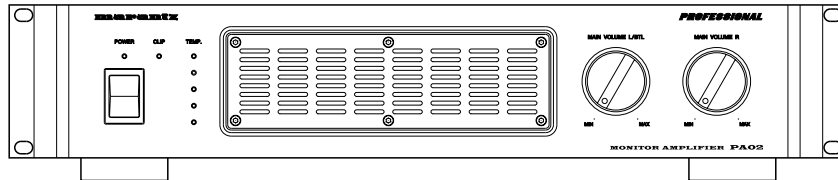


Service Manual

PA02 /F1S

Monitor Amplifier



PA02

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Please use this service manual with referring to the user guide (D.F.U.) without fail.

修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

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R100

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PA02

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC.
1100 MAPLEWOOD DRIVE
ITASCA, IL. 60143
USA
PHONE : 630 - 741 - 0300
FAX : 630 - 741 - 0301

EUROPE / TRADING

MARANTZ EUROPE B.V.
P.O.BOX 80002, BUILDING SFF2
5600 JB EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2732241
FAX : +31 - 40 - 2735578

BRAZIL

PHILIPS DA AMAZONIA IND. ELET. ITDA
CENTRO DE INFORMACOES AO
CEP 04698-970
SAO PAULO, SP, BRAZIL
PHONE : 0800 - 123123(Discagem Direta Gratuita)
FAX : +55 11 534. 8988

PROFESSIONAL AMERICAS

SUPERSCOPE TECHNOLOGIES, INC.
MARANTZ PROFESSIONAL PRODUCTS
2640 WHITE OAK CIRCLE, SUITE A
AURORA, ILLINOIS 60504 USA
PHONE : 630 - 820 - 4800
FAX : 630 - 820 - 8103

PROFESSIONAL AUSTRALIA

TECHNICAL AUDIO GROUP PTY, LTD
558 DARLING STREET,
BALMAIN, NSW 2041,
AUSTRALIA
PHONE : 61 - 2 - 9810 - 5300
FAX : 61 - 2 - 9810 - 5355

CANADA

LENBROOK INDUSTRIES LIMITED
633 GRANITE COURT,
PICKERING, ONTARIO L1W 3K1
CANADA
PHONE : 905 - 831 - 6333
FAX : 905 - 831 - 6936

AUSTRALIA

QualiFi Pty Ltd,
24 LIONEL ROAD,
MT. WAVERLEY VIC 3149
AUSTRALIA
PHONE : +61 - (0)3 - 9543 - 1522
FAX : +61 - (0)3 - 9543 - 3677

THAILAND

MRZ STANDARD CO.,LTD
746 - 754 MAHACHAI ROAD.,
WANGBURAPAPIROM, PHRANAKORN,
BANGKOK, 10200 THAILAND
PHONE : +66 - 2 - 222 9181
FAX : +66 - 2 - 224 6795

SINGAPORE

WO KEE HONG DISTRIBUTION PTE LTD
130 JOO SENG ROAD
#03-02 OLIVINE BUILDING
SINGAPORE 368357
PHONE : +65 858 5535 / +65 381 8621
FAX : +65 858 6078

NEW ZEALAND

WILDASH AUDIO SYSTEMS NZ
14 MALVERN ROAD MT ALBERT
AUCKLAND NEW ZEALAND
PHONE : +64 - 9 - 8451958
FAX : +64 - 9 - 8463554

TAIWAN

PAI- YUING CO., LTD.
6 TH FL NO, 148 SUNG KIANG ROAD,
TAIPEI, 10429, TAIWAN R.O.C.
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FAX : +886 - 2 - 25630415

MALAYSIA

WO KEE HONG ELECTRONICS SDN. BHD.
SUITE 8.1, LEVEL 8, MENARA GENESIS,
NO. 33, JALAN SULTAN ISMAIL,
50250 KUALA LUMPUR, MALAYSIA
PHONE : +60 3 - 2457677
FAX : +60 3 - 2458180

JAPAN Technical

MARANTZ JAPAN, INC.
35- 1, 7- CHOME, SAGAMIONO
SAGAMIHARA - SHI, KANAGAWA
JAPAN 228-8505
PHONE : +81 42 748 1013
FAX : +81 42 741 9190

日本マランツ株式会社

本社 〒228-8505
神奈川県相模原市相模大野7-35-1
営業本部 〒150-0022
東京都渋谷区恵比寿南1-11-9

KOREA

MK ENTERPRISES LTD.
ROOM 604/605, ELECTRO-OFFICETEL, 16-58,
3GA, HANGANG-RO, YONGSAN-KU, SEOUL
KOREA
PHONE : +822 - 3232 - 155
FAX : +822 - 3232 - 154

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 813.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

仕 様

定格出力 (20 Hz ~ 20 kHz 両 ch 同時駆動)	180W × 2 (8 Ω 負荷)
	230W × 2 (6 Ω 負荷)
	300W × 2 (4 Ω 負荷)
	350W × 2 (3 Ω 負荷)
全高調波歪率 (20 Hz ~ 20 kHz、両 ch 駆動、8 Ω 負荷).....	0.07 %
出力帯域幅 (8 Ω 負荷、90W).....	10 Hz ~ 120 kHz
周波数特性	5 Hz ~ 240 kHz +0, -1 dB
入力感度/入力インピーダンス.....	0 dBV (0.775 V) /10 kΩ
S/N 比 (IHF A ネットワーク、入力ショート)	120 dB
電源電圧	AC 100 V, 50 Hz/60 Hz
消費電力 (電気用品安全法).....	440 W
最大外形寸法	
幅.....	486 mm
高さ.....	103 mm
奥行き	420 mm
質 量.....	13.8 kg

2. THE OPERATION TESTS FOR PROTECTION CIRCUITS

動作確認

☆動作確認は、セットの仮調整の後、ヒートラン前に行ってください。

1. 過電流検出確認 (P101 pcb)

JN11 の ① pin - ② pin 間をショートした時、スピーカーリレーが OFF して POWER LED が点滅することを確認します。復帰させるためには、一度 POWER OFF して 10 秒程度経過した後、再度 POWER ON します。

2. クリップインジケータ確認 (P101 pcb)

JN12 の ① pin - ② pin 間をショートした時、クリップインジケータが点灯することを確認します。

3. ファン停止シミュレーション (PM01 pcb)

JM31 の ① pin - ② pin 間をショートと同時に ② pin - ③ pin 間に 22kΩ を挿入した時、スピーカーリレーが OFF して POWER LED が点滅することを確認します。 治具：22kΩ 付コネクタ (番号：* PAO2FANJG)

4. TEMP メーター及び過熱プロテクタ確認 (PM01 pcb)

JM12 に挿入されているワイヤーコネクタ (2P PH) を抜き、TEMP. の赤色 LED が点灯することを確認し、再びワイヤーコネクタを挿入します。

次に JM11 に挿入されているワイヤーコネクタ (4P PH) を抜き、TEMP. の緑色 LED (4 個) が点灯することを確認します。さらにこの状態で再び JM12 に挿入されているワイヤーコネクタ (2P PH) を抜き、スピーカーリレーが OFF して POWER LED が点滅することを確認します。

確認終了後、POWER OFF し、JM11, JM12 を挿入します。

3. ALIGNMENTS

調整手順

1. POWER ON する前に、出力段アイドリング調整 VR(R117, R118) を反時方向に廻しきっておきます。

2. POWER ON 直後 (1 分以内) に出力段のアイドリングとオフセット仮調整を行います。

	VR	TEST POINT	アジャスト電圧
出力段アイドリング調整 Lch	R117	J105	17mV±0.5mV
出力段アイドリング調整 Rch	R118	J106	17mV±0.5mV
出力段オフセット調整 Lch	R115	J107	0mV±10mV
出力段オフセット調整 Rch	R116	J108	0mV±10mV

3. 電圧増幅段の電流とオフセット仮調整を行います。

	VR	TEST POINT	アジャスト電圧
電圧増幅段電流調整 Lch +	R795	J705	1.0V±0.05V
電圧増幅段電流調整 Lch -	R793	J707	1.0V±0.05V
電圧増幅段オフセット調整 Lch	R795	J709	0mV±1V
電圧増幅段電流調整 Rch +	R796	J706	1.0V±0.05V
電圧増幅段電流調整 Rch -	R794	J708	1.0V±0.05V
電圧増幅段オフセット調整 Rch	R796	J710	0mV±1V



4. トップカバーをかけた状態でスピーカターミナルに 8Ω 負荷を接続し、1kHz 正弦波 5W 出力にて 15 分間ヒートランを行います。



5. 出力段のアイドリング調整とオフセット調整を行います。

	VR	TEST POINT	アジャスト電圧
出力段アイドリング調整 Lch	R117	J105	12.5mV±0.2mV
出力段アイドリング調整 Rch	R118	J106	12.5mV±0.2mV
出力段オフセット調整 Lch	R115	J107	測定値の 1/2 (注 1)
出力段オフセット調整 Rch	R116	J108	測定値の 1/2 (注 1)

(注 1) 例えば、ヒートラン後のオフセットが+ 120mV の場合は+ 60mV にアジャストし、
- 88mV の場合は- 44mV にアジャストします。偏差は±10mV 以内とします。
(+- は、絶対に間違わないでください)

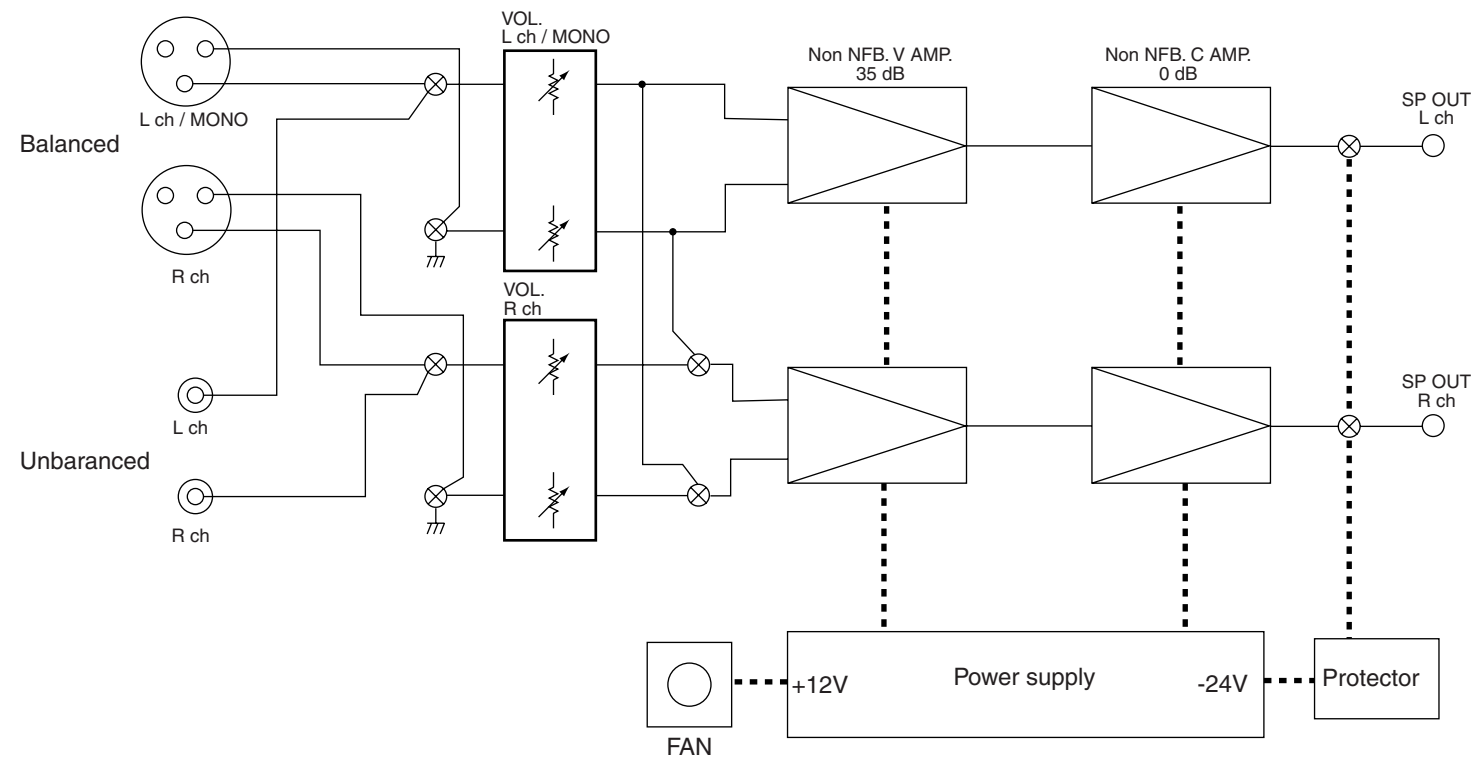
6. 電圧増幅段の電流とオフセット調整を行います。

	VR	TEST POINT	アジャスト電圧
電圧増幅段電流調整 Lch +	R795	J705	1.08V±0.02V
電圧増幅段電流調整 Lch -	R793	J707	1.08V±0.02V
電圧増幅段オフセット調整 Lch	R795	J709	0V±0.5V
電圧増幅段電流調整 Rch +	R796	J706	1.08V±0.02V
電圧増幅段電流調整 Rch -	R794	J708	1.08V±0.02V
電圧増幅段オフセット調整 Rch	R796	J710	0V±0.5V

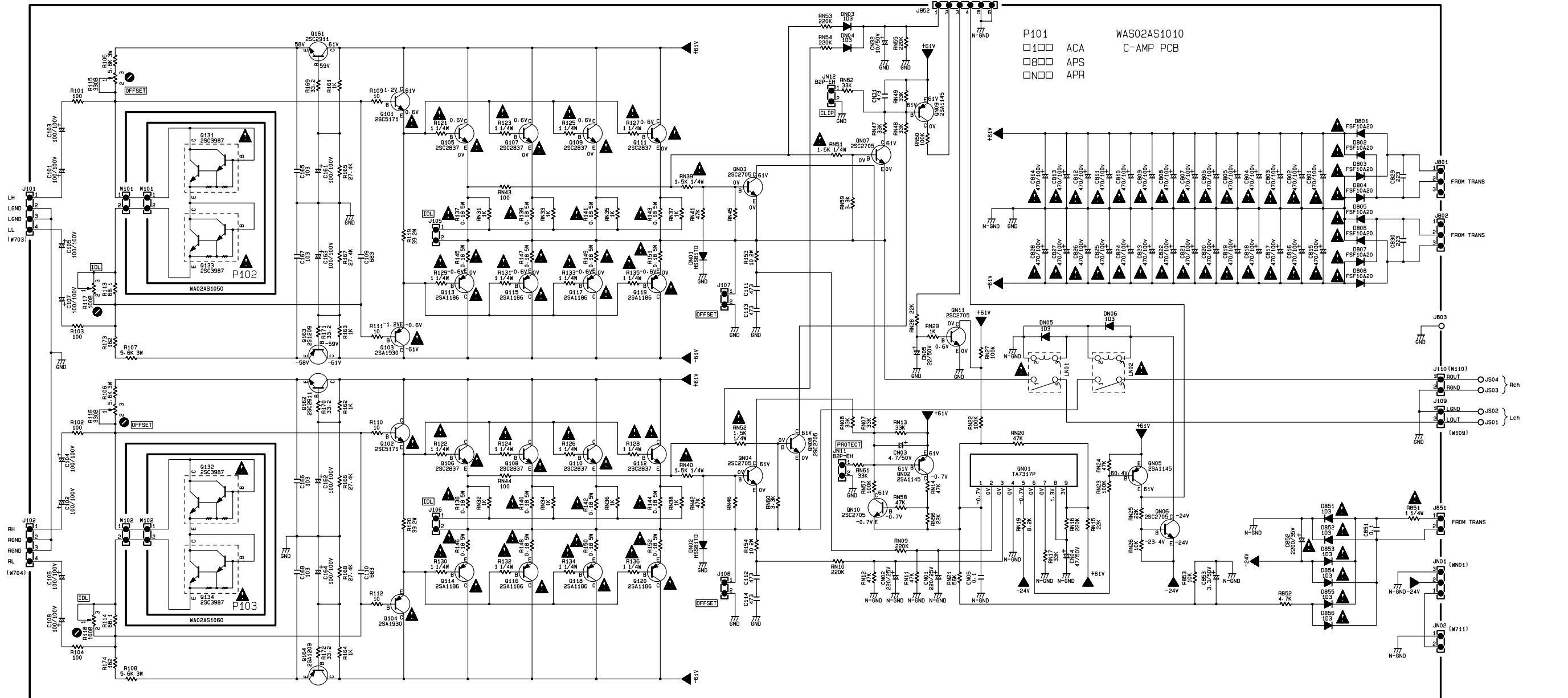
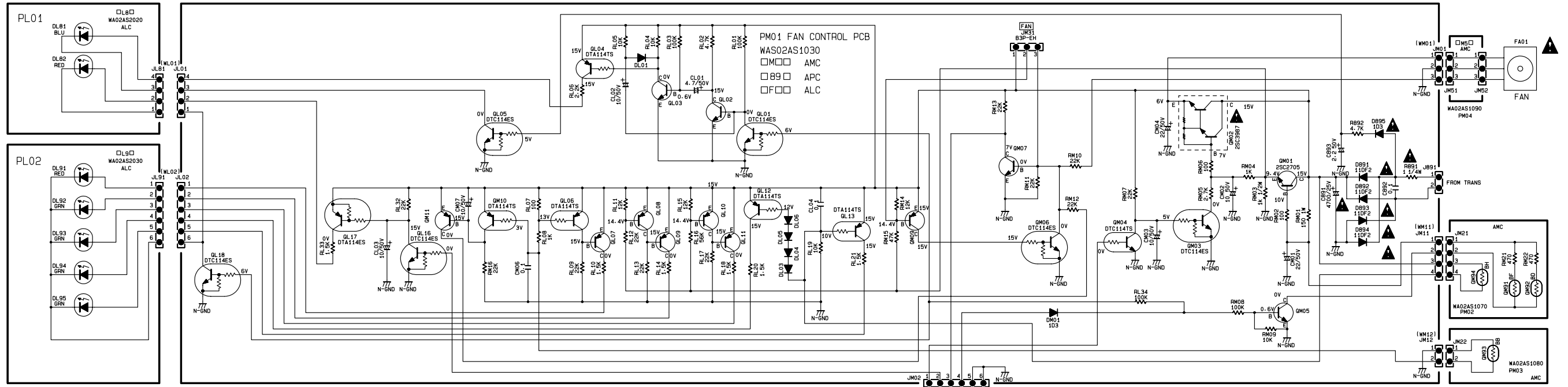
各テストポイント端子の極性：①ピン：テスターの+側、②ピン：テスターの-側

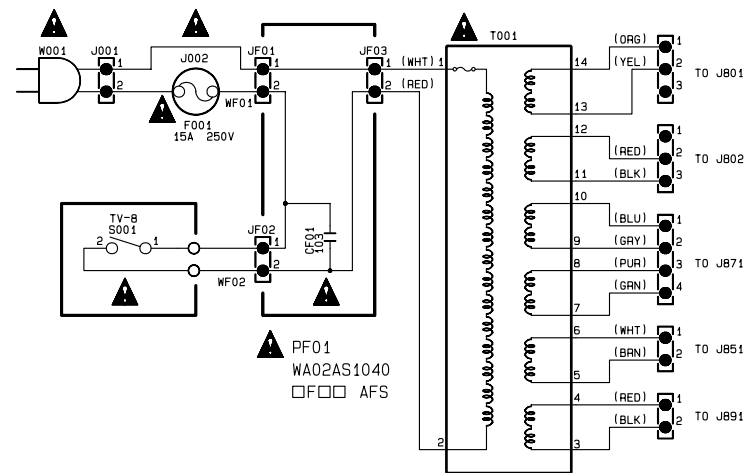
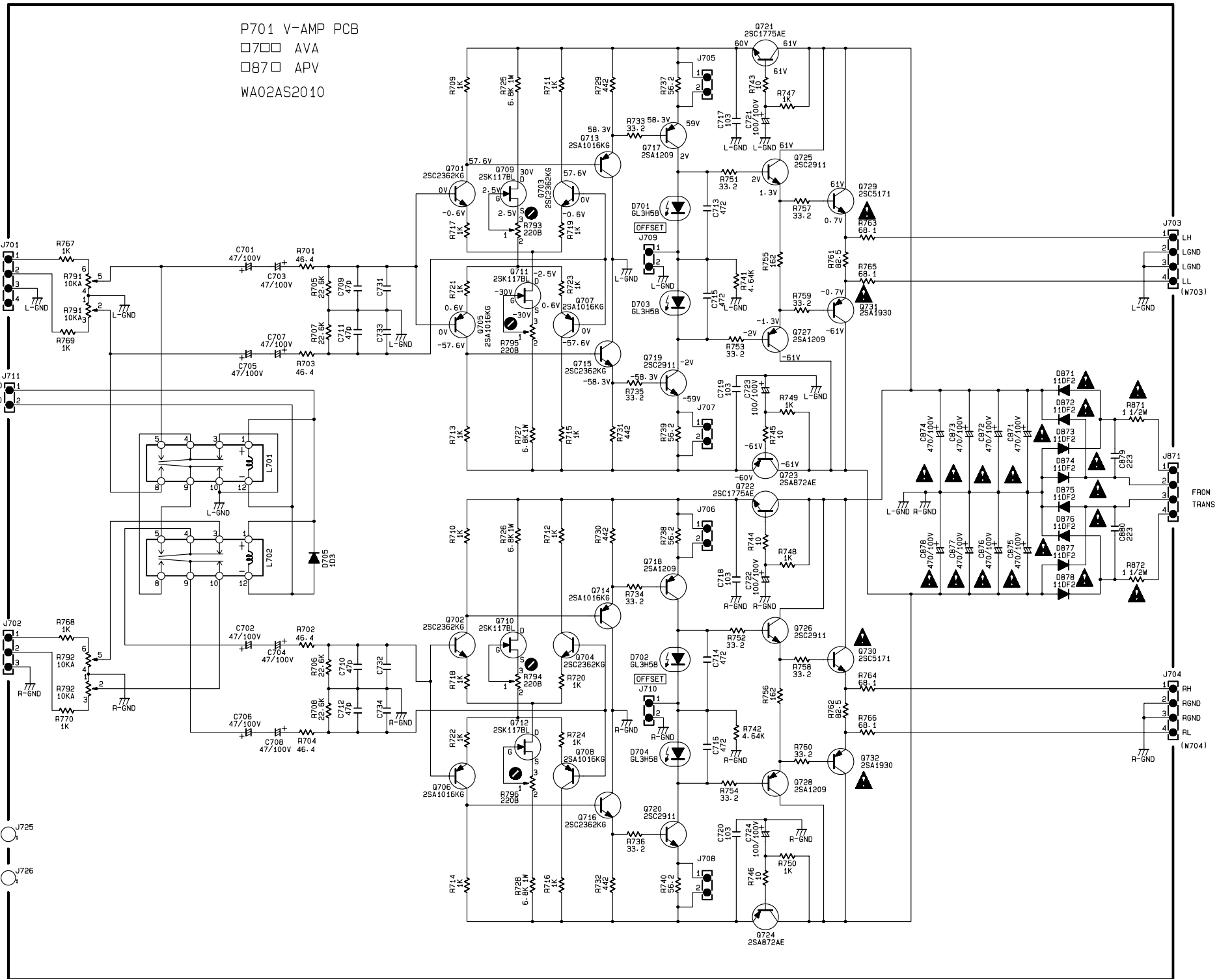
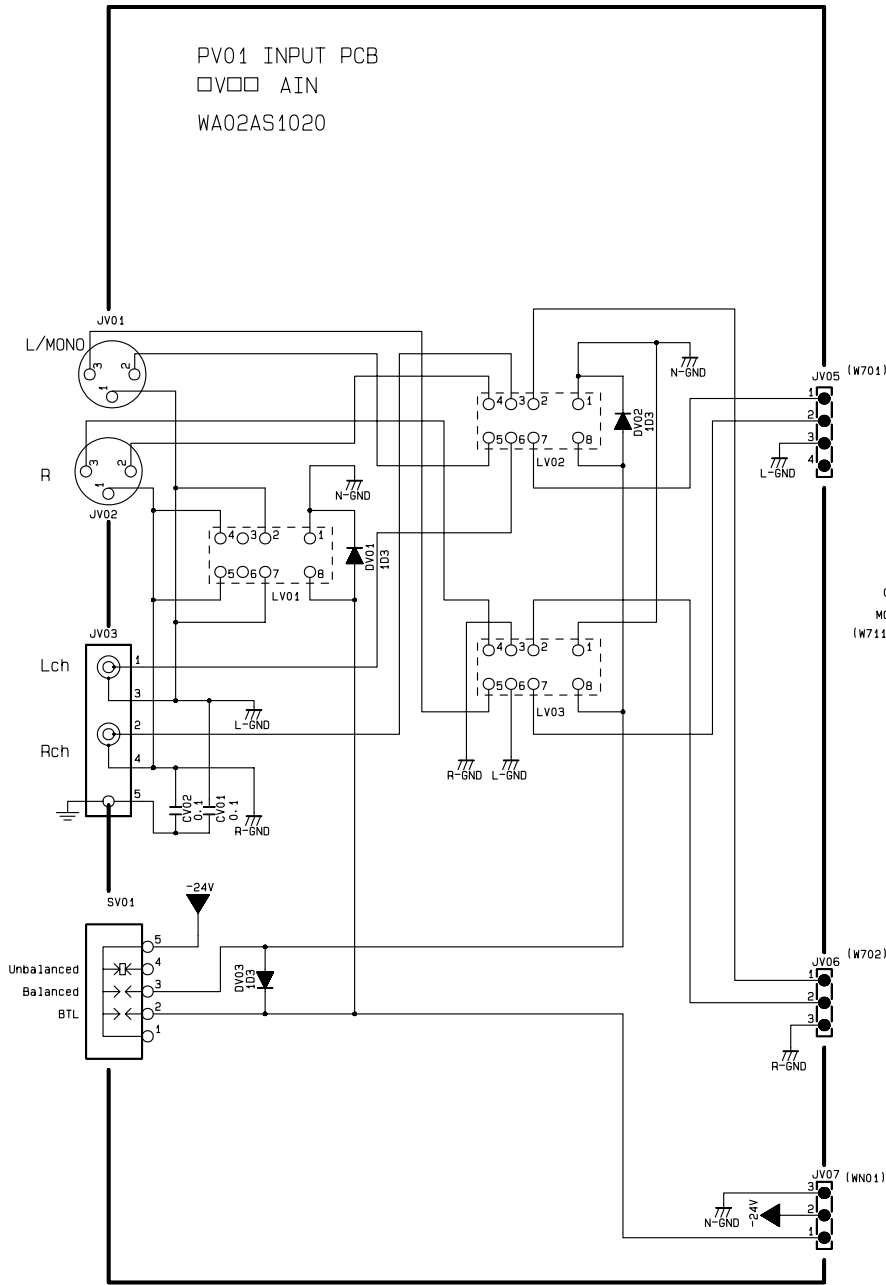
治具：コネクタ付延長ケーブル (番号：* PA02IDLJG)

4. BLOCK DIAGRAM

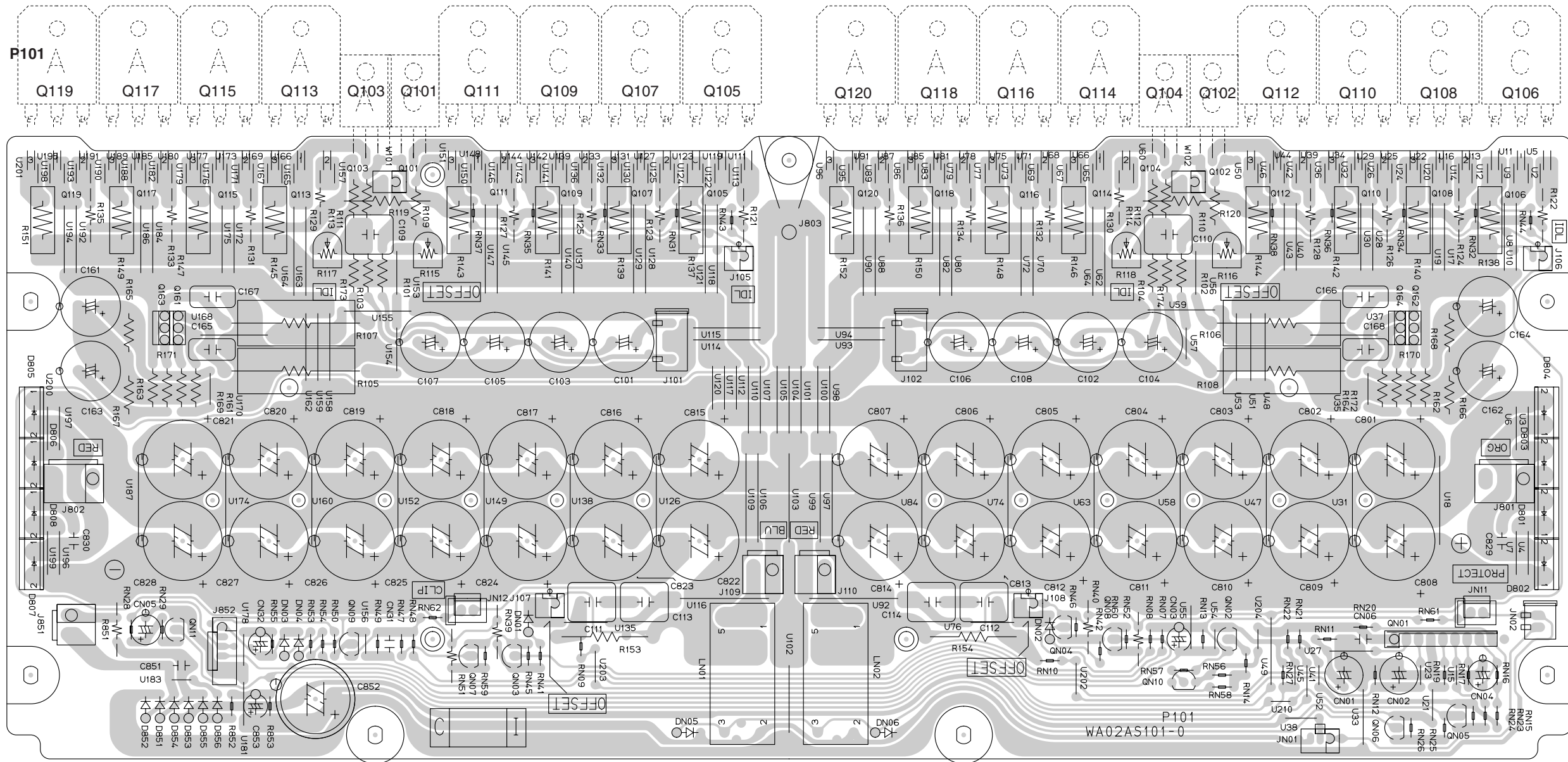


5. SCHEMATIC DIAGRAM

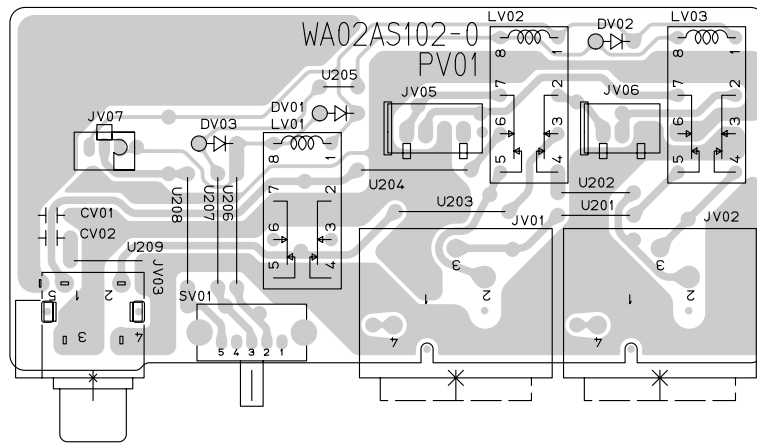




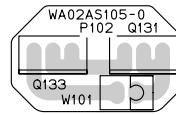
6. PARTS LOCATION



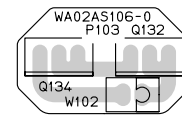
PV01



P102
Q133 Q131

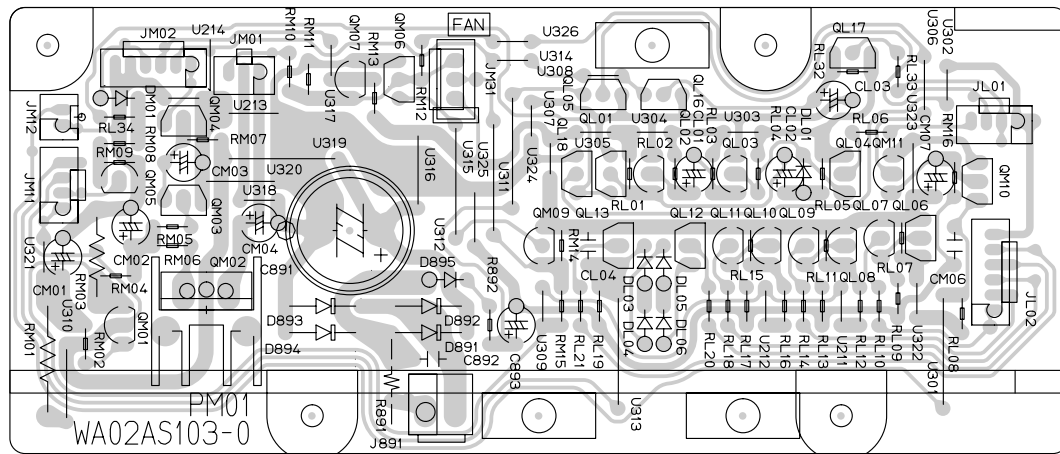


P103
Q134 Q132

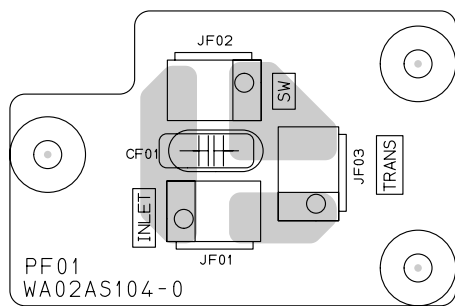


PM01

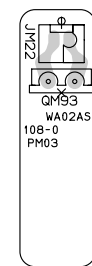
- QM04 QM07 QM06
- QM05 QM03 QM01 QM02
- QL015 QL06 QL17
- QL18 QL01 QL02 QL03 QL04 QM11 QM10
- QL09 QL13 QL12 - QL10 - QL08 - QL06



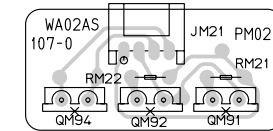
PF01



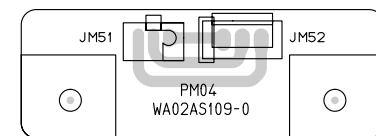
PM03
QM93



PM02
QM94 QM92 QM91

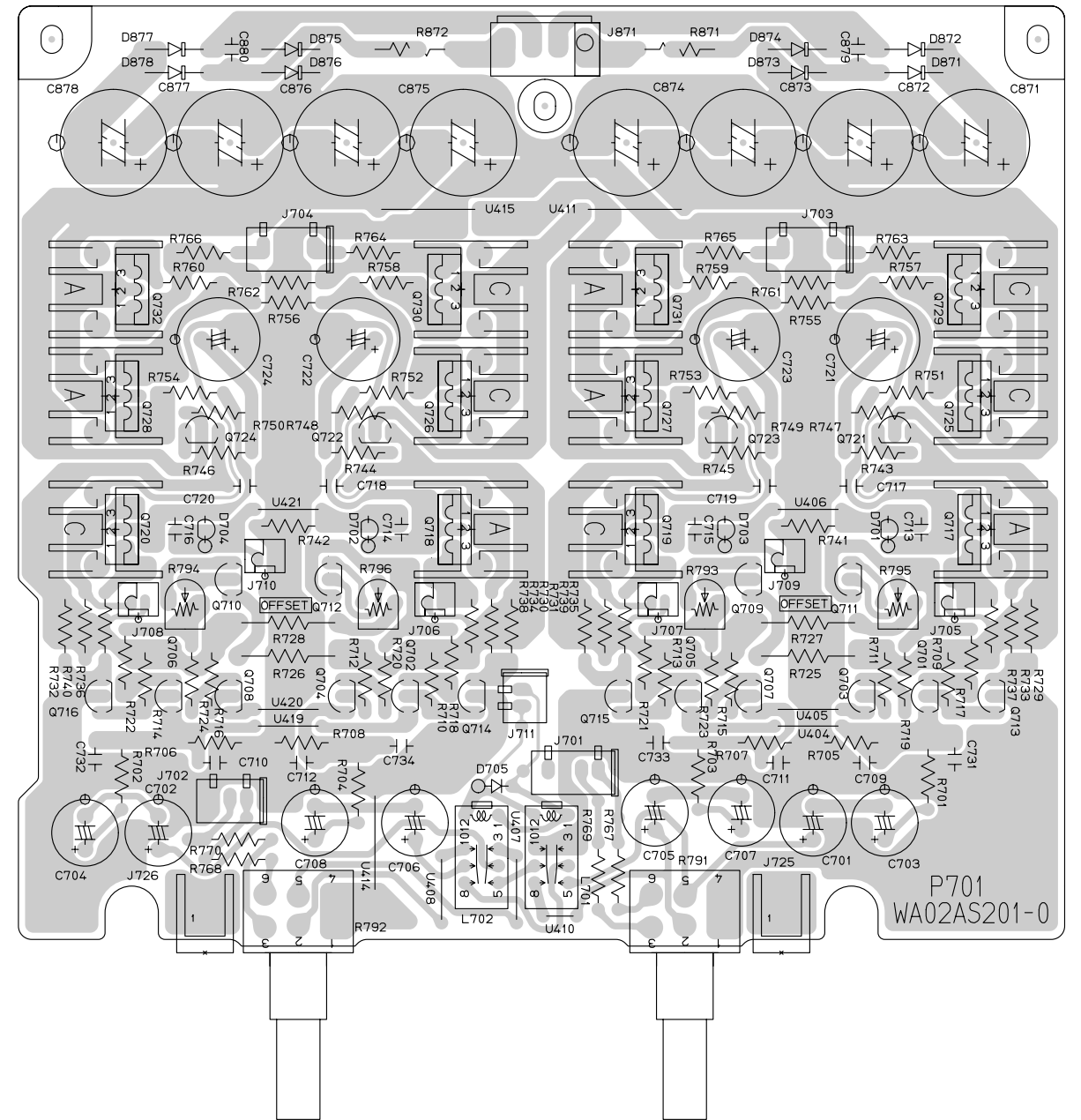


PM04

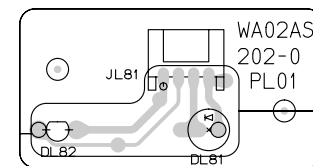


P701

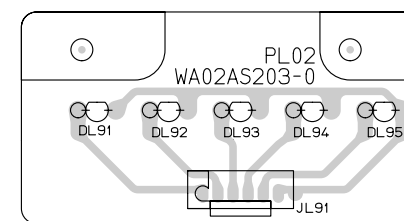
- Q732 Q728 Q724 Q722 Q730 Q726 Q731 Q727 Q723 Q721 Q729 Q725
- Q720 Q710 Q712 Q718 Q719 Q709 Q711 Q717
- Q716 Q706 Q708 Q704 Q702 Q714 Q715 Q705 Q707 Q703 Q701 Q713



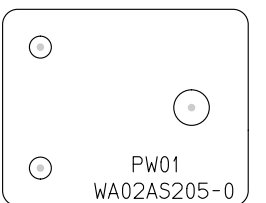
PL01



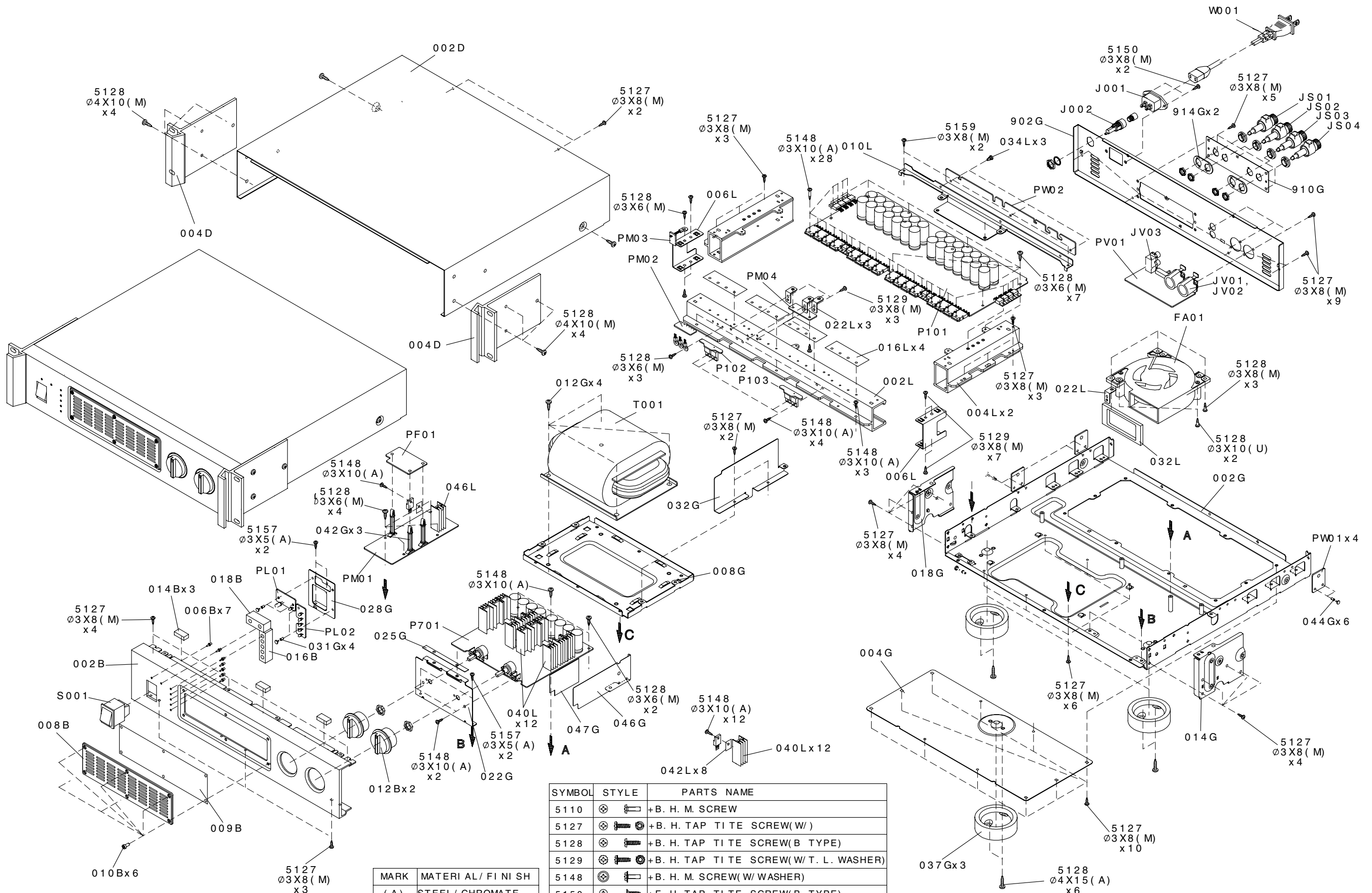
PL02



PW01



7. EXPLODED VIEW AND PARTS LIST



MARK	MATERI AL/ FI NI SH
(A)	STEEL/ CHROMATE
(M)	STEEL/ COPPER
(U)	STEEL/ BLACK

SYMBOL	STYLE	PARTS NAME
5110		+B. H. M. SCREW
5127		+B. H. TAP TITE SCREW(W/)
5128		+B. H. TAP TITE SCREW(B TYPE)
5129		+B. H. TAP TITE SCREW(W/ T. L. WASHER)
5148		+B. H. M. SCREW(W/ WASHER)
5150		+F. H. TAP TITE SCREW(B TYPE)
5157		+P. H. TAP TITE SCREW(S TYPE)
5159		+B. H. TAP TITE SCREW(S TYPE)

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)
002B		4822 381 11893	FRONT PANEL (PA.02 F)	02AS248010	▲ S001			MAINS SWITCH JW-L11RKK MAINS TRANSF. FOR PA 02 R-700 MAINS CORD CORDSET FOR F OFC 2P PACKING USER GUIDE	SC01010580
006B	LED LENS		269J355010	▲ T001			TS87001010		
008B	FRONT COVER		02AS053010						
009B	NET (PANEL-FRONT COVER)		02AS202010	▲ W001			ZC01803130		
010B	SCREW FOR FRONT COVER		02AS010010						
012B	VOLUME KNOB (L R)		02AS154010						
014B	BUFFER FOR LID		nsp						
016B	REFLECTOR FOR TEMP. LED		nsp						
018B	REFLECTOR FOR POWER PEAK LED		nsp		002T		02AS851110		
002D	LID		nsp						
004D	HANDLE		nsp						
002G	MAIN CHASSIS		nsp						
004G	LID BOTTOM COVER		nsp						
008G	TRANSF. CHASSIS		nsp						
012G	SCREW FOR TRANS		02AS010020						
014G	FRONT BRACKET (R)		nsp						
018G	FRONT BRACKET (L)		nsp						
022G	VOLUME BRACKET		nsp						
025G	SPACER FOR VR BRACKET	nsp							
028G	LED PCB BRACKET	nsp							
031G	CLAMPER FOR LED PCB	284J005010							
032G	SHIELD	nsp							
037G	LEG	288S057120							
042G	SUPPORT FOR POWER PCB	nsp							
044G	CLAMPER FOR WIRE BIND PCB	284J005010							
046G	SHIELD FOR V-AMP PCB	nsp							
047G	INSULATOR FOR SHIELD (046G)	nsp							
902G	REAR PANEL	nsp							
910G	REAR PANEL SP TERMINAL	nsp							
914G	SPACER FOR SPK.TERMINAL	nsp							
002L	MAIN HEATSINK	nsp							
004L	SUB HEATSINK	nsp							
006L	HEATSINK BRACKET	nsp							
010L	HEATSINK STAY	nsp							
016L	INSULATOR FOR TR	02AS120010							
022L	RETAINER FOR FAN PCB	nsp							
032L	FAN BUFFER	nsp							
034L	CLAMPER FOR STAY +PCB	284J005010							
040L	HEATSINK FOR V-AMP PCB	nsp							
042L	INSULATOR FOR TR	01AS120020							
046L	HEATSINK FOR FAN CONTROL PCB	nsp							
▲ FA01			D.C MOTOR FAL6F12LLS	MM01200380					
▲ F001			SCIROCCO FAN						
			FUSE 15A 250V SM15	FS11500540					
			MITI 32-1246						
JS01			TERMINAL SP RED	YT01010780			NOT STANDARD SPARE PARTS PACKING CASE CUSHION CUSHION	02AS801010	
JS02			TERMINAL SP WHT	YT01010770	002S			02AS809010	
JS03			TERMINAL SP WHT	YT01010770	004S			02AS809020	
JS04			TERMINAL SP RED	YT01010780	005S				
▲ J001			JACK AC INLET TYPE HF-301	YJ04002550					
▲ J002		4822 256 30232	JACK FUSE HOLDER	YJ08000300	010T		TOOL HEX-KEY WRENCH	9710100070	

NOTE : *nsp* PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

8. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R***: 1) GD05 × × × 140, Carbon film fixed resistor, ±5% 1/4W
 R***: 2) GD05 × × × 160, Carbon film fixed resistor, ±5% 1/6W

① — Resistance value

Examples ;

① Resistance value
 0.1 Ω 001 10 Ω 100 1 kΩ 102 100 kΩ 104
 0.5 Ω 005 18 Ω 180 2.7 kΩ 272 680 kΩ 684
 1 Ω 010 100 Ω 101 10 kΩ 103 1 MΩ 105
 6.8 Ω 068 390 Ω 391 22 kΩ 223 4.7 MΩ 475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C***: CERAMIC CAP.

3) DD1 × × × × 370, Ceramic capacitor
 Disc type
 Temp.coeff.P350 ~ N1000, 50V
 ② — Capacity value
 ③ — Tolerance

Examples ;

② Tolerance (Capacity deviation)
 ±0.25 pF 0
 ±0.5 pF 1
 ±5% 5

* Tolerance of COMMON PARTS handled here are as follows :

0.5 pF ~ 5 pF ±0.25 pF
 6 pF ~ 10 pF ±0.5 pF
 12 pF ~ 560 pF ±5%

③ Capacity value



0.5 pF 005 3 pF 030 100 pF 101
 1 pF 010 10 pF 100 220 pF 221
 1.5 pF 015 47 pF 470 560 pF 561

C***: CERAMIC CAP.

4) DK16 × × × 300, High dielectric constant ceramic capacitor
 Disc type
 Temp.chara. 2B4, 50V
 ④ — Capacity value

Examples ;

④ Capacity value
 100 pF 101 1000 pF 102 10000 pF 103
 470 pF 471 2200 pF 222

C***: 5) ELECTROLY CAP. (), 6) FILM CAP. ()

5) EA × × × × × 10, Electrolytic capacitor
 One-way lead type, Tolerance ±20%
 ⑤ — Working voltage
 ⑥ — Capacity value

Examples ;

⑤ Capacity value
 0.1 μF 104 4.7 μF 475 100 μF 107
 0.33 μF 334 10 μF 106 330 μF 337
 1 μF 105 22 μF 226 1100 μF 118
 2200 μF 228

⑥ Working voltage

6.3V 006 25V 025
 10V 010 35V 035
 16V 016 50V 050

6) DF15 × × × 350 — Plastic film capacitor
 DF15 × × × 310 — One-way type, Mylar ±5% 50V
 DF16 × × × 310 — Plastic film capacitor
 One-way type, Mylar ±10% 50V
 ⑦ — Capacity value

Examples ;

⑦ Capacity value
 0.001 μF (1000 pF) 102 0.1 μF 104
 0.0018 μF 182 0.56 μF 564
 0.01 μF 103 1 μF 105
 0.015 μF 153

NOTE : 1) The above CODES (R***, R***, C***, C*** and C***) are omitted on the schematic diagram in some case.

2) On the occasion, be confirmed the common parts on the parts list.

3) Refer to "Common Parts List" for the other common parts (R105, DD4, DK4).

NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows;

1. KOA Corporation

Part No. (MJI)	Type No. (KOA)	Description
NH05 × × × 140	RF25S × × × × ΩJ	(±5% 1/4W)
NH05 × × × 120	RF50S × × × × ΩJ	(±5% 1/2W)
NH85 × × × 110	RF73B2A × × × × ΩJ	(±5% 1/10W)
NH95 × × × 140	RF73B2E × × × × ΩJ	(±5% 1/4W)

* Resistance value Resistance value
 (0.1 Ω – 10 kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No. (MJI)	Type No. (MEC)	Description
NF05 × × × 140	ERD-2FCJ × × ×	(±5% 1/4W)
RF05 × × × 140	ERD-2FCG × × ×	(±2% 1/4W)
NF02 × × × 140		
RF02 × × × 140		

* Resistance value * Resistance value

Examples ;

* Resistance value
 0.1 Ω 001 10 Ω 100 1 kΩ 102 100 kΩ 104
 0.5 Ω 005 18 Ω 180 2.7 kΩ 272 680 kΩ 684
 1 Ω 010 100 Ω 101 10 kΩ 103 1 MΩ 105
 6.8 Ω 068 390 Ω 391 22 kΩ 223 4.7 MΩ 475



ABBREVIATION AND MARKS

ANT. : ANTENNA	BATT. : BATTERY
CAP. : CAPACITOR	CER. : CERAMIC
CONN. : CONNECTING	DIG. : DIGITAL
HP : HEADPHONE	MIC. : MICROPHONE
μ-PRO : MICROPROCESSOR	REC. : RECORDING
RES. : RESISTOR	SPK : SPEAKER
SW : SWITCH	TRANSF. : TRANSFORMER
TRIM. : TRIMMING	TRS. : TRANSISTOR
VAR. : VARIABLE	X'TAL : CRYSTAL


NOTE ON FUSE :

Regarding to all parts of parts code **FS20xxx2xx**, replace only with Wickmann-Werke GmbH, Type 372 non glass type fuse.

NOTE ON SAFETY :

Symbol  Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

 がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)
			P101-C-AMP CIRCUIT BOARD						
			P101-CAPAITORS						
C101		4822 124 80771	ELECT 100µF 100V RA-2	OA10710020	R161			1k Ω ±1% 1/4W	GM11410010
∫					∫				
C108			FILM 0.068µF ±5% 100V	OF55683540	R164			27.4k Ω ±1% 1/4W	GM11427420
C109			FILM 0.068µF ±5% 100V	OF55683540	∫				
C110					R165				
C111			FILM 0.047µF ±5% 100V	OF55473540	∫				
∫					R168			33.2 Ω ±1% 1/4W	GM114332G0
C114					∫				
C161		4822 124 80771	ELECT 100µF 100V RA-2	OA10710020	R172			162 Ω ±1% 1/4W	GM11416200
∫					R173			162 Ω ±1% 1/4W	GM11416200
C164					R174			1 Ω ±5% 1/4W	GG05010140
C165			FILM 0.01µF ±5% 100V	OF55103540	▲ R851	4822 117 10158			
∫					▲ RN39	4822 050 21502		1.5k Ω ±5% 1/4W	GG05152140
C168					▲ RN40	4822 050 21502		1.5k Ω ±5% 1/4W	GG05152140
▲ C801					▲ RN51	4822 050 21502		1.5k Ω ±5% 1/4W	GG05152140
∫					▲ RN52	4822 050 21502		1.5k Ω ±5% 1/4W	GG05152140
▲ C828		4822 124 12275	ELECT 470µF M 100V RA-2	OA47710020					
C829			FILM 0.022µF ±5% 100V	OF55223540					
C830			FILM 0.022µF ±5% 100V	OF55223540	R***				
C851			CER. 0.1µF +80 -20% 50V	DD38104040					
▲ C852		4822 124 22695	ELECT 2200µF M 35V RA-2	OA22803520					
C853		4822 124 42182	ELECT 3.3µF M 50V RA-2	OA33505020					
CN01		4822 124 90365	ELECT 220µF M 25V RA-2	OA22702520					
CN02		4822 124 90365	ELECT 220µF M 25V RA-2	OA22702520	▲ D801				
CN03		4822 124 22274	ELECT 4.7µF M 50V RA-2	OA47505020	∫				
CN04		4822 124 22276	ELECT 47µF M 50V RA-2	OA47605020	▲ D808			DIODE FSF10A20	HD20056100
CN05		4822 124 90362	ELECT 22µF M 50V RA-2	OA22605020	▲ D851				
CN06			CER. 0.1µF +80 -20% 50V	DD38104040	∫				
CN32		4822 124 22571	ELECT 10µF M 50V RA-2	OA10605020	▲ D856	4822 130 82421		DIODE 1D3 1A/200V	HD20002710
			P101-CAPACITORS(COMMON)						
			PLASTIC FILM CAPACITOR						
			±5% 50V : CN31						
			P101-RESISTORS						
R101			100 Ω ±1% 1/4W	GM11410000	▲ Q101			TRS. 2SC5171	HT35171000
∫					▲ Q102			TRS. 2SC5171	HT35171000
R104					▲ Q103			TRS. 2SA1930	HT11930000
R105			5.6k Ω ±5% 3W	GA05562030	▲ Q104			TRS. 2SA1930	HT11930000
∫					▲ Q105				
R108					∫				
R109			10 Ω ±1% 1/4W	GM114100G0	▲ Q112			TRS. 2SC2837 Y	HT328371C0
∫					▲ Q113				
R112			68.1 Ω ±1% 1/4W	GM114681G0	∫				
R113			68.1 Ω ±1% 1/4W	GM114681G0	▲ Q120			TRS. 2SA1186 Y	HT111861C0
R114			TRIMMING RH068 CERMET	RA03311100	▲ Q131				
R115			330B 0.3W	RA03311100	∫				
			TRIMMING RH068 CERMET	RA03311100	▲ Q134			TRS. 2SC3987 50V 3A	HT33987000
R116			330B 0.3W	RA03311100	Q161			HFE4000	
			TRIMMING RH068 CERMET	RA01011100	Q162			TRS. 2SC2911 S	HT329111B0
R117			100B 0.3W	RA01011100	Q163			TRS. 2SC2911 S	HT329111B0
			TRIMMING RH068 CERMET	RA01011100	Q164			TRS. 2SA1209 S	HT112091B0
R118			100B 0.3W	RA01011100					
R119		5322 116 51677	39 Ω ±5% 2W	GA05390020	QN01	4822 209 83312		IC TA7317P	HC10042050
R120		5322 116 51677	39 Ω ±5% 2W	GA05390020	QN02	4822 130 42999		TRS. 2SA1145 O OR Y	HT111452A0
R121					QN03	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0
∫					QN04	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0
R136		4822 117 10158	1 Ω ±5% 1/4W	GG05010140	QN05	4822 130 42999		TRS. 2SA1145 O OR Y	HT111452A0
▲ R137					QN06	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0
∫					QN07	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0
▲ R152		4822 116 80153	0.18 Ω ±10% 5W	GO10182050	QN08	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0
∫					QN09	4822 130 42999		TRS. 2SA1145 O OR Y	HT111452A0
R153		4822 053 11109	10 Ω ±5% 2W	GA05100020	QN10	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0
R154		4822 053 11109	10 Ω ±5% 2W	GA05100020	QN11	4822 130 43283		TRS. 2SC2705 O OR Y	HT327052A0

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJJ)	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJJ)
▲ LN01		4822 280 10343	P101-MISCELLANEOUS RELAY VS-24MBU-551-UC	LY10240270	R763			68.1 Ω ±1% 1/4W	GM114681G0
▲ LN02		4822 280 10343	GOLD CONTACT	LY10240270	}{				
C701			P701-V-AMP CIRCUIT BOARD		R766				
}{			P701-CAPACITORS		R767			1k Ω ±1% 1/4W	GM11410010
C708			ELECT 47μF M 100V RA-2	OA47610020	}{				
C709					R770			VAR. 10KA*2 MASTER VL L	RM01031190
}{					R791			VAR. 10KA*2 MASTER VL R	RM01031190
C712		4822 123 30086	MICA 47pF J 500V	DF35470520	R792				
C713					R793			TRIMMING RH068 CERMET	RA02211100
}{					}{			220B 0.3W	
C716			FILM 4700pF ±5% 100V	OF55472540	R796			1 Ω ±5% 1/2W	GG05010120
C717					▲ R871	4822 050 21108		1 Ω ±5% 1/2W	GG05010120
}{					▲ R872	4822 050 21108			
C720			FILM 0.01μF ±5% 100V	OF55103540				P701-SEMICONDUCTORS	
C721					▲ D871			DIODE 11DF2 1A 200V FRD	HD20057100
}{					}{				
C724		4822 124 80771	ELECT 100μF 100V RA-2	OA10710020	▲ D878			L.E.D. GL3HS8	HI10111320
▲ C871					D701			(SUNSET ORANGE)	
}{					D704			DIODE 1D3 1A/200V	HD20002710
▲ C878		4822 124 12275	ELECT 470μF M 100V RA-2	OA47710020	D705	4822 130 82421			
C879			FILM 0.022μF ±5% 100V	OF55223540					
C880			FILM 0.022μF ±5% 100V	OF55223540	Q701	4822 130 43813		TRS. 2SC2362K G RANK	HT323621G0
			P701-RESISTORS		}{				
R701					Q704			TRS. 2SA1016K G RANK	HT110161G0
}{			46.4 Ω ±1% 1/4W	GM114464G0	Q705				
R704					}{				
R705					Q708			F.E.T. 2SK117 BL RANK	HF201171D0
}{					Q709				
R708		9965 000 00596	22.6k Ω ±1% 1/4W	GM11422620	Q712			TRS. 2SA1016K G	HT110161G0
R709					Q713			TRS. 2SA1016K G	HT110161G0
}{					Q714	4822 130 43813		TRS. 2SC2362K G	HT323621G0
R724			1k Ω ±1% 1/4W	GM11410010	Q715	4822 130 43813		TRS. 2SC2362K G	HT323621G0
R725					Q716			TRS. 2SA1209 S	HT112091B0
}{					Q717			TRS. 2SA1209 S	HT112091B0
R728		4822 053 10682	6.8k Ω ±5% 1W	GA05682010	Q718			TRS. 2SC2911 S	HT329111B0
R729					Q719			TRS. 2SC2911 S	HT329111B0
}{					Q720			TRS. 2SC2911 S	HT329111B0
R732			442 Ω ±1% 1/4W	GM11444200	Q721	4822 130 43192		TRS. 2SC1775A E	HT317751E0
R733					Q722	4822 130 43192		TRS. 2SC1775A E	HT317751E0
}{					Q723	4822 130 43617		TRS. 2SA872A E	HT108721E0
R736			33.2 Ω ±1% 1/4W	GM114332G0	Q724	4822 130 43617		TRS. 2SA872A E	HT108721E0
R737					Q725			TRS. 2SC2911 S	HT329111B0
}{					Q726			TRS. 2SC2911 S	HT329111B0
R740			56.2 Ω ±1% 1/4W	GM114562G0	Q727			TRS. 2SA1209 S	HT112091B0
R741			4.64k Ω ±1% 1/4W	GM11446410	Q728			TRS. 2SA1209 S	HT112091B0
R742			4.64k Ω ±1% 1/4W	GM11446410	▲ Q729			TRS. 2SC5171	HT35171000
R743					▲ Q730			TRS. 2SC5171	HT35171000
}{					▲ Q731			TRS. 2SA1930	HT11930000
R746			10 Ω ±1% 1/4W	GM114100G0	▲ Q732			TRS. 2SA1930	HT11930000
R747								P701-MISCELLANEOUS	
}{					L701	9965 000 01570		RELAY ED2-24V	LY20240470
R750			1k Ω ±1% 1/4W	GM11410010	L702	9965 000 01570		RELAY ED2-24V	LY20240470
R751								PF01-POWER CONNECT	
}{								CIRCUIT BOARD	
R754			33.2 Ω ±1% 1/4W	GM114332G0	▲ CF01			CER. CAP.DE1607-1F 103M-KH	DK17103910
R755								PL01-POWER LED	
R756			162 Ω ±1% 1/4W	GM11416200				CIRCUIT BOARD	
R757			162 Ω ±1% 1/4W	GM11416200	DL81			L.E.D. BLU LED FOR POWER	HI10039080
}{					DL82	4822 130 80326		L.E.D. RED LED FOR CLIP	HI10062320
R760			33.2 Ω ±1% 1/4W	GM114332G0					
R761									
R762			82.5 Ω ±1% 1/4W	GM114825G0					
			82.5 Ω ±1% 1/4W	GM114825G0					

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (PCS)	DESCRIPTION	PART NO. (MJI)
DL91 DL92 { DL95		4822 130 80326	PL02-TEMP LED CIRCUIT BOARD L.E.D. RED LED FOR TEMP	HI10062320	QL17		4822 130 61227	DIG. TRS. DTA114ES/UN4111 10K 10K	BA10001000
		4822 130 11363	L.E.D. GRN LED FOR TEMP	HI10095320	QL18		4822 130 60588	DIG. TRS. DTC114ES/UN4211 10K 10K	BA20001000
C891 C892 C893		4822 124 81133	PM01-FAN CONTROL CIRCUIT BOARD PM01-CAPACITORS ELECT 4700µF 25V RA-2	OA47802520	QM01 QM02		4822 130 43283	TRS. 2SC2705 O OR Y TRS. 2SC3987 50V 3A HFE4000	HT327052A0 HT33987000
CL01 CL02 CL03 CL04 CM01 CM02 CM03 CM04 CM06 CM07		4822 124 22274	ELECT 4.7µF M 50V RA-2	OA47505020	QM03		4822 130 60588	DIG. TRS. DTC114ES/UN4211 10K 10K	BA20001000
		4822 124 22571	ELECT 10µF M 50V RA-2	OA10605020	QM04		4822 130 61189	DIG. TRS. DTC114TS/UN4215 10K	BA20004000
		4822 124 22571	ELECT 10µF M 50V RA-2	OA10605020	QM05		4822 130 41947	TRS. 2SC2458 2SC1740S 2SC3199 ETC.	HT30001000
		4822 124 90362	CER. 0.1µF +80 -20% 50V	DD38104040	QM06		4822 130 60588	DIG. TRS. DTC114ES/UN4211 10K 10K	BA20001000
		4822 124 22571	ELECT 22µF M 50V RA-2	OA22605020	QM07		4822 130 41947	TRS. 2SC2458 2SC1740S 2SC3199 ETC.	HT30001000
		4822 124 22571	ELECT 10µF M 50V RA-2	OA10605020	QM09		4822 130 42715	TRS. 2SA1048 2SA933S 2SA1267 ETC.	HT10001000
		4822 124 22571	ELECT 10µF M 50V RA-2	OA10605020	QM10		4822 130 63211	DIG. TRS. DTA114TS/UN4115 10K	BA10004000
		4822 124 90362	ELECT 22µF M 50V RA-2	OA22605020	QM11		4822 130 42715	TRS. 2SA1048 2SA933S 2SA1267 ETC.	HT10001000
		4822 124 22571	CER. 0.1µF +80 -20% 50V	DD38104040				PM02-TEMP SENSOR CIRCUIT BOARD	
		4822 124 22571	ELECT 10µF M 50V RA-2	OA10605020	QM91			VARISTOR PTH487A01BF222TS 2.2KW	HP00042230
▲ R891 RM01 RM03		4822 117 10158	PM01-RESISTORS 1 Ω ±5% 1/4W	GG05010140	QM92		4822 126 90009	VARISTOR PTH487A01BD222TS 2.2KW	HP00029230
		4822 053 10151	150 Ω ±5% 1W	GA05151010	QM94			VARISTOR PTH487A01 BH222TS POSISTER	HP00023230
		4822 050 21022	1k Ω ±5% 1/2W	GG05102120				PM03-TEMP. SENSOR SUB CIRCUIT BOARD	
R***			P1M1-RESISTORS COMMON) CARBON FILM FIXED RES. ±5% 1/6W : R892 RL01-RL21 RL32 RN33 RL34 RM02 RM04-RM16 RM21 RM22		QM93		4822 130 42848	VARISTOR POSISTOR PTH487 (01BB-120)	HP00009230
▲ D891 { ▲ D894 ▲ D895 DM01 DL01		4822 130 82421	PM01-SEMICONDUCTORS DIODE 11DF2 1A 200V FRD	HD20057100				PV01-INPUT CIRCUIT BOARD PV01-CAPACITORS CER. 0.1µF +80 -20% 50V CER. 0.1µF +80 -20% 50V	DD38104040 DD38104040
DL03 { DL06		4822 130 82421	DIODE 1D3 1A/200V	HD20002710	CV01 CV02			PV01-SEMICONDUCTORS DIODE 1D3 1A/200V DIODE 1D3 1A/200V DIODE 1D3 1A/200V	HD20002710 HD20002710 HD20002710
		4822 130 82421	DIODE 1D3 1A/200V	HD20002710	DV01 DV02 DV03		4822 130 82421 4822 130 82421 4822 130 82421		
		4822 130 32362	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000				PV01-MISCELLANEOUS JACK NC3FAH2 4P JACK NC3FAH2 4P TERMINAL 2P RCA JACK YKC21-3255 (GOLD)	YJ01004340 YJ01004340 YT02021130
QL01		4822 130 32362	DIODE 1SS176 MA165 1SS254 30V 0.1A	HD20002000	JV01 JV02 JV03		9965 000 02540 9965 000 02540 4822 290 81598		
QL02		4822 130 60588	DIG. TRS. DTC114ES/UN4211 10K 10K	BA20001000	LV01 LV02 LV03		9965 000 01576 9965 000 01576 9965 000 01576	RELAY MR82-24USR RELAY MR82-24USR RELAY MR82-24USR	LY20240480 LY20240480 LY20240480
QL03		4822 130 41947	TRS. 2SC2458 2SC1740S 2SC3199 ETC.	HT30001000	SV01			SLIDE SW. SSSF113-S06N1	SS01030300
QL04		4822 130 41947	TRS. 2SC2458 2SC1740S 2SC3199 ETC.	HT30001000					
QL05		4822 130 63211	DIG. TRS. DTA114TS/UN4115 10K	BA10004000					
QL06		4822 130 60588	DIG. TRS. DTC114ES/UN4211 10K 10K	BA20001000					
QL07 { QL11 QL12		4822 130 63211	DIG. TRS. DTA114TS/UN4115 10K	BA10004000					
QL13		4822 130 42715	TRS. 2SA1048 2SA933S 2SA1267 ETC.	HT10001000					
QL16		4822 130 63211	DIG. TRS. DTA114TS/UN4115 10K	BA10004000					
		4822 130 63211	DIG. TRS. DTA114TS/UN4115 10K	BA10004000					
		4822 130 60588	DIG. TRS. DTC114ES/UN4211 10K 10K	BA20001000					

NOTE : *nsp* PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.