JUPITER AVIONICS CORPORATION

JA95-002
Audio Controller
– Six Transceiver

Operating Manual

Rev. A

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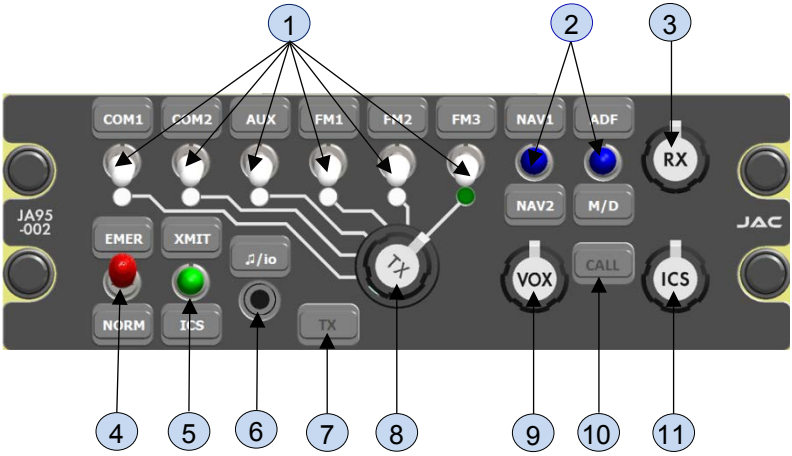
1 Introduction

This manual contains the operating instructions for the JA95-002.

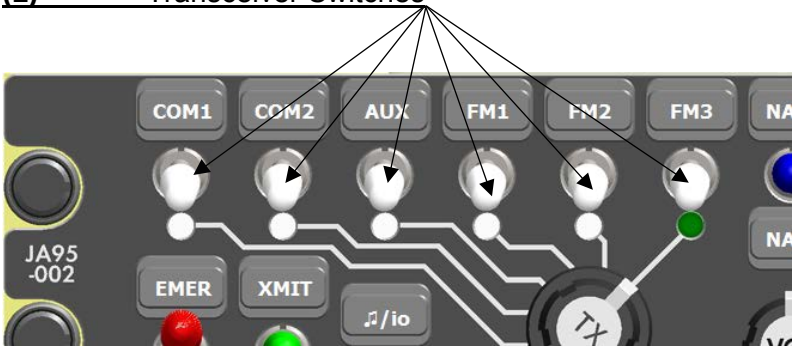
Note: The legends and two deadfront annunciators are removable and may be replaced with custom ordered parts. The front panel controls are referred to by the default legend and annunciator names as shown below.

2 Front Panel Controls



1. Transceiver switches and associated legends
2. Receiver switches and associated legends
3. Receive volume control
4. Mode switch
5. Pilot's Transmit/ICS (Multi-function) switch
6. Music/configuration input connector and legend
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, AUX, FM1, FM2, FM3.)

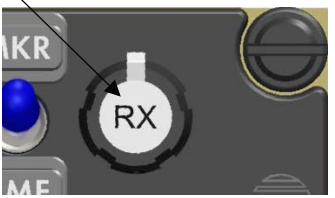
(2) Receiver Switches

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, and ADF1, M/D.)

Note: When M/D is selected, both MKR and DME audio will be routed to the phones.

(3) Receive Volume Control

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



(4) 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 Normal and Emergency Mode operation, see section 3 and section 4 below.

(5) Multi-function (Transmit/ICS) Selection 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 sections 3.4 and 3.7 below for Multi-function switch functionality.

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. The legends are interchangeable to allow customization.

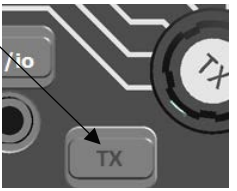
(6) Music/Configuration Connector (♫/io)

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 port is also used during installation to change configuration settings.)

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 dead-front annunciator that will illuminate when the JA95-002 is transmitting.

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

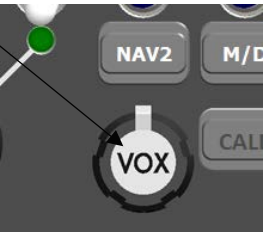
(8) Transmit Selector

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 - 'FM3' 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).

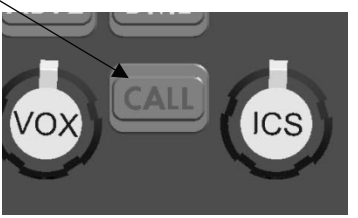
To adjust the unit for **VOX** (Voice activated) use, the VOX control should be set fully ccw and then slowly rotated cw to the point where no intercom audio can be heard. The VOX control should be adjusted for proper operation with the ambient noise.

(10) CALL Annunciator

This is a deadfront annunciator.

When enabled, it will illuminate when a ground is applied to the CALL input from another user's audio controller or by an external 'call' button.

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



Note: Check with your installing agency for confirmation of the operation of this annunciator.

(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 completely cw gives rated level, and completely ccw reduces the output to minimum level.

3 Normal Operation Mode

Note: Numbers in parentheses refer to the front panel controls shown in section 2.

The JA95-002 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 unit.

3.1 Panel Lighting

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

3.2 Receiving

When the JA95-002 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 incoming transmissions is set 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 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, COM 2, AUX, FM 1, FM 2, or FM3. The corresponding Transmit Select annunciator will illuminate.

When the user's TX PTT is activated, the unit 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.

3.4 FM2 PTT Operation

Note: If the FM2 transceiver has been configured as duplex, it can be used with a cellphone or sat-phone. Check your configuration with the installing agency.

If the unit has been configured for cellphone or sat-phone use and FM2 has been selected for transmit, momentarily activating the TX PTT (either from the faceplate or by some other method) will keep the FM 2 transmitting. A second momentary activation of the TX PTT, or moving the Transmit Selector away from FM 2, will stop the FM 2 from transmitting.

3.5 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.

3.6 ICS Operation

ICS audio 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 also includes the audio input on the ICS TIE from other audio controllers.

The ICS audio is output on the phones of each user.

The ICS audio is muted during transmit.

The ICS audio level at the phones is controlled by the ICS volume control (**12**).

3.7 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 unit 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.

3.8 Music Operation

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

4 Emergency Operation Mode

Emergency mode can be selected by the Mode switch on the front panel, or entered automatically if power to the unit is lost.

3.4.1 Auto Emergency Mode

If the unit is in emergency mode because power has been lost to the unit, the sum of the COM 1 transceiver, NAV 1 receive, and DIRECT AUDIO will be routed to the pilot's phones and the CVR. The pilot's microphone and transmit key are connected to the COM 1 transceiver. No other function in the JA95 will operate when power is lost. All indicator LEDs, legends and annunciators will be dark.

3.4.2 Selected Emergency Mode

If the unit is in emergency mode because the EMER / NORM switch is in the EMER position and sufficient power is applied to the JA95, the sum of the COM 1 receive, NAV 1 receive, DIRECT AUDIO and Alert audio will be routed to the pilot's phones and the CVR. The pilot's microphone and transmit key are connected to the COM 1 transceiver. The pilot is disconnected from the ICS. The COM 1 transceiver and NAV 1 receiver and DIRECT AUDIO are not available to the other users. All other functions of the JA95 will operate. The LEDs, legends and annunciators will retain normal functionality.

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