



CHAPTER 6

COMMUNICATIONS

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CHAPTER 6

COMMUNICATIONS

GENERAL

The aircraft communication system provides communication between the crewmembers, crewmembers and passengers, crewmembers and ground stations, and communication with other aircraft or ground crew.

The very high frequency (VHF) communication system provides speech communication between ground and air radio stations.

Several passenger-related systems provide public addressing functions within the aircraft. The audio integrating system ties all the radio functions between the independent systems together for use within the aircraft.

A cockpit voice recorder provides two hours (30 minutes for older model aircraft) of continuous recording of radio transmissions and cockpit sounds. The radio tuning system tunes and changes frequencies for the aircraft radios. A backup control system functions as a backup to the radio tuning system for COM 1 and NAV 1.

VHF SYSTEM

SYSTEM DESCRIPTION

The aircraft contains three independent VHF communication systems. Only two are available for voice communication; VHF 3 is dedicated to ACARS. The VHF communication system supplies amplitude modulated (AM) short range, air-to-air, and air-to-ground communications. The VHF operates through 760 channels. The VHF radio frequency (RF) range consists of 118.000 to 136.975 megahertz. The frequencies may be tuned in 25 kilohertz increments.

Each radio tuning unit (RTU) on the center pedestal allows cross-side tuning and monitoring. The 1/2 switch on the RTU permits the onside RTU to control and monitor the cross-side RTU.



The VHF system components consist of the following (Figure 6-1):

- Transceivers—Three transceivers provide reception and transmission processing for each VHF system.
- Antennas—VHF 1 and 3 antennas are on the upper fuselage and VHF 2 antenna is on the lower fuselage.

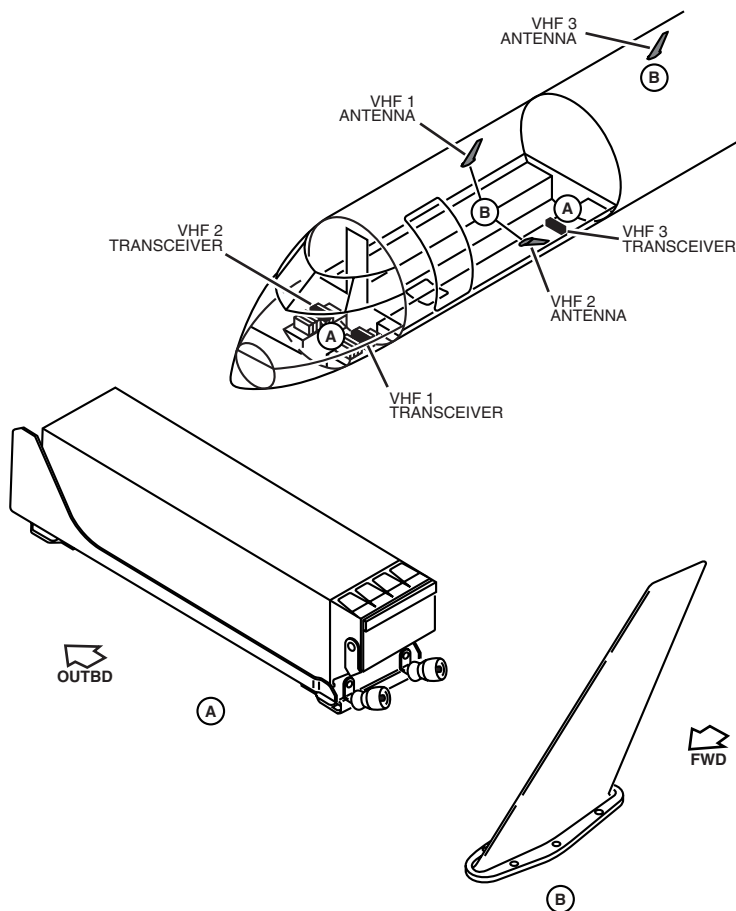


Figure 6-1 VHF System Components



CONTROLS AND INDICATIONS

Power

The 28-VDC battery bus supplies power for the VHF 1 transceiver. The transformer rectifier units (TRUs) 1 and 2 normally provide power to the 28-VDC battery bus. If the TRUs are inoperative, the aircraft batteries supply power to the bus (with the battery master switch on). The No. 2 28-VDC bus supplies power for the VHF 2 transceiver.

Radio Tuning Units

The RTUs are the primary monitor and control for the transceivers. RTU 1 monitors and controls the VHF 1 transceiver. The RTUs contain the following pages that affect the VHF system:

- Top level display
- COM main page display

Top Level Display

The RTU top-level display is the default display (Figure 6-2). The RTU returns to this page from other displays if no inputs are made for 20 seconds. The top level display permits selection of the VHF-communication active and preset frequencies.

Line Select Keys

ACT—Pushing and releasing the active line select key moves the tune window to that frequency. With the tune window on the ACT frequency, pushing the ACT line select key selects the COM main page. The ACT is in the top left of the display.

PRE—Pushing and releasing the preset line select key moves the tune window to that frequency. The COM PRE is the default position for the tune window. Selecting a new preset frequency displays above the preset frequency. With the tune window on the PRE frequency, an arrow to the right of the PRE and RECALL display

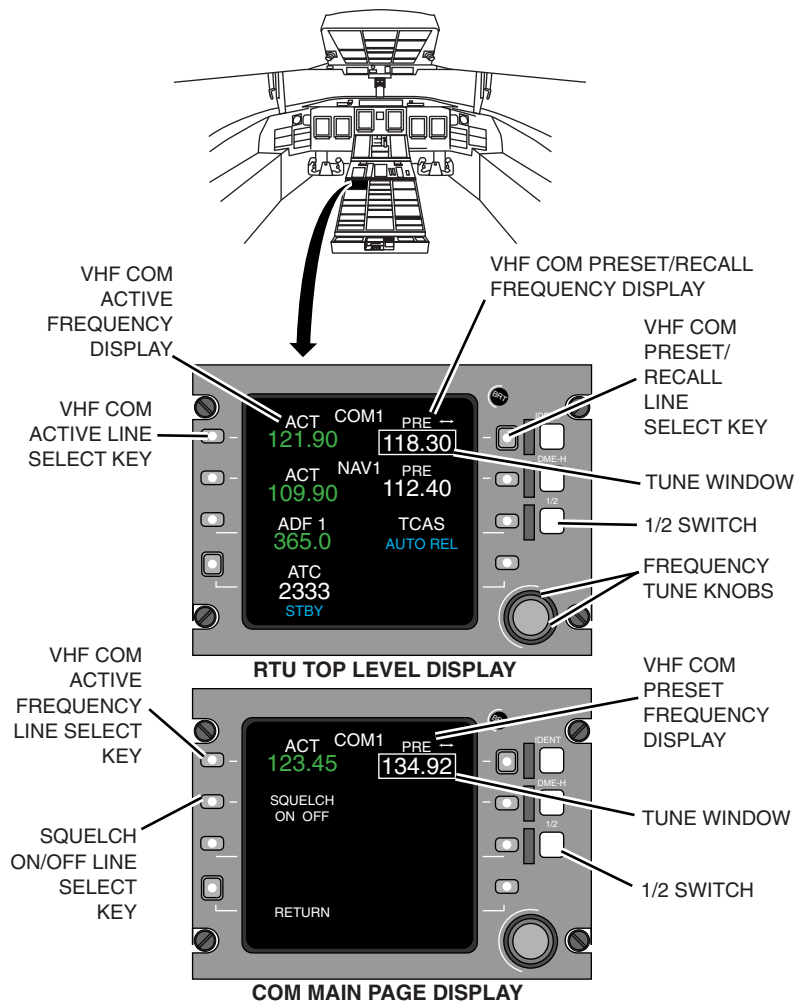


Figure 6-2 VHF System RTU Displays

shows that the next PRE line select key push changes the PRE and ACT frequency positions. The PRE is in the top right of the display.

RECALL—When the PRE line select key is pushed and the PRE and ACT frequencies change positions, the PRE display changes to RECALL.



Tune Knob

Outer knob—Rotating the knob changes the tune window selected frequency in 1-megahertz steps.

Inner knob—Rotating the knob changes the tune window frequency in 50-kilohertz steps. Turning the knob the other direction changes frequencies in 25-kilohertz steps.

1/2 Switch

1/2 switch—Pushing the switch shows the cross-side RTU data on the display. This lets the RTU tune both the onside and cross-side radios without stopping the operation of the cross-side RTU.

Display Window

SQ OFF—The squelch off is shown below the ACT frequency. SQ OFF comes on when the squelch is set to the OFF position.

TX—The transmit is shown below the ACT frequency. The TX comes on when the VHF transmits.

COM Main Page Display

Line Select Keys

ACT—With the tune window on the PRE frequency, pushing the ACT line select key twice accesses the main page. With the tune window on the ACT frequency, pushing the ACT line select key once accesses the main page.

SQ—Pushing the SQ line-select key toggles the squelch ON and OFF. The active state of the squelch is displayed on the main page display in larger letters than the inactive state. The SQ OFF displays below the ACT frequency on the top level page.

RETURN—Pushing the RETURN line select key returns the RTU to the top level display.



Backup Tuning Unit

The backup tuning unit connects to the VHF 1 transceiver (Figure 6-3).

COM/NAV Selector Switch

COM—With the COM toggled and the mode selector to ON, the backup tuning unit changes the VHF 1 frequency.

Display Window

Frequency display—The display window shows the VHF frequencies.

TX—The transmit display comes on when the backup tuning unit transmits.

Mode Selector Switch

OFF—The unit is off in this position.

SBY—In standby (SBY) mode, the control unit monitors and shows the VHF 1 and NAV 1 frequencies.

ON—The RTU 1 preset-frequency display goes out of view and a STBY indication replaces the ACT indication. The backup tuning unit tune knobs control the VHF 1 and NAV 1 frequencies.

Frequency Tune Knobs

The backup tuning unit tune knobs control the VHF 1 frequency with the following:

- Mode selector switch in the ON position
- COM/NAV selector switch selected to COM

Outer tune knob—Rotating the knob changes the VHF 1 frequency in 1-megahertz steps.

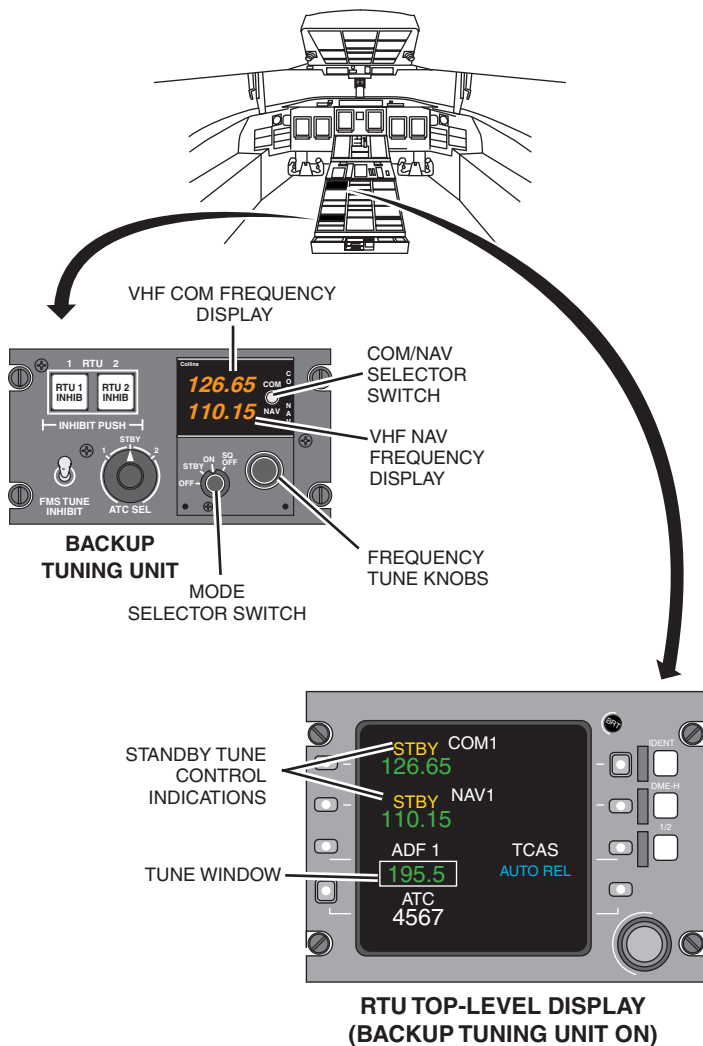


Figure 6-3 VHF System Backup Tuning Unit



Inner tune knob—Rotating the knob changes the frequency in 25-kilohertz steps.

RTU Top-Level Display with Backup Tuning Unit On

When the backup tuning unit controls the VHF 1, the following occurs:

- RTU top-level-display ACT frequency changes to yellow
- PRE frequency goes out of view
- STBY displays yellow above the ACT frequency

The tune window moves to the ADF frequency and cannot be controlled by the VHF ACT or PRE line select keys. When the backup tuning unit has control:

- RTU 1 has no control of VHF during onside operation
- RTU 2 has no control of VHF 1 during cross-side operation

Audio Control Panel

The audio control panel provides both listening and transmitting functions for the VHF system (Figure 6-4).

Transmit Select Switch

VHF 1—The audio control panel allows transmissions and reception on VHF 1.

VHF 2—The audio control panel allows transmissions and reception on VHF 2.

VHF COM Receive Switches

VHF 1—This position allows listening to the VHF 1 frequency.

VHF 2—This position allows listening to the VHF 2 frequency.

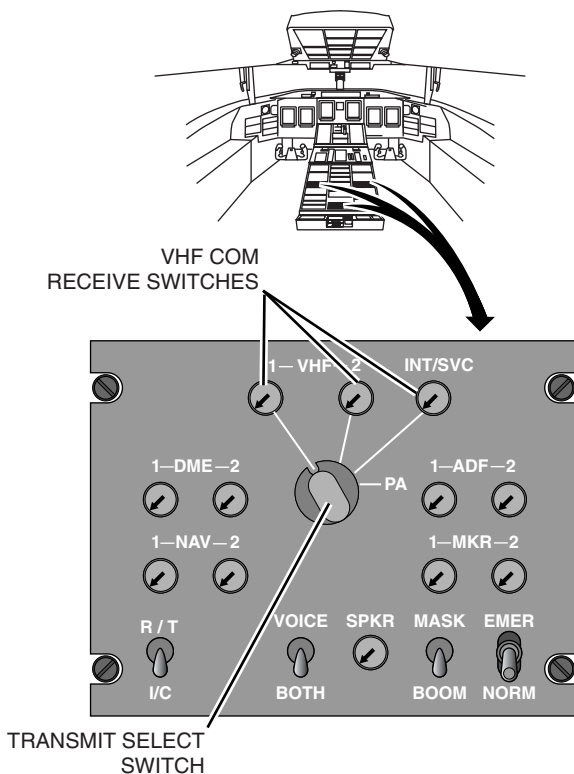


Figure 6-4 Audio Control Panel



BACKUP TUNING SYSTEM

SYSTEM DESCRIPTION

The backup tuning unit provides backup control for VHF 1 communication and NAV 1 navigation systems (Figure 6-5). RTU 1 normally controls the VHF 1 communication and navigation systems. The backup tuning unit is on the center pedestal.

When in the standby mode, the backup tuning unit monitors the active frequencies of the VHF 1 communication and NAV 1 navigation systems only. When the backup tuning unit is set to the ON or squelch off (SQ OFF) modes, it controls and monitors the VHF 1 communication and NAV 1 navigation systems and has priority over the RTUs.

CONTROLS AND INDICATIONS

Power

The 28-VDC battery bus powers the backup tuning unit.

Frequency Display

The frequency display contains two rows of seven-segment digits. The upper row is for the COM frequency and the lower row is for the NAV/DME frequency. The TX mode display comes on when VHF COM 1 is transmitting.

NAV/COM Toggle Switch

The NAV/COM toggle switch selects which frequency display is controlled by the frequency select knobs.

COM—In this position, the VHF COM 1 transceiver is tuned by the frequency select knobs.

NAV—In this position, the VHF NAV 1 and DME are tuned by the frequency select knobs.



Mode Selector Switch

The four-position rotary knob selects the operating modes.

OFF—There is no power to the backup tuning unit.

STBY (standby)—Echoes frequency set at COM 1 and NAV 1

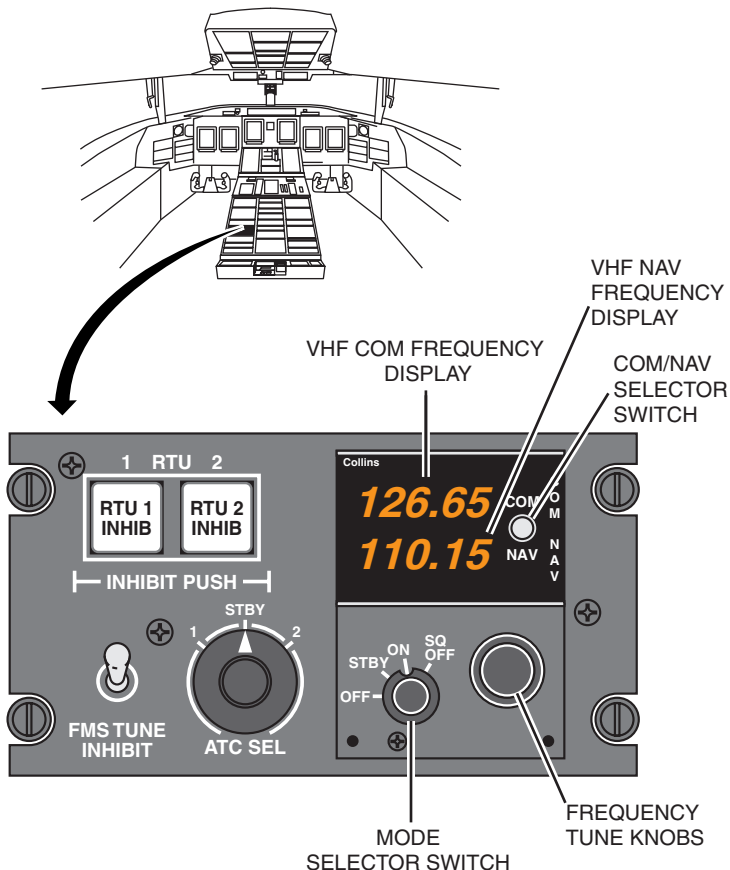


Figure 6-5 Backup Tuning Unit



ON—The control unit controls the frequency selection of the VHF COM 1 and VHF NAV 1.

SQ OFF—The control unit controls the frequency selection of the VHF COM 1 and VHF NAV 1 with the squelch off.

Frequency Tune Knob

Outer tune knob—Rotating the knob changes the frequency in steps of 1 MHz.

Inner tune knob—Rotating the knob changes the frequency in steps of 50 kHz (NAV) or 25 kHz (COM).

Standby Mode

In STBY mode, the control unit displays the active frequencies that are received from the VHF COM 1 and VHF NAV 1. The backup tuning unit does not transmit control data to any of the radios and none of the front panel switches are operative.

Operational Mode

The COM 1 and NAV 1 preset frequency displays on RTU 1 blank out, and the STBY indicators on both RTUs illuminate. The backup tuning unit has priority over the RTUs and controls the VHF COM 1 and VHF NAV 1.

When the unit is in the ON or SQ OFF mode, the selected frequencies are stored in memory several seconds after a new frequency is selected. In STBY mode, the memory stores the correct frequencies that are received back from the radios after they have been tuned by the RTUs. The stored frequencies are recalled from memory when the backup tuning unit is turned to the ON or SQ OFF modes and no frequency change has been received from a radio. This happens if a power interruption occurs while the control unit is ON or STBY.



AUDIO INTEGRATING SYSTEM

SYSTEM DESCRIPTION

The audio integrating system supplies an interface between the flight crew microphones, headsets, and speakers and the following systems:

- Communication transceivers
- Navigation receivers
- Aural warning system
- Passenger address (PA) and cabin interphone
- Voice and data recording systems
- Service interphone

The components consist of the following:

- Audio-electronic control unit
- Speakers
- Headphone and microphone jacks

CONTROLS AND INDICATIONS

Power

The 28-VDC battery bus powers the audio electronic control unit for the pilot's channel. The 28-VDC essential bus powers the copilot's channel. The No. 2 28-VDC bus powers the observer's channel. The audio-electronic control unit supplies 15 VDC to each audio control panel.



Controls

The audio integrating system includes the following:

- Audio control panels
- Speakers
- Headphone and microphone jacks
- Push-to-talk (PTT) switches

Audio Control Panels

The three audio control panels are on the center pedestal (Figure 6-6). Each audio control panel has volume-control ON/OFF switches that route the received audio signals from the aircraft radios to the headphones and the flight compartment speakers. A transmit selector switch controls the routing of the microphone audio signal and the PTT keying.

Transmit Selector Switch

The two-layer, rotary transmit selector switch performs the same function for the six transmission selections. The first layer connects the microphone PTT keying to the transmit relay in the audio-electronic control unit. The second layer connects the received audio signal from the audio-electronic control unit to the audio control panel. The microphone selections consist of the following:

- VHF 1
- VHF 2
- INT/SVC
- PA

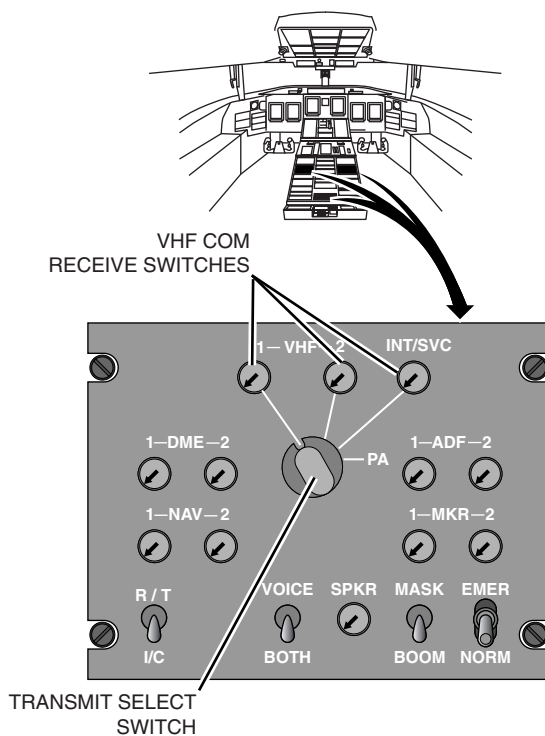


Figure 6-6 Audio Control Panel



Volume

The volume control switches are push ON and push OFF switches that control the volume of the received audio when pushed to the ON position. Rotating the volume knobs increases or decreases the volume of the respective selection. Moving the transmit selector switch to the VHF 1, VHF 2, and INT/SVC volume control switches sets them to ON. The volume control switches also control the volume of the following:

- DME 1 and 2
- NAV 1 and 2
- ADF 1 and 2
- MKR 1 and 2
- SPKR outputs

SPKR

Rotating the speaker volume control adjusts the output from the speakers. Audio from the aural warning system, PA sidetone, and PA chime does not go through the volume control switches and is not adjustable.

Receive Transmit and Intercom Switch

The R/T and I/C switch is a three-position switch.

R/T—This spring-loaded position acts as a PTT switch for the boom and mask microphones.

I/C—The latched intercom position acts as a hot microphone operation on the interphone system.

OFF—The center position is OFF.



VOICE/BOTH Switch

The VOICE/BOTH switch is a two-position switch.

VOICE—This position uses a filter to attenuate the 1020-Hz identification signal from the VOR, ILS, and ADF audio allowing only voice signals to be audible.

BOTH—This position adds the 1020-Hz signal to the voice signal.

MASK/BOOM Switch

The MASK/BOOM switch is a two-position switch.

MASK—This position controls the oxygen mask audio control functions. The mask microphone is now active.

BOOM—This position controls the BOOM audio control functions. The boom microphone is now active.

EMER/NORM Switch

The EMER/NORM switch is a two-position latching switch that is usually set to the NORM position.

EMER—Bypasses audio electronics control unit. Pilot has two-way communication on VHF 1, audio on NAV 1 and aural warnings. Copilot has two-way communication on VHF 2, audio on NAV 2 and aural warnings. Observer has aural warnings only.

NORM—This provides normal functions for the audio control panel.

NOTE

When the EMER/NORM switch is selected to EMER, the hand mic and the speaker are inoperative. Degradation of the audio will also occur.

Push-to-Talk Switches

The PTT switches are on the two control wheels and the three audio control panels. Pressing the switches activates the transmission parameters selected by the RTUs and audio control panels.



Mechanic Call

A call circuit is used between the flight compartment and the external service panel position (Figure 6-7). The circuit consists of a CKPT CALL switchlight at the external service panel position, and a MECH CALL switchlight on the center instrument panel. Pushing the CKPT CALL illuminates a white MECH CALL light on the center instrument panel. Pushing the MECH CALL switch illuminates an amber CKPT CALL light. Both circuits go through a 30-second time-delay relay that sets the lights to OFF after 30 seconds if the call is not answered.

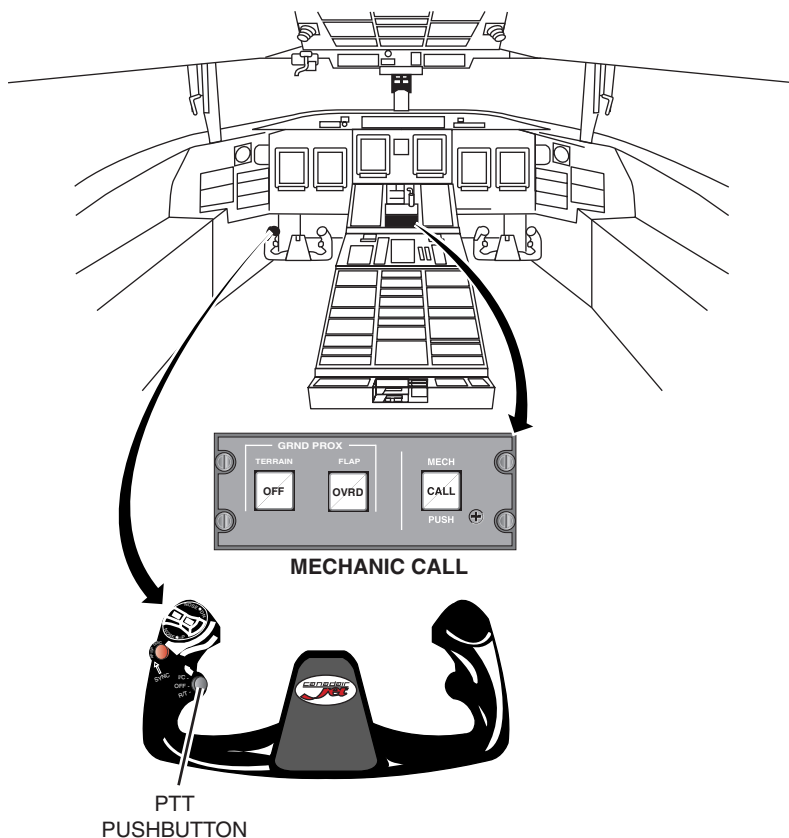


Figure 6-7 Mechanic Call and PTT Switch



Receiving

The audio-electronic control unit receives inputs from the following:

- VHF COMs 1 and 2
- VHF NAVs 1 and 2
- ADFs 1 and 2
- DMEs 1 and 2
- PA amplifier
- Aural warning system
- Cabin and service interphone system

The audio-electronic control unit supplies amplification, switching, and isolation for the incoming audio signals.

Receiver audio is on when the following occurs:

- Pushing the audio control panel ON/OFF switches to the ON position, or
- Moving the transmit selector switch to the applicable receiver position

The selected audio signal is supplied to the headphone and speaker. The cockpit voice recorder receives a summation of the headphone and microphone outputs from all three audio-electronic control units.

Transmitting

The BOOM/MASK switch on the audio control panel controls the microphone input to the audio-electronic control unit. The microphone input to each channel of the audio-electronic control unit goes through an automatic gain-control circuit. The circuit then divides into the interphone and transmitting audio channels.



Service Interphone

The service interphone lets the flight crew speak to the maintenance crew at the following locations:

- Avionics compartment
- External services panel
- Aft equipment compartment
- Refuel/Defuel panel

The interphones disconnect when a weight-on-wheels relay opens at the AC ground-power receptacle, APU compartment, and refuel panel positions. The avionics compartment interphone is available in flight and on the ground.

Setting the transmit selector switch on the audio control panel to the IC position activates the hot microphone in the service interphone and flight compartment positions. The I/C PTT switch on the audio control panel and the IC position of the PTT switch on the control wheel control the transmission of the interphone.

Cabin Interphone and PA

The cabin interphone lets the flight crew speak to the flight attendants and the PA lets the flight crew speak to the passengers. The interphone control unit on the center pedestal provides operational control for the cabin interphone and PA. The CALL switch sets the cabin interphone to ON when it is pushed, and the PA switch sets the PA to ON when it is pushed.

NOTE

To use CALL, EMERG, or PA, the transmit select switch must be on PA before pushing the switchlight.



When the PA switch on the interphone control unit is pushed (and the transmit selector switch on the audio control panel is set to the PA position), the microphone audio and PTT keying is supplied to the interphone electronic unit in the PA system.

Emergency Operation

The emergency mode begins automatically when power is lost to the Captain's or First Officer's channel in the audio-electronic control unit. Placing either the Captain's or First Officer's audio control panel to the EMER position also operates the emergency mode.

The Captain's headphone connects directly to VHF NAV 1, VHF COM 1, and the aural warning system. The microphone connects directly to VHF COM 1. The First Officer's headphone connects directly to VHF NAV 2, VHF COM 2, and the aural warning system. The First Officer's microphone connects directly to VHF COM 2. The observer's channel does not have emergency operation.

Aural Warning

The aural warning system supplies audio to the speakers, and the Captain's, First Officer's, and observer's headphones. The aural warning system does not go through the volume controls on the audio control panels.

PASSENGER ADDRESS SYSTEM

SYSTEM DESCRIPTION

The passenger address (PA) system supplies the cabin loudspeakers from the any of the following positions:

- Flight compartment
- Attendant handsets
- Prerecorded passenger announcements



The system also supplies the logic for the chimes and visual signs for the attendants, passengers, and flight compartment calls.

The PA system includes the following components in the forward avionics compartment:

- PA amplifier
- Interphone electronic unit

CONTROLS AND INDICATIONS

Interphone Control Unit

The interphone control unit is on the center pedestal. The interphone control unit controls the flight crew interphone through the interphone electronic unit (Figure 6-8).

PA—The PA switchlight controls the public address operation from the flight compartment. Pushing the PA switchlight connects the audio and microphone to the interphone electronic unit (The transmit select switch must be in the PA position before pushing the switchlight). This illuminates the PA light on the interphone control unit and the PA LED at the attendant's station.

CHIME—The CHIME switchlight supplies a HI/LO chime to the cabin speakers through the PA amplifier. The audible chimes consist of the following:

- Passenger-to-attendant call—High tone
- Pilot-to-attendant call—High/low tone
- Pilot-to-attendant emergency call—High/low tone
- Seat belt sign—Low tone
- Fasten seat belt—Low tone

CALL—The CALL switchlight operates the interphone from the flight compartment. Pushing the CALL switchlight supplies a HI/LO chime to the cabin speakers through the PA amplifier (The transmit select switch must be in the PA position before pushing the switchlight). This also connects the audio and microphone keying to the

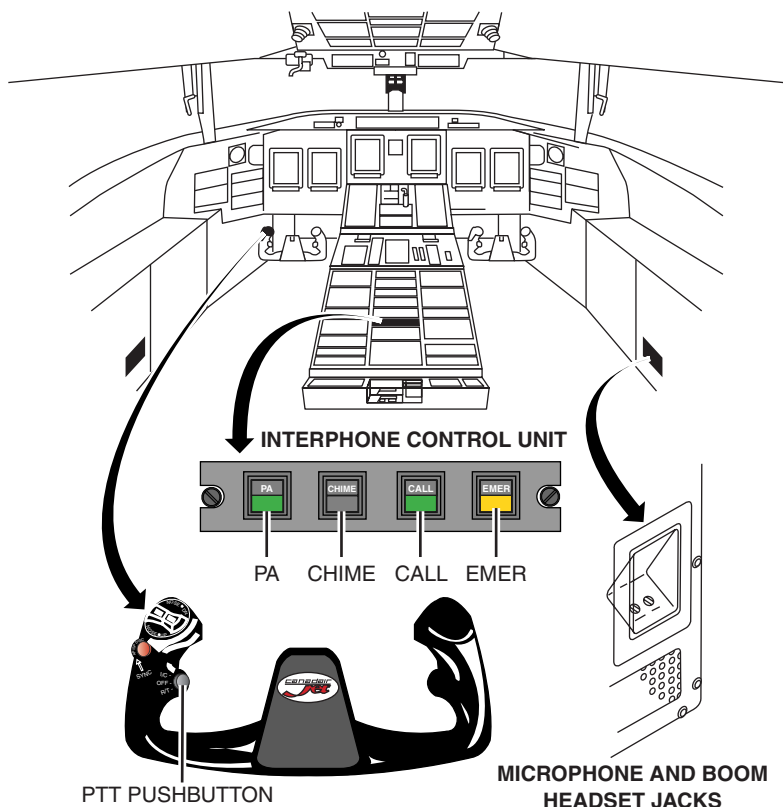


Figure 6-8 Interphone Control Unit

interphone electronic unit. This illuminates the CALL light on the interphone control unit and the CALL LED at the attendant station.

EMER—Pushing the EMER switchlight supplies a HI/LO chime to the cabin speakers (The transmit select switch must be in the PA position before pushing the switchlight). This also flashes the EMER light on the interphone control unit and the EMER LED at the attendant panel flashes.

The PA and CALL switchlights have green indicator lights and the EMER switchlight has an amber light. The CHIME switch does not have a light.



DIGITAL PASSENGER BRIEFING SYSTEM

Some airplanes incorporate the Digital Passenger Briefing System, in the forward wardrobe (Figure 6-9).

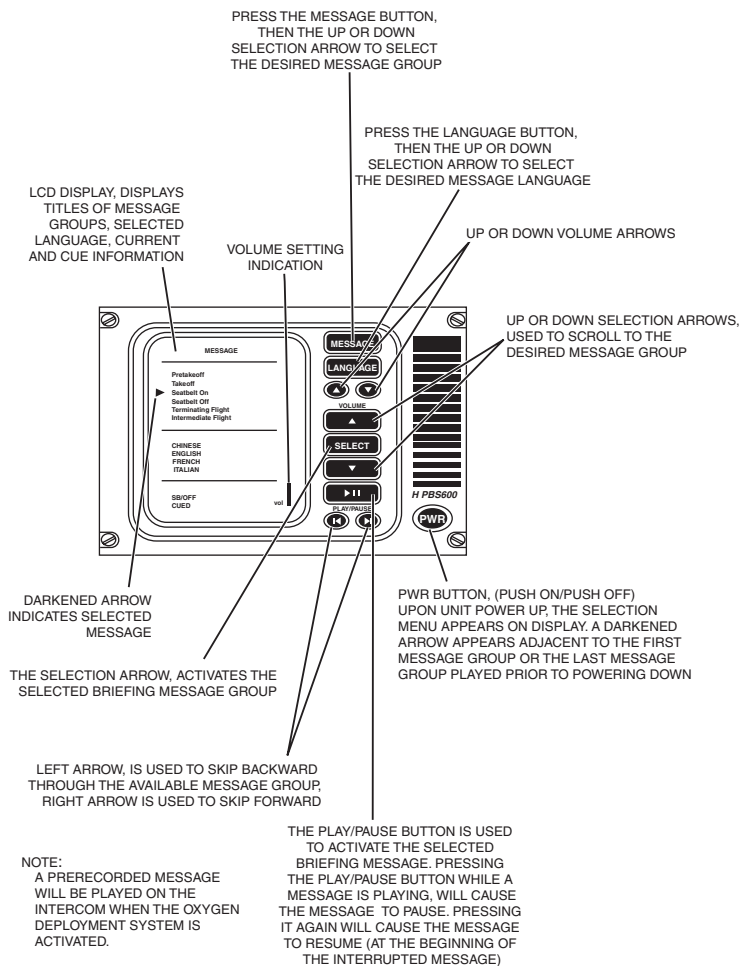


Figure 6-9 Digital Passenger Briefing System



COCKPIT VOICE RECORDER

SYSTEM DESCRIPTION

The cockpit voice recorder system is a voice-quality, audio frequency recorder that supplies four separate channels of voice recordings. The recordings may be played back on ground equipment. The recorder is in an orange unit that is protected from damage due to high temperatures and impact forces.

The voice recorder system includes the following components:

- Cockpit voice recorder
- Impact switch
- Underwater locating device

CONTROLS AND INDICATIONS

Power

The 28-VDC essential bus powers the voice recorder through the circuit breaker D7 and through the impact switch.

Control Unit

The control unit is on the pilot's main instrument panel, below the primary flight display.

TEST—Pressing the TEST switch starts the built-in test equipment (BITE) in the cockpit voice recorder.

ERASE—Pressing the ERASE switch bulk-erases the flash memory recording. The switch must be pressed and held for at least 2 seconds when the aircraft is on the ground and the parking brake is set.

HEADSET—A headset connects into this jack to listen to the tape.

TEST indicator lamp—The indicator lamp shows the result of the BITE.



Area Microphone

The area microphone is on the overhead panel. It picks up the conversations that take place in the flight deck. The flight deck microphone audio stream and the audio stream produced from the combination of the pilot, copilot, and the third crew member audio can be monitored during recording. A headset plugged into the HEADSET jack allows monitoring.

Recording

The voice recorder is a solid-state (memory chip) recorder that records all flight deck communication. Channels 1 through 3 pick up all the communications from the observer's, copilot's and pilot's audio control panels, respectively. Channel 4 picks up the conversations in the flight deck from the area microphone. The recording includes audio from the following:

- Microphones and headsets
- Receivers and transmitters
- Aural warnings
- Passenger address system
- Cockpit area sounds

The recorder retains only the last two hours (30 minutes for older model aircraft) of audio in the solid-state memory.

Testing

Pressing the TEST switch on the control unit activates an internal 620 to 660 Hz test tone generator in the BITE. At the end of a successful test, a signal is sent to the TEST indicator on the control unit. In addition, two 250 millisecond beeps, 500 milliseconds apart is applied to the HEADSET jack on the control unit.

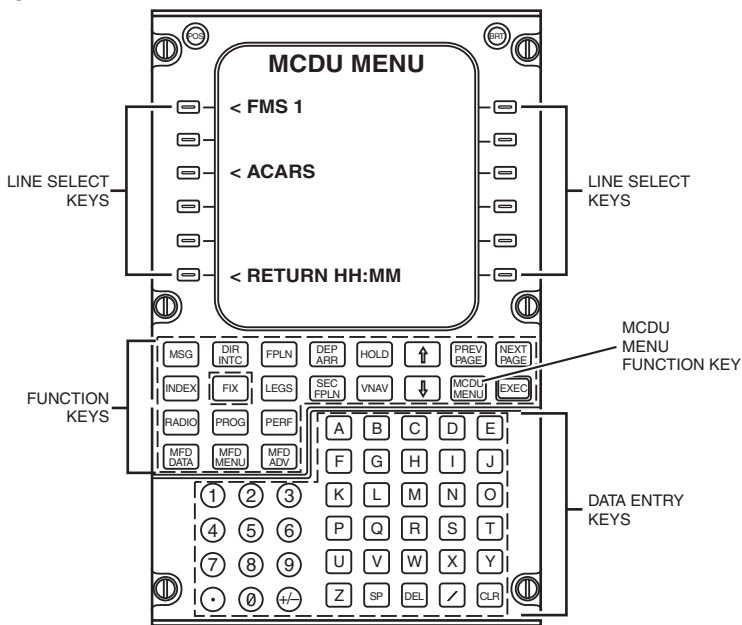


Bulk Erase

To bulk erase the solid state flash memory, the aircraft must be on the ground as sensed by the proximity sensor electronic unit (PSEU), and the parking brake must be set. Pushing the ERASE switch for more than two seconds and then releasing, erases the stored information in the solid state flash memory. During this time, a 400-Hz tone is applied to the HEADSET jack on the control unit for 10 seconds.

ACARS

Aircraft Communications and Reporting System (ACARS) can be accessed via the MCDU MENU function key on the FMS CDU (Figure 6-10).



THE CDU DISPLAYS THE FOLLOWING PROMPTS:

PROMPT	DESCRIPTION
*	SELECTION EXECUTES A FUNCTION
> AND <	SELECTION CHANGES THE PAGE
↑	SELECTION STEPS THROUGH A SELECT LIST

Figure 6-10 FMS Control Display Unit (CDU)—Center Pedestal (Upper)



The conventions used to indicate actions, results and sequences are shown in Figure 6-11.



Push a Function Key or Line Key

The finger indicates to push a function or line key. Keys shown under finger, are keys to push.



Sequence of Actions

Circled numbers show sequences for graphic images and their relationship to written steps of text. Must be followed in sequence to achieve desired results.



Result of Action

Points to expected result of an action. Unexpected results may indicate incorrect key inputs.

To access the ACARS menu page select the MCDU MENU function key on the FMS CDU.

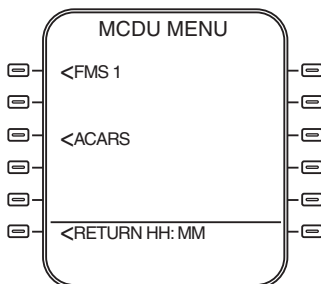


Figure 6-11 FMS Programming Conventions

To access the ACARS—AOC (Airline Operational Control) MENU page, select the <ACARS line select key. This will allow the crew to enter flight data and to send reports (engine, snag, ops, delay, etc.) (Figure 6-12).

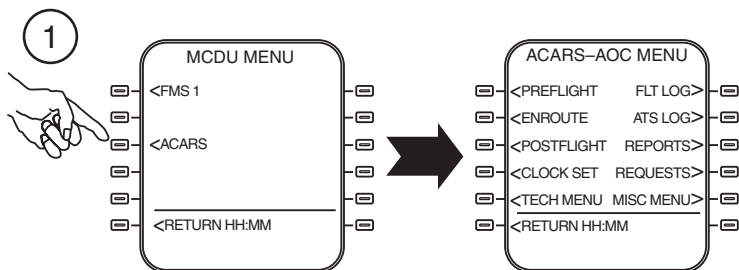
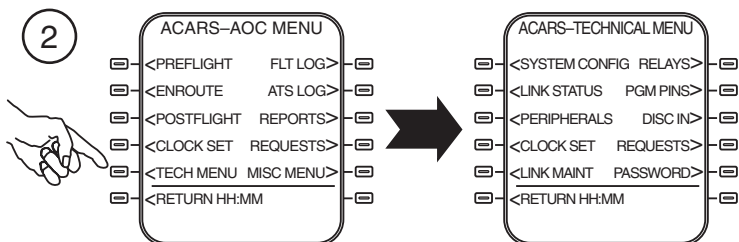


Figure 6-12 Accessing the ACARS—AOC MENU Page

To access the TECHNICAL MENU page, select the <TECH MENU line select key. This will allow the maintenance personnel to perform maintenance applications (APM reconfiguration, VHF link testing, and peripherals status) (Figure 6-13).



NOTE:

THE TECHNICAL MENU PAGE CAN ALSO BE ACCESSED BY SELECTING THE <RETURN LINE SELECT KEY UNTIL THE APPLICATION MENU PAGE IS DISPLAYED, THEN SELECT >TECHNICAL LINE SELECT KEY.

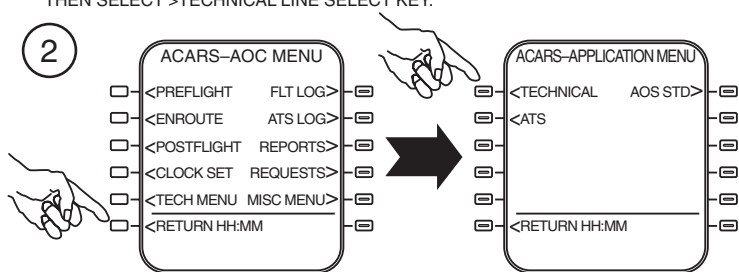
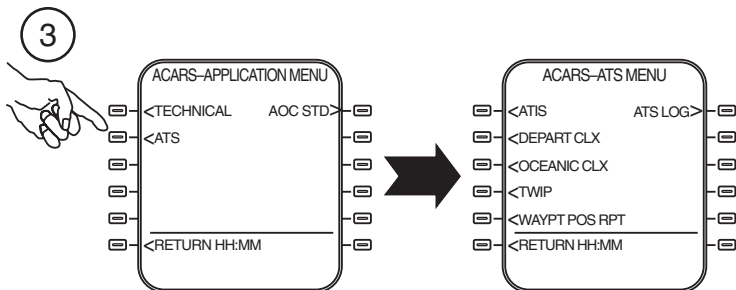


Figure 6-13 Accessing the TECHNICAL MENU Page



To access the ACARS—ATS (Air Traffic Services) MENU page, select the <RETURN line select key until the APPLICATION MENU page is displayed. Then select the <ATS line select key. This will provide access to Departure, Clearance, Oceanic Clearance, and TWIP (Terminal Weather Information for Pilots) (Figure 6-14).



THE CDU TEXT ARE AS FOLLOWS:

COLORS	DESCRIPTION
WHITE	PAGE AND FIELD TITLES, COMMENTS, PAGE CHANGE TEXT, SCRATCHPAD
CYAN	USER MODIFIABLE FIELD INFORMATION, OPTIONAL USER ENTRY, FUNCTIONS CALL-UP TEXT
GREEN	COMPUTER SUPPLIED INFORMATION
AMBER	MANDATORY USER ENTRY

Figure 6-14 Accessing the ACARS—ATS MENU Page

ACARS MESSAGES

Downlink Messages

Downlink messages originate onboard the airplane and are transmitted to the ground automatically (appropriated system event detected) or generated by the crew. The CMU (Communications Management Unit) encodes a downlink message and stores it in a downlink queue until successfully transmitted.

Queued Messages

Queued messages are transmitted in sequence or priority. The queuing routine takes into account the priorities of the messages in the queue. Once a message is transmitted, the CMU waits for the ground to acknowledge (ACK) positive receipt of the message. If



the ACK is not received within a specific time frame, the message is transmitted again. Any downlink messages generated during a NOCOMM state (when communication links with ground cannot be established using VHF) will be stored in the queue buffer for downlink when communications have been reestablished (Figure 6-15).

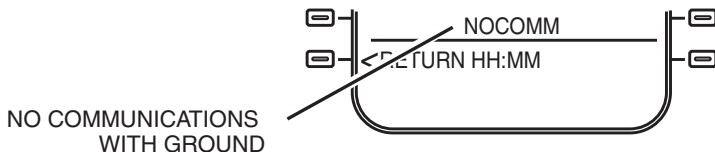


Figure 6-15 ACARS Messages—Queued

Uplink Messages

Uplink messages originate on the ground and are transmitted to the CMU or to a connected peripheral unit such as a printer (if installed). When the message is received, the CMU validates the data content and compares the airplane ICAO address within the messages to the ICAO address programmed in the APM (Airplane Personality Module). If the address match, the ACARS then transmits an ACK or negative acknowledgement (NACK) of receipt to the ground via VHF data link to the FMS CDU.

The ground station will retransmit the message if an ACK is not received within a specific time frame or if a NACK is received. The ACARS CMU does not process the message until the entire contents have been received and validated.



When an uplink message has been processed, a MESSAGE prompt is displayed if the ACARS application is running on the FMS CDU. The message can be viewed by selecting the message prompt. An EICAS advisory message “SELCAL VHF 3” and a “SELCAL, SELCAL” aural will be triggered whenever there is reception of an uplink, regardless if ACARS application is running or not (Figure 6-16).

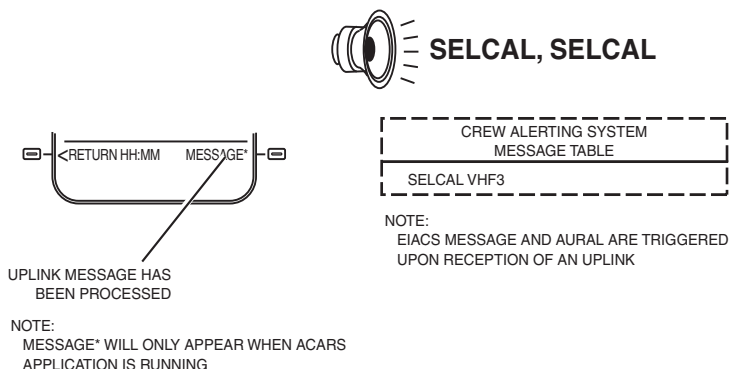


Figure 6-16 ACARS Messages—Uplink



CIRCUIT BREAKERS

Table 6-1 presents power supply and circuit-breaker information

Table 6-1 POWER SUPPLY AND CIRCUIT BREAKERS

SYSTEM	SUB-SYSTEM	CB NOMENCL ATURE	BUS BAR	CB PANEL NUMBER	CB LOCATION
Communi- cations	Receivers/ Transmitters	VHF COMM 1	DC BATT	1	Q3
		VHF COMM 2	DC BUS 2	2	H11
		VHF COMM 3	DC ESS	4	D12
	Audio System	AUDIO PILOT	DC BAT 1	1	Q6
		AUDIO OBS	DC BUS 1	1	Q8
		AUDIO C/PLT	DC BAT	1	Q7
		AUDIO OBS	DC BUS 2	2	H4
		AUDIO PILOT	DC ESS	4	D1
	Cockpit Voice Recorder	CKPT VOICE REC	DC ESS	4	D7
		RTU 1			D13
	Radio Tuning	RTU 2	DC BUS 2	2	K4
		EMER TUNING	DC BAT	1	Q4
		PASS ADDR			Q5
	Tape Player	PASS ADDR			
	ACARS	ACARS	AC BUS 2	2	C11



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