

	COMMUNICATIONS CONTENTS	1.05.00		
		P 1	001	
				DEC 95

AA

1.05.00 CONTENTS

1.05.10 GENERAL

R	10.1	DESCRIPTION
R	10.2	CONTROLS
R	10.3	ELECTRICAL SUPPLY/MFC LOGIC/SYSTEM MONITORING
R	10.4	SCHEMATIC

	COMMUNICATIONS CONTENTS	1.05.00		
		P 1	060	
				NOV 01

AA

- 1.05.00 CONTENTS**
- 1.05.10 GENERAL**
 - 10.1 DESCRIPTION
 - 10.2 CONTROLS
 - 10.3 ELECTRICAL SUPPLY/MFC LOGIC/SYSTEM MONITORING
 - 10.4 SCHEMATIC
- 1.05.20 TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEM (TCAS)**
 - 20.1 DESCRIPTION
 - 20.2 CONTROLS
 - 20.3 OPERATION

	COMMUNICATIONS GENERAL	1.05.10		
		P 1	001	
				DEC 95

AA

10.1 DESCRIPTION (See schematic p. 19/20)

The aircraft communication system provides :

- * Radio communications between aircraft and ground stations (an emergency beacon is also provided).
- * Interphone between
 - Cockpit crew stations,
 - Cabin attendant station,
 - Ground crew stations at :
 - Hydraulic bay (left main landing gear fairing),
 - Ground electrical power receptacle,
 - Unpressurized bay in the rear fuselage.
- * Passenger address system
- * Distribution, (in the loudspeakers only) of aural alerts generated by the MFC and the GPWS.

The main components of the systems are :

- The Remote Control Audio Unit (RCAU),
- The crew audio control panels.

In addition, the communication system includes one ATC transponder and as options an other ATC transponder, ATSCALL and ACARS.

OPERATION

To communicate, the crew members select on their audio control panel the desired transmission key and adjust the volume control knob.

Transmission may be performed :

- Using the hand mike with integrated switch,
- Using the boom set mike or the oxy mask mike with :
 - The PTT selector on the control wheel, or
 - The RAD/INT selector on the audio control panel, or
 - The switch located on the nose wheel steering control handle (for CAPT only).

Note : A switch located in the oxygen mask box when in released position (oxygen mask out), automatically transfer transmissions from the boom set mike to the oxygen mask mike. Transmission with hand mike remains available regardless of transfer switch position.

Radio reception is not affected by the transfer switch position.

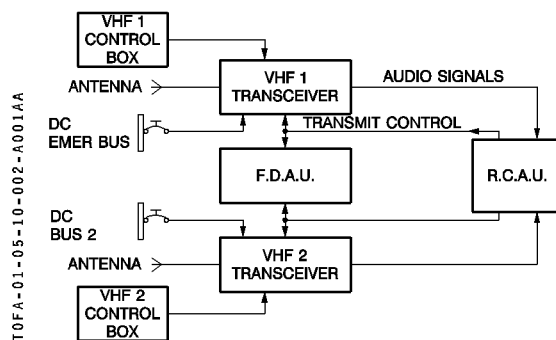
 ATR F.C.O.M.	COMMUNICATIONS GENERAL	1.05.10		
		P 2	001	
				MAR 96

AA

VHF COMMUNICATION SYSTEM

Two systems are provided.

- R Each system has its own transceiver to provide communications on 720 channels from 118.000 to 136.975 MHz with 25 KHz spacing, and is controlled by a VHF control box with dual frequency selection.



In case of audio control panel loss, two AUDIO SEL pbs allow to select one VHF on each side.

	COMMUNICATIONS GENERAL	1.05.10		
		P 1	001	
				DEC 95

AA

10.1 DESCRIPTION (See schematic p. 19/20)

The aircraft communication system provides :

- * Radio communications between aircraft and ground stations (an emergency beacon is also provided).
- * Interphone between
 - Cockpit crew stations,
 - Cabin attendant station,
 - Ground crew stations at :
 - Hydraulic bay (left main landing gear fairing),
 - Ground electrical power receptacle,
 - Unpressurized bay in the rear fuselage.
- * Passenger address system
- * Distribution, (in the loudspeakers only) of aural alerts generated by the MFC and the GPWS.

The main components of the systems are :

- The Remote Control Audio Unit (RCAU),
- The crew audio control panels.

In addition, the communication system includes one ATC transponder and as options an other ATC transponder, ATSCALL and ACARS.

OPERATION

To communicate, the crew members select on their audio control panel the desired transmission key and adjust the volume control knob.

Transmission may be performed :

- Using the hand mike with integrated switch,
- Using the boom set mike or the oxy mask mike with :
 - The PTT selector on the control wheel, or
 - The RAD/INT selector on the audio control panel, or
 - The switch located on the nose wheel steering control handle (for CAPT only).

Note : A switch located in the oxygen mask box when in released position (oxygen mask out), automatically transfer transmissions from the boom set mike to the oxygen mask mike. Transmission with hand mike remains available regardless of transfer switch position.

Radio reception is not affected by the transfer switch position.

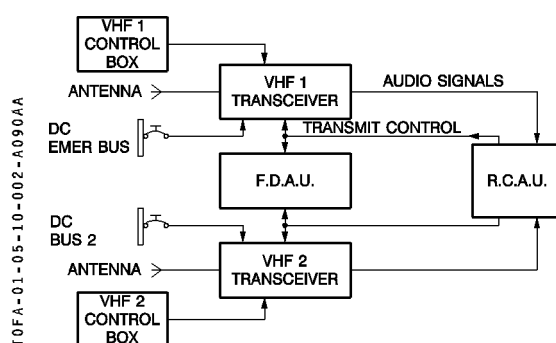
	COMMUNICATIONS GENERAL	1.05.10		
		P 2	090	
				NOV 01

AA

VHF COMMUNICATION SYSTEM

Two systems are provided.

Each system has its own transceiver to provide communications on 720 channels from 118.000 to 136.975 MHz with 25 KHz spacing, and is controlled by a VHF control box with dual frequency selection.

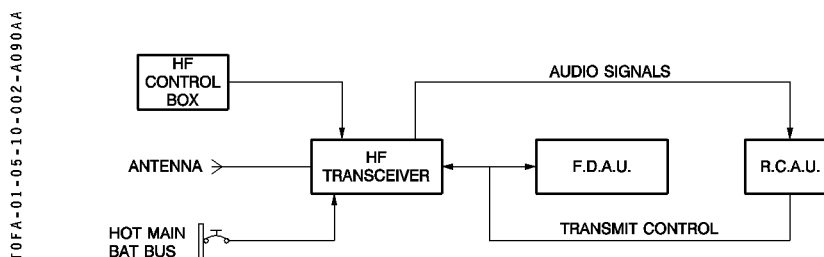


In case of audio control panel loss, two AUDIO SEL pbs allow to select one VHF on each side.

HF COMMUNICATION SYSTEM

The system provides the pilot access to 40 programmable channels, plus a full 280,000 operating frequencies in the 2.0 to 29.9999 MHz range.

It is controlled by a HF control box through its transceiver.



	COMMUNICATIONS GENERAL	1.05.10		
		P 1	001	
				DEC 95

AA

10.1 DESCRIPTION (See schematic p. 19/20)

The aircraft communication system provides :

- * Radio communications between aircraft and ground stations (an emergency beacon is also provided).
- * Interphone between
 - Cockpit crew stations,
 - Cabin attendant station,
 - Ground crew stations at :
 - Hydraulic bay (left main landing gear fairing),
 - Ground electrical power receptacle,
 - Unpressurized bay in the rear fuselage.
- * Passenger address system
- * Distribution, (in the loudspeakers only) of aural alerts generated by the MFC and the GPWS.

The main components of the systems are :

- The Remote Control Audio Unit (RCAU),
- The crew audio control panels.

In addition, the communication system includes one ATC transponder and as options an other ATC transponder, ATSCALL and ACARS.

OPERATION

To communicate, the crew members select on their audio control panel the desired transmission key and adjust the volume control knob.

Transmission may be performed :

- Using the hand mike with integrated switch,
- Using the boom set mike or the oxy mask mike with :
 - The PTT selector on the control wheel, or
 - The RAD/INT selector on the audio control panel, or
 - The switch located on the nose wheel steering control handle (for CAPT only).

Note : A switch located in the oxygen mask box when in released position (oxygen mask out), automatically transfer transmissions from the boom set mike to the oxygen mask mike. Transmission with hand mike remains available regardless of transfer switch position.

Radio reception is not affected by the transfer switch position.

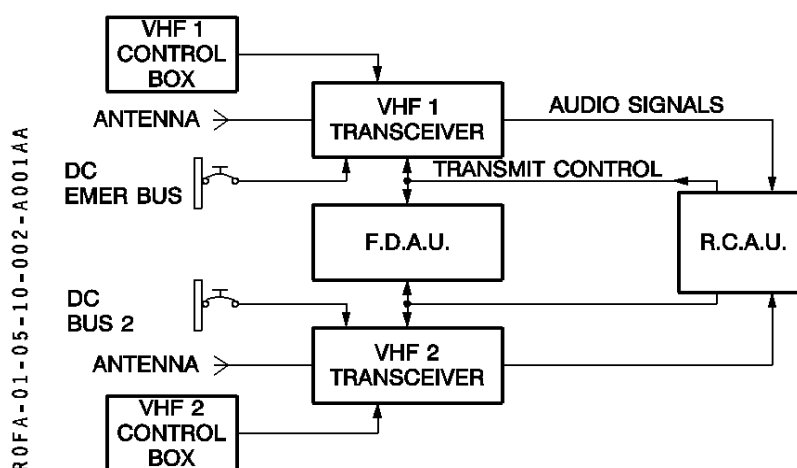
	COMMUNICATIONS GENERAL	1.05.10		
		P 2	110	
				NOV 00

AA

VHF COMMUNICATION SYSTEM

Two systems are provided.

Each system has its own transceiver to provide communications on more than 2000 channels from 118.000 to 136.975 MHz with 8.33 KHz spacing, and is controlled by a VHF control box with dual channel selection.



In case of audio control panel loss, two AUDIO SEL pbs allow to select one VHF on each side.

	COMMUNICATIONS GENERAL	1.05.10		
		P 3	001	
				NOV 96

AA

INTERPHONE SYSTEM

- To interconnect all stations (ground crew stations + cockpit + cabin attendant) :
 - Depress INT transmissions key
 - Use PTT pbs
- Cockpit crew interphone
 - Using boom set or oxy mask :
 - Set the RAD/INT selector on "INT" position without use of PTT pb or,
 - Set the PTT selector (control wheels) in the forward position regardless of the RAD/INT selector position
- To call cabin attendant from the cockpit
 - Depress ATTND pb (overhead panel)

A single chime is generated in the cabin and the CAPT white light illuminates on the cabin attendant panels. As soon as the cabin attendant selects "INT", the CAPT It extinguishes.

- To call cockpit from cabin attendant station
 - Depress INT pb (besides the hostess panel)

ATTND CALL light illuminates blue on overhead panel and a door bell is generated by the MFC. By pressing RESET, both visual and aural calls will be cancelled.

- To call the ground crew from the cockpit
 - Depress MECH pb (overhead panel)

A horn call is generated in the nose gear bay.

- In case of ground crew call
 - MECH pb illuminates blue on overhead panel and a door bell is generated by the MFC. By pressing RESET, both visual and aural calls will be cancelled.

R PASSENGER ADDRESS SYSTEM

The passenger address system allows the crew and the cabin attendant to make announcements to the passengers. Passenger address system also generates single chime sound in the cabin. The passenger address system is connected to :

- The RCAU which allows the cockpit crew to make announcements to the passengers by selecting PA key on audio control panel.
- The cabin attendant handset
- The cabin attendant call pb distributed in the cabin for the passengers
- The cabin attendant call pb in the cockpit
- The NO SMOKING/FASTEN SEAT BELTS controls
- The cockpit voice recorder
- Loudspeakers distributed in the cabin (one of them being installed in the toilet)

DISTRIBUTION OF AURAL ALERTS

Generated by CCAS (refer to chapter 1.02)

Generated by GPWS (refer to chapter 1.15)

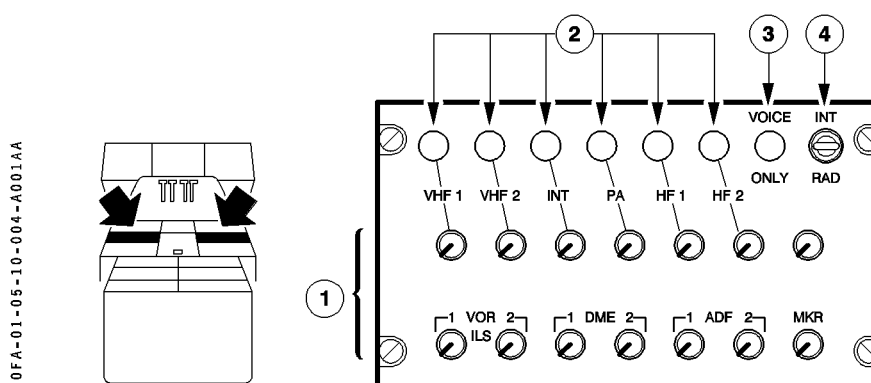
Generated by TCAS (when installed, refer to 1.05.20)

	COMMUNICATIONS GENERAL	1.05.10		
		P 4	001	
				DEC 95

AA

10.2 CONTROLS

AUDIO CONTROL PANEL



① **Volume control knob**

To control reception volume for associated communication or navigation facilities.

② **Transmission keys**

To select the individual communication facilities for transmission, six interlocked keys are provided. Only one key can be engaged at a time. It illuminates white when selected.

③ **VOICE ONLY key**

When depressed, it inhibits NAV receivers station identification by activating a band cut off filter above 1020 HZ. Light illuminates amber.

④ **INT/RAD selector**

Provides selection of transmission mode when using OXY MASK or BOOM SET mike.

INT Hot mike position. Interphone is always operative between crew stations. Other transmissions require to select a transmission key and use a PTT pb.

NEUTRAL Only handmike is usable as long as one transmission key is selected.

RAD This position is required to automatically connect for transmissions BOOM SET and OXY MASK mikes without using a PTT pb.

Note : Recovering boomset/micro function when the oxygen mask is out of its container : cf 1.07.20.

	COMMUNICATIONS GENERAL	1.05.10		
		P 3	050	
				NOV 99

AA

INTERPHONE SYSTEM

- To interconnect all stations (ground crew station + cockpit + cabin attendant) :
 - Depress INT transmissions key
 - Use PTT pbs
- Cockpit crew interphone
Using boom set or oxy mask :
 - Set the RAD/INT selector on "INT" position without use of PTT pb or,
 - Set the PTT selector (control wheels) in the forward position regardless of the RAD/INT selector position
- R - To call cabin attendant from the cockpit (see 1.05.10 p 9)
 - Depress the ATTND pb (overhead panel) for a normal call or press the ATTND pb three times successively for an emergency call.
- R A single chime (or three for an emer call) is generated in the cabin and the CAPT white light illuminates on the cabin attendant panels. As soon as the cabin attendant selects "INT", the CAPT It extinguishes.
- To call cockpit from cabin attendant station
 - Depress INT pb (besides the hostess panel) for a normal call or press the EMER pb for an emergency call.
- R Associated ATTND light illuminates on overhead panel and a door bell is generated by the MFC. By pressing RESET, both visual and aural calls will be cancelled.
- R - To call the ground crew from the cockpit (see 1.05.10 p 9)
 - Depress MECH pb (overhead panel)
- A horn call is generated in the nose gear bay.
- In case of ground crew call
MECH pb illuminates blue on overhead panel and a door bell is generated by the MFC. By pressing RESET, both visual and aural calls will be cancelled.

PASSENGER ADDRESS SYSTEM

The passenger address system allows the crew and the cabin attendant to make announcements to the passengers. Passenger address system also generates single chime sound in the cabin. The passenger address system is connected to :

- The RCAU which allows the cockpit crew to make announcements to the passengers by selecting PA key on audio control panel.
- The cabin attendant handset
- The cabin attendant call pb distributed in the cabin for the passengers
- The cabin attendant call pb in the cockpit
- The NO SMOKING/FASTEN SEAT BELTS controls
- The cockpit voice recorder
- Loudspeakers distributed in the cabin (one of them being installed in the toilet)

DISTRIBUTION OF AURAL ALERTS

Generated by CCAS (refer to chapter 1.02)

Generated by GPWS (refer to chapter 1.15)

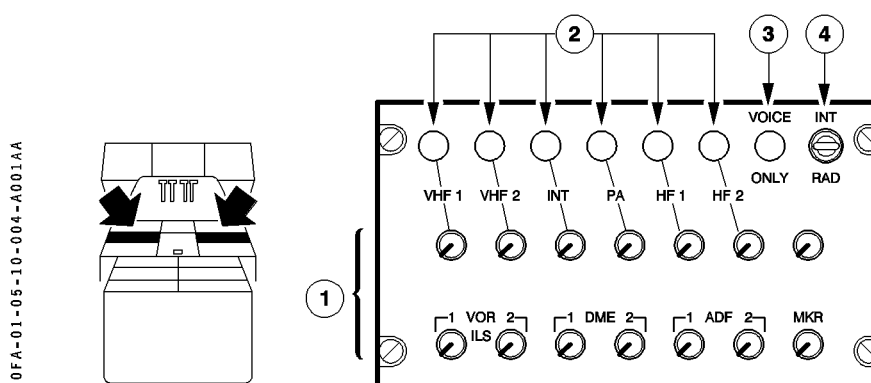
Generated by TCAS (when installed, refer to 1.05.20)

	COMMUNICATIONS		1.05.10		
			P 4	001	
	GENERAL				DEC 95

AA

10.2 CONTROLS

AUDIO CONTROL PANEL



① Volume control knob

To control reception volume for associated communication or navigation facilities.

② Transmission keys

To select the individual communication facilities for transmission, six interlocked keys are provided. Only one key can be engaged at a time. It illuminates white when selected.

③ VOICE ONLY key

When depressed, it inhibits NAV receivers station identification by activating a band cut off filter above 1020 HZ. Light illuminates amber.

④ INT/RAD selector

Provides selection of transmission mode when using OXY MASK or BOOM SET mike.

INT Hot mike position. Interphone is always operative between crew stations. Other transmissions require to select a transmission key and use a PTT pb.

NEUTRAL Only handmike is usable as long as one transmission key is selected.

RAD This position is required to automatically connect for transmissions BOOM SET and OXY MASK mikes without using a PTT pb.

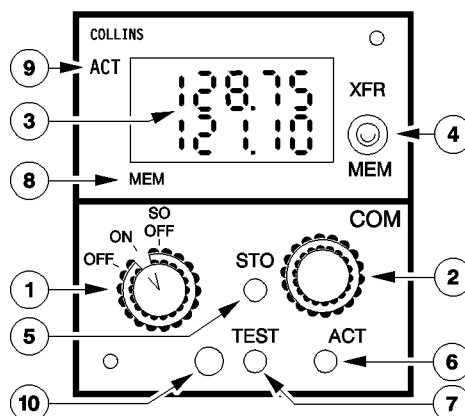
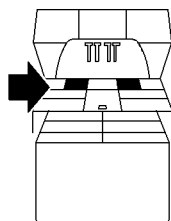
Note : Recovering boomset/micro function when the oxygen mask is out of its container : cf 1.07.20.

	COMMUNICATIONS GENERAL	1.05.10		
		P 5	010	
				DEC 95

AA

VHF CONTROL BOX

T0FA-01-05-10-005-A010AA



① ON/OFF and volume knob

Energizes the control box and the associated VHF. SQ OFF position disables the receiver squelch circuit.

② Frequency selector

In normal use, controls the preset frequency display :

- an outer knob is used for selection of MHz with an increment of 1 MHz
- an inner knob is used for selection of KHz with an increment of 50 KHz, or 25 KHz for the first two steps when the direction of rotation is reversed.

③ Frequencies display

The active frequency is displayed on the first line.

The preset frequency is displayed on the second line.

Annunciators are displayed on both lines.

④ XFR/MEM switch

This is a three positions spring loaded toggle switch.

- NEUTRAL
- XFR : exchanges preset and active frequency.
- MEM : successive actions cycle the six memory frequencies through the display.

	COMMUNICATIONS GENERAL	1.05.10		
		P 6	010	
				DEC 95

AA

⑤ STO button

Allows entering six frequencies in the memory. When depressed, the upper window displays the channel number of available memory (CH1 to CH6). For 5 seconds, the MEM switch may be used to advance through the channel numbers. Push the STO button a second time enters the preset frequency in the selected channel.

After 5 seconds, the control will return to normal operation.

⑥ ACT button

Allows to change the active frequency. When depressed, second line displays dashes, and first line can directly be tuned from frequency selector.

Returns to the initial configuration when depressed a second time.

⑦ TEST button

Is used to initiate the radio self-test diagnostic routine.

⑧ Annunciators

Three types of messages can appear in this location.

MEM illuminates when a preset frequency is being displayed on the second line.

RMT illuminates when the VHF is remotely tuned (by an FMS e.g.).

TX illuminates when the VHF is transmitting.

⑨ Compare annunciator

ACT signal illuminates when frequencies are being changed.

ACT flashes if the actual radio frequency is not identical to the frequency in the active frequency display.

⑩ Light sensor

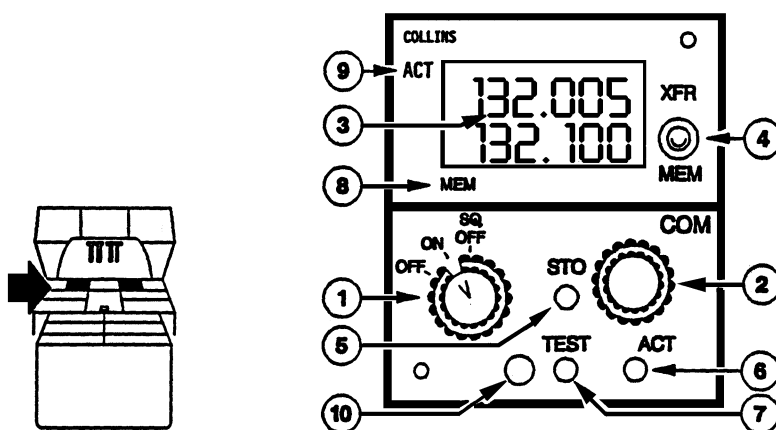
Automatically controls the display brightness.

CAUTION : Interference may occur between VHF 2 and SGU at the frequency 135.0 MHz

	COMMUNICATIONS GENERAL	1.05.10		
		P 5	030	
				NOV 00

AA

TOFA-01-05-10-005-A010AA



- ① - ON/OFF and volume knob
Energizes the control box and the associated VHF. SQ OFF position disables the receiver squelch circuit.
- ② - Channel selector
In normal use, controls the preset channel display :
- an outer knob is used for selection of numbers left of the decimal point
- an inner knob is used for selection of numbers right of the decimal point
- ③ - Channel display
The active channel is displayed on the first line.
The preset channel is displayed on the second line.
Annunciators are displayed on both lines.
- ③ - XFR/MEM switch
This is a three positions spring loaded toggle switch.
- NEUTRAL
- XFR : exchanges preset and active channel.
- MEM : successive actions cycle the six memory channels through the display.

	COMMUNICATIONS GENERAL	1.05.10		
		P 6	030	
				NOV 00

AA

- ⑤ - STO button
Allows entering six channels in the memory. When depressed, the upper window displays the channel number of available memory (CH1 to CH6). For 5 seconds, the MEM swith may be used to advance through the channel numbers. Push the STO button a second time enters the preset channel.
- ⑥ - STO button
Allows to change the active channel .When depressed, second line displays dashes, and first line can directly be tuned from channel selector. Returns to the initial configuration when depressed a second time.
- ⑦ - TEST button
Is used to initiate the radio self-test diagnostic routine.
- ⑧ - Annunciators
Three types of messages can appear in this location.
MEM illuminates when a preset channel is being displayed on the second line.
RMT illuminates when the VHF is remotely tuned (by an FMS e.g.)
TXi illuminates when the VHF is transmitting.
- ⑨ - Compare annunciator
ACT signal illuminates when channels are being changed.
ACT flashes if the actual channel is not identical to the channel in the active channel display.
- ⑩ - Light sensor
Automatically controls the display brightness.

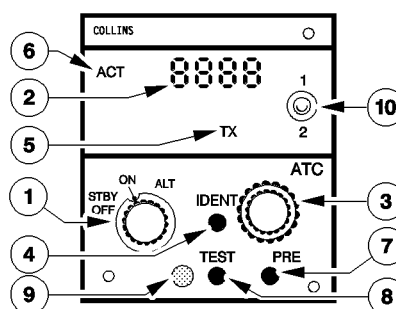
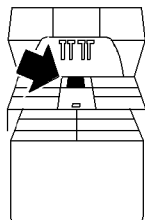
CAUTION: Untimely squelch triggering may accur on the following channels
124.990 , 128.390 , 128.400 , 129.990 and 134.990 without disturb
emission and reception.

	COMMUNICATIONS		1.05.10		
			P 7	110	
	GENERAL				DEC 95

AA

ATC CONTROL BOX

T0FA-01-05-10-007-A110AA



① Power and mode switch

- OFF ATC control box and transceiver are deenergized
- SBY ATC system is under power, but does not transmit replies.
- ON ATC Transponder Mode S replies to both Mode A and Mode C interrogations from the ground or air.
- ALT Normal operating position. Transponder replies with flight level information.

② Code display

Displays selected code.

③ Code select knobs

- Outer knob controls the two left-hand digits.
- Inner knob controls the two right-hand digits.

④ IDENT button

When depressed, causes the transponder to transmit "IDENT" signal.

⑤ Annunciators

- TX is displayed when the ATC replies to an interrogation.
- RMT is displayed when the ATC is remotely tuned (by a FMS e.g.).

④ ACT Compare annunciator

ACT is displayed during code changes.
ACT flashes when the actual reply code is not identical to the code shown in the active code display.

⑦ PRE button (Preset)

Push and hold the PRE button while turning the code select knobs to select a preset code for storage.
The stored code can be recalled by momentarily pressing the PRE button again.

⑧ TEST button

Press the TEST button to initiate the radio self test routine.

⑨ Photo cell

Automatically controls the display brightness.

⑩ Switch 1/2

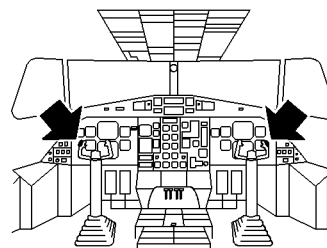
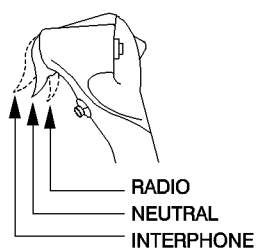
Selects either of two transponders that may be controlled by the control box.

 ATR F.C.O.M.	COMMUNICATIONS GENERAL	1.05.10		
		P 8	001	
				DEC 95

AA

PTT SELECTOR

TOFA-01-05-10-008-A001AA



The outboard horn of both control wheels is provided with a PTT selector controlling the transmission mode and effective only when BOOM SET or OXY MASK mike is used for transmission.

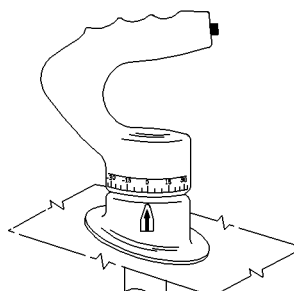
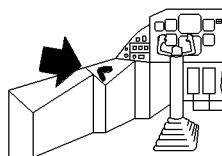
INTERPHONE Forward position springloaded to neutral. Transmission on flight interphone selected. INT transmission key has not to be used to communicate between cockpit crew stations.

NEUTRAL Center position. Transmission is not possible. Reception is normal. Hand microphones are connected for transmission when keyed.

RADIO Backward position springloaded to neutral. BOOM SET or OXY MASK is connected for transmission over the selected communication facility.

NOSE WHEEL STEERING CONTROL SW

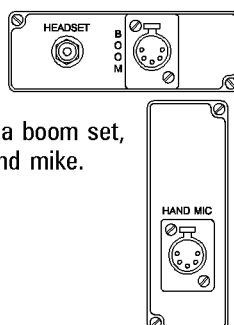
TOFA-01-05-10-008-B001AA



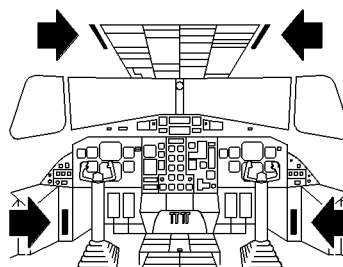
When depressed, BOOM SET or OXY mike is connected for transmission over the selected communication facility.

HEAD SET/BOOM SET PANEL/HAND MIC PANELS

TOFA-01-05-10-008-C001AA



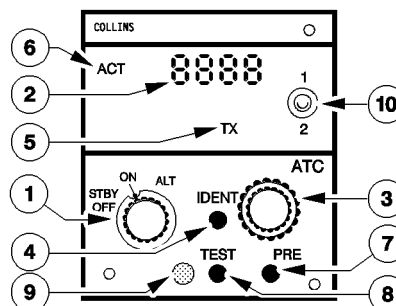
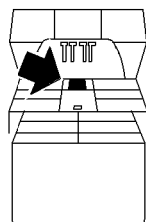
Allow connection of a boom set, a head set and a hand mike.



 ATR F.C.O.M.	COMMUNICATIONS		1.05.10		
			P 7	250	
	GENERAL				NOV 00

AA **ATC CONTROL BOX**

R
R0FF-01-05-10-007-A200AA



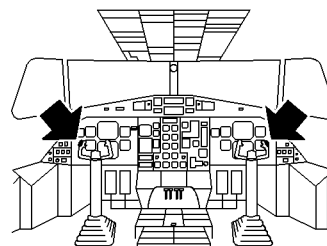
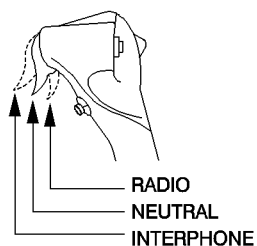
- ① - **Power and mode switch**
OFF ATC control box and transceiver are deenergized.
SBYATC system is under power, but does not transmit replies.
ON ATC Transponder replies to both Mode A and Mode C interrogations but without flight level information.
ALT Normal operating position. Transponder replies with flight level information.
- ② - **Code display**
Displays selected code.
- ③ - **Code select knobs**
 - Outer knob controls the two left-hand digits.
 - Inner knob controls the two right-hand digits.
- ④ - **IDENT button**
When depressed, causes the transponder to transmit "IDENT" signal.
- ⑤ - **Annunciators**
 - TX is displayed when the ATC replies to an interrogation.
 - RMT is displayed when the ATC is remotely tuned.
- ⑥ - **ACT Compare annunciator**
ACT is displayed during code changes.
ACT flashes when the actual reply code is not identical to the code shown in the active code display.
- ⑦ - **PRE button (Preset)**
Push and hold the PRE button while turning the code select knobs to select a preset code for storage.
The storage code can be recalled by momentarily pressing the PRE button again.
- ⑧ - **TEST button**
Press the TEST button to initiate the radio self test routine.
- ⑨ - **Photo cell**
Automatically controls the display brightness.
- R ⑩ - **Switch 1/2**
Selects either of two transponders that may be controlled by the control box.

 ATR F.C.O.M.	COMMUNICATIONS GENERAL	1.05.10		
		P 8	001	
				DEC 95

AA

PTT SELECTOR

TOFA-01-05-10-008-A001AA



The outboard horn of both control wheels is provided with a PTT selector controlling the transmission mode and effective only when BOOM SET or OXY MASK mike is used for transmission.

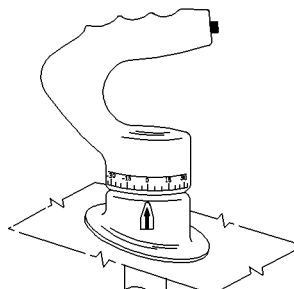
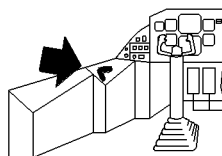
INTERPHONE Forward position springloaded to neutral. Transmission on flight interphone selected. INT transmission key has not to be used to communicate between cockpit crew stations.

NEUTRAL Center position. Transmission is not possible. Reception is normal. Hand microphones are connected for transmission when keyed.

RADIO Backward position springloaded to neutral. BOOM SET or OXY MASK is connected for transmission over the selected communication facility.

NOSE WHEEL STEERING CONTROL SW

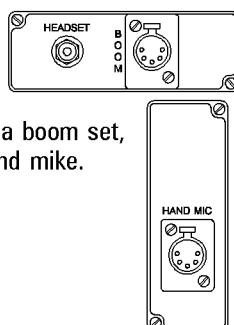
TOFA-01-05-10-008-B001AA



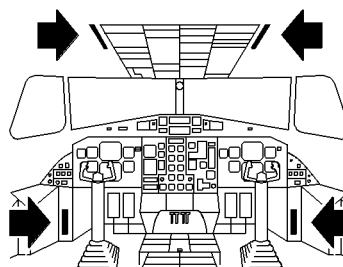
When depressed, BOOM SET or OXY mike is connected for transmission over the selected communication facility.

HEAD SET/BOOM SET PANEL/HAND MIC PANELS

TOFA-01-05-10-008-C001AA



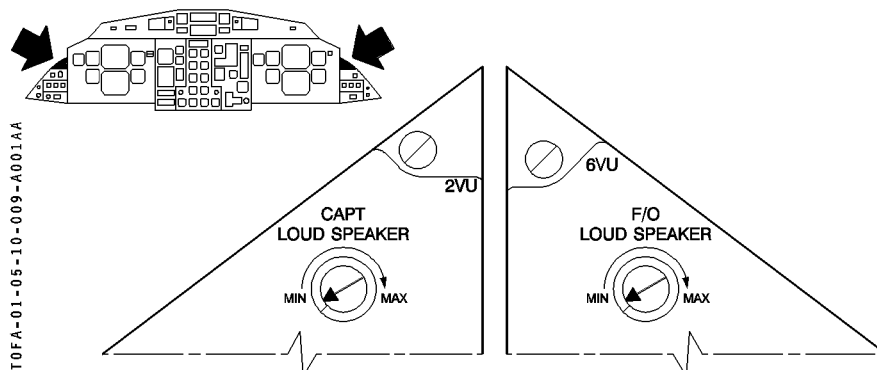
Allow connection of a boom set, a head set and a hand mike.



 ATR F.C.O.M.	COMMUNICATIONS		1.05.10		
			P 9	001	
	GENERAL				DEC 95

AA

LOUDSPEAKERS VOLUME KNOBS

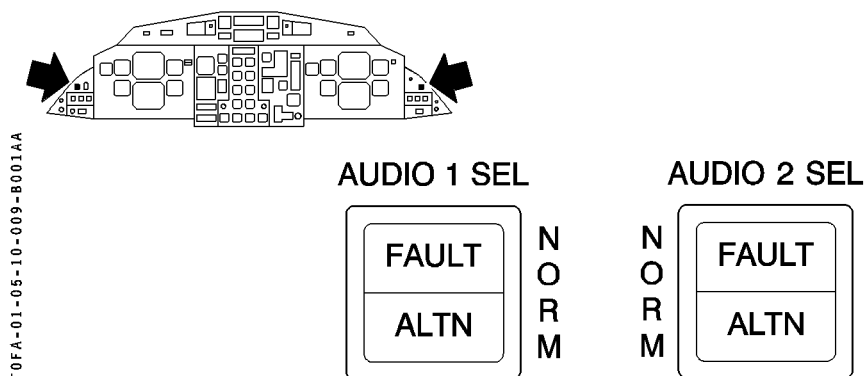


Communication reception over cockpit loudspeakers is controlled by an individual knob for each of the two cockpit loudspeakers

Note : In case of aural alert :

- Normal volume is always available regardless of knobs position.
- During any transmission, the volume of both loudspeakers is muted.

AUDIO SEL PB



Controls functioning of associated RCAU processing board.

NORM (pb depressed) RCAU functions normally.

FAULT illuminates amber and the CCAS is activated when an associated RCAU processing board failure or power loss is detected.

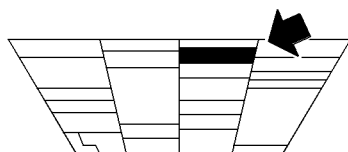
ALTN (pb released) affected crew station is connected directly to :
VHF 1 if CAPT station is affected or VHF 2 if F/O station is affected.
Volume is adjusted by affected loudspeaker volume control.

Note : On the affected side, PA, interphone and other VHF can not be used any longer.

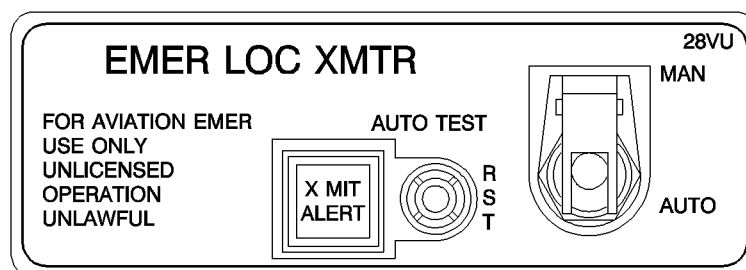
	COMMUNICATIONS GENERAL	1.05.10		
		P 10	001	
				MAY 98

AA

EMERGENCY BEACON



TOFA-01-05-10-010-A001AA



The transmitter is located in the ceiling of the cabin between the passengers entry door and the toilet door. The antenna is located in the fairing ahead of the stabilizer fin. This system includes its own battery.

AUTO transmission is made automatically on 121.5 MHz, 243 MHz and 406 MHz when deceleration exceeds 5 g (X MIT ALERT It illuminates amber).

MAN allows commanded operation (X MIT ALERT It illuminates amber)

AUTO TEST RST Is used in case of undue alert (reset), or to test the emergency beacon. Two cases are possible for the test :

- Net work : X MIT ALERT illuminates amber during 2 seconds
- Failure : X MIT ALERT It flashes during 15 seconds.

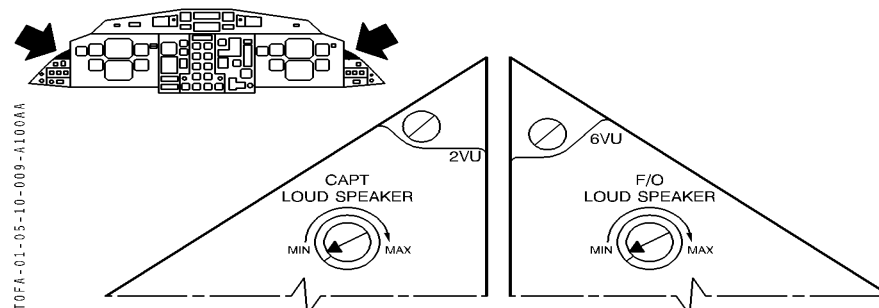
CAUTION : The test must not be performed in MAN mode.

R Aircraft on ground (and electrically supplied), when the emergency beacon is triggered
R after 30 seconds, the mechanical horn is triggered too.

 ATR F.C.O.M.	COMMUNICATIONS		1.05.10		
			P 9	100	
	GENERAL				NOV 99

AA

LOUDSPEAKERS VOLUME KNOBS

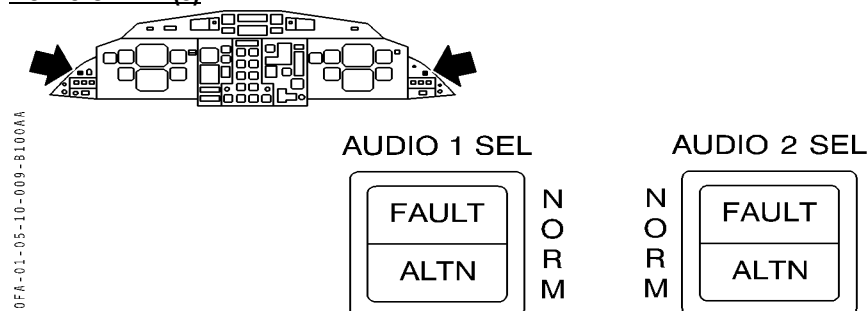


Communication reception over cockpit loudspeakers is controlled by an individual knob for each of the two cockpit loudspeakers.

Note : In case of aural alert :

- Normal volume is always available regardless of knobs position.
- During any transmission, the volume of both loudspeakers is muted.

AUDIO SEL PB(s)



Controls functioning of associated RCAU processing board.

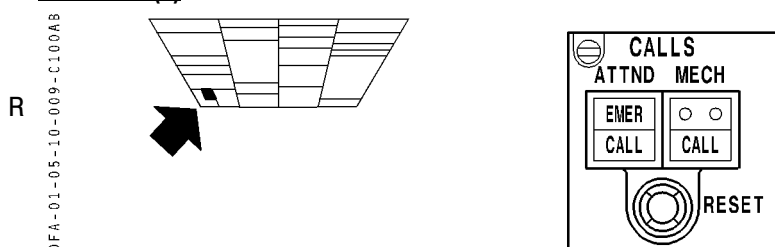
NORM (pb depressed) RCAU functions normally.

FAULT illuminates amber and the CCAS is activated when when an associated RCAU processing board failure or power loss is detected.

ALTN (pb released) affected crew station is connected directly to :
VHF 1 if CAPT station is affected or VHF 2 if F/O station is affected.
Volume is adjusted by affected loudspeaker volume control.

Note : On the affected side PA, interphone and other VHF can not be used any longer.

CALLS PB(s)

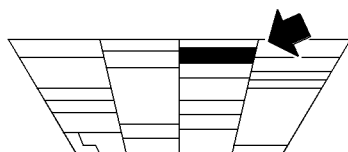


See 1.05.10 p 3

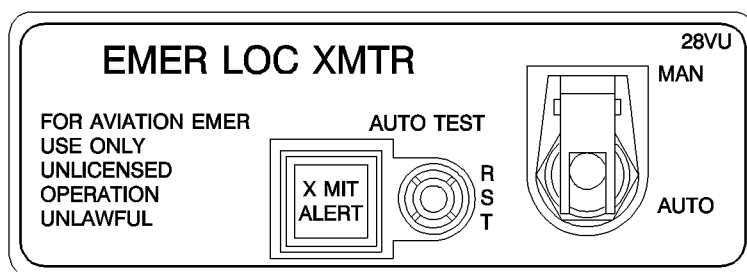
	COMMUNICATIONS GENERAL	1.05.10		
		P 10	001	
				MAY 98

AA

EMERGENCY BEACON



TOFA-01-05-10-010-A001AA



The transmitter is located in the ceiling of the cabin between the passengers entry door and the toilet door. The antenna is located in the fairing ahead of the stabilizer fin. This system includes its own battery.

AUTO transmission is made automatically on 121.5 MHz, 243 MHz and 406 MHz when deceleration exceeds 5 g (X MIT ALERT It illuminates amber).

MAN allows commanded operation (X MIT ALERT It illuminates amber)

AUTO TEST RST Is used in case of undue alert (reset), or to test the emergency beacon. Two cases are possible for the test :

- Net work : X MIT ALERT illuminates amber during 2 seconds
- Failure : X MIT ALERT It flashes during 15 seconds.

CAUTION : The test must not be performed in MAN mode.

R Aircraft on ground (and electrically supplied), when the emergency beacon is triggered
R after 30 seconds, the mechanical horn is triggered too.

	COMMUNICATIONS GENERAL	1.05.10		
		P 11	001	
				DEC 95

AA

LEFT INTENTIONALLY BLANK

	COMMUNICATIONS GENERAL	1.05.10		
		P 12	001	
				DEC 95

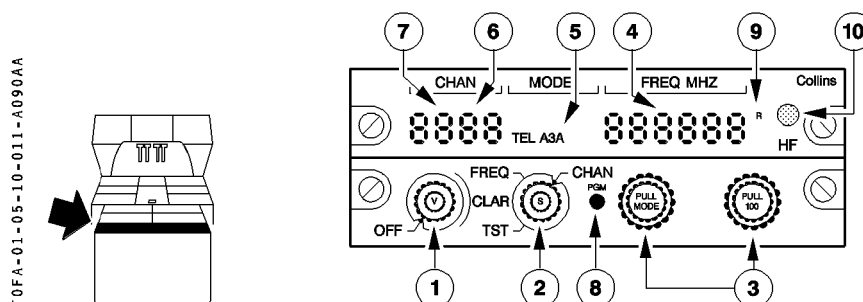
AA

LEFT INTENTIONALLY BLANK

	COMMUNICATIONS		1.05.10		
			P 11	090	
	GENERAL				NOV 01

AA

HF CONTROL BOX



(1) ON/OFF and CLARIFIER knobs

- Inner knob turns ON and OFF the system, and controls the volume.
- Outer knob (clarifier) adjusts received frequency in case of single sideband operating mode.

(2) SQUELCH/FREQ-CHAN selector

- Inner knob allows to reduce background noise when not receiving a signal.
- Outer knob selects channel mode or discrete frequency mode of operation.
 - FREQ: selection knobs (3) allow to directly select used frequency (displayed on (4)).
 - CHAN: selection knobs (3) allow to select :
 - Either a 2-digit channel number (displayed on (6)) received to store a frequency on this channel.
 - Either a 4-digit ITU (Maritime) channel number (displayed on (6/7)) corresponding to a duplex function : on each ITU channel, a received frequency and a transmit frequency are automatically stored. When an ITU channel is selected, received frequency is displayed on (4). When transmitting, transmit frequency is displayed on (4).

(3) CHANNEL/FREQUENCY selection knobs

- When FREQ/CHAN selector is in "FREQ" position.
 - Left outer knob : Selects and displays the MHz digits (1 through 29).
 - Left inner knob : * Pushed in : selects the 100 Hz digits (0 through 9).
* Pulled out : selects HF modes (USB, AM or LSB).
 - Right outer knob : Selects and displays the 10 KHz digit (0 through 9).
 - Right inner knob : * Pushed in : selects the 1 KHz digit (0 through 9).
* Pulled out : selects the 100 Hz digit (0 through 9).
- When FREQ/CHAN selector is in "CHAN" position.
 - Left outer knob : Selects the ITU band (first two digits) in case of ITU channel selection. When turned down, the two first digits disappear, and right outer knob displays a storing channel.
- Left inner knob : * Pushed in : has no effect.
- Left inner knob : * Pulled out : selects modes (TEL SUP CAR or TEL PLT CAR) in case of ITU channel selection.

	COMMUNICATIONS GENERAL	1.05.10		
		P 12	090	
				NOV 01

AA

- Right outer knob : Selects the individual channel number (last two digits) in case of ITU channel selection.
Selects the two digits storage channel in case of programming use.
When selecting beyond 1 or 40 channel number, ITU channels will appear.

- Right inner knob : Has no effect.

(4) Frequency display

Displays the frequency (directly selected or channel-stored).

(5) Mode display

Display the associated mode (for normal frequencies or ITU channels).

(6) CHANNEL display - Right digits

Displays the individual channel number, or the storage channel number.

(7) CHANNEL display - Left digits

Displays the ITU band in case of ITU channel selection.

(8) PGM (Program) switch

Allows to store frequencies in the 40 available channels by the following mode :

- Selector on "CHAN" position.
- Select the desired user channel by using selecting knobs (3).
- Press PGM button. The whole display blinks.
- Select the desired frequency and mode by using selecting knobs (3).
- Press PGM button again to store the frequency.

At this point, three ways are possible.

- Store a received only frequency : only wait 20 s that the display blinking stops.
- Store a simplex channel : press PGM button a third time to store the blinking frequency as a transmit frequency. Received and transmit frequencies are now the same.
- Store a half duplex channel : during the display blinking time (20 s) a second frequency can be selected as a transmit frequency. The considered channel stores the first frequency as a receive one, and the second frequency as a transmit one.

(9) Indicator

- "R" indicates that the system is in received mode.
- "T" indicates that the system is in transmit mode.

(10) Photo cell

- Automatically adjusts display brightness.

Note : Depending on version one or two identical HF control boxes may be installed.
Only one antenna is associated with these two control boxes permitting two receptions but only one emission at the same time.

	COMMUNICATIONS GENERAL	1.05.10		
		P 13	001	
				DEC 95

AA

LEFT INTENTIONALLY BLANK

	COMMUNICATIONS GENERAL	1.05.10		
		P 14	001	
				DEC 95

AA

LEFT INTENTIONALLY BLANK

	COMMUNICATIONS GENERAL	1.05.10		
		P 15	001	
				DEC 95

AA

LEFT INTENTIONALLY BLANK

 ATR F.C.O.M.	COMMUNICATIONS GENERAL	1.05.10		
		P 16	001	
				DEC 95

AA

10.3 ELECTRICAL SUPPLY/MFC LOGIC/SYSTEM MONITORING

ELECTRICAL SUPPLY

EQUIPMENT	DC BUS SUPPLY (C/B)
VHF 1	DC EMER BUS (on overhead panel VHF 1)
VHF 2	DC BUS 2 (on overhead panel VHF 2)
CAPT audio system	DC ESS BUS (on overhead panel CAPT)
F/O audio system	DC ESS BUS (on overhead panel F/O)
ATC	DC EMER BUS (on overhead panel ATC)
TCAS (if installed)	DC BUS 2 (on overhead panel TCAS)
Attendant call	DC ESS BUS (on overhead panel ATTND)
Ground crew call	DC ESS BUS (on overhead panel MECH)
Passenger call system	DC ESS BUS (on overhead panel PUBLIC ADDRESS)
HF2 (when installed)	HOT MAIN BAT BUS (on overhead panel HF2)
HF1 (when a second HF is installed)	DC BUS 1 (on overhead panel HF1)
SELCAL (when installed)	DC BUS 1 (on overhead panel SEL CAL)

 ATR F.C.O.M.	COMMUNICATIONS GENERAL	1.05.10		
		P 17	001	
				DEC 95

AA

MFC LOGIC

See chapter 1.01

SYSTEM MONITORING

The following conditions are monitored by visual and aural alerts :

- RCAU processing board failure or power loss.
- See AUDIO SEL FAULT procedure in chapter 2.05.12.

	COMMUNICATIONS GENERAL	1.05.10		
		P 18	001	
				DEC 95

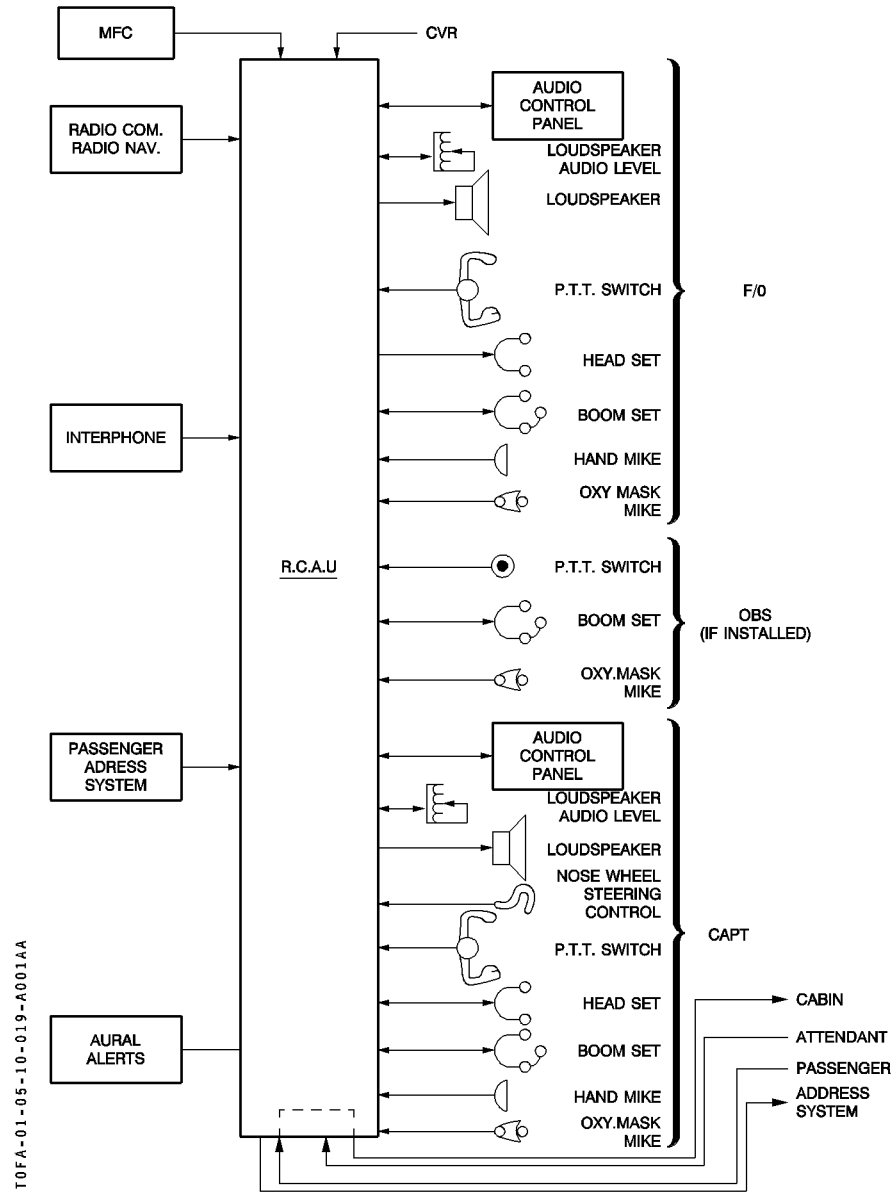
AA

LEFT INTENTIONALLY BLANK

	COMMUNICATIONS	1.05.10		
		P 19/20	001	
	GENERAL			DEC 95

AA

10.4 SCHEMATIC



	COMMUNICATIONS TCAS	1.05.20		
		P 1	060	
				NOV 01

AA

20.1 DESCRIPTION

The TCAS is an on-board collision avoidance and traffic situation display system with computer processing to identify and display potential and predicted collision targets, and issue vertical resolution advisories on the pilot's and copilot's TCAS vertical speed indicator (TCAS VSI) to avoid conflict. From the transponder replies, TCAS determines relative altitude, range, and bearing of any aircraft equipped with a mode C or S transponder. From this, TCAS will determine the threat using standardized algorithms.

Outputs from the TCAS System are voice messages and visual displays on the TCAS VSI's for Resolution Advisories (TCAS RA's) and Traffic Advisories (TCAS TA's).

The TA is informative and indicates potential threats. The RA displays a threat resolution in the form of a vertical maneuver if the potential conflict is projected to occur.

Threat aircraft with mode A transponders will not provide altitude information : therefore TCAS will not issue resolution advisories for these threats. The TCAS will not detect aircraft without transponders.

The TCAS is a single system installation consisting of :

- one TCAS processor,
- two high resolution bearing antennae (one top mounted and one bottom mounted),
- two mode S transponders,
- two modified TCAS VSIs each integrating traffic advisory display and vertical speed information,
- one pylon mounted TCAS control box,
- two overhead speakers for voice messages and associated wiring.

Following definitions are intended to be used for TCAS operations :

(A) Advisory :

A message given to the pilot containing information relevant to collision avoidance.

(B) Corrective resolution advisory :

A resolution advisory that advises the pilot to deviate from current vertical speed, e.g., CLIMB when the aircraft is levelled.

(C) Intruder :

A target that has satisfied the TCAS threat detection logic and thus requires a traffic advisory.

	COMMUNICATIONS TCAS	1.05.20		
		P 2	060	
				NOV 01

AA

(D) Mode S :

Type of secondary surveillance radar (SSR) equipment which provides replies to mode A and Mode C interrogations and discrete address interrogations from the ground or air.

(E) Preventive resolution advisory :

A resolution advisory that advises the pilot to avoid certain deviations from the current vertical speed because certain vertical speed restrictions exist.

(F) Proximate traffic :

Nearby aircraft within ± 850 ft and 6NM which are neither an RA nor a TA.

(G) Resolution advisory (RA) :

Oral and visual information provided to the flight crew to avoid a potential collision.

(H) Threat :

A target that has satisfied the threat detection logic and thus requires a resolution advisory.

(I) Traffic advisory (TA) :

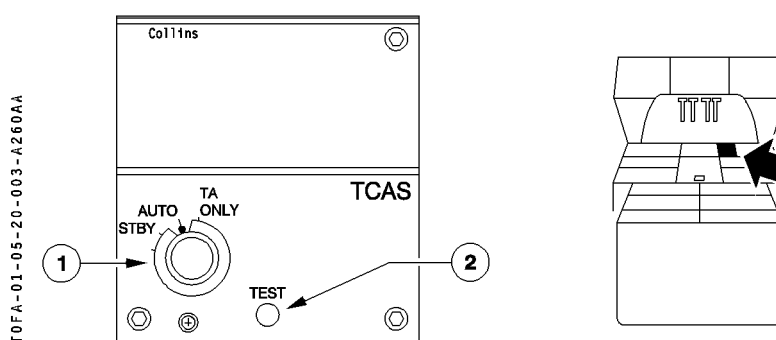
Information given to the pilot pertaining to the position of another aircraft in the immediate vicinity. The information contains no resolution information.

	COMMUNICATIONS		1.05.20	
			P 3	260
	TCAS			NOV 01

AA

20.2 CONTROL

TCAS CONTROL BOX



① TCAS rotary selector

Enables TCAS to be set to standby (STBY), automatic (AUTO), or traffic advisories only (TA ONLY) mode of operation.

STBY : TCAS system is under power, but TCAS functions (intruder visualisation, Traffic Advisory mode or resolution Advisory) are not operative.

AUTO : Normal operating mode of TCAS.

TA only

- Disables the RA mode of operation.
- May be selected but should be used only to prevent unnecessary resolution advisory when operating near closely spaced parallel runways or in the cases TCAS could command Climb maneuvers resulting in an unsafe situation for the aircraft (see limitations on 2.01.05).

Note : - If altitude reporting is off or not valid Mode S transponder is selected, TCAS will be in standby (RA OFF on TCAS VSI)

- If appropriate, TCAS will automatically go into the TA only mode when the TCAS equipped aircraft is below the RA descent altitude and in a climb inhibit configuration.

② TCAS test function

- The TCAS should be tested by pressing the "Test" button during cockpit preparation.
- Use of the self-test function in flight will inhibit TCAS operation for up to 20 seconds depending upon the number of targets being tracked.
- The mode S ATC transponder will not function during some portion of the self-test sequence.

 ATR F.C.O.M.	COMMUNICATIONS TCAS	1.05.20		
		P 4	060	
				NOV 01

AA

20.3 OPERATION

The TCAS provides two levels of threat advisories :

If the traffic gets between 20 and 48 seconds (depending on aircraft altitude) of projected Closest Point of Approach (CPA), it is then considered an intruder, and an aural and visual traffic advisory is issued. This level calls attention to a developing collision threat using the traffic advisory display and the voice message, "TRAFFIC TRAFFIC". It permits mental and physical preparation for a possible maneuver to follow, and assists the pilot in achieving visual acquisition of the threat aircraft.

If the intruder gets between 15 and 35 seconds (depending on aircraft altitude), of CPA, it is considered a threat and an aural and visual resolution advisory is issued. This level provides a recommended vertical maneuver using modified TCAS VSI's and voice messages to provide adequate vertical separation from the threat aircraft, or prevents initiation of a maneuver that would place the TCAS aircraft in jeopardy.

The TCAS resolution advisories are annunciated by the following voice messages, as appropriate :

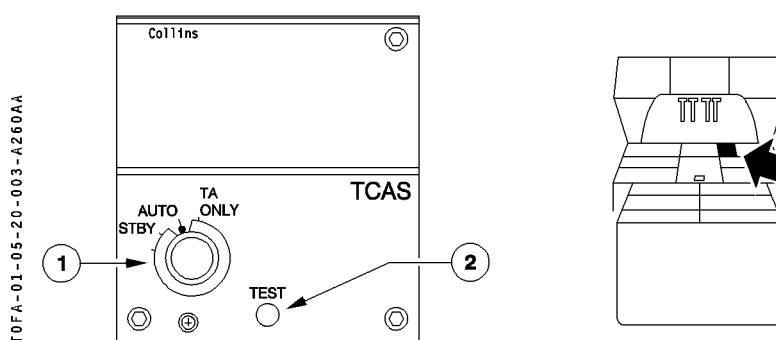
- (A) "CLIMB, CLIMB, CLIMB" :
(Climb at the rate depicted by the green (fly to) arc on the TCAS VSI).
- (B) "DESCEND, DESCEND, DESCEND" :
(Descend at the rate depicted by the green (fly to) arc.).
- (C) "MONITOR VERTICAL SPEED, MONITOR VERTICAL SPEED" :
(Spoken only once if issued after a previous corrective advisory). Assure that vertical speed is out of the illuminated TCAS VSI red arc.
- (D) "REDUCE CLIMB-REDUCE CLIMB" :
(Reduce vertical speed to a value within the illuminated green arc).
- (E) "CLEAR OF CONFLICT" :
(Range is increasing, and separation is adequate, return to assigned clearance).
- (F) "CLIMB, CROSSING CLIMB, CLIMB, CROSSING CLIMB" :
(Climb at the rate depicted by the green (fly to) arc on the TCAS VSI). Safe separation will best be achieved by climbing through the threat's flight path.
- (G) "REDUCE DESCENT-REDUCE DESCENT" :
(Reduce vertical speed to a value within the illuminated green arc).
- (H) "DESCEND, CROSSING DESCEND, DESCEND, CROSSING DESCEND" :
(Descend at the rate depicted by the green (fly to) arc or the TCAS VSI) safe separation will best be achieved by descending through the intruder's flight path.

	COMMUNICATIONS		1.05.20	
			P 3	260
	TCAS			NOV 01

AA

20.2 CONTROL

TCAS CONTROL BOX



① TCAS rotary selector

Enables TCAS to be set to standby (STBY), automatic (AUTO), or traffic advisories only (TA ONLY) mode of operation.

STBY : TCAS system is under power, but TCAS functions (intruder visualisation, Traffic Advisory mode or resolution Advisory) are not operative.

AUTO : Normal operating mode of TCAS.

TA only

- Disables the RA mode of operation.
- May be selected but should be used only to prevent unnecessary resolution advisory when operating near closely spaced parallel runways or in the cases TCAS could command Climb maneuvers resulting in an unsafe situation for the aircraft (see limitations on 2.01.05).

Note : - If altitude reporting is off or not valid Mode S transponder is selected, TCAS will be in standby (RA OFF on TCAS VSI)

- If appropriate, TCAS will automatically go into the TA only mode when the TCAS equipped aircraft is below the RA descent altitude and in a climb inhibit configuration.

② TCAS test function

- The TCAS should be tested by pressing the "Test" button during cockpit preparation.
- Use of the self-test function in flight will inhibit TCAS operation for up to 20 seconds depending upon the number of targets being tracked.
- The mode S ATC transponder will not function during some portion of the self-test sequence.

	COMMUNICATIONS TCAS	1.05.20		
		P 4	080	
				NOV 01

AA

20.3 OPERATION

The TCAS provides two levels of threat advisories :

If the traffic gets between 20 and 48 seconds (depending on aircraft altitude) of projected Closest Point of Approach (CPA), it is then considered an intruder, and an aural and visual traffic advisory is issued. This level calls attention to a developing collision threat using the traffic advisory display and the voice message, "TRAFFIC TRAFFIC". It permits mental and physical preparation for a possible maneuver to follow, and assists the pilot in achieving visual acquisition of the threat aircraft.

If the intruder gets between 15 and 35 seconds (depending on aircraft altitude), of CPA, it is considered a threat and an aural and visual resolution advisory is issued. This level provides a recommended vertical maneuver using modified TCAS VSI's and voice messages to provide adequate vertical separation from the threat aircraft, or prevents initiation of a maneuver that would place the TCAS aircraft in jeopardy.

The TCAS resolution advisories are annunciated by the following voice messages, as appropriate :

- (A) "CLIMB, CLIMB" :
(Climb at the rate depicted by the green (fly to) arc on the TCAS VSI).
- (B) "DESCEND, DESCEND" :
(Descend at the rate depicted by the green (fly to) arc.)
- (C) "MONITOR VERTICAL SPEED" :
Initial preventive RAs (adjust vertical speed to a value within the illuminated green arc).
- (D) "MAINTAIN VERTICAL SPEED, MAINTAIN" :
(Non crossing maintain rate RAs (corrective)).
- (E) "MAINTAIN VERTICAL SPEED, CROSSING MAINTAIN" :
(Altitude crossing, maintain rate RAs (corrective)).
- (F) "CLEAR OF CONFLICT" :
(Range is increasing, and separation is adequate, return to assigned clearance).
- (G) "CLIMB, CROSSING CLIMB, CLIMB, CROSSING CLIMB" :
(Climb at the rate depicted by the green (fly to) arc on the TCAS VSI). Safe separation will best be achieved by climbing through the threat's flight path.
- (H) "ADJUST VERTICAL SPEED, ADJUST" :
(Adjust vertical speed to a value within the illuminated green arc)
- (I) "DESCEND, CROSSING DESCEND, DESCEND, CROSSING DESCEND" :
(Descend at the rate depicted by the green (fly to) arc on the TCAS VSI) safe separation will best be achieved by descending through the intruder's flight path.

 ATR F.C.O.M.	COMMUNICATIONS TCAS	1.05.20		
		P 5	060	
				NOV 01

AA

The following voice messages annunciate enhanced TCAS maneuvers when the initial TCAS RA does not provide sufficient vertical separation. The tone and inflexion must constate increased urgency.

- Ⓐ "INCREASE DESCENT, INCREASE DESCENT" :
(descend at the rate depicted by the green (fly to) arc on the TCAS VSI). Received after "DESCEND" advisory, and indicates additional descent rate required to achieve safe vertical separation from a maneuvering threat aircraft.
- Ⓑ "INCREASE CLIMB, INCREASE CLIMB" :
(climb at the rate depicted by the green (fly to) arc on the VSI). Received after "CLIMB" advisory, and indicates additional climb rate required to achieve safe vertical separation from a maneuvering threat aircraft.
- Ⓒ "CLIMB-CLIMB NOW, CLIMB-CLIMB NOW" :
(climb at the rate depicted by the green (fly to) arc on the TCAS VSI). Received after a "DESCEND" resolution advisory and indicates a reversal in sense is required to achieve safe vertical separation from a maneuvering threat aircraft.
- Ⓓ "DESCEND-DESCEND NOW, DESCEND-DESCEND NOW" :
(descend at the rate depicted by the green (fly to) arc on the TCAS VSI). Received after a "CLIMB" resolution advisory and indicates a reversal is required to achieve safe vertical separation from a maneuvering threat aircraft.

All TCAS aural alerts are inhibited :

- below 1100 ft AGL when aircraft is climbing.
- below 900 ft AGL when aircraft is descending.

	COMMUNICATIONS TCAS	1.05.20		
		P 6	060	
				NOV 01

AA

TCAS OPERATING CHARACTERISTICS

- NON ICING CONDITIONS of inhibition

CONFIGURATION	RA CLIMB	RA INCREASE CLIMB
FLAPS 0°	AUTHORIZED	AUTHORIZED
FLAPS 15°	AUTHORIZED	INHIBITED
FLAPS 25°	AUTHORIZED	INHIBITED
FLAPS 35°	AUTHORIZED	INHIBITED

- ICING CONDITIONS of inhibition

CONFIGURATION	RA CLIMB	RA INCREASE CLIMB
FLAPS 0°	AUTHORIZED	AUTHORIZED
FLAPS 15°	AUTHORIZED	INHIBITED
FLAPS 25°	AUTHORIZED	INHIBITED
FLAPS 35°	AUTHORIZED	INHIBITED

- The “increase climb” RA is inhibited for certain above conditions.

In non altitude crossing encounters for which a “CLIMB” RA is posted, the threat may maneuver or accelerate toward own aircraft and cause a reduction in vertical separation despite the RA. Since the “increase climb” RA is inhibited, the climb RA remains posted. As soon as the threat passes through own aircraft’s altitude, the RA sense will be reversed and a “DESCEND” RA will be posted. If the threat never crosses through, the “CLIMB” RA will remain posted for the duration of the encounter.

- “DESCEND” RA’s are inhibited :
 - until the aircraft is above 1200 ft AGL on take-off,
 - below 1000 ft AGL on approach.
- “INCREASE DESCEND” RA’s are inhibited below 1450 ft AGL.
- All RA’s are inhibited :
 - below 1100 ft AGL when aircraft is climbing,
 - below 900 ft AGL when aircraft is descending.
- The TCAS surveillance may not function at distances less than 900 ft.
- There can be a case where the threat aircraft track on altitude information is lost during an RA. In this case, the RA will terminate without a “CLEAR OF CONFLICT” annunciation.