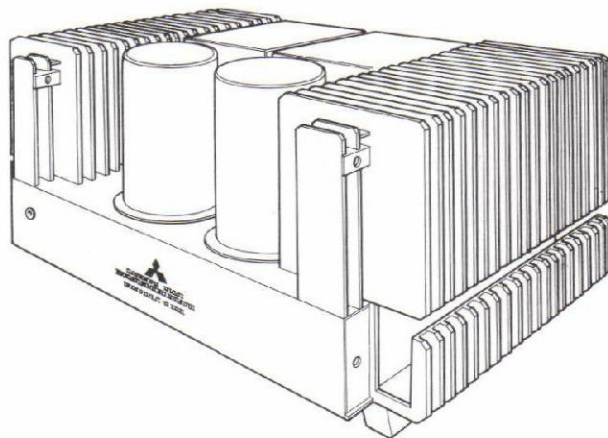
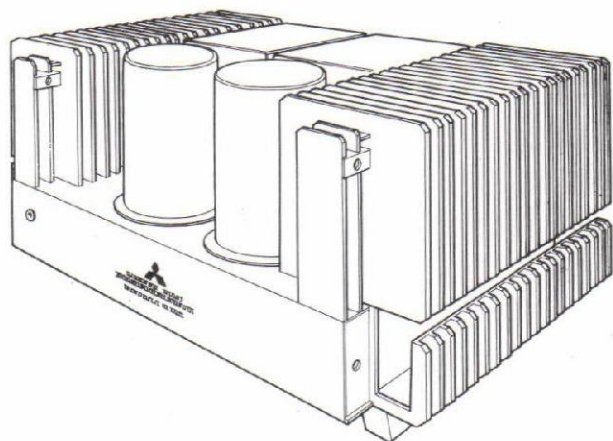



MITSUBISHI
STEREO POWER
AMPLIFIER
DA-A10/A15

SERVICE MANUAL



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Item	Specification	Remarks
Continuous Power Output	100 W/ 100 W (8 ohms) 135 W/ 135 W (4 ohms)	both channels driven from 20 Hz to 20 KHz
Total Harmonic Distortion	0.1 % (continuous rated output) 0.02 % (1 W per channel)	20. Hz to 20 KHz
Intermodulation Distortion	0.1 % (continuous rated output) 0.02 % (1 W per channel)	60 Hz and 7 KHz 4:1
Power Bandwidth	10 - 50,000 Hz	IHF (-3 dB), THD 0.1 %
Frequency Response	20 - 20,000 Hz \pm 0.1 dB (continuous rated output) 10 -100,000 Hz \pm 0 dB (0.5 W output) 1.0	
Input Sensitivity	1 V (variable)	
Input Impedance	50 Kohms	
Damping Factor	100	8 ohms, 20 Hz to 20 KHz
Channel Separation	90 dB (1 KHz) 80 dB (20 KHz)	
Hum and Noise	0.27 mV	input short-circuited, unweighted
Signal to Noise Ratio	100 dB	input short-circuited, unweighted
Square Wave Response	0.7 micro-seconds rise-time	20 Hz to 20 KHz
Slew Rate	15 V/micro-second	10 V p-p output
Power Consumption	380 W (continuous rated output) 240 W (1/10 continuous rated output)	
Dimensions	16-3/4(W) x 6-3/4(H) x 11-1/4(D)"	425 x 170 x 285 mm
Weight	36-1/2 lbs	16.5 kg
Circuits	(1) Dual Monaural Construction (2) Differential Amplifying 2-Stage Current Mirror Drive Circuit (3) Symmetrical Full Complimentary 3-Stage Darlington OCL Output Circuit (4) Relay Protection Circuit	

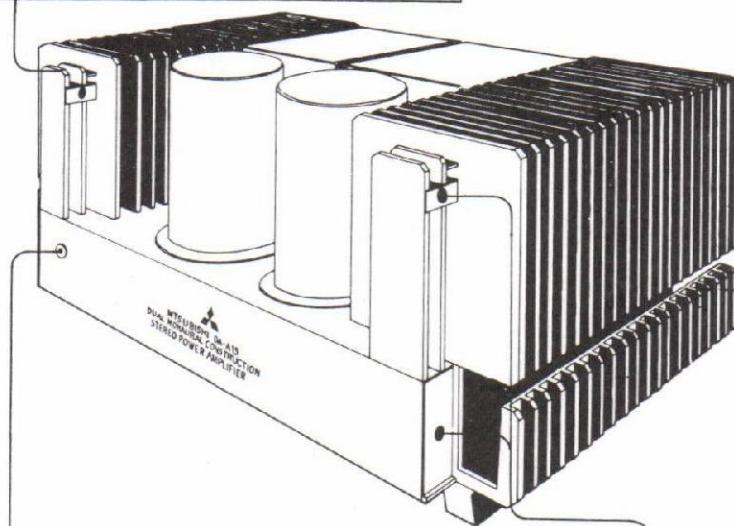
Item	Specification	Remarks
Continuous Power Output	150 W/ 150 W (8 ohms) 200 W/ 200 W (4 ohms)	both channels driven from 20 Hz to 20 KHz
Total Harmonic Distortion	0.1 % (continuous rated output) 0.02 % (1 W per channel)	20 Hz to 20 KHz
Intermodulation Distortion	0.1 % (continuous rated output) 0.02 % (1 W per channel)	60 Hz and 7 KHz 4:1
Power Bandwidth	10 - 50,000 Hz	IHF (-3 dB), THD 0.1 %
Frequency Response	20 - 20,000 Hz \pm 0.1 dB (continuous rated output) 10 - 100,000 Hz \pm 0 dB (0.5 W output)	
Input Sensitivity	1 V (variable)	
Input Impedance	50 Kohms	
Damping Factor	100	8 ohms, 20 Hz to 20 KHz
Channel Separation	90 dB (1 KHz) 80 dB (20 KHz)	
Hum and Noise	0.3 mV	input short-circuited, unweighted
Signal to Noise Ratio	101 dB	input short-circuited, unweighted
Square Wave Response	0.7 micro-seconds rise-time	20 Hz to 20 KHz
Slew Rate	15 V/micro-second	10 V p-p output
Power Consumption	520 W (continuous rated output) 320 W (1/10 continuous rated output)	
Dimensions	16-3/4(W) x 6-3/4(H) x 11-1/4(D)"	425 x 170 x 285 mm
Weight	40 lbs	18 kg
Circuits	(1) Dual Monaural Construction (2) Differential Amplifying 2-Stage Current Mirror Drive Circuit (3) Symmetrical Full Complimentary 3-Stage Darlington OCL Output Circuit (4) Relay Protection Circuit	

COMPONENTS AND FUNCTIONS

DA-A10, DA-15 Front Section

THERMAL INDICATOR

When temperature of the radiator exceeds 60°C (140°F), this label turns out to be black from red. At this time, do not touch the radiator.



POWER INDICATOR

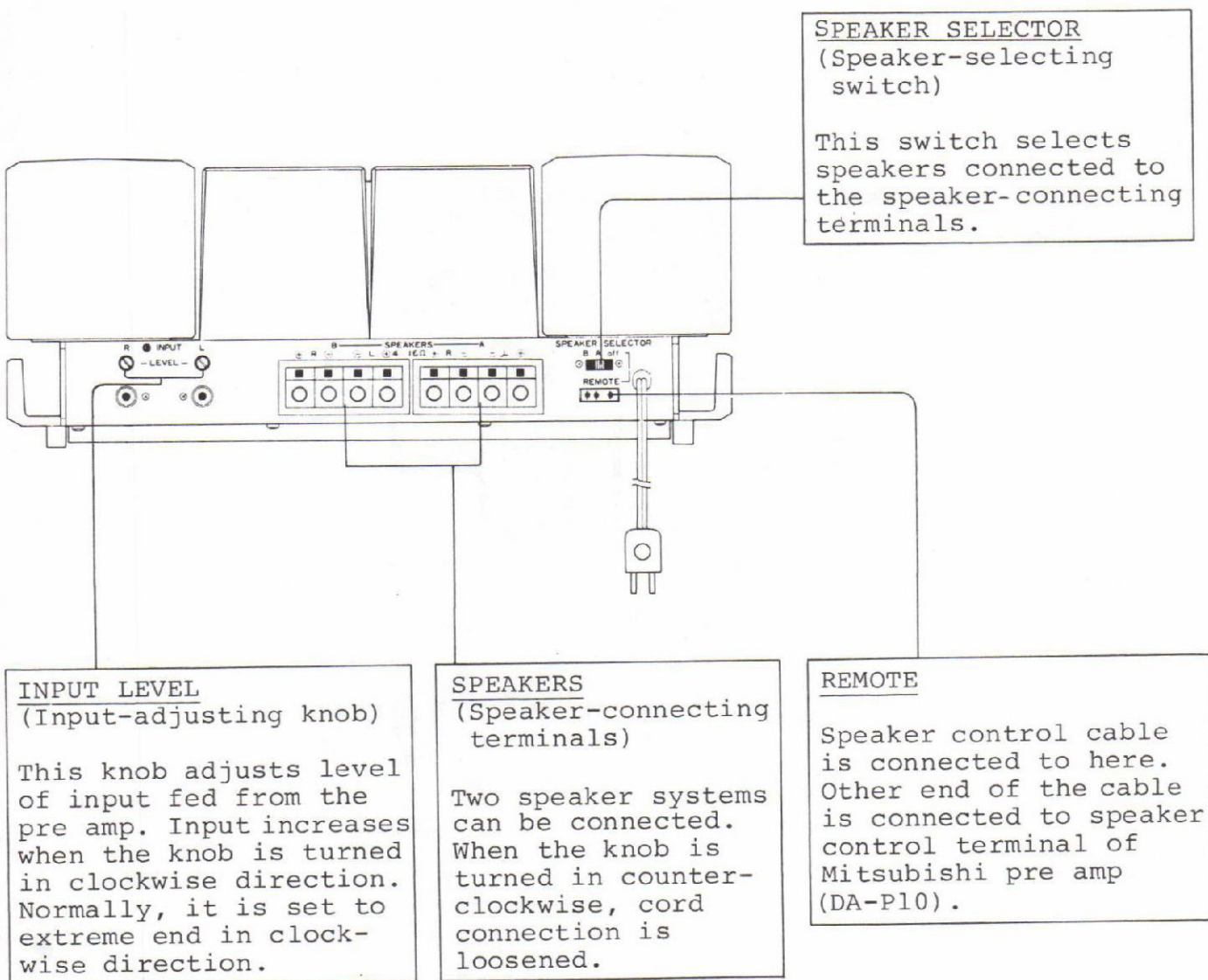
When the amp power supply is turned on, this indicator lights in red.

DUCT

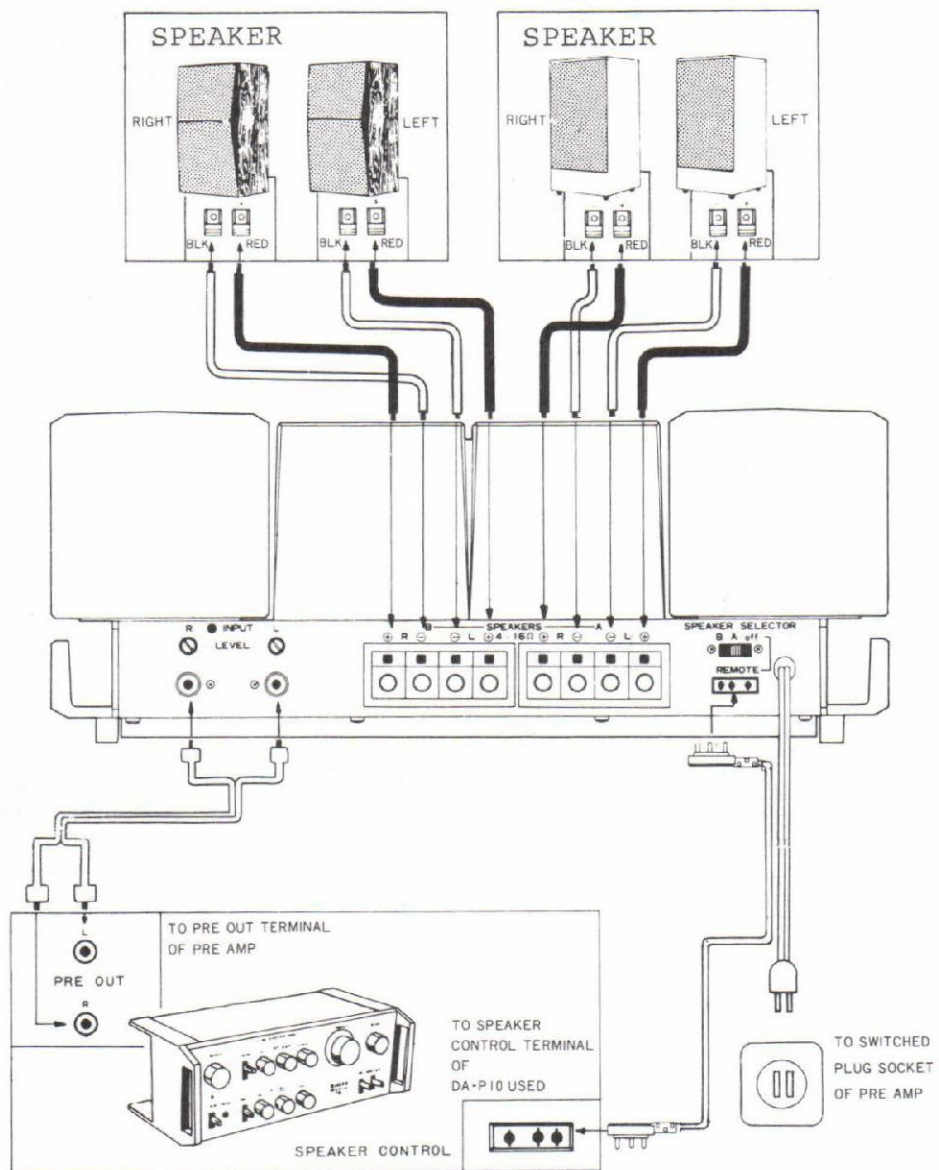
The duct contains connecting cord and power cord.

HANDLE MOUNTING HOLES

DA-A10, DA-A15 Rear Section



CONNECTION



CONNECTING NOTES

Before connection, turn off the power supply at all times.

Otherwise, the speakers are liable to be damaged by click noise caused when the cord is plugged in or out.

Avoid wrong connection

In case of incorrect connections such as reverse connection of R and L of terminal as well as (+) and (-) of speaker, or short circuit, stable sound cannot be obtained or the protective circuit remains operated.

Correctly make input terminal connection

When pin plug is loosely connected or disconnected, hum occurs and the protective circuit starts.

Use shielded wire for input terminal connection

Use a shielded wire of not more than 2m long.

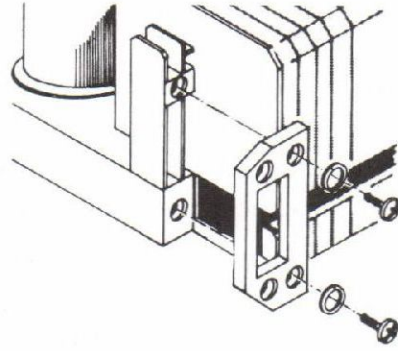
Use speaker having nominal impedance ranging from 4 to 16 Ω

In this machine, when load impedance reaches 4 Ω or less, the protective circuit starts, resulting interruption of sound.

Strip wire sheath at tip of speaker cord in approximately 15mm, and then connect it to speaker output terminal.

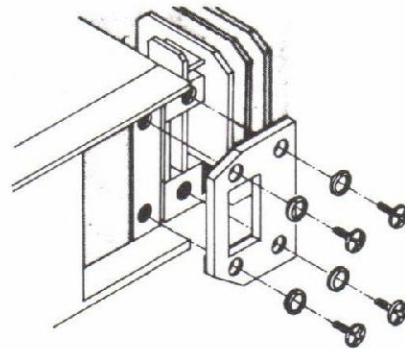
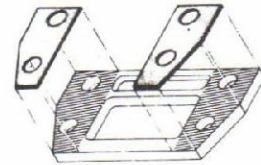
HANDLE ATTACHMENT

- 1) Remove screws and washers from the radiator and duct.
- 2) Attach a provided handle on right side with screws as shown.
- 3) After the right side, proceed the left side similarly.



Attaching Procedure:

- 1) Affix provided rubber sheets on the handle as shown to protect the handle from damage.
- 2) Remove two couples of screws and washers from the power amp and pre amp respectively.
- 3) Attach and fix the handle on right side with four screws as shown.
- 4) After the right side, proceed the left side similarly.



SERVICING NOTES

When you find the following troubles, confirm whether other audio equipment correctly functions and is properly connected to this machine, and then check the following items.

1. Power supply is not turned on

- Incomplete plug-in of the power supply cord
- Power supply fuse is broken.

2. No sound is not produced

- Improper switch setting
- Protective circuit remains operated.

In this case, nominal impedance of the speaker drops below 4Ω ; use the speaker having nominal impedance of 4 to 16Ω .

- Incomplete plug-in of speaker cord and pin plug.
- Contact of (+) and (-) wires of speaker cord
- Imbalance of volume at right and left sides.

In this case, readjust BALANCE knob of the pre amp.

3. Noise is produced

- Player is not earthed.
- Output cord of player is placed close to power supply cord.
- Incomplete plug-in of pin plug

4. Sound quality is deteriorated

- Howling

It occurs when vibration of the speaker transmits to the player. To avoid howling, keep the speaker apart from the player as far as possible. Moreover, it is recommended to use insulator that is placed under the player to greatly absorb vibration.

5. Stereo sound and treble cannot be obtained

- Reverse connection of (+) and (-) of speaker cord

- Reverse connection of R and L of input terminal

6. Other

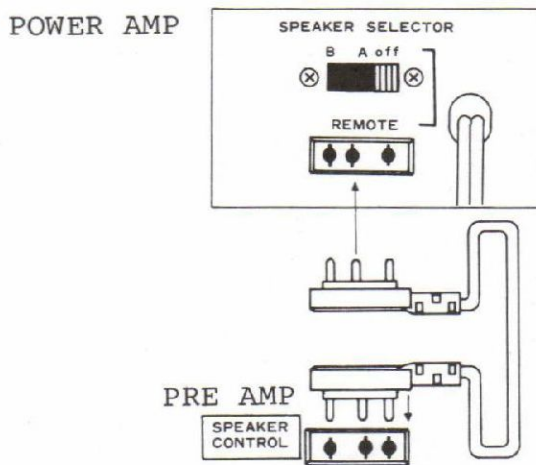
No sound is produced for five to seven seconds after switching-on of power supply

This is not trouble. This is why muting circuit works to prevent the machine from shock noise caused at switching on.

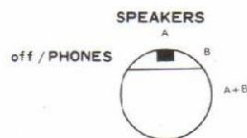
SPEAKER SELECTION

Speaker systems can be selected by SPEAKER SELECTOR mounted on the rear panel of the machine. When you use Mitsubishi DA-P10, you can select speaker systems by the pre amp, using a speaker control cable provided. At this time,

- set SPEAKER SELECTOR to "off".
- connect the speaker connect the speaker control cable as shown.



- After that, you can select speaker system by pre amp.



PARTIAL DISASSEMBLY

1. Bottom Plate Removal

- 1) Remove screws as shown in Fig.1.
- 2) At this time, do not confuse two types of screws in use.

Legend: A M4 x 8

B M3 x 8

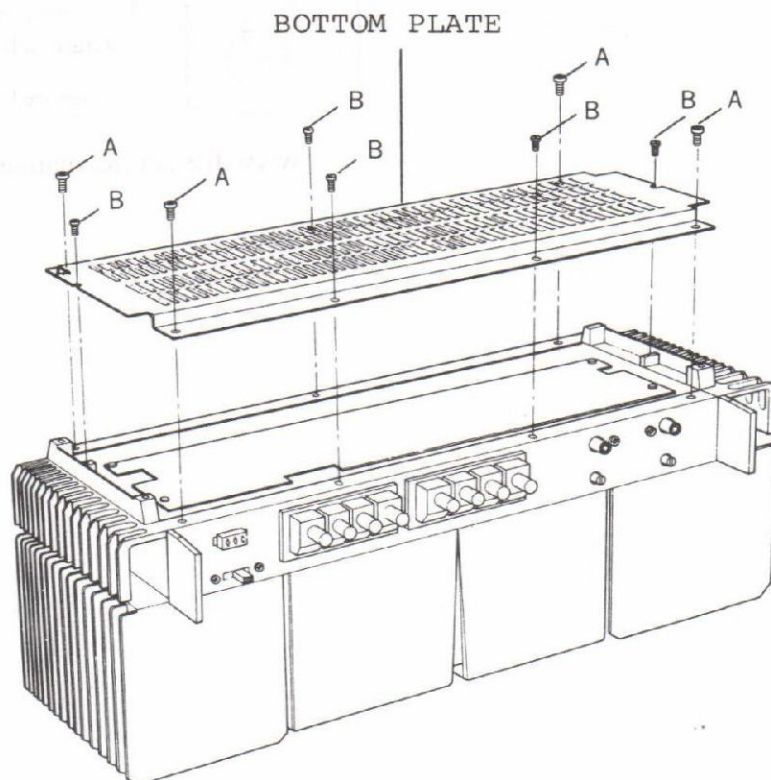


Fig.1

2. Elevation of Printed Circuit Board

- 1) Remove nine screws from the bottom plate.
- 2) Remove four screws from the printed circuit board (PCB).
- 3) Cut four claspers binding lead wires, using nippers.

[Cutting position: Fig.2 ①]

- 4) Elevate PCB in direction shown by ② in Fig.2.
- 5) Finally, insert PCB into a groove of the radiator shown by ③ in Fig.2.

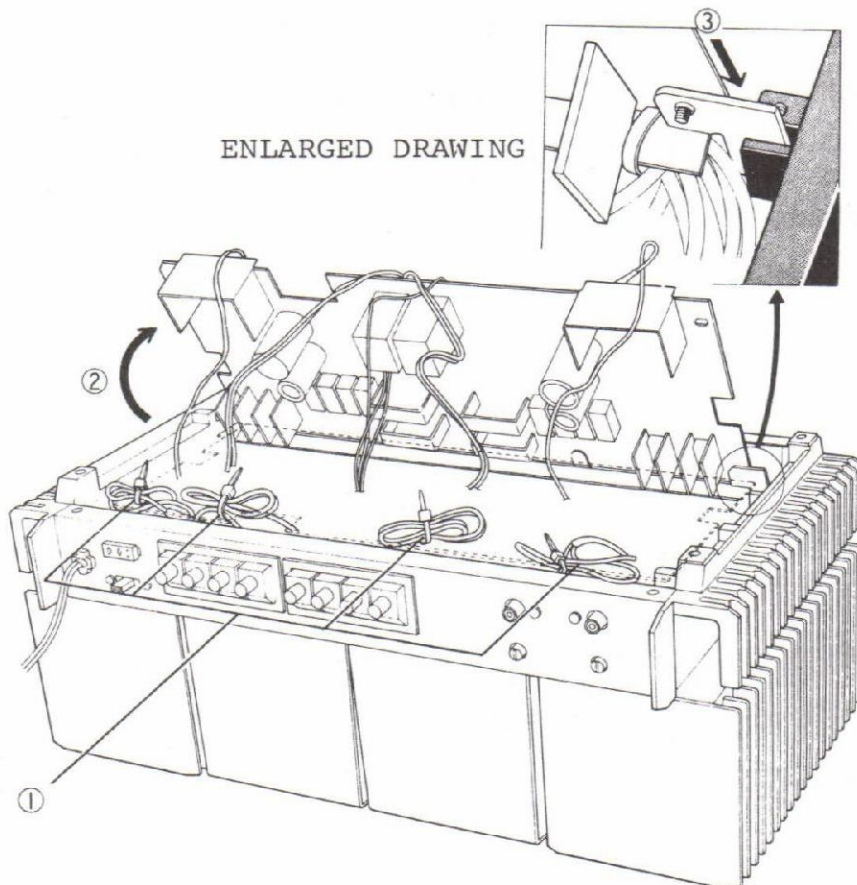


Fig.2

3. Capacitor Removal

- 1) Remove four PCB-fixing screws, then elevate PCB.
- 2) As shown in Fig.3, remove four screws, then take out a capacitor cover.

[Screws: 3 x 12, self-tapping screws, type-1]

- 3) Demount the capacitor from a holder.

At this time, although the capacitor is bonded to the holder, you can easily separate them with a small force.

- 4) When the capacitor is attached to the holder, always apply bond on the holder side.

Note: Be sure that the capacitor cover must be placed in direction shown on the cover top.

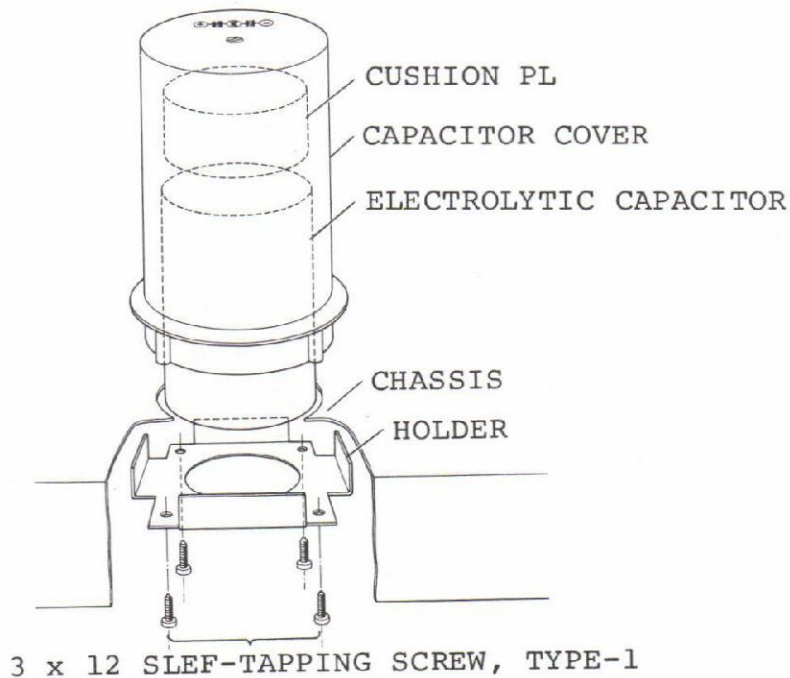
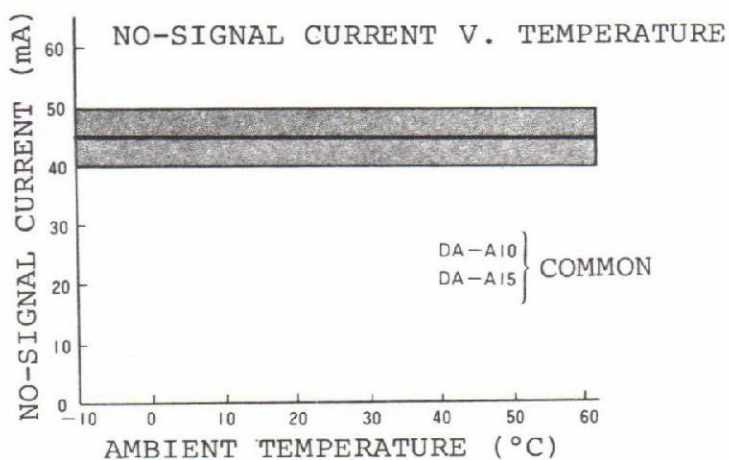


Fig.3

ADJUSTMENT

1. Idling Current Adjustment

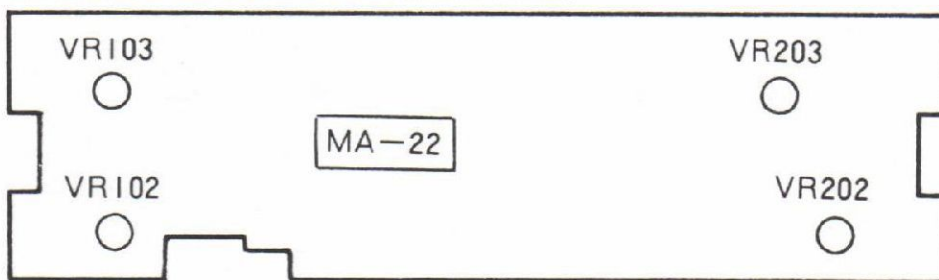
- 1) Connect DC voltmeters between terminals 10 and 15, and between terminals 40 and 45 as shown in PCB (MA-22) of DA-A10.
- 2) Rotate VR103 and VR203 so that the DC voltmeter reads a minimum value.
- 3) Readjust VR103 and 203 so that the DC voltmeter reads $15 \pm 3\text{mV}$.
- 4) After switching-on of the power supply, wait approximately 10 minutes until stable state can be obtained. After that, readjust VR103 and 203 so that the DC voltmeter reads $42 \pm 3\text{mV}$.



2. Mid-Point Voltage Adjustment

- 1) Connect DC voltmeters between terminals 23 and 61, and terminals 53 and 61 as shown in PCB of DA-A10, setting SPEAKER SELECTOR to A.
- 2) Rotate VR102 and VR103 so that the DC voltmeter reads $0 \pm 5\text{mV}$.

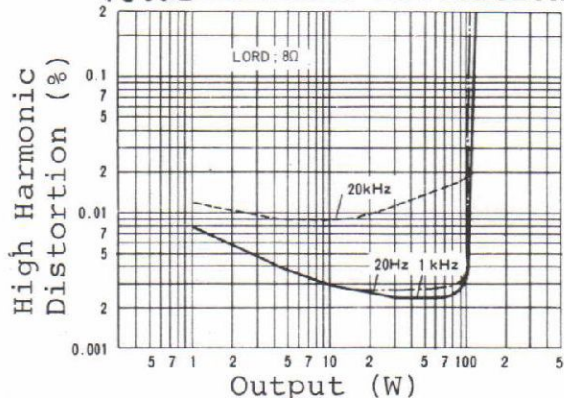
DA-A10.15 PCB(COPPER PATTERN SIDE)



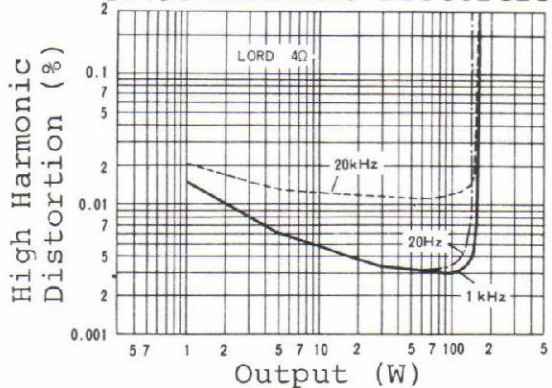
CHARACTERISTICS

DA-A10

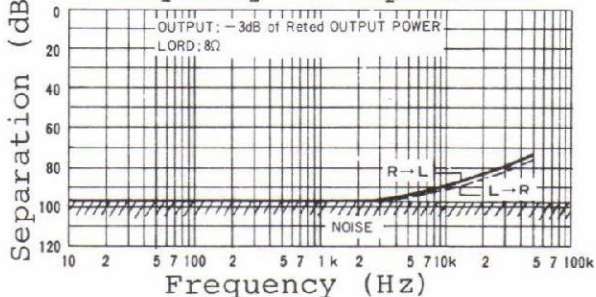
Output V.
Total Harmonic Distortion



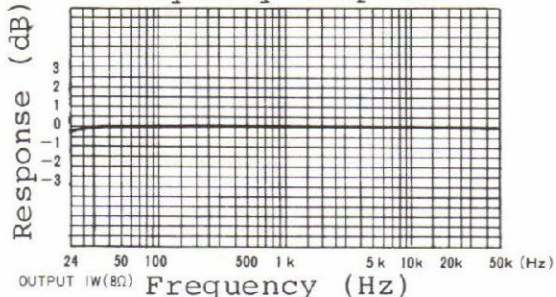
Output V.
Total Harmonic Distortion



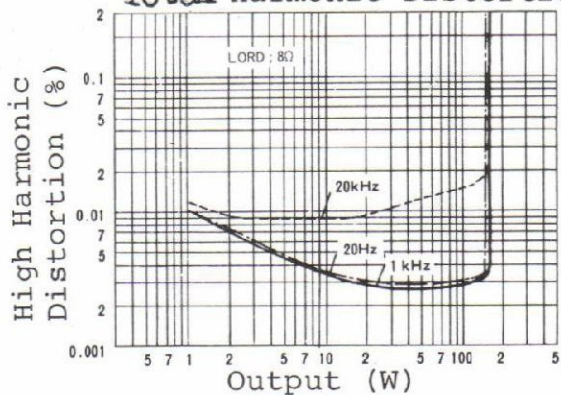
Frequency V. Separation



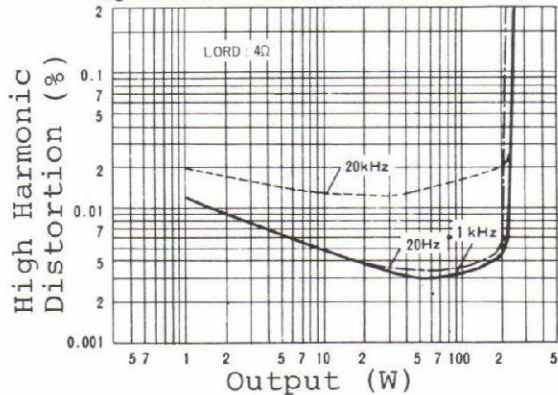
Frequency Response



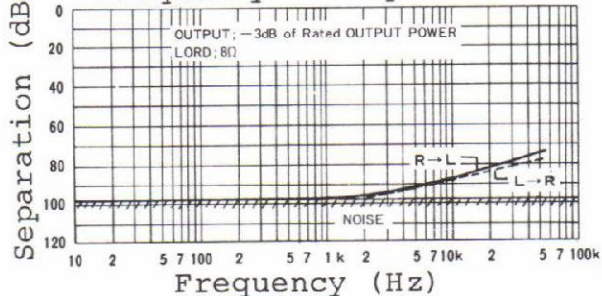
DA-A15 Output V.
Total Harmonic Distortion



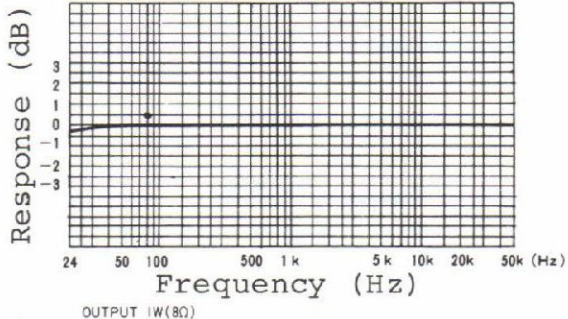
Output V.
Total Harmonic Distortion



Frequency V. Separation



Frequency Response



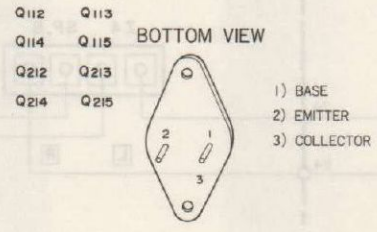
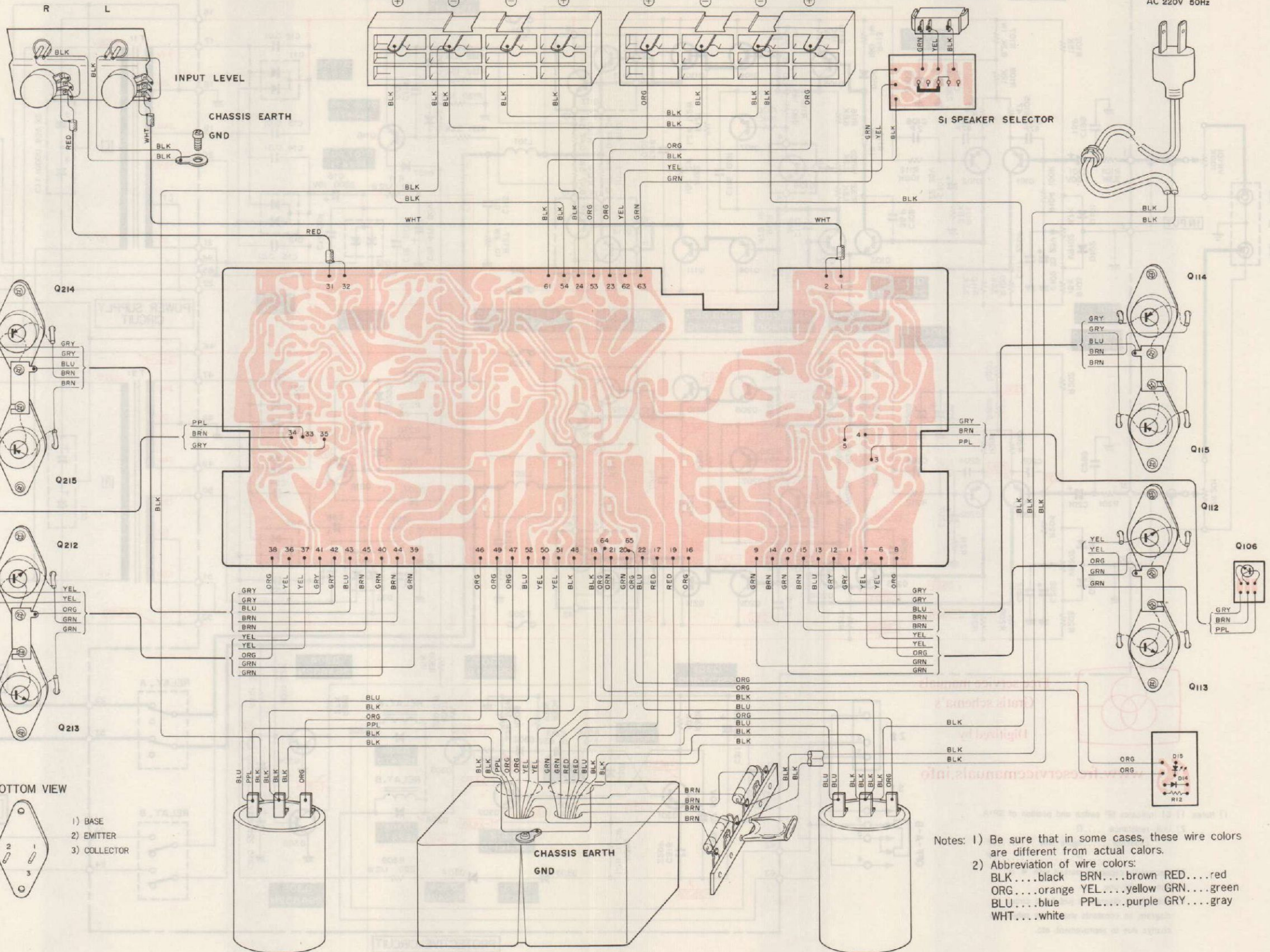
Z4 SPEAKER B

Z3 SPEAKER A

Z1 INPUT

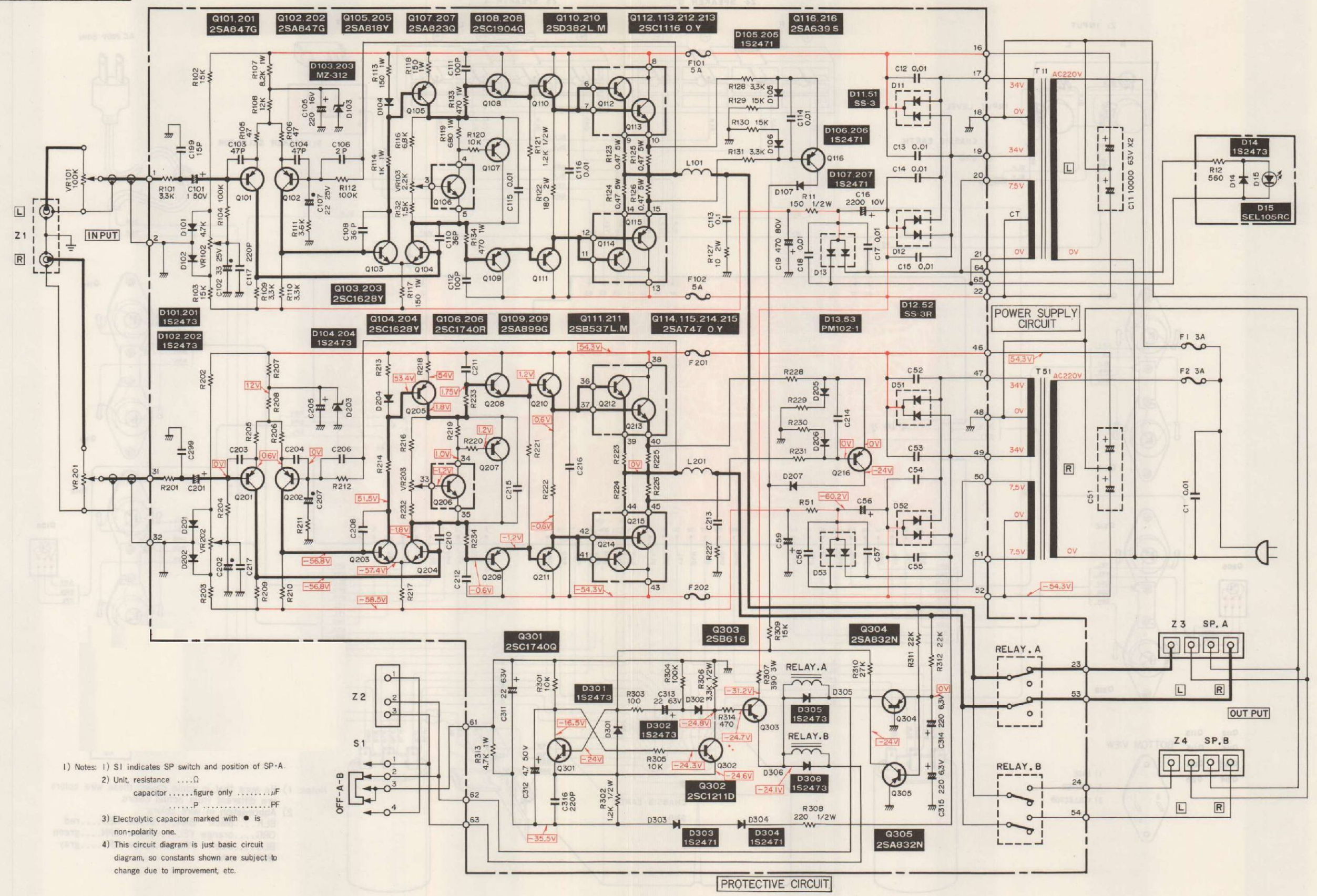
Z2 REMOTE

AC 220V 50Hz



Notes: 1) Be sure that in some cases, these wire colors are different from actual colors.
2) Abbreviation of wire colors:
BLK....black BRN....brown RED....red
ORG....orange YEL....yellow GRN....green
BLU....blue PPL....purple GRY....gray
WHT....white

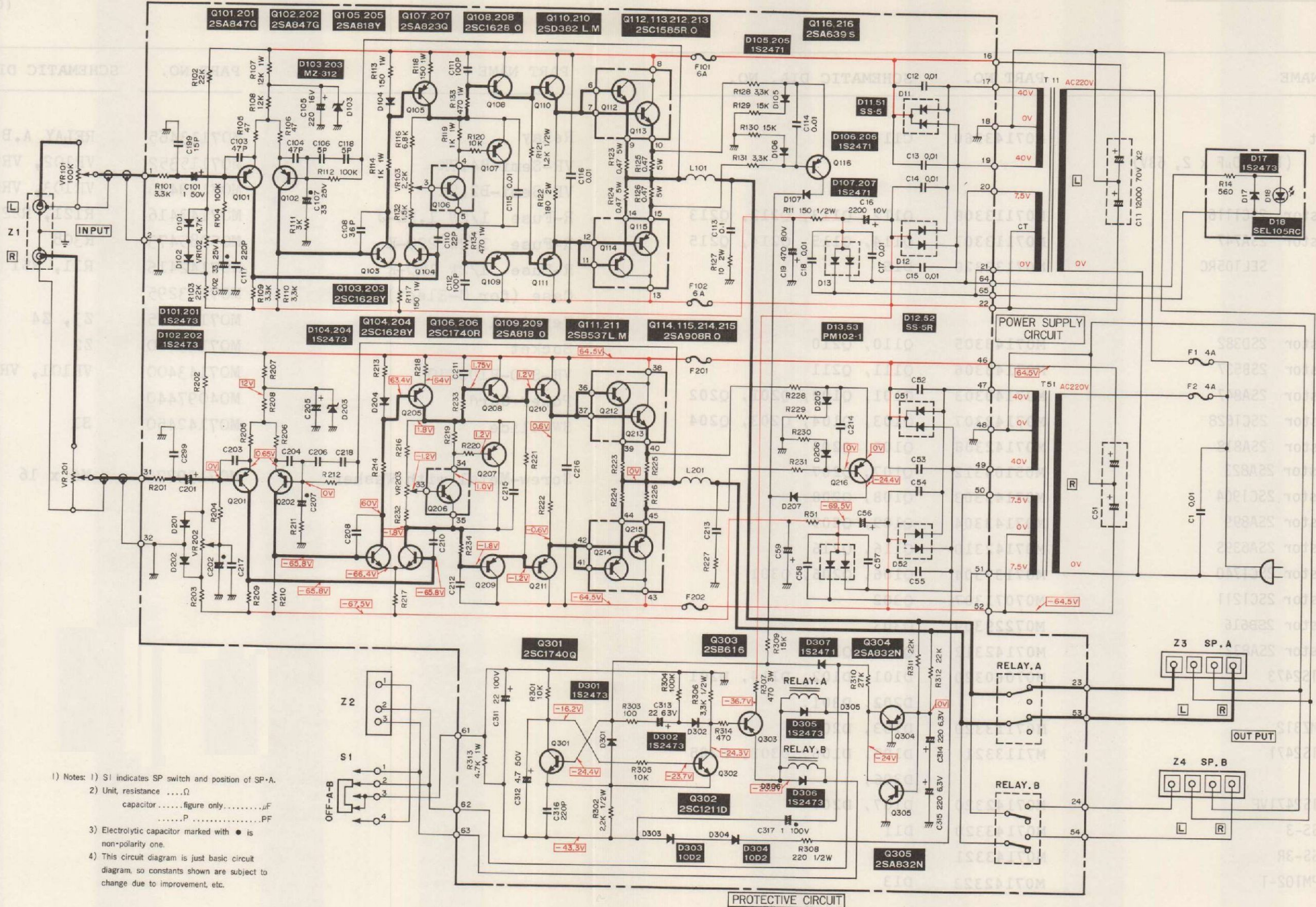
DA - A10 SCHEMATIC DIAGRAM



- 1) Notes: 1) S1 indicates SP switch and position of SP-A.
- 2) Unit, resistanceΩ
capacitorfigure onlyμF
.....PPF
- 3) Electrolytic capacitor marked with ● is non-polarity one.
- 4) This circuit diagram is just basic circuit diagram, so constants shown are subject to change due to improvement, etc.

DA - A15 SCHEMATIC DIAGRAM

A10 PARTS LIST



- 1) Notes: 1) S1 indicates SP switch and position of SP-A.
 2) Unit, resistance Ω
 capacitorfigure only..... μ F
PPF
 3) Electrolytic capacitor marked with \bullet is non-polarity one.
 4) This circuit diagram is just basic circuit diagram, so constants shown are subject to change due to improvement, etc.

(Continued)

PART NAME	PART NO.	SCHEMATIC DIA. NO.	PART NAME	PART NO.	SCHEMATIC DIA. NO.
C-Elect (10,000 μ F x 2, 63V)	M07143360	C11	Relay	M07113465	RELAY A.B
Transistor 2SC1116	M07113308	Q112, Q113, Q212, Q213	VR-Semi-B4.7K	M07115352	VR102, VR202
Transistor 2SA747	M07113307	Q114, Q115, Q214, Q215	VR-Semi-B2.2K	M07139436	VR103, VR203
Diode SEL105RC	M07132320	D15	R-Fuse 1/2W 1.2K-J	M07143416	R121, R221
			R-Fuse 1/2W 220-K	M05085473	R308
			R-Fuse 1/2W 150-K	M07142416	R11, R51
			Case (for C-Elect)	M07143295	
Transistor 2SD382	M07143305	Q110, Q210	Terminal Board	M07160575	Z3, Z4
Transistor 2SB537	M07143306	Q111, Q211	Socket	M07139480	Z2
Transistor 2SA847	M07140303	Q101, Q102, Q201, Q202	VR-STD-B100K10	M07143400	VR101, VR201
Transistor 2SC1628	M07142307	Q103, Q104, Q203, Q204	Power Cord	M04097440	
Transistor 2SA818	M07142308	Q105, Q205	SW-Slide	M07142450	S1
Transistor 2SA823	M05104312	Q107, Q207			
Transistor 2SC1904	M07143303	Q108, Q208	Screw-Metal with Washer	M07139779	M6 x 16
Transistor 2SA899	M07143304	Q109, Q209			
Transistor 2SA639S	M07142310	Q116, Q216			
Transistor 2SC1740	M07137304	Q106, Q206, Q301			
Transistor 2SC1211	M07071307	Q302			
Transistor 2SB616	M07229309	Q303			
Transistor 2SA832	M07142312	Q304, Q305			
Diode 1S2473	M07060320	D101, D102, D114, D201 D202, D301,			
Diode MZ312	M07113320	D103, D203			
Diode 1S2471	M7113321	D105, D106, D303, D205 D206,			
Diode 1S2471VE	M07142320	D107, D207			
Diode SS-3	M07143320	D11			
Diode SS-3R	M07143321	D12			
Diode PM102-1	M07142323	D13			

DA - A15 PARTS LIST (Parts Different from DA-A10's)

<u>PART NAME</u>	<u>PART NO.</u>	<u>SCHEMATIC DIA. NO.</u>
C-Elect (12,000 μ F x 2, 70V)	M07144360	C11
Transistor 2SC1585	M07142303	Q112, Q113, Q212, Q213
Transistor 2SA908	M07142304	Q114, Q115, Q214, Q215
Case (for C-Elect)	M07144295	
Transistor 2SB616	M07229309	Q303
Diode 10D2	M04120321	D303, D304
Diode SS-5	M07142321	D11
Diode SS-5R	M07142322	D12

PART NAME
PART NAME

PART NO.
PART NO.

SCHEMATIC DIA. NO.
SCHEMATIC DIA. NO.

C-Elect
(12,000W x 2, 70V)

Transistor 2SC1888
Transistor 2SA908
Case (for C-Elect)
Transistor 2SB616
Diode 1002
Diode 2S-6
Diode 2S-88

M07144360 C11

M07142303 Q113, Q113, Q113, Q113
M07142304 Q114, Q112, Q114, Q114
M07142325
M07229309 Q303
M04150321 D303, D304
M07142321 D11
M07142322 D12