

Controlled Magnetic Hand Microphones

General: Model 405 series hand microphones are pressure-actuated units using the balanced armature, controlled magnetic principal, and are designed for clear, crisp, natural voice response of high intelligibility. The response frequency characteristics is from 200 to 8,000 Hz. The unit is not affected by heat or humidity and provides unusual dependability of performance.

The microphones fit naturally and comfortably in the palm of the hand—retaining a natural feel when the weather varies from hot to cold. The sturdy high impact "armor-dur" case is light and compact and takes minimum space in portable equipment. It is both lighter and stronger than die-cast metal cases—proved through critical laboratory and severe field tests.

Model 405 series microphones are equipped with heavy duty push-to-talk switches. These are single-throw, double-pole, leaf-type switches designed to stand up under severe operating conditions and constant usage. The switches are field tested for long life.

Application: Model 405 series microphones are especially recommended for outdoor public address, all types of mobile communications, hams, audience participation shows, and all other applications where a rugged hand microphone is needed. Because of its high impedance and high output, models 405C and 405K may be used with practically all public address amplifiers in the installations where only a moderate length (up to 50 feet) (15.2m) of cable is required.

Models 405B and 405KB have medium impedance which permits use in installations where long cable lengths are required. These units are also ideally suited for use with transistor amplifiers where medium and low impedance microphones are required.

The 405 series microphones will replace the Shure 505 series microphones. Listed below are controlled magnetic communication microphones and recommended replacement.

Model No.	Shure Replacement Microphone
CR4B, 505B	405B
CR4C, 505C	405C
CR4K, 505K General Electric EM10A	405K

Installation: The microphones are provided with a bracket for permanent placement with the associated equipment. The bracket has mounting holes with clearance for No. 6 or No. 8 screws. (See Figure A).

Connections: Internal switch connections of models 405B, 405C and 405K are shown in Figure B. The model 405KB has the same internal switch connections as the model 405K.

Model 405B is a medium impedance unit (150-250 ohms). Model 405B uses a four-conductor cable (two conductors are shielded) and a double-pole, single-throw, leaf-type switch to control the microphone circuit and to control an external relay or switching circuit. Model 405B is wired for balanced-line operation and is recommended for use where long cable lengths are required or under conditions



of severe hum disturbances. Model 405B may be fed into a standard, medium impedance amplifier (Figure D-1), or into an amplifier with high impedance input (Figure D-2). In the latter case, Shure Model A95A Line Matching Transformer is available for coupling the medium impedance line to the input of high impedance amplifiers.

If additional lengths of cable are desired with the use of the 405B a four-conductor (two conductor shielded) cable is required to extend both the relay and microphone circuits. If the relay circuit is not used, a two conductor shielded cable may be used to extend only the microphone circuit; the red and black leads would then be unused.

Model 405KB is a medium impedance unit (150-250 ohms). Model 405KB uses a three-conductor coiled cord (one conductor is shielded) and a double-pole, single throw, leaf type switch to control the microphone circuit and to control an external relay or switching circuit.

Models 405C and 405K are high impedance units. Models 405C and 405K use a three-conductor cable (one conductor is shielded) and a double-pole, single-throw, leaf-type switch to control the microphone circuit and to control an external relay or switching circuit. Models 405C and 405K may be used with any crystal microphone amplifier or other amplifier with an input impedance of 100,000 ohms or more. (See Figure D-3).

In certain amplifiers, the grid bias is obtained by having a grid leak between grid and cathode. When such amplifiers are used with any controlled magnetic or dynamic-type microphone, it may be desirable to include a coupling condenser between the microphone and the input grid. The condenser should be .01 mfd, or larger.

If additional lengths of cable are desired with the use of the 405C, 405K and 405KB, a three-conductor (one conductor shielded) cable is required to extend both the relay and microphone circuits. If the relay circuit is not used, a single conductor shielded cable may be used to extend only the microphone circuit.

The shield and the chassis should be securely grounded to a water pipe or similar ground to eliminate shock hazard to the user.

Operation: No special precautions beyond ordinary care are necessary in operation of the 405 series microphones. They will operate very satisfactorily under all ordinary conditions of humidity, heat, and cold. Dropping the microphones or other severe mechanical shocks should be avoided.

SPECIFICATIONS

Dimensions	See Fig. C
Net Weight	1 1/8 lb. (510.3g)
Shipping Weight	1 3/8 lb. (623.7g)

Models 405B and 405KB
 Open Circuit Voltage — 70.5 db. *(0.293 mv)
 Load With 250 Ohms — 76.0 db. *
 Power Level into 250 Ohms — 50.0 db. **
 E.I.A. Microphone Rating G^M (Sensitivity) — 142.5 db. ***

Models 405C and 405K
 Open Circuit Voltage — 50.5 db. *(2.93 mv)
 E.I.A. Microphone Rating G^M (Sensitivity) — 142.5 db. ***

*Odb = 1 volt per microbar.
 **Odb = 1 milliwatt with 10 microbars.
 ***E.I.A. Standard SE-105 August 1949.

Microbar = one dyne per square centimeter.

Recommended Load Impedance:—
 Models 405B and 405 KB 150 to 250 ohms
 Models 405C and 405K 100,000 ohms or more

MOUNTING BRACKET

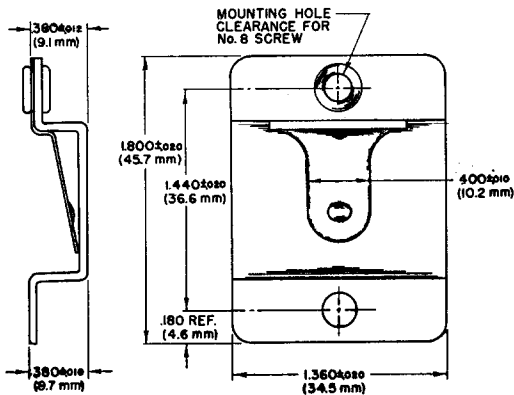


FIG. A.

INTERNAL CONNECTIONS

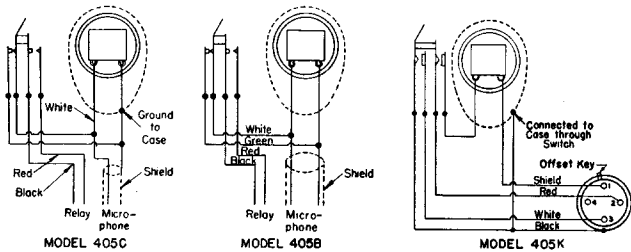


FIG. B.

FIG. C.

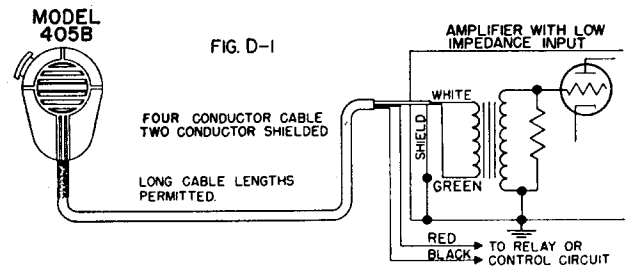
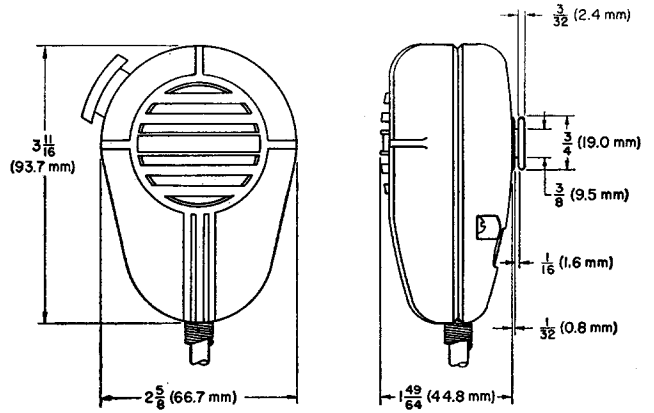


FIG. D-1

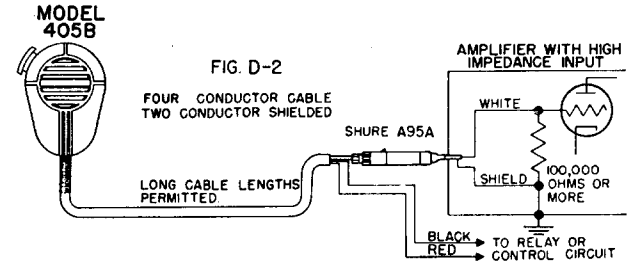


FIG. D-2

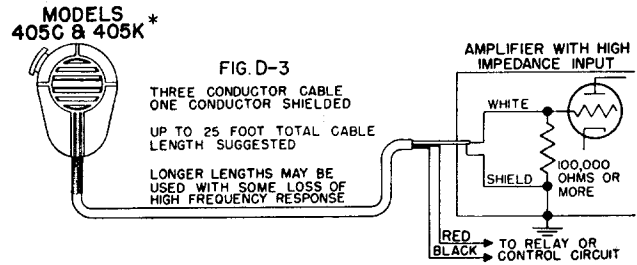


FIG. D-3

*On Models 405K and 405KB, these color codes reversed.

Guarantee: Each microphone is guaranteed to be free from electrical and mechanical defects for a period of one year from date of shipment from the factory, provided all instructions are complied with fully. In case of damage, return the microphone to the factory for repairs. Our guarantee is voided if the microphone case is opened.

Patent Notice: Shure Patents issued or pending.

SPECIAL NOTE

The Shure Model CIIC is the replacement cable for the Model 405K and 405KB Microphone. The Model CIIC is a three-conductor (one conductor shielded) Koiled Kord with an equivalent to the MC4M plug attached on one end.

NOTE: The conductors of the Model CIIC are tinsel and can not be soldered. Do not remove plug or extension leads. The Model CIIC may also be used on the Models 405B and 405C Microphones.