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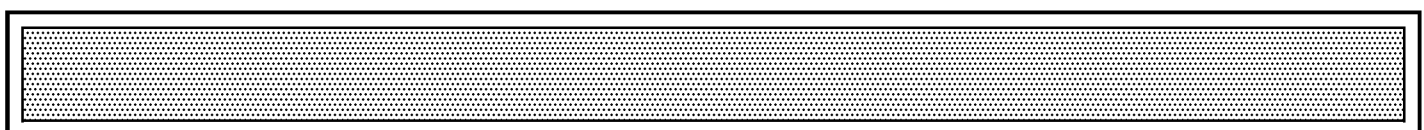
05.50 PASSENGER ADDRESS SYSTEM

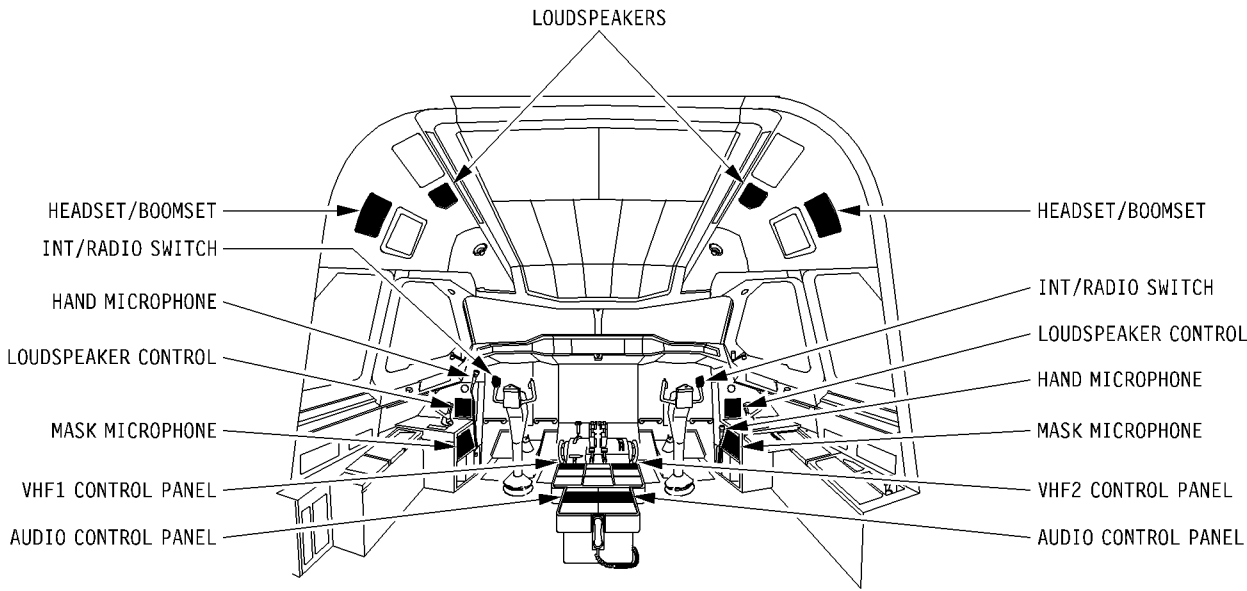
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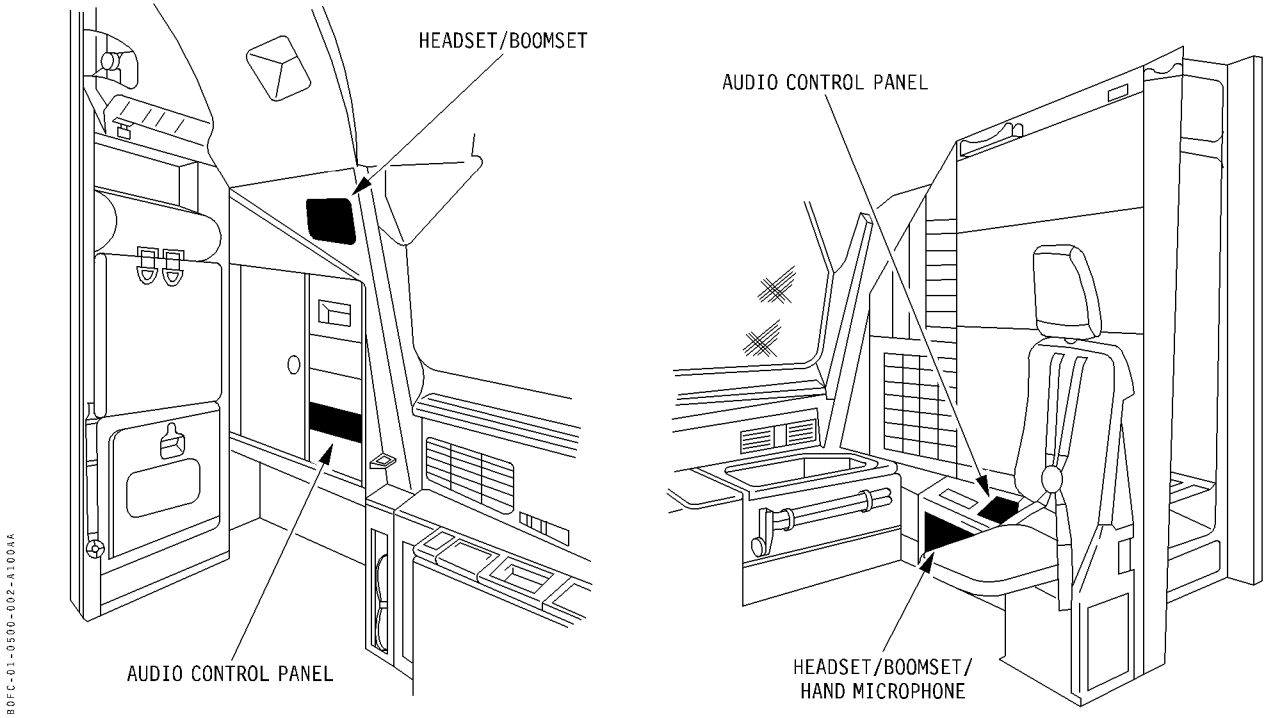
Note : The objective of this chapter is to provide a general presentation of the communication system installed on A310 aircraft.

The schematics and panels contained in this chapter illustrate a typical aircraft configuration and may not reflect exactly the configuration of your aircraft.



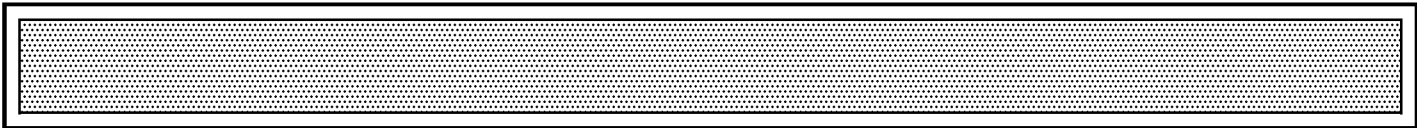


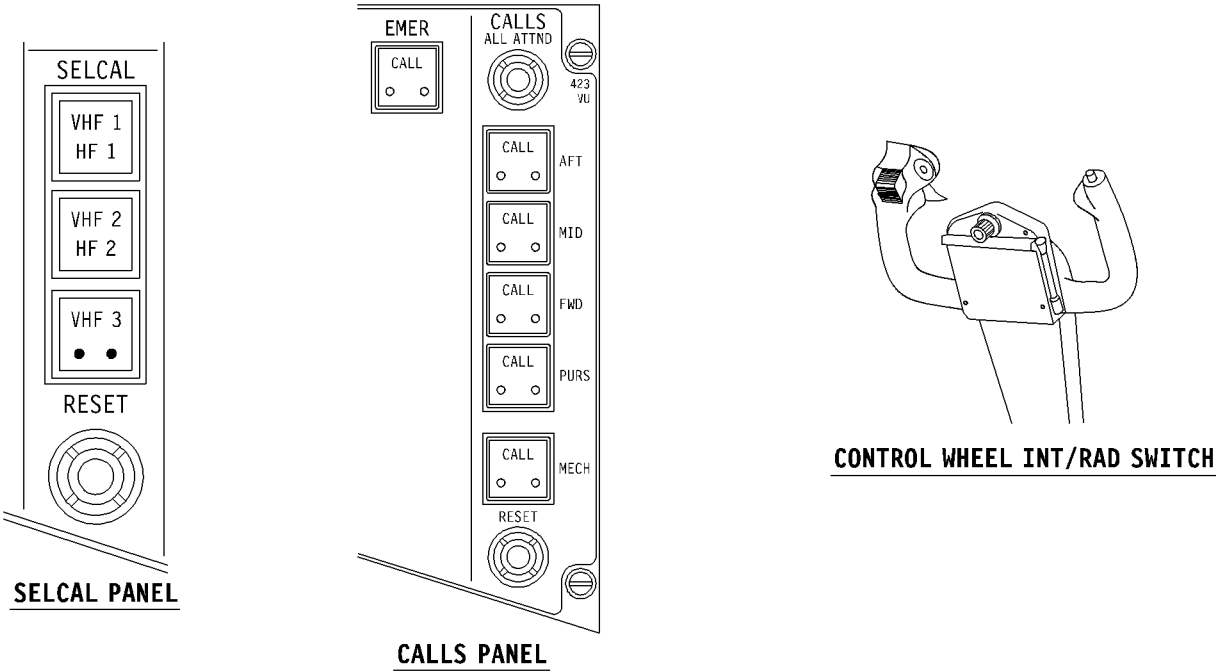
(Typical configuration)



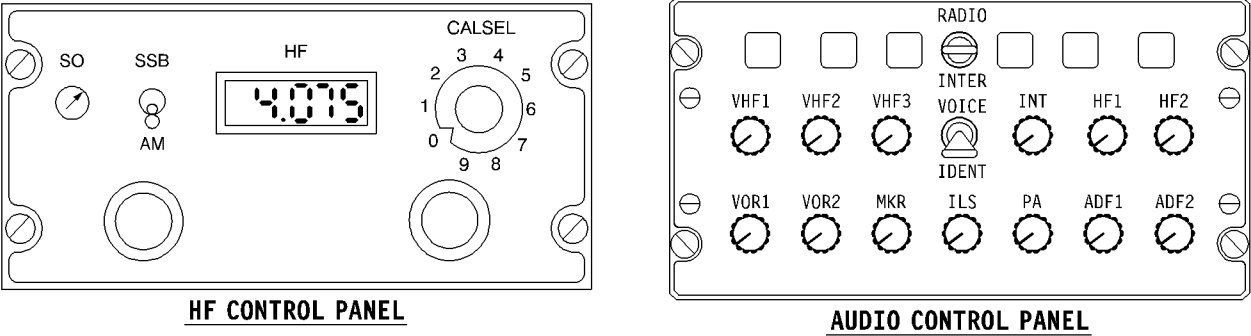
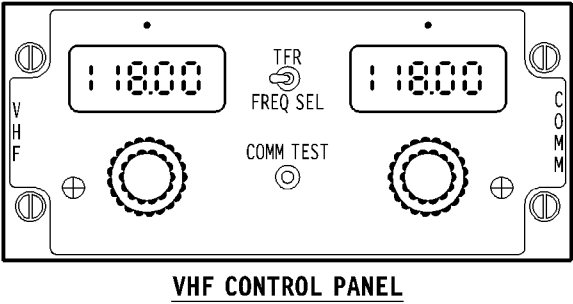
Mod : 4803

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(Typical configuration)



- The aircraft communication system consists of :
 - the radio communication system, including :
 - VHF radio communication system,
 - HF radio communication system,
 - SELCAL system.
 - the interphone system, including :
 - flight interphone system,
 - service interphone and call system.
 - the audio integrating system,
 - the passenger address system.

RADIO COMMUNICATION SYSTEM

- The radio communication system enables air communications between :
 - the aircraft and the ground, or
 - the aircraft and other aircraft.
- Each radio communication system consists of specific antennas located on the fuselage (refer to the chapter "Aircraft general").

FLIGHT INTERPHONE SYSTEM

- The flight interphone system enables communication between :
 - both pilots,
 - pilots and the ground mechanic,
 - pilots and the avionics bay.

SERVICE INTERPHONE SYSTEM


- The service interphone system enables telephone communications between :
 - cabin attendants,
 - cabin attendants and flight crew,
 - cabin attendants and ground service crew,
 - flight crew and ground service crew,
 - ground service crew members.

PASSENGER ADDRESS SYSTEM

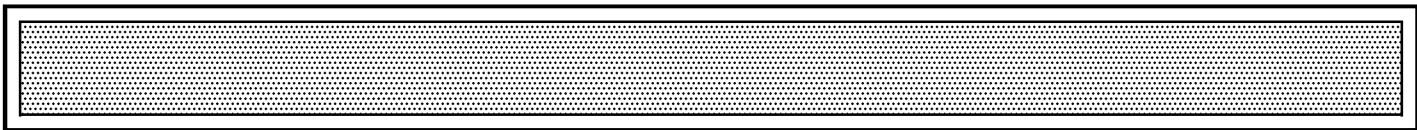
- The passenger address system enables the flight crew and the cabin attendants to make announcements to the passengers.

AUDIO INTEGRATING SYSTEM

- The audio integrating system enables the management of all audio signals (in emission or reception) provided by the radio communication system, the radio navigation system and the interphone system.
- The audio integrating system consists of :
 - three Audio Control Panels (ACP),
 - jack panels,
 - loudspeakers in the cockpit,
 - PTT switches on the control wheel.

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VHF SYSTEM

- The VHF system (Very High Frequency) is used for short distance communications between the aircraft and the ground or other aircraft.
- Each VHF system consists of its own :
 - VHF control panel,
 - VHF transceiver,
 - VHF antenna.
- VHF1 is dedicated to the Captain.
- VHF2 is dedicated to the First Officer.
- A third VHF system can be installed.
- VHF systems operate in a frequency range from 118.00 MHz to 136.975 MHz with a frequency spacing of 25 kHz.
- VHF1 is electrically supplied from the DC ESS BUS.
- VHF2 (and VHF3, if installed) system is electrically supplied from the DC NORM BUS.

HF SYSTEM

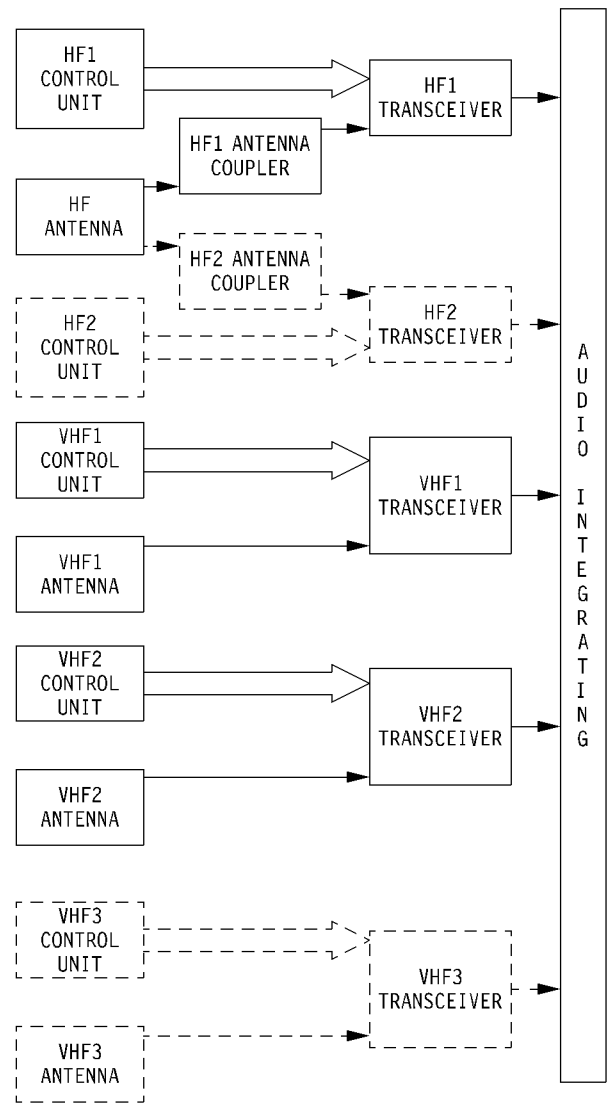
- The HF system (High Frequency) is used for long distance communications between the aircraft and the ground or other aircraft.
- One or two HF systems are installed on the aircraft.
- Each HF system consists of its own :
 - HF control panel,
 - HF transceiver.
- The HF antenna is common to all HF systems.
- HF systems operate in a frequency range from 2.000 MHz to 29.999 MHz.
- R • HF1 is electrically supplied from the AC ESS BUS.
- R • HF2 is electrically supplied from the AC BUS 2.

SELCAL SYSTEM

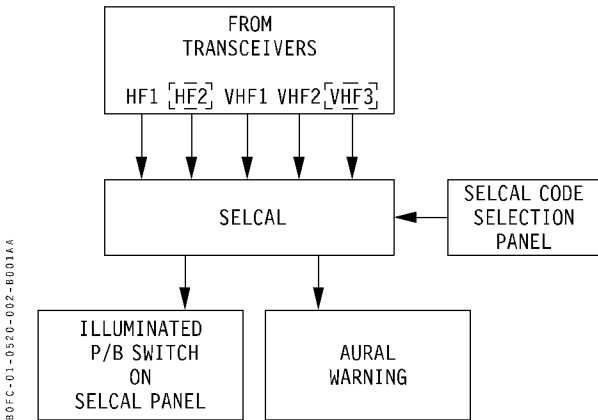
- The SELCAL system (SElective CALLing) enables the flight crew to select only the calls that are addressed to them.
- The SELCAL system provides visual and aural indications when a radio communication is received.
- When the SELCAL system is activated, all HF and VHF systems are operative.
- The SELCAL system is electrically supplied from the DC NORM BUS.

Mod : 5910 or (5910/UR)

RADIO COMMUNICATION DIAGRAM

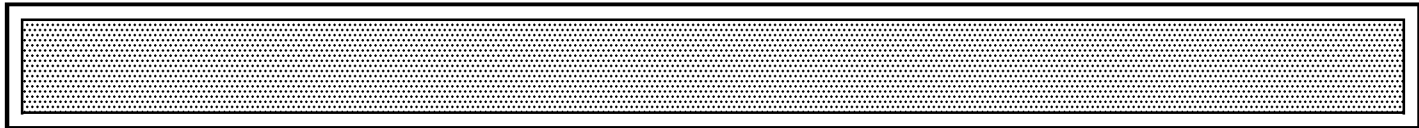


SELCAL DIAGRAM



80FC-01-0520-002-A001A

----- : IF INSTALLED



COMMUNICATIONS

RADIO COMMUNICATION SYSTEM

DESCRIPTION

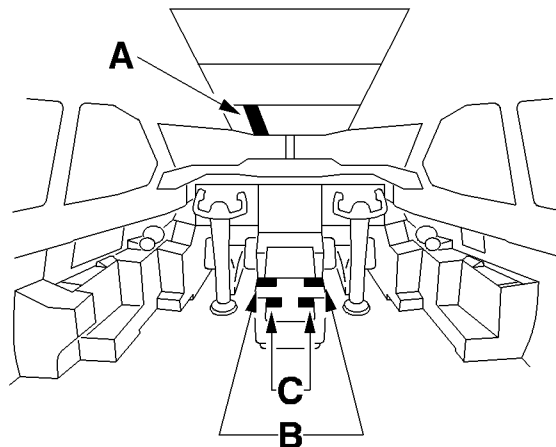
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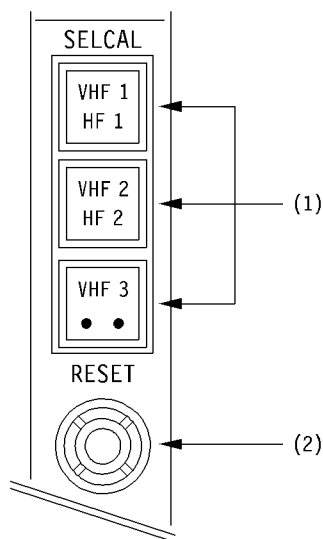
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LOCATION OF CONTROL PANELS



A. SELCAL CONTROL PANEL



(Typical configuration)

(1) VHF / HF lights

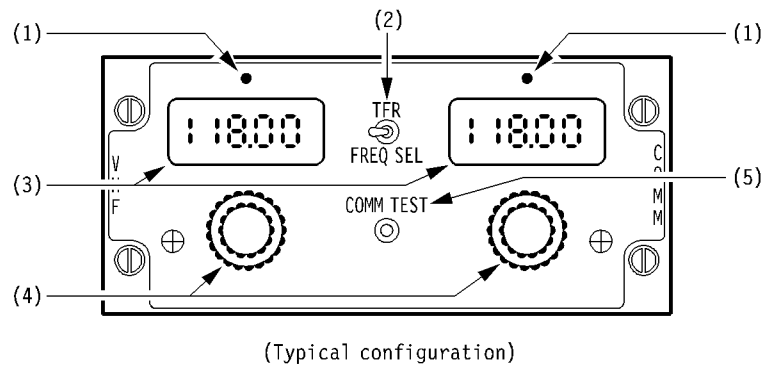
- The SELCAL light of a system illuminates blue when a selective call is received on this system.

(2) RESET pushbutton switch

- The RESET pushbutton switch cancels the audio and visual signals associated with a SELCAL.

Note : The RESET pushbutton switch must be pressed each time a SELCAL has been received to re-arm the SELCAL system.

B. VHF CONTROL PANEL



(1) VHF selection lights

- One light illuminates at once to indicate which frequency ("active" frequency) is used for the radio communications on the relevant VHF system.

(2) TFR switch

- The TFR switch enables the selection of either left or right frequency as the active frequency, which is used for the radio communications on the relevant VHF system.

(3) VHF frequency display windows

- Displays the selected frequency in MHz.

(4) VHF frequency rotary selectors

- The rotary selectors enable the selection of the frequency in the relative upper window. The rotary selectors consist of two knobs :
 - The outer knob enables to select MHz (i.e. 2nd and 3rd digits).
 - The inner knob enables to select kHz (i.e. 4th and 5th digits).

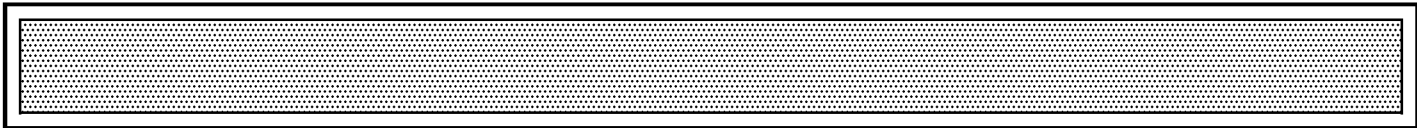
(5) COMM TEST pushbutton switch

- The COMM TEST pushbutton switch enables the test of the VHF communications.

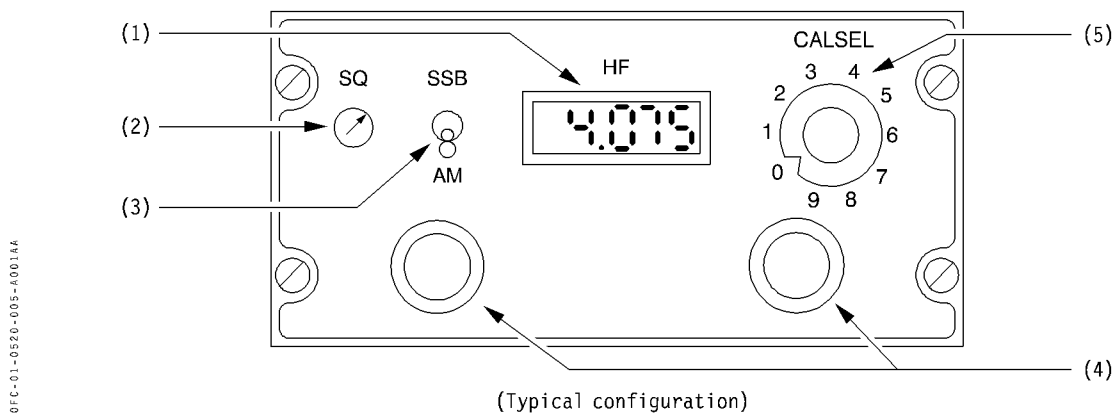
Note : If installed, the VHF3 control panel can be equipped with a VOICE/DATA pushbutton switch that enables the selection of the VOICE mode or DATA mode (for ACARS purposes).

The VHF3 control panel can be installed at the rear of either the center pedestal or the overhead panel.

R *Note : Some interferences may occur if selected*
R *frequencies are less than :*
R *. 2 MHz between VHF1 and VHF2*
R *. 2 MHz between VHF2 and VHF3*
R *. 6 MHz between VHF1 and VHF3*



C. HF CONTROL PANEL



(1) HF frequency window

- Displays the selected HF frequency in MHz.

(2) SQ rotary selector

- The SQ rotary selector enables the pilots to adjust the receiver squelch threshold.

(3) AM / SSB MODE SWITCH

- The AM / SSB mode selector switch enables the selection of the AM or SSB mode.

(4) HF frequency rotary selectors

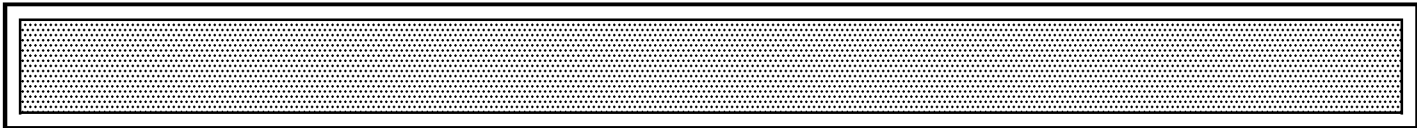
- Two rotary selectors enable the selection of the frequency displayed in the window. Each rotary selector consists of two concentric knobs.
 - On the left,
 - the outer knob enables the selection of tens and units of MHz,
 - the inner knob enables the selection of tenths of MHz.
 - On the right,
 - the outer knob enables the selection of hundredths of MHz,
 - the inner knob enables the selection of thousandths of MHz.

(5) CALSEL ROTARY SELECTOR

- The nine positions of the CALSEL rotary selector enable the selection of a CALSEL code.
- The transmission command is obtained by pulling the rotary selector.

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GENERAL

- The flight interphone system enables telephone communications between :
 - crew members,
 - crew members and the ground mechanic from the ground power receptacle housing or the avionics bay.
- The flight interphone system consists of :
 - jacks for the connection of the full face oxygen masks and headsets,
 - jacks for the connection of the ground service telephones.
- The flight interphone system is electrically supplied from the DC ESS BUS.

- the INT/RAD switch on the ACP is selected to the RAD position and the INT transmission key on the ACP (if installed) is pressed.
- For the reception,
 - the INT reception knob must be released and the volume adjusted.
- In flight interphone mode, communications are established between connected stations.

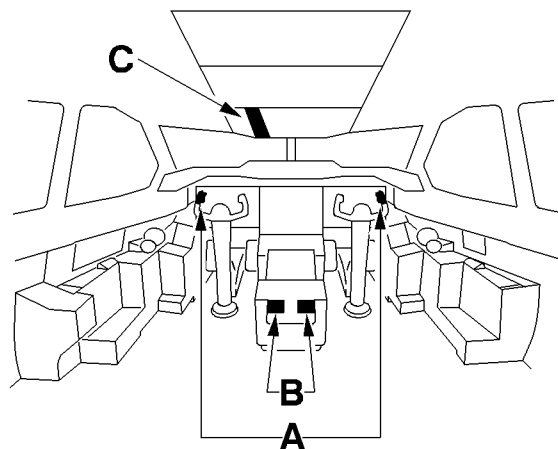
GROUND CREW CALL SYTEM

- The ground crew call system :
 - alerts the flight crew of a call coming from the ground mechanic through aural and visual indications,
 - alerts the ground mechanic of a call from the flight crew.
- The ground crew call system consists of :
 - a COCKPIT CALL light on the nose gear interphone box and an external horn for the ground mechanic,
 - A MECH CALL pushbutton switch and a reset pushbutton switch located on the overhead panel for the flight crew.

OPERATION

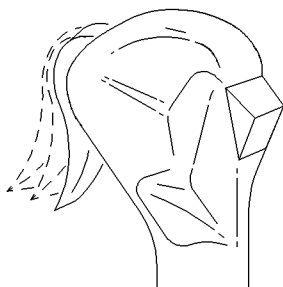
- The flight interphone mode is selected by a pilot if :
 - For the transmission,
 - the INT/RAD switch located on the on–side ACP (Audio Control Panel) is selected to the INT position, or
 - the INT/RAD switch located on the outboard horn of the on–side control wheel is selected to the forward position, or

LOCATION OF CONTROLS



(Typical configuration)

A. INT / RAD PTT SWITCH

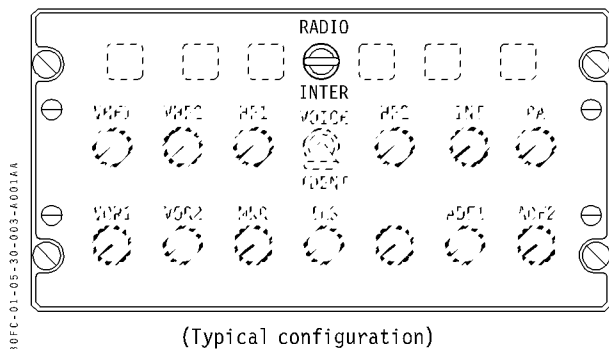


– Aft position :

- The aft position enables communications through the radio system which is selected for transmission on the ACP.

- The INT/RAD PTT switch located on each control wheel enables the selection of the transmission mode.
- This switch is operative only when associated with the boom or mask mike.
- The switch has three positions :
 - Forward position :
 - The forward position enables communications through the flight interphone system.
 - For reception of the communications, the INT reception knob on the ACP (Audio Control Panel) must be released.
 - Center position (springloaded position) :
 - In this neutral position, no transmission is possible except with the hand microphones.

B. AUDIO CONTROL PANEL

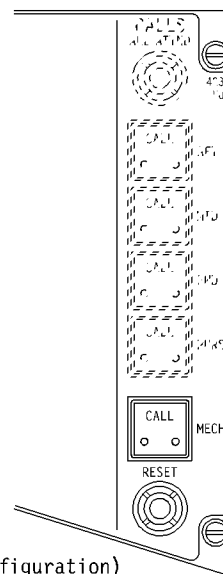


(Typical configuration)

INTER / RADIO SWITCH (if installed)

- The INTER / RADIO switch on the ACP has the same functions as the INT / RAD PTT switch on the control wheel.
- This switch is operative only when associated with the boom or mask mike.
- This switch has three positions :
 - INTER position :
 - The INTER position enables communications through the flight interphone system.
 - For reception of the communications, the INT reception knob on the ACP must be released.
 - Center position (springloaded position) :
 - In this neutral position, no transmission is possible except with the hand microphones.
 - RADIO position :
 - The RADIO position enables communications through the radio system which is selected for transmission on the ACP.

C. MECH CALL PUSHBUTTON SWITCH ON CALLS PANEL

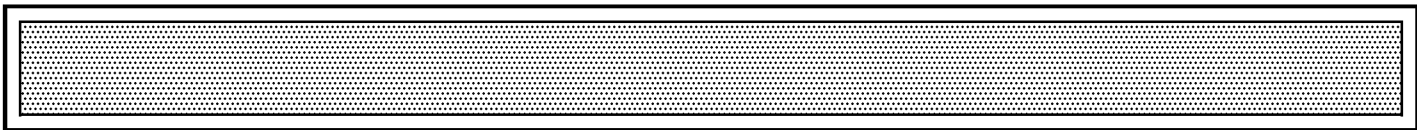


(Typical configuration)

- Pressing the MECH pushbutton switch enables the flight crew to call the ground mechanic.
- When the MECH pushbutton switch is pressed, the COCKPIT CALL light located on the nose gear interphone panel illuminates associated with an external horn signal.
- The CALL light illuminates blue, associated with an audio signal (buzzer), when the ground mechanic requests the communication.
- The RESET pushbutton switch cancels the MECH CALL light and the associated audio signal.

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GENERAL

- The service interphone system consists of:
 - a cabin interphone system,
 - a ground service interphone system,
 - a call system.
- The service interphone is electrically supplied from the DC ESS BUS.

CABIN INTERPHONE

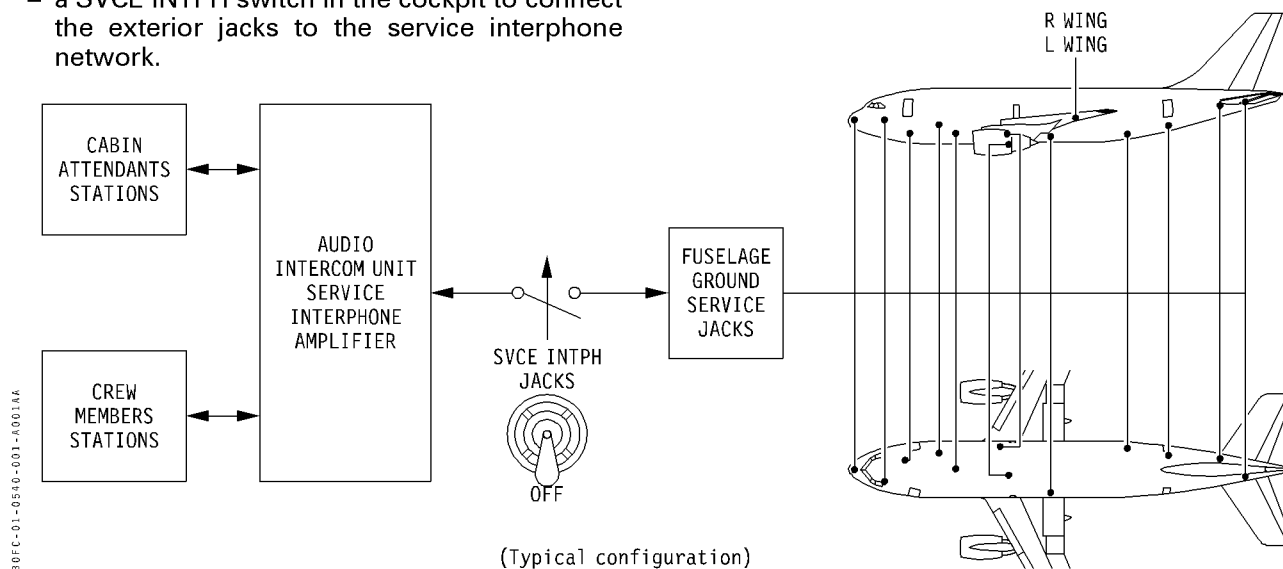
- The cabin interphone system enables telephone communications between :
 - cabin attendants,
 - cabin attendants and flight crew.

GROUND SERVICE INTERPHONE

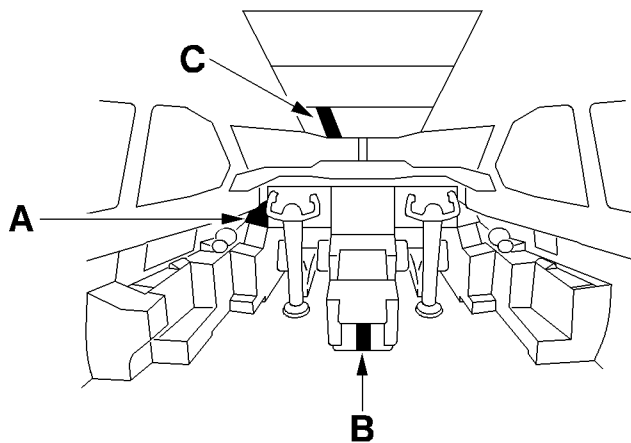
- The ground service interphone system enables telephone communications between :
 - flight crew and ground crew stations,
 - ground crew stations and cabin attendants.
- The ground service interphone system consists of :
 - a network of jacks located all around the aircraft where the ground crew can connect to communicate with the personnel onboard.
 - a SVCE INTPH switch in the cockpit to connect the exterior jacks to the service interphone network.

CALL SYSTEM

- The call system :
 - alerts the crew of a call coming from the cabin attendants through aural and visual indications,
 - alerts the cabin attendants of a call coming from the flight crew.
- The call system consists of :
 - a CALLS panel on the overhead panel for the flight crew,
 - CALL lights and pushbutton switches on the interphone panels for the cabin crew.
 - audio signals in the cockpit and the cabin.

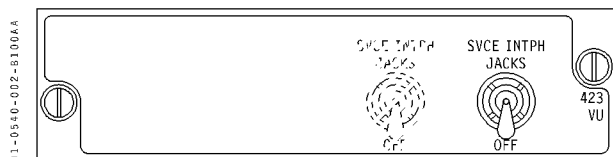


LOCATION OF CONTROLS



(Typical configuration)

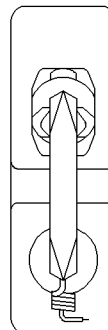
A. SVCE INTPH SWITCH



(Typical configuration)

- When the SVCE INTPH switch is placed in the JACKS position, the maintenance jacks located all around the aircraft are connected to the service interphone system, when the aircraft is on the ground.

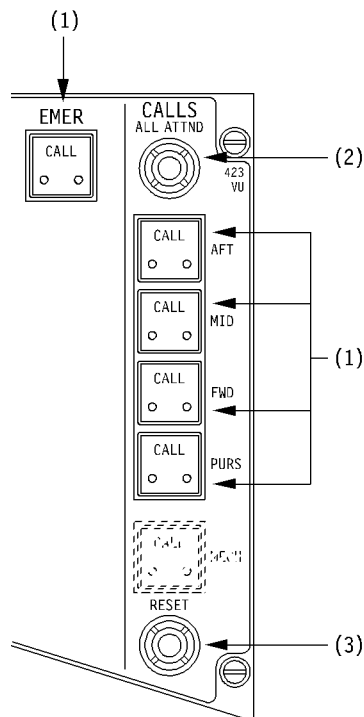
B. PILOT'S HANDSET



- The pilot's handset can be used for :
 - the cabin service interphone,
 - the ground service interphone,
 - the passenger address.
- To establish the communication through the service interphone system, the handset must be lifted from the cradle.
- To establish the communication through the ground service interphone system, the handset must be lifted from the cradle while maintaining the SVCE INTPH switch in the JACKS position.
- The communication is interrupted when the handset is replaced in the cradle.

Mod : 4803

C. CALLS PANEL



(Typical configuration)

(3) RESET pushbutton switch

- The RESET pushbutton switch extinguishes all illuminated CALL lights on the CALLS panel and cancels the associated audio signals.
- When the crew has noticed the call request, they must cancel the visual and audio signals by pressing the RESET pushbutton switch.

(1) CALL pushbutton switches

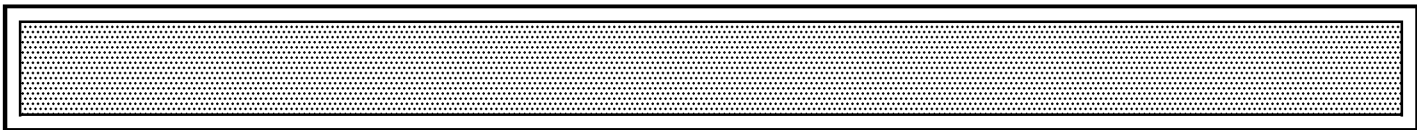
- Pressing a CALL pushbutton switch enables the flight crew to call the respective cabin attendant station.
- The cabin attendant is alerted by the illumination of the blue CAPT light and the activation of an audio signal (high/low chime).
- The CALL light illuminates blue, associated with an audio signal (buzzer), when the communication is requested from the respective attendant station.

(2) ALL ATTND pushbutton switch

- The ALL ATTND pushbutton switch enables to call all the cabin attendants at the same time.

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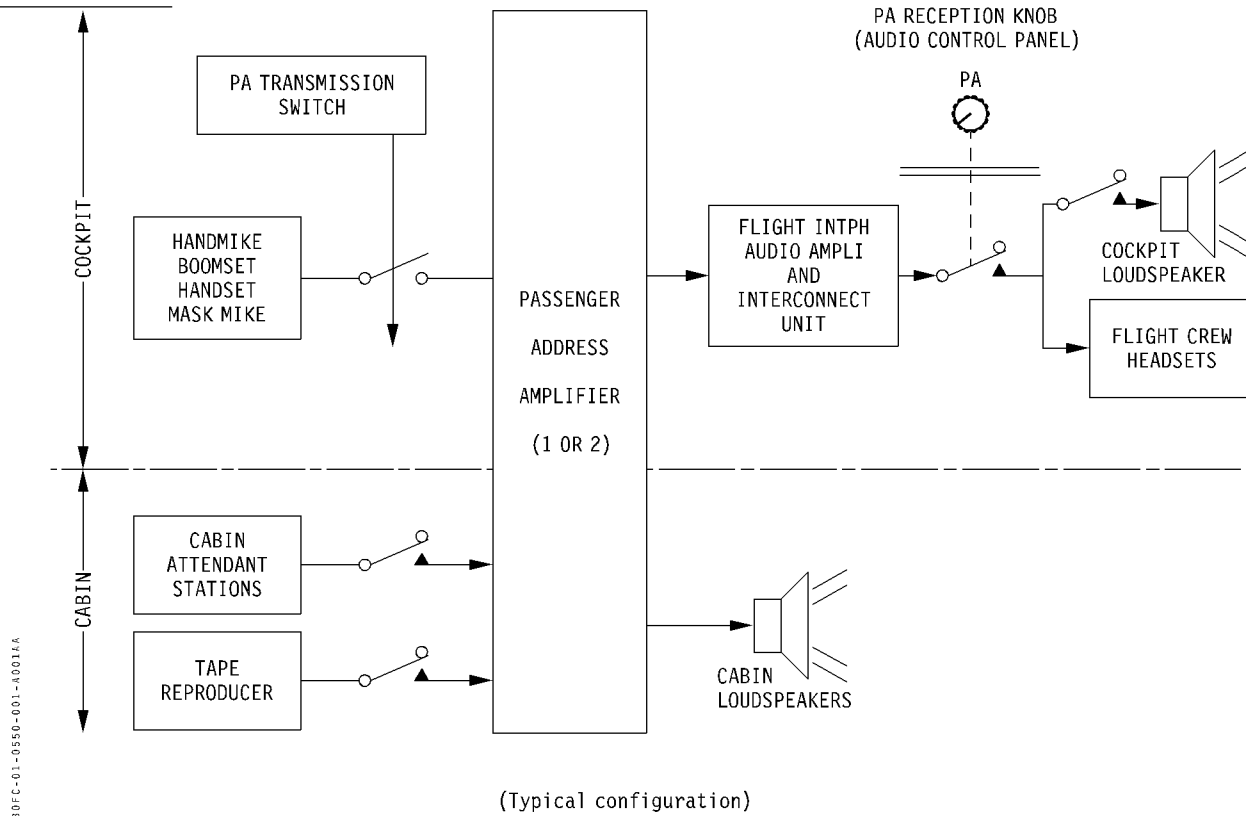


GENERAL

- The PA (Passenger Address) system allows the flight crew and the cabin attendants to make announcements to the passengers.
- The PA system consists of :
 - a PA reception knob on the ACP (Audio Control Panel),
 - if installed :
 - a PA transmission pushbutton switch located on the ACP,
 - or, if installed :
 - a PA transmission pushbutton switch located on the overhead panel,
 - an EMER PA transmission switch located on each lateral console (for passenger announcements through the mask microphone).

- The PA system is electrically supplied from the DC ESS BUS.
- The PA announcements are broadcast by the loudspeakers throughout the cabin.

SCHEMATICS



COMMUNICATIONS

PASSENGER ADDRESS SYSTEM

DESCRIPTION

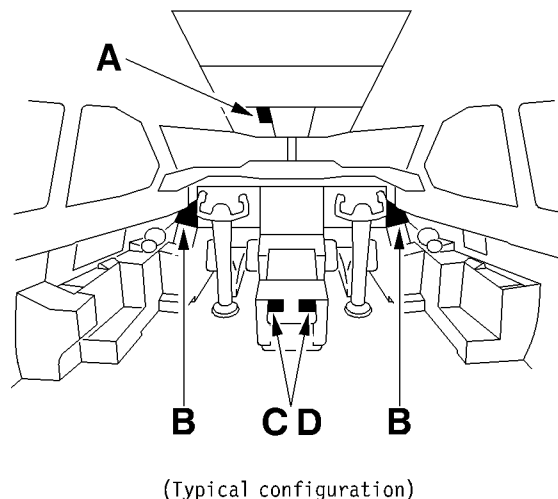
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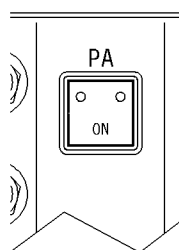
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LOCATION OF CONTROLS

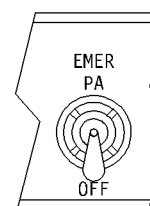


A. PA PUSHBUTTON SWITCH (if installed)



- Pressing the PA pushbutton switch enables the flight crew to connect to the passenger address system and to make announcements through the hand, boomset or handset microphones.
- The PA pushbutton switch is fitted with a ON light which illuminates blue to indicate the connection to the passenger address system.

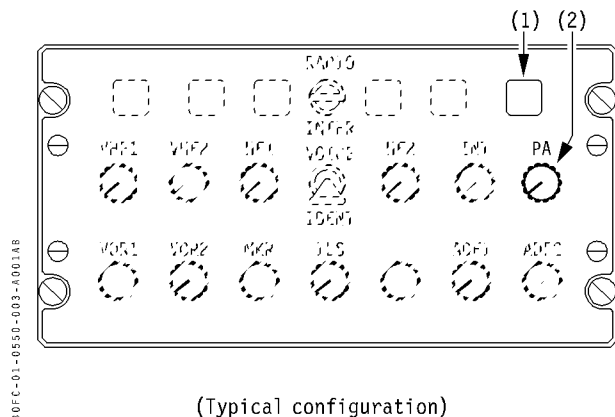
B. EMER PA SWITCH (if installed)



- Maintaining the EMER PA switch to the EMER PA position enables the flight crew to make announcements through the oxygen mask microphone.
- The switch is springloaded to the OFF position where the mask microphone is disconnected from the passenger address system.

Mod : 4803

C. AUDIO CONTROL PANEL



(1) PA transmission pushbutton switch (if installed)

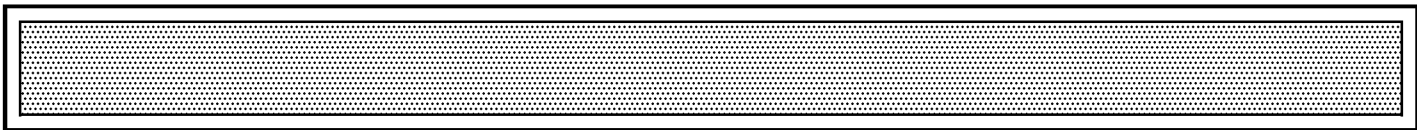
- The PA transmission pushbutton switch is located on the ACP (Audio Control Panel).
- Pressing the PA pushbutton switch enables the flight crew to connect to the passenger address system and to make announcements through the dedicated mikes.
- The PA transmission pushbutton switch is equipped with a light which illuminates green to indicate the connection.

(2) PA reception knob

- The PA reception knob is located on the ACP.
- Pressing the PA reception knob enables the connection of the headsets and loudspeakers in the cockpit to the passenger address system.
- The PA reception knob is equipped with a white light which illuminates to indicate the connection.
- The volume is adjusted by rotating the knob.

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COMMUNICATIONS

AUDIO INTEGRATING SYSTEM

DESCRIPTION

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GENERAL

- The audio integrating system enables,
 - for the radio navigation systems :
 - the selection of a radio navigation system in reception to check its identification signal.
 - for the radio communication systems,
 - the connection to the flight interphone system,
 - the connection to the service interphone system,
 - the connection to the passenger address system,
 - the selection of radio communication systems for transmission or reception,
 - the management of all audio signals (activation, de-activation, volume).
- The audio integrating system essentially consists of :
 - three ACP (Audio Control Panel),
 - jack panels,
 - loudspeakers,
 - mask microphones,
 - hand microphones,
 - headsets,
 - boomsets,
 - two control wheel PTT switches.

OPERATION

- The hand microphones, handsets and boomsets are connected to the jack panels located close to the respective stowage boxes.
- In transmission mode, the audio integrating system collects and directs the various station microphone inputs to the communication system selected by the flight crew.
- In reception mode, the audio integrating system collects and directs the audio outputs to the various stations.
- The flight crew selects the radio communication systems for transmission or reception (with the adjustment of the volume) through the ACP.
- The transmission of radio signals or flight interphone signals is performed through the control wheel PTT switches, or the INT/RAD switch on the ACP (if installed).

COMMUNICATIONS

AUDIO INTEGRATING SYSTEM

DESCRIPTION

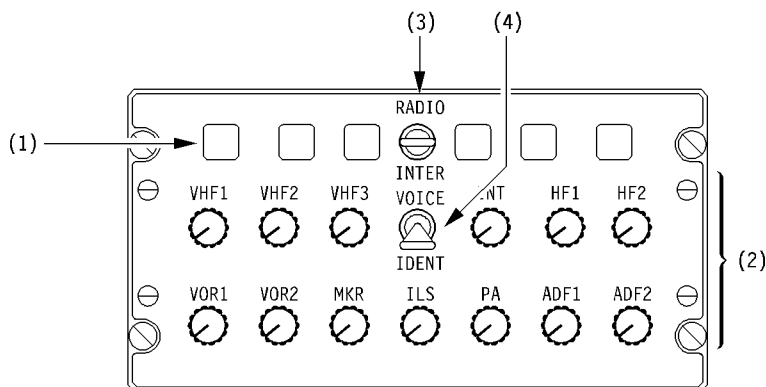
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AUDIO CONTROL PANEL



(Typical configuration)

(1) TRANSMISSION pushbutton switches

- Pressing a transmission pushbutton switch enables the selection of the corresponding communication system for transmission.
- Each pushbutton switch is equipped with an integrated light that illuminates to indicate which system is used for transmission.

Note : Only one system can be selected at a time.

(2) RECEPTION knobs

- Releasing a reception knob enables the selection of the corresponding communication system for reception.
- Each reception knob is equipped with an integrated light that illuminates white to indicate which systems are used in reception.
- Rotating the knob enables the adjustment of the volume.

(3) RADIO / INTER switch

- The INTER / RADIO switch on the ACP (Audio Control Panel) has the same function as the INT / RAD PTT switch on the control wheel.
- This switch is operative only when associated with the boom or mask mike.

- This switch has three positions :

– INTER position :

- The INTER position enables communications through the flight interphone system.
- For reception of the communications, the INT reception knob must be released.

– Center position (springloaded position) :

- In this neutral position, no transmission is possible except with the hand microphones.

– RADIO position :

- The RADIO position enables communications through the radio system which is selected on the ACP for transmission.

(4) VOICE / IDENT switch

- This switch has two positions :

– In the VOICE position, the identification signals from the radio navigation stations are filtered out. Only the voice messages are received.

– In the IDENT position, both voice and identification signals are received.

The ACARS system is an optional equipment not installed on all aircraft.
This system is customized to meet the requirements of each airline so that many different configurations exist.
This chapter provides a general presentation of the ACARS system.

GENERAL

- The ACARS (Aircraft Communication Addressing and Reporting System) is a data link system which enables the exchange of data and messages between an aircraft and a ground based operation station, over an ARINC VHF radio network.
- A message from the aircraft to the ground is called a downlink.
- A message from the ground to the aircraft is called an uplink.

DESCRIPTION

- The airborne ACARS system consists of :
 - a MU (Management Unit), located in the avionics compartment, which processes the ACARS uplinks and downlinks.
 - a CDU (Control Display Unit), installed at the rear of the pedestal, which provides the interface between the flight crew and the ACARS system.
 - an ACARS control panel, consisting of a pushbutton switch and, other switches depending on the aircraft configuration (selection from the pilot, selection from the FMS,...).

ACARS OPTIONAL INTERFACES

- Depending on the aircraft definition, the following interfaces may be connected to the ACARS system :
 - the ACARS printer,
 - the VHF3 control panel,
 - the FMS (Flight Management System),
 - the DFDAU (Digital Flight Data Acquisition Unit),
 - a cabin system.

ACARS PRINTER

- The printer provides a printout of the data collected by the MU. A printer advisory light (if installed) alerts the crew when an uplink is being printed.

VHF3 CONTROL PANEL (if installed)

- The VHF3 can be used in VOICE mode. This enables the flight crew to select the VHF3 in case of VHF1 and VHF2 failure.
- The advisory VHF3 VOICE displayed on the ACARS CDU indicates that the VHF3 is operating in VOICE mode. In this case, no data link communications can be established.

Note : If ACARS is installed, do not use the VHF3 for communications with the ATC, except if the VHF1 and VHF2 are both inoperative.

In this case, push the VHF 3 VOICE ONLY pushbutton (if installed) or pull the ACARS circuit breakers.

FMS

- The ACARS system can be connected to the FMS in order to provide,
 - for uplinks :
 - flight plan update,
 - predicted wind data,
 - takeoff data
 - for downlinks :
 - position reports
- In this configuration, a switch is located on the ACARS control panel to select the FMS associated to the ACARS functions (FMS1 or FMS2).
- Refer to the FMS chapter (1.19) for more detailed information on the ACARS/FMS interface.

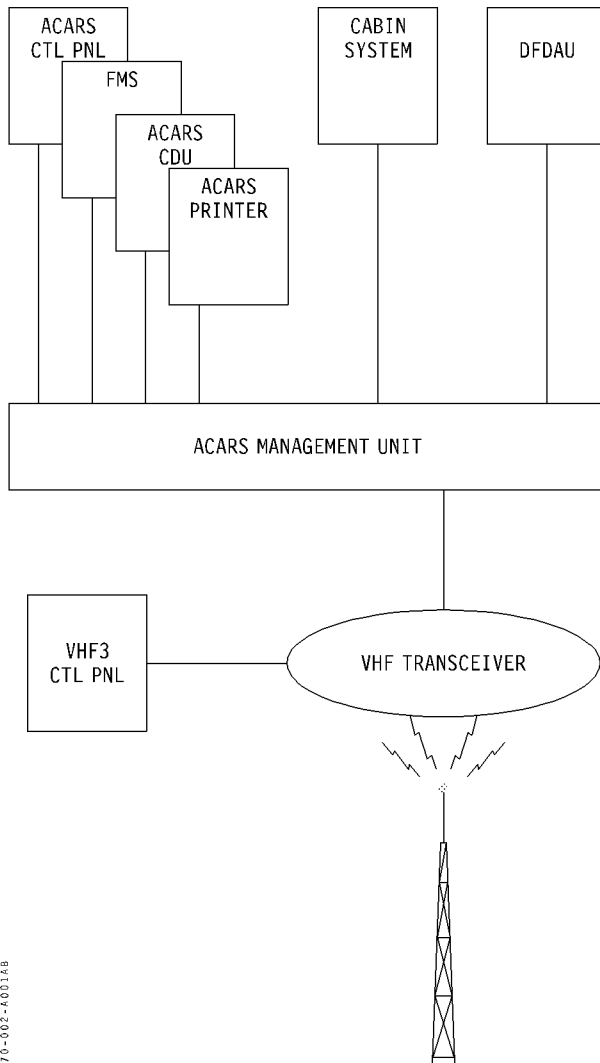
DFDAU

- The DFDAU enables the AIDS (Aircraft Integrated Data System) to be reported to the ground through downlinks.

CABIN SYSTEM

- The interface with the cabin system enables the report of cabin data through downlinks and the reception by the cabin of ground information.

SCHEMATICS



(Typical configuration)

80FC-01-0570-002-4001A8

FUNCTIONS

- The main functions of the ACARS system, provided through the ACARS Control and Display Unit, are described hereafter :

Initialization

- The initialization of the ACARS system is performed by entering specific flight data such as :
 - crew identification,
 - flight number,
 - departure airport,
 - destination airport.

Link test

- Test of the VHF connection with the ground.

VOICE/DATA mode

- Selection of the VHF mode.

Engine data

- Report of engine parameters.

ETA page

- Display and revision of the Estimated Time of arrival.

Diversion report

- Report of diversion information.

GMT auto update

- This function enables the update of the airborne GMT from the ground.

Weather request

- The flight crew can request data about the weather.

0001 times (OUT – OFF – ON – IN events) :

- The OUT – OFF – ON – IN times are the GMT times at which the aircraft is OUT of the gate, OFF the ground, back ON the ground and IN the gate.

Free text

- Free messages can be sent to the ground.

Note : Other functions depending on the aircraft configuration can be provided.