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Vers. : All Eng. : All

ARBUS TRAINING A310 SIMULATOR FLIGHT CREW OPERATING MANUAL

EMERGENCY EQUIPMENT

GENERAL

DESCRIPTION

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The aircraft is equipped with fire-fighting, oxygen, first aid, emergency evacuation and emergency lighting equipment. All these items are placed throughout the cabin, readily available for use in emergency.

The emergency evacuation signal system is installed to provide crew and passengers with visual and audio warning if emergency evacuation is required.

The emergency lighting system provides aircraft illumination, when all other electrical power sources are no longer available.

COCKPIT

Each crew station is provided with:

- life vest,

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- smoke goggles,
- flashlight,
- quick-donning oxygen mask, supplied with gaseous oxygen from one rechargeable storage bottle.

A portable fire extinguisher and a portable oxygen bottle are attached to the cockpit bulkhead in which the full face oxygen mask is stowed.

A fire axe is attached to the RH front vertical wall.

In addition are fitted:

- a portable fire extinguisher stowed on the LH side console,
- a fire axe attached on the coat stowage
- four evacuation devices centrifugally roller braked tapes– are installed, two above each sliding window,
- asbestos gloves
- either a portable oxygen bottle with a full face oxygen mask, either a smoke hood or both equipments, stowed on the RH side console.

The door between cabin and cockpit, which normally opens into the cockpit, can be forced to open into the cabin, if required in an emergency.

CABIN

The emergency equipment is strategically distributed throughout the cabin and stowed adjacent to the cabin crew member stations.

It contains:

- portable fire extinguishers with full-face masks,
- portable oxygen bottles with continuous flow masks, additionally first aid masks and demonstration masks,
- emergency locator beacons,
- megaphones,
- first aid kits,
- crash axes,
- life vests,
- oxygen supply for passengers and cabin crew,
- escape slides.

Life vests are stowed at each cabin crew station and under each passenger seat. Infant and demonstration life vests are stowed separately.

Oxygen supply for passengers and cabin crew is provided by solid state oxygen generators with dropout masks. They are located above the passenger seats, at cabin crew stations, in lavatories and in galley areas.

For emergency evacuation the four passenger/crew doors are fitted with double escape slides, the two emergency exit doors with single escape slides. When armed, deployment and inflation are automatic when the door is opened. Upon deployment the slides are illuminated by built-in lighting.

Mod.: 4803



GENERAL

SCHEMATICS

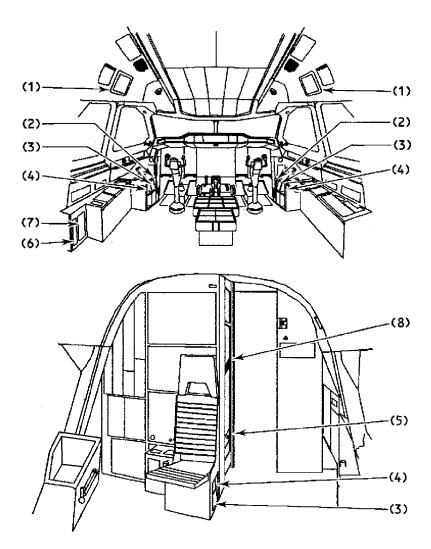
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COCKPIT EMERGENCY EQUIPMENTS



- (1) Evacuation Device Handles (2+2)
- (2) Flashlights (2)

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- R (3) Quick-donning oxygen Masks (3)
 - (4) Smoke Goggles (3)

Note: For other crew members life vests are stowed in the back of the seats.

- (5) Portable oxygen bottle and full face oxygen mask and/or smoke hood
- (6) Asbestos Gloves
- (7) Portable Fire Extinguisher (Halon)
- (8) Axe

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EMERGENCY EQUIPMENT

GENERAL

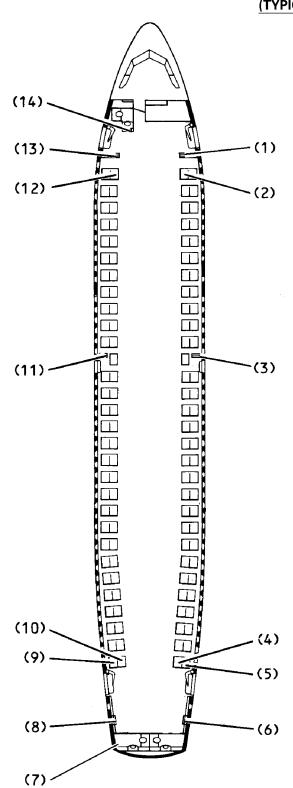
SCHEMATICS

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CABIN EMERGENCY EQUIPEMENT LOCATION (TYPICAL)



- (1) Attendant Life jacket. Portable oxygen. Oxygen mask. Full face smoke mask. Flashlight. Demonstration unit (in stowage).
- (2) First aid kit (in overhead stowage).
- (3) Attendant Life jacket. Flashlight. Demonstration unit (in stowage). Manual release tools.
- (4) First aid kit (in overhead stowage).
- (5) Portable oxygen. Oxygen mask. Full face smoke mask.
- (6) Attendant Life jacket. Flashlight.
- (7) Fire extinguisher.
- (8) Attendant life jacket. Flashlight.
- (9) Portable oxygen bottle. Smoke mask. Oxygen mask.
- (10) Emergency radio beacon. Megaphone (in overhead stowage).5 children life jackets (in overhead stowage).
- (11) Attendant Life jacket. Demonstration unit (in stowage). Flashlight. Extinguisher.
- (12) Emergency radio beacon. (in overhead stowage)Megaphone.5 children life jackets (in overhead stowage)
- (13) Attendant Life jacket. Portable oxygen. Oxygen mask. Smoke mask. Flashlight. Demonstration unit and Manual release tools (in stowage).
- (14) Attendant Life Jacket. Portable oxygen. Oxygen mask. Smoke mask. Fire extinguisher. Flashlight.

Vers. : All

Eng. : All

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Eng. : All Vers. : All

A310 SIMULATOR FLIGHT CREW OPERATING MANUAL

EMERGENCY EQUIPMENT

OXYGEN SYSTEMS

DESCRIPTION

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The oxygen systems are a pressure – breathing diluter – demand type system for the flight crew and a modular chemically – generating system with automatic drop-out masks for passengers and cabin crew.

Portable bottles are provided in the cockpit and in the cabin for crew mobility and for dispensing first aid oxygen.

CREW OXYGEN SYSTEM

A high pressure cylinder of 3,255 liters (115 cu feet) capacity, supplies oxygen to the distribution system. Nominal charging pressure is 1,850 psi, reduced to 78 ± 8 PSI in the distribution system.

Overpressure downstream and upstream of the pressure reducer causes oxygen to be vented overboard through discharge ports.

The quick donning masks are stowed in readily-accessible containers adjacent to each crew member seat. The mask harness inflates automatically when the mask is pulled out of the container, and it can easily be done with one hand. A mask-mounted diluter demand regulator provides dilution and emergency pressure control.

With the dilution control in the N (normal) position the mask is supplied with a mixture of oxygen and ambient air up to a Cabin altitude of 35,000 feet and 100 % oxygen above 35,000 feet.

In the 100 % position, undiluted oxygen is supplied. The emergency pressure control position provides positive pressure, when selected.

Storage (high) and distribution (low) system pressures are indicated on the CREW OXYGEN section of the overhead panel.

PASSENGERS OXYGEN SYSTEM

Modular oxygen generating and dispensing units are located above the passenger seats, in the lavatories at each galley and at each cabin crew station.

Each unit contains a sodium chlorate oxygen generator and 2, 3, 4 or 5 oro-nasal masks with reservoir bags.

The drop-out masks are presented automatically if the cabin altitude exceeds 14,000 ft (+ 0, – 500 ft). The automatic control can be overriden by the flight crew. When the masks are displayed, taped instructions are automatically announced over the passenger address system.

Electrical power, which operates the unit door latches, is automatically interrupted after 30 seconds. Oxygen generation is initiated by a lanyard when a mask is pulled toward the passenger seat and continues until the generator is exhausted approximately 22 minutes.

During oxygen generation the generator casing can reach a temperature of 93° C (200° F). Once activated, generators must be replaced.

Control and indication devices are installed in the PASSENGER OXYGEN section of the overhead panel.

FLIGHT CREW PORTABLE OXYGEN SYSTEM

The flight crew portable system ensures the protection of flight crew members in case of :

- smoke or noxious gas emissions
- cabin pressure altitude loss.

It consists of either:

 A smoke hood: ensuring the eyes and respiration system protection of one flight crew member when fighting a fire. It furnishes an effective time of use of 15 mn.

or:

 A portable oxygen cylinder fitted with a gauge indicating the cylinder pressure, and a high pressure relief valve.

A rotating type ON/OFF valve controls the oxygen flow. 100 % oxygen is supplied, on demand. The unit capability is 15 mn at 8000 ft.

A full face mask is connected to the cylinder.

Its user can communicate with other flight crew members by using the communication extension adapter which is stowed with the mask.

The adapter has one input to connect the mask and a dual output for connection in the flight compartment or in the avionics compartment :

- . in the flight compartment the full face smoke mask connector has to be plugged-in into either crew member quick donning oxygen box after disconnection of the fixed oxygen mask.
- in the avionics compartment the connector (jack) has to be plugged-in into the FLIGHT ANTI SMOKE MASK interphone jack panel located on the left part of the nose gear well.

In case of fixed oxygen system failure, the quick donning mask can be disconnected from its oxygen supply, then connected to the portable cylinder via the oxygen adapter extension stowed in the housing near the portable cylinder.

Oxygen is then supplied as from the fixed oxygen system. The unit capability is then:

- . 10 mn of descent with 100 % oxygen.
- . 90 mn of flight continuation between 10000 and 15000 ft.

Or both.

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for training only 1PM



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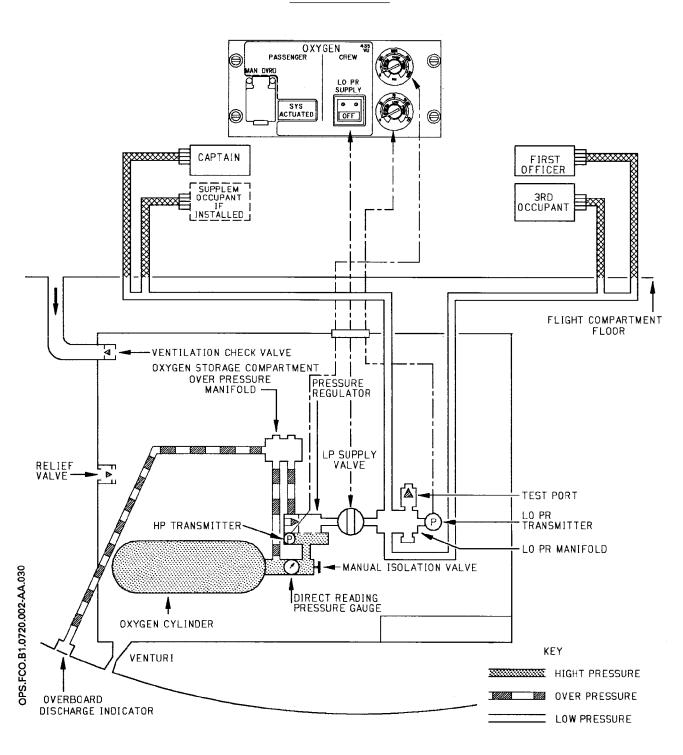
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OXYGEN SYSTEMS
SCHEMATICS

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CREW OXYGEN



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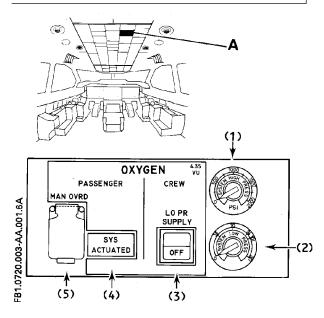
OXYGEN SYSTEMS

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CONTROLS

A. CREW/PASSENGER OXYGEN PANELS



(1) SYSTEM HIGH PRESS Indicator:

Oxygen bottle pressure is displayed in PSI. The scale is marked by a red arc from 0 to 85 PSI and by a green arc from 85 to 2,025 PSI.

(2) SYSTEM LOW PRESS Indicator:

Oxygen pressure downstream of the pressure regulator is indicated on a scale marked at 38, 70, 94, 101 PSI and by coloured arcs.

- Red arcs: from 0 to 38 PSI and from 101 to 130 PSI
- Amber arcs: from 38 to 70 PSI and from 94 to 101 PSI
- Green arc: from 70 to 94 PSI.

When the LO PR SUPPLY PB-switch is selected ON the pointer should be in the green arc.

(3) LO PR SUPPLY PB-Switch:

The PB-switch controls the low pressure supply solenoïd valve.

- **ON** (PB-switch pressed-in): The valve is opened, low pressure oxygen is supplied to the oxygen masks.
- OFF (PB-switch released-out): The valve is closed. The OFF light comes on white.

(4) SYS ACTUATED Light

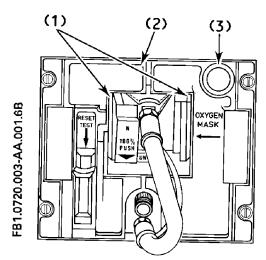
The light comes on green when oxygen generator/masks unit door opening relays are activated.

(5) MAN OVRD Pushbutton

The pushbutton is guarded in the normal position.

- Normal: Oxygen generator/masks unit doors open automatically when cabin altitude exceeds 14,000 ft (+0, -500).
- MAN OVRD: When pressed, the oxygen generator/masks unit doors open.

B. CREW OXYGEN MASK



(1) Red clips

Squeezing the red clips, unlocks to two-flap door, and authorizes harness inflation.

(2) LH flap

Opening the LH flap results in opening the supply valve by actionning the control slide.

The valve remains open when the flap is closed again. The valve can be closed by returning the mask to the stowage or moving the control slide downward.

(3) Blinker

Flashes when oxygen is flowing.

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OXYGEN SYSTEMS **CONTROLS**

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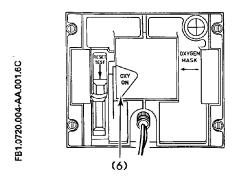
FB1.0720.004-AA.001.6A	OXYGEN MASK
-	(4)

(4) N / 100 % Selector

- 100 %: The mask delivers 100 % oxygen. The system is automatically locked in this position.
- N : The mask delivers dilued oxygen when the cabine altitude is below 35,000 ft and 100 % oxygen above 35,000 ft. This configuration is obtained by acting simultaneously UNLOCK lever and the N / 100 % selector.

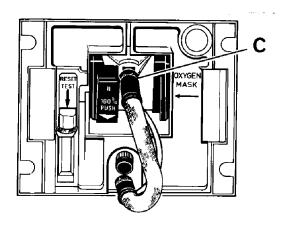


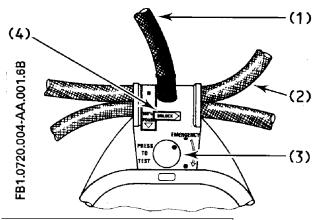
Authorizes testing of blinker operation, regulator supply, system sealing downstream of the valve, regulator sealing, and operating.



(6) OXY.ON flag

Appears on the right of the LH flap when oxygen is supplied.





C. UNDERSIDE OF REGULATOR

(1) Oxygen Supply Hose

(2) Inflation Harness

(3) EMERGENCY pressure Selector

- When pressed: a momentary overpressure is generated.
- When turned in the arrow direction: a permanent overpressure is generated.

This overpressure is lower than 3 mbars.

Note: Do not use this selector in « N » configuration due to large variations of the dilution rate.

(4) UNLOCK Lever

Locks N / 100 % lever at 100 % position. When pressed the lever is released.



OXYGEN SYSTEMS CONTROLS

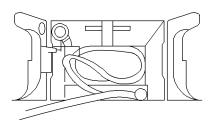
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MASK STOWAGE

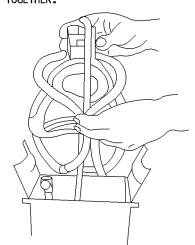
In order not to damage the mask hose, the proper stowage procedure is as follows :

- 1 COIL THE HOSE, AND PLACE IT IN THE BOTTOM OF THE STOWAGE BOX.
- 3 PLACE THE MASK IN THE STOWAGE BOX.
 MAKE SURE THE MASK REGULATOR IS
 FULLY SEATED AGAINST THE STOP IN THE
 STOWAGE BOX.

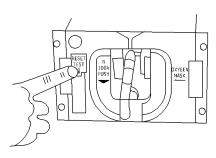




2 - POSITION THE REMAINING HOSE IN THE MIDDLE OF THE MASK. - FOLD THE TWO HARNESS PORTIONS TOGETHER.



4 - CLOSE THE DOORS, THEN
FULLY PRESS THE "RESET TEST"
BUTTON.
- ONCE THE "RESET TEST" BUTTON
IS RELEASED, CHECK THAT THE "OXY ON"
FLAG COMPLETELY DISAPPEARS.
- PRESS THE EMERGENCY PRESSURE
SELECTOR, AND CHECK THAT THE BLINKER
REMAINS BLACK.



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EMERGENCY EVACUATION DEVICES DESCRIPTION

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EVAC SIGNAL SYSTEM

An EVAC SIGNAL system is utilized for visual and audio alert in case of impending emergency evacuation of the aircraft. Warning lights are installed on the overhead panel (in the flight compartment) on the purser panel and on the attendant panels at the LH aft cabin door.

Audio signal generators are installed on the maintenance panel in the flight compartment, at the purser station and at the LH aft cabin door.

The flashing red light and horn, can be initiated from the cockpit or, if the system is armed, from the purser station

The system is powered by 28 VDC from the DC ESS BUS. EVAC SIGNAL controls are on the EVAC SIGNAL section of the overhead panel and on the purser panel.

COCKPIT EVACUATION DEVICES

Four escape lines are installed in the cockpit, two above each sliding window. They are provided for escape through the sliding windows and lowering to the ground.

The 10 m steel tapes are spooled on centrifugal roller brakes. One end of each tape is attached to the aircraft structure, the other is fitted with a grab handle. The brakes progressively reduce the descent speed of the user

to approximately 11 ft/sec.

To facilitate the evacuation of the cockpit, the cockpit/cabin door, which normally opens into the cockpit, can be forced open into the cabin.

CABIN EVACUATION DEVICES

Dual lane inflatable escape slides are installed at the four cabin doors and single lane escape slides are installed at the two emergency exit doors.

The escape slides are stowed in containers which are attached to the inboard side of each door. When the slide arming lever is in the ARMED position, the slide is connected to the floor brackets at both sides of the doors.

When subsequently the door is opened, the container opens and the slide is expelled by an ejector bag. Then automatic inflation and deployment occurs by actuation of the main CO₂ bottle. If the bottle fails to discharge automatically, it can be actuated manually.

The main ${\rm CO_2}$ bottle pressure is indicated on a pressure indicator, visible through a window in the container.

To prevent inadvertent slide deployment a warning system is fitted. If an attempt is made to open any door or emergency exit (on that door), the slide armed warning light flashes red and the buzzer emits a high intermittent tone.

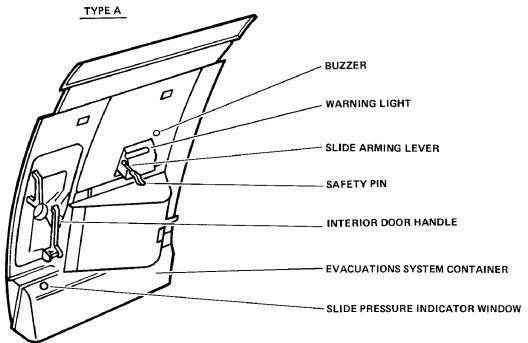
FLIGHT CREW OPERATING MANUAL

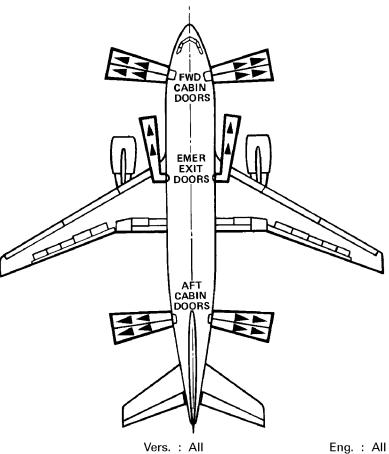
EMERGENCY EQUIPMENT

EMERGENCY EVACUATION DEVICES SCHEMATICS

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PASSENGER CABIN EVACUATION



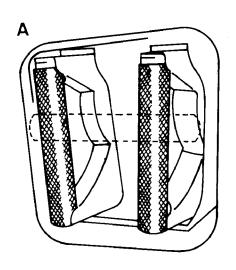


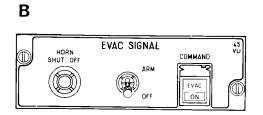


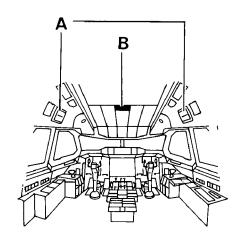
EMERGENCY EVACUATION DEVICES
CONTROLS

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LOCATION OF CONTROLS

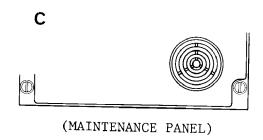






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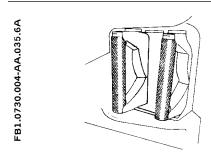




EMERGENCY EVACUATION DEVICES CONTROLS

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A. EVACUATION DEVICES HANDLES

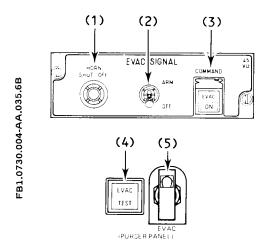


The handles are guarded by a removal cover.

Any handle can be used for emergency evacuation through either sliding window and subsequent lowering to the ground.

For escape grasp the handle with one hand, back out of the open sliding window holding the rear frame member with the other hand then, with both hands holding the handle, jump clear of the fuselage.

B. EVAC SIGNAL PANEL



The EVAC controls on the purser panel is interconnected with the EVAC SIGNAL panel, in the cockpit.

(1) HORN SHUT OFF Pushbutton

When pressed, the audio warning in the cockpit is silenced, EVAC light continues to flash.

(2) EVAC SIGNAL Switch

- ARM :

Evacuation signal can be activated from cockpit or from the purser panel.

OFF

Evacuation signal can only be activated from the cockpit.

(3) COMMAND pb-Switch

- Normal : (pb released out) No evacuation signal.
- EVAC: (pb released out the light flashes red)
 Evacuation signal has been activated from the purser panel.
- ON: (pb pressed)
 The light illuminates.
 The EVAC light flashes red.
 Evacuation signal has been activated from the cockpit.

(4) EVAC TEST Pushbutton (purser panel)

the light flashes red when

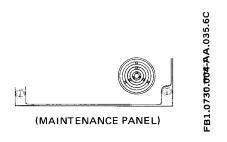
- the pushbutton is pressed for bulb test.
- or the evacuation signal is activated from the cockpit or the purser panel.

(5) EVAC Switch (purser panel)

If the EVAC SIGNAL selector is selected ARM: When selected ON, the evacuation signal is activated.

If the EVAC SIGNAL selector is selected OFF: When selected ON, an audio warning (buzzer) is activated in the cockpit.

C. AUDIO SIGNAL GENERATOR



Activated from the cockpit COMMAND pb switch or from the purser panel.

Mod.: 2994 + 4803

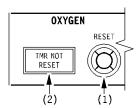


MAINTENANCE PANEL CONTROLS

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A. OXYGEN PANEL

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(1) RESET Pushbutton

When pressed, the control circuit is rearmed. TIMER NOT RESET and SYS ACTUATED lights extinguish and PA relay is de-energized.

(2) TIMER NOT RESET Light

The light comes on blue 30 seconds after oxygen generator/masks unit door opening relays have been activated (automatically or manually).