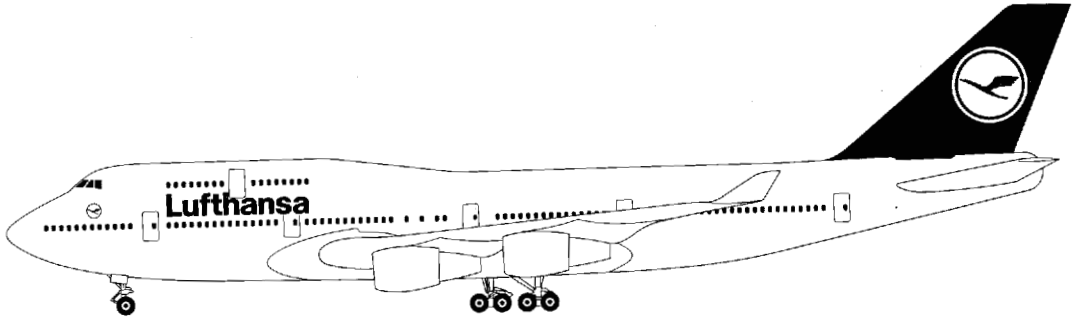
Training Manual

B747-430

ATA 33
LIGHTS



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Lfd. Nr.	Lernziel	Referenz	Buchseite
B1 E=dunkel	der Teilnehmer soll nach dieser Schulungsmaßnahme ...		
1.	...eine Übersicht der Cockpit Lights Dimmer Units haben (Component Location).	Panel Light Dimmer Units	**5**
2.	...den Aufbau der Momentary und Alternate Action Switches nennen können.	Switch Light	**8**
3.	...die Bedingungen für die AUTO-Operation der Passenger Information Lights nennen können.	Passenger Information Signs	**24**
4.	...die Besonderheiten der Cargo Compartment Lights nennen können.	Cargo Compartment Lights	**26**
5.	...anhand einer einfachen Darstellung die Location der Emergency Exit Lights Battery Packs nennen können.	Floor Proximity Emergency Exit Lightning	**30**
6.	...die Funktionsweise eines Emergency Exit Lights anhand einer Schematic nennen können.	Exit Signs Functional Description	**40** **47**
7.	...anhand einer einfachen Schematic mit einer Kurzbeschreibung die Powerversorgung des FPM-Systems nennen können.	Emergency Lights Schematic	**49**
8.	...die Funktion der Emergency Exit Lights und des Floor Path Marking Systems anhand einer Schematic vollständig beschreiben können.	Emergency Lights Schematic	**49**
9.	...das FPM- und Emergency Exit Light System gem. MEL bearbeiten können.	**T/S Exercise**	
10.	...die Bedienelemente der Flight Compartment Lights im Cockpit zeigen können.	**PRAXIS**	

Lfd. Nr.	Lernziel	Referenz	Buchseite
B1 E=dunkel	der Teilnehmer soll nach dieser Schulungsmaßnahme ...		
11.	...die Location der Dimming Units der Flight Compartment Lights im Cockpit zeigen können.	**PRAXIS**	
12.	...den Master Dim + Test der Flight Comp. Lights im Cockpit durchführen können.	**PRAXIS (IL)**	
13.	...die Bedienelemente der Cabin Lights im Flugzeug zeigen können (auf Besonderheiten der Flight Deck Access Lights hinweisen).	**PRAXIS**	
14.	...die Bedienelemente der Exterior Lights im Cockpit zeigen können.	**PRAXIS**	
15.	...die Location und die Bedienung der Exterior Lights zeigen können.	**PRAXIS**	
16.	...die Location der Power Supply‘s für Beacon und Strobe Lights zeigen können.	**PRAXIS**	
17.	...die Bedienelemente und die Location der Emergency Exit Lights (auf Testmöglichkeiten hinweisen) am Flugzeug zeigen können.	**PRAXIS (IL)**	

ATA 33 LIGHTS

GENERAL

White incandescent and fluorescent lamps are used on all airplane light assemblies. Selected requirements for colored illumination as used on instrument panel indicators, fuselage anti-collision, and wingtip navigation lights is achieved through the use of colored lenses.

CAUTION:

CHECK IDENTIFICATION NUMBER BEFORE INSTALLING LAMP. INSTALLATION OF LAMPS WITH INCORRECT VOLTAGE RATING FOR APPLICATION MAY CAUSE CIRCUITRY DAMAGE.

Airplane lighting consists of:

Flight Compartment Lighting (33-10-00)

Flight compartment lighting illuminates the control cabin work areas and control panels. A master dim and test system for testing annunciators is provided.

Passenger Compartment Lighting (33-20-00)

Passenger compartment lights give lighting to each seat, aisle, entry, lavatory, galley, and crew rest. Each call light and information sign gives messages to the flight crew and the passengers.

Cargo and Service Compartment Lighting (33-30-00)

Cargo and service compartment lights illuminate maintenance and cargo loading areas during ground operations.

Exterior Lighting (33-40-00)

Exterior lights illuminate the airplane and landing area during flight operations. They illuminate the runway and taxi areas during ground operations.

Emergency Lighting (33-50-00)

Each interior and exterior emergency light gives lighting to the escape paths. There are lights for the aisles and exits and their associated areas.

FLIGHT COMPARTMENT LIGHTING

General

Flight compartment lighting consists of instrument panel and compartment area illumination.

Lighting control panels at each crewmembers station and overhead panel P5 provide lighting on/off switching and dimming control.

Flight compartment lighting is divided into four sections:

Instrument Panel Lights (33-11-00)

The instruments, switch/lights and systems control panels contain integral incandescent lights. Glareshield and control stand panels are provided with external flood lighting for illumination. The lights illuminate dials, control panel lettering and switch position lettering.

Master Dim and Test (33-12-00)

A master dim and test system allows the pilot to test indicator lights in the flight compartment, or to select one of two predetermined indicator light intensity levels.

Flight Compartment Illumination (33-13-00)

Flight compartment illumination is provided by incandescent dome lights in the ceiling panels, flight deck access lights and panel flood lights.

Flight Compartment Auxiliary Lights (33-15-00)

Area lights such as map, chart, and flight kit/utility lights are provided.

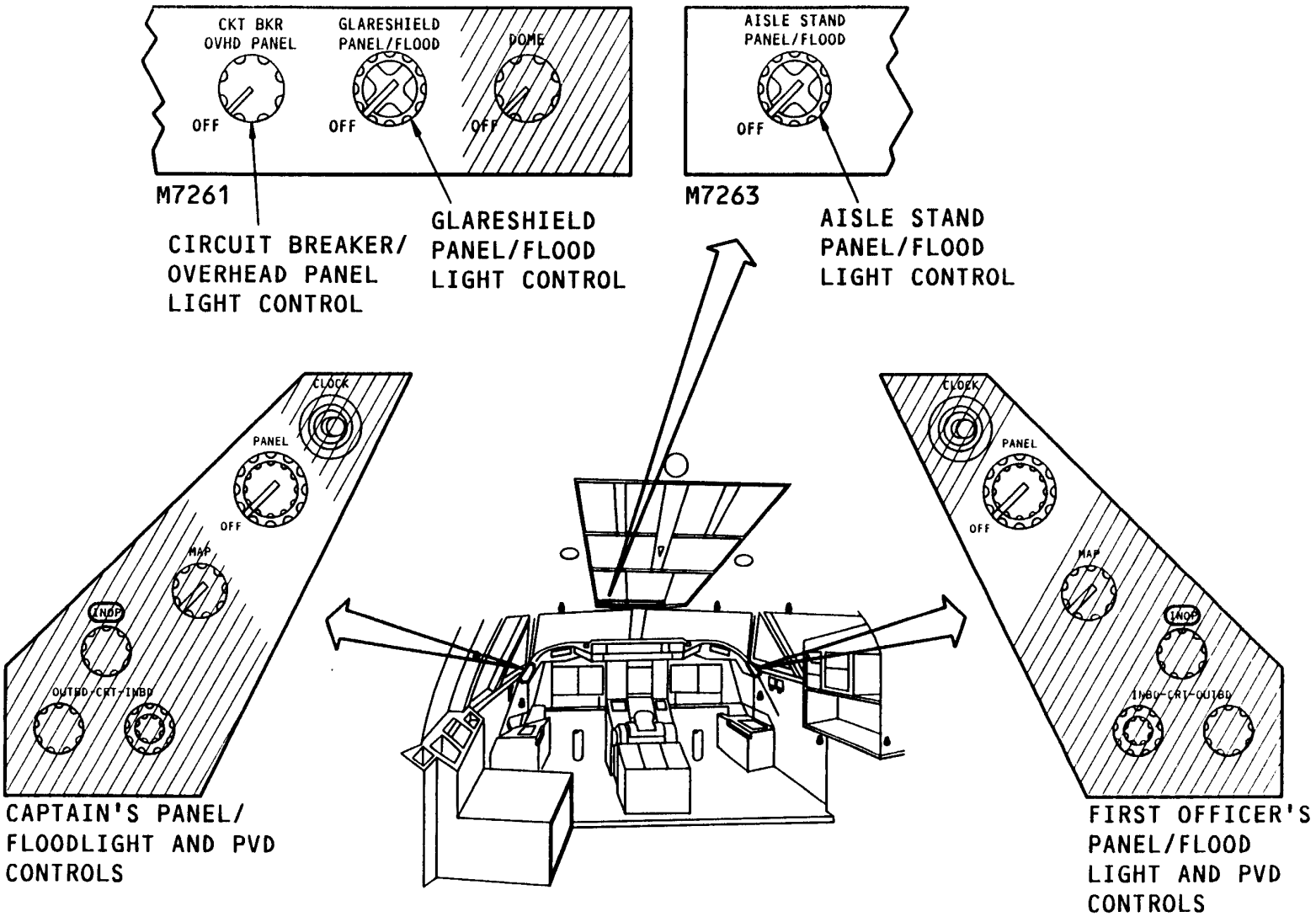


Figure 1 Panel Lights Controls

PANEL LIGHT DIMMER UNITS

Dimmer Units provide variable ac power to the panel lightning cicuits. Input poweris 115 volts ac and output power is 0 to 5 volts ac, depending on the setting of the associated light control

Several dimmer units are located in the P7 panel.The panel sections are hinged to open downward for access.
Additional dimmer units are located on either interior side of the P9 aisle stand. The left or right CDU is removed for access to the dimmer units.

Dimmer units have either one or two secondary protection circuit brakers. When replacing a faulty dimmer unit, the secondary protection circuit brakers must be removed from the defective unit and reinstalled on the replacement unit.

Located under the terminal cover is areplaceable fuse

Caution:
Do not operate the dimmer unit under no-load condition;
the transformer may burn out.

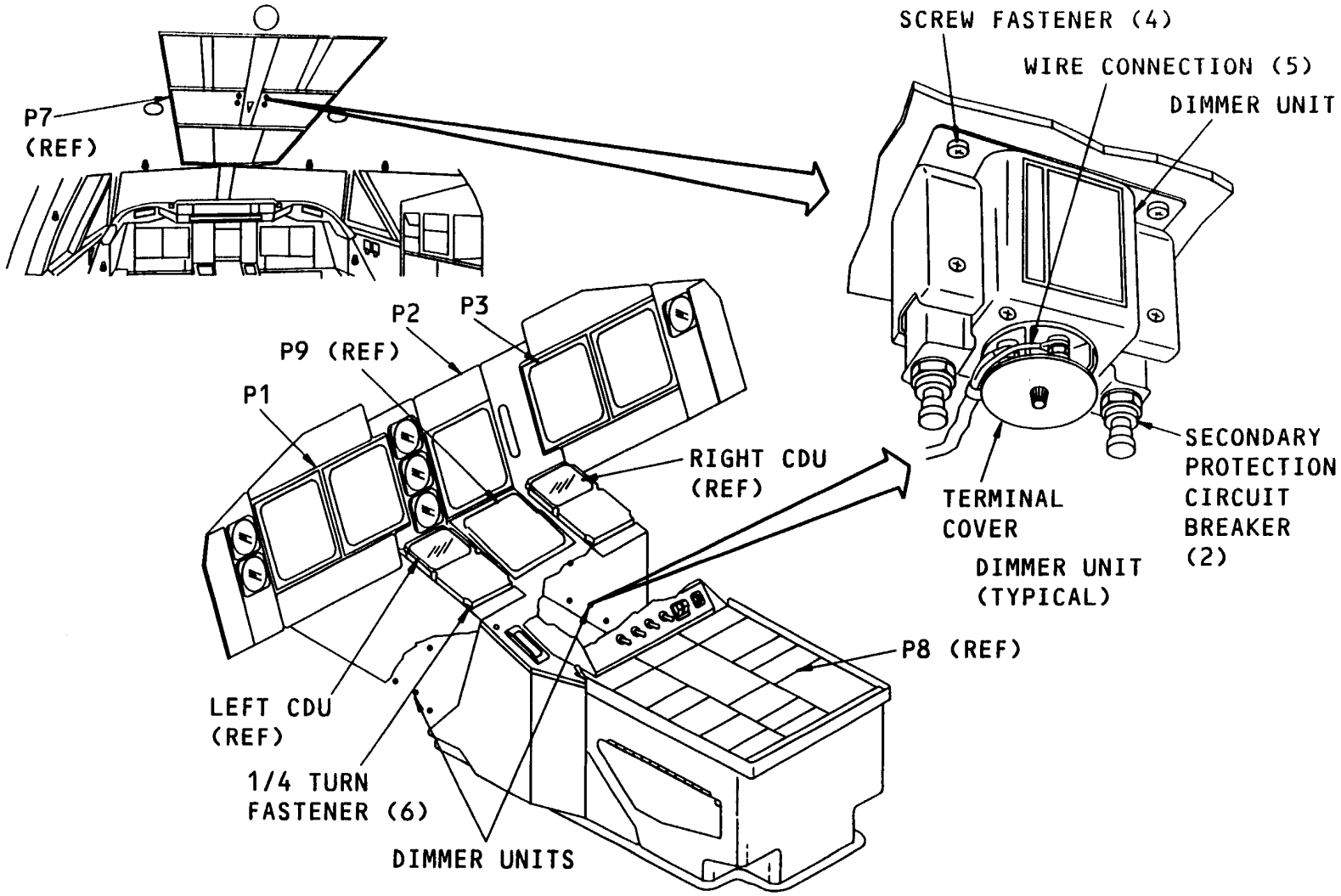


Figure 2 Panel Light dimmer Unit

INDICATOR LIGHTS

General

Indicator lights are provided in the flight deck to indicate system status. Each indicator light has two lamps powered by the master dim and test system. A diode/fuse card provides electrical isolation and fault protection.

Relamping

Both lamps should be installed in the indicator light at all times, even if a lamp has failed. The indicator lights are relamped from the front of the panel. Pull the lens cap assembly outward for access to the lamps.

CAUTION:

DO NOT PRY OR GRIP ANNUNCIATOR LENS CAP WITH A TOOL OR LENS MAY BE DAMAGED. REMOVE WITH FINGERS ONLY.

Verify that the part number of the replacement lamp is,correct for the application.

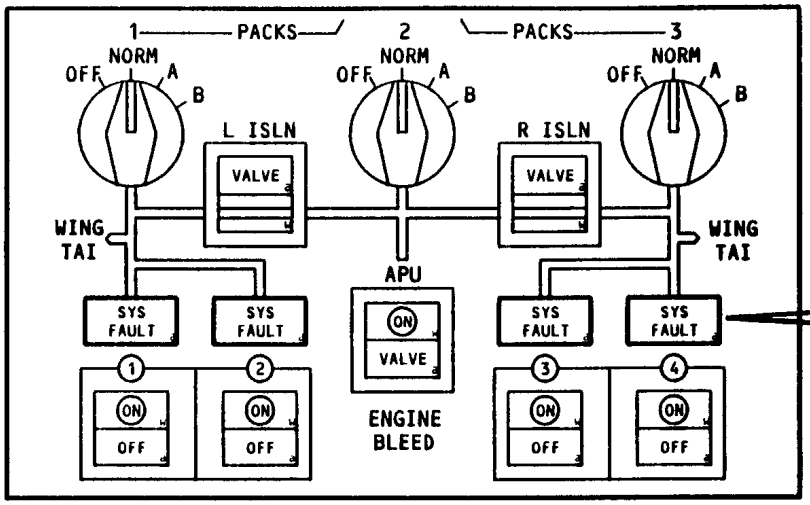
Diode/Fuse Card Replacement

Following relamping, test the indicator light by using the indicator lights dim and test switch. If both lamps in the indicator fail to light, replace the diode/ fuse card.

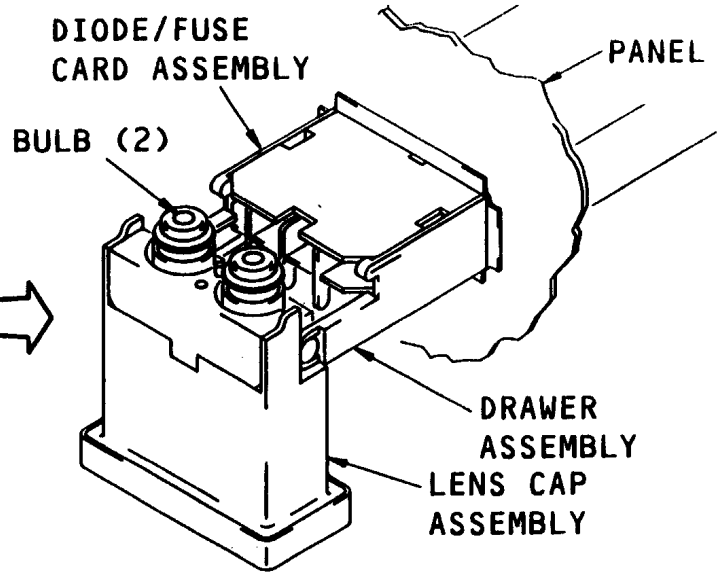
Indicator Light Replacement

Removal of the indicator light requires removal of the individual wire contacts from the rear of the indicator light with the proper insertion/removal tool.

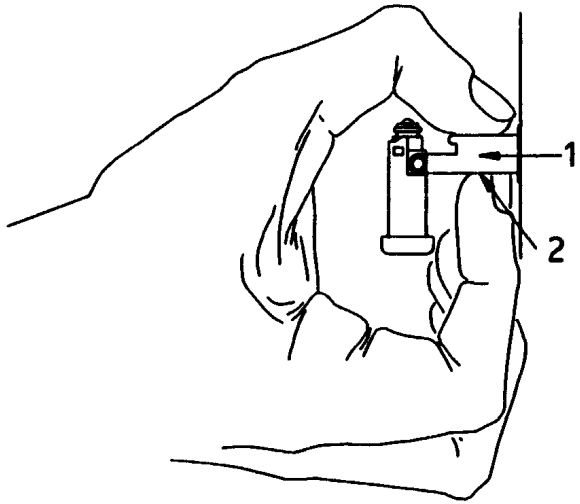
The indicator light is secured to the panel by a mounting sleeve which is retained by two spring-loaded mounting lugs. The lug adjustment screws are accessib'Le with the diode fuse card and drawer assembly removed.



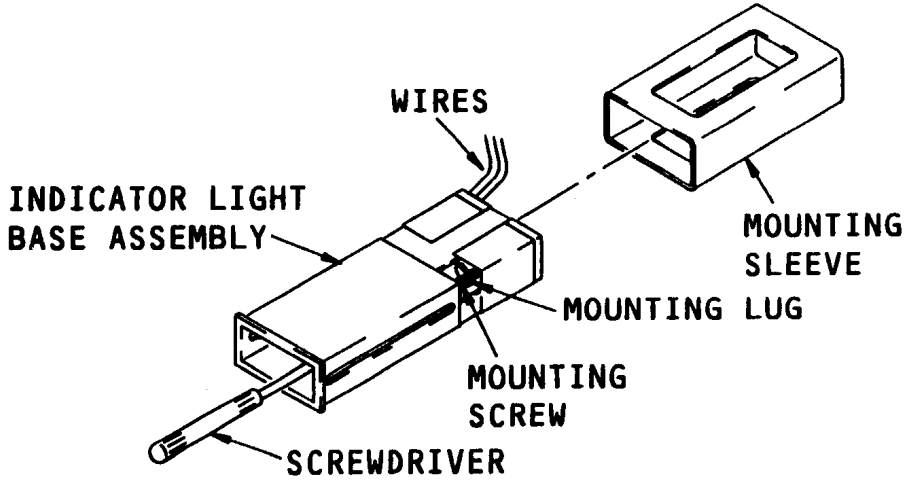
CONTROL PANEL MODULE (TYPICAL)



INDICATOR LIGHT RELAMPING



DIODE/FUSE CARD REMOVAL



INDICATOR LIGHT REPLACEMENT

Figure 3 Indicator Light

SWITCH LIGHT

General

Switch lights provide control inputs to their associated systems. Lighted displays indicate switch position and/or system status. Two types of switches, momentary and alternate action are used. Both types have four internal SPDT switches for system control and both are internally lighted.

Alternate Action Switches

Alternate action switches are mechanically latched in the last operated position (in or out). Each succeeding operation selects the switch to the opposite position. Switch position is indicated by the absence or presence of a mechanical flag in the switch face. The switch.position display (flag) has a white legend on a black background in the engaged (in) position and is illuminated, generally, by the 5 volt ac panel lighting circuit. The legend is hidden by a mechanical shutter in the relaxed (out) position and the 5 volt lighting turned off.

Momentary Switches

Pressing the momentary switch transfers the contacts. Releasing the switch transfers the contacts to the original position. The switch has no switch position display. The lighted display can indicate the position of a relay or contactor controlled by the switch or function as a status/caution indicator.

Status/Caution Display

The status/caution display portion of either type of switch is a light displaying system condition. The legend can be either a color or black on a black or white background. The lights utilize the master dim and test system power, 28 volts dc for bright and 12 volts dc for dim.

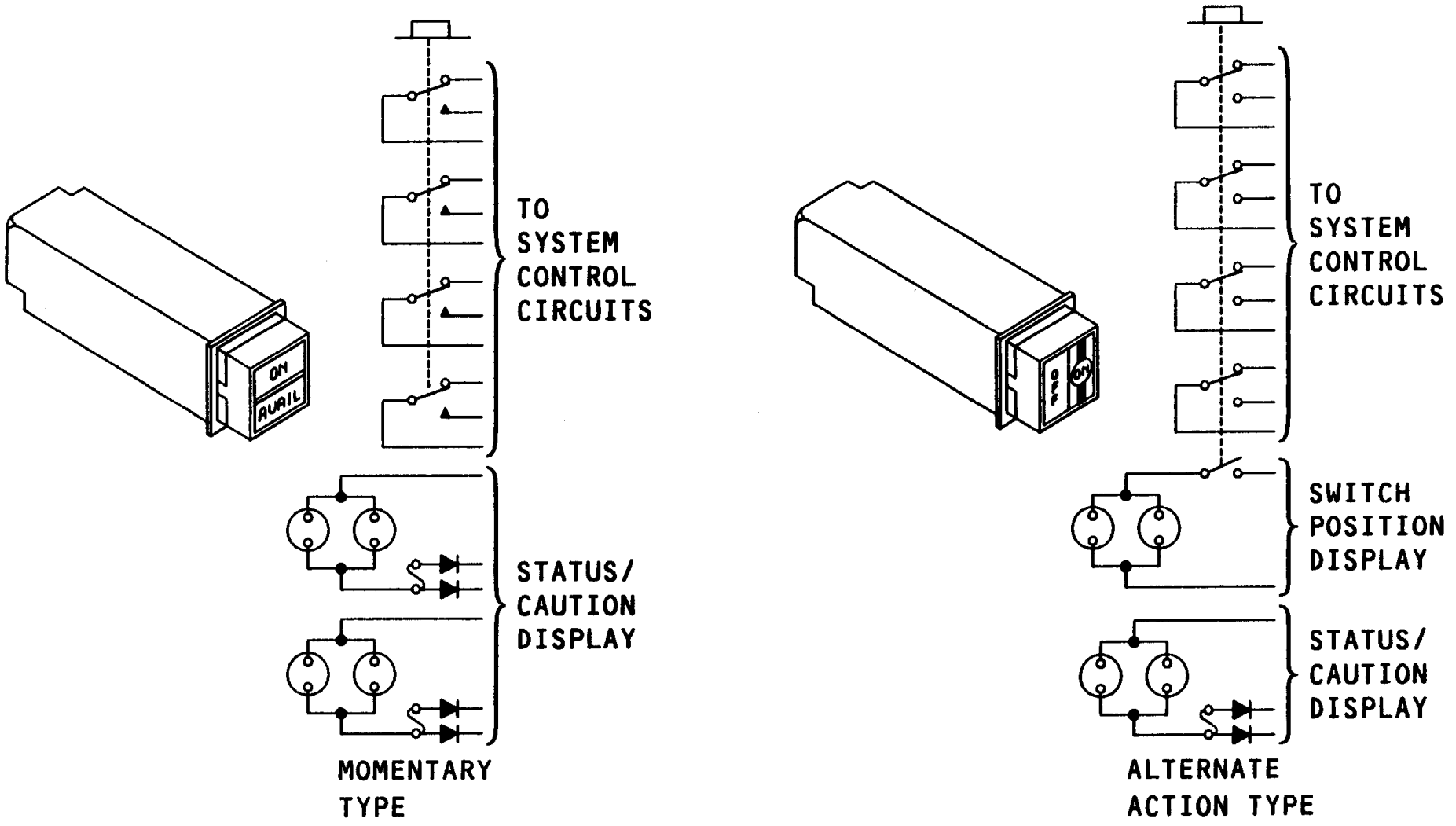


Figure 4 Switch Light

SWITCH LIGHT MAINTENANCE PRACTICES (KORRY)

Relamping

The switch lights are relamped from the front of the panel. The lens cap assembly is removed for access to the lamps, which are in the backside of the lens cap assembly.

WARNING:

BEFORE ACTUATING ANY SWITCH LIGHT FOR THE PURPOSE OF TESTING ITS LIGHTING, RELAMPING OR OTHER MAINTENANCE OF THE SWITCH ITSELF, MAKE SURE THE ASSOCIATED SYSTEM IS DEACTIVATED BY OPENING APPROPRIATE SYSTEM CIRCUIT BREAKERS. FAILURE TO DO SO MAY CAUSE SERIOUS ACCIDENTS AND/OR DAMAGE EQUIPMENT.

CAUTION:

PULL APPROPRIATE LIGHTING SYSTEM CIRCUIT BREAKER TO PREVENT DAMAGE TO DIMMING CARDS WHEN LENS CAP IS REINSERTED.

DO NOT PRY OR GRIP LENS CAP WITH A TOOL OR LENS CAP MAY BE DAMAGED. REMOVE WITH FINGERS ONLY.

Alternate action switch lights must be in the unlatched (out) position in order to remove the lens cap. Pull on the cap until the lock disengages from the cap assembly catch. Rotate the cap 90 degrees upward or to the side to remove the lamps.

Master Module Replacement

The master module assembly contains system switches and the circuit module contains diodes and fuses for the status/caution display lighting. The master module assembly and circuit module may be removed from the front of the housing without removing the housing from the panel. Removal of the cap assembly allows access to mounting lug screws. Turning the mounting lug screws counterclockwise will stow the lugs inside housing assembly, allowing the removal of the master module assembly.

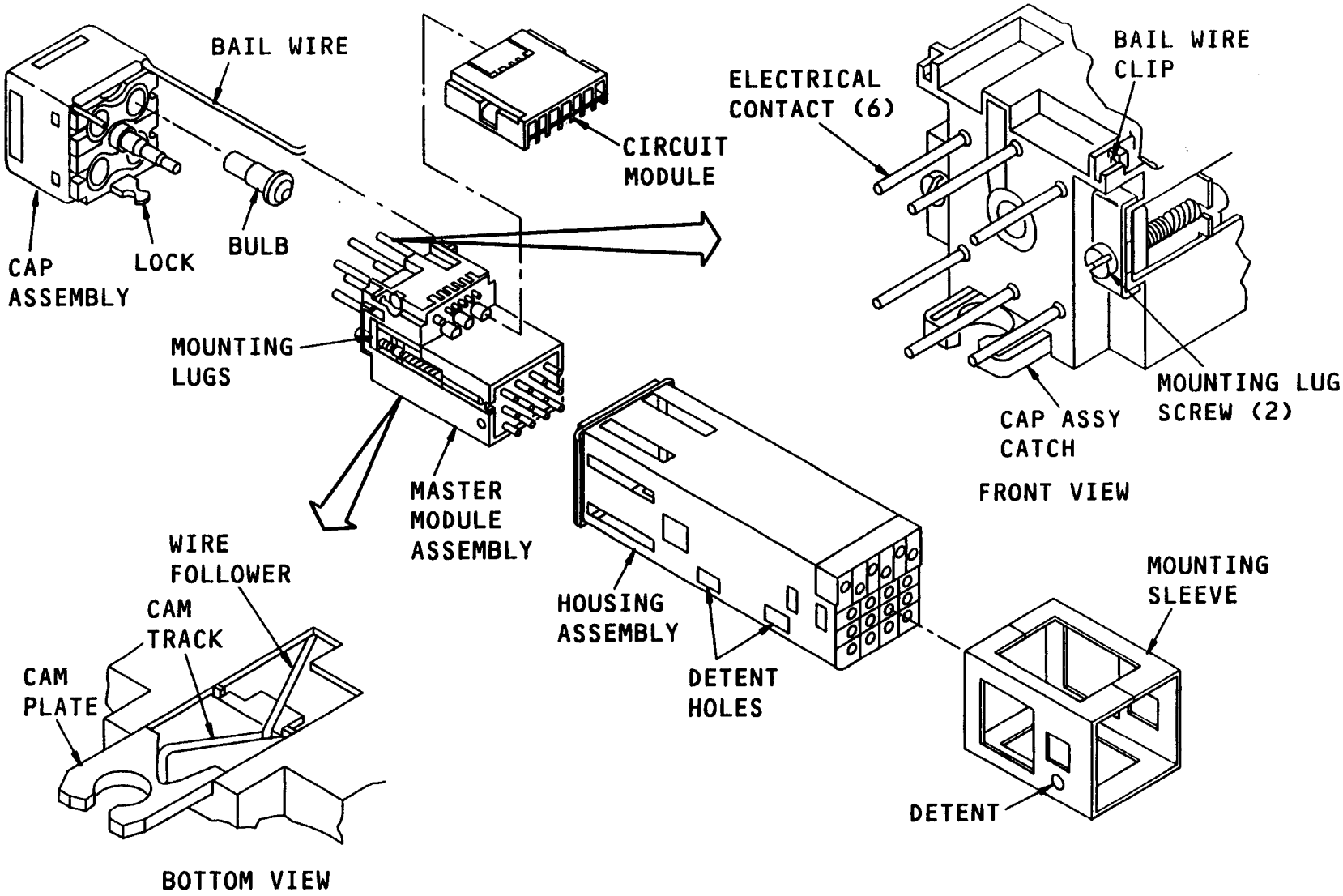


Figure 5 Switch Light (Korry)

SWITCH LIGHT MAINTENANCE PRACTICES (MASTER SPECIALTIES CO)

Relamping

The procedure for relamping MSC switches is similar to that for the Korry switch.

Each switch light has two or four lamps. All four lamps or two lamps and two dummy lamp plugs, must be installed. Gaskets on sealed switches should be lubricated prior to reassembly.

CAUTION:

WHEN REINSTALLING THE LENSCAP INTO THE SWITCH BASE ASSEMBLY, INSURE THE KEY AND KEYWAY ARE PROPERLY ALIGNED. KEYWAY IS DELICATE AND CAN BE BROKEN IF FORCED. FRAGMENTS OF THIS BROKEN KEYWAY CAN PREVENT THE SWITCH FROM OPERATING PROPERLY.

After installing the replacement lamps, the cap assembly must be pressed into the base assembly with a single action in order to prevent actuation of the switch. The second pressing of the cap actuates the switch.

Diode Fuse Card Replacement

Disengagement of the retaining wires from the lens cap assembly is required to remove the diode/fuse card. Open applicable master dim and test circuit breaker for status/caution portion of the pushbutton switch. Remove diode/fuse card from base assembly by gently grasping card with a small pair of needle nose pliers and slide straight out. Do not force new diode/fuse card into base assembly.

Removal/Installation

Individual wire contacts at the rear of the switch light are moved with the proper insertion/removal tool. The switch light is secured to the panel by a mounting sleeve which is reta'Lned by two screws.

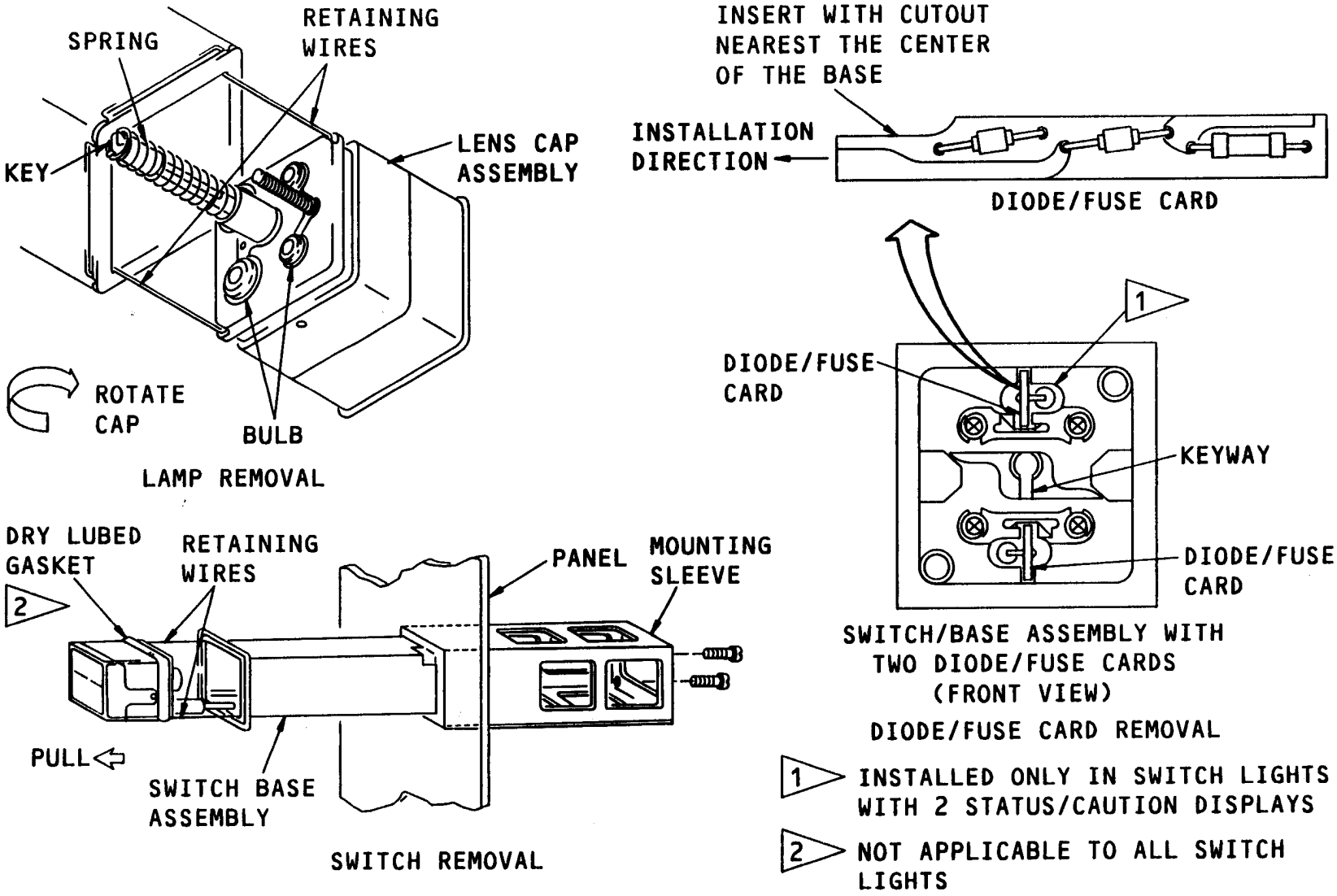


Figure 6 Switch Light (Master Specialties)

MASTER DIM AND TEST SYSTEM

The master dim and test system controls the light levels of indicator lights (including the status/caution portion of switch lights) and the aisle stand digital displays. Control components are contained in M886, master dim and test control module, located behind the flight deck coat closet.

A three-position (test, bright and dim) switch is located on the right lighting control module, P5. Placing the switch in the momentary test position turns on all the indicator lights. Holding the switch in test position for 10 seconds causes the indicator lights to dim. The bright and dim positions allow selection light intensity level.

Note:

Power for illumination of the engine and APU fire handles and engine fuel control switches is supplied by the master dim and test system. However, placing the indicator lights dim and test switch to the TEST position will not turn those lights on. Placing the switch to DIM will reduce the intensity of the fuel control switch lights but not the fire handle lights.

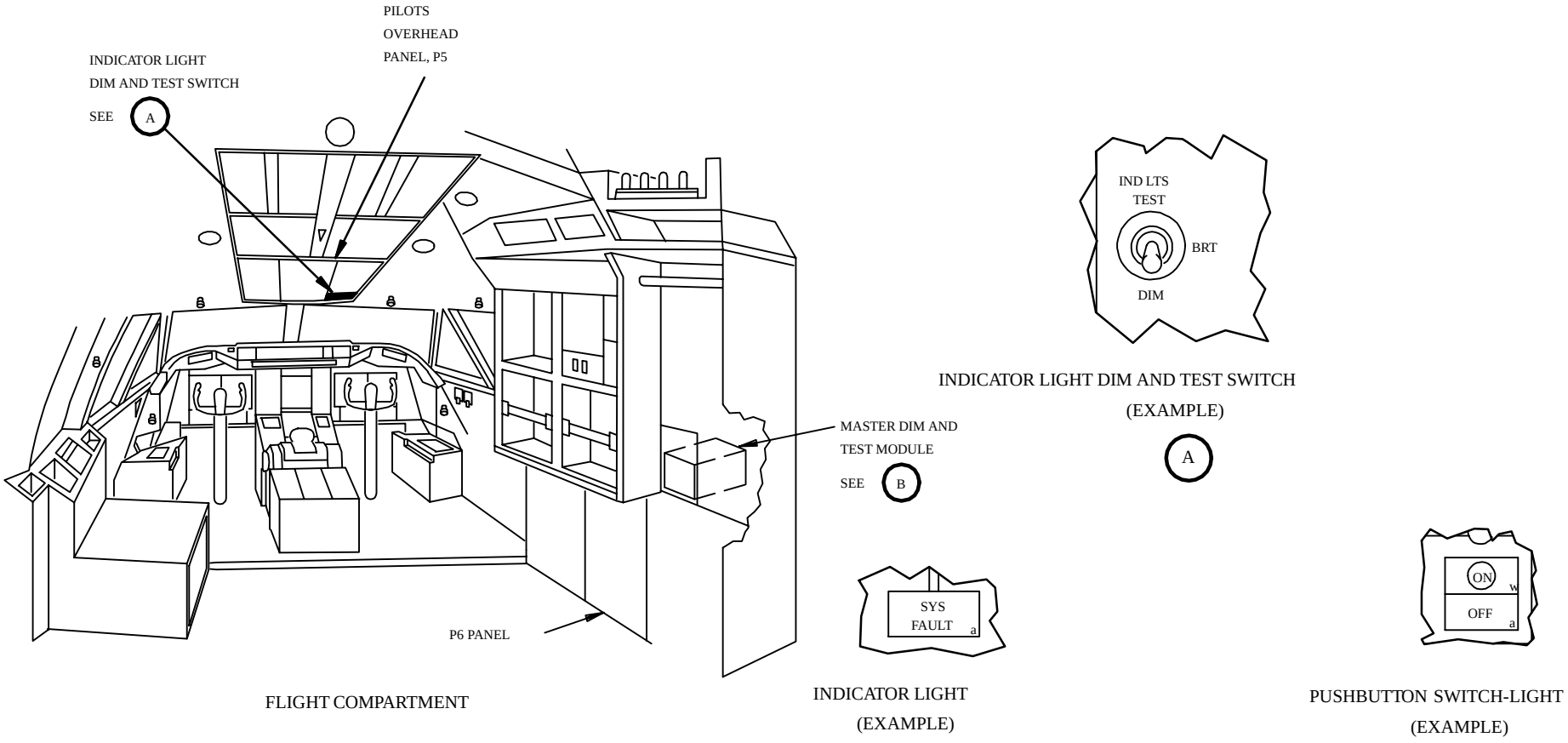


Figure 7 Master Dim and Test

FLIGHT COMPARTMENT ACCESS LIGHTS

General

Flight compartment illumination is provided by flight compartment access lights and dome lights. Access lights provide entryway illumination from outside the airplane to the flight deck.

The flight compartment access path from the No. 2 main entry door and the main equipment center external access door is illuminated by lamps in the lower lobe, main deck and upper deck. A switch at each entry and in flight compartment provides illumination control.

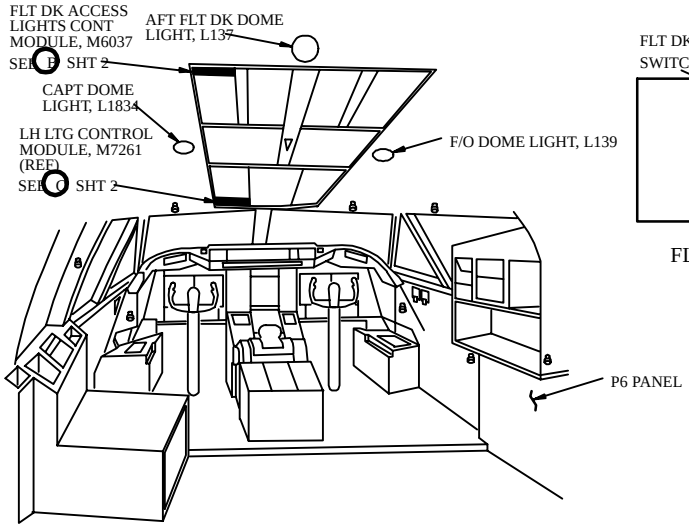
Access paths to the flight compartment from either the No. 1 main entry door or the main E/E equipment center external access door are illuminated.

The lamps used are located as follows:

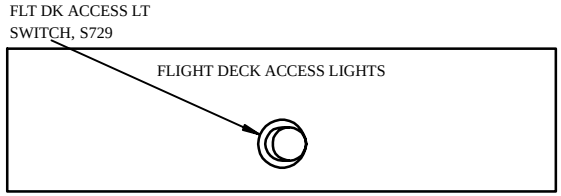
- two fluorescent upper deck ceiling light lamps over stairwell
- two main entry door area direct ceiling lamps
- two main equipment center dome lights

The three access light switches are located at the two key points of entry and in the flight compartment.

The access path illumination lamps are selected from other systems. They are switched to the access light circuit by operating any of the three access light switches. The access lights relay located in the main power center-left P414, when energized by one of the three switches, will transfer the lights from their normal system circuit to a common access light circuit. The 28-volt dc ground handling bus provides power.

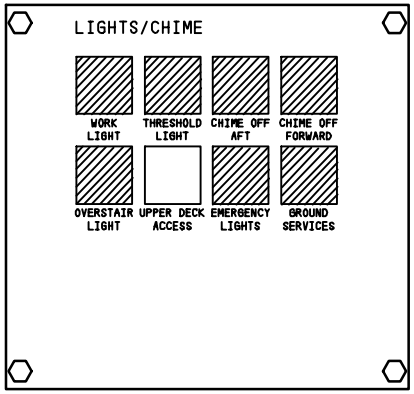


FLIGHT COMPARTMENT



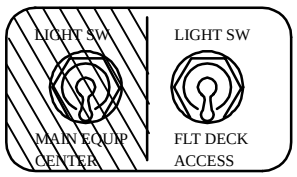
FLT DK ACCESS LTS CONT MODULE, M6037

B



LIGHTS/CHIME CONTROL-ATTENDANTS

D



FLT DK ACCESS LT LWR HATCH, S730

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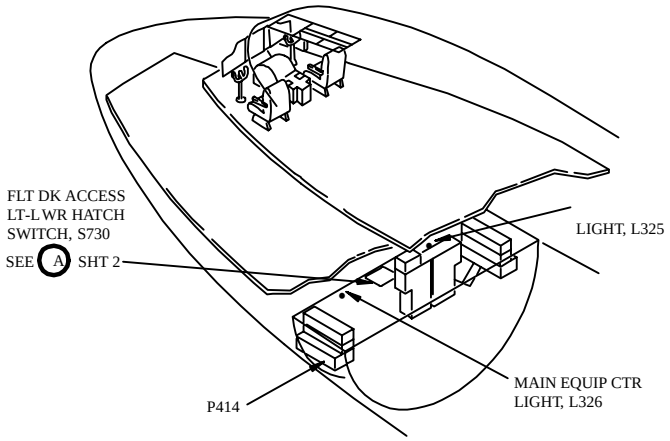
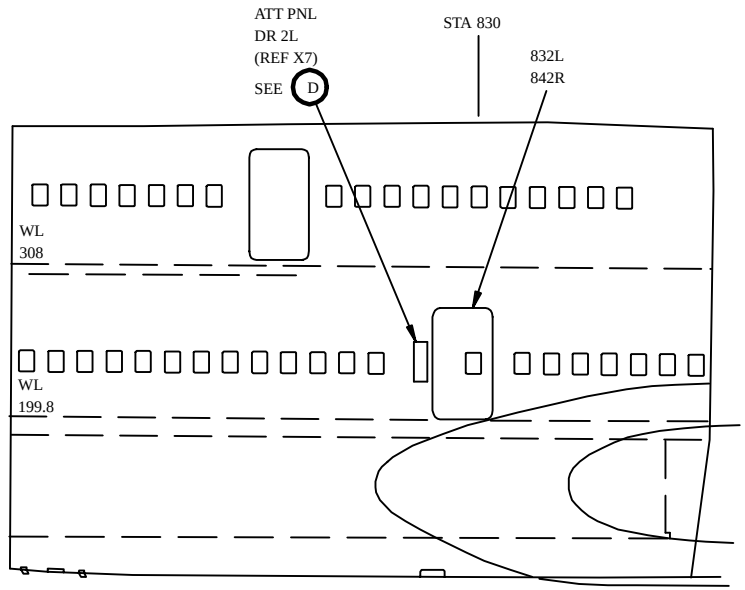


MAIN EQUIP CTR



LEFT SIDE VIEW

Figure 8 Flight Compartment Illumination

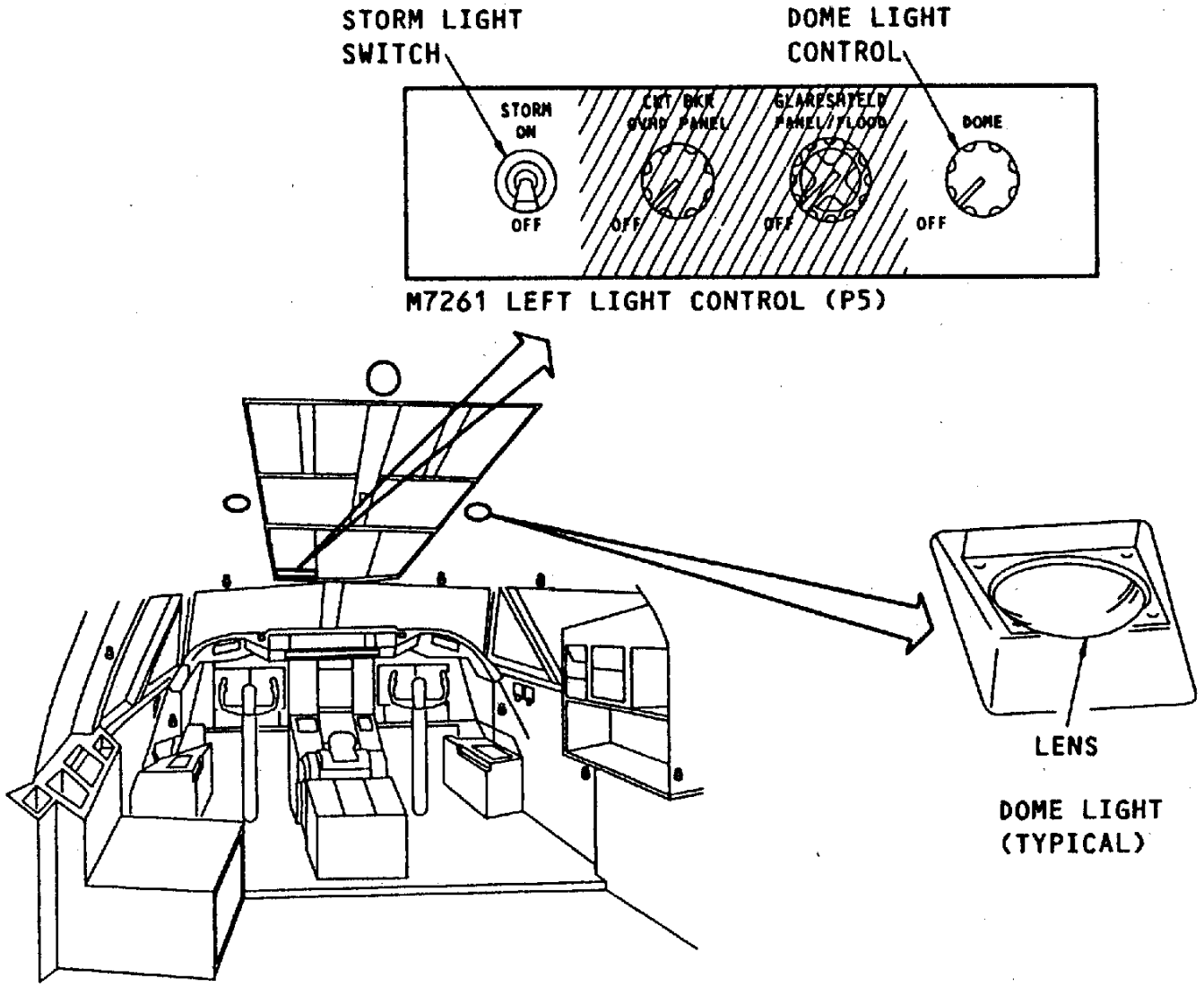


Figure 9 Flight Compartment Auxilary Lights

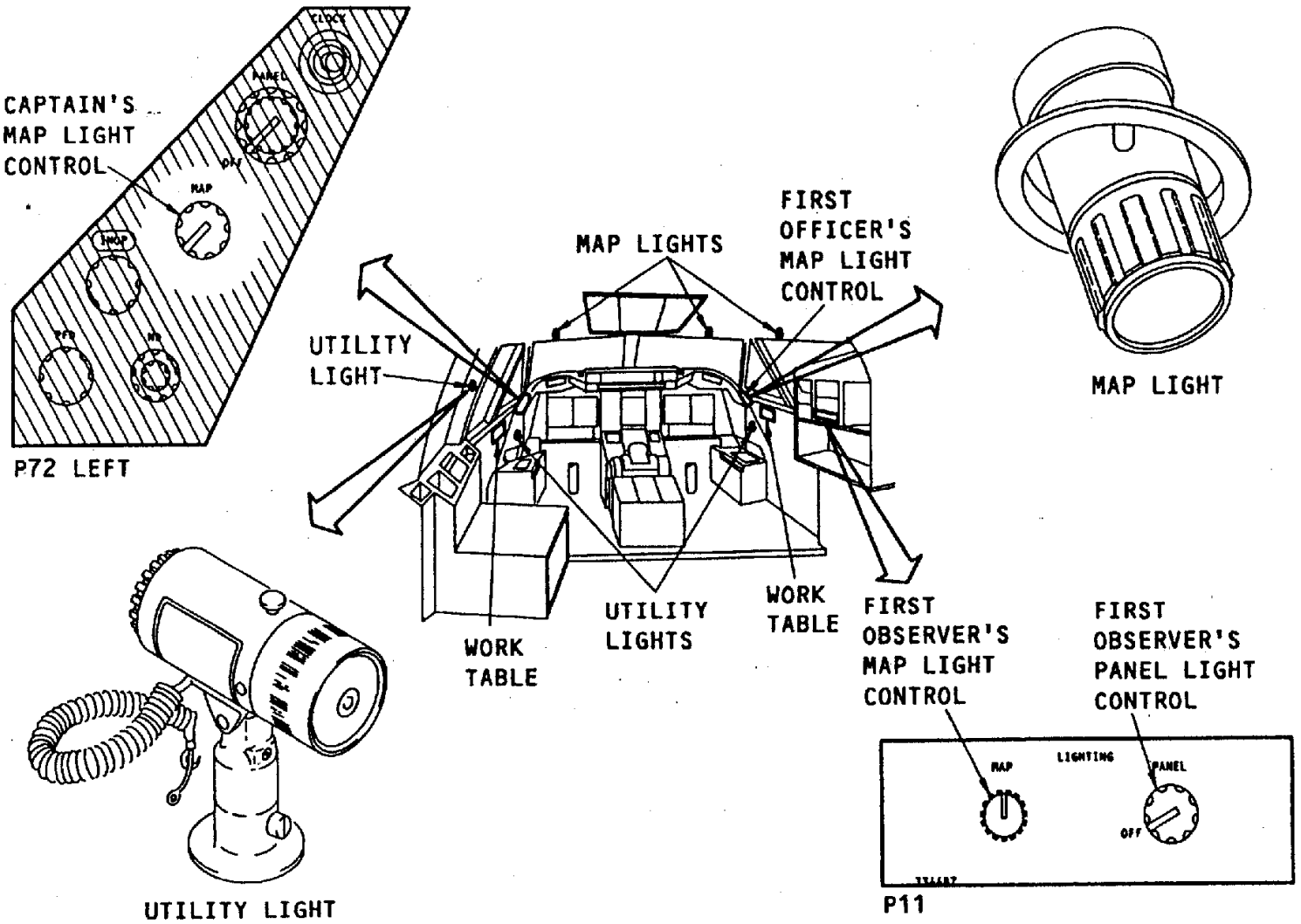


Figure 10 Flight Compartment Auxilary Lights

PASSENGER COMPARTMENT LIGHTING

GENERAL

Several systems comprise the passenger compartment lighting:

- **Passenger compartment illumination lights:**
  Provide general area illumination of the passenger compartment.
- **Personal accommodation lights**:
  Include general area illumination lights and reading lights in the crew rest areas.
- **Lavatory lights:**
  Provide light in the lavatories.
- **Reading lights:**
  overhead reading lights are provided for each passenger.
- **Passenger information signs:**
  No smoking, fasten seatbelt and lavatory occupied signs are located throughout the airplane in view of the passengers and attendants.
- **Attendent call lights:**
  Used to summon the flight attendant.
- **Galley lights:**
  Provide lighting in the galley areas.
- **Threshold lights:**
  Provide lighting in the doorways during passenger boarding.
- **Attendant work lights:**
  Provide overhead illumination at the attendant stations.
- **Flight deck access lights:**
  Illuminate the route to the flight deck.
- **Stairway lights;**
  Illuminate the individual stair treads and the area around the top of the stairway.
- **Closet and auxiliary lights:**
  Provide lighting in the closets and filter/fan service compartment.

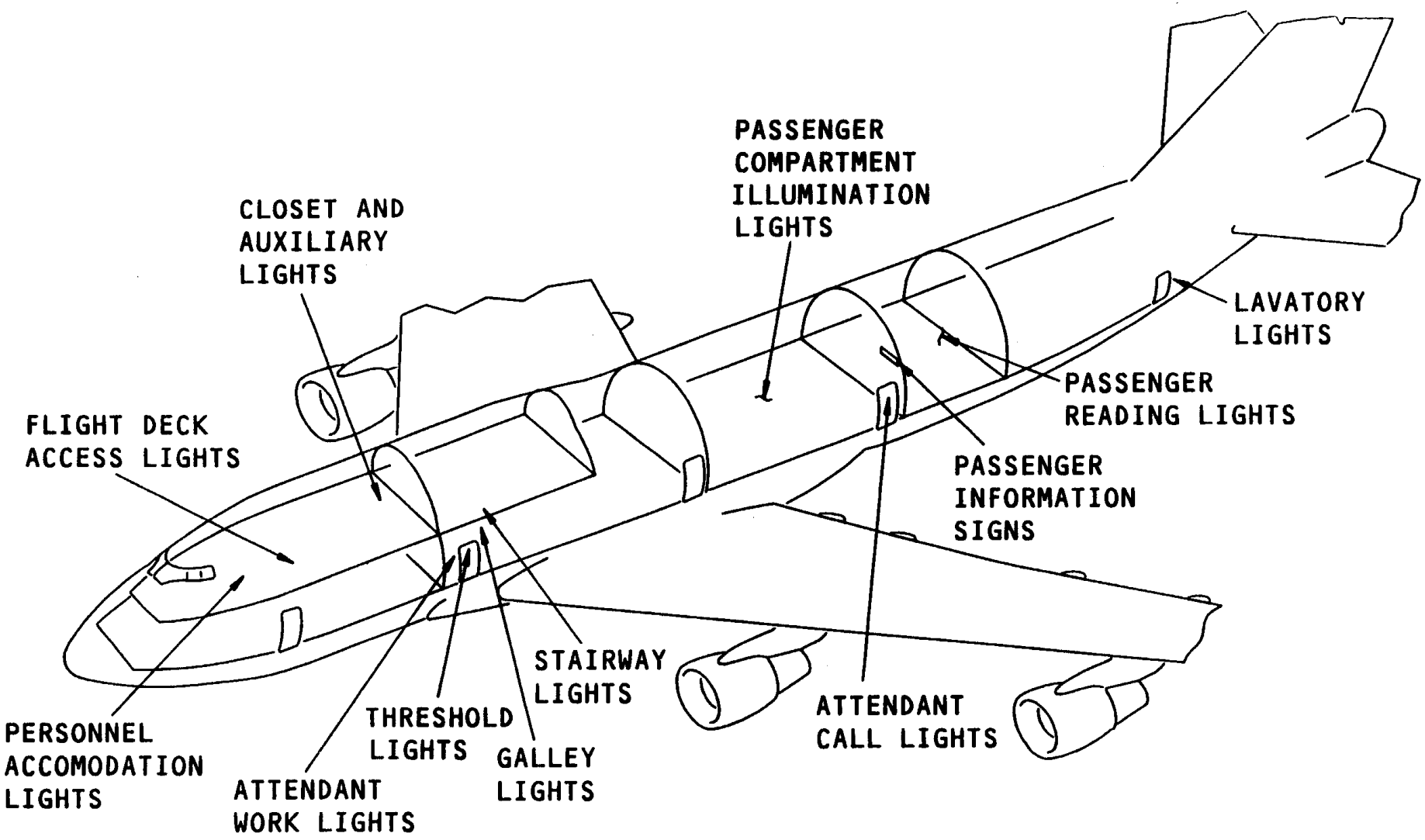


Figure 11 Passenger Compartment Lightning

Most of the passenger compartment lighting is controlled by the digital advanced cabin entertainment/service system (ACESS). The system allows the lighting functions to be easily reconfigured to suit various interior seating arrangements. Built-in test equipment monitors system performance and provides fault indications and status reporting. **The lighting systems controlled by ACESS are:**

- Passenger compartment illumination lights
- Door 5 overhead crew rest illumination lights
- Lavatory lights
- Passenger reading lights
- Passenger information signs
- Attendant call lights
- Zone F crew rest ceiling lights

The remaining lighting uses conventional circuitry:

- Flight deck crew rest lights
- Flight deck access lights
- Attendant reading lights
- Closet and auxiliary lights
- Stairway lights
- Threshold lights
- Attendant work lights

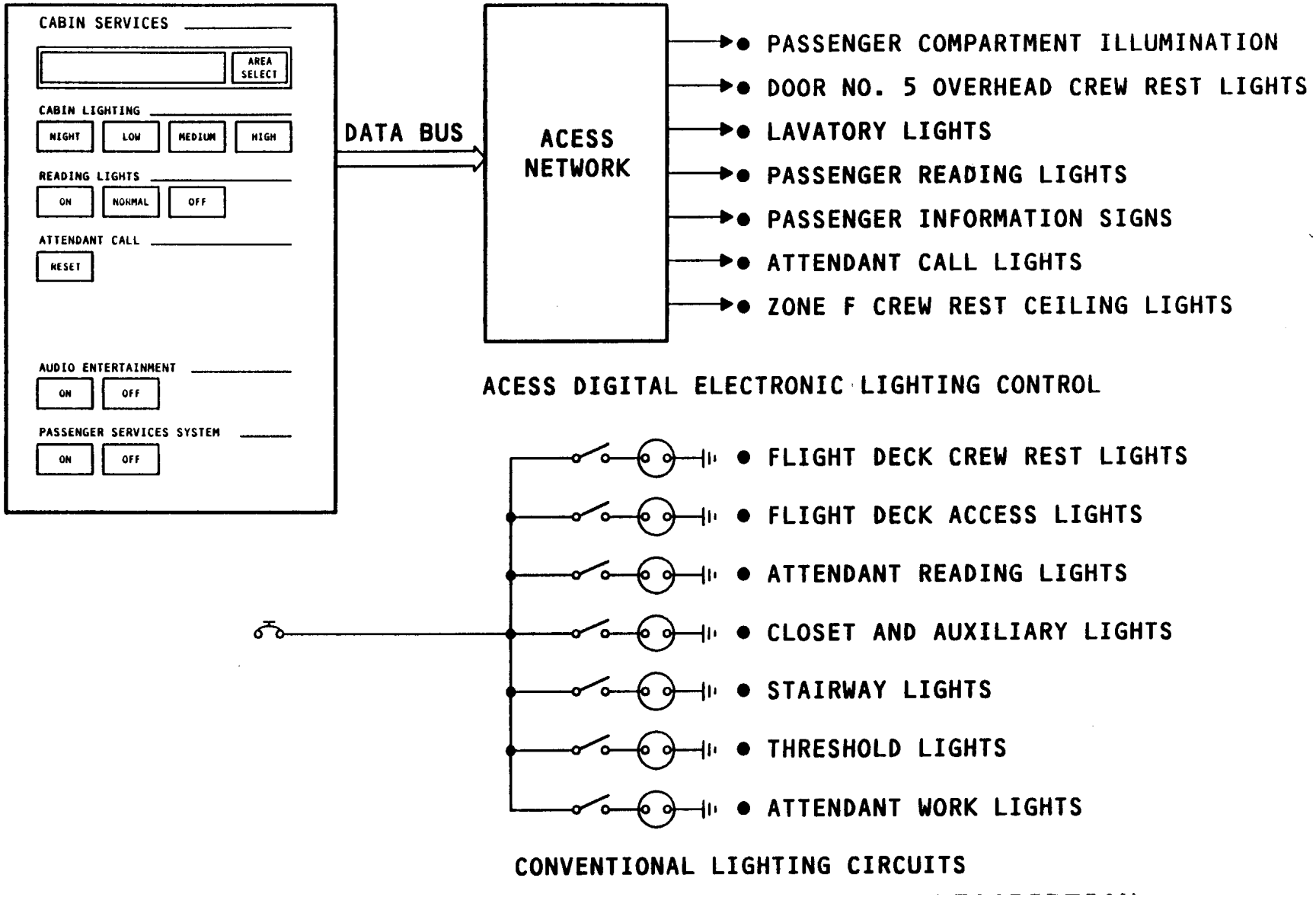


Figure 12 Passenger Compartment Lightning

PASSENGER INFORMATION SIGNS

A passenger information sign is one of these types of signs:

- **NO SMOKING sign**
- **FASTEN SEAT BELT sign**
- **RETURN TO SEAT sign**
- **LAVATORY OCCUPIED sign**

Passenger information signs give instructions to persons in the passenger compartment during a flight of the airplane.

The passenger service system (PSS) controls the passenger information signs (AMM 23-33-00/001).

NO SMOKING and FASTEN SEAT BELT signs are installed at location to make it possible for each person to see at least one sign at all times.

The RETURN TO SEAT signs are come on when the FASTEN SEAT BELT signs come on, except during a cabin decompression. During decompression the RETURN TO SEAT signs are off.

There is a LAVATORY OCCUPIED sign installed on the ceiling near each lavatory. When the lavatory door is closed and locked, the sign comes on (AMM 33-26-00/001). This lets the passengers know when there is a person in the lavatory.

Operation

The signs operate with 28 volts of electrical power.

The passenger service system (PSS) controls and monitors information sign activity.

Pilots' sign control switch generates discrete inputs for PSS processing that directs NO SMOKING and FASTEN SEAT BELT activity.

Lavatory door lock switch positions generate discrete inputs for PSS processing that control the LAVATORY OCCUPIED signs.

NO SMOKING, FASTEN SEAT BELT, and RETURN TO SEAT signs operate in an automatic or manual mode as selected with a switch on the pilot's control stand, P8.

When the switch is set to the automatic position, discrete inputs from other functions control the signs as follows:

FUNCTIONS THAT CONTROL SIGNS IN AUTOMATIC MODE

FASTEN SEAT BELT SIGN

- LANDING GEAR NOT UP AND LOCKED (OR)
- FLAP LEVER NOT IN RETRACT (OR)
- AIRPLANE ALTITUDE (OR)
- CABIN PRESSURE (OR
- PASSENGER OXYGEN ON

NO SMOKING SIGN

- LANDING GEAR NOT UP AND LOCKED (OR)
- CABIN PRESSURE (OR)
- PASSENGER OXYGEN ON

RETURN TO SEAT SIGN

- LANDING GEAR NOT UP AND LOCKED (OR)
- FLAP LEVER NOT IN RETRACT (OR)
- AIRPLANE ALTITUDE (OR)
- CABIN PRESSURE

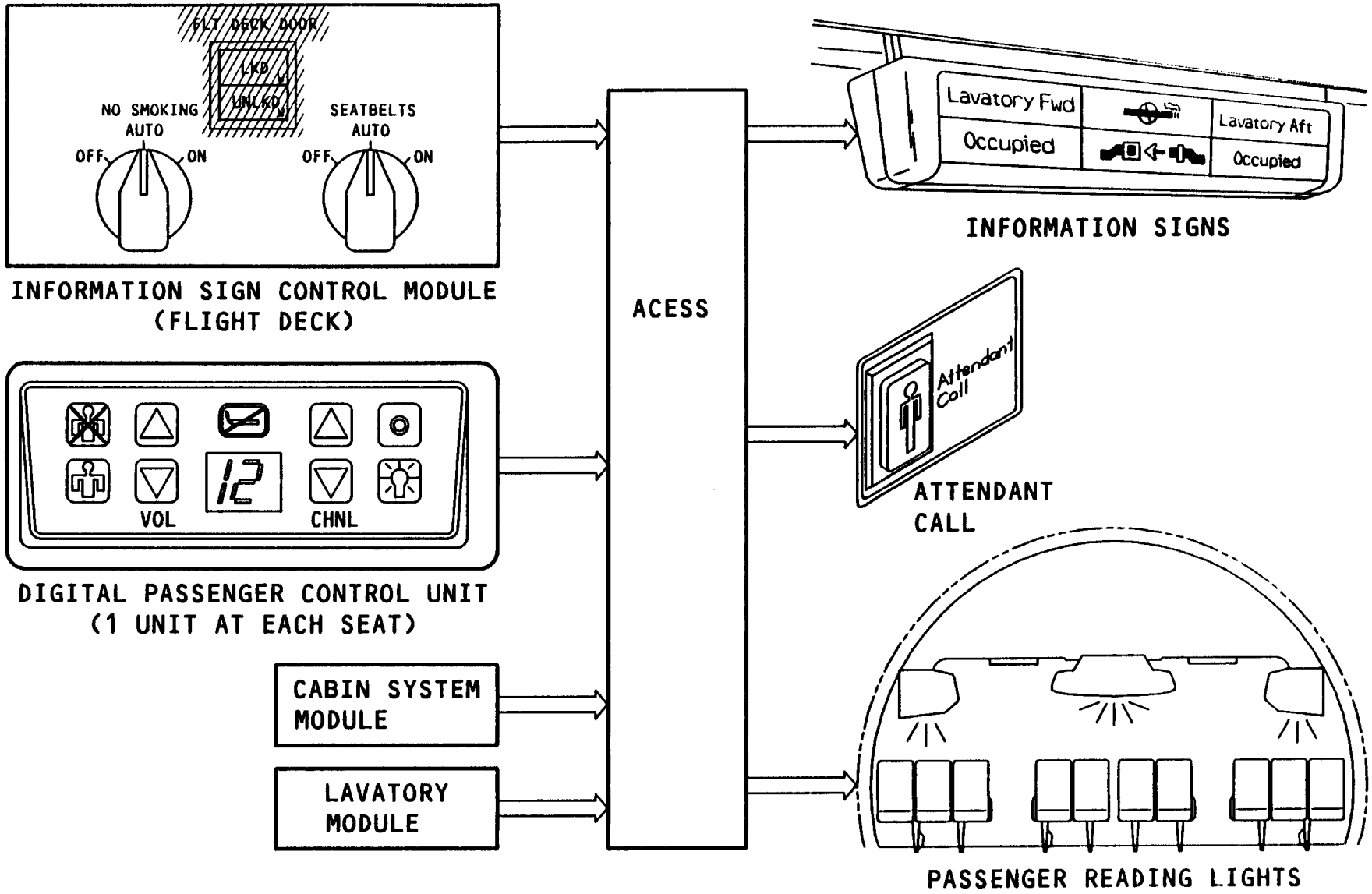


Figure 13 Passenger Information Signs

CARGO COMPARTMENT LIGHTS

Dome lights evenly distributed throughout the cargo compartment areas provide the basic illumination for handling of cargo. Dome lights adjacent to doors illuminate cargo compartment entry areas. The 115- volt ac ground handling bus provides power to the lighting systems.

The exterior cargo handling areas are illuminated by lights mounted in the side of the airplane near the cargo compartment doors

Forward Cargo Compartment Lights

The forward cargo compartment is illuminated by incandescent dome lights provided with protective shielding to prevent damage during cargo handling. Two of the lights located on the ceiling panel adjacent to the door provide entryway lighting when the door is raised to the open position. The remaining lights are mounted on the ceiling.

Aft Cargo Compartment Lights

The aft cargo compartment is illuminated by incandescent dome lights provided with protective shielding the same as for the forward cargo compartment. Two dome lights mounted on the ceiling panel adjacent to the door provide entryway illumination when the door is in the raised position. A dome light is mounted on each side of the bulk-cargo door to illuminate the entryway. The remaining dome lights are located on the compartment ceiling.

NOTE:

Inside the Dom Lights is a micrroswitch installed. By opening the Dom Light the microswitch cuts the current flow through the bulbs automaticly. The bulbs extinguishes.

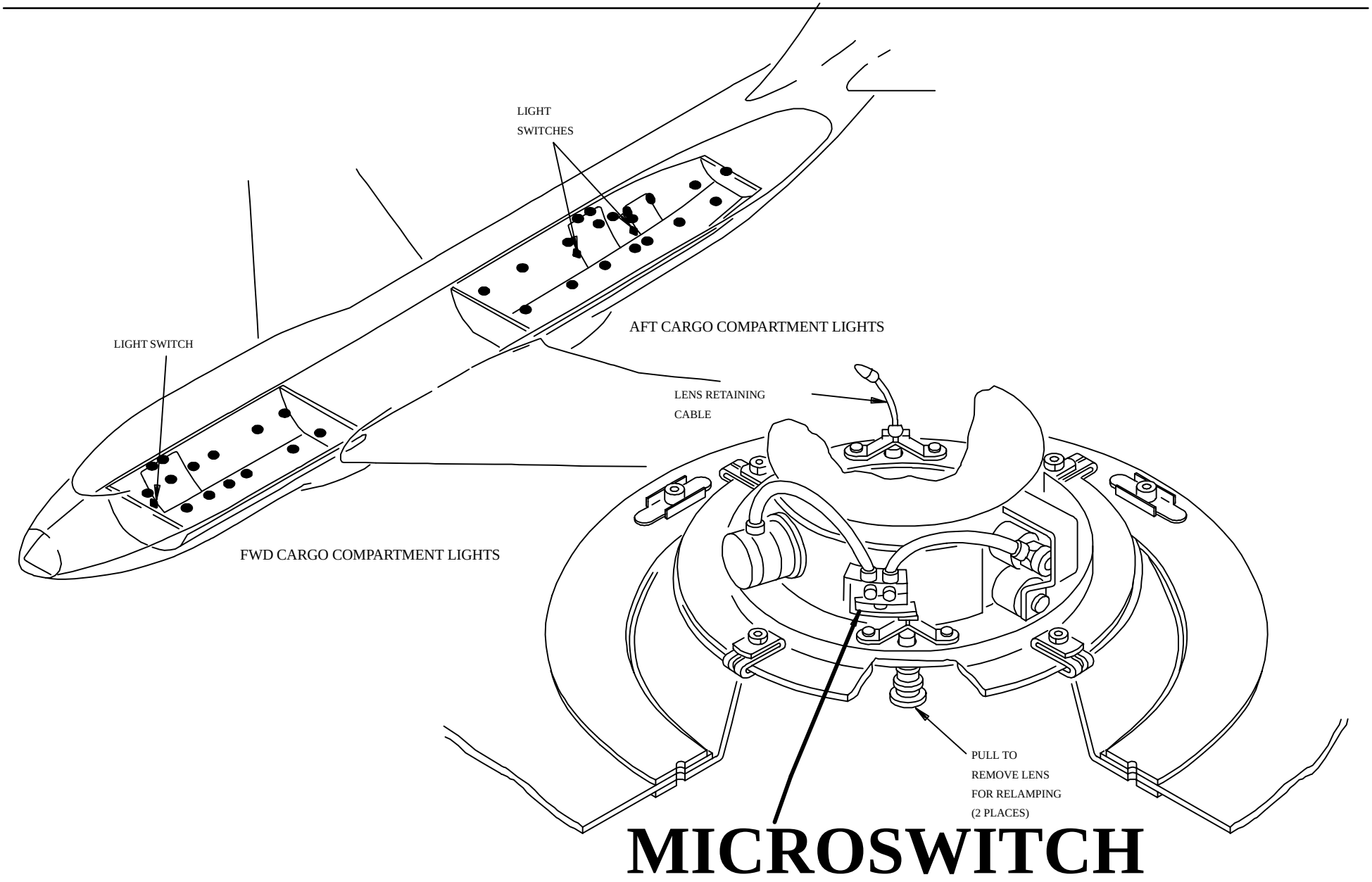


Figure 14 Cargo Compartment Lights (PTH)

EXTERIOR LIGHTS

General

Exterior lighting is divided into the following sections:

Wing Illumination Lights (33-41-00)

Wing illumination lights are flush mounted on each side of the airplane above the intersection of the wing leading edge and the fuselage. These lights illuminate the wing leading edges and the engine nacelles. The lights use sealed beam incandescent lamps.

Landing and Runway Turnoff Lights (33-42-00)

Two landing lights are mounted in each wing leading edge to illuminate the runway during takeoff and landing. Two runway turnoff lights mounted on the lower tripod brace provide illumination of runway turnoff areas.

Navigation Lights (33-43-00)

Navigation lights are mounted on the tip of each wing and in the tail cone. These lights provide indication of airplane position, direction, and attitude.

Strobe Anti-Collision Lights (33-44-00)

A strobe anti-collision light is mounted on the top and bottom of the airplane fuselage. Each light produces a high intensity flashing light to provide indication of airplane presence. A strobe (xenon flashtube) anticollision light is mounted in each forward wingtip fairing and on the tail cone below the APU exhaust. Each light produces a high intensity flash approximately once every second.

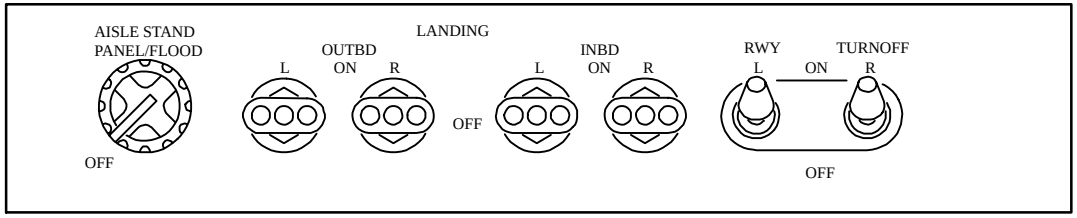
Logo Lights (33-45-00)

Logo lights are flush mounted to the upper surface of each horizontal stabilizer to illuminate the airline insignia on the vertical fin.

Cargo Door Area Lights (33-46-00)

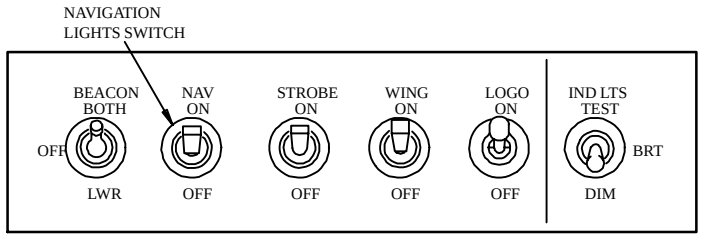
A light assembly is flush mounted to the side of the fuselage near each of the cargo doors. The lights illuminate the exterior cargo handling areas.

Controls for the cargo door area lights are located by the cargo door. All other exterior lighting is controlled from switches located on the pilots P5 overhead panel on the flight deck.



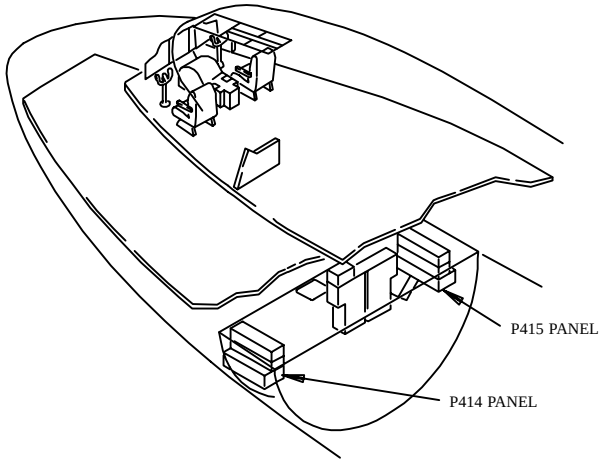
MODULE - LIGHT CONTROL PANEL, M7263

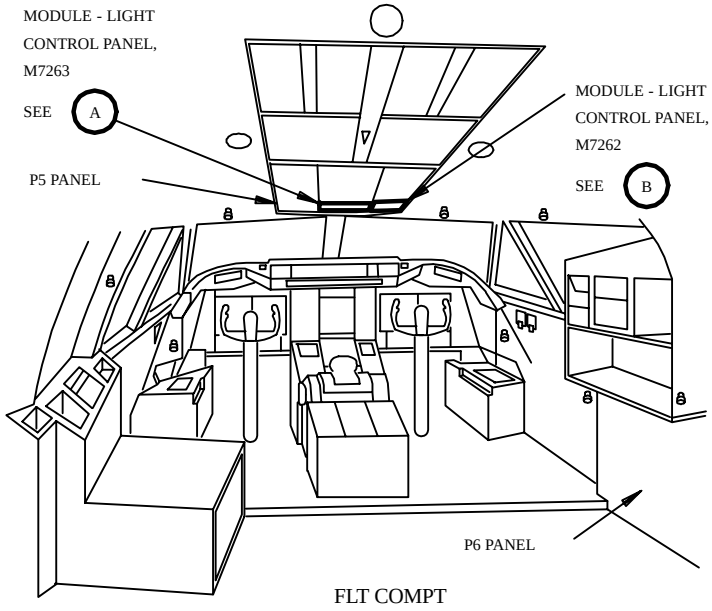
A



MODULE - LIGHT CONTROL PANEL, M7262

B





FLT COMPT

Figure 15 Exterior Lights

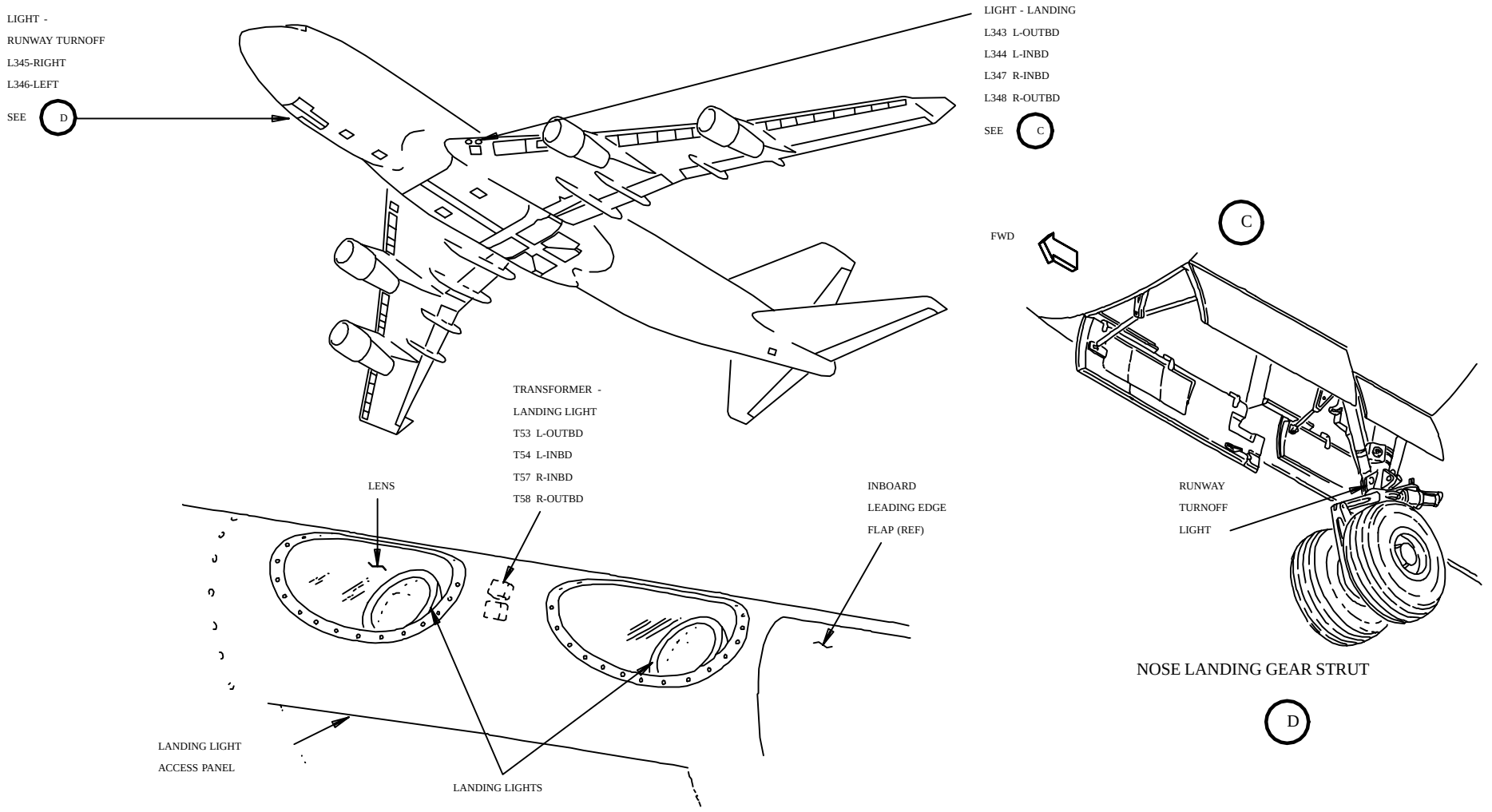


Figure 16 Exterior Lights

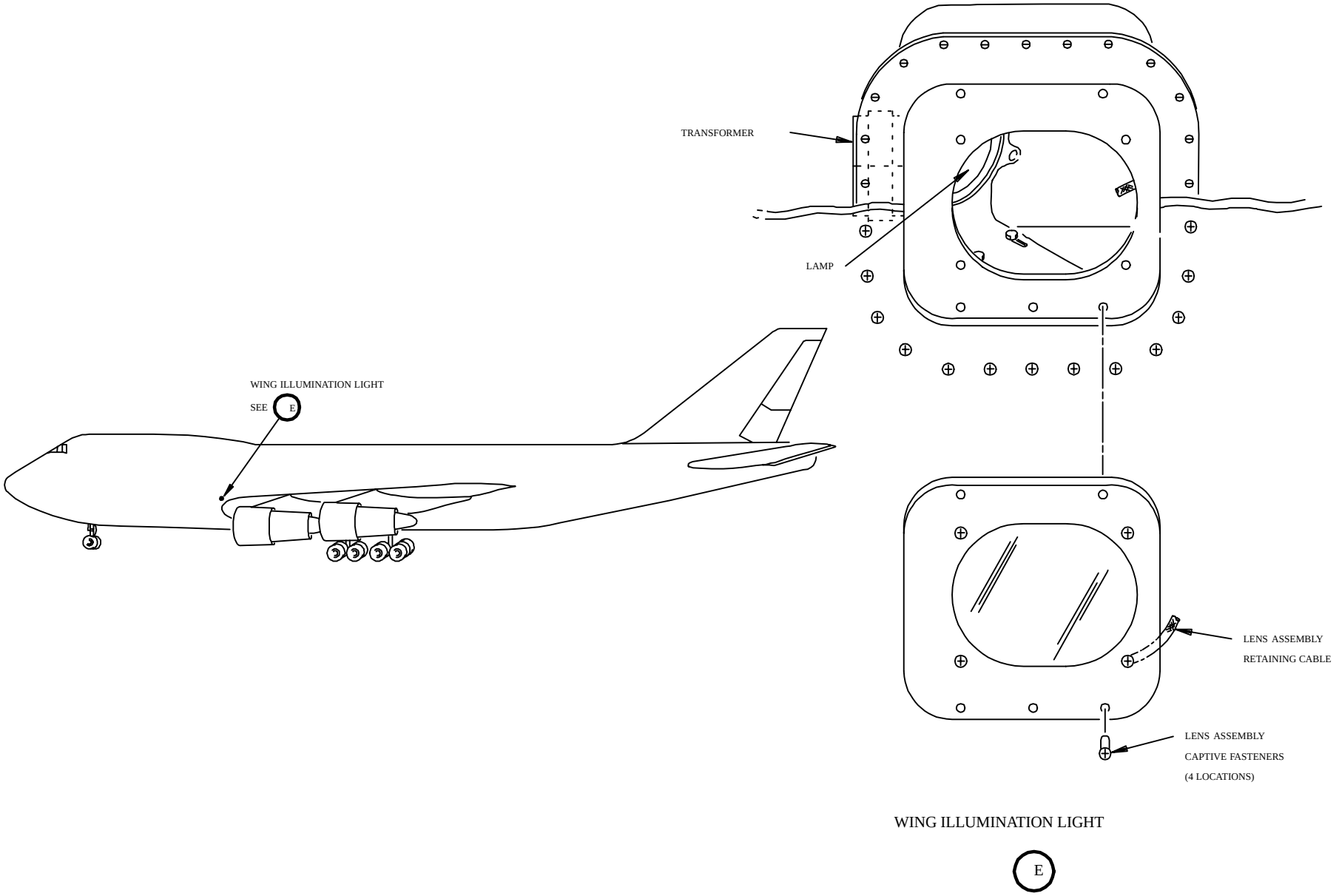
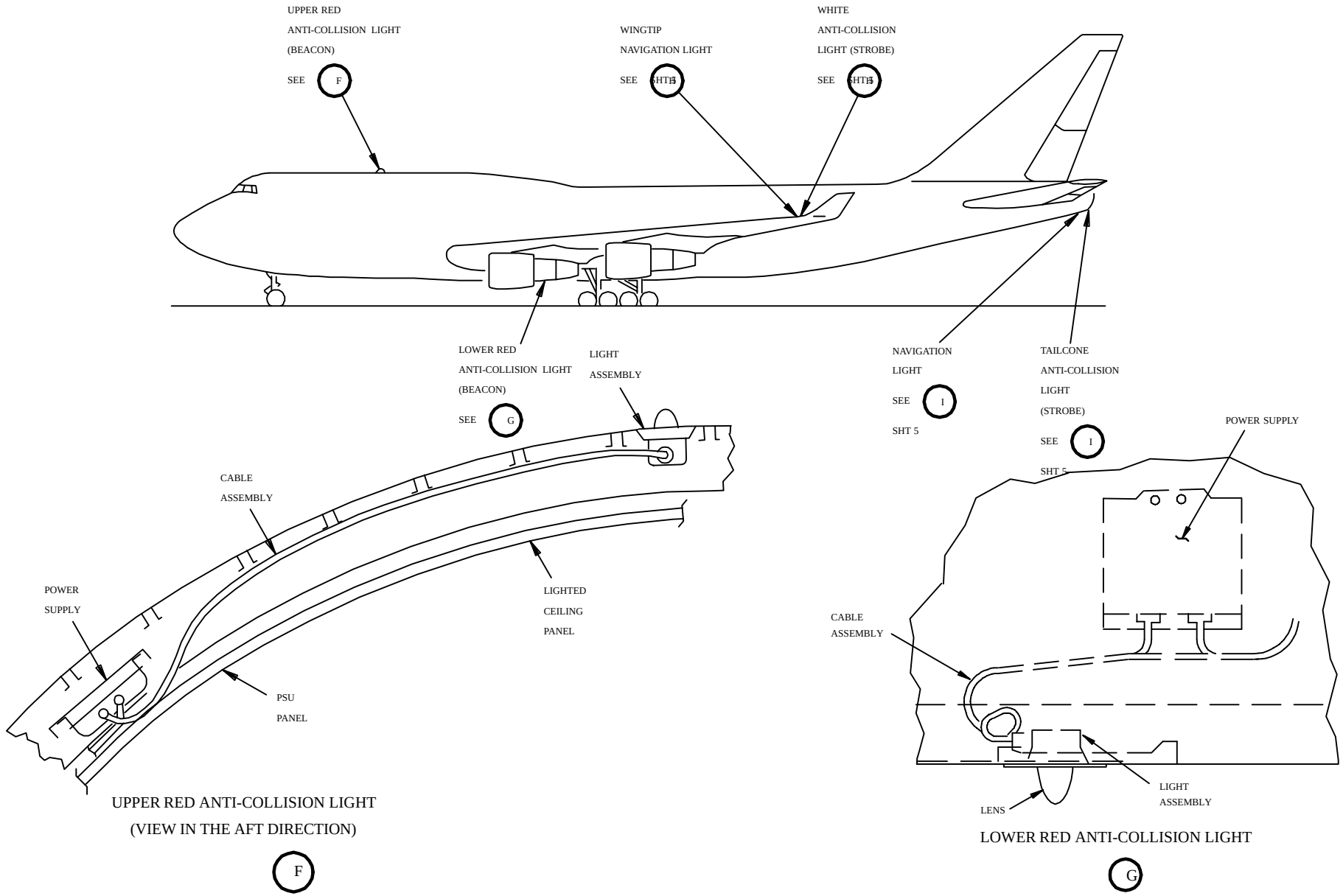


Figure 17 Exterior Lights



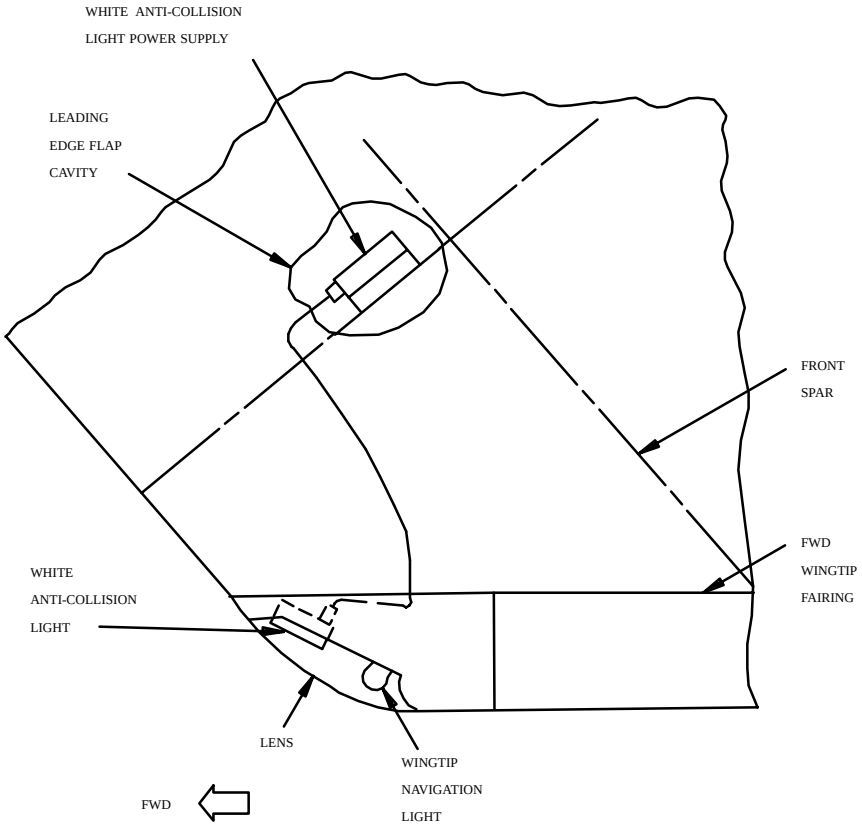
UPPER RED ANTI-COLLISION LIGHT
(VIEW IN THE AFT DIRECTION)

F

LOWER RED ANTI-COLLISION LIGHT

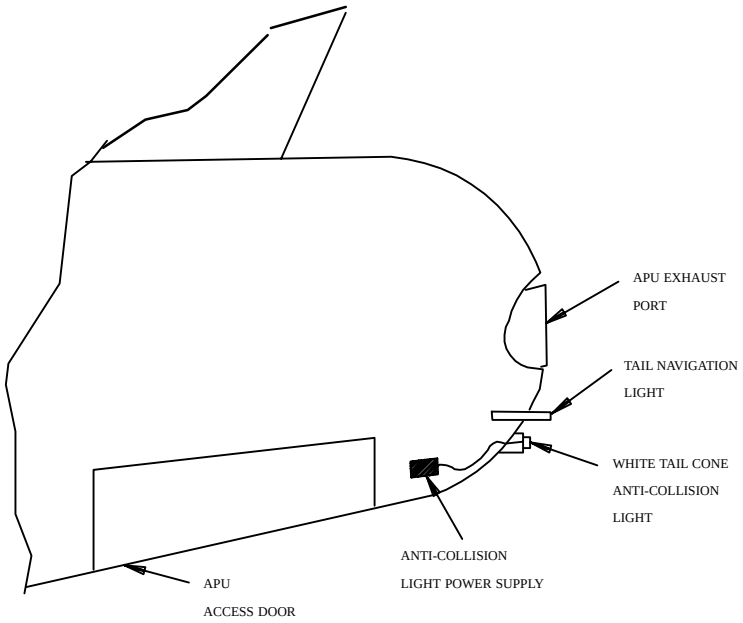
G

Figure 18 Exterior Lights



WINGTIP NAVIGATION AND
WHITE ANTI-COLLISION LIGHTS

H



TAIL NAVIGATION AND
TAIL CONE WHITE ANTI-COLLISION LIGHT

I

Figure 19 Exterior Lights

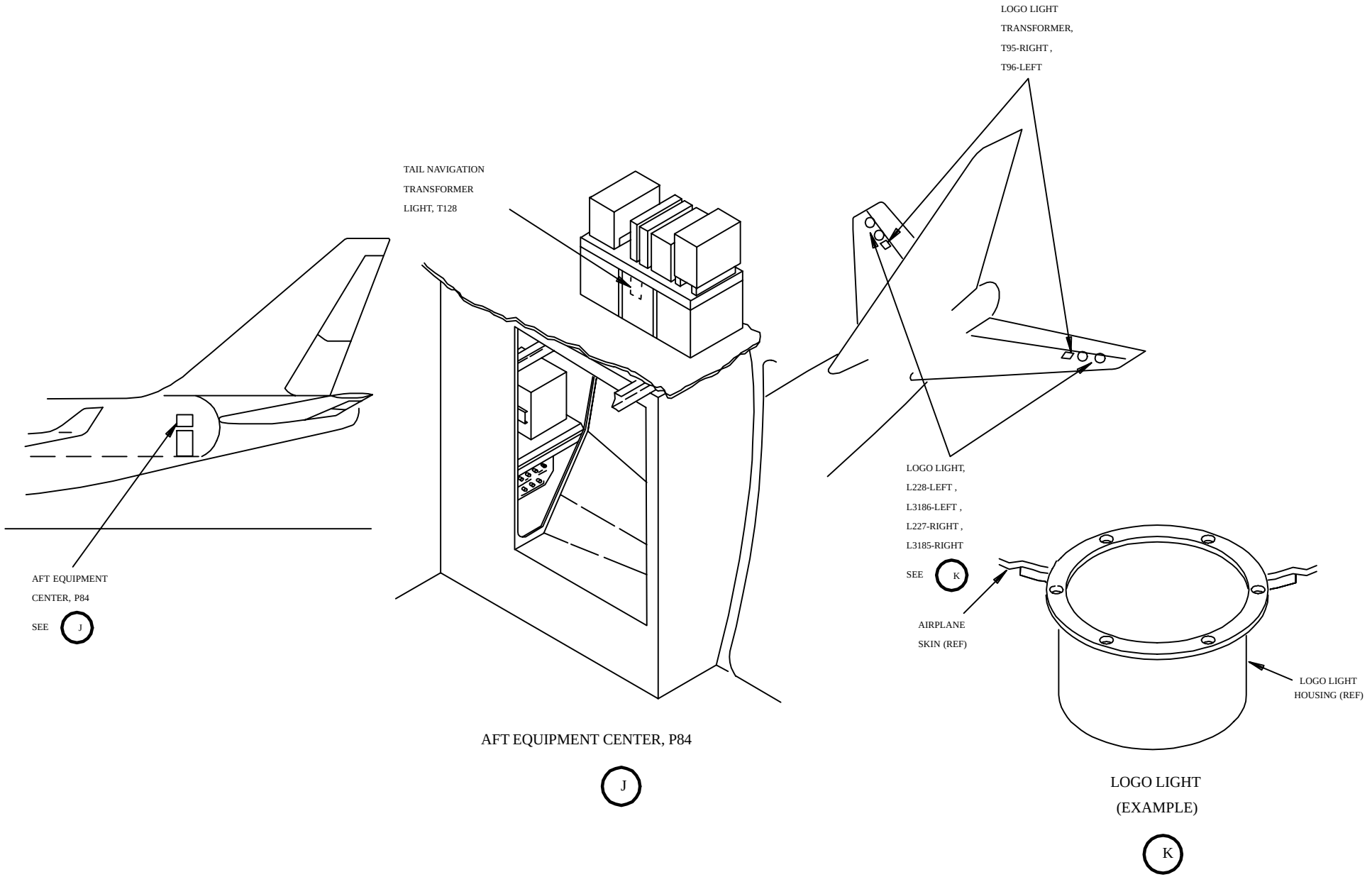


Figure 20 Exterior Lights

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EMERGENCY LIGHTS

GENERAL

In the event of power failure, the emergency lights provide illumination for crew and passenger movement in the airplane and when leaving the airplane via the emergency exit paths.

The emergency lights system is made up of these lights:

- **Light modules located on the ceiling in the main and upper deck.**
- **Light modules located near each door.**
- **Light modules modules mounted in each door.**
- **Lights mounted in the top of each doorframe.**
- **Overwing egress path light assemblies.**
- **Power supply/inverter modules installed in selected locations throughout the main and the upperdeck.**
- **Floor proximity lights.**
- **Lighted exit signs.**
- **Self-Illuminated Exit Signs**

The 28-volt DC-Bus 4 supplies power to maintain the emergency light power supply unit batteries at full charge. Emergency light switches are provided on the pilots' overhead panel P5 and at door No. 2-left for control.

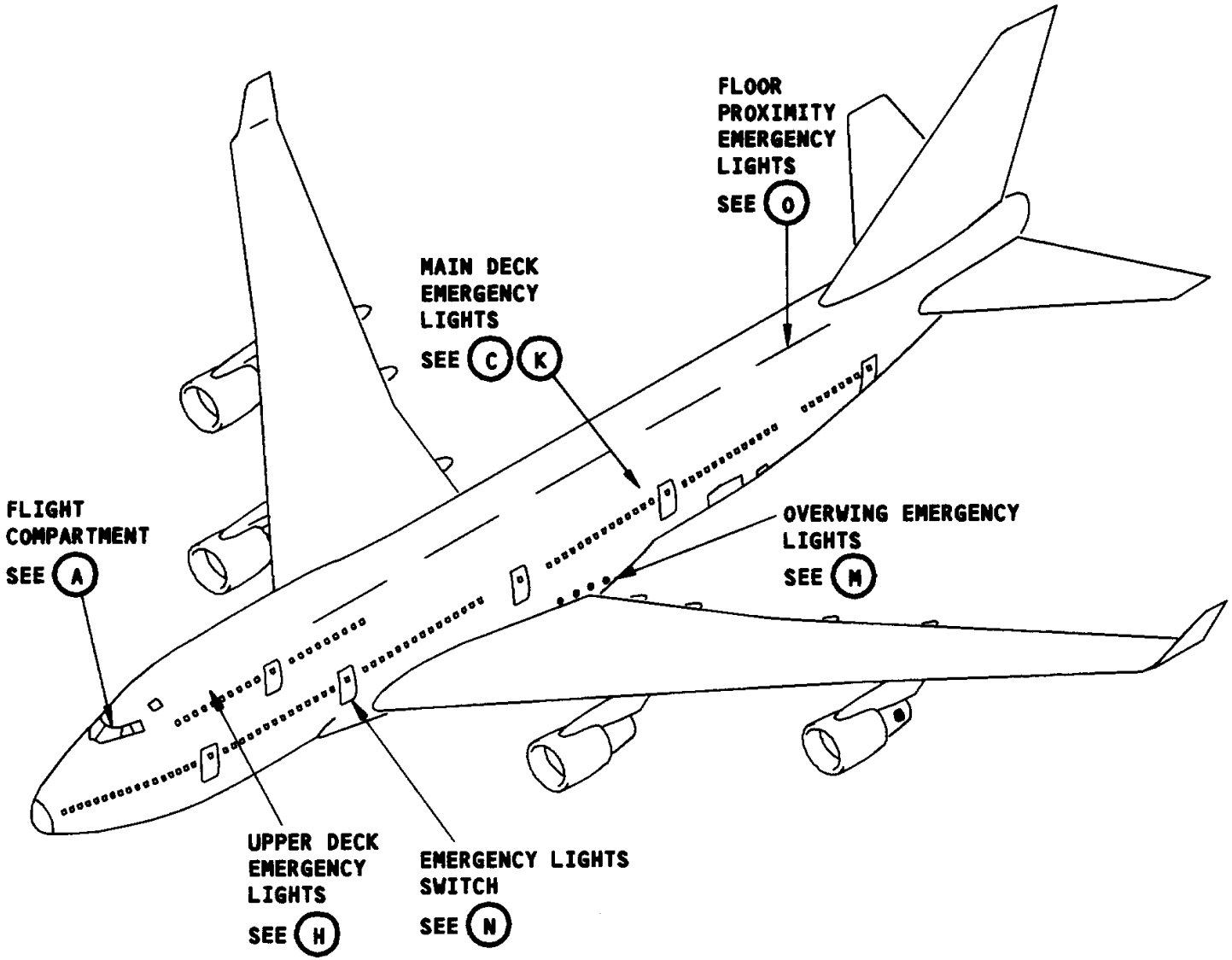


Figure 21 Emergency Lights

FLOOR PROXIMITY EMERGENCY LIGHTING

Floor proximity emergency lighting provides escape path markings for the upper deck, main deck, stairway and all exits. Illumination is provided by electro luminescent light strips and exit indicator signs in the following locations:

Electro luminescent aisle locator light strips are enclosed in flexible floor trakking installed the length of passenger aisles. 115-volt ac power for illumination is supplied from emergency light power supply/inverter modules.

An electro luminescent light strip is installed on the outboard side of the straight stairway.

Electro luminescent exit indicator signs are installed on sidewall panels adjacent to each exit. 115-volt ac power for illumination is supplied from emergency light power supply/inverter modules.

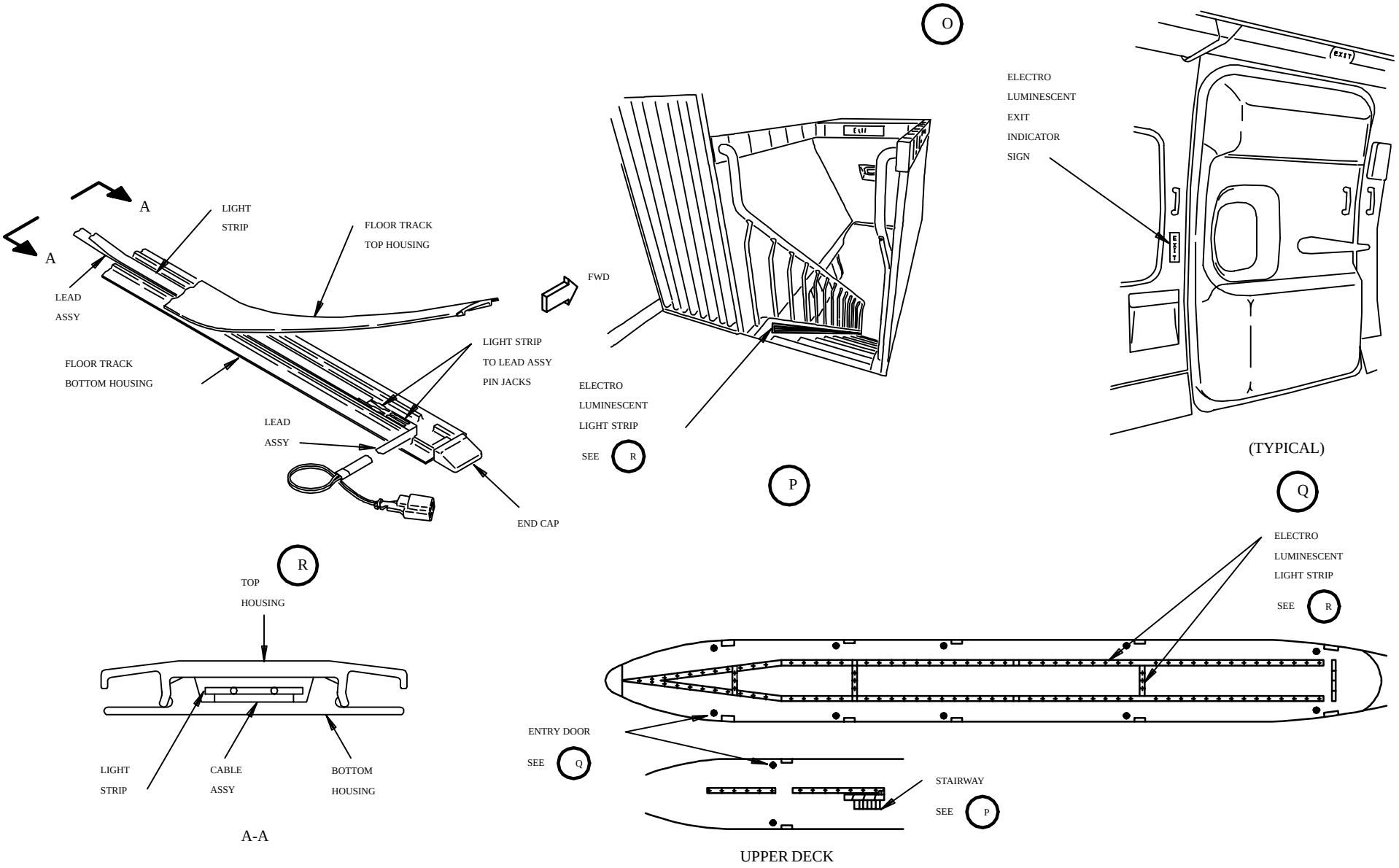


Figure 22 Floor proximity emergency lighting

EXIT SIGNS

In an electrical power failure, the exit signs show the location of the doors to the passengers and the crew.

There is an exit sign above each door.

There are also exit signs which point to the doors. These signs are installed near the ceiling above or adjacent to the aisle.

The lamps in the electrically lighted exit signs operate with the 6 volts of electrical power from the emergency light batteries.

Self-Illuminated Exit Signs:

The lighting for each self-illuminated exit sign comes from a radioactive material.

These signs are always on. You cannot make these lights go off with the emergency lights switch.

Each sign is a plastic container that holds capsules filled with radioactive tritium gas.

The sign is safe, unless it is broken. If the sign has a hole or a crack in it, the radioactive gas can come out and cause injury to persons. It is dangerous to breathe the gas or to absorb the gas through the skin. There are special procedures to replace and discard these signs (AMM 33-51-01/201).

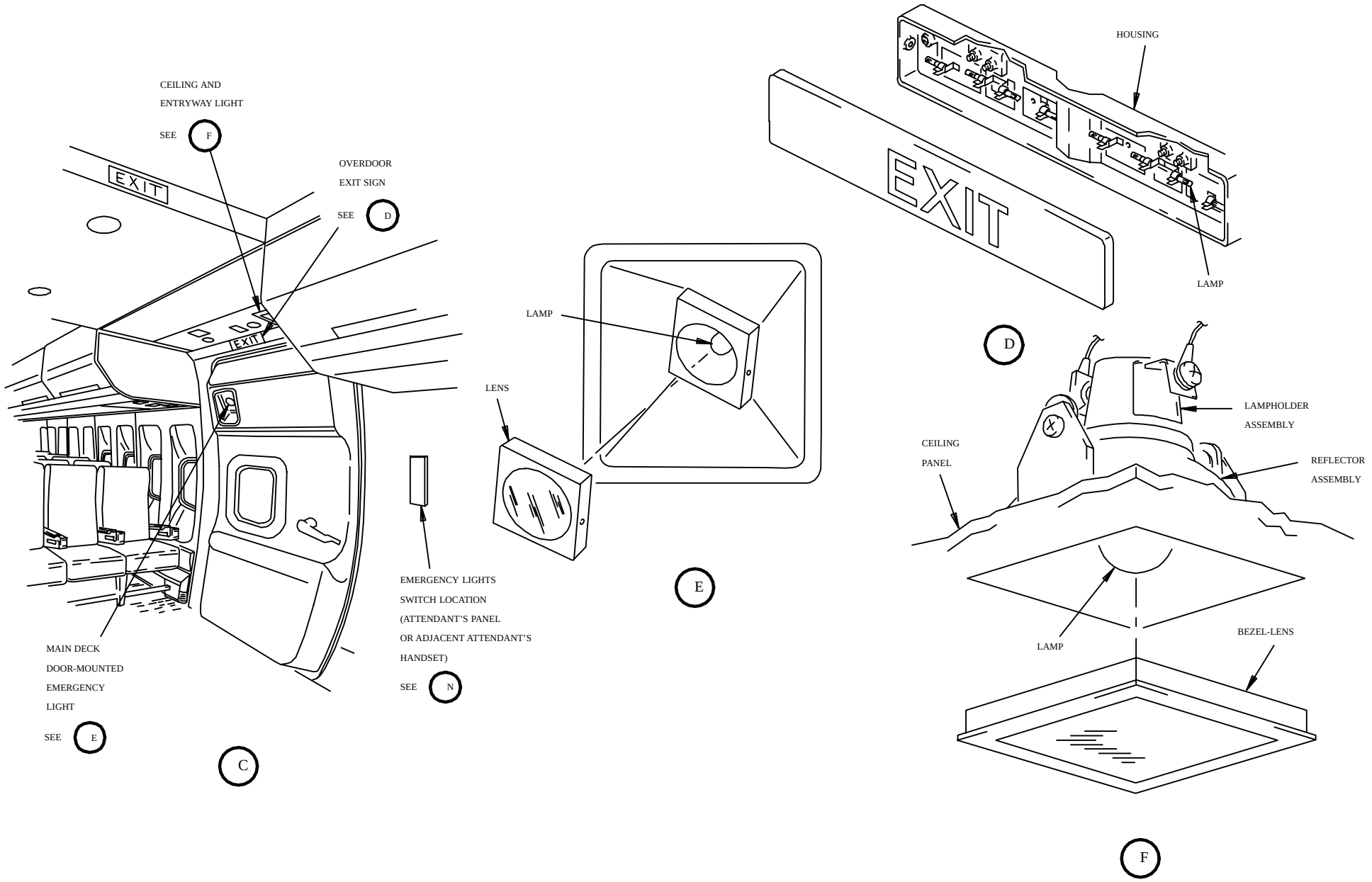


Figure 23 Exit Signs

Emergency Light Control Module

The emergency light control module is located on the P5 panel and has a three-way guarded switch. Switch positions are ON, ARMED and OFF. The pilots' emergency lights switch provides normal control of the emergency light system but the attendant's switch at door 2-left can override the pilots' switch to turn the lights on.

NOTE:

An >EMER LIGHTS advisory message will appear on the main EICAS display anytime the pilots' EMER LIGHTS switch is not in the ARMED position or the pilots' EMER LIGHTS switch is in ARMED and the emergency lights have been turned on by the attendant's switch at door 2-left.

Attendant's Emergency Light Switch

A lighted attendant's pushbutton switch is located at door No. 2-left. This switch is parallel to and can override the pilots' emergency light control to turn the emergency lights on. The attendant's switch cannot turn the lights off if the pilots' switch is set to ON or if the pilots' switch is set to ARMED and a power failure occurs. It either turns the lights on or returns control to the pilots' switch.

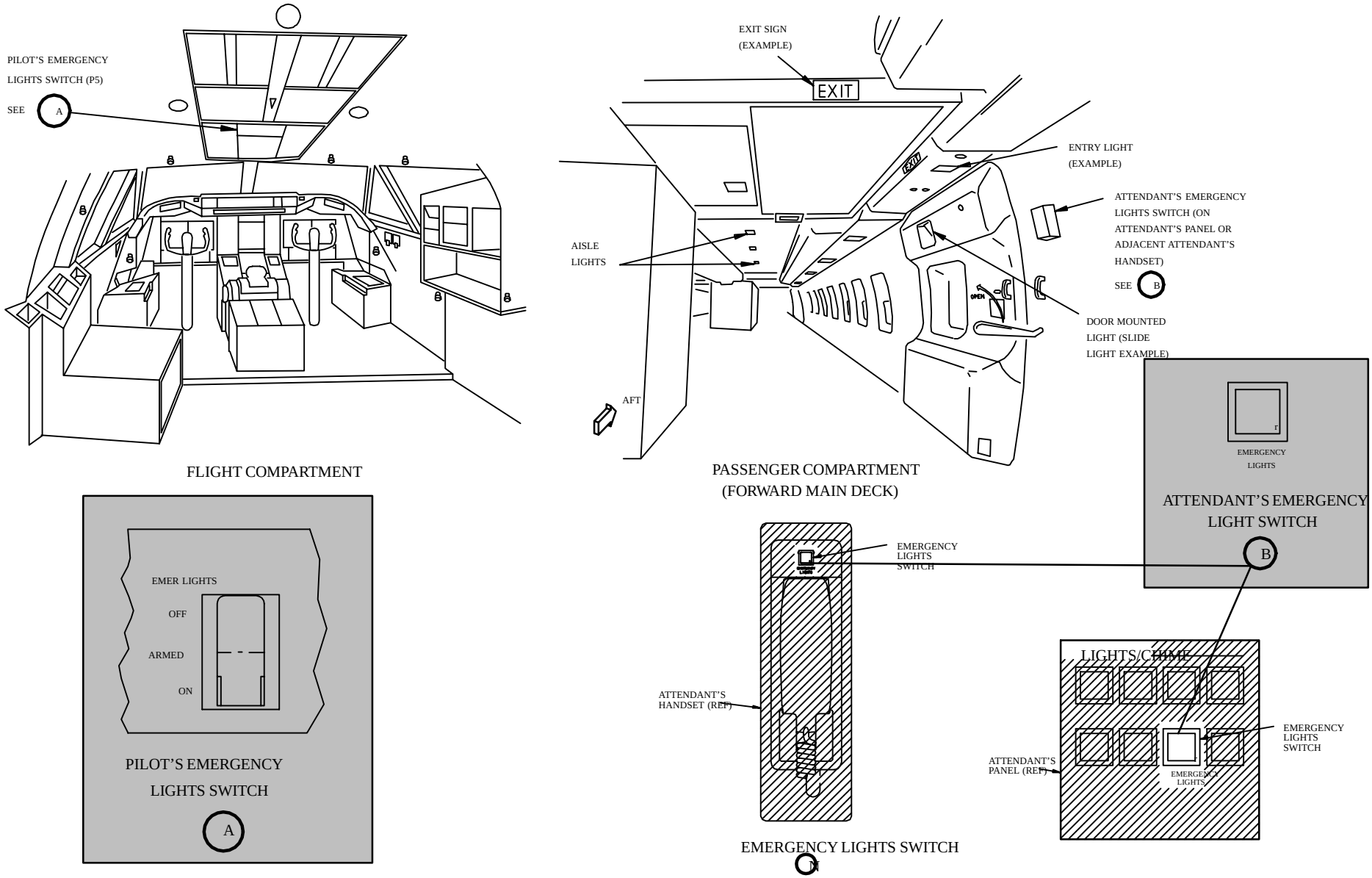


Figure 24 Emergency Lights Switches

Power Supply Modules

Typical emergency light power supply modules consist of a battery pack and a printed circuit card assembly. The electrical operation and control function of the power supply module is the same as that of the ceiling emergency light modules except the power supply provides 6 volts dc to operate remotely located lights or exit signs. Emergency light power supply modules used for electro luminescent floor proximity light consists of a battery pack printed circuit card logic assembly and an inverter.

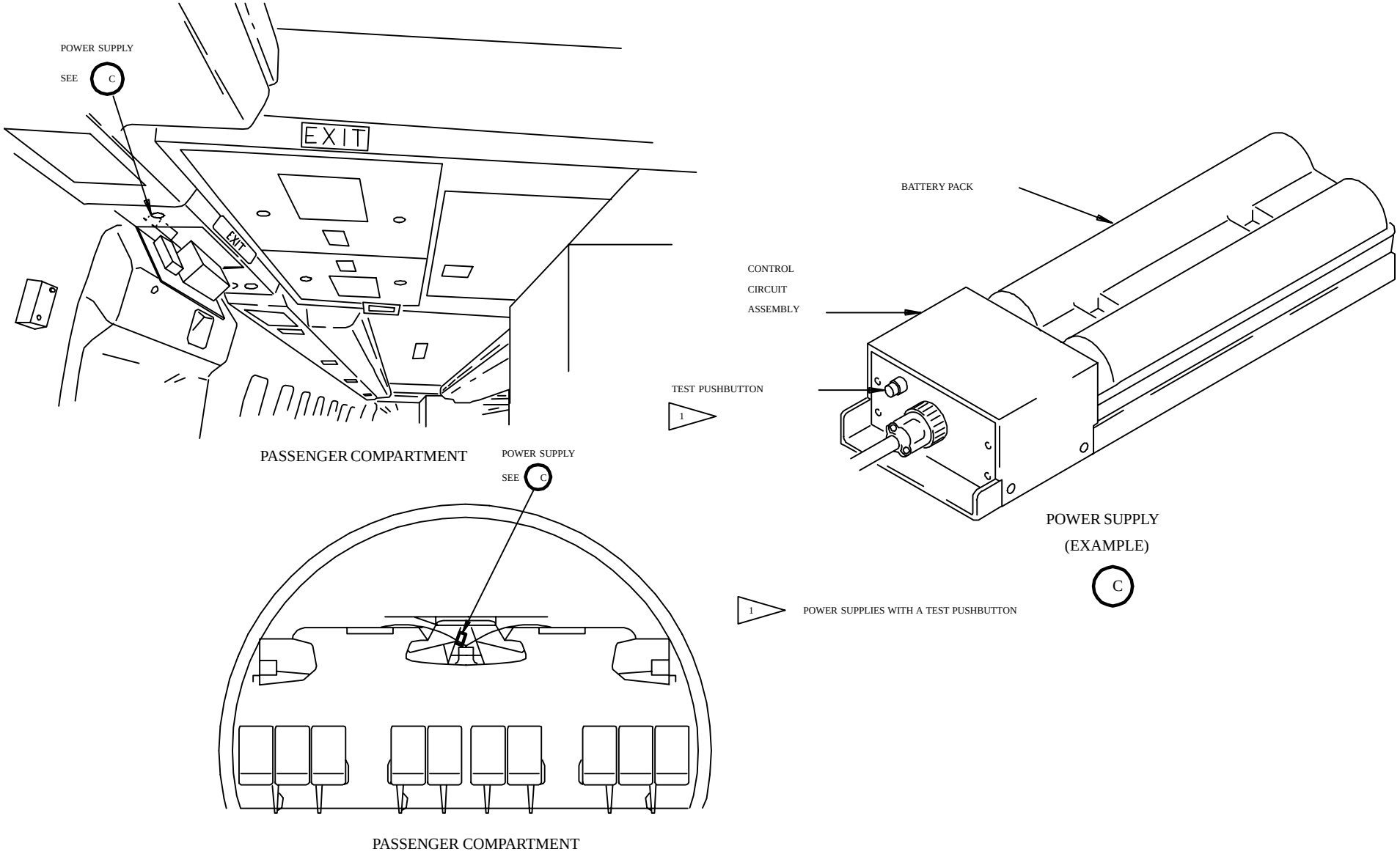


Figure 25 Power Supply Modules

FUNCTIONAL DESCRIPTION

The 28-volt DC-Bus 4 supplies charging power to maintain batteries in the emergency lights power units. The emergency light lamps always receive their power from the emergency power unit batteries as do the emergency lamps in each lighted EXIT sign. Circuit breakers are located on the electrical circuit breaker panel P7.

Each emergency light power unit contains a double ground seeking logic circuit that activates a relay or a transistor switch to turn the lights on and off. The power for each logic circuit is derived from the power pack and is independent of airplane power.

Operation

Control

Controls for operation of the emergency lighting system are located on the pilots' overhead panel and include a guarded three-position toggle switch. When the guard is manually opened (switch unguarded) the toggle switch can be moved to the **ON, OFF,** or **ARMED** position. The switch is forced into the ARMED position when the guard is closed and cannot be switched to the ON or OFF position.

CAUTION:

THE EMERGENCY LIGHTS SWITCH SHOULD ALWAYS BE PLACED IN THE OFF POSITION WHENEVER POWER IS NOT AVAILABLE TO PREVENT EMERGENCY LIGHTS FROM TURNING ON AND DISCHARGING BATTERIES.

When the pilots' emergency lights switch is set to ARMED:

The emergency lights will come on if power is not available from the 28-volt DC-Bus 4. This is the normal setting of the switch during airplane operation.

The lights will remain off and the power unit batteries are supplied with a trickle charge when 28-volt DC-Bus 4 is energized.

When the pilots' switch is set to ON:

The emergency lights will come on whether or not the 28-volt DC-Bus 4 is energized.

When the pilots' switch is set to OFF:

The emergency lighting system is off whether or not the 28-volt DC-Bus 4 is energized. This is the normal setting of the switch when the airplane is parked.

The power unit batteries are supplied with a trickle charge when the 28-volt DC-Bus 4 is energized.

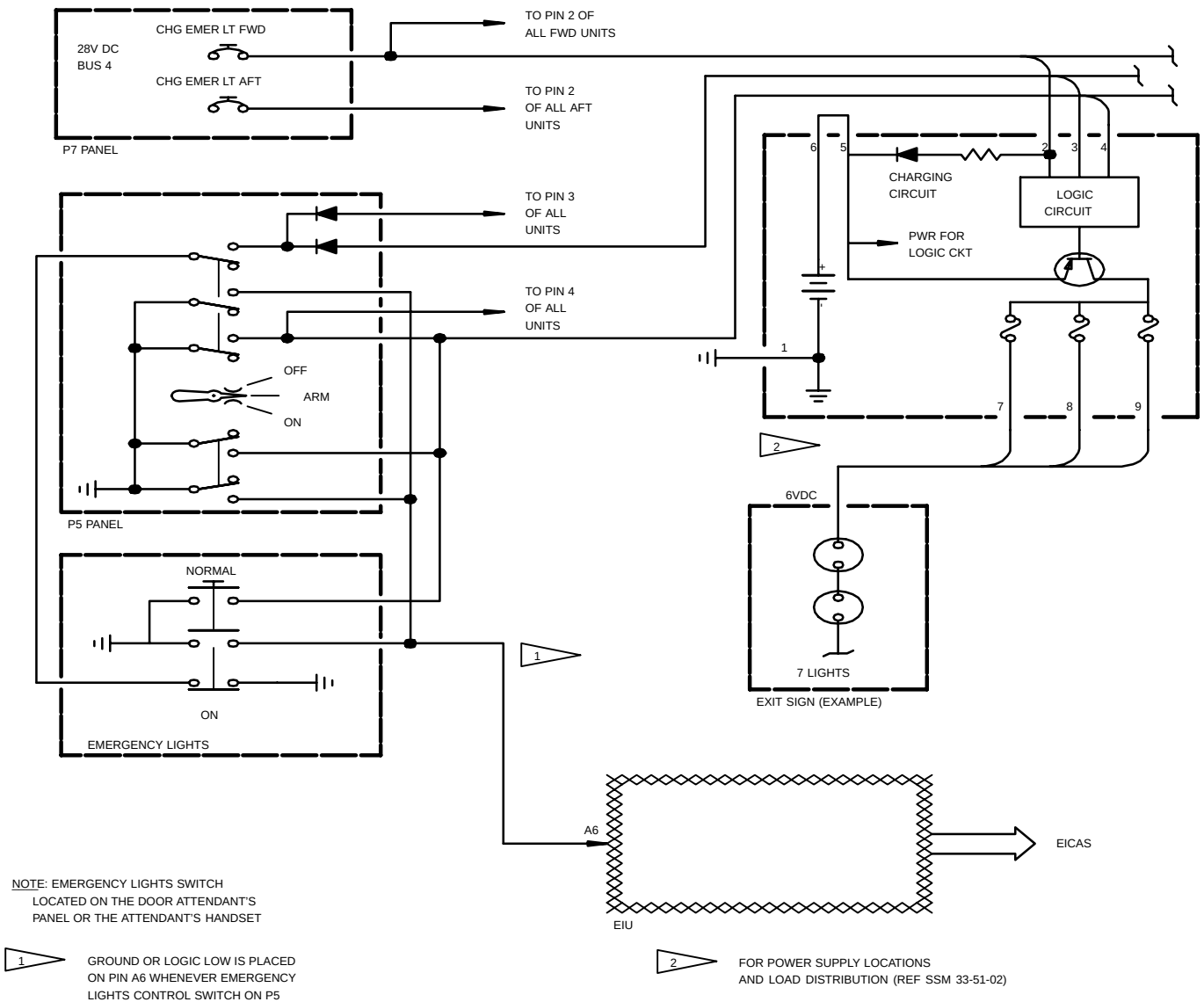
An emergency light switch is provided at door No. 2-left in addition to the switch on the pilots' overhead panel. The switch parallels the pilots' switch and has two settings, **ON** and **NORMAL.**

When the attendant's switch is set to normal:

It provides a ground path for the pilots' switch. All light control authority remains with the pilots' switch.

When the attendant's switch is set to on:

The emergency lights will come on whether or not the 28- volt DC-Bus 4 is activated and independent of the settings of the pilots' emergency lights switch. The pilots' switch will not function electrically under this condition.



NOTE: EMERGENCY LIGHTS SWITCH LOCATED ON THE DOOR ATTENDANT'S PANEL OR THE ATTENDANT'S HANDSET

1 GROUND OR LOGIC LOW IS PLACED ON PIN A6 WHENEVER EMERGENCY LIGHTS CONTROL SWITCH ON P5 PANEL IS NOT IN ARMED POSITION OR EMERGENCY LIGHTS SWITCH ON DR 2L ATTENDANTS PANEL IS IN ON POSITION.

2 FOR POWER SUPPLY LOCATIONS AND LOAD DISTRIBUTION (REF SSM 33-51-02)

Figure 26 Emergency Lights Schematic

115 V AC is provided for the Floor Proximity Emergency Lights and the Floor Level Electro-Luminescent Exit Signs either through an external inverter (except -VA,-VB) or an internal inverter, located inside the emergency floor lightning power supply

NOTE

A test from the testbutton on the emergency power supply also tests the dependend Floor Proximity Emergency Lights and Electro-Luminiscent Exit Signs too (except -VA, -VB) .

After a test from the testbutton on the emergency power supply the Emergency Exit Lights extinguish after aproximatly one minute automaticaly.

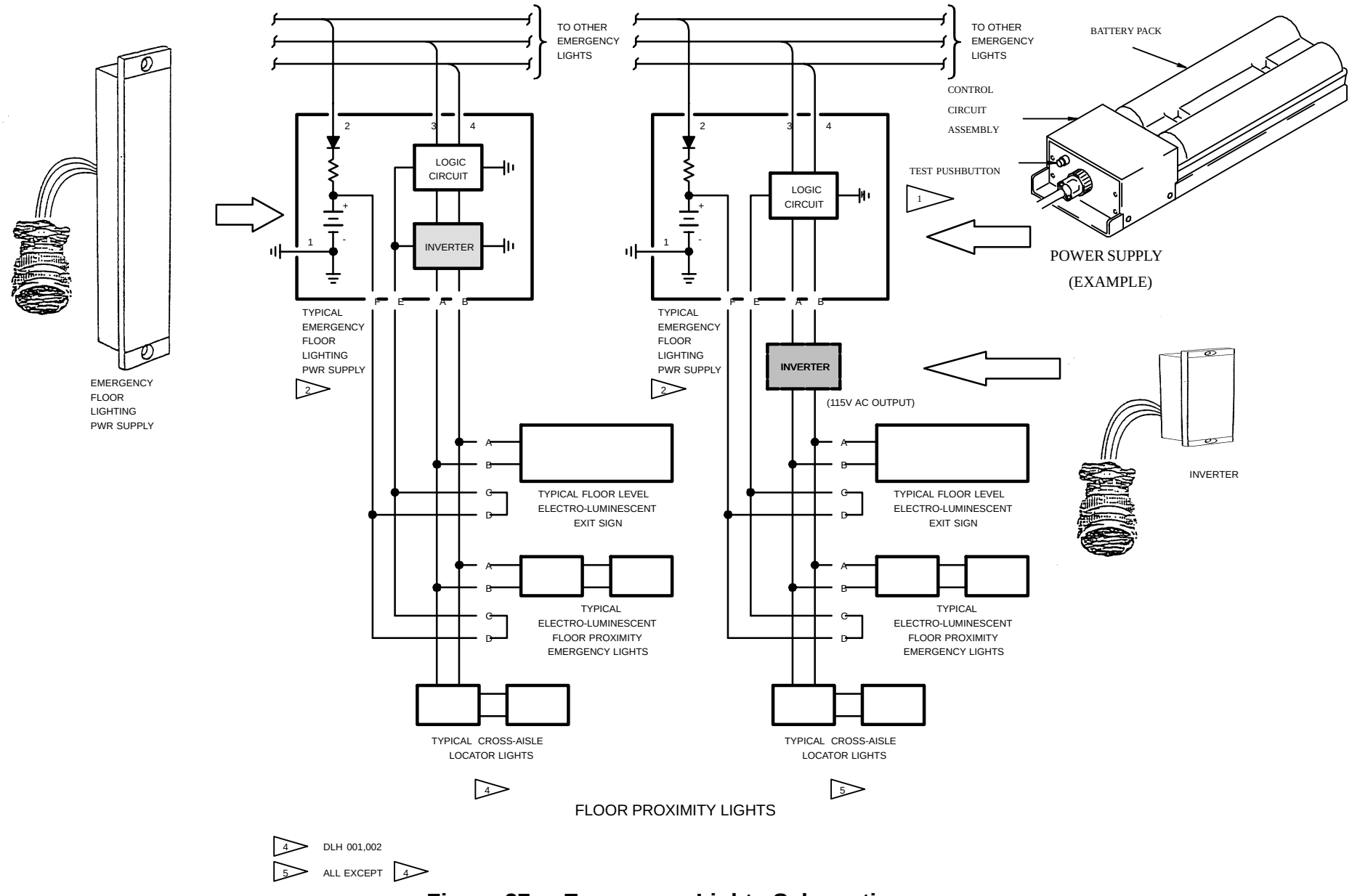


Figure 27 Emergency Lights Schematic

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