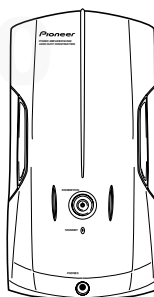


Pioneer

Service Manual



ORDER NO.
RRV2445

STEREO POWER AMPLIFIER

M-IS22

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

Type	Model	Power Requirement	Remarks
	M-IS22		
MYXJ	○	AC220-230V	
NVXJ	○	AC230V	

- This product is a component of a system.

For the accessories, instruction manuals etc., refer to the service manuals RRV2442 for XC-IS22CD.

- This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.

Component	System		Service Manual	Remarks
CD TUNER DECK	XC-IS22CD		RRV2442	
STEREO POWER AMPLIFIER	M-IS22		RRV2445	This Service Manual
SPEAKER SYSTEM	S-IS22	—	RRV2450	
	—	S-IS22S	RRV2451	

CONTENTS

1. SAFETY INFORMATION	2	7. GENERAL INFORMATION	21
2. EXPLODED VIEWS AND PARTS LIST	3	7.1 SINGLE OPERATION METHOD	21
3. SCHEMATIC DIAGRAM	6	8. PANEL FACILITIES AND SPECIFICATIONS	22
4. PCB CONNECTION DIAGRAM	12		
5. PCB PARTS LIST	18		
6. ADJUSTMENT	20		

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE, 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
©PIONEER CORPORATION 2001

T – ZZK APR. 2001 Printed in Japan

1. 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.

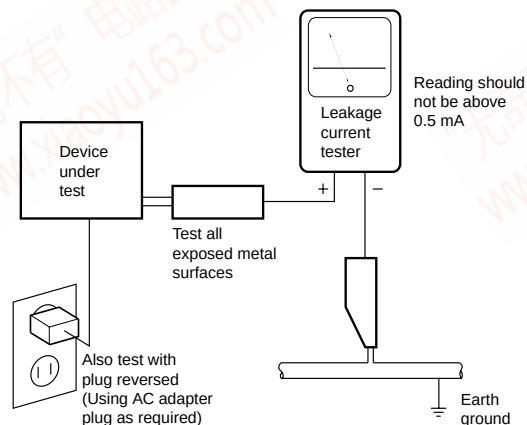
(FOR USA MODEL ONLY)

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.

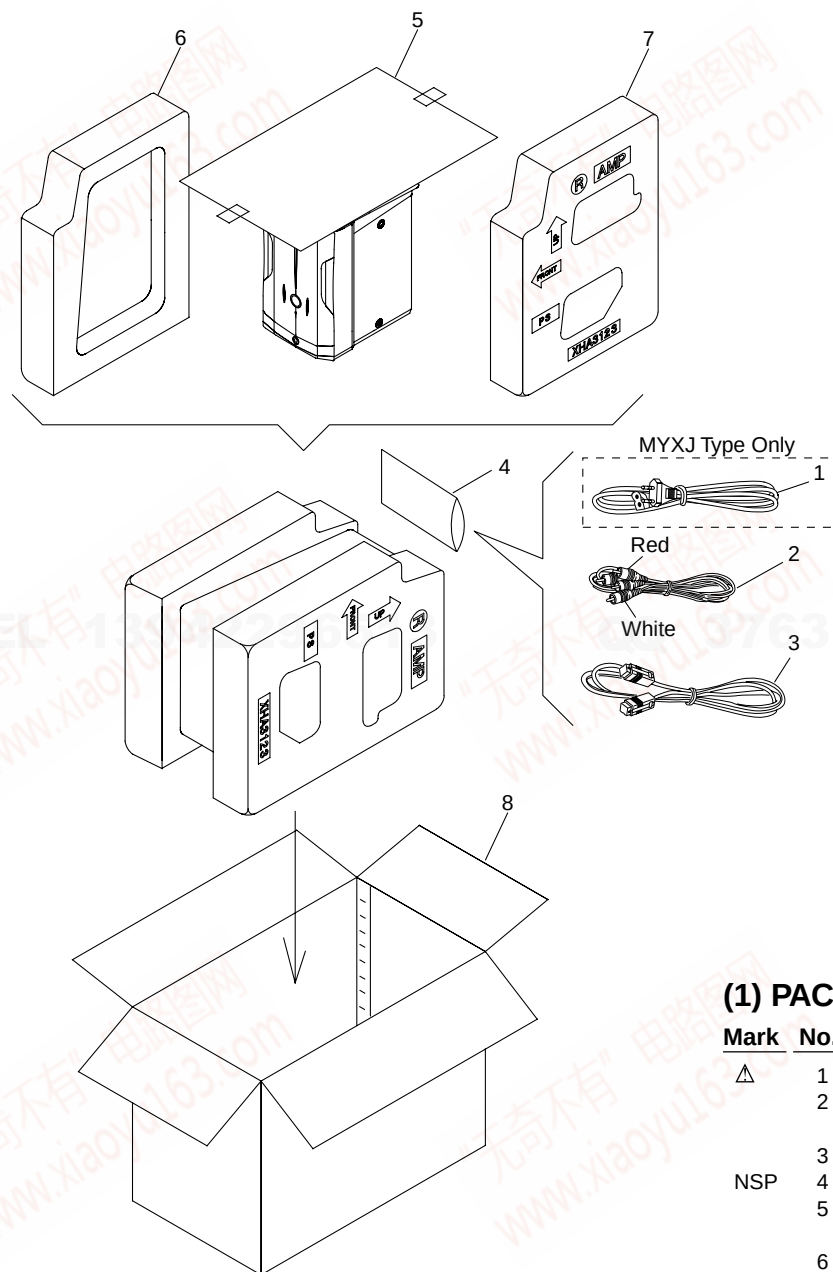
The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

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.

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 Δ mark found on some component parts indicates the importance of the safety factor of the part.
 Therefore, when replacing, be sure to use parts of identical designation.
 ● Screws adjacent to ∇ mark on product are used for disassembly.

2.1 PACKING



(1) PACKING PARTS LIST

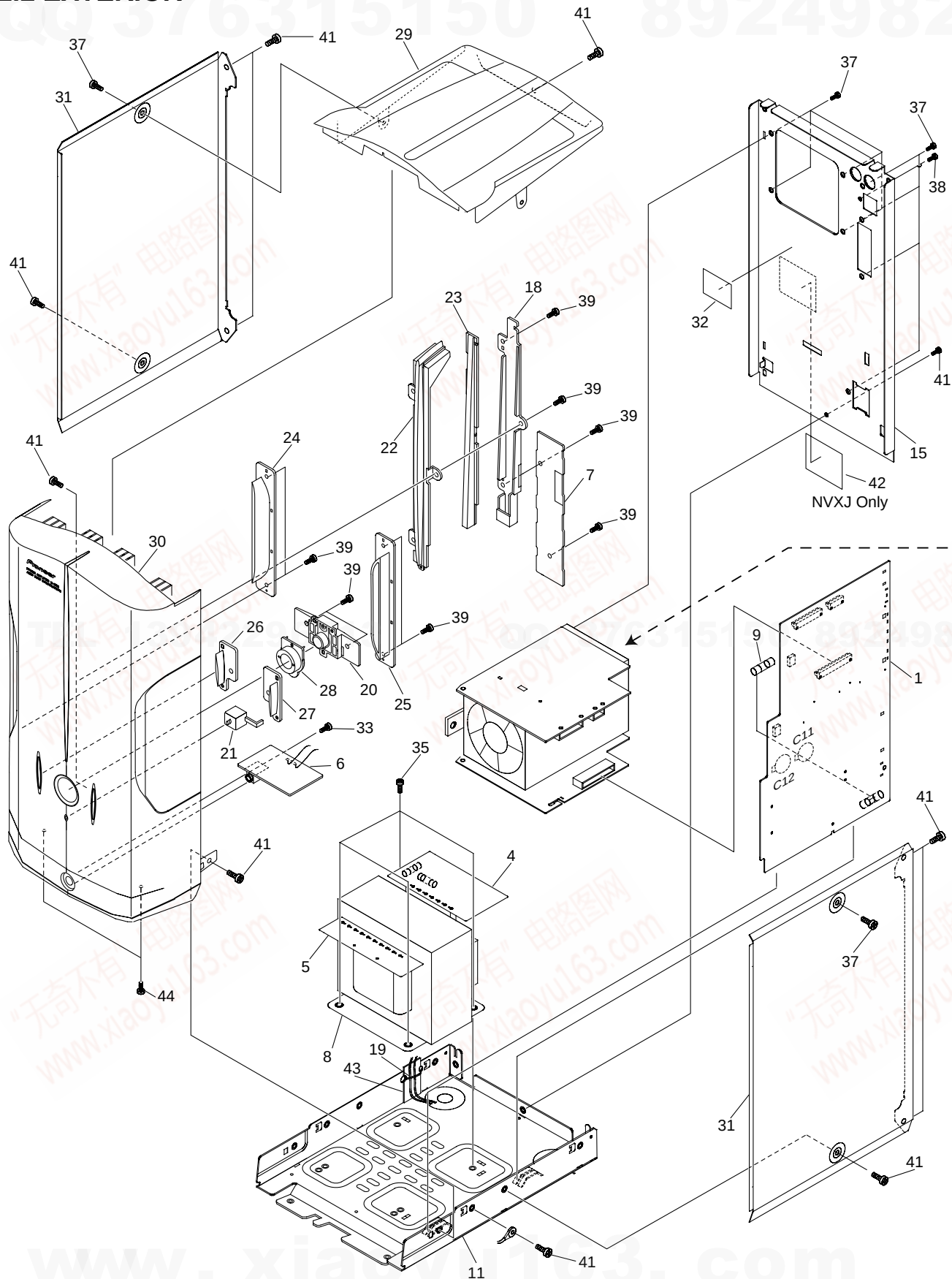
Mark	No.	Description	Part No.
Δ	1	Power Cord	See Contrast table (2)
	2	RCA pin-plug stereo cable (L=1m)	PDE1126
	3	System Cable	XDE3042
NSP	4	Polyethylene Bag	Z21-038
	5	Packing Sheet	AHG7053
	6	Protector L(A)	XHA3122
	7	Protector R(A)	XHA3123
	8	Packing Case A(MY)	XHD3170

(2) CONTRAST TABLE

M-IS22/MYXJ and NVXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			MYXJ Type	NVXJ Type	
Δ	1	Power Cord	ADG1154	Not used	

2.2 EXTERIOR

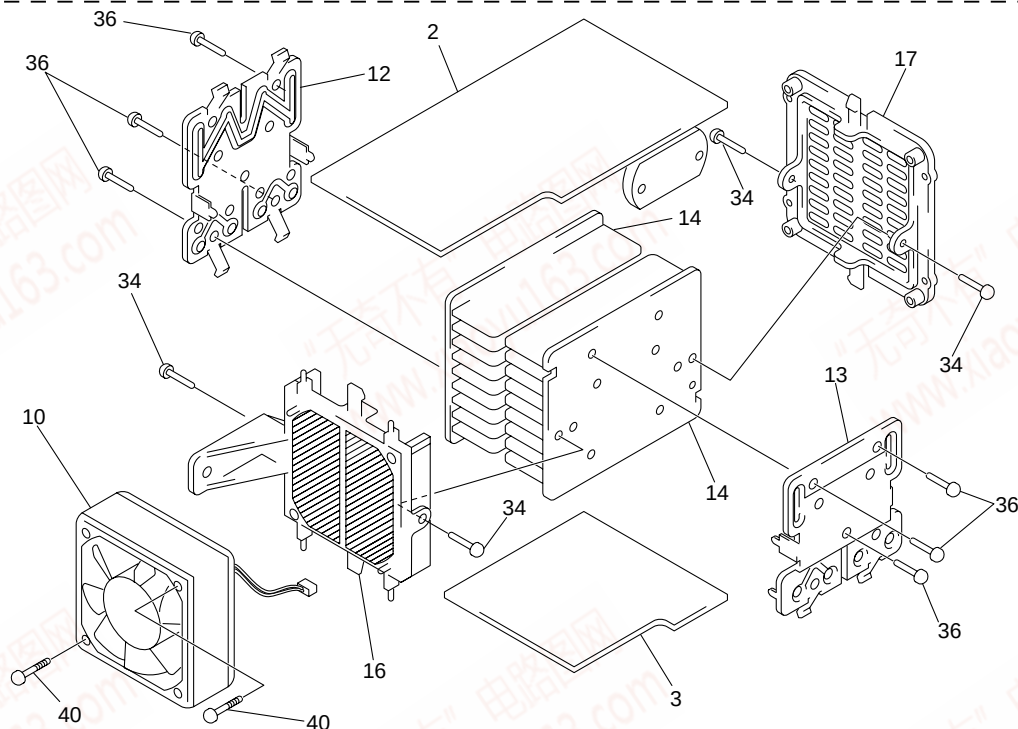


Caution when disassemble.

Even if the power supply code is pulled out from the outlet, neither C11 nor C12 of AF ASSY are discharged.

Please discharge C11 and C12 of AF ASSY by the resistor of 100 Ω or more before removing AF ASSY or POWER SUPPLY ASSY.

There is a possibility to destroy the transistor, and Please discharge by the resistor of 100 Ω or more.



(1) EXTERIOR PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	MAIN Assy	XWZ3418	21	Standby Lens	XAK3193	
NSP	2	AMP Assy	XWZ3419	22	AMP Lens	XAK3194	
NSP	3	POWER SUPPLY Assy	XWZ3420	23	LT Conductor A	XAK3219	
NSP	4	PRIMARY Assy	XWZ3421	24	Side Duct L	XAK3220	
NSP	5	SECONDARY Assy	XWZ3422	25	Side Duct R	XAK3221	
NSP	6	HP Assy	XWZ3423	26	AMP Twin L	XAK3222	
NSP	7	BLUE LED Assy	XWZ3488	27	AMP Twin R	XAK3223	
	8	Power Transformer	ATS7247	28	AMP Escutcheon	XAK3226	
△	9	Fuse (FU1 : 3.15A)	REK1027	29	Top Panel	XAN3031	
	10	DC Fan Motor	AXM7014	30	Front Panel A	XMB3046	
NSP	11	Chassis A	ANA7086	31	Side Bonnet	ANE7242	
	12	Holder	ANG7009	NSP 32	ICP Label	AAX7738	
	13	Power Pac Holder	ANG7109	33	Screw With Washer	ABA1005	
	14	Heat Sink	ANH7058	34	Screw	ABA1021	
	15	Rear Panel A (MY)	XNC3107	35	Screw	BBT40P060FZK	
	16	Mold A	AMR7005	36	Screw	BBZ30P180FMC	
	17	Mold B	AMR7006	37	Screw	BPZ30P080FZK	
	18	Reflector A	XMR3041	38	Screw	BMZ30P060FZK	
	19	Binder	ZCA-SKB90BK	39	Screw	BPZ30P100FZK	
	20	Standby Button	XAD3096	40	Screw	BPZ30P350FZK	
				41	Screw	VBZ30P060FZK	
				42	Name Label	See Contrast table (2)	
				NSP 43	BIND Assy	•••••	
				44	Screw	BBZ30P080FMC	

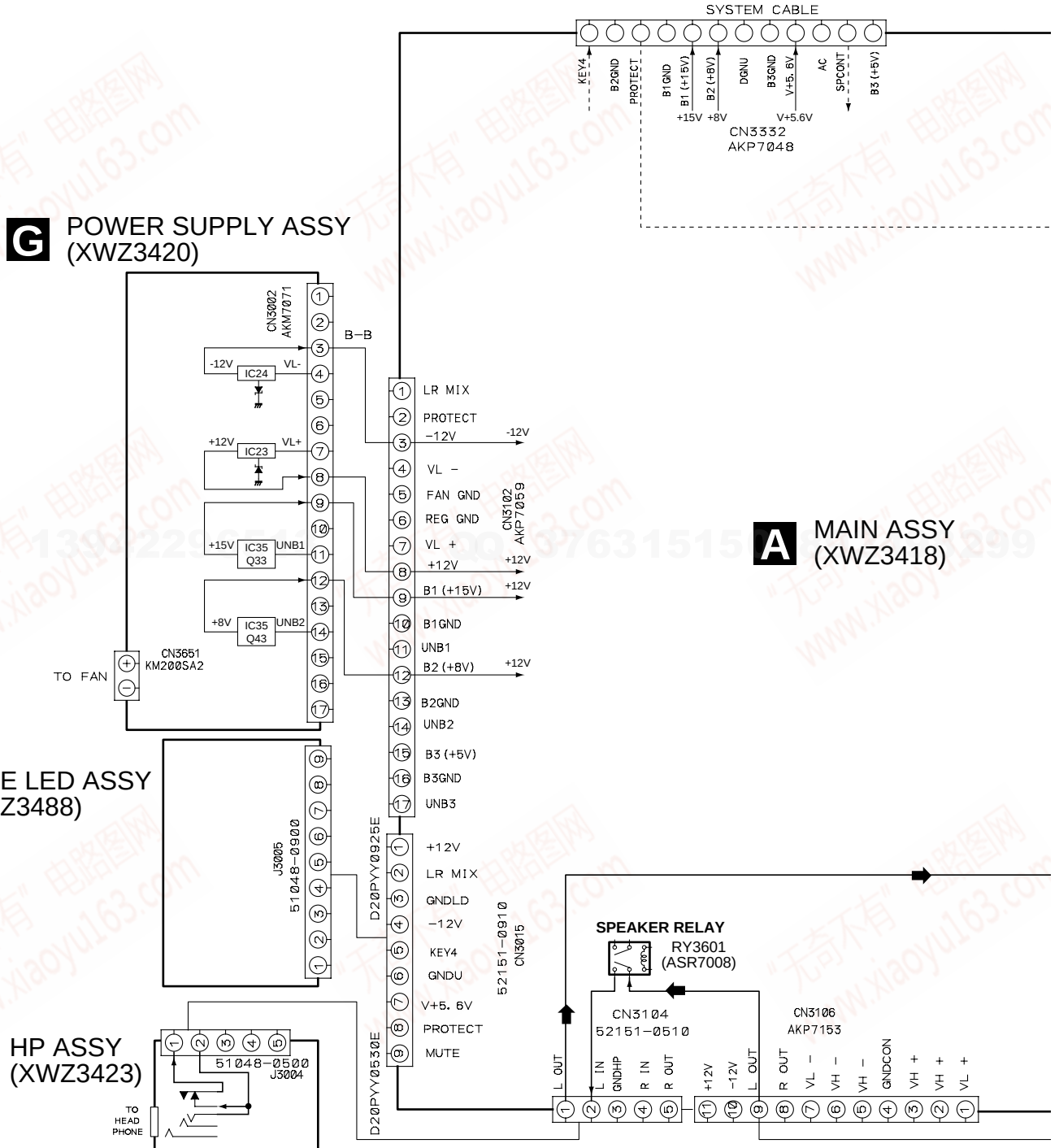
(2) CONTRAST TABLE

M-IS22/MYXJ and NVXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			MYXJ Type	NVXJ Type	
	42	Name Label	Not used	XAL3088	

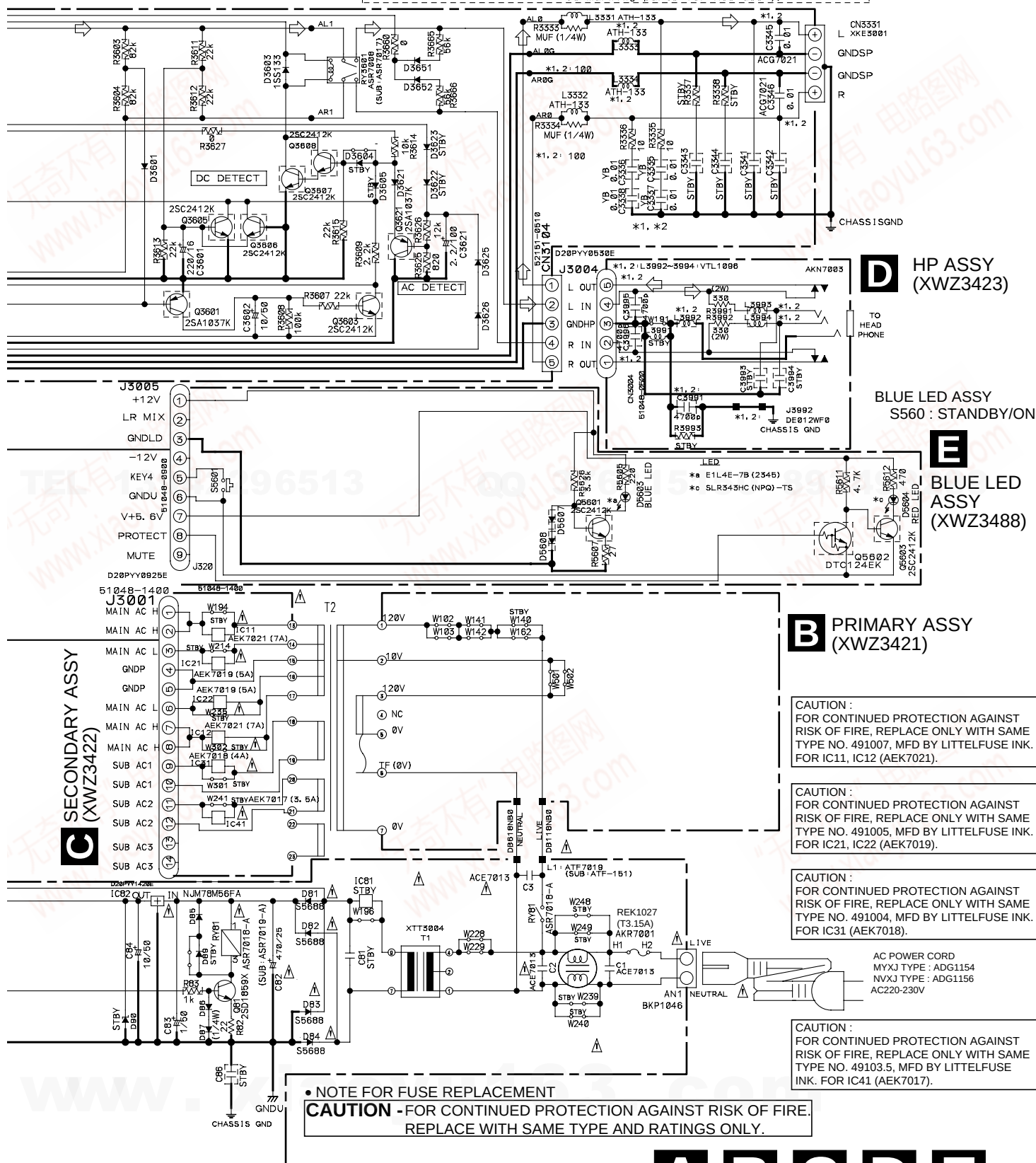
3. SCHEMATIC DIAGRAM

3.1 OVERALL WIRING CONNECTION DIAGRAM



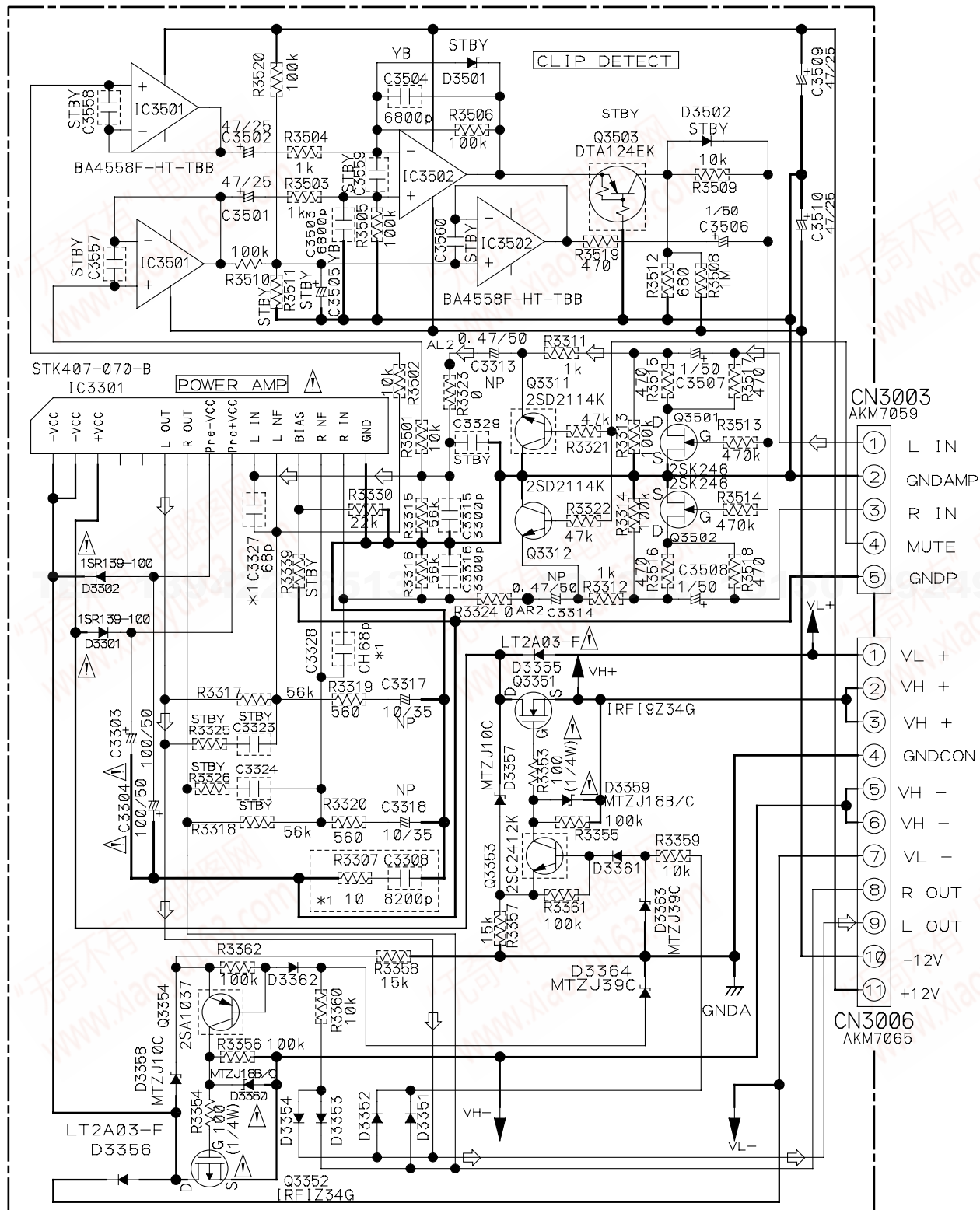
⇒ : AUDIO SIGNAL ROUTE

- NOTES**
1. RESISTORS Indicated in Ω , 1/10W±5% tolerance unless otherwise noted k:k Ω , M:M Ω .
 2. CAPACITORS Indicated in capacity (uF)/voltage (V) unless otherwise noted p:pF.
 3. DIODES No mark diode is 1SS133.
 4. "*" marking parts are as follows.
 1 marking parts: for MY, NV ass'y.
 2 marking parts: for DBD, DL ass'y.
 3 marking parts: for KUC ass'y.



A B C D E

⇒ : AUDIO SIGNAL ROUTE



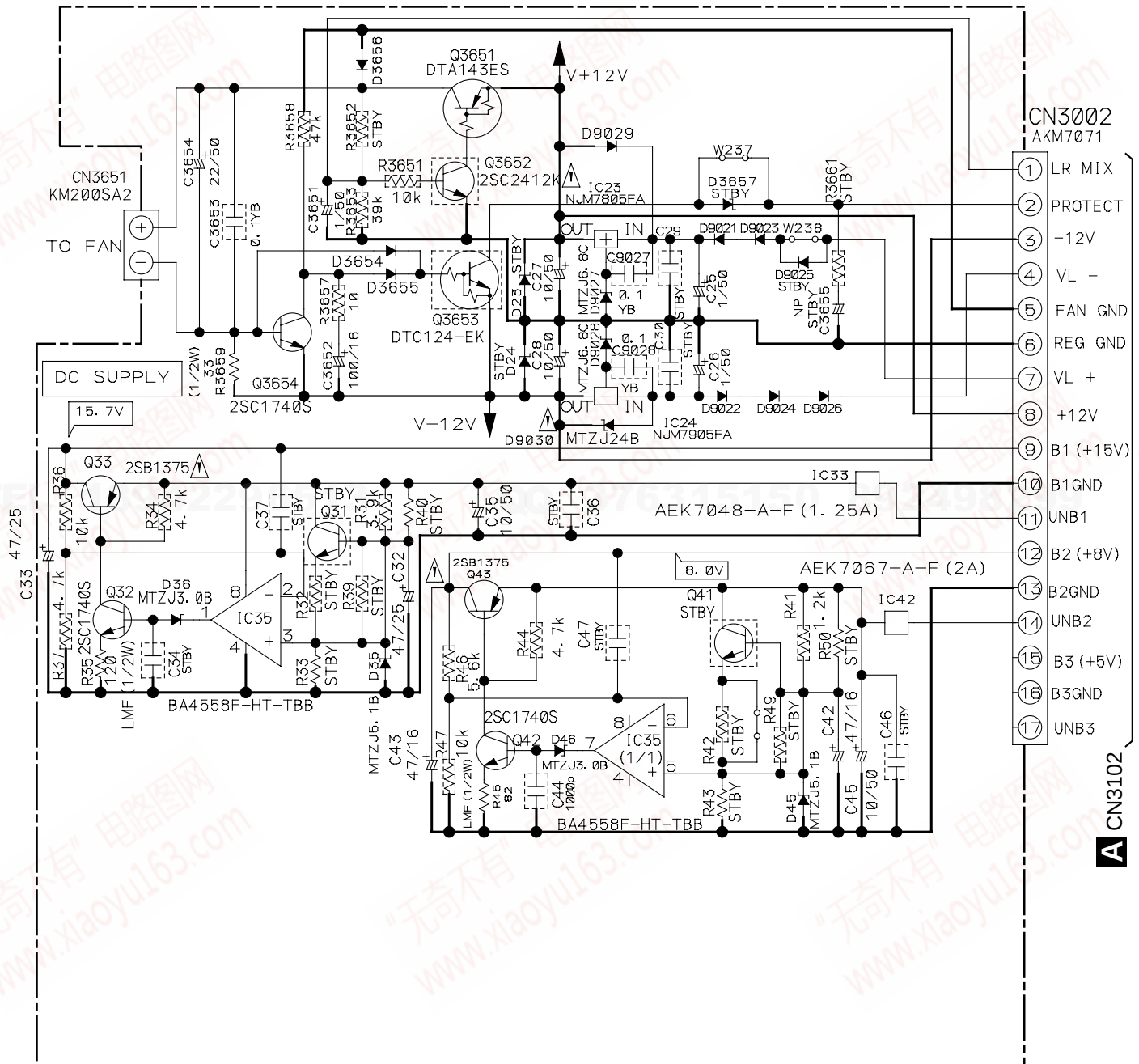
QQ 376315150 892498299



POWER SUPPLY ASSY (XWZ3420)

CAUTION:
FOR CONTINUED PROTECTION AGAINST
RISK OF FIRE, REPLACE ONLY WITH SAME
TYPE NO. 4911.25, MFD BY LITTELFUSE
INK. FOR IC33 (AEK7048).

CAUTION:
FOR CONTINUED PROTECTION AGAINST
RISK OF FIRE, REPLACE ONLY WITH SAME
TYPE NO. 491002, MFD BY LITTELFUSE INK.
FOR IC42 (AEK7067).



NOTES

1. RESISTORS Indicated in Ω , 1/16W $\pm$ 5% tolerance unless otherwise noted k:k Ω , M:M Ω .
2. CAPACITORS Indicated in capacity (uF)/voltage (V) unless otherwise noted p:pF.
3. DIODES No mark diode is 1SS133.
4. "*" marking parts are as follows.
 1 marking parts: for MY, NV ass'y.
 2 marking parts: for DBD, DL ass'y.
 3 marking parts: for KUC ass'y.



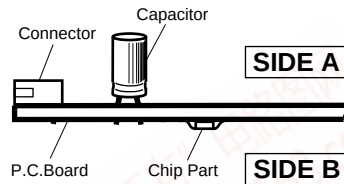
4. PCB CONNECTION DIAGRAM

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.
3. 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.

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

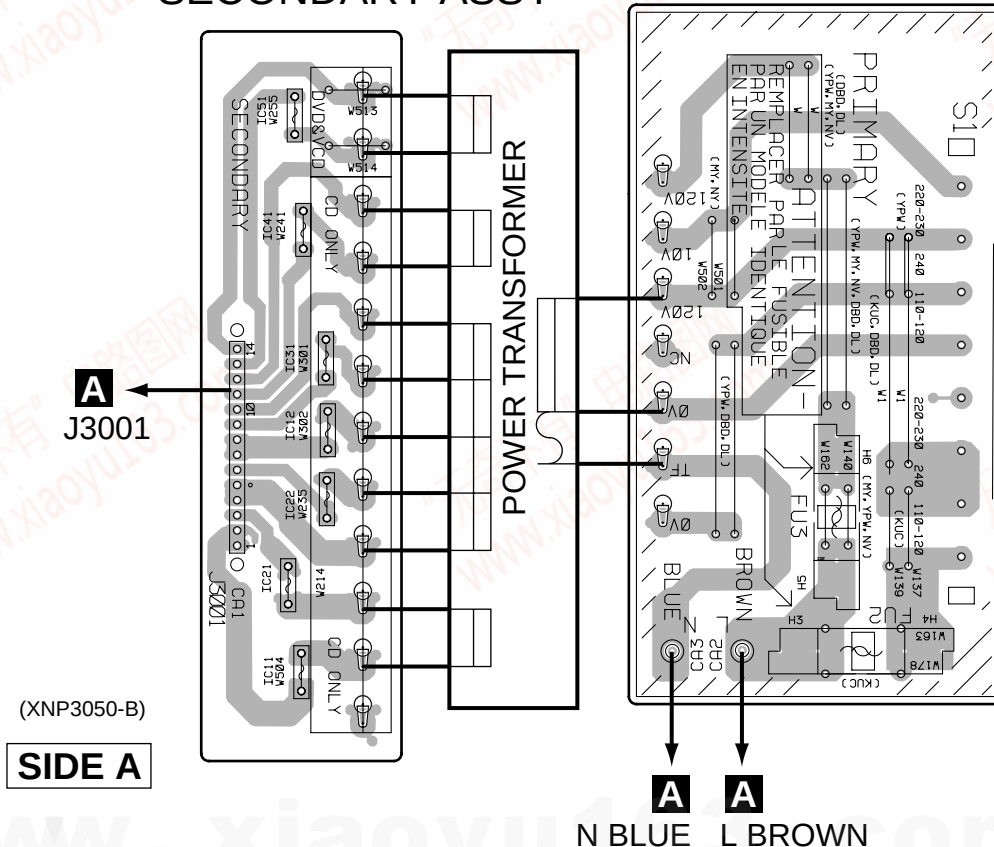
4. Viewpoint of PCB diagrams

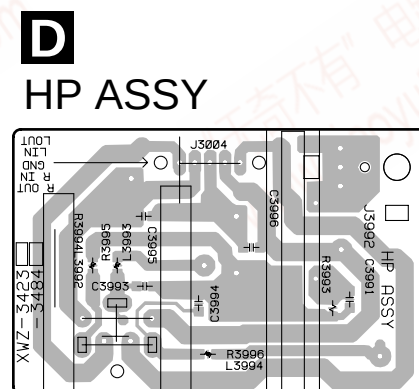
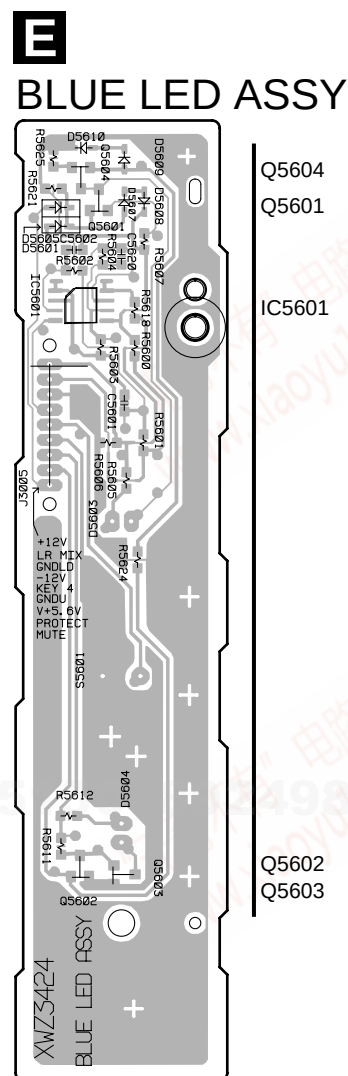


4.1 PRIMARY and SECONDARY ASSYS

SECONDARY ASSY

PRIMARY ASSY

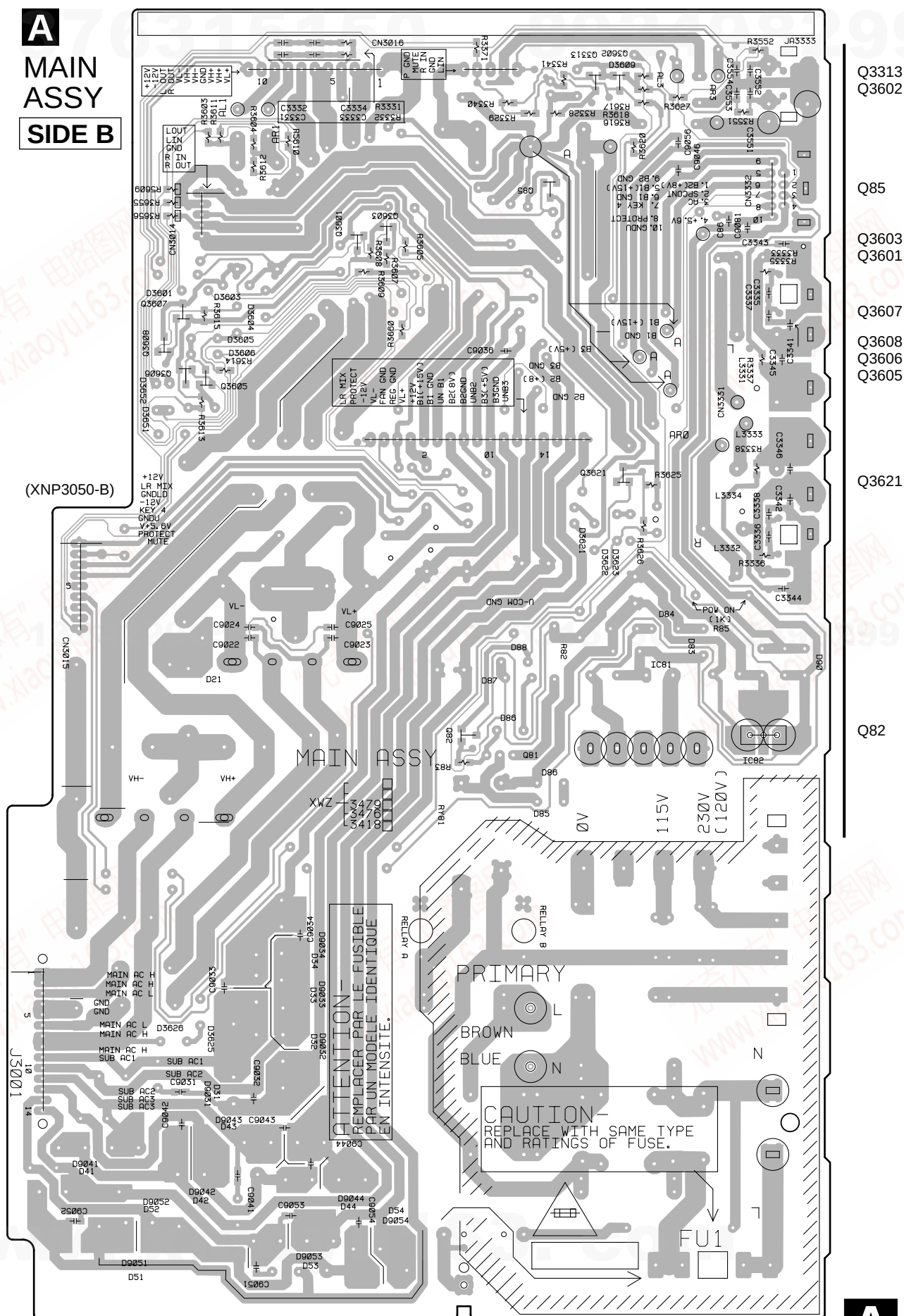




(XNP3050-B)

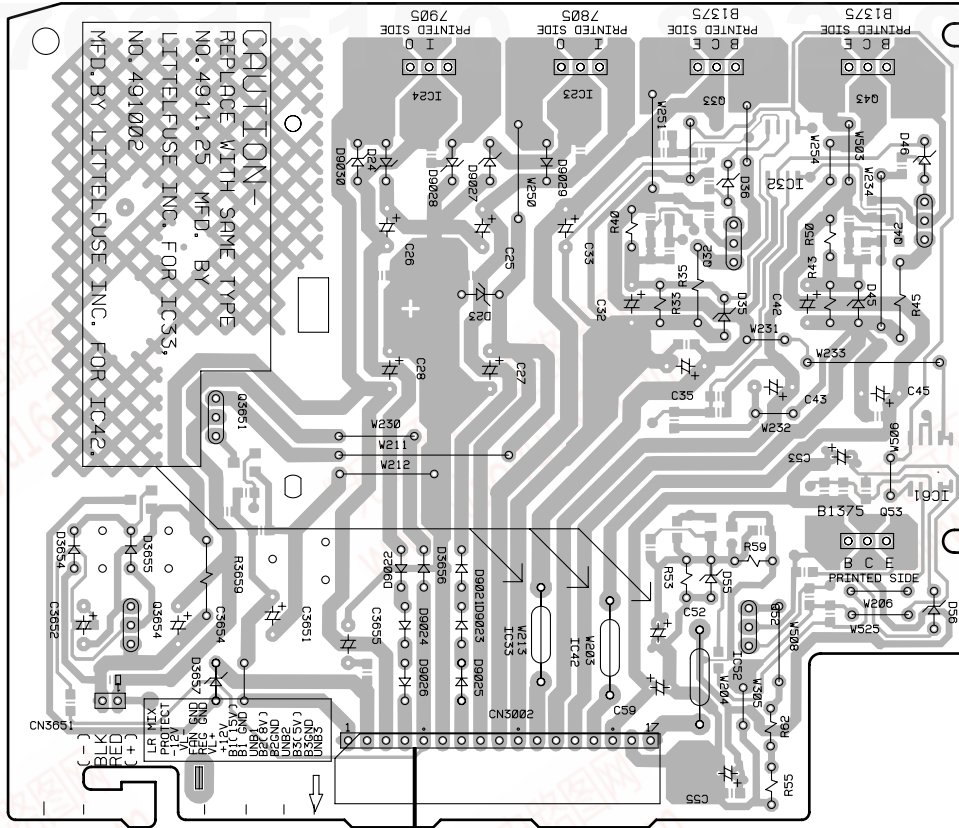
SIDE B

A
MAIN
ASSY
SIDE B



4.4 AMP and POWER SUPPLY ASSYS

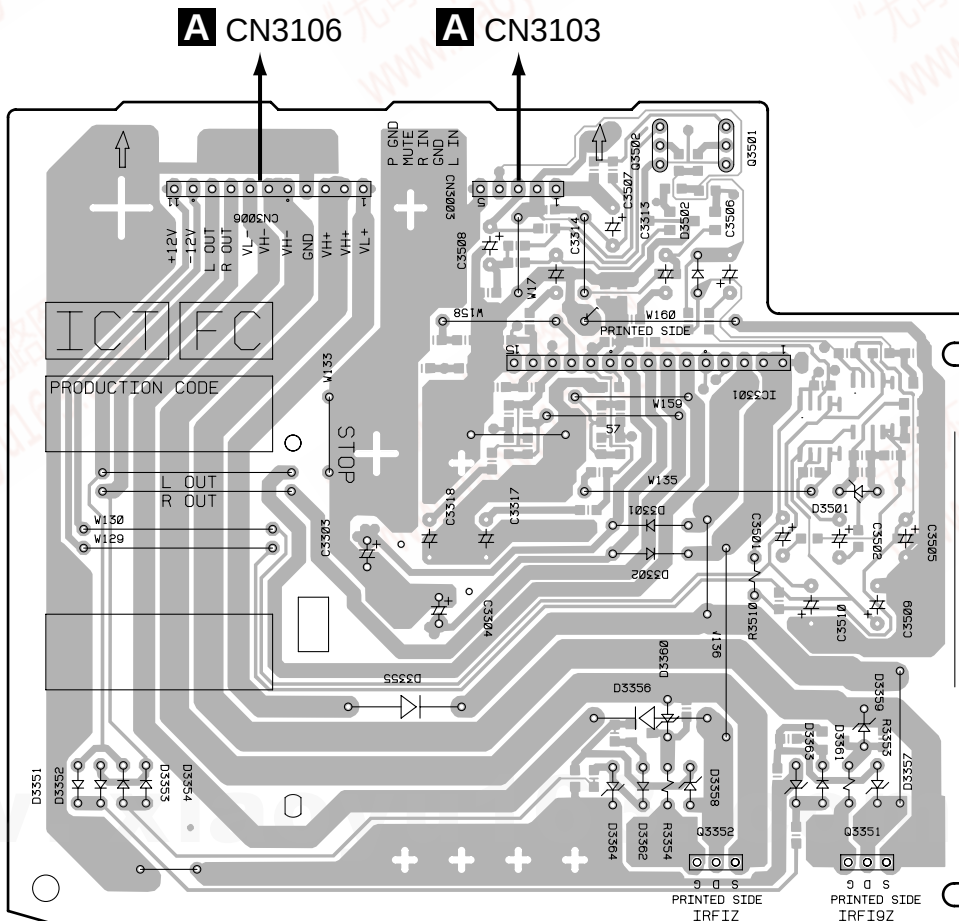
G POWER SUPPLY ASSY



- IC24
- IC23
- Q33
- Q43
- Q42
- Q32
- Q3651
- Q53
- Q3654
- IC52
- IC33
- IC42

A CN3102

F AMP ASSY



- Q3502
- Q3501
- IC3301
- Q3352
- Q3351

SIDE A
(XNP3050-B)

IC32

Q31

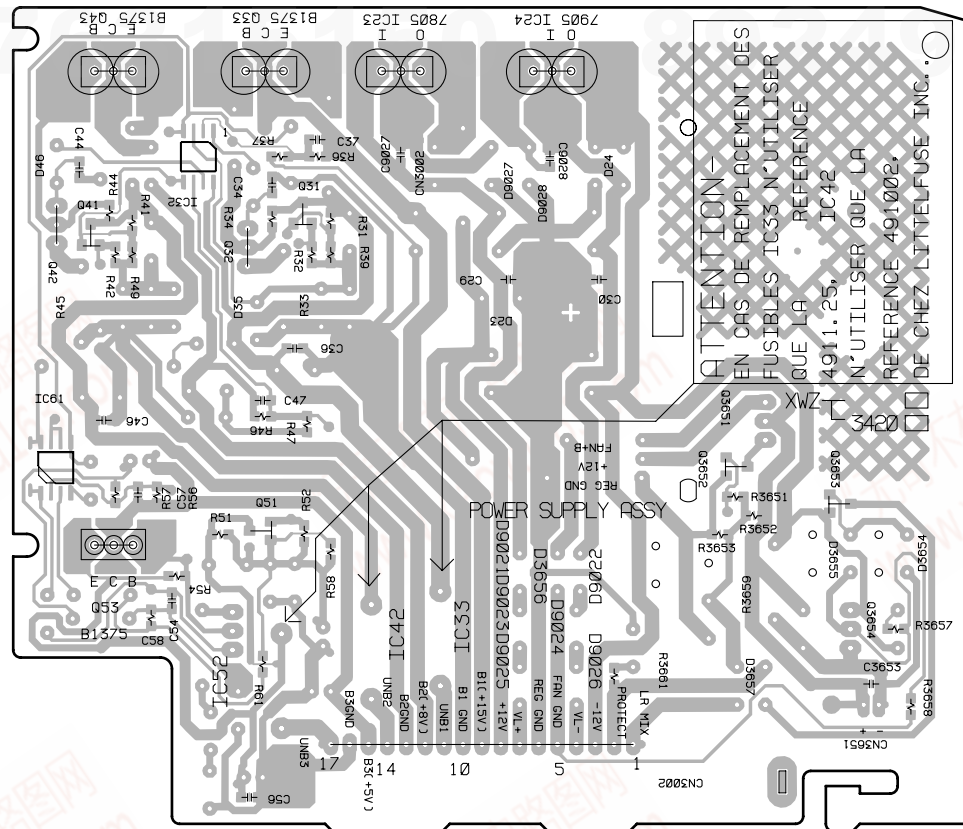
Q41

IC61

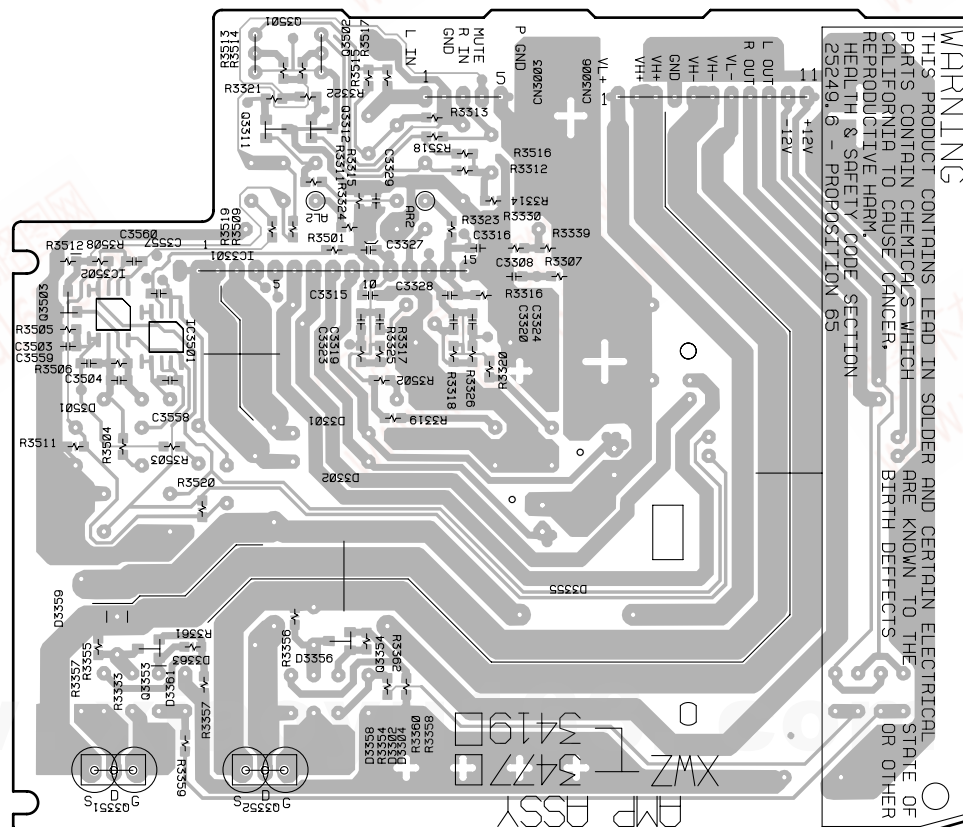
Q3652

Q3653

Q51



G
POWER
SUPPLY
ASSY

Q3311
Q3312Q3503
IC3502
IC3501Q3353
Q3354

F
AMP
ASSY

SIDE B
(XNP3050-B)

F G 17

5. PCB PARTS LIST

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

● The Δ mark found on some component parts indicates the importance of the safety factor of the part.

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

● When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 $\rightarrow$ $56 \times 10^1 \rightarrow$ 561 RD1/4PU $\boxed{5}\boxed{6}\boxed{1}\boxed{J}$

47k $\rightarrow$ $47 \times 10^3 \rightarrow$ 473 RD1/4PU $\boxed{4}\boxed{7}\boxed{3}\boxed{J}$

0.5 $\rightarrow$ R50 RN2H $\boxed{R}\boxed{5}\boxed{0}\boxed{K}$

1 $\rightarrow$ 1R0 RS1P $\boxed{1}\boxed{R}\boxed{0}\boxed{K}$

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

5.62k $\rightarrow$ $562 \times 10^1 \rightarrow$ 5621 RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}\boxed{F}$

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
------	-----	-------------	----------	------	-----	-------------	----------

LIST OF ASSEMBLIES

NSP	MAIN ASSY	XWK3030
NSP	MAIN ASSY	XWZ3418
NSP	AMP ASSY	XWZ3419
NSP	POWER SUPPLY ASSY	XWZ3420
NSP	PRIMARY ASSY	XWZ3421
NSP	SECONDARY ASSY	XWZ3422
NSP	HP ASSY	XWZ3423
NSP	BLUE LED ASSY	XWZ3488

A MAIN ASSY SEMICONDUCTORS

Δ	IC82	NJM78M56FA
	Q3601, Q3621	2SA1037K
	Q3602, Q3603, Q3605-Q3608	2SC2412K
	Q81	2SD1859X
	Q85	DTA114TK
	Q3313	DTA124EK
	Q82	DTC124EK
	D3601, D3603, D3609, D3621	1SS133
	D3625, D3626, D3651, D3652	1SS133
	D85-D87	1SS133
Δ	D11, D21	D3SBA20(B)
	D3608	MTZJ5.6C
Δ	D31-D34, D41-D44	S5566G(TPB2)
Δ	D81-D84	S5688G

COILS AND FILTERS

L1	LINE FILTER	ATF7019
L3331-L3334	(1 μ H)	ATH-133

TRANSFORMERS

Δ	T1	STANDBY TRANSFORMER	XTT3004
----------	----	---------------------	---------

SWITCHES AND RELAYS

	RY3601	SP RELAY/12V	ASR7008
Δ	RY81		ASR7018

CAPACITORS

Δ	C1-C3 (10000pF/AC275V)	ACE7013
	C3345, C3346 (10000pF/100V)	ACG7021
Δ	C11, C12 (2200 μ F/71v)	ACH7117
	C3551-C3554	CCSRCH331J50
	C3602, C84	CEAT100M50
	C83	CEAT1R0M50
	C3601	CEAT221M16
Δ	C41	CEAT222M25
Δ	C31	CEAT222M35
	C3621	CEAT2R2M2A
Δ	C21, C22	CEAT332M35
Δ	C82	CEAT471M25
	C3325	CEATR10M50
	C3335-C3338	CKSRYB103K50
	C3331-C3334	CKSRYB104K25
	C9011	CQMA102K2E
Δ	C9021	CQMA223K2E

RESISTORS

R3333, R3334	RD1/4MUF101J
R82	RD1/4PU220J
R3601, R3602	RS3LMFR22J
Other Resistors	RS1/16S□□□J

OTHERS

Δ	CN3015 9P JUMPER CONNECTOR	52151-0910
	JA3333 2P PIN JACK	AKB7043
Δ	CN3332 10P SOCKET	AKP7048
Δ	CN3103 5P CONNECTOR SOCKET	AKP7147
Δ	CN3106 14P SOCKET	AKP7153
Δ	CN3102 17P CONNECTOR SOCKET	AKP7159
	H1, H2 FUSE CLIP	AKR7001
Δ	AN1 AC INLET 1P	BKP1046
	J3001 JUMPER WIRE	D20PYY1420E
	BARRIER CAP	XEC3023
	CN3331 4P SPEAKER TERMINAL	XKE3001

Mark	No.	Description	Part No.
------	-----	-------------	----------

B
PRIMARY ASSY

PRIMARY assembly has no service part.

C
SECONDARY ASSY
SEMICONDUCTORS

△	IC41	PROTECTOR(3.5A)	AEK7017
△	IC31	PROTECTOR(4A)	AEK7018
△	IC21, IC22	PROTECTOR(5A)	AEK7019
△	IC11, IC12	PROTECTOR(7A)	AEK7021

D
HP ASSY
COILS AND FILTERS

L3992-L3994	CHIP BEADS	VTL1096
-------------	------------	---------

CAPACITORS

C3991, C3995, C3996	CKSRYB472K50
---------------------	--------------

RESISTORS

R3991, R3992	RS2LMF331J
--------------	------------

OTHERS

3004	5P CABLE HOLDER	51048-0500
3991	MINI JACK	AKN7003
J3004	5P JUMPER WIRE	D20PYY0530E

E
BULE LED ASSY
SEMICONDUCTORS

Q5601, Q5603	2SC2412K
Q5602	DTC124EK
D5607, D5608	1SS355
D5603	E1L4E-7B1A(2345)
D5604	SLR-343VC(NPQ)

SWITCHES AND RELAYS

S5601	ASG7013
-------	---------

RESISTORS

R5626	RD1/4PU332J
Other Resistors	RS1/16S□□□J

OTHERS

302	9P CABLE HOLDER	51048-0900
J3005	JUMPER WIRE	D20PYY0925E
	LED SPACER	XEB3018

Mark	No.	Description	Part No.
------	-----	-------------	----------

F
AMP ASSY
SEMICONDUCTORS

△	IC3501, IC3502	BA4558F-HT
	IC3301	STK407-070B
	Q3354	2SA1037K
	Q3353	2SC2412K
	Q3311, Q3312	2SD2114K

	Q3501, Q3502	2SK246
	Q3503	DTA124EK
△	Q3351	IRF19Z34G
△	Q3352	IRFIZ34G
△	D3301, D3302	1SR139-100

	D3351-D3354, D3361, D3362	1SS133
△	D3355, D3356	LT2A03
	D3357, D3358	MTZJ10C
△	D3359, D3360	MTZJ18B

D3363, D3364	MTZJ39C
--------------	---------

CAPACITORS

C3327, C3328	CCSRCH680J50	
C3317, C3318	CEANP100M35	
C3313, C3314	CEANPR47M50	
△	C3303, C3304	CEAT101M50
	C3506-C3508	CEAT1R0M50

C3501, C3502, C3509, C3510	CEAT470M25
C3315, C3316	CKSRYB332K50
C3503, C3504	CKSRYB682K50
C3308	CKSRYB822K50

RESISTORS

R3353, R3354	RD1/4PU101J
R3510	RD1/4PU104J
Other Resistors	RS1/16S□□□J

OTHERS

△	CN3003 5P CONNECTOR PLUG	AKM7059
△	CN3006 11P CONNECTOR PLUG	AKM7065

G
POWER SUPPLY ASSY
SEMICONDUCTORS

△	IC33	PROTECTOR(1.25A)	AEK7048
△	IC42	PROTECTOR(2A)	AEK7067
	IC32		BA4558F-HT
△	IC23		NJM7805FA
△	IC24		NJM7905FA

△	Q33, Q43	2SB1375
	Q32, Q3654, Q42	2SC1740S
	Q3652	2SC2412K
	Q3651	DTA143ES
	Q3653	DTC124EK

M-IS22

Mark	No.	Description	Part No.
	D3654–D3656, D9021–D9024, D9026		1SS133
	D9029		1SS133
	D9030		MTZJ24B
	D36, D46		MTZJ3.0B
	D35, D45		MTZJ5.1B
	D9027, D9028		MTZJ6.8C

6. ADJUSTMENT

There is no information to be shown in this chapter.

CAPACITORS

C27, C28, C35, C45	CEAT100M50
C3652	CEAT101M16
C25, C26, C3651	CEAT1R0M50
C3654	CEAT220M50
C42, C43	CEAT470M16
C32, C33	CEAT470M25
C44	CKSRYB102K50
C3653, C9027, C9028	CKSRYB104K25

RESISTORS

R35	RD1/2LMF121J
R45	RD1/2LMF820J
R3659	RD1/2PM330J
Other Resistors	RS1/16S□□□J

OTHERS

CN3002 17P CONNECTOR PLUG	AKM7071
CN3651 2P PLUG	KM200SA2

7. GENERAL INFORMATION

7.1 SINGLE OPERATION METHOD

Single operation method and inputlevel.

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

1. R85 are shorted by 1kΩ.

2. A point of the figure below in four places is connected.

GND is not common because it is independent with chassis GND (GND of the amplifier), B1GND, B2GND, and B3GND.

The potential of B1GND, B2GND, and B3GND is done by connecting A point in four places as well as chassis GND.

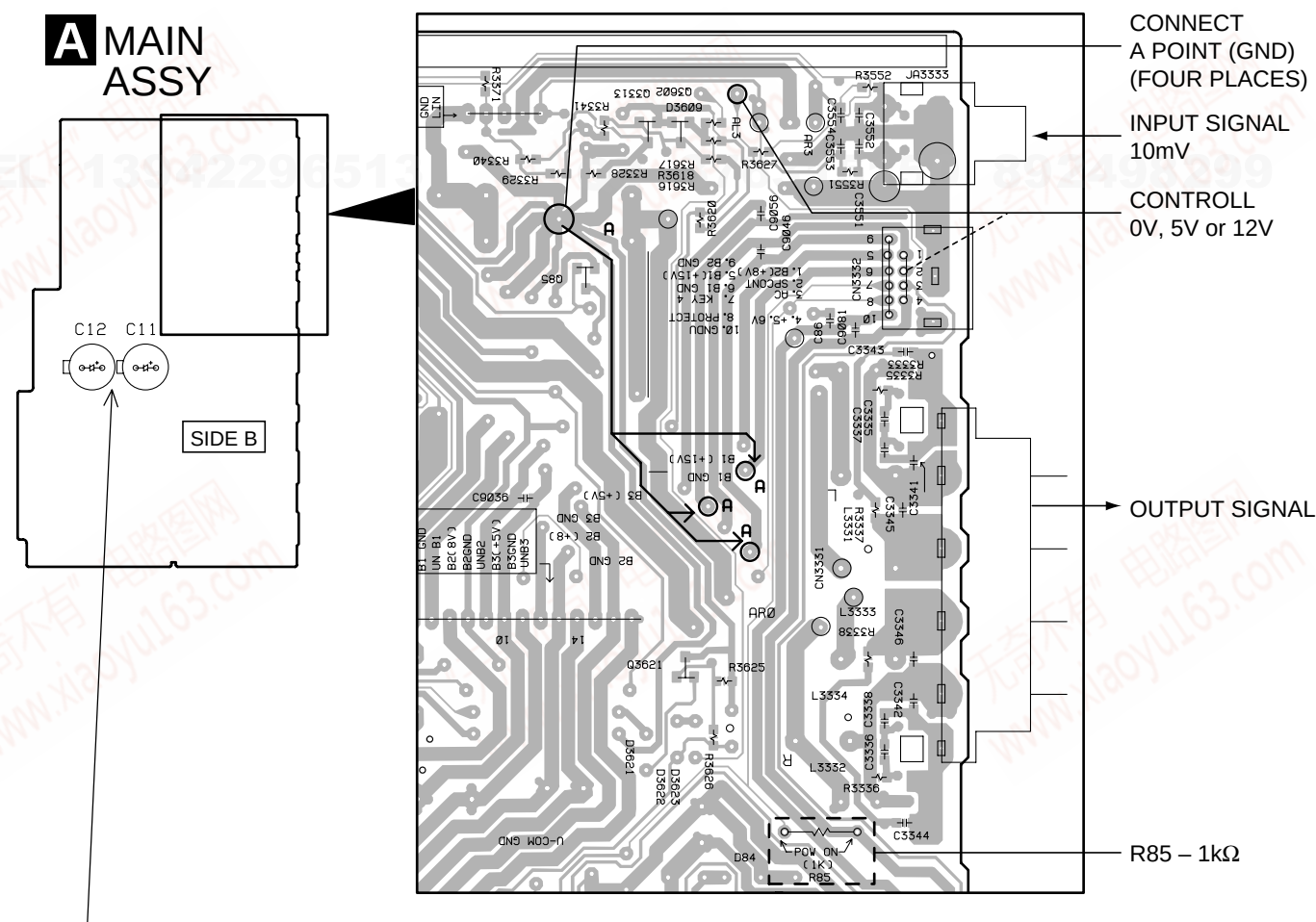
2. The power supply of the product is turned on.

3. The terminal CONT (2 pin of CN3332) are controlled respectively by the following voltages.

	CONT		
	12V	5V	0V
RY	ON	ON	OFF
MUTE	OFF	ON	ON

4. The signal of 10mV is input from input terminal (JA3333), and the output is confirmed with speaker terminal (CN3331).

Note : If the music signal is input directly to input terminal (JA3333) with CD PLAYER etc. , the output becomes a large volume because there are 40dB GAIN of the amplifier.



Caution when disassemble.

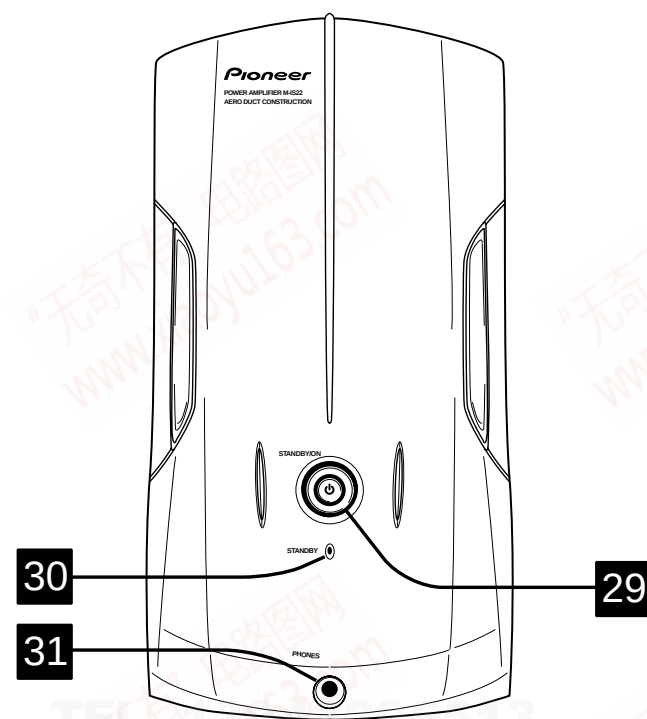
Even if the power supply code is pulled out from the outlet, neither C11 nor C12 of AF ASSY are discharged.

Please discharge C11 and C12 of AF ASSY by the resistor of 100 Ω or more before removing AF ASSY or POWER SUPPLY ASSY.

There is a possibility to destroy the transistor, and Please discharge by the resistor of 100 Ω or more.

8. PANEL FACILITIES AND SPECIFICATIONS

● PANEL FACILITIES



- 29 STANDBY/ON
30 Standby indicator
31 Headphone jack

● SPECIFICATIONS

Amplifier section

Continuous Power (RMS) 100 W + 100 W
(1 kHz, THD 10%, 6 Ω)
Continuous Power (DIN) 65 W + 65 W
(1 kHz, THD 1%, 6 Ω)
Music Power (DIN) 150 W + 150 W
(1 kHz, THD 1%, 6 Ω)

Miscellaneous

Power Requirements AC 220-230 V, 50/60 Hz
Power Consumption 140 W
Power Consumption in standby mode 1 W

Dimensions:

Power Amplifier . 160 (W) x 300 (H) x 237 (D) mm

Weight:

Power Amplifier 4.1 kg

Accessories

Power cord (MYXJ Type) 1
System cable 1
RCA pin-plug stereo cable 1

Note

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