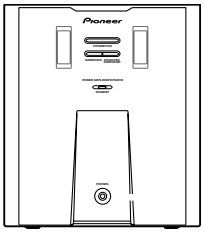
Pioneer sound.vision.soul

Service Manual



ORDER NO.
RRV2663

STEREO POWER AMPLIFIER

M-EV51

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

Type	Model	Power Requirement	The voltage can be converted by the following method.
	M-EV51		
DLXJ/NC	○	AC110-127V/220-230V/240V	With the voltage selector

- **This product is a system(s) component.**
  This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.
- **Please connect it to the STEREO DVD TUNER DECK XV-EV51 for operation inspection.**

Component	Model	Service manual	Remarks
STEREO DVD TUNER DECK	XV-EV51	RRV2636	
STEREO POWER AMPLIFIER	M-EV51	RRV2663	This manual
SPEAKER SYSTEM	S-EV51	RRV2640	

For details, refer to "Important symbols for good services" on the next page.

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 – ZZV JULY 2002 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.

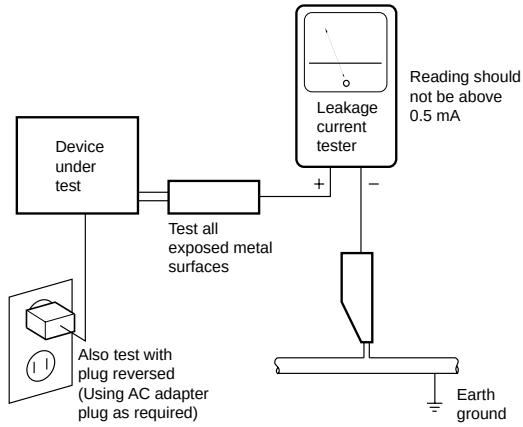
(FOR USA MODEL ONLY)

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.

CONTENTS

1. SPECIFICATIONS

Amplifier section

Continuous Power Output:

Front ..... 80 W per channel (1 kHz, 10%, 8 Ω)

Center ..... 33 W (1 kHz, 10%, 8 Ω)

Surround ..... 33 W per channel (1 kHz, 10%, 8 Ω)

Miscellaneous

Power Requirements

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

Power Consumption

Singapore, Malaysia

Hong Kong models ..... 175 W

All other models ..... 465 W

Power Consumption in standby mode ..... 1 W

Dimensions:

Power Amplifier .... 170 (W) x 190 (H) x 254 (D) mm

Weight:

Power Amplifier ..... 5.3 kg

Accessories

Power cord 1

Video cord 1

System cable 2

FM antenna 1

AM loop antenna 1

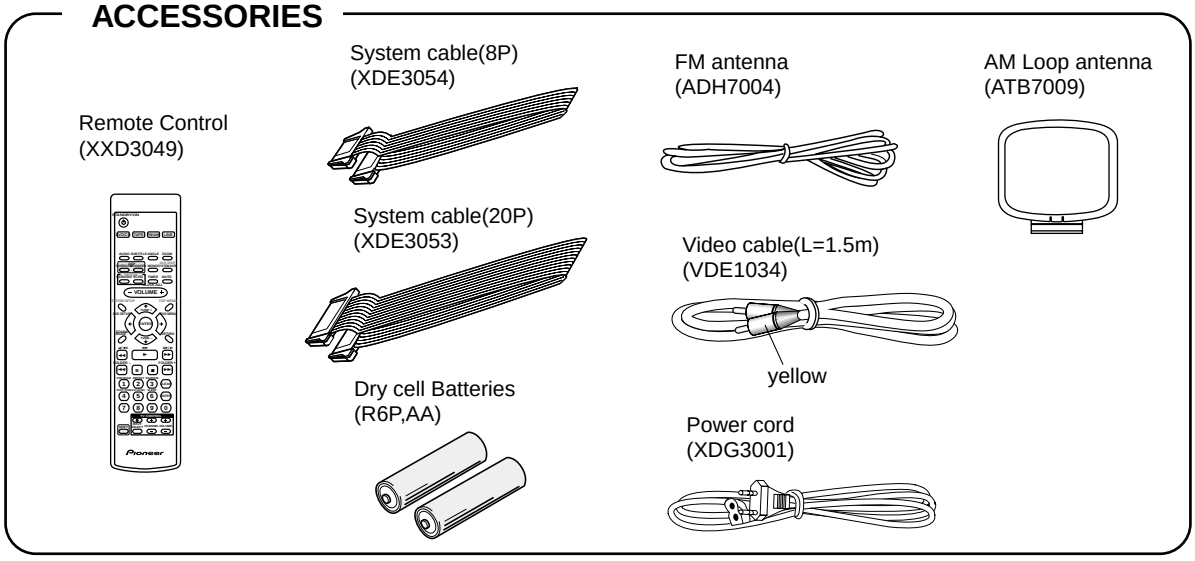
Dry cell batteries (AA/R6) 2

Remote Control 1

Note

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

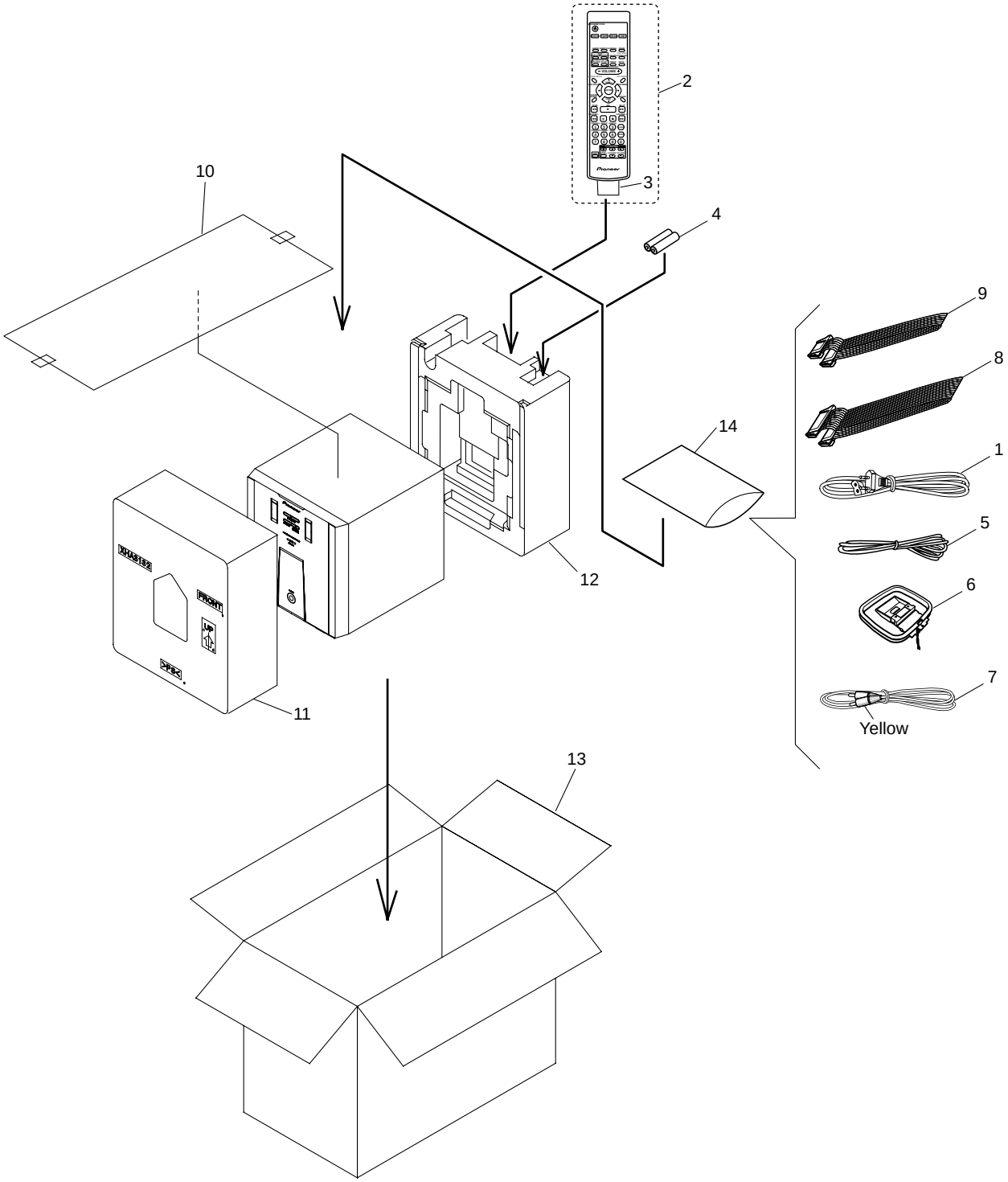
ACCESSORIES



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.)*

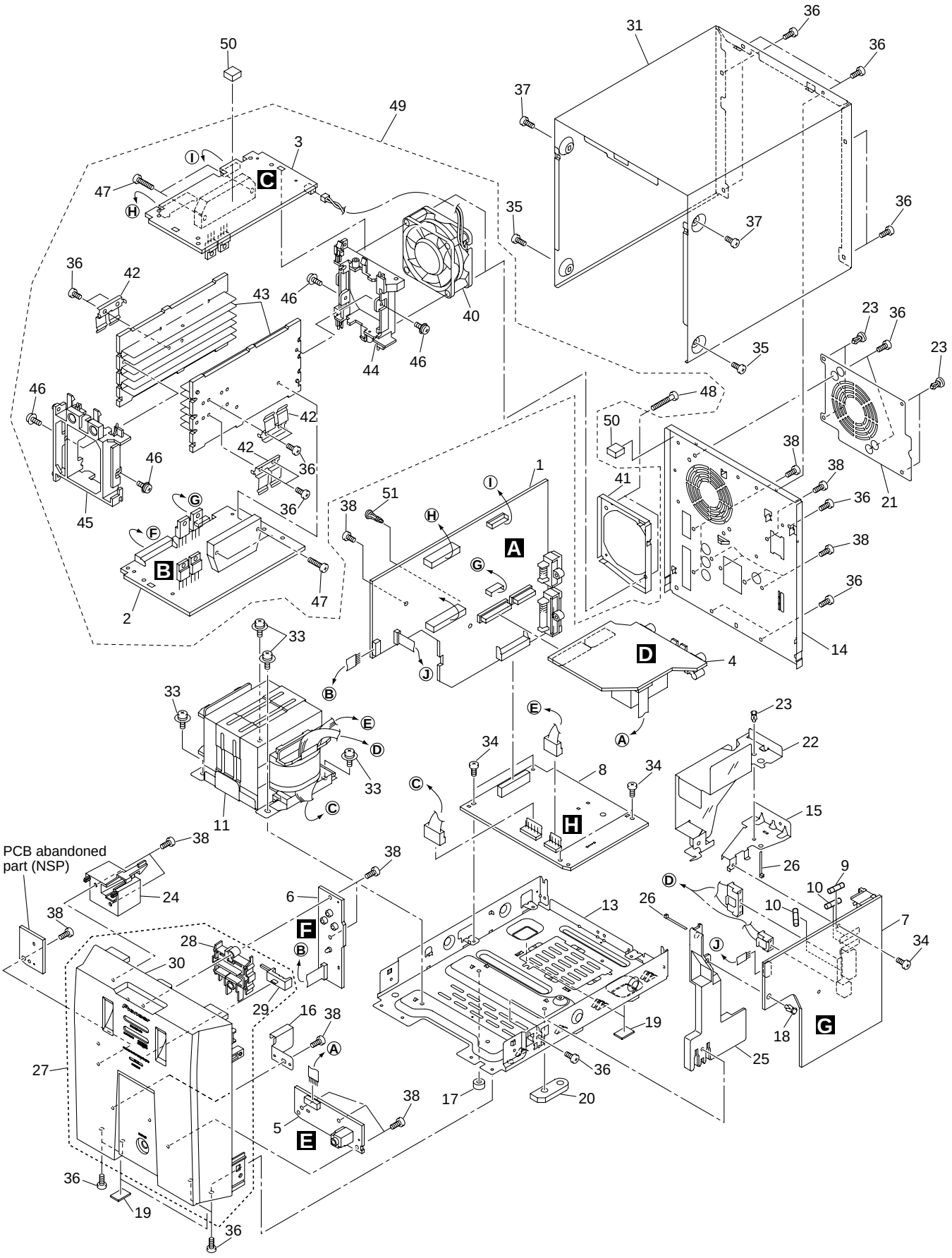
2.1 PACKING



● PACKING PARTS LIST

Mark	No.	Description	Part No.
⚠	1	Power Cord	XDG3001
	2	Remote Control	XXD3049
	3	Battery Cover	AZA7424
NSP	4	Battery (R6P,AA)	VEM1031
	5	FM Antenna	ADH7004
	6	AM Loop Antenna	ATB7009
	7	Video Cord (L=1.5m)	VDE1034
	8	System Cable 20P	XDE3053
	9	System Cable 8P	XDE3054
	10	Packing Sheet	AHG7053
	11	Front Pad A	XHA3132
	12	Rear Pad A	XHA3133
	13	Packing Case	XHD3312
NSP	14	Literature Bag	AHG1180

2.2 EXTERIOR



● EXTERIOR PARTS LIST

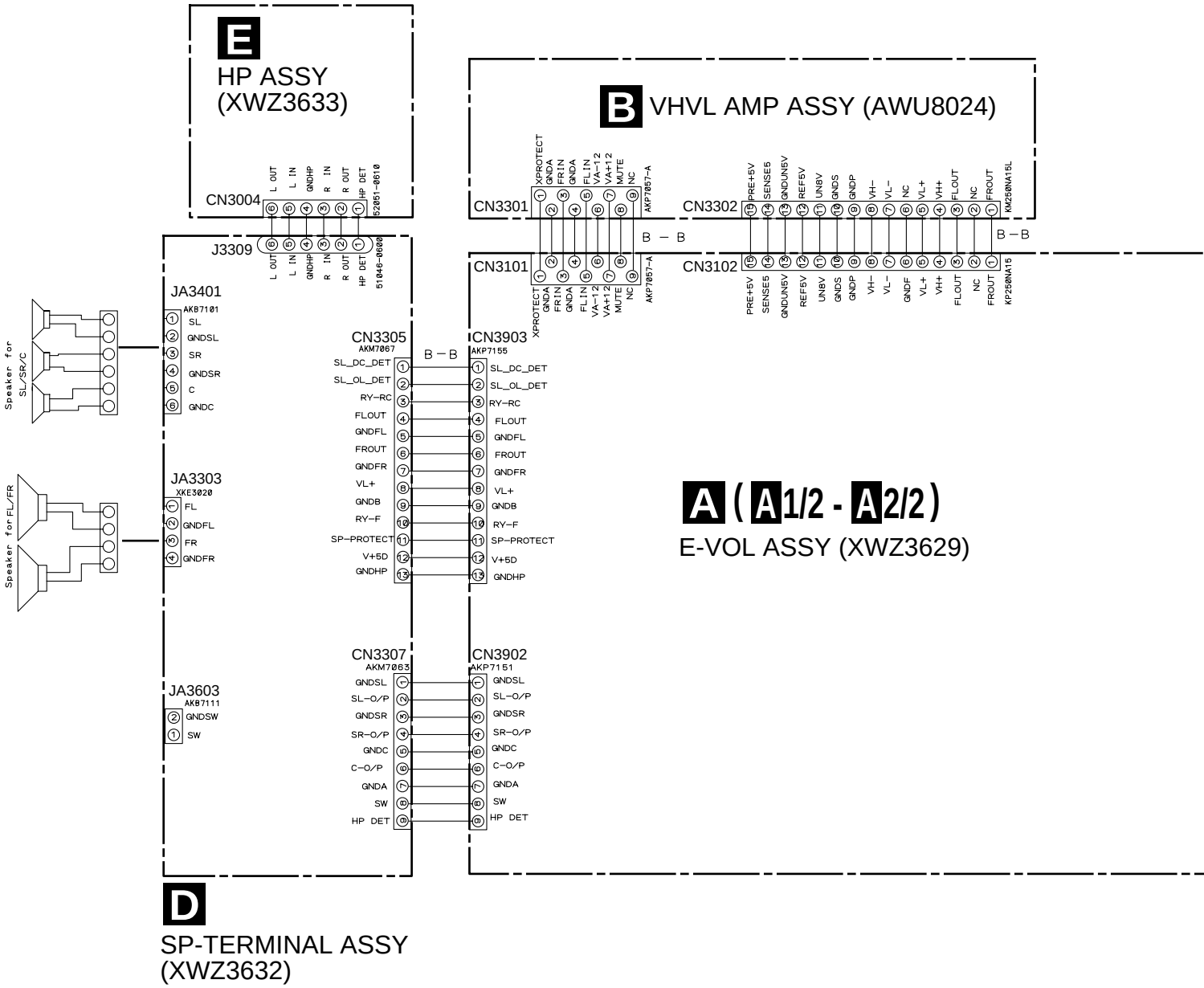
Mark	No.	Description	Part No.
	1	E-VOL ASSY	XWZ3629
	2	VHVL AMP ASSY	AWU8024
	3	AMP REG FAN ASSY	AWU8025
	4	SP-TERMINAL ASSY	XWZ3632
	5	HP ASSY	XWZ3633
	6	AMP DISPLAY ASSY	XWZ3634
	7	PRIMARY ASSY	XWZ3630
	8	SECONDARY ASSY	XWZ3631
⚠	9	Fuse (FU1 : T5A)	AEK1061
⚠	10	Fuse (FU2, FU3 : T2.5A)	AEK1058
⚠	11	Power Transformer (T1)	XTS3064
	12	• • • • • • • •	
NSP	13	Chassis	XNA3011
	14	Rear Panel	XNC3163
	15	Pri GND Holder	XNG3086
	16	Jack GND	XNG3088
	17	Spacer	AEB7092
	18	Push Rivet	AEC7068
	19	Leg Cushion	XEB3032
	20	Spacer A	XEB3030
	21	FAN Barrier	XEC3032
	22	Pri Barrier	XEC3033
	23	Push Rivet	XEC3034
	24	Module Holder	XMR3054
	25	Pri Holder	XMR3057
	26	Binder	ZCA-SKB90BK
	27	Front Panel Assy A	XXG3128
	28	Standby Button	XAD3156
	29	Standby Lens	XAK3336
	30	Front Panel A	XMB3085

Mark	No.	Description	Part No.
	31	Bonnet Case	XZN3125
	32	• • • • • • • •	
	33	Screw	ASZ40P060FMC
	34	Screw	BBZ30P080FMC
	35	Screw	BBZ30P080FNI
	36	Screw	BBZ30P080FZK
	37	Screw	VPZ30P080FNI
	38	Screw	VPZ30P080FZK
	39	• • • • • • • •	
	40	DC FAN Motor	AXM7025
	41	FAN Holder	ANG7417
	42	FET Bracket A	ANG7418
	43	Heat Sink	ANH7159
	44	FAN Mold	AMR7420
	45	Front Mold	AMR7439
	46	Screw	ABA1021
	47	Screw	BBZ30P160FMC
	48	Screw	BPZ30P350FZK
NSP	49	AMP Module H-5ch	AXQ7239
	50	Spacer Assy	XEB3033
	51	LSR Supports	AEC7055

A B C D E F

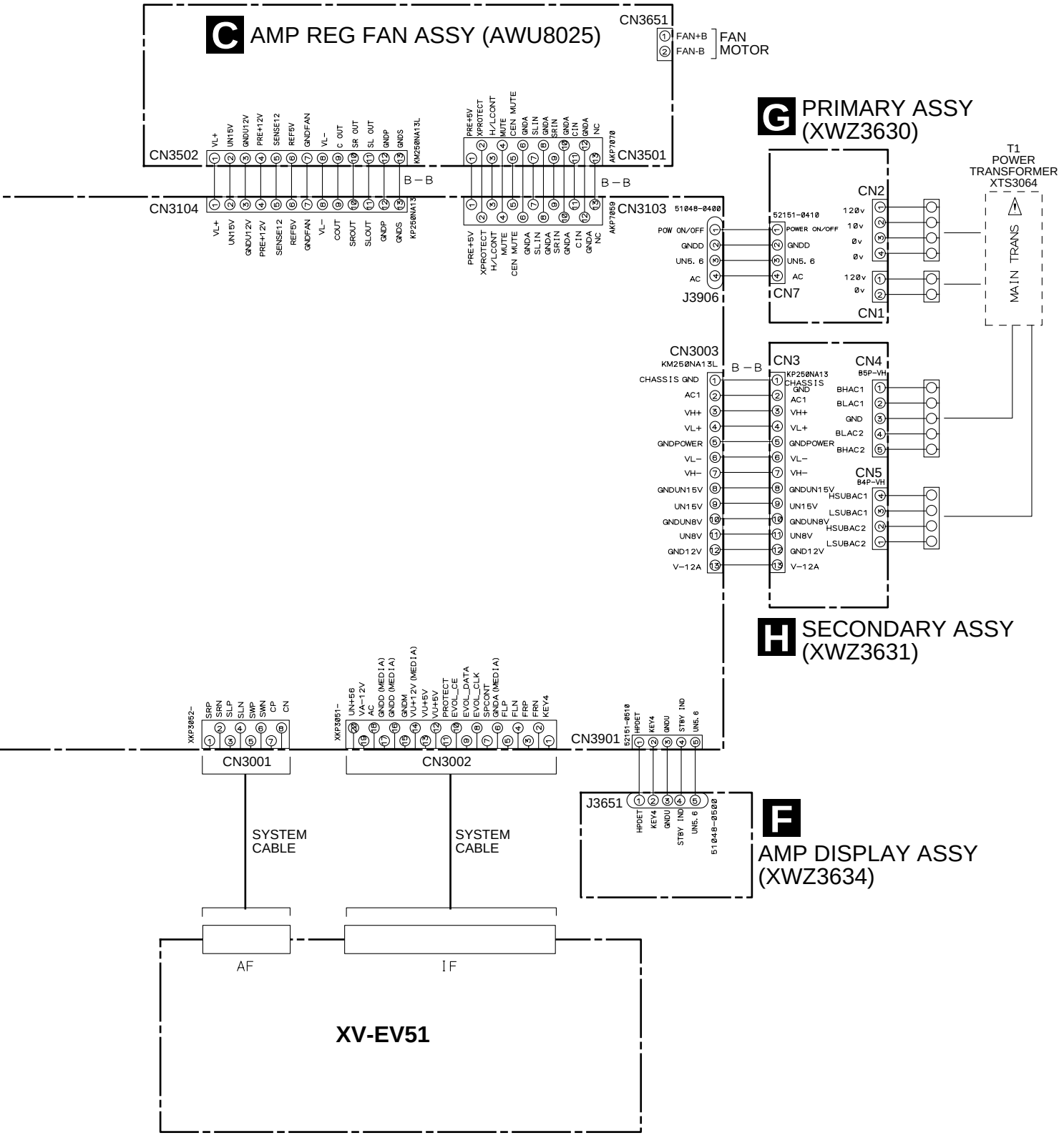
3. SCHEMATIC DIAGRAM

3.1 OVERALL WIRING DIAGRAM

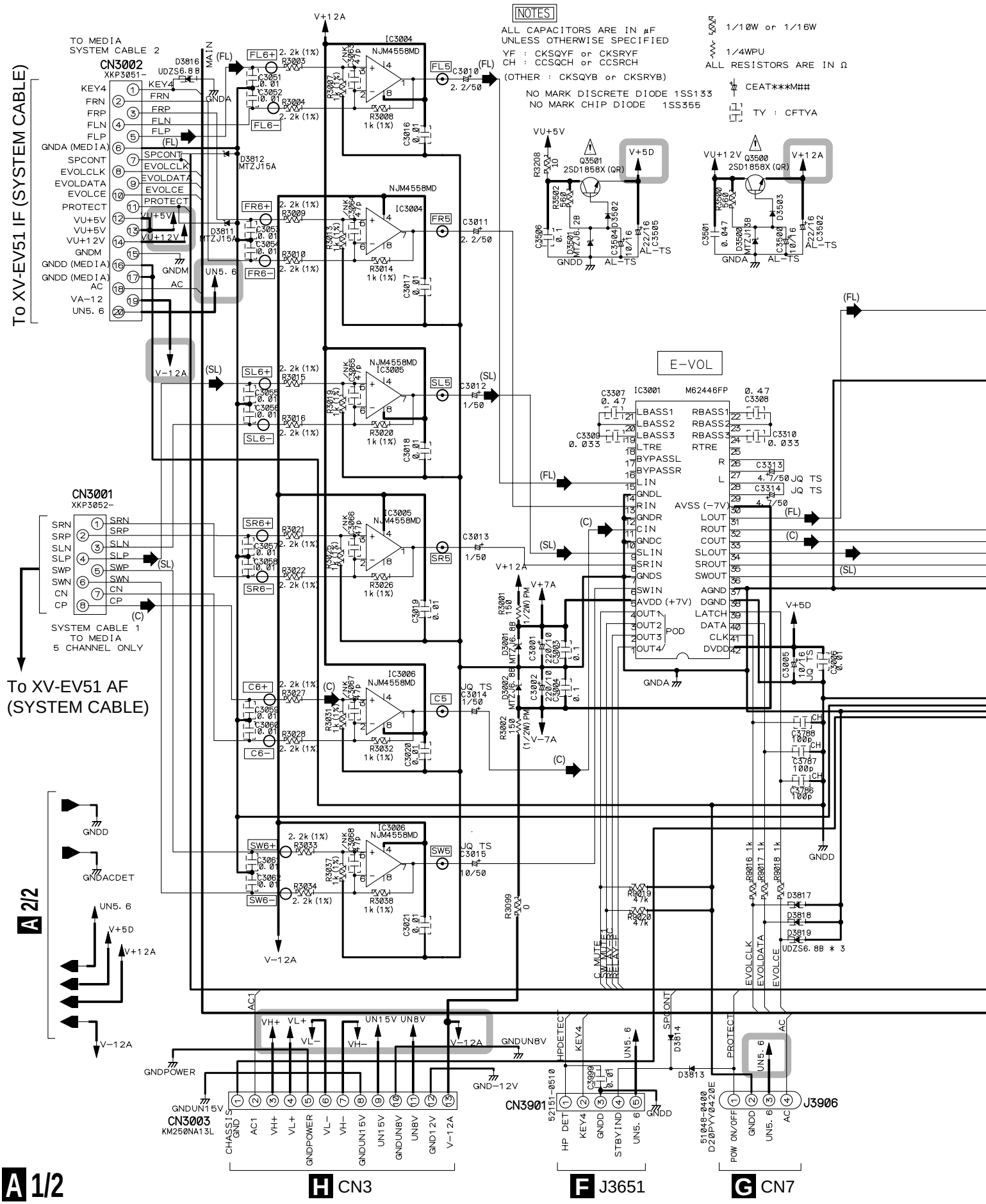


Note : The connectors between E-VOL ASSY, SECONDARY ASSY, VHVL AMP ASSY and AMP REG FAN ASSY (CN3003-CN3, CN3101-CN3301, CN3102-CN3302, CN3104-CN3502, CN3103-CN3501) are board to board connectors. It is difficult to connect them.
Be sure to confirm the complete connections.
It may become the factor of trouble.

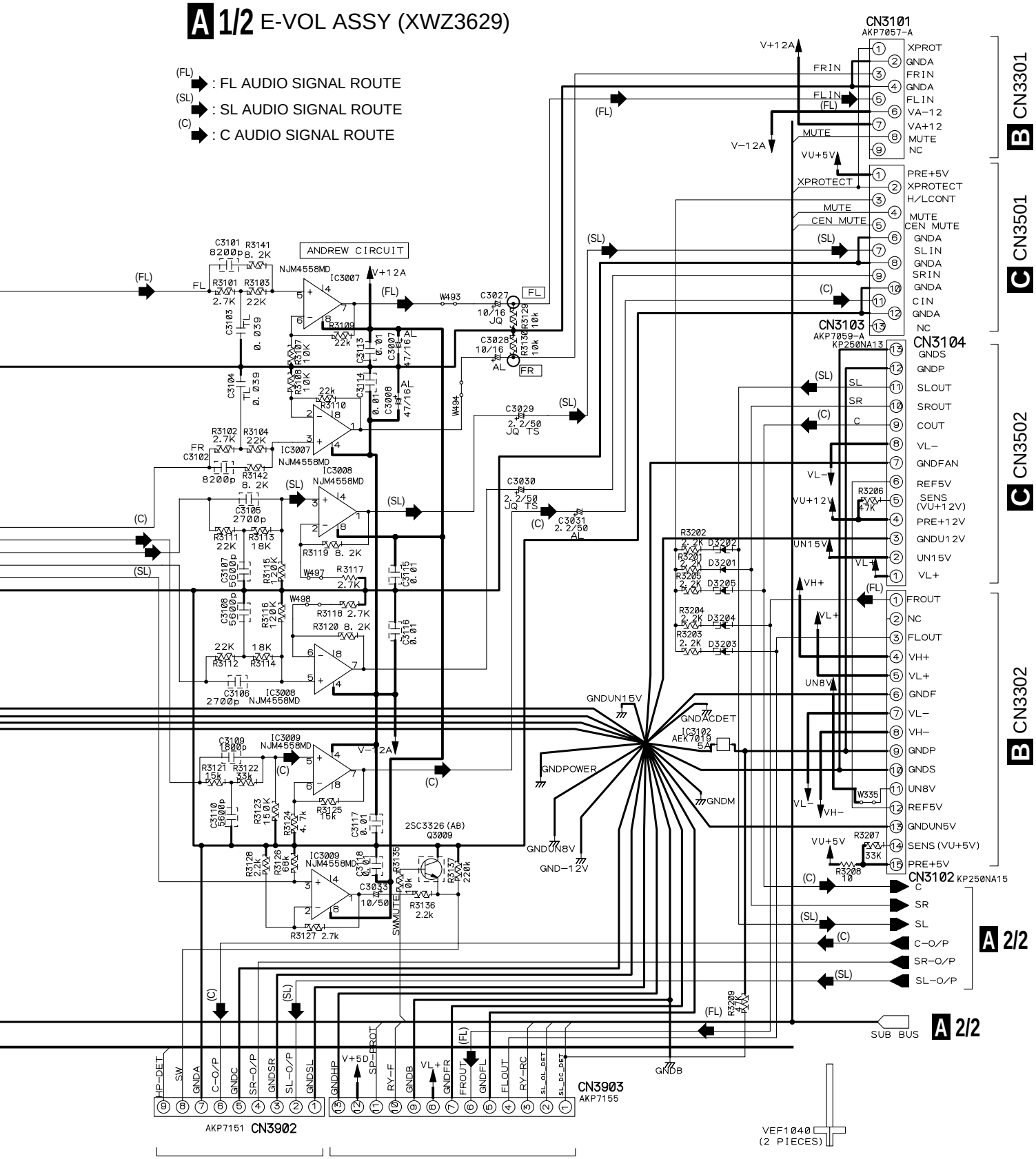
Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST"



3.2 E-VOL ASSY (1/2)



A 1/2 E-VOL ASSY (XWZ3629)

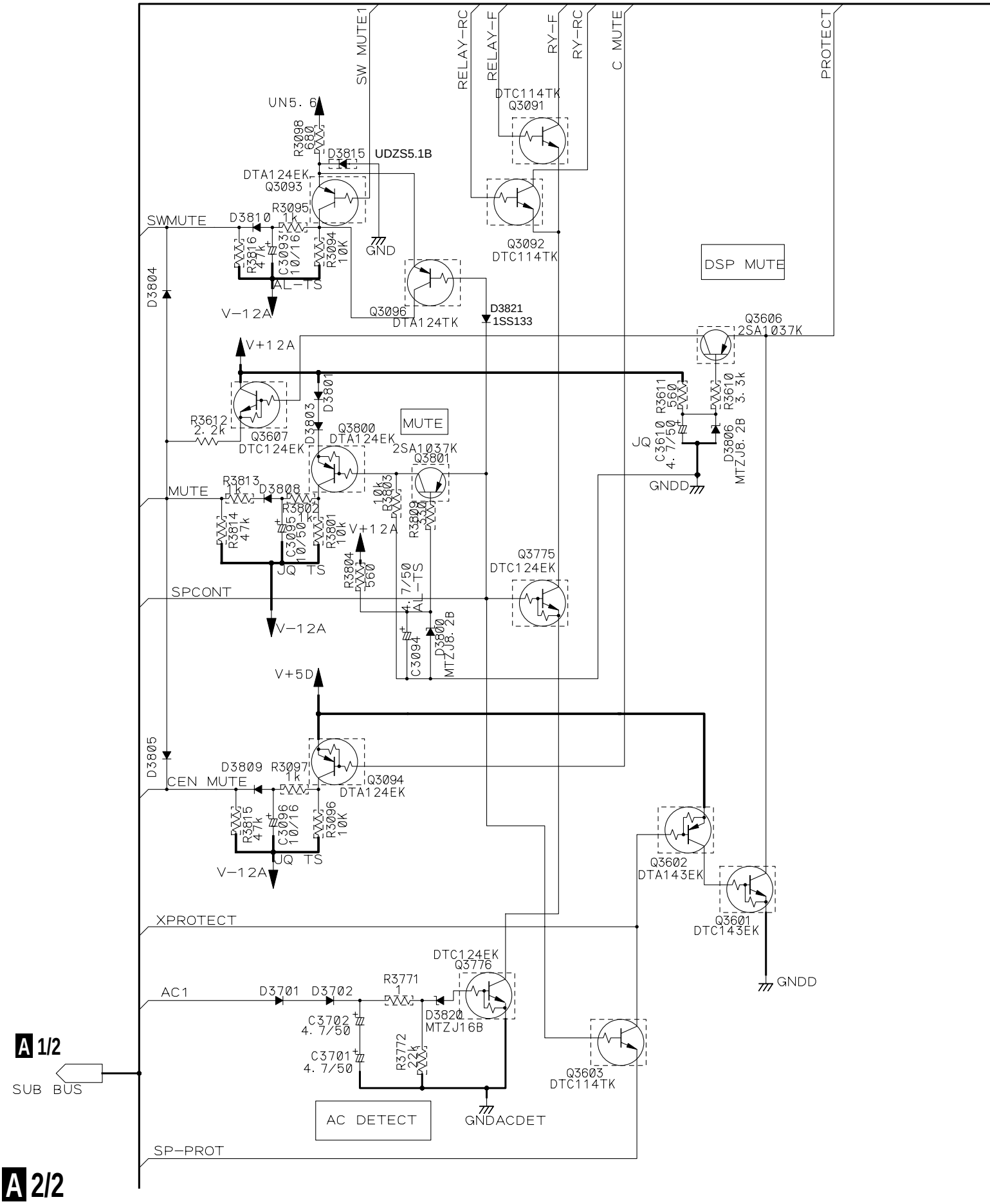


CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491005 FOR IC3102 MFD, BY LITTELFUSE INC.

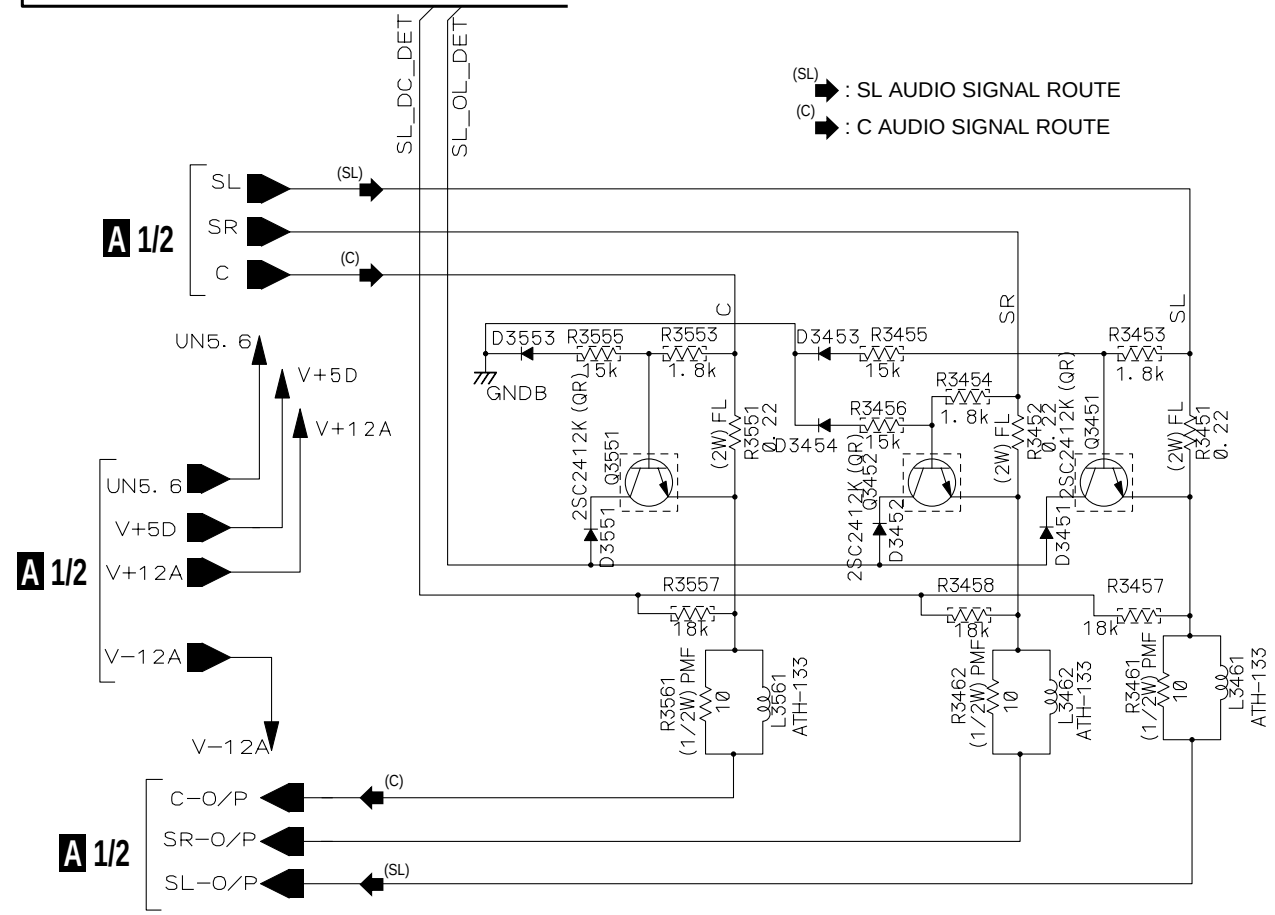
: The power supply is shown with the marked box.

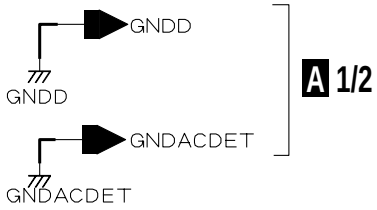
A 1/2

3.3 E-VOL ASSY (2/2)

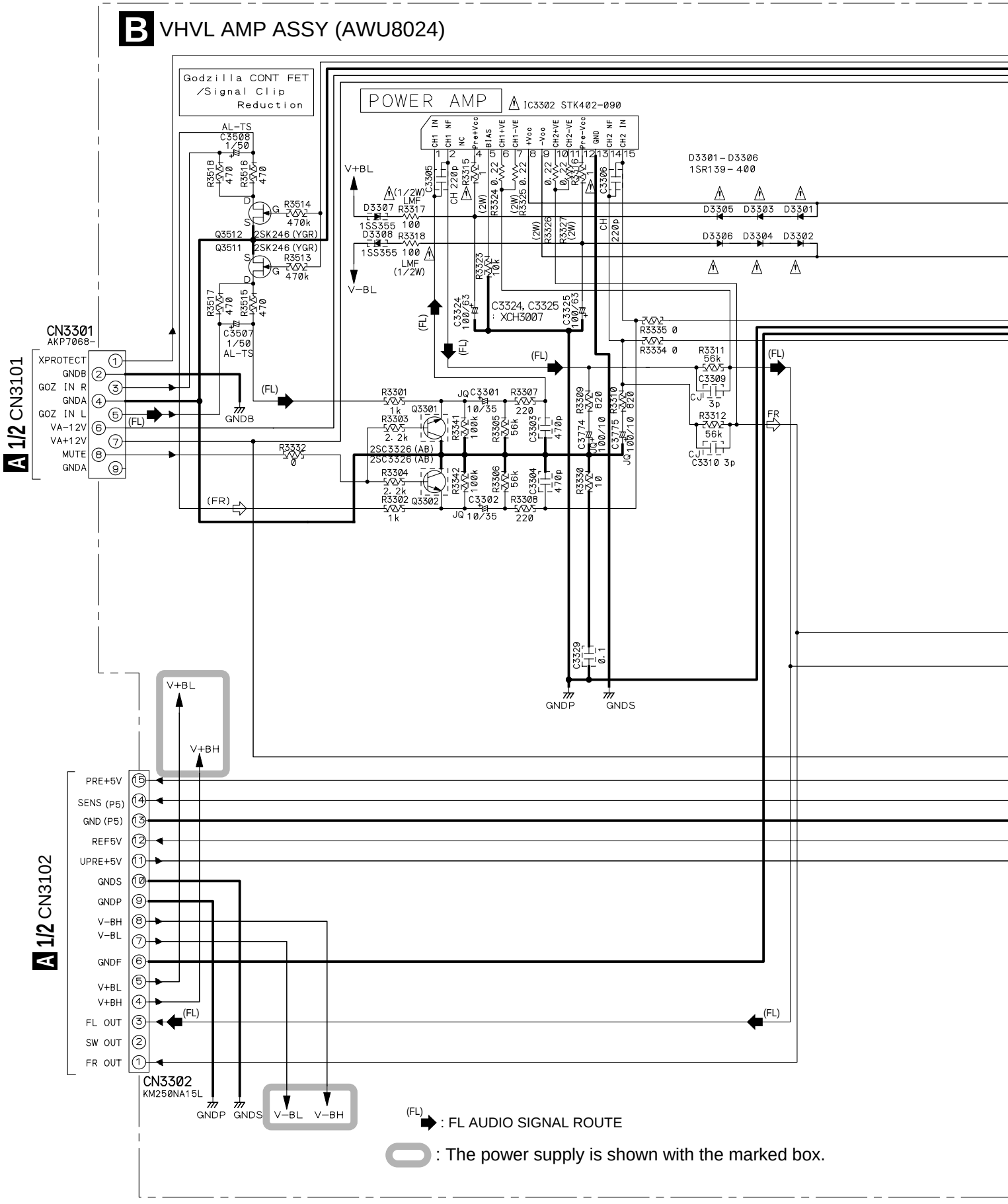


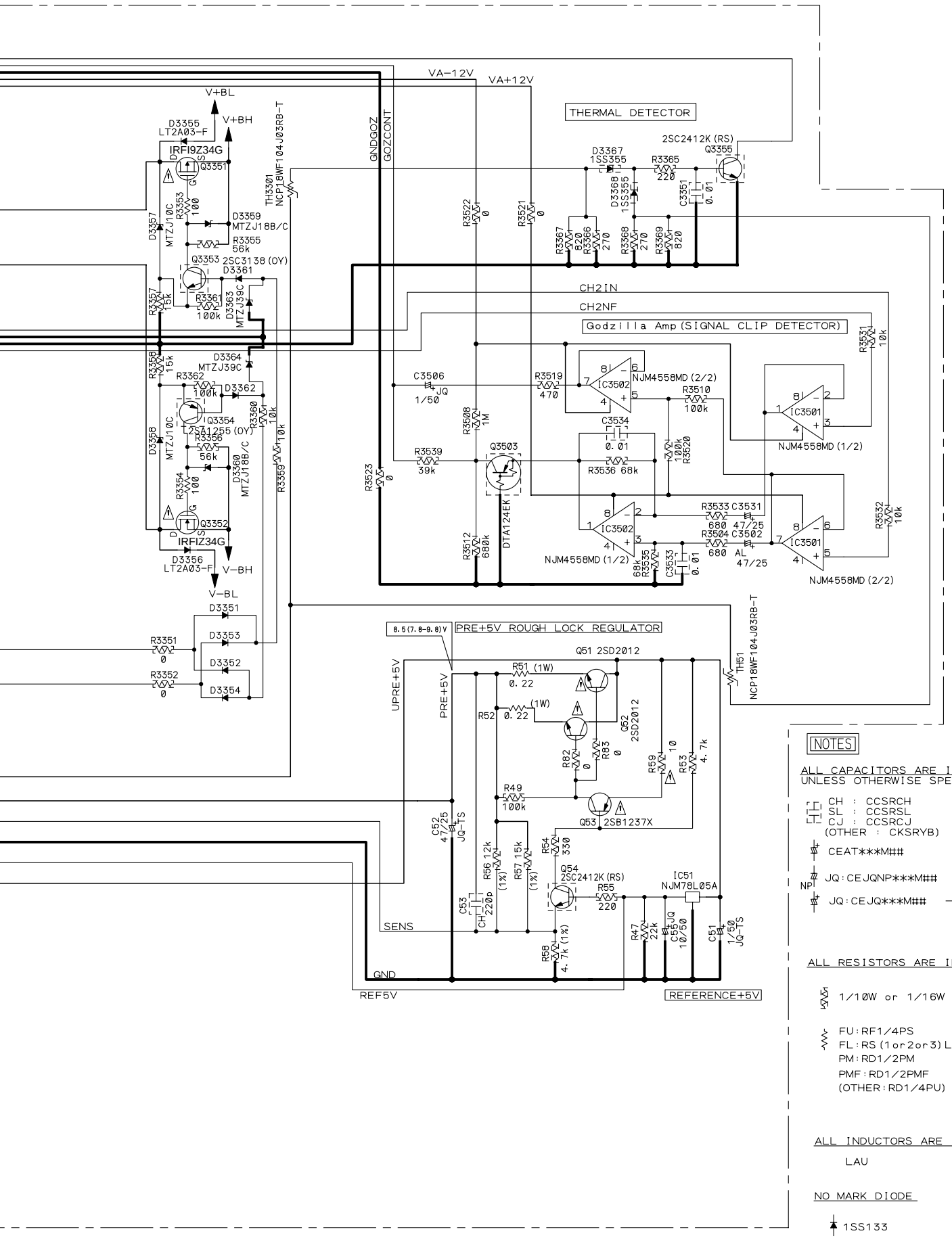
A 2/2 E-VOL ASSY (XWZ3629)



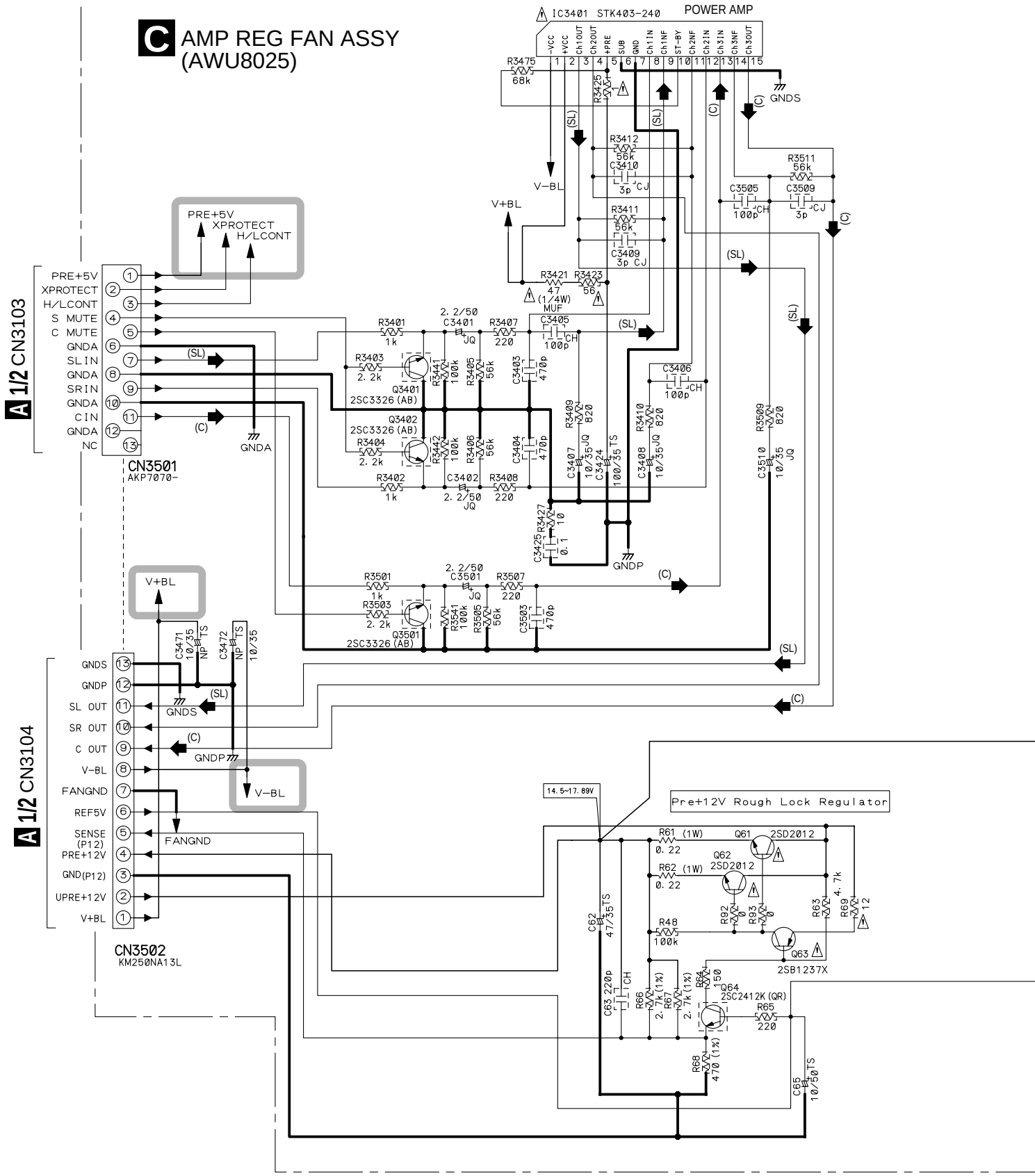


3.4 VHVL AMP ASSY




V+BL
V+BH
D3355
LT2A03-F
IRFI9Z34G
Q3351
D3357
MTZJ10C
R3353
100
D3359
MTZJ18B/C
R3355
56k
Q3353 2SC3138 (OY)
D3361
R3357
15k
R3361
100k
D3363
MTZJ39C
D3364
MTZJ39C
R3362
100k
D3362
Q3354
2SA1255 (OY)
R3356
56k
D3358
MTZJ10C
D3360
MTZJ18B/C
R3354
100
Q3352
IRFIZ34G
D3356
LT2A03-F
V-BH
V-BL
D3351
D3353
D3352
D3354
R3351
0
R3352
0
R3358
15k
R3360
10k
R3359
10k
TH3301
NCP18WF104J03RB-T
GNDGOZ
GOZCONT
VA-12V
VA+12V
THERMAL DETECTOR
D3367
1SS355
R3365
220
2SC2412K (RS)
Q3355
D3368
1SS355
C3351
0.01
R3367
820
R3366
270
R3368
270
R3369
820
R3522
0
R3521
0
CH2IN
CH2NF
Godzilla Amp (SIGNAL CLIP DETECTOR)
R3531
10k
C3506
JQ
1/50
R3519
470
IC3502
NJM4558MD (2/2)
R3510
100k
IC3501
NJM4558MD (1/2)
R3508
1M
C3534
0.01
R3520
100k
R3539
39k
Q3503
R3536 68k
R3523
0
R3533 C3531
680 47/25
R3504 C3502
680 AL 47/25
R3532
10k
IC3502
NJM4558MD (1/2)
IC3501
NJM4558MD (2/2)
R3512
680k
DTA124EK
R3535
68k
C3533
0.01
8.5(7.8-9.8)V
PRE+5V ROUGH LOCK REGULATOR
Q51 2SD2012
R51 (1W)
0.22
UPRE+5V
PRE+5V
R52
(1W)
0.22
Q52
2SD2012
R82
0
R83
0
R59
10
R53
4.7k
R49
100k
Q53 2SB1237X
C52
47/25
JQ-TS
R56 12k
(1%)
R57 15k
(1%)
R54
330
Q54
2SC2412K (RS)
R55
220
IC51
NJM78L05A
C53
CH
220p
SENS
R47
22k
C55 JQ
10/50
C51
1/50
JQ-TS
R58
4.7k (1%)
GND
REF5V
REFERENCE+5V
TH51
NCP18WF104J03RB-T
NOTES
ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED
CH : CCSRCH
SL : CCSRSL
CJ : CCSRCJ
(OTHER : CKSRYB)
CEAT***M###
NP
JQ:CEJQNP***M###
JQ:CEJQ***M### -TS:P=2.5MM
ALL RESISTORS ARE IN Ω
1/10W or 1/16W
FU:RF1/4PS
FL:RS(1or2or3)LMF
PM:RD1/2PM
PMF:RD1/2PMF
(OTHER:RD1/4PU)
ALL INDUCTORS ARE IN μH
LAU
NO MARK DIODE
1SS133

3.5 AMP REG FAN ASSY



: The power supply is shown with the marked box.

NOTES

ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED
CH : CCSRCH
YF : CKSRYF
CJ : CCSRCJ
(OTHER : CKSR(Q)YB)

: CEAT***M##

JQ : CEJQ***M##

AL : CEAL***M##

ALL RESISTORS ARE IN Ω

1/10W or 1/16W

FU : RFA1/4PS
FL : RS(1 or 2)LMF
PM : RD1/2PM
(OTHER : RD1/4PU)
PMF : RD1/2PMF

ALL INDUCTORS ARE IN μH

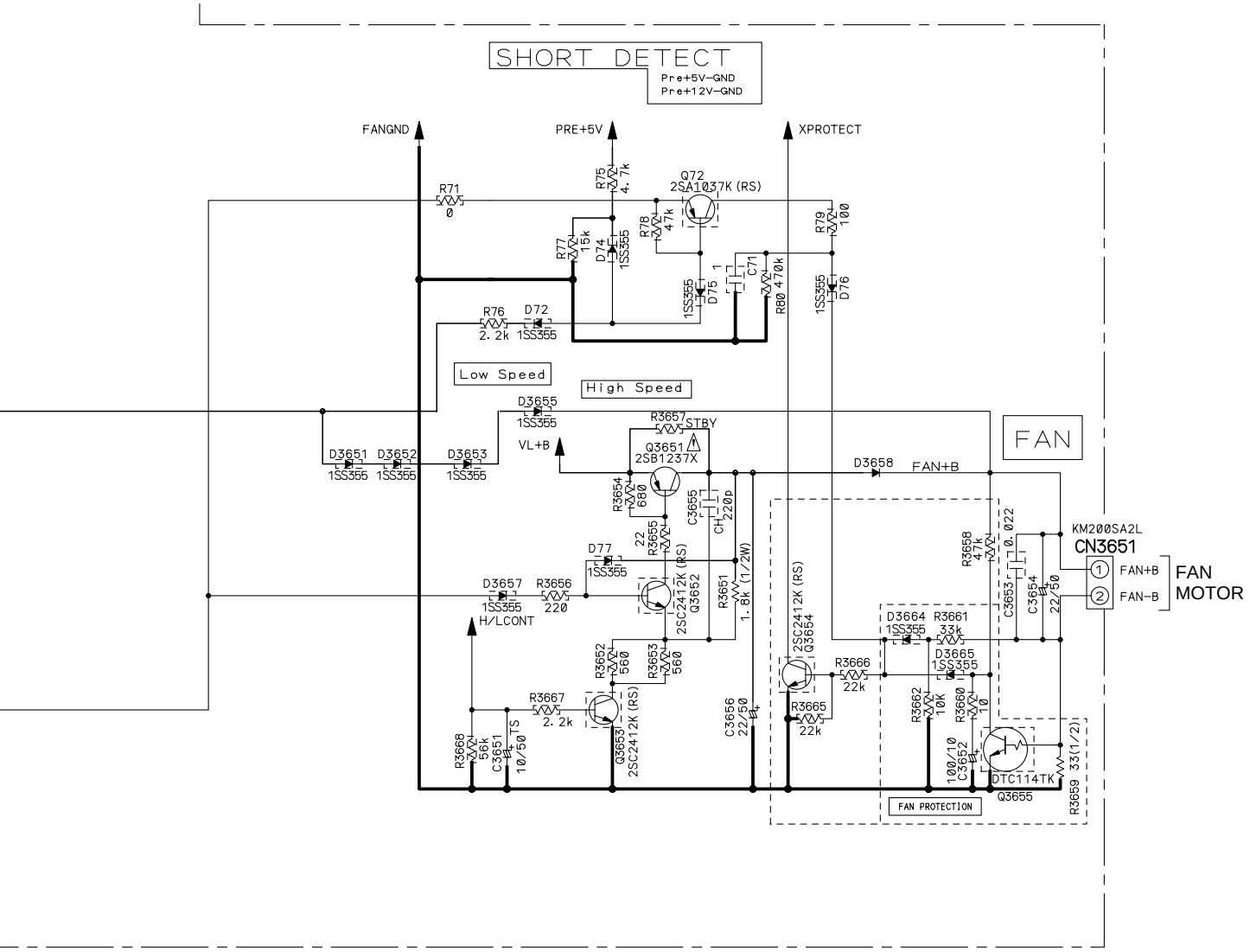
LAU

NO MARK DIODE

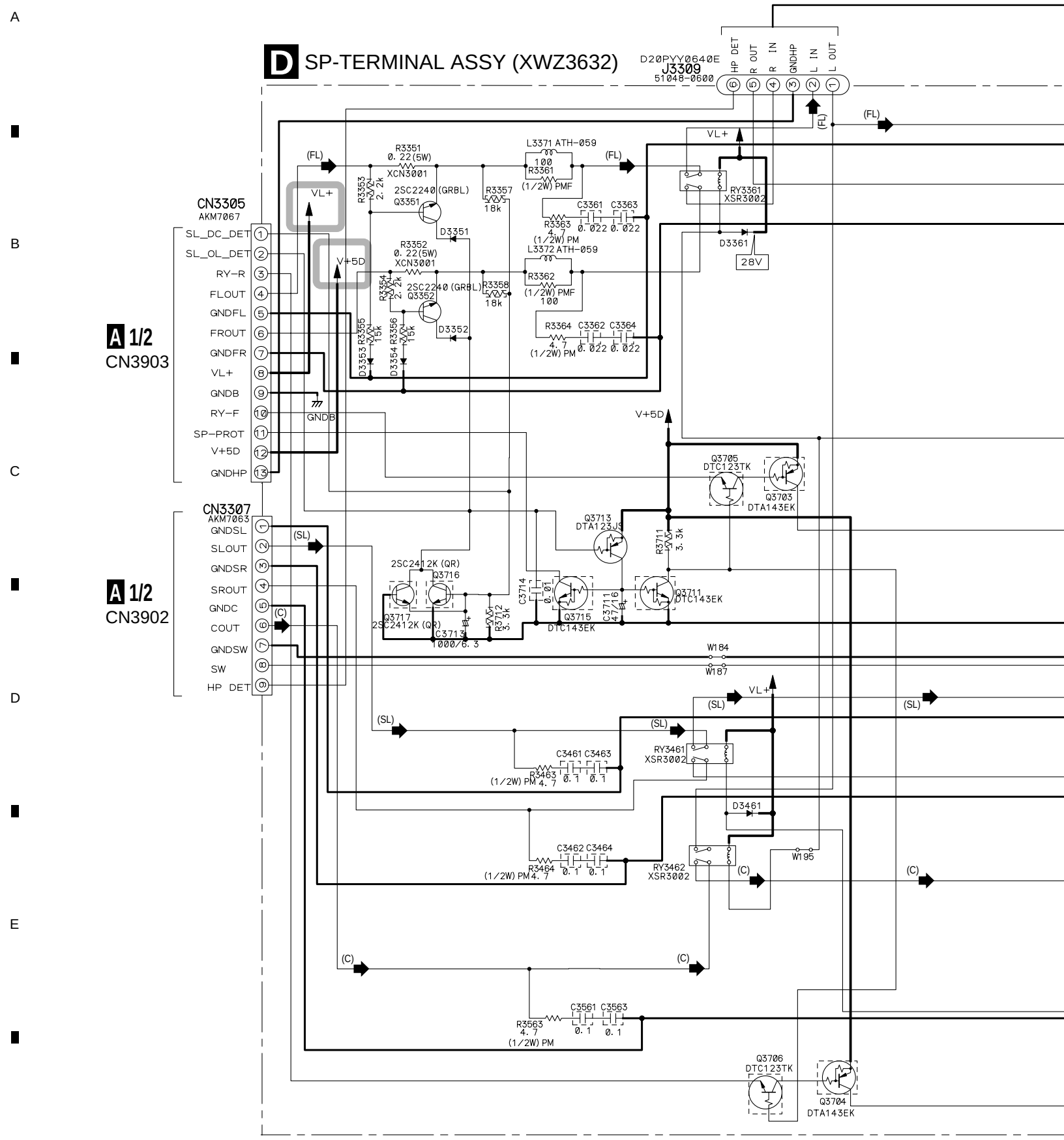
1SS133

(SL) : SL AUDIO SIGNAL ROUTE

(C) : C AUDIO SIGNAL ROUTE



3.6 SP-TERMINAL, HP and AMP DISPLAY ASSYS



: The power supply is shown with the marked box.

NOTES (OTHER : CKSRYB)

ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED
CH : CCSRCH***
YF : CKSRYF***
CJ : CCSRCJ***
OTHER : CKSRYB***

TS : CE*****M###-TS
JQ : CEJQ***M###-*
AL : CEAL***M###-*
(OTHER : CEAT***M###)

ALL INDUCTORS ARE IN μH

LAU***J

ALL RESISTORS ARE IN Ω

1/10W or 1/16W

FU : RFA1/4PS
FL : RS (1 or 2) LMF
PM : RD1/2PM
(OTHER : RD1/4PU)
PMF : RD1/2PMF

DIODE

1SS133

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

JA3303
XKE3020
FL
GNDFL
FR
GNDFR
SPEAKER for FL/FR

JA3603
AKB7111
SW

Q3701
2SD1858X (QR)
R3702
5.6K
D3705
D3706
R3708
12
GNDB

JA3401
AKB7101
SL
SR
C
SPEAKER for SL/SR/C

Q3702
2SD1858X (QR)
R3704
5.6K
D3704
D3703
R3707
22
GNDB

E HP ASSY (XWZ3633)

52151-0610
CN3004
L OUT
L IN
GNDHP
R IN
R OUT
HP DET
R3997
10K
R3995
0
330
R3992
R3991
330
R3996
0
W191
L3991
C3991
0.1
KN2
VNF1084
JA3991
XKN3011-
HEAD PHONE

F AMP DISPLAY ASSY (XWZ3634)

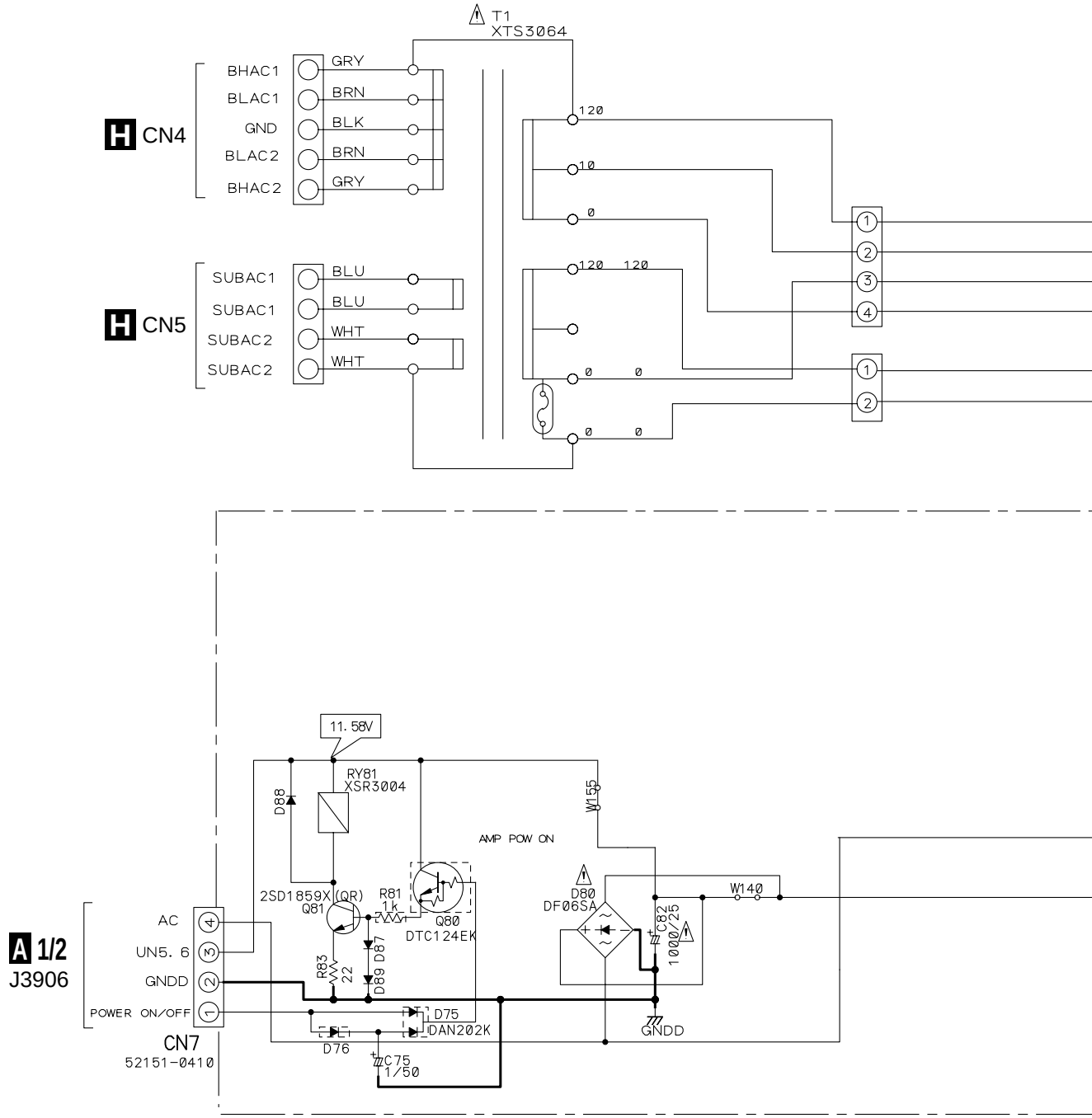
A 1/2
CN3901

D20PYY0520E
51048-0500
J3651
UN5.6
STBY IND
GNDD
KEY4
HP DET

R3657
4.7k
R3654
4.7k
D3651
SLR343VC (NPQ)
D3652
1SS355
Q3655
DTC124EK
D3653
1SS355
R3668
82
Q3654
2SC2412K (QR)
Q3658
DTA143EK
R3651
1k
R3652
1.2k
R3653
5k
R3656
1.8k
STBY/ON
S3651
ASG7013
S3653
ASG7013
S3652
ASG7013
Q3653
DTC124EK
SURROUND
ADV SUROUND

SWITCHES
S3651 : STBY/ON
S3652 : ADV SURROUND
S3653 : SURROUND

3.7 PRIMARY ASSY



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

NOTES (OTHER : CKSRYB)

ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED

CEAT***M##

ALL RESISTORS ARE IN Ω
UNLESS OTHERWISE SPECIFIED

1/16W

1/4WPU

DIODE

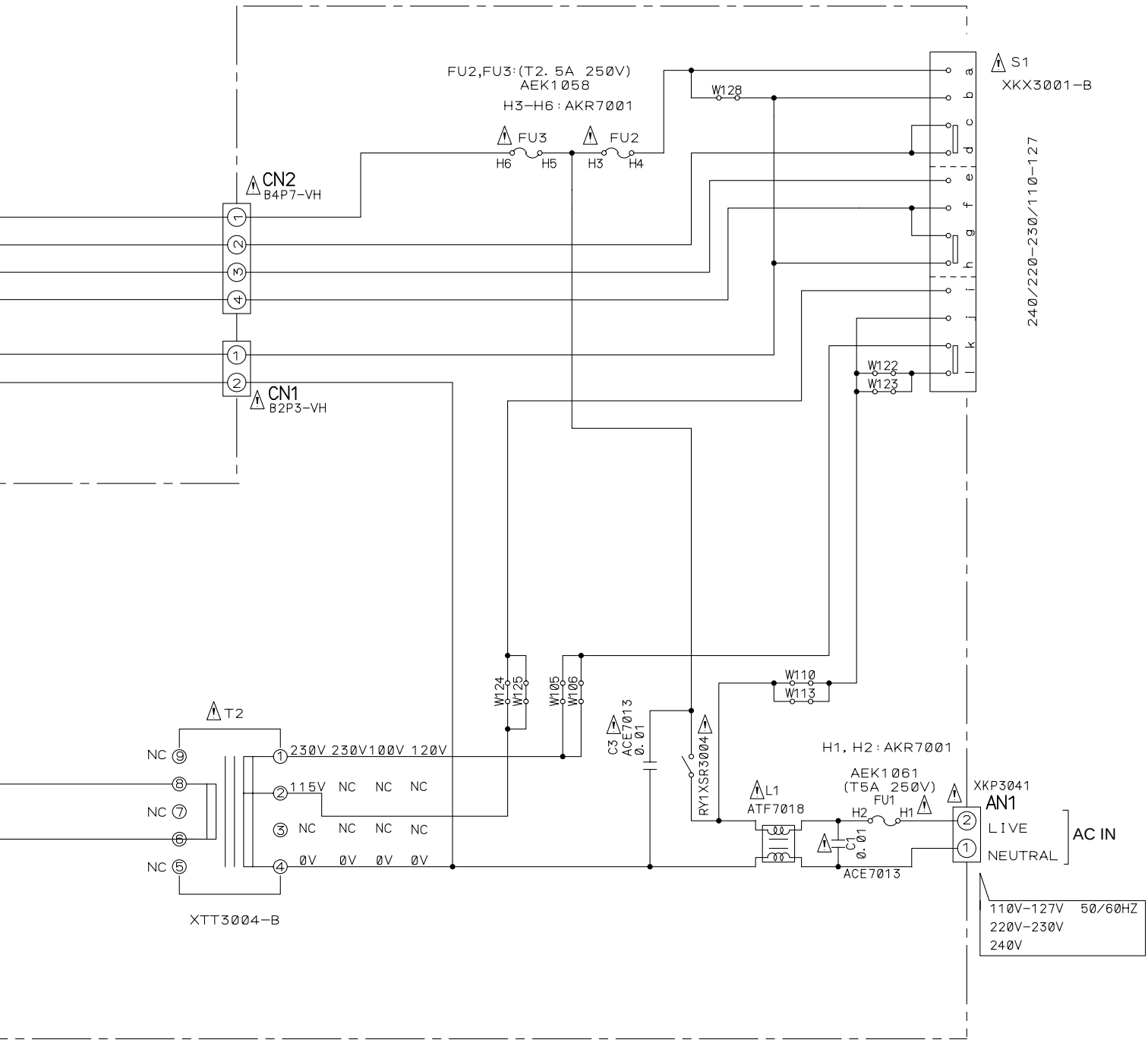
1SS133

1SS355

MTZJ***

ALL VOLTAGE AT POWER ON CONDITION

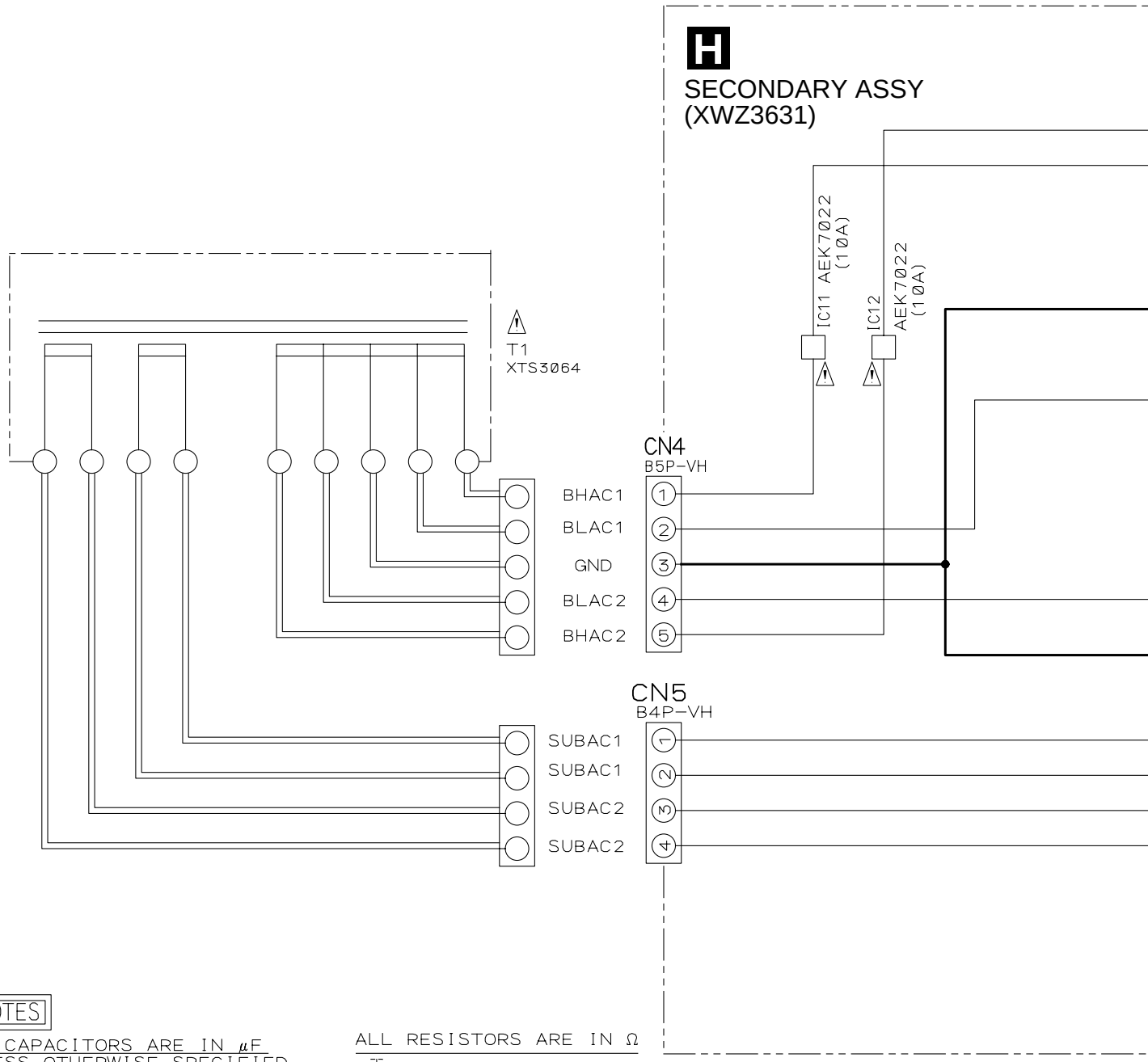
G PRIMARY ASSY (XWZ3630)



• NOTE FOR FUSE REPLACEMENT

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

3.8 SECONDARY ASSY



NOTES

ALL CAPACITORS ARE IN μF
UNLESS OTHERWISE SPECIFIED

YF : CKSRYF
(OTHER : CKSRYB)

M : CQMBA

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

ALL RESISTORS ARE IN Ω

1/16W

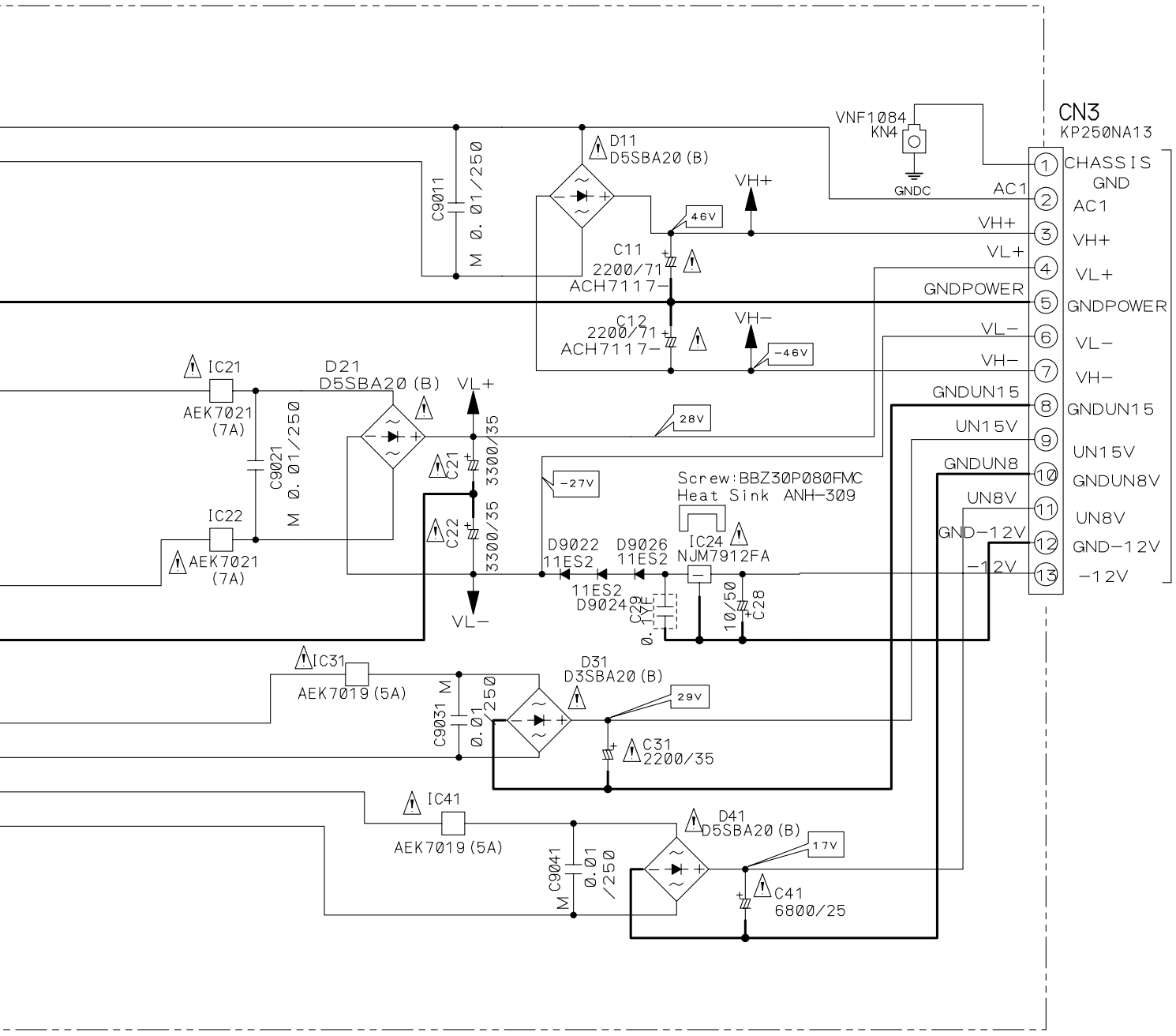
1/4WPU

DIODE

1SS133

1SS355

ALL VOLTAGE AT POWER ON CONDITION



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

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

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

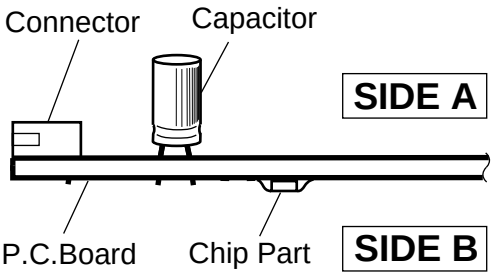
4. PCB CONNECTION DIAGRAM

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
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	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.

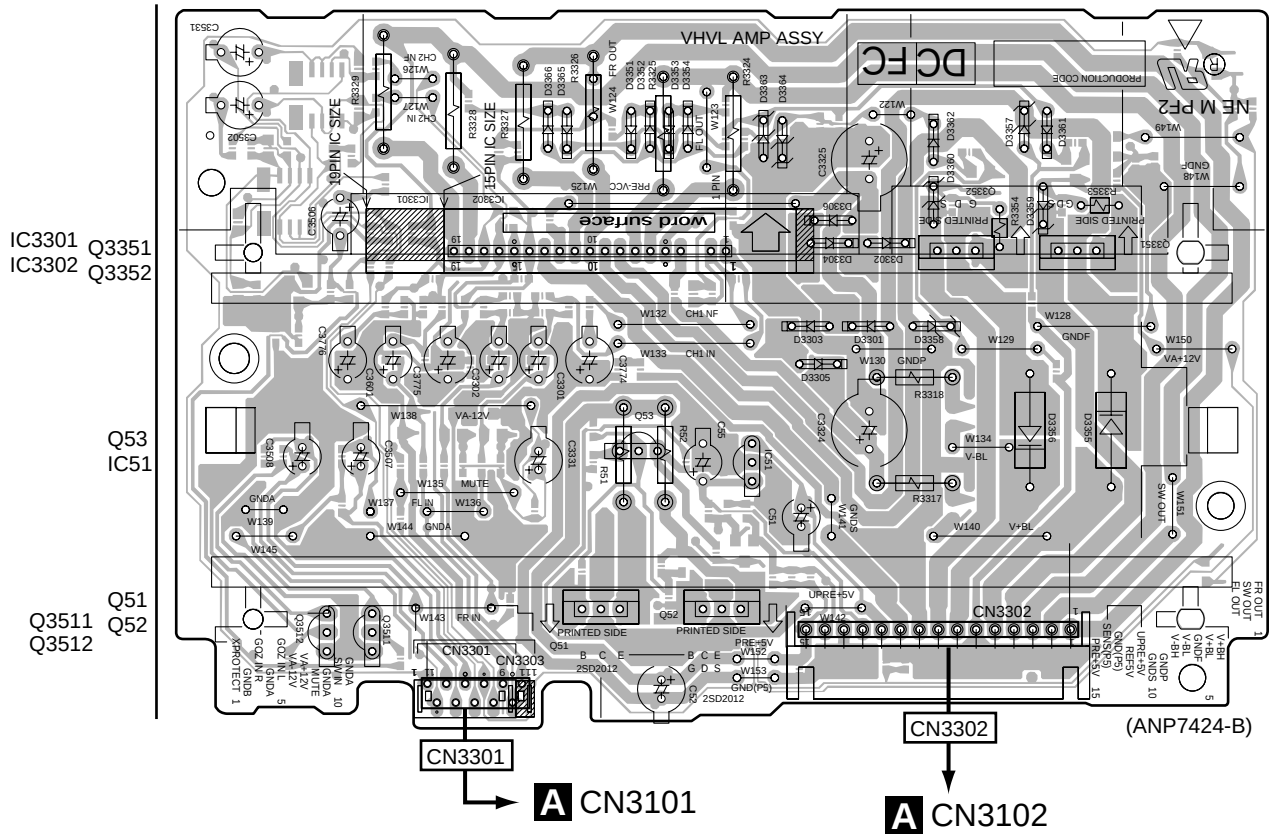


4.1 VHVL AMP ASSY

SIDE A

SIDE A

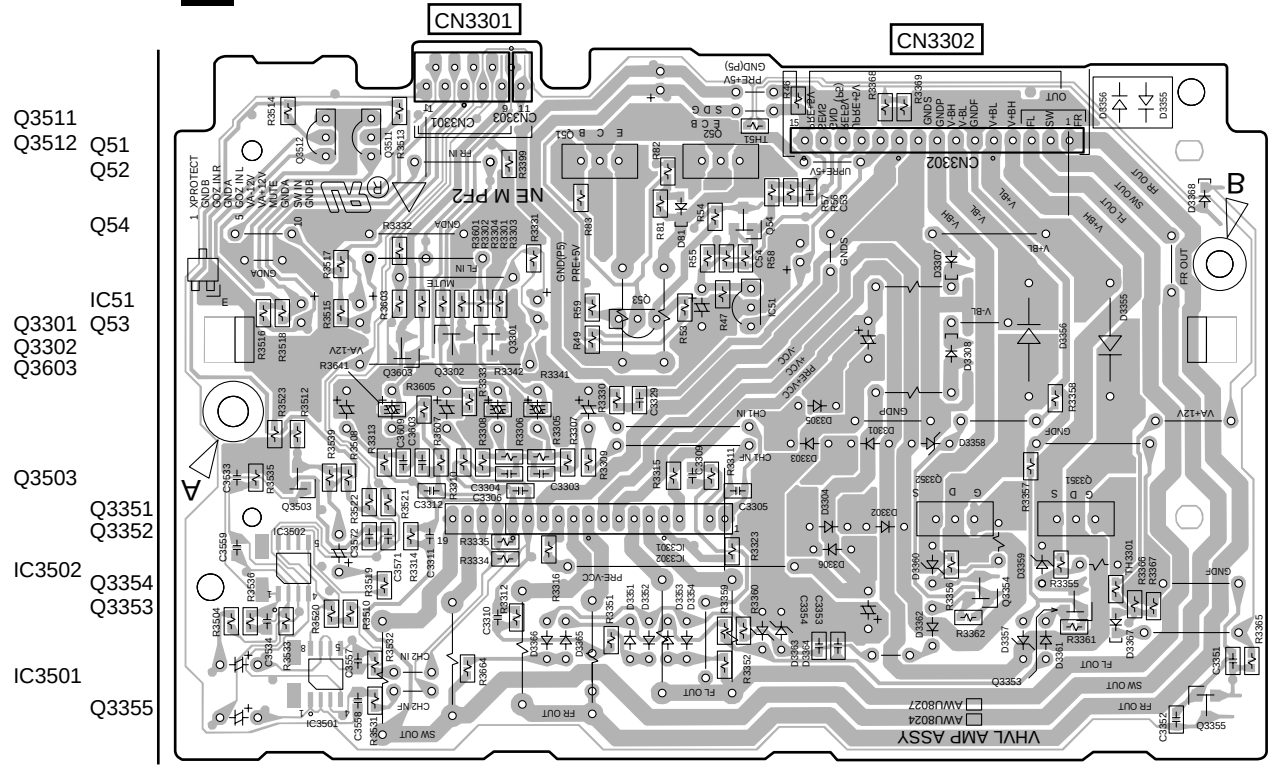
B VHVL AMP ASSY



SIDE B

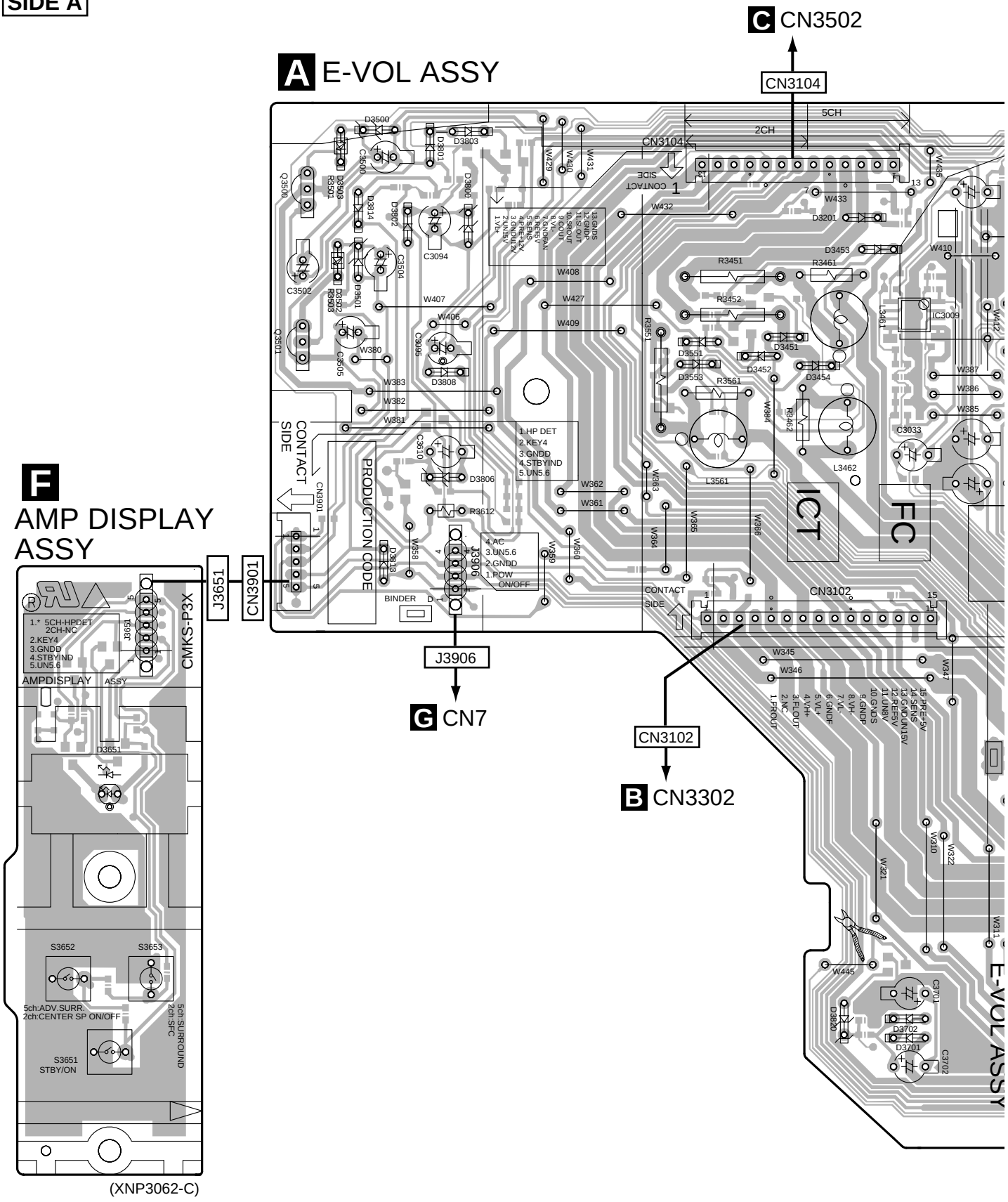
SIDE B

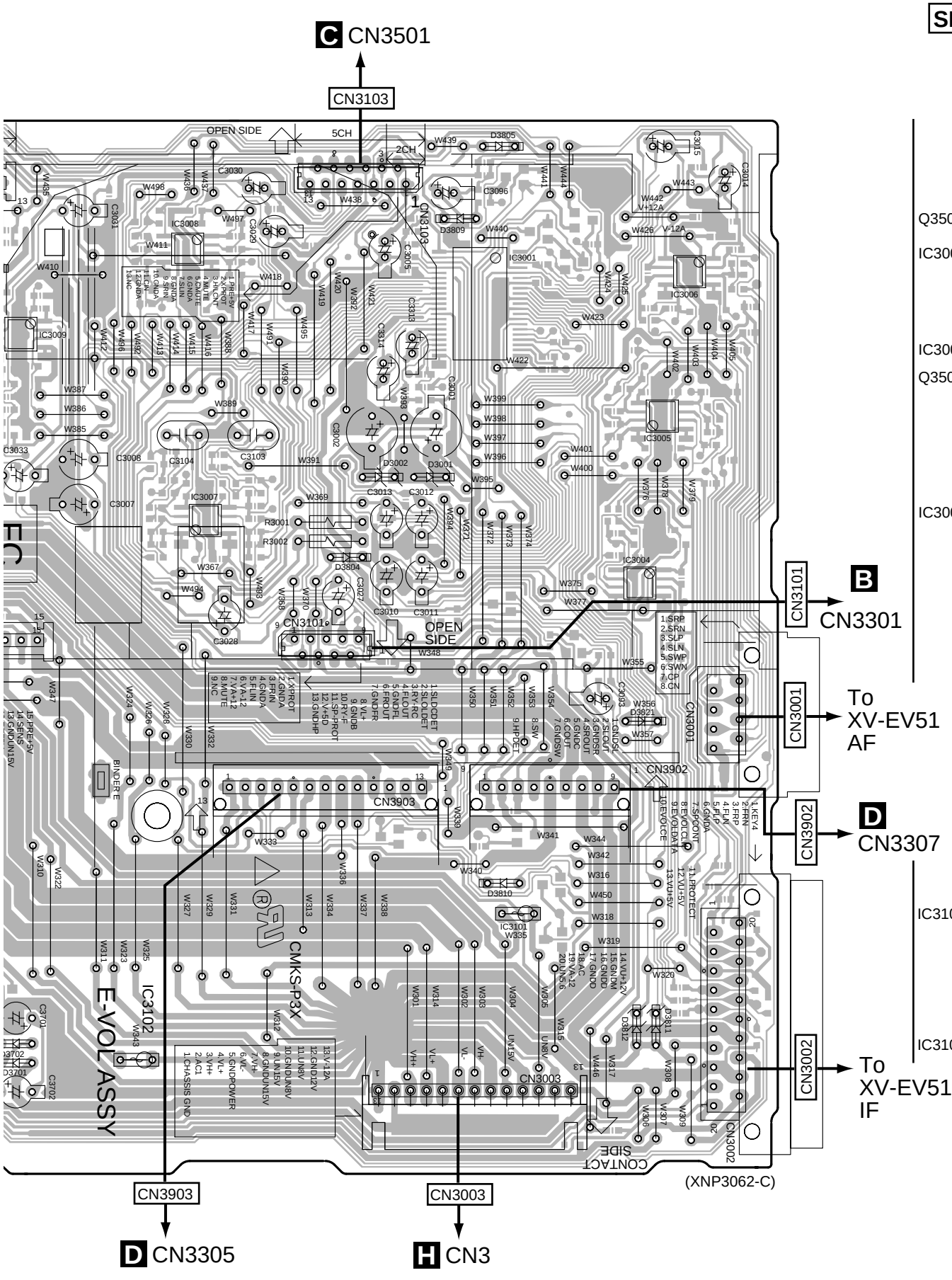
B VHVL AMP ASSY



4.2 E-VOL and AMP DISPLAY ASSYS

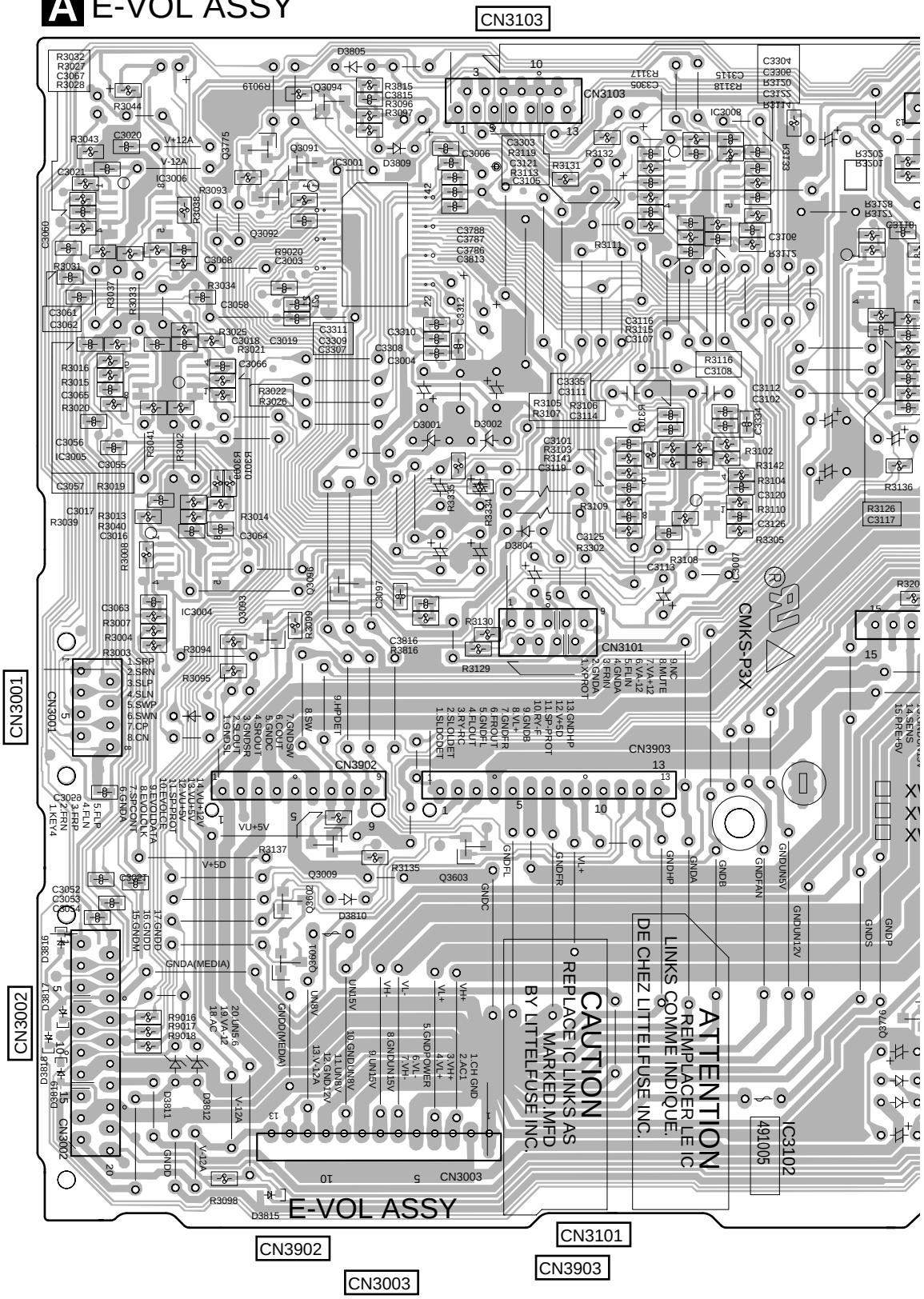
SIDE A




C CN3501
CN3103
OPEN SIDE
5CH
2CH
CN3103
IC3008
IC3009
IC3006
IC3005
IC3007
IC3004
Q3500
Q3501
IC3101
IC3102
B
CN3101
CN3301
CN3001
To XV-EV51 AF
D
CN3902
CN3307
CN3002
To XV-EV51 IF
CN3903
CN3003
D CN3305
H CN3
E-VOL ASSY
CMKS-P3X
(XNP3062-C)
CONTACT SIDE

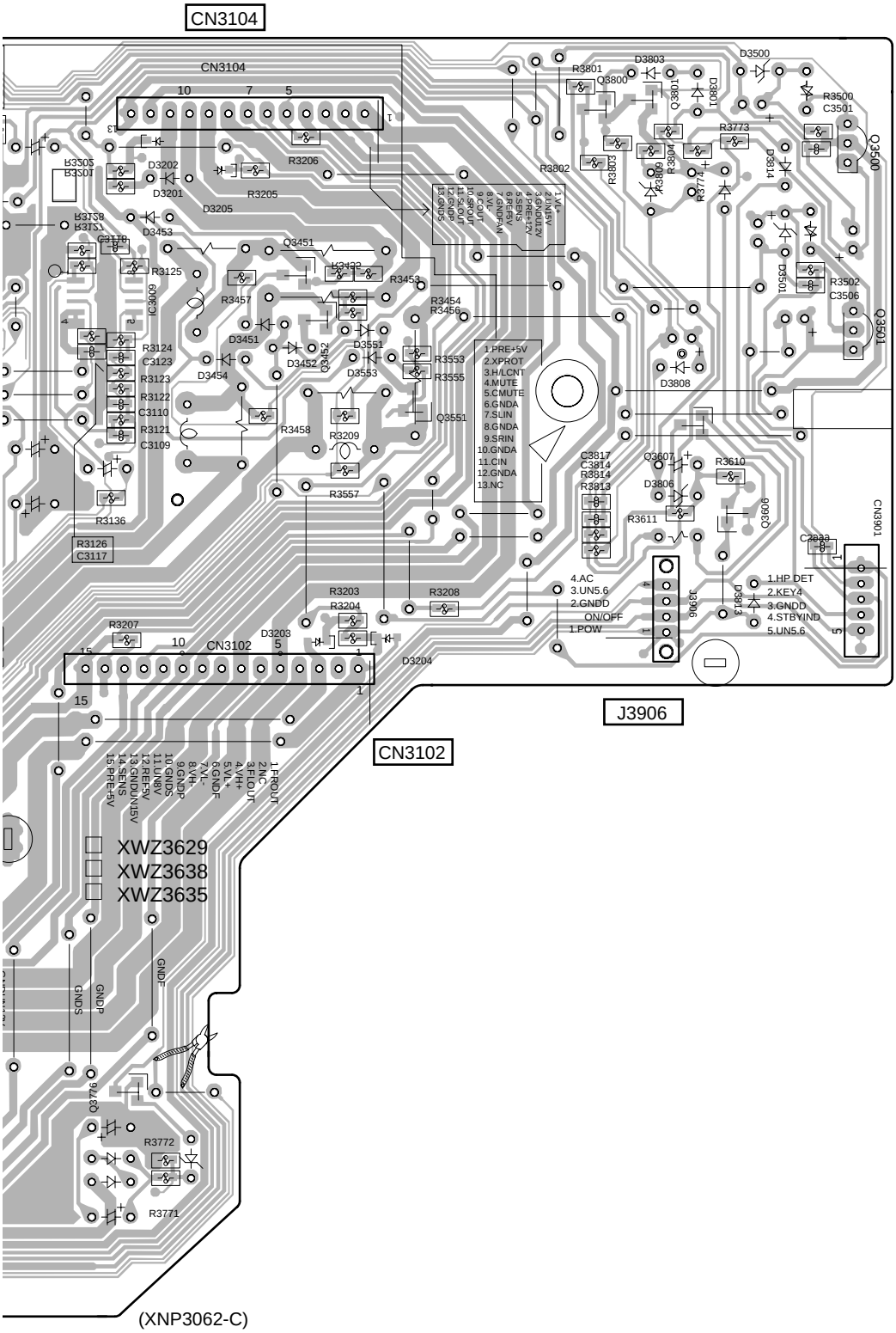
SIDE B

A E-VOL ASSY



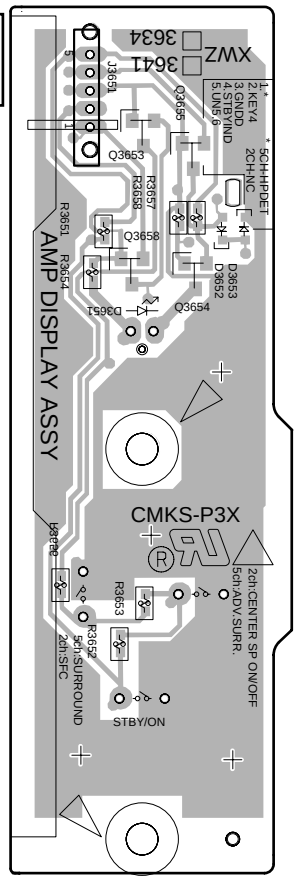
Q3094 Q3801
Q3800
Q3775 Q3500
Q3091
Q3092
IC3001
Q3451
Q3452
Q3501
Q3551
Q3607
Q3606
Q3096
Q3093
Q3009 Q3603
Q3062
Q3061

SIDE B



F

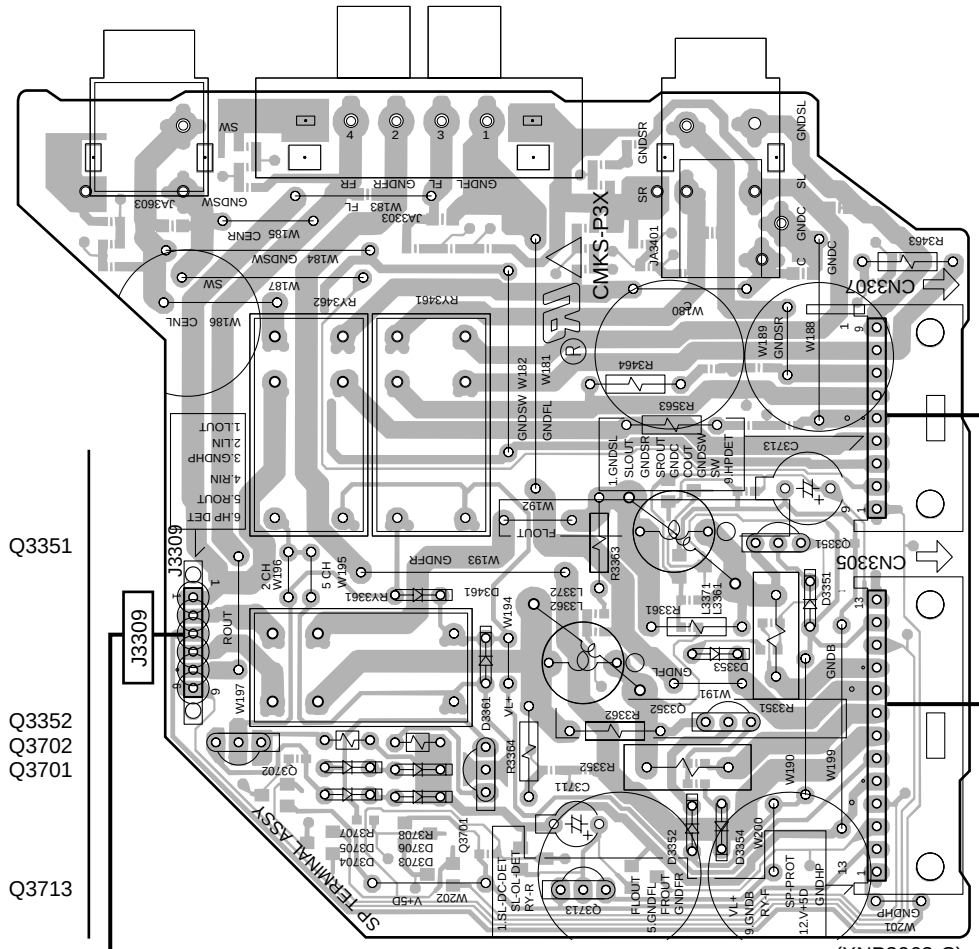
AMP DISPLAY ASSY



4.3 SP-TERMINAL and HP ASSYS

SIDE A **SIDE A**

D SP-TERMINAL ASSY

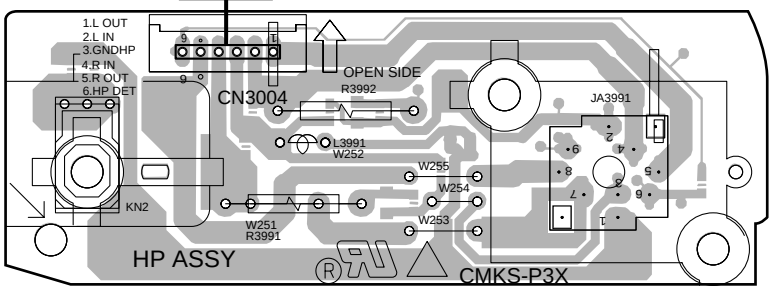


(XNP3062-C)

A CN3902

A CN3903

E HP ASSY



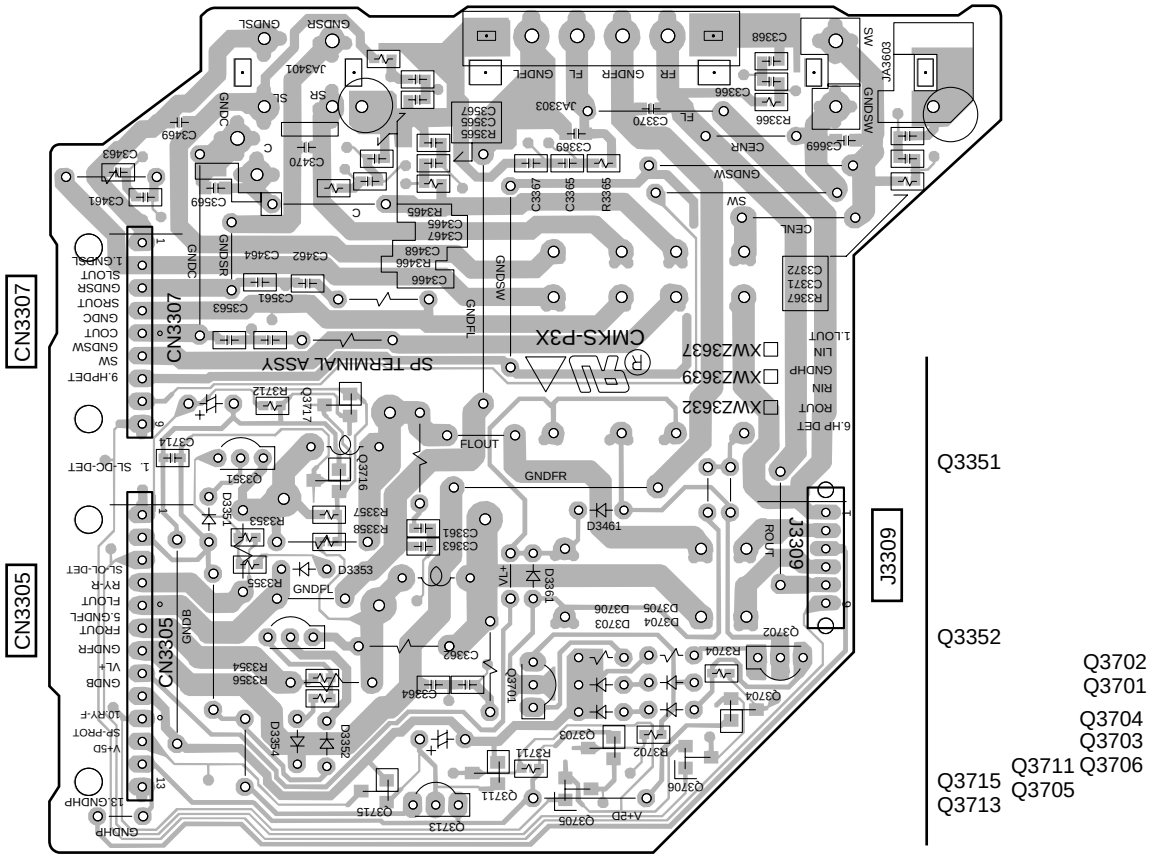
(XNP3062-C)

D **E** **D** **E**

SIDE B

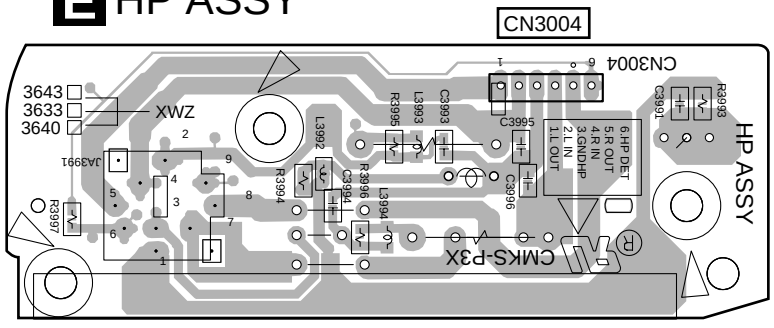
SIDE B

D SP-TERMINAL ASSY



(XNP3062-C)

E HP ASSY



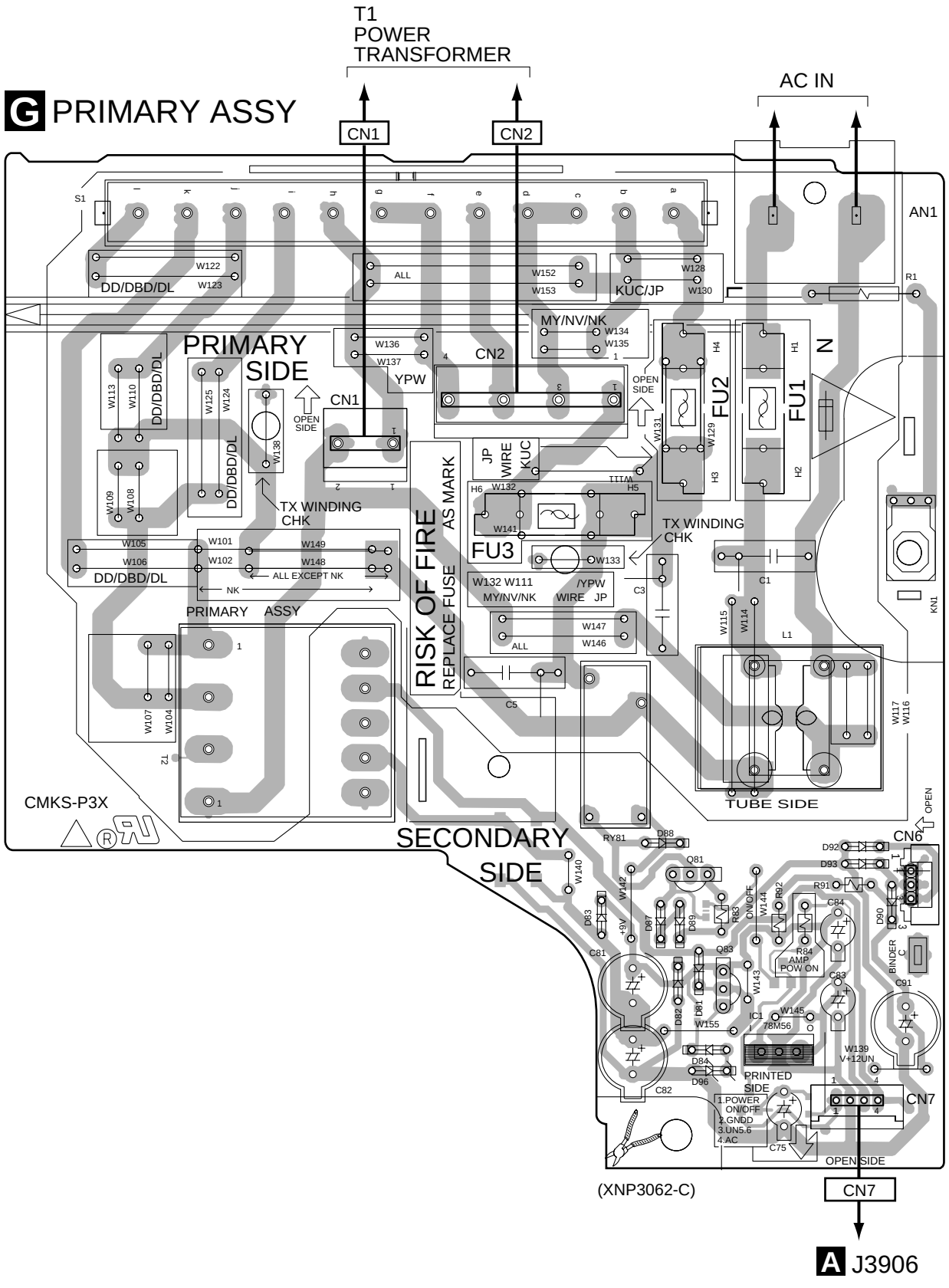
(XNP3062-C)

D E

D E

4.4 PRIMARY ASSY

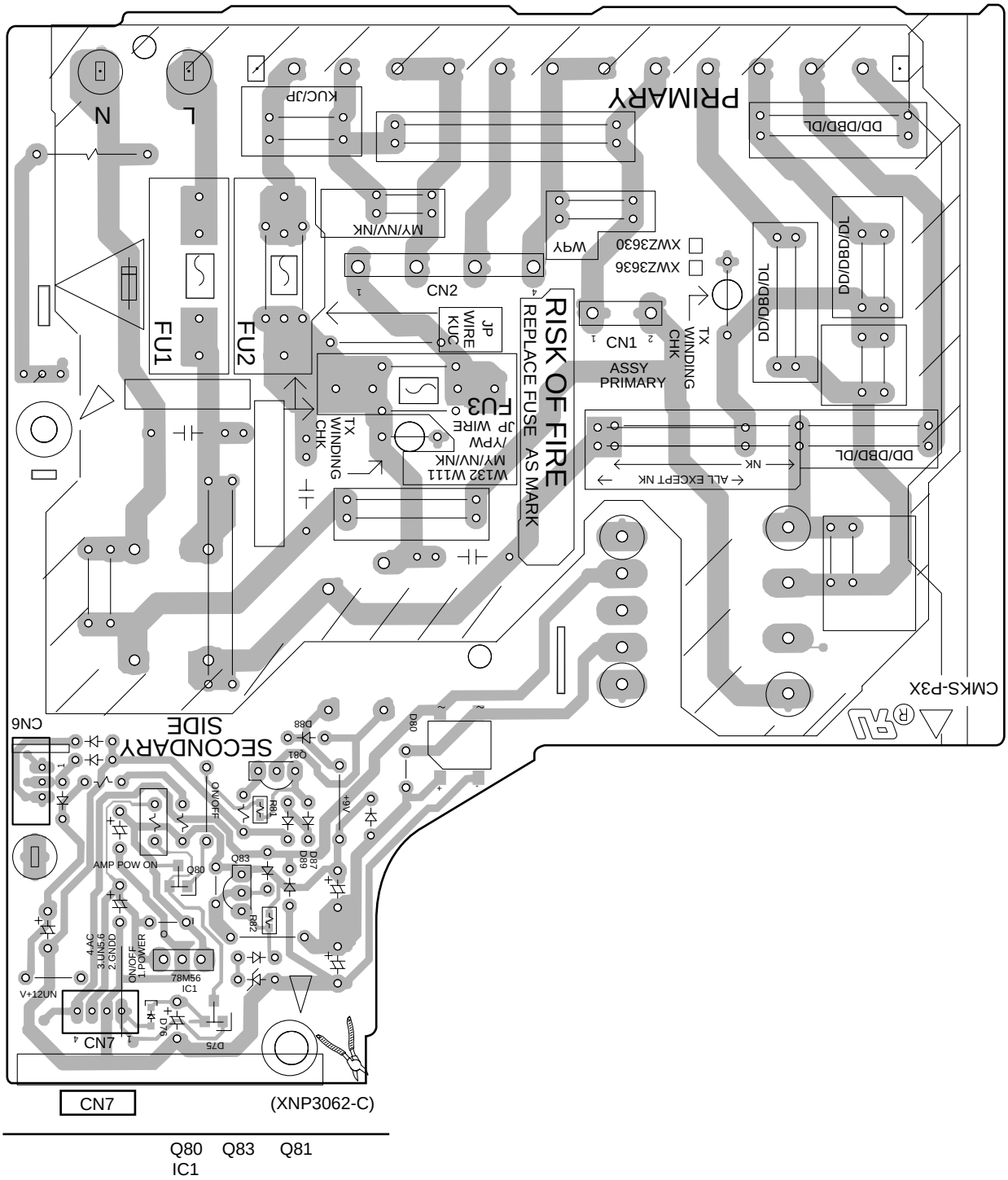
SIDE A **SIDE A**



SIDE B

SIDE B

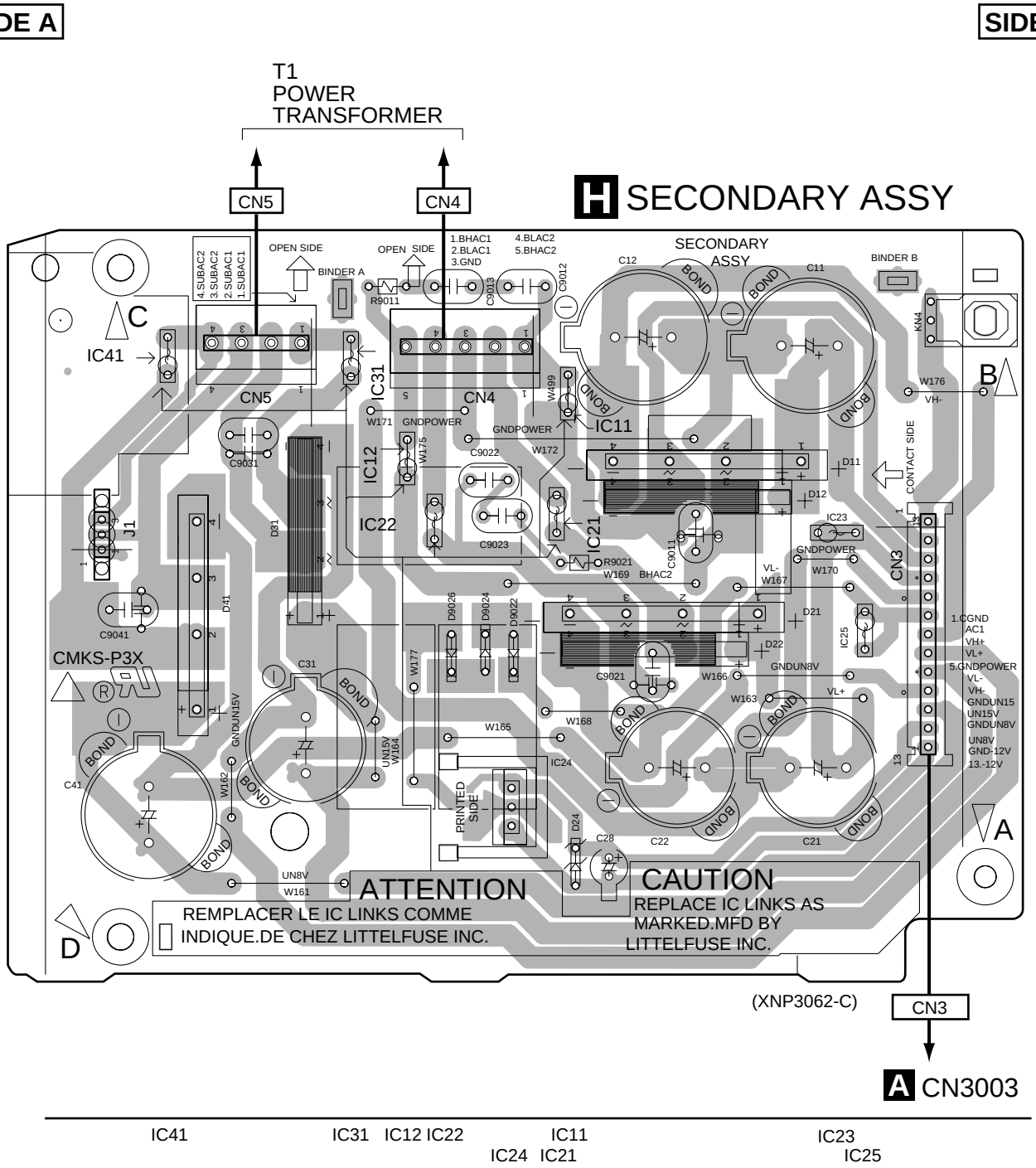
G PRIMARY ASSY



G

G

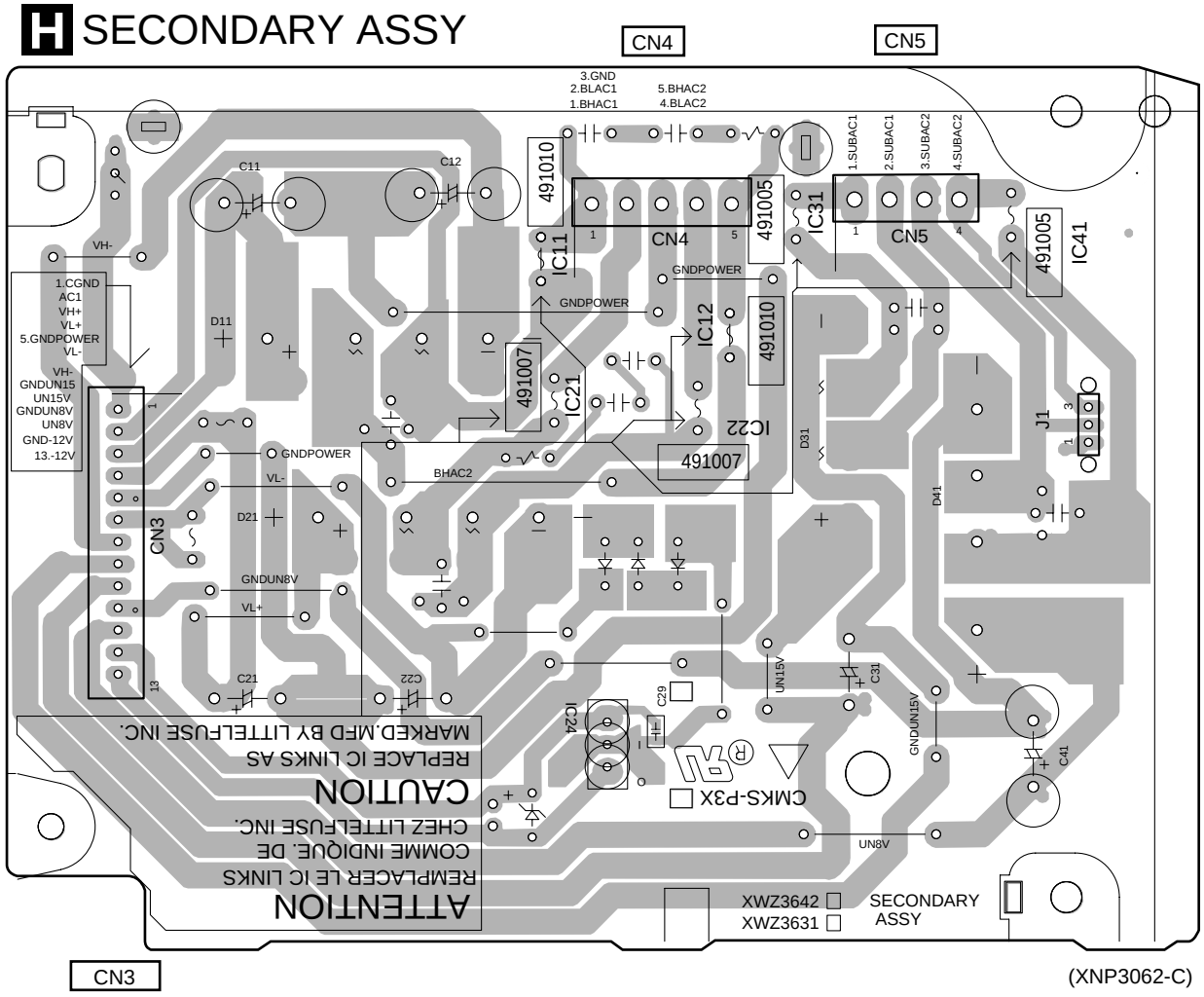
4.5 SECONDARY ASSY



IC41 IC31 IC12 IC22 IC11 IC23
IC24 IC21 IC25

SIDE B

H SECONDARY ASSY



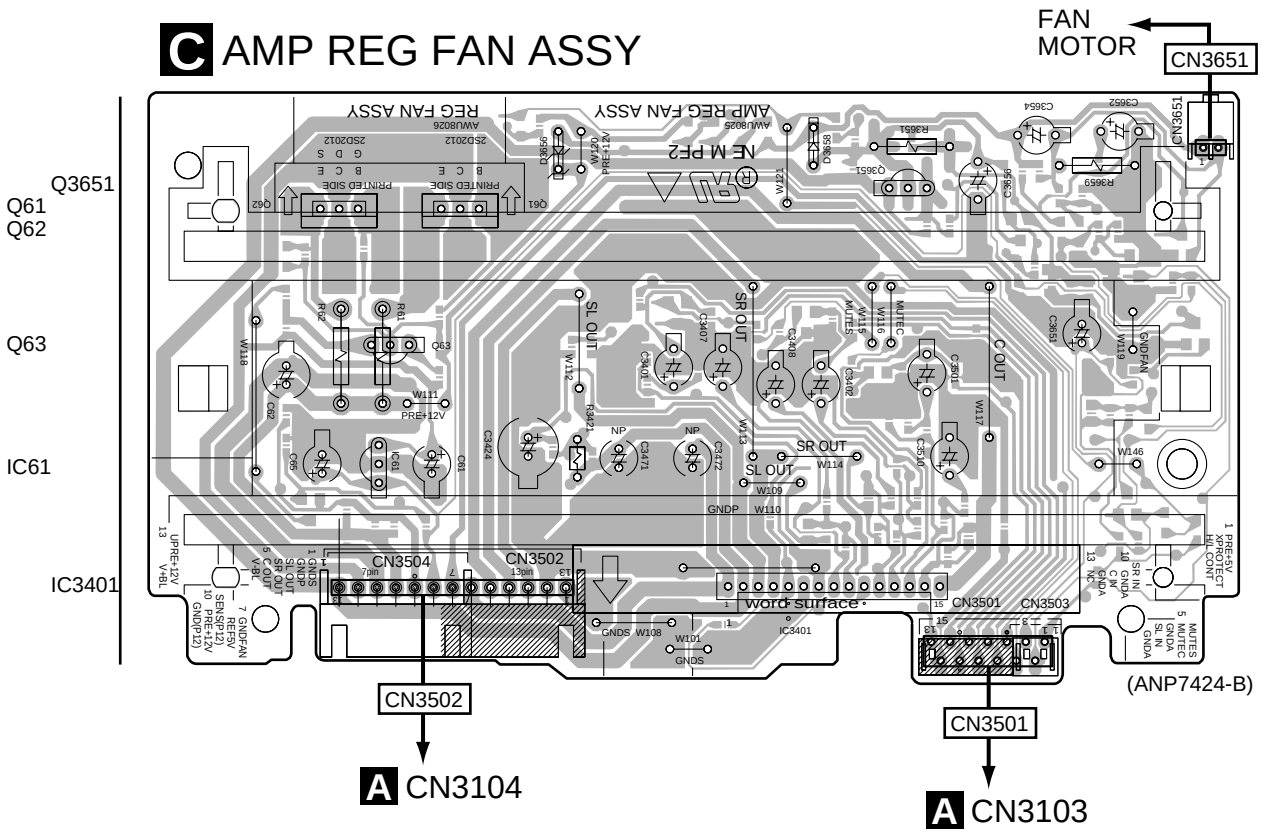
(XNP3062-C)

IC11 IC12 IC31 IC41
IC21 IC24 IC22

4.6 AMP REG FAN ASSY

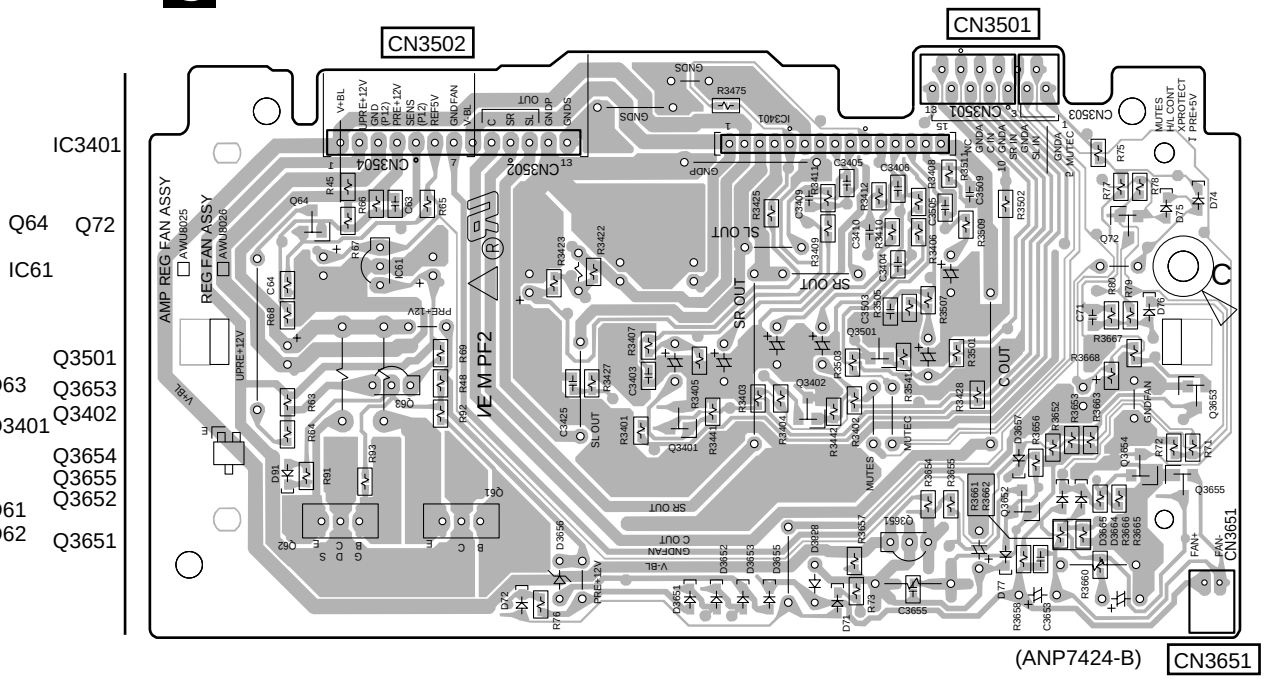
SIDE A

SIDE A



SIDE B

SIDE B



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 × 10¹ → 561 ..... RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 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 × 10¹ → 5621 ..... RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.

LIST OF ASSEMBLIES

NSP	1	..AMP ASSY	XWK3072
	2	..E-VOL ASSY	XWZ3629
	2	..PRIMARY ASSY	XWZ3630
	2	..SECONDARY ASSY	XWZ3631
	2	..SP-TERMINAL ASSY	XWZ3632
	2	..HP ASSY	XWZ3633
	2	..AMP DISPLAY ASSY	XWZ3634
NSP	1	..AMP MODULE H-5CH	AXQ7239
	2	..HIGH POWER AMP ASSY	AWM7718
	3	..VHVL AMP ASSY	AWU8024
	3	..AMP REG FAN ASSY	AWU8025

A E-VOL ASSY

SEMICONDUCTORS

	IC3102 (IC Protector 5A/125V)	AEK7019
	IC3001	M62446FP
	IC3004-IC3009	NJM4558MD
	Q3606,Q3801	2SA1037K
	Q3451,Q3452,Q3551	2SC2412K
	Q3009	2SC3326
⚠	Q3500,Q3501	2SD1858X
	Q3093,Q3094,Q3800	DTA124EK
	Q3096	DTA124TK
	Q3602	DTA143EK
	Q3091,Q3092,Q3603	DTC114TK
	Q3607,Q3775,Q3776	DTC124EK
	Q3601	DTC143EK
	D3201,D3451-D3454,D3502,D3503	1SS133
	D3551,D3553,D3701,D3702,D3801	1SS133
	D3803-D3805,D3808-D3810	1SS133
	D3813,D3814,D3821	1SS133
	D3202-D3205	1SS355
	D3500	MTZJ13B
	D3811,D3812	MTZJ15A
	D3820	MTZJ16B
	D3501	MTZJ6.2B
	D3001,D3002	MTZJ6.8B
	D3800,D3806	MTZJ8.2B
	D3815	UDZS5.1B
	D3816-D3819	UDZS6.8B

COILS AND FILTERS

	L3461,L3462,L3561 AF Choke Coil	ATH-133

CAPACITORS

	C3786-C3788	CCSRCH101J50
	C3028,C3500,C3504	CEAL100M16
	C3502,C3505	CEAL220M16
	C3031	CEAL2R2M50
	C3007,C3008	CEAL470M16
	C3094	CEAL4R7M50
	C3033	CEAT100M50
	C3012,C3013	CEAT1R0M50
	C3001,C3002	CEAT221M10
	C3010,C3011	CEAT2R2M50
	C3701,C3702	CEAT4R7M50
	C3005,C3015,C3027,C3096	CEJQ100M16
	C3095	CEJQ100M50
	C3014	CEJQ1R0M50
	C3029,C3030	CEJQ2R2M50
	C3313,C3314,C3610	CEJQ4R7M50
	C3103,C3104	CFTLA393J50
	C3006,C3016-C3021,C3051-C3062	CKSRYB103K50
	C3113-C3118,C3999	CKSRYB103K50
	C3003,C3004,C3506	CKSRYB104K16
	C3107,C3108	CKSRYB153K50
	C3109	CKSRYB182K50
	C3105,C3106	CKSRYB332K50
	C3309,C3310	CKSRYB333K25
	C3501	CKSRYB473K25
	C3307,C3308	CKSRYB474K10
	C3101,C3102,C3110	CKSRYB822K50

RESISTORS

	R3001,R3002	RD1/2PM151J
	R3461,R3462,R3561	RD1/2PMF100J
	R3612	RD1/4PU222J
	R3007,R3008,R3013,R3014	RS1/16S1001F
	R3019,R3020,R3025,R3026	RS1/16S1001F
	R3031,R3032,R3037,R3038	RS1/16S1001F
	R3003,R3004,R3009,R3010	RS1/16S2201F
	R3015,R3016,R3021,R3022	RS1/16S2201F
	R3027,R3028,R3033,R3034	RS1/16S2201F
	R3451,R3452,R3551	RS2LMFR22J
	Other Resistors	RS1/16S□□□J

OTHERS

	4P CABLE HOLDER	51048-0400
CN3101	9P PLUG	AKP7057
CN3103	13P PLUG	AKP7059
CN3902	09P CONNECTOR SOCKET	AKP7151
CN3903	13P CONNECTOR SOCKET	AKP7155
J3906	JUMPER WIRE	D20PYY0420E
CN3003	13P PLUG	KM250NA13L
CN3104	13P SOCKET	KP250NA13
CN3102	SOCKET 15-P	KP250NA15

Mark	No.	Description	Part No.
		PCB BINDER	VEF1040
	CN3002	SOCKET(20P)	XKP3051
	CN3001	SOCKET(8P)	XKP3052

B VHVL AMP ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC3501,IC3502		NJM4558MD
	IC51		NJM78L05A
⚠	IC3302		STK402-090
	Q3354		2SA1255
⚠	Q53		2SB1237X
	Q3355,Q54		2SC2412K
	Q3353		2SC3138
	Q3301,Q3302		2SC3326
⚠	Q51,Q52		2SD2012
	Q3511,Q3512		2SK246
	Q3503		DTA124EK
⚠	Q3351		IRFI9Z34G
⚠	Q3352		IRFIZ34G
⚠	D3301-D3306		1SR139-400
	D3351-D3354,D3361,D3362		1SS133
	D3307,D3308,D3367,D3368		1SS355
	D3355,D3356		LT2A03
	D3357,D3358		MTZJ10C
	D3359,D3360		MTZJ18B/C
	D3363,D3364		MTZJ39C
	TH3301,TH51		NCP18WF104J03RB

CAPACITORS

Mark	No.	Description	Part No.
	C3305,C3306,C53		CCSRCH221J50
	C3309,C3310		CCSRCJ3R0C50
	C3507,C3508		CEAL1R0M50
	C3502		CEAL470M25
	C3531		CEAT470M25
	C3301,C3302		CEJQ100M35
	C55		CEJQ100M50
	C3774,C3775		CEJQ101M10
	C3506,C51		CEJQ1R0M50
	C52		CEJQ470M25
	C3351,C3533,C3534		CKSRYB103K50
	C3329		CKSRYB104K25
	C3303,C3304		CKSRYB471K50
	C3324,C3325	(100µF/63V)	XCH3007

RESISTORS

Mark	No.	Description	Part No.
⚠	R3317,R3318		RD1/2LMF101J
	R3353,R3354		RD1/4PU101J
⚠	R59		RS1/16S100J
	R56		RS1/16S1202F
	R57		RS1/16S1502F
	R58		RS1/16S4701F
	R51,R52		RS1LMFR22J
	R3324-R3327		RS2LMFR22J
	Other Resistors		RS1/16S□□□J

OTHERS

Mark	No.	Description	Part No.
	CN3301	9P SOCKET	AKP7068
	CN3302	PLUG 15-P	KM250NA15L

C AMP REG FAN ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
⚠	IC3401		STK403-240
	Q72		2SA1037K
⚠	Q3651,Q63		2SB1237X
	Q3652-Q3654,Q64		2SC2412K
	Q3401,Q3402,Q3501		2SC3326
⚠	Q61,Q62		2SD2012
	Q3655		DTC114TK
	D3658		1SS133
	D3651-D3653,D3655,D3657		1SS355
	D3664,D3665,D72,D74-D77		1SS355

CAPACITORS

Mark	No.	Description	Part No.
	C3405,C3406,C3505		CCSRCH101J50
	C3655,C63		CCSRCH221J50
	C3409,C3410,C3509		CCSRCJ3R0C50
	C3471,C3472		CEANP100M35
	C3651,C65		CEAT100M50
	C3652		CEAT101M10
	C3424		CEAT101M35
	C3654,C3656		CEAT220M50
	C62		CEAT470M35
	C3407,C3408,C3510		CEJQ100M35
	C3401,C3402,C3501		CEJQ2R2M50
	C3425		CKSRYB104K25
	C71		CKSRYB105K10
	C3653		CKSRYB223K50
	C3403,C3404,C3503		CKSRYB471K50

RESISTORS

Mark	No.	Description	Part No.
	R3651		RD1/2PM182J
	R3659		RD1/2PM330J
⚠	R3421		RD1/4MUF470J
⚠	R69		RS1/16S120J
	R66,R67		RS1/16S2701F
	R68		RS1/16S4700F
⚠	R3423		RS1/16S560J
	R61,R62		RS1LMFR22J
	Other Resistors		RS1/16S□□□J

OTHERS

Mark	No.	Description	Part No.
	CN3501	13P SOCKE	AKP7070
	CN3651	L-PLUG(2P)	KM200SA2L
	CN3502	13P PLUG	KM250NA13L

D SP-TERMINAL ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	Q3351,Q3352		2SC2240
	Q3716,Q3717		2SC2412K
	Q3701,Q3702		2SD1858X
	Q3713		DTA123JS
	Q3703,Q3704		DTA143EK
	Q3705,Q3706		DTC123TK
	Q3711,Q3715		DTC143EK
	D3351-D3354,D3361,D3461		1SS133
	D3703-D3706		1SS133

COILS AND FILTERS

Mark	No.	Description	Part No.
	L3361,L3362	AF Choke Coil	ATH-059

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	RY3361,RY3461,RY3462		XSR3002

Mark	No.	Description	Part No.
CAPACITORS			
	C3713		CEAT102M6R3
	C3711		CEAT470M16
	C3714		CKSRYB103K50
	C3461-C3464,C3561,C3563		CKSRYB104K25
	C3361-C3364		CKSRYB223K50
RESISTORS			
	R3363,R3364,R3463,R3464,R3563		RD1/2PM4R7J
	R3361,R3362		RD1/2PMF101J
	R3708		RD1/4PU120J
	R3707		RD1/4PU220J
	R3351,R3352 (0.22Ω/5W)		XCN3001
	Other Resistors		RS1/16S□□□J
OTHERS			
	6P CABLE HOLDER		51048-0600
	JA3401 3P PINJACK		AKB7101
	JA3603 1P PIN JACK		AKB7111
	CN3307 09P CONNECTOR PLUG		AKM7063
	CN3305 13P CONNECTOR PLUG		AKM7067
	J3309 JUMPER WIRE		D20PYY0640E
	JA3303 SPEAKER TERMINAL 4-P		XKE3020

E HP ASSY

Mark	No.	Description	Part No.
CAPACITORS			
	C3991		CKSRYB104K16
RESISTORS			
	R3991,R3992		RS2LMF331J
	Other Resistors		RS1/16S□□□J
OTHERS			
	CN3004 6PJUMPER CONNECTOR		52151-0610
	KN2 EARTH METAL FITTING		VNF1084
	JA3991 MINI JACK		XKN3011

F AMP DISPLAY ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	Q3654		2SC2412K
	Q3658		DTA143EK
	Q3653,Q3655		DTC124EK
	D3652,D3653		1SS355
	D3651		SLR-343VC
SWITCHES AND RELAYS			
	S3651-S3653		ASG7013
RESISTORS			
	Other Resistors		RS1/16S□□□J
OTHERS			
	5P CABLE HOLDER		51048-0500
	J3651 JUMPER WIRE		D20PYY0520E

G PRIMARY ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	Q81		2SD1859X
	Q80		DTC124EK
	D87-D89		1SS133
	D76		1SS355
	D75		DAN202K
⚠	D80		DF06SA
COILS AND FILTERS			
⚠	L1	Line Filter	ATF7018
TRANSFORMERS			
⚠	T2		XTT3004
SWITCHES AND RELAYS			
⚠	S1		XKX3001
⚠	RY81		XSR3004
CAPACITORS			
⚠	C1,C3 (0.01μF/AC275V)		ACE7013
⚠	C82		CEAT102M25
	C75		CEAT1R0M50
RESISTORS			
	R81		RS1/16S102J
	Other Resistors		RD1/4PU□□□J
OTHERS			
	CN7 4PJUMPER CONNECTOR		52151-0410
	H1-H6 FUSE CLIP		AKR7001
⚠	CN1 2P-VH CONNECTOR		B2P3-VH
⚠	CN2 4P-VH CONNECTOR		B4P7-VH
⚠	AN1 AC INLET 1P		XKP3041

H SECONDARY ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
⚠	IC31,IC41(IC Protector 5A/125V)		AEK7019
⚠	IC21,IC22(IC Protector 7A/125V)		AEK7021
⚠	IC11,IC12(IC Protector 10A/125V)		AEK7022
⚠	IC24		NJM7912FA
	D9022,D9024,D9026		11ES2
⚠	D31		D3SBA20(B)
⚠	D11,D21,D41		D5SBA20(B)
CAPACITORS			
⚠	C11,C12 (2200μF/71V)		ACH7117
	C28		CEAT100M50
⚠	C31		CEAT222M35
⚠	C21,C22		CEAT332M35
⚠	C41		CEAT682M25
	C29		CKSRYF104Z50
	C9011,C9021,C9031,C9041		CQMA103K2E
OTHERS			
	HEAT SINK		ANH-309
	CN5 4P-TOP POST(VH)		B4P-VH
	CN4 5P-VH CONNECTOR		B5P-VH
	SCREW		BBZ30P080FMC
	CN3 13P SOCKET		KP250NA13
	PCB BINDER		VEF1040
	KN4 EARTH METAL FITTING		VNF1084

6. ADJUSTMENT

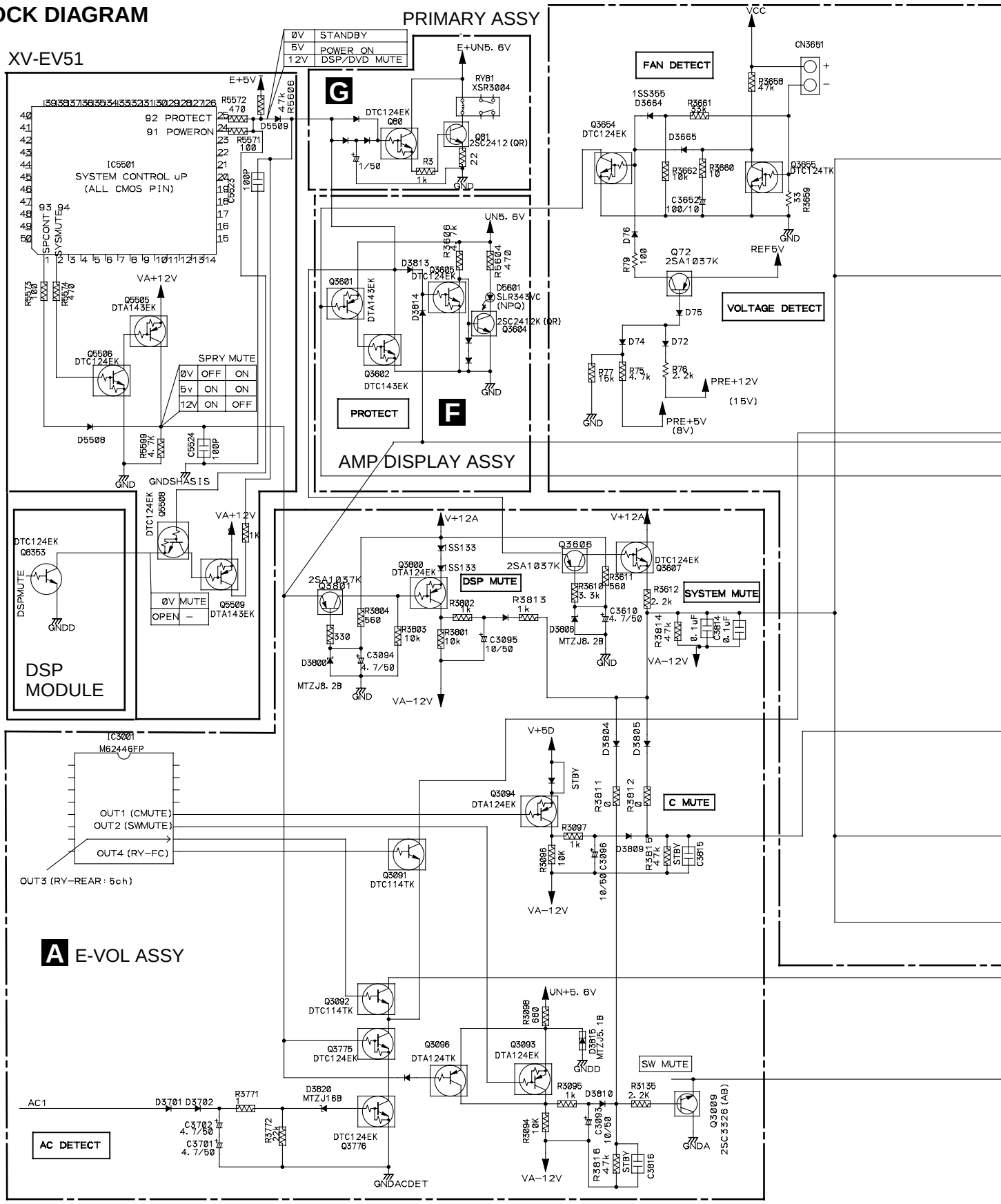
There is no information to be shown in this chapter.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

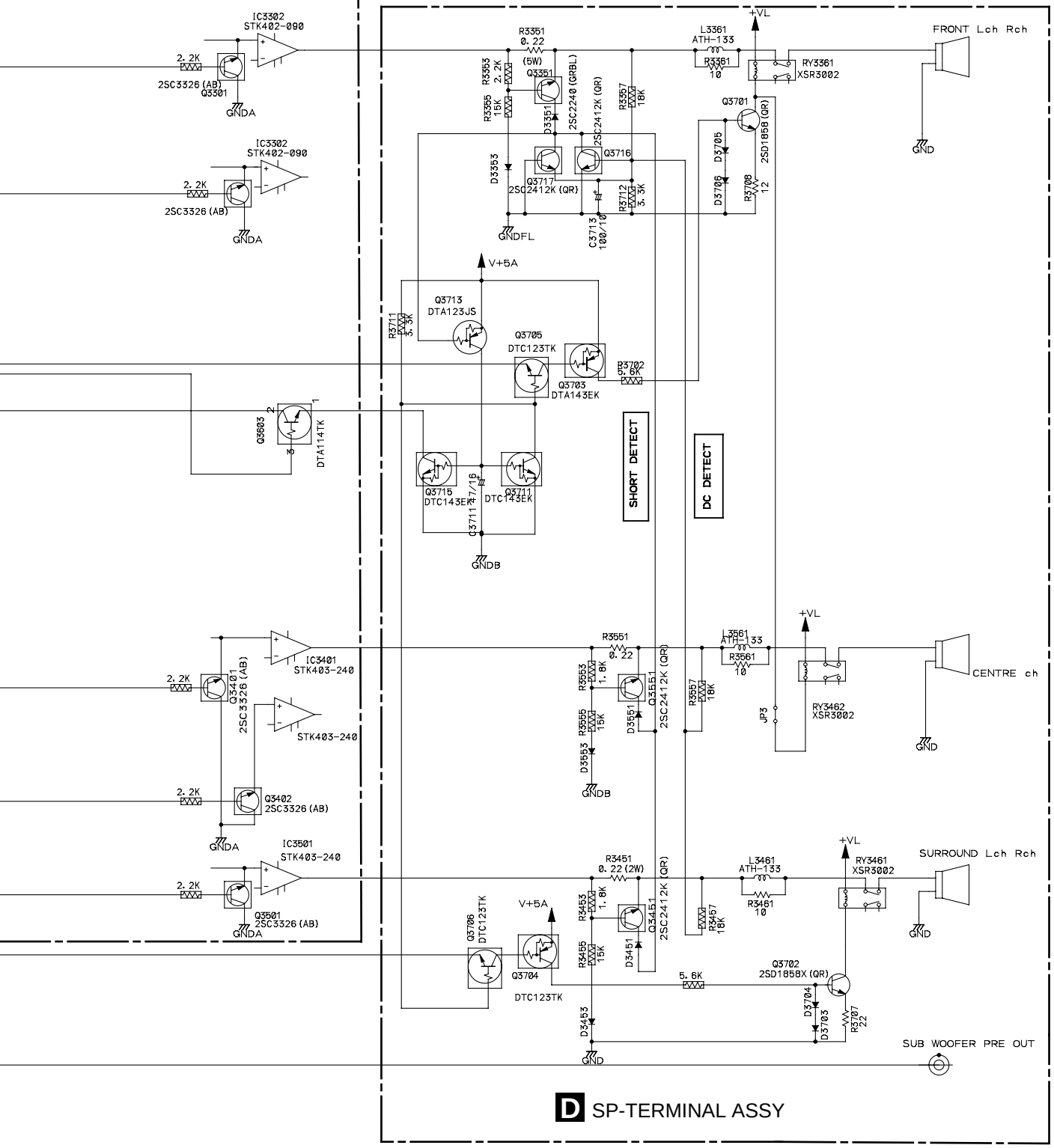
7.1.1 PROTECTION CIRCUIT

■ BLOCK DIAGRAM



AMP MODULE

B C



D SP-TERMINAL ASSY

[DETECTING CIRCUITS OF THE PROTECTION]

① AMP DC DETECTION CIRCUIT	SP-TERMINAL ASSY E-VOL ASSY
② AMP OVERCURRENT DETECTION CIRCUIT	SP-TERMINAL ASSY E-VOL ASSY
③ AMP FAN DETECTION CIRCUIT	AMP REG FAN ASSY
④ AMP POWER LINE DETECTION CIRCUIT	AMP REG FAN ASSY

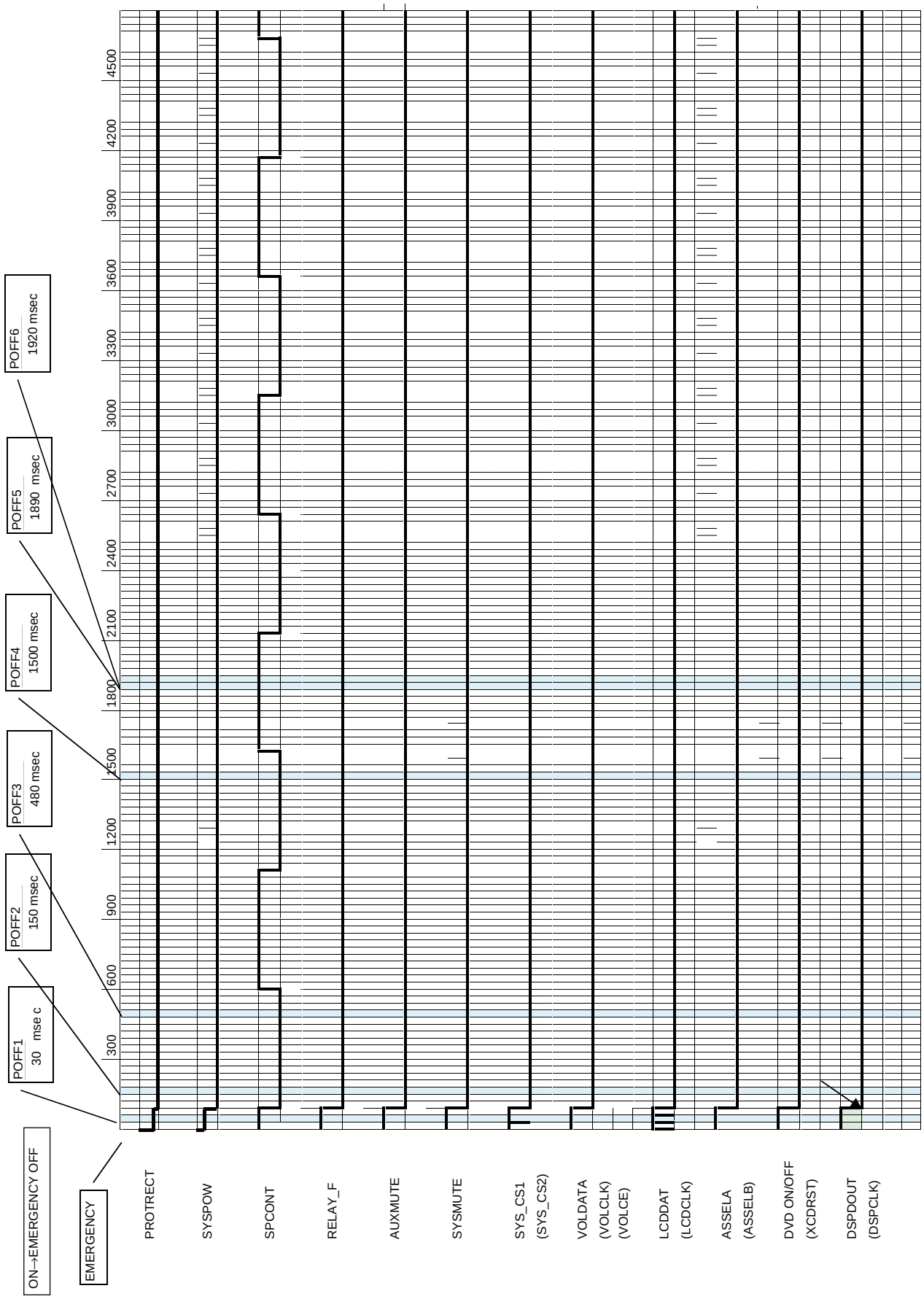
[AFTER THE DETECTION]

When above four detection circuits detect the error, the set(M-EV51) enters to the stand-by mode.
Then the stand-by LED blinks and it becomes unable to turn on the power for 60 seconds.
This mode can be cancelled by entering to the TEST MODE at Media Part XV-EV51.
Refer to the protection power off timming chart next page.

7.1.2 OPERATING CONDITION FOR FAN

1) After M-EV51 is set to be turned on the power, the fan rotates at low speed under 13V.
2) When CN3501 Pin3 (H/L CONT) becomes about 0.6 ~ 0.85V, the fan rotates at high speed of 20V.

[PROTECTION POWER OFF TIMING CHART]



7.1.3 SINGLE OPERATION METHOD

Single operation method and input level.

Note : Before the diagnosis, discharge the Amp power line. Connect the resistor of 100Ω or more between W301(VH+), W303(VH–) and GND (CN3003 Pin1) on the E-VOL ASSY. Refer to the next page about the points.

The procedure and the input level of a single operation are shown below.

1. Short R84 with 1kΩ on the PRIMARY ASSY.
2. The power supply of the unit is turned on.
3. The terminal SPCONT(7 pin of CN3002) on the E-VOL ASSY is controlled by the following voltages.
   The initial state is “SP Relay is OFF” and “Sys. Mute is ON”. Apply DC+12V to SPCONT so that AMP can output to the speaker terminal.

[SPCONT]

	CONT		
	0V	5V	12V
SP Relay	OFF	ON	ON
Sys. Mute	ON	ON	OFF

[The Signal Input]

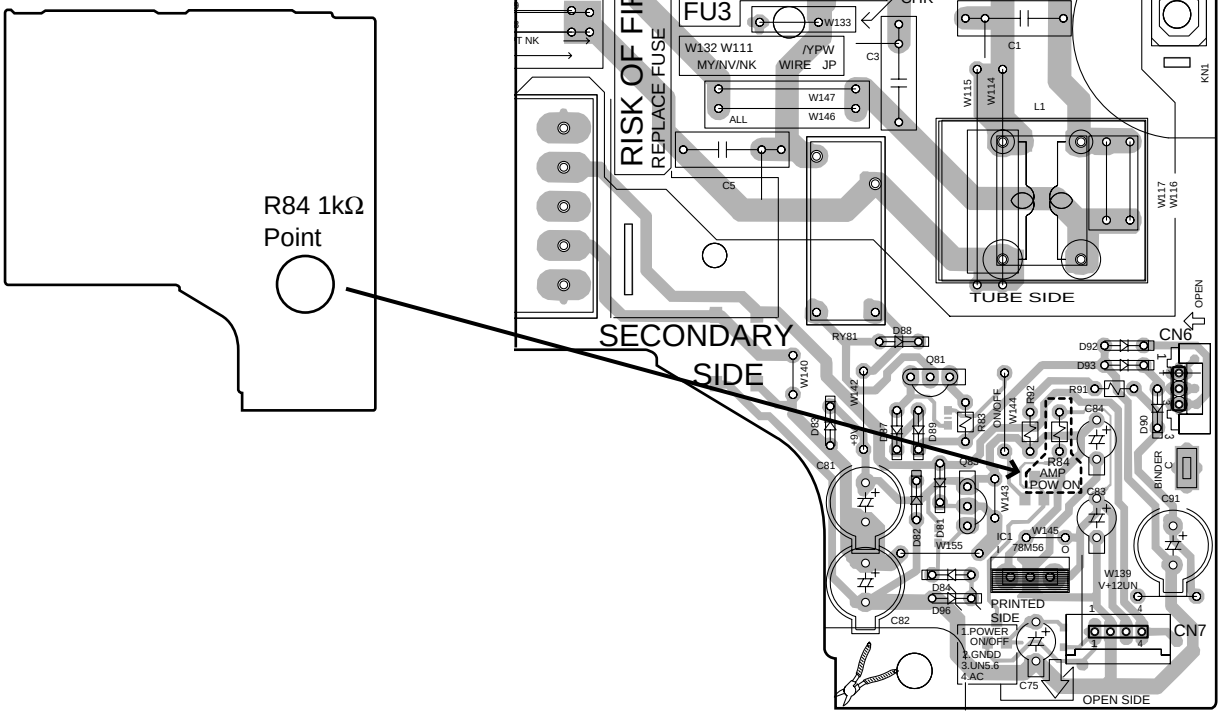
Note : This unit has the electric volume and this volume is only controled by U-com in the Receiver.
So, please input the signal to the point after the electric volume output.

Signal Input/Output Point

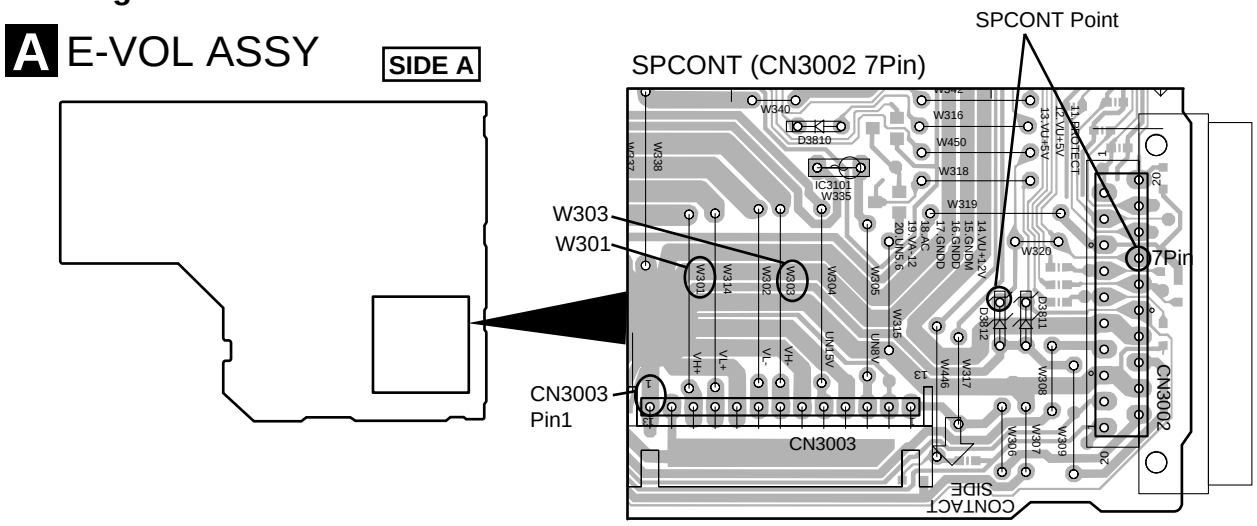
	Input Point	Output Point	Gain (1kHz)	Input Level(rms)	Output Level(rms)
FL ch	R3101	Speaker Out	47 dB	44.6 mV	10 V
FR ch	R3102	Speaker Out	47 dB	44.6 mV	10 V
SL ch	R3111	Speaker Out	36 dB	44.6 mV	2.8 V
SR ch	R3112	Speaker Out	36 dB	44.6 mV	2.8 V
C ch	R3121	Speaker Out	36 dB	44.6 mV	2.8 V
SW ch	IC3009 3Pin	PRE Out	0 dB (100Hz)	Check that it is not muted by Q3009.	

● **R84 1kΩ Point**

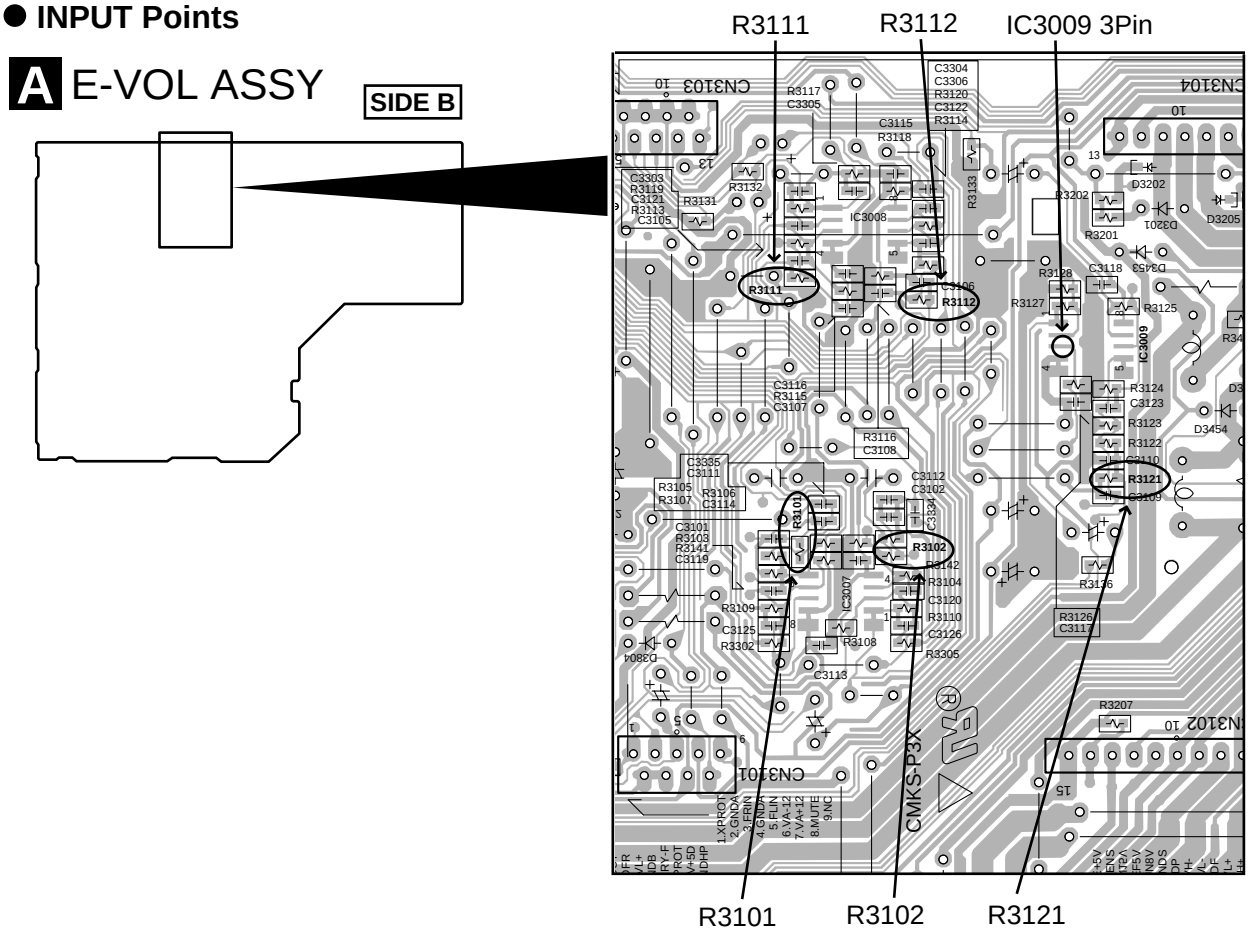
G PRIMARY ASSY



● Discharge Point/SPCONT Point



● INPUT Points

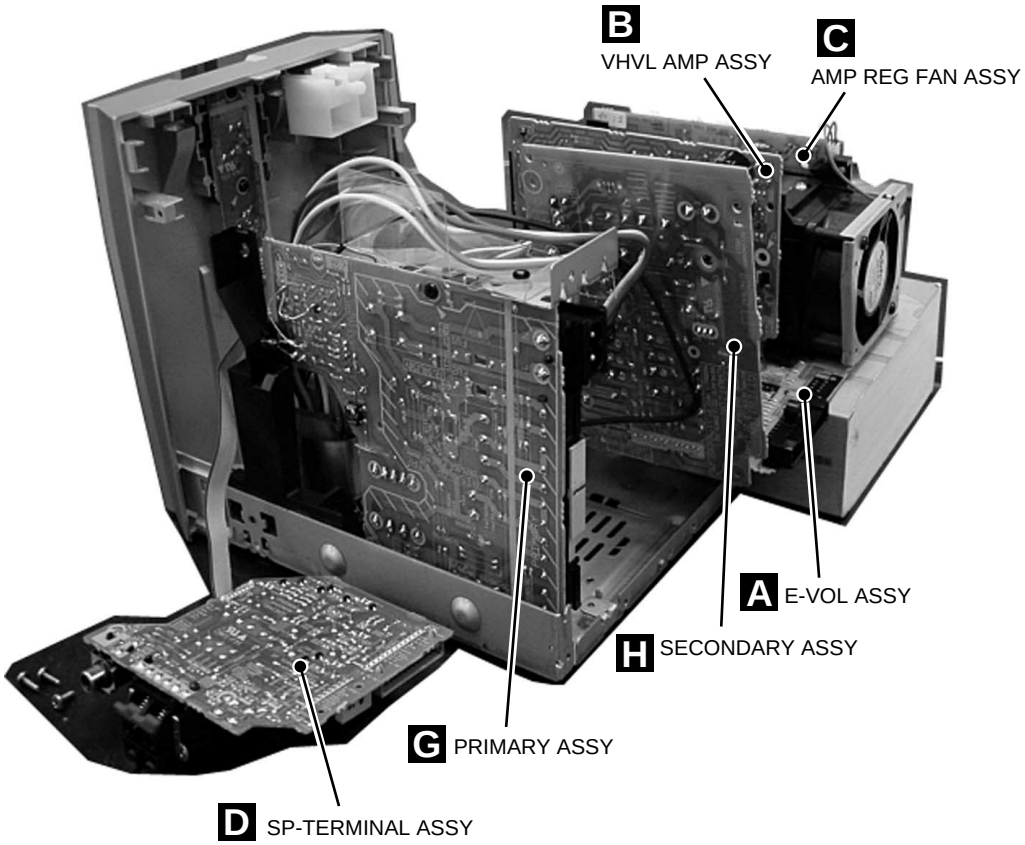


7.1.4 DISASSEMBLY

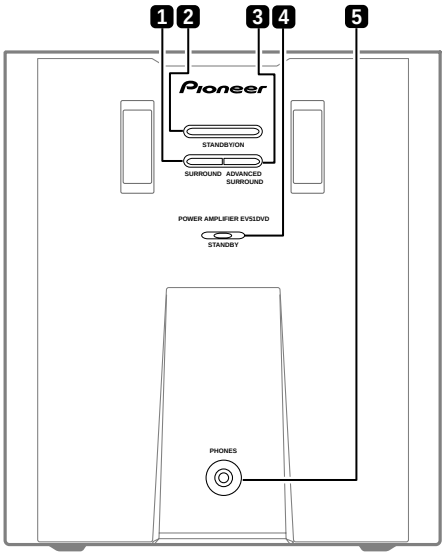
For diagnosing VHVL AMP ASSY

① Remove the rear panel.
② Remove E-VOL ASSY and SECONDARY ASSY temporarily.
③ Remove SECONDARY ASSY.
④ Remove SP-TERMINAL ASSY.
(Even if this ASSY is removed, VHVL ASSY can operate.)
⑤ Attach SECONDARY ASSY to E-VOL ASSY again.
⑥ Put E-VOL ASSY, AMP MODULE and SECONDARY ASSY on the table, and diagnose VHVL AMP ASSY.

Note : The connectors between E-VOL ASSY, SECONDARY ASSY, VHVL AMP ASSY and AMP REG FAN ASSY
(CN3003-CN3, CN3101-CN3301, CN3102-CN3302, CN3104-CN3502, CN3103-CN3501)
are board to board connectors. It is difficult to connect them.
Be sure to confirm the complete connections.
It may become the factor of trouble.



8. PANEL FACILITIES



1 **SURROUND**
Selects a surround listening mode

2 **STANDBY/ON**
Switches the player on or into standby.

3 **ADVANCED SURROUND**
Selects an advanced listening mode

4 **STANDBY indicator**
Lights when the system is in standby

5 **PHONES jack**
Headphone jack