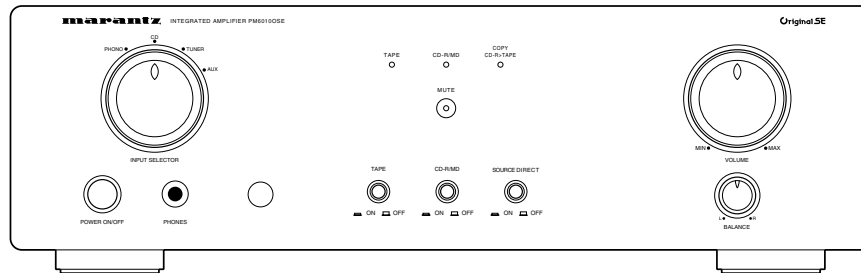


# Service Manual

PM6010F /N1B, /N1G, /T1B

Integrated amplifier



PM60100SE

## TABLE OF CONTENTS

SECTION	PAGE
1. TECHNICAL SPECIFICATIONS .....	1
2. TEST EQUIPMENT REQUIRED FOR SERVICING .....	1
3. IDLING CURRENT ADJUSTMENT .....	2
4. BLOCK DIAGRAM .....	2
5. WIRING DIAGRAM .....	3
6. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern Side) .....	5
7. EXPLODED VIEW AND PARTS LIST .....	13
8. ELECTRICAL PARTS LIST .....	16

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

# marantz®

- PM60100SE -

275W855010 MIT  
3120 785 22009  
First Issue 1999.08

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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.

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**MARANTZ AMERICA, INC.**  
440 MEDINAH ROAD  
ROSELLE, ILLINOIS 60172  
USA  
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FAX : 630 - 307 - 2687

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THE NETHERLANDS  
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FAX : +31 - 40 - 2735578

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FAX : +55 11 534. 8988

#### PROFESSIONAL AMERICAS

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MARANTZ PROFESSIONAL PRODUCTS  
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AURORA, ILLINOIS 60504 USA  
PHONE : 630 - 820 - 4800  
FAX : 630 - 820 - 8103

#### CANADA

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

#### AUSTRALIA

**JAMO AUSTRALIA PTY LTD**  
1 EXPO COURT, P.O. BOX 350  
MT. WAVERLEY VIC 3149  
AUSTRALIA  
PHONE : +61 - 3 - 9543 - 1522  
FAX : +61 - 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

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**WO KEE HONG (S) PTE LTD**  
WO KEE HONG CENTRE  
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SINGAPORE 319257  
PHONE : +65 2544555  
FAX : +65 2502213

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PHONE : +886 - 2 - 25221304  
FAX : +886 - 2 - 25630415

#### MALAYSIA

**WO KEE HONG ELECTRONICS SDN. BHD.**  
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UTAMA, 47400 PETALING JAYA  
SELANGOR DARUL EHSAN, MALAYSIA  
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FAX : +60 3 - 7173828

#### JAPAN *Technical*

**MARANTZ JAPAN, INC.**  
35- 1, 7- CHOME, SAGAMIONO  
SAGAMIHARA - SHI, KANAGAWA  
JAPAN 228-8505  
PHONE : +81 42 748 1013  
FAX : +81 42 748 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. 1492.

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

# 1. TECHNICAL SPECIFICATIONS

## Power output

RMS 8 Ohms .....	50 W
DIN 8 Ohms .....	55 W

## IHF dynamic power

8 Ohms .....	80 W
THD at 8 Ohms rated output .....	0.008 %
Intermodulation distortion .....	0.008 %
Damping factor .....	100

## Magnetic cartridge input

Input sensitivity impedance .....	2.5 mV/47 kOhm
Accuracy of frequency response to IEC RIAA .....	0.5 dB
Signal to noise ratio (IHF A weighted) .....	87 dB

## Tuner/CD/Aux/Tape inputs

Input sensitivity impedance .....	150 mV/33 kOhm
Signal to noise ratio (A weighted) .....	97 dB
Frequency response (-3 dB limits) .....	5 Hz -70 kHz
Channel separation (1 kHz/10 kHz) .....	85/65 dB

## General

Power Requirements .....	230 V AC, 50 Hz
Dimensions (MAX)	
Width .....	440 mm
Height .....	138 mm
Depth .....	338 mm
Weight	
Unit alone .....	6.7 kg

Specifications subject to change without prior notice.

# 2. TEST EQUIPMENT REQUIRED FOR SERVICING

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
AC VTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
DC VTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors potential of primary power to amplifier
Variable Autotransformer	Adjusts level of primary power to amplifier
Circuit Tester	Trouble shooting
Shorting Plug	Shorts amplifier input to eliminate noise pickup

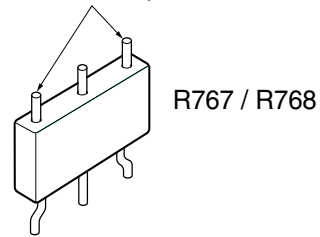
### 3. IDLING CURRENT ADJUSTMENT

1. Before switching the power ON, set the master volume control to the minimum position and the balance volume to the center positions. Also set semi-fixed resistors R755(L ch) and R756(R ch) on PCB P701 to the center positions.
2. Each of the cement resistors R767(L ch) and R768(R ch) on the PCB P701 is provided with three test points. Connect a digital voltmeter, set for the DC voltage input, to the test points at the two extremities of the three test points of R767 or R768.
3. After the setup above, switch the power ON, and adjust semi-fixed resistors R755(L ch) and R756(R ch) on PCB P701 according to the digital voltmeter reading. The target setting value is 10 mV(50 mA) for both the L ch and R ch.

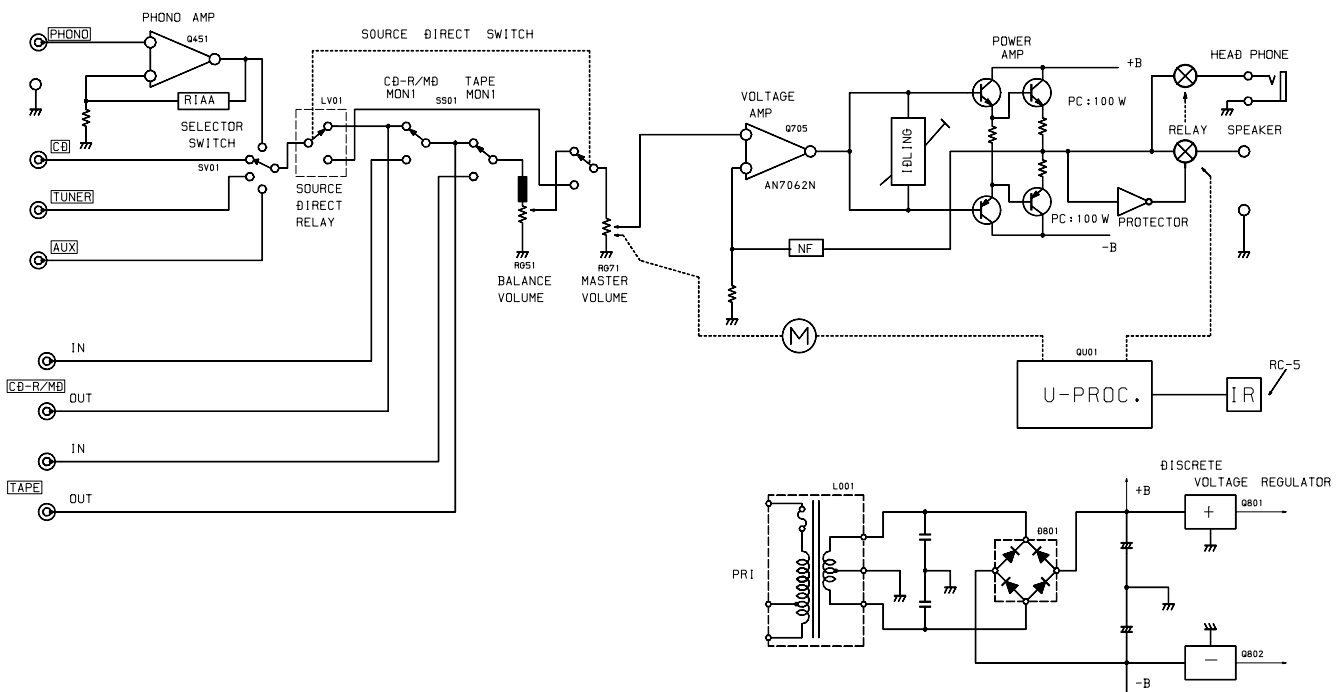
Please refer to the table below.

Elapsed time after Mains ON	Idling current setting value
30 sec. - 1 min.	$3 \pm 1$ mV
1 min. - 2 min.	$6 \pm 1$ mV
2 min. - 4 min.	$8 \pm 1$ mV
More than 5 min.	$10 \pm 2$ mV

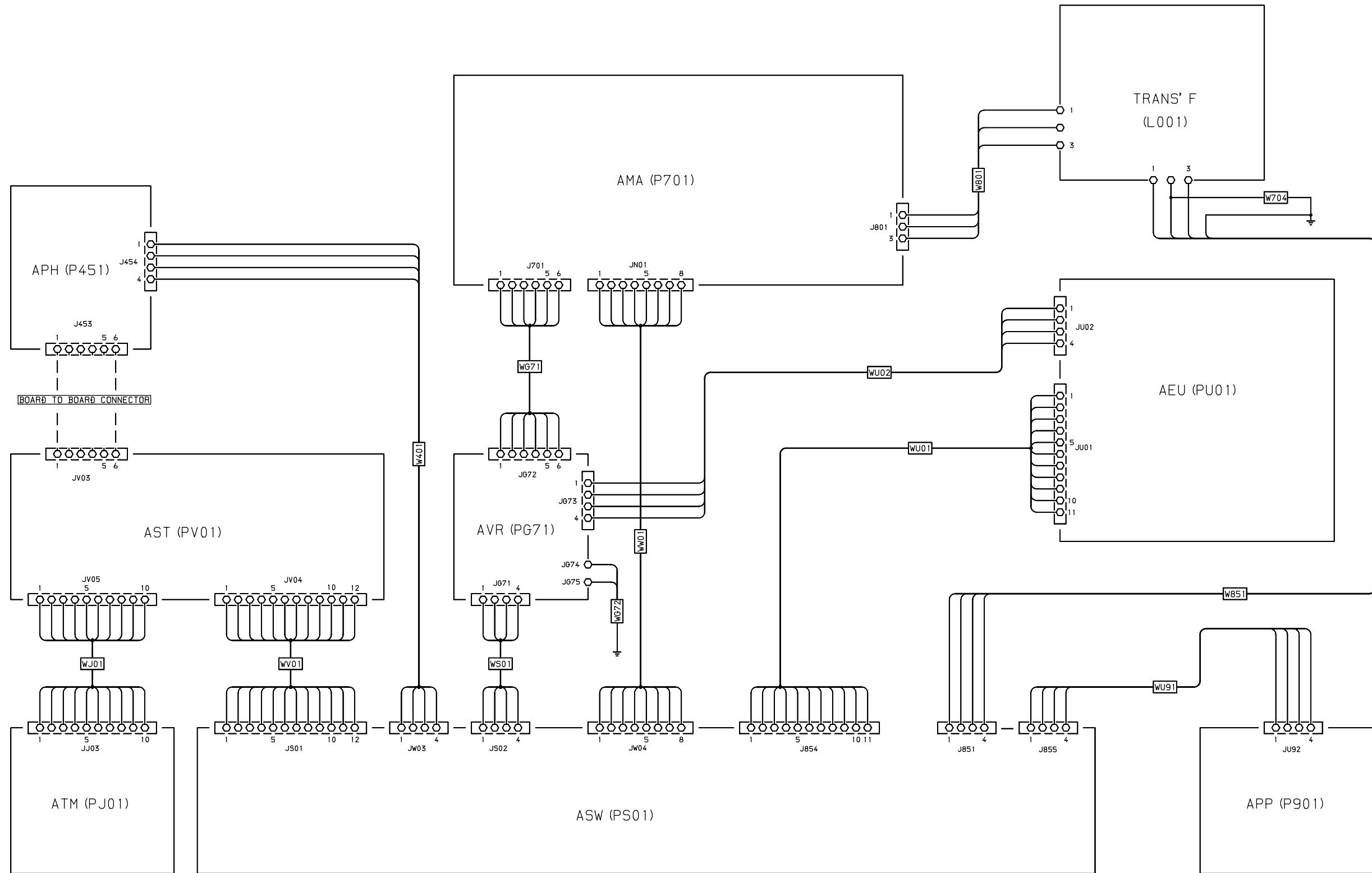
Measurement point



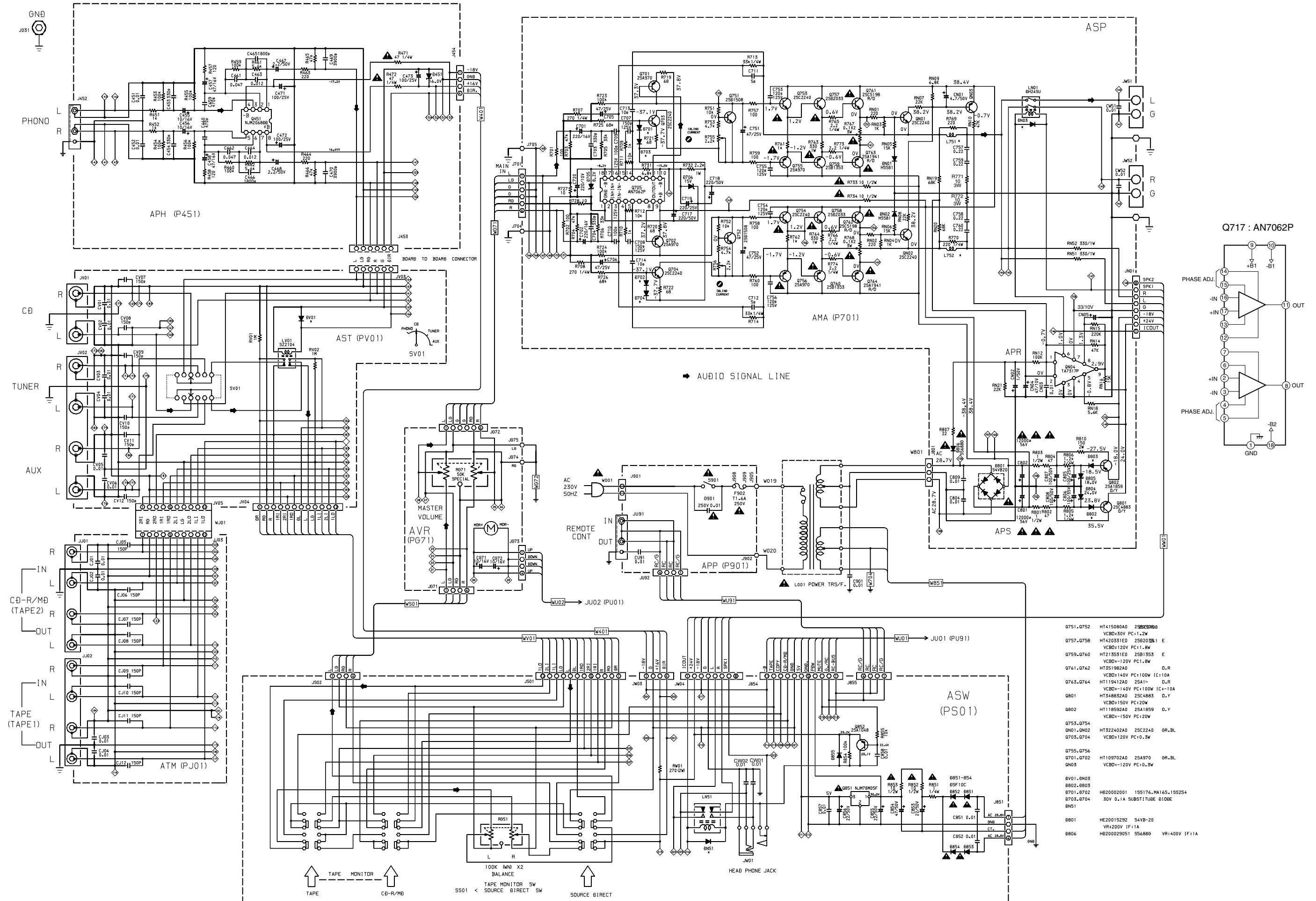
### 4. BLOCK DIAGRAM



5. WIRING DIAGRAM



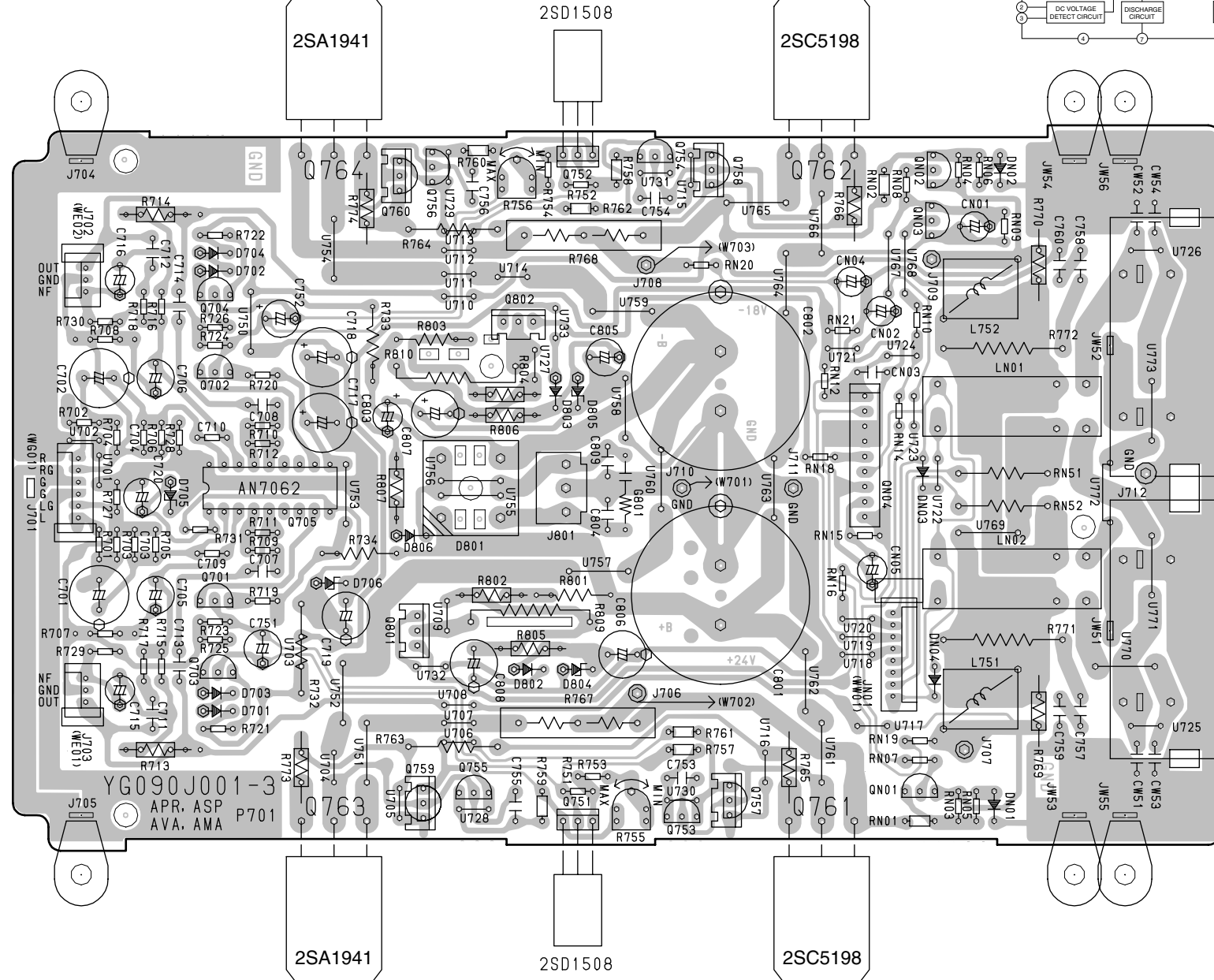
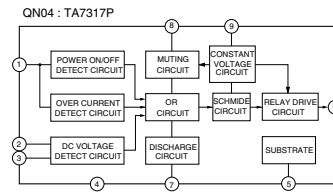
6. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern Side)



Q717	AN7062P
Q751, Q752	HT415080A0 25825088 VCBO:30V PC:1.2W
Q757, Q758	HT420351E0 25820351 E VCBO:120V PC:1.8W
Q759, Q760	HT213551E0 2581355 E VCBO:-120V PC:1.8W
Q761, Q762	HT351982A0 VCBO:140V PC:100W IC:10A
Q763, Q764	HT194124A0 25A11- D, R VCBO:-140V PC:110W IC:-10A
Q801	HT348852A0 25C4885 D, Y VCBO:150V PC:12W
Q802	HT118592A0 25A1859 D, Y VCBO:-150V PC:12W
Q753, Q754	HT322402A0 25C2240 0R, BL
Q705, Q704	VCBO:120V PC:0.5W
Q755, Q756	HT109702A0 25A970 0R, BL
Q701, Q702	VCBO:-120V PC:0.5W
Q703	VCBO:-120V PC:0.5W
BV01, BV03	
B802, B805	HB20002001 1S5176, MA165, 1S5254
B701, B702	30V 0.1A SUBSTITUTION DIODE
B703, B704	
BNS1	
B801	HE20015292 54VB-20
B804	VR200V 1F:1A HB200029051 556880 VR:400V 1F:1A

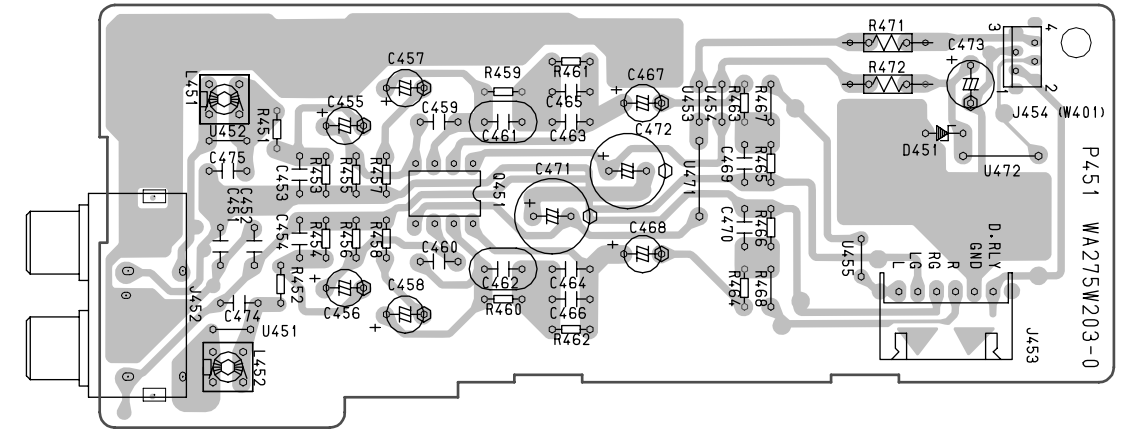
P701

Q704 Q764 Q760 Q756 Q752 Q754 Q758 Q762 QN02  
 Q702 Q705 Q802 QN04 QN03  
 Q701 Q801 Q751 Q753 Q757 Q761 QN01  
 Q703 Q763 Q759 Q755

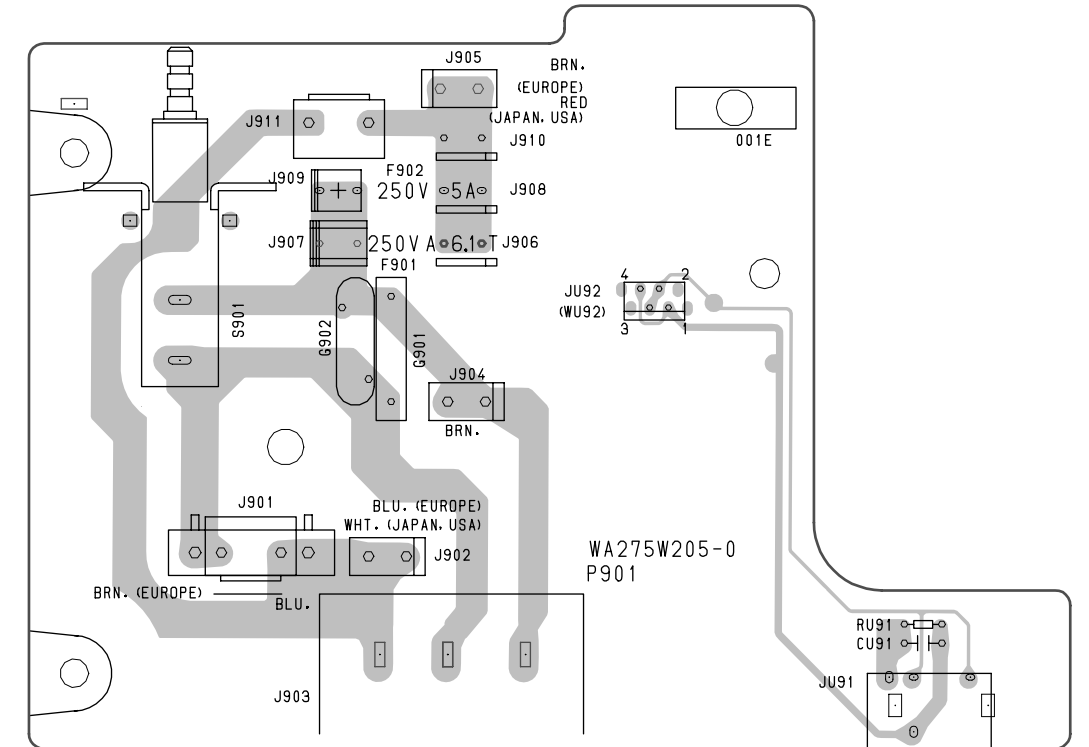


P451

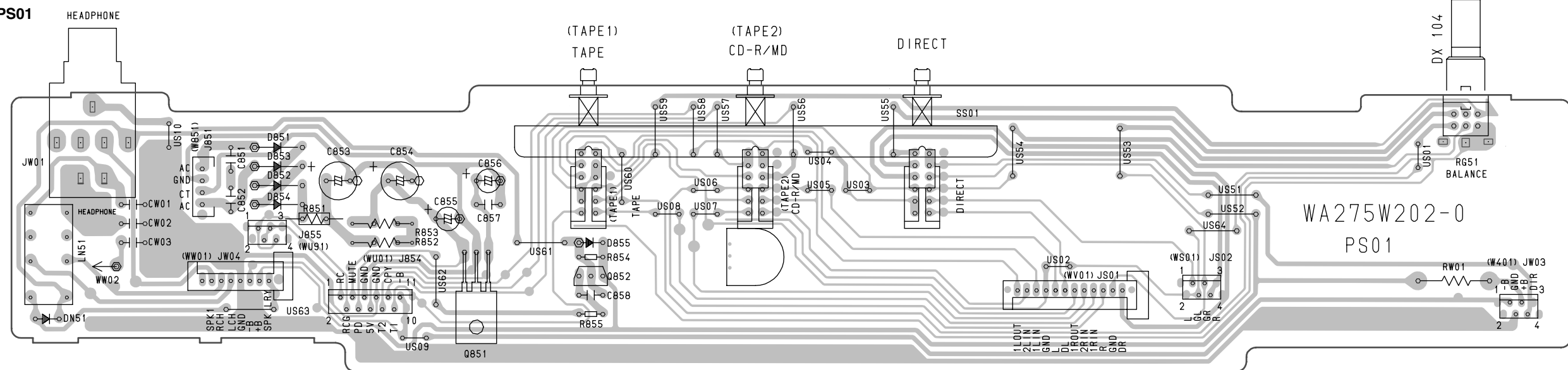
Q451



P901



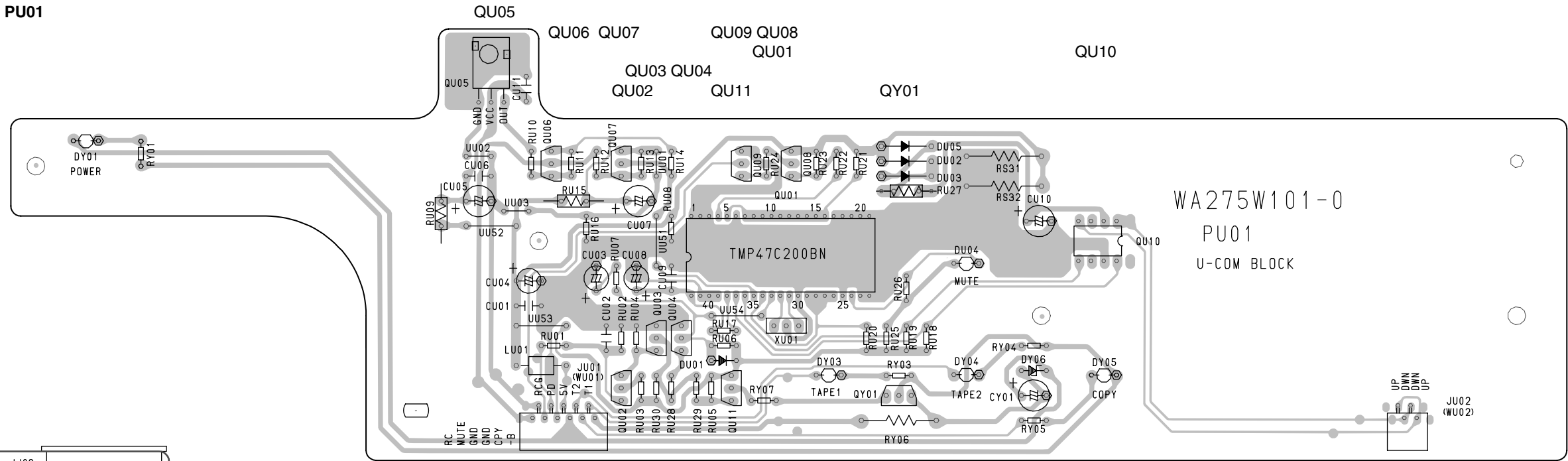
PS01



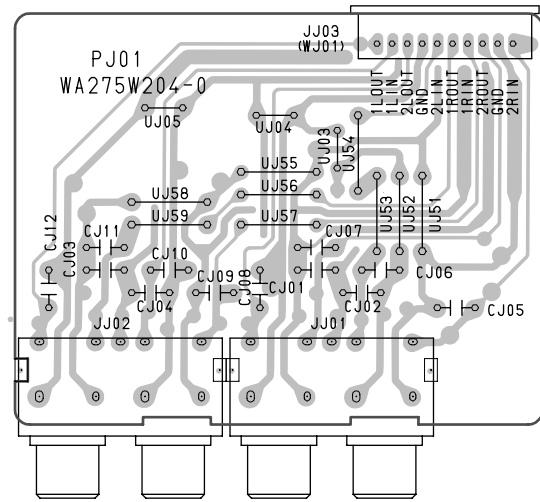
7 Q851 Q852

8

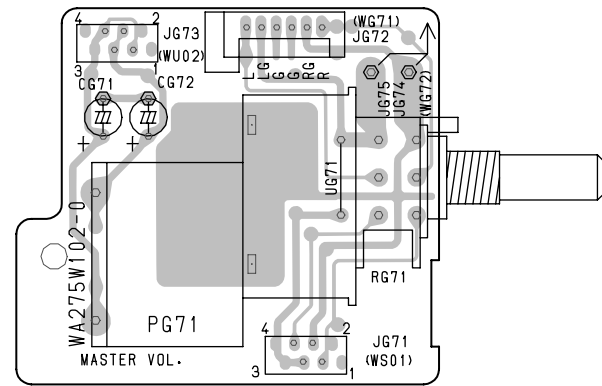
PU01



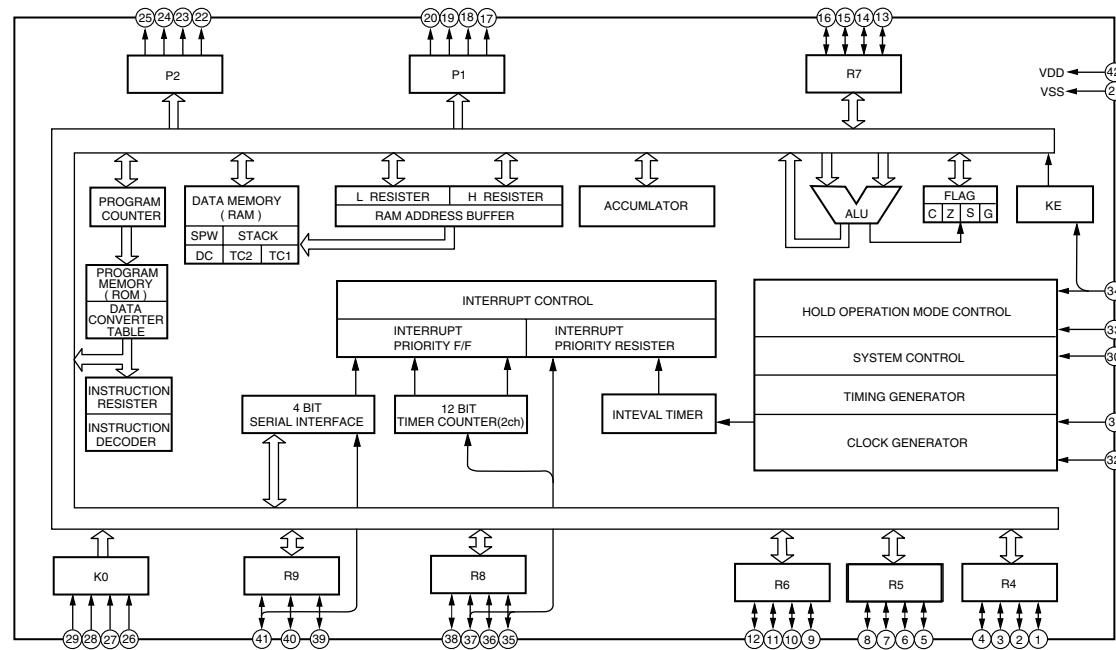
PJ01



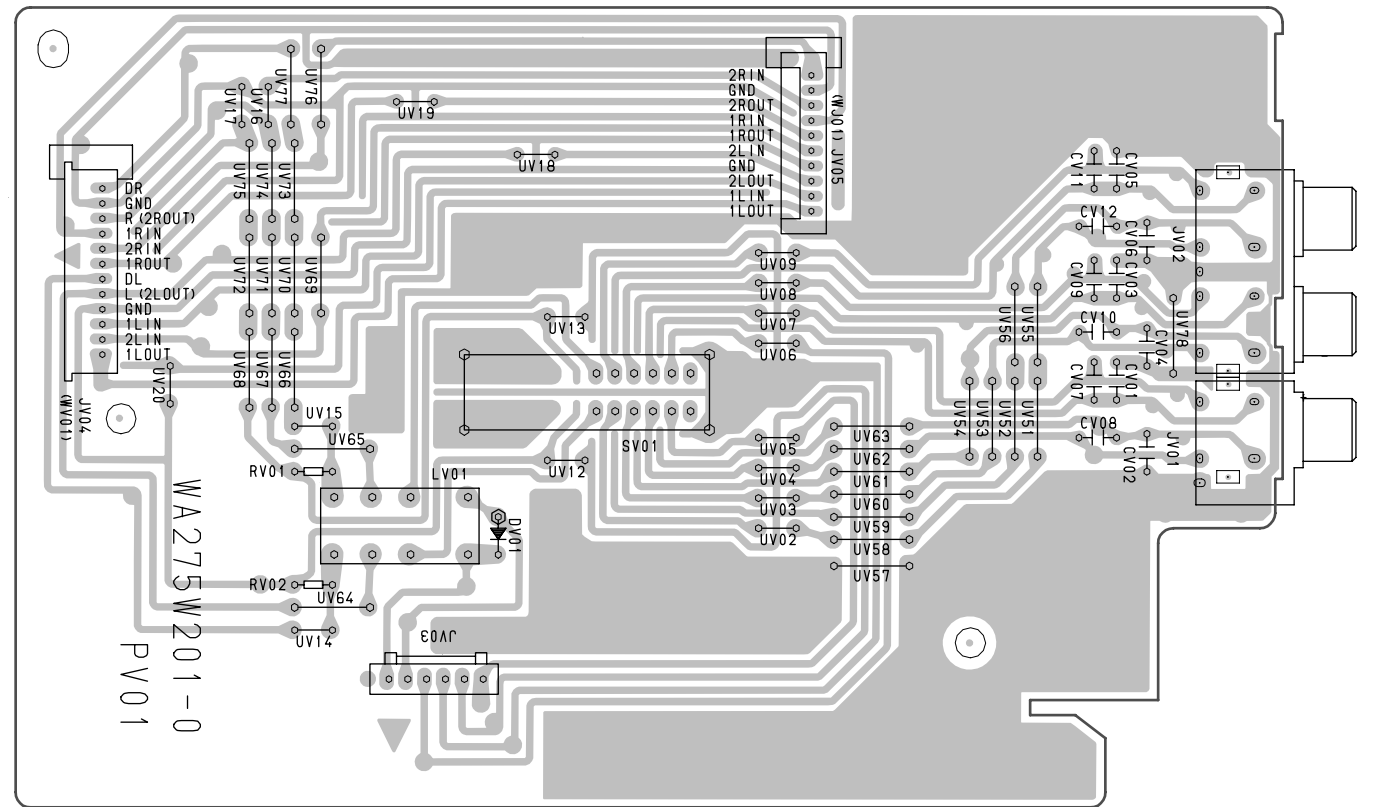
PG71



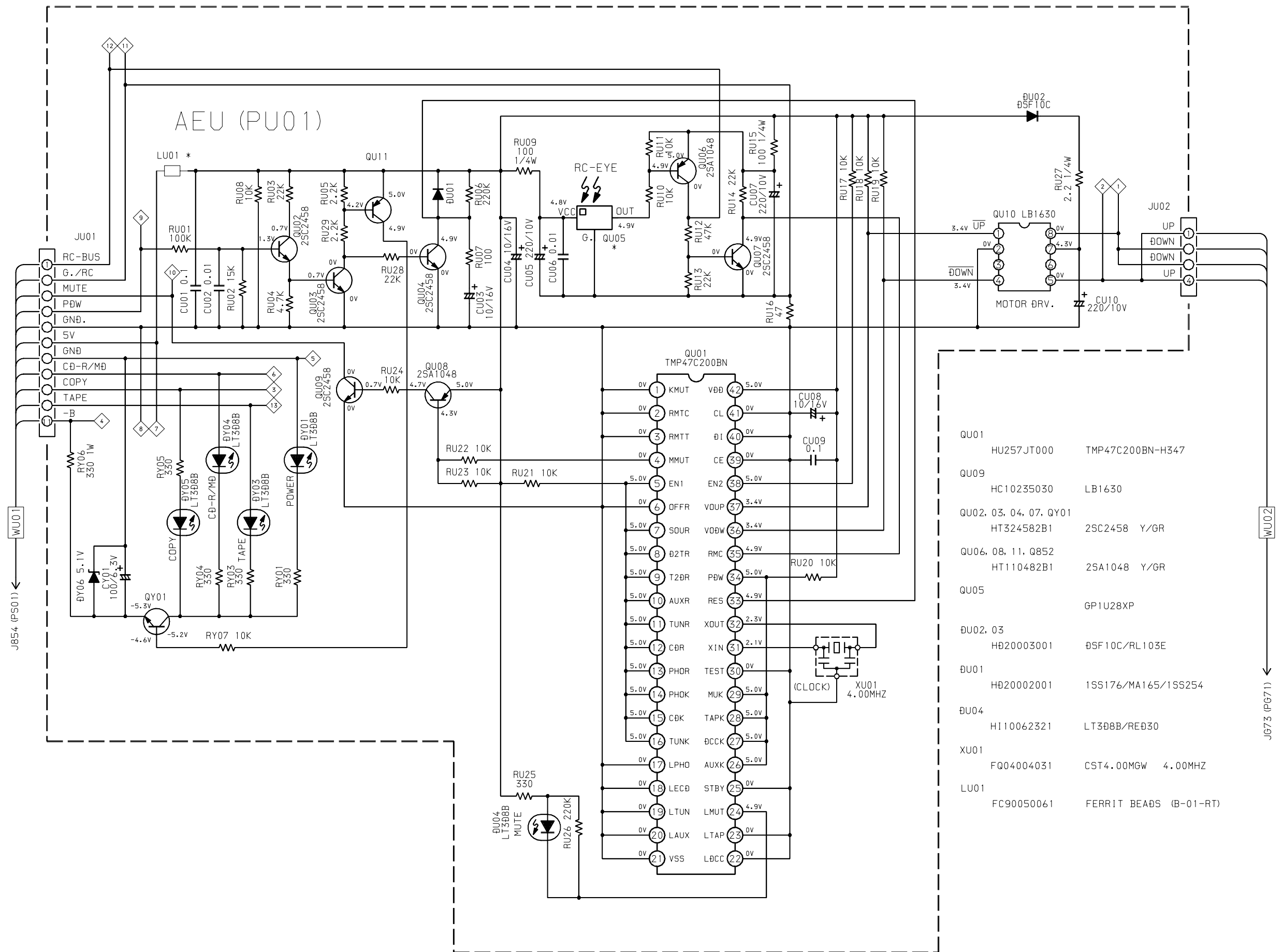
QU01 : TMP47C200BN



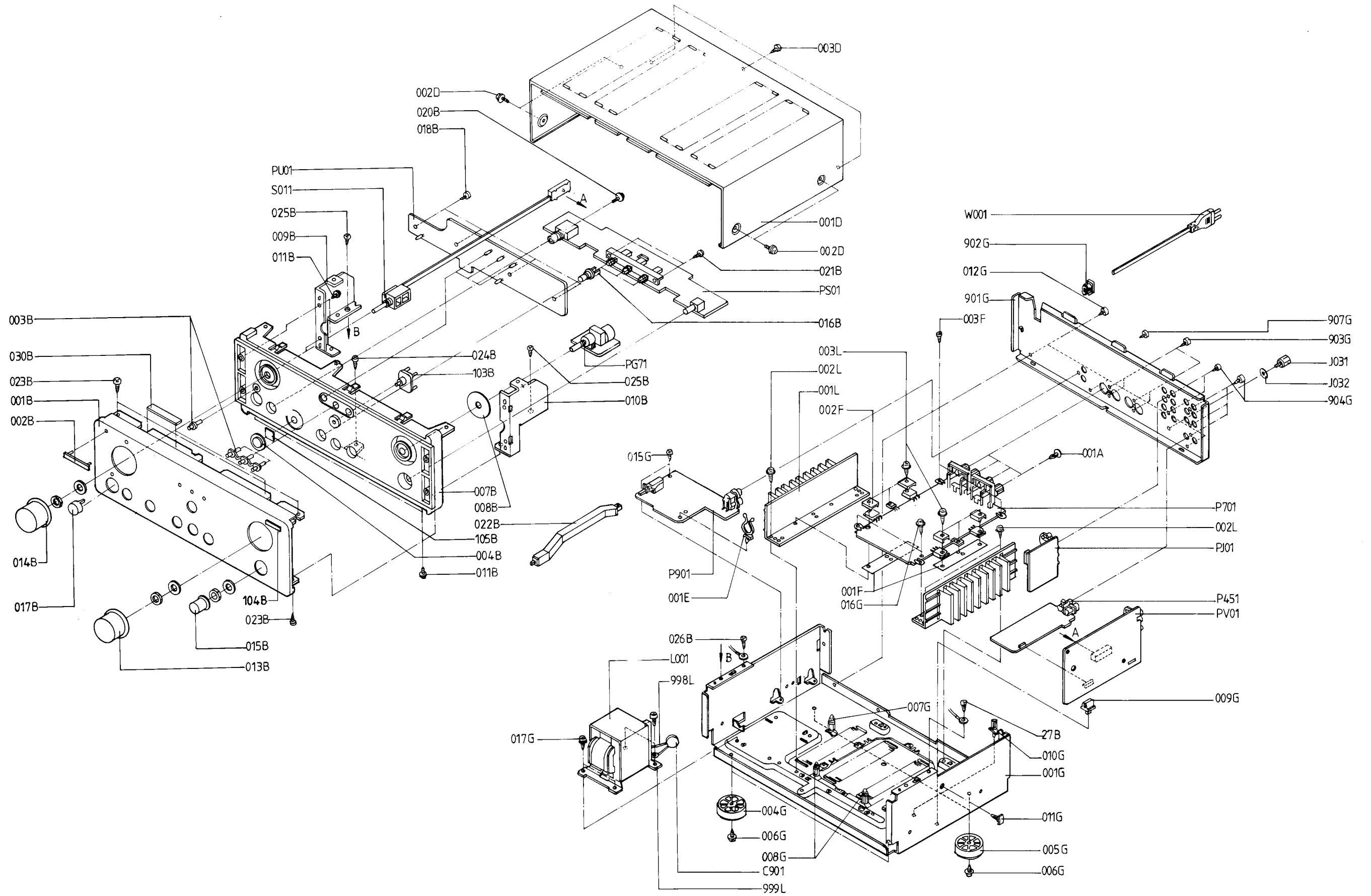
PV01







# 7. EXPLODED VIEW AND PARTS LIST



(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, \*\*:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION
001B	BLACK	3120 201 60320	FRONT AL PANEL
001B	GOLD	3120 201 60330	FRONT AL PANEL
002B		4822 454 11825	BADGE
003B		3120 204 01820	LENS LED (POWER/FUNCTION)
004B	BLACK	3139 114 66790	WINDOW IR BL
004B	GOLD	3139 114 66800	WINDOW IR GL
007B	BLACK	3120 204 01760	FRONT MOULD CHASSIS BL
007B	GOLD	3120 204 01770	FRONT MOULD CHASSIS GL
013B	BLACK	3139 117 88030	KNOB VOL BL
013B	GOLD	3139 117 88090	KNOB VOL GL
014B	BLACK	3139 117 88030	KNOB VOL BL
014B	GOLD	3139 117 88090	KNOB VOL GL
015B	BLACK	3139 114 66750	KNOB ROTARY BL
015B	GOLD	3139 114 88590	KNOB ROTARY GL
016B	BLACK	3139 114 66770	BUTTON PUSH PUSH BL
016B	GOLD	3139 114 88600	BUTTON PUSH PUSH GL
017B	BLACK	4822 410 12499	BUTTON POWER
017B	GOLD	4822 410 12552	BUTTON POWER
022B		3139 114 66970	BRACKET LINK POWER
103B		3139 114 66900	LIGHT GUIDE MUTE
104B		4822 454 13476	BADGE OSE
004G		4822 462 42129	FOOT GL
005G		4822 462 42129	FOOT GL
C901		4822 122 30043	CAP. 10nF 80% 63V
J031		4822 502 13921	SCREW
L001		4822 146 21744	MAINS TRANSFORMER E176/45 IEC
S011		3120 208 40070	SEL FLEX WIRE SRBU04(415MM)
W001		4822 321 11139	MAINS CORD
W401		3139 110 34100	JUMPER LEAD FFC BD 04P 140
WS01		3139 110 33940	JUMPER LEAD FFC BD 04P 180
WU01		3139 110 33980	JUMPER LEAD FFC BD 11P 120
WU02		3139 110 33970	JUMPER LEAD FFC BD 04P 100
WU91		3139 110 33950	JUMPER LEAD FFC BD 04P 240
			<b>PACKING</b>
001T		3120 205 20380	USER GUIDE
Z001		3139 228 82240	REMOTE COMMANDER RC0465/02

## 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

② Disc type  
 ③ Temp.coeff.P350 ~N1000, 50V  
 Capacity value  
 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

④ Disc type  
 Temp.chara. 2B4, 50V  
 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. (  $\text{⏏}$  ), 6) FILM CAP. (  $\text{⏏}$  )

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		
NF02 × × × 140	ERD-2FCG × × ×	(±2% 1/4W)
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 SAFETY :

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

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION
CG71		5322 124 21731	<b>PG71-MASTER VOLUME CIRCUIT BOARD</b> 10μF 20% 50V				<b>PU01-μ-COM. INDICATOR CIRCUIT BOARD</b>
CG72		5322 124 21731	10μF 20% 50V				<b>PU01-CAPACITORS</b>
RG71		4822 101 30885	50K MOTOR VARIABLE	CU01		4822 122 40617	0.1μF 50V
			<b>PJ01-TAPE IN OUT CIRCUIT BOARD</b>	CU02		4822 122 30043	10nF 80% 63V
CJ01		4822 122 30043	10nF 80% 63V	CU03		5322 124 21731	10μF 20% 50V
CJ02		4822 122 30043	10nF 80% 63V	CU04		5322 124 21731	10μF 20% 50V
CJ03		4822 122 30043	10nF 80% 63V	CU05		8239 210 94060	220μF 10V RA2 S10V220U PM20A
CJ04		4822 122 30043	10nF 80% 63V	CU06		4822 122 30043	10nF 80% 63V
CJ05		4822 122 33642	150pF 5% NPO 50V	CU07		8239 210 94060	220μF 10V RA2 S10V220U PM20A
CJ06		4822 122 33642	150pF 5% NPO 50V	CU08		5322 124 21731	10μF 20% 50V
CJ07		4822 122 33642	150pF 5% NPO 50V	CU09		4822 122 40617	0.1μF 50V
CJ08		4822 122 33642	150pF 5% NPO 50V	CU10		8239 210 94060	220μF 10V RA2 S10V220U PM20A
CJ09		4822 122 33642	150pF 5% NPO 50V	CY01		2020 012 90353	100μF 6.3V S6.3V100U PM20T
CJ10		4822 122 33642	150pF 5% NPO 50V				<b>PU01-RESISTORS</b>
CJ11		4822 122 33642	150pF 5% NPO 50V	RU01		4822 050 11004	100K00 1% 0.4W
CJ12		4822 122 33642	150pF 5% NPO 50V	RU02		4822 050 11503	15K00 1% 0.4W
CU91		4822 122 40617	0.1μF 50V	RU03		4822 050 11503	15K00 1% 0.4W
JJ01		4822 267 31452	TERMINAL RCA 4P JACK	RU04		4822 050 14702	4K70 1% 0.4W
JJ02		4822 267 31452	TERMINAL RCA 4P JACK	RU05		4822 050 12202	2K20 1% 0.4W
			<b>PS01-TAPE MONI. PHONE OUT SPK. SW. CIRCUIT BOARD</b>	RU06		4822 050 12204	220K00 1% 0.4W
			<b>PS01-CAPACITORS</b>	RU07		4822 050 11001	100R00 1% 0.4W
C851		4822 122 30043	10nF 80% 63V	RU08		4822 050 11003	10K00 1% 0.4W
C852		4822 122 30043	10nF 80% 63V	RU09		4822 117 12425	100R 5% 0.25W
C853		4822 124 12432	100μF 20% 50V	RU10		4822 050 11003	10K00 1% 0.4W
C854		4822 124 12432	100μF 20% 50V	RU11		4822 050 11003	10K00 1% 0.4W
C855		4822 124 90362	22μF 50V	RU12		4822 050 14703	47K00 1% 0.4W
C856		4822 124 90362	22μF 50V	RU13		4822 050 11503	15K00 1% 0.4W
C857		4822 122 30043	10nF 80% 63V	RU14		4822 050 11503	15K00 1% 0.4W
C858		4822 122 30043	10nF 80% 63V	RU15		4822 117 12425	100R 5% 0.25W
CW01		4822 121 41857	10nF 5% 250V	RU16		4822 050 14709	47R00 1% 0.4W
CW02		4822 121 41857	10nF 5% 250V	RU17		4822 050 11003	10K00 1% 0.4W
			<b>PS01-RESISTORS</b>	RU18		4822 050 11003	10K00 1% 0.4W
▲ R851		4822 117 10158	1R 5% 0.25W	RU19		4822 050 11003	10K00 1% 0.4W
R852		4822 116 60313	10R 0.5W	RU20		4822 050 11003	10K00 1% 0.4W
R853		4822 116 60313	10R 0.5W	RU21		4822 050 11003	10K00 1% 0.4W
R854		4822 050 11004	100K00 1% 0.4W	RU22		4822 050 11003	10K00 1% 0.4W
R855		4822 050 11003	10K00 1% 0.4W	RU23		4822 050 11003	10K00 1% 0.4W
RG51		4822 100 30138	100K x 2 VARIABLE	RU24		4822 050 11003	10K00 1% 0.4W
RW01		4822 116 60455	270R 5% 2W	RU25		4822 050 13301	330R00 1% 0.4W
			<b>PS01-SEMICONDUCTORS</b>	RU26		4822 050 12204	220K00 1% 0.4W
▲ D851		4822 130 32508	DIODE DSF10C	RU27		4822 116 60309	12R2 0.25W
▲ D852		4822 130 32508	DIODE DSF10C	RU28		4822 050 11503	15K00 1% 0.4W
▲ D853		4822 130 32508	DIODE DSF10C	RU29		4822 050 12202	2K20 1% 0.4W
▲ D854		4822 130 32508	DIODE DSF10C	RY01		4822 050 13301	330R00 1% 0.4W
D855		3120 004 56210	DIODE 1SS131-77	RY03		4822 050 13301	330R00 1% 0.4W
DN51		3120 004 56210	DIODE 1SS131-77	RY04		4822 050 13301	330R00 1% 0.4W
▲ Q851		4822 209 71903	IC NJM78M05A REGULATOR	RY05		4822 050 13301	330R00 1% 0.4W
Q852		4822 130 42372	TRS. 2SA1048Y	RY06		4822 116 60494	330R00 1W
			<b>PS01-MISCELLANEOUS</b>	RY07		4822 050 11003	10K00 1% 0.4W
JW01	BLACK	4822 267 31479	SOCKET HEADPHONE				<b>PU01-SEMICONDUCTORS</b>
JW01	GOLD	8239 210 96380	SOCKET HEADPHONE	DU01		3120 004 56210	DIODE 1SS131-77
LN51		4822 280 20501	RELAY MR62-24SR	DU02		4822 130 32508	DIODE DSF10C
SS01		3120 208 40080	SWITCH PUSH	DU04		4822 130 80326	LED GL3HD8
				DY01		4822 130 80326	LED GL3HD8
				DY03		4822 130 80326	LED GL3HD8
				DY04		4822 130 80326	LED GL3HD8
				DY05		4822 130 80326	LED GL3HD8
				DY06		4822 130 80317	ZENER DIODE MTZJ5.1B
				QU01		4822 209 90571	μ-COM. TMP47C200BN-H347
				QU02		4822 130 60904	TRS. 2SC2458Y
				QU03		4822 130 60904	TRS. 2SC2458Y
				QU04		4822 130 60904	TRS. 2SC2458Y
				QU05		4822 130 10165	IR RECEIVER GP1U28XP
				QU06		4822 130 42372	TRS. 2SA1048Y
				QU07		4822 130 60904	TRS. 2SC2458Y
				QU08		4822 130 42372	TRS. 2SA1048Y

(VERS.:VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, \*\*:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION
QU09		4822 130 60904	TRS. 2SC2458Y	R454		4822 050 11004	100K00 1% 0.4W
QU10		4822 209 73287	IC 4LB1630	R455		4822 050 11004	100K00 1% 0.4W
QU11		4822 130 42372	TRS. 2SA1048Y	R456		4822 050 11004	100K00 1% 0.4W
QY01		4822 130 60904	TRS. 2SC2458Y	R457		4822 050 11201	120R00 1% 0.4W
			<b>PU01-MISCELLANEOUS</b>	R458		4822 050 11201	120R00 1% 0.4W
LU01		4822 158 60605	FERRITE BEAD	R459		4822 050 11004	100K00 1% 0.4W
XU01		4822 242 72527	CER. RESONATOR 4.00MHZ CST4.00MGW-TF01	R460		4822 050 11004	100K00 1% 0.4W
			<b>PV01-TONE CONTROL CIRCUIT BOARD</b>	R461		4822 050 15602	5K60 1% 0.4W
			<b>PV01-CAPACITORS</b>	R462		4822 050 15602	5K60 1% 0.4W
CV01		4822 122 30043	10nF 80% 63V	R463		4822 050 12201	220R00 1% 0.4W
CV02		4822 122 30043	10nF 80% 63V	R464		4822 050 12201	220R00 1% 0.4W
CV03		4822 122 30043	10nF 80% 63V	R465		4822 050 14703	47K00 1% 0.4W
CV04		4822 122 30043	10nF 80% 63V	R466		4822 050 14703	47K00 1% 0.4W
CV05		4822 122 30043	10nF 80% 63V	R471		4822 111 90731	47E 2% 0.25W
CV06		4822 122 30043	10nF 80% 63V	R472		4822 052 10479	47R00 5% 0.33W
CV07		4822 122 33642	150pF 5% NPO 50V				<b>P451-SEMICONDUCTORS</b>
CV08		4822 122 33642	150pF 5% NPO 50V	D451		8239 210 96350	ZENER DIODE MTZ J 16
CV09		4822 122 33642	150pF 5% NPO 50V	Q451		4822 209 73064	IC NJM2068DD
CV10		4822 122 33642	150pF 5% NPO 50V				<b>P451-MISCELLANEOU</b>
CV11		4822 122 33642	150pF 5% NPO 50V	J452		3120 200 20170	TERMINAL RCA 2P JACK
CV12		4822 122 33642	150pF 5% NPO 50V				<b>P701-POWER AMP. CIRCUIT BOARD</b>
			<b>PV01-RESISTORS</b>				<b>P701-CAPACITORS</b>
RV01		4822 050 11005	1M00 1% 0.4W	C701		4822 124 12434	220µF 20% 16V
RV02		4822 050 11005	1M00 1% 0.4W	C702		4822 124 12434	220µF 20% 16V
			<b>PU01-SEMICONDUCTOR</b>	C703		4822 126 11071	330pF
DV01		3120 004 56210	DIODE 1SS131-77	C704		4822 126 11071	330pF
			<b>PV01-MISCELLANEOUS</b>	C705		4822 124 12023	47µF 20% 25V
JV01		4822 265 10311	TERMINAL RCA 2P JACK	C706		4822 124 12023	47µF 20% 25V
JV02		4822 267 31452	TERMINAL RCA 4P JACK	C707		4822 126 11069	150pF
LV01		4822 280 20501	RELAY MR62-24SR	C708		4822 126 11069	150pF
SV01		4822 277 21412	SWITCH INPUT SELECTOR	C709		4822 126 10364	100pF 50V
			<b>P451-PHONO AMP. CIRCUIT BOARD</b>	C710		4822 126 10364	100pF 50V
			<b>P451-CAPACITORS</b>	C711		8220 200 82260	5pF POCAP TC04N-FE92 2H100D5P
C451		4822 122 30043	10nF 80% 63V	C712		8220 200 82260	5pF POCAP TC04N-FE92 2H100D5P
C452		4822 122 30043	10nF 80% 63V	C713		8220 200 82270	10pF TC04N-FE92 2H100DSP
C453		4822 126 12671	330pF 10% YB 50V	C714		8220 200 82270	10pF TC04N-FE92 2H100DSP
C454		4822 126 12671	330pF 10% YB 50V	C717		4822 124 90366	220µF 50V
C455		5322 124 21731	10µF 20% 50V	C718		4822 124 90366	220µF 50V
C456		5322 124 21731	10µF 20% 50V	C719		8239 210 95430	220µF 25V RA2 S25V220U PM20T
C457		4822 124 41539	47µF 16V	C720		8239 210 94060	220µF 10V RA2 S10V220U PM20A
C458		4822 124 41539	47µF 16V	C751		4822 124 12023	47µF 20% 25V
C459		5322 122 32311	470pF 10% 100V	C752		4822 124 12023	47µF 20% 25V
C460		5322 122 32311	470pF 10% 100V	C753		8239 210 95210	120pF PPCAP ECQ-P S100V120P
C461		4822 121 43526	47nF 5% 250V	C754		8239 210 95210	120pF PPCAP ECQ-P S100V120P
C462		4822 121 43526	47nF 5% 250V	C755		8239 210 95210	120pF PPCAP ECQ-P S100V120P
C463		4822 121 51574	12nF 5% 50V	C756		8239 210 95210	120pF PPCAP ECQ-P S100V120P
C464		4822 121 51574	12nF 5% 50V	C757		4822 121 42868	220nF 5% 50V
C465		4822 121 43897	1nF 5% 400V	C758		4822 121 42868	220nF 5% 50V
C466		4822 121 43897	1nF 5% 400V	C759		4822 121 42868	220nF 5% 50V
C467		4822 124 40763	2.2µF 100 V	C760		4822 121 42868	220nF 5% 50V
C468		4822 124 40763	2.2µF 100 V	C801		8220 200 82191	12000µF 56V S56V12000UPM20B
C469		5322 121 42927	3.9nF 5% 250V	C802		8220 200 82191	12000µF 56V S56V12000UPM20B
C470		5322 121 42927	3.9nF 5% 250V	C804		4822 122 30043	10nF 80% 63V
C471		4822 124 22238	100µF 25V	C805		4822 124 40207	100µF 20% 25V
C472		4822 124 22238	100µF 25V	C806		4822 124 12432	100µF 20% 50V
C473		4822 124 40207	100µF 20% 25V	C807		4822 124 12432	100µF 20% 50V
			<b>P451-RESISTORS</b>	C808		4822 124 12432	100µF 20% 50V
R451		4822 050 11002	1K00 1% 0.4W	C809		4822 122 30043	10nF 80% 63V
R452		4822 050 11002	1K00 1% 0.4W	CN01		4822 124 80067	4.7µF 20% 63V
R453		4822 050 11004	100K00 1% 0.4W	CN02		4822 124 21913	1µF 20% 63V
				CN03		2020 308 90066	10nF 50V AMZV 50V10N PM5A
				CN04		4822 124 40433	47µF 20% 25V
				CN05		8239 210 94110	33µF 10V RA2 S10V33U PM20A
				CW51		4822 122 30043	10nF 80% 63V
				CW52		4822 122 30043	10nF 80% 63V

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			<b>P701-RESISTORS</b>				
R701		4822 050 11001	100R00 1% 0.4W	RN10		4822 050 14703	47K00 1% 0.4W
R702		4822 050 11001	100R00 1% 0.4W	RN12		4822 050 11004	100K00 1% 0.4W
R703		4822 050 14703	47K00 1% 0.4W	RN14		4822 050 14703	47K00 1% 0.4W
R704		4822 050 14703	47K00 1% 0.4W	RN15		4822 050 12204	220K00 1% 0.4W
R705		4822 050 13303	33K00 1% 0.4W	RN16		4822 050 11503	15K00 1% 0.4W
R706		4822 050 13303	33K00 1% 0.4W	RN18		4822 050 15602	5K60 1% 0.4W
R707		4822 050 12701	270R00 1% 0.4W	RN19		4822 050 16803	68K00 1% 0.4W
R708		4822 050 12701	270R00 1% 0.4W	RN20		4822 050 16803	68K00 1% 0.4W
R709		4822 050 11002	1K00 1% 0.4W	RN21		4822 050 11503	15K00 1% 0.4W
R710		4822 050 11002	1K00 1% 0.4W	RN51		4822 053 10331	330R00 5% 1W
R711		4822 050 11003	10K00 1% 0.4W	RN52		4822 053 10331	330R00 5% 1W
R712		4822 050 11003	10K00 1% 0.4W				<b>P701-SEMICONDUCTORS</b>
R713		4822 050 23303	33K00 1% 0.6W	D701		3120 004 56210	DIODE 1SS131-77
R714		4822 050 23303	33K00 1% 0.6W	D702		3120 004 56210	DIODE 1SS131-77
R719		4822 050 26809	68R00 1% 0.6W	D703		3120 004 56210	DIODE 1SS131-77
R720		4822 050 26809	68R00 1% 0.6W	D704		3120 004 56210	DIODE 1SS131-77
R721		4822 050 26809	68R00 1% 0.6W	D705		4822 130 80273	DIODE MTZJ8.2C
R722		4822 050 26809	68R00 1% 0.6W	D706		4822 130 80322	DIODE MTZJ16A
R723		4822 050 11004	100K00 1% 0.4W	D801		4822 130 31007	DIODE S4VB20
R724		4822 050 11004	100K00 1% 0.4W	D802		3120 004 56210	DIODE 1SS131-77
R725		4822 050 16803	68K00 1% 0.4W	D803		3120 004 56210	DIODE 1SS131-77
R726		4822 050 16803	68K00 1% 0.4W	D804		8239 210 96370	ZENER DIODE MTZ J 24
R727		4822 050 11009	10R00 1% 0.4W	D805		8239 210 96360	ZENER DIODE MTZ J 18
R728		4822 050 11009	10R00 1% 0.4W	D806		4822 130 80839	DIODES5688G
R731		4822 050 16802	6K80 1% 0.4W	DN01		3120 004 56230	DIODE 1SS131-77
R732		4822 117 11859	2K2 5% 2W	DN02		3120 004 56230	DIODE 1SS131-77
R733		4822 116 60313	10R 0.5W	DN03		3120 004 56210	DIODE 1SS131-77
R734		4822 116 60313	10R 0.5W				
R751		4822 050 11003	10K00 1% 0.4W	Q701		4822 130 42949	TRS. 2SA970GR
R752		4822 050 11003	10K00 1% 0.4W	Q702		4822 130 42949	TRS. 2SA970GR
R753		4822 050 14702	4K70 1% 0.4W	Q703		4822 130 43233	TRS. 2SC2240GR
R754		4822 050 14702	4K70 1% 0.4W	Q704		4822 130 43233	TRS. 2SC2240GR
R755		4822 101 11166	2K2	Q705		4822 209 83732	IC AN7062P
R756		4822 101 11166	2K2	Q751		4822 130 60526	TRS. 2SD1508
R757		4822 052 10101	100R00 5% 0.33W	Q752		4822 130 60526	TRS. 2SD1508
R758		4822 052 10101	100R00 5% 0.33W	Q753		4822 130 43233	TRS. 2SC2240GR
R759		4822 052 10101	100R00 5% 0.33W	Q754		4822 130 43233	TRS. 2SC2240GR
R760		4822 052 10101	100R00 5% 0.33W	Q755		4822 130 42949	TRS. 2SA970GR
R761		4822 052 10102	1K00 5% 0.33W	Q756		4822 130 42949	TRS. 2SA970GR
R762		4822 052 10102	1K00 5% 0.33W	Q757		4822 130 62335	TRS. 2SD2033A
R763		4822 116 60494	330R00 5% 1W	Q758		4822 130 62335	TRS. 2SD2033A
R764		4822 116 60494	330R00 5% 1W	Q759		4822 130 62334	TRS. 2SB1353E
R765		4822 116 83963	2R2 5% 0.25W	Q760		4822 130 62334	TRS. 2SB1353E
R766		4822 116 83963	2R2 5% 0.25W	▲ Q761		4822 130 10943	TRS. 2SC5198
R767		4822 111 91402	0R1 x 2 3W	▲ Q762		4822 130 10943	TRS. 2SC5198
R768		4822 111 91402	0R1 x 2 3W	▲ Q763		4822 130 10942	TRS. 2SA1941
R769		4822 117 10028	220R 5% 0.25W	▲ Q764		4822 130 10942	TRS. 2SA1941
R770		4822 117 10028	220R 5% 0.25W	Q801		4822 130 63312	TRS. 2SC4883 O/Y
R771		8239 210 95370	10R00 3W RST 10E 3W PM5	Q802		4822 130 63308	TRS. 2SA1859 O/Y
R772		8239 210 95370	10R00 3W RST 10E 3W PM5	QN01		4822 130 43233	TRS. 2SC2240GR
R773		4822 116 83963	2R2 5% 0.25W	QN02		4822 130 43233	TRS. 2SC2240GR
R774		4822 116 83963	2R2 5% 0.25W	QN03		4822 130 42949	TRS. 2SA970GR
R801		4822 116 60306	1R00 5% 0.5W RESISTOR	QN04		4822 209 83312	IC TA7317P
R802		4822 050 24709	47R00 1% 0.6W				<b>P701-MISCELLANEOUS</b>
R803		4822 116 60306	1R00 5% 0.5W RESISTOR	JW51		4822 290 91363	TERMINAL SPEAKER
R804		4822 111 90731	47E 2% 0.25W	JW52		4822 290 91364	TERMINAL SPEAKER
R805		4822 117 12426	1K2 0.25W	L751		4822 157 63085	COIL
R806		4822 117 12426	1K2 0.25W	L752		4822 157 63085	COIL
R807		4822 113 90119	22E 0.25W	LN01		4822 280 70354	RELAY VB-24MBU-510
R810		4822 117 11858	150R 5% 3W				<b>P901-POWER SWITCH FUSE</b>
RN01		4822 050 12201	220R00 1% 0.4W				<b>CIRCUIT BOARD</b>
RN02		4822 050 12201	220R00 1% 0.4W	G901		4822 121 43732	CAP. 0.01μF 20% 250V
RN03		4822 050 11002	1K00 1% 0.4W				
RN04		4822 050 11002	1K00 1% 0.4W	▲ F902		48822 533 30415	FUSE T1.6A 250V
RN05		4822 050 11503	15K00 1% 0.4W	JU91		4822 267 41009	TERMINAL RCA 2P JACK
RN06		4822 050 11503	15K00 1% 0.4W	S901		2422 128 02898	SWITCH PUSH 1P 5A/80A
RN07		4822 050 11503	15K00 1% 0.4W				
RN08		4822 050 11503	15K00 1% 0.4W				
RN09		4822 050 16802	6K80 1% 0.4W				