JUPITER AVIONICS

JA94-R62A Dual Audio Controller Remote Mount - Mixing Amplifier

Installation and Operating Manual

Rev A

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IMPORTANT:

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JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier

SECTION 1 - DESCRIPTION

1.1 System Overview

The JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier is a derivative of the JA94-001A and all data contained in the JA94-001A Design Specification is applicable to the JA94-R62A except as described in this document.

The JA94-R62A sums up to 6 channels of audio for each of the Mixer 1 and Mixer 2 outputs.

The JA94-R62A sums 2 channels of audio to the Mixer 3 outputs.

The JA94-R62A provides a passive emergency mode that directs the Mixer 1 Input 1 and Mixer 1 Input 4 to the Mixer 1 Output.

The JA94-R62A provides a passive emergency mode that directs the Mixer 2 Input 1 and Mixer 2 Input 3 to the Mixer 2 Output.

The JA94-R62A is set up on a per-installation basis using a configuration cable and a PC running the product configuration tool to download system configuration settings via the configuration connector. To facilitate future customizations and certification, neither software nor complex electronic devices are used in the JA94-R62A design.

1.2 Features Overview

All audio input and output levels are adjustable using the configuration tool ProCS (Product Configuration Software) to write configuration commands via the JA99-001 configuration cable to the configuration connector. The configuration commands set the level of non-volatile digital control potentiometers to control audio signal levels and to non-volatile expander latches which are connected to audio gates to control the audio signal routing.

The JA94-R62A supports up to 6 audio inputs for mixer 1 and 2 outputs.

The JA94-R62A supports up to 2 audio inputs for mixer 3 outputs.

The JA94-R62A has two modes of operation: Normal Mode and Emergency Mode.

1.3 Inputs and Outputs

Refer to the JA94-R62A connector maps for the mating connector designators and pin assignments for the input and output signals.

<u>1.3.1 Inputs</u>

Name	Qty	Туре
CONFIG DATA TO JA94-R62A	1	Data signal
MODE SELECT	1	Multi format signal
MIXER 3 INPUT 1/INPUT 2 HI/LO	4	Audio signal
MIXER 1 & 2 INPUT 6 HI/LO	4	Audio signal
POWER INPUT / GROUND	2	Power supply, 28 Vdc
MIXER 1 & 2 HI/LO	10	Audio signals



1.3.2 Outputs

	Name	Qty	Туре	
	CONFIG DATA FROM JA94-R62A	1	Data signal	
	MIXER 1&2 OUTPUT 1/ MIXER 3 OUTPUT 1&2 HI/LO	8	Audio signal	
<u>1.4</u>	Specifications			
1.4.1	Electrical Specifications			
Power Input				
<u>rower input</u>	Primary nominal voltage Maximum voltage Minimum voltage Emergency voltage Power Off Voltage Input current at 28 Vdc Input current at 18.0 Vdc			28 Vdc 32.2 Vdc 22.0 Vdc 18.0 Vdc ≤ 15.0 Vdc 0.95 A max 1.5 A max
<u>1.4.1.1</u>	Audio Performance			
Rated Input Le	vel			
	MIXER 1 and MIXER 2 INPUT 1, 2, 3 MIXER 1 INPUT 6 and MIXER 2 INP	3, 4, and UT 6 inp	l 5 input level out level	7.75 Vrms ± 10% 7.75 Vrms ± 10%
Rated Output L	evel			
	MIXER 1 & MIXER 2 OUTPUT rated MIXER 1 & 2 OUTPUT rated output I MIXER 3 OUTPUT 1 & 2 rated output COM MIC rated output CVR rated output CVR rated output with MUSIC INPUT CVR rated output with MIC INPUT CVR rated output, in emergency mod RX COMP rated output Intercom Tie Line type 1 rated output Intercom Tie Line type 2 rated output	output l evel in e it level f de,	evel emerg mode	$\begin{array}{l} 8.7 \ \text{Vrms} \pm 10\% \\ 2.34 \ \text{Vrms} \pm 20\% \\ 2.50 \ \text{Vrms} \pm 10\% \\ 0.250 \ \text{Vrms} \pm 10\% \\ 0.500 \ \text{Vrms} \pm 10\% \\ 0.250 \ \text{Vrms} \pm 10\% \\ 1.00 \ \text{Vrms} \pm 10\% \\ 0.500 \ \text{Vrms} \pm 10\% \\ 2.50 \ \text{Vrms} \pm 10\% \\ 340 \ \text{mVrms} \pm 10\% \\ 1.20 \ \text{Vrms} \pm 10\% \end{array}$
Audio Frequen	cy Response			
	Audio output audio frequency respon	se		≤ 3 dB from 300 to 6000 Hz
Distortion Char	acteristics			
	Audio output distortion at rated powe	r		≤ 10%
Input Impedand	<u>e</u> MIXER 1 INPUT 6 and MIXER 2 INP MIXER 3 INPUT 1 & 2 input impedar MIXER 1 and 2 INPUT 1, 2, 3, 4, and Music Audio input Impedance Intercom Tie Line Audio input Impeda	UT 6 inp nce I 5 input ance	out impedance impedance	$\begin{array}{l} 150 \ \Omega \pm 10\% \\ 1000 \ \Omega \pm 10\% \\ 1000 \ \Omega \pm 10\% \\ 1000 \ \Omega \pm 10\% \\ 2000 \ \Omega \pm 10\% \end{array}$
Output Impeda	nce			
	MIXER 1 & 2 output impedance MIXER 3 output impedance			50 Ω ± 10% ≤ 80 Ω



<u>Output Load</u>			
	MIXER 1 & 2 output load Microphone load CVR load MIXER 3 OUTPUT 1 & 2 load		$\begin{array}{l} 600 \ \Omega \pm 10\% \\ 150 \ \Omega \pm 10\% \\ 5000 \ \Omega \pm 10\% \\ 600 \ \Omega \pm 10\% \end{array}$
1.4.1.2	Audio Performance, Other		
	MIXER 1 & 2 INPUT 6 inputs designed for micro MIXER 1 & 2 INPUT 6 inputs bias bias voltage MIXER 1 & 2 INPUT 6 input circuitry type MIXER 1, 2 and 3 AUDIO input circuitry type MIXER 1, 2 and 3 output circuitry type COM MIC output circuitry type	phone type	amplified dynamic/electret 12 Vdc ± 10% single ended differential single ended differential
1.4.2	Mechanical Specifications		
	Height Depth Width Weight Material Connectors:	J1 J2 J4	 1.97 in [50.0 mm] max 5.79 in [172.5 mm] max 5.87 in [149.1 mm] max 1.94 lbs. [0.88 kg] max brushed aluminum with conversion coating One 37-pin D-Sub male, Slide lock posts One 50-pin D-Sub male, Slide lock posts One 4 pole 3.5mm stereo jack One stud
	Mounting Bonding Installation kit part number	72	One stud 4 x 10-32 Screw fasteners \leq 2.5 m Ω INST-94R62
4 4 0			

1.4.3 Environmental Specifications

The JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier 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.

-45 °C to +70 °C
-55 °C to +85 °C
50,000 ft
Cat A (48 hours)
6 g, 20 g for 11 ms

1.4.4 Flammability of Materials

The JA94-R62A complies with the requirements of RTCA/DO-160G Sec 26.3.3 "Flammability", through equivalent flammability testing of materials and the Small Parts Exemption.

JUPITER AVIONICS CORPORATION

JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier

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 JA94-R62A 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

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 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

The conditions and tests for CAN TSO approval of the JA94-R62A are minimum performance standards. Those installing the JA94-R62A, on or in a specific type or class of aircraft, must determine that the aircraft installation conditions are within TSO standards. The JA94-R62A 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 JA94-R62A can be mounted in any attitude and location with adequate space and sufficient clearance for the connector and wiring harness. It requires no direct cooling.



Note: During bench test set up, it is normal for the JA94-R62A chassis to become warm to the touch.

2.4.4 In-Line PTT Cordsets

If in-line PTT cordsets (drop cords) are used, be aware that incorrectly configured or improperly shielded in-line PTT cordsets can lead to significant audio problems.

2.4.5 Post Installation Checks

2.4.5.1 Voltage/Resistance checks.

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

- a) Check P2 pin 17 for +28 Vdc power relative to ground.
- b) Check P2 pin **34** for continuity to ground (less than 0.5Ω).
- c) Check all pins for shorts to ground or adjacent pins.

2.4.5.2 Configuration

Ensure that the JA94-R62A contains the correct configuration settings. This may be done at the factory, on the maintenance bench or in the aircraft before or during the power on checks. Refer to section 2.5.1.

2.4.5.3 Power on Checks.

Power up the aircraft's systems and confirm normal operation of all functions of the JA94-R62A. Refer to Section 3 (Operation) for specific operational details.

- a) Begin with only one 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) 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) 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.
- e) Check that all configuration settings are correct.

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



2.5 Adjustments and Configuration using ProCS™

All the JA94-R62A internal adjustments are set from the Product Configuration Software ProCS[™]. Configuration data is sent to the JA94-R62A via the configuration connector J4, using the Configuration Cables and a computer running the ProCS[™] software version v0.64.0 or higher. For configuration requirements, see section 2.5.1.

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

2.5.1 Configuration Cabling Requirements

To configure the JA94-R62A, it is necessary to load the Product Configuration Software ProCS[™] onto a Windowsbased computer as described in the ProCS[™] manual.

The cables required to configure the JA94-R62A are not included with the unit.

Cabling option 1:

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

Cabling option 2:

Quantity	Description	JAC Part #
1	USB A Male to RS232 3.5mm Plug	CAB-USB-0006

2.5.2 ProCS[™] Setup

The ProCS[™] JA94-R62A menu item 'ProCS Setup' provides Setup drawings showing the cabling arrangement for connecting the JA94-R62A to a computer running the ProCS[™].

2.5.3 Configurable Settings

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

Note: To configure the JA94-R62A, power must be applied to the unit.

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

2.5.3.1 Mixer Assignments

Mixer Assignm	ents	The Mixer Assignr to define the radio	nents window is use s for the Mixers	
Mixer 1	Mixer 2	Radios List		
Input 1:	Default Transcei	iver [Rx Level = 7.75 Vrms	, Tx Level = 0.250 Vrms)	•
Input 2:	Default Transcei	ver [Rx Level = 7.75 Vrms	, Tx Level = 0.250 Vrms]	•
Input 3:	Default Transcei	iver [Rx Level = 7.75 Vrms	, Tx Level = 0.250 Vrms)	-
Input 4:	Default Transcei	iver [Rx Level = 7.75 Vrms	, Tx Level = 0.250 Vrms)	-
Input 5:	Default Transcei	ver [Rx Level = 7.75 Vrms	. Tx Level = 0.250 Vrms1	•



2.5.3.2 Input Levels

JA94-R	62A Input Le	evels	The Mixer Ir	nput Levels (e sted from 0.25	xcept Mixer 1 and Mixe	er 2 inputs	6 – fixed)
Input Levek	5						
Mixer 1 Input 1	Default Transceiver :	0.25 Vr	ms		99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 1 Input 2	Default Transceiver :	0.25 Vr	ms 📃	-	99.00 Vrms [7 .	75 Vrms]	Default Level
Mixer 1 Input 3	Default Transceiver :	0.25 Vr	ms		99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 1 Input 4	Default Transceiver :	0.25 Vr	ms	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 1 Input 5	Default Transceiver :	0.25 Vr	ms	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 1 Input 6		0.25 Vr	ms 🧰		99.00 Vrms [0.	25 Vrms]	Default Level
Mixer 2 Input 1	Default Receiver :	0.25 Vr	ms	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 2 Input 2	Default Receiver :	0.25 Vr	ms	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 2 Input 3	Default Receiver :	0.25 Vr	ms		99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 2 Input 4	Default Receiver :	0.25 Vr	ms	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 2 Input 5	Default Receiver :	0.25 Vr	ms	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 2 Input 6		0.25 Vr	ms 🧰		99.00 Vrms [0.	25 Vrms]	Default Level
Mixer 3 Input 1	Default Receiver :	0.25 Vr	ms 📃	-	99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 3 Input 2	Default Receiver :	0.25 Vr	ms		99.00 Vrms [7.	75 Vrms]	Default Level
Mixer 3 Output Levels				The level of the Mixer 3 output levels can be adjusted			
Mixer 3 Output	Impedance = 600 Of	0.25 Vrms	_	1011 0.20	2 50 Vrms [2.50 V	rmsl	-
Mixer 3 Output	2:	0.25 Vrms			2.50 Vrms [2.50 V	/rms]	

2.5.4 Other Configuration Features

In the JA94-R62A Product Information Window, the model number, serial number and check sum of the JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier can be saved and viewed.



2.6 Installation Kit

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

The installation kit (Part # INST-94R62) consists of the following:

Quantity	Description	JAC Part #
1	37 Socket Positions, Zinc Plated, D-Subminiature - Crimp Socket Housing	CON-3460-0137
1	50 Socket Positions, Zinc Plated, D-Subminiature - Crimp Socket Housing	CON-3460-0150
1	37 Pin Clamshell, Hardware - Plastic D-Sub Hoods	CON-5300-0137
1	50 Pin Clamshell, Hardware - Plastic D-Sub Hoods	CON-5300-0150
87	Machined 20 to 24 AWG wire size range, MIL spec, D-Submin - Crimp Socket	CON-3320-2024
2	For Any D-sub Connector, Hardware - Slide Locks - Vertical	CON-5275-0050
2	0.625" Inside Diameter, Hardware - Tag Ring	CON-5500-0625
2	1" Inside Diameter, Heat Shrink Tube	WIR-HTSK-1000

2.6.1 Recommended Crimp tools

Tool Type	Hand crimp tool	Positioner	Insertion/extraction tool
Positronic	9507-0-0	9502-5-0-0	4711-2-0-0
Daniels	AFM8	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.



JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier

SECTION 3 – OPERATION

3.1 Introduction

This section contains the operating instructions for the JA94-R62A.

Note: The JA94-R62A has no integrated operator controls. The operator should be aware how the unit functions in both Normal and Emergency modes. Check your configuration with the installing agency.

3.2 Normal Operation Mode

The JA94-R62A is in Normal mode unless the power to the unit is off.

3.2.1 Mixer 3 Operation

The JA94-R62A routes the Mixer 3 Input 1 and Mixer 3 Input 2 to both the Mixer 3 Output 1 and Mixer 3 Output 2.

3.3 Emergency Operation Mode

The JA94-R62A operates in Emergency Mode automatically when the power to the unit is off.

The passive emergency mode directs the Mixer 1 Input 1 and Mixer 1 Input 4 to the Mixer 1 Output, and the Mixer 2 Input 1 and Mixer 2 Input 3 to the Mixer 2 Output.



Installation and Operating Manual

Appendix A - Installation Drawings

A1 Introduction

The drawings necessary for installation and troubleshooting of the JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier are in this Appendix, as listed below.

A2 Installation Drawings

DOCUMENT	Rev
JA94-R62A Connector Map	Α
JA94-R62A Interconnect	Α
JA94-R62A Mechanical Installation	Α
JA94-R62A Equipment Block diagram	Α

	1 0 2	MIXER 3 INPUT 1 HI
	2 0 0 2	MIXER 1 INPUT 1 HI
	3	MIXER 2 INPUT 1 HI
MIXER 2 INPUT 1 LO		MIXER 1 INPUT HI
MIXER 1 INPUT 2 LO	5 0 23	MIXER 2 INPUT 2 HI
MIXER 2 INPUT 2 LO	0 24	
MIXER 1 INPUT 3 LO	25	
MIXER 2 INPUT 3 LO	7 0 26	
MIXER 1 INPUT 4 LO	B 0 1 27	MIXER 1 INPUT 4 HI
MIXER 2 INPUT 4 I O	9 0 0 28	MIXER 2 INPUT 4 HI
SDARE 4	10 0 29 29	SPARE 1
		MIXER 1 INPUT 5 HI
	12 0	MIXER 2 INPUT 5 HI
MIXER 2 INPUT 5 LO	13 0 31	MIXER 3 INDUIT 2 HI
MIXER 3 INPUT 2 LO	1 0 32	
MIXER 3 OUTPUT 1 LO	4 1 • • 33	
MIXER 3 OUTPUT 2 LO	5 0 34	MIXER 3 OUTPUT 2 HI
SDARF 5	16 0 1 35	SPARE 2
	17 0 5 3	MIXER 1 OUTPUT HI
	18 0 6	MIXER 2 OUTPUT HI
MIXER 2 OUTPUT LO	19 0 37	SPARE 3
_		

VIEW IS FROM REAR OF MATING CONNECTOR

	PREPARED	KV			
	OUFOKED	(JAC (11-28-19)	*	CORPORATION	
	CHECKED	AH	TITLE D	ual Audio Controller - Remote Mount - Mixer Amplifier	
		JAC (11-28-19) KDV		P1 Connector Map	
	APPROVED		NCAGE CODE	PART NO.	SHEET
			L00N3	JA94-R62A	1/4
	CONFIDENTIAL	& PROPRIETARY	DOC NO.		
	TO JUPITER AV	ONICS CORP.	JA94-R62A Coni	nector Map Rev A	
JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DWT					



AUDIO CONNECTOR

SPARE 1	SPARE 2	P SPARE 3	SPARE 4	SPARE 5	SPARE 6	SPARE 7	SPARE 8	SPARE 9	SPARE 10	SPARE 11	SPARE 12	SPARE 13	SPARE 14	SPARE 15	SPARE 16	POWER INPUT	
1 18 18 0 34	2 0 19 0 19 0 35		4 0 21 0 21 0 37	5 0 22 0 38	6 0 2 2 3 9		8 0 25 0 41	9 5 26 1 6 42		11 7 28 0 44	12 3 29 0 45	13 30 30 46	14 0 3 1 47		16 2 3 0 49	17 3 0 50	
POWER GROUND	SPARE 1/ SPARE 31	SPARE 18 SPARE 32	SPARE 19 SPARE 33 SPARE 33	SPARE 20 SPARE 34 SPARE 34	DEPENDENT SPARE 35 SPARE 35	W SPARE 22 SPARE 36 SPARE 36	MIXER 2 INPUT 6 HI MIXER 2 INPUT 6 LO		SPARE 23 SPARE 37	SPARE 24 SPARE 38	SPARE 25 SPARE 39 SPARE 39	SPARE 40	SPARE 2/ SPARE 41	SPARE 28 SPARE 42	SPARE 29 SPARE 43	SPARE 30 SPARE 44	



P2 50 PIN FEMALE DMIN MATING CONNECTOR

POWER CONNECTOR

CONFIGURATION CONNECTOR



ACCEPTS THE FOLLOWING PLUG FORMATS



MATING PLUG NAMES

InternationalCONFIG DATA TO JA941ST RING: RX DATACONF DATA FROM JA942ND RING: GROUNDGROUND2ND RING: CONFCONF

UNIT SIGNAL NAMES

 2ND HING: GROUND
 GROUND

 3RD RING: CONFIG AUDIO
 CONFIG MODE SELECT

	PREPARED	KV JAC (11-28-19) AH JAC (11-28-19) KDV			
	CHECKED		TITLE DI	al Audio Controller - Remote Mount - Mixer Amplifierl	
				P4 Connector Map	
	APPROVED		NCAGE CODE	PART NO.	SHEET
			L00N3	JA94-R62A	3/4
	CONFIDENTIAL	& PROPRIETARY	DOC NO.		
	TO JUPITER AV	IONICS CORP.	JA94-R62A Conr	nector Map Rev A	
JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DWT					

CHASSIS GROUND CONNECTOR



JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DWT

CHASSIS GROUND CONNECTOR

#4 RING TERMINAL MATING CONECTOR



PREPARED	KV								
	(JAC) (11-28-19)	•							
CHECKED	AH	TITLE D	ual Audio Controller - Remote Mount - Mixer Amplifier						
	JAC	P5 Chassis Ground Connector							
APPROVED	(11-28-19)	NCAGE CODE	PART NO.	SHEET					
		L00N3	JA94-R62A	4/4					
CONFIDENTIAL	& PROPRIETARY	DOC NO.							
TO JUPITER AV	IONICS CORP.	JA94-R62A Conr	JA94-R62A Connector Map Rev A						

JA94-R62A 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).

- CONNECTION TO AIRFRAME GROUND SHOULD BE MADE WITH 20 AWG WIRE. LENGTH NOT TO EXCEED 3 FT (0.91 M).
- CABLE SHIELDS AT THE JA94 CONNECTOR PINS SHOULD BE TERMINATED TO AIRFRAME GROUND USING A TAG RING P/N: MS27741-5 OR EQUIVALENT.

	PREPARED	TAT			
	CHECKED	(JAC (11-28-19)		CORPORATION	
	CHECKED	AH JAC (11-28-19) KDV	Dual Aud	io Controller - Remote Mount - Mixing Amplif	ier
				Interconnect Notes	
	APPROVED		NCAGE CODE	PART NO.	SHEET
			L00N3	JA94-R62A	1/4
			DOC NO.		
	10 JUFITER AVI	IUNICS CORP.	JA94-R62A In	terconnect Rev A.awg	
JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DW	4				

JA94-R62A	J1	P1 37 PIN FEMALE DMIN			
MIXER 1 INPUT 1 HI MIXER 1 INPUT 1 LO	2 21		<	HI SOURCE 1 LO OUTPUT	
MIXER 1 INPUT 2 HI MIXER 1 INPUT 2 LO	4 23			HI SOURCE 2 LO OUTPUT	
MIXER 1 INPUT 3 HI MIXER 1 INPUT 3 LO	6 25	Ū		HI SOURCE 3	
MIXER 1 INPUT 4 HI MIXER 1 INPUT 4 LO	8 27	l U			
MIXER 1 INPUT 5 HI MIXER 1 INPUT 5 LO	11 30				
MIXER 2 INPUT 1 HI MIXER 2 INPUT 1 LO	3				
MIXER 2 INPUT 2 HI	5				
MIXER 2 INPUT 3 HI	7				
MIXER 2 INPUT 4 HI	9	Ĭ			
MIXER 2 INPUT 4 LO	12				
MIXER 2 INPUT 5 LO	31				
MIXER 3 INPUT 1 LO MIXER 3 INPUT 2 HI	20 13	Ť			
MIXER 3 INPUT 2 LO	32			LO OUTPUT	
MIXER 1 OUTPUT HI MIXER 1 OUTPUT LO	17 36			∩ HI AUDIO SYSTEM 1 ↓↓ ↓ ↓ ↓↓ ↓ ↓	
MIXER 2 OUTPUT HI MIXER 2 OUTPUT LO	18 37	l Ļ		HI AUDIO SYSTEM 2 LO INPUT	
MIXER 3 OUTPUT 1 HI MIXER 3 OUTPUT 1 LO	14 33	ļ Ļ		HI AUDIO SYSTEM 3	
MIXER 3 OUTPUT 2 HI MIXER 3 OUTPUT 2 LO	15 34	ļ Ļ			
	10	<u>+</u>		-	
SPARE 1 SPARE 2 SPARE 3 SPARE 4	10 16 19 20				
SPARE 5	35				
		ļ			
		PREPARED			
			-28-19 AH	TITLE Dual Audio Controller - Remote Mount - Mixing Amplifie	
		APPROVED 11	JAC -28-19		
				LOON3 JA94-R62A	2/4
		TO JUPITER AVIONICS	CORP.	JA94-R62A Interconnect Rev A.dwg	

JUPITER AVIONICS TEMPLATE AUTOCAD PORTRAIT SIZEA REV B.DV



OPTION: CONFIGURATION FROM ProCS APPLICATION









0.30in [7.6mm]

€ CENTER OF GRAVITY ±0.03in [0.8mm]

WEIGHT: 1.90 lbs [0.86 kg] MAX.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	PREPARED	TAT					
ANGLES ARE IN DEGREES TOLERANCES: 1 DEC PLACE: ± 0.1 2 DEC PLACE: ± 0.01 3 DEC PLACE: ± 0.005 ANGLES: ± 0.5 DEG	CHECKED	JAC 11-28-19 TAT	TITLE	Dual Audio Controller - Remote Mount - Mixing	1		
		JAC	Amplifier				
	APPROVED	(11-28-19)	NCAGE CODE	PART NO.	SHEET		
		KDV	L00N3	JA94-R62A	1/1		
MATERIAL: N/A	CONFIDENTIAL &	& PROPRIETARY	DOC. NO.				
FINISH: N/A	DRAWING NO	DT TO SCALE	JA94-R62A Mechanical Installation Rev A.SLDDRW				

L JUPITER AVIONICS TEMPLATE SOLIDWORKS PORTRAIT SIZEB REV B.DRWDOT





Installation and Operating Manual

Appendix B - Certification Documents



B1 Airworthiness Approval

Airworthiness approval of the JA94-R62A 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 controller with a Jupiter Avionics JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier. 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 controller and replaced with a Jupiter Avionics JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier in [aircraft location].

The JA94-R62A is approved to CAN-TSO-C139. The JA94-R62A meets RTCA DO-160G environmental qualifications for this installation. See Section 1 of the JA94-R62A Installation Manual.

Installed in accordance with the JA94-R62A Installation Manual, Revision [], and AC 43.13-2, Chapters 2, and 3.

The JA94-R62A interfaces with existing aircraft systems per the Installation Manual instructions.

The JA94-R62A Installation Manual provides detailed installation instructions and wiring diagrams (Section 2, and Appendices A and B).

Power is supplied to the JA94-R62A through a 2 Amp circuit breaker.

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 JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier is "on condition" only. Refer to the JA94-R62A Maintenance Manual. Periodic maintenance of the JA94-R62A is not required.

The following sample Instructions for Continued Airworthiness (ICA) provides assistance in preparing ICA for the Jupiter Avionics JA94-R62A 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 JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier 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 JA94-R62A installed in an [aircraft make and model].

Applicability: Applies to a Jupiter Avionics JA94-R62A installed in an [aircraft make and model].

Definitions/Abbreviations: None, N/A.

Precautions: None, N/A.

Units of Measurement: None, N/A.

Referenced Publications: JA94-R62A Installation and Operating Manual

JA94-R62A Maintenance Manual

JA94-R62A 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 JA94-R62A Dual Audio Controller - Remote Mount - Mixing Amplifier 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 JA94-R62A Operating Manual.

4. Servicing Information

N/A

5. Maintenance Instructions

Maintenance of the JA94-R62A is 'on condition' only. Periodic maintenance is not required. Refer to the JA94-R62A Maintenance Manual.

6. Troubleshooting Information

Refer to the JA94-R62A Maintenance Manual.

7. Removal and Replacement Information

Refer to Section 2 of this manual - the JA94-R62A 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 JA94-R62A Installation and Operating Manual - for installation drawings and interconnect examples.

9. Special Inspection Requirements

10. Application of Protective Treatments N/A

11. Data: Relative to Structural Fasteners

JA94-R62A 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 JA94-R62A 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: KV	Checked: (JAC 01-03-20)	Approved:
	SRM	MQS

Nomenclature:	Dual Audio Controller - Remote Mount - Mixing Amplifier
Type/Model/ Part No.:	JA94-R62A
TSO No.:	CAN-TSO-C139
Manufacturer's Build Configuration:	JA94-R62A Build Configuration Rev A
Manufacturer's Test Report:	JA94-001A Test Report (Qualification - Final) Rev A ¹ JA94-R62A Test Report (Environmental - Vibration - 20191205) Rev A JA94-R62A Test Report (Environmental - Operational Shock & Crash Safety - 20191216) Rev A JA94-R62A CAN-TSO Design Change Assessment Rev A
Manufacturer's Specification and/or Other Applicable Specification:	JA94-001A Declaration of Design and Performance Rev A JA94-R62A 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:	June 1 to Sep 11, 2017 and Dec 5 to Dec 17, 2019

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, (50,000 ft)	
Decompression	4.6.2	Equipment tested to Category A1, (8,000 to 50,000 ft)	
Overpressure	4.6.3	Equipment tested to Category A1, (-15,000 ft)	
Temperature Variation	5.0	Equipment tested to Category B, (5°C/min)	
Humidity	6.0	Equipment tested to Category A, (48 hours)	



CONDITIONS	SECTION	DESCRIPTION OF TESTS CONDUCTED	
Operational Shock and Crash Safety	7.0	Equipment tested to Category B	
Operational Shock	7.2.1	Equipment tested to 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 ²	8.0	Equipment tested to Categories: [(SBM)(U2FF1)]	
Fixed Wing - Sine	8.5.1	Equipment tested to Category SM	
Fixed Wing - Random	8.5.2	Equipment tested to Category SB	
Helicopter - Random, unknown	8.8.3	Equipment tested to Category U2FF1	
Explosive Atmosphere	9.0	Equipment identified as Category X, no test performed	
Waterproofness	10.0	Equipment identified as Category X, no test performed	
Fluids Susceptibility	11.0	Equipment identified as Category X, no test performed	
Sand and Dust	12.0	Equipment identified as Category X, no test performed	
Fungus	13.0	Equipment identified as Category X, no test performed	
Salt Fog Test	14.0	Equipment identified as Category X, no test performed	
Magnetic Effect	15.0	Equipment tested to Category Z ($\leq 0.3 \text{ m}$)	
Power Input	16.0	Equipment tested to Category: Z(XX)	
DC Equipment		Equipment tested to Category Z (+28 Vdc equipment),	
DC Current Ripple		X, no test to be performed	
DC Inrush		X, no test to be performed	
Voltage Spike	17.0	Equipment tested to Category A, (600Vp, 10 us)	
Audio Frequency Susceptibility	18.0	Equipment tested to Category Z, (+28 Vdc equipment)	
Induced Signal Susceptibility	19.0	Equipment tested to Category [ZC]	
Magnetic Fields into Equipment	19.3.1	20 A at 400 Hz	
Magnetic Fields into Interconnect	19.3.3	30 A⋅m at 400 Hz	
Electric Fields into Interconnect	19.3.4	1800 V⋅m from 380 to 420 Hz	
Voltage Spikes into Interconnect	19.3.5	3.0 m	
Radio Frequency Susceptibility ³	20.0	Equipment tested to Category [RR]	
Radiated		Category R, (20 V/m CW&SW) and (150 V/m PM)	
Conducted		Category R, (30 mA)	
Radio Frequency Emission ³	21.0	Equipment tested to Category H	



CONDITIONS	SECTION	DESCRIPTION OF TESTS CONDUCTED	
Lightning Induced Transient Susceptibility ³	22.0	Equipment tested to Category [A3J3L3]	
Pin Injection		Equipment tested to Waveform Set A, Test Level 3	
Cable Bundle Single and Multiple Stroke		Equipment tested to Waveform Set J, Test Level 3	
Cable Bundle Multiple Burst		Equipment tested to Waveform Set L, Test Level 3	
lcing	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

¹ This product is a derivative of the JA94-001A. Tests were performed on a JA94-001A and a JA94-R62A. A similarity analysis between the two products is detailed in the Jupiter Avionics Corporation document: *JA94-R62A CAN-TSO Design Change Assessment Rev A*.

² During exposure to vibration test conditions the following critical resonances changed frequency greater than 1.5%:

Orientation	Initial Freq. [Hz]	Final Freq. [Hz]
Longitudinal Axis, Bottom Mount	1027	1003
Lateral Axis, Bottom Mount	823.3	841.6
	1069	1032
Lateral Axis, Side Mount	330.2	336.9

³ Testing performed at CKC Laboratories in Bothell, WA, USA. Reference report: JA94-001A Test Report (CKC Labs - DO-160G Section 20, 21, 22 - 20170911) Rev A