

CHAPTER

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Lights

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4	Sep 05/2016		33-11-00		
5	Jan 05/2017		1	May 05/2015	
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18	BLANK		2	May 05/2015	
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9	May 05/2015		12	May 05/2015	
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11	May 05/2015		14	May 05/2015	
12	May 05/2015		15	May 05/2015	
13	May 05/2015		16	BLANK	
14	May 05/2015		33-16-00		
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16	May 05/2018		2	Sep 05/2016	
17	May 05/2015		3	May 05/2015	
18	May 05/2015		4	May 05/2015	
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8	May 05/2015		8	May 05/2017	
9	May 05/2015		9	May 05/2017	
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33-20-00			15	May 05/2017	
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2	May 05/2015		33-22-00		
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21	May 05/2015		4	May 05/2015	
22	May 05/2015		5	May 05/2015	
23	May 05/2015		6	May 05/2015	
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3	May 05/2015		17	May 05/2015	
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3	May 05/2015		3	May 05/2015	
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6	May 05/2015		6	May 05/2015	
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8	May 05/2015		8	BLANK	
9	May 05/2015		33-28-00		
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33-26-00			2	May 05/2015	
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2	May 05/2015		4	May 05/2015	
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5	May 05/2015		7	May 05/2015	
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11	May 05/2015		4	May 05/2015	
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			6	May 05/2015	

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33-40-00			9	May 05/2015	
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33-41-00			14	May 05/2015	
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33-42-00			2	Sep 05/2017	
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5	May 05/2015		7	May 05/2015	
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33-44-00			4	May 05/2015	
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7	May 05/2015				
8	May 05/2015				
9	May 05/2015				
10	May 05/2015				
11	May 05/2015				
12	May 05/2015				
13	May 05/2015				
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17	May 05/2015				
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21	May 05/2015				
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33-10-00	FLIGHT COMPARTMENT LIGHTS - SPARE LAMPS	4	ARO ALL
33-10-00	FLIGHT COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - P96 OVERHEAD DIMMER PANEL	6	ARO ALL
33-10-00	FLIGHT COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - FLIGHT COMPARTMENT DIMMERS AND RELAYS	8	ARO ALL
33-11-00	FLIGHT COMPARTMENT ILLUMINATION - INTRODUCTION	2	ARO ALL
33-11-00	FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - INTRODUCTION	4	ARO ALL
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33-11-00	FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - INTRODUCTION	12	ARO ALL
33-11-00	FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - OPERATION	14	ARO ALL
33-11-00	FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - FUNCTIONAL DESCRIPTION	16	ARO ALL
33-13-00	INTEGRAL PANEL LIGHTS - INTRODUCTION	2	ARO ALL
33-13-00	INTEGRAL PANEL LIGHTS - PHYSICAL DESCRIPTION	4	ARO ALL
33-13-00	INTEGRAL PANEL LIGHTS - ANNUNCIATOR LIGHTS	6	ARO ALL
33-13-00	INTEGRAL PANEL LIGHTS - LIGHTED PUSH-BUTTON SWITCHES	8	ARO ALL
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33-13-00	INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - MANUAL ADJUSTMENTS	15	ARO ALL
33-13-00	INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - AUTOMATIC ADJUSTMENTS	18	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - INTRODUCTION	2	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - MAP LIGHTS	4	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - UTILITY LIGHT	6	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - FLOOR LIGHTS	8	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - WORKTABLE LIGHTS	10	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - CHART LIGHTS	12	ARO ALL
33-14-00	FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - FUNCTIONAL DESCRIPTION	14	ARO ALL
33-16-00	MASTER DIM AND TEST - INTRODUCTION	1	ARO ALL
33-16-00	MASTER DIM AND TEST - LOCATION	4	ARO ALL
33-16-00	MASTER DIM AND TEST - MASTER DIM AND TEST CARD FILE AND CARDS	6	ARO ALL
33-16-00	MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION 1	8	ARO ALL
33-16-00	MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION 2	10	ARO ALL
33-16-00	MASTER DIM AND TEST - OPERATION	12	ARO ALL
33-20-00	PASSENGER COMPARTMENT LIGHTS - INTRODUCTION	2	ARO ALL

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33-20-00	PASSENGER COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - 2	6	ARO ALL
33-21-00	PASSENGER COMPARTMENT ILLUMINATION - INTRODUCTION	2	ARO ALL
33-21-00	PASSENGER COMPARTMENT ILLUMINATION - INDIRECT CEILING AND NIGHT LIGHTS	4	ARO ALL
33-21-00	PASSENGER COMPARTMENT ILLUMINATION - SIDEWALL LIGHTS	8	ARO ALL
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33-21-00	PASSENGER COMPARTMENT ILLUMINATION - FUNCTIONAL DESCRIPTION	13	ARO ALL
33-22-00	PASSENGER LOADING LIGHTS - INTRODUCTION	2	ARO ALL
33-22-00	PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - FLUORESCENT	4	ARO ALL
33-22-00	PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - INCANDESCENT	6	ARO ALL
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33-24-00	INFORMATION SIGNS - OPERATION	8	ARO ALL
33-24-00	INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - INTRODUCTION	12	ARO ALL
33-24-00	INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - CONTROL LOGIC	16	ARO ALL
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33-25-00	LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - LAVATORY CALL LIGHTS	4	ARO ALL
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33-26-00	LAVATORY LIGHTS AND SIGNS - LAVATORY LIGHTS - FUNCTIONAL DESCRIPTION	6	ARO ALL
33-26-00	LAVATORY LIGHTS AND SIGNS - PASSENGER AREA SIGNS - FUNCTIONAL DESCRIPTION	8	ARO ALL
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33-27-00	GALLEY LIGHTS - FUNCTIONAL DESCRIPTION	6	ARO ALL
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33-31-00	SERVICE AND CARGO LOADING LIGHTS - ECS BAY LIGHTS - FUNCTIONAL DESCRIPTION	20	ARO ALL
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33-37-00	LOWER LOBE CARGO COMPARTMENT LIGHTS - OPERATION	6	ARO ALL
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LIGHTS - INTRODUCTION

General

These are the lights systems on the airplane:

- Flight compartment lights
- Passenger compartment lights
- Emergency lights
- Cargo and service compartment lights
- Exterior lights.

Emergency lights are part of passenger compartment lights.

Abbreviations and Acronyms

- ADC - air data computer
- AIMS - airplane information management system
- ARINC - Aeronautical Radio, Inc.
- ASCPC - air supply and cabin pressure controller
- ASP - attendant switch panel
- APU - auxiliary power unit
- brt - bright
- CACP - cabin area control panel
- CB - circuit breaker
- CCU - Computing and Communication Unit
- ckt - circuit
- cm - centimeter
- CSS - cabin services system
- CSCP - cabin system control panel
- ctrl - control
- dist - distribution
- dmr - dimmer
- dr - door
- ECS - environmental control system

- ELMS - electrical load management system
- emer - emergency
- ext - exterior
- FCR - flight crew rest
- FSEU - flap/slat electronic unit
- ft - feet
- fwd - forward
- gen - generator
- gnd - ground
- hdlg - handling
- illum - illumination
- inbd - inboard
- inst - instrument
- int - interior
- I/S - intersystem
- kg - kilograms
- L - left
- ldg - landing
- LED - light emitting diode
- LRU - line replaceable unit
- lt - light
- m - meters
- MBC - master brightness control
- MD&T - master dim and test
- MEC - main equipment center
- mgmt - management
- nav - navigation
- NLG - nose landing gear
- norm - normal
- OEU - overhead electronics unit

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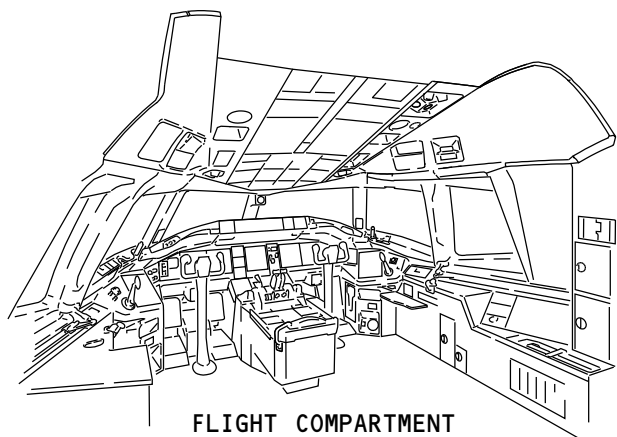
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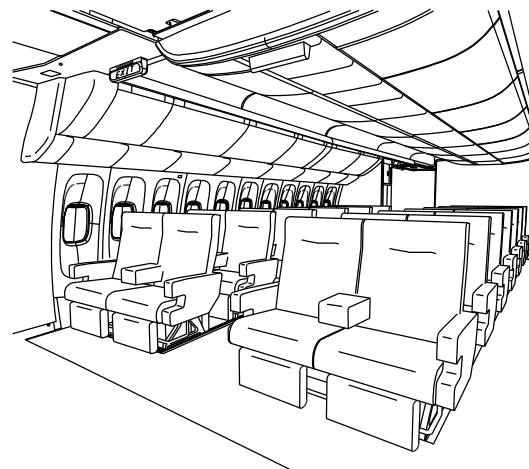


LIGHTS - INTRODUCTION

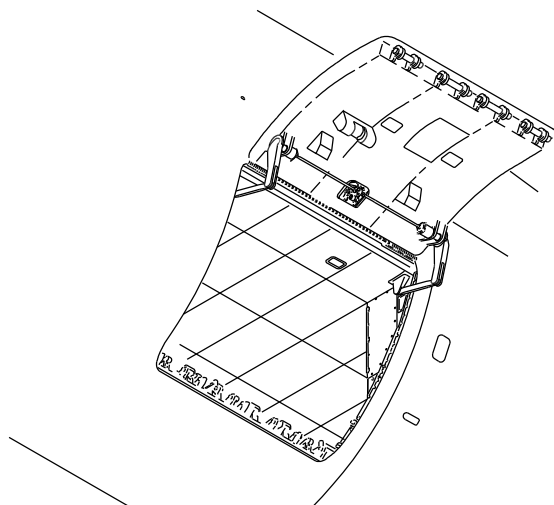
- OPAS - overhead panel ARINC 629 system
- ovhd - overhead
- PA/CI - passenger address/cabin interphone
- pax - passenger
- PC - printed circuit
- PCU - passenger control unit
- pnl - panel
- PSEU - proximity sensor electronic unit
- PSU - passenger service unit
- pwr - power
- R - right
- ref - reference
- rly - relay
- SDM - speaker drive module
- sect - section
- stby - standby
- svce - service
- SVU - seat video unit
- sw - switch
- typ - typical
- V - volts
- wht - white
- wng - wing
- xfmr - transformer
- ZMU - zone management unit



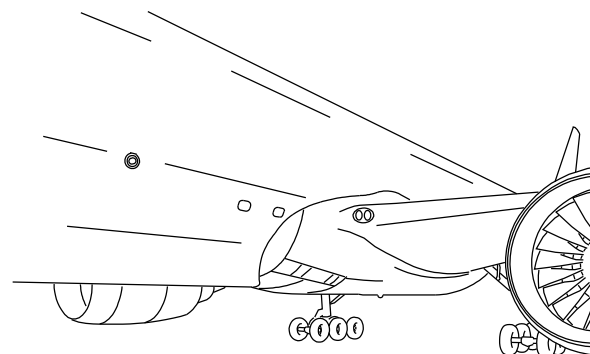
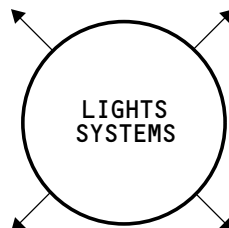
FLIGHT COMPARTMENT



PASSENGER COMPARTMENT
AND EMERGENCY LIGHTS



CARGO AND SERVICE COMPARTMENTS



EXTERIOR

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LIGHTS - INTRODUCTION

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FLIGHT COMPARTMENT LIGHTS - INTRODUCTION

General

Lights in the flight deck do these tasks:

- Give general light
- Give light to panels
- Supply light for system indications
- Supply specified light for tasks.

The flight compartment lights has these sections:

- Flight compartment illumination
- Integral panel lights
- Flight compartment miscellaneous lights
- Master dim and test.

The flight compartment illumination lights give general light in the flight compartment. These are the lights:

- Map lights
- Dome lights.

The integral panel lights give light to the controls and indications on panels in the flight compartment.

The flight compartment miscellaneous lights give light to work areas, the floor, and panels. These are the lights:

- Chart lights
- Floor lights
- Worktable lights
- Floodlights
- Utility light (not shown).

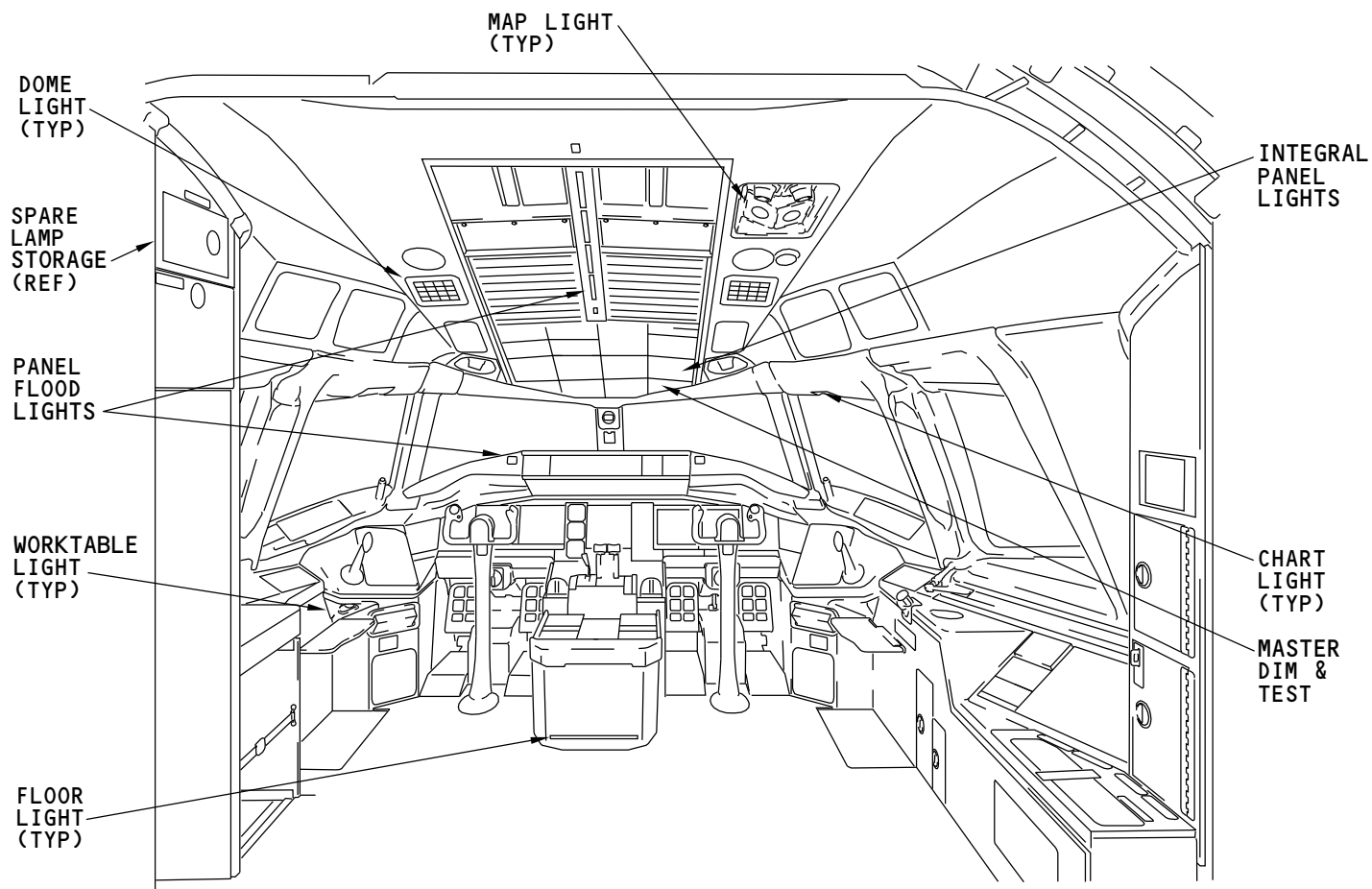
The master dim and test system controls the amount of light that comes from the system annunciators.

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FLIGHT COMPARTMENT LIGHTS - INTRODUCTION

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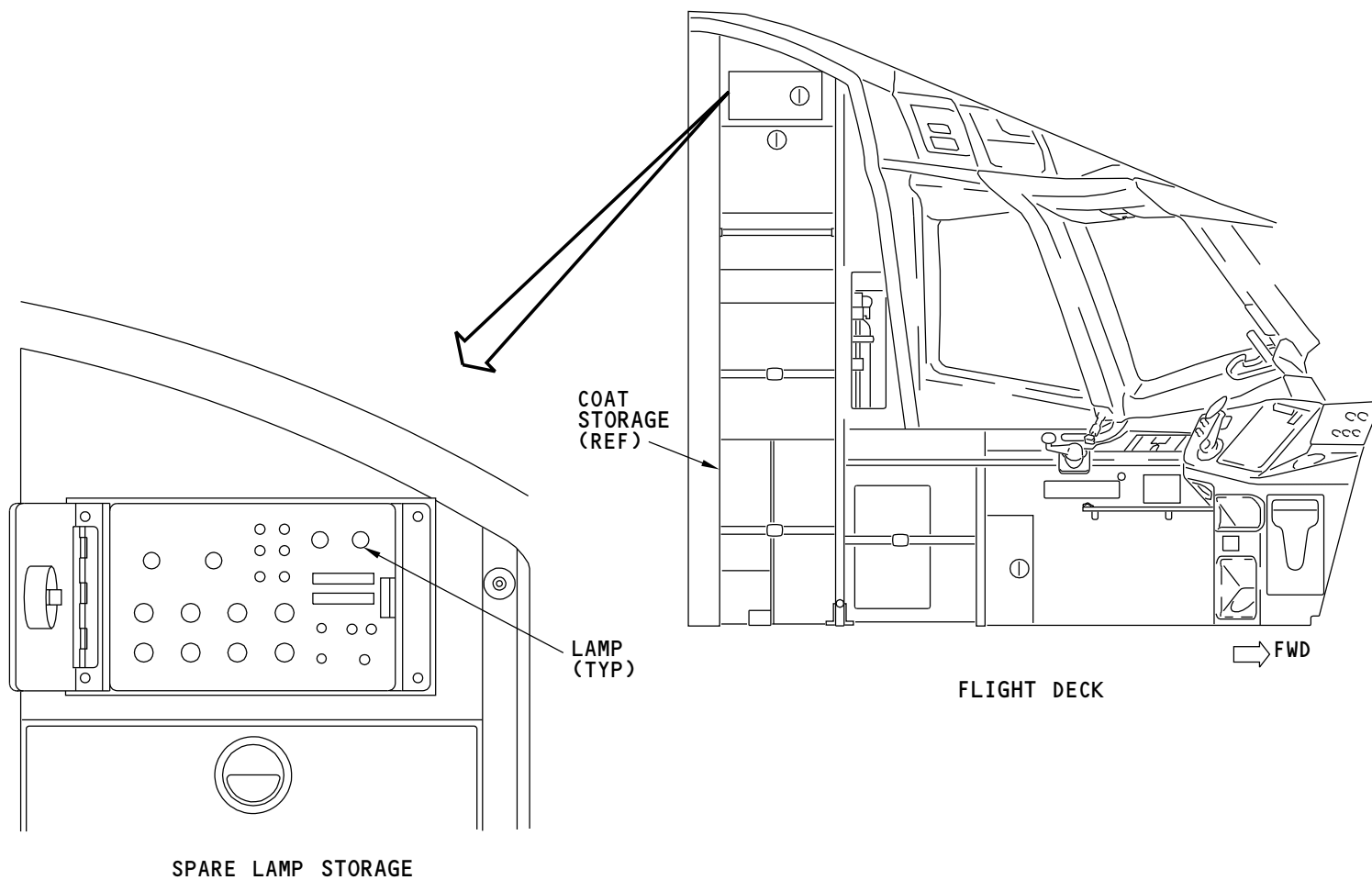


FLIGHT COMPARTMENT LIGHTS - SPARE LAMPS

General

The replacement lamps for the lights in the flight deck are above the coat storage area.

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FLIGHT COMPARTMENT LIGHTS - SPARE LAMPS

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FLIGHT COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - P96 OVERHEAD DIMMER PANEL

Purpose

The P96 overhead dimmer panel gives a place to attach dimmer control units, relays and resistors related to the flight compartment lights.

Location

The P96 is in the ceiling, aft of the flight compartment door.

Physical Description

The P96 has relays in the upper left corner, resistors in the upper right corner and dimmer control units (DCU) on the rest of the panel. The relays and resistors are part of the lighting circuits that give floodlighting and dome lighting to the flight deck. Some of the floodlighting circuits (6v ac lights) use the dimmer control units. The overhead panel/instrument lighting circuits for the P5 and P11 panels also use these units.

Relays for these circuits are on the P96 overhead dimmer panel:

- Dome lights dimmer
- Standby (power) - dome and floodlight (4)
- Storm - dome and floodlight (2).

Resistors for these circuits are on the P96 overhead dimmer panel:

- Standby dome lights
- Captain's panel floodlight (2)
- Glareshield floodlight (2)
- First officer's floodlight (2)
- Aisle stand floodlight.

Dimmer control units for these circuits are on the P96 overhead dimmer panel:

- P11 overhead circuit breaker panel light (2)
- P5 overhead instrument and panel light (2)
- Captain's floodlights
- Glareshield floodlights

- First officer's floodlights.

Dimmer control units step-down 115v ac to 5-6v ac for the lights connected to them.

See the integral panel lights section for more information on dimmer control units (SECTION 33-13).

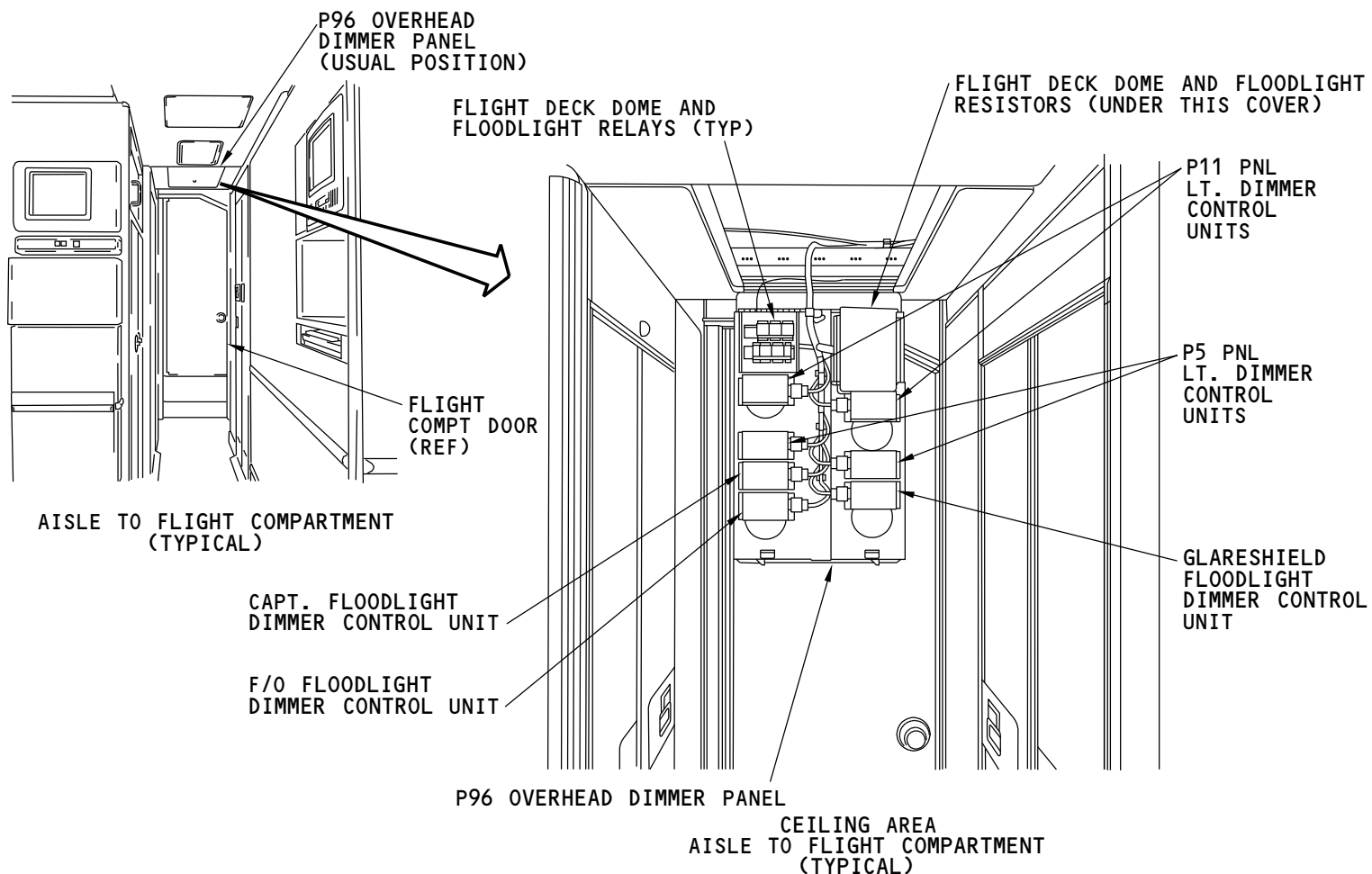
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FLIGHT COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - P96 OVERHEAD DIMMER PANEL

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**FLIGHT COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - FLIGHT COMPARTMENT DIMMERS AND RELAYS****Location**

Dimmer control units (DCU) and relays related to these lights attach to the center aisle stand and the main instrument panels:

- Captain's instruments and panel lights
- Glareshield instruments and panel lights
- First officer's instruments and panel lights
- Aisle stand instruments and panel light.

The captain's instrument and panel light DCUs are forward and outboard of the left outboard display unit on the P1. The first officer's instruments and panel light DCUs are forward and outboard of the right outboard display unit on the P3. The other DCUs and relays are forward of the P9 forward aisle stand panel.

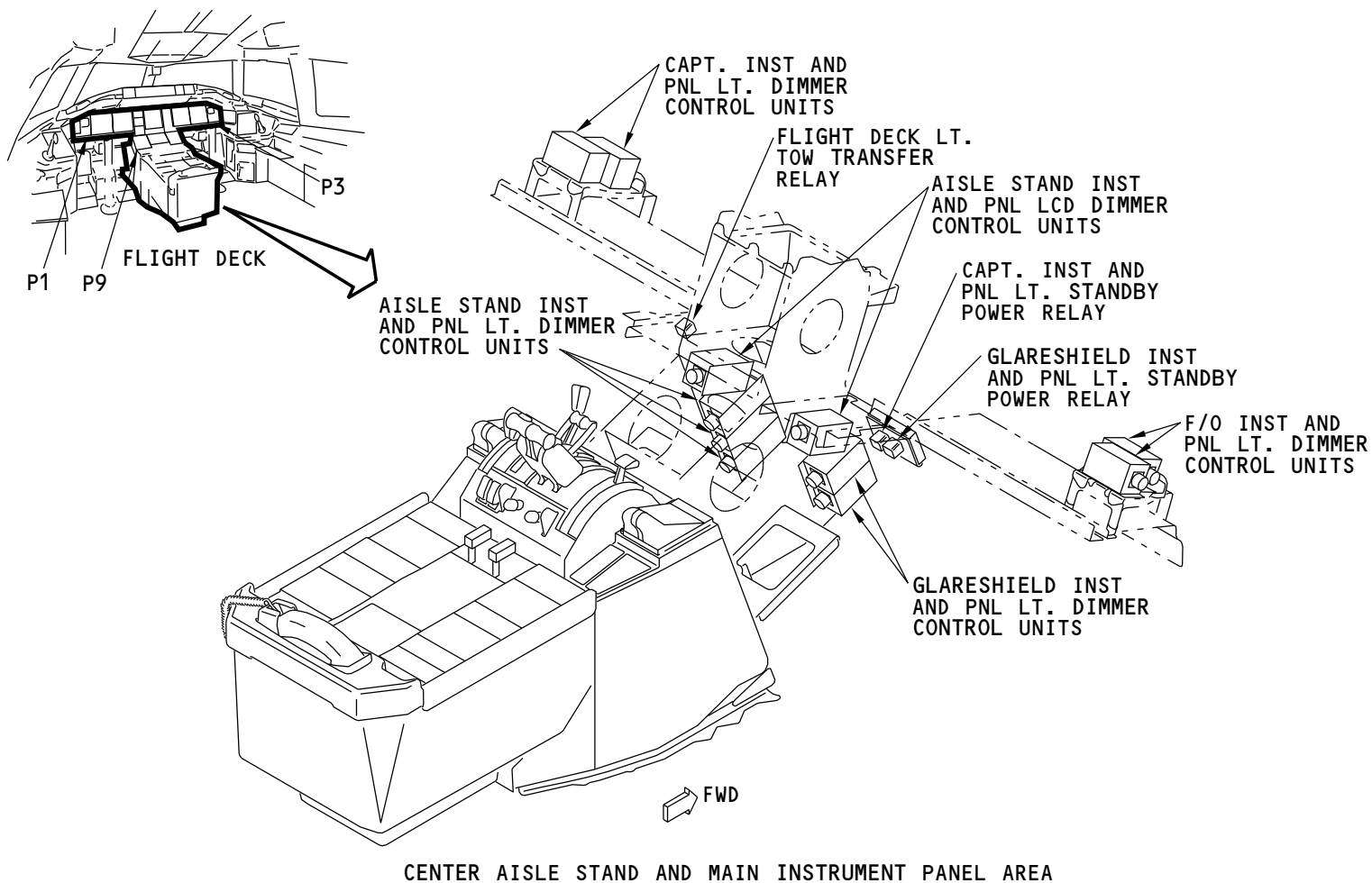
Dimmer control units filter and change the 115v ac to 5-6v ac for the lights that connect to them.

Training Information Point

All dimmer control units are the same. All units in the flight compartment connect to the master brightness control (MBC) card (not shown) in the P29 master dim and test card file.

See the integral panel lights section for more information about the dimmer control units (SECTION 33-13).

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FLIGHT COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - FLIGHT COMPARTMENT DIMMERS AND RELAYS

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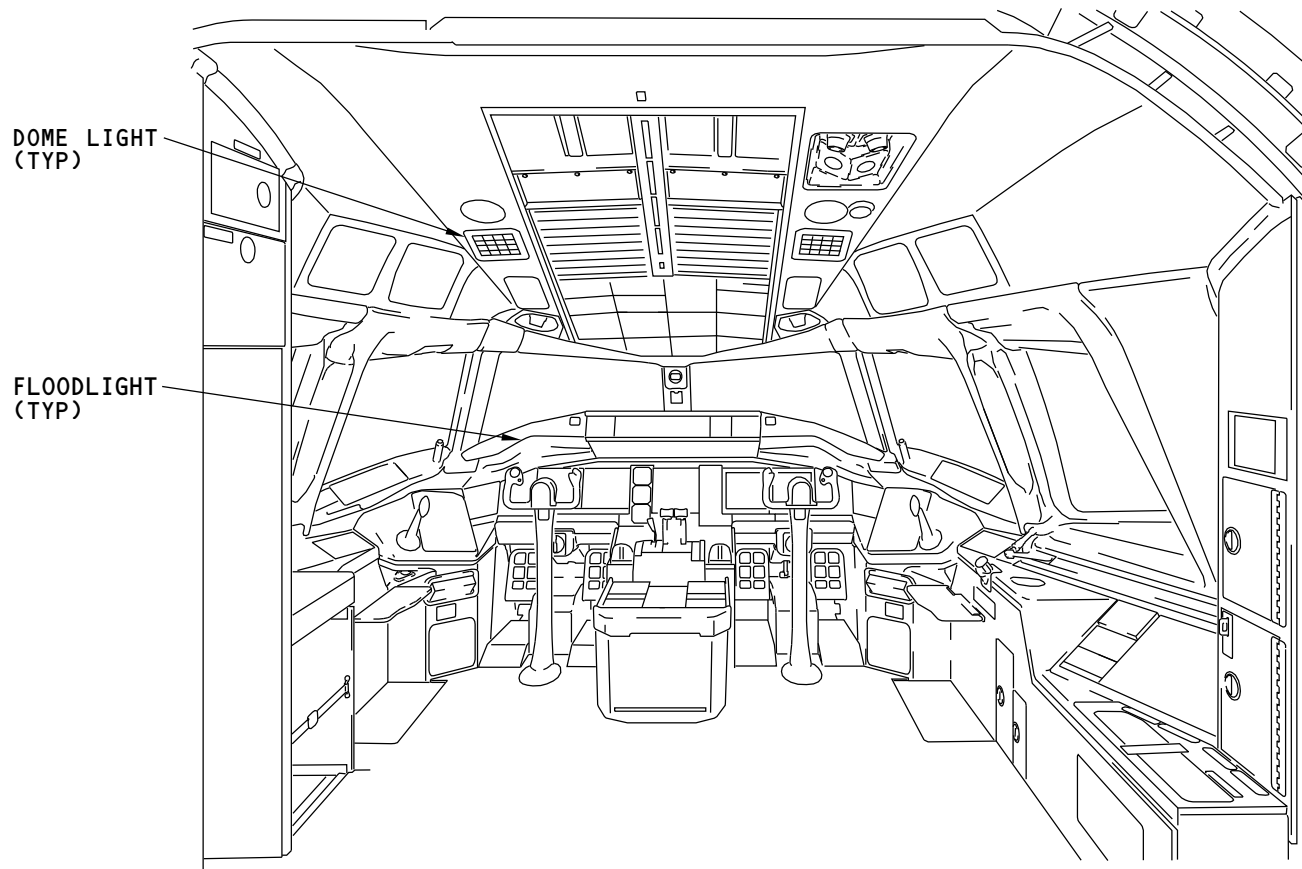
FLIGHT COMPARTMENT ILLUMINATION - INTRODUCTION

General

These are the flight compartment illumination lights:

- Dome lights
- Floodlights.

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FLIGHT COMPARTMENT ILLUMINATION - INTRODUCTION

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**FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - INTRODUCTION****Location**

There are two dome lights, one is above the captain's seat and the other is above the first officer's seat.

Physical Description

Each light has these components:

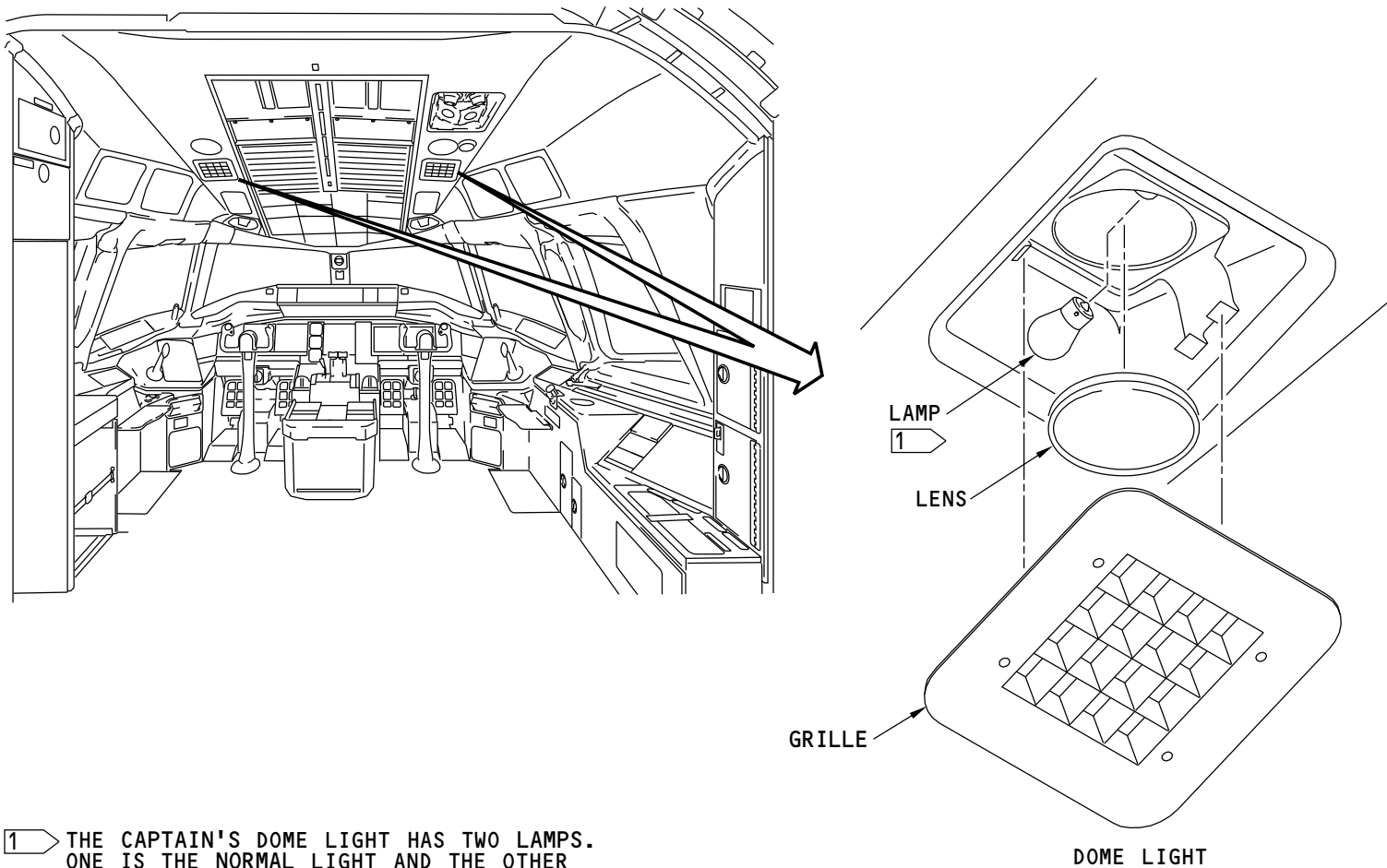
- Lamp
- Lens
- Grille.

The captain's dome light has two lamps. One is the normal lamp and the other is the lamp for the emergency light system.

See the emergency lights section for more information about the emergency lights (SECTION 33-50).

Training Information Point

To get access to the lamp you pull down on the grate and remove the lens. The lens has a bayonet-style mount. The lamp is a bayonet-style lamp.



1 THE CAPTAIN'S DOME LIGHT HAS TWO LAMPS. ONE IS THE NORMAL LIGHT AND THE OTHER IS THE LAMP FOR THE EMERGENCY LIGHTS SYSTEM.

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FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - INTRODUCTION

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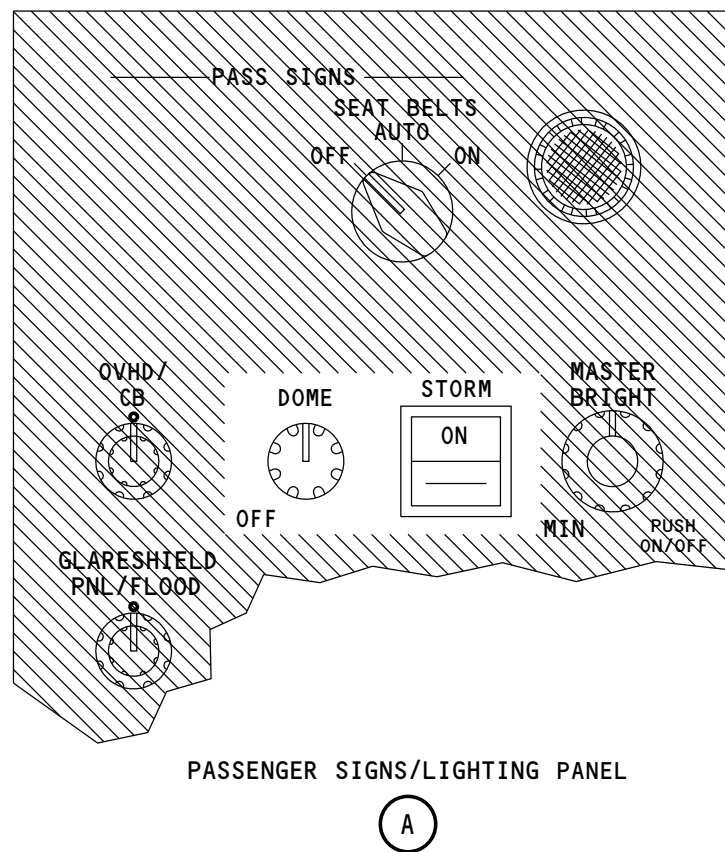
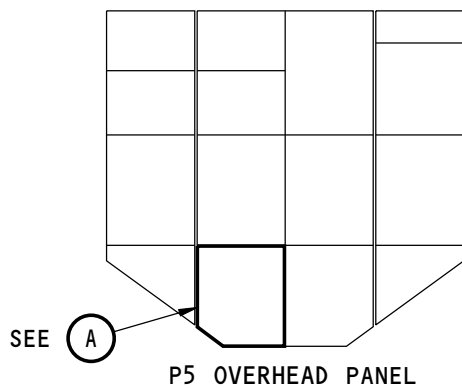
FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - OPERATION

Operation

You use the dome light control (DOME) to operate the dome lights. The control is on the passenger signs/lighting panel on the P5 overhead panel. The control is a rotary-type control that controls the intensity of the lights.

You use the storm light switch (STORM) to make the dome and floodlights come on fully bright. It will also make the lights in the master dim and test system operate at the fully bright level.

See the master dim and test section for more information about the master dim and test system (SECTION 33-16).



FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - OPERATION

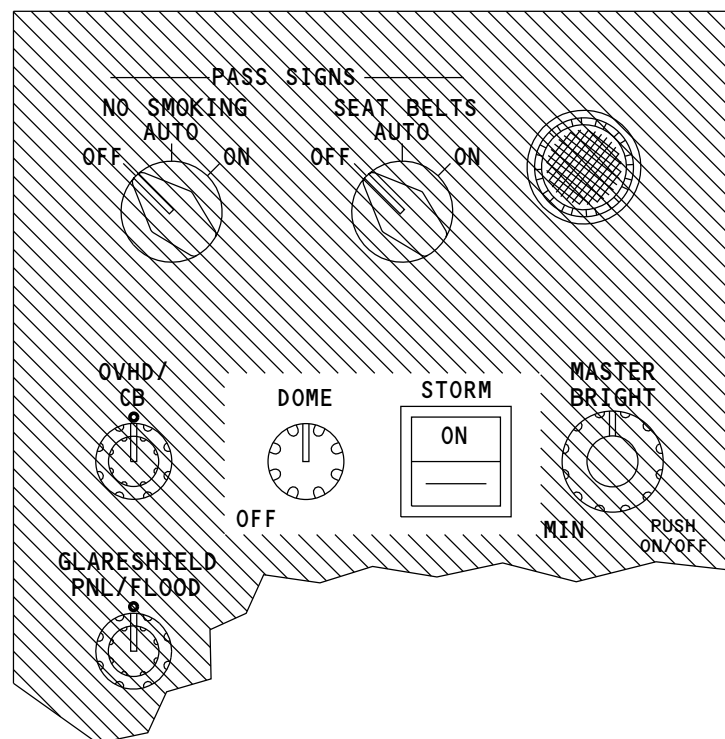
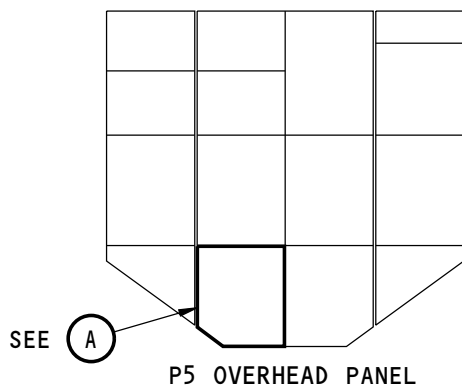
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PASSENGER SIGNS/LIGHTING PANEL

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FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - OPERATION

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FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - FUNCTIONAL DESCRIPTION

General

The dome lights have four modes of operation:

- Normal
- Backup
- Standby
- Storm.

In the normal and backup modes the amount of light that comes from the light is adjustable. In the standby mode the amount of light is not adjustable. In the storm mode the lights come on fully bright.

Normal Mode

When the ground service bus has power, the dome lights dimmer relay energizes. This supplies power to the dimmer on the passenger signs/lighting panel on the P5. It also energizes the standby lights relay.

When the standby lights relay is energized and the control is not in the OFF position, power from the ground service bus goes to the lights and makes them come on. When you adjust the control it adjusts the variable transformer in the dimmer. This adjusts the amount of light that comes from the dome lights.

Backup Mode

If the ground service bus does not have power and the right transfer bus has power, the dome lights operate in the backup mode. In the backup mode the dome lights operate the same as in the normal mode. The only difference is that the right transfer bus supplies power to the dome lights dimmer and the standby lights relay. The dome lights dimmer relay is de-energized to the backup position.

Standby Mode

If the ground service bus and the right transfer bus do not have power, the standby lights relay is de-energized to the standby position. Power from the standby power system goes to the captain's flight instrument bus. It then goes through the standby dome lights resistor to decrease the voltage. The dome lights come on, but they are not at the fully bright level.

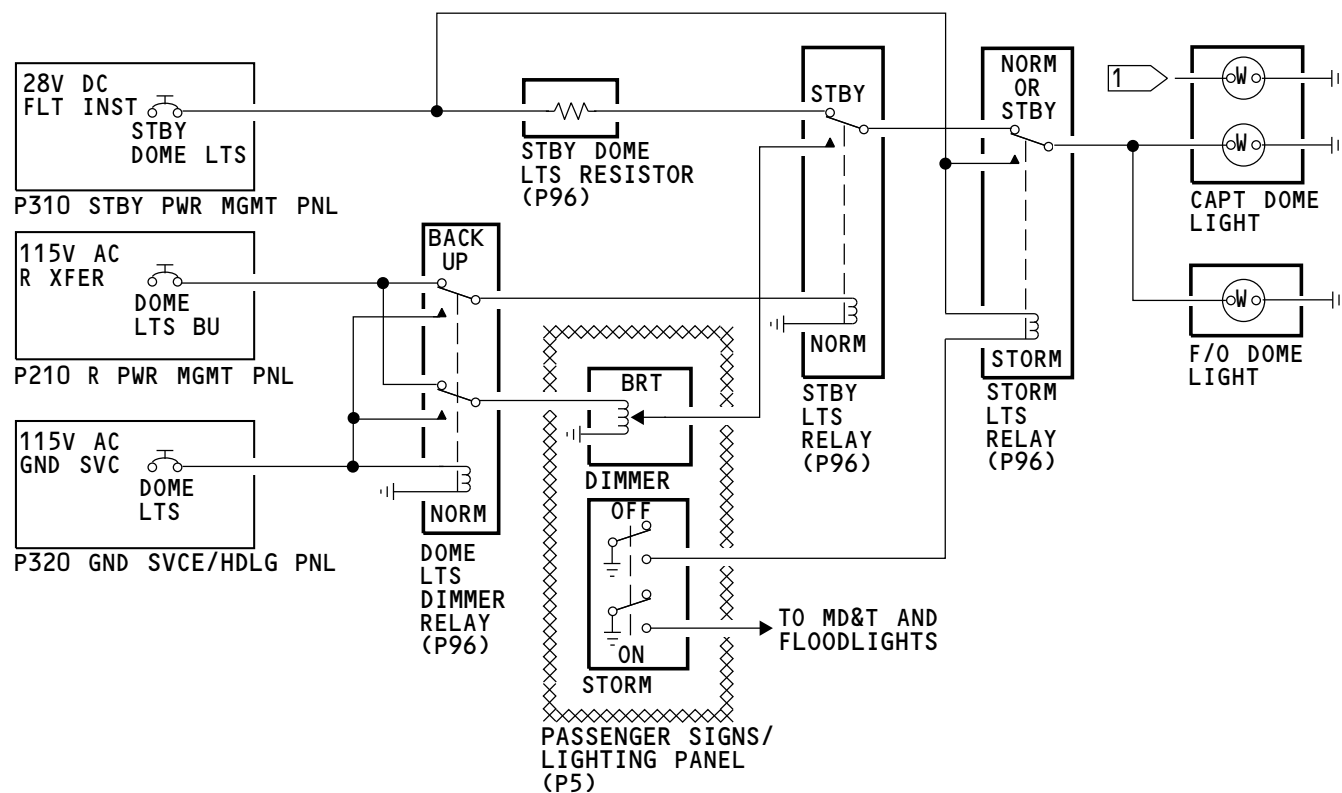
Storm Mode

When you push the storm light switch (STORM), the storm lights relay energizes. It energizes in every mode of operation because its power comes from the standby power system. When the relay energizes, 28v dc goes to the lights and they come on fully bright.

Training Information Point

The emergency lighting system turns on the second captain's dome light.

See the emergency lighting section for more information (SECTION 33-50).



1 POWER COMES FROM EMERGENCY LIGHTING SYSTEM.

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FLIGHT COMPARTMENT ILLUMINATION - DOME LIGHTS - FUNCTIONAL DESCRIPTION

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FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - INTRODUCTION**Purpose**

The floodlights give light to these panels:

- P1 left forward panel
- P2 center forward panel
- P3 right forward panel
- P8 aft aisle stand panel
- P9 forward aisle stand panel
- P55 glareshield center panel.

Location

The floodlights for the P1, P2, and P3 panels are above the panels. The floodlight for the P8 and P9 panels is above the aisle stand in the P5 panel. The floodlights for the P55 are above the P55 panel.

Physical Description

There are two different kinds of floodlights, strip and spot. The strip floodlights have several incandescent lights attached to a lens. Each spot floodlight is an incandescent bulb.

Training Information Point

The strip floodlights are above the P1, P2, P3, and P55 panels. The spot floodlights are above the P1, P3, and P8 and P9 panels.

When there is not sufficient light that comes from the strip floodlights, you replace the assembly. You remove two screws to release the assembly.

You remove the lens on the spot floodlights above the P1 and P3 panel to get access to the lamp. The lens and the lamp are bayonet-type.

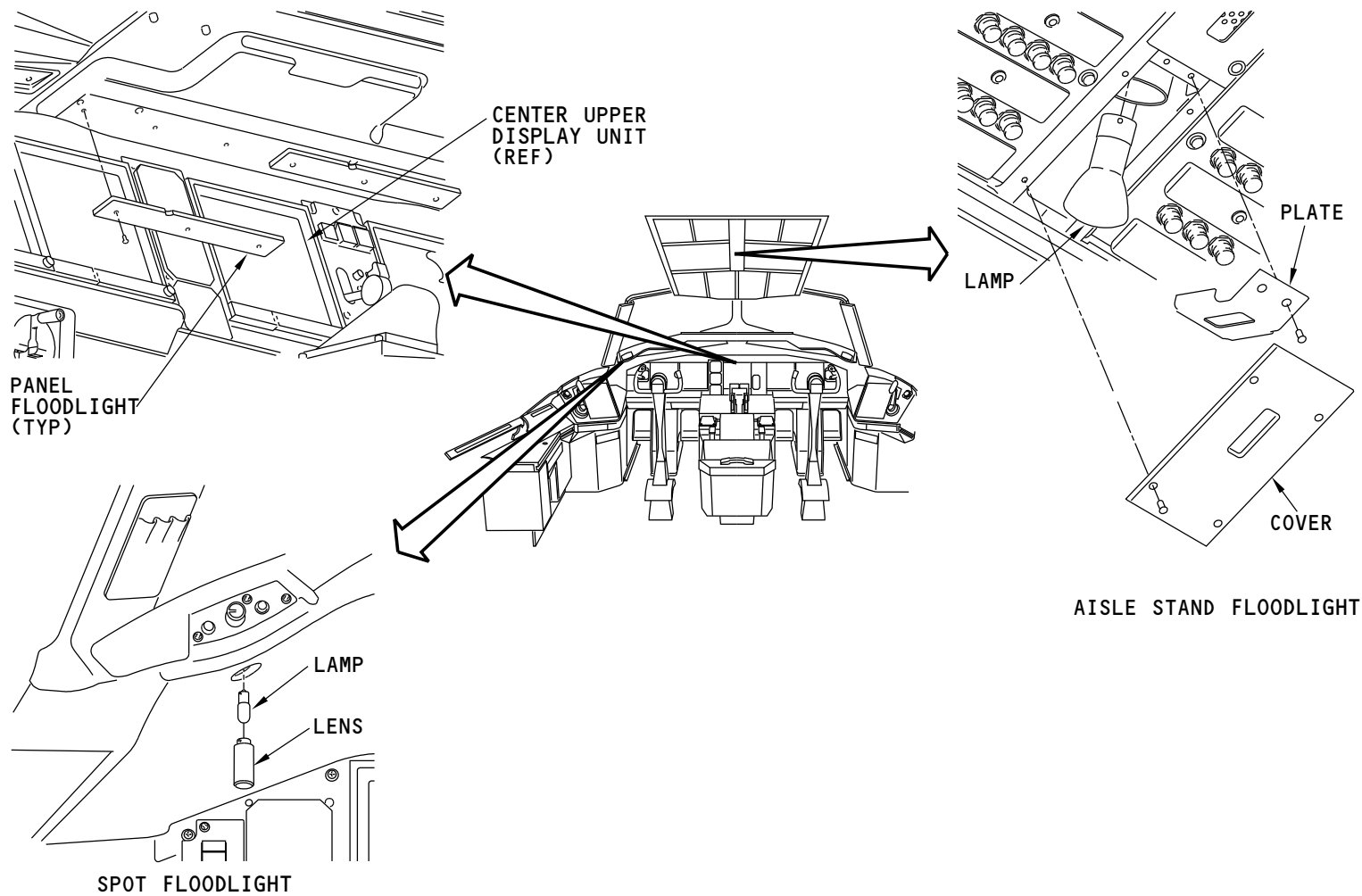
You remove two plates to get access to the lamp that gives light to the aisle stand. The lamp is a bayonet-type.

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FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - INTRODUCTION

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FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - OPERATION

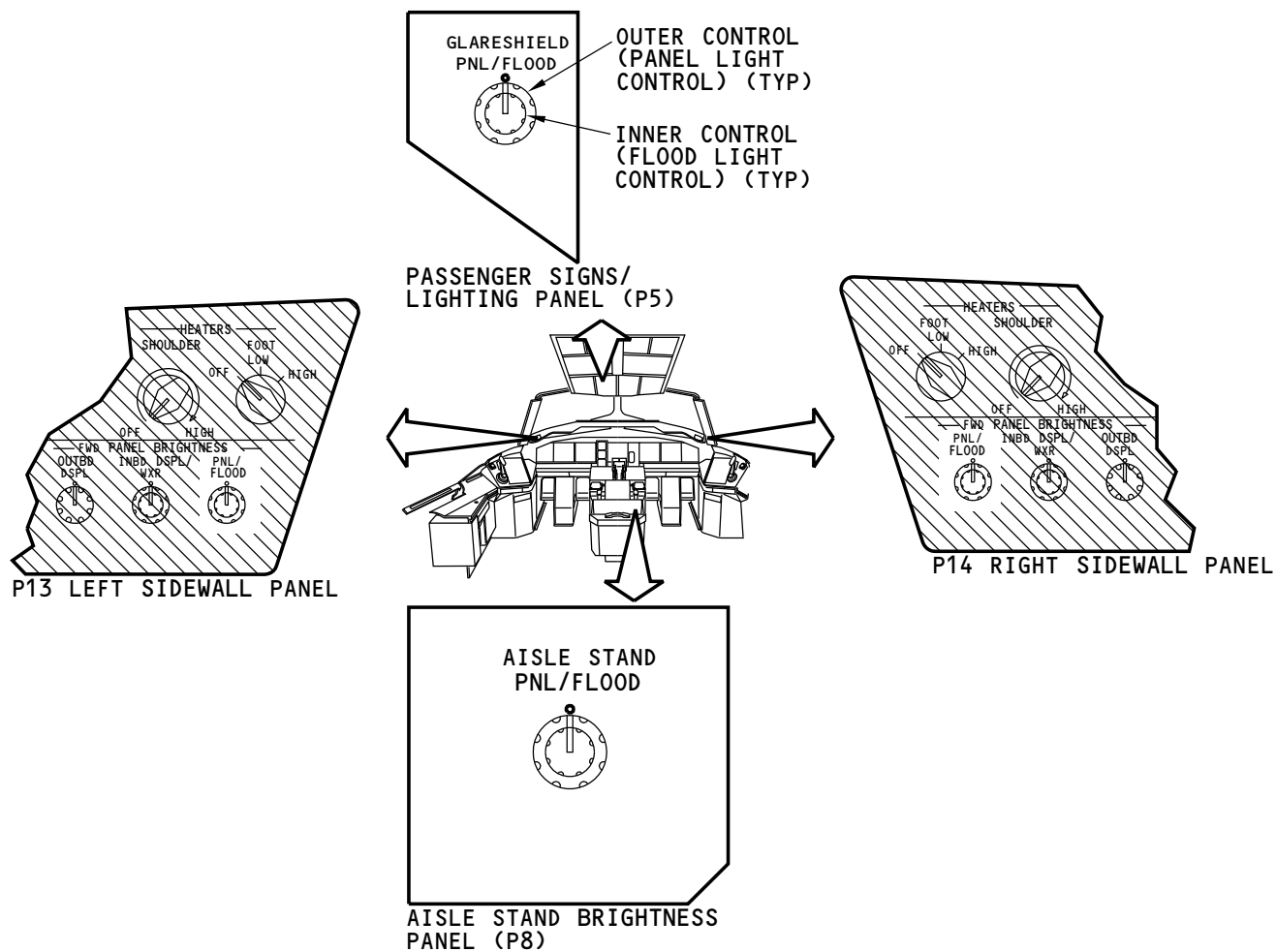
Operation

You use the inner control of the GLARESHIELD PNL/FLOOD light control to adjust the amount of light that comes from the two strip floodlights above the P55 panel. The control is on the passenger signs/lighting panel on the P5 overhead panel.

You use the inner control of the FWD PANEL BRIGHTNESS PNL/FLOOD light control to adjust the amount of light that comes from the captain's spot floodlight and the two strip flood lights above the P1 and P2 panels. The control is on the P13 left sidewall panel.

You use the inner control of the FWD PANEL BRIGHTNESS PNL/FLOOD light control to adjust the amount of light that comes from the first officer's spot floodlight and the two strip flood lights above the P2 and P3 panels. The control is on the P14 right sidewall panel.

You use the inner control of the AISLE STAND PNL/FLOOD light control to adjust the amount of light that comes from the aisle stand spot floodlight. The control is on the aisle stand brightness control panel on the P8 aft aisle stand panel.



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FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - OPERATION

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FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - FUNCTIONAL DESCRIPTION**General**

The floodlights have these three modes of operation:

- Normal
- Standby
- Storm.

In the normal mode, the amount of light that comes from the floodlights is adjustable. In the standby mode, the amount of light is not adjustable. In the storm mode, the lights come on fully bright.

Normal Mode

When the left transfer bus has power, the standby relay energizes to the normal position. This connects the floodlight dimmer with the floodlight control. When you rotate the control on the P13 left sidewall panel, it adjusts the position of the wiper. This adjusts the amount of light that comes from the captain's floodlights. When you turn the control on the P8 aisle stand brightness panel, it adjusts the position of a wiper. This adjusts the amount of light that comes from the aisle stand floodlight.

Standby Mode

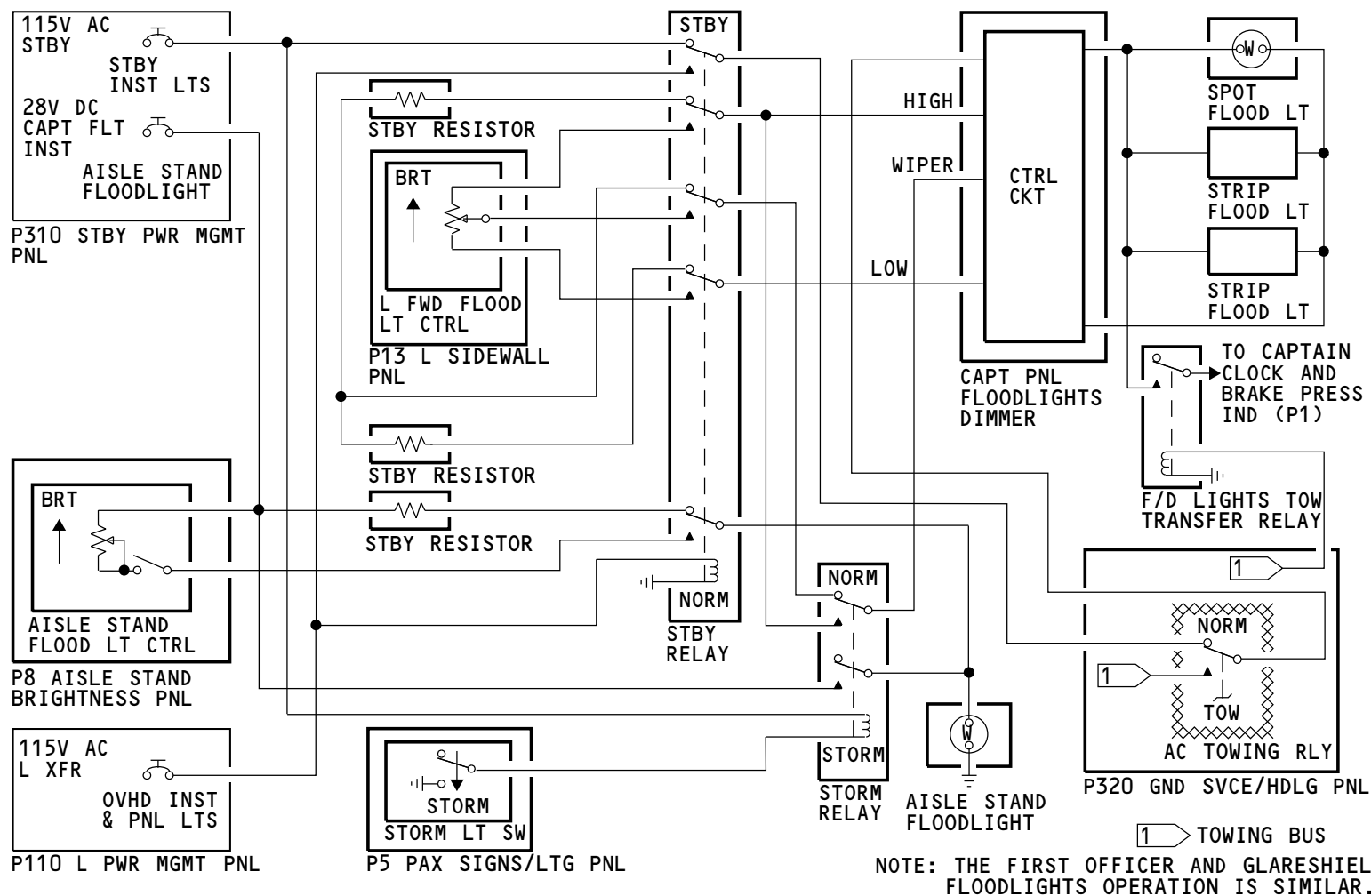
When the left transfer bus does not have power, the standby relay goes to the standby position. When the captain's flight instruments have power from the standby power system, the lights operate. In this mode, input to the control circuit comes from resistors. For the aisle stand floodlight, the voltage for the light must go through a resistor. The amount of light that comes from the floodlights is not as bright as it is in the fully bright position.

Storm

When you push the storm light switch on the P5 passenger signs/lighting panel, the storm relay energizes. The signal goes to the control circuit in the dimmer to make the lights come on full bright.

Towing

During towing operations, the ac towing relay connects the captain's panel floodlight dimmer to the towing bus. The towing bus also energizes the flight deck lights tow transfer relay. This connects the captain's clock and the brake pressure indicator to the output of the captain's panel floodlight dimmer.



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FLIGHT COMPARTMENT ILLUMINATION - FLOODLIGHTS - FUNCTIONAL DESCRIPTION

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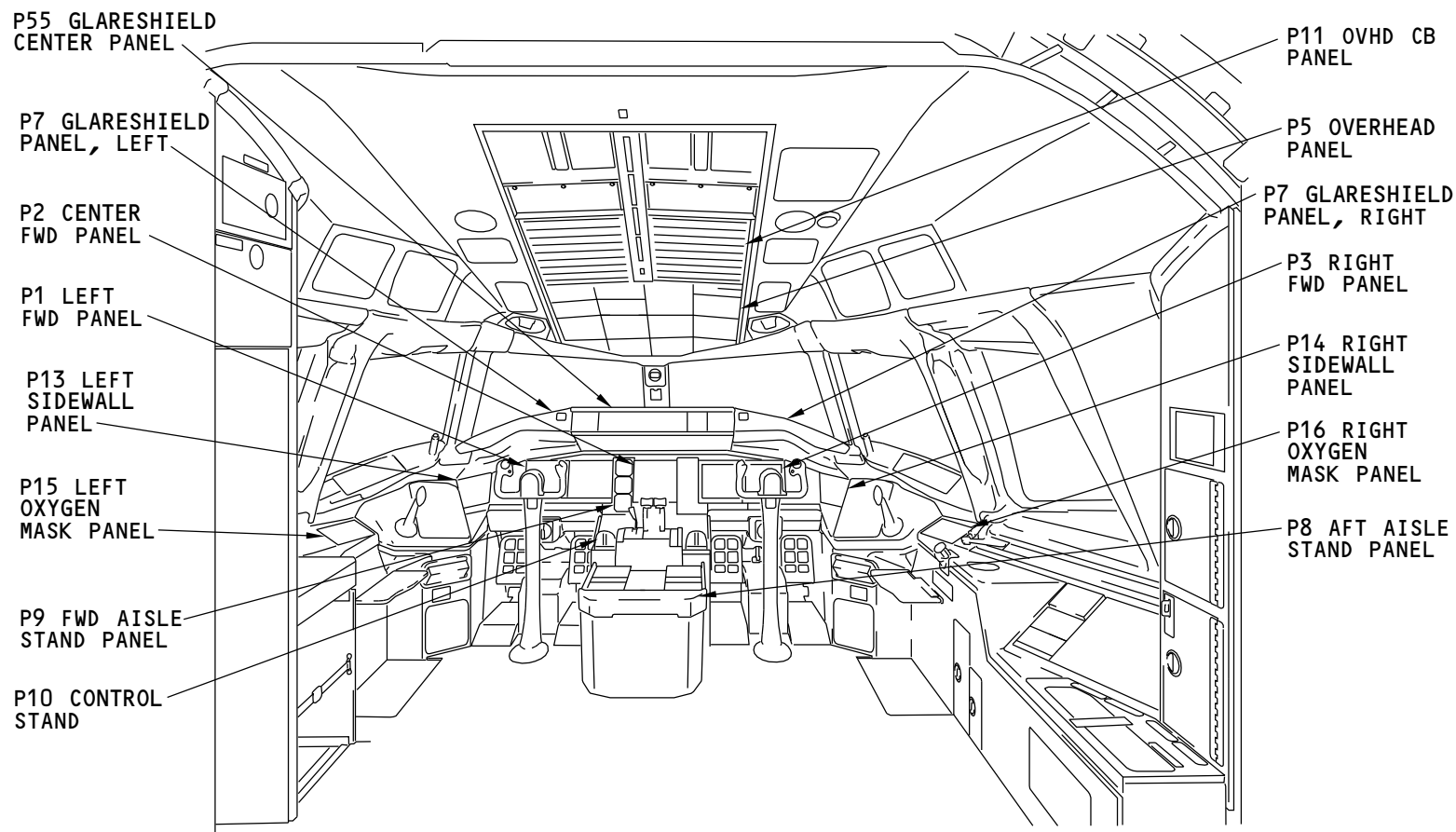
**INTEGRAL PANEL LIGHTS - INTRODUCTION****Purpose**

The integral panel lights give light to the switches, selectors, and indicators on the panels in the flight deck.

Location

There are integral panel lights in the lightplates on these panels:

- P11 overhead CB panel
- P5 overhead panel
- P7 glareshield panels
- P3 right forward panel
- P14 right sidewall panel
- P16 right oxygen mask panel
- P8 aft aisle stand panel
- P10 control stand
- P9 forward aisle stand panel
- P15 left oxygen mask panel
- P13 left sidewall panel
- P1 left forward panel
- P2 center forward panel
- P55 glareshield center panel.



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INTEGRAL PANEL LIGHTS - INTRODUCTION

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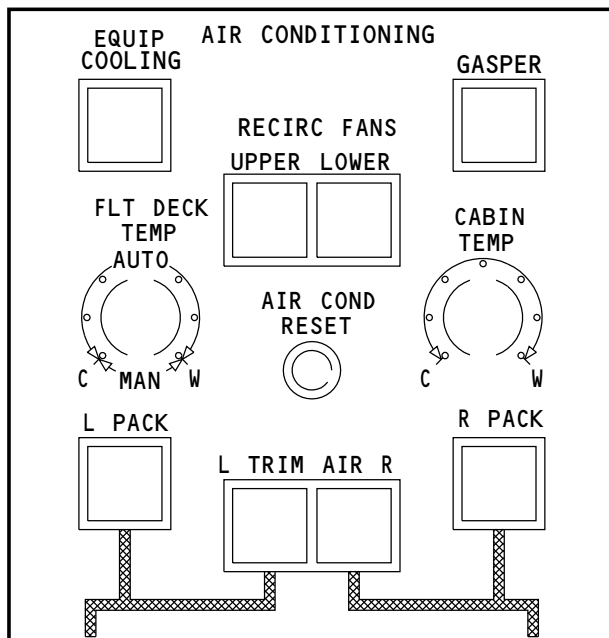
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**INTEGRAL PANEL LIGHTS - PHYSICAL DESCRIPTION****Physical Description**

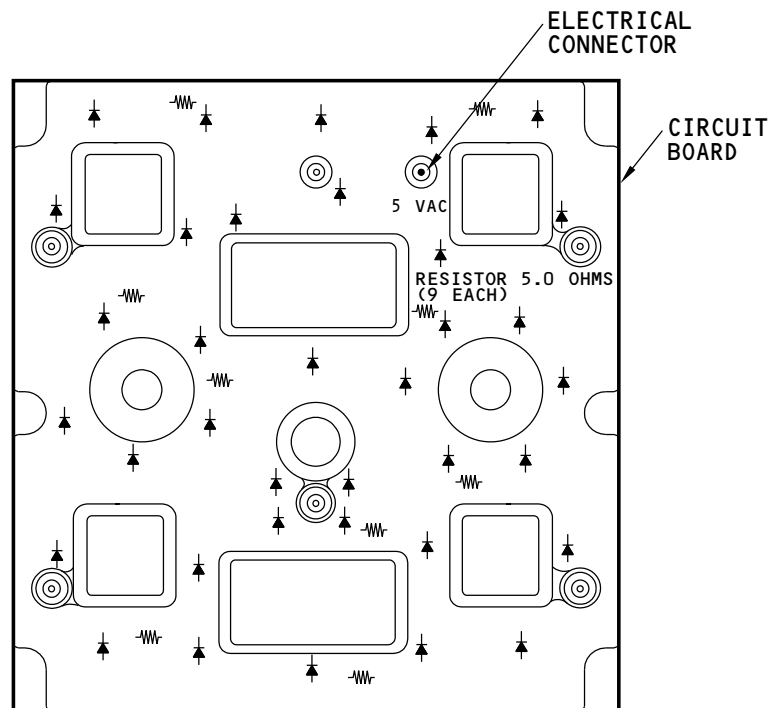
The lights are part of the lightplates. Most of the lights are LEDs. There are some incandescent integral panel lights. The front of the lightplates have etched letters and cutouts for selectors and indicators. The backs have an electrical connector and a circuit board.

Training Information Point

If there is not enough light that comes from a lightplate, replace it.



TYPICAL LIGHTPLATE PANEL



BACK OF TYPICAL LIGHTPLATE PANEL

INTEGRAL PANEL LIGHTS - PHYSICAL DESCRIPTION

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**INTEGRAL PANEL LIGHTS - ANNUNCIATOR LIGHTS****Purpose**

The annunciator lights give the flight or maintenance crew status, caution, or warning information about an airplane system.

Location

The annunciator lights are on the P5 overhead panel and the P8 aft aisle stand panel.

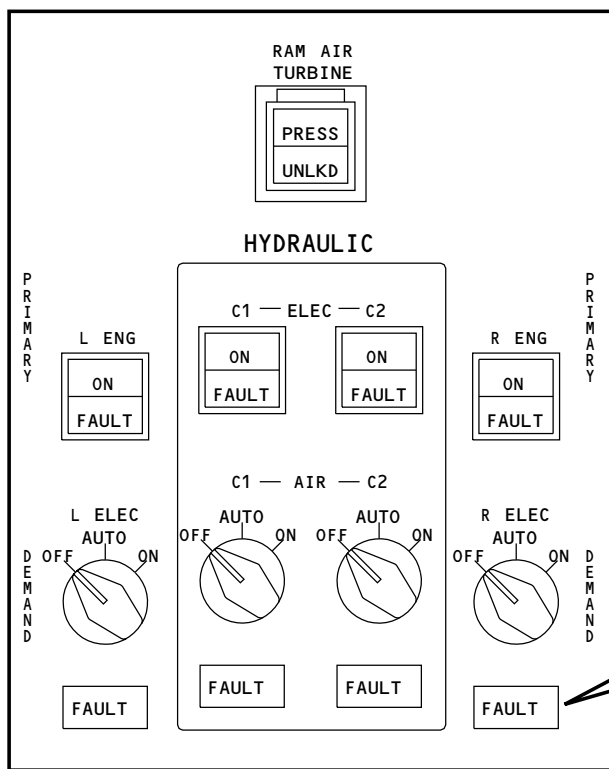
Physical Description

The annunciator lights use light emitting diodes (LEDs). Each light has these components:

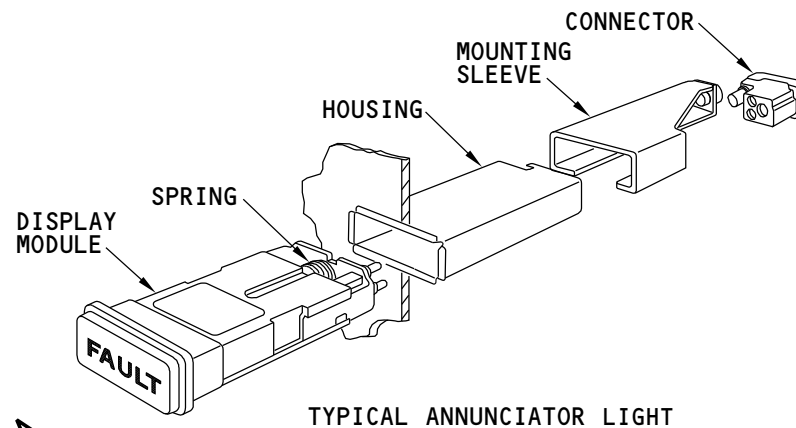
- Display module
- Mounting sleeve
- Connector
- Housing
- Spring.

Training Information Point

To remove a display module you push on the surface of the display module to compress the spring. This will release the module. Pull the module straight out to remove it. Make sure you apply equal pressure on the surface of the display module when you push it.



TYPICAL PANEL



TYPICAL ANNUNCIATOR LIGHT

INTEGRAL PANEL LIGHTS - ANNUNCIATOR LIGHTS

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INTEGRAL PANEL LIGHTS - LIGHTED PUSH-BUTTON SWITCHES

Purpose

Lighted push-button switches give control inputs to their associated systems. They can also give information on system status.

Location

There are lighted push-button switches on the P5 overhead and P9 forward aisle stand panel.

Physical Description

There are two kinds of push-button switches: momentary action and alternate action.

The lighted push-button switches have these components:

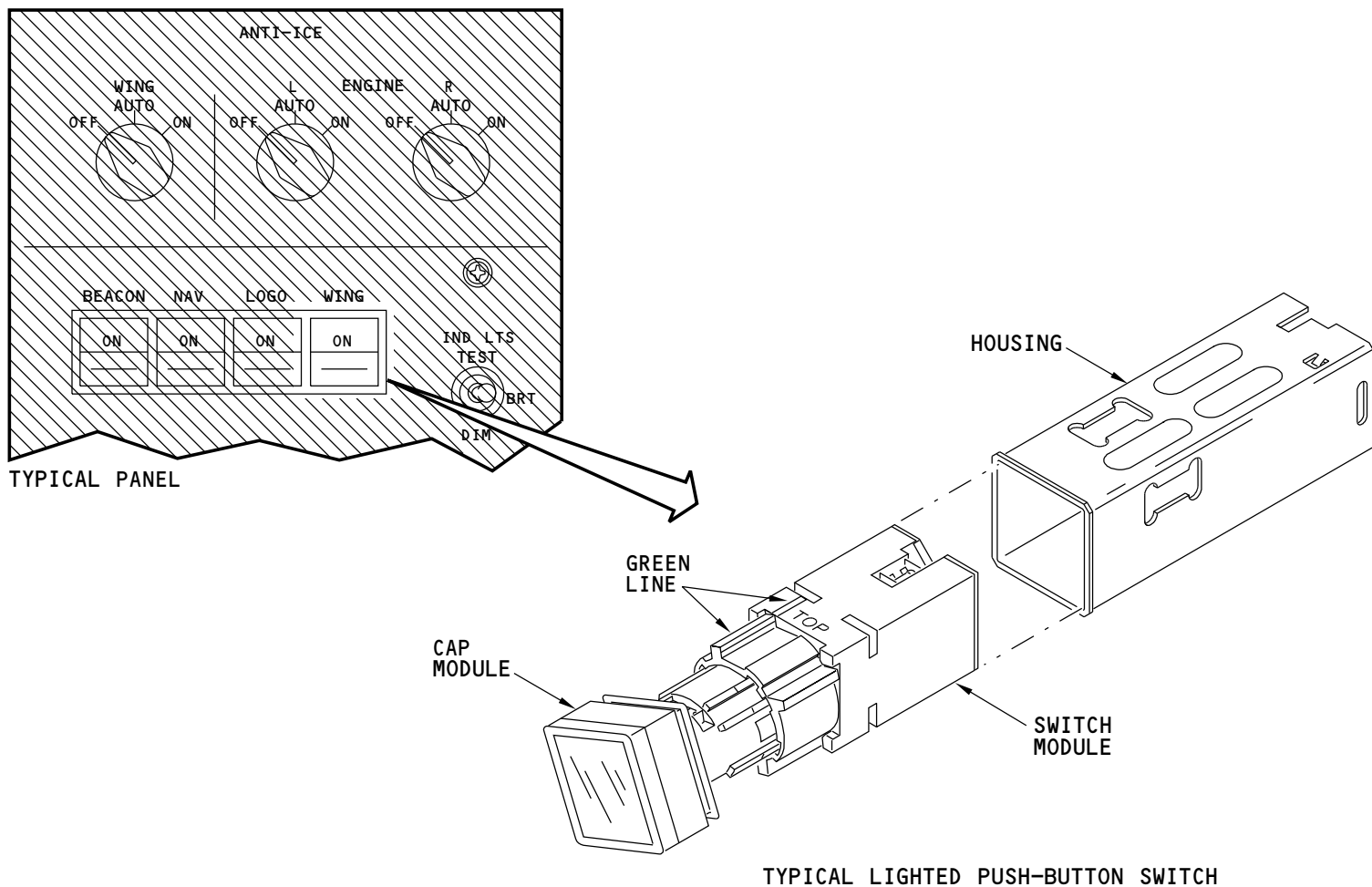
- Switch guard (not all switches) (not shown)
- Cap module
- Switch module
- Housing.

Training Information Point

To remove the lighted push-button switch, pull the cap module and turn the cap module counterclockwise and pull again. This will release the switch module from the panel.

To install the switch make sure the green lines on the top of the switch align before you install the switch. Once this is done, insert the switch into the panel and turn the cap module clockwise.

See integral panel lights in AMM Part II for more information about switch removal and installation.



INTEGRAL PANEL LIGHTS - LIGHTED PUSH-BUTTON SWITCHES

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INTEGRAL PANEL LIGHTS - OPERATION

General

These are the controls for the integral panel lights:

- Outer control of the OVHD/CB light control on the passenger signs/lighting panel for the P5 overhead panel
- Inner control of the OVHD/CB light control on the passenger signs/lighting panel for the P11 circuit breaker panel
- Outer control of the GLARESHIELD PNL/FLOOD light control on the passenger signs/lighting panel for the P7 glareshield panel
- MASTER BRIGHT control on the passenger signs/lighting panel
- MASTER BRIGHT switch on the passenger signs/lighting panel
- Outer control of the FWD PANEL BRIGHTNESS PNL/FLOOD light control on the P14 right sidewall panel for the P3 right forward panel
- Outer control of the FWD PANEL BRIGHTNESS PNL/FLOOD light control on the P13 left sidewall panel for the P1 left forward and P2 center forward panels
- Outer control of the AISLE STAND PNL/FLOOD light control on the aisle stand brightness panel for the P8 aft aisle stand panel.

Operation

You use the controls to adjust the amount of light that comes from the integral panel lights. When the MASTER BRIGHT switch is in the OFF position, you can adjust the lights from fully dim to fully bright.

Master Brightness

With the MASTER BRIGHT switch in the ON position, you set the lighting level for all of the integral panel lights at the same time. You turn the MASTER BRIGHT control to adjust the amount of light that comes from the integral panel lights.

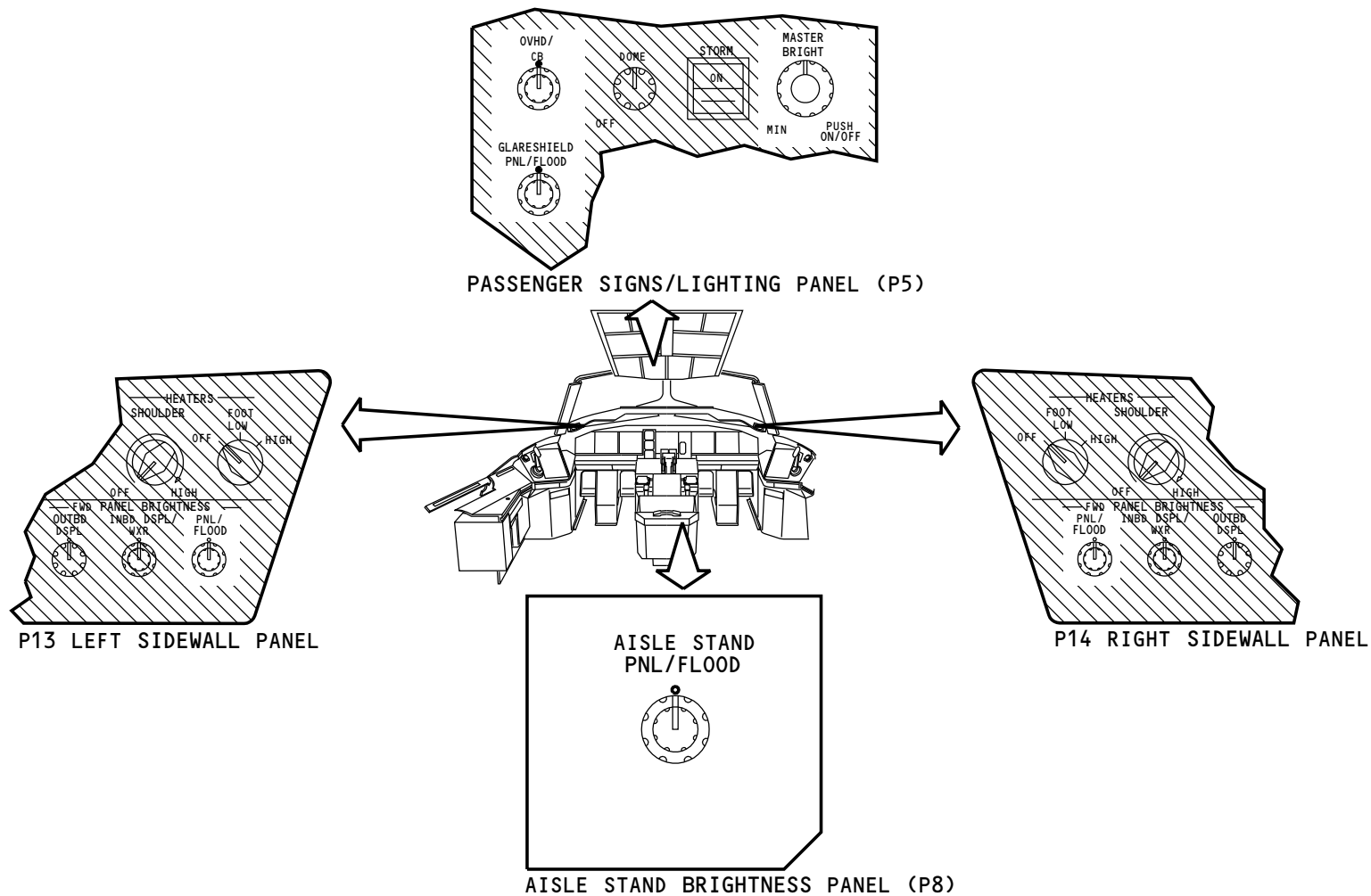
When the MASTER BRIGHT switch is in the ON position, you can use any panel control to adjust the amount of light for the related panel. The range of adjustment is |20 percent.

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INTEGRAL PANEL LIGHTS - OPERATION

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INTEGRAL PANEL LIGHTS - DIMMER CONTROL UNITS

Purpose

The dimmer control units (DCUs) filter and control the voltage that goes to integral panel lights (lighted instruments and lightplate panels) and some floodlights in the flight deck. The units control the voltage based on inputs from controls in the flight deck.

Location

The DCUs are on the P96 overhead dimmer panel and in the flight deck. There are seven units on the P96. There are eleven units in the flight deck at these locations:

- P1 area: two units forward and outboard of the left outboard display unit (not shown)
- P3 area: two units forward and outboard of the right outboard display unit (not shown)
- P9 area: seven units, four on the left and three on the right, are forward and below left and right control display units (not shown).

See the flight compartment section for more information about the dimmer control units and their related light circuits (SECTION 33-10).

Physical Description

The DCUs are LRUs. Each DCU has these parts:

- Electrical connector
- Control card (internal)
- EMI filter (internal)
- Power transformer (internal).

The DCUs are static sensitive.

Functional Description and Interfaces

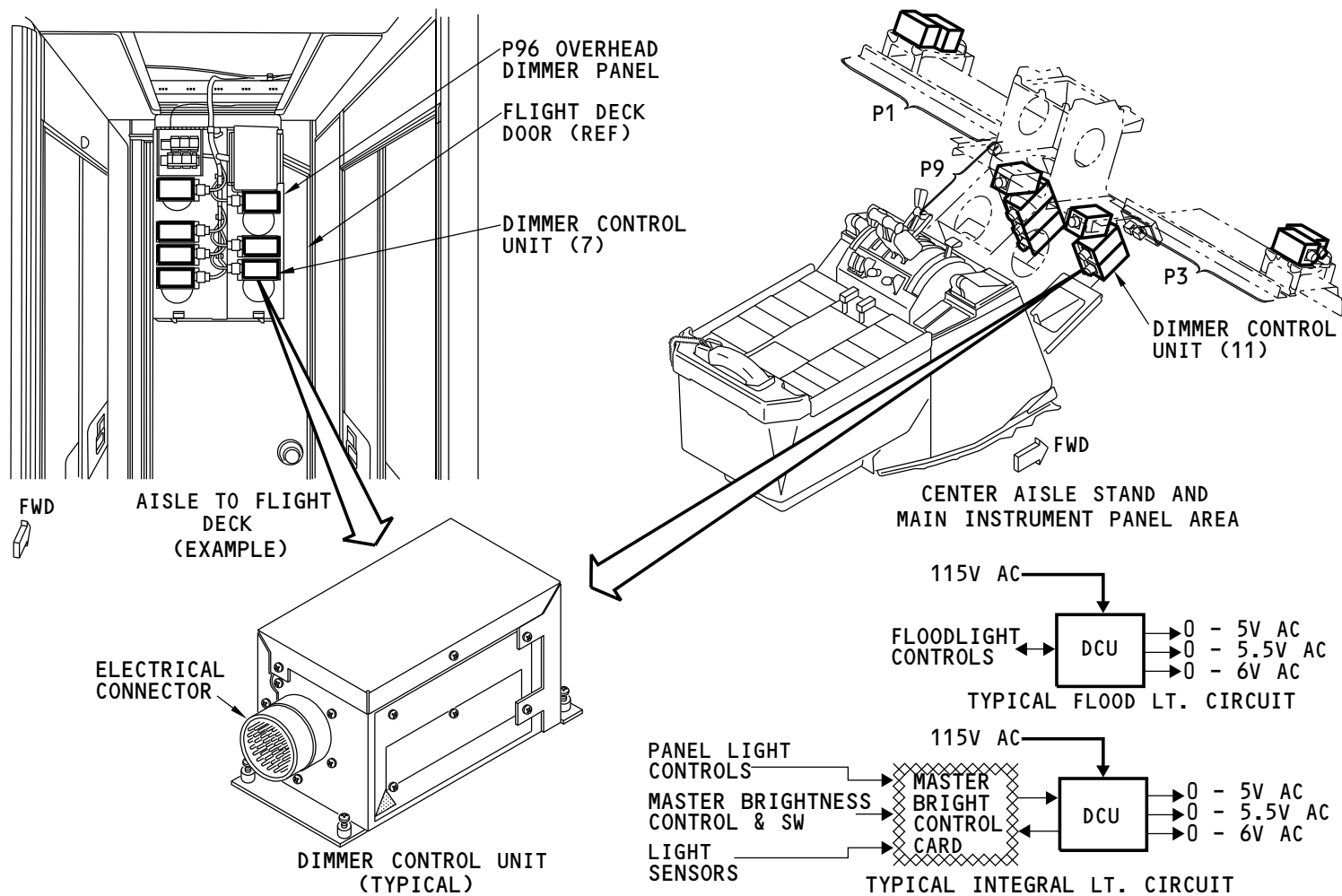
The DCUs use 115v ac for control and operation. The control card, EMI filter, and power transformer operate together to give any one of these outputs:

- 0 to 5v ac
- 0 to 5.5v ac
- 0 to 6v ac.

The DCUs in the flood light circuits monitor floodlight controls for operator input. Based on the operator input, the DCU adjusts output voltage to the floodlights.

The DCUs in the integral panel light circuits connect to the master brightness control (MBC) card. The card tells the DCUs the intensity for the lights based on operator inputs (panel light and master brightness controls). The card also monitors light sensors and can cause the DCUs related to the aisle stand LCDs to adjust for increased brightness inside or outside of the flight deck.

See the flight compartment illumination section for more information about the operation of the dimmer control units in the floodlight circuits (SECTION 33-11).



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INTEGRAL PANEL LIGHTS - DIMMER CONTROL UNITS

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INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - MANUAL ADJUSTMENTS

General

The light intensity for the integral panel lights is adjustable manually from the master bright control (MBC) and the individual panel light controls. You can adjust the light intensity from both controls if the master bright switch (MBS) is in the ON position.

When the master bright switch is ON, the master bright control has full control of the intensity of all the integral panel lights. The individual panel light controls let you bias the light intensity up or down by 20 percent.

When the MBS is off, the individual panel light controls have full control of the panel lights.

You can manually adjust these integral panel lights:

- P1
- P2
- P3
- P5
- P7
- P8
- P9
- P10
- P11
- P13
- P14
- P15
- P16
- P55.

Power Supply

The master brightness control (MBC) card gets 28v dc from the left main bus.

The dimmer control units for the captain's integral panel lights get power from these sources:

- 115v ac left transfer bus: usual power source
- 115v ac standby bus: backup power source.

The dimmer control units for other integral panel lights (not shown) get power from these sources:

- 115v ac left transfer bus: overhead panel
- 115v ac right transfer bus: glareshield, F/O and observer panels
- 115v ac left main bus, section 1: overhead circuit breaker panel.

The dimmer control units decrease the 115v ac to these values:

- 0 to 5v ac
- 0 to 5.5v ac
- 0 to 6v ac.

The dimmer control units supply power to the integral panel lights. The amount of power the dimmer control units supplies to the integral panel lights usually comes from operator input through the master bright control card. Some integral panel light circuits also get inputs from light sensors through the master bright control card.

See the automatic adjustments training information points section for more information about the light sensors.

The brake accumulator pressure indicator (gage) light also has power when the towing power is ON. This power comes from the towing bus through the captain's floodlight dimmer control unit (not shown). This lets you adjust the intensity of the indicator with the captain's floodlight control.

See the flight compartment illumination section for more information about the flight compartment lights that get power from the towing bus (SECTION 33-11).

See the position lights section for more information about the position lights that get power from the towing bus (SECTION 33-43).

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**INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - MANUAL ADJUSTMENTS**

See the towing power section for more information about the towing bus (SECTION 24-29).

- TCAS/ATC control panel.

Manual Brightness Inputs

When the MBS is ON, the MBC adjusts the integral panel lights from full bright to full dim. The individual panel light controls can adjust the light brightness up or down 20 percent from the level set by the MBC.

The master bright control card has a master bright control blend function. The master bright control blend function mixes the inputs from the MBC and the individual panel light control. This is the function that lets you bias the panel lights by 20 percent. The master bright control blend function then sends a single output to the respective dimmer control unit. The dimmer control units then adjust the light intensity of the respective integral panel light.

When the MBS is OFF, the master bright control card disables the master bright control blend function. The individual panel light controls adjust the integral panel lights from full bright to full dim. The master bright control card then sends the output to the respective dimmer control unit. The dimmer control unit then adjusts the light intensity of the related integral panel light.

Standby Power Mode

Critical dimmer control units get power from the 115v ac standby bus when power is not available from the left 115v ac transfer bus. 115v ac standby bus power then goes to the critical dimmer control units. The critical dimmer control units then supply power to the respective panel lights.

When standby power is the power source, you can not adjust the light intensity from the MBC. You can only adjust the light intensity from the related individual panel light control. These integral panel lights and instruments have power when the lights are in the standby mode:

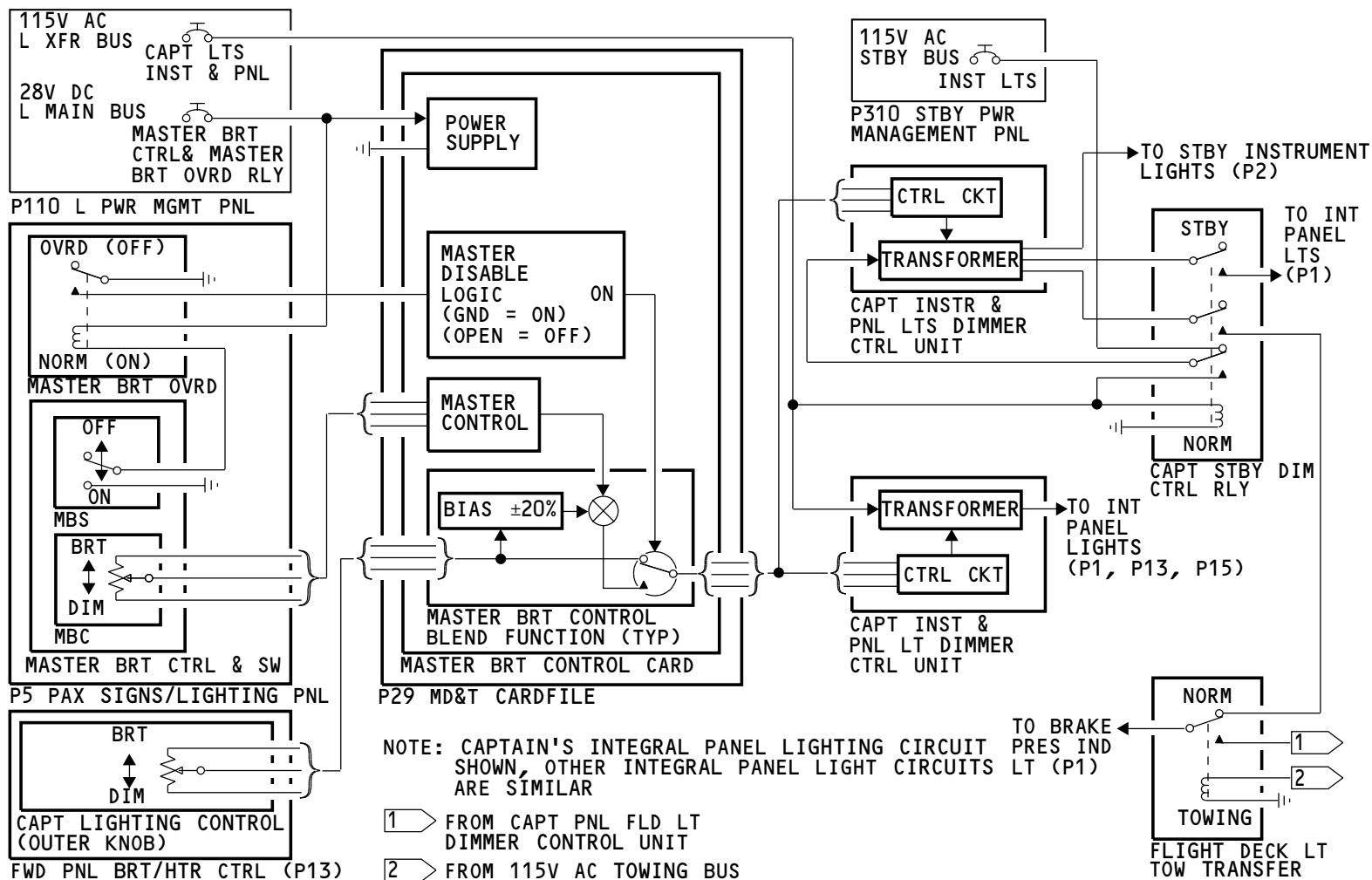
- Standby attitude indicator
- Standby airspeed indicator
- Standby altimeter
- Standby compass
- Captains radio tuning frequency window

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INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - MANUAL ADJUSTMENTS

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INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - AUTOMATIC ADJUSTMENTS

General

The integral lights in some components have automatic brightness control and manual brightness control. These components have automatic brightness control:

- TCAS/ATC control integral panel
- Captain radio tuning frequency windows
- Center radio tuning frequency windows
- First officer tuning frequency windows
- Rudder trim indicator
- Left stab position indicator
- Right stab position indicator
- Standby instruments
- Primary display system.

See section 34-11 for more information on the automatic brightness control for the standby instruments.

See section 31-61 for more information on the automatic brightness control for the primary display system.

Functional Description

There are two sets of light sensors. Two remote light sensors (RLS) are on the glare shield and three bezel-light sensors (BLS) are on the aisle stand. There are bezel-light sensors in these components:

- Rudder trim indicator
- Right stab position indicator
- Left stab position indicator.

The bezel-light sensors send ambient light information to the MBC card. The MBC card uses the manually selected brightness level and adjusts the output signal based on inputs from the bezel-light sensors. The MBC card then uses the remote light sensor inputs and adjusts the output signal more. The MBC card then sends an output to the dimmer control units. The dimmer control units adjust the brightness for these components:

- TCAS/ATC control integral panel lights
- Captain radio tuning frequency windows
- Center radio tuning frequency windows
- First officer tuning frequency windows.

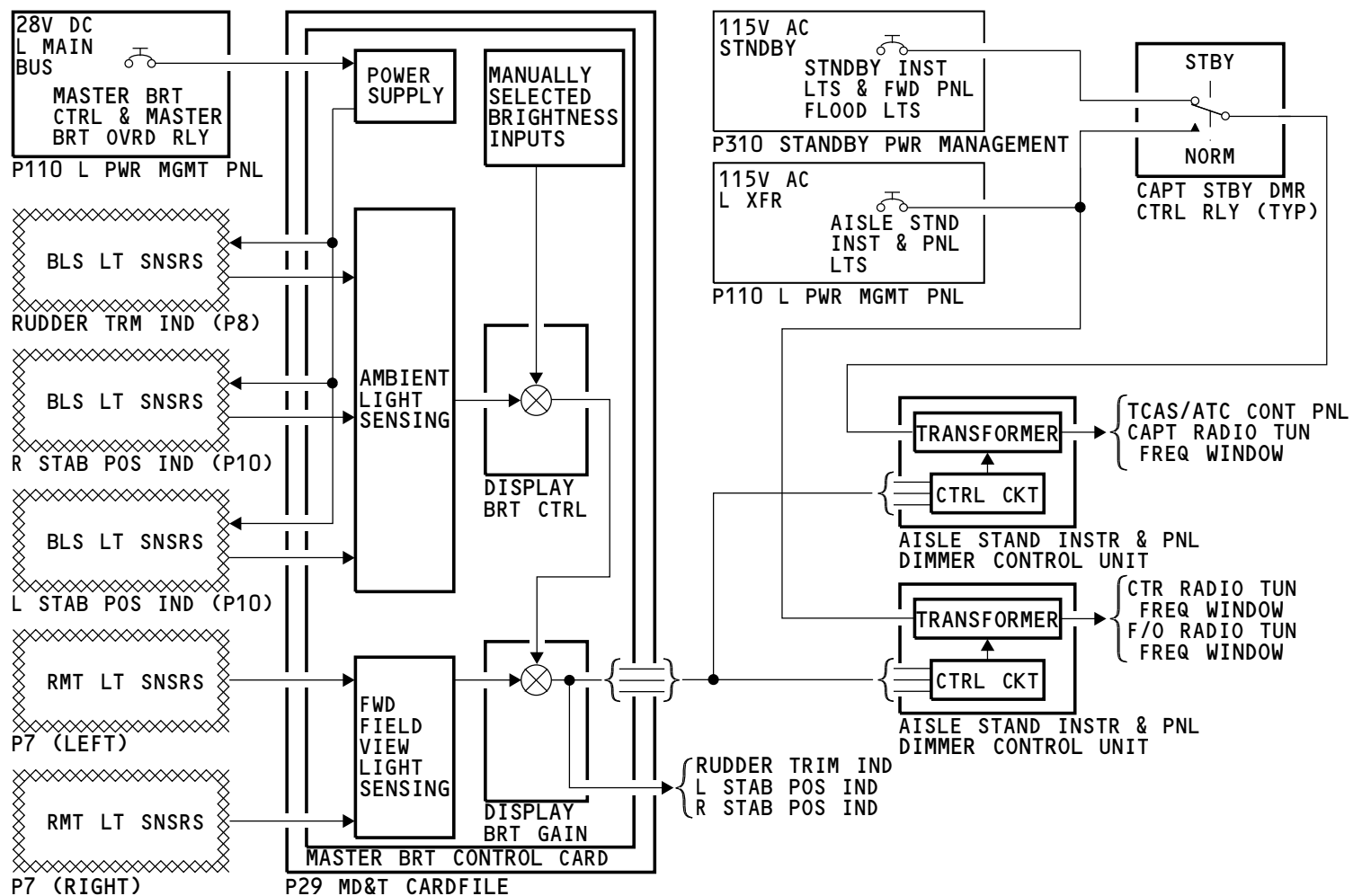
The MBC card also adjusts the brightness for these components without the use of a dimmer control unit:

- Rudder trim indicator
- Right stab position indicator
- Left stab position indicator.

Standby Mode

Critical dimmer control units get power from the 115v ac standby bus when power is not available from the left 115v ac transfer bus. The 115v ac standby bus energizes the standby dimmer control relay. 115v ac standby bus power then goes to the critical dimmer control units. The critical dimmer control units then supply power to the respective panel lights. You can not adjust the light intensity of these panel lights from the MBC. You can only adjust the light intensity from the related individual panel light control. These integral panel lights and instruments have power when the lights are in the standby mode:

- Captains radio tuning frequency window
- TCAS/ATC control panel.



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INTEGRAL PANEL LIGHTS - FUNCTIONAL DESCRIPTION - AUTOMATIC ADJUSTMENTS

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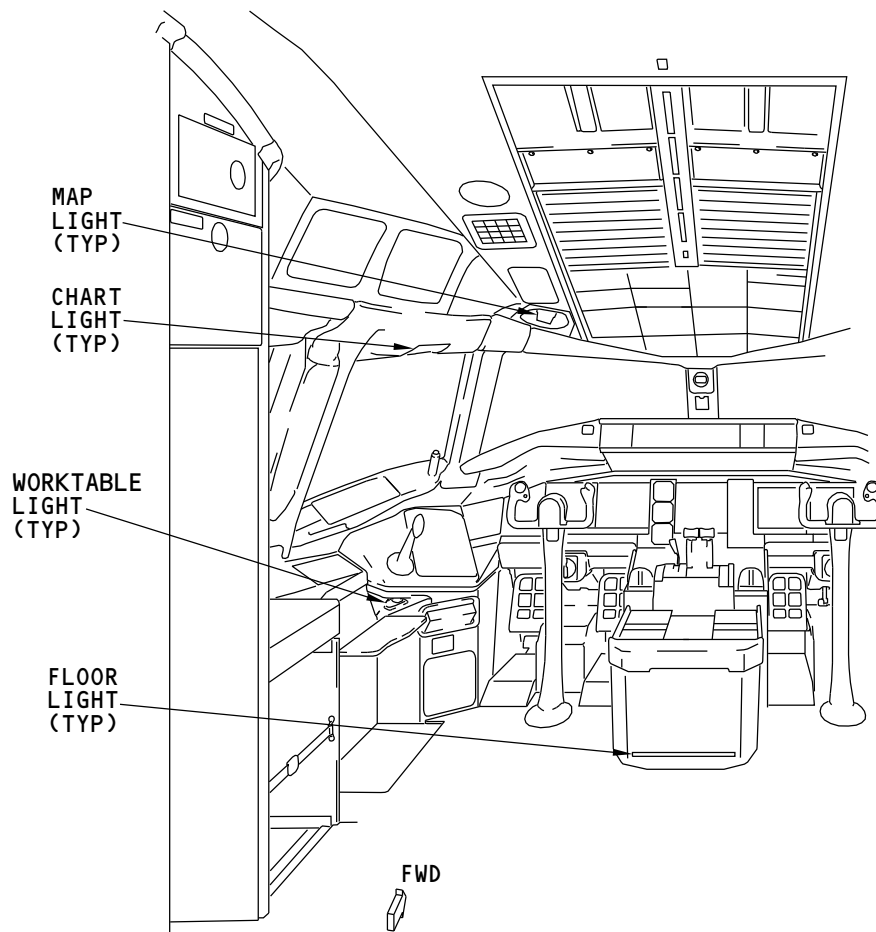
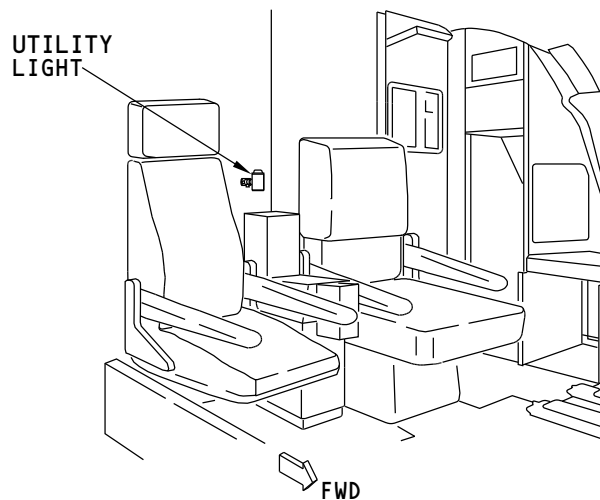


FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - INTRODUCTION

General

The flight compartment miscellaneous lights give light to specific areas in the flight compartment. These lights are the flight compartment miscellaneous lights:

- Utility light
- Map light (4)
- Chart light (2)
- Worktable light (2)
- Floor light (3).



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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - INTRODUCTION

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**FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - MAP LIGHTS****Purpose**

The map lights give adjustable light for the captain, first officer, and observers.

The lamp is a bayonet-type lamp.

Location

There are four map lights in the flight deck. There is one above each of the captain's and first officer's seats. They are forward of the flight deck handles. There are two on the ceiling above the first observers seat.

Physical Description

Each map light has these components:

- Lamp
- Bezel
- Lens.

Operation

There are rotary-type controls for the map lights on these panels:

- P7 glareshield panel
- P17 first observers panel
- P18 MAT/second observers panel.

The diameter and amount of light is adjustable. You can also point the light.

You pull the control to make the light come on. You turn the control to adjust the amount of light that comes from the map light. You turn the bezel to adjust the diameter of the light.

Training Information Point

To replace the map light you do these things:

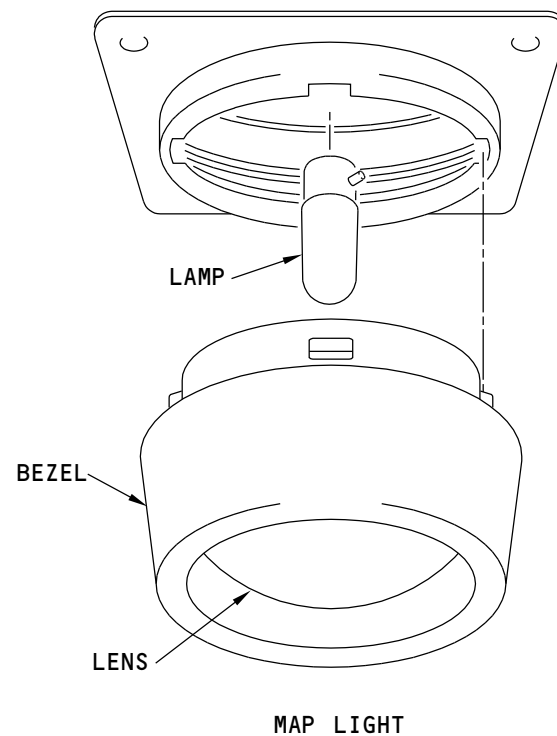
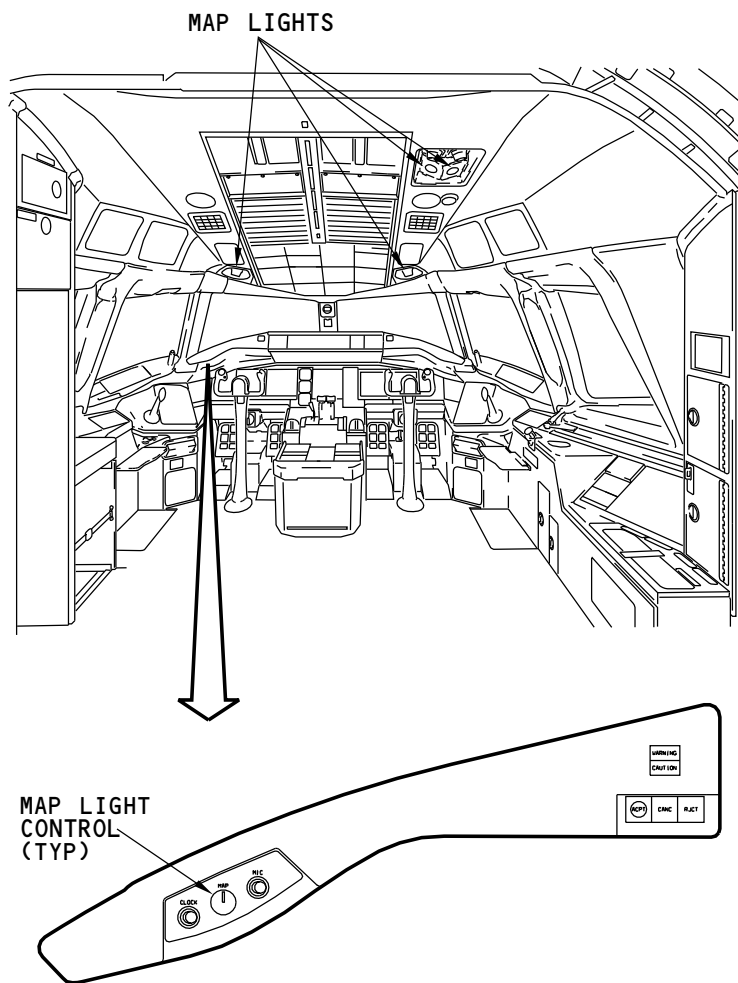
- Compress the bezel/lens assembly
- Turn it counterclockwise to disconnect it
- Replace the lamp.

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - MAP LIGHTS

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - UTILITY LIGHT

Purpose

The utility light gives a movable light source in the flight deck.

Location

The light is on the aft wall of the flight deck, between the first and second observers seats.

Physical Description

The light has these components:

- Light control
- Push button switch (not shown)
- Housing
- Lamp
- Lens
- Retaining ring
- Cord
- Base.

The push button switch is part of the light control.

The lens can make the light white or red. The light disconnects from the base. The cord is 100 inches (254 cm) long.

Operation

You turn the light control to make the light come on and to adjust the amount of light. When you push the push-button switch, the light comes on until you release the switch.

Training Information Point

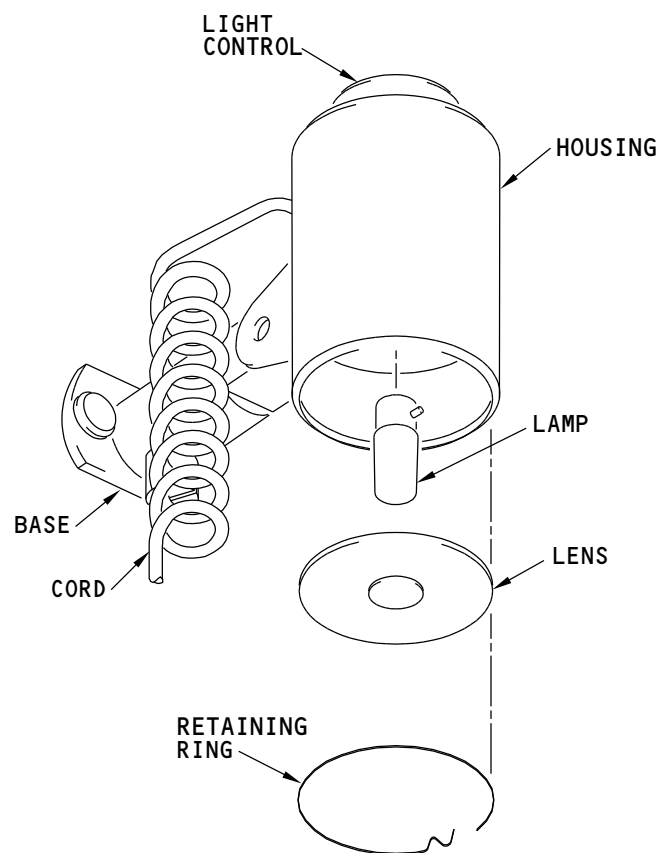
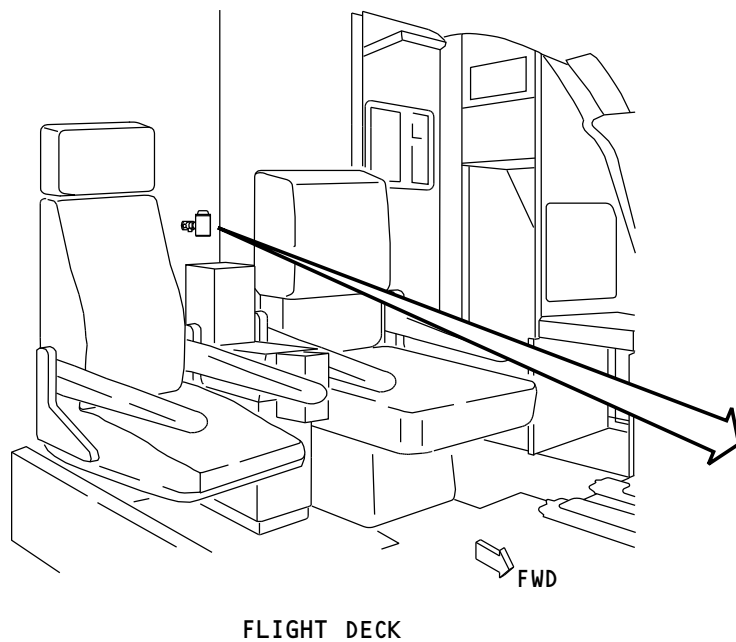
You remove the retaining ring to get access to the lamp. The lamp is a bayonet-style lamp.

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - UTILITY LIGHT

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**FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - FLOOR LIGHTS****Purpose**

The floor lights give light to the floor area around the aisle stand.

Location

There are floor lights on the left, right, and aft sides of the aisle stand.

Physical Description

The floor lights are soldered to the floor light assembly. The assembly attaches to the aisle stand with two fasteners.

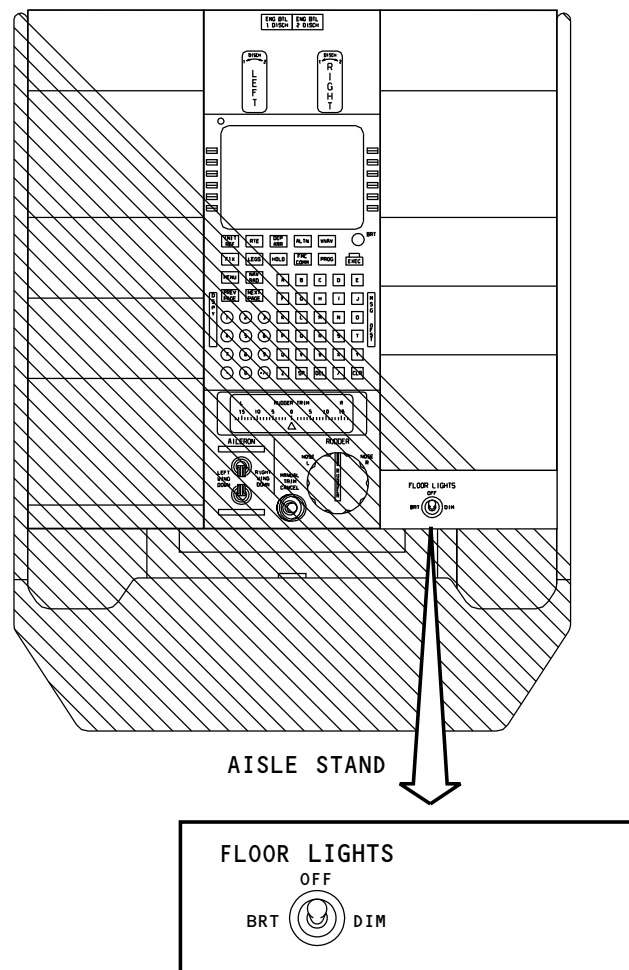
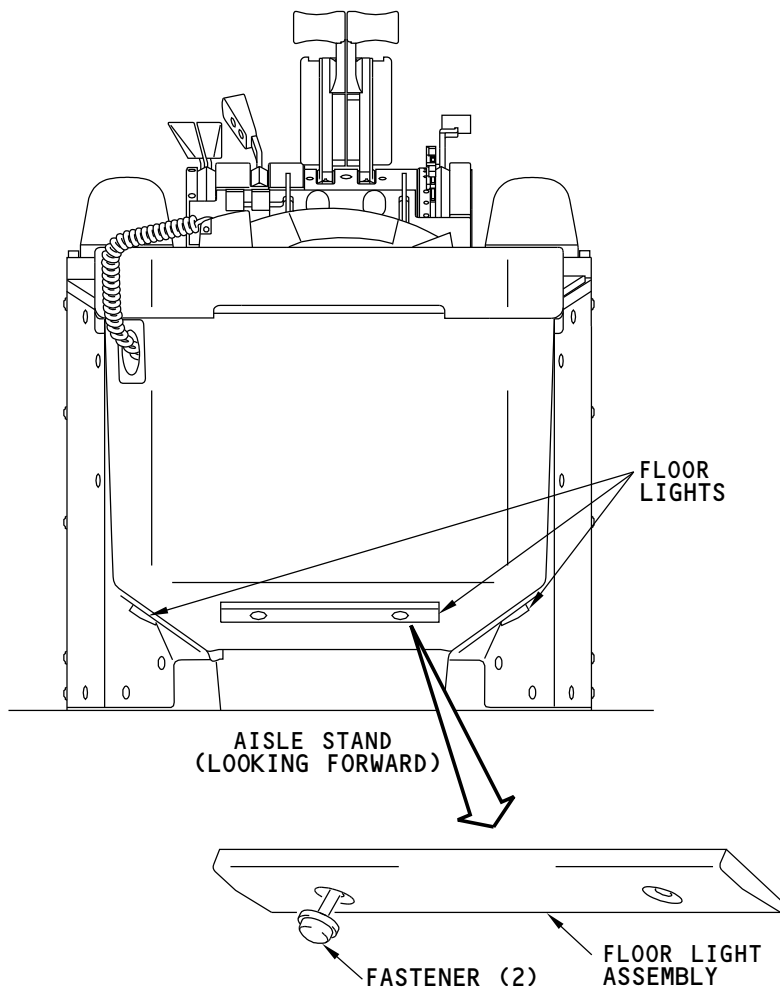
Operation

You use the FLOOR LIGHTS switch on the P8 aft aisle stand panel to operate the lights. The lights operate in the dim or bright modes.

Training Information Point

When there is not enough light that comes from a floor light, you replace the floor light assembly. Do not discard the assembly because a shop can replace the lights.

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - FLOOR LIGHTS

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**FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - WORKTABLE LIGHTS****Purpose**

The worktable lights give light to the worktable and the area around it.

Location

There are two worktable lights. There is one near the captains seat and one near the first officers seat. They are below the nose landing gear steering tiller.

Physical Description

Each light has a grille and a lamp. The lamp is a bayonet-style lamp.

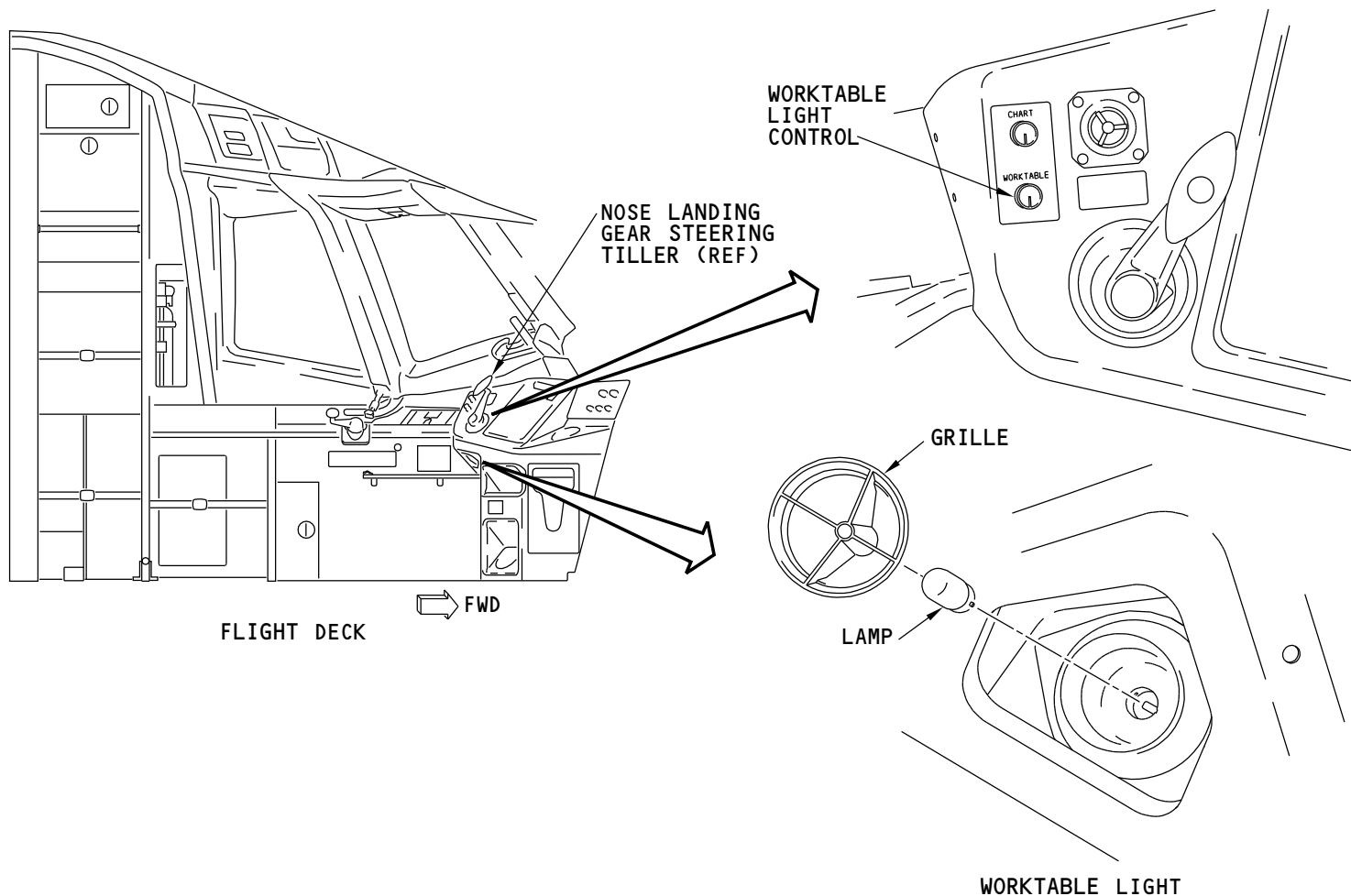
Operation

You use the WORKTABLE light control to make the worktable light come on and go off. The control is above the nose landing gear steering tiller.

Training Information Point

You turn the grille counterclockwise to remove it. This gives you access to the lamp.

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - WORKTABLE LIGHTS

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**FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - CHART LIGHTS****Purpose**

The chart light gives light to the clip board area.

Location

There are two chart lights. They are outboard from the captains and first officers seats. They are above the number two windows.

Physical Description

Each light has an upper and lower half and a lamp. The lamp is a bayonet-style lamp.

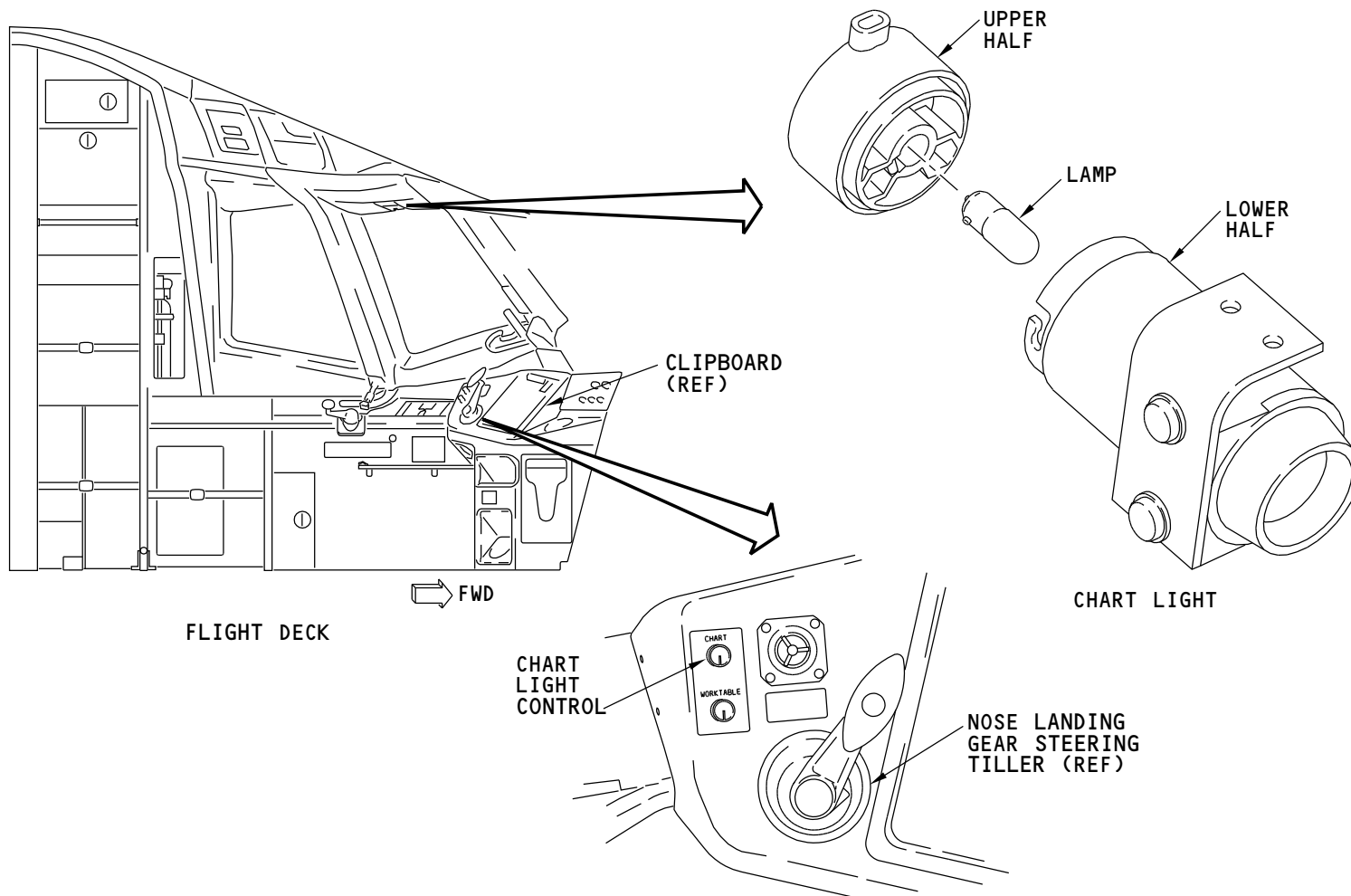
Operation

You use the CHART light control to make the chart light come on and go off. The control is above the nose landing gear steering tiller.

Training Information Point

Open the number two window to get access to the bulb. Remove the upper half of the light to get access to the bulb. It has a bayonet-style connection with the lower half.

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FLIGHT DECK

FWD

CLIPBOARD
(REF)

UPPER
HALF

LAMP

LOWER
HALF

CHART LIGHT

CHART
LIGHT
CONTROL

NOSE LANDING
GEAR STEERING
TILLER (REF)

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - CHART LIGHTS

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - FUNCTIONAL DESCRIPTION

General

The right main bus must have power for the flight compartment miscellaneous lights to operate.

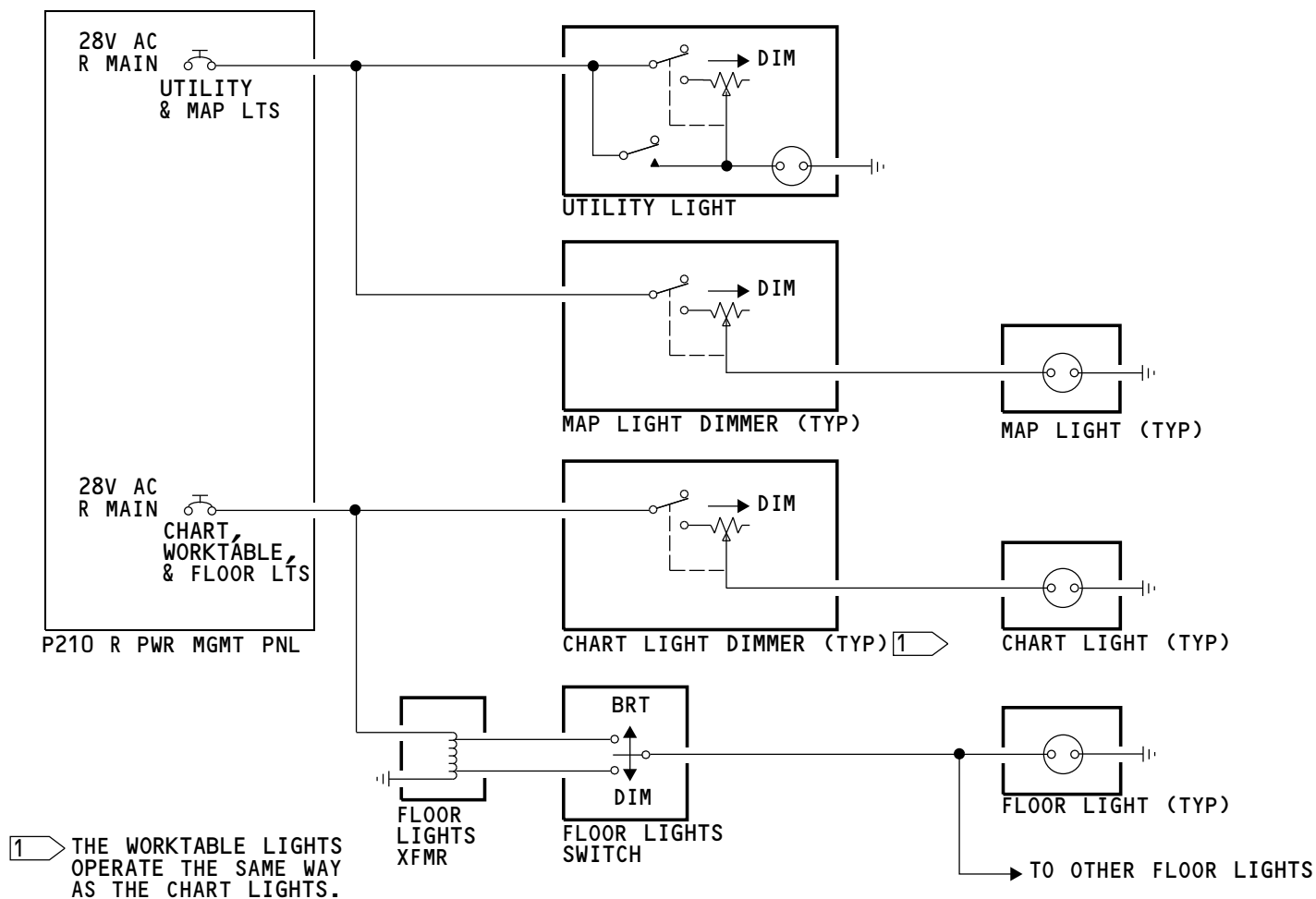
Utility, Map, Chart and Worktable Lights

When you turn the light on, a switch closes and sends power to the light. A wiper adjusts the amount of light that comes from the light. The utility light has a momentary contact that makes the light come on as long as it is closed.

Floor Lights

The floor lights operate in the dim or bright mode. The floor lights transformer decreases the voltage. The power then goes through the switch and to the lights.

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FLIGHT COMPARTMENT MISCELLANEOUS LIGHTS - FUNCTIONAL DESCRIPTION

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MASTER DIM AND TEST - INTRODUCTION

Purpose

The master dim and test (MD&T) system lets you do these tasks:

- Do a test of the flight deck indicator lights
- Do a test of some LCD windows
- Set most indicator lights to the bright or dim mode.

Interface

The MD&T system has interfaces with these systems and components:

- OPAS, supplies BIT for the MD&T system and gives a connection to the 629 ARINC buses
- Storm light switch, makes the indicator lights operate in bright mode if dim mode if selected
- AIMS, supplies ground test and fault indications for the MD&T system
- ELMS, supplies control and operating power for the MD&T system
- APU and engine fire switches, MD&T system supplies power to the switches
- Fuel cutoff switches, MD&T system supplies power to the switches
- Stab and rubber trim indicators, MD&T system supplies a test signal to the indicators
- LCD windows for the mode control panel and the transponder panel, MD&T system supplies a test signal to LCD control circuit in the related panels
- Integral panel lights, MD&T system card file holds the master bright control card and supplies power to card. See the integral panel lights section for more information about the master bright control card (SECTION 33-13).

General Description

The system has these parts:

- Indicator lights switch
- P29 master dim and test (MD&T) card file

- MD&T card (3).

The indicator lights switch has three positions; TEST, BRT, and DIM. The TEST position is momentary and the BRT and DIM positions are fixed positions. The switch lets you set the mode of operation for the system.

The card file gets power from ELMS and supplies it to the MS&T cards and to these switches:

- APU fire switch
- Left and right engine fire switches
- Left and right fuel cutoff switches.

Each master dim and test card has two control channels. The channels independently give test, bright, and dim control for a group of indicator lights and LCD windows.

Test Mode

The TEST position of the indicator light switch makes most indicator lights turn on bright. The TEST position also makes LCD windows show a test pattern but does not have an effect on the usual brightness of the LCD windows for these indicators:

- Stabilizer position indicators
- Rudder trim indicator
- Autopilot mode control panel (MCP)
- Transponder panel.

The MD&T card file supplies power for operation but does not do a test of the operation of these lights:

- Left and right engine fire switches
- APU fire switch
- Left and right fuel cutoff switches.

See the fire protection - fire/overheat test section for more information about a test that does a check of the lights for the engine and the APU fire switches and the fuel cutoff switches (SECTION 26-00).

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MASTER DIM AND TEST - INTRODUCTION

If you hold the indicator light switch in the TEST position for more than ten seconds, most indicator lights change to the dim mode of operation. These indicator lights do not dim, they stay bright:

- ON BAT light for the ADIRU
- AVAIL lights for the primary and secondary external power switches.

BRT Mode

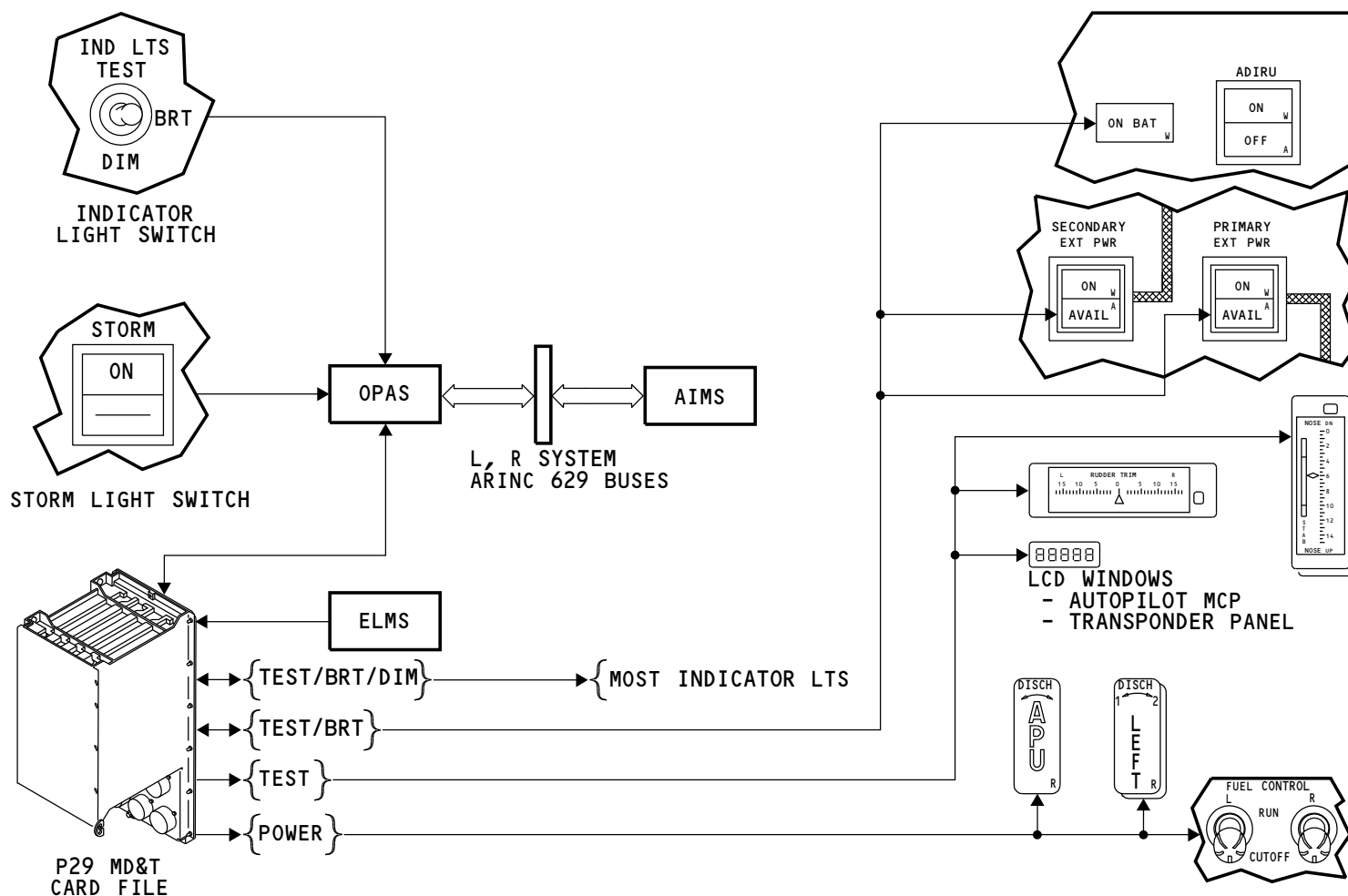
The BRT position of the indicator light switch sets the mode of operation for the indicators to bright.

The storm light switch can make the indicator lights operate in the bright mode. If the switch is set to ON and the indicator light switch is set to DIM, the lights operate in the bright mode.

DIM Mode

The DIM position of the indicator light switch sets the mode of operation for most indicators to dim. The storm light switch must be set to the out position to enable the dim mode. These indicators do not dim, they always operate bright even when you select DIM:

- ON BAT light for the ADIRU
- AVAIL light for the primary external power switch
- AVAIL light for the secondary external power switch.



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MASTER DIM AND TEST - INTRODUCTION

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MASTER DIM AND TEST - LOCATION

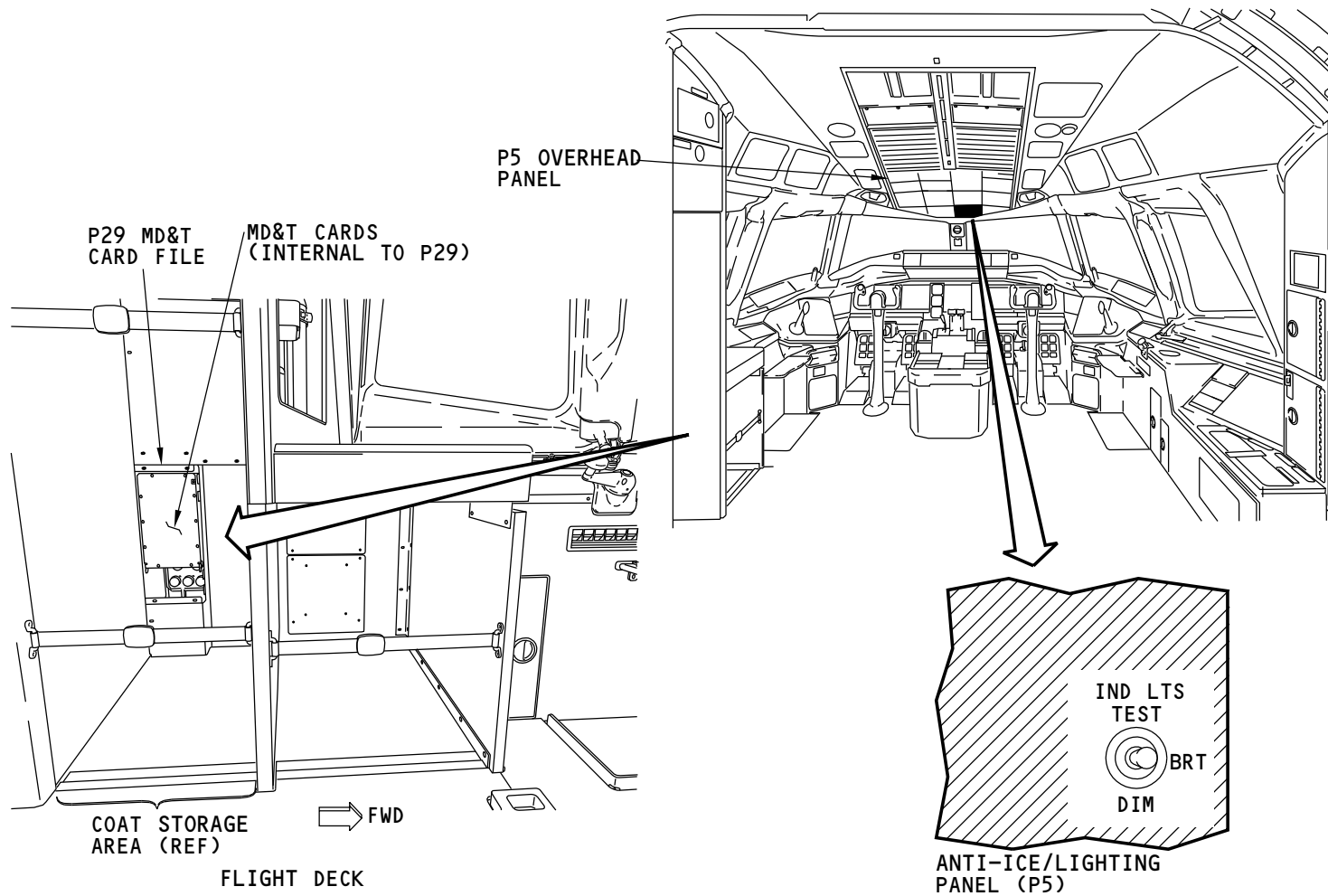
Location

The indicator lights switch is on the P5 overhead panel.

The P29 master dim and test (MD&T) card file is behind a panel (not shown) in the coat storage closet in the flight deck.

The MD&T cards (not shown) are in the P29.

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MASTER DIM AND TEST - LOCATION

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**MASTER DIM AND TEST - MASTER DIM AND TEST CARD FILE AND CARDS****Purpose**

The P29 master dim and test card file has three master dim and test cards and one master bright control card. See the integral panel lights section for more information about the master bright control card (SECTION 33-13).

The master dim and test cards control these functions:

- Brightness of most of the indicator lights in the flight deck
- Test for most indicator lights
- Test signal to LCD windows in some panels and some LCD indicators.

Location

The card file is behind a panel (not shown) in the coat storage area in the flight deck.

The cards are in the P29 card file.

Physical Description

The card file has these parts:

- Four slots for printed circuit (PC) cards
- Hinged access door
- Electrical connector (5)
- Electrostatic ground jack.

The cards are a printed circuit type that are electrostatic sensitive. Each card has two independent control channels.

Training Information Point

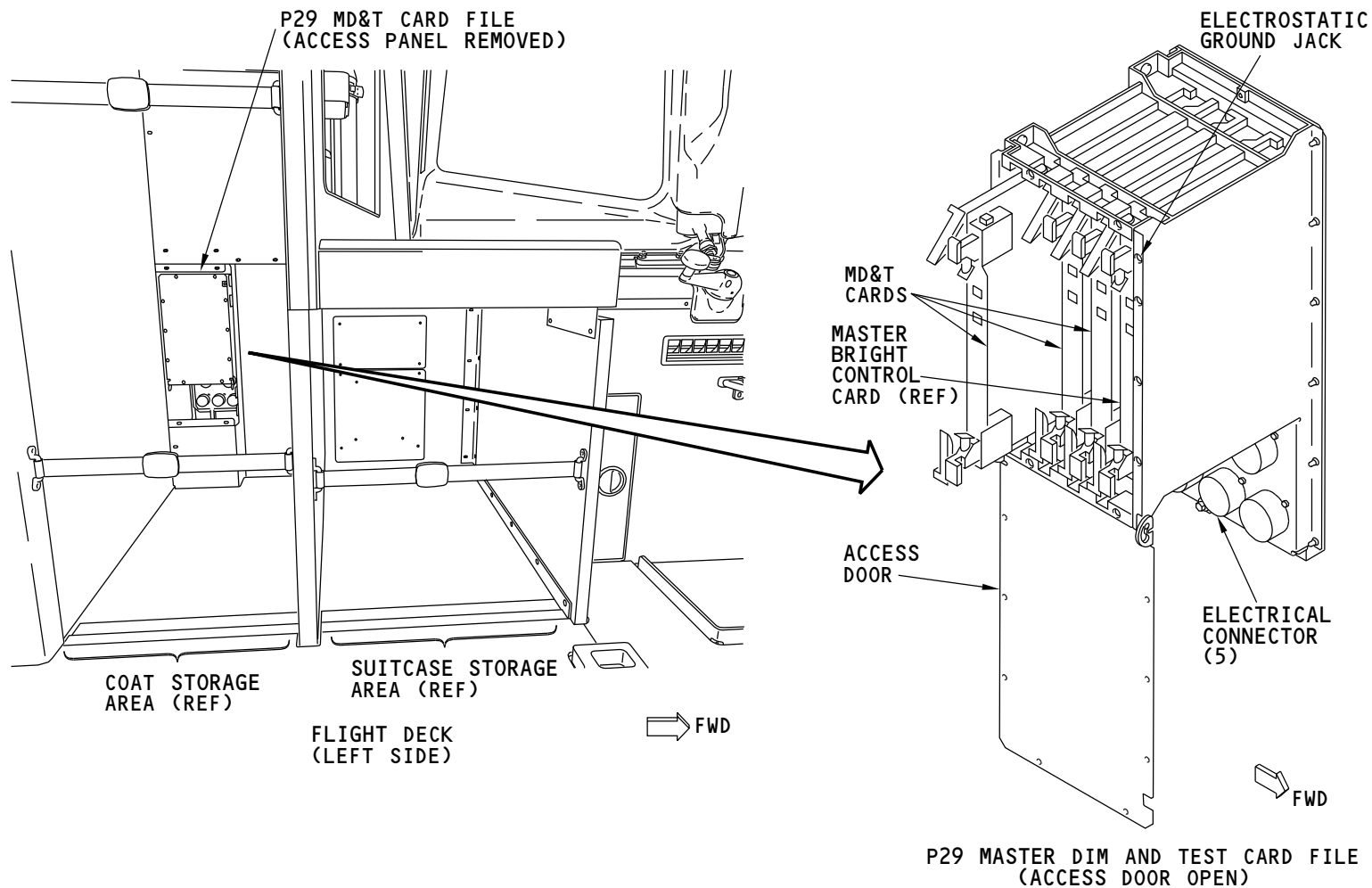
The card file and the cards are LRUs. The MD&T cards are the same.

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MASTER DIM AND TEST - MASTER DIM AND TEST CARD FILE AND CARDS

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MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION 1

Cards

Each of the MD&T cards have two independent control channels. These are the channels:

- Card 1 has channels 1 and 2
- Card 2 has channels 3 and 4
- Card 3 has channels 5 and 6.

All control channels supply brightness control and test for different groups of indicator lights.

Channel 1 also gives a test command to the rudder trim indicator and to the B processor (not shown) in the mode control panel (MCP) for the LCD windows in that panel.

Channel 3 also gives a test command to the captain stabilizer position indicator.

Channel 4 gives a bright mode command or a test command to the ON and AVAIL lights in the primary and secondary external power switches. This channel also gives a test command to the transponder panel for the LCD window in that panel.

Channel 5 also gives a test command to the first officer stabilizer position indicator and to the A processor (not shown) in the mode control panel (MCP) for the LCD windows in that panel.

Power

The MD&T card file gets power from these buses and supplies it to the related cards:

- 28v dc left main bus, power for card 1
- 28v dc battery section 2 bus, power for card 2 and for the engine fire switches and the engine fuel cutoff switches
- 28v dc right main bus, power for card 3.

The MD&T card file supplies power to the engine fire switches and to the engine fuel cutoff switches.

BITE

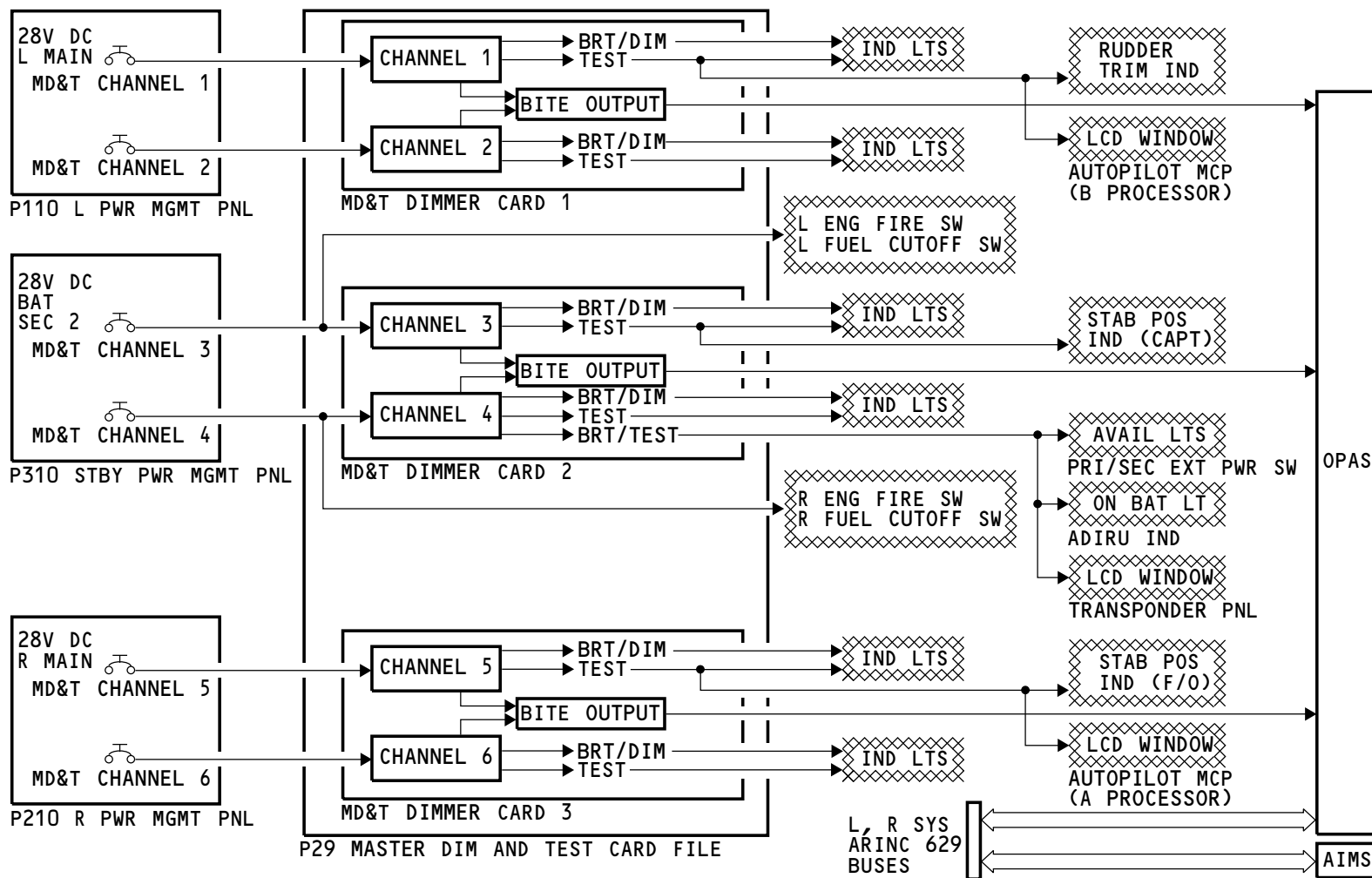
Each card has an MD&T BITE monitor. When there is a channel failure, a signal goes to the overhead panel ARINC 629 system (OPAS). OPAS supplies the signal to AIMS. AIMS gives a maintenance message on the MAT.

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MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION 1

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MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION 2**General**

The master dim and test (MD&T) system does these tasks:

- Gives high power to flight deck indicator lights when it is in the bright mode.
- Gives low power to flight deck indicator lights when it is in the dim mode.
- Supplies a ground during test to make flight deck indicator lights come on in the bright mode and then go to the dim mode.
- Gives a test signal to some LCD windows.
- Monitors channel operation and reports failures to AIMS.

Bright

When the indicator light switch is in the BRT position, the power that goes to the indicator lights is 28v dc or 5v dc. The type of power for the bright mode is dependent on the indicator type.

Dim

When the indicator light switch is in the DIM position, it sends a signal to the MD&T channel in the MD&T PC dimmer card. A switch closes and supplies a ground for the dim relay. The MD&T power supplies send less power to the indicator lights.

Test

When the indicator light switch is held in the TEST position, the MD&T channel supplies a ground for the indicator lights. Most of the lights come on fully bright. After ten seconds, a switch closes and supplies a ground to the dim relay. This makes most of the lights go to the dim mode.

The test position also starts a self test on some LCDs that cause them to show some temporary test patterns.

Storm

When the storm light switch is in the ON position, the indicator lights come on full bright. The signal from the storm light switch prevents the dim relay from closing unless a test is selected.

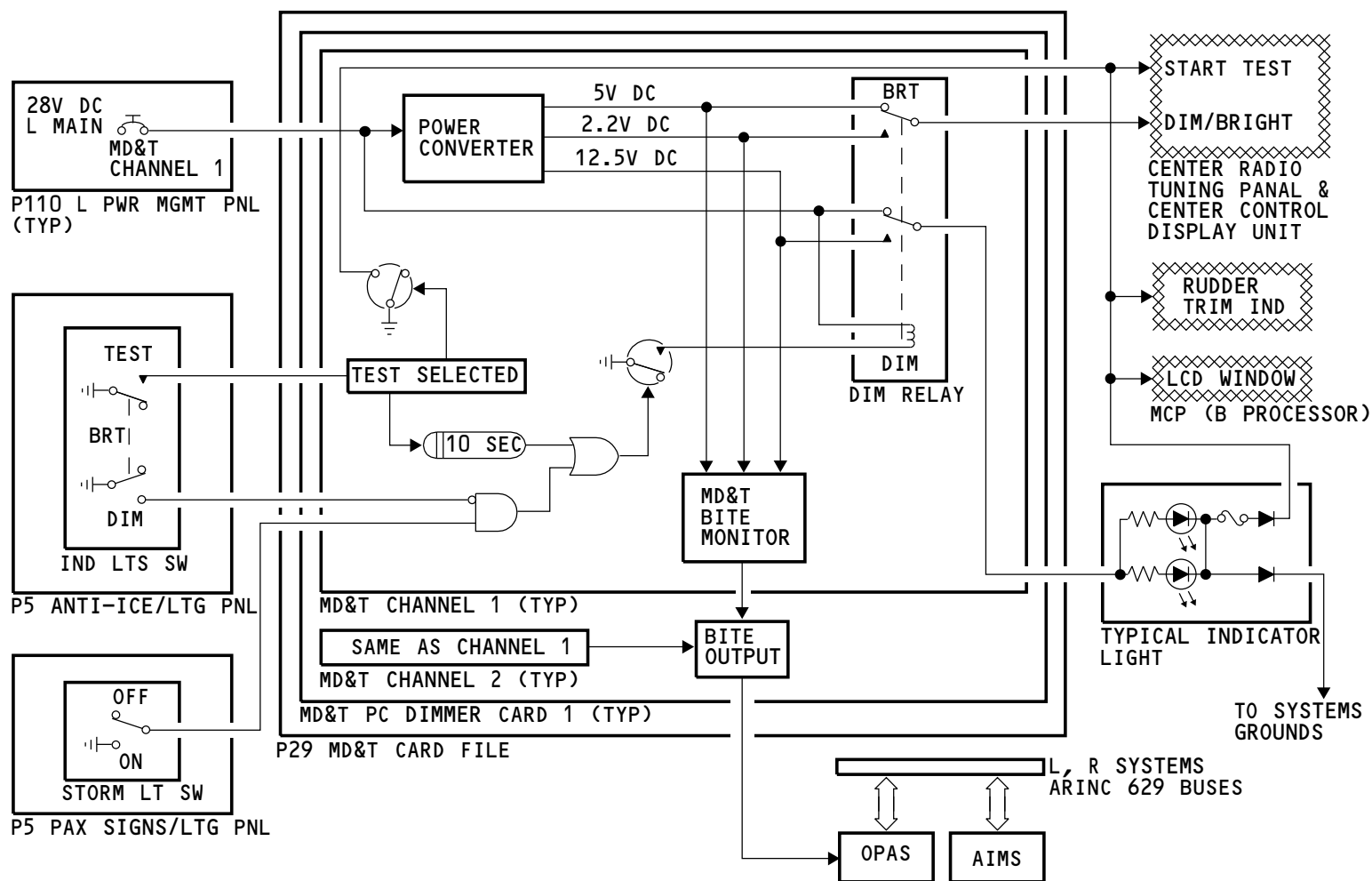
See the flight compartment illumination section for more information about the storm light switch (SECTION 33-11).

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MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION 2

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**MASTER DIM AND TEST - OPERATION****Operation**

You use the indicator lights switch (IND LTS) to set the mode of operation for the master dim and test (MD&T) system.

The table shows the system response for the three modes of operation.

Training Information Point

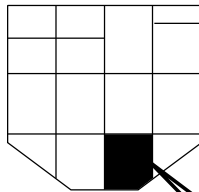
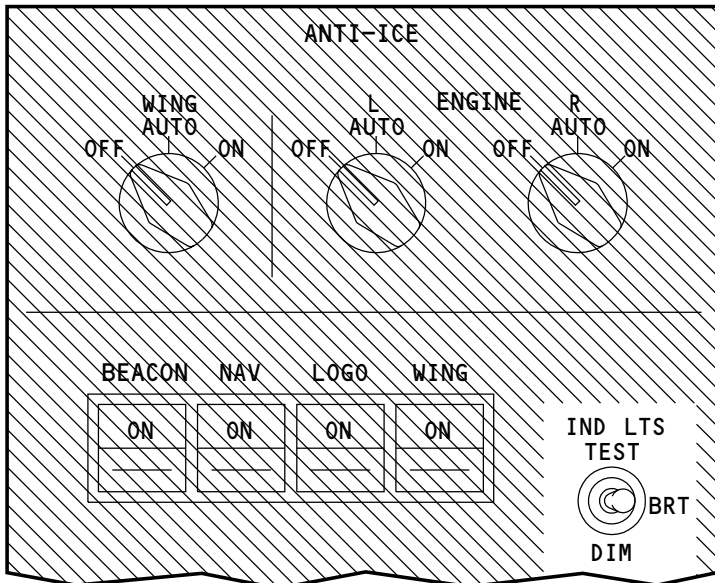
The storm light switch on the P5 passenger sign/lighting panel (not shown) has an effect on the mode of operation for the MD&T system. When the switch is set to ON, it makes the MD&T system operate in the bright mode. The storm light switch does not have an effect on the TEST mode.

See the flight compartment illumination section for more information about the storm light switch (SECTION 33-11).

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P5 OVERHEAD
PANEL


ANTI-ICE/LIGHTING PANEL (P5)

IND LTS POS	SYSTEM RESPONSE
TEST, HOLD < 10 SEC 1	MOST IND LTS COME ON BRIGHT A TEST PATTERN SHOWS ON THESE UNITS: - STAB POSITION INDICATORS - RUDDER TRIM INDICATOR - LCD WINDOWS IN AUTOPILOT MODE CONTROL PANEL - LCD WINDOW IN TRANSPONDER PANEL
TEST, HOLD > 10 SEC 2	MOST IND LTS COME ON DIM
BRT	IND LTS OPERATE BRIGHT
DIM	IND LTS OPERATE DIM 3
1	THESE INDICATOR LIGHTS DO NOT DO A TEST: - ENG AND APU FIRE - FUEL CUTOFF
2	THESE INDICATOR LIGHTS DO NOT DIM, THEY STAY BRIGHT: - ON BAT LIGHT FOR THE ADIRU - ON LIGHT FOR THE PRI AND SEC EXT PWR SWITCHES - AVAIL LIGHT FOR THE PRI AND SEC EXT PWR SWITCHES
3	THE STORM LIGHT SWITCH MAKES THE INDICATOR LIGHTS OPERATE BRIGHT

MASTER DIM AND TEST - OPERATION

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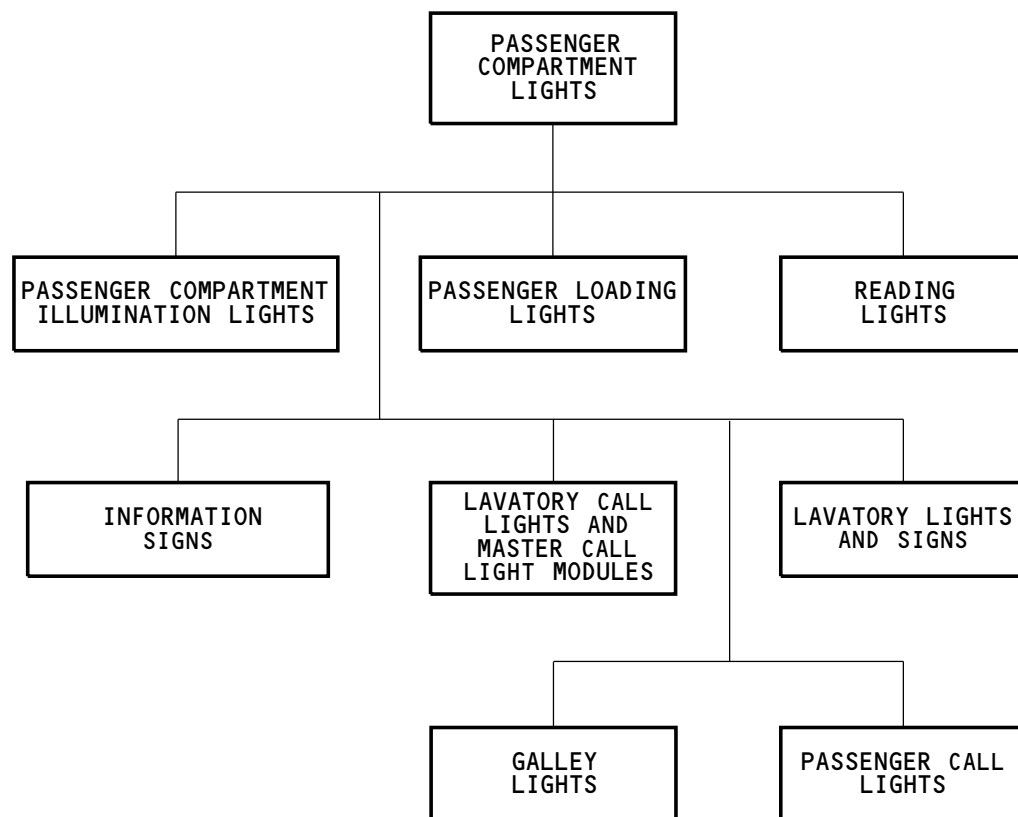
PASSENGER COMPARTMENT LIGHTS - INTRODUCTION

General

The passenger compartment lights has these subsystems:

- Passenger compartment illumination lights
- Passenger loading lights
- Reading lights
- Information signs
- Lavatory call lights and master call light modules
- Lavatory lights and signs
- Galley lights
- Passenger call lights.

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PASSENGER COMPARTMENT LIGHTS - INTRODUCTION

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PASSENGER COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - 1

Lights Test

You use the cabin system control panel (CSCP) to do a test of the passenger compartment lights.

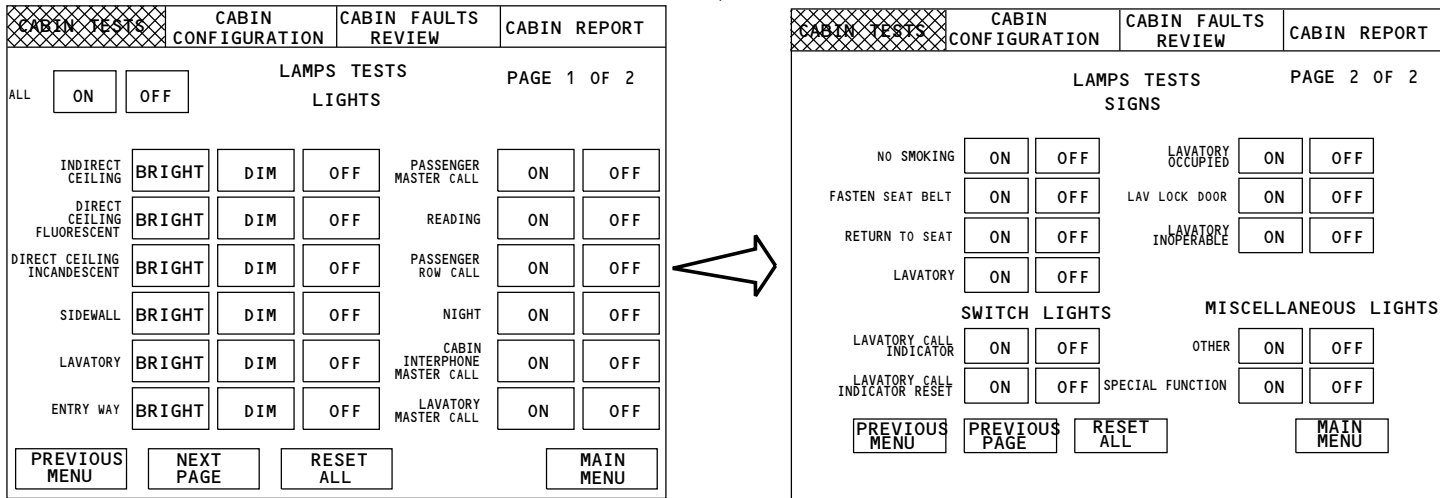
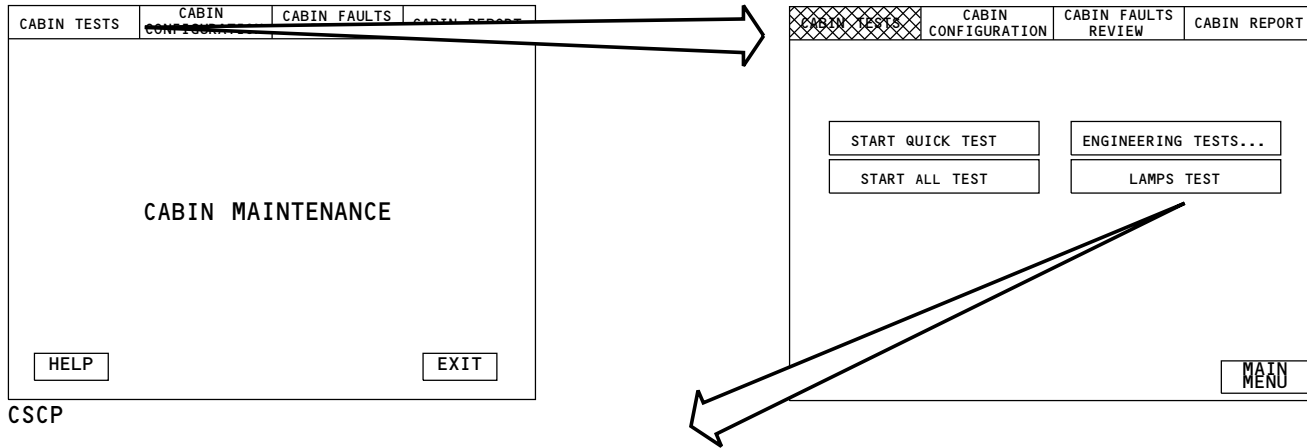
The cabin services system (CSS) ALL TEST does a test of the lights and other systems.

See the cabin services system section for more information about the ALL TEST (SECTION 23-39).

The lamps test lets you do a test of the lights only.

To make all the lights come on, touch (ALL) ON. To make all the lights go off, touch (ALL) OFF. To make a system come on and go off, touch the controls near the system name.

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PASSENGER COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - 1

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PASSENGER COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - 2

Lamps Test

When you go out of either LAMPS TEST screen and you do not touch PREVIOUS PAGE or NEXT PAGE, a dialogue window shows. IF you touch CANCEL SELECTION, you return to the LAMPS TEST. If you touch CONTINUE SELECTION, the dialogue window goes away and the lamps reset to the condition they were in before the test.

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CABIN TESTS	CABIN CONFIGURATION	CABIN FAULTS REVIEW	CABIN REPORT
--------------------	--------------------------------	--------------------------------	---------------------

NOTE:

**COMMANDED LAMP STATES
WILL NOT BE SAVED**

CONTINUE
SELECTION

CANCEL
SELECTION

LAMPS STATES RESET DIALOGUE WINDOW

PASSENGER COMPARTMENT LIGHTS - TRAINING INFORMATION POINTS - 2

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PASSENGER COMPARTMENT ILLUMINATION - INTRODUCTION

General

Passenger compartment illumination has these types of lights:

- Indirect ceiling lights
- Night lights
- Sidewall lights.

Location

The indirect ceiling lights and night lights are above the outboard stowage bins.

The sidewall lights are between the outboard PSUs and the sidewall panels.

The LED patterns are contained only in the inboard and outboard main cabin ceiling oannels.

Controls for passenger compartment illumination are on the cabin lighting screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

Night light will come when there is a loss of GRD SERV Bus. The CSCP is used to test this night light.

Lighting selections can be applied to one, several, or all areas in the cabin.

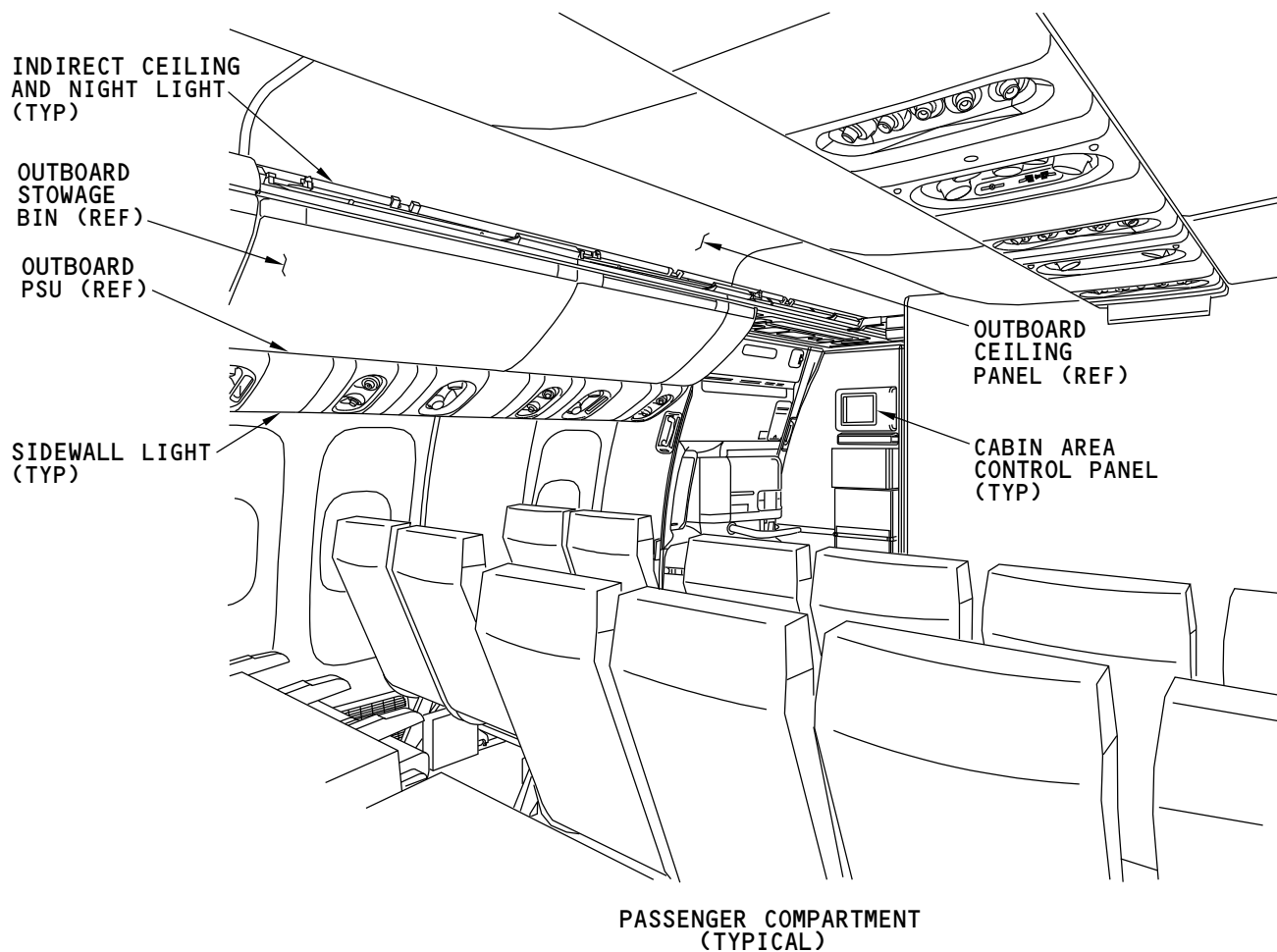
See the passenger loading lights section for more information (SECTION 33-22).

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PASSENGER COMPARTMENT ILLUMINATION - INTRODUCTION

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**PASSENGER COMPARTMENT ILLUMINATION - INDIRECT CEILING AND NIGHT LIGHTS****Purpose**

The indirect ceiling and night lights put light on the ceiling to illuminate the passenger compartment.

Physical Description

An indirect ceiling light fixture has a Color Lighting Module and a power supply. Night lights attach to some of the indirect ceiling lights. The lamp is an incandescent, bayonet-style lamp.

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An indirect ceiling light fixture has a Color Lighting Module, a fluorescent lamp, and a ballast. There is a release button at one end of the fixture to remove the lamps.

ARO ALL

Night lights attach to some of the indirect ceiling lights. The lamp is an incandescent, bayonet-style lamp.

Location

The indirect ceiling lights are on the inboard, top edge of the outboard stowage bins.

There are usually 16 night lights. The night lights are with the indirect ceiling lights near the passenger entry doors (PEDs).

Training Information Points

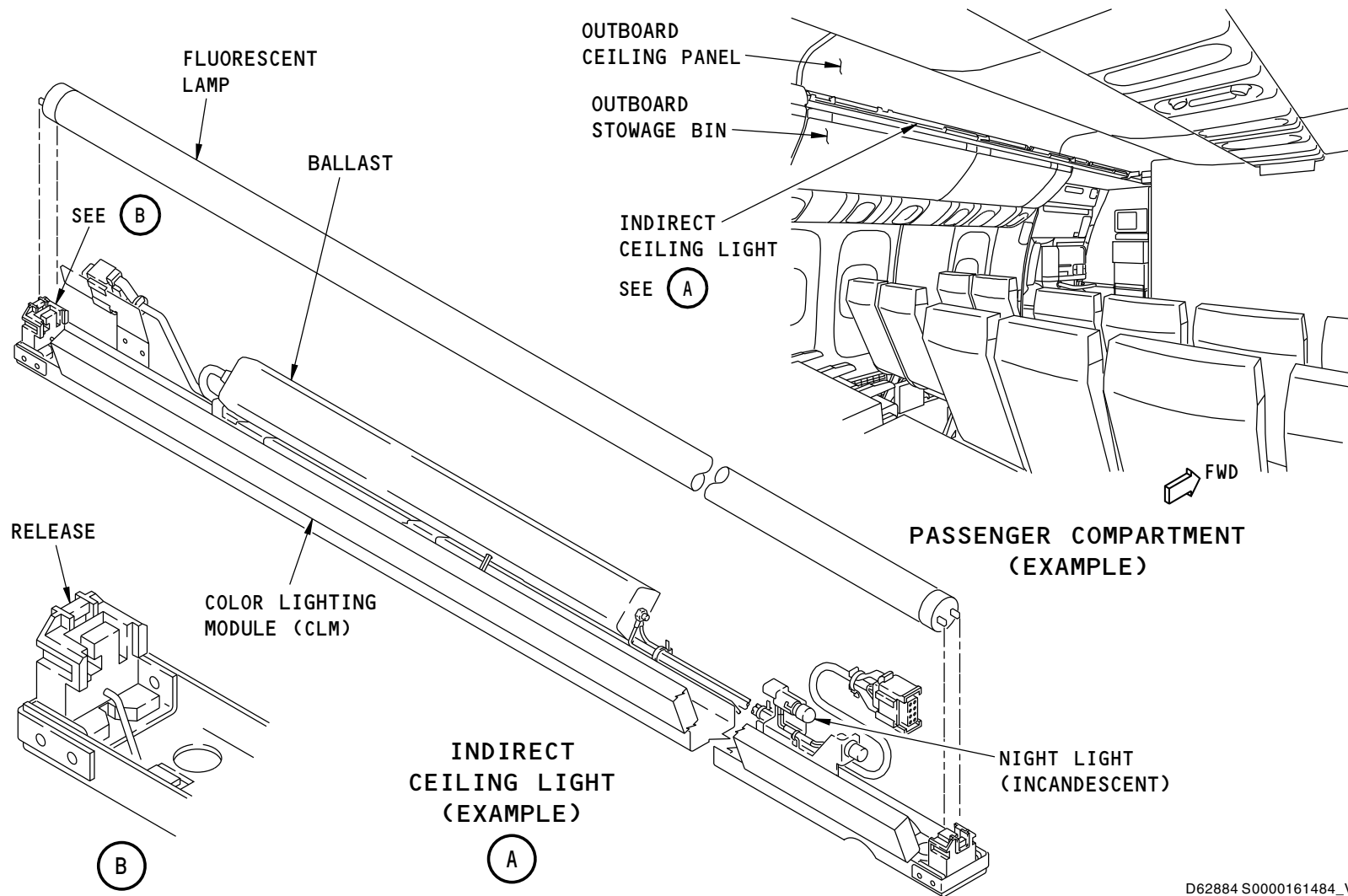
The Color Lighting Module is not a replaceable item. If it fails, replace the fixture with a new one.

NOTE: There are several segments of color lights in each light fixture. Each segment has a separate string of LEDs for each of the 4 colors.

The lens cannot be removed in the airplane. If it fails, replace the fixture with a new one.

NOTE: The power supply for the indirect ceiling light or sidewall light is part of the light assembly. If the power supply does not operate, replace the light assembly. The light assembly can be repaired in a shop.

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PASSENGER COMPARTMENT ILLUMINATION - INDIRECT CEILING AND NIGHT LIGHTS

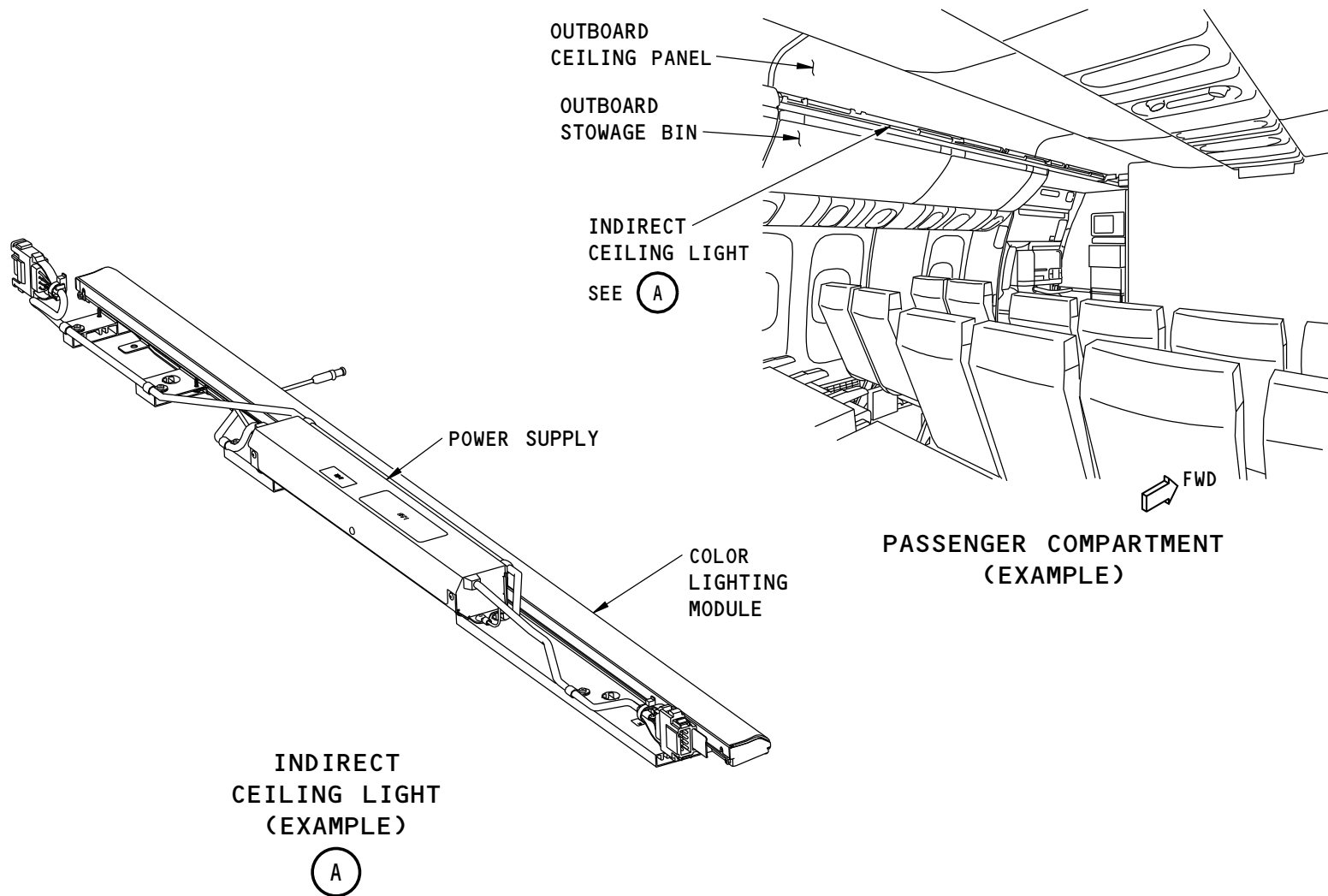
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PASSENGER COMPARTMENT ILLUMINATION - INDIRECT CEILING AND NIGHT LIGHTS

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**PASSENGER COMPARTMENT ILLUMINATION - SIDEWALL LIGHTS****Purpose**

The sidewall lights give LED lighting below the stowage bins in the passenger compartment.

Location

The lights are under the outboard stowage bins, between the outboard PSUs and the sidewall panels.

Physical Description

Each sidewall light has these components:

- Power Supply
- Color Lighting Module
- Lens.

The length of the light is in proportion to the length of the stowage bin it is under.

Training Information Point

The lens cannot be removed in the airplane. If it fails, replace the fixture with a new one.

NOTE: The power supply for the indirect ceiling light or sidewall light is part of the light assembly. If the power supply does not operate, replace the light assembly. The light assembly can be repaired in a shop.

The Color Lighting Module is not a replaceable item. If it fails, replace the fixture with a new one.

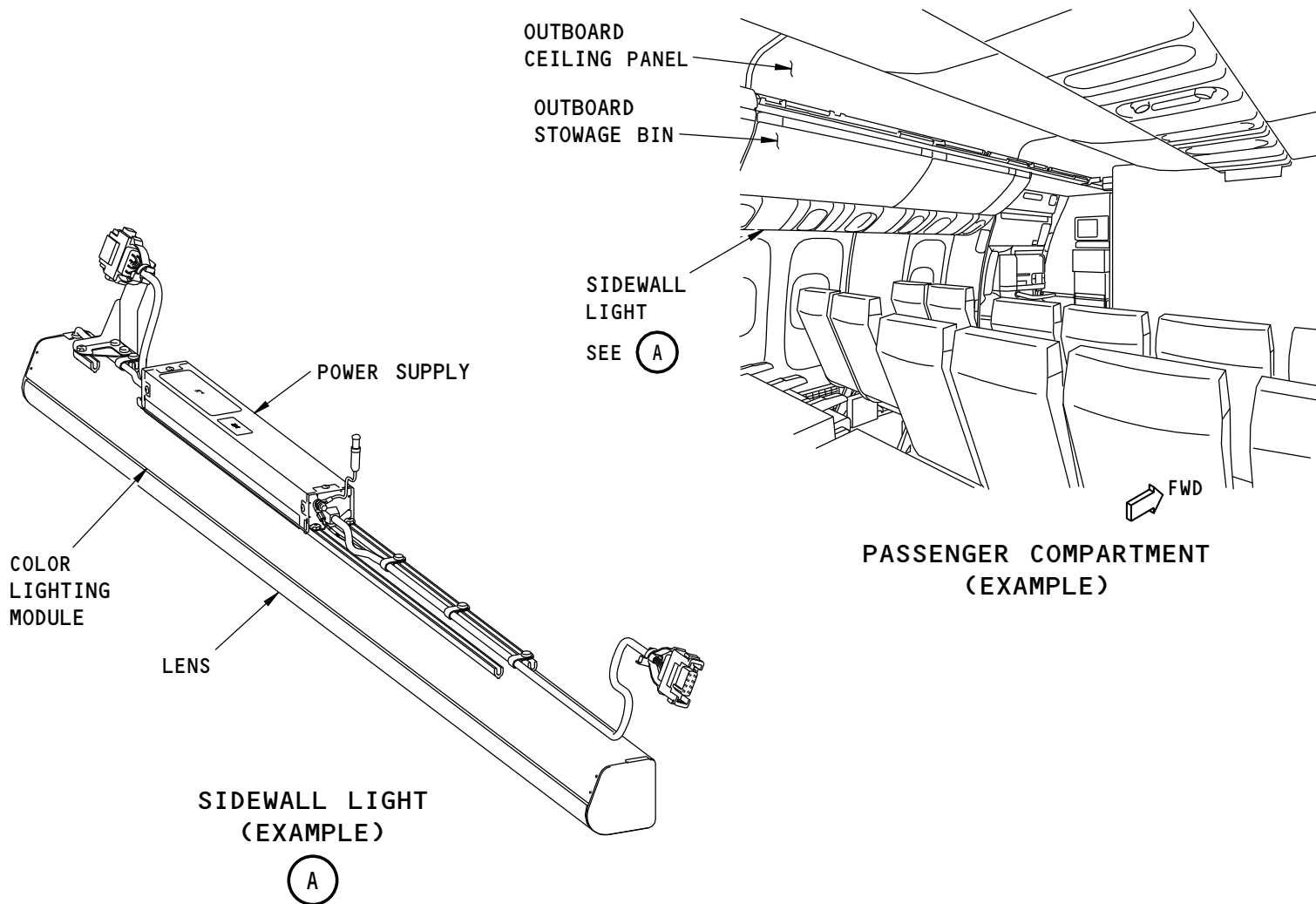
NOTE: There are several segments of color lights in each light fixture. Each segment has a separate string of LEDs for each of the 4 colors.

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PASSENGER COMPARTMENT ILLUMINATION - SIDEWALL LIGHTS

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PASSENGER COMPARTMENT ILLUMINATION - OPERATION

Operation

Controls for passenger compartment illumination are on the cabin lighting screen. This screen is on the Cabin System Control Panel (CSCP) and the Cabin Area Control Panel (CACP).

The area select indicator in the screen lets you select the area of the cabin that the light mode selection will control. The configuration data base that is loaded in the cabin services system (CSS) supplies this lighting information:

- Name for each area
- The number of area segments.
- Lighting Controls

Lighting operation is set in terms of “scenes.” Scenes can consist of constant levels or lighting effects that are one state or that vary over time.

The number and content of scenes is contained in the Lighting Data Base (LDB), and might consist of the following sequences of lighting attributes:

NOTE: The following are possible examples of what could be defined as the series of attributes making up a scene.

- Night: Night Lights come on while ceiling and sidewall lights go off and vary in color
- Morning: Cabin lighting level is gradually raised from “off” or dark color to some level of warm color brightness
- Dinner Hour: Cabin Lighting may vary by area and change levels and color over time
- Sunset: Cabin light and color dims to create night sleeping atmosphere
- Movies: Cabin lights dim by specific area as movies are scheduled.

ARO 016-999; ARO 001-015 POST SB 777-23-0367

- Night: Night Lights come on while ceiling and sidewall lights go off and vary in color
- Morning: Cabin lighting level is gradually raised from “off” or dark color to some level of warm color brightness

- Dinner Hour: Cabin Lighting may vary by area and change levels and color over time
- Sunset: Cabin light and color dims to create night sleeping atmosphere
- Movies: Cabin lights dim by specific area as movies are scheduled.
- Reset (Cabin Lighting System Reset or Lighting System Reset -Affects All Cabin): Resets ALCs and Light Fixtures. When this scene is activated, it takes 45 seconds to complete and it cannot be canceled.

ARO ALL

To select a scene, scroll through the list using the up/down arrows, or touch the desired scene description listed. The scene is then listed in the Current Scene box.

To activate the selected scene, touch the Start Scene button.

To pause or hold the progress of the scene currently active, press the Hold Scene button.

To continue with the scene currently on hold, touch the Resume Scene button.

The Time Remaining window indicates the amount of time remaining for the scene presently active. Some scenes may be cyclical. In that case, the Time Remaining window indicates the total amount of time for all the cycles.

To start another scene, select it from the list and touch the Start Scene button. This cancels the previous scene selection.

Training Information Point

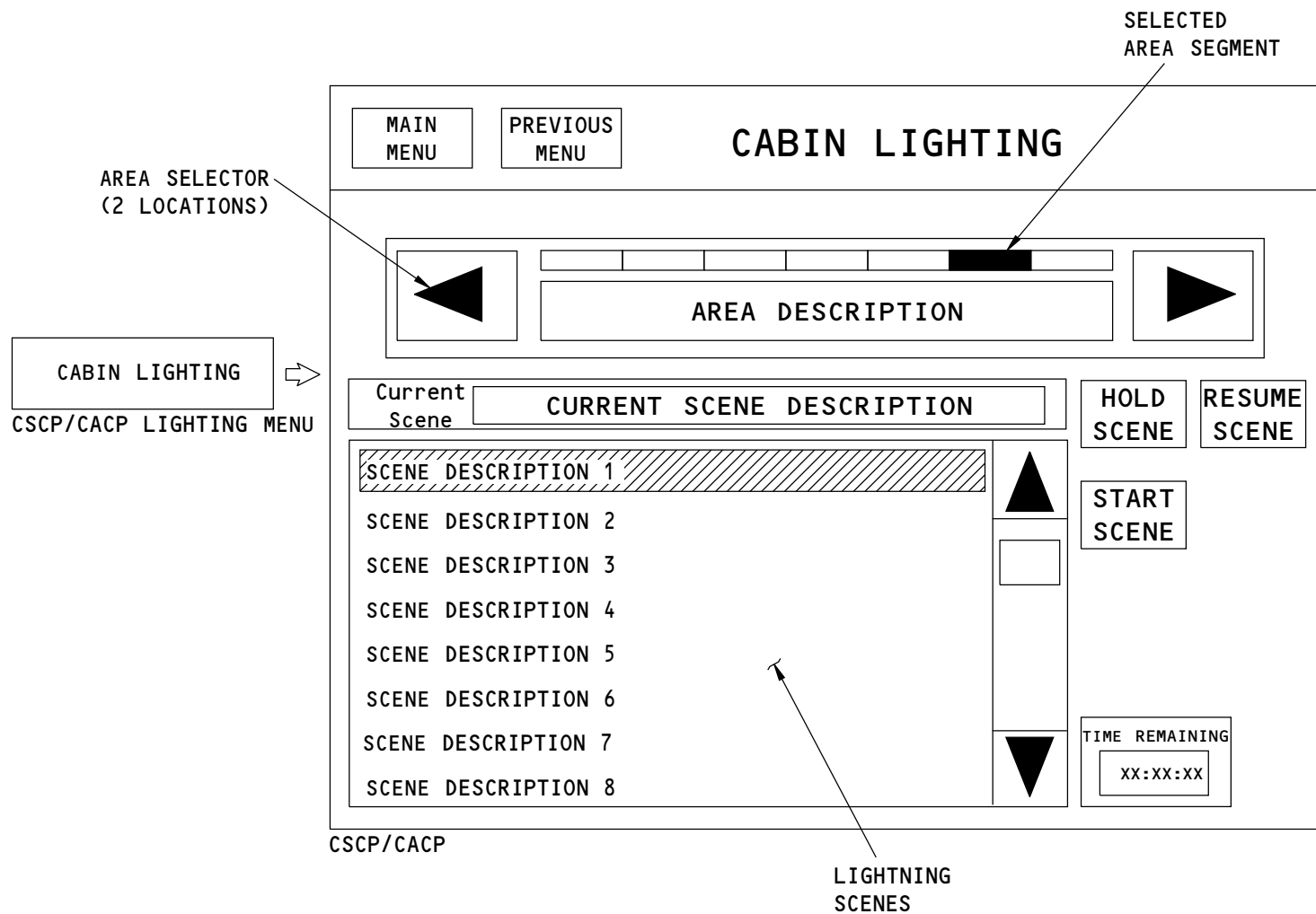
You can test cabin lighting elements from the Lamps Test screen on the CSCP.

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PASSENGER COMPARTMENT ILLUMINATION - OPERATION

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PASSENGER COMPARTMENT ILLUMINATION - FUNCTIONAL DESCRIPTION

Functional Description

The Configuration Data Base (CDB) is loaded into the Cabin Services System (CSS). It contains information that defines the number of areas and the lights that come on for each area.

The CDB also defines for each panel (CSCPs and CACPs) the number of areas available for the cabin lighting screen (maximum of 30) and the number of scenes assigned to each area (maximum of 30).

A Lighting Data Base (LDB), is also loaded . It defines sets of functional attributes, collected into scenes.

- There may be as many as 60 scenes defined
- As many as 300 possible events or "states" are available for use in defining scenes

Scenes are selected, initiated, put on hold, and resumed at the CACP/CSCP.

Lighting selections made on the Cabin Area Control Panel (CACP) or Cabin System Control Panel (CSCP) go directly to the Zone Management Unit (ZMU).

The CACP/CSCP passes lighting selection information to the Area Lighting Controllers (ALCs), using the ZMUs as a pass through. Both the CDB and the LDB are installed in the ALCs. The ALCs pass information to the light fixtures (indirect ceiling and sidewall lights) per the selected scene. Night Light commands are passed to the OEU's.

See the cabin services system section for more information (SECTION 23-39).

See the passenger service system section for more information about the OEU (SECTION 23-33).

Power for the indirect ceiling and sidewall lights is from the ground service bus. If no scene has been selected when the ALCs first power up (on the ground), these lights come on at full bright. They will stay in that state until a scene is selected in the cabin lighting screen at the CSCP/CSAP.

NOTE: If an ALC re-boots while airborne, and receives no command state from the CSS, the lights will go to 25% bright.

An attendant switch panel is installed at each attendant station. The attendant switch panel (ASP) may be used to:

- Initiate passenger evacuation
- Silence the evacuation horn
- Turn on emergency exit lights
- Test emergency lights
- Turn work lights on or off
- Control the airplane water system
- Select the alternate mode for Passenger Address announcements if the normal mode fails
- Select the alternate mode for Cabin Interphone operations if the normal mode fails

Occasionally the cabin lighting system may not respond to commands (lockup) from the CSCP or CACP and must be reset to operate properly. The use of the area lighting controller (ALC) switch and the cabin system control panel/cabin area control panel (CSCP/CACP) switch will reset the cabin lighting system.

The ALC and CSCP/CACP switches are located on the Door 1R attendant switch panel.

- By pushing the ALC switch and the CSCP/CACP switch one at a time, the cabin lighting will remain at the current lighting setting for that area.
- Pushing the ALC switch and the CSCP/CACP switches at the same time will cause the lighting system to reset all cabin lighting to the default setting.

33-21-00

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PASSENGER COMPARTMENT ILLUMINATION - FUNCTIONAL DESCRIPTION

The ALC POWER CONTROL switch is for in-flight use in the unlikely event that a lighting system lockup occurs that prevents activation of the cabin lighting scene selected at the CSCP/CACP.

- Push - OFF light illuminated (amber)
power is removed from the lighting control system
- Push - OFF light extinguished
power is restored to the lighting control system

NOTE: During ALC reset, the lighting system maintains the current commanded light scene (no dark cabin). After completion of the ALC reset, the lighting system returns to the current commanded light scene for that cabin area.

The CSCP/CACP POWER CONTROL switch is for in-flight use in the unlikely event that a lighting system lockup occurs that prevents activation of the cabin lighting scene selected at the CSCP/CACP.

- Push - OFF light illuminated (amber)
power is removed from the cabin management system control panels (CSCP/CACP)
- Push - OFF light extinguished
power is applied to the cabin management system control panels (CSCP/CACP)

NOTE: Pushing both the ALC and CSCP/CACP switches at the same time will cause the lighting system to reset all cabin lighting to the area default light setting.

ARO 016-999; ARO 001-015 POST SB 777-23-0367

NOTE: A special lighting scene is also provided that can be used to initiate a reset of the general cabin lighting. The scene name should be similar to one of the following and is typically located at the end of the scene list:

- Cabin Lighting System Reset

- Lighting System Reset -Affects All Cabin

The scene takes about 45 seconds to run and affects all bus-controlled light fixtures (for example, sidewall wash lights and indirect ceiling lights). Starting the scene causes a reset request to be sent to the lighting system, which results in resetting the bus-controlled light fixtures and the Area Lighting Controllers (ALCs).

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The ELMS (not shown) uses the ARINC 629 buses to make the indirect ceiling and sidewall lights come on bright when the passenger oxygen masks are deployed. They stay on bright until the oxygen system is reset.

The direct ceiling lights operate the same when passenger oxygen is deployed.

These lights operate the same when passenger oxygen is deployed:

- Direct ceiling
- Entry.

See the passenger loading lights section for more information about the direct ceiling passenger loading lights (SECTION 33-22).

See the passenger oxygen system section for more information (SECTION 35-21).

The transfer buses must have power for the night lights to operate. The night lights come on automatically if the ground service bus loses power and the transfer bus has power.

The standby lights also come on automatically if the ground service bus loses power and the transfer bus has power.

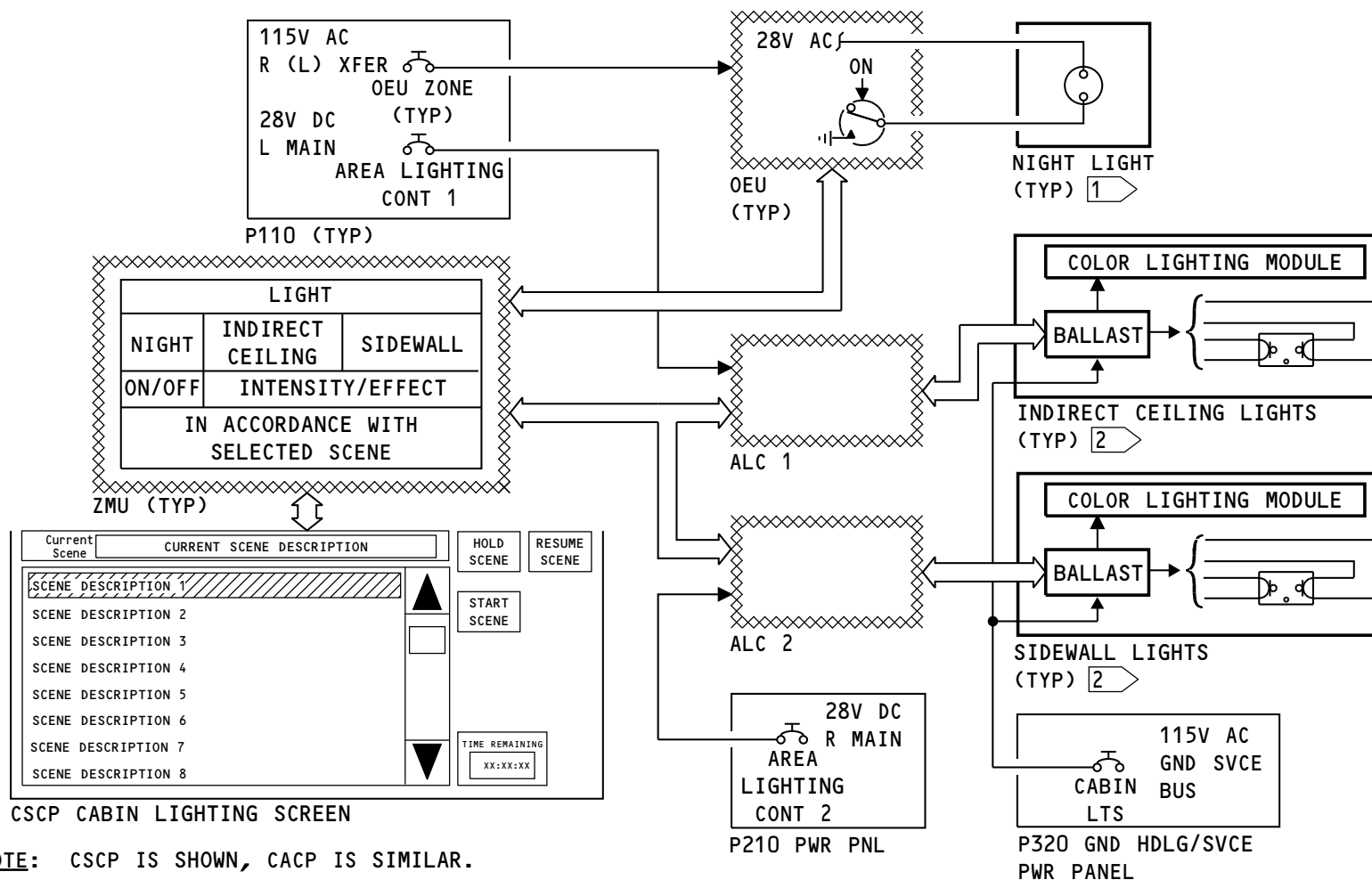
See the passenger loading lights section for more information about the standby lights (SECTION 33-22).

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NOTE: CSCP IS SHOWN, CACP IS SIMILAR.

1 COME ON IF GROUND SERVICE BUS LOSES POWER AND TRANSFER BUS HAS POWER.

2 COME ON 25% BRIGHT WHEN 28V DC MAINS SERVICE BUS GETS POWER.

PASSENGER COMPARTMENT ILLUMINATION - FUNCTIONAL DESCRIPTION

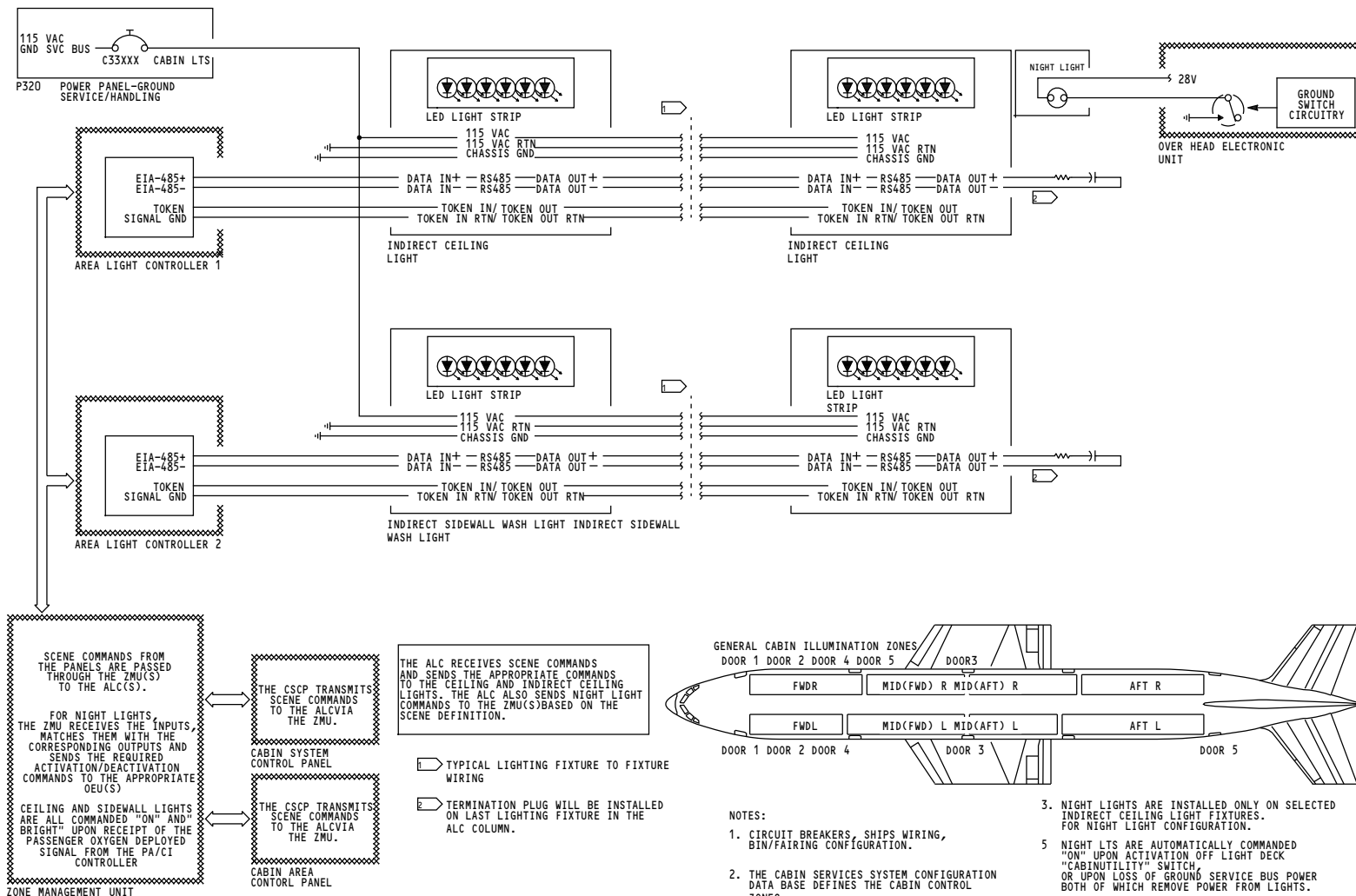
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2315103 S0000526565_V2

PASSENGER COMPARTMENT ILLUMINATION - FUNCTIONAL DESCRIPTION

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PASSENGER LOADING LIGHTS - INTRODUCTION

General

These are the passenger loading lights subsystems:

- Direct ceiling lights
- Standby lights
- Entry lights
- Attendant work lights
- Closet lights
- Attendant switch panel.

The passenger loading lights supply light in the:

- Passenger entry areas
- Attendant work areas
- Cross-aisles
- Closets.

There are two types of direct ceiling lights:

- Fluorescent
- Incandescent.

Location

The possible locations for fluorescent direct ceiling lights are in these lowered ceilings:

- Door 1 cross-aisles
- Door 5 cross-aisles
- Aisle to the flight deck.

The possible location for incandescent direct ceiling lights is in the door 3 cross-aisle lowered ceilings.

Controls for fluorescent and incandescent direct ceiling lights are on the cabin lighting screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

The entry lights are in the overdoor panels above the passenger entry doors. Controls for entry lights are on the entry way lighting screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panels (CACPs).

The attendant work lights are in the overdoor panels and lowered ceilings in areas where there are attendant seats. Control is on the attendant switch panel. These panels are also in areas where there are attendant seats.

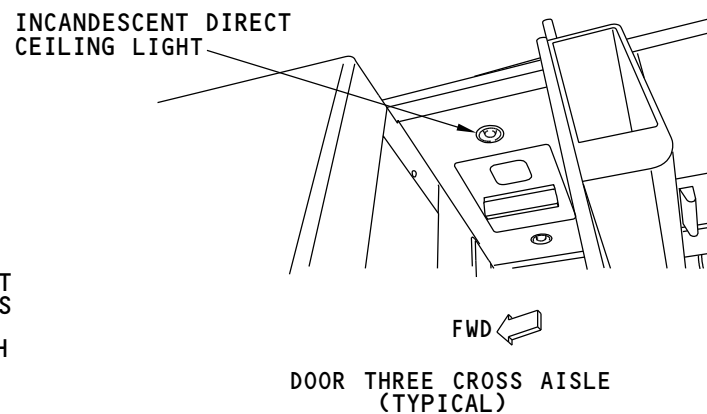
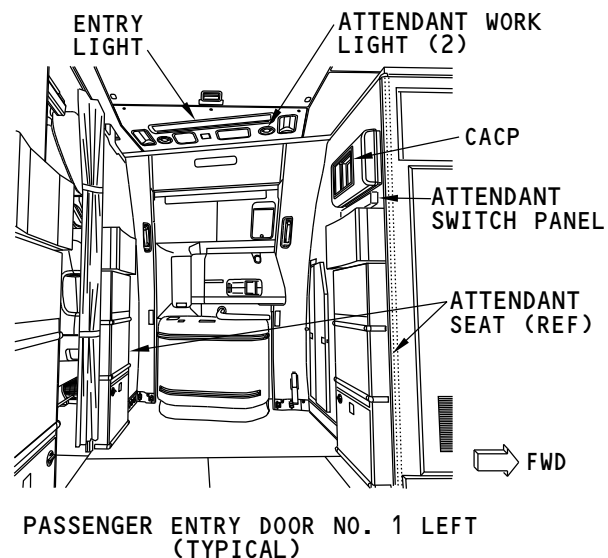
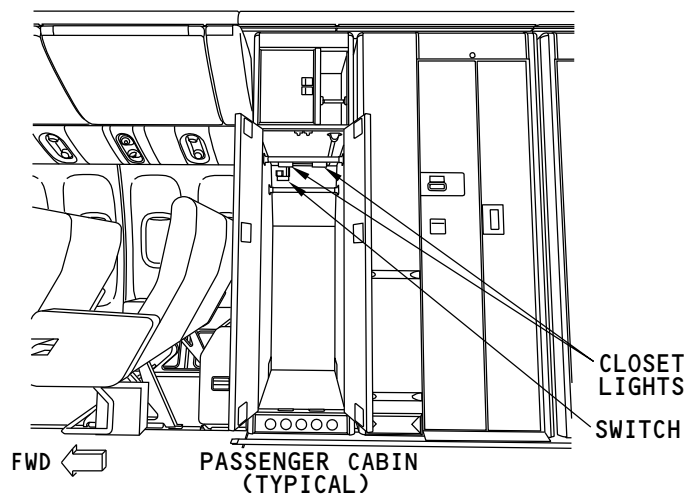
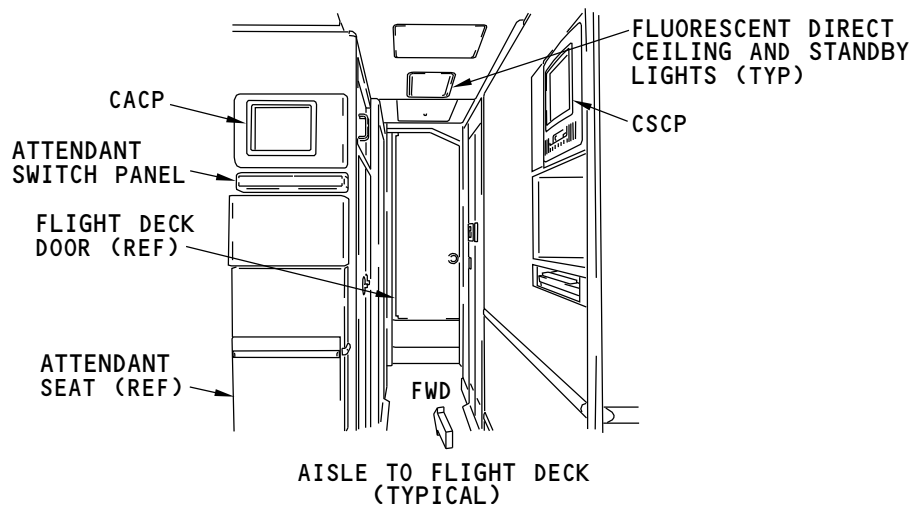
The closet lights are in the closets. A control switch is in the closet.

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PASSENGER LOADING LIGHTS - INTRODUCTION

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**PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - FLUORESCENT****Purpose**

The fluorescent direct ceiling lights give light to aisles.

Location

These are the possible locations in lowered ceiling panels for fluorescent direct ceiling lights:

- Passenger entry door 1 cross-aisle
- Passenger entry door 5 cross-aisle
- Aisle to the flight deck.

Controls for fluorescent direct ceiling lights are on the cabin lighting screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

You use the same screen for the incandescent direct ceiling lights, and the passenger compartment illumination indirect ceiling, sidewall, and night lights.

See the passenger compartment illumination section for more information (SECTION 33-21).

See the cabin services system section for more information about the CSCP/CACP (SECTION 23-39).

Physical Description

Each light assembly has two fluorescent lamps, a ballast, and a lens in a bezel.

Training Information Point

Four holes in the bezel let you use a pin type tool to release the bezel. Four lanyards hold the bezel when it releases from the assembly.

Each light assembly has quick release fasteners for the lamps.

The ballast is an LRU.

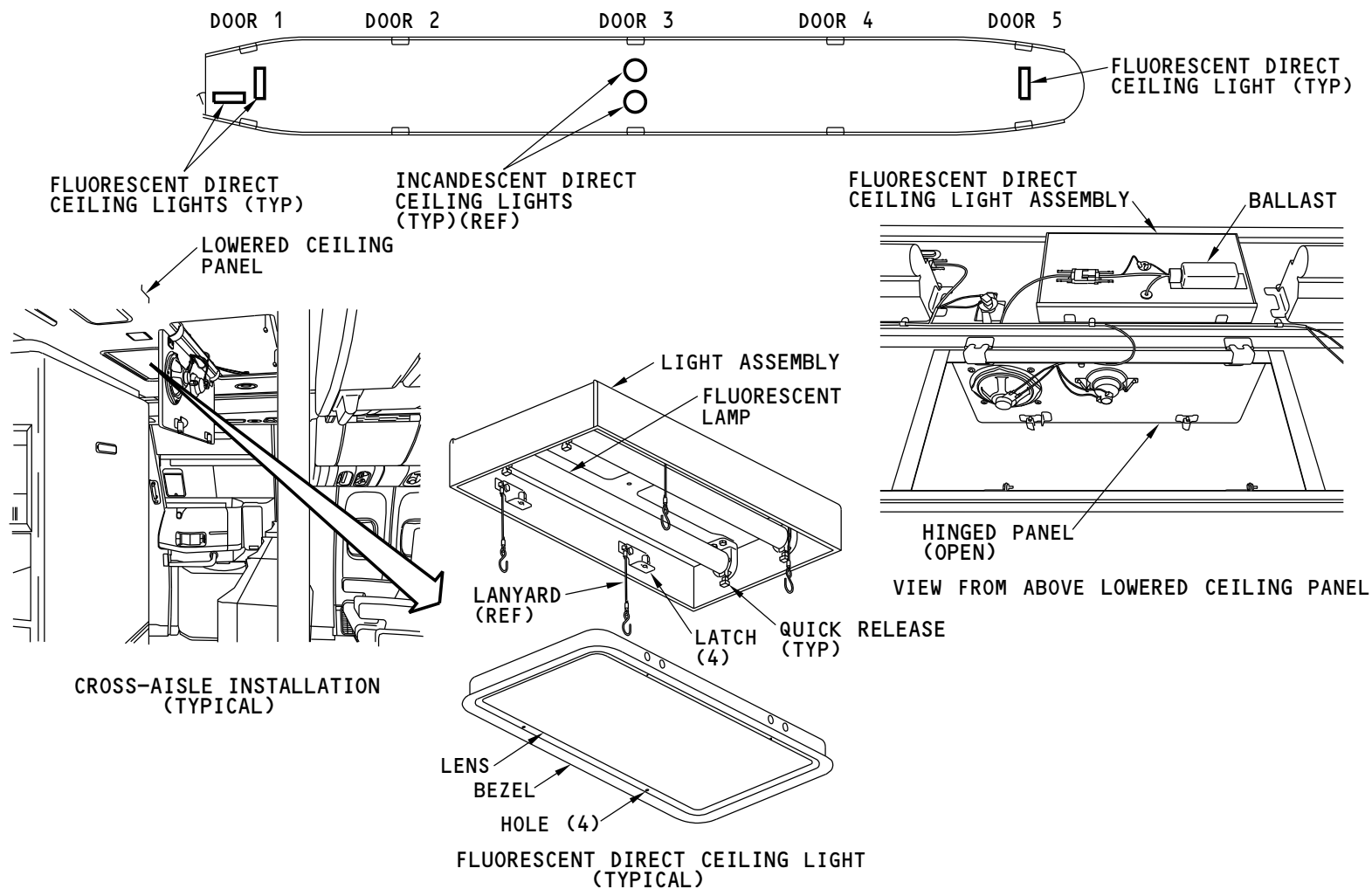
A hinged panel in the lowered ceiling panel gives you access to the ballast.

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PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - FLUORESCENT

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**PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - INCANDESCENT****Purpose**

- Pull down.

The incandescent direct ceiling lights give light to cross aisles.

Location

The incandescent direct ceiling lights are in the lowered ceilings in the door 3 cross-aisle.

Controls for incandescent direct ceiling lights are on the cabin lighting screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

You use the same screen for the fluorescent direct ceiling lights, and the passenger compartment illumination indirect ceiling, sidewall, and night lights.

See the passenger compartment illumination section for more information (SECTION 33-21).

See the cabin services system section for more information on the CSCP/CACP (SECTION 23-39).

Physical Description

An incandescent ceiling light has these parts:

- Bezel/lens retainer
- Lens
- Tab (4)
- Lamp
- Lever.

You use the lever to lock the light in position.

Training Information Point

To get access to the lamp you:

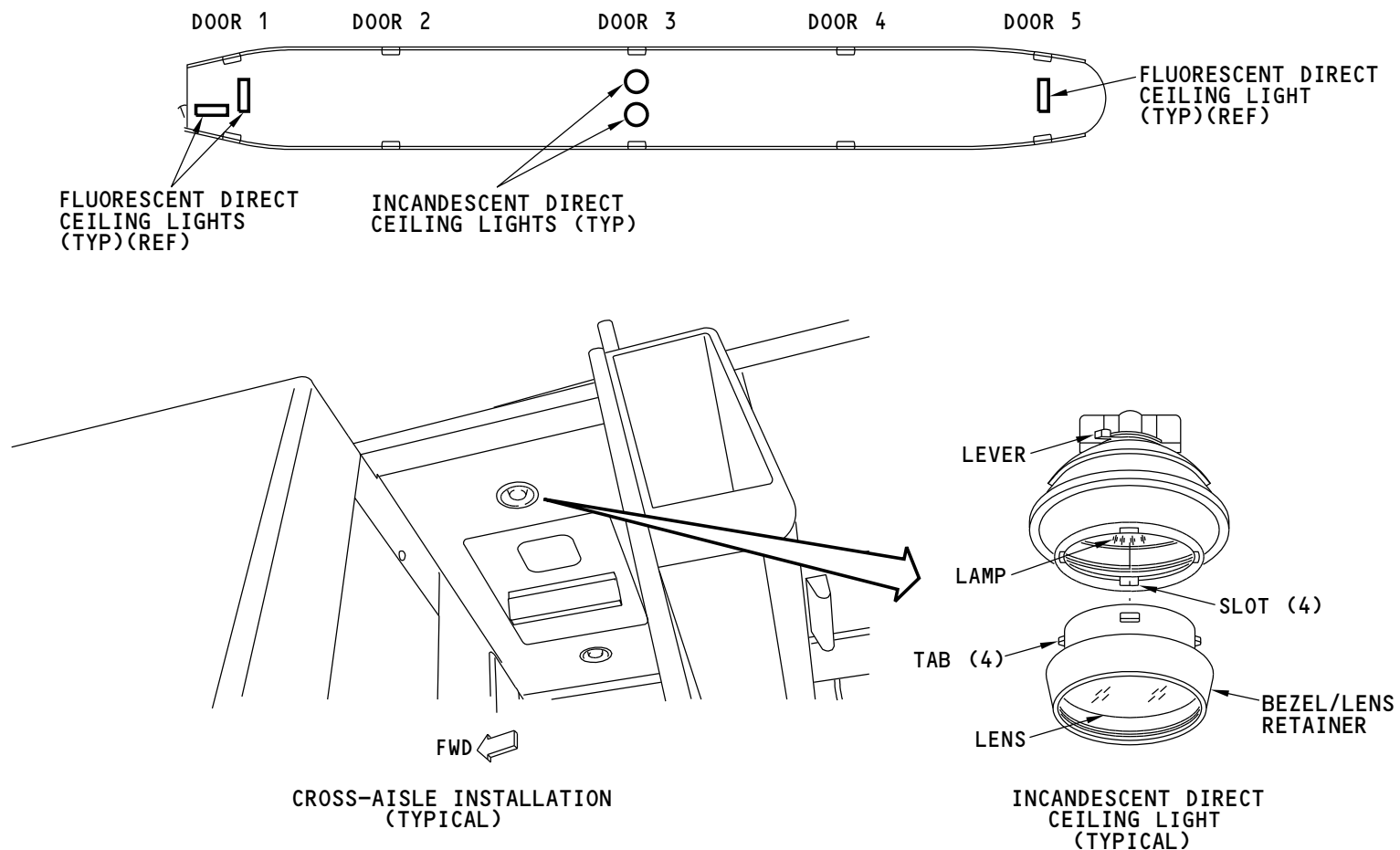
- Compress the bezel/lens retainer
- Turn the retainer counterclockwise until the tabs align with the slots

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PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - INCANDESCENT

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**PASSENGER LOADING LIGHTS - STANDBY LIGHT****Purpose**

The standby light makes sure there is light when the ground service bus does not have power and the transfer buses have power.

Location

The standby lights are in some of the fluorescent direct ceiling and galley light assemblies. Their location is in areas that would not get light from the night lights.

See the passenger compartment illumination section for more information about the passenger compartment illumination night lights (SECTION 33-21).

There are no controls for the standby lights. They come on automatically when the ground service bus does not have power and the transfer buses have power.

Physical Description

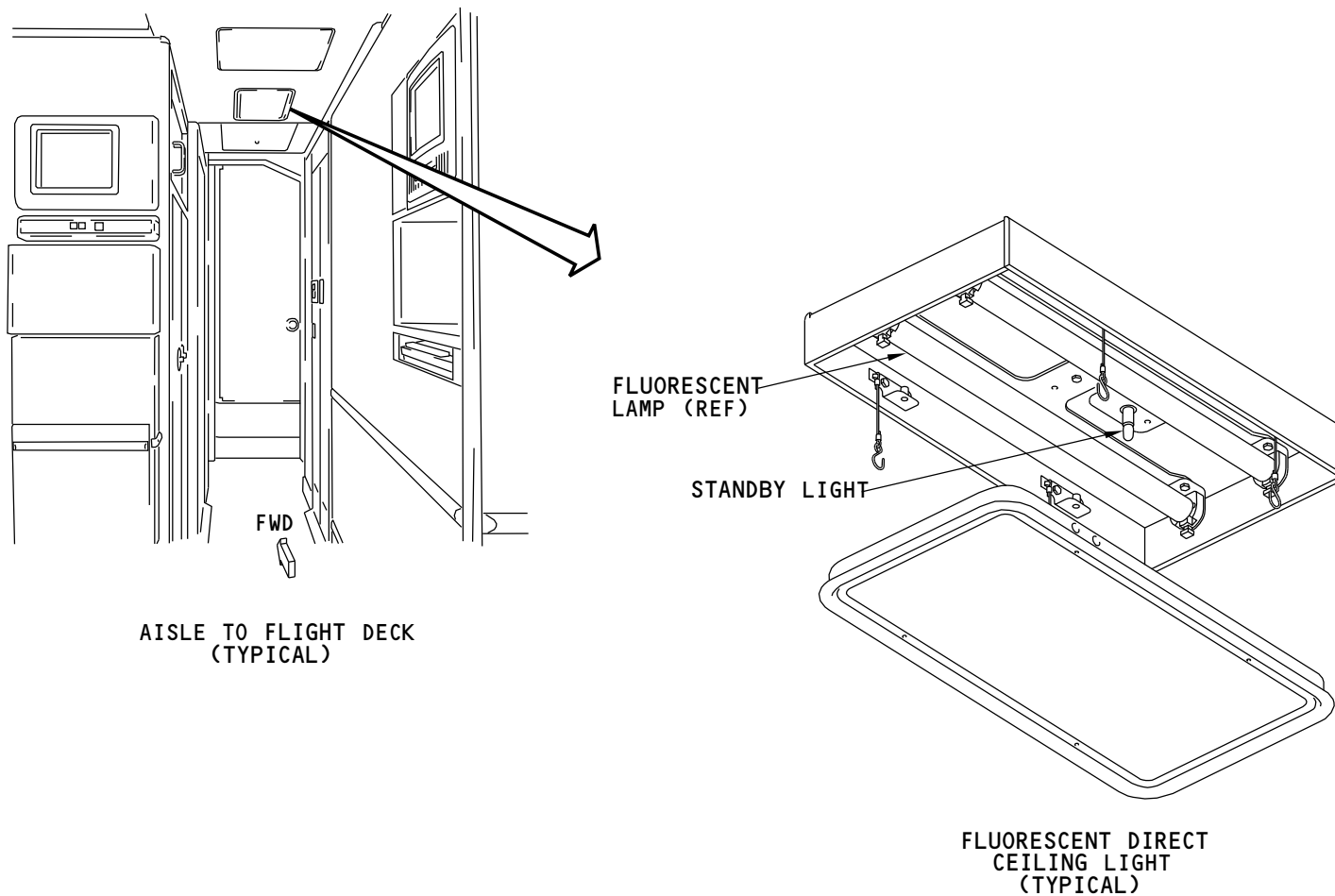
The lamp is incandescent.

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PASSENGER LOADING LIGHTS - STANDBY LIGHT

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**PASSENGER LOADING LIGHTS - FLIGHT DECK DOOR SWITCH****Purpose**

The flight deck door switch controls the direct ceiling light immediately aft of the flight deck door.

General

If you open the flight deck door when the engines are running, the direct ceiling light immediately aft of the flight deck door goes off. The reflection on the flight displays would make them difficult to see.

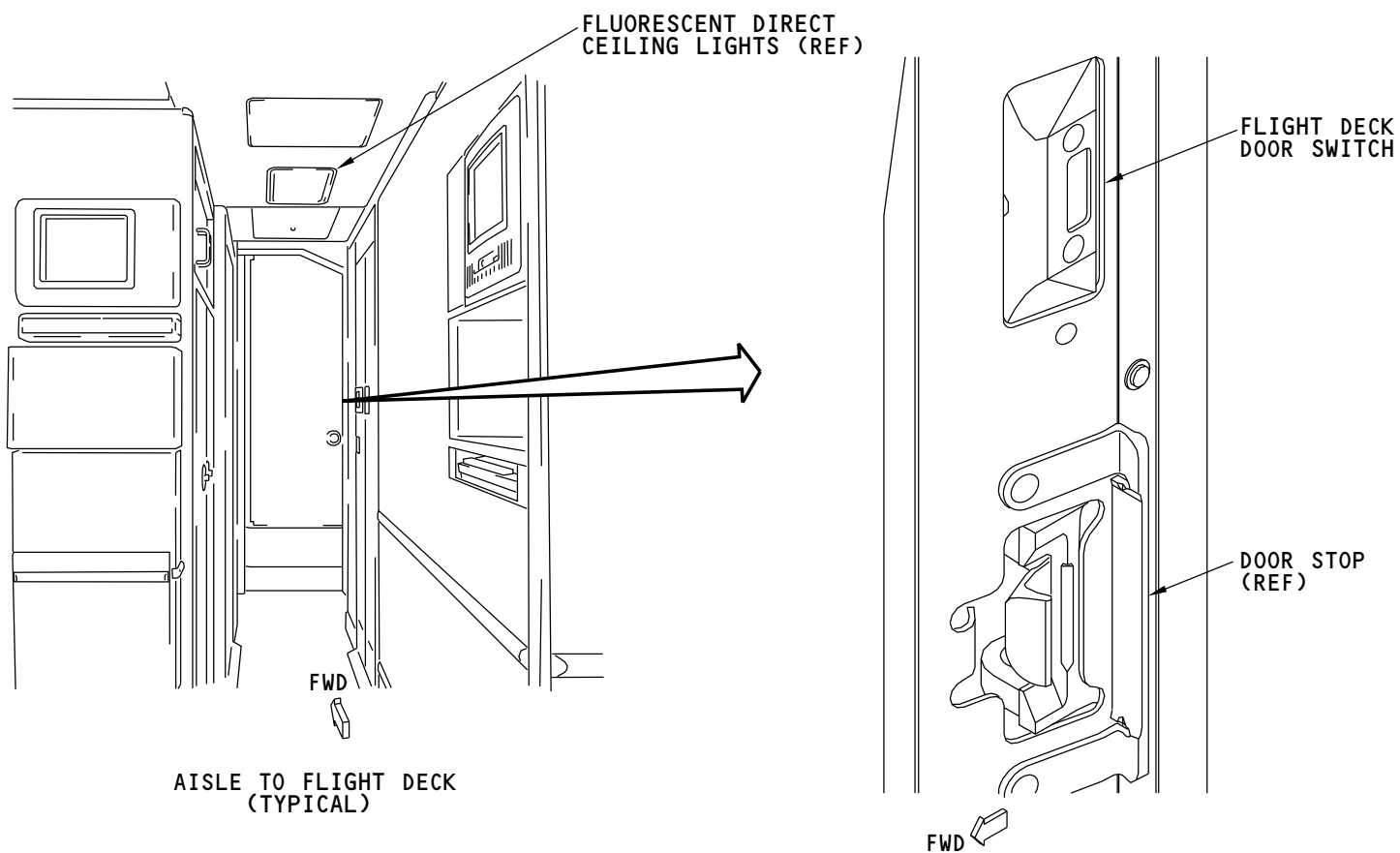
Location

The switch is on the door post, above the door stop.

Physical Description

The switch is a magnetic-reed type switch.

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PASSENGER LOADING LIGHTS - FLIGHT DECK DOOR SWITCH

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**PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS - OPERATION****Operation**

Controls for passenger loading direct ceiling lights are on the cabin lighting screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

See the passenger compartment illumination section for more information (SECTION 33-21).

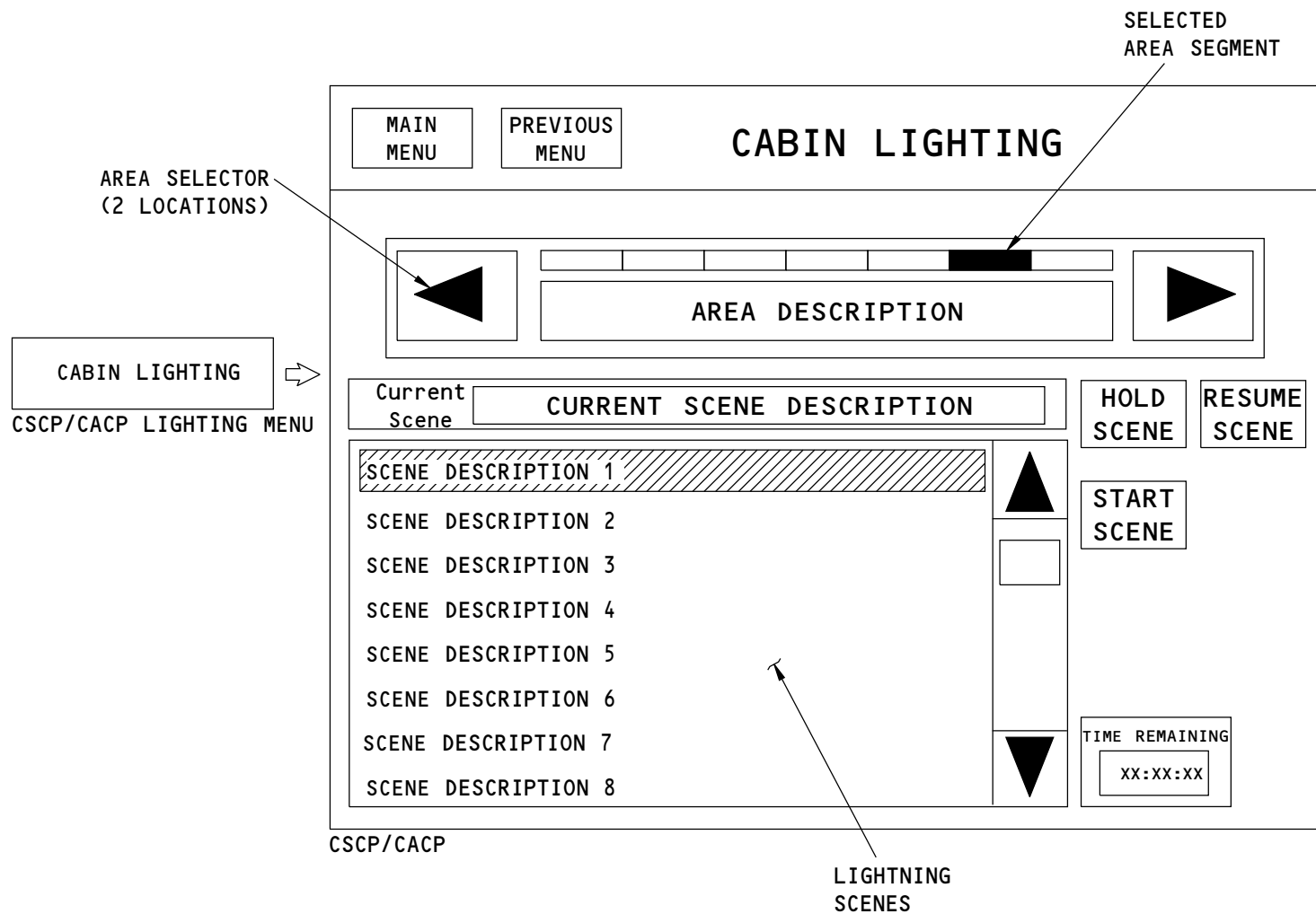
The area select indicator lets you select the area of the cabin that the light mode selection will control. The configuration data base that is loaded in the cabin services system (CSS) supplies this information:

- The area description name
- The number of area segments.

There are four modes on the cabin lighting screen:

- NIGHT
- LOW
- MEDIUM
- HIGH.

The lights that operate in each mode is set by the configuration data base. A typical configuration has the direct ceiling lights on when the selected mode is LOW, MEDIUM, or HIGH.



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PASSENGER COMPARTMENT ILLUMINATION - OPERATION

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**PASSENGER LOADING LIGHTS - DIRECT CEILING AND STANDBY LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

The configuration data base that is loaded in the cabin services system (CSS) sets the lights that come on in each selection.

Light selections made on the cabin area control panel (CACP) or cabin system control panel (CSCP) go directly to the zone management unit (ZMU).

The ZMU has the logic from the configuration data base. It uses the logic to tell the OEU what light to set on and the level of that light.

See the cabin services system section for more information (SECTION 23-39).

See the passenger service system section for more information about the OEU (SECTION 23-33).

Power for the fluorescent direct ceiling lights is from the ground service bus. These lights come on bright when the ground service bus gets power. They will stay on bright until the ZMU gets power from the transfer bus and another selection is made. If you open the flight compartment door when the engines are on, the direct ceiling light immediately aft of the flight compartment door goes off.

Power for the incandescent direct ceiling lights is from the main ac buses.

The ELMS (not shown) uses the ARINC 629 buses to make the fluorescent direct ceiling lights come on bright when the passenger oxygen masks are deployed. They stay on bright until the oxygen system is reset.

These lights operate the same when passenger oxygen is deployed:

- Indirect ceiling
- Sidewall
- Entry.

See the passenger compartment illumination section for more information (SECTION 33-21).

See the passenger oxygen system section for more information (SECTION 35-21).

The transfer buses must have power for the standby lights to operate. The standby lights come on automatically if the ground service bus loses power and the transfer bus has power.

The night lights also come on automatically if the ground service bus loses power and the transfer bus has power.

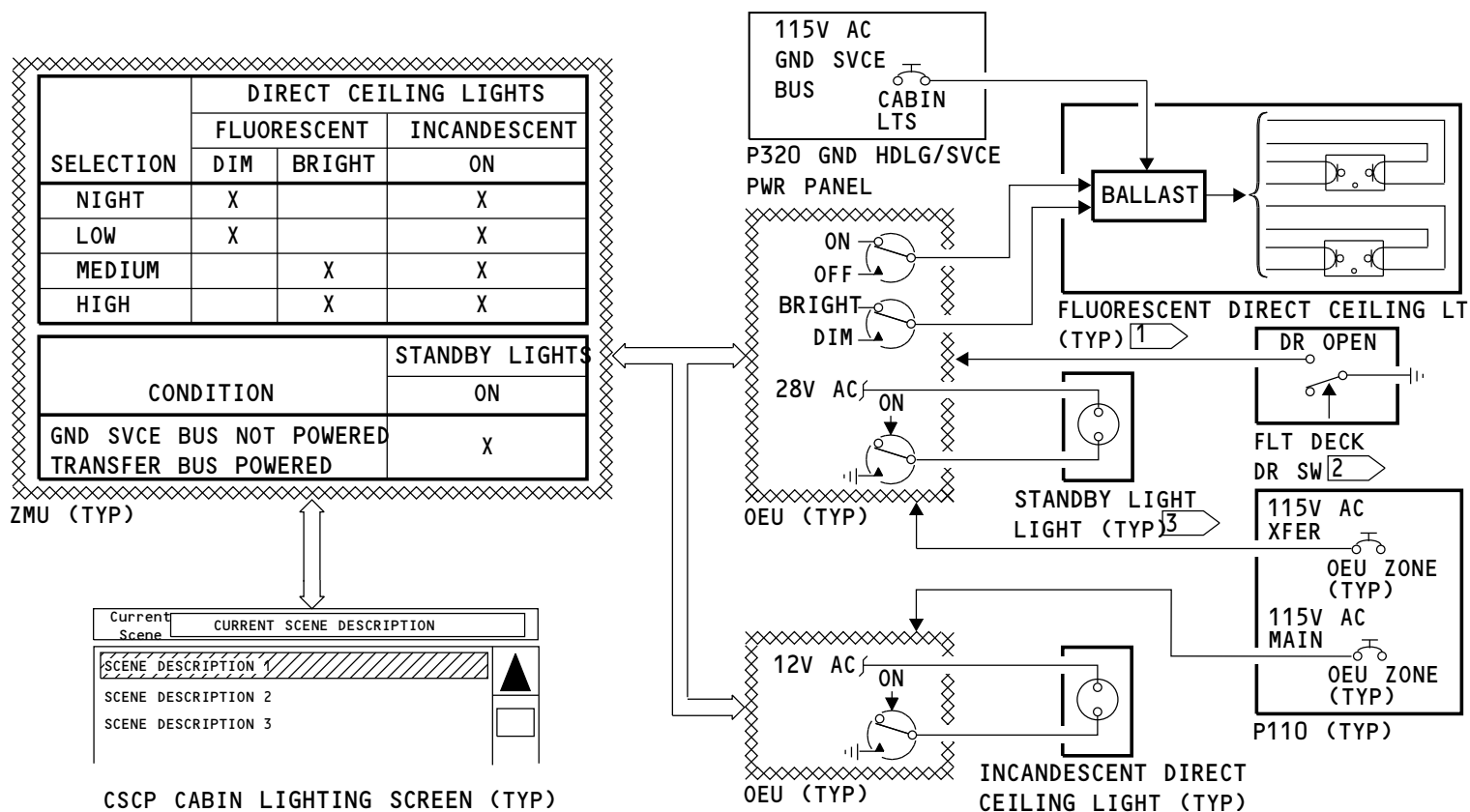
See the passenger compartment illumination section for more information about the night lights (SECTION 33-21).

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PASSENGER LOADING LIGHTS - DIRECT CEILING LIGHTS AND STANDBY LIGHTS - FUNCTIONAL DESCRIPTION

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**PASSENGER LOADING LIGHTS - ENTRY LIGHTS****Purpose**

The entry lights give light in the airplane entry areas.

Location

The lights are in the overdoor panel at doors 1 and 2 left.

Controls for passenger loading entry lights are on the entry way lights screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

Physical Description

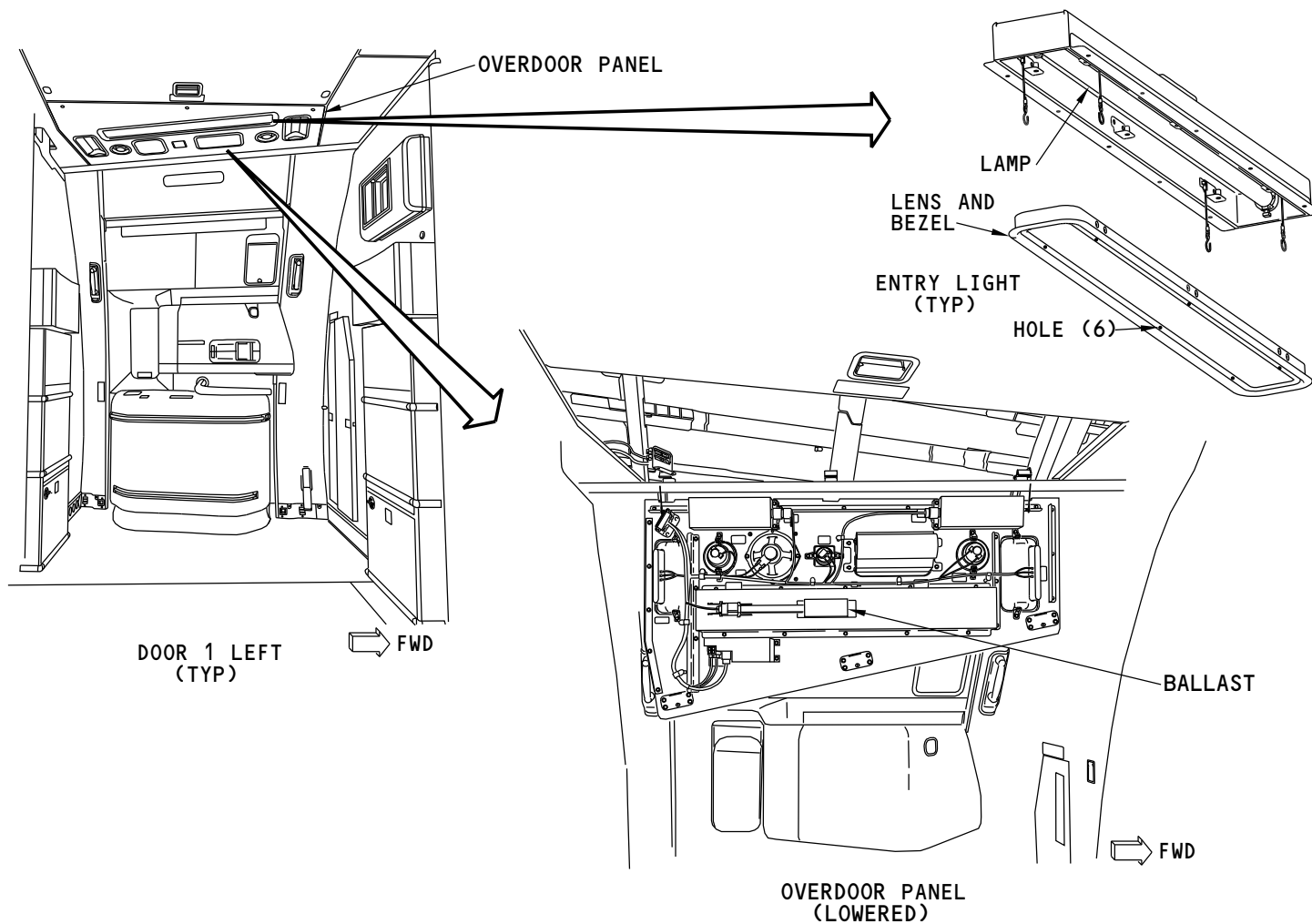
The entry lights have these components:

- Fluorescent lamp
- Lens
- Bezel
- Ballast.

Training Information Point

Six holes in the bezel let you use a pin type tool to release the bezel for access to the fluorescent lamp. Four lanyards hold the bezel when it releases from the assembly.

The ballast is an LRU. You lower the overdoor panel for access to it.



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PASSENGER LOADING LIGHTS - ENTRY LIGHTS

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**PASSENGER LOADING LIGHTS - ENTRY LIGHTS - OPERATION****Operation**

Controls for passenger loading entry lights are on the entry way lights screen. This screen is on the cabin system control panel (CSCP) and the cabin area control panel (CACP).

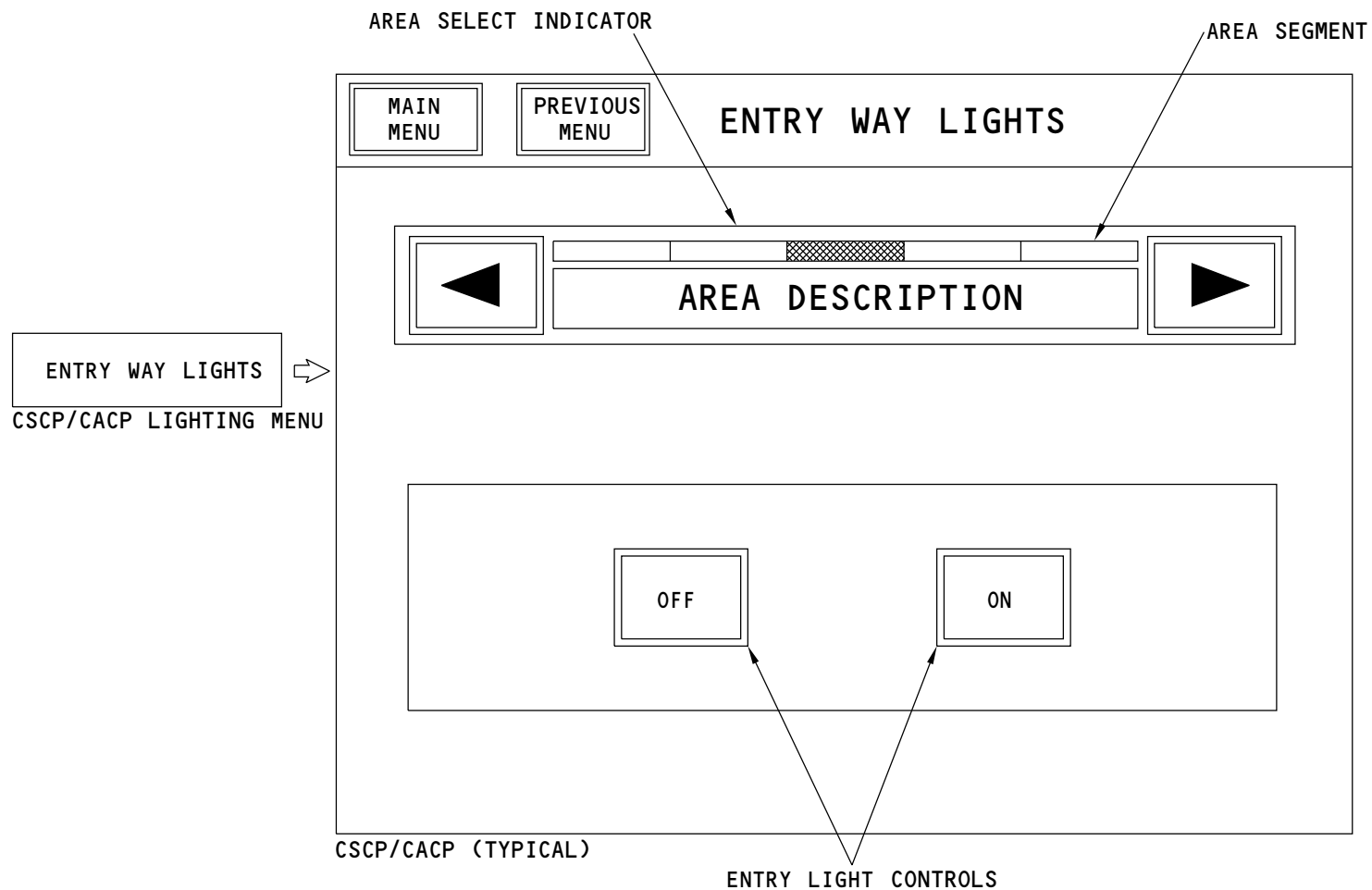
The area select indicator lets you select the area of the cabin that the entry way light selection will control. The configuration data base that is loaded in the cabin services system (CSS) supplies this information:

- The area description name
- The number of area segments.

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PASSENGER LOADING LIGHTS - ENTRY LIGHTS - OPERATION

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**PASSENGER LOADING LIGHTS - ENTRY LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

The configuration data base that is loaded in the cabin services system (CSS) sets the lights that come on in each selection.

Light selections made on the cabin area control panel (CACP) or cabin system control panel (CSCP) go directly to the zone management unit (ZMU).

The ZMU has the logic from the configuration data base. It uses the logic to tell the OEU what light to set on and the level of that light.

See the cabin services system section for more information (SECTION 23-39).

Power for the entry lights is from the ground service bus. These lights come on bright when the ground service bus gets power. They will stay on bright until the ZMU gets power from the transfer bus and another selection is made.

The ELMS (not shown) uses the ARINC 629 buses to make the entry lights come on bright when the passenger oxygen masks are deployed. They stay on bright until the oxygen system is reset.

These lights operate the same when passenger oxygen is deployed:

- Indirect ceiling
- Sidewall
- Fluorescent direct ceiling.

See the passenger compartment illumination section for more information (SECTION 33-21).

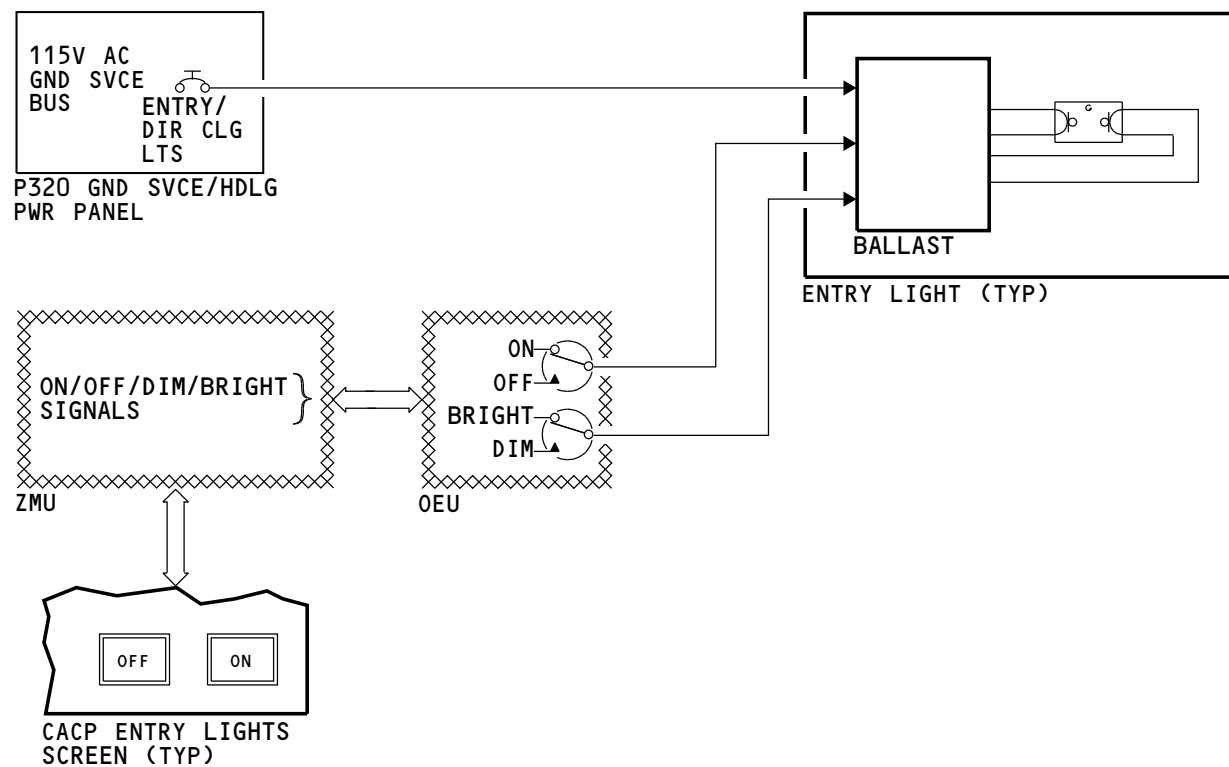
See the passenger oxygen system section for more information (SECTION 35-21).

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NOTE: CACP SHOWN, CSCP SIMILAR

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PASSENGER LOADING LIGHTS - ENTRY LIGHTS - FUNCTIONAL DESCRIPTION

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**PASSENGER LOADING LIGHTS - ATTENDANT SWITCH PANELS - PASSENGER COMPARTMENT****Purpose**

The attendant switch panels (ASPs) in the passenger compartment give control and indications for:

- The evacuation system
- Cabin light fixtures
- Attendant work lights
- Passenger address system
- Cabin interphone system
- Emergency lights.

Panel Locations

Passenger compartment ASPs are in areas where there are attendant seats.

Lights

The lights in the switches and indicators are LEDs.

Switches and Indicators

Emergency evacuation system switches and indicator lights are part of the ASPs near the passenger doors. The horn is on one end of the panel.

Work light switches are on all ASPs in the passenger compartment. The number of work light switches on a panel depends on the panel location.

Reset switches for area lighting controllers and cabin control panels are on the ASP at door number one right.

These switches are on the panel at passenger entry door (PED) number two left:

- PA NORM/ALT
- CI NORM/ALT.

These switches are on the ASP at PED number one left:

- GROUND SERVICE

- EMER LIGHTS
- EMER LIGHTS/TEST.

Another emergency lights test switch is on the ASP at PED number four or door five.

See the emergency section for more information about the emergency evacuation signal system (SECTION 25-60).

See the passenger address system section for more information about the passenger address system (SECTION 23-31).

See the cabin interphone system section for more information about the cabin interphone system (SECTION 23-42).

See the emergency lighting section for more information about the emergency lights (SECTION 33-50).

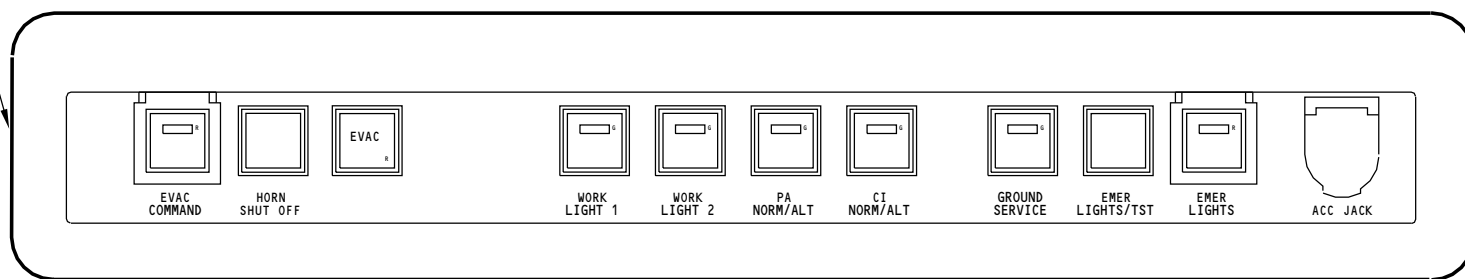
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HORN (IN END OF PANEL)



ATTENDANT SWITCH PANEL (TYPICAL)

M42539 S000618892_V1

PASSENGER LOADING LIGHTS - ATTENDANT SWITCH PANELS - PASSENGER COMPARTMENT

33-22-00

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**PASSENGER LOADING LIGHTS - ATTENDANT WORK LIGHTS - INTRODUCTION****Purpose**

The attendant work lights give light at the attendant seats.

LOCATION

There are usually attendant seats at each passenger entry door (PED). There can also be seats in the cross-aisles between PEDs 1 left and 1 right, and 5 left and 5 right. The lights are in the overdoor panels at the doors, and the ceiling in the cross-aisles. Switches are on the attendant switch panels.

Physical Description

The lights are incandescent. They have these components:

- Slot (4)
- Bezel/lens retainer
- Lens
- Tab (4)
- Lamp
- Lever.

The lever lets you lock the light in position.

Training Information Point

To replace the lamp:

- Compress the bezel/lens retainer
- Turn it counterclockwise to disconnect it from the slots on the upper part
- Replace the lamp.

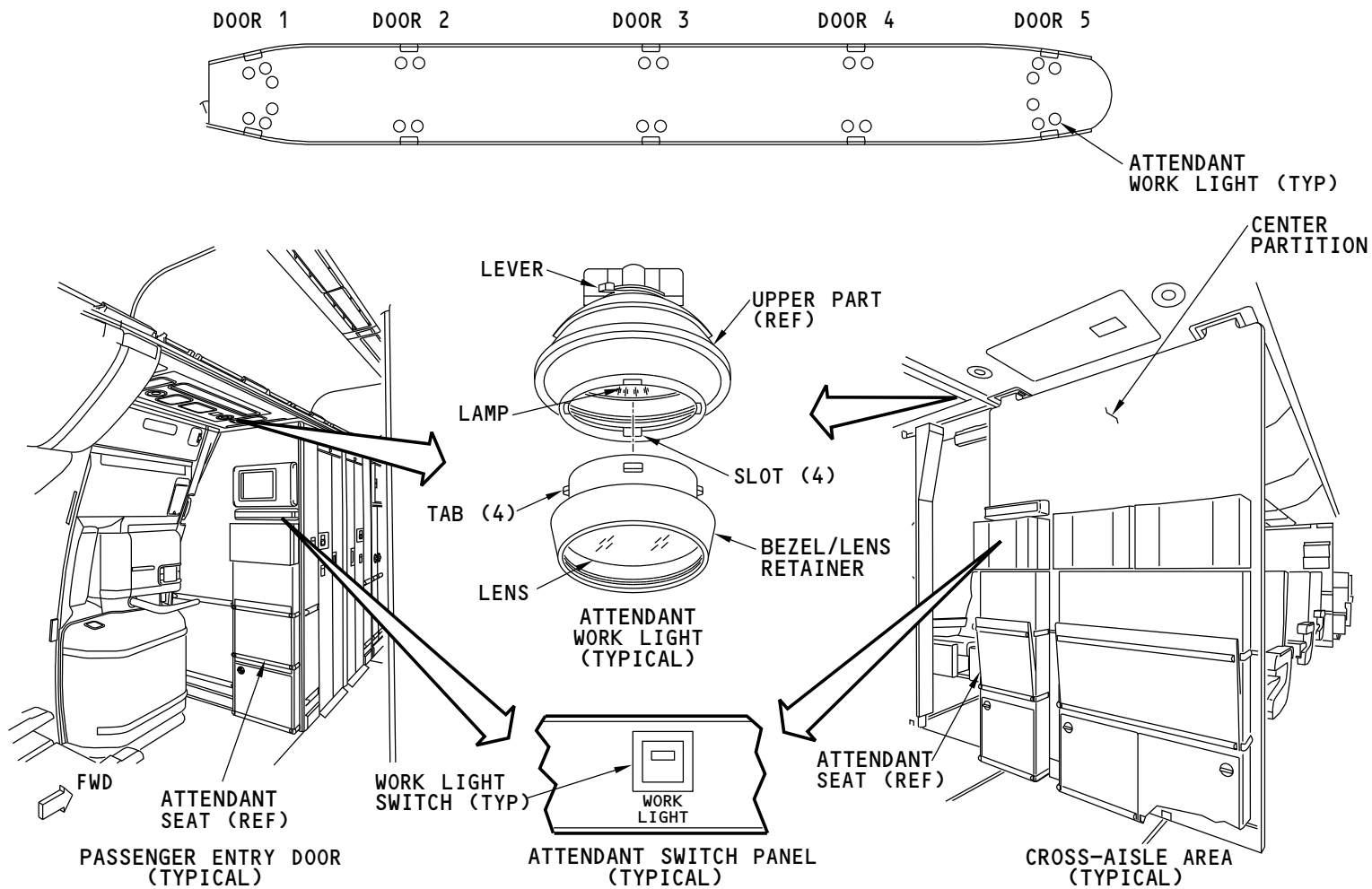
You do the opposite procedure to install the bezel/lens retainer.

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PASSENGER LOADING LIGHTS - ATTENDANT WORK LIGHTS - INTRODUCTION

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**PASSENGER LOADING LIGHTS - ATTENDANT WORK LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

28v dc power comes from the main bus to the switch. The LED in the switch is on when the switch is in the off position. This helps find the switch when the area has no light.

The attendant switch gives ON/OFF switch position information to the overhead electronics unit (OEU). The OEU gives the information to the zone management unit (ZMU). The ZMU has the logic from the configuration data base. It uses the logic to tell the OEU what light to set on. The OEU makes a ground to make the applicable attendant light come on.

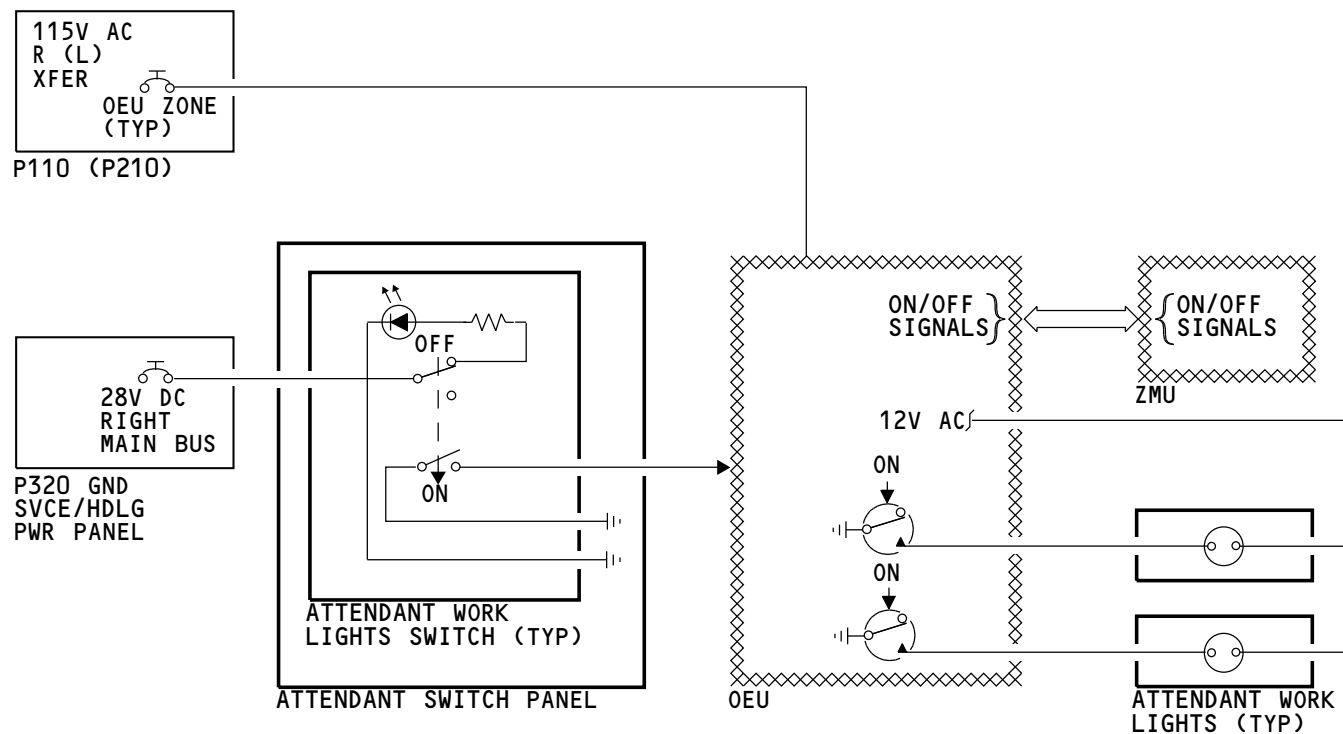
Training Information Point

You can test the attendant work lights from the cabin services system (CSS) LAMPS TEST screen.

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33-22-00

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PASSENGER LOADING LIGHTS - ATTENDANT WORK LIGHTS - FUNCTIONAL DESCRIPTION

33-22-00

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**PASSENGER LOADING LIGHTS - CLOSET LIGHTS****Purpose**

The closet lights give light in the closets.

Physical Description

The closet lights are incandescent lights.

The closet lights have these related items:

- Transformer
- Light switch.

Location

The lights are in the top, rear corner of the closets. The switch is inside the closet, near the top of the door.

Functional Description

When you push the switch in the closet the light comes on.

A transformer reduces power from 115v ac to 28v ac.

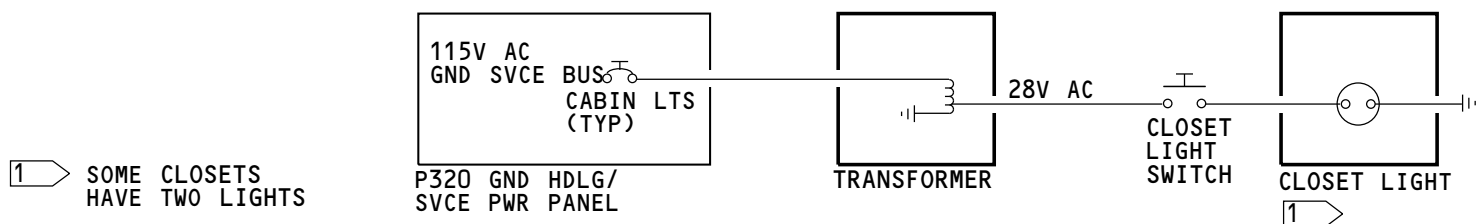
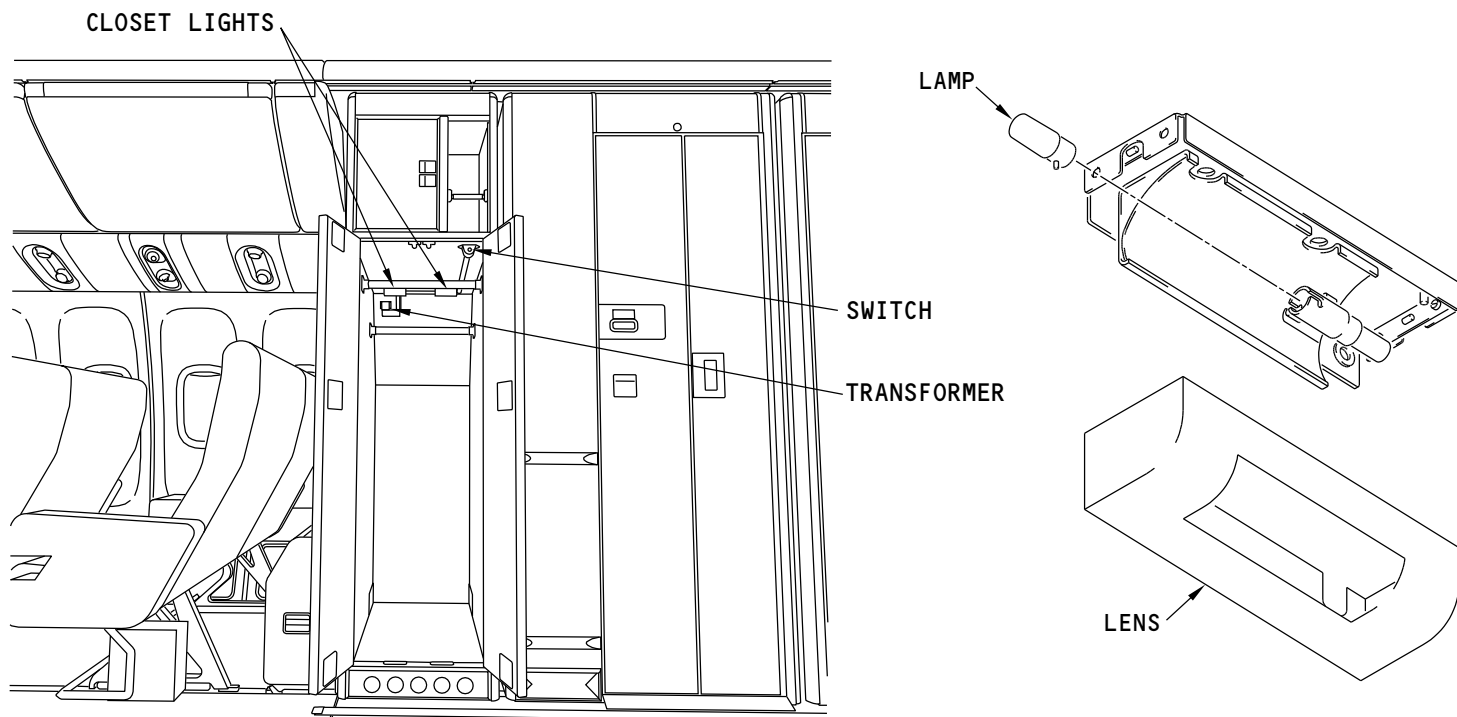
Operation

There is a switch in the upper part of the closet. You push it to make the light come on and go off.

Training Information Point

You compress the lens to remove it. This gives you access to the light bulb. It is a bayonet-style bulb.

ARO ALL	EFFECTIVITY
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PASSENGER LOADING LIGHTS - CLOSET LIGHTS

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READING LIGHTS - INTRODUCTION

Purpose

The reading lights supply light from above the passenger seats.

Location

The reading lights are in the passenger service units (PSU).

Physical Description

A reading light has these parts:

- Slot (4)
- Bezel/lens retainer
- Lens
- Tab (4)
- Lamp
- Lever.

You use the lever to lock the light in position.

Operation

You operate the reading lights with the switch on the passenger control unit or through the reading light control (not shown) on the CSCP/CACP.

Training Information Point

You can replace the lamps from the front of the PSU. You do not have to lower the PSU to replace the lamps.

To replace a lamp:

- Compress the bezel/lens retainer
- Turn it counterclockwise to disconnect it from the slots on the upper part
- Replace the lamp.

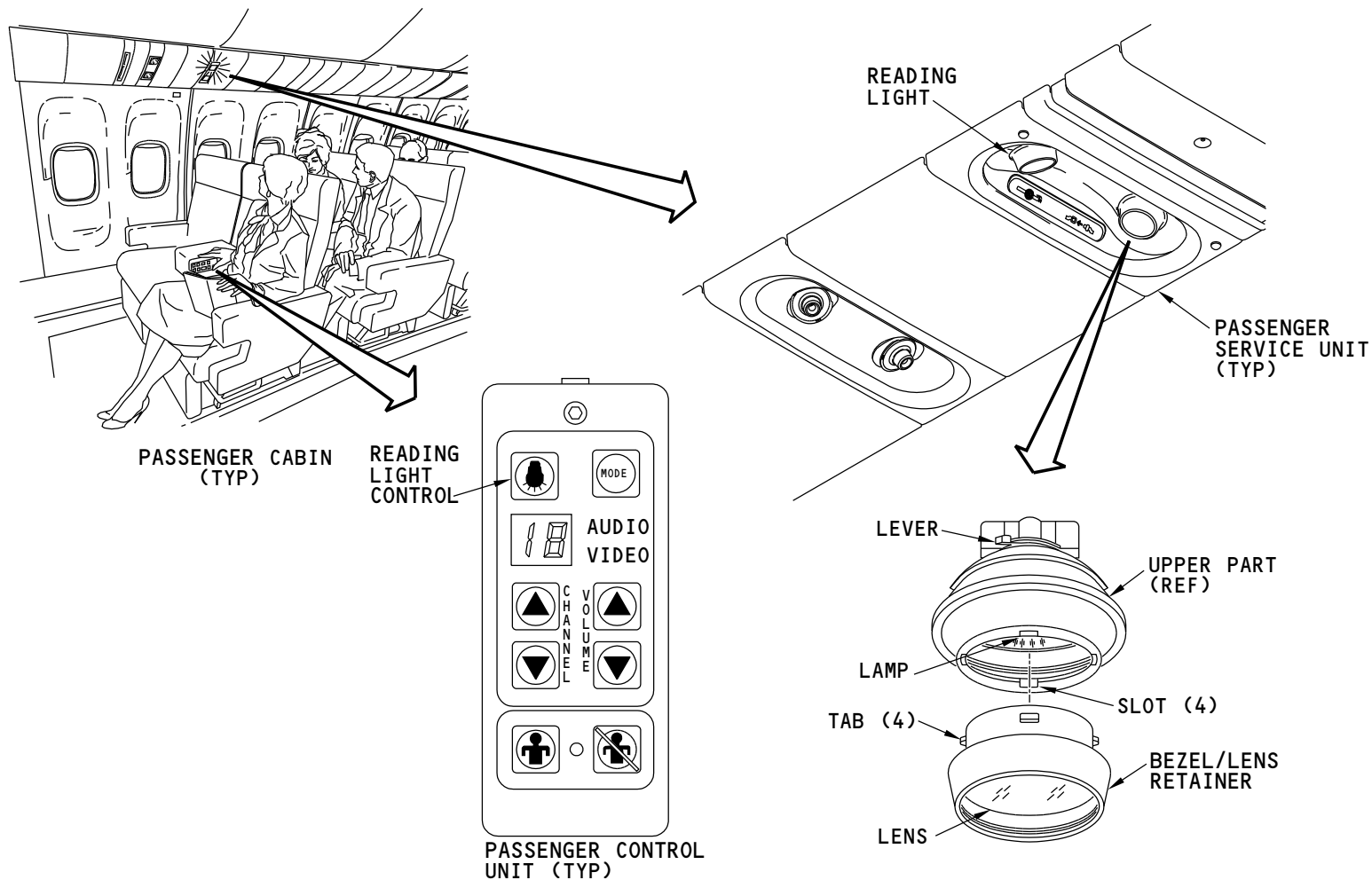
You do the opposite procedure to install the bezel/lens retainer.

33-23-00

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READING LIGHTS - INTRODUCTION

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READING LIGHTS - OPERATION

Operation

You use the reading light control switch on the passenger control units for primary control of the reading lights.

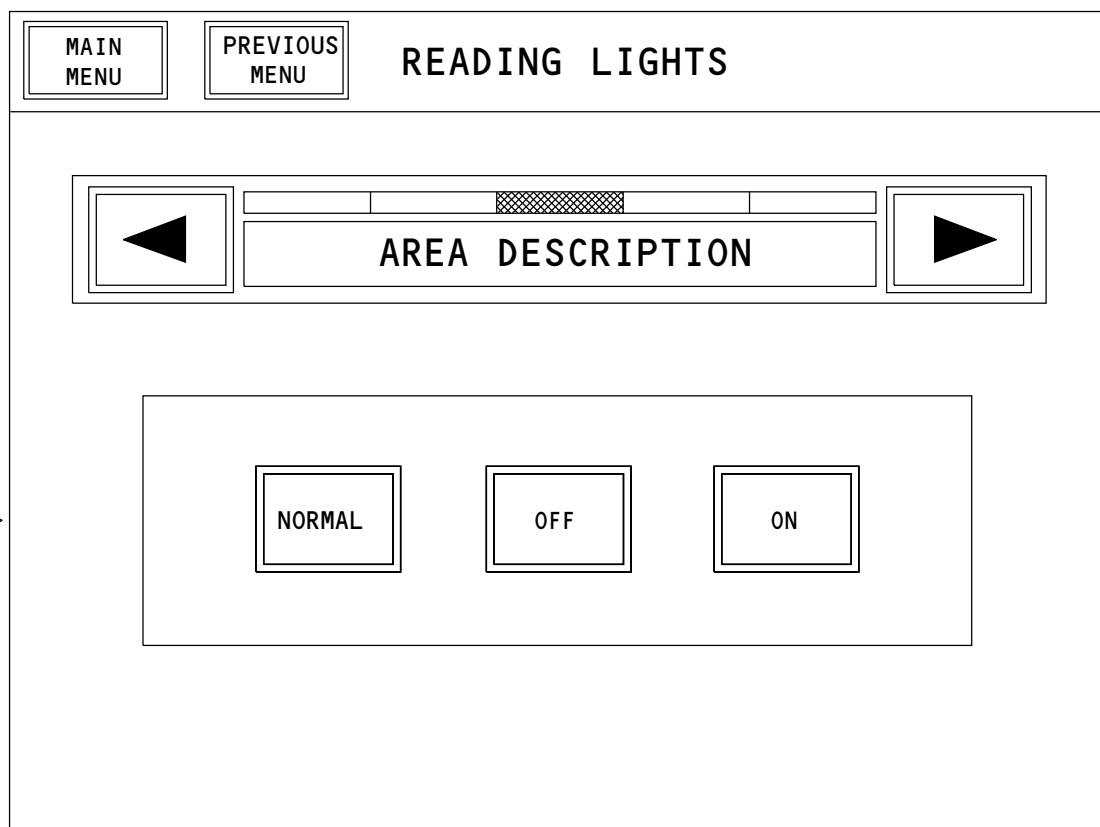
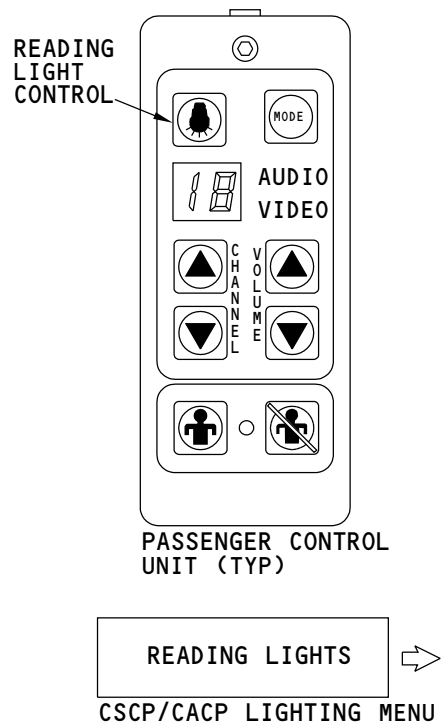
You use the reading lights screen to make all the reading lights in an area come on or go off. You can use the cabin system control panel (CSCP) or a cabin area control panel (CACP).

Touch NORMAL to return control to the switches on the passenger seats.

When the airplane first has power the CSCP/CACP reading lights mode is normal. Primary control is at the passenger control units.

Training Information Point

To make sure all reading lights operate normally, you use the CSCP or a CACP. Touch ON on the reading lights screen and all readings lights should come on. If a light does not come on, the lamp may be defective.



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READING LIGHTS - OPERATION

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READING LIGHTS - FUNCTIONAL DESCRIPTION

Functional Description

The configuration data base that is loaded in the cabin services system (CSS) sets the lights that come on in each selection.

Light selections made on the passenger control unit (PCU) (not shown) make the applicable passenger reading light come on or go off. The OEU sets the selected light to the commanded condition.

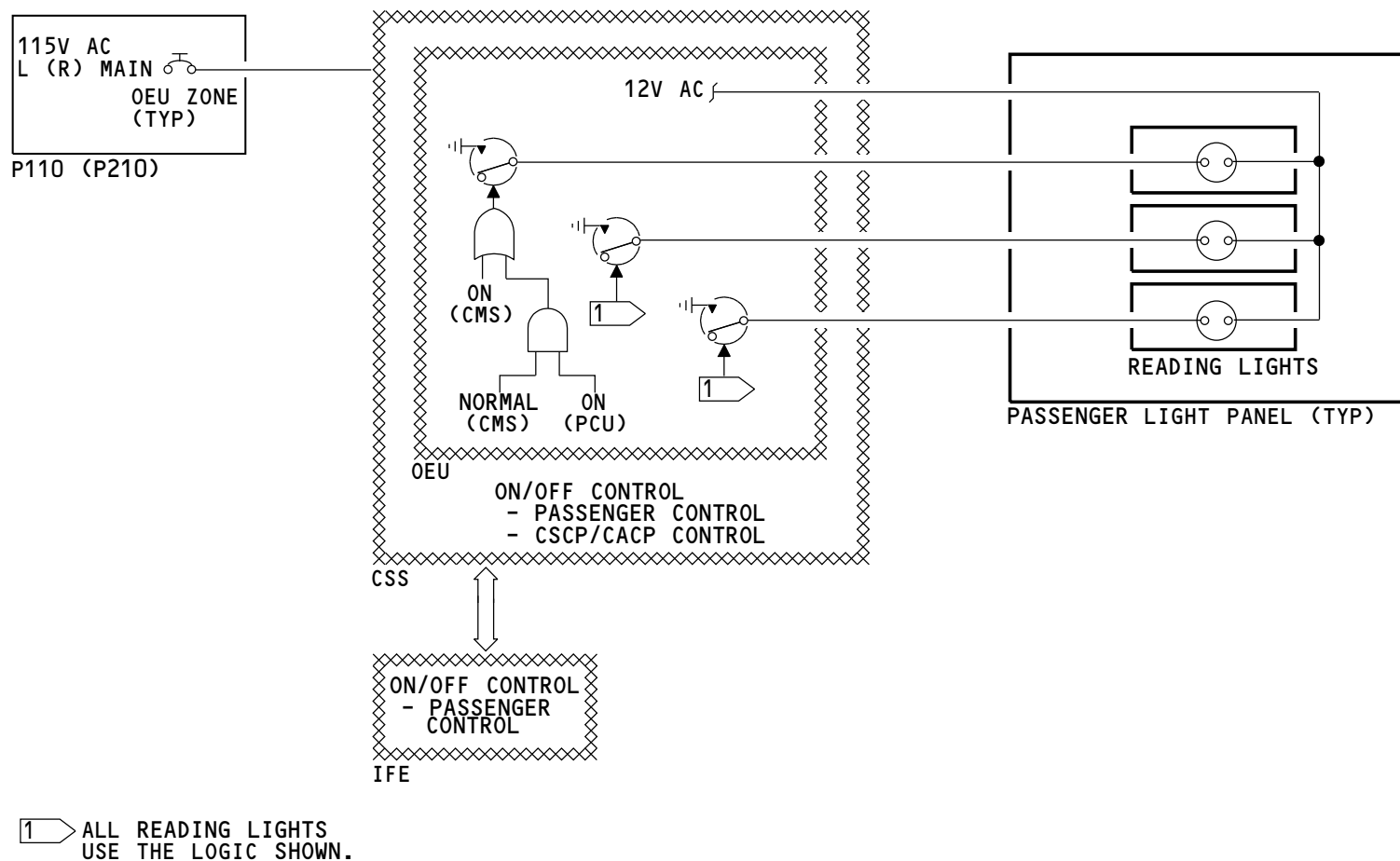
The CSCP and CACP can also control the reading lights from the readings lights screen. The OEU sets the reading lights for the applicable area to the commanded condition. The normal mode gives control back to the PCU.

Power

The main buses must have power for the reading lights to operate.

See the passenger service system section for more information about the OEU (SECTION 23-33).

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READING LIGHTS - FUNCTIONAL DESCRIPTION

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INFORMATION SIGNS - INTRODUCTION

Purpose

These components give information to the passengers and attendants:

- No smoking sign
- Fasten seat belt sign
- Return to seat sign.
- Electronic devices off sign.

Location

There are information signs in these locations:

- Passenger service units (PSUs)
- Overdoor panels
- Lavatories.

There are electronic devices off and fasten seat belts signs on the passenger service units (PSUs). There are no smoking and fasten seat belts signs in the overdoor panels near the attendant seats.

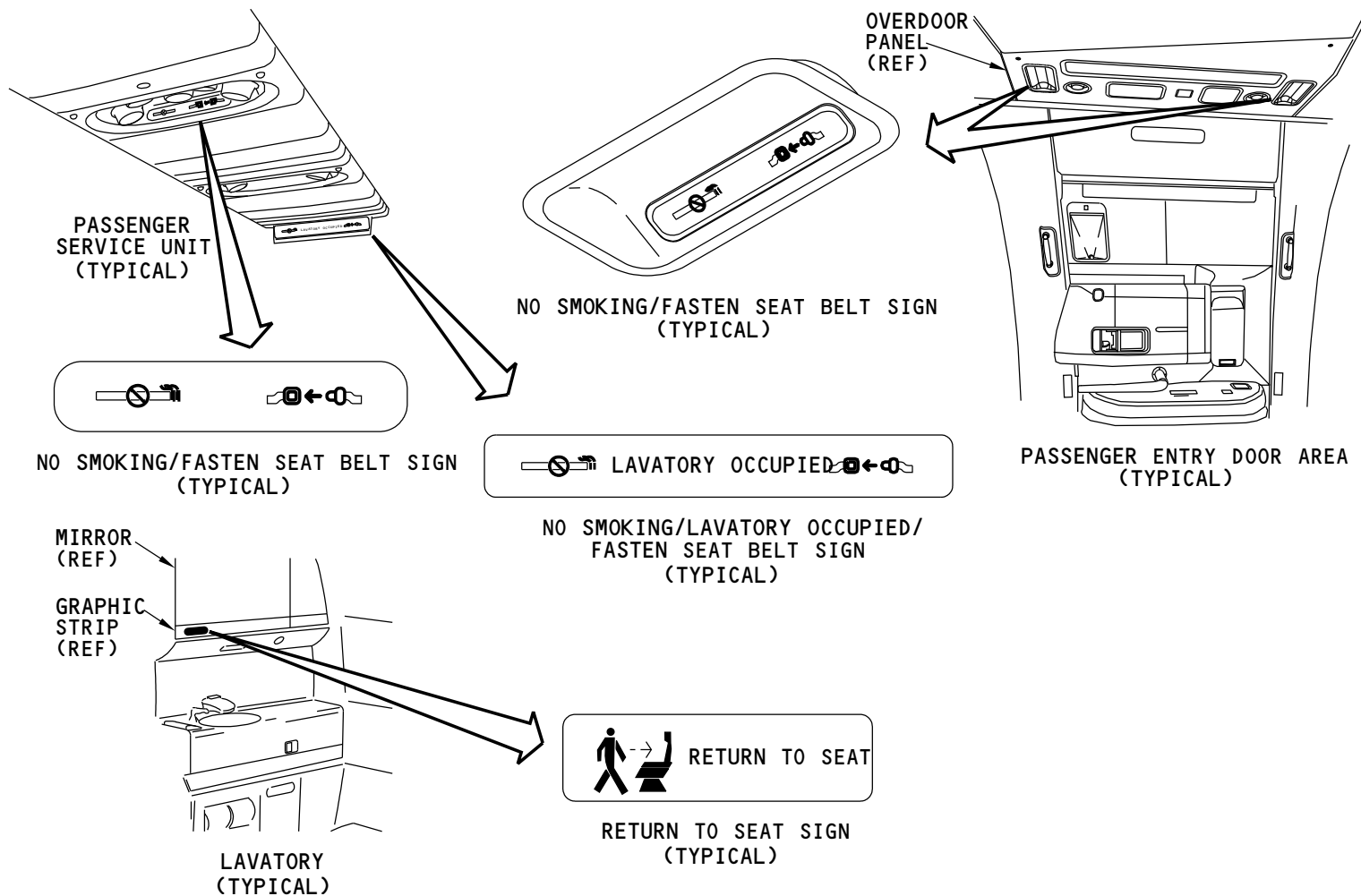
There are return to seat signs in the lavatories.

Training Information Point

These signs have lamps that you can replace. You remove the lens to get access to the lamps:

- No smoking sign
- Fasten seat belt sign
- Electronic devices off signs

The return to seat signs use LEDs. You replace the sign if the LEDs fail.



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INFORMATION SIGNS - INTRODUCTION

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INFORMATION SIGNS - GENERAL DESCRIPTION

General

The passenger service system (PSS) supplies control signals for the information signs. The PSS gets inputs from the left and right systems ARINC 629 buses, the flight attendants, and the cabin services system configuration database.

Components

These are the main components of the information signs system:

- Electronic devices off selector
- Seat belt selector
- No smoking sign
- Electronic devices off sign
- Fasten seat belt sign
- Return to seat sign.

The PSS also supplies control for the lavatory-occupied signs and the lavatory door-lock signs (not shown). These signs are not part of the information signs system.

See the lavatory lights and signs section for more information about lavatory lights (SECTION 33-26).

These other systems and components have an interface with the information signs system:

- Overhead panel ARINC 629 system (OPAS)
- Airplane information management system (AIMS)
- Electrical load management system (ELMS)
- Flap/slat electronics unit (FSEU)
- Proximity sensor electronics unit (PSEU)
- Cabin services system (CSS)
- Passenger service system (PSS).

PSS Control

The PSS controls these information signs:

- Fasten seat belts sign
- Return to seat sign
- Electronic devices off sign

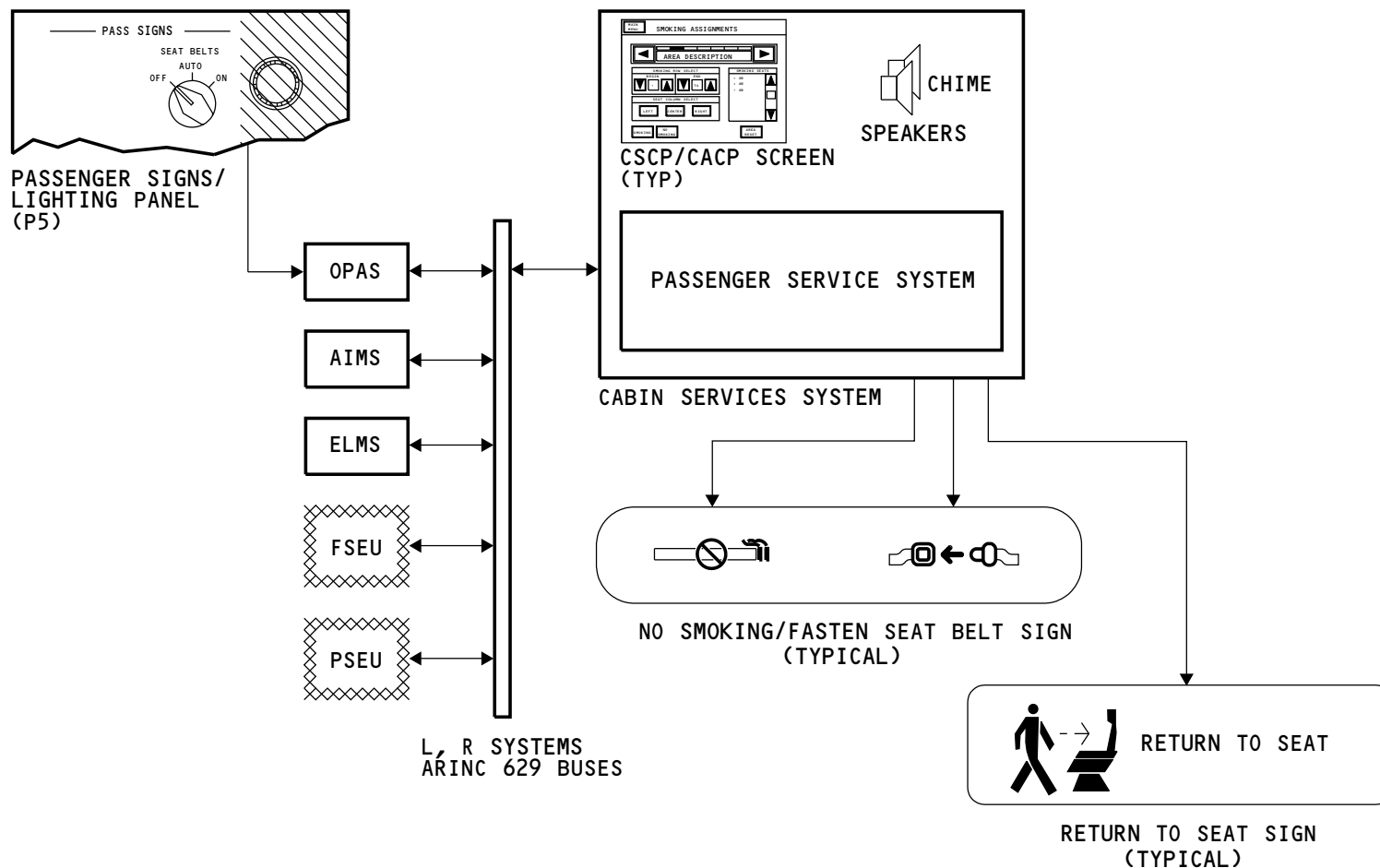
The PSS makes the signs come on or go off based on selector position and airplane conditions.

For more information about the conditions that cause the signs to turn on or go off, see the information about information sign control logic in this section.

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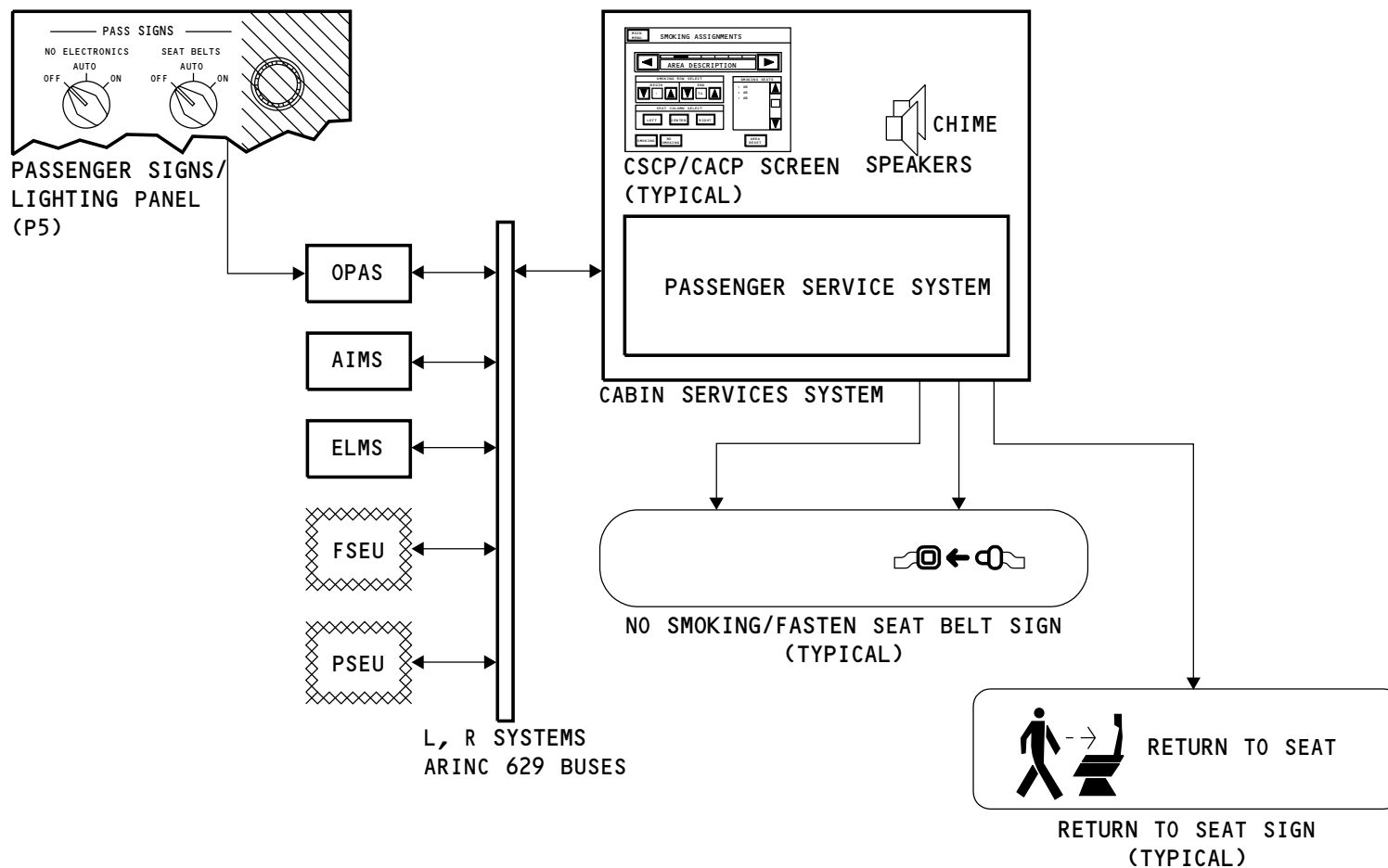
INFORMATION SIGNS - GENERAL DESCRIPTION

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INFORMATION SIGNS - GENERAL DESCRIPTION

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INFORMATION SIGNS - OPERATION

Operation

You use the selector on the P5 overhead panel to choose one of the three modes of the FASTEN SEAT BELT signs:

You use the selector on the P5 overhead panel to choose one of the three modes of the FASTEN SEAT BELT and ELECTRONIC DEVICES OFF signs:

- On
- Off
- Auto.

You use the smoking assignments screen to make changes to the size of the smoking areas. The configuration database in the CSS controls how this screen looks and if it is active. The configuration database can also set some or all of the no smoking signs permanently on.

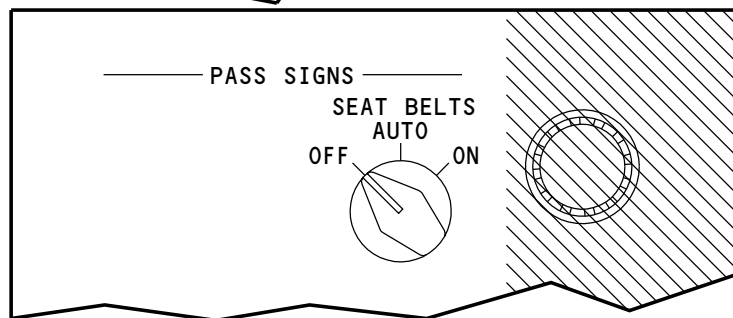
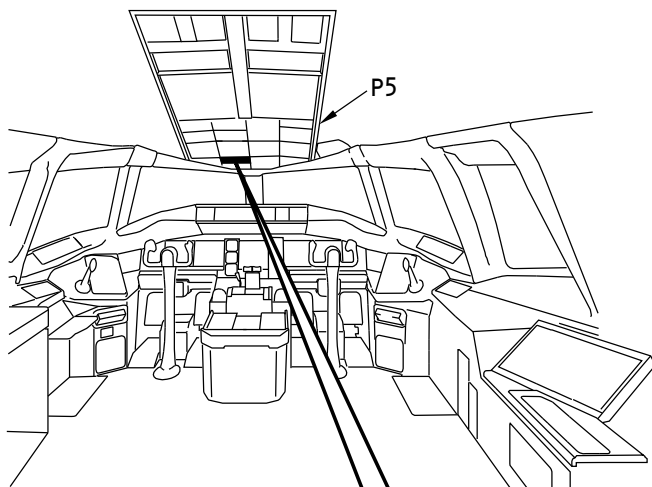
Flight Compartment Indication

A memo message shows on the EICAS display when a selector is in the ON position. Each selector has a related message. If the two selectors are in the ON position, then only the PASS SIGNS ON message shows.

Training Information Point

You can use the CSS to do a test of the information signs.

See the passenger compartment lights section for more information about the information signs tests (SECTION 33-20).



PASSENGER SIGNS/LIGHTING PANEL



INFORMATION SIGNS - OPERATION

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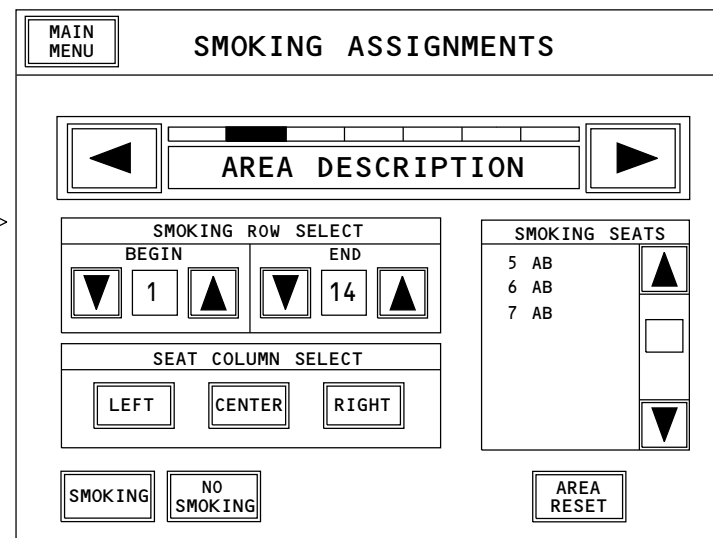
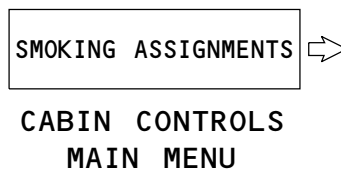
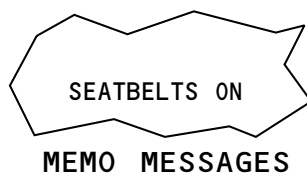
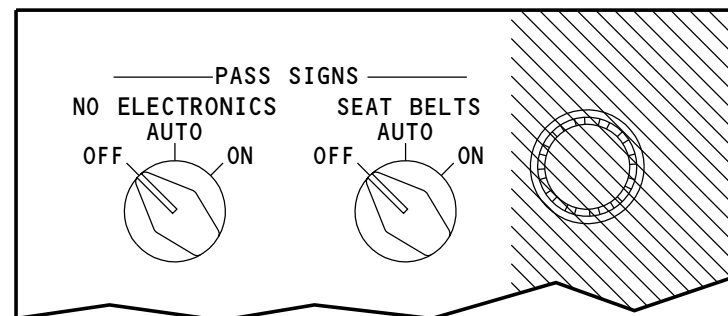
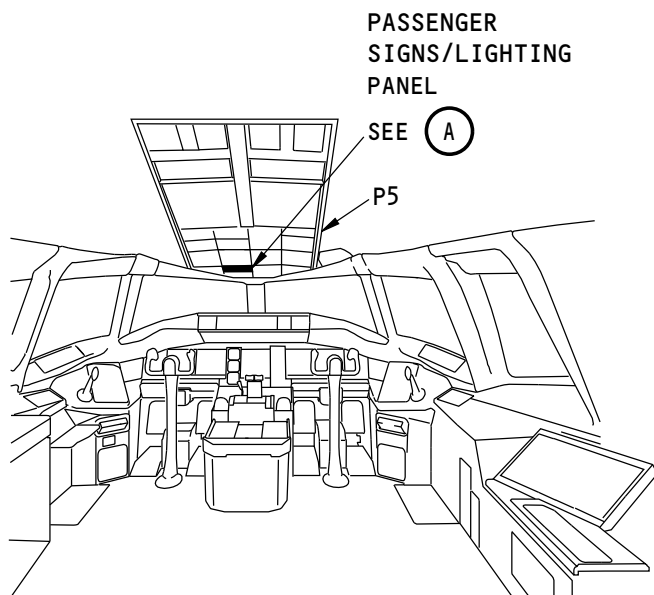
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CSCP/CACP SCREEN

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INFORMATION SIGNS - OPERATION

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INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - INTRODUCTION

General

The passenger address/cabin interphone (PA/CI) controller usually controls the information signs.

If the PA/CI fails, the cabin system management unit (CSMU) controls the information signs.

The PA/CI controller or the CSMU sends information sign on/off command signals to the ZMUs.

The information signs have these modes:

- Off
- Auto
- On.

The transfer buses must have power for the information signs to operate.

Software logic used by the PA/CI controller and the CSMU sets when and which signs should be on or off. The configuration database can be changed to set the RETURN TO SEAT sign on steady or flashing when the sign is set to on.

The following describes the functions for the different parts of the circuit. For information about control logic, see the control logic page in this section.

Off Mode

When either selector is in the OFF position, a signal goes to the overhead panel ARINC 629 system (OPAS). The OPAS sends the signal to the AIMS, the PA/CI controller and to the CSMU.

The PA/CI controller or the CSMU use this information to calculate when to set the applicable sign(s) to off:

- Selector position
- The condition of the passenger oxygen system (deployed or not deployed).

The PA/CI controller or CSMU send an off command signal to the zone management units (ZMU). The ZMUs send the signal to the overhead electronic units (OEU). Switches in the OEUs open to make the applicable sign(s) go off.

On Mode

The PA/CI controller or the CSMU set the applicable sign(s) to on based on the same information used to set the signs to off.

The on signals go the same way as the off mode. The on signal causes the applicable sign(s) to turn on.

A memo message shows that relates to the selector that is set to ON. If two selectors are set to ON, then only the PASS SIGNS ON memo message shows.

AUTO Mode

When the selector is in the AUTO position, a signal goes to the PA/CI controller and to the CSMU. The PA/CI controller or the CSMU set the applicable sign(s) to on or off based on this information:

NOTE: The No Smoking signs are ON when aircraft power is ON.

- Selector position
- The condition of the passenger oxygen system (deployed or not deployed)
- Landing gear position
- Flap lever position
- Airplane altitude
- Cabin pressure altitude.

Training Information Point

You use the configuration database to change the airplane altitude at which the fasten seat belt lights come on.

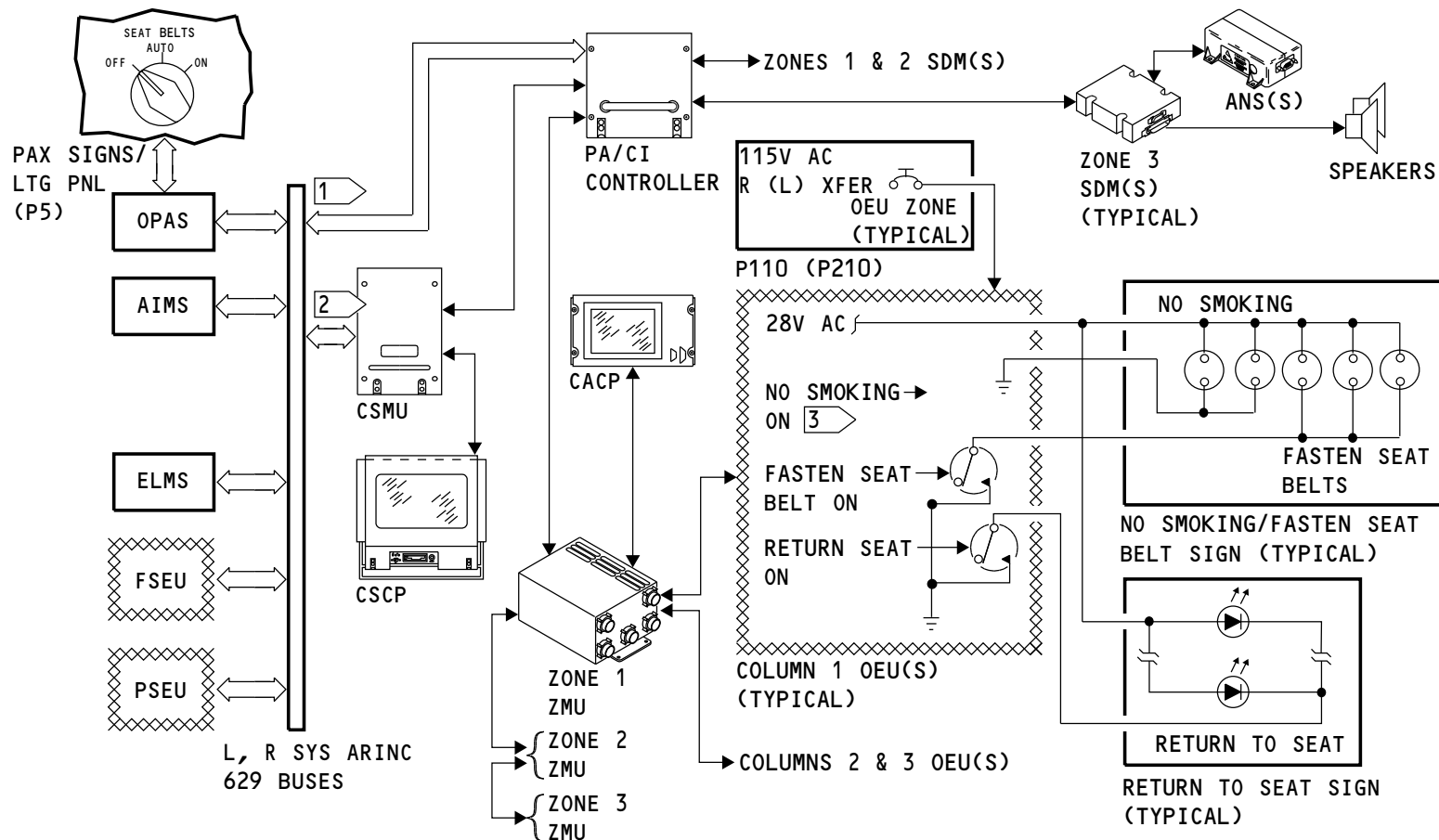
There are no assigned smoking areas in the passenger cabin.

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1 CONNECTS TO THE L SYS ARINC 629 BUS

2 CONNECTS TO THE R SYS ARINC 629 BUS

3 NO SMOKING ALWAYS ON

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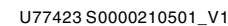
INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - INTRODUCTION

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INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - INTRODUCTION

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INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - CONTROL LOGIC

General

The passenger address/cabin interphone (PA/CI) controller controls the information signs. It gets information from these units on the left systems ARINC 629 bus:

- Airplane information management system (AIMS): airplane altitude and cabin pressure data
- Electrical load management system (ELMS): passenger oxygen deployed signals
- Flap/slat electronics unit (FSEU): flap handle position data
- Overhead panel ARINC 629 system (OPAS): no smoking and seat belts selectors position data
- Proximity sensor electronics unit (PSEU): landing gear position data.

If the PA/CI fails, the cabin system management unit (CSMU) controls the information signs. The CSMU uses the same data from the right systems ARINC 629 bus.

The PA/CI controller or the CSMU sends sign on/off commands signals to the ZMUs on the intersystem (I/S) bus.

Fasten Seat Belt

The fasten seat belt signs come on when the flight crew sets the seat belts selector to ON.

With the fasten seat belts sign selector in the AUTO position, the fasten seat belt signs come on when any one of these conditions occur:

- Passenger oxygen is deployed
- The landing gear is not up and locked
- The flap lever is not in the up position
- Airplane altitude is below the value set by the configuration database (typical value is 10,300 feet, 3142 meters)
- Cabin pressure altitude is above 10,000 feet (3050 meters).

With the fasten seat belts sign selector in the OFF position, the fasten seat belt signs come on when the passenger oxygen is deployed.

Return to Seat

The return to seat signs come on when the passenger oxygen is not deployed and the fasten seat belts signs are on.

Electronic Devices Off

The electronic devices off signs come on when the flight crew sets the no electronics selector to ON.

With the no electronics selector in the AUTO position, the electronic devices off signs come on when any one of these conditions occur:

- Passenger oxygen is deployed
- Airplane is on ground and the flap lever is not in the up position
- Airplane altitude is below the value set by the configuration database (typical value is 10,300 feet, 3142 meters)
- Cabin pressure altitude is above 10,000 feet (3050 meters).

With the no electronics selector in the OFF position, the electronic devices off signs come on when the passenger oxygen is deployed.

No Smoking

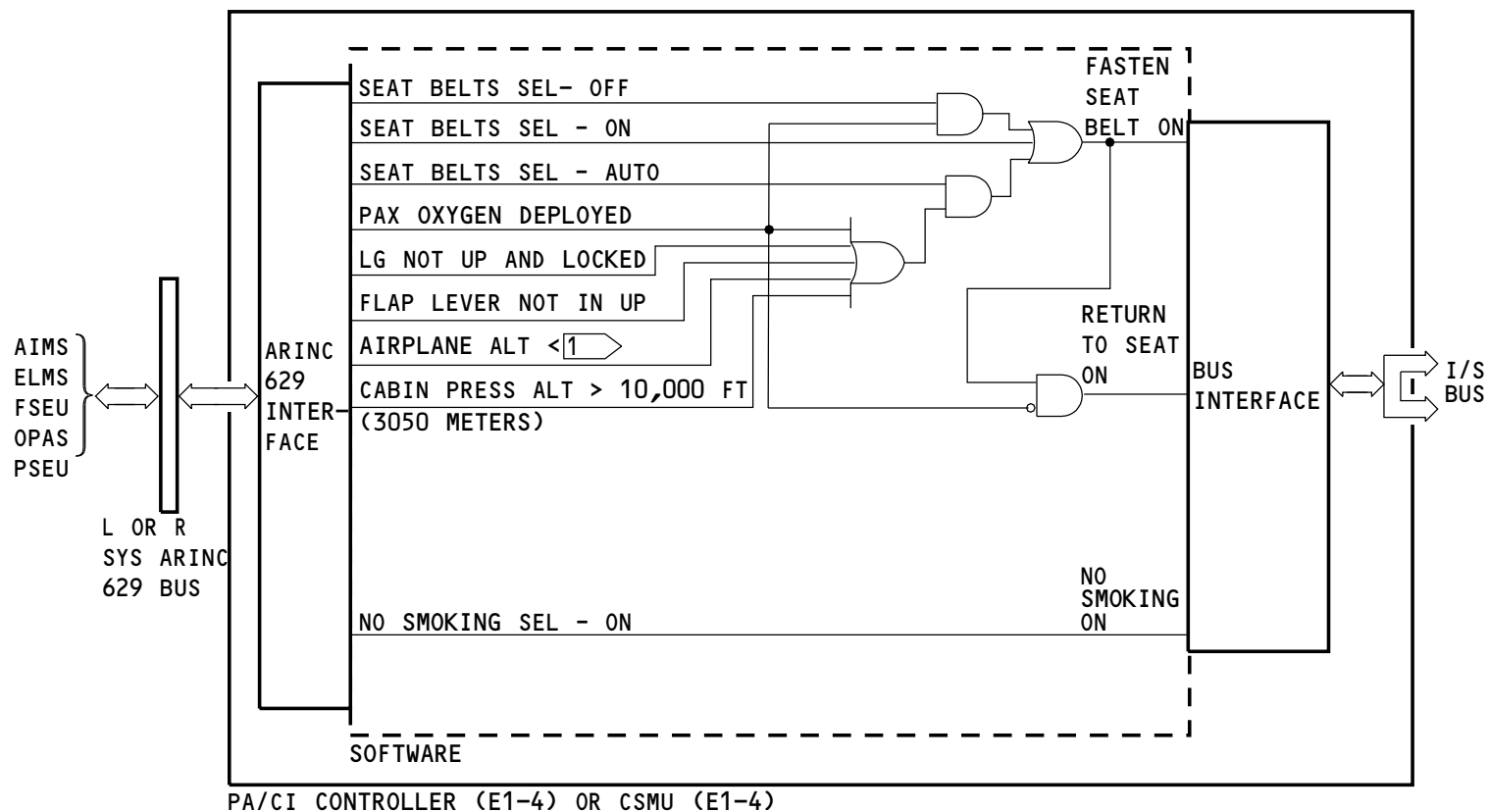
The no smoking signs are always on when power is applied to the airplane.

The no smoking signs are always on when power is applied to the airplane.

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1 ALTITUDE SET BY THE CONFIGURATION DATABASE
(10,300 FEET, 3142 METERS TYPICAL VALUE)

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INFORMATION SIGNS - FUNCTIONAL DESCRIPTION - CONTROL LOGIC

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**LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - INTRODUCTION****Purpose**

The light in the lavatory call switch tell the flight attendants when a person in the lavatory needs aid.

The master call light module tells the flight attendants when someone:

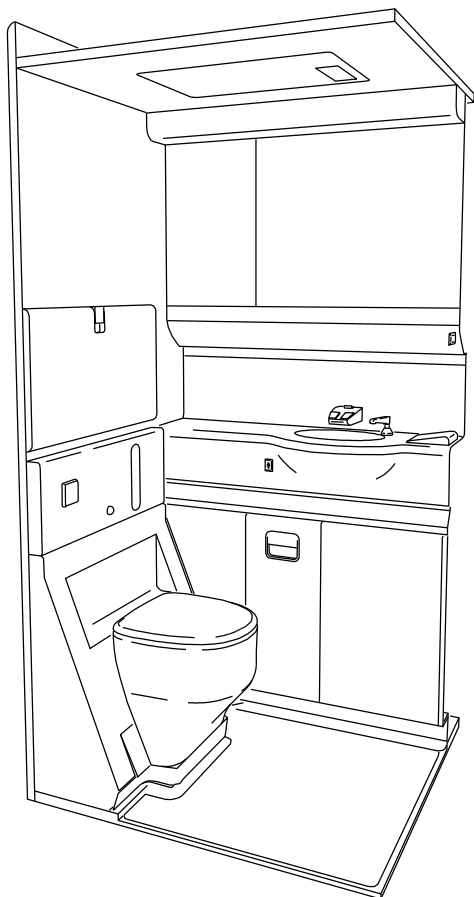
- Pushes a lavatory call switch
- Pushes an attendant call switch (not shown)
- Calls an attendant station (not shown).

Location

There is a lavatory call switch in each lavatory and a lavatory call reset switch above the door on the external wall of the lavatory.

The master call light modules are on some exit signs.

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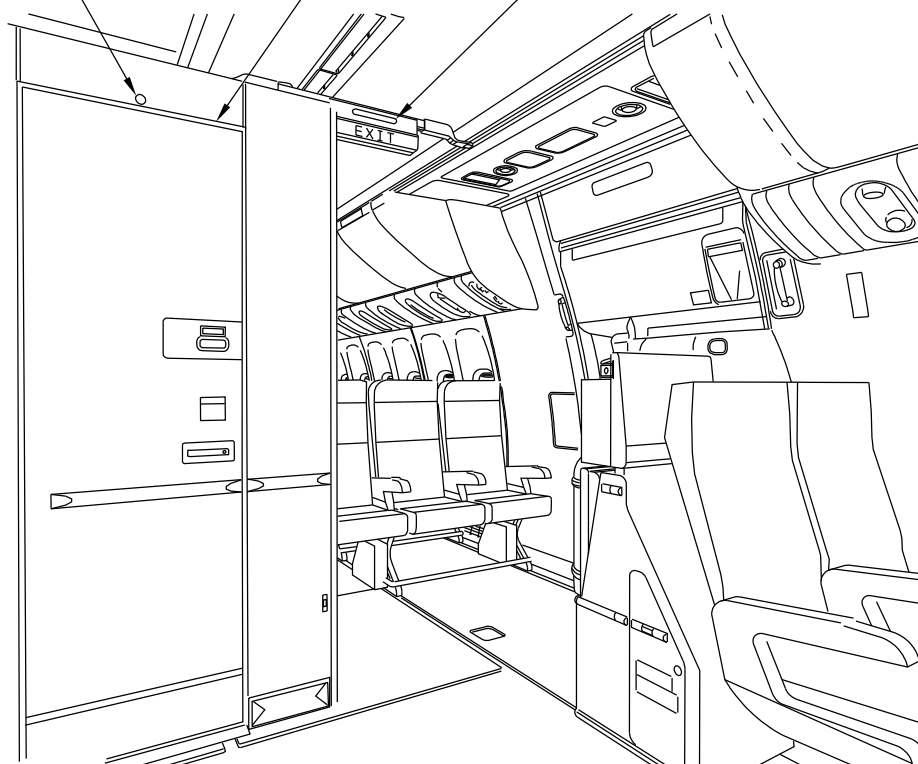


LAVATORY (TYP)

LAVATORY CALL
RESET SWITCH

LAVATORY
DOOR (TYP)

MASTER CALL
LIGHT MODULE



PASSENGER COMPARTMENT (TYP)

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LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - INTRODUCTION

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LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - LAVATORY CALL LIGHTS

Purpose

The lavatory call switch lets someone in the lavatory call an attendant. The lavatory call reset switch lets the attendants reset the lavatory call lights system.

Physical Description

The lavatory call switch and lavatory call reset switch have amber lenses and have lights in them.

Location

There is a lavatory call switch in each lavatory and a lavatory call reset switch above the door on the external wall of the lavatory.

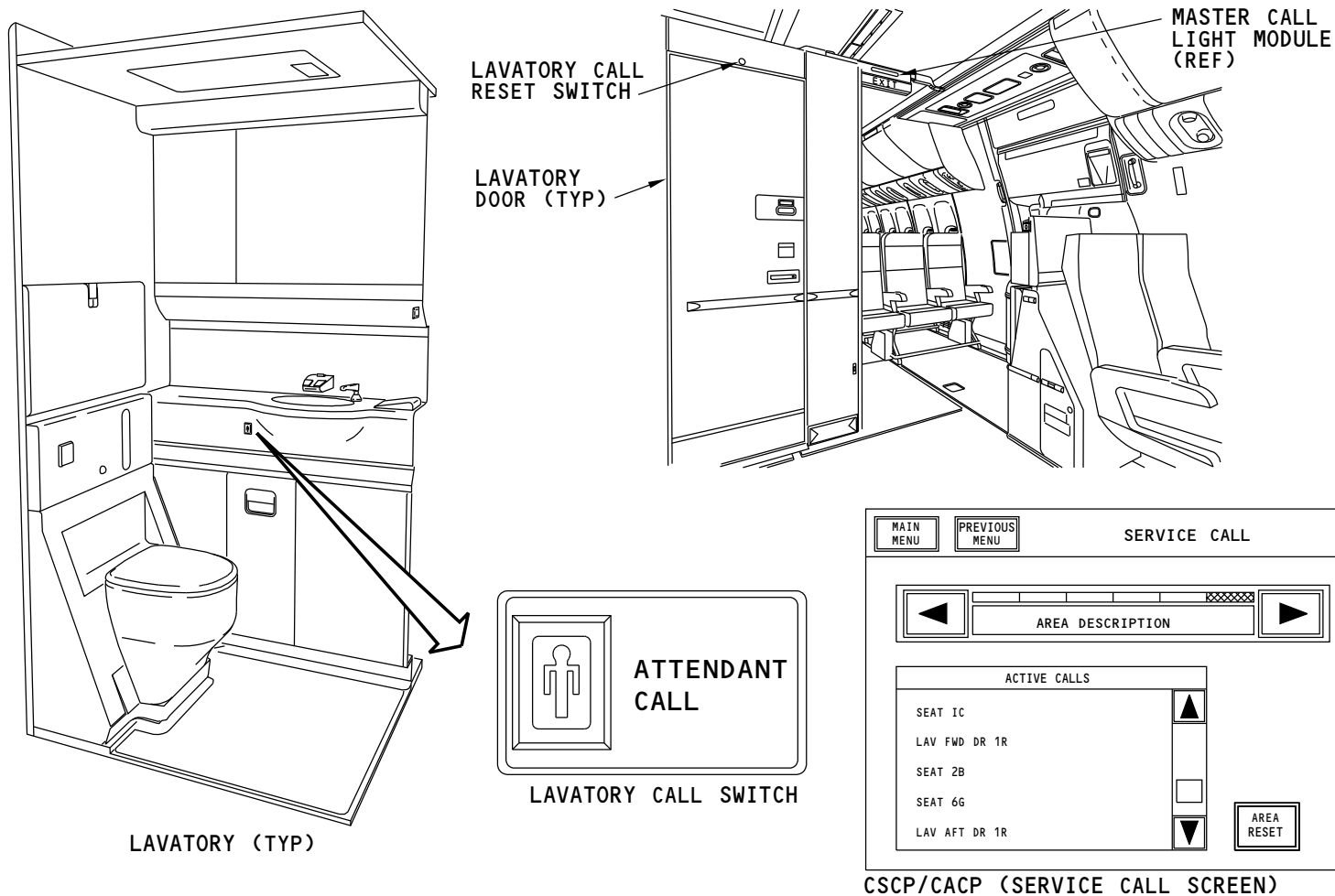
Operation

An amber light in the lavatory call switch comes on when you push it. This also causes an amber master call light and the amber light in the lavatory reset switch to come on.

The three lights go off when you push the lavatory call reset switch.

The lights also go off when they are reset on the cabin system control panel (CSCP) or the cabin area control panel (CACP) service call screen. The CSCP and CACP are part of the cabin services system.

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LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - LAVATORY CALL LIGHTS

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**LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - MASTER CALL LIGHT MODULE****Purpose**

The master call light module tells the flight attendants when a passenger or flight crew member needs aid.

Location

The modules are on the ceiling near:

- Doors 1R and 1L
- Doors 2R and 2L
- Doors 3R and 3L
- Doors 4R and 4L
- Doors 5R and 5L
- Aft galley area.

Physical Description

The lights are incandescent.

There are lens covers for the lights. The lens covers are blue, amber, pink, or opaque.

Indications

The light under the blue cover comes on when a passenger pushes the passenger call switch on the seat.

The light under the amber cover comes on when someone pushes the lavatory call switch in a lavatory.

The light under the pink cover comes on when someone uses the passenger services system to call an attendant station in that area. The opaque cover is used when a blue, pink, or amber cover is not used.

Training Information Point

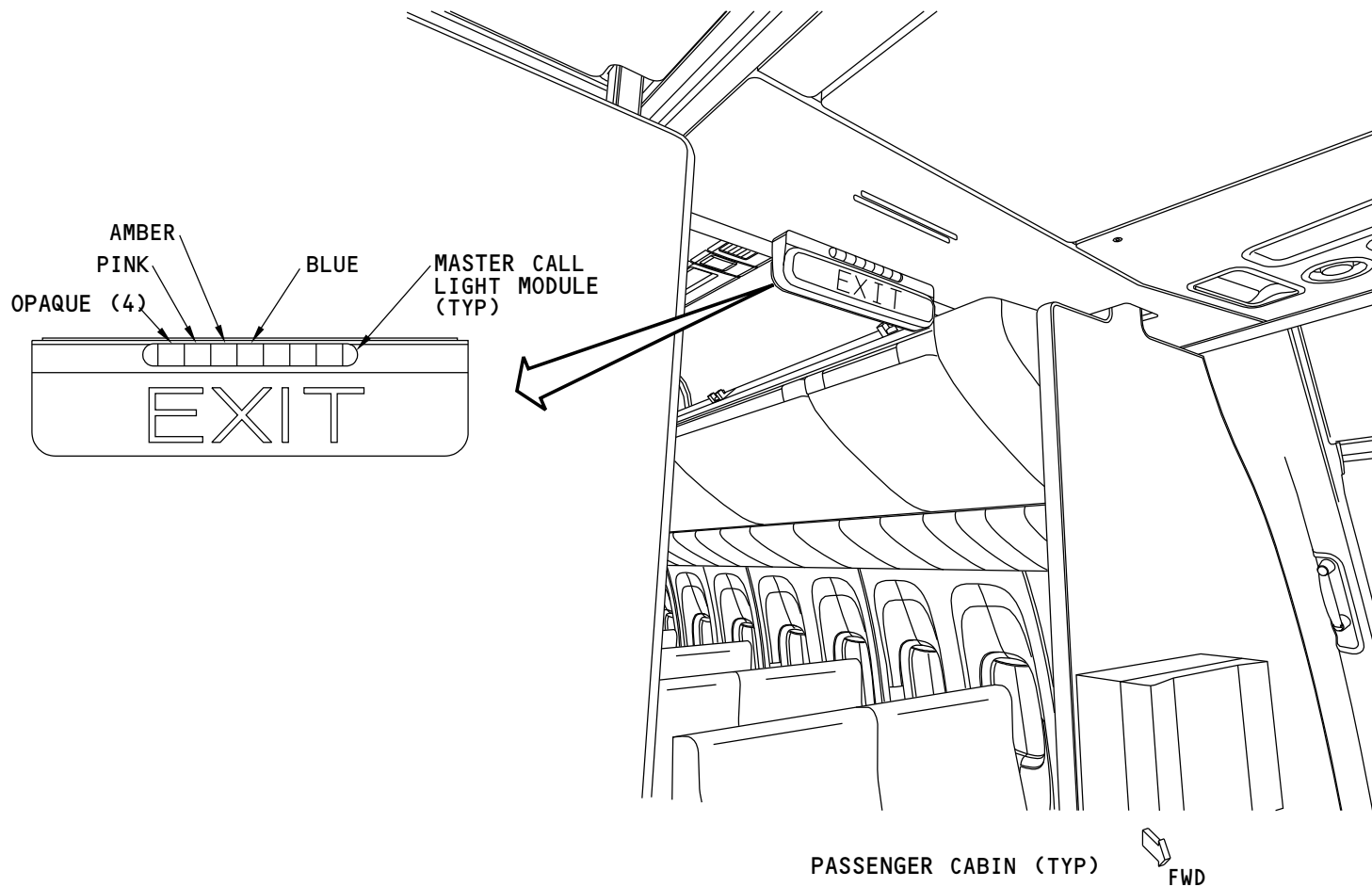
You can put the lens covers in different sequences.

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LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - MASTER CALL LIGHT MODULE

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**LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - FUNCTIONAL DESCRIPTION****Functional Description**

When you push the lavatory call switch a signal goes to the cabin services system (CSS). The ZMU in the CSS has the logic to turn on and reset the lavatory calls. The OEU gets information from the ZMU to turn on and reset the lavatory calls.

The ZMU sets a latch that makes a light come on under the amber cover on the master call light module.

The OEU sets a latch that closes a switch. This makes the amber lavatory call and call reset switch lights come on.

The CSS also turns on these indications:

- Chime in the passenger cabin
- Active call on the CSCP/CACP service call screen.

When you push the lavatory call reset switch, the signals go the same way as the call signal. This causes the lavatory call and reset call lights to go off.

You reset all the lavatory calls in an area when you touch the AREA RESET on the service call screen on CSCP or the CACP.

The master call light goes off when the last call that is active in the defined area is reset.

See the cabin services system section for more information on the CACP, intersystem, and panel buses (SECTION 23-39).

Power

The transfer buses must have power for the lavatory call lights to operate.

The master call light module gets power from the right main bus.

See the passenger service system section for more information about the power for the OEU (SECTION 23-33).

Training Information Point

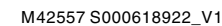
You can use the configuration database to change the chime.

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LAVATORY CALL LIGHTS AND MASTER CALL LIGHT MODULES - FUNCTIONAL DESCRIPTION

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**LAVATORY LIGHTS AND SIGNS - LIGHTS - INTRODUCTION****Purpose**

The lavatory lights supply light in the lavatories.

Location

The lavatory lights are in the ceiling and on the sidewall of the lavatories.

The mirror light is above the mirror.

The dome light is in the passenger service unit (PSU).

Physical Description

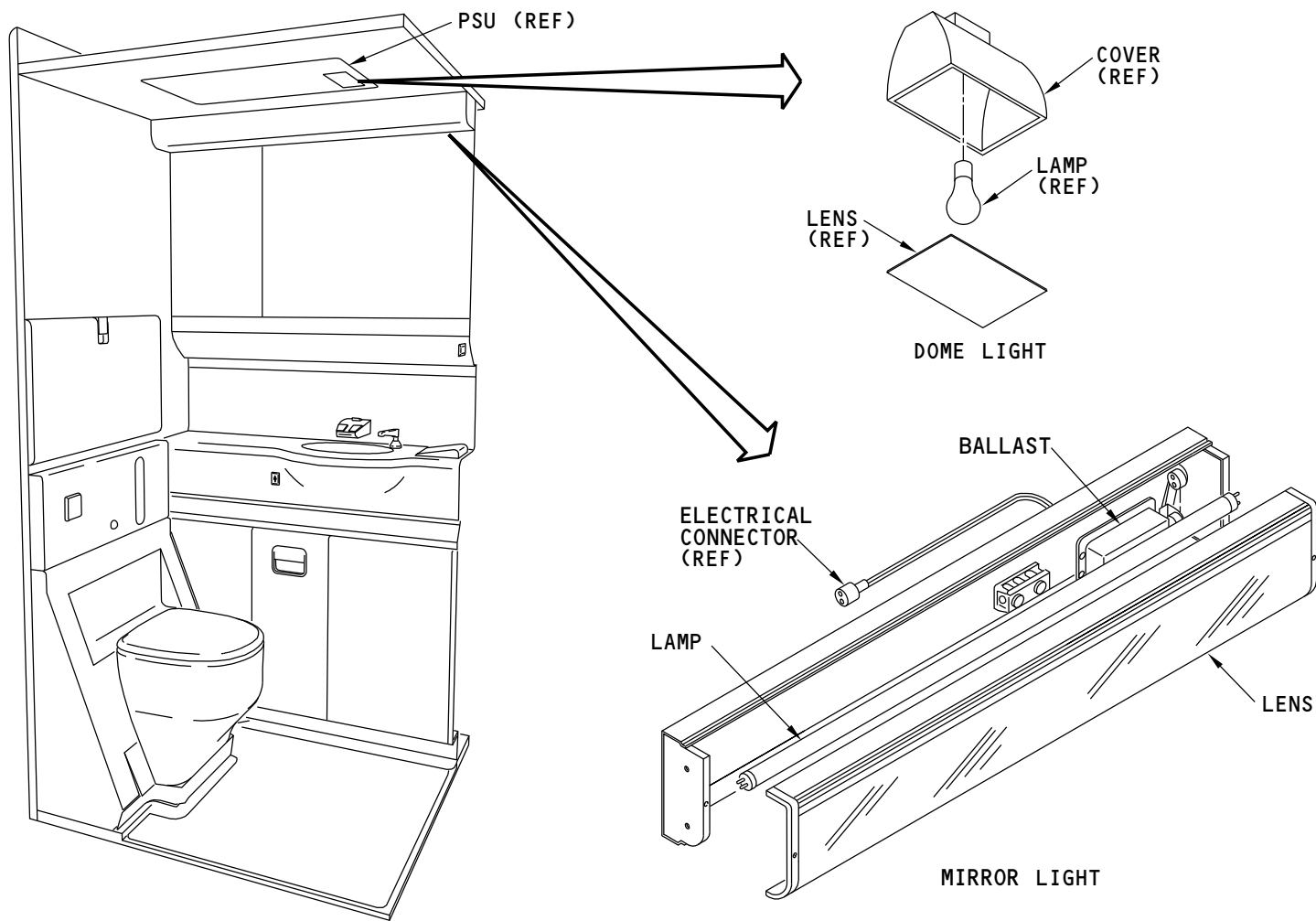
The light above the mirror is fluorescent. It has a ballast and an electrical connector.

The light in the lavatory PSU is incandescent.

Training Information Point

You compress the mirror light lens to remove it. You can get access to the lamp and the ballast when you remove the lens.

You lower the PSU and lift up on the cover to get access to the lamp.



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LAVATORY LIGHTS AND SIGNS - LIGHTS - INTRODUCTION

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**LAVATORY LIGHTS AND SIGNS - SIGNS - INTRODUCTION****Purpose**

Signs tell when all the lavatories in an area are in use and when to lock the lavatory door.

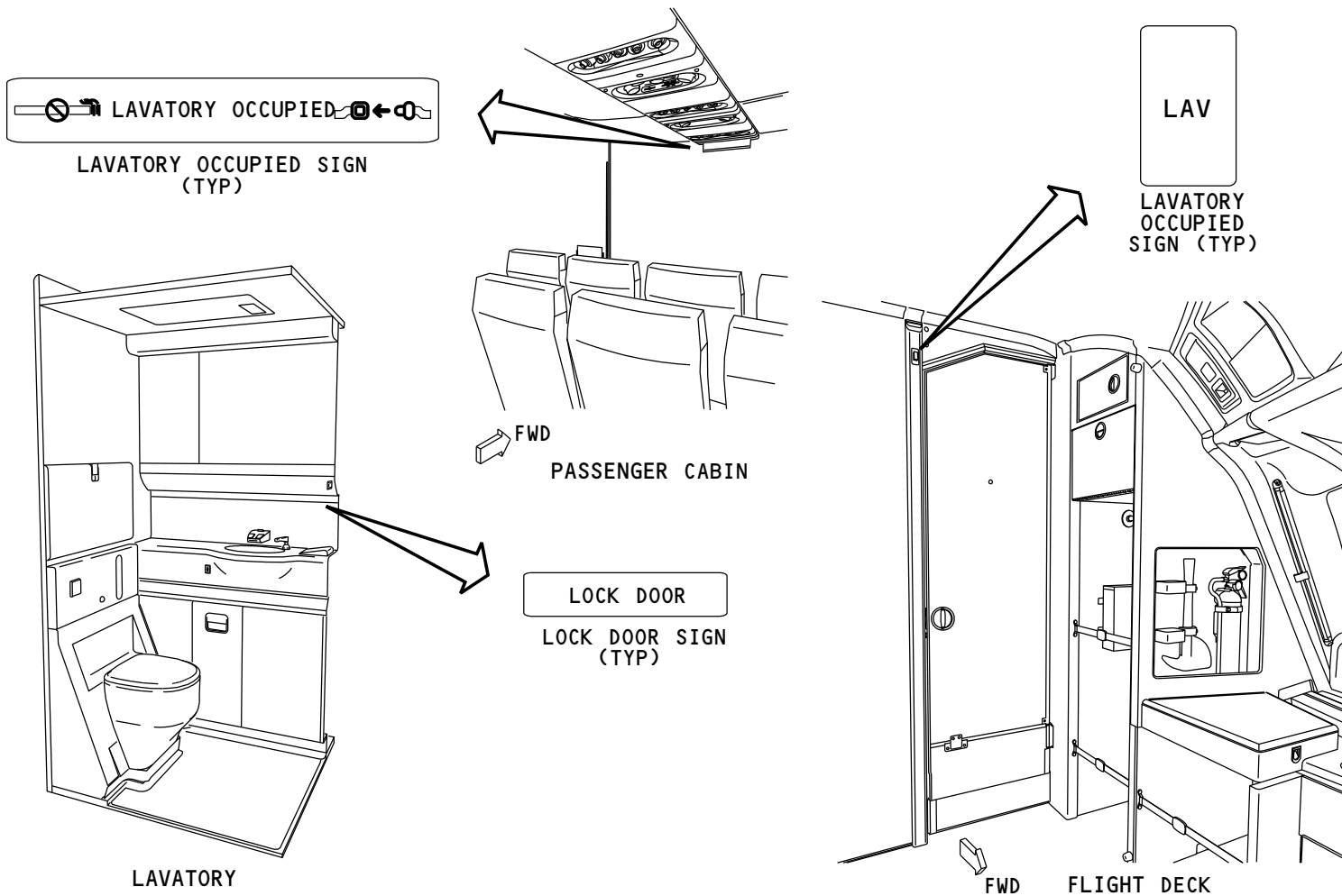
Location

The lavatory occupied signs are below the PSUs at the front or rear of a zone. They are above the passenger seats and below the PSUs. Also there is a lavatory occupied sign in the flight deck.

Training Information Point

There is a lock door sign in the lavatory.

You can use the configuration database in the cabin services system to program which lavatories make up an area.



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LAVATORY LIGHTS AND SIGNS - SIGNS - INTRODUCTION

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LAVATORY LIGHTS AND SIGNS - LAVATORY LIGHTS - FUNCTIONAL DESCRIPTION

General

The cabin services system (CSS) controls the lavatory lights through the zone management unit (ZMU) and the overhead electronics unit (OEU).

Functional Description

When the airplane is on the ground, the cabin system management unit (CSMU) sends a signal to the ZMU. The ZMU sends a signal to the OEU. The OEU sends a signal to the lavatory module and the fluorescent lights come on in the bright mode.

When the door is latched a signal goes to OEU. The OEU sends the discrete signal to the ZMU. The ZMU changes the format of the signal and sends it to the OEU. The OEU sends the signal to the lavatory module and the lights come on in the bright mode and the lock door sign light goes off.

When the door is not latched and the airplane is in the air, the fluorescent lights go off and the lock door sign light comes on.

The dome light comes on when the OEU has power.

NOTE: The CSS configuration database can make the lights come on in the dim mode when the airplane is in the air and the door is not latched.

See the passenger service system section for more information about the OEU (SECTION 23-33).

Power

Power for the fluorescent lights and the dome light comes from the transfer buses.

See the passenger service system section for more information about the power for the OEU (SECTION 23-33).

Training Information Point

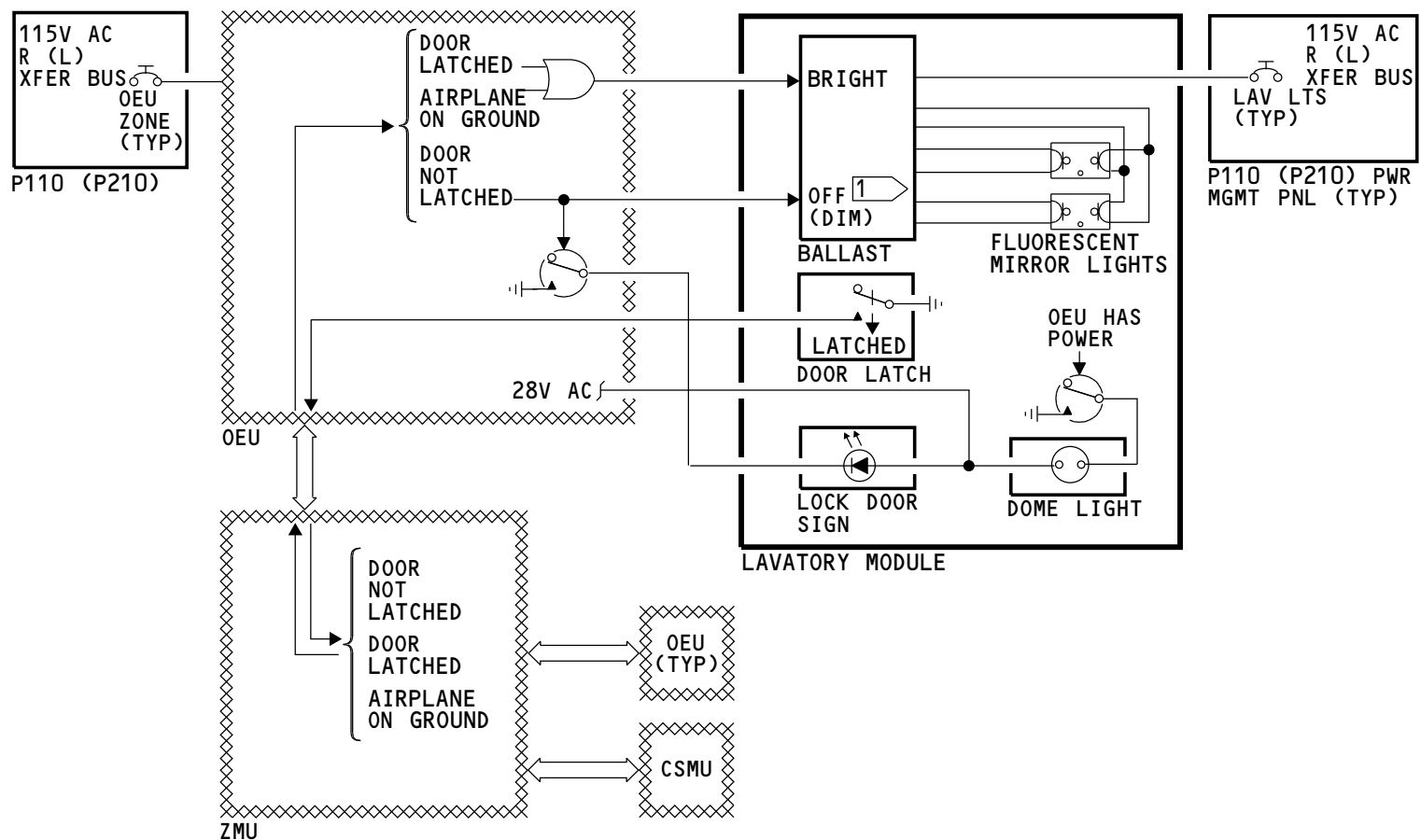
You can use the CSS configuration database to make the fluorescent light come on in the dim mode when the door is open.

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1 THE CSS DATABASE CAN MAKE THE LIGHTS COME ON IN THE DIM MODE WHEN THE AIRPLANE IS IN THE AIR AND THE DOOR IS NOT LATCHED.

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LAVATORY LIGHTS AND SIGNS - LAVATORY LIGHTS - FUNCTIONAL DESCRIPTION

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LAVATORY LIGHTS AND SIGNS - PASSENGER AREA SIGNS - FUNCTIONAL DESCRIPTION**Functional Description**

When you close and latch the lavatory door, the lavatory module sends a signal to an OEU. The OEU gives a signal to the ZMU.

The ZMU gets data about the lavatories from other OEUs. The lavatory side of the lights come on when the ZMU has power. When all the lavatory doors in an area are closed and latched, a signal goes to an OEU. The OEU closes a switch that makes the applicable occupied side of the lights come on. The occupied side of the lights in a zone will also come on when the waste tanks related to that zone are full.

These two configurations are possible for the lavatory occupied lights:

- Lav steady
- Lav toggle.

In the lav steady configuration, the lavatory side of the lights will always be on when the ZMU and OEU have power.

In the lav toggle configuration, when the occupied side of the light turns on, the lavatory side of the light turns off.

See the waste tank quantity indication section for more information about waste tank quantity indication (SECTION 38-33).

See the passenger services system section for more information about the OEU (SECTION 23-33).

Power

The transfer buses must have power for the lavatory occupied lights to operate.

See the passenger services system section for more information about the power for the OEU (SECTION 23-33).

Training Information Point

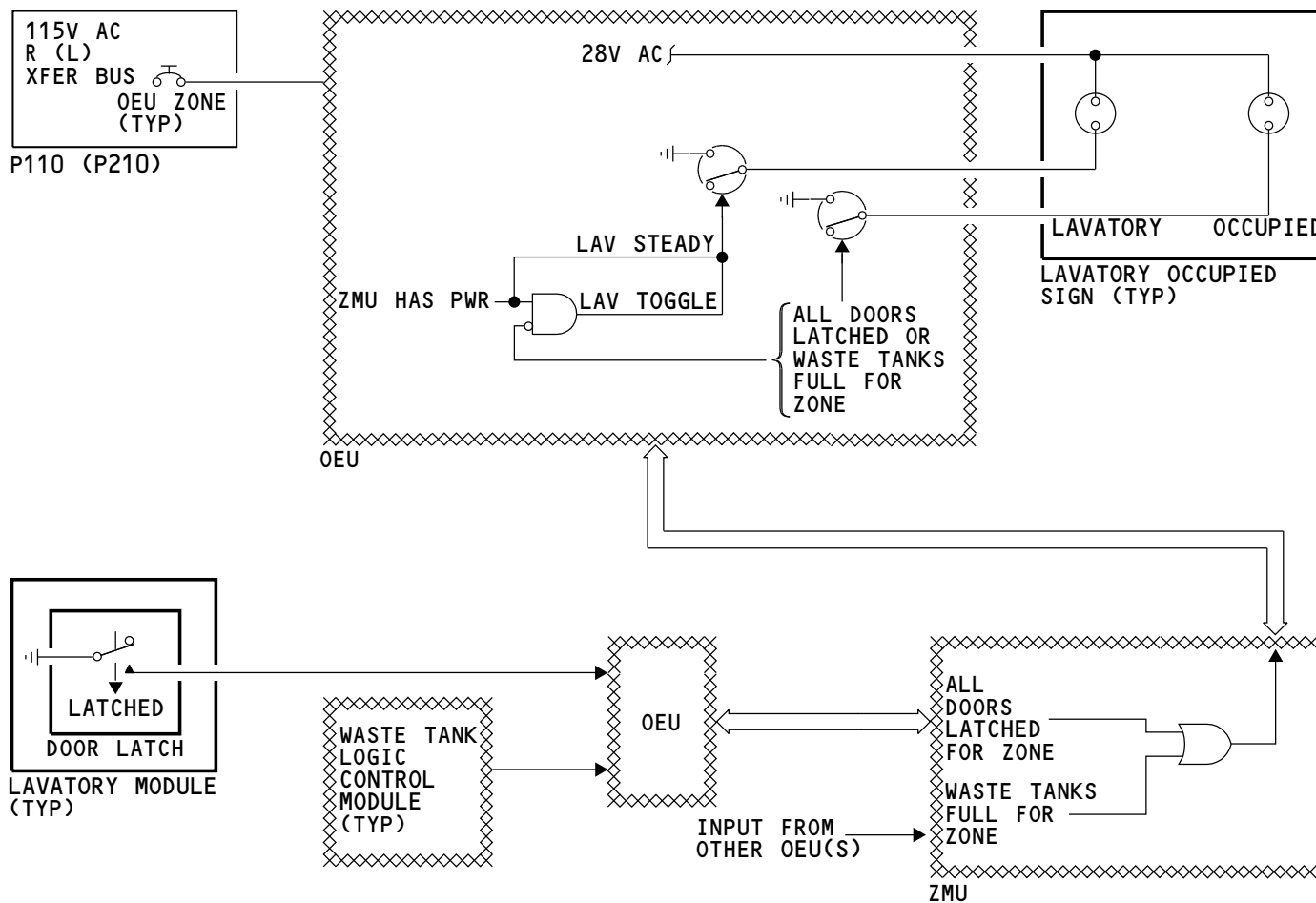
You can use the CSS configuration database to change the lavatory occupied lights to either the lav steady or lav toggle configuration.

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LAVATORY LIGHTS AND SIGNS - PASSENGER AREA SIGNS - FUNCTIONAL DESCRIPTION

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LAVATORY LIGHTS AND SIGNS - FLIGHT DECK SIGN - FUNCTIONAL DESCRIPTION

Functional Description

The ZMU sends a signal to the OEU when all the forward lavatories are occupied. The OEU closes a switch that makes the flight deck lavatory occupied relay energize. This makes the lavatory occupied light in the flight deck come on.

The master dim and test module makes the light come on in the bright or dim mode.

See the passenger service system section for more information about the OEU (SECTION 23-33).

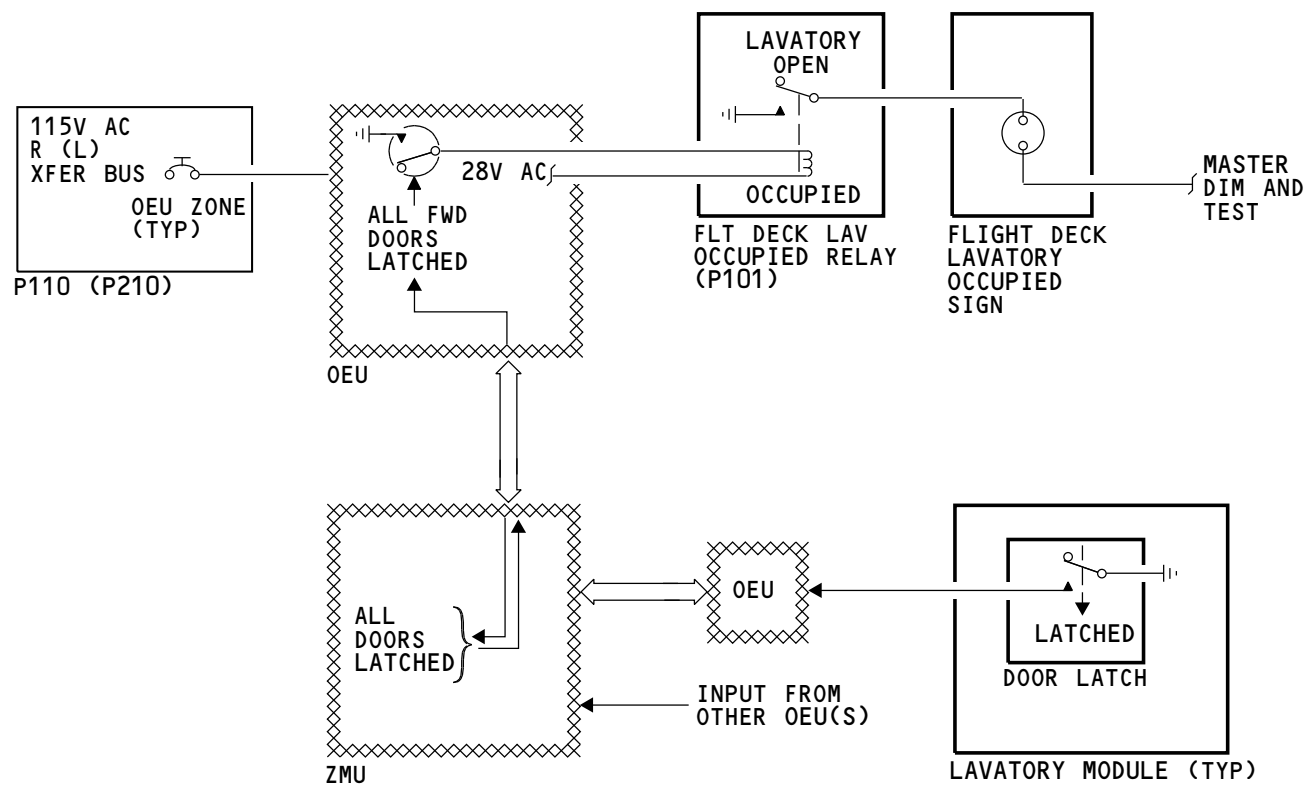
Power

The power for the light comes from the right main bus. The master dim and test module makes the light come on in the bright or dim mode.

The transfer buses must have power for the relay to operate.

See the passenger service system section for more information about the power for the OEU (SECTION 23-33).

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LAVATORY LIGHTS AND SIGNS - FLIGHT DECK SIGN - FUNCTIONAL DESCRIPTION

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GALLEY LIGHTS - INTRODUCTION

Purpose

The galley lights give light in the galleys.

Physical Description

These are the galley lights:

- Main galley lights
- Supplemental galley lights
- Standby lights.

The main galley lights are fluorescent lights. They have a lens.

The standby light has an incandescent lamp. The lamp is a bayonet-style lamp. The standby light is in the main galley light.

A supplemental galley light has these parts:

- Slot (4)
- Bezel/lens retainer
- Lens
- Tab (4)
- Lamp
- Lever.

You use the lever to lock the light in position.

Location

The the main and supplemental lights are in the ceiling in the galleys. The main galley lights have standby lights with them.

Training Information Point

To replace the main galley lights you use the fasteners in the corners of the lens to remove the lens and bezel. They are one part. This gives you access to the fluorescent lights.

You use the quick releases to remove the fluorescent lights.

You lower the ceiling panel to get access to the ballast.

To replace a supplemental light you:

- Compress the lens/bezel retainer
- Turn it counterclockwise to disconnect it from the slots
- Replace the lamp.

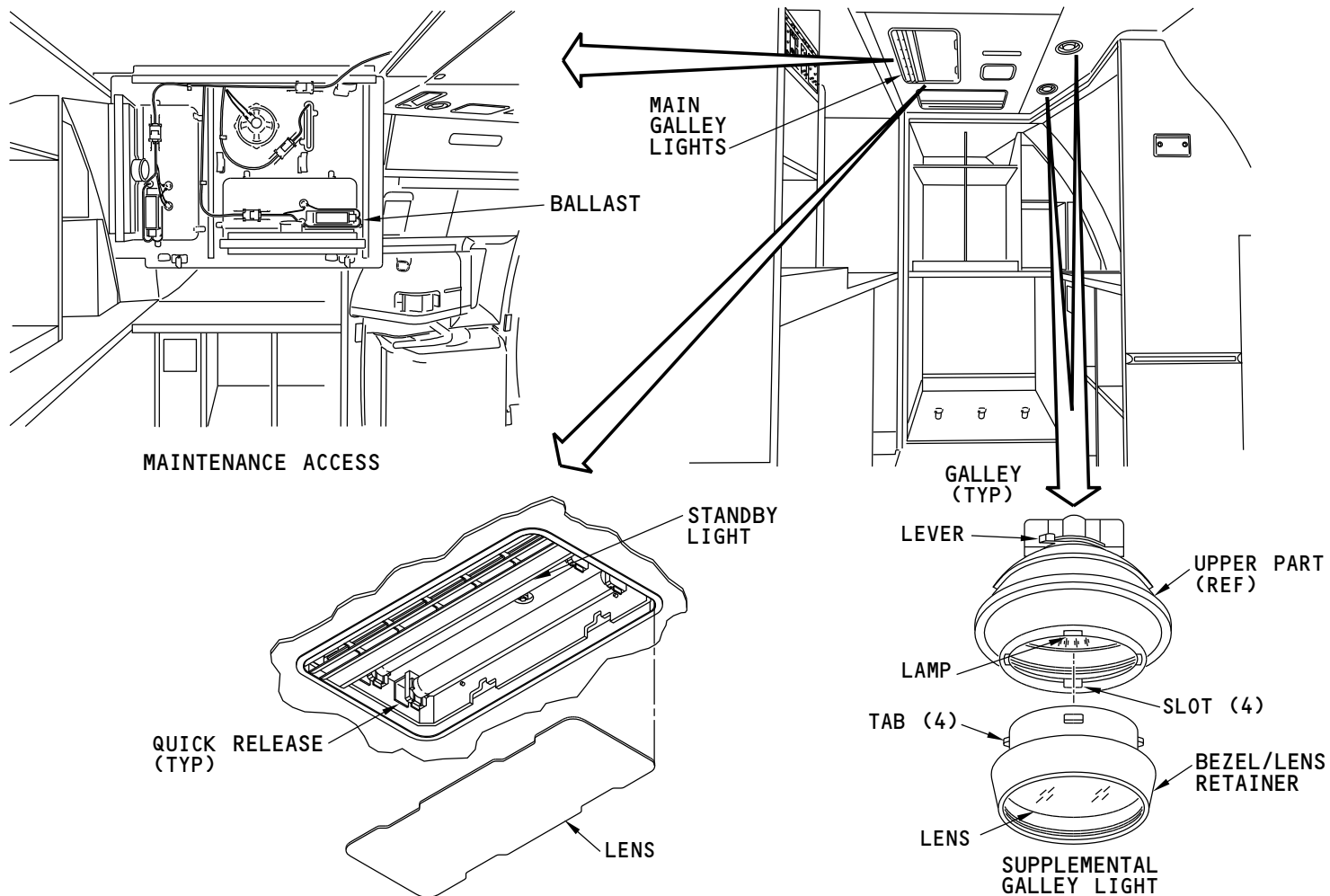
You do the opposite procedure to install the bezel/lens retainer.

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GALLEY LIGHTS - INTRODUCTION

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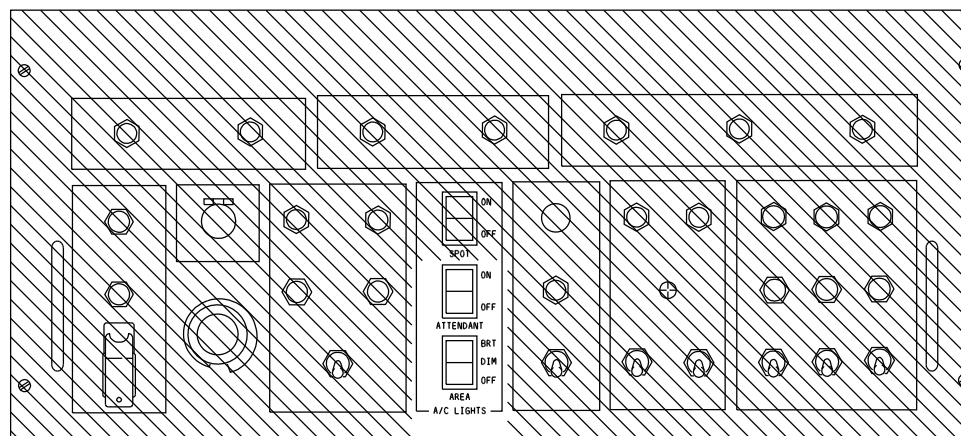
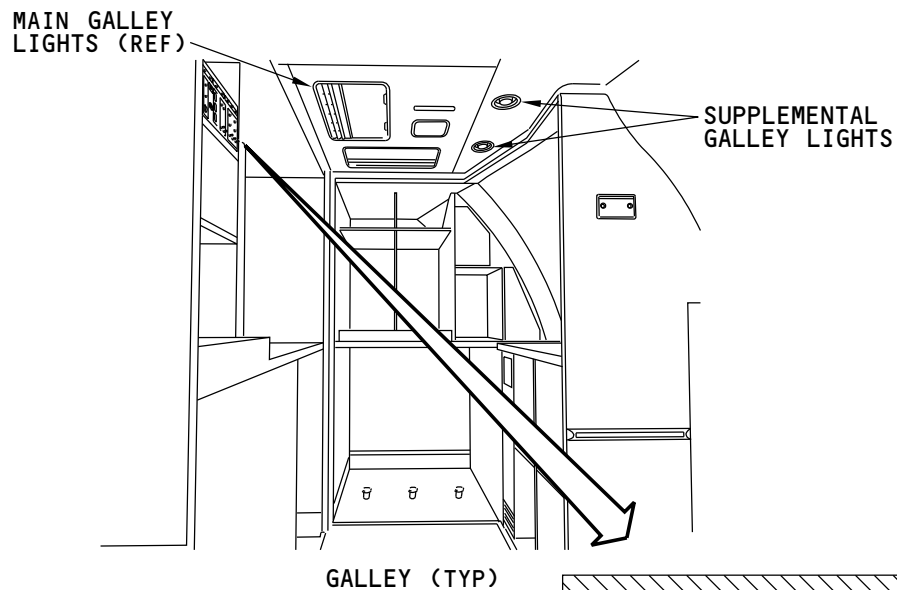
**GALLEY LIGHTS - OPERATION****Operation**

You use the area light switch to make the main galley lights come on in the dim or bright mode.

You use the attendant light switch to operate the supplemental lights.

The standby lights come on when the transfer buses have power and the ground service bus does not have power.

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GALLEY LIGHTS - OPERATION

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GALLEY LIGHTS - FUNCTIONAL DESCRIPTION

Functional Description

Fluorescent galley lights give light to a wide area in a galley. The galley light switch gives a signal to the ballast in the galley light. The ballast makes the fluorescent galley lights come on bright or dim.

Supplemental galley lights give light to a small area in the galley. Some galleys do not have these lights. A ZMU gives control for the supplemental galley lights. The ZMU uses inputs from the supplemental galley light switch and the lamp test to calculate when to turn on or off the lights. Information about the position of the supplemental galley light switch goes through an OEU to the ZMU. Lamp test information comes from the lamp test screen on the cabin system control panel (CSCP) (not shown). When the supplemental galley light switch is set to ON or a test for the supplemental galley lights is on, the ZMU gives an ON command signal to an OEU. The OEU turns on the supplemental galley lights.

See the cabin services system section for more information about ZMUs, OEUs, and the lamp test screen (SECTION 23-39).

Standby Lights

Some galley fluorescent lights assemblies have a standby light. The standby light gives a low level of light to a galley area when usual lights are not available. A ZMU gives automatic control for the standby lights. The ZMU uses inputs from ELMS about reduced power conditions (the status of the ground service bus or state of the Cabin/Utility switch) and the lamp test to calculate when to turn on or off the standby lights. Information about the ground service bus and Cabin/Utility switch comes from ELMS through the cabin system management unit (CSMU). Lamp test information comes from the lamp test screen on the cabin system control panel (CSCP) (not shown). When the ground service bus does not have power or the Cabin/Utility switch has been selected off, the ZMU gives an ON command signal to the appropriate OEUs. The OEUs turn on the standby lights.

Power

Power for the fluorescent lights is 115v ac. It comes from the ground service bus.

The main buses 115v ac secondary 2 must have power for the supplemental galley lights to operate.

The transfer buses 115v ac must have power for the standby light to operate.

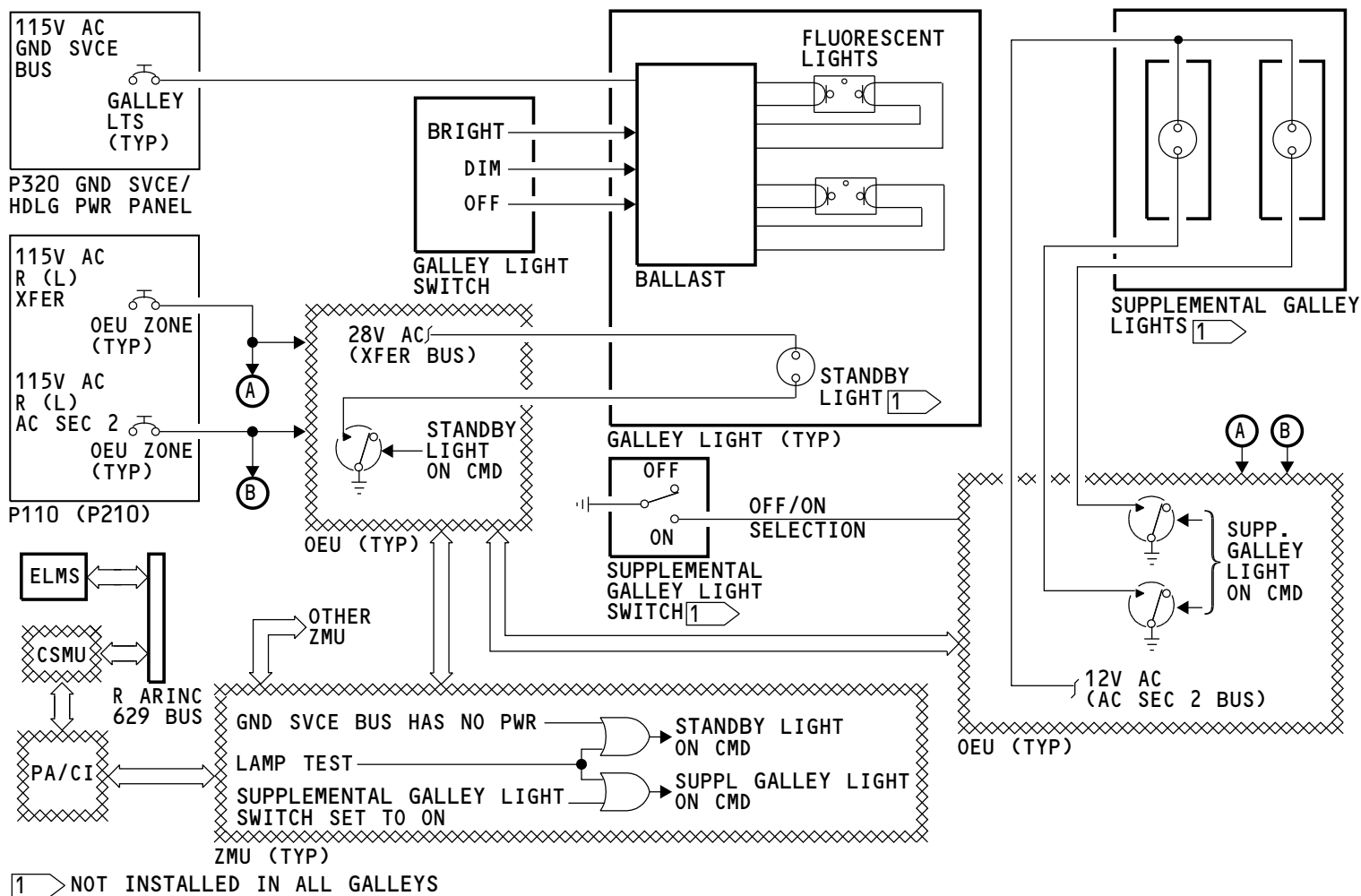
See the passenger service system section for more information about power for the OEU (SECTION 23-33).

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GALLEY LIGHTS - FUNCTIONAL DESCRIPTION

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**PASSENGER CALL LIGHTS - INTRODUCTION****Purpose**

The passenger call lights tell the flight attendants when aid is necessary.

Location

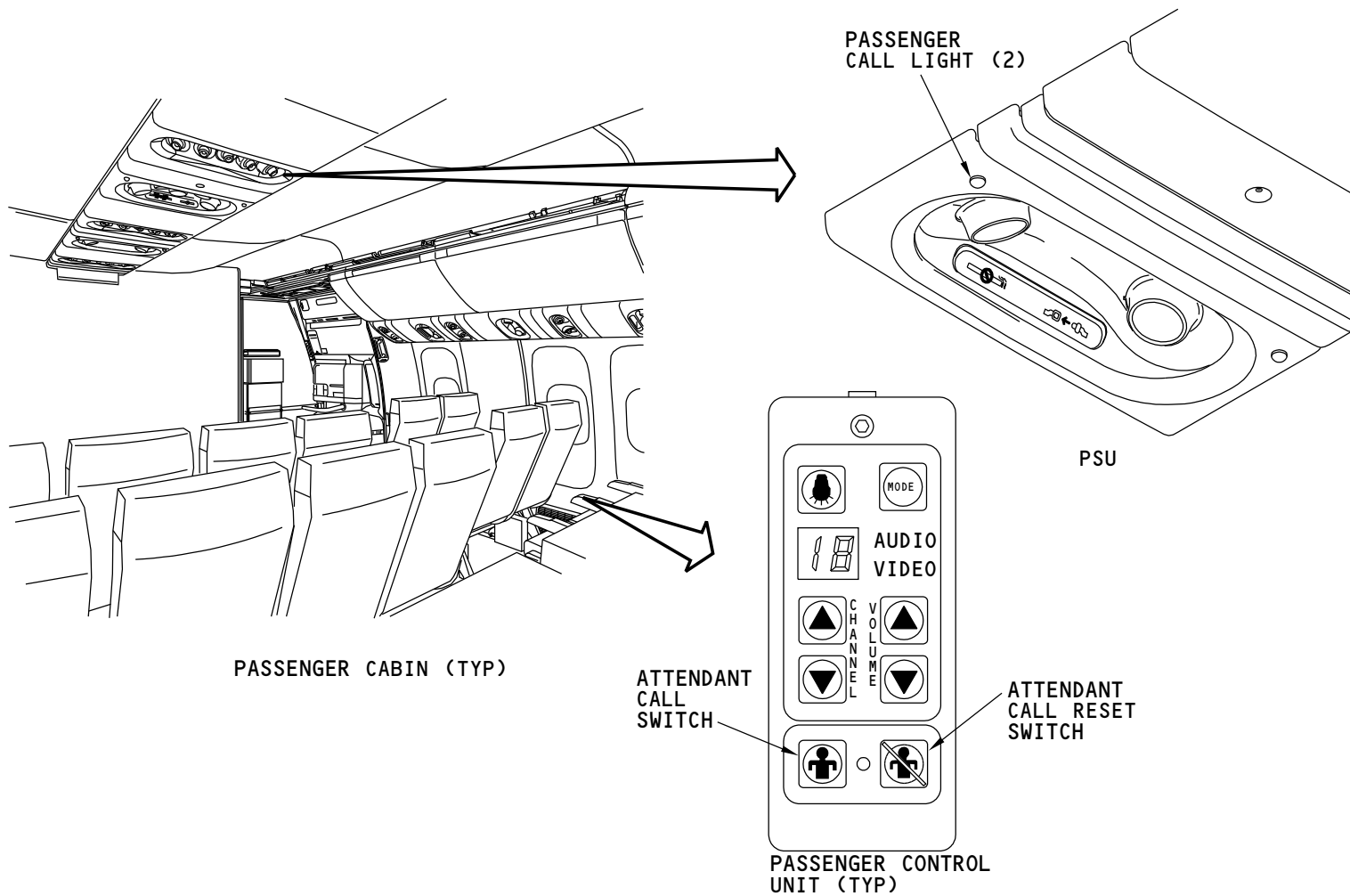
There is an attendant call switch and attendant call reset switch on the passenger control unit (PCU) at each seat.

There are two passenger call lights on each center passenger service unit (PSU). There is one on each outboard PSU.

Interface

The passenger call lights give signals to the master call module, the passenger address/cabin interphone (PA/CI) system and the CACP and CSCP screens.

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PASSENGER CALL LIGHTS - INTRODUCTION

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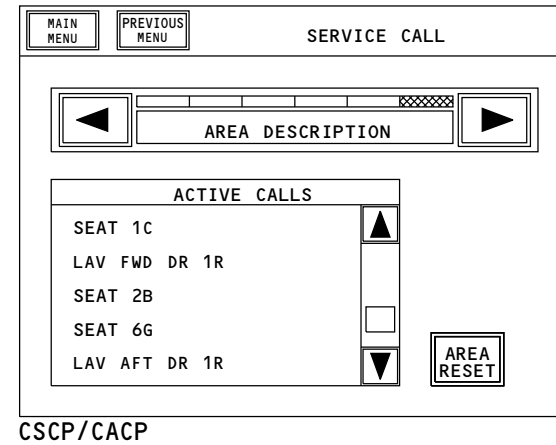
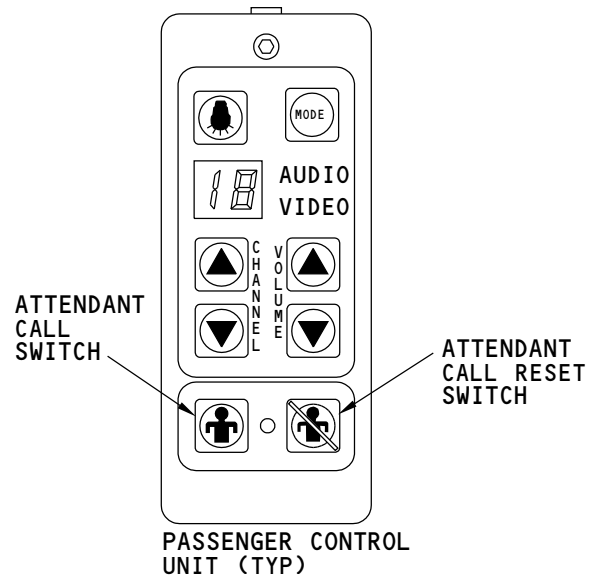
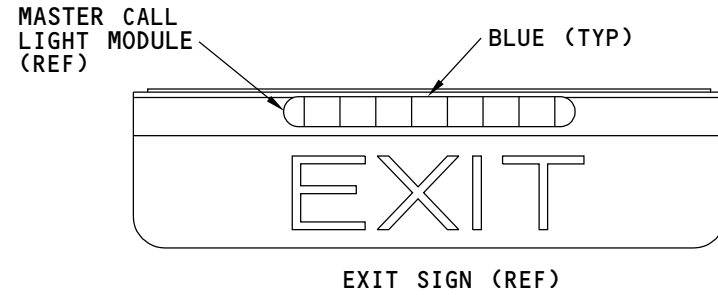
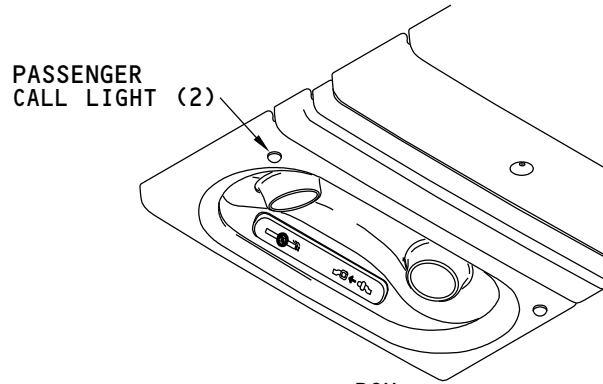
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**PASSENGER CALL LIGHTS - OPERATION****Operation**

The passenger call light comes on when you push the attendant call switch. This causes a blue light on the master call light module to come on.

The call light on the PSU goes out when you push the reset switch. You can use the cabin system control panel (CSCP) or a cabin area control panel (CACP) service call screen to reset all of the passenger call lights in an area.

The light on the master call light module goes out when there are no passenger call lights on in that area.



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PASSENGER CALL LIGHTS - OPERATION

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**PASSENGER CALL LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

The configuration database that is loaded in the cabin services system (CSS) sets the passenger call lights that come on in each selection.

Passenger call selections made on the passenger control unit (PCU) (not shown) make the applicable passenger call light come on or go off. The overhead electronics unit (OEU) sets the selected call light to the commanded position.

The zone management unit (ZMU) (not shown) sets a latch that makes a light under the blue lens on the master call module come on. The ZMU sends information about a passenger call selection to the:

- Overhead electronics unit
- Passenger address/cabin interphone (PA/CI) (not shown)
- Cabin system management unit (CSMU) (not shown)
- Cabin area control panel (CACP) (not shown).

The OEU sets a latch that closes a switch. This makes the passenger call lights come on.

The PA/CI sends a signal to a speaker drive module (SDM) to make the high chime sound.

The CSMU sends a signal to the cabin system control panel (CSCP). The CACPs and CSCP display the information on the service call screen.

When you push the attendant call reset switch, the passenger call light goes off. You reset all the passenger calls in an area when you touch the AREA RESET on the CSCP or the CACP service call screen.

The master call light goes out when there are no passenger call lights on in the area.

Power

The main buses must have power for the passenger call lights to operate. The master call light module gets power from the right main bus.

See the passenger service system section for more information about the power for the OEU (SECTION 23-33).

Training Information Point

You can use the configuration database to change the chime.

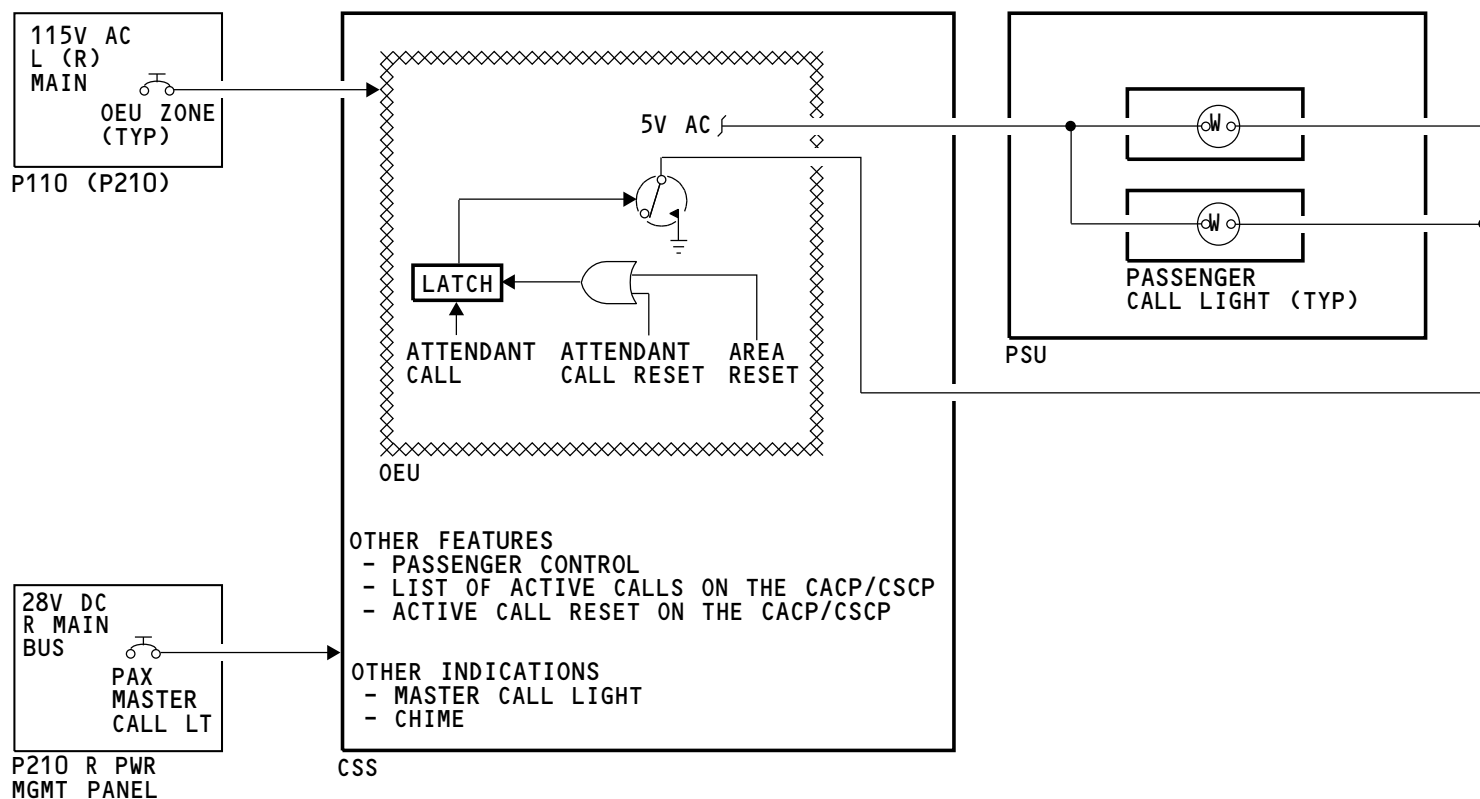
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PASSENGER CALL LIGHTS - FUNCTIONAL DESCRIPTION

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**SERVICE AND CARGO LOADING LIGHTS - INTRODUCTION****Purpose**

The service and cargo loading lights give light to aid maintenance personnel and the ground crew.

Location

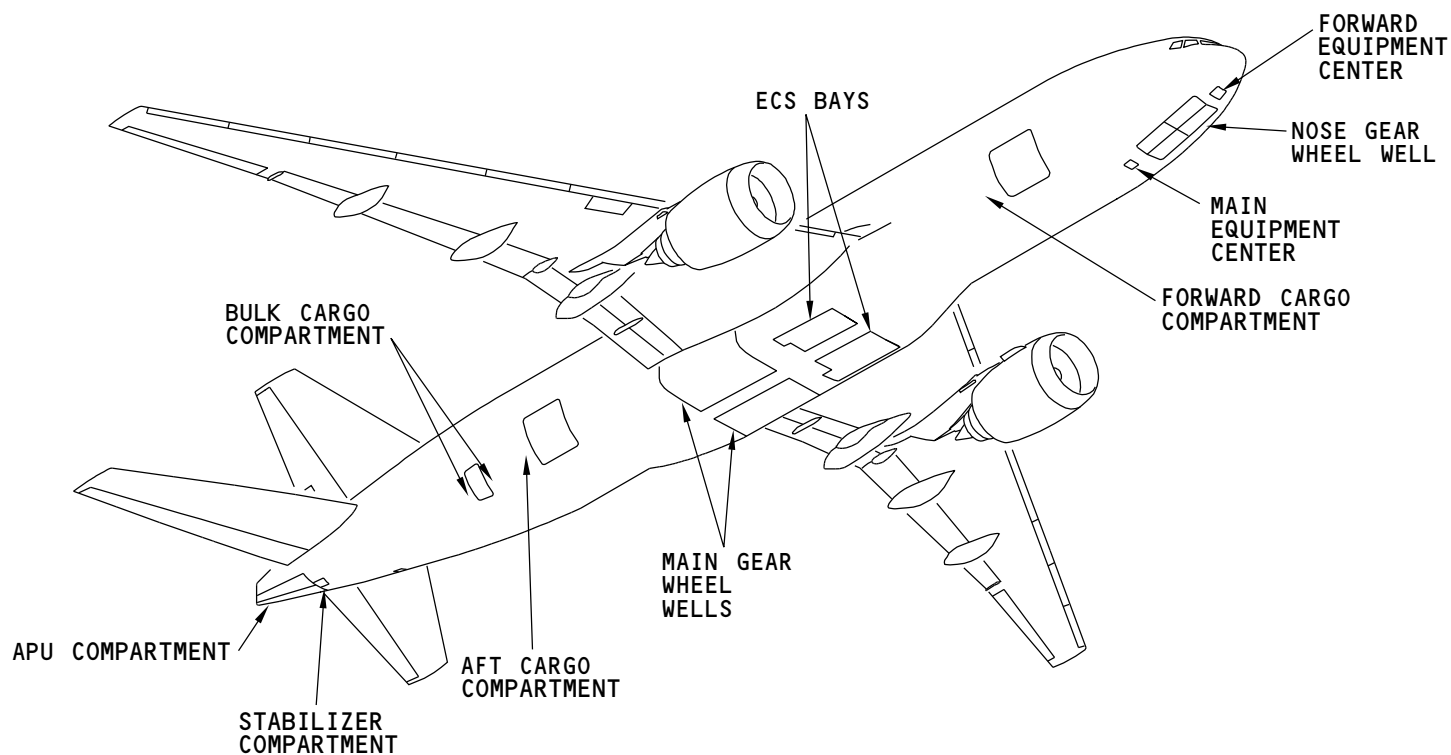
There are service lights in these areas:

- Forward equipment center
- Nose gear wheel well
- Main equipment center
- Environmental control system (ECS) bay
- Main gear wheel wells
- Stabilizer compartments
- APU compartment.

There are cargo loading lights on the external side of the airplane in these areas:

- Forward cargo compartment
- Aft cargo compartment
- Bulk cargo compartment.

There are also lights on the inside of the cargo doors that give light to the door area when the door is open (not shown).



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SERVICE AND CARGO LOADING LIGHTS - INTRODUCTION

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**SERVICE AND CARGO LOADING LIGHTS - SERVICE LIGHTS - PHYSICAL DESCRIPTION****Purpose**

The service lights give light in the service compartments to help maintenance personnel.

Physical Description

Each light has a:

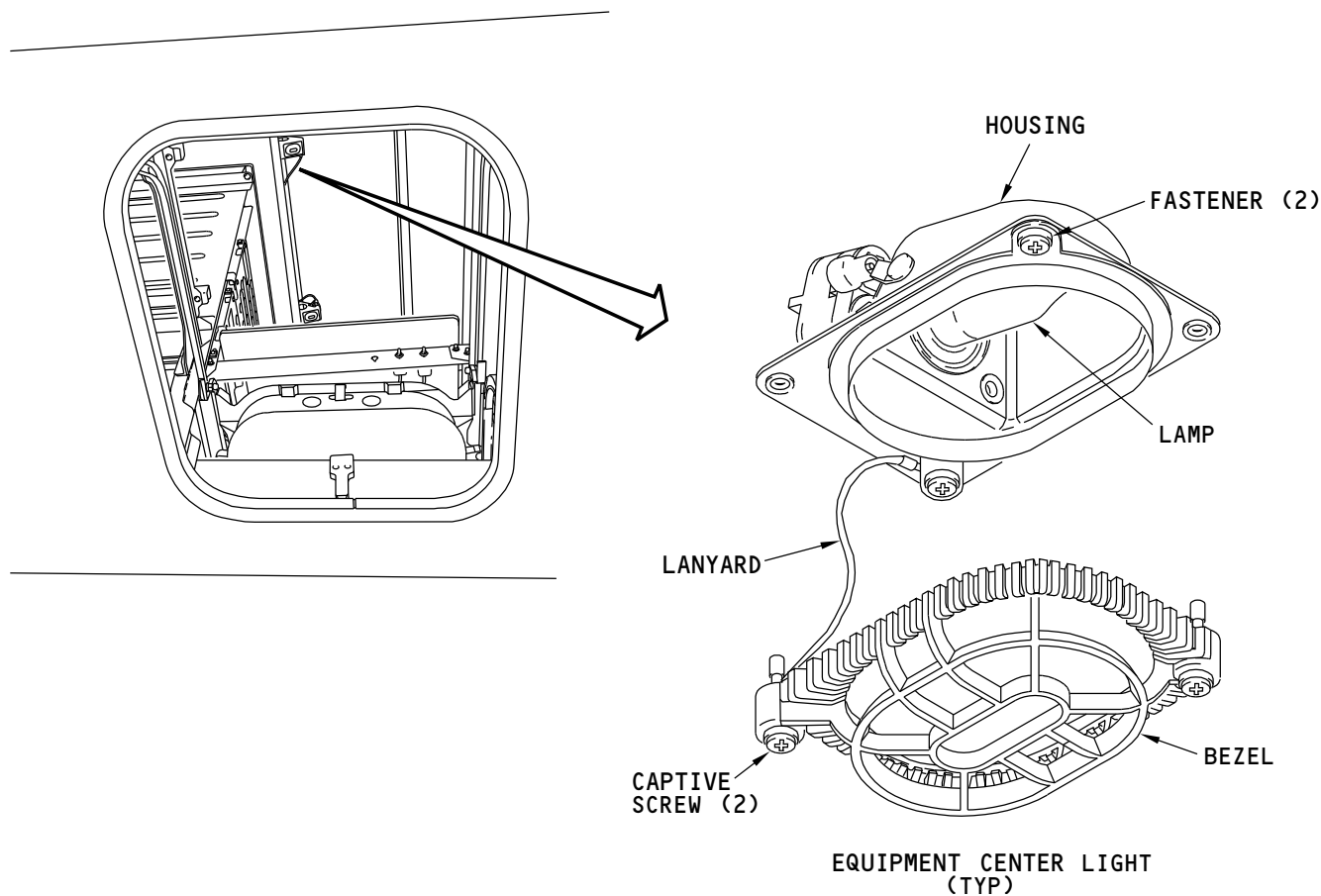
- Housing
- Fastener (2)
- Lamp
- Bezel
- Captive screw (2)
- Lanyard.

Two fasteners hold the light assembly. Two captive screws hold the bezel.

Training Information Point

To replace the lamp you loosen the two captive screws in the bezel. The bezel will hang by a lanyard. The lamp is a bayonet-style lamp.

All of the service lights are the same.



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SERVICE AND CARGO LOADING LIGHTS - SERVICE LIGHTS - PHYSICAL DESCRIPTION

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**SERVICE AND CARGO LOADING LIGHTS - EQUIPMENT CENTER LOCATIONS****Forward Equipment Center**

There are six lights in the forward equipment center.

There are two FWD E/E BAY LTS switches that control the lights in the forward equipment center. One is in the forward equipment center, forward of the access door. It is adjacent to the cabin interphone jack. The other switch is in the main equipment center (MEC). It is above the MEC door.

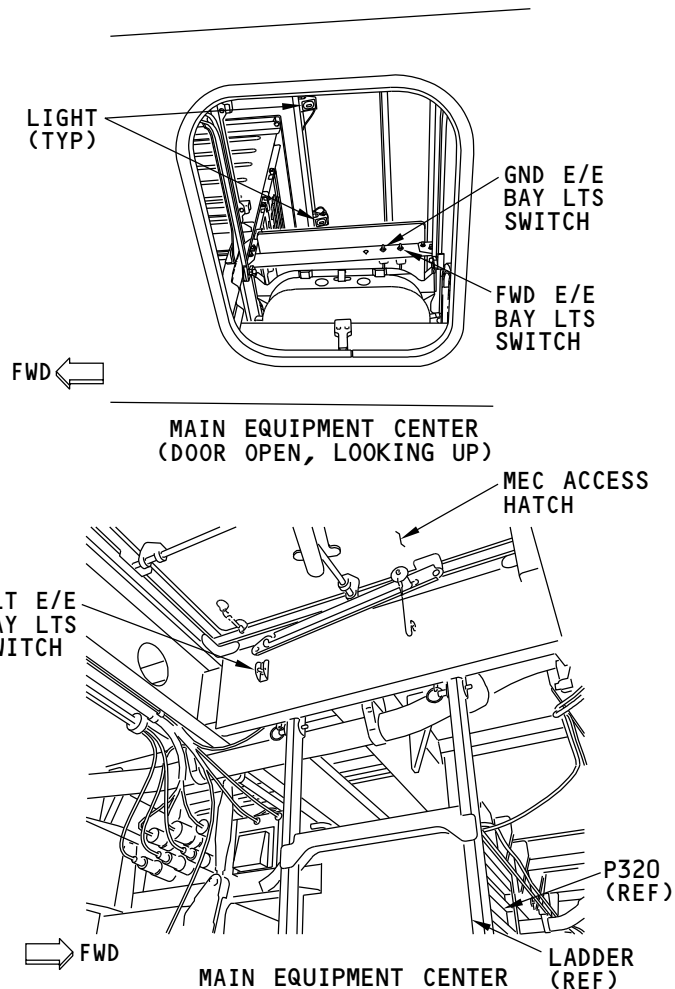
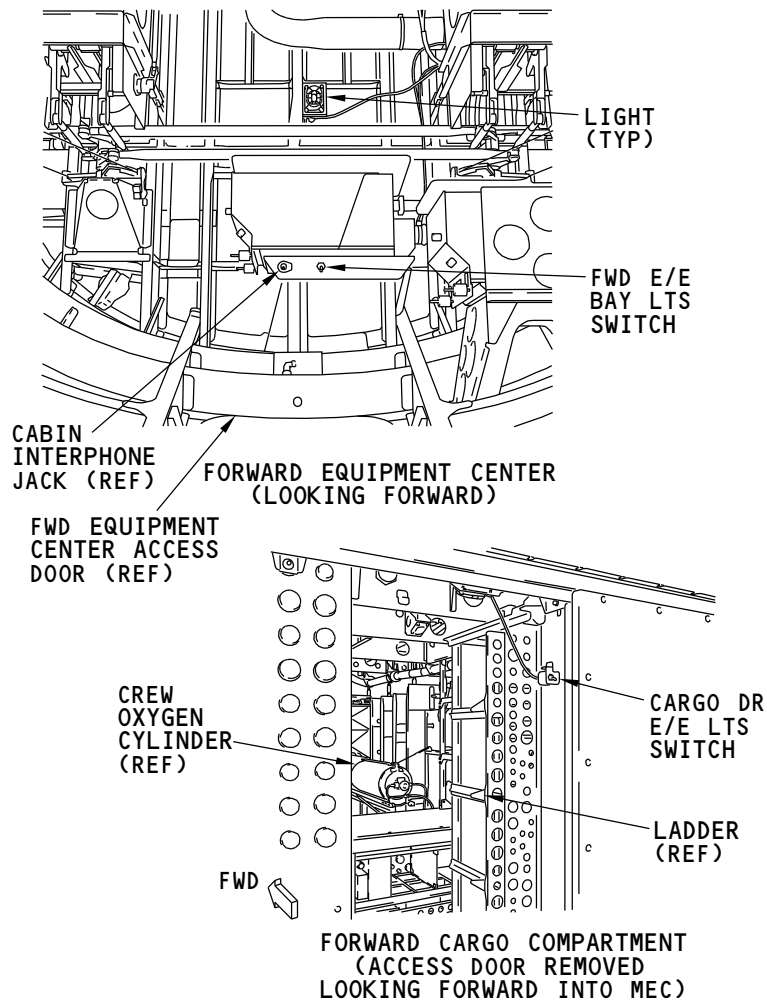
Main Equipment Center

There are ten lights on the ceiling of the MEC.

There are three light switches that control the lights in the MEC:

- GND E/E BAY LTS
- FLT E/E BAY LTS
- CARGO DR E/E LTS.

The GND E/E BAY LTS switch is above the MEC door, next to the FWD E/E BAY LTS switch. The FLT E/E BAY LTS switch is below the MEC access hatch and inboard from the P320. It is above and aft of the ladder. The CARGO DR E/E LTS switch is forward of the access panel between the forward cargo compartment and MEC. It is aft of the ladder.



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SERVICE AND CARGO LOADING LIGHTS - EQUIPMENT CENTER LOCATIONS

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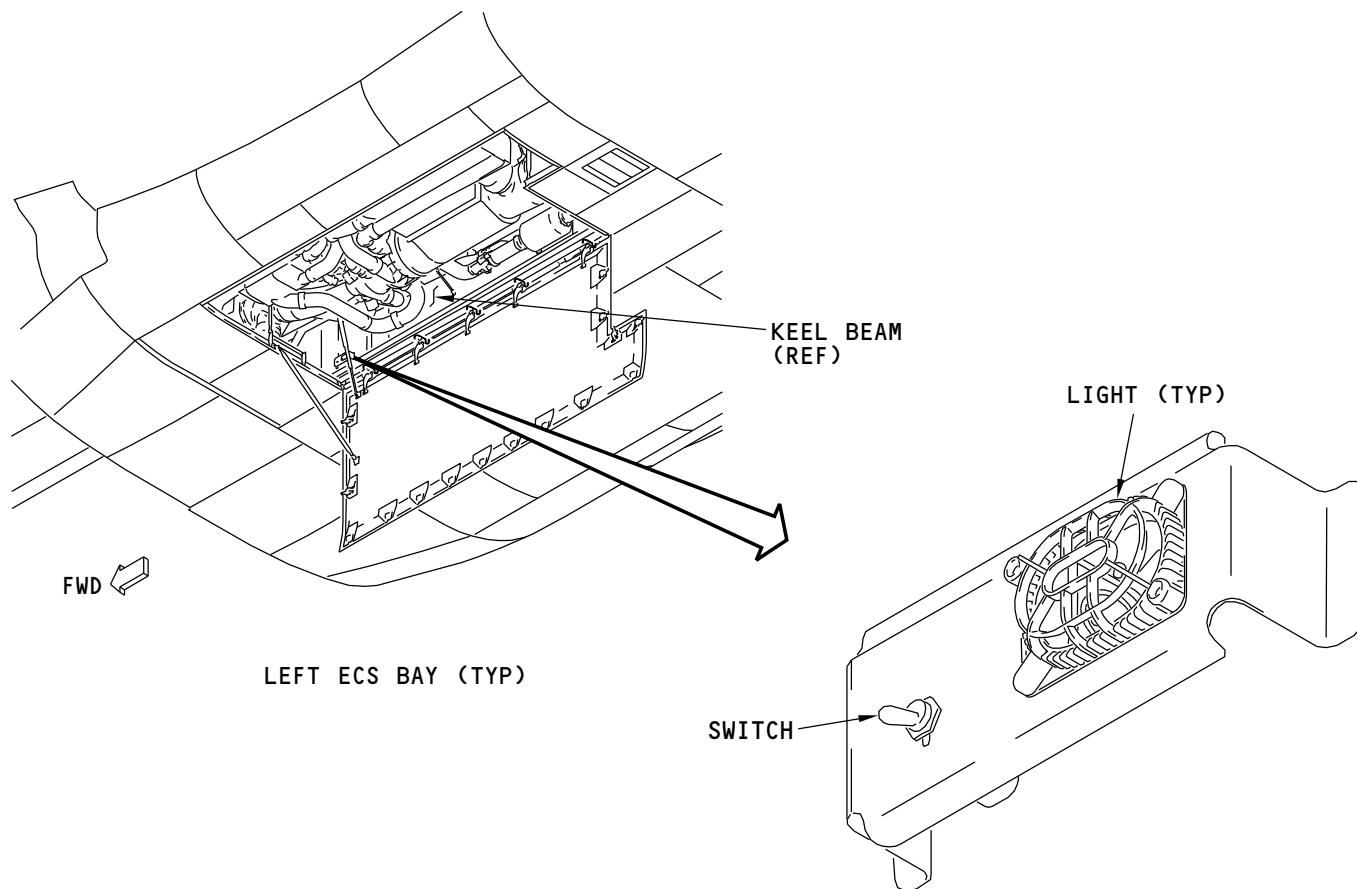
SERVICE AND CARGO LOADING LIGHTS - ECS BAY LOCATIONS

Location

There are two lights in each ECS bay. The forward light is on the keel beam near the front of the compartment. The aft light (not shown) is near the left and right isolation valves.

The switches are next to the forward light.

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SERVICE AND CARGO LOADING LIGHTS - ECS BAY LOCATIONS

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**SERVICE AND CARGO LOADING LIGHTS - MAIN WHEEL WELL LOCATIONS****Main Wheel Well Lights**

There are two lights in the left and right main wheel wells. They are on the ceiling in the center of the wheel well.

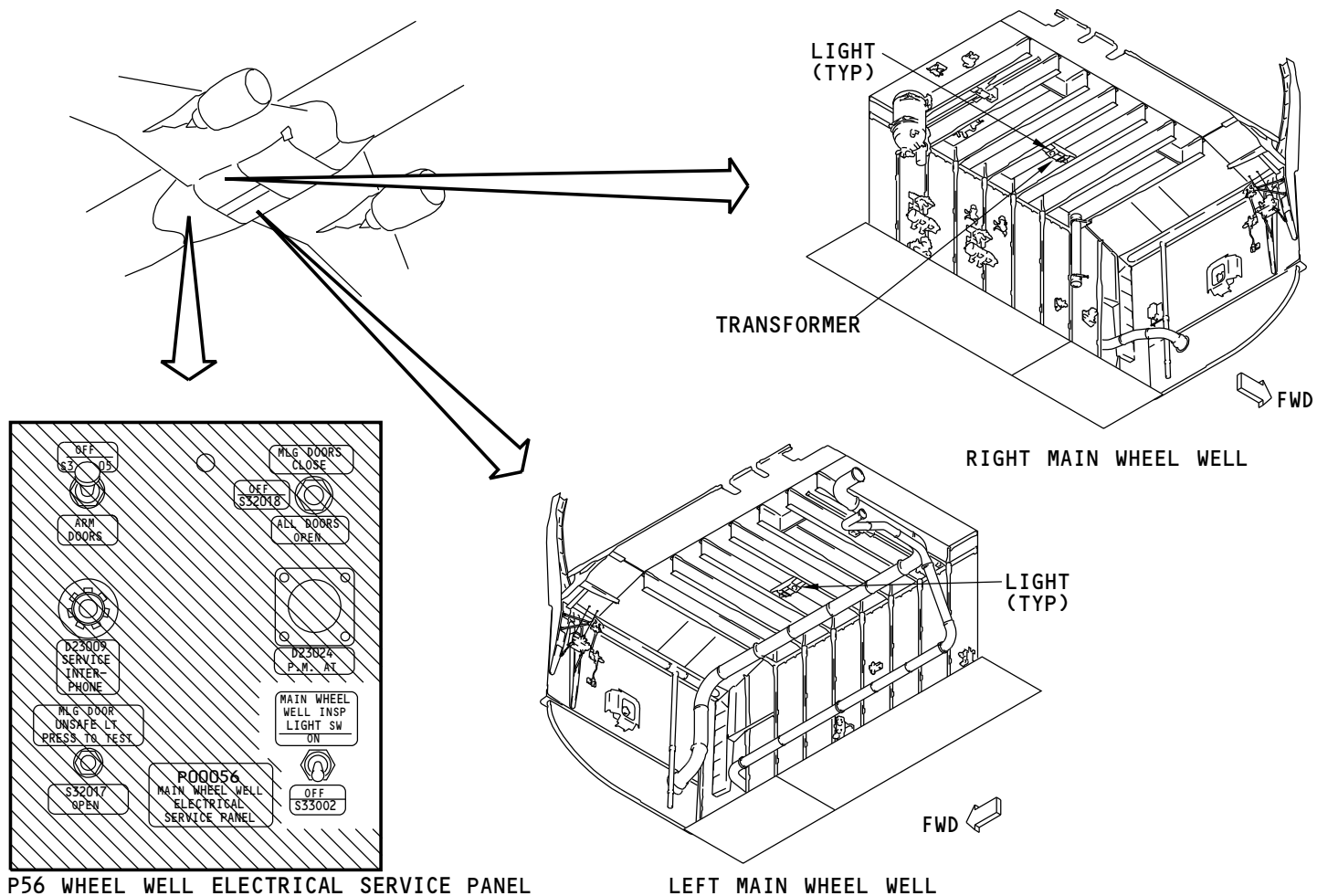
Main Wheel Well Lights Switch

The switch for the main wheel well lights is on the P56 wheel well electrical service panel. The panel is aft of the right main wheel well.

Main Wheel Well Lights Transformer

The transformer for the left and right wheel well lights is on the ceiling of the right wheel well. It is between the two lights on the ceiling.

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SERVICE AND CARGO LOADING LIGHTS - MAIN WHEEL WELL LOCATIONS

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SERVICE AND CARGO LOADING LIGHTS - NOSE WHEEL WELL LOCATIONS

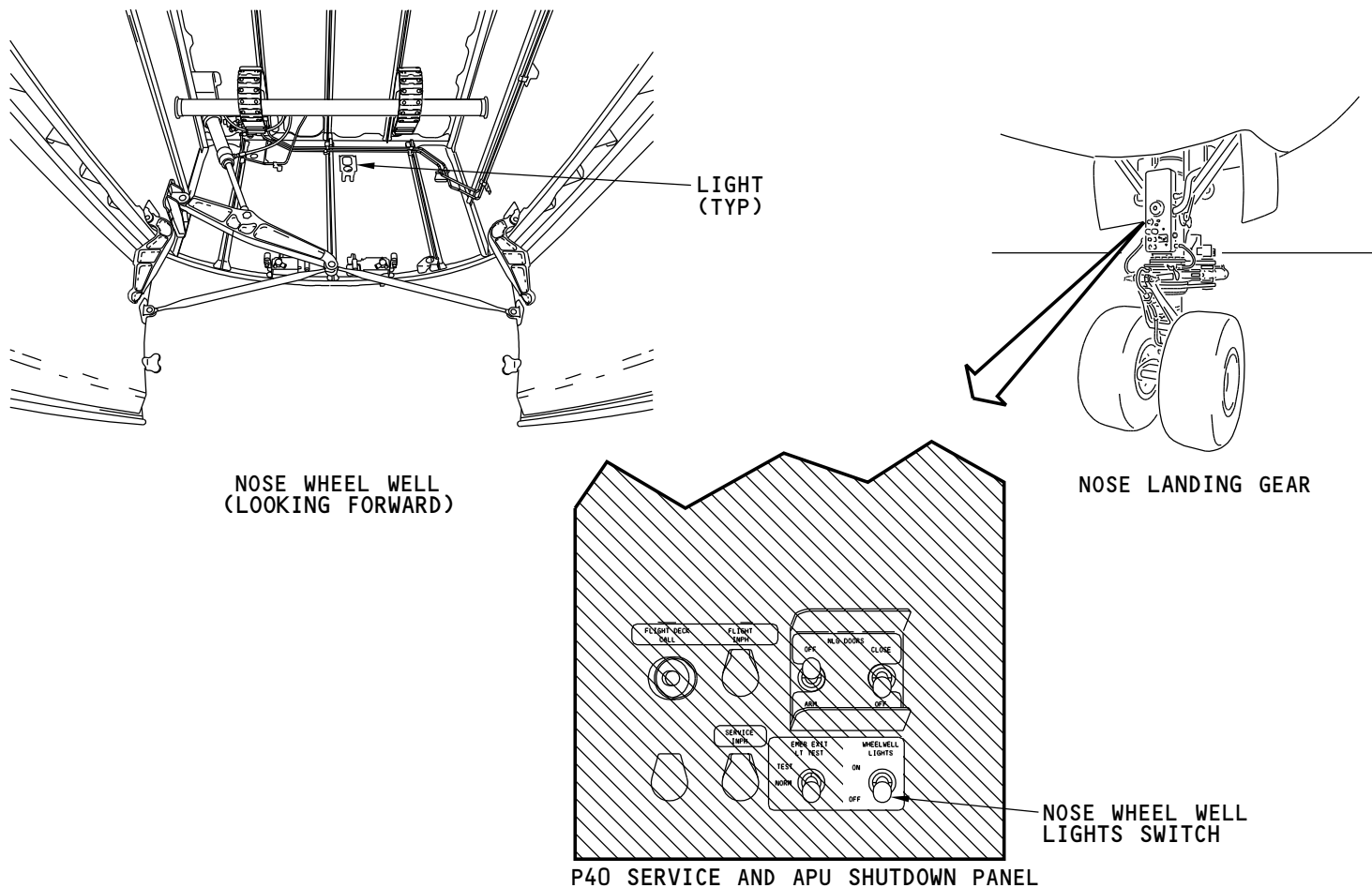
Nose Gear Wheel Well Lights

There are two lights in the nose gear wheel well. There is one on the front bulkhead and one on the aft bulkhead.

Nose Gear Wheel Well Switch

The switch for the nose wheel well lights is on the P40 service and APU shutdown panel.

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SERVICE AND CARGO LOADING LIGHTS - NOSE WHEEL WELL LOCATIONS

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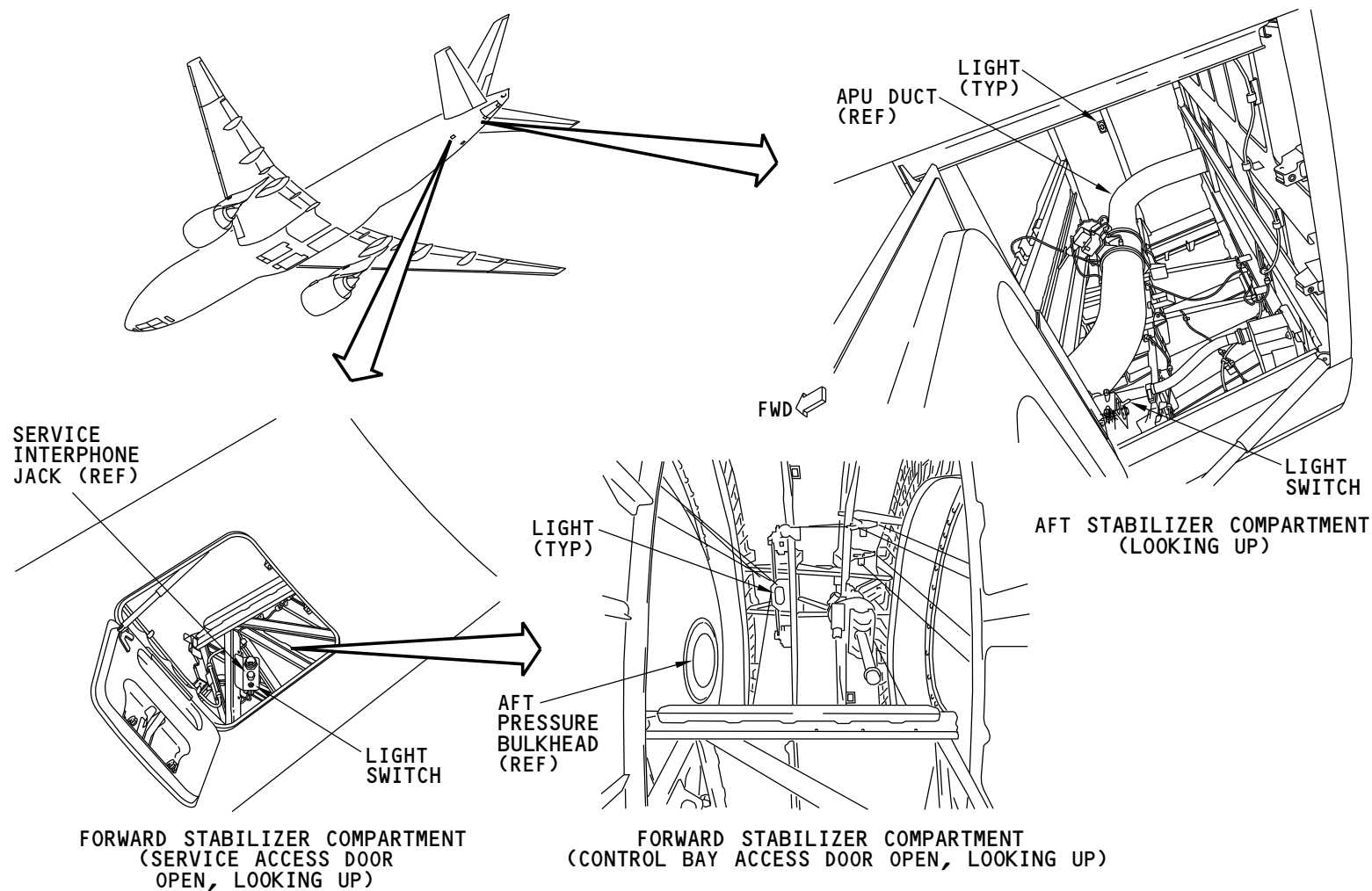
**SERVICE AND CARGO LOADING LIGHTS - STABILIZER COMPARTMENT LOCATIONS****Forward Stabilizer Compartment**

There are two lights on the ceiling of the forward stabilizer compartment. The switch is above the service access door.

Aft Stabilizer Compartment

There is one light on the ceiling of the aft stabilizer compartment. The switch is above the control bay access door. It is on the right side of the door opening.

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SERVICE AND CARGO LOADING LIGHTS - STABILIZER COMPARTMENT LOCATIONS

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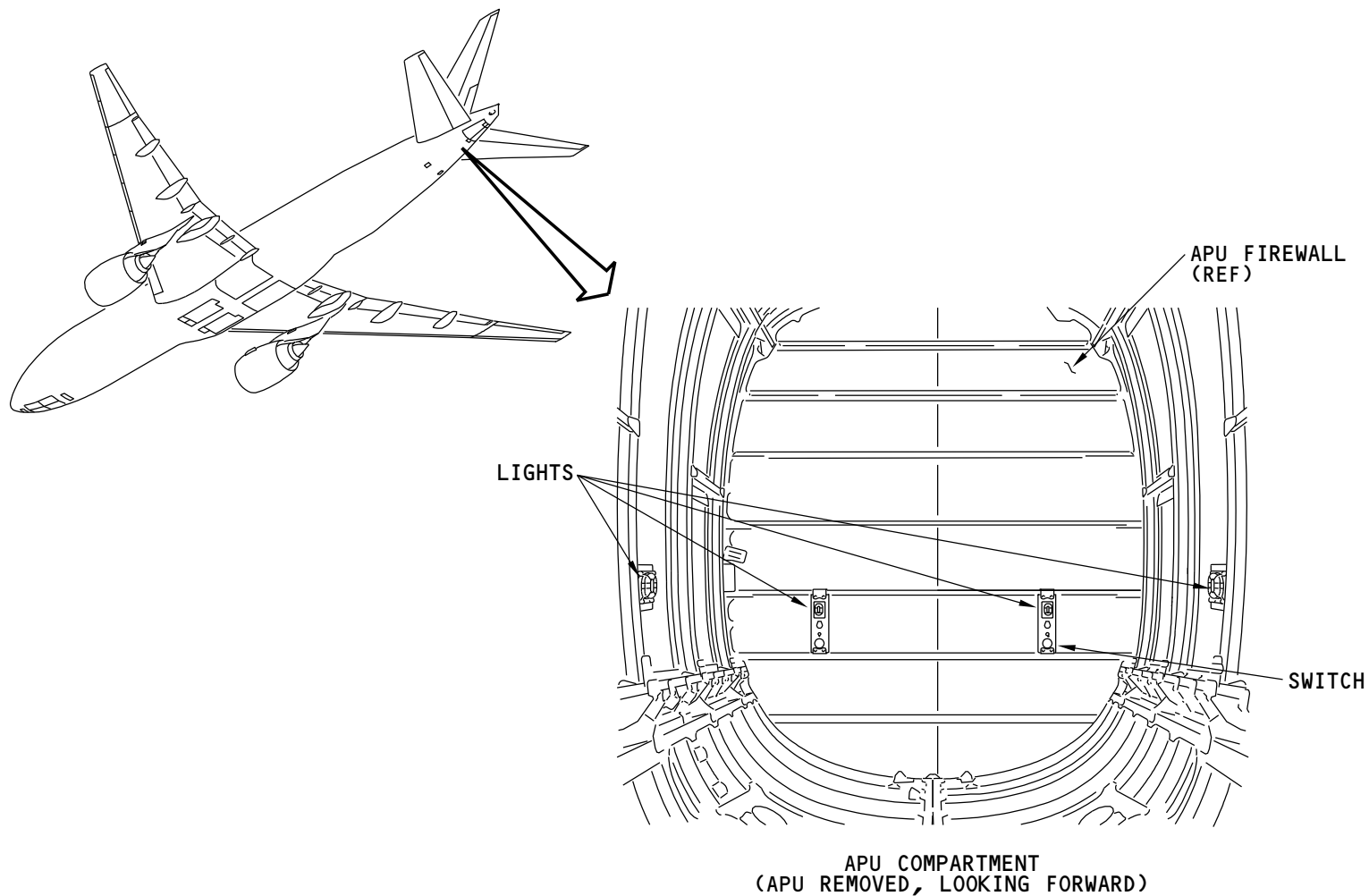
**SERVICE AND CARGO LOADING LIGHTS - APU COMPARTMENT LOCATIONS****APU Compartment Lights**

There are four lights in the APU compartment. There are two lights on the forward APU fire wall and two lights on the side walls.

APU Compartment Lights Switch

The switch for the APU compartments lights is under the right light on the fire wall.

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SERVICE AND CARGO LOADING LIGHTS - APU COMPARTMENT LOCATIONS

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**SERVICE AND CARGO LOADING LIGHTS - EQUIPMENT CENTER LIGHTS - FUNCTIONAL DESCRIPTION****Main Equipment Center**

There are three switches that control the lights in the MEC. Any of these switches make the lights come on or go off.

Forward Equipment Center

There are two switches that control the lights in the forward equipment center. Either one of these switches make the lights come on or go off.

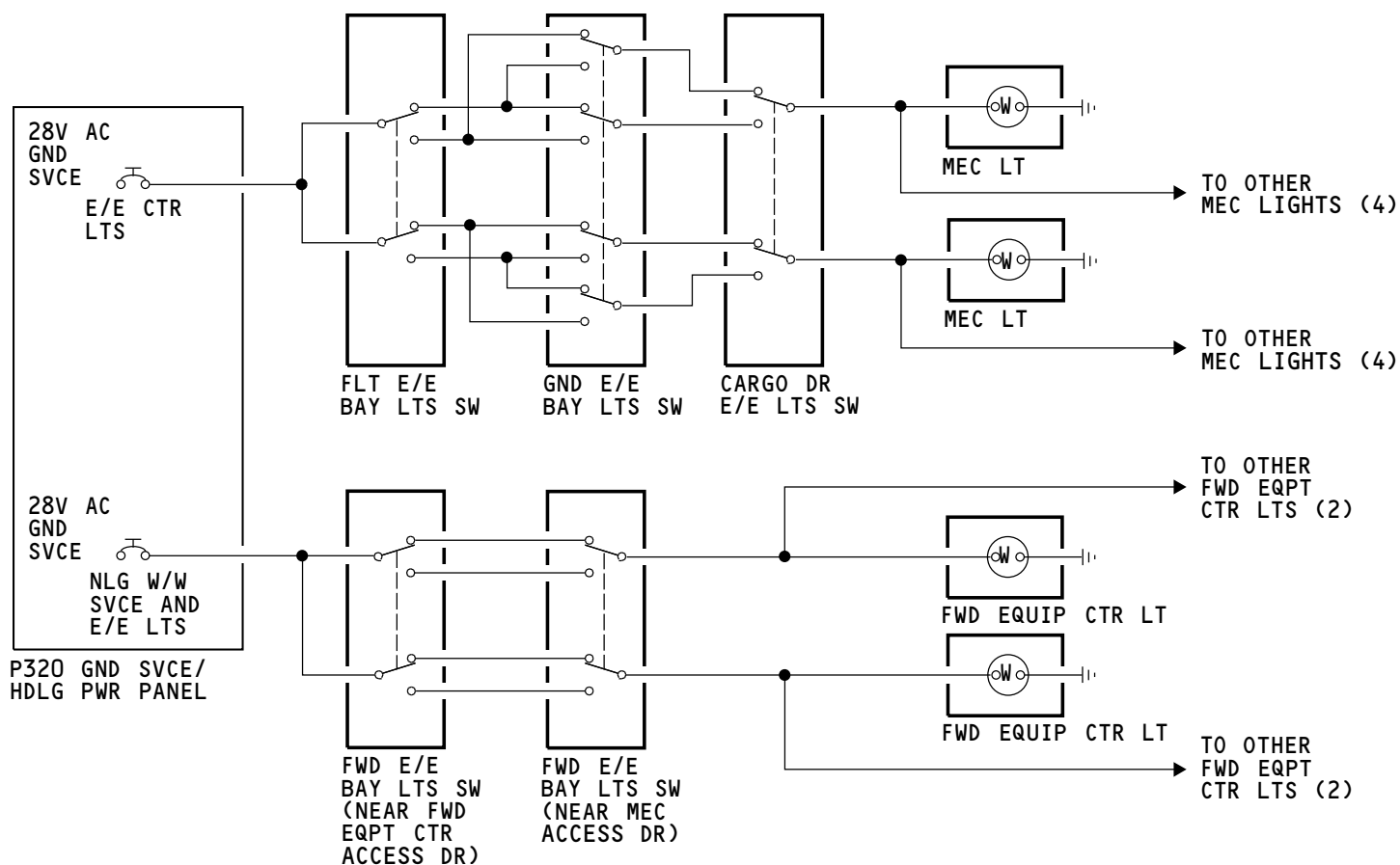
Functional Description

When the switches complete the circuit, power goes to the lights.

Power

The ground service bus must have power for the lights to operate.

ARO ALL	EFFECTIVITY



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SERVICE AND CARGO LOADING LIGHTS - EQUIPMENT CENTER LIGHTS - FUNCTIONAL DESCRIPTION

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**SERVICE AND CARGO LOADING LIGHTS - ECS BAY LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

Power for the lights goes from the P320 ground service/handling panel to a transformer in the P35 forward cargo handling accessory panel. The transformer decreases the voltage from 115v ac to 28v ac.

There is one switch in each ECS bay. When a switch is in the ON position, power from the transformer goes to the lights and makes them come on in that ECS bay.

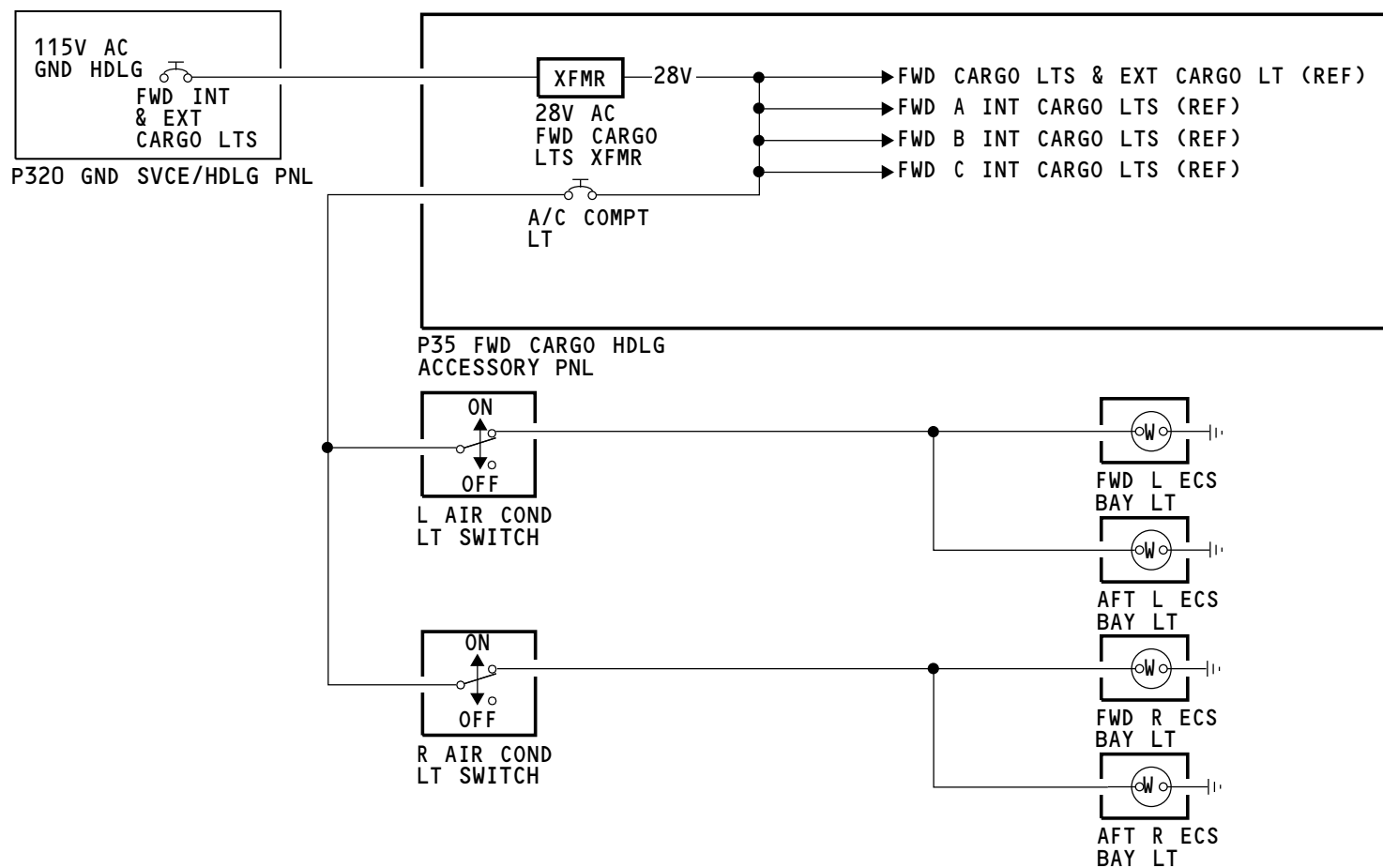
Power

The ground handling bus must have power for the light to operate.

Interface

The transformer also supplies power to some cargo lights.

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SERVICE AND CARGO LOADING LIGHTS - ECS BAY LIGHTS - FUNCTIONAL DESCRIPTION

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**SERVICE AND CARGO LOADING LIGHTS - WHEEL WELL LIGHTS - FUNCTIONAL DESCRIPTION****Main Wheel Well**

When the switch in the main wheel well is in the ON position, power goes to the transformer. The transformer decreases the voltage to 28 volts and makes the lights come on.

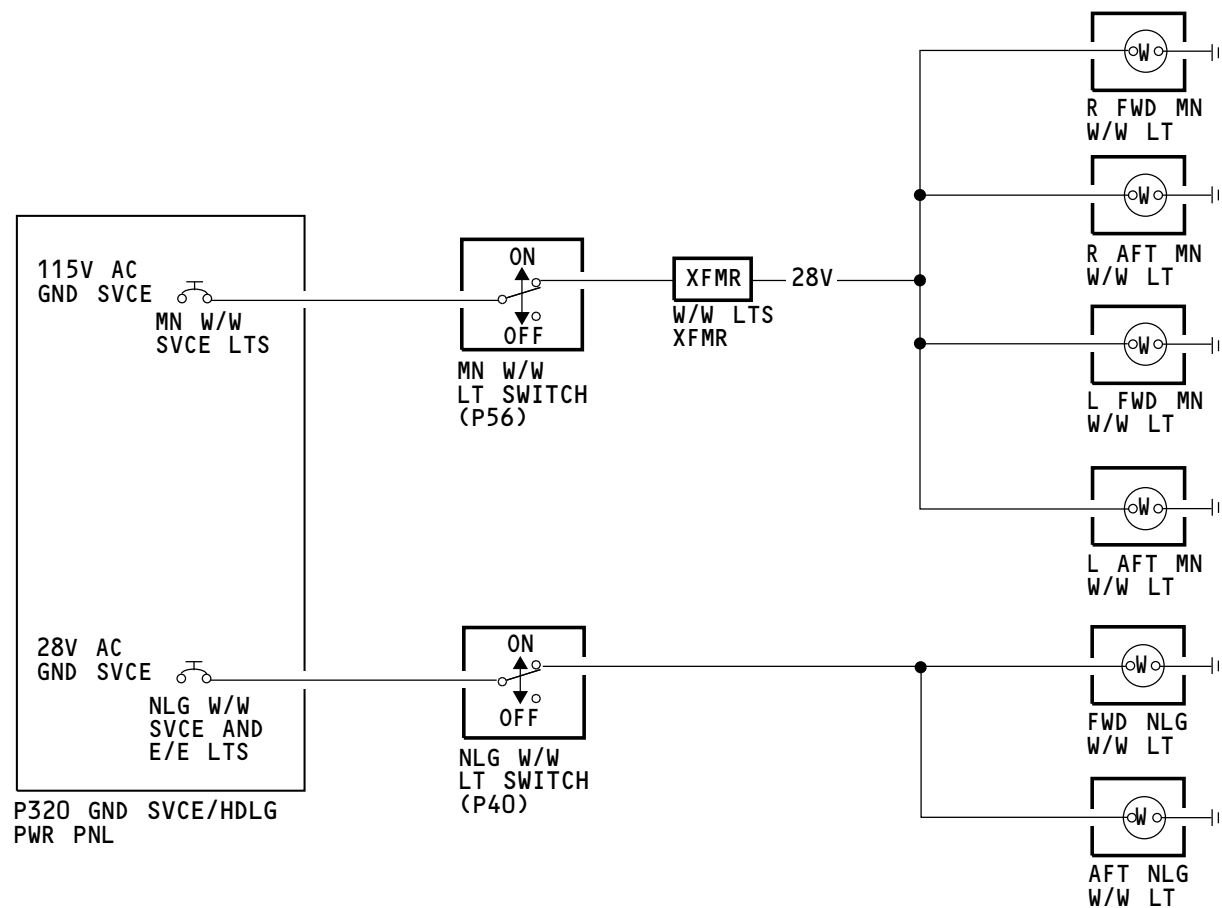
Nose Landing Gear Wheel Well

When the switch in the nose landing gear wheel well is in the ON position, the circuit is complete. This makes the lights come on.

Power

The ground service bus must have power for the lights to operate.

ARO ALL	EFFECTIVITY



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SERVICE AND CARGO LOADING LIGHTS - WHEEL WELL LIGHTS - FUNCTIONAL DESCRIPTION

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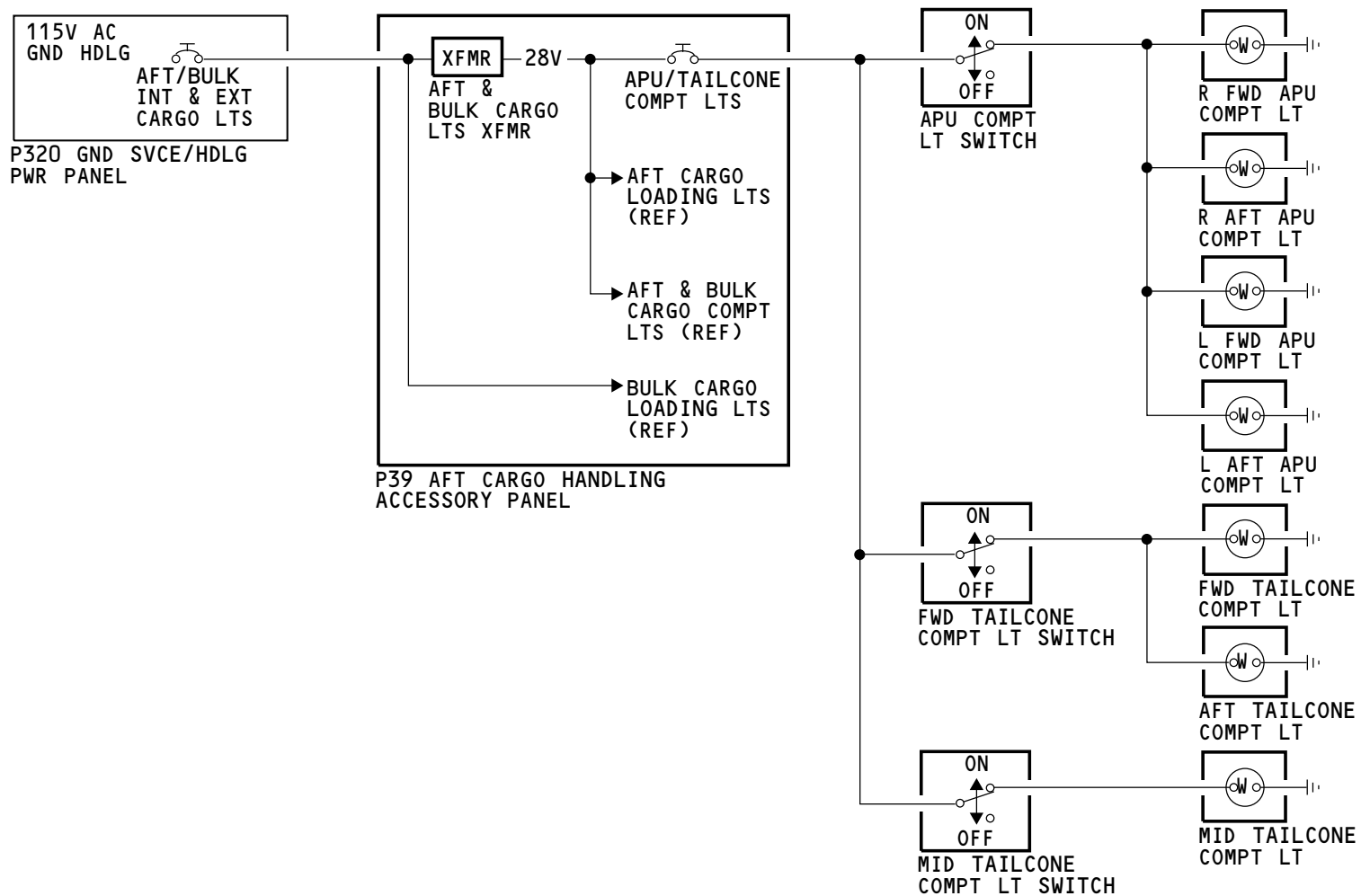
**SERVICE AND CARGO LOADING LIGHTS - APU & STABILIZER COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION****General**

The ground handling bus supplies power for the APU and stabilizer compartment lights. A transformer decreases the 115v ac power to 28v ac. Three switches control power to the lights.

Interfaces

The transformer also supplies power to some of the cargo lights.

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SERVICE AND CARGO LOADING LIGHTS - APU & STABILIZER COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

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**SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - INTRODUCTION****Purpose**

The cargo loading lights give light near the cargo compartment loading areas to help the ground crew.

Location

There are 11 cargo loading lights. Four lights are body-mounted and seven are cargo door-mounted. The forward cargo door has four door-mounted lights and the aft door has three door-mounted lights.

General Description

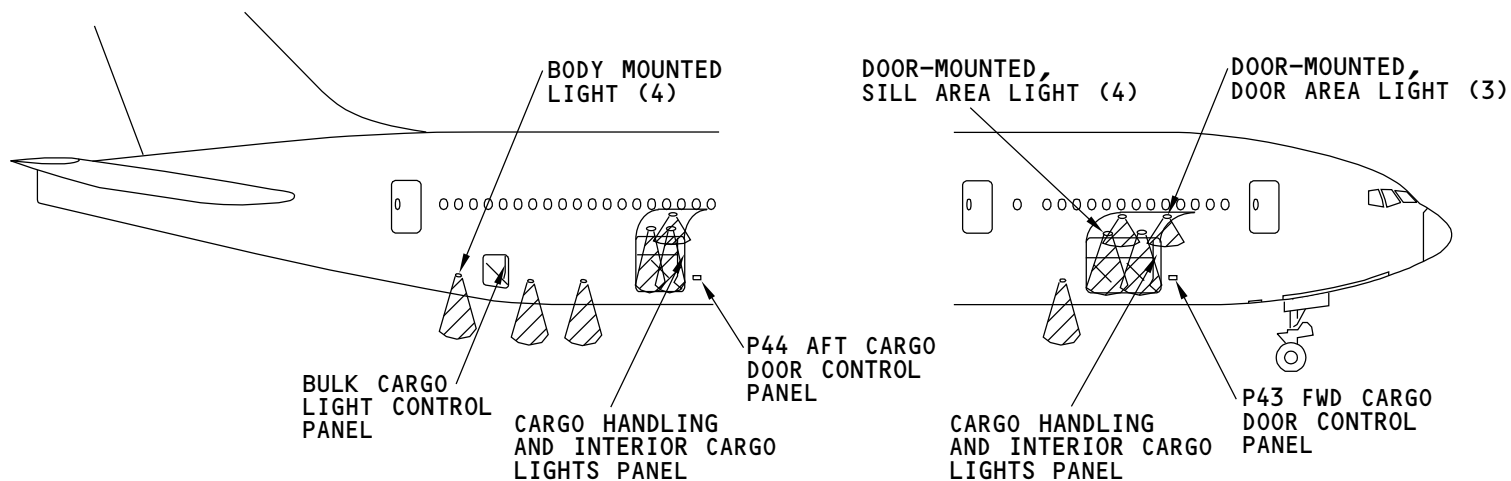
The cargo loading lights get power from the ground handling bus.

You use control switches near the cargo doors to operate the cargo Loading lights.

Some door-mounted lights automatically come on when you open the access door between the forward cargo compartment and the MEC.

Door-mounted lights operate only if the cargo door is full open.

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - INTRODUCTION

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS, BODY-MOUNTED**Purpose**

The body-mounted cargo loading lights give light near the cargo compartment doors to help the ground crew.

Location

There are four body-mounted cargo loading lights. The forward and aft cargo compartment loading areas have one light each. These lights are aft of the cargo compartment doors.

There are two bulk cargo lights, one on each side of the bulk cargo door.

Physical Description

Each light has these parts:

- Electrical connector
- Lamp
- Lens assembly.

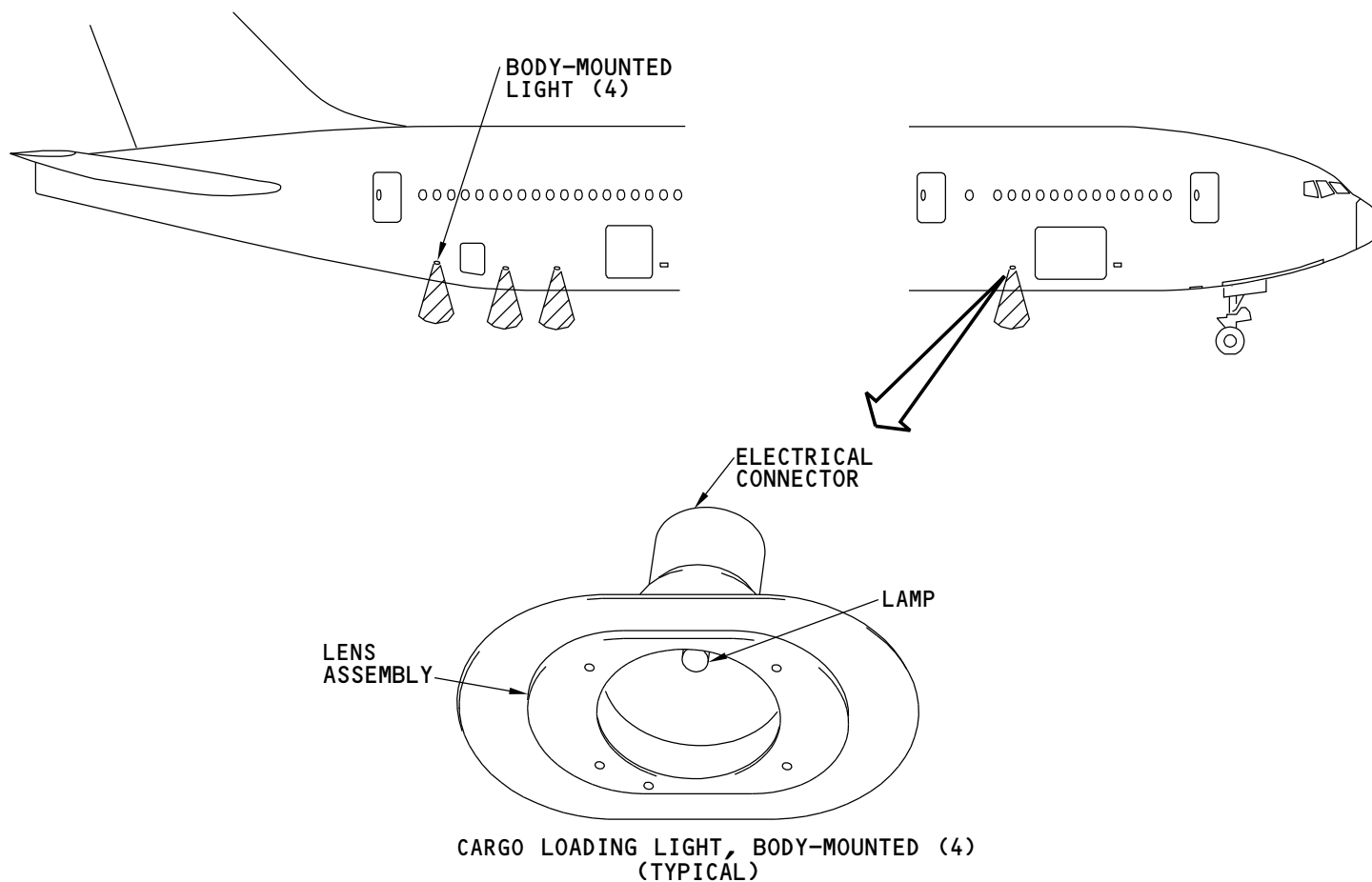
Training Information Point

The four lights are the same.

You get access to replace the lamp by removing the lens assembly.

NOTE: Do not touch the new lamp with your hands. Use clean gloves or lint-free cloth.

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS, BODY-MOUNTED

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - DOOR-MOUNTED**Purpose**

The door-mounted cargo loading lights give light to two areas: below and outboard of the door and the door sill area. The lights help the ground crew.

General

There are four lights on the forward cargo door and three lights on the aft cargo door. The forward door has two sill area lights and two door area lights. The aft door has two sill area lights and one door area light. The sill area lights are on the upper part of the door. The door area lights are on the lower part of the door.

Different switches control the door-mounted lights. The INTERIOR light switches (not shown) control the sill area lights. The EXTERIOR light switches (not shown) control the door area lights.

See the lower lobe cargo compartment lights section for more information about the cargo lights (SECTION 33-37).

Physical Description

All of the door-mounted lights are the same. The lights have these parts:

- Electrical connector
- Fastener (2)
- Lens assembly
- Lamp.

Training Information Point

Remove the lens assembly to replace the lamp.

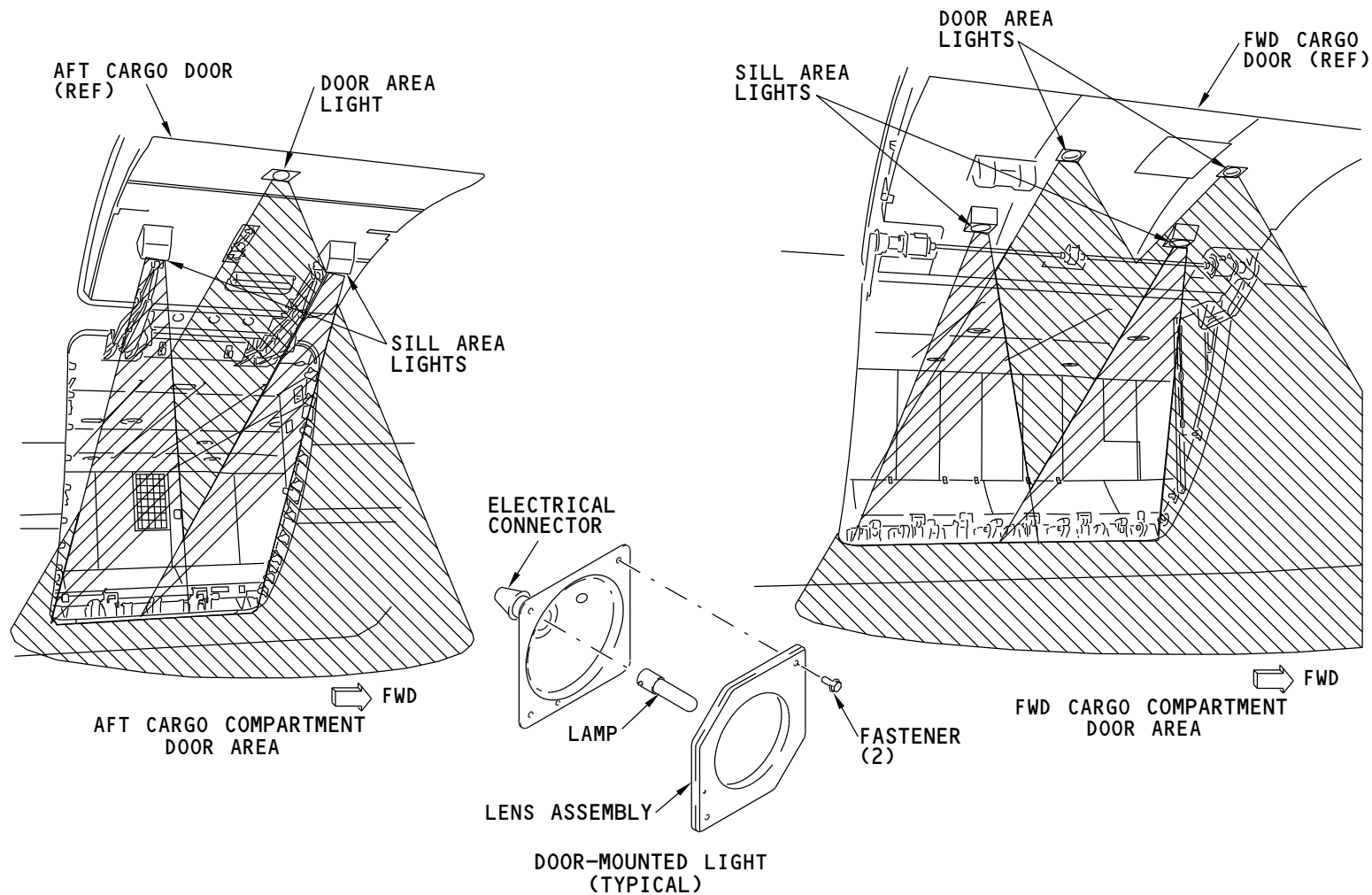
NOTE: Do not touch the new lamp with your hands. Use clean gloves or lint-free cloth.

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - DOOR-MOUNTED

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**SERVICE AND CARGO LOADING LIGHTS - CARGO LIGHTS TRANSFORMER - LOCATION****Purpose**

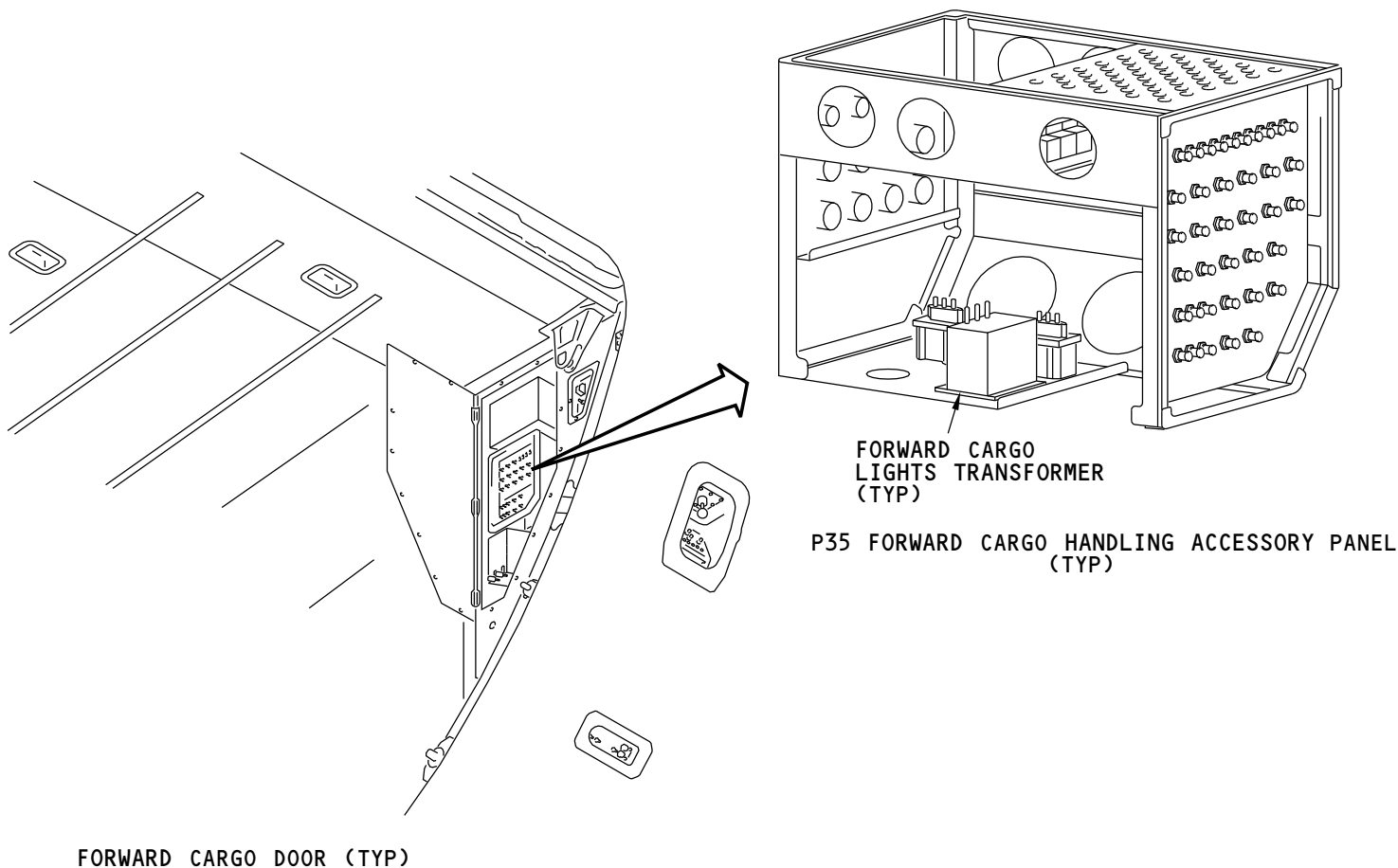
The forward and aft cargo compartment light transformers decrease the amount of power that go to these lights:

- Interior cargo lights
- Exterior cargo lights
- ECS bay lights
- Door lights
- Sill lights.

Location

The forward transformer is in the P35 forward cargo handling accessory panel. The aft transformer is in the P39 aft cargo handling accessory panel.

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SERVICE AND CARGO LOADING LIGHTS - CARGO LIGHTS TRANSFORMER - LOCATION

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - OPERATION**General**

The cargo loading lights get power from the ground handling bus. Door-mounted cargo loading lights (door and sill area) operate only when the related door is full open and a related control switch is on.

See the lower lobe cargo compartment lights section for more information about the cargo lights (SECTION 33-37).

External - Cargo Loading Area Lighting

You use EXTERNAL (EXTERIOR) cargo light control switches to operate the body-mounted and the door-mounted door area lights. There is one switch for each of the cargo compartment loading areas. The switches operate only the lights in the related area. The switches are in these areas:

- Forward cargo area uses the switch on the P43
- Aft cargo area uses the switch on the P44
- Bulk cargo area uses the switch on the bulk cargo light control panel (forward of the door, in the compartment).

Internal - Cargo Door Sill Area Lighting

You use INTERNAL (INTERIOR) cargo light control switches to operate the door-mounted, door sill area lights. For internal lighting, the aft and bulk cargo compartment areas are one area. The forward and aft cargo areas have three switches. The switches for the forward cargo area are in these areas:

- P43
- Cargo handling and interior cargo lights panel (forward of the door, inside the compartment)
- A switch that is near the main equipment center/cargo compartment access door

The switches for the aft cargo area are in these areas:

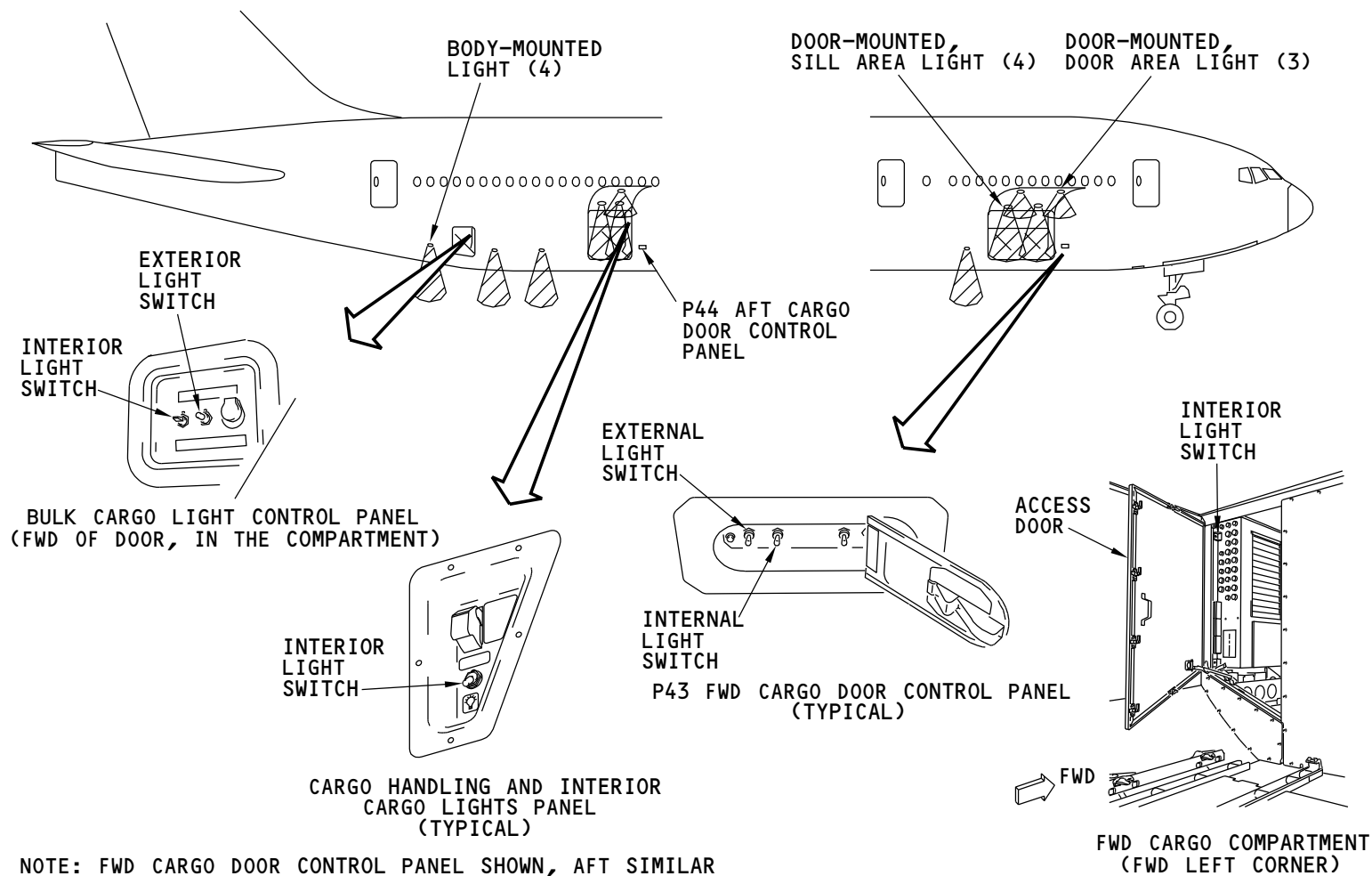
- P44
- Cargo handling and interior cargo lights panel (forward of the aft cargo door, in the compartment)
- Bulk cargo light control panel (forward of bulk cargo door, in the compartment).

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - OPERATION

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**SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - FUNCTIONAL DESCRIPTION****Forward Cargo Exterior Light**

When the cargo exterior area lights switch on the P43 is in the ON position, the forward exterior cargo door light relay energizes. This makes the light come on.

Forward Cargo Door Lights

When the cargo door is fully open and the cargo exterior area lights switch on the P43 is in the ON position, the forward exterior door lights relay energizes. This makes the door lights come on.

Forward Cargo Door Sill Lights

The forward cargo door sill lights come on when the forward cargo door is fully open and one of these switches is in the ON position:

- Internal cargo lights switch on the P35 forward cargo handling accessory panel
- Internal cargo lights switch on the P43 forward cargo door control panel.

The sill lights will also come on when the cargo door is fully open and the door between the forward cargo compartment and the main equipment center is open.

When these conditions are true, the forward sill door lights relay in the P35 energizes and makes the lights come on.

Power

The ground handling bus must have power for the lights to operate.

Transformer

There is a transformer that decreases the voltage that goes to the lights from 115v ac to 28v ac.

Proximity Sensor Electronics Unit (PSEU)

Proximity sensors on the door (not shown) send information about door position to the PSEU. The PSEU controls relays in the P35 panel.

See the forward large cargo door section for more information about the proximity sensors (SECTION 52-34).

Aft Cargo Loading Lights

The aft cargo loading lights operate almost the same way as the forward lights. These switches (not shown) control the aft lights:

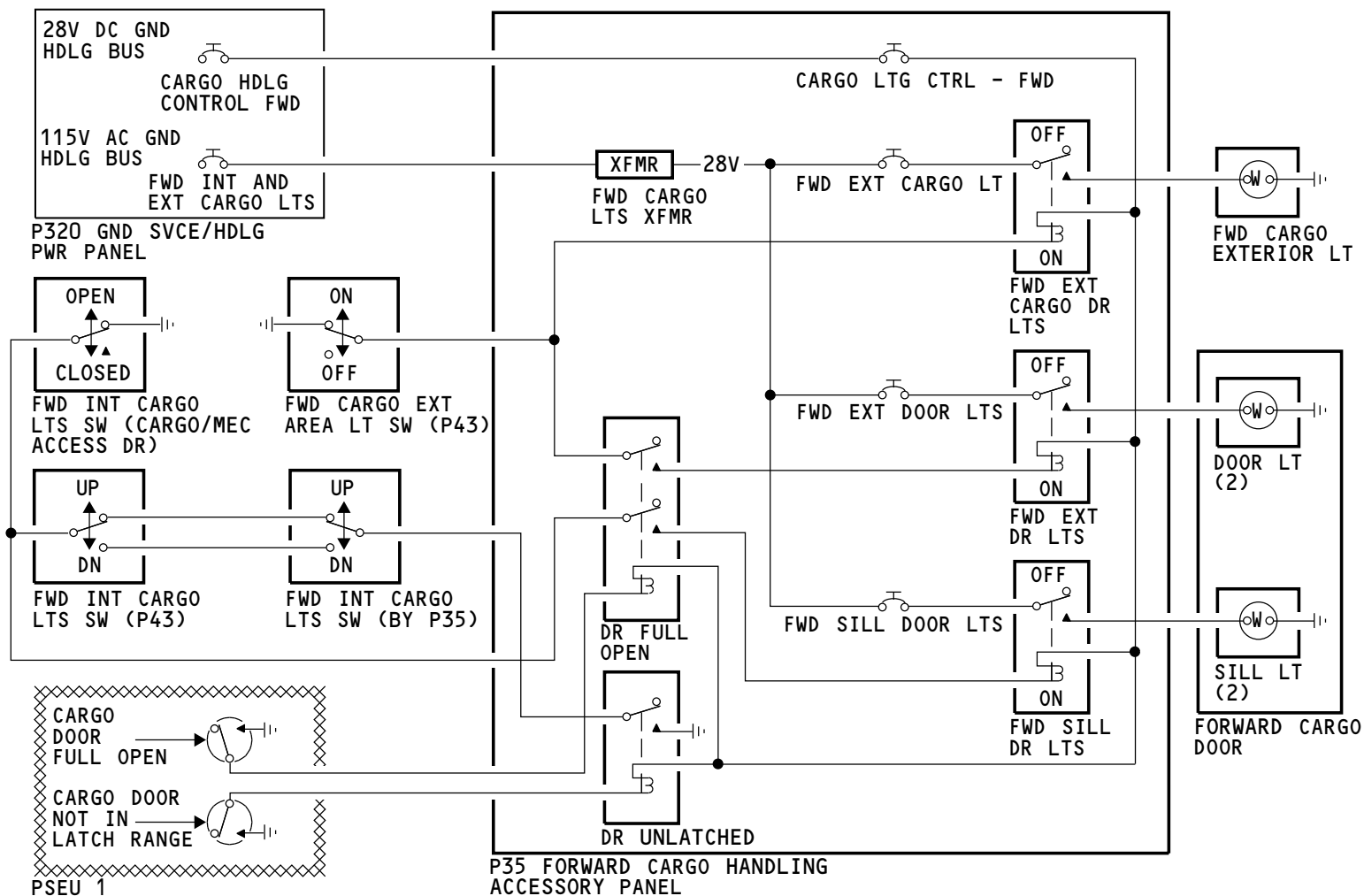
- Aft interior cargo lights switch on the P44 aft cargo door control panel
- Bulk-aft interior lights switch
- Aft interior cargo lights switch by the P39 aft cargo handling accessory panel
- Bulk cargo door closed, latched, and locked switch
- Aft cargo exterior area lights switch on the P44.

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SERVICE AND CARGO LOADING LIGHTS - CARGO LOADING LIGHTS - FUNCTIONAL DESCRIPTION

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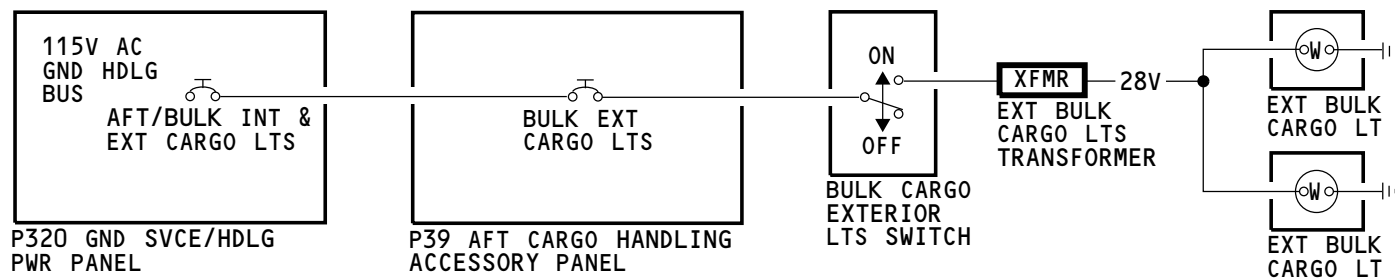
**SERVICE AND CARGO LOADING LIGHTS - BULK CARGO LOADING LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

Power goes from the P320 ground service/handling power panel to a circuit breaker in the P39 aft cargo handling accessory panel. When the bulk cargo external light switch is in the ON position, the power goes to a transformer and then to the external lights.

Power

The ground handling bus must have power for the lights to operate.

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SERVICE AND CARGO LOADING LIGHTS - BULK CARGO LOADING LIGHTS - FUNCTIONAL DESCRIPTION

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**LOWER LOBE CARGO COMPARTMENT LIGHTS - INTRODUCTION****Purpose**

The lower lobe cargo compartment lights give light in the forward, aft, and bulk cargo compartments.

Location

The lights are in the ceiling of the cargo compartments and in the sidewall near the bulk cargo door (not shown). There are light switches in these locations:

- On the exterior door control panels
- Near the door in the interior of the compartments
- Near the access panel to the main equipment center (MEC).

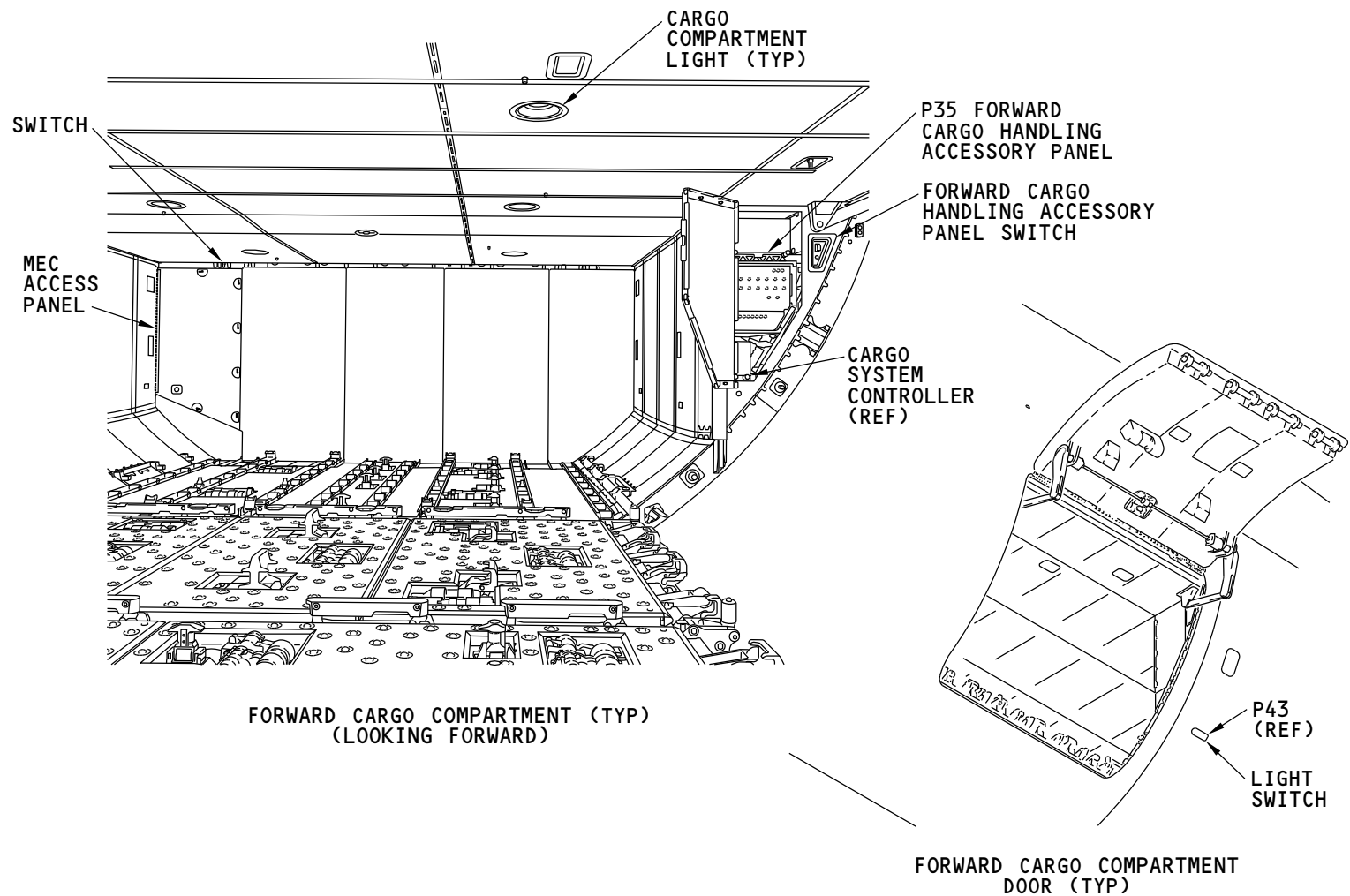
There are relays and transformers in the P35 and P39 forward and aft cargo handling accessory panels.

See the service and cargo loading lights section for more information about the relays and transformers (SECTION 33-31).

Interface

The cargo lights use information from a proximity sensor electronics unit (PSEU). Power for the lights comes from the cargo system controllers.

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LOWER LOBE CARGO COMPARTMENT LIGHTS - INTRODUCTION

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LOWER LOBE CARGO COMPARTMENT LIGHTS - COMPARTMENT LIGHTS**Location**

The lights are in the ceiling of the forward, aft, and bulk cargo compartments. There is also a light near the forward edge of the bulk cargo compartment door.

Physical Description

Each light has a:

- Lamp
- Grill
- Lens
- Ring
- Fastener (4)
- Micro switch (not shown).

Training Information Point

USE THE CORRECT LAMP ONLY. THE INCORRECT LAMP CAN CAUSE A CARGO FIRE. THIS CAN CAUSE INJURIES, AND DAMAGE TO EQUIPMENT.

All of the lights in the ceiling of the cargo compartments are the same. To get access to the lamp you pull out the grill. There is a lanyard that holds the grill.

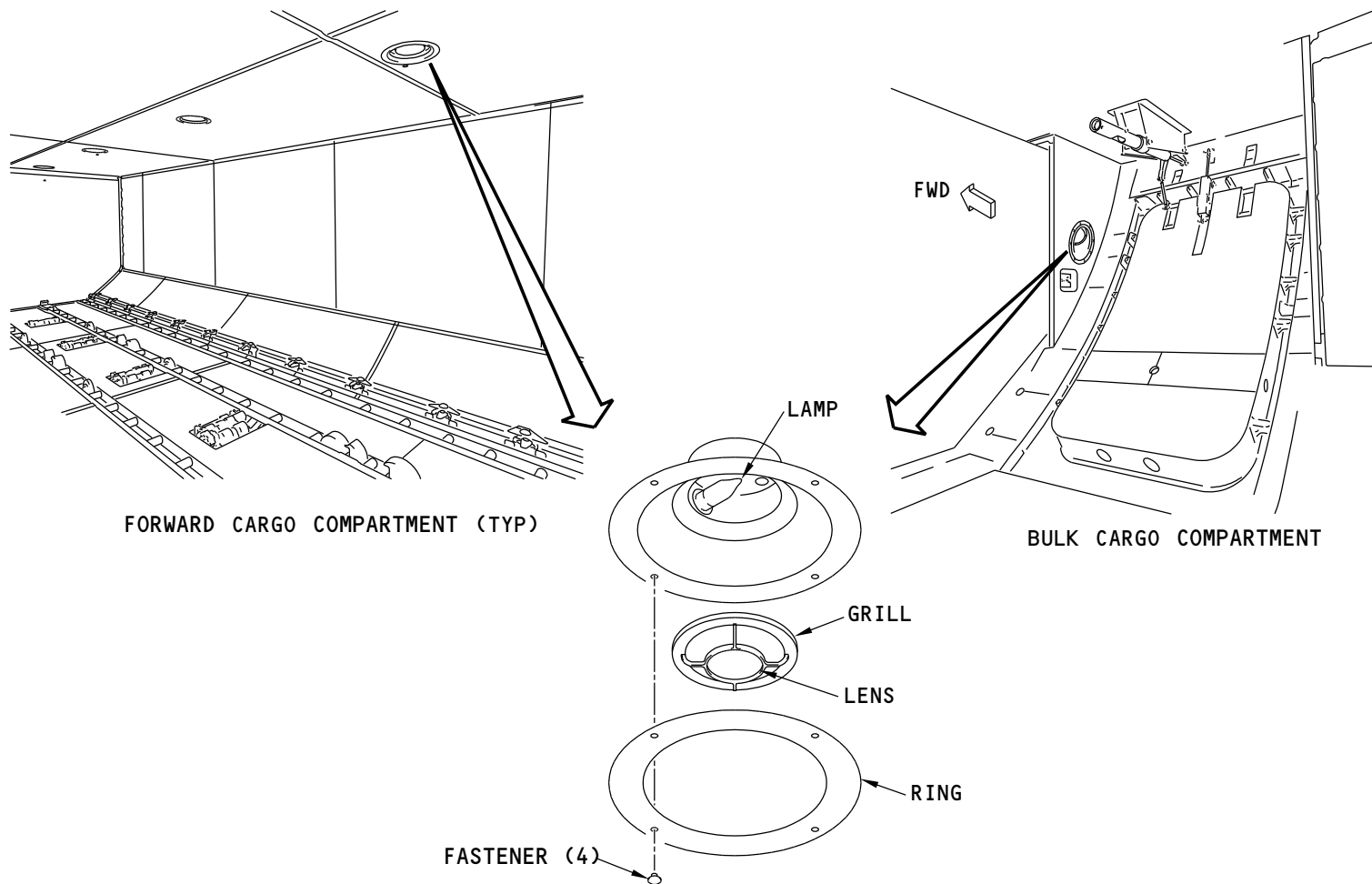
The light will not operate if the grill is not in position.

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LOWER LOBE CARGO COMPARTMENT LIGHTS - COMPARTMENT LIGHTS

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**LOWER LOBE CARGO COMPARTMENT LIGHTS - OPERATION****Forward Cargo Compartment Lights**

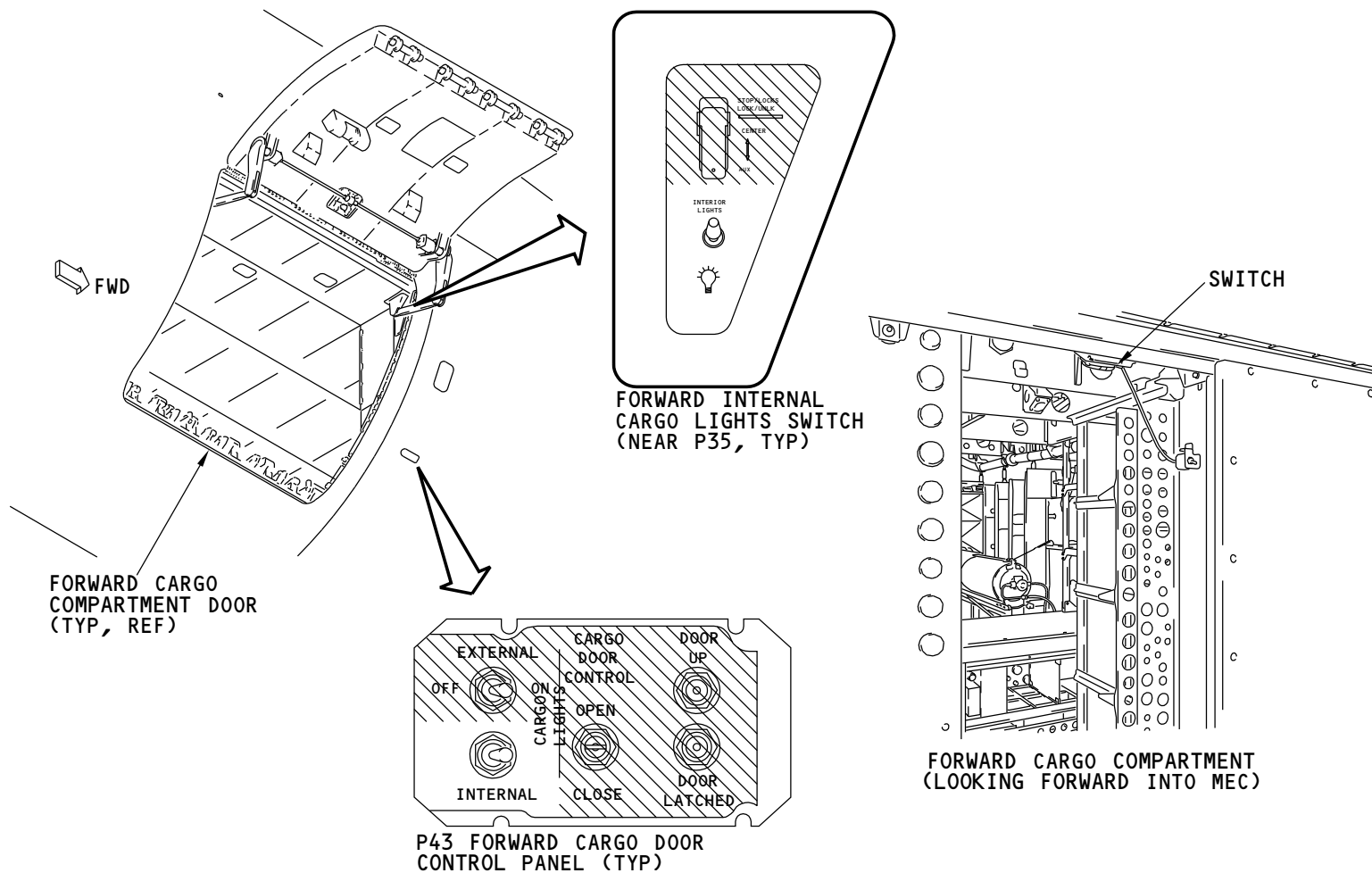
You use the cargo lights switch (INTERNAL) on the P43 forward door control panel or the switch near the P35 forward cargo handling accessory panel to operate the lights. The P35 panel is inside the forward cargo door.

The lights also come on when the door between the main equipment center and the forward cargo compartment is open.

Aft and Bulk Cargo Compartment Lights

You use these switches to operate the aft and bulk cargo compartment lights:

- INTERNAL cargo lights switch on the P44 aft cargo door control panel (not shown)
- Switch on the internal control panel inside the aft cargo compartment door, near the P39 aft cargo handling accessory panel (not shown)
- Switch on the internal control panel inside the bulk cargo compartment door opening (not shown).



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LOWER LOBE CARGO COMPARTMENT LIGHTS - OPERATION

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**LOWER LOBE CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION - FORWARD CARGO COMPARTMENT****General**

The 28v dc ground handling bus gives power to two relays in the P35 panel. The relays control operation of the forward cargo interior lights. Power to operate the lights comes from the 115v ac ground handling bus. A transformer in the P35 panel reduces the 115 volts to 28 volts.

Functional Description

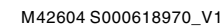
When the forward interior cargo lights relay energizes, power from the transformer goes to the lights. Two conditions can energize the relay:

- The door between the cargo compartment and the main equipment center (E/E DR) is open
- The cargo door is not in latch range and there is a complete circuit through the two interior cargo lights switches.

See the forward large cargo door section for more information about the latch range proximity sensor (SECTION 52-34).

Each light has a microswitch that removes power from the light if the grille is not in place.

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LOWER LOBE CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION - FORWARD CARGO COMPARTMENT

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**LOWER LOBE CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION - AFT & BULK CARGO COMPARTMENT****General**

The 28v dc ground handling bus gives power to two relays in the P39 panel. The relays control operation of the aft and bulk interior cargo lights. Power to operate the lights comes from the 115v ac ground handling bus. A transformer in the P39 panel decreases the 115 volts to 28 volts.

Functional Description

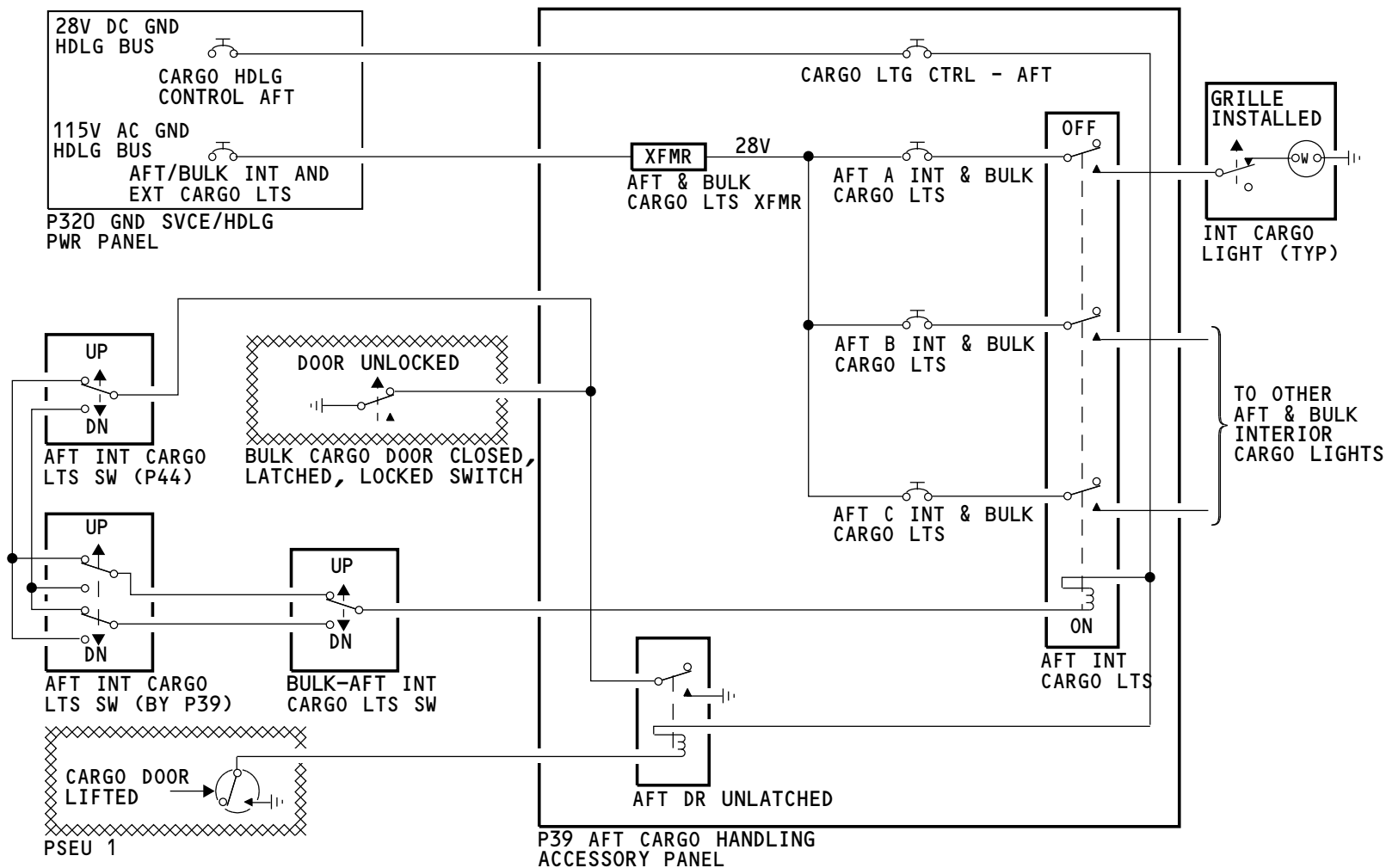
When the aft interior cargo lights relay energizes, power from the transformer goes to the lights. When you position the three light switches to give continuity, one of these conditions can energize the cargo lights relay:

- The bulk cargo door closed, latched and locked switch is in the open position
- The aft cargo door is lifted.

See the door warning system section for more information about the bulk cargo door switch (SECTION 52-71).

See the aft small cargo door section for more information about the door lifted proximity sensor (SECTION 52-35).

Each light has a micro switch that removes power from the light if the grille is not in place.



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LOWER LOBE CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION - AFT & BULK CARGO COMPARTMENT

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EXTERIOR LIGHTS - INTRODUCTION

Purpose

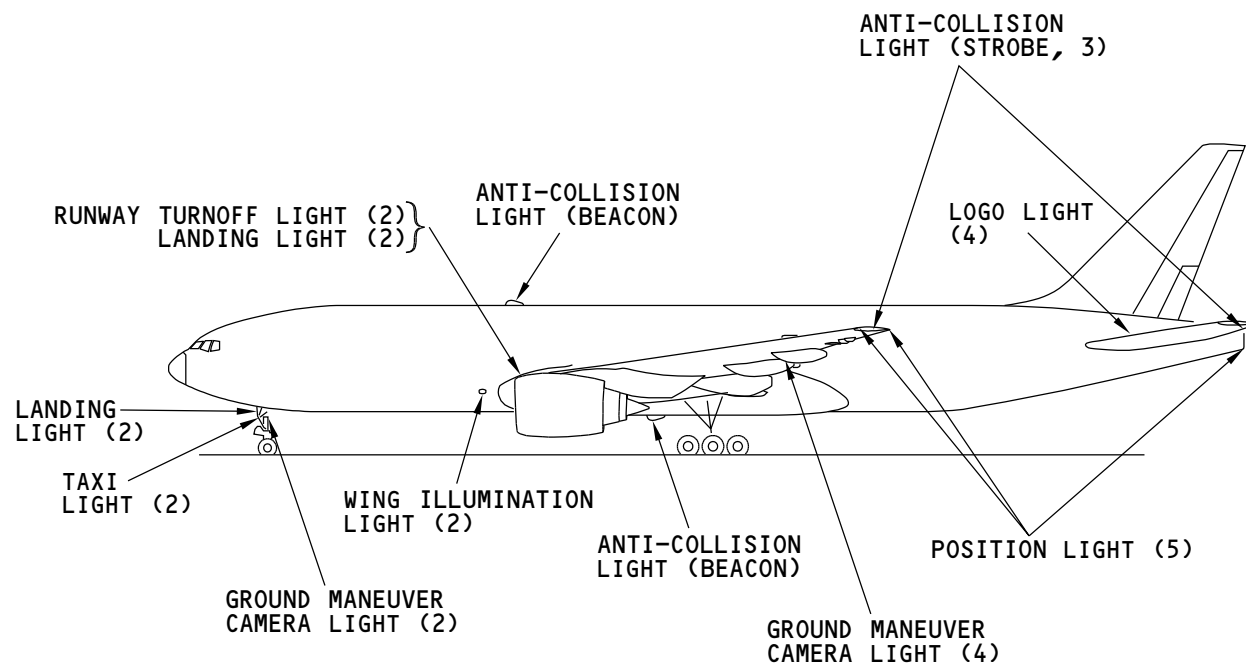
The exterior lights give light to make the airplane more visible and to aid in safe operation of the airplane.

Location

These lights make up the exterior lights:

- Runway turnoff (2)
- Landing (4)
- Anti-collision (beacon) (2)
- Position (5)
- Logo (4)
- Anti-collision (strobe) (3)
- Ground maneuver camera (6)
- Wing illumination (2)
- Taxi (2).

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EXTERIOR LIGHTS - INTRODUCTION

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WING ILLUMINATION LIGHTS - INTRODUCTION

Purpose

The wing illumination lights give light on the leading edge of the wings and the front of the nacelles. This lets the crew to see if there is ice on the leading edge.

The transformers decrease the amount of voltage that goes to the lights.

Location

The lights are on the right and left sides of the airplane, forward of where the wing connects to the fuselage.

The transformers are behind the sidewall panels in the forward cargo compartment. There is one transformer on each side.

Physical Description

The light has these components:

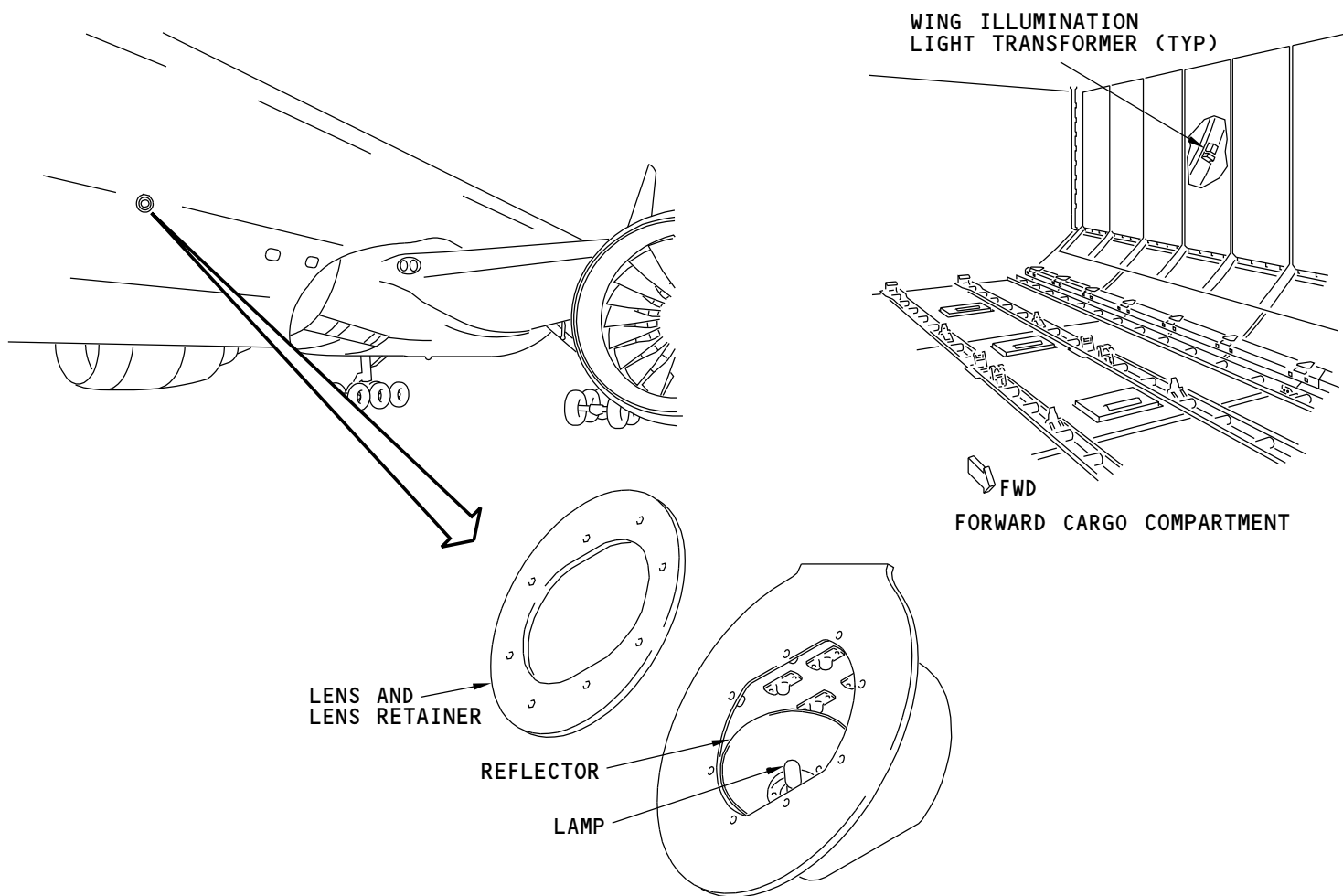
- Lens
- Lens retainer
- Lamp
- Reflector.

There are six captive screws that hold the lens retainer. There are two captive screws that hold the reflector.

Training Information Point

You replace the wing illumination light from outside the airplane.

You remove panels on the sidewalls of the forward cargo compartment to get access to the transformers.



WING ILLUMINATION LIGHTS - INTRODUCTION

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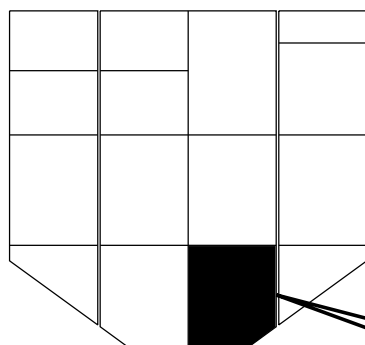


WING ILLUMINATION LIGHTS - OPERATION

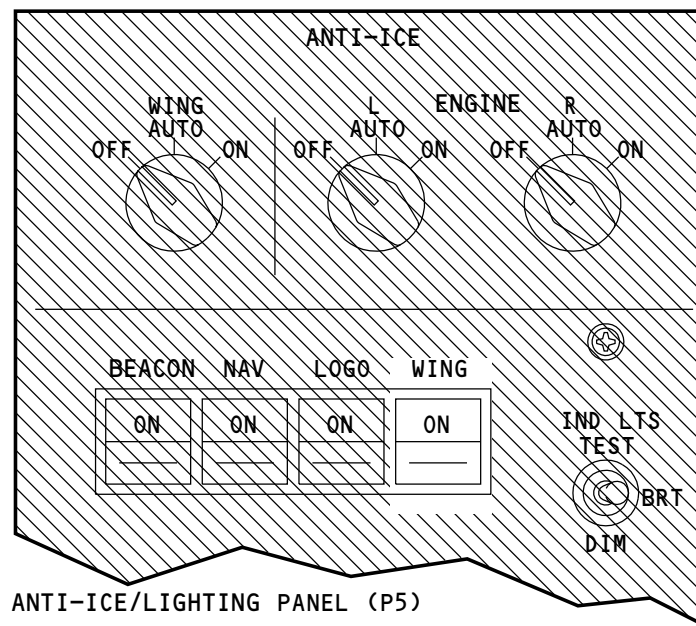
Operation

You use the wing light switch (WING) to operate the wing illumination lights. It is on the anti-ice/lighting panel on the P5 overhead panel. It is an alternate action switch.

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P5 OVERHEAD PANEL



ANTI-ICE/LIGHTING PANEL (P5)

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WING ILLUMINATION LIGHTS - OPERATION

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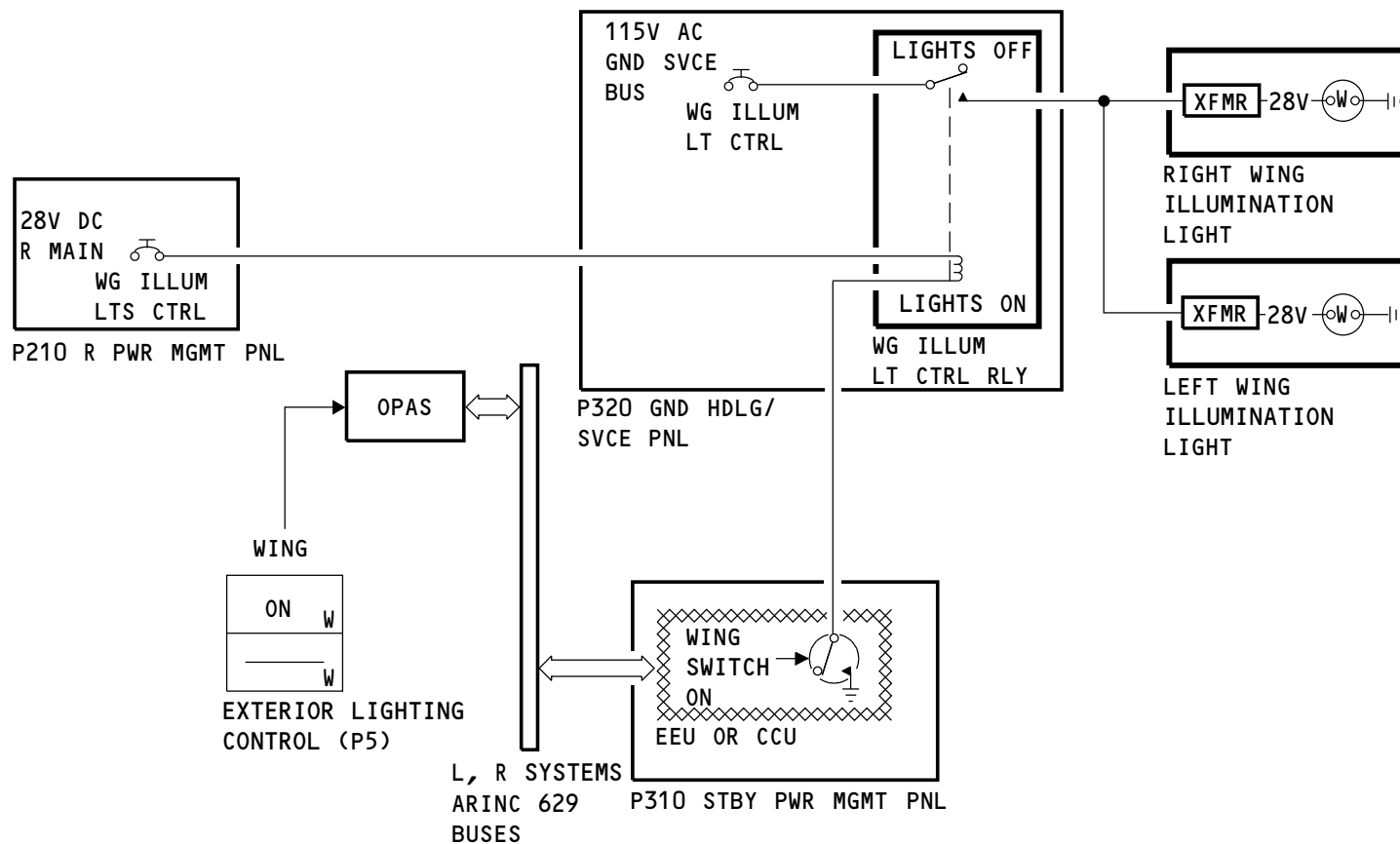
**WING ILLUMINATION LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

The WING switch sends a signal to the overhead panel ARINC systems (OPAS).

The signal goes to P310 standby power management panel. This closes a switch.

When the wing illumination light control relay energizes power goes to the transformers. The transformers decrease the voltage to 28v dc and makes the right and left wing illumination lights come on.

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WING ILLUMINATION LIGHTS - FUNCTIONAL DESCRIPTION

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - INTRODUCTION****Purpose**

The nose gear landing lights and the wing landing lights give light to the runway for takeoff and landing.

The runway turnoff lights give light to the side of the airplane so the crew can see the runway and taxiway turnoffs.

The taxi lights give light in front of the airplane for taxiing.

Transformers (not shown) decrease the voltage that goes to the lights.

Location

The nose gear landing lights and the taxi lights are on the front of the nose gear.

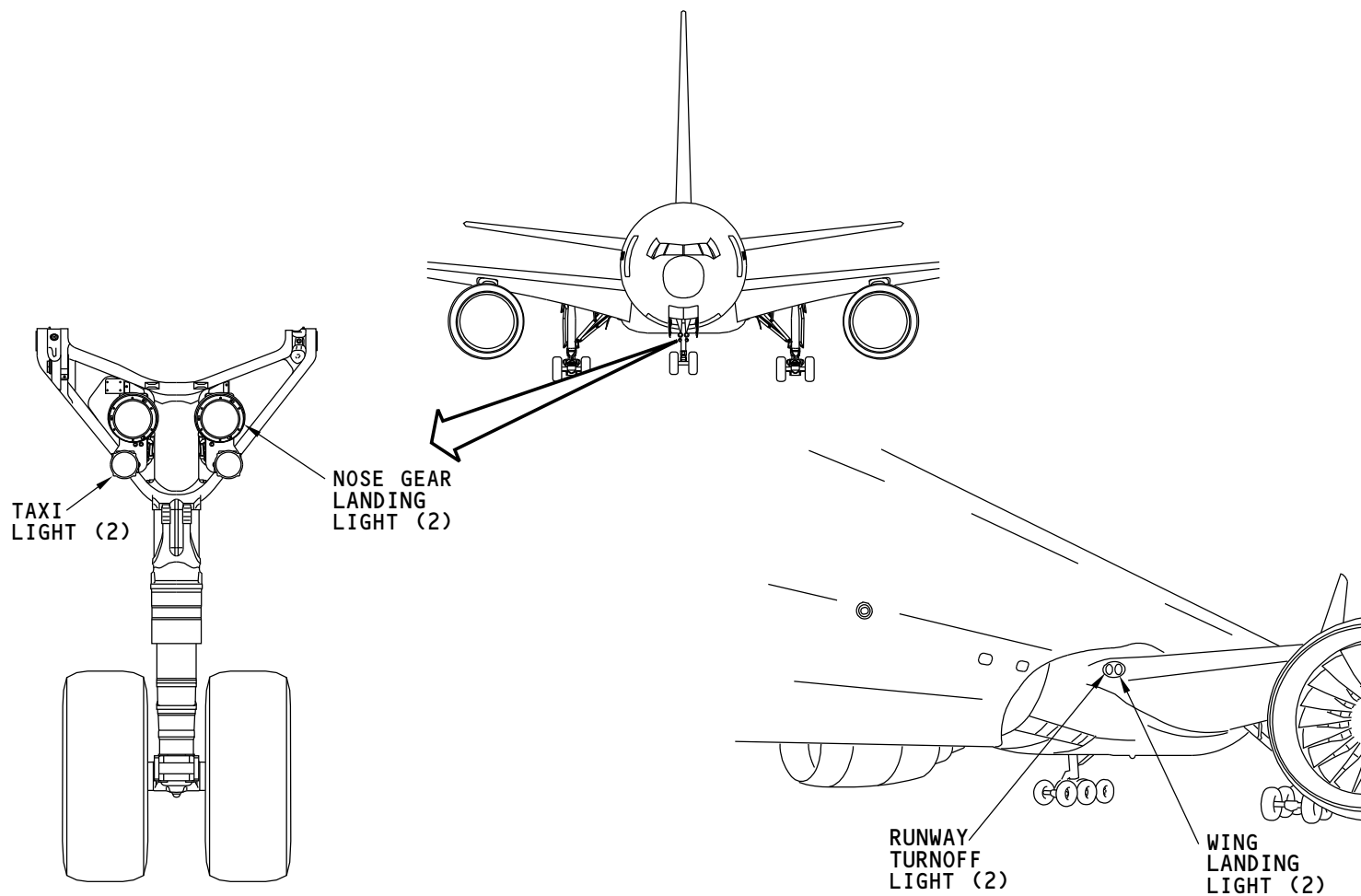
The wing landing lights and runway turnoff lights are on the left and right side of the fuselage. They are on the wing-to-body fairing.

There are transformers on the nose landing gear and in the forward cargo compartment.

Interface

The proximity sensor electronic (PSEU) unit gives information to control the level of light that comes from the landing lights.

ARO ALL	EFFECTIVITY



M42614 S000618980_V1

LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - INTRODUCTION

33-42-00

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - NOSE GEAR LANDING LIGHTS****Purpose**

The nose gear landing lights give light to runways and taxiways when the airplane is on the ground.

Location

The nose gear landing lights are on the front of the nose gear. They are above the taxi lights. There is one light on each side of the nose gear strut.

Physical Description

The nose gear landing lights have these components:

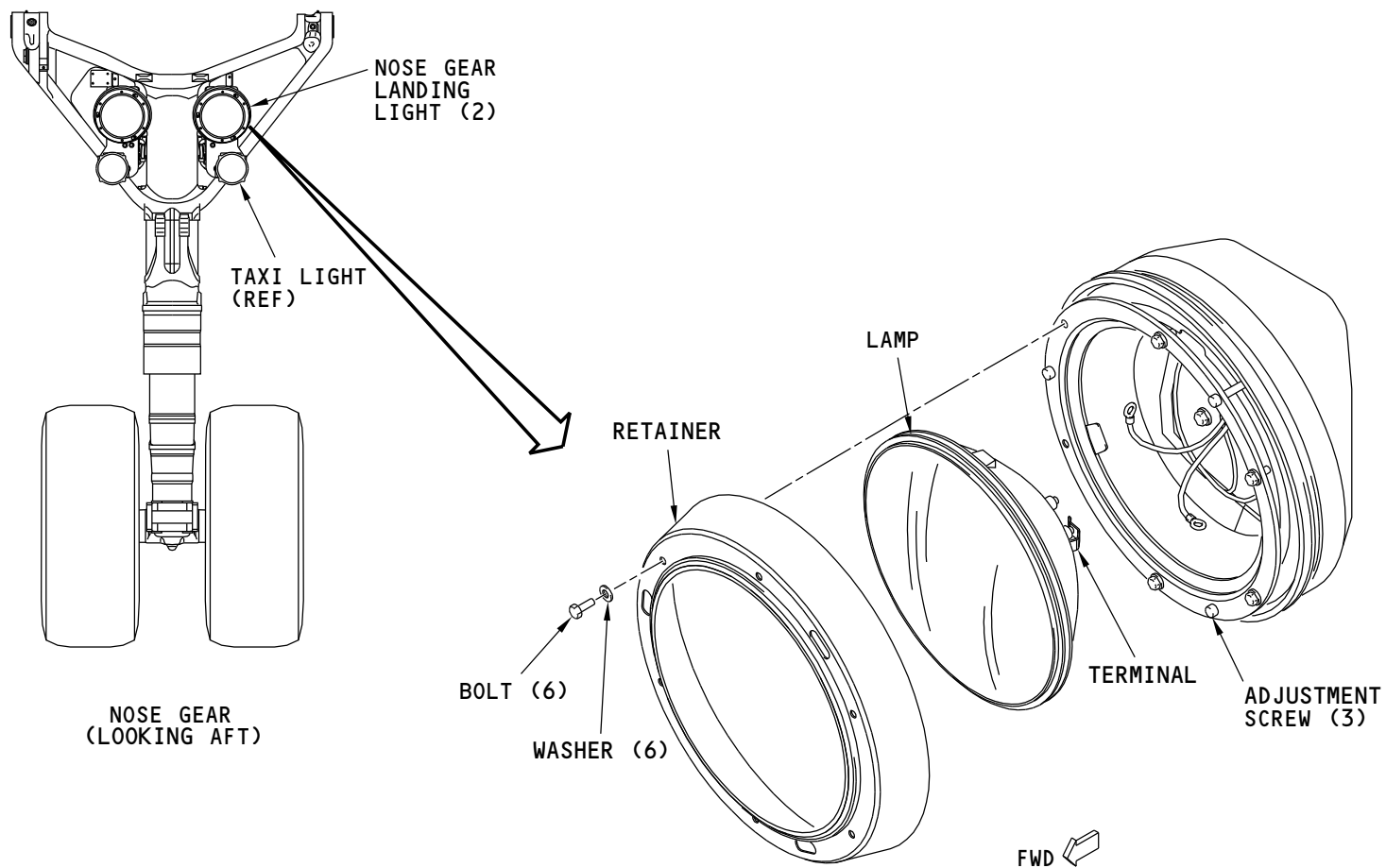
- Retainer
- Lamp
- Adjustment screw (3)
- Terminal.

Training Information Point

There are six bolts that hold the lamp. You remove these bolts to get access to the lamp. There are three adjustment screws that you use to point the lamp.

There is a gasket that is part of the retainer.

ARO ALL	EFFECTIVITY



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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - NOSE GEAR LANDING LIGHTS

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - WING LANDING LIGHTS****Purpose**

The wing landing lights give light in front of the airplane. They give light to the runway when the airplane is landing. They also give light in front of the airplane when it is taking off.

Location

The lights are on the front edge of each wing-to-body fairing.

Physical Description

The wing landing lights have these components:

- Retainer
- Lamp
- Terminal.

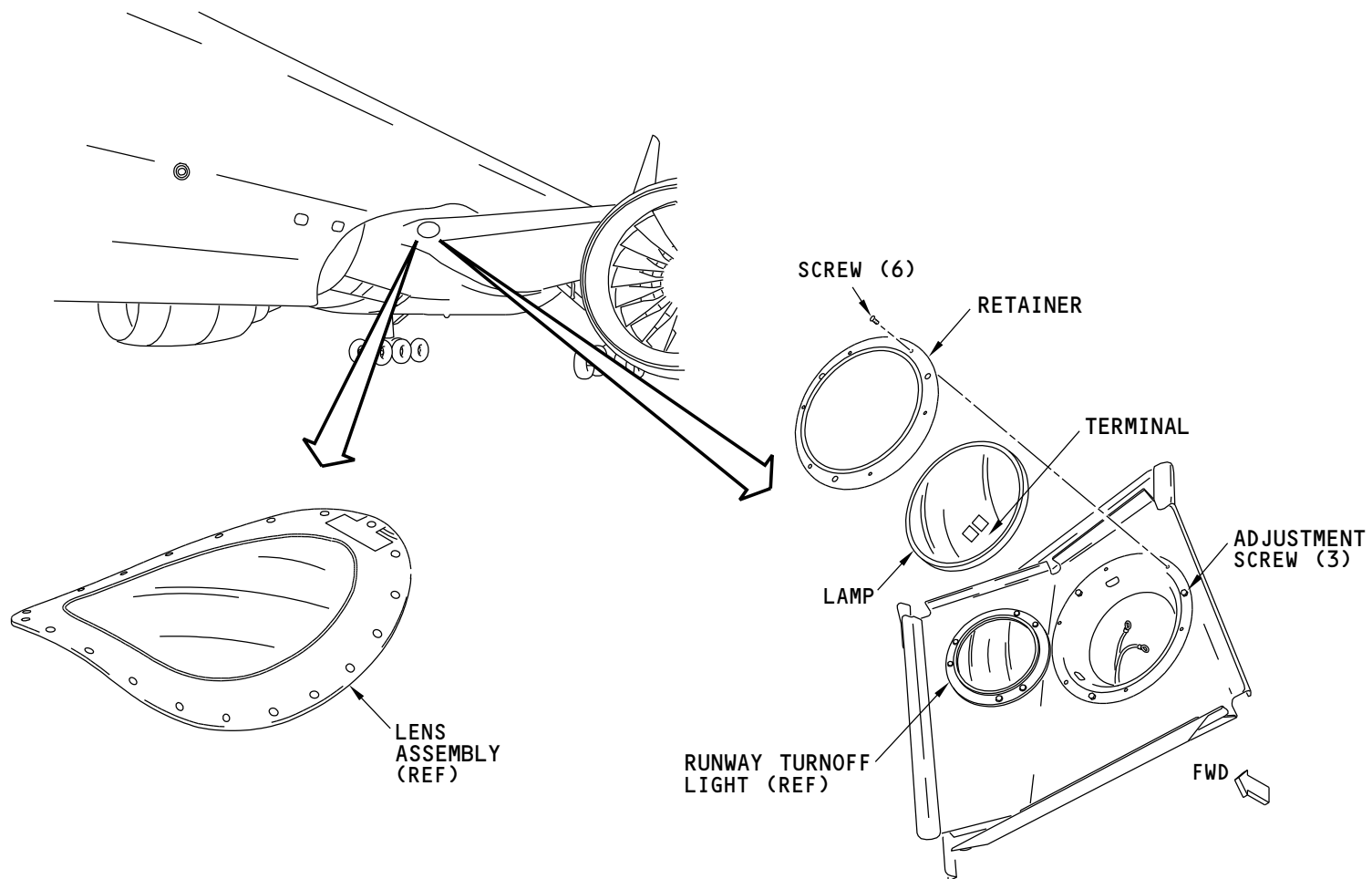
Training Information Point

You remove the lens assembly to get access to the wing landing light. There are six screws that hold the lamp.

You use the three adjustment screws to point the light.

There is a gasket that is part of the retainer.

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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - WING LANDING LIGHTS

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - TAXI LIGHTS****Purpose**

The taxi lights give light in front of the airplane for taxiing.

Location

The taxi lights are on the front of the nose gear. They are below the nose gear landing lights. There is one light on each side of the nose gear strut.

Physical Description

The taxi lights have these components:

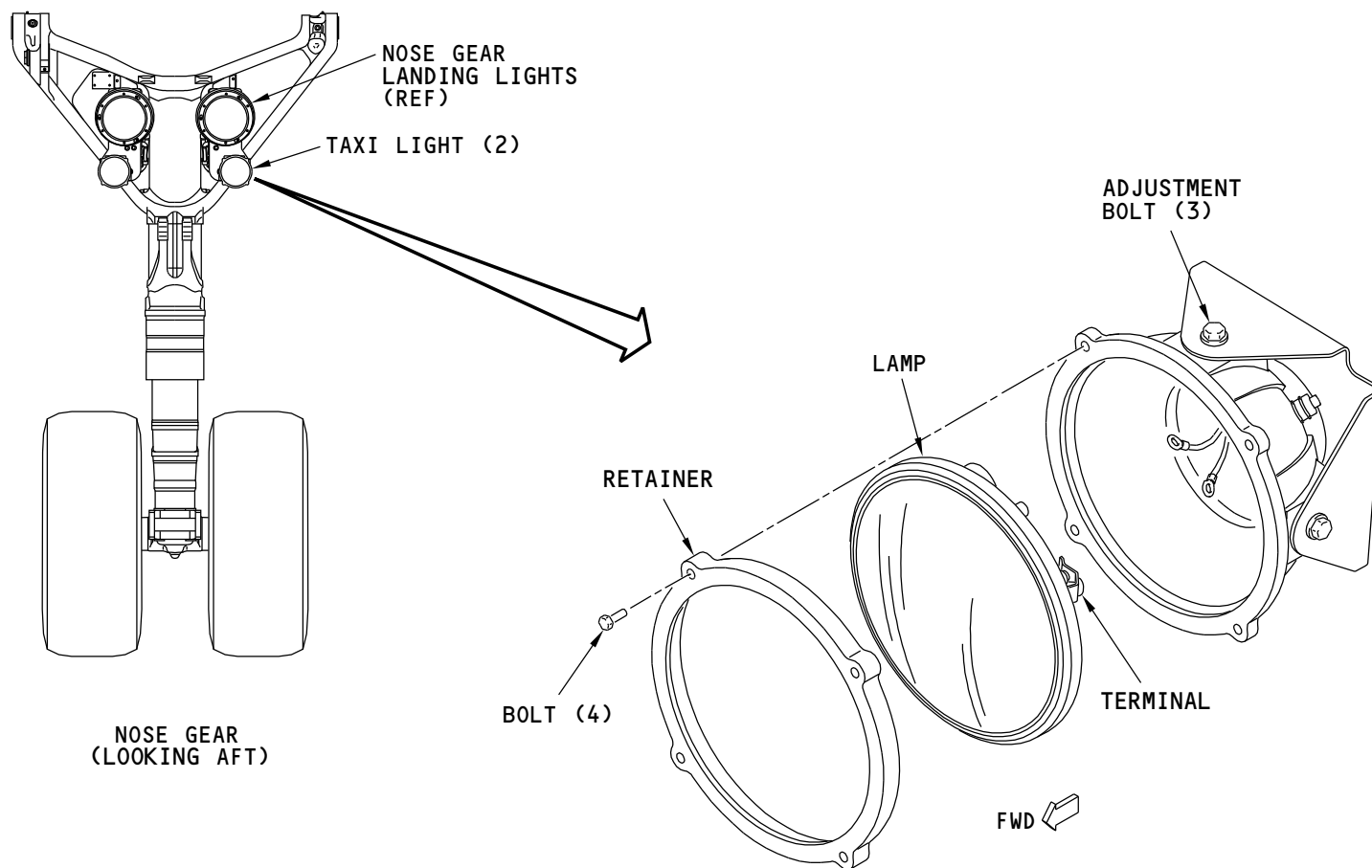
- Retainer
- Gasket
- Lamp
- Terminal.

Training Information Point

There are four bolts that hold the retainer and lamp. You remove these bolts to get access to the lamp.

You use the three adjustment bolts to point the light.

There is a gasket that is part of the retainer.



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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - TAXI LIGHTS

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - RUNWAY TURNOFF LIGHTS****Purpose**

The runway turnoff lights give light at an angle to the airplane. They give light to runway and taxi turnoffs.

Location

The lights are on the front edge of each wing-to-body fairing.

Physical Description

The runway turnoff lights have these components:

- Retainer
- Lamp
- Terminal.

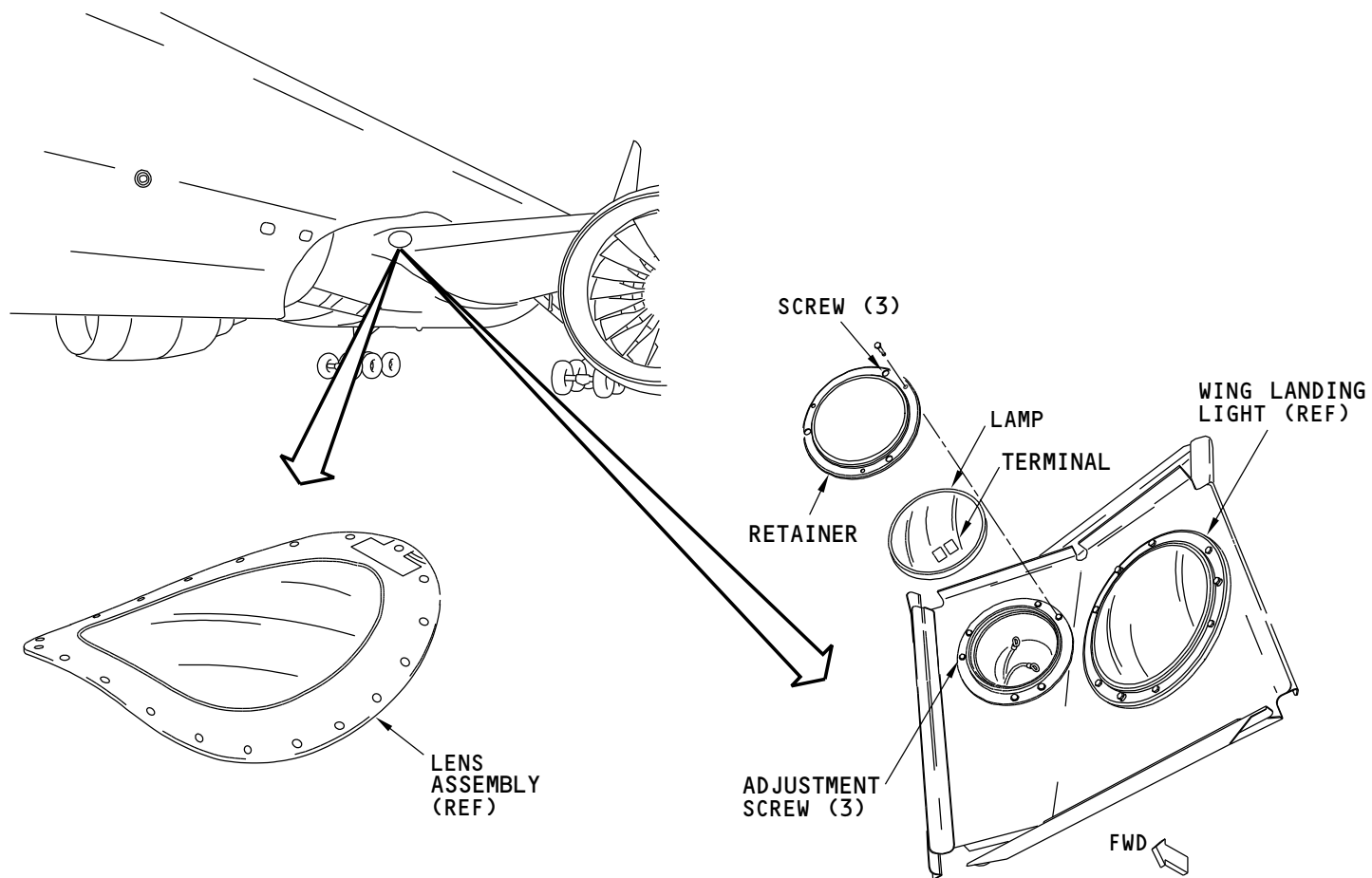
Training Information Point

You remove the lens assembly to get access to the runway turnoff light. There are three screws that hold the lamp. You remove these to get access to the lamp.

There are three adjustment screws that you use to point the lamp.

There is a gasket that is part of the retainer.

ARO ALL	EFFECTIVITY
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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - RUNWAY TURNOFF LIGHTS

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - TRANSFORMERS****Purpose**

The transformers decrease the voltage that goes to the lights.

Location

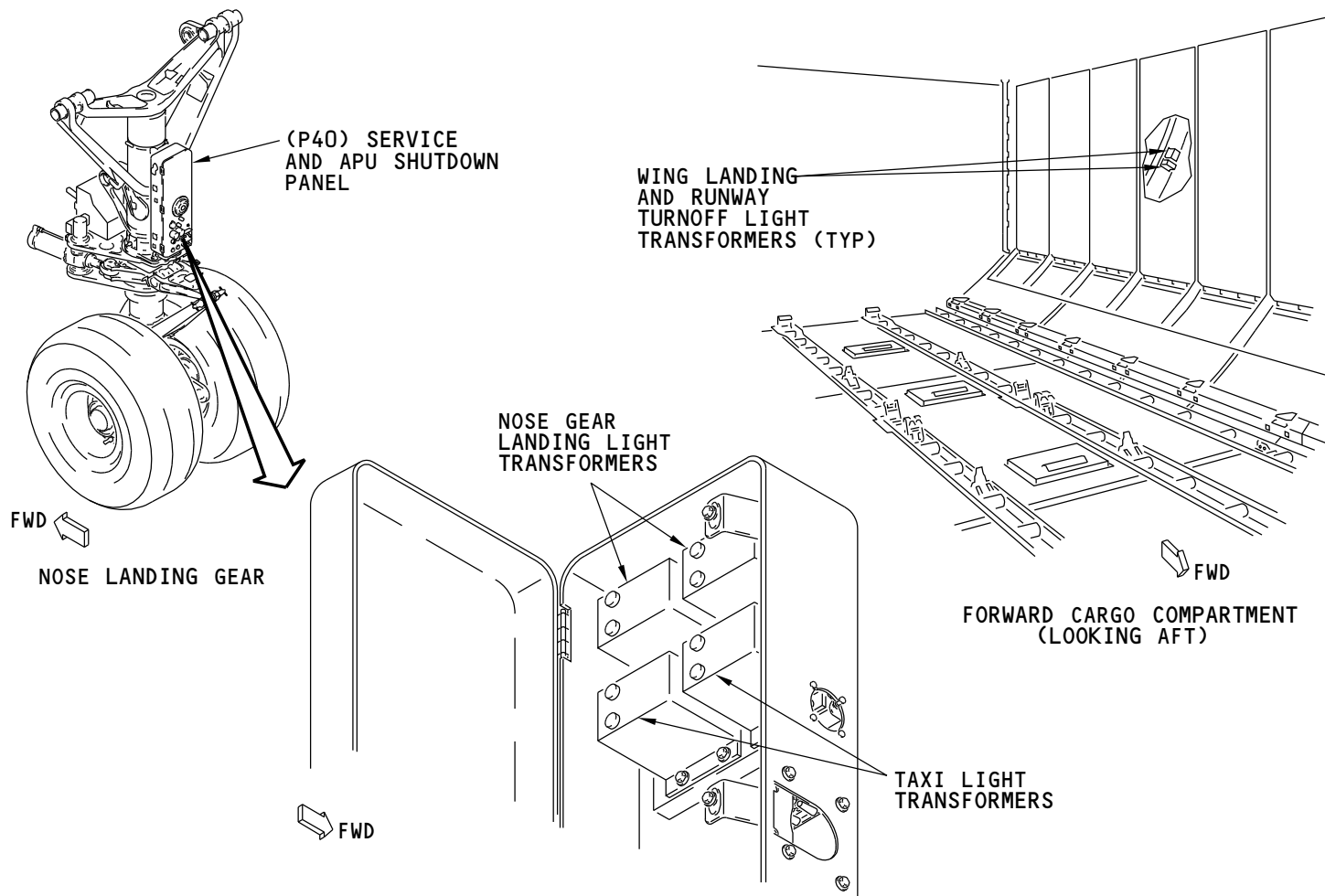
The transformers for the nose gear landing lights and the taxi lights are in the P40 service and APU shutdown panel. The panel is on the nose landing gear.

The transformers for the wing landing lights and the runway turnoff lights are outboard of the left and right sidewall liners in the forward cargo compartment.

Physical Description

Each transformer attaches with four bolts and has two electrical connectors.

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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - TRANSFORMERS

33-42-00

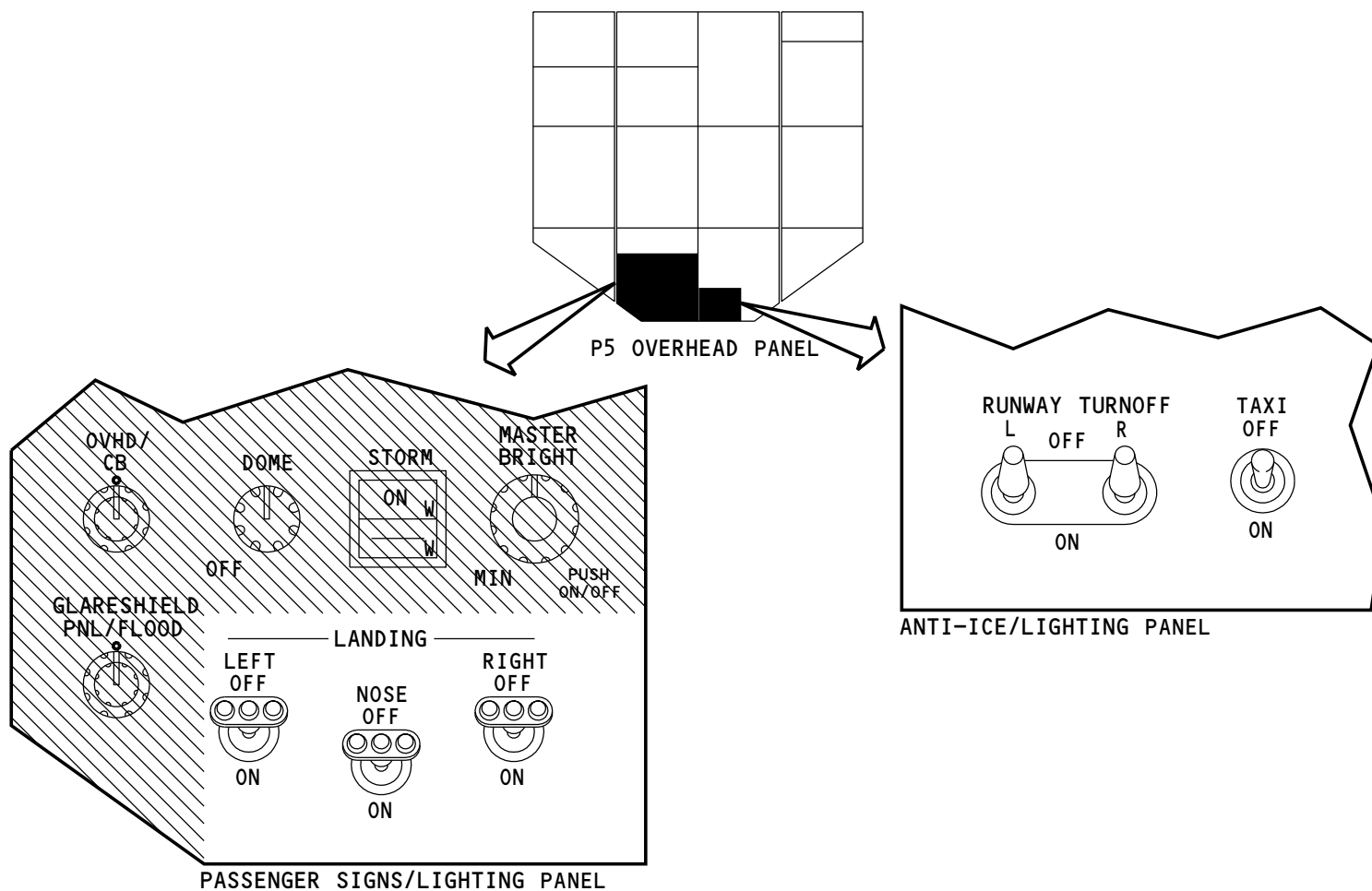
33-42-00-006

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - OPERATION****Operation**

You use the left, nose, and right landing light switches (LEFT, NOSE, RIGHT LANDING) to operate the landing gear lights. These switches are on the passenger signs/lighting panel on the P5 overhead. The switches are the toggle-type.

You use the left and right runway turnoff light switches (L, R RUNWAY TURNOFF) to operate the runway turnoff lights. You use the taxi light switch (TAXI) to operate the taxi lights. These switches are on the anti-ice/lighting panel on the P5 overhead panel. The switches are the toggle-type.



LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - OPERATION

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**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - LANDING LIGHTS - FUNCTIONAL DESCRIPTION****General**

The LEFT, NOSE, and RIGHT landing lights switches give signals to the overhead panel ARINC systems (OPAS). These signals go to the electronic load management system (ELMS).

The panel gets gear position data from the proximity sensor electronics unit (PSEU).

Wing Landing Lights

When the LEFT or RIGHT landing light switch is in the ON position, a control relay energizes. This makes the wing landing (WG LDG) light come on.

The lights have two modes, bright and dim. A bright/dim control relay energizes when the landing gear is down and locked. This makes the lights operate in the bright mode. When the relay is not energized the lights operate in the dim mode.

In the bright mode the transformer decreases the voltage to 28 V AC. In the dim mode it decreases the voltage to 24 V AC.

A small amount of power goes to the wing landing lights to prevent thermal shock when the lights comes on and to increase the life of the lights. The small amount of power goes to the lights when the:

- Airplane is in the air
- LEFT and RIGHT landing light switches are OFF
- Nose gear is not down and locked.

Nose Gear Landing Lights

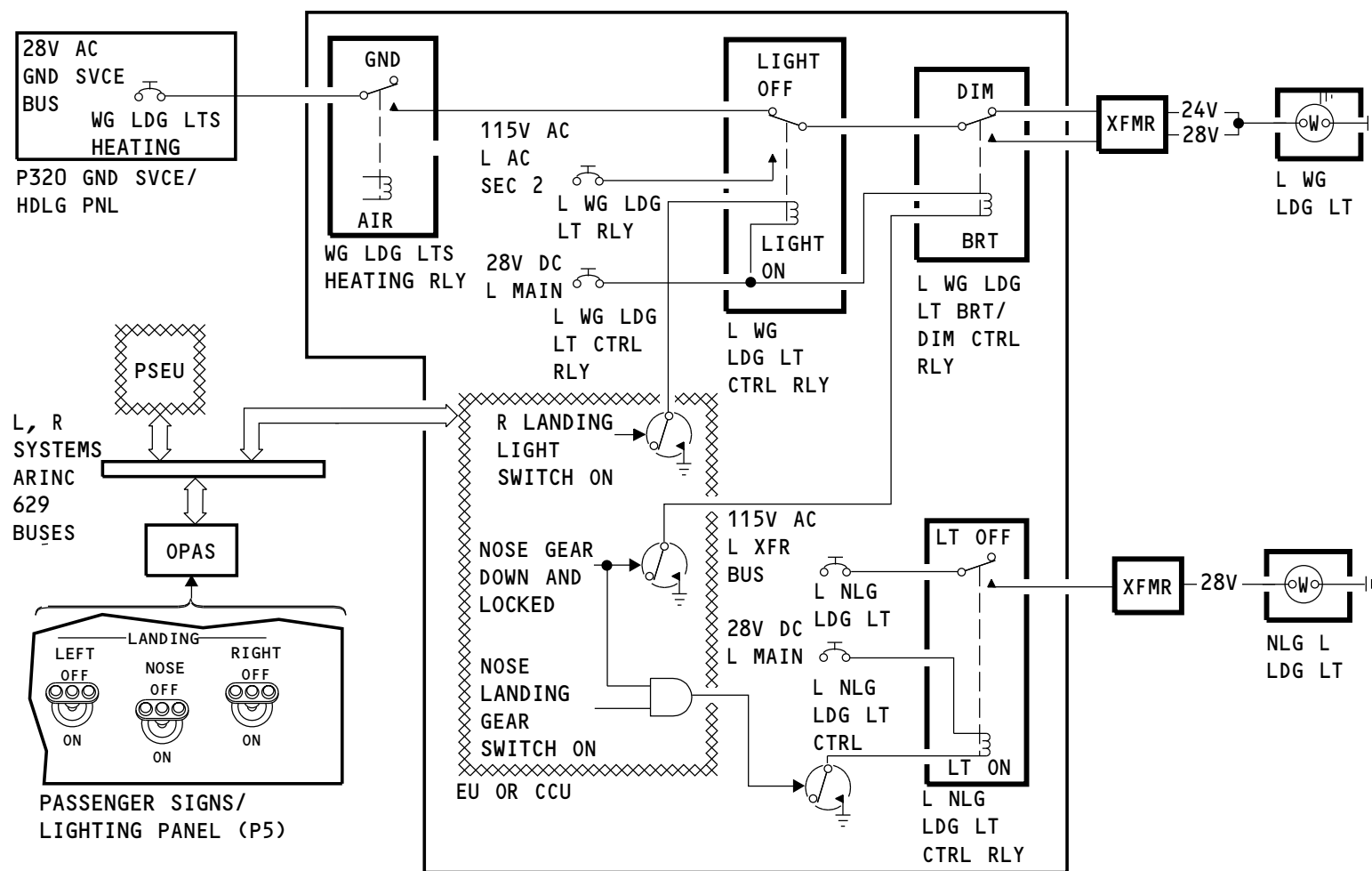
When the NOSE landing light switch is in the ON position, a control relay energizes. This makes the nose landing gear (NLG) lights come on. A transformer decreases the voltage to 28 V AC.

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NOTE: LEFT SYSTEM IS SHOWN.
THE RIGHT SYSTEM IS SIMILAR.

P110 L PWR MGMT PNL (TYP)

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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - LANDING LIGHTS - FUNCTIONAL DESCRIPTION

**LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - RUNWAY TURNOFF & TAXI LIGHTS - FUNCTIONAL DESCRIPT****General**

The LEFT and RIGHT runway turnoff light switches and the TAXI light switch give signals to OPAS. The signals go to the electronic load management system (ELMS).

The panel gets gear position data from the proximity sensor electronics units (PSEUS).

Runway Turnoff Lights

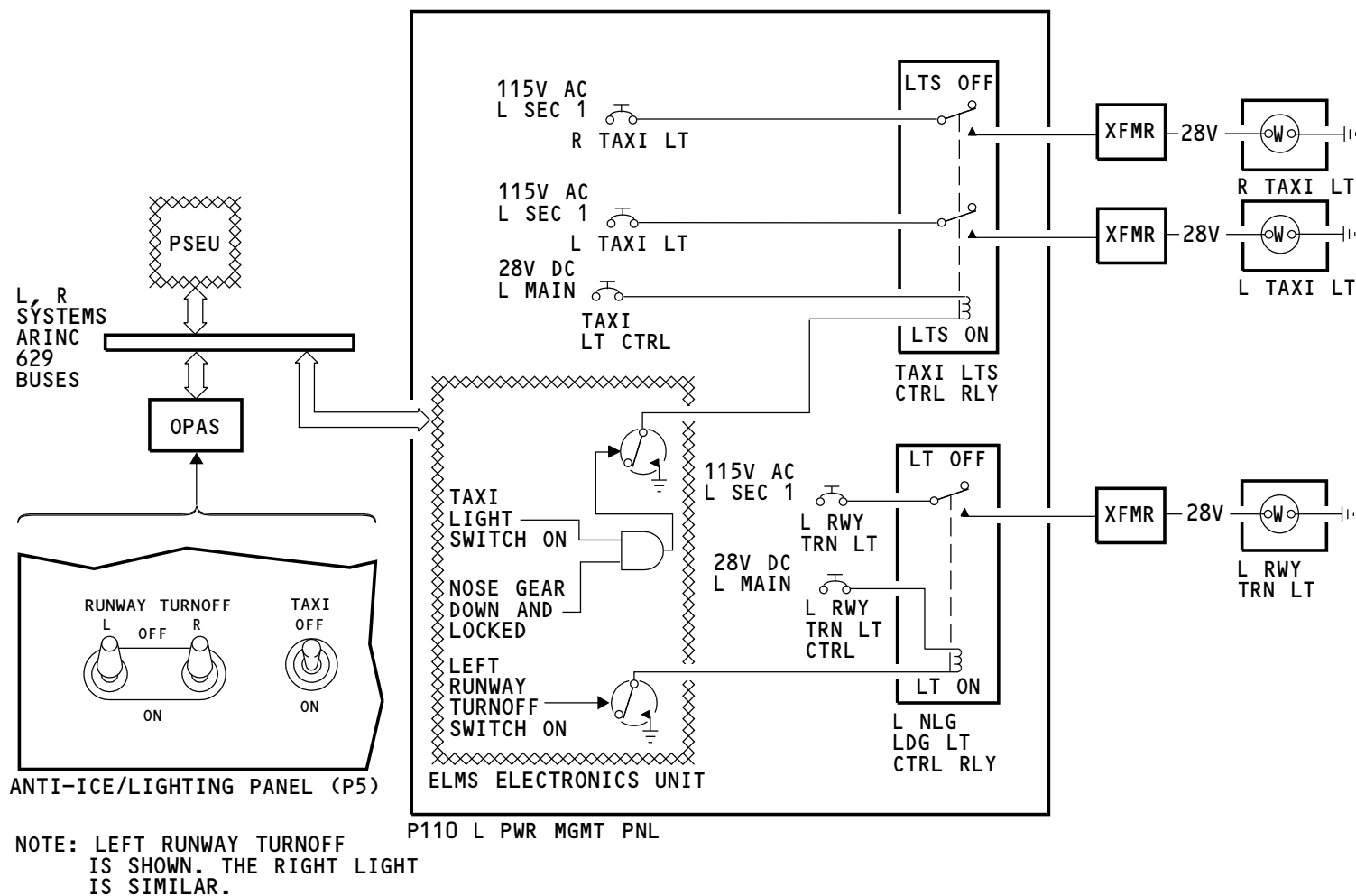
When the LEFT or RIGHT runway turnoff switch is in the ON position, a switch closes and causes the control relay to energize. This makes the turnoff light come on.

Transformers decrease the voltage to 28 volts.

Taxi Lights

When the TAXI light switch is in the ON position and the nose gear is down and locked, a switch closes. This causes the control relay to energize and makes the taxi lights come on.

Transformers decrease the voltage to 28 volts.



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LANDING, RUNWAY TURNOFF, AND TAXI LIGHTS - RUNWAY TURNOFF & TAXI LIGHTS - FUNCTIONAL DESCRIPT

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POSITION LIGHTS - INTRODUCTION

Purpose

The position lights aid in collision avoidance.

The position light transformers (not shown) decrease the voltage that goes to the lights.

Physical Description

The position lights are red, green, or white.

Location

There are position lights on the forward and aft tips of each wing. There is a position light on the airplane tailcone.

The transformers are in the tip of each wing and in the airplane tailcone.

Training Information Point



CAUTION

DO NOT TOUCH THE LAMP WITH YOUR HANDS. FINGERPRINTS DECREASE LIGHT OUTPUT AND CAN CAUSE FAILURE OF THE LAMPS BEFORE THE USUAL TIME.



WARNING

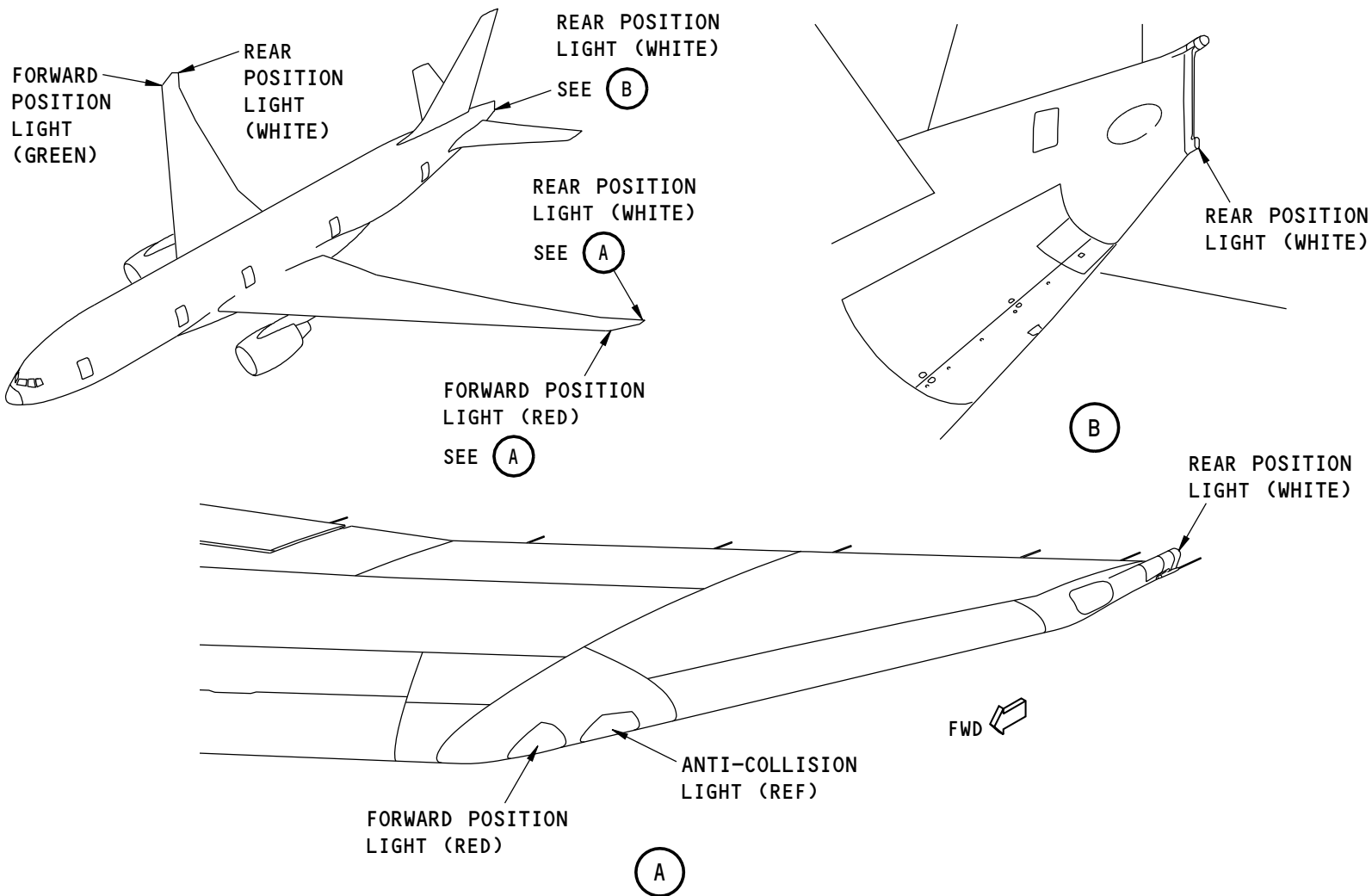
REMOVE POWER AND ALLOW LAMPS TO COOL BEFORE YOU REPLACE THEM. IF YOU TOUCH THE LAMPS WHEN THEY ARE HOT, THEY CAN BREAK AND CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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W05217 S0000115213_V1

POSITION LIGHTS - INTRODUCTION

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POSITION LIGHTS - WING POSITION LIGHTS

General

The wing position lights show the position, attitude, and direction of flight of the airplane. There are forward position lights and rear position lights.

Location

The forward position lights are on the wing tips, forward of the wing anti-collision light. There are two lamps in each light assembly.

The rear position lights are on the rear of the wing at the tip, aft of the wing anti-collision light. There are two lamps in each light assembly.

Physical Description

The left forward position light has a red lens. The right light has a green lens. The aft position lights have a clear lens, thus the light is white.

The forward and rear position lamps are two-prong-flange-type lamps.

Each forward position light assembly has these parts:

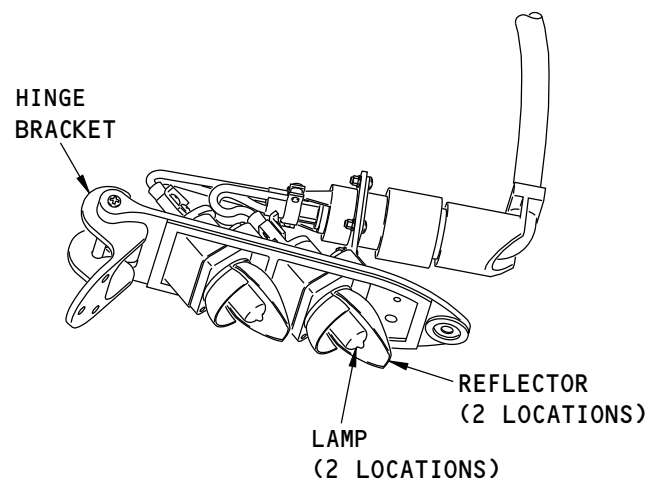
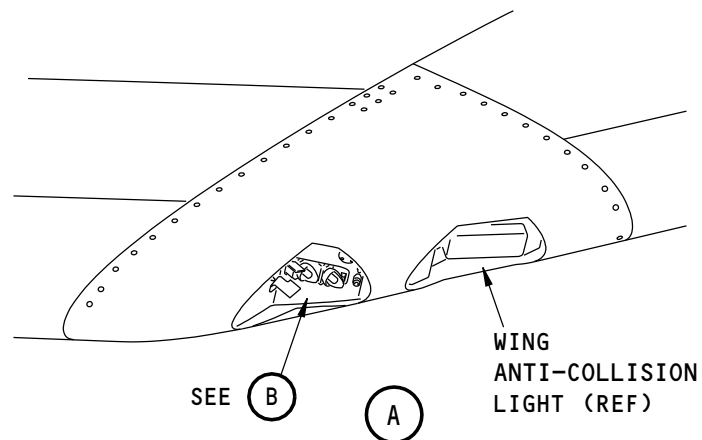
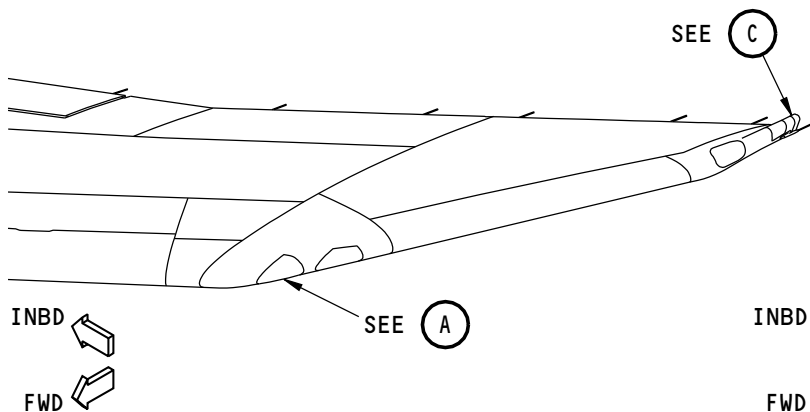
- Hinge bracket
- Reflector (2)
- Lamp (2)
- Lanyard (not shown)
- Electrical connector (not shown).

Each rear position light has these parts:

- Lens
- Lamp (2)
- Reflector (2)
- Lanyard
- Electrical connector.

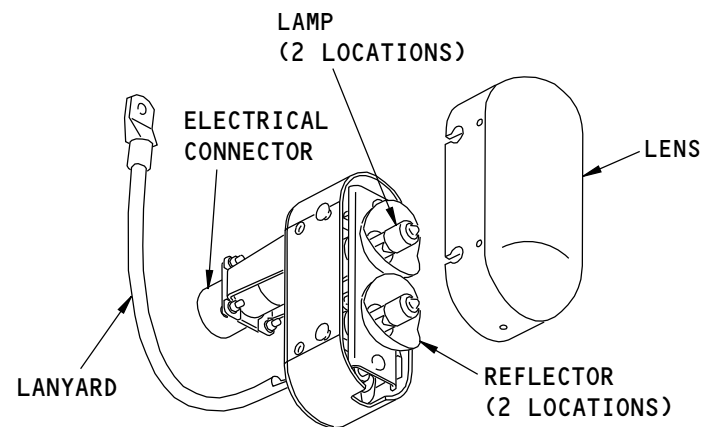
Training Information Point

To get access to the forward position lamps, loosen the captive screws to release the panel on the bottom side of the wing at the tip. Loosen two captive screws; rotate, and unhook the light assembly to get it out of the wing. The light assembly hangs by a lanyard. This gives you access to the lamps.



FORWARD POSITION LIGHT ASSEMBLY

(B)



REAR POSITION LIGHT ASSEMBLY

(C)

POSITION LIGHTS - WING POSITION LIGHTS

W04750 S0000115230_V1

**POSITION LIGHTS - WING POSITION LIGHT TRANSFORMERS****Purpose**

The position light transformers decrease the amount of voltage that goes to the position lights.

Location

There is one transformer in each wing tip, inboard from the position lights. They are near the wing anti-collision light power supplies.

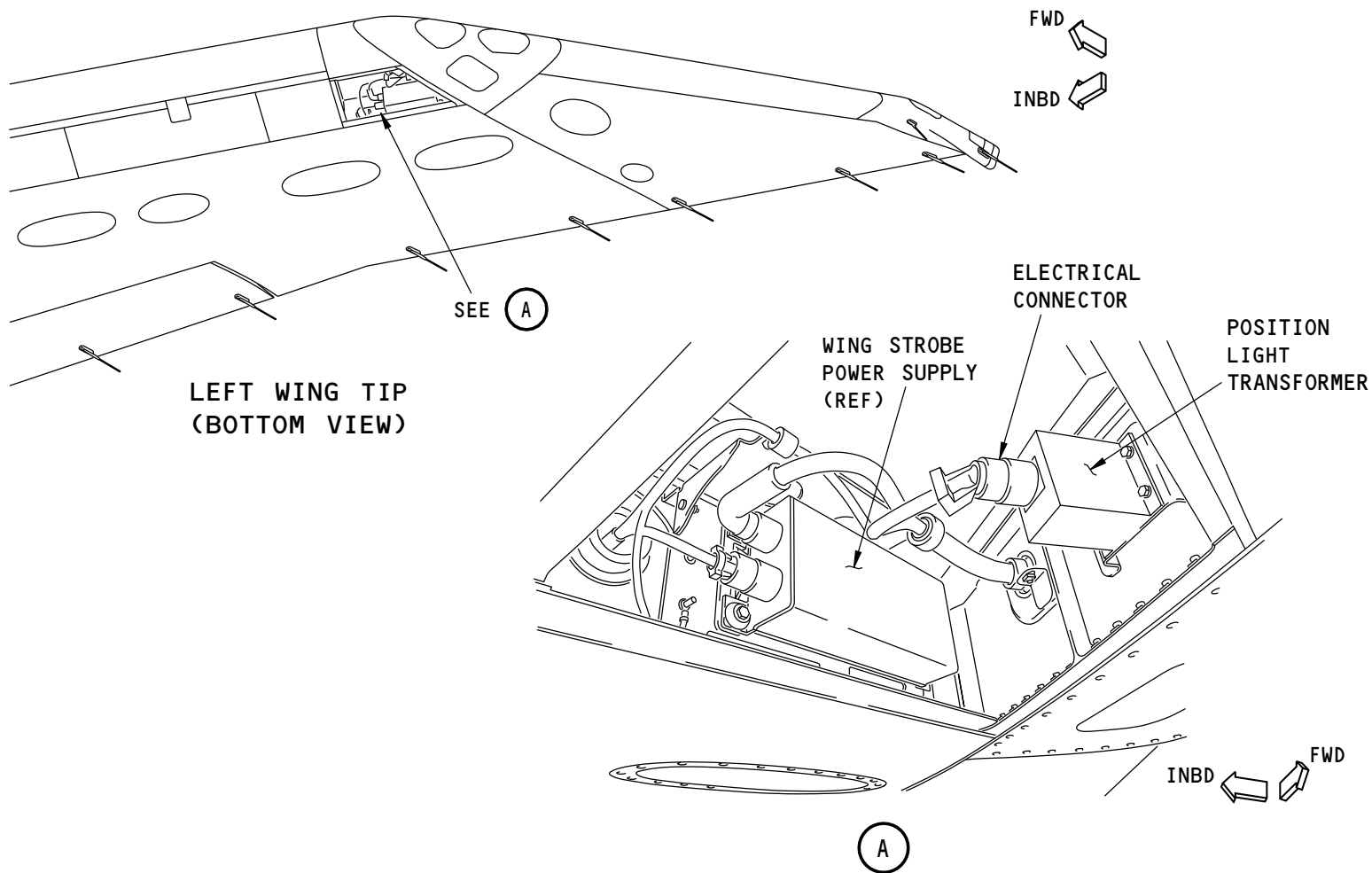
Physical Description

Each transformer has an electrical connector and four fasteners.

Training Information Point

You loosen captive screws to release the panel on the bottom of the wing at the tip to get access to the transformer.

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POSITION LIGHTS - WING POSITION LIGHT TRANSFORMERS

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**POSITION LIGHTS - TAILCONE POSITION LIGHT****Purpose**

The tailcone position light lets people outside the airplane see the location of the aft end of the airplane.

Location

The light is on the lower corner of the airplane tailcone.

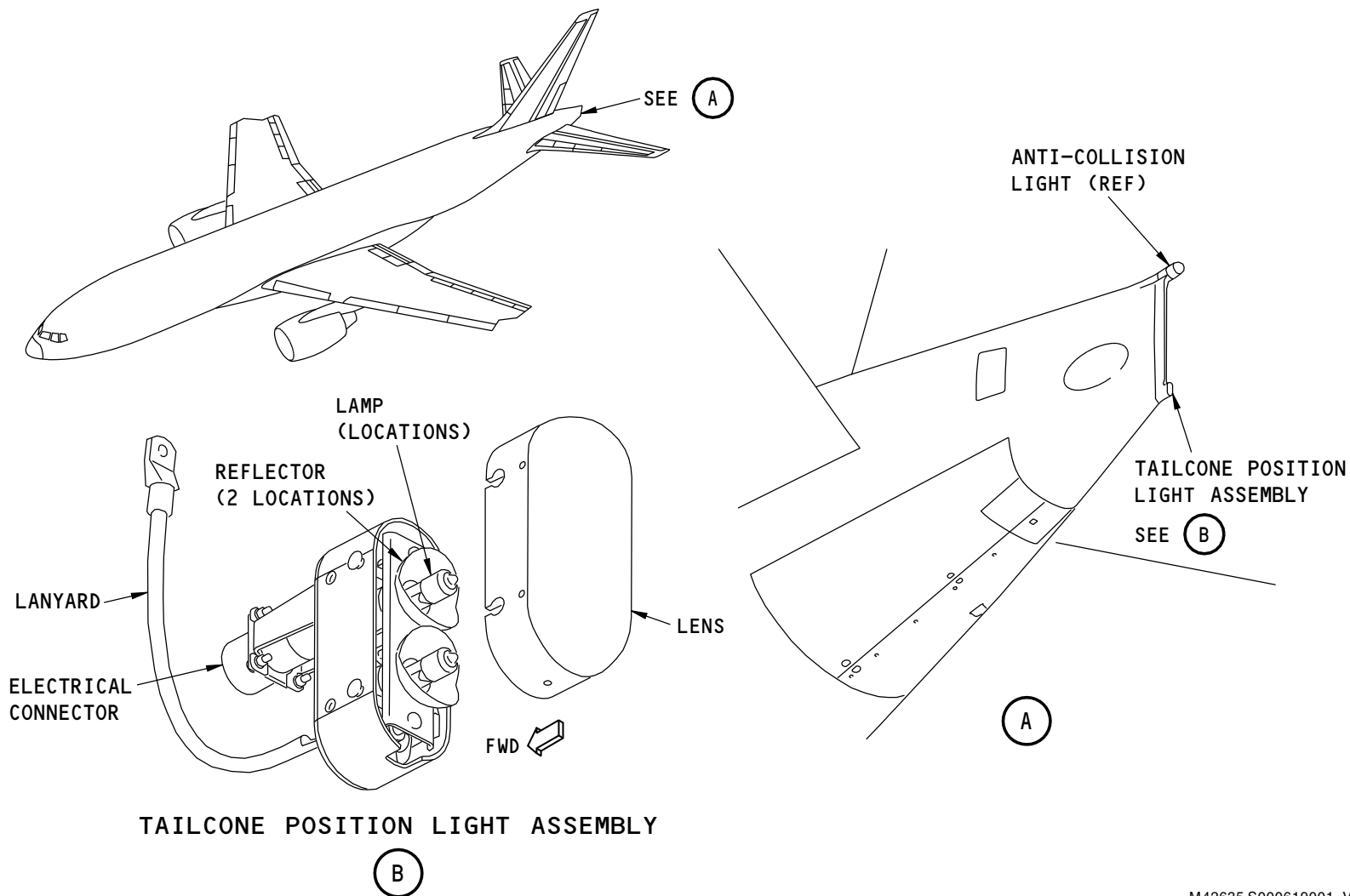
Physical Description

The tailcone position light has a clear lens, thus the light is white.

There are two lamps in the position light. The lamps are two-prong-flange-type lamps. There is a reflector for each lamp.

The position light has an electrical connector and lanyard.

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TAILCONE POSITION LIGHT ASSEMBLY

(B)

POSITION LIGHTS - TAILCONE POSITION LIGHT

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**POSITION LIGHTS - TAILCONE POSITION LIGHT TRANSFORMER****Purpose**

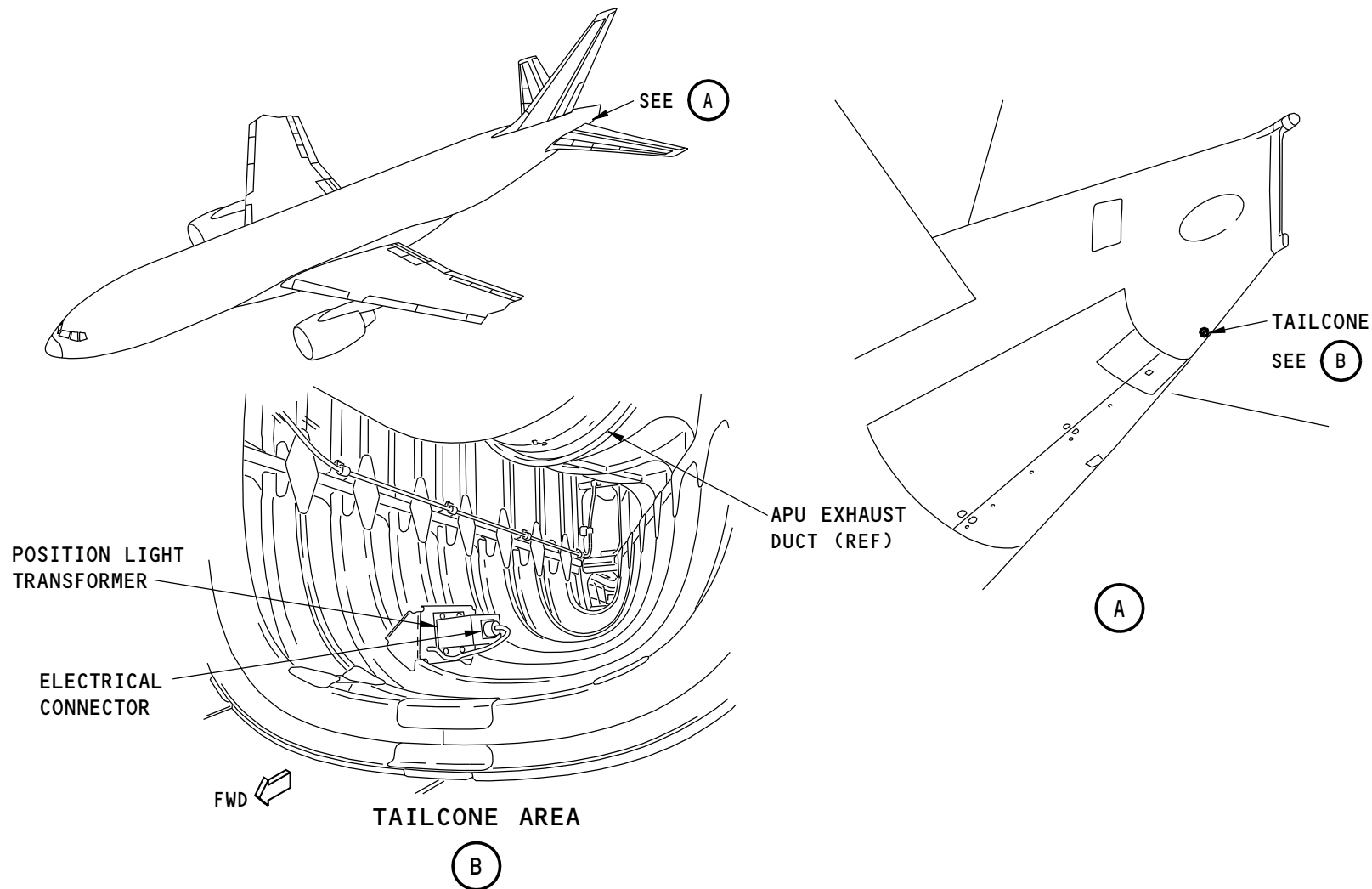
The position light transformer decreases the amount of voltage that goes to the position lights.

Location

The transformer is in the tailcone area in the aft end of the APU compartment. It is on the right side.

Physical Description

The transformer has an electrical connector and four fasteners.



POSITION LIGHTS - TAILCONE POSITION LIGHT TRANSFORMER

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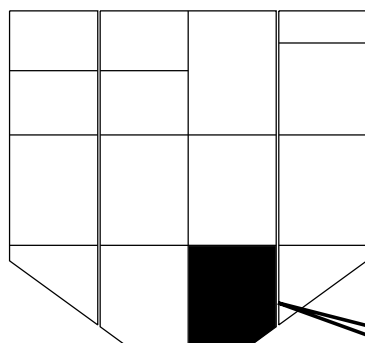
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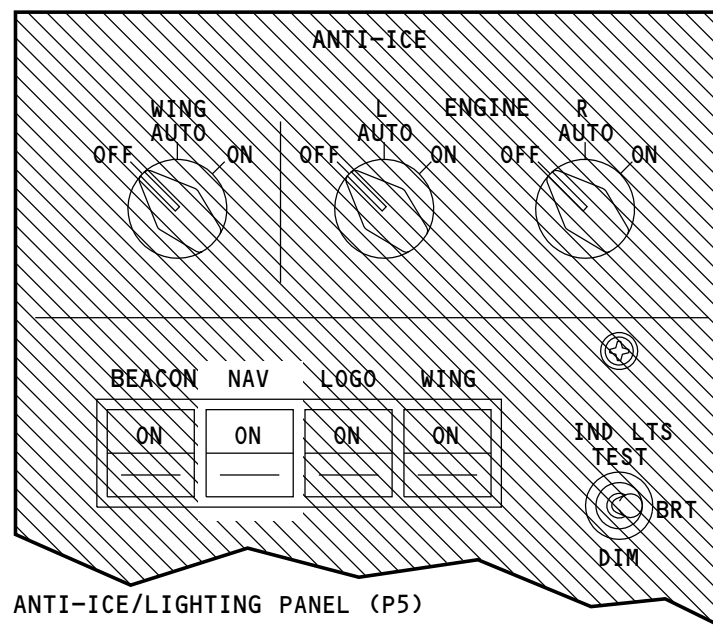
POSITION LIGHTS - OPERATION

Operation

You use the navigation light switch (NAV) to operate the position lights. It is on the anti-ice/lighting panel on the P5 overhead panel. It is an alternate-action switch.



P5 OVERHEAD PANEL



ANTI-ICE/LIGHTING PANEL (P5)

M42630 S000618996_V1

POSITION LIGHTS - OPERATION

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**POSITION LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

The NAV light switch sends a signal to the overhead panel ARINC 629 system (OPAS).

The signal goes to the P210 right power management panel and P110 left power management panel.

Switches close in the panels and cause the position light control relays to energize. This makes power go to the transformers.

Power also goes to the transformers when the towing power is on.

The transformers decrease the voltage from 115v ac to 10v ac and make the lights come on.

See the flight compartment illumination section for more information about the flight compartment lights that get power from the towing bus (SECTION 33-11).

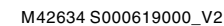
See the integral panel lights section for more information about the integral panel lights that get power from the towing bus (SECTION 33-13).

See the towing power section for more information about the towing bus (SECTION 24-29).

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POSITION LIGHTS - FUNCTIONAL DESCRIPTION



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ANTI-COLLISION LIGHTS - INTRODUCTION

Purpose

The anti-collision lights aide in collision avoidance and make the airplane easier to see.

Power supplies give power to the lights and make them flash.

Location

The upper body anti-collision light is on the top of the fuselage. The lower body anti-collision light (not shown) is on the bottom of the fuselage. These lights are referred to as beacons.

The wing anti-collision lights are on the tips of the wings. The tailcone anti-collision light is on the tailcone. These lights are referred to as strobes.

The power supplies (not shown) are near the beacons and strobes. There is one power supply for each light.

General Description

The beacons and strobes are redundant systems.

The two beacon lights flash at the same time. The three strobe lights also flash at the same time, but not at the same time as the beacon lights.

Training Information Point


WARNING

DO NOT TOUCH THE POWER SUPPLY FOR THREE MINUTES AFTER YOU REMOVE THE POWER. IF YOU TOUCH A POWER SUPPLY BEFORE YOU BLEED IT, INJURY TO PERSONS OR DAMAGE TO EQUIPMENT CAN OCCUR.


CAUTION

DO NOT TOUCH THE LAMP WITH YOUR BARE HANDS. FINGERPRINTS DECREASE LIGHT OUTPUT AND CAN CAUSE FAILURE OF THE LAMP BEFORE THE USUAL TIME.


WARNING

DO NOT LET THE LIGHTS FLASH DIRECTLY IN YOUR EYES. THE INTENSITY OF THE LIGHT CAN CAUSE INJURY TO YOUR EYES TEMPORARILY.


WARNING

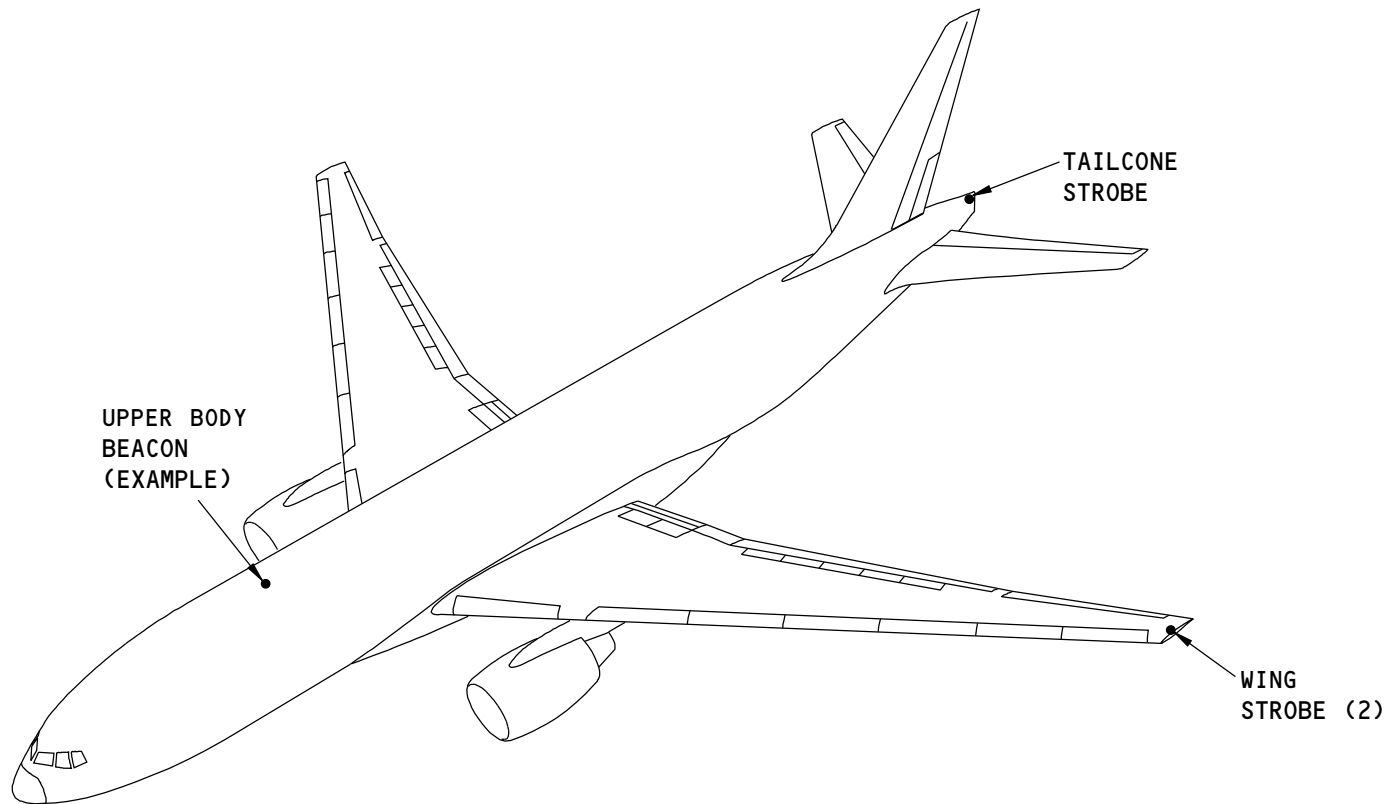
WAIT TEN MINUTES BEFORE YOU REMOVE A LIGHT. IF YOU TOUCH THE LIGHT WHEN IT IS HOT, INJURY TO PERSONS CAN OCCUR.

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ANTI COLLISION LIGHTS - INTRODUCTION

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**ANTI-COLLISION LIGHTS - UPPER AND LOWER BODY BEACONS****Component Locations**

The upper body beacon is on the top of the fuselage.

The lower body beacon is on the bottom of the fuselage.

Physical Description

The lamps in the beacons are the xenon strobe type. They flash approximately 48 times per minute.

The beacon light has these components:

- Lens
- Lamp
- Housing
- Electrical connector
- Relamping Handle
- Reflector.

The lens is red.

Training Information Point

You lower the ceiling panel to get access to the upper body beacon. There are station markers above each center ceiling panel. They are on the center bin stowage bin rail.

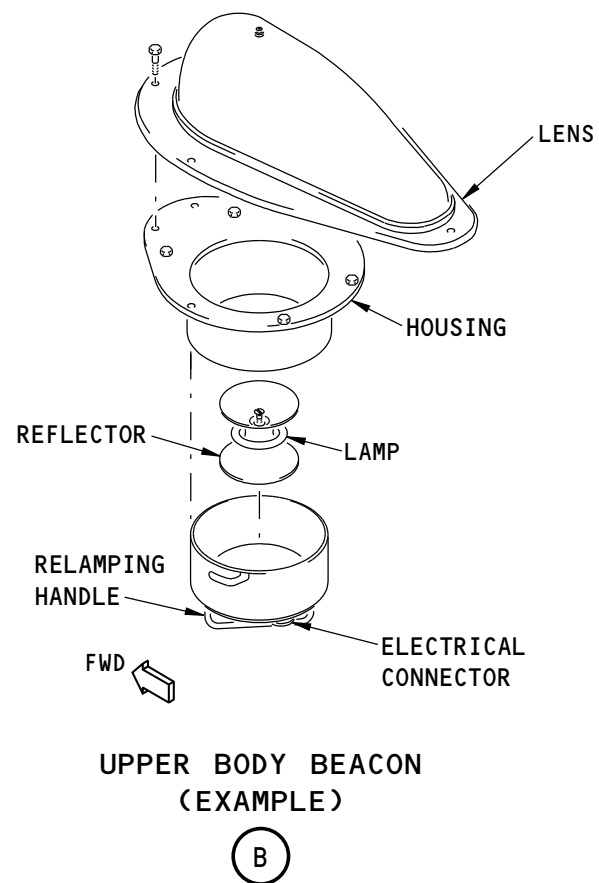
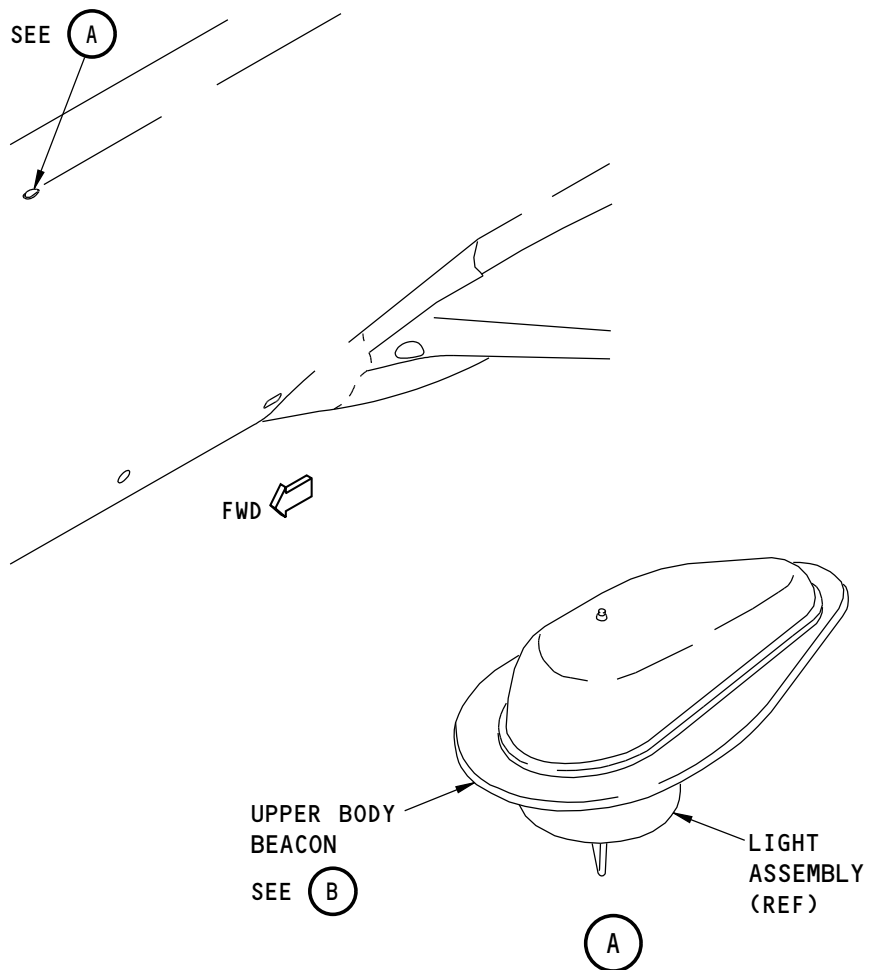
You get access to the lower body beacon from the outside of the airplane.

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ANTI-COLLISION LIGHTS - UPPER AND LOWER BODY BEACONS

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	D633W101-ARO

**ANTI-COLLISION LIGHTS - WING STROBE****Location**

The wing strobes are on the tips of the wings. They are aft of the red or green position light.

Physical Description

The lamps in the wing strobes are the xenon strobe type.

Each light has a:

- Lanyard
- Lamp assembly.

There is a lanyard/ground wire that does not allow the light assembly to fall when you remove the fasteners. There is an electrical connector on the back of the light assembly.

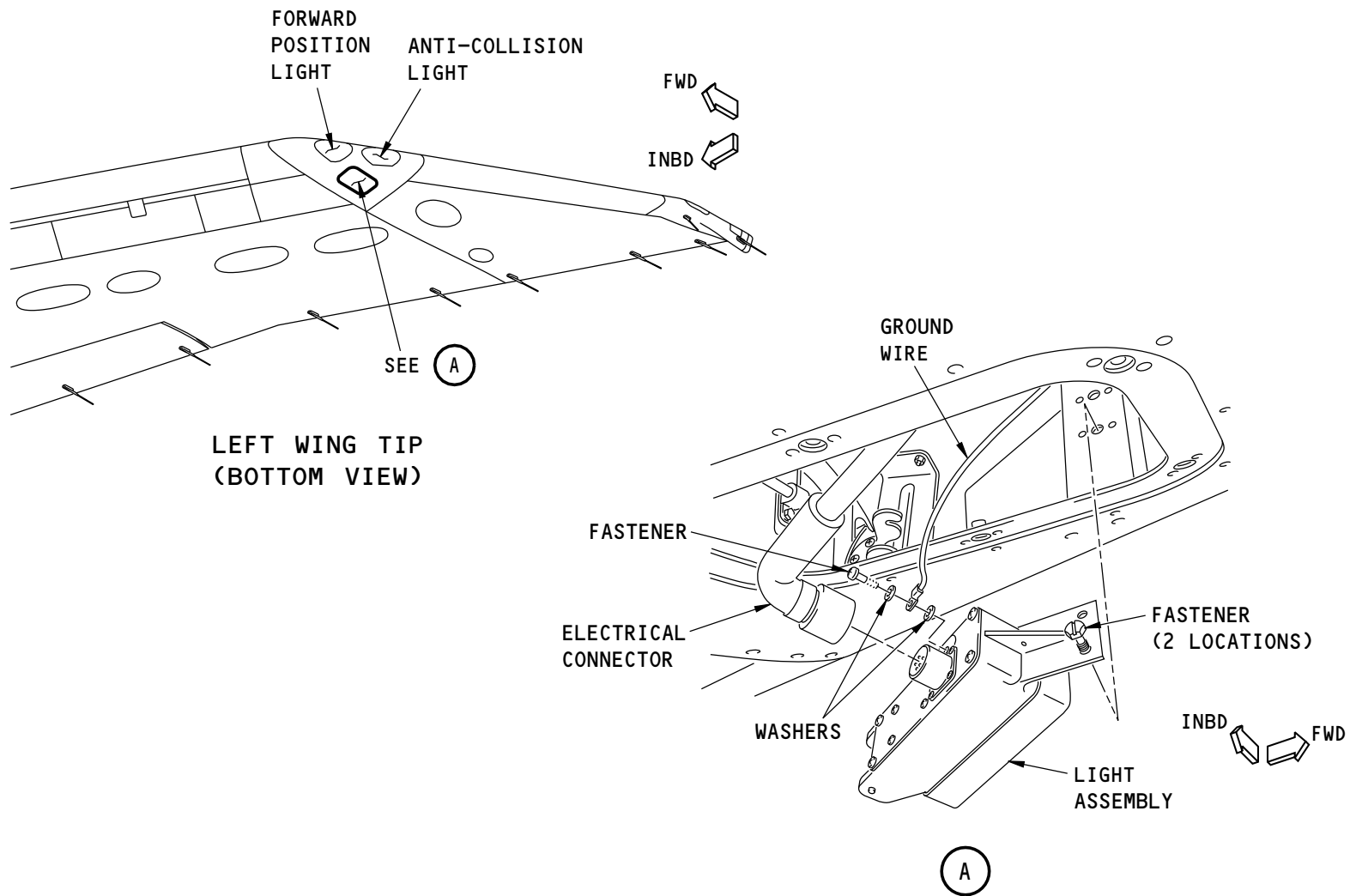
You loosen the captive screws to release the panel on the bottom side of the wing tip to access the position light lamps. You loosen two quick release fasteners and rotate the assembly around the pivot to get it out of the wing. This gives you access to the lamp assembly.

33-44-00

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D633W101-ARO

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W07894 S0000115557_V1

ANTI-COLLISION LIGHTS - WING STROBE

33-44-00

33-44-00-003

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	D633W101-ARO

**ANTI-COLLISION LIGHTS - TAILCONE STROBE****Location**

The tailcone strobe is on the end of the fuselage.

Physical Description

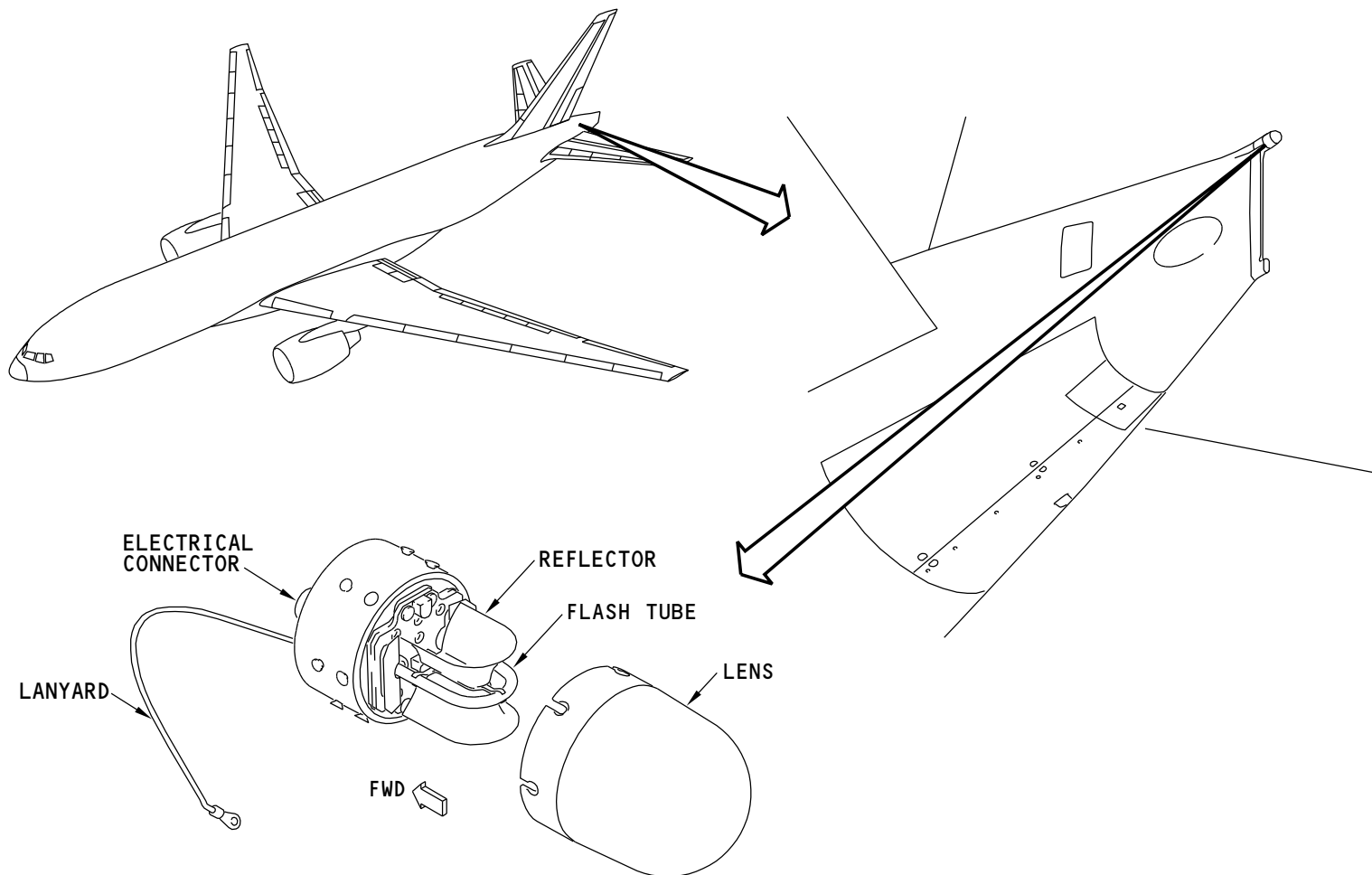
The lamp in the tailcone strobe is the xenon-strobe type.

The strobe has a:

- Lanyard
- Electrical connector
- Reflector
- Flash tube
- Lens.

Training Information Point

You get access to the tailcone strobe from the outside of the airplane.



TAILCONE STROBE LIGHT ASSEMBLY

ANTI-COLLISION LIGHTS - TAILCONE STROBE

M42640 S000619006_V1

33-44-00-004

ARO ALL	EFFECTIVITY
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33-44-00

**ANTI-COLLISION LIGHTS - POWER SUPPLY - INTRODUCTION****Purpose**

The power supplies give power to the beacons and the strobes. They make the beacons and the strobes flash.

Location

The power supplies for the wing strobes are behind a panel on the bottom side of the wing at the tip.

The power supply for the tailcone beacon is in the stabilizer compartment. It is on the forward side of the APU compartment bulkhead.

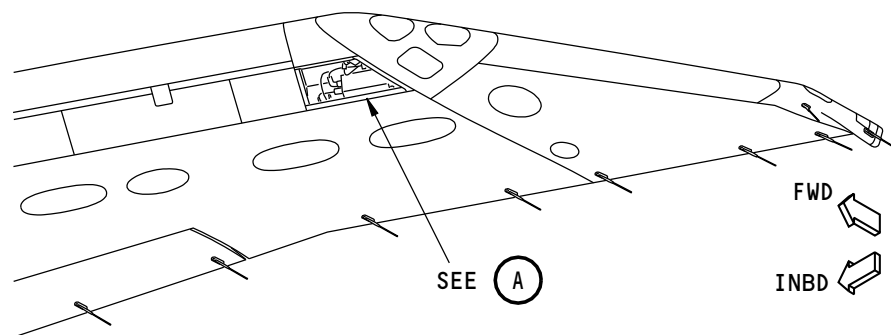
Physical Description

Each power supply has an:

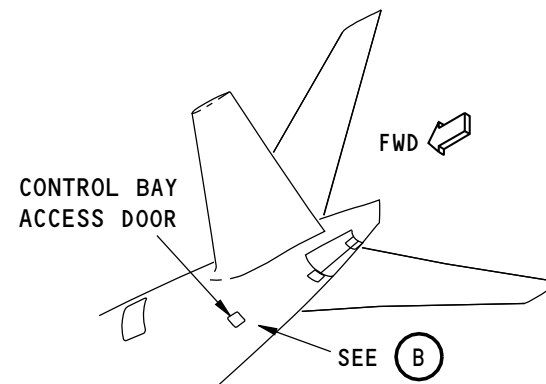
- Electrical connector
- Fastener (4)
- Ground wire.

The power supplies make the beacons and strobes flash.

ARO ALL	EFFECTIVITY
	D633W101-ARO



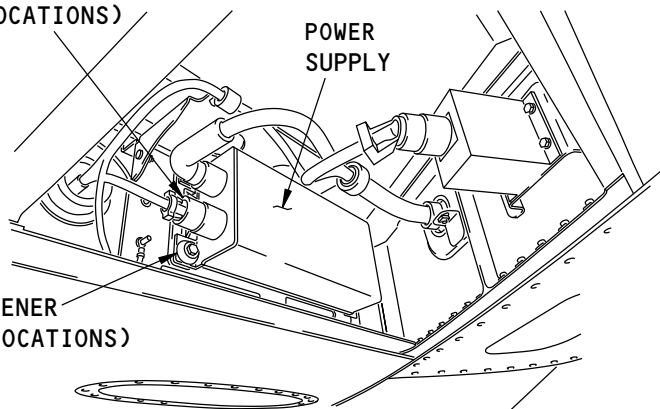
LEFT WING TIP
(BOTTOM VIEW)



ELECTRICAL
CONNECTOR
(2 LOCATIONS)

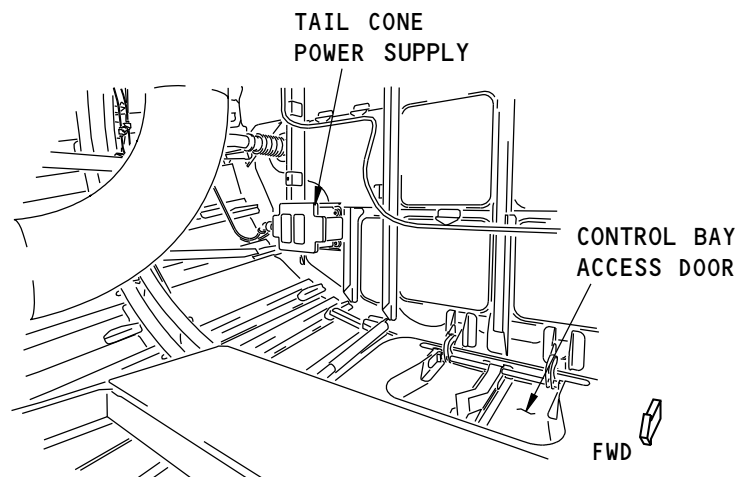
POWER
SUPPLY

FASTENER
(4 LOCATIONS)



(A)

INBD FWD



STABILIZER COMPARTMENT (AFT)

(B)

W08261 S0000115560_V1

ANTI-COLLISION LIGHTS - POWER SUPPLY - INTRODUCTION

33-44-00

**ANTI-COLLISION LIGHTS - POWER SUPPLY - BODY BEACON LOCATION****Location**

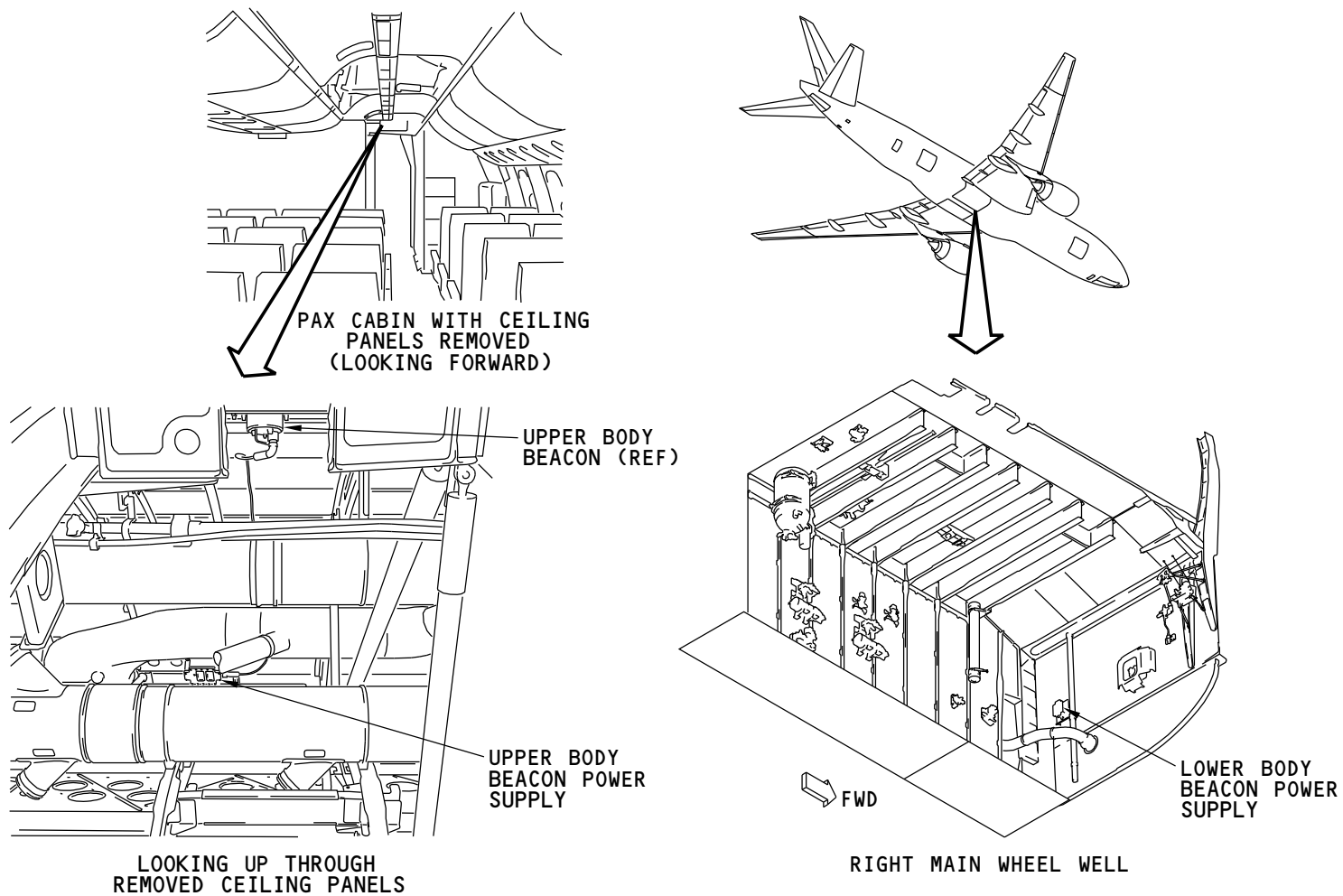
The power supply for the upper body beacon is above the ceiling. It is forward of the upper beacon.

The power supply for the lower body beacon is in the right main wheel well, on the forward wall.

Training Information Point

The power supplies are the same and interchangeable.

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M42643 S000619009_V1

ANTI-COLLISION LIGHTS - POWER SUPPLY - BODY BEACON LOCATION

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33-44-00-006

ARO ALL	EFFECTIVITY
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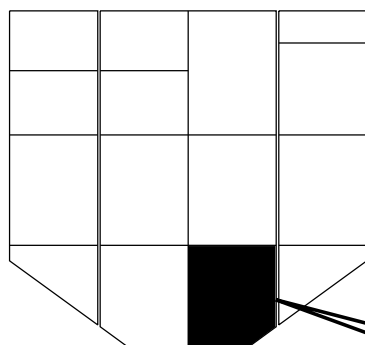
**ANTI-COLLISION LIGHTS - OPERATION****Operation**

You use the beacon light switch (BEACON) to operate the upper and lower body beacons.

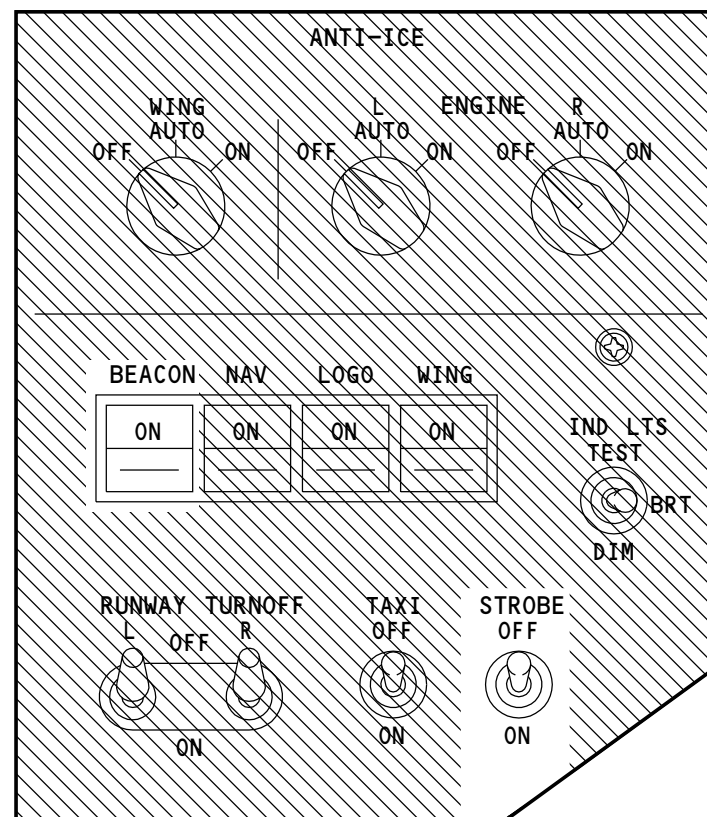
You use the strobe light switch (STROBE) to operate the wing and tailcone strobes.

The switches are on the anti-ice/lighting panel on the P5 overhead panel. The beacon switch is an alternate action switch. The strobe switch is a toggle switch.

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P5 OVERHEAD PANEL



ANTI-ICE/LIGHTING PANEL (P5)

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ANTI-COLLISION LIGHTS - OPERATION

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**ANTI-COLLISION LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

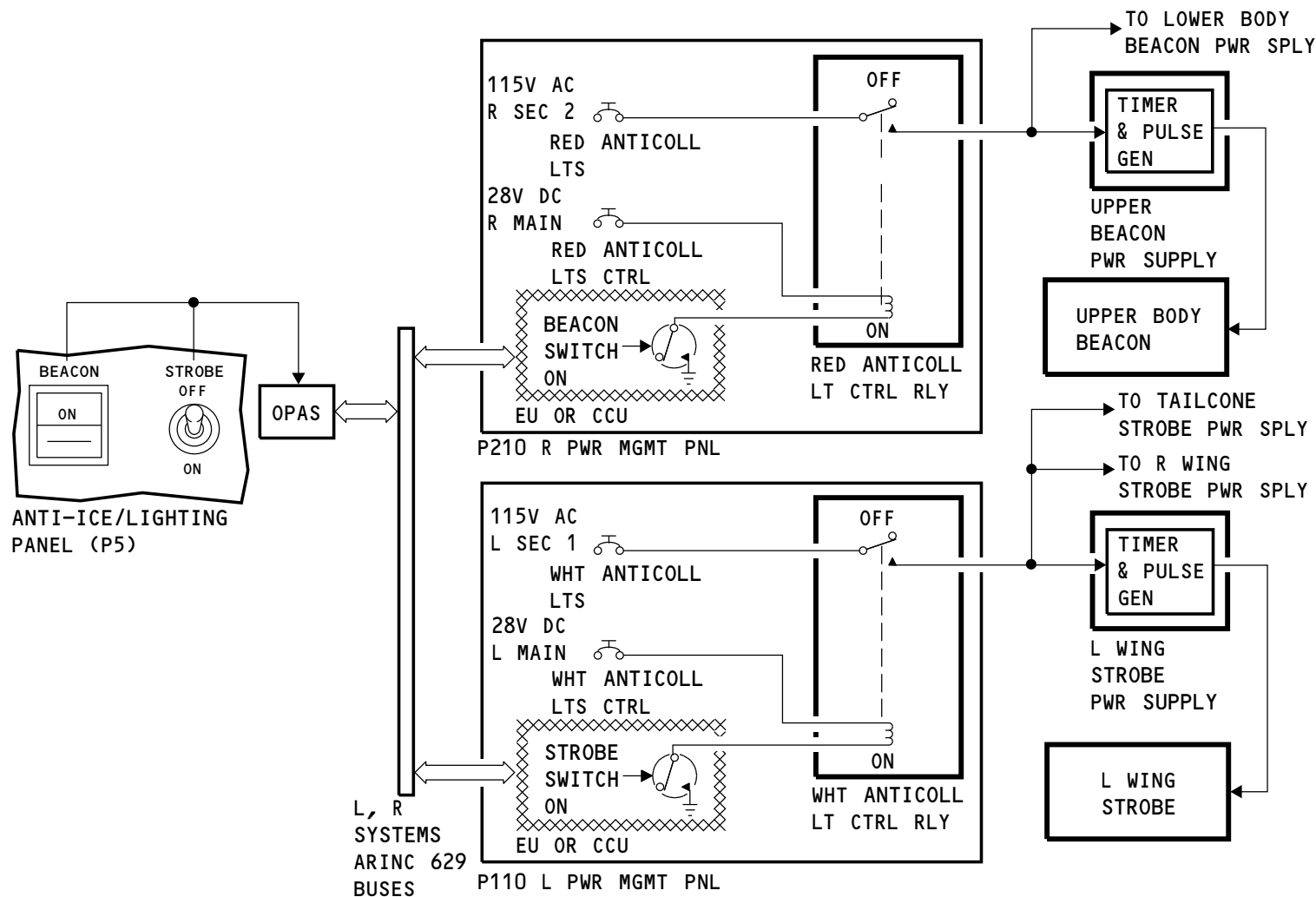
The BEACON and the STROBE light switches send signals to the OPAS.

The beacon signal goes to the ELMS P210 right power management panel.

The strobe signal goes to the P110 left power management panel.

Switches close in the panels and cause the red and white anti-collision light control relays to energize. This makes power go to the power supplies.

The power supplies have a timer and a pulse generator. These make the lights flash.



M42647 S000619013_V2

ANTI-COLLISION LIGHTS - FUNCTIONAL DESCRIPTION

33-44-00

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LOGO LIGHTS - INTRODUCTION

Purpose

The logo lights give light to both sides of the vertical stabilizer.

Location

The lights are on the upper side of the horizontal stabilizer. They are near the leading edge. There are two on each side of the vertical stabilizer.

Physical Description

The logo light is a two-pin, flange-mounted light. It has these components:

- Reflector
- Lens
- Lens retainer
- Transformer (not shown).

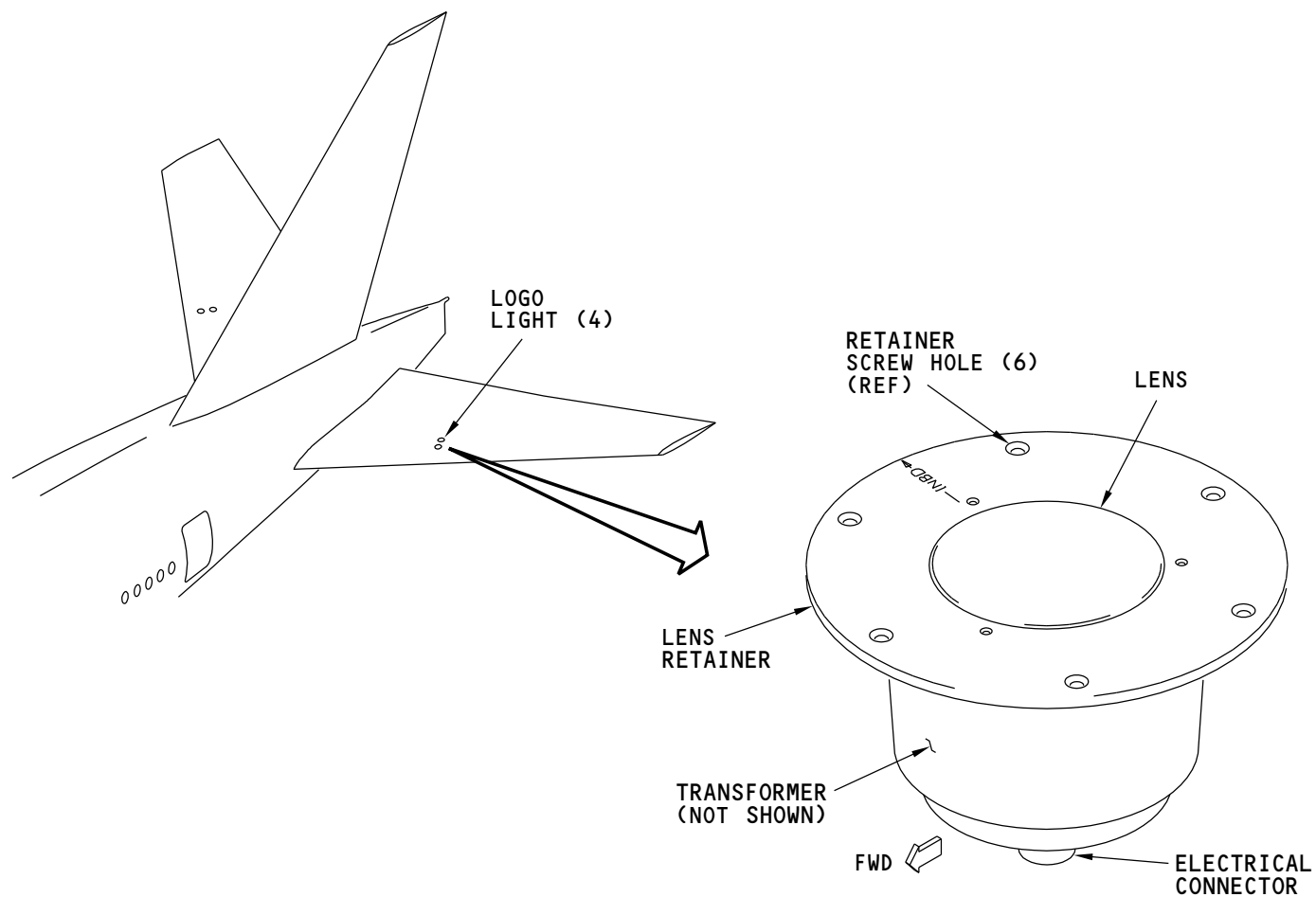
The transformer is part of the light. Two captive screws hold the reflector in position.

You remove the lens retainer and lens as one part. This gives you access to the light. There are six screws that hold the lens retainer.

Training Information Point

When you replace the lens retainer make sure the INBD arrow points inboard.

Since there are two lights on each side of the stabilizer, one indication of a failed light is a decrease in the amount of light on that side.



M42648 S000619014_V1

LOGO LIGHTS - INTRODUCTION

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33-45-00-001

ARO ALL	EFFECTIVITY
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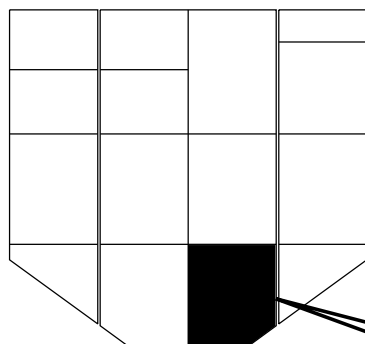


LOGO LIGHTS - OPERATION

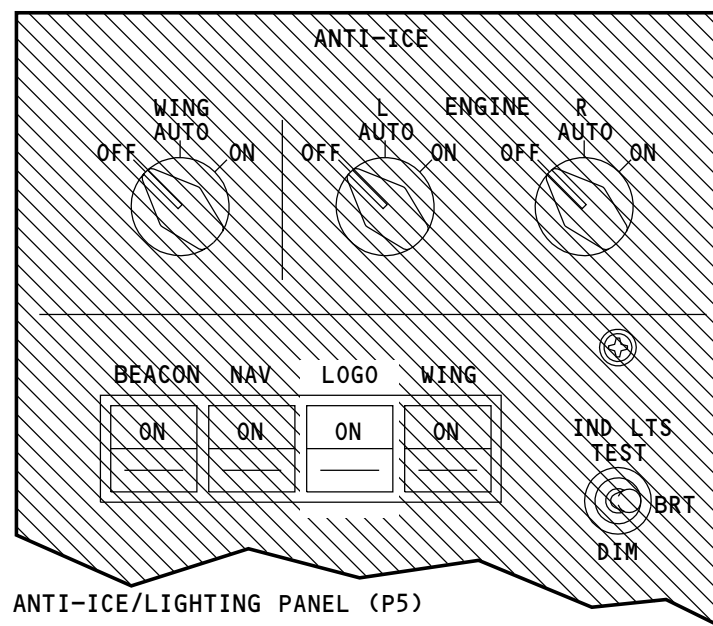
Operation

You use the logo lights switch (LOGO) to operate the logo lights. It is on the anti-ice/lighting panel on the P5 overhead panel. It is an alternate-action switch.

ARO ALL	EFFECTIVITY
	D633W101-ARO



P5 OVERHEAD PANEL



ANTI-ICE/LIGHTING PANEL (P5)

M42649 S000619015_V1

LOGO LIGHTS - OPERATION

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33-45-00-002

ARO ALL	EFFECTIVITY

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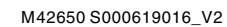
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**LOGO LIGHTS - FUNCTIONAL DESCRIPTION****Functional Description**

The logo light switch sends signals to the overhead panel ARINC 629 system (OPAS). The signal goes to the ELMS P210 right power management panel.

A switch closes and energizes the logo lights control relay. This makes the four logo lights come on. A transformer decreases the voltage to 13v ac.

ARO ALL	EFFECTIVITY
	D633W101-ARO



LOGO LIGHTS - FUNCTIONAL DESCRIPTION

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**GROUND MANEUVER CAMERA LIGHTS - INTRODUCTION****Purpose**

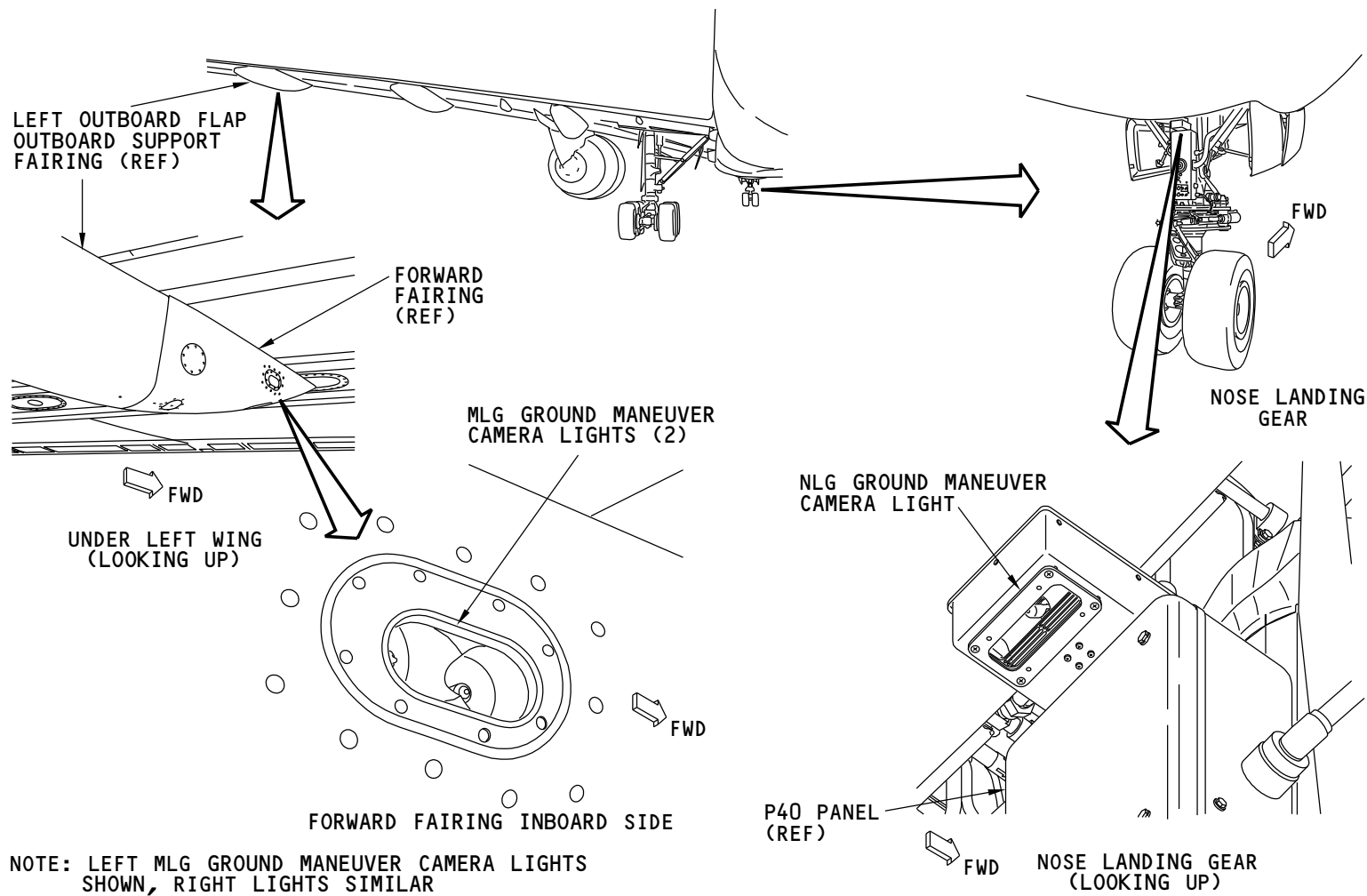
The ground maneuver camera lights give lighting to the area around the nose landing gear (NLG) and the area around the main landing gears (MLG). These lights are for use with the ground maneuver camera system when the light intensity in these areas is not sufficient.

Location

There are main landing gear ground maneuver camera lights in the left and in the right outboard flap outboard support fairings. These lights are on the inboard side of the forward fairing. There is a transformer (not shown) in each fairing for these lights.

There is a nose landing gear ground maneuver camera light above the P40 panel. A transformer (not shown) for this light is in the same housing.

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M42651 S000619017_V1

GROUND MANEUVER CAMERA LIGHTS - INTRODUCTION

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33-47-00-001

ARO ALL	EFFECTIVITY
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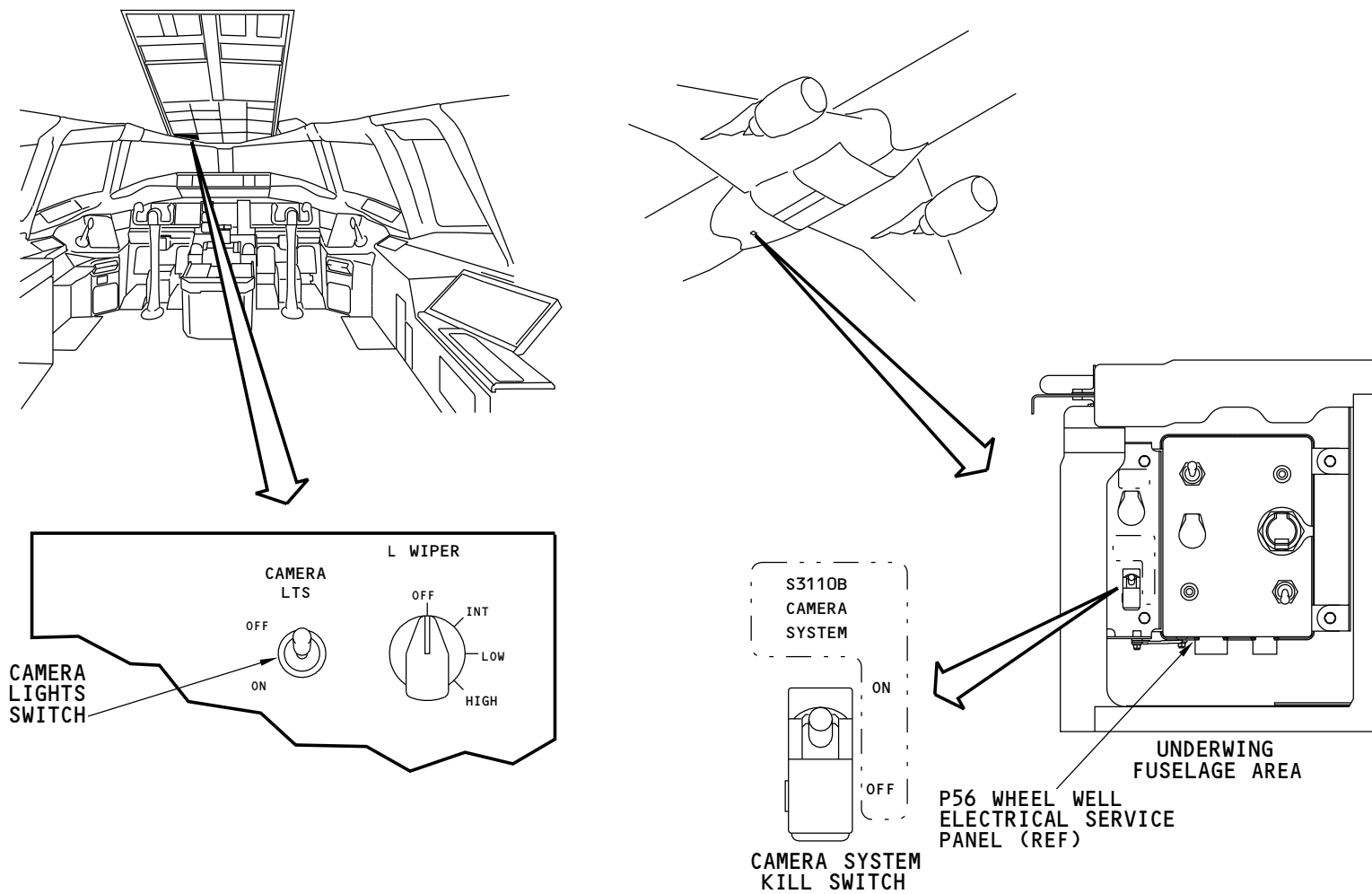
GROUND MANEUVER CAMERA LIGHTS - OPERATION

Operation

You turn on the nose and the main landing gear ground maneuver camera lights from the camera lights switch on the left wiper panel (P5). The nose landing gear must be down and locked for the lights to come on.

On the ground, you can use the camera system kill switch adjacent to the P56 panel to remove power from the lights. This also turns off the ground maneuver camera system. See the ground maneuver camera system section for more information (SECTION 31-61).

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M42652 S000619018_V1

GROUND MANEUVER CAMERA LIGHTS - OPERATION

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33-47-00-002

ARO ALL EFFECTIVITY

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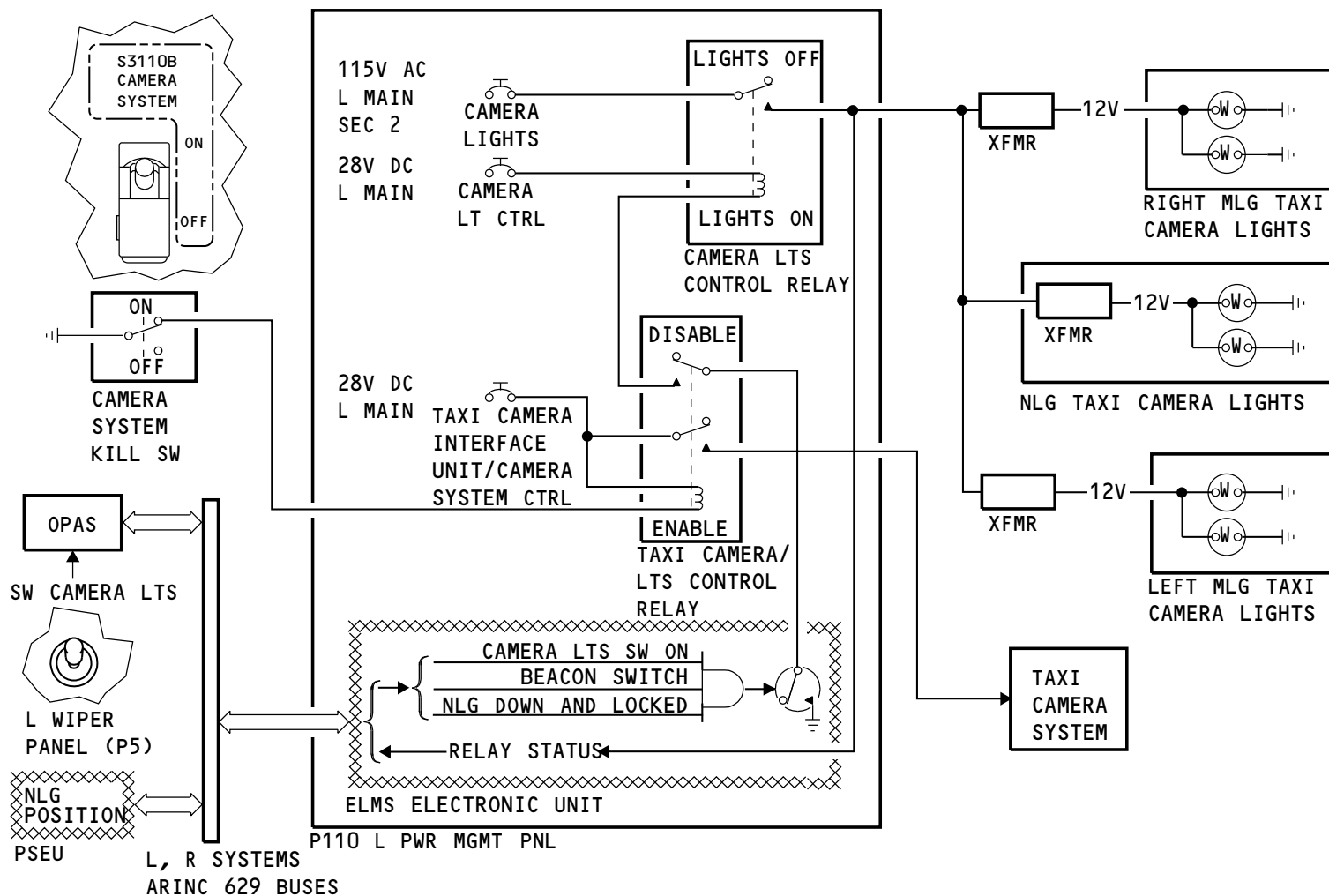
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**GROUND MANEUVER CAMERA LIGHTS - FUNCTIONAL DESCRIPTION****General**

The 115v ac left main section 2 bus supplies power to the ground maneuver camera lights. Transformers decrease the voltage to the lights. The lights get power when all of these conditions occur:

- Anti-collision lights (beacons) switch is on
- Camera lights switch (P5) is on
- Camera system kill switch is on
- Nose gear is down and locked (PSEU).

When the camera system kill switch is set to off, the taxi camera/lights control relay and the camera lights control relay de-energize. This removes power to the lights and the ground maneuver camera system. See the ground maneuver camera system section for more information (SECTION 31-61).



M42653 S000619019_V2

GROUND MANEUVER CAMERA LIGHTS - FUNCTIONAL DESCRIPTION

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EMERGENCY LIGHTING - INTRODUCTION

Purpose

The emergency lights give light when normal power sources are not available.

They give light:

- In the aisles
- To identify exits
- To identify routes to the exits.
- Outside the airplane at the slides.

Physical Description

The emergency lighting system has these components:

- Area lights
- Exit signs
- Slide lights
- Floor proximity lights
- Power supplies
- Emergency dome light.

Location

There are emergency lights:

- In the aisle ceilings
- Near the door
- On the center aisle seats
- On the lavatories
- On the closets
- On the galleys
- In the flight compartment.

The power supplies (not shown) are above the ceiling, near each passenger entry door.

There are controls (not shown):

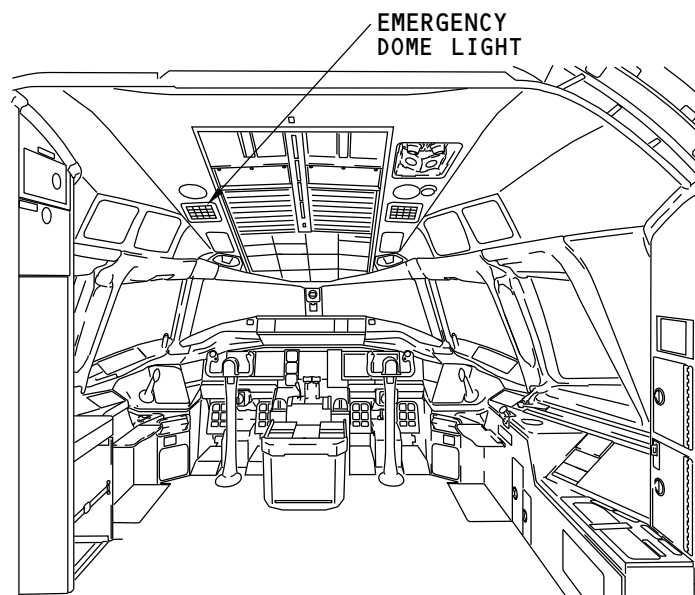
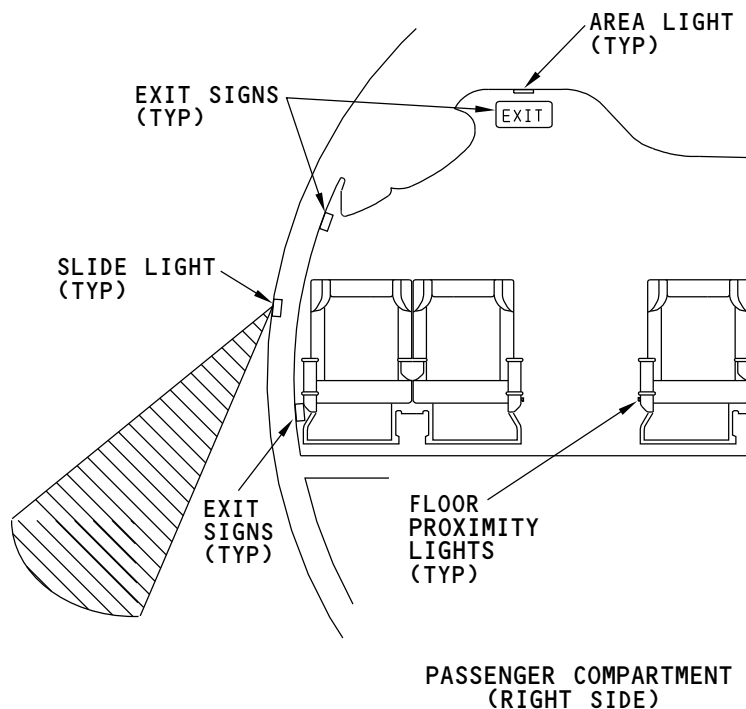
- In the flight compartment
- On some attendants panels
- On the nose gear.

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EMERGENCY LIGHTING - INTRODUCTION

33-50-00

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**EMERGENCY LIGHTING - EXIT SIGNS - GENERAL DESCRIPTION****Purpose**

The exit sign lights come on to show where the exits are.

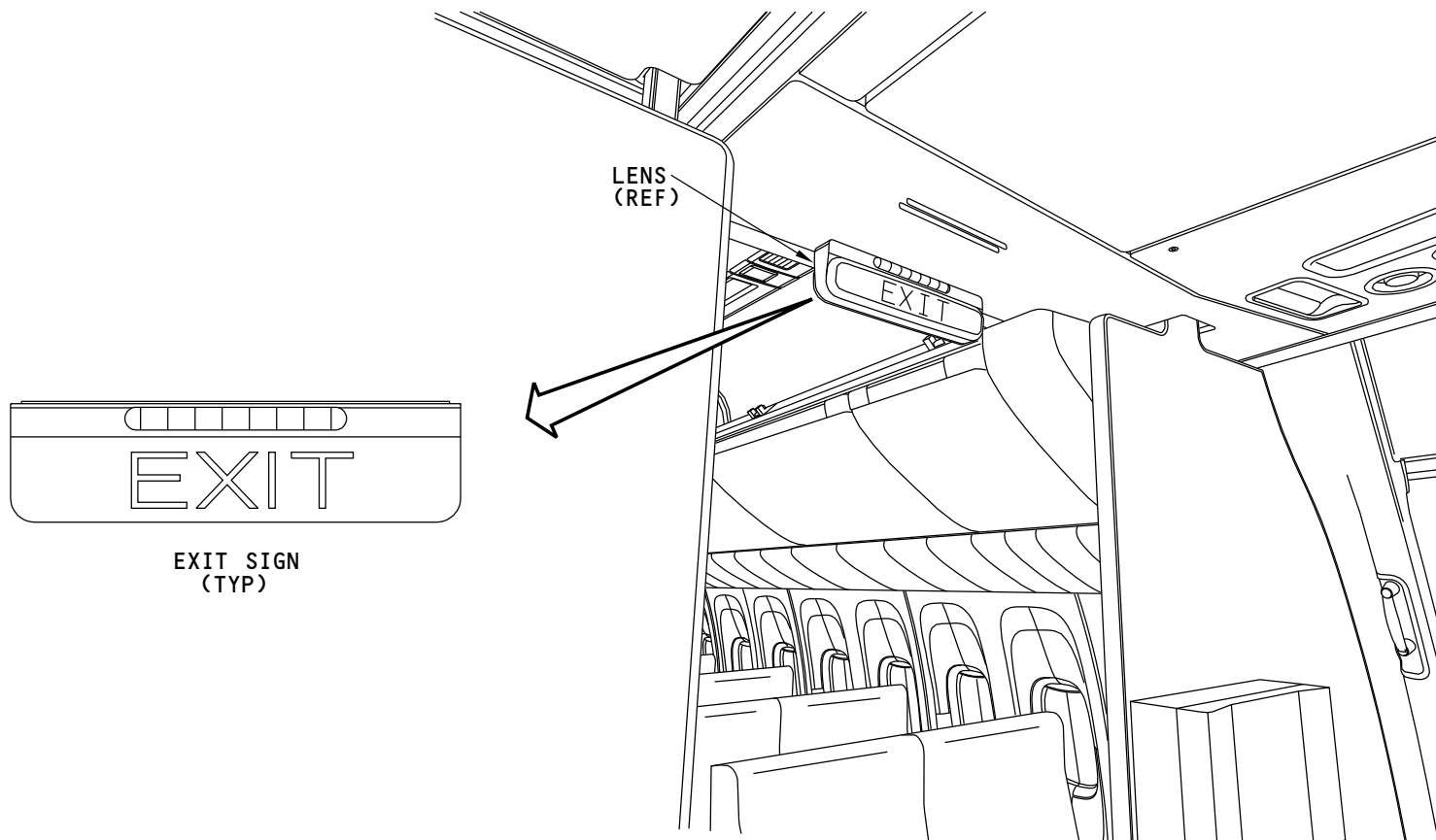
Location

The exit signs are on lowered ceiling panels near all the doors and in the cross aisles.

Training Information Point

You compress the lens of the exit sign to remove it and get access to the bulbs. There are twelve bulbs in each sign.

ARO ALL	EFFECTIVITY



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EMERGENCY LIGHTING - EXIT SIGNS - GENERAL DESCRIPTION

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**EMERGENCY LIGHTING - AREA LIGHTS - GENERAL DESCRIPTION****Purpose**

The area lights give light to the aisles when the main buses do not have power. They help passengers and crew to see in an emergency.

Location

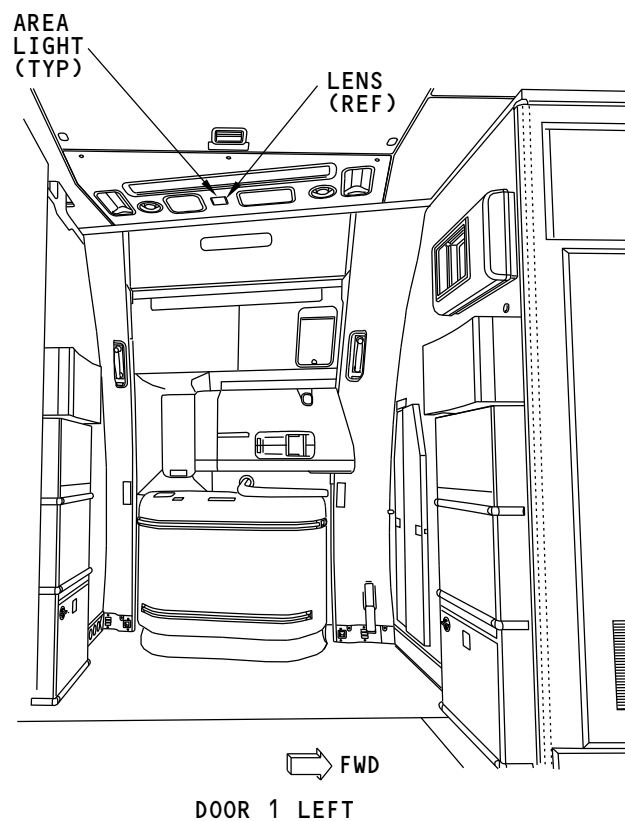
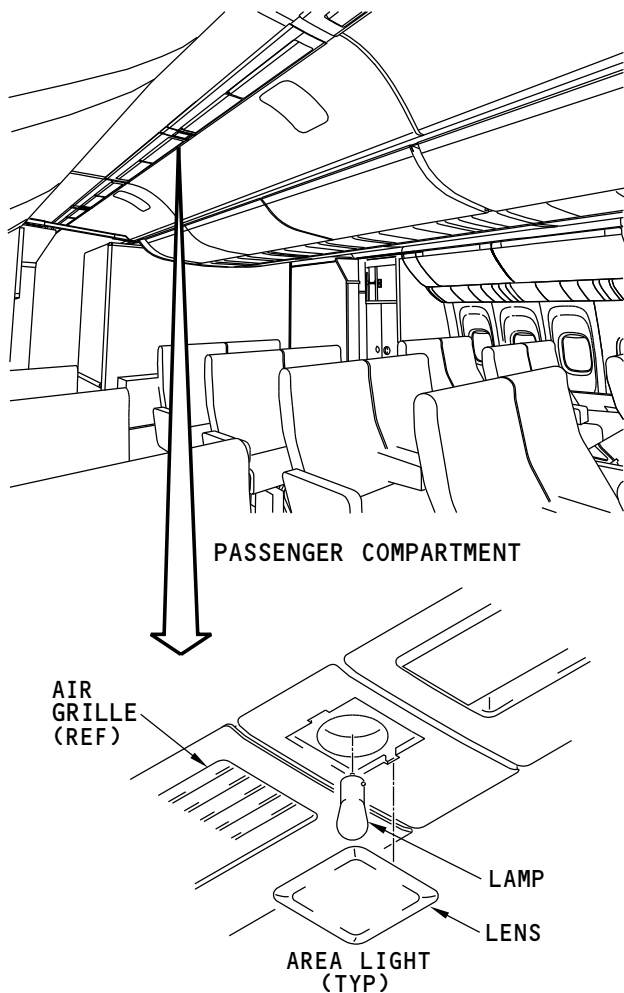
The area lights are in the ceiling:

- In the aisles of the passenger compartment
- In the galleys
- Near the doors.

Training Information Point

You compress the lens to get access to the lamp. The lamp is a bayonet-style lamp. All area lights use the same type lamp.

ARO ALL	EFFECTIVITY



EMERGENCY LIGHTING - AREA LIGHTS - GENERAL DESCRIPTION

M42657 S000619022_V1

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**EMERGENCY LIGHTING - FLOOR PROXIMITY LIGHTS - GENERAL DESCRIPTION****Purpose**

The floor proximity lights give light to the floor to help passengers and crew find the exits.

Location

The lights are on the:

- Center aisle seats that are next to an aisle
- Center lavatories (not shown)
- Center closets (not shown)
- Center class dividers (not shown)
- Center galleys (not shown).

Physical Description

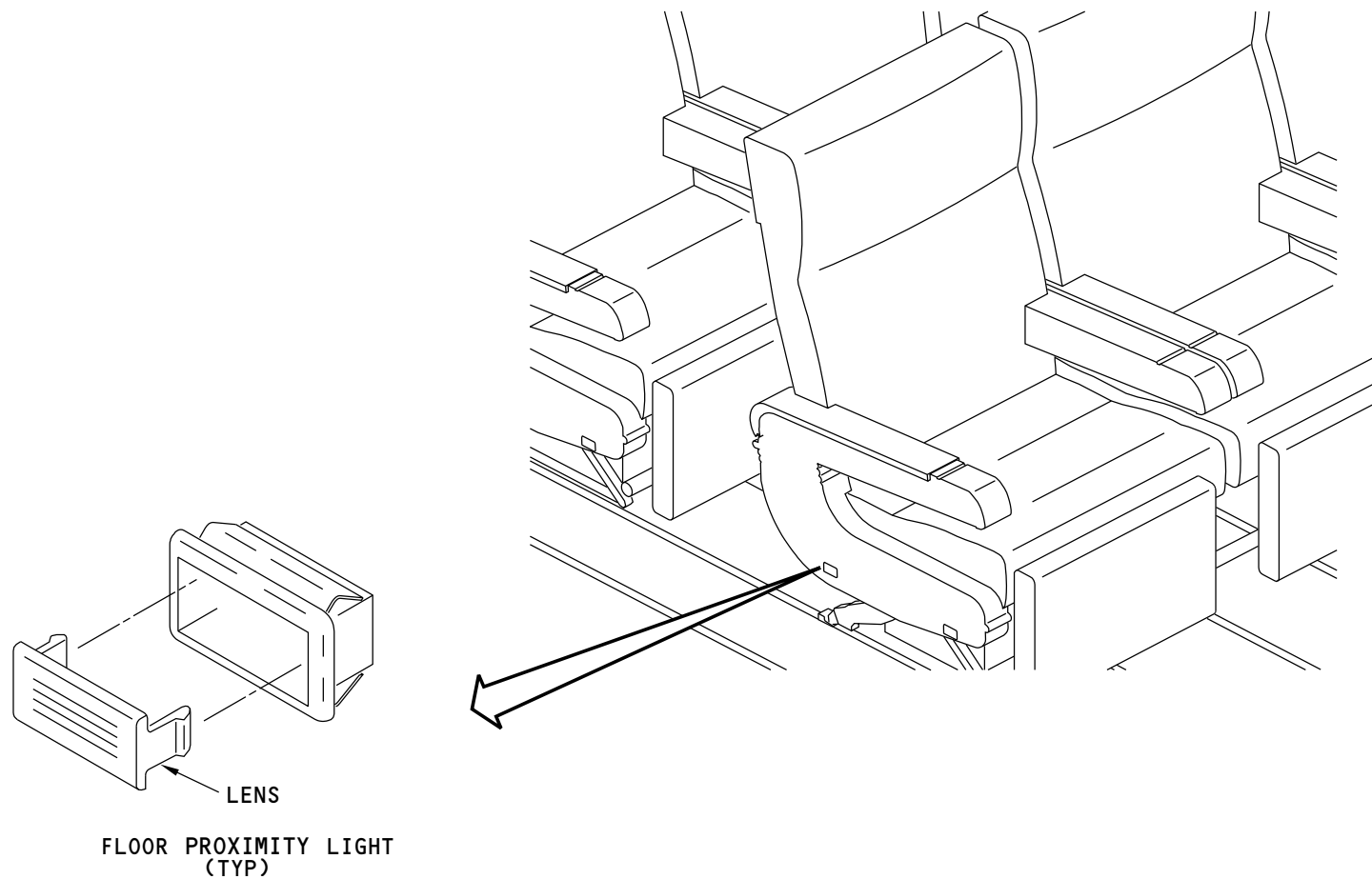
The lights on the seats have spring clips that hold the light assembly in place. The lights on other surfaces have screws that hold the light assembly in place. The lens has tabs to hold it in the assembly.

The lamp is bayonet-style. There is one lamp in each assembly in economy class and two lamps in each assembly in first and business class.

There are spring clips that hold the light assembly in place on the seats. The lights on other surfaces have screws that hold the light assembly in place.

Photoluminescent light strips are located on the floor, along the two aisles and in the cross-aisles. The light strips are installed to the floor with double-sided tape. In non-textile flooring areas, sealant is applied around the perimeter of the light strips.

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	D633W101-ARO



EMERGENCY LIGHTING - FLOOR PROXIMITY LIGHTS - GENERAL DESCRIPTION

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**EMERGENCY LIGHTING - EMERGENCY DOME LIGHT - GENERAL DESCRIPTION****Purpose**

The emergency dome light gives light in the flight deck when the main buses do not have power. It helps the crew to see in an emergency.

Location

The emergency dome light is part of the captain's dome light. It is above the captain's seat.

Physical Description

The light has these components:

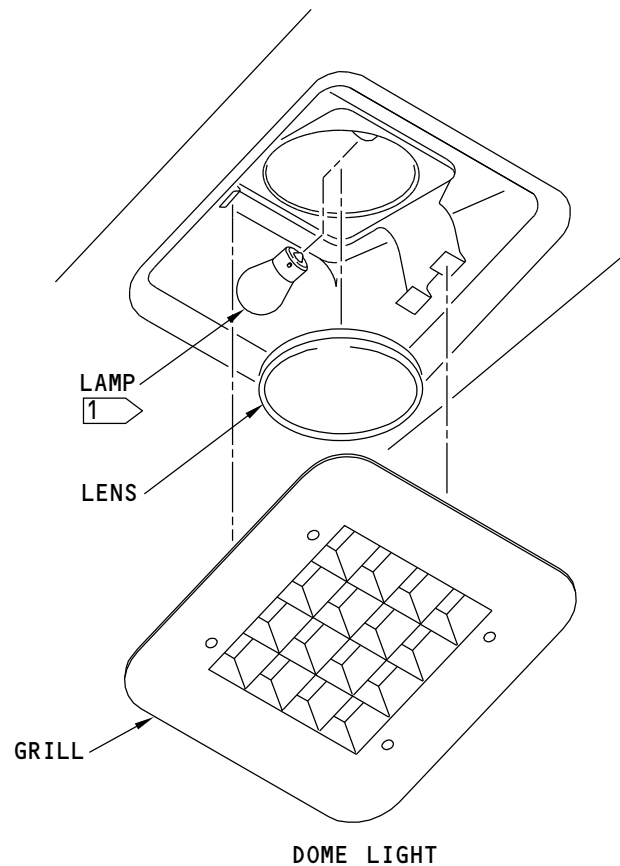
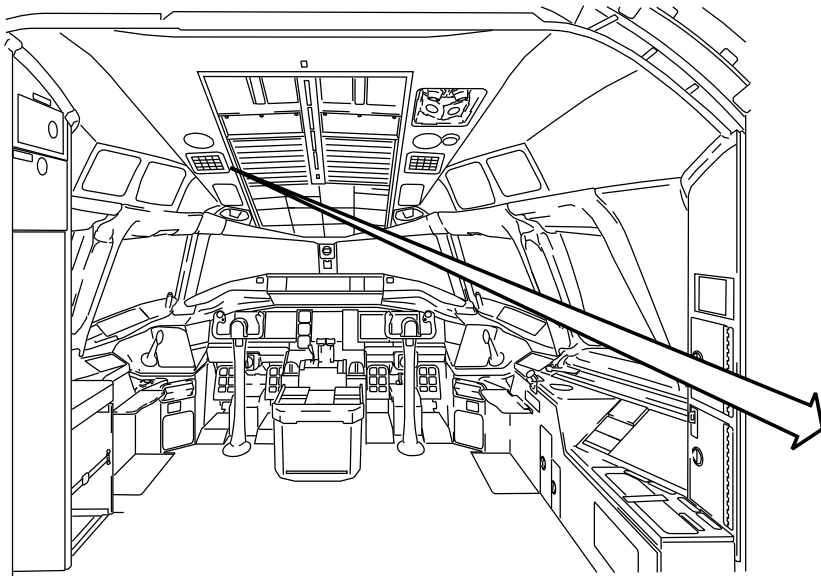
- Lamp
- Lens
- Grill.

The captain's dome light has two lamps. One is the emergency light system and the other is the normal lamp.

See the flight compartment illumination section for more information about the captain's dome light (SECTION 33-11).

Training Information Point

To get access to the lamp you pull down on the grill and remove the lens. The lens has a bayonet-style mount. The lamp is a bayonet-style lamp.



1 THE CAPTAIN'S DOME LIGHT HAS TWO LAMPS.
ONE IS FOR THE EMERGENCY LIGHTS
AND THE OTHER IS THE NORMAL LAMP.

EMERGENCY LIGHTING - EMERGENCY DOME LIGHT - GENERAL DESCRIPTION

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**EMERGENCY LIGHTING - SLIDE LIGHTS - GENERAL DESCRIPTION****Purpose**

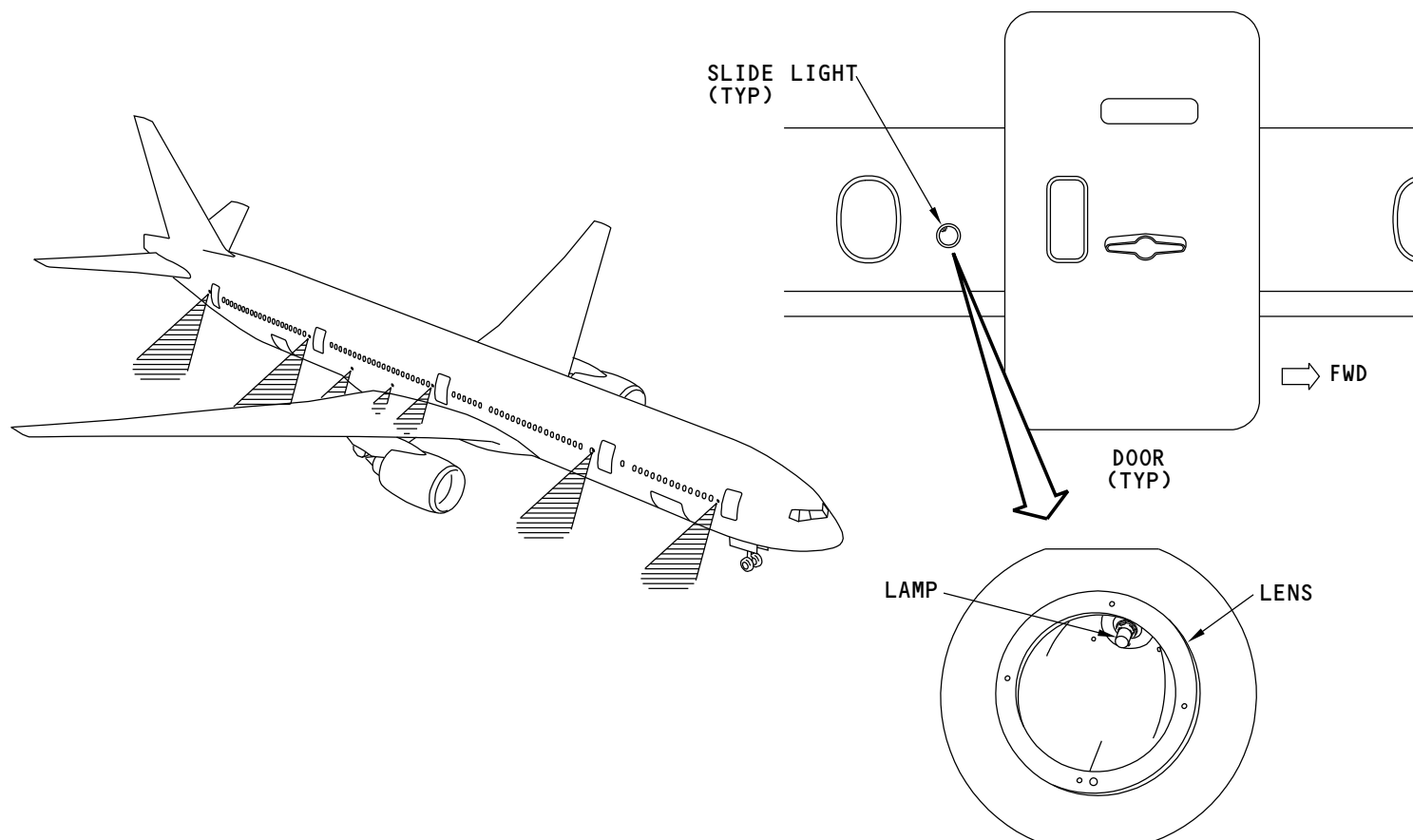
The slide lights give light to the slide on the outside of the airplane.

Location

The lights are on the outer surface of the airplane aft of each door.

Training Information Point

You remove the four retaining screws on the lens retainer to get access to the light bulb. There is a lanyard that does not let the lens fall. The light bulb is a bayonet-style bulb.



M42661 S000619026_V1

EMERGENCY LIGHTING - SLIDE LIGHTS - GENERAL DESCRIPTION

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EMERGENCY LIGHTING - POWER SUPPLIES - INTRODUCTION**Purpose**

The power supplies for the emergency lighting system have these functions:

- Controls the rate of charge for its batteries
- Controls when the emergency lights turn on and off
- Controls the selection of airplane power or its batteries to operate the emergency lights.

Location

The power supplies are in the ceiling, above the passenger entry doors. There can be 2, 3, or 4 power supplies at each door.

Power supplies at doors 1 and 5 attach to the upper side of the overdoor panel.

Power supplies attach to the strong back assembly above the overdoor panel at these doors:

- 2
- 3.
- 4.

The strong back assembly is related to the outboard stowage bin. See the passenger compartment section for more information about the outboard stowage bins (SECTION 25-20).

Physical Description

The power supplies weigh 2.8 pounds (1.3 kg). They supply 6v dc to the emergency lights.

Each power supply has these parts:

- Test switch
- Charger/control unit
- Battery pack
- Fuse (4)
- Quick release fastener (2)

- Electrical connector (battery pack)
- Base
- Electrical connector (airplane).

The fuses and the battery pack are replaceable. The fuses attach to the base under the battery pack. The battery pack attaches to the base with two quick release fasteners. When fully charged, the battery pack provides power for a minimum of 15 minutes.

Training Information Point

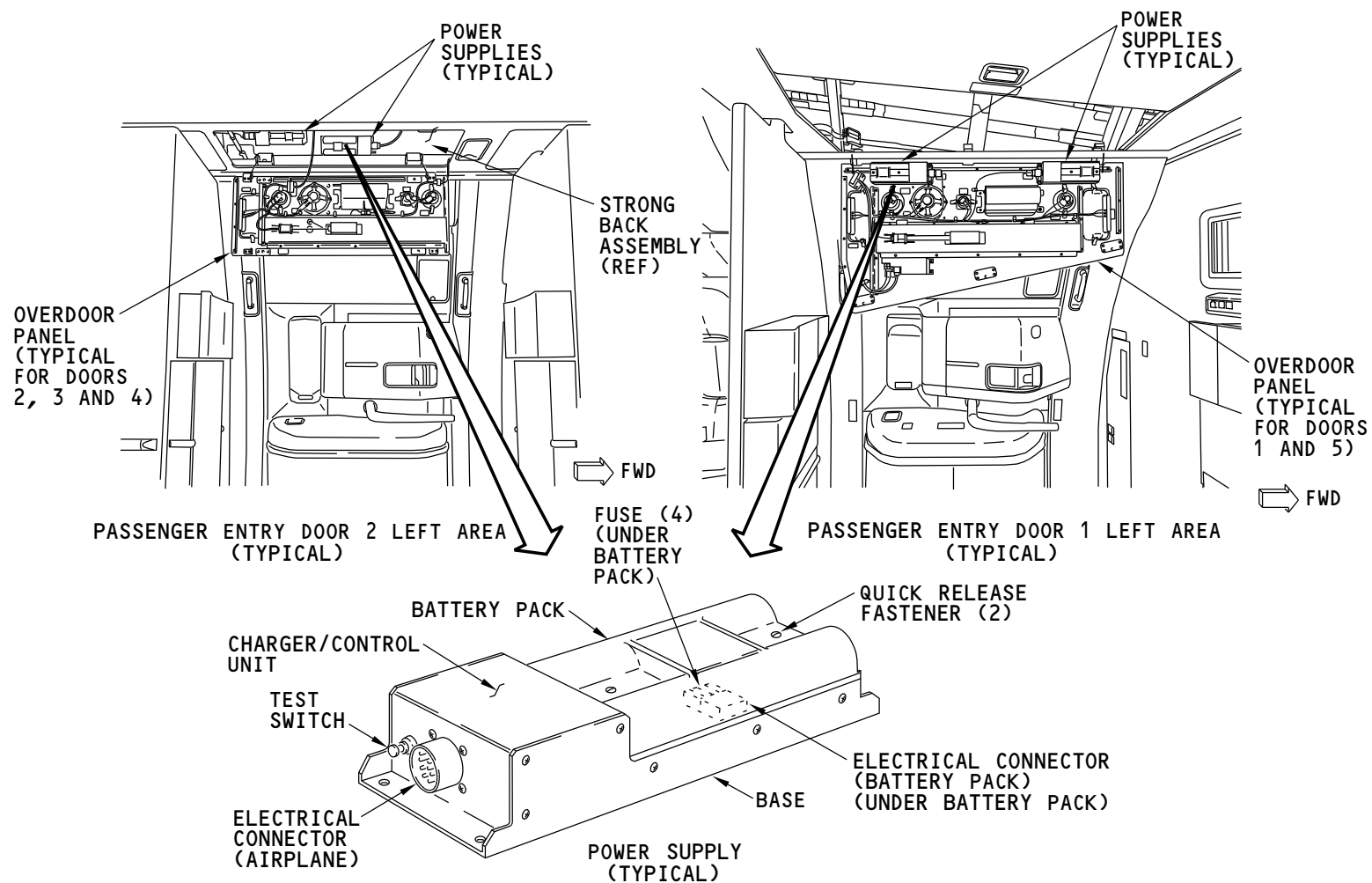
The power supplies give power to the lights that are in the same airplane section as the power supplies. They are all the same and interchangeable. They continuously self-charge (L or R main dc buses). If the batteries discharge, they do a fast charge. It takes approximately 90 minutes for a fast charge.

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EMERGENCY LIGHTING - POWER SUPPLIES - INTRODUCTION

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EMERGENCY LIGHTING - OPERATION

Operation

You use the emergency lights switch in the flight deck or on the attendant switch panel (ASP) to operate (control) the emergency lights.

Either switch turns on the lights. The switch used to turn on the lights must be used to turn off the lights. The OFF position of the flight deck switch does not affect the function of the switch on the ASP.

In normal operation, the switch in the flight deck is in the ARMED position. The ARMED position lets all lights come on if there is no electrical power on the left and right main dc buses.

The ARMED position also lets a limited number of lights come on when a passenger entry door is opened in the auto mode.

To do a test of the lights, you use the test switches on these components:

- One of the attendant switch panels
- P40 service and APU shutdown panel
- Power supply.

The emergency lights come on for one minute.

Training Information Point

When you push the test switch on the power supply, only the emergency lights that connect to that power supply come on. When you use the test switch on one of the attendant switch panel or on the P40, all emergency lights come on.

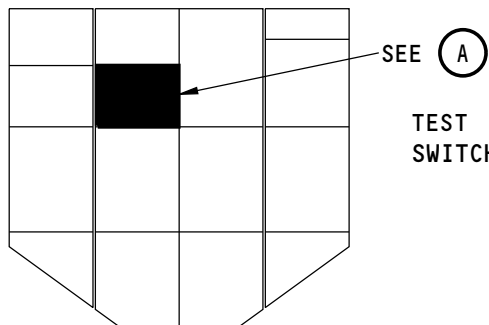
Make sure that the test switches return to their usual position when you release them. The usual position for the test switches on the ASPs is out. If a switch is in the test (in) position, red LEDs inside the switch come on. The test switch on the P40 has labels that show the TEST and NORM (usual) positions. If any test switch does not return to its usual position, the battery packs can discharge fully.

33-50-00

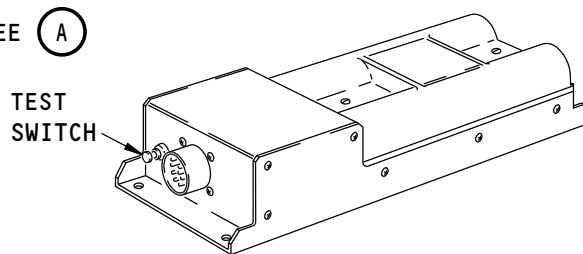
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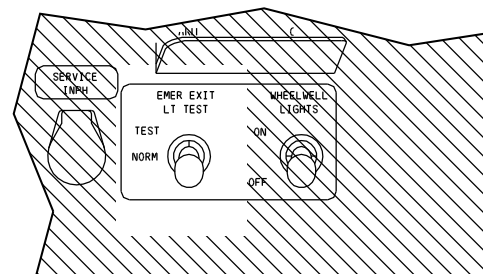
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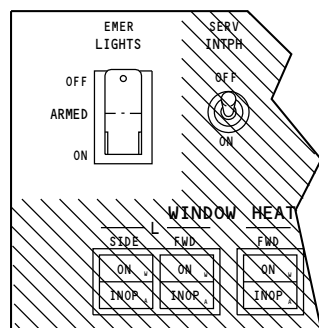
OVERHEAD PANEL, P5



POWER SUPPLY
(TYPICAL)

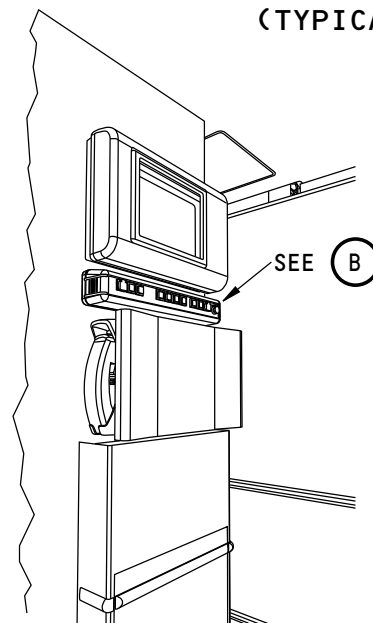


SERVICE AND APU
SHUTDOWN PANEL, P40

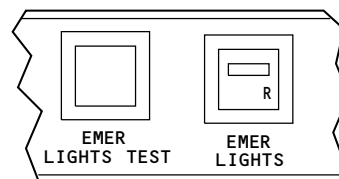


WINDOW HEAT/
EMERGENCY LIGHTS

(A)

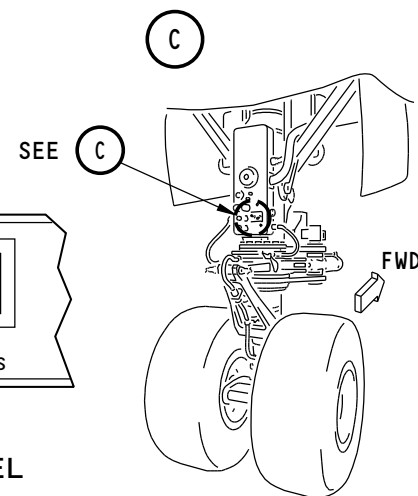


PASSENGER ENTRY DOOR
(TYPICAL)



ATTENDANT
SWITCH PANEL

(B)



NOSE LANDING GEAR

EMERGENCY LIGHTING - OPERATION

M42664 S000619029_V2

33-50-00

33-50-00-008

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EMERGENCY LIGHTING - FUNCTIONAL DESCRIPTION - POWER

General

There are six separate emergency light circuits. Each circuit has one circuit breaker on the P11 overhead circuit breaker panel. Three circuit breakers get power from the left main dc bus. These circuit breakers give 28v dc to the power supplies above passenger entry doors 1, 2, and 5. The other three circuit breakers get power from the right main dc bus. These circuit breakers give 28v dc to the power supplies above passenger entry doors 3 and 4.

Interface

The power supplies connect to the circuit breakers either directly or through switches. The switches are part of the passenger entry door emergency power assist system (EPAS).

The emergency lighting circuit breakers give 28v dc to the EPAS battery packs. There is one battery pack for each passenger entry door. See the passenger entry doors section for more information on the EPAS (SECTION 52-11).

Direct Connection to Circuit Breaker

The power supplies that connect directly to the circuit breaker give power only for interior emergency lights. Interior emergency lights are organized by area and are connected to a power supply that can be on either side of the airplane. This is an example: a power supply above door 1 left gives power to interior lights on the left and right sides of the airplane near doors 1 left and right.

Connection to Circuit Breaker Through Switches in EPAS

The power supplies that connect to circuit breakers through switches give power only for the slide (exterior) light and interior emergency lights near the related door.

The switches in the EPAS give information about the passenger door (open/close and mode). Each passenger entry door has one set of switches. The switches connect one emergency light power supply to the circuit breaker. The mode select switch has an AUTO and a MANUAL position.

The mode select lever on the passenger entry door shows AUTO when the mode select switch is in AUTO and it shows MANUAL when the mode select switch is in MANUAL.

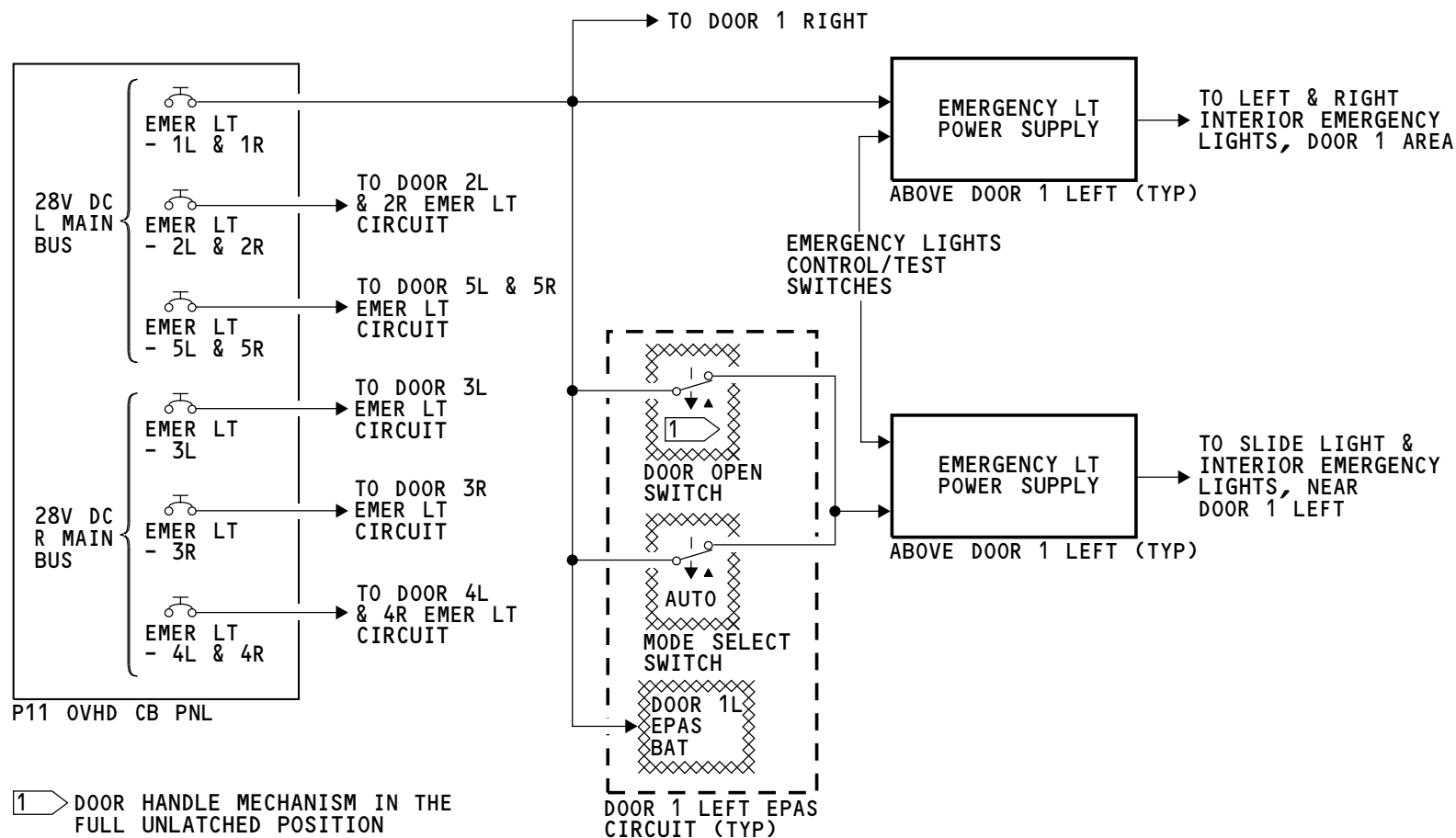
The power supply gives power only to the slide and the interior emergency lights on the same side of the airplane and near the door. This is an example: a power supply above door 1 left gives power to these lights:

- Door 1 left slide light
- Interior emergency lights on the left side of the airplane near door 1 left
- Caption dome light.

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EMERGENCY LIGHTING - FUNCTIONAL DESCRIPTION - POWER

33-50-00

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EMERGENCY LIGHTING - FUNCTIONAL DESCRIPTION - CONTROL

General

There are six separate emergency light circuits. All circuits are similar. A typical circuit is shown.

Functional Description

The emergency lights use power from the battery packs. The battery packs usually last for 15 minutes or more. All emergency lights (slide and interior) come on when any of these conditions occur:

- The emergency lights switch in the flight deck (P5) is in the ARMED position and the related main dc bus does not have power (left main dc bus for power supplies above doors 1 and 2, right main dc bus for power supplies above doors 3 and 4)
- The emergency lights switch in the flight deck (P5) is in the ON position
- The emergency lights switch on attendant switch panel is in the ON position.

When a passenger entry door is set to the automatic mode (mode select switch set to AUTO) and is open (door open switch) these lights come on:

- The related slide light
- The interior emergency lights, near and on the same side as the related passenger entry door.

The lights stay on until none of the above conditions is true or until the battery packs do not have sufficient charge.

Test

You can find test switches for the emergency lights at these locations:

- One of the attendant switch panels
- P40 nose gear electrical service panel.

When you push and release an emergency light test switch, all power supplies do a check of the condition of their battery pack. All emergency lights (slide and interior) related to power supplies with a good battery pack, come on for one minute.

When you push and release the test switch on a power supply, only the lights that connect to the power supply come on for one minute.

Indications

The advisory message EMER LIGHTS shows when any of these conditions occur:

- Emergency lights switch (P5) is in the ON or OFF position
- Emergency lights switch is in the ON position.

When the emergency lights switch on the attendants switch panel is in the ON position, a red light in the switch comes on.

There are no lights in the test switches.

Training Information Point

When you do a test of the emergency lights, make sure you use a test switch and not one of the emergency lights switches.

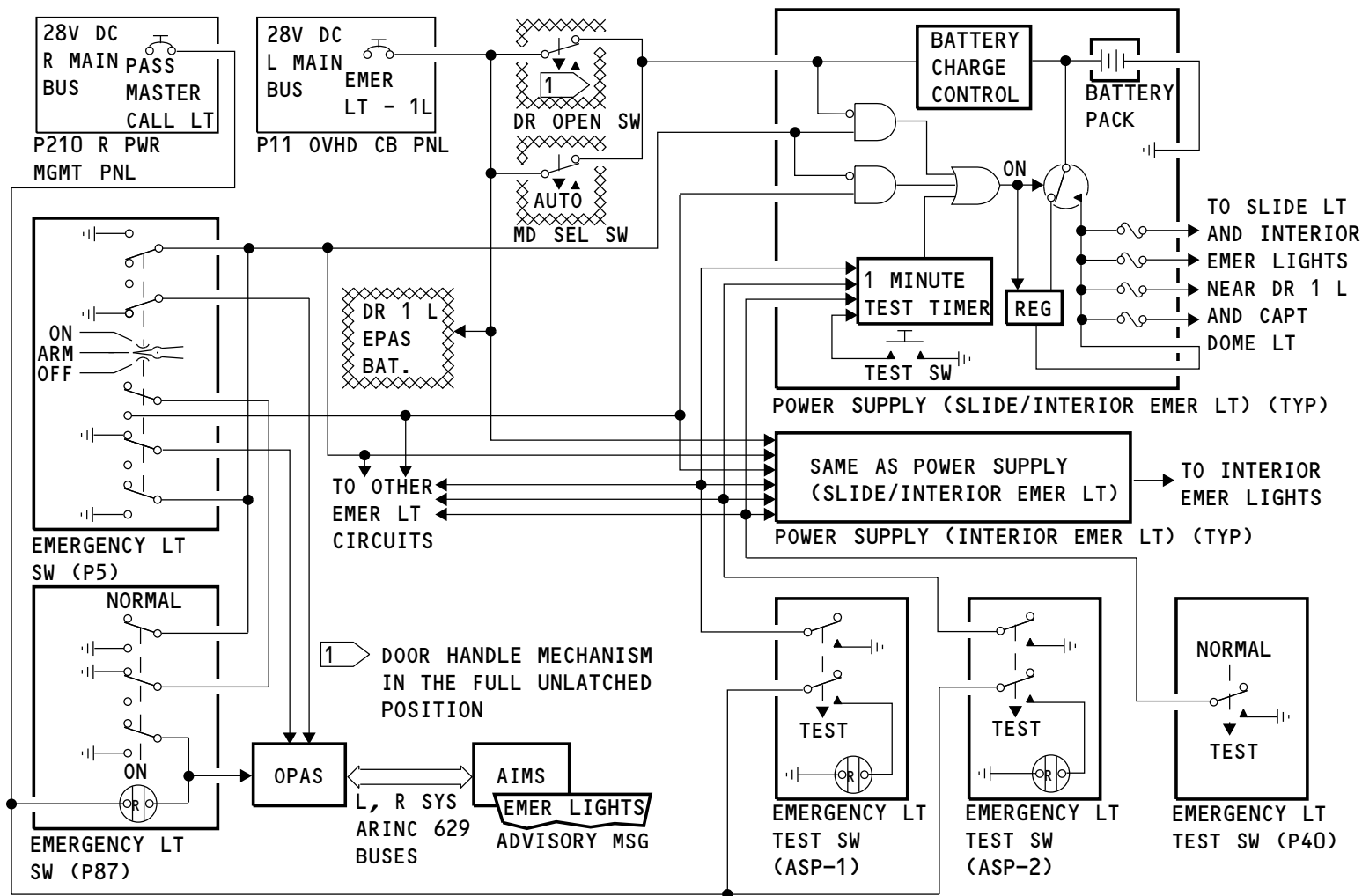
When you do a test of the emergency lights in the passenger cabin, you should also do a check of the condition of the emergency light found in the captain's dome light assembly.

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EMERGENCY LIGHTING - FUNCTIONAL DESCRIPTION - CONTROL

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