JA39-001

Low Impedance Headset Adapter
5 Ohm Mic - 8 Ohm Phones

Installation Manual

Rev. A

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IMPORTANT:

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www.jupiteravionics.com

RECORD OF REVISIONS			
Revision	**Rev Date**	**Description**	**ECR**
A	Nov 2014	Initial release, Serial number 1001 and higher.	2878

Prepared:	Checked:	Approved:
MPB/CPM		

Table of Contents

JA39-001 Low Impedance Headset Adapter - 5Ω Mic - 8Ω Phones

SECTION 1 - DESCRIPTION

1.1 System Overview

The JA39-001 Low Impedance Headset Adapter - 5 Ohm Mic - 8 Ohm Phones allows a low impedance headset to be used with a civilian aviation audio controller. The JA39-001 operates using the microphone bias supply of the audio controller and requires no other external power. The phones audio from the audio controller is impedance matched from 150 Ohms to 8 Ohms.

The JA39-001 is a simple plug and play solution that uses the microphone bias provided by the audio system to amplify the Low Impedance Mic Signal to an appropriate level, and matches the headset impedance via transformer.

1.2 Features Overview

The JA39-001 features one male and one female TJ-120 telephone jack and follows industry standard interconnect for aviation headsets.

The JA39-001 unit features an industry standard headset pin-out to allow plug and play operation.

The JA39-001 plugs in-line with the headset cord.

The JA39-001 uses a metal enclosure to shield the circuitry from Radio Frequency Interference.

1.3 Inputs and Outputs

Refer to the JA39-001 connector maps for the mating connector designators and pin assignments for the input and output signals.

1.3.1 Inputs

Name	Qty	Type
MIC INPUT HI/LO	2	Audio signal
PHONES INPUT HI/LO	2	Audio signal

1.3.2 Outputs

Name	Qty	Type
MIC OUPUT HI/LO	2	Audio signal
PHONES OUPUT HI/LO	2	Audio signal

1.3.3 Mic Bias Voltage Supply

The Microphone Output accepts a DC MIC INPUT bias voltage supply from the Audio Controller.

1.4 Specifications

1.4.1 Electrical Specifications

Power Input

Primary nominal voltage	12.0 Vdc (Mic Bias)
Primary nominal input impedance	450Ω ±10%
Maximum voltage	16.0 Vdc
Minimum voltage	10.0 Vdc
Input current at 12 Vdc	≤ 0.01 A

1.4.1.1 Audio Performance

Rated Input Level

Phones rated input level	7.75 Vrms ±10%
Microphone input level	250 uVrms ±10%

Rated Output Level

Phone rated output	0.890 Vrms±10%
Microphone rated output	250 mVrms±10%

Audio Frequency Response

Audio output audio frequency response	≤3dB from 300 to 6000 Hz

Distortion Characteristics

Audio output distortion at rated power	≤10%

Input Impedance

Microphone input Impedance	5 Ω ±10%
Phones input Impedance	150 Ω ±10%

Audio Noise Level without Signal

Noise level below the rated output	≥50 dB

1.4.1.2 Audio Performance, Other

Microphone input designed for MIC type	dynamic
Phones output circuitry type	transformer

1.4.2 Mechanical Specifications

Height		3.14 in [79.8 mm] max
Depth		1.05 in [26.7 mm] max
Width		0.73 in [18.5 mm] max
Weight		0.11 lbs. [51.2 g] max
Connectors (2):	J1	One 4 pole TP-120 plug
	J2	One 4 pole TJT-120 jack
Mounting		Insertion into TJ-120 jack
Installation Kit		Not Required.

SECTION 2 – INSTALLATION

2.1 Introduction

This section contains unpacking and inspection procedures, installation information, and post-installation checks.

2.2 Continued Airworthiness

Maintenance of the JA39-001 is on condition only. Scheduled inspection and/or periodic maintenance of this unit is not required.

2.3 Unpacking and Inspecting Equipment

Unpack the equipment carefully. Check for shipping damage and report any problems to the relevant carrier. Confirm that the Certificate of Conformance is included. Complete the on-line warranty card from the Jupiter Avionics Corporation (JAC) website – www.jupiteravionics.com/warranty.

2.3.1 Warranty

All JA39 products manufactured by JAC are warranted to be free of defects in workmanship or performance for 1 year from the date of purchase from an approved JAC dealer or agency. This warranty covers the cost of all materials and labour to repair or replace the unit, but does not include the cost of transporting the defective unit to and from JAC or its designated warranty repair centre, or of removing and replacing the defective unit in the aircraft. This warranty does not cover failures due to abuse, misuse, accident, or unauthorized alteration or repairs.

If the on-line warranty card is not completed, the product will be warranted from the date of manufacture.

Contact JAC for return authorization, and for any questions regarding this warranty and how it applies to your unit(s). JAC is the final arbiter concerning warranty issues.

2.4 Installation Procedures

WARNING**: Loud noise can cause hearing damage. Set audio system headset volumes to minimum before conducting tests, and slowly increase the volume to a comfortable listening level.**

2.4.1 Installation Limitations

The JA39 may be installed only by following the applicable airworthiness requirements.

2.4.2 Cabling and Wiring

The JA39 plugs directly into a standard aircraft audio system headset connector. All wires to said connector shall be selected in accordance with the original aircraft manufacturer's maintenance instructions, or AC43.13-1B Change 1, Paragraphs 11-76 through 11-78. Unshielded wire types shall qualify to MIL-W-22759 as specified in AC43.13-1B Change 1, Paragraphs 11-85, 11-86, and listed in Table 11-11. For shielded wire applications, use Tefzel MIL-C-27500 shielded wire with tag ring or equivalent (for shield terminations) to make the most compact and easily terminated interconnect. Follow the Connector Map in Appendix A of this manual.

2.4.3 Mechanical Installation

The JA39-001 can be mounted in any attitude and location sufficient clearance for the connector body and headset plug. It requires no direct cooling.

CAUTION**: When plugged in to a headset audio connector, the JA39 could create excessive strain on the connector. Ensure that the JA39 is protected from impact, and that no tension is applied to any attached headset cord.**

2.4.4 In-Line PTT Cordsets

If in-line PTT cordsets (drop cords) are used, be aware that incorrectly configured or improperly shielded in-line PTT cordsets can lead to significant audio problems.

2.4.5 Post Installation Checks

2.4.5.1 Configuration

The JA39 has no configuration options.

2.4.5.2 Power on Checks.

Power up the aircraft's systems and confirm operation of all functions of the JA39.

a) Begin with a low impedance headset attached. Confirm correct operation for both Mic and phones output. Do not proceed until the headsets are functioning correctly.

b) Unusual buzzes, hums or other background audio are symptomatic of multiple grounds, or noisy external systems such as blowers or pumps sharing wiring with the audio system.

2.5 System Operation

The JA39-001 is designed to operate regardless of the input and output polarities of the attached audio controller and headset.

2.5.1 Microphone Operation

The JA39-001 amplifies the MIC INPUT audio and routes it to the MIC OUTPUT.

2.5.2 Phones Operation

The JA39-001 impedance matches the PHONES INPUT audio and routes it to the PHONES OUTPUT.

2.6 Installation Kit

The JA39-001 does not require an installation kit.

2.7 Installation Drawings

The drawings and documents required for Installation can be found in Appendix A of this manual.

Installation Manual

Appendix A - Installation Drawings

A1 Introduction

The drawings necessary for installation and troubleshooting of the JA39-001 Low Impedance Headset Adapter are in this Appendix, as listed below.

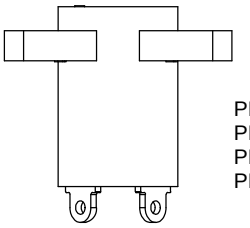
A2 Installation Drawings

DOCUMENT	Rev
JA39-001 Connector Map	A
JA39-001 Interconnect	A
JA39-001 Mechanical Installation	C

Aircraft or wiJAC Connector

P1

TJ-120 or U-92 A/U
MATING CONNECTOR



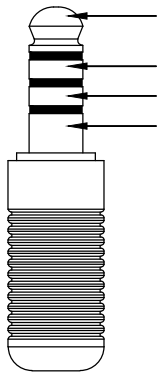
PIN 1: Microphone Input Hi
PIN 2: Phones Output Hi
PIN 3: Microphone Input Lo
PIN 4: Phones Output Lo

View of Aircraft mating connector

Headset Connector

P2

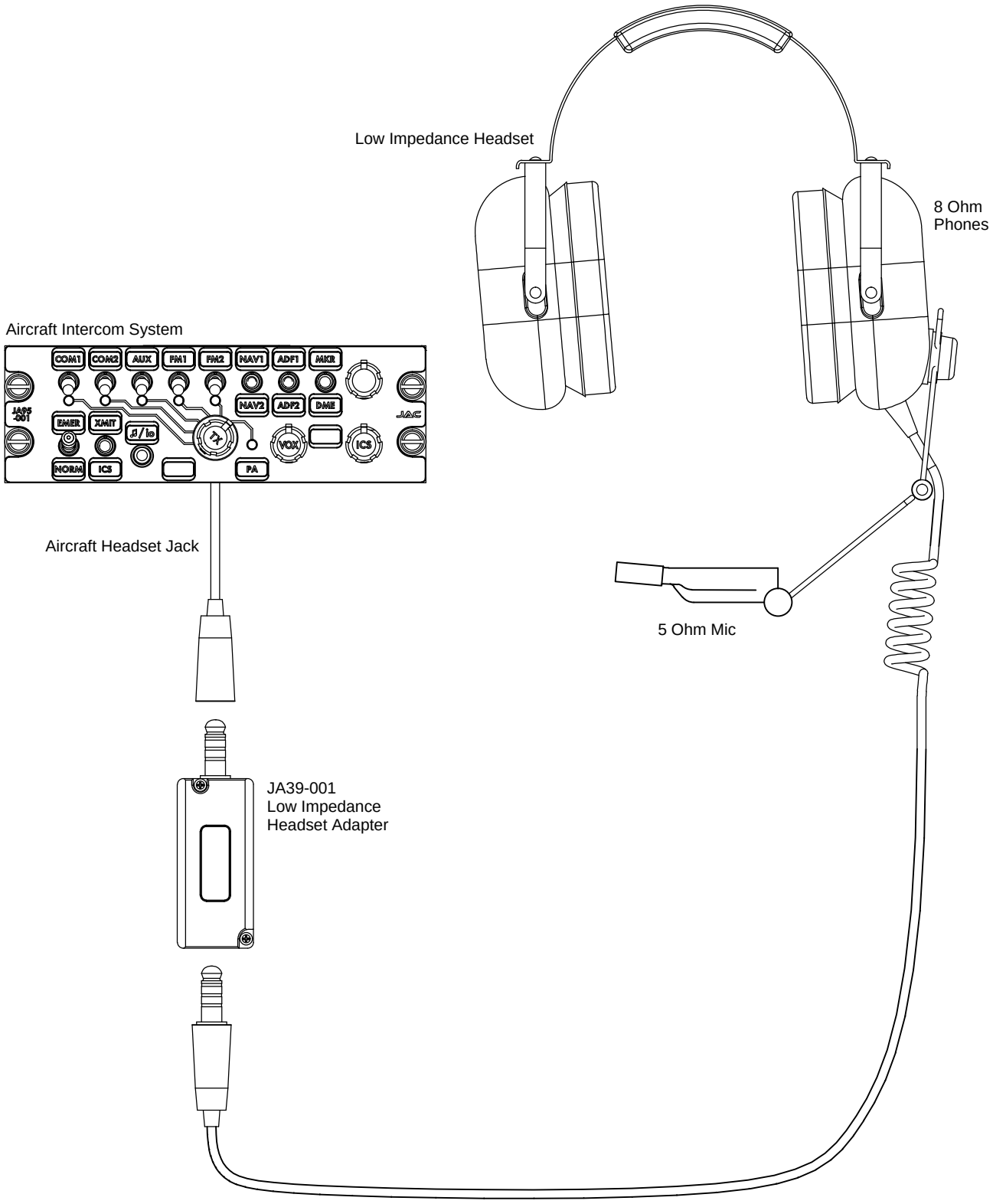
U174/U or U-93A/U
MATING CONNECTOR



TIP / PIN 1: Microphone Input Hi
1st Ring / PIN 2: Phones Output Hi
2nd Ring / PIN 3: Microphone Input Lo
3rd Ring / PIN 4: Phones Output Lo

View of Headset mating connector

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED		TITLE: Low Impedance Headset Adapter 5 Ohm Mic - 8 Ohm Phones
APPROVED		NCAGE CODE: L00N3 | PART NO.: JA39-001 | SHEET: 1/1
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA39-001 Connector Map Rev A.dwg



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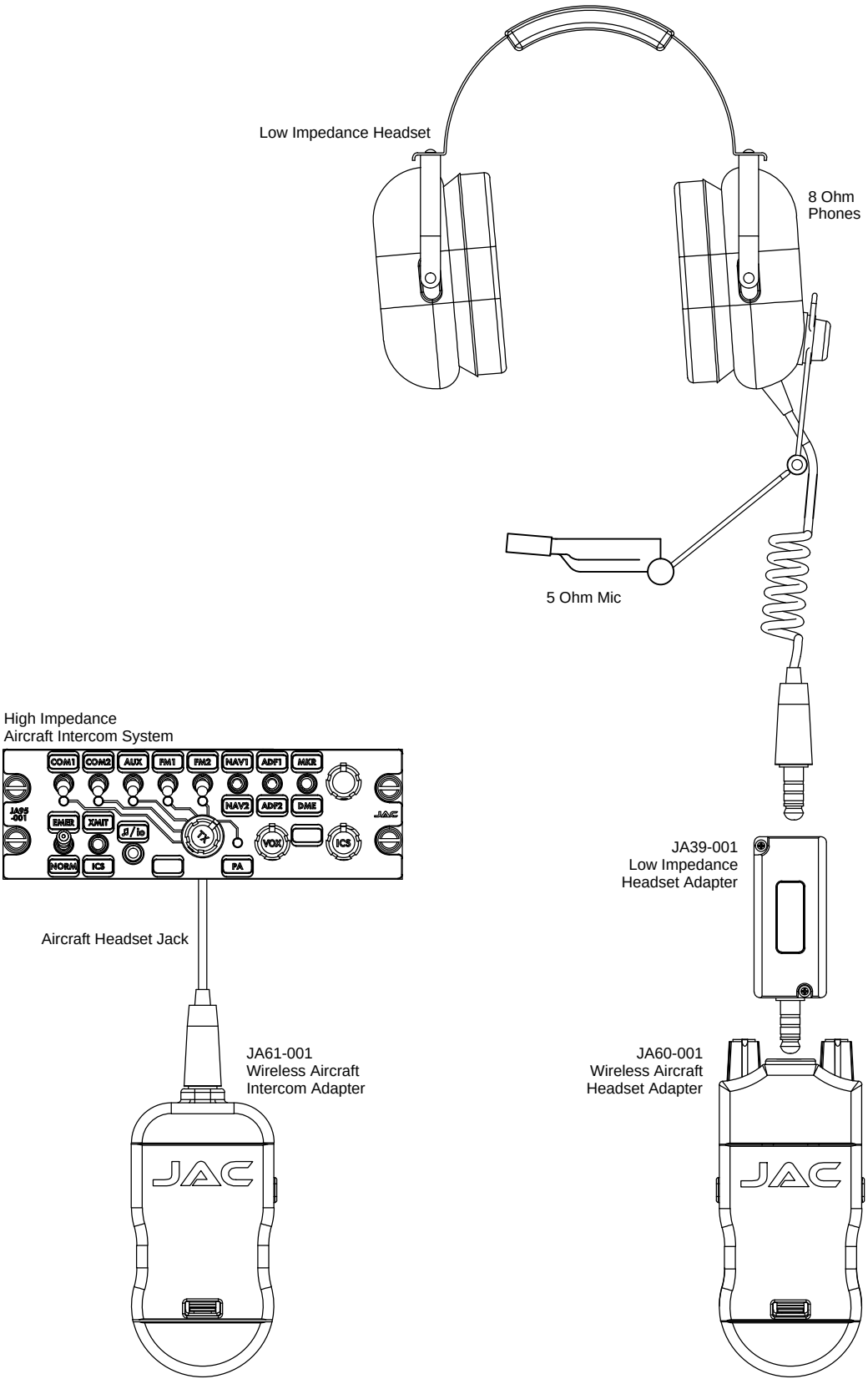

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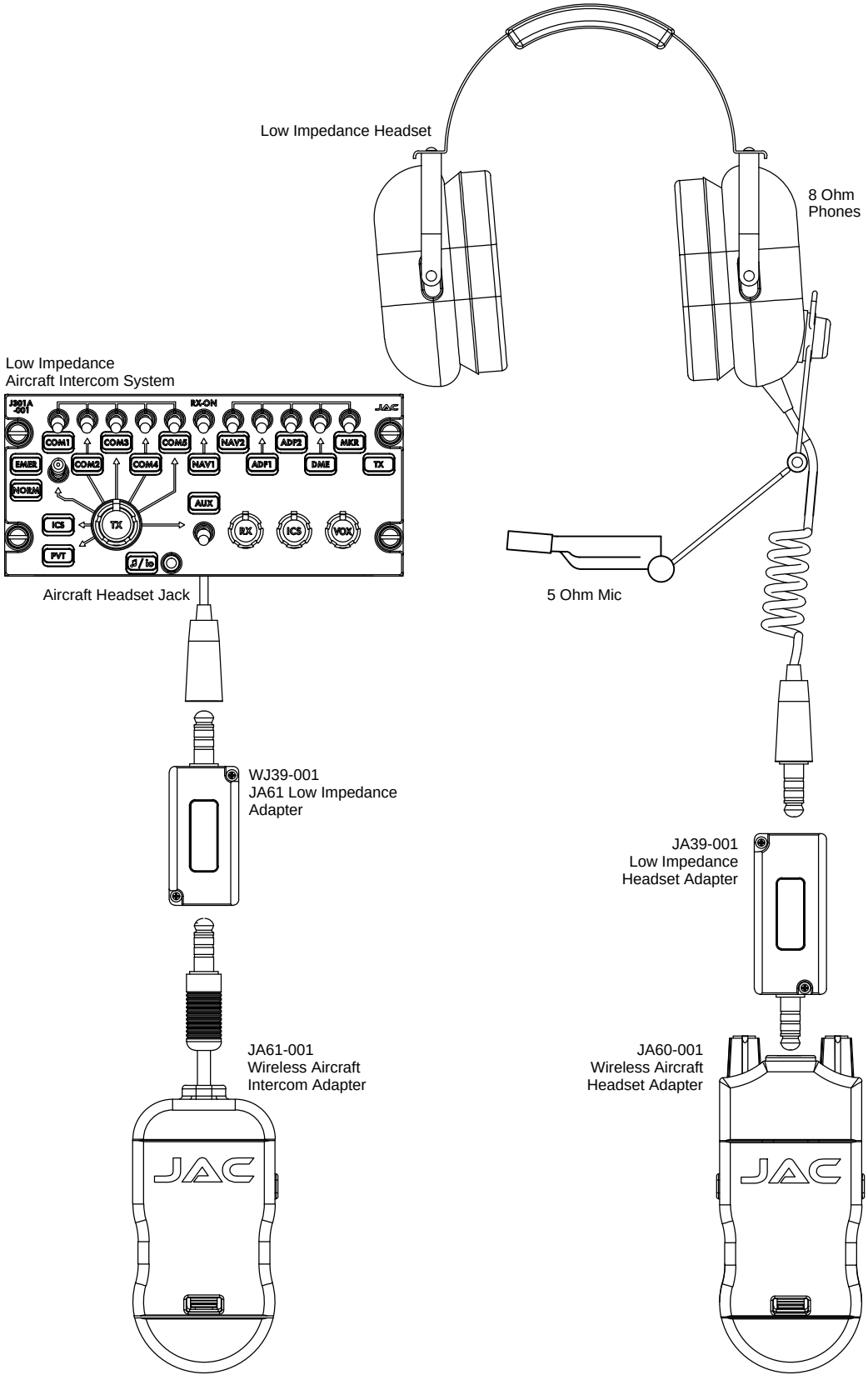

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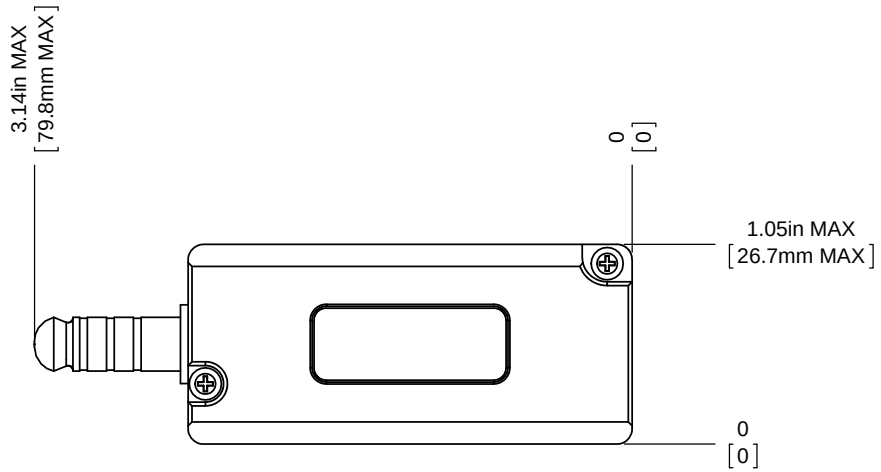

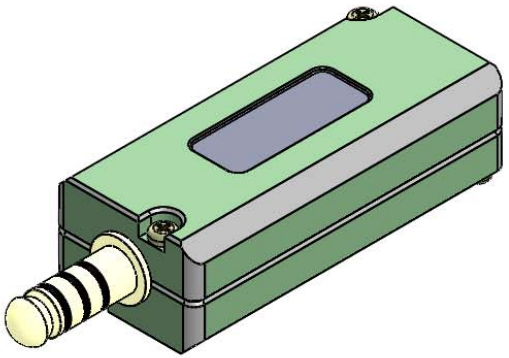

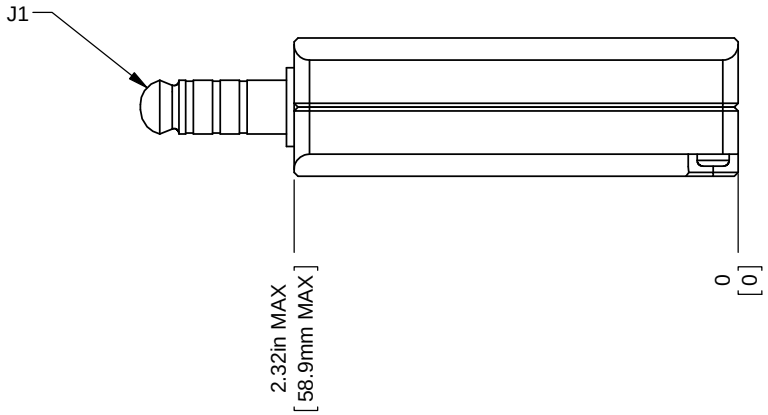

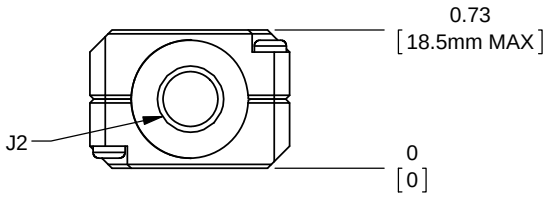

WEIGHT: 0.11 lbs [51.2 g] MAX.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES ANGLES ARE IN DEGREES TOLERANCES: 1 DEC PLACE: ± 0.1 2 DEC PLACE: ± 0.01 3 DEC PLACE: ± 0.005 ANGLES: ± 0.5 DEG	PREPARED	TAT
	CHECKED	
	APPROVED	
MATERIAL: N/A	CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.	
FINISH: N/A	DRAWING NOT TO SCALE	

JUPITER AVIONICS CORPORATION

TITLE: Low Impedance Headset Adapter

NCAGE CODE	PART NO.	SHEET
L00N3	JA39-001	1/1

DOC. NO.
JA39-001 Mechanical Installation Rev C.SLDDRW