Electro-Voice®

Aviation Air-Link™ (EV 913E)

Electret Condenser DTMF* Microphone

- **Standard DTMF tone-generating system**
- **EMI and RFI protected**
- **Automatic PTT line seizure when tone pad is used with two-second delay on dropout**
- **Tailored voice response for high articulation per RTCA/DO-214**
- **Adjustable tone level for correct mix of voice and tones**
- **Immune to aircraft-generated magnetic fields**

*Dual Tone Multi-Frequency

SPECIFICATIONS
(Per RTCA/DO-214)

Versions Available:
913-0930 (with PJ-068 connector)
913-0931 (with A4M or XLR-4-12C connector)
913-1724 (same as 913-0930 except button hanger)
913-1725 (same as 913-0931 except button hanger)

Generating Element:
Electret condenser

Frequency Response (see Figure 2):
100-10,000 Hz

Polar Pattern:
Pressure gradient
(differential close-talking)

Impedance:
Matches standard aircraft carbon circuitry

Sensitivity (output of built-in amplifier):
400 mV ±3 dB for 114 dB re 20 µpascals (normal speech)

Power Requirements:
See test circuit, Figure 3 (operates into carbon microphone circuit)

Current Drain (typical):
11 mA at 8 V dc (12-volt system)
27 mA at 16 V dc (24-volt system)

Case Material:
Black fire retardent ABS

Dimensions:
114.3 mm (4.5 in.) length, less hanger
53.3 mm (2.1 in.) width, less PTT button
40.6 mm (1.6 in.) depth

Weight:
235 grams (8.3 oz)

Accessories Supplied:
Panel mounting brackets (part # 88408 for hook style; part # 81731 for button style)

Certification:
FAA TSO C-58a

DESCRIPTION

The Electro-Voice 913E Air-Link™ electret condenser microphone is designed for use in air transports, including advanced technology aircraft.

The electret element virtually eliminates EMI and RFI signals, channeling the full power of your communications system into crisp, articulate voice transmission with outstanding frequency response.

The DTMF (Dual Tone Multi-Frequency) key pad is incorporated for aircraft dial down through a ground-based telephone interconnect system such as the S-Com device. The Touch Tone® generates standard telephone switching/dial tones to access both special and standard decoder circuitry. The PTT line is also seized (pulled to ground for relay and electronic switching) when the key pad is used. A two-second delay is incorporated to eliminate drop-out while dialing.

WARRANTY (Limited)

Electro-Voice Aircraft Microphones and Accessories are guaranteed for 36 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 correct shipping address, instructions on return of Electro-Voice products for repair, and locations of authorized service agencies, please write: Service Department, Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone 616/695-6831).

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

Specifications subject to change without notice.

FIGURE 4 — Repair Parts Diagram

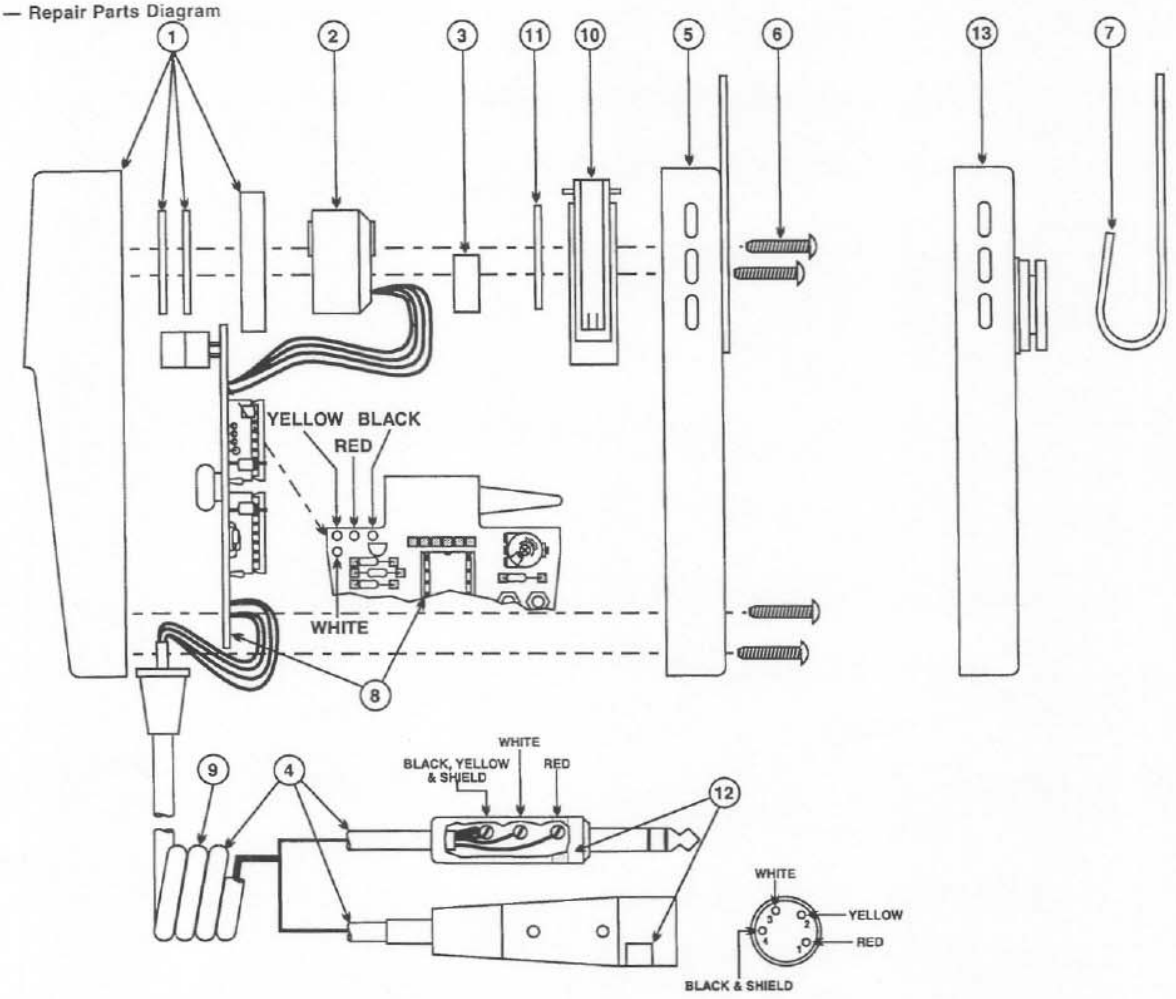


TABLE 1 — 13E Repair Parts List

ITEM	EV PART NO.	REQ'D	DESCRIPTION
1	83639	1	Front case with keyboard and gaskets
2	81372	1	Microphone S/A
3	72284	1	Spacer, foam
4	81647 81648	1 1	Cable S/A with PJ-068 (913-0930 & -1724) Cable S/A with A4M (913-0931 & -1725)
5	83641	1	Rear case with hanger (913-0930 & -0931)
6	63124	4	Screws, installation
7	88408	1	Hanger and hardware (913-1724 & -1725)
8	83640	1	Circuit and switch S/A
9	16679	1	Cable w/o connector
10	72509	1	Actuator, PTT
11	19088	1	Spring, PTT
12	S48559 T48559	1 1	Nameplate, 903-0930 Nameplate, 903-0931
13	83642	1	Rear case with button (913-1724 & -1725)
14	81731	1	Button style bracket and hardware
NOTE: Entire assembly (less EV#'s 88408 and 81372) is available as part # A81536			

FIGURE 1 — Wiring Diagram

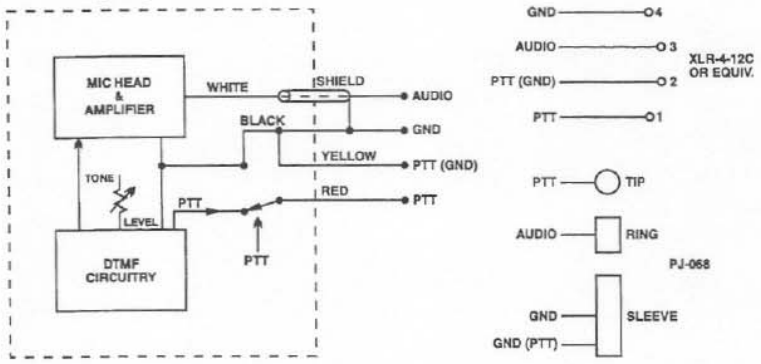


FIGURE 2 — Frequency Response

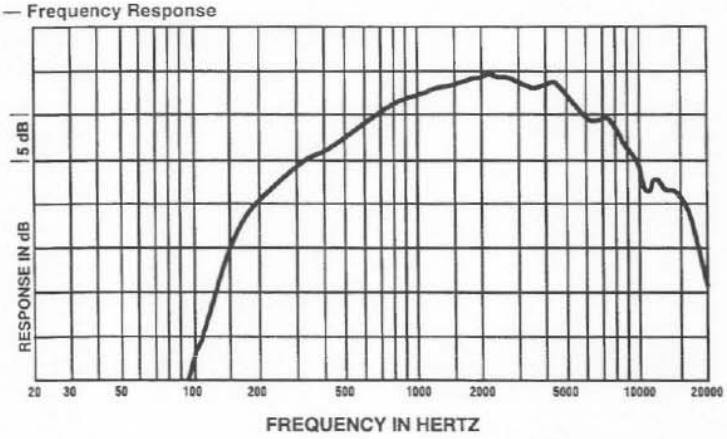
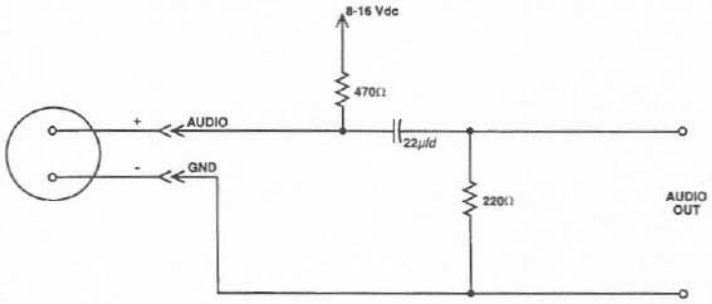


FIGURE 3 — Test Circuit Per RTCA/DO-214



REPAIR INSTRUCTIONS

1. Special Tools: None
2. Disassembly: (see Figure 5)
   a. Remove four (4) rear screws, having front and rear case halves together.
   b. Remove back carefully; actuator is spring-loaded.
   c. Cable mic head and tone generator will slip out of the front case, and service may be performed.
3. Inspection:
   a. Inspect switch contacts for signs of excessive wear.
   b. Examine unit for damaged or dried-out wiring or sleeving. Check all soldering connections for good contacts.
   c. Check cable for signs of damage such as cuts or cracks.
4. Repair and Replacement:
   a. Replace any part which is damaged.
   b. The mic head assembly is sealed and not repairable—replace entire assembly (EV part # 81372) if defective.
   c. The keyboard circuit is not repairable and is part of the front case.
   d. The tone generator board also functions as a two-second PTT delay and electronic switch on the mic line.
5. Reassembly: Reverse Step 2 above.
6. Full Function Testing:
   a. PTT: The PTT line is switched manually (PTT switch) or electronically via the keyboard. It is held for approximately two seconds after any keypad is released.
   b. Tone Output: Two standard telephone tones are generated for each keypad.
   c. Microphone Output: The electret microphone has the carbon equivalent circuit inside the head assembly. Both voice and tones are mixed and fed to the output line. This amplifier is switched onto the output line via either the PTT switch or an FET when any keypad is depressed. Like the PTT line, the mic line is held for two seconds after any keypad is released.
   d. Plug the microphone into the standard DO-214 test circuit (with a PTT lamp) or an aircraft intercom. Check for proper operation previously described. A speech output of approximately 0.2 volts should be obtained.
7. Performance to Specifications:
   a. Electrical conformance to DO-214 requires special equipment and an artificial voice.
   b. Certification can only be given by the Electro-Voice Service Center in Buchanan, Michigan.
   c. If proof of performance and/or certification is required, send the unit to the warranty address (see Warranty section).

ENVIRONMENTAL QUALIFICATION FORM

MICROPHONE, ELECTRET (HANDHELD 903E & 913E), (BOOM MOUNTED 978E)

MODELS: 978E, 903E & 913E

TSO NUMBER: **TSO-C58a**

Specifications Enclosed with Microphones

CONDITIONS	DO-160B PARAGRAPH #	DESCRIPTION OF CONDUCTED TESTS
Temperature and Altitude	4.0 Rev. 1	Equipment tested to Category B1
Low Temperature High Temperature	4.5.1 4.5.2, 4.5.3	
Altitude Decompression Over Pressure	4.6.1 4.6.2 4.6.3	Decompression tested at 53,000 ft.
Temperature Variation	5.0	Equipment tested to Category B
Humidity	6.0	Equipment tested to Category B, Level 1
Shock Operational Crash Safety	7.0 7.2 7.3	No test required
Vibration	8.0	Equipment tested without shock mounts to Categories K & S (DO-160B, Table 8-1)
Explosion	9.0	No test required
Waterproofness	10.0	No test required
Fluids Susceptibility	11.0	No test required
Sand and Dust	12.0	No test required
Fungus	13.0	No test required
Salt Spray	14.0	No test required
Magnetic Effect	15.0	Equipment tested as Class "B"
Power Input	16.0	No test required
Voltage Spike Conducted	17.0	Equipment tested to Category "A"
Audio Frequency Conducted Susceptibility	18.0	No test required
Induced Signal Susceptibility[1]	19.0	Equipment tested to Category "B"
Radio Frequency Susceptibility[1]	20.0	Equipment tested to Category "B"
Radio Frequency Emission[1]	21.0	Equipment tested to Category "B"
Other Test[2]		Fire resistance tests were conducted in accordance with Federal Aviation Regulation, Part 25, Appendix F, F.A.R. 25.853 and F.A.R. 25.1359 (d)

REMARKS:

— Tests were performed at Electro-Voice, Inc., Sevierville, TN, except the following:

[1]Radiometrics Midwest Corp., Lombard, IL

[2]Gaynes Testing Laboratories, Chicago, IL

ELECTRO-VOICE a MARK IV company **600 Cecil Street, Buchanan, Michigan 49107**

MANUFACTURING PLANTS AT ■ BUCHANAN, MI ■ NEWPORT, TN ■ SEVIERVILLE, TN ■ OKLAHOMA CITY, OK ■ GANANOQUE, ONT.

Part Number 530997 — 9614