DESCRIPTION AND APPLICATIONS

The Model 602FTR is a hand-held dynamic microphone designed for highly articulate speech transmission under high ambient noise. The 602FTR 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 602FTR is a transistorized pressure-gradient microphone utilizing three sound entrances for reduction of interfering ambient noise. Stated simply, if sound pressure and phase are reasonably identical at both sound entrances, as in the case of relatively distant sounds, then little or no output results. If, however, sound originates in close proximity to one sound entrance (i.e. ¼ to ½ inch) a pressure and phase differential exists and output results. The 602FTR is unexcelled at discriminating between near and distant sounds for maximum ambient noise rejection. The compact two-stage transistor amplifier is specially stablized and will operate uniformly from +165° down to −40°. Output of the transistor amplifier is designed to plug directly into inputs designed for carbon microphones. A screwdriver accessible potentiometer is provided for adjustment of output level. The 602FTR provides extremely reliable, crisp, clear speech reproduction with high sensitivity and low distortion.

SPECIFICATIONS

Type:	Transistorized Dynamic
Frequency Response:	100 to 5,000 Hz
Impedance:	Matches 100 and 500 ohm carbon input
Polar Pattern:	Pressure gradient (Differential close-talking)
Output Level:	−43 db at ¼ inch from front of microphone at maximum potentiometer setting. (0 db = 1 volt/dyne/cm²)
Case Material:	High impact Cycolac
Finish:	Black Leather grain
Transistor Amplifier	
Power Gain:	35 db (6 volts)
Current Drain:	25 ma (20 volts)
Rated Supply Voltage:	6 to 30 volts
Maximum Undistorted Output:	0.7 volt
Controls:	Output level (adjustable through screwdriver accessible potentiometer)
Dimensions:	2½" wide, 4" high, 1½" deep
Net Weight:	0.7 lbs.
Cable:	4-conductor, coiled cord, 5' extended
Switch:	Wiping contact leaf switch opens microphone circuit in OFF position, also provided with contacts for relay operation
Accessories Supplied:	Panel mounting bracket
Temperature Range:	−40° F to 165° F
FAA Approval:	TSO C58, Category B

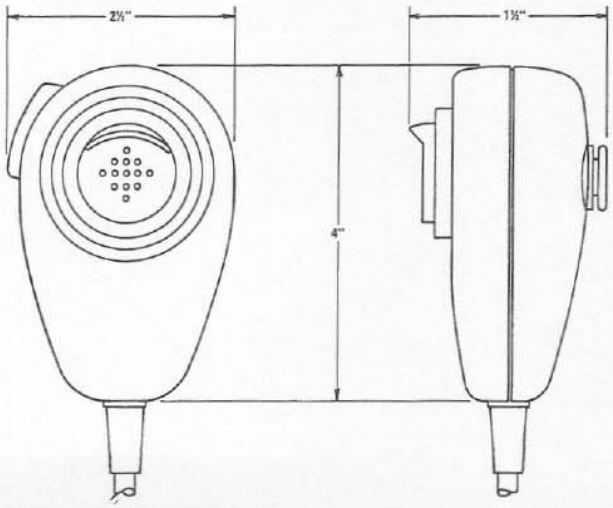


Figure 1 - Dimensions

ENGINEERING DATA 602FTR NOISE-CANCELLING DYNAMIC

INSTALLATION

Figure 2 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 zero.

Use the graph in Figure 3 to determine proper series resistance and/or supply operating voltage for 602FTR. 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, 24V power supply indicates that a total series resistance of from 200 to 8,000 ohms is acceptable.

Microphone output level may be adjusted by means of a screwdriver accessible potentiomenter at the rear of the 602FTR.

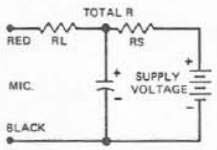


Figure 2 - Typical Power Supply

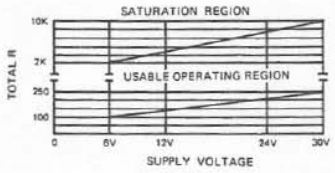


Figure 3 - Acceptable Operating Region

OVERHAUL INSTRUCTIONS

1. **Special Tools.** None.
2. **Disassembly.** (See Figure 4)
   a. Begin disassembly by removing the three screws holding the case back.
   b. Do not remove the head subassembly unless it is necessary to replace the head. If it is necessary to replace this component, proceed as indicated in Steps c and d.
   c. Remove two screws from switch plate holding head assembly in place. Gently remove the head.
   d. With the head assembly removed, it is possible to unsolder all leads and replace the head.
   e. The switch assembly should not be removed from switch plate.
   f. Do not unsolder leads to switch unless necessary for replacement of cable.
3. **Cleaning:**
   a. Thoroughly clean all dust and dirt from microphone by first using dry, compressed air to dislodge dirt from inaccessible corners. Then clean each part with a lint-free cloth or brush.
   b. Remove pits from switch contacts by burnishing.
4. **Inspection:**
   a. Inspect switch contacts for signs of excessive wear.
   b. Examine unit for damaged or dried-out wiring or sleeving. Check all solder connections for good contacts.
   c. Check cable for signs of damage such as cuts or cracks.
5. **Repair or Replacement:**
   a. Replace any part which is damaged.
   b. Check resistance across the head with an ohmmeter. It should read about 150 ohms. In addition, a distinct click from the microphone element should be heard when the circuit to the ohmmeter is made or interrupted. If it is not, replace head as described in the reassembly procedure.
6. **Reassembly:**
   a. Reassembly is the reverse of disassembly.
7. **Test Procedure:** (See Figure 7)
8. **Check of Switch Operation:**
   a. With switch released, check the resistance between the white and green leads. (Tip and sleeve on PJ068 plug). It should be infinite.
   b. Check resistance between the red and black leads. It should be infinite.
   c. Depress switch and check resistance between white and green leads. (Tip and sleeve on PJ068 plug.) It should be zero.
   d. Depress switch and check resistance between red and black leads. It should be from 1000 to 10,000 ohms depending on meter polarity.
9. **Check of Microphone Output:**
   The best procedure for testing the microphone is to compare its output with one known to be operating properly, using the test set-up shown in Figure 7. Check the output voltage as follows:
   a. Depress microphone switch and adjust test voltage to obtain 6 to 8 volts on DC meter.
   b. Hold the test microphone about ¼-inch from the mouth and talk at normal speech level with microphone switch depressed. An output of about 0.10 volt should be obtained.

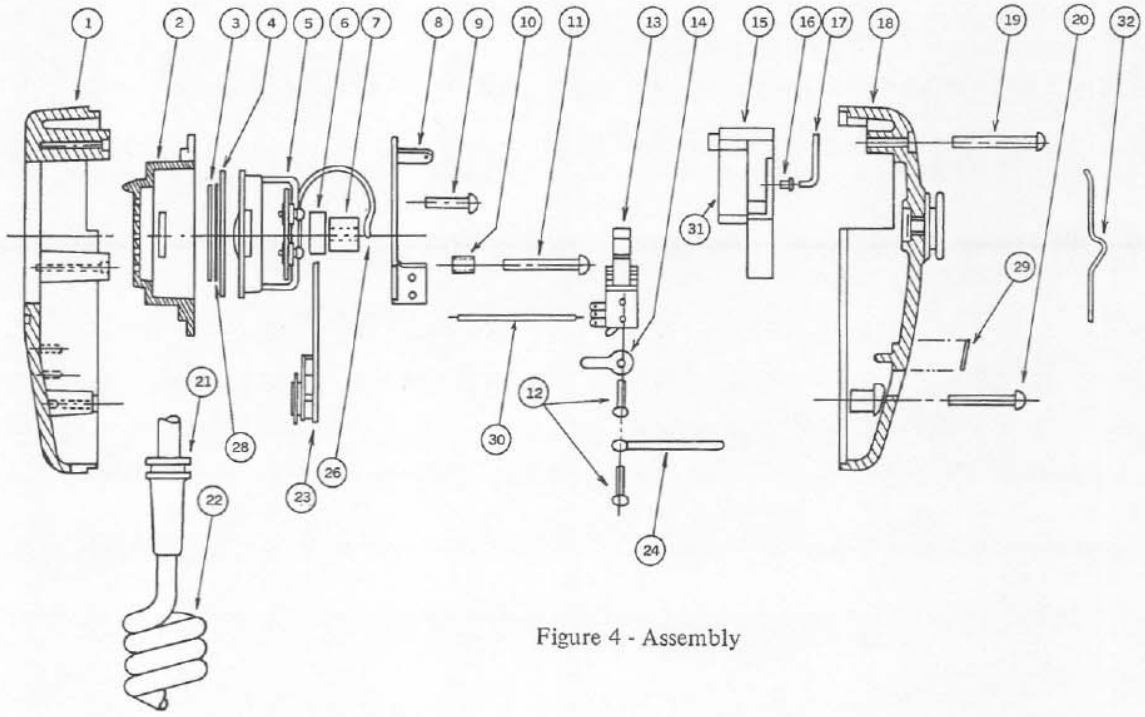
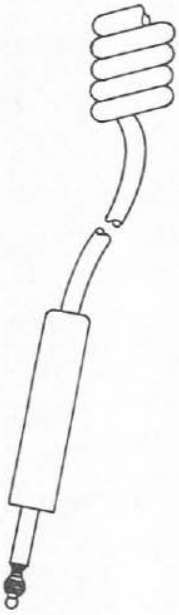


Figure 4 - Assembly



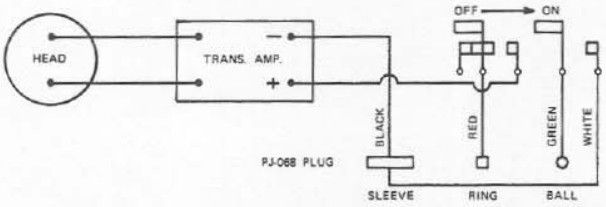


Figure 6 - 602FTR Wiring Diagram

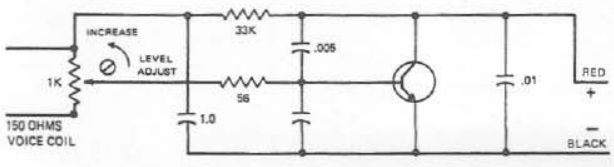


Figure 5 - Transistor Amplifier

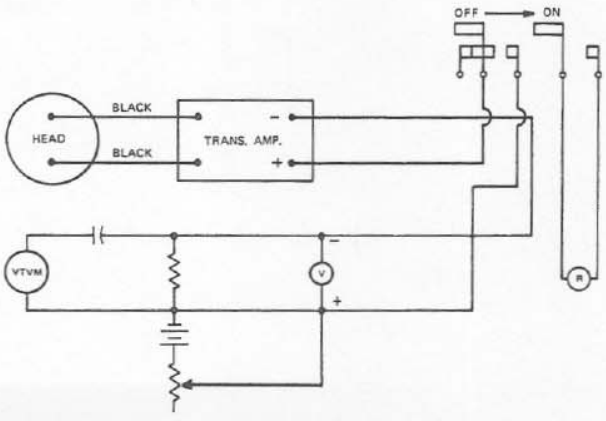


Figure 7 - Test Set-up

REPLACEMENT PARTS FOR 602FTR

Fig. No.	E-V Part No.	Description	No. Req'd.
1	76137	Case front	1
2	76141	Head adapter	1
3	76278	Grille cloth	1
4	3863	Washer	1
5	R8009	Head subassembly	1
6	10031	Magnet	1
7	2817	Rubber bumper	1
8	A74942	Bracket	1
9	62438	Screw (#4 x ½" self-tap, phillips)	2
10	74941	Spacer	1
11	62534	Screw (# 6 x 7/8" self-tap, phillips)	1
12	B60328	Screw (# 4-40 x ½" phillips)	2
13	56063	Leaf switch	1
14	2756	Solder lug	1
15	74943	Actuator	1
16	20632	Eyelet	1
17	19006	Actuator spring	1
18	84946	Back case subassembly	1
19	62437	Screw (# 4-24 x 1"self-tap, phillips)	1
20	62489	Screw (# 4 x ¼"self-tap, phillips)	2
21	74707	Flex relief	1
22	83546	Cable subassembly	1
23	85715	Amplifier subassembly	1
24	27208	Zierick lug, 263	1
25	74939	Strain relief	1
26	5536-95	Aluminum foil, ¾" x 1½" lg.	1
27	1608-10	Black wire, 3" lg.	2
28	77901	Magnetic shield	1
29	A48405	FAA nameplate	1
30	1610-15	Red wire 2" lg.	1
31	28039-81	Tesamol	1
32	75920	Dash mounting bracket	1