JA95-R04 Audio Controller
Remote Mount
- One Transceiver - ICS Tie Mute

Installation and Operating Manual

Rev D

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IMPORTANT:

Information in this document is subject to change without notice.

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	Jul 2017	Initial release, Serial number 1001 and higher.	4932
B	May 2018	Update ProCS; new Mechanical Installation	5436
C	Mar 2019	ICS Volume control added; Updated ProCS, cabling clarified	5974
D	Apr 2022	Equipment Block Diagrams updated	8613

Prepared:	Checked:	Approved:
DGB	JAC 04-26-22 KDV	JAC 05-06-22 MQS

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SECTION 1 - DESCRIPTION

1.1 System Overview

The JA95-R04 Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute is a secondary audio controller that is connected to a primary audio controller to provide support for additional headsets.

The JA95-R04, when configured in ICS Expansion mode, can connect seven headsets to the bidirectional ICS TIE line of the primary audio controller.

The JA95-R04, when configured in Headset Expansion mode Type A, can expand one headset position from the primary audio controller to four headsets with ICS PTT only.

The JA95-R04, when configured in Headset Expansion mode Type B, can expand one headset position from the primary audio controller to seven headsets, or six headsets with VOX control.

The JA95-R04, when configured in ICS Expansion mode and Headset Expansion mode Type B, provides a passive emergency mode that directs the primary user (PAX 1) to the COM1 transceiver, NAV1 receiver and Direct Audio receiver.

The JA95-R04 is set up on a per-installation basis using a configuration cable and a PC running the product configuration tool to download system configuration settings via the configuration connector without the necessity of removing the unit from the aircraft panel.

1.2 Features Overview

Many of the JA95-R04 input and output levels are adjustable, several audio paths are selectable, and alert audio analog waveforms can be loaded using the configuration program ProCS™ (**Pro**duct **C**onfiguration **S**oftware) to write configuration commands via the JA99-001 configuration cable to the configuration connector. The audio waveforms are stored in non-volatile devices. The alert audio feature is intended for use as a secondary alerting system where another device provides the primary annunciation.

The JA95-R04 supports one transceiver in ICS Expansion Mode and Headset Expansion Mode Type B.

The JA95-R04 supports one receiver in all modes.

The JA95-R04 has individual VOX gating in ICS Expansion Mode and Headset Expansion Mode Type B.

The JA95-R04 supports one Direct Audio input to provide audio at a fixed level to the users in ICS Expansion Mode and Headset Expansion Mode Type A.

The JA95-R04 allows transmit access for four cabin crew members (PAX1, PAX2, PAX3 and PAX4) in ICS Expansion Mode and Headset Expansion Mode Type B.

The JA95-R04 has a one channel Alert Generator in ICS Expansion Mode Type A.

The JA95-R04 has an Emergency Mode.

The JA95-R04 provides an Intercom Tie line mute function in ICS Expansion Mode and Headset Expansion Mode Type B.

The JA95-R04 provides intercom functions for up to seven users in ICS Expansion Mode.

The JA95-R04 has an optional external VOX Control in ICS Expansion Mode and Headset Expansion Mode Type B.

1.3 Inputs and Outputs

Refer to the JA95-R04 connector maps for the mating connector designators and pin assignments for the input and output signals.

1.3.1 Inputs

Name	Qty	Type
ALERT ENABLE	1	Active high discrete
ALERT KEY	1	Active low discrete
CONFIG DATA TO JA95	1	Data signal
DIRECT AUDIO	1	Audio signal
HEADSET EXPANSION PHONES	1	Audio signal
LEFT HI/LO MUSIC	1	Audio signal
MODE SELECT / CONFIG AUDIO	1	Multi format signal
ICS TIE MUTE	1	Active low discrete
PAX 1 thru PAX 7 MIC HI/LO	7	Audio signal
PAX 1 thru PAX 4 ICS PTT	4	Active low discrete (selected via ProCS)
PAX 1 thru PAX 4 TX PTT	4	Active low discrete (selected via ProCS)
POWER INPUT	1	14 to 28 Vdc power supply
RX HI/LO	2	Audio signal
VOX CONTROL	1	Analog control signal

1.3.2 Outputs

Name	Qty	Type
CONFIG DATA FROM JA95	1	Data signal
HEADSET EXPANSION MIC	1	Audio signal
PHONES	7	Audio signal (6 outputs for driving 7 phones.)
COM 1 MIC HI/LO	1	Audio signal
COM 1 PTT	1	Active low discrete (selected via ProCS)

1.3.3 Bi-directional Ports

Name	Qty	Type
ICS TIE	1	Audio signal

1.4 Specifications

1.4.1 Electrical Specifications

Power Input

Primary nominal voltage	28 Vdc
Secondary nominal voltage	14 Vdc
Maximum voltage	32.2 Vdc
Minimum voltage	10.2 Vdc
Emergency voltage	9.0 Vdc
Input current at 28 Vdc	≤ 0.7 A
Input current at 14 Vdc	≤ 1.4 A

1.4.1.1 Audio Performance

Rated Input Level

Receive audio rated input level	7.75 Vrms ±10%
Direct audio rated input level	7.75 Vrms ±10%
Headset Expansion Phones rated input level	7.75 Vrms ±10%
Music rated input level	400 mVrms ±10%
Microphone rated input level	250 mVrms ±10%
Intercom Tie Line type 1 rated input level	340 mVrms ±10%
Intercom Tie Line type 2 rated input level	1.20 Vrms ±10%
CONFIG AUDIO rated input level	400 mVrms ±10%
Andrea ICS rated input level	2.5 Vrms ±20%

Rated Output Level

Headset Expansion Mic output	250 mVrms ±10%
Phone rated output	7.75 Vrms ±10%
PAX1 Phone rated output, in emergency mode or with power input ≤6 Vdc	2.20 Vrms ±10%
Phone rated output power, with MUSIC input	3.88 Vrms ±10%
Microphone rated output	250 mVrms ±10%
Intercom Tie Line type 1 rated output	340 mVrms ±10%
Intercom Tie Line type 2 rated output	1.2 Vrms ±10%
Andrea ICS rated output	2.5 Vrms ±20%

Audio Frequency Response

Audio output audio frequency response	≤3dB from 300 to 6000 Hz
Alert audio output audio frequency response	≤3dB from 300 to 3000 Hz

Distortion Characteristics

Audio output distortion at rated power	≤10%
Audio output distortion at 10% of rated power	≤3%

Input Impedance

Headset Expansion Phone input Impedance	1000 Ω ±10%
Microphone input Impedance	150 Ω ±10%
Direct Audio input Impedance	1000 Ω ±10%
Receive Audio input Impedance	1000 Ω ±10%
Music Audio input Impedance	1000 Ω ±10%
Intercom Tie Line Audio input Impedance	2000 Ω ±10%

Output Load

Headset Expansion Mic Output Load	150 Ω ±10%
Phone load	600 Ω ±10%
Transceiver Microphone load	150 Ω ±10%
Intercom Tie Line type 1 rated load	2000 Ω ±10%
Intercom Tie Line type 2 rated load	2000 Ω ±10%
Intercom Tie Line type 1 maximum load	666 Ω max (3 loads)
Intercom Tie Line type 2 maximum load	285 Ω max (7 loads)
Andrea ICS rated load	600 Ω ±10%

Input to output Crosstalk and Bleed-through Level

Input to Output crosstalk	≤55 dB

Input to Input Crosstalk Level

Input to Input crosstalk	≤60 dB

Audio Noise Level without Signal

Noise level below the rated output	≥60 dB

1.4.1.2 Audio Performance, Other

Microphone inputs designed for MIC type	amplified dynamic
Microphone inputs bias voltage	12 Vdc ±10%
Microphone inputs circuitry type	single ended
MUSIC LEFT HI / LO audio input circuitry type	differential
MUSIC attenuation	38 dB max
RECEIVE AUDIO input circuitry type	differential
PHN HI / LO output circuitry type	single ended
MIC output circuitry type	differential
ICS TIE HI / LO Circuitry Type	differential
PHN HI / LO output music fade in duration	2.5 ± 1.0 seconds
VOX Threshold level range relative to rated MIC input	-30 to +12 dB
Transmit Timer duration	90 ± 30 seconds

1.4.1.3 Discrete Signals

Active low control input, active signal level	≤ +3 Vdc
Active low control input, inactive signal level	≥ +10 Vdc
Active low control input, current	≤ 10 mAdc
Active low control output, active output	≤ +2 Vdc
Active low control output, active, current	≤ 1 Adc
ALERT ENABLE signal active signal level	≥ +9 Vdc
ALERT ENABLE signal, when active, sinks	≤ 10 mAdc
ALERT ENABLE signal inactive signal level	≤ +3 Vdc

1.4.2 Mechanical Specifications

Height		1.97in [50.0 mm] max
Depth		6.79 in [172.5 mm] max
Width		5.87 in [149.1 mm] max
Weight		1.68 lbs. [0.77 kg] max
Material		brushed aluminum with conversion coating
Connectors (3):	J1	One 37-pin D-Sub male
	J2	One 50-pin D-Sub male
	J3	One 4 pole 3.5mm stereo jack
	J4	One 4-40 stud
Mounting		Four 10-32 fasteners
Bonding		≤ 2.5 mΩ
Installation kit part number		INST-95R04

1.4.3 Environmental Specifications

Environmental categories for which TSO compliance has been demonstrated are listed in the Environmental Qualification Form in Appendix B of this manual.

1.4.4 Product Configuration Software Version

Configuration of the JA95-R04 requires the Product Configuration Software (ProCS) version **v0.61.6** or later. Refer to the release notes from http://www.jupiteravionics.com/productsoftware.php or contact Jupiter Avionics to ensure the correct version is used.

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 JA95-R04 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 Authorized Release Certificate or Certificate of Conformance is included. Complete the on-line warranty card from the Jupiter Avionics Corporation (JAC) website – www.jupiteravionics.com.

2.3.1 Warranty

All products manufactured by JAC are warranted to be free of defects in workmanship or performance for 2 years from the date of installation by 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.

THIS WARRANTY IS VOID IF THE PRODUCT IS NOT INSTALLED BY AN AUTHORIZED JAC DEALER. 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 the headset volume to minimum before conducting tests, and slowly increase the volume to a comfortable listening level.

CAUTION: The power input circuitry of the unit may be damaged if the installation does not conform to the wiring instructions in this manual.

2.4.1 Installation Limitations

The conditions and tests for CAN TSO approval of the JA95-R04 are minimum performance standards. Those installing the JA95-R04, on or in a specific type or class of aircraft, must determine that the aircraft installation conditions are within TSO standards. The JA95-R04 may be installed only by following the applicable airworthiness requirements.

2.4.2 Cabling and Wiring

All wire 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.

Allow 3” from the end of the shielded wiring to the shield termination to allow the connector hood to be easily installed. Refer to the Interconnect drawing in Appendix A of this manual for shield termination details. Note that this unit has a ‘clamshell’ hood that is installed after the wiring is complete.

Maintain wire segregation and route wiring in accordance with the original aircraft manufacturer’s maintenance instructions.

Unless otherwise noted, all wiring shall be a minimum of 24 AWG, except power and ground lines, which shall be a minimum of 22 AWG. Refer to the Interconnect drawing for additional specifications. Check that the ground connection is clean and well secured, and that it shares no path with any electrically noisy aircraft accessories such as blowers, turn-and-bank instruments, or similar loads.

2.4.3 Mechanical Installation

The JA95-R04 can be mounted in any attitude and location with adequate space and sufficient clearance for the connector and wiring harness. It requires no direct cooling.

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 Voltage/Resistance checks - ICS Expansion Mode.

Do not attach this unit until the following conditions are met:

a) Check P1 pin **15** for continuity to ground (less than 0.5 Ω) when the relevant switch is closed.
b) Check P2 pin **17** for +28 Vdc or +14 Vdc relative to ground.
c) Check P2 pin **34** for continuity to ground (less than 0.5 Ω).
d) Check P2 pins **6** thru **13** for continuity to ground (less than 0.5 Ω) when the relevant switch is closed.
e) Check all pins for shorts to ground or adjacent pins.

2.4.5.2 Voltage/Resistance checks - Headset Expansion Mode Type A.

Do not attach this unit until the following conditions are met:

a) Check P2 pin **17** for +28 Vdc or +14 Vdc relative to ground.
b) Check P2 pin **16** for +28 Vdc alert power relative to ground
c) Check P2 pin **34** for continuity to ground (less than 0.5 Ω).
d) Check P2 pins **6** thru **8,** and **12** for continuity to ground (less than 0.5 Ω) when the relevant switch is closed.
e) Check all pins for shorts to ground or adjacent pins.

2.4.5.3 Voltage/Resistance checks - Headset Expansion Mode Type B.

Do not attach this unit until the following conditions are met:

a) Check P2 pin **17** for +28 Vdc or +14 Vdc relative to ground.
b) Check P2 pin **34** for continuity to ground (less than 0.5 Ω).
c) Check P2 pins **6** thru **13** for continuity to ground (less than 0.5 Ω) when the relevant switch is closed.
d) Check all pins for shorts to ground or adjacent pins.

2.4.5.4 Configuration

Ensure that the JA95-R04 contains the correct configuration settings. This may be done at the factory, on the maintenance bench or in the aircraft before the power on checks are performed. Refer to section 2.5.1.

2.4.5.5 Power on Checks.

Power up the aircraft’s systems and confirm normal operation of all functions of the JA95-R04. Refer to Section 3 (Operation) for specific operational details.

a) Begin with only the PAX1 headset attached. Confirm correct ICS and, if applicable, radio operation for both receive and transmit. Do not proceed until the radios are functioning correctly.

b) If there is a music source in the system, turn it on and check for proper mute operation.

c) 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. If a transmitter fails to key or correctly modulate it is often the result of not connecting all required grounds to the radio or external audio system.

d) Check the Emergency operation.

e) Plug in the PAX2 headset. Check for correct ICS operation.

f) Plug in any remaining headsets, and check for correct ICS operation. Note that an incorrect cordset (drop cord) or improper jack wiring may cause a wide range of problems, from loss of audio to a tone heard in the headset.

g) Check that all configurations settings are correct.

When all performance checks are satisfied, complete the necessary regulatory documentation before releasing the aircraft for service. Refer to Appendix B.

2.5 Adjustments and Configuration using ProCS™

All the JA95-R04 internal adjustments are set from the Product Configuration Software ProCS™. Configuration data is sent to the JA95-R04 via the configuration connector, using the Configuration Cables and a computer running the ProCS™ software **version v0.61.6 or higher**. For configuration requirements, see section 2.5.

For full information on the configuration process, and for installation of ProCS™ on your computer, refer to the ProCS™ manual on the Jupiter Avionics website - www.jupiteravionics.com/productsoftware.

2.5.1 Configuration Cabling Requirements

To configure the JA95-R04, it is necessary to load the Product Configuration Software ProCS™ onto a Windows-based computer as described in the ProCS™ manual.

The cables required to configure the JA95-R04 are not included with the unit.

Quantity	Description	JAC Part #
1	USB A to RS232 9-Pin Cable	CAB-USB-0002
1	Configuration Cable	JA99-001

2.5.2 ProCS™ Setup

The ProCS™ JA95-R04 menu item 'ProCS Setup' provides a drawing showing the cabling arrangement for connecting the JA95-R04 to a computer running the ProCS™.

2.5.3 Configurable Settings

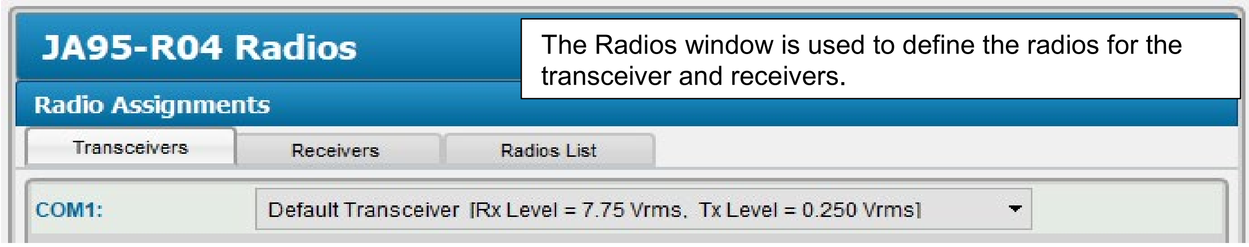
Note: It is recommended that the Mode of Operation (in Connector Pin Configuration, section 2.5.3.5) should be selected first, as this will determine the availability of some of the features, as noted in the text.

A standard unit is shipped from the factory with all internal adjustments configured to the default levels. At installation, it may be desirable to change some of these settings to suit the local operating environment.

Note: To configure the JA95-R04, power must be applied to the unit.

Within ProCS™, the configurable settings are grouped together into the following sections:

2.5.3.1 Radios


JA95-R04 Radios

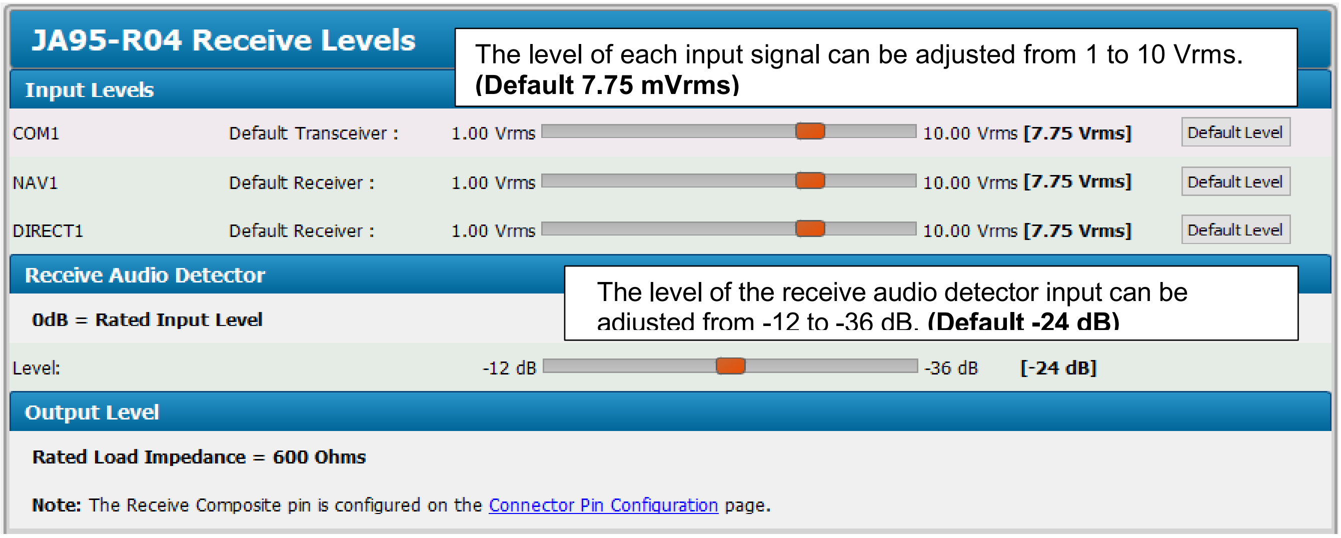
The Radios window is used to define the radios for the transceiver and receivers.

Radio Assignments

COM1: Default Transceiver [Rx Level = 7.75 Vrms, Tx Level = 0.250 Vrms]

2.5.3.2 Receive Levels

✓ **Note**: There is no Direct Audio in Headset Expansion B mode


JA95-R04 Receive Levels

The level of each input signal can be adjusted from 1 to 10 Vrms. **(Default 7.75 mVrms)**

Input Levels

COM1 Default Transceiver : 1.00 Vrms 10.00 Vrms **[7.75 Vrms]**
NAV1 Default Receiver : 1.00 Vrms 10.00 Vrms **[7.75 Vrms]**
DIRECT1 Default Receiver : 1.00 Vrms 10.00 Vrms **[7.75 Vrms]**

Receive Audio Detector

The level of the receive audio detector input can be adjusted from -12 to -36 dB. **(Default -24 dB)**

0dB = Rated Input Level

Level: -12 dB -36 dB **[-24 dB]**

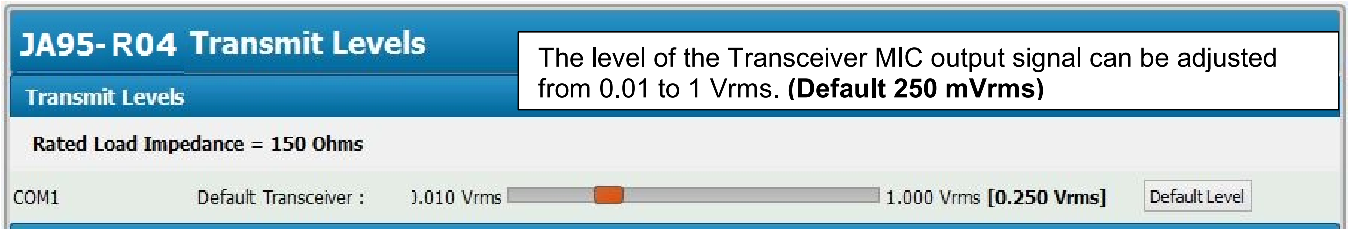
Output Level

Rated Load Impedance = 600 Ohms

Note: The Receive Composite pin is configured on the Connector Pin Configuration page.

2.5.3.3 Transmit Levels (ICS Expansion and Headset Expansion Type B)

✓ **Note**: If configured for Headset Expansion Type A, no transceivers are supported (see section 2.5.3.5.)


JA95-R04 Transmit Levels

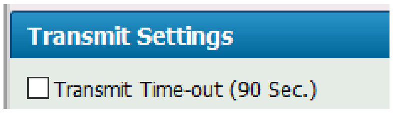
The level of the Transceiver MIC output signal can be adjusted from 0.01 to 1 Vrms. **(Default 250 mVrms)**

Transmit Levels

Rated Load Impedance = 150 Ohms

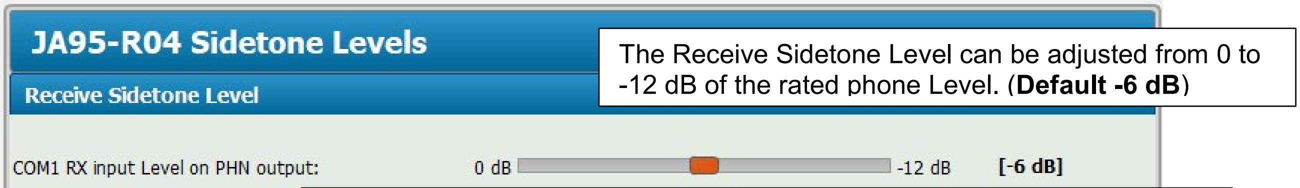
COM1 Default Transceiver :).010 Vrms 1.000 Vrms **[0.250 Vrms]**

When the Transmit Timeout check box is checked the transmit time-out is enabled (**Default not checked)**


Transmit Settings

☐ Transmit Time-out (90 Sec.)

2.5.3.4 Sidetone Levels


JA95-R04 Sidetone Levels

The Receive Sidetone Level can be adjusted from 0 to -12 dB of the rated phone Level. (**Default -6 dB**)

Receive Sidetone Level

COM1 RX input Level on PHN output: 0 dB -12 dB **[-6 dB]**

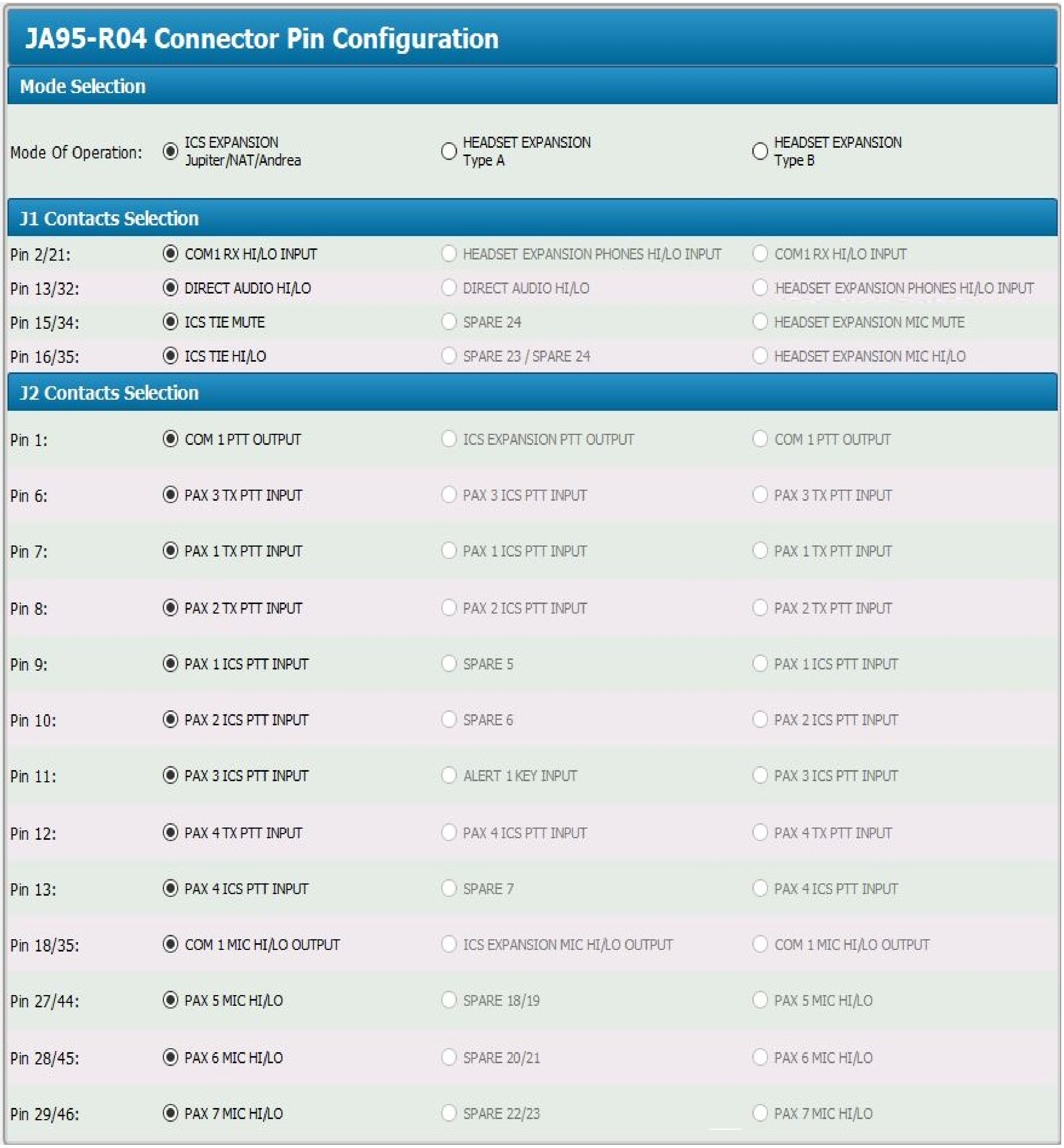
✓ **Note**: No Sidetone Level adjustment for Headset Expansion Type A

2.5.3.5 Connector Pin Configuration

The JA95-R04 can be configured for ICS Expansion, Headset Expansion Type A or Headset Expansion Type B. When the mode of operation is selected, all the buttons in the column below it will automatically be selected.

Selecting a Mode of Operation will automatically determine other configurations made through ProCS™.

For ICS Expansion mode, refer to Interconnect sheets 2/3 of 8, for Headset Expansion Type A, see Interconnect sheets 4/5 of 8, and for Headset Expansion Type B, see Interconnect sheets 6/7 of 8. (See also section 2.5.3.11.)



JA95-R04 Connector Pin Configuration

Mode Selection

Mode Of Operation:	● ICS EXPANSION Jupiter/NAT/Andrea	○ HEADSET EXPANSION Type A	○ HEADSET EXPANSION Type B

J1 Contacts Selection

Pin 2/21:	● COM1 RX HI/LO INPUT	○ HEADSET EXPANSION PHONES HI/LO INPUT	○ COM1 RX HI/LO INPUT
Pin 13/32:	● DIRECT AUDIO HI/LO	○ DIRECT AUDIO HI/LO	○ HEADSET EXPANSION PHONES HI/LO INPUT
Pin 15/34:	● ICS TIE MUTE	○ SPARE 24	○ HEADSET EXPANSION MIC MUTE
Pin 16/35:	● ICS TIE HI/LO	○ SPARE 23 / SPARE 24	○ HEADSET EXPANSION MIC HI/LO

J2 Contacts Selection

Pin 1:	● COM 1 PTT OUTPUT	○ ICS EXPANSION PTT OUTPUT	○ COM 1 PTT OUTPUT
Pin 6:	● PAX 3 TX PTT INPUT	○ PAX 3 ICS PTT INPUT	○ PAX 3 TX PTT INPUT
Pin 7:	● PAX 1 TX PTT INPUT	○ PAX 1 ICS PTT INPUT	○ PAX 1 TX PTT INPUT
Pin 8:	● PAX 2 TX PTT INPUT	○ PAX 2 ICS PTT INPUT	○ PAX 2 TX PTT INPUT
Pin 9:	● PAX 1 ICS PTT INPUT	○ SPARE 5	○ PAX 1 ICS PTT INPUT
Pin 10:	● PAX 2 ICS PTT INPUT	○ SPARE 6	○ PAX 2 ICS PTT INPUT
Pin 11:	● PAX 3 ICS PTT INPUT	○ ALERT 1 KEY INPUT	○ PAX 3 ICS PTT INPUT
Pin 12:	● PAX 4 TX PTT INPUT	○ PAX 4 ICS PTT INPUT	○ PAX 4 TX PTT INPUT
Pin 13:	● PAX 4 ICS PTT INPUT	○ SPARE 7	○ PAX 4 ICS PTT INPUT
Pin 18/35:	● COM 1 MIC HI/LO OUTPUT	○ ICS EXPANSION MIC HI/LO OUTPUT	○ COM 1 MIC HI/LO OUTPUT
Pin 27/44:	● PAX 5 MIC HI/LO	○ SPARE 18/19	○ PAX 5 MIC HI/LO
Pin 28/45:	● PAX 6 MIC HI/LO	○ SPARE 20/21	○ PAX 6 MIC HI/LO
Pin 29/46:	● PAX 7 MIC HI/LO	○ SPARE 22/23	○ PAX 7 MIC HI/LO

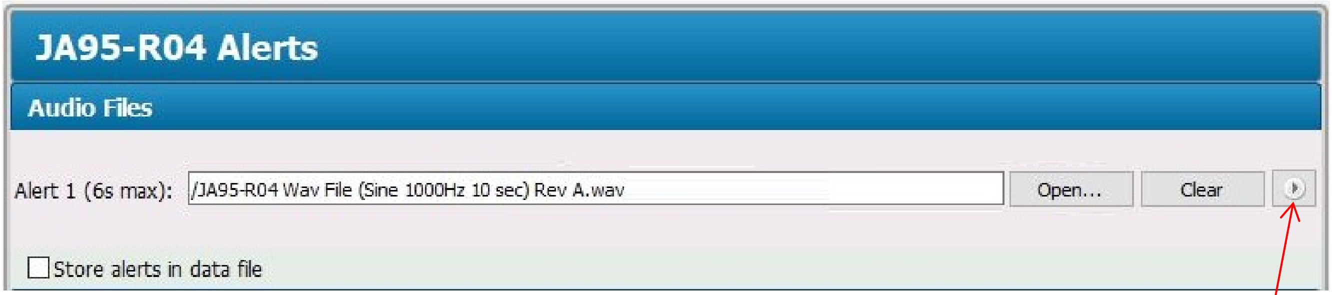
2.5.3.6 Alerts (Headset Expansion Type A only)

WARNING: **The internal audio alert is intended only to supplement, not replace, airframe alerts such as 'low rotor RPM', 'engine out' or 'decision height alerting'. The alert audio feature is intended for use as a secondary alerting system where another device provides the primary annunciation.**

Audio Files

The JA95-R04 has a standard audio signal for the alert, and the audio files window allows this signal to be customized with other recordings during the configuration process.

The default Alert signal loaded into the unit at the factory is: JA95-R04 Wav File (Sine 1000Hz 10 sec) Rev A.wav



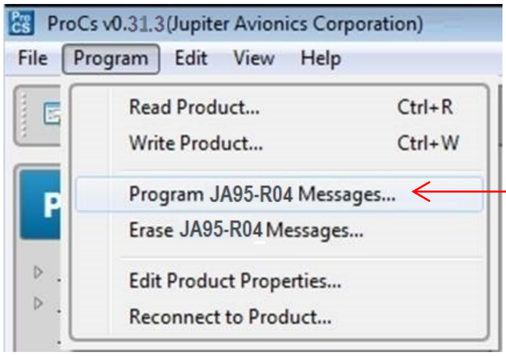
JA95-R04 Alerts

Audio Files

Alert 1 (6s max): /JA95-R04 Wav File (Sine 1000Hz 10 sec) Rev A.wav

☐ Store alerts in data file

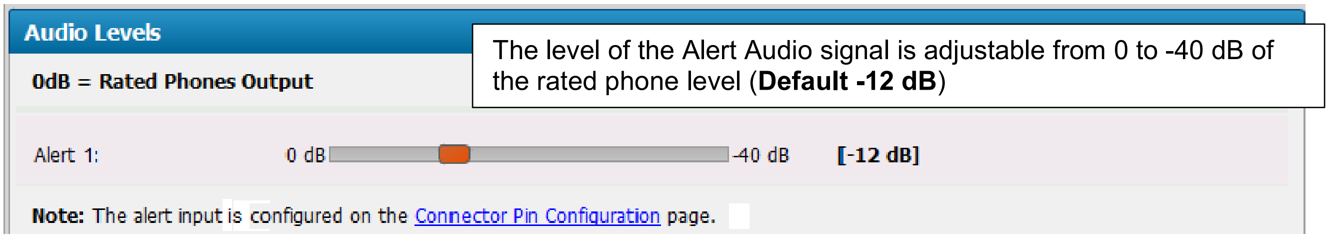
Saving new Audio Files



ProCs v0.31.3(Jupiter Avionics Corporation)
File
Program
Edit
View
Help
Read Product... Ctrl+R
Write Product... Ctrl+W
Program JA95-R04 Messages...
Erase JA95-R04 Messages...
Edit Product Properties...
Reconnect to Product...

If a new audio file is selected, it may be played using the arrow to the right of the Message line.

It may be uploaded to the JA95-R04 using the 'Program' menu and selecting 'Program JA95-R04 Messages…'.



Audio Levels

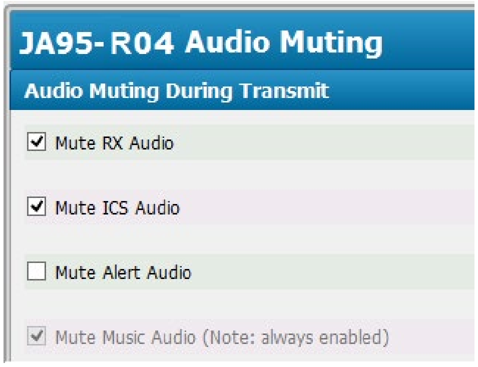
0dB = Rated Phones Output

Alert 1: 0 dB —— -40 dB **[-12 dB]**

Note: The alert input is configured on the Connector Pin Configuration page.

The level of the Alert Audio signal is adjustable from 0 to -40 dB of the rated phone level (**Default -12 dB**)

2.5.3.7 Audio Muting (During Transmit)



JA95-R04 Audio Muting

Audio Muting During Transmit

☑ Mute RX Audio

☑ Mute ICS Audio

☐ Mute Alert Audio

☑ Mute Music Audio (Note: always enabled)

When the Mute RX Audio check box is checked the Receive Audio is muted during transmit (**Default checked**)

When the Mute ICS Audio check box is checked the ICS Audio is muted during transmit (**Default checked**)

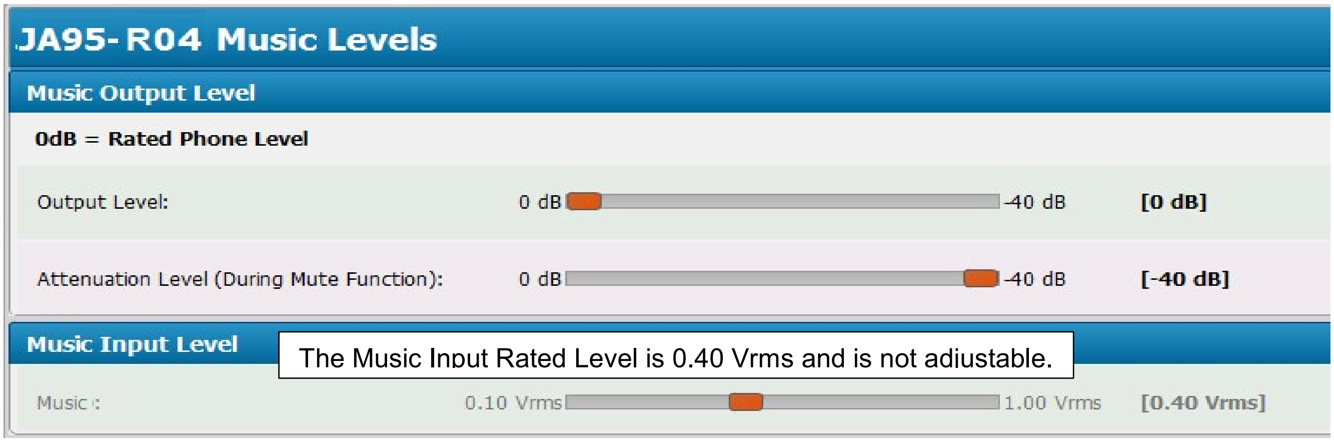
When the Mute Alert Audio check box is checked (Headset Expansion Type A only) the Alert Audio is muted during transmit (**Default not checked**)

The Mute Music Audio check box is always checked (i.e. Mute Music Audio is always enabled.)

2.5.3.8 Music Levels

The music output level of the Music input signal to the Phones audio can be adjusted from -40 to 0 dB of rated phone level (Default 0 dB).

The attenuation level during muting of the music signal can be adjusted from 0 to -40 dB (Default -40 dB).



JA95-R04 Music Levels

Music Output Level

0dB = Rated Phone Level

Output Level: 0 dB –40 dB **[0 dB]**

Attenuation Level (During Mute Function): 0 dB –40 dB **[-40 dB]**

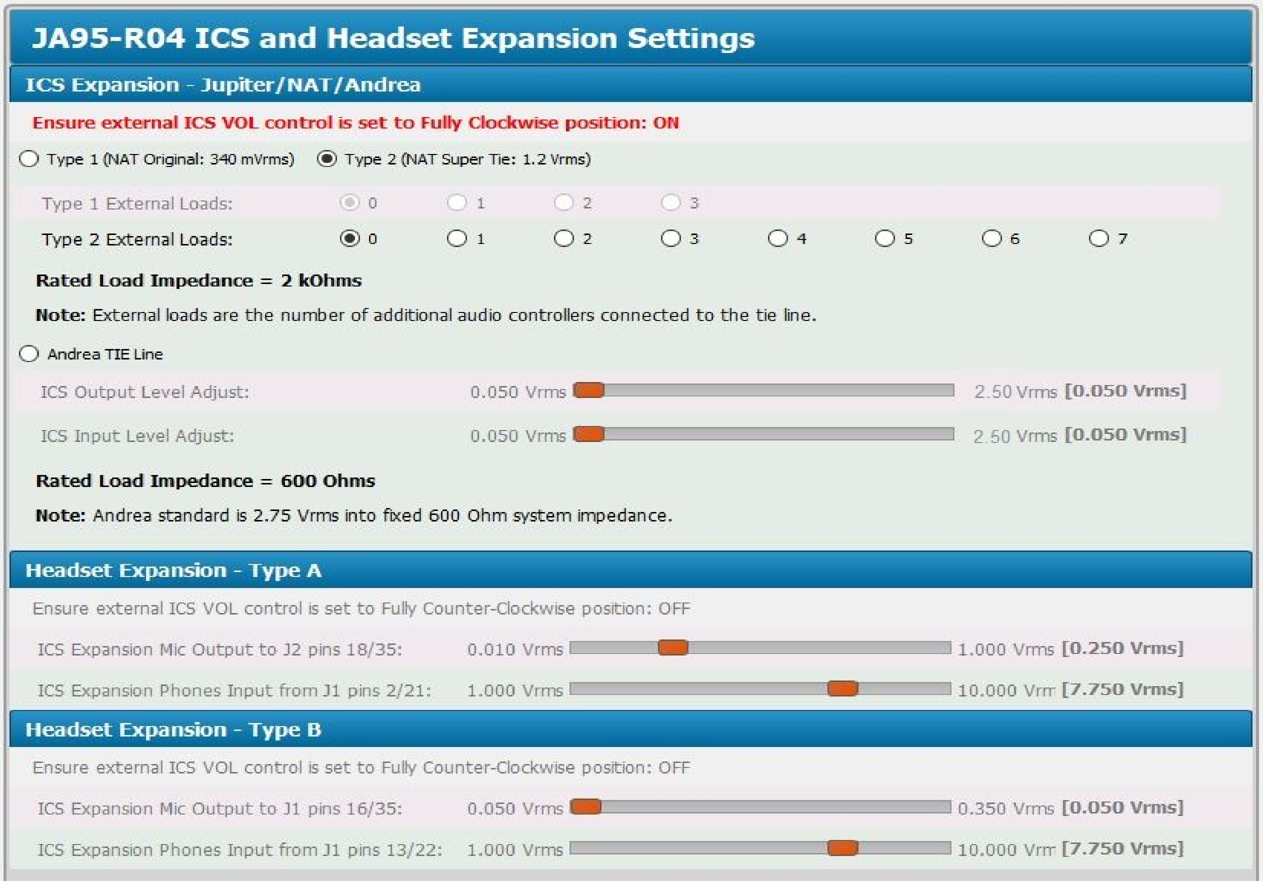
Music Input Level

The Music Input Rated Level is 0.40 Vrms and is not adjustable.

Music : 0.10 Vrms 1.00 Vrms **[0.40 Vrms]**

2.5.3.9 ICS and Headset Expansion Settings

Note: Different portions of this screen will be unavailable for use depending on the Mode of Operation selected in section 2.5.3.5, Connector Pin Configuration. This figure shows ICS Expansion Mode.



JA95-R04 ICS and Headset Expansion Settings

ICS Expansion - Jupiter/NAT/Andrea

Ensure external ICS VOL control is set to Fully Clockwise position: ON

○ Type 1 (NAT Original: 340 mVrms) ● Type 2 (NAT Super Tie: 1.2 Vrms)

Type 1 External Loads: ● 0 ○ 1 ○ 2 ○ 3

Type 2 External Loads: ● 0 ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

Rated Load Impedance = 2 kOhms

Note: External loads are the number of additional audio controllers connected to the tie line.

○ Andrea TIE Line

ICS Output Level Adjust: 0.050 Vrms 2.50 Vrms **[0.050 Vrms]**

ICS Input Level Adjust: 0.050 Vrms 2.50 Vrms **[0.050 Vrms]**

Rated Load Impedance = 600 Ohms

Note: Andrea standard is 2.75 Vrms into fixed 600 Ohm system impedance.

Headset Expansion - Type A

Ensure external ICS VOL control is set to Fully Counter-Clockwise position: OFF

ICS Expansion Mic Output to J2 pins 18/35: 0.010 Vrms 1.000 Vrms **[0.250 Vrms]**

ICS Expansion Phones Input from J1 pins 2/21: 1.000 Vrms 10.000 Vrm **[7.750 Vrms]**

Headset Expansion - Type B

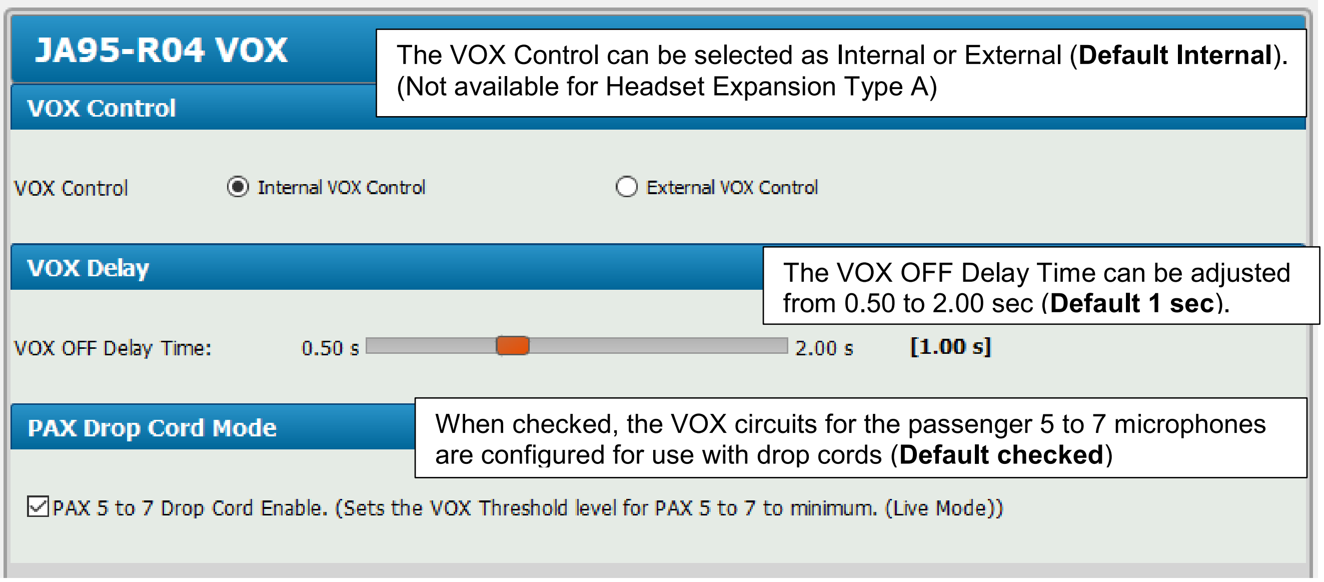
Ensure external ICS VOL control is set to Fully Counter-Clockwise position: OFF

ICS Expansion Mic Output to J1 pins 16/35: 0.050 Vrms 0.350 Vrms **[0.050 Vrms]**

ICS Expansion Phones Input from J1 pins 13/22: 1.000 Vrms 10.000 Vrm **[7.750 Vrms]**

Rated input/output levels can be selected as Type 1 or Type 2 (**Default Type 2**).
Quantity of external loads for Type 1 can be selected from 0 to 3 (**Default 0**).
Quantity of external loads for Type 2 intercom tie line can be selected from 0 to 7 (**Default 0**).

2.5.3.10 VOX



JA95-R04 VOX

VOX Control

The VOX Control can be selected as Internal or External (**Default Internal**). (Not available for Headset Expansion Type A)

VOX Control ● Internal VOX Control ○ External VOX Control

VOX Delay

The VOX OFF Delay Time can be adjusted from 0.50 to 2.00 sec (**Default 1 sec**).

VOX OFF Delay Time: 0.50 s 2.00 s **[1.00 s]**

PAX Drop Cord Mode

When checked, the VOX circuits for the passenger 5 to 7 microphones are configured for use with drop cords (**Default checked**)

☑ PAX 5 to 7 Drop Cord Enable. (Sets the VOX Threshold level for PAX 5 to 7 to minimum. (Live Mode))

2.5.3.11 Connector Maps

This section contains all the connector maps and interconnects for the different Modes of Operation of the JA95-R04.

2.5.4 Other Configuration Features

The model number, serial number and check sum of the JA95-R04 can be entered and viewed in the Comments pane of the JA95-R04 Product Information Window for future reference.

2.6 Installation Kit

The kit required to install this unit is not included with the unit.

The installation kit (Part # INST-95R04) consists of the following:

Quantity	Description	JAC Part #
2	TAG ring	CON-5500-0625
1	D-Sub 37-pin connector, hood and 37 crimp pins	CON-3420-0037
1	D-Sub 50-pin connector, hood and 50 crimp pins	CON-3420-0050
2	Heat Shrink Tubing	WIR-HTSK-1000
1	VOX Knob	KNB-1100-VOX
1	VOX Potentiometer	POT-1RV6-10K0
1	VOX Label	LAB-PLAS-0150

2.6.1 Recommended Crimp tools

Connector Type	Hand crimp tool	Positioner	Insertion/extraction tool
Positronic	9507	9502-3	M81969/1-04
Positronic	AFM8 (Daniels)	M22520/2.08 KB-1	

2.7 Installation Drawings

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

SECTION 3 – OPERATION

3.1 Introduction

This section contains the operating instructions for the JA95-R04.

The JA95-R04 may be configured to operate either as Intercom Expansion or Headset Expansion Equipment.

✓ **Note**: The JA95-R04 has no integrated operator controls. However, remote-mounted mute switches or a VOX control may be installed. Check your configuration with the installing agency.

3.2 ICS Expansion Mode

The JA95-R04 is in Normal mode when suitable electrical power is supplied to the unit. Operation is described for normal operating mode unless stated otherwise.

3.2.1 Receiving

When the JA95-R04 receives an incoming transmission on a transceiver or receiver, the incoming audio will be directed to the user's phones.

The audio level of any incoming transmission will depend upon the level selected during installation by the ProCS™. It will be muted if the unit is transmitting and muting of receive audio during transmit is enabled.

3.2.2 Transmitting (Transmit Operation)

When operating as intercom expansion equipment and the user's TX PTT is activated, the unit will transmit on the transceiver. All MIC and sidetone audio will be routed to the user's phones, and any music will be muted for the duration of the transmission.

3.2.3 VOX Operation

A user's MIC audio is routed to the ICS when the MIC audio level exceeds the VOX threshold.

A user's MIC audio is disconnected from the ICS when the MIC audio level falls below the VOX threshold for 0.5 to 2 seconds.

The VOX level may be set from a potentiometer that is installed in the aircraft.

3.2.4 ICS Operation

All ICS Audio is routed to the PAX 1 to PAX 7 Phones.

ICS audio is the sum of all the MIC audio from users PAX1 to PAX7, and the audio input from the ICS TIE LINE.

The ICS audio is muted during transmit if the 'Mute ICS Audio During Transmit' option is selected in ProCS™.

The ICS audio level at the phones is configured by the ProCS™ application.

The ICS TIE signal to and from other audio panels is muted when the ICS TIE MUTE is active.

3.2.5 Music Operation

Music to the phones will be muted by incoming audio (ICS, Receive, Direct or Alert Audio) or if the unit is transmitting. When the incoming audio has ended, the music will gradually return to the previous level.

3.2.6 Emergency Operation Mode

Emergency mode is entered automatically if power to the unit is lost.

In emergency mode the PAX1 phone and MIC signals are connected by mechanical relay contacts to the COM1 transceiver, the NAV1 receiver and the DIRECT AUDIO, and the PAX1 TX PTT is connected to the COM1 PTT.

3.3 Headset Expansion Mode Type A

Operation is described for normal operating mode unless stated otherwise.

3.3.1 Receiving

When the JA95-R04 receives audio from the NAV1 or DIRECT AUDIO 1 sources it is routed to the PAX phones.

3.3.2 ICS Operation

The JA95-R04 routes the sum of the PAX 1 to PAX 4 MIC audio with the associated PAX ICS PTT inputs active to the primary audio controller for processing as the ICS audio signal.

The JA95-R04 routes the Phones audio signal from the primary audio controller to the PAX 1 to PAX 7 PHONES. This audio signal may contain ICS and RX audio signals from the primary audio controller.

3.3.3 Music Operation

Music to the phones will be muted by incoming audio (ICS, Receive, Direct or Alert Audio) or if the unit is transmitting. When the incoming audio has ended, the music will gradually return to the previous level.

3.3.4 Emergency Mode

Emergency mode is entered automatically if power to the unit is lost.

When in emergency mode, the PAX 1 HEADSET and ICS PTT are connected to the primary audio controller. No other functions operate.

3.4 Headset Expansion Mode Type B

Operation is described for normal operating mode unless stated otherwise.

3.4.1 Receiving

When the JA95-R04 receives audio from the COM 1 or NAV 1 sources it is routed to the PAX phones.

3.4.2 ICS Operation

All ICS Audio is routed to the PAX 1 to PAX 7 Phones.

ICS audio is the sum of all the MIC audio from users PAX1 to PAX7, and the audio input from the ICS TIE LINE.

The ICS audio is muted during transmit if the 'Mute ICS Audio During Transmit' option is selected in ProCS™.

The ICS audio level at the phones is configured by the ProCS™ application.

The ICS TIE signal to and from other audio panels is muted when the ICS TIE MUTE is active.

3.4.3 Music Operation

Music to the phones will be muted by incoming audio (ICS, Receive, Direct or Alert Audio) or if the unit is transmitting. When the incoming audio has ended, the music will gradually return to the previous level.

3.4.4 Emergency Mode

Emergency mode is entered automatically if power to the unit is lost.

When in emergency mode, the PAX 1 HEADSET and ICS PTT are connected to the primary audio controller. No other functions operate.

Installation and Operating Manual
Appendix A - Installation Drawings

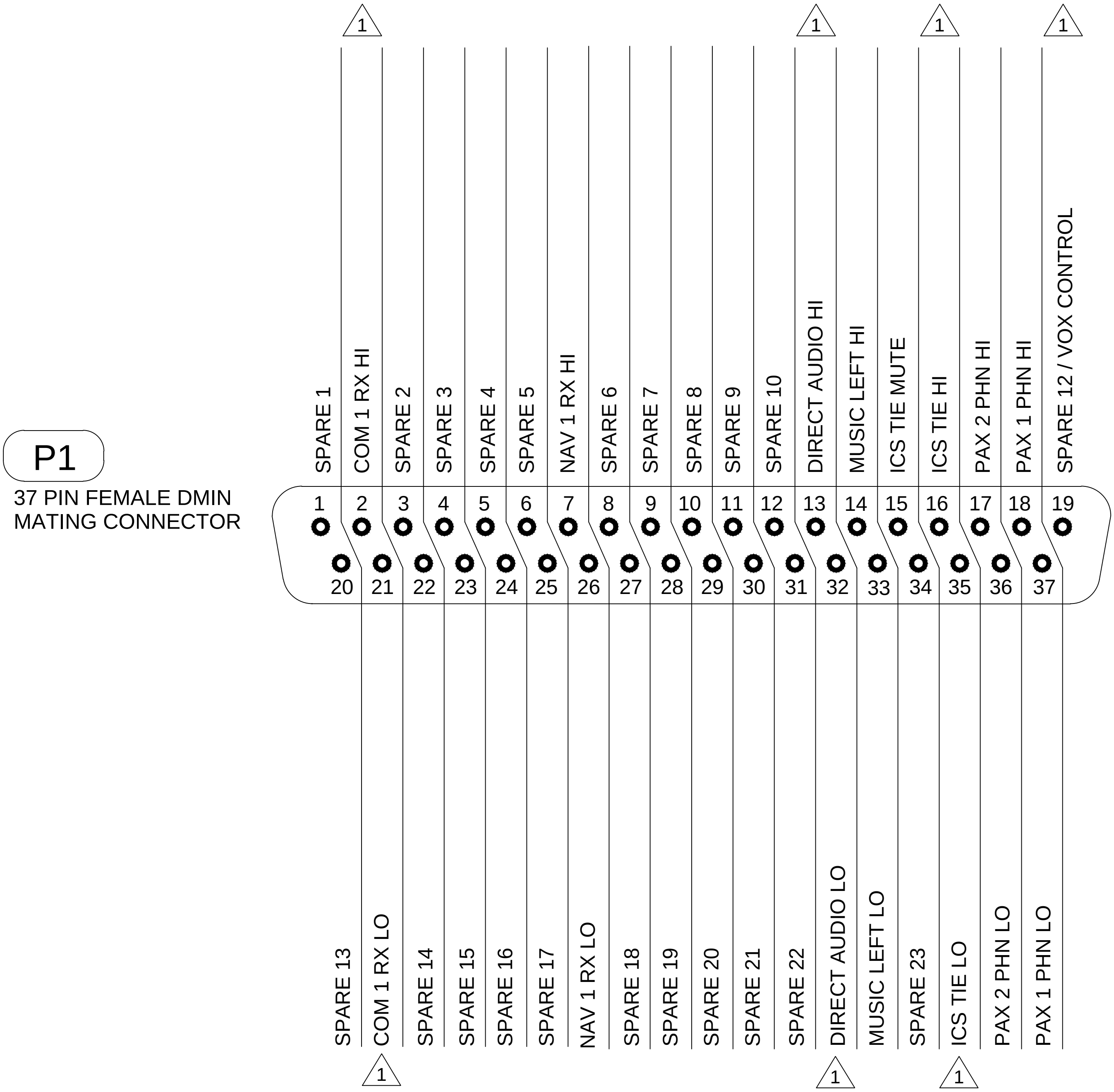
A1 Introduction

The drawings necessary for installation and troubleshooting of the JA95-R04 Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute are in this Appendix, as listed below.

A2 Installation Drawings

DOCUMENT	Rev
JA95-R04 Connector Map	C
JA95-R04 Interconnect	C
JA95-R04 Mechanical Installation	C
JA95-R04 Equipment Block Diagram (Headset Expansion Type A)	D
JA95-R04 Equipment Block Diagram (Headset Expansion Type B)	D
JA95-R04 Equipment Block Diagram (ICS Expansion)	C

RECEIVE CONNECTOR



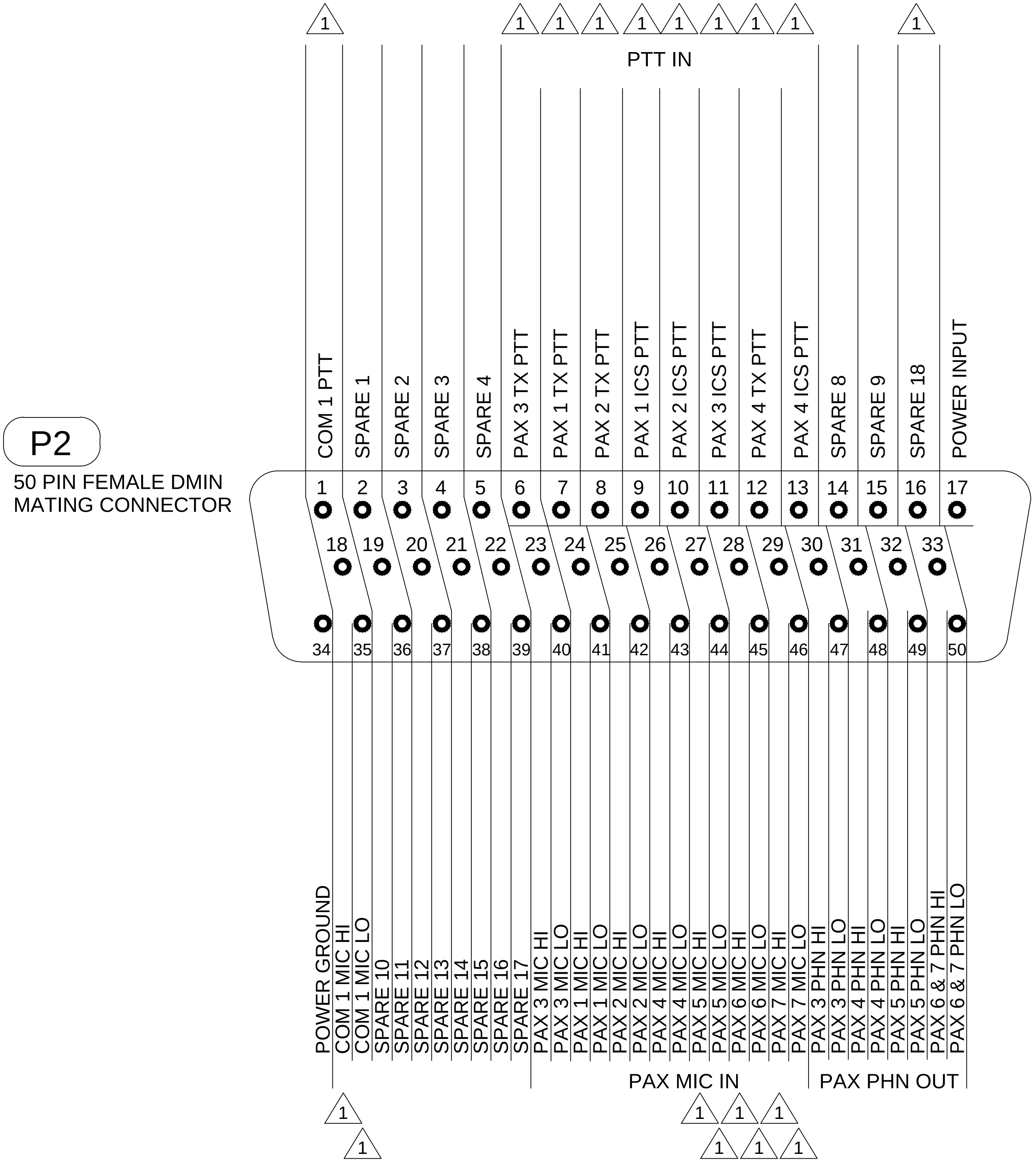
VIEW IS FROM REAR OF MATING CONNECTOR

NOTE:

△1 CONFIGURABLE CONTACT

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P1 Connector Map - ICS Expansion
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 | PART NO. JA95-R04 | SHEET 1/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg

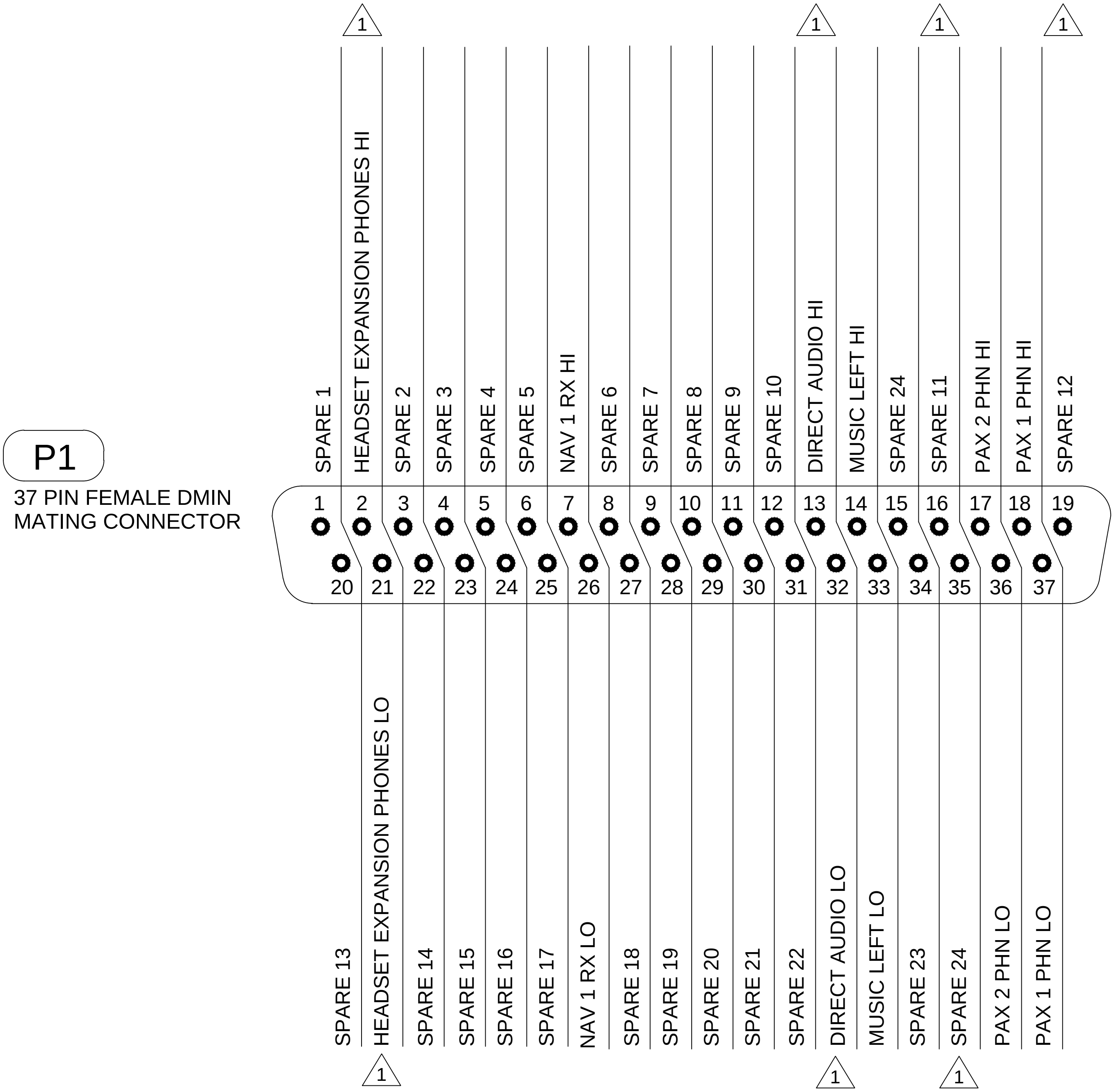
TRANSMIT CONNECTOR



VIEW IS FROM REAR OF MATING CONNECTOR

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P2 Connector Map - ICS Expansion
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 / PART NO. JA95-R04 / SHEET 2/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg

RECEIVE CONNECTOR



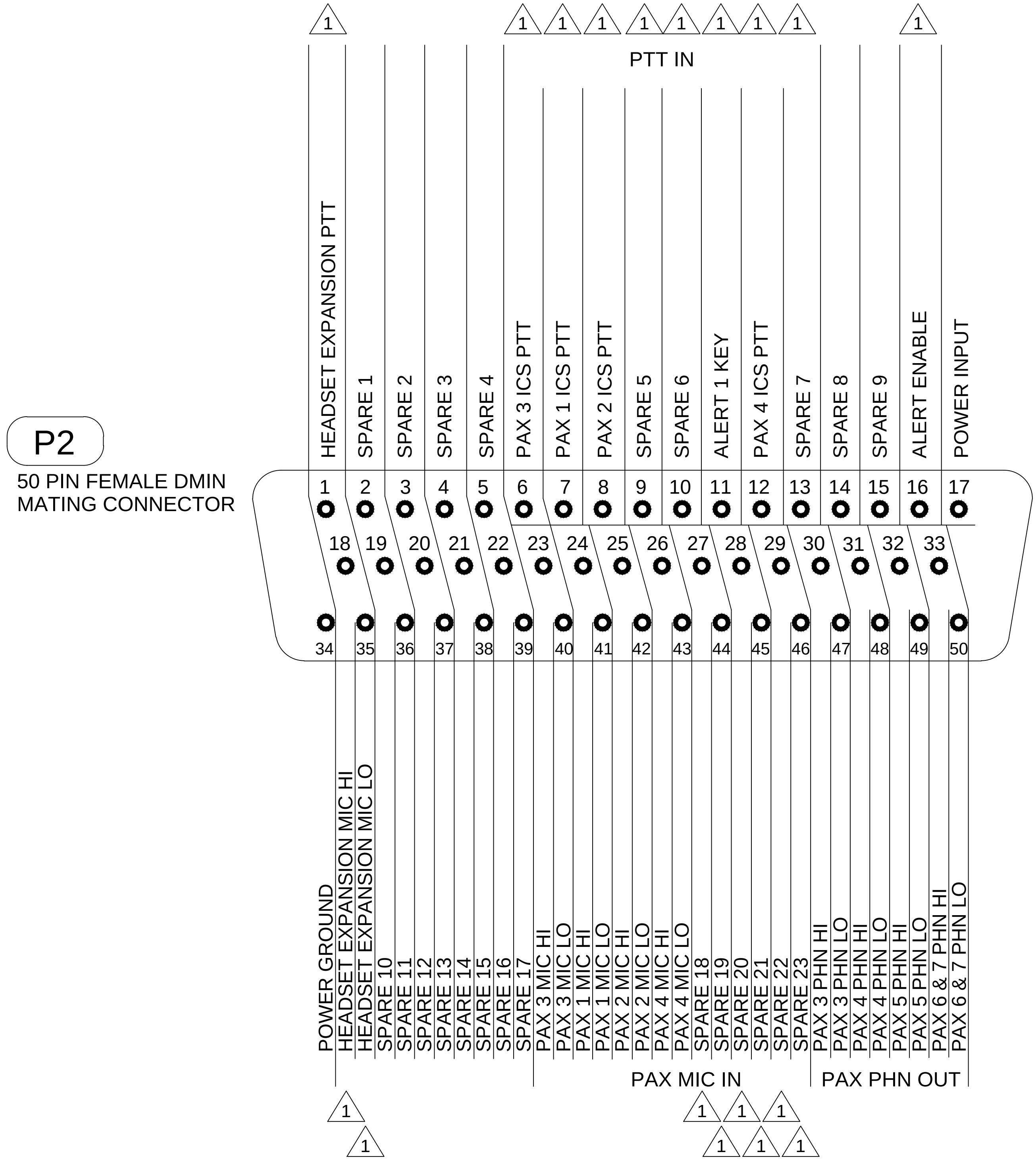
VIEW IS FROM REAR OF MATING CONNECTOR

NOTE:

△1 CONFIGURABLE CONTACT

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P1 Connector Map - Headset Expansion - Type A
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 · PART NO. JA95-R04 · SHEET 3/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg

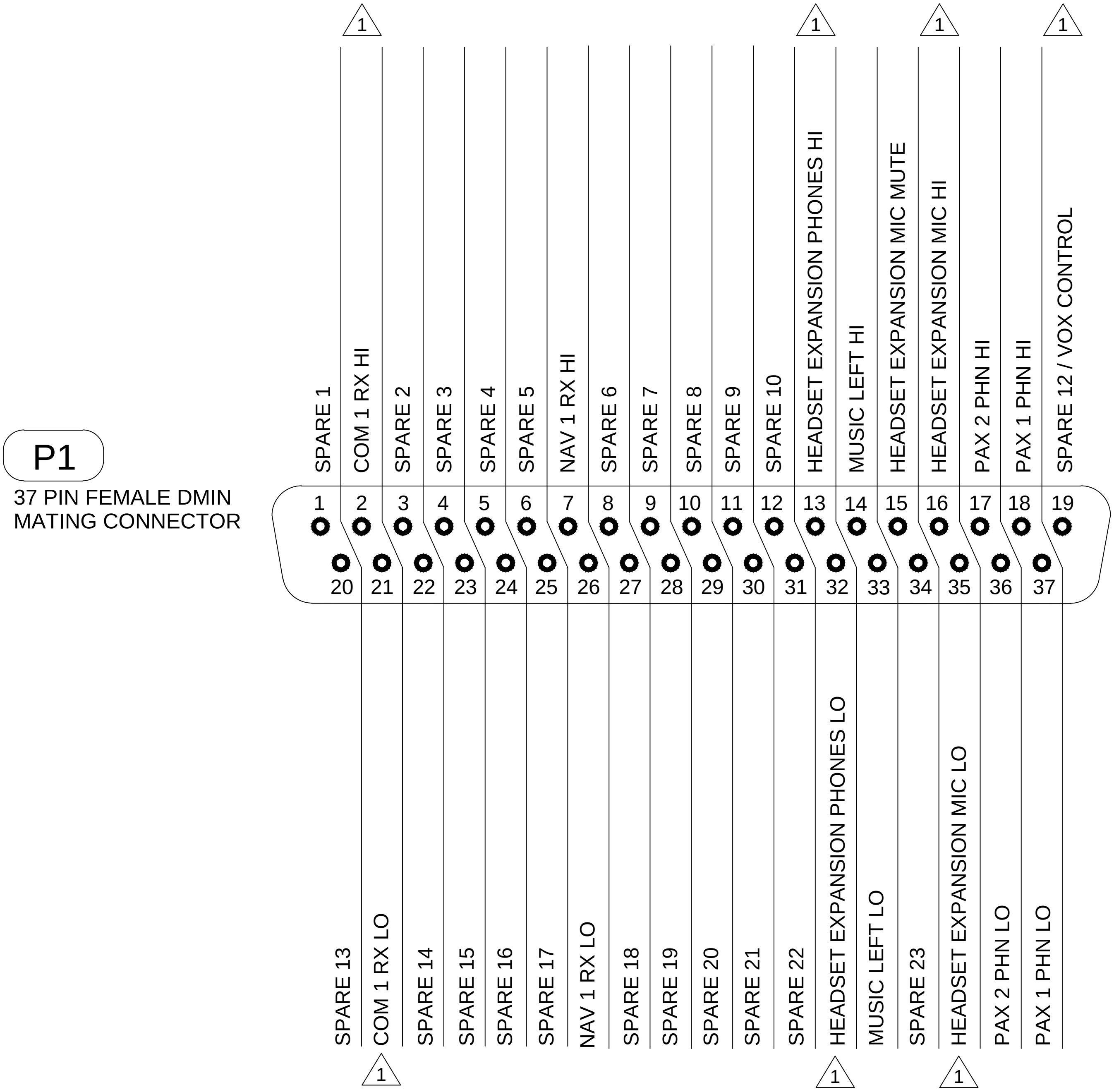
TRANSMIT CONNECTOR



VIEW IS FROM REAR OF MATING CONNECTOR

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P2 Connector Map - Headset Expansion - Type A
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 | PART NO. JA95-R04 | SHEET 4/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg

RECEIVE CONNECTOR



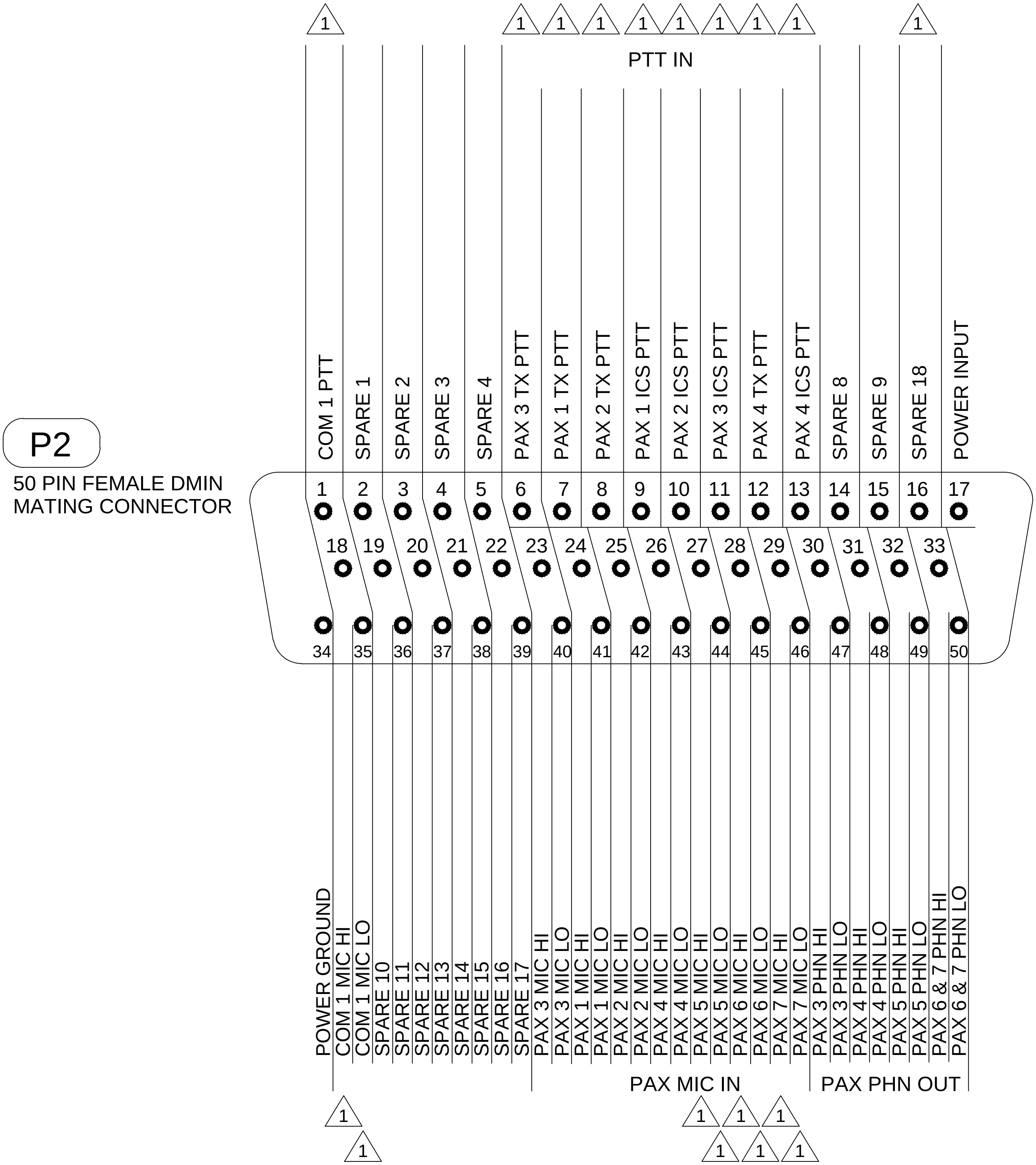
VIEW IS FROM REAR OF MATING CONNECTOR

NOTE:

△1 CONFIGURABLE CONTACT

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P1 Connector Map - Headset Expansion - Type B
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 · PART NO. JA95-R04 · SHEET 5/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg

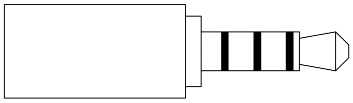
TRANSMIT CONNECTOR



VIEW IS FROM REAR OF MATING CONNECTOR

PREPARED	TAT	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P2 Connector Map - Headset Expansion - Type B		
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3	PART NO. JA95-R04	SHEET 6/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg		

CONFIGURATION CONNECTOR

P3 ACCEPTS THE FOLLOWING PLUG FORMATS	MATING PLUG NAMES	JA95 SIGNAL NAMES
JA99 CONFIGURATION CABLE 4 POLE MALE 3.5MM STEREO 	TIP: TX DATA	CONFIG DATA TO JA95
	1ST RING: RX DATA	CONFIG DATA FROM JA95
	2ND RING: GROUND	GROUND
	3RD RING: CONFIG AUDIO	MODE SELECT / CONFIG AUDIO

PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - P3 Connector Map
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 | PART NO. JA95-R04 | SHEET 7/7
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Connector Map Rev C.dwg

JA95-R04 INTERCONNECT WIRING NOTES

NOTES

1. ALL WIRE SIZE SHOULD BE 24 AWG MIN UNLESS OTHERWISE SPECIFIED. UNSHIELDED WIRE SHOULD BE SELECTED PER FAA AC43.13-1B CHANGE 1 PARA 11-76 TO 11-78. WIRE TYPES SHOULD BE IN ACCORDANCE WITH MIL-W-22759 AS DESCRIBED IN FAA AC43.13-1B CHANGE 1 PARA 11-85 AND 11-86 AND LISTED IN TABLE 11-11 OR 11-12. ALL SHIELDED CABLE SHOULD BE IN ACCORDANCE WITH MIL-DTL-27500 (REVISION H OR LATER).

△2 CONNECTION TO AIRFRAME GROUND SHOULD BE MADE WITH 20 AWG WIRE. LENGTH NOT TO EXCEED 3 FT (0.9 M).

△3 CABLE SHIELDS AT THE JA95-R04 CONNECTOR PINS SHOULD BE TERMINATED TO AIRFRAME GROUND USING A TAG RING P/N: MS27741-5 OR EQUIVALENT.

△4 CONNECTOR PIN HAS MORE THAN ONE FUNCTION. SEE ALL OPTION SECTIONS OF THIS DRAWING FOR ALTERNATIVE INTERCONNECT WIRING.

△5 GROUND LINE TO MUTE ICS TIE AUDIO.

△6 GROUND LINE TO MUTE HEADSET EXPANSION MIC.

△7 EXTERNAL VOX CONTROL FUNCTIONS IN THE FOLLOWING MODES:
ICS EXPANSION & HEADSET EXPANSION TYPE B

CONNECTOR PIN LEGENDS

LEGEND

SPARE	INTERNAL CIRCUITS MAY EXIST AND MAY BE ACTIVATED FOR FUTURE USE. NO EXTERNAL WIRE CONNECTION.

PREPARED	TAT
CHECKED	JAC 01-29-19 SRM
APPROVED	JAC 01-29-19 KDV
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.	

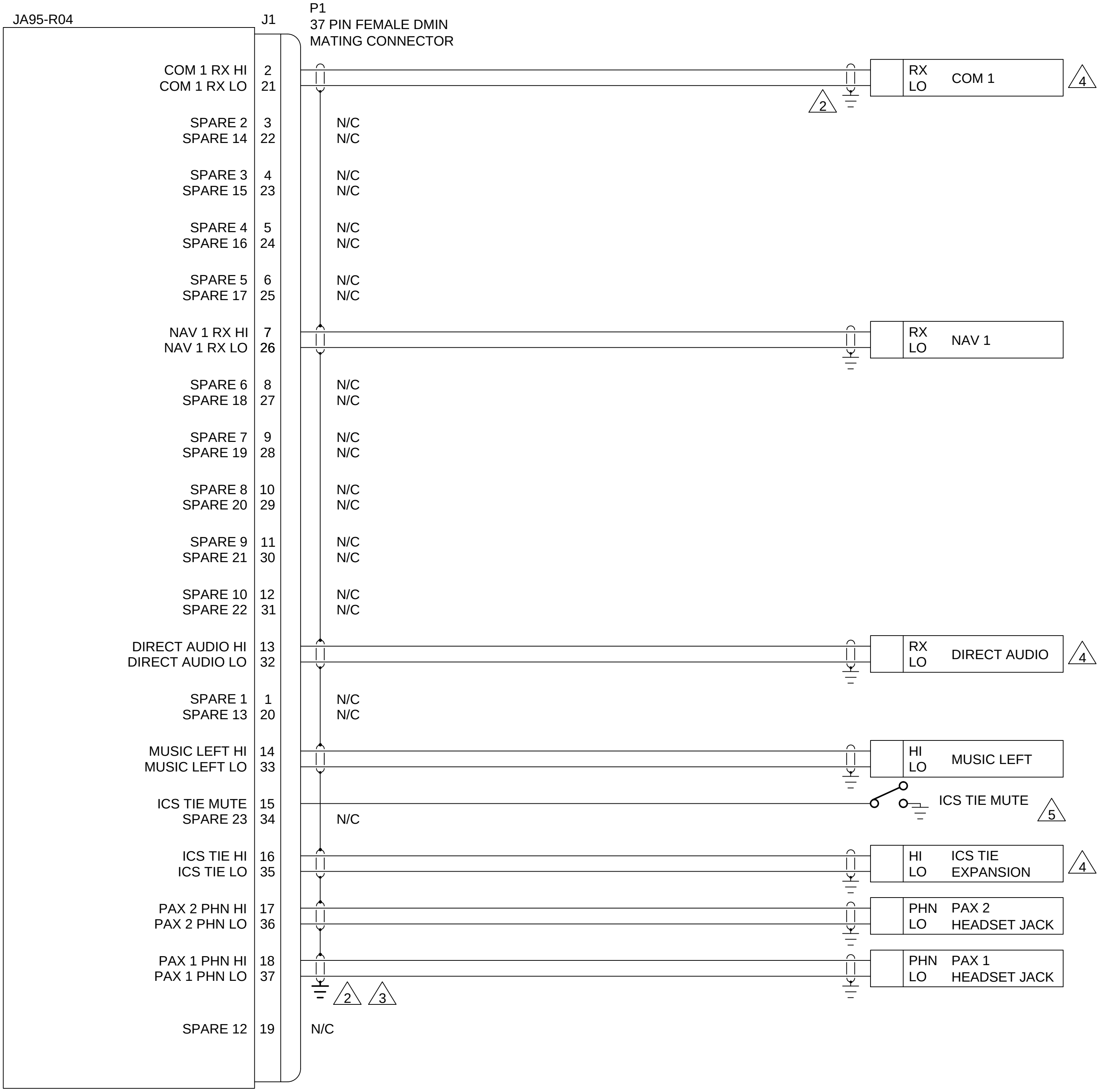
JUPITER AVIONICS CORPORATION

TITLE
Audio Controller - Remote Mount - One Transceiver -
ICS Tie Mute - Interconnect Notes

NCAGE CODE	PART NO.	SHEET
L00N3	JA95-R04	1/8

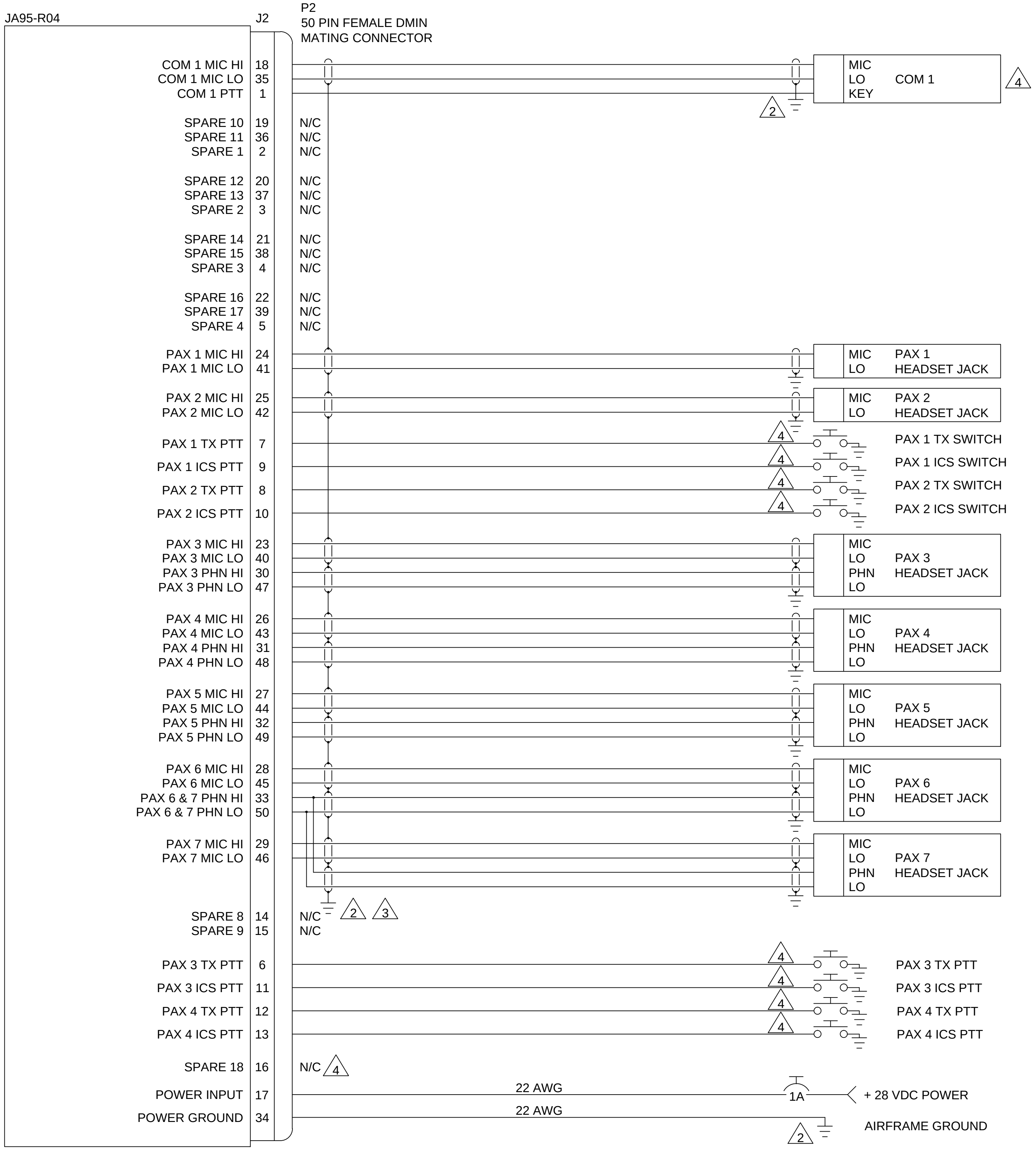
DOC NO.
JA95-R04 Interconnect Rev C.dwg

OPTION: ICS EXPANSION



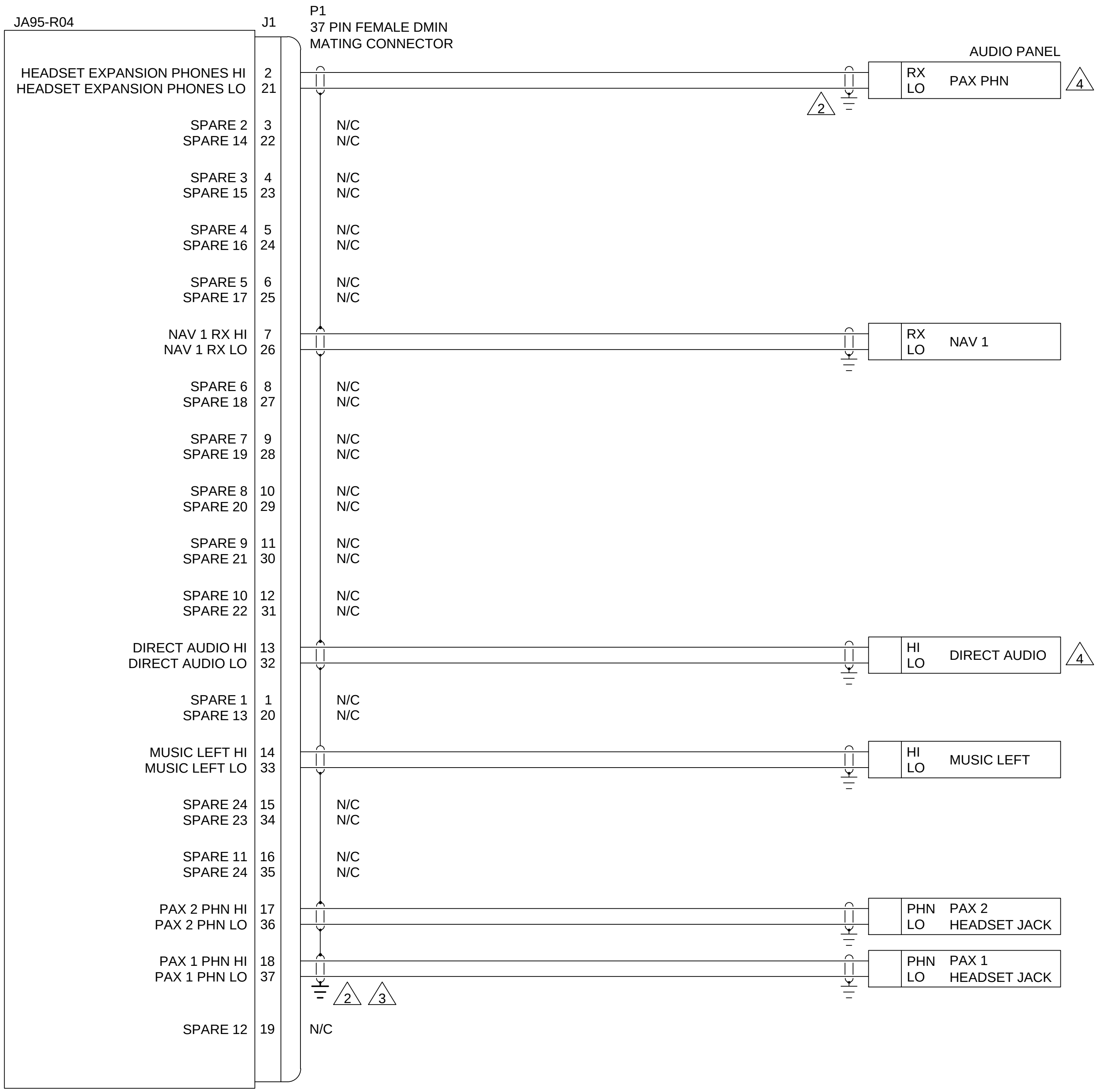
PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - J1 Interconnect - ICS Expansion
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 · PART NO. JA95-R04 · SHEET 2/8
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Interconnect Rev C.dwg

OPTION: ICS EXPANSION



PREPARED	TAT	**JUPITER AVIONICS** CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - J2 Interconnect - ICS Expansion
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 / PART NO. JA95-R04 / SHEET 3/8
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Interconnect Rev C.dwg

OPTION: HEADSET EXPANSION - TYPE A



PREPARED	TAT
CHECKED	JAC 01-29-19 SRM
APPROVED	JAC 01-29-19 KDV

CONFIDENTIAL & PROPRIETARY
TO JUPITER AVIONICS CORP.

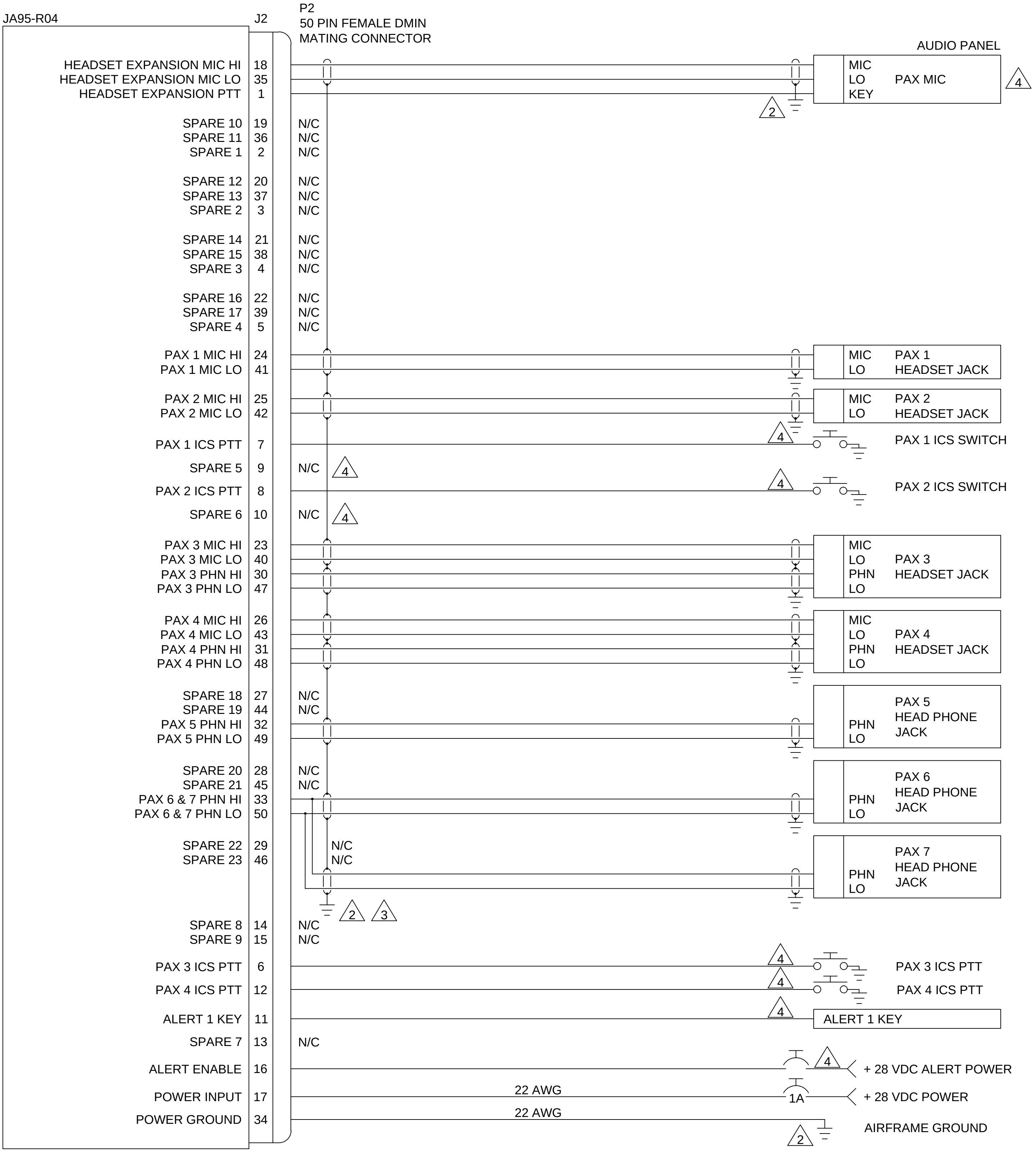
JUPITER AVIONICS
CORPORATION

TITLE
Audio Controller - Remote Mount - One Transceiver -
ICS Tie Mute - J1 Interconnect - Headset Expansion - TYPE A

NCAGE CODE	PART NO.	SHEET
L00N3	JA95-R04	4/8

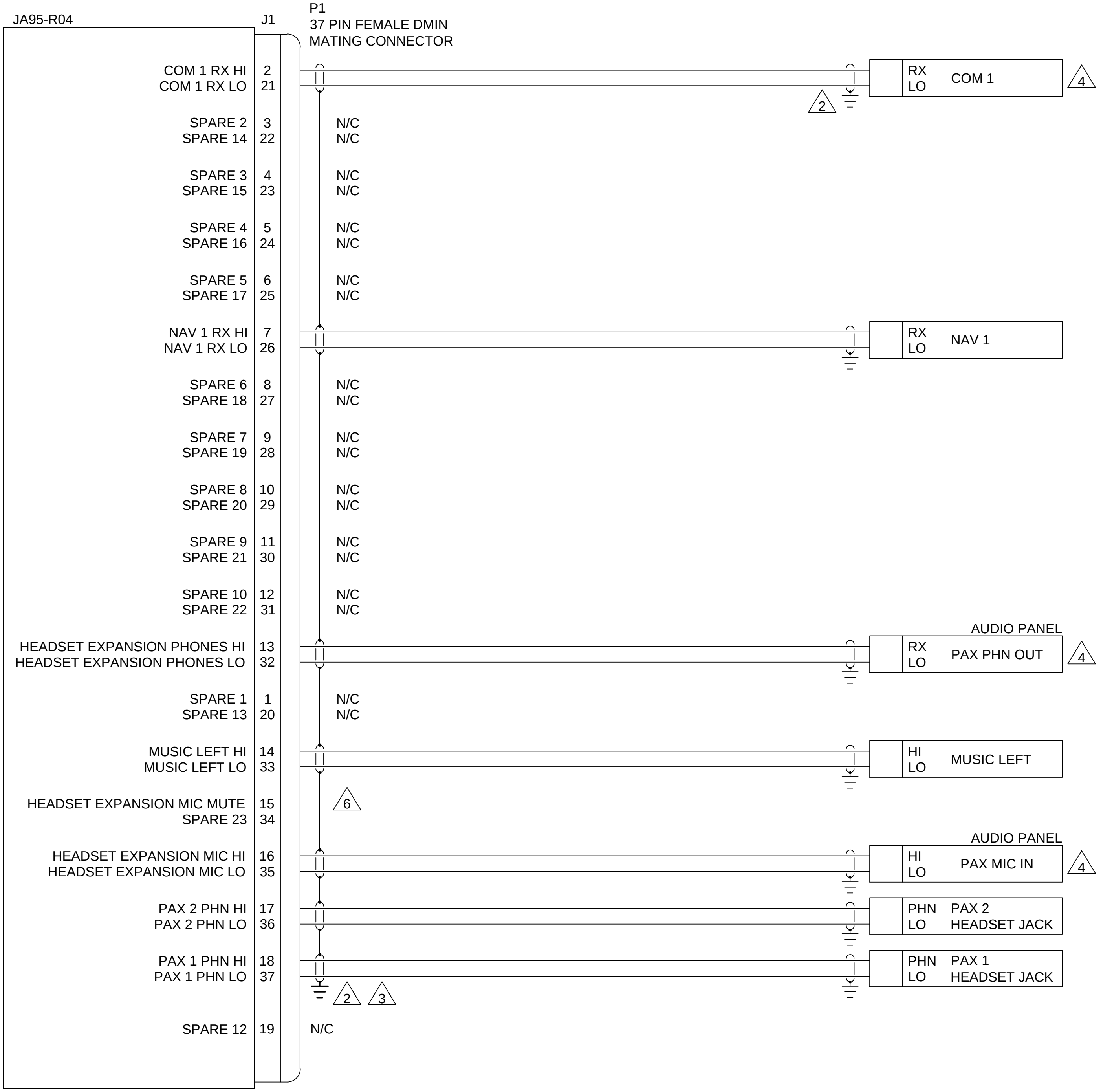
DOC NO.
JA95-R04 Interconnect Rev C.dwg

OPTION: HEADSET EXPANSION - TYPE A



PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - J2 Interconnect - Headset Expansion - TYPE A
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3 · PART NO. JA95-R04 · SHEET 5/8
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Interconnect Rev C.dwg

OPTION: HEADSET EXPANSION - TYPE B



PREPARED	TAT
CHECKED	JAC 01-29-19 SRM
APPROVED	JAC 01-29-19 KDV

CONFIDENTIAL & PROPRIETARY
TO JUPITER AVIONICS CORP.

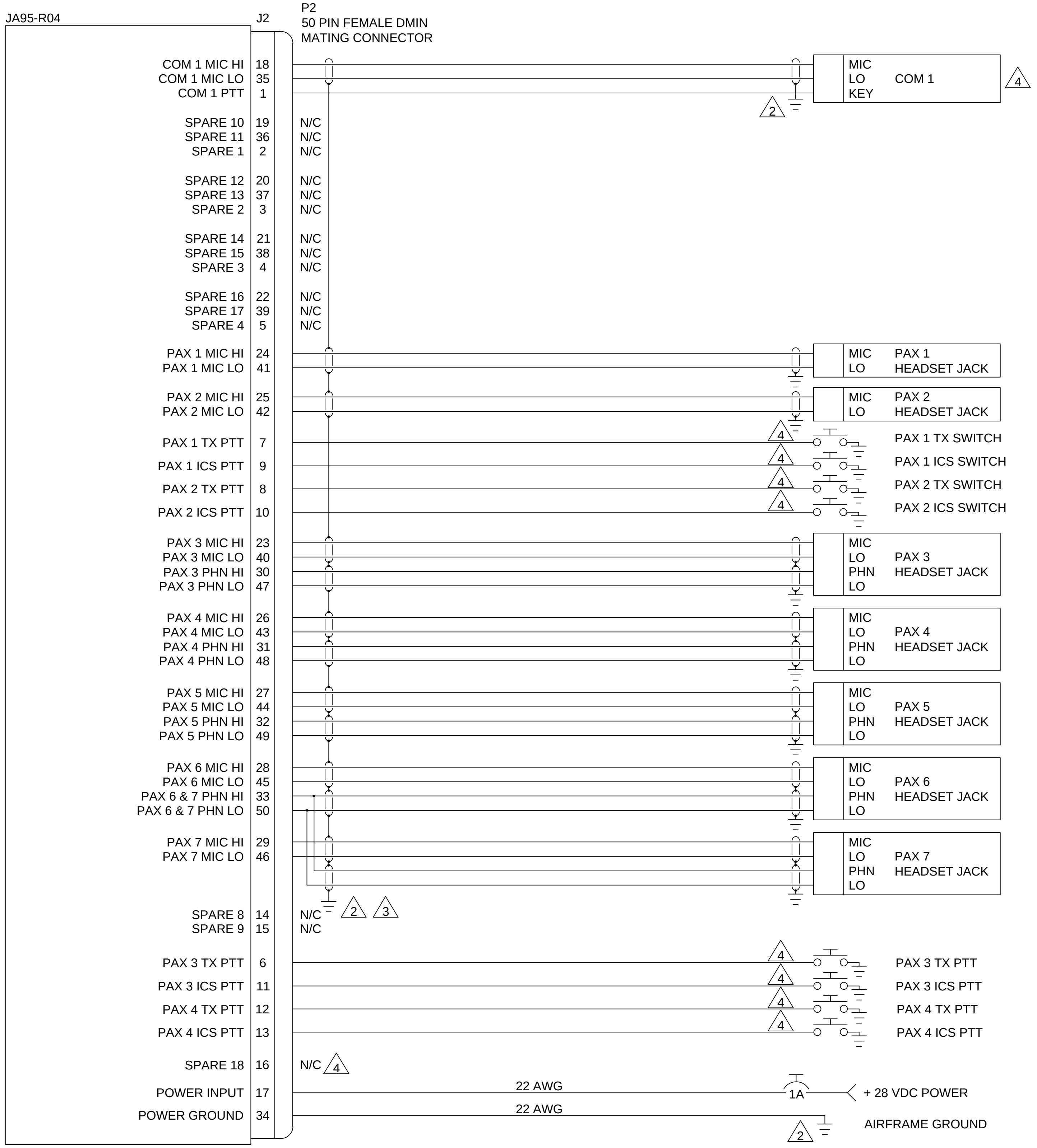
JUPITER AVIONICS
CORPORATION

TITLE
Audio Controller - Remote Mount - One Transceiver -
ICS Tie Mute - J1 Interconnect - Headset Expansion - TYPE B

NCAGE CODE	PART NO.	SHEET
L00N3	JA95-R04	6/8

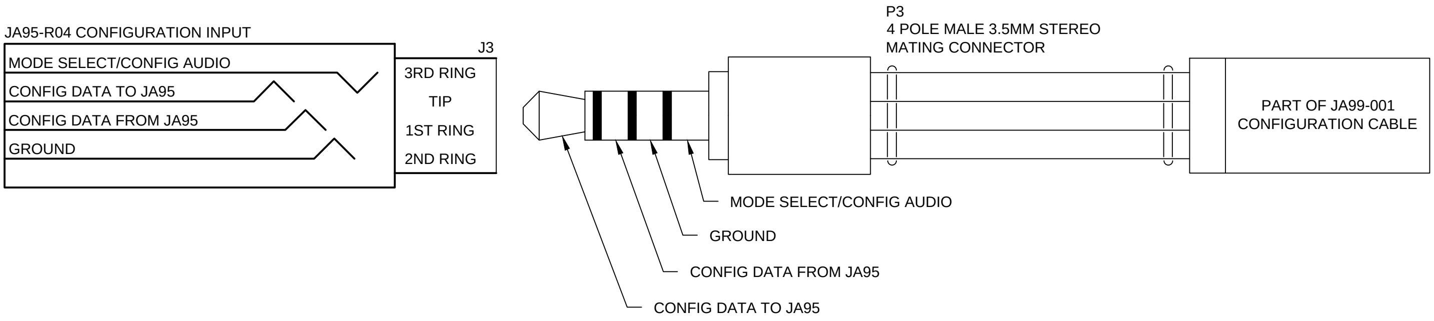
DOC NO.
JA95-R04 Interconnect Rev C.dwg

OPTION: HEADSET EXPANSION - TYPE B

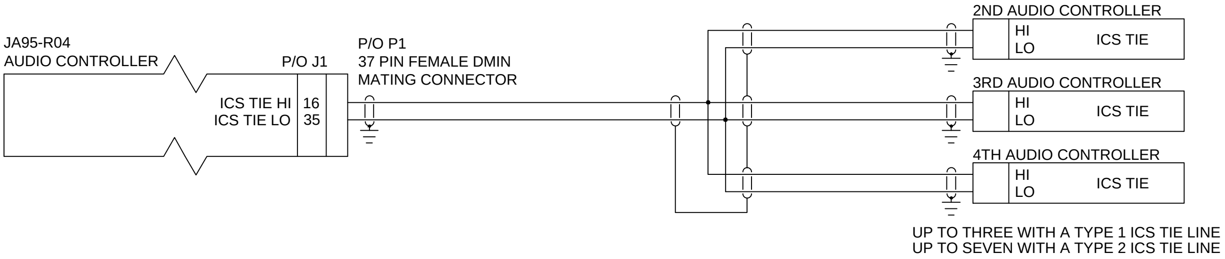


PREPARED	TAT	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 01-29-19 SRM	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - J2 Interconnect - Headset Expansion - TYPE B		
APPROVED	JAC 01-29-19 KDV	NCAGE CODE L00N3	PART NO. JA95-R04	SHEET 7/8
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Interconnect Rev C.dwg		

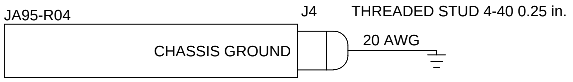
OPTION: CONFIGURATION FROM ProCS APPLICATION



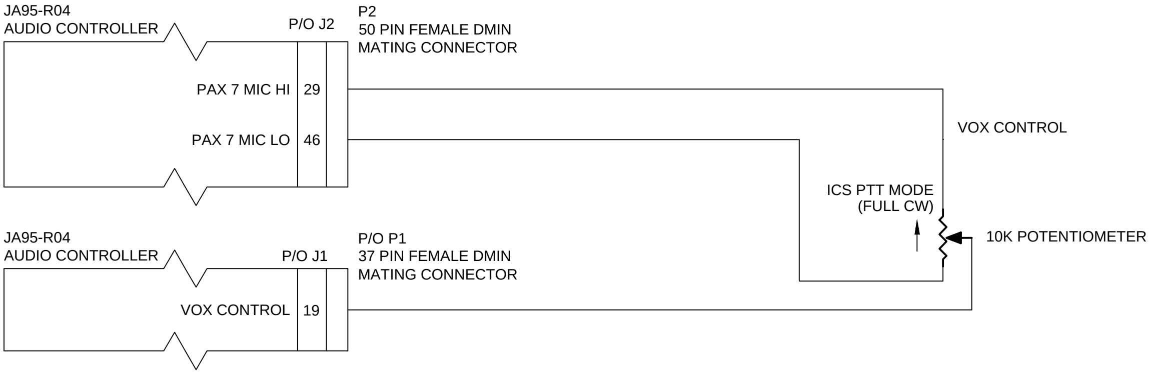
OPTION: ICS EXPANSION WITH MULTIPLE AUDIO CONTROLLERS



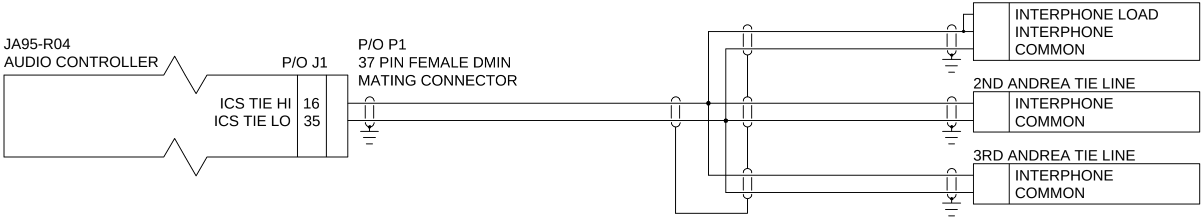
OPTION: CHASSIS GROUND



OPTION: EXTERNAL VOX CONTROL 7



OPTION: ANDREA TIE LINE



PREPARED	TAT
CHECKED	JAC 01-29-19 SRM
APPROVED	JAC 01-29-19 KDV

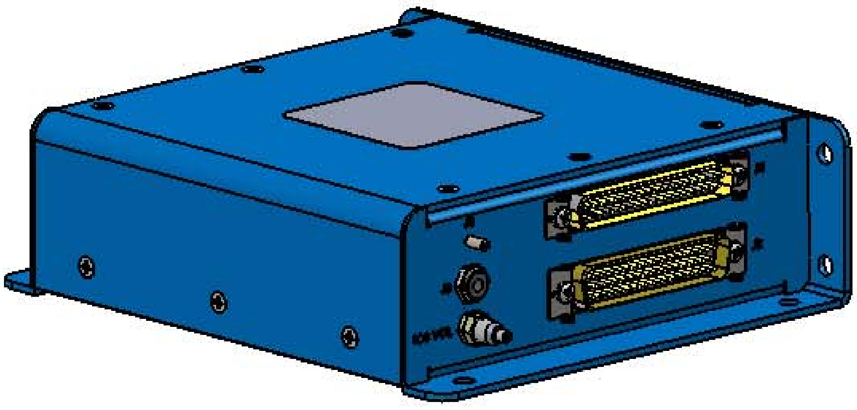
CONFIDENTIAL & PROPRIETARY
TO JUPITER AVIONICS CORP.

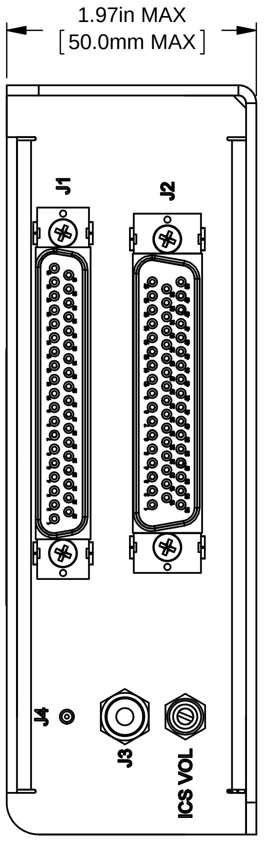
JUPITER AVIONICS
CORPORATION

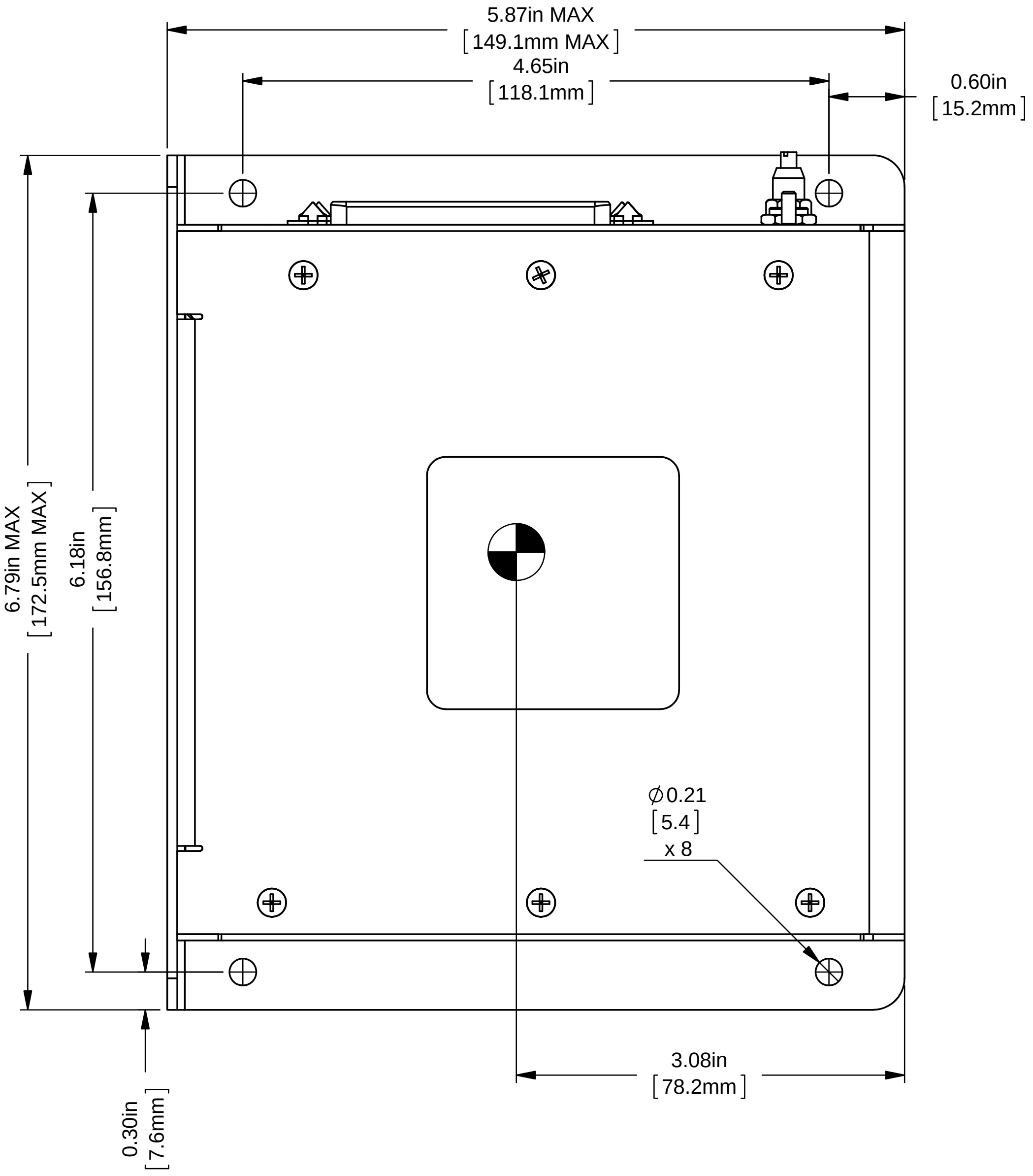
TITLE
Audio Controller - Remote Mount - One Transceiver -
ICS Tie Mute - Interconnect Options

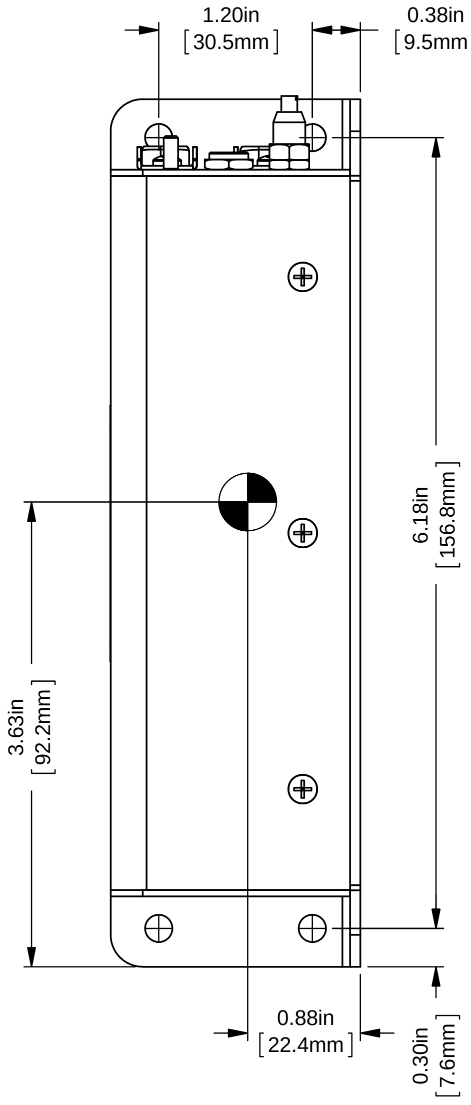
NCAGE CODE	PART NO.	SHEET
L00N3	JA95-R04	8/8

DOC NO.
JA95-R04 Interconnect Rev C.dwg









◐ CENTER OF GRAVITY
±0.03in [0.8mm]

WEIGHT: 1.68 lbs [0.77 kg] 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 01-23-19 AH	
APPROVED	JAC 01-23-19 KDV	

MATERIAL: N/A
FINISH: N/A

CONFIDENTIAL & PROPRIETARY
TO JUPITER AVIONICS CORP.
DRAWING NOT TO SCALE

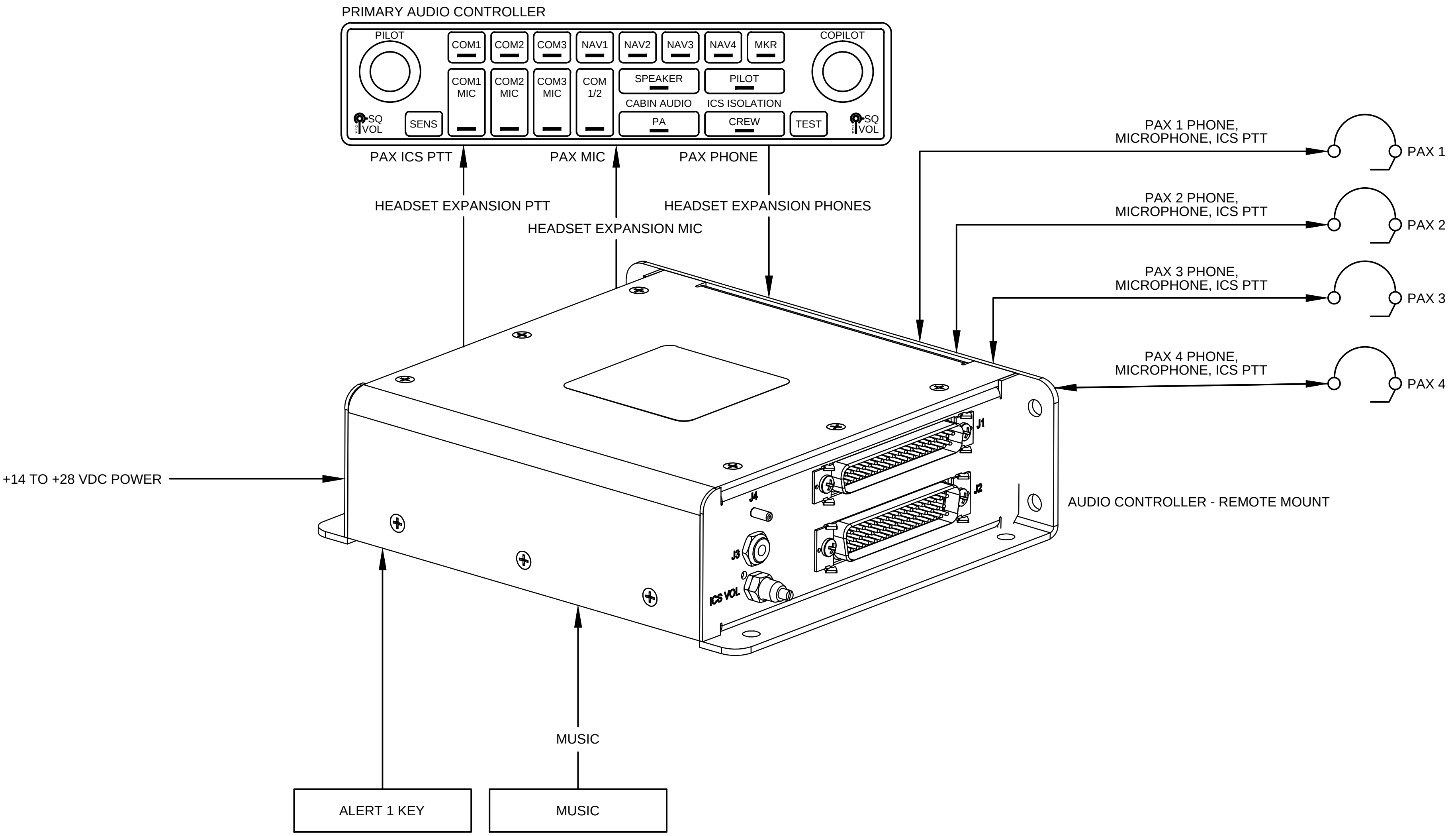
JUPITER AVIONICS
CORPORATION

TITLE
Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute

NCAGE CODE	PART NO.	SHEET
L00N3	JA95-R04	1/1

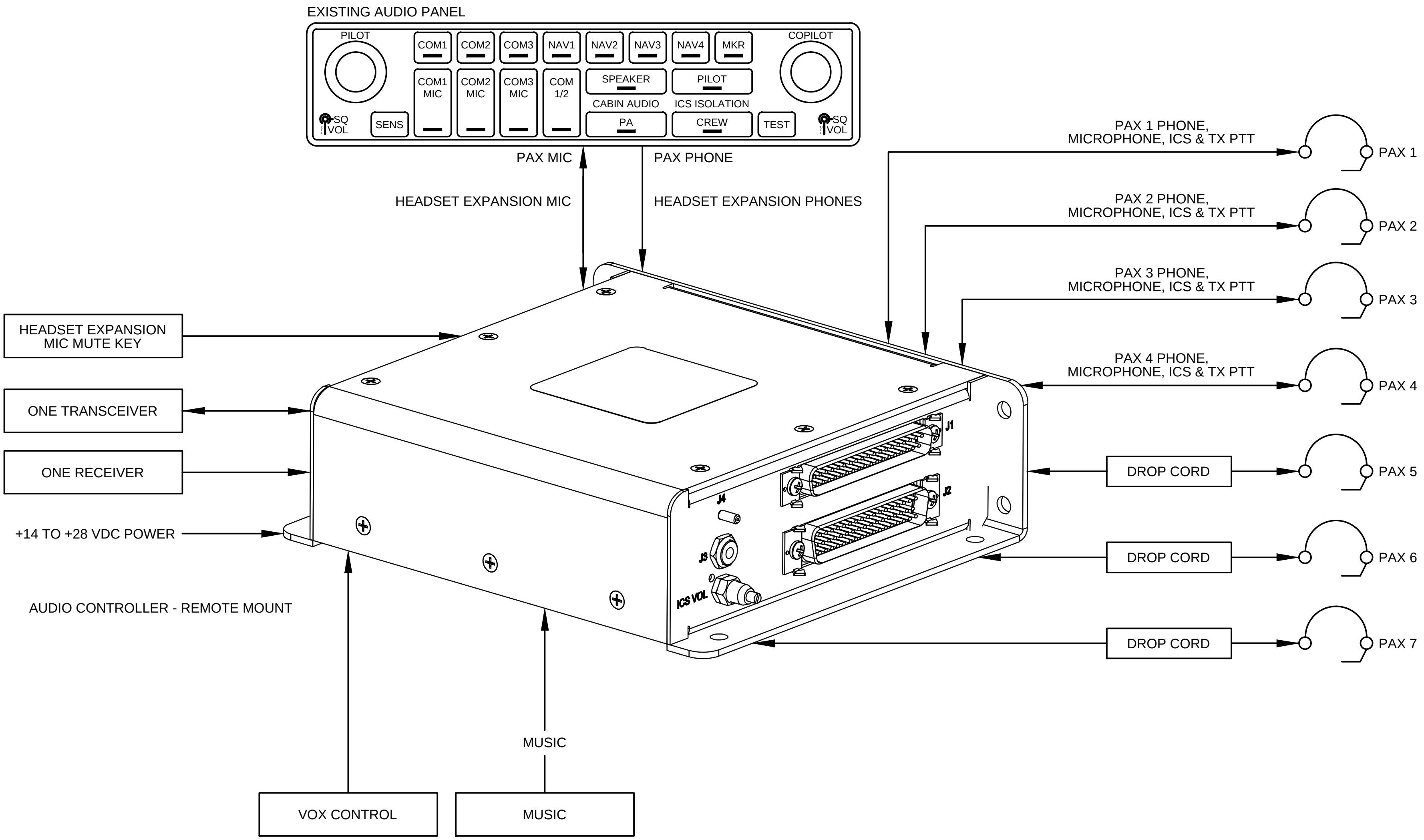
DOC. NO.
JA95-R04 Mechanical Installation Rev C.SLDDRW

Headset Expansion - Type A



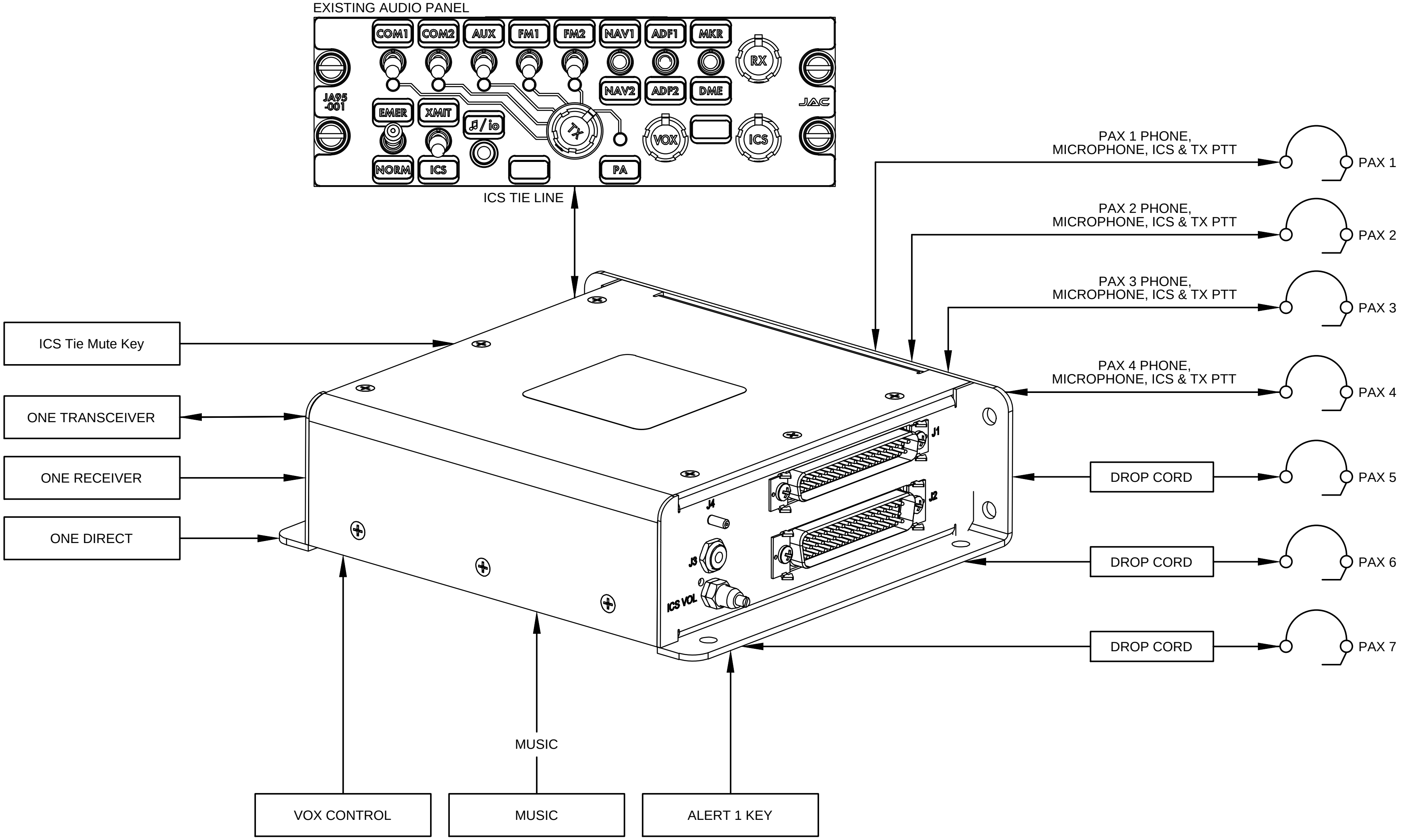
PREPARED	TAT	**JUPITER AVIONICS** CORPORATION
CHECKED	**JAC** **10-30-19** **SW**	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - Equipment Block Diagram - Headset - Type A
APPROVED	**JAC** **10-30-19** **KDV**	NCAGE CODE L00N3 · PART NO. JA95-R04 · SHEET 1/1
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Equipment Block Diagram (Headset - Type A) Rev D

Headset Expansion - Type B



PREPARED	TAT	JUPITER AVIONICS CORPORATION
CHECKED	JAC 10-30-19 SW	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - Equipment Block Diagram - Headset - Type B
APPROVED	JAC 10-30-19 KDV	NCAGE CODE L00N3 · PART NO. JA95-R04 · SHEET 1/1
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Equipment Block Diagram (Headset - Type B) Rev D

ICS Expansion



PREPARED	TAT	**JUPITER AVIONICS** CORPORATION
CHECKED	JAC 10-30-19 SW	TITLE Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute - Equipment Block Diagram - ICS Expansion
APPROVED	JAC 10-30-19 KDV	NCAGE CODE L00N3 / PART NO. JA95-R04 / SHEET 1/1
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO. JA95-R04 Equipment Block Diagram (ICS Expansion) Rev C.dwg

Installation and Operating Manual

Appendix B - Certification Documents

B1 Airworthiness Approval

Airworthiness approval of the JA95-R04 may require completion of a TCCA Major Modification Report per CAR STD (AWM) 571 Appendix L, or a FAA Form 337. The sample wording for a description of the work is provided to assist the Installing Agency in preparing Instructions for Continued Airworthiness (ICA) when replacing an existing audio panel with a Jupiter Avionics JA95-R04 Audio Controller. This sample may be modified appropriately for new installations. It is the installer's responsibility to determine the applicability of the method used. Installations performed outside Canada must follow the applicable aviation authority's regulations

Sample Wording:

Removed the existing [model] audio panel and replaced with a Jupiter Avionics JA95-R04 Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute in [aircraft location].

The JA95-R04 is approved to CAN-TSO-C139. The JA95-R04 meets RTCA DO-160F environmental qualifications for this installation. See Section 1 of the JA95-R04 Installation Manual.

Installed in accordance with the JA95-R04 Installation Manual, Revision [ ], and AC 43.13-2, Chapters 2, and 3.

The JA95-R04 interfaces with existing aircraft radios per the Installation Manual instructions.

The JA95-R04 Installation Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JA95-R04 through an existing [ ]-Amp circuit breaker that was previously used by the original audio panel. The net electrical load is unchanged.

Aircraft equipment list, weights and balance amended. Compass compensation checked and found to conform to applicable regulations.

B2 Instructions for Continued Airworthiness

Maintenance of the JA95-R04 Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute is "on condition" only. Refer to the JA95-R04 Maintenance Manual. Periodic maintenance of the JA95-R04 is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JA95-R04 unit installation as part of a Type Certificate (TC) or Supplemental Type Certificate (STC) project to comply with CAR STD (AWM) 523/527/525/529.1529 or FAR 23/25/27/29.1529 "Instructions for Continued Airworthiness".

Items that may vary by aircraft make and model are shown in brackets ("[ ]") and should be filled in as appropriate. Some of the checklist items do not apply, in which case they should be marked "N/A" (Not Applicable).

Instructions for Continued Airworthiness, Jupiter Avionics JA95-R04 Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute in an [Aircraft Make and Model]

1. Introduction

[Aircraft that has been altered: Registration number, Make, Model and Serial Number]

Content, Scope, Purpose and Arrangement: This document identifies the Instructions for Continued Airworthiness for a Jupiter Avionics JA95-R04 installed in an [aircraft make and model].

Applicability: Applies to a Jupiter Avionics JA95-R04 installed in an [aircraft make and model].

Definitions/Abbreviations: None, N/A.

Precautions: None, N/A.

Units of Measurement: None, N/A.

Referenced Publications: JA95-R04 Installation and Operating Manual
JA95-R04 Maintenance Manual
JA95-R04 Operating Manual
STC/TC # [applicable STC/TC number for the specific aircraft installation]

Distribution: This document should be a permanent aircraft record.

2. Description of the System/Alteration

Jupiter Avionics JA95-R04 Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute with interface to external transceivers and [include other equipment/systems as appropriate]. Refer to Appendix A of this manual for interconnect information. Refer to aircraft manufacturer approved interconnect for actual installation.

3. Control, Operation Information

Refer to section 3 of this manual or to the Jupiter Avionics JA95-R04 Operating Manual.

4. Servicing Information

N/A

5. Maintenance Instructions

Maintenance of the JA95-R04 is ‘on condition’ only. Periodic maintenance is not required. Refer to the JA95-R04 Maintenance Manual.

6. Troubleshooting Information

Refer to the JA95-R04 Maintenance Manual.

7. Removal and Replacement Information

Refer to Section 2 of this manual - the JA95-R04 Installation and Operating Manual. If the unit is removed and reinstalled, a functional check of the equipment should be conducted.

8. Diagrams

Refer to Appendix A of this manual - the JA95-R04 Installation and Operating Manual - for installation drawings and interconnect examples.

9. Special Inspection Requirements

N/A

10. Application of Protective Treatments

N/A

11. Data: Relative to Structural Fasteners

JA95-R04 and appropriate mounting hardware installation, removal and replacement should be in accordance with applicable provisions of AC 43.13-1B and AC 43.13-2A.

12. Special Tools

N/A

13. This Section is for Commuter Category Aircraft Only

A. **Electrical loads**: Refer to Section 1 of the JA95-R04 Installation and Operating Manual.
B. **Methods of balancing flight controls**: N/A.
C. **Identification of primary and secondary structures**: N/A.
D. **Special repair methods applicable to the airplane**: N/A.

14. Overhaul Period

No additional overhaul time limitations.

15. Airworthiness Limitation Section

N/A

B3 Environmental Qualification Form

See next pages.

Prepared:	Checked:	Approved:
KDV	JAC 01-29-19 SRM	JAC 01-29-19 KDV

Nomenclature	Audio Controller - Remote Mount - One Transceiver - ICS Tie Mute
Type/Model/ Part No.:	JA95-R04
TSO No.:	CAN-TSO-C139
Manufacturer's Build Configuration:	*JA95-R04 Build Configuration Rev C*
Manufacturer's Test Report:	*JA95-001 Test Report (Qualification - Final) Rev B* *JA95-R03 Test Report (Environmental - Vibration - 20160629) Rev A* *JA95-R03 Test Report (Environmental - Operational Shock & Crash Safety - 20160630) Rev A* *JA95-R04 CAN-TSO Design Change Assessment (BC Rev C) Rev A*
Manufacturer's Specification and/or Other Applicable Specification:	*JA95-001 Declaration of Design and Performance Rev D* *JA95-R04 Derivative Declaration of Design and Performance (BC Rev C) Rev A*
Manufacturer:	Jupiter Avionics Corporation
Address:	1959 Kirschner Road, Kelowna, BC, Canada, V1Y 4N7
Revision & Change No of DO-160:	Rev. F dated December 6, 2007
Dates Tested:	Sept 28 to Dec 27, 2012 Jun 29 to July 18, 2016

CONDITIONS	**SECTION**	**DESCRIPTION OF TESTS CONDUCTED**
Temperature and Altitude	4.0	*Equipment tested to Category (C4)(D1)(A1)*
Ground Survival Low Temperature	4.5.1	*Equipment tested to Category C4 (-55 °C)*
Short-Time Operating Low Temperature	4.5.1	*Equipment tested to Category C4 (-45 °C)*
Operating Low Temperature	4.5.2	*Equipment tested to Category C4 (-45 °C)*
Ground Survival High Temperature	4.5.3	*Equipment tested to Category C4 (+85 °C)*
Short-Time Operating High Temperature	4.5.3	*Equipment tested to Category C4 (+70 °C)*
Operating High Temperature	4.5.4	*Equipment tested to Category C4 (+70 °C)*
In-Flight Loss of Cooling	4.5.5	*Equipment identified as Category X, no test performed*
Altitude	4.6.1	*Equipment tested to Category D1 (50,000 ft)*
Decompression	4.6.2	*Equipment tested to Category A1 (8,000 to 50,000 ft)*
Overpressure	4.6.3	*Equipment tested to Category A1 (-15,000 ft)*
Temperature Variation	5.0	*Equipment tested to Category B (5 °C/min)*
Humidity	6.0	*Equipment tested to Category A (48 hours)*

CONDITIONS	**SECTION**	**DESCRIPTION OF TESTS CONDUCTED**
Operational Shock and Crash Safety Operational Shock Crash Safety (impulse) Crash Safety (sustained)	7.0	*Equipment tested to Category B (6 g for 11 ms)* *Equipment tested to Category B (20 g for 11 ms)* *Equipment tested to Category B (20 g for 3 sec)*
Vibration Fixed Wing –Sine Fixed Wing – Random Helicopter – Random, unknown (See remark 4)	8.0	*Equipment tested to Categories:* *SM* *SB* *U2FF1*
Explosive Atmosphere	9.0	*Equipment identified as Category X, no test performed*
Waterproofness	10.0	*Equipment identified as Category X, no test performed*
Fluids Susceptibility	11.0	*Equipment identified as Category X, no test performed*
Sand and Dust	12.0	*Equipment identified as Category X, no test performed*
Fungus	13.0	*Equipment identified as Category X, no test performed*
Salt Fog Test	14.0	*Equipment identified as Category X, no test performed*
Magnetic Effect	15.0	*Equipment tested to Category Z (0 < D < 0.3 m)*
Power Input DC Equipment DC Current Ripple DC Inrush	16.0	*Equipment tested to Category:* *Z (+28 Vdc equipment),* *B (+14 Vdc and + 28 Vdc equipment)* *X, no test performed* *X, no test performed*
Voltage Spike	17.0	*Equipment tested to Category A (600Vp, 10 us)*
Audio Frequency Susceptibility	18.0	*Z (+28 Vdc equipment),* *B (+14 Vdc equipment)*
Induced Signal Susceptibility Magnetic Fields into Equipment Magnetic Fields into Cables Electric Fields into Cables Voltage Spikes into Cables	19.0	*Equipment tested to Category [ZC]* *20 A at 400Hz* *30 A-m at 400Hz* *1800V-m at 400Hz* *L=3.0m*

CONDITIONS	SECTION	DESCRIPTION OF TESTS CONDUCTED
Radio Frequency Susceptibility Radiated Conducted (See remark 3)	20.0	*Equipment tested to Category RR* *R (20 V/m CW&SW) and (150 V/m PM)* *R (30 mA)*
Radio Frequency Emission (See remark 3)	21.0	*Equipment tested to Category H*
Lightning Induced Transient Susceptibility Pin Injection Cable Bundle (See remark 3)	22.0	*Equipment tested to Category [A3J33]* *Waveform Set A, Test Level 3* *Waveform Set J, Test Levels 33*
Lightning Direct Effects	23.0	*Equipment identified as Category X, no test performed*
Icing	24.0	*Equipment identified as Category X, no test performed*
Electrostatic Discharge	25.0	*Equipment identified as Category X, no test performed*
Fire, Flammability	26.0	*Equipment identified as Category X, no test performed*
Other Tests	N/A	N/A

REMARKS

1. This product is a derivative of the JA95-001. Tests were performed on a JA95-001 and a JA95-R03. A similarity analysis between the two products is detailed in the Jupiter Avionics Corp. document: *JA95-R04 CAN-TSO Design Change Assessment (BC Rev C) Rev A*
2. Test information can be found in the Jupiter Avionics Corp. documents:
   JA95-001 Test Report (Qualification - Final) Rev B
   JA95-R03 Test Report (Environmental - Vibration - 20160629) Rev A
   JA95-R03 Test Report (Environmental - Operational Shock & Crash Safety - 20160630) Rev A
3. Testing of Radio Frequency Susceptibility, Radio Frequency Emission and Lightning Induced Transient Susceptibility was conducted at CKC Laboratories in Bothell, WA, USA.
   Reference Jupiter Avionics Corp. document: *JA95-001 Test Report (CKC Labs DO-160F Section 20, 21, 22 – 2012-11-26 to 30) Rev A*
4. During exposure to vibration test conditions the following critical resonances changed frequency greater than 2.5%:

Orientation	Initial Freq.	Final Freq.
Side Mount, Vertical	1054 Hz	1016 Hz