

FIGURE 1 – Dimensions

ENGINEERING DATA MODEL 603A DYNAMIC MICROPHONE

DESCRIPTION AND APPLICATIONS

The Model 603A is a hand-held dynamic microphone, designed for high articulation speech transmission under high ambient noise. The 603A is the result of continuous study of the needs of the communications industry and it uniquely meets the specialized requirements of airline, two-way radio and industrial applications. The 603A is a transistorized pressure gradient microphone utilizing two sound entrances for reduction of interfering ambient noise. Stated simply, if sound pressure and phase are reasonably identical at both sound entrances, cancellation occurs. If, however, the sound originates in close proximity to one sound entrance (i.e. ¼ - ½ inch) and more distant to the other sound entrance, then a pressure and phase differential will exist and little cancellation will occur. The 603A is excellent at discriminating between near and distant sounds for maximum ambient noise rejection.

The compact two-stage transistor amplifier is specially stabilized and will operate uniformly from +158° F down to - 40° F. Output of the transistor amplifier is designed to plug directly into inputs designed for carbon microphones. The internal potentiometer allows the output level to be adjusted, using a jeweler's screwdriver, thus precisely controlling output to the transmitter. The 603A provides extremely reliable, crisp, clear speech reproduction with high sensitivity and low distortion.

SPECIFICATIONS

- Type:** Transistorized dynamic
- Frequency Response:** 200 to 4,000 Hz
- Impedance:** Matches 100 to 500 ohm carbon input
- Polar Pattern:** Pressure gradient
(Differential close-talking)
- Output Level:** Adjustable up to -46 dB with
114 dB spl ¼" from front of microphone
(0 dB = 1 volt/dyne/cm²)
- Diaphragm:** Electro-Voice Acoustalloy®
- Case Material:** High impact ABS
- Finish:** Black Leatherette
- Amplifier Gain:** 48 dB
- Current Drain:** 22 ma at 14 volts
- Rated Supply Voltage:** 24 volts nominal (14 to 19 volts)
- Maximum Undistorted Output:** 4.0 (with 24 v supply
and 250 ohm load)
- Dimensions:** 2¼" W x 3-9/16" H x 1-3/8" D
- Net Weight:** 7 ½ ounces
- Connector:** PJ-068 commercial equivalent
- Cable:** 3 or 4 conductor coiled cord, 5' extended
- Switch:** DPST wiping contact leaf switch
- Accessories Available:** Microphone holder
- Temperature Range:** -40° C (-40° F) to +70° C
(+158° F)
- FAA Approval:** TSO-C58

OVERHAUL INSTRUCTIONS

1. **Special Tools.** None
2. **Disassembly:**
 - a. Begin disassembly by removing the four screws holding on the back case.
 - b. To remove head loosen set screws so that head leads come out of head as head is lifted from case.
 - c. To remove amplifier subassembly unsolder chokes from pins protruding from amplifier and pull gently on amplifier.
 - d. To remove switch assembly remove the one screw holding the switch plate in the case. Lift out switch without unsoldering any wires unless it is determined the switch is defective.
3. **Inspection:**
 - a. Inspect for frayed or broken wires.
 - b. Check switch contacts for excessive wear.
 - c. Check head by placing an ohmmeter across the head terminals. A resistance of approximately 150Ω should be observed. Also an audible click will be heard if head is operative.
4. **Repair and Replacement:**
Replace any defective parts with known good parts.
5. **Reassembly:**
Reassembly is the reverse of disassembly. See Figure 4.
6. **Switch Test:**
Mike connection (ring to sleeve) should close just before the relay connection (tip to sleeve). Tip to sleeve should measure less than 1 ohm when switch is depressed. However a large resistance will be measured from ring to sleeve depending upon polarity of ohmmeter.
7. **Microphone Test:**
Using circuit in Fig. 2. which is the test circuit recommended by ARINC, connect the microphone as shown. The microphone is adjusted at the factory to produce .4V audio to the VTVM when subjected to a sound pressure of 114 dB spl (100 dynes/cm² or 100μ bars) at 1 kHz. Normal speech at 1/4 inch yields approximately 30 dynes/cm² which would give an output of approximately .10V.

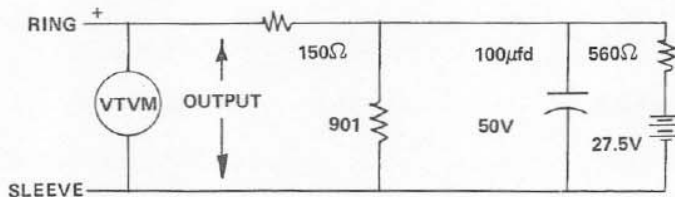


FIGURE 2 - Test Circuit per ARINC Spec. 538A

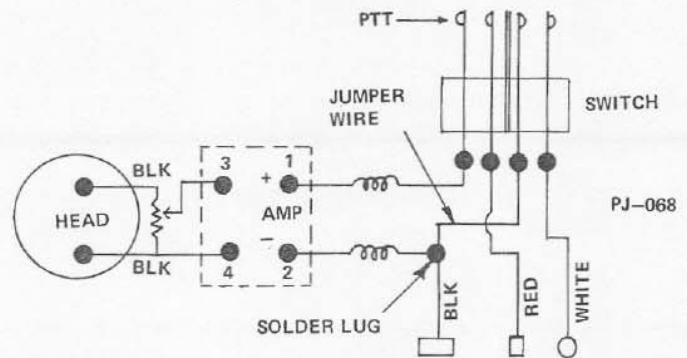


FIGURE 3 - Schematic

WARRANTY

Electro-Voice aircraft microphones and accessories are guaranteed for 18 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 Electro-Voice Repair Service Dept., Buchanan, Michigan. 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.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil St., Buchanan, Michigan 49107.

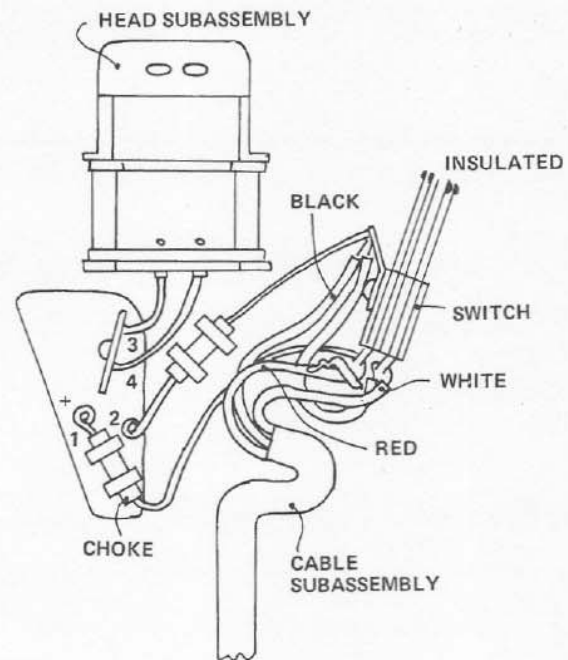
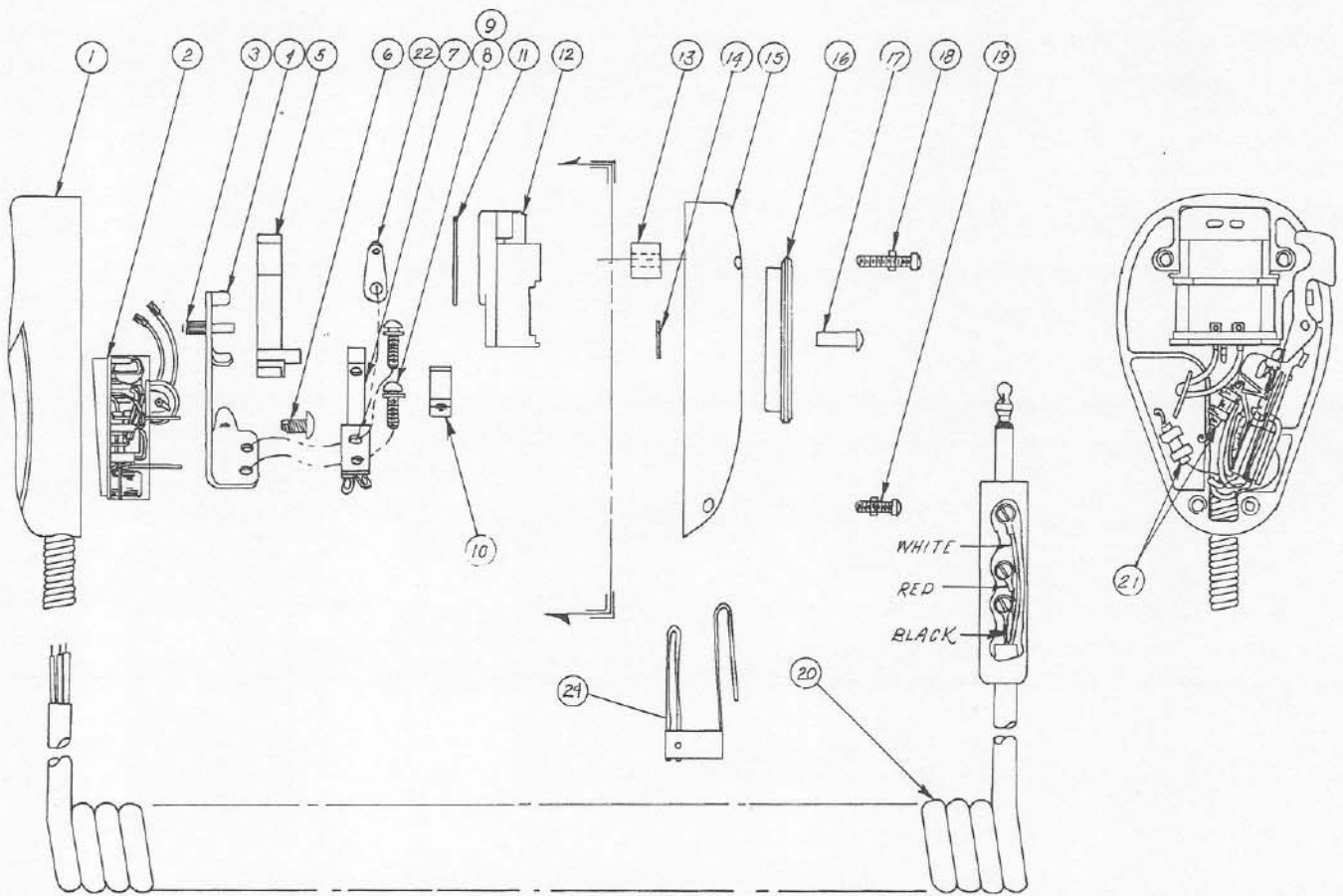


FIGURE 4 - Detail of switch and amplifier connections



SPARE PARTS LIST MODEL 603A

ITEM	PART NO.	REQ'D	DESCRIPTION
1	88156	1	Front Case S/A
2	A88155	1	Amplifier S/A
3	75993	1	Pivot Pin
4	75992	1	Switch Plate
5	75991	1	Actuator
6	62607	1	SCR. #6 x 1/4 Type Bt. Rd. Hd.
7	56065	1	Switch
8	L60126	2	SCR. #3-48 x 3/8 Bd. Hd. Phil.
9	4067	2	Washer #3 Int. Lock
10	19048	1	Spring
11	38283	1	Gasket, Head
12	88320	1	Head S/A
13	C2817	1	Rubber Bumper
14	38404	1	Washer St'l. 318 x #6 x .051
15	B79659	1	Back Case
16	79610	1	Hang-up Button
17	20734	1	Rivet 1/8" x 7/16"
18	62608	2	SCR. #4-40 x 9/16 St. St'l. Fill Hd.
19	62609	2	SCR. #4-40 x 3/8 St. St'l. Fill Hd.
20	D88313	1	Cable S/A
21	15201	2	Choke, RF National R-33
22	27057	1	Lug, Solder
23	1608-39	1	Wire, Black, 1 1/2 long
24	79826	1	Bracket, Hanger