



POWER LEVEL METER

DA - M10

SERVICE MANUAL

CONTENTS

SERVICE DATA .....	2
FEATURES .....	4
COMPONENTS AND FUNCTIONS .....	6
CONNECTION .....	7
OPERATING INSTRUCTIONS .....	8
ADJUSTMENT .....	10
SCHEMATIC DIAGRAM .....	11
PARTS LIST .....	12

SERVICE DATA

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Power Level Meter Section

Meter Range	Peak level	-50dB to +3dB (0dB=100W)
	Output	1mW to 200W (X1)
		0.1mW to 20W (X0.1)
Frequency Response		20 to 20,000Hz $\pm$ 1dB
Input Sensitivity (At 100W Output)		0.82V (SELECTOR A15)
		1.00V (SELECTOR A10)
Rise Time		10ms
Decay Time		0.6S

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Buffer Amplifier Section

Frequency Response		20 to 20,000Hz $\pm$ 0.2dB
Voltage Gain		0dB
Input Impedance		50k $\Omega$
Output Impedance		600 $\Omega$ or less

General	
Semiconductors Used	23 transistors, 25 diodes
Power Supply	AC120V, 60Hz
Auxiliary AC Outlet	1, SWITCHED (500W)
Speaker Selection	OFF. A.B. using control cable
Dimensions	425(W) x 170(H) x 125(D)mm (16-3/4(w) x 6-3/4(H) x 4-7/8(D) in.)
Weight	4.5kg (10 lb.)
Accessories	RCA audio cable speaker control cable

## FEATURES

### Peak Value Indication

This machine is a power level meter that detects and indicates the peak value which is not affected by the change of signal waveform. Unlike the VU meter which indicates the average value, this machine permits direct reading of the peak output in watt of musical sound. The peak value is detected on the inlet side of the power amp. Speaker impedance, which becomes a load of the power amp, is not constant and largely varies with the change of frequency and speaker type. Therefore, it is difficult to directly detect the power level. In case of the level meter, voltage is detected, and indicated after making conversion, assuming that the load is constant. This voltage detection may be made similarly on both input side and output side. In case of this machine, input signal of the power amp is detected and converted into output whose level is finally indicated. Accordingly, when input is excessively increased, the pointer swings over the rated output range. Thus, the excessive input to the amp can be readily monitored. Since shielded wiring is provided for input detection, the buffer amp is built in to prevent deterioration of characteristics.

### Quick Response

This machine has outstanding rising characteristics - that is, rise time is 10ms. This means that rising speed is too fast to read an indicated value of the pointer, resulting in fatigue of reader's eyes. To solve this problem, rise time and decay time are moderated.

### Enlarged Meter Range

Thanks to the use of large-sized meter and logarithmic compression circuit, this meter scale may provide wider range than the VU meter. More specifically, this meter scale offers direct reading of a wide dynamic range from 0.001 to 200W, from noise level to peak value of program source.

### Meter Muting Circuit

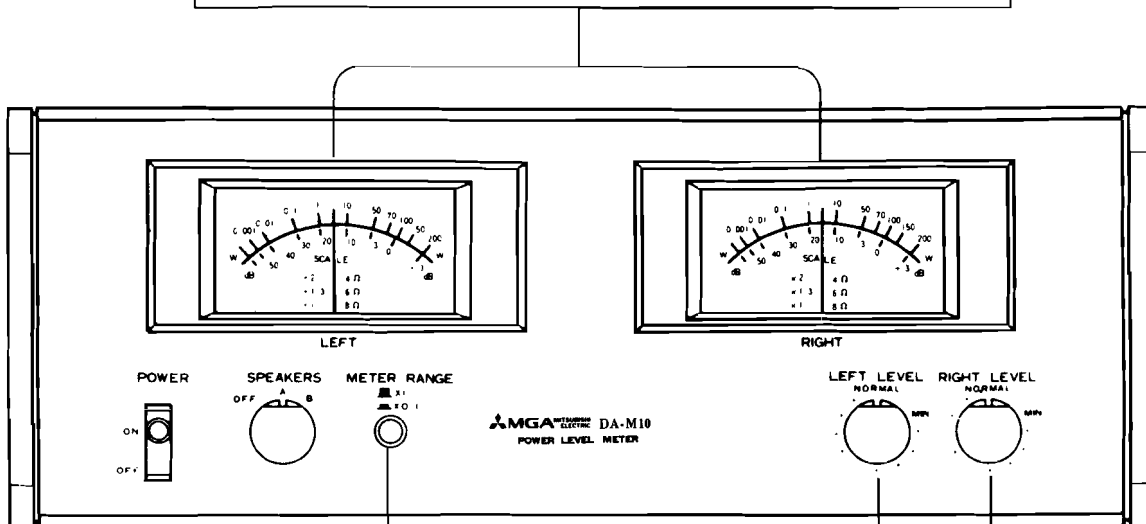
The meter muting circuit is employed to eliminate abnormal swing of the pointer caused when power supply is switched on and off.

## COMPONENTS AND FUNCTIONS

### Front Panel

#### POWER METER

This meter indicates the detected peak value on condition that 100W corresponds to 0dB. Further, the meter is provided with peak level scale from -50dB to +3dB and power scale from 0.001w to 200W.



#### METER RANGE (Meter Range Selection Switch)

X1: 0.001W to 200W  
X0.1: 0.0001 W to 20W  
(1/10 of indicated value becomes actual power)

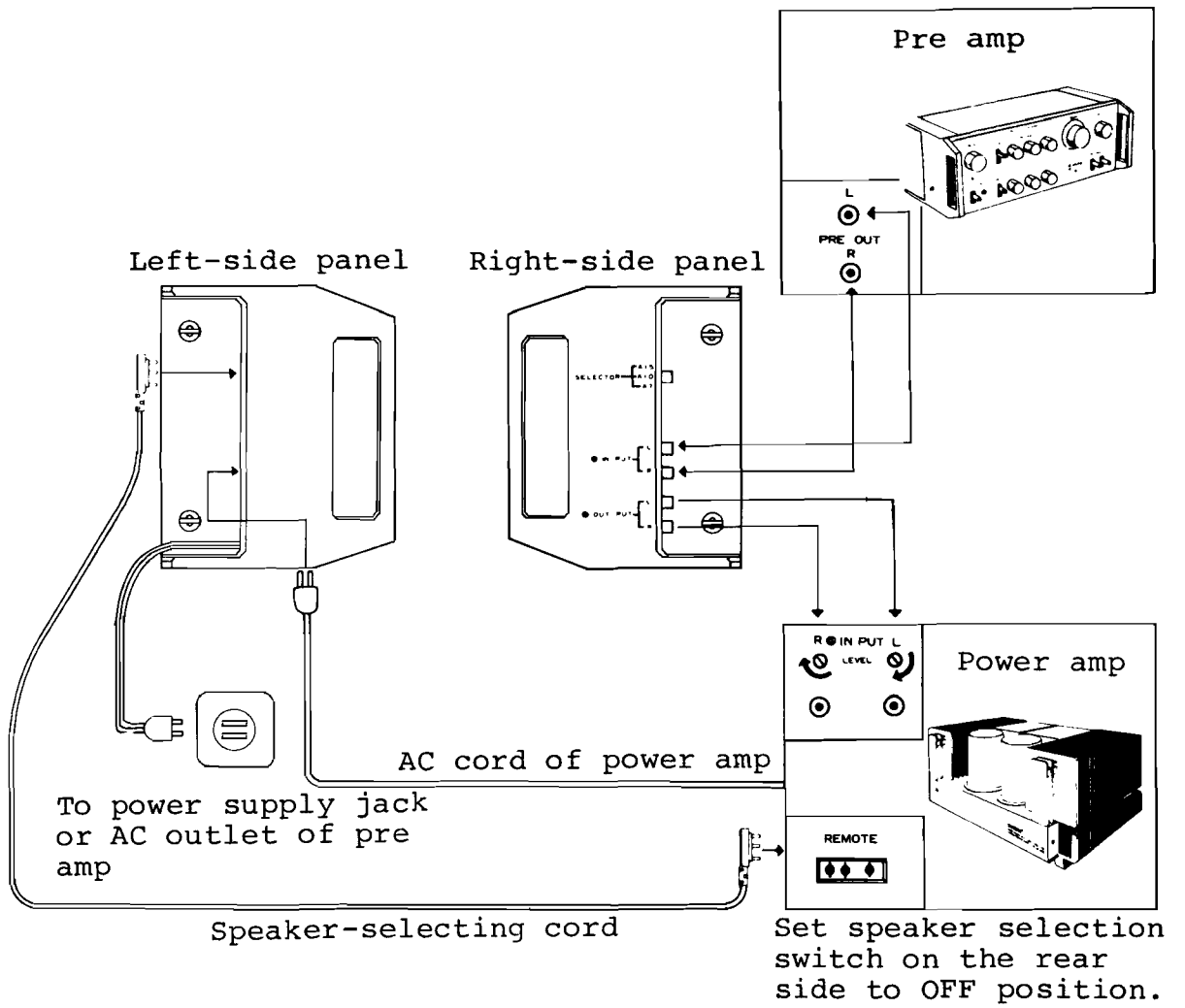
#### LEVEL (Input Level Adjusting Knob)

This knob adjusts input level, normally setting it to NORMAL position.

#### Important:

When your power amp is DA-A15 or DA-A10, fully turn input LEVEL knob, located on the rear side, in clockwise direction.

CONNECTION



## OPERATING INSTRUCTIONS

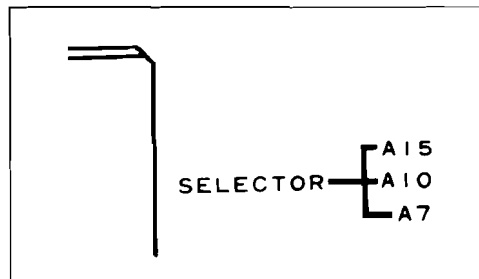
### 1. BEFORE OPERATION

Before turning on the power switch, be sure to check that:

- \* All the equipment is properly connected.
- \* The speaker control cable is firmly connected and the SPEAKERS selector is set to A or B.
- \* The INPUT LEVEL screws on the rear panel of the power amplifier DA-A10 or DA-A15 are turned fully to the right.

### 2. OPERATION

- 1) Set the level meter's SELECTOR switch to the position that corresponds to the DA-A10 or DA-A15 power amplifier. The output can then be read out directly on the meters.

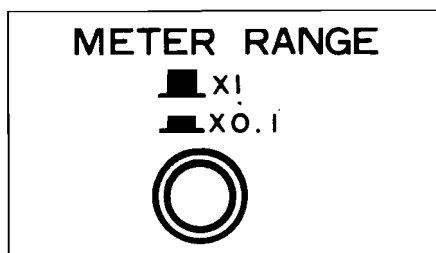


- 2) Set the METER RANGE selector switch to the desired position. But keep in mind that applying a large input with the input selector switch set to the X0.1 position could result in meter damage. Therefore, to safeguard against causing any damage, first set the switch to the X1 position, and then change the position to X0.1 in accordance with the output.
- ### 3. CONNECTING TO ANOTHER AMPLIFIER
- Set the SELECTOR switch depending on the output of the amplifier you intend to use.



Set the SELECTOR switch to the A-15 position for an amplifier with specifications of 150 W(8Ω), 1V and a 47 kΩ input impedance, or to the A10 position for an amplifier with specifications of 100 W (8Ω), 1 V and a 47 kΩ input impedance.

- \* If you use a power amplifier other than one with the specifications listed above, the output cannot be read correctly.



#### 4. INDICATING OUTPUT BY SPEAKER IMPEDANCE

The level meter's output is indicated as 8Ω (x1), 6Ω (x1,33) or 4Ω (x2), depending on the impedance of the speaker. With any other speaker, the output is determined with the following formula:

$$\text{Multiple} = \frac{8}{\text{Impedance of speaker}}$$

For example, a speaker having an impedance of 16Ω produces the following output:

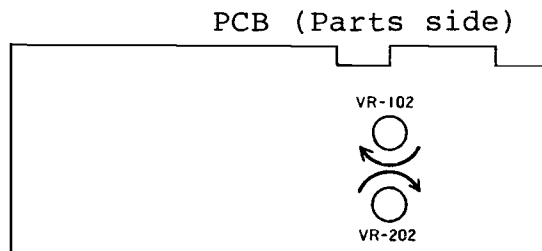
$$\frac{8}{16} = 0.5$$

#### 5. OTHERS

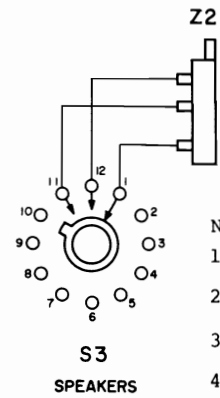
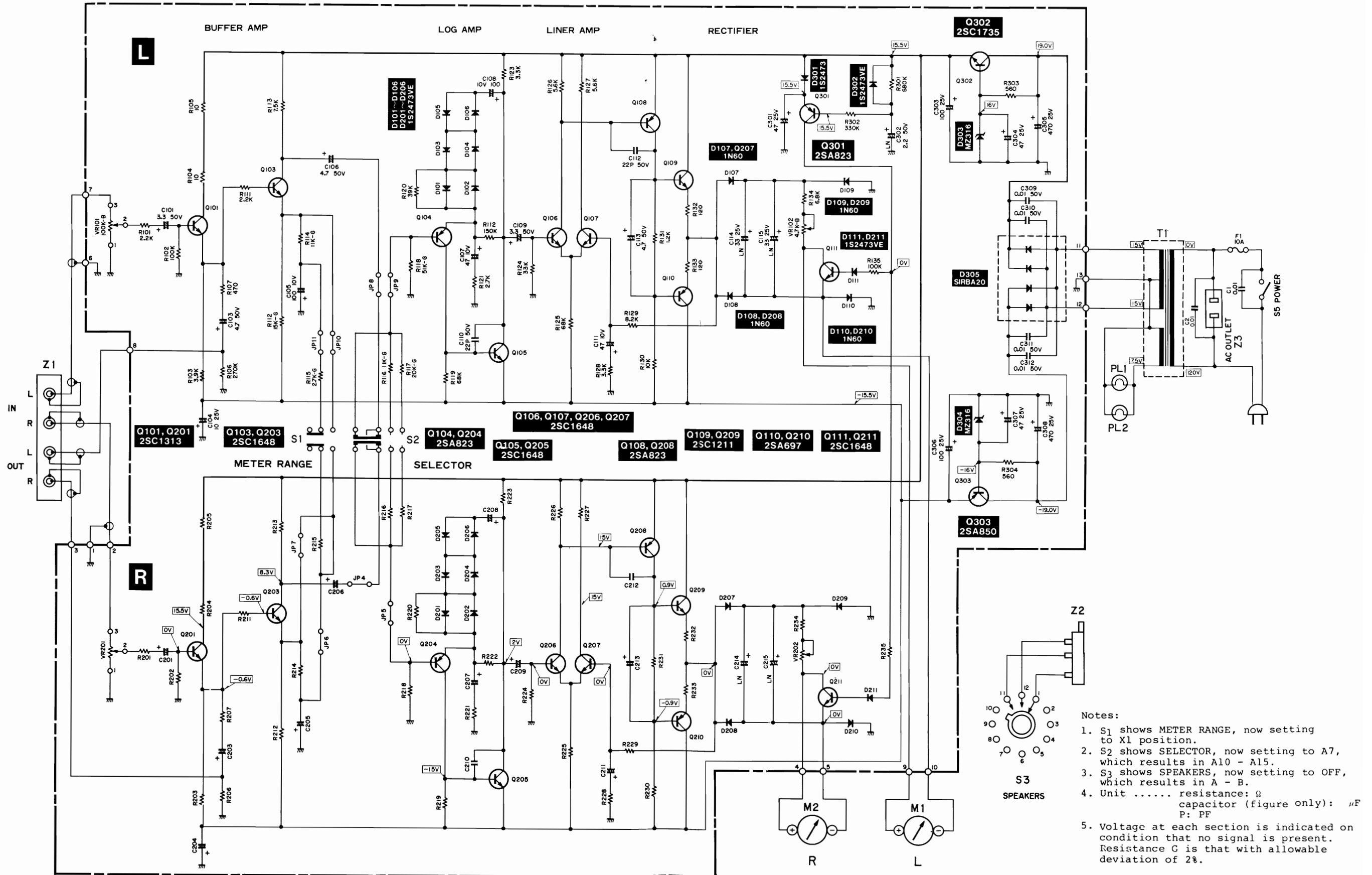
When using the level meter for a tape deck, check carefully the specifications of both the level meter and the equipment which you intend to use.

## ADJUSTMENT

1. Set SELECTOR  $S_2$  to A10, and set METER RANGE  $S_1$  to X1.  
Set LEVEL VOLUMES VR101 and VR202 to NORMAL.  
At this time, fully turn semifixed volumes VR102 and VR202, located on the printed circuit board, in counter-clockwise direction.
2. Turn VR102 and VR202 in clockwise direction so that the meter reads 100W (0dB) when sine wave of 1kHz and 1V is supplied to input.



**SCHEMATIC DIAGRAM**



- Notes:
1. S1 shows METER RANGE, now setting to X1 position.
  2. S2 shows SELECTOR, now setting to A7, which results in A10 - A15.
  3. S3 shows SPEAKERS, now setting to OFF, which results in A - B.
  4. Unit ..... resistance:  $\Omega$   
capacitor (figure only):  $\mu$ F  
P: PF
  5. Voltage at each section is indicated on condition that no signal is present. Resistance C is that with allowable deviation of 2%.

PARTS LIST

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PART NO.	DESCRIPTION	PART IDENTIFICATION
	<u>AMP</u>	
M07169549	Trans Power	T1
M04097440	Power Code	
M07169490	Fuse (FOR 10A USE)	F1
M07157400	VR STD (LEVEL)	VR101, 201
M07115352	VR-SEMI-B4.7K Type	VR102, 202
M07157260	Meter	M1, M2
M07115250	Lamp (METER LIGHTING)	PL1, PL2
M07162450	Sw-lever (POWER)	S5
M07157450	Sw-rotary (SPEAKERS)	S3
M05112433	Sw-push (METER RANGE)	S1
M07142450	Sw-slide (POWER AMP SELECTION)	S2
M07071303	Transistor 2SC1313	Q101, 201
M05104310	Transistor 2SC1648	Q103, 203
M05104312	Transistor 2SA823	Q104, 204
M07071307	Transistor 2SC1211	Q109, 209
M07071305	Transistor 2SA697	Q110, 210
M07128303	Transistor 2SC1735	Q302
M07133304	Transistor 2SA850	Q303
M07060320	Diode 1S2473VE	D102, 103, 201 D202, 301, 302
M04097320	Diode 1N60	D107, 207 D108, 208
M07157320	Diode MZ316	D303, 304
M07139321	Diode 1RBA20	D305
M07085480	Socket (AC)	Z3
M07139480	Socket (REMOTE)	Z2
M07157202	Side Board (RIGHT)	
M07157201	Side Board (LEFT)	
M07157210	Knob (METER RANGE)	
M07139213	Knob (POWER)	
M07139211	Knob (SPEAKERS, LEFT LEVEL, RIGHT LEVEL)	

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**MELCO SALES, INC.**

3030 East Victoria Street, Compton, California 90221, U.S.A.

Tel.: (213) 537-7132, Telex: 0673278

Toll Free: (800) 421-1132 (Outside of California)