

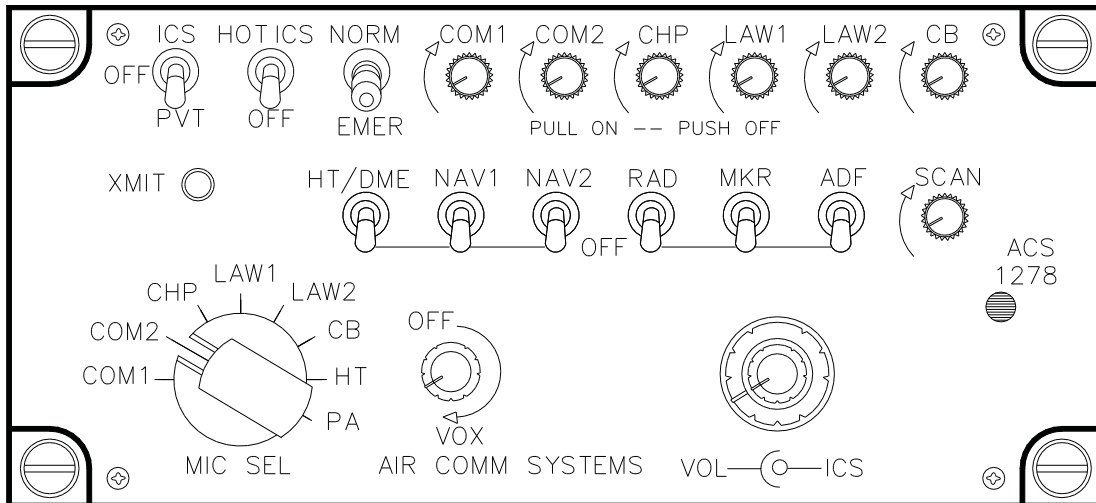
AIR COMM SYSTEMS, INC.

AIRBORNE-AUDIO

Single Audio Mixer Panel Operations and Installation Manual

ACS 1278-300

Revision 2.7



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ACS 1278-300 Operations and Installation Manual

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ACS 1278-300 Operations and Installation Manual

Physical and Operating Specifications

■ Physical Specifications

SIZE: 5.75 in. (14.61cm)
W 2.62 in.(6.67 cm) H
6.78 in.(17.22 cm) D

WEIGHT: 2.20 lb. (.99 kg)

MOUNTING: Dzus rail mount (4)

CONTROLS: Panel mounted - transmit = rotary switch, audio inputs = potentiometer, toggle switch, VOX= on/off volume potentiometer, ICS and headphone volume control = dual potentiometer

ILLUMINATION: Edge lit front panel per MIL-P-7738E, type 5. Capable of connection to dimmer bus for adjustment. Amber transmit light indicates when unit is in transmit mode.

■ Operating Specifications

INPUTS: 13 selectable receive audio inputs and up to 11 transmit selections.

DUTY CYCLE: Continuous POWER REQUIREMENTS: 28V DC +/- 10%

MAXIMUM OPERATING ALTITUDE: 22,000 ft.

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

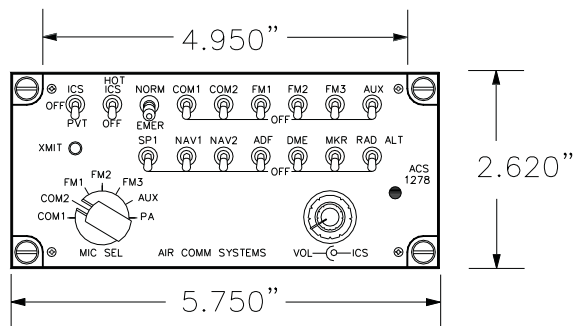
DISTORTION: Less than 10% at 1000 Hz for maximum output

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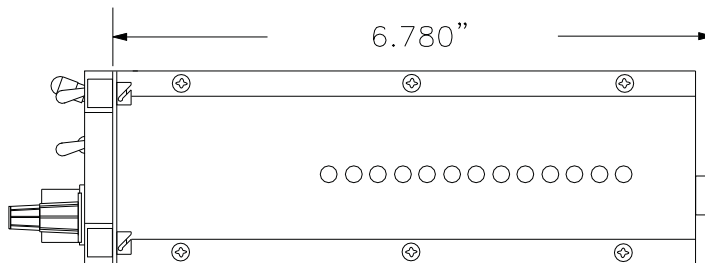
Physical Dimensions

■ Physical Dimension Outline for mounting

UNIT WIDTH BEHIND FACE PLATE



FRONT PANEL WIDTH – STANDARD DZUS MOUNT



ALLOW UP TO 2.500" FOR REAR
CONNECTOR AND CABLE CLEARANCE

Physical Installation

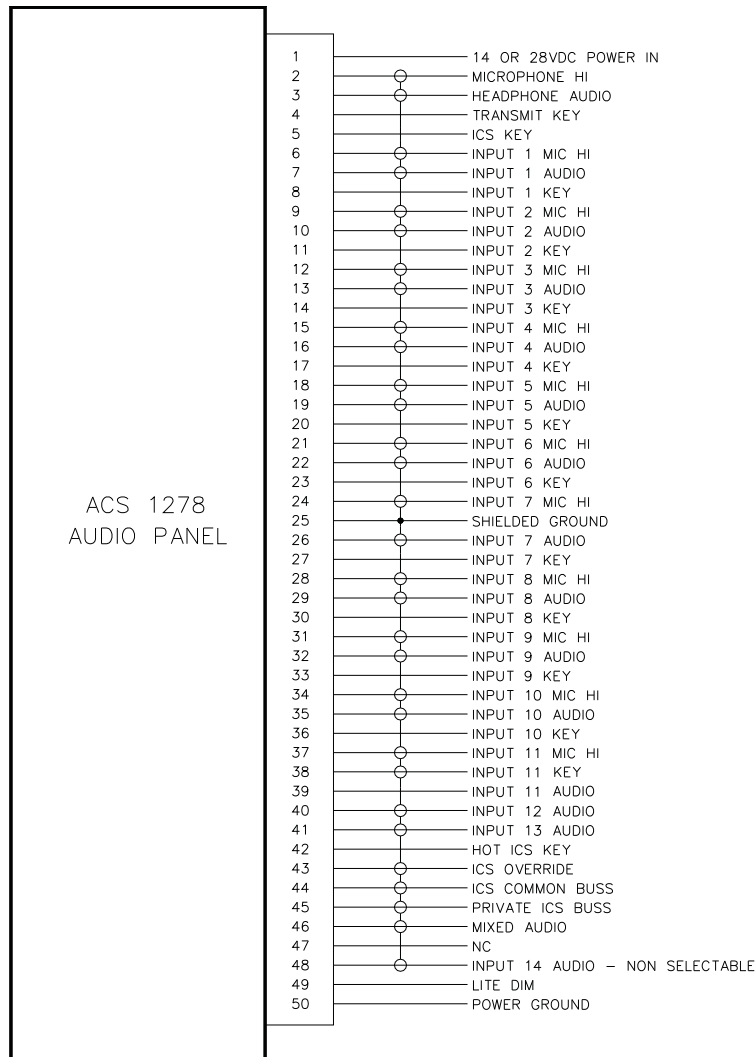
The ACS 1278-300 is designed to be Dzus mounted and should be installed in the aircraft using the DC50SL-F Installation kit that is included. The above outline drawing of the unit with dimensions will facilitate the installation. The DC50SL-F Installation Kit consists of the following:

One (1) 50 pin AMP D-Subminiature female mating connector complete with crimp pins, hood, and slidelock.

The connector pin configuration of the ACS 1278-300 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 1278-300 Operations and Installation Manual Interface Schematic

■ Connector Pin-out



NOTE: Inputs are read from left to right on the Audio Panel plastic overlay, starting on the top row.

The ACS 1278-300 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.

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Front Panel Controls

(See Figure 1 - Page 9 for pictorial)

■ Description

The ACS 1278-300 Single Audio Mixer Panel is a compact, lightweight unit which provides full audio control and ICS support for one position in the aircraft (Pilot, Co-pilot, observer or crew). It has the capability to provide the user with up to 13 receive audio selections, up to 11 transmitter selections, VOX, Normal and HOT (Hands Free) ICS, a Private ICS buss, Emergency mode operation, and full headphone audio and ICS volume control.

■ 1 - Normal - Emergency Operation Switch (NORM-EMER)

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 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 - Audio Select-Mute Switches

Normal operation - In the "up" position the audio selected is channeled to its proper headphone. In the "down" position the audio selected is muted.

Emergency operation - In the "up" position the audio selected is muted. In the "down" position the audio selected is summed with any other audios selected and sent to the headphones.

■ 4 - Volume Controls (VOL-ICS)

These concentric knobs adjust transmit sidetone, headphone volume, and ICS volume. The larger knob (rear) adjusts the for the proper transmit sidetone level while the small knob adjusts the ICS headphone volume. Adjust the ICS volume for adequate level with minimum background noise. Clockwise rotation on both knobs increases the volume - counter clockwise rotation decreases the volume. In the event of excessive or inadequate receiver volume the pots located on the side of the unit may be adjusted for the proper level. (see Figure 2 on Page 9)

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Front Panel Controls

(See Figure 1 - Page 9 for pictorial)

■ **5 - Panel Lighting**

The audio panel is internally lit by a 28V circuit board with 12 miniature peanut lamps to provide lighting for all panel legends.

■ **6 - Mic Selector (MIC SEL)**

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 switch or QUICK ADJUST pot).

■ **7 - Transmit Indicator (XMIT)**

When the transmit key is activated this light turns on to indicate that the audio panel is in the transmit mode.

■ **8 - ICS / Private Switch (ICS-PVT)**

This switch selects the ICS mode. In the "up" position (ICS) 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 audio panels. In the "down" position (PVT) the audio panel is connected only to the panels using the private ICS buss.

■ **9 - HOT ICS Switch (HOT)**

This switch provides for "hands-off" operation while in the ICS mode. In the "up" position (HOT ICS) the headphone mic becomes active and its signal is fed into the ICS buss (PVT or common) without having to depress the ICS key. In the "down" position (OFF) normal ICS operation is in effect.

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Front Panel Controls

(See Figure 1 - Page 9 for pictorial)

■ **10 - Voice Activated Intercom (VOX)**

The high-power VOX is controlled by this knob. In order to use the VOX feature, the ICS "ON/OFF/HOT" toggle switch must either be in the "ON" or "HOT" 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 "HOT" position, the VOX can be activated by turning the knob clockwise past the On/Off detent .

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 squelch control. 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 squelch 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, simply put the ICS "ON/OFF/HOT" toggle switch in the "OFF" position.

■ **11- Photo Sensor**

This sensor automatically brightens or dims the transmit light depending on the ambient light level.

■ **NOTES**

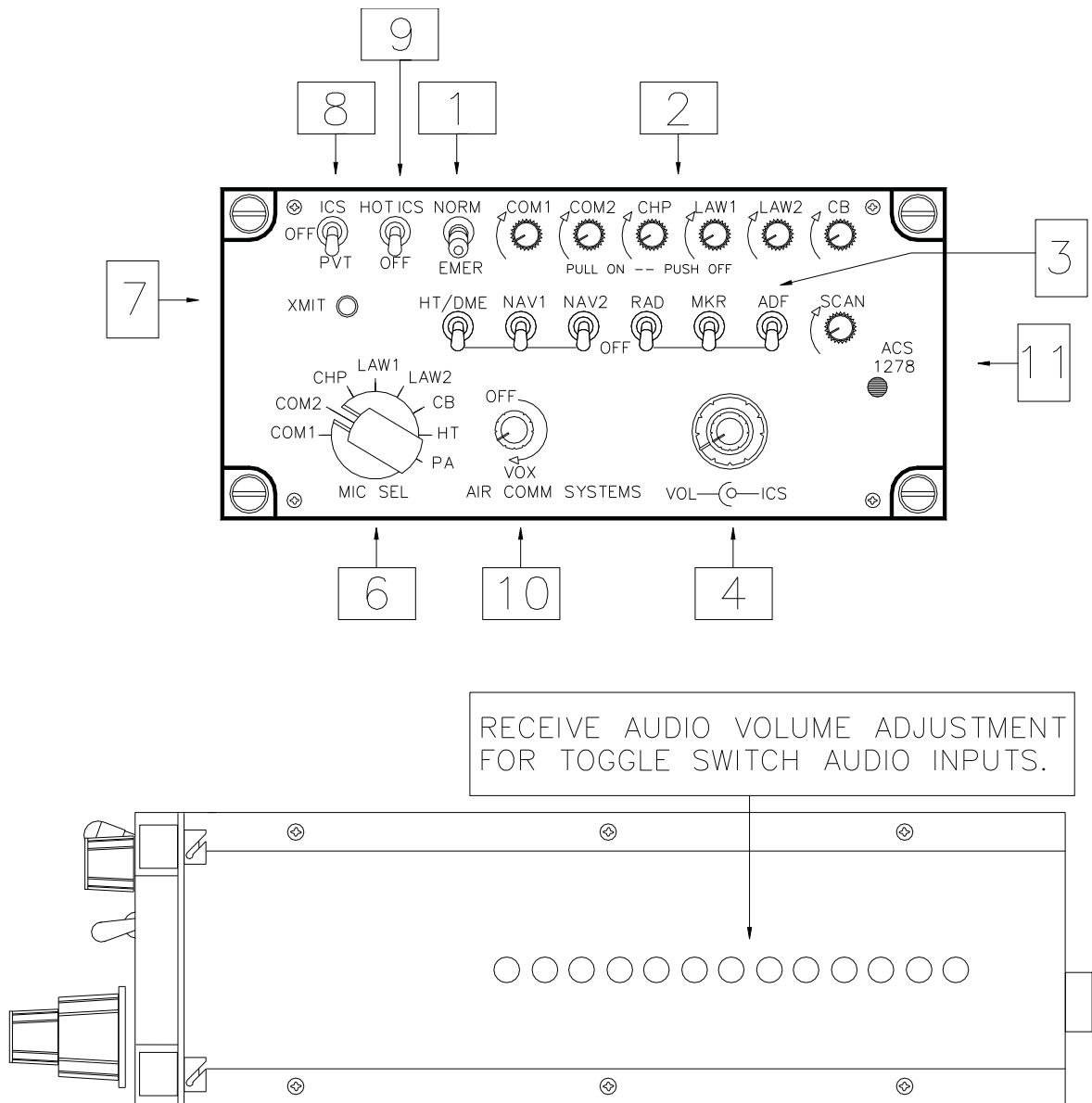
Optional muting is available with an internal jumper:

- 1) Audio Muting Disabled - When the audio panel is in the ICS, Transmit, or HOT ICS modes, any audios selected by their toggle switch will not be muted.
- 2) Audio Muting Enabled - When the audio panel is in the ICS or Transmit mode, any audios selected by their toggle switch will be muted. In HOT ICS mode there is no muting.

ACS 1278-300 Operations and Installation Manual

Front and Side Panel Controls

■ Figure 1 - Front and Side Panel Controls



ACS 1278-300-USFS Operations and Installation Manual Instruction for Continued Airworthiness

Instruction for continued airworthiness for Audio Mixer Panel Model ACS-1278 Series,
Part Number 1000-000.

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-1278 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 1278-300 Operations and Installation Manual Warranty Information

■ **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:

Air Comm Systems, Inc.
37610 Sky Canyon Dr., Hangar 51
Murrieta, CA 92563
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Fx: 951-677-0701
Info@AirCommSystems.com

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.