Service Manual

Pioneer

PRS-X720/X1R/UC

ORDER NO.
CRT2361

BRIDGEABLE POWER AMPLIFIER

PRS-X720

X1R/UC

PRS-X320

X1R/UC

PRS-X220

X1R/UC

CONTENTS

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K-ZZA. FEB. 1999 Printed in Japan

1. SAFETY INFORMATION

CAUTION

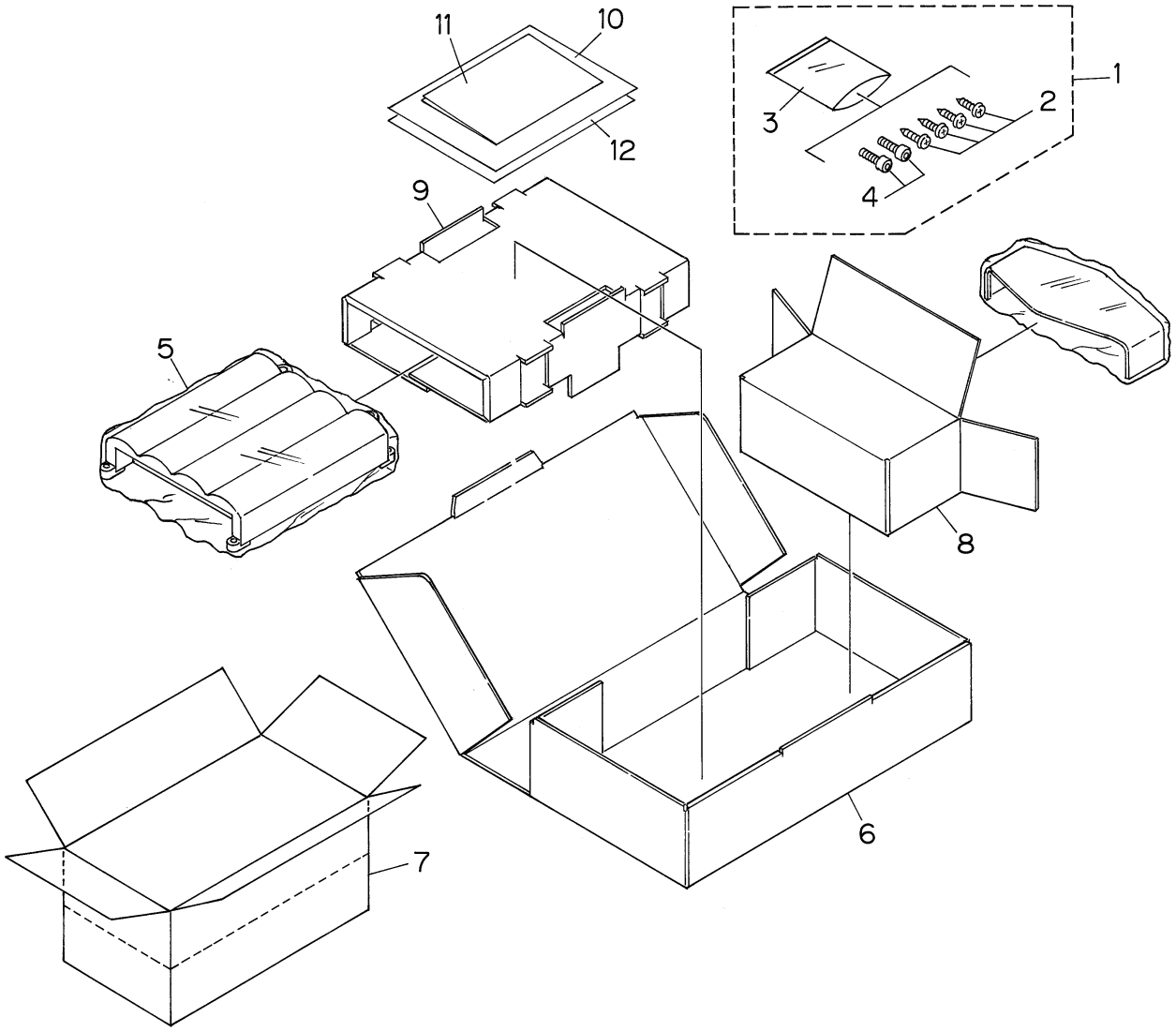
This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly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

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



NOTE:

● Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.

● Screws adjacent to ∇ mark on the product are used for disassembly.

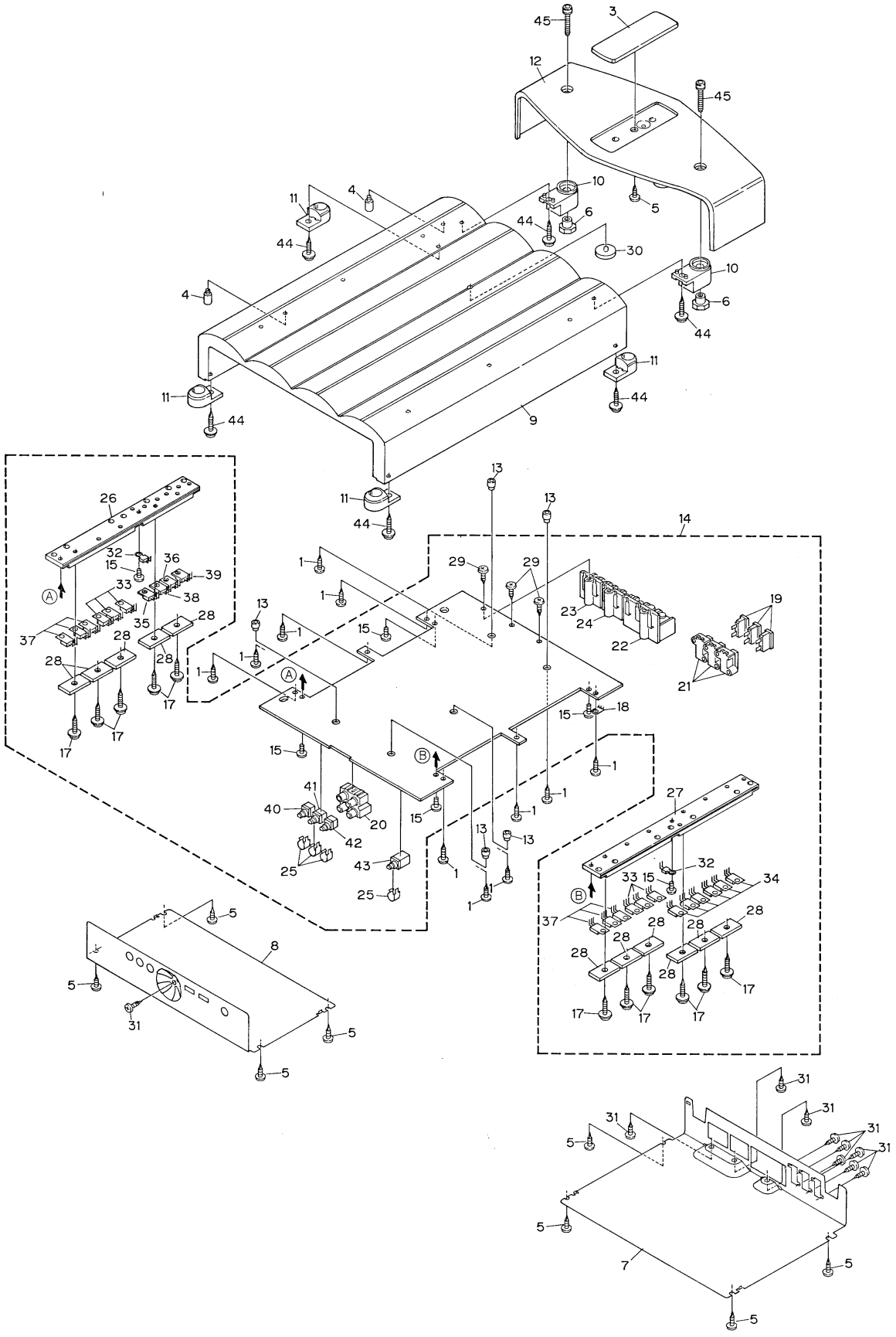
● PACKING SECTION PARTS LIST

Mark No.		Description	Part No. PRS-X720/X1R/UC	PRS-X320/X1R/UC	PRS-X220/X1R/UC
	1	Screw Assy	HEA0047	HEA0047	HEA0047
	2	Screw	BYC40P180FZK	BYC40P180FZK	BYC40P180FZK
	3	Polyethylene Bag	HEG0011	HEG0011	HEG0011
	4	Screw	SMZ50H300FCR	SMZ50H300FCR	SMZ50H300FCR
	5	Polyethylene Bag	HEG0022	HEG0022	HEG0022
	6	Carton	HHG0170	HHG0171	HHG0172
	7	Contain Box	HHL0170	HHL0171	HHL0172
	8	Protector	HHP0043	HHP0043	HHP0043
	9	Protector	HHP0063	HHP0064	HHP0065
*	10	Spec Sheet	HRB0044	HRB0043	HRB0040
	11	Owner's Manual	HRD0087	HRD0087	HRD0087
*	12	Warranty Card	HRY1070	HRY1070	HRY1070

● Owner's Manual

Model	Part No.	Language
PRS-X720/X1R/UC PRS-X320/X1R/UC PRS-X220/X1R/UC	HRD0087	English, French

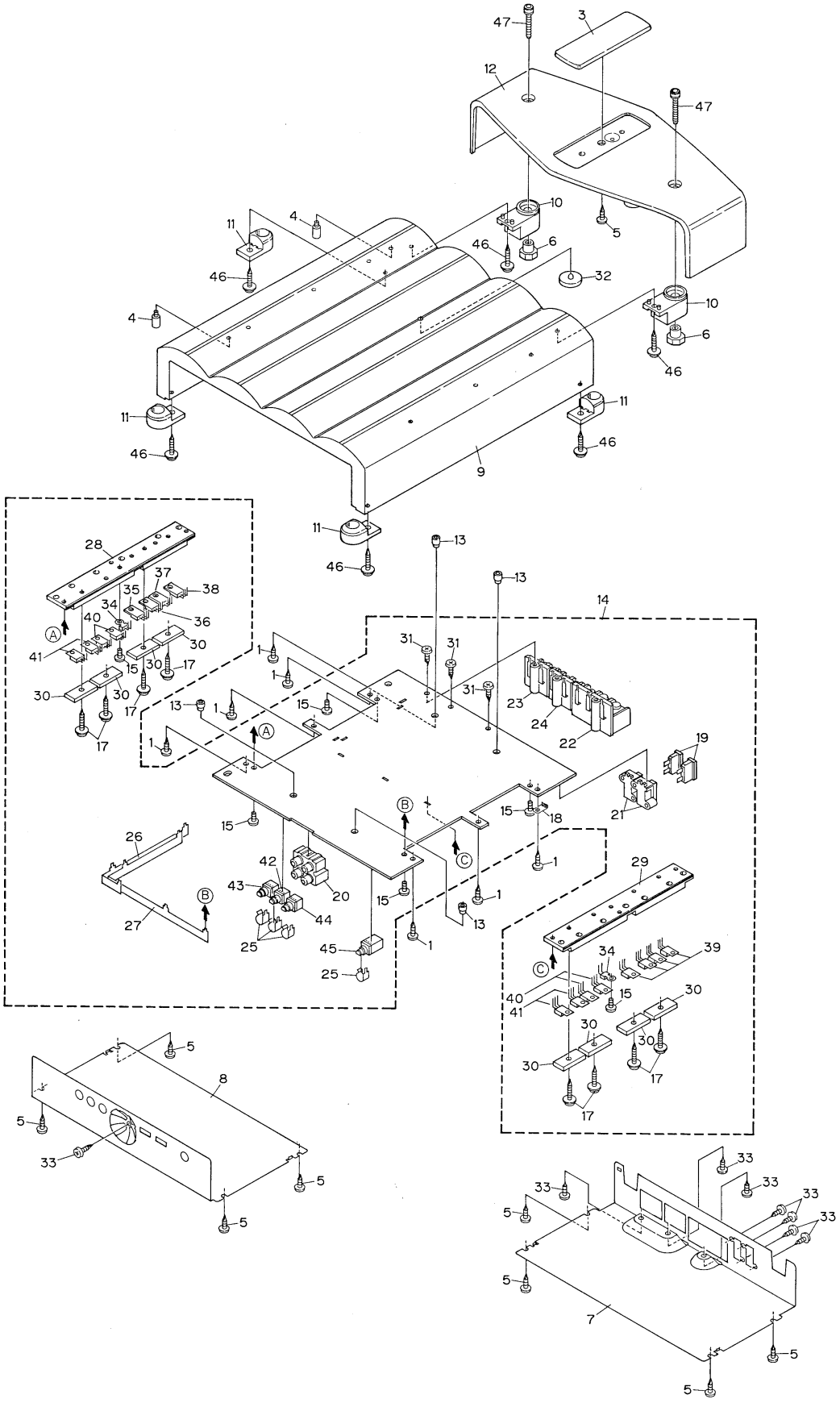
2.2 EXTERIOR(PRS-X720/X1R/UC)



● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw(M3×12)	CBA1323
	2	•••••	
*	3	Badge	HAM0013
	4	Screw(M3×5)	HBA0006
	5	Screw(M3×8)	HBA0011
	6	Insert	HBN0003
	7	Case	HNB0087
	8	Case	HNB0089
	9	Heat Sink	HNR0110
	10	Bracket	HNS0070
	11	Bracket	HNS0071
	12	End Cap	HNS0072
	13	Spacer	HNV0016
	14	Amp Unit	HWH0091
	15	Screw	BBZ30P060FMC
	16	•••••	
	17	Screw(M3×14)	CBA1382
	18	Terminal(CN905)	CKF1059
	19	Fuse(30A)	HEK0030
	20	Pin Jack(CN851)	HKB0006
	21	Fuse Holder	HKE0012
	22	Terminal(CN901)	HKE0020
	23	Terminal(CN551)	HKE0021
	24	Terminal(CN552)	HKE0021
	25	Clip	HNC0054
	26	Heat Sink	HNR0113
	27	Heat Sink	HNR0114
	28	Bar	HNR0124
	29	Screw	PPZ30P100SAD
	30	Light Pipe Unit	HXA0201
	31	Screw	PPZ30P100FZK
	32	Thermistor(TH901, 902)	CCX1013
	33	FET(Q561-566)	94-4980
	34	FET(Q905, 906, 911-914)	STP50NE08
	35	Transistor(Q907)	2SD2395
	36	Diode(D907)	FML22S
	37	FET(Q567-572)	94-4981
	38	Transistor(Q908)	2SB1566
	39	Diode(D910)	FML22R
	40	Variable Resistor(VR453)	CCS1265
	41	Volume(VR451)	HCS0001
	42	Variable Resistor(VR452)	CCS1263
	43	Variable Resistor(VR101)	CCS1266
	44	Screw(M3×14)	HBA0017
	45	Screw	SMZ50H300FCR

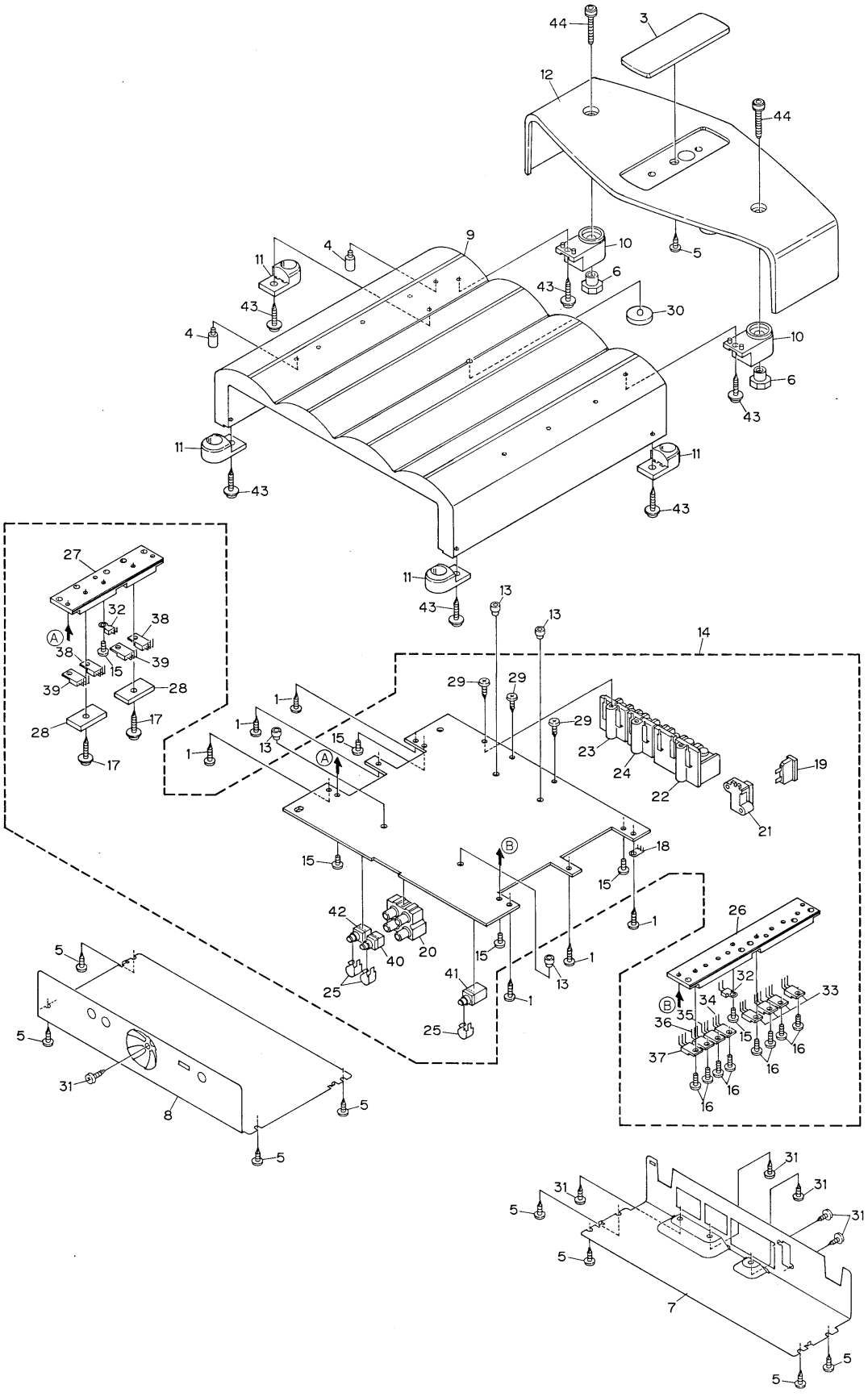
2.3 EXTERIOR(PRS-X320/X1R/UC)



● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw(M3×12)	CBA1323
	2	•••••	
*	3	Badge	HAM0013
	4	Screw(M3×5)	HBA0006
	5	Screw(M3×8)	HBA0011
	6	Insert	HBN0003
	7	Case	HNB0086
	8	Case	HNB0089
	9	Heat Sink	HNR0111
	10	Bracket	HNS0070
	11	Bracket	HNS0071
	12	End Cap	HNS0072
	13	Spacer	HNV0016
	14	Amp Unit	HWH0095
	15	Screw	BBZ30P060FMC
	16	•••••	
	17	Screw(M3×14)	CBA1382
	18	Terminal(CN902)	CKF1059
	19	Fuse(30A)	HEK0030
	20	Pin Jack(CN851)	HKB0006
	21	Fuse Holder	HKE0012
	22	Terminal(CN901)	HKE0020
	23	Terminal(CN651)	HKE0021
	24	Terminal(CN652)	HKE0021
	25	Clip	HNC0054
	26	Buss Bar	HNC0064
	27	Buss Bar	HNC0065
	28	Heat Sink	HNR0115
	29	Heat Sink	HNR0116
	30	Bar	HNR0124
	31	Screw	PPZ30P100SAD
	32	Light Pipe Unit	HXA0201
	33	Screw	PPZ30P100FZK
	34	Thermistor(TH901, 902)	CCX1013
	35	Transistor(Q908)	2SB1566
	36	Transistor(Q907)	2SD2395
	37	Diode(D907)	FML22S
	38	Diode(D910)	FML22R
	39	FET(Q905, 906, 911, 912)	STP50NE08
	40	FET(Q563, 564, 565, 566)	94-4980
	41	FET(Q567, 568, 569, 570)	94-4981
	42	Volume(VR451)	HCS0001
	43	Variable Resistor(VR453)	CCS1265
	44	Variable Resistor(VR452)	CCS1263
	45	Variable Resistor(VR101)	CCS1266
	46	Screw(M3×14)	HBA0017
	47	Screw	SMZ50H300FCR

2.4 EXTERIOR(PRS-X220/X1R/UC)



● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw(M3×12)	CBA1323
	2	•••••	
*	3	Badge	HAM0013
	4	Screw(M3×5)	HBA0006
	5	Screw(M3×8)	HBA0011
	6	Insert	HBN0003
	7	Case	HNB0088
	8	Case	HNB0090
	9	Heat Sink	HNR0112
	10	Bracket	HNS0070
	11	Bracket	HNS0071
	12	End Cap	HNS0072
	13	Spacer	HNV0016
	14	Amp Unit	HWH0099
	15	Screw	BBZ30P060FMC
	16	Screw	BMS30P080FMC
	17	Screw(M3×14)	CBA1382
	18	Terminal(CN902)	CKF1059
	19	Fuse(30A)	HEK0030
	20	Pin Jack(CN851)	HKB0006
	21	Fuse Holder	HKE0012
	22	Terminal(CN901)	HKE0020
	23	Terminal(CN651)	HKE0021
	24	Terminal(CN652)	HKE0021
	25	Clip	HNC0054
	26	Heat Sink	HNR0117
	27	Heat Sink	HNR0118
	28	Bar	HNR0124
	29	Screw	PPZ30P100SAD
	30	Light Pipe Unit	HXA0201
	31	Screw	PPZ30P100FZK
	32	Thermistor(TH901, 902)	CCX1013
	33	FET(Q905, 906, 911, 912)	IRFIZ44N
	34	Diode(D907)	FML22S
	35	Diode(D910)	FML22R
	36	Transistor(Q907)	2SD2395
	37	Transistor(Q908)	2SB1566
	38	FET(Q565, 566)	94-4980
	39	FET(Q567, 568)	94-4981
	40	Volume(VR451)	HCS0001
	41	Variable Resistor(VR101)	CCS1266
	42	Variable Resistor(VR453)	CCS1265
	43	Screw(M3×14)	HBA0017
	44	Screw	SMZ50H300FCR

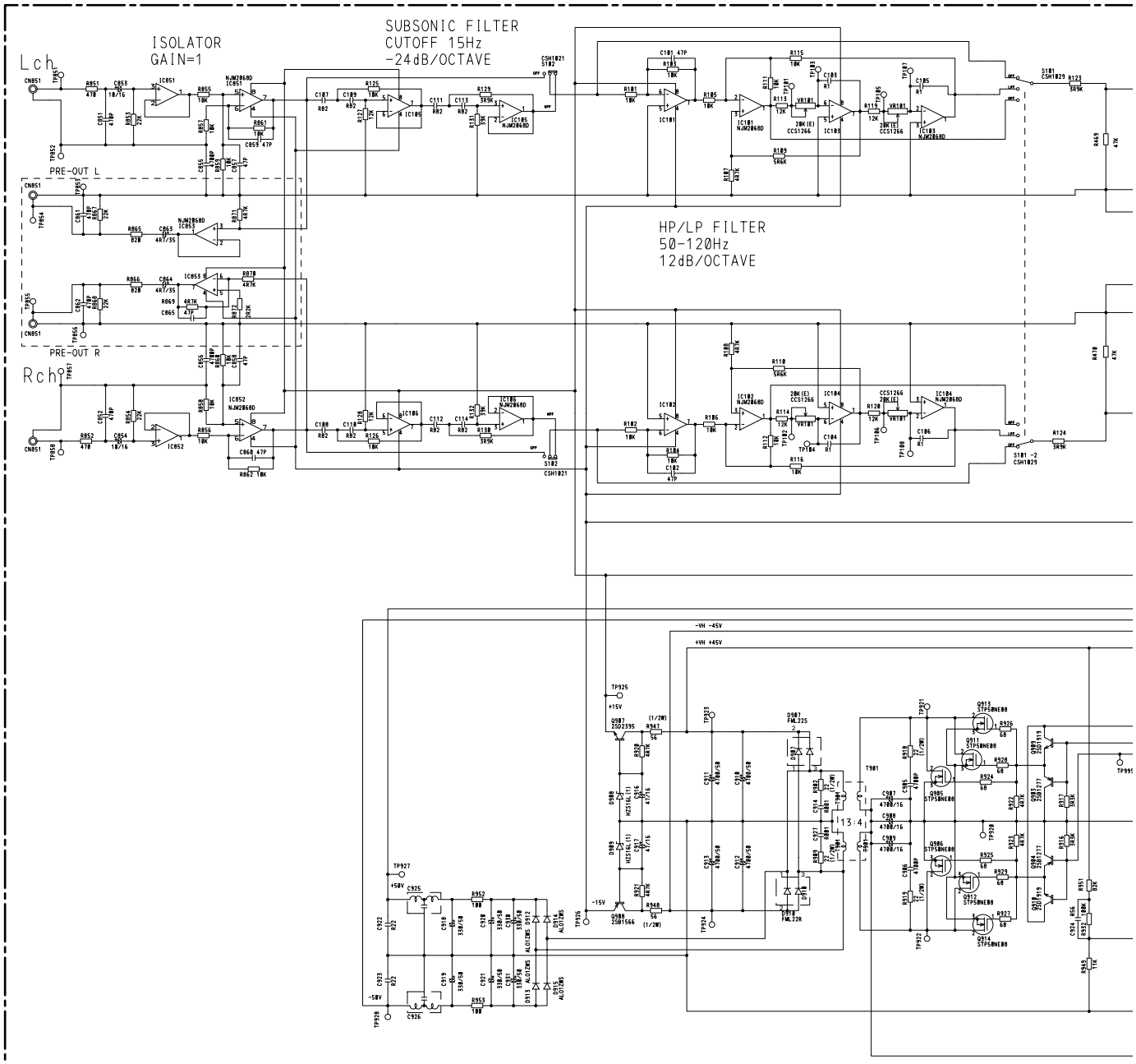
3. SCHEMATIC DIAGRAM

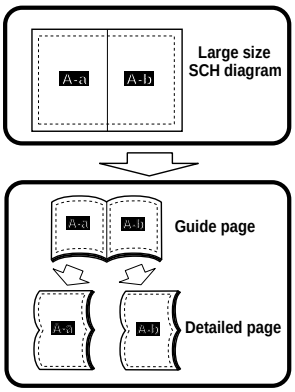
3.1 AMP UNIT(GUIDE PAGE)(PRS-X720/X1R/UC)

Note: When ordering service parts, be sure to refer to “EXPLODED VIEWS AND PARTS LIST” or “ELECTRICAL PARTS LIST”.

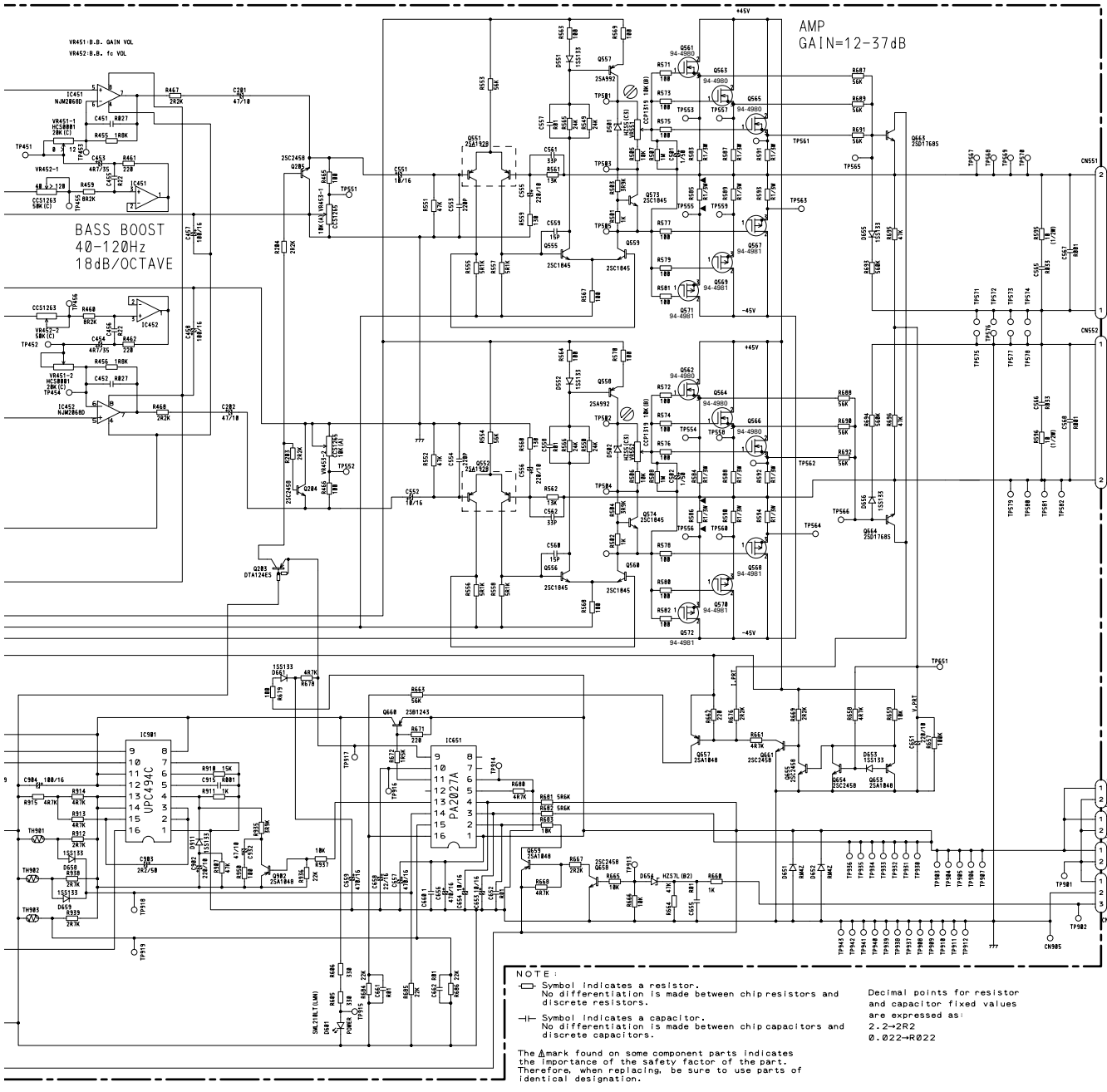
A-a

A AMP UNIT



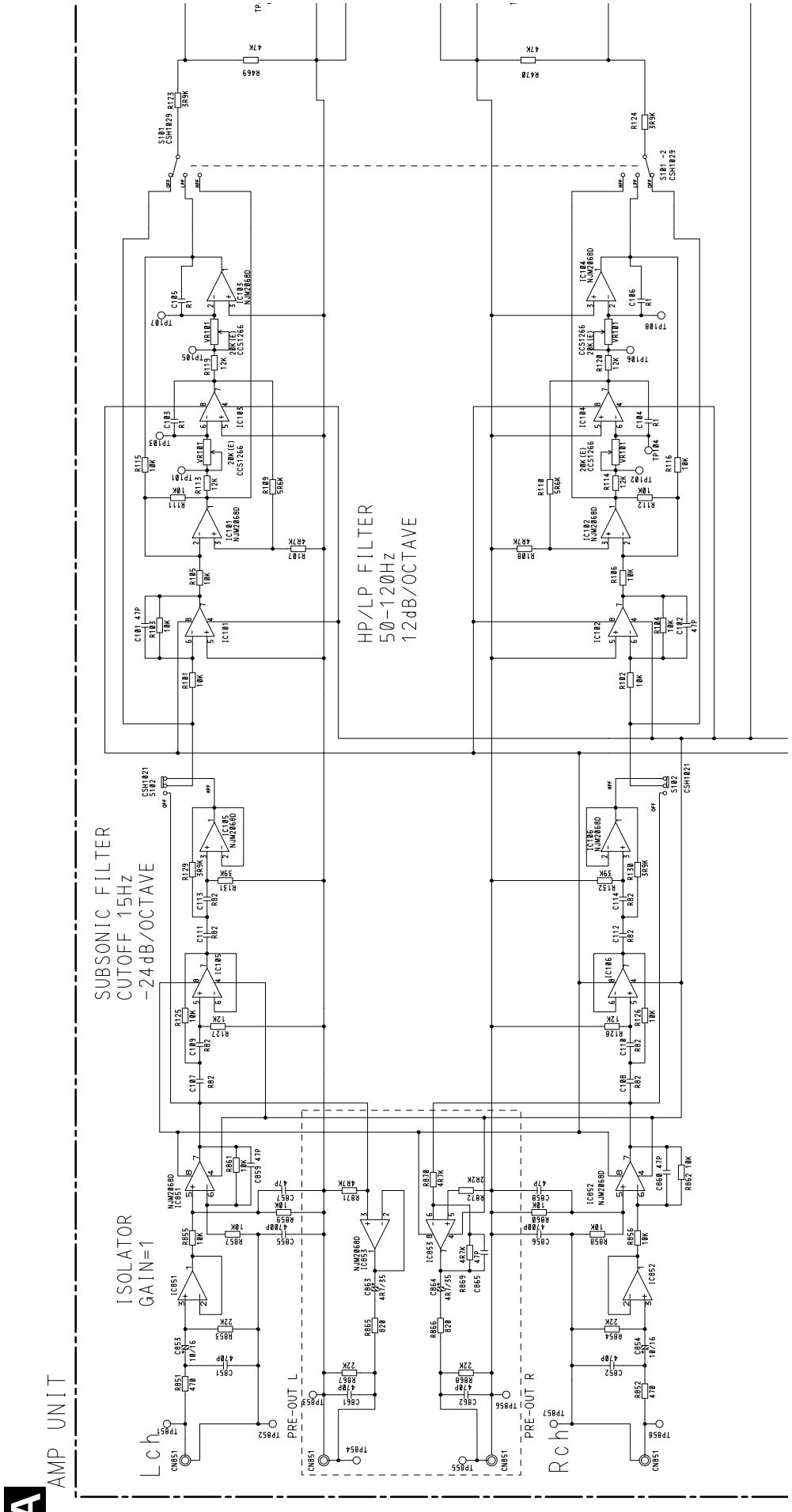

A-a
A-b
Large size SCH diagram
A-a
A-b
Guide page
A-a
A-b
Detailed page

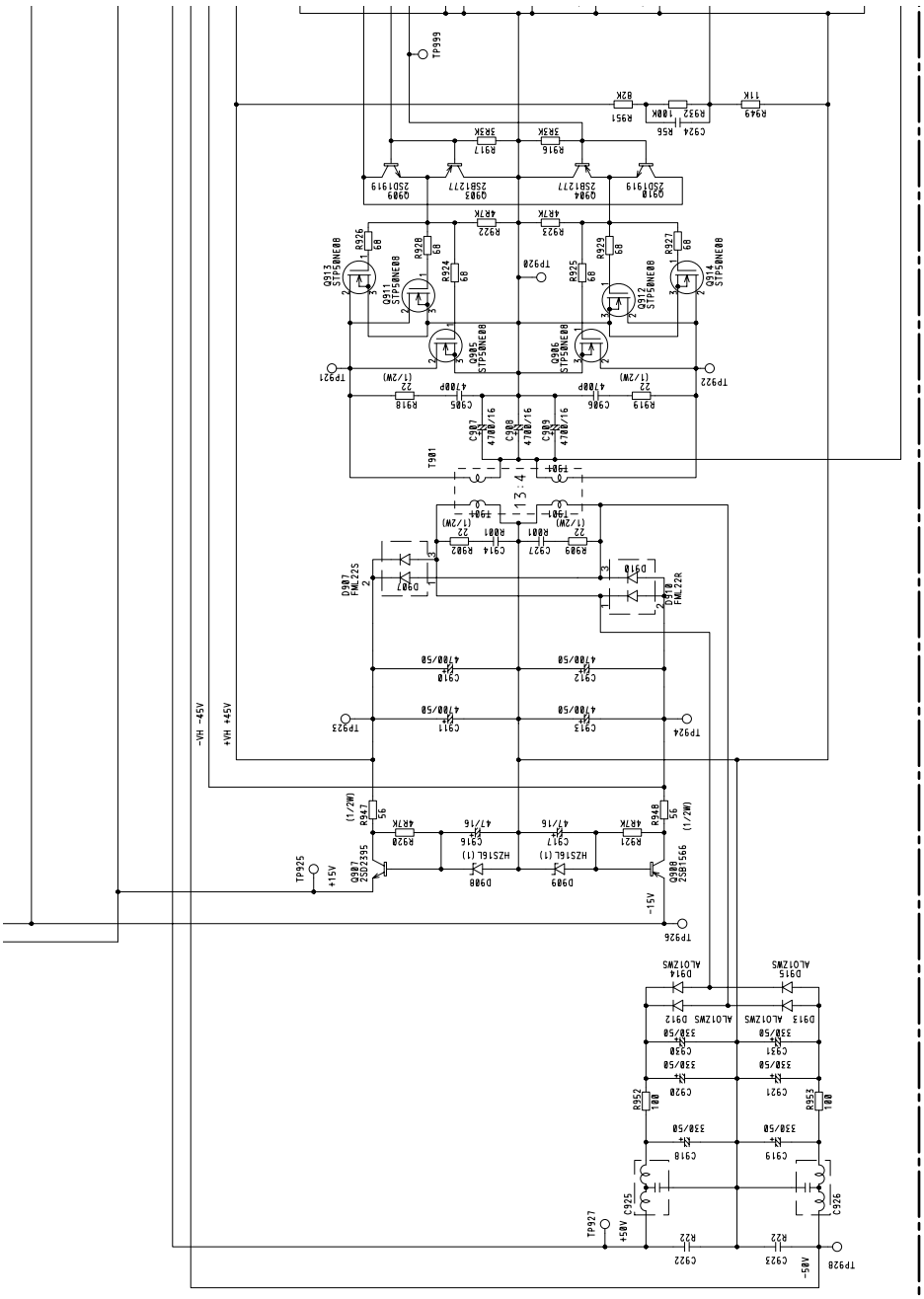
A-b


VR451:B.B. GAIN VOL
VR452:B.B. fc VOL
AMP
GAIN=12-37dB
BASS BOOST
40-120Hz
18dB/OCTAVE
+45V
-45V
L+
L-
R+
R-
IC901
UPC494C
IC651
PA2027A
NOTE:
Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
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.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

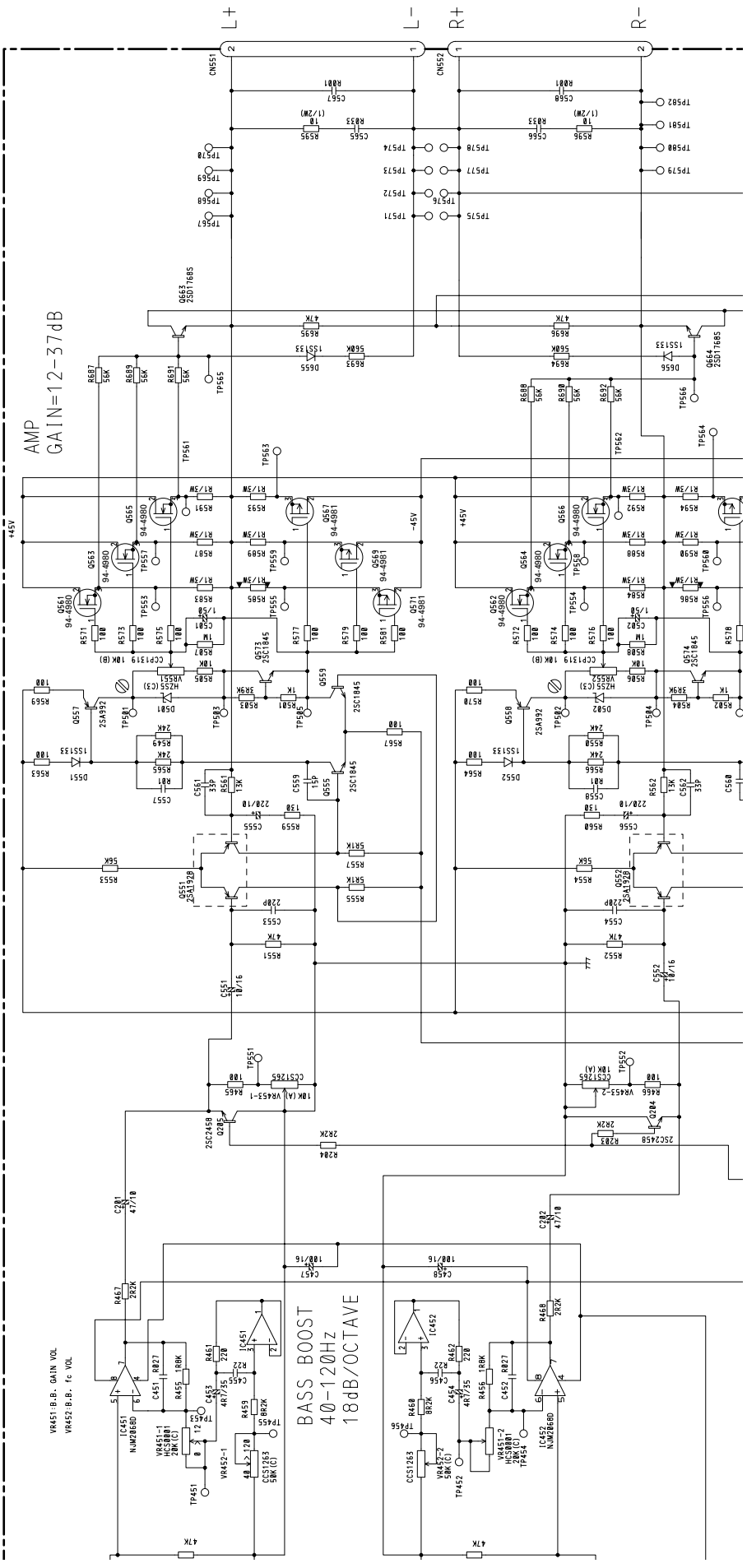
A

A-a A-b

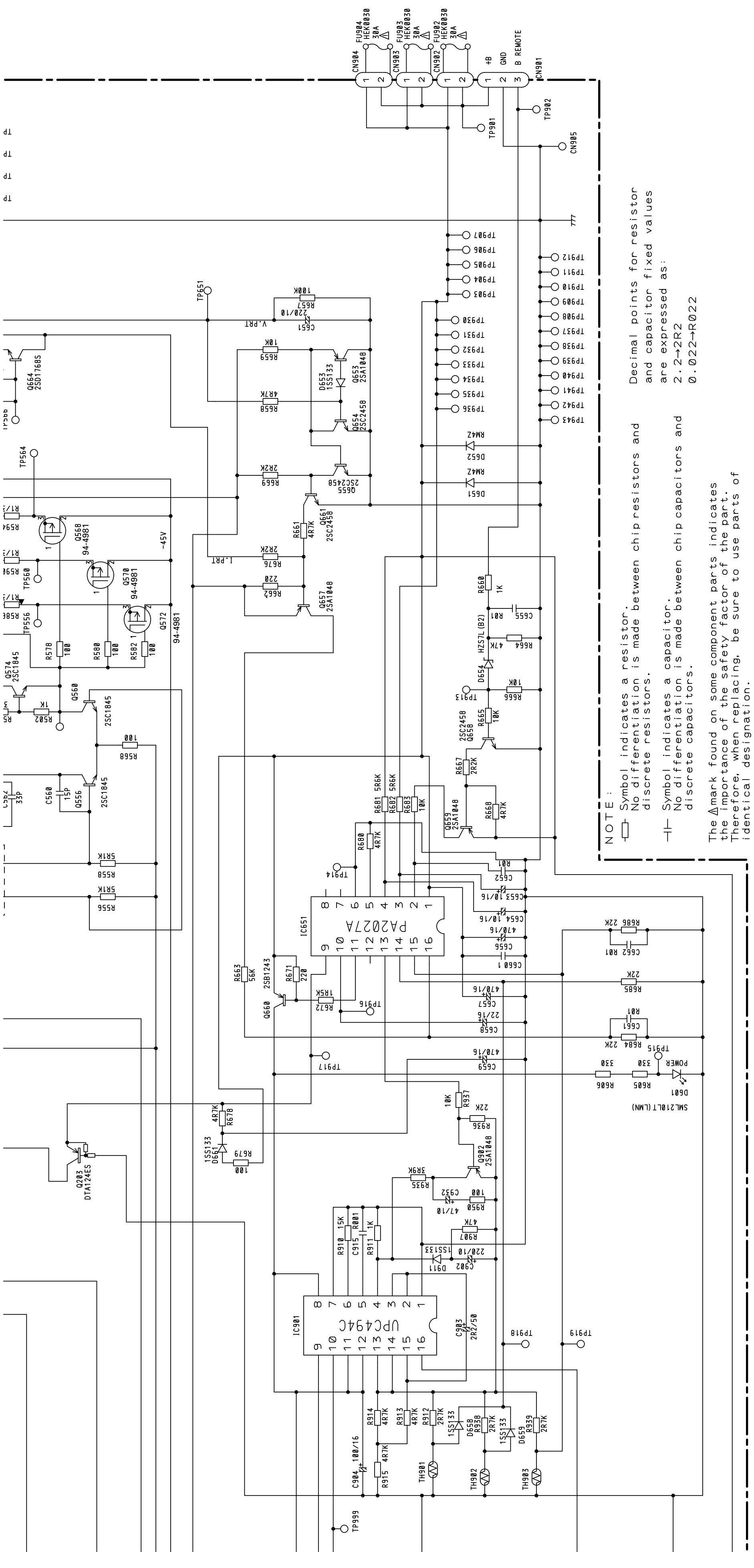

HP/LP FILTER
50-120Hz
12dB/OCTAVE
SUBSONIC FILTER
CUTOFF 15Hz
-24dB/OCTAVE
ISOLATOR
GAIN=1
PRE-OUT L
PRE-OUT R
Lch
Rch
AMP UNIT


TP999
R951 82K
R932 100K
C924 B56
R949 11K
R916 3R3K
R917 3R3K
Q909 2SD1919
Q903 2SB1277
Q904 2SB1277
Q910 2SD1919
R922 47K
R923 47K
Q913 STP5BNE80
Q911 STP5BNE80
Q905 STP5BNE80
Q912 STP5BNE80
Q914 STP5BNE80
R926 68
R928 68
R924 68
R925 68
R929 68
R927 68
TP920
TP921
TP922
(1/2W)
22
47/80P
R918
R919
C905
C906
C907 4700/16
C908 4700/16
C909 4700/16
C910 4700/16
T901
1:3:4
T901A
T901B
T901C
R909
R901
C914
R902
C927
D907 FML22S
D910 FML22R
C912 4700/50
C913 4700/50
C911 4700/50
TP923
TP924
-VH -45V
+VH +45V
R947 95 (1/2W)
R948 95 (1/2W)
47K
47/16
C916
C917
R920
R921
HZS16L(1)
D908
D909
Q907 2SD2395
Q908 2SB1566
TP925
+15V
-15V
TP926
D914 ALO1ZWS
D915 ALO1ZWS
D913 ALO1ZWS
D912 ALO1ZWS
330/50
C920
C921
R952 100
R953 100
C918
C919
C925
C926
TP927
+5V
R22
C922
C923
-5V
TP928

A-b
A-a


L+
L-
R+
R-
AMP
GAIN=12-37dB
BASS BOOST
40-120Hz
18dB/OCTAVE
VR451:B.B. GAIN VOL
VR452:B.B. fc VOL

A


CN904 FU904 HEK0030 30A
CN903 FU903 HEK0030 30A
CN902 FU902 HEK0030 30A
CN901 +B GND B REMOTE
IC651 PA2027A
IC901 UPC494C
POWER D601 SML210LT(LMN)
N O T E :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
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.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

B

C

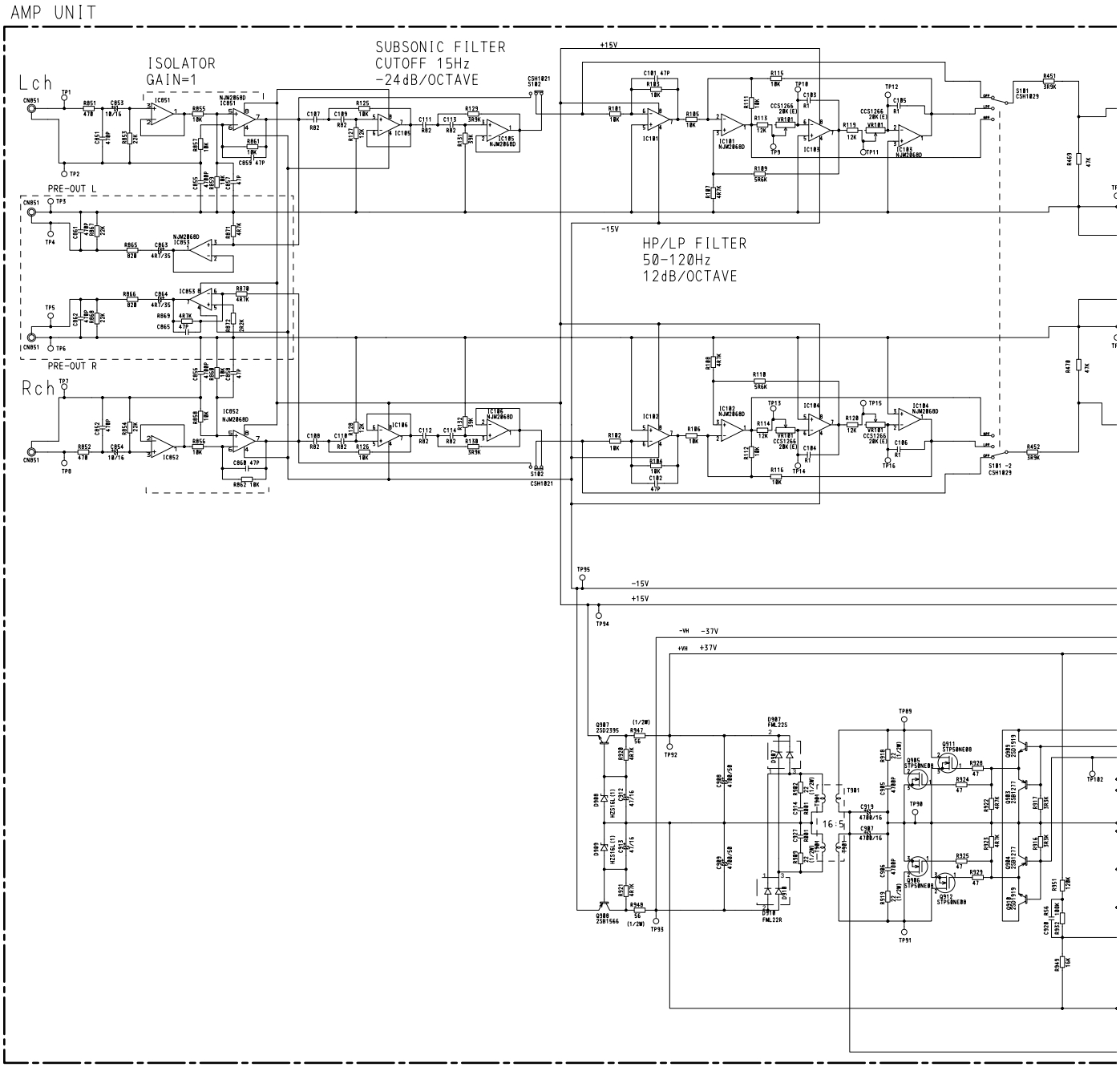
D

3.2 AMP UNIT(GUIDE PAGE)(PRS-X320/X1R/UC)

A

A

A-a

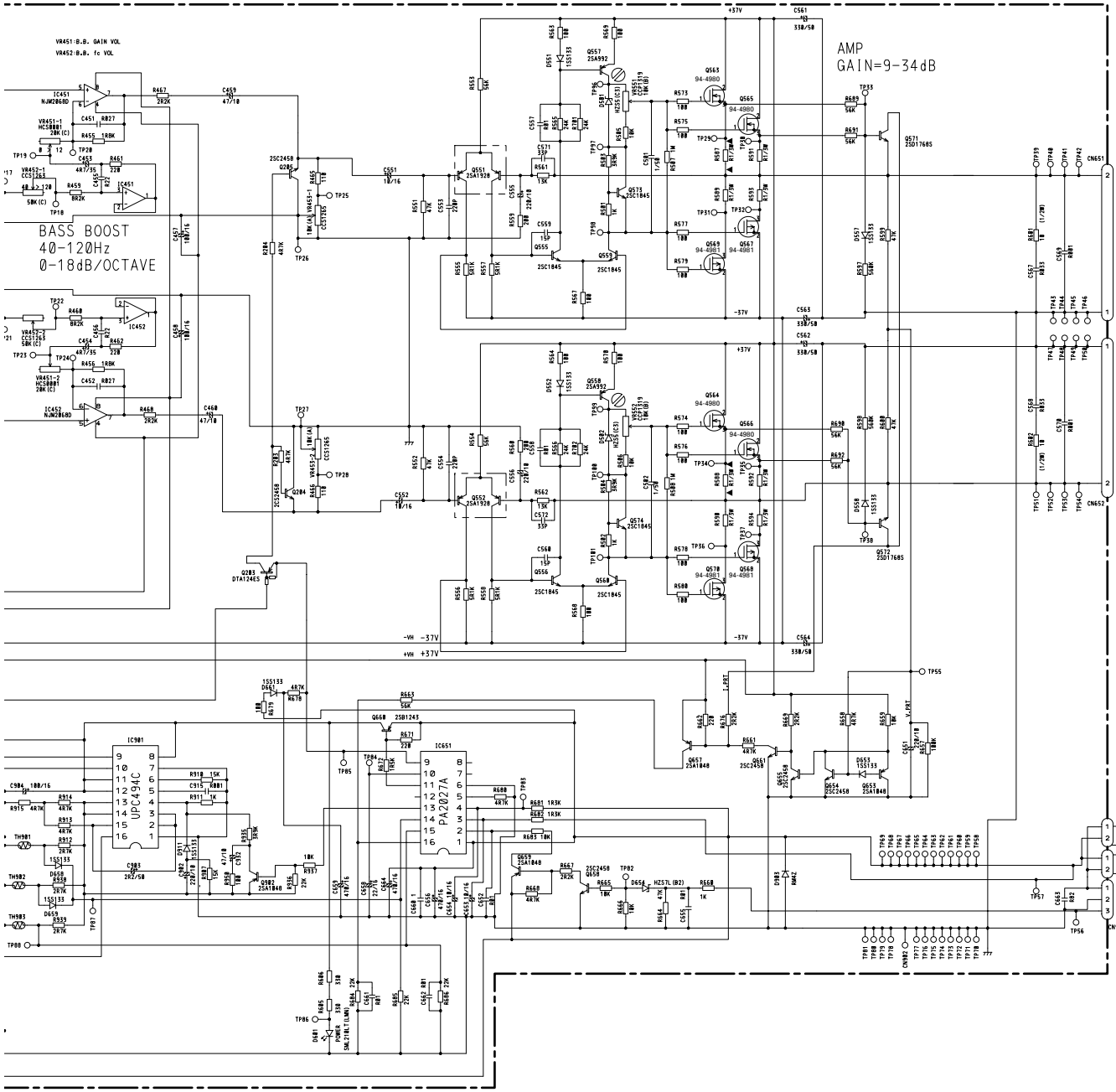


B

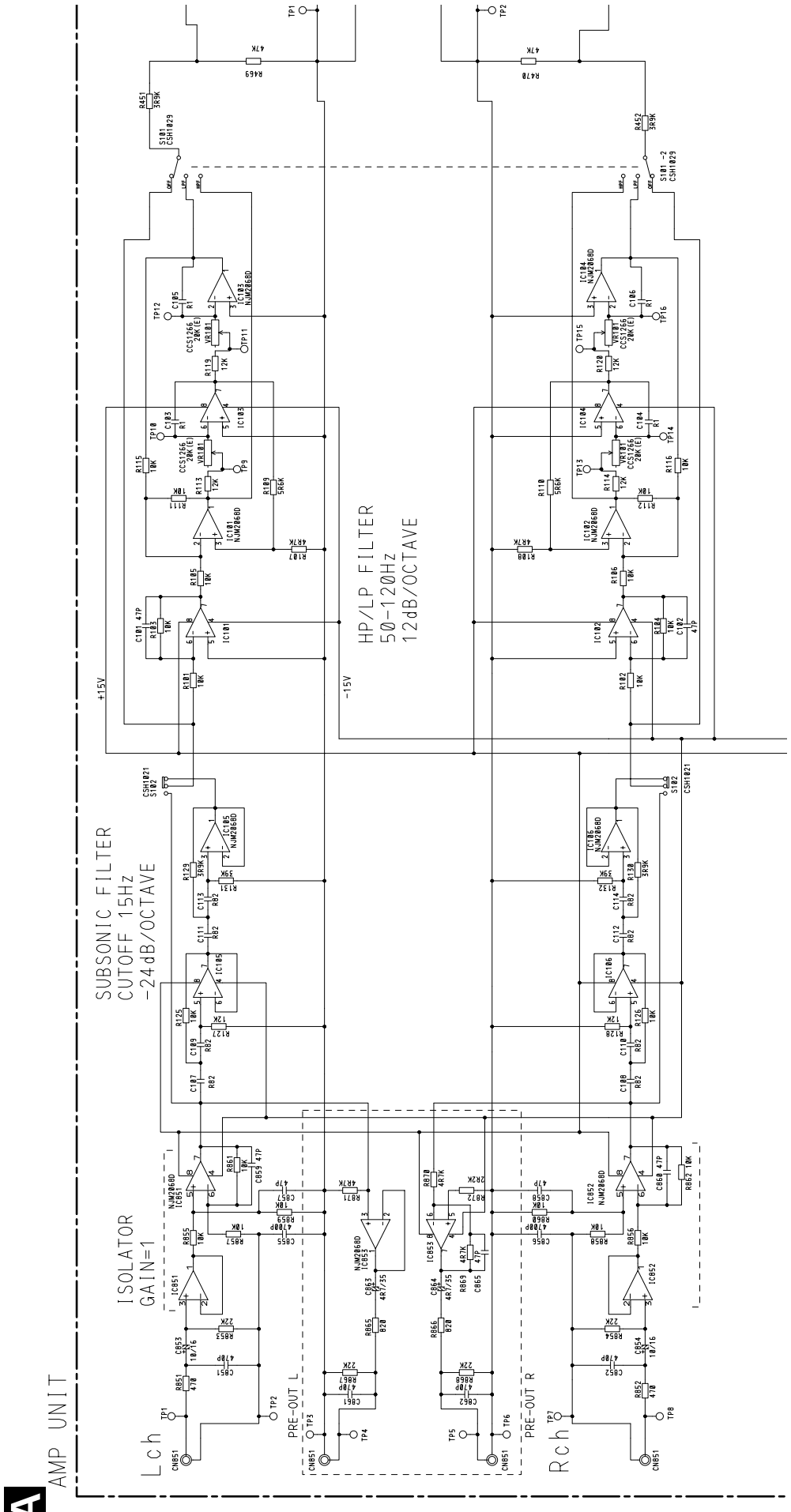
C

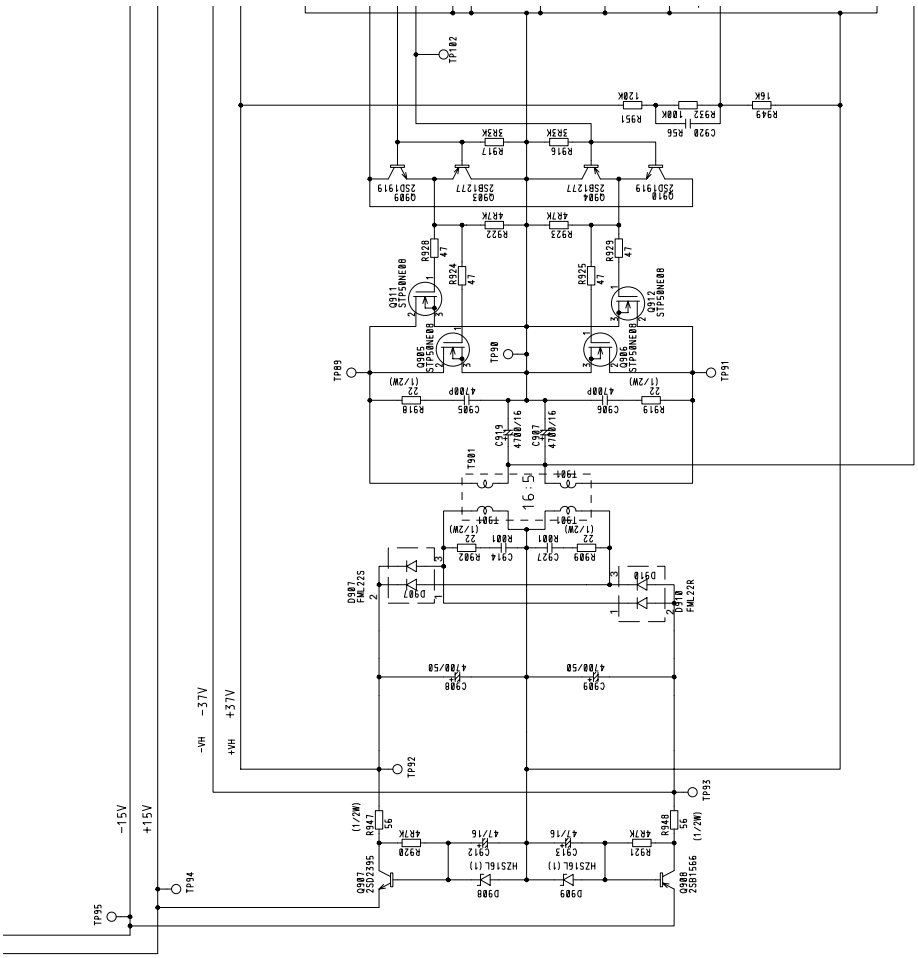
D

A-b

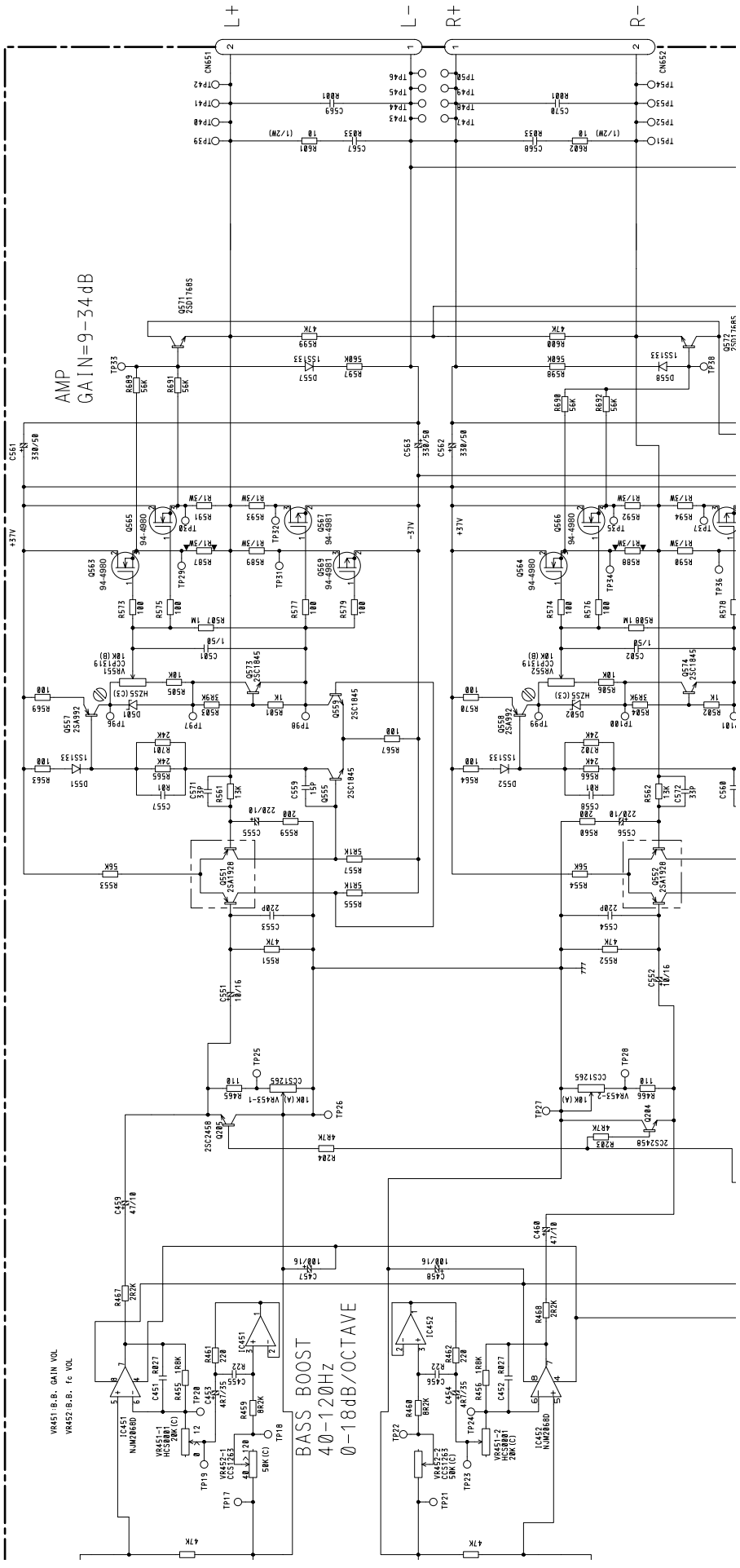

VR451:B.B. GAIN VOL
VR452:B.B. fc VOL
BASS BOOST
40-120Hz
0-18dB/OCTAVE
AMP
GAIN=9-34dB
L+
L-
R+
R-
+37V
-37V
-VH -37V
+VH +37V
IC901
UPC494C
IC651
PA2027A
CN651
CN652
CN901
+B
GND
B REMOTE

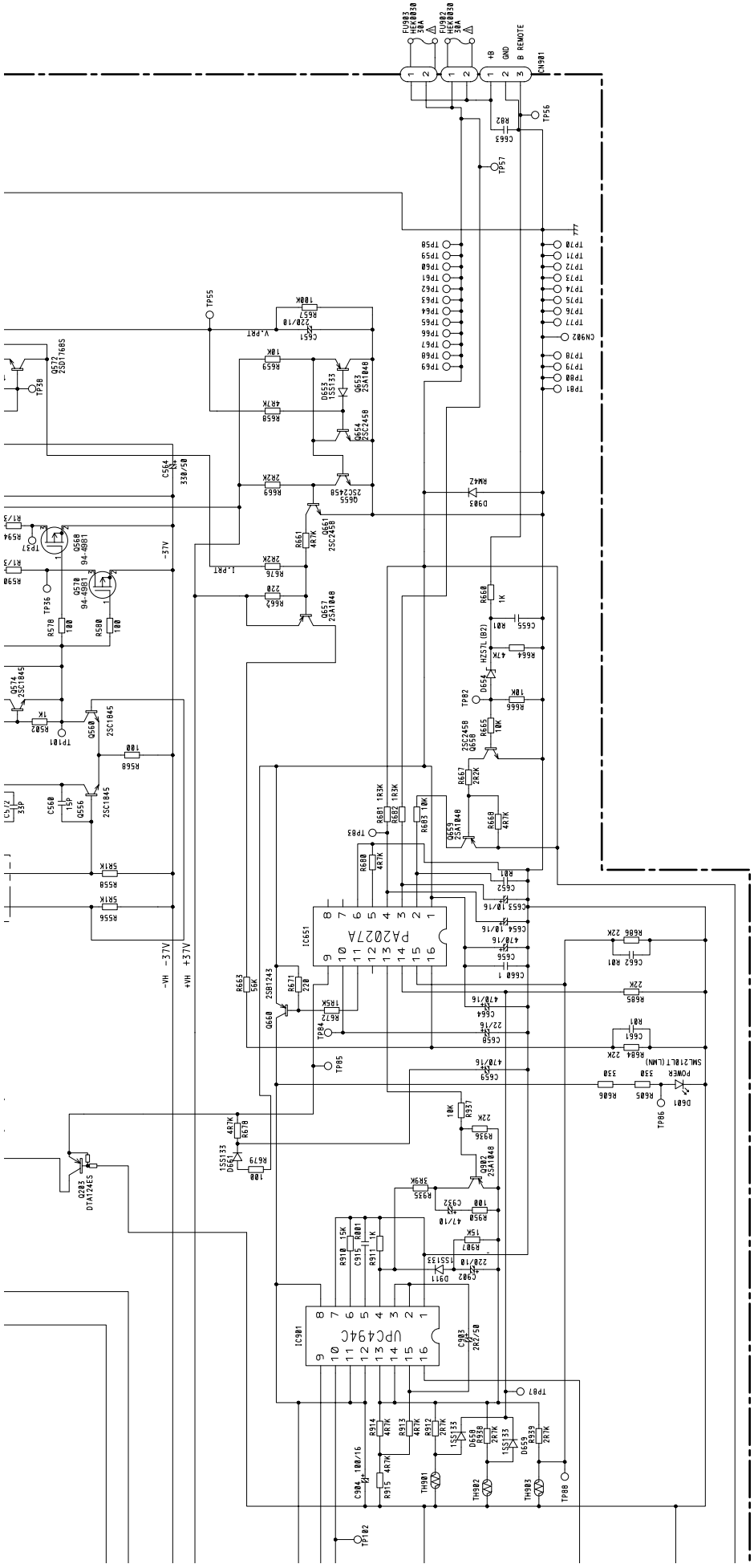
A-b
A-a


AMP UNIT
A
ISOLATOR
GAIN=1
SUBSONIC FILTER
CUTOFF 15Hz
-24dB/OCTAVE
HP/LP FILTER
50-120Hz
12dB/OCTAVE
+15V
-15V
Lch
Rch
PRE-OUT L
PRE-OUT R


TP102
R951 120K
R932 100K
C920 .56
R949 16K
R916 3R3K
R917 3R3K
Q904 2SB1277
Q903 2SB1277
Q910 2SD1919
Q909 2SD1919
R923 4R7K
R922 4R7K
R928 4.7
R924 4.7
R925 4.7
R929 4.7
Q911 STP5NK80
Q912 STP5NK80
Q905 STP5NK80
Q906 STP5NK80
TP89
TP90
TP91
R918 22 (1/2W)
C905 4700P
C906 4700P
R919 22 (1/2W)
C919 4700/16
C907 4700/16
T901
T902
T903
T904
R902 22 (1/2W)
R901 22 (1/2W)
C914
R901
C927
R909 22 (1/2W)
D907 FML22S
D910 FML22R
C908 470/50
C909 470/50
-VH -37V
+VH +37V
TP92
TP93
R947 55 (1/2W)
R948 55 (1/2W)
R920 4R7K
C912 47/16
C913 47/16
R921 4R7K
Q907 2SD2395
D908 HZS16L(1)
D909 HZS16L(1)
Q908 2SB1566
-15V
+15V
TP94
TP95

A-b
A-a


L+
L−
R+
R−
AMP
GAIN=9−34dB
BASS BOOST
40−120Hz
0−18dB/OCTAVE
VR451:B.B. GAIN VOL
VR452:B.B. fc VOL

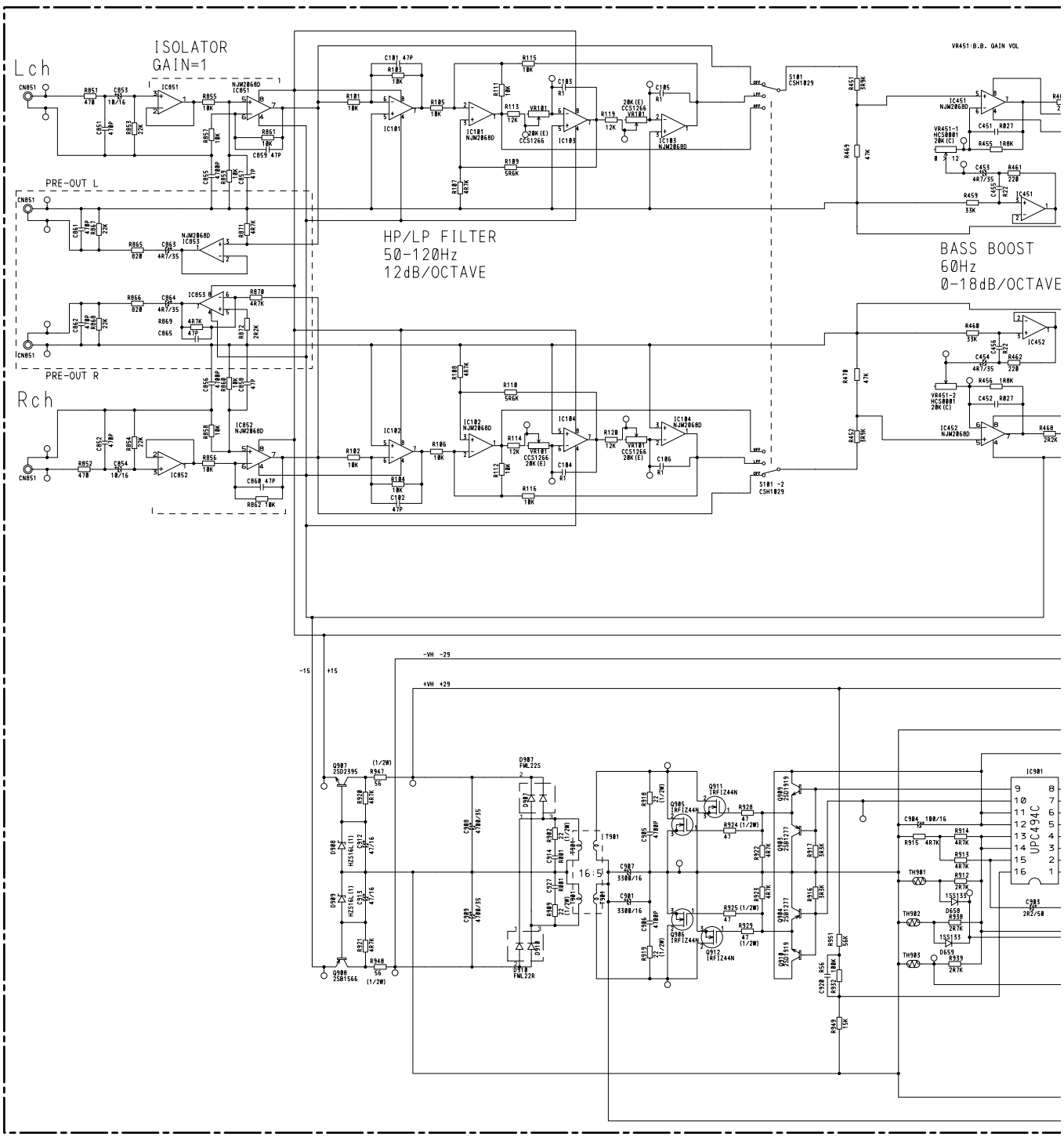


3.3 AMP UNIT(GUIDE PAGE)(PRS-X220/X1R/UC)

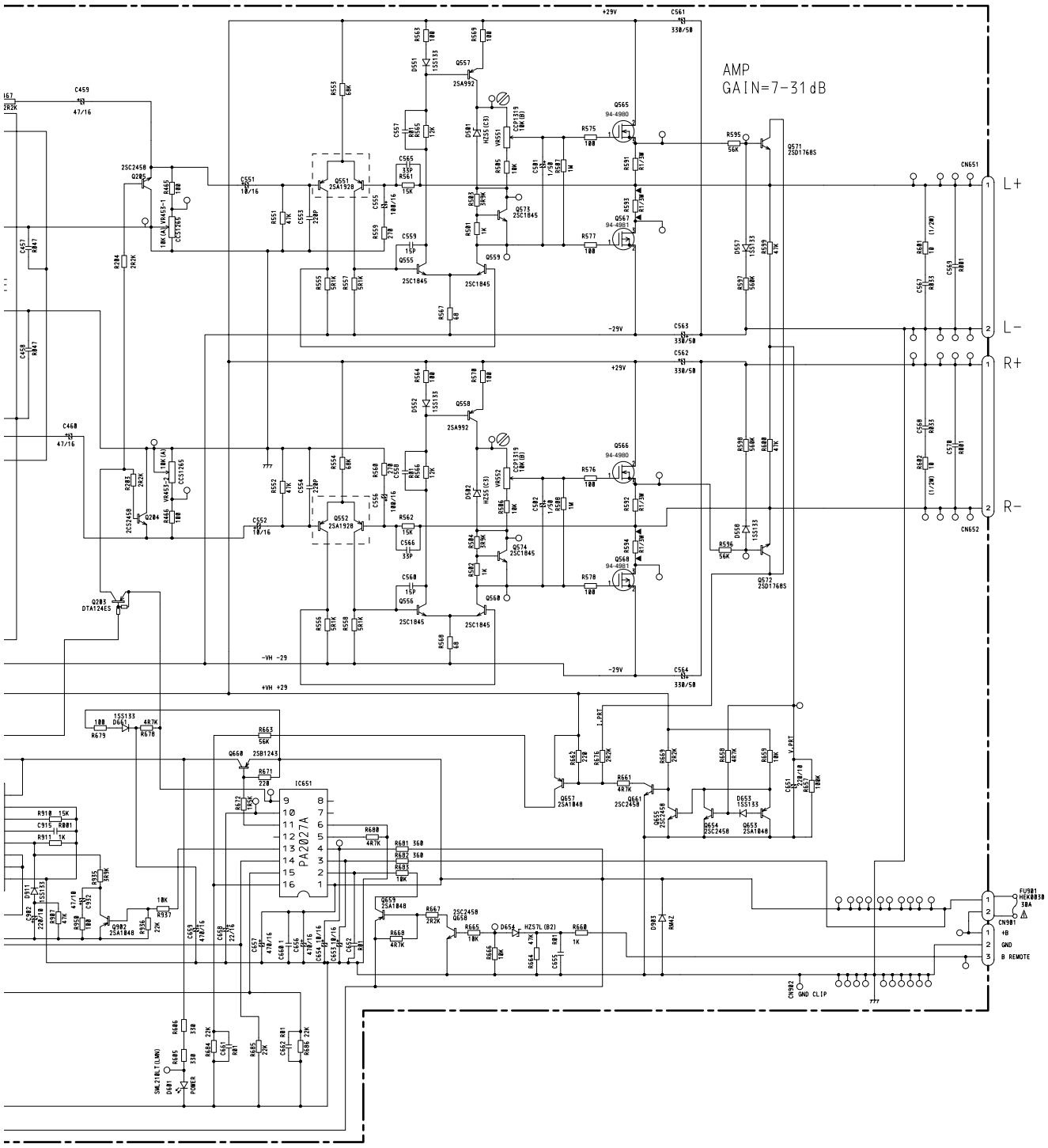
A-a

A

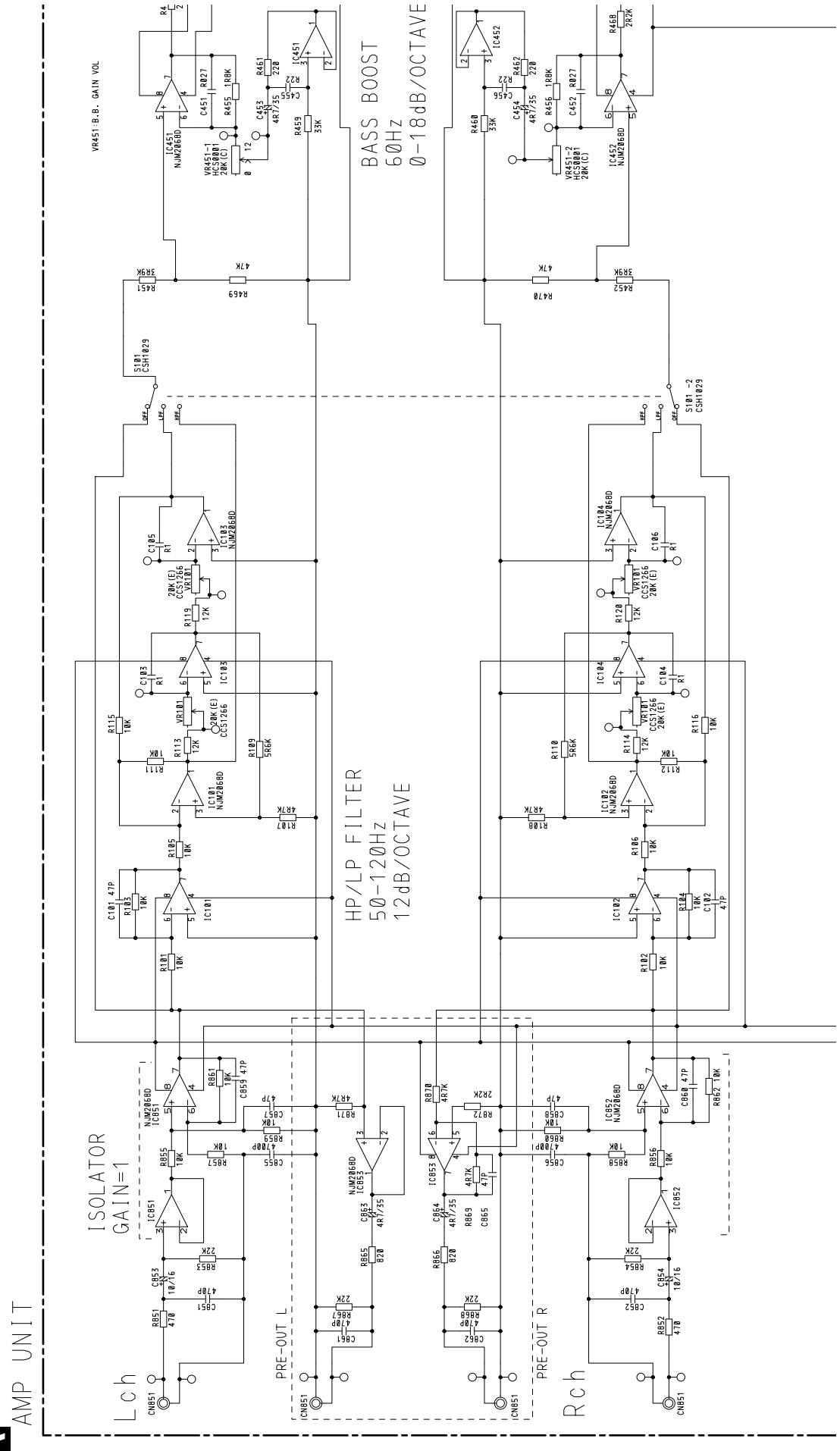
AMP UNIT

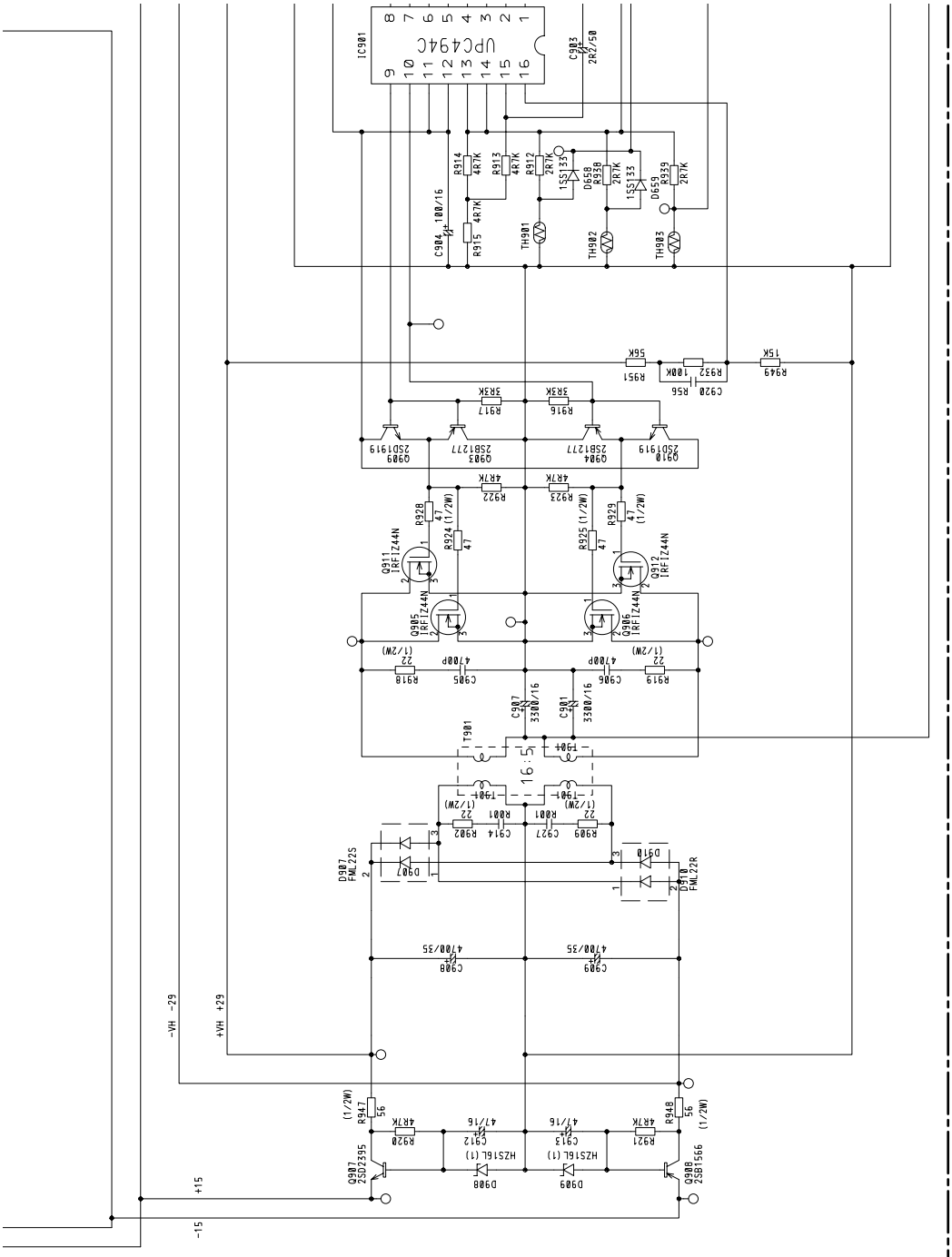


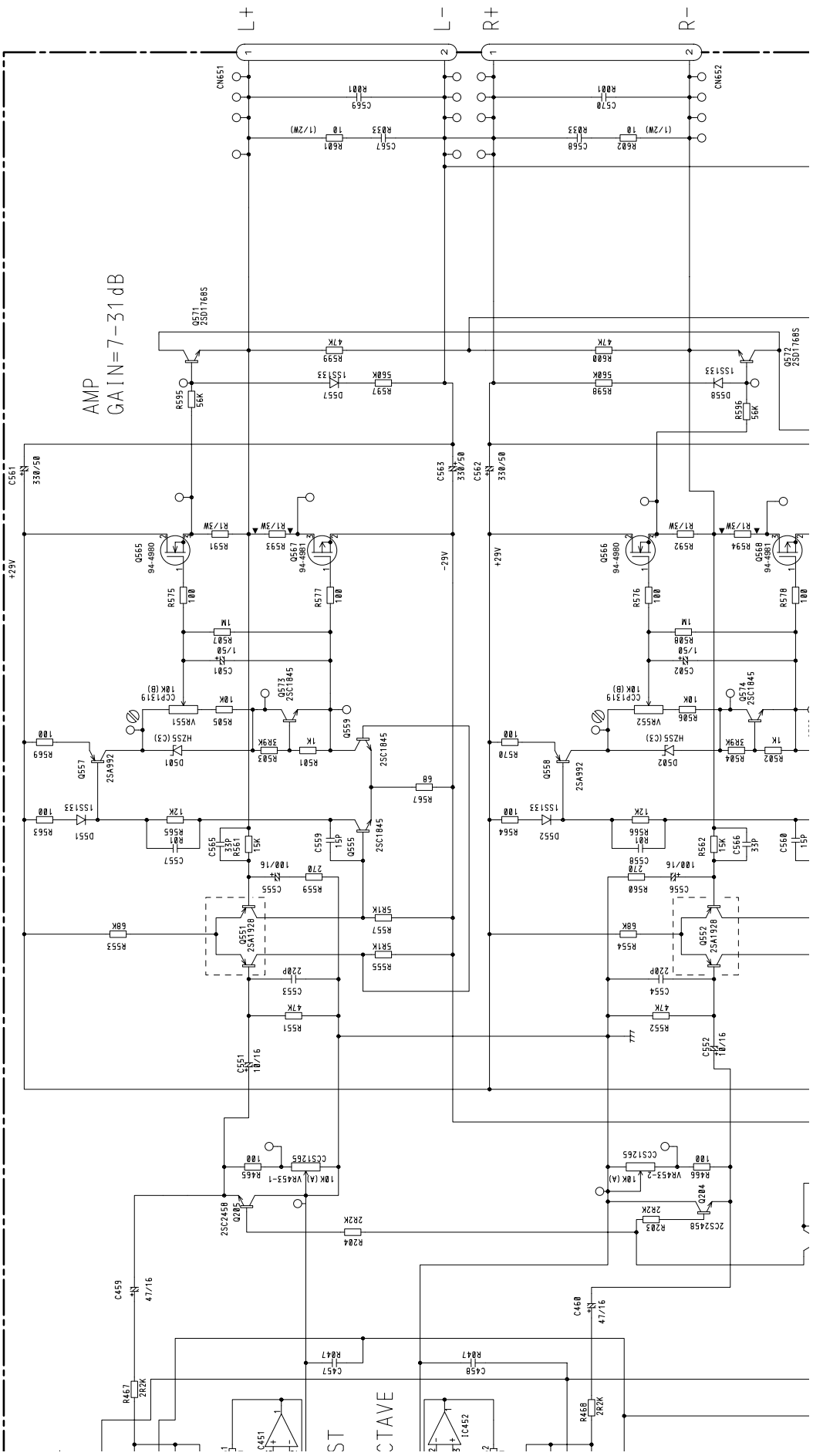
A-b

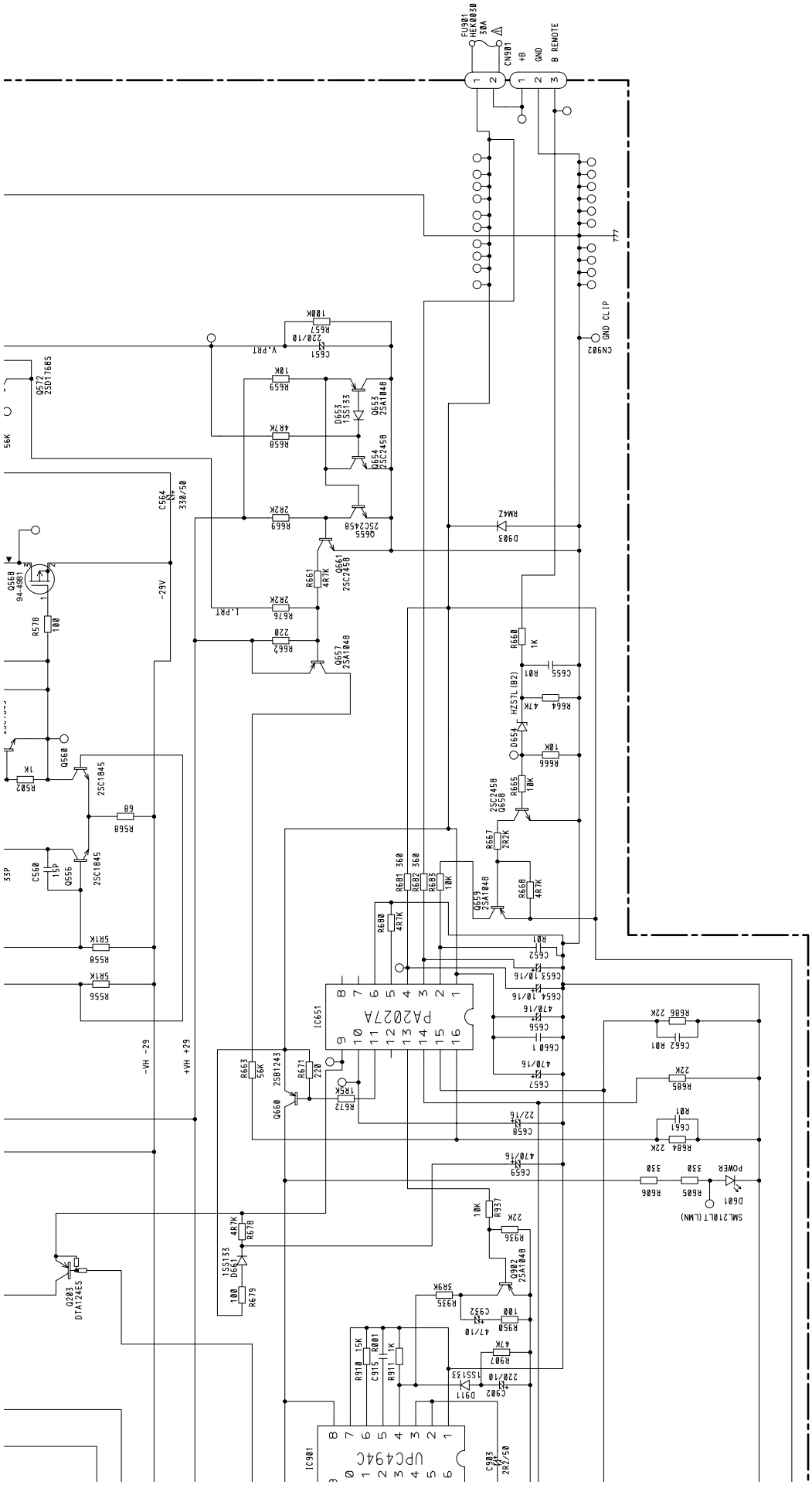

AMP
GAIN=7-31dB
+29V
-29V
-VH -29
+VH +29
L+
L-
R+
R-
CN651
CN652
IC651
PA2027A
CN901
+B
GND
B REMOTE
GND CLIP
POWER

A-a A-b


AMP UNIT
A
Lch
Rch
ISOLATOR
GAIN=1
HP/LP FILTER
50-120Hz
12dB/OCTAVE
BASS BOOST
60Hz
0-18dB/OCTAVE
PRE-OUT L
PRE-OUT R
VR451-B.B. GAIN VOL
S101
CSH1029
S101-2
CSH1029
IC451
NJM2068D
IC452
NJM2068D
IC101
NJM2068D
IC102
NJM2068D
IC103
NJM2068D
IC104
NJM2068D
IC851
NJM2068D
IC852
NJM2068D
IC853
NJM2068D
CN851
ICN851


IC901
UPC494C
C903
2R2/50
R914
4R7K
R913
4R7K
R912
2R7K
1SS133
D658
2SB38
2R7K
1SS133
D659
R929
2R7K
C904
100/16
R915
4R7K
TH901
TH902
TH903
R951
56K
R932
100K
C920
R56
R949
15K
R917
3R3K
R916
3R3K
Q910
2SD1919
Q984
2SB1277
Q983
2SB1277
Q909
2SD1919
R922
4R7K
R923
4R7K
R928
47
R924 (1/2W)
47
R925 (1/2W)
47
R929
47
(1/2W)
Q911
IRFIZ44N
Q905
IRFIZ44N
Q912
IRFIZ44N
Q906
IRFIZ44N
R918
22
(1/2W)
C905
4700P
C906
4700P
R919
22
(1/2W)
C907
3300/16
C901
3300/16
T901
R909
22
(1/2W)
C927
R902
C914
R001
22
(1/2W)
D907
FML22S
D910
FML22R
C908
4700/35
C909
4700/35
-VH -29
+VH +29
R947
56
(1/2W)
R920
4R7K
C912
4.7/16
HZS16L (1)
D908
C913
4.7/16
HZS16L (1)
D909
R921
4R7K
R948
56
(1/2W)
Q907
2SD2395
Q908
2SB1566
+15
-15


L+
L-
R+
R-
AMP
GAIN=7-31dB
CN651
CN652
Q571
2SD1768S
Q572
2SD1768S
Q565
94-4980
Q567
94-4881
Q566
94-4980
Q568
94-4881
Q573
2SC1845
Q574
2SC1845
Q557
2SA992
Q558
2SA992
Q555
2SC1845
Q559
2SC1845
Q551
2SA1928
Q552
2SA1928
Q204
2SC2458
Q205
2SC2458
D551
D552
D557
D558
D501
D502
VR551
VR552
VR453-1
VR453-2
IC451
IC452
+29V
-29V

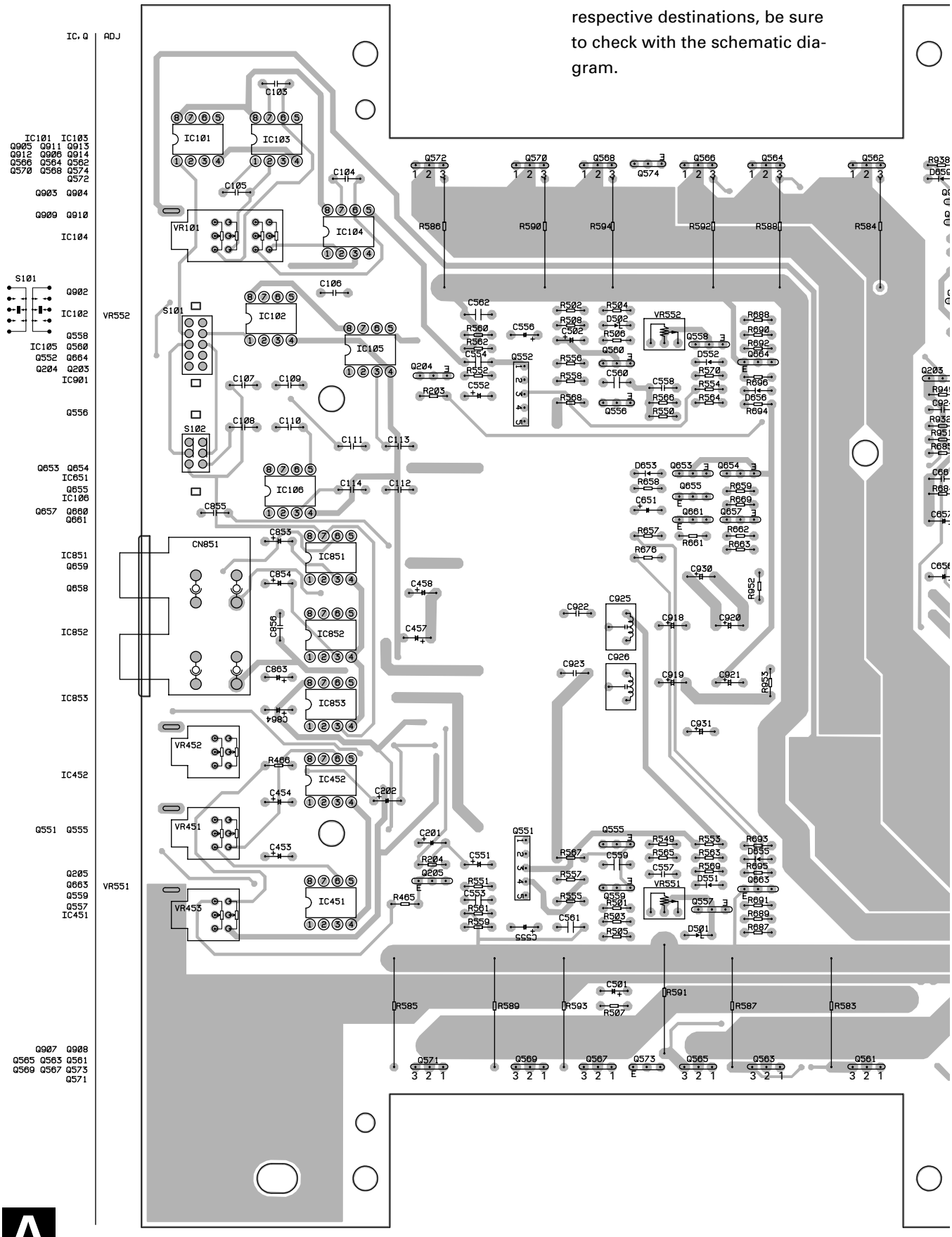

FU901 HEK0030 30A
CN901
+B
GND
B REMOTE
GND CLIP
CN902
Q572 2SD1768S
Q568 94-4881
Q560
Q556 2SC1845
Q660 2SB1243
Q202 DTA124ES
Q653 2SA1048
Q654 2SC2458
Q655 2SC2458
Q657 2SA1048
Q658 2SC2458
Q659 2SA1048
Q902 2SA1048
D651 1SS133
D654 HZS7L (B2)
D901 SML210LT (LWN)
D905 RM4Z
D911 1SS133
IC651 PA2027A
IC901 UPC494C
-29V
-VH -29
+VH +29
V.PRT
I.PRT

4. PCB CONNECTION DIAGRAM

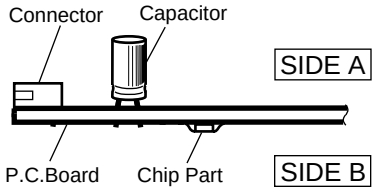
4.1 AMP UNIT(PRS-X720/X1R/UC)

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.



2. Viewpoint of PCB diagrams



A AMP UNIT

SIDE A

+B

GND

B REMOTE

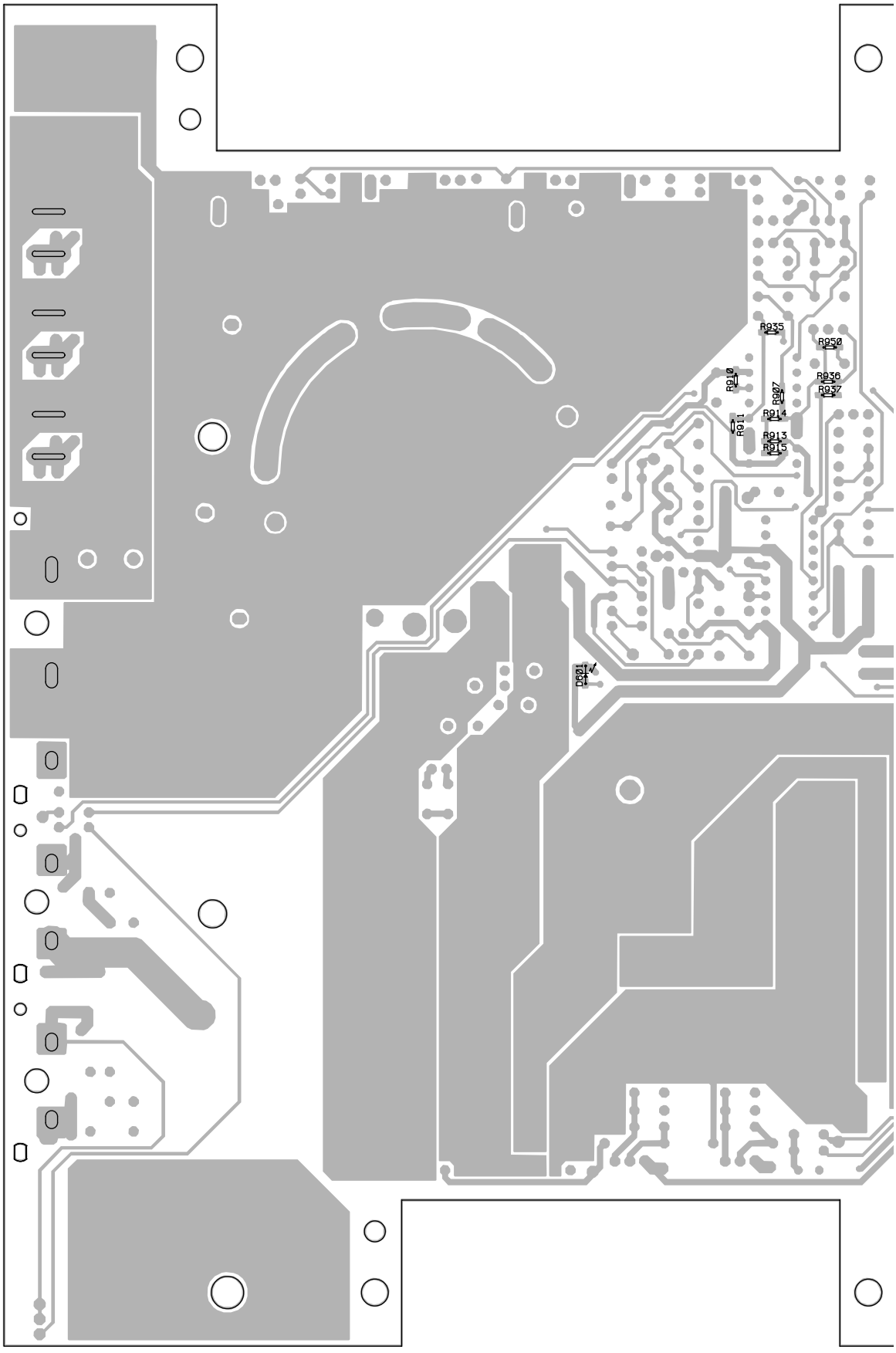
R+

R-

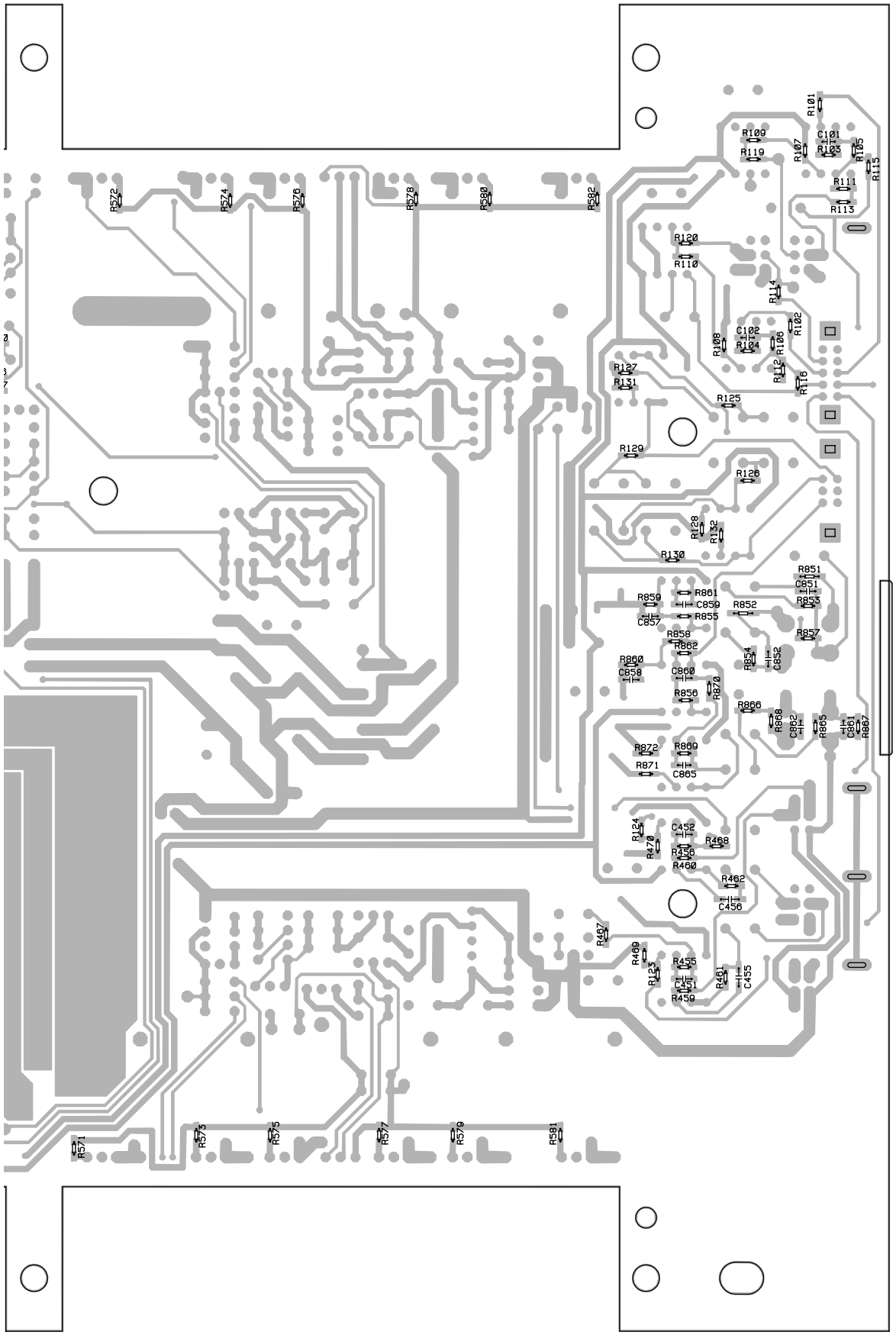
L-

L+

A AMP UNIT



SIDE B


R572
R574
R576
R578
R580
R582
R101
R109
R119
R107
C101
R103
R105
R115
R111
R113
R120
R110
R114
R102
C102
R104
R106
R108
R112
R116
R127
R131
R125
R129
R126
R128
R132
R130
R851
C851
R853
R859
R861
C859
R855
C857
R852
R857
R858
R862
R860
C858
C860
R870
R854
C852
R856
R866
R868
C862
R865
C861
R867
R872
R869
R871
C865
R124
C452
R470
R468
R456
R460
R462
C456
R467
R469
R123
R455
R461
C455
R459
R571
R573
R575
R577
R579
R581

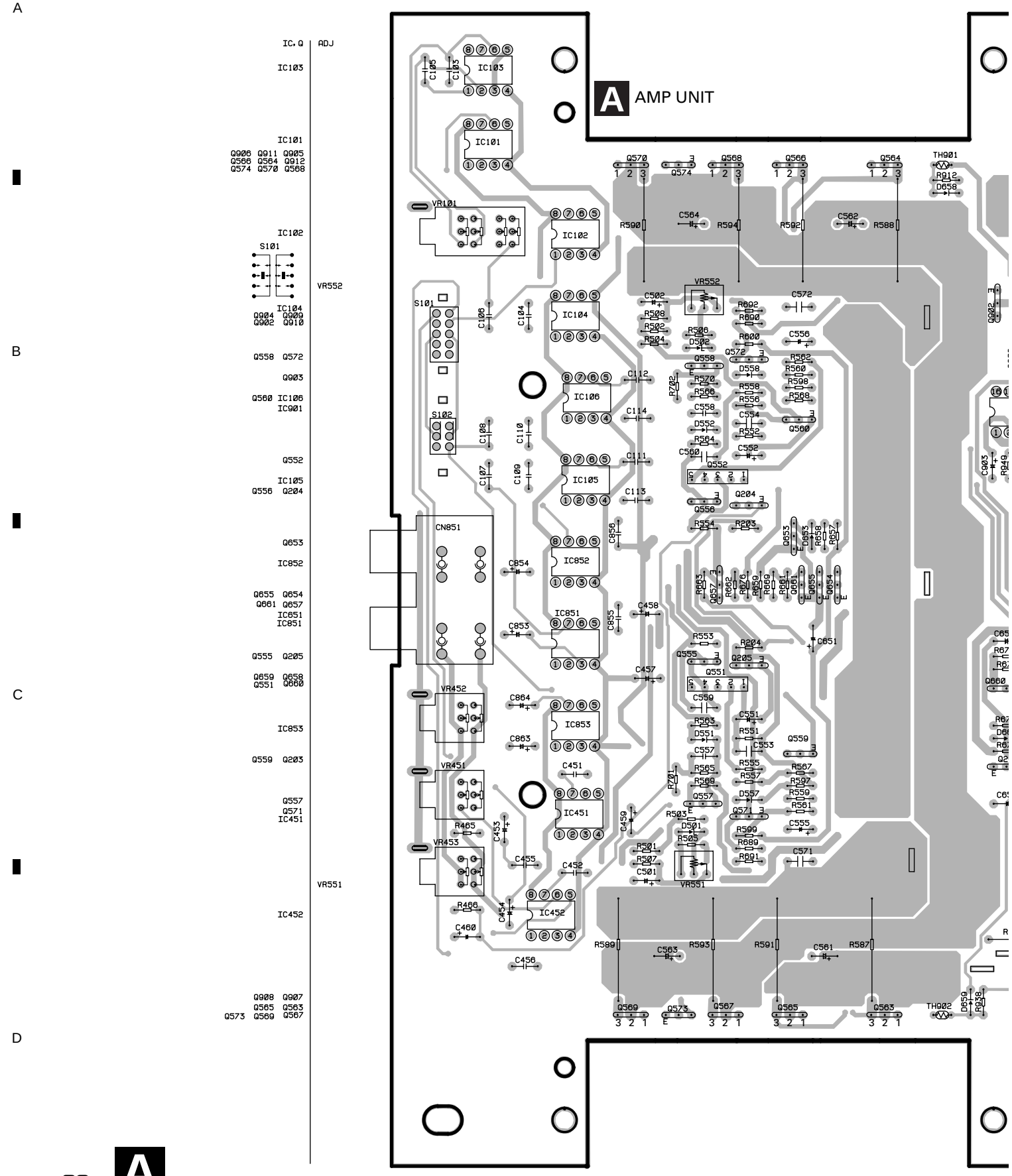
A

B

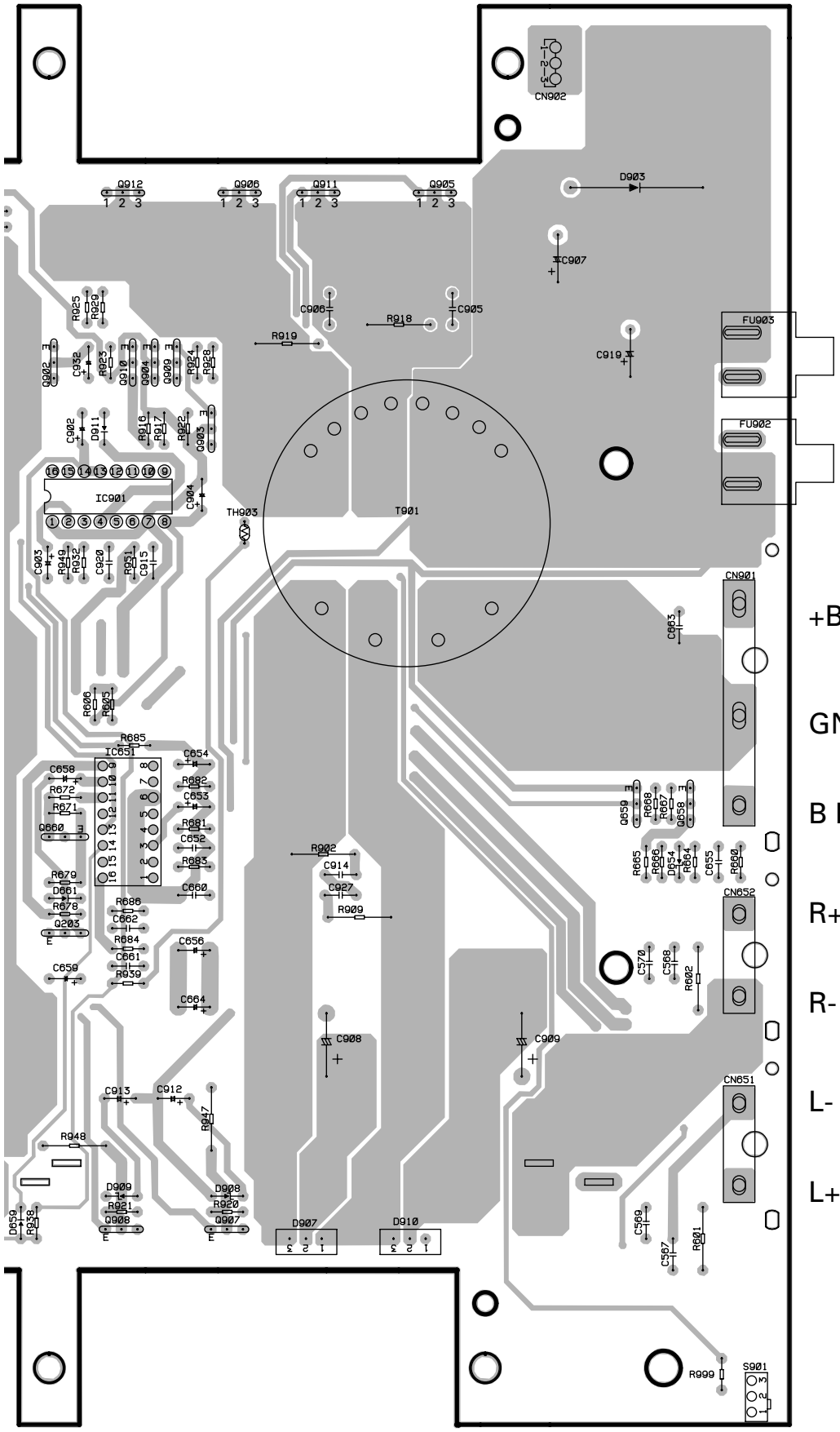
C

D

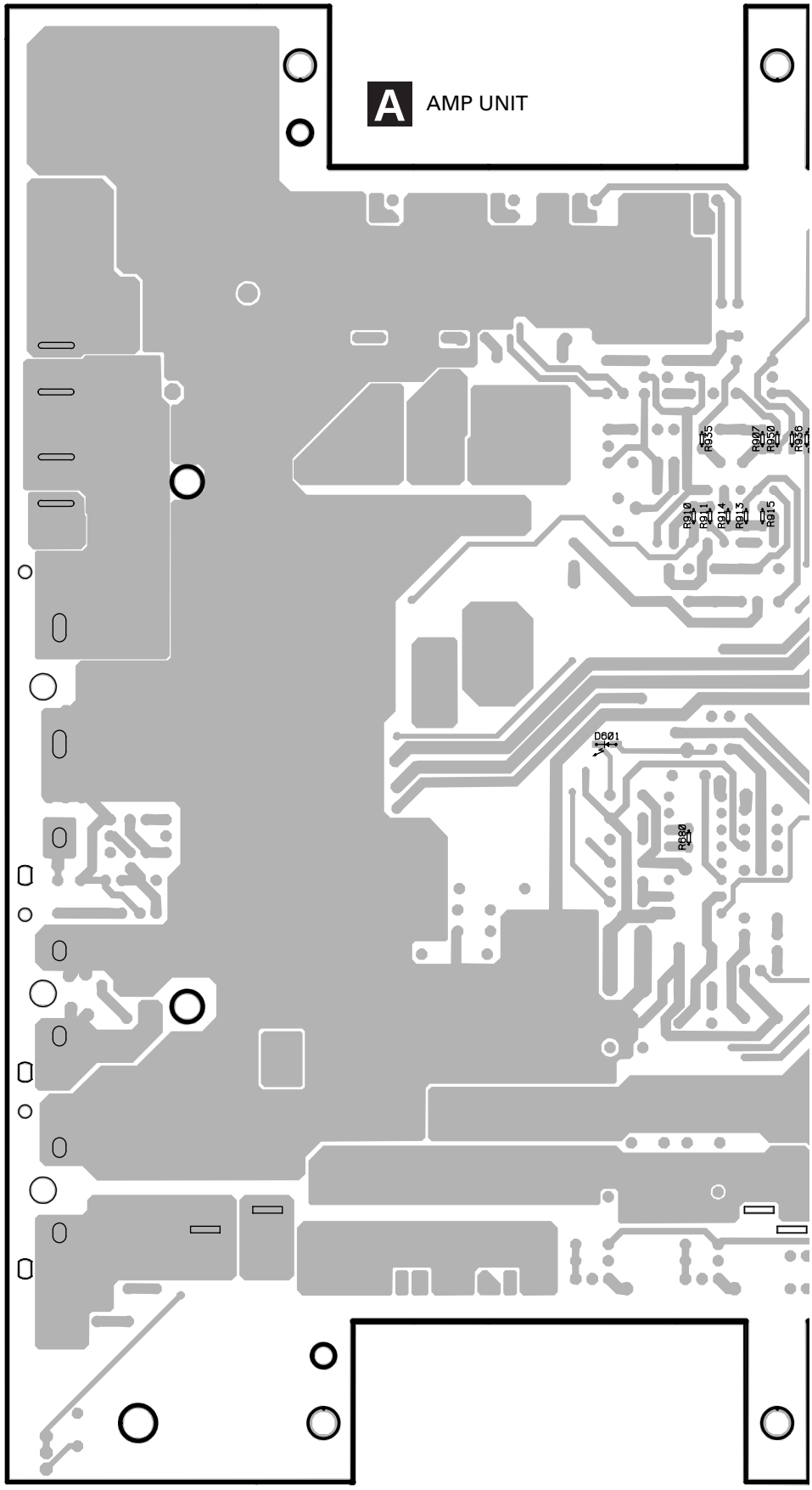
4.2 AMP UNIT(PRS-X320/X1R/UC)



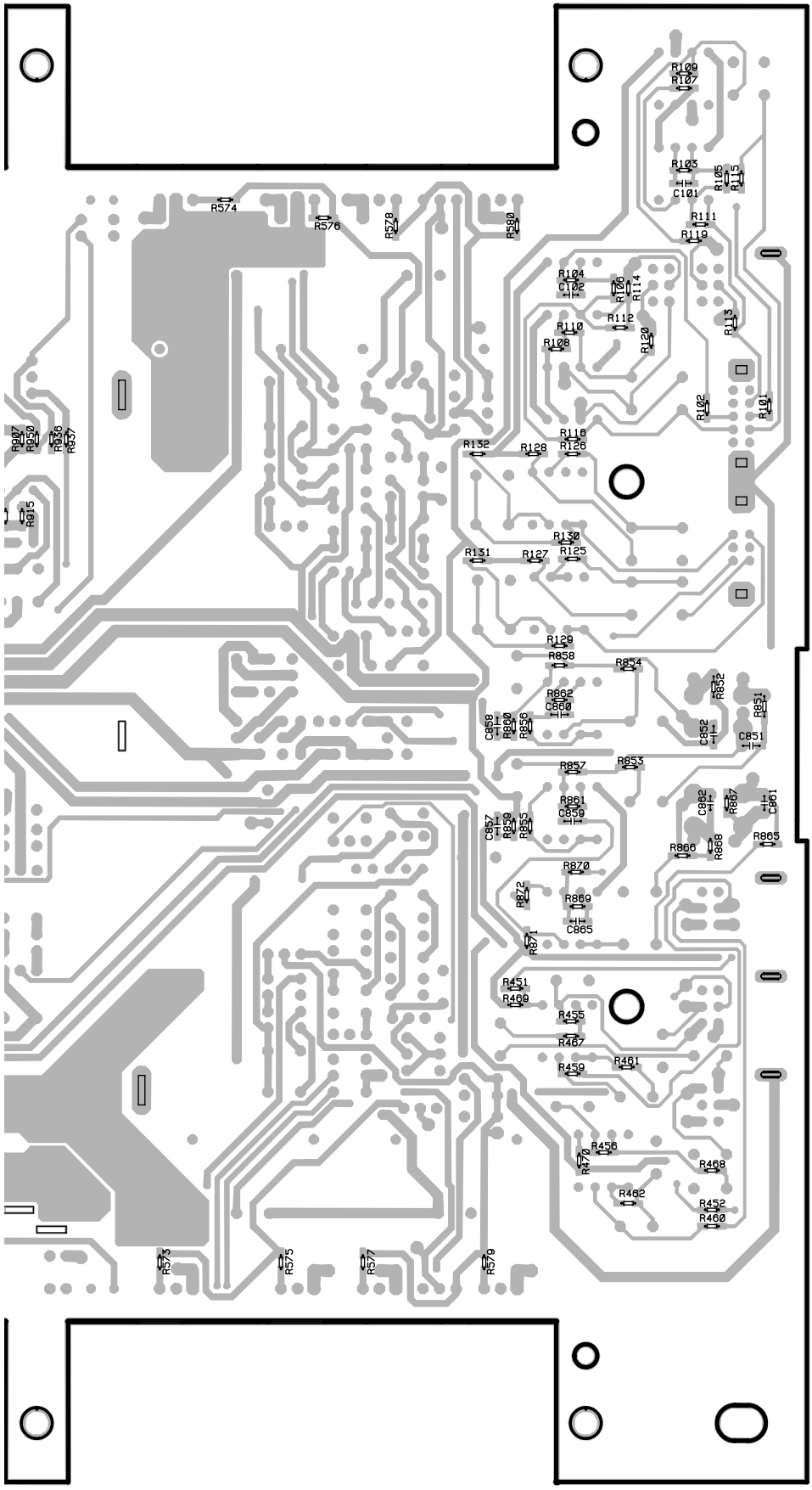
SIDE A


CN902
Q912
Q906
Q911
Q905
D903
IC907
R925
R929
C906
R918
C905
R919
C919
FU903
FU902
Q902
C932
R923
Q910
Q904
Q909
R924
R928
C902
D911
R916
R917
R922
Q905
IC901
C904
TH903
T901
C903
R949
R932
C920
R951
C915
CN901
C663
+B
GND
B REMOTE
R606
R605
R685
IC651
C658
R672
R671
Q660
C654
R682
C653
R681
C652
R683
C660
R679
D661
R678
Q203
R686
C662
R684
C661
R939
C659
C656
C664
R902
C914
C927
R909
Q659
R668
R667
Q658
R665
R666
D654
R664
C655
R660
CN652
C570
C568
R602
R+
R-
C908
C909
C913
C912
R947
R948
L-
L+
D909
R921
Q908
D908
R920
Q907
D907
D910
D659
R938
C569
C587
R601
R999
S901

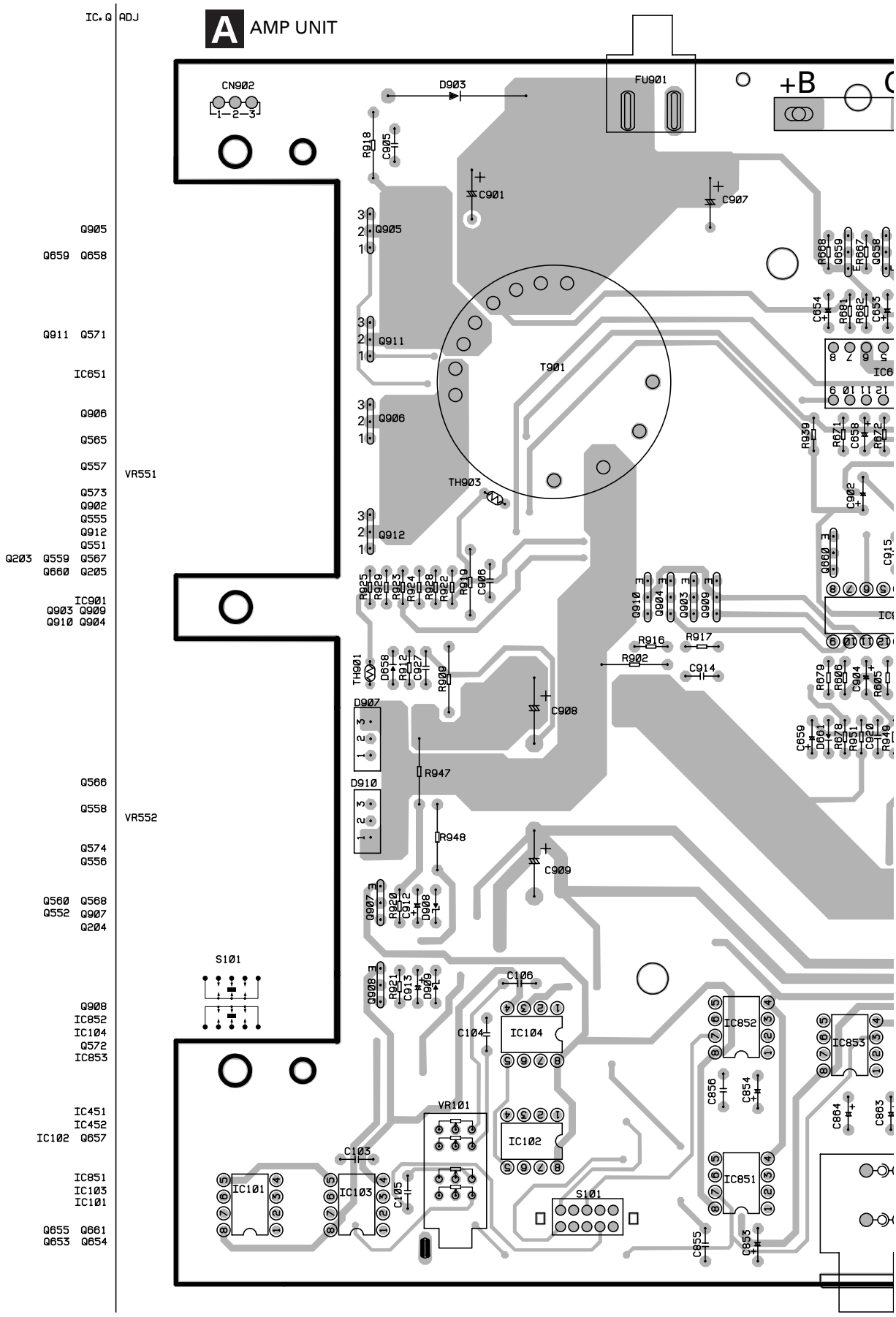
A AMP UNIT



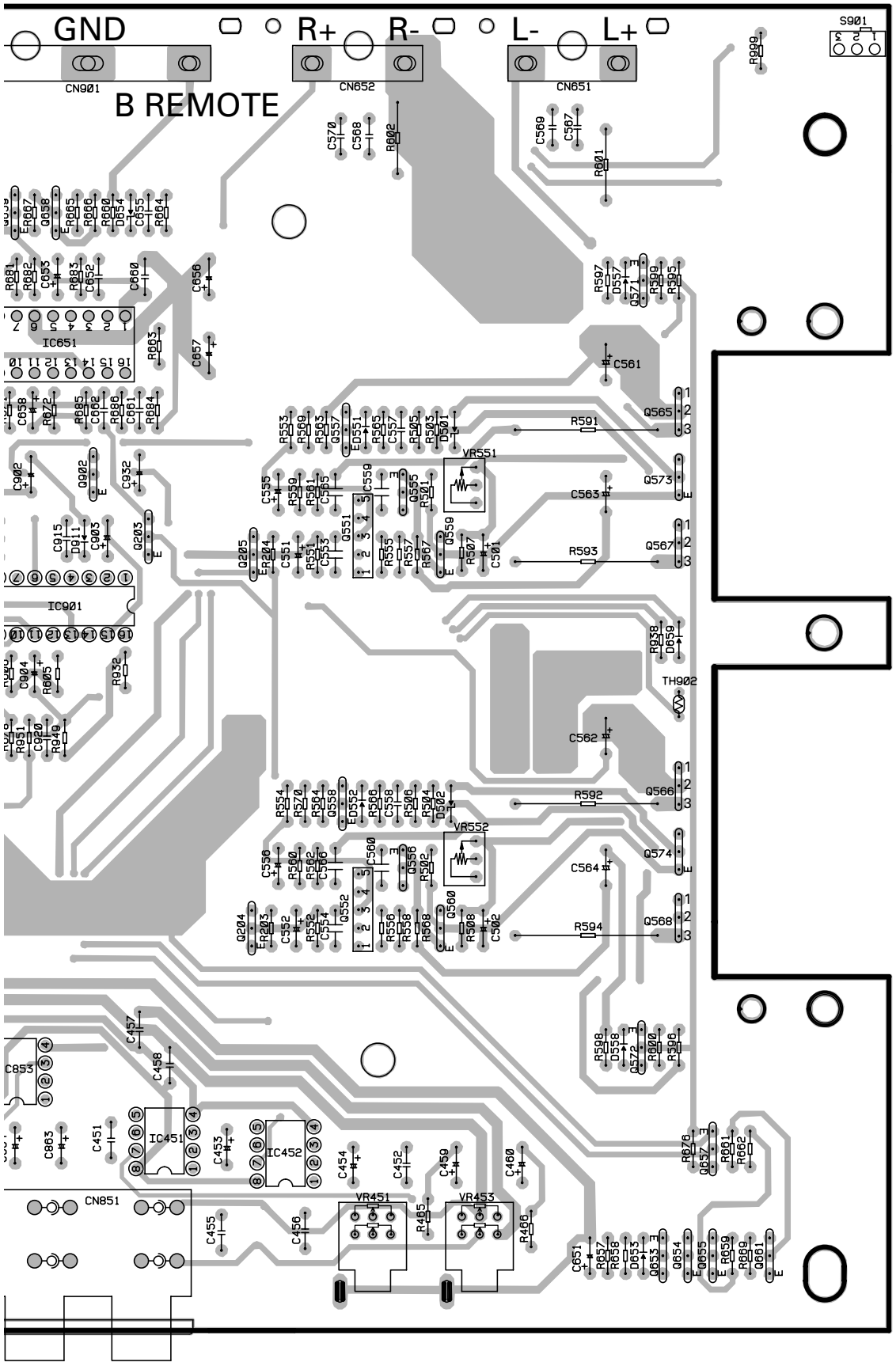
SIDE B


R574
R576
R578
R580
R109
R107
R103
R105
R115
C101
R111
R119
R104
C102
R106
R114
R112
R110
R108
R120
R113
R102
R101
R907
R950
R936
R937
R915
R132
R128
R126
R118
R130
R131
R127
R125
R129
R858
R854
R852
R662
C860
R856
C858
R860
C852
R851
C851
R857
R853
R861
C859
C857
R859
R855
C862
R867
C861
R866
R868
R865
R870
R872
R869
C865
R871
R451
R469
R455
R467
R459
R461
R456
R470
R468
R462
R452
R460
R573
R575
R577
R579

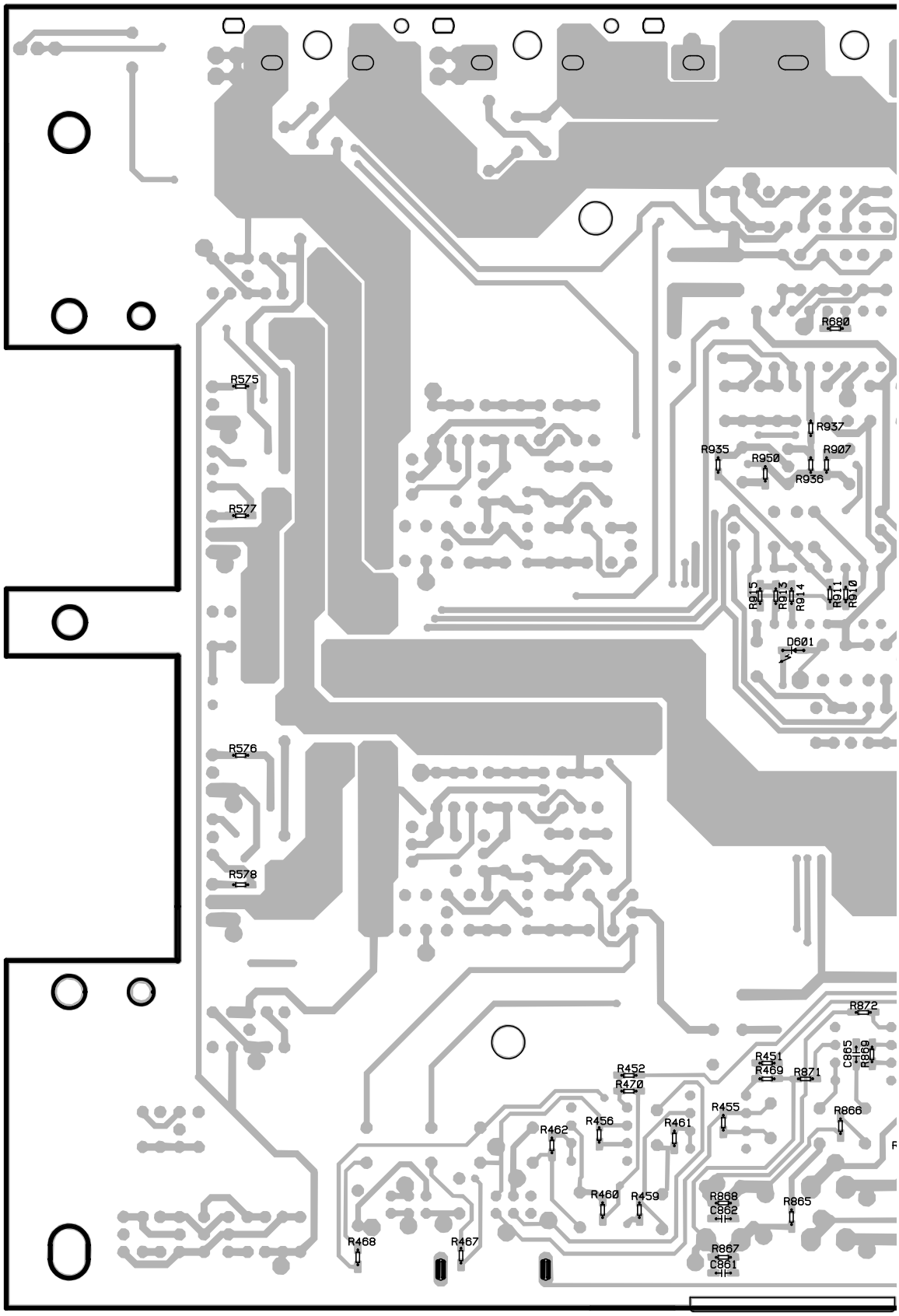
4.3 AMP UNIT(PRS-X220/X1R/UC)



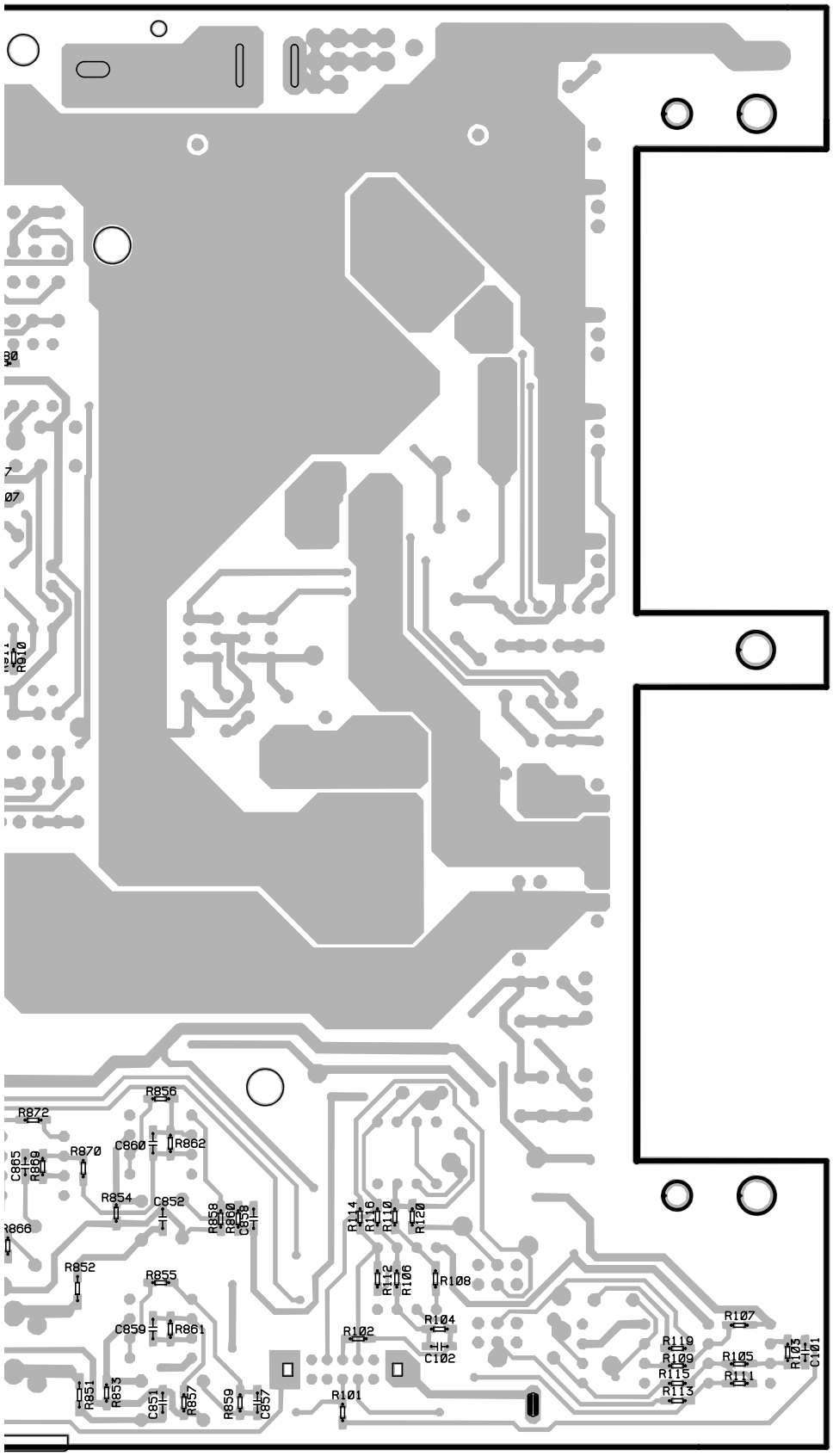
SIDE A


GND
R+
R-
L-
L+
CN901
CN652
CN651
B REMOTE
S901
IC651
IC901
IC451
IC452
CN851
VR551
VR552
VR451
VR453
TH902

A AMP UNIT


R680
R575
R937
R935
R950
R907
R936
R577
R915
R913
R914
R911
R910
D601
V1
R576
R578
R872
C865
R869
R451
R469
R871
R452
R470
R455
R866
R462
R456
R461
R460
R459
R868
C862
R865
R468
R467
R867
C861

SIDE B


R856
R872
C860
R862
R870
C854
R854
C852
R858
R860
C858
R866
R852
R855
C859
R861
R851
R853
C851
R857
R859
C857
R101
R102
R104
C102
R112
R106
R108
R114
R116
R110
R120
R107
R119
R109
R105
R115
R111
R113
R103
C101

5. ELECTRICAL PARTS LIST

NOTES:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : HWH0091(PRS-X720/X1R/UC)
Unit Name : Amp Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	101	IC	NJM2068D
IC	102	IC	NJM2068D
IC	103	IC	NJM2068D
IC	104	IC	NJM2068D
IC	105	IC	NJM2068D
IC	106	IC	NJM2068D
IC	451	IC	NJM2068D
IC	452	IC	NJM2068D
IC	651	IC	PA2027A
IC	851	IC	NJM2068D
IC	852	IC	NJM2068D
IC	853	IC	NJM2068D
IC	901	IC	UPC494C
Q	203	Transistor	DTA124ES
Q	204	Transistor	2SC2458
Q	205	Transistor	2SC2458
Q	551	Transistor	2SA1928
Q	552	Transistor	2SA1928
Q	555	Transistor	2SC1845
Q	556	Transistor	2SC1845
Q	557	Transistor	2SA992
Q	558	Transistor	2SA992
Q	559	Transistor	2SC1845
Q	560	Transistor	2SC1845
Q	561	FET	94-4980
Q	562	FET	94-4980
Q	563	FET	94-4980
Q	564	FET	94-4980
Q	565	FET	94-4980
Q	566	FET	94-4980
Q	567	FET	94-4981
Q	568	FET	94-4981
Q	569	FET	94-4981
Q	570	FET	94-4981
Q	571	FET	94-4981
Q	572	FET	94-4981
Q	573	Transistor	2SC1845
Q	574	Transistor	2SC1845
Q	653	Transistor	2SA1048
Q	654	Transistor	2SC2458
Q	655	Transistor	2SC2458
Q	657	Transistor	2SA1048
Q	658	Transistor	2SC2458
Q	659	Transistor	2SA1048
Q	660	Transistor	2SB1243
Q	661	Transistor	2SC2458
Q	663	Transistor	2SD1768S
Q	664	Transistor	2SD1768S
Q	902	Transistor	2SA1048
Q	903	Transistor	2SB1277

=====Circuit Symbol and No.		===Part Name	Part No.
Q	904	Transistor	2SB1277
Q	905	FET	STP50NE08
Q	906	FET	STP50NE08
Q	907	Transistor	2SD2395
Q	908	Transistor	2SB1566
Q	909	Transistor	2SD1919
Q	910	Transistor	2SD1919
Q	911	FET	STP50NE08
Q	912	FET	STP50NE08
Q	913	FET	STP50NE08
Q	914	FET	STP50NE08
D	501	Diode	HZS5(C3)
D	502	Diode	HZS5(C3)
D	551	Diode	1SS133
D	552	Diode	1SS133
D	601	LED	SML210LT(LMN)
D	651	Diode	RM4Z
D	652	Diode	RM4Z
D	653	Diode	1SS133
D	654	Diode	HZS7L(B2)
D	655	Diode	1SS133
D	656	Diode	1SS133
D	658	Diode	1SS133
D	659	Diode	1SS133
D	661	Diode	1SS133
D	907	Diode	FML22R
D	908	Diode	HZS16L(1)
D	909	Diode	HZS16L(1)
D	910	Diode	FML22S
D	911	Diode	1SS133
D	912	Diode	ALO1ZWS
D	913	Diode	ALO1ZWS
D	914	Diode	ALO1ZWS
D	915	Diode	ALO1ZWS
T	901	Transformer	HTT0003
TH	901	Thermistor	CCX1013
TH	902	Thermistor	CCX1013
TH	903	Thermistor	CCX1035
S	101	Switch(LPF/HPF)	CSH1029
S	102	Switch(Subsonic)	CSH1021
VR	101	Variable Resistor 20kΩ(E)	CCS1266
VR	451	Volume 20kΩ(C)	HCS0001
VR	452	Variable Resistor 50kΩ(C)	CCS1263
VR	453	Variable Resistor 10kΩ(A)	CCS1265
VR	551	Semi-fixed 10kΩ(B)	CCP1319
VR	552	Semi-fixed 10kΩ(B)	CCP1319
FU	902	Fuse 30A	HEK0030
FU	903	Fuse 30A	HEK0030
FU	904	Fuse 30A	HEK0030

Circuit Symbol and No.	Part Name	Part No.
RESISTORS		
R 101		RS1/10S103J
R 102		RS1/10S103J
R 103		RS1/10S103J
R 104		RS1/10S103J
R 105		RS1/10S103J
R 106		RS1/10S103J
R 107		RS1/10S472J
R 108		RS1/10S472J
R 109		RS1/10S562J
R 110		RS1/10S562J
R 111		RS1/10S103J
R 112		RS1/10S103J
R 113		RS1/10S123J
R 114		RS1/10S123J
R 115		RS1/10S103J
R 116		RS1/10S103J
R 119		RS1/10S123J
R 120		RS1/10S123J
R 123		RS1/10S392J
R 124		RS1/10S392J
R 125		RS1/10S103J
R 126		RS1/10S103J
R 127		RS1/10S123J
R 128		RS1/10S123J
R 129		RS1/10S392J
R 130		RS1/10S392J
R 131		RS1/10S393J
R 132		RS1/10S393J
R 203		RD1/4PU222J
R 204		RD1/4PU222J
R 455		RS1/10S182J
R 456		RS1/10S182J
R 459		RS1/10S822J
R 460		RS1/10S822J
R 461		RS1/10S221J
R 462		RS1/10S221J
R 465		RD1/4PU101J
R 466		RD1/4PU101J
R 467		RS1/10S222J
R 468		RS1/10S222J
R 469		RS1/10S473J
R 470		RS1/10S473J
R 501		RD1/4PU102J
R 502		RD1/4PU102J
R 503		RD1/4PU392J
R 504		RD1/4PU392J
R 505		RD1/4PU103J
R 506		RD1/4PU103J
R 507		RD1/4PU105J
R 508		RD1/4PU105J
R 549		RD1/4PU243J
R 550		RD1/4PU243J
R 551		RD1/4PU473J
R 552		RD1/4PU473J
R 553		RD1/4PU563J
R 554		RD1/4PU563J
R 555		RD1/4PU512J
R 556		RD1/4PU512J
R 557		RD1/4PU512J
R 558		RD1/4PU512J
R 559		RD1/4PU131J
R 560		RD1/4PU131J
R 561		RD1/4PU133J
R 562		RD1/4PU133J
R 563		RD1/4PU101J
R 564		RD1/4PU101J
R 565		RD1/4PU243J
R 566		RD1/4PU243J
R 567		RD1/4PU101J
R 568		RD1/4PU101J
R 569		RD1/4PU101J
R 570		RD1/4PU101J
R 571		RS1/10S101J
R 572		RS1/10S101J
R 573		RS1/10S101J
R 574		RS1/10S101J
R 575		RS1/10S101J
R 576		RS1/10S101J
R 577		RS1/10S101J
R 578		RS1/10S101J
R 579		RS1/10S101J
R 580		RS1/10S101J
R 581		RS1/10S101J
R 582		RS1/10S101J
R 583		SPR30R1J
R 584		SPR30R1J
R 585		SPR30R1J
R 586		SPR30R1J
R 587		SPR30R1J
R 588		SPR30R1J
R 589		SPR30R1J
R 590		SPR30R1J
R 591		SPR30R1J
R 592		SPR30R1J
R 593		SPR30R1J
R 594		SPR30R1J
R 595		RS1/2PMF100J
R 596		RS1/2PMF100J
R 605		RD1/4PU331J
R 606		RD1/4PU331J
R 657		RD1/4PU104J
R 658		RD1/4PU472J
R 659		RD1/4PU103J
R 660		RD1/4PU102J
R 661		RD1/4PU472J
R 662		RD1/4PU221J
R 663		RD1/4PU563J
R 664		RD1/4PU473J
R 665		RD1/4PU103J
R 666		RD1/4PU103J
R 667		RD1/4PU222J
R 668		RD1/4PU472J
R 669		RD1/4PU222J
R 671		RD1/4PU221J
R 672		RD1/4PU152J
R 676		RD1/4PU222J
R 678		RD1/4PU472J
R 679		RD1/4PU101J
R 680		RD1/4PU472J
R 681		RD1/4PU562J
R 682		RD1/4PU562J
R 683		RD1/4PU103J
R 684		RD1/4PU223J
R 685		RD1/4PU223J
R 686		RD1/4PU223J
R 687		RD1/4PU563J
R 688		RD1/4PU563J
R 689		RD1/4PU563J
R 690		RD1/4PU563J
R 691		RD1/4PU563J

=====Circuit Symbol and No.		===Part Name	Part No.
R	692		RD1/4PU563J
R	693		RD1/4PU564J
R	694		RD1/4PU564J
R	695		RD1/4PU473J
R	696		RD1/4PU473J
R	851		RS1/10S471J
R	852		RS1/10S471J
R	853		RS1/10S223J
R	854		RS1/10S223J
R	855	(RN1/10SE1002D)	GGC1320
R	856	(RN1/10SE1002D)	GGC1320
R	857	(RN1/10SE1002D)	GGC1320
R	858	(RN1/10SE1002D)	GGC1320
R	859	(RN1/10SE1002D)	GGC1320
R	860	(RN1/10SE1002D)	GGC1320
R	861	(RN1/10SE1002D)	GGC1320
R	862	(RN1/10SE1002D)	GGC1320
R	865		RS1/10S821J
R	866		RS1/10S821J
R	867		RS1/10S223J
R	868		RS1/10S223J
R	869		RS1/10S472J
R	870		RS1/10S472J
R	871		RS1/10S472J
R	872		RS1/10S222J
R	902		RS1/2PMF220J
R	907		RS1/10S473J
R	909		RS1/2PMF220J
R	910		RS1/10S153J
R	911		RS1/10S102J
R	912		RD1/4PU272J
R	913		RS1/10S472J
R	914		RS1/10S472J
R	915		RS1/10S472J
R	916		RD1/4PU332J
R	917		RD1/4PU332J
R	918		RS1/2PMF220J
R	919		RS1/2PMF220J
R	920		RD1/4PU472J
R	921		RD1/4PU472J
R	922		RD1/4PU472J
R	923		RD1/4PU472J
R	924		RD1/4PU680J
R	925		RD1/4PU680J
R	926		RD1/4PU680J
R	927		RD1/4PU680J
R	928		RD1/4PU680J
R	929		RD1/4PU680J
R	932		RD1/4PU104J
R	935		RS1/10S392J
R	936		RS1/10S223J
R	937		RS1/10S103J
R	938		RD1/4PU272J
R	939		RD1/4PU272J
R	947		RS1/2PMF560J
R	948		RS1/2PMF560J
R	949		RD1/4PU113J
R	950		RS1/10S101J
R	951		RD1/4PU823J
R	952		RD1/4PU101J
R	953		RD1/4PU101J

CAPACITORS

C	101		CCSQCH470J50
C	102		CCSQCH470J50
C	103		CFTNA104J50
C	104		CFTNA104J50
C	105		CFTNA104J50
C	106		CFTNA104J50
C	107		CFTLA824J50
C	108		CFTLA824J50
C	109		CFTLA824J50
C	110		CFTLA824J50
C	111		CFTLA824J50
C	112		CFTLA824J50
C	113		CFTLA824J50
C	114		CFTLA824J50
C	201		CEAS470M10
C	202		CEAS470M10
C	451		CKSQYB273K25
C	452		CKSQYB273K25
C	453		CEAS4R7M35
C	454		CEAS4R7M35
C	455		CKSYB224K25
C	456		CKSYB224K25
C	457		CEAS101M16
C	458		CEAS101M16
C	501		CEAS1R0M50
C	502		CEAS1R0M50
C	551		CEAS100M16
C	552		CEAS100M16
C	553		CKPUYB221K50
C	554		CKPUYB221K50
C	555		CEAS221M10
C	556		CEAS221M10
C	557		CFTLA103J50
C	558		CFTLA103J50
C	559		CCPUCH150J50
C	560		CCPUCH150J50
C	561		CMA330J2H
C	562		CMA330J2H
C	565		CFTNA333J50
C	566		CFTNA333J50
C	567		CQMA102J50
C	568		CQMA102J50
C	651	220µF/10V	CCH1036
C	652		CFTLA103J50
C	653		CEAS100M16
C	654		CEAS100M16
C	655		CFTLA103J50
C	656	470µF/16V	CCH1183
C	657	470µF/16V	CCH1183
C	658		CEAS220M16
C	659	470µF/16V	CCH1183
C	660		CFTLA105J50
C	661		CFTLA103J50
C	662		CFTLA103J50
C	851		CKSQYB471K50
C	852		CKSQYB471K50
C	853		CEAS100M16
C	854		CEAS100M16
C	855		CQMA472J50
C	856		CQMA472J50
C	857		CCSQCH470J50
C	858		CCSQCH470J50
C	859		CCSQCH470J50
C	860		CCSQCH470J50
C	861		CKSQYB471K50
C	862		CKSQYB471K50
C	863		CEAS4R7M35
C	864		CEAS4R7M35
C	865		CCSQCH470J50
C	902		CEAS221M10

=====Circuit Symbol and No.		===Part Name	Part No.
C	903		CEAS2R2M50
C	904		CEAS101M16
C	905		CQMA472J50
C	906		CQMA472J50
C	907	4700µF/16V	CCH1310
C	908	4700µF/16V	CCH1310
C	909	4700µF/16V	CCH1310
C	910		478LBA050M2DC
C	911		478LBA050M2DC
C	912		478LBA050M2DC
C	913		478LBA050M2DC
C	914		CQMA102J50
C	915		CQMA102J50
C	916		CEAS470M16
C	917		CEAS470M16
C	918		337RZM050M1020
C	919		337RZM050M1020
C	920		337RZM050M1020
C	921		337RZM050M1020
C	922		CFTLA224J50
C	923		CFTLA224J50
C	924		CFTLA564J50
C	925		CCG-081
C	926		CCG-081
C	927		CQMA102J50
C	930		337RZM050M1020
C	931		337RZM050M1020
C	932		CEAS470M10

A Unit Number : HWH0095(PRS-X320/X1R/UC)
Unit Name : Amp Unit

MISCELLANEOUS

IC	101	IC	NJM2068D
IC	102	IC	NJM2068D
IC	103	IC	NJM2068D
IC	104	IC	NJM2068D
IC	105	IC	NJM2068D
IC	106	IC	NJM2068D
IC	451	IC	NJM2068D
IC	452	IC	NJM2068D
IC	651	IC	PA2027A
IC	851	IC	NJM2068D
IC	852	IC	NJM2068D
IC	853	IC	NJM2068D
IC	901	IC	UPC494C
Q	203	Transistor	DTA124ES
Q	204	Transistor	2SC2458
Q	205	Transistor	2SC2458
Q	551	Transistor	2SA1928
Q	552	Transistor	2SA1928
Q	555	Transistor	2SC1845
Q	556	Transistor	2SC1845
Q	557	Transistor	2SA992
Q	558	Transistor	2SA992
Q	559	Transistor	2SC1845
Q	560	Transistor	2SC1845
Q	563	FET	94-4980
Q	564	FET	94-4980
Q	565	FET	94-4980
Q	566	FET	94-4980
Q	567	FET	94-4981
Q	568	FET	94-4981
Q	569	FET	94-4981
Q	570	FET	94-4981
Q	571	Transistor	2SD1768S
Q	572	Transistor	2SD1768S
Q	573	Transistor	2SC1845

=====Circuit Symbol and No.		===Part Name	Part No.
Q	574	Transistor	2SC1845
Q	653	Transistor	2SA1048
Q	654	Transistor	2SC2458
Q	655	Transistor	2SC2458
Q	657	Transistor	2SA1048
Q	658	Transistor	2SC2458
Q	659	Transistor	2SA1048
Q	660	Transistor	2SB1243
Q	661	Transistor	2SC2458
Q	902	Transistor	2SA1048
Q	903	Transistor	2SB1277
Q	904	Transistor	2SB1277
Q	905	FET	STP50NE08
Q	906	FET	STP50NE08
Q	907	Transistor	2SD2395
Q	908	Transistor	2SB1566
Q	909	Transistor	2SD1919
Q	910	Transistor	2SD1919
Q	911	FET	STP50NE08
Q	912	FET	STP50NE08
D	501	Diode	HZS5(C3)
D	502	Diode	HZS5(C3)
D	551	Diode	1SS133
D	552	Diode	1SS133
D	557	Diode	1SS133
D	558	Diode	1SS133
D	601	LED	SML210LT(LMN)
D	653	Diode	1SS133
D	654	Diode	HZS7L(B2)
D	658	Diode	1SS133
D	659	Diode	1SS133
D	661	Diode	1SS133
D	903	Diode	RM4Z
D	907	Diode	FML22R
D	908	Diode	HZS16L(1)
D	909	Diode	HZS16L(1)
D	910	Diode	FML22S
D	911	Diode	1SS133
T	901	Transformer	HTT0004
TH	901	Thermistor	CCX1013
TH	902	Thermistor	CCX1013
TH	903	Thermistor	CCX1035
S	101	Switch(LPF/HPF)	CSH1029
S	102	Switch(Subsonic)	CSH1021
VR	101	Variable Resistor 20kΩ(E)	CCS1266
VR	451	Volume 20kΩ(C)	HCS0001
VR	452	Variable Resistor 50kΩ(C)	CCS1263
VR	453	Variable Resistor 10kΩ(A)	CCS1265
VR	551	Semi-fixed 10kΩ(B)	CCP1319
VR	552	Semi-fixed 10kΩ(B)	CCP1319
FU	902	Fuse 30A	HEK0030
FU	903	Fuse 30A	HEK0030

RESISTORS

R	101	RS1/10S103J
R	102	RS1/10S103J
R	103	RS1/10S103J
R	104	RS1/10S103J
R	105	RS1/10S103J
R	106	RS1/10S103J
R	107	RS1/10S472J
R	108	RS1/10S472J
R	109	RS1/10S562J
R	110	RS1/10S562J

=====Circuit Symbol and No.		===Part Name	Part No.
R	111		RS1/10S103J
R	112		RS1/10S103J
R	113		RS1/10S123J
R	114		RS1/10S123J
R	115		RS1/10S103J
R	116		RS1/10S103J
R	119		RS1/10S123J
R	120		RS1/10S123J
R	125		RS1/10S103J
R	126		RS1/10S103J
R	127		RS1/10S123J
R	128		RS1/10S123J
R	129		RS1/10S392J
R	130		RS1/10S392J
R	131		RS1/10S393J
R	132		RS1/10S393J
R	203		RD1/4PU472J
R	204		RD1/4PU472J
R	451		RS1/10S392J
R	452		RS1/10S392J
R	455		RS1/10S182J
R	456		RS1/10S182J
R	459		RS1/10S822J
R	460		RS1/10S822J
R	461		RS1/10S221J
R	462		RS1/10S221J
R	465		RD1/4PU111J
R	466		RD1/4PU111J
R	467		RS1/10S222J
R	468		RS1/10S222J
R	469		RS1/10S473J
R	470		RS1/10S473J
R	501		RD1/4PU102J
R	502		RD1/4PU102J
R	503		RD1/4PU392J
R	504		RD1/4PU392J
R	505		RD1/4PU103J
R	506		RD1/4PU103J
R	507		RD1/4PU105J
R	508		RD1/4PU105J
R	551		RD1/4PU473J
R	552		RD1/4PU473J
R	553		RD1/4PU563J
R	554		RD1/4PU563J
R	555		RD1/4PU512J
R	556		RD1/4PU512J
R	557		RD1/4PU512J
R	558		RD1/4PU512J
R	559		RD1/4PU201J
R	560		RD1/4PU201J
R	561		RD1/4PU133J
R	562		RD1/4PU133J
R	563		RD1/4PU101J
R	564		RD1/4PU101J
R	565		RD1/4PU243J
R	566		RD1/4PU243J
R	567		RD1/4PU101J
R	568		RD1/4PU101J
R	569		RD1/4PU101J
R	570		RD1/4PU101J
R	573		RS1/10S101J
R	574		RS1/10S101J
R	575		RS1/10S101J
R	576		RS1/10S101J
R	577		RS1/10S101J

=====Circuit Symbol and No.		===Part Name	Part No.
R	578		RS1/10S101J
R	579		RS1/10S101J
R	580		RS1/10S101J
R	587		SPR30R1J
R	588		SPR30R1J
R	589		SPR30R1J
R	590		SPR30R1J
R	591		SPR30R1J
R	592		SPR30R1J
R	593		SPR30R1J
R	594		SPR30R1J
R	597		RD1/4PU564J
R	598		RD1/4PU564J
R	599		RD1/4PU473J
R	600		RD1/4PU473J
R	601		RS1/2PMF100J
R	602		RS1/2PMF100J
R	605		RD1/4PU331J
R	606		RD1/4PU331J
R	657		RD1/4PU104J
R	658		RD1/4PU472J
R	659		RD1/4PU103J
R	660		RD1/4PU102J
R	661		RD1/4PU472J
R	662		RD1/4PU221J
R	663		RD1/4PU563J
R	664		RD1/4PU473J
R	665		RD1/4PU103J
R	666		RD1/4PU103J
R	667		RD1/4PU222J
R	668		RD1/4PU472J
R	669		RD1/4PU222J
R	671		RD1/4PU221J
R	672		RD1/4PU152J
R	676		RD1/4PU222J
R	678		RD1/4PU472J
R	679		RD1/4PU101J
R	680		RS1/10S472J
R	681		RD1/4PU132J
R	682		RD1/4PU132J
R	683		RD1/4PU103J
R	684		RD1/4PU223J
R	685		RD1/4PU223J
R	686		RD1/4PU223J
R	689		RD1/4PU563J
R	690		RD1/4PU563J
R	691		RD1/4PU563J
R	692		RD1/4PU563J
R	701		RD1/4PU243J
R	702		RD1/4PU243J
R	851		RS1/10S471J
R	852		RS1/10S471J
R	853		RS1/10S223J
R	854		RS1/10S223J
R	855	(RN1/10SE1002D)	GGC1320
R	856	(RN1/10SE1002D)	GGC1320
R	857	(RN1/10SE1002D)	GGC1320
R	858	(RN1/10SE1002D)	GGC1320
R	859	(RN1/10SE1002D)	GGC1320
R	860	(RN1/10SE1002D)	GGC1320
R	861	(RN1/10SE1002D)	GGC1320
R	862	(RN1/10SE1002D)	GGC1320
R	865		RS1/10S821J
R	866		RS1/10S821J
R	867		RS1/10S223J

Circuit Symbol and No.		Part Name	Part No.
R	868		RS1/10S223J
R	869		RS1/10S472J
R	870		RS1/10S472J
R	871		RS1/10S472J
R	872		RS1/10S222J
R	902		RS1/2PMF220J
R	907		RS1/10S153J
R	909		RS1/2PMF220J
R	910		RS1/10S153J
R	911		RS1/10S102J
R	912		RD1/4PU272J
R	913		RS1/10S472J
R	914		RS1/10S472J
R	915		RS1/10S472J
R	916		RD1/4PU332J
R	917		RD1/4PU332J
R	918		RS1/2PMF220J
R	919		RS1/2PMF220J
R	920		RD1/4PU472J
R	921		RD1/4PU472J
R	922		RD1/4PU472J
R	923		RD1/4PU472J
R	924		RD1/4PU470J
R	925		RD1/4PU470J
R	928		RD1/4PU470J
R	929		RD1/4PU470J
R	932		RD1/4PU104J
R	935		RS1/10S392J
R	936		RS1/10S223J
R	937		RS1/10S103J
R	938		RD1/4PU272J
R	939		RD1/4PU272J
R	947		RS1/2PMF560J
R	948		RS1/2PMF560J
R	949		RD1/4PU163J
R	950		RS1/10S101J
R	951		RD1/4PU124J
CAPACITORS			
C	101		CCSQCH470J50
C	102		CCSQCH470J50
C	103		CFTNA104J50
C	104		CFTNA104J50
C	105		CFTNA104J50
C	106		CFTNA104J50
C	107		CFTLA824J50
C	108		CFTLA824J50
C	109		CFTLA824J50
C	110		CFTLA824J50
C	111		CFTLA824J50
C	112		CFTLA824J50
C	113		CFTLA824J50
C	114		CFTLA824J50
C	451		CFTNA273J50
C	452		CFTNA273J50
C	453		CEAS4R7M35
C	454		CEAS4R7M35
C	455		CFTLA224J50
C	456		CFTLA224J50
C	457		CEAS101M16
C	458		CEAS101M16
C	459		CEAS470M10
C	460		CEAS470M10
C	501		CEAS1R0M50

Circuit Symbol and No.		Part Name	Part No.
C	502		CEAS1R0M50
C	551		CEAS100M16
C	552		CEAS100M16
C	553		CKPUYB221K50
C	554		CKPUYB221K50
C	555		CEAS221M10
C	556		CEAS221M10
C	557		CFTLA103J50
C	558		CFTLA103J50
C	559		CCPUCH150J50
C	560		CCPUCH150J50
C	561		337RZM050M1020
C	562		337RZM050M1020
C	563		337RZM050M1020
C	564		337RZM050M1020
C	567		CFTNA333J50
C	568		CFTNA333J50
C	569		CQMA102J50
C	570		CQMA102J50
C	571		CMA330J2H
C	572		CMA330J2H
C	651	220µF/10V	CCH1036
C	652		CFTLA103J50
C	653		CEAS100M16
C	654		CEAS100M16
C	655		CFTLA103J50
C	656	470µF/16V	CCH1183
C	658		CEAS220M16
C	659	470µF/16V	CCH1183
C	660		CFTLA105J50
C	661		CFTLA103J50
C	662		CFTLA103J50
C	663		CFTLA824J50
C	664	470µF/16V	CCH1183
C	851		CKSQYB471K50
C	852		CKSQYB471K50
C	853		CEAS100M16
C	854		CEAS100M16
C	855		CQMA472J50
C	856		CQMA472J50
C	857		CCSQCH470J50
C	858		CCSQCH470J50
C	859		CCSQCH470J50
C	860		CCSQCH470J50
C	861		CKSQYB471K50
C	862		CKSQYB471K50
C	863		CEAS4R7M35
C	864		CEAS4R7M35
C	865		CCSQCH470J50
C	902		CEAS221M10
C	903		CEAS2R2M50
C	904		CEAS101M16
C	905		CQMA472J50
C	906		CQMA472J50
C	907	4700µF/16V	CCH1310
C	908		478LBA050M2DC
C	909		478LBA050M2DC
C	912		CEAS470M16
C	913		CEAS470M16
C	914		CQMA102J50
C	915		CQMA102J50
C	919	4700µF/16V	CCH1310
C	920		CFTLA564J50
C	927		CQMA102J50
C	932		CEAS470M10

A Unit Number : HWH0099(PRS-X220/X1R/UC)
Unit Name : Amp Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	101	IC	NJM2068D
IC	102	IC	NJM2068D
IC	103	IC	NJM2068D
IC	104	IC	NJM2068D
IC	451	IC	NJM2068D
IC	452	IC	NJM2068D
IC	651	IC	PA2027A
IC	851	IC	NJM2068D
IC	852	IC	NJM2068D
IC	853	IC	NJM2068D
IC	901	IC	UPC494C
Q	203	Transistor	DTA124ES
Q	204	Transistor	2SC2458
Q	205	Transistor	2SC2458
Q	551	Transistor	2SA1928
Q	552	Transistor	2SA1928
Q	555	Transistor	2SC1845
Q	556	Transistor	2SC1845
Q	557	Transistor	2SA992
Q	558	Transistor	2SA992
Q	559	Transistor	2SC1845
Q	560	Transistor	2SC1845
Q	565	FET	94-4980
Q	566	FET	94-4980
Q	567	FET	94-4981
Q	568	FET	94-4981
Q	571	Transistor	2SD1768S
Q	572	Transistor	2SD1768S
Q	573	Transistor	2SC1845
Q	574	Transistor	2SC1845
Q	653	Transistor	2SA1048
Q	654	Transistor	2SC2458
Q	655	Transistor	2SC2458
Q	657	Transistor	2SA1048
Q	658	Transistor	2SC2458
Q	659	Transistor	2SA1048
Q	660	Transistor	2SB1243
Q	661	Transistor	2SC2458
Q	902	Transistor	2SA1048
Q	903	Transistor	2SB1277
Q	904	Transistor	2SB1277
Q	905	FET	IRFIZ44N
Q	906	FET	IRFIZ44N
Q	907	Transistor	2SD2395
Q	908	Transistor	2SB1566
Q	909	Transistor	2SD1919
Q	910	Transistor	2SD1919
Q	911	FET	IRFIZ44N
Q	912	FET	IRFIZ44N
D	501	Diode	HZS5(C3)
D	502	Diode	HZS5(C3)
D	551	Diode	1SS133
D	552	Diode	1SS133
D	557	Diode	1SS133
D	558	Diode	1SS133
D	601	LED	SML210LT(LMN)
D	653	Diode	1SS133
D	654	Diode	HZS7L(B2)
D	658	Diode	1SS133
D	659	Diode	1SS133

=====Circuit Symbol and No.		===Part Name	Part No.
D	661	Diode	1SS133
D	903	Diode	RM4Z
D	907	Diode	FML22S
D	908	Diode	HZS16L(1)
D	909	Diode	HZS16L(1)
D	910	Diode	FML22R
D	911	Diode	1SS133
T	901	Transformer	HTT0005
TH	901	Thermistor	CCX1013
TH	902	Thermistor	CCX1013
TH	903	Thermistor	CCX1035
S	101	Switch(LPF/HPF)	CSH1029
VR	101	Variable Resistor 20kΩ(E)	CCS1266
VR	451	Volume 20kΩ(C)	HCS0001
VR	453	Variable Resistor 10kΩ(A)	CCS1265
VR	551	Semi-fixed 10kΩ(B)	CCP1319
VR	552	Semi-fixed 10kΩ(B)	CCP1319
FU	901	Fuse 30A	HEK0030

RESISTORS

R	101		RS1/10S103J
R	102		RS1/10S103J
R	103		RS1/10S103J
R	104		RS1/10S103J
R	105		RS1/10S103J
R	106		RS1/10S103J
R	107		RS1/10S472J
R	108		RS1/10S472J
R	109		RS1/10S562J
R	110		RS1/10S562J
R	111		RS1/10S103J
R	112		RS1/10S103J
R	113		RS1/10S123J
R	114		RS1/10S123J
R	115		RS1/10S103J
R	116		RS1/10S103J
R	119		RS1/10S123J
R	120		RS1/10S123J
R	203		RD1/4PU222J
R	204		RD1/4PU222J
R	451		RS1/10S392J
R	452		RS1/10S392J
R	455		RS1/10S182J
R	456		RS1/10S182J
R	459		RS1/10S333J
R	460		RS1/10S333J
R	461		RS1/10S221J
R	462		RS1/10S221J
R	465		RD1/4PU101J
R	466		RD1/4PU101J
R	467		RS1/10S222J
R	468		RS1/10S222J
R	469		RS1/10S473J
R	470		RS1/10S473J
R	501		RD1/4PU102J
R	502		RD1/4PU102J
R	503		RD1/4PU392J
R	504		RD1/4PU392J
R	505		RD1/4PU103J
R	506		RD1/4PU103J
R	507		RD1/4PU105J
R	508		RD1/4PU105J
R	551		RD1/4PU473J
R	552		RD1/4PU473J
R	553		RD1/4PU683J

=====Circuit Symbol and No.		===Part Name	Part No.
R	554		RD1/4PU683J
R	555		RD1/4PU512J
R	556		RD1/4PU512J
R	557		RD1/4PU512J
R	558		RD1/4PU512J
R	559		RD1/4PU271J
R	560		RD1/4PU271J
R	561		RD1/4PU153J
R	562		RD1/4PU153J
R	563		RD1/4PU101J
R	564		RD1/4PU101J
R	565		RD1/4PU123J
R	566		RD1/4PU123J
R	567		RD1/4PU680J
R	568		RD1/4PU680J
R	569		RD1/4PU101J
R	570		RD1/4PU101J
R	575		RS1/10S101J
R	576		RS1/10S101J
R	577		RS1/10S101J
R	578		RS1/10S101J
R	591		SPR30R1J
R	592		SPR30R1J
R	593		SPR30R1J
R	594		SPR30R1J
R	595		RD1/4PU563J
R	596		RD1/4PU563J
R	597		RD1/4PU564J
R	598		RD1/4PU564J
R	599		RD1/4PU473J
R	600		RD1/4PU473J
R	601		RS1/2PMF100J
R	602		RS1/2PMF100J
R	605		RD1/4PU331J
R	606		RD1/4PU331J
R	657		RD1/4PU104J
R	658		RD1/4PU472J
R	659		RD1/4PU103J
R	660		RD1/4PU102J
R	661		RD1/4PU472J
R	662		RD1/4PU221J
R	663		RD1/4PU563J
R	664		RD1/4PU473J
R	665		RD1/4PU103J
R	666		RD1/4PU103J
R	667		RD1/4PU222J
R	668		RD1/4PU472J
R	669		RD1/4PU222J
R	671		RD1/4PU221J
R	672		RD1/4PU152J
R	676		RD1/4PU222J
R	678		RD1/4PU472J
R	679		RD1/4PU101J
R	680		RS1/10S472J
R	681		RD1/4PU361J
R	682		RD1/4PU361J
R	683		RD1/4PU103J
R	684		RD1/4PU223J
R	685		RD1/4PU223J
R	686		RD1/4PU223J
R	851		RS1/10S471J
R	852		RS1/10S471J
R	853		RS1/10S223J
R	854		RS1/10S223J
R	855	(RN1/10SE1002D)	GGC1320

=====Circuit Symbol and No.		===Part Name	Part No.
R	856	(RN1/10SE1002D)	GGC1320
R	857	(RN1/10SE1002D)	GGC1320
R	858	(RN1/10SE1002D)	GGC1320
R	859	(RN1/10SE1002D)	GGC1320
R	860	(RN1/10SE1002D)	GGC1320
R	861	(RN1/10SE1002D)	GGC1320
R	862	(RN1/10SE1002D)	GGC1320
R	865		RS1/10S821J
R	866		RS1/10S821J
R	867		RS1/10S223J
R	868		RS1/10S223J
R	869		RS1/10S472J
R	870		RS1/10S472J
R	871		RS1/10S472J
R	872		RS1/10S222J
R	902		RS1/2PMF220J
R	907		RS1/10S473J
R	909		RS1/2PMF220J
R	910		RS1/10S153J
R	911		RS1/10S102J
R	912		RD1/4PU272J
R	913		RS1/10S472J
R	914		RS1/10S472J
R	915		RS1/10S472J
R	916		RD1/4PU332J
R	917		RD1/4PU332J
R	918		RS1/2PMF220J
R	919		RS1/2PMF220J
R	920		RD1/4PU472J
R	921		RD1/4PU472J
R	922		RD1/4PU472J
R	923		RD1/4PU472J
R	924		RD1/4PU470J
R	925		RD1/4PU470J
R	928		RD1/4PU470J
R	929		RD1/4PU470J
R	932		RD1/4PU104J
R	935		RS1/10S392J
R	936		RS1/10S223J
R	937		RS1/10S103J
R	938		RD1/4PU272J
R	939		RD1/4PU272J
R	947		RS1/2PMF560J
R	948		RS1/2PMF560J
R	949		RD1/4PU153J
R	950		RS1/10S101J
R	951		RD1/4PU563J

CAPACITORS

C	101	CCSQCH470J50
C	102	CCSQCH470J50
C	103	CFTNA104J50
C	104	CFTNA104J50
C	105	CFTNA104J50
C	106	CFTNA104J50
C	451	CFTNA273J50
C	452	CFTNA273J50
C	453	CEAS4R7M35
C	454	CEAS4R7M35
C	455	CFTLA224J50
C	456	CFTLA224J50
C	457	CFTLA473J50
C	458	CFTLA473J50
C	459	CEAS470M16

=====Circuit Symbol and No.		===Part Name	Part No.
C	460		CEAS470M16
C	501		CEAS1R0M50
C	502		CEAS1R0M50
C	551		CEAS100M16
C	552		CEAS100M16
C	553		CKPUYB221K50
C	554		CKPUYB221K50
C	555		CEAS101M16
C	556		CEAS101M16
C	557		CFTLA103J50
C	558		CFTLA103J50
C	559		CCPUCH150J50
C	560		CCPUCH150J50
C	561		337RZM050M1020
C	562		337RZM050M1020
C	563		337RZM050M1020
C	564		337RZM050M1020
C	565		CMA330J2H
C	566		CMA330J2H
C	567		CFTNA333J50
C	568		CFTNA333J50
C	569		CQMA102J50
C	570		CQMA102J50
C	651	220µF/10V	CCH1036
C	652		CFTLA103J50
C	653		CEAS100M16
C	654		CEAS100M16
C	655		CFTLA103J50
C	656	470µF/16V	CCH1183
C	657	470µF/16V	CCH1183
C	658		CEAS220M16
C	659	470µF/16V	CCH1183
C	660		CFTLA105J50
C	661		CFTLA103J50
C	662		CFTLA103J50

=====Circuit Symbol and No.		===Part Name	Part No.
C	851		CKSQYB471K50
C	852		CKSQYB471K50
C	853		CEAS100M16
C	854		CEAS100M16
C	855		CQMA472J50
C	856		CQMA472J50
C	857		CCSQCH470J50
C	858		CCSQCH470J50
C	859		CCSQCH470J50
C	860		CCSQCH470J50
C	861		CKSQYB471K50
C	862		CKSQYB471K50
C	863		CEAS4R7M35
C	864		CEAS4R7M35
C	865		CCSQCH470J50
C	901	3300µF/16V	CCH1211
C	902		CEAS221M10
C	903		CEAS2R2M50
C	904		CEAS101M16
C	905		CQMA472J50
C	906		CQMA472J50
C	907	3300µF/16V	CCH1211
C	908		478LBA035M2BD
C	909		478LBA035M2BD
C	912		CEAS470M16
C	913		CEAS470M16
C	914		CQMA102J50
C	915		CQMA102J50
C	920		CFTLA564J50
C	927		CQMA102J50
C	932		CEAS470M10

6. ADJUSTMENT

IDLE CURRENT ADJUSTMENT

Conditions: Terminate inputs with 1kΩ resistors. No load connected to output. 14.4V DC power ON for 30 seconds then adjust.

• PRS-X720/X1R/UC

Turn power on. Measure the voltage across resistor R586. After 30 seconds from turn on of amplifier, adjust VR552 so voltage is 4.5mV ± 0.5mV.

Repeat this step with R585 and VR551.

• PRS-X320/X1R/UC

Turn power on. Measure the voltage across resistor R588. After 30 seconds from turn on of amplifier, adjust VR552 so voltage is 4.5mV ± 0.5mV.

Repeat this step with R587 and VR551.

• PRS-X220/X1R/UC

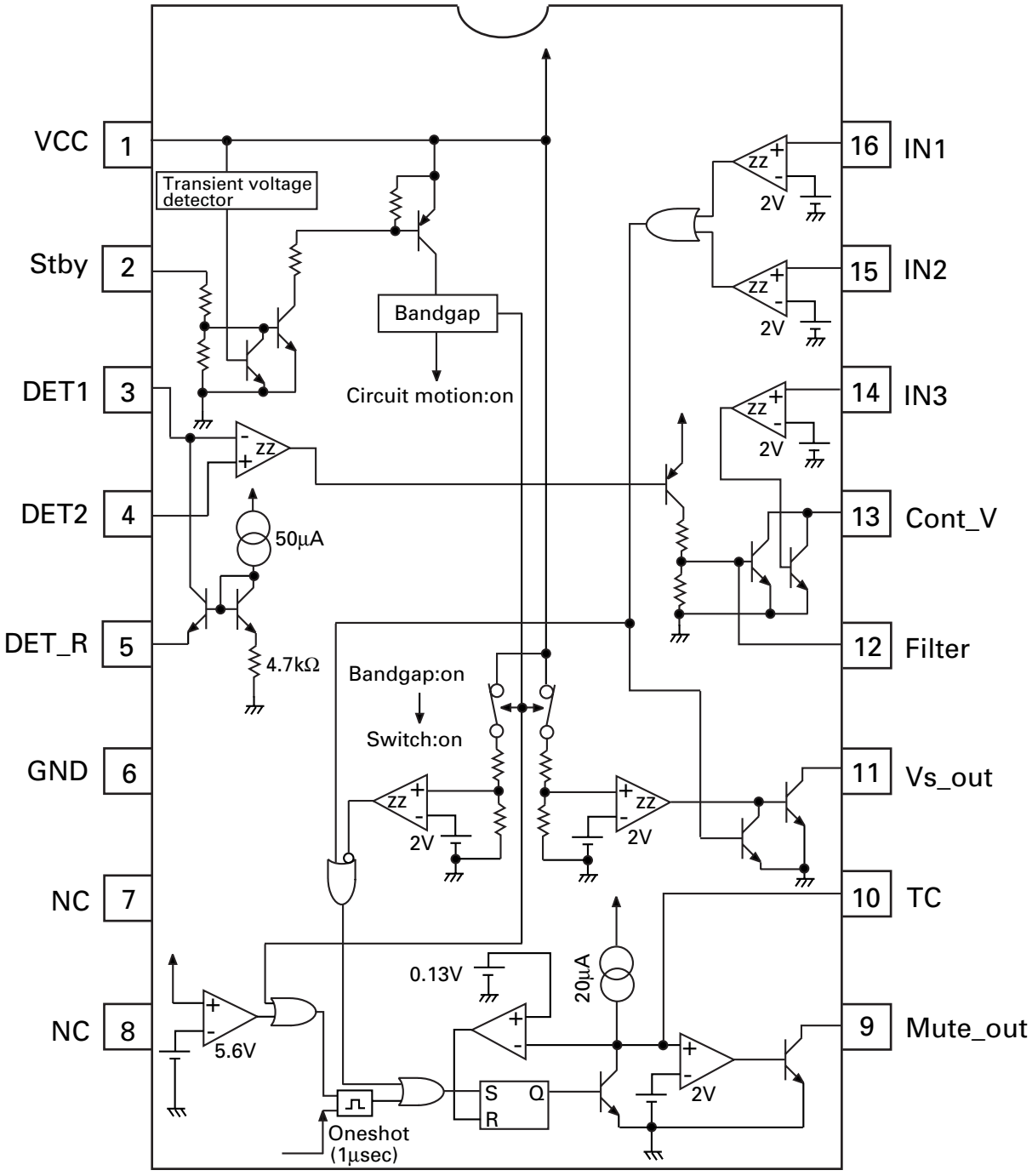
Turn power on. Measure the voltage across resistor R594. After 30 seconds from turn on of amplifier, adjust VR552 so voltage is 4.5mV ± 0.5mV.

Repeat this step with R593 and VR551.

7. GENERAL INFORMATION

7.1 IC

PA2027A



7.2 DISASSEMBLY

● **Removing the two Cases(Fig.1)**

1 Remove the two screws.
Remove the two brackets.

2 Remove the eight screws.

3 Remove the four screws.

4 (PRS-X720/X1R/UC)Remove the six screws.
(PRS-X320/X1R/UC)Remove the four screws.
(PRS-X220/X1R/UC)Remove the two screws.
Remove the two Cases.

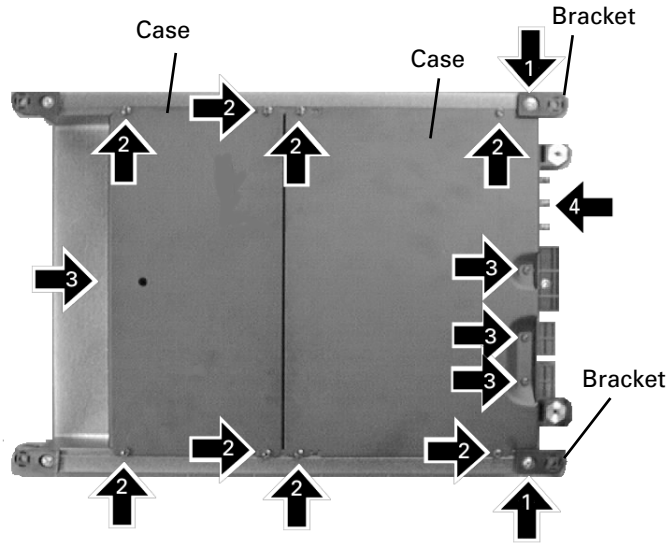


Fig.1

● **Removing the Amp Unit(not shown)**

(PRS-X720/X1R/UC)Remove the eleven screws.
(PRS-X320/X1R/UC)Remove the seven screws.
(PRS-X220/X1R/UC)Remove the six screws.
Remove the Amp Unit.

Setting the Unit

Gain Control

If the sound level is too low, even when the volume of the car stereo used along with this power amplifier is turned up, turn gain control on the back of the power amplifier clockwise. If the sound distorts when the volume is turned up, turn the gain control counter-clockwise.

- When using with an RCA equipped car stereo (standard output of 500 mV), set to the NORMAL position. When using with an RCA equipped Pioneer car stereo with max. output of 4 V or more, adjust level to match the car stereo ouput level.

Bass Boost Level Control

Bass boost level control can boost the level around the frequency selected by the bass boost frequency control from 0 to 18 dB.

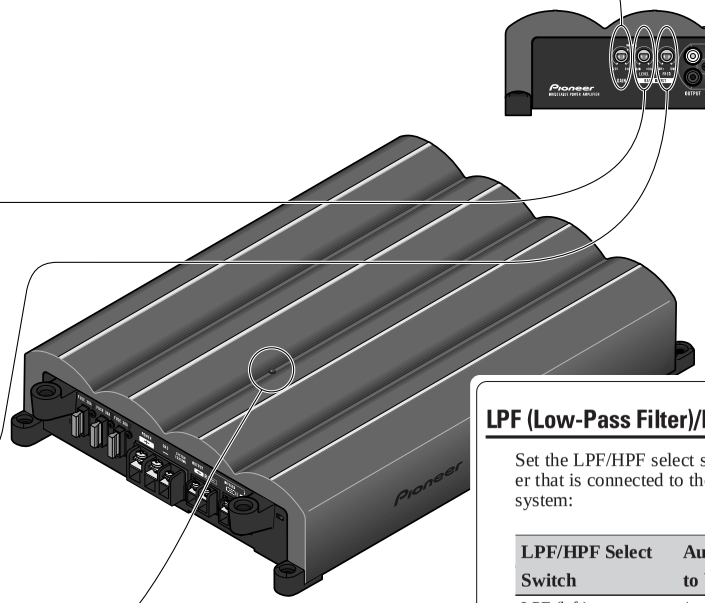
Bass Boost Frequency Control (PRS-X720 and PRS-X320)

You can select a bass boost frequency from 40 to 120 Hz with the bass boost control.

- Bass Boost Level Control and Bass Boost Frequency Control can be adjusted only when the LPF/HPF select switch is set to a position other than HPF.

Power Indicator

The power indicator lights when the power is switched on.



Subsonic Select Switch (PRS-X720 and PRS-X320)

The subsonic filter cuts inaudible frequencies below 15 Hz to eliminate unwanted vibrations and minimize power loss.

Cut Off Frequency Control

If the LPF/HPF select switch is set to LPF (or HPF), you can select a cut off frequency from 50 to 120 Hz.

LPF (Low-Pass Filter)/HPF (High-Pass Filter) Select Switch

Set the LPF/HPF select switch as follows according to the type of speaker that is connected to the speaker output connector and the car stereo system:

LPF/HPF Select Switch	Audio frequency range to be output	Speaker Type	Remarks
LPF (left)	* — 50 to 120 Hz	Sub-woofer	Connect a sub-woofer.
OFF (center)	Full range	Full range	
HPF (right)	* 50 to 120 Hz —	Full range	Use if you want to cut the very-low-frequency range* because it is not necessary for the speakers you are using.

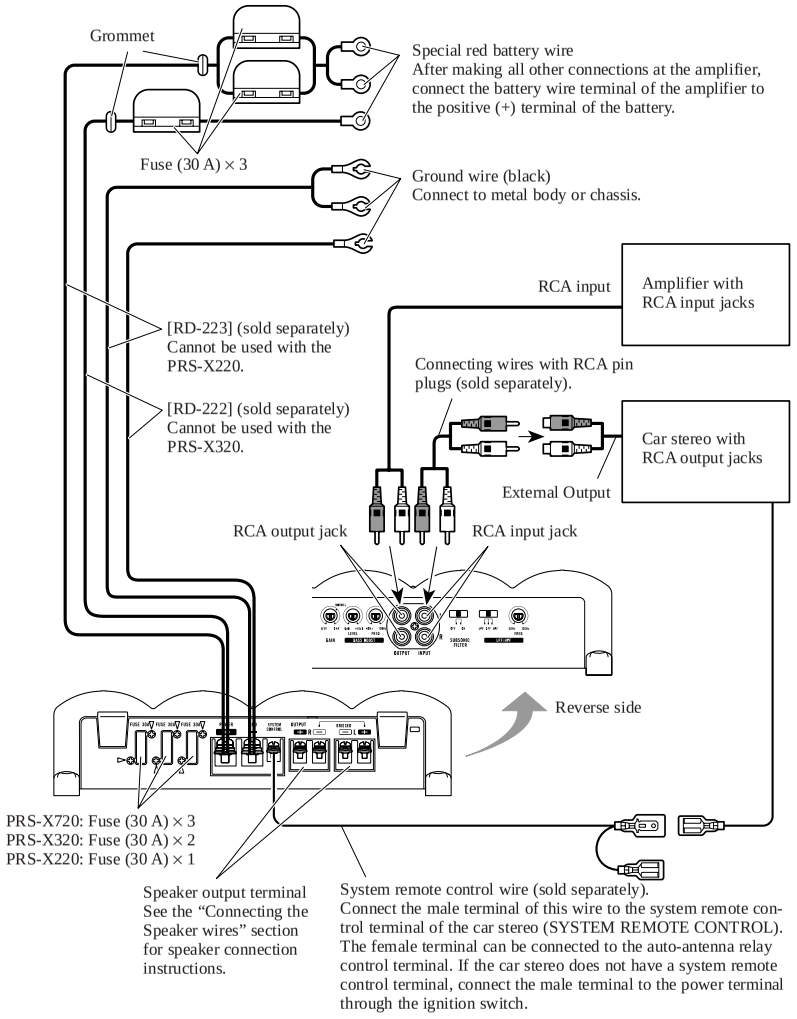
* See the “Cut Off Frequency Control” section.

Connecting the Unit

To prevent damage

- Do not ground the speaker wire directly or connect a negative (–) lead wire for several speakers.
- This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.
- If the car stereo is kept on for a long time while the engine is at rest or idling, the battery may go dead. Turn the car stereo off when the engine is at rest or idling.
- If the system remote control wire of the amplifier is connected to the power terminal through the ignition switch (12 V DC), the amplifier will always be on when the ignition is on— regardless of whether the car stereo is on or off. Because of this, the battery could go dead if the engine is at rest or idle.
- Install and route the separately sold battery wire as far away as possible from the speaker wires. Install and route the separately sold battery wire and ground wire, speaker wires, and the amplifier as far away as possible from the antenna, antenna cable and tuner.
- Cords for this product and those for other products may be different colors even if they have the same function. When connecting this product to another product, refer to the supplied Installation manuals of both products and connect cords that have the same function.

Connection Diagram



Specifications

Power source	14.4 V DC (10.8 — 15.1 V allowable)
Grounding system	Negative type
Current consumption (PRS-X720)	46 A (at continuous power, 4 Ω)
(PRS-X320)	32.5 A (at continuous power, 4 Ω)
(PRS-X220)	19.2 A (at continuous power, 4 Ω)
Average current drawn* (PRS-X720)	15 A (4 Ω for two channels)
	28 A (4 Ω for one channel)
(PRS-X320)	11 A (4 W for two channels)
	20 A (4 Ω for one channel)
(PRS-X220)	6.5 A (4 Ω for two channels)
	10 A (4 Ω for one channel)
Fuse (PRS-X720)	30 A × 3
(PRS-X320)	30 A × 2
(PRS-X220)	30 A × 1
Dimensions (PRS-X720)	264 (W) × 65 (H) × 345 (D) mm
	[10-3/8 (W) × 2-1/2 (H) × 13-5/8 (D) in]
(PRS-X320)	264 (W) × 65 (H) × 290 (D) mm
	[10-3/8 (W) × 2-1/2 (H) × 11-3/8 (D) in]
(PRS-X220)	264 (W) × 65 (H) × 240 (D) mm
	[10-3/8 (W) × 2-1/2 (H) × 9-1/2 (D) in]
Weight (PRS-X720)	6.5 kg (14.3 lbs) (Leads for wiring not included)
(PRS-X320)	5.5 kg (12.2 lbs) (Leads for wiring not included)
(PRS-X220)	4.5 kg (9.9 lbs) (Leads for wiring not included)
Continuous power output (PRS-X720)	100 W × 2 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.08% THD)
	400 W × 1 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.8% THD)
	200 W × 2 (at 14.4 V, 2 Ω, 20 — 20,000 Hz, 0.8% THD)
(PRS-X320)	50 W × 2 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.08% THD)
	200 W × 1 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.8% THD)
	100 W × 2 (at 14.4 V, 2 Ω, 20 — 20,000 Hz, 0.8% THD)
(PRS-X220)	30 W × 2 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.08% THD)
	120 W × 1 (at 14.4 V, 4 Ω, 20 — 20,000 Hz, 0.8% THD)
	60 W × 2 (at 14.4 V, 2 Ω, 20 — 20,000 Hz, 0.8% THD)

***Average current drawn**

- The average current drawn is nearly the maximum current drawn by this unit when an audio signal is input. Use this value when working out total current drawn by multiple power amplifiers.

Load impedance	4 Ω (1 — 8 Ω allowable)
	(Bridge connection: 2 — 8 Ω allowable)
Frequency response (PRS-X720)	10 — 50,000 Hz (+0 dB, –1 dB)
(PRS-X320)	10 — 50,000 Hz (+0 dB, –1 dB)
(PRS-X220)	10 — 50,000 Hz (+0 dB, –1 dB)
Signal-to-noise ratio (PRS-X720)	105 dB (IHF-A network)
(PRS-X320)	100 dB (IHF-A network)
(PRS-X220)	100 dB (IHF-A network)
Distortion (PRS-X720)	0.01% (10 W, 1 kHz)
(PRS-X320)	0.01% (10 W, 1 kHz)
(PRS-X220)	0.01% (10 W, 1 kHz)
Separation (PRS-X720)	70 dB (1 kHz)
(PRS-X320)	70 dB (1 kHz)
(PRS-X220)	60 dB (1 kHz)
Low pass filter	Cut off frequency: 50 — 120 Hz
	Cut off slope: –12 dB/oct
High pass filter	Cut off frequency: 50 — 120 Hz
	Cut off slope: –12 dB/oct
Bass boost (PRS-X720)	Frequency: 40 — 120 Hz
	Gain: 0 — 18 dB
(PRS-X320)	Frequency: 40 — 120 Hz
	Gain: 0 — 18 dB
(PRS-X220)	Frequency: 60 Hz
	Gain: 0 — 18 dB
Subsonic filter (PRS-X720)	Frequency: 15 Hz
	Slope: –24 dB/oct
(PRS-X320)	Frequency: 15 Hz
	Slope: –24 dB/oct
Maximum input level / impedance	6.5 V/22 kΩ (0.4 — 6.5 V)

Note:

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