JUPITER AVIONICS CORPORATION

JA39-605

Low Impedance Headset Adapter
5 Ohm Mic - 600 Ohm Phones

Installation Manual

Rev. A

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IMPORTANT:

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To confirm the current revision status of this manual, visit the JAC website:

www.jupiteravionics.com

RECORD OF REVISIONS

Revision	Rev Date	Description	ECR
A	May 2024	Initial release, Serial number 1001 and higher.	8309

Prepared:	Checked:	Approved:
MPB	JAC 10-07-24 MB	JAC 10-08-24 KDV

Table of Contents

JA39-605 Low Impedance Headset Adapter - 5 Ω Mic - 600 Ω Phones

SECTION 1 - DESCRIPTION

1.1 System Overview

The JA39-605 Low Impedance Headset Adapter - 5 Ohm Mic - 600 Ohm Phones allows a headset with a 5 Ohm low impedance microphone and 600 Ohm high impedance phones to be used with a high impedance aviation audio controller. The JA39-605 operates using the microphone bias supply of the audio controller and requires no other external power. The phones audio from the audio controller is routed directly to the headset phones without impedance matching.

1.2 Features Overview

The JA39-605 unit features an industry standard aviation headset pin-out for the plug.

The JA39-605 unit features the Nato standard headset pin-out for the jack.

The JA39-605 plugs in-line with the headset cord.

The JA39-605 uses a metal enclosure to shield the circuitry from Radio Frequency Interference.

1.3 Inputs and Outputs

Refer to the JA39-605 connector maps for the mating connector designators and pin assignments for the input and output signals.

The JA39-605 is designed to operate regardless of the input and output polarities of the attached audio controller and headset.

1.3.1 Inputs

Name	Qty	Type
MIC INPUT +/-	2	Audio signal
PHONES INPUT	2	Audio signal

1.3.2 Outputs

Name	Qty	Type
MIC OUTPUT HI/LO	2	Audio signal
PHONES OUTPUT +/-	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)
Maximum voltage	16.0 Vdc
Minimum voltage	10.0 Vdc
Input current	12 mA max.

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 Power

Phone rated output power into 600 Ohms	7.75 Vrms ±10%
Microphone rated output into 150 Ohms AC	250 mVrms±20%

Audio Frequency Response

PHONE OUTPUT audio frequency response	≤3dB from 300 to 6000 Hz
MICROPHONE OUTPUT audio frequency response	≤3dB from 300 to 6000 Hz

Distortion Characteristics

Phones output distortion at rated power	≤10% THD+N
Phones output distortion at 10% of rated power	≤3% THD+N

Input Impedance

Microphone input Impedance	5 Ω ±20%
Phones input Impedance	600 Ω ±10%

Output Impedance

Phones output Impedance	≤12 Ω ±20%
Microphone output Impedance	150 Ω ±10%

Output Load Impedance

PHONE OUTPUT load Impedance	600 Ω ±10%
Microphone output load Impedance	8 Ω ±20%

Audio Noise Level without Signal

Noise level below the rated output	≥55 dB

System Polarity

Input to output polarity	Maintained

1.4.1.2 Audio Performance, Other

Microphone input designed for MIC type	Dynamic
Phones output circuitry type	Direct coupled

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 lb [51.2 g] max
Connectors (2):	J1	One U-174/U
	J2	One U-92A/U
Mounting		Insertion into U-92A/U 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 JA39-605 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 JA39-605 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 JA39-605 is designed to operate regardless of the input and output polarities of the attached audio controller and headset.

2.5.1 Microphone Operation

The JA39-605 amplifies the MIC INPUT audio and routes it to the MIC OUTPUT.

2.5.2 Phones Operation

The JA39-605 takes the PHONES INPUT audio and routes it to the PHONES OUTPUT.

2.6 Installation Kit

The JA39-605 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 JA39-605 Low Impedance Headset Adapter are in this Appendix, as listed below.

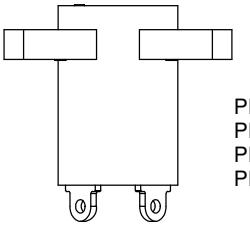
A2 Installation Drawings

DOCUMENT	Rev
JA39-605 Connector Map	A
JA39-605 Interconnect	A
JA39-605 Mechanical Installation	A

Aircraft Connector

P1

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



PIN 1: MIC OUTPUT HI
PIN 2: PHONES INPUT HI
PIN 3: MIC OUTPUT LO
PIN 4: PHONES INPUT LO

View of Aircraft mating connector

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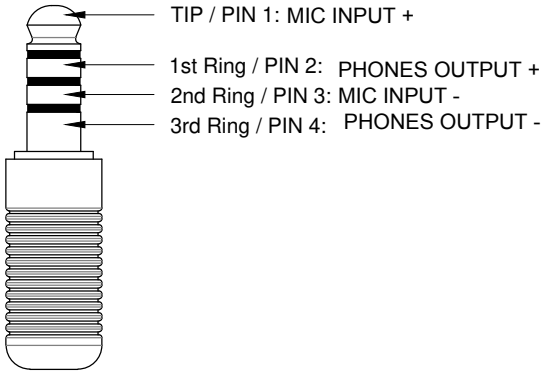
CHECKED		TITLE: Headset Adapter - 5 Ohm Mic - 600 Ohm Phones P1 - Aircraft Connector
APPROVED		NCAGE CODE: L00N3 / PART NO.: JA39-605 / SHEET: 1/2
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA39-605 Connector Map Rev A

Headset Connector

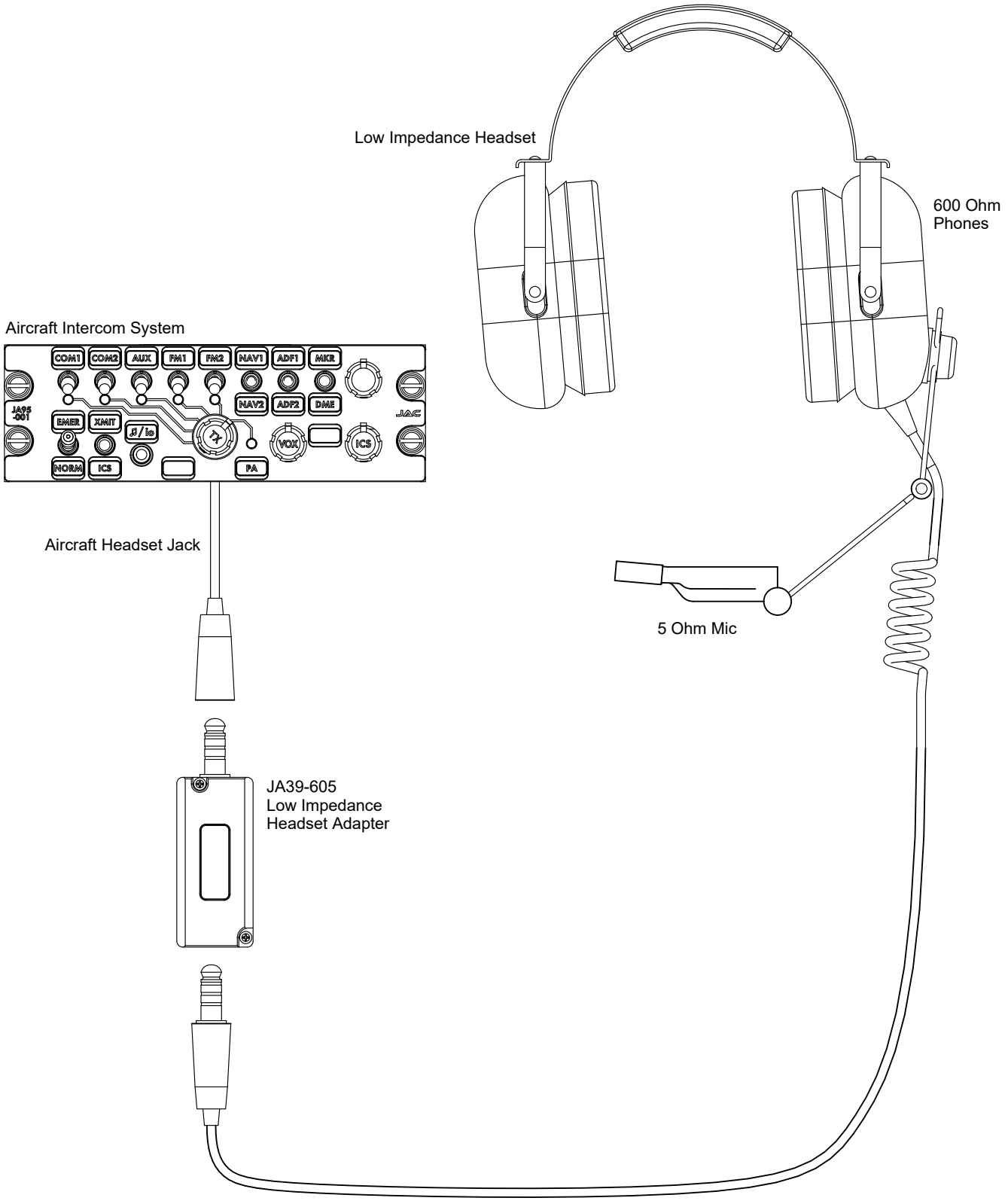
P2

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



View of Headset mating connector

PREPARED	KV	JUPITER AVIONICS CORPORATION	
CHECKED		TITLE: Headset Adapter - 5 Ohm Mic - 600 Ohm Phones P2 - Headset Jack Connector	
APPROVED		NCAGE CODE: L00N3	PART NO.: JA39-605 / SHEET: 2/2
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA39-605 Connector Map Rev A	



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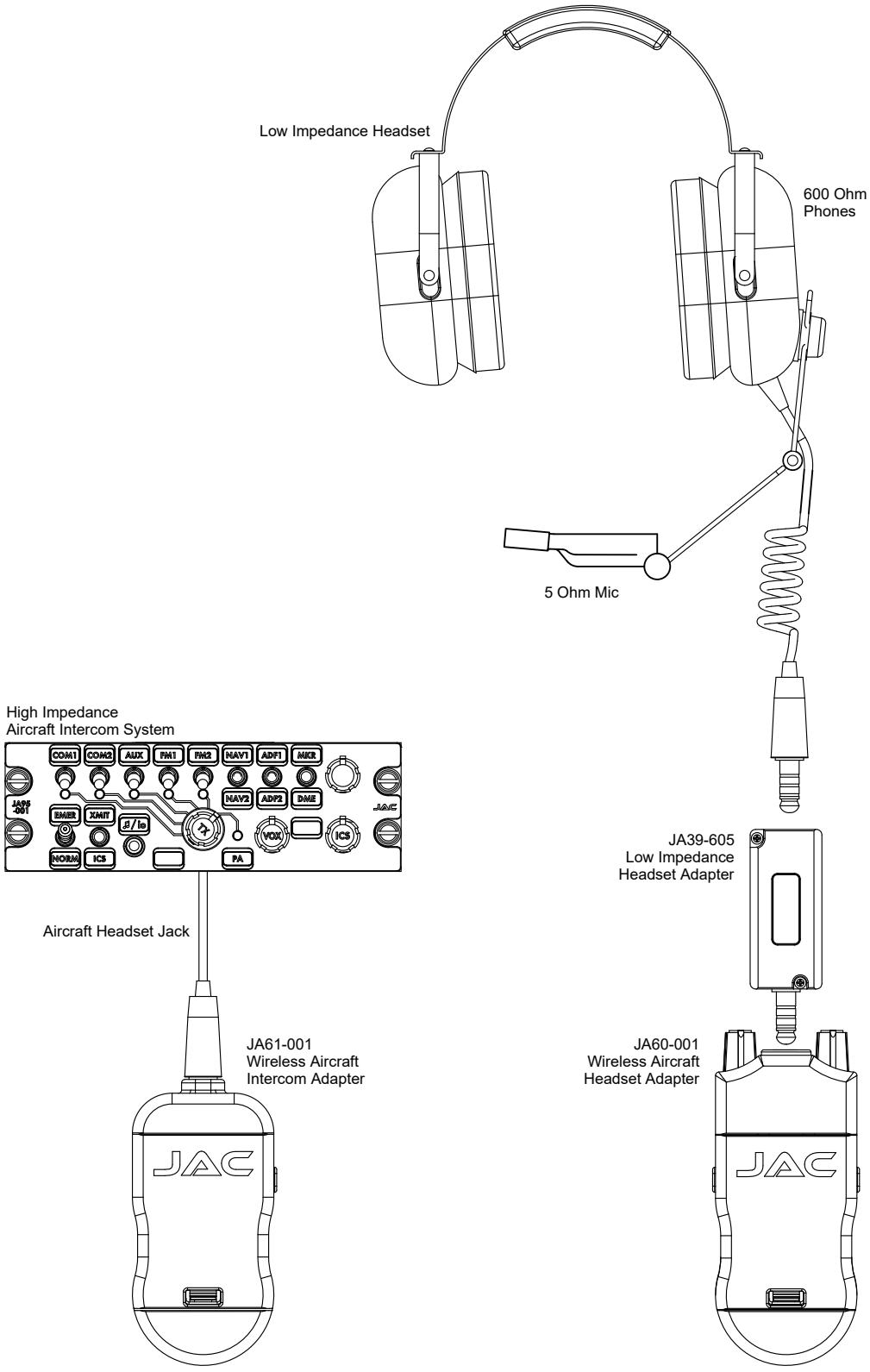
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA39-605 Interconnect Rev A.dwg		



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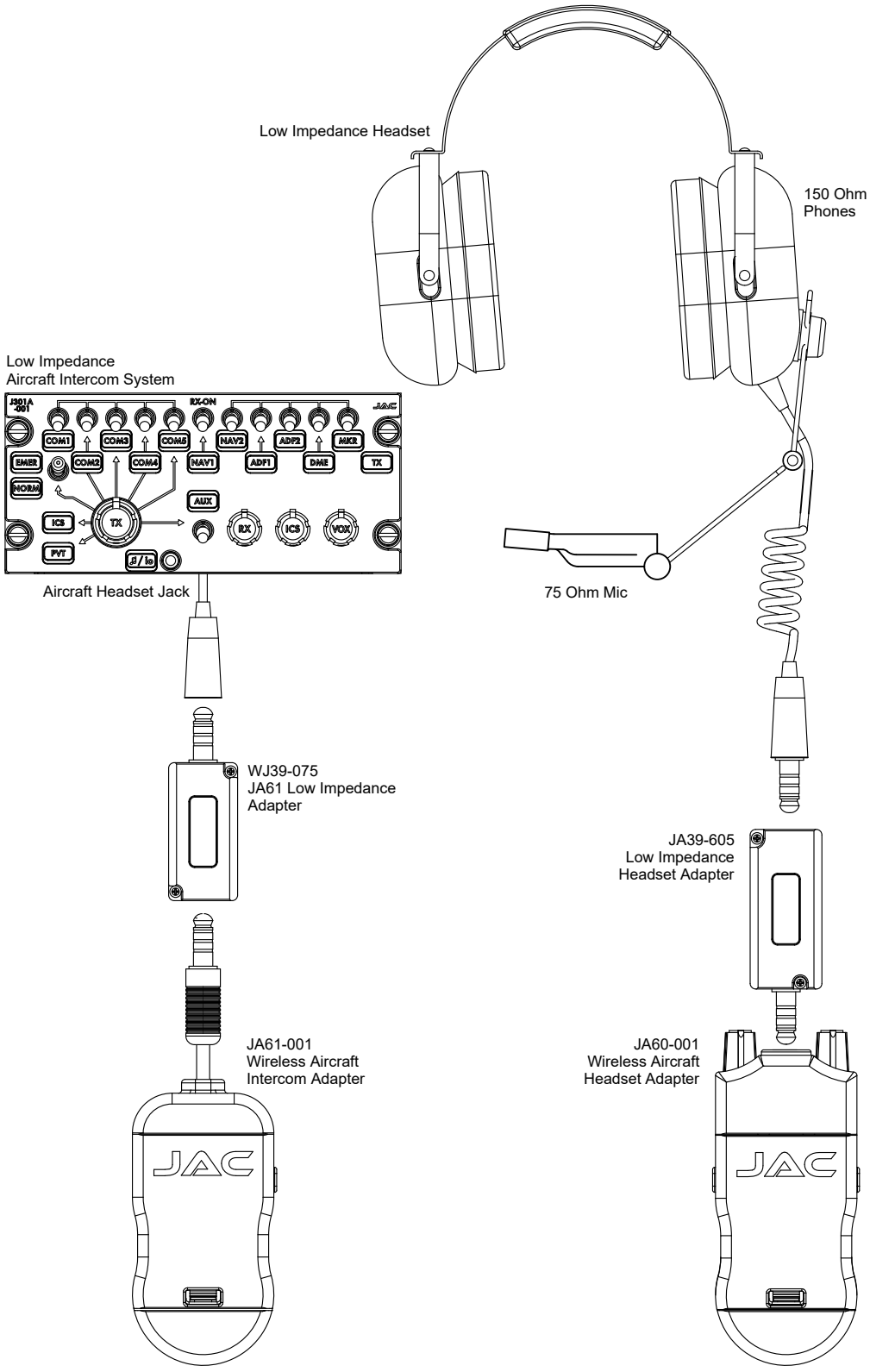
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA39-605 Interconnect Rev A.dwg		



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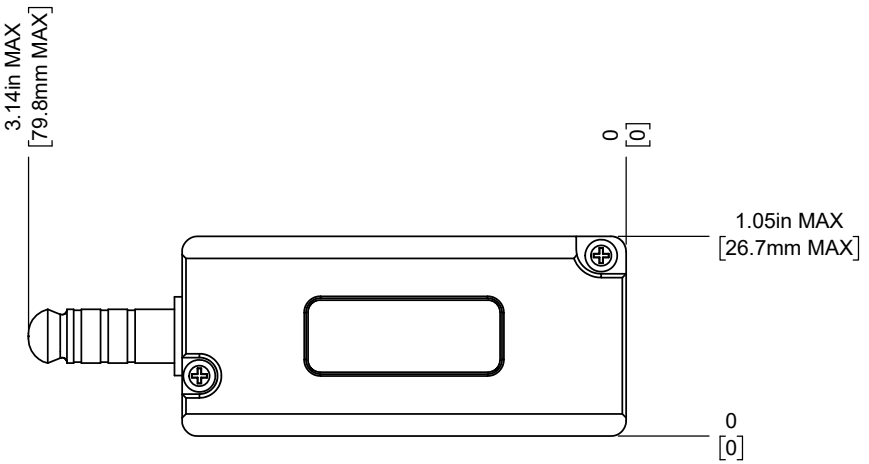
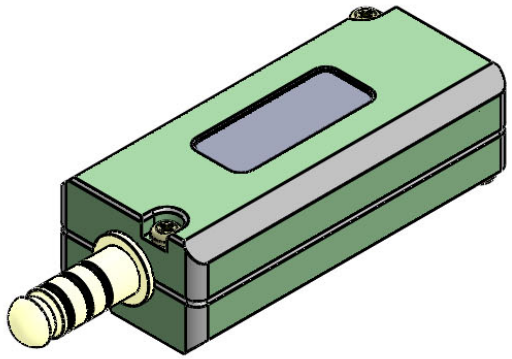
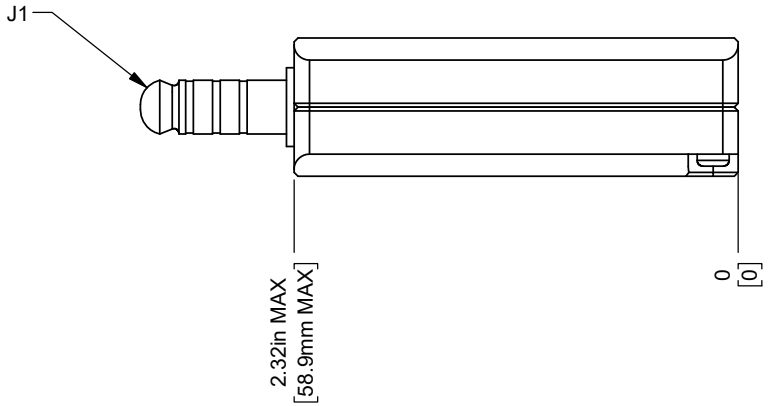
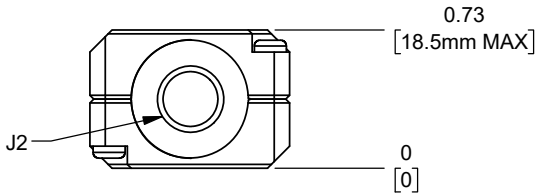
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JA39-605 Interconnect Rev A.dwg	









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	JAC 01-20-22 TAT
	APPROVED	JAC 01-31-22 KDV
MATERIAL: N/A	CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.	
FINISH: N/A	DRAWING NOT TO SCALE	

JUPITER AVIONICS CORPORATION

TITLE: Low Impedance Headset Adapter - 5 Ohm Mic - 600 Ohm Phones

NCAGE CODE	PART NO.	SHEET
L00N3	JA39-605	1/1

DOC. NO.
JA39-605 Mechanical Installation Rev A.SLDDRW