

**LIGHTING
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GENERAL

The airplane is equipped with a suite of lighting systems covering the direct and indirect illumination of the flight compartment and airplane exterior.

The general airplane lighting includes:

- Flight Compartment Lighting – Internal lighting is used in the flight compartment for flight instrumentation and general lighting.
- Passenger Compartment Lighting – Lighting systems for the passenger cabin are not provided, except for the main entrance.
- External Lighting – External lighting in the form of landing, taxi and airplane identification are used.
- Service and Maintenance Lighting – Lighting is available to service areas to assist maintenance personnel, in their airplane checks and inspections.
- Emergency Lighting – Lighting is provided to permit airplane occupants to safely move away from the airplane in an emergency situation.

FLIGHT COMPARTMENT LIGHTING

Controls for the flight compartment are located on two panels in the centre pedestal. One panel controls the flight compartment flood and display lighting, while the other controls the integral and miscellaneous lighting.

There are two types of integral lighting in the flight compartment; electroluminescent (EL) lighting and incandescent lighting. All instrument panels are provided with integral legend/edge lighting. The instrument panels are grouped in an area, with each one having its dedicated dimming control.

The electrical power to the integral lighting system is through an ON/OFF or AUTO mode selection of a MASTER switch. When in AUTO mode, to increase the life of the lighting elements (example: daylight or high cockpit light conditions) the system will be turned on or off automatically. This is accomplished through a light sensor circuit, which is dependent upon the ambient lighting conditions in the flight compartment.

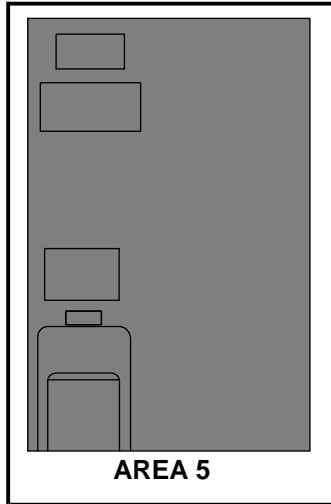
CRT display, fluorescent flood, integral instrument and instrument panel lights provide instrument lighting. A LAMP TEST is provided to test the indicator lights, using the electrical management system.

The flight compartment lighting includes the following:

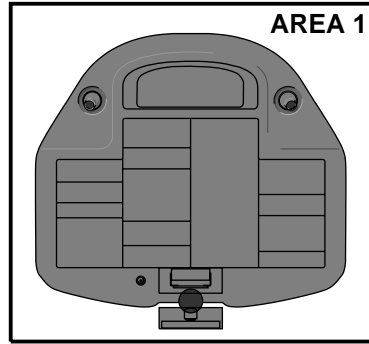
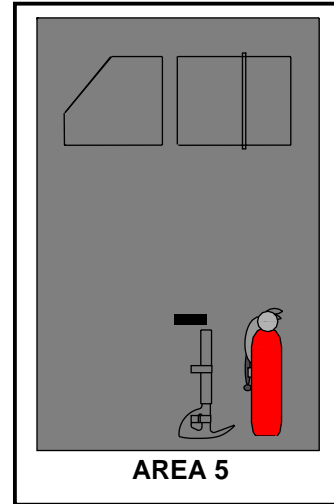
- Flight compartment flood lights.
- Flight compartment floor lights.
- Flight compartment area lights.
- Map lights.
- Flight compartment panels integral lighting.
- Flight compartment flashlights.
- Orientation light.

FLIGHT COMPARTMENT INTEGRAL LIGHTING AREAS

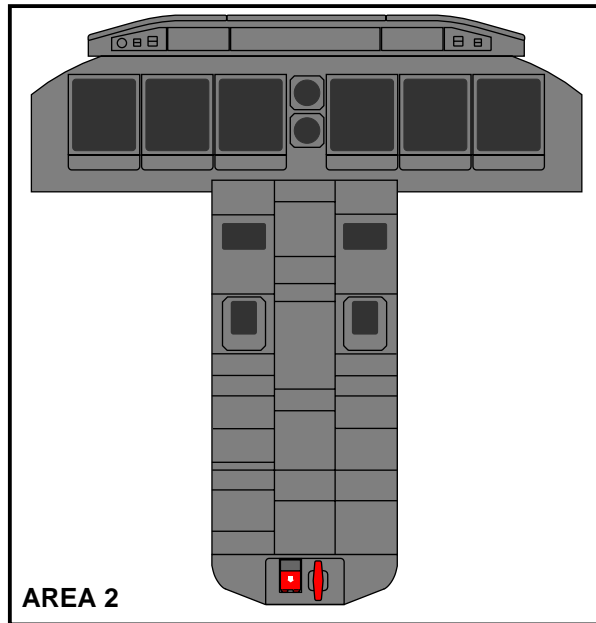
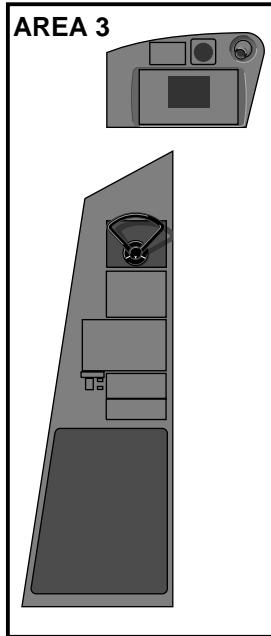
LEFT SIDE (BULKHEAD)



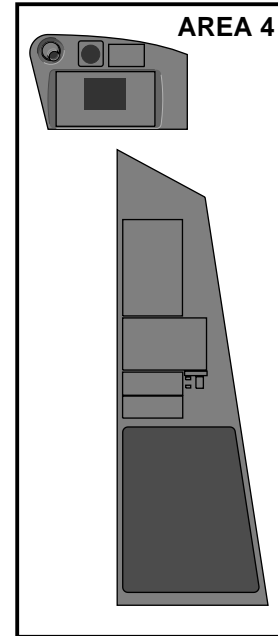
RIGHT SIDE (BULKHEAD)



AREA 3



AREA 4



AREA 1 – OVERHEAD PANEL – Electroluminescent lighting (EL).

AREA 2 – CENTRE INSTRUMENT PANEL AND PEDESTAL – Mixed lighting; half EL lighting and half incandescent.

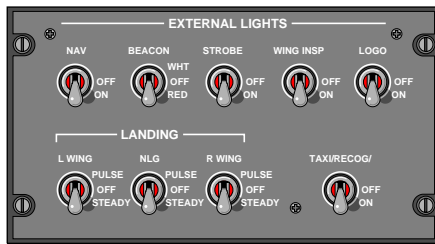
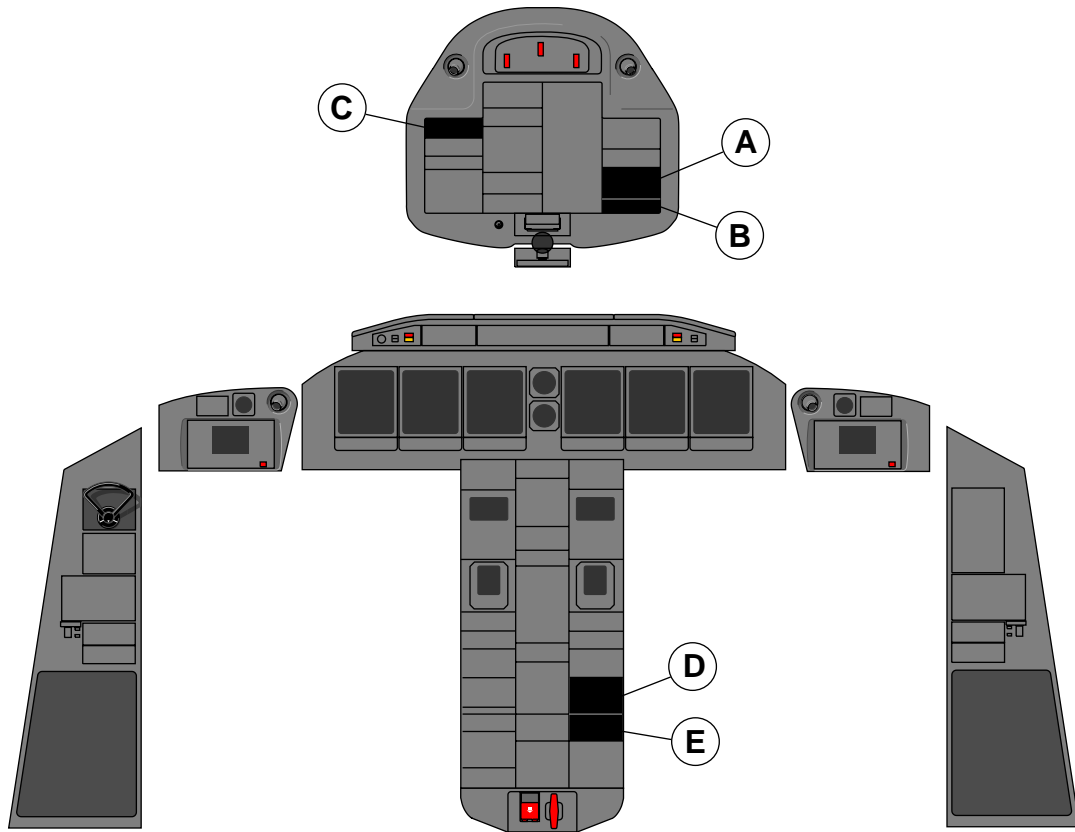
AREA 3 – LEFT SIDE CONSOLE (Pilot) – Incandescent lighting.

AREA 4 – RIGHT SIDE CONSOLE (Copilot) – Incandescent lighting.

AREA 5 – CIRCUIT BREAKER/MISCELLANEOUS PANELS – Electroluminescent lighting.

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FLIGHT COMPARTMENT LIGHTING PANELS



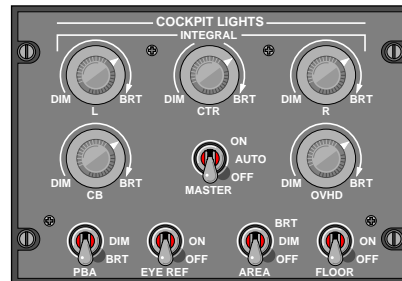
A EXTERNAL LIGHTING



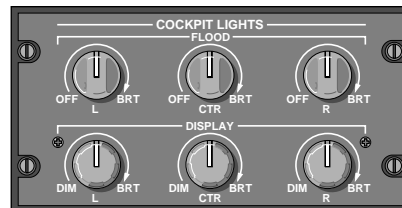
B PASSENGER SIGNS/
EMERGENCY LIGHTS



C LIGHT SENSOR - ELT



D COCKPIT LIGHTS
INTEGRAL/MISC

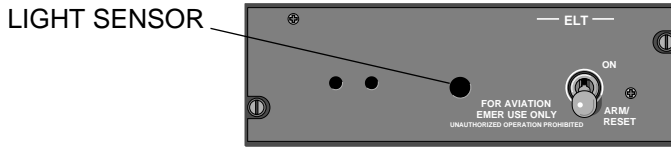


E COCKPIT LIGHTS
FLOOD/DISPLAY

FGF1610_003

INTEGRAL LIGHTING

There are two types of integral lighting in the flight compartment: electroluminescent lighting consisting of an assembly layered within the panel powered by AC and incandescent lighting which is a bulb type lighting and can be AC or DC powered. The integral lighting is divided into five control areas as described in the Flight Compartment Light Panels illustration. A sensor is provided on the LIGHT SENSOR/ELT panel in the flight compartment, to turn the integral lighting system on/off for day/night lighting requirements.



LIGHT SENSOR - ELT PANEL

EGF1610_002

COCKPIT LIGHTS FLOOD/DISPLAY PANEL

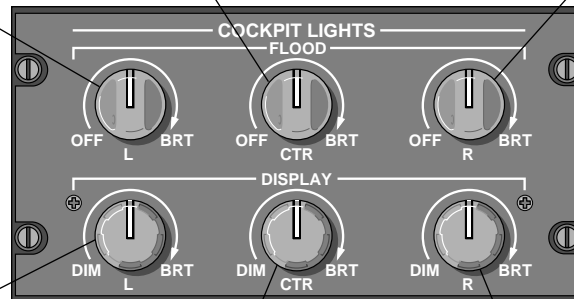
All flood/display lighting is activated by rotary control knobs located on the COCKPIT LIGHTS FLOOD/DISPLAY control panel in the centre pedestal. The panel includes rotary control knobs for the following areas:

- Pilot instrument flood light and display lights.
- Copilot instrument flood light and display lights.
- Centre instrument flood lights and display panels.

L FLOOD Control
OFF/BRT – Controls the OFF selection and intensity (BRT) of the left hand instrument panel flood light on the pilot side panel.

CTR FLOOD Control
OFF/BRT – Controls the OFF selection and intensity (BRT) of the centre instrument panel flood lights.

R FLOOD Control
OFF/BRT – Controls the OFF selection and intensity (BRT) of the right hand instrument panel flood light on the copilot side panel.



L DISPLAY Control
DIM/BRT – Controls the intensity of the pilot instrument (primary flight and multi-functional) displays.

CTR DISPLAY Control
DIM/BRT – Controls the intensity of the centre instrument (EICAS and system) displays.

R DISPLAY Control
DIM/BRT – Controls the intensity of the copilot instrument (primary flight and multi-functional) displays.

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COCKPIT LIGHTS FLOOD/DISPLAY PANEL (CONT'D)

Flight Compartment Flood Lights

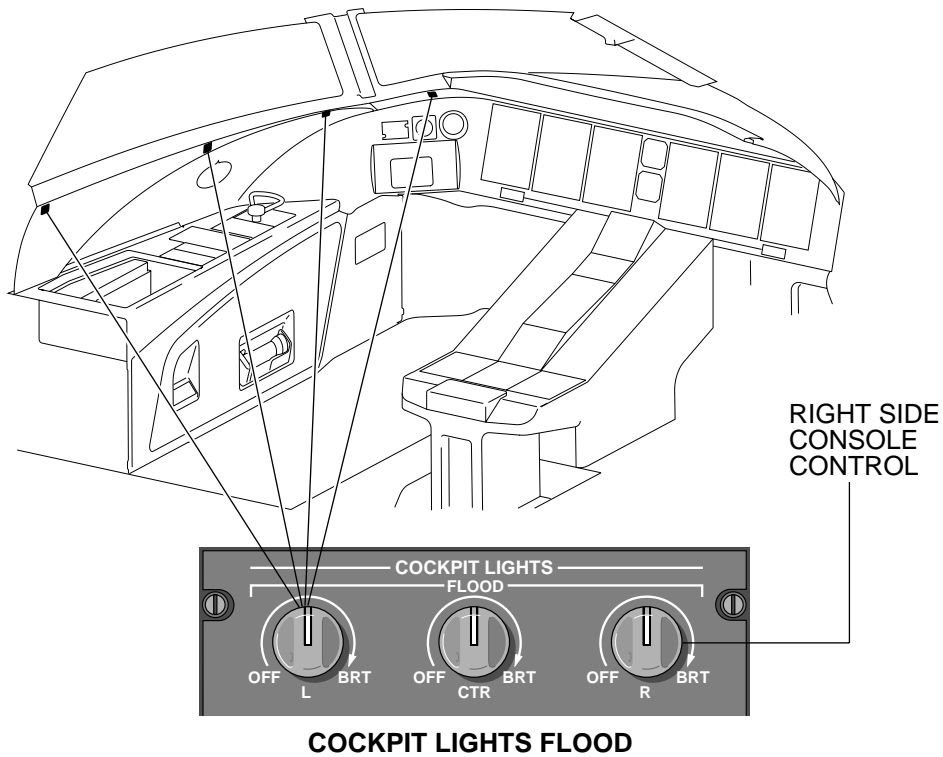
Flood lights are installed at both crew stations for general illumination of the instruments.

The flight compartment flood lights comprise: four LH and four RH side console instrument panel lights and two centre instrument panel lights.

Dimming and off control of the lights is provided to the left, right and centre areas of the flight compartment using a single OFF/BRT rotary control knob for each area. The rotary control knobs are located on the COCKPIT LIGHTS FLOOD/DISPLAY control panel in the centre pedestal. Variable controls enable the lights to change intensity gradually from off, to full bright.

Display Lighting

Display lighting is provided for illumination of the pilot, copilot and centre instrument panels. Refer to next page for additional cockpit lights flood display, locations and control. The L and R DISPLAY knobs control the Primary Flight Displays (PFDs) and the Multi-Functional Displays (MFDs) for the pilot and copilot respectively.

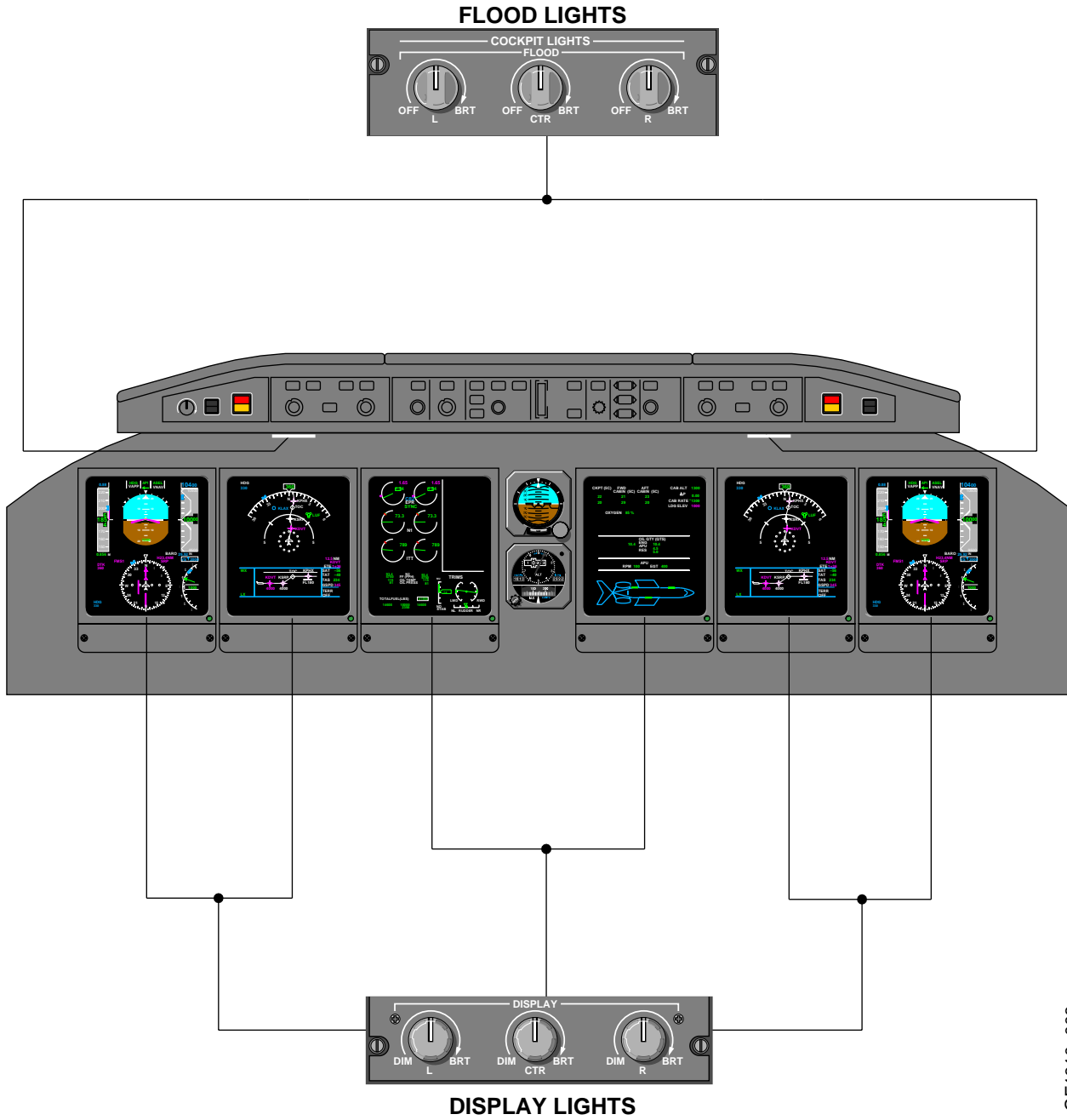


GF1610_005

- The CTR DISPLAY controls the EICAS primary display and the system display. This illumination is provided through a single DIM/BRT rotary control knob.

LIGHTING

COCKPIT LIGHTS FLOOD/DISPLAY SCHEMATIC

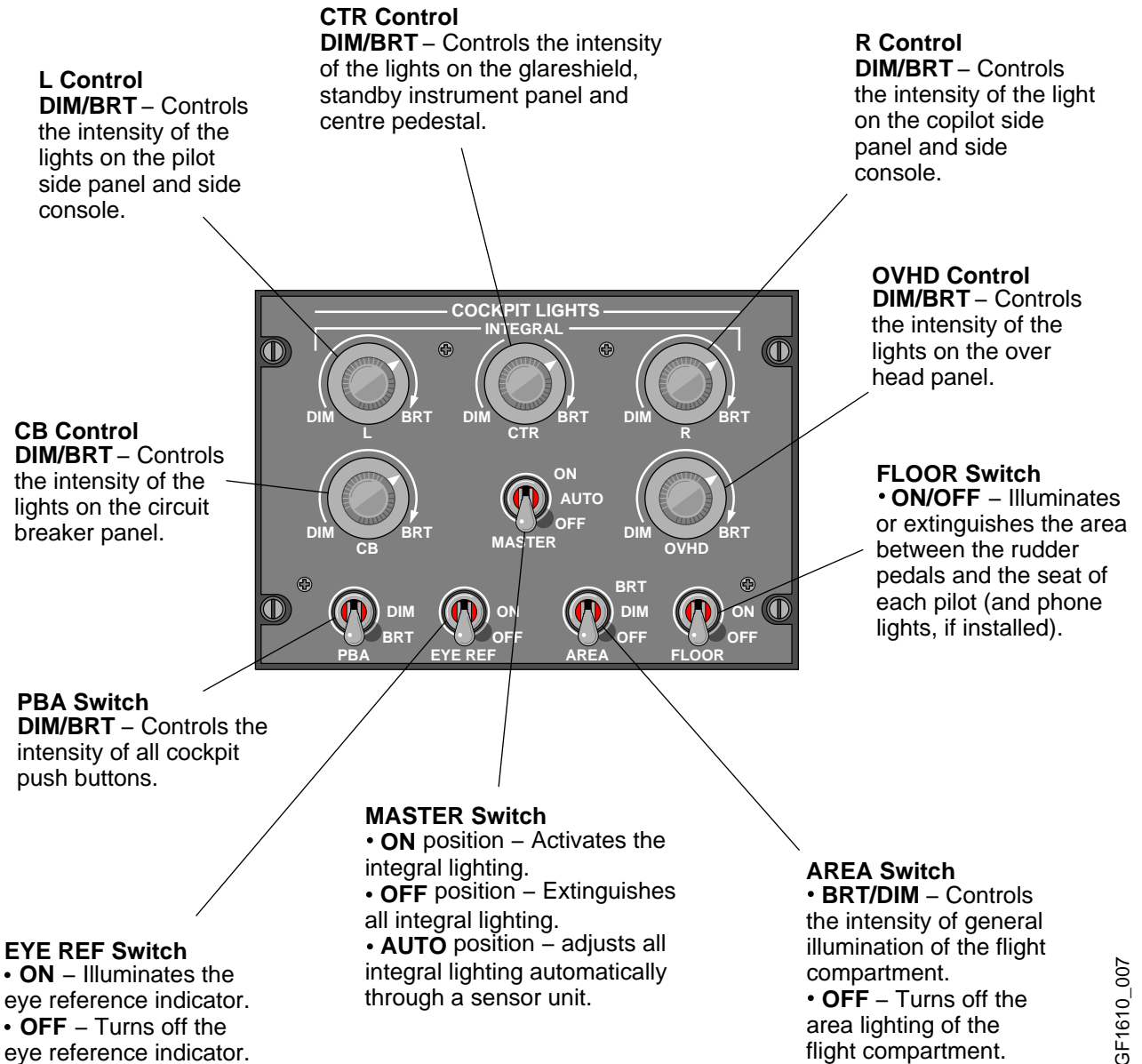


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COCKPIT LIGHTS INTEGRAL/MISC PANEL

The integral instrument and miscellaneous panel lighting is controlled by rotary control knobs and switches located on the COCKPIT LIGHTS INTEGRAL/MISC control panel in the centre pedestal. The panel includes control for the following areas:

- Pilot side panel and console.
- Copilot side panel and console.
- Circuit breaker panel, overhead panel, push button annunciators, eye reference lights, flight compartment area and floor lighting.
- Automatic adjustment of integral lighting (MASTER switch).

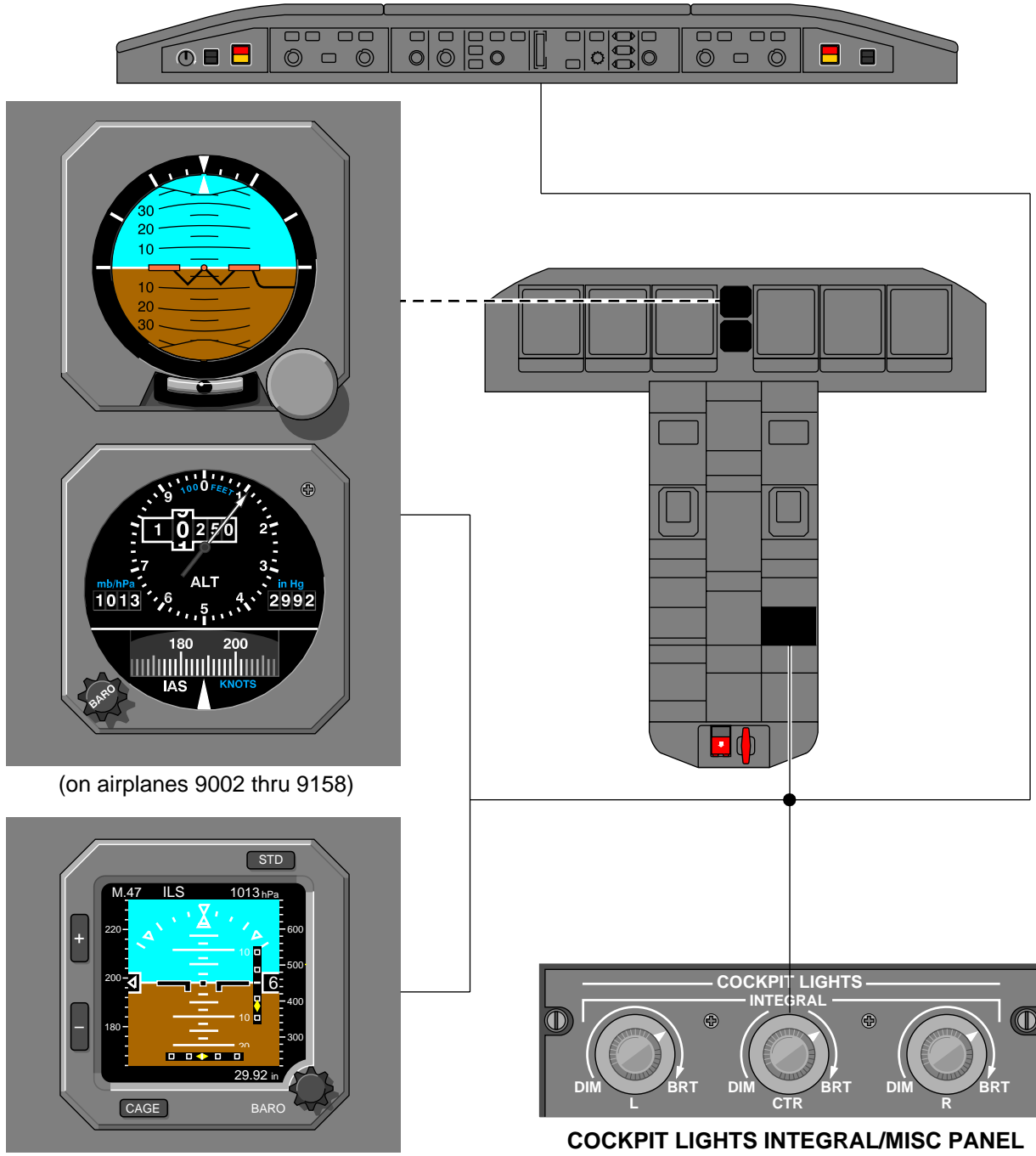


GF1610_007

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Glareshield and Standby Instrument Lights

The standby instrument lights are powered from the avionics battery bus whenever normal DC power is lost. The standby instrument and glareshield lights are controlled by the integral “CTR” switch on the COCKPIT LIGHTS INTEGRAL/MISC panel.



(on airplanes 9002 thru 9158)

(on airplanes 9159 and subsequent)

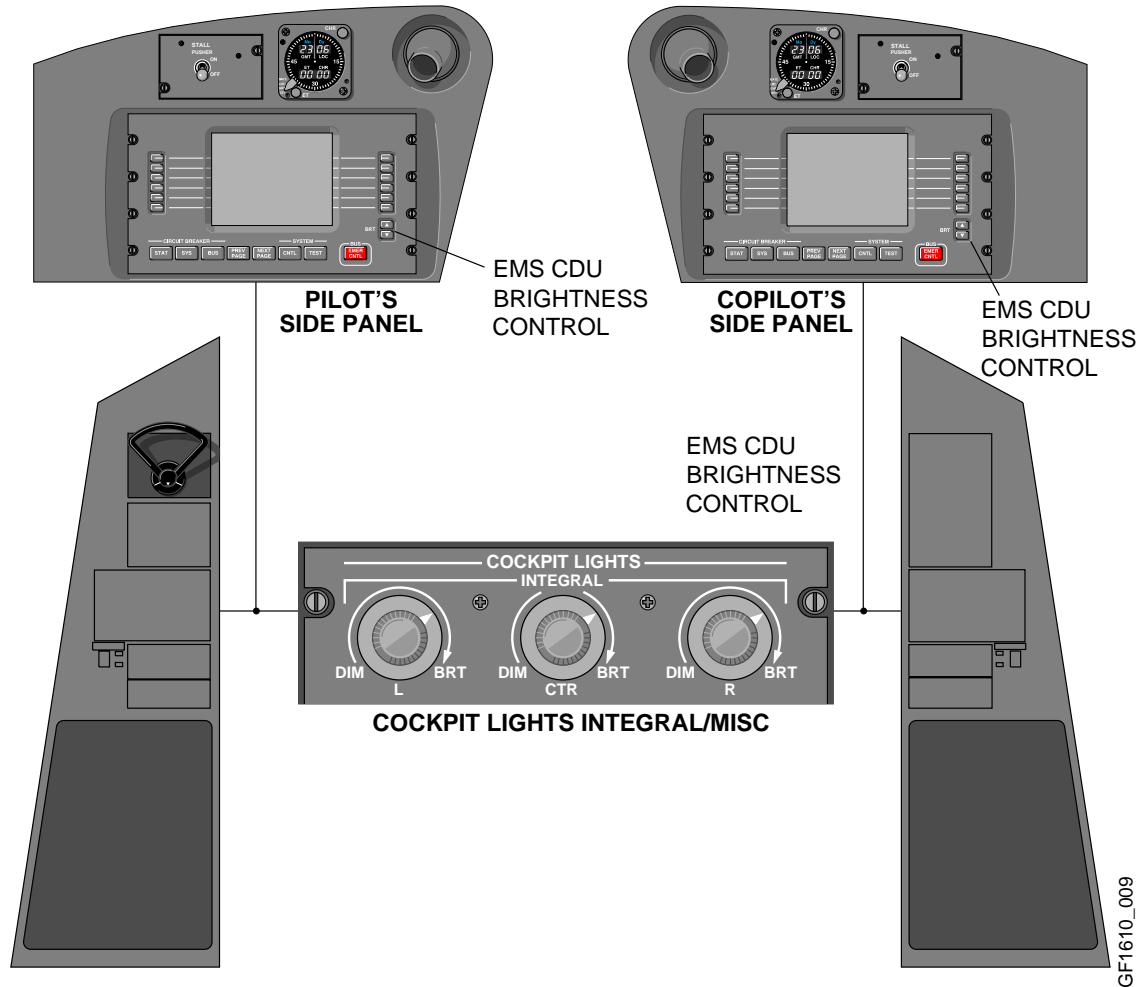
COCKPIT LIGHTS INTEGRAL/MISC PANEL

GF1610_008a

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Pilot/Copilot Side Panel Lighting

The pilot and copilot side panels are controlled by L or R “DIM” and “BRT” rotary control knobs on the COCKPIT LIGHTS INTEGRAL/MISC panel. Brightness display is available on each EMS/CDU.



GF1610_009

Integral Lighting Master Control

The electrical power to the integral lighting shall be controlled by the MASTER switch on the COCKPIT LIGHTS INTEGRAL/MISC panel in the centre pedestal. The integral lighting system can be turned ON/OFF or switched to AUTO mode through the MASTER switch. When in AUTO, to increase the life of the lighting elements, the system shall be turned on/off through a light sensor circuit depending on the ambient lighting conditions in the flight compartment.



MASTER Switch

- **ON** position – Activates the integral lighting.
- **AUTO** position – adjusts all integral lighting automatically through a sensor unit.
- **OFF** position – Extinguishes all integral lighting.

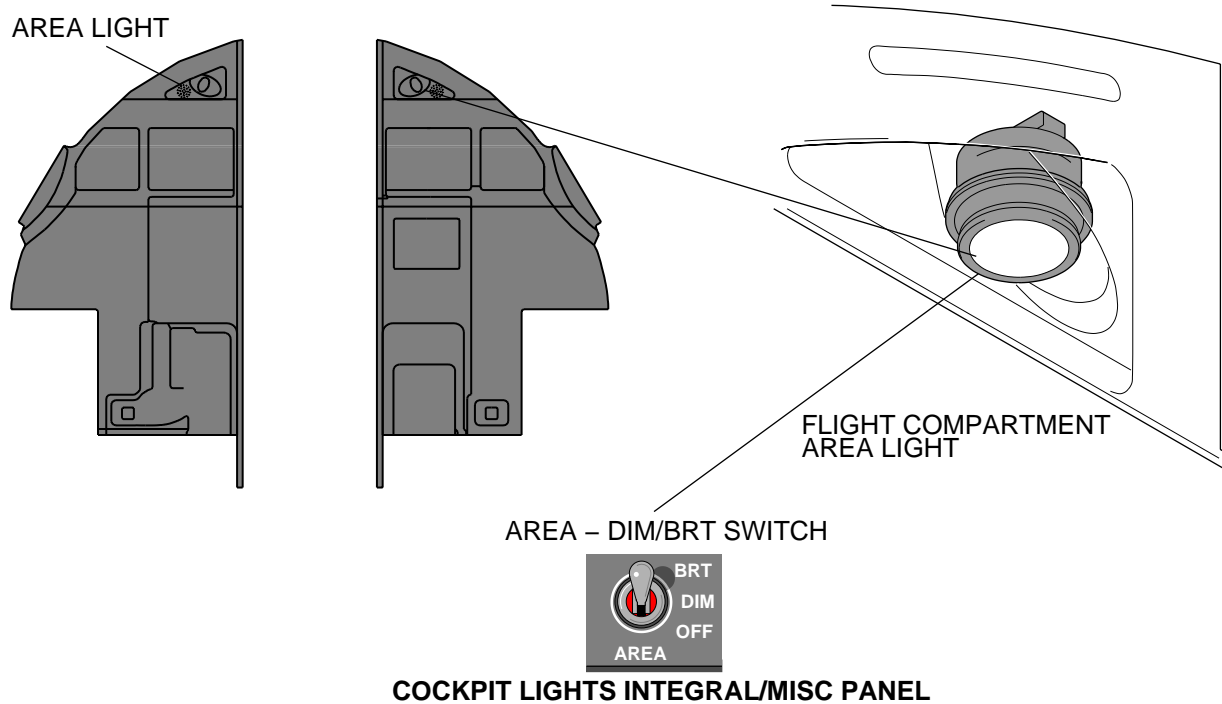
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COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Cockpit Area Lights

Two area lights are provided for general illumination of the flight compartment and controlled by a single switch OFF/DIM/BRT control located on the COCKPIT LIGHTS INTEGRAL/MISC control panel, in the centre pedestal.

The area lights receive 28 VDC from the Avionics Battery Direct Bus when the AREA OFF/DIM/BRT switch on the COCKPIT LIGHTS INTEGRAL/MISC control panel is activated. Therefore, with no power on the airplane (BATT MASTER SWITCH OFF), the area light may drain the AVIONICS BATTERY if left on after flight termination.

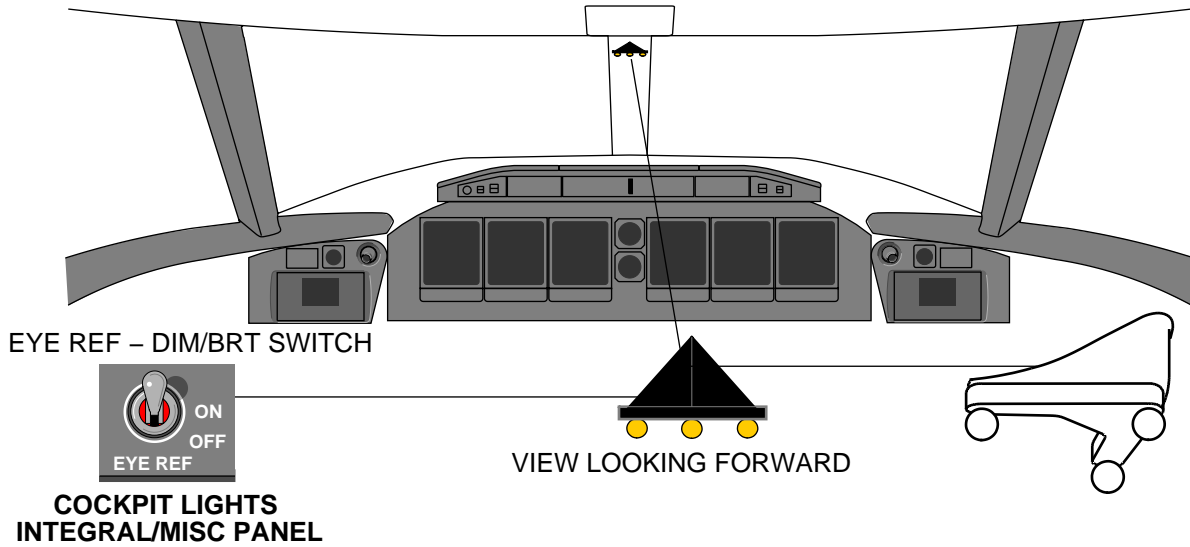


GF1610_010

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Eye Reference Light

An eye reference light provides the pilot(s) orientation for optimal seat position. This illumination is provided by a single ON/OFF switch located on the COCKPIT LIGHTS INTEGRAL/MISC control panel.

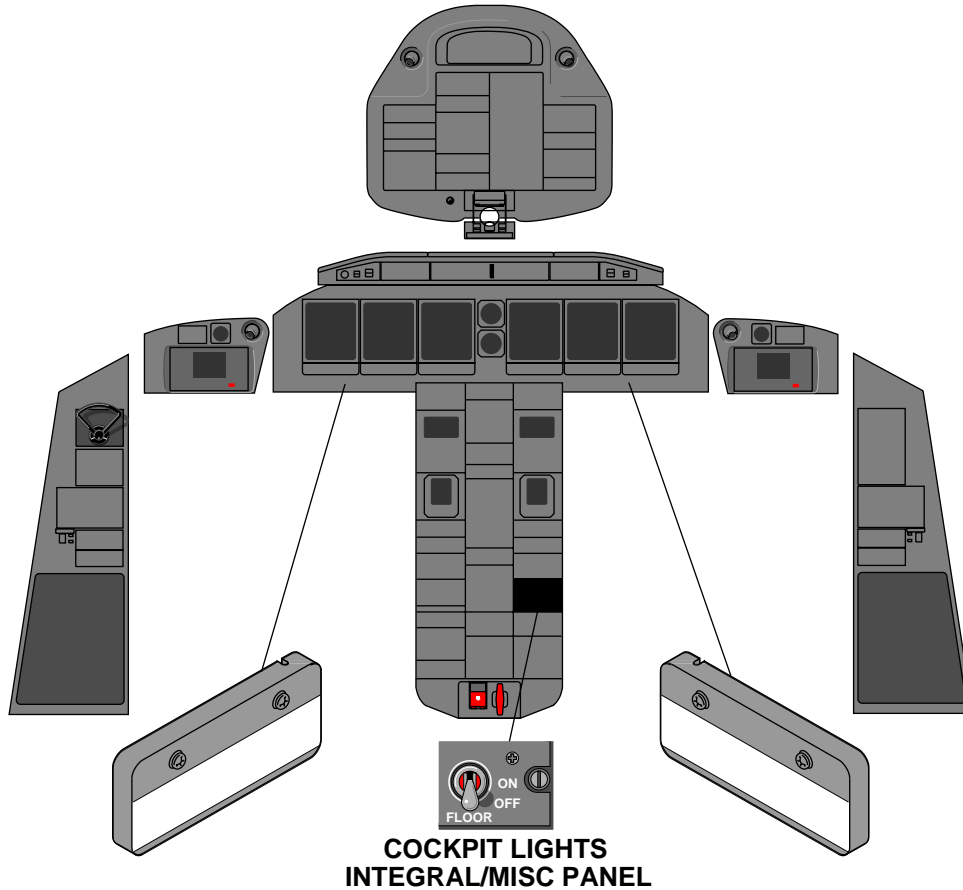


GF1610_011

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Flight Compartment Floor Lights

The floor lights illuminate the area between the rudder pedals and the seat of each pilot. To illuminate these areas, a single on/off control switch is located on the COCKPIT LIGHTS INTEGRAL/MISC control panel, in the centre pedestal.



GF1610_012

Push Button Annunciator Lights

The push button annunciator lights illuminate all cockpit push buttons. This illumination is provided with a single switch DIM/BRT control located on the COCKPIT LIGHTS INTEGRAL/MISC control panel, in the centre pedestal.



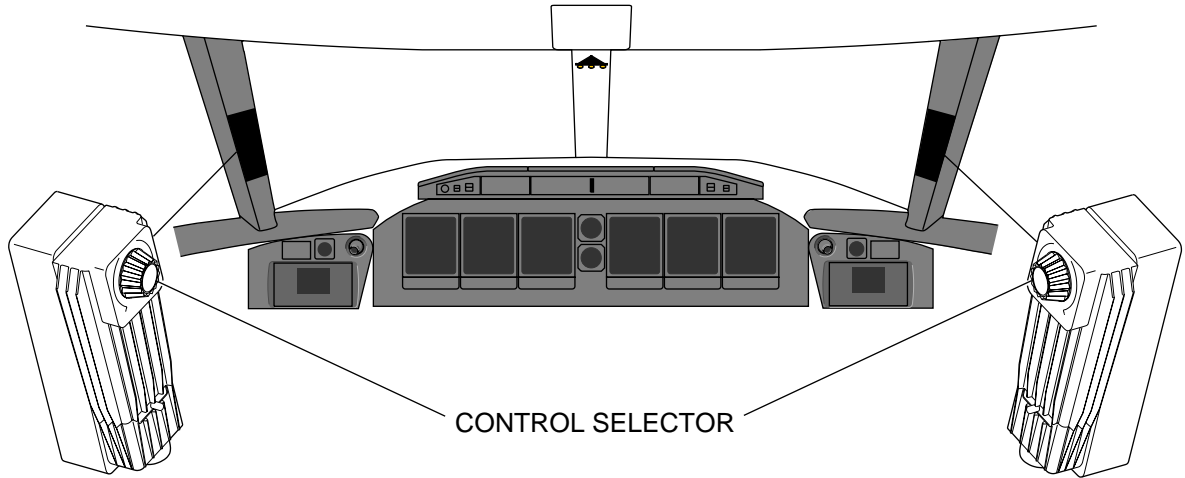
COCKPIT LIGHTS INTEGRAL/MISC PANEL

GF1610_013

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Map Reading Lights

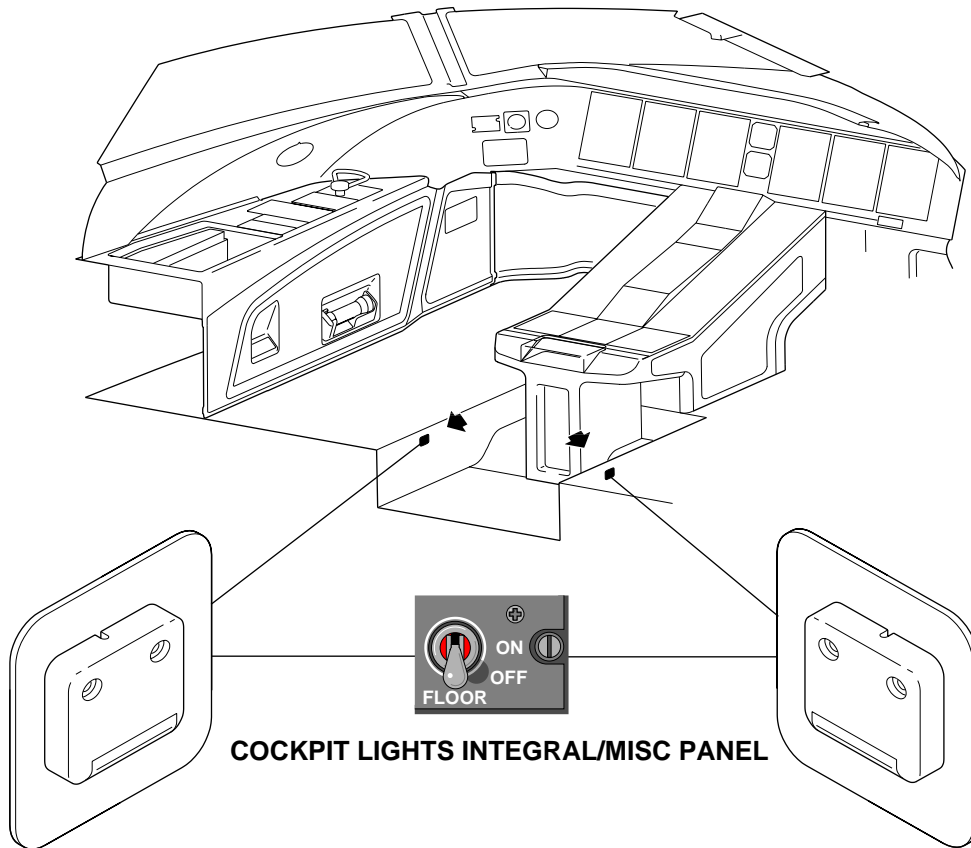
Each crew member (pilot and copilot) position is provided with a map reading light. These lights swivel and include on/off and dimming capabilities.



GF1610_014

Cockpit Phone Lights

Two phone lights are controlled by the FLOOR switch on the COCKPIT LIGHTS INTEGRAL/MISC PANEL of the centre pedestal. Turning on the floor lights will automatically illuminate the phone lights.

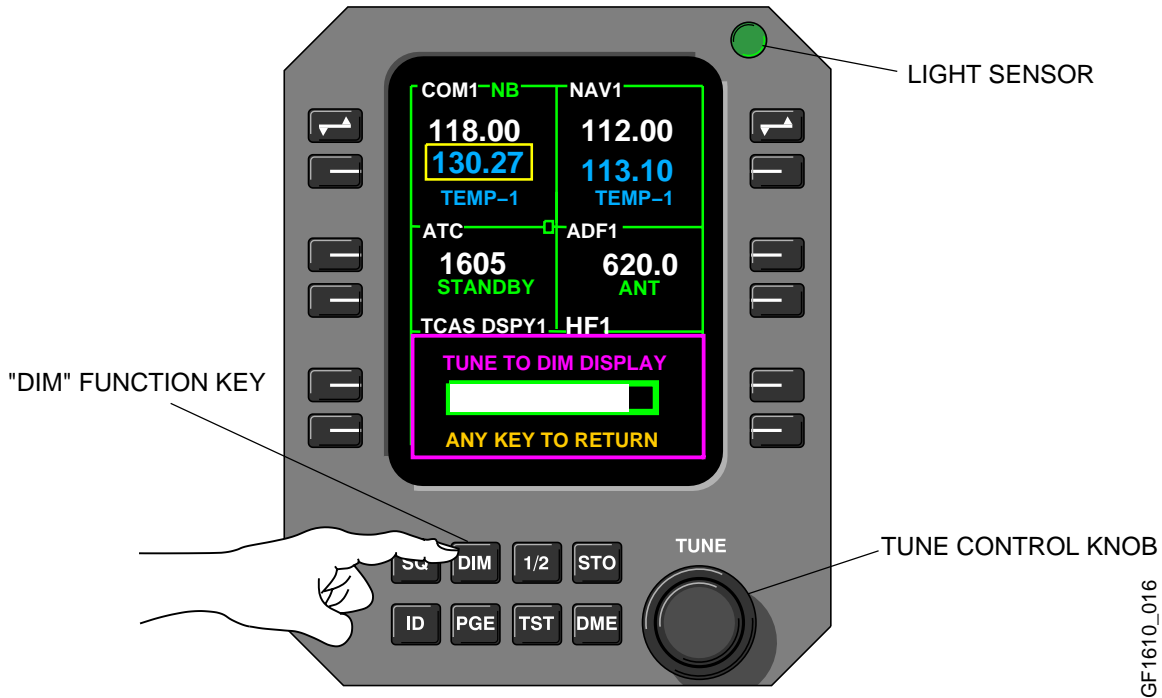


GF1610_015

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Radio Management Unit (RMU) Display Dimming

The RMU brightness display will appear when the “DIM” function key is selected. Pressing the “DIM” function key connects the RMU brightness control to the “TUNE” control knob allowing the display to be adjusted to match overall flight compartment brightness.



The “TUNE” control knob returns to normal operation when any function or line select key is selected. Setting display brightness provides the bezel mounted light sensor with the pilot’s desired reference about which they adjust the brightness for varying lighting conditions.

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Flight Management Unit (FMS) Display Lighting

Both the manual and automatic (photo sensor) brightness controls are used to increase or decrease the display brightness. The brightness knob manually adjusts the brightness. After the adjustment is made, the photo sensors monitor the ambient light and maintain the brightness level over various lighting conditions.



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COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

LASERTRACK IV Navigation Display Unit

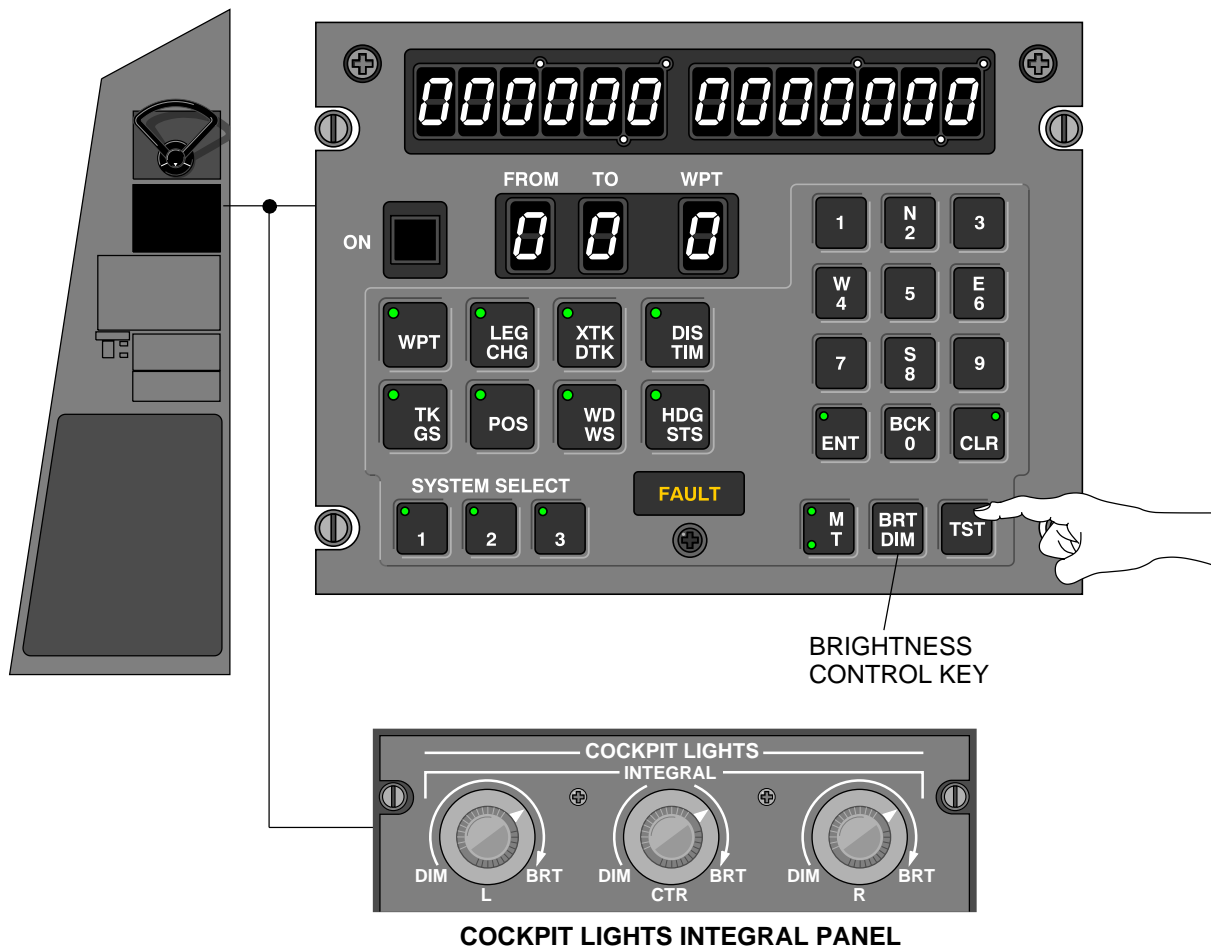
The LASERTRACK Navigation Display Unit (NDU) is located on the pilot's side panel. The display unit's lighting control is from the left bright dim control on the COCKPIT LIGHTS INTEGRAL panel.

The bright/dim **BRT DIM** key is used to control the lighting of the Navigation Display Unit (NDU) display. When first pressed and held, the display intensity increases until the brightest level is reached. When pressed and held a second time, the display intensity decreases until the dimmest level is reached.

The test **TST** key is used to initiate a test of all NDU annunciators, cue lights and display.

NOTE

During test the NDU annunciators and cue lights come on sequentially.

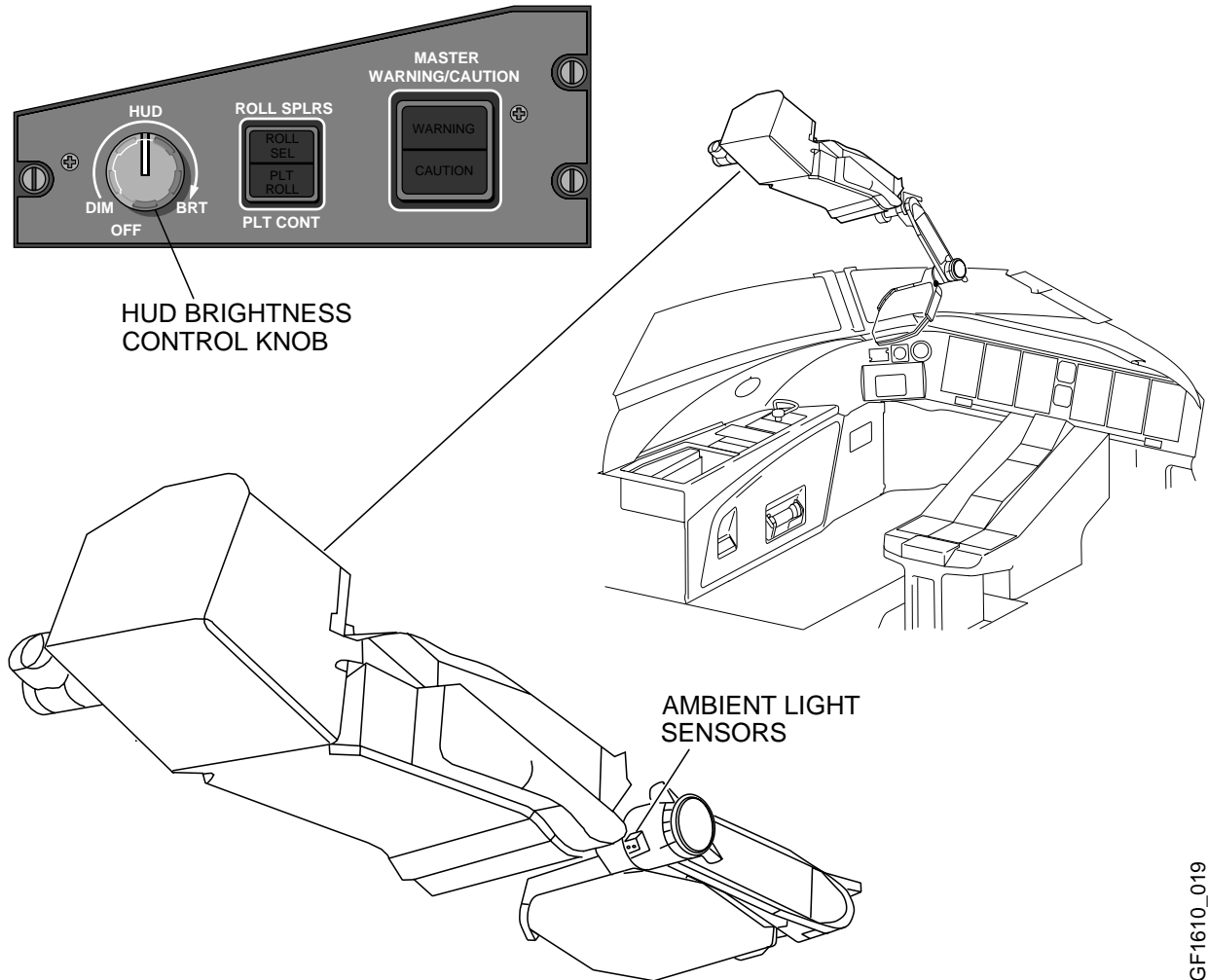


GF1610_018

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

Heads-Up Guidance Display Lighting

The heads-up guidance system has a brightness control knob located on the glareshield (pilot's side), and ambient sensors (overhead HGS) which adjust the brightness for varying lighting conditions.



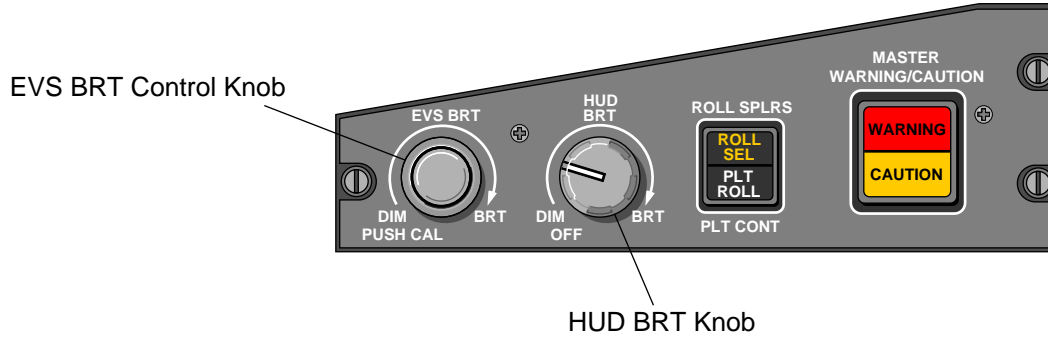
GF1610_019

The brightness rotary knob allows the display to be adjusted manually to match overall flight compartment brightness. After the adjustment is made, the ambient sensors monitor the ambient light and maintain the brightness level over various lighting conditions.

COCKPIT LIGHTS INTEGRAL/MISC PANEL (CONT'D)

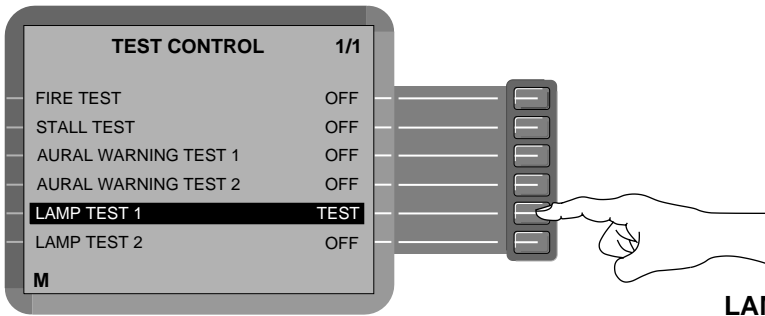
Enhanced Vision System (EVS) IF INSTALLED

The EVS has a brightness control knob located on the glareshield (pilot's side). For more information, refer to chapter 11 Flight Instruments.

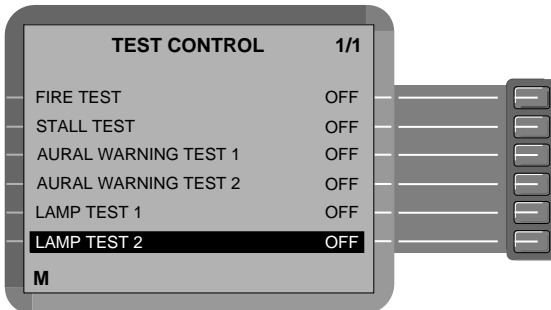


GF1610_053

LAMP TEST



After 20 seconds

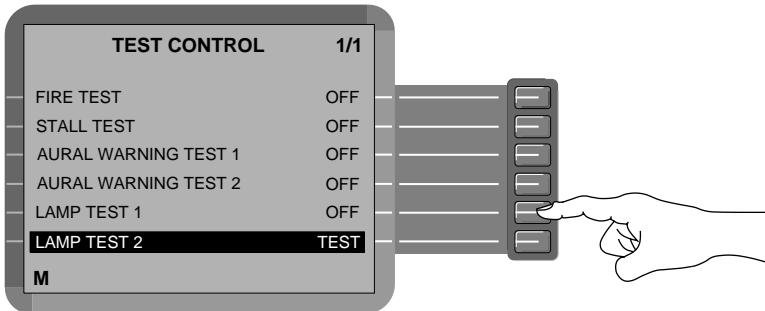


LAMP TEST:

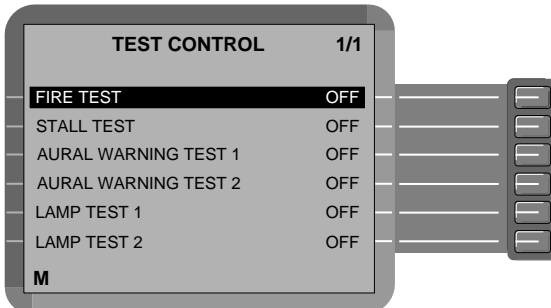
(duration approximately 20 seconds for each test)

Press the LAMP TEST 1 (2) activation button and note the following:

- All Overhead push button annunciators illuminate.
- Pedestal panel lights illuminates.



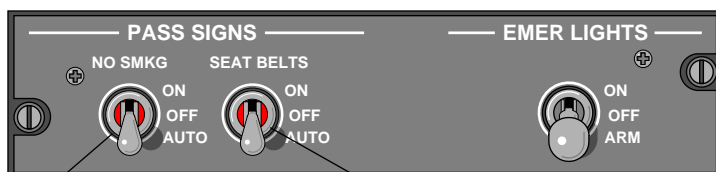
After 20 seconds



GF1610_020a

PASSENGER SIGNS/EMERGENCY LIGHTS PANEL

The PASS SIGNS switches for the no smoking and seat belts are located on the PASS SIGNS/EMER LTS panel.



NO SMKG SWITCH

- **ON** – Turns on all no smoking signs.
- **OFF** – Turns off all no smoking signs.
- **AUTO** – NO SMKG switch will activate the no smoking lights automatically, when landing gear down or when cabin alt exceeds 8000 ft.

SEAT BLTS SWITCH

- **ON** – Turns on all seat belt signs.
- **OFF** – Turns off all seat belt signs.
- **AUTO** – SEAT BLTS switch will activate the seat belt lights automatically, when slats/flaps not in zero degree position or when cabin alt exceeds 8000 ft.

GF1610_021a

Passenger Signs

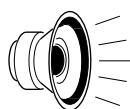
The NO SMKG and SEAT BLTS control switches are located on the overhead panel in the flight compartment. The control panel has three position (ON/OFF/AUTO) switches. When either switch is turned ON, light for the no smoking or seat belt symbol illuminates.

When the NO SMKG switch is set to AUTO, the no smoking lights in the cabin illuminate automatically when the landing gear is selected down or when cabin depressurization occurs (cabin altitude greater than 8,000 ft).

When the SEAT BLTS switch is set to AUTO, the seat belt symbol in the cabin illuminates automatically when the landing gear is selected down or the slats/flaps are not in the zero degree position or when cabin depressurization occurs (cabin altitude greater than 8,000 ft).

Passenger Signs Electronic Chime

The chime will sound when the system operates automatically or if either the NO SMKG or SEAT BLTS switch is selected to the ON position.



PAX SIGNS
ELECTRONIC
CHIME



GF1610_022

PASSENGER LIGHTING SYSTEM

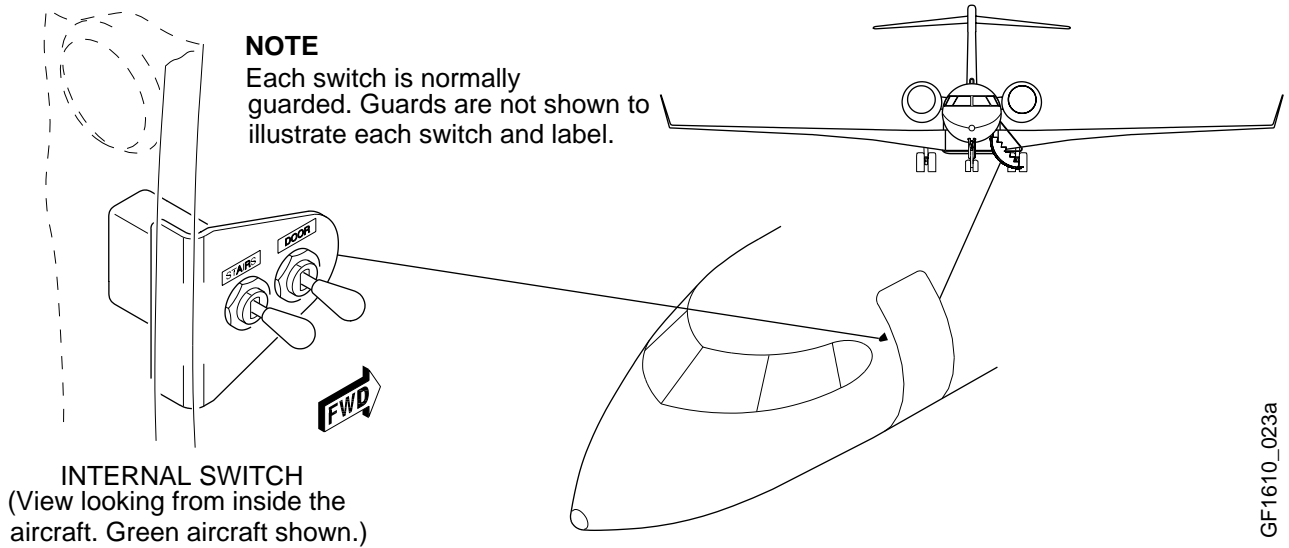
Lighting is provided to illuminate the stairs which are part of the main passenger door, when entering or exiting the airplane. The door stair lighting includes:

- Door stair lights (each step).
- Two stair ground lights (lower step).
- Passenger door rear light (if installed).

PASSENGER LIGHTING SYSTEM (CONT'D)

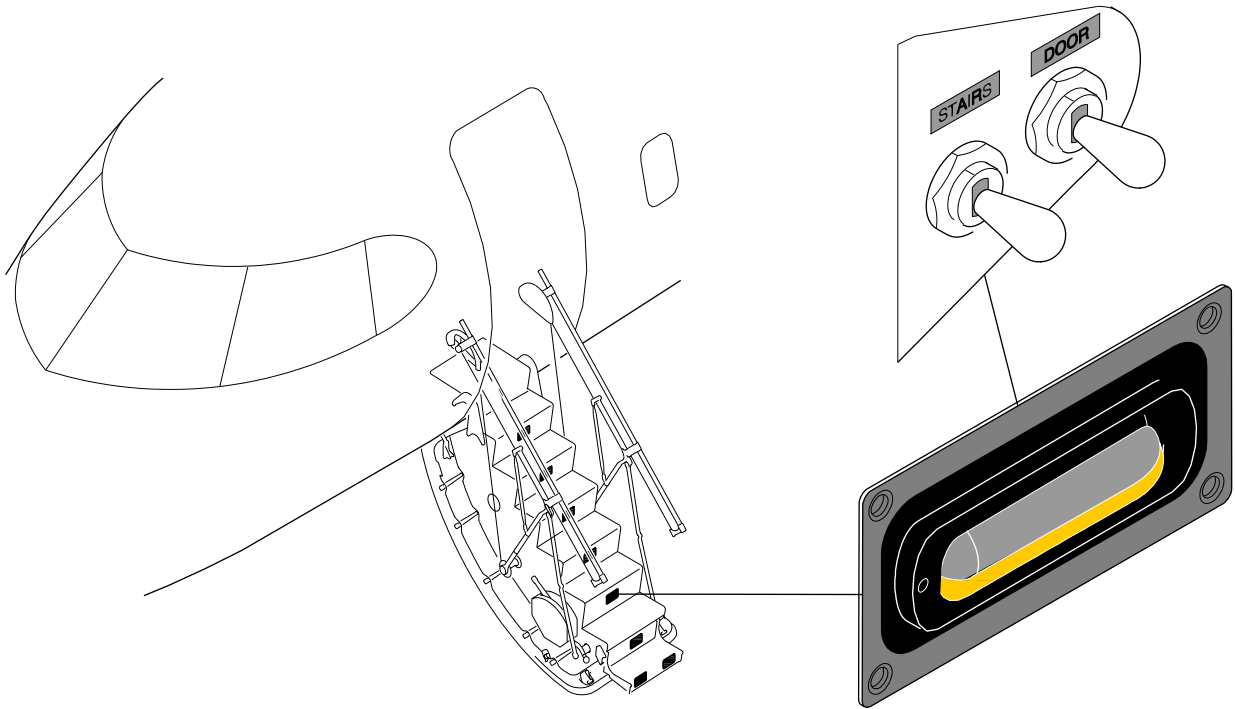
Passenger/Crew Entrance Stair Lights

Entrance area lighting is provided to illuminate the stairs and area in front of the passenger door. Lighting for the entrance area is provided by door stair lights. Each door stair light is installed in the vertical part of the step. The lower folding step contains two door stair lights to supply light to the area in front of the passenger door.



GF1610_023a

The stair lighting is controlled on and off by the “STAIRS” lights switch installed internally adjacent to the main passenger door.



GF1610_024

PASSENGER LIGHTING SYSTEM (CONT'D)

Passenger/Crew Entrance Stair Lights (Cont'd)

The stair lights receive power when the passenger door "STAIRS" light switch is selected ON and the passenger door is open. The door open signal is received from a switch located on the door assembly. The "DOOR" switch is installed next to the "STAIRS" lights switch (both normally guarded) and closing the door automatically shuts off the stair lighting.

SERVICE AND MAINTENANCE LIGHTING

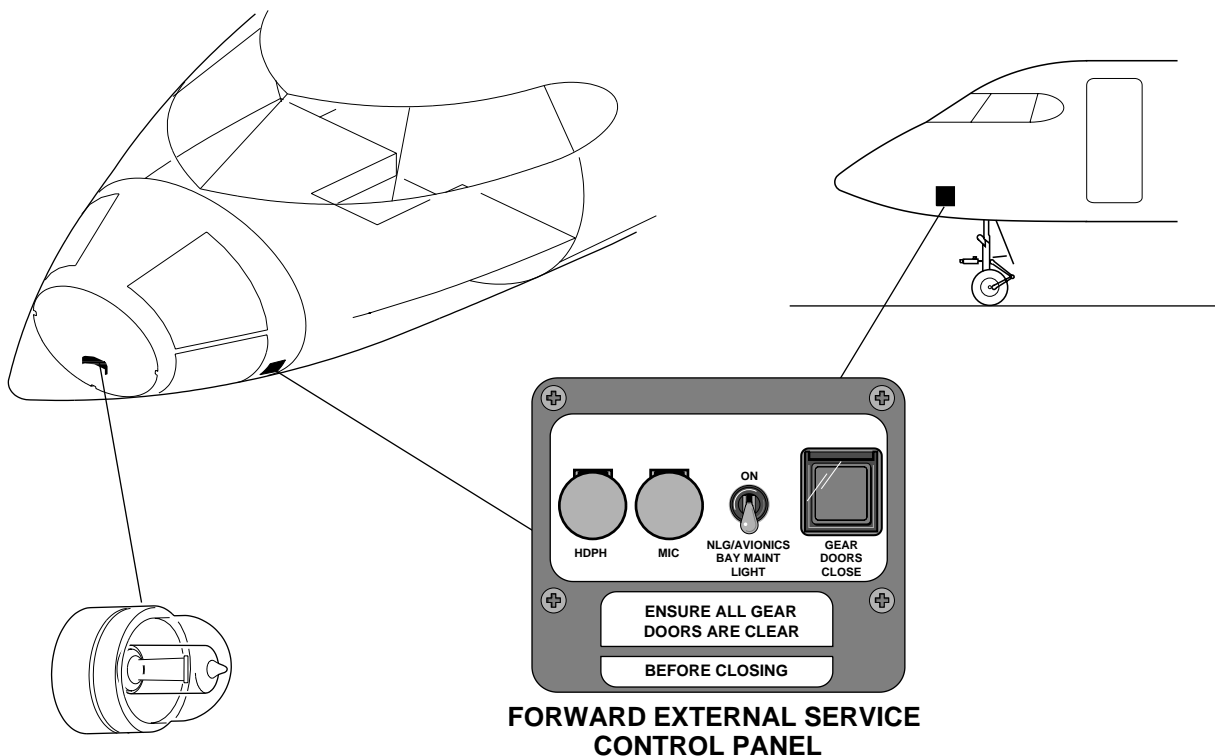
The service and maintenance lights supply lighting to the work areas of the airplane for servicing, maintenance and inspection purposes. The areas which illuminated are:

- Nose wheel well.
- Avionics compartments.
- Aft equipment bay.
- APU bay.

These lights are controlled to the on/off position by several switches located in proximity to the normal access areas. All service and maintenance lights are connected directly to an airplane battery. The nose wheel well light and the avionics compartment lights interface with one another. The aft equipment bay lights and the APU bay light interface with each other.

Nosewheel Bay Lighting

A maintenance light is installed in the nosewheel bay. The light is controlled by the switch on the forward external service control panel or when any of the switches in the avionics bay are selected.



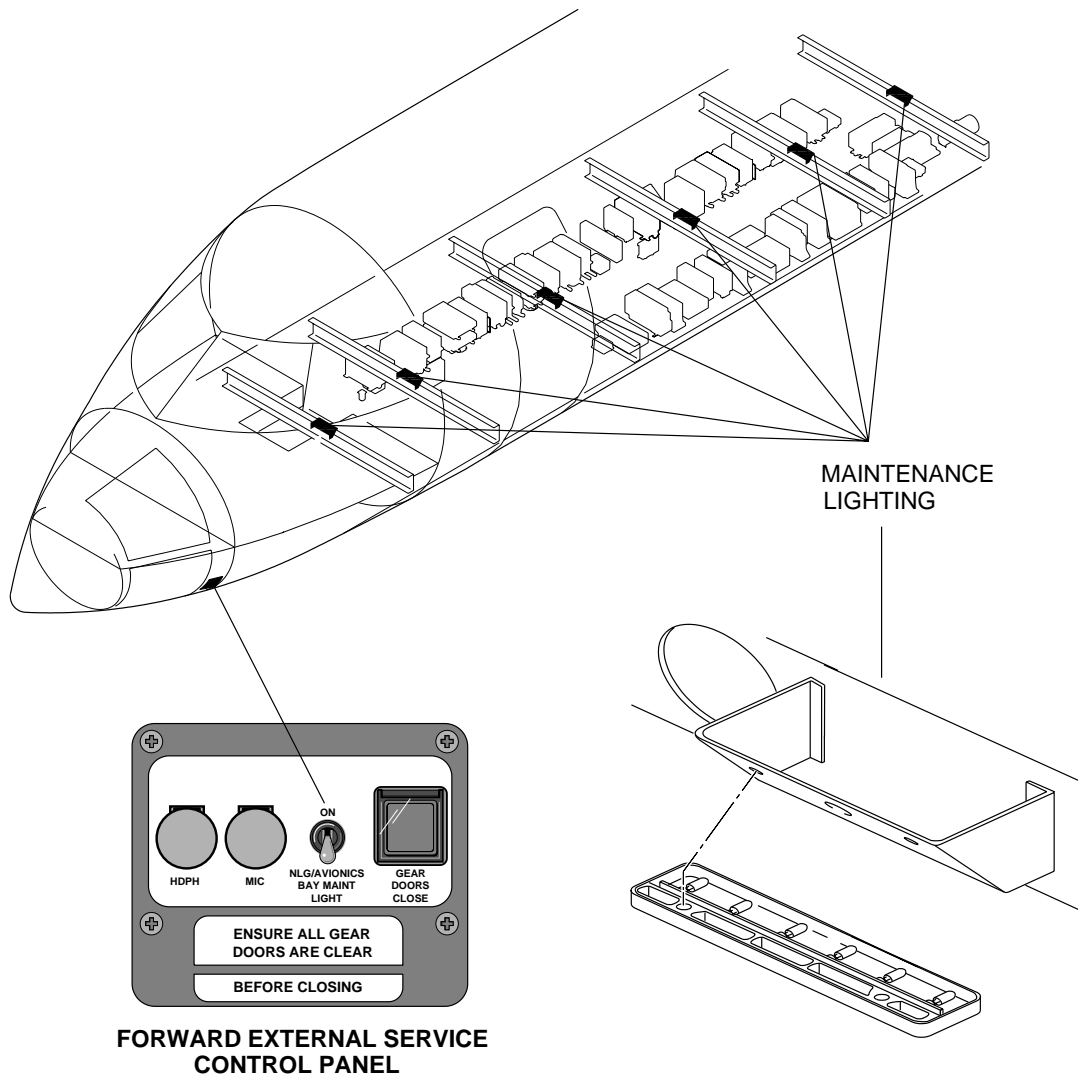
SERVICE AND MAINTENANCE LIGHTING (CONT'D)

Nosewheel Bay Lighting (Cont'd)

All lights in the avionics bay and nose landing gear bay can be automatically turned off by an auto shutoff device which prevents discharging of the avionics battery. After 15 minutes of normal operation, the lights will flash for approximately 10 seconds. The lights will then resume normal operation. When 20 minutes of normal operation (total time) have elapsed the lights are automatically turned off. All lights can be turned off and the timing sequence cancelled by selecting any of the switches twice within a three second period.

Avionics Bay Lighting

Six maintenance lights are installed in the avionics bay. The lights are controlled by the switch on the forward external service control panel or when any of three switches installed at different locations in the avionics bay are selected.



GF1610_026a

Automatic shutoff (described in the nose landing gear bay lighting section) prevents discharging of the avionics battery for prolonged periods of operation.

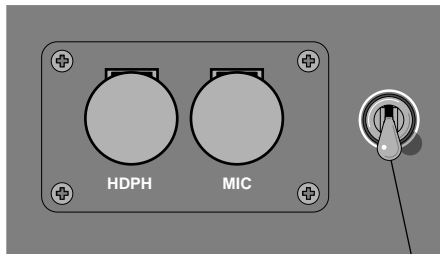
SERVICE AND MAINTENANCE LIGHTING (CONT'D)

Aft Equipment Bay Lights

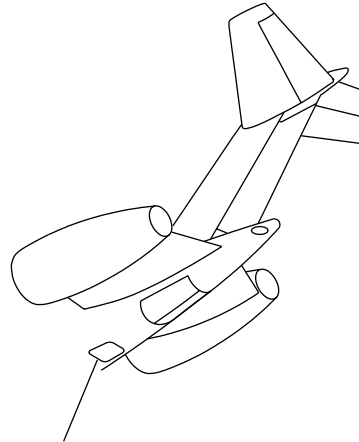
There are three lights located in the aft equipment bay area. These lights can be switched on by either of three switches:

- Two in the aft equipment bay.
- One in the APU bay area.

The aft equipment bay is equipped with one switch located on the aft equipment bay door frame and one located on one of the three light assemblies.



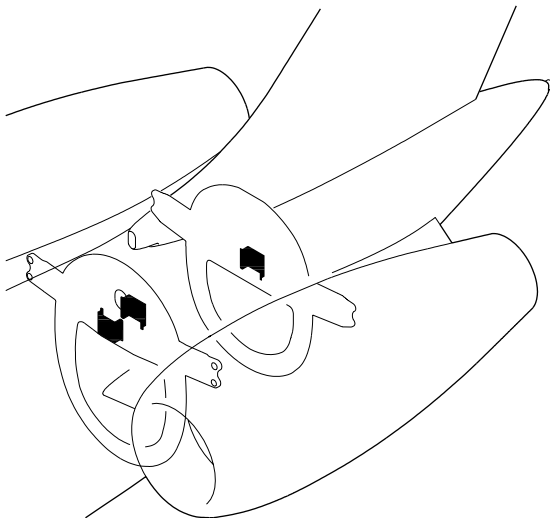
AFT EQUIPMENT BAY
LIGHT SWITCH



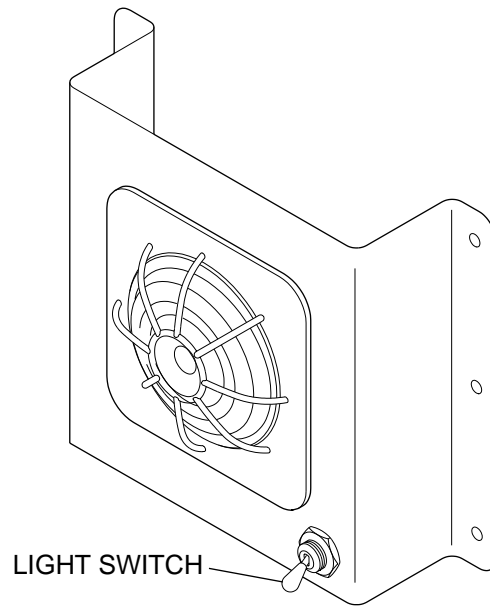
AFT EQUIPMENT BAY
LIGHT SWITCH LOCATION

GF1610_027

All lights in the aft equipment and APU bays can be automatically turned off by an auto shutoff device which prevents discharging of the APU battery. The design of this auto shutoff device is similar to the one used for the avionics and nose gear bay maintenance lights.



AFT EQUIPMENT BAY CEILING LIGHTS LOCATION



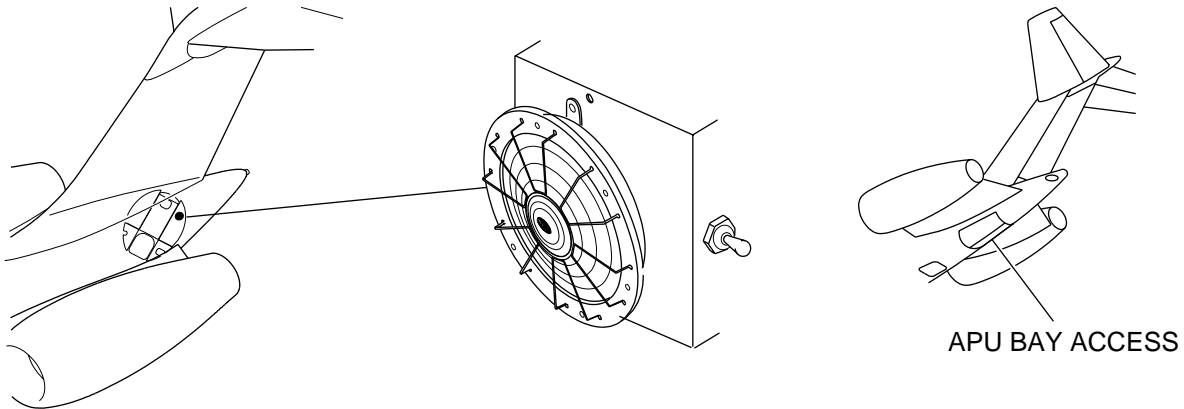
LIGHT SWITCH

GF1610_028

SERVICE AND MAINTENANCE LIGHTING (CONT'D)

APU Bay Lights

There is one light located in the APU bay area. This light can be switched on by one of the following three switches: two in the aft equipment bay and one located on the light assembly in the APU bay area. This light can be automatically shut off by the auto shutoff device described previously in the aft equipment bay light section.



GF1610_029

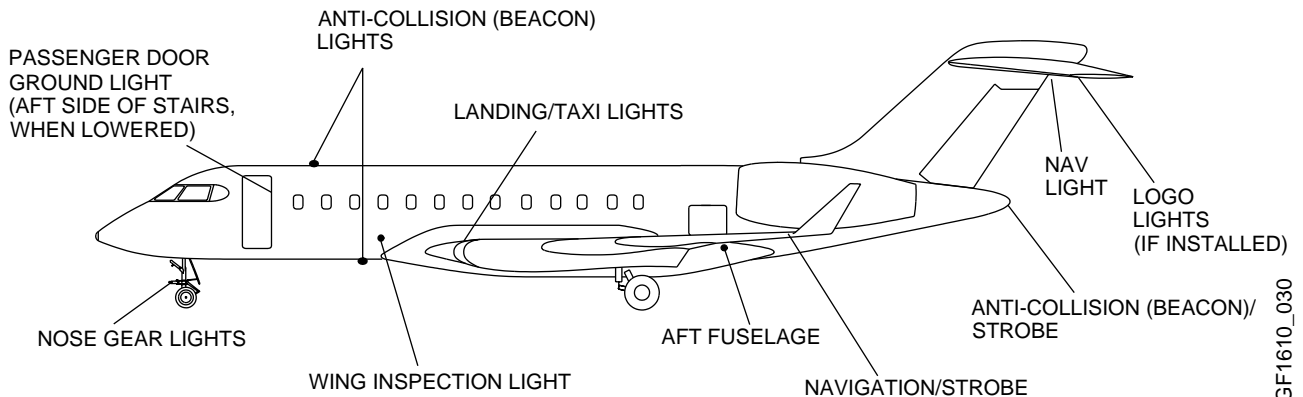
EXTERNAL LIGHTING

External lighting provides high intensity lights for landing and ground flood lights for area lighting and taxiing.

The external lighting includes the following:

- Landing/taxi lights.
- Navigation (position) lights.
- Anti-collision (strobe) lights.
- Wing inspection, aft fuselage lights and passenger door ground light.
- Logo lights (if installed).

EXTERNAL LIGHTING SCHEMATIC



GF1610_030

EXTERNAL LIGHTS CONTROL PANEL

The external lights control panel includes switches for the following lights:

- Navigation.
- Strobe beacon.
- Wing inspection.
- Landing/taxi.
- Taxi recognition.
- Logo (if installed)

All external lighting is controlled by switches located on the EXTERNAL LIGHTS control panel.

BEACON Switch

- **WHT** position – When selected, the beacon lights will illuminate white.
- **OFF** position – When selected, the beacon lights will turn off.
- **RED** position – When selected, the beacon lights will illuminate red.

STROBE Switch

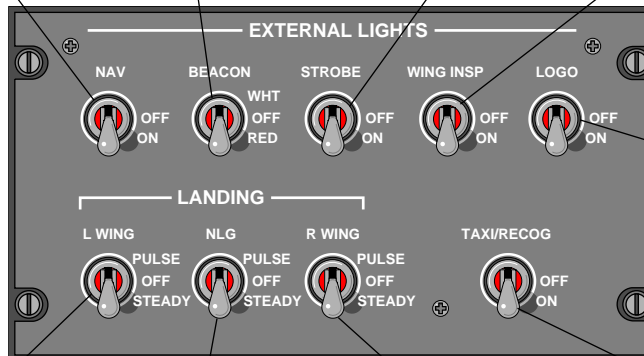
- **ON** – Illuminates the wing and tail anti-collision lights.
- **OFF** – Turns off the wing and tail anti-collision lights.

NAV Switch

- **ON** – Illuminates the wing and tail navigation lights.
- **OFF** – Turns off the wing and tail navigation lights.

WING INSP Switch

- **ON** – Illuminates the wing inspection lights.
- **OFF** – Turns off the wing inspection lights.



LOGO Lights (If installed)

- **ON** – Illuminates the logo lights.
- **OFF** – Turns off the logo lights.

L WING Switch

- **PULSE** – Illuminates the landing and taxi light on and off to achieve a strobe effect on the left wing.
- **STEADY** – Illuminates the landing and taxi lights on the left wing.
- **OFF** – Turns off the landing and taxi lights on the left wing.

NLG Switch

- **PULSE** – Illuminates the landing and taxi light on and off to achieve a strobe effect on the nose gear assembly.
- **STEADY** – Illuminates the landing and taxi lights on the nose gear assembly.
- **OFF** – Turns off the landing and taxi lights on the nose gear assembly.

R WING Switch

- **PULSE** – Illuminates the landing and taxi light on and off to achieve a strobe effect on the right wing.
- **STEADY** – Illuminates the landing and taxi lights on the right wing.
- **OFF** – Turns off the landing and taxi lights on the right wing.

TAXI/RECOG Switch

- **ON** – Illuminates the wing taxi lights.
- **OFF** – Turns off the wing taxi lights.

FGF1610_004

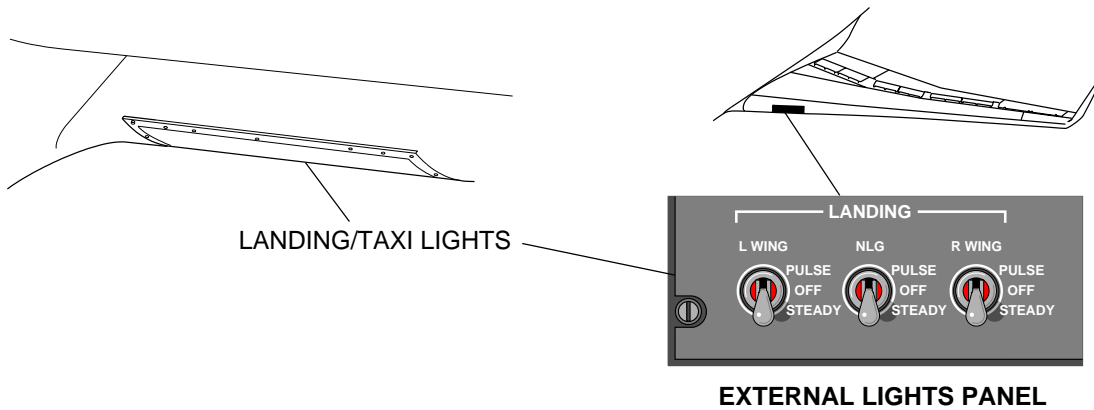
EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

Landing Lights

A landing light is installed in each wing leading edge and two landing lights are installed on the nose gear. Each wing light is controlled by a dedicated PULSE/OFF/STEADY switch, while both nose landing lights are controlled by a single PULSE/OFF/STEADY switch. In the pulse position, the landing light is designed to pulse in a strobe effect that will make the aircraft visible and enhance visual identification from other aircraft. Normally, under dark conditions the landing lights are operated in the pulse position. The left landing and nose landing lights will be flashing in an alternating sequence with the right landing and nose lights. The pulselite control unit operates the pulsing sequence at 45 times per minute.

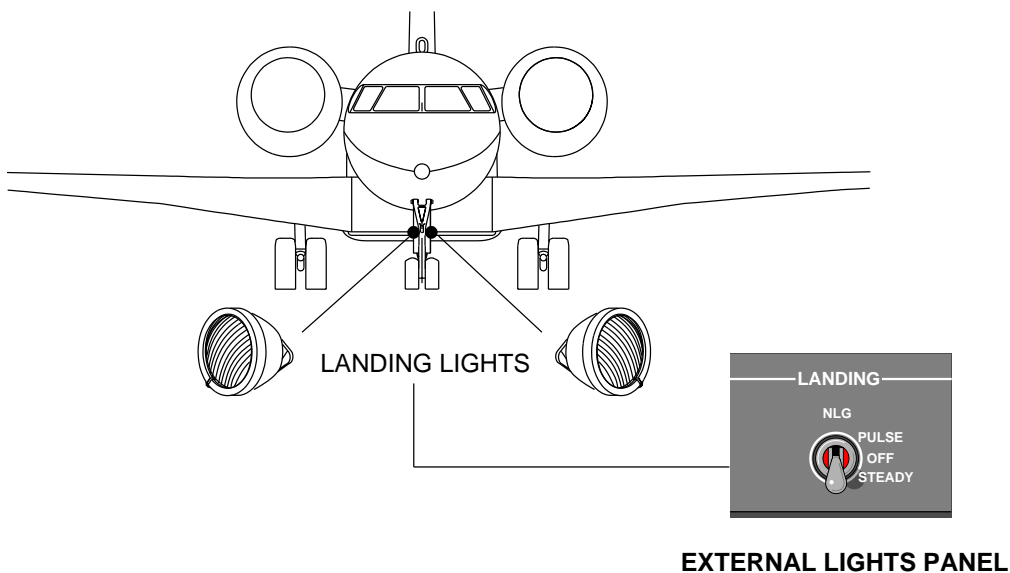
Wing Landing/Taxi Lights

Combined landing/taxi lights are installed in each wing fairing (leading edge) and controlled by individual switches on the EXTERNAL LIGHTS panel in the overhead panel. Selecting the individual "L or R WING" switch will illuminate the landing and taxi lights on the applicable side.



Nose Gear Landing Lights

Two sealed beam lamp landing lights are installed on the nose landing gear assembly. Both are controlled by an individual "NLG" switch on the EXTERNAL LIGHTS panel in the overhead panel.



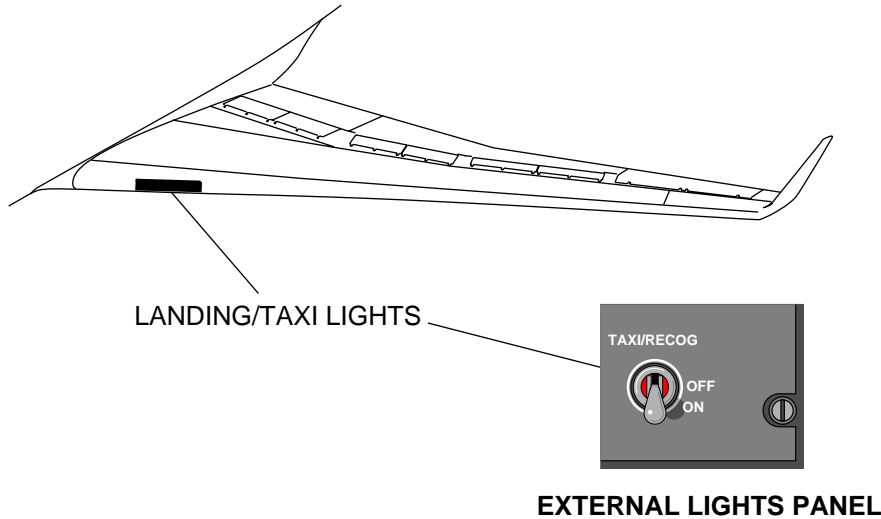
EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

Nose Gear Landing Lights (Cont'd)

The nose gear landing lights illuminate when the switch is selected to the ON or PULSE position and the nose landing gear is down and locked.

Taxi Lights

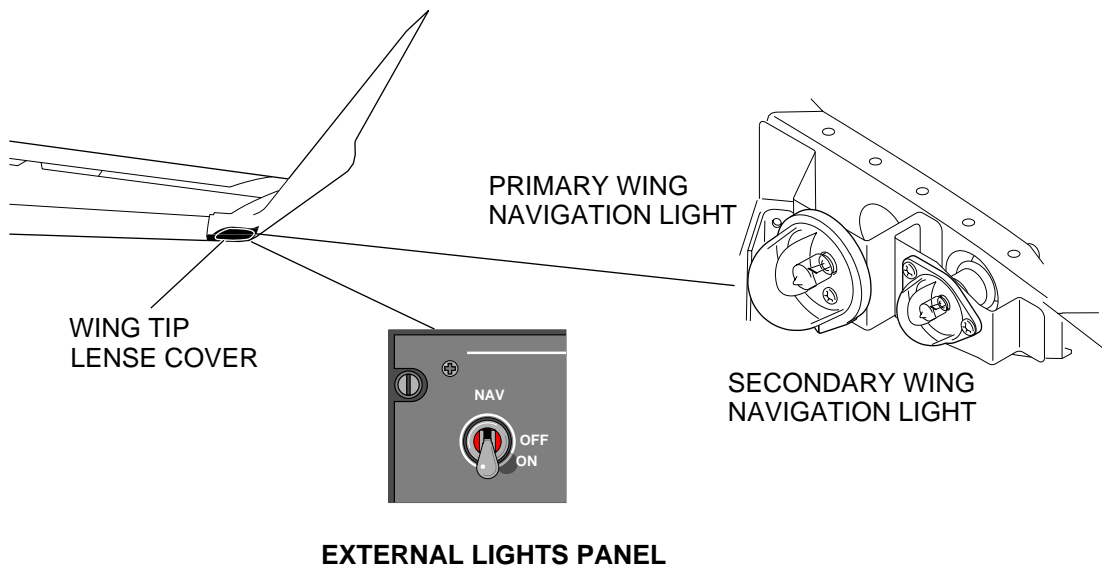
A taxi light is installed in each wing leading edge and controlled by a single "TAXI/RECOG" switch on the EXTERNAL LIGHTS panel for ground operation. These lights are also used for in flight recognition lights.



GF1610_034

Wing Navigation Lights

Dual forward navigation lights are installed in each wing tip. The wing mounted navigation lights are covered by wing tip lenses on both wings. Two green primary and secondary navigation lights (position lights) are located in the right wing tip. Two red primary and secondary navigation lights (position lights) are located in the left wing tip. These lights are controlled by the "NAV" switch located on the EXTERNAL LIGHTS panel.



GF1610_035

EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

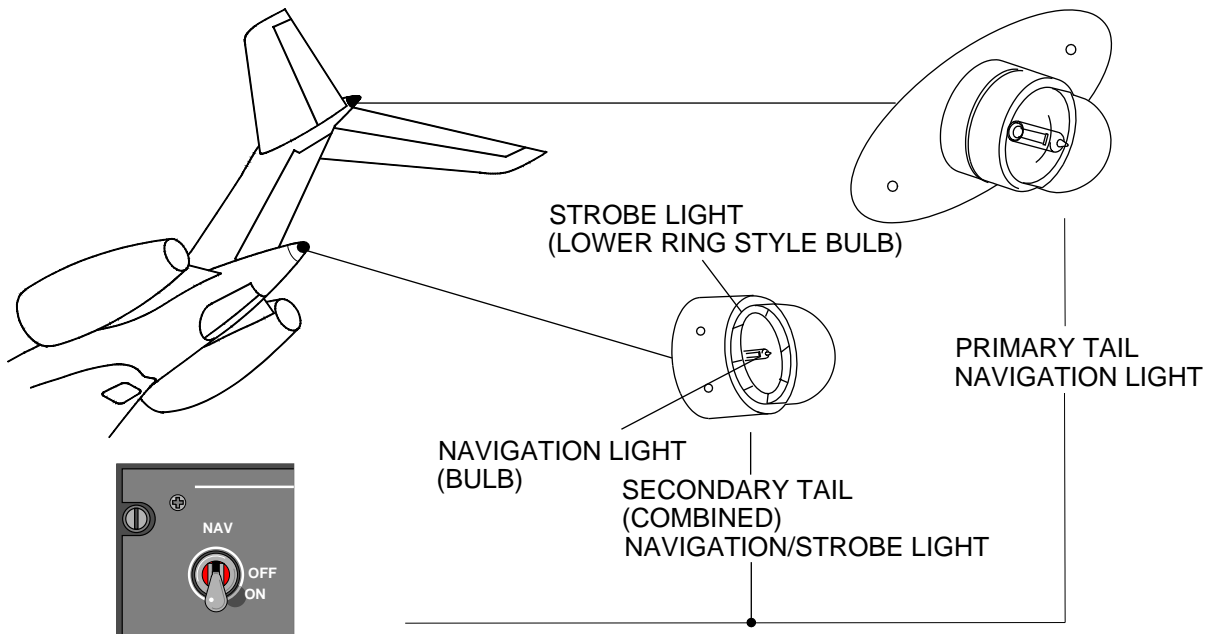
Wing Navigation Lights (Cont'd)

When the NAV switch is selected, the primary lights on each wing illuminate. Switch over from the primary to the secondary light system due to a navigation light failure is achieved automatically, by means of a navigation light control/indication unit (control box).

The primary wing navigation lights have a higher wattage than the secondary lights and are protected from overheat due to insufficient cooling. Due to high temperature conditions (limit temperature of the wing tip lens material) experienced on the ground, the system will automatically switch to the secondary wing navigation lights. A thermal switch is integrated in the equipment below each lens to detect temperature changes for automatic switching to the back-up (secondary) system.

Tail Navigation Lights

Two white navigation lights (primary and secondary) are located at the aft extremity of the airplane (fin and tail cone).



EXTERNAL LIGHTS PANEL

- Primary Light – One primary navigation light is located on the trailing edge at the tail fairing. This light is controlled by the “NAV” switch (which also controls the wing navigation lights) located on the EXTERNAL LIGHTS panel to control the wing navigation lights.
- Secondary Light – One secondary navigation light is located in the tail cone and is part of the combined rear strobe/navigation light unit. The lower portion of the unit is the strobe light. The bulb portion of the combined rear strobe/navigation light unit is the navigation light. This navigation light is controlled by the “NAV” switch (located on the EXTERNAL LIGHTS panel) which controls the wing navigation lights.
- When the “NAV” switch is selected on ground, the secondary light will illuminate for approximately 30 seconds then, switch over to primary light control. Switch over from the primary to the secondary light system due to a navigation light failure is achieved automatically by means of the navigation light control/indication unit.

GF1610_036

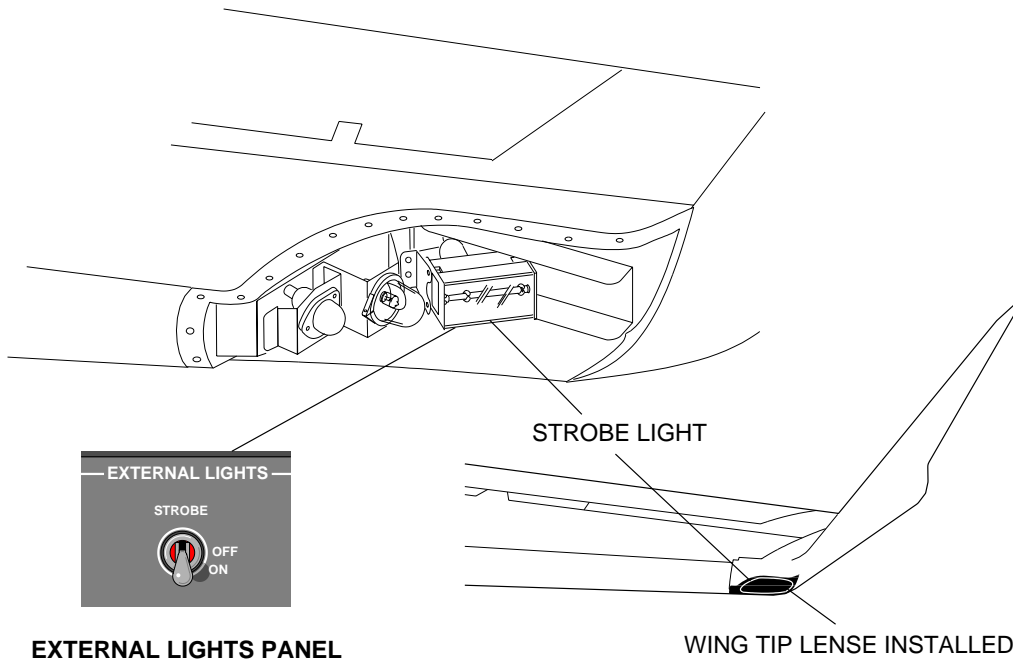
EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

Strobe Lights

The anti-collision light system consists of two redundant systems: one wing tip/tail mounted and one fuselage mounted. One white anti-collision strobe light is located on each wing tip next to the navigation lights and one on the tail cone of the airplane.

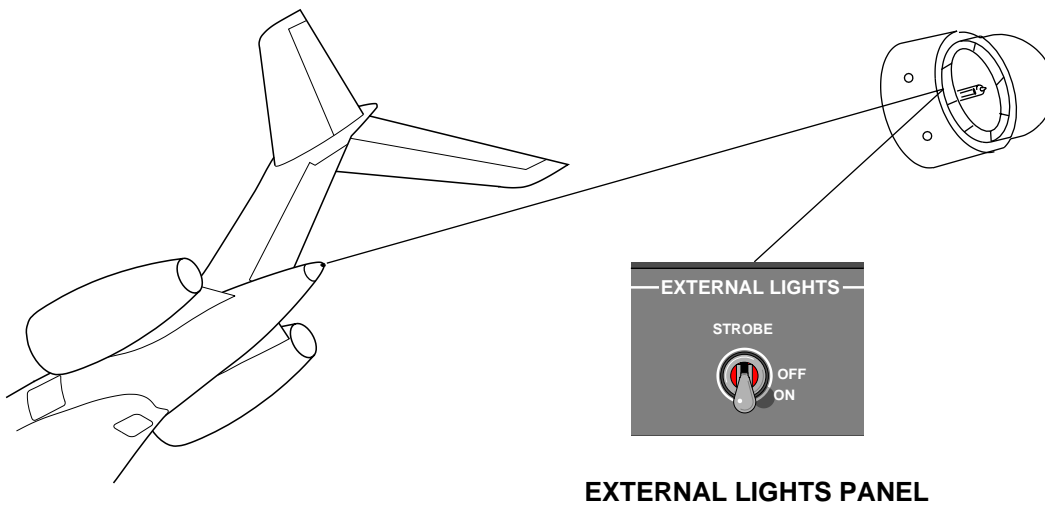
Wing/Tip Tail Mounted Strobes

The wing strobe lights and the rear strobe light together comprise one system.



GF1610_037

The flashing of the three white strobe lights is synchronized, simultaneous and used as the main system on the airplane.



GF1610_038

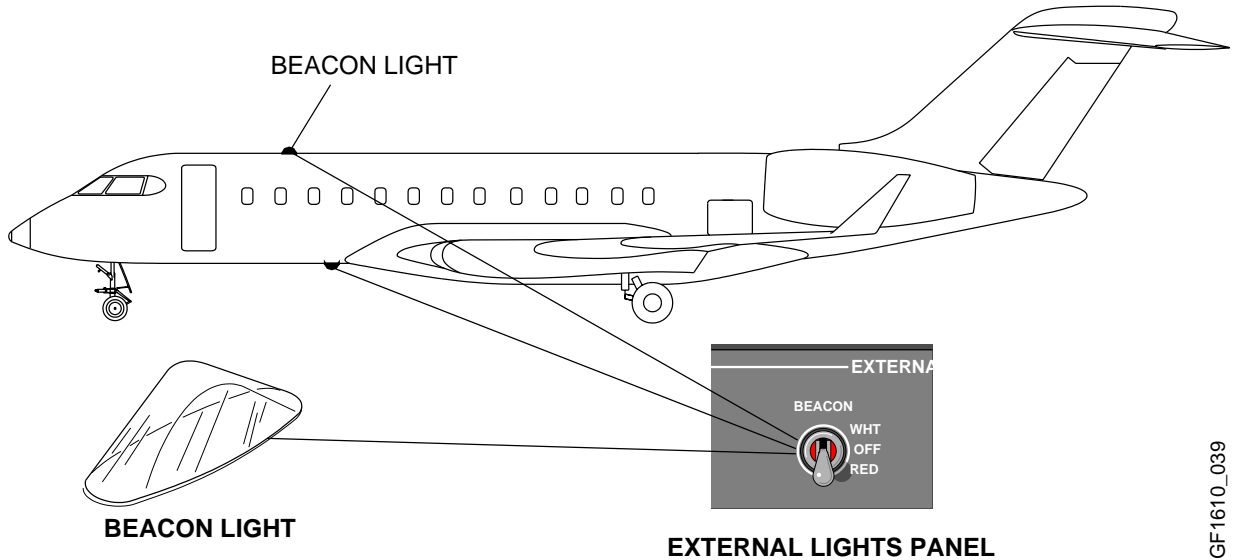
The wing and tail lights are white in color and controlled by the "STROBE" on/off switch located on the EXTERNAL LIGHTS panel.

EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

Fuselage Mounted Strobes

The red/white anti-collision strobe lights are located at the top and bottom of the fuselage. The upper strobe light and the lower strobe light together comprise one system. The flashing of the two lights is synchronized and simultaneous. These lights can be selected white or red through a “WHT/OFF/RED” switch located on the EXTERNAL LIGHTS panel. The red strobe light is incorporated in the fuselage mounted lights for ground operational purposes to minimize unfavorable effects on the crew and outside personnel during ground handling.

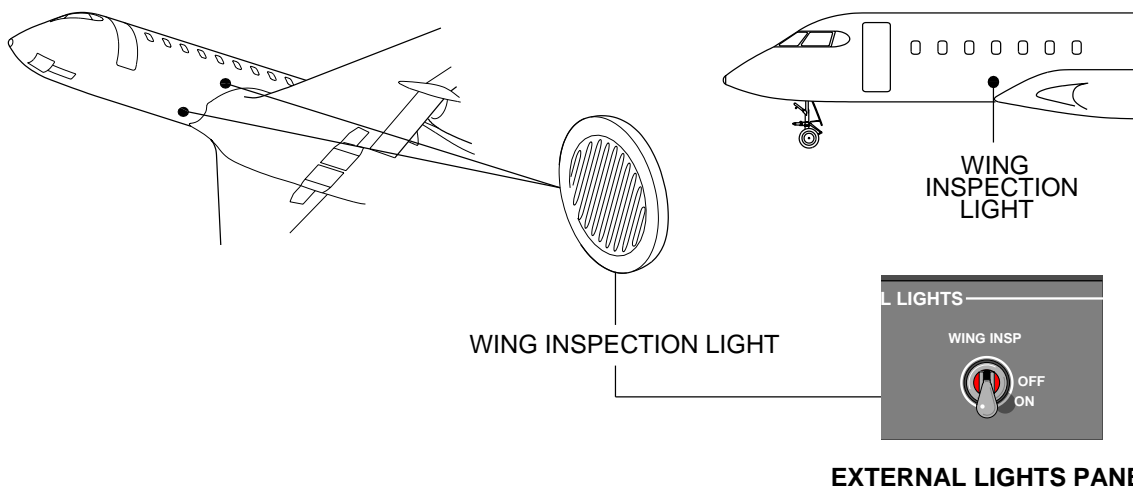
The fuselage mounted white anti-collision system is used as a back-up system on the airplane.



GF1610_039

Wing Inspection Lights

One wing inspection light is mounted on each side of the airplane to provide illumination of the wing leading edges that are critical with respect to ice accumulation.



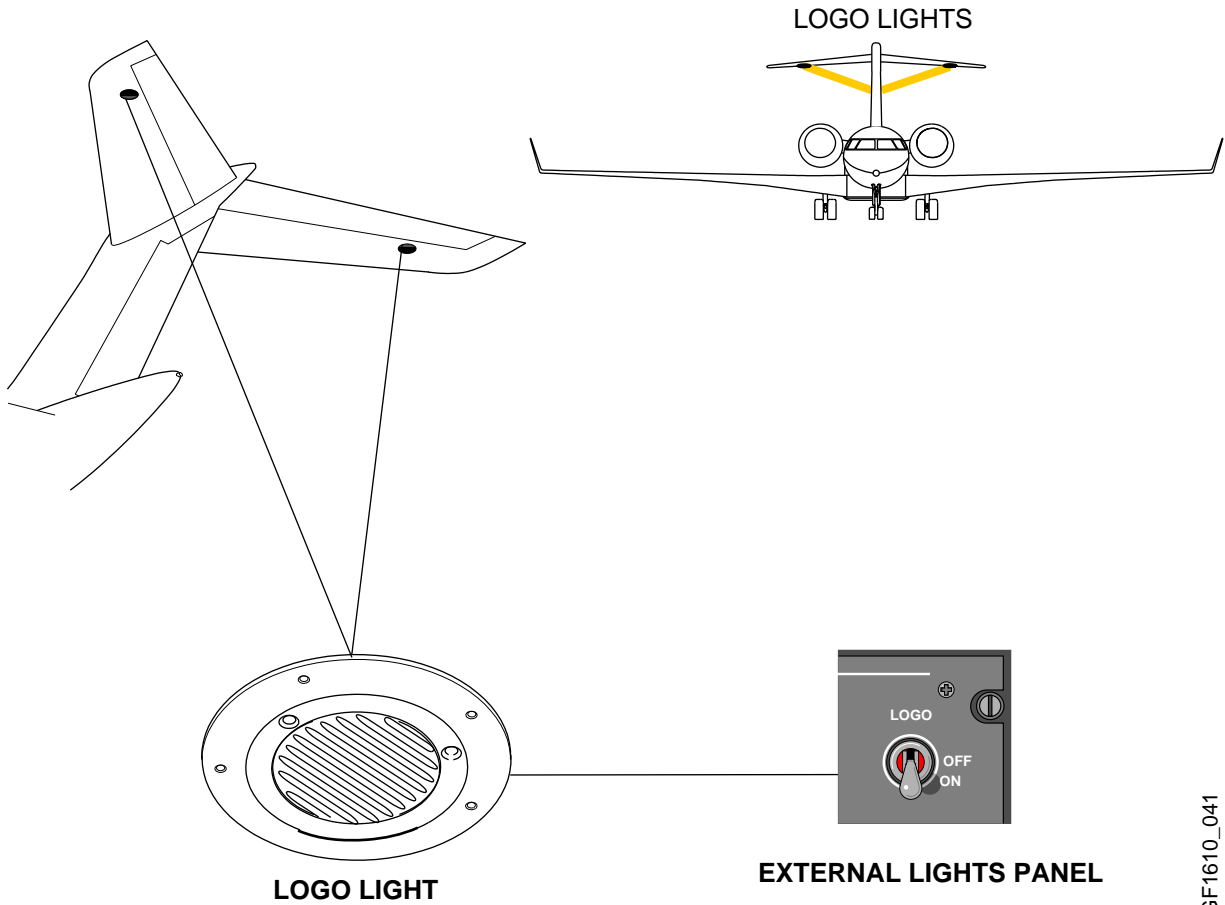
GF1610_040

The lights are controlled by the “WING INSP” on/off switch located on the EXTERNAL LIGHTS panel.

EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

Logo Lights (If Installed)

Space provisions are available for the installation of logo lights, to illuminate a customer logo painted on the vertical stabilizer.



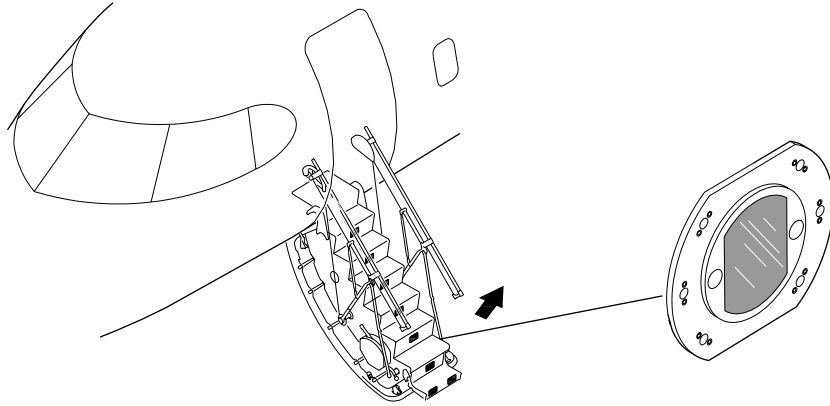
GF1610_041

The logo lights can be controlled by a "LOGO" on/off switch located on the EXTERNAL LIGHTS panel.

EXTERNAL LIGHTS CONTROL PANEL (CONT'D)

Passenger Door (Fuselage/Wing) Ground Lighting

One light is installed on the right lower section of the passenger door assembly. The light is directed aft along the forward fuselage ground area and wing. It is controlled by a switch located beside the main passenger door.



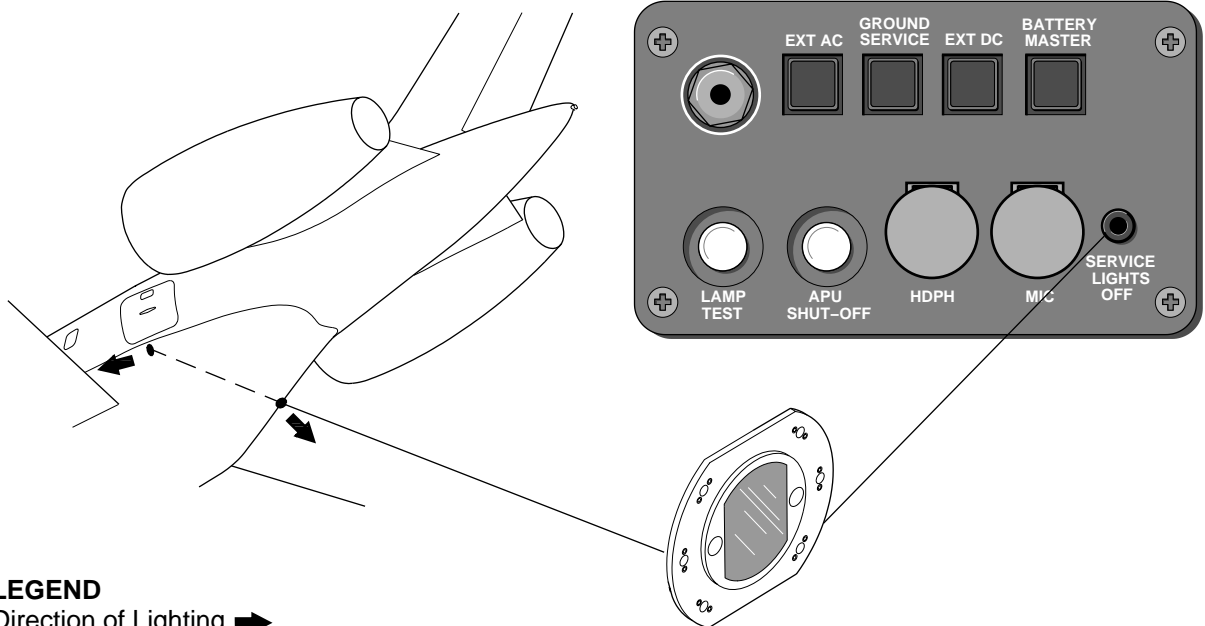
LEGEND

Direction of Lighting ➔

GF1610_042

Aft Fuselage Service Lights

Two service lights are installed on the left and right lower aft fuselage. These lights are used to illuminate the aft wing and ground areas.



LEGEND

Direction of Lighting ➔

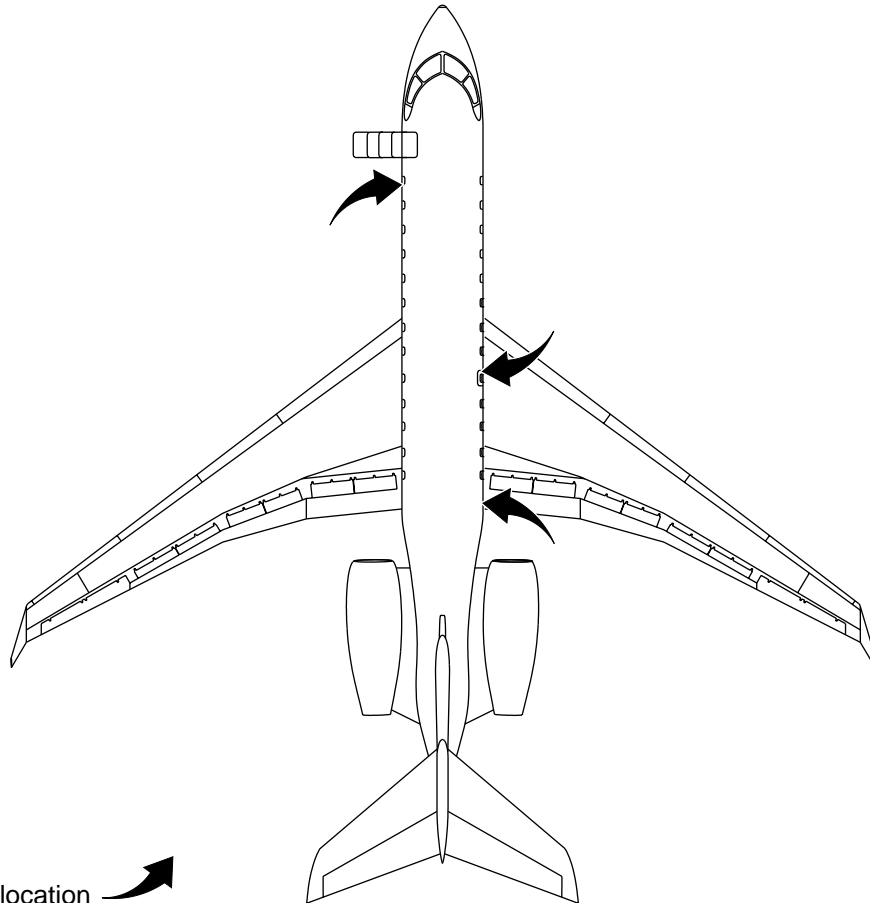
GF1610_043

The lights are controlled by the service area light switch located on the aft external service control panel.

EMERGENCY LIGHTING

Emergency lights are provided to illuminate escape routes in case of an emergency evacuation. The external emergency lights are located in the following areas:

- On the fuselage adjacent to the passenger door.
- Two over the right wing.



GF1610_044

Details/illustrations of the interior ferry kits are not covered in this operating manual. An interior emergency lighting system (ferry kit) for the airplane consists of:

- Four emergency dome lights.

An exit locating and marking signs system (ferry kit) for the airplane consists of:

- Two exit signs.
- Two exit locator signs.

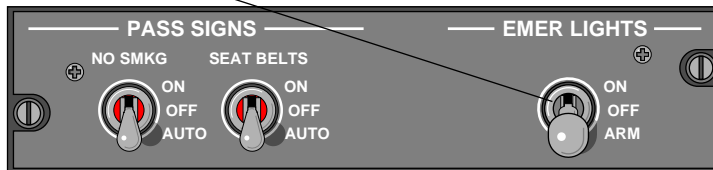
All fixed emergency lights are controlled by an “ON/OFF/ARM” switch on the PASS SIGNS/EMER LTS panel or automatically if the system is armed and the airplane DC power fails. The electrical power for all emergency lights is supplied by self contained battery power supply units.

EMERGENCY LIGHTING CONTROL

The emergency lights are controlled by the “ON/OFF/ARM” switch located on the PASS SIGNS/EMER LTS panel. A second switch for emergency lights control can be installed as an option, at the flight attendant position.

EMER LTS Switch

- **ON** – Turns on all emergency lights.
- **OFF** – Removes power from the emergency lights.
- **ARM** – Emergency lights will come on if the DC essential bus fails.



GF1610_045

Flight Attendant ON/OFF Control (if installed)

The flight attendant emergency lights control switch is accessible while seated in the flight attendant seat. The flight attendant “ON/OFF” switch is an option and will be installed with final cabin refurbishment. The switch operation is as follows:

- **OFF Mode** – Normally used in this selection and the flight compartment switch has priority in the “ON/OFF” position in an emergency situation.

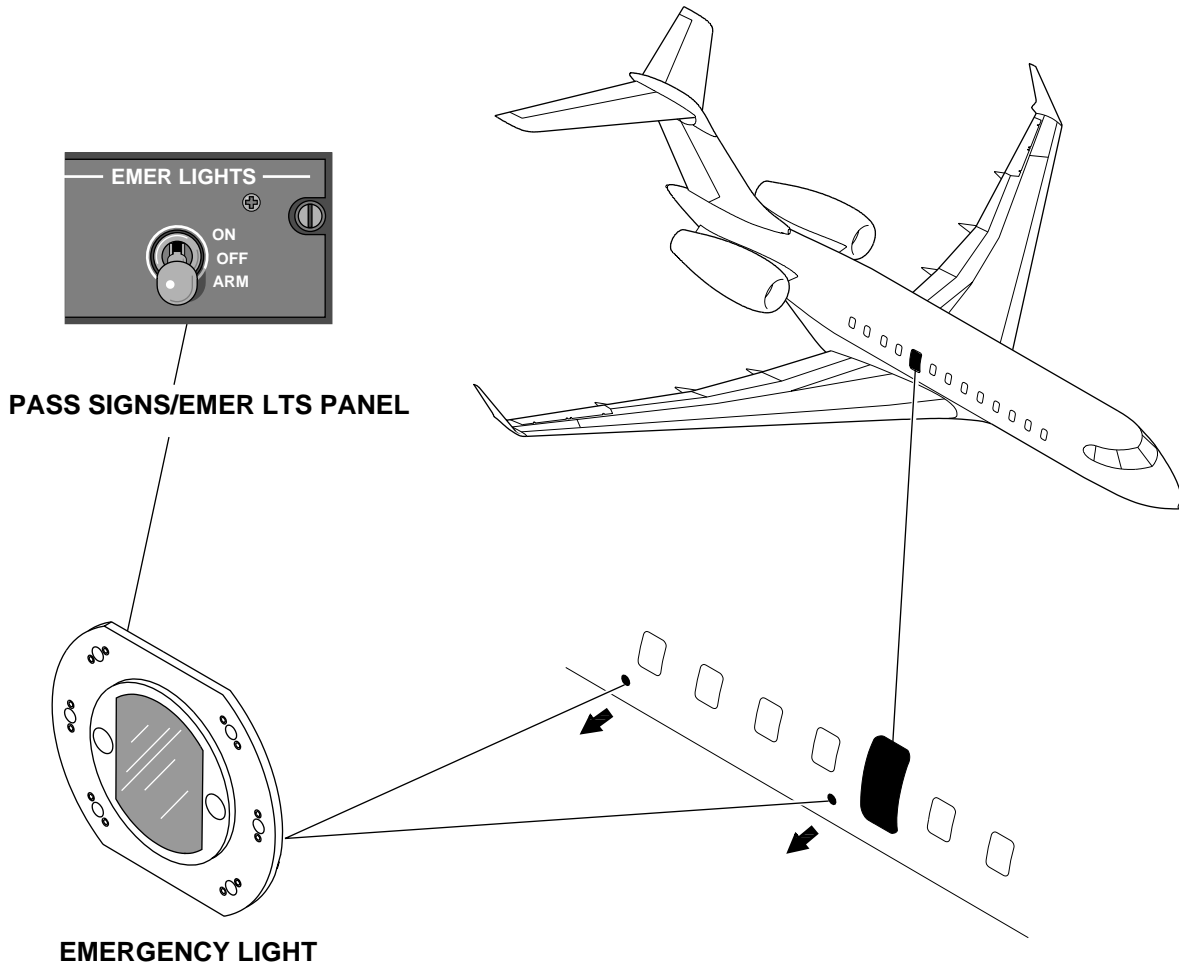
NOTE

The “ON” position in the flight compartment is independent of both the “ON” and “OFF” mode of the flight attendant switch.

- **ON Mode** – When selected to the “ON” position, the emergency lighting system will illuminate, provided that the switch in the flight compartment is in the “ARM” position.

EXTERNAL EMERGENCY LIGHTING

Exterior emergency exit lights are positioned adjacent to the emergency exits to assist in evacuation of the airplane.



LEGEND
Direction of Lighting ➔

Overwing Emergency Exit Lights

One overwing emergency light is installed over the right wing to illuminate the exit area, the wing and the ground along the escape route(s).

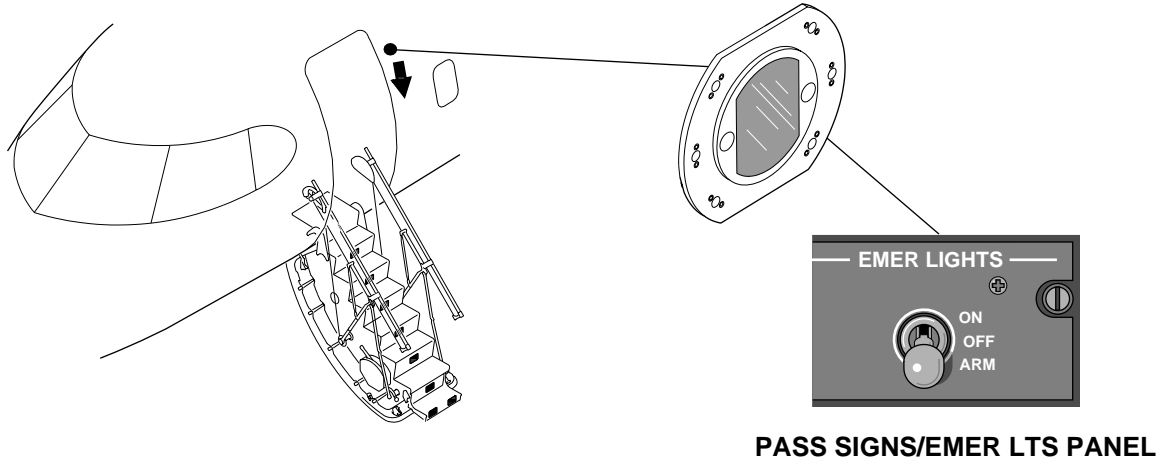
A second light is installed on the right hand side on the aft fuselage to illuminate the exit area, the wing and the ground along the escape route.

GF1610_046

EXTERNAL EMERGENCY LIGHTING (CONT'D)

Passenger Door Emergency Light

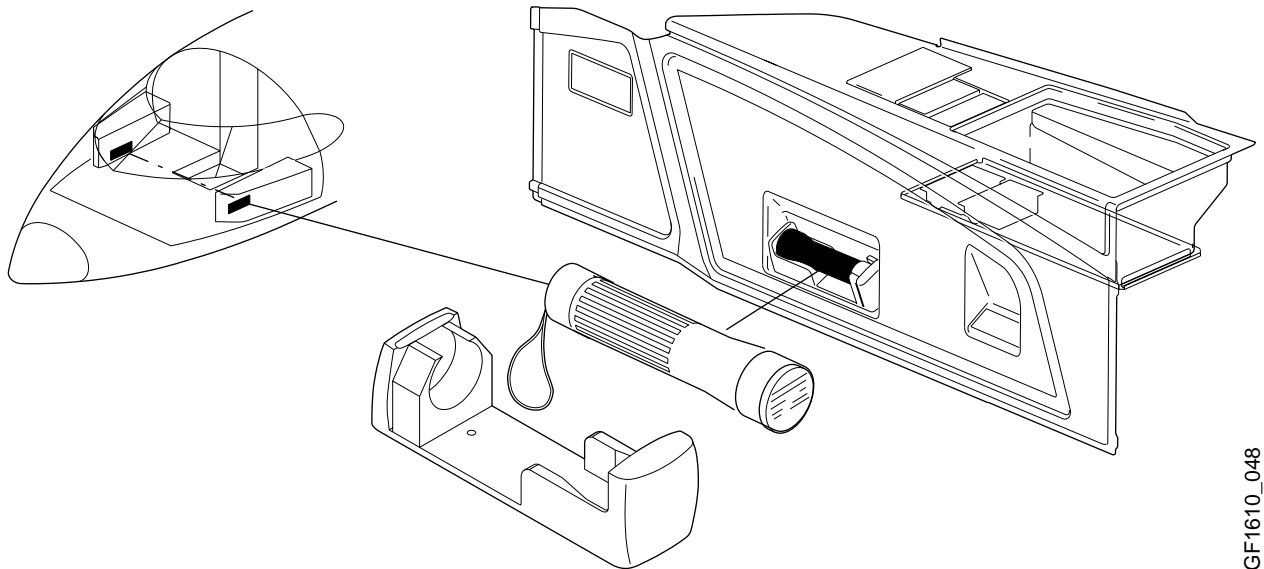
One emergency light is installed in proximity to the passenger door to provide illumination of the door stairway and the ground area at the foot of the stairway.



LEGEND
Direction of Lighting →

Flight Compartment Flashlights

One flashlight is located on each side of the flight compartment to be used in an abnormal or emergency condition.



The flashlights are considered as part of the flight compartment furnishing equipment. Each flashlight is automatically activated when removed from its retention bracket and has a built-in battery/lamp flashing LED indicator monitoring circuit and battery pack.

EICAS MESSAGES

EMER LIGHTS ON

Indicates that the emergency lights have automatically activated (no power on the DC ESS bus) with the EMER LTS switch in the arm position or the EMER LTS switch is selected ON.

EMER LIGHTS OFF

Indicates that the EMER LTS switch is in the off position.

NAV LIGHTS FAIL

Indicates that the navigation lights have failed.



EMER LIGHTS OFF
NAV LIGHTS FAIL
EMER LIGHTS ON
NO SMKG SIGN ON
SEAT BELTS SIGN ON

NO SMKG SIGN ON

Indicates that the no smoking sign has been activated.

SEAT BELTS SIGN ON

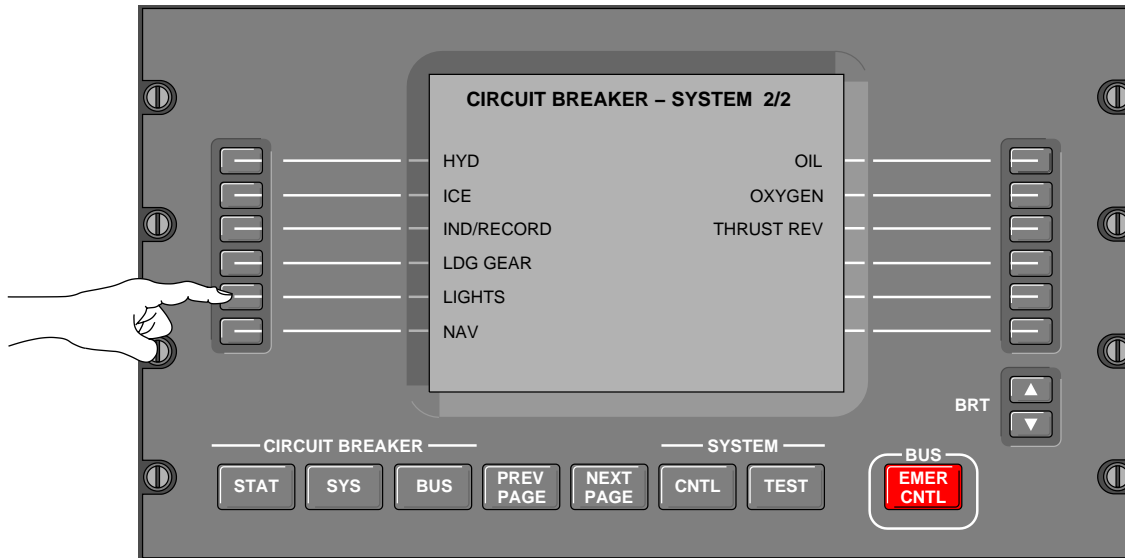
Indicates that the seat belts sign has been activated.

GF1610_049a

LIGHTING

EMS CIRCUIT PROTECTION

CB - LIGHTS SYSTEM



CB - LIGHTS SYSTEM 1/7			
AFT MAINT LTS	APU BATT	ASCA	IN
AREA LTS	AV BATT	DCPC	IN
BEACON LT 1	DC 2		IN
BEACON LT 2	DC 2		IN
CB PNL INTG LTS	DC 2		IN
COPILOT INTG LTS	DC 1		IN

CB - LIGHTS SYSTEM 2/7			
CTR 1 INTG LTS	DC ESS		IN
CTR 2 INTG LTS A	BATT		IN
CTR 2 INTG LTS B	APU BATT	ASCA	IN
CTR 3 INTG LTS	DC 2		IN
EMER LTS	DC ESS		IN
FLOOD LTS	DC ESS		IN

CB - LIGHTS SYSTEM 3/7			
FLOOR/EYE LTS	DC 2		IN
FWD MAINT LTS	AV BATT	DCPC	IN
L LOGO LTS	DC 1		IN
L NOSE LDG LT	DC 1		IN
L TAXI LT	AC 1		IN
L WING LDG LT	AC 1		IN

CB - LIGHTS SYSTEM 4/7			
LIGHT DETECTOR	AC 1		IN
MAP LTS	BATT		IN
NAV LTS	DC 2		IN
NO SMOKING SIGN	BATT		IN
OVHD 1 INTG LTS	BATT		IN
OVHD 2 INTG LTS	DC 1		IN

CB - LIGHTS SYSTEM 5/7			
PBA BRT/DIM 1 A	BATT		IN
PBA BRT/DIM 1 B	DC 1		IN
PBA BRT/DIM 2 A	BATT		IN
PBA BRT/DIM 2 B	DC 2		IN
PBA BRT/DIM 3 A	BATT		IN
PBA BRT/DIM 3 B	DC 1		IN

CB - LIGHTS SYSTEM 6/7			
PILOT INTG LTS	DC ESS		IN
R LOGO LT	DC 2		IN
R NOSE LDG LT	DC 2		IN
R TAXI LT	AC 4		IN
R WING LDG LT	AC 4		IN
SEAT BELTS SIGN	BATT		IN

CB - LIGHTS SYSTEM 7/7			
STAIR LTS	AV BATT	DCPC	IN
TAIL STROBE LTS	DC 1		IN
WING INSPECT LTS	DC 1		IN
WING STROBE LTS	DC 1		IN

NOTE

The OIL TANK PROBE power source is tied to the MAP LTS circuit breaker, therefore, the OIL TANK PROBE circuit breaker is OUT for airplanes incorporating SB 700-1A11-79-001.

FGF1620_001

**LIGHTING
EMS CIRCUIT PROTECTION**

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