

### NOISE-CANCELLING ELECTRET CONDENSER MICROPHONE



#### GENERAL

The Shure Model 592T is a noise-cancelling replacement microphone for many mobile radio sets. The microphone is compatible with a variety of five-conductor, shielded, coil-cord cables (sold separately), each of which has a locking, telephone-type modular plug on the microphone end, and a choice of popular transmitter input connectors on the other. One cable model provides only bare tinned leads on the transmitter input end so that the user can install the desired connector. Since cable damage is the major cause of microphone failure, this makes the 592T among the first communications microphones to offer economical, quick and simple repair capability.

The 592T is rugged and reliable. It has a bidirectional pickup pattern and provides extremely clear transmission, especially in noisy environments. In addition to its clear, crisp response, tailored for voice-frequency communications, the 592T has extremely low sensitivity to hum pickup and low susceptibility to radio-frequency interference.

The 592T is ergonomically designed; it fits naturally and comfortably in the hand and is not affected by heat or humidity. The rugged ARMO-DUR® case is immune to oil, grease, most fumes and solvents, salt spray, sun, rust and corrosion. It is outstanding in its ability to withstand mechanical shocks and vibration. The Million-Cycle Plus leaf-type switch is a double-pole, single-throw type, designed to resist the effects of severe operating conditions and constant usage. It has nickel-silver blades, and its contacts are palladium-alloyed for reliable, oxidation-free operation.

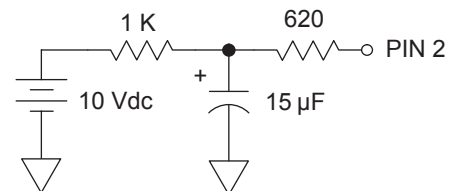
The modular construction of the 592T provides excellent convenience in field servicing. The 592T is furnished with a sturdy mounting bracket and a screwdriver to release the modular cable plug.

#### Features

- Modular-plug coil-cord-easily changed for other radio sets or to replace defective cable
- Noise-cancelling bidirectional pickup pattern
- Frequency response from 200 to 4,000 Hz, tailored for voice communications
- Built-in transistor amplifier powered by biased audio from radio set
- Low sensitivity to hum pickup
- Low susceptibility to radio frequency interference
- Rugged Million-Cycle Plus™ leaf-type switch stands up under severe environments and constant use
- Usable in high-ambient-noise environments
- High-impact ARMO-DUR® case is ergonomically designed-stronger and lighter than die-cast metal, comfortable to the touch in hot or cold weather
- Rugged and dependable under all operating conditions
- Long-life vinyl-rubber-jacketed coil cord available with plugs to fit most popular two-way radios
- Sturdy, convenient mounting button for attaching to equipment or nearby surface using supplied mounting bracket

#### RADIO INPUTS

The 592T operates with two-way radio sets with input circuits similar to that shown in Figure 1.



MICROPHONE INPUT CIRCUIT  
FIGURE 1

#### MOUNTING

The 592T is provided with a rear-case hang-up button for use with a grounded mounting bracket on or near associated equipment.

**IMPORTANT:** The microphone hang-up button is connected to the blue lead (modular connector pin 4) for radios with microphone hang-up sensing.

**NOTE:** Certain radio sets require an open circuit when the microphone is on-hook; see *Service Instructions* for hang-up sensing circuit modification.

## SPECIFICATIONS

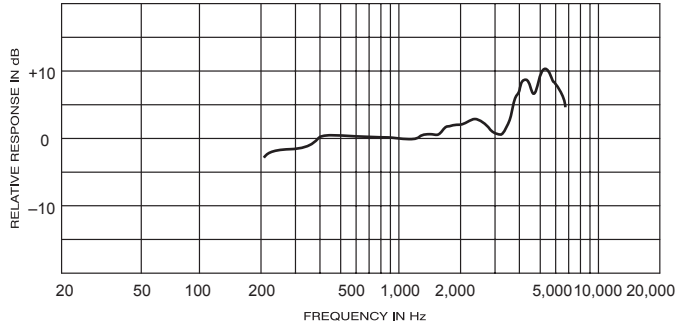
(Test conditions, unless otherwise specified: audio output measured between pin 2 and ground; PTT switch depressed; no hang-up button connection; dc VTVM 10 MΩ or greater input impedance; ac VTVM 1 MΩ or greater input impedance.)

### Type

Electret condenser

### Frequency Response

200 to 4,000 Hz (see Figure 2)



TYPICAL FREQUENCY RESPONSE

FIGURE 2

### Polar Pattern

Noise-cancelling bidirectional

### Output Level (at 1,000 Hz, 1 cm)

-15 dB/100 μbar ± 5.0 dB (0.178 V)  
(0 dB = 1 V/100 μbars)

### DC Supply Current

2.8 mA ± 0.3 mA

### Hum Sensitivity

78 dB maximum equivalent SPL as measured in 12K Vac field

### Audio Polarity

Positive sound pressure produces positive voltage at pin 2 with respect to ground

### Environmental Conditions

Operating Temperature: ...-40° to 76° C (-40° to 185° F)

Storage Temperature: .....-16° to 76° C (-65° to 185° F)

Relative Humidity: .....0 to 100% (non-condensing)

### Microphone Connector

6-conductor modular telephone type (6 conductors used)

### Switch

Mechanical: Double-pole, single-throw, leaf-type, push-to-talk function, normally open, cartridge shunt normally closed

### Cable (optional)

Detachable, 1.4 m (48 in.), 5-conductor (1 shielded), vinyl-rubber-jacketed coil cord with modular plug on microphone end (see table for available installed equipment plugs)

### Construction

Case: Black textured high-impact ARMO-DUR®

### Dimensions

See Figure 3

### Net Weight

105 grams (3.7 oz), less cable

## REPLACEMENT PARTS

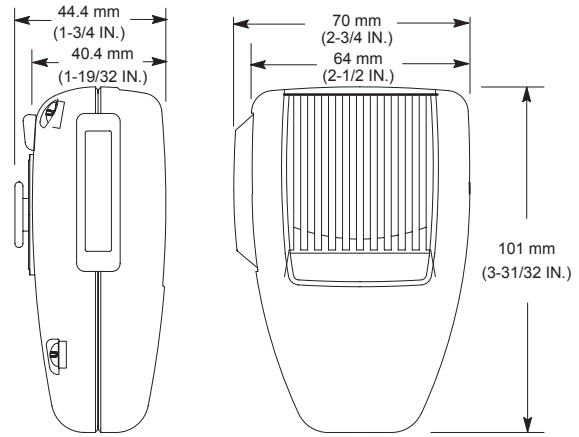
Switch Assembly ..... RK263S

Cable and Modular Plug ..... See cordset table

## FURNISHED ACCESSORIES

Screwdriver..... 80B498

Mounting Bracket..... RK6MB



OVERALL DIMENSIONS

FIGURE 3

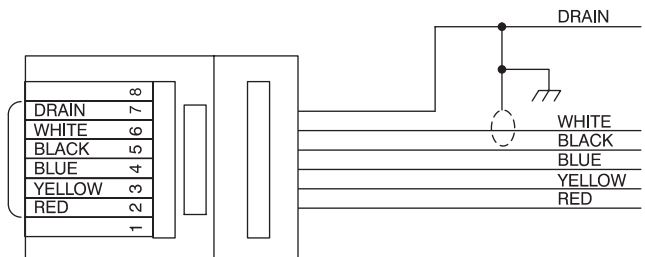
## MICROPHONE CABLES

The 592T can be used with various MODULINK® microphone cables. Each cable has a modular microphone plug on one end and the user's choice of equipment plugs on the other. The MODULINK Cordset Table supplied with the 592T lists the most popular radios with biased audio available, and the cordset (ALM-) for use with each. Note that the ALM-1 has no connector on the equipment end; it can be wired as needed.

The cable is attached to the 592T by inserting the modular telephone-type plug in the microphone jack until it locks. To remove the cable from the microphone, insert the small screwdriver supplied with the 592T in the rear case hole just above the cable jack to unlock the plug and withdraw the plug from the jack.

TABLE 1--MICROPHONE CONNECTOR WIRING

| Pin | Color  | Function               | Pin | Color | Function          |
|-----|--------|------------------------|-----|-------|-------------------|
| 1   | NC     | —                      | 5   | Black | PTT Switch Ground |
| 2   | Red    | Bias (+), DC Audio Out | 6   | White | Audio             |
| 3   | Yellow | PTT Switch             | 7   | Drain | Ground            |
| 4   | Blue   | Monitor                | 8   | NC    | —                 |



MICROPHONE END CABLE WIRING

FIGURE 4

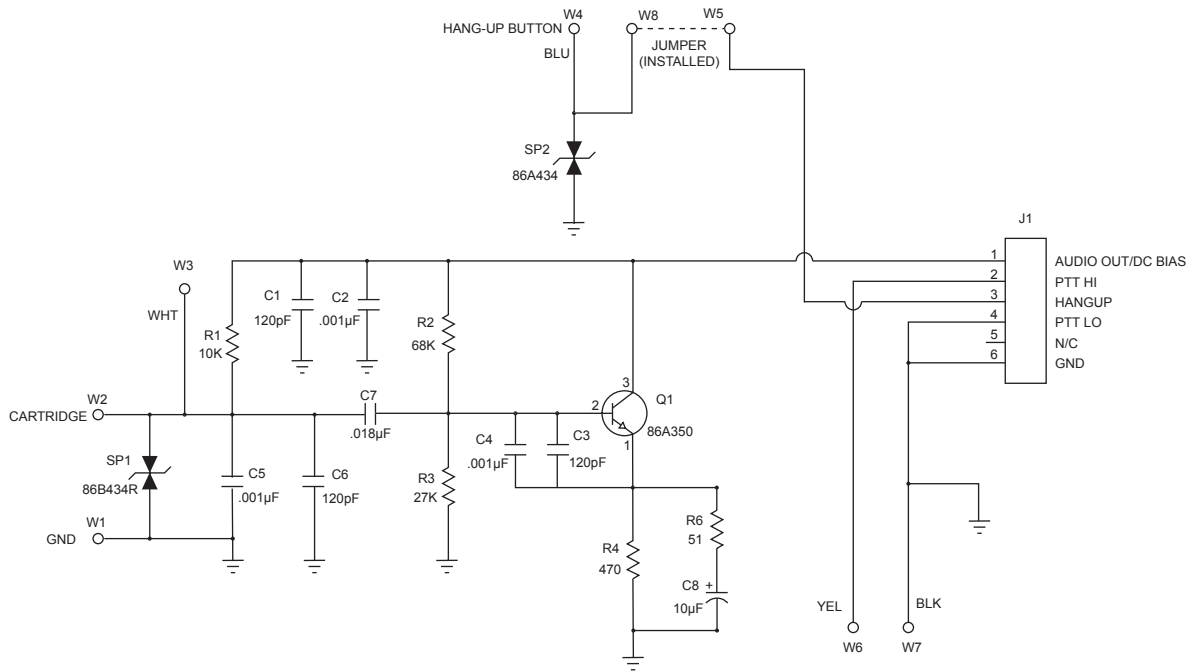
## SERVICE INSTRUCTIONS

For radios that require an open circuit when the microphone is on-hook (such as many Ericsson/GE models), the hang-up logic can be reversed by the following procedure.

1. Open the microphone case by removing three retaining screws.
2. Carefully separate the case halves, taking care not to lose the rubber pieces associated with the cartridge assembly.

3. Add the following components to the PC board assembly at the locations indicated by the highlighted parts in the dash-line parts in Figure 5 and photo in Figure 6.
  - NPN Transistor Q2 (Shure Part No. 86A350; Motorola 2N5210)
  - Resistor R5, 56 k $\Omega$ , 1/4 W (Shure Part No. 45LA563C)

4. Unsolder and move the blue wire from W5 to W4.



CIRCUIT DIAGRAM  
FIGURE 5

**SHURE®**

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