

# JA30-001 Volume Control Panel



## Installation and Operating Manual

**Rev A** 

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## **JA30-001 Volume Control Panel**

### **SECTION 1 - DESCRIPTION**

#### 1.1 System Overview

The JA30-001 Volume Control Panel adjusts receiver audio in an aircraft for one user.

The JA30-001 Volume Control Panel provides a passive emergency mode that directs COM 1 and COM 6 RX Input audio directly to COM 1 and COM 6 RX Output audio.

#### 1.2 Features Overview

All JA30-001 inputs are adjustable from the front panel controls.

The JA30-001 has nine RX Active Annunciators that show the operator when audio is present on a channel

The JA30-001 supports up to nine receivers.

The JA30-001 combines the nine receivers into a separate single RX Composite output.

The JA30-001 has two modes of operation: Normal Mode and Emergency Mode.

#### 1.3 Inputs and Outputs

Refer to the JA30-001 connector maps for the mating connector designators and pin assignments for the input and output signals.

1.3.1 In	puts
----------	------

Name	Qty	Туре
LIGHTS INPUT	1	Analog control signal
POWER INPUT	1	28 Vdc power supply
RX HI and RX LO	9	Audio signal
<u>Outputs</u>		
Nome	011	Tumo

Name	Qty	Туре
RX HI and RX LO	9	Audio signal
RX COMP OUT HI and LO	1	Audio signal

#### <u>1.3.3</u> Grounds and Spares

Name	Qty	Туре
CHASSIS GROUND	1	Chassis Ground
SPARE	2	Spare contacts

1.3.2



## 1.4 Specifications

### 1.4.1 Electrical Specifications

Power Input

	Primary nominal voltage Maximum voltage Minimum voltage Emergency voltage Power off voltage	28 Vdc 32.2 Vdc 20.5 Vdc 18.0 Vdc 15.0 Vdc
	Input current at 28 Vdc	≤ 0.7 A
1.4.1.1	Audio Performance	
Rated Input I	_evel	
	COM RX audio rated input level	7.75 Vrms ±10%
Rated Outpu	t Power	
	COM RX audio rated output power in normal mode EMER mode with power ≥18 Vdc COM1 and COM6 RX audio rated output power in EMER mode with power < Power off Voltage RX Composite rated output	7.75 Vrms ±10% 7.75 Vrms ±10% 7.75 Vrms ±20% 2.6 Vrms ±10%
Audio Freque	ency Response	
	COM RX output audio frequency response	≤3dB from 300 to 6000 Hz
Distortion Ch	aracteristics	
	Audio output distortion at rated power	≤10%
Input Impeda	ance	
	COM RX Audio input Impedance	1000 $\Omega$ ±10%
Output Load		
	COM RX OUTPUT load RX Composite Audio load	600 Ω ±10% 600 Ω ±10%
Volume Cont	trol	
	Receive Audio control variation	$32 \text{ dB} \pm 10\%$
Input to outp	ut Crosstalk and Bleed-through Level	
	Input to Output crosstalk	≤55 dB
Input to Input	t Crosstalk Level	
	Input to Input crosstalk	≤60 dB
Audio Noise	Level without Signal	
	Noise level below the rated output	≥60 dB
1.4.1.2	Audio Performance, Other	
	COM 1 RX and COM 6 RX output circuitry type ( <u>Emergency</u> ) RECEIVE AUDIO input circuitry type COM RX output circuitry type RX Composite Audio output circuitry type RX detect Threshold control range relative to COM RX input	differential differential balanced differential ≤3 dB ±10%



1.4.1.3	Lights Input					
	LIGHTS INPUT LIGHTS INPUT current		0 to 28 Vdc ≤10 mA			
<u>1.4.2</u>	Mechanical Specifications	Mechanical Specifications				
	Height		1.125 in [28.6 mm] max			
	Overall depth Behind panel depth (not Including C Component dimensions in front of p	onnectors) anel	5.75 in [146 mm] max 4.90 in [124.5 mm] max 0.85 in [21.6 mm] max			
	Faceplate width	5.75 in [146 mm] max				
	Behind panel width	4.92 in [125.0 mm] max				
	Weight		1.09 lb [0.49 kg] max			
	Material		brushed 5052-H32 aluminum with conversion coating			
	Connectors (2):	J1 J2	One 44 pin High Density D-Sub male One 4-40 0.5 stud			
	Mounting		2 Dzus fasteners			
	Bonding	$\leq$ 2.5 m $\Omega$				
	Installation kit part number	INST-JA30				
	Faceplate		white legends on black			
	Faceplate legend colour, luminance	white, 1 ± 0.5 fL				

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## **JA30-001 Volume 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 JA30-001 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 - <u>www.jupiteravionics.com/warranty</u>

#### 2.3.1 Warranty

This product manufactured by JAC is 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 online 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

Those installing the JA30-001, on or in a specific type or class of aircraft, must determine that the aircraft installation conditions meet standards. The JA30-001 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.

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

#### 2.4.3 Mechanical Installation

The JA30-001 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 JA30-001 illuminated legends are field replaceable. For further information, refer to the 'Legend Replacement' document in Appendix A of this manual.

#### 2.4.5 Legend Text Selection

When ordering a JA30-001, use the Configuration Chart on the JAC website, or DOC-CONF-30x01 in Appendix A of this manual to specify the text for each legend. Complete the chart and include it with the order.

#### 2.4.6 Post Installation Checks

#### 2.4.6.1 Voltage/Resistance checks.

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

- a) Check P1 pin 16 for +28 Vdc relative to ground.
- b) Check P1 pin **31** for continuity to ground (less than  $0.5 \Omega$ ) power ground.
- c) Check P1 pins **32** for continuity to ground (less than  $0.5 \Omega$ ) chassis ground.
- d) Check all pins for shorts to ground or adjacent pins.

#### 2.4.6.2 Power on Checks.

Power up the aircraft's systems and confirm normal operation of all functions of the JA30-001. Refer to Section 3 (Operation) for specific operational details.

- a) Begin with only the pilot's headset attached. Confirm radio operation for receive. Check the radio selection and inputs. Do not proceed until the radios are functioning correctly.
- b) Unusual buzzes, hums or other background audio are symptomatic of multiple grounds, or noisy external systems such as blowers or pumps sharing wiring with the audio system.
- c) Check the Emergency operation.
- d) Check that all configurations settings are correct.

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



#### 2.5 Adjustments



The JA30-001 RX detector thresholds are adjusted via trimpots, accessed through a hole in both sides of the unit. Rotating the trimpots clockwise (cw) will lower the RX detector threshold, and rotating them counterclockwise (ccw) will raise it. The RX detector threshold can be adjusted up to +3 dB of rated input level. (The default factory setting is -20 dB).

#### 2.6 Installation Kit

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

The installation kit (Part # INST-JA30) consists of the following:

Qty	Description	JAC Part #
44	22 AWG wire size, D-Subminiature - Crimp Socket	CON-3320-0354
1	44 Positions, D-Sub - High Density - Crimp Socket Housing	CON-3470-0044
1	D-Sub 4-40, Hardware - Jack Screws	CON-5150-0440
1	25 Pin Clamshell, Plastic D-Sub Hoods	CON-5300-0125
1	0.625" Inside Diameter, Tag Ring	CON-5500-0625
1	1" Inside Diameter, Heat Shrink Tube	WIR-HTSK-1000

#### 2.6.1 Recommended Crimp Tools

Standard D-Sub Crimp Tool Chart					
Tool Type Hand crimping tool Positioner Insertion/extractor too					
POSITRONIC	9507-0-0-0	9502-5-0-0	4711-2-0-0		
DANIELS	AFM 8	K13-1	91067-2		
MIL-SPEC	M22520/2-01	M22520/2-08	M81969/1-02		

#### 2.7 Installation Drawings

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



## **SECTION 3 – OPERATION**

#### 3.1 Introduction

This section contains the operating instructions for the JA30-001.

### 3.2 Front Panel Controls

**Note**: The legends are removable and may be replaced with custom ordered parts.



#### **Receive Select and Volume Controls** (1) These are nine rotary backlit knobs that adjust the phones volume of the associated receive audio from minimum (CCW) to maximum (CW). The volume knobs also provide the PUSH ON/PUSH OFF facility for each audio channel. A receive source is selected when the corresponding Receive Volume control knob is in the out position, and the white arrow position marker will illuminate. **Receive Active Annunciators** (2) When a channel's audio level is above the RX Detect threshold. the RX Active annunciator will illuminate. COM9 JAC (illuminated white = Active; dark = Not Active.) (3) Legends

The legends are replaceable to enable customization to match the associated audio controller



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#### 3.3 Normal Operation Mode

The JA30-001 is in Normal operation mode when suitable electrical power is supplied to the unit.

#### 3.3.1 Receive Operation

When the Receive Audio signal level for an RX input is above the RX DETECT threshold, the RX Active annunciator (2) for that input is illuminated.

To select a COM RX audio receive source, the corresponding Receive Volume control knob (1) must be in the out position.

When an RX volume control is fully CCW, the level of the associated COM RX audio will be at minimum, and when it is fully CW, the level of the COM RX audio will be at maximum.

#### 3.3.2 Panel Lighting

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

#### 3.4 Emergency Operation Mode

The JA30-001 is in Emergency operation mode when no electrical power is supplied to the unit.

When in Emergency mode, the JA30-001 routes the COM 1 RX and COM 6 RX INPUTS directly to the COM 1 RX and COM 6 RX OUTPUTs respectively.



## **Installation and Operating Manual**

## **Appendix A - Installation Drawings**

#### A1 Introduction

The drawings necessary for installation and troubleshooting of the JA30-001 Volume Control Panel are in this Appendix, as listed below.

#### A2 Installation Drawings

DOCUMENT	Rev
JA30-001 Connector Map	Α
JA30-001 Interconnect	А
JA30-001 Mechanical Installation	С
DOC-CONF-30x01 JA30-001 Configuration Chart	А

Reference Documents	
TOL-CUST-EXTR Legend Replacement	Α

				N	lair	n Co	onn	ect	or					
P1 44 PIN FEMALE DMIN MATING CONNECTOR	10 16 031	21 20 20 20 20 20 20 20 20 20 20									1     0     0     1     0     0     1     1 <th></th> <th></th> <th>COM 1 RX OUTPUT LO COM 1 RX INPUT HI COM 1 RX INPUT HI 0 1 6 0 1 6 0 1 6 1 2 000 1 1 1 0 1 6 0 1 6</th>			COM 1 RX OUTPUT LO COM 1 RX INPUT HI COM 1 RX INPUT HI 0 1 6 0 1 6 0 1 6 1 2 000 1 1 1 0 1 6 0 1 6
	POWER INPUT POWER GROUND	CHASSIS GROUND	COM 8 RX INPUT HI	COM 8 RX INPUT LO	COM 8 RX OUTPUT HI	COM 8 RX OUTPUT LO	SPARE 1	SPARE 2	COM 9 RX INPUT HI	COM 9 RX INPUT LO	COM 9 RX OUTPUT HI	COM 9 RX OUTPUT LO	RX COMPOSITE OUTPUT HI	RX COMPOSITE OUTPUT LO
			VIE	W IS	FRC	M RI	EAR	OF M	ATIN	IG CO	ONNE	сто	R	
	PPE													
	CHE		)	ĸ	v	_	-			V			JU	
			+			-["	ILE						Vo I	olume Control Panel P1 Connector Map
	APPF	ROVE	D					GE C 00N	DDE 3	P/ J	ART N A30-	NO. 001		SHEE 1/2
	CONF TO JU	DENT PITER	IAL & P AVION	ROPR	RIETAF ORP.	ry D J	OC N A30-	NO. -001	Conr	necto	or Ma	p Re	v A	

#### Chassis Ground Connector



JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DWT

CHASSIS GROUND CONNECTOR

#4 RING TERMINAL MATING CONECTOR



PREPARED	KV								
CHECKED									
CHECKED		TITLE	Volume Control Panel						
APPROVED	P2 Connector Map								
	NCAGE CODE	PART NO.	SHEET						
		L00N3	JA30-001						
CONFIDENTIAL & PROPRIETARY		DOC NO.							
TO JUPITER AV	ONICS CORP.	JA30-001 Connector Map Rev A							

#### JA30-001 INTERCONNECT WIRING NOTES

#### NOTES

JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DWT

 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).

Connect AUDIO OUTPUT LO to destination equipment audio input lo. If destination equipment does not have an audio lo contact, connect AUDIO OUTPUT LO to ground near destination power ground.

Connection to airframe ground should be made with 20 AWG wire. Length not to exceed 3 FT (0.9 M).

Cable shields at connector pins should be terminated to airframe ground using a tag ring P/N: MS27741-3 or equivalent.

PREPARED	TAT			
	(JAC) (02-19-21)		CORPORATION	
	SDB	TITLE	Volume Control Panel	
APPROVED JAC 02-19-21 KDV	JAC		Interconnect Notes	
	NCAGE CODE L00N3	PART NO. JA30-001	SHEET 1/3	
CONFIDENTIAL TO JUPITER AVI	& PROPRIETARY ONICS CORP.	DOC NO. JA30-001 Inte	erconnect Rev A.dwg	





JA30-001 Interconnect Rev A.dwg

TO JUPITER AVIONICS CORP JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.D

CONFIDENTIAL & PROPRIETARY





Standard legends shown, all legends are customizable up to 4 characters. Click on legend to customize. Save and email file to sales@jupiteravionics.com

System Lighting Type Standard White NVIS Compatible	
Customer Information   Installation Company:   Phone:   Contact:   End User Name:   Aircraft Type:	
OC-CONF-30X01 Artwork Rev A.dwg	•



### 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.



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).





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 JA30-001 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 JA30-001 Volume 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 JA30-001 Volume Control Panel in [aircraft location].

Installed in accordance with the JA30-001 Installation Manual, Revision [], and AC 43.13-2, Chapters 2, and 3.

The JA30-001 interfaces with existing aircraft systems per the Installation Manual instructions.

The JA30-001 Installation Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JA30-001 through an existing []-Amp circuit breaker that was previously used by the original audio panel. The net electrical load is unchanged.

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

#### B2 Instructions for Continued Airworthiness

Maintenance of the JA30-001 Volume Control Panel is "on condition" only. Refer to the JA30-001 Maintenance Manual. Periodic maintenance of the JA30-001 is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JA30-001 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 JA30-001 Volume 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 JA30-001 installed in an [aircraft make and model].

Applicability: Applies to a Jupiter Avionics JA30-001 installed in an [aircraft make and model].

Definitions/Abbreviations: None, N/A.

Precautions: None, N/A.

Units of Measurement: None, N/A.

**Referenced Publications**: JA30-001 Installation and Operating Manual JA30-001Maintenance Manual JA30-001 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 JA30-001 Volume Control Panel with interface to external transceivers and [include other equipment/systems as appropriate]. Refer to Appendix A of this manual for interconnect information. Refer to aircraft manufacturer approved interconnect for actual installation.

#### 3. Control, Operation Information

Refer to section 3 of this manual or to the Jupiter Avionics JA30-001 Operating Manual. (N/A if no controls.)

#### 4. Servicing Information

N/A

#### 5. Maintenance Instructions

Maintenance of the JA30-001 is 'on condition' only. Periodic maintenance is not required. Refer to the JA30-001Maintenance Manual.

#### 6. Troubleshooting Information

Refer to the JA30-001 Maintenance Manual.

#### 7. Removal and Replacement Information

Refer to Section 2 of this manual - the JA30-001 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 JA30-001 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

JA30-001 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 JA30-001 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