

SECTION

X**690A
TRANSISTORIZED
MICROPHONE / AMPLIFIER****SPECIFICATIONS**

Type:	Dynamic microphone with transistor amplifier.	Load Impedance:	100 Ω to infinity.
Frequency Response:	Uniform over frequency range of 70-7500 cycles (mounted in G1-type handset)	Current Drain:	30 ma, at 14 vdc, (maximum terminal voltage) 15 ma, at 3.5 vdc.
Sensitivity:	-3 dbm for 10 dynes/cm ² ($Z_L = 100\Omega$); -38 db referred to 1 volt re 1 dyne/cm ² , open circuit voltage. A 6 db reduction in sensitivity may be obtained by removing external strapping.	Application:	For use with a G1-type handset or equivalent.
Maximum Output:	1 volt (RMS) at clipping level, 100 Ω load; 3 volts (RMS) at clipping level, 330 Ω load. Output signal is developed across impedance in series with dc power supply.	Operating Temperature Range:	To 45° C.
Gain Variation:	Fixed load (100 Ω): With a 5 to 18 vdc supply, gain variation is ± 1 db, with a 3.5 vdc supply, gain reduction is approx. 3 db. Fixed supply (21 vdc): With 200 to 1100 Ω load, gain variation is ± 1 db.	Connections:	2 screw terminals.
		Dimensions:	1 13/16" diameter x 1" high (excluding cable clamp)
		Weight:	3 ounces.
		Case:	Microphone and amplifier assembly housed in molded plastic.

DESCRIPTION

The Altec 690A microphone assembly, comprised of a wide-range, low-distortion dynamic microphone and unusually-rugged, all-transistor amplifier, has been designed as a replacement for the carbon transmitters of the type found in the G1-type handset (or equivalent). The 690A has an essentially flat frequency response from 70 - 7,500 cycles (when mounted in the G1-type handset) providing improvement in intelligibility for public address and communication applications in High-grade circuits wherein ease of operation and familiarity with a telephone type handset (G1-type teletest) is desirable—but with notable superiority over the carbon type transmitter.

The transistor amplifier of the 690A assembly takes its operating voltage from the same source as the carbon transmit-

ter; hence replacement may be readily effected. It is only necessary to remove the carbon transmitter, the plastic housing, disconnect the two transmit wires and connect them to the 690A screw terminals. Because of the bridge circuit incorporated in the output stage of the amplifier, polarity need not be observed.

Gain stability is excellent, owing to the outstanding voltage regulation provided by the amplifier. (See Specifications)

The microphone element utilizes a Mylar® diaphragm for maximum dependability and length of service; this is further protected by the exclusive Altec 'Sintered Bronze' filter, resulting in a virtual immunity to the harmful effects of shock, blast, and corrosive fumes, together with guarding against danger from foreign particles entering the microphone itself.

INSTALLATION AND APPLICATION

In compliance with telephone practice, circuitry of the 690A microphone and amplifier operates free of earth grounds and is encased in non-conductive material. The lack of shielding afforded by this construction, combined with the gain of the transistor amplifier, makes the unit susceptible to induction from high-energy RF fields. When use of this device is contemplated in the vicinity of high powered transmitting antennas, RF susceptibility should be checked in the intended location or steps should be taken to control the interfering field intensity in the microphone operating area.

As stated in the specifications, the maximum terminal voltage (i.e., the potential applied to the terminals of the 690A assembly) is 14 vdc. When the assembly is used in a standard teletest (as a replacement for the carbon transmitter), the varistor, incorporated within the teletest itself, automatically compensates for a supply voltage higher than this figure, therefore, no additional circuit resistance is required. When the 690A assembly is employed independently, (e.g., as a 'hidden' microphone for surveillance purposes) and not associated with a telephone set, additional series resistance may be required in order that the terminal voltage remains at a value within the specified operating range. This is done by measuring the total resistance (dc impedance) of the power

supply, the line and the load. For the most commonly encountered values of power supply potential, consult the table below:

DC VOLTS (SUPPLY)	MINIMUM RESISTANCE REQUIRED
0 - 14	0 ohms
24	330 ohms
48	1100 ohms

Because of the greatly increased sensitivity of the 690A assembly, it may be necessary to insert a small wad of cotton, lamb's wool, or other absorbent material into the hollow portion of the handle (Figure 1) in order to prevent acoustic feedback. Should the sensitivity be greater than required for a given operation, a 6 db attenuation may be obtained by cutting the external resistor strap (Figure 2) on the bottom of the unit. The synthetic foam plug must be removed before such an adjustment can be performed. See Fig. 2.

In operation, the 690A utilizes less current than the standard carbon unit; an increase in loop length (between the 690A and the source of supply voltage) is therefore possible. The assembly may also be used on short telephone loops, if necessary, due to the current shunting affect of the varistor.

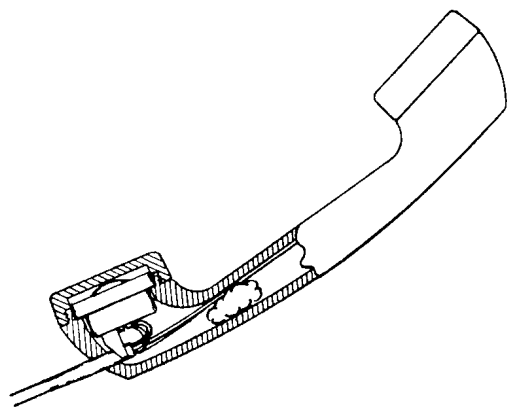


Figure 1

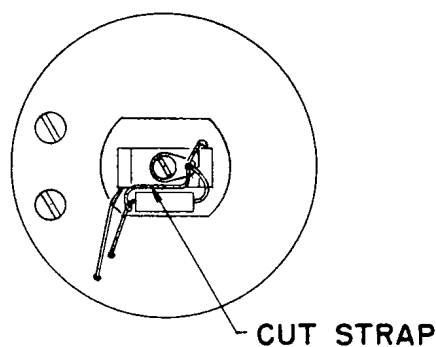


Figure 2