CHAPTER 33

Lights

CHAPTER 33
LIGHTS

Subject/Page	Date	COC
33-EFFECTIVE PAGES		
1 thru 7	Jun 15/2016	
8	BLANK	
33-CONTENTS		
1	Feb 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	Oct 15/2015	
5	Oct 15/2015	
6	BLANK	
33-00-00		
1	Feb 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	BLANK	
33-10-00		
1	Feb 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	BLANK	
33-11-00		
1	Feb 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	Feb 15/2015	

Subject/Page	Date	COC
33-11-00 (cont.)		
5	Feb 15/2015	
6	Feb 15/2015	
7	Feb 15/2015	
8	Feb 15/2015	
9	Feb 15/2015	
10	Feb 15/2015	
11	Feb 15/2015	
12	Feb 15/2015	
13	Feb 15/2015	
14	Feb 15/2015	
15	Feb 15/2015	
16	Feb 15/2015	
17	Feb 15/2015	
18	Feb 15/2015	
19	Feb 15/2015	
20	Feb 15/2015	
21	Feb 15/2015	
22	Feb 15/2015	
23	Feb 15/2015	
24	Feb 15/2015	
25	Feb 15/2015	
26	Feb 15/2015	
27	Feb 15/2015	

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

	Subject/Page	Date	COC
	33-11-00 (cont.)		
	28	BLANK	
	33-14-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
R	4	Jun 15/2016	
	5	Feb 15/2015	
	6	Feb 15/2015	
	7	Feb 15/2015	
	8	Feb 15/2015	
	9	Feb 15/2015	
	10	Feb 15/2015	
	11	Feb 15/2015	
	12	Feb 15/2015	
	13	Feb 15/2015	
	14	BLANK	
	33-17-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
	5	Feb 15/2015	
	6	Feb 15/2015	

	Subject/Page	Date	COC
	33-17-00 (cont.)		
	7	Feb 15/2015	
	8	Feb 15/2015	
	9	Feb 15/2015	
	10	Feb 15/2015	
	11	Feb 15/2015	
	12	BLANK	
	33-18-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
	5	Feb 15/2015	
	6	BLANK	
	33-20-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
	5	Feb 15/2015	
	6	Feb 15/2015	
O	7	Jun 15/2016	
O	8	Jun 15/2016	

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

	Subject/Page	Date	COC
	33-20-00 (cont.)		
	9	Feb 15/2015	
R	10	Jun 15/2016	
R	11	Jun 15/2016	
	12	Feb 15/2015	
	13	Feb 15/2015	
	14	BLANK	
	33-21-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
R	5	Jun 15/2016	
R	6	Jun 15/2016	
	33-22-00		
	1	Oct 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
	5	Feb 15/2015	
	6	Feb 15/2015	
R	7	Jun 15/2016	
R	8	Jun 15/2016	

	Subject/Page	Date	COC
	33-23-00		
	1	Oct 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
	5	Feb 15/2015	
	6	BLANK	
	33-25-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
R	4	Jun 15/2016	
	5	Feb 15/2015	
	6	BLANK	
	33-26-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
	5	Feb 15/2015	
	6	Feb 15/2015	
	7	Feb 15/2015	
	8	Feb 15/2015	
	9	Feb 15/2015	
	10	Feb 15/2015	

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

	Subject/Page	Date	COC
	33-26-00 (cont.)		
	11	Feb 15/2015	
R	12	Jun 15/2016	
	13	Feb 15/2015	
	14	BLANK	
	33-27-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
R	4	Jun 15/2016	
	5	Feb 15/2015	
	6	BLANK	
	33-29-00		
	1	Feb 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	Feb 15/2015	
R	5	Jun 15/2016	
R	6	Jun 15/2016	
	33-30-00		
	1	Oct 15/2015	
	2	Feb 15/2015	
	3	Feb 15/2015	
	4	BLANK	

Subject/Page	Date	COC
33-32-00		
1	Feb 15/2015	
2	Jun 15/2015	
3	Feb 15/2015	
4	Feb 15/2015	
5	Feb 15/2015	
6	BLANK	
33-33-00		
1	Feb 15/2015	
2	Jun 15/2015	
3	Feb 15/2015	
4	Feb 15/2015	
5	Feb 15/2015	
6	BLANK	
33-34-00		
1	Feb 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	Feb 15/2015	
5	Feb 15/2015	
6	BLANK	
33-35-00		
1	Feb 15/2015	
2	Jun 15/2015	

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

Subject/Page	Date	COC
33-35-00 (cont.)		
3	Feb 15/2015	
4	Feb 15/2015	
5	Feb 15/2015	
6	BLANK	
33-36-00		
1	Feb 15/2015	
2	Jun 15/2015	
3	Jun 15/2015	
4	Jun 15/2015	
5	Jun 15/2015	
6	Jun 15/2015	
7	Jun 15/2015	
8	Jun 15/2015	
33-40-00		
1	Jun 15/2015	
2	Jun 15/2015	
3	Jun 15/2015	
4	Oct 15/2015	
5	Oct 15/2015	
6	Oct 15/2015	
7	Oct 15/2015	
8	Oct 15/2015	
33-40-00 (cont.)		
9	Oct 15/2015	
10	BLANK	
33-41-00		
1	Oct 15/2015	
2	Jun 15/2015	
3	Jun 15/2015	
4	Jun 15/2015	
5	Jun 15/2015	
6	BLANK	
33-42-00		
1	Jun 15/2015	
2	Jun 15/2015	
3	Jun 15/2015	
4	Jun 15/2015	
5	Jun 15/2015	
6	Oct 15/2015	
7	Jun 15/2015	
8	Jun 15/2015	
9	Jun 15/2015	
10	Jun 15/2015	
11	Jun 15/2015	
12	Feb 15/2016	

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

Subject/Page	Date	COC
33-42-00 (cont.)		
13	Jun 15/2015	
14	Jun 15/2015	
33-43-00		
1	Jun 15/2015	
2	Jun 15/2015	
3	Jun 15/2015	
4	Jun 15/2015	
5	Jun 15/2015	
6	Feb 15/2016	
7	Jun 15/2015	
8	Jun 15/2015	
33-44-00		
1	Jun 15/2015	
2	Oct 15/2015	
3	Jun 15/2015	
4	Oct 15/2015	
5	Jun 15/2015	
6	Jun 15/2015	
7	Jun 15/2015	
8	Jun 15/2015	
9	Jun 15/2015	
10	BLANK	

Subject/Page	Date	COC
33-45-00		
O 1	Jun 15/2016	
O 2	Jun 15/2016	
3	Jun 15/2015	
4	Jun 15/2015	
5	Jun 15/2015	
6	Jun 15/2015	
7	Jun 15/2015	
8	Jun 15/2015	
33-49-00		
1	Jun 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	Feb 15/2015	
5	Feb 15/2015	
6	BLANK	
33-50-00		
1	Feb 15/2015	
2	Feb 15/2015	
3	Feb 15/2015	
4	BLANK	
33-51-00		
1	Feb 15/2015	
2	Feb 15/2015	

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

Subject/Page	Date	COC	Subject/Page	Date	COC
33-51-00 (cont.)					
3	Feb 15/2015				
4	Jun 15/2015				
5	Jun 15/2015				
6	Jun 15/2015				
7	Feb 15/2015				
8	Feb 15/2015				
9	Feb 15/2015				
10	Feb 15/2015				
11	Feb 15/2015				
12	Feb 15/2015				
13	Feb 15/2015				
14	BLANK				

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33-EFFECTIVE PAGES

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CHAPTER 33
LIGHTS

CH-SC-SU	SUBJECT	PAGE	EFFECT
33-00-00	LIGHTS - INTRODUCTION	2	AKS ALL
33-10-00	LIGHTS - FLIGHT COMPARTMENT - INTRODUCTION	2	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - INTRODUCTION	2	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - PANEL P1/P2/P7 - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - LIGHTPLATES	6	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - INDICATOR LIGHTS	8	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - LIGHTED PUSH-BUTTON SWITCHES	10	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - MASTER WARNING AND CAUTION LIGHTS	12	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - CAPTAIN INSTRUMENT PANEL - FUNCTIONAL DESCRIPTION	14	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - FIRST OFFICER INSTRUMENT PANEL - FUNCTIONAL DESCRIPTION	16	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - STANDBY INSTRUMENT PANEL LIGHTS - FUNCTIONAL DESCRIPTION	18	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - CONTROL STAND - FUNCTIONAL DESCRIPTION	20	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - OVERHEAD PANEL - FUNCTIONAL DESCRIPTION	22	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - STANDBY LIGHTING - FUNCTIONAL DESCRIPTION	24	AKS ALL
33-11-00	LIGHTS - INSTRUMENT AND PANEL LIGHTS - PANEL P3/P5/P8 - FUNCTIONAL DESCRIPTION	26	AKS ALL

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CHAPTER 33
LIGHTS

CH-SC-SU	SUBJECT	PAGE	EFFECT
33-14-00	LIGHTS - MISCELLANEOUS LIGHTS - INTRODUCTION	2	AKS ALL
33-14-00	LIGHTS - MISCELLANEOUS LIGHTS - STANDBY COMPASS LIGHT	4	AKS ALL
33-14-00	LIGHTS - MISCELLANEOUS LIGHTS - CIRCUIT BREAKER PANEL LIGHTS	6	AKS ALL
33-14-00	LIGHTS - MISCELLANEOUS LIGHTS - DOME LIGHTS	8	AKS ALL
33-14-00	LIGHTS - MISCELLANEOUS LIGHTS - FLOODLIGHTS	10	AKS ALL
33-14-00	LIGHTS - MISCELLANEOUS LIGHTS - FLOOD LIGHTS - FUNCTIONAL DESCRIPTION	12	AKS ALL
33-17-00	LIGHTS - FLIGHT CREW LIGHTS - INTRODUCTION	2	AKS ALL
33-17-00	LIGHTS - FLIGHT CREW LIGHTS - FLIGHT KIT LIGHTS	4	AKS ALL
33-17-00	LIGHTS - FLIGHT CREW LIGHTS - MAP LIGHTS	6	AKS ALL
33-17-00	LIGHTS - FLIGHT CREW LIGHTS - CHART LIGHTS	8	AKS ALL
33-17-00	LIGHTS - FLIGHT CREW LIGHTS - OBSERVER READING LIGHTS	10	AKS ALL
33-18-00	LIGHTS - MASTER DIM AND TEST - INTRODUCTION	2	AKS ALL
33-18-00	LIGHTS - MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-20-00	LIGHTS - PASSENGER COMPARTMENT - INTRODUCTION	2	AKS ALL
33-20-00	LIGHTS - PASSENGER COMPARTMENT - CONTROLS	4	AKS ALL
33-20-00	LIGHTS - PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION	7	AKS ALL
33-21-00	LIGHTS - WINDOW LIGHTS - INTRODUCTION	2	AKS ALL
33-21-00	LIGHTS - WINDOW LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL; AIRPLANES WITH BSI LED LIGHTS
33-22-00	LIGHTS - CEILING LIGHTS - INTRODUCTION	2	AKS ALL

33-CONTENTS

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CHAPTER 33
LIGHTS

CH-SC-SU	SUBJECT	PAGE	EFFECT
33-22-00	LIGHTS - CEILING LIGHTS - FUNCTIONAL DESCRIPTION	6	AKS ALL
33-23-00	LIGHTS - READING LIGHTS - INTRODUCTION	2	AKS ALL
33-23-00	LIGHTS - READING LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-25-00	LIGHTS - PASSENGER SIGNS - INTRODUCTION	2	AKS ALL
33-25-00	LIGHTS - PASSENGER SIGNS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-26-00	LIGHTS - ATTENDANT WORK LIGHTS - INTRODUCTION	2	AKS ALL
33-26-00	LIGHTS - ATTENDANT WORK LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-26-00	LIGHTS - GALLEY LIGHTS - INTRODUCTION	6	AKS ALL
33-26-00	LIGHTS - GALLEY LIGHTS - FUNCTIONAL DESCRIPTION	8	AKS ALL
33-26-00	LIGHTS - LAVATORY LIGHTS AND SIGNS - INTRODUCTION	10	AKS ALL
33-26-00	LIGHTS - LAVATORY LIGHTS AND SIGNS - FUNCTIONAL DESCRIPTION	12	AKS ALL
33-27-00	LIGHTS - PASSENGER AND LAVATORY CALL LIGHTS - INTRODUCTION	2	AKS ALL
33-27-00	LIGHTS - PASSENGER AND LAVATORY CALL LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-29-00	LIGHTS - ENTRY LIGHTS - INTRODUCTION	2	AKS ALL
33-29-00	LIGHTS - ENTRY LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-30-00	LIGHTS - CARGO AND SERVICE COMPARTMENT LIGHTS - INTRODUCTION	2	AKS ALL
33-32-00	LIGHTS - WHEEL WELL LIGHTS - INTRODUCTION	2	AKS ALL
33-32-00	LIGHTS - WHEEL WELL LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-33-00	LIGHTS - AIR CONDITIONING COMPARTMENT LIGHTS - INTRODUCTION	2	AKS ALL

33-CONTENTS

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CHAPTER 33
LIGHTS

CH-SC-SU	SUBJECT	PAGE	EFFECT
33-33-00	LIGHTS - AIR CONDITIONING COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-34-00	LIGHTS - ELECTRONIC EQUIPMENT COMPARTMENT LIGHTS - INTRODUCTION	2	AKS ALL
33-34-00	LIGHTS - ELECTRONIC EQUIPMENT COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-35-00	LIGHTS - ACCESSORY COMPARTMENT LIGHTS - INTRODUCTION	2	AKS ALL
33-35-00	LIGHTS - ACCESSORY COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-36-00	LIGHTS - CARGO COMPARTMENT LIGHTS - INTRODUCTION	2	AKS ALL
33-36-00	LIGHTS - CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION	6	AKS ALL
33-40-00	LIGHTS - EXTERIOR - INTRODUCTION	2	AKS ALL
33-40-00	LIGHTS - EXTERIOR - CONTROL SWITCHES	6	AKS 001-017
33-40-00	LIGHTS - EXTERIOR - CONTROL SWITCHES	8	AKS 018-999; AIRPLANES WITH LED LTRL
33-41-00	LIGHTS - WING ILLUMINATION LIGHTS - INTRODUCTION	2	AKS ALL
33-41-00	LIGHTS - WING ILLUMINATION LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-42-00	LIGHTS - LANDING LIGHTS - FIXED LANDING LIGHTS	2	AKS 001-017
33-42-00	LIGHTS - LANDING LIGHTS - RETRACTABLE LANDING LIGHTS	4	AKS 001-017
33-42-00	LIGHTS - LANDING LIGHTS - MAIN ARRAY ASSEMBLY	6	AKS 018-999
33-42-00	LIGHTS - LANDING LIGHTS - POWER SUPPLY	8	AKS 018-999
33-42-00	LIGHTS - LANDING LIGHTS - FUNCTIONAL DESCRIPTION	11	AKS ALL

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CHAPTER 33
LIGHTS

CH-SC-SU	SUBJECT	PAGE	EFFECT
33-43-00	LIGHTS - POSITION LIGHTS - INTRODUCTION	2	AKS ALL
33-43-00	LIGHTS - POSITION LIGHTS - FUNCTIONAL DESCRIPTION	6	AKS ALL
33-44-00	LIGHTS - ANTI-COLLISION LIGHTS - INTRODUCTION	2	AKS ALL
33-44-00	LIGHTS - ANTI-COLLISION LIGHTS (WHITE) - FUNCTIONAL DESCRIPTION	6	AKS ALL
33-44-00	LIGHTS - ANTI-COLLISION LIGHTS (RED) - FUNCTIONAL DESCRIPTION	8	AKS ALL
33-45-00	LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - INTRODUCTION	1	AKS ALL
33-45-00	LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - FUNCTIONAL DESCRIPTION	6	AKS ALL
33-49-00	LIGHTS - LOGO LIGHTS - INTRODUCTION	2	AKS ALL
33-49-00	LIGHTS - LOGO LIGHTS - FUNCTIONAL DESCRIPTION	4	AKS ALL
33-50-00	LIGHTS - EMERGENCY LIGHTING - INTRODUCTION	2	AKS ALL
33-51-00	LIGHTS - EMERGENCY LIGHTS - EXIT SIGNS	2	AKS ALL
33-51-00	LIGHTS - EMERGENCY LIGHTS - AISLE LIGHTS	4	AKS ALL
33-51-00	LIGHTS - EMERGENCY LIGHTS - FLOOR PROXIMITY LIGHTS	6	AKS ALL
33-51-00	LIGHTS - EMERGENCY LIGHTS - SLIDE LIGHTS	8	AKS ALL
33-51-00	LIGHTS - EMERGENCY LIGHTS - POWER SUPPLIES	10	AKS ALL
33-51-00	LIGHTS - EMERGENCY LIGHTS - FUNCTIONAL DESCRIPTION	12	AKS ALL

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LIGHTS - INTRODUCTION

General

These are the light systems on the airplane:

- Flight compartment lights
- Passenger compartment lights
- Cargo compartment lights
- Service compartment lights
- Exterior lights
- Emergency lights.

Abbreviations and Acronyms

- att - attendant
- ac - alternating current
- bat - battery
- brt - bright
- dc - direct current
- EE - electronic equipment
- gnd - ground
- instr - instrument
- lt(s) - light(s)
- prim - primary
- PSU - passenger service unit
- svce - service
- sw - switch
- typ - typical
- vari - variable
- xfmr - transformer
- xfr - transfer

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LIGHTS - INTRODUCTION

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LIGHTS - FLIGHT COMPARTMENT - INTRODUCTION

Purpose

These are the four types of flight compartment lights:

- Instrument and panel lights
- Miscellaneous lights
- Flight crew lights
- Master dim and test.

The instrument and panel lights are for the flight compartment controls and panel indications.

The miscellaneous lights supply general lighting to the flight compartment. These are the miscellaneous lights:

- Panel and control stand flood lights
- Circuit breaker panel lights
- Standby compass light
- Dome lights.

The flight crew lights supply light for specific tasks. These are the flight crew lights:

- Reading lights
- Map lights
- Flight kit lights
- Chart lights.

The master dim and test system controls the light for the system annunciator and indicator lights.

General Description

The dome lights supply general lighting for the flight compartment. The glareshield supplies background lighting for the pilots.

Each instrument and instrument panel has lighting. The control stand gets light from an overhead floodlight.

The circuit breaker panels get light from floodlights.

There are lights for the standby compass and map lighting.

The master dim and test switch can do these functions:

- Test the indicator and panel lights
- Cause the indicator and panel lights to come on in the bright or dim mode.

The replacement lamps for the lights in the flight compartment are above the right number three window.

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LIGHTS - FLIGHT COMPARTMENT - INTRODUCTION

EFFECTIVITY

AKS ALL

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - INTRODUCTION

Purpose

Instrument and panel lights supply light to the switches, selectors, and indicators on panels in the flight compartment.

These are the types of panel lights in the flight compartment:

- Light plates
- Indicators
- Instrument lights
- Lighted push-button switches.

General Description

Light plates supply the background light for the panels in the flight compartment.

Indicator lights show the flight or maintenance crew the status of an airplane system.

Lighted push-button switches supply control inputs to, or information for their associated systems.

Instrument lights supply light to the face of the instruments.

Functional Description

Electrical power for the instrument and panel lights comes from the 28v ac transfer buses 1 or 2.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - INTRODUCTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - PANEL P1/P2/P7 - FUNCTIONAL DESCRIPTION

Operation

The OFF-BRIGHT control for P1, P2, and P7 instrument and panel lights adjusts the intensity of the lamps.

Functional Description

The OFF-BRIGHT control is a variable transformer. The control knob turns to adjust the voltage available to the fixed transformers in the captain's lighting module (P41).

The lighting module's fixed transformer supplies a maximum of 5v ac to the circuit breakers on the P41 panel. The 0-5v ac voltage from the circuit breakers makes the P1, P2, and P7 instrument and panel lights come on.

Instruments that are necessary for flight safety connect to the standby light system. When power is not available from transfer bus 1, the lights get power from the standby bus. When relay R1 does not energize, the standby bus connects to the standby transformer, T2 in P42. The standby transformer supplies the 5v ac to the lights that are connected to the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - PANEL P1/P2/P7 - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - LIGHTPLATES

Purpose

The lightplates supply light to these components:

- Panel decals
- Instrument lights
- Panel switches.

Physical Description

The lamps are a part of the lightplates. The back of the lightplates have an electrical connector on a printed circuit board. The incandescent lamps are in a parallel circuit. The lightplate continues to supply light if one lamp has a failure.

The front of the lightplates have etched letters and openings for selector switches and indicator lights. These openings let the lamps on the circuit board to supply light to the front of the panels.

Location

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

- P1 captain instrument panel
- P2 center instrument panel
- P3 first officer instrument panel
- P5 overhead panels
- P7 lightshield panel
- P8 aft electronics panel
- P21 left sidewall panel
- P23 right sidewall panel.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - LIGHTPLATES

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - INDICATOR LIGHTS

Purpose

The indicator lights show the flight or maintenance crew the condition of an airplane system.

Location

Many airplane systems have indicator lights in the flight compartment. Indicator lights are on these panels:

- Instrument panels
- Overhead panels
- Electronics (aisle stand) panels.

Physical Description

The indicator lights use incandescent lamps to supply light. Each indicator light has these components:

- Terminal assembly
- Sleeve
- Body and contact assembly
- lamps
- Cap assembly
- Mounting screws.

Functional Description

The two types of indicator light assemblies receive either a ground or power. The indicator lamps that have a ground come on when an electrical ground is on the output terminal. The indicator lamps that receive power, come on when a positive 16/28v dc is applied to the output terminal.

Each type of indicator light assembly has a press-to-test switch circuit. This does a test of the lamp.

The lens of each indicator light assembly is colored. The lens color means:

- Red - warning
- Amber - caution
- Blue - position
- Green - power on
- White - information.

Training Information Point

There are two types of lamps that you can install in the indicator lights. If you use the wrong lamp, damage to the lens cover can occur. Make sure the replacement lamp has the same part number as the one you remove.

NOTE: Use the Wiring Diagram Manual to find the correct system circuit breakers for each light indicator.

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INDICATOR LIGHT WITH PHILLIPS MOUNTING SCREWS (TYPICAL)

GROUND TYPE INDICATOR

POWER TYPE INDICATOR

INDICATOR LIGHT WITH A HEX MOUNTING SCREW (TYPICAL)

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - INDICATOR LIGHTS

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - LIGHTED PUSH-BUTTON SWITCHES

Purpose

The lighted push-button switches supply control inputs to their systems. They can also supply information on system condition.

Location

Many airplane systems have lighted push-button switches in the flight compartment. Lighted push-button switches are on these panels:

- Instrument panels
- Overhead panels
- Electronics (aisle stand) panels.

Physical Description

The lighted push-button switches use incandescent lamps to give light. Each lighted push-button switch has these components:

- Lens cap
- Master module
- Diode/fuse card
- Housing
- Sleeve.

FUNCTIONAL DESCRIPTION

Each push-button switch contains four independent switch circuits. Each switch circuit contains these type of components:

- Normally open contact
- Normally closed contact
- Common wiper.

The two types of lighted push-button switches are momentary and alternate. The momentary switch changes condition when you push the cap assembly. It changes back to its original condition when you remove the pressure. The alternate switch changes condition when you push the cap assembly. It stays in that condition until you push it again. The master module in the switch body sets the type of switch.

The power to operate the lighted push-button switches may come from different sources. Use the Wiring Diagram Manual to find the correct source of power.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - LIGHTED PUSH-BUTTON SWITCHES

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - MASTER WARNING AND CAUTION LIGHTS

Purpose

The system status information is on the flight compartment panels. The master warning and caution lights provide a central location for information for the crew about alarms and faults for various systems.

Location

The master warning and caution lights are on the P7 glareshield panel.

General Description

The two MASTER CAUTION lights are amber. They both come on whenever one of the annunciator lights comes on. The lights are push-to-reset. This makes the MASTER CAUTION and annunciator light go out.

The annunciators are two amber blocks of six lights each. Each light shows the system that has the fault. Push either annunciator for a test of all annunciators and the MASTER CAUTION lights.

If a fault is detected, the particular annunciator and the two MASTER CAUTION lights come on. The lights go out by a push of either of the MASTER CAUTION lights.

Push either annunciator block to recall the light for the system that has the fault.

See the chapters and sections in AMM PART I for each annunciator function.

Training Information Point

Do not leave the MASTER CAUTION lights on when they are not necessary. Excessive heat can distort the lenses.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - MASTER WARNING AND CAUTION LIGHTS

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - CAPTAIN INSTRUMENT PANEL - FUNCTIONAL DESCRIPTION

Purpose

The captain instrument panel lights provide the illumination for the instruments and panels in front of the captain.

Functional Description

You control the intensity of instrument and panel illumination by the main panel variable transformer on the P1 panel. Turn the transformer knob clockwise to give brighter lights. Turn the transformer knob all the way counterclockwise to turn the lights off.

Power from the variable transformer goes to the auto transformer in the P41 captain lighting panel. From the auto transformer, 0 - 5v ac goes to the instrument and panel lights on P1 and P2 panels.

Circuit breakers on the P41 panel provide protection for the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - CAPTAIN INSTRUMENT PANEL - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - FIRST OFFICER INSTRUMENT PANEL - FUNCTIONAL DESCRIPTION

Purpose

The first officer instrument panel lights provide the illumination for the instruments and panels in front of the first officer.

Functional Description

You control the intensity of instrument and panel illumination by the main panel variable transformer on the P1 panel. Turn the transformer knob clockwise to give brighter lights. Turn the transformer knob all the way counterclockwise to turn the lights off.

Power from the variable transformer goes to the auto transformer in the P42 first officer lighting panel. From the auto transformer, 0 - 5v ac goes to the instrument and panel lights on P3 panel.

Circuit breakers on P42 panel provide protection for the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - FIRST OFFICER INSTRUMENT PANEL - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - STANDBY INSTRUMENT PANEL LIGHTS - FUNCTIONAL DESCRIPTION

Purpose

The standby instrument panel lights provide the illumination for the instruments and panels when normal power supply is not available.

Functional Description

The instrument and panel lights for the captain and first officer are from the 28v ac transfer busses.

Relays R1 in the P41 and P42 panels are energized.

Relay R386 in P41 panel and relay R237 in P42 panel are energized.

When 28v ac power from transfer bus is not present, the relays deenergize. This connects the 28v ac standby bus to the auto transformer in the P42 panel. From the auto transformer, 5v ac goes to the instrument and panel lights on P1, P2, and P3 panels.

Circuit breakers on the P41 and P42 panels provide protection for the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - STANDBY INSTRUMENT PANEL LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - CONTROL STAND - FUNCTIONAL DESCRIPTION

Purpose

The control stand panel lights provide the illumination for the instruments and panels for the flight crew.

Functional Description

You control the intensity of instrument and panel illumination by the panel variable transformer on the P8 panel. Turn the transformer knob clockwise to give brighter lights. Turn the transformer knob all the way counterclockwise to turn the lights off.

Power from the variable transformer goes to the auto transformer in the J19 junction box.

Power from the variable transformer goes to the auto transformer in the P8 panel.

From the auto transformer, 0 - 5v ac goes to the instrument and panel lights on P8 panel.

Relay R425 is normally energized. When normal 28v ac power is not present, the relay deenergizes. This connects the 28v ac standby bus to the instrument and panel lights on P8 panel.

Circuit breakers on the panels provide protection for the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - CONTROL STAND - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - OVERHEAD PANEL - FUNCTIONAL DESCRIPTION

Purpose

The overhead panel lights provide the illumination for the instruments and panels for the flight crew.

Functional Description

You control the intensity of instrument and panel illumination by the panel variable transformer on the P5 panel. Turn the transformer knob clockwise to give brighter lights. Turn the transformer knob all the way counterclockwise to turn the lights off.

Power from the variable transformer goes to the auto transformer in the P6 circuit breaker panel. From the auto transformer, 0 - 5v ac goes to the instrument and panel lights on P5 panel.

Circuit breakers on P6 panel provide protection for the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - OVERHEAD PANEL - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - STANDBY LIGHTING - FUNCTIONAL DESCRIPTION

Purpose

Standby lights supply light to instruments that are necessary for flight safety.

The diagram below shows the standby circuit for systems on the P8 panel. Please refer to your wiring diagrams for other lights on the standby system.

Functional Description

When transfer bus 2 cannot supply power to the lights, the lights get power from the standby bus. When relay R425 cannot energize, the standby bus connects to the standby transformer, T362. The standby transformer supplies the 5v ac to the lights for the system.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - STANDBY LIGHTING - FUNCTIONAL DESCRIPTION

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - PANEL P3/P5/P8 - FUNCTIONAL DESCRIPTION

Operation

The OFF-BRIGHT control for the control stand (P8 panel), main panel (P3 panel) instrument and panel lights (P5 panel) adjusts the intensity the lamps.

Functional Description

The OFF-BRIGHT control is a variable transformer. The control knob turns to change the voltage available to two fixed transformers. These transformers are in the J19 junction box.

The two fixed transformers supply a maximum of 5v ac to the circuit breakers on the P42 panel. The 0-5v ac voltage from the circuit breakers causes the instrument and panel lights on the P5 panel to come on.

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1 FUNCTIONAL OPERATION OF THE LIGHTPLATES AND INSTRUMENT LIGHTS ARE THE SAME FOR EVERY PANEL IN THE FLIGHT COMPARTMENT.

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LIGHTS - INSTRUMENT AND PANEL LIGHTS - PANEL P3/P5/P8 - FUNCTIONAL DESCRIPTION

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LIGHTS - MISCELLANEOUS LIGHTS - INTRODUCTION

Purpose

The flight compartment miscellaneous lights supply light to specified areas in the flight compartment. These are the flight compartment miscellaneous lights:

- Standby compass
- Circuit breaker lights
- Dome lights
- Floodlights.

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LIGHTS - MISCELLANEOUS LIGHTS - INTRODUCTION

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LIGHTS - MISCELLANEOUS LIGHTS - STANDBY COMPASS LIGHT

Purpose

The standby compass light supplies light to the standby compass card.

Location

The standby compass light is part of the standby compass. It is forward of the P5 panel.

Operation

A three-position switch controls the standby compass light. The switch has these positions:

- OFF - no power to the light
- DIM - light on in the dim mode
- BRIGHT - light on in the bright mode.

Functional Description

Power to the standby compass light comes from the 28v dc battery bus. When the standby compass light switch is in the BRT position, 28v dc goes to the lamp. When the switch is in the DIM position, a resistor decreases power to the lamp. When the switch is in the OFF position, there is no power to the lamp.

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LIGHTS - MISCELLANEOUS LIGHTS - STANDBY COMPASS LIGHT

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LIGHTS - MISCELLANEOUS LIGHTS - CIRCUIT BREAKER PANEL LIGHTS

Purpose

The P6 and P18 circuit breaker panels receive light from the circuit breaker panel lights.

Location

There are five circuit breaker panel lights in the flight compartment. These Lights are on the sidewalls, the ceiling and the floor. The control for the circuit breaker panel lights is on the P5 forward overhead panel.

Operation

You use the OFF-BRIGHT control on the P5 panel to adjust the intensity of the circuit breaker lamps.

Functional Description

The circuit breaker panel lights get 28v ac power through a variable transformer. You rotate the control to change the power to the circuit breaker panel lights.

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LIGHTS - MISCELLANEOUS LIGHTS - CIRCUIT BREAKER PANEL LIGHTS

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Purpose

The dome lights supply light to all of the flight compartment.

location

There are two dome lights. One is on the P6 panel. The other light is on the P18 panel.

Physical Description

Each light has these components:

- Lamp
- Screws (4)
- Lens
- Lens retainer.

Operation

A three position switch on the P5 panel controls the dome lights. The switch has these three positions:

- OFF - no power to the light
- DIM - light on in the dim mode
- BRT - light on in the bright mode.

Functional Description

Power to the dome light is from the 28v dc battery bus. With the dome light switch in the BRIGHT position, 28v dc goes to the lamp. With the switch in the DIM position, a resistor decreases power to the lamp. With the switch in the OFF position, there is no power to the lamp.

The dome light on the P18 panel is a dual lamp assembly. One lamp is an emergency light for the flight compartment. It comes on with the emergency light system.

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LIGHTS - MISCELLANEOUS LIGHTS - DOME LIGHTS

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LIGHTS - MISCELLANEOUS LIGHTS - FLOODLIGHTS

Purpose

The floodlights supply light to these panels:

- P1 captain instrument panel
- P2 center instrument panel
- P3 first officer instrument panel
- P7 lightshield panel
- P8 aft electronics panel
- P9 forward electronics panel
- P21 captain's oxygen mask stowage panel
- P23 first officer's oxygen mask stowage panel

Location

The floodlights for the P1, P2, P3, and P7 panels are above the panels. The control switch for these flood lights are on the P1 and P3 panels.

The floodlight for the P8 and P9 panels is above the aisle stand on the P5 panel. The control switch is on the aft left section of the P8 panel.

Physical Description

These are the two types of floodlights:

- Strip floodlights
- Spot flood lights.

The strip floodlight has many incandescent lights attached to a lens. Each spot floodlight is an incandescent bulb.

Operation

You can use the OFF-BRIGHT controls to adjust the intensity of the lamps.

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LIGHTS - MISCELLANEOUS LIGHTS - FLOODLIGHTS

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Functional Description

The floodlights can operate in two modes, normal and standby. Not all floodlights can operate in the standby mode.

You control the AFDS (glareshield P7) control panel floodlights with the glareshield bright/dim control. The panel floodlights receive power from the 115v ac transfer bus. These lights do not operate in the standby mode.

You operate the control stand floodlight from the floodlight control switch on the P8 panel. The control stand floodlight does not operate in the standby mode.

Normal Mode

In the normal mode, you can adjust the intensity from the floodlight. In the standby mode, the light intensity cannot change.

When the 115v ac transfer bus has power, the K1 standby relay energizes. This connects the main panel bright/dim control to the main panel floodlight dimmer control unit. When you push and turn this control on the P1 panel, it adjusts the resistance to the main panel floodlight dimmer control unit. This unit uses the input to adjust the light from the three main panel floodlights for the captain (P1), first officer (P3), and the center (P2) panels.

Standby Mode

When the 115v ac transfer bus does not have power, the standby relay de-energizes. In the standby mode, the resistance to the main panel floodlight dimmer control unit is set by the standby resistors. In this mode, the intensity cannot be adjusted. The light from the glareshield floodlights also cannot be adjusted.

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LIGHTS - MISCELLANEOUS LIGHTS - FLOOD LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - FLIGHT CREW LIGHTS - INTRODUCTION

Purpose

The flight crew lights are reading lights for the flight crew. The lights are adjustable. These are the flight compartment reading lights:

- Flight kit light (2)
- Map light (2)
- Chart light (2)
- Observer reading lights.

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LIGHTS - FLIGHT CREW LIGHTS - INTRODUCTION

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LIGHTS - FLIGHT CREW LIGHTS - FLIGHT KIT LIGHTS

Purpose

The flight kit lights give a mobile light source in the flight deck.

location

These are the locations of the flight kit lights in the flight compartment:

- P21 panel (captain) flight kit light
- P23 panel (first officer) flight kit light.

Physical Description

The flight kit light has these components:

- Light control
- Housing
- lamp
- lens
- Retaining ring
- Cord
- Base.

The lens cap can make the light white or red. The light disconnects from the base. The cord is 100 inches (254 cm) long when extended to the full length.

Operation

You turn the light control to make the light come on and to adjust the light intensity. When you push the light control, the light comes on until you release the control.

Functional Description

For the light to come on, a switch closes and sends power to the light. A wiper arm adjusts the quantity of power to the lamp. The light has a push to operate function. This makes the light stay on when you push the switch.

Training Information Point

You must remove the retaining clip and rotate the light control to the white position to get access to the lamp. The lamp is a bayonet-style lamp.

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LIGHTS - FLIGHT CREW LIGHTS - FLIGHT KIT LIGHTS

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LIGHTS - FLIGHT CREW LIGHTS - MAP LIGHTS

Purpose

The map lights supply adjustable light for the captain and first officer.

Location

There are two map lights in the flight compartment. There is one above the captain and the first officer seats. They are adjacent to the No. 4 windows.

There are pull-up and rotate controls for the map light on these panels:

- P21 (captain) map light module
- P23 (first officer) map light module.

Physical Description

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

Operation

The light comes on when you pull the switch up. You turn the control switch to adjust the map light intensity. You turn the bezel to adjust the area of the light.

You can control the adjustment and diameter of light. You can also point the light.

Training Information Point

To replace the map light, you must remove the back cover. The lamp is a bayonet-style lamp.

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LIGHTS - FLIGHT CREW LIGHTS - MAP LIGHTS

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LIGHTS - FLIGHT CREW LIGHTS - CHART LIGHTS

Purpose

The chart light supplies light to the clip board area.

Location

There are two chart lights, one for the captain and one for the first officer. They are above the No. 4 windows.

There are pull-up and turn controls for the chart light on these Panels:

- P21 (captain) chart light
- P23 (first officer) chart light.

Physical Description

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

Operation

You use the CHART light controls to make the chart light come on and go off. The controls are on the P21 and P23 panels.

Training Information Point

To replace the chart light, you must remove the upper half. The lamp is a bayonet-style lamp.

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LIGHTS - FLIGHT CREW LIGHTS - CHART LIGHTS

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LIGHTS - FLIGHT CREW LIGHTS - OBSERVER READING LIGHTS

Purpose

The observer reading light supplies light to the first observer position.

Location

The observer reading light is on the P6 panel.

Operation

You turn the light control to make the light come on and to adjust the light intensity. When you push the light control, the light comes on until you release the control.

Training Information Point

The observer reading light is interchangeable with the flight kit lights.

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LIGHTS - FLIGHT CREW LIGHTS - OBSERVER READING LIGHTS

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LIGHTS - 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 compartment annunciators and lighted push-button switches
- Set annunciators and lighted push-button switches to the bright or dim mode.

Location

A master dim and test switch (TEST/BRT/DIM) is on the P1 main instrument panel. The annunciation and dimming module is in the P6 circuit breaker panel together with relays and modules for the master dim and test system.

Interface

The MD&T system controls the bright, dim, and test of lights in these panels in the flight compartment:

- P1
- P2
- P3
- P5
- P7
- P8
- P9.

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LIGHTS - MASTER DIM AND TEST - INTRODUCTION

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LIGHTS - MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION

Functional Description

The flight compartment indicating lights are on various panels. The lights are one of these two types:

- Ground seeking
- Power seeking.

The ground seeking light has power and the ground is connected by the action of the system the light monitors.

The power seeking light has ground and the power is connected by the action of the system the light monitors.

The indicating lights (red, amber, blue, and green) are press-to-test. The lights can be bright or dim by the master dim and test (MD&T) switch on the P1-3 panel.

When the MD&T switch is in the bright (BRT) position, relays R33 and R34 are deenergized. Power for the ground seeking lights and ground for the power seeking lights goes through relay R34. When the MD&T switch is in the DIM position, relay R34 energizes and power and ground goes through the zener diodes.

In the TEST position, relay R33 energizes. This supplies power and ground to make all of the indicating lights come on bright.

Training Information Point

The fire warning system has its own test switch on the P8 panel.

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LIGHTS - MASTER DIM AND TEST - FUNCTIONAL DESCRIPTION

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LIGHTS - PASSENGER COMPARTMENT - INTRODUCTION

Purpose

The lights in the passenger compartment supply these functions:

- General light in the passenger cabin
- Reading lights
- Information lights for the passengers and attendants
- Lights in the lavatories
- Lights in the galleys.

The light system also lets the passenger call the attendants for aid.

The passenger compartment lights has these subsystems:

- Window lights
- Ceiling lights
- Reading lights
- Passenger signs
- Lavatory lights and signs
- Passenger and lavatory call lights
- Attendant work lights
- Galley lights
- Entry lights.

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LIGHTS - PASSENGER COMPARTMENT - INTRODUCTION

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LIGHTS - PASSENGER COMPARTMENT - CONTROLS

Purpose

You control these passenger cabin lights from the forward and aft attendant panels:

- Ceiling
- Window
- Entry
- Work
- Emergency (aft panel only).

Location

The P13 forward attendant panel is on the forward lavatory wall.

The P14 aft attendant panel is on the aft lavatory wall.

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FORWARD ATTENDENTS STATION

AFT ATTENDENTS STATION

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LIGHTS - PASSENGER COMPARTMENT - CONTROLS

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LIGHTS - PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION

Functional Description

The attendant control panel (ACP) controls the passenger cabin lights. The ACP Lighting display has these sections:

- Passenger Seating Area
- Forward Entry Area
- Aft Entry Area
- General Lighting Layout

The Passenger Seating Area, Forward Entry Area, and Aft Entry Area buttons set the passenger cabin light intensity and color. The General Lighting Layout shows the current condition of passenger cabin light intensity and color.

The ACP controls the color and intensity to these passenger cabin lights:

- Cove lights
- Ceiling wash lights
- Window lights

The ACP controls the intensity to these passenger cabin lights:

- Direct lights
- Ceiling bin lights
- Ceiling center overhead stowage (COS) lights (if installed)

The ACP RS-485 interface controls the signal between the ACP and the lights through four signal ports. The lights are connected as follows:

Typical BSI ACP Light Databus Port 1-4 Layout

Port 1 Left Window	**Port 2** Left Ceiling	**Port 3** Right Ceiling	**Port 4** Right Window
FWD Entry Direct	Wash	COS (if installed)	Sidewall
FWD Cove L	. . .	COS (if installed)	. . .
FWD Cove R	Wash	Bin	Sidewall
FWD Cabin Direct	COS (if installed)	. . .	Overwing Exit
MID Cove R	Bin	Bin	Overwing Exit
MID Cove L	. . .	COS (if installed)	Sidewall
Sidewall	Bin	COS (if installed)	. . .
. . .	COS (if installed)	Bin	Sidewall
Sidewall	COS (if installed)	. . .	AFT Cove L
Overwing Exit	Bin	Bin	AFT Cove R
Overwing Exit	. . .	COS (if installed)	AFT Cabin Direct L
Sidewall	Bin	Wash	AFT Entry Direct L
. . .	COS (if installed)	. . .	AFT Entry Direct R
Sidewall	COS (if installed)	Wash	AFT Cabin Direct R
Termination Plug M2805	Termination Plug M2805	Termination Plug M2805	Termination Plug M2805

EFFECTIVITY
AKS ALL

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LIGHTS - PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION

Each passenger cabin light assembly has data for the light interface address and light color. The configuration database (CDB) sets the light interface address. The lighting database (LDB) sets the light color. When you touch the ACP-to-LRU button on the ACP Maintenance display, the button changes to blue color and the ACP sends CDB and LDB data signals to each port. Within each port, each light assembly receives the signals, then sends the signals to the next light assembly. When this operation is done, the ACP-to-LRU button changes back to its usual black color and this occur:

- The cove lights, ceiling wash lights, and window lights change to green color.
- The direct lights, ceiling bin lights, and COS lights (if installed) change to orange color.

The Lamp Test button on the ACP Maintenance display turns on all passenger cabin lights. When you touch the Lamp Test button, the button turns to blue color and all passenger cabin lights come on. You touch the Lamp Test button to set the passenger cabin lights back to their usual condition and the Lamp Test button changes to its usual black color.

The ACP has the capability to select custom or standard lighting scenes. These lighting scenes can be customized, with the exception of the white bright scene, and uploaded to the ACP by using the configuration database generator (CDG) tool. The CDG can be used to generate new scene databases, tailor operator logos, or create maintenance passwords.

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(TYPICAL)

2130675 S0000461521_V2

PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION

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2055622 S0000419982_V1

PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION - AIRPLANES WITH SOFTWARE V4 AND EARLIER

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2055359 S0000419983_V1

PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION - AIRPLANES WITH SOFTWARE V4 AND EARLIER

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2397296 S0000543175_V1

PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION - AIRPLANES WITH SOFTWARE V5 AND SUBSEQUENT

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2055674 S0000420079_V1

PASSENGER COMPARTMENT - FUNCTIONAL DESCRIPTION - AIRPLANES WITH SOFTWARE V4 AND EARLIER

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LIGHTS - WINDOW LIGHTS - INTRODUCTION

Purpose

The window lights supply lighting to the areas below the stowage bins in the passenger compartment.

Physical Description

The window lights use LED light assemblies. The LED light assembly has a processor, power supply, transceivers, and LED lights.

The window lights have these components:

- LED light assembly
- Lens.

Location

The window lights are on the extrusion between the PSU and the sidewall panel above the windows

Training Information Point

The window lights are connected in series to the attendant control panel (ACP) RS-485 data bus. When the window light internal data transceiver is inoperative, the window lights that follow in series may not change to the correct intensity and color.

- The left window light data bus is connected in series to the forward direct light and forward cove light data bus at ACP signal port 1.
- The right window data bus is connected in series to the aft direct light and aft cove light data bus at ACP signal port 4.

There are three 115V AC power break-in points above the sidewall panels on each side of the airplane: STA 419, STA 616, and STA 866. At each power break-in point, two set of window lights are connected to the 115V AC. Each set of window lights can have up to six window lights connected in series to the 115V AC. When the window light internal power supply is inoperative at the start of the power break-in point, up to six adjacent window lights may not get power.

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LIGHTS - WINDOW LIGHTS - INTRODUCTION

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LIGHTS - WINDOW LIGHTS - FUNCTIONAL DESCRIPTION

Operation

The attendant control panel (ACP) controls the window light intensity and color

Functional Description

When you set the cabin/utility switch on the P5-13 panel to the ON position, this occurs:

- Relay R427 energizes.
- 115V AC goes to the window light internal power supply.

When you touch the scene button below the Passenger Seating Area section on the ACP Lighting display, the ACP sends intensity and color signals to the window lights. The window lights change intensity and color to the preset condition.

When you touch the OFF button, only the window light internal LED lights go off. The window light internal power supply stays connected to the 115V AC.

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LIGHTS - WINDOW LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - WINDOW LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - CEILING LIGHTS - INTRODUCTION

Purpose

The ceiling lights supply lighting to the areas above the stowage bins and the aisle in the passenger compartment.

Physical Description

The ceiling lights use LED light assemblies. The LED light assembly has a processor, power supply, transceivers, and LED lights.

The ceiling lights include:

- Ceiling center overhead stowage (COS) lights (if installed)
- Ceiling bin lights
- Ceiling wash lights
- Cove Lights
- Direct Lights

The ceiling bin light and ceiling wash light are one light assembly.

Location

The ceiling bin lights and ceiling wash lights are on top of the stowage bins.

The COS lights (if installed) are located at the center overhead stowage door.

The cove lights and direct lights are located at the forward and aft entry.

Training Information Point

The ceiling lights are connected in series to the attendant control panel (ACP) RS-485 data bus. When the ceiling light internal data transceiver is inoperative, the ceiling lights that follow in series may not change to the correct intensity and color.

- The forward direct light and forward cove light data bus is connected in series to the left window light data bus at ACP signal port 1.
- The left ceiling bin light, left ceiling wash light, and left COS light (if installed) data bus is connected in series at ACP signal port 2.
- The right ceiling bin light, right ceiling wash light, and right COS light (if installed) data bus is connected in series at ACP signal port 3.
- The aft direct light and aft cove light data bus is connected in series to the right window light data bus at ACP signal port 4.

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PASSENGER COMPARTMENT

2071729 S0000420722_V1

LIGHTS - CEILING LIGHTS - INTRODUCTION

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FORWARD ATTENDENTS STATION

AFT ATTENDENTS STATION

2071477 S0000423783_V1

LIGHTS - CEILING LIGHTS - INTRODUCTION

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LIGHTS - CEILING LIGHTS - FUNCTIONAL DESCRIPTION

Operation

The attendant control panel (ACP) controls the ceiling light intensity and color

Functional Description

When you set the cabin/utility switch on the P5-13 panel, this occurs:

- Light relays R120, R394, and R427 energize.
- 115V AC goes to the light internal power supply.

When you touch the scene button below the Passenger Seating Area section on the ACP Lighting display, the ACP sends intensity and color signals to the ceiling lights.

These ceiling lights change intensity and color to the preset condition:

- Cove lights
- Ceiling wash lights

The color for these ceiling lights does not change. These ceiling lights change intensity to the preset condition:

- Direct lights
- Ceiling bin lights
- Ceiling center overhead stowage (COS) lights (if installed)

When you touch the OFF button, only the ceiling light internal LED lights go off. Ceiling light internal power supply stays connected to the 115V AC.

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LIGHTS - CEILING LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - CEILING LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - READING LIGHTS - INTRODUCTION

Purpose

The reading lights supply lighting locally for each passenger seat.

Physical Description

A reading light has these parts:

- LED light assembly
- Lock/unlock lever.

Location

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

Operation

To operate the reading light, use the switch on the passenger service unit (PSU). Then adjust the direction of the light beam as necessary. You use the lever to lock or unlock the light in position. To lock or unlock the reading light do these steps:

- Lower the PSU
- Move the lever to the lock or unlock position as necessary.

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LIGHTS - READING LIGHTS - INTRODUCTION

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LIGHTS - READING LIGHTS - FUNCTIONAL DESCRIPTION

Functional Description

Momentarily push the reading light switch on the PSU to connect 28v ac to the reading light. The lights are in a parallel circuit. The loss of one light will not affect the other lights.

Training Information Point

When the reading light is inoperative, replace the reading light assembly.

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LIGHTS - READING LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - PASSENGER SIGNS - INTRODUCTION

Purpose

AKS 007, 008, 011, 012

The passenger signs give these indications to the passengers and attendants:

- NO SMOKING
- FASTEN SEAT BELT
- RETURN TO SEAT.

AKS 001-006, 009, 010, 013-999

The passenger signs give these indications to the passengers and attendants:

- FASTEN SEAT BELT
- RETURN TO SEAT.

AKS ALL

Physical Description

The passenger sign lights use incandescent lamps at the galley and LED light assemblies at other locations.

Location

AKS 007, 008, 011, 012

The NO SMOKING and the FASTEN SEAT BELTS signs are at these locations:

- Passenger service units (PSU)
- Forward left windscreen
- Galley
- Lavatories.

AKS 001-006, 009, 010, 013-999

The FASTEN SEAT BELTS signs are at these locations:

- Passenger service units (PSU)
- Forward left windscreen
- Galley
- Lavatories.

AKS ALL

The RETURN TO SEAT signs are in the lavatories.

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PASSENGER SERVICE UNIT

LAVATORY

PASSENGER SIGN
(TYPICAL)

B

PASSENGER SIGN
(TYPICAL)

A

2059420 S0000423028_V1

LIGHTS - PASSENGER SIGNS - INTRODUCTION

EFFECTIVITY

AKS ALL

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LIGHTS - PASSENGER SIGNS - FUNCTIONAL DESCRIPTION

Operation

A three-position toggle switch on the P5 forward overhead panel controls the passenger signs. This switch is the FASTEN SEAT BELT switch. When the switch is in the ON position, all the passenger signs come on.

AKS 007, 008, 011, 012

NOTE: The NO SMOKING switch on the P5 forward overhead panel does not effect the NO SMOKING lights. The NO SMOKING signs are on when power is on.

AKS ALL

NOTE: The NO SMOKING switch on the P5 forward overhead panel does not effect the NO SMOKING signs.

When the FASTEN SEAT BELT switch is in the OFF position, the FASTEN SEAT BELT and RETURN TO SEAT signs are off.

When the FASTEN SEAT BELT switch is in the AUTO position and the trailing edge flaps limit switch is in the NOT UP position, these indications occur:

- FASTEN SEAT BELT signs
- RETURN TO SEAT signs

When the FASTEN SEAT BELT switch is in the AUTO position and the landing gear lever switch is in the GEAR DOWN position, these indications occur:

- FASTEN SEAT BELT signs
- RETURN TO SEAT signs

Interface

The passenger oxygen system has an interface with the passenger sign system. When the FASTEN SEAT BELT switch is in the AUTO position and the oxygen indication relay energizes, this indication occurs:

- FASTEN SEAT BELT signs

Functional Description

When you move the FASTEN SEAT BELT switch to the ON position, 28v ac energizes relay R26. Transfer bus 1 then supplies 28v ac to operate the passenger sign lights.

When the FASTEN SEAT BELT switch is in the AUTO position, these indications occur:

- Relay R25 and R26 energizes if the landing gear is in the down position, or when the oxygen indication relay energizes
- Relay R26 energizes if the trailing edge flap limit switch is in the NOT UP position.

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LIGHTS - PASSENGER SIGNS - FUNCTIONAL DESCRIPTION

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LIGHTS - ATTENDANT WORK LIGHTS - INTRODUCTION

Purpose

The attendant work lights supply light to the attendant work stations.

Location

The attendant lights are in the ceiling above the attendant stations. There is one work light for each attendant station. The work light control switch is on the related attendant panel.

Physical Description

The attendant work lights are incandescent. The attendant work lights have a lens and a lamp.

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FORWARD ATTENDANT STATION

FORWARD ATTENDANT PANEL

ATTENDANT WORK LIGHT
(TYPICAL)

M85160 S0004628223_V1

LIGHTS - ATTENDANT WORK LIGHTS - INTRODUCTION

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Functional Description

When you put the attendant work light switch to ON, 28v ac from the ground service bus causes the light in the switch and attendant work light to come on.

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LIGHTS - ATTENDANT WORK LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - GALLEY LIGHTS - INTRODUCTION

Purpose

The galley light supplies light to the forward galley area.

Physical Description

The galley light has these components:

- Fluorescent lamp
- Lens
- Housing
- Ballast.

Location

The galley light is above the forward service entry door.

Training Information Point

To remove the lamp, release the levers that hold the lamp in the housing.

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LIGHTS - GALLEY LIGHTS - INTRODUCTION

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Functional Description

When the galley light switch moves from the OFF position, logic circuits in the ballast assembly set these conditions:

- Continuity between CONTROL and DIM causes the dim mode
- Continuity between CONTROL and OFF causes the off mode
- No continuity between CONTROL and either DIM or OFF causes the bright mode.

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LIGHTS - GALLEY LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - LAVATORY LIGHTS AND SIGNS - INTRODUCTION

Purpose

The lavatory lights and signs supply light and indications to the passengers while in the lavatory.

Physical Description

The mirror light has a fluorescent and incandescent lamp. It has a ballast assembly and an electrical connector.

Location

The lavatory lights and controls are in these places:

- Lavatory lights are on the mirror
- Lavatory light ballast assembly is on or next to the lavatory ceiling PSU panel
- Door switch is in the door frame.

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LIGHTS - LAVATORY LIGHTS AND SIGNS - INTRODUCTION

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Operation

You can operate the fluorescent mirror lights in the lavatory by the door switch. The light ballast is powered when the door switch is closed and not power when the door switch is open.

The lavatory auxiliary LED lights or incandescent lamp come on when the 28v dc bus 1 sect 1 has power.

The lavatory occupied light (OCC) light comes on when the lavatory door is locked and the 28v ac transfer bus 1 has power.

Functional Description

The light ballast is powered when the door switch is closed. When the door switch is open, the ballast is not powered..

Power for the lavatory light is from the 115v ac ground service bus.

Power for the lavatory auxiliary LED lights or incandescent lamp is from the 28v dc bus 1 sect 1.

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LIGHTS - LAVATORY LIGHTS AND SIGNS - FUNCTIONAL DESCRIPTION

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LIGHTS - PASSENGER AND LAVATORY CALL LIGHTS - INTRODUCTION

Purpose

The passenger and lavatory call light tells the flight attendant when a passenger or flight crew member needs aid or assistance.

Physical Description

The lights are incandescent.

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

Indications

The light under the blue cover comes on when a passenger pushes the passenger call switch on the PSU. The light under the amber cover comes on when a passenger pushes the call switch in a lavatory. The light under the pink cover comes on when a crew member calls another crew member.

location

The passenger and lavatory call lights are on the ceiling exit locator signs at the forward and aft ends of the passenger cabin.

Training Information Point

You can put the lens covers in different lamps. Be sure the lens is the right color for the lamp.

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LIGHTS - PASSENGER AND LAVATORY CALL LIGHTS - INTRODUCTION

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LIGHTS - PASSENGER AND LAVATORY CALL LIGHTS - FUNCTIONAL DESCRIPTION

Passenger Call

When you push the attendant call button on the passenger service unit (PSU), the control circuit causes these indications:

- Light under the blue lens cover on the forward or aft exit locator
- High chime sound
- PSU call light.

You must push the call light/reset switch to cause the control circuit to turn off the indications.

A two-position passenger call select switch in the PSU controls which exit locator sign gets the call from the PSU. You can set this switch with the PSU open.

Lavatory Call

When you operate the lavatory push-on, push-off light, 28v dc causes this to occur:

- Relay R1 energizes and latches
- High chime sound
- Lavatory call light/reset switch
- Light under the amber lens cover on the forward or aft exit locator.

When you push the reset button, you remove 28v dc from relay R1 and all indications stop.

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1 PASSENGER CALL SELECT SWITCH, POSITION 1 FWD EXIT LOCATOR LIGHT, POSITION 2 AFT EXIT LOCATOR LIGHT

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LIGHTS - PASSENGER AND LAVATORY CALL LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - ENTRY LIGHTS - INTRODUCTION

Purpose

The entry lights supply light for the airplane entry areas. The entry lights are in the forward and aft ends of the passenger cabin.

Physical Description

The entry lights have the direct entry lights and dim entry lights.

- The direct entry lights use LED light assemblies. The light assembly has a processor, power supply, transceivers, and LED lights.
- The dim entry light is a LED light assembly.

location

The entry lights are in the ceiling near the entry and service entry doors.

Training Information Point

The direct entry lights are connected in series to the attendant control panel (ACP) RS-485 data bus. When the direct entry light internal data transceiver is inoperative, the lights that follow in series may not change to the correct intensity and color.

- The forward direct entry light data bus is connected in series to the left window light data bus at ACP signal port 1.
- The aft direct entry light data bus is connected in series to the right window light data bus at ACP signal port 4.

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LIGHTS - ENTRY LIGHTS - INTRODUCTION

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LIGHTS - ENTRY LIGHTS - FUNCTIONAL DESCRIPTION

Operation

The attendant control panel (ACP) controls the direct entry light intensity.

With external power applied, the dim entry light is on.

Functional Description

When you set the cabin/utility switch on the P5-13 panel to the ON position, this occurs:

- Relay R427 energizes.
- 115V AC goes to the light internal power supply.

When you touch the White BRIGHT button or White MEDIUM button below the Forward Entry Area section on the ACP Lighting display, the ACP sends intensity signal to the direct entry light. The direct entry light changes intensity preset condition.

When you touch the White BRIGHT button or White MEDIUM button below the Aft Entry Area section on the ACP Lighting display, the ACP sends intensity signal to the direct entry lights. The direct entry lights change intensity preset condition.

When you touch the OFF button, only the light internal LED lights go off. The light internal power supply stays connected to the 115V AC.

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LIGHTS - ENTRY LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - ENTRY LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - CARGO AND SERVICE COMPARTMENT LIGHTS - INTRODUCTION

Purpose

The cargo and service compartment lights supply light to help maintenance personnel and ground crews.

Location

There are cargo compartments lights in the forward and aft cargo compartments.

There are service lights in these areas:

- Forward equipment compartment
- Electronic equipment compartment
- Right air conditioning compartment
- Left air conditioning compartment
- Aft accessory compartment (section 48 interior)
- APU compartment
- Tail cone compartment.

There are wheel well lights in the nose and main wheel wells.

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LIGHTS - CARGO AND SERVICE COMPARTMENT LIGHTS - INTRODUCTION

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LIGHTS - WHEEL WELL LIGHTS - INTRODUCTION

Purpose

The wheel well lights supply lighting to the nose and main landing gear wheel wells.

Physical Description

AKS 001-016

The wheel well lights use incandescent lamps.

AKS 017-999

The wheel well lights use LED light assemblies.

AKS ALL

Location

There is one wheel well light in the nose gear wheel well. The nose gear wheel well light switch is on the P19 external power panel.

There are four wheel well lights in the main gear wheel well. The main gear wheel well light switch is on the outer forward bulkhead of the left main wheel well.

A switch on the P5 forward overhead panel controls the wheel well lights from inside the airplane.

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LIGHTS - WHEEL WELL LIGHTS - INTRODUCTION

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LIGHTS - WHEEL WELL LIGHTS - FUNCTIONAL DESCRIPTION

Operation

The wheel well lights switch on the P5 forward overhead panel controls the nose and main wheel well lights. When you put the switch to ON, all wheel well lights come on.

There is a two-position toggle switch in the left main wheel well. It is in the forward end of the wheel well. This switch controls four lights in the main wheel well only.

The two-position toggle switch on the P19 external power panel controls one light in the nose gear wheel well.

The switch you use to make the lights come on must be used to select the lights off.

Functional Description

The 28v ac ground service bus supplies electrical power for the wheel well lights. When you select the P5 forward overhead panel wheel well switch to ON, all wheel well lights come on. When you use a switch in the wheel well, only the related wheel well lights come on.

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LIGHTS - WHEEL WELL LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - AIR CONDITIONING COMPARTMENT LIGHTS - INTRODUCTION

Purpose

The air conditioning compartment lights supply lighting for maintenance in the air conditioning compartments.

Physical Description

AKS 001-016

The air conditioning compartment lights are incandescent lamps.

AKS 017-999

The air conditioning compartment lights are LED light assemblies.

AKS ALL

Location

There are five incandescent lights in the left air conditioning compartment and four in the right air conditioning compartment.

The control switch is on the forward outboard bulkheads of each air conditioning compartment.

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LEFT AIR CONDITIONING COMPARTMENT

M85204 S0004628289_V1

LIGHTS - AIR CONDITIONING COMPARTMENT LIGHTS - INTRODUCTION

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LIGHTS - AIR CONDITIONING COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

Operation

Each air condition compartment has a two-position toggle switch. The switches control electrical power to the lights in each compartment.

Functional Description

The incandescent lights are in a parallel circuit. The loss of a lamp will not effect the operation of the other lamps in the circuit. When the control switch is in the ON position, 28v ac goes to each incandescent light.

Training Information Point

The light switches have a sealing compound on the terminals to prevent arcing.

WARNING: MAKE SURE YOU SEAL THE TERMINALS TO PREVENT AN EXPLOSION OF THE FUEL FUMES. AN EXPLOSION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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LIGHTS - AIR CONDITIONING COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - ELECTRONIC EQUIPMENT COMPARTMENT LIGHTS - INTRODUCTION

Purpose

The EE compartment lights supply light to the electronic equipment compartments for maintenance.

Physical Description

The EE compartment lights are incandescent lamps.

Location

There are four incandescent lights in the EE compartment and three in the forward equipment compartment.

The EE compartment light control switch is on the service panel.

The forward equipment compartment light control switch is on the right side under the weather radar rack.

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LIGHTS - ELECTRONIC EQUIPMENT COMPARTMENT LIGHTS - INTRODUCTION

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LIGHTS - ELECTRONIC EQUIPMENT COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

Operation

A two-position toggle switch controls the lights for the forward equipment compartment. A two-position toggle switch controls the lights for the electronic equipment compartment.

Functional Description

The incandescent lights are in a parallel circuit. The loss of a lamp will not effect the output of the other lamps in the circuit. When the two-position toggle switch is in the ON position, 28v ac goes to each incandescent lamp.

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LIGHTS - ELECTRONIC EQUIPMENT COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - ACCESSORY COMPARTMENT LIGHTS - INTRODUCTION

Purpose

The service and accessory compartment lights supply light to these areas:

- APU compartment
- Aft accessory compartment (section 48 interior)
- Tail cone compartment.

Physical Description

AKS 001-016

The service and accessory compartments lights are incandescent lamps.

AKS 017-999

The service and accessory compartments lights are LED light assemblies.

AKS ALL

Location

There are two lights in the aft accessory compartment. The light control switch is next to the access door.

There are two lights in the APU compartment. The light control switch is on the forward bulkhead.

The tail cone compartment has one light. The light control switch is inside the tail cone compartment forward of the access panel in the lower right corner.

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TAIL CONE COMPARTMENT LIGHT

ACCESSORY COMPARTMENT LIGHT

APU COMPARTMENT LIGHT

M85210 S0004628303_V1

LIGHTS - ACCESSORY COMPARTMENT LIGHTS - INTRODUCTION

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LIGHTS - ACCESSORY COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

Operation

A two-position toggle switch controls the lights for the tail compartment. A two-position toggle switch controls the lights for the APU compartment.

A push-to-operate switch controls the lights for the accessory compartment. You push the switch to make the light come on. Push the switch again to control the light to go off.

Functional Description

The accessory and APU compartment lights are in a parallel circuit. The loss of a lamp will not an affect the operation of the other lamps in the circuit. With the switches in the ON position, 28v ac will go directly to each light.

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M85212 S0004628306_V1

LIGHTS - ACCESSORY COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - CARGO COMPARTMENT LIGHTS - INTRODUCTION

Purpose

The cargo compartment lights supply light to the cargo compartment areas to aid the ground and maintenance crews.

AKS 001-016

Physical Description

The cargo compartment lights are incandescent lamps.

The lights have a microswitch. This switch opens the light circuit when the lens is not attached to the light assembly.

AKS 017-999

Physical Description

The cargo compartment lights are LED light assemblies.

The LED light assembly consists of an aluminum light housing, polycarbonate lens (Lexan), power control circuit card, and LED circuit card as the light source.

AKS ALL

Location

The cargo compartment lights are in these areas:

- Ceiling of cargo compartment
- Top of cargo compartment door frame.

The cargo compartment light control switches are in the forward door frames.

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CARGO COMPARTMENT LIGHT
(TYPICAL)

M85215 S0004628313_V1

LIGHTS - CARGO COMPARTMENT LIGHTS - INTRODUCTION

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FORWARD CARGO COMPARTMENT

CARGO COMPARTMENT LIGHT (EXAMPLE)

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2398328 S0000553507_V1

LIGHTS - CARGO COMPARTMENT LIGHTS - INTRODUCTION

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LIGHTS - CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

General

The cargo lights control relay controls the cargo compartment lights. When the cargo door is open and the cargo lights switch is in the ON position, the cargo lights come on. When the cargo door is closed, the cargo lights do not come on.

Functional Description

The cargo compartment lights are in a parallel circuit. The loss of a lamp will not affect the operation of the other lamps in the circuit.

When the cargo lights control relay is not energized, 28v ac goes to the lights. The lights come on. When the cargo lights control relay is energized, 28v ac does not go to the lights. The lights are off.

If the cargo door warning switch is in the not locked position or the proximity switch electronics unit (PSEU) senses a door close failure, the cargo lights will stay off when the door is open.

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NOTE: FORWARD CARGO COMPARTMENT SHOWN,
AFT CARGO COMPARTMENT THE SAME.

M85217 S0004628321_V1

LIGHTS - CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

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NOTE:

FORWARD CARGO COMPARTMENT SHOWN, AFT CARGO COMPARTMENT THE SAME.

2402324 S0000554885_V1

LIGHTS - CARGO COMPARTMENT LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - EXTERIOR - INTRODUCTION

Purpose

The exterior lights supply light for airplane identification, direction, and to aid in the safe operation of the airplane.

These are the exterior lights on the airplane:

- Wing illumination
- Landing lights
- White anti-collision lights
- Red anti-collision lights
- White, red and green position lights
- Taxi and runway turnoff lights
- Logo lights.

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M85226 S0004628327_V1

LIGHTS - EXTERIOR - INTRODUCTION

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2426629 S0000560143_V1

LIGHTS - EXTERIOR - INTRODUCTION

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LIGHTS - EXTERIOR - CONTROL SWITCHES

Purpose

The exterior lighting control switches control the airplane external lights.

Location

The exterior lighting control switches are in the flight compartment on the lower edge of the P5 forward overhead panel.

General Description

These are the switches on the P5 that control the external lights:

- Landing (retractable and fixed)
- Runway turnoff
- Logo
- Position
- Anti-collision
- Wing
- Wheel well
- Taxi.

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EXTERIOR LIGHTING SWITCHES

M85234 S0004628340_V1

LIGHTS - EXTERIOR - CONTROL SWITCHES

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LIGHTS - EXTERIOR - CONTROL SWITCHES

Purpose

The exterior lighting control switches control the airplane external lights.

Location

The exterior lighting control switches are in the flight compartment on the lower edge of the P5 forward overhead panel.

General Description

These are the switches on the P5 that control the external lights:

- Landing
- Runway turnoff

AKS 018-999

- Logo

AKS 018-999; AIRPLANES WITH LED LTRL

- Position
- Anti-collision
- Wing
- Wheel well
- Taxi.

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EXTERIOR LIGHTING SWITCHES

A

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LIGHTS - EXTERIOR - CONTROL SWITCHES

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LIGHTS - WING ILLUMINATION LIGHTS - INTRODUCTION

Purpose

The wing illumination lights supply light to the leading edge of the wings. At night, this lets the pilots see when ice collects on the on the wing leading edges.

Physical Description

Each wing illumination light has these parts:

- Lens assembly with lens, reflector and captive screws
- Halogen lamp
- Lamp retainer wire spring
- Lamp socket assembly
- Light housing with transformer.

Location

The wing illumination lights are on the right and left sides of the fuselage above and forward of the wings.

The control switch is on the P5 forward overhead panel.

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WING ILLUMINATION LIGHT
(TYPICAL)

M85247 S0004628356_V1

LIGHTS - WING ILLUMINATION LIGHTS - INTRODUCTION

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LIGHTS - WING ILLUMINATION LIGHTS - FUNCTIONAL DESCRIPTION

Operation

You use the wing illumination switch to control the right and left wing illumination lights. This switch is on the exterior lighting panel on the P5 forward overhead panel.

Functional Description

With the two-position toggle switch in the ON position, 115v ac will go to the wing illumination light. A fixed step down transformer in the light assembly decreases the voltage to 12 volts.

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M85250 S0004628358_V1

LIGHTS - WING ILLUMINATION LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - LANDING LIGHTS - FIXED LANDING LIGHTS

Purpose

The landing lights help the pilots to see the runway during takeoff and landing.

Physical Description

The fixed landing light has these parts:

- Lens assembly
- Lamp
- Step down transformer.

Location

The fixed landing lights are in the wing root area of each wing.

The control switches for the fixed landing lights are on the P5 forward overhead panel.

Training Information Point

You must remove the fixed landing light lens assembly to replace or adjust the position of lamp. There are six screws that hold the lamp. There are three adjustment screws to change the direction of the lamp.

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M85252 S0004628365_V1

LIGHTS - LANDING LIGHTS - FIXED LANDING LIGHTS

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LIGHTS - LANDING LIGHTS - RETRACTABLE LANDING LIGHTS

Purpose

The landing lights help the pilots see the runway during takeoff and landing.

Physical Description

The retractable landing light has these parts:

- Lens assembly
- Lamp
- Retainer screws
- Extend/retract motor.

Location

The retractable landing lights are on the fuselage, adjacent to the ram air inlet panels.

The control switches for the retractable landing lights are on the P5 forward overhead panel.

Training Information Point

You extend the retractable landing light, pull and collar the circuit breaker to prevent accidental operation of the retraction mechanism or electrical shock.

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LEFT RETRACTABLE LANDING LIGHT

M85255 S0004628367_V1

LIGHTS - LANDING LIGHTS - RETRACTABLE LANDING LIGHTS

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LIGHTS - LANDING LIGHTS - MAIN ARRAY ASSEMBLY

Purpose

The main array assemblies let the pilots see the runway during landing, takeoff and taxi.

General Description

The Landing, Takeoff and Runway Turnoff Light (LTRTL) system uses Light Emitting Diode (LED) arrays.

During landing and take-off (landing mode), the main arrays operate at the highest power control level.

During taxi (taxi mode), the main arrays operate at a lower power control level than during landing.

The main array has a service life of 10,000 operating hours.

When an array is at its end-of-life condition, it will give an end-of-life signal. The end-of-life signal is that the array will flash approximately 3 times before usual operation. Each flash is 0.5 seconds apart. The array will flash at a rate of 120 flashes per minute. When this occurs, the main array is unserviceable.

NOTE: The end-of-life (EOL) indication feature is not available on aircraft at this time.

The inboard or outboard array will come on when 50% or more of the LEDs operate. The power supply measures this automatically. The power supply stops the array when the array does not meet this condition.

The inboard or outboard array is serviceable when all of these conditions occur:

NOTE: The end-of-life (EOL) indication feature is not available on aircraft at this time.

- The array operates correctly.
- The array does not flash at the start of operation.

The inboard or outboard array is unserviceable when one of these conditions occurs:

- The array gives its end-of-life signal.
- The power supply stops the array.

Physical Description

The main array has these parts:

- Inboard array assembly
- Outboard array assembly
- Electrical connectors

Locations

The left main array is in the left wing strakelet. The right main array is in the right wing strakelet.

The control switch for the left main array is on the P5 panel. The control switch for the right main array is on the P5 panel.

Training Information Point

You must remove the lens assembly to replace the main arrays.

The main arrays are sensitive to electrostatic discharge.

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LANDING, TAXI AND RUNWAY TURNOFF LIGHTS AND LANDING LIGHTS

2420886 S0000559680_V1

LIGHTS - LANDING LIGHTS - MAIN ARRAY ASSEMBLY

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General

The power supply gives power and control to the main array and runway turnoff light assemblies.

Physical Description

The power supply has these parts:

- Power supply module
- Electrical connectors

Locations

The left power supply is behind the left main array, in the left wing strakelet. The right power supply is behind the right main array, in the right wing strakelet.

The control switches for the left power supply are on the P5 panel. The control switches for the right power supply are on the P5 panel.

Power Information

The left power supply receives 115V ac (volts alternating current) from XFER BUS 1 SECT 1. The right power supply receives 115V ac from XFER BUS 2 SECT 1.

The left power supply controls the power to the left main array and the left runway turnoff light. The right power supply controls the power to the right main array and the right runway turnoff light.

Training Information Point

You must remove the lens assembly and the main array to replace the power supply.

The power supply is sensitive to electrostatic discharge.

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**LANDING/TAXI/ RUNWAY TURN-OFF LIGHT
POWER SUPPLY MODULE**

2422180 S0000560139_V1

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LIGHTS - LANDING LIGHTS - FUNCTIONAL DESCRIPTION

Operation

AKS 001-017

A two-position toggle switch controls the fixed landing lights.

A three-position toggle switch controls the retractable landing lights. These are the positions of the switch:

- RETRACT; the light retracts and is off
- EXTEND; the light extends and the light is parallel to the aircraft water line
- ON; the light is on.

The light will come on only with the switch in the ON position.

AKS 018-999

There are 3 switches on the P5 panel to control the main arrays. One switch controls the left main array for the landing mode. One switch controls the right main array for the landing mode. One switch controls the left and right main arrays for the taxi mode.

AKS ALL

Functional Description

AKS 001-017

When the fixed landing light switch is in the ON position, 115V ac (volts alternating current) goes to the step down transformer. The step down transformer decreases the voltage to 28V ac.

The retractable landing light uses 115V ac to extend and retract the light.

When the retractable landing light switch is in the RETRACT position, 115V ac goes to the retract motor in the light. The light retracts until the full retract limit switch opens.

When the switch is in the EXTEND position, 115V ac goes to the extend motor in the light. The light extends until the full extend limit switch opens.

When the switch is in the ON position, the landing light extends. When the light is within five degrees of full extension the light will come on.

AKS 018-999

The main arrays do the functions for landing and taxi.

The landing mode operates the main arrays at the highest power control level.

The taxi mode operates the main arrays at a lower power control level than the landing mode.

When the left LANDING switch is in the ON position, the left power supply gives power to the left main array. When the right LANDING switch is in the ON position, the right power supply gives power to the right main array.

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AKS 018-999 (Continued)

When the TAXI switch is in the ON or AUTO position, the left and right power supplies give power to the left and right main arrays but at a lower power control level than the landing mode.

AKS ALL

Training Information Point

WARNING: DO NOT LOOK DIRECTLY AT LIGHTS. HIGH INTENSITY OF LIGHTS CAN CAUSE EYE DAMAGE.

AKS 001-017

WARNING: MAKE SURE YOU SEAL THE TERMINALS TO PREVENT AN EXPLOSION OF THE FUEL FUMES. AN EXPLOSION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

CAUTION: LANDING LIGHTS ARE NOT DESIGNED FOR CONTINUOUS USE IN STILL AIR. LIMIT OPERATION TO MOMENTARY USE.

AKS 018-999

The main array and the power supply are sensitive to electrostatic discharge.

NOTE: One LED landing light array is equivalent to one landing light.

AKS ALL

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1 RIGHT SYSTEM SHOWN,
LEFT SYSTEM SIMILAR

M85257 S0004628370_V1

LIGHTS - LANDING LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - LANDING LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - POSITION LIGHTS - INTRODUCTION

Purpose

The position lights show this information to persons in other airplanes or on the ground:

- Airplane position
- Direction
- Attitude.

Physical Description

The position lights are red, green, and white incandescent lights. The left forward position light is red. The right forward light is green. The tail position lights are white.

Location

There are position lights in the tip of each wing. These lights are in the leading and trailing edge of the wing tip.

The control switch for the position lights is on the P5 forward overhead panel.

Operation

You use the position lights switch on the P5 forward overhead panel to control the position light operation.

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M85262 S0004628376_V1

LIGHTS - POSITION LIGHTS - INTRODUCTION

EFFECTIVITY
AKS ALL; AIRPLANES WITH SINGLE FORWARD LENS CONFIGURATION

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TAIL POSITION LIGHT

A

N37967 S0000104453_V2

LIGHTS - POSITION LIGHTS - INTRODUCTION

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Functional Description

With the position lights switch in the STEADY or STROBE & STEADY position, 115v ac goes to the step down transformers. The step down transformers decrease the 115v ac to an operating voltage for the position light.

AKS 001

The position lights are red, green, and white incandescent lights. The left forward position light is red. The right position forward light is green. There are position lights in the tip of each wing.

AKS 002-999

The Dual Forward light lens LED configuration and Aft Position LED lights have an End of Life feature. When the forward and aft position lights reach their module's calculated end of life, as soon as power is applied, the light will turn on for 4 seconds, and then turn off and remain off even with power applied. This function will repeat every time the power is reapplied. Refer to AMM Part II for instructions on replacing the forward and aft position light LED modules at the end of photometric life.

AKS ALL

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M85265 S0004628380_V1

LIGHTS - POSITION LIGHTS - FUNCTIONAL DESCRIPTION

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M85264 S0004628381_V1

LIGHTS - POSITION LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - ANTI-COLLISION LIGHTS - INTRODUCTION

Purpose

The anti-collision lights make the airplane easier to see in the air and on the ground.

Physical Description

There are five anti-collision lights on the airplane. Two red anti-collision lights (beacons) and three white anti-collision lights (strobe). Each light assembly has a xenon arc flashtube and solid state circuits to operate the flashtube.

Location

One red anti-collision light (beacon) is on the top and bottom of the fuselage. The upper and lower anti-collision lights (beacons) are the same.

There are three white anti-collision lights (strobe), one on each wing tip and one on the tailcone of the airplane.

The control switches for the anti-collision lights are on the P5 forward overhead panel.

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LIGHTS - ANTI-COLLISION LIGHTS - INTRODUCTION

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TAILCONE ANTI-COLLISION LIGHT (WHITE STROBE)

C

UPPER ANTI-COLLISION LIGHT (RED BEACON)

A

FORWARD WING TIP LIGHT ASSEMBLY

B

2127676 S0000459884_V2

LIGHTS - ANTI-COLLISION LIGHTS - INTRODUCTION

EFFECTIVITY

AKS ALL; AIRPLANES WITH DUAL FORWARD LENS CONFIGURATION

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LIGHTS - ANTI-COLLISION LIGHTS (WHITE) - FUNCTIONAL DESCRIPTION

Operation

Control switches for the anti-collision lights are on the P5 forward overhead panel. There is a control switch for each anti-collision system. The anti-collision lights flash at a rate of 42 times per minute. The red anti-collision lights flash at the same time.

Functional Description

With the control switch in the STROBE and STEADY position, 115v ac goes to the power supplies for each anti-collision light. The power supplies cause drive signals for these components:

- Trigger circuit
- Flash timer
- Energy storage capacitors.

Training Information Point

You remove the white anti-collision light from the outside of the airplane.

WARNING: DO NOT LET THE STROBE LIGHT FLASH DIRECTLY IN YOUR EYES. THE INTENSITY OF THE LIGHT CAN CAUSE YOU TO NOT SEE TEMPORARILY.

WARNING: FOR THE LOWER ANTI-COLLISION LIGHT, MAKE SURE YOU SEAL EACH BARE ELECTRICAL CONNECTION NEAR THE LIGHT TO PREVENT AN EXPLOSION OF FUEL FUMES. AN EXPLOSION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING: DO NOT TOUCH THE LIGHT WITH YOUR BARE HANDS UNTIL THE LIGHT IS OFF FOR FIVE MINUTES. DURING THIS TIME, YOU CAN RECEIVE AN INJURY IF YOU TOUCH THE LIGHT. THE LIGHT CAN BURN YOUR SKIN OR GIVE YOU AN ELECTRICAL SHOCK.

WARNING: DO NOT TOUCH THE POWER SUPPLY FOR THREE MINUTES AFTER YOU REMOVE ELECTRICAL POWER. AN ELECTRICAL SHOCK CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

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.

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LIGHTS - ANTI-COLLISION LIGHTS (WHITE) - FUNCTIONAL DESCRIPTION

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LIGHTS - ANTI-COLLISION LIGHTS (RED) - FUNCTIONAL DESCRIPTION

Operation

Control switch for the red anti-collision lights is on the P5 forward overhead panel. There is a control switch for each anti-collision system. The anti-collision lights flash at a rate of 42 times per minute. The white anti-collision lights flash at the same time.

Functional Description

With the control switch in the ON position, 115v ac goes to the power supplies for each anti-collision light. The power supplies cause drive signals for these components:

- Trigger circuit
- Flash timer
- Energy storage capacitors.

Training Information Point

You remove the upper anti-collision light from the inside of the airplane. You remove the lower and white anti-collision light from the outside of the airplane.

WARNING: DO NOT LET THE STROBE LIGHT FLASH DIRECTLY IN YOUR EYES. THE INTENSITY OF THE LIGHT CAN CAUSE YOU TO NOT SEE TEMPORARILY.

WARNING: FOR THE LOWER ANTI-COLLISION LIGHT, MAKE SURE YOU SEAL EACH BARE ELECTRICAL CONNECTION NEAR THE LIGHT TO PREVENT AN EXPLOSION OF FUEL FUMES. AN EXPLOSION CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

WARNING: DO NOT TOUCH THE LIGHT WITH YOUR BARE HANDS UNTIL THE LIGHT IS OFF FOR FIVE MINUTES. DURING THIS TIME, YOU CAN RECEIVE AN INJURY IF YOU TOUCH THE LIGHT. THE LIGHT CAN BURN YOUR SKIN OR GIVE YOU AN ELECTRICAL SHOCK.

WARNING: DO NOT TOUCH THE POWER SUPPLY FOR THREE MINUTES AFTER YOU REMOVE ELECTRICAL POWER. AN ELECTRICAL SHOCK CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

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.

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LIGHTS - ANTI-COLLISION LIGHTS (RED) - FUNCTIONAL DESCRIPTION

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LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - INTRODUCTION

Purpose

Taxi and runway turnoff lights let the pilots see the taxiway or runway during taxi.

General Description

AKS 001-017

The Landing, Takeoff and Runway Turnoff Lights (LTRTL) system uses halogen lamps.

The nose gear taxi light and runway turnoff lights let the pilots see the taxiway or runway during taxi.

AKS 018-999

The Landing, Takeoff and Runway Turnoff Lights (LTRTL) system uses Light Emitting Diode (LED) arrays.

The main arrays let the pilots see the taxiway or runway during landing, takeoff and taxi.

During landing and takeoff (landing mode), the main arrays operate at the highest power control level.

During taxi (taxi mode), the main arrays operate at a lower power control level than during landing.

The runway turnoff lights let the pilots see the taxiway or runway during taxi. The left runway turnoff light is pointed approximately 32 degrees left off the forward axis. The right runway turnoff light is pointed approximately 32 degrees right off the forward axis.

AKS ALL

Physical Description

AKS 001-017

The taxi and runway turnoff lights have these components:

- Lens retainer
- Lamp
- Terminal.

AKS 018-999

The LTRTL system has these components:

- Main array
- Runway turnoff light
- Electrical connectors
- Power supply

AKS ALL

Location

AKS 001-017

The taxi light is on the front of the nose landing gear strut. It is below the nose wheel steering actuator.

The runway turnoff lights are on the leading edge wing root, next to the wing-to-body fairing. They are adjacent to the fixed landing lights.

AKS 018-999

The left main array is located in the left wing strakelet. The right main array is located in the right wing strakelet.

The left runway turnoff light is located in the left wing strakelet. It is adjacent to the left main array. The right runway turnoff light is located in the right wing strakelet. It is adjacent to the right main array.

The control switch for the taxi mode is on the P5 panel.

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AKS 018-999 (Continued)

The control switch for the left runway turnoff light is on the P5 panel. The control switch for the right runway turnoff light is on the P5 panel.

AKS ALL

Training Information Point

AKS 001-017

There are three adjustment screws that you use to point the lamp and three screws that hold the lamp of the runway turnoff light.

AKS 018-999

The array is set in a fixed position and is not adjustable.

The main arrays and runway turnoff lights are sensitive to electrostatic discharge.

AKS ALL

WARNING: YOU MUST CAREFULLY INSTALL THE GROUND LOCKS IN ALL LANDING GEAR. AN ACCIDENTAL RETRACTION OF THE LANDING GEAR CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

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M85280 S0004628404_V2

LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - INTRODUCTION

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LANDING, TAXI AND RUNWAY TURNOFF LIGHTS AND LANDING LIGHTS

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LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - INTRODUCTION

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LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - FUNCTIONAL DESCRIPTION

Functional Description

AKS 001-017

Three switches on the P5 panel control the taxi and runway lights. There is one switch for the nose gear taxi light and one switch for each runway turnoff light.

When the runway turnoff switches are in the ON position, 28V ac (volts alternating current) goes to the lights.

When the taxi light switch is in the ON position, 28V ac goes to the light.

AKS 018-999

There are 3 switches on the P5 panel to control the main arrays and runway turnoff lights. One switch controls the main array for Taxi mode. One switch controls the left runway turnoff light. One switch controls the right runway turnoff light.

When the TAXI switch is in the ON or AUTO position, the power supplies give power to the main arrays, but at a lower power level than the landing mode.

When the left runway turnoff switch is in the ON position, the left power supply gives power to the left runway turnoff light. When the right runway turnoff switch is in the ON position, the right power supply gives power to the right runway turnoff light.

AKS ALL

The taxi light turns off automatically when these things occur:

- Taxi light switch in AUTO
- Nose landing gear is NOT in the down and locked position.

WARNING: DO NOT LOOK DIRECTLY AT LIGHTS. HIGH INTENSITY OF LIGHTS CAN CAUSE EYE DAMAGE.

CAUTION: DO NOT OPERATE THE LIGHTS FOR MORE THAN FIVE MINUTES. ALLOW AN EQUAL AMOUNT OF TIME FOR THE LIGHTS TO BE OFF AS THEY WERE ON. BECAUSE OF THE HEAT, THE CONTINUED OPERATION OF THE LIGHTS CAN DECREASE THE LIFE OF THE LAMPS.

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LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - TAXI AND RUNWAY TURNOFF LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - LOGO LIGHTS - INTRODUCTION

Purpose

The logo lights help show the airline logo or emblem on the vertical stabilizer.

Physical Description

The lights are in the horizontal stabilizers. They have these components:

- Light housing assembly
- Lens
- Lens retainer
- Transformer (not shown).

Location

The lights are on the upper surface of each horizontal stabilizer. They are near the leading edge.

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LIGHTS - LOGO LIGHTS - INTRODUCTION

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LIGHTS - LOGO LIGHTS - FUNCTIONAL DESCRIPTION

Operation

You use the logo light switch on the P5 forward overhead panel to control the logo lights operation.

Functional Description

When the logo lights switch is in the ON position, 115v ac goes to the logo light. The logo light has a step-down transformer. The transformer decreases the 115v ac to 12v ac.

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LIGHTS - LOGO LIGHTS - FUNCTIONAL DESCRIPTION

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LIGHTS - EMERGENCY LIGHTING - INTRODUCTION

Purpose

The emergency lighting system puts lights on areas inside and outside of the airplane. The emergency lights also show the exit paths.

The emergency lights operate at these times:

- When emergency light system is on
- When there is a loss of airplane DC power and the P5 forward overhead panel emergency light switch is in the ARMED position.

Location

Control switches are at these locations:

- P5 forward overhead panel in the flight compartment
- P14 aft attendant panel.

General Description

The emergency lighting system has these components:

- Exit signs
- Aisle lights
- Floor proximity lights
- Slide lights
- Power supplies.

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LIGHTS - EMERGENCY LIGHTING - INTRODUCTION

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LIGHTS - EMERGENCY LIGHTS - EXIT SIGNS

Purpose

The exit sign lights come on to show the location of the exits.

Location

Exit signs are at these places:

- Passenger door
- Service door
- Overwing hatch
- Aisle near the ceiling.

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EXIT SIGN
(TYPICAL)

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LIGHTS - EMERGENCY LIGHTS - EXIT SIGNS

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LIGHTS - EMERGENCY LIGHTS - AISLE LIGHTS

Purpose

The aisle lights supply light to the general aisle area. They help passengers and crew see in an emergency.

Physical Description

The aisle lights have these components:

- Lens
- Light assembly
- Gasket
- Retaining ring
- Electrical connector.

Location

The aisle lights are in the bullnose ceiling panels throughout the passenger cabin.

Training Information Point

To remove the lens, slide a laminated card between the lens and valance and use a broad blade putty knife to lift the lens off.

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LIGHTS - EMERGENCY LIGHTS - AISLE LIGHTS

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LIGHTS - EMERGENCY LIGHTS - FLOOR PROXIMITY LIGHTS

Purpose

The floor proximity lighting supplies light at the floor level to show the passengers and crew the direction to all of the exits.

Physical Description

The floor proximity lighting has these components:

- Lens
- Lamps
- Photo luminescent strip
- Electrical connectors.

Location

There are sidewall mounted EXIT lights near the airplane exits.

The photo luminescent strips are on the floor, both left and right sides.

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LIGHTS - EMERGENCY LIGHTS - FLOOR PROXIMITY LIGHTS

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LIGHTS - EMERGENCY LIGHTS - SLIDE LIGHTS

Purpose

The slide lights supply light to the exit areas around the airplane.

Physical Description

The slide lights have these components:

- Lens assembly
- Lamp
- Mounting screws
- Lamp reflector.

Location

The lights are on the outer surface of the airplane. They are aft of each exit.

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LIGHTS - EMERGENCY LIGHTS - SLIDE LIGHTS

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LIGHTS - EMERGENCY LIGHTS - POWER SUPPLIES

Purpose

The power supplies give power to internal and external emergency lights.

Physical Description

The power supplies have these components:

- Battery pack
- Test switch
- Electrical connector
- Control logic and charging circuit.

Location

The power supplies are at these locations:

- Behind the ceiling panels at the forward entry area
- Behind the ceiling panels at the aft entry area
- On the side structure, near the floor.

Training Information Point

The battery packs can fully recharge in 90 minutes.

A test switch on the assembly turns on all the lights in the battery pack zone for zone lamp test.

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LIGHTS - EMERGENCY LIGHTS - POWER SUPPLIES

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LIGHTS - EMERGENCY LIGHTS - FUNCTIONAL DESCRIPTION

Operation

You use the emergency exit light switch on the P5 forward overhead panel or the emergency exit switch on the attendant panel. These switches control the emergency lights. The emergency exit light switch on the P5 panel has these positions:

- ON - makes emergency lights come on
- OFF - prevents automatic operation
- ARM - prepares system for automatic operation.

The NOT ARMED and MASTER CAUTION lights are on when the emergency light switch on the P5 panel is in the ON or the OFF positions. The 28V DC bus 1 supplies power to these indication lights.

The emergency exit switch on the attendant panel has two positions, ON and NORMAL. The ON position makes the emergency lights come on. The NORMAL position sets automatic operation. The attendant panel switch will cause the lights to come on even if the P5 switch is OFF.

Functional Description

The power supplies use 28v dc for their charge and control logic circuits. The charge circuits charge the battery packs when these conditions occur:

- P5 emergency exit light switch is in the OFF or ARM position
- 28v dc bus 1 has power
- Attendant panel emergency exit light switch is in the NORMAL position.

When the P5 switch is in the ARM position, the power supply makes the emergency lights come on when one of these conditions occur:

- Attendant panel emergency exit switch is in the ON position.
- 28v dc bus 1 power drops less than 12 volts.

Training Information Point

If you remove all power from the airplane, the P5 emergency exit light switch must be in the OFF position and the attendant switch in the NORM position. This prevents the emergency lights operation so the batteries do not discharge. Each power supply contains a battery test switch. If you push this switch, the emergency lights connected to its power supply circuit will come on for one minute.

Each power supply provides power to its series of emergency lights. When a power supply voltage goes low, the emergency lights in that circuit go off. The emergency lights operate for more than 10 minutes. When the 28v dc bus 1 has power and the emergency light switches on the P5 panel and the attendant panel are not ON, the battery packs are on charge. The time to fully charge the battery packs depends on the time that the emergency lights were on.

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EMERGENCY EXIT LIGHT SWITCH
(AFT ATTENDANT PANEL)

EMERGENCY EXIT LIGHTS OPERATION AND BATTERY PACK CHARGE LOGIC

EMERGENCY EXIT LIGHTS	28V DC BUS	LIGHT SW ATT PANEL	LIGHT SW P5 PANEL	MASTER CAUTION & NOT ARMED LIGHTS	BATTERY PACKS
ON	<12V	NORMAL	ARMED	OFF	DISCHARGE
ON	<12V	NORMAL	ON	ON	DISCHARGE
OFF	<12V	NORMAL	OFF	ON	CHARGE
ON	<12V	ON	OFF	ON	DISCHARGE
OFF	>12V	NORMAL	ARMED	OFF	CHARGE
ON	>12V	NORMAL	ON	ON	DISCHARGE
OFF	>12V	NORMAL	OFF	ON	CHARGE
ON	>12V	ON	ARMED	OFF	DISCHARGE
ON	>12V	ON	ON/OFF	ON	DISCHARGE

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LIGHTS - EMERGENCY LIGHTS - FUNCTIONAL DESCRIPTION

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