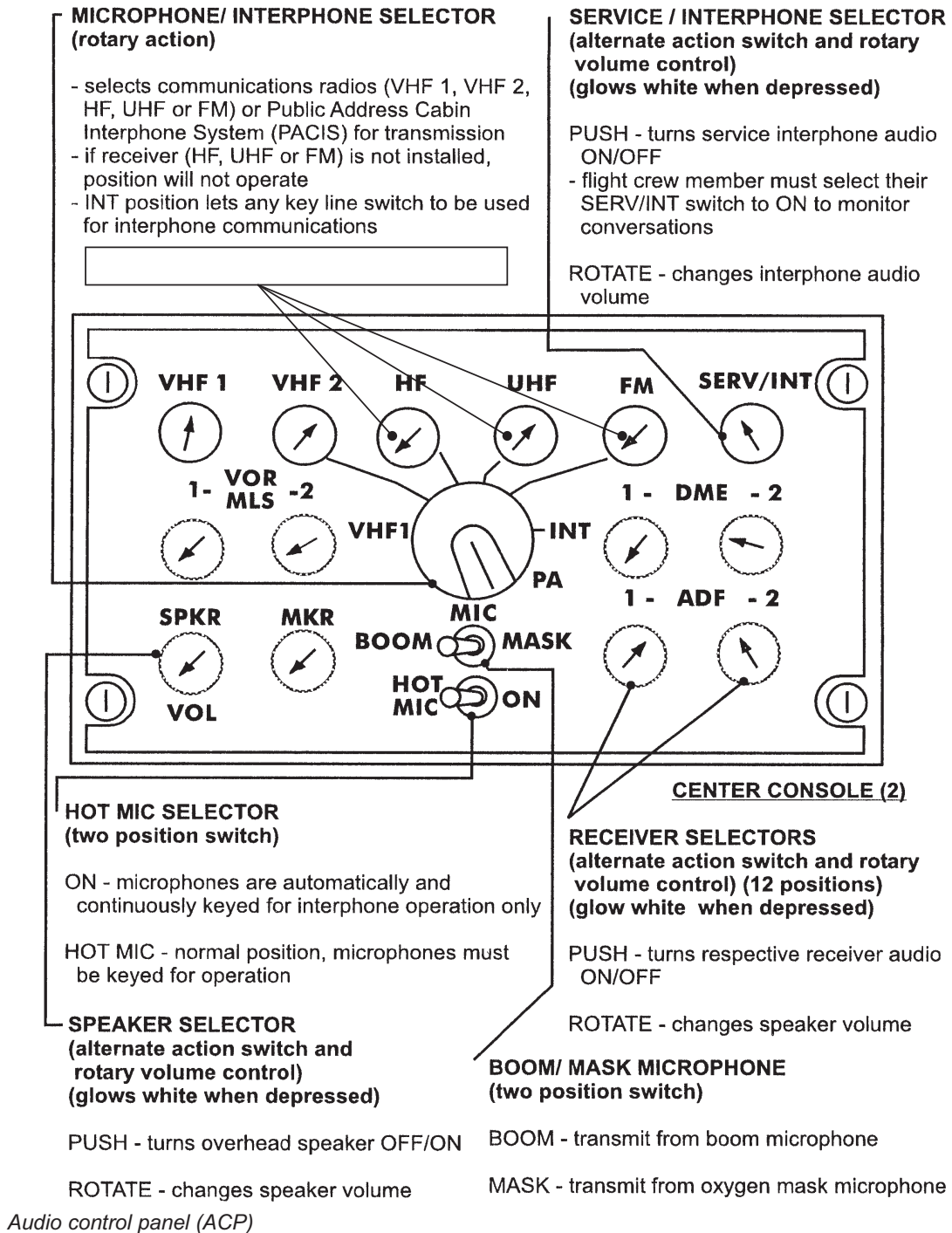


COMMUNICATION

CONTROLS AND INDICATORS



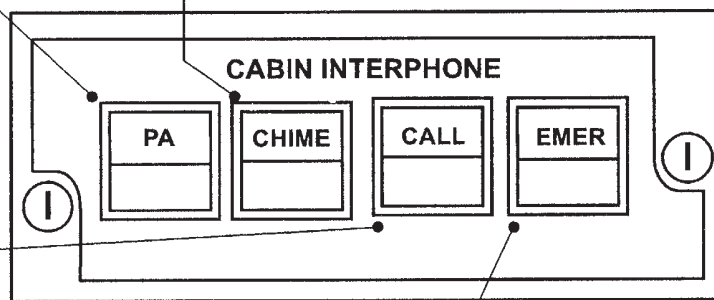
**PA SWITCHLIGHT (green)
(momentary action)**

PUSH-switchlights on interphone control unit, attendant control unit and PA light on attendant overhead light panel comes on
- flight crew selects PA position on audio control panel and uses hand-held, handset-boom or mask mic to make announcements

ON - PA system in use
- PA mode is stopped by selection of another function or by pushing PA switch

**CHIME SWITCHLIGHT
(momentary action)**

PUSH - high/low chime sounds once to alert flight attendants



**CALL SWITCHLIGHT (green)
(momentary action)**

PUSH - sounds HI/LOW chime over PA speakers switchlight comes on
- CALL switchlight on attendant control unit and pink CALL/EMER light on attendant overhead light panel comes on
- flight crew selects PA on audio control panel and uses hand held, head set-boom or mask mic to speak with flight attendant

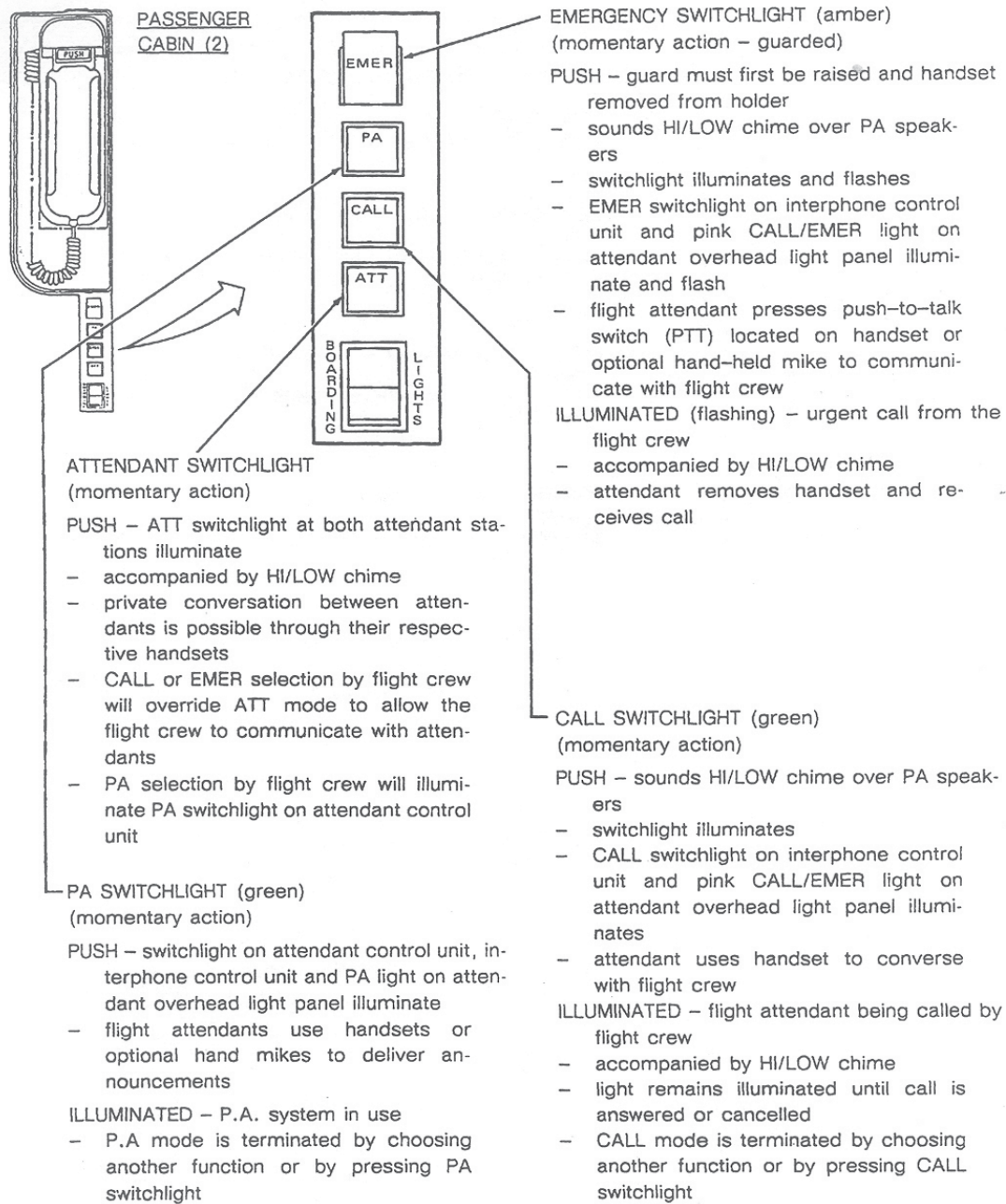
ON - flight crew being called by flight attendant station
- accompanied by HI/LOW chime in headset and cockpit speaker (if selected)
- light stays on until call is answered or canceled
- CALL mode is stopped by selection of another function or by pushing CALL switchlight

**EMERGENCY SWITCHLIGHT (amber)
(momentary action)**

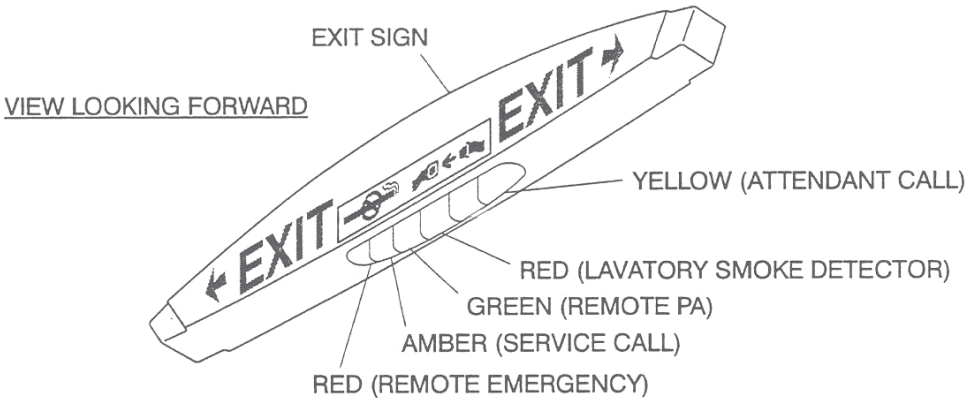
PUSH - sounds HI/LOW chime over PA speakers
- switchlight flashes
- EMER switchlight on attendant control unit and pink CALL/EMER light on attendant overhead light panel come on and flash
- flight crew selects PA on audio control panel and uses hand-held, head-set boom or mask mic to spick with flight attendant

- selection of EMER mode at any station overrides and cancels all other modes
ON - flight crew being called by flight attendant station
- accompanied by HI/LOW chime
- light stays flashing until call is answered or canceled
- push to turn off

Interphone Control Unit (ICU)

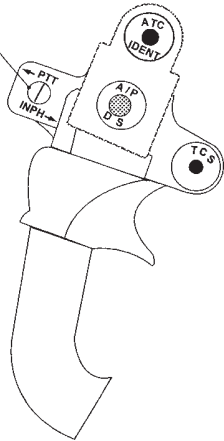


Flight attendant's handset and control unit



ADVISORY LIGHT PANEL
(CENTER CABIN CEILING)

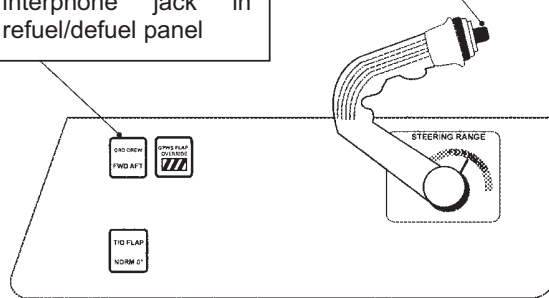
PTT/INPH MICROPHONE SWITCH
 PUSH-TO-TALK SWITCH (PTT)
 -PTT keys mic as selected by rotary MIC selector switch on audio control panel.
 INTERPHONE SWITCH (INPH)
 -INPH connects mic to interphone system (flight deck and ground crew stations)



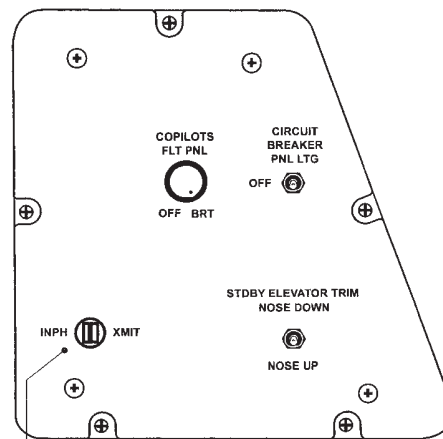
Left control wheel - (right opposite)

GROUND CREW INDICATOR LIGHTS
 -FWD ground crew connected to left hand side nose interphone jack.
 -AFT ground crew connected to interphone jack in refuel/defuel panel

PILOTS NOSEWHEEL STEERING CONTROL WHEEL
 PTT MICROPHONE SWITCH.
 -Keys mic as selected on audio control panel



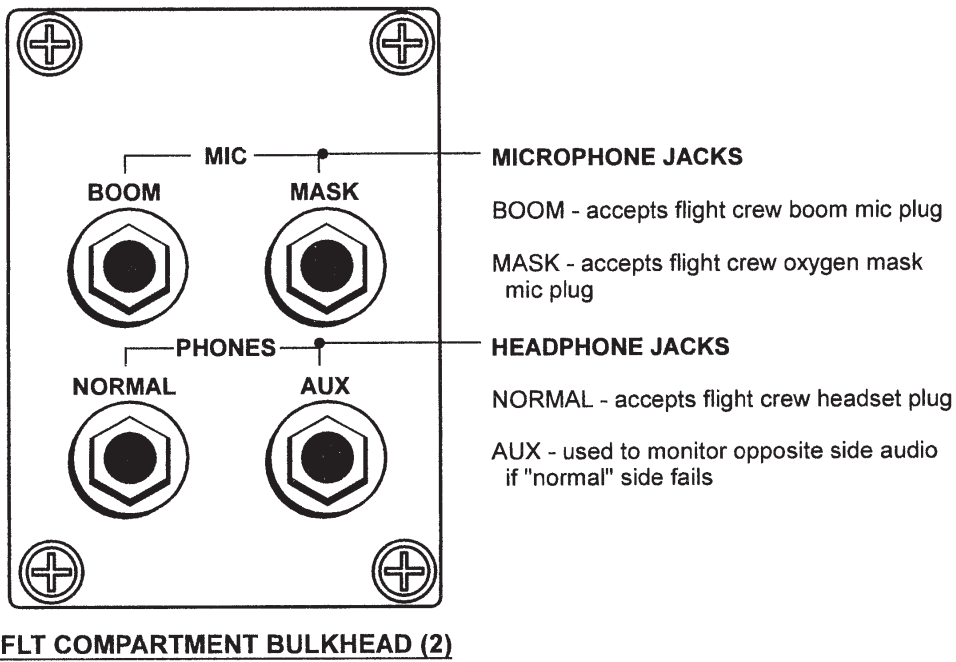
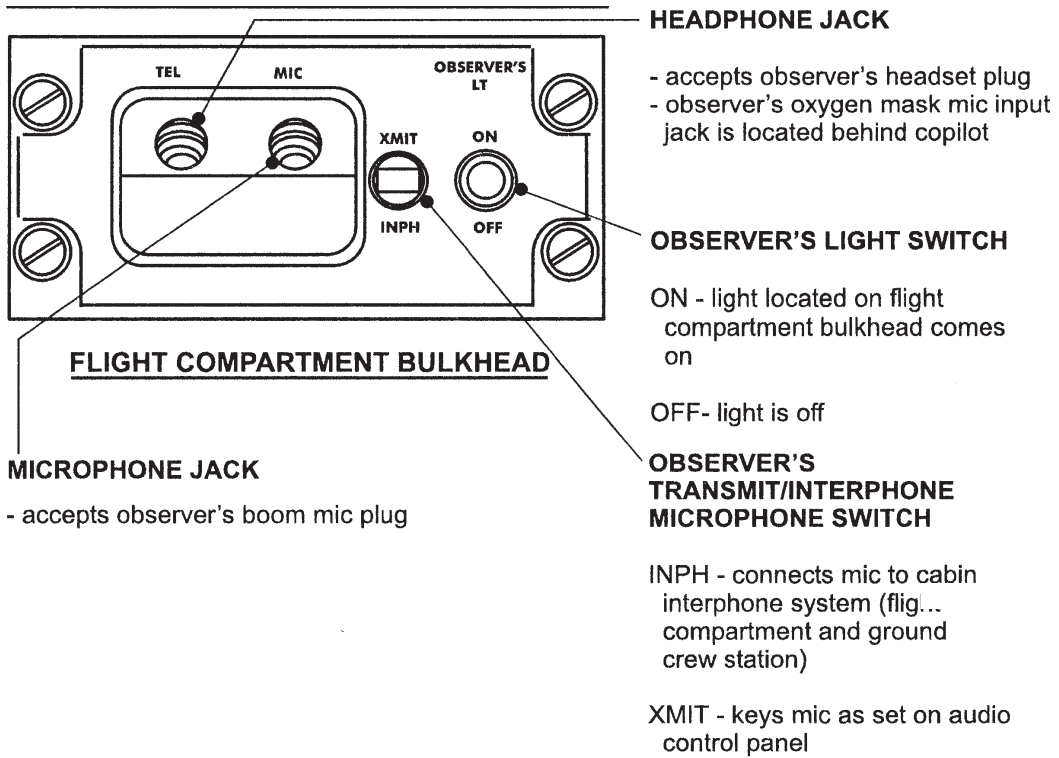
Left pilot's side console



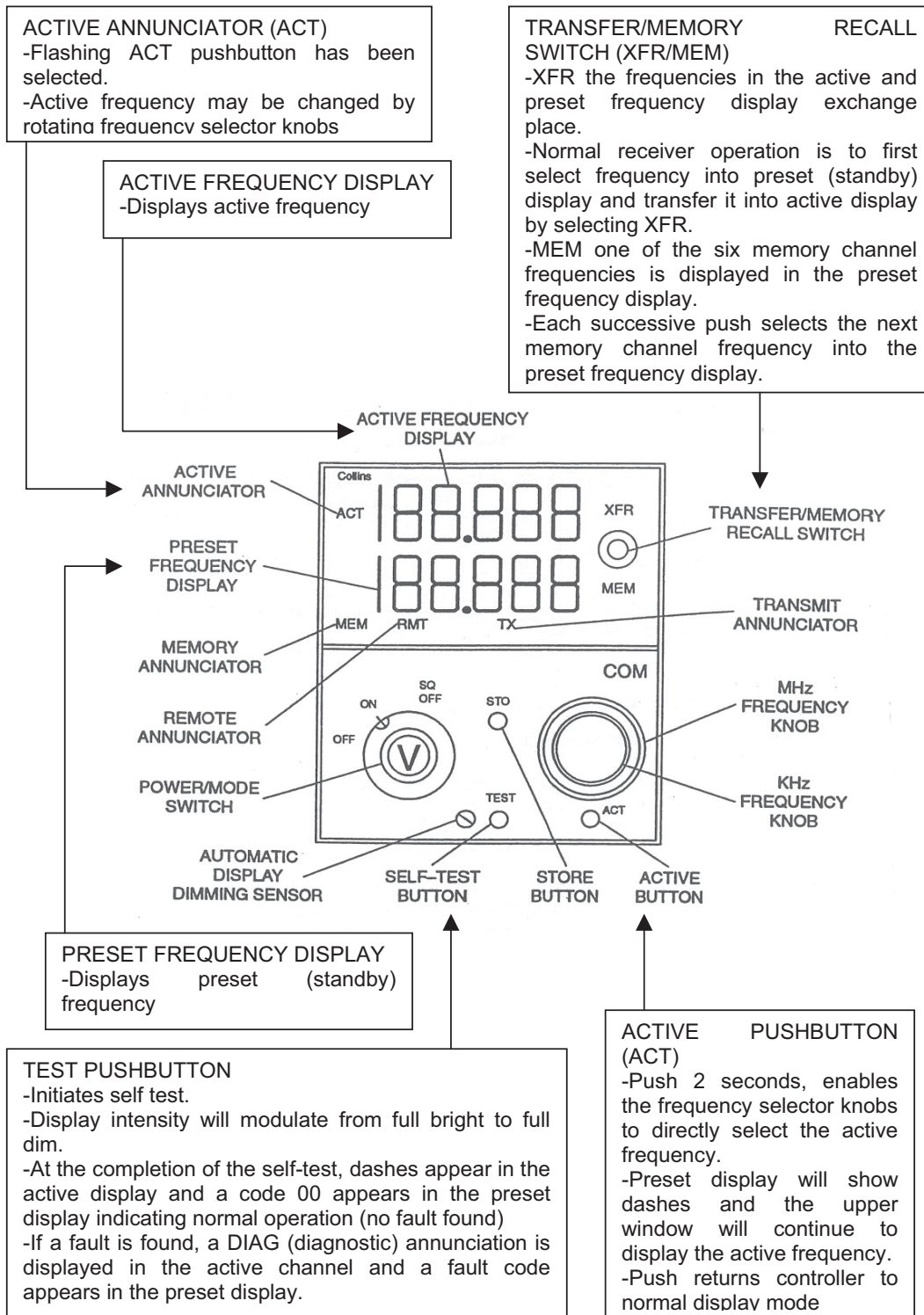
RIGHT PILOT'S SIDE CONSOLE

RIGHT PILOT'S SIDE PANEL INPH/XMIT MICROPHONE SWITCH

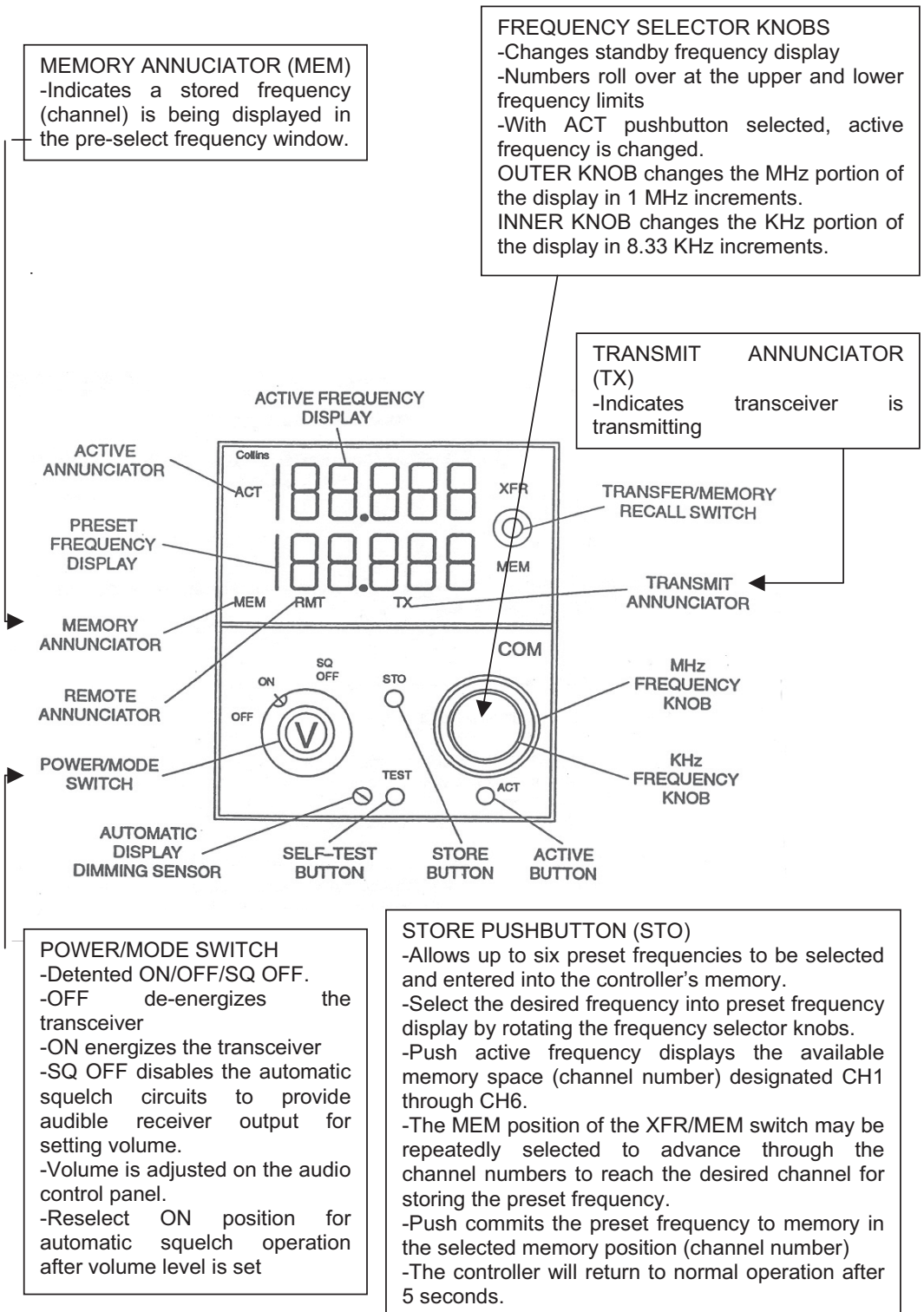
INPH – connects mic to interphone system
 XMIT – keys mic as selected on audio control panel



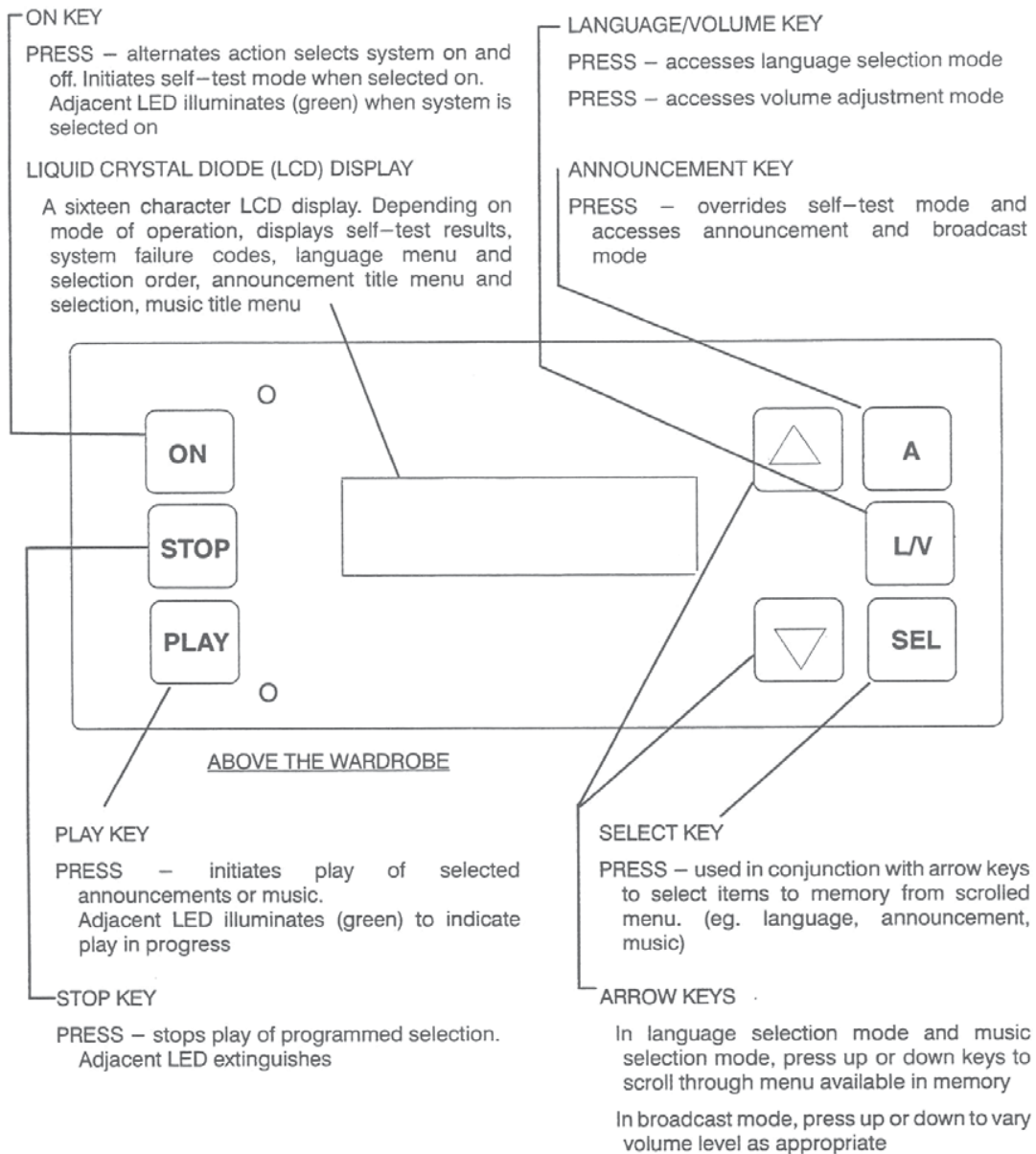
Observer's communication panel / microphone and headphone jacks



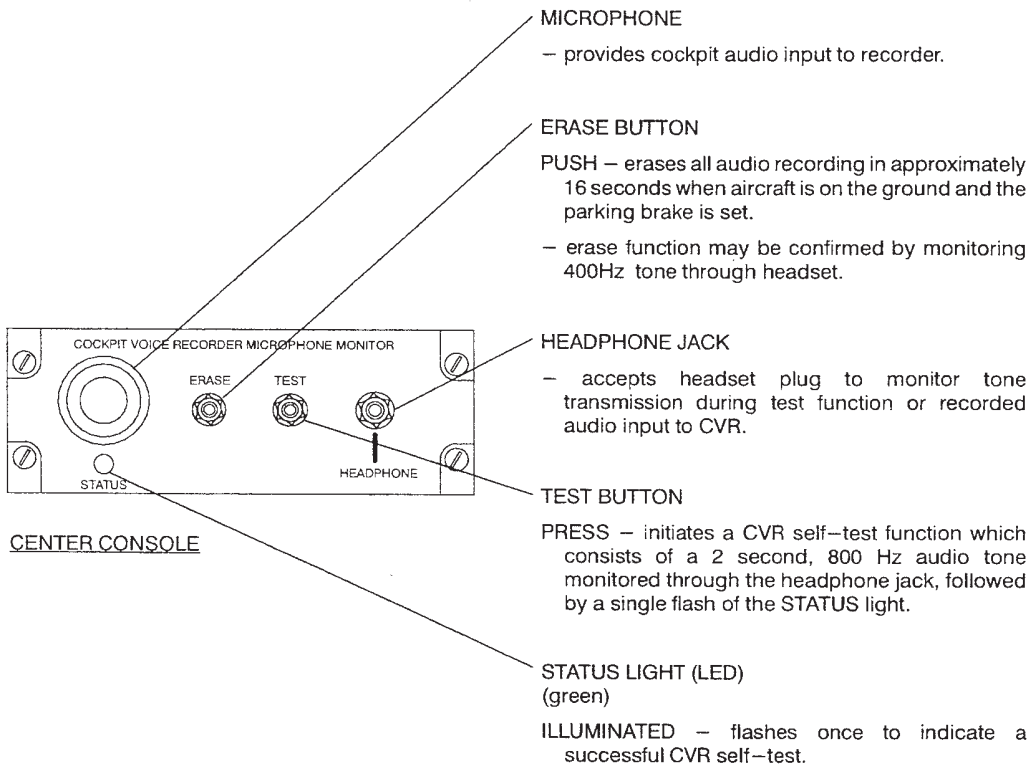
VHF communication control panel (Collins)



VHF communication control panel (Collins)



Passenger briefing/music system



Solid state cockpit voice recorder monitor panel

SYSTEM DESCRIPTION

Audio integration general

The audio integrating system provides the left pilot, right pilot and observer with individual control of transmission and reception of the communication radios and the capability to monitor the aircraft's navigation receivers. The audio integrating system also provides service interphone communication between the pilots, observer and two external ground crew stations.

Audio control panel

Each pilot can manage his own communication requirements through an audio control panel (ACP). Two are located at the aft center console for the pilots, and one is located at the observer station.

The ACP permits two way (transmit and receive) communication capability from the cabin interphone, service interphone, and VHF radio systems and one way (transmit only) communication capability through the passenger address. It also provides voice and identification monitoring of selected navigation aids. Receiver and cockpit loudspeaker volume is controlled from this panel. Microphone selections are made with a rotary type selector switch found on the panel. To enable operation of the quick-don oxygen mask Mic, the lever-locked toggle switch must be in the MASK position.

Service interphone

Service interphone is for on-ground communication between cockpit and ground crew and is operated through the audio control panel. The system has two external ground crew stations (left hand side nose and refuel-defuel panel in the right nacelle). Ground crew indicator lights, located on the left pilot's side console, provide a visual indication of when the ground crew is plugged into either service interphone jack.

Passenger address and cabin interphone system (PACIS)

The PACIS provides:

- A. Passenger address from the flight compartment or flight attendant stations.
- B. Private voice communication between the flight compartment and a flight attendants' station and between the two flight attendants' stations.
- C. Visual indication and aural chime for normal and emergency calls at each location.
- D. Emergency operation of items A) B) C) above from the battery bus in the event of aircraft primary power failure.

Passenger address system

The passenger address (PA) system allows cockpit crew and cabin attendants to make announcements throughout the cabin.

Flight crew can make an announcement by selecting the rotary MIC selector on the audio control panel to the PA position, pushing the PA switch light on the interphone control unit and keying a PTT switch. The flight crew can terminate the PA mode by selecting another MIC position on the audio control panel.

Cabin attendants use either of the attendant handsets for announcements by pushing the PA switchlight and keying the handset switch. This mode is cancelled by placing the handset in its cradle. Flight deck crew may monitor cabin attendants' announcements by pushing the PA button on the interphone control unit.

Cabin interphone system

The cabin interphone system permits communication between the cockpit and flight attendant stations. An interphone control unit, located on the forward centre console, initiates and draws attention to the call through a CALL switch light. A chime is generated in the PA amplifier (located on wardrobe shelf) and is heard in the headsets and cockpit speaker (if selected). By pressing the CALL switch light and selecting the MIC switch to PA on the audio control panel, the cockpit crew use the hand-held, headset-boom or mask mike to communicate with the flight attendants. The headset-boom and mask mic operate fulltime in the hot mic mode and are overridden by using the hand-held microphones. The flight crew receives attendant audio on their headsets and overhead cockpit speaker (if selected).

Selection of cockpit speaker is made with the SPKR selector switch on the ACP. Keying a PTT switch mutes the onside speaker to prevent squealing.

The flight attendants communicate between the two cabin stations or with the cockpit using handsets. Removing the handset from its cradle and pressing the CALL switch light on the attendant control unit initiate calls from the attendants to the flight crew. Communication between the two attendant stations is initiated by pressing the ATT switch light on the attendant control unit. The operation of attendant control unit at station #2 is similar to station #1. The cabin interphone system gives priority to modes selected from the flight compartment position.

Team digital passenger announcement system

The team digital announcement system uses digitally recorded announcements and music stored on memory cards installed in the unit. The pre-recorded announcements and music are individually accessed and selected using the controls on the front of the unit. Up to four announcements languages may be programmed and sequenced for play from the memory cards. Once a program has been selected it will be retained for subsequent flights unless changed again.

To operate the system proceed as follows:

1. ON key PRESS initiates self test. Successful self-test is annunciated as 'TEST OK' on LCD display. System reverts to announcement selection and broadcast mode once self-test is successfully completed.
2. L/V key PRESS accesses language selection mode.
3. Use arrow keys to scroll through available memory for announcement titles and languages. Use SEL key to select required messages and languages in the desired sequence. Messages titles and languages are displayed on the LCD. Languages are indicated on the menu by a single letter in parentheses included with the title of the message. Music is displayed as a menu item and may be selected for play by pressing SEL key.
4. PLAY key PRESS commences announcement sequence or music as selected.

Adjust broadcast volume as follows:

L/V key PRESS use arrow keys to adjust volume level as desired. Volume level is displayed on LCD. A single press is required if in language selection mode and a double press is required if in announcement mode. System will revert to announcement selection mode in thirty seconds following a volume adjustment.

VHF communication system

Two VHF communication radios are installed. Each controller allows the selection of two independent frequencies; the desired frequency being selected into the standby display and then transferred to the active display. Individual transmit and audio control is provided through the respective audio control panel.

Each VHF transceiver provides amplitude modulation (AM) voice communication in the 118.000 to 136.9917 MHz range in 8,33 kHz increments. The last 'channel name' displayed is 136.992, which is an actual frequency of 136.9917 MHz. To transmit and receive on a particular frequency using 8,33 kHz, the appropriate channel must be tuned to the frequency display. When using the 8,33 kHz spacing, the frequency being used to transmit and receive will not be the same as the channel selected on the frequency display.

The transceiver units are installed in the avionics rack. Number 1 VHF antenna is located on the forward upper fuselage surface and Number 2 VHF antenna is located on the forward lower fuselage surface. VHF COMM controllers are located on the centre console. Number 1 controller is on the left and number 2 controller is on the right. The VHF COM controllers provide active frequency selection, standby frequency selection, and selection of frequencies from programmable channels.

Frequency selection

Normally a frequency is selected in the preset display and then transferred to the active display for communication transceiver operation. Transfer is accomplished by momentarily selecting the XFR/MEM switch to the XFR position. When the switch is momentarily selected, the frequency in the active display and the frequency in the preset display exchange places.

The active frequency may be set directly by pressing the ACT pushbutton for approximately two seconds and manually selecting the frequency with the frequency selector knobs. While the frequency is being manually set, an ACT annunciation flashes on the left side of the active frequency display. Pressing the ACT pushbutton a second time returns the active frequency to a normal display.

Frequency selection is accomplished using the frequency selector knob on the face of the control panel. The larger of the two concentric knobs changes the MHz portion of the display in 1 MHz increments.

The smaller knob changes the kHz portion of the display and is 'rate aided', the faster the knob is turned, the more channels will be skipped. A single click of the kHz knob will either increase or decrease the channel by a single channel.

Channelled operation

Pressing the momentary MEM switch will select one of the six available channelled frequencies to the preset frequency display. Successive selection of the MEM switch will display the next channelised frequency from memory. The MEM annunciator illuminates whenever a stored frequency (channel) is displayed in the pre-select frequency display. Once selected to the preset display, a channelized frequency may be selected to the active display by selecting the XFR switch.

The STO pushbutton allows frequencies to be selected and entered in the controller memory. The memory retains the frequencies even if the set is turned off. After selecting the frequency into the preset frequency display, push the STO button. The active display area displays the available memory space (channel number) designated CH1 through CH6; the preset frequency displays the frequency to be stored. The MEM position of the XFR/MEM switch may repeatedly selected to advance through the channel numbers to reach the desired channel for storing the preset frequency. The selected frequency does not change as the channel numbers are selected. Push STO again to store the preset frequency to memory in the selected memory position (channel number). After five seconds, the controller will return to normal operation.

VHF communication operation

To operate either of the VHF transceivers proceed as follows:

1. VHF Number 1 or VHF Number 2 controller:

- Select SQ OFF.

2. Audio control panel:

- VHF 1 or VHF 2 receiver pushbutton - press on and adjust volume.
- MIC selector switch - VHF1 or VHF2 as applicable.
- MIC BOOM/MASK switch - boom or mask as applicable.

3. VHF Number 1 or VHF Number 2 controller:

- Power and mode switch - ON.
- Frequency selector knobs - select desired frequency.
- Transfer/memory switch - select XFR to transfer pre-select frequency to active display.

4. Microphone switch –

- Press applicable PTT, XMIT or hand mike switch and transmit.

FREQUENCY	SPACING (KHZ)	CHANNEL NAME (DISPLAYED)
118.0000	25	118.000
118.0000	8.33	118.005
118.0083	8.33	118.010
118.0167	8.33	118.015
118.0250	25	118.025
118.0250	8.33	118.030
118.0333	8.33	118.035
118.0417	8.33	118.040
118.0500	25	118.050
118.0500	8.33	118.055
118.0583	8.33	118.060
118.0667	8.33	118.065
118.0750	25	118.075
118.0750	8.33	118.080
118.0833	8.33	118.085
118.0917	8.33	118.090
118.1000	25	118.100
118.1000	8.33	118.105
*	*	*
136.9750	25	136.975
136.9750	8.33	136.980
136.9833	8.33	136.985
136.9917	8.33	136.990

Channel frequency scheme for 118.000 to 136.992 MHz range

Cockpit voice recorder

A Sundstrand CVR is installed in the airplane. The cockpit voice recorder is used in accident investigations and provides continuous recording of all flight crew communication, flight compartment conversations and PA announcements whenever the aircraft electrical system is powered. The cockpit voice recorder is located in the tail of the aircraft with a control unit mounted on the centre console in the cockpit. The recorder automatically erases as it records and keeps only the last two hours of recording. The recorded data is retained in a solid-state format. An inertia switch automatically removes power from the system in the event of an accident. The CVR also contains an underwater locating device (ULD) powered by an integral battery. The ULD activates automatically when the CVR is immersed in water.

Test procedure

The operation of all four audio channels can be checked by pushing the TEST pushbutton on the CVR control unit while a 600-ohm headset is connected into the HEADPHONE jack on the CVR control unit. When the TEST pushbutton is pushed, an 800 Hz tone may be monitored through the headset. At the same time the tone is heard, the green STATUS light will flash once. Recording quality can be monitored any time the system is powered using a headset plugged into the headphone jack.