

### OMNIDIRECTIONAL PREAMPLIFIED DYNAMIC BASE STATION MICROPHONE



**Note:** After unpacking the microphone, remove the protective film from the nameplate

#### GENERAL

The Shure 550T and 550TSB Series II Modulink Base Station Microphones are rugged, omnidirectional dynamic microphones with a built-in preamplifier. Designed for optimum voice clarity, they can replace dynamic or ceramic, high- or low-impedance microphones supplied as original equipment. Both models provide radio communications, paging and dispatch systems with clear, high output voice transmission, even in noisy environments.

The 550T and 550TSB Series II are MODULINK® universal replacement microphones. They are 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. One cable type has bare tinned leads on the transmitter input end so that the user can install any desired connector. Since cable damage is the major cause of microphone failure, this innovation allows economical, quick and simple repairs.

The 550T and 550TSB Series II microphones have extremely low sensitivity to hum pickup and low susceptibility to rf interference. A built-in preamplifier makes them compatible with biased-audio (powered audio) radio communications systems. An externally accessible microphone

sensitivity control, located under the base, allows the operator to adjust the output level. If desired, the preamplifier can be bypassed and the microphone can be operated in the direct output (non-amplified) mode.

An especially useful feature for shared-channel radio systems using the Continuous Tone Coded Squelch System (CTCSS) is the split-bar Press-to-Talk (PTT) switch. The Transmit side of the switch can only be actuated when the Monitor side of the switch is depressed, so the operator is forced to verify that the channel is clear before transmitting. The Monitor switch can also be locked into the “on” position, if desired, by sliding it forward.

The 550TSB Series II microphone is functionally and electronically identical to the 550T Series II, but it has a single PTT switch instead of a split bar PTT switch. The 550TSB Series II can be used with trunking or other radio systems which do not require the channel monitoring.

Both microphones are ergonomically designed; the pushbuttons and grasping surfaces conform naturally to the hand. The virtually indestructible 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 shock and vibration.

The microphones' Million-Cycle-Plus™ leaf switch is designed for constant use even under extreme conditions. Its nickel-silver plated blades and palladium alloy contacts resist oxidation for years.

#### Features

- Modular-plug coiled cord—easily changed for other radio sets or to replace defective cable. A genuine universal replacement microphone
- Built-in preamplifier with convenient external gain adjustment
- Dynamic cartridge with omnidirectional pickup pattern
- Frequency response tailored for optimum speech intelligibility, and clear, crisp response
- Low sensitivity to rf interference and hum pickup
- Rugged, lockable PTT switch stands up under severe environments and constant use
- High-impact ARMO-DUR case is stronger and lighter than die-cast metal

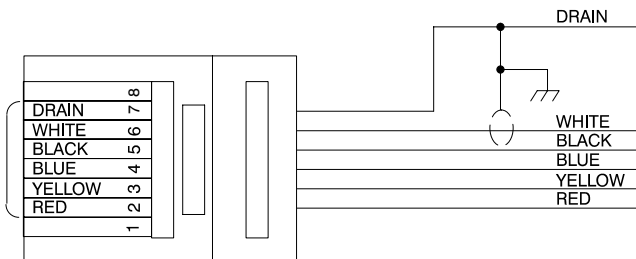
## MODIFICATION

The Monitor switch as provided is normally closed for radios with scanning or CTCSS functions that open when the switch is depressed. For radios that require a normally open (closed circuit when the microphone Monitor switch is depressed) such as many Ericsson/GE models, perform the following modification.

1. Remove the baseplate by removing the screws securing it to the microphone.
2. Locate the yellow wire from the printed circuit board to the monitor switch.
3. Unsolder the yellow wire from the top terminal of the monitor switch and resolder it to the lower open terminal of the monitor switch.
4. Replace the baseplate and screws.

## MICROPHONE CABLES

The 550T Series II 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 550T Series II lists the most popular radios available and the cordset (ALM-) designed for use with each. Note that the ALM-1 has no connector on the equipment end; it can be wired as needed.



MODEL ALM-1 CABLE WIRING

FIGURE 1

The cable is attached to the 550T Series II 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 550T Series II in bottom case hole adjacent to the cable jack (see Figure 3) to unlock the plug and withdraw the plug from the jack.

## 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	—

## CONNECTIONS

The 550T Series II is designed to operate with two-way radio sets with input circuits similar to those in Figure 2. When wiring ALM-1 cables with connectors for radios not listed in the table, modular connector pin 2 is to be used for the dc bias resistor on the input.

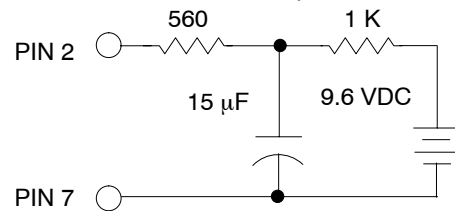


FIGURE 2

## ADJUSTING OUTPUT LEVELS

To adjust the output level, proceed as follows:

1. Insert a screwdriver into the sensitivity control potentiometer, located in the microphone base (see Figure 3).
2. Rotate the control counterclockwise to increase sensitivity or clockwise to decrease sensitivity.

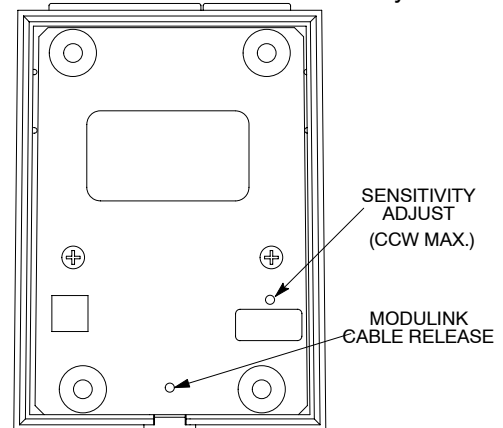


FIGURE 3

## INTERNAL CONNECTIONS

The circuit board layout is shown in Figure 6 and the internal electrical connections are shown in Figure 7. A schematic diagram of the circuit board is shown in Figure 8.

## SPECIFICATIONS

### Test Conditions: (unless otherwise specified)

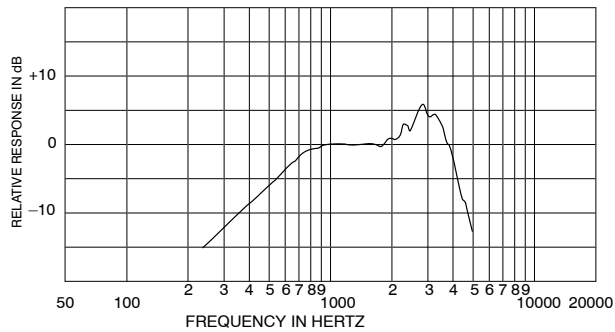
Audio output between pin 2 and Ground  
 Mic level trimmer full CCW  
 PTT switch depressed  
 Measured with High Z DMM  
 Standard test circuit as shown in Figure 2

### Cartridge Type

Dynamic (with preamplifier)

### Frequency Response

200 to 5,000 Hz (See Figure 4)



TYPICAL FREQUENCY RESPONSE

FIGURE 4

### Polar Pattern

Omnidirectional

### Sensitivity (at 1 kHz)

Cartridge Direct Output:  
 -35.5 dBV (16.8 mV)/100  $\mu$ bar  
 Amplified Output:\*  
 -4 dBV (0.63 V)/100  $\mu$ bar

\*Using standard test circuit shown in Figure 1, with microphone sensitivity adjustment trim potentiometer set to maximum (counter-clockwise).

### Hum Sensitivity

34 dB maximum equivalent SPL per 1 mOe, 60 Hz electromagnetic field

### Output Impedance

190  $\Omega$  direct output

### Switches

Press-to-Talk: Double-pole, double-throw, leaf-type switch; push-to-talk function normally open, cartridge shunt normally closed

Monitor: Single-pole, double-throw, leaf-type switch; normally closed

### DC Supply Current

2.5 mA  $\pm$ 0.25 mA

### Cable (optional choice)

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

### CERTIFICATION

Eligible to bear CE Marking. Conforms to European EMC Directive 89/336/EEC. Meets applicable tests and performance criteria in European Standard EN55103 (1996) parts 1 and 2, for residential (E1) and light industrial (E2) environments.

### Net Weight

736 grams (1 lb 10 oz)

### Overall Dimensions (Figure 5)

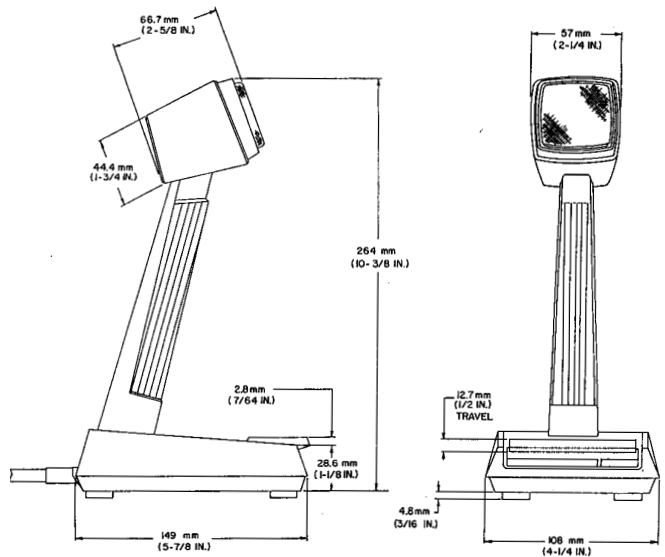


FIGURE 5

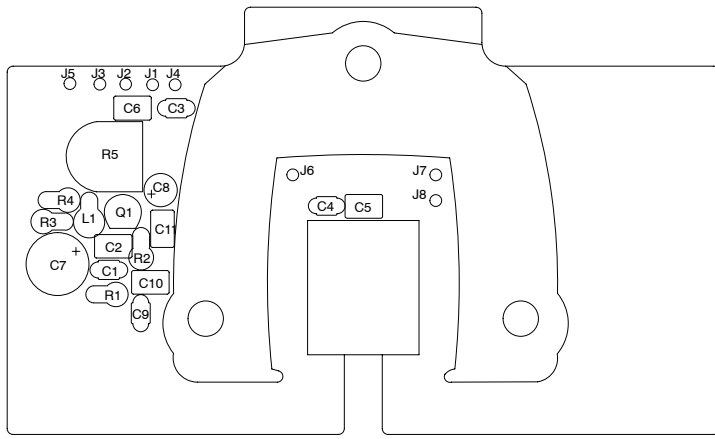
### FURNISHED ACCESSORY

Hardware Kit ..... 90SJ1371

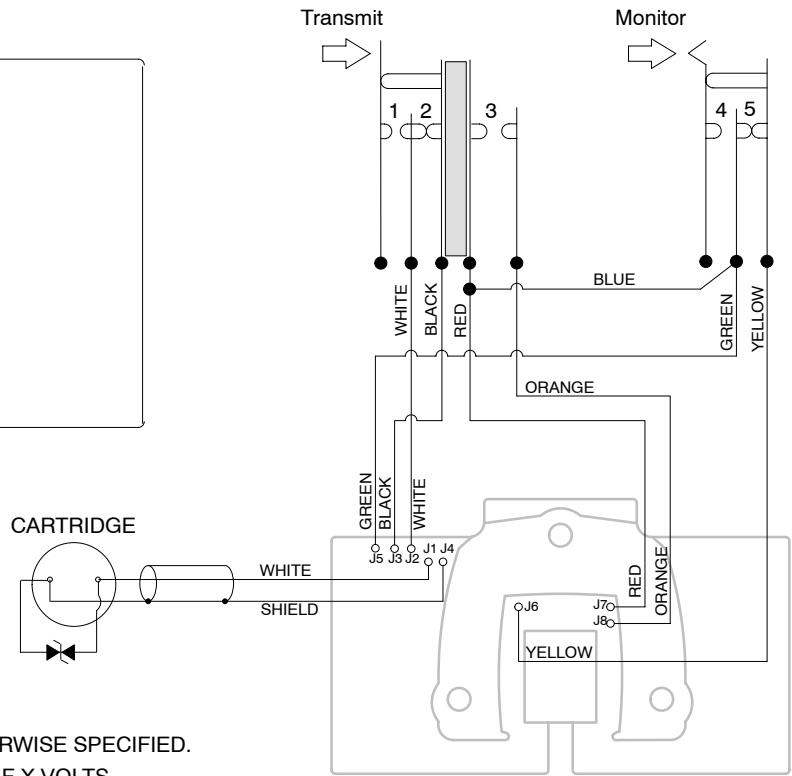
### REPLACEMENT PARTS

Cartridge Assembly ..... R147

For additional service or parts information, please contact Shure's Service department at 1-800-516-2525. Outside the United States, please contact your authorized Shure Service Center.



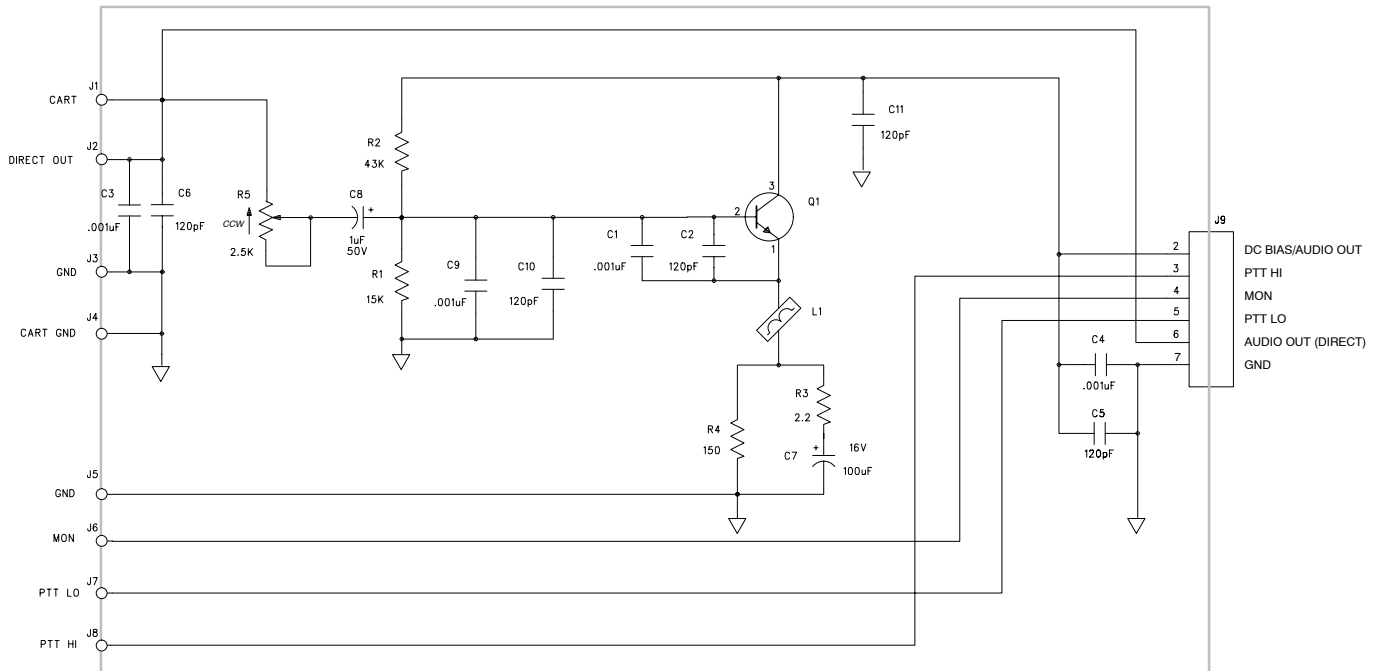
**FIGURE 6**



**FIGURE 7**

**NOTES:**

1. ALL RESISTORS 1/4 W, 2%, UNLESS OTHERWISE SPECIFIED.
2. ELECTROLYTIC CAPACITORS SHOWN IN  $\mu\text{F}$  X VOLTS. NON-POLARIZED CAPACITORS IN  $\mu\text{F}$ , 10%, 50 V OR MORE UNLESS OTHERWISE SPECIFIED.
3. R5 GAIN ADJUSTMENT FROM BOTTOM SIDE OF BOARD.



**FIGURE 8**



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