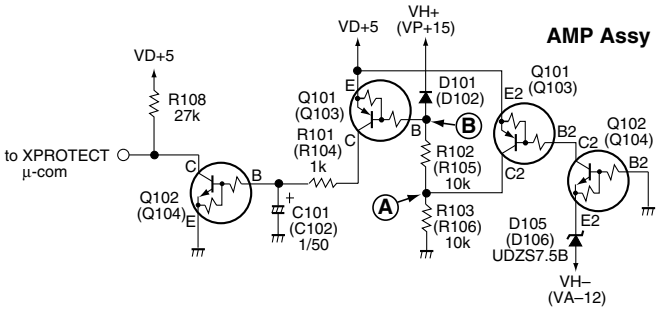


7.1.4 Circuit Description

Note: Refer to the Schematic Diagram about the actual circuit.
(The □ number corresponds to the ▭ marked circuits.)

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)



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

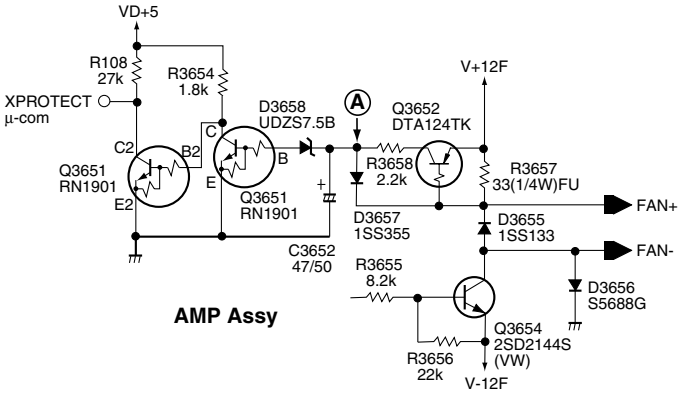
As the electric potential of VE at Q102 (Q104) (E2, C2, B2) becomes the same as that at VB, Q102 (Q104) (E2, C2, B2) is turned off. Following this, Q101 (Q103) (E2, B2, C2) is turned off, which changes the voltage at Points Ⓐ and Ⓑ to a value other than 5 V. Therefore, Q101 (Q103) (E, C, B) then Q102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

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

(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 FAN Detection Circuit

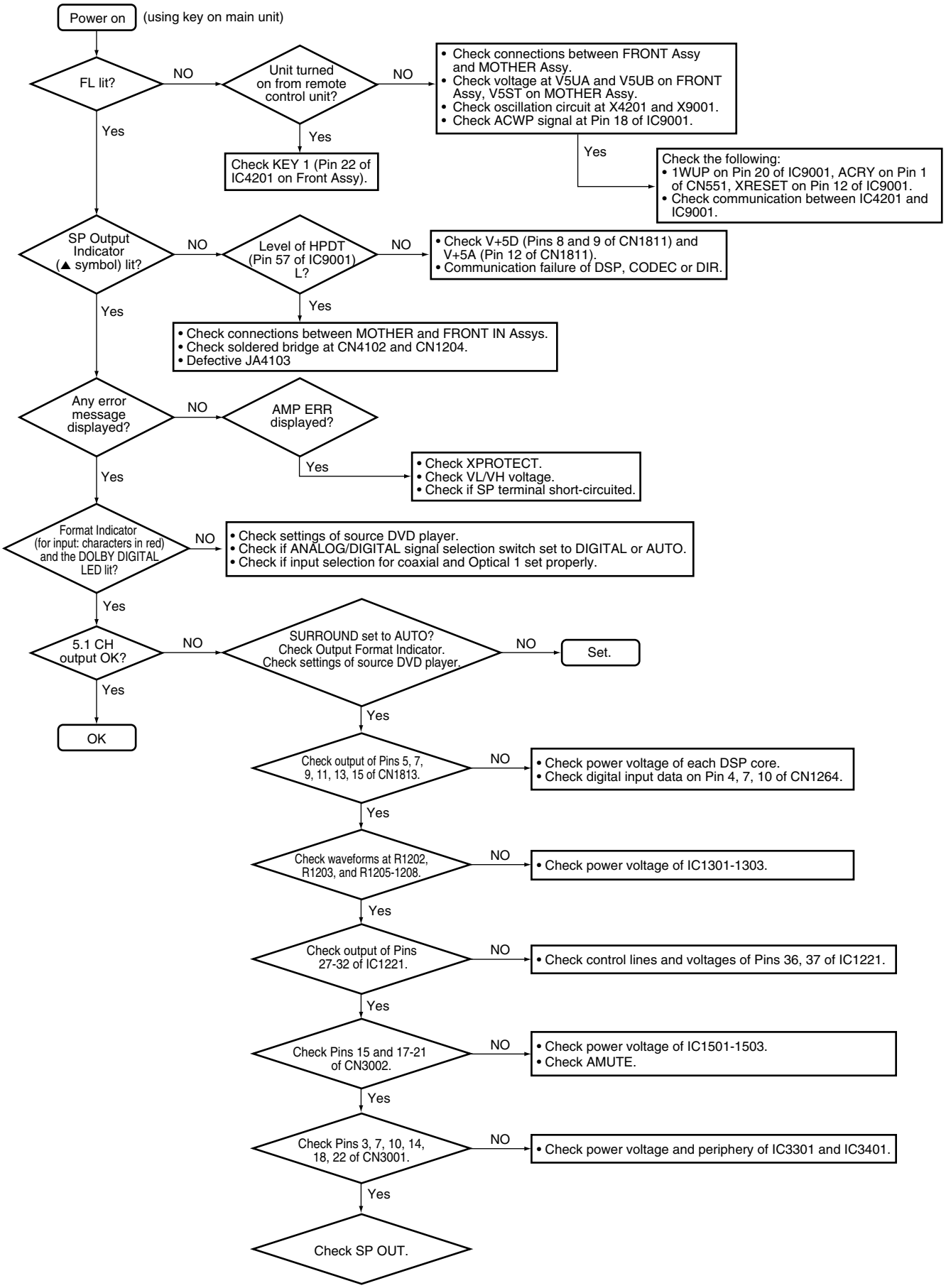


If no fan is connected between FAN+ and FAN-, or when the fan cannot rotate because of a foreign object caught in the blades, the BASE of Q3652 becomes OPEN, and Q3652 and Q3651 (E, C, B) are turned off. Then Q3651 (E2, B2, C2) is turned on, and the level of XPROTECT becomes low.

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

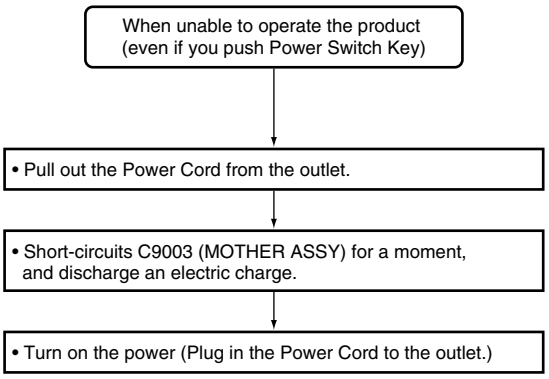
When FAN+ and FAN- are short-circuited, the electric potential at Point (A) becomes higher than GND level by the addition of the values at D3656 and D3657. As this value is lower than that at D3658, Q3651 (E, C, B) is turned off, Q3651 (E2, B2, C2) is turned on, and the level of XPROTECT becomes low.

7.1.5 Troubleshooting

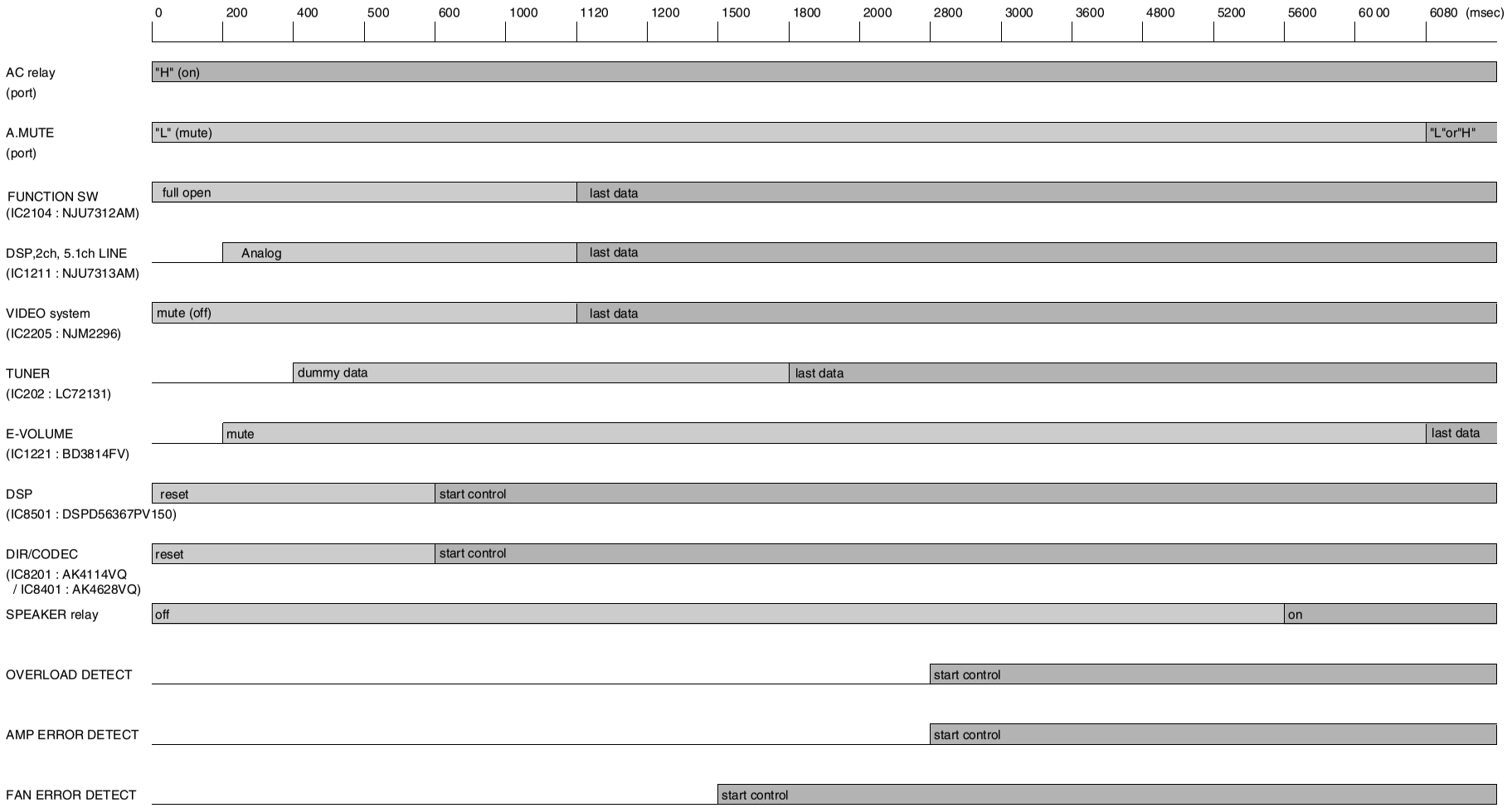


Troubleshooting 2

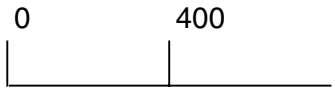
• This troubleshooting is the repair method when the Microcomputer is hanged up by unexpected use environment.



■ Power ON initial timing chart



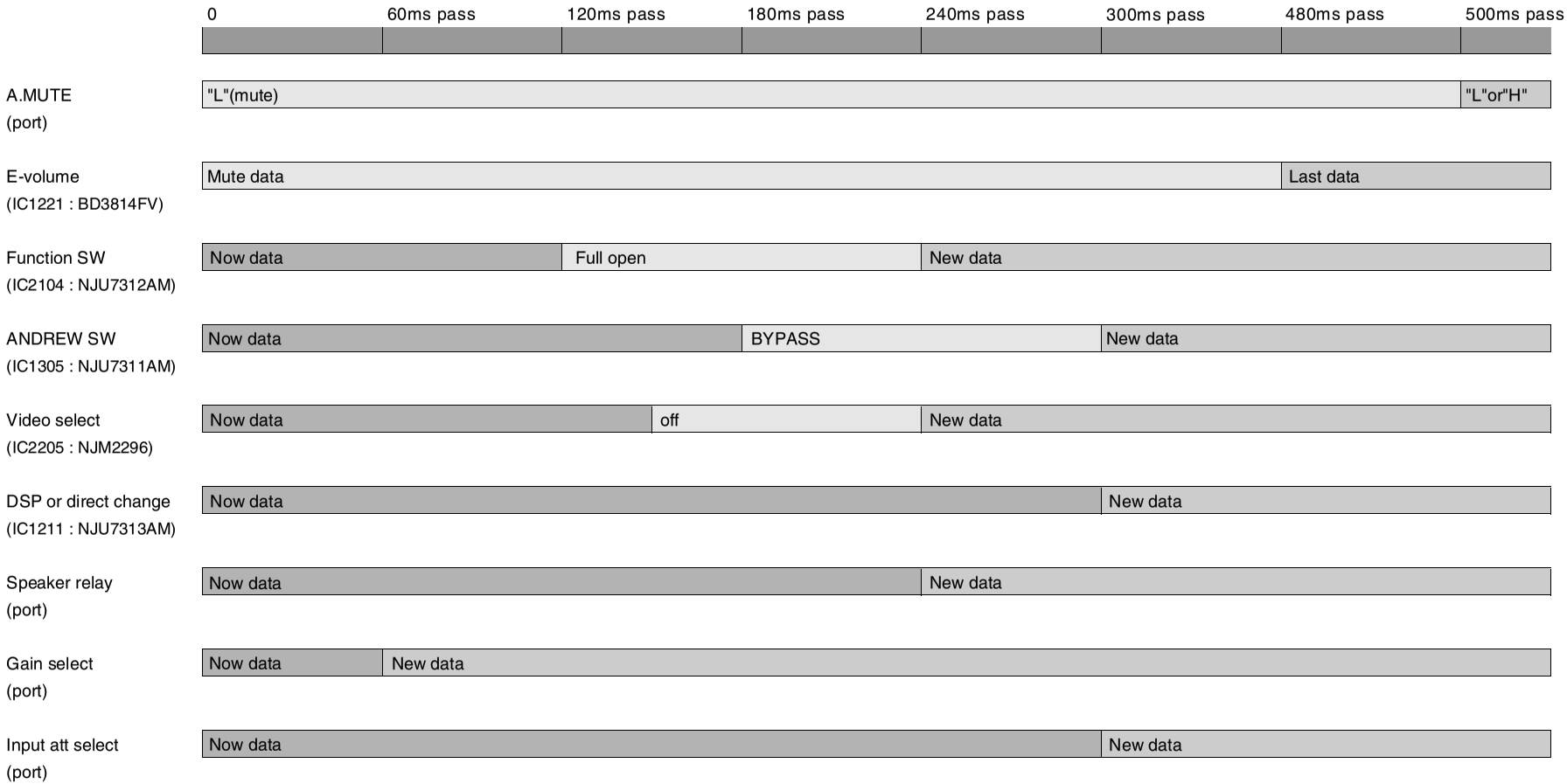
■ Power OFF initial timing chart



AC relay (port)	"H" / "L"
A.MUTE (port)	"L"
FUNCTIONS (IC2104 : NJU7312AM)	full open
DSP,2ch, 5.1ch LINE (IC1211 : NJU7313AM)	no care
VIDEO system (IC2205 : NJM2296)	mute
TUNER (IC202 : LC72131)	mute
E-VOLUME (IC1221 : BD3814FV)	mute
DSP (IC8501 : DSPD56367PV150)	
DIR/CODEC (IC8201 : AK4114VQ / IC8401 : AK4628VQ)	
SPEAKER relay (port)	off
OVERLOAD DETECT	
AMP ERROR DETECT	
FAN ERROR DETECT	

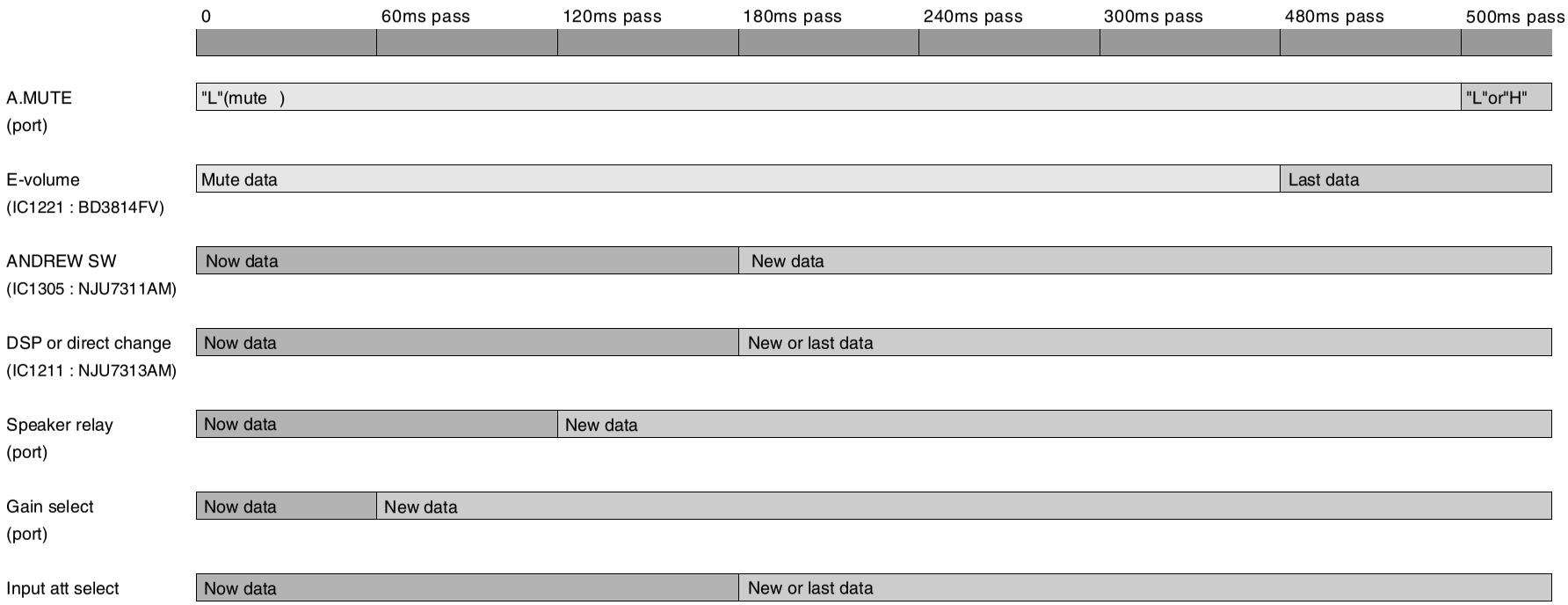
■ IC data transmission timing chart

1.When function chage



Condition of mute cancel (system mute & E-volume mute)
1) when tuner mute during Tuner function
2) when communicate to DSP
3) when initial processing
4) when detect trouble of AMP DC
5) when detect overload of AMP
6) when Power off
7) when muting by key input

2. When except function change



condition of mute cancel (system mute & E-volume mute)
1) when tuner mute during Tuner function
2) when communicate to DSP
3) when initial processing
4) when detect trouble of AMP DC
5) when detect overload of AMP
6) when Power off
7) when muting by key input

7.2 PARTS
7.2.1 IC

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

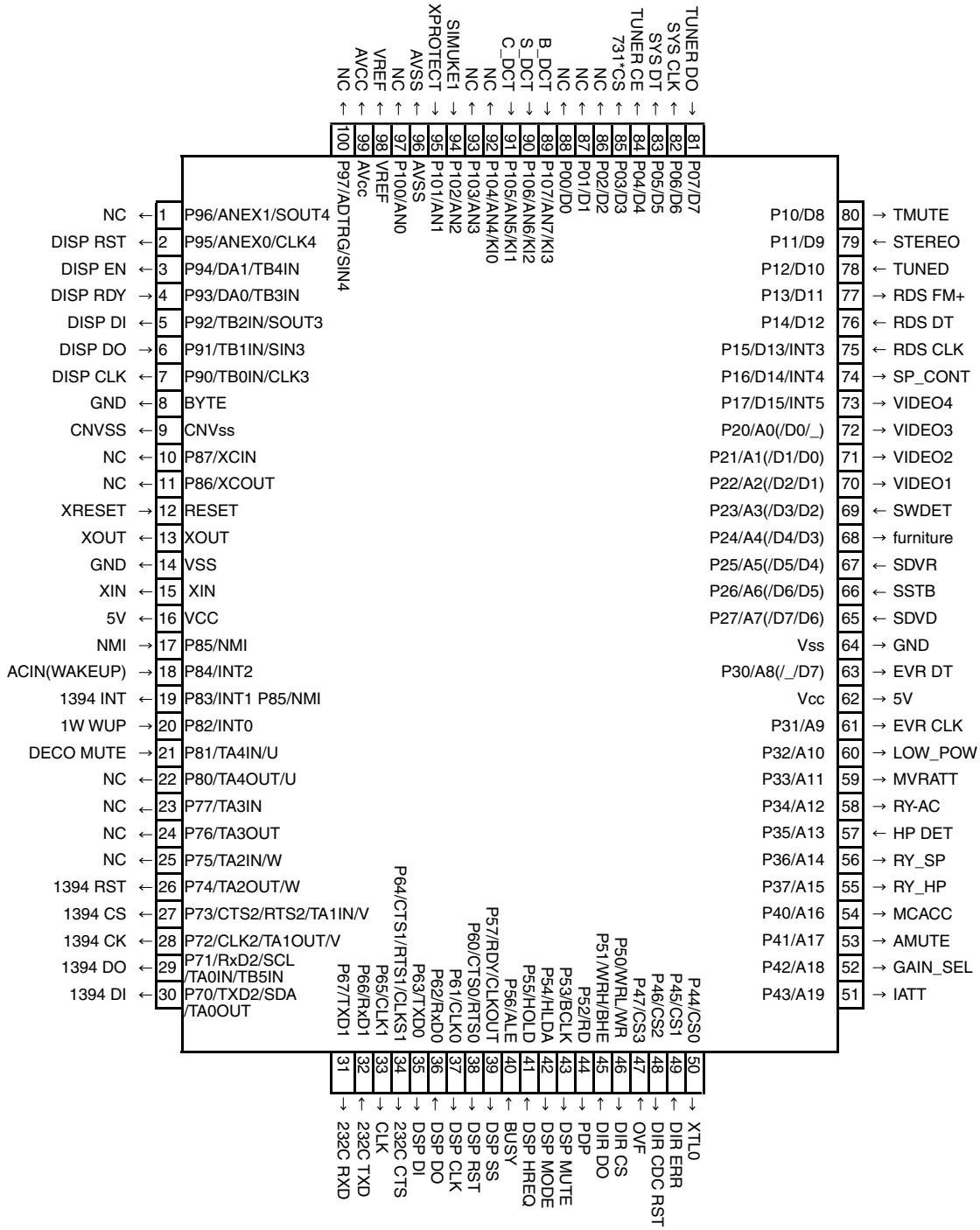
• List of IC

PD5864A, PE5368B

■ PD5864A (MOTHER ASSY : IC9001)

• Main Microcomputer

● Pin Arrangement (Top View)



• Pin Function

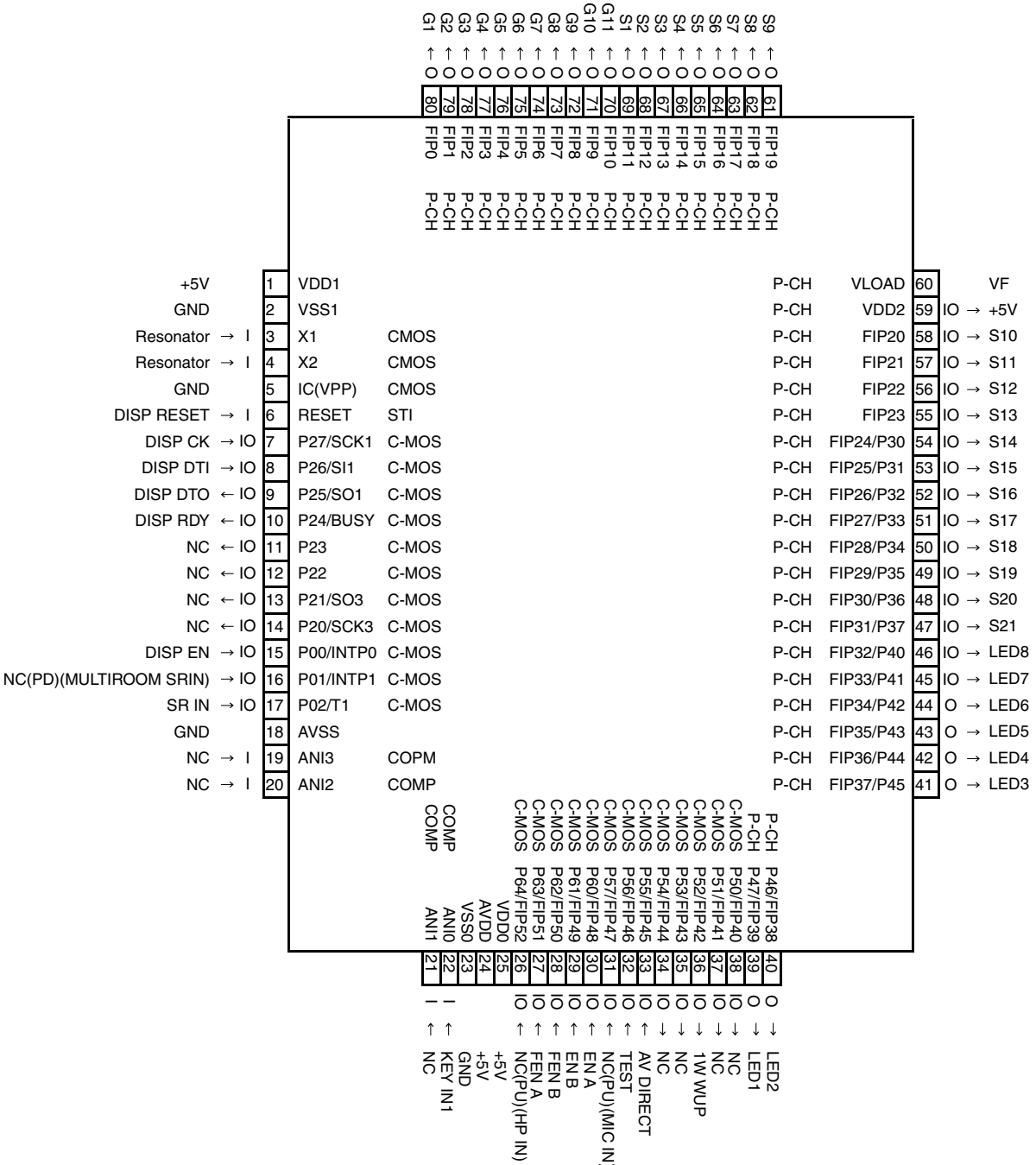
No.	Port	Pin Name	I/O	Pin Function
1	P96/ANEX1/SOUT4	NC	O	"L" fixed
2	P95/ANEX0/CLK4	DISP RST	O	Reset signal to display u-com (H: reset, L: release)
3	P94/DA1/TB4IN	DISP EN	O	Enable signal for communication to display u-com
4	P93/DA0/TB3IN	DISP RDY	I	Ready signal for communication from display u-com
5	P92/TB2IN/SOUT3	DISP DI	O	Data output signal with display u-com
6	P91/TB1IN/SIN3	DISP DO	I	Data input signal with display u-com
7	P90/TB0IN/CLK3	DISP CLK	O	Clock signal for communication with display u-com
8	BYTE	GND	-	
9	CNVss	CNVSS	-	Pull-down by 5.1k ohm
10	P87/XCIN	NC	O	"L" fixed
11	P86/XCOUT	NC	O	"L" fixed
12	RESET	XRESET	-	
13	XOUT	XOUT	-	
14	VSS	GND	-	
15	XIN	XIN	-	
16	VCC	5V	-	
17	P85/NMI	NMI	I	Not used (pull-up by 100k ohm)
18	P84/INT2	ACIN(WAKEUP)	I	AC pulse input (wakeup)
19	P83/INT1 P85/NMI	1394 INT	O	Not used (Standby for 1394)
20	P82/INT0	1W WUP	I	Wake up signal from display u-com in standby
21	P81/TA4IN/U	DECO MUTE	I	1st DSP detect port
22	P80/TA4OUT/U	NC	O	"L" fixed
23	P77/TA3IN	NC	O	"L" fixed
24	P76/TA3OUT	NC	O	"L" fixed
25	P75/TA2IN/W	NC	O	"L" fixed
26	P74/TA2OUT/W	1394 RST	O	Not used (Standby for 1394) "L" fixed
27	P73/CTS2/RTS2/TA1IN/V	1394 CS	O	Not used (Standby for 1394) "L" fixed
28	P72/CLK2/TA1OUT/V	1394 CK	O	Not used (Standby for 1394) "L" fixed
29	P71/RxD2/SCL/TA0IN/TB5IN	1394 DO	O	Not used (Standby for 1394) "L" fixed
30	P70/TXD2/SDA/TA0OUT	1394 DI	O	Not used (Standby for 1394) "L" fixed
31	P67/TXD1	232C TXD	O	For rewriting 232C (Data output)
32	P66/RxD1	232C RXD	I	For rewriting 232C (Data input)
33	P65/CLK1	CLK	O	It is necessary when writing for JIG
34	P64/CTS1/RTS1/CLKS1	232C CTS	O	For rewriting 232C (Admit communication)
35	P63/TXD0	DSP DI	O	Data output signal for communication with DSP and DIR
36	P62/RxD0	DSP DO	I	Data input signal for communication with DSP
37	P61/CLK0	DSP CLK	O	Clock signal for communication with DSP and DIR
38	P60/CTS0/RTS0	DSP RST	O	Reset signal for DSP (L: reset, H: release)
39	P57/RDY/CLKOUT	DSP SS	O	Slave select signal to DSP
40	P56/ALE	BUSY	I	Use it in MCACC
41	P55/HOLD	DSP HREQ	I	DSP error detect signal (pull-down by 100k ohm)
42	P54/HLDA	DSP MODE	O	Mode select of DSP (ROM/RAM) (H: ROM mode, L: RAM mode)
43	P53/BCLK	DSP MUTE	O	DSP ASSY mute
44	P52/RD	PDP	O	H: Data transfer to PDP, L: others
45	P51/WRH/BHE	DIR DO	I	Data input signal for communication with DIR/DAC
46	P50/WRL/WR	DIR CS	O	Chip select signal for communication with DIR/DAC
47	P47/CS3	OVF	I	DIR codec over flag
48	P46/CS2	DIR CDC RST	O	Reset signal for DIR codec
49	P45/CS1	DIR ERR	I	Lock/unlock signal
50	P44/CS0	XTL0	O	DIR X'tal change

No.	Port	Pin Name	I/O	Pin Function
51	P43/A19	IATT	O	Input ATT control signal
52	P42/A18	GAIN_SEL	O	Gain select (5.1ch and Stereo of analog input : H)
53	P41/A17	AMUTE	O	System mute (L: mute ON)
54	P40/A16	MCACC	O	HP/MIC switching control (L : HP, H : MIC)
55	P37/A15	RY_HP	O	Headphone relay ON/OFF
56	P36/A14	RY_SP	O	All ch speaker relays ON/OFF
57	P35/A13	HP DET	I	HP detect
58	P34/A12	RY-AC	O	AC relay ON/OFF
59	P33/A11	MVRATT	O	ATT control of master volume (less than -15dB : L)
60	P32/A10	LOW_POW	O	H: Normal mode, L: Stop mode
61	P31/A9	EVR CLK	O	Clock signal for E-volume
62	Vcc	5V	-	
63	P30/A8(/_/D7)	EVR DT	O	Data signal for E-volume
64	Vss	GND	-	
65	P27/A7(/D7/D6)	SDVD	I	"L" fixed (Status signal input of DVD SCART)
66	P26/A6(/D6/D5)	SSTB	I	"L" fixed (Status signal input of STB SCART)
67	P25/A5(/D5/D4)	SDVR	I	"L" fixed (Status signal input of DVR SCART)
68	P24/A4(/D4/D3)	furniture	O	Furniture control signal
69	P23/A3(/D3/D2)	SWDET	I	SWSP detect
70	P22/A2(/D2/D1)	VIDEO1	O	Video signal control 1
71	P21/A1(/D1/D0)	VIDEO2	O	Video signal control 2
72	P20/A0(/D0/_)	VIDEO3	O	Video signal control 3
73	P17/D15/INT5	VIDEO4	O	Video signal control 4
74	P16/D14/INT4	SP_CONT	O	Output signal for SP auto-detection
75	P15/D13/INT3	RDS CLK	I	"L" fixed (Clock input signal for RDS module)
76	P14/D12 RDS	RDS_DT	I	"L" fixed (Data input signal for RDS module)
77	P13/D11 RDS	RDS FM+	O	"L" fixed (Power ON/OFF of RDS decoder)
78	P12/D10	TUNED	I	L : TUNED
79	P11/D9	STEREO	I	L :STEREO
80	P10/D8	TMUTE	O	Tuner mute
81	P07/D7	TUNER DO	I	Data input signal for tuner contorol
82	P06/D6	SYS CLK	O	Clock signal for NJU7312AM and NJU7313AM switch and tuner contorol
83	P05/D5	SYS DT	O	Data output signal for NJU7312AM and NJU7313AM switch and tuner contorol
84	P04/D4	TUNER CE	O	Chip select signal for tuner contorol
85	P03/D3	731*CS	O	Chip select signal for NJU7312AM and NJU7313AM switch
86	P02/D2	NC	O	"L" fixed
87	P01/D1	NC	O	"L" fixed
88	P00/D0	NC	O	"L" fixed
89	P107/AN7/KI3	B_DCT	I	Surround back ch SP detect
90	P106/AN6/KI2	S_DCT	I	Surround ch SP detect
91	P105/AN5/KI1	C_DCT	I	Center ch SP detect
92	P104/AN4/KI0	NC	O	"L" fixed
93	P103/AN3	NC	O	"L" fixed
94	P102/AN2	SIMUKE1	I	Input 1 to switch region
95	P101/AN1	XPROTECT	I	Ptotection circuit detect for amp. module
96	AVSS	AVSS	-	Connect to VSS
97	P100/AN0	NC	O	"L" fixed
98	VREF	VREF	-	Connect to VCC
99	AVcc	AVCC	-	Connect to VCC
100	P97/ADTRG/SIN4	NC	O	"L" fixed

■ PE5368B (FRONT ASSY : IC4201)

• Display Microcomputer

● Pin Arrangement (Top View)



• Pin Function

No.	Port	Pin Name	I/O	Pin Function
1	VDD1	+5V	-	Positive power supply
2	VSS1	GND	-	Ground potential
3	X1	Resonator	-	Crystal connection for system clock oscillation
4	X2	Resonator	-	Crystal connection for system clock oscillation
5	IC(VPP)	GND	-	
6	RESET	DISP RESET	I	Receive reset signal from main u-com
7	P27/SCK1	DISP CK	I	Clock signal from main u-com
8	P26/SI1	DISP DTI	I	Data in from main u-com
9	P25/SO1	DISP DTO	O	Data out to main u-com
10	P24/BUSY	DISP RDY	O	Ready signal from main u-com
11	P23	NC	O/L	
12	P22	NC	O/L	
13	P21/SO3	NC	O/L	
14	P20/SCK3	NC	O/L	
15	P00/INTP0	DISP EN	I	Enable signal from main u-com
16	P01/INTP1	NC	I	
17	P02/T1	SR IN	I	Remote control signal input from main room
18	AVSS	GND	-	Ground potential for A/D converter
19	ANI3	NC	I	
20	ANI2	NC	I	
21	ANI1	NC	I	
22	ANI0	KEY IN1	I	Front key Input
23	VSS0	GND	-	Ground potential for ports
24	AVDD	'+5V	-	Analog power voltage input to A/D converter
25	VDD0	'+5V	-	Positive power supply to ports
26	P64/FIP52	NC	I	
27	P63/FIP51	FEN A	I	MULTI JOG(Right)
28	P62/FIP50	FEN B	I	MULTI JOG(Left)
29	P61/FIP49	EN B	I	VOLUME JOG1(-)
30	P60/FIP48	EN A	I	VOLUME JOG1(+)
31	P57/FIP47	NC	I	
32	P56/FIP46	TEST	I	Test mode input for checker
33	P55/FIP45	AV DIRECT	I	"L" fixed (Status signal input of SCART(DVD, STB, DVR))
34	P54/FIP44	NC	O	
35	P53/FIP43	NC	O	
36	P52/FIP42	1W WUP	O	Output wakeup signal to main u-com
37	P51/FIP41	NC	O/L	
38	P50/FIP40	NC	O/L	
39	P47/FIP39	LED1	O	LED output
40	P46/FIP38	LED2	O	LED output

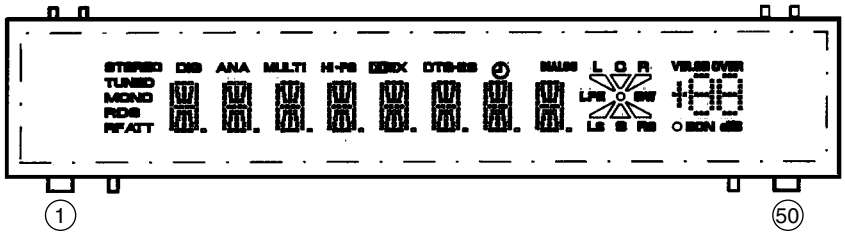
No.	Port	Pin Name	I/O	Pin Function
41	FIP37/P45	LED3	O	LED output
42	FIP36/P44	LED4	O	LED output
42	FIP35/P43	LED5	O	LED output
44	FIP34/P42	LED6	O	LED output
45	FIP33/P41	LED7	O	LED Output
46	FIP32/P40	LED8	O	LED output
47	FIP31/P37	S21	O	Display
48	FIP30/P36	S20	O	Display
49	FIP29/P35	S19	O	Display
50	FIP28/P34	S18	O	Display
51	FIP27/P33	S17	O	Display
52	FIP26/P32	S16	O	Display
53	FIP25/P31	S15	O	Display
54	FIP24/P30	S14	O	Display
55	FIP23	S13	O	Display
56	FIP22	S15	O	Display
57	FIP21	S11	O	Display
58	FIP20	S10	O	Display
59	VDD2	'+5V	-	Positive power supply to FIP controller.
60	VLOAD	VF	-	Pull down resistor connection of FIP controller
61	FIP19	S9	O	Display
62	FIP18	S8	O	Display
63	FIP17	S7	O	Display
64	FIP16	S6	O	Display
65	FIP15	S5	O	Display
66	FIP14	S4	O	Display
67	FIP13	S3	O	Display
68	FIP12	S2	O	Display
69	FIP11	S1	O	Display
70	FIP10	G11	O	Display
71	FIP9	G10	O	Display
72	FIP8	G9	O	Display
73	FIP7	G8	O	Display
74	FIP6	G7	O	Display
75	FIP5	G6	O	Display
76	FIP4	G5	O	Display
77	FIP3	G4	O	Display
78	FIP2	G3	O	Display
79	FIP1	G2	O	Display
80	FIP0	G1	O	Display

7.2.2 DISPLAY

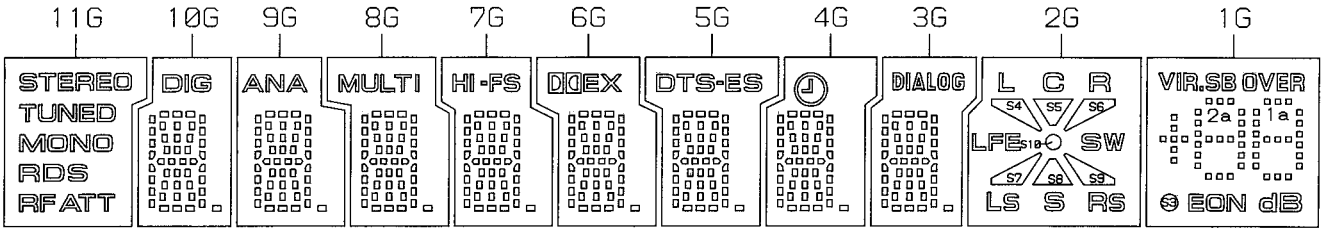
■ AAV7093 (FRONT ASSY : V4301)

• FL Display

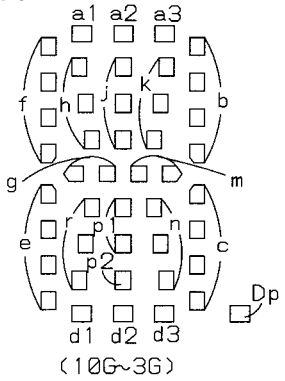
● Pin Assignment

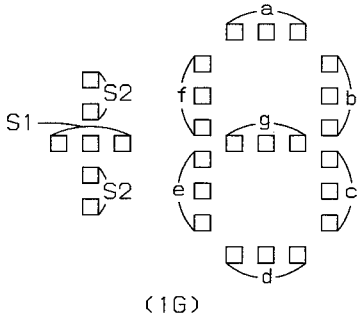


● Grid Assignment



● Segment Designation





● Pin Connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
CONNECTION	F1	NX	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	P1	P2	P3	P4	P5	P6	P7	P8	P9	NX	NX	NX	NX	NX	NX	NX	NX	NX	NX	P01	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	NP	NP	NX	F2

NOTE
1) F1,F2 --- Filament
2) NP ------ No pin
3) NX ------ No extend pin
4) DL ------ Datum Line
5) 1G~11G --- Grid
6) Solder composition is Sn-3Ag-0.5Cu.

● **Anode Connection**

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	STEREO	a1	a1	a1	a1	a1	a1	a1	a1	L	OVER
P2	TUNED	a2	a2	a2	a2	a2	a2	a2	a2	S4	2a
P3	MONO	h	h	h	h	h	h	h	h	C	2b
P4	RDS	j	j	j	j	j	j	j	j	S5	2f
P5	RF	k	k	k	k	k	k	k	k	R	2g
P6	ATT	b	b	b	b	b	b	b	b	S6	2c
P7	–	f	f	f	f	f	f	f	f	LFE	2e
P8	–	m	m	m	m	m	m	m	m	S10	2d
P9	–	g	g	g	g	g	g	g	g	SW	1a
P10	–	c	c	c	c	c	c	c	c	S7	1b
P11	–	e	e	e	e	e	e	e	e	S8	1f
P12	–	r	r	r	r	r	r	r	r	S9	1g
P13	–	p1	p1	p1	p1	p1	p1	p1	p1	LS	1c
P14	–	n	n	n	n	n	n	n	n	S	1e
P15	–	d1	d1	d1	d1	d1	d1	d1	d1	RS	1d
P16	–	d2	d2	d2	d2	d2	d2	d2	d2	–	S1
P17	–	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	–	S3
P18	–	a3	a3	a3	a3	a3	a3	a3	a3	–	VIR.SB
P19	–	p2	p2	p2	p2	p2	p2	p2	p2	–	EON
P20	–	d3	d3	d3	d3	d3	d3	d3	d3	–	S2
P21	–	DIG	ANA	MULTI	HI-FS	DEX	DTS-ES	◎	DIALOG	–	dB

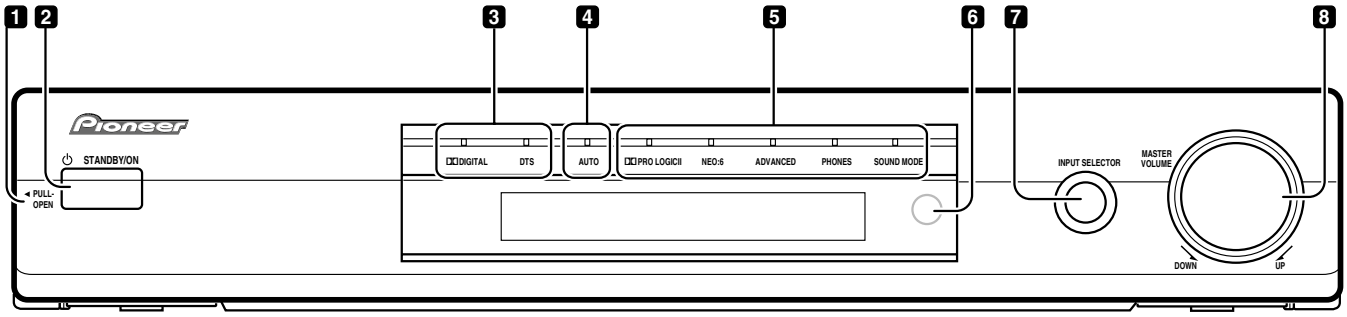
7.3 CLEANING

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

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

8. PANEL FACILITIES

Front panel



1 Front panel connections cover
Pull where indicated to access the front panel connections (**SETUP MIC/PHONES** jack, **FRONT INPUT** jacks).

2 ⏻ STANDBY/ON button
Press to switch the receiver on or into standby.

3 Digital surround format indicators

DIGITAL indicator
Lights when the current source is Dolby Digital.

DTS indicator
Lights when the current source is DTS.

4 AUTO indicator
Lights when Auto audio format decoding is selected.

5 Listening mode indicators

PRO LOGIC II indicator
Lights when one of the Dolby Pro Logic II surround modes is active with a 2 channel (stereo) source.

NEO:6 indicator
Lights when the Neo:6 listening mode is active with a 2 channel (stereo) source.

ADVANCED indicator
Lights when one of the Advanced Surround modes is active.

PHONES indicator
Lights when phones surround mode is active.

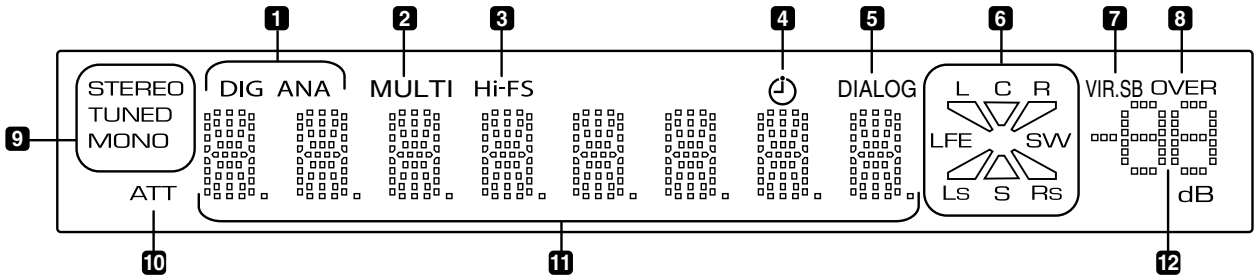
SOUND MODE indicator
Lights when one of the Sound Modes is active.

6 Remote control sensor

7 INPUT SELECTOR knob
Turn to cycle through the various inputs. The current input is shown in the front panel display.

8 MASTER VOLUME knob
Use to adjust the volume.

Display



1 DIG (digital) / ANA (analog) indicators
Indicates whether the current input source is analog or digital.

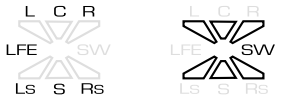
2 MULTI indicator
Lights when the multichannel analog inputs are selected as the input signal type for the **DVD** input.

3 Hi-FS indicator
Lights when the current input signal is 88.2/96 kHz digital.

4 Sleep timer indicator
Lights when the sleep timer has been set.

5 DIALOG indicator
Lights when Dialog Enhancement is on.

6 Input/output channel indicators



Input indicators **Output indicators**

The combined input/output indicators show at a glance which channels are present in a source and the speakers that are being used for the output.

The letters **L**, **C**, **R**, **LFE**, **Ls** and **Rs** indicate the input channels coming into the receiver (left, center, right, low frequency effect, left-surround and right-surround respectively). **S** lights in Dolby Surround or Surround Monoaural and when playing Dolby EX or DTS-ES soundtracks.

The triangular segments and **SW** (subwoofer) indicate the active speaker output channels.

7 VIR.SB indicator
Lights when the Virtual Surround Back effect is on.

8 OVERindicator
Lights when an analog input signal is too high, risking distortion. Use the input attenuator to reduce the level.

9 Tuner indicators

STEREO
Lights when listening to a stereo FM broadcast in auto/stereo mode.

TUNED
Lights when tuned to a broadcast.

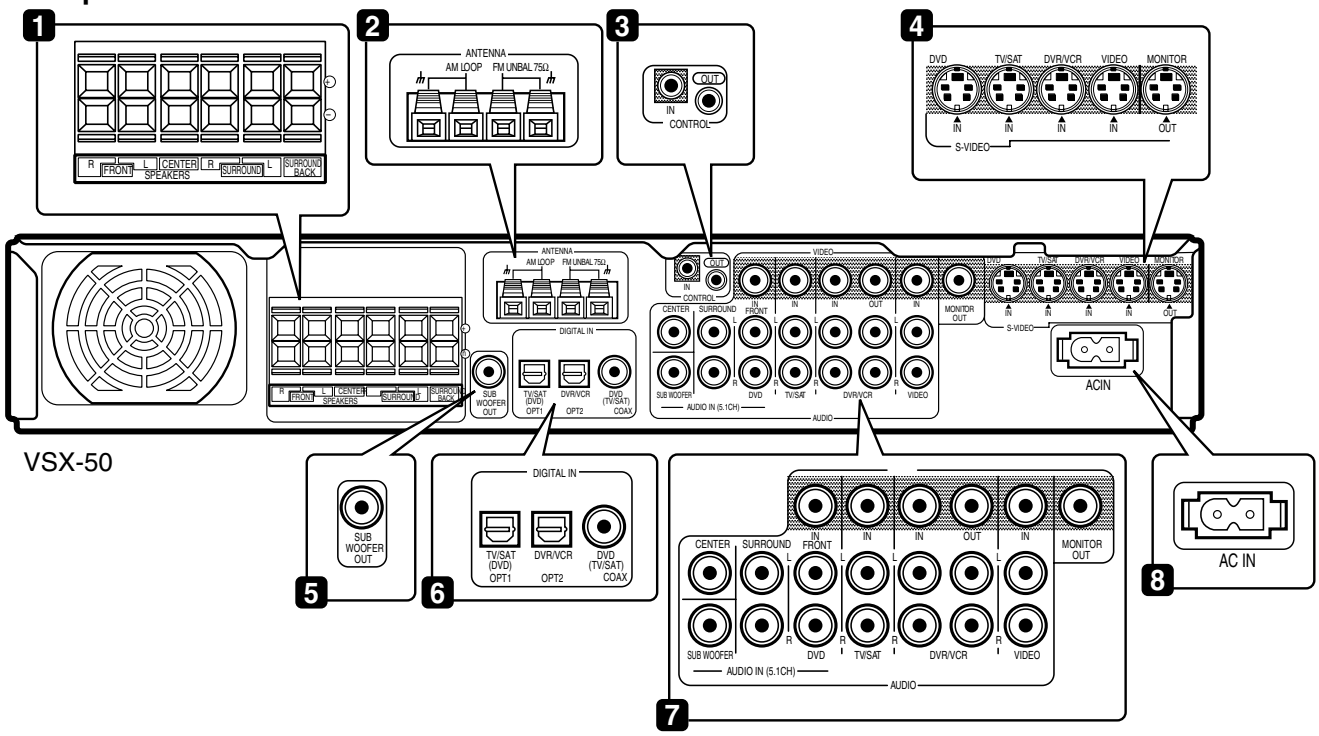
MONO
Lights when the tuner MPX mode is set to mono.

10 ATT indicator
Lights when the input attenuator is on.

11 Character display

12 Volume level indicator
Indicates the volume level in dB.

Rear panel



Important

- Before making or changing the connections, switch off the power and disconnect the power cable from the power outlet.

1 SPEAKERS terminals

FRONT L/R, **CENTER**, **SURROUND L/R** and **SURROUND BACK** speaker terminals.

2 Antenna connections

AM LOOP
Connect the supplied AM loop antenna or an outdoor antenna if reception is bad.

FM UNBAL 75Ω
Connect the supplied FM wire or an outdoor antenna if reception is bad.

3 CONTROL IN jack / CONTROL OUT jack

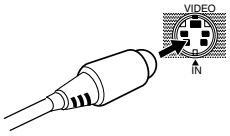
Use to link Pioneer components together to enable all components in the chain to use just one remote control sensor.

Also used for special SR+ control of Pioneer plasma displays.

4 S-VIDEO connections

S-video cables connected to the S-video jacks offer an alternative to connecting the video through the standard video jacks (see **7** on the following page).

S-video cables usually have a small triangle or arrow marking on them to help you insert it the correct way. Line up the indication on the plug with the indication (▲) under each S-video jack.



S-VIDEO DVD IN jack
S-video jack connection for the **DVD** input.

S-VIDEO TV/SAT IN jack
S-video jack connection for the **TV/SAT** input.

S-VIDEO DVR/VCR IN jack
S-video jack connection for the **DVR/VCR** input.

S-VIDEO VIDEO IN jack
S-video jack connection for the **VIDEO** input.

S-VIDEO MONITOR OUT jack
S-video jack connection for your TV.

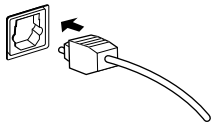
5 SUBWOOFER OUT jack
Connect a powered (active) subwoofer.

6 Digital connections
The three digital audio jacks are all inputs. Connect to the digital outputs of digital source components such as DVD and CD players, satellite receivers, etc.

TV/SAT(DVD) OPT1 jack
Optical digital audio jack for the **TV/SAT** input (although it is possible to reassign it to the **DVD** input).

DVR/VCR OPT2 jack
Optical digital audio jack for the **DVR/VCR** input.

- When connecting optical cables, be careful when inserting the plug not to damage the shutter protecting the optical socket.



- When storing optical cable, coil loosely. The cable may be damaged if bent around sharp corners.

DVD(TV/SAT) COAX jack
Coaxial digital audio jack for the **DVD** input (although it is possible to reassign it to the **TV/SAT** input).

7 Audio/Video connections

AUDIO IN (5.1CH) jacks
Multichannel analog audio RCA/phono jack connections for the **DVD** input.

TV/SAT IN jacks
RCA/phono jack connections for the **TV/SAT** input.

DVR/VCR IN/OUT jacks
RCA/phono jack connections for the **DVR/VCR** input. When the receiver is set to any other input, that signal is output from the **DVR/VCR OUT** jacks.

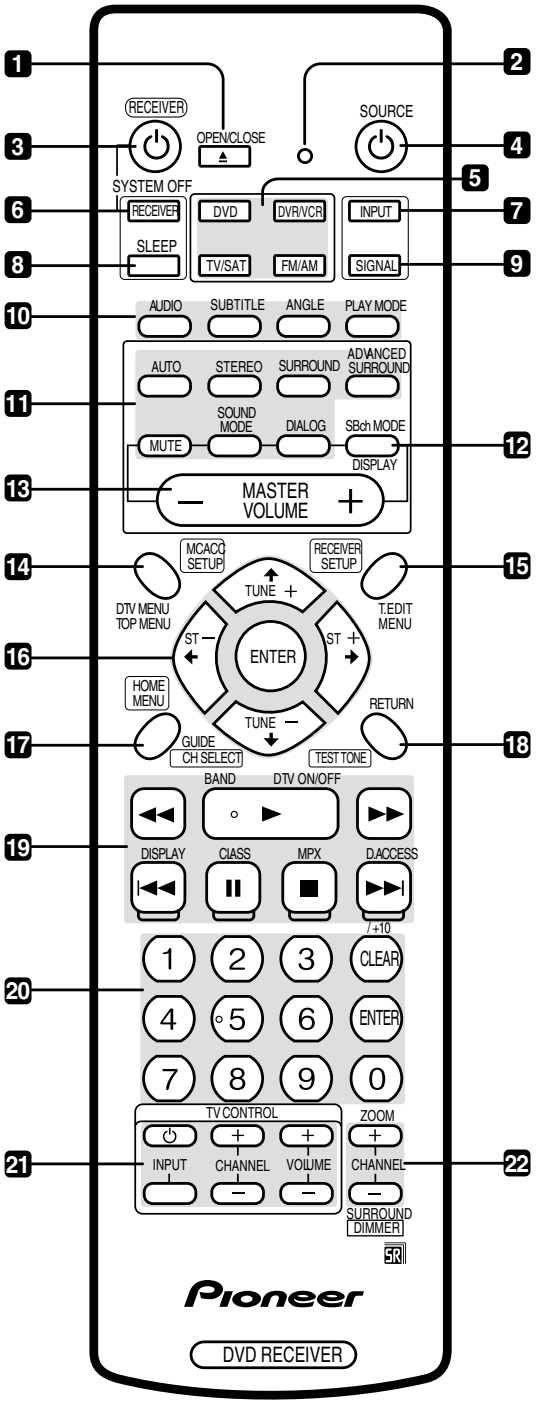
VIDEO IN jacks
RCA/phono jack connections for the **VIDEO** input.

MONITOR OUT video jack
RCA/phono video jack connection for your TV.

8 AC IN
Connect the supplied AC power cable.

Remote control

Function names printed in gold on the remote control are receiver-related functions. Function names printed in blue are for the built-in tuner (See Using the tuner), and those in red control the DVD player. Other functions relate to other equipment that you can control using this remote. See also Controlling other equipment.



1 ⏏ OPEN/CLOSE
See the DVD player's operating instructions.

2 LED
Indicates a remote control operation.

3 ⏻ RECEIVER
Press to switch the receiver on or into standby.

4 ⏻ SOURCE
Press to switch the current source component on or into standby.

5 Input/remote control mode select buttons

When the Remote Direct function is set to on, these buttons (except **FM/AM**) change the remote mode and the receiver input simultaneously. When set to off, they only switch the remote mode (see also Remote Direct function).

DVD
Press to select **DVD** as the current input.

DVR/VCR
Press to select **DVR/VCR** as the current input.

TV/SAT
Press to select **TV/SAT** (set-top box) as the current input.

FM/AM
Press to select **FM/AM** (the built-in tuner) as the current input.

6 RECEIVER
Press to put the remote in 'receiver' mode (i.e., the remote controls the receiver functions).

7 INPUT
Press to cycle through the various inputs. The current input is shown in the front panel display.

8 SLEEP
Use to set the sleep timer.

9 SIGNAL
Press to select the type of input signal for the current input (**DVD**, **TV/SAT**, **DVR/VCR** and **FRONT**).

10 DVD control buttons
See the DVD player's operating instructions.

11 Sound buttons

AUTO
Press to select the **AUTO** (default) sound for the current source (stereo, Dolby Digital, DTS, etc.) and switch off all other sound processing.

STEREO
Press to hear the current source in stereo.

SURROUND
Use to select a **SURROUND** mode for the current source.

ADVANCED SURROUND
Use to select an **ADVANCED SURROUND** mode for the current source.

MUTE
Press to mute all output. Press again (or adjust the volume using the **MASTER VOLUME** control) to restore the sound.

SOUND MODE
Use to select a **SOUND MODE** for the current source.

DIALOG
Press to switch on/off **DIALOG** (dialog enhancement).

12 SBch MODE
Use to select the surround back channel mode.

13 MASTER VOLUME
Use to adjust the volume.

14 MCACC SETUP
Press to start MCACC (Multichannel Acoustic Calibration) setup.

15 RECEIVER SETUP
Press to access the **RECEIVER SETUP** menu to make detailed receiver settings.

16 Cursor keys and ENTER
Use to navigate menus and select options/execute commands.

17 CH SELECT
Use to select the speaker channel to adjust.

18 TEST TONE
Press to start/stop the test tone.

19 Playback controls
Playback controls for external components, such as DVD and CD players.

Functions printed in blue control the built-in tuner; other functions control other external equipment.

20 Number buttons
Use for numerical input of track numbers, radio frequencies, and so on.

21 TV CONTROL buttons
Use to control your TV (after setting up the remote control to work with your TV).

22 DIMMER
Press repeatedly to change the brightness/switch off the front panel display. The display will light brightly for about two seconds when you operate the receiver with the display off or dimmed. (Note that the master volume indicator always remains lit, even when the rest of the display is off.)

Use together with the **RECEIVER** button (**6** above) to change the brightness/switch off the front panel display of both the receiver and the DV-50A DVD player.

Resetting all remote control settings

This restores all presets to the factory defaults. See Using the remote control with other components for the default remote settings.

- **Press RECEIVER and number button '0' (zero) at the same time. Keep them pressed for about 3 seconds.**

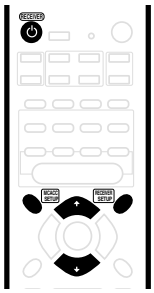
The LED on the remote control blinks three times indicating all the preset codes and the Remote Direct setting have been reset to the factory defaults.

The default preset codes are shown in the table.

Input/control mode select button	Preset code	Component (manufacturer)
DVD	n/a (020)	Pioneer DV-50A (EX-500 DVD player)
TV/SAT	020	DVD (Pioneer)
DVR/VCR	020	DVD (Pioneer)
FRONT	020	DVD (Pioneer)
FM/AM	n/a	(built-in tuner)
TV CONTROL	600	TV (Pioneer)

Resetting the system

Use this feature to reset the system to its factory default settings.



1 Press ⏻ RECEIVER to switch the receiver into standby.

2 Press MCACC SETUP and RECEIVER SETUP at the same time.
The display prompts you to confirm.

3 Within 5 seconds, press ⬇ (cursor down).
The display shows**OK?**.

4 Within 5 seconds, press ⬆ (cursor up).
The display shows **OK** and the receiver should now be reset.

Note

- If the receiver is disconnected from the power outlet for more than a month it will reset to the default settings.
- The above reset doesn't affect the presets that you have programmed into the remote control (see Using the remote control with other components).

Default receiver settings

The table below shows the factory default settings. When you reset the system, the receiver reverts to these defaults:

Setting type	Default setting
Input	**DVD**
Master volume	**– – – dB** (no sound)
Listening mode	**AUTO** (all inputs)
Listening mode (w/ headphones)	**STEREO** (all inputs)
Sound mode	**OFF**
Dialog	**OFF**
Surround Back Channel mode	**ON** (when speaker is connected)
Input signal select	**AUTO**
Speakers (front, center, surround, surround back) setting	Automatically sensed
Subwoofer setting	**200 Hz**
LFE Attenuator	**0 dB**
Speaker distance settings	Front left/right: **10 ft.** Center: **10 ft.** Surround left/right: **10 ft.** Surround Back: **10 ft.** Subwoofer: **10 ft.**
Dynamic Range Control	**OFF**
Dual Mono	**ch1**
Input Attenuator	**OFF** (all inputs)
DVD(TV/SAT) COAX jack assignment	**DVD**
TV/SAT(DVD) OPT1 jack assignment	**TV/SAT**
Channel levels	Front: **0 dB** Center: **0 dB** Surround: **0 dB** Surround Back: **0 dB** Subwoofer: **0 dB**
SR+ mode	**OFF**

Note

- The default settings for the remote control to control other components can be found in Using the remote control with other components.