Electro-Voice

903E
Microphone, Electret Noise Canceling

Specifications
(Per RTCA/DO-170)

Generating Element
Electret Condenser

Frequency Response
300–5000Hz see Figure 1

Impedance
Matches standard aircraft carbon activity

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

Power Requirements
See test circuit, figure 5.

(operates into carbon microphone circuit)

Current Drain
11ma at 8V

28ma at 16V

Case Material
Black ABS

Dimensions
91.5mm (3.6in) length, less hanger

61.0mm (2.4in) width

35.6mm (1.4in)

Weight
180 grams (0.40lbs)

Accessories Supplied
Panel mounting bracket (8474)

Certification
FAA TSO C-58a, Category B

Description
The Electro-Voice model 903E condenser handheld microphone is designed for use in high noise environments where high speech intelligibility is desired such as in aircraft cockpits, passenger cabins, control towers, or terminal areas.

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

The microphone is recommended for advanced technology air transports employing flight instrumentation systems (glass cockpits). It is proven electret technology will not decay or deteriorate in any way over extended periods.

Features
- Highly reliable
- EMI and RFI protected
- Tailored voice response for high articulation per RTCA/DO-170
- Immune to aircraft generated magnetic fields
- Greater durability
- Lightweight
- 903-1341 (with PJ-068 connector)
- 903-1342 (with A4M connector)

Warranty
For warranty terms and conditions, visit www.telex.com.

Overhaul Instructions

1. Special Tools: None

2. Disassembly: (See Figure 3)

   a. Begin disassembly by removing the four (4) screws holding the front and rear case halves together.

   b. Mic head assembly will slip out of the front case half.

   c. The switch plate has to be removed if the cable S/A is to be removed.

3. Inspection:

   d. Inspect switch contacts for signs of excessive wear.

   e. Examine unit for damaged or dried-out wiring or sleeving. Check all solder connections for good contacts

   f. Check cable for signs of damage such as cuts and cracks

4. Cleaning

   a. Thoroughly clean all dust and dirt from microphone by first using dry, compressed air to dislodge dirt from inaccessible corners. Clean each part with a lint-free cloth or brush.

   b. Remove pits from switch contacts by burnishing.

5. Repair or Replacement:

   a. Replace any part which is damaged.

   b. The Mic head assembly is sealed and is not repairable–replace mic head assembly (EV#81393), if defective.

6. Reassembly

   a. Reassembly is the reverse of disassembly in step 2.

7. Check of Microphone Output:

   a. The electret microphone has the carbon equivalent circuit inside the assembly. A speech output of approximately 0.2 volts should be obtained when used with the DO-170 test circuit or an aircraft intercom.

8. Check at Switch Operation : (See Figure 2)

   a. With switch released, check the resistance between the red and black (shield) leads. (Tip and sleeve on PJ068 plug.) (Pin 1 and Pin 2 on A4M.) It should be infinite.

   b. Check the resistance between the white and black leads. (Ring and sleeve on PJ068 plug.) (Pin 3 and Pin 4 on A4M). It should be infinite.

   c. Depress switch and check resistance between red and black leads. (Tip and sleeve on PJ068 plug). (Pin 1 and Pin 2 on A4M). It should be zero (0).

   d. Depress switch and check resistance between white and black leads. (Ring and sleeve on PJ068 plug). (Pin 3 and Pin 4 on A4M). It should be 1000 to 10,000 Ohms depending on meter polarity.

9. Performance to Specifications

   • Electrical conformance to DO-170 requires special equipment and an artificial voice.

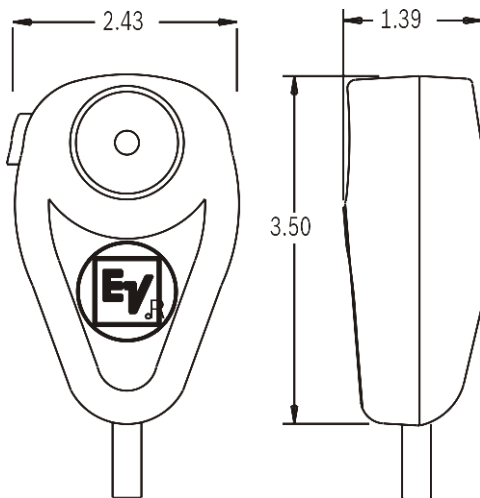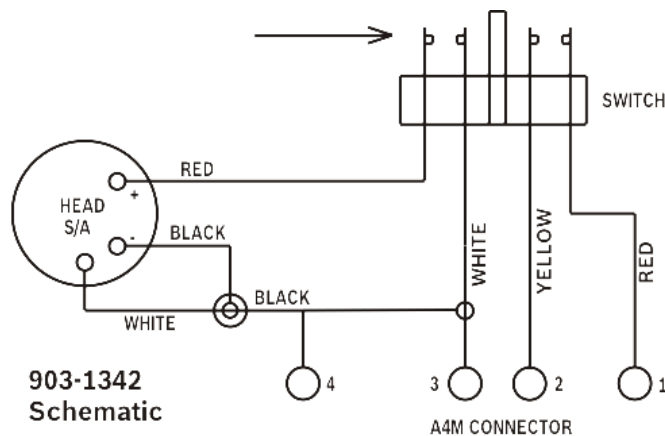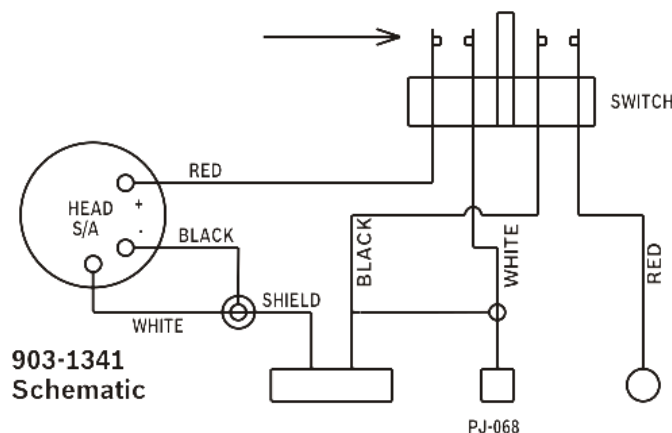**NOTE**: Dimensions for customer reference only.

Figure 1: 903E Dimensions

Figure 2: 903-1341 and 903-1342 Schematics
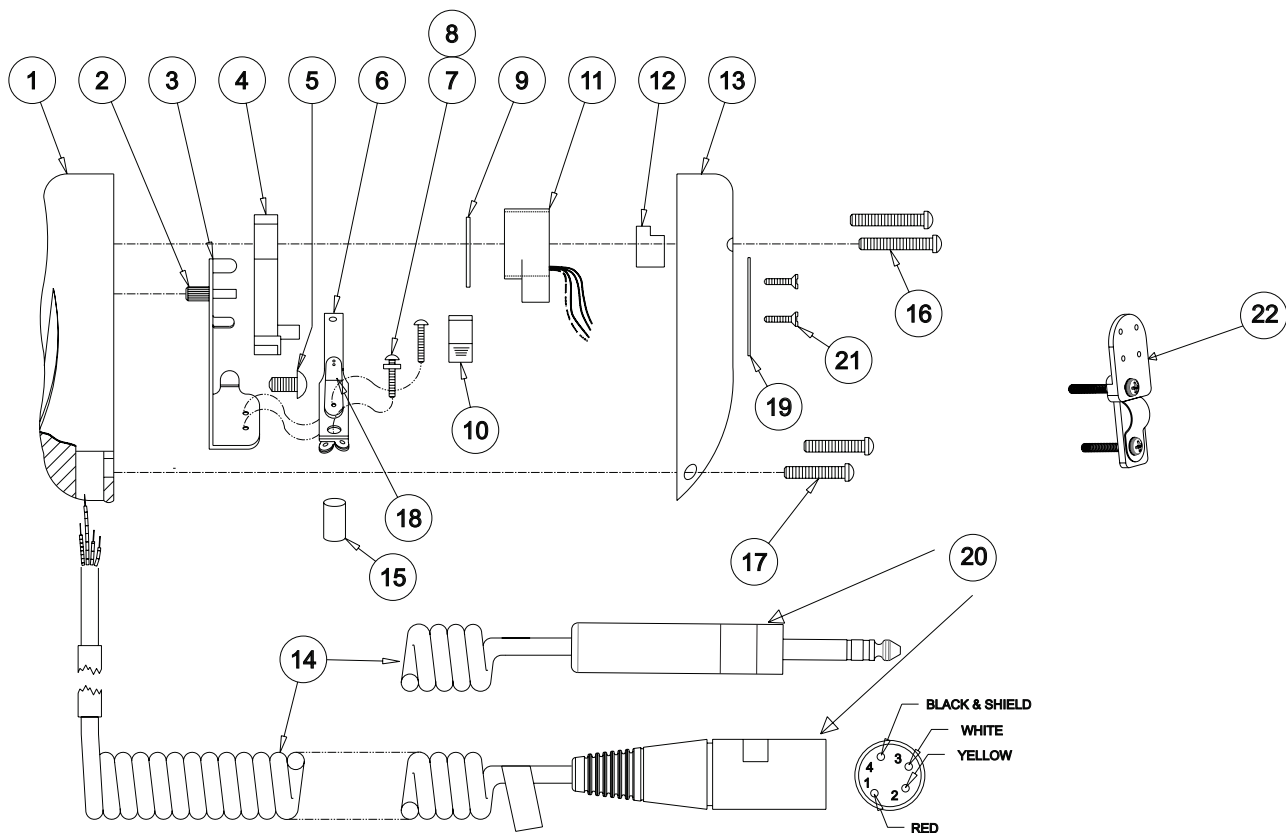
Figure 3: 903E Parts Assembly
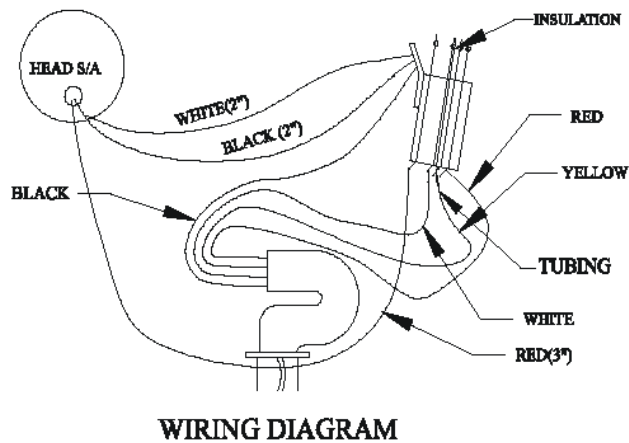
Figure 4: Wiring Diagram
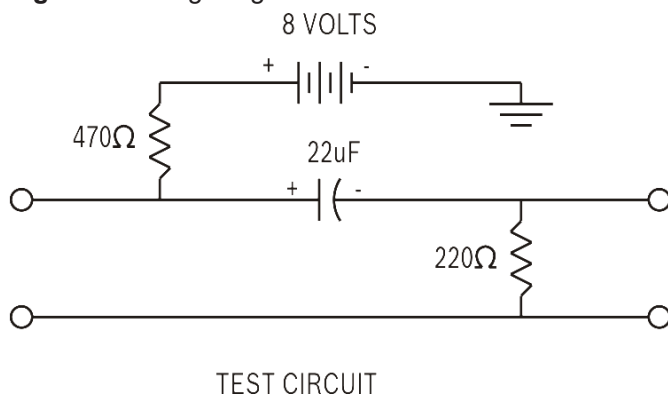
Figure 5: Test Circuit

1	82343*	1	CASE FRONT, S/A
2	75993AY	1	PIN, PIVOT
3	75992CR	1	PLATE, SWITCH
4	75991LF*	1	ACTUATOR, SWITCH, PLASTIC
5	62607AD	1	SCR, #6-20 X 1/4, PAN, HD, XREC, SLOTTED, TYPR BT (25)
6	56065	1	SWITCH, LEAF
7	60126LAP	2	SCR, #3-48 X 3/8, PAN HD, XREC, STL
8	4067AD	1	WASHER, LOCK, #3, INTERNAL TOOTH
9	38283	1	GASKET, .940-.920 X .375 X .021-.031 THICK, NEOPRENE
10	19048AE	1	SPRING, SPECIAL, SPRING STEEL
11	81393	1	MICROPHONE S/A
12	72318	1	SPACER, .94 O.D., FOAM
13	72570RL	1	CASE, BACK S/A
14	81488	1	CABLE S/A WITH PJ-068 CONNECTOR
	81489	1	CABLE S/A WITH A4M CONNECTOR
15	66005H	2	TUBING, 3/32 I.D, THERMOFIT 107E-CRN, BLACK 3.8"
16	62608	2	SCR, #4-40 X 9/16, FILLET HD, SLOTTED STAINLESS STEEL
17	62609	2	SCR, #4-40 X 3/8, FILLET HD, SLOTTED STAINLESS STEEL
18	27057	1	LUG, #4, SOLDER, SHAKEPROOF #2304-04-00
19	48875	1	NAMEPLATE
20	48559Y	1	NAMEPLATE (903-1342)
	48559W	1	NAMEPLATE (903-1341)
21	60024CAD	4	SCR, #2 X 1/4, FLT HD XREC
22	8474	1	MOUNTING BRACKET

NOTE: If either items 1 or 4 need replacement, you must replace both items as a set.

Environment Qualifications Form

Microphone, Electret, (Handheld 903E)

TSO Number: TSO-C58a

Specifications Enclosed with Microphones

Conditions	D0-160B Paragraph #	Description of Conducted Tests[a]
Temperature and Altitude[c]	4.0 Rev 1	Equipment tested to Category B1
Low Temperature	4.5.1	
High Temperature	4.5.2, 4.5.3	
Altitude	4.6.1	
Decompression	4.6.2	Decompression tested at 53,000 ft.
Over Pressure	4.6.3	
Temperature and Variation[c]	5.0	Equipment tested to Category B
Humidity[c]	6.0	Equipment tested to Category B, Level 1
Shock	6.0	No test required
Operational	7.2	
Crash Safety	7.3	
Vibration[c]	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[b]	19.0	Equipment tested to Category B
Radio Frequency Susceptibility[b]	20.0	Equipment tested to Category B
Radio Frequency Emission[b]	21.0	Equipment tested to Category B
Other Test[c]		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)

a. Tests performed at Electro-Voice, Inc. unless noted otherwise.
b. Tests were performed at Radometrics Midwest Corp. Lombard, IL
c. Tests were performed at Gaynes Testing Laboratories, Chicago IL