

GENERAL

The Shure Model M63 AUDIO MASTER® is designed to give maximum flexibility in the control of volume, bass response, treble response, and high and low frequency rolloff. 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.

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
- VU meter to monitor audio level
- Continuously variable high-pass and low-pass 6 dB per octave filters
- Bass and treble tone controls

SPECIFICATIONS

(At 120 volts ac, 60 Hz line voltage)

Frequency Response

± 2 dB, 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 (47k load)
 Hi-Imp. Mic. Output: -1.0 dB (33k load)
 Lo-Imp. Mic. Output: -21.0 dB (150-ohm load)

Tone Controls

Bass: $+14$, -19 dB at 100 Hz Typical
 Treble: $+16$, -19 dB at 10k Hz Typical

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.:
 76 dB below $+8$ dBm, 20 Hz -20 kHz
 81 dB below $+8$ dBm, 300 Hz -20 kHz
 Volume Control max., 4.7k source:
 68 dB below $+8$ dBm, 20 Hz -20 kHz
 71 dB below $+8$ dBm, 300 Hz -20 kHz

Distortion

Under 1% THD at $+8$ dBm output

Clipping Level

$+18$ dBm (600-ohm load)

VU Meter (Calibrated for 600-ohm line termination)

0 VU = $+8$ dBm ± 1 dB fixed; or
 0 VU = $+4$ dBm; output may be attenuated by 20 dB

Inputs

Two, mixing. Impedance 50k 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 impedance. Will operate with up to 100 mA dc through transformer for driving telephone lines.

Auxiliary Hi-Imp.: Unbalanced, 4.7k internal impedance. For driving high-level, high impedance inputs.

Microphone Hi-Imp.: Unbalanced, 1k 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

AC Operation: 108-132 volts, at 50/60 Hz
 DC Operation: 30 volts, 20 mA maximum drain for $+8$ dBm output

Overall Dimensions

See Figure 2

Weight

1.4 kg (3 lb 2 oz)

Operating Temperature

-7°C to 57°C (20° to 135°F)

Certifications

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

CONTROLS, CONNECTIONS AND OPERATION

WARNING

To reduce the risk of fire or electric shock, do not expose this appliance to rain or extreme moisture.

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, etc.), tape recorder, AM-FM tuner, or output from a Shure Model A68P Phonograph Pre-amplifier (accessory).

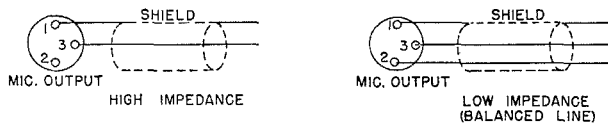
To use with the Shure M68 Microphone Mixer series, connect the AUX. HIGH LEVEL OUTPUT on the mixer to the input of the M63 with a shielded cable having a phono plug on each end. Set the MASTER volume control on the mixer to approximately 6 and use the VOLUME control on the M63 to adjust the overall level.

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 $\frac{1}{4}$ " 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 the M63, install a 180-ohm resistor from tip to sleeve in the phone plug and use the M63 volume control to adjust the output to the 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 audio connector designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series or equivalent connector. See Figure 1 for output receptacle connections.

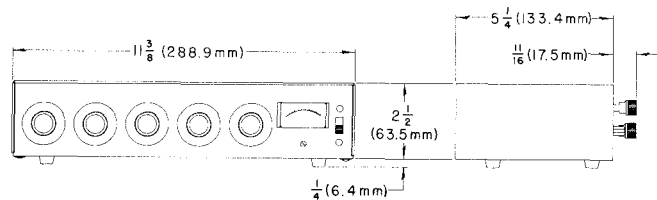


MICROPHONE OUTPUT PLUG CONNECTION

FIGURE 1

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.



OVERALL DIMENSIONS

FIGURE 2

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 the output will appear in both phones.

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 counterclockwise, 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 (screwdriver 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 26 Vdc open circuit (23 Vdc at 10 mA max.) for accessories. These jacks also are used as a power input when using the A67B Battery Power Supply.

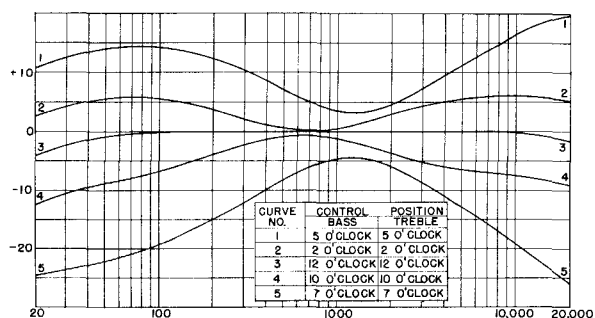
CONTROLS

Volume Control

The front panel control designated VOLUME controls the 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 Control

Front panel controls designated BASS and TREBLE are standard function tone controls having a response characteristic as shown in Figure 3.

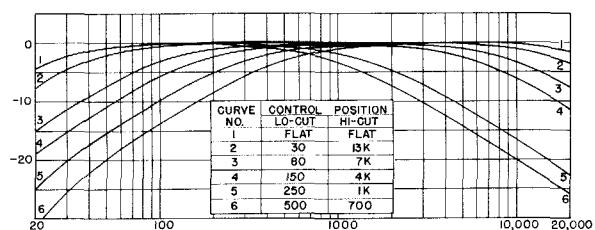


FREQUENCY IN HERTZ
FREQUENCY RESPONSE IN dB—TONE CONTROL CURVES
LO-CUT AND HI-CUT SET ON FLAT POSITION

FIGURE 3

Filter Controls

The 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 4.



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

FIGURE 4

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 5 shows an example of combining these functions.

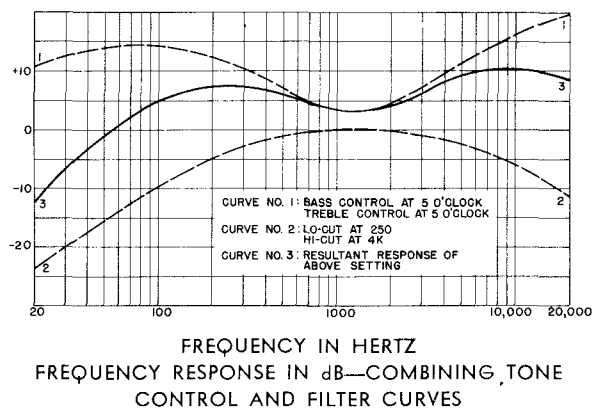


FIGURE 5

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 rolloff 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.

WARNING

Voltages in this equipment are hazardous to life.
Refer servicing to qualified service personnel.

OPTIONAL ACCESSORIES

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.

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 the M63 with its cover in place. Gray hammertone finish.

A68R-BL 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 the M63 with its cover in place. Black finish.

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.

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 compartmented and foam-lined for an M63 and as many as four microphones, cables, adapters, and other accessories.

GUARANTEE

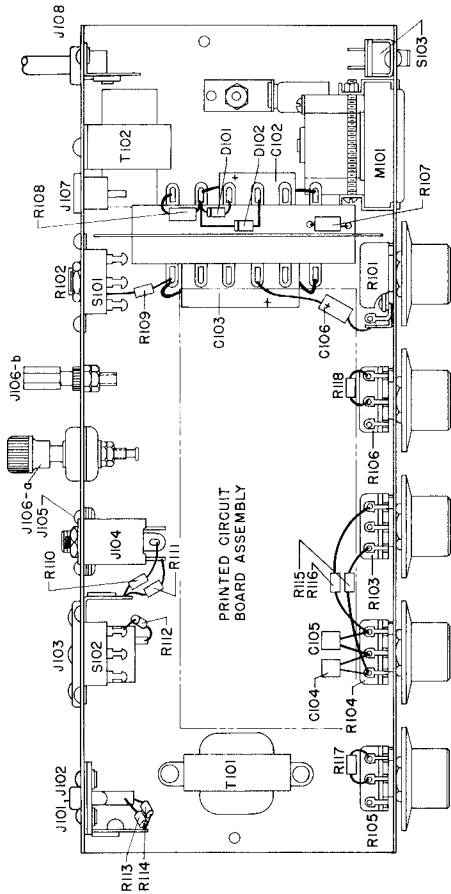
This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor. This guarantee is in lieu of any and all other guarantees or warranties, express or implied, and there shall be no recovery for any consequential or incidental damages.

SHIPPING INSTRUCTIONS

Carefully repack the unit and return it prepaid to:

Shure Brothers Incorporated
Attention: Service Department
1501 West Shure Drive
Arlington Heights, Illinois 60004

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.



PRINTED CIRCUIT BOARD ASSEMBLY

LAMP REPLACEMENT

1. DISCONNECT AC 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 cutout. Brackets are interchangeable.
7. Remove screws retaining lamp sockets from underside of chassis. Sockets may now be pushed clear of chassis and 47 lamps replaced. It is advisable to replace both lamps when one burns out.
8. Replace lamp socket and loosely fasten screws.
9. Place two VU meter brackets in cutout, pushing them firmly against sides of cutout.
10. Slide VU meter into cutout. Should lamps be in the way, move them. VU meter should fit easily into cutout 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 overtighten. (See diagram for replacement.)
12. Check positioning of lamps, and tighten their two mounting screws.
13. Replace cover and secure with screws.

REPLACEMENT PARTS LIST

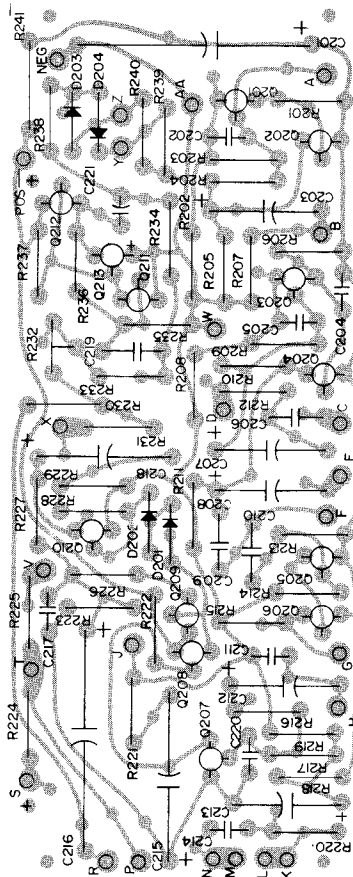
REFERENCE DESIGNATION	REPLACEMENT KIT NO.*	REPLACEMENT KIT CONSISTS OF:			COMMERCIAL ALTERNATE
		QTY.	PART NO.	DESCRIPTION	
D201, D202	RKC21	4	86A404	Diode, Silicon, 100V, 1/2A	Motorola 1N4002
D203, D204	RKC19	4	86A405	Diode, Germanium	RCA 1N48, 1N60
M101	RKC80	1	95A499	Meter, 200 μ Adc, FS	None
PL101, PL102	RKC7	4	95A466	Lamp, 6.3 Vac	GE 47
Q201-Q205	RKC9	4	86C349	Transistor, NPN (selected for low NF)	Motorola MPS6521; TI 2N3711
Q207	RKC12	1	86A386	Transistor, NPN	TI T1S97
Q208, Q210**	RKC66	1	86A335	Transistor, PNP	TI T1S92
Q209**	RKC65	1	86A334	Transistor, PNP	Motorola MPS6521; TI 2N3711
Q211, Q212	RKC9	4	86A349	Transistor, NPN	TI T1S97
Q213	---	---	86A348	Transistor, PNP	Motorola 2N5087
R101	RKC3	1	46A021	Potentiometer, 50k, Audio Taper	None
R102	---	---	46A022	Potentiometer, 1k, Linear Taper	None
R103, R104	---	---	46A023	Potentiometer, 50k, Linear Taper	None
R105, R106	---	---	46A024	Potentiometer, 100k, Linear Taper	None
R232	---	---	46C033	Potentiometer, 50k, Linear Taper	None
S101, S102	---	---	55C119	Switch, Slide, DPDT	None
S103	---	---	55B103	Switch, Slide, DPDT	None
T101	RKC18	1	51A231	Transformer, Mic Output	None
T102	RKC15	1	51A253	Transformer, Power	None

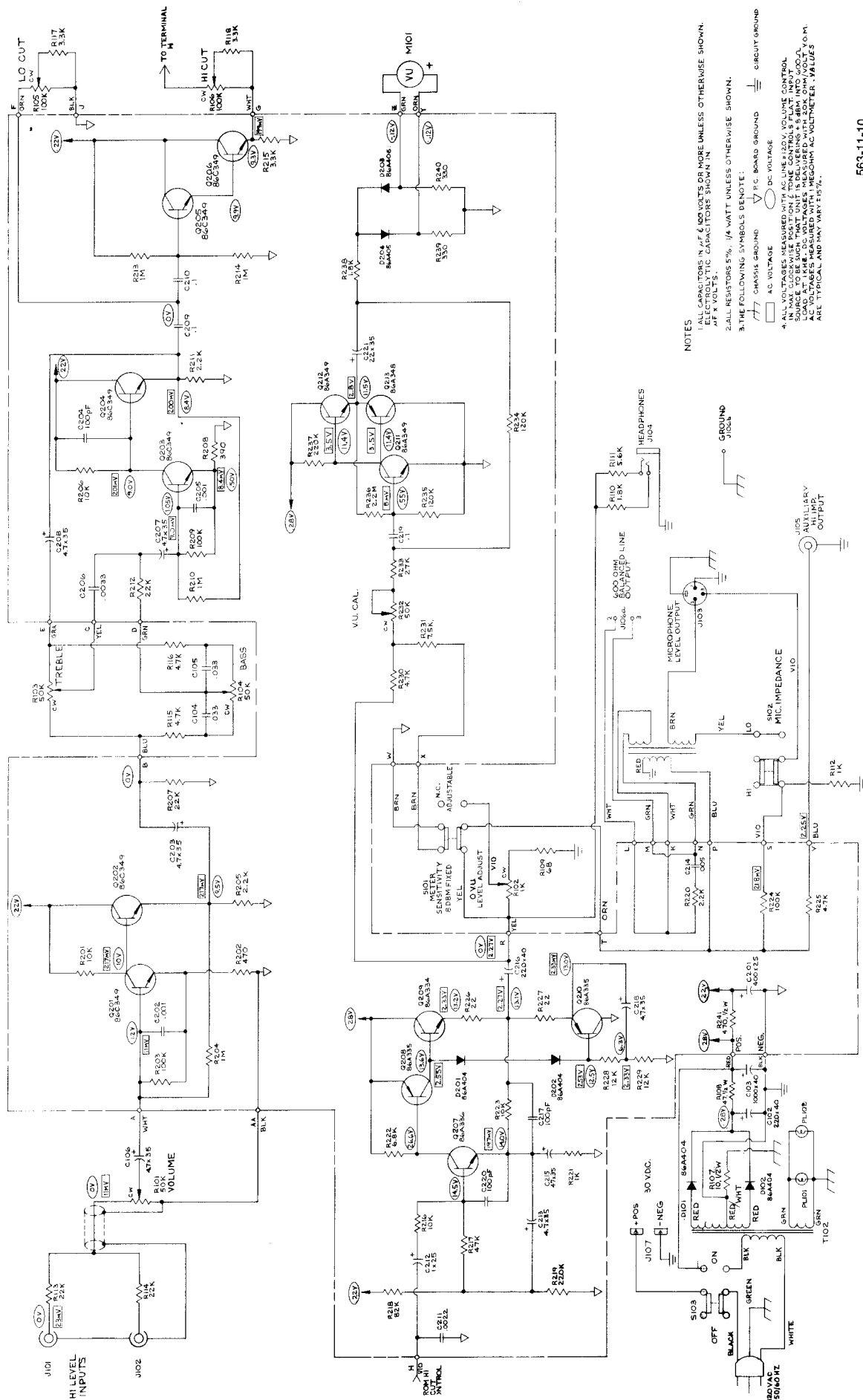
*Parts listed as RKC Kits should be ordered by that kit number. Any orders received for piece parts where RKC Kit number is shown will be shipped in RKC quantities.

**Replace as matched pair: T1S92M-T1S93M.

PRINTED CIRCUIT BOARD ASSEMBLY (COMPONENT SIDE)

8089-1/8021-1





- NOTES
1. ALL CAPACITORS IN μF & 100 VOLTS OR MORE UNLESS OTHERWISE SHOWN. ELECTROLYTIC CAPACITORS SHOWN IN μF X VOLTS.
 2. ALL RESISTORS 5% 1/4 WATT UNLESS OTHERWISE SHOWN.
 3. THE FOLLOWING SYMBOLS DENOTE:
 - AC VOLTAGE
 - DC VOLTAGE
 - CHASSIS GROUND
 - F.C. BOARD GROUND
 - CIRCUIT GROUND
 4. ALL VOLTAGES MEASURED WITH AC LINE 120V VOLUME CONTROL IN MAX. COUNTERWISE POSITION & TONE CONTROLS FLAT. INPUT LOAD AT 1000 OHMS. ALL DC VOLTAGES MEASURED WITH 50K OHM VOLT. V.O.M. AC VOLTAGES MEASURED WITH MEGOHM AC VOLTMETER. VALUES ARE TYPICAL AND MAY VARY 10%.

563-11-10

MODEL M63 AUDIO MASTER®
CIRCUIT DIAGRAM