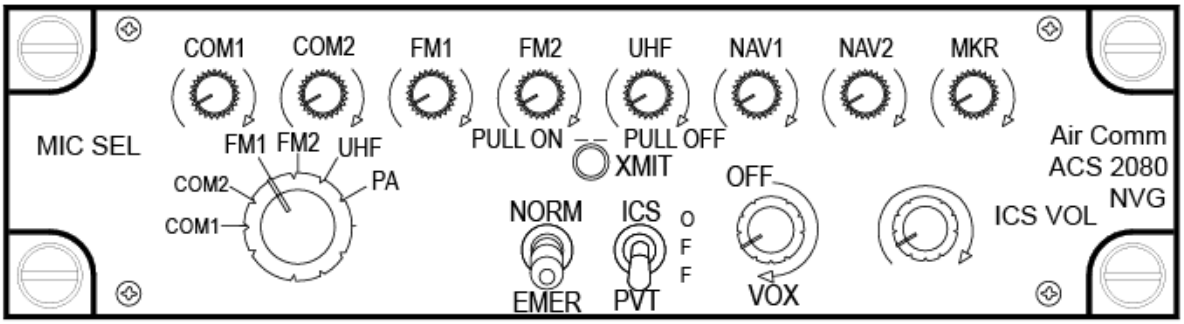
AIR COMM SYSTEMS, INC

AIRBORNE- AUDIO

Single Audio Mixer Panel Operations and Installation Manual

ACS 2080-300 NVG Kern County Fire Revision 1.3



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ACS 2080-300 Operations and Installation Manual
Physical and Operating Specifications

■ Physical Specifications

SIZE: 5.75 in. (14.61cm) W
1.50 in.(3.81 cm) H
5.03 in.(12.77cm) D

WEIGHT: 1.50 lb. (.68kg)

MOUNTING: Dzus rail mount

CONTROLS: Panel mounted - transmit = rotary switch, audio inputs = potentiometer, volume control = dual potentiometer

ILLUMINATION: Edge lit front panel per MIL-P-7738E, type 3. Capable of connection to dimmer bus for adjustment. Amber transmit light indicates when unit is in transmit mode.

■ Operating Specifications

INPUTS: 8 selectable receive audio inputs and 6 transmit selections.

DUTY CYCLE: Continuous

POWER REQUIREMENTS: 28V DC +/- 10%

MAXIMUM OPERATING ALTITUDE: 16,500 ft.(5029 m)

OPERATING TEMPERATURE RANGE: -40 C to +85 C (operating)
-65 C to +125 C (storage)

CURRENT DRAIN: 70 mA at 28V (standby) - 500mA at 28V (max. signal)

AUDIO OUTPUT: Minimum 250 mW into 600 ohms

FREQUENCY RESPONSE: Within 6 db - 300-3000Hz

ICS INPUT IMPEDANCE: 600 ohms

RECEIVER INPUT IMPEDANCE: 600 ohms - matched to receiver

INPUT ISOLATION: Not less than 50 db between inputs

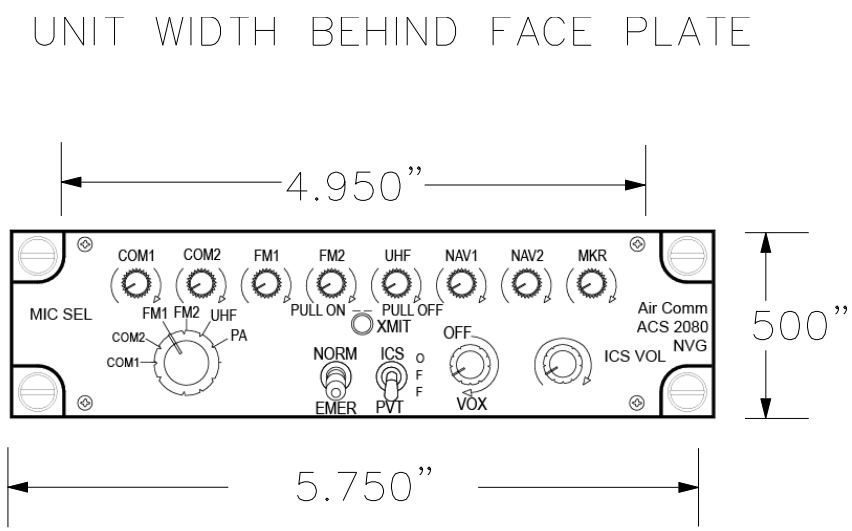
AUDIO MUTING: Not less than 40 db during transmit/ICS (optional)

MIC SENSITIVITY: 300 mV for rated output

DISTORTION: Less than 10% at 1000 Hz for maximum output

ACS 2080-300 Operations and Installation Manual
Physical Dimensions

■ Physical Dimension Outline for mounting



FRONT PANEL WIDTH – STANDARD DZUS MOUNT

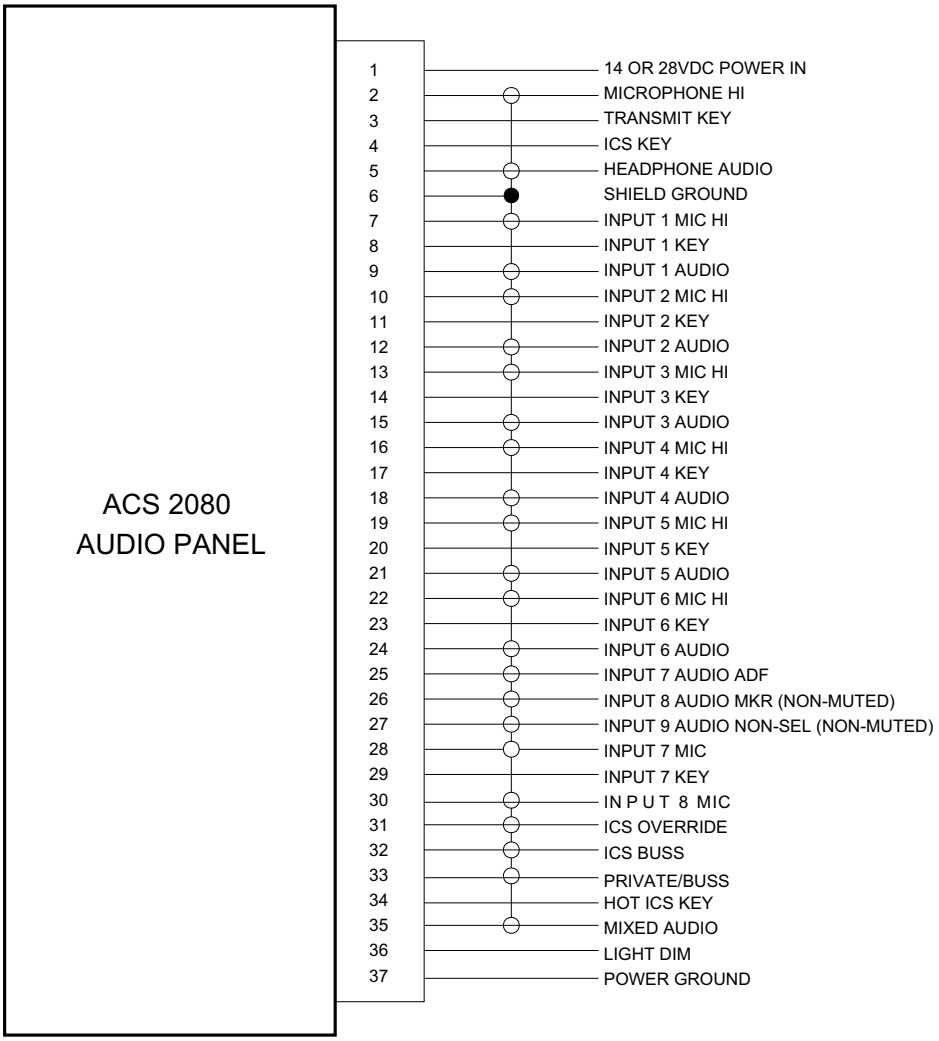
Physical Installation

The ACS 2080-300 is designed to be Dzus mounted and should be installed in the aircraft using the DC37SL-F Installation kit that is included. The above outline drawing of the unit with dimensions will facilitate the installation. The DC37SL-F Installation Kit consists of the following:

One (1) 37 pin AMP D-Subminiature female mating connector complete with crimp pins, hood, and slidelock. The connector pin configuration of the ACS 2080-300 rear connector and the recommended wire size for the aircraft cable harness is shown on the following page. Be sure that adequate clearance is allowed for the rear connector and cable harness.

ACS 2080-300 Operations and Installation Manual
Interface Schematic

■ Connector Pin-out



The ACS 2080-300 wiring harness should be constructed of Tefzel aircraft wire (M22759/16 grade). Power and ground wires should be 18 or 20 AWG, and all other wires may be 22 AWG. Shielded wires should be used where noted. Adequate protection against wear and chafing should be taken by using a braided cable sleeving or jacket. Before completing installation, verify that all cable connector pins are seated properly and that the connector is securely mounted to the unit mating connector.

Pre-fabricated cable harnesses are available from Air Comm to expedite installation — consult our sales department for details.

ACS 2080-300 Operations and Installation Manual
Front Panel Controls

(See Figure 1 — Page 8 for pictorial)

■ Description

The ACS 2080-300 Single Audio Mixer Panel is a compact, lightweight unit which provides full audio control and ICS for a single position in the aircraft. It has the capability to provide its user with 8 independent receive audio selections which have a front panel adjustable volume level, up to 6 transmitter selections, full headphone audio and ICS volume control, and three ICS modes: PTT, PVT, and VOX.

■ 1- Norm - Emer Switch

This switch controls the operation of the audio panel in the event of an audio amplifier failure. In the *"up"* position (NORM) the audio panel is in normal operating mode. In the *"down"* position (EMER) all audios are summed and then fed directly to the headphones. This enables the use of the transmitters and other equipment during audio amplifier failure.

■ 2 - QUICK ADJUST Adjustable Receive Audio Volume-On/Off Pots

Any receive audio can be selected and muted using innovative new QUICK ADJUST volume pots. A receive audio is selected by pulling out the knob toward the operator. With the receive audio activated, the headphone volume of the audio can then be adjusted to the desired level. Turning the knob in a clockwise direction increases the volume level, and turning in the counter-clockwise direction decreases the volume level. To mute the receive audio, the knob only needs to be pushed back in. The volume for that audio remains set at the desired level and does not need to be reset the next time it is selected.

■ 3 - ICS Volume Control

This knob adjusts ICS headphone volume. Clockwise rotation increases the volume - counter clockwise rotation decreases the volume.

■ 4 - Lighting

The audio panel is lit by four (4) 28V NVG lamps which provide night time visibility for all panel legends. In the event of a failure of lamps return to Air Comm Systems for replacement.

ACS 2080-300 Operations and Installation Manual

Front Panel Controls

(See Figure 1 — Page 8 for pictorial)

■ 5 - Mic Selector

This rotary switch performs three functions simultaneously. It **(a)** connects the mic to the selected transmitter **(b)** selects the associated keyline, and **(c)** selects the associated audio (if not already selected using the audio select-mute volume pot). This allows properly monitoring before transmitting.

■ 6- Transmit Indicator

When the transmit key is activated this indicator lights up show that the audio panel is in the transmit mode.

■ 7 - ICS Switch

This switch selects the ICS mode. In the *" u p "* position the audio panel is connected to the common ICS buss. This enables the audio panel to communicate with any other audio panels also connected to the common ICS buss. In the *"center"* position (OFF) the audio panel is disconnected from all other panels.

In the *"down"* position (PVT) the audio panel is connected to the common PVT ICS Buss. This enhances the audio panel to communicate with audio panels also connected to the common PVT buss. An emergency switch can be installed for pilot to connect all audio panels to override buss.

■ 8- VOX Control

The high-power VOX is controlled by this knob. In order to use the VOX feature, the ICS ON/OFF/PVT toggle switch must either be in the "ON" or "PVT" position. If the toggle switch is in the "OFF" position, the Audio Mixer Panel is isolated from the ICS buss, and no ICS communication is possible. Once the ICS switch is in the "ON" or "PVT" position, the VOX can be activated by turning the knob clockwise past the On/Off detent and threshold set to activate with voice.

The moment you begin talking the VOX circuitry activates and relays your voice transmission. When you stop speaking the VOX circuit turns off to reduce unwanted background noise. Turning the knob clockwise adjusts the threshold. If the knob is turned fully clockwise the VOX circuit will always be active and you will hear background noise. If the knob is adjusted just past the On/Off detent then the VOX circuit cannot be activated and you will revert to normal keyed ICS. Adjust the threshold level to match the ambient noise conditions of the aircraft at the time for proper operation.

While in the VOX mode, if you wish to quickly isolate yourself from the ICS buss, you simply put the ICS ON/OFF/PVT toggle switch in the "OFF" position.

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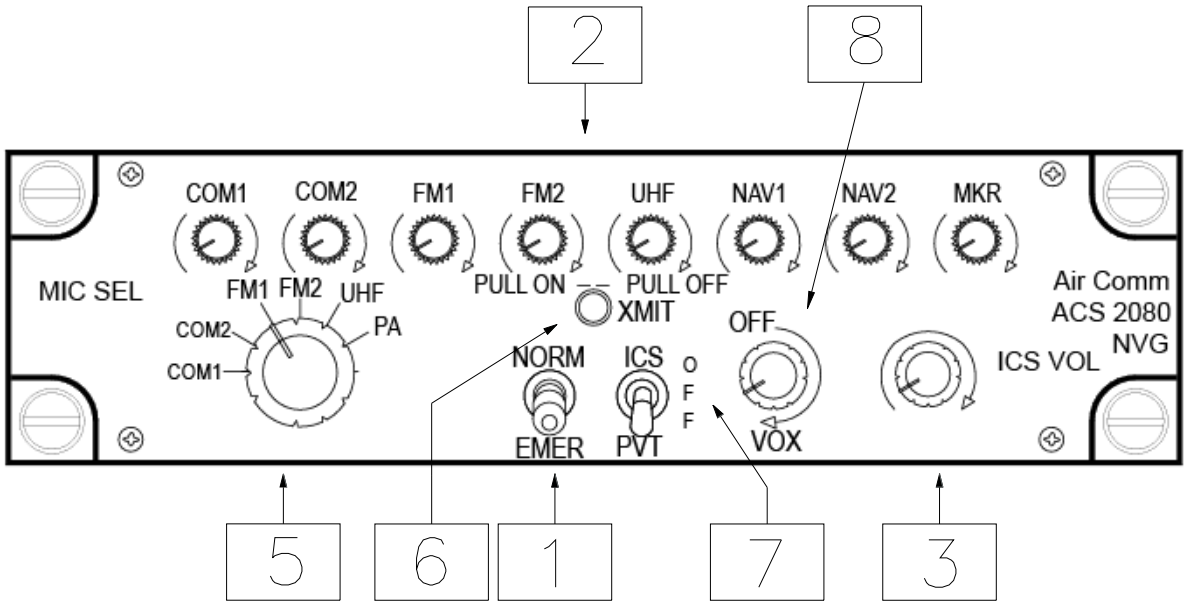
Front Panel Controls

- **Figure 1 - Front Panel Controls**



ACS 2080 Operations and Installation Manual Instruction for Continued Airworthiness

Instruction for continued airworthiness for Audio Mixer Panel Model ACS-2080 Series, Part Number 1004-700.

■ GENERAL DESCRIPTION:

The Audio Mixer Panel consists of a Dzus mounting located in the cockpit or cabin area which provides access to multiple radios for transmitting and receiving. It also provides intercom, both keyed and VOX between other audio mixer panels or slave units located elsewhere in the aircraft.

■ PURPOSE:

To provide instructions for the maintenance and inspection of the Air Comm Systems, Inc. Model ACS-2080 Series Audio Mixer Panels.

This Manual provides instructions supplementing the aircraft maintenance manual. These instructions only supersede the aircraft manual in the indicated areas.

■ OPERATIONAL CHECK:

The Audio Mixer Panel should be checked prior to first flight each day per current operations manual.

■ MAINTENANCE:

Check security and condition of Dzus mounted panel(s), check associated wiring harness at periodic inspections such as annual/100 hour IAW FAR43 Appendix D(i).

■ On Condition.

Send Audio Mixer Panel(s) to qualified repair facility for any repairs. Contact Air Comm Systems, Inc. Phone 951-677-0101 or FAX 951-677-0701 for nearest factory authorized repair facility.

ACS 2080-300 Operations and Installation Manual
Warranty Information

■ Limited Warranty Information

Air Comm Systems, Inc. warrants each new product to be free from defective material and workmanship and agrees to remedy any defect or to furnish a new part in exchange for any defective unit provided an examination discloses such defect occurred under normal use and service, and provided the defective unit is delivered to us, with transportation charges prepaid, within 1 year from the date of acceptance of equipment by the owner. Each unit required and claimed defective must be returned to:

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This warranty does not extend to any products which have been subjected to misuse, neglect, accident, or in violation of instructions furnished, nor does it extend to units which have been repaired or altered outside of our factory except where such repairs are specifically authorized in writing by us.

This warranty is in lieu of all other warranties expressed or implied, and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.