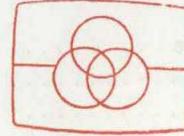




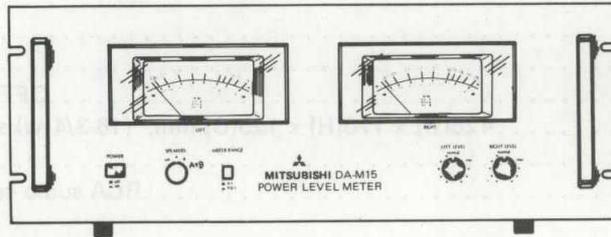
SERVICE MANUAL POWER LEVEL METER MODEL DA-M15



Free service manuals
Gratis schema's

Digitized by

www.freeservicemanuals.info



FEATURES

The DA-M15 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 points direct reading of the peak output in watt of music sound. The peak value is indicated on the right side of the power meter. 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 correction assuming the load is constant.

CONTENTS	
SERVICE DATA	2
FEATURES	2 ~ 3
COMPONENTS AND FUNCTIONS	3
CONNECTION	4
OPERATING INSTRUCTIONS	5 ~ 6
ADJUSTMENT	6
SCHEMATIC DIAGRAM	7 ~ 8
PARTS LIST	9



Digitized by WWW.FREESERVICEMANUALS.INFO

SERVICE DATA

Power Level Meter Section

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

Buffer Amplifier Section

Frequency Response	20 to 20,000 Hz ± 0.2 dB
Voltage Gain	0 dB
Input Impedance	50 k Ω
Output Impedance	600 Ω or less

General

Semiconductors Used	23 transistors, 25 diodes
Power Supply	AC220V, 50 Hz
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	4.5 kb (10lb.)
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

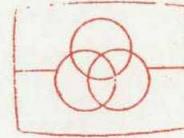
This machine has outstanding rising characteristics that is, rise time is 10ms. This means that rising speed is too fast to read an indicated value of the pointer, resulting in fatigue of reader's eyes. To solve this problem, rise time and decay time are moderated.

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 sources.

Meter Muting Circuit

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



Free service manuals
Gratis schema's

Digitized by

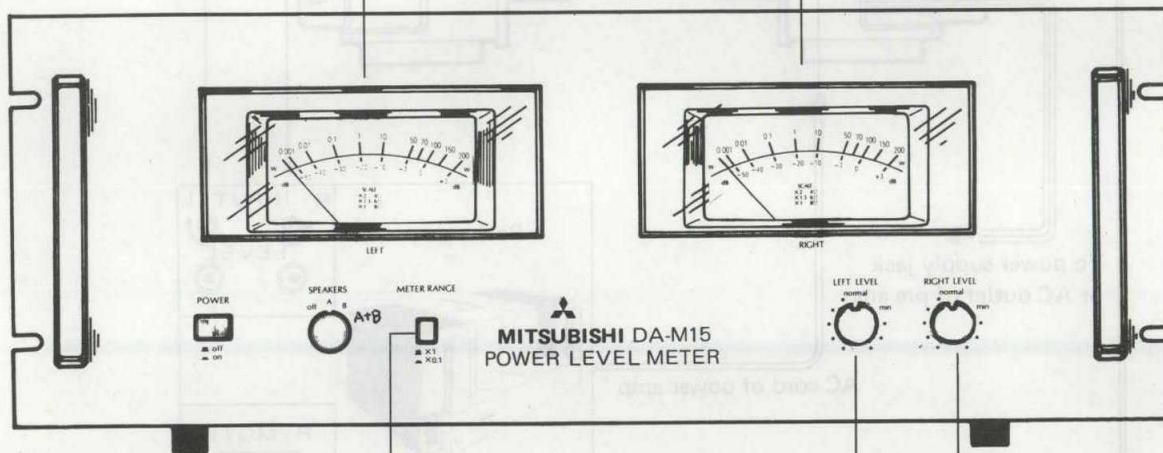
COMPONENTS AND FUNCTIONS

Front Panel

www.freeservicemanuals.info

POWER METER

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



METER RANGE (Meter range Selection Switch)

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

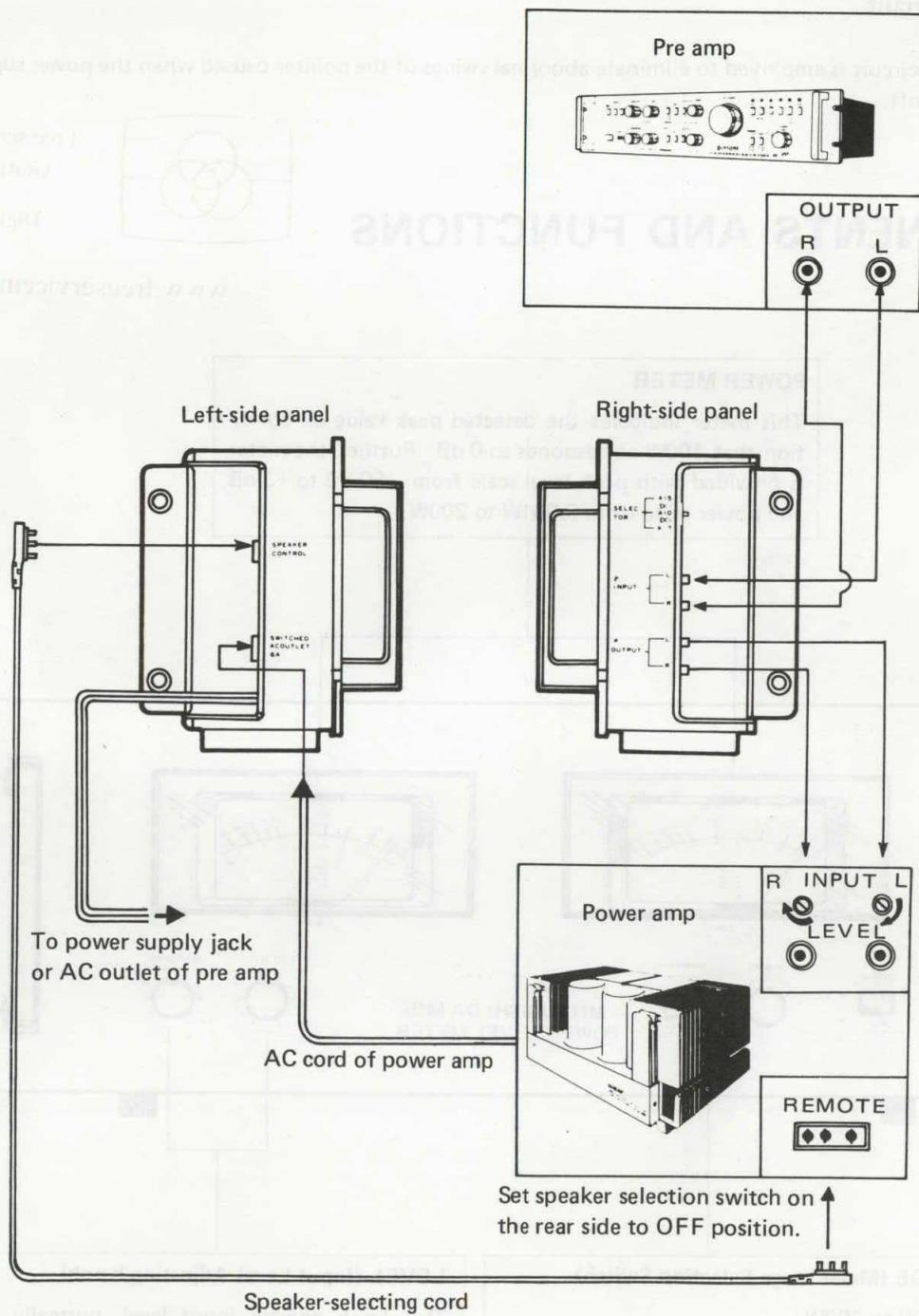
LEVEL (Input Level Adjusting Knob)

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

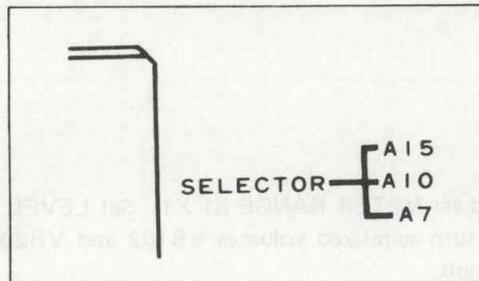
1. BEFORE OPERATION

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

- (1) All the equipment is properly connected.
- (2) The speaker control cable is firmly connected and the SPEAKERS selector is set to A or B.
- (3) 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.

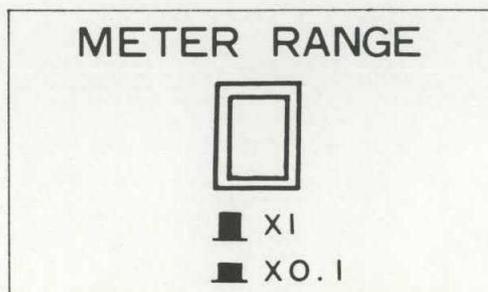


- (2) Set the METER RANGE selector switch to the desired position. But keep in mind that applying a large input with the input selector switch set to the X 0.1 position could result in meter damage. Therefore, to safeguard against causing any damage, first set the switch to the X1 position, and then change the position to X 0.1 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 150W (8Ω), 1V and a 47 kΩ input impedance, or to the A10 position for an amplifier with specifications of 100W (8Ω), 1V 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 4 Ω (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:

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

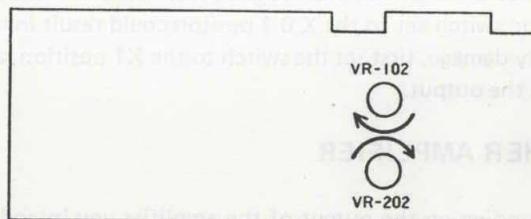
5. OTHERS

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.

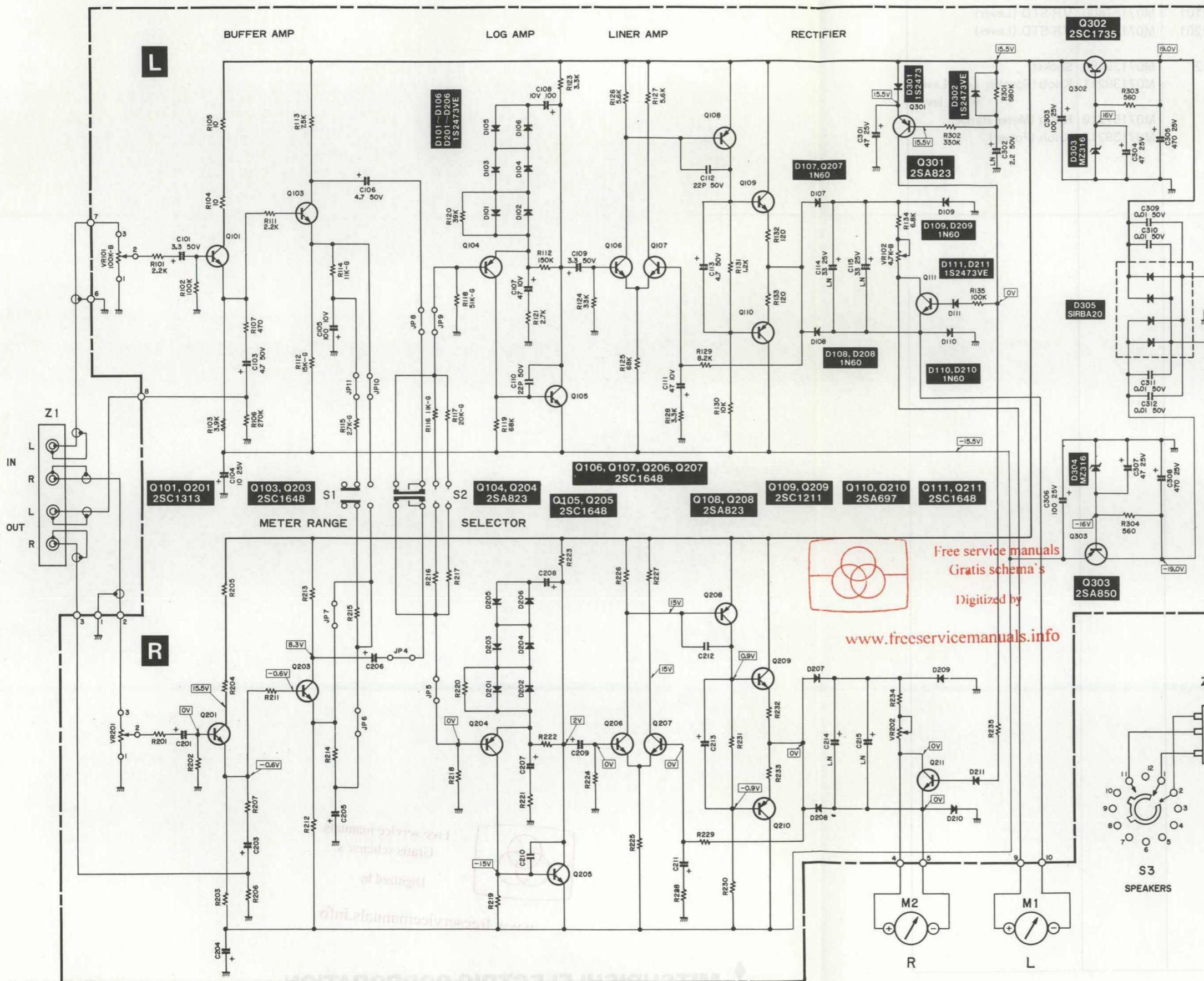
ADJUSTMENT

1. Set SELECTOR S2 to A10, and set METER RANGE S1 X1. Set LEVEL VOLUME VR101 and VR202 to NORMAL. At this time, fully turn semifixed volumes VR102 and VR202, located on the printed circuit board, in counterclockwise direction.
2. Turn VR102 and VR202 in clockwise direction so that the meter reads 100W (0 dB) when sine wave of 1 kHz and 1V is supplied to input.

PCB (Parts side)



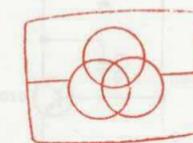
SCHEMATIC DIAGRAM



- 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: Ω
capacitor (figure only): μF
P: PF
 5. Voltage at each section is indicated on condition that no signal is present. Resistance G is that with allowable deviation of 2%.

PARTS LIST

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
Q101	M07071303	Transistor, 2SC1313	VR101	M07157400	VR-STD (Lever)
Q103	M05104310	Transistor, 2SC1648	VR201	M07157400	VR-STD (Lever)
Q104	M05104312	Transistor, 2SA823			
Q109	M07071307	Transistor, 2SC1211	Z2	M07139480	Socket
Q110	M07071305	Transistor, 2SA697		M07139211	Knob (Speaker Left Lever, Right level)
Q201	M07071303	Transistor, 2SC1313		M07157210	Knob (Meter Range)
Q203	M05104310	Transistor, 2SC1648		M07139213	Knob (Power)
Q204	M05104312	Transistor, 2SA823			
Q209	M07071307	Transistor, 2SC1211			
Q210	M07071305	Transistor, 2SA697			
Q302	M07128303	Transistor, 2SC1735			
Q303	M07133304	Transistor, 2SA850			
D102	M07060320	Diode, 1S2473VE			
D103	M07060720	Diode, 1S2473VE			
D107	M04097320	Diode, 1N60			
D108	M04097320	Diode, 1N60			
D201	M07060320	Diode, 1S2473VE			
D202	M07060320	Diode, 1S2473VE			
D207	M04097320	Diode, 1N60			
D208	M04097320	Diode, 1N60			
D301	M07060320	Diode, 1S2473VE			
D303	M07157320	Diode, MZ316			
D304	M07157320	Diode, MZ316			
D305	M07139321	Diode, S1RBA20			
T1	M07327500	Trans power			
F11	M07327490	Fuse 200mA, SEMKO			
F12	M07327490	Fuse 200mA, SEMKO			
F13	M05110472	1A, SEMKO			
S1	M05112433	SW-Push			
S2	M07142450	SW-Slide (change of power AMP)			
S3	M07169450	SW-Rotary (Speaker)			
S4	M05113430	SW-Push (Power)			
PL1	M07115250	Lamp (for meter)			
PL2	M07115250	Lamp (for meter)			
M1	M07157260	Meter			
M2	M07157260	Meter			



Free service manuals
Gratis schema's
Digitized by

www.freesevicemanuals.info