



**JUPITER AVIONICS**  
CORPORATION

## JCP3-001 Control Panel



## Installation and Operating Manual

Rev. C

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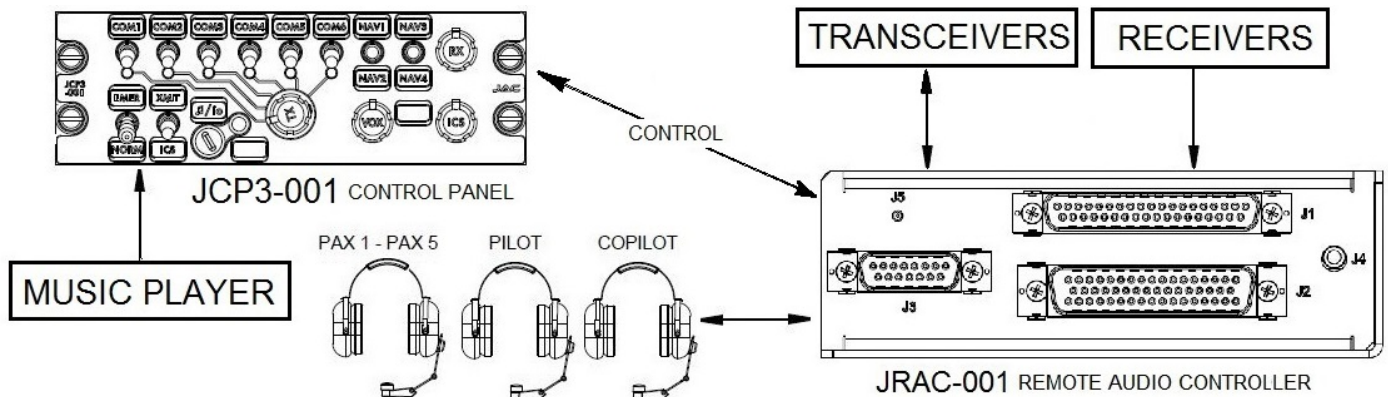


## JCP3-001 Control Panel

### SECTION 1 - DESCRIPTION

#### 1.1 System Overview

The JCP3-001 control panel is part of an aircraft audio system consisting of one control panel and one remote audio controller.



**Figure 1-1 Aircraft Audio System**

The control panel has the switches and level controls that allow the user to operate the remote audio controller. Control commands are sent to the remote audio controller via a serial data bus from the control panel. The control commands manage the user selectable functions of the audio system. The control panel provides a locking toggle switch with a discrete output that places the remote audio controller in emergency operating mode.

The JCP3-001 front panel music / configuration connector provides a discrete path to the JRAC music / configuration connections. Configuration settings can be sent to the JRAC using a configuration cable and a PC running the product configuration application ProCS™. To facilitate future customizations and certification, neither software nor complex electronic devices are used in the JCP3-001 design.

#### 1.2 Features Overview

The JCP3-001 features a 15 pin D-Min connector, which interfaces to the JRAC-001. The JCP3-001 input power is derived from the JRAC-001.

The JCP3-001 has 1 rotary 6-position transmit selector switch.

The JCP3-001 has 6 transmit select annunciators

The JCP3-001 has a transmit active annunciator

The JCP3-001 has 6 toggle transceiver monitor switches

The JCP3-001 has a call annunciator

The JCP3-001 has 2 center-off toggle receiver monitor switches.

The JCP3-001 has 1 rotary 16-position VOX threshold control.

The JCP3-001 has 1 rotary 16-position ICS volume control.

The JCP3-001 has 1 rotary 16-position RX volume control.

The JCP3-001 has 1 locking toggle Emergency / Normal mode select switch.

The JCP3-001 has 1 spring load center off toggle switch, nominally for ICS and TX PTT control.

A 3.5mm Music / Configuration connector is provided on the faceplate of the JCP3-001 for downloading configuration data to the JRAC-001 Remote Audio Controller. The connector can also be used as a music input and is compatible with most music players.



## **1.3 Inputs and Outputs**

Refer to the JCP3-001 [connector maps](#) for the mating connector designators and pin assignments for the input and output signals.

### **1.3.1 Inputs**

| <b>Name</b>   | <b>Qty</b> | <b>Type</b>           |
|---|------------|-----------------------|
| CALL ANNUNCIATOR                                      | 1          | Active low discrete   |
| CONFIG DATA TO JCP3                                   | 1          | Data signal           |
| CONTROL DATA TO JCP3                                  | 1          | Data signal           |
| MUSIC LEFT/ CONFIG DATA TO<br>REMOTE AUDIO CONTROLLER | 1          | Audio signal          |
| +5/+28 VDC LIGHTS INPUT                               | 2          | Analog control signal |
| MODE SELECT / CONFIG AUDIO                            | 1          | Multi format signal   |
| MODE SELECT   | 1          | Multi format signal   |
| POWER INPUT   | 1          | power supply          |
| RESET INPUT   | 1          | Active low discrete   |
| TX ANNUNCIATOR  | 1          | Active low discrete   |

### **1.3.2 Outputs**

| <b>Name</b>   | <b>Qty</b> | <b>Type</b>         |
|---|------------|---------------------|
| CONFIG DATA FROM JCP3                                 | 1          | Data signal         |
| CONTROL DATA FROM JCP3                                | 1          | Data signal         |
| MODE SELECT / CONFIG AUDIO                            | 1          | Multi format signal |
| MUSIC LEFT/ CONFIG DATA TO<br>REMOTE AUDIO CONTROLLER | 1          | Audio signal        |
| NORM MODE SELECT                                      | 1          | Active low discrete |

### **1.3.3 Bi-directional Signals**

| <b>Name</b>   | <b>Qty</b> | <b>Type</b>                           |
|---|------------|---------------------------------------|
| MUSIC RIGHT/CONFIG DATA FROM<br>REMOTE AUDIO CONTROLLER | 1          | Data signal (Main connector)          |
| MUSIC RIGHT/CONFIG DATA FROM<br>REMOTE AUDIO CONTROLLER | 1          | Data signal (Configuration connector) |

## **1.4 Specifications**

### **1.4.1 Electrical Specifications**

#### **Power Input**

|                                     |                     |
|-------------------------------------|---------------------|
| Primary nominal voltage (from JRAC) | 13.5 Vdc            |
| Input current                       | ≤ 0.2 A at 13.5 Vdc |

#### **1.4.1.1 Audio Performance**

##### **Rated Input Level**

|                   |                |
|-------------------|----------------|
| Music rated input | 400 mVrms ±10% |
|-------------------|----------------|

##### **Rated Output Power**

|                          |                |
|--------------------------|----------------|
| Music rated output level | 400 mVrms ±10% |
|--------------------------|----------------|



Output Load

Music load 1000 Ω ±10%

**1.4.1.4 Discrete Signals**

Active low control input, active signal level ≤ +3 Vdc  
 Active low control input, inactive signal level ≥ +9 Vdc  
 Active low control input signals, when active, source 0.1 to 10 mA  
 Active low control output, active output ≤ +2 Vdc  
 Active low control output signals, when active, sink ≤ 100 mA  
 Active low control input signals have an internal pull-up resistor

**1.4.1.5 Lights Input**

LIGHTS INPUT current 10 mA max.

**1.4.2 Mechanical Specifications**

Height 1.875 in [47.6 mm] max  
 Behind panel depth 1.65 in [41.9 mm] max  
 In front of panel depth 1.22 in [31.0 mm] max  
 Faceplate width 5.75 in [146.1 mm] max  
 Behind panel width 4.95 in [125.7 mm] max  
 Weight 0.84 lb [0.38 kg] max  
 Enclosure material 5052-H32 brushed aluminum with conversion coating

Connectors (4): J1 (System) One 15-pin D-Sub male, V5 locking  
 J2 (Music /configuration) One 4 pole 3.5mm stereo jack  
 J3 (Configuration) One 4 pole 3.5mm stereo jack  
 J4 (Rear stud fastener) One 4-40, 0.5 in. max

Mounting 4 Dzus fasteners  
 Bonding ≤ 2.5 mΩ  
 Installation kit part number INST-JCPX

**1.4.3 Environmental Specifications**

The JCP3-001 Control Panel has been qualified to the environmental conditions listed below. Environmental categories for which TSO compliance has been demonstrated are listed in the [Environmental Qualification Form](#) in Appendix B of this manual.

DO-160G Env. Cat.

[(C4)(D1)(A1)X]BAB[(SBM)(U2FF1)]XXXXXXZ[(ZXX)(BXX)]A[ZB][ZC][RR]H[A3J33]XXXX





## JCP3-001 Control Panel

### 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 JCP3-001 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 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/warrantyregistration](http://www.jupiteravionics.com/warrantyregistration).

##### 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



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**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.

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

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##### 2.4.1 Installation Limitations

The JCP3-001 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.

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 JCP3-001 can be mounted in any attitude and location with adequate space for the front panel and sufficient clearance for the connector and wiring harness. It requires no direct cooling.

### 2.4.4 Legend Replacement

The JCP3-001 illuminated legends are field replaceable. For further information, refer to the '[Legend Replacement](#)' document in Appendix A of this manual.

### 2.4.5 Post Installation Checks

#### 2.4.5.1 Voltage/Resistance checks.

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

- a) Check P1 between pins **1 and 9** for +13 Vdc power.
- b) Check P1 pin **14** for +5 Vdc lights voltage or P1 pin **15** for +28 Vdc lights voltage.
- c) Check P1 pin **10** (Chassis ground) for continuity to ground (less than 0.5  $\Omega$ ).
- d) Confirm P1 pin 13 (RESET INPUT) is connected to the Remote Audio Controller P3 pin 13 (RESET OUTPUT)
- e) Check all pins for shorts to ground or adjacent pins.

#### 2.4.5.2 Power on Checks.

Power up the aircraft's systems and confirm normal operation of all functions of the JCP3-001. Refer to Section 3 (Operation) for specific operational details.

- a) Begin with only the pilot's headset attached. Confirm correct ICS and radio operation for both receive and transmit. Check yoke or cyclic switch action. Check the radio selection and inputs. 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 ICS operation and Emergency operation.
- e) Plug in the co-pilot's headset. Check for correct ICS operation. Check yoke or cyclic switch functions.
- 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 Legend Text Selection using ProCS™

The configuration program ProCS™ can be used to customize the text for each legend either at the time of ordering the unit, or if text changes are required after installation. The JCP3-001 need not be connected to a computer to select the legend text.

For information on ordering customized legends, refer to the [ProCS™ Ordering Instructions](#) on the [JAC website](#).

### 2.5.1 Virtual Front Panel

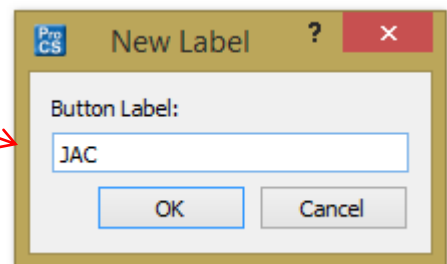
The Virtual Front Panel window is used to specify the text for each legend.



Clicking on a customizable legend will open a **drop-down menu** listing the options for that label. The currently selected option will be highlighted. To escape from the menu, click on the desired option, or right-click in the window. A 'Print...' box will appear. Click outside the box to escape, or select it to print the **'Virtual Front Panel'** window showing the current label selections.

Among the options is '----' which signifies that the legend will be left blank, and 'New...' which allows the user to enter a completely new legend of up to five characters. If a 'new' legend has been added, the option 'Edit ...' is added to the menu to enable changes to the newly created label.

In the example shown here, the option 'New...' has been selected. A pop-up 'New Label' window will appear, allowing the user to create a customized legend – in this case, JAC. The new legend name will now be shown in the appropriate position on the faceplate representation in the software program, and will be used in the connector maps and interconnect.



**Note:** If the name of a front panel switch is changed using this software, the change will be incorporated in the connector maps and interconnect, to give truly customized installation diagrams.

### 2.5.2 Connector Maps

This section contains connector maps and interconnects that are automatically generated to show changes to switch labels that affect the installation of the JRAC-001.



## 2.6 Adjustments and Configuration using ProCS™

### 2.6.1 Configuring the JRAC-xxx Remote Audio Controller via the JCP3-001

The JCP3-001 has no internal adjustments; however, configuration data for the JRAC-001 Remote Audio Controller can be sent via the JCP3-001 front panel connector (♫/io), using the [configuration program ProCS™](#). For full information on configuring the JRAC-001, refer to the [JRAC-001 manual](#) on the JAC website.



The front panel Music/Configuration port (♫/io) is protected by a urethane rubber cover, which can be lifted upwards or rotated round (as shown) to provide access to the port

♫/io port

Port cover

For full information on the configuration process, refer to the [ProCS™ manual](#) on the Jupiter Avionics website.

### 2.6.2 ProCS™ Setup



The JCP3-001 menu items 'ProCS Setup' provide Setup drawings showing different cabling arrangements for connecting the JCP3-001 to a computer and other equipment.

**ProCS Setup - JA99**, **ProCS Setup - CAB-USB-0006** and **ProCS Setup - Virtual Panel** show the connections used for testing the JCP3-001. These setup drawings would not be used in normal operation.

**ProCS Setup - JRAC-001** shows the cabling for using the JCP3-001 for configuring the JRAC-xxx using ProCS™ (see section 2.6.2 below).

## 2.7 Installation Kit

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

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

| Quantity | Description                                    | JAC Part #    |
|----------|--|---------------|
| 1        | 0.375" Inside Diameter TAG ring                | CON-5500-0375 |
| 1        | D-Sub 15-pin connector, hood and 15 crimp pins | CON-3420-0015 |
| 1        | 3/4" I/D Heat Shrink Tubing                    | WIR-HTSK-0750 |

### 2.7.1 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 |                           |

## 2.8 Installation Drawings

The drawings and documents required for Installation can be found in [Appendix A](#) of this manual.



## JCP3-001 Control Panel

### SECTION 3 – OPERATION

#### 3.1 Introduction

This section contains the operating instructions for the JCP3-001.

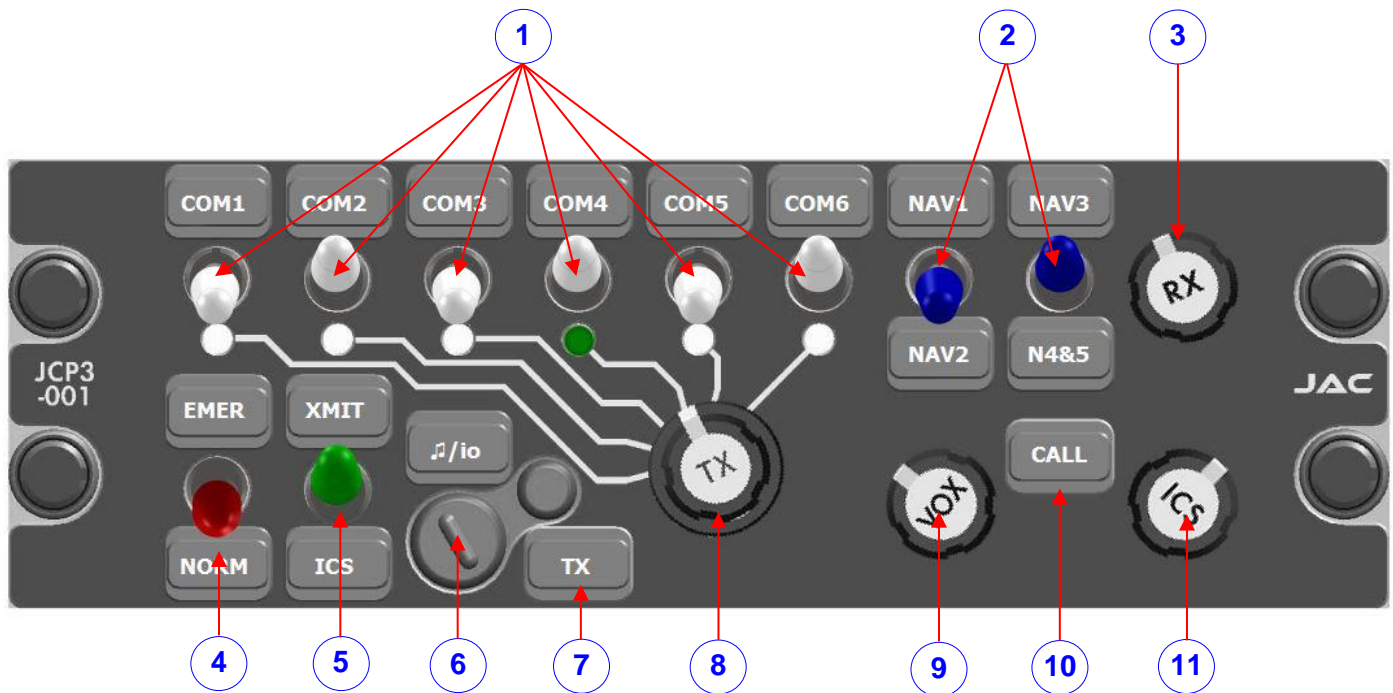
The JCP3-001 acts as a control panel for a remote Audio controller such as the Jupiter Avionics JRAC-001.

The JCP3-001 commands the remote audio controller, and this manual is written to describe the results of any operation of the JCP3-001 controls.

#### 3.2 Front Panel Controls



**Note:** The 15 legends and two annunciators are removable and may be replaced with custom ordered parts. For the purpose of this manual the controls will be referred to by the default legend and annunciator names as shown below.



- |   |                                     |
|---|-------------------------------------|
| 1. Transceiver switches and associated legends      | 7. Transmit annunciator (deadfront) |
| 2. Receiver switches and associated legends         | 8. Transmit selector                |
| 3. Receive volume control                           | 9. VOX threshold control            |
| 4. EMER/NORM switch                                 | 10. CALL annunciator (deadfront)    |
| 5. Pilot's Transmit/ICS (Multi-function) switch     | 11. ICS volume control              |
| 6. Music/configuration port cover and legend (♫/io) |                                     |





### (1) Transceiver Switches

These are six white two-position toggle switches. When a switch is set to the 'up' position, audio from the associated transceiver is routed to the phones.

The legends (above the switches) are interchangeable to allow customization. (Default – COM1, COM2, COM3, COM4, COM5 and COM6)



### (2) Receiver Switches

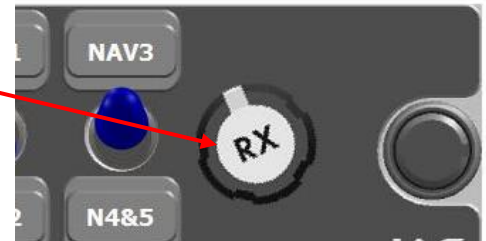
These are two blue two-position centre-off toggle switches. When a switch is set to the 'up' or 'down' position audio from the selected receiver is routed to the phones.

The legends (two above and two below the switches) are interchangeable to allow customization. (Default – NAV1, NAV2, NAV3, N4&5.)



### (3) Receive Volume Control

This is a rotary knob that adjusts the phones volume of the receive audio from minimum - fully counterclockwise (ccw) to maximum - fully clockwise (cw). Individual radio volume controls should be set to a nominal level, and then adjusted for changing flight conditions using this control.

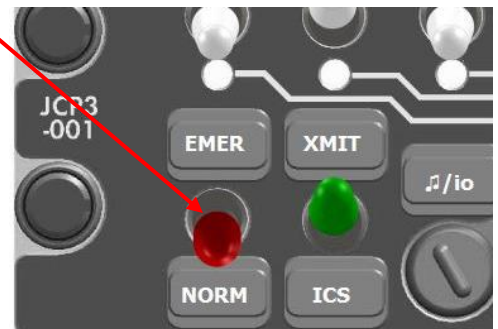


### (4) EMER/NORM Mode Switch

This is a red two-position locking toggle switch. When set to the 'up' position, the unit is Emergency mode, and when set to the 'down' position, the unit is in Normal mode. The legends are interchangeable to allow customization. (Default – EMER, NORM.)

The switch is lockable to prevent accidental changing of the mode. The switch must be lifted to release the lock.

For full information on Emergency and Normal Mode operation, see sections 3.3 and 3.4 below.

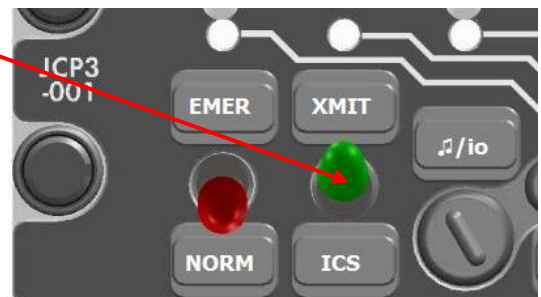


### (5) Multi-function (Transmit/ICS) Switch

This is a green two-position centre-off momentary toggle switch.

When in the default XMIT/ICS configuration, this switch acts as the pilot's 'Press-to-talk' (PTT) button. The unit will transmit on the selected transceiver when the switch is held in the 'up' position, and when held in the 'down' position, it will transmit on the intercom.

See section 3.3.6 below for Multi-function Switch operation.



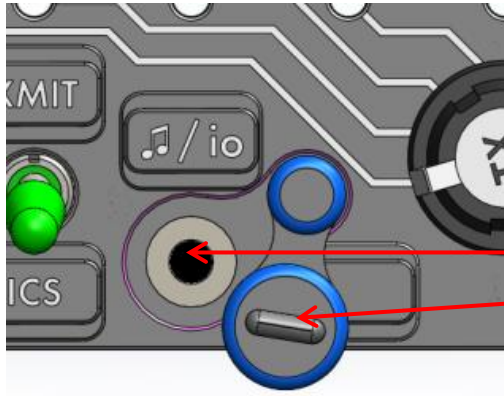
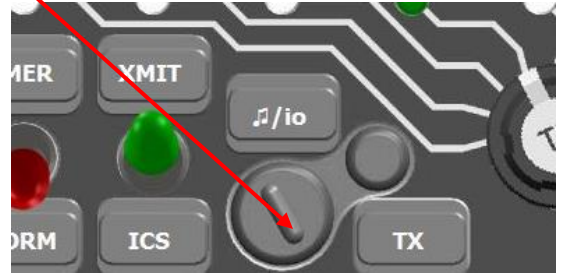
**Note:** At installation, this switch may be configured to operate in default (XMIT/ICS) or alternative mode. Check with your installing agency for confirmation of the operation of this switch. The legends are interchangeable to allow customization.



### (6) Music/Configuration Connector Cover (♫/io)

This is a music input that is compatible with most music players. It accepts a 3 pole 3.5mm stereo plug with a slim diameter connector housing.

(This connector is also used during installation to change configuration settings for the JRAC-001.)



The port (♫/io) is protected by a urethane rubber cover, which can be lifted upwards or rotated round (as shown) to provide access to the port.

♫/io port

Port cover

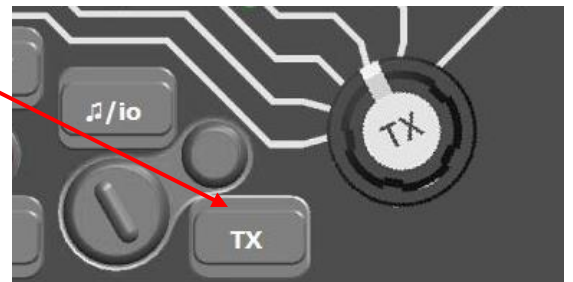


**CAUTION:** If an unapproved connector or cable is used, damage to the unit or to any attached device may occur. If in doubt, contact JAC for a list of approved cables, music sources and devices.

### (7) Transmit Annunciator - TX

This is a deadfront annunciator that will illuminate when the JRAC-001 is transmitting.

The default legend is 'TX', but it is interchangeable to allow customization.



### (8) Transmit Selector



This is a rotary six-position control that is used to select transmission via one of the six transceivers.

Each of the transmit selector positions is linked by a white line to the corresponding transmit select annunciator, transceiver switch and legend.

The appropriate annunciator will light green to show which transceiver is selected for transmit - 'COM4' in this example.





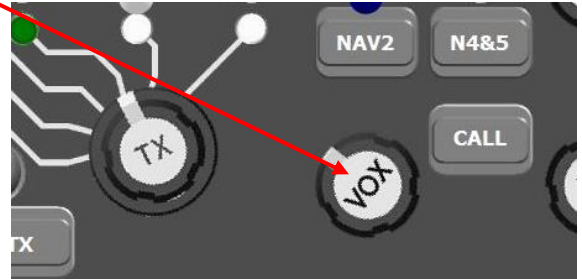
### (9) VOX Threshold Control

This is a rotary knob that is used to select the VOX threshold of the unit. See below.

When rotated fully clockwise (cw), the threshold will be at maximum and VOX ICS operation is disabled and ICS PTT input is required for ICS operation.

When rotated fully counterclockwise (ccw), the threshold will be at minimum (almost live).

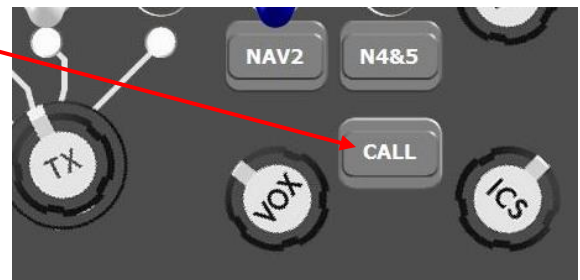
To adjust the unit for **VOX** (Voice activated) use, the VOX control should be set fully ccw and then slowly rotated cw to the point where no intercom audio can be heard. The VOX control should be adjusted for proper operation according to the ambient noise.



### (10) CALL Annunciator

This is a customizable deadfront annunciator activated by an external switch.

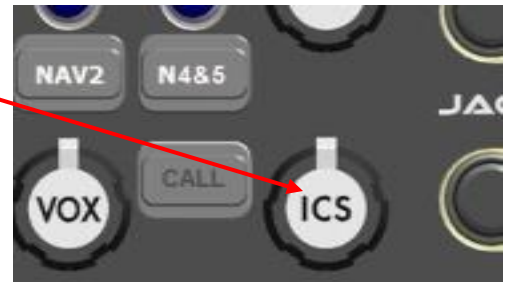
When enabled, it will illuminate when a call is received from another user's audio controller, or by a remote 'call' button within the aircraft.



**Note:** Check with your installing agency for confirmation of the operation of this annunciator. The legends are interchangeable to allow customization.

### (11) ICS Volume Control

This is a rotary control used to adjust the volume of all ICS audio to suit the ambient conditions. Rotating the control fully cw gives rated level, and fully ccw reduces the output to minimum level.





### **3.3 Normal Operation Mode**



**Note:** Numbers in parentheses refer to the front panel controls shown in section 3.2.

The Audio System is in Normal mode when the front panel EMER / NORM switch (4) is in the NORM position and suitable electrical power is supplied to the audio system (Control Panel and Remote Audio Controller).

All operation described is for an Audio System consisting of a JCP3 Control Panel and a JRAC Remote Audio Controller.

#### **3.3.1 Panel Lighting**

The control panel legends and annunciators will be illuminated and dim (when appropriate) through the aircraft lighting buss.

#### **3.3.2 Receiving**

When the Audio System receives an incoming transmission on a transceiver or receiver that has been selected, either by the white transceiver receive switches (1) or the transmit selector (8), the incoming audio will be directed to the user's phones.

The audio level of any incoming transmission will depend upon the level selected by the front panel RX volume control (3). It will be muted if the unit is transmitting and muting of receive audio during transmit is enabled.

#### **3.3.3 Transmitting (Transmit Operation)**

To select a transceiver, rotate the Transmit Select Switch until it aligns with the line leading to the Transceiver Select switch legend - see (1) - default legends COM 1 through COM 6. The corresponding Transmit Select annunciator will illuminate.

When the user's TX PTT is activated, the Audio System will transmit on the selected transceiver, and the deadfront Transmit Annunciator (7) will illuminate 'TX'. 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.

#### **3.3.4 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 is controlled by the VOX knob (9).

#### **3.3.5 ICS Operation**

ICS audio routed to the PHONES is the sum of all the MIC audio from users with ICS KEY active or with MIC audio level exceeding the VOX Threshold level.

The ICS audio routed to the PHONES also includes the audio input on the ICS TIE from other audio controllers.

The sum of all the MIC audio from users with ICS KEY active or with MIC audio level exceeding the VOX Threshold level is output on the ICS TIE line.

The ICS audio is muted during transmit (if selected via ProCS).

The ICS audio level at the phones is controlled by the ICS volume control (11).



### 3.3.6 Multi-Function (XMIT / ICS) Switch Operation



**Note:** At installation, this switch may be configured to operate in default or alternative mode. Check with your installing agency for confirmation of the operation of this switch.

---

#### **Default Operation**

When in the default XMIT/ICS configuration, this switch acts as the pilot's 'Press-to-talk (PTT) button. The Audio System will transmit on the selected transceiver when the switch is set to the 'up' position, and when set to the 'down' position, it will transmit on the intercom.

#### **Alternative Operation**

This switch may be configured to provide a ground signal to operate other equipment.

### 3.3.7 Music Operation

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

### **3.4 Emergency Operation Mode**

Emergency mode can be selected by the EMER / NORM switch on the control panel.

Refer to the controlled device operating manual for information on operation during emergency mode.



# Installation and Operating Manual

## Appendix A - Installation Drawings

### A1 Introduction

The drawings necessary for installation and troubleshooting of the JCP3-001 Control Panel are in this Appendix, as listed below.



**Note:** A fully customized set of Connector Maps and Interconnects can be created using the ProCS™ software. Refer to the [ProCS™ manual](#) for further information.

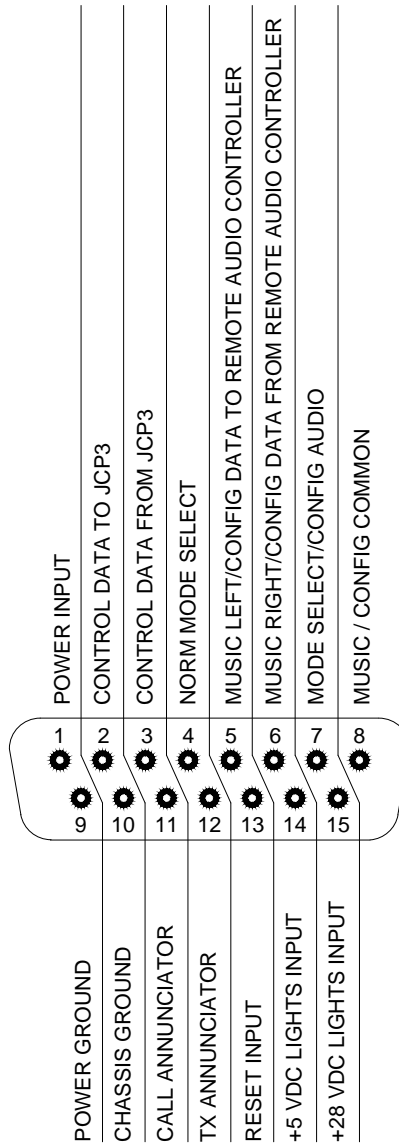
### A2 Installation Drawings

| DOCUMENT   | Rev |
|--|-----|
| <a href="#">JCP3-001 Connector Map</a>           | A   |
| <a href="#">JCP3-001 Interconnect</a>            | B   |
| <a href="#">JCP3-001 Mechanical Installation</a> | B   |




| Reference Documents                              |   |
|--|---|
| <a href="#">TOL-CUST-EXTR Legend Replacement</a> | A |

# MAIN CONNECTOR

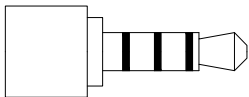
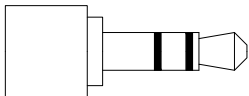
**P1**  
15 PIN FEMALE DMIN  
MATING CONNECTOR



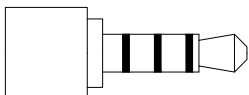
VIEW IS FROM REAR OF MATING CONNECTOR


|  |   |  |                      |              |
|--|---|--|----------------------|--------------|
| PREPARED   | TAT   |  |                      |              |
| CHECKED  |  |  |                      |              |
| APPROVED   |  | Control Panel<br>P1 Main Connector   |                      |              |
| CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP. |   | NCAGE CODE<br>L00N3  | PART NO.<br>JCP3-001 | SHEET<br>1/2 |
|  |   | DOC NO.<br>JCP3-001 Connector Map Rev A.dwg  |                      |              |

## FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER CONFIGURATION CONNECTOR

|   |   |   |   |
|---|---|---|---|
| <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block; font-weight: bold; font-size: 1.2em;">P2</div> | ACCEPTS THE FOLLOWING<br>PLUG FORMATS   | MATING PLUG NAMES   | JCP3 SIGNAL NAMES   |
| JA99 CONFIGURATION CABLE<br>4 POLE MALE 3.5MM STEREO  |  | TIP: TX DATA<br>1ST RING: RX DATA<br>2ND RING: GROUND<br>3RD RING: CONFIG AUDIO | CONFIG DATA TO REMOTE AUDIO CONTROLLER<br>CONFIG DATA FROM REMOTE AUDIO CONTROLLER<br>MUSIC / CONFIG COMMON<br>MODE SELECT / CONFIG AUDIO |
| MP3 STEREO PLAYER,<br>IPHONE 3GS OR 4<br>3 POLE MALE 3.5MM STEREO   |  | TIP: LEFT MUSIC<br>1ST RING: RIGHT MUSIC<br>2ND RING: GROUND                    | FRONT PANEL MUSIC LEFT<br>FRONT PANEL MUSIC RIGHT<br>MUSIC / CONFIG COMMON  |

## JCP3 CONFIGURATION CONNECTOR

|   |   |  |   |
|---|---|--|---|
| <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block; font-weight: bold; font-size: 1.2em;">P3</div> | ACCEPTS THE FOLLOWING<br>PLUG FORMATS   | MATING PLUG NAMES  | JCP3 SIGNAL NAMES   |
| JA99 CONFIGURATION CABLE<br>4 POLE MALE 3.5MM STEREO  |  | TIP: TX DATA<br>1ST RING: RX DATA<br>2ND RING: GROUND<br>3RD RING: MODE SELECT | CONFIG DATA TO JCP3<br>CONFIG DATA FROM JCP3<br>GROUND<br>MODE SELECT |

|   |   |  |                      |              |
|---|---|--|----------------------|--------------|
| PREPARED  | TAT   |  |                      |              |
| CHECKED   | <div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 30px; margin: 0 auto;">                 JAC<br/>06-01-15<br/>DS             </div>  | TITLE  |                      |              |
| APPROVED  | <div style="border: 1px solid black; border-radius: 50%; padding: 5px; width: 30px; margin: 0 auto;">                 JAC<br/>06-01-15<br/>KDV             </div> | Control Panel<br>P2 and P3 Connector Map   |                      |              |
| CONFIDENTIAL & PROPRIETARY<br>TO JUPITER AVIONICS CORP. |   | NCAGE CODE<br>L00N3  | PART NO.<br>JCP3-001 | SHEET<br>2/2 |
|   |   | DOC NO.<br>JCP3-001 Connector Map Rev A.dwg  |                      |              |



JCP3-001 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 (0.91 M).
3. CABLE SHIELDS AT THE CONNECTOR PINS SHOULD BE TERMINATED TO AIRFRAME GROUND USING A TAG RING P/N: MS27741-5 OR EQUIVALENT.
4. GROUND PIN TO ILLUMINATE ANNUNCIATOR ON FACEPLATE.
5. MOMENTARILY GROUND PIN TO RESET CONTROL PANEL.
6. ONLY CONNECT ONE OF EITHER +28 VDC OR +5 VDC LIGHTS INPUT.
7. FOR MUSIC INPUT, CONNECT MODE SELECT TO GROUND THROUGH 3.5MM MALE CABLE CONNECTOR RING 2.
8. THE FRONT PANEL MUSIC INPUT SHALL NOT BE CONNECTED TO ANY OTHER AUDIO INPUT.

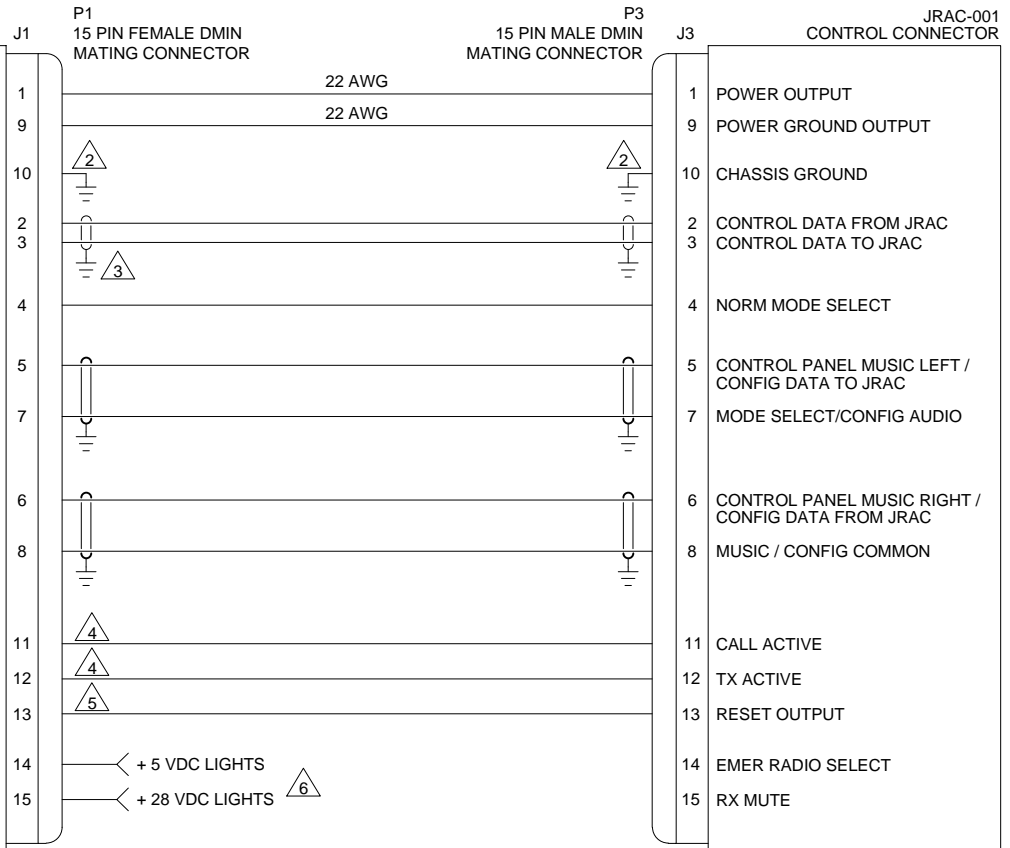
CONNECTOR PIN LEGENDS




LEGEND

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

|  |   |  |                      |              |
|--|---|--|----------------------|--------------|
| PREPARED   | TAT/CPM   |  |                      |              |
| CHECKED  |  |  |                      |              |
| APPROVED   |  | Control Panel Interconnect Notes   |                      |              |
| CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP. |   | NCAGE CODE<br>L00N3  | PART NO.<br>JCP3-001 | SHEET<br>1/3 |
|  |   | DOC NO.<br>JCP3-001 Interconnect Rev B.dwg   |                      |              |

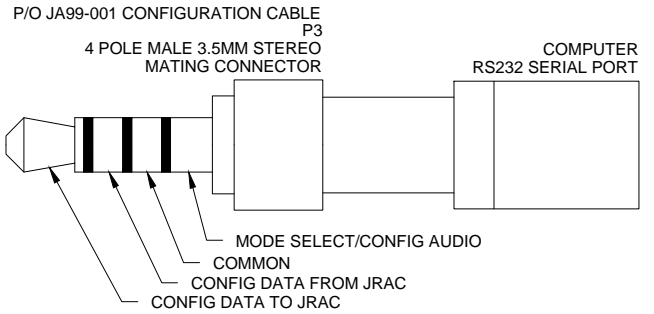
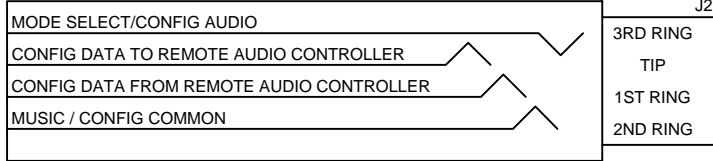
JCP3-001  
CONTROL PANEL  
MAIN CONNECTOR



|   |   |  |                      |              |
|---|---|--|----------------------|--------------|
| PREPARED  | TAT/CPM   |  |                      |              |
| CHECKED   |  |  |                      |              |
| APPROVED  |  | NCAGE CODE<br>L00N3  | PART NO.<br>JCP3-001 | SHEET<br>2/3 |
| CONFIDENTIAL & PROPRIETARY<br>TO JUPITER AVIONICS CORP. |   | DOC NO.<br>JCP3-001 Interconnect Rev B.dwg   |                      |              |

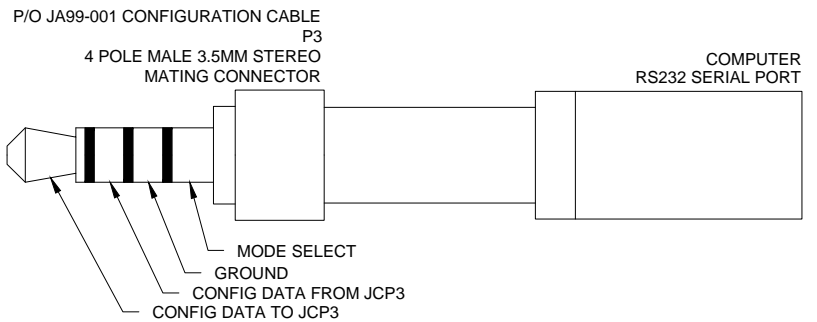
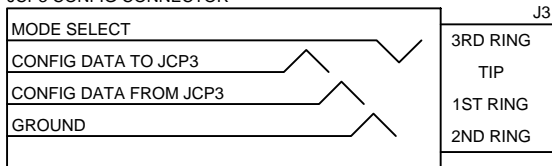
JRAC CONFIGURATION VIA JCP3 FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER CONFIGURATION CONNECTOR

JCP3-001  
CONTROL PANEL  
FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER  
CONFIG CONNECTOR



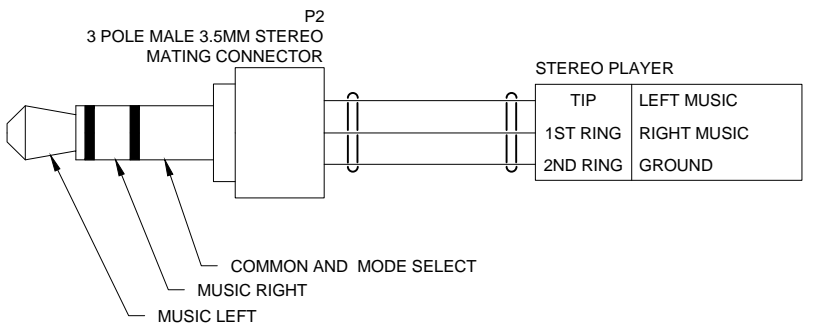
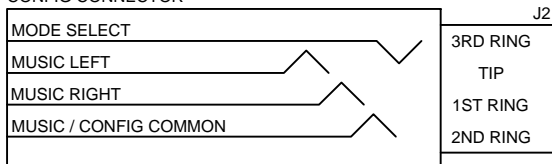
JCP3 CONFIGURATION VIA JCP3 CONFIGURATION CONNECTOR




JCP3-001  
CONTROL PANEL  
JCP3 CONFIG CONNECTOR

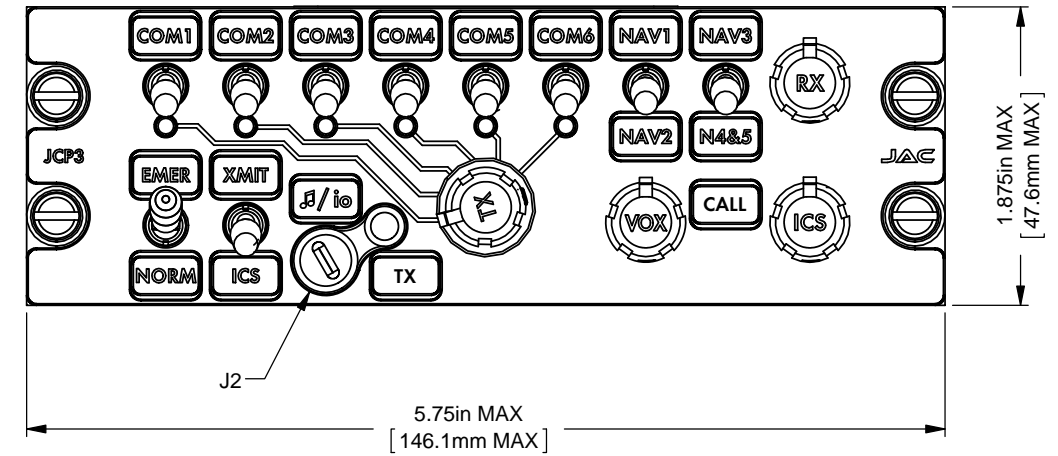
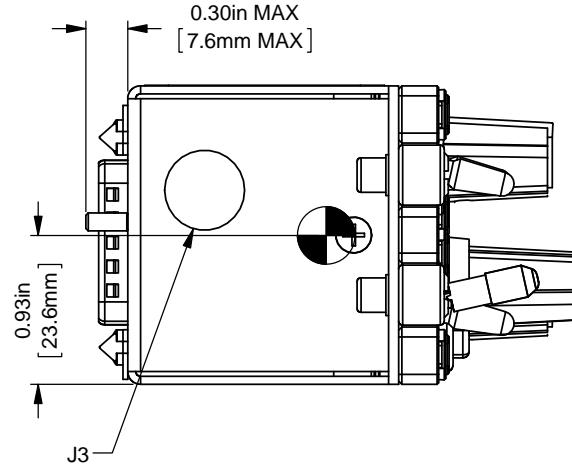
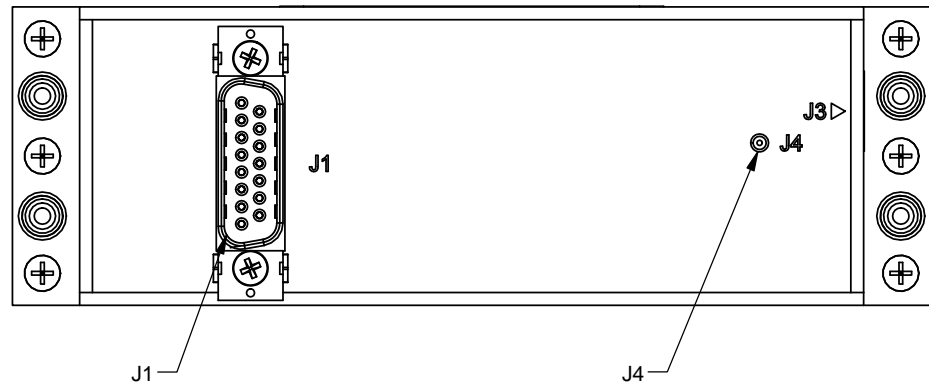
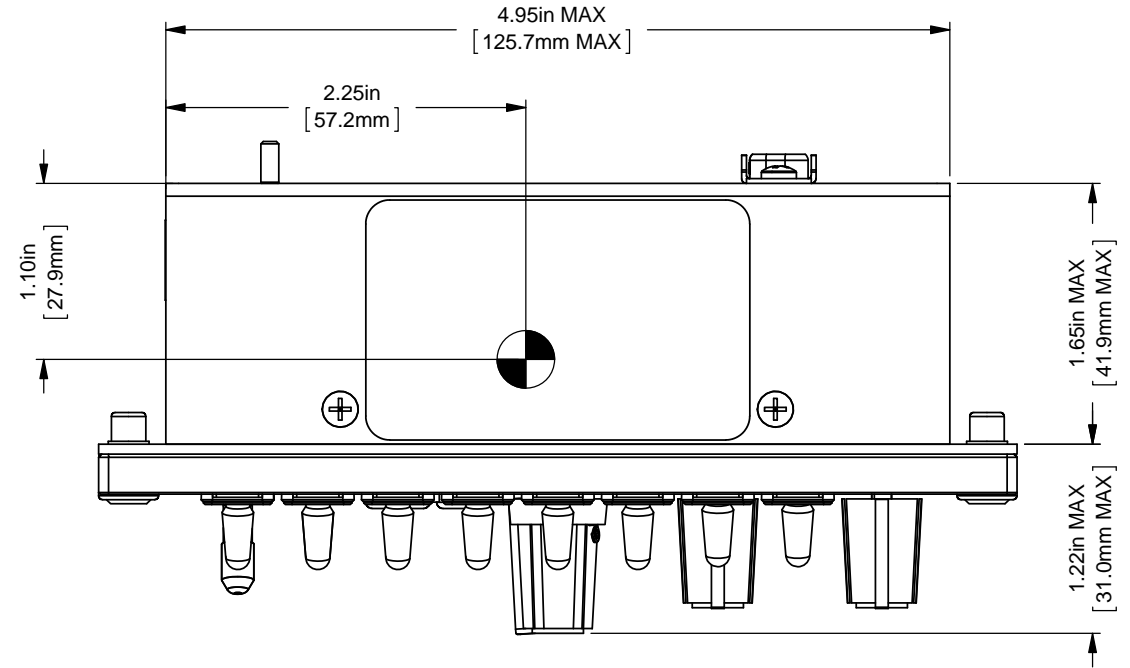
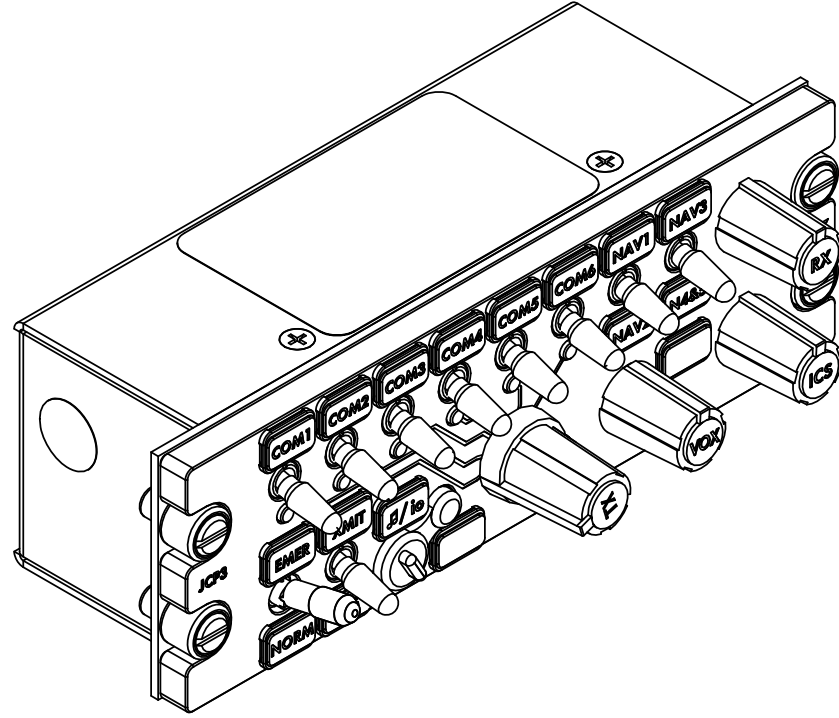



OPTION: STEREO PLAYER INPUT VIA JCP3 FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER CONFIGURATION CONNECTOR

JCP3-001  
CONTROL PANEL  
FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER  
CONFIG CONNECTOR

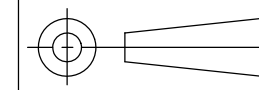


|  |   |  |                      |              |
|--|---|--|----------------------|--------------|
| PREPARED   | TAT/CPM   |  |                      |              |
| CHECKED  |  |  |                      |              |
| APPROVED   |  | Control Panel Configuration and Music Options  |                      |              |
| CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP. |   | NCAGE CODE<br>L00N3  | PART NO.<br>JCP3-001 | SHEET<br>3/3 |
|  |   | DOC NO.<br>JCP3-001 Interconnect Rev B.dwg   |                      |              |




 CENTER OF GRAVITY  
 ±0.03in [0.8mm]  
 WEIGHT: 0.84 lbs [0.38 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



MATERIAL: N/A  
 FINISH: N/A

|          |                        |
|----------|------------------------|
| PREPARED | TAT                    |
| CHECKED  | JAC<br>03-11-17<br>DS  |
| APPROVED | JAC<br>03-13-17<br>KDV |

|   |          |               |  |
|---|----------|---------------|--|
|  |          | TITLE         |  |
|   |          | Control Panel |  |
| NCAGE CODE  | PART NO. | SHEET         |  |
| L00N3   | JCP3-001 | 1/1           |  |

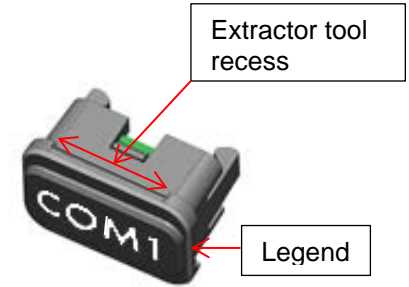
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.  
 DRAWING NOT TO SCALE  
 DOC. NO. JCP3-001 Mechanical Installation Rev B.SLDDRW



## Field-Replaceable Legends

Jupiter Avionics Corporation (JAC) products have field-replaceable illuminated legends. This permits easy customization, and allows the same units to be used in multiple different configurations with only minimal changes.

The internal circuitry ensures that, although the legends are individually illuminated, the illumination is consistent and uniform throughout all legends, and never needs to be balanced. This means that if it is a requirement to change the labelling due to damage or for a different project, there is no need for costly and time-consuming illumination checks.



### Legend Removal



Caution: Take care not to scratch or otherwise damage the faceplate or the legend.

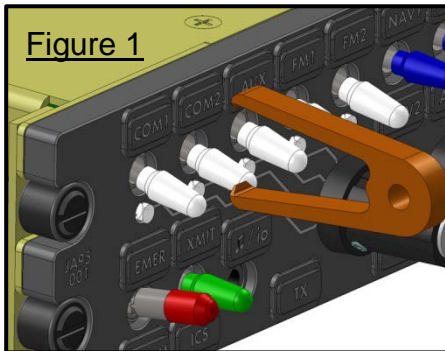


Figure 1

To facilitate legend removal, JAC provides a legend extractor tool - part # TOL-CUST-EXTR (figure 1) that fits into the recesses on the legend.

To remove a legend, hold the extractor firmly between the forefinger and thumb, and use a tweezer-like action to grip the legend (figure 2).

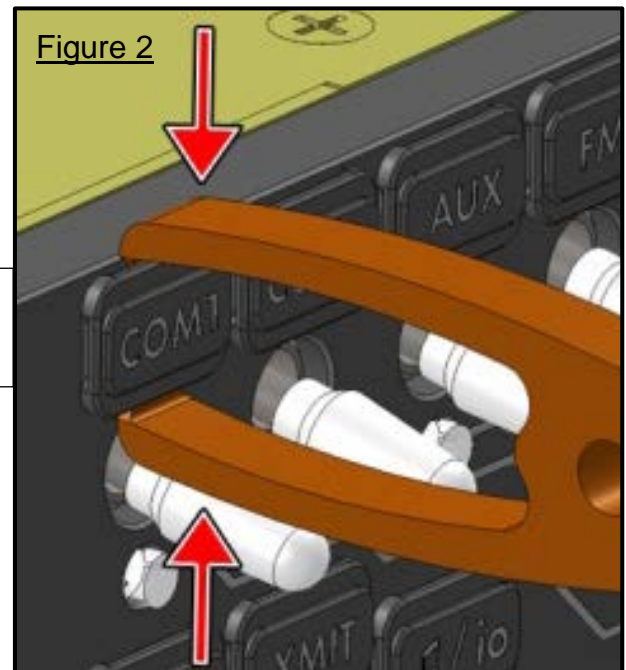


Figure 2

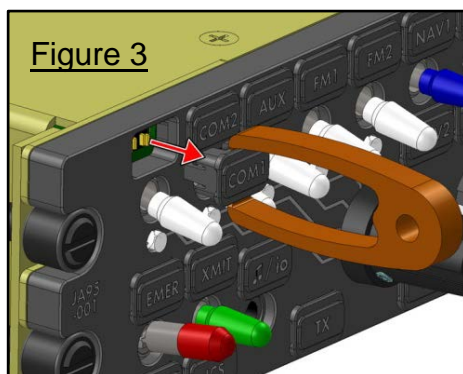


Figure 3

Pull the legend away from the faceplate as shown in figure 3.

### Legend Replacement

To replace a legend, align the text correctly, and then apply gentle pressure until the body of the legend support seats firmly into the faceplate.

Once the new legend is in place, ensure that it has seated correctly by checking that it illuminates. The unit is now ready for use.



# **Installation and Operating Manual**

## **Appendix B - Certification Documents**





## **B1**                    **Airworthiness Approval**

Airworthiness approval of the JCP3-001 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 JCP3-001 Control Panel. 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 JCP3-001 Control Panel in [aircraft location] and a Jupiter Avionics [Part Number] Remote Audio Controller in [aircraft location].

The JCP3-001 is approved to CAN-TSO-C139. The JCP3-001 meets RTCA DO-160G environmental qualifications for this installation. See Section 1 of the JCP3-001 Installation and Operation Manual.

Installed in accordance with the JCP3-001 Installation Manual, Revision [ ], and AC 43.13-2, Chapters 2, and 3.

The JCP3-001 interfaces with the Remote Audio Controller per the Installation Manual instructions.

The JCP3-001 Installation Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JCP3-001 from the Remote Audio Controller

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 JCP3-001 Control Panel is "on condition" only. Refer to the JCP3-001 Maintenance Manual. Periodic maintenance of the JCP3-001 is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JCP3-001 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 JCP3-001 Control Panel 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 JCP3-001 installed in an [aircraft make and model].

**Applicability:** Applies to a Jupiter Avionics JCP3-001 installed in an [aircraft make and model].

**Definitions/Abbreviations:** None, N/A.

**Precautions:** None, N/A.

**Units of Measurement:** None, N/A.

**Referenced Publications:** JCP3-001 Installation and Operating Manual  
JCP3-001 Maintenance Manual  
JCP3-001 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 JCP3-001 Control Panel with interface to a Remote Audio Controller 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 JCP3-001 Operating Manual.

## **4. Servicing Information**

N/A

## **5. Maintenance Instructions**

Maintenance of the JCP3-001 is 'on condition' only. Periodic maintenance is not required. Refer to the JCP3-001 Maintenance Manual.

## **6. Troubleshooting Information**

Refer to the JCP3-001 Maintenance Manual.

## **7. Removal and Replacement Information**

Refer to Section 2 of this manual - the JCP3-001 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 JCP3-001 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**

JCP3-001 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 JCP3-001 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:<br><br>SRM | Checked:<br><br> | Approved:<br><br> |
|----------------------|---|--|

|  |   |
|--|---|
| <b>Nomenclature</b>  | Control Panel   |
| <b>Type/Model/ Part No.:</b>   | JCP3-001  |
| <b>TSO No.:</b>  | CAN-TSO-C139  |
| <b>Manufacturer's Build Configuration:</b>                                 | <i>JCP3-001 Build Configuration Rev B</i>                   |
| <b>Manufacturer's Test Report:</b>   | <i>JCP3-001 Test Report (Qualification - Final) Rev A</i>   |
| <b>Manufacturer's Specification and/or Other Applicable Specification:</b> | <i>JCP3-001 Declaration of Design and Performance Rev B</i> |
| <b>Manufacturer:</b>   | Jupiter Avionics Corporation                                |
| <b>Address:</b>  | 1959 Kirschner Road, Kelowna, BC, Canada, V1Y 4N7           |
| <b>Revision &amp; Change No of DO-160:</b>                                 | Rev. G dated December 8, 2010                               |
| <b>Dates Tested:</b>   | 2016 July 26 to 2017 Jul 07                                 |

| CONDITIONS                            | SECTION | DESCRIPTION OF TESTS CONDUCTED                        |
|---------------------------------------|---------|---|
| Temperature                           | 4.5     | Equipment tested to Category C4                       |
| 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     | Equipment tested to Category (A1)(D1)                 |
| Altitude                              | 4.6.1   | Equipment tested to Category D1 (55,000 ft)           |
| Decompression                         | 4.6.2   | Equipment tested to Category A1 (8,000 to 55,000 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)             |
| Operational Shock and Crash Safety    | 7.0     |   |
| Operational Shock                     | 7.2.1   | Equipment identified as Category B (6 g for 11 ms)    |
| Crash Safety (impulse)                | 7.3.1   | Equipment tested to Category B (20 g for 11 ms)       |
| Crash Safety (sustained)              | 7.3.3   | Equipment tested to Category B (20 g for 3 sec)       |
| Vibration <sup>1</sup>                | 8.0     | Equipment tested to Categories:                       |
| Fixed Wing - Sine                     | 8.5.1   | SM  |
| Fixed Wing - Random                   | 8.5.2   | SB  |
| Helicopter - Random, unknown          | 8.8.3   | U2FF1   |



| CONDITIONS  | SECTION                                      | DESCRIPTION OF TESTS CONDUCTED  |
|---|--|---|
| 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 ( $\leq 0.3$ m)  |
| Power Input <sup>2</sup><br>DC Equipment<br><br>DC Current Ripple<br>DC Inrush  | 16.0   | JRAC-001 Remote Audio Controller tested to Category: (ZXX)(BXX)<br>Z (+28 Vdc equipment),<br>B (+14 Vdc and + 28 Vdc equipment)<br>X, no test performed<br>X, no test performed                     |
| Voltage Spike <sup>2</sup>  | 17.0   | JRAC-001 Remote Audio Controller tested to Category A (600Vp, 10 us)  |
| Audio Frequency Susceptibility <sup>2</sup>   | 18.0   | JRAC-001 Remote Audio Controller tested to Category Z (+28 Vdc equipment)<br>JRAC-001 Remote Audio Controller tested to Category B (+14 Vdc equipment)  |
| Induced Signal Susceptibility<br>Magnetic Fields into Equipment<br>Magnetic Fields into Interconnect<br>Electric Fields into Interconnect<br>Voltage Spikes into Interconnect | 19.0<br>19.3.1<br>19.3.3<br>19.3.4<br>19.3.5 | Equipment tested to Category ZCX<br>20 A at 400Hz<br>30 A·m at 400Hz<br>1800 V·m at 400Hz<br>3.0 m  |
| Radio Frequency Susceptibility <sup>3</sup><br>Radiated<br>Conducted  | 20.0   | Equipment tested to Category RR<br>R (20 V/m CW&SW) and (150 V/m PM)<br>R (30 mA)   |
| Radio Frequency Emission<br>Radiated <sup>3</sup><br>Conducted  | 21.0   | Equipment tested to Category H  |
| Lightning Induced Transient Susceptibility<br>Pin Injection<br>Cable Bundle Single and Multiple Stroke <sup>3</sup><br>Cable Bundle Multiple Burst <sup>3</sup>               | 22.0   | Equipment tested to Category A3J3L3<br>Equipment tested to Waveform Set A, Test Level 3<br>Equipment tested to Waveform Set J, Test Level 3<br><br>Equipment tested to Waveform Set L, Test Level 3 |
| 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 C.   |
| Other Tests   | N/A  | N/A   |



**REMARKS**

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- 1 During exposure to vibration test conditions all critical resonances changed frequency less than 1.5%.
- 2 The JCP3-001 Control Panel was operating a JRAC-001 Remote Audio Controller during the power input, voltage spike and audio frequency conducted susceptibility tests. During these tests, the JRAC-001 Remote Audio Controller was exposed to the test conditions.
- 3 Testing performed at CKC Laboratories in Bothell, WA, USA.  
See report *JRAC-001 Test Report Signed (CKC Labs - DO-160G Section 20, 21, 22 - 20161107 to 10) Rev A*