

GULFSTREAM G550

OPERATING MANUAL

LIGHTING

2A-33-10: General

The lighting system increases visibility to enhance cockpit workflow, cabin comfort and exterior maintenance and servicing. Exterior lights also improve aircraft visibility for collision avoidance and increase flight crew situational awareness during night landings. Battery powered emergency illumination guides the crew and passengers in locating egress pathways. The lighting system is divided into the following subsystems:

- 2A-33-20: Flight Compartment Lighting System
- 2A-33-30: Passenger Compartment (Cabin) Lighted Signs and Icons
- 2A-33-40: Baggage, Tail Compartment, Pylon and Service Panel Lighting
- 2A-33-50: Exterior Lighting
- 2A-33-60: Emergency Lighting System

2A-33-20: Flight Compartment Lighting System

1. General Description:

The flight compartment lighting system provides both direct and indirect illumination to enhance cockpit workflow. Cockpit lighting is provided for overhead panels, instrument panels and glareshields, the center pedestal and side consoles. The location of cockpit lighting installations is depicted in Figure 1. Ceiling mounted dome and flood lights provide general area lighting, supplemented by flood lights installed beneath the cockpit side fairings. Overhead and yoke mounted map lights are installed to enhance document review without the necessity of using the general area illumination (see Figure 2). An overhead reading light is also provided for use by an occupant of the observers jumpseat. All cockpit lighting is controlled by switches and rotary knobs mounted on easily accessible locations.

NOTE:

Two rechargeable flashlights are included in the cockpit furnishings to aid in emergency egress or other abnormal operations. The flashlights are installed on the aft section of the side consoles at the pilot and copilot seats. (A third rechargeable flashlight is mounted on the bulkhead of the baggage compartment.)

2. Description of Subsystems, Units and Components:

A. Annunciator Lights Test Button:

A pushbutton on the cockpit overhead SYSTEM TEST panel, labelled ANN TEST, will illuminate all cockpit annunciator lights when the pushbutton is depressed (see Figure 3). The test function can determine if any annunciator light elements have failed and require replacement. Although a description of the annunciator lights system is contained in Section 2A-31-50: Monitor and Warning System of this manual, the lights are integrated into the controls for overall cockpit illumination levels in order to maintain

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contrast between the panel edge lights and labels and the annunciator lights within the panels.

NOTE:

The lights in the engine fire handles, engine fuel control switches and the thrust reverser manual stow indicators are not integrated into the dimming functions of the cockpit lighting controls due to the critical nature of the annunciations. These lights always illuminate at full bright levels.

B. COCKPIT LIGHTS Overhead Panel:

Five (5) rotary knobs on the COCKPIT LIGHTS overhead panel, located on the lower center section of the cockpit overhead, control the illumination levels of the cockpit overhead panel, circuit breaker panels, center pedestal and overhead area flood lights. All of the knobs control electrical potentiometers that vary the voltage to the bulbs and Liquid Crystal Displays (LCDs) that illuminate the panel edgelights, instruments, annunciators or areas within the cockpit. The panel and knobs are illustrated in Figure 4.

The largest knob, centered within the panel is the MASTER CONTROL knob. The MASTER CONTROL knob provides three functions:

- (1) In the full counter-clockwise OFF position, knob sets cockpit lighting for daylight conditions by turning off all panel, flood and instrument lights and setting all annunciator lights to full bright to increase visibility in sunlight.
- (2) In the middle range, the MASTER CONTROL knob establishes a variable voltage control for cockpit lighting that can be set in response to ambient conditions. Rotating the knob clockwise from the OFF position to a marked detent sets a minimum illumination level for all overhead and pedestal lights that is suitable for operations in darkness. Once out of the OFF position, the master knob energizes the potentiometers of the other four (4) knobs on the control panel, allowing them to be set to control illumination levels on area panels and lights. The four (4) smaller knobs also have marked detents corresponding to minimum light levels, however the controlled voltage at the detent settings is slightly higher than the voltage level established by the master knob when at the detent, allowing the panel and area knobs to adjust specific lighting levels. If the MASTER CONTROL knob is rotated further clockwise out of the minimum setting detent, the illumination levels of all overhead and pedestal lights will increase since the master knob establishes the minimum voltage level that can be varied with the other four (4) knobs. The smaller area knobs can only increase the light level set by the master knob.

NOTE:

The MASTER CONTROL sets the brightness of the M (menu) pushbutton on the Standby Flight Instruments.

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- (3) If the MASTER CONTROL knob is set to the full clockwise position, past full bright to the ORIDE position, all panel, pedestal, annunciator and area lights are set to full bright. The ORIDE position is useful when encountering lightning during night operations or in other abnormal situations when bright external or internal light sources could interfere with manipulation of cockpit controls, switches or instruments.

The two knobs to the left of the master knob are the OVHD PNL and PED PNL knobs. Both knobs have dual rotary controls. The outer concentric control adjusts the illumination of the respective overhead or pedestal panel edgelights, label markings and titles, instrument face lights and LCD controls embedded in the panels. The inner rotary control of both knobs sets the brightness of the annunciators lights located in the respective panels. The OVHD PNL knob controls the lighting in the following panels:

- SYSTEM TEST / FIRE TEST / DISPLAY SWITCHING
- EMERGENCY POWER
- STANDBY ELECTRICAL POWER
- ELECTRICAL POWER CONTROL
- TRU / MASTERS
- ENGINE START / HYDRAULIC CONT
- EXTERIOR LIGHTS / PASS WARN
- APU / REMOTE FUELING
- FUEL SYSTEM
- ANTI ICE
- COCKPIT LIGHTS
- BLEED AIR / TEMP CONTROL
- CABIN PRESSURE RC DIAL (rate of climb)
- CABIN PRESSURE CONTROL
- CABIN PRESSURE CAUTION
- WIPER / WINDSHIELD HEAT

The PED PNL knob controls the lighting in the following panels:

- MCDU #1, #2 and #3 function keys and edge lighting
- IRS MODE SEL
- PITCH TRIM WHEEL (left and right)
- SPEED BRAKE / SPOILER CONTROL
- WEATHER RADAR (pilot and copilot)
- CONT IGNITION / FUEL CONTROL
- PEDESTAL SWITCH PANEL
- DISPLAY BRIGHTNESS
- RUDDER AND AILERON TRIM
- FLAP / GPWS / GND SPLR FLAP OVRIDE
- CABIN PRESSURE SELECTOR

To the right of the center master knob are two single element knobs. The

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top right knob, labelled CB PANELS, controls the illumination of the edgelights, labels and titles on the cockpit circuit breaker panels. The bottom right knob, labelled OVHD FLOOD, sets the brightness of the overhead flood light that provides general area illumination for the cockpit.

NOTE:

Cockpit flood lights require a warm up period of approximately five seconds before the dimming control is active.

C. COCKPIT LIGHTS Side Console Panels:

A lighting control panel is located on the forward section of each side console to allow each crew member to adjust the illumination levels of lighting installed in the respective pilot and copilot sides of the cockpit. Each panel contains the same rotary knob controls (see Figure 5). The top outboard knob, labelled LEFT (or RIGHT) CONSOLE, controls the illumination of edgelights and labels within the respective console panel. The LEFT CONSOLE knob sets light levels in the following panels:

- PILOT COCKPIT LIGHTS
- NOSE WHEEL STEERING
- PILOT AUDIO CONTROL PANEL
- PILOT COMM JACK
- OBSERVER AUDIO CONTROL PANEL
- OBSERVER COMM JACK

The RIGHT CONSOLE knob controls illumination within the following panels:

- COPILOT COCKPIT LIGHTS
- COPILOT AUDIO CONTROL
- COPILOT COMM JACK
- OXYGEN SYSTEM
- OXYGEN SYSTEM INDICATOR DIAL

NOTE:

The brightness of the annunciators installed in the pilot and copilot side consoles is controlled with the respective inner knob of the left or right glareshield lighting control.

The bottom outboard knob, labelled FLOOD L (or R) CONSOLE, controls the brightness of the flood light installed above and outboard of the side console panel below the Cursor Control Device (CCD). The top inboard knob, labelled L (or R) GLRSHLD FLT PNL, is a dual concentric control with the outside knob setting the illumination level of the edgelights, labels and text on the respective glareshield panel and the inner knob controlling the brightness of the annunciators and switches installed in the glareshield and console. The L GLRSHLD FLT PNL knob controls the lighting in the following panels:

- L GLARESHIELD MASTER WARNING

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- PILOT DISPLAY CONTROLLER
- FLIGHT GUIDANCE
- YAW DAMP / PITCH TRIM / STBY RUD

The R GLRSHLD FLT PNL knob controls illumination in the following panels:

- L GLARESHIELD MASTER WARNING
- COPILOT DISPLAY CONTROLLER
- LANDING GEAR CONTROL
- EMERGENCY BRAKE ACCUMULATOR DIAL

The bottom inboard switch labelled YOKE / OVHEAD, also has dual controls. The outer rotary knob sets the light level of the respective yoke mounted map light and the inner knob controls the map light installed in the cockpit overhead for that crew position.

The console and glareshield panel knobs have detents to establish minimum illumination levels, with the master control knob determining the reference brightness level of the panels. The console and glareshield knobs can increase the lighting level set by the master control. The override position of the master control knob will also set the console flood lights to full bright.

D. Cockpit Dome Lights:

Two cockpit dome lights are installed in the overhead. The dome lights are powered by the right essential DC bus in order that battery power can be used to provide illumination when first boarding the aircraft. Both lights are controlled with one switch located adjacent to the lights.

E. Observer Reading Light:

A reading light is installed in the cockpit overhead, next to the overhead floodlight, for use by an observer occupying the cockpit jumpseat. The light is controlled with an integral switch that is within reach of the observer when seated.

3. Lighting Power Supplies:

Power for cockpit lighting is direct current (DC) provided by the main, essential or essential flight instrument buses. Panel edgelights, label and text illumination use a variable zero to five volt (0 - 5v) power supply, with the amount of current determined by the potentiometer settings controlled with the respective panel rotary knobs. Annunciator lights within each panel, as well as lighting for other instruments and controls use a variable zero to twenty-eight volt (0 - 28v) power supply to enable greater control capabilities.

Some critical installations have multiple lighting power sources to provide redundancy to ensure functionality. The cabin pressure control panel and the weather radar control panel have dual lighting power sources with two (2) voltage levels. All Multi-function Control and Display Units (MCDUs) have at least two (2) lighting power sources. One source provides a variable zero to five volt (0 - 5v) power source for panel lighting and a second source provides twenty-eight volts (28v) to the MCDUs in order that the dimming control knob on the units can control the illumination levels of the display face of the units. Lighting for MCDUs #1 and #3 can also be powered by a master power supply that receives voltage from the essential flight instrument bus. This allows these two (2) MCDUs to control radio

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communications and navigation during a severe electrical malfunction that limits cockpit resources (MCDUs #1 and #3 are powered by the emergency DC bus). For the same reason, the master power supply also provides the sole illumination power source and dimming control for cockpit clocks, the standby flight director and standby bearing and distance indicator.

There are eight (8) lighting power supplies. The following table contains a list of the installations powered and voltage levels of the power supplies.

Power Supply	Installation
Overhead Panel Power Supply #1 (0 - 5 volts)	Bleed Air / Temp Cont Panel Cockpit Lights Panel Engine / Hydraulic Control Panel Visual Guidance System (HUD) Combiner Battery volts / amps LCD APU EGT / RPM LCD Cabin Press Indicator and LCD Cockpit / Cabin Temp LCD Cabin Press Control Panel
Overhead Panel Power Supply #2 (0 - 5 volts)	Master / TRU Panel Exterior / Passenger Warn Lights APU / Fuel Panel Anti Ice Panel Windshield Heat Panel Cabin Pressure Caution Panel
Overhead Panel Power Supply #3 (0 - 5 volts)	Display Switching and System and Fire Test Panels Electrical Power Panel
Pedestal Panel Power Supply #1 (0 - 5 volts)	IRS Mode Select Panel Cockpit Call Switch Panel Pedestal Assembly Floor Illumination Continuous Ignition / Fuel Control Panel Weather Radar #1 Control Cabin Pressure Selector MCDU #1 MCDU #3
Pedestal Panel Power Supply #2 (0 - 5 volts)	MCDU #2 Weather Radar #2 Pedestal Switch Panel Display Dimming Master Panel Pedestal Assembly Floor Illumination
Pedestal Panel Power Supply #3 (0 - 28 volts)	MCDU #1 MCDU #2 MCDU #3 Weather Radar #1 Weather Radar #2
Master Power Supply (0 - 5 volts)	MCDU #1 (backup) MCDU #3 (backup) Standby Flight Director Standby Bearing and Distance Indicator Pilot Clock Copilot Clock
L Cockpit Circuit Breaker Power Supply (0 - 5 volts)	L Cockpit Circuit Breaker Panel
R Cockpit Circuit Breaker Power Supply	R Cockpit Circuit Breaker Panel

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4. Controls and Indications:

(See Figure 2 through Figure 5.)

A. Circuit Breakers (CBs):

The following CBs protect the cockpit lighting system:

Circuit Breaker Name:	CB Panel:	Location:	Power Source:
ANN TEST	LEER	C-7	L ESS DC Bus
ANN LTS CONTROL MAIN	LEER	C-6	L ESS DC Bus
ANN LTS CONTROL STBY	LEER	C-5	L MAIN DC Bus
OVHD ANN LTS PWR # 1	LEER	A-6	L ESS DC Bus
OVHD ANN LTS PWR #2	LEER	A-5	L ESS DC Bus
OVHD ANN LTS PWR # 3	LEER	A-4	L ESS DC Bus
ANN LTS PWR # 4	LEER	B-9	L ESS DC Bus
OVHD ANN LTS PWR #5	LEER	B-8	L ESS DC Bus
ANN LTS PWR # 6	LEER	B-7	L ESS DC Bus
ANN LTS PWR # 7	REER	B-24	R ESS DC Bus
ANN LTS PWR # 8	REER	B-25	R ESS DC Bus
ANN LTS PWR # 9	LEER	B-6	L ESS DC Bus
ANN LTS PWR # 10	LEER	B-5	L ESS DC Bus
PED PWR # 1	LEER	H-3	L ESS DC Bus
PED PWR # 2	REER	F-18	R MAIN DC Bus
PED PWR # 3	REER	E-20	R MAIN DC Bus
OVHD PWR # 1	LEER	G-4	L ESS DC Bus
OVHD PWR # 2	REER	E-17	R MAIN DC Bus
PILOT OVHD MAP LTS	LEER	G-3	L MAIN DC Bus
COPILOT OVHD MAP LTS	REER	E-18	R MAIN DC Bus
L CONSOLE PWR	LEER	G-2	L MAIN DC Bus
R CONSOLE PWR	REER	E-19	R MAIN DC Bus
L FLT PNL / GSHLD PWR	LEER	H-4	L ESS DC Bus
R FLT PNL / GSHLD PWR	REER	F-17	R MAIN DC Bus
L CONSOLE FLOOD	LEER	H-2	L MAIN DC Bus
R CONSOLE FLOOD	REER	F-19	R MAIN DC Bus
CKPT CB PANEL LTS	LEER	J-4	L MAIN DC Bus
COCKPIT FLOOD LTS	LEER	J-3	L MAIN DC Bus
STBY INST LTS PWR	LEER	J-2	ESS FLT INST Bus
DOVE LT	REER	F-20	R ESS DC Bus
FLASHLIGHTS	CABIN	F-9	GRND SERV Bus

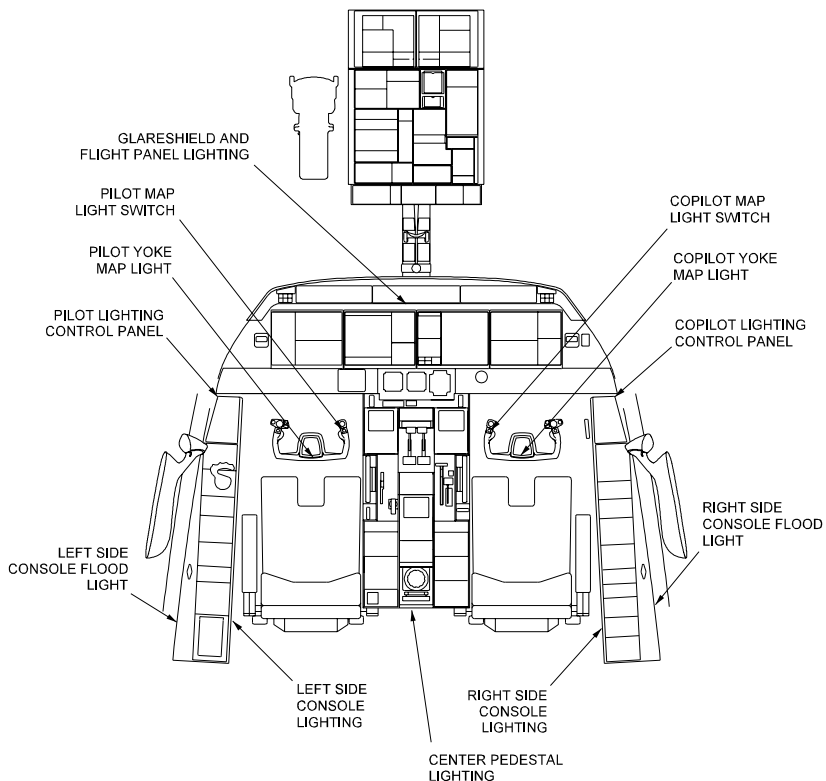
5. Crew Alerting System (CAS) Messages:

There are no CAS messages associated with cockpit lighting.

6. Limitations:

There are no limitations established for cockpit lighting as of this writing.

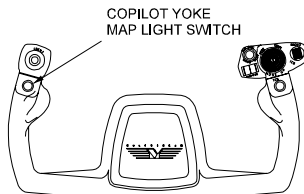
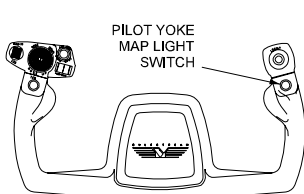
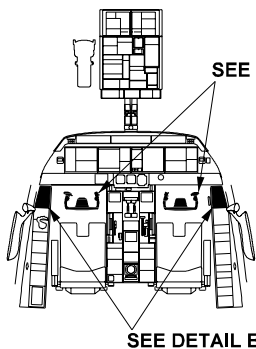
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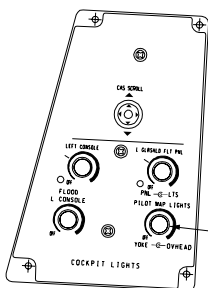
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Cockpit Lighting Locations
Figure 1

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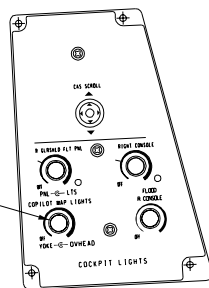


DETAIL A



COPILOT YOKE MAP
LIGHT POTENTIOMETER
(OUTSIDE KNOB)

PILOT YOKE MAP
LIGHT POTENTIOMETER
(OUTSIDE KNOB)

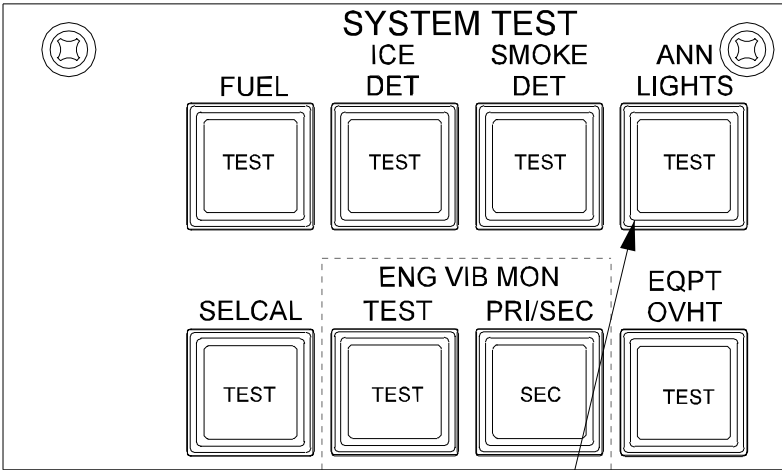
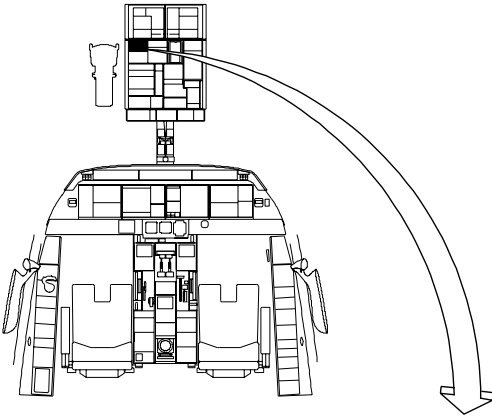


DETAIL B

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Map Light Controls
Figure 2

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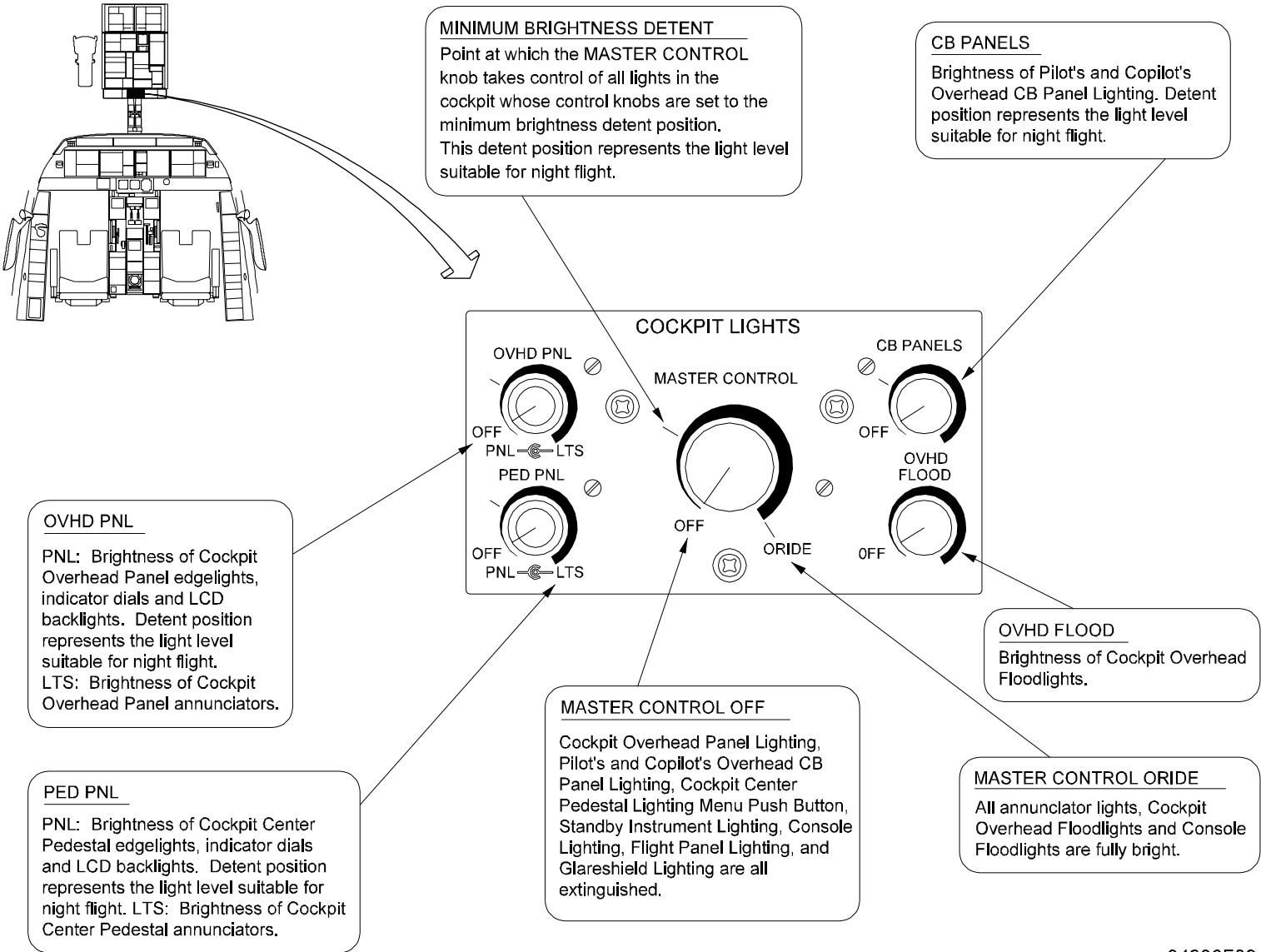


ANNUNCIATOR LIGHTS TEST SWITCH

Depressing and holding this switch causes all annunciator lights on the Cockpit Overhead Panel, Center Pedestal and side consoles to be illuminated until the switch is released.

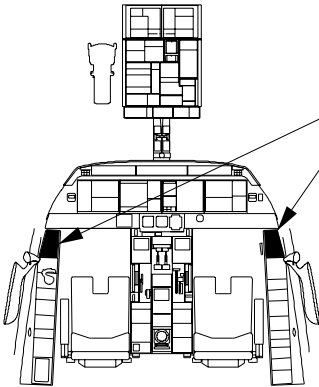
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Cockpit Overhead Panel: SYSTEM TEST Section
Figure 3



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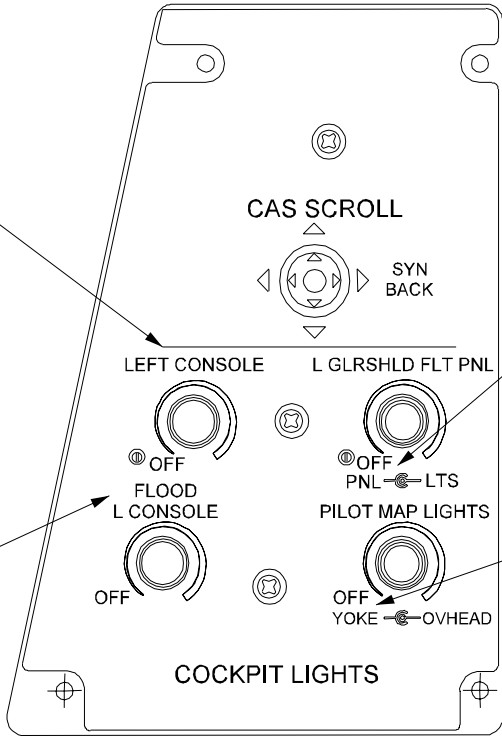
COCKPIT LIGHTS Control Panel
Figure 4



SEE DETAIL A

LEFT (RIGHT) CONSOLE
Brightness of Left (Right) Side Console edgelights and dial face lights. Detent position represents the light level suitable for night flight.

FLOOD L (R) CONSOLE
Brightness of Left (Right) Side Console fluorescent floodlight.



L (R) GLRSHLD FLT PNL
PNL: Brightness of edgelighting and LCDs on left (right) half of the glareshield / flight panel. Detent position represents the light level suitable for night flight.
LTS: Brightness of annunciator lights on left (right) half of the glareshield / flight panel.
NOTE: Pilot glareshield light controls adjust lighting in Flight Guidance Panel.

PILOT (COPILOT) MAP LIGHTS
YOKE: Brightness of pilot's (copilot's) yoke map light.
OVHD: Brightness of pilot's (copilot's) overhead map light.

DETAIL A

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COCKPIT LIGHTS Control Panel (Console)
Figure 5

2A-33-30: Passenger Cabin Lighted Signs and Icons**1. General Description:**

The flight crew controls the illumination of signs and icons placed within the cabin area to inform passengers of changes in flight conditions. The signs and icons are technically termed "Ordinance Lights" and provide the following information to occupants of the cabin:

- Fasten Seat Belts Annunciation
- No Smoking Annunciation

The location of the displays is dependent upon the configuration of the interior furnishings and varies according to custom installed options. Generally, the displays are located in areas that are highly visible to all occupants. Within closed private areas such as lavatories or sleeping compartments, individual installations are provided.

2. Description of Subsystems, Units and Components:

The following cockpit switches, located on the PASS WARN panel on the cockpit overhead, control the illumination of signs and icons in the cabin (see Figure 6). Internal ON labels in the switches illuminate when the switches are depressed to activate the displays. The ON labels will also illuminate during test of the annunciator lights.

- SEAT BELT - depressing the seat belt switch illuminates the FASTEN SEAT BELT signs and icons in the cabin
- NO SMOKE - depressing the no smoke switch illuminates the NO SMOKING signs and icons in the cabin

3. Controls and Indications:

(See Figure 6.)

A. Circuit Breakers (CBs):

The following circuit breaker is installed to power the ordinance lights:

Circuit Breaker Name	CB Panel	Location	Power Source
SIGN LTS	REER	C-22	R MAIN DC Bus

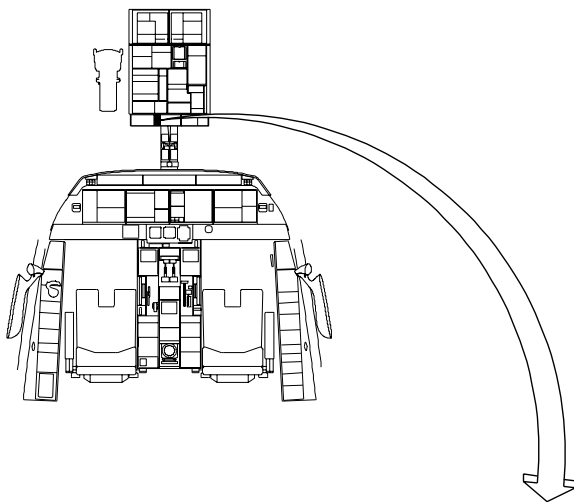
B. Crew Alerting System (CAS) Messages:

There are no CAS messages associated with the ordinance signs.

4. Limitations:

There are no limitations established for the ordinance signs as of this writing.

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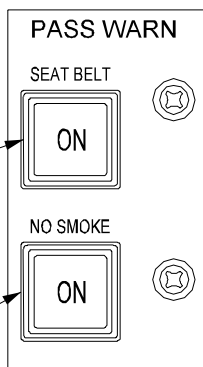


SEAT BELT SWITCH

Selection of this switch causes the Fasten Seat Belts indicator sign(s) in the cabin to illuminate. The legend "ON" illuminates in the switch capsule when the switch is selected on.

NO SMOKE SWITCH

Selection of this switch causes the No Smoking indicator sign(s) in the cabin to illuminate. The legend "ON" illuminates in the switch capsule when the switch is selected on.



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Cockpit Overhead Panel: PASS WARN Section
Figure 6

2A-33-40: Baggage, Tail Compartment, Pylon and Service Panel Lighting**1. General Description:**

Overhead lights are installed in the baggage compartment and the unpressurized tail compartment to enhance visibility for aircraft loading and maintenance. Additional lights are installed on the lower face of the engine pylons to illuminate the ramp work areas around the baggage and tail compartment doors. Each of the exterior service panels is equipped with an integral light that will illuminate whenever the panel door is opened. The lighting in each of the following areas have dedicated switches (see Figure 7 and Figure 8):

- Baggage Compartment
- Tail Compartment
- Pylon Lights

The service panel lights are unswitched and operate automatically.

NOTE:

There is no indication in the cockpit that the baggage compartment, tail compartment, pylon or service panel lights are on, however, the service panel doors are monitored by Modular Avionics Units (MAUs) #1 and #2 and if a door is open, the Monitor and Warning System (MWS) will prompt a Crew Alerting System (CAS) message on the cockpit display window.

2. Description of Subsystems, Units and Components:**A. Baggage Compartment Lighting:**

Two fluorescent light fixtures are installed in the baggage compartment overhead to illuminate the area. The lights are controlled by a switch on the Baggage Compartment Switch Panel labelled BAG. The switch panel is located on the left aft side of the bulkhead separating the baggage compartment from the passenger cabin.

B. Tail Compartment Lighting:

Two fluorescent and three incandescent lights are installed in the overhead of the aft equipment bay to facilitate maintenance and servicing. The lights are controlled with two switches, each with a separate control authority. On the ground with the tail compartment door open, a switch adjacent to the entrance to the compartment, shown in Figure 9, can be used to turn on or off all five lights.

When the tail compartment door is closed, power is interrupted to the switch at the compartment entrance turning off the lights. However, the three incandescent lights can be turned on with a switch on the Baggage Compartment Switch Panel labelled EQUIP. This switching arrangement allows the interior of the tail compartment to be viewed while in flight by observation through a small window in the bulkhead separating the baggage compartment from the aft equipment compartment. Since the equipment bay is not pressurized, only the incandescent fixtures are powered with the EQUIP switch - the two fluorescent lamps are filled with inert gas under pressure and powering the fluorescents would increase pressure within the lamps, creating the possibility of rupture due to the pressure differential between the lamp contents and the unpressurized

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compartment.

C. Pylon Lights:

Downward focused lights are installed in the lower face of each engine pylon: two on the left pylon and one on the right pylon. The lights provide illumination around the baggage compartment external door to facilitate loading and unloading. The lights are controlled by the RAMP switch on the lighting panel in the baggage compartment.

D. Service Panel Lights:

External service panels have integrated lights controlled by the door access latches on each panel. Opening the access door automatically completes the circuit to turn on the light installed on the panel. The following panels are equipped with automatic lighting:

- Single point refueling
- Lavatory service
- Water service
- Forward external switch panel

3. Controls and Indications:

A. Circuit Breakers (CBs):

The following CBs power the baggage, tail compartment pylon and service panel lights:

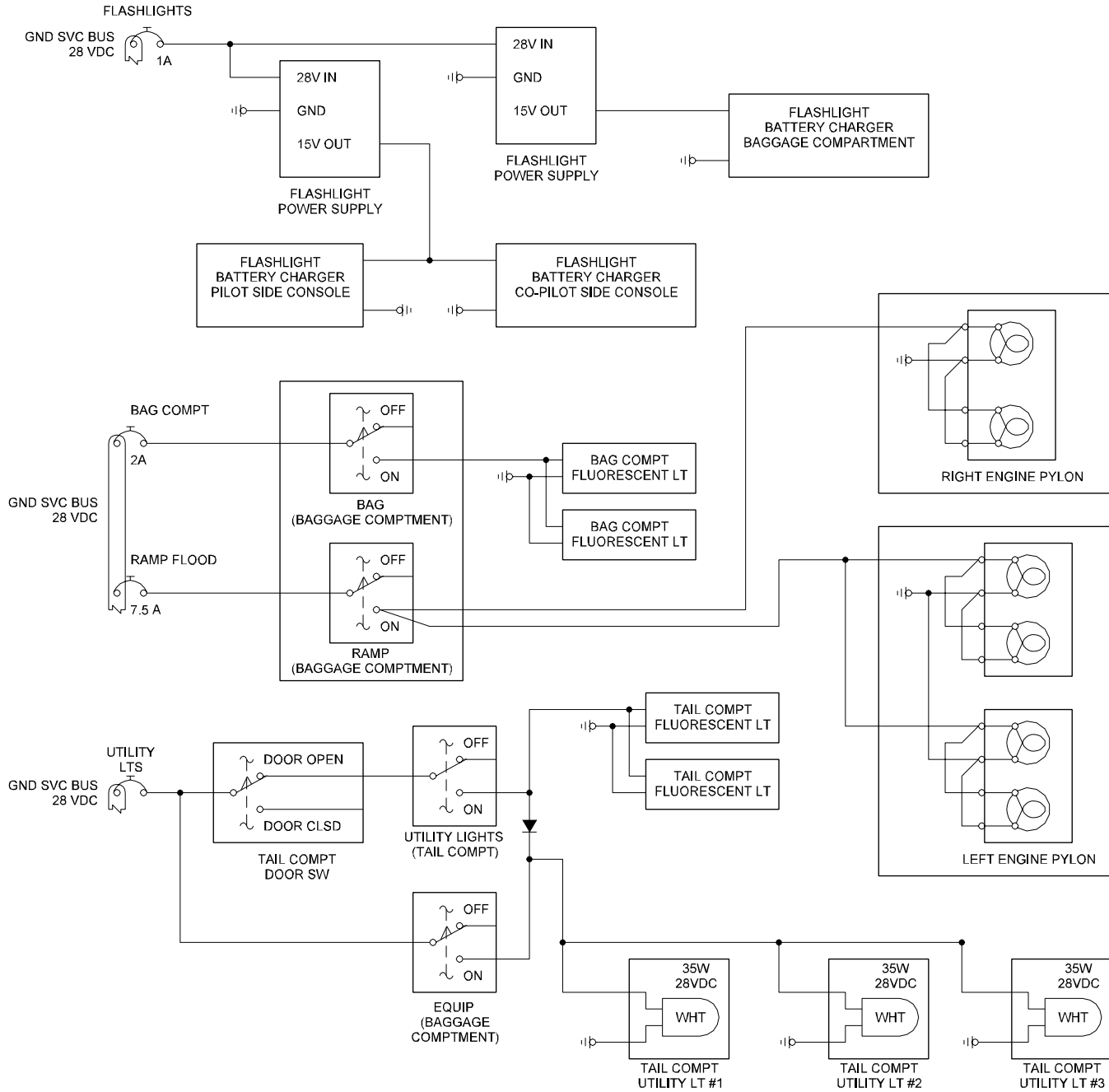
Circuit Breaker Name:	CB Panel:	Location:	Power Source:
UTILITY LTS (Tail Compartment)	REER	C-20	GND SVC Bus
BAG COMP	CABIN	A-9	GND SVC Bus
RAMP FLOOD (Pylon)	CABIN	A-10	GND SVC Bus
SERVICE DOORS	REER	C-19	GND SVC Bus

B. Crew Alerting System (CAS) Messages:

There are no CAS messages associated with baggage, aft equipment, pylon or service panel lighting.

4. Limitations:

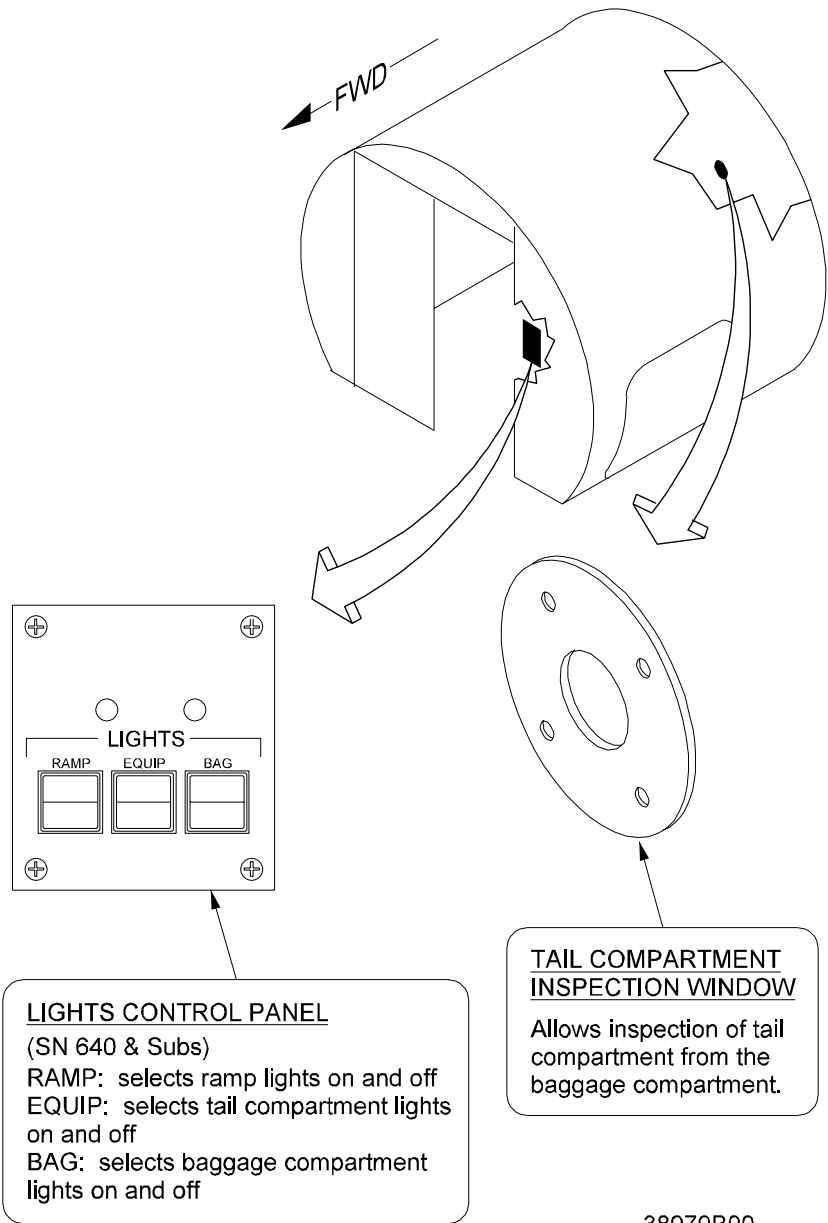
There are no limitations established for these lighting installations as of this writing.



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Baggage, Tail
Compartment and Pylon
Lighting
Figure 7

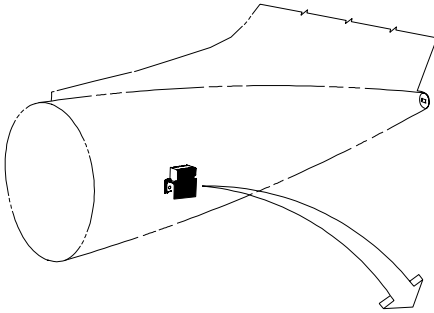
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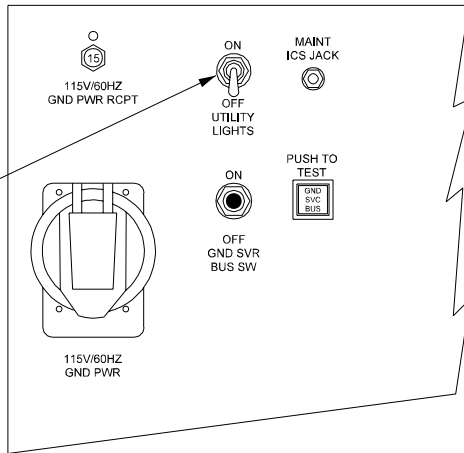
Baggage Compartment Switch Panel
Figure 8

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UTILITY LIGHTS
Selection of this switch to ON causes the Tail Compartment Utility Lights to illuminate.



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Tail Compartment Lighting Controls
Figure 9

2A-33-50: Exterior Lighting

1. General Description:

The exterior lighting installations provide illumination of the aircraft operating environment, and increase the visibility of the aircraft while operating in the air and on the ground. External lighting locations are shown in Figure 10, that includes the following components:

- Beacon light
- Strobe lights
- Navigation lights
- Ice inspection lights

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- Landing lights
- Taxi lights
- Wheel well lights
- Logo lights

2. Description of Subsystems, Units and Components:

All exterior lighting is controlled by pushbutton switches on the EXTERIOR LTS panel on the pilot side of the cockpit overhead, shown in Figure 11.

A. Beacon Light:

A flashing red halogen light mounted on the bottom center fuselage between the main wheel well doors is primarily a signal to ground crews working in the vicinity of the aircraft. The light flashes 70 to 90 times per minute. The beacon light is turned on whenever the aircraft engines are started with a control switch is located on the cockpit overhead panel in the EXTERIOR LTS section, labeled BCN. When the switch is depressed, the blue ON legend within the switch is illuminated.

The beacon light is also automatically turned on whenever the EXTERNAL BATTERY SWITCH in the nose external switch panel is selected ON. Beacon light activation provides a reminder to ground crews or maintenance personnel that the aircraft batteries are in use.

B. Strobe Lights:

Exterior white strobe lights increase the visibility of the aircraft to other traffic while airborne. The strobe lights are installed in each wing tip and in the fairing at the rear of the aircraft fuselage. Each installation consists of two flashtubes, each with a triggering transformer and a single power supply with a fault indicator. The STROBE switch in the EXTERIOR LTS section of the overhead panel activates the lights. When the switch is depressed to the ON position, the blue ON legend within the switch illuminates. When the lights are operating, each light is synchronized with the other lights, and all three lights flash simultaneously at 42 to 52 times per minute.

Only one of the installed flashtubes is powered, with the second acting as a spare. If a flashtube failure is detected by the power supply, the second flashtube is automatically activated and a fault indicator at the lights provides a visual indication that the first flashtube has failed. The fault indicator can be manually reset.

C. Navigation Lights:

The navigation, or position lights, provide a standard light pattern enabling other traffic to discern the direction of movement of the aircraft at night. The lights are installed in the following prescribed locations:

- Two red lights on the left wing tip
- Two green lights on the right wing tip
- Two white lights on the tailcone at the rear of the horizontal stabilizer

The control switch, labelled NAV, is also located in the EXTERIOR LTS section of the overhead panel, and the internal switch ON legend is illuminated blue when activated. For ground towing operations, a single position light in each of the three pairs can be illuminated by selecting the NAV lights to ON with the MAIN BATTERIES selected to ON.

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D. Ice Inspection Lights:

Ice inspection lights illuminate the leading edge of the wings allowing the flight crew to inspect for ice accumulation during night operations. The lights are also often used to enhance aircraft visibility while flying in congested areas. The two lights are mounted on each side the side of the fuselage, and aligned to shine along the leading edge of the wing. See Figure 12. The control switch, labeled ICE, is also located in the EXTERIOR LTS section of the overhead, and illuminates ON when activated.

E. Landing Lights:

The landing lights consist of one sealed-beam, fixed-aim landing light located in the leading edge of each wing. The lamp is rated at 600,000 candle power, with a horizontal beam spread of 12° and a vertical beam spread of 8°. Each landing light has a dedicated cockpit control indicator / switch. These switches are also located in the EXTERIOR LTS section of the overhead, and are labeled L LDG and R LDG.

An additional switch allows the flight crew to alternately flash the left and right landing lights. This function is controlled by a switch labelled PULSE in the EXTERIOR LTS section of the overhead. The flight crew can override the pulse function by pressing the L and R LDG switches, returning the lights to normal simultaneous operation. (The alternately flashing landing lights can produce strong vertigo sensations if operated in low visibility.)

The lens covering the landing lights is de-iced whenever wing anti-ice is operating. Warm engine bleed air is routed through perforated tubes within the lens housing to clear away any ice accumulation and preserve the illumination intensity of the landing lights. See Figure 13.

NOTE:

The landing lights automatically extinguish when the aircraft reaches an altitude of 18,000 feet, if the flight crew has not manually selected the L LDG and R LDG switches OFF. This prevents bulb failure caused by thermal shock at high altitudes. On descent through 18,000 feet, the landing lights automatically illuminate if the flight crew has left the switches in the ON position. The altitude switching is controlled by the Landing Light Control Unit, shown in Figure 14.

F. Taxi Lights:

Three taxi lights (left, center and right) are mounted on the steerable portion of the nose landing gear shock strut. The lights act as a single unit and are aligned to illuminate a wide arc ahead of the aircraft to facilitate

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turning clearance. The control switch is labeled TAXI, and is located within the same panel as the other exterior light switches.

NOTE:

The nose landing gear must be extended and locked for the taxi lights to operate - the taxi lights extinguish when the landing gear is retracted, even if still selected ON (the ON legend in the switch also automatically extinguishes).

Additional taxi lights are mounted in the forward section of the tip of each wing in order to illuminate ramps and taxiways during night operations. Each wing tip incorporates two lights: one is mounted to shine downward to light the area beneath the wing tip, the other light is positioned to illuminate the area approximately twenty (20) feet ahead of the wing tip. Both lights are controlled with the switch labelled WINGTIP on the exterior lights panel.

G. Wheel Well Lights:

Wheel well lights provide illumination for maintenance on components located within the nose and main wheel wells. The lights also can be used for increased area illumination on the ground. The control switch is labeled WHL WELL and located with the other external light switches (see Figure 15).

H. Logo Lights:

Two lights are installed on the underside of the horizontal stabilizer and mounted to illuminate either side of the vertical stabilizer. Although the lights are intended to increase the visibility of personal or corporate graphics decorating the vertical stabilizer, the lights also increase aircraft visibility for identification and traffic avoidance. The lights are controlled by the switch labelled LOGO on the external lights panel.

3. Controls and Indications:

(See Figure 11.)

A. Circuit Breakers (CBs):

The following CBs protect the exterior lighting system:

Circuit Breaker Name:	CB Panel:	Location:	Power Source:
BOT A/C LT	REER	A-21	GND SVC Bus
BOT A/C LT GND OPER	REER	A-22	R ESS DC Bus
STROBE LTS CONT	REER	C-18	R ESS DC Bus
STROBE LTS	REER	C-17	R MAIN AC Bus
TAXI LTS CONT	REER	B-20	R MAIN DC Bus
L TAXI LT PWR	REER	B-17	R MAIN DC Bus
CTR TAXI LT PWR	REER	B-18	R MAIN DC Bus
R TAXI LT PWR	REER	B-19	R MAIN DC Bus
R LDG LT PWR	REER	A-17	R MAIN AC Bus ϕ A
R LDG LT CONT	REER	A-18	R MAIN DC Bus
L LDG LT PWR	LEER	D-15	L MAIN AC Bus ϕ A
L LDG LT CONT	LEER	D-14	L MAIN DC Bus

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Circuit Breaker Name:	CB Panel:	Location:	Power Source:
WHEEL WELL LTS	REER	C-21	GND SVC Bus
NAV LTS CONT	LEER	F-14	L ESS DC Bus
NAV LTS #1	LEER	F-15	L MAIN DC Bus
NAV LTS #2	LEER	F-13	L ESS DC Bus
INSP LTS CONT	LEER	E-14	L ESS DC Bus
WING INSP LTS	LEER	E-15	L ESS DC Bus

NOTE

Circuit Breakers for the wing tip taxi and logo lights are installed in the post-production completion process. The location of these circuit breakers has not been standardized as of this writing.

4. Crew Alerting System (CAS) Messages:

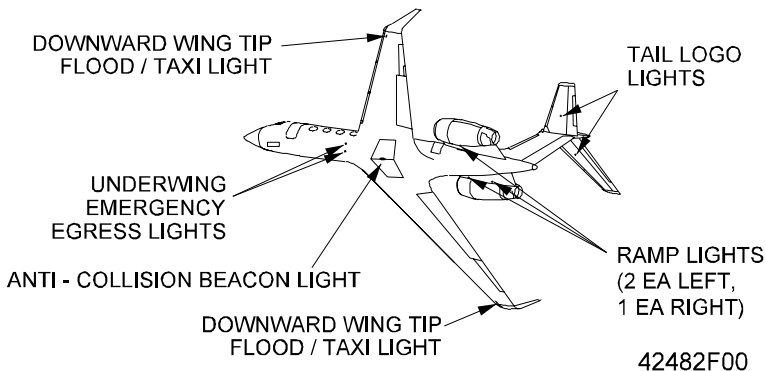
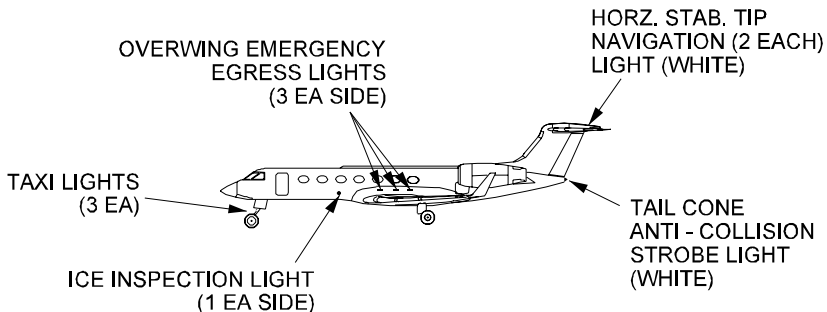
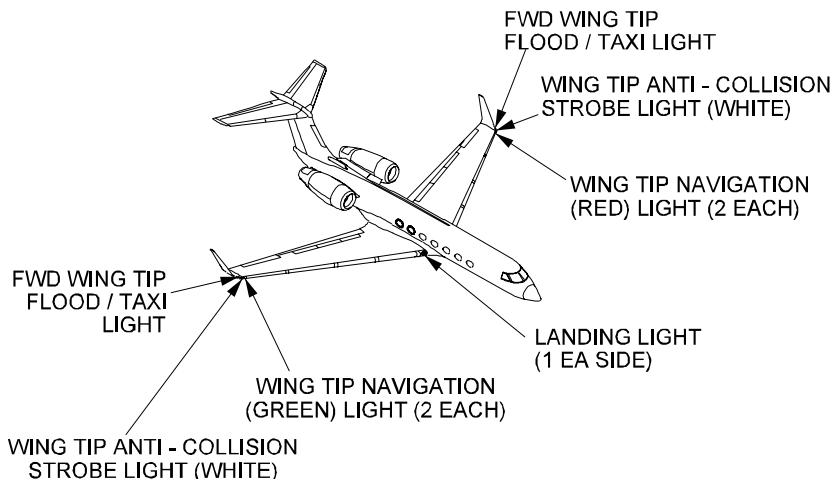
The following CAS messages are associated with external lighting:

Area Monitored:	CAS Message:	Message Color:
Taxi Light Switch	Taxi Light On	Blue

5. Limitations:

There are no limitations for the exterior lighting system at the time of this writing.

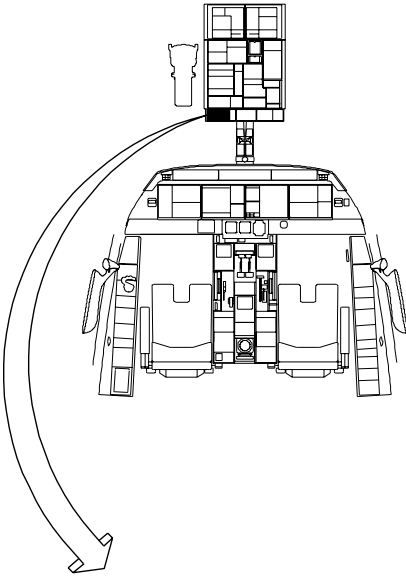
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Exterior Lighting Locations
Figure 10

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OPERATING MANUAL



LEGEND

Selection of the following switches to ON illuminates the indicated lights. The "ON" legend in the switch capsule will also illuminate.

BCN: Lower Anti-collision Beacon Light.

STROBE: Wingtip / Tailcone Strobe Lights.

NAV: Wingtip / Vertical Stabilizer Position Lights.

ICE: Wing Ice Inspection Lights.

LOGO: Logo Lights (If Installed).

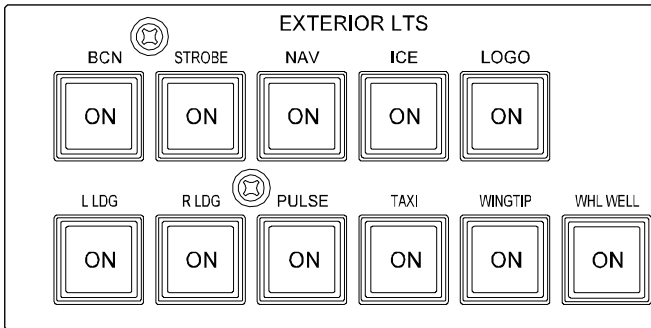
L LDG: Left Landing Light.

R LDG: Right Landing Light.

TAXI: Taxi Lights.

WINGTIP: Wingtip Lights (If Installed).

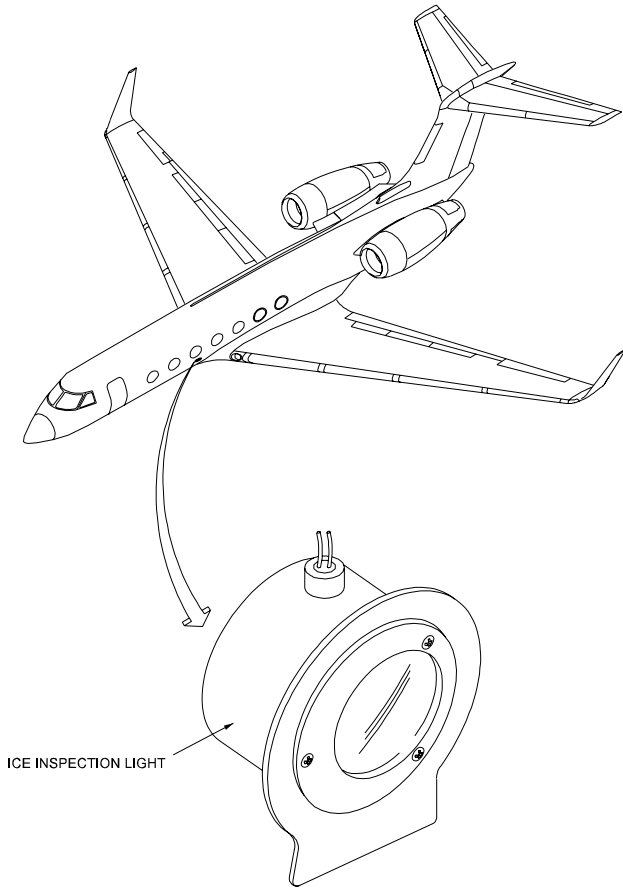
WHL WELL: Wheel Well Utility Lights.



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Cockpit Overhead Panel: EXTERIOR LTS Section
Figure 11

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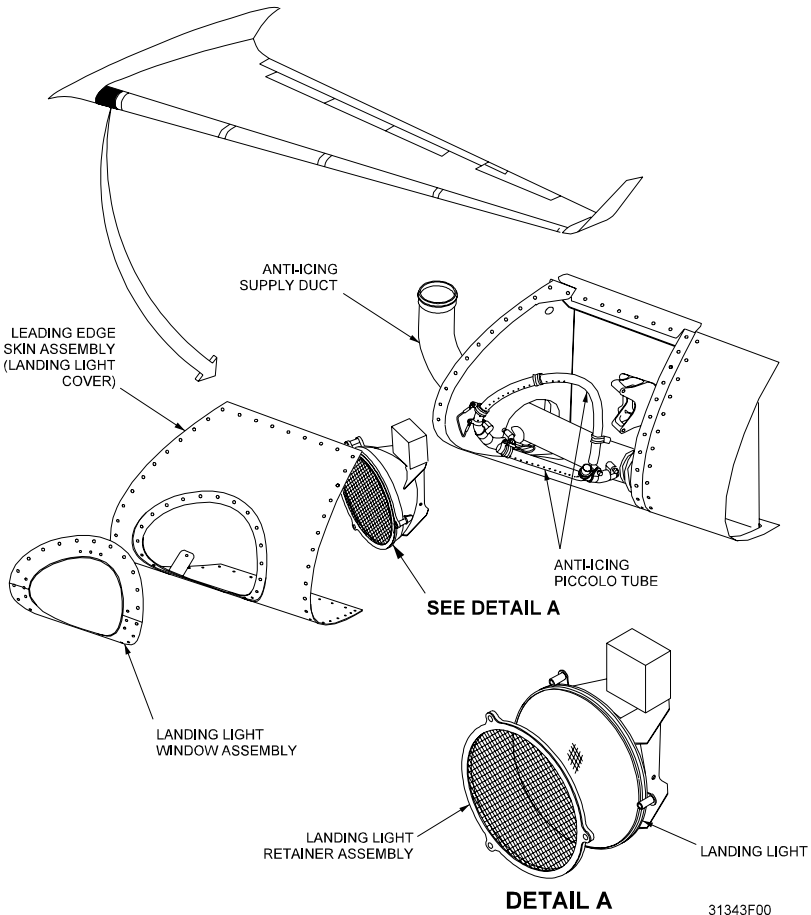


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Ice Inspection Light
Figure 12

GULFSTREAM G550

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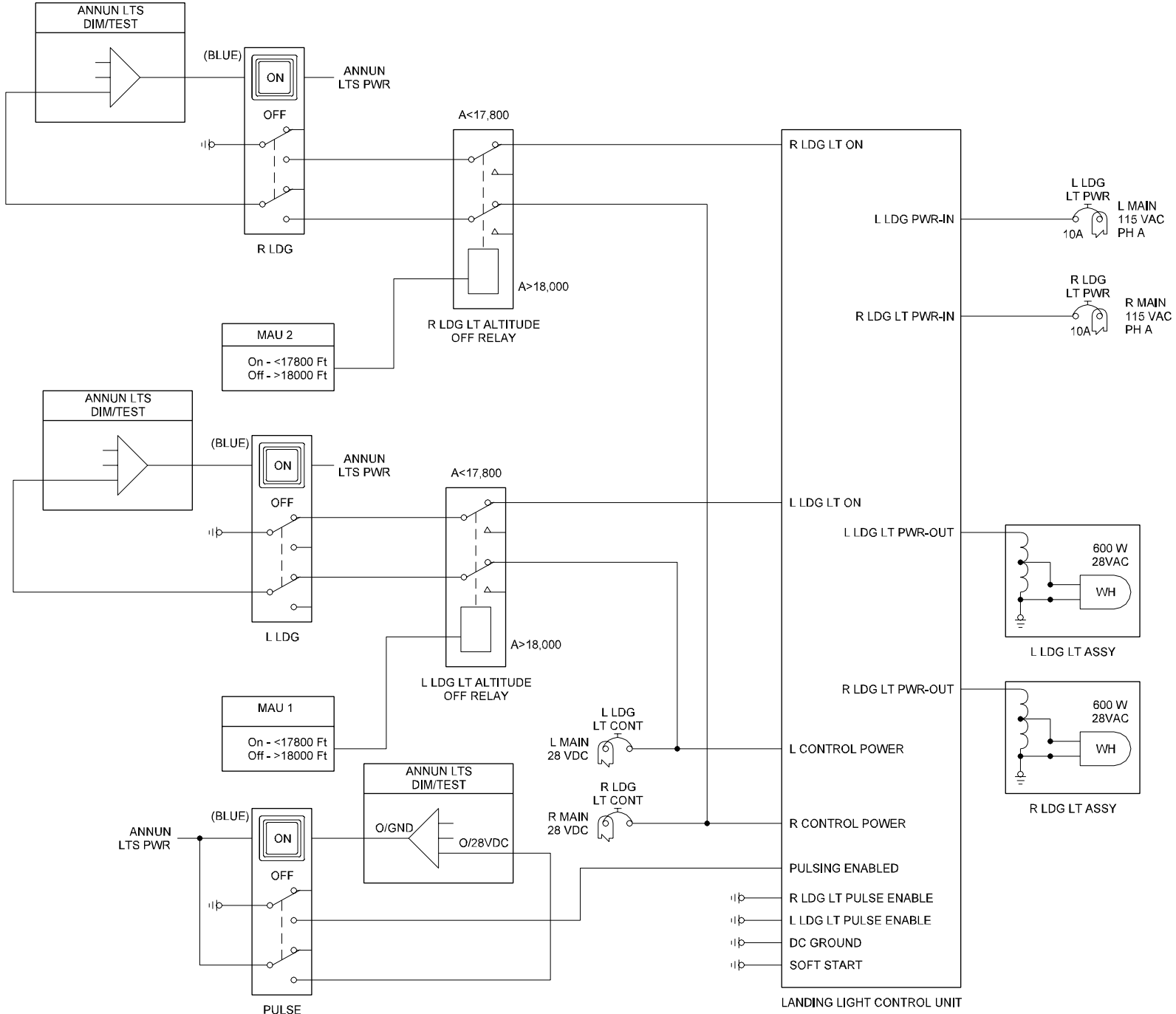
Landing Light
Figure 13

2A-33-60: Emergency Lighting System

1. General Description:

The emergency lighting system provides illumination to facilitate the safe evacuation of the aircraft during an emergency in low light conditions. An overview of the system is shown in Figure 16. The system includes:

- Overwing exit lights
- Underwing exit lights
- Cabin, Floorpath and Airstair Emergency Lights
- Emergency lighting battery packs

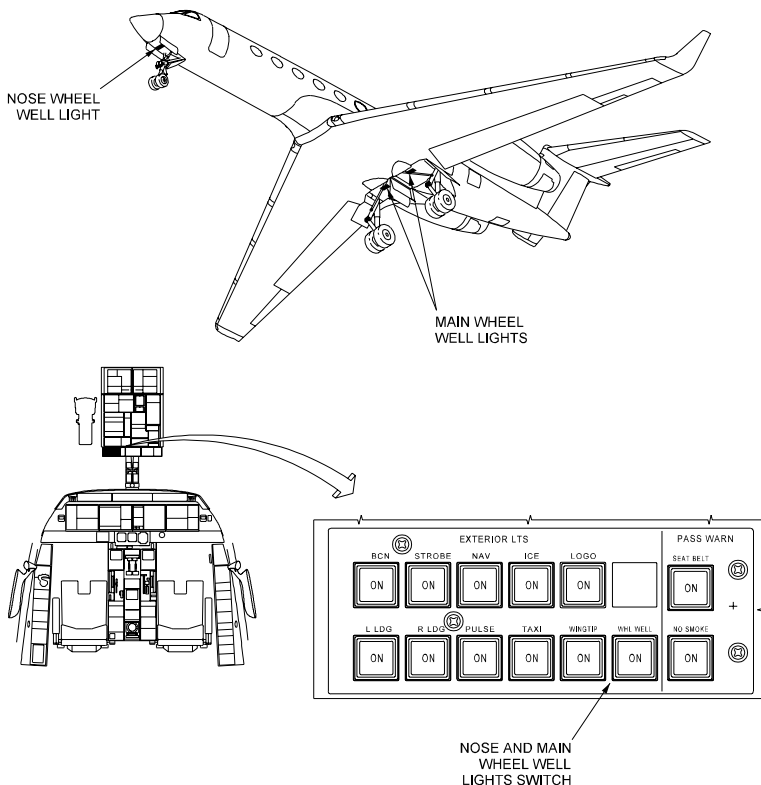


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Landing Light Control Unit
Figure 14

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Wheel Well Lights
Figure 15

- Emergency lighting control switch

2. Detailed Description of Subsystems, Units and Components:

A. Overwing Exit Lights:

Three overwing exit light assemblies are installed in each side of the fuselage above the wing (see Figure 17). These lights illuminate the wing surface next to the emergency window exits during an evacuation through the emergency windows and onto the wing. Two lamps are installed in each light assembly, and each lamp is powered by a separate emergency battery to ensure exit light operation in case of damage to the aircraft.

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B. Underwing Exit Lights:

Two underwing exit lights are installed in the lower part of the wing leading edge near the fuselage. A single lamp is installed in each light assembly, but the lamp is supplied by both emergency batteries. When activated, the underwing lights illuminate the ground area beneath the wing to guide evacuees off of the upper surface of the wing.

C. Cabin, Floorpath and Airstair Emergency Lights:

The interior of the aircraft passenger cabin is furnished with emergency lights to identify the overwing emergency exits and the main cabin door exit. The exit lights are redundantly powered by the forward and aft emergency lighting batteries. The airstair also incorporates lighting that will illuminate when the stairs are extended. The airstair lights are normally powered by the main DC bus, but if main DC is not available, a relay in the wiring circuit with close, allowing the lights to be powered by the emergency lighting batteries. Floorpath lighting is installed to indicate paths to emergency exits should the cabin visibility be reduced by smoke, flame or fumes. The floorpath lighting is powered by a dedicated system of three batteries that provide overlapping power sources to the lights ensuring that a visible exit route is always available.

The location and configuration of the cabin, floorpath and airstair emergency lights necessarily varies with individual customer chosen interior furnishings (airstair lighting is also available in several options), and is therefore not installed in aircraft production. For more information on cabin interior and airstair emergency lighting provisions consult the documentation provided by the applicable completion center.

D. Emergency Lighting Battery Packs:

Power for the emergency lighting system is supplied from forward and aft Emergency Lighting Battery Packs (ELBPs). The forward ELBP is located in the Right Electronics Equipment Rack (REER) and supplies power to the forward lamps in the overwing exit light assemblies, and to both underwing exit lights. The aft ELBP is located in the Baggage Electronic Equipment Rack (BEER) and supplies power to the aft lamps in the overwing exit light assemblies and both underwing exit lights.

The ELBPs are rechargeable lead acid batteries and each produces nine (9) amperes per hour when fully charged. An integrated Alternating Current (AC) charger maintains the batteries at full capacity and also maintains battery temperature with a heater blanket to ensure optimum performance. The batteries are monitored by Modular Avionics Units (MAUs), the forward battery by MAU #1, aft battery by MAU #2. The MAUs report battery state and performance to the Monitor and Warning System (MWS), that in turn will generate Crew Alerting System (CAS) messages to inform the flight crew of battery status.

E. Emergency Lighting Control Switches:

The emergency exit lights are controlled by three guarded, momentary action switches located in the EMERGENCY POWER section of the cockpit overhead, as illustrated in Figure 18. The switches are labeled ON, ARM and OFF. The switches are dual purpose, with each switch selecting a function for both the forward and aft emergency exit lighting batteries and both the left and right emergency avionics / electronics power batteries. For

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this reason, each switch has a split legend labeled LIGHTS on the upper half and AV PWR on the lower half. (The emergency electronics / avionics batteries are identical to the emergency exit batteries and can provide power to the left and right emergency DC buses, the essential flight instrument bus and the Inertial Reference Units. The electronics / avionics emergency power system is discussed in Section 2A-24-30: DC Electrical Power System.)

Each switch commands a separate function for the emergency exit lights:

- (1) ON Switch - when ON is selected the emergency batteries override the essential bus (if on) to provide power for emergency lighting:
 - The forward and aft ELBPs power the emergency exit lights.
 - The overwing and underwing exit lights illuminate.
 - The LIGHTS legend within the ON switch illuminates.
 - Blue advisory messages noting that the forward and aft emergency exit batteries (and the left and right emergency batteries) are on are displayed on the CAS 1/6 window.

NOTE:

If the EMERGENCY POWER system is activated and a system fault message is displayed on CAS, it may have been caused by the battery pack experiencing an overcurrent trip condition. The flight crew can attempt to restore normal operation by cycling the ON switch. If the overcurrent fault clears, the tripped switch is reset and the fault message on CAS extinguishes.

- (2) ARM Switch - When ARM is selected the ELBPs will automatically power the emergency exit lights if essential DC bus power falls to twenty volts (20v) or below (emergency electronics / avionics will also be powered). The legend within the ARM switch will not illuminate unless the switch is not armed.
- (3) OFF Switch - the OFF switch prevents the ELBPs from powering the emergency exit lights (and the emergency power batteries from powering electronics / avionics). If the switch is selected OFF while the essential DC bus voltage is above twenty volts (20v), the OFF legend within the switch will illuminate and the legend within the ARM switch will also illuminate to indicate that the switch configuration is not normal. The OFF switch is used only for emergency battery protection when securing the aircraft or for maintenance on the system elements.

CAUTION

THE EMERGENCY POWER SYSTEM CAN ONLY BE SELECTED OFF IF THE ESS DC BUS POWER IS ABOVE 20V DC. THE SWITCH MUST BE SELECTED OFF PRIOR TO SELECTING THE LEFT AND RIGHT MAIN BATTERIES OFF WHEN SECURING THE AIRCRAFT.

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3. Controls and Indications:

(See Figure 18.)

A. Circuit Breakers (CBs):

The following CBs protect the emergency lighting system:

Circuit Breaker Name:	CB Panel:	Location:	Power Source:
FWD E-LTG CHGR	LEER	D-12	L MAIN AC Bus
FWD E-LTG CONT	LEER	D-13	L ESS DC Bus
AFT E-LTG CHGR	REER	A-20	R MAIN AC Bus
AFT E-LTG CONT	REER	A-19	R ESS DC Bus

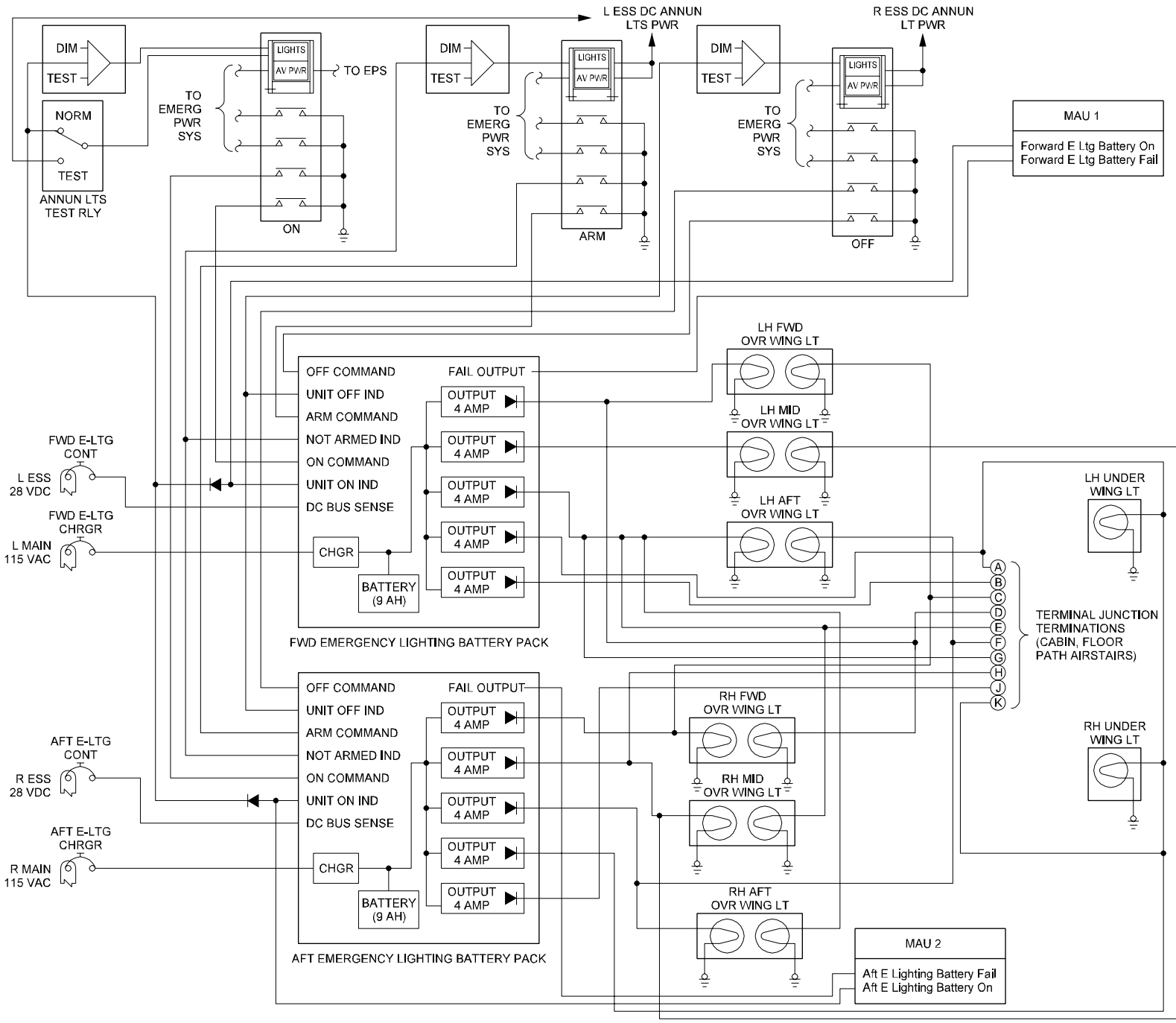
4. Crew Alerting System (CAS) Messages:

The following CAS messages are associated with emergency exit lighting (and emergency electronics / avionics power):

Area Monitored:	CAS Message	Message Color
Emergency Electronics / Avionics Batteries (on when emergency exit lighting is on)	L-R Emergency Battery Fail	Amber
Aft Emergency Lighting Battery	Aft E Lighting Battery Fail	Amber
Fwd Emergency Lighting Battery	Forward E LTG Battery Fail	Amber
Aft Emergency Lighting Battery	Aft E Lighting Battery On	Blue
Fwd Emergency Lighting Battery	Forward E LTG Battery On	Blue
Emergency Electronics / Avionics Batteries (on when emergency exit lighting is on)	L-R Emergency Battery On	Blue

5. Limitations:

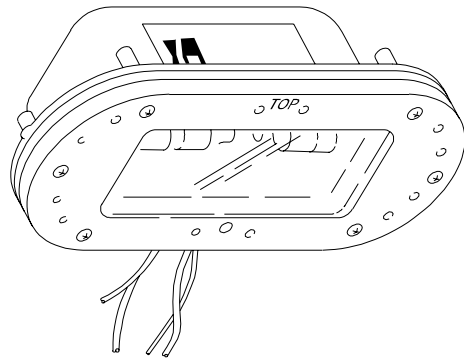
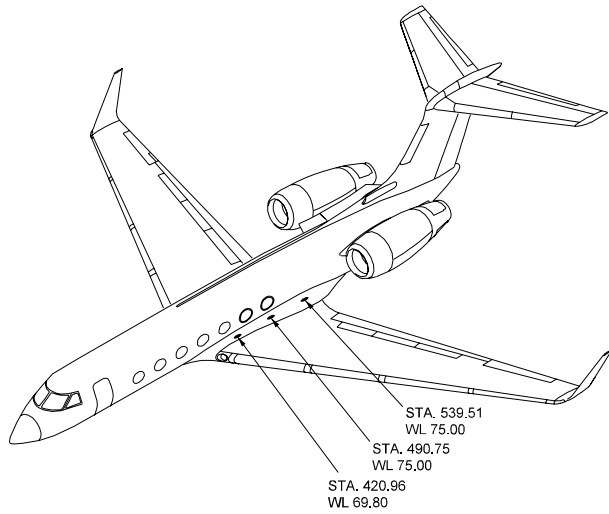
There are no limitations established for emergency exit lighting at the time of this writing.



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Emergency Lighting
System
Figure 16

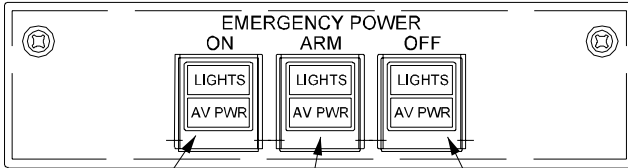
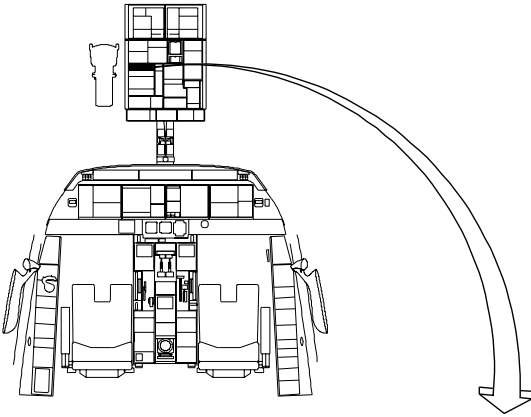
GULFSTREAM G550 OPERATING MANUAL



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Overwing Emergency Exit Light
Figure 17

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ARM

Arms the Emergency Lighting System. All legends in all switch capsules will be extinguished.

ON

Illuminates the Overwing and Underwing Egress Lights. The "LIGHTS" legend in the switch capsule will illuminate.

OFF

Shuts off the Emergency Lighting System. The "LIGHTS" legend in this switch capsule and the ARM switch capsule will illuminate.

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Cockpit Overhead Panel: EMERGENCY POWER Section
Figure 18