



MODEL 590T

Hand-Held Transistorized Dynamic Microphone

The Shure Model 590T is a universal replacement microphone for over 40 mobile two-way 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 590T quick and simple to repair.

For installations where input gain requires sensitivity level adjustment, the 590T has a convenient, externally accessible screwdriver control. This eliminates the problem of non-adjustable microphone levels and the necessity for disassembling the microphone for adjustments. Restricting control access also prevents accidental changes common to external controls. The 590T can also be used in the non-amplified mode required by certain two-way radios.

The 590T is a hand-held, transistorized, dynamic microphone designed for rugged and reliable operation. It has an omnidirectional pickup pattern and provides extremely clear transmission, even in noisy environments. In addition to its clear, crisp response, tailor-ed for voice-frequency communications, the 590T has extremely low sensitivity to hum pickup and low susceptibility to radio-frequency interference.

In addition to its attractive, contemporary styling, designed to blend with most radio designs and vehicle interiors, the 590T's case features wraparound Top-Talk Sound Channels™. If the microphone is grasped so that the front sound entry ports are covered, the sound channels extending around the top of the case permit clear sound entry through the top.

The microphone is ergonomically designed; it fits naturally and comfortably in any 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 590T provides excellent convenience in field servicing. In addition to the plug-in cable, the cartridge and switch are easily replaced in minutes, should replacement ever be necessary. The microphone wiring is channeled so that wire crimping or breaking is not a concern.

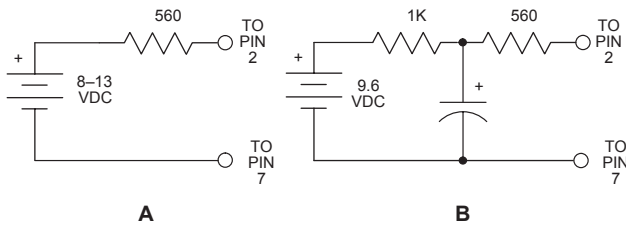
The 590T is supplied with a small screwdriver which can be used for both adjusting the microphone amplifier gain and releasing the modular-plug microphone cable from the microphone. Mounting brackets for affixing to equipment or other surfaces are available as Shure RK6MB.

Features

- *Modular-plug coil-cord easily changed for other radio sets or to replace defective cable. A genuine universal replacement microphone*
- *Convenient external gain adjustment for accommodating most microphone input circuits*
- *Frequency response from 200 to 4,000 Hz, tailored for voice communications*
- *Built-in transistor amplifier powered by carbon microphone-type circuit (usable without transistor amplifier)*
- *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*
- *Top-Talk Sound Channels™ for clear voice input, easy handling*
- *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, reliable and dependable under all operating conditions*
- *Long-life vinyl-rubber-jacketed coil cord available with plugs to fit most popular two-way radios*
- *Hang-up button connection available for microphone hang-up sensing*
- *Sturdy, convenient mounting button for attaching to equipment or nearby surface using optional mounting bracket*

RADIO INPUTS

The 590T operates with two-way radio sets with input circuits similar to those in Figure 1.



A **B**
MICROPHONE INPUT CIRCUITS
FIGURE 1

The 590T can also be used as a non-powered dynamic communications microphone by bypassing the transistor amplifier. In these cases, only pin 6 (white) and pin 7 (ground) are used.

MOUNTING

The 590T is provided with a rear-case hang-up button for use with a 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.

Heavy-duty, chrome-plated mounting brackets are available in quantities of three as Shure Part No. RK6MB.

SPECIFICATIONS

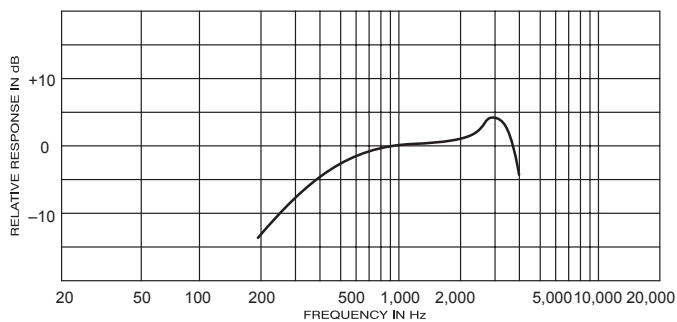
(Test conditions unless otherwise specified: audio output measured between pin 2 and ground; PTT switch depressed; no hang-up button connection; mic level trimmer full clockwise; de VTVM 10 megohms or greater input impedance; ac VTVM 1 megohm or greater input impedance; test circuit as shown in Figure 1 B).

Type

Dynamic (with transistor preamplifier; direct cartridge output available)

Frequency Response

200 to 4,000 Hz (see Figure 2)



TYPICAL FREQUENCY RESPONSE
FIGURE 2

Polar Pattern

Omnidirectional

Sensitivity (amplified output, at 1,000 Hz, 5/16)

-10.5 dB (0.3 V) (0 dB = 1 volt per 100 microbars)

DC Supply Current

2.5 ±0.25 mA

Hum Sensitivity

-38 dBV maximum in a 1 oersted, 60 Hz field

Direct Output (pin 6 to ground, test circuit disconnected)

Sensitivity (at 1,000 Hz, 5/16 in.)

-35 dB (17.8 mV) (0 dB = 1V/100 microbars)

Impedance (1,000 Hz)

200 ohms ±10%

Audio Polarity

Audio output voltage at pin 2 is opposite polarity to voltage produced at pin 6 with respect to ground

Environmental Conditions

Temperature: -40° to 74°C (-40° to 165°F)

Relative Humidity: 0 to 95% (non-condensing)

Microphone Connector

8-conductor modular telephone type (6 conductors used)

Switch

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

Cable (optional choice)

Detachable, 1.2 m (48 in.), 5-conductor (1 shielded), vinyl-rubber-jacketed coil cord with modular plug on microphone end (see supplied table for available installed equipment plugs)

Case

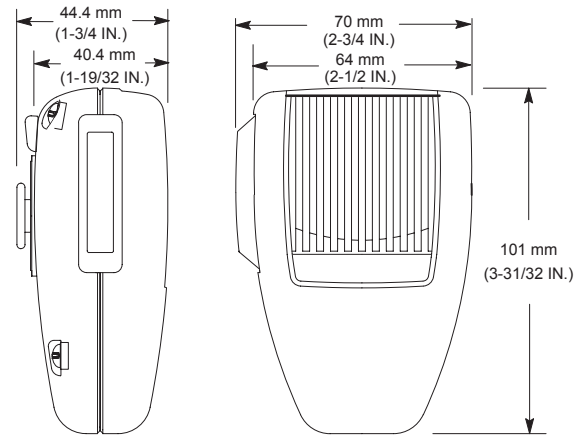
Black high-impact ARMO-DUR®

Dimensions

See Figure 3

Net Weight

156 grams (5.5 oz) less cable



OVERALL DIMENSIONS
FIGURE 3

FURNISHED ACCESSORY

Screwdriver 80B498

OPTIONAL ACCESSORY

Mounting Bracket RK6MB

REPLACEMENT PARTS

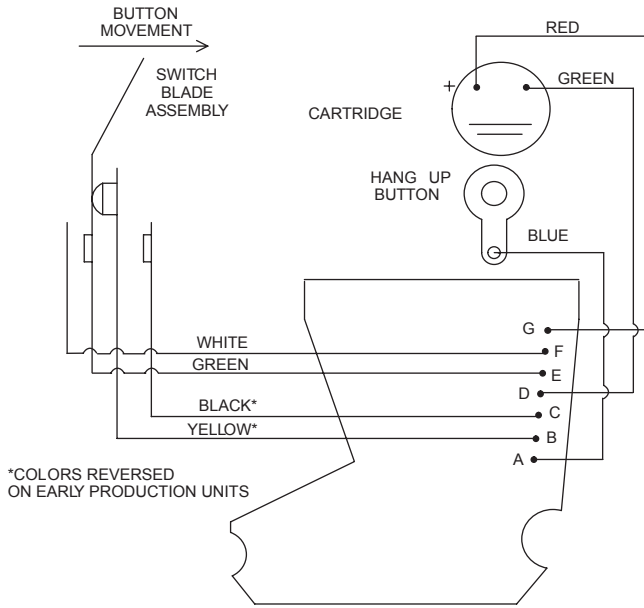
Cartridge R147

Switch RK263S

Printed Circuit Board Assembly RK262

Cable and Modular Plug See cordset table

For additional technical assistance, phone Shure at 1-847-600-8440. In Europe, phone 49-7131-72140.



WIRING DIAGRAM
FIGURE 4

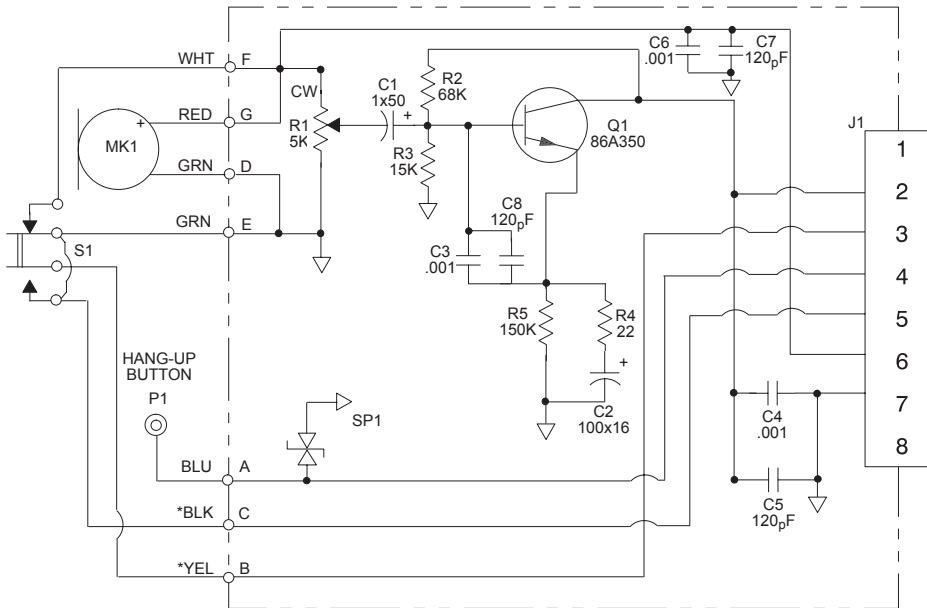
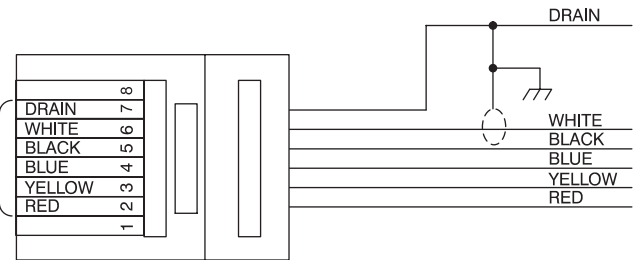
signed for use with each. Note that the ALM-1 has no connector on the equipment end; it can be wired as needed.

The cable is attached to the 590T by inserting the modular telephone-type plug in the microphone jack until it locks. To remove the cable from the microphone, insert the small screw driver supplied with the 590T in the rear case hole just above the cable jack to unlock the plug and withdraw the plug from the jack.

Pin	Color	Function	Pin	Color	Function
1	-	N.C.	5	Black	PTT Switch Ground
2	Red	Bias (+), DC Audio Out	6	White	Audio Out Non-Amplified
3	Yellow	PTT Switch	7	Drain	Ground
4	Blue	Hang-up button	8	-	N.C.

MICROPHONE CABLES

The 590T 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 590T lists the most popular radios with biased audio available, and the cordset (ALM-) de-



WIRING DIAGRAM
FIGURE 4

NOTES:

1. ALL RESISTORS 5% 1/4W UNLESS OTHERWISE SPECIFIED.
2. ELECTROLYTIC CAPACITORS IN MICROFARADS X VOLTS, ALL OTHER IN MICROFARAD-SAND 50V OR GREATER UNLESS OTHERWISE SPECIFIED.
3. * COLORS REVERSED IN EARLY PRODUCTION MODELS.

SHURE®

*SHURE Incorporated Web Address: <http://www.shure.com>
5800 W. Touhy Avenue, Niles, IL 60714-4608, U.S.A.
In U.S.A., Phone: 1-847-600-2000 Fax: 1-847-600-1212
In Europe, Phone: 49-7131-72140 Fax: 49-7131-721414
In Asia, Phone: 1-852-2893-4290 Fax: 1-852-2893-4055
International Fax: 1-847-600-6446*