

**SHURE**

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

MICROPHONES AND ELECTRONIC COMPONENTS

AREA CODE 312/866-2200 • CABLE: SHUREMICRO  
TWX: 910-231-0048 TELEX: 72-4381**DATA SHEET****MODELS 407A and 407B****CONTROLLED MAGNETIC® HAND MICROPHONES****GENERAL**

The 407 series of microphones are high-quality, extremely reliable hand-held CONTROLLED MAGNETIC® microphones designed for clear, crisp, natural voice response of high intelligibility. This series of microphones features professional design, small size, light weight, and modular construction, providing extreme dependability and exceptional ease of field service.

The modular construction of the 407's accounts for their tremendous ease of field serviceability. The cartridge, switch, and cable are of modular design which makes them replaceable in a matter of minutes if replacement is ever necessary.

The unit fits naturally and comfortably in the hand and is not affected by heat or humidity. Exclusive ARMO-DUR® case is immune to oil, grease, fumes, salt spray, sun, rust and corrosion—and is outstanding in its ability to withstand mechanical shocks and vibration. "Million-Cycle" leaf-type switch is double-pole, single-throw, designed to withstand severe operating conditions and constant usage.

**Microphone Features:**

- Highly intelligible voice response
- Unparalleled ruggedness and reliability
- CONTROLLED MAGNETIC® element
- ARMO-DUR® case
- "Million-Cycle" leaf-type switch controlling microphone and external relay or switching circuits
- Modular construction
- Exceptional ease of field service
- Life-time hang-up button and mounting bracket
- TRIPLE FLEX® cable provides 3 to 4 times the flex life of any previously available coiled cords — another Shure first

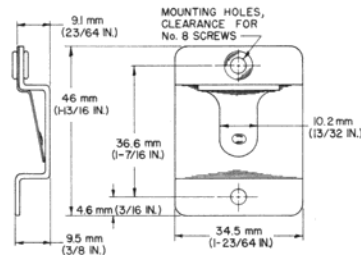
**APPLICATION**

The Model 407A and 407B microphones are highly recommended for all types of mobile communications; for hams; industrial and commercial paging; outdoor public address systems; and all applications where a rugged hand microphone is required. The Model 407A is a high-impedance microphone with high output level, making it suitable for public address amplifier installations where a cable length of 15.2m (50 ft) or less is needed. The Model 407B is a low-impedance microphone and is recommended where long cable lengths are required. The 407A and 407B are both suited for use with transistor or vacuum tube amplifiers, the 407A for amplifiers with high-impedance

inputs, the 407B for amplifiers with low-impedance inputs.

**INSTALLATION AND CONNECTIONS**

A mounting bracket for permanent installation is supplied with each microphone. (See Figure 1)



**MOUNTING BRACKET**  
**FIGURE 1**

The internal switch connections of Models 407A and 407B are shown in Figure 2.

The Model 407A is a high-impedance microphone with a three-conductor coiled-cord cable (one conductor shielded) and a double-pole single-throw leaf-type switch to control the microphone circuit and an external relay or switching circuit. The RED lead is the "hot" conductor for connection to the microphone circuit; the shield is connected to the microphone circuit ground. The NATURAL and BLACK leads control the relay or switching circuit. The microphone circuit of the switch is normally shorted but may be easily modified for normally open operation.

The Model 407B is a low-impedance microphone with a four-conductor coiled-cord cable (two conductors shielded) and a double-pole single-throw leaf-type switch to control the microphone circuit and an external relay or switching circuit. The WHITE and GREEN leads are the "hot" conductors for balanced-line connection to the microphone circuit; the shield is connected to the microphone circuit ground. The RED and BLACK leads control the relay or switching circuit. The microphone circuit of the switch is normally shorted but may be easily modified for normally open operation.

**Modification of Microphone Circuit**

The microphone circuit of the Model 407A is shorted when the microphone switch button is in the normal position. The microphone section of the switch has an extra leaf which may be used in modifying the Model 407A to have a normally open microphone circuit. To modify the Model 407A for a normally open microphone circuit, proceed as follows:

1. Remove the three No. 6 Phillips self-threading screws from the back of the microphone case.
2. Separate the case front and back and remove the microphone switch button.
3. Unsolder or clip the RED cable lead from the lower switch solder lug. (See Figures 2 and 3)
4. Solder this RED cable lead to the upper unused terminal lug. (See Figures 2 and 3)

NOTE: In certain instances, if the switch sequence is critical, it may be necessary to remove the effect of the shorted switch on the cartridge. This can be done by insulating the blade of the switch with the BLACK wire and shield attached, from the blade of the switch with RED wire attached. This can be done by sliding a piece of "spaghetti"

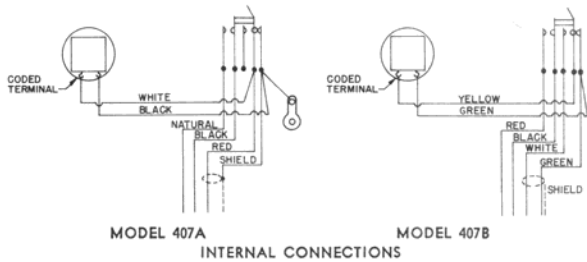


FIGURE 2

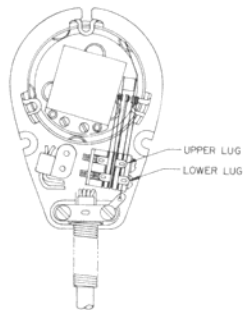
- tubing over the switchblade or with a piece of insulating tape.
- Place the microphone switch button in the normal position on the case-front. Place the case-back on the case-front and firmly press cases together. Fasten the case-back and case-front with the No. 6 Phillips self-threading screws previously removed.

The microphone circuit of the Model 407B is normally open when the microphone switch button is in normal position. The microphone switch of the 407B may be rewired to have a normally shorted microphone circuit. To modify the Model 407B for a normally shorted microphone circuit, proceed as follows:

- Remove the three No. 6 Phillips self-threading screws from the back of the microphone case.
- Separate the case front and back and remove the microphone switch button.
- Unsolder or clip the WHITE cable lead from the upper switch solder lug. (See Figures 2 and 3)
- Solder the WHITE cable lead to the lower terminal lug, the one with the YELLOW lead going to the microphone cartridge. (See Figures 2 and 3)
- Place the microphone switch button in the normal position on the case front. Place the case-back on the case-front and firmly press the cases together. Fasten the case-back to the case-front with the Phillips self-threading screws previously removed.

**OPERATION**

The Models 407A and 407B will operate satisfactorily under all ordinary conditions of humidity, heat, and cold. Dropping the microphones or other severe mechanical shocks should be avoided.



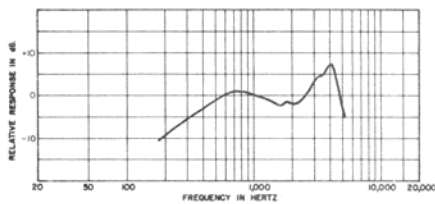
REAR VIEW OF CHASSIS (CASE REMOVED)

FIGURE 3

**SPECIFICATIONS**

Type CONTROLLED MAGNETIC®

Frequency Response 300 to 4,000 Hz (see Figure 4)



TYPICAL FREQUENCY RESPONSE  
FIGURE 4

**Output Level (at 1,000 Hz)**

	407A	407B
Open Circuit Voltage* . . . . .	-13.5 dB (210 mV)	-33.0 dB (22 mV)
Power Level** . . . . .		-52.0 dB

\*0 dB = 1 volt per 100 microbars  
\*\*0 dB = 1 milliwatt per 10 microbars

**Impedance**

407A—Microphone impedance is "High".  
407B—Microphone rating impedance is 150 ohms (200 ohms actual).

**Load Impedance Range**

	Minimum	Recommended
407A . . . . .	15 kilohms	100 kilohms
407B . . . . .	200 ohms	1,000 ohms

**Cable**

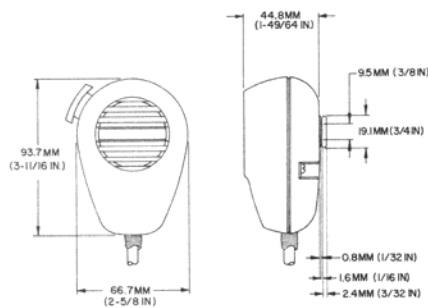
1.8m (6 ft), attached, coiled cable  
407A—3-conductor, 1-conductor shielded  
407B—4-conductor, 2-conductor shielded

**Case**

Two-tone light gray and charcoal ARMO-DUR®

**Dimensions**

See Figure 5



OVERALL DIMENSIONS

FIGURE 5

**Net Weight**

312 grams (11 oz)

**Packaged Weight**

510 grams (1 lb, 2 oz)

**FURNISHED ACCESSORY**

Mounting Bracket . . . . .RK6MB

**REPLACEMENT PARTS**

	407A	407B
Cartridge . . . . .	99AN556	99AL556
Cable . . . . .	70A3088	70A4107
Switch . . . . .	90A2708	90A2708

**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.