

GENERAL

The lighting system provides interior and exterior illumination of the aircraft. In addition, lights provide information and guidance to passengers in normal and emergency situations.

The lighting system includes:

- Exterior lighting;
- Flight compartment lighting;
- Passenger compartment (cabin) lighting;
- Service lighting; and
- Emergency lighting.

EXTERIOR LIGHTING

Description

The exterior lighting system is controlled from the EXTERNAL LTS panel or the LANDING LTS panel, and consists of the following:

- Navigation lights;
- Beacon light;
- Anti-collision lights;
- Logo lights;
- Wing inspection lights;
- Landing lights; and
- Recognition/taxi lights.

Components and Operation

Navigation Lights

The navigation lights are located in each wing tip, fuselage tail cone tip, and at the tip of the stabilizer fairing. A wing tip assembly contains two navigation lights that work simultaneously.



Wing Tip Navigation Light
Figure 16–10–1

The NAV switch controls the navigation lights (see Figure 16–10–2).

EXTERIOR LIGHTING (CONT'D)

Beacon Light

There are two red beacon lights located on the top and bottom of the fuselage, near the middle of the aircraft.

The BEACON switch controls the beacon lights (see Figure 16–10–3).

Anticollision Lights

The anticollision lights consist of two wing tip strobe lights, located in the wing tip assembly, and one strobe light at the tip of the fuselage tail cone, co-located with the navigation light.

The A/COLL switch controls the anticollision strobe lights (see Figure 16–10–3).

Logo Lights

The logo lights are located on top of the aircraft's engine pylons. When selected, these lights illuminate the aircraft's vertical stabilizer.

The LOGO switch controls the logo lights (see Figure 16–10–4).

Wing Inspection Lights

There are two wing inspection lights located on the fuselage, forward of each wing root.

The WING-INSP switch controls the left and right wing inspection lights (see Figure 16–10–4).

Landing Lights

There are four landing lights on the aircraft. Two lights are located in the nose, and one light is located in each wing, at the root.

The NOSE switch, located on the LANDING LTS panel, controls both nose landing lights simultaneously (see Figure 16–10–7).

The LEFT switch and the RIGHT switch, located on the LANDING LTS panel, control each wing landing light respectively (see Figure 16–10–6).

NOTE

Turning on the left or right landing light turns on the respective side recognition/taxi light.

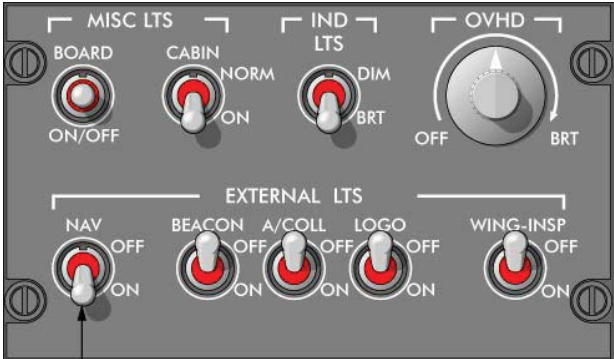
Recognition/Taxi Lights

There are two recognition/taxi lights, co-located outboard of the wing landing lights.

The RECOG/TAXI LTS switch, located on the LANDING LTS panel, controls the recognition/taxi lights (see Figure 16–10–6).

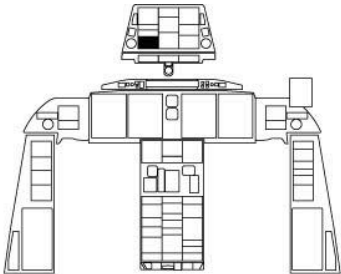
EXTERIOR LIGHTING (CONT'D)

Controls and Indicators



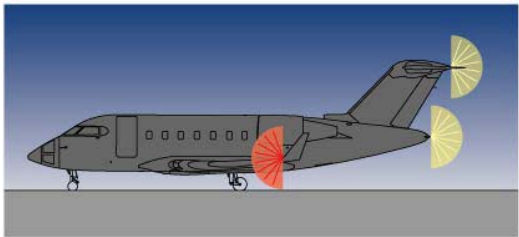
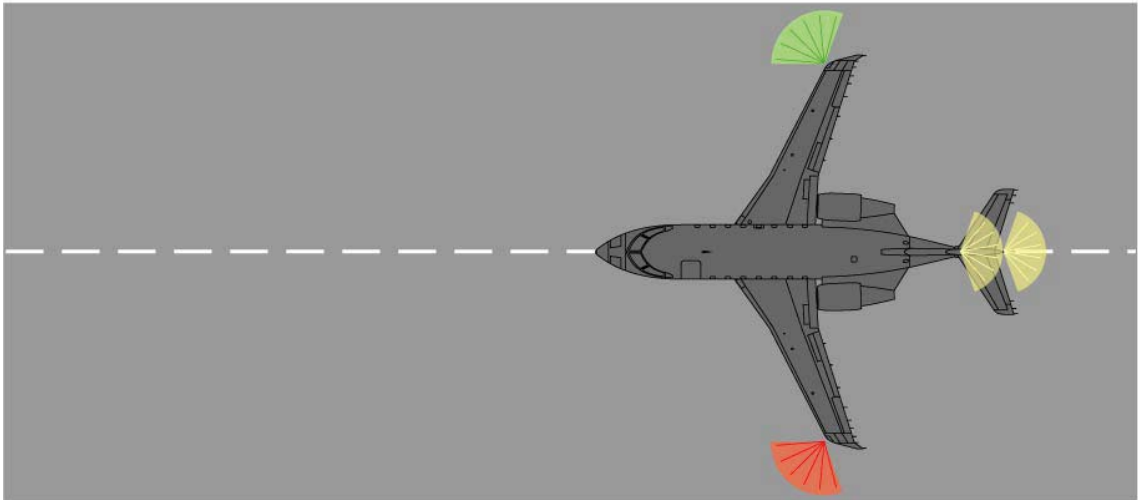
MISCELLANEOUS LIGHTING PANEL

NAV Switch
Controls the wing and
tail navigation lights



LEGEND:

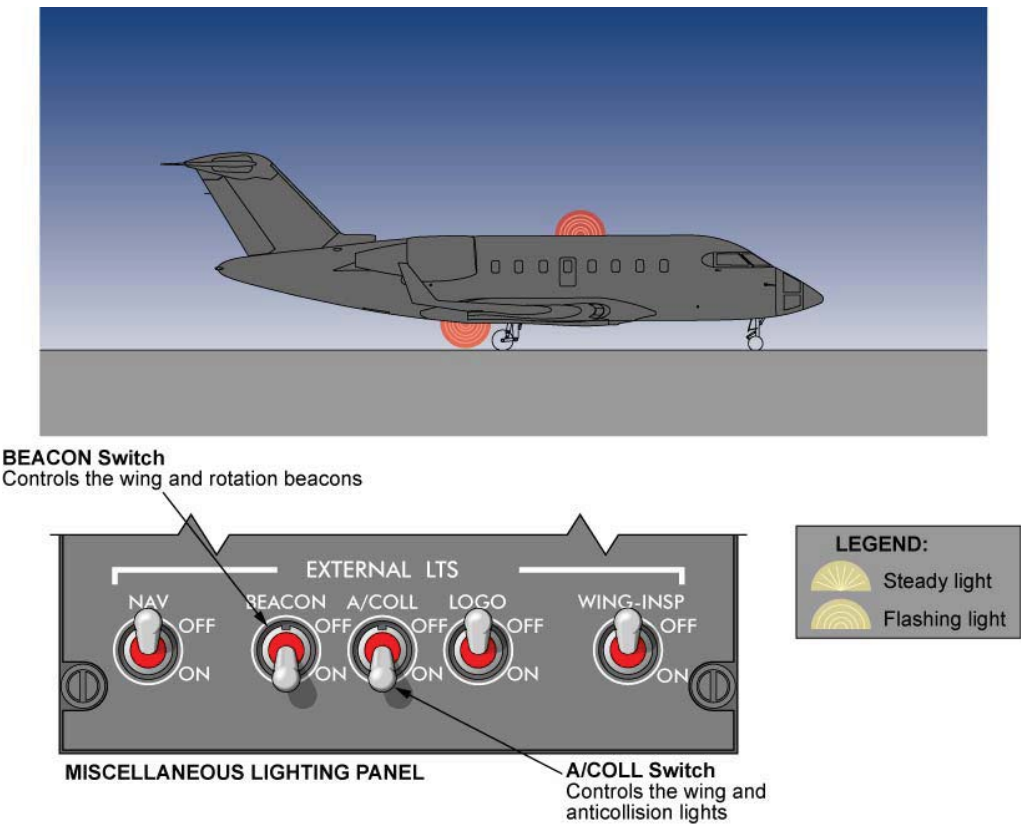
- Steady light
- Flashing light



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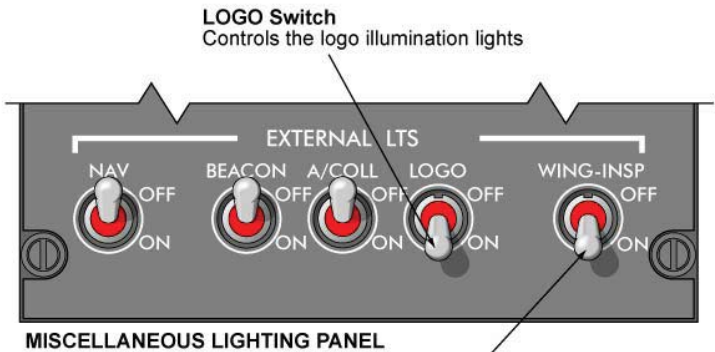
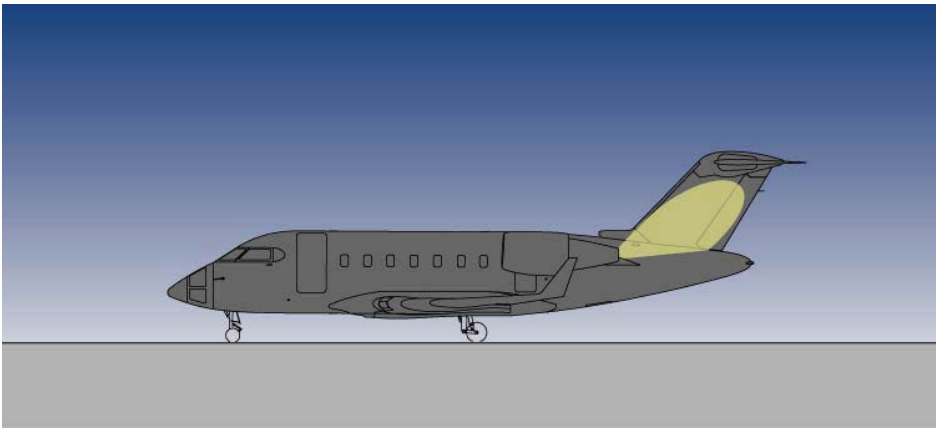
Exterior Lights – Navigation Lights Location
Figure 16–10–2

EXTERIOR LIGHTING (CONT'D)

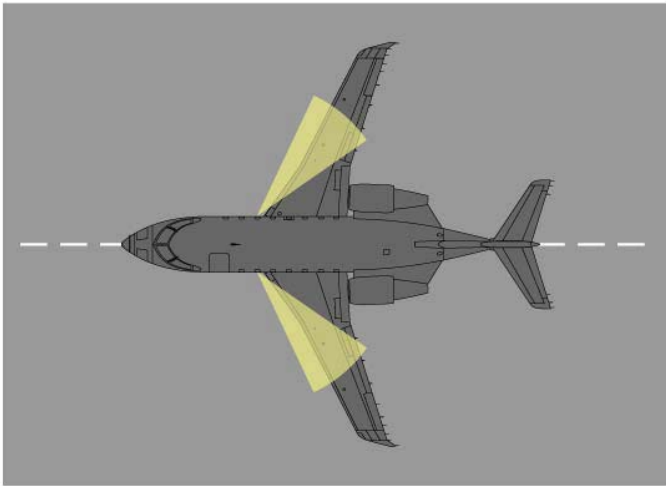


Beacon Lights and Anticollision Lights Location
Figure 16-10-3

EXTERIOR LIGHTING (CONT'D)



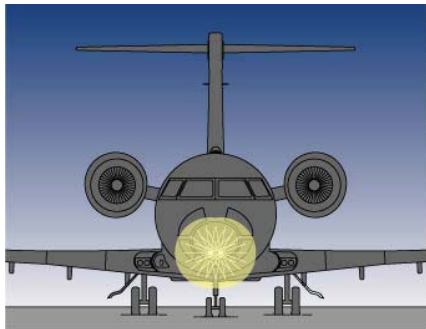
WING-INSP Switch
Controls the wing inspection lights



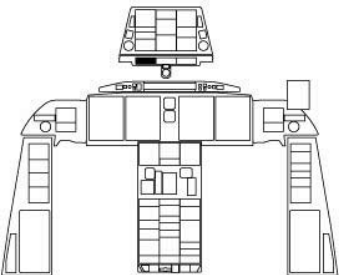
Logo Lights and Wing Inspection Lights Location
Figure 16-10-4

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EXTERIOR LIGHTING (CONT'D)

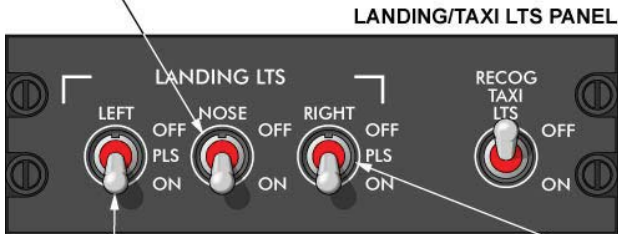


NOSE LANDING LTS Switch
Controls the two landing lights located in the nose compartment

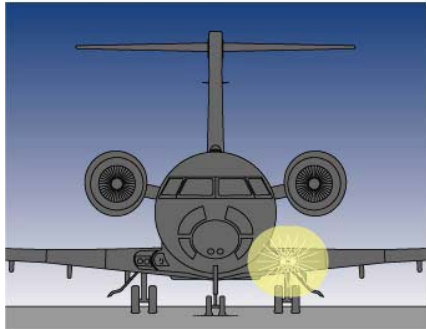


LEGEND:

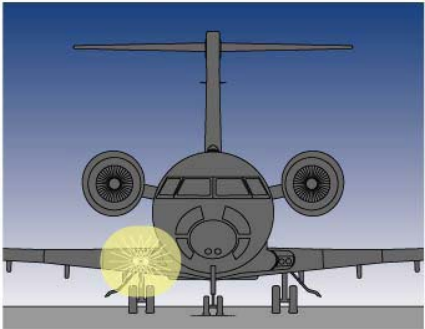
-  Steady light
-  Flashing light



LEFT LANDING LTS Switch
Controls the left landing light and the left RECOG TAXI LTS light

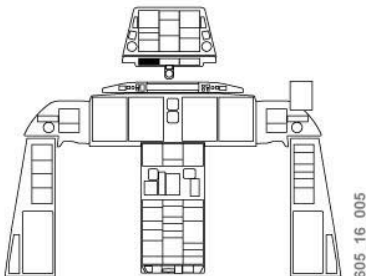
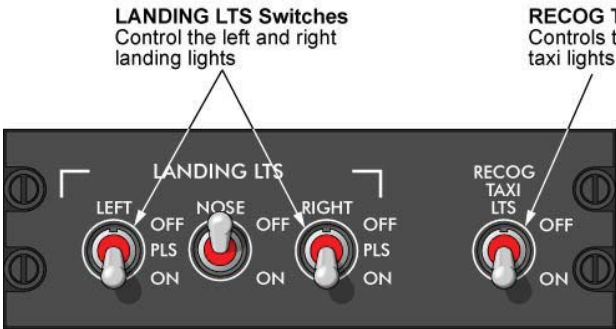
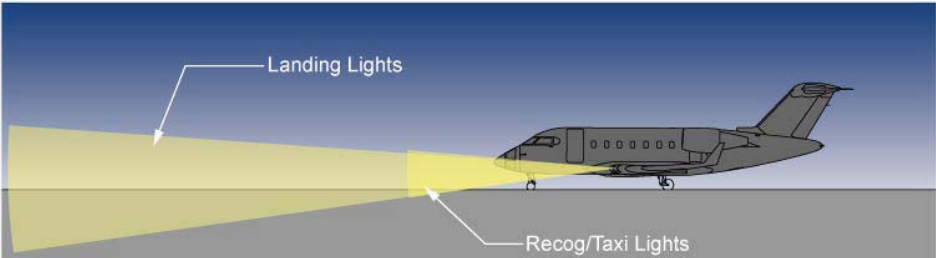
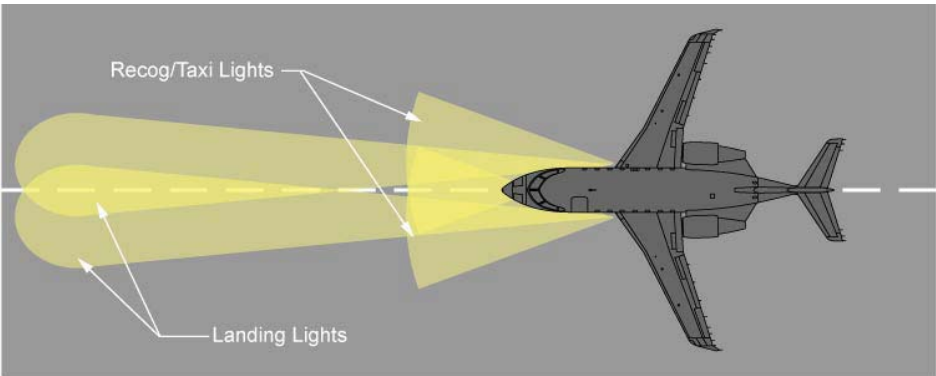


RIGHT LANDING LTS Switch
Controls the right landing light and the right RECOG TAXI LTS light



Exterior Lights – Landing Lights Location
Figure 16-10-5

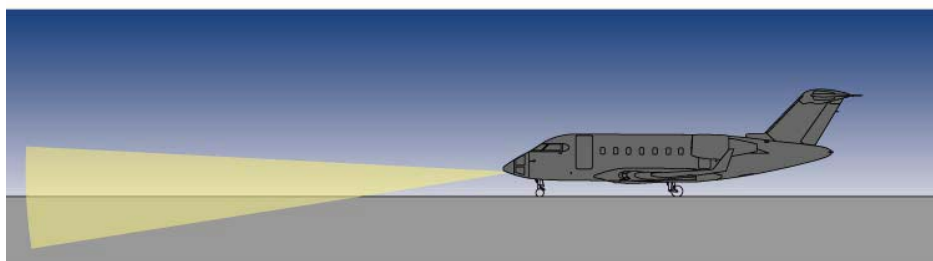
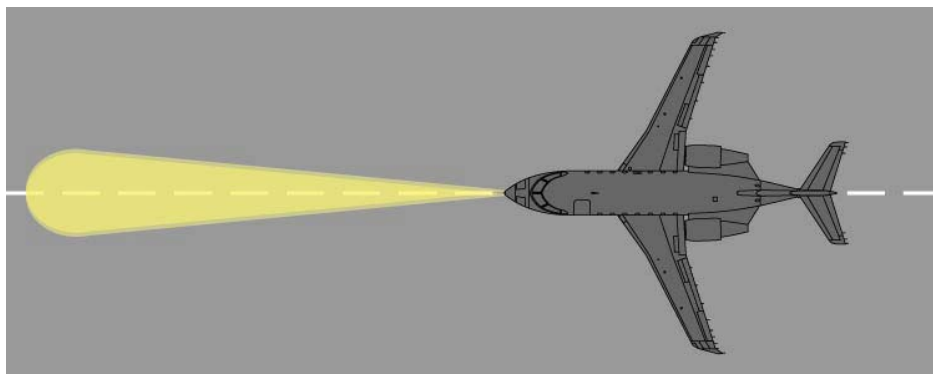
EXTERIOR LIGHTING (CONT'D)



LANDING/TAXI LTS PANEL

Exterior Lights – Landing and Recognition/Taxi Lights Location
Figure 16–10–6

EXTERIOR LIGHTING (CONT'D)



Exterior Lights – Nose Landing Lights Location
Figure 16–10–7

FLIGHT COMPARTMENT LIGHTING

Description

The flight compartment lights provide illumination to the instrument panels and flight compartment area. The flight compartment lighting controls are located on four panels:

- Pilot's lighting panel;
- Copilot's lighting panel;
- Center pedestal lighting panel; and
- Miscellaneous overhead/external indication lighting panel.

The first three panels are located on the lower part of the center pedestal. The fourth set of controls is located on the left side of the overhead panel.

Other flight compartment lighting includes chart and map lights (see Figure 16–10–8).

FLIGHT COMPARTMENT LIGHTING (CONT'D)

Components and Operation

Pilot's and Copilot's Lighting Panels

The pilot's and copilot's lighting panels are located on the lower center pedestal, and are identical. The control knobs and switches apply to their respective sides (see Figure 16-10-10 and Figure 16-10-11).

The PFD/MFD control knobs control the intensity of the primary flight display (PFD) and multifunction display (MFD).

The INTEG control knobs control the intensity of the integral lighting for the instrument panel and side panel.

The FLOOD control knobs control the intensity of the flood lighting, located above the instrument panel and side panel.

The FLOOR lighting toggle switches control incandescent lights, located above the pilot's and copilot's rudder pedals. There are no adjustments possible.

Center Pedestal Lighting Panel

The center pedestal lighting panel has three control knobs and one switch which adjust lighting intensity (see Figure 16-10-9).

The CDUs control knob controls the intensity of all FMS CDUs located in the center pedestal.

The INTEG control knob controls the intensity of the integral lighting for all the panels on the center pedestal.

The FLOOD control knob controls the intensity of the flood lighting located under the center instrument panel.

The CB PNL light switch operates the lights for all of the flight compartment circuit breaker panels.

MISC LTS/IND LTS/OVHD Lighting Panel

The OVHD control knob is a dimmer that control the intensity of the integral lighting for the overhead panel.

With the BATT MASTER switch on, the following panels' integral lighting illuminates full bright and cannot be dimmed:

- APU panel;
- ELECTRICAL POWER panel;
- EICAS control panel;
- FIREX MONITOR/SPS TEST panel;
- Standby compass; and
- ISI.

FLIGHT COMPARTMENT LIGHTING (CONT'D)

The IND LTS toggle switch controls the bright/dim setting of the flight compartment indicator lights, but has no effect on PFD/MFD displays.

NOTE

AC power is required to dim lights.

Chart Holder and Map Reading Lights

Chart holder and map lights at the pilot's and copilot's position are controlled by their respective dimmer (OFF to BRIGHT) control knob.

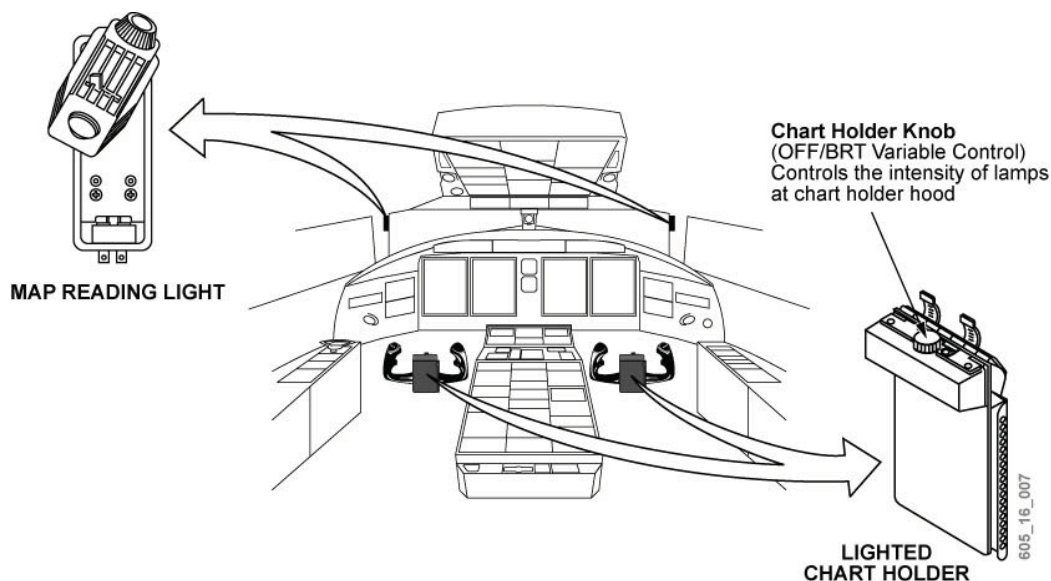


Chart Holder and Map Reading Lights – Location
Figure 16-10-8

Lamp Test

When the LAMP TEST switch, on the miscellaneous test panel, is used to test the flight compartment indicator lamps, all switch/lights are tested by each channel of the lamp driver unit (LDU). During the test, the green mode-active lights on the flight control panel (FCP) will illuminate as follows:

- LAMP TEST 1 will illuminate FCP left-side lights; and
- LAMP TEST 2 will illuminate FCP right-side lights

NOTE

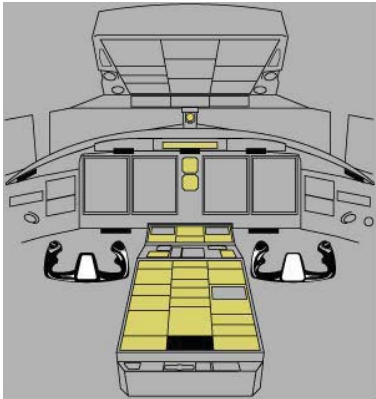
The ADG AUTO DEPLOY CONTROL TEST lamp does not illuminate during the test sequence.

NOTE

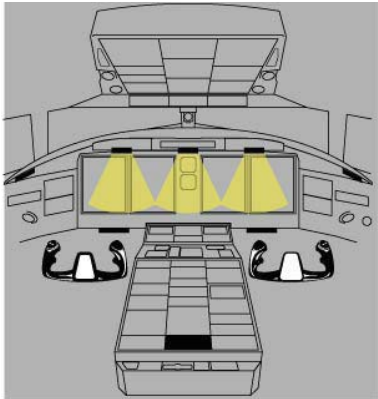
AC power is required to do a successful test of both channels.

FLIGHT COMPARTMENT LIGHTING (CONT'D)

Controls and Indicators



INTEG Lights Control
Controls the panel and instrument integral lighting

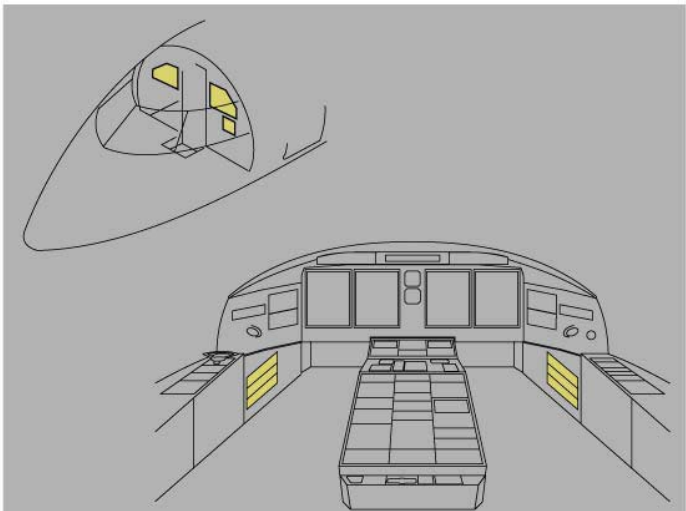


FLOOD Lights Control
Controls the fluorescent lighting



CENTER LIGHTING PANEL

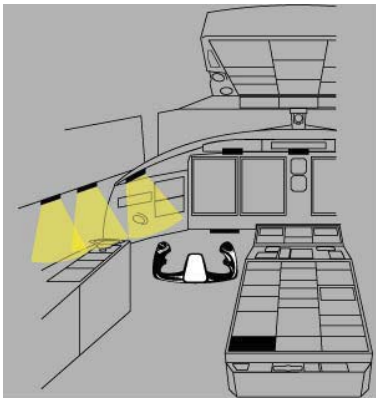
CB PNL Light Switch
Operates the circuit breaker panels' lights



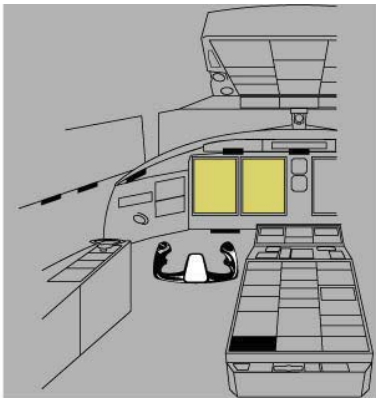
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Center Lighting Panel
Figure 16-10-9

FLIGHT COMPARTMENT LIGHTING (CONT'D)



FLOOD Lights Control Knob
Controls the fluorescent lighting



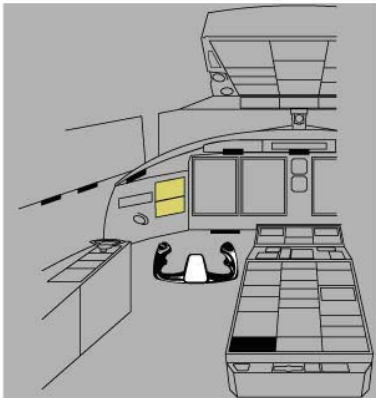
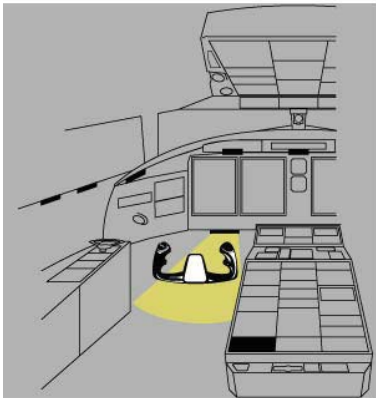
PFD/MFD Lighting Control Knobs
Controls the display lighting



PILOT'S LIGHTING PANEL

FLOOR Light Switch
Operates the floor light

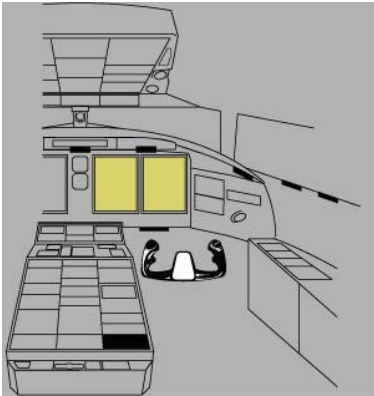
INTEG Lights Control Knob
Controls the panel and
instrument integral lighting



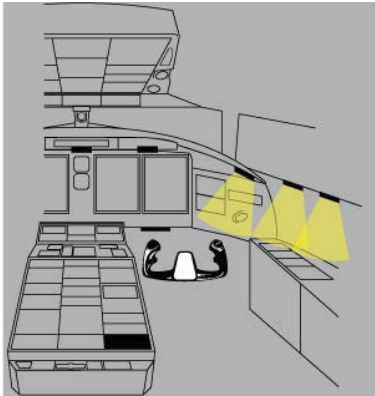
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Pilot's Lighting Panel
Figure 16-10-10

FLIGHT COMPARTMENT LIGHTING (CONT'D)



PFD/MFD Lighting Control Knob
Controls the display lighting

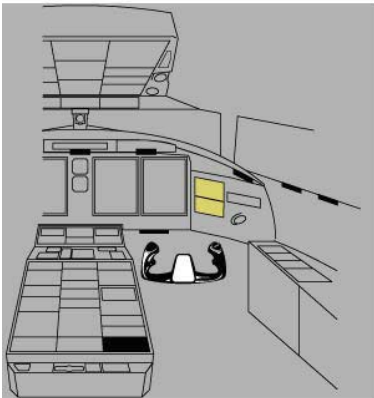


FLOOD Lights Control Knob
Controls the fluorescent lighting

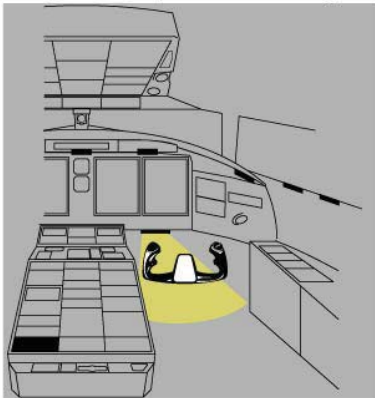


COPILOT'S LIGHTING PANEL

INTEG Lights Control Knob
Controls the panel and
instrument integral lighting



FLOOR Light Switch
Operates the floor light



Copilot's Lighting Panel
Figure 16-10-11

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PASSENGER COMPARTMENT (CABIN) LIGHTING

Description

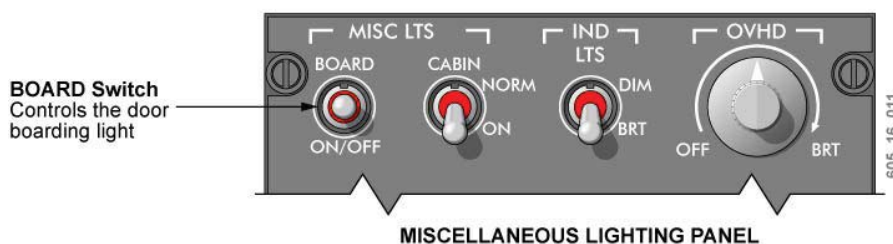
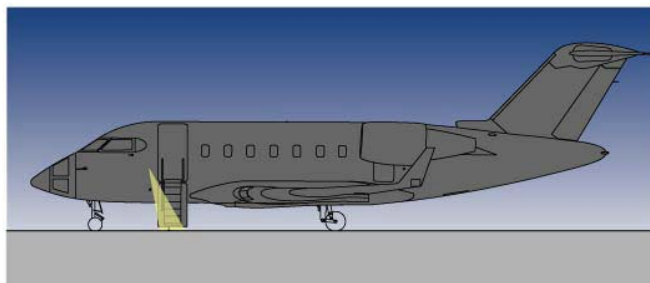
The passenger compartment contains numerous lights for passenger comfort and safety, such as cabin floodlights, boarding lights, passenger reading lights and passenger ordinance signs.

Cabin floodlight and passenger reading light location and controls will vary depending on each aircraft's completion.

Components and Operation

Cabin and Boarding Light

The BOARD switch controls the boarding light. Also, there is another switch for the boarding light, identified as "Boarding Light", and is installed on the left side of the passenger door frame.



Boarding Light
Figure 16-10-12

Stair Lights

Lighting is installed in the riser of the first, third, fourth and sixth steps. Two floodlights are also installed in the last riser, to illuminate the ground at the base of the stairs.

There are three ways to control the stair lights:

- By the BOARD switch located on the MISC LTS overhead panel;
- By a switch located in the passenger compartment near the top of the door. The actual location of the switches may vary, depending on each aircraft's completion; and
- By a toggle switch or a pushbutton on the left-hand side of the stairs.

PASSENGER COMPARTMENT (CABIN) LIGHTING (CONT'D)



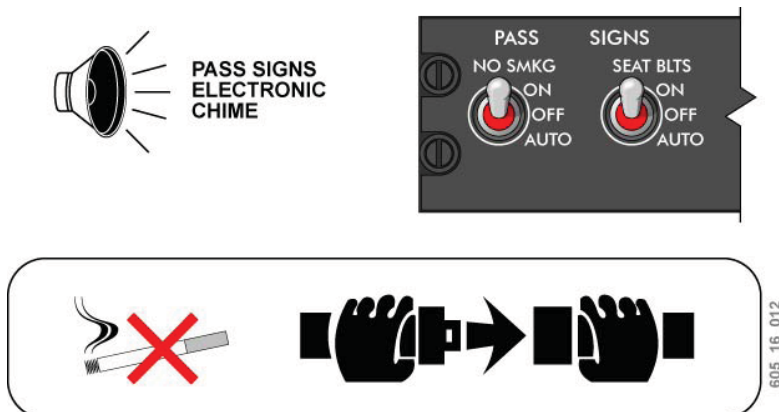
Stair Lights Control
Figure 16-10-13

Passenger Signs

The NO SMKG and SEAT BELTS switches, located on the PASS SIGNS/EMER LTS panel in the flight compartment, control the illumination of the passenger signs. Each time a passenger sign comes on, an electronic chime is heard. Each switch has the following three positions:

- In the ON position, the NO SMKG/SEAT BLTS passenger signs are illuminated;
- In the OFF position, the NO SMKG/SEAT BLTS passenger signs are selected off; and
- In the AUTO position, the NO SMKG and SEAT BLTS passenger signs operate as follows:
 - With the flaps selected at greater than 0, the SEAT BLTS signs illuminate automatically;
 - When the landing gear is selected down, both NO SMKG and SEAT BLTS signs illuminate; and
 - With the cabin altitude greater than 10,000 feet, the NO SMKG and SEAT BLTS signs illuminate.

PASSENGER COMPARTMENT (CABIN) LIGHTING (CONT'D)



Passenger Compartment Signs (Typical)
Figure 16-10-14

CARGO AND SERVICE COMPARTMENT LIGHTING

Description

Lighting is provided to the following areas:

- Underneath each pylon for:
 - Cargo bay door area;
 - The water-fill service door; and
 - The toilet service door.
- Nose landing gear wheel well;
- Main avionics compartment; and
- Aft equipment compartment.

Components and Operation

External Service Door Lights

Service lighting is installed in the lower portion of the left and right engine pylons.

Switches located inside the baggage compartment control the left pylon service light.

The right pylon service light is controlled by a microswitch located in the waste service access panel, and a second microswitch located in the potable water service access panel.

Nose Landing Gear Wheel Well

The nose landing gear wheel well service light is installed on the forward wall of the wheel well. There is one toggle switch to operate the service light. The switch is identified as SERVICE LIGHT, and is installed on the left side of the wheel well service light.

CARGO AND SERVICE COMPARTMENT LIGHTING (CONT'D)



Nose Landing Gear Service Light
Figure 16-10-15

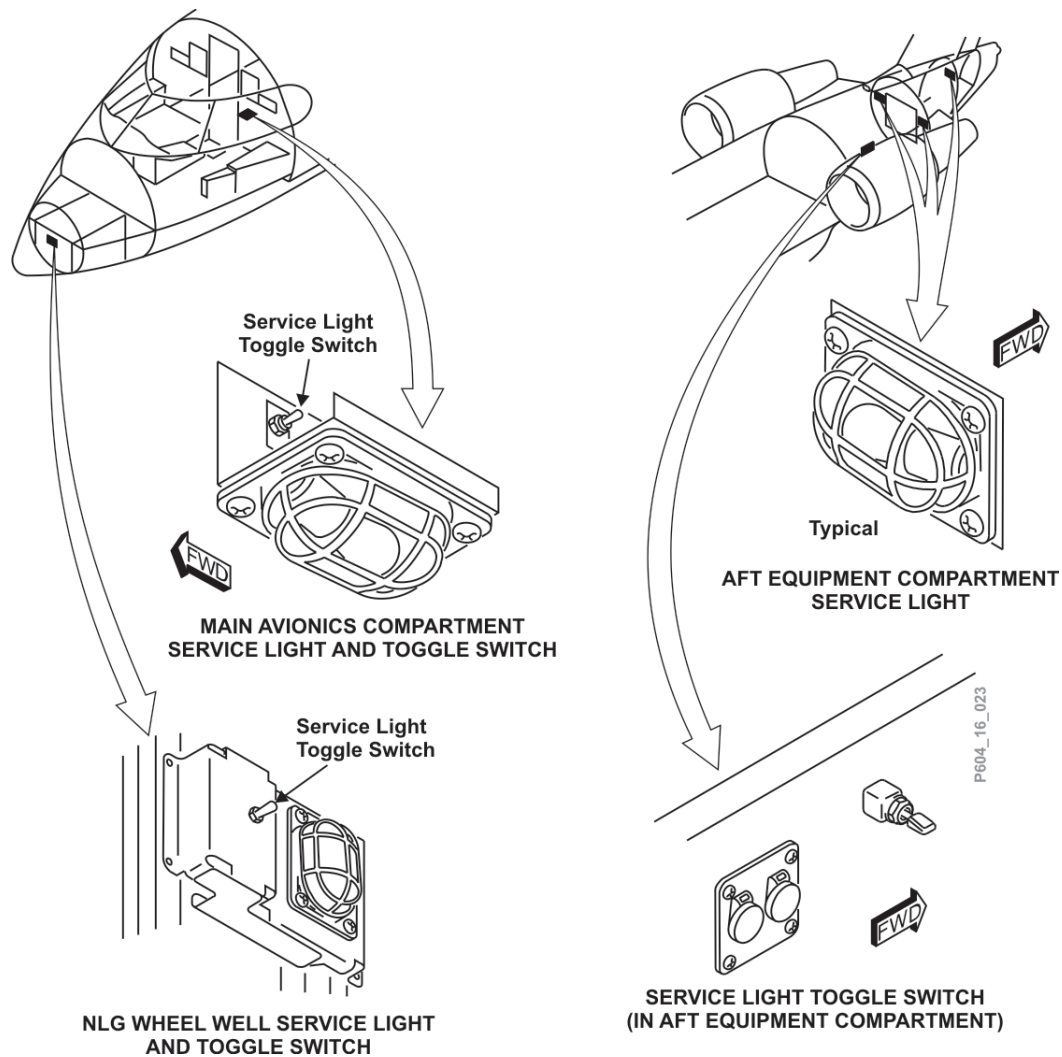
Main Avionics Compartment

The main avionics compartment service light is installed on the right side of the avionics bay. There is one toggle switch to operate the service light. The switch is identified as SERVICE LIGHT, and is typically installed above the compartment service light, depending on completion.

Aft Equipment Compartment

There are three service lights installed in the aft equipment compartment. One toggle switch operates the three lights. The switch is identified as SERVICE LIGHT, and is installed on the left side of the compartment, above the access door frame.

CARGO AND SERVICE COMPARTMENT LIGHTING (CONT'D)



Service Lights – Location and Controls
Figure 16-10-16

EMERGENCY LIGHTING

Description

The emergency lighting system provides illumination to the main cabin door and the right-hand overwing exit, as well as to the cabin interior, and floor level lighting leading to the aircraft exits.

Components and Operation

Power Supply

The emergency lights are powered by two self-contained, rechargeable battery packs that receive a “trickle” charge from the DC essential bus. When in use, each pack provides approximately fifteen minutes of power to the emergency lighting system. When the battery packs’ power supply is low, an **EMER LTS OFF** caution message will appear on the EICAS.

EMERGENCY LIGHTING (CONT'D)

Interior Emergency Lights

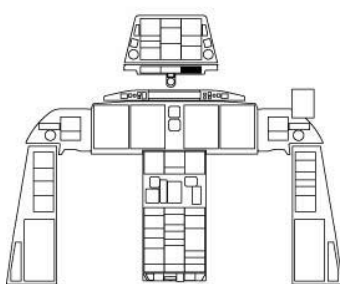
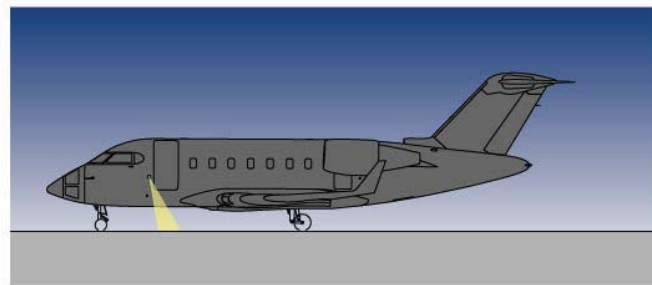
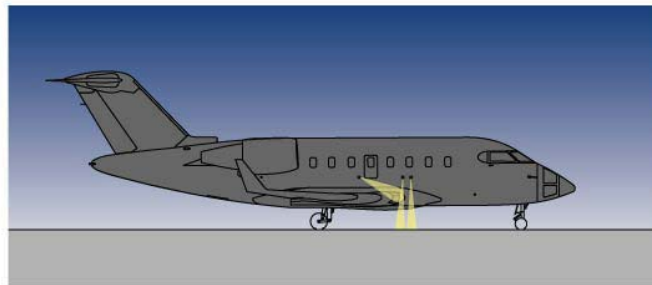
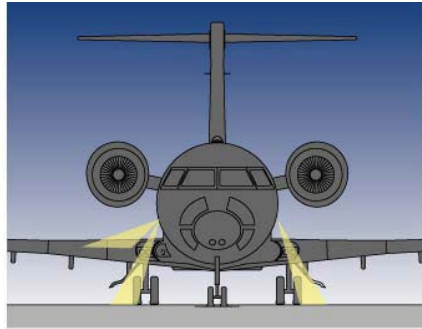
The location and the number of the interior emergency lights varies depending on the aircraft's completion. If installed, the aircraft will have white floor track lighting that leads to red lighting. The red lighting is typically used to mark the location of the aircraft's two emergency exits.

Exterior Emergency Lights

There are four exterior emergency lights, and their locations are as follows:

- One light located forward of the cabin door; and
- Two lights forward and one light aft of the overwing exit.

EMERGENCY LIGHTING (CONT'D)

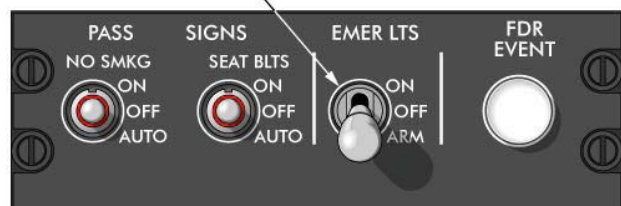


EMER LTS Switch

ON – Emergency lights illuminate.

OFF – Emergency lights are turned off.

ARM – Emergency lights illuminate if electrical power is lost.



PASSENGER SIGNS / EMERGENCY LIGHTS PANEL

Exterior Emergency Lights
Figure 16-10-17

Controls and Indicators

The EMER LTS switch, located on the PASS SIGNS/EMER LTS panel, controls the emergency lights. The EMER LTS switch has three positions: ON, OFF, and ARM.

EMERGENCY LIGHTING (CONT'D)

When selected to ON, the emergency lights illuminate, and are powered by their respective battery packs. The battery packs do not continue to “trickle” charge, and the **EMER LTS ON** status EICAS message will appear.

When selected to OFF, power is removed from the emergency lighting system. If the DC essential bus is powered and the emergency lights are selected OFF, the battery packs continue to “trickle” charge, and the **EMER LTS OFF** caution EICAS message will appear.

When selected to ARM, the preset condition for automatic illumination is a power loss on the AC essential bus or DC essential bus.

When this condition is met, the emergency lighting system will illuminate, and the **EMER LTS ON** status EICAS message will appear.

When selected to ARM, the battery packs will “trickle” charge as long as the preset condition for illumination is not met.

NOTE

During aircraft shutdown, if AC power is removed with the EMER LTS switch in the ARM position, the emergency lighting system will activate, and can only be reset (turned off) by restoring AC power, then moving the switch to the OFF position.

EICAS MESSAGES

MESSAGE	MEANING
EMER LTS OFF	Emergency lights have been turned OFF, or power supply is below 4.7 VDC.
EMER LTS ON	Emergency lights have been activated and battery is above 4.7 VDC.

Bombardier Challenger 605 - Lighting

POWER SUPPLY AND CIRCUIT BREAKER SUMMARY

SYSTEM	SUB-SYSTEM	CB NAME	BUS BAR	CB PANEL	CB LOCATION	NOTES
Interior Lighting	Flood and Floor Lights	LIGHTS FLOOD	DC ESS	4	A13	
		LIGHTS CKPT FLOOR	DC BUS 1	1	G13	
	Panel Lights	INTEG LTS PLT C/PLT	DC ESS	4	C3	
		INTEG LTS PED & OVHD	DC BATT	1	P8	
	Map Lights	MAP LIGHT	DC BATT	1	N11	
		MAP LIGHT	DC BATT	1	P9	
	Service Lights	BOARD/STAIR LTS	DC MAIN BATT DIRECT	6	A6	
		SERVE LTS	DC MAIN BATT DIRECT	6	A7	
	Chart Holder	LIGHTS CHRT HLDR	DC BUS 1	1	G11	
	Passenger Signs	PASS WARN SIGNS	DC BUS 1	1	F11	
	Washroom Lights	FWD CAB UPWASH LTS	DC BUS 1	1	E14	
		AFT CAB UPWASH LTS	DC BUS 2	2	K5	
Exterior Lighting	Navigation Lights	NAV LTS	AC BUS 1	1	C13	
	Landing and Taxi Lights	LDG/TAXI LTS L NOSE	AC BUS 1	1	C14	
		LDG/TAXI LTS L WING	AC BUS 1	1	C15	
		LDG/TAXI LTS R NOSE	AC BUS 2	2	C14	
		LDG/TAXI LTS R WING	AC BUS 2	2	C15	
		PULSE CONT	DC BUS 1	1	G10	
	Wing Inspection	LIGHTS WING INSP	DC BUS 1	1	G12	
	Emergency Lights	LIGHTS EMERG	DC ESS	4	A12	

Bombardier Challenger 605 - Lighting

POWER SUPPLY AND CIRCUIT BREAKER SUMMARY (CONT'D)

SYSTEM	SUB-SYSTEM	CB NAME	BUS BAR	CB PANEL	CB LOCATION	NOTES
Exterior Lighting (Cont.)	Anti-Collision Lights	LIGHTS REAR A/COLL	DC BUS 1	1	G14	
		LIGHTS WING A/COLL	DC BUS 2	2	G14	
		BEACON LIGHTS	DC BUS 2	2	G13	
	Service Lights	EXT SERV LTS	DC MAIN BATT DIRECT	6	A5	
	Logo Lights	LOGO LIGHTS	AC UTILITY BUS 1	1	D8	