

TELEX

Airman 850 Headset

Maintenance and Overhaul Manual for the Airman 850 Headset



Record of Revisions

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Purpose of Manual

This manual, Bosch part number F.01U.264.819, contains information for the overhaul and servicing of the Airman 850 headset.

Technical Support

A liaison between the customer and factory is provided by the Bosch Product Support Department. Consultation and assistance on technical problems, part information, and availability of local and factory repair facilities is available. When writing, include all information concerning problem and mail to:

Bosch Communications, Inc.

8601 Cornhusker Hwy
Lincoln, NE 68507 U.S.A.

Attn: **Aircraft Product Support Mgr.**

Telephone: 877.863.4168

Parts Ordering

Replacement parts may be ordered from our parts department. When ordering, please include the following information:

- Model Number
- Part Description
- Part Number
- Quantity

Mail To:

Bosch Communications, Inc.

8601 Cornhusker Hwy
Lincoln, NE 68507 U.S.A.

Attn: **Parts Department**

Telephone: 800.553.5992
Fax: 402.467.3279
E-mail: repair.lincoln@us.bosch.com

Repairs

In order to maintain the FAA certification, all repairs to the headset must be made only by persons authorized under Part 43 of the Federal Aviation Agency regulations. Bosch offers full support and repair.

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Description and Specifications

1.0 Description and Specifications

1.1 General Description

The Telex Airman 850 is a lightweight aviation headset complete with a boom-mounted, noise-canceling electret microphone.

Lightweight design with soft, pliable cushions, adjustable headband, extended frequency drivers, and a noise canceling electret microphone result in a comfortable headset providing the ultimate in clear, understandable communications.

The Airman 850 headset with boom microphone is approved for aircraft use under FAA TSO's C57a and C58a.

1.2 Models Covered

This manual only covers models listed here. Not all of the models listed here are currently active and may not be available in the market. Bosch can, at its discretion, discontinue models and part numbers.

Model Number	Description	ANR	Connector and Wiring Used
301317-000	Airman 850 Headset, Dual-sided	Yes	PJ-068 (or equivalent) & PJ-055 (or equivalent) Figure 10 on page 25
301317-002	Airman 850 Headset, Dual-sided	Yes	XLR Figure 11 on page 25
301317-003	Airman 850 Headset, Dual-sided	Yes	PJ-068 (or equivalent) & PJ-055 (or equivalent) Figure 10 on page 25
301317-101	Airman 850 Headset, Dual-sided, customer specific	No	PJ-068 & PJ-055 Figure 10 on page 25
301317-200	Airman 850 Headset, Single-sided	No	PJ-068 (or equivalent) & PJ-055 (or equivalent) Figure 10 on page 25
301317-201	Airman 850 Headset, Single-sided, customer specific	No	PJ-068 & PJ-055 Figure 10 on page 25
301317-300	Airman 850 Headset, Single-sided	Yes	PJ-068 (or equivalent) & PJ-055 (or equivalent) Figure 10 on page 25
301317-400	Airman 850 Headset, Dual-sided, customer specific	Yes	PJ-068 (or equivalent) & PJ-055 (or equivalent) Figure 10 on page 25

1.3 Specifications

Receivers:

Type: Dynamic

Impedance: See Table 2 on page 9.

CAUTION: Damage could occur to avionics equipment if used with headset versions which are not manufactured for use with 600 Ohm headsets. If in doubt, consult the avionics equipment manufacturer.

Frequency Response: See Table 1 on page 9.

Sensitivity: Volume selector in Low 90dB SPL \pm 5 dB at 1kHz, 1mW input to headset, at LOW volume control setting.

Microphone:

Type: Noise-canceling amplified electret

Matching Impedance: 150 Ohms

Frequency Response: 300-6000Hz (RTCA DO-214 curve)

Sensitivity: -51 \pm 3 dB

(ref. 1V/ μ bar@1kHz, 12 VDC, 470 Ohm DC / 150 Ohm AC load)

Operating Voltage: 8-28 Vdc (470 Ohm load)

Active Noise Reduction:

All models with active noise reduction utilize the microphone system for power

Plug Type:

Varies by model, refer to parts list

Approximate Wearing Weight:

2.9 oz single-sided without cord

3.8 oz double-sided without cord

Approximate Gross Weight:

Single: 3.7 oz (105 g)

Double: 4.0 oz (113 g)

Cord Length:

Varies by model, refer to parts list

Color:

Black

User Controls:

Volume Hi/Low Switch, ANR on/off switch (varies by model)

TABLE 1. Receiver Frequency Response (All Models)

Frequency	dB above/below 1K ref.	Reference Tolerance
350Hz	2	±6dB
400Hz	4	±6dB
500Hz	6	±6dB
600Hz	10	±6dB
700Hz	11	±6dB
800Hz	9	±6dB
900Hz	5	±6dB
1000Hz	0	±6dB
2000Hz	-13	±6dB
3000Hz	-15	±6dB

TABLE 2. Receiver Impedance by Model

Model Number	Description	Receiver Impedance
301317-000	Airman 850 Headset, Dual-sided	150 Ohms
301317-002	Airman 850 Headset, Dual-sided	600 Ohms
301317-003	Airman 850 Headset, Dual-sided	600 Ohms
301317-101	Airman 850 Headset, Dual-sided, customer specific	150 Ohms
301317-200	Airman 850 Headset, Single-sided	150 Ohms
301317-201	Airman 850 Headset, Single-sided, customer specific	150 Ohms
301317-300	Airman 850 Headset, Single-sided	300 Ohms
301317-400	Airman 850 Headset, Dual-sided, customer specific	150 Ohms

Disassembly/Assembly

2.0 Disassembly/Assembly

2.1 Disassembly

The following procedure allows for complete disassembly of the Airman 850 final assembly (see Figure 1 and Figure 2).

IMPORTANT: The removal process requires the steps to be followed in order. For example, to remove the boom assembly, item 13, all steps before the Removing the Boom Assembly step must be completed and in the listed order.

Assembly is the reversal of the disassembly procedure. Please take care when disassembling to note details that may be required in the assembly process.

2.1.1 Remove Cushions (Item 3)

To **remove the cushions**, do the following:

1. At any point on the ear cup, gently pull the **cushion** from the faceplate.

2.1.2 Remove Faceplate Assembly (Item 4)

To **remove the faceplate assembly**, do the following:

1. At the same time, push the **two (2) catches** located in the faceplate out of the way (Figure 3).
2. Rotate the **faceplate assembly** approximately 10° counterclockwise.
3. Carefully, pull the **faceplate assembly** away from the housing (item 6 or 7).

NOTE: Do not pull more than 12mm away from housing at this time.

4. Using a soldering iron, carefully **disconnect the white and red wires** from the speaker solder terminals.

NOTE: Be careful not to touch plastic housing with soldering iron.

5. Remove the **faceplate assembly**.

2.1.3 Remove Sleeve (Item 8)

To **remove the sleeve**, do the following:

1. Carefully slide a **small tweezers or pick** under the sleeve.

NOTE: Avoid touching or scratching the circuit board, item 9 or 10.

2. Gently pry the **sleeve** up and away from the circuit board.

NOTE: If necessary, prying up the sleeve in several locations may be required to free the sleeve from the housing (item 6 or 7), and the circuit board.

3. Once freed, carefully remove the **sleeve** from the housing.

2.1.4 Remove Boom Assembly/Cover (Item 13)

To **remove the boom assembly/cover**, do the following:

1. Insert a **tweezers or small flat head screwdriver** between the circuit board (item 9) and the housing (item 6), gently pushing the cover away from the housing.

NOTE: It may be necessary to push around the housing in several locations to get the cover snaps to free themselves from the housing.

2. Carefully desolder the **four (4) cord unit wires** from the circuit board (boom side only).
3. Gently pry the **circuit board** away from the cover being careful not to break the boom wires hidden on the other side.
4. Remove the **cover foam** (item 11).
5. Once the board is free from the cover, desolder the **three (3) boom wires** from the circuit board (boom side only)
6. Remove the **circuit board**.

NOTE: The board is still attached to the overhead wires (Dual Side Versions Only)

2.1.5 Removing the Circuit Board (Item 9 or 10)

Follow the steps in Remove Boom Assembly/Cover (Item 13).

>Disconnect the **four overhead wires** (Dual Side Versions Only)

2.1.6 Removing the Housing (Item 6 or 7) or Temple Plate Assembly (Item 15 and 16) from the Headband Assembly (Item 1)

>Push the **housing** off the glider assembly (item 2) through the slot in the top of the housing.

NOTE: Care should be taken to not bend the headband assembly or housing during this process, as it may take some force to do.

2.1.7 Removing the Glider Assemblies (Item 2) and Glider Springs (Item 18)

1. Bend the **upper metal portion** of the glider assembly straight.
2. Gently pull the **glider assembly** out of the headband assembly (item 1).

NOTE: The glider spring is located under the glider assembly and may spring out if the glider assembly is removed too quickly.

3. Repeat **steps 1 and 2** for other side of the headset.

2.2 Assembly

IMPORTANT: Assembly is a reversal of the disassembly procedure. Steps need to be done exactly the reverse order of the disassembly procedure to ensure proper headset fit and operation. Please take care to properly align parts and wires to ensure proper operation. See disassembly procedure, parts lists, assembly diagrams, and wiring diagrams for reference.

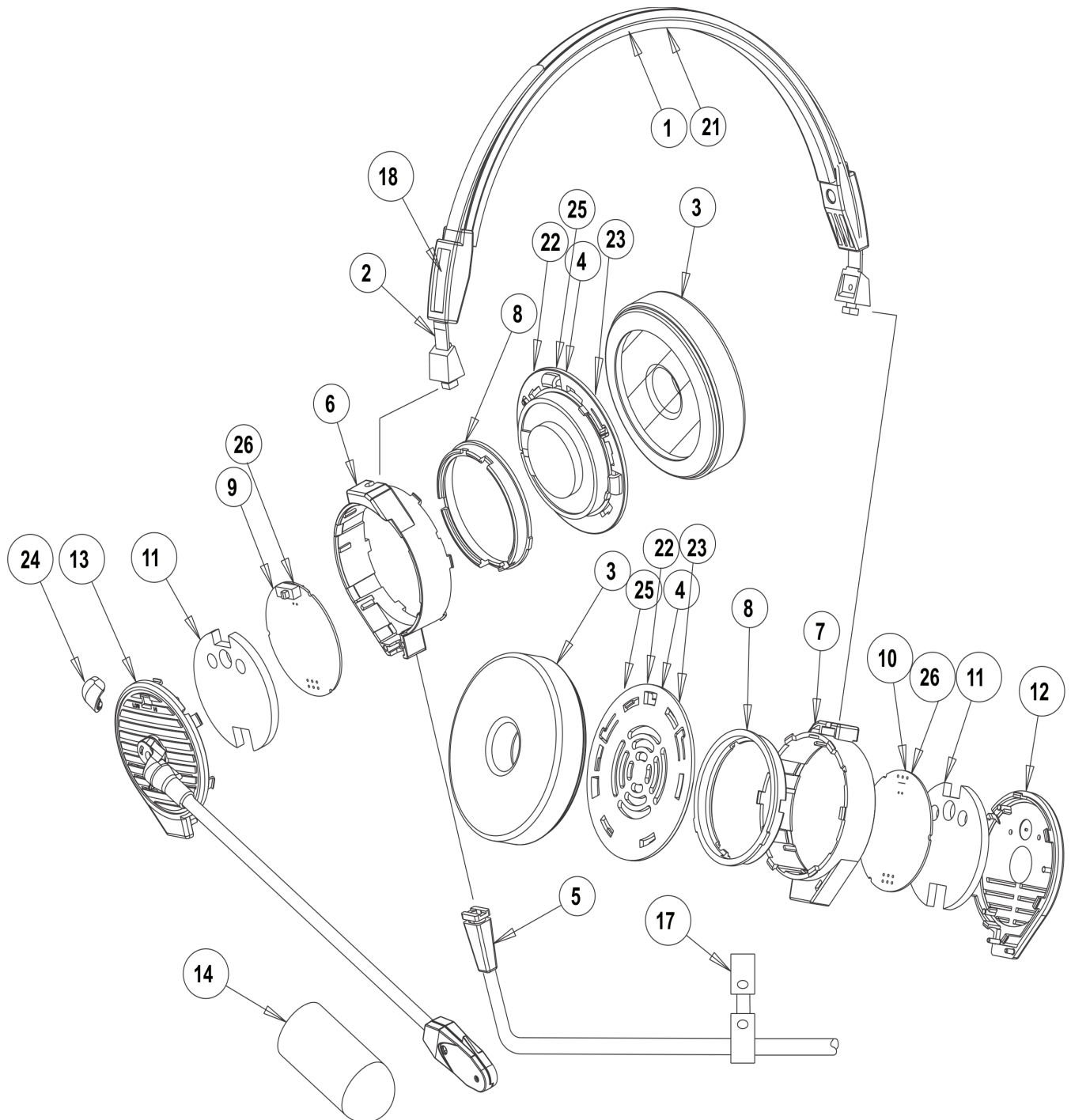


FIGURE 1. Airman 850 Headset, Dual Sided, Exploded View

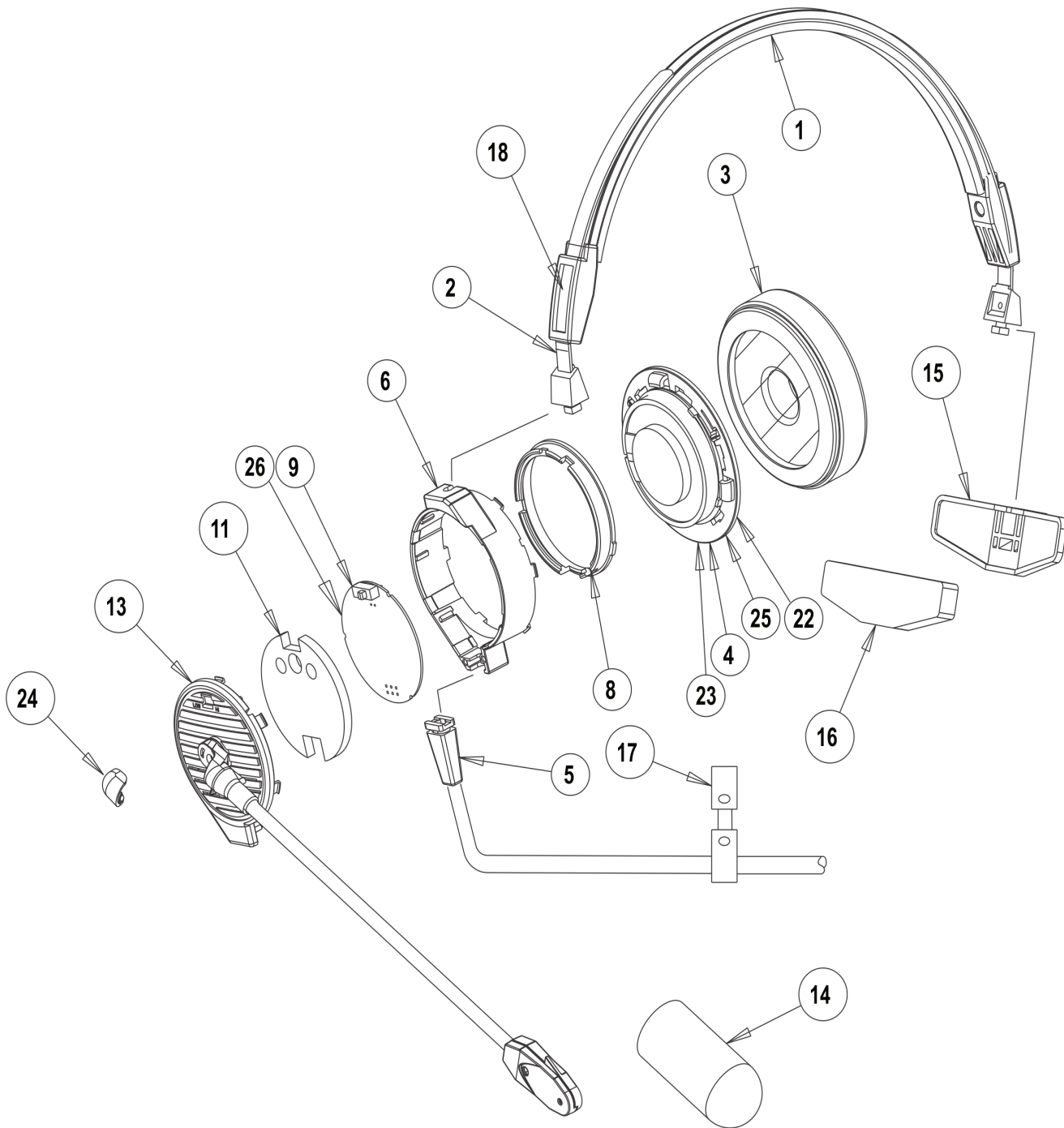


FIGURE 2. Airman 850 Headset, Single Sided, Exploded View

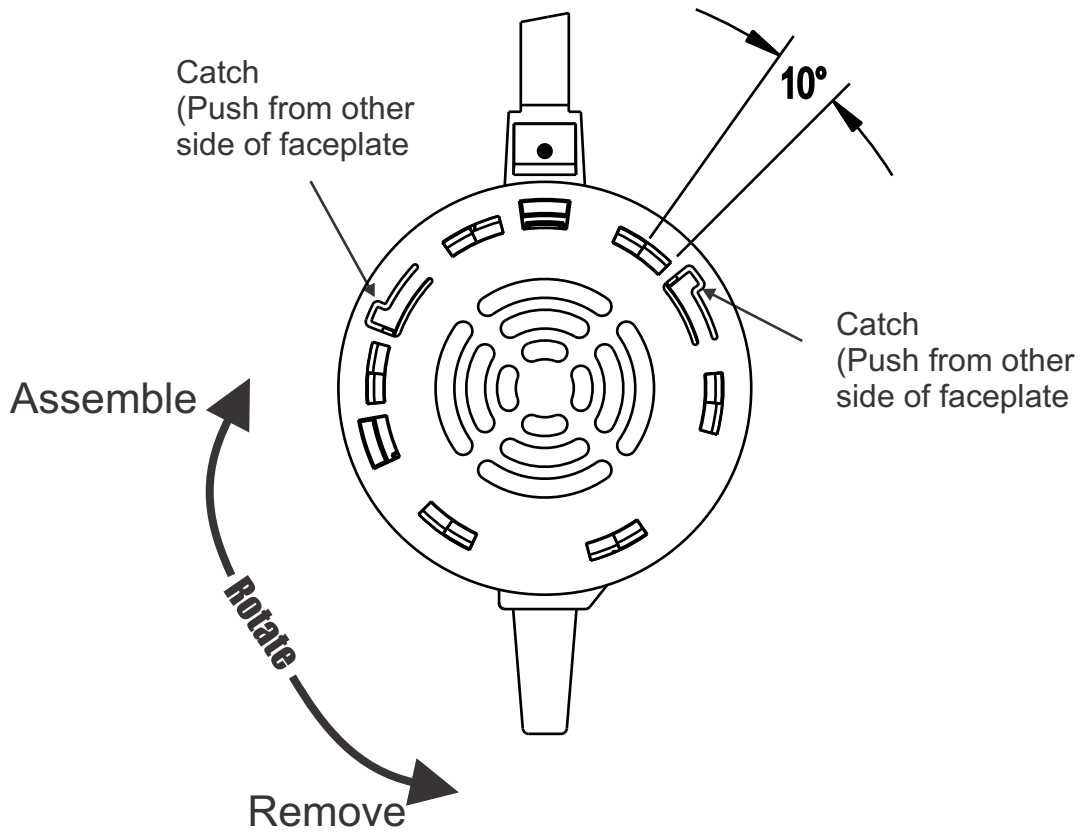


FIGURE 3. Faceplate Disassembly/Assembly View

3.0 Parts List

3.1 General

When replacing parts, consult Figure 1 on page 13, Figure 2 on page 14, and the parts list. Choose the parts corresponding to the catalog/model number on the Headband Assembly (Figure 1 on page 13, item 1).

3.2 Airman 850, Catalog Number 301317-000, -002, -003, -101, -200, -201, -300, and -400

Item	CTN Numbers	SAP Numbers	Description	MODEL								
				000	002	003	101	200	201	300	400	
1	64318095	F01U152147	HEADBAND ASSEMBLY	1								
	64318107	F01U152148	HEADBAND ASSEMBLY		1							
	64318117	F01U152149	HEADBAND ASSEMBLY			1						
	No longer available		HEADBAND ASSEMBLY				1					
	S-F01U329356	F01U329356	HEADBAND ASSEMBLY					1				
	No longer available		HEADBAND ASSEMBLY						1			
	S-F01U329357	F01U329357	HEADBAND ASSEMBLY								1	
	S-64318118	F01U216802	HEADBAND ASSEMBLY									1
2	800801000	F01U153681	GLIDER ASSEMBLY	2	2	2	2	2	2	2	2	2
3 ^a	591486000	F01U151390	CUSHION,EAR, ROUND 1 piece	2	2	2	2	1	1	1	1	2
	800456020	F01U118432	EARCUSHION (2 per pkg.)	1	1	1	1	1	1	1	1	1
4	800939000	F01U153698	FACEPLATE/SPEAKER ASSY	2	2	2	2	1	1	1	1	1
5	70413002	F01U152604	CORD Approximate Length: 5.5 ft. (1.7 m)	1				1			1	1
	702171000	F01U152574	CORD Approximate Length: 6.5 ft. (2 m)		1							
	70413011	F01U152609	CORD Approximate Length: 5.5 ft. (1.7 m)			1						
	No longer available		CORD Approximate Length: 6.3 ft. (1.9 m)				1		1			
6	701613000	F01U110130	HOUSING,BOOM SIDE	1	1	1	1	1	1	1	1	1
7	701612000	F01U110129	HOUSING NON BOOM	1	1	1	1					1
8	S-701614000	F01U259442	SLEEVE 1 piece	2	2	2	2	1	1	1	1	2
	S-701614000	F01U329353	^b SLEEVE 10 piece	1	1	1	1	1	1	1	1	1
9	S-F01U344779	F01U344779	PCB BOOM SIDE	1								1
	600704100	F01U157606	PCB BOOM SIDE				1	1	1			
	S-F01U344780	F01U344780	PCB ASSY 600		1							
	S-F01U344776	F01U344776	PCB ASSY 600, reduced X-talk			1						
	S-F01U344775	F01U344775	PCB ASSY 300								1	
10	S-F01U344777	F01U344777	PCBAAIRMAN 850 - NON BOOM SIDE	1	1	1						1
	No longer available		PCBAAIRMAN 850 - NON BOOM SIDE				1					
11	591385000	F01U151370	COVERFOAM	2	2	2	2	1	1	1	1	2

Item	CTN Numbers	SAP Numbers	Description	MODEL							
				000	002	003	101	200	201	300	400
12	701610000	F01U152470	COVER, NON-BOOM SIDE	1	1	1	1				1
13	800789000	F01U153679	BOOM ASSEMBLY	1	1	1				1	1
	800789100	F01U153680	BOOM ASSEMBLY				1	1	1		
14 ^a	74169A	F01U153213	WINDSCREEN	1	1	1	1	1	1	1	1
	800456019	F01U110451		1	1	1	1	1	1	1	1
15	70531101	F01U152640	TEMPLE PAD NOT PRINTED					1	1	1	
16	70533000	F01U110213	FOAM PAD					1	1	1	
17	590637000	F01U157438	CLOTHING CLIP	1	1	1	1	1	1	1	1
18	64305000	F01U110016	GLIDER SPRING 1 piece	2	2	2	2	2	2	2	2
	S-F01U327240	F01U327240	^b GLIDER SPRING 10 piece	1	1	1	1	1	1	1	1
19 ^c	57893000	F01U157434	ZIPPER POUCH				1		1		
	702126000	F01U152568	CARRYING CASE	1	1	1		1		1	1
20	Not available from Bosch		RESISTOR, 300Ω, 1/8W 5%	1	1	1	1	1	1	1	1
21 ^{c,d}	53731000	F01U109567	OVERHEAD CORDAGE	1	1	1	1				1
22	54857101	F01U150106	WHITE WIRES FROM PCB TO SPEAKER	2	2	2	2	1	1	1	2
23	54857103	F01U150110	RED WIRES FROM PCB TO SPEAKER	2	2	2	2	1	1	1	2
24 ^e	701246000	F01U152411	BOOM ROTATOR CAP								
25 ^f	701664000	F01U152484	ACOUSTIC CLOTH	2	2	2	2	1	1	1	2
26 ^{c,g}	S-F01U345383	F01U345383	ANR MICROPHONE	1	1	1	1	1	1	1	1
27 ^{c,h}	35398005	F01U146873	5-PIN XLR CONNECTOR								

- a. Either part number is acceptable.
- b. This item has 10 pieces. Only one or two springs are needed per unit.
- c. Not shown.
- d. This item is part of the headband assembly (#1) or can be purchased separately.
- e. This item is part of Boom Assy (#13) or can be purchased separately.
- f. Acoustic cloth is now included as part of #3. Only one acoustic cloth can be used at a time, either the separate part that needs to be attached to the faceplate (#4) or the cloth that is included in the replacement ear cushion
- g. The ANR microphone is included with the PCBS and is sold separately.
- h. This item is included in F01U152574 but is also sold separately.

Wiring Diagrams

4.0 Wiring Diagrams

4.1 Airman 850 Wiring Diagram (Catalog Numbers 301317-000, -002, -003, -101, and -400)

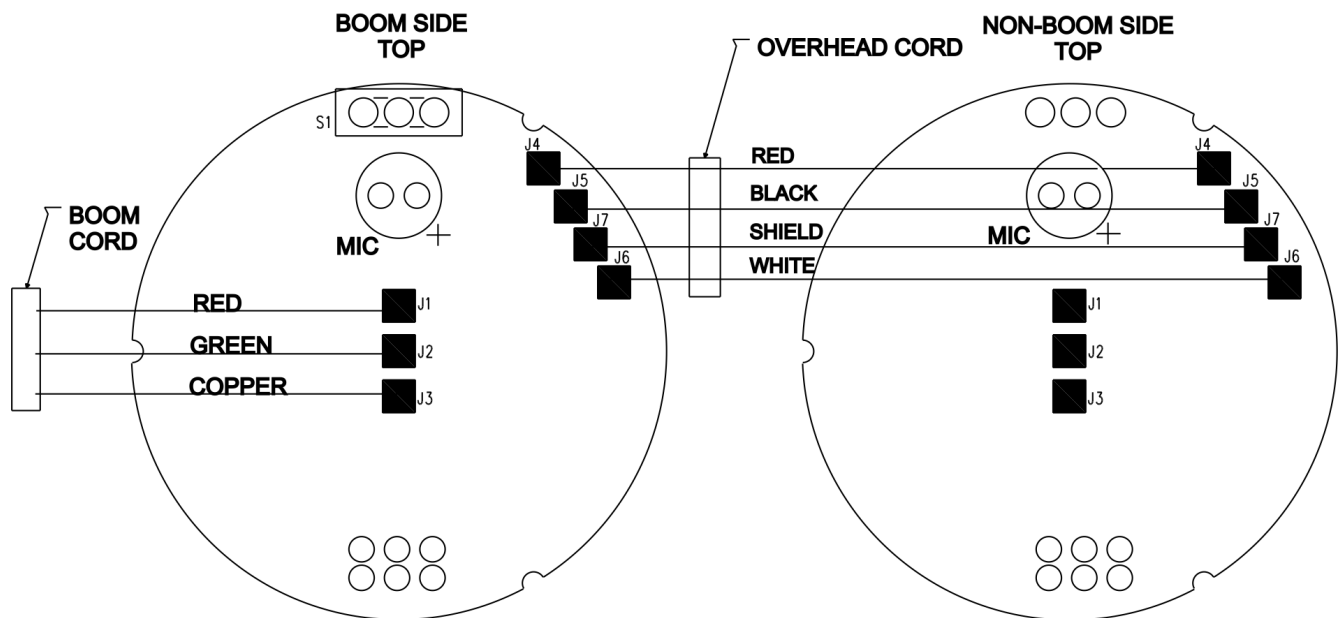


FIGURE 4. Top Side, Airman 850 Headset, Dual-Sided Wiring Diagram

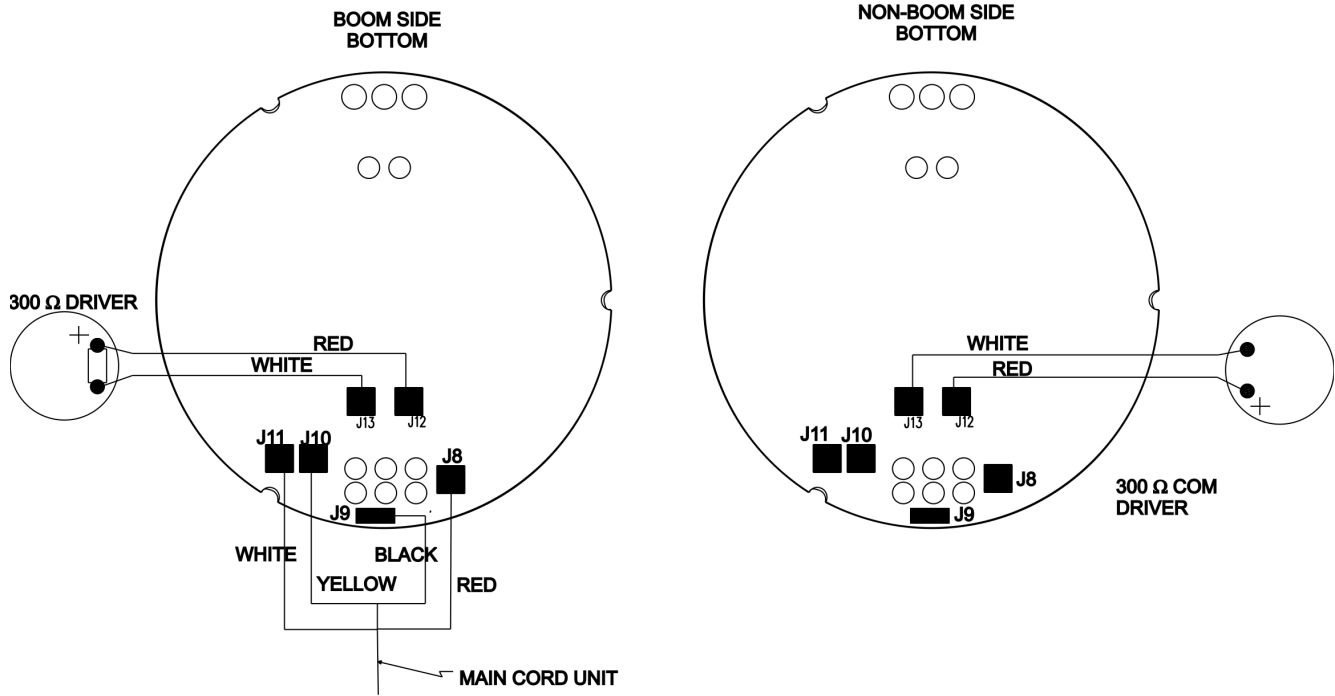


FIGURE 5. Bottom side, Airman 850 Headset, Dual-Sided Wiring Diagram

4.2 Airman 850 Wiring Diagram (Catalog Numbers 301317-200, -201, and -300)

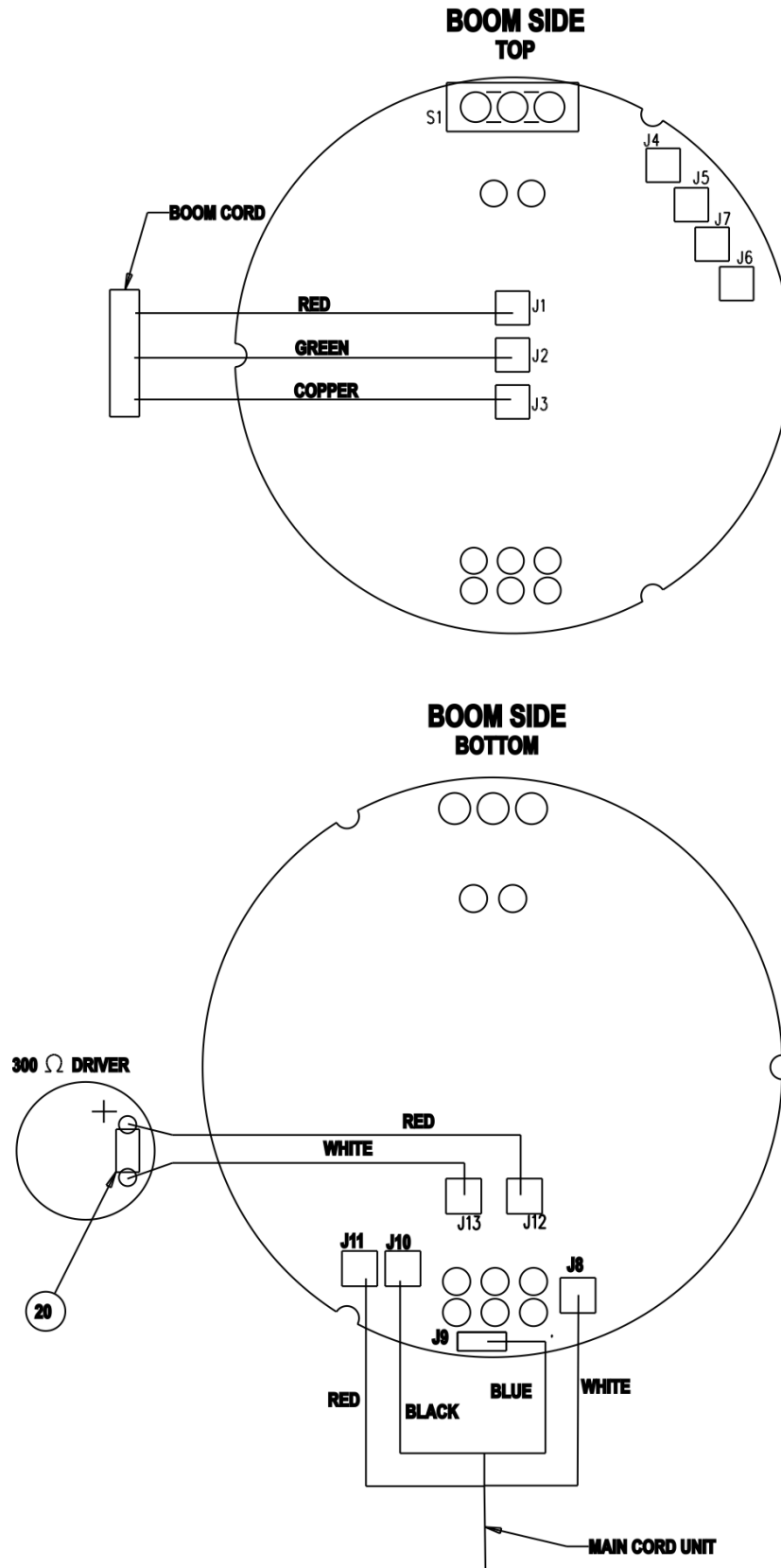


FIGURE 6. Airman 850 Headset, Single-Sided Wiring Diagram

4.3 Connector Views/Wiring Diagrams

4.3.1 Connector View for Catalog Numbers 301317-000, -003, -200, -300, and -400

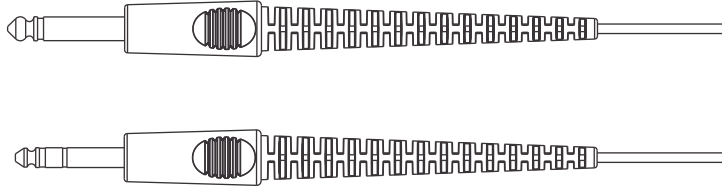


FIGURE 7. Airman 850 Headset, Connector View (Molded Plugs)

4.3.2 Connector View for Catalog Numbers 301317-101 and -201

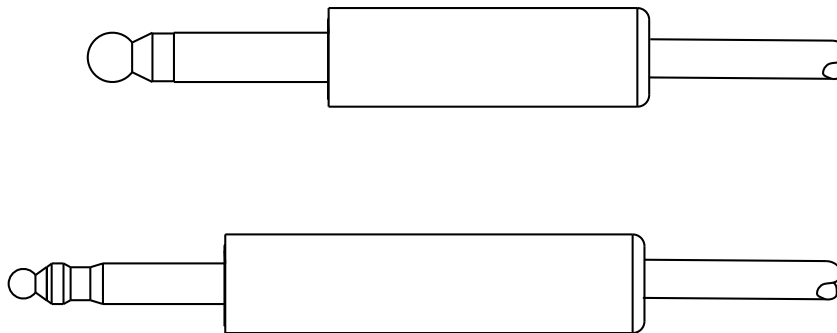


FIGURE 8. Airman 850 Headset, Connector View (Mechanical Plugs)

4.3.3 Connector View for Catalog Numbers 301317-002

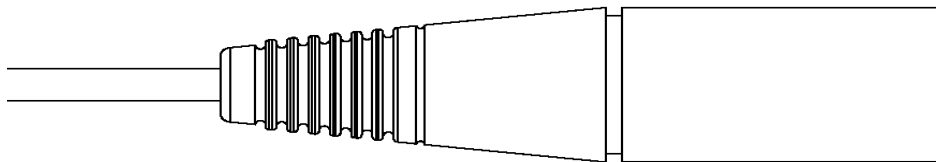


FIGURE 9. Airman 850 Headset, Connector View (XLR Plug)

4.3.4 Connector Wiring Diagram for Catalog Numbers 301317-000, -003, -101, -200, -201, -300, and -400

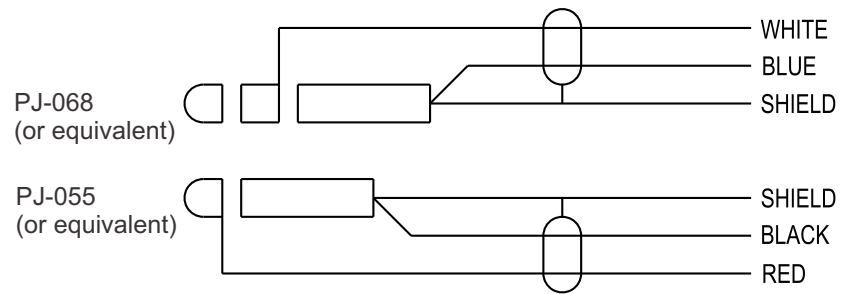


FIGURE 10. Airman 850 Headset, Connector Wiring Diagram

4.3.5 Connector Wiring Diagram for Catalog Number 301317-002 (5-Pin XLR)

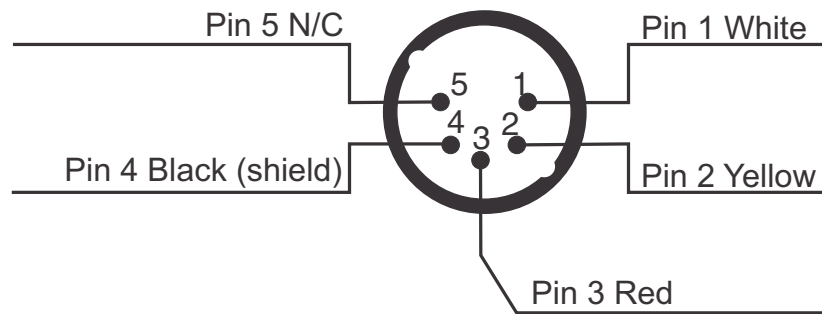


FIGURE 11. Airman 850 Headset, 5-pin XLR Wiring Diagram

5.0 Maintenance

5.1 Microphone Validation and Adjustment

5.1.1 Microphone/Amplifier Sensitivity Check

Headphone specifications are designed to comply with FAA TSO C57a, RCTA DO-214 & DO-160D.

The headphone has two (2) operations (ANR version only):

- (1) Passive- power is turned off.
- (2) Active - power is turned on. Passive versions operate in passive mode only.

All modes tested, unless noted otherwise.

To **test the sensitivity of the microphone**, do the following:

1. Construct a **test circuit**. For more information, see Figure 12.
2. Connect the **test circuit** to the microphone plug of the headset. For more information, see “Connector Views/Wiring Diagrams” on page 24.

NOTE: Verify correct polarity of connections.

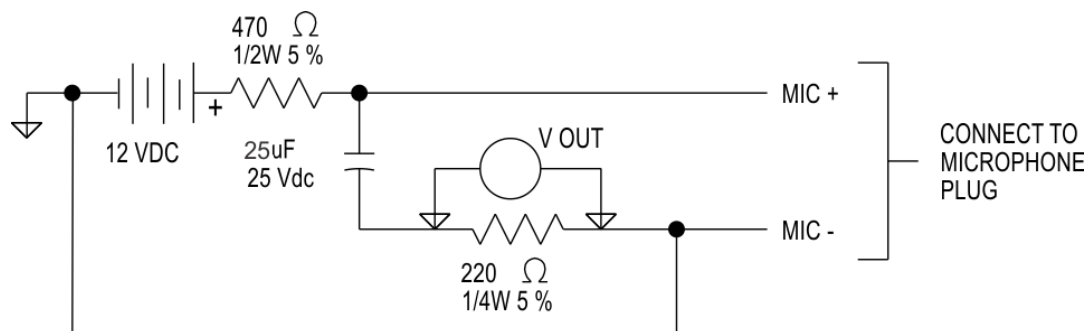


FIGURE 12. Airman 850 Headset Boom Microphone Sensitivity Check and Adjustment Test Circuit

3. Calibrate a **lab microphone**.
4. Place the **calibrated lab microphone** 1/4 inch (6mm) above an artificial mouth (Bruel and Kjaer type 4219).
5. Connect a **signal generator** to the artificial mouth.
6. Adjust for an **output of 74dB SPL** at 1kHz @ 1/4 inch from the opening to the lab microphone.
7. Remove the **lab microphone**.
8. Position the **headset microphone** 1/4-inch (6mm) above the output of the artificial mouth.

NOTE: The acoustic hole in the boom mic should be aligned with the center of the artificial mouth opening.

9. Measure the **output of the headset microphone** with a digital volt meter.

The output measured should be $-51 \pm 3\text{dBV}$.

5.1.1.1 Measure current of 12V Power Supply

The current should be $4\text{mA} \pm 1\text{mA}$ with sound pressure supplied to the mic and ANR turned on.

The current should be less than 1mA without sound pressure supplied to the mic and ANR turned off.

5.1.2 Microphone Sensitivity Adjustment

If the sensitivity of the microphone does not meet the requirements from section 5.1.1 on page 27, readjust the sensitivity.

To **adjust microphone sensitivity**, do the following:

- >Turn the **gain adjustment control** in the microphone housing, using a small screwdriver. For more information, see Figure 13.
- >Clockwise adjustment increases output level.

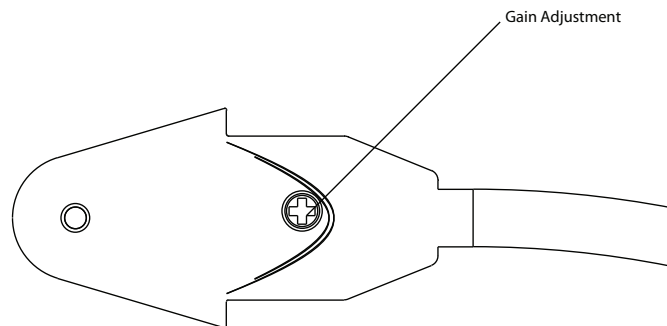


FIGURE 13. Airman 850 Headset, Boom Microphone Gain Adjustment Location

5.1.3 Troubleshooting Mic Failure

The microphone circuitry is in two (2) parts; the boom microphone preamp and main amp located on the main circuit board. If any failures occur in testing procedures outlined in Sections 4.1 and 4.2, proceed to 4.3.1 and 4.3.2 to identify the failure.

5.1.3.1 Testing the Boom Microphone Assembly

To **test the boom mic assembly**, do the following:

1. Construct a **test circuit**. For more information, see Figure 14.
2. Connect the **red, green, and copper boom wires** to the test circuit. For more information, see Figure 15.
3. Position the **boom microphone** 6mm above an artificial sound source, such as a Bruel and Kjaer type 4227.
4. Connect an **audio frequency oscillator** to the artificial sound source.
5. Adjust the **artificial sound source** for an output of 114dB SPL (0dB=20mPa) at 1kHz.
6. With a voltmeter, measure the **output of the boom microphone**.

The output should be 134mVRMS \pm 50mV.

NOTE:

- If the output does not fall within the tolerances, adjust the gain pot as shown in Figure 13.
- This test is not designed for absolute accuracy, but rather to tell if the boom assembly is functioning properly.
- If no output, or no acceptable output is obtainable, then replace the boom assembly.

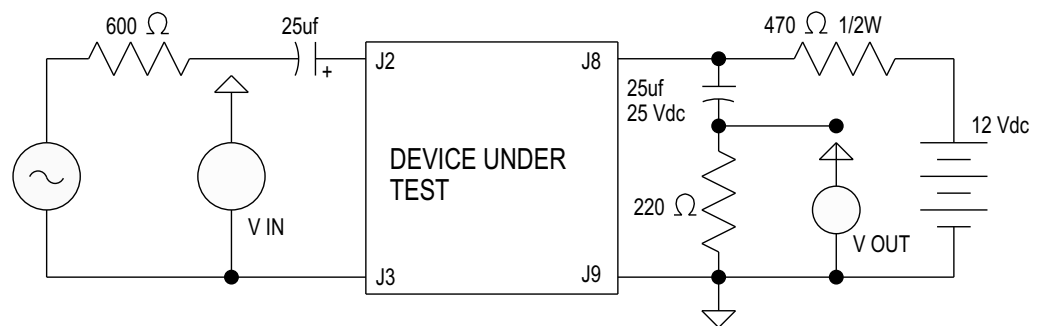


FIGURE 14. Airman 850 Headset, Boom Assembly Test Circuit

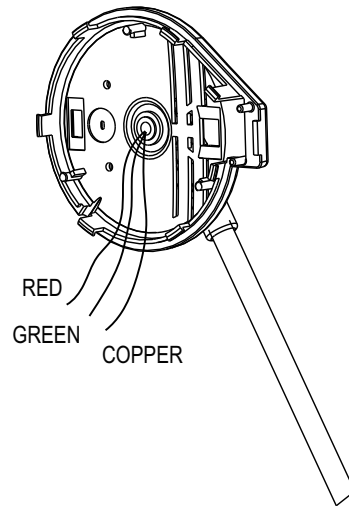


FIGURE 15. Airman 850 Headset, Boom Assembly Reference View

5.1.3.2 Testing the Circuit Board Assembly

IMPORTANT: This test is for testing the circuit board assembly 600704-100 only. No testing is required for circuit board 800940-000.

To **test the circuit board assembly**, do the following:

1. Construct a **test circuit**. For more information, see Figure 16.
2. Connect the **circuit board** to the test circuit.

With V_{in} measuring 100mVRMS 1Khz,
 V_{out} should read 210mVRMS \pm 60mV.

If the output is outside this range, replace the circuit board.

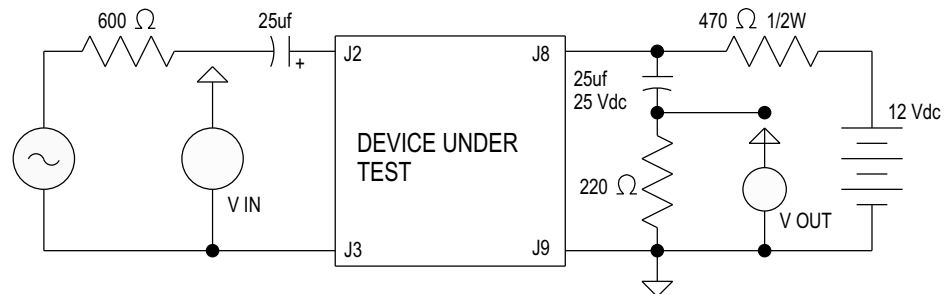


FIGURE 16. Airman 850 Headset, Circuit Board Test Diagram

5.2 Speaker Validation and Adjustment

5.2.1 Speaker Sensitivity and Frequency Response Verification

NOTE: Headphone specifications are designed to comply with FAA TSO C57a, DO-214 & DO-160D. The headphone has two (2) operations (ANR version only):

- (1) Passive- power is turned off.
- (2) Active - power is turned on. Passive versions operate in passive mode only.

All modes tested, unless noted otherwise.

Transducer Type:	Dynamic
Transducer Impedance (at the earphone plug):	See Table 2, "Receiver Impedance by Model," on page 9, for impedance according to model.
Sensitivity:	(All Models) 90dB SPL \pm 5dB at 1kHz, 1mW input to headset, at LOW volume control setting. 1mV based on input impedance of headset being tested.
Frequency Response:	Must meet standards outlined in Table 1 on page 9.

To **measure the speaker**, do the following:

1. Using a B&K type 4153 with 6cc coupler or equivalent, place the **headset speaker** on an artificial ear, fitted with the appropriate coupler.



2. Supply the headset with a **1mW, 1KHz signal** to appropriate connector. See "Wiring Diagrams" on page 21 for connector wiring.
3. Measure **acoustic output of headset** using an audio analyzer. Sensitivity should be 90dB SPL \pm 5dB re. 1mW at 1kHz, headset in low volume setting.

4. Measure and record the **acoustic output over the frequency range of 350Hz to 3KHz.**

The resultant curve should fit the limits as defined in Table 1 on page 9.

5. Repeat **steps 1 through 4** with the second speaker, if applicable.
6. Measure **current of 12V Power Supply.**

The current should be 4mA \pm 1mA with 1mW applied to the speaker and ANR turned on.

The current should be less than 1mA without 1mW applied to the speaker and ANR turned off.

NOTE: If the specifications are not met in either power on or power off mode, printed circuit board failure should be suspected, see “Troubleshooting Chart” on page 35.

5.3 ANR Validation and Adjustment

5.3.1 Active Noise Reduction (ANR Versions Only)

NOTE: Minimum attenuation requirements are not requirements of FAA TSO.

5.3.2 Minimum Attenuation Requirements (Linearize between points)

Frequency (Hz)	Active (dB)	
	Min	Max
200	-8.000	+2.000
300		-1.000
400	-10.000	-2.000
600		-3.000
800	-12.000	-1.000
1000	-12.000	+0.000

5.3.3 ANR Test Procedure

5.3.3.1 Required Equipment

The Airman 850 ANR test and adjustment procedure requires the following acoustic test equipment and custom fixture.

1. Audio Test System (for purposes of this procedure the Audio Precision System 2 is referenced)
2. Artificial Mouth (Briel & Kjaer 4227)
3. Artificial Ear with 6cc Coupler (Briel & Kjaer 4153)
4. Supporting hardware for Microphone
5. Supporting hardware and software for audio test system
6. Custom ANR test and adjust fixture

5.3.3.2 Test Setup Block Diagram

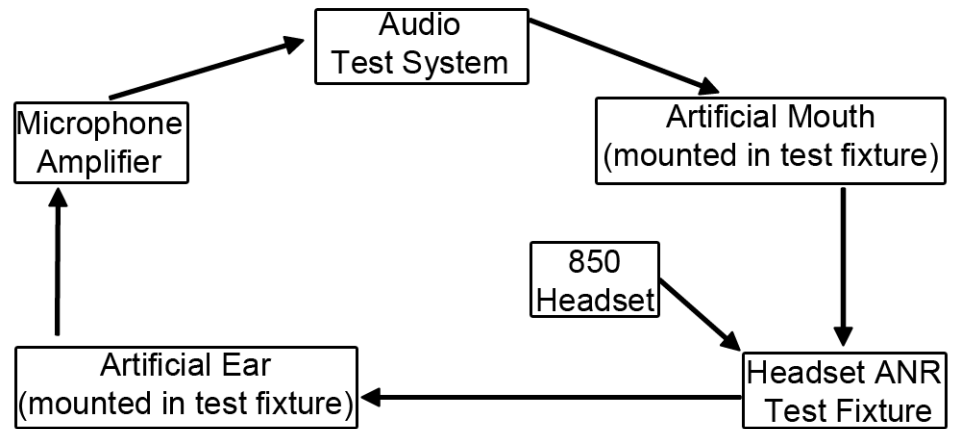


FIGURE 17. Test Setup Block Diagram

5.3.3.3 Custom ANR Fixture



FIGURE 18. Custom ANR Test Fixture with Headset

5.3.3.4 Testing ANR

To **test ANR**, do the following:

1. Create a **standard microphone test setup**.
 - Output should be 1V, 400Hz, BP Pink Pseudo noise directly out to artificial mouth mounted to test fixture. See Figure 18
 - Microphone amplifier filter should be set to A-weighting, if available.
 - Frequency sweep should be set to 500Hz–1KHz Bandpass input filter.
2. Adjust **headset** to minimum size.
3. Place **headset** on test fixture. For more information, see Figure 18.
4. Measure the **headset**.
 - With ANR turned off, perform a bandpass sweep, save this file.

- With ANR turned on, perform a bandpass sweep, save this file.
5. Subtract the **two sweep results (files)**, measured in step 3.
The resulting curve should fit within the limits as shown in “Minimum Attenuation Requirements (Linearize between points)” on page 32.

5.3.3.5 Adjusting ANR

5.3.3.5.1 Set up acoustic test system

To **set up the acoustic test system**, do the following:

1. Create a **standard microphone test setup**.
 - Output should be 1V, 600Hz, sine wave directly out to artificial mouth mounted to the test fixture.
 - Microphone amplifier filter should be set to A-weighting, if available.
 2. Adjust **headset** to minimum size and place on test fixture, as shown in Figure 18.
- #### 5.3.3.5.2 Adjust the headset

To **adjust the headset**, do the following:

1. Place **adjustment screwdriver** through top of test fixture into back ANR adjustment pot of the headset.
2. Monitor the **microphone output** on the acoustic test system.
3. Adjust **ANR pot** until the minimum output level is achieved, as shown on the acoustic test system.
4. Perform the **ANR test** to confirm the headset meets the test requirements.

5.4 Cleaning the Unit

IMPORTANT: Use a mild detergent or isopropyl alcohol wipes to clean the plastic and metal headset parts and ear cushions (not foam windscreen). Do not soak or allow the cleaner to puddle on the unit and sit for long periods of time. The cleaner should wipe off or evaporate quickly. Do not allow alcohol or any liquid to touch the speaker or microphone element.

Cleaning directions here are considered for external surfaces only. Internal surfaces should not require cleaning. The factory uses isopropyl alcohol to clean parts before shipping, if needed.

Troubleshooting

6.0 Troubleshooting Chart

	Check Plugs	Check Main Cord	Check Amplifier Gain Adjust	Check Overhead Cord ^a	Check Speakers	Check Boom Mic Assembly	Check Circuit Boards
Receiver Inoperative	X	X		X	X		X
Microphone Inoperative	X	X	X			X	X
Receiver Intermittent	X	X		X	X		
Microphone Intermittent	X	X				X	X
Distorted Receiver Signal	X				X		X
Distorted Microphone Signal			X			X	X
Receiver Level Varies Between Left and Right Sides ^a				X	X		X
Receiver Level Doesn't Meet Specifications for Power On and Power Off							X
Microphone Level Cannot be Adjusted Properly			X			X	X

a. Only applies to dual-sided versions.

ANR Fixture

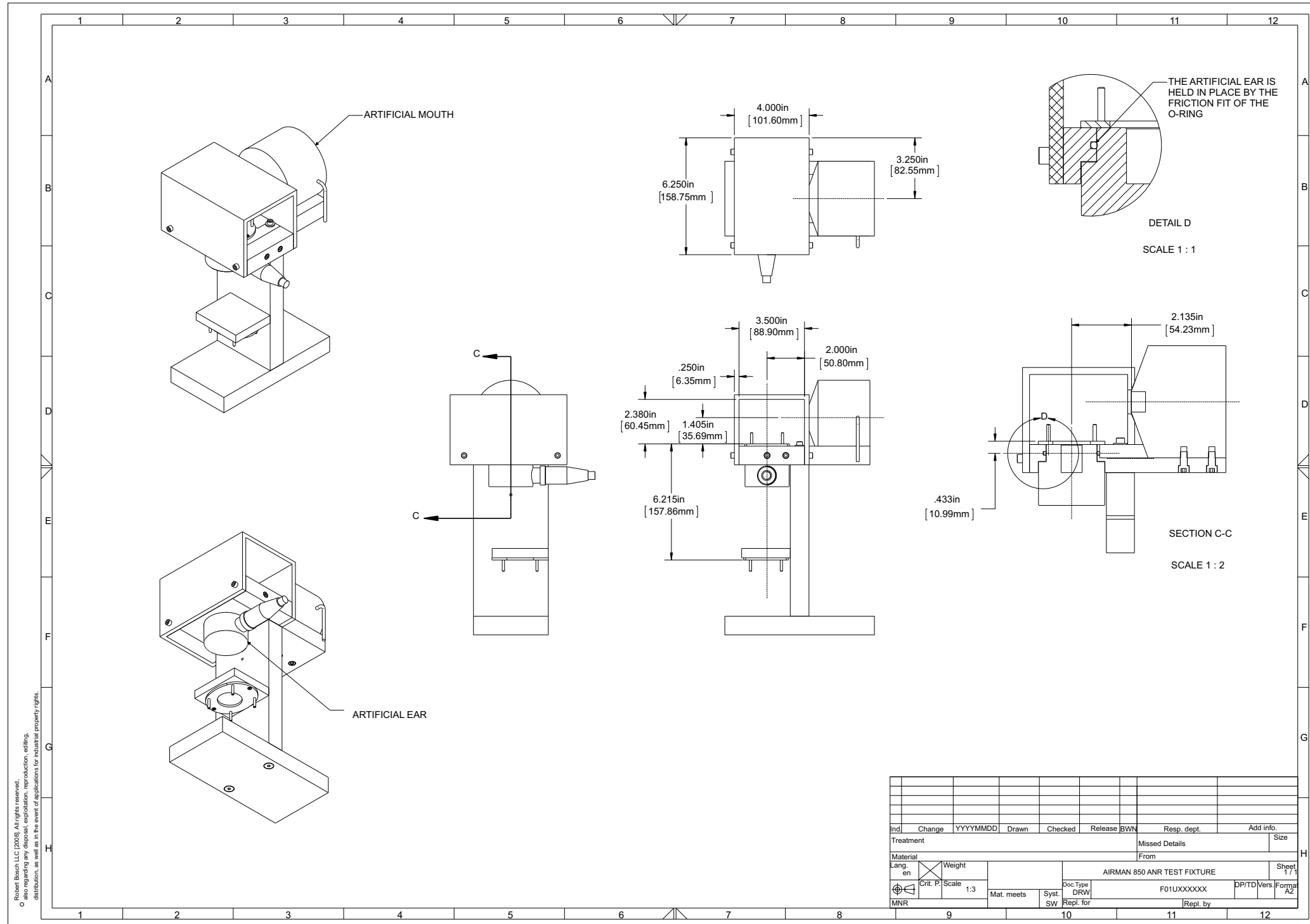


FIGURE 19. ANR Test Fixture Drawing

