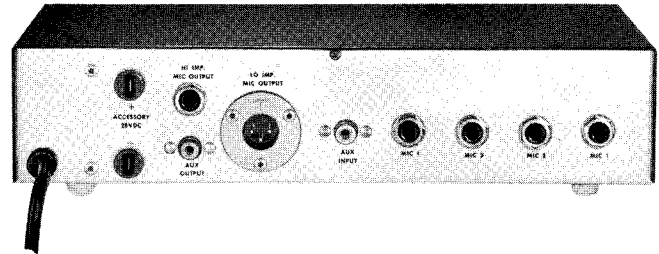


**SHURE**

222 HARTREY AVE., EVANSTON, ILL. 60204 U.S.A.

MICROPHONES AND ELECTRONIC COMPONENTS

® AREA CODE 312/328-9000 • CABLE: SHUREMICRO

**DATA SHEET****MODEL M68P  
MICROPHONE MIXER****GENERAL**

The Shure Model M68P is a five-channel, completely transistorized, portable microphone mixer for use with sound reinforcement, tape recording and audio-visual systems.

The Mixer features:

- A high-impedance (unbalanced) microphone level output.
- Four microphone inputs for high-impedance (unbalanced) microphones.
- One high-level auxiliary input suitable for tape, tuner, and accessories such as the A68P Phono Preamplifier.
- Individual volume controls to balance each of the five inputs.
- A master volume control to simultaneously control level of all inputs.
- A low-impedance (balanced or unbalanced) microphone level output.
- A high-impedance, high-level auxiliary output.
- A dc power supply jack. This jack supplies 28 volts dc for use with accessories such as the Model A68P Phono Preamplifier or M62V Level-Loc or it may be used as power input in connection with the Model A67B Battery Power Supply (Accessory).
- A facility for connecting two or more mixers together to obtain additional microphone inputs. For example, two mixers connected together will give a total of eight microphone inputs and one auxiliary input.
- Listing by Underwriters' Laboratories Inc. and listing by Canadian Standards Association as certified.

**SPECIFICATIONS**

**Gain**  
At 1,000 Hz

INPUT	OUTPUTS		
	Low Imp. Mic.	High Imp. Mic.	High Imp. Aux.
Microphone 5 mV produces	-16 dB .78 mV	+8 dB 12.7 mV	+35 dB 285 mV
Auxiliary 50 mV produces	-38 dB .64 mV	-14 dB 10 mV	+13 dB 227 mV

**Frequency Response**

Flat within  $\pm 3$  dB from 40 Hz to 20,000 Hz

**Hum and Noise**

70 dB below rated output (Aux. Output)

**Equivalent Input Noise**

33 kilohm source, 103 dB below 1 volt

**Impedance**

INPUT	DESIGNED FOR USE WITH	ACTUAL IMPEDANCE
Microphone	Unbalanced 10 to 50 kilohm microphones	60 kilohms
Auxiliary	100 ohm to 10 kilohm unbalanced high-level sources	40-70 kilohms*

OUTPUT	DESIGNED FOR USE WITH	ACTUAL IMPEDANCE
Low Imp. Mic.	Balanced or unbalanced 25 to 600 ohm microphone-level circuits	150-300 ohms*
High Imp. Mic.	Unbalanced 10 to 50 kilohm microphone-level circuits	30-40 kilohms*
Auxiliary	Unbalanced high-impedance (10 kilohms or greater) auxiliary circuits	2.5-3 kilohms*

\* Depending upon control settings

**Distortion**

Less than 1% total harmonic distortion when low-impedance microphone output is at 20 mV level, high-impedance microphone output is at 200 mV level, and auxiliary output is at 2.0 volt level.

**Phase**

All microphone inputs and outputs are in phase. Auxiliary input and output are out of phase with the microphone inputs and outputs.

**Clipping Levels, Minimum Input**

Microphone **Clipping Level** 450 mV

**Output**

Microphone, High Imp. **Clipping Level** 850 mV  
Microphone, Low Imp. 60 mV  
Auxiliary 4 volts

**Operating Voltage**

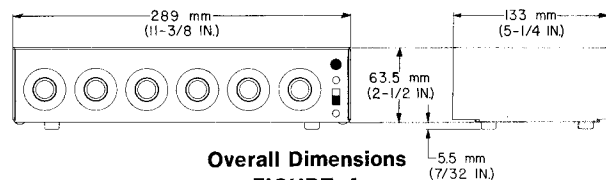
108-132 volts, 50/60 Hz, 3 watts

**D.C. Operation**

28 volts dc  $\pm 20\%$ , 5 mA

**Dimensions**

See Figure A

**Net Weight**

1.25 kg (2 $\frac{3}{4}$  lb)

**INSTALLATION****Connection Between Mixer and Components**

For balanced-line microphone level output connection, use two-conductor, low capacity shielded cable. For unbalanced (high-impedance) microphone level or auxiliary high-level output connection, use single-conductor, low capacity shielded cable.

## Grounding

If there should be objectionable hum, connect the metal chassis of the mixer to a good ground such as a metal frame of a wall outlet or a water or steam pipe. This is normally accomplished automatically through the ground wire of the power cord.

## INPUT CONNECTIONS

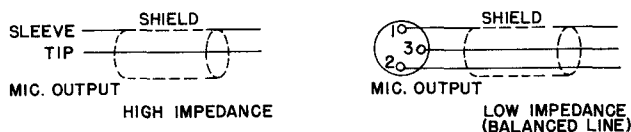
**Microphones:** A maximum of four high-impedance dynamic, ribbon, or condenser microphones may be connected to the standard 1/4" phone jacks marked MIC. 1, MIC. 2, MIC. 3, MIC. 4. The microphone inputs may be converted for use with low-impedance microphones by utilizing accessory plug-in transformers Model A95 Series. The unit is not recommended for use with crystal or ceramic microphones.

**NOTE:** Some condenser microphones produce very high output signals which may overload the input of a mixer.

**Auxiliary:** The phono jack on the rear of the panel marked AUX. INPUT will accept output from a high-impedance, high-level source such as a tape recorder, AM-FM tuner, or output from the Model A68P Phono Preamplifier (accessory). The Model A68M Microphone Preamplifier (accessory) may be connected to this jack to provide a fifth microphone input.

## OUTPUT CONNECTIONS

**Low Impedance Microphone:** The receptacle marked LO IMP. MIC. OUTPUT is a low-impedance microphone level output. This output is the "mixed" output of all the input sources and is designed to work into a 25 to 600-ohm microphone line or into a low-impedance amplifier or tape recorder microphone input. The receptacle is a professional three-pin audio connector (male).† See Figure B for output receptacle connections.



Microphone Output Connections

FIGURE B

**High Impedance Microphone:** The phone jack marked HI IMP. MIC. OUTPUT is a high-impedance microphone level output. This output is, also, the "mixed" output of all sources, designed to work into a high-impedance amplifier or tape recorder microphone input. See Figure B for output jack connections.

**NOTE:** The high- and low-impedance microphone outputs may be used simultaneously.

**Auxiliary:** The phono jack marked AUX. OUTPUT is a high-impedance high-level output designed primarily to feed a power amplifier requiring 0.5 to 2 volts or the auxiliary or tuner input to an amplifier or tape recorder. This output will also drive the input of the Model M63 Audio Master.

**Accessory 28-volt dc:** This rear panel jack marked ACCESSORY 28 V.D.C. provides 28 volts dc for accessories such as the Model A68P Phono Preamplifier, Model A68M Microphone Preamplifier or M62V Level-Loc. The jack is also used as the power input when using the Model A67B Battery Power Supply (accessory) for battery operation of the M68P Mixer.

† Designed to mate with Cannon XL series, Switchcraft A3 (Q.G.) series or equivalent connector. [Shure part 95A548 (female)].

## OPERATION

**Power:** Connect the Microphone Mixer power line cord to the proper ac power outlet. See Operating Voltage under Specifications. The M68P has a three-conductor cable with a three prong plug.

**Volume Controls:** The MASTER gain control and the individual gain controls for each of the five channels are identified on the front panel.

The individual gain controls should generally be set near maximum (fully clockwise) and the MASTER gain control adjusted to required output. Individual channel gain controls not being used should be kept at minimum gain (fully counterclockwise).

**Identifying Controls:** Pressure sensitive adhesive labels are supplied with the Mixers as a means of identifying each control and recording that controls position when optimum results have been obtained. The labels are easily removed when their use is no longer required.

## CONNECTING TWO UNITS TOGETHER

Two M68P Mixers may be combined to give a total of eight microphone channels plus an auxiliary input.

- Connect the AUX. OUTPUT of Unit 1 to the AUX. INPUT of Unit 2.
- Connect microphones to mixers and set each microphone input control to #0 position.
- Take the output signal for recorder or P.A. amplifier from the appropriate output jack on Unit 2.
- Set MASTER control on Unit 1 to position #4.
- Set AUX. control on Unit 2 to position #10.
- The MASTER control on Unit 2 is now the MASTER for all inputs.
- Advance MASTER control (Unit 2) to about #5 position and adjust individual microphone controls for proper level. If overall gain is too low or too high the MASTER control (Unit 2) may be adjusted.
- If an input to the auxiliary channel is needed, such as for a tape recorder or tuner, use AUX. INPUT on Unit 1. Use AUX. control on Unit 1 for level adjustment of the auxiliary source. The master gain control for the entire system is the MASTER control on Unit 2.

The Model A68S Stacking Kit includes stacking brackets for attaching the two mixers firmly together plus the required inter-connecting cable. The cable only, is available separately under the Model A68SC.

## GUARANTEE

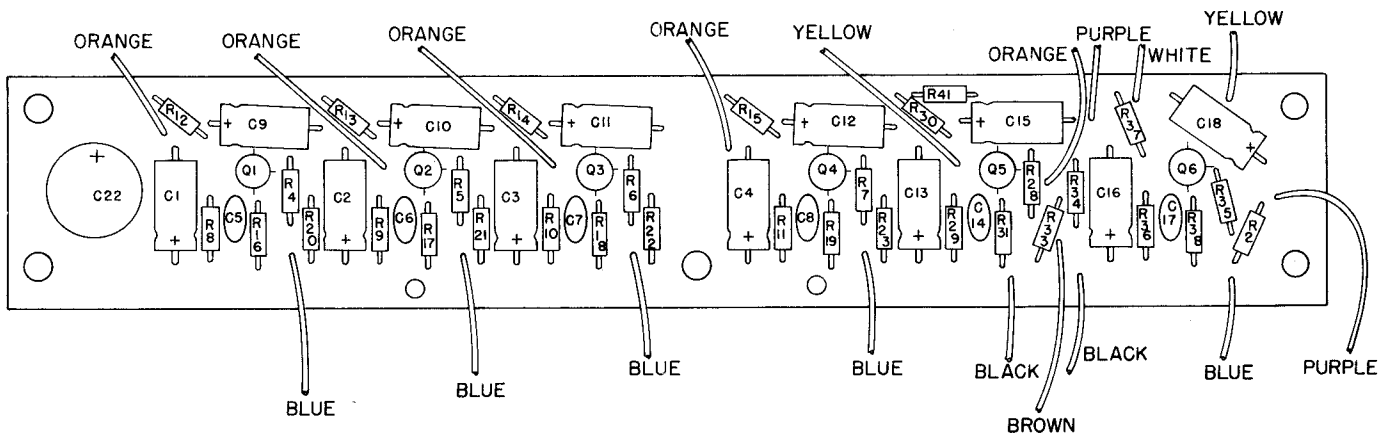
This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor.

## 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.

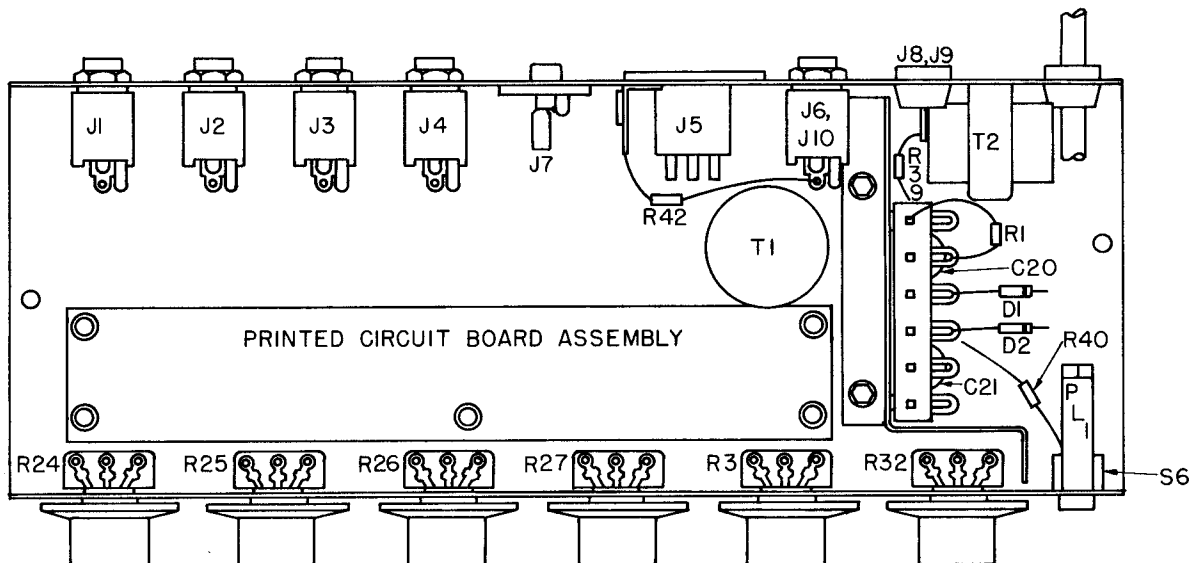
## OPTIONAL ACCESSORIES

Battery Power Supply	Model A67B
Output Cable Kit	Model A68C
Locking Panel	Model A68L
Phono Preamp	Model A68P
Rack Panel Kit	Model A68R
Stacking Kit	Model A68S
Interconnecting Cable	Model A68SC
Attaché Case	Model AC60
Handle/Tilt Stand	Model A67H
Line Matching Transformer	Model A95 Series
Microphone Preamplifier	Model A68M



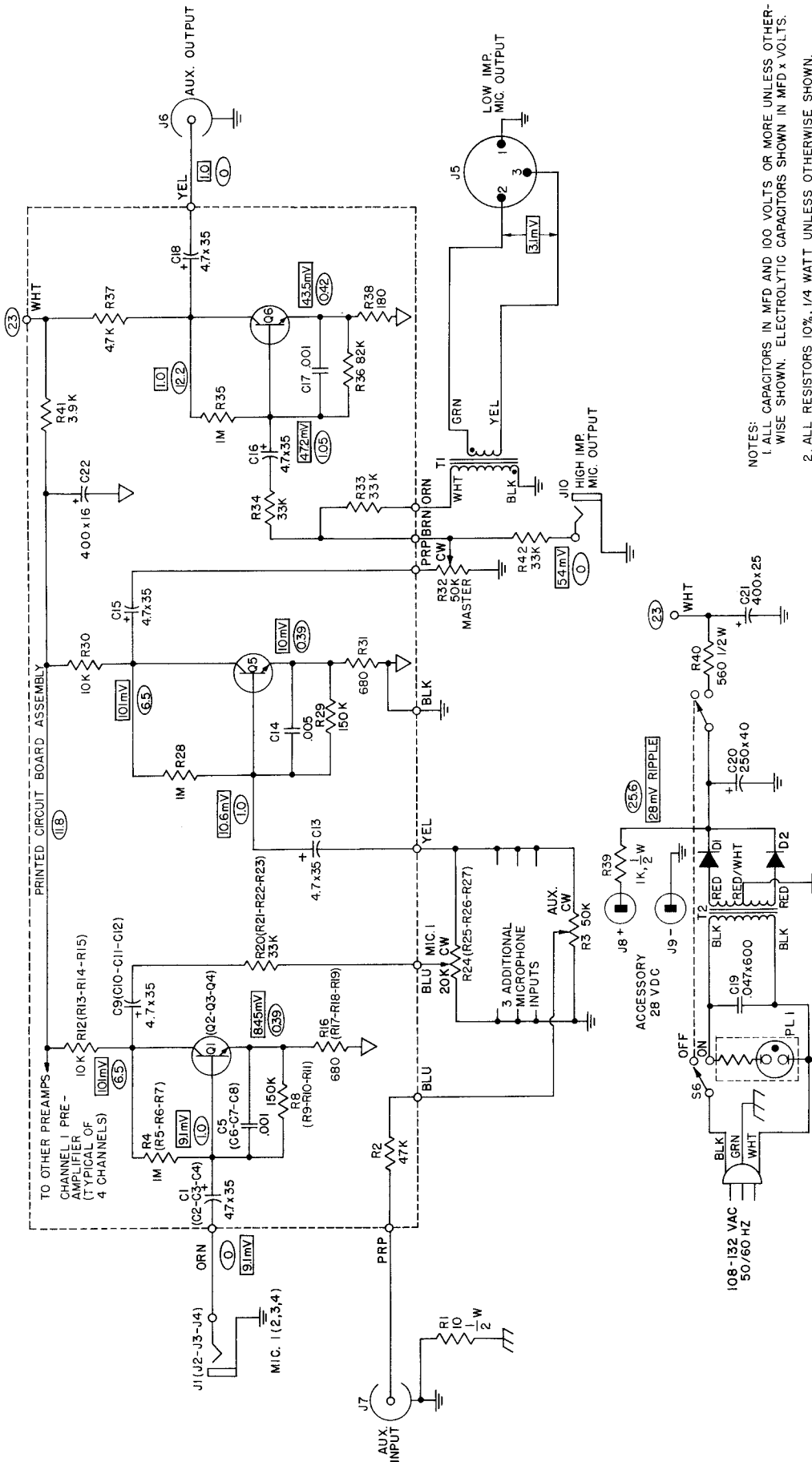
PRINTED CIRCUIT BOARD ASSEMBLY

PARTS LIST			
ITEM	SHURE PART NUMBER	QTY. IN RKC KIT	DESCRIPTION
DI,D2	RKC21	4	DIODE, SILICON, IN4002 OR EQUIVALENT
Q1-Q6	RKC9	4	NPN TRANSISTOR, SILICON, SELECTED HIGH GAIN, LOW NOISE, SIMILAR TO 2N5088
R3,R32	46A011	1	POTENTIOMETER, 50K
R24-R27	46A010	1	POTENTIOMETER, 20K
S6	55B103	1	SWITCH, SLIDE, DPDT, 3 AMP.
T1	RKC81	1	TRANSFORMER-SHIELD ASSEMBLY
T2	51A212	1	POWER TRANSFORMER
PL1	RKC45	1	NEON PILOT LIGHT ASSEM.(RESISTOR INTERNAL)
	RKC6	1	KNOB (BLACK)
	RKC67	1	KNOB (GRAY)



PARTS PLACEMENT

(OVER)



- NOTES:
1. ALL CAPACITORS IN MFD 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 PC BOARD  
 COMMON GROUND BUSES
  4. DENOTES A C VOLTAGE  
 DENOTES D C VOLTAGE  
 ALL VOLTAGES MEASURED WITH AC LINE = 120 V. MIC. 1 AND MASTER CONTROLS MAX. ALL OTHERS MIN. MIC. 1 INPUT 1 KHZ SUCH THAT AUX. OUTPUT IS 1 VOLT. AUX. OUTPUT LOADED WITH 47K OHMS, HIGH IMP. MIC. OUTPUT LOADED WITH 33K OHMS, AND LOW IMP. MIC. OUTPUT LOADED WITH 150 OHMS. DC VOLTAGES MEASURED WITH 11 MEGOHM VTVM. AC VOLTAGES MEASURED WITH 1 MEGOHM AC VTVM. VALUES ARE TYPICAL AND MAY VARY ± 15%.

# MODEL M68P MICROPHONE MIXER CIRCUIT DIAGRAM