

# TSPR-JA9X Production Test Set



# Installation and Operating Manual

Rev. A

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RECORD OF REVISIONS			
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JUPITER AVIONICS CORPORATION

TSPR-JA9X Production Test Set

# **SECTION 1 - DESCRIPTION**

## 1.1 System Overview

The TSPR-JA9X Production Test Set connects a JA9X series audio controller or other compatible products to the various test loads and test equipment needed to perform the production acceptance test procedure. The TSPR-JA9X allows for manual testing or automated testing via a multi-connector automated test interface.

#### 1.2 Features Overview

The TSPR-JA9X Production Test Set is a 19 inch rack mount test panel that connects the unit under test to test equipment via the CAB-TSPR-0004, 37 Pin D-sub Male to Female Cable, and the CAB-TSPR-0005, 50 Pin D-sub Male to Female Cable as required. Additional D-subminiature connectors allow for an automated test equipment interface. BNC connectors provide test equipment access for each input, output and bi-directional signal. Headset jack connectors for each microphone and phones pair allow for a standard aviation headset connection. Banana jacks accept power supply inputs and provide a connection to keyline outputs. Audio 3.5mm jacks connect to both the unit under test (UUT) and a computer. Switches allow for audio selection, load selection, on/off control, keyline activation and mode selection. LEDs indicate power status and discrete or keyline outputs from the unit under test.

#### 1.3 Specifications

#### 1.3.1 Mechanical Specifications

Height	5 26 in [134 mm] may
Teight	5.20 III [154 IIIII] IIIax
Behind panel depth	1.96 in [49.8 mm] max
Overall depth	2.85 in [72.4 mm] max
Faceplate width	19.0 in [483 mm] max
Behind panel width	17.6 in [447 mm] max
Weight	4.00 lbs [1.81 kg] max
Connectors (multiple)	Refer to section 3
Mounting	4 10-32 fasteners
Faceplate	white legends on black

#### 1.3.2 Test Cables

The TSPR-JA9X includes two Production Test Set Cables:

<b>Quantity</b>	Description	JAC Part #
1	37 Pin Male D-Sub to 37 Pin Female D-Sub	CAB-TSPR-0004
1	50 Pin Male D-Sub to 50 Pin Female D-Sub	CAB-TSPR-0005

JUPITER AVIONICS CORPORATION

# **TSPR-JA9X** Production Test Set

# **SECTION 2 – INSTALLATION**

#### 2.1 Introduction

This section contains unpacking and inspection procedures, installation information, and post-installation checks.

#### 2.2 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>

#### 2.2.1 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. This warranty does not cover failures due to abuse, misuse, accident, or unauthorized alteration or repairs.

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.

#### 2.3 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.

#### 2.3.1 Mechanical Installation

The TSPR-JA9X can be mounted in a 19" test rack 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 Installation Drawings

The Mechanical Installation drawing can be found in Appendix A of this manual.



SECTION 3 – OPERATION

#### 3.1 Introduction

The switches, connectors and annunciators of the TSPR-JA9X are described in this section.

**Note**: The connection and operating instructions for the TSPR-JA9X depend upon the unit under test (UUT). All connection information can be found in the Acceptance Test Procedure for the relevant product in the Setup Diagram and Connection Setup Procedure sections.

## 3.2 Front Panel



## 3.2.1 POWER



The POWER switch (SW1) has a red switch bat, and is a 2-position, single pole toggle switch for power on/off. Annunciator DS1 will illuminate green when the unit is connected to a power supply and the switch is in the on (up) position.

The fuse holder (F1) contains the power input fuse (glass body Slo-Blo, 3 Amp, 0.25in dia x 1.25in long).

Two banana socket connectors (marked +28 VDC) provide a power supply connection. The left (negative -) power connector (J7) is black, and the right (positive +) power connector (J6) is red.

#### 3.2.2 CURRENT

Two banana socket connectors (marked +28 VDC) provide a power supply current measurement output. The left (negative -) current connector (J9) is black, and the right (positive +) current connector (J8) is red.







The LIGHTS switch (SW45) has a red switch bat, and is a 2-position, single pole toggle switch. When the switch is in the 'up' position, the lights will be on, and the annunciator DS6 will illuminate green. When the switch is in the 'down' position, the lights will be off and the annunciator will be dark.

Two banana jack connectors (J40 and J39) provide a lights power supply input and a lights ground.

# 3.2.4 D-Subminiature Connectors



#### Unit Under Test (UUT) Interface Connectors

There are two connectors to interface with the unit under test. Connector J1 is a 37 pin female D-subminiature connector marked 'TO JA95X J1', and J2 is a 50 pin female D-subminiature connector marked 'TO JA95X J2'.

#### TST-SET-APX1 Interface (JAC use only)

There are three female D-subminiature connectors to interface to the TSPR -APX1 automated test set: J4 is a 50 pin connector, J5 is a 9 pin connector, and J15 is a 37 pin connector. The automated Test set is not normally available for use outside Jupiter Avionics – for further information contact <u>www.jupiteravionics.com/contact.</u>

## 3.2.5 DIGITAL TIE



There are two connectors to interface to digital audio products.

J11 is a male 3-contact XLR connector marked DIGITAL TIE OUT.

J12 is a female 3-contact XLR connector marked DIGITAL TIE IN.



# 3.2.6 ALERT Switches



ALERT EN (SW21) is a red bat 2-position, single pole toggle switch for UUT alert enable.

When this switch is in the up (on) position, alerts will be enabled on the test unit, and when it is down (off) all alerts will be disabled.

There are three yellow bat ALERT key switches (SW27, SW28 and SW29) marked ALERT 1 KEY, ALERT 2 KEY, and ALERT 3 KEY. Each is a 2-position single pole toggle switch with an engraved line linking it to its associated LED annunciator (DS3, DS4 and DS5).

When an Alert key is in the down (off) position, the associated alert will be off and the LED will be dark.

When an Alert key is in the up (on) position, the associated alert will be on and the LED will illuminate green.

# 3.2.7 PAX Switches and Connectors



There are five groupings for PAX headsets and associated connectors and switches. The diagram on the left shows the grouping for PAX 1, showing the engraved lines that ensure that all associated components are considered together.

PAX 1 has three connectors – PHONES (J17), H/S (J18) and MIC (J19) for attaching phones, headset and mic.

The microphone LOAD ON switch (SW32) is a 2-pole white bat switch above the MIC Connector and is used to enable (up) or disable (down) the mic load.

The Phones LOAD switch (SW31) is a 3-pole center-off switch used to select by the phones load (up for 600  $\Omega$ , down for 150 ( $\Omega$ ) or no load in the center position.

There are similar groupings for PAX 2 through PAX 5, each with their own component designators.



Below the PAX 1 grouping (beside the POWER switch) is the green bat 2-pole PAX 1 TX PTT switch (SW22) and linked annunciator (DS2).

When the switch is in the up (on) position, the LED will illuminate green to indicate that PAX 1 TX PTT is active, and when the switch is in the down (off) position, the LED will be dark to indicate that PAX 1 TX PTT is inactive.



# 3.2.8 CPLT and PLT



There are two groupings for CPLT (Copilot) and PLT (Pilot) headsets and associated connectors and switches. The diagram on the left shows the grouping for CPLT, showing the engraved lines that ensure that all associated components are considered together.

CPLT has three connectors – PHONES (J35), H/S (J36) and MIC (J37) for attaching phones, headset and mic.

LOAD ON (SW44) will enable (up) or disable (down) an attached load, selected by positioning the LOAD switch (SW43) up for 600 ( $\Omega$ ) or down for 150 ( $\Omega$ ). Both these switches have white bats.

The green bat 2 pole switches TX PTT (SW24) and ICS PTT (SW26) are active in the 'up' position, and inactive in the 'down' position.

There is a similar grouping for PLT, with its own component designators.

### 3.2.9 Transmit Mic and PTT Connectors



There are five Transmit Mic and PTT connectors, labelled COM 1, COM 2, AUX, FM1 and FM2. Each group is similar to COM 1 (see left) but with its own designators.

COM 1 MIC (J47) is a female BNC transmit microphone connector to interface to an audio analyzer.

COM 1 PTT (J41) is a black banana socket transmit PTT connector to interface to a multimeter. It is linked to an LED (DS7) which will illuminate green to indicate an active PTT condition.

#### 3.2.10 Receive Audio Select Switches

The TSPR-JA9X faceplate has sixteen 2-position, 2-pole toggle switches for receive audio. When the switches are in the 'up' position, the designated Receiver is selected. When the switch is in the 'down' position, the receiver is deselected (off).

To the left of the Receive Audio Select switches is a female BNC receive audio connector (J10) marked RX AUDIO, to interface to an audio generator. It has a legend line that associates the connector to the first (left most) receive audio select switch.



The first five switches have white switch bats, and are labelled COM1, COM2, AUX, FM1 and FM2. The switch designators for these switches are SW3 to SW7.



The next eleven switches have blue switch bats, and are labelled NAV1, NAV2, ADF1, ADF2, DME, MKR, DIRECT, MUS L, MUS R, FR MUS L and FR MUS R. The switch designators for these switches are SW8 to SW18.



# 3.2.11 PA, CVR and RX COMP connectors



The TSPR-JA9X has three BNC connectors for interface to an audio analyzer, labelled PA MIC (J46), CVR (J38), and RX COMP (J14).

Beside the RX COMP connector is a white bat 2-position, single pole switch (SW19) marked MUS L. The switch selects between Receive Composite (up position) and Music Left (down).

#### 3.2.12 Configuration Switch and Connectors

The CONFIG switch (SW20) is a white bat 2-position, single pole switch. When using ProCS<sup>™</sup> for Configuration, this switch should be in the up (CONFIG) position and the configuration data lines are connected from the JA99 configuration connector to the UUT connector; otherwise select the MUSIC (down) position and the music audio is connected from the UUT connector to the front panel music left and front panel music right switches.



#### 3.2.13 ICS TIE Switch and Connector



The ICS TIE load switch (SW30) is a white bat 3-position, center off, single pole toggle switch used to select an intercom tie line load (2K in the 'up' position, and 287 in the 'down' position, or no load in the center-off position).

The ICS Tie Line connector (J13) is a female BNC to interface to an audio generator or audio analyzer.

The connector is associated with the ICS Tie Load Switch by an engraved line on the faceplate.



# **Installation and Operating Manual**

# **Appendix A - Installation Drawings**

### A1 Introduction

The drawings necessary for installation and troubleshooting of the TSPR-JA9X Production Test Set are in this Appendix, as listed below.

## A2 Installation Drawings

DOCUMENT	Rev
TSPR-JA9X Mechanical Installation	



WEIGHT: 4.00 lbs [1.81 kg] MAX.



