SECTION 6

COMMUNICATIONS

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

SECTION 6

COMMUNICATIONS

1. GENERAL

The aircraft is equipped with two VHF communication radio systems and an intercom system. The intercom consists of the pilot's and copilot's stations with full radio and flight deck interphone facilities, and ground crew interphone stations in the nose wheel well, in the radio rack, and at the APU station. The interphone circuits provide two-way communication between all five stations when the aircraft is on the ground.

The audio signal from the aircraft aural warning system is fed to both pilots' headphone channels and direct to both pilots' loudspeakers.

2. COMPONENTS

For the arrangement of communication system controls, refer to Figure 1. The components of the systems are as follows:

A. Headphone, Loudspeaker, Microphone, and Transmit Control Facilities

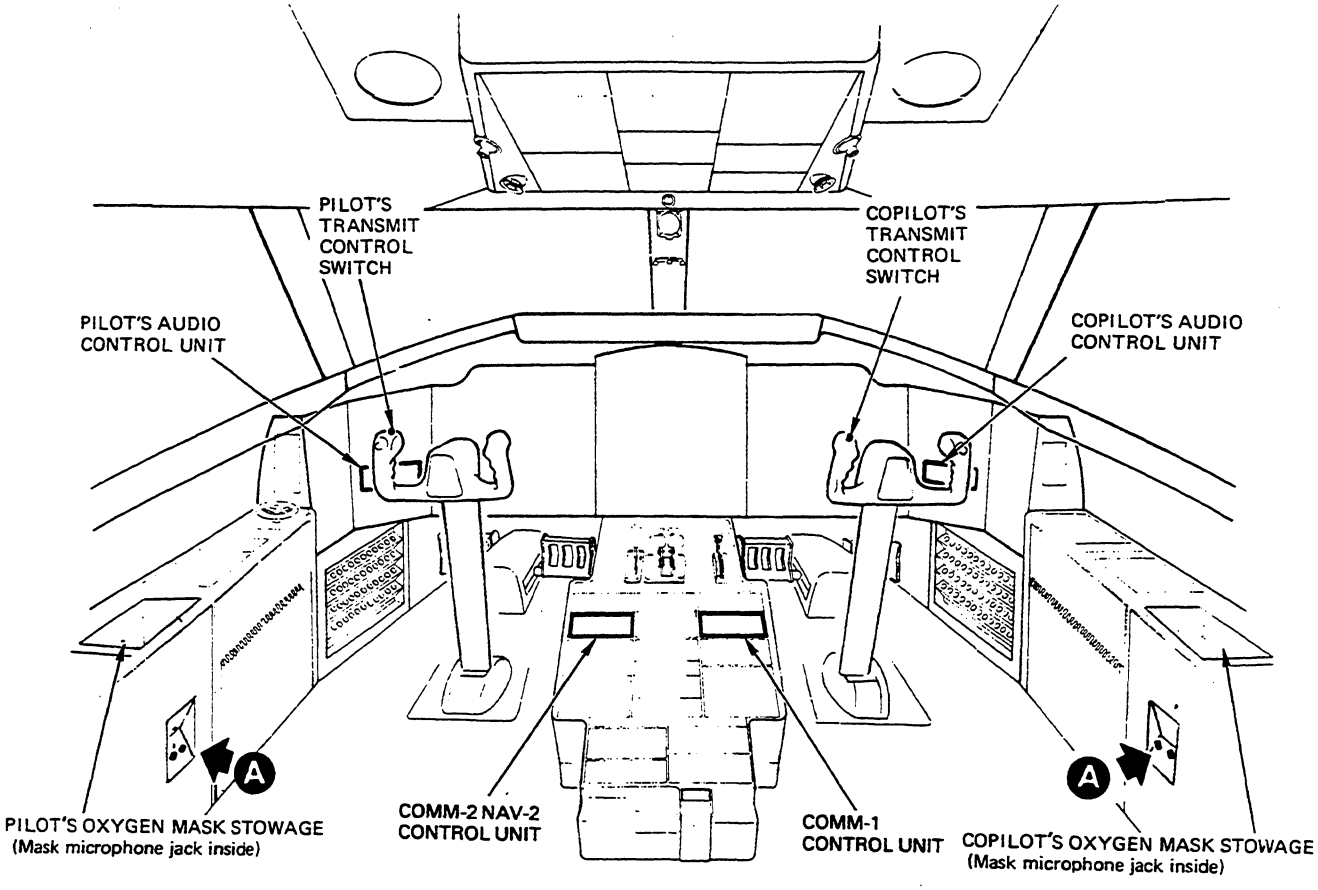
Each of the five stations is equipped with separate headphone and microphone jacks, and the pilot's and copilot's stations each have an additional jack for an oxygen mask microphone. The pilot's and copilot's main microphone jacks include circuits for headset boom microphone talk switches. Each pilot's station is also provided with a press-to-transmit switch on the aileron control wheel, and an overhead mounted loudspeaker.

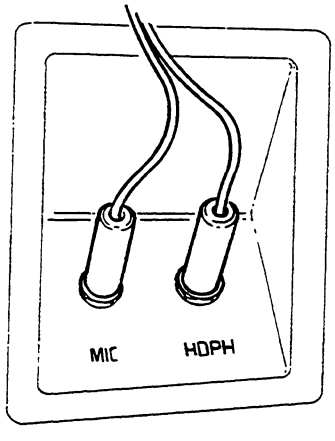
B. Audio Electronics Unit

All the audio signals from radio communication, radio navigation, and interphone systems, and the transmit control circuits, are processed by the audio electronics unit in the underfloor radio rack. The unit is functionally divided into pilot's and copilot's channels, each channel having its operating controls on the corresponding audio control unit.

C. Audio Control Unit (Figure 2)

The pilot's and copilot's audio control units are located on the side consoles and contain the main system controls. Each unit has nine monitor switches for routing system outputs into the headphone-speaker channel. Also included are a volume control for the headphones and speaker, a switch for selection of either headphones or speaker or both, a switch for selection of headset boom or oxygen mask microphone, and a rotary switch for selection of two-way communication on either of the two communication radio systems or on interphone. Operation of the pilot or copilot PTT switch allows transmission over the selected radio channel.



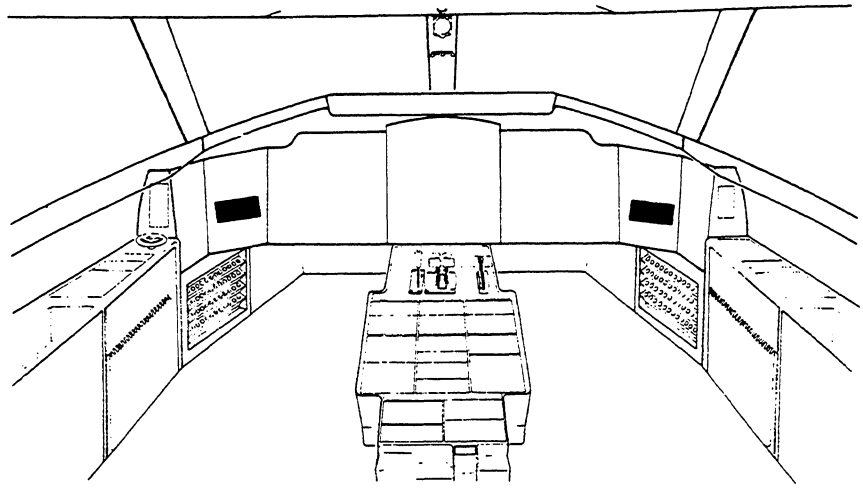


HEADPHONE AND MICROPHONE JACKS

A

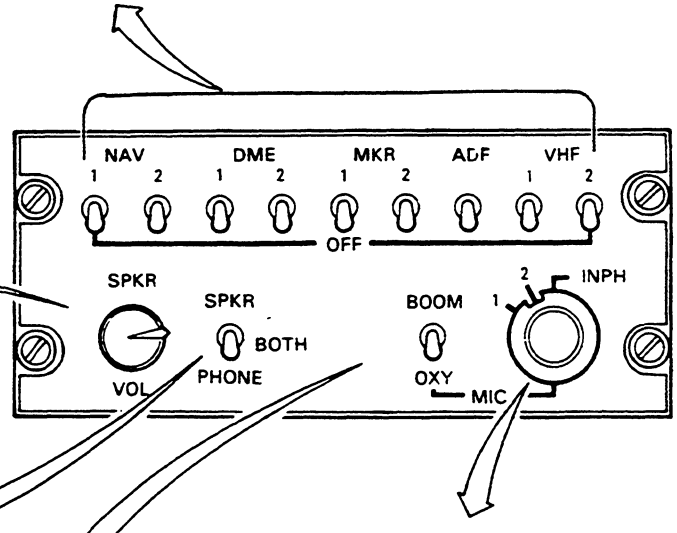
NOTE

Ground crew interphone units not shown (refer to Figure 3).



MONITOR SWITCHES (2)

Used to select (up position) audible output of communication and navigation radios separately or in combination. Each radio must first be switched on independently.



SPKR VOL CONTROL (2)

Varies volume of audio to speaker and headphones except aural warning. Turn clockwise to increase volume.

SPKR-PHONE-BOTH SWITCH (2)

Switches audio to speaker, headphones, or both, but pilot's speech on interphone is not transferred to speaker.

BOOM—OXY SWITCH

Connects headset boom microphone or oxygen mask microphone to system.

1-2-INPH SELECTOR SWITCH (2)

Used for two-way communication, to select VHF 1 radio, VHF 2 radio, or interphone. Each radio must first be switched on independently.

1 or 2—The headphones, microphone and press-to-transmit switches function with the selected radio. Pilot can hear inputs from radios selected by monitor switches and can hear interphone but not talk on it.

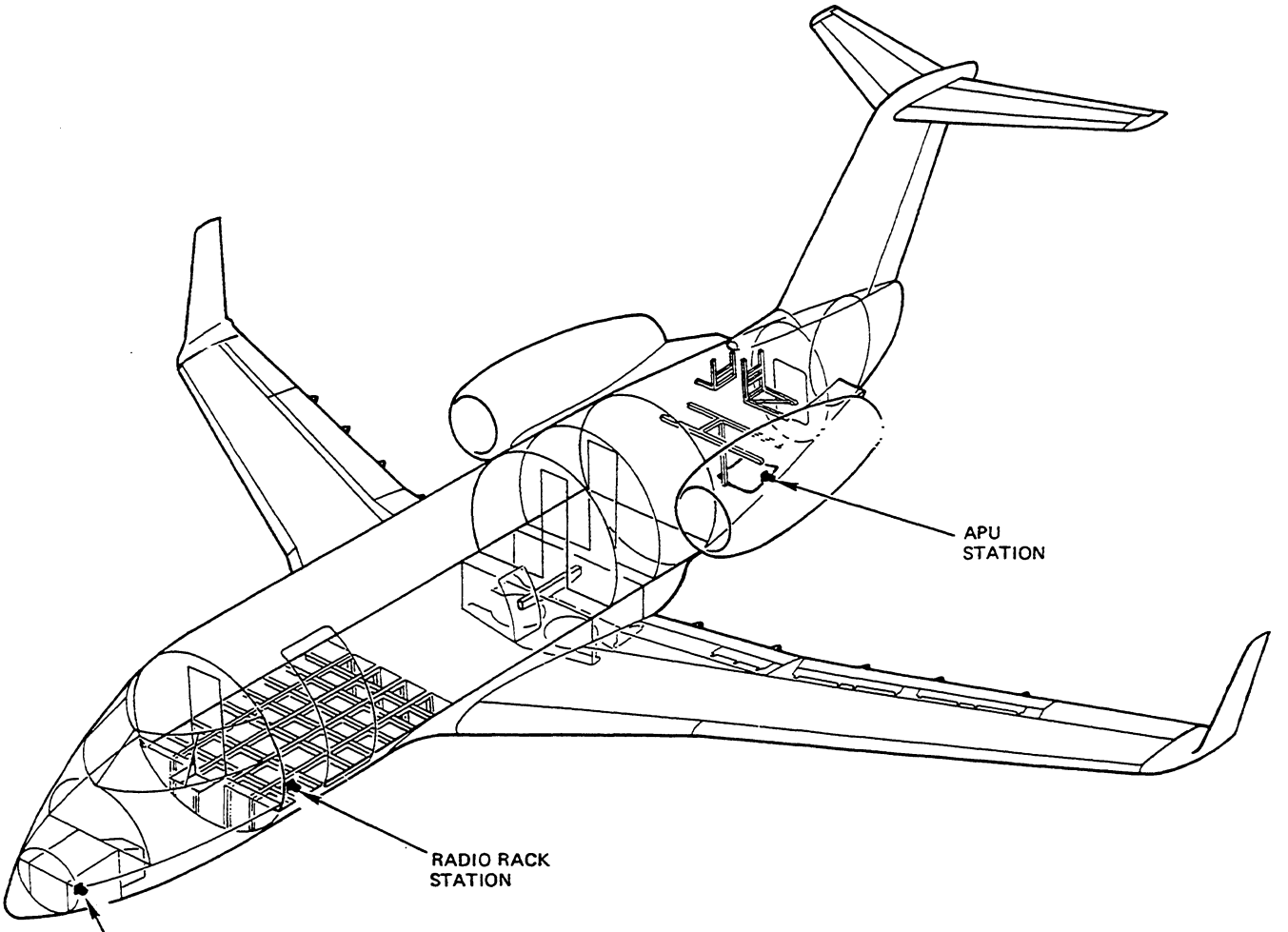
INPH—Pilot can use interphone and can hear inputs from radios selected by monitor switches. He talks and listens to all stations using interphone, without selection. Press-to-transmit not used. No radio transmission.

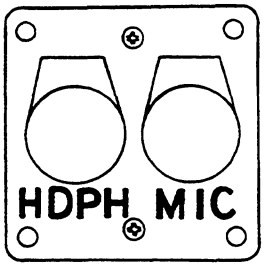
NOTES

1 The pilot's facilities are described; the copilot's are similar except as noted.

(2) Emergency Operation: if power fails in either channel of the audio electronics unit, controls marked (2) do not function. Pilot can use VHF 1 and hear NAV 1 without volume control. Copilot can use VHF 2 and hear NAV 2 without volume control.

Pilot's or Copilot's Audio Control Unit
Figure 2





NOTE

No controls on the unit. Operator talks and listens to all stations that are using the interphone. Although units are for use on the ground, interphone is functionally complete in the air, except that the microphone circuits of the nose wheel and APU stations are disconnected.

Ground Crew Interphone Unit
Figure 3

D. Ground Crew Interphone Unit (Figure 3)

Ground crew interphone units consisting of headphones and microphone jacks are installed in the nose wheel well, in the radio rack (underfloor) and at the APU station (rear equipment compartment).

E. VHF Communication Radio Components

The VHF radios are referred to as VHF 1 and VHF 2, and as COMM 1 and COMM 2.

F. Radio Control Units (Figures 4 and 5)

The radio control units are mounted on the centre pedestal in the flight compartment. One unit carries controls and digital displays for COMM 1 and the other unit is divided between COMM 2 and NAV-2 controls and displays. COMM 1 unit is on the copilot's side and COMM 2/NAV-2 on the pilot's side.

3. POWER SUPPLY

The communication systems are powered by 28 volts dc, through the following circuit breakers:

- On the battery bus circuit breaker panel - right:

  VHF NO.1

  INTERCOM NO. 1

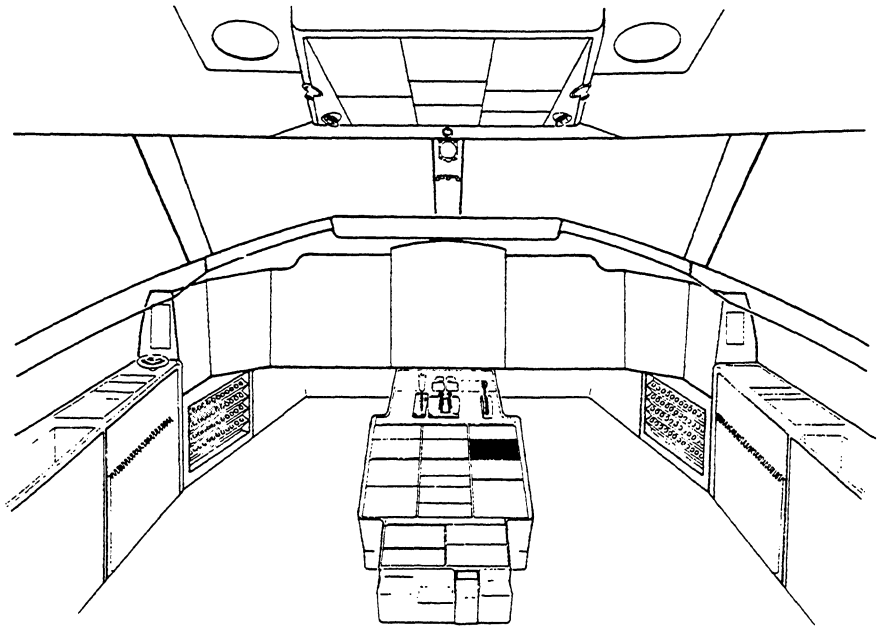
  INTERCOM NO. 2

- On the main bus No. 2 circuit breaker panel:

  VHF NO. 2.

The VHF radio circuit breakers route power to the respective radio transceivers.

The INTERCOM NO. 1 and NO. 2 circuit breakers route power respectively to the pilot's and copilot's channels in the audio electronics unit.



FREQUENCY DISPLAY WINDOWS

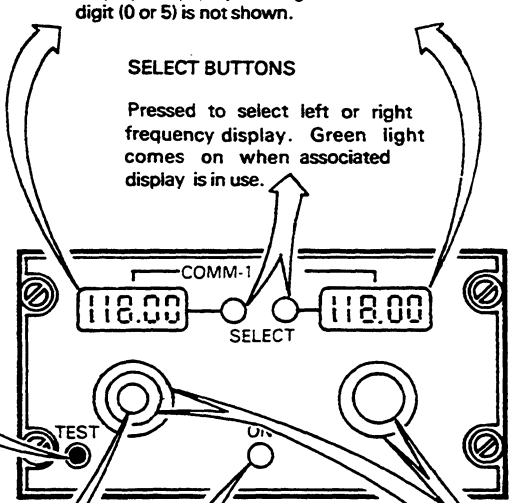
Display frequency in megahertz. Sixth digit (0 or 5) is not shown.

SELECT BUTTONS

Pressed to select left or right frequency display. Green light comes on when associated display is in use.

TEST BUTTON

When pressed, receiver background noise is audible.



VOLUME CONTROL

Switches radio on when turned out of detent; increases volume when turned clockwise.

ON LIGHT

Green light is on and dial lights are on when the radio is on.

FREQUENCY SELECTORS

Outer knobs select frequency in single megahertz increments; inner knobs select in 25-kHz increments.

NOTE

Emergency operation: if power fails in the pilot's channel of the audio electronics unit, the pilot can still use VHF 1, but the COMM-1 volume control does not function.

VHF 1 Radio Controls
Figure 4

4. EMERGENCY OPERATION

A. Pilot's Station

If power from INTERCOM NO. 1 circuit breaker fails or if the pilot's channel power circuit in the audio electronics unit fails, the pilot loses all audio facilities except aural warning and the use of COMM 1 and NAV-1 radios without volume control.

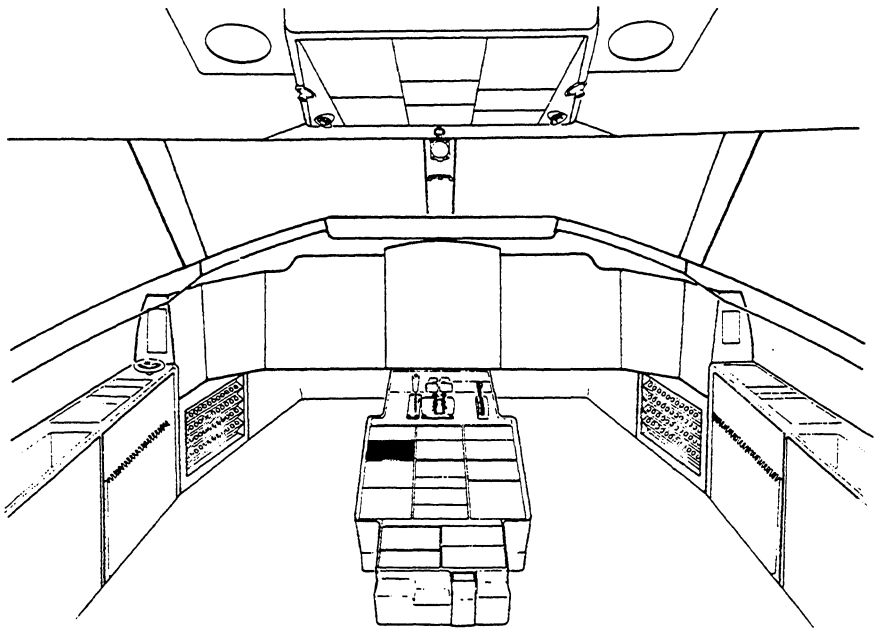
NOTE: After failure of one channel in the audio electronics unit, the communication and VOR navigation radio facilities available to the pilot on the intercom are those normally used by the copilot.

B. Copilot's Station

If power from INTERCOM NO. 2 circuit breaker fails or if the copilot's channel power circuit in the audio electronics unit fails, the copilot loses all audio facilities except aural warning and the use of COMM 2 and NAV-2 radios without volume control.

C. Ground Crew Interphone Stations

During emergency operation of the pilot's channel, power to the headphone circuits of the nose wheel well and APU stations is off. During emergency operation of the copilot's channel, power to the headphone circuit of the radio rack station is off.

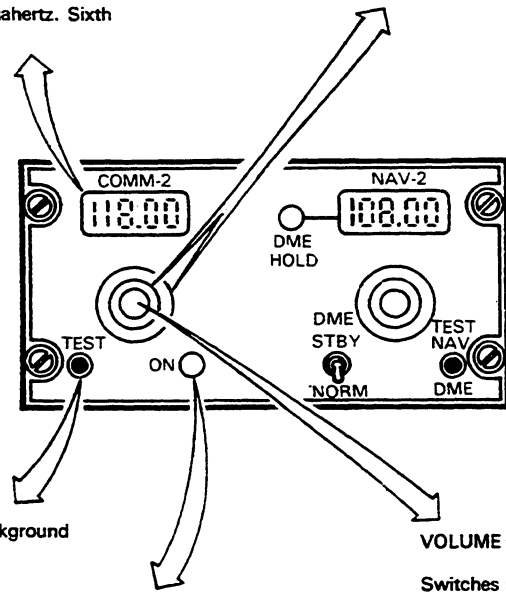


FREQUENCY SELECTOR

Outer knob selects frequency in single megahertz increments; inner knob selects in 25-kHz increments.

FREQUENCY DISPLAY WINDOW

Displays frequency in megahertz. Sixth digit (0 or 5) is not shown.



TEST BUTTON

When pressed, receiver background noise is audible.

VOLUME CONTROL

Switches radio on when turned out of detent; increases volume when turned clockwise.

ON LIGHT

Green light is on and dial lights are on when the radio is on.

NOTE

Emergency operation: if power fails in the copilot's channel of the audio electronics unit, the copilot can still use VHF 2, but the COMM-2 volume control does not function.

VHF 2 Radio Controls
Figure 5