JCP3-N01

Control Panel - NVG

Installation and Operating Manual

Rev. A

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RECORD OF REVISIONS			
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SECTION 1 - DESCRIPTION

1.1 System Overview

The JCP3-N01 Control Panel - NVG is part of an aircraft audio system consisting of the control panel and a remote audio controller.

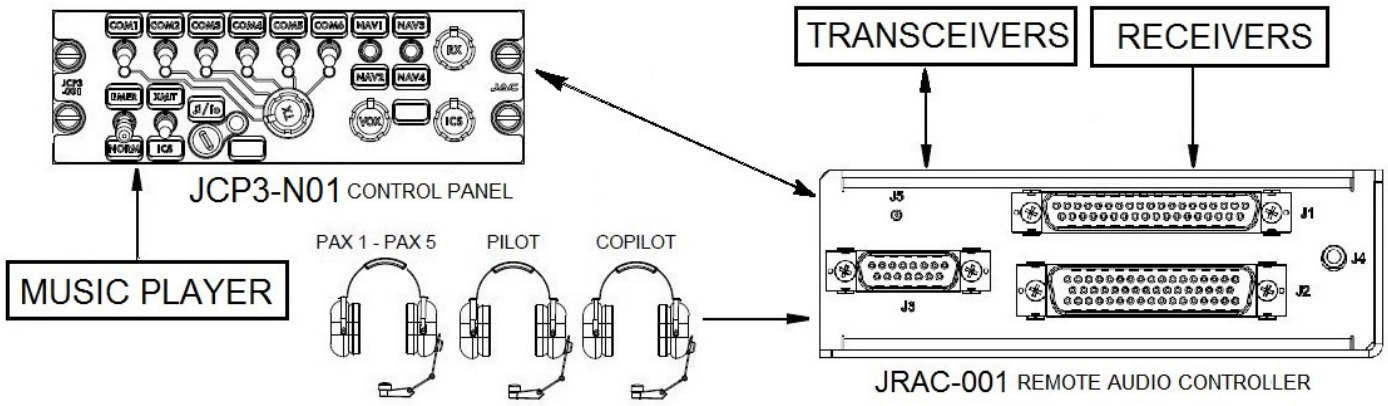


Figure 1-1 Aircraft Audio System

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-N01 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-N01 design.

1.2 Features Overview

The JCP3-N01 features a 15 pin D-Min connector, which interfaces to the JRAC-001. The JCP3-N01 input power is derived from the JRAC-001.

The JCP3-N01 is NVIS Type I Class B compliant.

The JCP3-N01 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-N01 has 6 toggle transceiver monitor switches

The JCP3-001 has a CALL annunciator

The JCP3-N01 has 2 center-off toggle receiver monitor switches.

The JCP3-N01 has 1 rotary 16-position VOX threshold control.

The JCP3-N01 has 1 rotary 16-position ICS volume control.

The JCP3-N01 has 1 rotary 16-position RX volume control.

The JCP3-N01 has 1 locking toggle Emergency / Normal mode select switch.

The JCP3-N01 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-N01 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-N01 connector maps for the mating connector designators and pin assignments for the input and output signals.

1.3.1 Inputs

Name	Qty	Type
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 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

Name	Qty	Type
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 REMOTE AUDIO CONTROLLER	1	Audio signal
NORM MODE SELECT	1	Active low discrete

1.3.3 Bi-directional Signals

Name	Qty	Type
MUSIC RIGHT/CONFIG DATA FROM REMOTE AUDIO CONTROLLER	1	Data signal (Main connector)
MUSIC RIGHT/CONFIG DATA FROM 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	0.5 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) J2 (Music /configuration) J3 (Configuration) J4 (Rear stud fastener)	One 15-pin D-Sub male, V5 locking One 4 pole 3.5mm stereo jack One 4 pole 3.5mm stereo jack 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-N01 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

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-N01 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.

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 JCP3-N01 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-N01 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-N01 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 Ω).
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-N01. 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-N01 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.

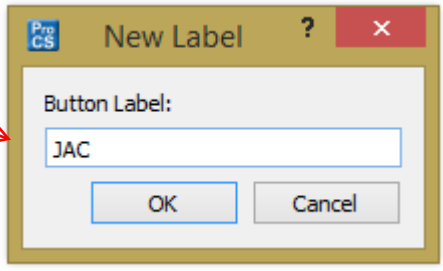
2.5.1 Virtual Front Panel

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.

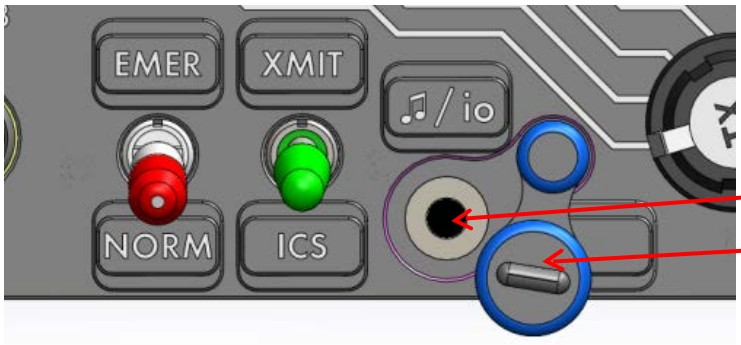
2.5.2 Connector Maps

This section contains connector maps and interconnects that are automatically generated to show changes to switch labels that affect the installation of the JCP3-N01.

2.6 Adjustments and Configuration using ProCS™

2.6.1 Configuring the **JRAC-xxx**-Remote Audio Controller via the JCP3-N01-N01

The JCP3-N01 has no internal adjustments; however, configuration data for the JRAC-001 Remote Audio Controller can be sent via the JCP3-N01 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-N01 menu items 'ProCS Setup' provide Setup drawings showing different cabling arrangements for connecting the JCP3-N01 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-N01. These setup drawings would not be used in normal operation.

ProCS Setup - JRAC-001 shows the cabling for using the JCP3-N01 for configuring the JRAC-xxx using ProCS™ (see section 2.6.1 above).

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.

SECTION 3 – OPERATION

3.1 Introduction

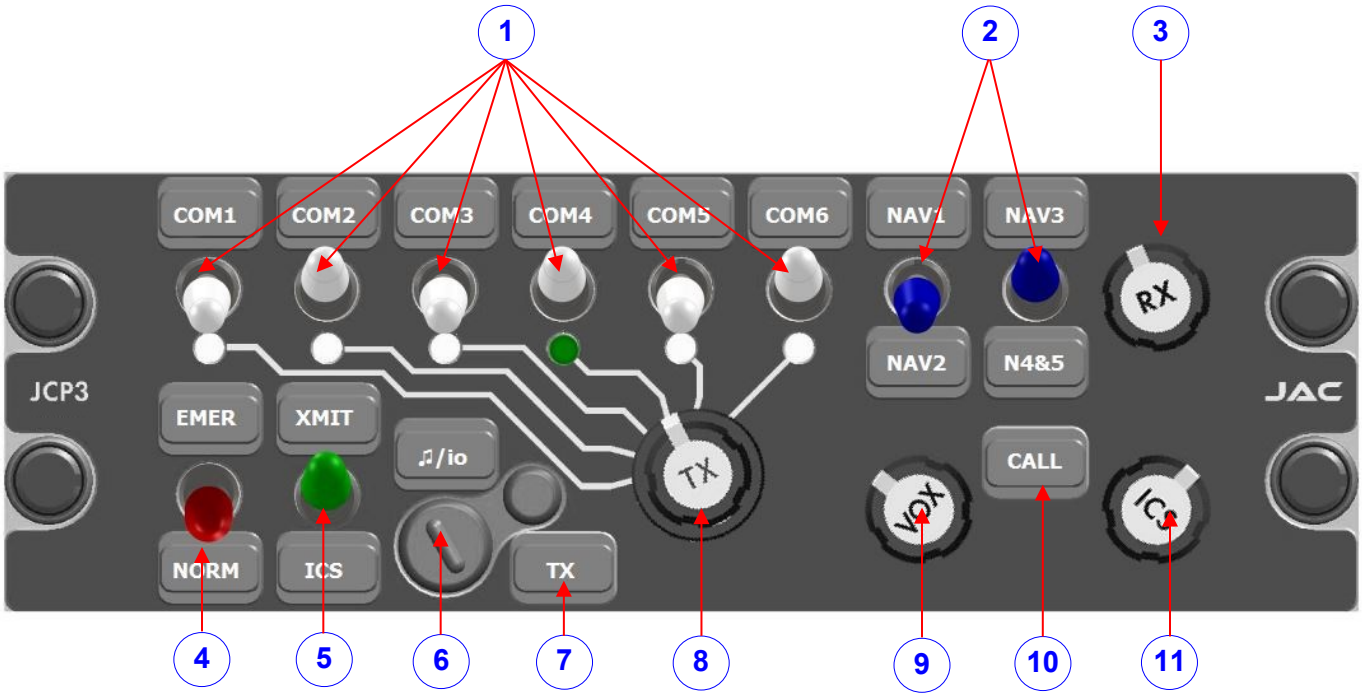
This section contains the operating instructions for the JCP3-N01.

The JCP3-N01 acts as a control panel for a remote Audio controller such as the Jupiter Avionics JRAC-001.

The JCP3-N01 commands the remote audio controller, and this manual is written to describe the results of any operation of the JCP3-N01 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. The JCP3-N01 legends and annunciators are NVIS Type I Class B compliant.



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

(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)

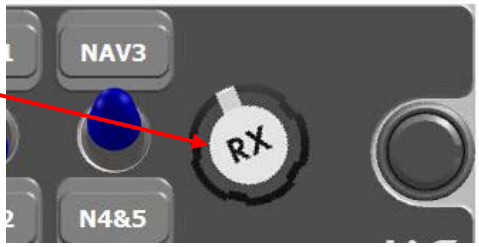
(2) Receiver Switches

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.

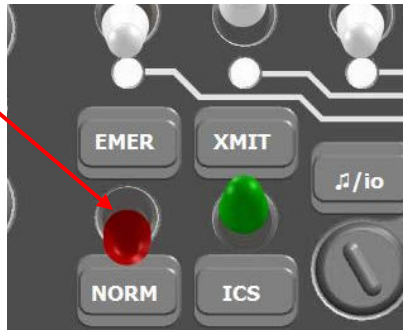


(4) EMER/NORM Mode Switch

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.

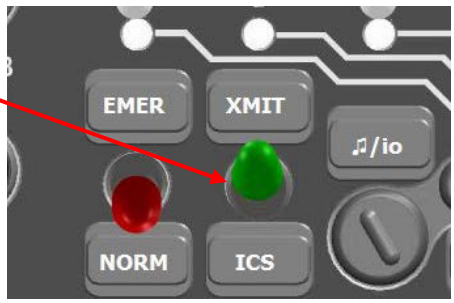


(5) Multi-function (Transmit/ICS) Switch

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.

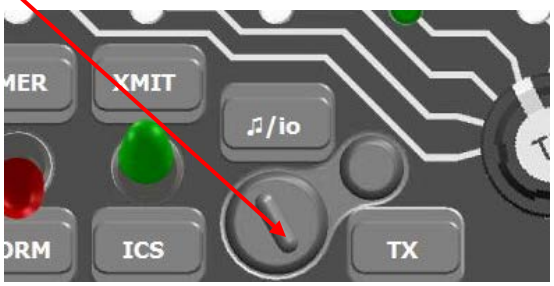


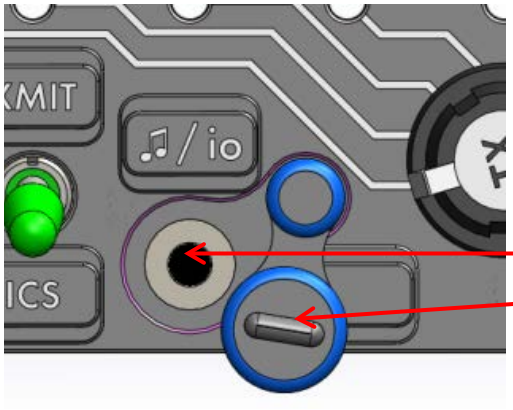
Note: At installation, this switch may be configured to operate in default (XMIT/ICS) or alternative mode. Check with your installing agency for confirmation of the operation of this switch. The legends are interchangeable to allow customization.

(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

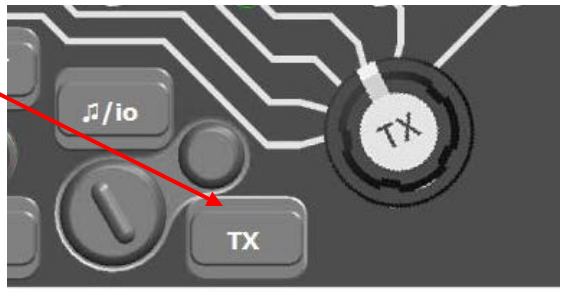
Port cover

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.

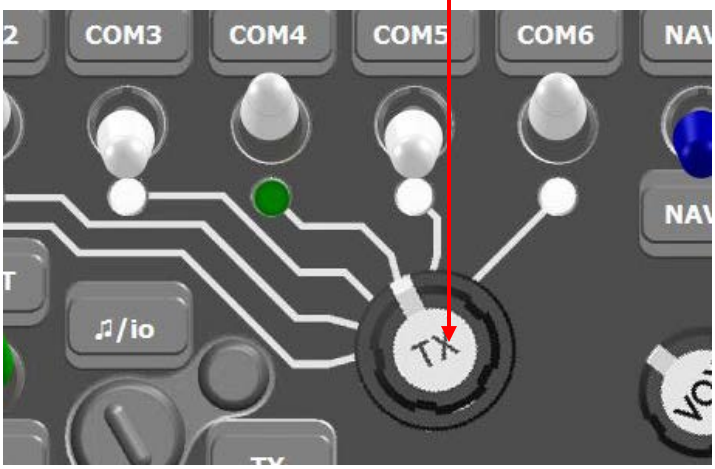
(7) Transmit Annunciator - TX

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.

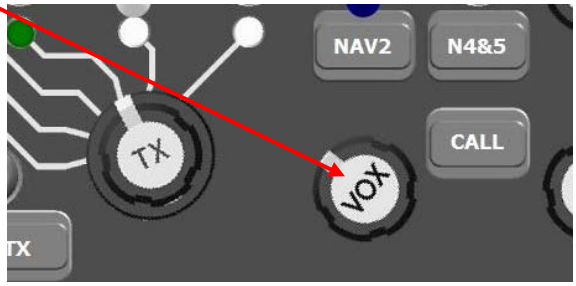
The appropriate annunciator will light green to show which transceiver is selected for transmit - 'COM4' in this example.

(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).

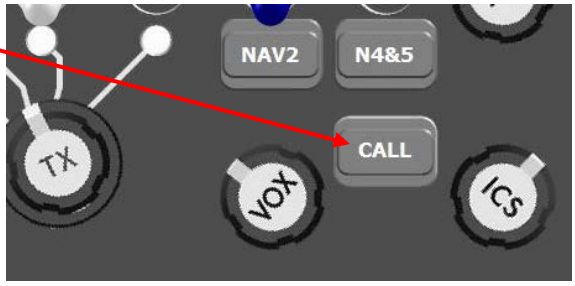


To adjust the unit for **VOX** (Voice activated) use, the VOX control should be set fully ccw and then slowly rotated cw to the point where no intercom audio can be heard. The VOX control should be adjusted for proper operation according to the ambient noise.

(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.

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Appendix A - Installation Drawings

A1 Introduction

The drawings necessary for installation and troubleshooting of the JCP3-N01 Control Panel - NVG 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

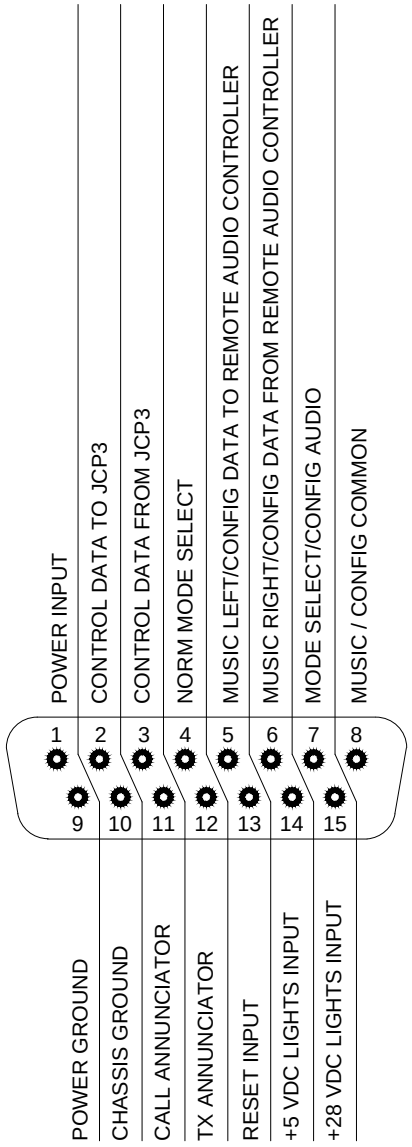
DOCUMENT	Rev
JCP3-N01 Connector Map	A
JCP3-N01 Interconnect	A
JCP3-N01 Mechanical Installation	A

Reference Documents	
TOL-CUST-EXTR Legend Replacement	A

MAIN CONNECTOR

P1

15 PIN FEMALE DMIN
MATING CONNECTOR



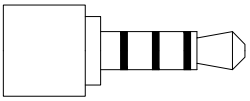
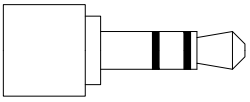
VIEW IS FROM REAR OF MATING CONNECTOR

PREPARED	TAT	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 09-14-17 CPM	TITLE: Control Panel - NVG P1 Main Connector		
APPROVED	JAC 09-14-17 KDV	NCAGE CODE: L00N3	PART NO.: JCP3-N01	SHEET: 1/2
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JCP3-N01 Connector Map Rev A.dwg		

FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER CONFIGURATION CONNECTOR

P2

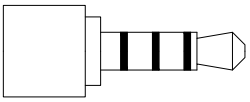
ACCEPTS THE FOLLOWING PLUG FORMATS

		MATING PLUG NAMES	JCP3 SIGNAL NAMES
JA99 CONFIGURATION CABLE 4 POLE MALE 3.5MM STEREO		TIP: TX DATA 1ST RING: RX DATA 2ND RING: GROUND 3RD RING: CONFIG AUDIO	CONFIG DATA TO REMOTE AUDIO CONTROLLER CONFIG DATA FROM REMOTE AUDIO CONTROLLER MUSIC / CONFIG COMMON MODE SELECT / CONFIG AUDIO
MP3 STEREO PLAYER, IPHONE 3GS OR 4 3 POLE MALE 3.5MM STEREO		TIP: LEFT MUSIC 1ST RING: RIGHT MUSIC 2ND RING: GROUND	FRONT PANEL MUSIC LEFT FRONT PANEL MUSIC RIGHT MUSIC / CONFIG COMMON

JCP3 CONFIGURATION CONNECTOR

P3

ACCEPTS THE FOLLOWING PLUG FORMATS

		MATING PLUG NAMES	JCP3 SIGNAL NAMES
JA99 CONFIGURATION CABLE 4 POLE MALE 3.5MM STEREO		TIP: TX DATA 1ST RING: RX DATA 2ND RING: GROUND 3RD RING: MODE SELECT	CONFIG DATA TO JCP3 CONFIG DATA FROM JCP3 GROUND MODE SELECT

PREPARED	TAT	JUPITER AVIONICS CORPORATION	
CHECKED	JAC 09-14-17 CPM	TITLE: Control Panel - NVG P2 and P3 Connector Map	
APPROVED	JAC 09-14-17 KDV	NCAGE CODE: L00N3	PART NO.: JCP3-N01 / SHEET: 2/2
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JCP3-N01 Connector Map Rev A.dwg	

JCP3-N01 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.

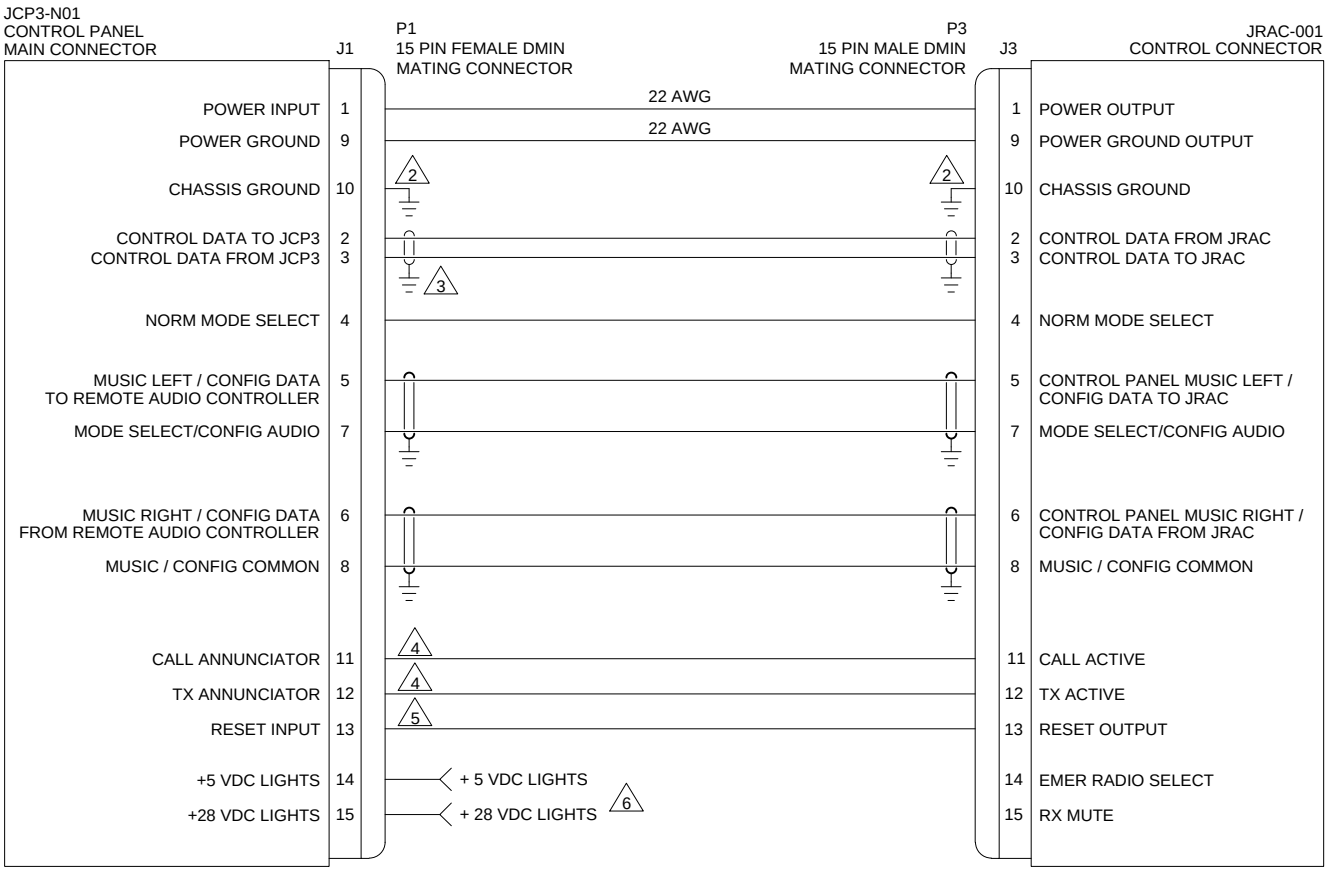
△8 THE FRONT PANEL MUSIC INPUT SHALL NOT BE CONNECTED TO ANY OTHER AUDIO INPUT.

CONNECTOR PIN LEGENDS

LEGEND

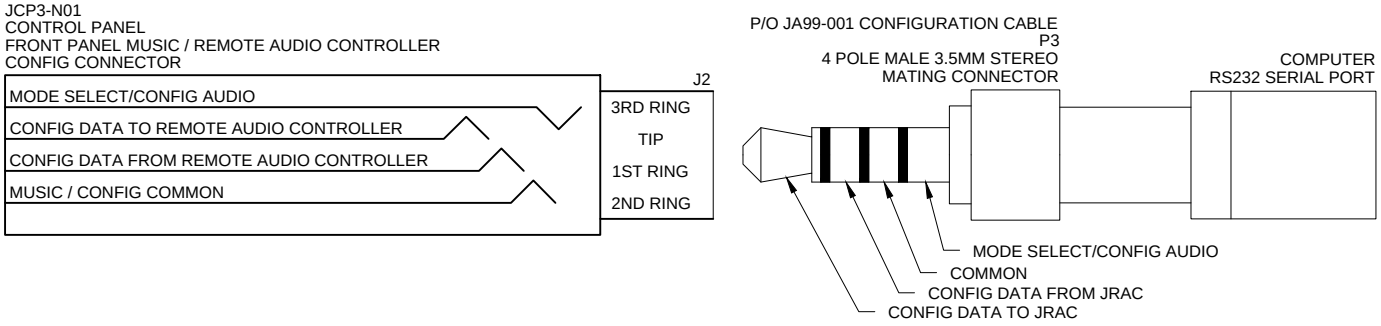
SPARE	INTERNAL CIRCUITS MAY EXIST AND MAY BE ACTIVATED FOR FUTURE USE. NO EXTERNAL WIRE CONNECTION.
N/C	NO CONNECTION

PREPARED	TAT/CPM	JUPITER AVIONICS CORPORATION	
CHECKED	JAC 09-14-17 CPM	TITLE: Control Panel - NVG Interconnect Notes	
APPROVED	JAC 09-14-17 KDV	NCAGE CODE: L00N3	PART NO.: JCP3-N01 / SHEET: 1/3
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JCP3-N01 Interconnect Rev A.dwg	

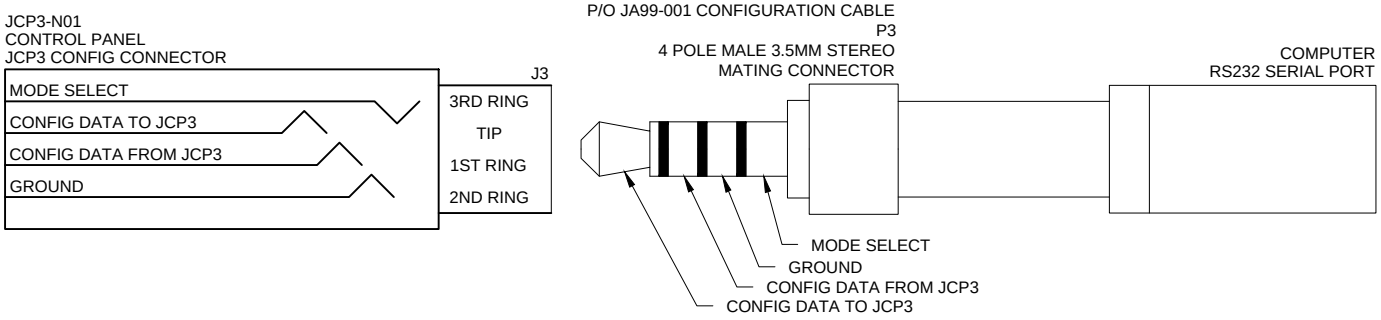


PREPARED	TAT/CPM	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 09-14-17 CPM	TITLE: Control Panel - NVG Main Connector		
APPROVED	JAC 09-14-17 KDV	NCAGE CODE: L00N3	PART NO.: JCP3-N01	SHEET: 2/3
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JCP3-N01 Interconnect Rev A.dwg		

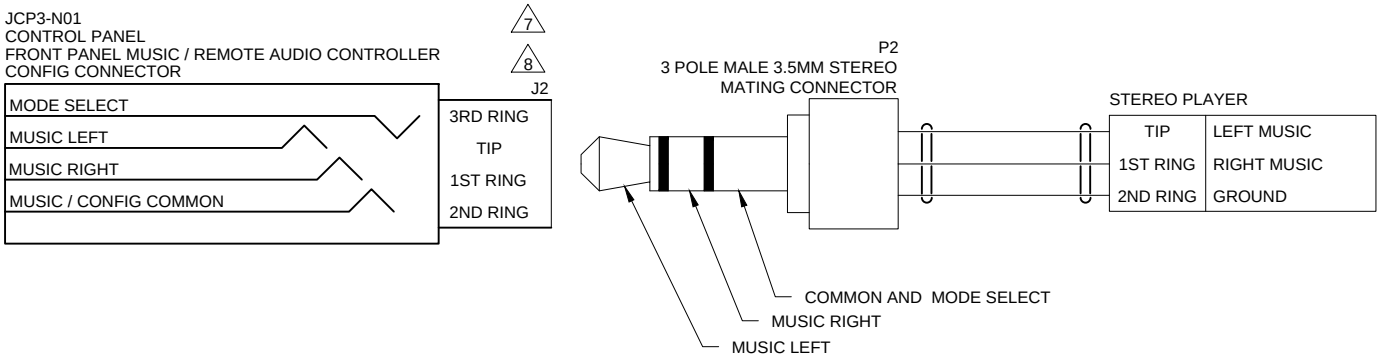
JRAC CONFIGURATION VIA JCP3 FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER CONFIGURATION CONNECTOR



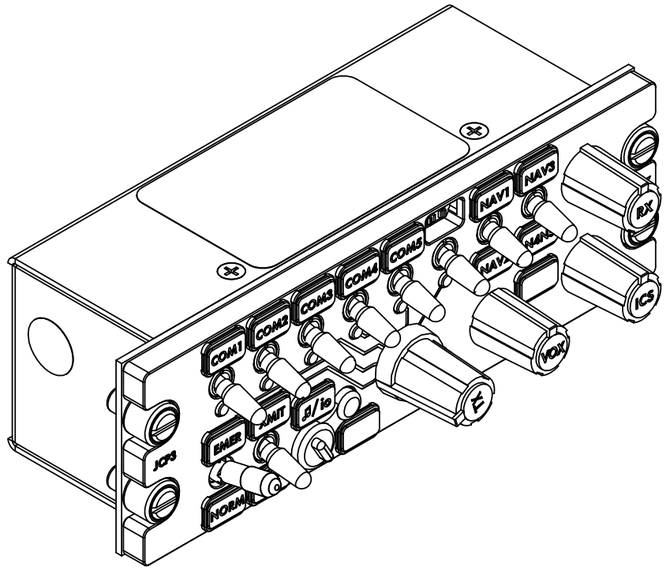
JCP3 CONFIGURATION VIA JCP3 CONFIGURATION CONNECTOR

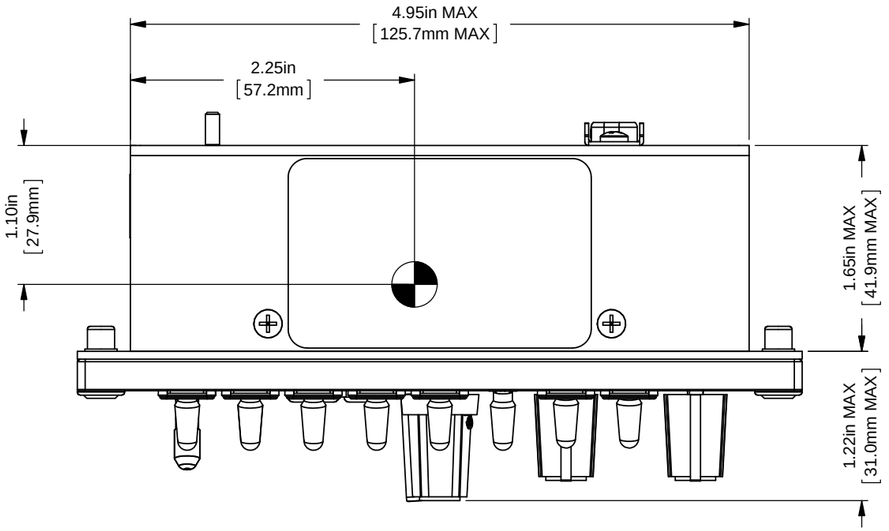


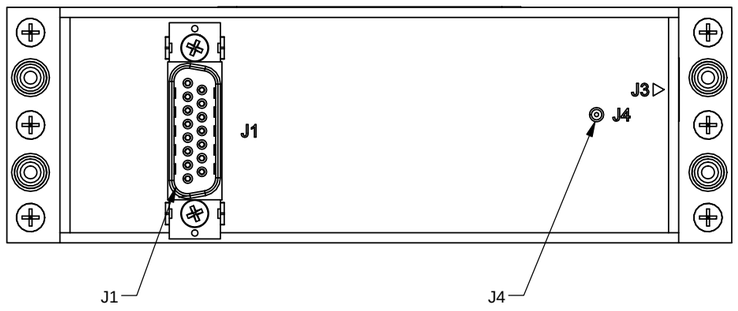
OPTION: STEREO PLAYER INPUT VIA JCP3 FRONT PANEL MUSIC / REMOTE AUDIO CONTROLLER CONFIGURATION CONNECTOR

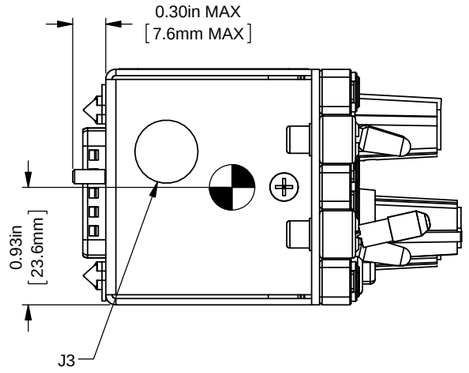


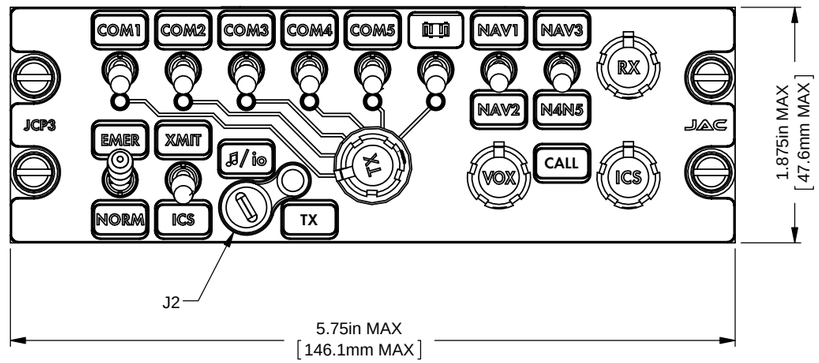
PREPARED	TAT/CPM	JUPITER AVIONICS CORPORATION		
CHECKED	JAC 09-14-17 CPM	TITLE: Control Panel - NVG Configuration and Music Options		
APPROVED	JAC 09-14-17 KDV	NCAGE CODE: L00N3	PART NO.: JCP3-N01	SHEET: 3/3
CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC NO.: JCP3-N01 Interconnect Rev A.dwg		











CENTER OF GRAVITY
±0.03in [0.8mm]

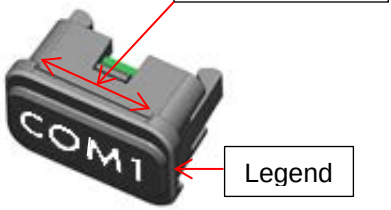
WEIGHT: 0.84 lbs [0.38 kg] MAX.

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	PREPARED	TAT	JUPITER AVIONICS CORPORATION
	CHECKED	JAC 09-14-17 CPM	TITLE: Control Panel - NVG
	APPROVED	JAC 09-14-17 KDV	NCAGE CODE: L00N3 · PART NO.: JCP3-N01 · SHEET: 1/1
MATERIAL: N/A	CONFIDENTIAL & PROPRIETARY TO JUPITER AVIONICS CORP.		DOC. NO.: JCP3-N01 Mechanical Installation Rev A.SLDDRW
FINISH: N/A	DRAWING NOT TO SCALE		

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.

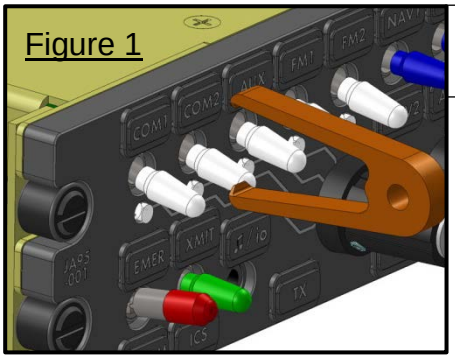
The internal circuitry ensures that, although the legends are individually illuminated, the illumination is consistent and uniform throughout all legends, and never needs to be balanced. This means that if it is a requirement to change the labelling due to damage or for a different project, there is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



Legend Removal

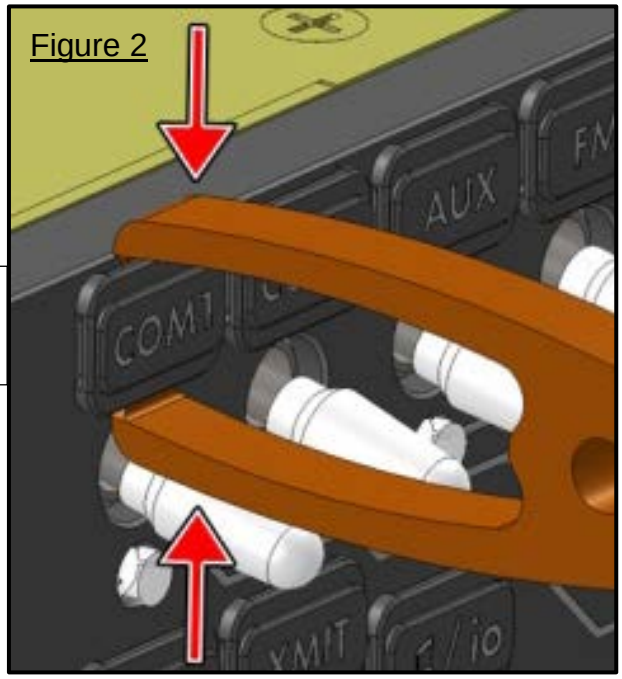
Caution: Take care not to scratch or otherwise damage the faceplate or the legend.

Figure 1



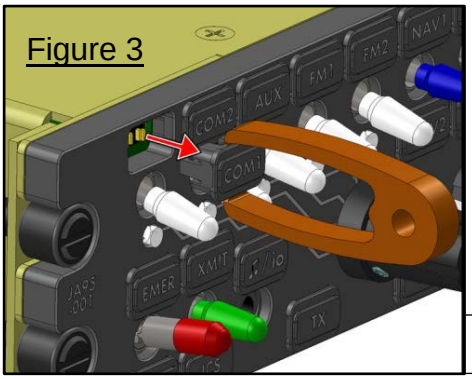
To facilitate legend removal, JAC provides a legend extractor tool - part # TOL-CUST-EXTR (figure 1) that fits into the recesses on the legend.

Figure 2



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 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-N01 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-N01 Control Panel - NVG. 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-N01 Control Panel - NVG in [aircraft location].

The JCP3-N01 is approved to CAN-TSO-C139. The JCP3-N01 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-N01 Installation Manual, Revision [ ], and AC 43.13-2, Chapters 2, and 3.

The JCP3-N01 interfaces with the Remote Audio Controller per the Installation Manual instructions.

The JCP3-N01 Installation Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JCP3-N01 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-N01 Control Panel - NVG is "on condition" only. Refer to the JCP3-N01 Maintenance Manual. Periodic maintenance of the JCP3-N01 is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JCP3-N01 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-N01 Control Panel - NVG 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-N01 installed in an [aircraft make and model].

Applicability: Applies to a Jupiter Avionics JCP3-N01 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-N01 Installation and Operating Manual
JCP3-N01 Maintenance Manual
JCP3-N01 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-N01 Control Panel - NVG 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-N01 Operating Manual.

4. Servicing Information

N/A

5. Maintenance Instructions

Maintenance of the JCP3-N01 is 'on condition' only. Periodic maintenance is not required. Refer to the JCP3-N01 Maintenance Manual.

6. Troubleshooting Information

Refer to the JCP3-N01 Maintenance Manual.

7. Removal and Replacement Information

Refer to Section 2 of this manual - the JCP3-N01 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-N01 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-N01 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-N01 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:
KV	JAC 09-19-17 CPM	JAC 09-19-17 KDV

Nomenclature	Control Panel - NVG
Type/Model/ Part No.:	JCP3-N01
TSO No.:	CAN-TSO-C139
Manufacturer's Build Configuration:	*JCP3-N01 Build Configuration Rev A*
Manufacturer's Test Report:	*JCP3-001 Test Report (Qualification - Final) Rev A* *JCP3-N01 CAN-TSO Design Change Assessment Rev A*
Manufacturer's Specification and/or Other Applicable Specification:	*JCP3-001 Declaration of Design and Performance Rev B* *JCP3-N01 Derivative Declaration of Design and Performance Rev A*
Manufacturer:	Jupiter Avionics Corporation
Address:	1959 Kirschner Road, Kelowna, BC, Canada, V1Y 4N7
Revision & Change No of DO-160:	Rev. G dated December 8, 2010
Dates Tested:	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[1]	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 (≤ 0.3 m)
Power Input [2] DC Equipment DC Current Ripple DC Inrush	16.0	JRAC-001 Remote Audio Controller tested to Category: (ZXX)(BXX) Z (+28 Vdc equipment), B (+14 Vdc and + 28 Vdc equipment) X, no test performed X, no test performed
Voltage Spike [2]	17.0	JRAC-001 Remote Audio Controller tested to Category A (600Vp, 10 us)
Audio Frequency Susceptibility [2]	18.0	JRAC-001 Remote Audio Controller tested to Category Z (+28 Vdc equipment) JRAC-001 Remote Audio Controller tested to Category B (+14 Vdc equipment)
Induced Signal Susceptibility Magnetic Fields into Equipment Magnetic Fields into Interconnect Electric Fields into Interconnect Voltage Spikes into Interconnect	19.0 19.3.1 19.3.3 19.3.4 19.3.5	Equipment tested to Category ZCX 20 A at 400Hz 30 A·m at 400Hz 1800 V·m at 400Hz 3.0 m
Radio Frequency Susceptibility [3] Radiated Conducted	20.0	Equipment tested to Category RR R (20 V/m CW&SW) and (150 V/m PM) R (30 mA)
Radio Frequency Emission Radiated[3] Conducted	21.0	Equipment tested to Category H
Lightning Induced Transient Susceptibility Pin Injection Cable Bundle Single and Multiple Stroke[3] Cable Bundle Multiple Burst[3]	22.0	Equipment tested to Category A3J3L3 Equipment tested to Waveform Set A, Test Level 3 Equipment tested to Waveform Set J, Test Level 3 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

This product is a derivative of the JCP3-001. All tests were performed on the JCP3-001. A similarity analysis between the two products is detailed in the Jupiter Avionics Corp. document JCP3-N01 CAN-TSO Design Change Assessment Rev A.

Test information can be found in the Jupiter Avionics Corp. document: *JCP3-001 Test Report (Qualification - Final) Rev A*

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*