



**General:** The Shure Model M63 Audio Master is a unit designed to give maximum flexibility in the control of volume, bass response, treble response, and high and low frequency roll-off. The Model M63 works ideally as a Master Control Center when used in conjunction with the Shure Model M68 Series of Microphone Mixers.

The M63 provides a means to equalize sound systems for correction of room acoustics, to reduce feedback, to provide special sound effects, to reduce stand and stage noise and for tape recording.

The Model M63-2E Audio Master is similar to Model M63 except that it is designed to be connected to a 220-260 volt AC power line.

All information on the data sheet for the Model M63 applies, except for those references to AC operating voltage and power line cord.

#### The Audio Master features:

- Five types of outputs
  - 600 ohms balanced line level
  - High impedance, high level
  - High impedance microphone level
  - Low impedance microphone level, balanced
  - Headphone jack for monitoring
- Inputs for two driving sources
- A VU meter to monitor audio level
- Continuously variable high pass and low pass 6 db per octave filters
- Bass and treble tone controls

### Controls, Connections and Operation

#### INPUTS

The two high impedance inputs (phono jacks) marked HIGH LEVEL INPUTS are designed to accept high level signals from a microphone mixer such as the Shure M68, M68RM, etc.), tape recorder, AM-FM tuner, or output from Shure Model A68P Phonograph Preamplifier (accessory).

To use with the Shure M68 Microphone Mixer series, connect the AUX. HIGH LEVEL OUTPUT on the mixer to the input of the M63 with a shielded cable having a male phono plug on each end (such as the Shure A68SC). Set the MASTER volume control on the mixer to approximately 6 and use the VOLUME control on the M63 to adjust the overall level.

Although not specifically designed for use with the Shure M67, it may be used in conjunction with the M67 in the following manner: connect a shielded single conductor cable with a ¼" phone plug on one end and a phono plug on the other from the headphone output of the M67 to the M63 input. To obtain good volume control action from M63, install a 180-ohm resistor from tip to sleeve in the phone plug and use the M63 volume control to adjust output to desired level.

### OUTPUTS

#### Microphone

The receptacle marked MICROPHONE LEVEL OUTPUT is a dual impedance output selected by the switch above the receptacle. This output is designed to work into a balanced 25 to 250 ohm input, or, with the MICROPHONE IMPEDANCE selector switch in the Hi position, into an unbalanced high impedance microphone input on an amplifier or tape recorder. The receptacle is a professional three-pin male audio connector designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series or equivalent connector (Shure Part 95A548). See Figure A for output receptacle connections.

#### Line

The line output (binding posts) is on the rear panel and is designated 600 OHM BALANCED LINE OUTPUT. These terminals are numbered "3" and "2" and are in phase with correspondingly numbered pins in the microphone output connector. The adjacent ground terminal corresponds to pin 1. While the line output may be used to drive lines of various impedances (150 ohms or greater), the VU meter is calibrated for use with a 600 ohm terminated line.

#### Auxiliary

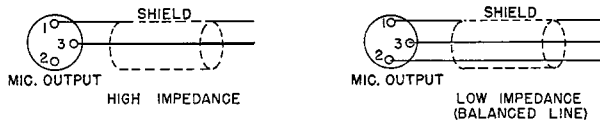
The phono jack marked AUXILIARY HI IMP OUTPUT is a high-impedance, high-level output designed primarily to feed a power amplifier requiring .5 to 2 volts, or the auxiliary or tuner input of an amplifier or tape recorder.

NOTE: The microphone, line and auxiliary outputs may be used simultaneously if desired, to provide an isolated PA feed or to drive different pieces of equipment.

#### Headphone output

The headphone output on the rear panel is designated HEADPHONES. A two-circuit phone jack is used to provide a choice of level for different headphone impedances. Normally, a single-circuit plug should be used. If inserted only partially (to the first detent), the available voltage is approximately 0.25 volts; the second position will provide approximately 0.50 volts across 1000-ohm headphones at +4 dbm (0 VU) line output. Crystal headphones may be used, but the level will be the same in either jack position.

If stereo phones are used, the two-circuit plug may be inserted completely (to second position) and output will appear in both phones.



MICROPHONE OUTPUT PLUG CONNECTION.  
FIGURE A

## SPECIFICATIONS

**Specifications** at 120 volts AC (M63) or 240 volts AC (M63-2E), 60 Hz Line Voltage.

**Frequency Response:**  $\pm 2$  db from 20 to 20,000 Hz (all controls flat)

**Voltage Gain:** (outputs terminated as noted, others open; volume and level control max.)

- Line Output: 38.5 db (600 ohm load)
- Aux. Output: 39.0 db (47 K ohm load)
- Hi-Imp. Mic. Output: -1.0 db (33 K ohm load)
- Lo-Imp. Mic. Output: -21.0 db (150 ohm load)

**Tone Controls:** Bass: +14, -19 db at 100 Hz Typ.  
Treble: + 16, -19 db at 10 K Hz Typ.

**Filters:** Hi-Cut and Lo-Cut 6 db per octave, continuously variable -3 db point.

**Noise Output** (Line with 600 ohm load):

- Volume Control min.:
  - 74 db below +8 dbm, 20 Hz - 20 K Hz
  - 81 db below +8 dbm, 300 Hz - 20 K Hz
- Volume Control max., 4.7 K ohm source:
  - 68 db below +8 dbm, 20 Hz - 20 K Hz
  - 71 db below +8 dbm, 300 Hz - 20 K Hz

**Distortion:** Under 1% T.H.D. at +8 dbm output

**Clipping Level:** +18 dbm (600 ohm load)

**VU Meter:** Calibrated for 600 ohm line termination.

- 0 V U = +8 dbm  $\pm 1$  db fixed; or
- 0 V U = +4 dbm; output may be attenuated by 20 db.

**Inputs:** Two, mixing. Impedance 50 K ohms nominal. No amplification precedes VOLUME control, so that high-level input signals cannot cause overloading.

**Outputs:**

- 600 ohm line: Balanced and floating, 150 ohms minimum load, 125 ohms actual internal imped-

ance. Will operate with up to 100 ma. DC through transformer for driving telephone lines. Auxiliary Hi-Imp.: Unbalanced, 4.7 K ohms internal impedance. For driving high-level, high impedance inputs.

Microphone Hi-Imp.: Unbalanced, 1 K ohm internal impedance. For driving medium-level high impedance microphone inputs.

Microphone Lo-Imp.: Balanced, 0.5 ohm internal impedance. For driving low-level 25 to 250 ohm microphone inputs.

Headphone: Two-level, for 600 to 2,000 ohm headphones. Crystal headphones may be used.

## Operating Voltage:

MODEL M63:

AC Operation: 108-132 volts, at 50 to 60 Hz.  
DC Operation: 30 volts, 20 ma. maximum drain for +8 dbm output.

MODEL M63-2E:

AC Operation: 220-260 volts, at 50 to 60 Hz.  
DC Operation: 30 volts, 20 ma. maximum at +8 dbm output.

The Model M63-2E is supplied with a three-conductor power-line cord, but no plug. The power-line cord plug should be installed by a qualified person. The brown lead should be connected to the "live" or "hot" terminal of the plug, and the blue lead to the neutral terminal of the plug. The green/yellow lead is the grounding conductor and should be connected to the ground or earth terminal of the plug.

## UL and CSA:

The M63 is listed by Underwriters' Laboratories, Inc. and is listed by Canadian Standards Association as certified.

**Overall Dimensions:** See Figure "B."

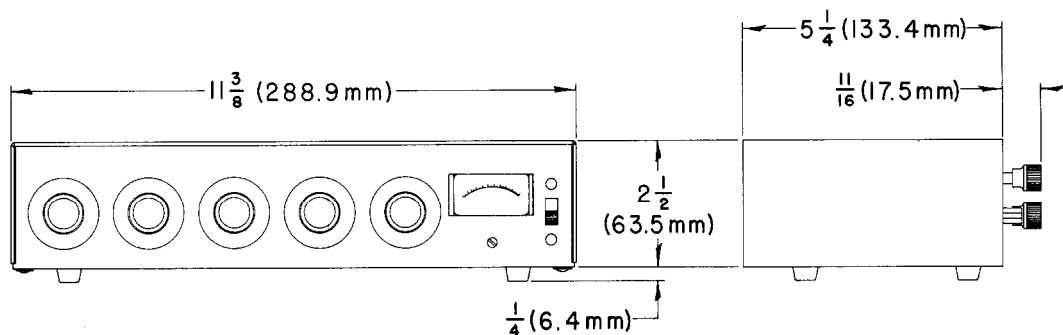
**Weight:** 3 lbs. 2 ozs. (1.4 kg)

**Operating Temperature:**

-7°C (20°F) to 57°C (135°F)

**Guarantee:** This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor.

**Shipping Instructions:** Carefully repack the unit and return it prepaid to the factory. If outside the United States, return the unit to your dealer or Authorized Shure Service Center for repair. The unit will be returned to you prepaid.



OVERALL DIMENSIONS  
FIGURE B

## VU METER

When the METER SENSITIVITY switch (on rear panel) is on the 0 VU = 8 dbm FIXED position, an output of 8 dbm on the 600 ohm line output (loaded with 600 ohms), reads 0 VU on the meter. When the METER SENSITIVITY switch is in the 0 VU VARIABLE position and the 0 VU LEVEL ADJUST control is maximum (fully clockwise), an output of 4 dbm on the 600 ohm line output (loaded with 600 ohms) reads 0 VU on the meter; at minimum position of the 0 VU LEVEL ADJUST, fully counter clockwise, an output of approximately -20 dbm on the 600 ohm line output (terminated in 600 ohms) reads 0 VU on the meter.

The variable position on the meter sensitivity switch allows the VU meter to read 0 VU for outputs ranging from -20 dbm to +4 dbm (600 ohm line terminated), by adjusting the 0 VU level adjust (screw driver adjustment on rear panel). To calibrate the VU meter properly in applications where a level other than the fixed level is needed, set the VOLUME control on the M63 until the meter deflects to the 0 VU position on the loudest peaks, then adjust the 0 VU LEVEL ADJUST control for the desired output signal level. The LEVEL ADJUST control attenuates all outputs simultaneously (except HEADPHONES), while the internal circuitry operates at the proper level to insure good signal-to-noise ratio.

## ACCESSORY 30 V.D.C.

The rear panel jacks (located near power cord) provide 30 volts DC for accessories such as the Model A68P Phono Cartridge Preamp. These jacks also are used as a power input when using the A67B Battery Power Supply.

## CONTROLS

### Volume Control

Front panel control designated VOLUME controls overall output of both high level inputs and functions as a master volume control. When the input device has a volume control of its own, the best signal-to-noise ratio is obtained by turning up that control as high as possible without encountering distortion, keeping the M63 VOLUME control low.

### Tone Controls

Front panel controls designated BASS and TREBLE are standard function tone controls having a response characteristic as shown in Figure C.

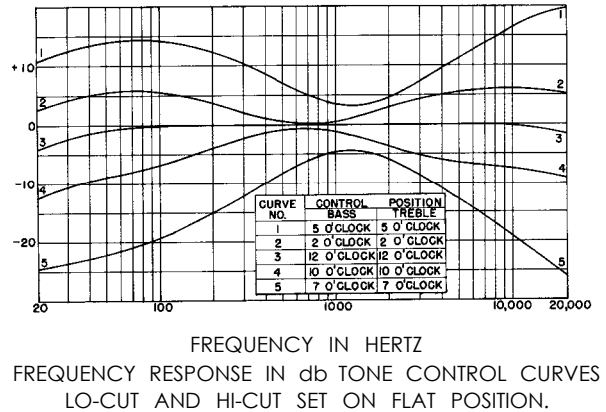


FIGURE C

### Filter Controls

Front panel controls designated LO CUT (Hz) and HI CUT (Hz) are continuously variable low pass and high pass filters (6 db per octave) with a typical response function as shown in Figure D.

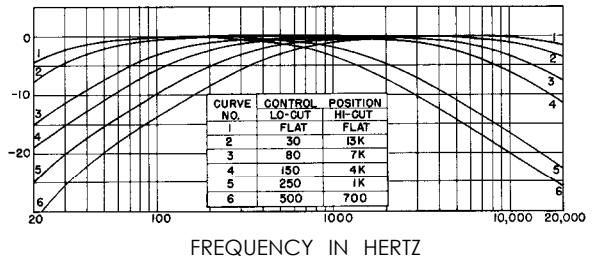


FIGURE D

FREQUENCY RESPONSE IN db-LO-CUT AND HI-CUT CONTROL CURVES BASS AND TREBLE CONTROLS SET AT 12 O'CLOCK POSITION.

FIGURE D

### Combining Tone and Filter Functions

The BASS and TREBLE control response characteristic and the LO CUT and HI CUT response characteristic may be combined to obtain a variety of overall curves, sometimes needed for special effects involving room acoustics, equipment equalization, etc. Figure E shows an example of combining these functions.

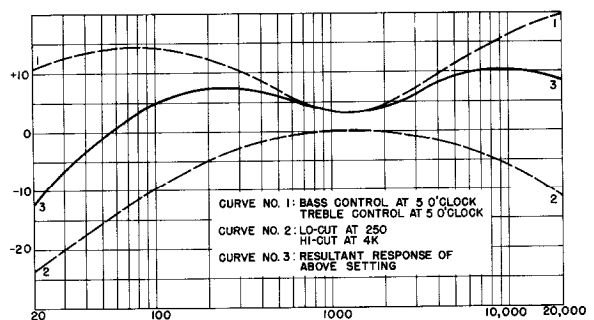


FIGURE E

FREQUENCY RESPONSE IN db COMBINING TONE CONTROL AND FILTER CURVES.

FIGURE E

In this case, the upper dashed lines show BASS and TREBLE control position; the lower dashed lines show HI CUT and LO CUT control settings. The solid curve is the combined resultant response of all settings. The resultant response is obtained by subtracting the lower curve (in db) from the upper set of curves. For instance, at 100 Hz the lower curve is 9 db below the 0 Reference line; subtract 9 db from the upper curve at 100 Hz (lowering it to 5 db **above** the 0 Reference).

The resultant curve shown might be typical of a sound system where low frequency noise was a problem (stage noise, etc.) and the room was relatively dead (heavily draped and carpeted). The low frequency roll off would keep objectionable thumping noises to a minimum, while the slight increase in response at 200 Hz will keep the system from sounding tinny. The rise in the high frequencies will add some presence so voices or music will have added clarity.

This is only one example of the response curves available with the M63. An individual calculation can be done in this manner for the other resultant curves.

## OPTIONAL ACCESSORIES

### A68P PHONO-PREAMPLIFIER

The A68P is a monaural pre-amp which may be used to convert an input of the M63 to an equalized phono input. It provides both equalization and preamplification, and is powered from the 30-volt DC power take-off provision.

### A68M MICROPHONE PREAMPLIFIER

The A68M Microphone Preamplifier provides a microphone input, either balanced low or high impedance, or a balanced bridging line input to the M63. The A68M output cable is connected to one of the M63 inputs. The A68M mounts on the left side of the M63 and receives its power from the M63 30-volt DC jacks.

### A68S STACKING KIT

This accessory consists of brackets for vertical stacking of an M68 Series Mixer and an M63 (or any combination of Shure Mixers, or Controllers). An interconnecting cable for combining units is included.

### A68SC INTERCONNECTING CABLE

This cable is a 12 in. (305 mm) long single-conductor shielded cable with a phono plug on each

end for interconnecting an M63 and an M68 Series Mixer.

### A68C OUTPUT CABLE KIT

The A68C Output Cable Kit provides a variety of output interconnection cables for use with the M63. Included are: one 15-foot (4.6m) two-conductor shielded cable with professional three-pin male and female audio connectors\*, one 12 in. (305 mm) two-conductor shielded cable with professional three-pin female audio connector\* and Hubbell twist-lock plug; one 12 in. (305 mm) single-conductor shielded adapter cable with professional three-pin female audio connector\* and Amphenol type MCI connector; and one phone plug adapter for use with MCI connector.

\*Designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series or equivalent connector.

### A68R RACK PANEL KIT

The kit consists of a 19 in. x 3½ in. (483 mm x 89 mm) precut rack panel and necessary hardware for rack mounting of the M63 with its cover in place.

### A68L LOCKING PANEL

This panel fits within the front hood of the M63 cover and locks in place to prevent tampering with the front panel controls.

### A67H HANDLE/TILT STAND

The A67H provides a convenient means of tilting the M63 to permit better panel visibility and greater ease of operation in some conditions. In the locked (tilt) position, the front panel will be elevated about 20°. In the free position, the A67H serves as a rugged carrying handle.

### A67B BATTERY POWER SUPPLY

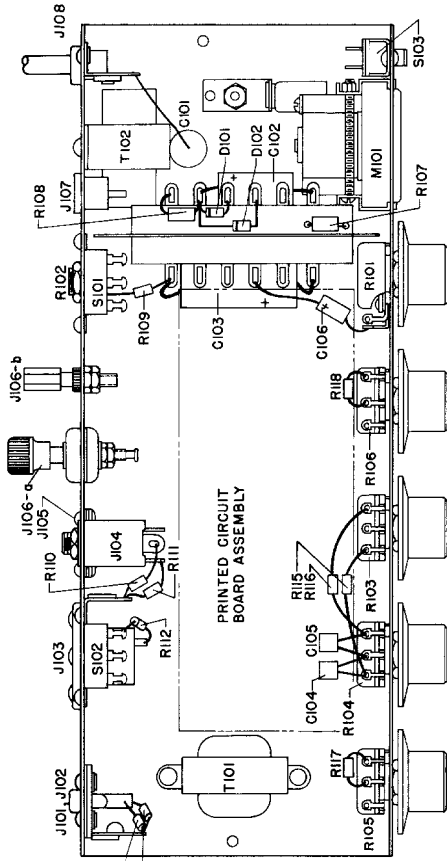
The A67B eliminates the need to connect the M63 Mixer to a wall outlet. The battery complement is three Eveready Type 222, 216, or equivalent 9 volt batteries. At room temperature, battery life is approximately **10** hours.

### AC60 ATTACHÉ CARRYING CASE

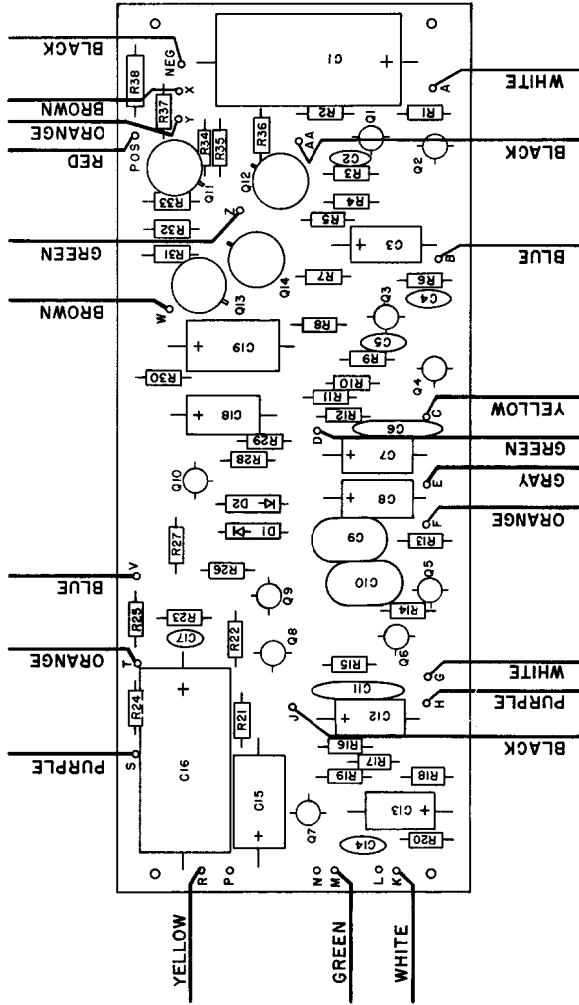
This case is compartmentalized and foam lined for an M63 and as many as four microphones, cables, adapters, and other accessories.

LAMP REPLACEMENT

1. DISCONNECT A.C. CORD.
2. REMOVE 4 PHILLIPS HEAD SCREWS RETAINING COVER. ONE ON FRONT, ONE ON BACK, TWO ON BOTTOM.
3. REMOVE COVER.
4. REMOVE SCREW AND NUT BETWEEN VU METER BRACKETS.
5. GENTLY PUSH VU METER FROM FRONT AND LIFT UP CLEAR OF CHASSIS.
6. BRACKETS MAY FALL OUT. NOTE THEIR POSITION IN CUT OUT. BRACKETS ARE INTERCHANGEABLE.
7. REMOVE SCREWS RETAINING LAMP SOCKETS FROM UNDERSIDE OF CHASSIS. SOCKETS MAY NOW BE PUSHED CLEAR OF CHASSIS, AND THE #47 LAMPS REPLACED. IT IS ADVISABLE TO REPLACE BOTH LAMPS WHEN 1 BURNS OUT.
8. REPLACE LAMP SOCKET AND LOOSELY FASTEN SCREWS.
9. PLACE 2 VU METER BRACKETS IN CUT-OUT, PUSHING THEM FIRMLY AGAINST SIDES OF CUT OUT.
10. SLIDE VU METER INTO CUTOUT. SHOULD LAMPS BE IN THE WAY, MOVE THEM. VU METER SHOULD FIT EASILY INTO CUT-OUT IF POSITIONED PROPERLY. DO NOT FORCE.
11. HOLDING VU METER FIRMLY AGAINST BACK SIDE OF CHASSIS FRONT PANEL, SQUEEZE BRACKETS AGAINST METER BODY. INSERT SCREW THROUGH HOLES IN BRACKETS AND SECURE WITH NUT. NUT GOES ON RIGHT SIDE OF METER. DO NOT OVER TIGHTEN. (SEE DIAGRAM FOR REPLACEMENT.)
12. CHECK POSITIONING OF LAMPS, AND TIGHTEN THEIR TWO MOUNTING
13. REPLACE COVER AND SECURE WITH SCREWS.



PARTS PLACEMENT

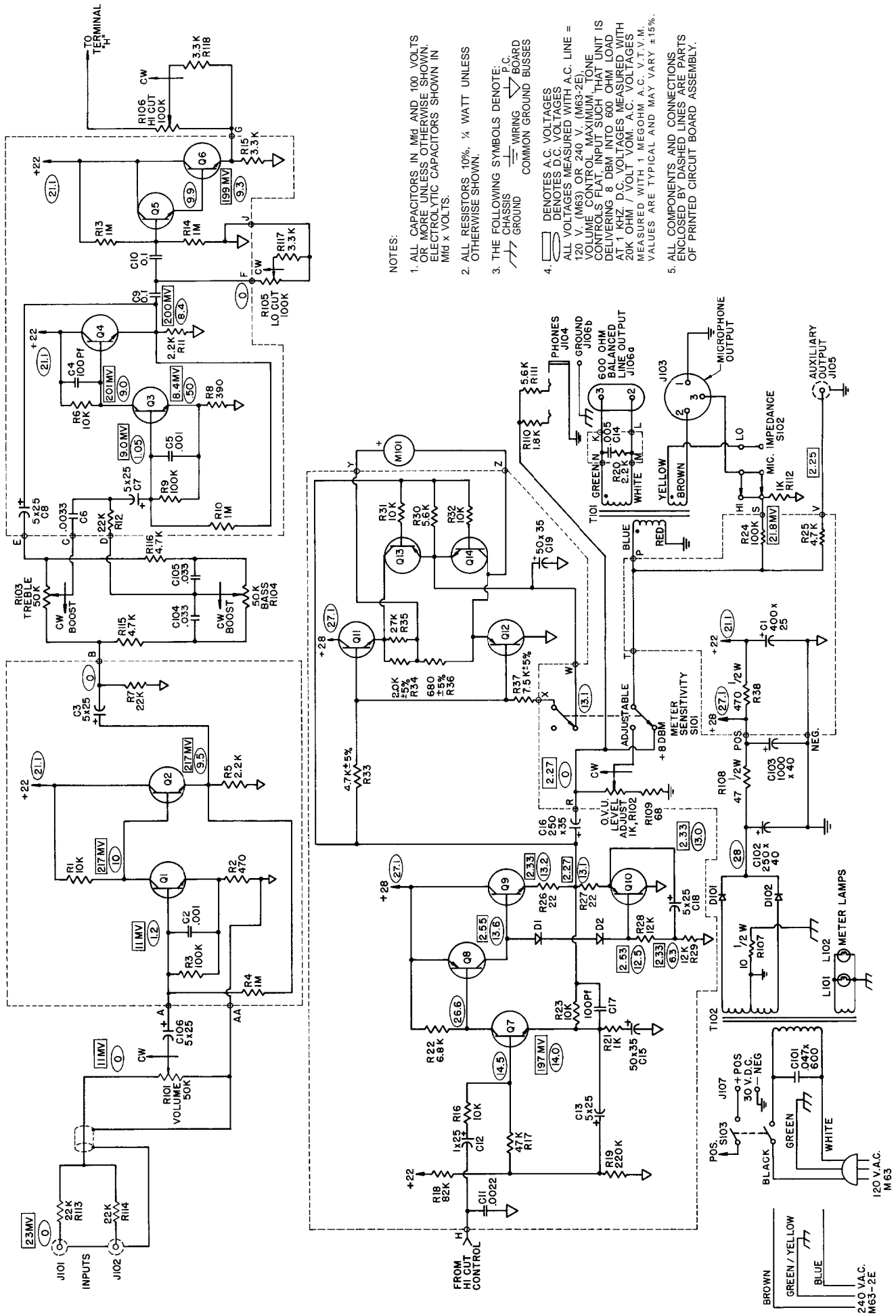


PRINTED CIRCUIT BOARD ASSEMBLY

ITEM	SHURE PART NO.	SHURE KIT NO.	QTY. IN KIT	DESCRIPTION
D1, D2, D101, D102	86A4704	RKC21	4	DIODE, SILICON, .1N4002, OR EQUIVALENT
L101, L102	95A4486	RKC7	4	LAMP, FLUO. #47, 6.3 V.A.C.
M101	95A4339	RKG80	1	METER, 280 U.A. D.C. F.S. PART NO. TO BE SELECTED HIGH GAIN, LOW NOISE SIMILAR TO MOTOROLA MPS 6821 OR T.I. 2N3771.
Q1-Q6*	86C349	RKC9	4	
Q7	86A336	RKC12	1	NPN TRANSISTOR, SILICON, T.I. TIS97
Q7*, Q8	86A335	RKC66	1	PNP TRANSISTOR, SILICON, T.I. TIS93
Q9**	86A334	RKC65	1	NPN TRANSISTOR, SILICON, T.I. TIS92
Q1, Q14	86A343	RKC65	1	NPN TRANSISTOR, GERMANIUM TYPE 2N1605A
Q12, Q13	86A342	RKC3	1	PNP TRANSISTOR, GERMANIUM TYPE 2N4004A
R101	46A021		1	POTENTIOMETER, 50K, AUDIO TAPER
R102	46A022		1	POTENTIOMETER, 1K, LINEAR TAPER
R103, R104	46A023		1	POTENTIOMETER, 50K, LINEAR TAPER
R105, R106	46A024		1	POTENTIOMETER, 100K, REVERSE AUDIO TAPER
S101, S102	55A54	RKC10	4	SWITCH, SLIDE, DPDT
S103	55B103		1	SWITCH, SLIDE, DPDT, 3 AMP.
T101	51A281	RKC18	1	TRANSFORMER, OUTPUT
T102	51A283	RKC15	1	TRANSFORMER, POWER (M63)
	51A293	RKC16	1	TRANSFORMER, POWER (M63-2E)

\*TO INSURE LOW NOISE FIGURE, PURCHASE REPLACEMENTS FOR Q1-Q6 FROM SHURE BROTHERS, INCORPORATED.  
 \*\*FOR REPLACEMENT, PURCHASE Q8 AND Q10 AS MATCHED PAIR TIS92M-TIS93M.

# MODEL M63 AND M63-2E AUDIO MASTER CIRCUIT DIAGRAM



**NOTES:**

1. ALL CAPACITORS IN M63 AND 100 VOLTS OR MORE UNLESS OTHERWISE SHOWN. ELECTROLYTIC CAPACITORS SHOWN IN Mfd x VOLTS.
2. ALL RESISTORS 10%, 1/4 WATT UNLESS OTHERWISE SHOWN.
3. THE FOLLOWING SYMBOLS DENOTE:  
 CHASSIS GROUND  
 WIRING BOARD  
 P.C. BOARD  
 COMMON GROUND BUSES
4. DENOTES A.C. VOLTAGES MEASURED WITH A.C. LINE = 120 V. (M63) OR 240 V. (M63-2E). VOLUME CONTROL MAXIMUM DELIVERING 8 DBM INTO 600 OHM LOAD AT 1 KHZ D.C. VOLTAGES MEASURED WITH 20K OHM / VOLT VOM. A.C. VOLTAGES MEASURED WITH 1 MEGOHM A.C. V.T.V.M. VALUES ARE TYPICAL AND MAY VARY ±15%.
5. ALL COMPONENTS AND CONNECTIONS ENCLOSED BY DASHED LINES ARE PARTS OF PRINTED CIRCUIT BOARD ASSEMBLY.