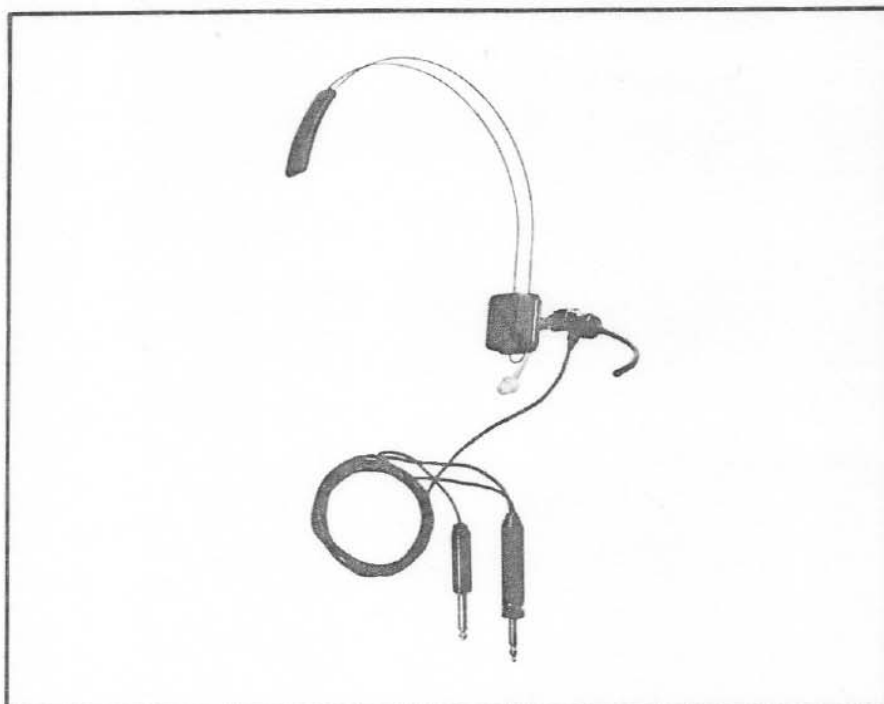




Electro-Voice®
a gulton company

Model 967 Miniature Dynamic Headsets

SPECIFICATIONS

Type:

Dynamic

Frequency Response:

300–4300 Hz

Impedance:

Matches 100 Ω and
500 Ω carbon input

Polar Pattern:

Omnidirectional (Pressure mike)

Output Level:

–40 dB at 1/4" from tip of tube
(0 dB = 1 volt/dyne/cm²)

Case Material:

High-impact Delrin

Finish:

Nonreflecting black

Transistor Amplifier,

Power Gain: (Gain Adjustable)
45 dB (12 volts)*

Current Drain:

5 mA (12 volts)*

Rated Supply Voltage:

6–30 volts

Maximum Undistorted Output:

1.0 volts

Dimensions,

Transducer Assembly:

12.7 mm (1/2") dia.,
25.4 mm (1") long

Microphone Tube:

4.76 mm (3/16") dia.,
114.5 mm (4 1/2") long

967ME Ear Tube:

3.18 mm (1/8") dia.,
76.2 mm (3") long

New Weight:

967M:

Less than 45.4 g (.1 lb)

967ME:

63.5 g (.14 lb)

Cable:

1.5 m (5 ft.), four-conductor,
2 shielded

Accessories Supplied,

967M:

Headband and plush
carrying pouch

967ME:

3 ear tips, headband and
plush carrying pouch

Temperature Range:

–40°C (–40°F) to
+73.9°C (+165°F)

FAA Approval:

TSO, C58, Category B
(967ME also has C57 approval
in addition to the above)

*Values relative to load impedance
and series resistance.

DESCRIPTION AND APPLICATIONS

The Electro-Voice Model 967 series microphones are miniature headset dynamic microphones designed for highly articulate speech transmission under high ambient noise conditions. The 967 series is the result of a continuous study of the communications needs of the general aviation industry, and it uniquely meets the requirements of pilots whose attention must be centered on the actual operation of the aircraft and its navigation instruments. With the 967 series miniature headsets, the pilot need not search for a hand

microphone in the cockpit to communicate with air traffic controllers and/or other aircraft. The lightweight, convenient microphone, attached to either a small headband or eyeglasses, is out of the pilot's line of sight, but constantly in a convenient speaking position. By keying a press-to-talk switch on the control wheel, the pilot is in instant communication.

All units use the same lightweight microphone element and microphone tube, but the 967ME includes an earphone that may be coupled to the ear with an ear tube having a form-fitting tip. The 967M has one plug (PJ-068 type) for the microphone. The 967ME uses two plugs; one for the microphone and another standard 1/4" plug to fit the earphone jack used in standard private aircraft.

A special miniature amplifier has been designed especially for the 967 series miniature headset microphone. There are no unsightly or dangerous amplifier housings attached to the cord, because the amplifier is so small it fits into the housing behind the PJ-068 type plug. The amplifier housing's all-metal shielded construction (and its proximity to the instrument panel) provides a degree of RF shielding previously unknown in aircraft microphone communications. The compact two-stage transistor amplifier is specially stabilized and will operate uniformly

over a wide range of supply voltages and from +73.9°C (+165°F) down to -40°C (-40°F). Output of the transistor amplifier is engineered to plug directly into inputs designed for carbon microphones.

INSTALLATION

In general aviation aircraft, merely plug the headset into headset jack(s) or if plane has only a hand mike jack, a push-to-talk switch must be installed. The following refers to other than general aviation usage.

Figure 3 shows a typical power supply circuit for carbon and carbon equivalent microphones. The specific values for R_L and R_S must be determined by referring to the equipment schematic. In some circuits, the value of R_S is 0.

Use the graph in Figure 4 to determine proper series resistance and/or supply operating voltage for the 967M (967ME). For finding range of total R ($R_L + R_S$) acceptable, locate equipment operating voltage on graph. Then refer to "Usable Operating Region" directly above voltage reference point. For example, 24 volt power supply indicates that a total series resistance of from 200 to 8,000 ohms is acceptable.

FIELD REPAIR INSTRUCTIONS

1. **Special Tools:** Small screw driver.
2. **Inspection:**
 - A. Examine amplifier-plug assembly to see that cable(s) is held firmly at rear terminal housing. If it is loose, follow Step 4—A through D.
 - B. The PJ-068 type plug at the end of the amplifier housing should be very firmly fitted into the amplifier housing. The part is threaded and should be rigidly attached. If it is loose or bent, replace amplifier-case assembly as in Step 4—A through D.
3. **Function Test:**
 - A. Microphone and Amplifier—Connect headset to circuit in Figure 5. Adjust test voltage to read between 7 and 9 volts. Amplifier should draw approximately 20 mA from supply. Hold tip of microphone tube approx-

imately ¼" from side of mouth (as if it were attached to the headband) and speak in normal voice range. Approximately .10 volts audio will be measured on the VTVM.

- B. Earphone (967ME Version Only)—Connect audio generator with suitable attenuator to phone plug and drive earphone with .3 and .5 volts audio. Sweep through rated audio range, listening to determine if head-phone is active and if it is producing a clean tone.
4. **Repair or Replacement:**
 - A. If cable(s) is loose in rear of amplifier, or if amplifier proves to be defective, remove cable from amplifier as follows:
 - (1) Loosen 1-72 setscrew in terminal housing.
 - (2) Unscrew housing from rear of amplifier case, being careful not to twist cable.
 - B. Connect ohmmeter between shield connection of cable and white wire. An audible click should be heard from the microphone transducer, and a DC resistance of approximately 100 ohms should be measured.
 - C. If transducers appear to be defective, remove clip holding transducers together and separate the transducers slightly sliding the cable bend relief down the cable a few inches.
 - D. Recheck the transducers directly (bypassing the cable) by connecting the ohmmeter directly to the copper areas on the printed circuit boards at the rear of each transducer. If the heads now appear to be operative (after a negative check through the cable) the cable subassembly is defective and must be replaced. If either or both of the transducer subassemblies still appear to be defective, then new ones should be ordered to replace the defective units.
 5. **Reassembly:**
 - A. When defective parts have been replaced, reassemble the unit

referring to Step 4, "Repair or Replacement".

- B. Retest unit as in Step 3, "Function Test.."

PHYSICAL ADJUSTMENTS AND POSITIONING

The microphone or earphone acoustic tubes may be removed and replaced with shorter ones. To do so, simply pull off the old tube and push on the desired one.

The microphone/earphone assembly comes set up for use on the left side of the head. To set up for the right side of the head (co-pilot), rotate the clip assembly 180° around the head assembly (See figure 7). The clip assembly will snap into its new position. When worn on the left side of the face, the eyeglass/headband clip should be rotated so that the opening on the clip faces upward. On right side of face, clip should face downward (See Figure 7).

WARRANTY (Limited) —

Electro-Voice Aircraft Microphones and Accessories are guaranteed for **twenty-four (24) months** from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, microphone will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not cover finish, appearance items, cables, cable connectors, or switches and does not cover malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

For repair information and service locations, please write: Service Department, Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone 616/695-6831) or 7473 Avenue 304, Visalia, CA 93277 (209/625-1330-1).

Electro-Voice also maintains complete facilities for non-warranty service of E-V products.

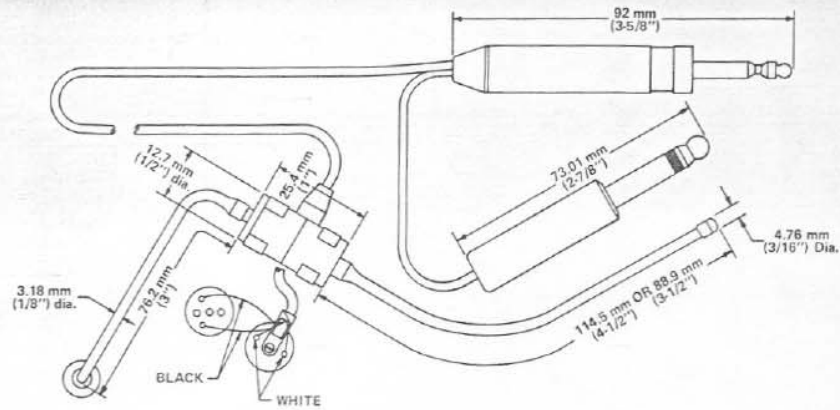


FIGURE 1 - Dimensions

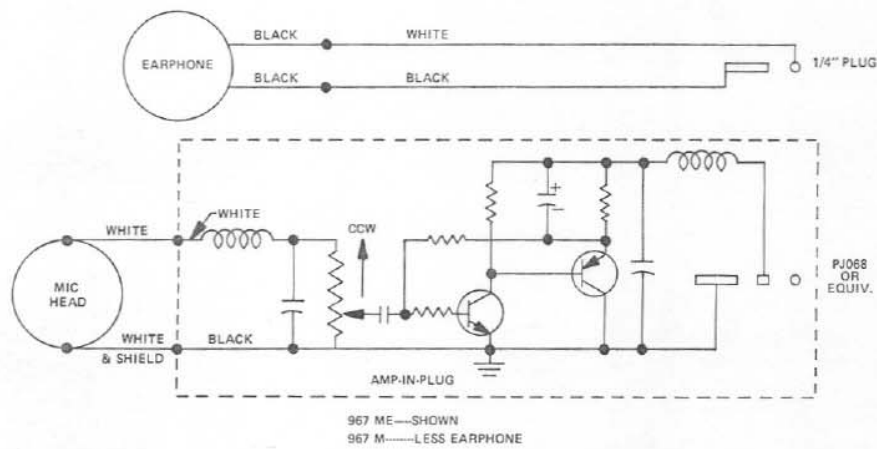


FIGURE 2 - Transistor Amplifier

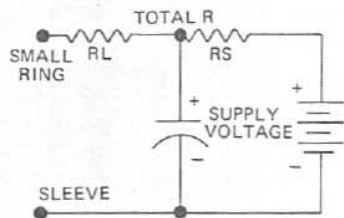


FIGURE 3 - Typical Power Supply

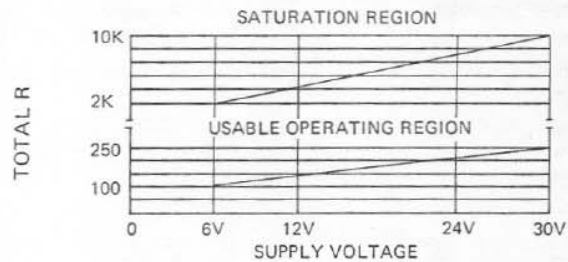


FIGURE 4 - Acceptable Operating Region

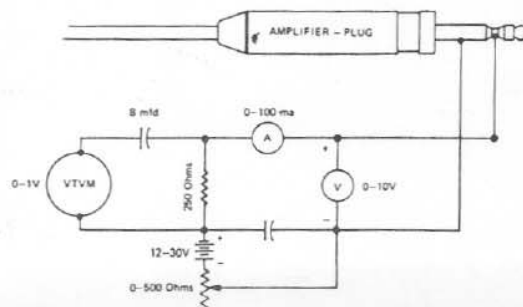


FIGURE 5 - Test Set-Up

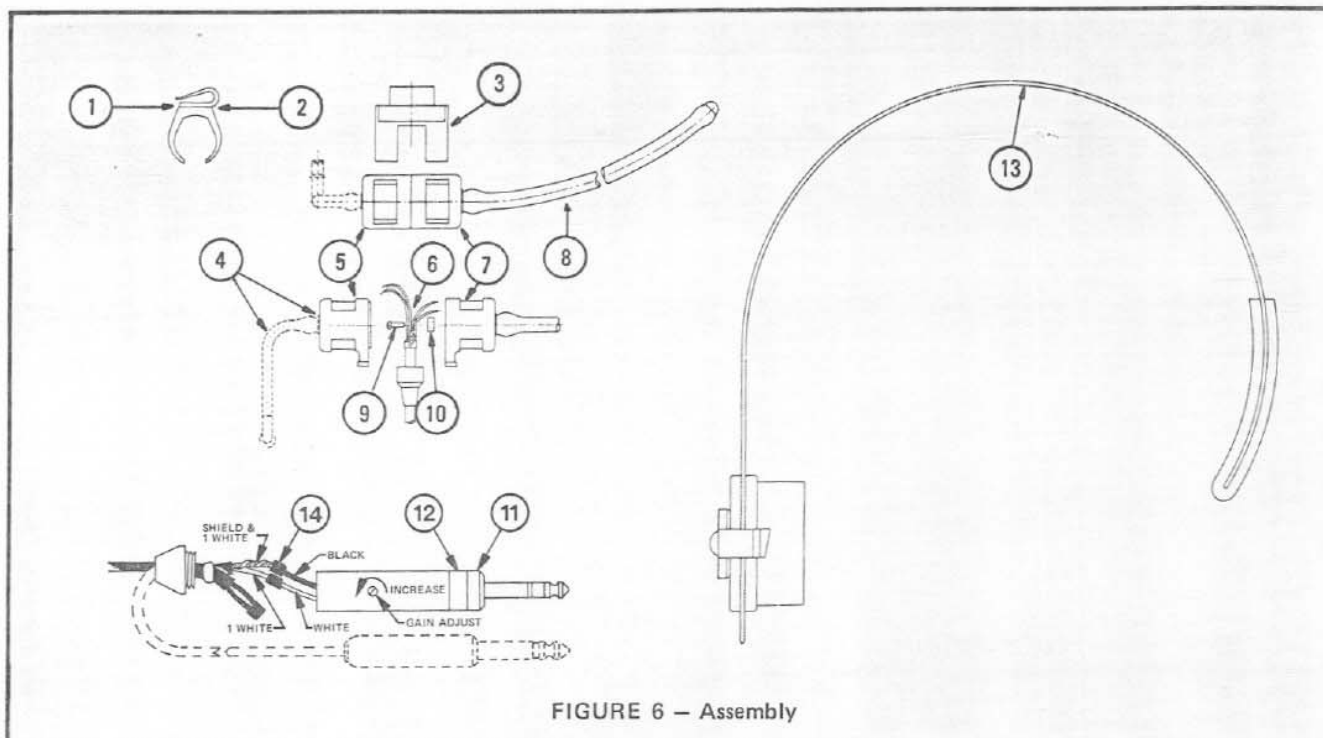


FIGURE 6 - Assembly

No.	E-V Part No.	Description	No. Req'd
1	A48404	Nameplate	1
2	C48404	967M Nameplate	1
	D48404	967ME Nameplate	1
3	85544	Clip subassembly	1
4	48418	967M Nameplate 1/2" dia.	1
	88188	967ME Eartube & Tips	1
5	A77669	967M Rear case	1
	85545	967ME Earphone subassembly	1
6	86711	967M Cable subassembly	1
	86518	967ME Cable subassembly	1

No.	E-V Part No.	Description	No. Req'd
7	85546	Microphone subassembly	1
8	85548	Microphone tube	1
9	62841	Brass Screw 0-80 x 3/16	1
10	77666	Spacer	1
11	88695	Amplifier & Case subassembly	1
12	B48403	967M Amplifier Nameplate	1
	C48403	967ME Amplifier Nameplate	1
13	85543	Headband subassembly	1
14	A66058	3/64" dia. shrink tubing	2

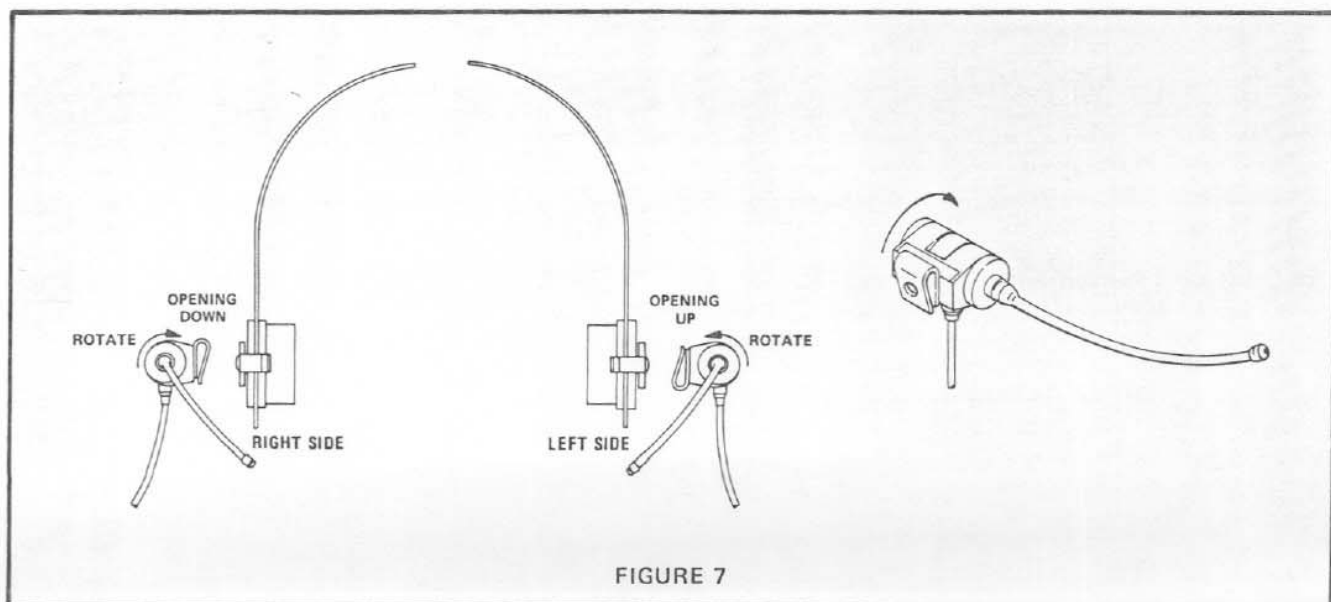


FIGURE 7