CHAPTER

33

BOEING Intercontinental 707

MAINTENANCE MANUAL

CHAPTER 33

LIGHTS

TABLE OF CONTENTS

CONTROL CABIN LIGHTING - DESCRIPTION AND OPERATION

1. General

A. The control cabin lighting provides general illumination of control cabin, and local illumination of control panels, instruments and controls. Red and white lights are used. Nearly all lights have variable intensity controls. Most light controls are on the overhead panel and flight engineer's auxiliary panel. Control cabin lights are powered, with a few exceptions, by 28 volts a-c.

B. General illumination of the control cabin is accomplished by three pairs of red and white lights. Red lights have variable intensity control. The white lights are diffused and have constant intensity. Local illumination of instrument panels and controls is provided by the edge-lighted plates, bolt lights, light shields and flood lights.

C. The edge-lighted plates are made of clear plastic and have one translucent and one opaque thin layer on each side. Inscriptions and signs are engraved through the opaque layer. The plates are provided with holes for light assemblies with red cylindrical filters, and for the power connectors. The back side of the plates have printed circuits for the distribution of lighting current to the individual lights. The lamps are easily removable from the light assemblies, without removing the edge-lighted plates.

D. Bolt lights provide individual illumination of some instruments and controls. The bolt lights project over the panel surface. Their light is directed over the dial faces and markings by means of a red prism.

E. The light shields provide a directed background illumination for main panels and for the flight engineer's table. Shields are installed above the pilots' main instrument panels and above the flight engineer's panels. Red and white floodlights are used for illumination of the control stand and flight engineer's table.

F. Variable intensity of illumination is controlled manually by means of variable transformer switching units with control knobs. All units have an "OFF" position at the low intensity (dim) end.

G. A knob operated light override switch is used for single operation override of control cabin white lighting. The switch is a sixteen-switch gang assembly located on the overhead panel. Red light intensity control is maintained independently of the override switch position.

(1) In the NORMAL position, white lights are used by the appropriate switches and light controls.

(2) In the WHITE position, the light controls are bypassed to provide full intensity white light for the pilots' main instrument panel, the control stand, the flight engineer's station and the navigation station.

(3) In the RED ONLY or FLY ONLY position, no power to available to the fluorescent lights in the pilots, lightshield and flight engineer's lightshield Also no power is available to the white dome lights, the control stand white light,, or the background lights in the engineer's light shield

(4) The background lights in the pilots lightshield are not affected by the override switch, those in the engineer's lightshield are not affected when the switch is in WHITE

H An exit light above the control cabin entry door is automatically illuminated in case of complete power failure The light can be used as an emergency portable light

I Figure 1 lists the lights circuits, location of circuit protection devices, and type of power used by each circuit

2 Pilots' Main Instrument Panel Lights.

A The pilots' main instrument panel lights provide three types of illunimation

(1) Signs and inscriptions are illuminated by means of lights in the edge-lighted plates on the instrument panels

(2) Instrument dials are illuminated either by bolt lights, or by integral lights, built into the instruments

(3) Panel surfaces are illuminated by background incandescent white lights and fluorescent discharge tubes in the pilots, lightshield (See detail A, figure 2) Fluorescent lamp socket terminals are covered with pressure sensitive tape Two aluminium tubes are mounted below the inboard end of the fluorescent lamps on the copilot's side to protect the copilot when operating the landing gear handle.

B Variable intensity controls for all pilots' main instrument panel lights are on the overhead panel (See figure 2) The fluorescent light controls can be bypassed by moving the override switch to WHITE Ballasts for the fluorescent lights are mounted under the No 1 control cabin windows, above the rudder pedals The ballasts are fused The incandescent background lights normally operated by 28 volts ac, are automatically switched to 28 volts dc, if the ac power fails

C A radio noise filter is installed in the ac power line to the fluorescent lights, in order to eliminate interference with the ADF systems The filter is attached by quick-release fasteners to a bracket aft of the ac bus No 3 circuit breaker panel (P3) The bracket is attached to the structure Access is obtained by removing the trim panel adjacent to the periscopic sextant mount (See Chapter 25, Control Cabin Equipment)

LIGHT CIRCUIT	CIRCUIT BREAKER	CIRCUIT BREAKER PANEL	POWER (28V AC EXCEPT AS NOTED)
FLIGHT ENGINEER'S STATION AND INSTRUMENT PANEL LIGHTS			
Flight Engineer's Instrument Panel Lights	FLT KITS & ENG PNL RED	P7	
	FLT KITS & ENG PNL [8]	P7	
Flight Engineer's Background Lights	PANEL BACKGROUND LIGHTS	P6	
	ENGR PANEL BACKGROUND [8]	P7	
	COCKPIT FLUORESCENT LIGHTS	P3	115V AC
NAVIGATION STATION AND INSTRUMENT PANEL LIGHTS			
Navigation Station Fluorescent Table Lts	COCKPIT FLUORESCENT LIGHTS	P3	115V AC
Navigation Station Panel Lights	NAV [4] [8]	P7	
	NAV & SEXTANT [5]	P7	
Periscope Sextant and Sextant Mount Lts	NAV [4] [8]	P7	
	NAV & SEXTANT [5]	P7	
CIRCUIT BREAKER PANEL LIGHTS	OVHD & RADIO CONT PNLS [1]	P7	
	ENGR TABLE & CB RED [2]	P7	
	CB RED [3]	P7	
	CB [8]	P7	
BRIEFCASE LIGHTS	FLT KITS & ENGR PNL RED	P7	
	FLT KITS & ENGR PNL [8]	P7	
CONTROL CABIN DOME LIGHTS			
Control Cabin Red Dome Lights	DOME RED	P7	
Control Cabin White Dome Lights	COCKPIT WHITE & LAV DOMES	P1	
	CKPT WHITE DOME	P6	28V DC
PILOTS' STATION AND INSTRUMENT PANEL LIGHTS			
Pilot's Instrument Panel Lights	CTR & CAPT INST PNL RED [1]	P7	
	CAPT INST PNL RED [6]	P7	
	CAPT INST PNL [8]	P7	
Copilot's Instrument Panel Lights	F/O'S INST PNL & CONT STAND RED [7]	P7	
	F/O'S INST PNL RED [3]	P7	
	F/O INSTR PANEL [8]	P7	
Engine Instrument Panel Lights	CTR & CAPT INST PNL RED [1]	P7	
	FWD CTR PANEL RED [6]	P7	
	FWD CTR PANEL [8]	P7	
Overhead Panel Lights	OVHD & RADIO CONT PNLS [1]	P7	
	OVHD PANEL RED [6]	P7	
	OVHD PANEL [8]	P7	
Pilot and Copilot Background Lights	PANEL BACKGROUND LIGHTS	P6	
	PANEL BACKGND ALT	P6	28V DC
	CAPT & F/O PANEL BACKGROUND LTS [8]	P7	
Pilot and Copilot Fluorescent Lights	COCKPIT FLUORESCENT LIGHTS	P3	115V AC

Control Cabin Lighting Circuit Protection
Figure 1 (Sheet 1)

LIGHT CIRCUIT	CIRCUIT BREAKER	CIRCUIT BREAKER PANEL	POWER (28V AC EXCEPT AS NOTED)
CONTROL STAND LIGHTS	OVHD & RADIO CONT PNLS [1]	P7	
	CONT STAND WHITE & RADIO PANEL [6]	P7	
CONTROL STAND WHITE FLOODLIGHTS	CONT STAND WHITE & ENGR MISC [1]	P7	
	CONT STAND WHITE & SEXTANT [8]	P7	
	CONT STAND WHITE & RADIO PANEL [6]	P7	
CONTROL STAND RED FLOODLIGHTS	F/O S INST PNL & CONT STAND RED [7]	P7	
	CONT STAND RED & OBS MAP [3] [8]	P7	
COMPASS LIGHT	COMPASS & PARKING BRAKE	P6	28V DC
MAP LIGHTS			
PILOT S, COPILOT S & OBSERVER S MAP LTS	MAP [7]	P7	
OBSERVER S MAP LIGHT	CONT STAND RED & OBS MAP [3] [8]	P7	
CAPTAIN AND FIRST OFFICER'S MAP LIGHTS	CAPT & F/O'S MAP [3] [8]	P7	
EXIT LIGHTS	EMERGENCY EXIT LTS BATTERY CHG	P2	115V AC
	EMER EXIT LTS CONT (RH)	P6	28V DC
	EMERGENCY EXIT LIGHTS CONTROL LH RH & CENTER [5] [8]	P6	28V DC
POWER SHIELD LIGHT	POWER SHIELD	P1	

[1] *OO-SJA*
[2] *OO-SJB thru OO-SJE*
[3] *OO-SJF thru OO-SJK*
[4] *OO-SJA thru OO-SJG*
[5] *OO-SJH thru OO-SJK*
[6] *OO-SJB thru OO-SJK*
[7] *OO-SJA thru OO-SJE*
[8] *OO-SJL and on*

P1 AC BUS NO 1 CIRCUIT BREAKER PANEL (P1)
P2 AC BUS NO 2 CIRCUIT BREAKER PANEL (P2)
P3 AC BUS NO 3 CIRCUIT BREAKER PANEL (P3)
P6 ESSENTIAL 28 VOLT CIRCUIT BREAKER PANEL (P6)
P7 28 VOLT AC CIRCUIT BREAKER PANEL (P7)

Control Cabin Lighting Circuit Protection
Figure 1 (Sheet 2)

3. Control Stand Lights

A The control stand lights provide illumination of the electronic panels, instruments, engine controls and flight controls on the control stand.

B. Signs and inscriptions on the forward and aft electronic panels are illuminated by means of lights in the edge-lighted plates on the panels. Instrument dials are also illuminated by dial lights. Edge-lighted panels and dial lights have a common variable intensity control just aft of the left corner of the aft electronic control panel.

C. The engine controls and flight controls on the control stand can be illuminated by two floodlights installed in the overhead panel. The right floodlight is white, the left one is red. Each floodlight consists of an integral reflector type lamp mounted in a housing with a hinged cover. Each cover has a filter, but the right floodlight cover is left open. Both floodlights are mounted on a small removable panel with a hood for each light. This floodlight panel is mounted in a cutout in the overhead panel. Each floodlight has its own variable intensity control on the overhead panel. The white light control is bypassed when the override switch is in the WHITE position.

4. Side Panel Lights

A The side panels (pilot's and copilot's auxiliary panels) have edge-lighted plates for illumination of panel signs and inscriptions. Lights for each side panel have variable intensity controls common with the control of the corresponding main instrument panel.

5. Overhead Panel Lights

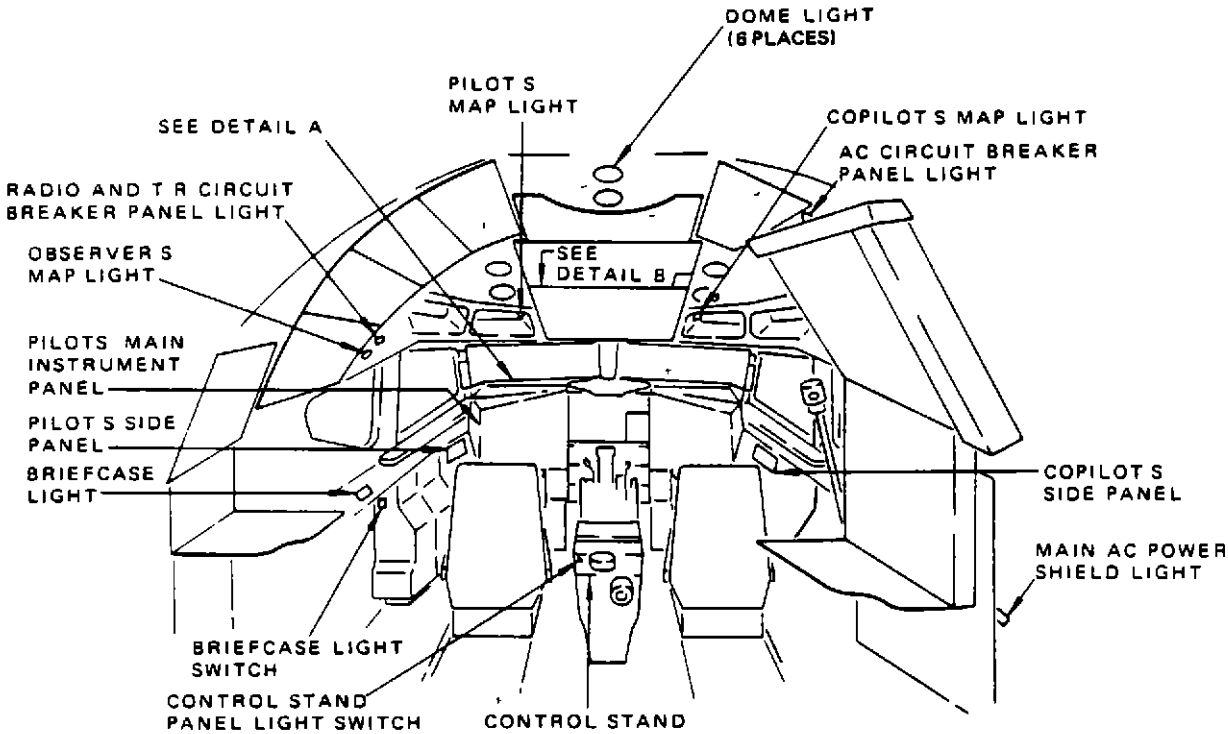
A. The overhead panel lights are divided into several edge-lighted plates, providing illumination of inscriptions and signs on the overhead panel. A single variable intensity control for all plates is on the panel. (See figure 2.)

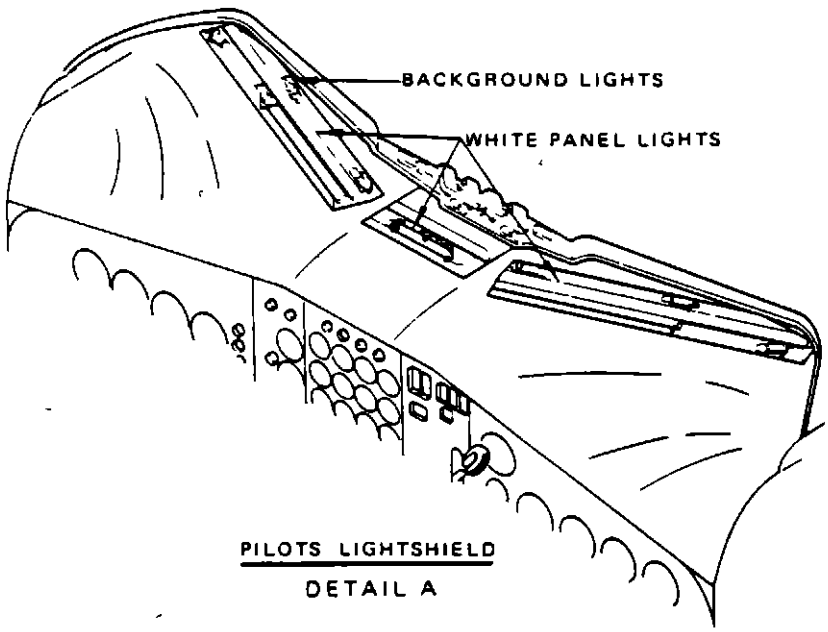
6. Compass Light

A. The compass light is a clear incandescent lamp, covered by a removable shield with a filter. The light is near the forward edge of the overhead panel, and illuminates the pilots' standby compass. (See detail B, figure 2.) The light is controlled by a toggle switch on the overhead panel. The compass light is powered by 28 volts dc at all times.

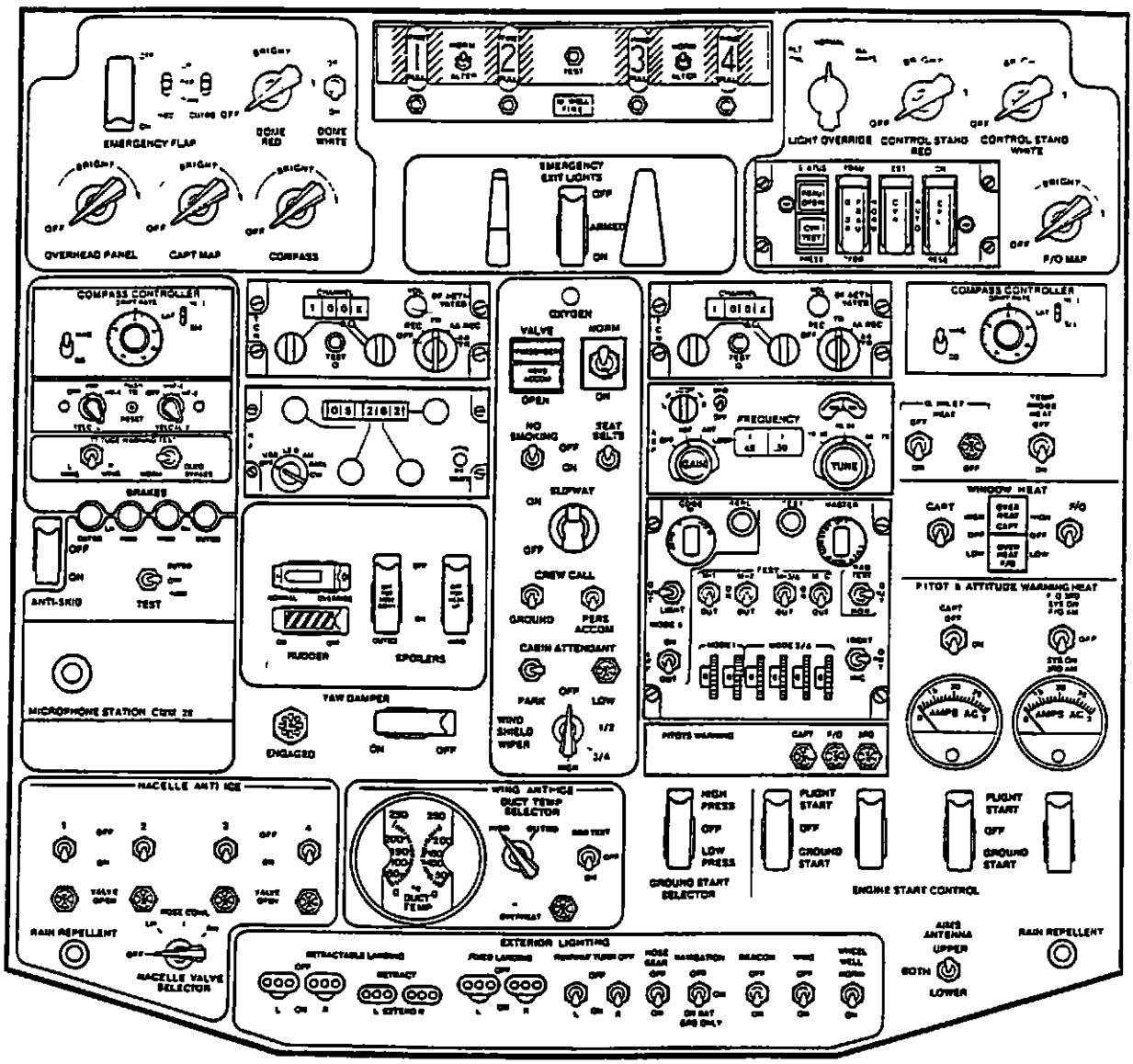
7. Map Lights

A The map lights provide directed illumination. The pilot's and copilot's lights are identical focused beam lights, installed in both No. 4 windows. The observer's map light, installed in the recess aft of the left No. 5 window has no focused beam. (See figure 2.)





PILOTS LIGHTSHIELD
DETAIL A



OVERHEAD PANEL
DETAIL B

B The focused beam light consists of a fixed lamp base, a light housing with the light condenser, an integral-reflector lamp, and a lamp hood with a filter The size of the light spot at a distance of 40 inches can be varied from a diameter of 12 inche a to 24 inches by rotating the lens assembly The housing can swivel on the base over a 42 degree angle, with five intermediate detent positions The lamp hood has two holes on opposite sides in its cylindrical body One hole is covered with a filter White or red light can be selected by turning the hood knob against the stop in either directions The housing with hood can be removed for access to the lamp after removing two screws near the lower edge of the housing The-variable intensity controls tor each light are on the overhead panel

C The non-focused beam map light (observers) does not have the light condenser. The integral-reflector lamp and the lamp hood with filter and knob are the awe as on the pilots's map light The variable intensity control of this light is on the observer's panel (See figure 4)

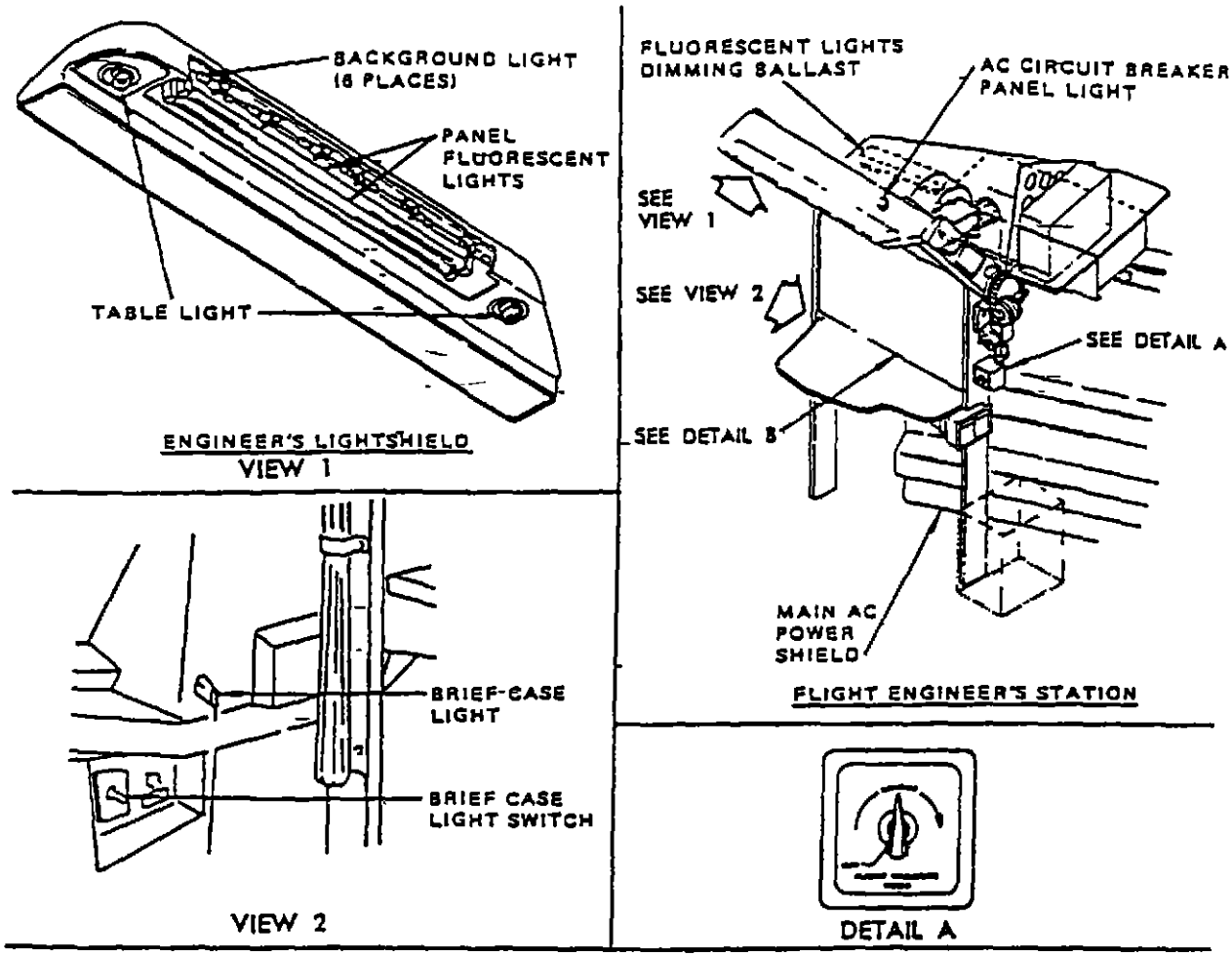
8 Flight Engineer's Station Lights

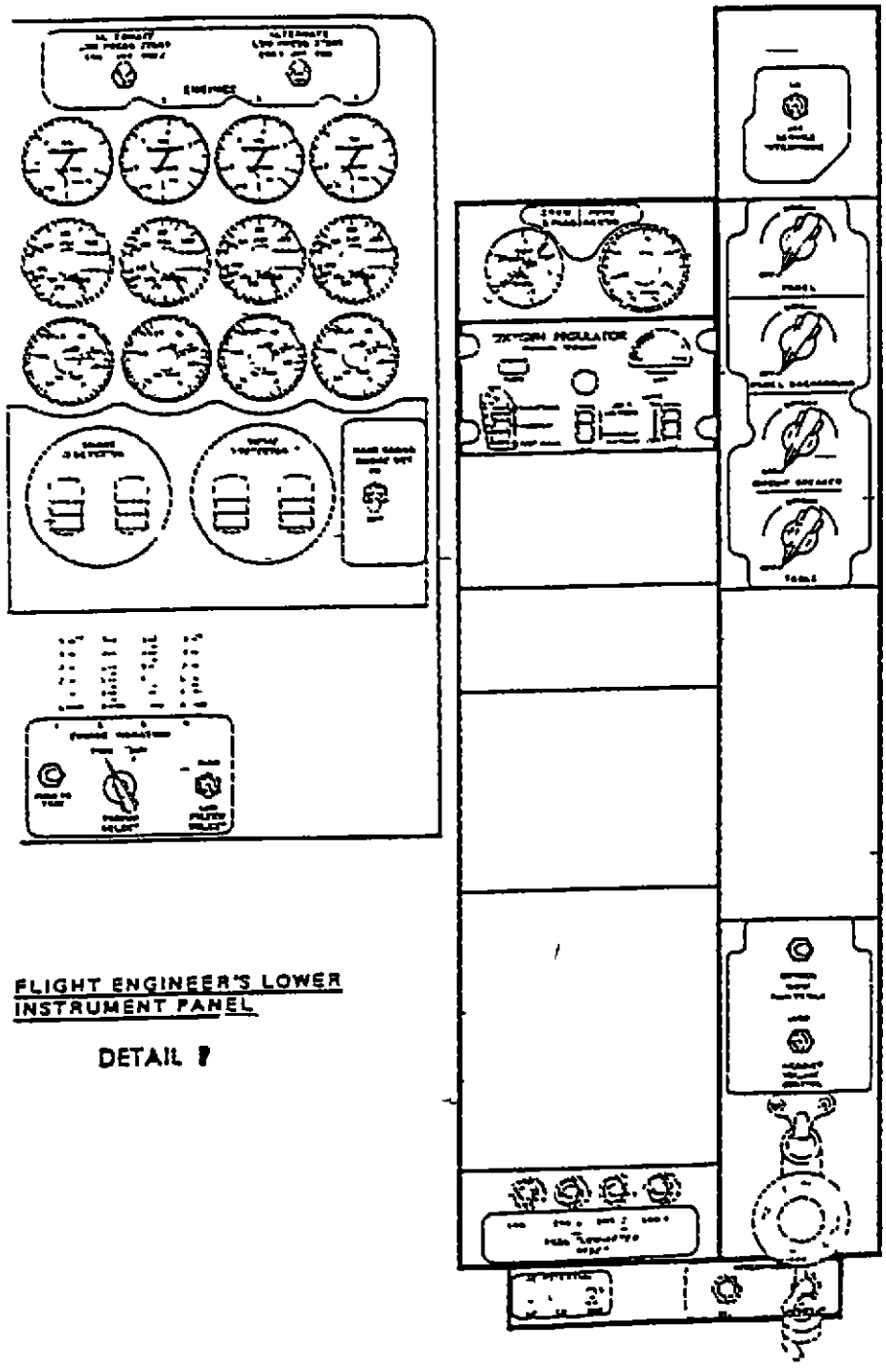
A The flight engineer's station lights provide illumination of instrument dials, inscriptions and signs on the instrument panels, background illumination of the instrument panels, over-all and spotlight illumination of the flight engineer's table, and script holder illumination (See figure 3)

B The instrument dials are illuminated either by bolt lights or by built-in lights (integral with instruments) Inscriptions and signs on the flight engineer's panels are illuminated by means of the edge-lighted plates One variable intensity control for all the flight engineer's instrument lights and edge-lighted plates is on the flight engineer's auxiliary panel

C Incandescent lamps and fluorescent tubes in the flight engineer's light shield provide background illumination of the flight engineer's panels and table Each group of background lights has its own variable intensity control on the flight engineer's auxiliary panel The controls for the fluorescent lights are bypassed when the override witch is in the WHITE position A ballast for the fluorescent lights is moumted under the crew hatrack The ballast is fused The flight engineer's fluorescent lights are connected to the same radio noise filter that connects the pilots' lightshield fluorescent lights.

D Two identical ball-and-socket mounted spotlights illuminate the flight engineer's table They are mounted at each end of the light shield Each spotlight is equipped with an easily removable filter A variable intensity control for these lights is on a bracket mounted on the aft stanchion of the flight engineer's is panel support


BACKGROUND LIGHT (6 PLACES)
PANEL FLUORESCENT LIGHTS
TABLE LIGHT
ENGINEER'S LIGHTSHIELD
VIEW 1
FLUORESCENT LIGHTS DIMMING BALLAST
AC CIRCUIT BREAKER PANEL LIGHT
SEE VIEW 1
SEE VIEW 2
SEE DETAIL A
SEE DETAIL B
MAIN AC POWER SHIELD
FLIGHT ENGINEER'S STATION
BRIEF-CASE LIGHT
BRIEF CASE LIGHT SWITCH
VIEW 2
DETAIL A



FLIGHT ENGINEER'S LOWER INSTRUMENT PANEL

DETAIL F

9 Navigation Station Lights (Only LX-N20199)

A The navigation station lights provide illumination of the instrument dials, inscriptions and signs on the instrument panels, and over-all illumination of the ravigation station-table (See figure4)

B The instrument dials are illuminated either by bolt lights or by integral instrument lights Inscriptions and signs on the navigation station panels are illuminated by mans of edge-lighted plates One variable intensitycontrol for all the navigation panel instrument lights and edge-lighted plates is on the navigation station panel

C Fluorescent tubes and an incandescent tubular lamp in the navigation station panel-provide-background illumination of the panels and over-all illumination of the table Each group of background lights, and table illumination lights has its own variable intensity control on the navigation panel All navigation station white-light controls are bypassed when the override switch is in the WHITE position

(1) The long fluorescent tubes are powered through two ballast units mounted aft of the external power shield (J9), on the channels that support the shield Each ballast is equipped with a fuse

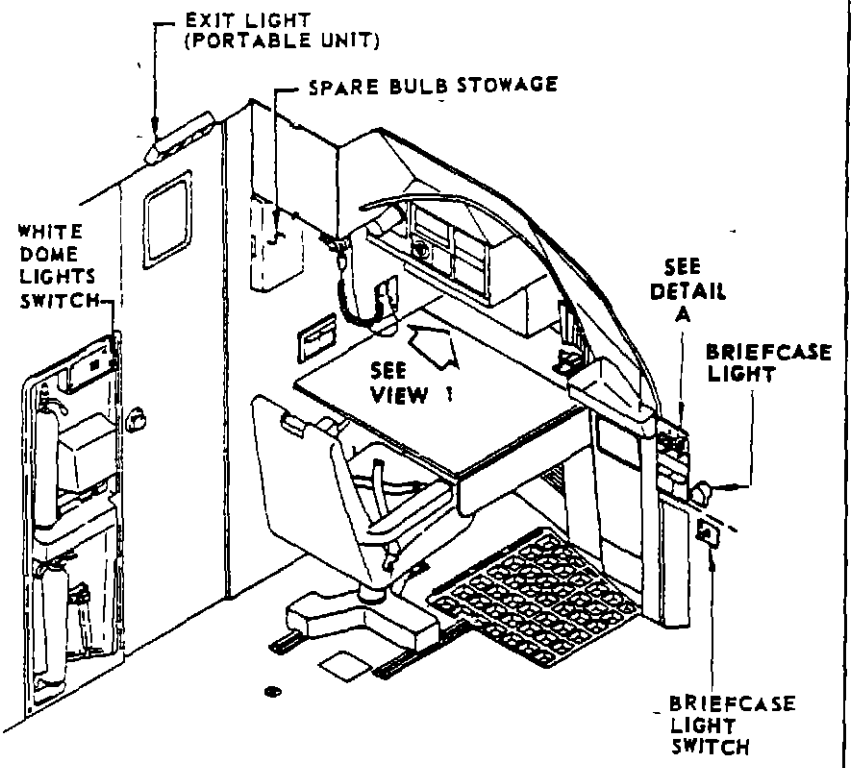
(2) The short fluorescent tubes are powered through two fused ballast units mounted outboard of the navigator's panel hinged baseplate

(3) An electrostatic baffle is provided between adjacent fluorescent lamp in order to isolate tbe electrostatic field of each light to avoid starting difficulties The baffle consists of an aluminum plate riveted to the equiment rack

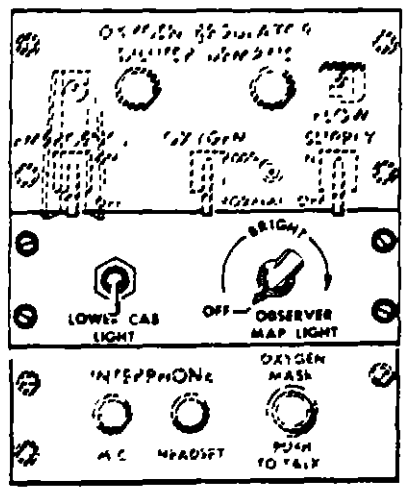
D Script holder illumination is provided by a light in the swivel arm above the script holder The bottom of the arm has a filter This light has no switch and is on as long as essential dc power is available at the essential 28 volt circuit breaker panel (P6)

10 Circuit Breaker Panel Lights

A Circuit breaker panels are illuminated by two lights A light on top of the flight engineer's lightshield illuminates P2, P3, and P4 circuit breaker panels A floodlight in a box with lowered window in the recess aft of left No 5 (eyebrow) window illuminates the radio and T-R circuit breaker panel (P5) Both circuit breaker panel lights have-one variable intensity control on the flight engineer's auxiliary panel



NAVIGATION STATION



OBSERVER'S PANEL

DETAIL A

11. Observers' Station Lights

A. The observers' station lights provide illumination of inscriptions and signs on the auxiliary panels at each of the two observer's stations. Intensity of this illumination is controlled by the pilot's (captain's) instrument panel lights control on the overhead panel.

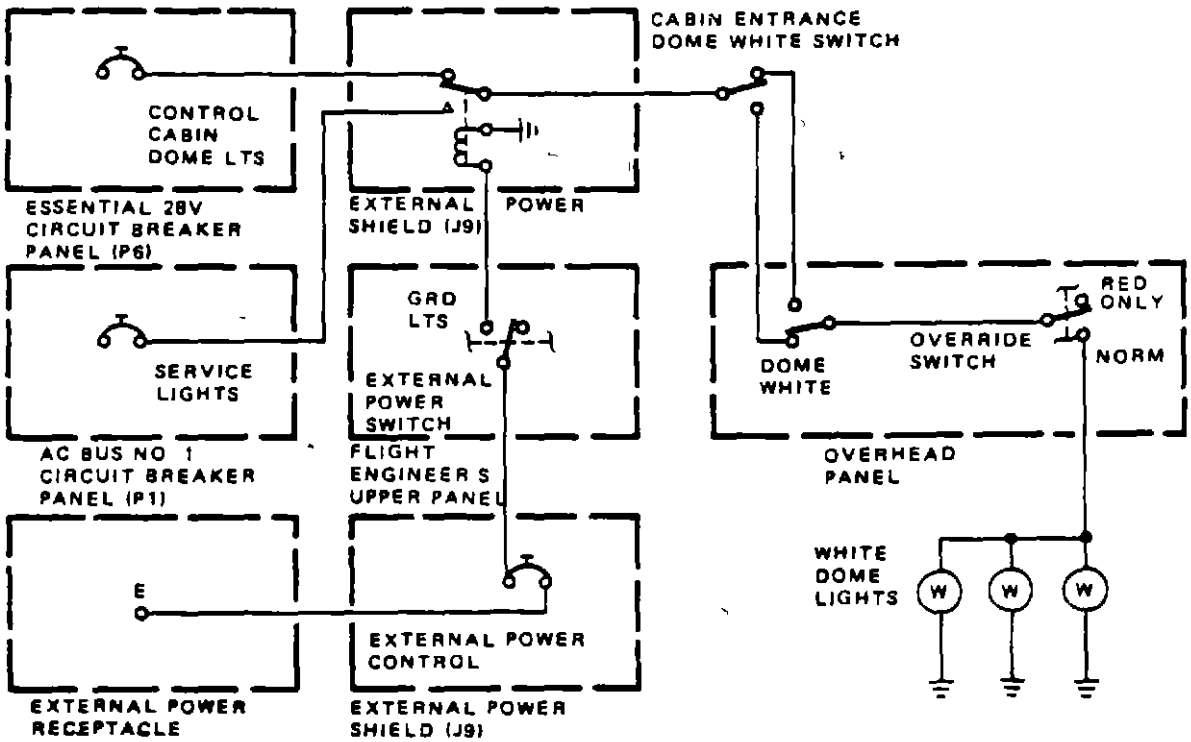
12. Briefcase Lights

A. The two briefcase lights (flight kit lights) are installed below each No. 3 window. The lights are controlled by a toggle switch below each light.

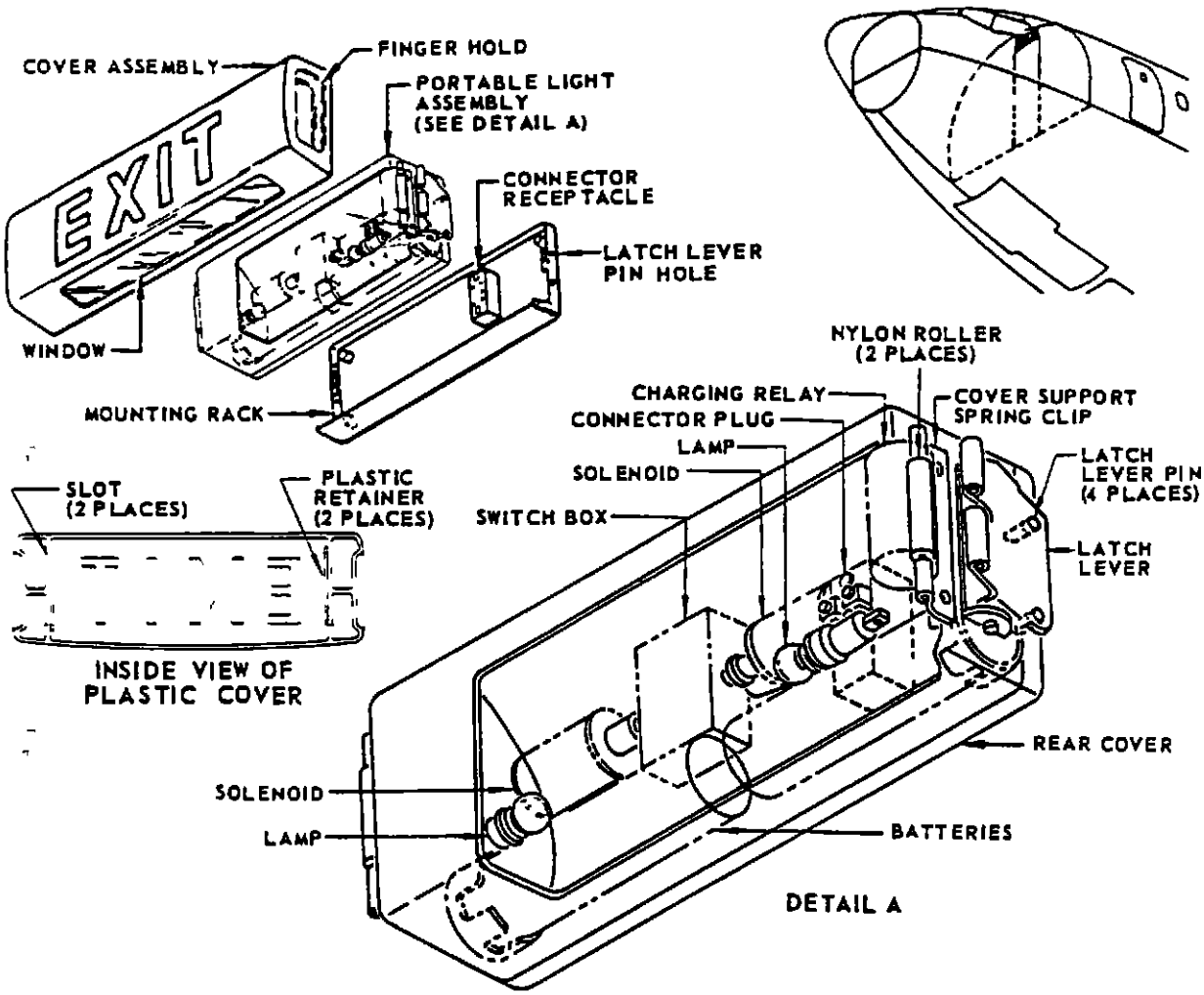
13. Control Cabin Dome Lights

A. Three pairs of red and white dome lights provide general illumination of the control cabin. The white lights are diffused and the red lights are not diffused. A pair of dome lights is at each side of the radio and T-R circuit breaker panel (P5), and the third pair is in the area of ac bus No. 3 circuit breaker panel (P3).

B. The variable intensity control for the red lights is on the overhead panel. White dome lights have constant intensity. They are controlled by two toggle switches and the override switch. One toggle switch is at the right side of the control cabin door, the other is on the overhead panel The dome white lights cannot be switched on when the override switch is in the RED ONLY or FLT ONLY position.



White Dome Lights Circuit
Figure 5


COVER ASSEMBLY
FINGER HOLD
PORTABLE LIGHT ASSEMBLY (SEE DETAIL A)
CONNECTOR RECEPTACLE
LATCH LEVER PIN HOLE
WINDOW
MOUNTING RACK
EXIT
SLOT (2 PLACES)
PLASTIC RETAINER (2 PLACES)
INSIDE VIEW OF PLASTIC COVER
NYLON ROLLER (2 PLACES)
CHARGING RELAY
CONNECTOR PLUG
LAMP
SOLENOID
SWITCH BOX
COVER SUPPORT SPRING CLIP
LATCH LEVER PIN (4 PLACES)
LATCH LEVER
REAR COVER
SOLENOID
LAMP
BATTERIES
DETAIL A

C Power to the dome white lights is normally supplied from the essential 28-volt dc bus an circuit breaker panel (P6) These white lights are supplied with external power when the external power switch on the flight engineer's upper panel is in the "GRD LIGHTS" position and external power is supplied to the airplane (See figure 5)

14 Power Shield Light

A The main ac power shield light is a white spotlight, mounted on the aft outboard edge of the flight engineer's table The light beam can be adjusted in any direction The Light is detachable from its mounting and, being connected by a coiled-power cord, can be moved as far as 48 inches from the mounting- The light is controlled by a rotary on-off switch on the li ght housing

15 Exit Light

A The exit light is a self contained unit installed above the control cabin entrance Complete loss of-all airplane power automatically will cause the exit light to illuminate It is easily removable and can be used as a portable emergency light (See figure 6) See 33-2-0 and 33-7-0-, "Exit and Emergency Exit Lights "

16 Spare Bulbs

A Spare bulbs are stored in a spare bulb storage box on the control cabin aft bulkhead, to the left of the entrance door

CONTROL CABIN LIGHTING-ADJUSTMENT/TEST

1 General

A The control cabin illumination lights are tested using existing lighting system controls The test procedure provided, chocks out each control and all lamps. A system test procedure is not provided as the operational test satisfies all system test requirements

2 Captains Instrument Panel

A Energize Bus No 2

B Close the captains instrument panel lights circuit breaker on P7 (circuit breaker panel)

C Vary the captains instrument panel lights control located on P9 (center instrument panel) and note the following instrument lights and other panel lights vary in intensity

(1) Capt's Altimeter

(2) Capt's HSI

(3) Capt's AOA

(4) Capt's ADI

(5) Capt's Mach Air Speed

(6) Capt's Accelerometer

(7) Capt's Clock

(8) Capt's RMI

(9) Capt's ADI Switch Module

(10) Capt's R/A

(11) Capt's IVSI

(12) Kifis Alt Correction

(13) Aux Equipment Panel Oxygen Reg

Ref DRC CDRL 43/44
Issue D dtd May 19/88 Paragraph 7 16

(14) Observer Panel Oxygen Reg

(15) Observer Panel Lighting

D Open the circuit breaker on P7 and note that these lights are off

2 Dome Lights Red

A Energize Bus No 2

B Close the dome red circuit breaker on P7 (circuit breaker panel)

C Vary the dome red light control on P13 (pilots OVHD panel) and note that the red dome lights at STA 240L and STA 240R vary in intensity

D Open the circuit breaker on P7 (circuit breaker panel) and note that these lights are off

3 Control Stand Panel Lights

A Energize Bus No 2

B Close the radio panel circuit breaker on P7 (circuit breaker panel) Note that the weather radar control panel, weather radar indicator, ADF No 2 control panel dial lights, GPS system No 1 CDU, INS No 1 MSC, and INS No 1 CDU are illuminated along with the other control stand panels

C Vary the radio panel lights control on P15 (pIlots control stand) and all panel lights listed above except the ADF No 2 control panel dial lights, shall vary with the control

D Open the circuit breaker in P7 panel listed above and all lights listed shall extinguish

4 First Officers Instrument Panel Lights

A Energize Bus No 2

B Close the F/0 instrument panel circuit breaker on P7 (circuit breaker panel)

C Vary the F/0 instrument panel light control located on P9 (center instrument panel) and note the following instrument lights and other panel lights vary in intensity

(1) F/0 Clock

(2) F/0's TAT

Ref DRW CDRL 43/44
Issue D dtd May 19/88 - Paragraph 7 16

(3) F/O's Altimeter

(4) F/O's ADI

(5) F/O's TAS

(6) F/O's RMI Mode Selector

(7) F/O's ADI switch Module

(8) F/O's Mach airspeed

(9) F/O's SAT

(10) F/O's AOA

(11) F/O's R/A

(12) F/O's HSI

(13) F/O's Radar XPDR Control

(14) F/O's IVSI

(15) F/O's HYD Brake Press

(16) Brake Air Press

(17) Aux equipment panel oxygen reg

D Open the circuit breaker on P7 (circuit breaker panel) and note that these lights are off

5 Overhead Lighting

A. Energize Bus No 2.

B. Close the overhead panel lights circuit breaker on P7 (circuit breaker panel)

C Vary the overhead panel lights control located on P13 (overhead panel) and note that the following control panels vary in intensity along with the aircrafts previous overhead panel lights

(1) Cockpit Voice Recorder

(2) HF2 Control Panel

Ref . DRC CDRL 43/44
Issue D dtd May 19/88 Paragraph 7 16

(3) No 1 Compass Controller

(4) No 1 TACAN Control

(5) No 2 TACAN Control

(6) SELCAL Control Panel

(7) No 2 ADF Control

(8) Aims Control

(9) No. 2 Compass Controller

D Open the circuit breaker located on P7 and note that these light go off

6 Center Panel Background and Flood Lamps

A Energize Bus No 3

B Close the cockpit fluorescent lights circuit breaker on P3 (circuit breaker panel)

C Set the override switch on P13 (overhead panel) to the normal position.

D. Turn the panel background lights control on P11 (engineers instrument panel) to the ON position and note that the white flood light on P27 (engineer panel light shld) are on

E Place the lights control in the OFF position and the lights go off

F Turn the forward panel background lights control, located on P9 (center instrument panel), to the ON position The white flood lights located on P15 (pilots light shld) shall be on. The 15 panel background lights shall also be illuminated.

G Vary the forward panel background lights control and the panel background lights on P15 shall vary in intensity.

H Open the circuit breaker on P3 and the panel background and white flood lights on P15 shall go off.

I Return the forward panel background lights control located on P9 (center instrument panel) to the OFF position.

7 Control Cabin Lights

A Energize Bus No 2

B Close the flight kits and engr panel circuit breaker and the ckpt Its sec prot engrs panel circuit breaker on P7 (circuit breaker panel)

C Vary the panel lights control located on P11 (engineers instrument panel) and observe that the N2 tach indicators, cabin temp zone control panel, service interphone panel, and cabin air thrust valve panal lights vary in intensity with the other engineers instrument panel lights

D Open either of the circuit breakers on the P7 (circuit breaker panel) and note that these lights go off

E Open the other circuit breaker on P7

8 Center Instrument Panel Lighting.

A Energize Bus No. 2.

B Close the forward control panel lights circuit breaker on P7 (circuit breaker panel).

C Vary the forward center panel lights control located on P9 (center instrument panel) and the following panel and indicator lights should, vary in intensity

(1)	Fuel Flow Ind	-P9 PNL
(2)	EPR Ind	-P9 PNL
(3)	EGT Ind	-P9 PNL
(4)	N1 Ind	-P9 PNL
(5)	Standby Horizon Ind	-P9 PNL
(6)	Altitude Alert Ind	-P9 PNL
(7)	Flap's Panel Lts	-P9 PNL
(8)	Center Control Lts	-P9 PNL
(9)	Mach Trim Panel Lts	-P9 PNL
(10)	Outboard Dual Flap's Lts	-P9 PNL
(11)	Inboard Dual Flap's Lts	-P9 PNL
(12)	Landing Gr	-P9 PNL

Ref DRC CDRL 43/44
Issue D dtd May 19/88 Paragraph 7 16

(13) Capt's NAV Mode SW MDL - P15 PNL

(14) F/O's NAV Mode SW MDL - P15 PNL

(15) Flight Director Control No. 1 - P15 PNL

(16) Flight Director Control No 2 - P15 PNL

D Open the circuit breaker in the P7 panel and the above lights shall go off

9 Map Lights

A. Energize Bus No 2

B Close the captain and F/O's map lights lts circuit breaker on P7 (circuit breaker panel) The captains and first officers map lights shall be illuminated

C Open the above circuit breaker and these lights shall go off

10 Compass Light

A Energize the essential DC Bus

B Close the compass light circuit breaker on P6 (circuit breaker panel)

C Turn the compass light on with the compass light control located on P13 (overhead panel) and vary the control and note that the compass lights varies with the control

D Open the circuit breaker above and the compass light shall go off

E Turn the compass light control to the OFF position.

11 Remove aircraft electrical power if no longer required for other maintenance

EDGE-LIGHTED PLATES - MAINTENANCE PRACTICES

1 General

A. Avoid excessive flexure. Plates should be carefully handled to prevent cracking of printed circuits.

B. Make absolutely certain that power plug or plugs for light plate are properly aligned before securing mounting screws.

C. Make sure that all attaching screws and insulating spacers are installed when plate is mounted. Replace this hardware any time it is found missing.

D. When installing or removing lamps, be sure that small metal retaining collar for socket remains on light plate. If collar is inadvertently removed with lamp holder, reinstall it snugly before replacing lamp and lamp holder.

E. Do not interchange lamp holders between different plates. Light plates are manufactured by three different firms and the hardware is not always interchangeable.

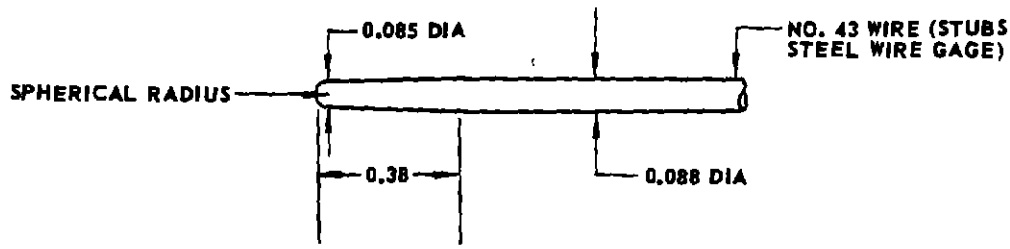
F. Care should be taken to insure that lamp holders are screwed all the way in after changing lamps. Observe that only panel lettering or an instrument sector immediately adjacent to a lamp will be lighted up if lamp is functioning properly.

G. Light plates are designed so that installation and removal of all clamp-mounted instruments may be made without removing light plate assembly.

2. Removal/Installation Edge-lighted Plates

A. Special Tools and Equipment

(1) Plug gage made from No. 43 wire (Stubs Steel Wire Gage) tapered as shown in figure 201



Plug Gage
Figure 201

B. Remove Edge-lighted Plate

(1) Remove all knobs.

(2) Remove light caps from all warning lights.

(3) Remove all bolt lights (used for 2-inch clamp-mounted instruments).

(4) Point all switches in same direction.

(5) Remove screws from all rivnuts.

(6) Open corresponding control panel to determine manner of power supply to plate· wire connection, printed circuit on plate, or printed circuit on second plate. The latter is recognizable because visible side of second plate is copperplated to serve as ground.

(7) If power is supplied by wires remove edge-light caps and lamps and remove panel

NOTE. Location of edge-lights on plate should be noted for installation.

(8) If power is supplied by printed circuit disconnect power connector

(a) Approximate location of connector is shown by small white cross on plate If not it should be determined before removing plate

(b) Apply gentle prying force near power connector with dull putty knife or equivalent. Work plate gently to remove.

CAUTION EDGE-LIGHTED PLATES ARE BRITTLE AND EASILY SCRATCHED.

(9) If light plate or equivalent is not to be replaced immediately re-install knobs, warning light caps, bolt lights and rivnuts on instrument panel.

C. Install Edge-lighted Plate

(1) Inspect light plate for cracks or scratches which might cause printed circuit damage or light leaks.

(2) With power off check center hole in power receptacle on base plate to make sure that it has minimum diameter of 0 086 inches Use plug gage as described under "Special Tools and Equipment."

NOTE. It should be possible to bottom gage

(3) Remove all knobs, warning light caps, and bolt lights from base plate on instrument panel

(4) Position all switches in same direction

(5) Observe alignment of rivnuts in base plate with holes in light plate Rivnuts which are not projecting straight out from base plate and therefore appear offset from hole in light plate may be straightened by inserting a 6-32 screw and tapping rivnut in direction of alignment.

(6) Observe location of power connector on back of light plate

(7) With light plate held approximately 1/4-inch away from base plate, align power connector on light plate with power receptacle in base plate

(8) Observe whether there is any protrusion on base plate which might keep light plate from fitting flush against base plate.

(9) Press light plate against base plate making sure that power connector is seating properly and that light plate moves evenly against base plate.

CAUTION DO NOT FORCE LIGHT PLATE ON. PLATE IS BRITTLE AND EASILY SCRATCHED.

(10) Install screws and washers at all rivnut locations Screws shall be tightened so that rubber washer is compressed against light plate to insure firm seating of light plate against base plate, as well as maintain electrical connections at power joint.

NOTE. Tighten through one turn only with screwdriver to maintain shock absorbing feature of washer.

(11) Push in applicable circuit breaker and turn on applicable powerstat If cabin is brightly lit, it may be necessary to shield light plate to see whether all lights are lit

NOTE When replacing a lamp, do not use wrench on cap Light should be on when cap has been turned one revolution If all lights are out, light plate should be replaced.

(12) Re-install all warning light caps, bolt-light caps, and knobs, and inspect for clearance with light plate assembly The rivet head, which protrudes on warning light caps, should not hit light plate when cap is in press-to-test position.

END

PASSENGER CABIN LIGHTING - DESCRIPTION AND OPERATION

EFFECTIVITY

LX-N20199

1 General

A Passenger cabin lighting is provided by the following installations

Attendants' Reading Lights
Threshold Lights
Coat Closet Lights
Passenger Cabin Cove Lights
Exit and Emergency Exit Lights
Galley and Buffet Lights
Lavatory Lights
Lavatory Signs
Lounge Lights and Mural Light
Passenger Cabin Ceiling Lights
Passenger Cabin Aisle, Forward Entry and Aft Entry Lights
Passenger Reading Lights
Passenger Information Lights
Main Cargo Door Lights
Main Cargo Compartment Lights

B Standard circuit components conventionally mounted make up most of these circuits A simple circuit with only one switch between the lamp and its supply can be assumed unless exceptions are described in this section Complete inforrmation on all circuits is contained in the wiring diagram manual Figure 1 lists the circuit breakers protecting each light installation and the power to each

2 Attendants' Reading Light

A An attendant's reading light is installed in the lowered ceiling panel above the forward and near the aft attendants' seat The lights are controlled by an on-off switch on the light cover plate

B For the forward attendants' lights the light beam shines through a hole in an eccentric disc in the cover plate. Rotating the disc adjusts the direction of the beam The aft light is not adjustable. Each light is mounted in the same housing with the respective entry light The front cover plate is secured by friction studs and can be pulled off to obtain access

LIGHT CIRCUIT	CIRCUIT BREAKER	CIRCUIT BREAKER PANEL	POWER (28V AC EXCEPT AS NOTED)
ATTENDANT'S READING LIGHT	THRESHOLD AND ATT READING	P7	
Forward			
Aft			
THRESHOLD LIGHTS			
Forward and Aft	THRESHOLD AND ATT READING	P7	
Main Cargo Door	AISLE LOUNGE AND BOARDING	P1	
COAT CLOSET LIGHTS	LAV SIGNS & CLOSET	P7	
PASSENGER CABIN COVE LIGHTS	COVE LT (3 Places)	P3	115V AC
Cove Lights Relay	PASS LT RELAYS & PRESS TO TEST	P5	28V DC
Service Lights Transfer Relay	EXTERNAL POWER SHIELD	J9	
EXIT & EMERGENCY EXIT LIGHTS			
Battery Charge	EMER EXIT BATT CHGR	P2	115V AC
Holding Relay	EMER EXIT LIGHTS CONT LH RH CENTER	P6	28V DC
GALLEY LIGHTS	GALLEY LTS	P1	115V AC
MAIN CARGO DOOR LIGHTS	AISLE LOUNGE AND BOARDING	P1	
BUFFET LIGHTS	BUFFET	P1	
LAVATORY LIGHTS			
Dome Lights	LAVATORY DOME	P6	28V DC
	GRD SERVICE LTS	J9	28V DC
Fluorescent Lights	LAV MIRROR LIGHTS	P4	115V AC
	LAVATORY LIGHTS	J9	115V AC
Lav Lights Relay	GRD SERVICE LTS	J9	28V DC
LAVATORY SIGNS	LAV SIGNS & CLOSET	P7	
LOUNGE LIGHTS			
Lounge Cove Lights	LOUNGE COVE	P3	115V AC
Mural Light	AISLE LOUNGE AND BOARDING	P1	
PASSENGER CABIN CEILING LIGHTS	PASSENGER CABIN CEILING LIGHTS (3 Places)	P3	115V AC
Ceiling Light Relays	PASS LT RELAYS & PRESS TO TEST		28V DC
AISLE	AISLE, LOUNGE AND BOARDING	P1	
PASSENGER READING LIGHTS	PASSENGER READING LIGHTS	P7	
PASSENGER INFORMATION LIGHTS	NO SMOKING RETURN TO SEAT FASTEN SEAT BELT	P6	
MAIN CARGO COMPARTMENT LIGHTS	MAIN CARGO FLOOD LTS	P7	

Passenger Cabin Lighting Circuit Protection
Figure 1
Ref. B.707 - M.M. 33-12-0 p.2 - Dec 15/65

3. Threshold Lights

A Thresholds of both forward and aft entry doors are illuminated by lights placed below the attendants' seats. Each light consists of a single incandescent bulb under a glass lens held in place by a frame. The frame is secured by friction studs. The upper lateral surfaces of the prisms cut in the back of the lens are painted black to reduce light emission upward.

B. The BOARD switch on the forward attendant's panel controls the forward threshold light. This light is also controlled by the BOARD (BRD) switch on the cargo attendant's panel. (See figure 7.) A BOARD switch on the aft attendant's panel controls the aft threshold light.

4. Coat Closet Lights

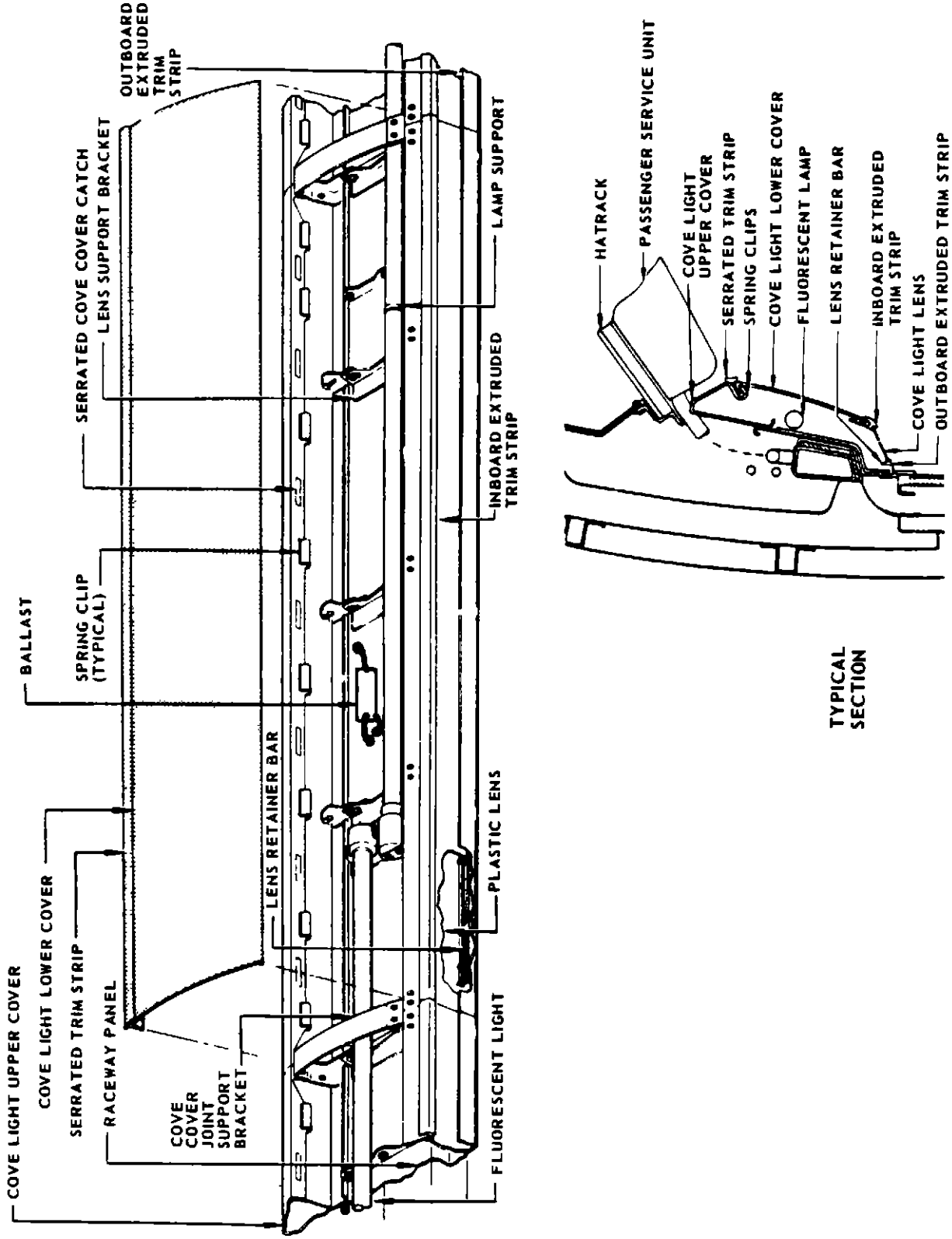
A. Interiors of the coat compartments are lighted by lights above and below the shelves. Each light contains one bulb, and the on-off switch is located on the forward partition of the aft coat compartment. Twist lock plastic domes cover the lamps.

5 Passenger Cabin Cove Lights

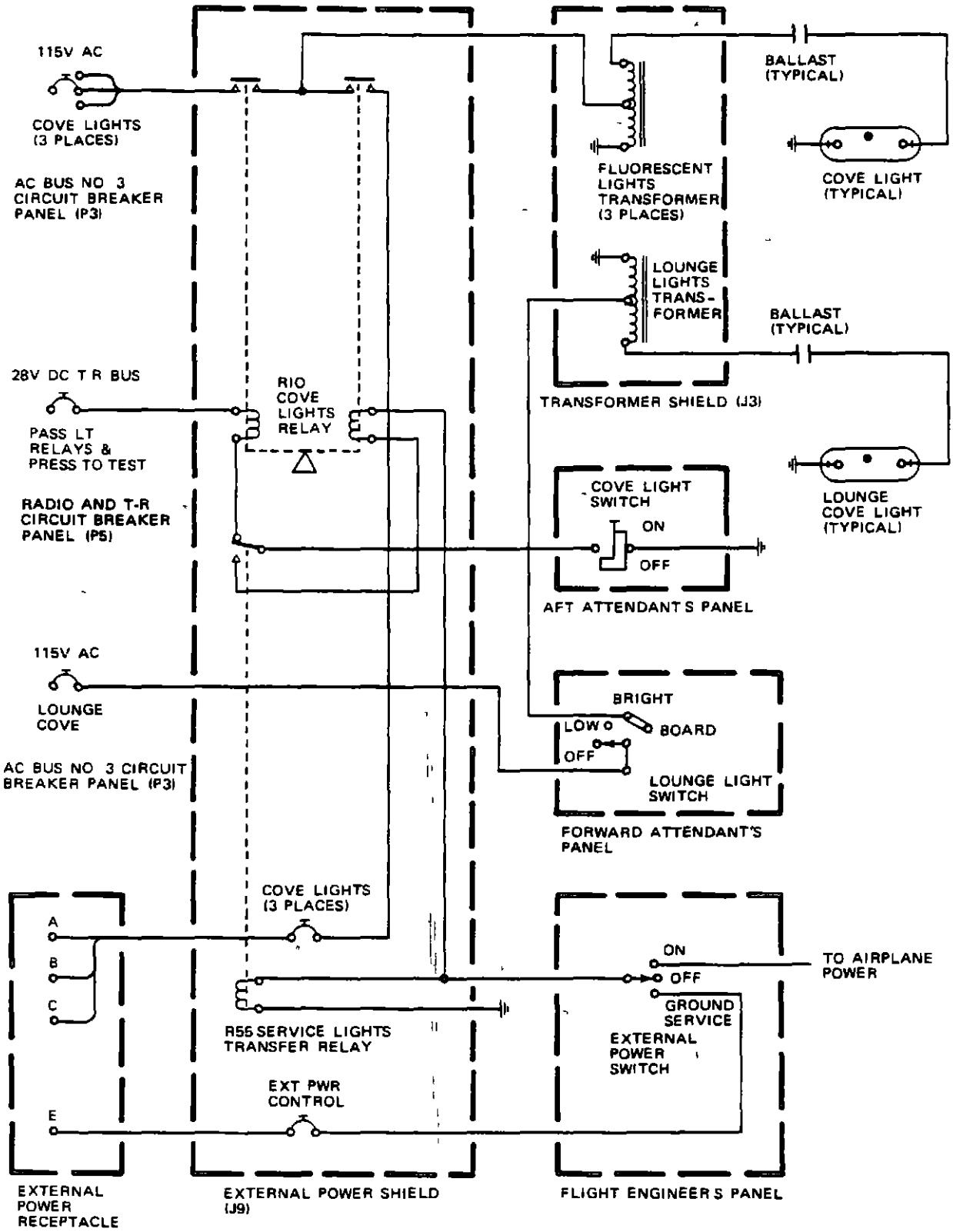
A. Passenger cabin cove lights illuminate the passenger cabin sidewalls. Light is reflected from the sidewalls to provide indirect lighting of the passenger cabin.

B. The fluorescent cove lights are installed in plunger-type sockets which are bracketed to cove light raceway panels on the sidewalls below the hat racks, and below the forward lounge service unit. Ballast for each fluorescent light is a capacitor connected in series with the light.

C. Each cove light is enclosed by a plastic lens and a cove light cover. (See figure 2) There is a decorative pattern on the lower surface of the plastic lens through which light is diffused onto the sidewalls. The lens is fitted into two extrusions on the raceway panel and is held in position by a spring-loaded retainer bar which rides on the outboard extrusion An arrow on the lens indicates the forward end for installation purposes. The cove light cover consists of a lower panel and an upper panel, each decorated with a hole pattern through which the hat rack and the cabin are illuminated. The heel of the lower panel fits into the inboard extrusion and a serrated cover trim on the panel meshes with serrated cove cover catches on the upper panel. Access to the fluorescent light is provided by pulling on the cover trim to remove the lower panel Removal of the upper panel provides access to the cove light ballast which is mounted on the raceway panel The upper panel is bolted to the lens support bracket and the cove cover joint support brackets on the raceway panel.



Cove Light
Figure 2 (Sheet 1 of 2)



Cove Light
Figure 2 (Sheet 2)

D. The cove lights are illuminated by 450 volts ac. Three fluorescent light transformers and one lounge light transformer in the transformer shield (J3) step up 115-volt ac power from the airplane load buses or from external power. (See figure 2.) A slide button cove light switch on the aft attendant's panel controls the lights below the hatracks. A lounge lights switch on the forward attendant's panel controls the lounge cove lights.

E. A radio noise filter and ballast is installed in the ac power line at each cove light in order to eliminate interference with the airplane ADF systems.

6. Exit, Emergency Exit, and Emergency Lights

A. Exit and emergency lights are installed above each airplane exit and emergency exit. Additional fixed emergency lights are installed in the bullnoses of the lowered ceilings. (See figure 3.) Each light installation contains batteries, and will illuminate automatically in the event of power failure at either the 115 volt ac essential bus or the 28 volt dc essential bus. The lights are readily removable from their mounts, and can be used as portable emergency lights. Normal operation of all the lights is controlled by a switch on the overhead panel.

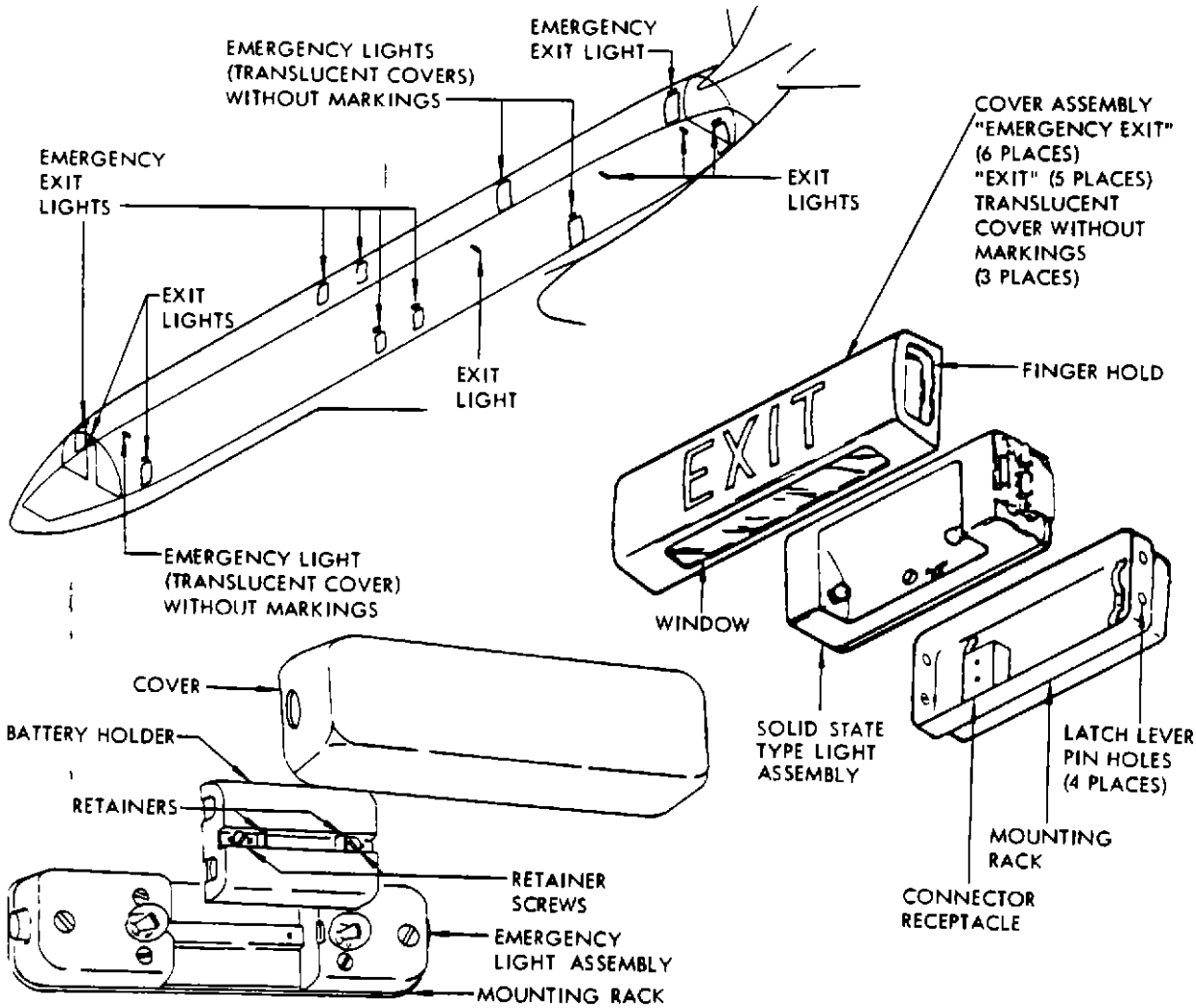
B. The exit and emergency exit lights each consist of a portable light assembly, mounting rack and cover. Three different types of light assemblies are in use. One type employs solenoid-operated switching. A second type uses a magnetic latch type relay and the third uses solid-state switching. All three units are physically and functionally interchangeable with each other. Two types of mounting racks are in use and they are also interchangeable. For internal circuits of the different light assemblies, refer to the Wiring Diagram Manual, Chapter 33.

C. The portable light assembly consists of a case with removable front and rear covers. The case contains nickle-cadmium rechargeable batteries, lamps, a manual control switch, a male electrical connector and circuitry to control the lamps. The assembly is attached to a mounting rack by spring clips. (See figure 3.) When used as a portable light, the control switch is used to turn the light on and off. On the solenoid and relay type light assemblies, the rear cover may be removed to gain access to the batteries and other components. The mounting rack is permanently attached to the airplane structure and supports the portable light assembly during normal operation.

D. The exit and emergency light covers are made of translucent plastic. The entire cover assembly is coated with an opaque paint except for lettering on the front face and a clear window on the lower edge. The cover is attached to its respective portable light assembly by spring catches and cannot be installed on the portable light assembly unless the light assembly is fully engaged in the mounting rack.

E. The exit and emergency lights are controlled by an emergency light switch on the overhead panel. The switch is guarded, and has OFF, ARMED and ON position. When the switch is in the OFF position, the lamps in the portable light assemblies cannot be energized. When the overhead panel switch is in the ARMED position, the batteries in each portable light assembly are put on charge. If a power failure occurs at either 115 volt ac essential bus or 28 volt dc essential bus, the batteries are connected to the lamps. When overhead panel switch is in the ON position, the batteries are connected to the lamps. This position is used to check if all batteries are charged.

F. During normal operation, the overhead panel switch should be in the ARMED position at all times. This ensures that portable light assembly batteries will be kept fully charged, and also readies each light for operation in the event of total power failure. The switch should be moved to the OFF position before turning off power during normal shut down or ground operation, since removal of power will cause lights to illuminate and discharge the batteries.



Exit and Emergency Exit Lights
Figure 3

7 Galley and Buffet Lights

A Variable intensity illumination in the galleys is provided by a single fluorescent light in each. Switches are located on the forward and aft attendants' panels.

WARNING. WHEN REPLACING FLUORESCENT LAMPS, REMOVE POWER TO AVOID HIGH VOLTAGE HAZARD AND SHORTING OF TRANSFORMER FILAMENT WINDINGS. INSTALL LAMPS BY FIRMLY SEATING ALLCONTACTS IN SOCKETS.

B. Tapped choke coils provide both ballasts and dimming for the galley lights. When the switch is in the bright position, part of the coil is bypassed.

C. Buffet lights consist of three white bulbs and one blue lamp as an integral part of the galley equipment Switch type circuit breakers are also mounted on the galley and a variable resistance dimmer controls the three white lights.

D. The ballast for the forward lights is mounted on the inboard side of a life raft support bracket forward of the life raft compartment and about one foot to the right of the airplane centerline. The ballast is accessible through the crew oxygen cylinder compartment hinged door. See Chapter 25, "Lowered Ceiling Lining and Insulation."

E. The ballast for the aft lights is mounted on the inboard side of a curtain track and lowered ceiling support bracket near the forward corner of No 4 galley. The ballast is accessible through the emergency equipment compartment hinged door.

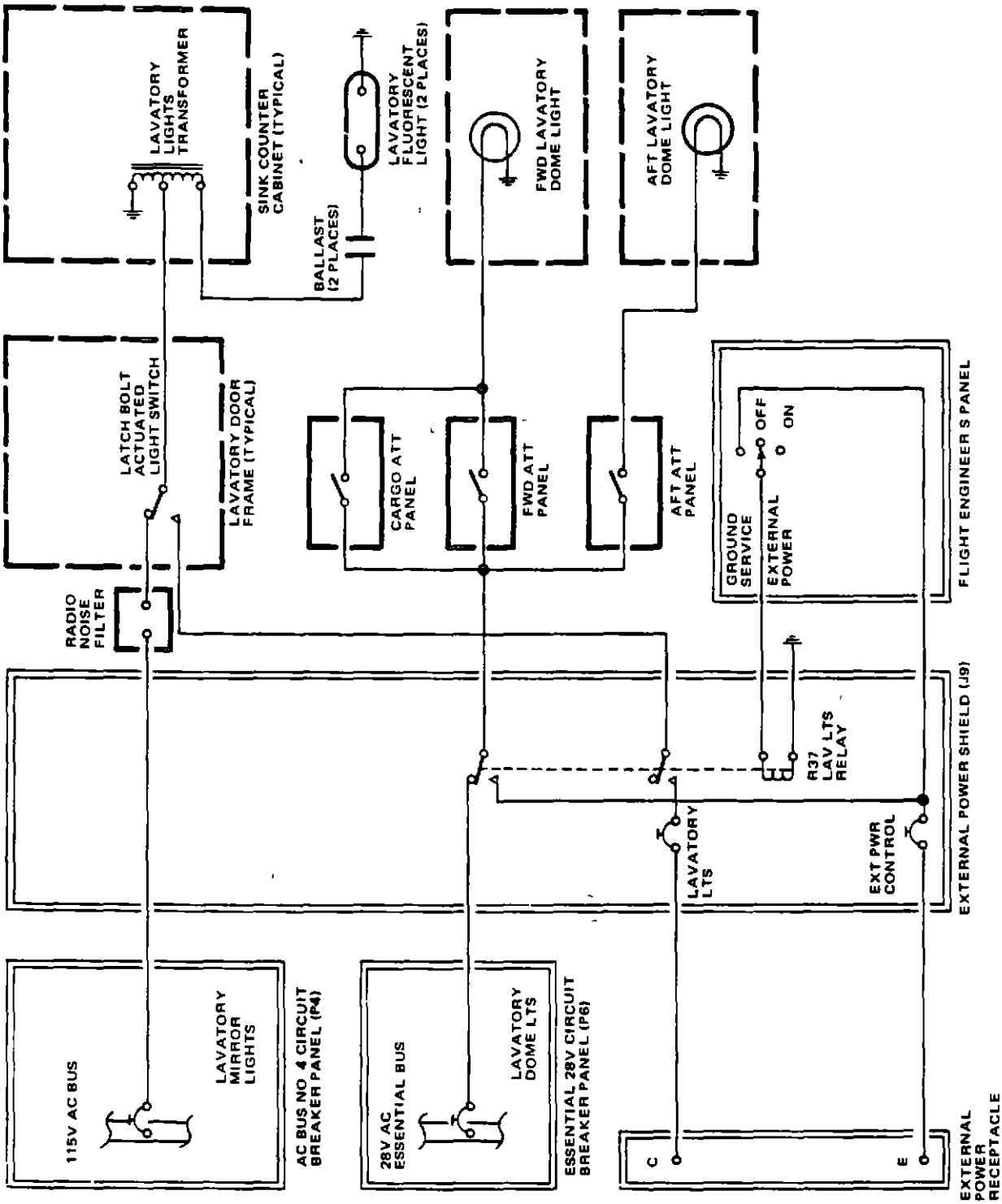
8 Lavatory Lights

A. Illumination in each lavatory is provided by one incandescent dome light in the service unit and two fluorescent mirror lights.

B. Lavatory dome lights are normally powered from the esstential T-R d-c bus. (See figure 4.) Switches are on the attendants' panels.

C. The fluorescent lights are controlled by door lock actuated switches. (See figure 4.) In flight the lights are turned on when the door is locked When ground power is supplied, the fluorescent lights are turned on when the lavatory door is unlocked

D The lavatory fluorescent lights are connected to a radio noise filter to avoid interference with the ADF systems. The filter is installed in the control cabin, on the bulkhead, to the right of the door and near the ceiling



Lavatory Lights Circuit
Figure 4

9. Lavatory Signs

A. Indicator lights draw attention to LAVATORY OCCUPIED signs on the forward and aft lowered ceilings. Each light is a single blue bulb in series with lavatory door lock actuated switches. The forward light glows when both forward lavatory doors are locked, and the aft light is turned on when all three aft lavatory doors are locked. Access to the light bulb is gained by unscrewing the cap for bulb replacement.

10. Lounge Lights

A. Cove lights provide indirect lighting in the lounge. The three fluorescent cove lights are identical to the passenger cabin cove lights. The mural light is an incandescent lamp mounted in forward ceiling to light a mural on the lounge partition.

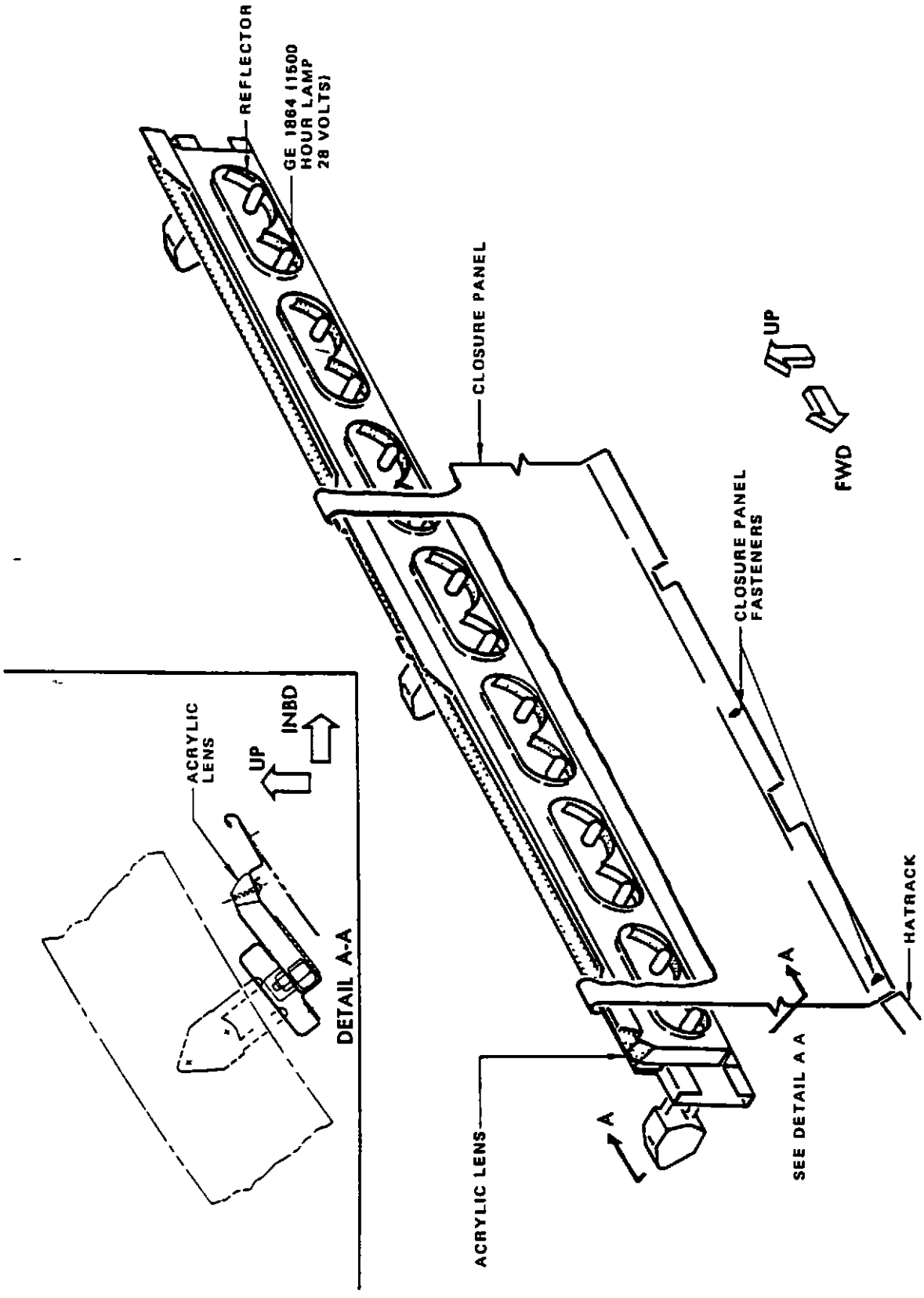
B. The cove lights are controlled by a wafer type switch on the forward attendants' panel. In the BRIGHT position the cove lights come on. When the switch is on BOARD, the lounge cove lights and the forward boarding light both are on. The mural light is on for any on position of the rotary switch.

C. The lounge fluorescent lights are connected to a capacitor and radio noise filter installed at each lounge fluorescent light.

11. Passenger Cabin Ceiling Lights

A. The ceiling incandescent strip lights are located along both sides of the ceiling above the hat racks to provide reflected light. The ceiling strip light fixtures are each fixed at three points to the cabin sidewall. (See figure 5.) Loosening the closure panel latches located outboard along the top edge, permits flexing the panel so the top curled edge may be snapped off exposing the lamps and semicircular reflectors. The lights are energized by the CARGO - OFF - PASS switch on the cargo attendants' panel. In the passenger (PASS) position the lights are intensity controlled at the aft attendant's panel. In the CARGO position the lights are on full brightness to provide floodlighting of the cargo area. Normal power is 115 volts a-c from circuit breaker panel P3, reduced by transformers in J3 transformer panel to give variable light intensities. (See figure 6.)

B. The ceiling strip lights at STA 553RH, 685LH, 935RH and 1205LH will automatically switch to BATTERY and ESS BUSSES for a T-R bus failure The lights will be on bright from the 28 volt d-c source.



Passenger Cabin Ceiling Lighting
Figure 5
Ref. B.707 - M.M. 33-12-0 p.11 - Feb 15/63

12 Passenger Cabin Aisle Forward Entry and Aft Entry Lights

A Passageways outside the seating area are lighted, by an aft aisle light, and a forward and aft entry light. The forward and aft entry lights are in the same housing with the respective attendant reading light The aft aisle light is in the ceiling outside the aft lavatories

B Each light contains a single incandescent bulb, and is controlled by the CARGO - OFF - PASS switch an the cargo attendant's panel In the PASS position each light is energized by the ceiling light rotary switch on the aft-attendant's panel (See figure 6) Any on position will turn on these lights In the CARGO position the lights are turned on directly

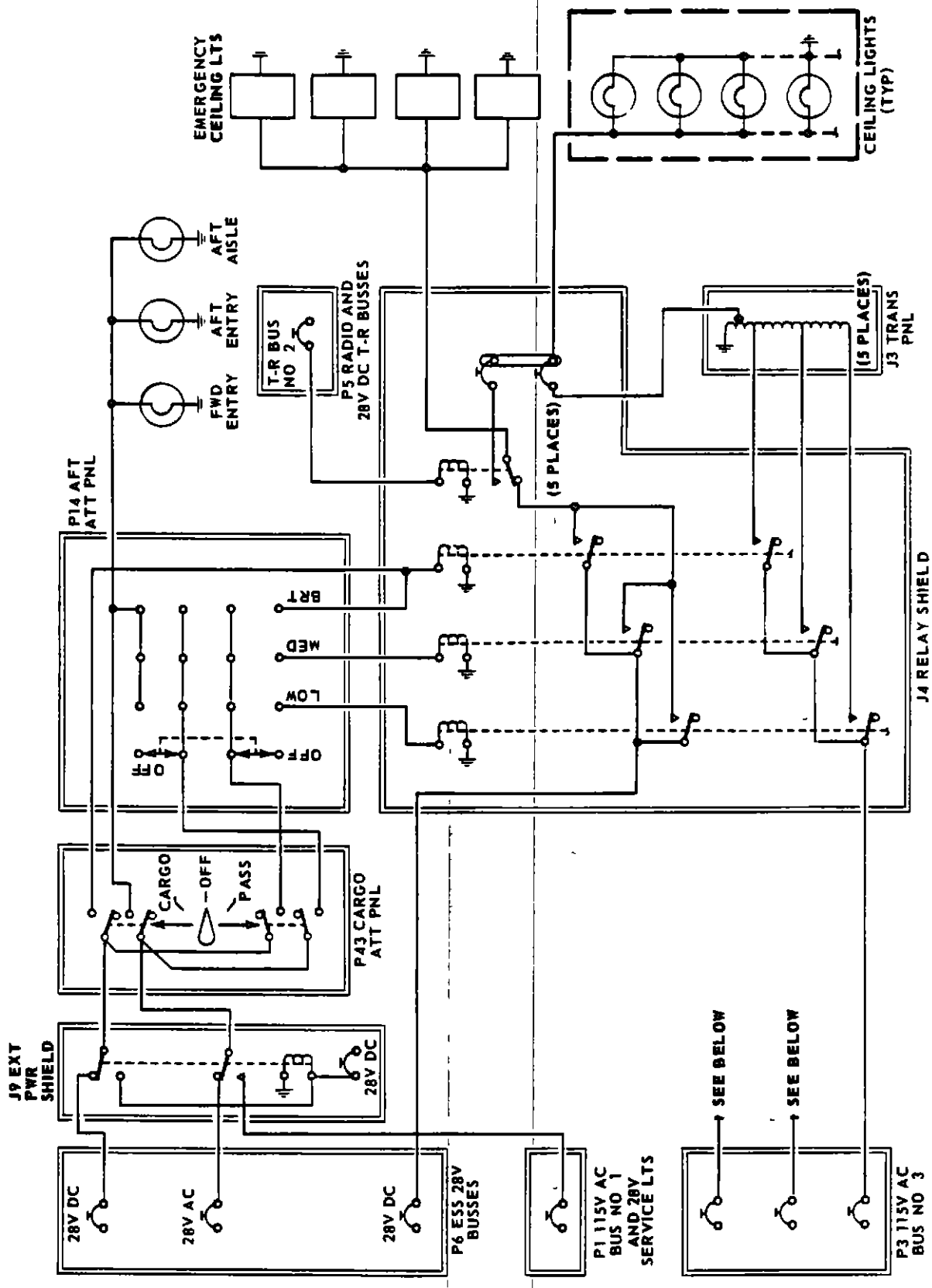
13 Passenger Reading Lights

A An indivdaul reading light is provided for each passenger Three passenger reading lights are installed in each passenger service unit and each light is controlled by a pushbutton switch outboard of the light The light is adjustable laterally Tracking pins secure the lamp to front and rear tracking plates on the light assembly The lamp is adjusted when the pins are moved along curved slots in the tracking plates by positioning a locating spring dimple into one of eight numbered detents on the front tracking plate A thumb nut on the spring locks the dimple in place to secure the adjustment The position of each lamp varies with the passenger seating arrangement The light beam centerline, tilted 18 degrees forward of the vertical, can be adjusted fore and aft by the positioning of the passenger service unit, except the lounge passenger service units which are recessed in the hatrack The passenger reading light cap retainer rings, when installed, are to restrain free light caps from contacting exposed electrical terminals in the service unit, thus eliminating a potential fire hazard

14 Passenger Information Lights

A Display of NO SMOKING, FASTEN SEAT BELT and RETURN TO SEAT instructions is accomplished by lighted signs in various combinations in the passenger service units, lavatories, fixed forward lowered ceiling area, and above the entrance to the control cabin Lamps behind a lettered plastic cover make up each sign. The NO SMOKING and FASTEN SEAT BELT signs illuminate automatically when the passenger oxygen distribution system to pressurized

B Two switches on the pilot's overhead panel control all passenger signs Closing the NO SMOKING switch lights the seat letters and NO SMOKING signs Turning the SEAT BELTS switch on lights the RETURN TO SEAT signs in the lavatories and the FASTEN SEAT BELTS signs



Passenger Cabin Ceiling Lights Circuit
Figure 6

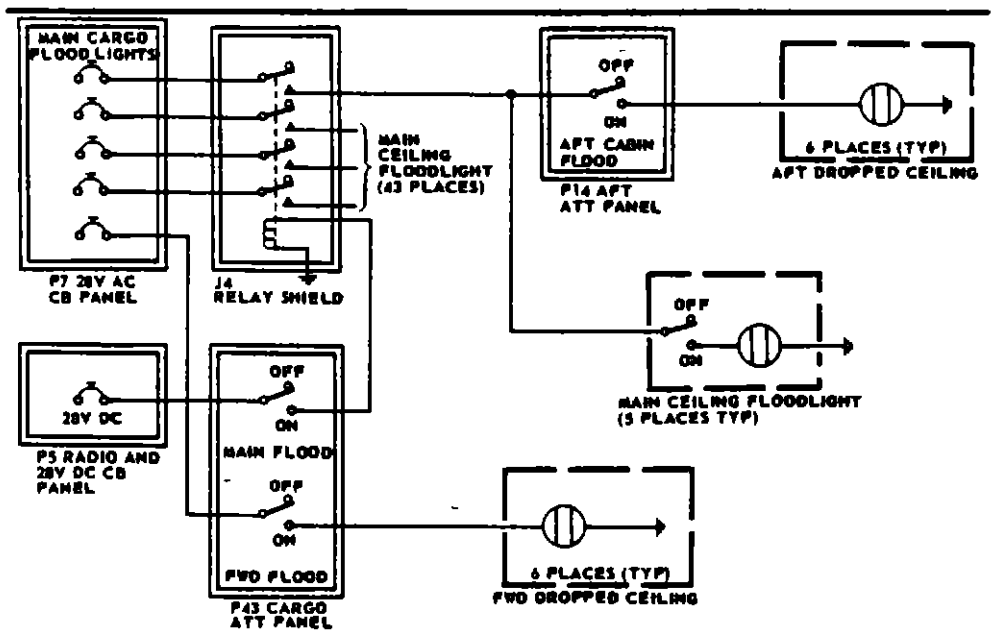
15. Main Cargo Door Floodlights

A Four incandescent lights above the main cargo door and two lights in the lower main cargo door frame illuminate the threshold. (See figure 8) The top snap-on lamp cover is removed for relamping. On all airplanes the lights are controlled by a BOARDING (BRD) light switch on the cargo attendant's panel. This switch, when ON completes the circuit to the lights. The center drop ceiling panels are removed to expose the main cargo door upper lights.

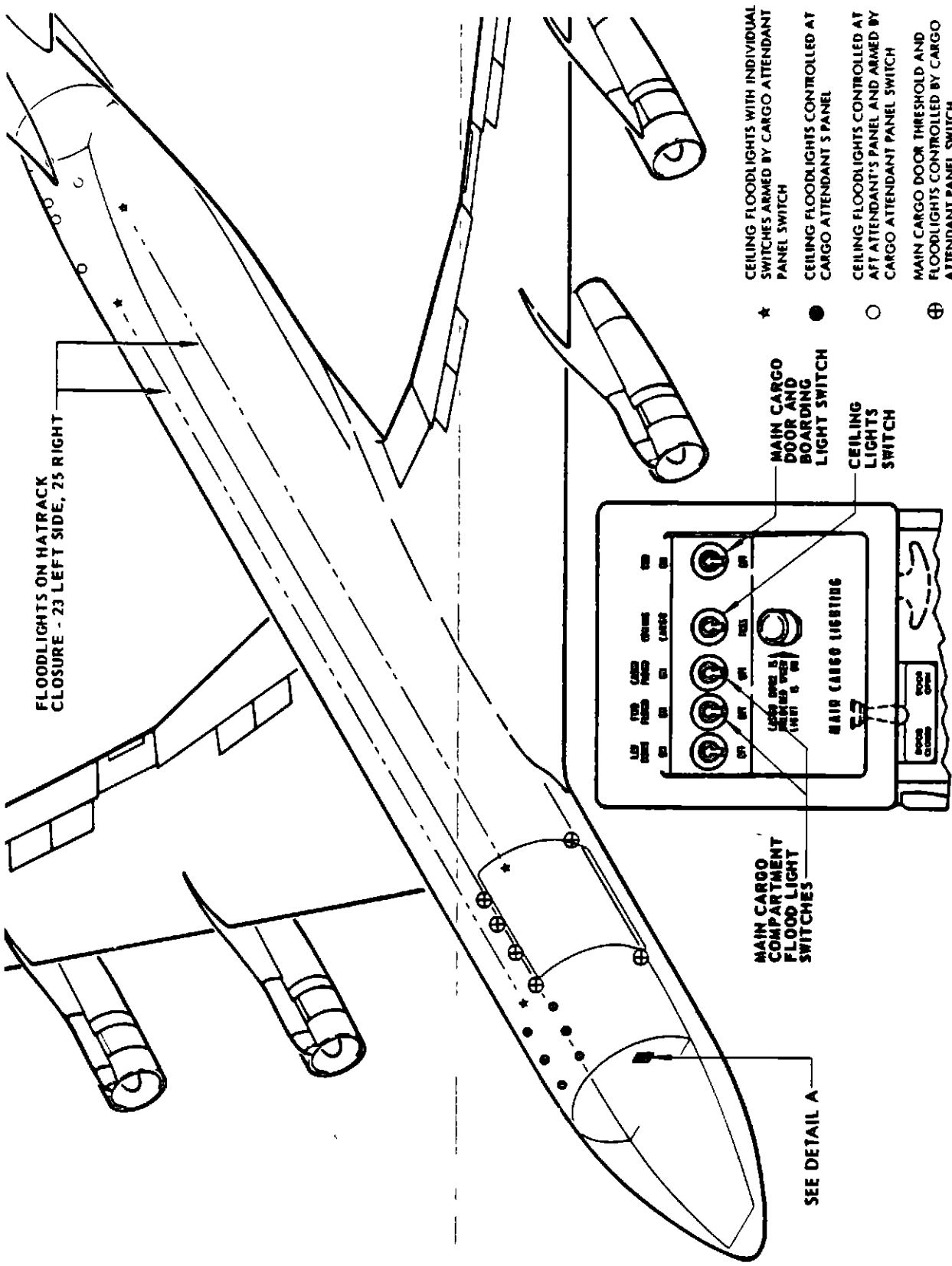
16. Main Cargo Compartment Floodlights

A. Main cargo compartment incandescent floodlights are located in three distinct locations throughout the ceiling area of the main cargo compartment. (See figure 8.) When the aft section of the forward lowered ceiling is removed, 6 lights are exposed. When the aft lowered ceiling is removed, 6 lights are exposed When the hat racks are stowed or removed, 23 lights on left side and 25 lights on right side are exposed. The spacing of these lights is approximately 40 inches. Each individual light panel may be lowered for relamping.

B. All cargo compartment lights are energized from switches on the cargo attendants panel. The six forward lights are turned on by the FWD FLOOD switch. The six aft lights are armed by the CABIN FLOOD switch and all are turned on by the AFT CABIN FLOOD switch on the aft attendants panel. The main cabin floodlights are armed by the CABIN FLOOD switch and each individual light has an off-on switch. The CABIN FLOOD switch also energizes an a-c relay in the J4 shield to remove power from passenger reading lights from approximately STA 600E forward in the forward section of the main cabin compartment, except for LH passenger service units at approximately STA 382 and STA 365.



Main Cargo Compartment Floodlights Circuits
Figure 7



Main Cargo Compartment Light Locations
Figure 8

PASSENGER CABIN COVE LIGHTS - MAINTENANCE PRACTICES

Effectivity LX-N 19997 and LX-N20000

1 General

A This procedure provides steps necessary to replace cove light fluorescent lamps and ballasts for the fluorescent lamps Paragraph 3 provides steps for relamping Paragraph 4 provides steps for replacing ballasts mounted on inboard side of cove light raceway panel Paragraph 5 provides steps for replacing ballasts mounted on outboard side of raceway panel

NOTE Ballasts may be mounted on outboard or inboard side of raceway panel

2 Equipment and Materials

A Interior Trim Remover Assembly - F70033, or equivalent

3 Relamp Cove Lights

A Set cove lights switch(es) to off position and attach do-not operate - identifier(s)

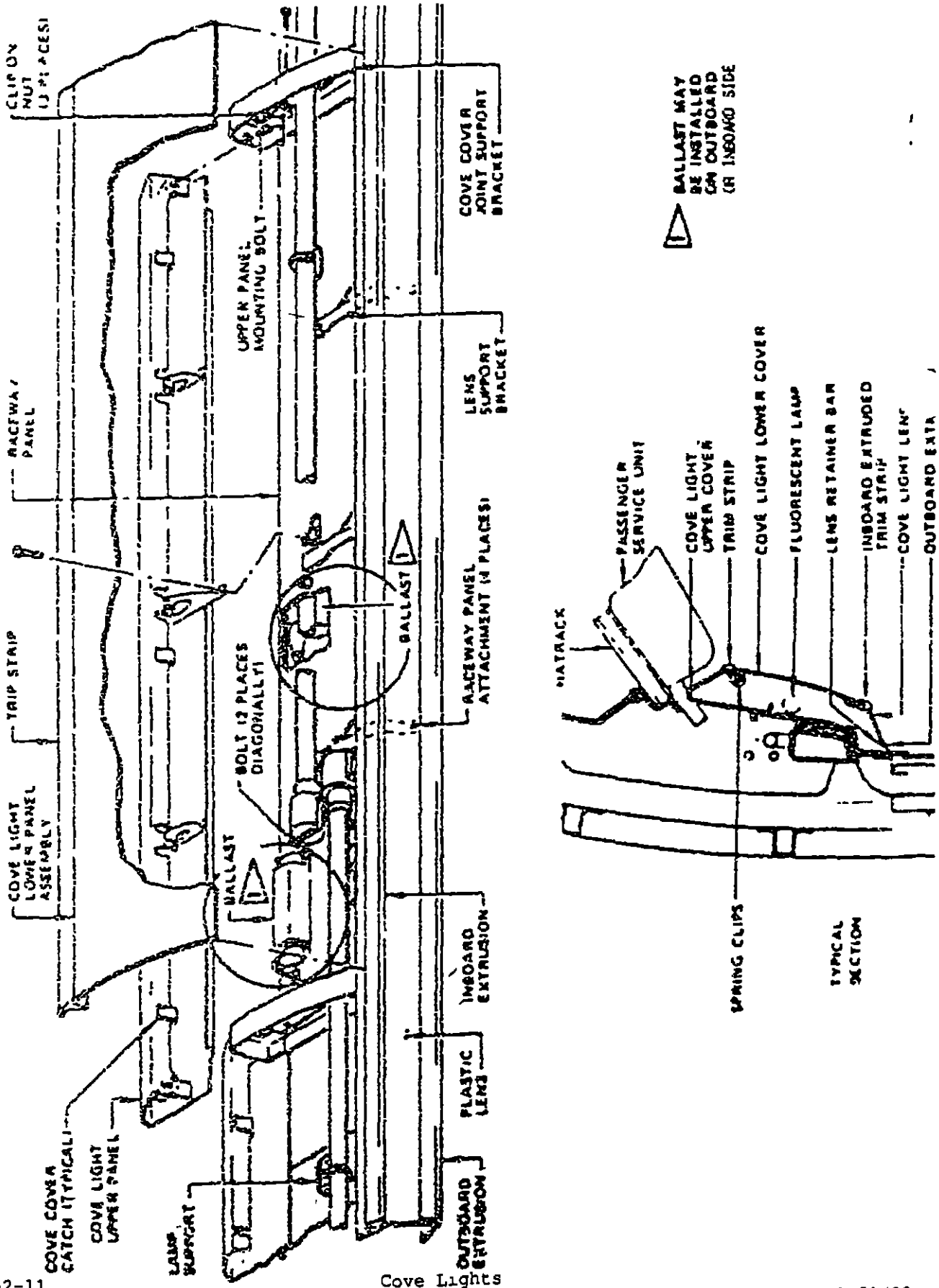
B Using special tool or equivalent, pull upper edge of lower cover panel inboard until free (Fig 201)

CAUTION USE CARE TO AVOID DAMAGE TO SPRING CLIPS

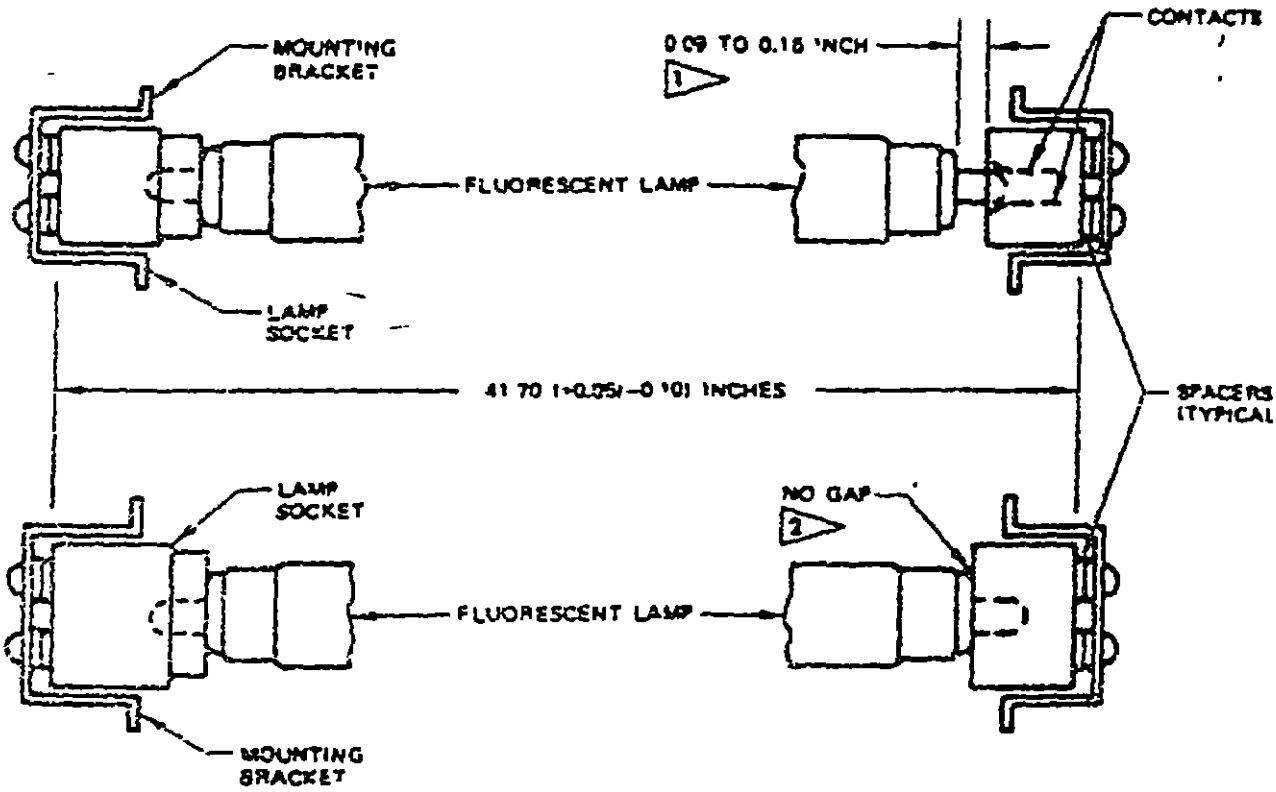
C Remove lower cover panel by lifting up until lower edge in free of trim strip

NOTE When removing two or more lower cover panels in tapered section of airplane, it is recommended that panels be numbered to facilitate replacement.

D Remove fluorescent lamp.



Cove Lights
Figure 201 (Sheet 1)



TYPICAL LAMP INSTALLATIONS

DETAIL A

1 COVE LIGHT INSTALLATION WITH GAP

2 COVE LIGHT INSTALLATION WITHOUT GAP

Cove Lights
Figure 201 (Sheet 2)

E Slide replacement lamp into plunger-type (aft) socket Then make contact gently with forward socket letting lamp rest in place (Detail A. Fig 201)

CAUTION ON EARLY AIRPLANES THE FORWARD PIN SHOULD NOT BE FORCED ALL THE WAY INTO CONTACTS THEY ARE, RIGIDLY HELD AND MAY DEFORM WITH POSSIBILITY OF SUBSEQUENT ARCING (FIG 201)

NOTE Lamp may be moved up and down, but not inboard and outboard

F Check that lamp is securely positioned between sockets as shown in figure 201 detail A If distance is greater than required add washer spacers between socket and mounting bracket If spacers are added, longer screws may be used

G Loosen nylon lamp support mounting screws and adjust lamp support, if required.

H Replace lower cover panel

NOTE If any cove light panel is replaced by a new one, trim if necessary so that new panel matches old

(1) Insert bottom edge of panel in inboard trim strip

(2) Press upper trim strip on cover panel (depress spring clips if required) into engagement with catches and spring clips

CAUTION USE CARE TO AVOID DAMAGE TO SPRING CLIPS

I Test Lamps

(1) Provide electrical power

(2) Remove do-not-operate-identifiers and set cove lights switch to ON then to OFF Check that replaced lamp operates

(3) Remove electrical power if no longer required.

4. Replace Inboard-Mounted Cove Light Ballast (Fig 201)

A Remove Ballast

(1) Open COVE LIGHTS circuit breakers on P3 circuit breaker panel and P9 external power shield. Attach do-not-operate identifiers

WARNING HIGH VOLTAGE (450 VOLTS AC) IS USED FOR COVE LIGHT OPERATION FAILURE TO DISABLE CIRCUIT MAY CAUSE INJURY

(2) Remove cove light lower cover per steps 3 B and C

(3) Remove fluorescent lamps if necessary

(4) Remove mounting screws and pull ballast from raceway panel

(5) Remove electrical wiring from ballast Identify wiring for installation on on replacement ballast

(6) Remove Ballast

B Install Ballast

(1) Connect electrical wiring to replacement ballast

(2) Install ballast and secure mounting screws

(3) Install fluorescent lamps per steps 3 E and F, if removed

(4) Replace cove light lower cover per steps 3 H (1) and (2)

(5) Close COVE LIGHTS circuit breaker on P3 circuit breaker panel and P9 external power shield

(6) Test Ballast

(a) Provide electrical power.

(b) Set cove lights switch to on then off Check that lamp powered by replaced ballast operates

(c) Remove electrical power if no longer required

5 Replace Outboard-Mounted Cove Light Ballast (Fig 201)

A Remove Ballast

(1) Open COVE LIGHT circuit breakers on P3 circuit breaker panel and P9 external power shield Attach do-not-operate identifiers

WARNING HIGH VOLTAGE (450 VOLTS AC) IS USED FOR COVE LIGHT OPERATION FAILURE TO DISABLE CIRCUIT MAY CAUSE INJURY

(2) Remove cove light lower cover per steps 3 B and C.

(3) Remove fluorescent lamps as necessary.

(4) Remove or loosen screws attaching cove light upper cover assembly to cove cover joint and raceway panel (lens support bracket) Identify screws for replacement purposes

(5) Pull upper cover assembly inboard and remove

(6) Remove ballast mounting screws and nuts

NOTE Hold nuts on outboard side to avoid dropping them between raceway panel and air distribution duct

(7) Pull ballast from behind raceway panel and remove electrical wiring Identify electrical wire for installation on replacement ballast

B Install Ballast

(1) Connect electrical wiring to replacement ballast

(2) Install balasts and occure with mounting screws and nuts

(3) Install cove light upper cover and secure mounting screws

(4) Install fluorescent lamps per steps 3 E and F

(5) Replace lower cove light cover per steps 3 H (1) and (2)

(6) Close COVE LIGHT circuit breakers on P3 circuit breaker panel and P9 external power shield. Remove do-not-operate identifiers

(7) Test ballast

(a) Provide electrical power

(b) Set cove light switch to ON then to OFF Cheek that lamp powered by replaced ballast operates

Effectivity LX-N19997 and LXN20000

1 Cove Light and Ceiling Lichting in the Cabin

1 1 The cove light and ceiling lighting is divided into various sections depending on the various seating versions in the airplane, these sections can be controlled individually from both flight attendant's switch panels

1 2 Forward Flight Attendant Switch Panel

(a) Switch "FIRST CL "	Cove light LH and RH in the area of the 1 st class section (sta 322 - 580)
(b) Switch "LOUNGE4"	Cove light LH and RH in the area of the lounge (sta 580-660) and one lamp in the bar
(c) Rotary switch "DOME	Two ceiling lights (sta 570 and 600J) and "FWD ENTRY LIGHT (sta 330)

1 3 Aft Flight Attendant Switch Panel

(a) Switch "FIRST CL "	Cove light LH and RH in the area of an extra 1 st class section aft of the lounge (sta 660 - 800) which is normally part of the economy class cabin
(b) Switch "ECO"	Cove light LH and RH in the area of the economy cabin (sta 800 - 1294)
(c) Rotary switch "DOME	Three ceiling lights (sta 850, 96ON and 1130) and "AFT ENTRY LIGHT (sta 1354) and "AFT AISLE LIGHT" (sta 1440)

2 Installation of Fluorescent Lamps

When installing and removing fluorescent lamps the following points must be observed

a) Fluorescent lamps must never be installed or removed when connected to a power supply

b) Before installing fluorescent lamps, the contacts between tube and housings must be cleaned thoroughly of all soldering residues and any oxidation layer They must be absolutely bare

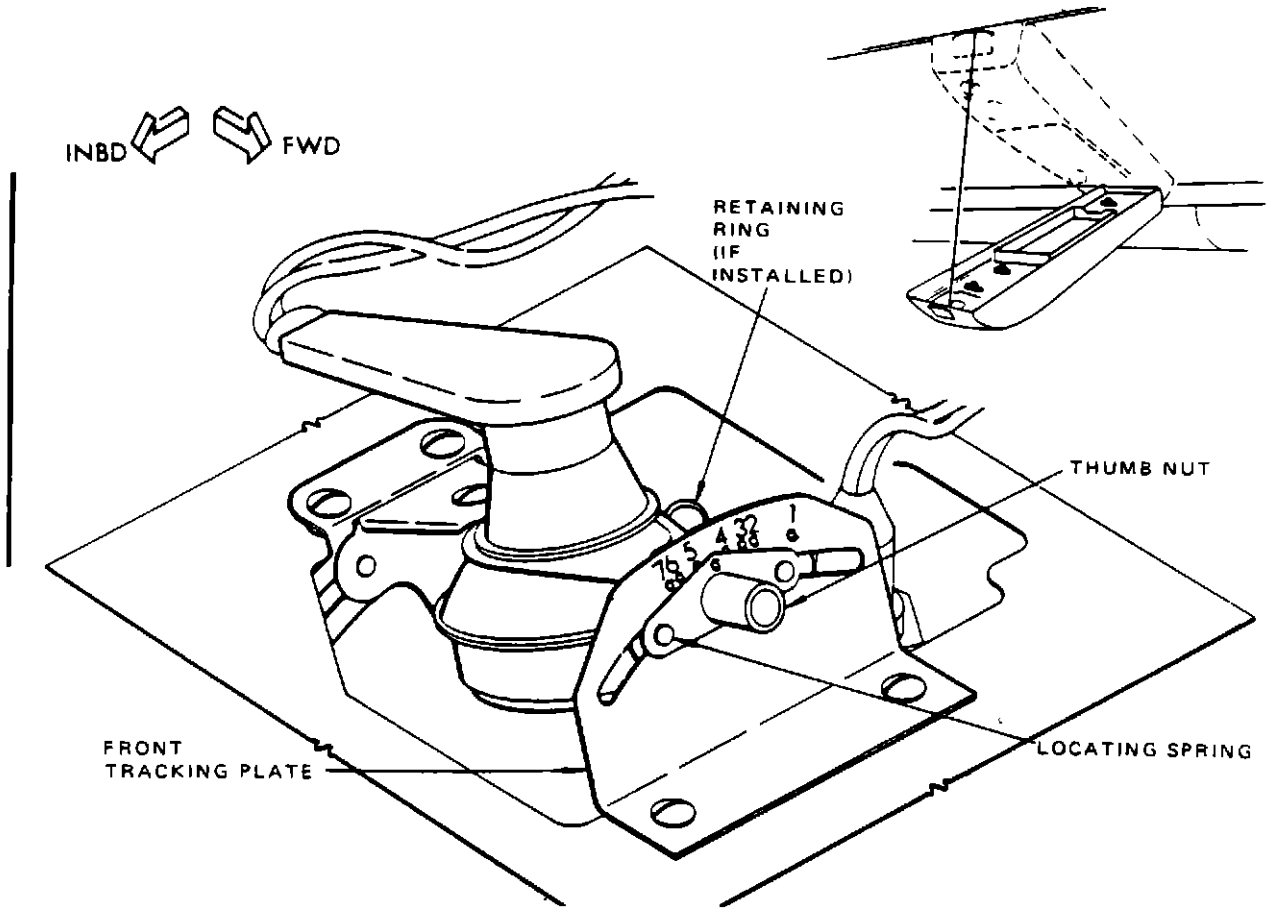
c) The contact pin of the fluorescent tube must be pressed entirely into the fixed housing It is not sufficient for it to only be pressed into contact by the spring tension of the moveable contact

PASSENGER READING LIGHTS - MAINTENANCE PRACTICES

1. Adjustment/Test Passenger Reading Lights

A. Adjust Passenger Reading Lights

(1) Each passenger reading light is adjustable laterally The light is adjusted by positioning the dimple of the locating spring into the proper detent on the front tracking plate Access to the light is provided by lowering the passenger service unit. To move the locating spring, the thumb nut must be loosened. The position of each lamp varies according to the passenger seating arrangement. (See figure 201) Fore and aft adjustment of the reading lights is accomplished by the positioning of each passenger service unit



LIGHT ADJUSTMENT TABLE (DETENT POSITION)

SEAT POSITION	A LEFT (OUTBOARD)	B (MIDDLE)	C (INBOARD)	D (INBOARD)	E (MIDDLE)	F RIGHT (OUTBOARD)
6 ABREAST SEATING	7	7	2	7	2	2
5 ABREAST SEATING	6	5	1		4	3
5 ABREAST SEATING (OPTIONAL)	6	5		8	4	3
4 ABREAST SEATING	6		4	5		3

Passenger Reading Lights Adjustment
Figure 201

2. Removal/Installation Passenger Reading Light

A. Remove Passenger Reading Light

(1) Lower passenger service unit. (See Chapter 25, Passenger Service Units.)

(2) Grip light housing and rotate clockwise to disengage locking plate from dimple attachments. (See figure 202.)

CAUTION: DO NOT PULL OR PUSH ON TERMINAL CAP.

(3) Pull light housing free and turn for access lamp.

(4) Remove louver ring.

(5) Remove bayonet-type lamp.

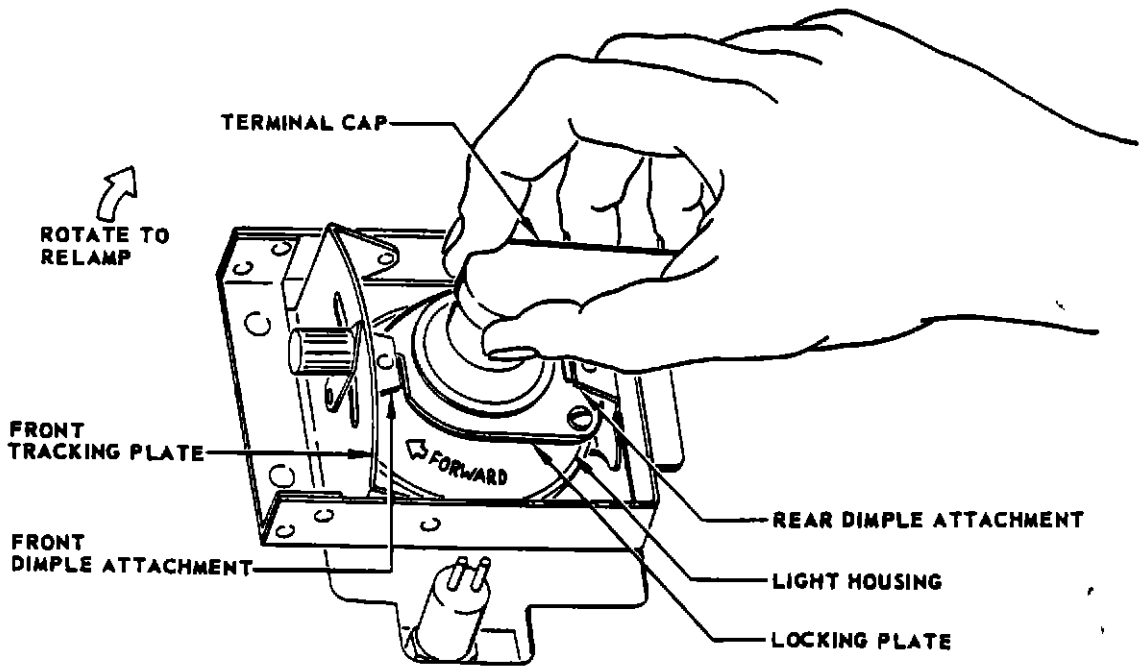
B. Install Passenger Reading Light

(1) Install bayonet-type lamp in light housing.

(2) Install louver ring.

(3) Position locking plate under dimple attachments and rotate reflector housing counterclockwise to engage.

(4) Raise and secure passenger service unit.



END

Passenger Reading Light Installation
Figure 202

PASSENGER INFORMATION LIGHTS - MAINTENANCE PRACTICES

1. Removal/Installation Passenger Cabin Sign Lamps

A. General

(1) The "No Smoking - Fasten Seat Belt" sign in the passenger service unit is illuminated by four or six bayonet-type lamps. The lamps are mounted on the sign housing immediately beneath the back cover assembly in some signs or beneath the top cover assembly in other signs. The back cover assembly is held by screws, while spring clips hold the housing assembly against the service unit shell. The top cover assembly has a flange at one end with two holes that engage retaining pins on the housing while the other end is held by a thumb nut.

(2) The "No Smoking - Fasten Seat Belt" sign in the lounge service unit is illuminated by five bayonet-type lamps mounted on the plastic lens assembly. The lens assembly is attached to the housing by four latch pins, two on each side. Relamping can be done without opening the service unit.

B. Remove Passenger Service Unit Sign Lamps

(1) Open service unit.

(2) Remove thumb nut or screws as necessary. (See figure 201.)

(3) Remove top or back cover assembly as necessary.

(4) Remove lamps from sign housing.

C. Install Passenger Service Unit Sign Lamps

(1) Install bayonet-type lamps in housing.

(2) Install back cover with screws or top cover with thumb nut, as necessary.

(3) Close service unit.

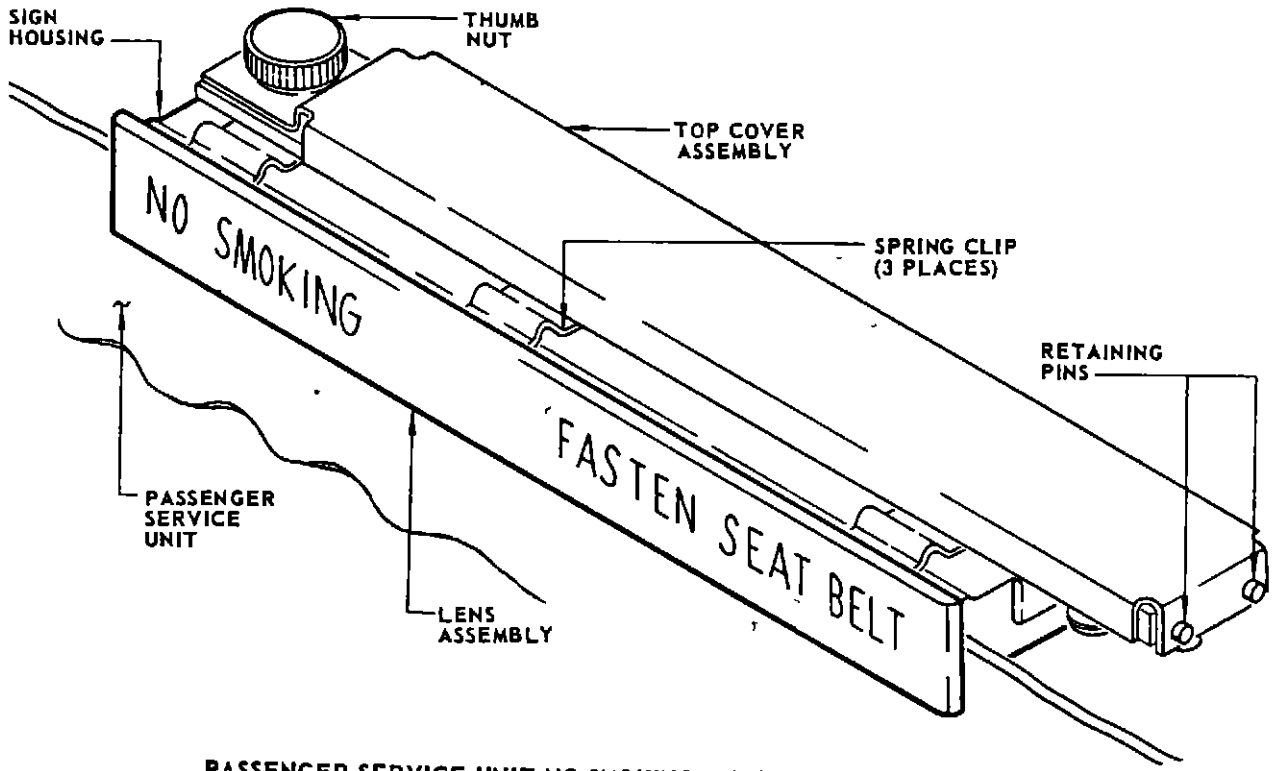
D. Remove Lounge Service Unit Sign Lamps

(1) Slide lens assembly toward left. (See figure 201.)

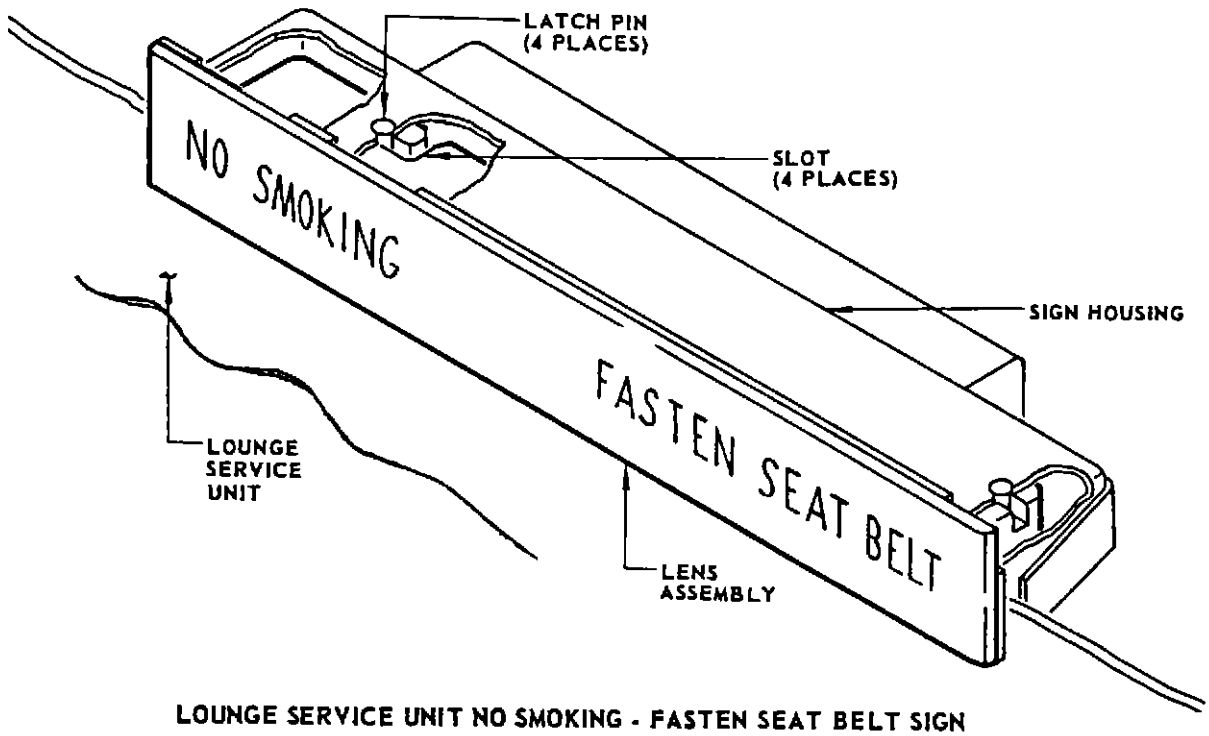
CAUTION: OBSERVE CARE TO AVOID DAMAGING SERVICE UNIT OR SIGN FINISH.

(2) Swing left end of lens assembly out and remove lens assembly

(3) Remove bayonet-type lamps.



PASSENGER SERVICE UNIT NO SMOKING - FASTEN SEAT BELT SIGN



LOUNGE SERVICE UNIT NO SMOKING - FASTEN SEAT BELT SIGN

Passenger Information Lights Installation
Figure 201

E. Install Lounge Service Unit Sign Lamps

(1) Install bayonet-type lamps on lens assembly.

(2) Position lens assembly and engage latch pins in slots.

NOTE: Engage right end first and then swing left end into opening. Move lens assembly back and forth until both pins are engaged.

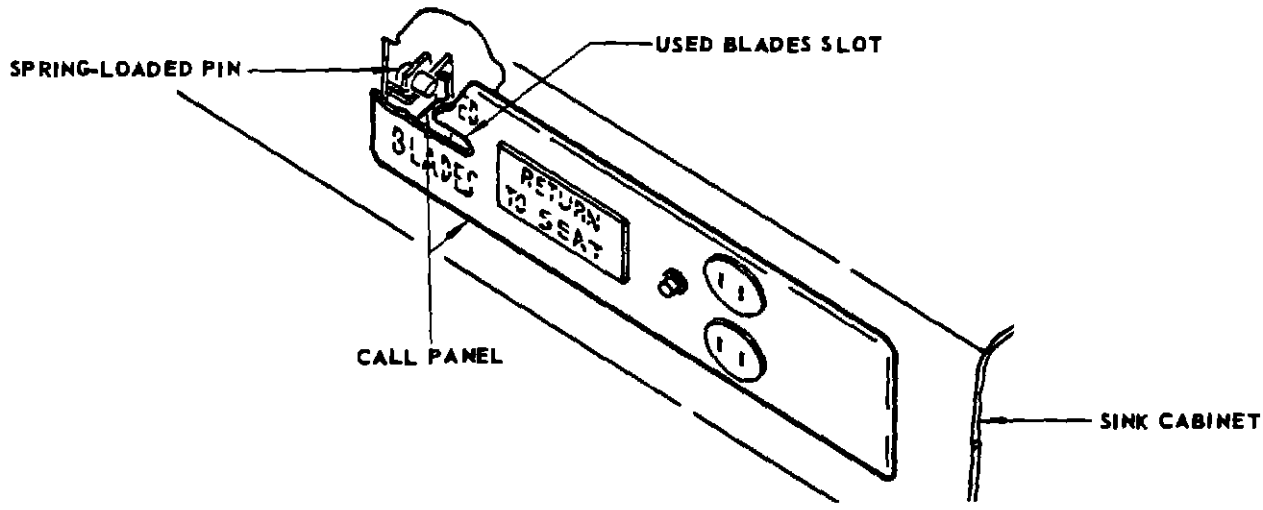
(3) Move lens assembly toward right to secure latch pins in slots.

2. Removal/Installation Lavatory "Return to Seat" Sign Lamps

A. General

(1) Each sign is lighted by one bayonet-type lamp. The socket is attached to the side of the sign assembly by a nut. The sign assembly is attached to the lavatory call panel.

(2) The lavatory call panel is bent at right angles at the left end. This end has a hole which is engaged by a spring-loaded pin. (See figure 202.) The right end carries a spring clip which grips the cutout in the face of the sink cabinet.



Lavatory Call Panel Installation
Figure 202

B. Remove Lavatory "Return to Seat" Sign Lamps

(1) Remove lavatory call panel.

(a) Insert a screwdriver through used blade disposal slot and push pin out of engagement. (See figure 202.)

(b) Swing out left end of panel and pull right end out of engagement.

(2) Remove nut from side of sign assembly. Pull socket out and remove lamp.

C. Install Lavatory "Return to Seat" Sign Lamps

(1) Install bayonet-type lamp, insert socket in sign assembly, and install nut.

(2) Push right end of lavatory call panel into engagement and engage hole in left end with spring-loaded pin.

END

LAVATORY LIGHTS - MAINTENANCE PRACTICES

1. Removal/Installation Lavatory Fluorescent Lamps

A. Remove Lavatory Fluorescent Lamp

(1) Remove plastic shade.

(a) Push lower end of shade towards partition against spring pressure.

(b) Slide shade down.

(c) Swing out upper end of shade and remove. Lamp is now accessible.

(2) Remove lamp.

B. Install Lavatory Fluorescent Lamp

(1) Install lamp.

(2) Install plastic shade.

(a) Hold shade in place with lower end resting on bottom of metal base.

(b) Push shade towards partition to engage spring clips.

NOTE Start with lower end.

(c) Push shade up after spring clips are engaged.

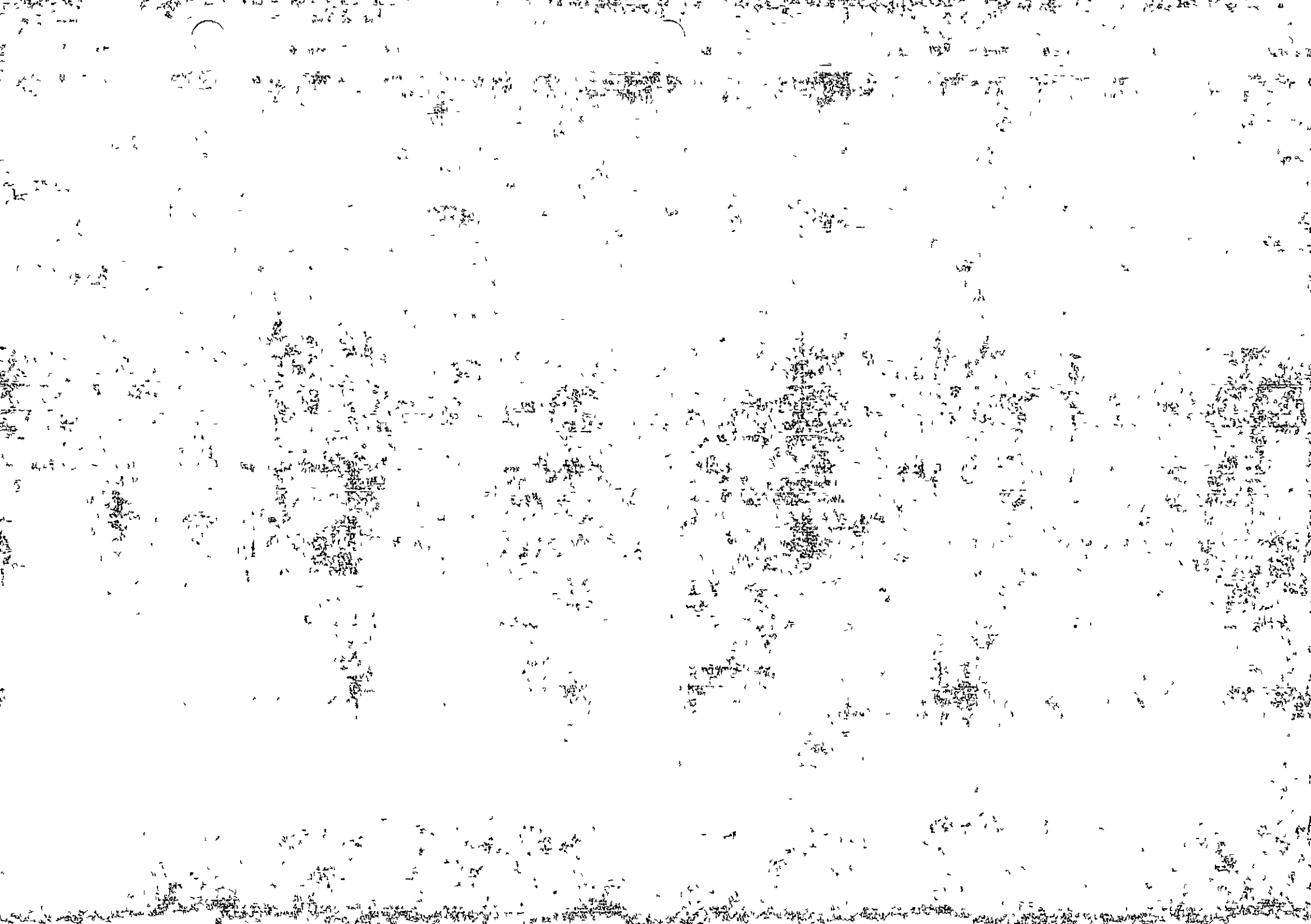
2. Removal/Installation Lavatory Dome Lights

A. General

(1) Access to the bayonet-type lamps is obtained by opening the service unit. When opening the service unit, slide fingers between unit door and oxygen mask to keep mask from dropping out. Mask may be hel' 'n place with adhesive tape while relamping. (For restowing mask see Chapter 35, "Passenger and Cabin Attendants Oxygen Masks").

WARNING. IF TAPE IS USED TO RETAIN MASK, REMOVE BEFORE CLOSING SERVICE UNIT.

END



EXIT AND EMERGENCY EXIT LIGHTS - MAINTENANCE PRACTICES

1. General

A. Three different types of exit lights are in use. One type of light employs solenoid operated switching, a second type uses a magnetic latch type relay and the third uses solid state switching. All three units are physically and functionally interchangeable. A control switch incorporated in the light is used to turn the lights on and off when the light is used as a portable emergency light. When installing the light the control switch should be turned to the "ARMED" position. On the solid state lights if the lamps are illuminated with the switch in the "ARMED" position, turn the control switch to "ON" and then back to the "ARMED" position.

2. Removal/Installation Exit and Emergency Exit Lights

A. Remove Exit and Emergency Exit Lights

(1) Pull plastic cover out of engagement (See figure 201.)

(2) Press in on latch levers and pull light assembly to remove.

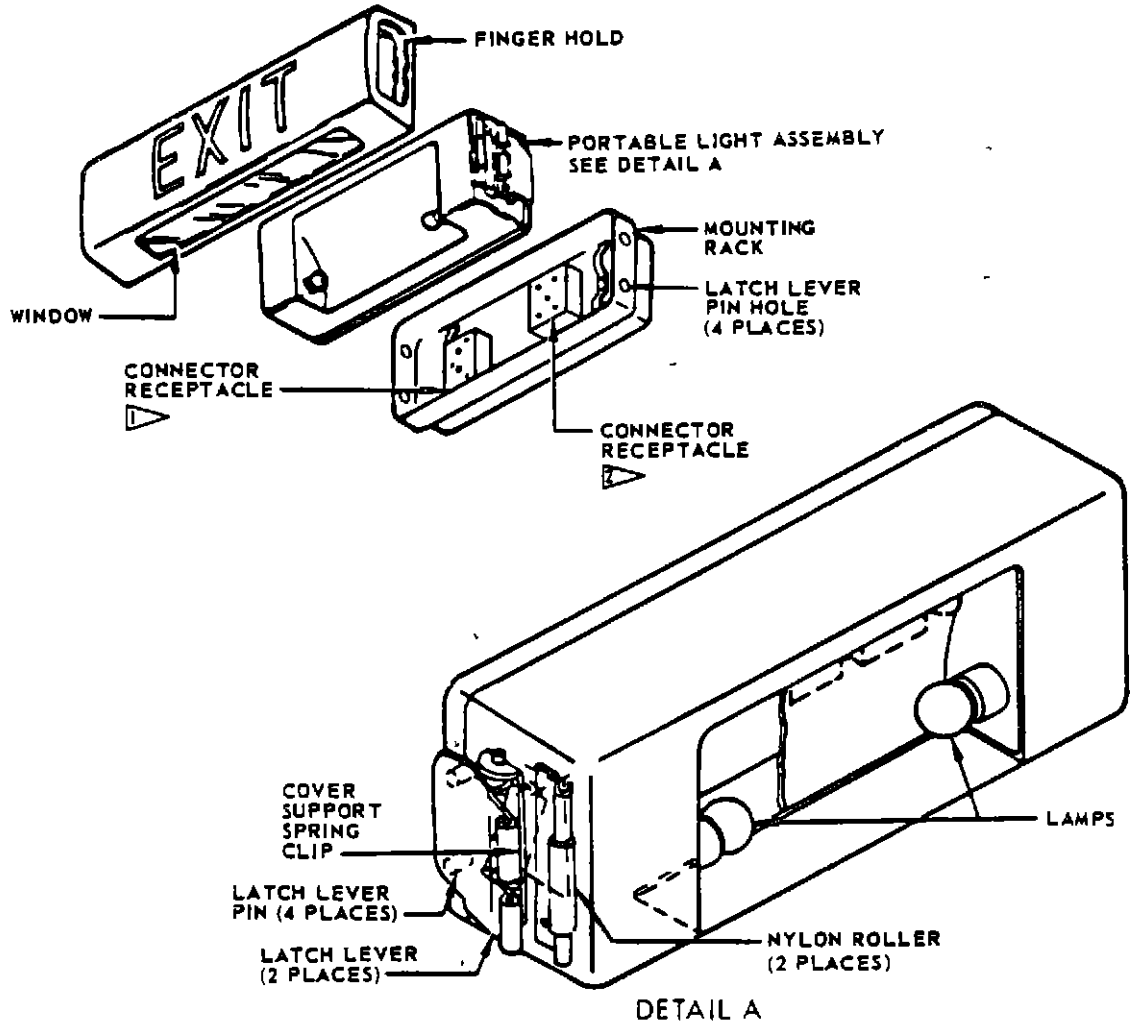
B. Install Exit and Emergency Exit Light

(1) Press in on latch levers and push light assembly into place, engaging latch lever pins in holes in mounting plate. (See figure 201.)

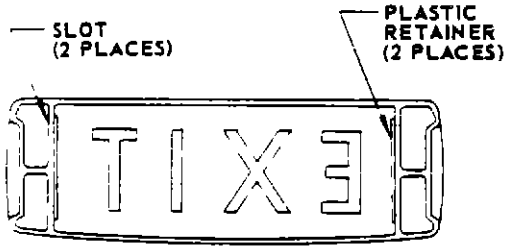
CAUTION: CHECK INSTALLATION AND MAKE SURE THAT ALL FOUR PINS ARE POSITIVELY AND FULLY ENGAGED.

(2) Push plastic cover over nylon rollers on spring clips on light assembly.

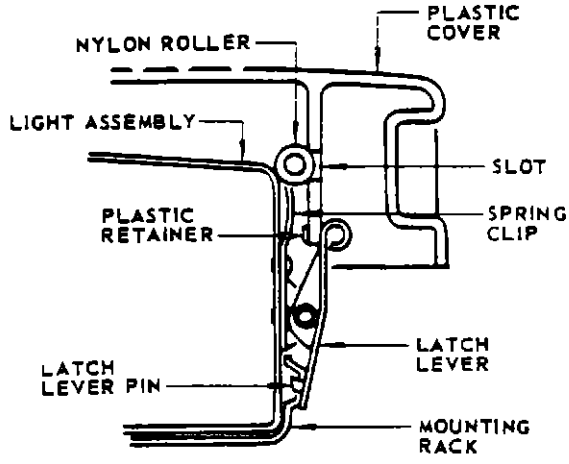
CAUTION COVER MUST BE PERFECTLY CENTERED AT ALL TIMES. IF IT TIPS OUTBOARD AT EITHER END, IT WILL RELEASE THE LATCH LEVERS WITH RISK OF THE LIGHT ASSEMBLY FALLING DURING FLIGHT.



DETAIL A



INSIDE VIEW OF PLASTIC COVER



SECTION SHOWING ATTACHMENT OF LIGHT ASSEMBLY AND PLASTIC COVER

1 *USED ON TRANSISTORIZED LIGHTS*

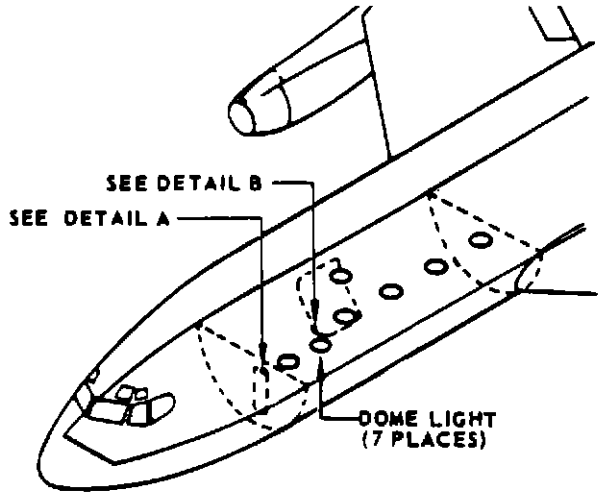
2 *USED ON NON-TRANSISTORIZED LIGHTS*

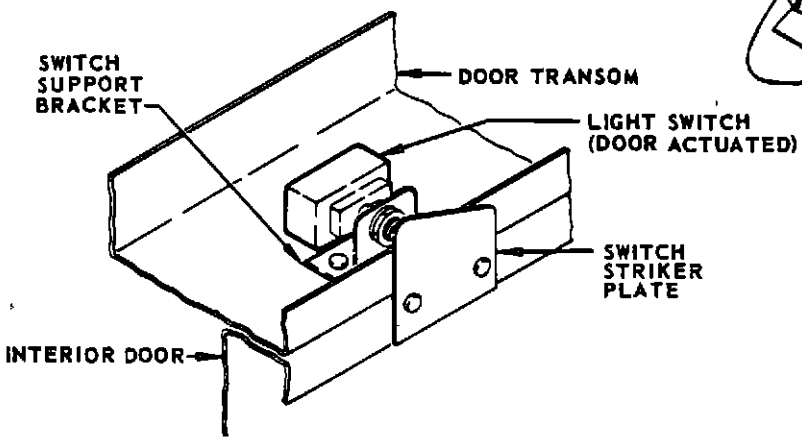
Exit and Emergency Exit Light Assembly Installation
Figure 201

FORWARD CARGO COMPARTMENT LIGHTING - DESCRIPTION AND OPERATION

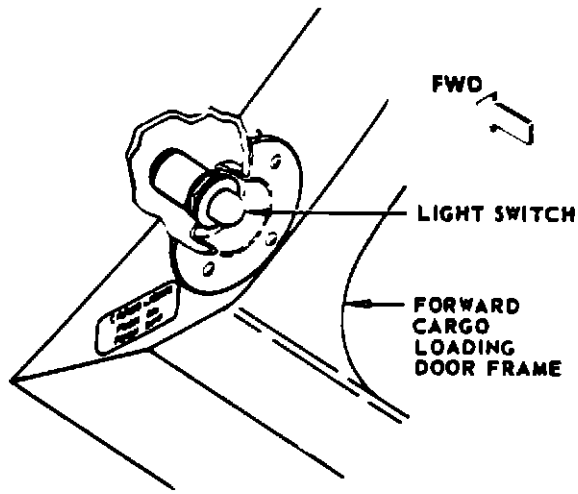
1. General

A General illumination of the forward cargo compartment is provided by seven clear dome lights in the compartment ceiling. (See figure 1) One of these seven lights is above the forward cargo door to illuminate the door area. The lights can be turned on by switches at the cargo door and at the cargo compartment interior door Light control at the cargo door is a push button switch in the forward jamb of the door frame. The switch is accessible only when the cargo door is open. Light control at the interior door is an actuator switch on the interior door transom The actuator switch, actuated by a striker plate on the door, automatically illuminates the lights when the interior door is opened.

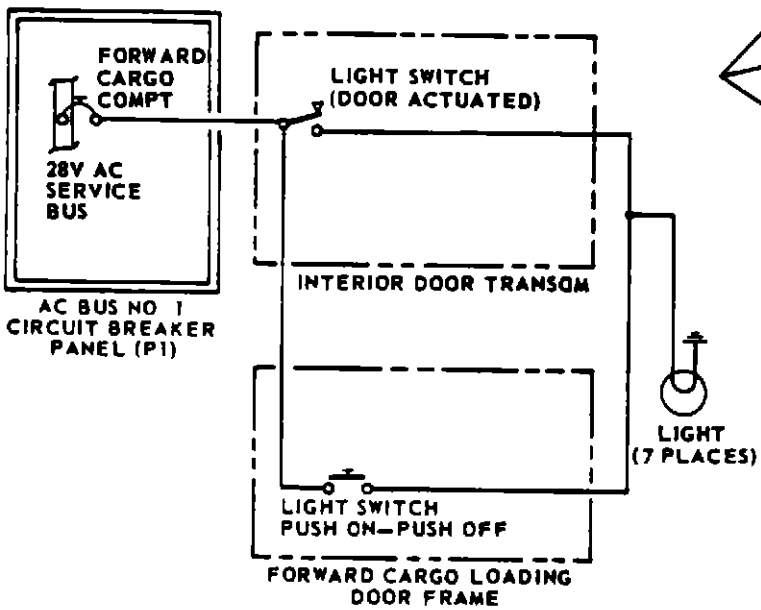




DETAIL A



DETAIL B



Forward Cargo Compartment Lighting
Figure 1

INTERIOR DOOR ACTUATED LIGHT SWITCH - MAINTENANCE PRACTICES

1. Removal/Installation Interior Door Actuated Light Switch

A. General

(1) The interior door actuated light switch is installed so that the lights are automatically illuminated when the interior door is opened and automatically extinguished when the door is closed. Improper installation can result in damage to the switch when the door is closed.

B. Remove Interior Door Actuated Light Switch

(1) Open forward cargo compartment interior door.

(2) Remove nut and washer from forward side of switch bracket. (See figure 201.)

(3) Disconnect wires from switch terminals.

CAUTION: IF ELECTRICAL POWER IS AVAILABLE ON AIRPLANE, OPEN CIRCUIT BREAKER ON A-C BUS NO. 1 CIRCUIT BREAKER PANEL (P1)

(4) Pull switch aft to remove from switch bracket.

C. Install Interior Door Actuated Light Switch

(1) Open forward cargo compartment interior door.

(2) Remove one nut and one washer from switch bushing.

(3) Mount switch, with actuator forward, on switch bracket. (See figure 201.)

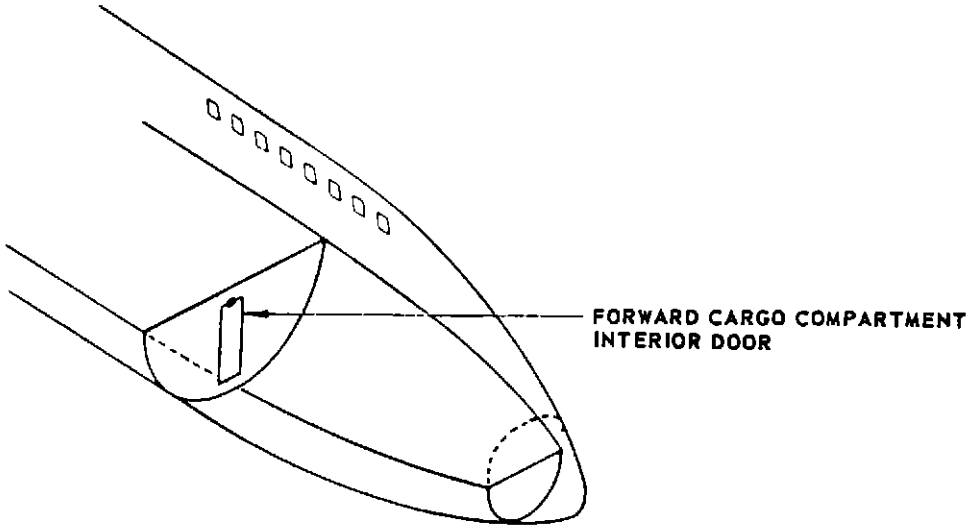
(4) Adjust nut so that threaded end of bushing is 0.18 (±0.03) inches aft of forward surface of transom.

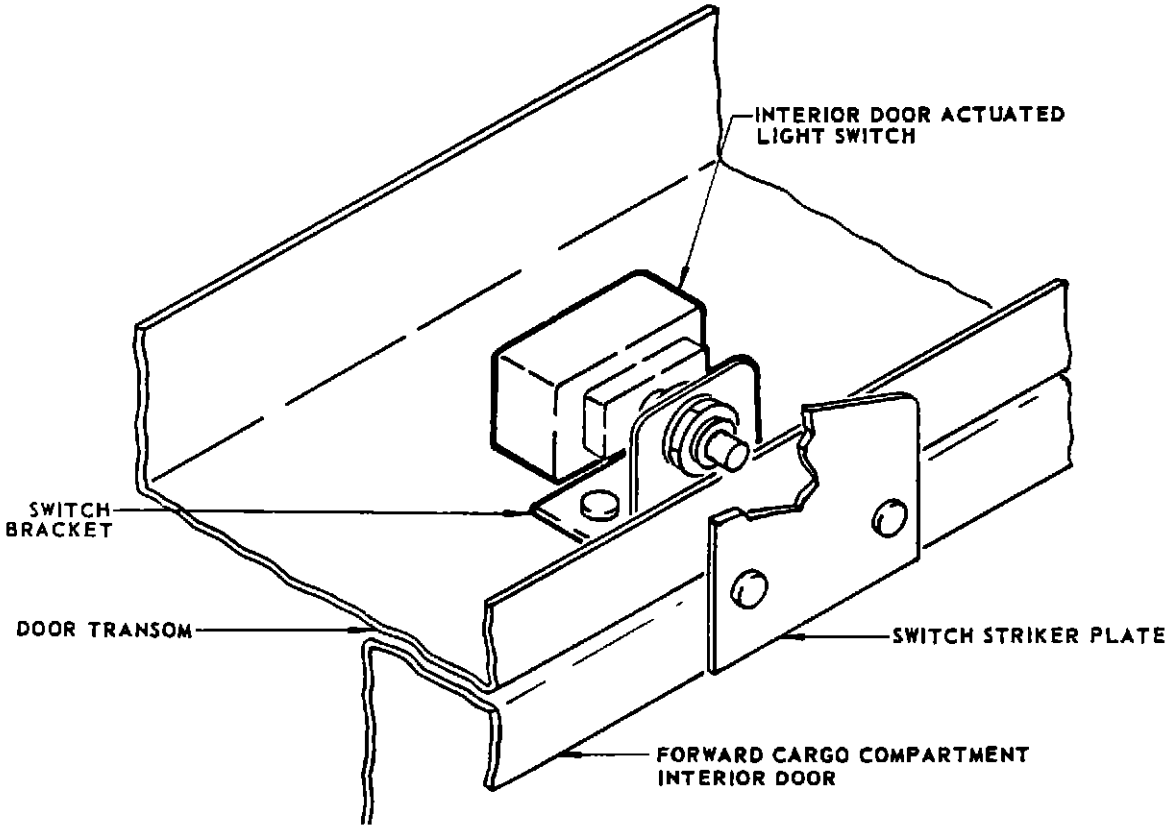
(5) Install washer and nut to secure switch to bracket.

(6) Connect wires to switch terminals.

(7) Close circuit breaker on a-c bus No. 1 circuit breaker panel (P1).

(8) Close and open interior door to check for proper switch operation.





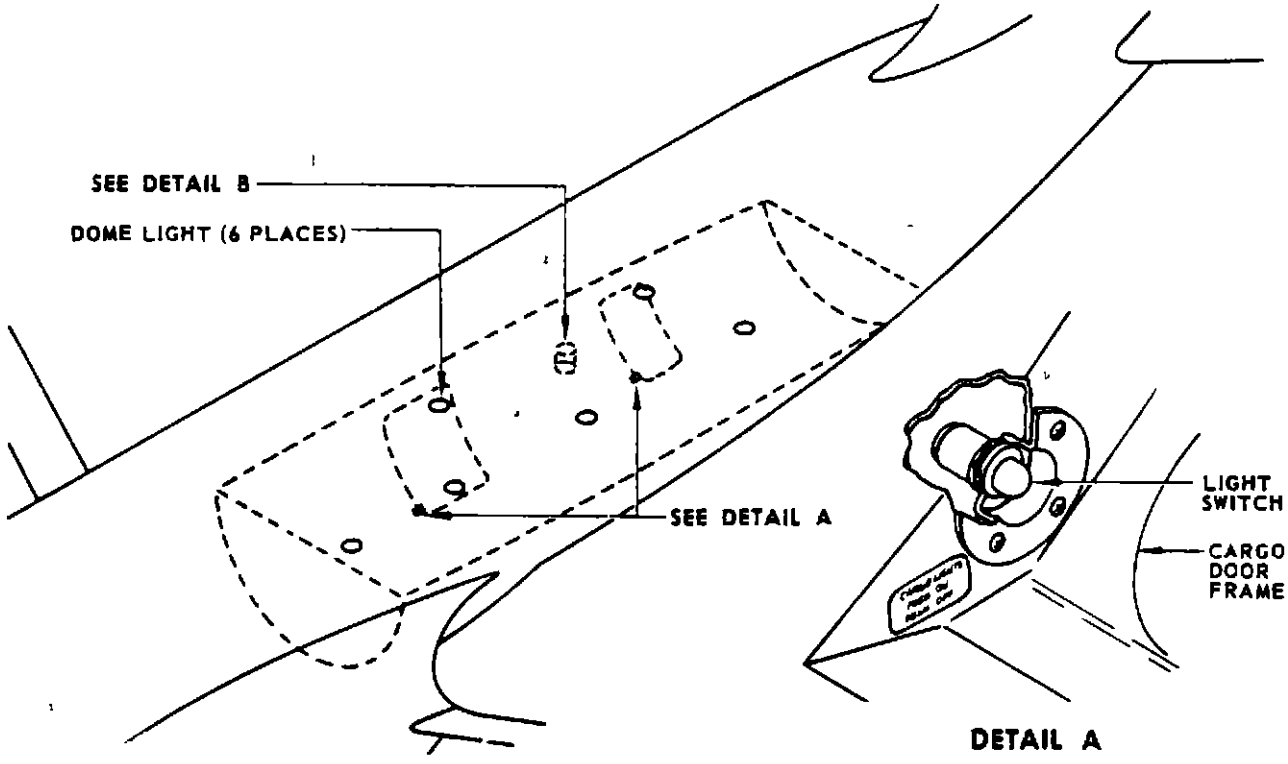
Interior Door Actuated Light Switch Installation
Figure 201

AFT CARGO COMPARTMENT LIGHTING - DESCRIPTION AND OPERATION

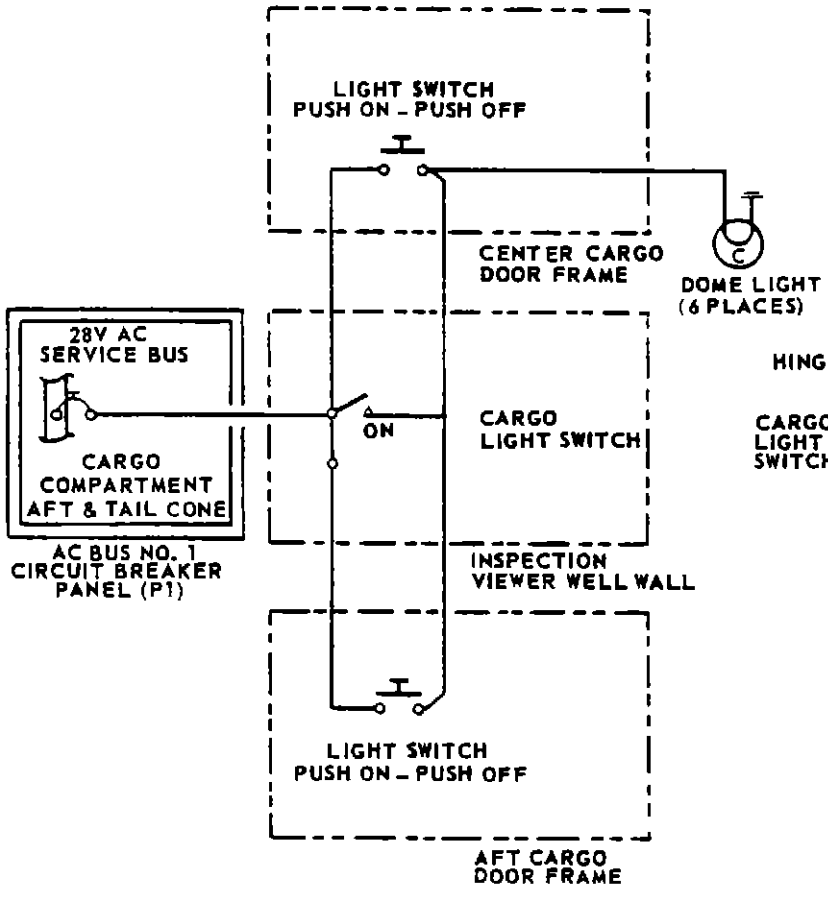
1. General

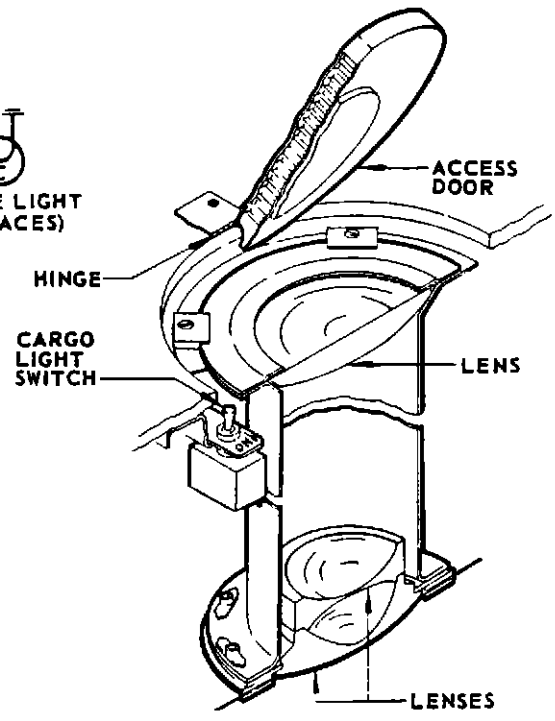
A. General illumination of the aft cargo compartment is provided by six clear dome lights in the ceiling. (See figure 1.) One of these six lights is above each cargo door to illuminate the center and aft cargo door areas. A push button switch in the forward jamb of each cargo door frame controls all six lights. Both push button switches are accessible only when the doors are open.

B. Aft cargo compartment lights can be illuminated by a spring-loaded toggle switch at the cargo compartment inspection viewer in the passenger cabin. The switch, located on the viewer well wall, is accessible through a door in the passenger cabin floor. (See figure 1.)



DETAIL A





DETAIL B
CARGO VIEWER

MISCELLANEOUS INTERNAL LIGHTING - DESCRIPTION AND OPERATION

1 Air Conditioning Equipment Compartment Lights

A. Illumination of each air conditioning equipment compartment is provided by one clear floodlight. (See figure 1) The floodlight in each compartment is mounted on a bracket on the outboard bulkhead of the compartment and is controlled by a toggle switch aft of the light (See figure 2.)

2. Lower Nose Compartment Lights

A Six white dome lights and a J1 relay shield light provide general illumination of the lower nose compartment. (See figure 1) Two of the lights are located above the electronic compartment external door. Three of the lights are in the area above the nose gear wheel well. One light is in the area forward of the wheel well. The J1 relay shield light is mounted on the top forward side of the electrical equipment rack. The lights are controlled by a toggle switch on the observer's panel or by a toggle switch on the electronic equipment cooling duct to the left of the external door. (See figure 2)

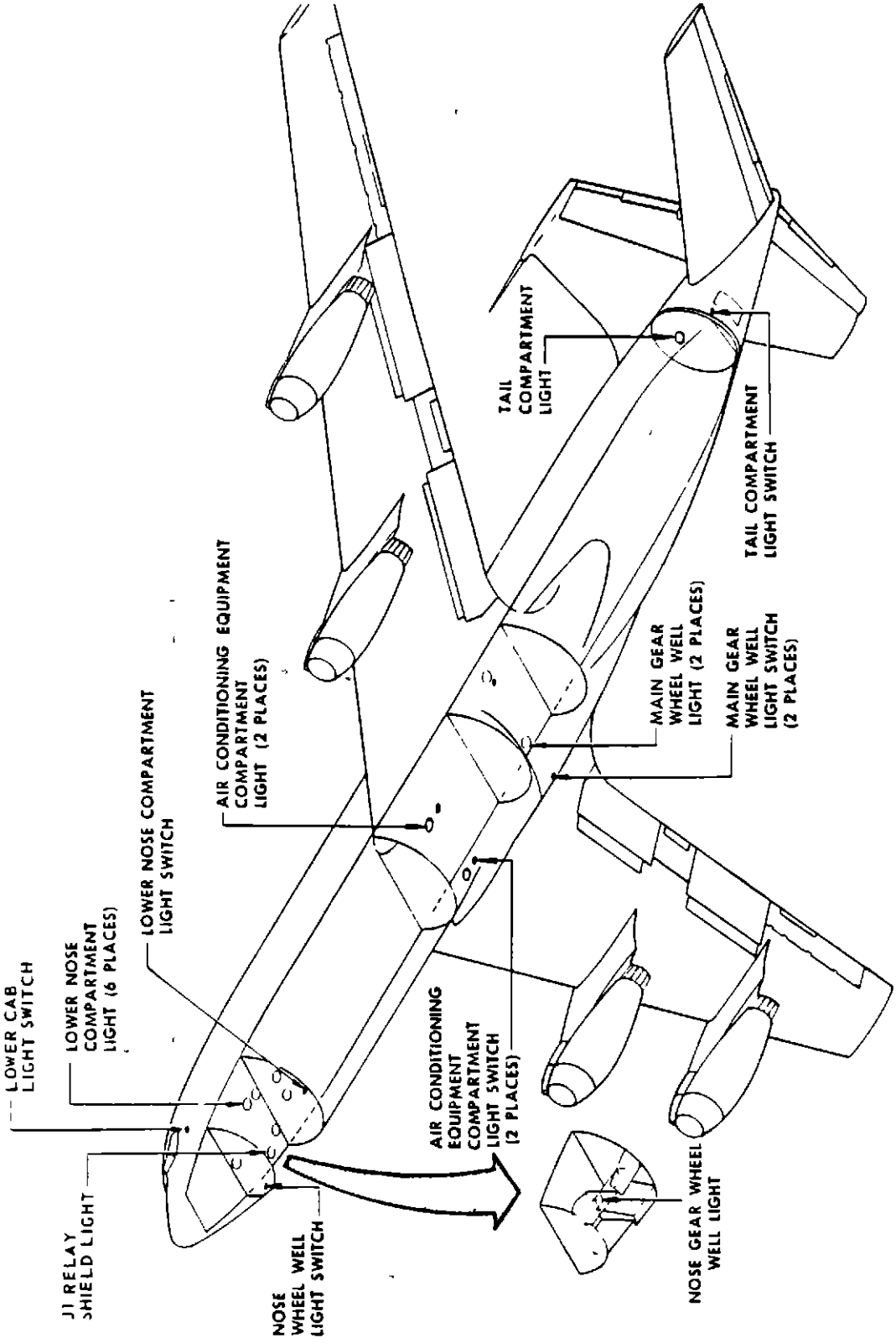
3. Tail Compartment Light

A. A white dome light illuminates the tail compartment. (See figure 1.) The light, bracket-mounted to a body frame in the compartment, is controlled by a toggle switch on the frame forward of the stabilizer jack screw access panel. (See figure 2.)

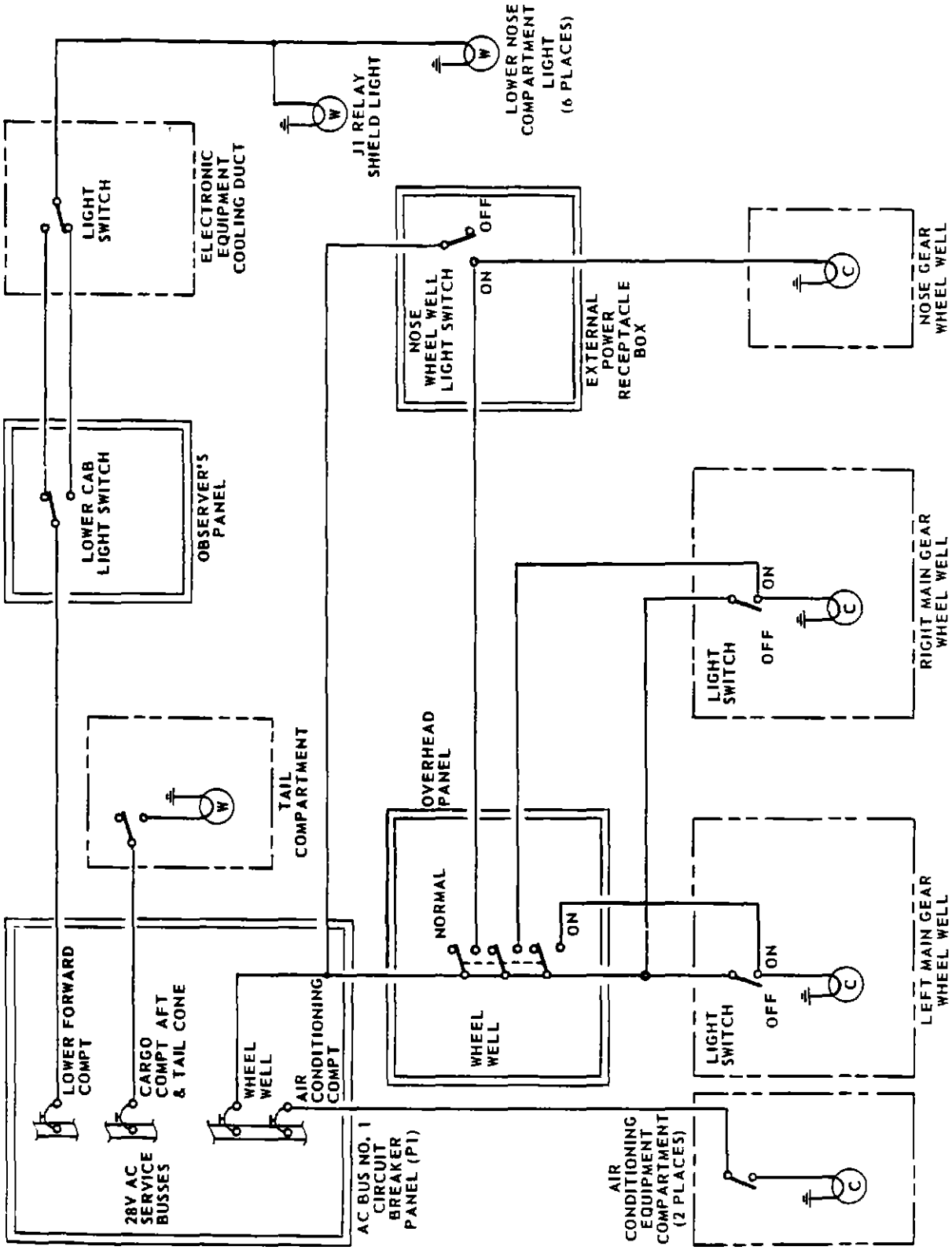
4. Wheel Well Lights

A. Each wheel well is illuminated by an explosion-proof clear light (figure 1) The nose gear wheel well light is located above the drag brace and aft of the nose gear inspection window. Each main gear wheel well light is on the wheel well ceiling aft of the side strut and inboard of the lock mechanism support bulkhead.

B. The wheel well lights can all be controlled by a switch in the control cabin or each light can be controlled individually by a switch which is accessible on the ground. If a light is turned on by one switch, it can only be turned off by the same switch. (See figure 2.) In the control cabin, the wheel well light switch is on the exterior lighting plate of the overhead panel. The nose gear wheel well light switch is in the external power receptacle box. Each main gear wheel well light switch is in a switch box adjacent to the main gear door ground release handle guide.



Miscellaneous Internal Lighting
Figure 1



Miscellaneous Internal Light Circuits
Figure 2

3 Anti-Colision Strobe Lights

A The Anti-Collision Strobe Light installation consists, of three basic components These are the flange plate that is permanently attached to the airplane structure, the lens, and gasket which are installed from the topside of the airplane; and the power supply assembly that is installed from the inside of the airplane

B On top of the power supply is the xenor are flashtube (lamp) mounted ancirling a parabolic reflector The reflector directs the light beam horizontally The timing circuit within the power supply controls the flash rate at approximately one flash per second The power supply is removed from the inside of the airplane by lowerlng a celling panel loosening four mounting nuts, turning and pulling the power supply and disconnecting the electrical wiring frow the termimal strip

C The 115V AC Bus No 1 supplies electrical power for light operation through the UPPER and LOWER-BEACON Lights circuit breaker on the circuit breaker panel P1

4 Wing Illumination and Nose Gear Taxi Lights

A The wing illumination lights illuminate the top surface, loading edge, and nacelle areas of each wing The lights are installed on both sides of the fuselage forward of the wing leading edge (See figure 1) Each light is installed behind a light access door A prismatic lens in the door breaks the light beam in two and redirects the aft beam toward the wing The direction of the light beams can be adjusted by loosening three adjustment screws in each of to brackets which secure the light to the door Two of the screws are in slotted holes in the bracket and the middle screw it at the pivot point

B The noise gear taxi light assembly is mounted on a bracket on the forward side of the nose gear strut The light turns with the nose qear and provides illumination for testing

C A three position detent lock type switch controls the wing illumination and nose gear taxi lights In the UP position the wing illumination lights and note pear taxl lights illuminate. In the CENTER position boths light are OFF In the PULL and DOWN position the wing illumination lights only illuminate Power for the wing illumination lights is from the 28V AC service bus Power for the nose gear taxi light is from the 28V AC bus Circuit protection for the wing illuminatlon light is a 10 amp circuit braeker on the AC bus No 1 circuit breaker panel P1 Circuit protection for the nose gear taxi light is a 10 amp circuit breaker on the 28V AC circuit brteaker panel P7

5 Landing Lights

A Inboard Landing Light

(1) The inboard landing light assemblies and their transformers are mounted in lightwells in the leading edge of each wing near the fuselage (Fig 1) A 28-volt sealed-beam lamp is cushioned by a gasket in an adjustable frame The direction of light beam can be adjusted laterally or vertically by three adjustment screws The lightwells are provided with a heat-resistant access window (lens) assembly The lamps are replaced and the light beam directions adjusted by removing, the window assembly With the airplane on a level aurface the lamps are pointed forward parallel to the airplane centerline and downward to a point on the ground approximately 67 feet forward of the pilot

(2) The 115-volt ac bus No 1 supplies power for the inboard landing lights through circuit braekers on the P1 circuit breaker panel Each light is provided a switch on the pilot's overhead panel Setting a switch to ON connects 115 volts ac to the autotransfomer located in the lightwell The autotransformer provides 25 volts ac for lamp operation (Fig 2)

B Retratable Outboard Landing Light

(1) The outboard (retractable) landing light in installed on the lower surface of each outboard wing (Fig 1) Each light assembly consits of a lamp, a retrecting mechanizm, a reversible dc motor, limit switches, and a 115/28-volt autotransfomer Each light can he extended, retracted, or stopped at any intermediate position, and when fully retrated, is flush with the wing

(2) Separate switches on the overhead panel provide independent control of motor operation and lamp illumination for each light (Fig 2) The lamp is operated by 28-volts ac from tte autotransformer Power to each autotransformer in from the 115-volts ac bus No 3 through a circuit breaker on the P3 or P4 circuit breaker panel Power for operation of each motor to from the 28-volt de TR buses No 3 or 4 through a circuit breaker on the P5 circuit breaker panel A switch in the refueling bay door shuts oft the light when the door is open

6 A runway Turnoff Lights

A A runway turnoff light is mounted in each inboard landing lightwell A 28-volt scaled-beam lamp is cushioned by a gasket in an adjustable frame Adjustment for the runway turnoff light in the same as adjustment for the landing lights except for beam direction With the airplane on a level surface, the runway turnoff light beam is directed to a ground level point approximately 50 feet forward of the pilot and 67 feet away from the airplane centerline on the airplane the light is on

B The 28-volt ac beam provides elecxtrical power for the runway turnoff lights through circuit breakers on the P7 circuit breaker panel switches on the pilot's overhead panel provide indicidual light control (See figure 2)

EXTERIOR LIGHTS - DESCRIPTION AND OPERATION

Effectivity. LX-N19997 AND LX-N20000

1 General

A The exterior lights used in normal flight operations consists or four landing lights, two runway turnoff lights, an upper and a lower anti-collision strobe light, two wingtip navigation lights, tail navigation light, two wing illumination lights, and a nose gear taxi light (Fig 1)

B All exterior lights use 28-volt lamps exept for the anti-collision strobe lights. Power is supplied either from a 28-volt ac bus or a 115-volt ac bus through a stepdown transformer. Power for the anti-collision strobe light is supplied from the 115V AC Bus No 1 The navigation lights are provided with capability of operation off the battery bus All control switches for exterior lights re located on the pilot's overhead panel P13

2 Navigation Lights

A The navigation (position) lights include a red light on the left wingtip, a green light on the right wingtip, and a white tail light The lights can be used in flight or when the airplane is being towed Wingtip lights are visible to the pilots

B Each wingtip light contains two clear lamps, installed with thier silvered surfaces aft, under a heat-resistant glass cover of the respective color The lamps are wired in parallel so that illumination in the wingtip is retained if one lamp burns out in flight The glass cover is removable for relamping

C The tail light is mounted on the end of the fuselage Removing two mounting screws releases the cover for relamping Two 28-volt clear lamps are mounted under a white nondiffusion cover The lamps are wired in parallel so that illumination of the tail is retained if one lamp burns out in flight

D A switch on the pilot's overhead panel controls the navigation lights Electrical power for the lights is from the 28-volt ac service bus through a circuit breaker on the P1 circuit breaker panel When the airplane is being towed, power for the lights can be supplied from the airplane battery by position the switch to ON BATT (Fig. 2)

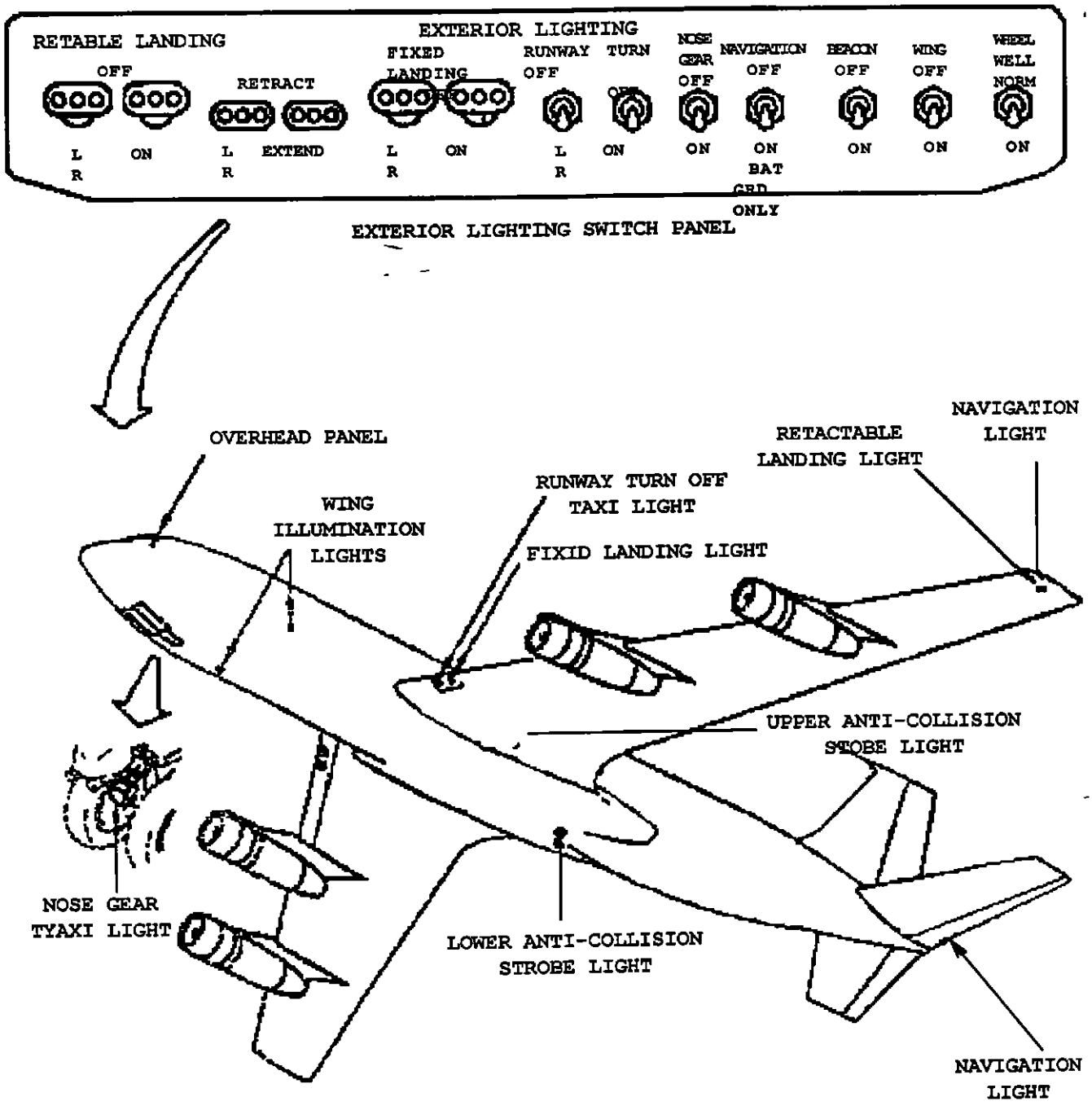
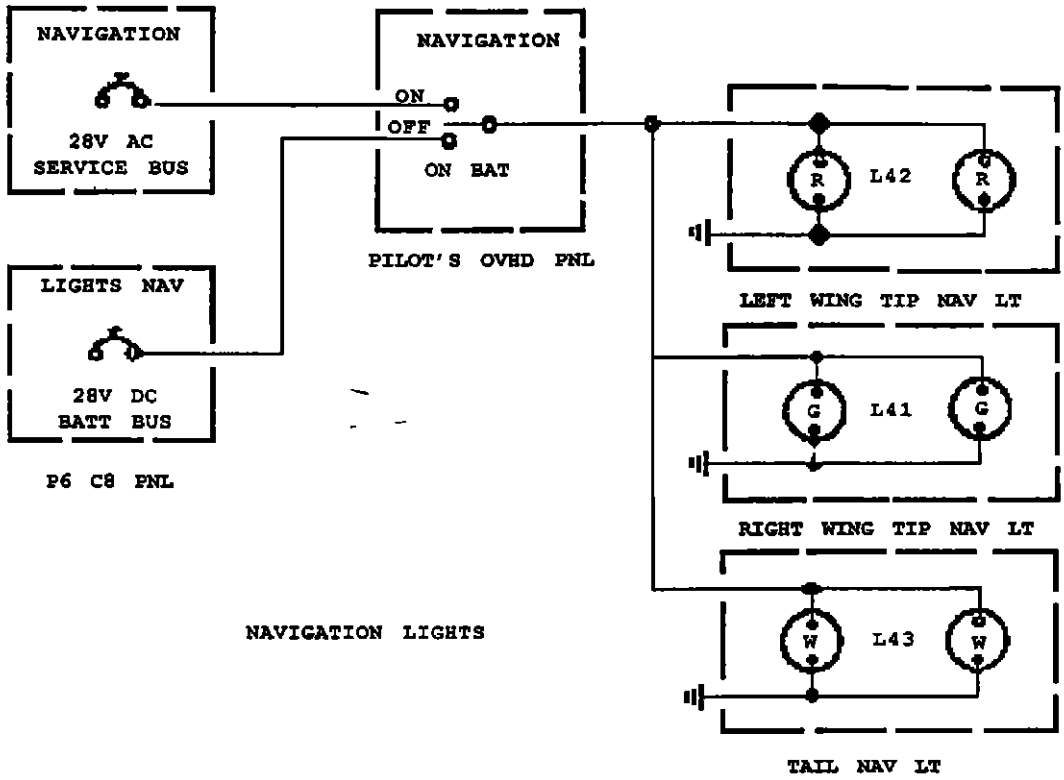
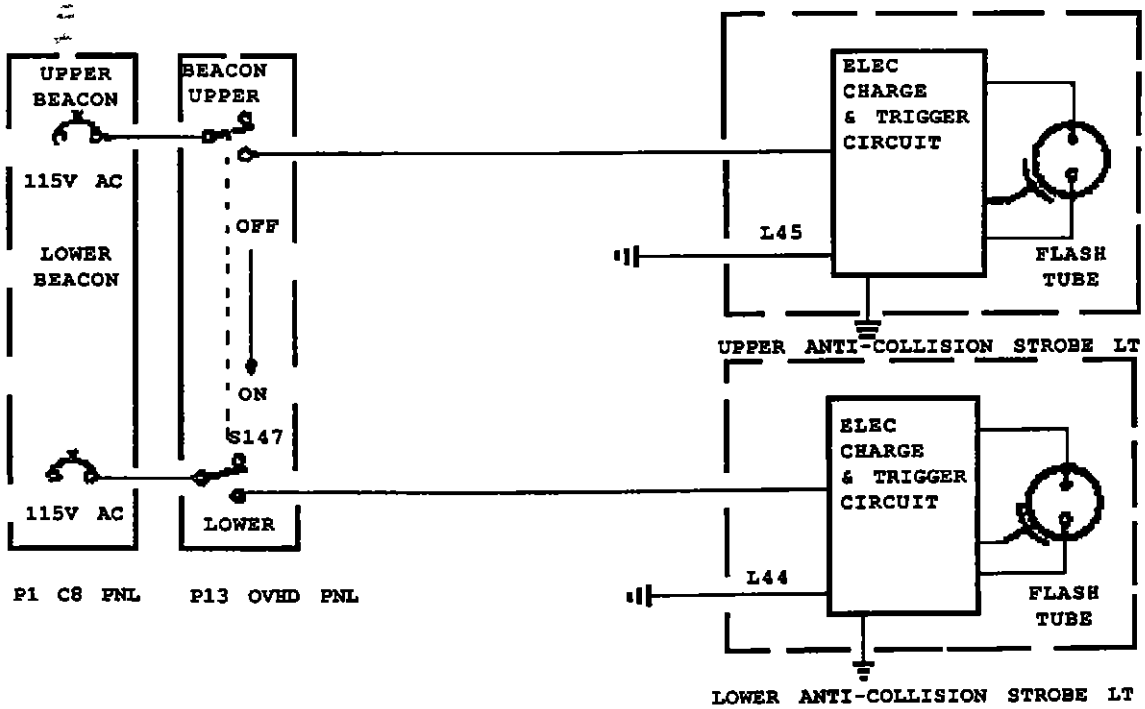


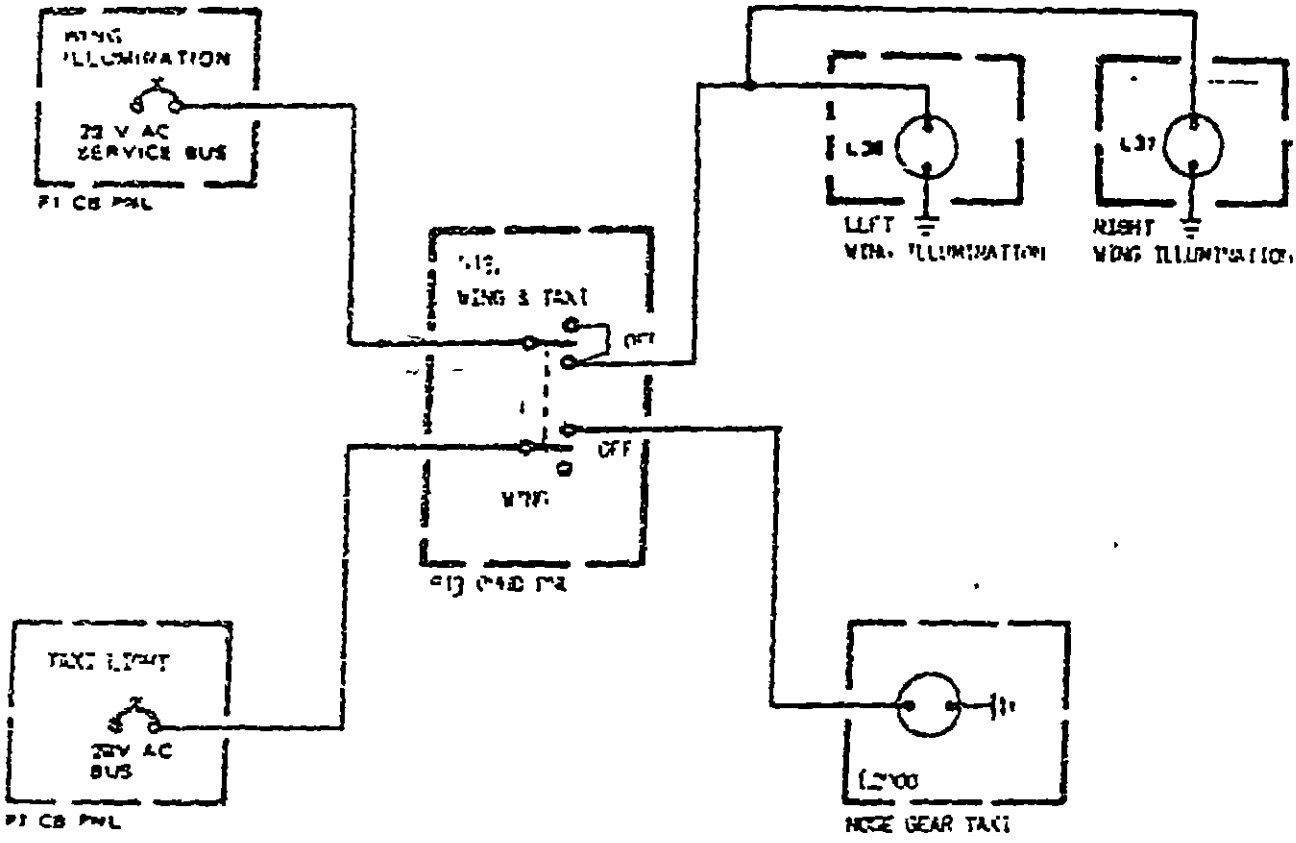
Figure 1 - Sheet 2- off 2
Exterior Lighting



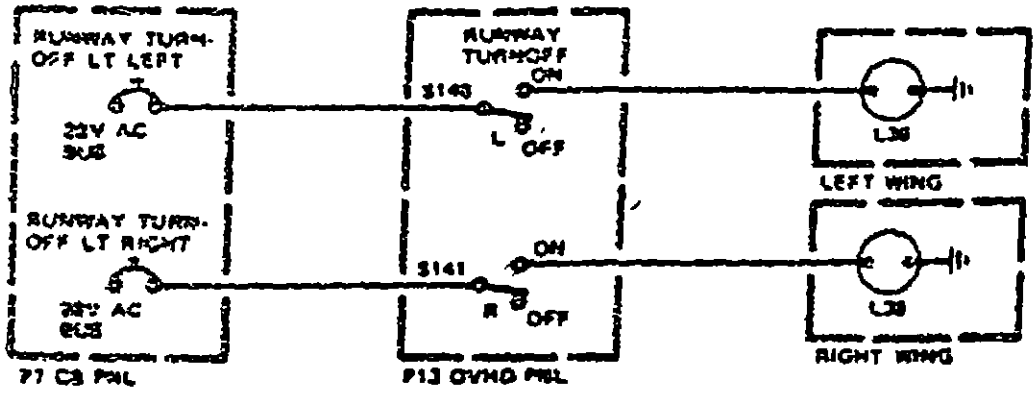


ANTI-COLLISION STROBE LIGHTS

Exterior Lights Simplified Shematics
Figuyre 2 (Sheet 1)

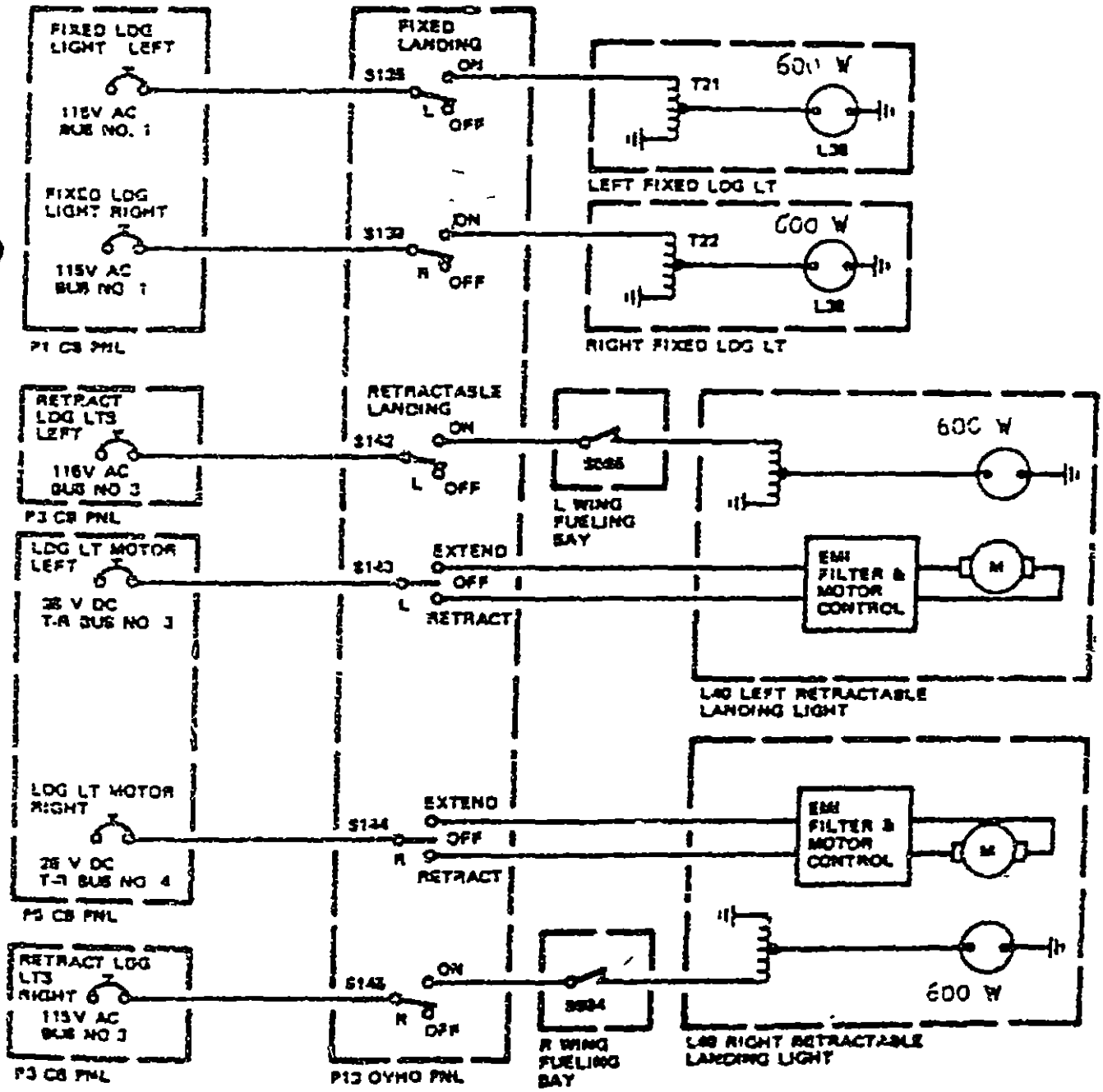


WING ILLUMINATION AND NOSE GEAR TAXI LIGHTS



RUNWAY TURNOFF LIGHTS

Exterior Lights Simplified Shematics
Figure 2 (Sheet 2)



LANDING LIGHTS

Exterior Lights Simplified Shematics
Figure 2 (Sheet 3)

RETRACTABLE LANDING LIGHTS - MAINTENANCE PRACTICES

1 Removal/Installation Retractable Landing Lights

A. General

(1) Each retractable landing light is secured to a mounting ring which is inside the lower surface of the wing An electrical cable on the light assembly, which plugs into a receptacle on the rib outboard of the light, is secured by a clamp to the stiffener above the light. When removing the light, it is necessary to lower and support the light while the clamp is removed When installing the light, it is necessary to raise and support the light while the clamp is installed.

B. Remove Retractable Landing Light

(1) Remove mounting ring screws and support landing light. (See figure 201)

(2) Lower light until clamp on stiffener is accessible

(3) Remove clamp from stiffener.

(4) Disconnect plug from receptacle on rib outboard of light

C. Install Retractable Landing Light

(1) Connect plug to receptacle on rib outboard of light (See figure 201.)

(2) Clamp electrical cable to stiffener directly above light. Support light so that there is no strain on cable.

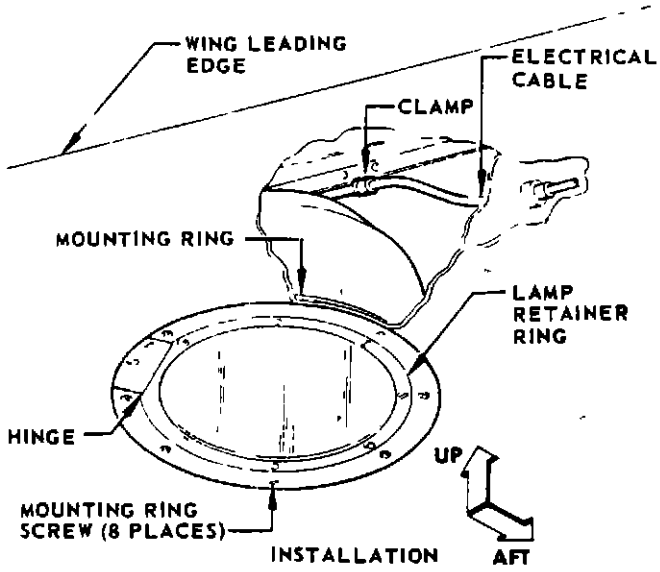
(3) Secure light, hinge forward, to wing by installing mounting ring screws

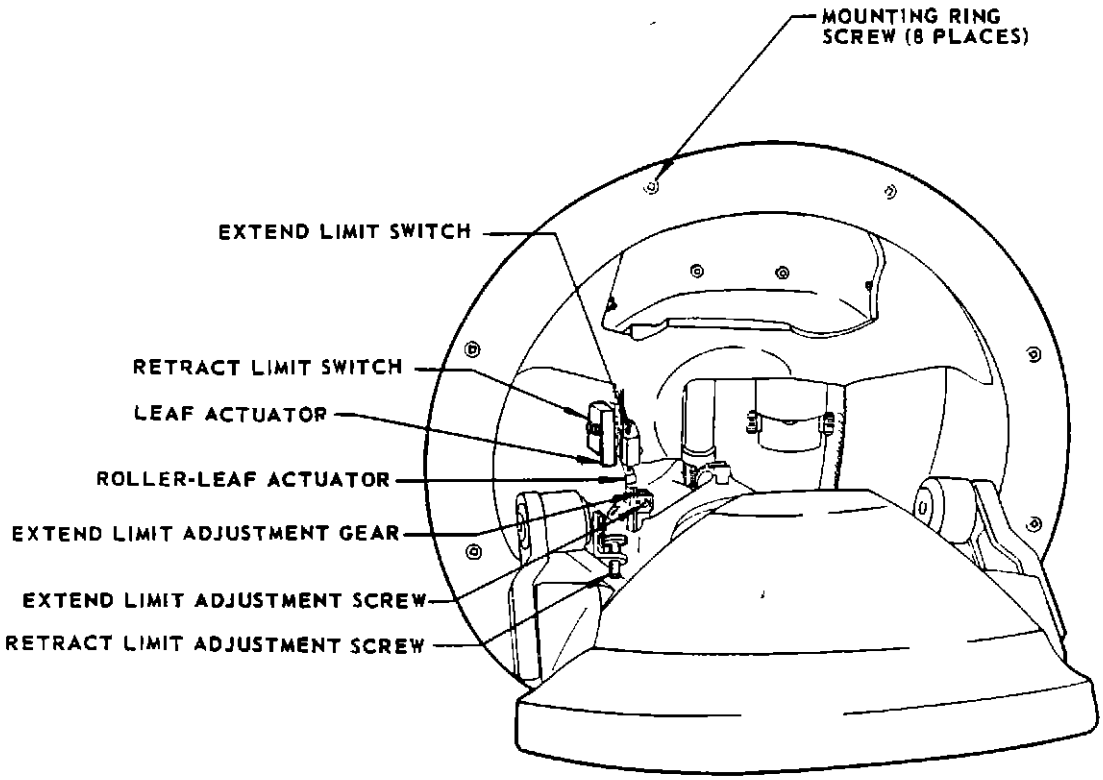
(4) Adjust light beam. See paragraph 2.

2 Adjustment/Test Retractable Landing Lights

A General

(1) Each retractable landing light is adjustable laterally and vertically. The light beam center line is adjusted, with the airplane in normal taxi attitude, to a point on level ground when





Installation Retractable Landing Lights
Figure 201

the light is fully extended The beam is adjusted laterally by rotating the light when it is loosened from the mounting ring It is adjusted vertically by adjusting limit switches to vary the fully extended and retracted.positions of the light The limit switches are accessible when the light is extended Adjustment of the retract position limit switch should be necesarry only upon installation

B Adjust Retractable Landing Light

(1) Connect external power to airplane

(2) Verify that the following circuit breakers are closed

(a) Landing light motor circuit breaker on radio and T-R circuit breaker panel (P5)

(b) Retactable lading light circuit breaker on a-c bus No 3 circuit breaker panel (P3)

(3) On overhead panel, actuate positioning switch to "EXTEND"

(4) When light is fully extended, actuate positioning switch to "OFF "

(5) Actuate light switch to "ON" to determine position of light beam

CAUTION DO NOT ILLUMINATE LIGHT MORE THAN 5 MUNUTES ALLOW AT LEAST 5 MINUTES BEFORE RE-ILLUMINATING

(6) Loosen eight mouting ring screws (See figure 201)

NOTE Do not remove screws

(7) Ratate light about vertical axis until light beam is positioned properly (See figure 202)

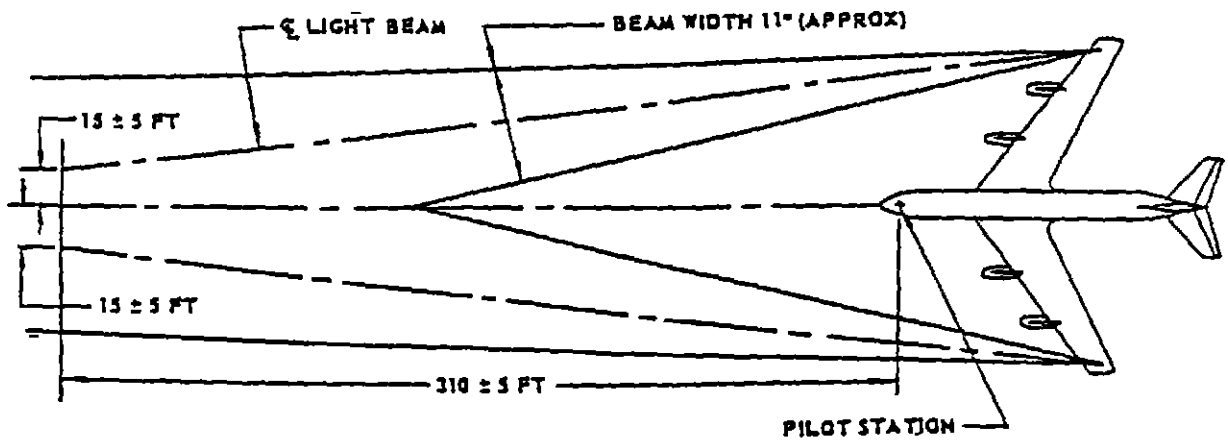
(8) Tighten mounting ring screws

(9) To adjust extend position limit switch, turn extend limit adjustment screw until light beam is 310 (+/- 5) feet forward of pilot

(10) Repeat steps "6" through "9" until light beam is adjusted to required position

(11) Turn retract limit adjustment screw as required until light in retract position is flush with lower surface of wing

(12) Disconnect external Power from airplane



LIGHT PATTERN

RUNWAY TURN-OFF TAXI LIGHTS - MAINTENANCE PRACTICES

1 Equipment and Materials

A Equipment

(1) Sealing gun - 6-inch length cartridge, Semco Research, Inc or equivalent

(2) Sealant cutting tool - hardwood or plexiglass

(3) Varnish brush - 1 inch or 2 inch

(4) Spatula

B Materials

(1) Aerodynamic smoother - Pro-Seal 715, Coast Pro-Seal and Manufacturing Co ; EC 1328, Minnesota Mining and Manufacturing Co ; Presstite 108, Presstite-Keystone Products Eng Co , or equivalent

(2) Accelerator - as indicated on aerodynamic smoother container

(3) Aliphatic Naphtha - TT-N-95 or equivalent

(4) Tape, masking - Permacel Tape No. 70 or No 85, American Tuck Tape No 210, or equivalent

(5) Tape, parting - Silicon adhesive backed Teflon Tape 002 inch thick by 1 inch wide, Temp R-C, Connecticut Hard Rubber Co , New Haven, Connecticut, or Permacel #422 Teflon Tape 0035, Permacel Tape Corp , New Brunswick, New Jersey

(6) Sealant, weather - Coast Pro-Seal Mfg Co. 707-B4, Minnesota Mining and Mfg. Co EC 1239-B4, or equal

2 Removal/Installation Runway Turn-Off Taxi Lights

A Remove Runway Turn-Off Taxi Light

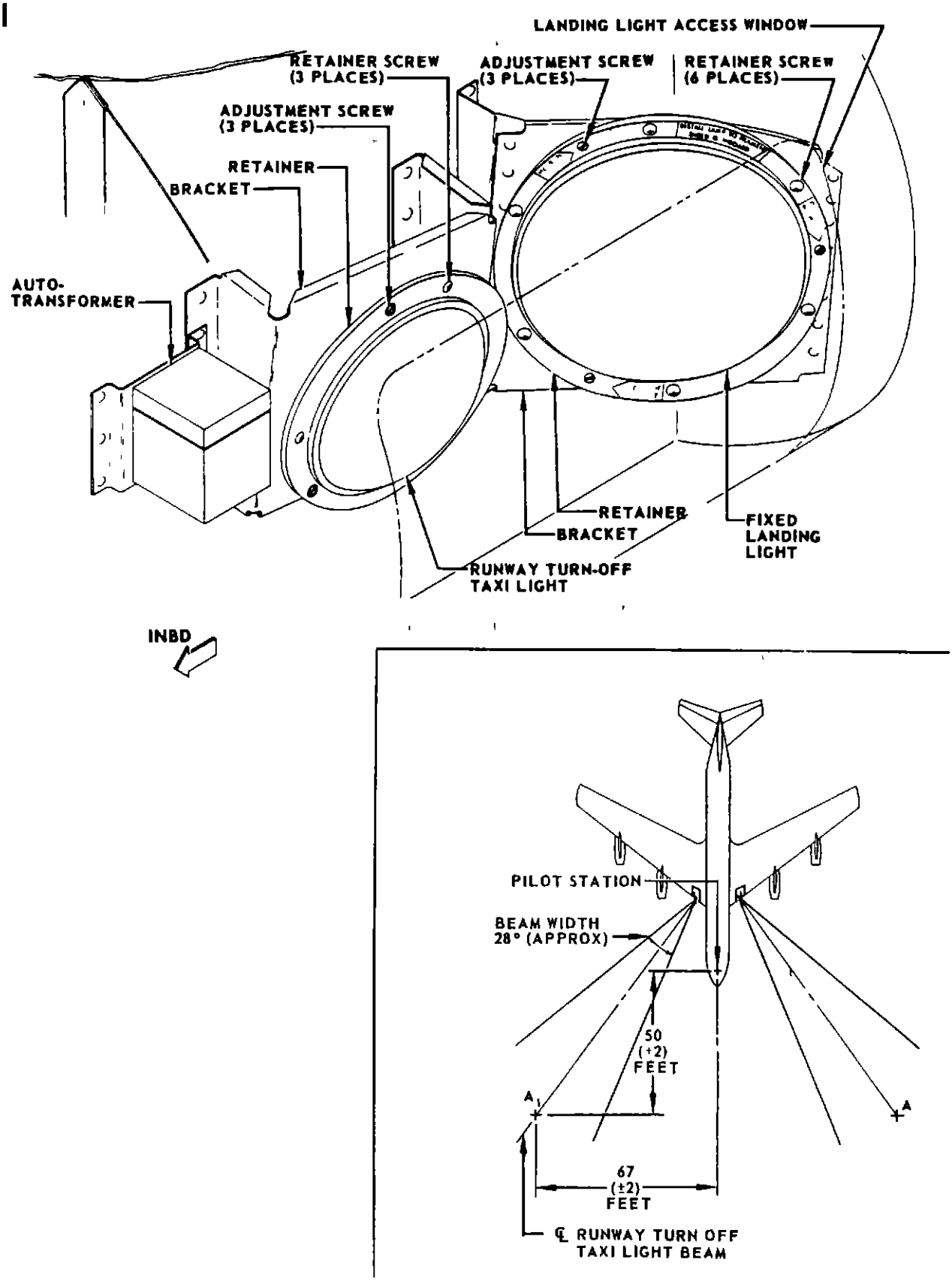
(1) Remove landing light access window (figure 201).

(2) Remove outer retainer by removing three retainer screws

NOTE: Do not turn adjustment screws.

(3) Remove lamp from inner retainer

(4) Disconnect wires from screw terminals on lamp.



Runway Turn-Off Taxi Light Installation and Adjustment
Figure 201

B Install Runway Turn-Off Taxi Light

(1) Connect wires to screw terminals on lamp

(2) Align locating lug on lamp with slot in inner retainer so top of lamp is properly positioned Set lamp on retainer

(3) Place outer retainer (figure 201) on lamp, aligning holes with holes in inner retainer, and install three retainer screws

(4) Using sealant cutting tool, remove aerodynamic smoother and sealant from landing light access window frame

(5) Remove grease, oil, dirt, and chips from window frame and from edge of window Use small varnish brush and apply fresh aliphatic naphtha for cleaning. Wipe cleaner off with clean cloth before dry.

(6) Apply parting tape on all joining surfaces to be covered by window frame, butt splice as necessary

(7) Apply approximately 1/32 inch thick coating of weather sealant to parting tape

(8) Install landing light access window.

(9) Cover skin and window with masking tape adjacent to recess between them.

(10) Using sealing gun, apply aerodynamic smoother

NOTE: Make certain no air is trapped in recess during filling Overfill recess to allow for smoothing and leveling.

(11) Use spatula to smooth compound level with masking tape. Remove excess compound.

(12) Remove masking tape. Use cleaner to remove adhesive from skin.

3 Adjustment/Test Runway Turn-Off Taxi Lights

A. General

(1) Each runway turn-off taxi light is adjustable laterally and vertically. The light beam center line is adjusted, with the airplane in normal taxi attitude, to a point on level ground.

B. Adjust Runway Turn-Off Taxi Light

(1) Connect external power to airplane.

(2) Remove landing light access window (figure 201)

(3) Verify that runway turn-off taxi light circuit breaker on 28 volt a-c circuit breaker panel (P7) is closed.

(4) On overhead panel, actuate runway turn-off taxi light switch to "ON" to determine position of light beam.

CAUTION. DO NOT ILLUMINATE LIGHT MORE THAN 5 MINUTES. ALLOW AT LEAST 5 MINUTES BEFORE REILLUMINATING.

(5) Turn adjustment screws as required to adjust light. Adjust until light beam center line is 50 (± 2) feet forward of pilot and 67 (± 2) feet from airplane center line. (See figure 201)

(6) Using sealant cutting tool, remove aerodynamic smoother and sealant from landing light access window frame.

(7) Remove grease, oil, dirt, and chips from window frame and from edge of window. Use small varnish brush and apply fresh aliphatic naphtha for cleaning. Wipe cleaner off with clean cloth before dry.

(8) Apply parting tape on all joining surfaces to be covered by window frame; butt splice as necessary.

(9) Apply approximately 1/32 inch thick coating of weather sealant to parting tape

(10) Install access window

(11) Disconnect external power from airplane

(12) Cover skin and window with masking tape adjacent to recess between them.

(13) Using sealing gun, apply aerodynamic smoother.

NOTE Make certain no air is trapped in recess during filling. Overfill recess to allow for smoothing and leveling.

(14) Use spatula to smooth compound level with masking tape. Remove excess compound.

(15) Remove masking tape Use cleaner to remove adhesive from skin

Effectivity LX-N20199

BEACON LIGHTS MAINTEMANCE PRACTICES

1 General

A The upper beacon light can assembly is riveted to the airplane skin To minimize time required for removal/installation, only the mounting plate and attached parts are removed Access to the light is through an access panel in the passenger cabin ceiling aft of the center dropped ceiling

2 Removal/Installation Upper Beacon Light

A Remove Upper Beacon Light (See figure 201)

(1) In passenger cabin, remove upper beacon light access panel

(2) Disconnect wires at terminal strip

(3) Loosen retainer screw on bottom of beacon light mounting plate

(4) Slip spring out of slots in can

(5) Lover mounting plate, motor, turntable, and lamps out of can

B Install Upper Beacon Light

(1) With lamps, turntable, and motor attached to mounting plate, position plate so that lip on plate is aligned with slot in forward side of can

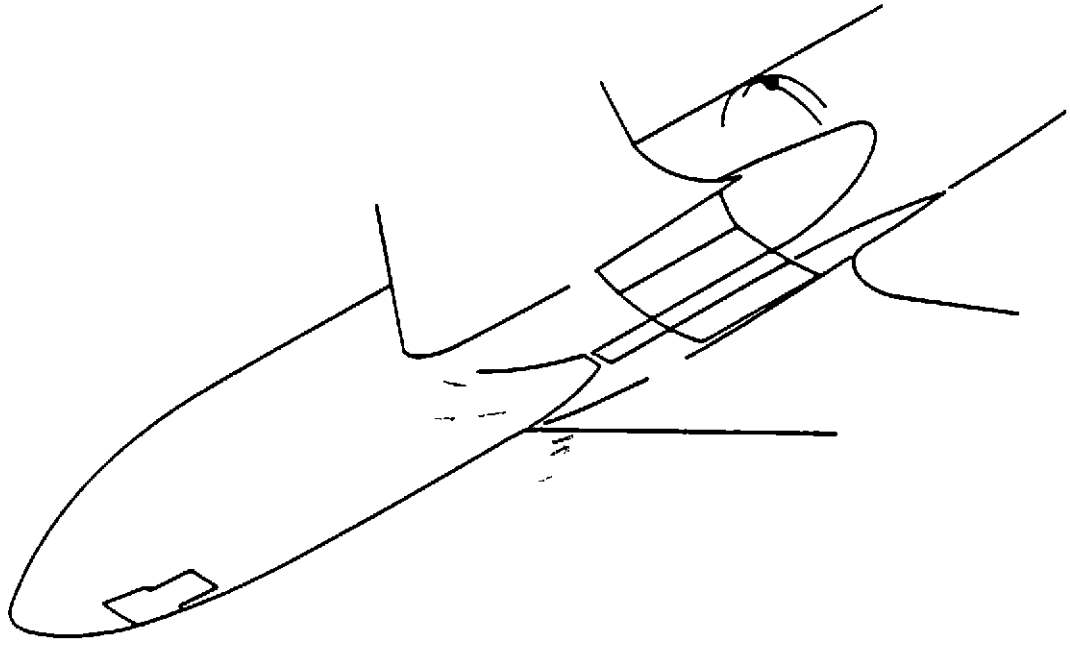
(2) Snap spring into slots in can

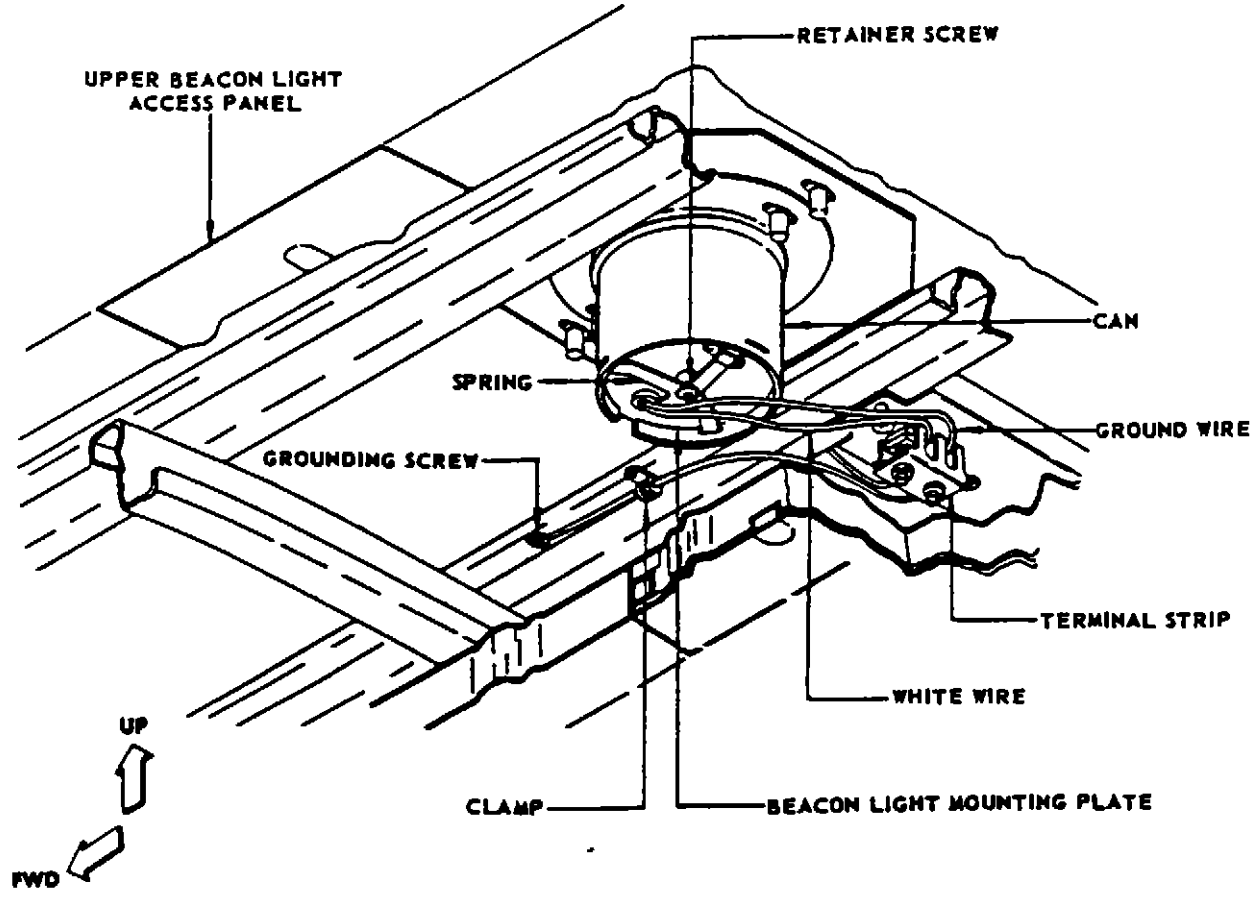
(3) Tighten retainer screw on bottom of mounting plate

(4) Connect wire marked "NEG" to ground on terminal strip

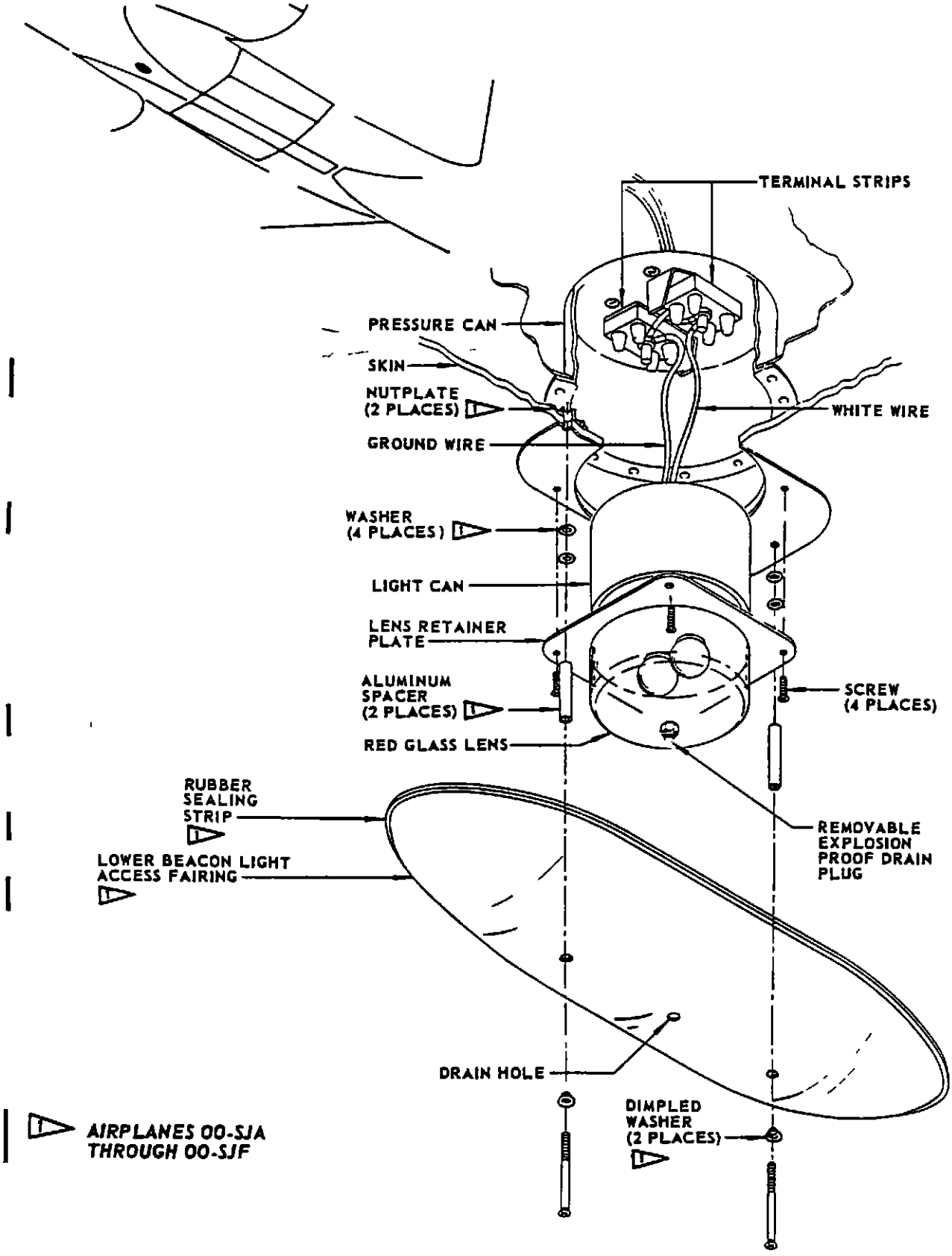
(5) Connect white wire to power on terminal strip

(6) Install upper beacon light access panel





Upper Beacon Light Installation
Figure 201


TERMINAL STRIPS
PRESSURE CAN
SKIN
NUTPLATE (2 PLACES)
WHITE WIRE
GROUND WIRE
WASHER (4 PLACES)
LIGHT CAN
LENS RETAINER PLATE
ALUMINUM SPACER (2 PLACES)
SCREW (4 PLACES)
RED GLASS LENS
RUBBER SEALING STRIP
REMOVABLE EXPLOSION PROOF DRAIN PLUG
LOWER BEACON LIGHT ACCESS FAIRING
DRAIN HOLE
DIMPLED WASHER (2 PLACES)
AIRPLANES 00-SJA THROUGH 00-SJF

3 Removal/Installation Lower Beacon Light

A Remove Lower Beacon Light

(1) Support light assembly and remove four screws from lens retainer plate Lower light assembly enough to get access to wires

CAUTION HOLD LIGHT SO THAT GLASS LENS WILL NOT FALL

(2) Disconnect electrical wires from terminal strip

B Install Lower Beacon Light

(1) Support light assembly and connect wire marked "NEG" to ground terminal "1" on terminal strip (figure 202) Connect white wire to power terminal "2."

NOTE Ground wire is identified by "N" at end of wire identification number

(2) Raise light assembly through cutout in skin Install lens retainer plate to secure light to airplane

(3) On airplanes OO-SJA through OO-SJF install lower beacon light access fairing

CAUTION IF A NEW FAIRING IS BEING INSTALLED, LENGTH OF ALUMINUM SPACER MUST BE CHOSEN SO AS TO HAVE A REASONABLY TIGHT FIT BETWEEN RUBBER SEALING STRIP AND BODY SKIN WITHOUT CRACKING OR EXCESSIVE DEFORMATION OF PLEXIGLASS ACCESS FAIRING SPACER MAY BE TRIMMED OR SHIMMED AS NECESSARY BOTH SPACERS MUST BE EQUAL IN LENGTH

WARNING LEAVE CLEARANCE BETWEEN RED LENS DRAIN PLUG AND PLASTIC FAIRING DRAIN HOLE, TO PERMIT DRAINAGE THROUGH BOTH

ANTI-COLLISION STROBE LIGHTS - MAINTENANCE PRACTICES

Effectivity LX-N19997 and LX-N20000

1 General

A The upperr Anti-Collision Strobe Light located at station 990 is mounted in a flange assembly that is riveted to the airplane structure The power supply which contains the xenon are flashtube (lamp) is mounted to the flange assembly from the inside of the airplane The lens assembly is attached to the flange from outside of the airplane The Anti-collosion light is mounted through a cutout in the bottom of the fuselage aft of the main wheel wells

B Access to the upper Anti-Collision Strobe Light is by lowering a ceiling panel

2 Removal/Installation Upper Anti-Collision Strobe Lights

A Remove Upper Anti-Collision Strobe Light (See fig 201)

(1) Open UPPER BEACON LIGHT circuit breaker on P1 circuit breaker panel

(2) In passenger cabin, remove upper anti-collision strobe light access panel or lower ceiling panel as applicable

(3) Disconnect wires at terminal strip

(4) Loosen four nuts retainer assembly, rotate power su^ly clockwise and pull power supply down through mounting flnge access hole in air duct

B Install Upper anti-Collision Strobe Light

(1) Place power supply inposition and rotate counter clockwise to engage mounting screws

(2) Tighten retainer nuts

(3) connect wiring to terminal strip

(4) Close circuit breaker opened in step 2 A (1)

(5) Raise and latch ceiling panel (Ref Chap

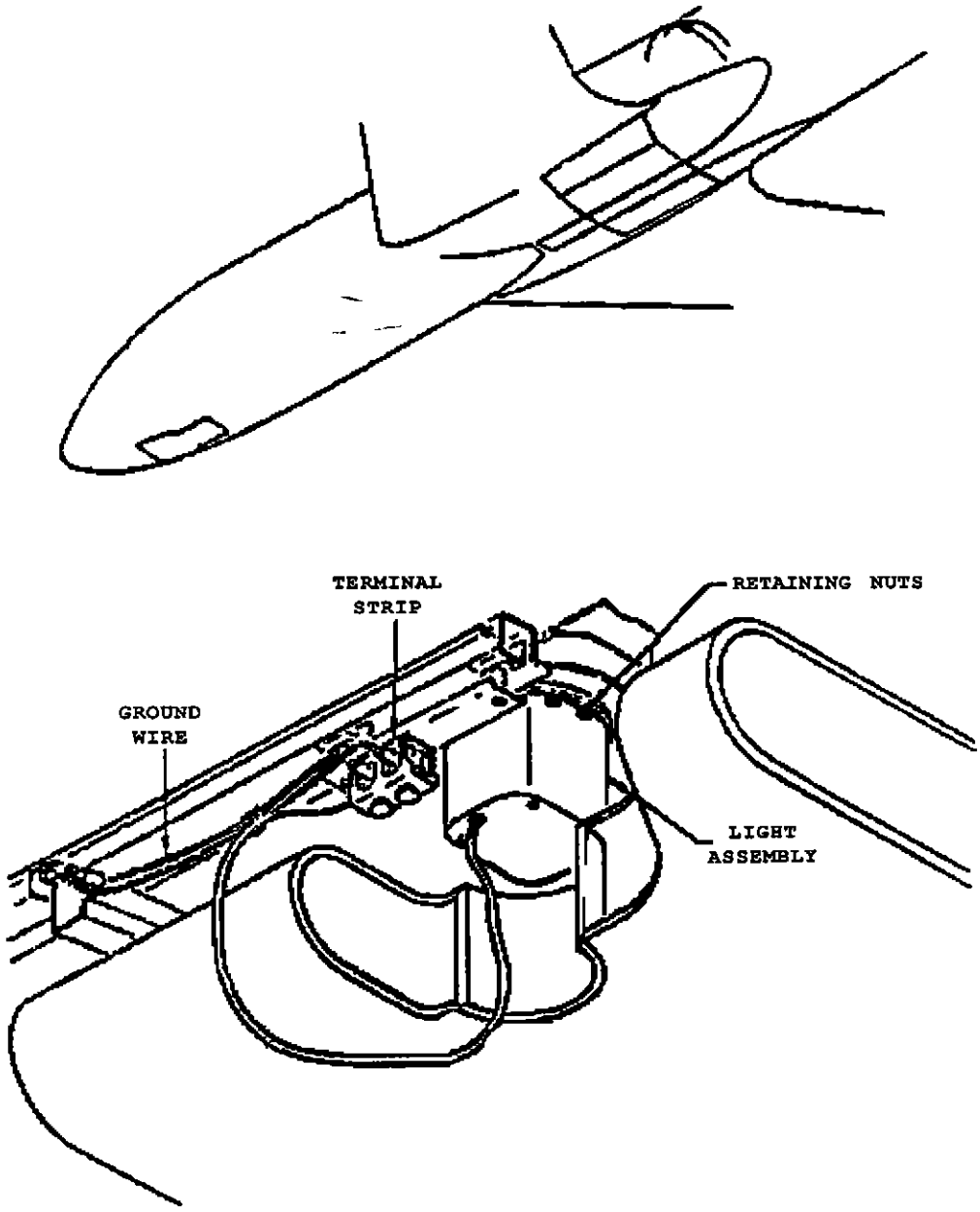
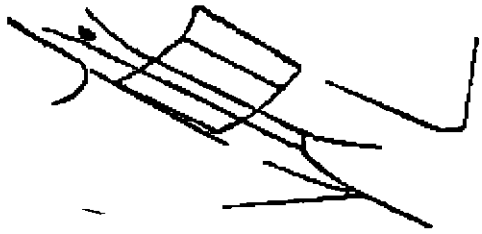
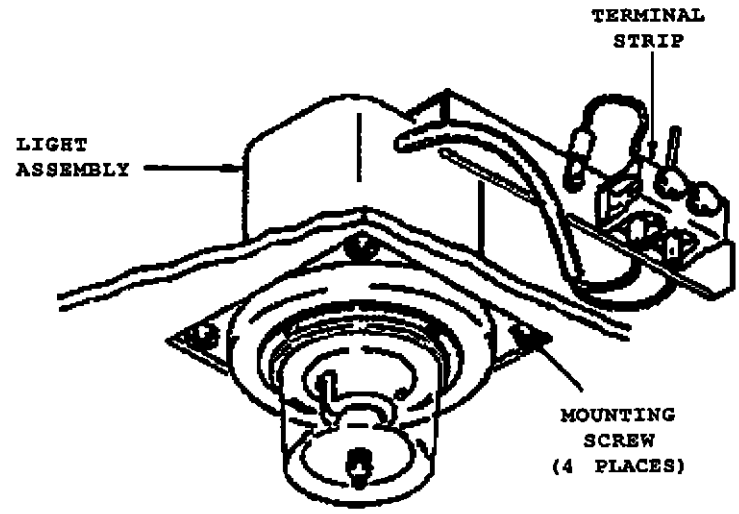


Fig 201 Upper Anti-Collision Strobe Light Installation




TERMINAL
STRIP
LIGHT
ASSEMBLY
MOUNTING
SCREW
(4 PLACES)

(6) Test Upper Anti-Collision Strobe Light

(a) Provide electrical power

(b) Set beacon light switch on pilot's overhead panel to ON and then to OFF Check that the light comes on and flashes

(c) Remove eletrical power if no longer required

3 Removal/Installation Lower Anti-Collision Strobe Light

A Remove Lower Anti-Collision Strobe Light

(1) Open LOWER BEACON LIGHT circuit breaker on P1 circuit breaker panel

(2) Support light assembly and remove four mounting screws Lower light assembly enough to get access to wires (See figure 202)

CAUTION HOLD LIGHT SO THAT GLASS LENS WILL NOT FALL

(3) Disconnect two electrical wires from terminal strip and remove light assembly

B Install Lower Anti-Collision Strobe Light

(1) Support light assembly and connect wires to terminal strip (See figure 202)

(2) Raise light assembly through cutout in skin and secure mounting screws

(3) Close LOWER BEACONLIGHT circuit breaker on P1 circuit breaker panel

(4) Test Lower Anti-Collision Strobe Light

(a) Provide electrical power

(b) Set beacon light switch on pilot's overhead panel to ON and then to OFF Check that the light comes on and flashes

(c) Remove electrical power if no longer required

WING ILLUMINATION LIGHTS - MAINTENANCE PRACTICES

1. Adjustment/Test Wing Illumination Lights

A. General

(1) Each wing illumination light is adjustable laterally. The light beam center line is adjusted with the airplane in normal taxi attitude. The light beam is broken in two by a prismatic lens on the access door. One half strikes the wing and the other is perpendicular to the airplane centerline.

B. Adjust Wing Illumination Light

(1) Connect external power to airplane.

(2) Verify that wing illumination light circuit breaker on a-c bus no. 1 circuit breaker panel (P1) is closed.

(3) On overhead panel, actuate wing light switch to "ON" to determine position of light beam.

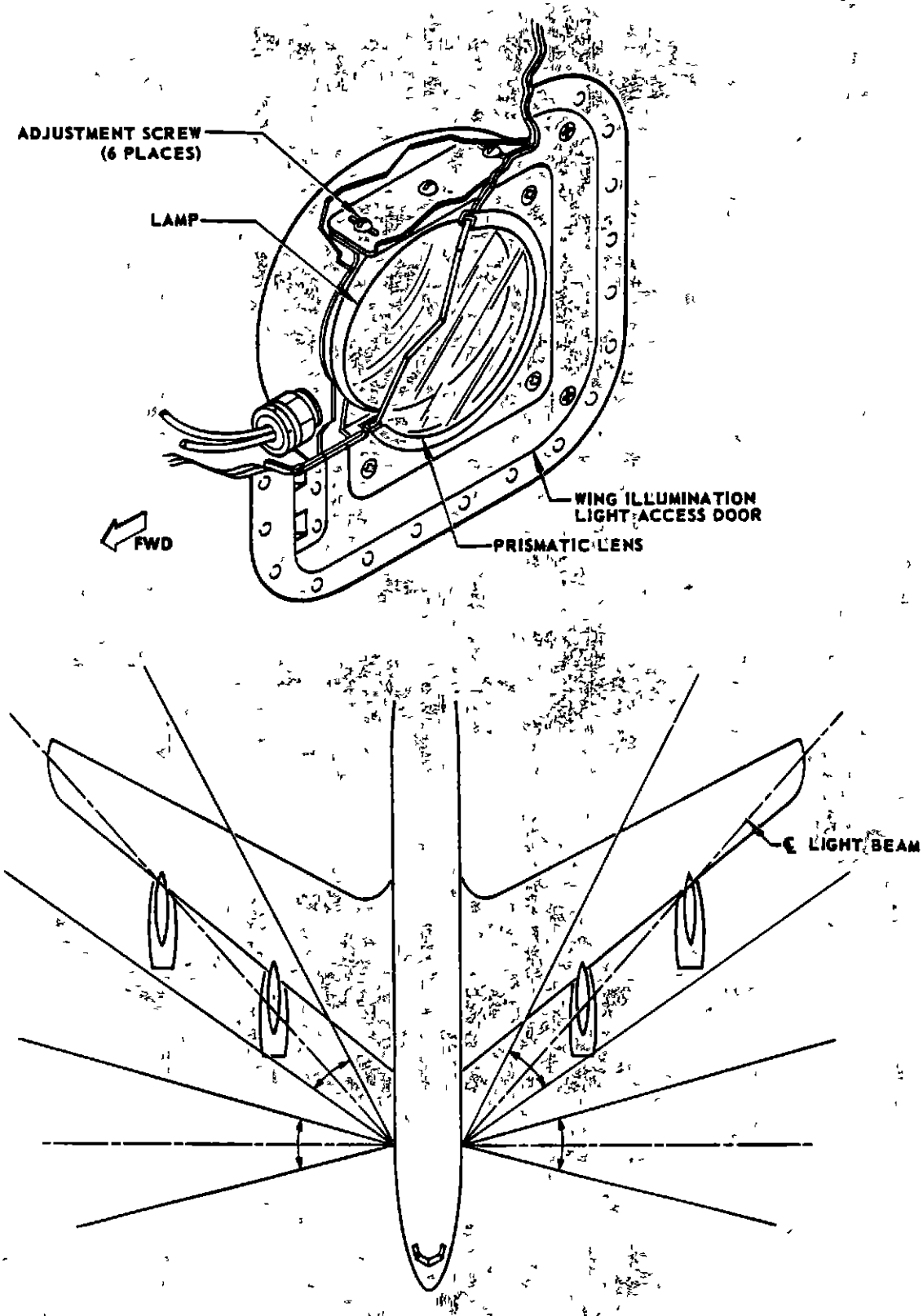
(4) Open wing illumination light access door (figure 201).

(5) Loosen adjustment screws on top and bottom of light. Rotate light laterally, as required, to position beam center line above intersection of wing leading edge and outboard strut.

(6) Tighten adjustment screws.

(7) Close access door.

(8) Disconnect external power from airplane.



Wing Illumination Light Adjustment
Figure 201

BOEING Intercontinental 707

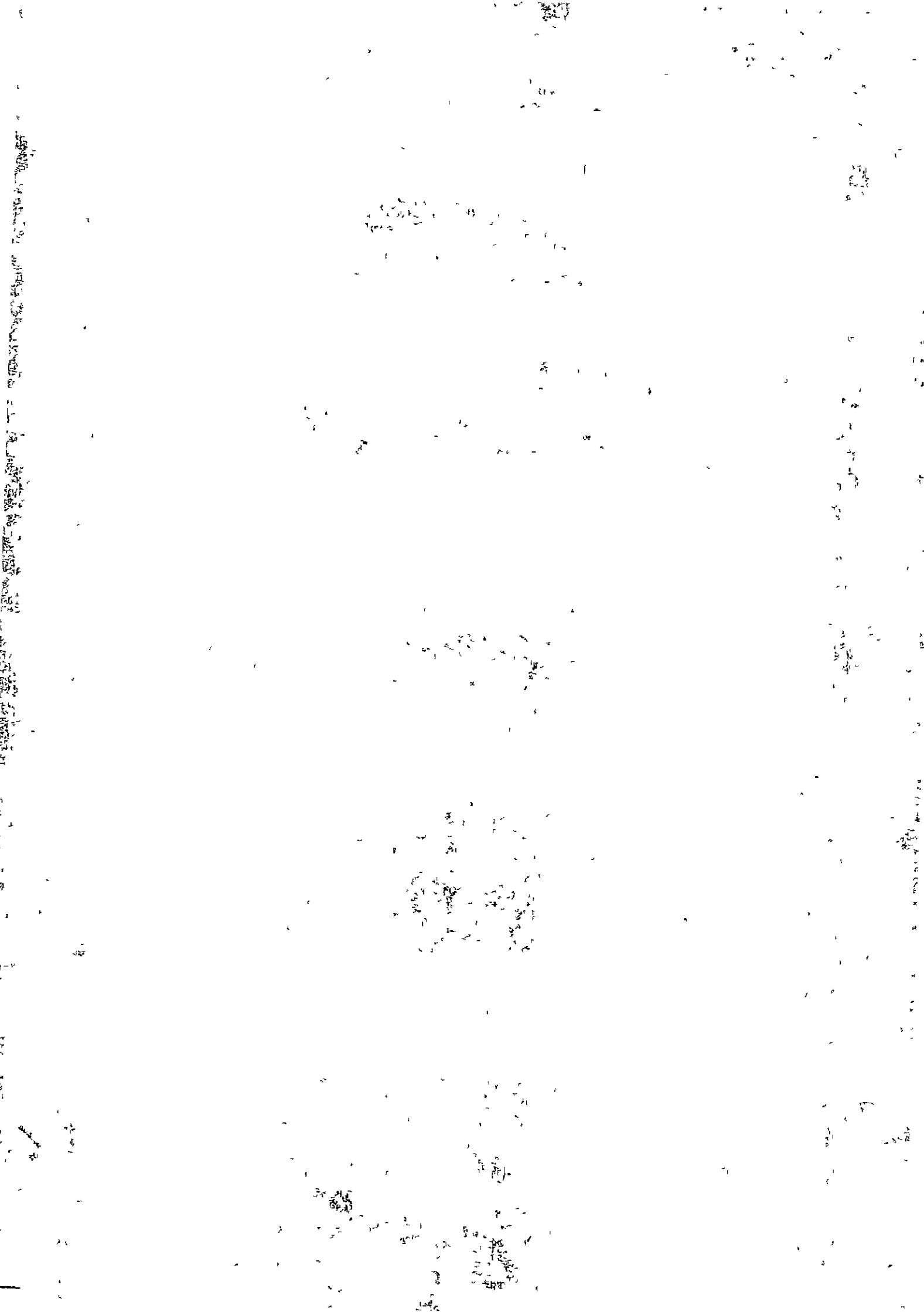
MAINTENANCE MANUAL

UNIVERSAL AERIAL REFUELING RECEPTACLE SLIPWAY INSTALLATION
LIGHTING SYSTEM - DESCRIPTION AND OPERATION

For Universal Aerial Refueling Receptacle Slipway Installation - Lighting System - Description and Operation, refer to chapter 28-10-01, pages 1 and on.

UNIVERSAL AERIAL REFUELING RECEPTACLE SLIPWAY INSTALLATION LIGHTING SYSTEM - REMOVAL/INSTALLATION

For Universal Aerial Refueling Receptacle Slipway Installation - Lighting System - Removal/Installation, refer to chapter 28-10-01, pages 401 and on



EXIT AND EMERGENCY LIGHTS-DESCRIPTION AND OPERATION

Effectivity LX-N20199

1 General

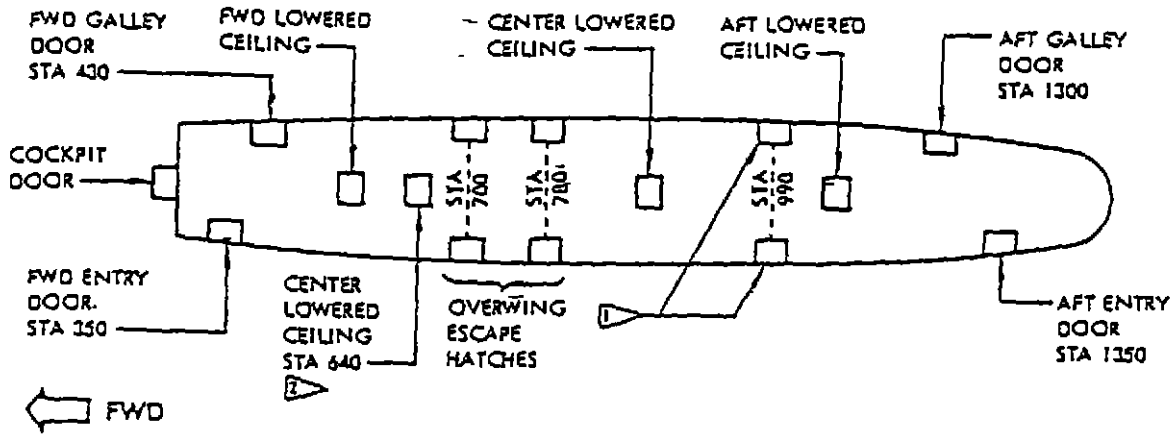
A. Exit and emergency lights are installed above each airplane exit and emergency exit (see fig 1) The lights will illuminate automatically in the event of total power failure at either the 115 volt ac essential bus or the 28 volt dc essential bus Normal operation of all the lights is controlled by a switch on the overhead panel

2 Light Installation

A Battery-operated emergency light assemblies are installed in the airplane A portable light assembly is installed over each entry door and each emergency exit hatch. All portable light assemblies can be removed from their mountings, the covers removed, and be used as a flashlight On later standard passenger airplane, a fixed light assembly is permanently installed on-the anticollision beacon door at the aft end of passenger cabin lowered ceiling panel; on later cargo airplanes a similar fixed light assembly is installed at the forward end of the center lowered ceiling panel Location and effectivities (where applicable) of all exit and emergency lights are shown on figure 1 Three different types of light assemblies are in use One type employs solid state switching A second type uses solenoid-operated switching and the third uses magnetic latch type relay All three units are physically and funtionally interchangeable For internal circuits of the different light assemblies, refer to the wiring diagram manual, Chapter 33

B Light Assembly

(1) The ortable light assembly consist of a case with removable front and rear covers The case contains nickle-cadium rechargeable batteries, lamps, a manual control switch, a male electrical connector and circuitry to control the lamps The assembly is attached to a mounting rack by spring clips The mounting rack supports the portable light assembly during normal operation and is permanently installed on the airplane structure When used as a portable light, the control switch is used to turn the light on and off With the light installed in the mounting rack, the control switch should always be in the ARMED position. If a solid state light is illuminated with the control switch in the ARMED positions the light may be turned off by turning the control switch to the ON position and then back to the ARMED position The rear cover also may be removed to gain access to the batteries and other components



F CARGO AIRPLANES

E LX-N20199

(2) The fixed light assembly consists of a removable cover, lights, removable battery case and a magnetic latch type relay control circuit. The batteries may be replaced after removing the cover, loosening two retaining screws and sliding the two fasteners toward each other.

(3) All light assemblies covers are made of translucent plastic. The entire cover assembly is coated with an opaque paint except for lettering on the front face and a clear window on the lower edge. The lowered ceiling emergency light cover is not coated. The cover is attached to its respective light assembly and cannot be installed on portable light assembly unless the light assembly is fully engaged in the mounting rack.

3. Nontransistorized Emergency Exit Lights Operation

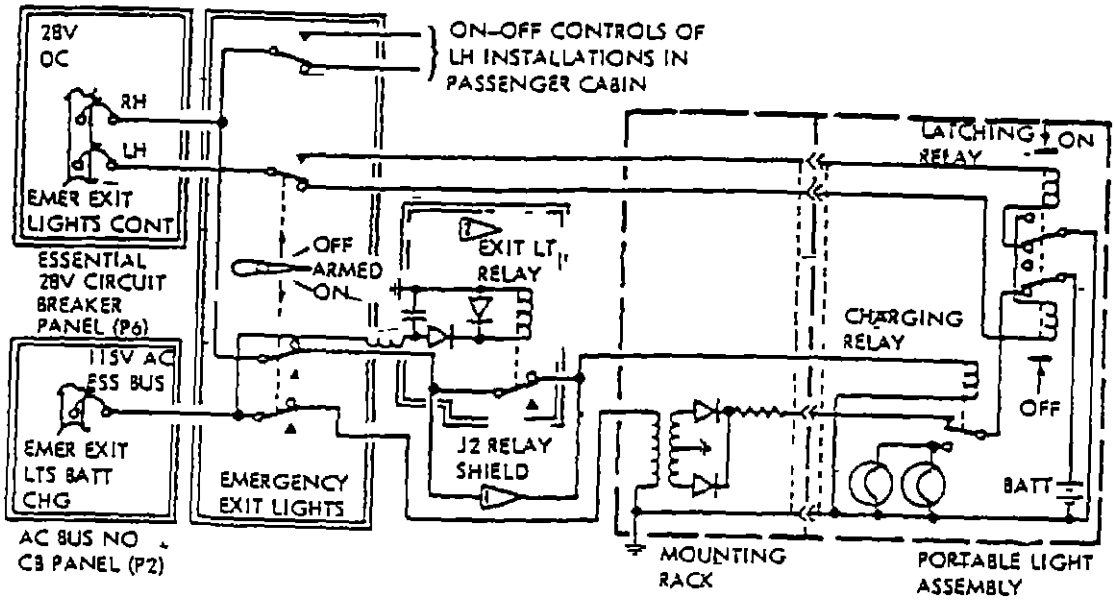
A. The nontransistorized lights may be of the solenoid-operated type or the latching relay type. The exit and emergency lights are controlled by the emergency exit lights switch on the pilot's overhead panel. The switch has three positions ARMED, ON and OFF. (See figure 2.)

B. When the switch is in the ARMED position, the power failure relay (or charge relay) is energized, supplying charging current to the rectifier circuit. The power failure relay is energized, thereby completing the circuit and placing the light assembly batteries on a trickle charge.

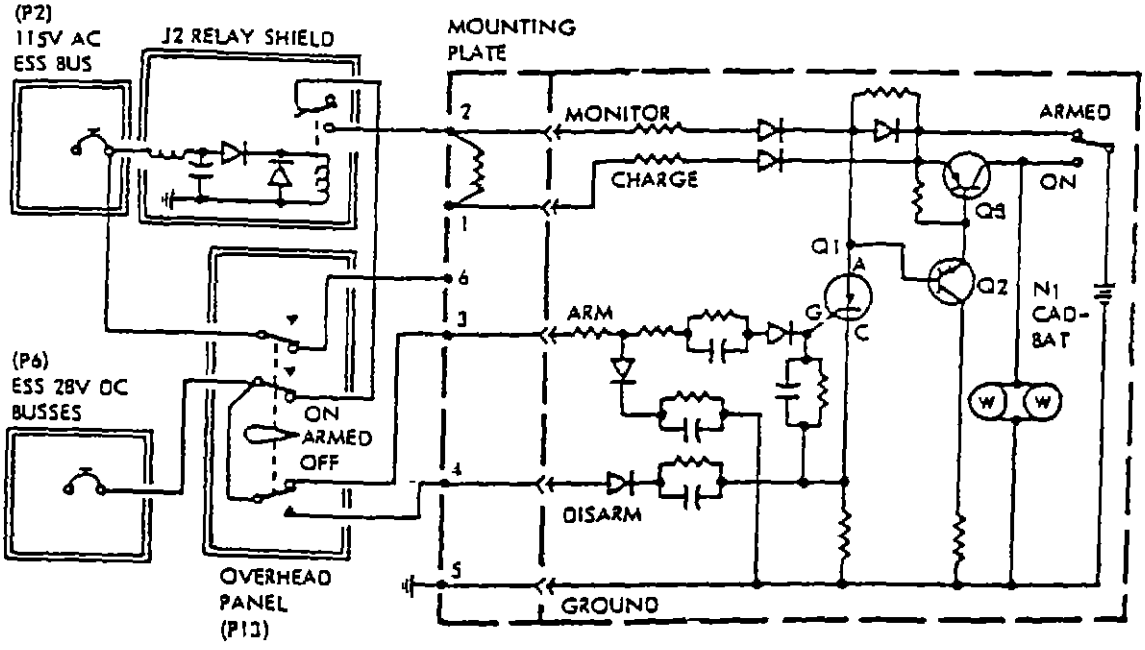
C. When the switch is in the ON position, the power failure relay is de-energized, causing charging current to be removed from the rectifier circuit. The power failure disarm relay (of the ON relay) is energized, causing the emergency exit and the emergency exit warning lights to illuminate.

D. When the switch is in the OFF position, the charging current is removed by de-energizing the power failure relay, not permitting the light to illuminate. This position is used on the ground when no power is available on the airplane, to prevent the lights from illuminating and discharging the batteries.

E. The integral switch should be maintained in the ARMED position (or OFF position) when the light is installed. If the exit lights are illuminated when this switch is in the ARMED position and it is desired to turn these lights off at each light, it can be accomplished by turning this switch to the ON position and then to the ARMED position.



(NON-TRANSISTORIZED UNIT)



(TRANSISTORIZED UNIT)

1 SAA 707-344
SABENA 707-329
VARIG 707-441

2 TCA LX-N20199

4. Operation of the Transistorized Emergency Exit Lights

A. The exit and emergency lights are controlled by an emergency light switch on the pilot's overhead panel. The switch has three positions ARMED, ON and OFF.

B. With the switch in the ARMED position, a dc potential is applied from pin 2 and 3, respectively and Q1 starts conducting. A dc potential at pin 1 supplies the charging current to the battery. Under conditions of essential ac or dc power failure power to pin 1, 2, and 3 is interrupted. Q1 is still conducting because now the battery is supplying dc potential to the anode of Q1. Under this condition transitor Q2 starts conducting because its emitter is positive with respect to the base. As soon as Q2 starts conducting, the emitter of transistor Q3 becomes positive with respect to its base. Therefore Q3 starts conducting and the lamps are illuminated from the battery.

C. With the switch in the ON position, a dc potential from pin 3 is applied to the gate (G) of Q1, and a dc potential from the battery is applied to the anode (A) of Q1. Therefore, Q1 starts conducting. Under this condition Q2 starts conducting because its emitter is positive with respect to its base. As soon as Q2 starts conducting, the emitter of Q3 becomes positive with respect to its base. Therefore Q3 starts conducting. With Q3 conducting the lights are illuminated from the battery. The emergency exit warning light on the pilot's overhead panel will illuminate.

D. When the switch is in the OFF position, 2 dc potential is applied to the anode and the cathode (K) of Q1 from pin 2 and pin 4, respectively. The cathode of Q1 is momentarily positive with respect to its anode. Therefore Q1 ceases to conduct. Since there is no potential applied to the gate of Q1 it cannot start conducting. A dc potential at pin 1 supplies the charging current to the battery.

E. The integral switch at each light should be maintained in the ARMED position when the light is installed. If the exit lights are illuminated when this switch is in the ARMED position and it is desired to turn these lights off at each light it can be accomplished by turning this switch to the ON position and then to the ARMED position.

F. During normal operation, the overhead panel switch should be in the ARMED position at all times. This insures that the portable light assembly batteries will be kept fully charged and ready for operation in event of total power failure. The switch should be positioned to OFF before turning off power during normal shutdown or ground operation to prevent discharging the batteries through the lights.

EXIT AND EMERGENCY LIGHTS - ADJUSTMENT/TEST

Effectivity, LX-N20199

1 Exit and Emergency Lights Test

A General

(1) Information regarding the testing of the interior emergency exit lights, exterior overwing lights (if installed), and the exterior escape slide lights (if installed) for proper operation is given in the procedure below

B Prepare Exit and Emergency Lights for Test

(1) Provide electrical power

(2) Check that 115V AC EMERGENCY EXIT LIGHTS or ESS POWER FAIILURE WARNING circuit breakers on P2 circuit breaker panel are closed

(3) Check that 28V DC EMERGENCYEXIT LIGHT CONTROL LF, RH circuit breakers on P6 circuit breaker panel are closed

(4) On Passenger/Cargo Convertible Airplanes cheek that EMERGENCY EXIT LIGHT CONTROL CENTER circuit breaker P6 circuit breaker panel is closed

(5) If installed position escape light switch located at each entry door, galley door, or escape hatch to AUTOMATIC ON

(6) On airplanes which have emergency exit light switches on forward and/or aft attendant's panels, position these switches to NORMAL

C Test Exit and Emergency Lights

(1) Position the emergency exit light switch on pilots overhead panel to OFF and check that following conditions exist

(a) Interior exit and emergency lights are off

(b) Exterior overwing lights, if installed, are off

(c) Exterior escape slide lights, it installed, are off

(2) Position the emergency exit light switch on pilots's overhead panel to ON, and check that interior and exterior lights it installed, are illuminated

(3) Position emergency exit light switch on pilot's overhead panel to ARMED, and check that interior and exterior lights, if installed, are off.

(4) Open 115V AC EMERGENCY EXIT LIGHTS or ESS POWER FAILURE WARNING circuit breakers on P2 circuit breaker panel, and check that interior and exterior lights, if installed, are illuminated.

(5) Position emergency exit light switch on pilots' overhead panel to OFF.

(6) If installed position each escape slide illumination light switch at entry door, galley door, or escape hatch to MANUAL ON, and check each escape slide light is illuminated.

(7) If installed position each escape slide illumination light switch to AUTOMATIC ON.

(8) Close 115V AC EMERGENCY EXIT LIGHTS or ESS POWER FAILURE WARNING circuit breakers on P2 circuit breaker panel, and check that interior and exterior lights, if installed, are off.

(9) On airplanes which have emergency exit light switches on forward and/or aft attendant's panels, position these switches to on. Check that interior and exterior lights, if installed, are illuminated.

(10) Position switches in step (9) above, if installed, to NORMAL, and check that interior and exterior lights, if installed, are off.

(11) If no longer required, remove electrical power from airplane.

EMERGENCY LIGHTING - DESCRIPTION AND OPERATION

Effectivity LX-N19997 and
LX-N20000

1 General

A Emergency lighting is available to illuminate interior area of exit doors Passenger cabin aisles and exit signs and to illuminate exterior areas of exit doors, escape slide lighting, and overwing lights The lights will illuminate if an electrical power failure occurs or when manually switched to ON from the flight deck or passenger cabin

B Interior emergency lights consists of incandescent lamps at the ceiling and seat mounted aisle floor lights that illuminate passenger aisles, of electro luminicent floor tracks that illuminate entry and galley areas of lighted exit signs located at all exits and of battery powered emergency light power packs that provide an emergency source of energy for the emergency lights

C Exterior emergency lights consits of flush mounted lights on both sides of the fuselage to illuminate exit door escape slide paths and emergency overwing escape routes and of battery powered emergency light power packs

EMERGENCY LIGHTS - DESCRIPTION AND OPERATION

Effectivity LX-N19997 and
LX-N20000

1 General

A In the event of power failure at either the 115 V AC essential bus or the 28 V DC essential bus, the emergency lights provide illumination for crew and passenger movement in the airplane and when leaving the airplane via the emergency exit paths The lights consists of portable or fixed emergency lights installed in the ceiling and above each exit, of Emergency overwing lights and escape slide illumination lights, of Floor proximity lighting and power supply inverter modules and control modules

B The 28 V DC essential bus supplies power to maintain the emergency light power supply unit and control module unit batteries at full charge Emergency light switches are provided on the pilot's overhead panel and the aft attendants station near the aft entry door

2 Interior Emergency Lights

A Portable emergency lights are installed over the control cabin doors,entry doors, galley doors, and emergency escape hatches Fixed emergency lights are located on the lowered ceilings in the passenger cabin See figure 1 for light locations Each portable emergency light installation consist of a mounting rack: a portable light assembly with control logic and battery charging circuits, a battery pack, an ON/ARMED swith, and a cover that functions as an exit sign when installed Each portable light assembly can be removed from its mount and used as a flaslight The fixed emergency light assemblies are electrically similar to the portable light assemblies except they do not have an on/armed switch

Note Solenoid-operated portable light assemblies do not contain the manual control switch

B There are three optional types of portable light assembly control logic and bvattery charging circuits and two types od mounting racks There are two optional types of ceiling light assembly control logic and baterry charging The circuit use either solid state (prefered) or relay switching logic to control the lights. Refer to the emergency exit lights schematics in the wiring diagram manual, Chapter 33. for internal circuit function of each of the light assembly and mounting rack types

C the portable emergency light covers are made of translucent plastic and coated with an opaque paint exept for the lettering and a clear window on the lower edge The lowered ceiling emergency light cover is not coated The portable light assemblycover is attached by spring catches and cannot be installed unless the light assembly is fully engaged in the mounting rack

3 Exterior Lights (Fig 1)

A Flash-mounted lights are installed on the sides of the airplane to illuminate the escape slides and the overwing emergency exit paths See Fig 1 for locations and effectivities Electrical power and control for exterior emergency lights is supplied by remotely located battery pack

B. The battery packs function in the emergency light system the same as the ceiling and portable emergency lights except they operate remotely located lamps Each battery pack contains control logic and battery charging solid-state circuitry in addition to the batteries

(1) The battery packs for the entry and galley door escape slide lights are located above the forward and the aft galley doors The battery pack for the station 990 emergency exit hatch escape slide lights is located above the right side hatrack (Fig 1)

(2) The battery packs for the overwing lights are located above the hatracks The battery pack located above the right side hatrack provides power and control for the four forward overwing lights The battery pack located above the left side hatrack provides power and control for the two aft overwing lights (Fig 1)

4 Floor Proximity Emergency Lighting (fig. 1)

A. Floor proximity emergency lighting provides escape path markings along the aisle and at all exits
Illumination is provided by eletro luminicent light strips and exit indicator signs and by floor lights in the following locations

(1) Electro luminicent light strips are installed in galley- and entre-areas
115 V AC power for illumination is supplied from emergency light power supply/inverter modules

(2) Electro luminicent exit, indicator signs are installed on side wall panels adjacent to eath exit
115 V AC power is supplied from emergency light power supply/inventer modules

(3) Floor lights are installed at seats or walls along the aisle They are battery powered receivers activated by a transmitted radio signal generated from Control Modules installed above the ceiling panels The batteries are self contained and non rechargable types

5 Power Supply Modules

A Emergency light power supply modules used for electro luminicent floor proximity lights consists of a battery pack, printed ciruit card logic assembly and an inverter The Power Supply Modules are installed behind access panels above the ceiling panel in areas with electro luminicent lights installed

B The power supply module circuitry consists of a logic light control circuit and a battery charging control circuit The prime purpose of the logic circuit is to sense power failure and turn the emergency lights on The logic circuit also senses pilots as attendants switch directions. The battery charging control circuit provides a trickle charge to the batteries as long as power is available and controls battery discharge cut-off to prevent batteries from completely discharging and reversing polarity.

6 Control Modules

A Emergency light control modules used for radio signal operated floor proximity floor lights consists of a battery pack printed circuit card logic assembly and radio frequency transmitter incl antenna The control modules are installed behind access panels above the ceiling panels

B The control module circuitry consists of logic transmitter control circuits incl battery charging control circuit The prime purpose of the logic circuit is to sense power failure and transmit a coded 370 MHz radio signal to turn the lights on The logic circuit also senses pilots or attendants switch direction The battery charging control circuit provides a trackle charge to the batteries as long as power is available

7 Pilots Emergency Exit Lights switch

A A three way guarded toggle switch is located in pilots overhead Panel Switch position is ON, and ARMED, OFF The pilots emergency lights switch provides normal control of the emergency light system but the attendant's switch at the aft entry door can override the pilots switch to turn the lights on.

8 Aft Attendants Emergency Exit Light Switch

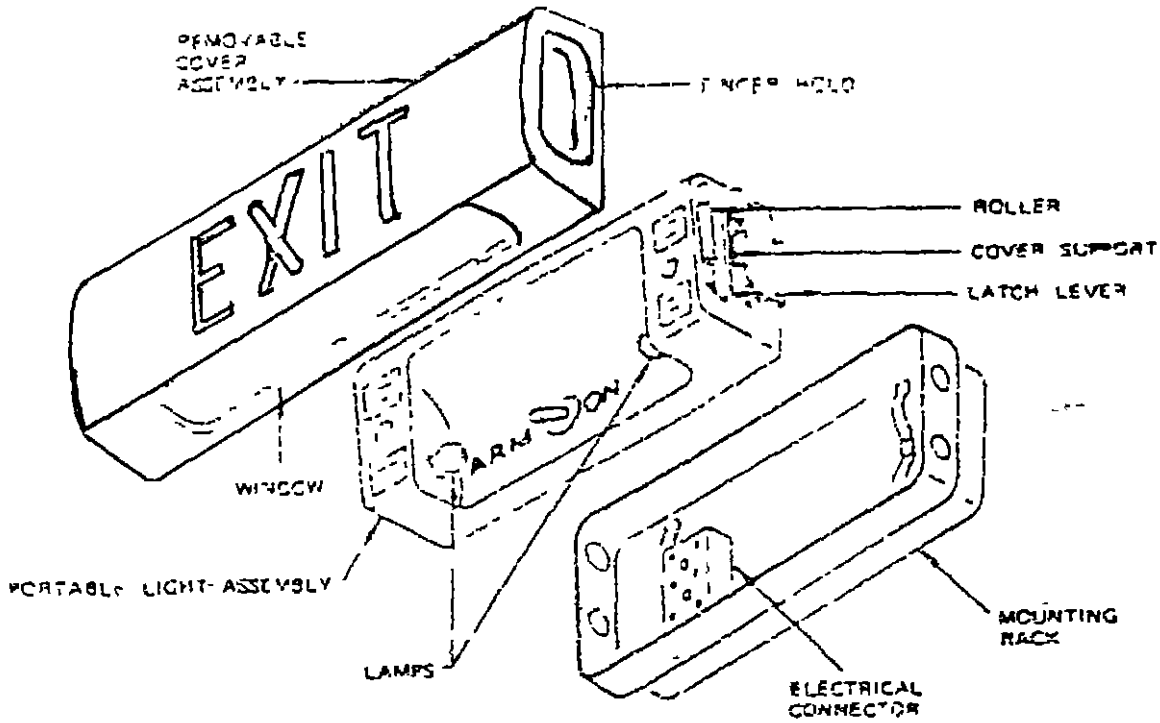
A A two way toggle switch is located at the left side of aft entry door Switch position is ON and NORMAL This switch is parallel and can override the pilots emergency light switch to turn the emergency lights on The attendant's switch cannot turn the lights off if the pilots switch is set to ON or if the pilots switch is set to ARMED and a power failure occurs It either turns the lights on or returns control to the pilots switch

9 Self-Illuminating Signs

A Self-illuminating signs are provided to indicate certain emergency egress routes and actuating equipment These include signs such as overwing escape hatch handle marker some slide actuation handles, and all (nonelectric) exit signs These signs contain radioactive tritium gas filled capsules. The gas is at approximately sea level atmospheric pressure The capsules are cushioned by a silicone rubber adhesive and embedded in the durable plastic rectangle that makes up the sign Normal handling or slight abuse will not damage sign

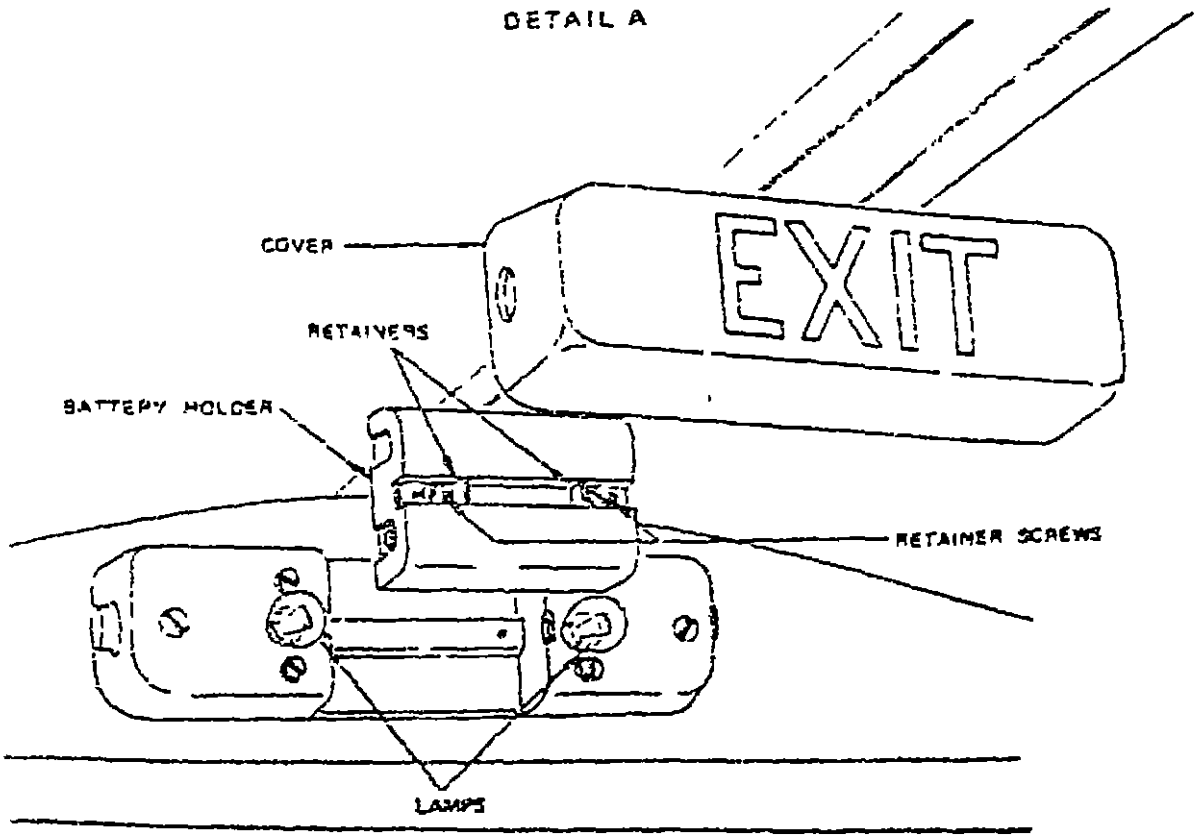
B The radioactive tritium gas presents no radilogical health hazard when signs are intact However, if the signs are cracked or broken the radioactive gas may escape, thus presenting a heath hazard if the materials inhaled or absorbed into the body Minor scratches, nicks, etc , on sign do not present any hazard Disposal of signs is subject to the control of radiation protection personnel who must comply with the govermental regulations (Ref 33-7-21, Maintenance Practices)

WARNING CRACKED OR BROKEN REQUIRE SPECIAL HANDLING TO AVOID ANY POTENTIAL RADIOLOGICAL HEALTH CONDITIONS REFER TO 33-7-21, SELF-ILLUMINATING SIGNS MAINTENANCE PRACTICES FOR HANDLING PROCEDURES



PORTABLE EMERGENCY LIGHT

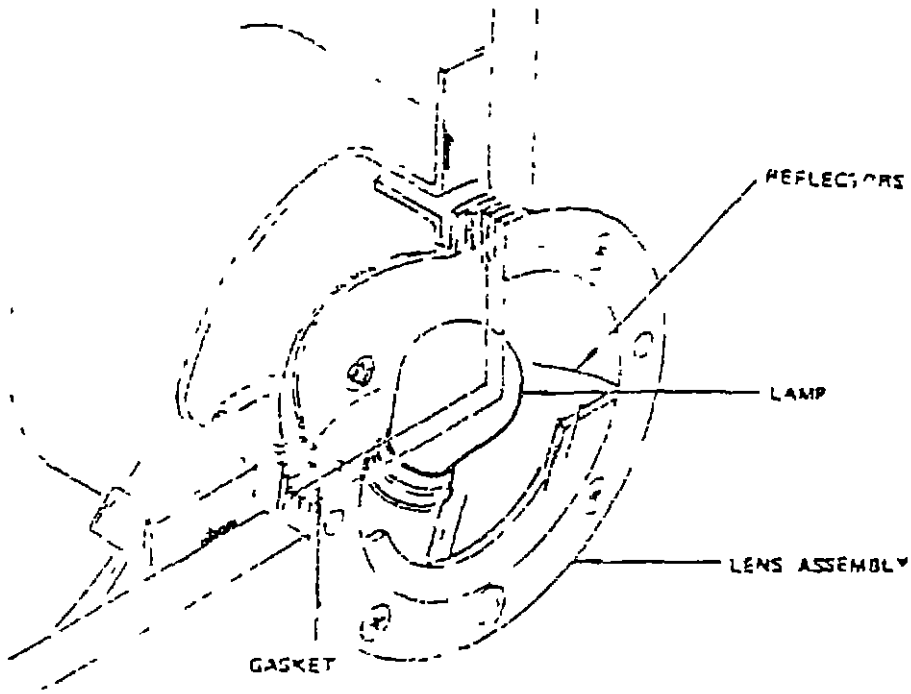
DETAIL A



FIXED MOUNT EMERGENCY LIGHT

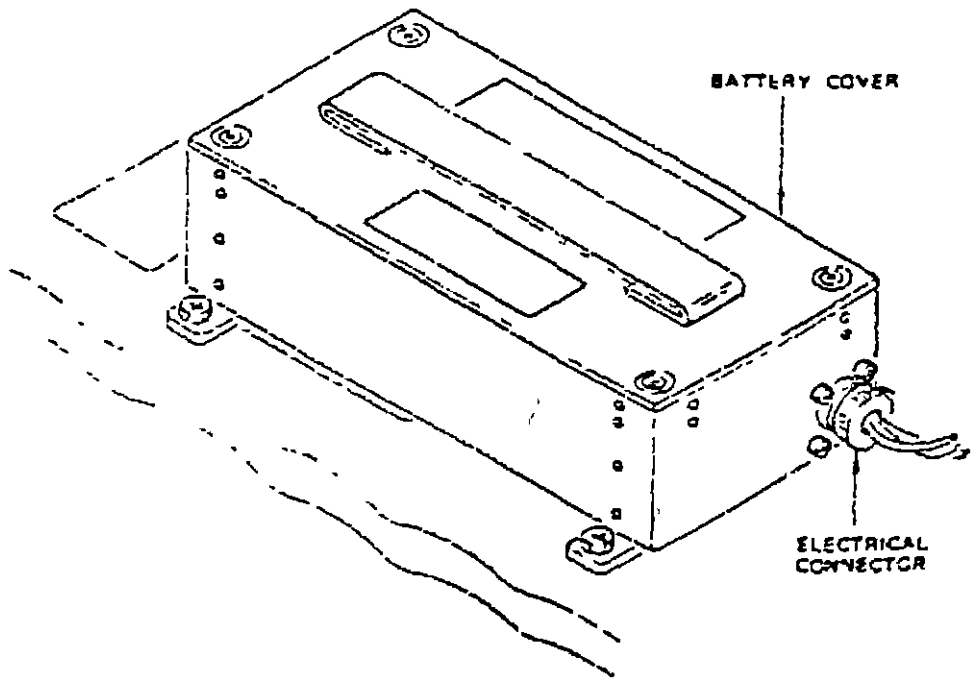
DETAIL B

Emergency Lights Component Locations
Figure 1 (sheet 1 of 5)



OVERWING OR ESCAPE SLIDE LIGHT (TYPICAL)

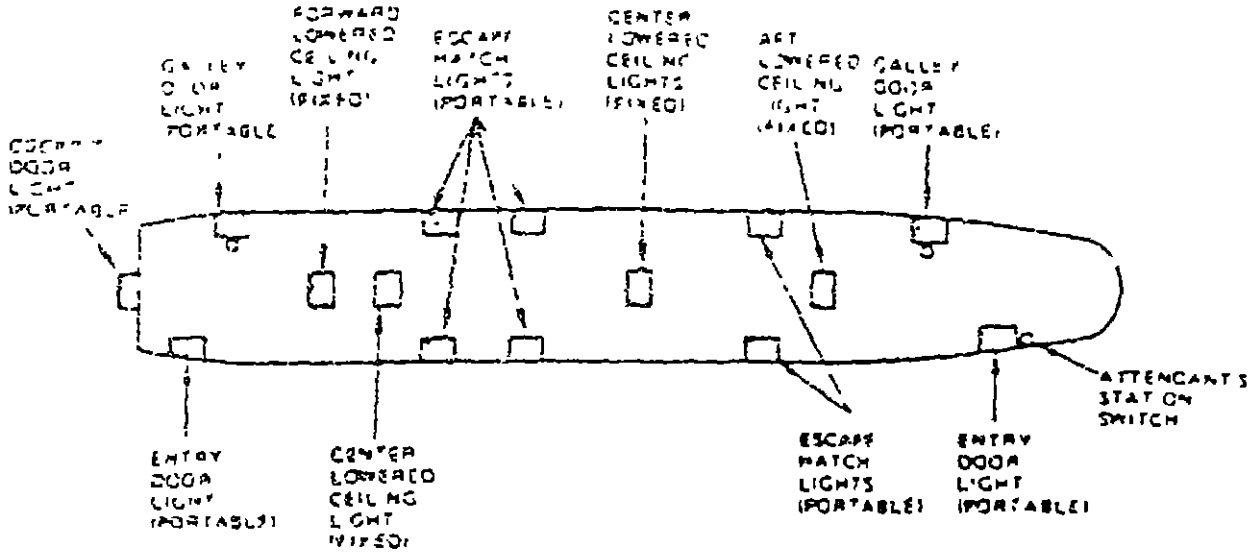
DETAIL C



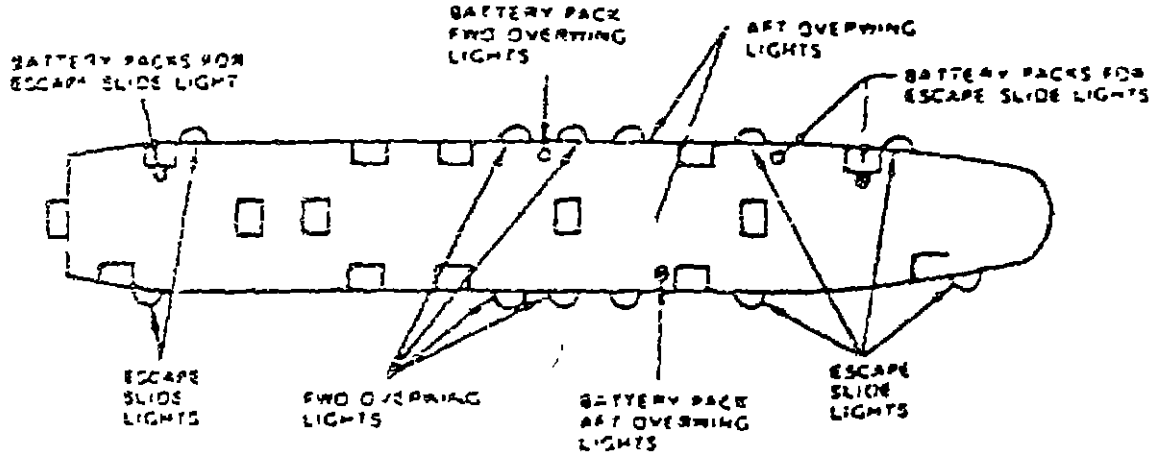
OVERWING OR ESCAPE SLIDE LIGHT BATTERY PACK (TYPICAL)

DETAIL D

Energency Lights Component Locations
Figure 1 (Sheet 2 of 5)

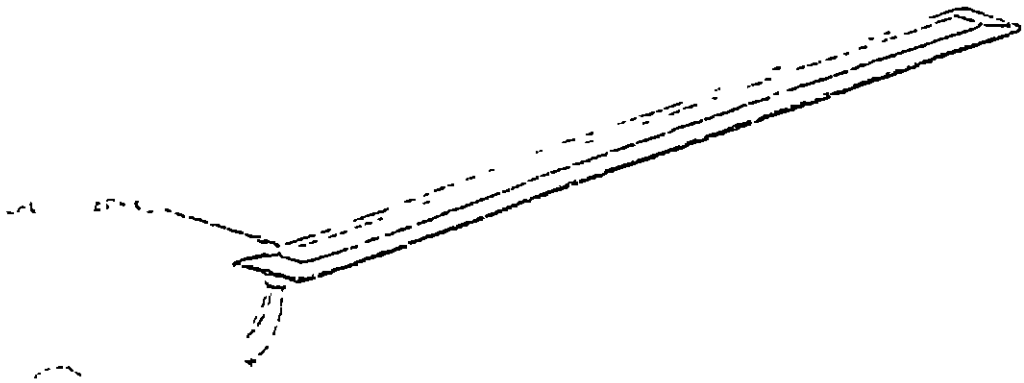


INTERIOR EMERGENCY LIGHTS

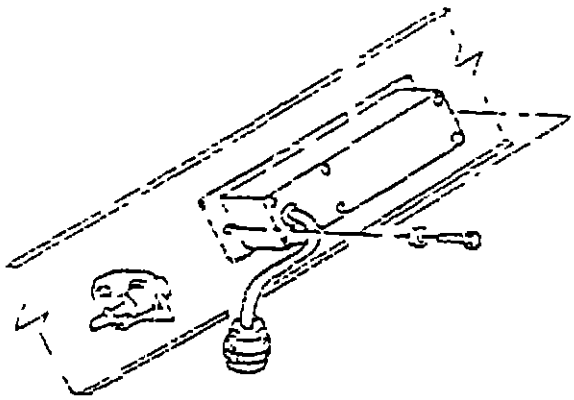


EXTERIOR EMERGENCY LIGHTS AND BATTERY PACKS

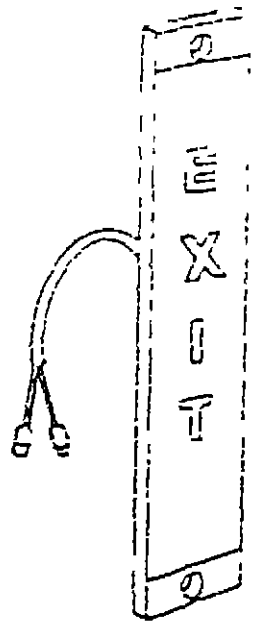
Exit and Emergency Light Locations
Figure 1 (Sheet 3 of 5)



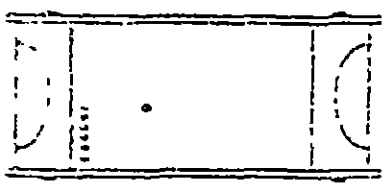
(E) TYPICAL ELECTRO-LUMINESCENT LIGHTS



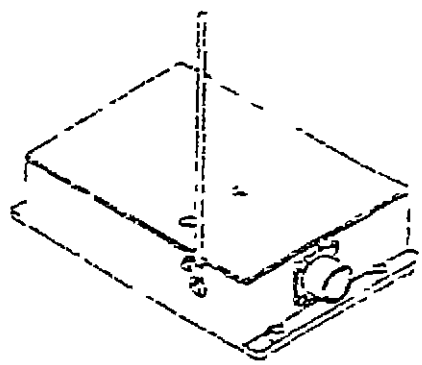
(I) POWERSUPPLY



(F) EXIT MARKER

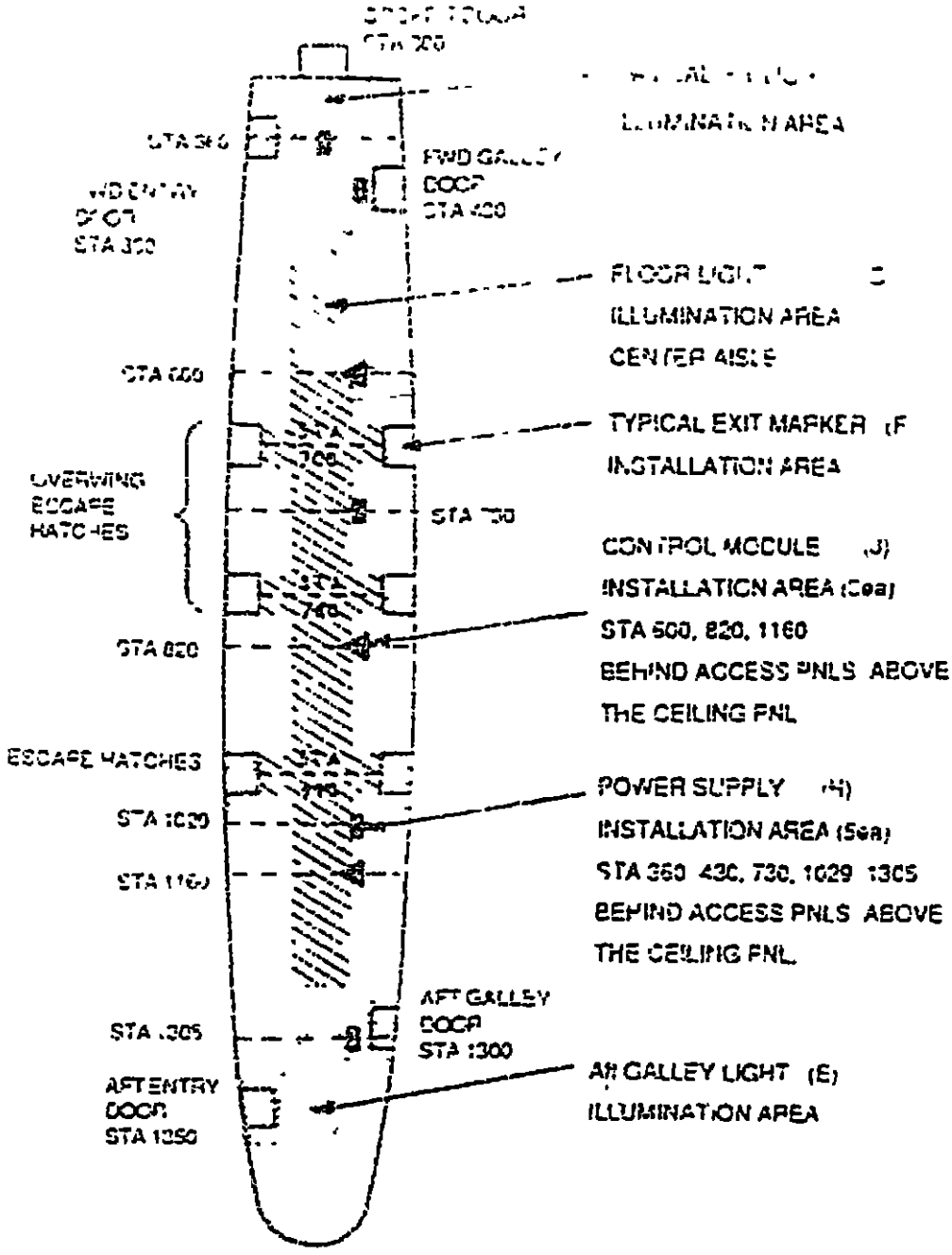


(G) FLOODLIGHT



(J) CONTROL MODULE

Emergency Lights Component Locations
Figure 1 (Sheet 4 of 5)



FLOOR PROXIMITY ILLUMINATION

Emergency Lights Component Locations
Figure 1 (Sheet 5 of 5)

Emergency FPM Power Supply & Associated Load

Power Supply				Associated Load		
Item N°	Equip N°	STA	Item N°	Equip N°	STA	Description
PS 1 12-40S1	M9006	360	EM 1 GL 1 GL 2	L9001 L9002 L9003	300L 300L 350-460	EXIT MARKER 6 SI GALLEY LIGHT 3 5 SI " " " 3 5 SI
PS 2	M9007	492R	EM 2 GL 3 GL 4	L9004 L9005 L9006	440R 440R 390-460	EXIT MARKER 6 SI GALLEY LIGHT 3 5 SI " " " 7 SI
PS 3	M9008	730	EM3 EM 4 EM 5 EM 5a EM 6 EM 6a	L9007 L9008 L9009 L9020 L9010 L9021	690L 690R 770L 755L 770R 755R	EXIT MARKER 6 SI " " " 6 SI " " " 6 SI " " " 6 SI " " " 6 SI " " " 6 SI
PS 4	M9009	1029R	EM 7 EM 8 EM 9 EM 10	L9011 L9012 L9013 L9014	980L 1000L 980R 1000R	EXIT MARKER 6 SI " " " 6 SI " " " 6 SI " " " 6 SI
PS 5	9070	1305	EM 11 EM 12 GL 5 GL 6 GL 7	L9015 L9016 L9017 L9018 L9019	1320R 1330L 1254-1326L 1310R 1330L	EXIT MARKER 6 SI " " " 6 SI GALLEY LIGHT 7 SI " " " 3 5 SI " " " 3 5 SI

NOTE Each P5 is capable to feed 12-40SI (See ILL-CMM for definition of SI)

Floor Proximity Lighting Power Supply Location and Function

10 Operation

A Functional Description

(1) The 28 Volt dc essential bus supplies charging power to maintain batteries in the emergency light power units, power supply units and control module units. The emergency light lamps, electro luminicent light strips and exit signs receive their power from their respectivelly power unit battery packs. The floor light lamps receive their power from nonrecharegable self container batteries Circuit breakers for charge power and control are located on P2 and P6 circuit breaker panels and J9 power shield

(2) Each emergency light power unit, power supply unit and control module unit contains a logic circuit that activates a relay or transistor switch to turn the lights on and off See Fig 2 for logic signal input of a m units The Floor Lights are activated via radio signals transmitted from the control Modules. The reception of these radio signals are indicated by the control LEDs of the resp Floor Light System prinziple is that the Floor Lights will come on with a time delay of approx 15 sec.

(a) The emergency lights will come on if 28 volt dc is provided at pin ARM and open circuits at pins CHARGE and DISARM accomplished by setting either the pilots' or the attendant's switch to on, or with pilot's switch in arm and loss of the 115 volt ac essential power The emergency lights will come on if power was available at pin CHARGE and a loss of power is encountered at all pins. This occurs automatically with pilots switch in armed and loss of the 28 volt dc essential power

(b) Light will remain off if 28 volts dc is provided to pin DISARM as accomplished by settfng pilots switch to OFF (pin CHARGE may be provided with 28-volt dc chargeing power), if power is removed from pin Disarm 15 sec after power was removed from pins ARM and Charge or if switch is set to ARMED and power is available at pins CHARGE and ARM

(c) The batteries of each light assembly,and batties pack except the selfcontained batteries of the floor lights recieve charging power when the pilots switch is set to armed or off and both the 28-volt dc and the 115-volt ac essential busses are energized

(d) When a portable light is removed from its mount for use as a hand carried light, it is turned on and off by use of its control switch or by pushing appropriate solenoid by a pen The integral switch at each portable light should be maintained in the ARM position when the light is installed. The pilot's emergency light switch should be positioned at OFF before removing any portable light from its mounting plate If a portable light is removed from its mounting plate with the pilot's switch set to ARMED, the light will come on and remain on To turn the portable light off under these conditions, set its switch to ON then back to ARM The light will then go off This function disables the logic circuitry in the light assembly and control of the light is by its ON/ARN switch until it is reinstalled a mounting plate

B Control

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

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

(a) When the pilots' emergency lights switch is set to ARMED when both the 28-volt dc and 115-volt ac essential busses are energized

1) The emergency lights will remain off and the power unit and control module unit batteries are supplied with a trickle charge from 28-volt dc essential bus This is the normal setting of the switch during airplane operation

2) The emergency lights will come on if either the 28-volt dc and/or the 115-volt ac essential busses fail

(b) When the pilot switch is set to ON.

1) The emergency lights will come on. The floor Lights will come on within a time of approx 15 sec

(c) When the pilots switch is set to OFF

1) The emergency lighting system is off when the 28-volt dc and may be the 115-volt ac essential busses are energized This is the normal setting of the switch when the airplane is parked

2) After a period of 15 sec both the 28 Volt dc and the 115-volt dc essential busses can he deenergized, the emergency lighting system will remain off This is the normal order for airplane shutdown or storage

3) The power unit and control module unit batteries are supplied with a trickle charge when both the 28-volt dc and the 115-volt ac essential busses are energized

(2) An emergency light switch is provided at attendants' seat at the left side of the aft entry door in addition to the switch on the pilots' overhead panel The switch parallels the pilots' switch and has two setting, ON and NORMAL

(a) When the attendant's switch is set to NORMAL.

1) All light control authority remains with the pilots's switch

(b) When the attendant's switch is set to ON

1) The emergency lights will come on when the 28-volt dc essential buss is energized and the pilots switch is set to the off or arm position The pilots switch will not function electrically under this condition

C. Airplane Storage

(1) For periods up to three days of storage, no special procedures are recuired if emergency light system was completely charged at the beginning of storage period and no operation had occurred during storage

CAUTION: IF POWER HAS NOT BEEN APPLIED TO INSTALLED EMERGENCY LIGHT SYSTEM DURING A LAYUP OF THREE DAYS OR MORE, AVOID TURNING ON ANY ASSEMBLY FOR A MINIMUM OF 16 HOURS AFTER APPLICATION OF POWER, AND 20 HOURS OR MORE IS DESIRABLE BEFORE PERFORMING A SYSTEM FUNCTIONAL TEST

(2) For periods over three days of storage, or if emergency light system was not fully charged at beginning of storage, or the light was operated during storage, charge emergency light system for 16 to 20 hours before operation

D Unintended operation of radio signal operated Floor Lights

(1) In the case Floor Lights are activated unintentionally

- in Test Mode the control LEDs are flashing
- switched to ON the control LEDs are flushing and the bulbs are illuminated -

quick reaction is required to save battery power of non rechargable Floor Light batteries

Following steps have to be performed to shut down the Floor Lights

(a) Ensure that the Floor Lights are located in transmitting range of a Control Module under operation condition

e g Control Module under operational condition are those installed in these subject a/c's with 28 V DC Essential bus is energized and all Emergency Lighting Circuit Breakers are closed

(b) Operate the Control Module in the Armed condition for a minimum of 5 sec.

e g Set pilots switch to ARM for a minimum of 15 sec

(c) Operate the Control Module In the OFF condition for a minimum of 15 sec

e g Set pilots switch to OFF for a minimum of 5 sec

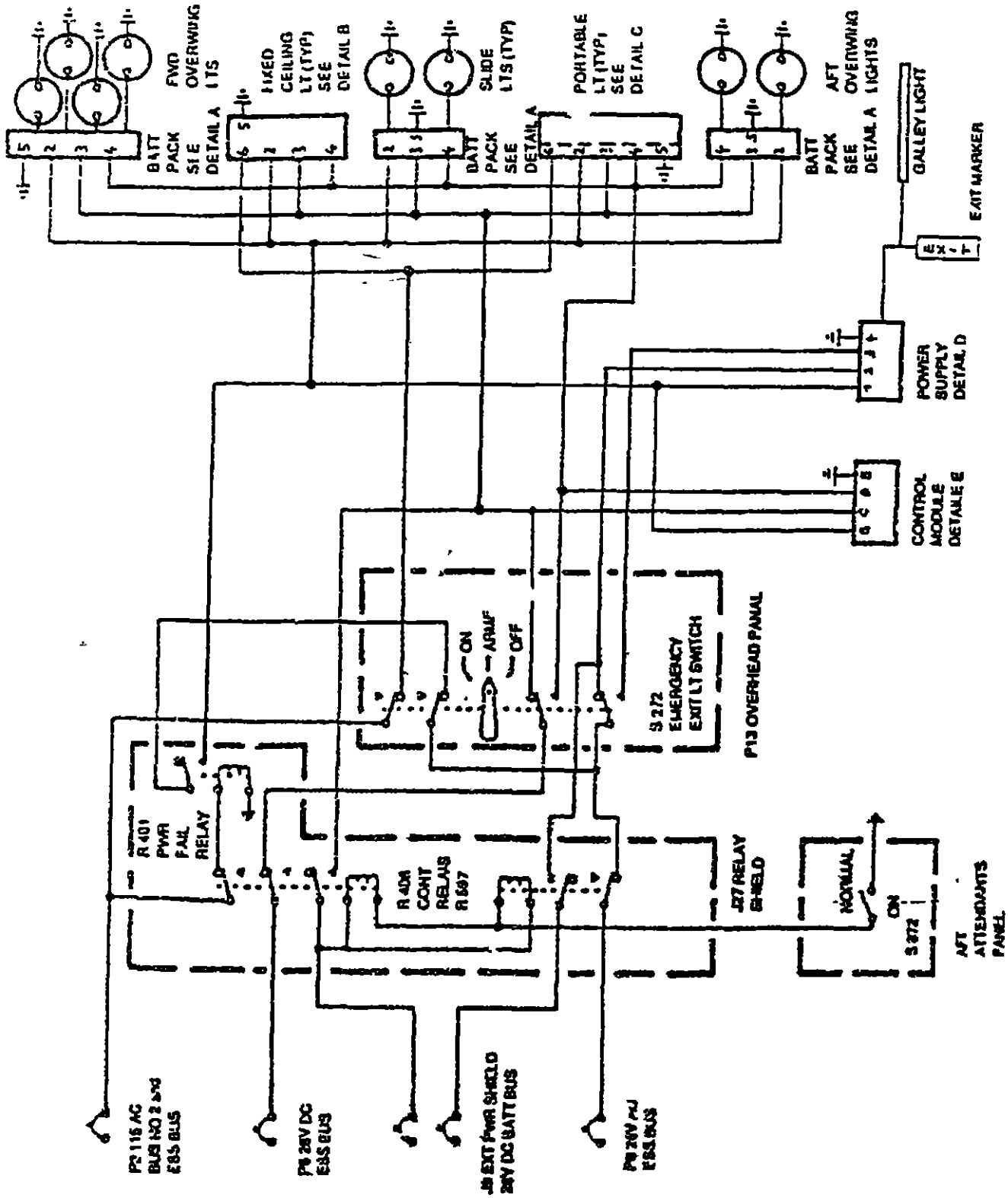
(d) The Floor Lights receiving the OFF-signal will extinguish the Control LEDs will extinguish after approximately 15 sec

(e) When all Floor Lights are extinguished (LEDs and bulbs) remove electrical power from Control Module

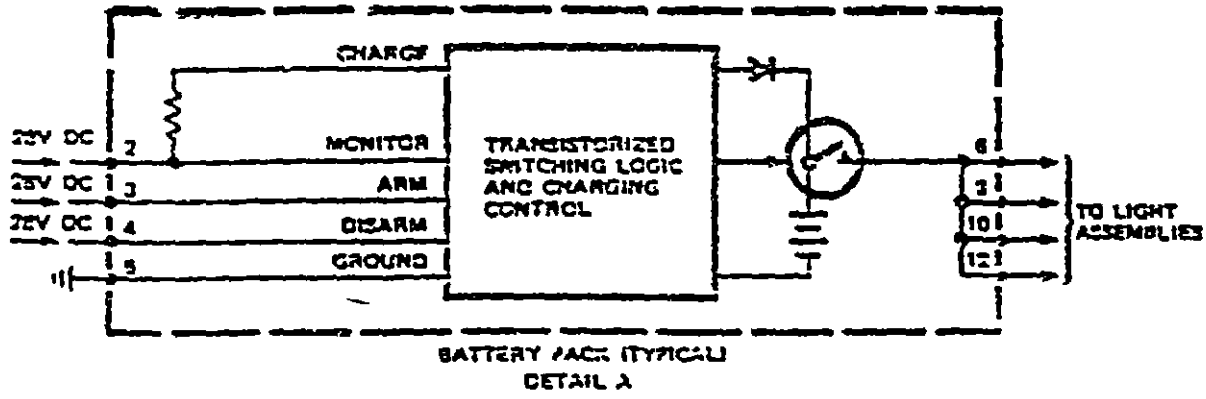
e g Deenergie 115 V AC and 28 V DC essential busses

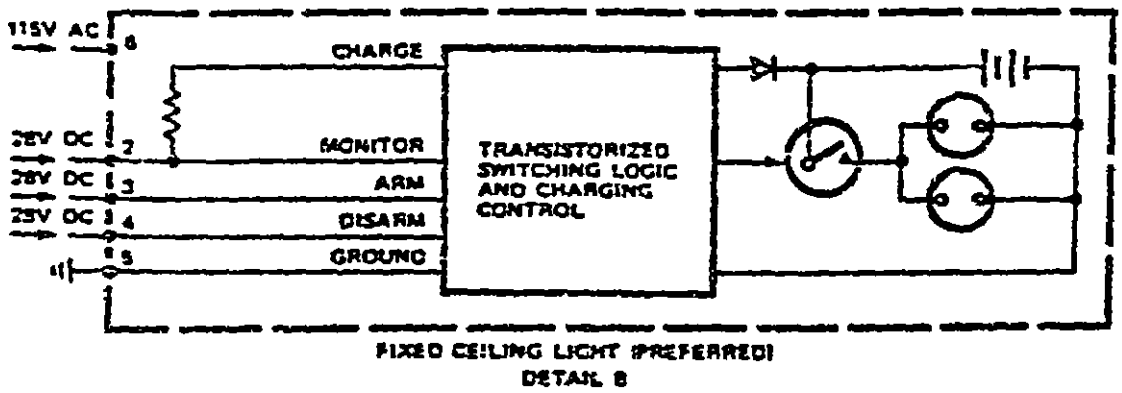
(f) If Floor Lights remain on check that no Control Module in ON-condition transmittes ON-signals within the transmittion/ reception range of the Floor Lights

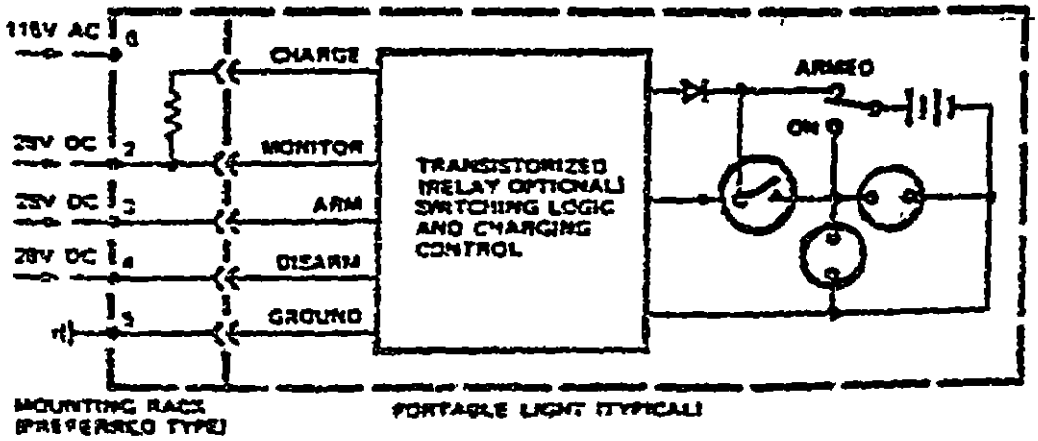
(g) Operate Control Module from ON-condition to the OFF-condition as described in step (a) to (d)



Exit and Emergency Exit Lights
Figure 2 (Sheet 1 of 3)



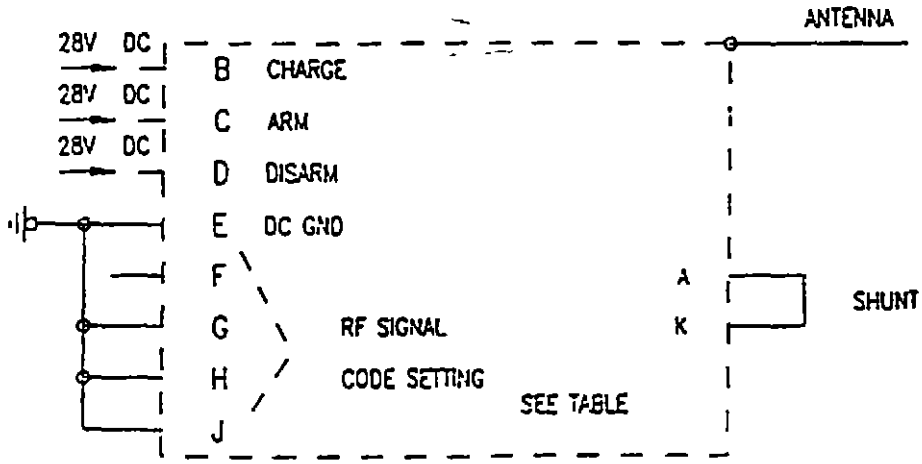




Exit and Emergency Lt
Figure 2 (Sheet 2 of 3)

POWER SUPPLY

DETAIL D



CONTROL MODUL

DETAIL E

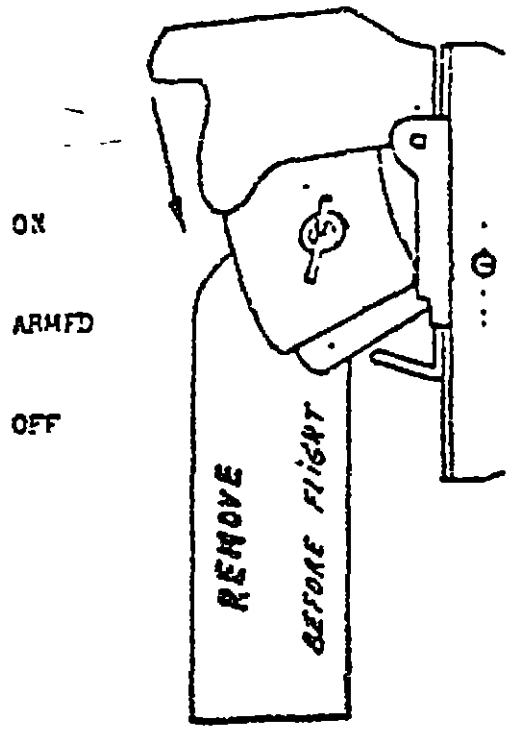
	CODE 1 generates Green LED on Floor Lights	CODE 2 generates Red LED on Floor Lights	CODE 3 generates Yellow LED on Floor Lights
open DIN'S	F	G	H
DC GND	G, H, J	F, H, J	F, G, J

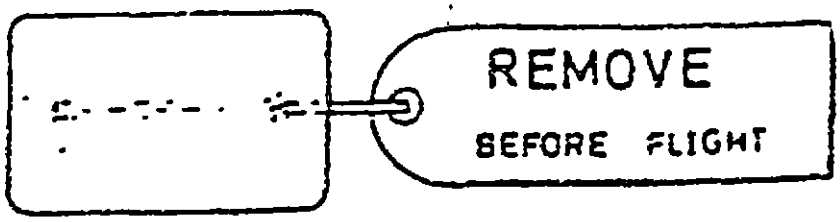
TABLE: CONTROL MODULE RF SIGNAL CODE SETTING

	CONTROL MODULE	POWER SUPPLY	EMERGENCY LTS & BATTERY PACKS
CHARGE	B	1	2
ARM	C	2	3
DISARM	D	3	4

TABLE LOGIC SIGNAL VERSUS UNITS INPUT PINS

CAUTION: THE EMERGENCY LIGHTS SWITCH SHOULD ALWAYS BE PLACED IN THE OFF POSITION AND LOCKED WITH THE RUBBER LOCKING DEVICE WHILE AIRPLANE IS ON GROUND TO PREVENT LIGHTS FROM COMING ON AND BATTERIES BEING DISCHARGED.





Rubber Locking Device Installation

EMERGENCY LIGHTS - ADJUSTMENT/TEST

Effectivity LX-N19997 and LX-N20000

1 General

A This section contains procedures for performing an operational test, a system test and a capacity test. No adjustments are required The emergency light system batteries should be in the fully charged condition prior to testing If airplane was in storage for more than six days or the lights were operated during storage period, power should he applied to the system for sufficient time to recharge batteries

(1) The operational test (paragraph 2) demonstrates proper system operation and may be used to isolate malfunctions to the pilot's switch, the cabin attendant's switch or to a particular emergency light or power pack

(2) The system test (paragraph 3) increase the scope of the operational test to provide a condition check of all emergency lights and battery packs The system test should be completed in five minutes or less to minimize discharge

(3) The capacity test (paragraph 4) demonstrates that emergency lights power supply/battery packs will operate all the emergency lights and/or lighted exit signs for a minimum of 15 minutes

B Emergency Light Locations

(1) Interior emergency lights

(a) Portable emergency lights are installed over the control cabin door, entry doors, galley doors and emergency escape hatches

(b) Fixed emergency lights are located on the lowered ceilings in the passenger cabin

(2) Exterior emergency lights

(a) Flash mounted lights are installed on both sides of the fuselage

(3) Floor proximity lighting locations are as following

(a) Floor lights are installed at seats or walls along the aisle

(b) Electro luminicent exit indicator signs are installed on side wall panel next to each door near floor level

(c) Electro liminicent aisle locator light strips are used in fwd and aft cross-aisle entry and galley areas

2 Operational Test - Emergency Lights

A General

(1) The object of the emergency lights operational test is to demonstrate the ability of the emergency lights control units to properly operate the emergency lights and/or lighted exit signs

B Procedure

(1) Provide electrical power

(2) Ensure that the Emer Lights switch on pilot's overhead panel is in the OFF position and the aft attendants Emer Light switch STA1380 is in the NORMAL position

(3) Ensure that following circuit breakers are closed

3ea Emer Exit Lights Control	on P6
1ea Emer Exit Lights Batt Charge	on P2
2ea Emer Lights	on J9

CAUTION WITH EMERGENCY LIGHT SYSTEM SUPPLIED WITH ELECTRICAL POWER ANY OPERATION OF BOTH THE PILOTS OR THE AFT ATTENDANTS INITIATIVE EMERGENCY LIGHT SWITCH WILL INITIATE THE CONTROL MODULES TO TRANSMIT A PULSED 370 MHz RADIO SIGNAL FOR A PERIOD OF MIN APPROXIMATELY 15 sec
DURING THIS TIME THE CONTROL LED'S OF ANY FLOOR LIGHT WILL INTERMITTEND FLASH
THE UHF-COMMUNICATION SYSTEM SHOULD NOT BE OPERATED ON 370 MHz DURING THIS TIME

CAUTION TO PREVENT EXCESSIVE BATTERY DISCHARGE, DO NOT LEAVE EMERGENCY LIGHTS ON FOR LONGER THAN MINIMUM TIME REQUIRED FOR TEST

(4) Set pilots' Emer lights switch to the ON position

(5) Observe that any emergency Light and/or lighted exit sign illuminates The Floor Lights will illuminate within a time of approximately 15 sec

(6) Set pilots' Emer Lights switch to the armed position

(7) Ensure that emergency Lights and/or exit signs are extinguished

(8) Set aft attendants Emer Lights switch to the ON position

(9) Observe that any emergency light and/or lighted exit sign illiminates

(10) Set aft attendants Emer Lights switch to the Normal position

(11) Observe that emergency lights and/or exit signs are extinguished

CAUTION. TO PREVENT EXCESSIVE BATTERY DISCHARGE DO NOT LEAVE EMERGENCY LIGHTS ON FOR LONGER THAN MINIMUM TIME REQUIRED FOR TEST

(12) Open circuit breaker Exit Lights Control (3ea) on P6 Pnl

(13) Observe that any emergency light and/or lighted exit sign is illuminated.

(14) Close above mentconned circuit breakers

(15) Observe that emergency lights and/or exit signs are extinguished

(16) Set pilot's EMER LIGHTS switch on P13 panel to OFF position

(17) Ensure that all emergency lights remain off and all floor light control LEDs extinguish after a period of approx 15 sec

(18) After a period of min 15 sec to step (16) remove electrical power if no longer required

System Test- Emergency Lights

A General

(1) The object of the emergency lights system test is to check proper operation of all emergency light circuit components to include, lights, lighted exit signs, control switches and power supply/battery packs

(2) Two test modes are provided The ON TEST MODE covers cheek of all emergency light circuit components The OFF TEST MODE provides to check the radio operated floor proximity light system only

B ON TEST MODE - Procedure

(1) Provide electrical power

(2) Ensure that the Emer Lights switch on P13 panel is in to OFF position and the aft attendants Emer Light switch STA 1380 is in the NORMAL position

(3) Ensure that following circuit breakers are closed

3ea Emer Exit Lights Control	on P6
1ea Emer Exit,Lights Batt Charge	on P2
2ea Emer Lights	on J9

CAUTION WITH EMERGENCY LIGHT SYSTEM SUPPLIED WITH ELECTRICAL POWER ANY OPERATION OF BOTH THE PILOTS OR THE AFT ATTENDANTS EMERGENCY LIGHT SWITCH WILL INITIATE THE CONTROL MODULESTO TRANSMIT A PULSED 370 MHz RADIO SIGNAL FOR A PERIOD OF MIN APPROXIMATELY 15 sec
DURING THIS TIME THE CONTROL LED'S OF ANY FLOOR LIGHT WILL INTERMITTEND FLASH
THE UHF-COMMINICATION SYSTEM SHOULD NOT BE OPERATED ON 370 MHz DURING THIS TIME

CAUTION AFTER A PERIOD OF 15 MIN IN ON TEST MODE THE FLOOD LIGHTS WILL AUTOMATICALLY TURN TO ON THE TEST SHOULD BE PERFORMED PRIOR

CAUTION TO PREVENT EXCESSIVE BATTERY DISCHARGE, DO NOT LEAVE EMER GENCY LIGHTS ON FOR LONGER THAN MINIMUM TIME REQUIRED FOR TEST

(4) Perform "ON TEST" mode as following
Set pilots Emer Lights switch to ARM - after a period of 5 sec minimum cycle the switch from ARM to ON - and then to ARM and back to ON within a period off 3 sec

(5) Observe that the following emergency lights and/or exit signs are illuminated.

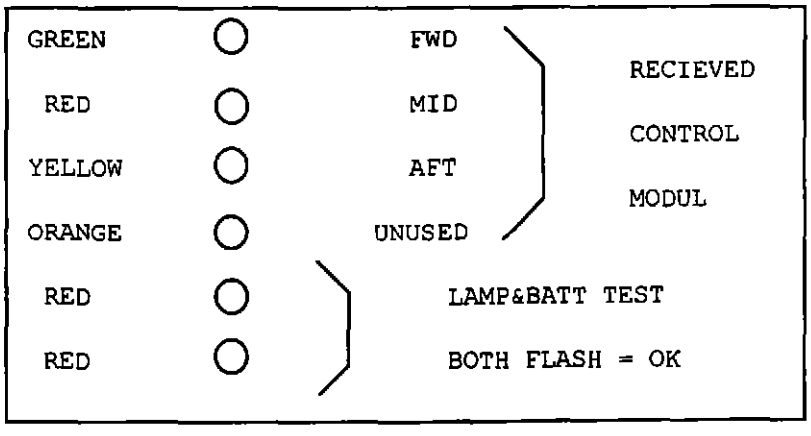
(a) Slide Lights

(b)) Overwing lights

(C) Exit Signs

(d) Floor proxfalty lights (except Flood Lights see (6))

(6) Check proper function of Floor proximity Flood Lights and Control Modules by observing the Control LEDs of each Flood Light



(a) Observe intermittend flashing of green, red or yellow received control module LEDs
These LEDs indicate which Control Module radio signal this floor light initiated

(b) Check that all the green, red and yellow received control module LEDs are flashing approximatelly the same rate throughout the cabin verifying any failed Control Module.

(c) Observe intermittend flashing of both red Lamp & Batt Test LEDs indicating correct function of floor light and correct condition of the batteries

(7) Set pilots Emer Lights switch to the ARMED position

(8) Ensure that all emergency lights and/or exit signs are extinguished
The Floor light Control LED's extinguish after a period of approx 15 sec

(9) Set pilots' switch to the OFF position

(10) Ensure that all emergency lights remain off and all floor light control LEDs extinguish after a period of approx 15 sec

(11) Leave power available to emergency lights system for sufficient time to recharge power supply battery packs after completion of system test

(12) After a period of min 15 sec to step (9) remove electrical power if no longer required

C OFF TEST MODE - Procedure

(1) Provide electrical power

2) Ensure that the Emer Lights switch on P13 panel is in the OFF position and the aft attendants Emer Light switch STA 1380 in the NORMAL position

(3) Ensure that following circuit breakers are closed

3ea Emer Exit Lights Control	on P6
1ea Emer Exit Lights Batt Charge	on P2
2ea Emer Lights	on J9

NOTE After a period of approximattely 15 Min in OFF Test Mode the flood lights will automatically turn to OFF The LEDs will extinguish

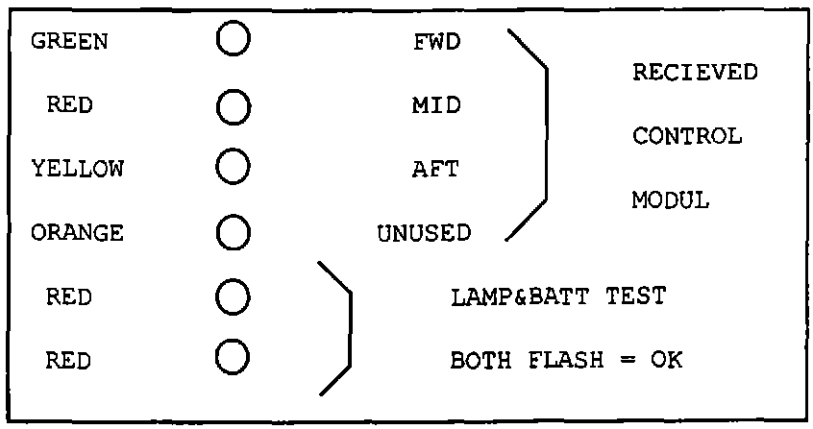
CAUTION WITH EMERGENCY LIGHT SYSTEM SUPPLIED WITH ELECTRICAL POWER ANY OPERATION OF BOTH THE PILOTS OR THE AFT ATTENDANTS EMERGENCY LIGHT SWITCH WILL INITIATE THE CONTROL MODULES TO TRANSMIT A PULSED 370 MHz RADIO SIGNAL FOR A PERIOD OF MIN APPROXIMATELLY 15 sec
DURING THIS TIME THE CONTROL LED'S OF ANY FLOOR LIGHT WILL INTERMITTEND FLASH
THE UHF-COMMUNICATION SYSTEM SHOULD NOT BE OPERATED ON 370 MHz DURING THIS TIME

CAUTION TO PREVENT EXCESSIVE BATTERY DISCHARGE DO NOT LEAVE EMERGENCY LIGHTS ON FOR LOWER THAN MINIMUM TIRE REWIRED FOR TEST

(4) Perform OFF TEST mode as following
Set pilot's Emerg Lights switch to ARM - after a period of 5 sec minimum cycle the switch from ARM to ON - and than from ON to ARM and back to ON within a period of 3 sec - and than fron ON via ARM to OFF within a period of 1/2 sec

(5) Check that all emergency lights are not illuminated

(6) Check proper function of floor proximity flood lights by observing the control LEDs for each flood light



(a) Observe intermittend flashing of green, red or yellow recieved control module LEDs
These LEDs indicate which Control Module radio signal this floor light initiated

(b) Check that all green, red and yellow recieved control module LEDs are flashing approximatelly the same rate throughout the cabin verifying any failed control Module

(c) Observe intermittend flashing of both red Lamp & Batt Test LEDs indicating correct function of floor light and correct condition of the batteries

(7) Set Pilot's switch to ARM

(8) Ensure that all emergency lights are not illuminated and all floor light control LEDs exintish after a period of approx 15 sec

(9) Set Pilot's switch to OFF

(10) Ensure that all emergency lights remain off and all floor light control LEDs extinguish after a period of approx 15 sec

(11) Leave power available to emergency lights system for sufficient time to recharge power supply battery packs after completion of system test

(12) After a period of mon 15 sec to step (9) remove electrical power if no longer required

EMERGENCY EXIT OVERWING LIGHTS - MAINTENANCE PRACTICES

1 Relamp Emergency Exit Overwing Lights

A Remove four lens retaining screws (Fig 201)

B Carefully pry loose and remove lens assembly and gasket

C Remove lamp by pressing down and turning to release lamp retainers from slots

D Clean light assembly with a clean, dry cloth

E Install lamp by pressing down and turning to engage lamp retainer in slots

F Test lamps

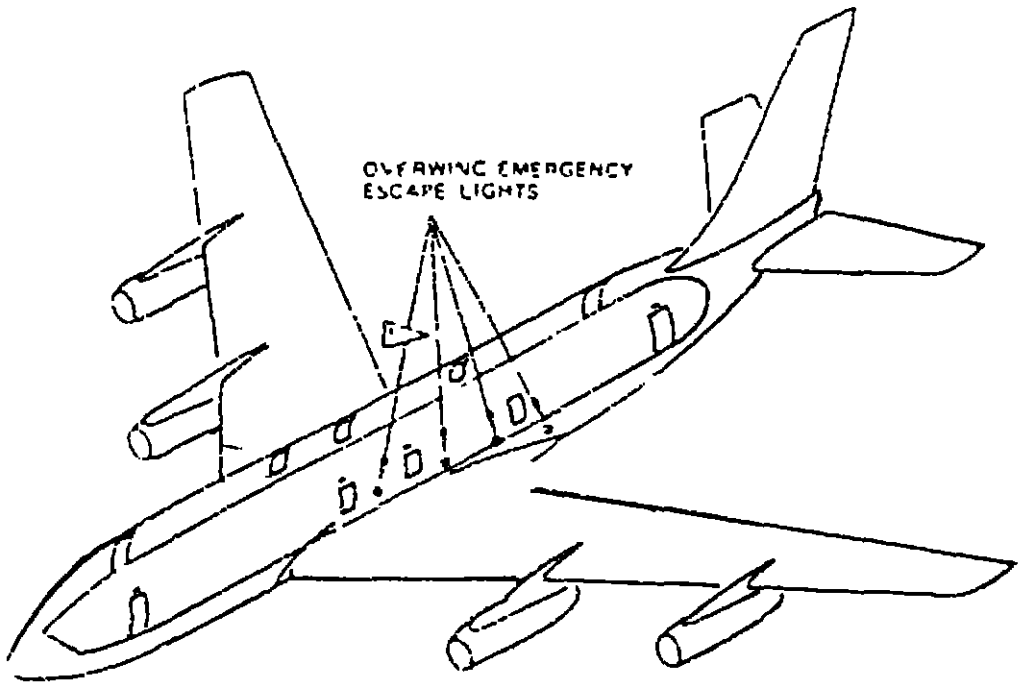
(1) Provide electrical power.

(2) Momentarily set emergency lights switch on either pilots' panel or attendant's station to ON, then return switch to original position Check that light comes on and goes off

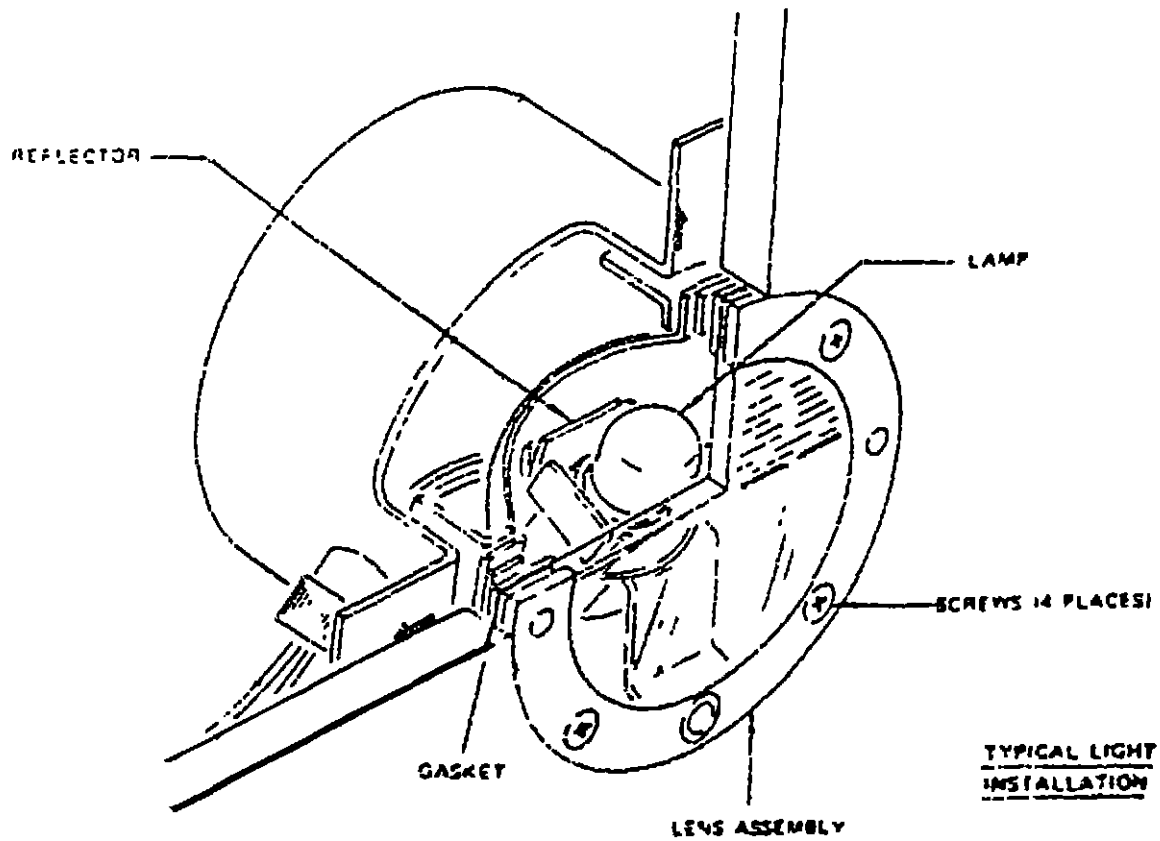
CAUTION SET SWITCH TO OFF POSITION AS SOON AS CONSERVE BATTERIES

(3) Remove electrical power if no longer required

G Install lens assembly and gasket with four screws



NEW LOOK INTERIOR AIRPLANES



Emergency Exit Overwing Lights
Figure 201

Effectivity LX-N19997 and LX-N20000

EMERGENCY EXIT OVERWING LIGHT BATTERY ASSY - MAINTENANCE PRACTICES

1 Overwing Lights Batteries Replacement

A General

(1) This procedure includes information on the replacement of the battery pack in the overwing battery Assy to illuminate tho overwing emergency lights

B Prepare Overwing Light Battery Assy for Battery Pack Replacement

(1) Access to battery Assy in at ceiling (See figure 201)

(2) Disengage four quick-release fasteners on top at battery Assy cover

C Replacement of Overwing Battery Pack

(1) Remove cover

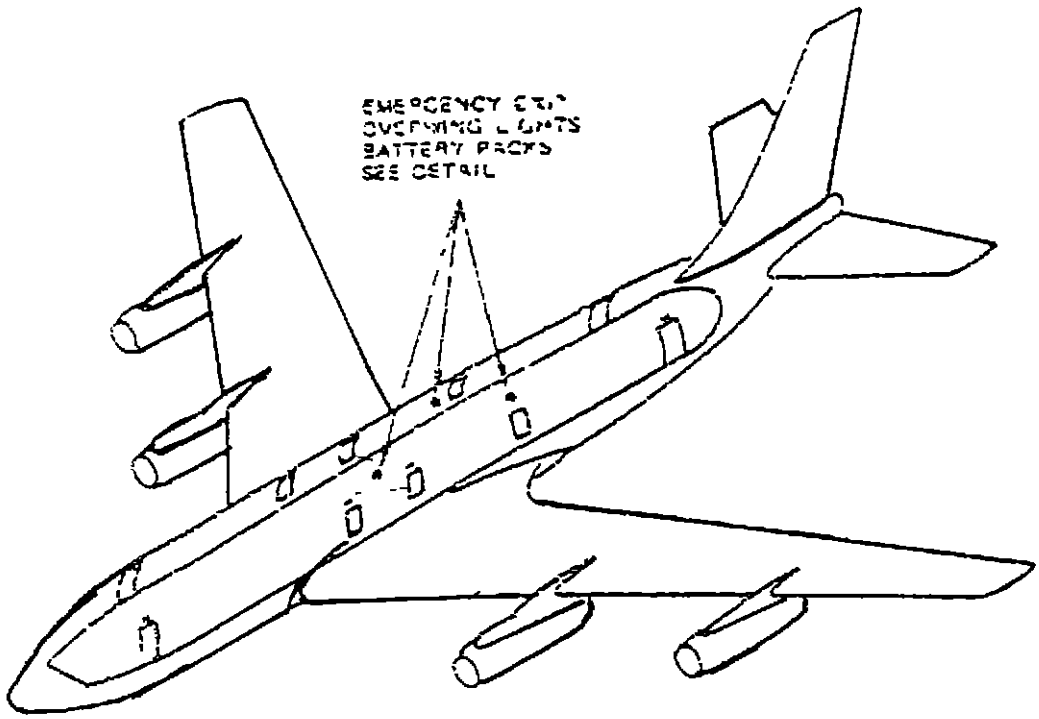
(2) Remove battery pack

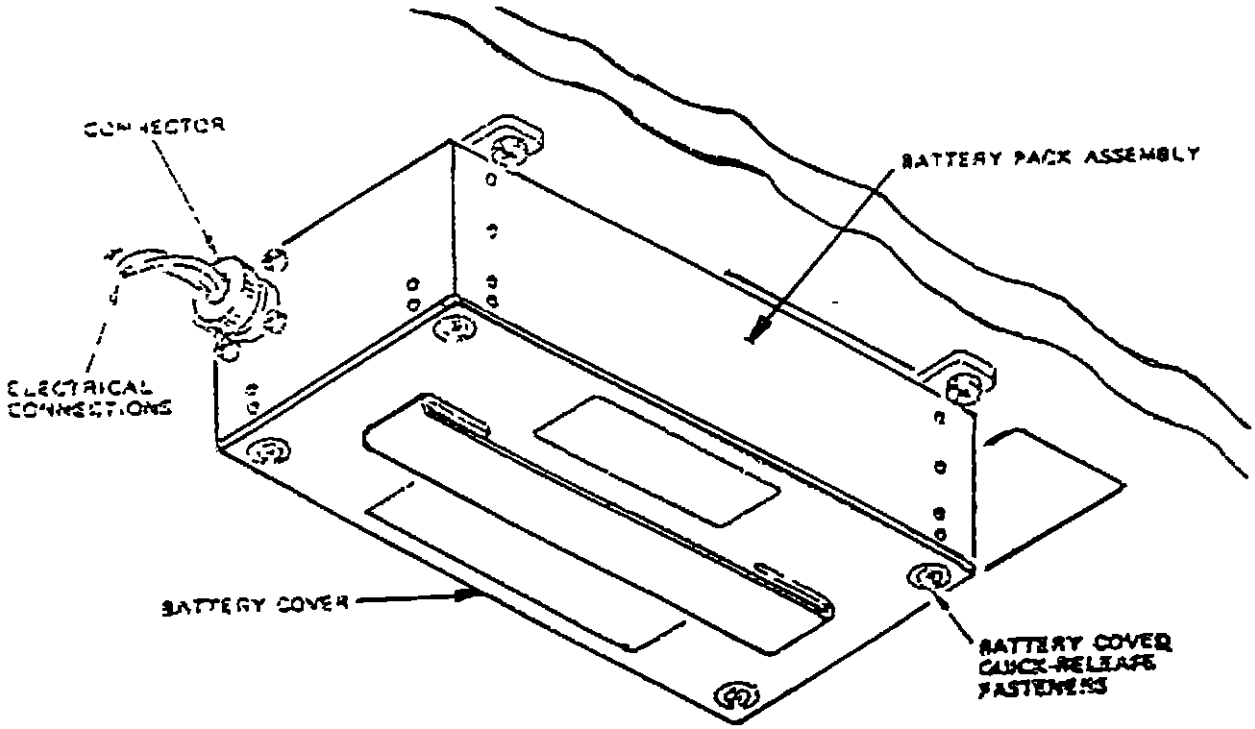
(3) Install replacement battery pack

D Restor Airplane top Normal Configuration

(1) Replace cover

(2) Engage quick-release fasteners on top of battery assy cover





DETAIL A
Overwing Lights Battery Pack Installation
Figure 201 (Sheet 1)

EMERGENCY ESCAPE SLIDE LIGHTS - MAINTENANCE PRACTICES

Effectivity LX-N19997 and LX-N20000

J Escape slide Light Lamp Replacement

A General

(1) This procedure includes information on the replacement of the lamp in the light assemblies which illuminate the escape slide arcas

B Replacement of Emergency Escape Slide Lamps

(1) Remove four lens retaining screws (See figure 201.)

(2) Carefully pry loose and remove lens assembly and gasket

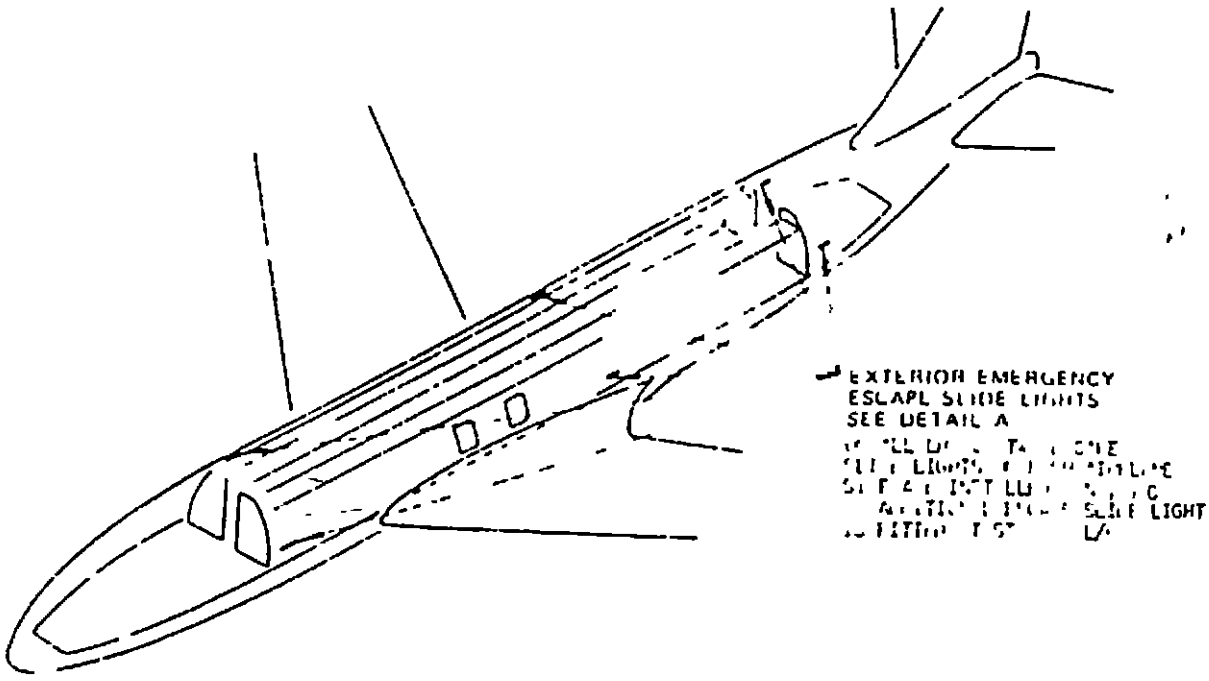
(3) Remove lamp

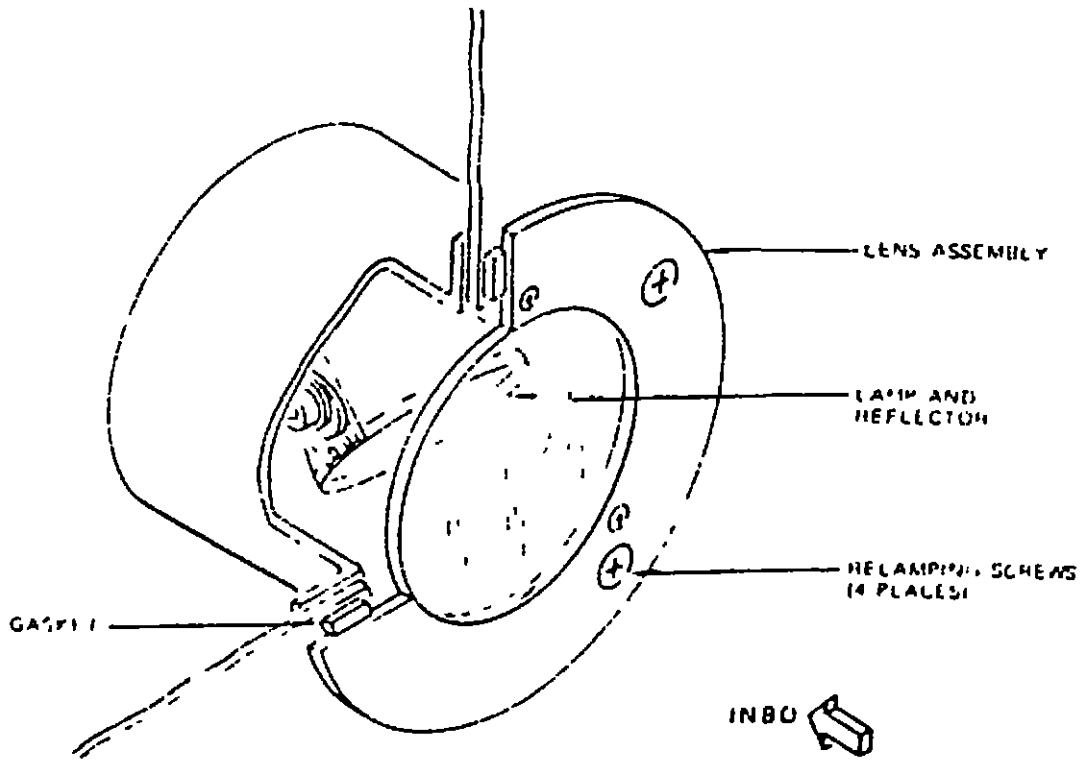
(4) Clean light assembly with a clean dry cloth

(5) Install Lamp

(6) Test operation of lights

(7) Install lens assembly and gasket with four screws





DETAIL A

Emergency Escape Slide Lamp Installations
Figure 201

Effectivity LX-N19997 and LX-N20000

EMERGENCY ESCAPE SLIDE BATTERY LIGHT PACK - MAINTENANCE PRACTICES

1 General

A The escape slide light battery pack contain nickel cadium batteries and an electronic control and battery charging circuit The batteries are readily replaceable Each battery pack provides power and control for two slide lights

B. The battery pack for the two forward escape slide lights are located above forward galley door. The battery pack for the two aft escape slide lights is located above the galley door (Fig 201)

C On Passenger/Cargo Convertible Airplane the battery pack for the two station 990 hatch escape slide lights is located above the right side hatrack

2 Replace Slide Light Batteries

A. Remove access panel on galley door or reach in right side hatrack at station 990 as neccessary to provide access to battery pack (Fig 201)

B Release four quick-release fasteners on battery pack cover and remove cover

C Remove batteries

D Install replacement batteries

CAUTION OBSERVE CORRECT POLARITY OF BATTERIES WHEN INSTALLING

E Replace cover and secure four quick-release fasteners

F Test battery pack

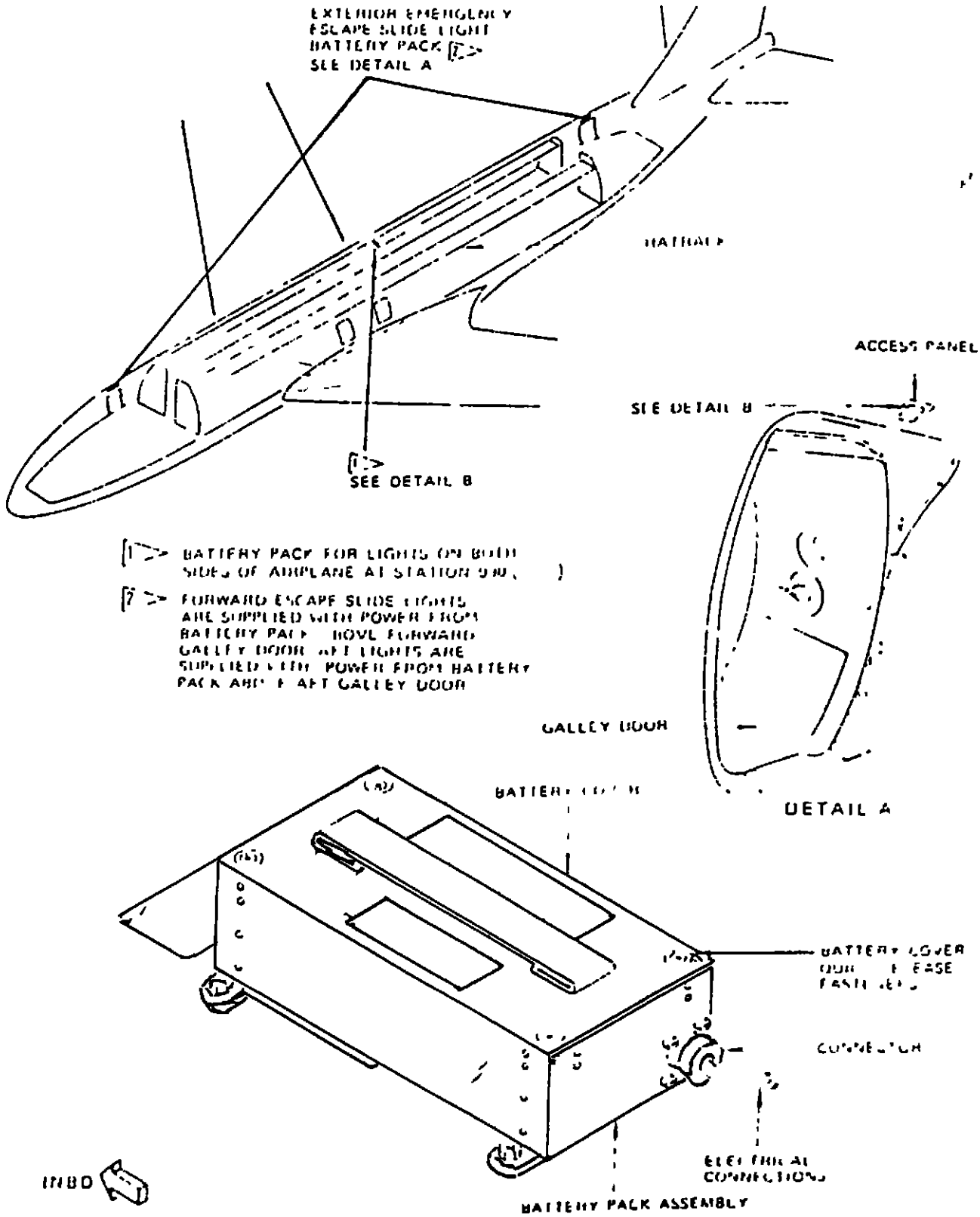
(1) Provide electrical power.

(2) Momentarily set emergency light switch on either pilots overhead panel or aft attendant's station to ON then return switch to original position Check that slide lights powered by replaced batteries come on and go off

CAUTION SET SWITCH TO OFF POSITION AS SOON AS POSSIBLE TO CONSERVE BATTERIES

(3) Remove electrical power if no longer required

G Replace access panel if applicable



BATTERY PACK FOR LIGHTS ON BOTH SIDES OF AIRPLANE AT STATION 980.

FORWARD ESCAPE SLIDE LIGHTS ARE SUPPLIED WITH POWER FROM BATTERY PACK ABOVE FORWARD GALLEY DOOR. AFT LIGHTS ARE SUPPLIED WITH POWER FROM BATTERY PACK ABOVE AFT GALLEY DOOR

DETAIL B

Emergency Escape Slide Lights Battery Pack Installation
Figure 201

Effectivity LX-N19997 and LX-N20000

PORTABLE EMERGENCY EXIT LIGHT - MAINTENANCE PRACTICES

1 General (Fig 201)

A Portable emergency lights that may be removed from their mountings and used as a flashlight are installed over the control cabin, entry and galley doors They also may be installed over each emergency escape hatch When installing the light, the control switch should be turned to the ARMED position If the lamps are illuminated with the switch in the ARMED position, turn the control switch to ON and then back to the ARMED position

B The portable light assembly will come on and discharge its batteries if removed from mounting plate with pilot's emergency light switch set to ARMED If emergency light comes on when removed from mounting plate, set switch on light assembly to ON then to ARM Light will go off

2 Remove Light Assembly (Fig 201)

A. Turn off emergency lights switch on pilots' overhead panel and tag switch

B Open emergency light POWER and CONTROL circuit breakers on P18-3 panel

C Pull plastic cover out of engagement.

D Press in on latch levers and pull light assembly to remove

3 Replace Batteries (Fig 201)

A Remove two screws and remove back cover from light assembly

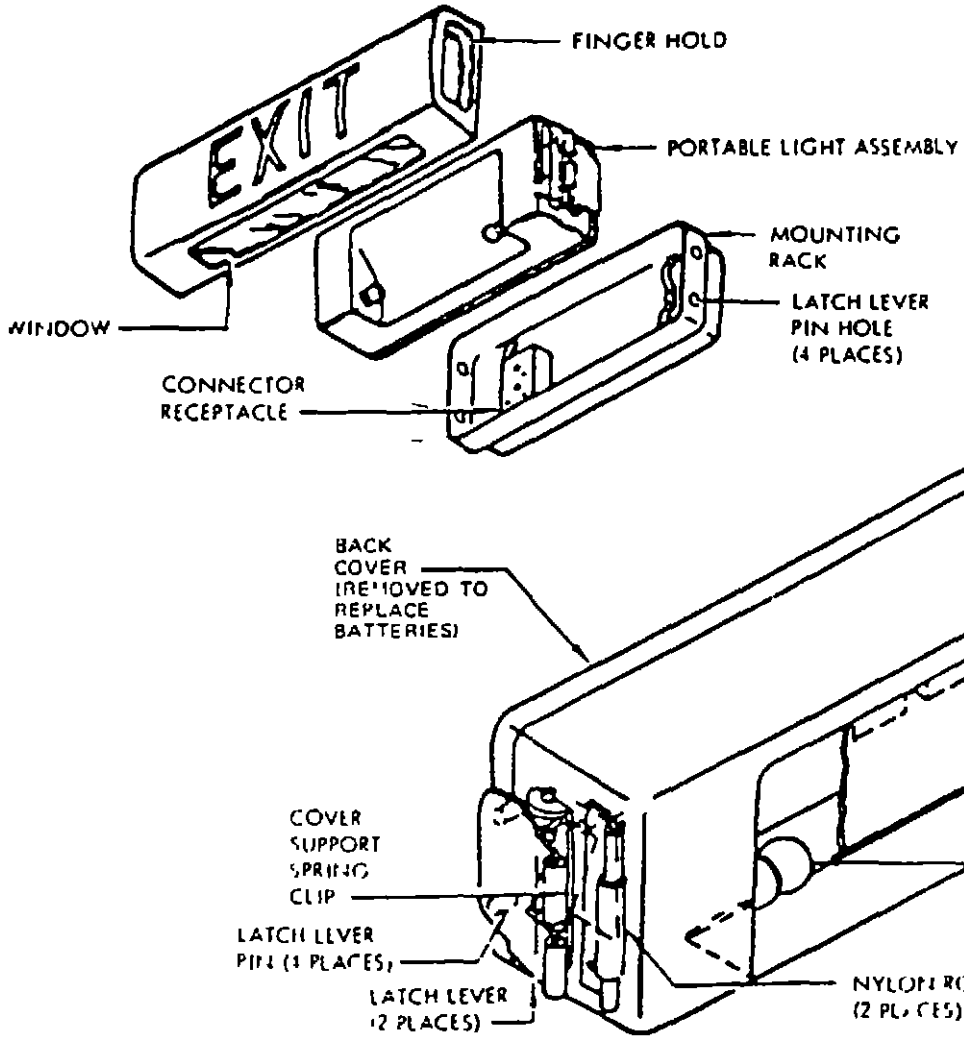
B Remove battery case.

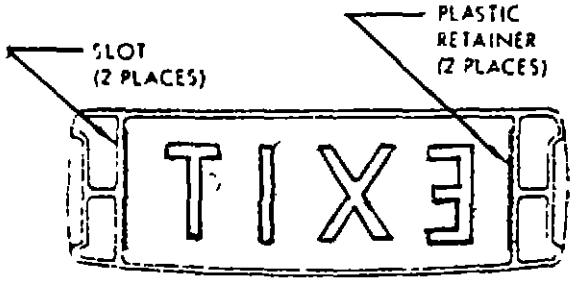
C Replace batteries

CAUTION. OBSERVE CORRECT POLARITY OF BATTERIES

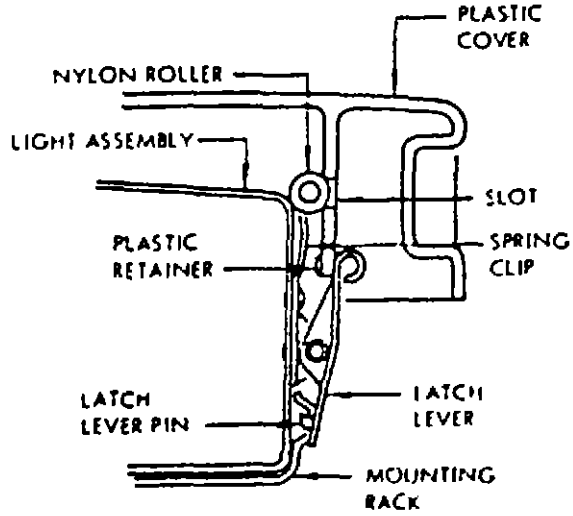
D Install battery case.

E Install back cover on light assembly and secure fasteners





INSIDE VIEW OF TYPICAL PLASTIC COVER



SECTION SHOWING ATTACHMENT OF LIGHT ASSEMBLY AND PLASTIC COVER

Portable Emergency Exit Lights Assembly Installation
Figure 201

4 Install Light Assembly (Fig 201)

A Press in on latch levers and push light assembly into place, engaging latch lever pins in holes in mounting plate

CAUTION CHECK THAT ALL FOUR PINS ARE POSITIVELY AND FULLY ENGAGED

B Push plastic cover over nylon rollers on spring clips on light assembly

CAUTION COVER MUST BE CENTERED IF IT TIPS OUTBOARD AT EITHER END, IT WILL RELEASE THE LATCH LEVERS WITH RISK OF THE LIGHT ASSEMBLY FALLING

C Close emergency exit light circuit breakers opened in step 2 B

D Return switch to its original position

5 Test Light Assembly

A Momentarily set emergency light switch on either pilots' overhead panel or attendant's panel to ON, then return switch to original setting Check that emergency light comes on and goes off

CAUTION RETURN SWITCH TO OFF POSITION AS SOON AS POSSIBLE TO CONSERVE BATTERIES

6 Check Light Installation (Fig 201)

A Provide electrical power

B Remove portable light from mounting plate per par 2

C Close circuit breakers opened in step B

D Set switch to ARMED

E Check voltage between sockets 1 and 5 (ground) of portable light receptacle on mounting plate

(1) Voltage should be 27 +/-2 volts dc (no load)

F Actuate switch on light assembly If lamps do not light or are dim, replace light assembly

G Open circuit breakers closed in step C

H Install portable light assembly, replace cover, and check operation per par 4 and 5

Effectivity LX-N19997 and LX-N20000

PASSENGER CABIN LIGHTING - DESCRIPTION AND OPERATION

1 General

A Passenger cabin lighting is provided by the following installations

Attendants' Reading Lights
Threshold Lights
Coat Closet Lights
Passenger Cabin Cove Lights
Exit and Emergency Exit Lights - See Chapter 33-7-0
Galley Lights
Lavatory Lights
Lavatory Signs
Passenger Cabin Ceiling Lights
Passenger Cabin Aisle, Forward Entry and Aft Entry Lights
Passenger Reading Lights
Passenger Information Lights
Main Cargo Door Lights
Main Cargo CompartmentLights

B Standard circuit components conventionally mounted make up most of these circuits A simple circuit with only one switch between the lamp and its supply can be assumed unless exceptions are described in this section Complete information on all circuits is contained in the wiring diagram manual Figure 1 lists the circuit breakers protecting each light installation and the power to each.

2 Attendants Reading Light

A An attendant's reading light is installed in the lowered ceiling panel above the forward and near the aft attendant's seat The lights are controlled by on-off switch on the cover plate

B For the forward attendant's lights the light beam shines through a hole in an eccentric disc in the cover plate Rotating the disc adjust the direction of the beam The aft is not adjustable Each light is mounted in the same housing with the respective entry light The front cover plate is secured by friction studs and can be pulled off to obtain access

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LIGHT CIRCUIT	CIRCUIT BREAKER	CIRCUIT BREAKER PANEL	POWER (28V AC EXCEPT AS NOTED)
ATTENDANT'S READING LIGHT forward and Aft	AFT BOARD & AFT READING	P7	
TRESHOULD LIGHTS			
Aft	AFT READING & AFT BOARDING	P7	
Forward	BOARDING LIGHTS	P1	115V AC
COAT CLOSET LIGHTS FWD	LAV SIGNS & CLOSET	P7	
PASSENGER CABIN COVE LIGHTS	COVE LIS (3 PLACES)	P3	115V AC
Cove Lights Relay	COVE RELAY & PRISS TO TEST	P5	28V DC
Service lights Transfer Relay	COVE LIGHTS (3 PLACES)	J9*	
EXIT & EMERGENCY EXIT LIGHTS			
Battery Charge	EMERGENCY EXIT LIGHTS BAT CHG	P2	115V AC
Holding Relay	EMERG EXIT LIGHTS CONTROL LH RH. & CIR	P6	28V DC
Emergency Strip	EMERCENCY STRIP	P6	28V DC
GALLEY LIGHTS	GALLEY	P1	115V AC
MAIN CARGO DOOR LIGHTS	PASS CARIN CEILING LTS	P3	115V AC
LAVATORY LIGHTS			
Dome Lights	LAVATORY DOME LTS	P6	
	LAV DOMES & CKPI WHITE DOME	P1	
Fluorescent Lights	LAVATORY MIRROR LIGHTS	P4	115V AC
	LAV LTS	J9*	115V AC
Lav lights Relay	EXl POWER CONTROL	J9*	28V DC
LAVATORY SIGNS	LAV SIGNS AND CLOSET	P7	
* EXTERNAL POWER APPLIED			

Passenger cabin Lighting Circuit Protection
Figure 1 (Sheet 1)

LIGHT CIRCUIT	CIRCUIT BREAKER	CIRCUIT BREAKER PANEL	POWER (28V AC EXCEPT AS NOTED)
PASSENGER CABIN CEILING LIGHTS	PASSENGER CABIN CEILING LIGHTS (3 PLACES)	P3	115V AC
Ceiling Lights	PASS LT RELAYS & PRESS TO TEST		28V DC
AISLE & ENTRY LIGHTS	AISLE LIGHTS	P6	
PASSENGER READING LIGHTS	PASSENGER READING LIGHTS	P7	
PASSENGER INFORMATION LIGHTS	NO SMOKING, RETURN TO SEAT, FASTEN SEAT BELTS	P6	
CARGO COMPARTMENT LIGHTS			
Main Cargo Floodlights	Relay COVE RELAY & PRESS TO TEST	P5	28V DC
Main Cargo Floodlights	MAIN CARGO FLOODLIGHTS	P7	
Forward Lower Cargo	FWD	P1	115V AC
Aft Lower Cargo & TAIL Compartments	AFT AND TAIL CONE	P1	115V AC

Passenger cabin Lighting Circuit Protection
Figure 1 (Sheet 2)

3 Threshold Lights

A Threshold of both forward and aft entry doors are illuminated by lights placed below the attendant's seats Each light consists of a single incandescent bulb under a glass lens held in place by a fram The frame is secured by friction studs The upper lateral surface of the prisms cut in the back of the lens are painted black to reduce light emission upward

B A BOARD switch on the forward attendants's panel controls the forward threshold light This light is also controlled by the BOARD (BRD) switch on the cargo attendant's panel. (See figure 7) A BOARD switch on the aft attendants's panel controls the aft threshold light

C Threshold lights for main cargo door are described in Main Cargo Door Lights

4 Coat Closet Lights

A Interior of the fwd coat compartment is lighted by lights above and below the shelves Each light contains one bulb, and the on-off switch is located on the forward partition of the coat compartment Twist lock plastic domes cover the lamps

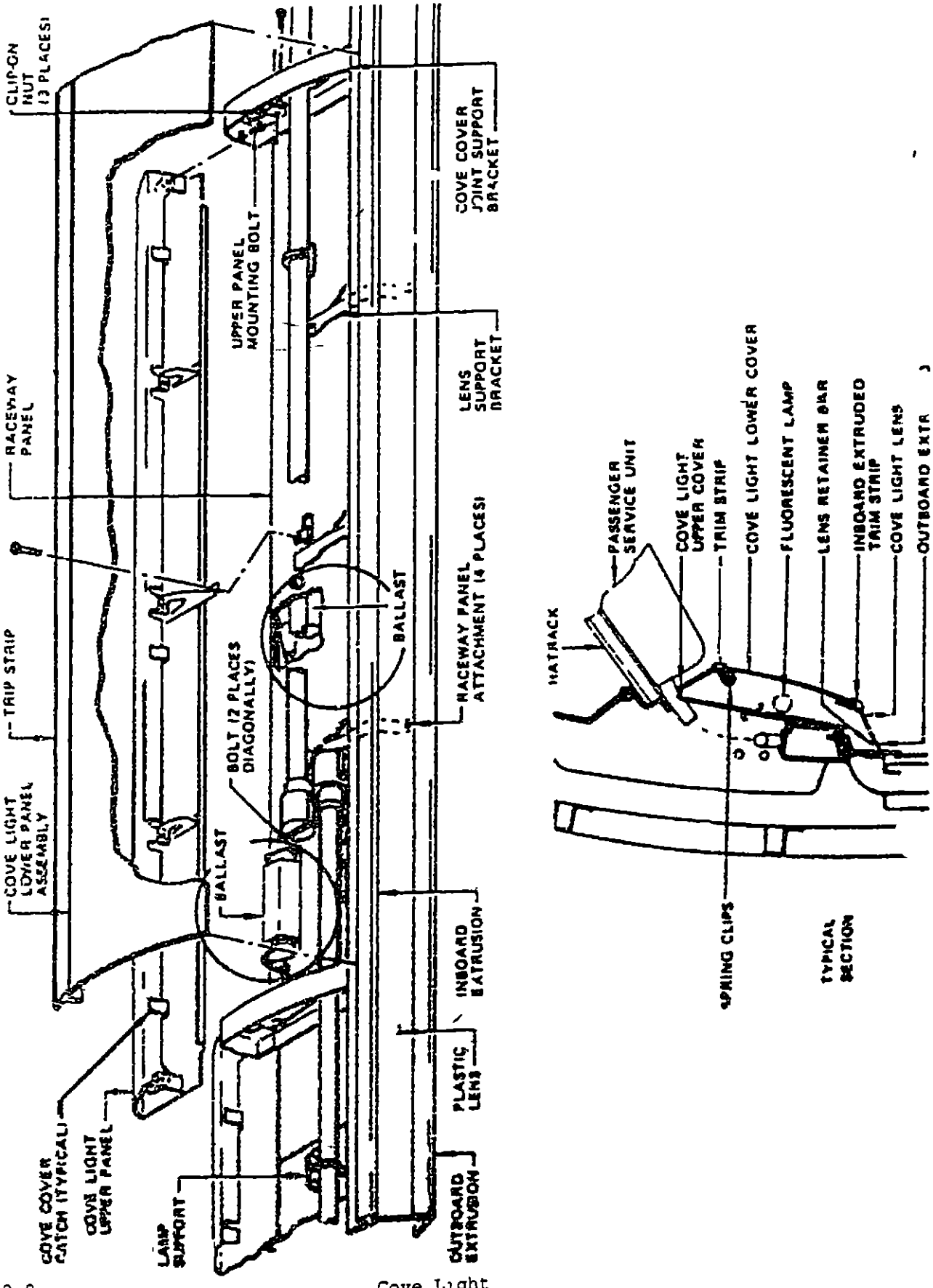
B Above the VIP-Coat-Compartment (STA 560 RH) a flourescent light is installed The ON-OFF switch is activated by the door of the Coat-Compartment (LX-N19997 only)

5 Passenger Cabin Cove Lights

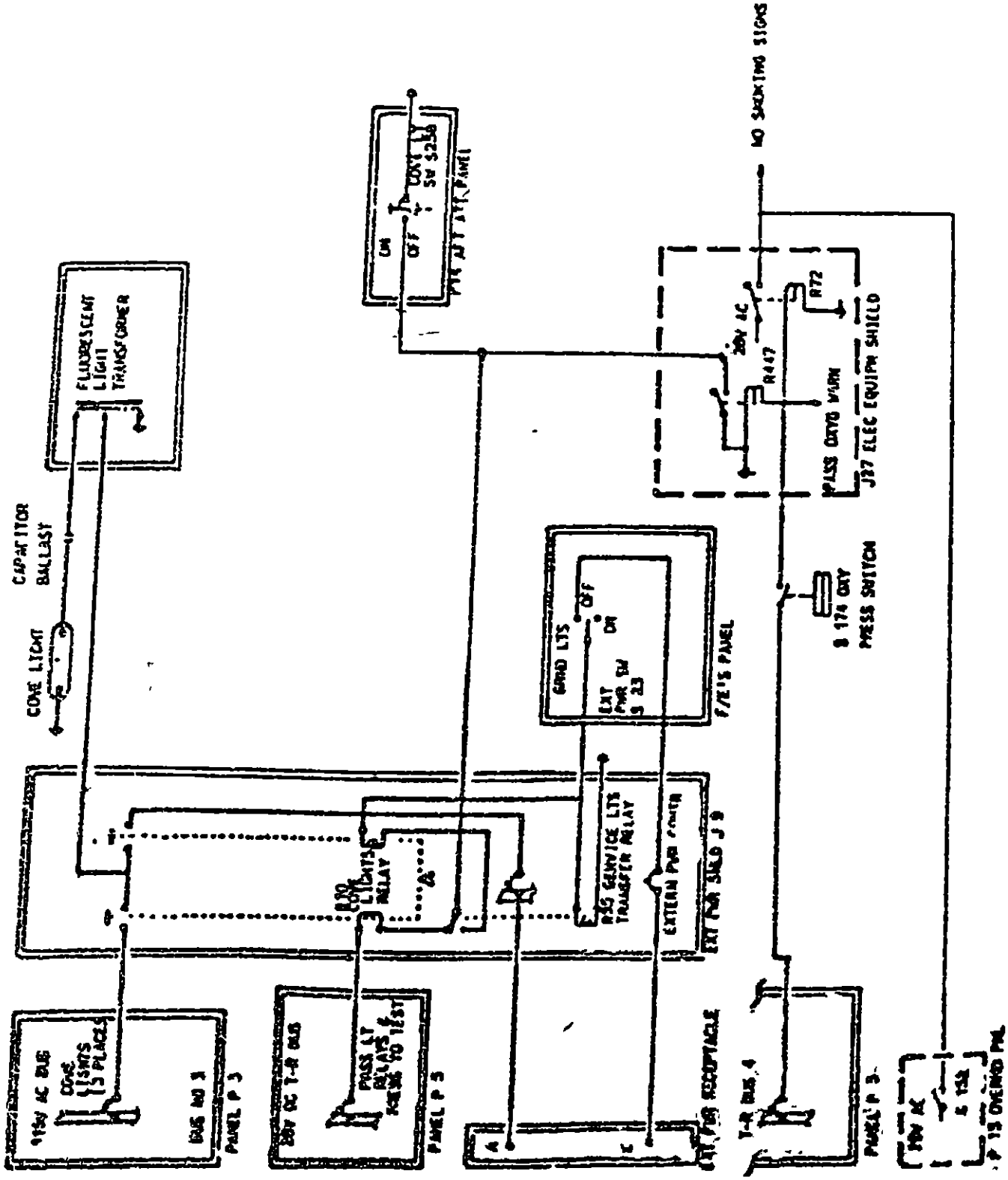
A Passenger cabin cove lights illuminate the passenger cabin sidewalls Light is reflected from the sidewalls to provide indirect lighting of the passenger cabin

B The fluorescent cove lights are installed in plunger-type sockets which are bracketed to cove light raceway panels on the sidewalls below the hatracks, and below the forward lounge service unit Ballast for each flourescent light is a capacitor connected is series with the light.

C Each cove light is enclosed by a plastic lens and an cove light cover (See figure 2) There is a decorative pattern on lower surface of the plastic lens through which light is diffused onto the sidewalls The lens is fitted into two extrusions on the raceway panel and is held in position by a spring-loaded retainer bar which rides on the outboard extrusion An arrow on the lens indicates the forward end for installation purposes The cove light cover consists of a lower panel and an upper panel, each decorated with a hole pattern through which the hatrack and the cabin are illuminated The heel of the lower panel fits into the inboard extrusion and a serrated cover trim on the panel meshes with serrated cove catches on the upper panel Access to the fluorescent light is provided by pulling on the cover trim to remover the lower panel Removal of the upper panel provides access to the cove light ballast which is mounted on the raceway panel The upper panel is bolted to the lens support bracket and the cover joint support brackets on the raceway panel



Cove Light
Figure 2 (Sheet 1)



Cove Light
Figure 2 (Sheet 2)

D The cove lights are illuminated by 450 volts ac Fluorescent light transformers in the transformer shield step up 115-volt ac power from the airplane load buses or from external power (see figure 2) A slide button cove light switch on the forward attendant's panel controls the lights below the hatracks

E A radio noise filter and ballast is installed in the ac power line at each cove light in order to elliminate interference with the airplane ADF systems

F In case of cabin decompression the cabin cove lights and the no smoking signs are illuminated automatically for passengers to recognize dropped oxygen masks The lights and signs are turned on by relays energized by the oxygen pressure switch when the cabin oxygen system is activated See figure 2

NOTE No Cabin Decompression on cove lights for Crew Rest Room and VIP Rest Rooms

6 Exit, Emergency Exit, and Emergency Lights - Refer to 33-7-0

7 Galley Lights

A Variable intensity illumination in the galleys is provided by a single fluorescent light in each Switches are located on the forward and aft attendant's panels

WARNING WHEN REPLACING FLUORESCENT LAMPS, REMOVE POWER TO AVOID HIGH VOLTAGE HAZARD AND SHORTING OF TRANSFORMER FILAMENT WINDINGS INSTALL LAMPS BY FIRMLY SEATING ALL CONTACTS IN SOCKETS

B Tapped choke coils provide both ballasts and dimming for the galley lights When the switch is in the bright position, part of the coil is bypassed

C The ballast for the forward lights is mounted on the inboard side of a life raft support bracket forward of the life raft compartment and about one foot to the right of the airplane centerline The ballast is accessible through the crew oxygen cylinder compartment hinged door See Chapter 25, "Lowered Ceiling Lining and Insulation."

D The ballast for the aft lights is mounted on the inboard side of a curtain track and lowered ceiling support bracket near the forward corner of No 4 galley The ballast is accessible through the emergency equipment compartment hinged door

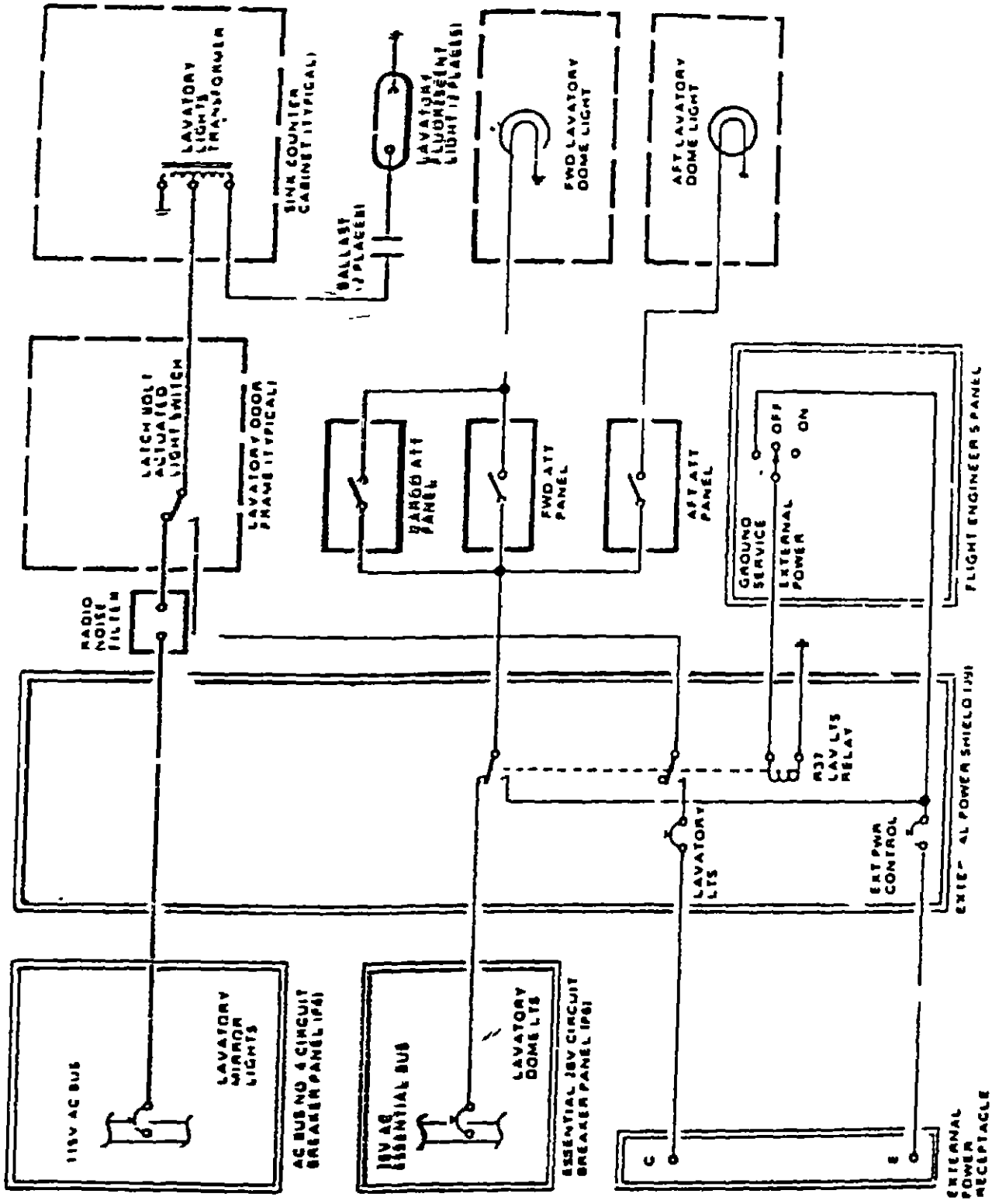
8 Lavatory Lights

A Illumination in each lavatory is provided by one incandescent dome light in the service unit and two fluorescent mirror lights

B Lavatory dome lights are normally powered from the 28V Essential Bus (See figure 4) Switches are on the attendants' panels The forward lavatory dome lights are also controlled by a "LAV DOME" switch on the cargo attendant's panel.

C The fluorescent lights are controlled by door lock actuated switches (See figure 4) In flight the lights are turned on when the door is locked When ground power is supplied, the fluorescent lights are turned on when the lavatory door is unlocked.

D The lavatory fluorescent lights are connected to a radio noise filter to avoid interference with the ADF systems The filter is installed in the control cabin, on the bulkhead, to the right of the door and near the ceiling



Lavatory Lights circuit
Figure 4

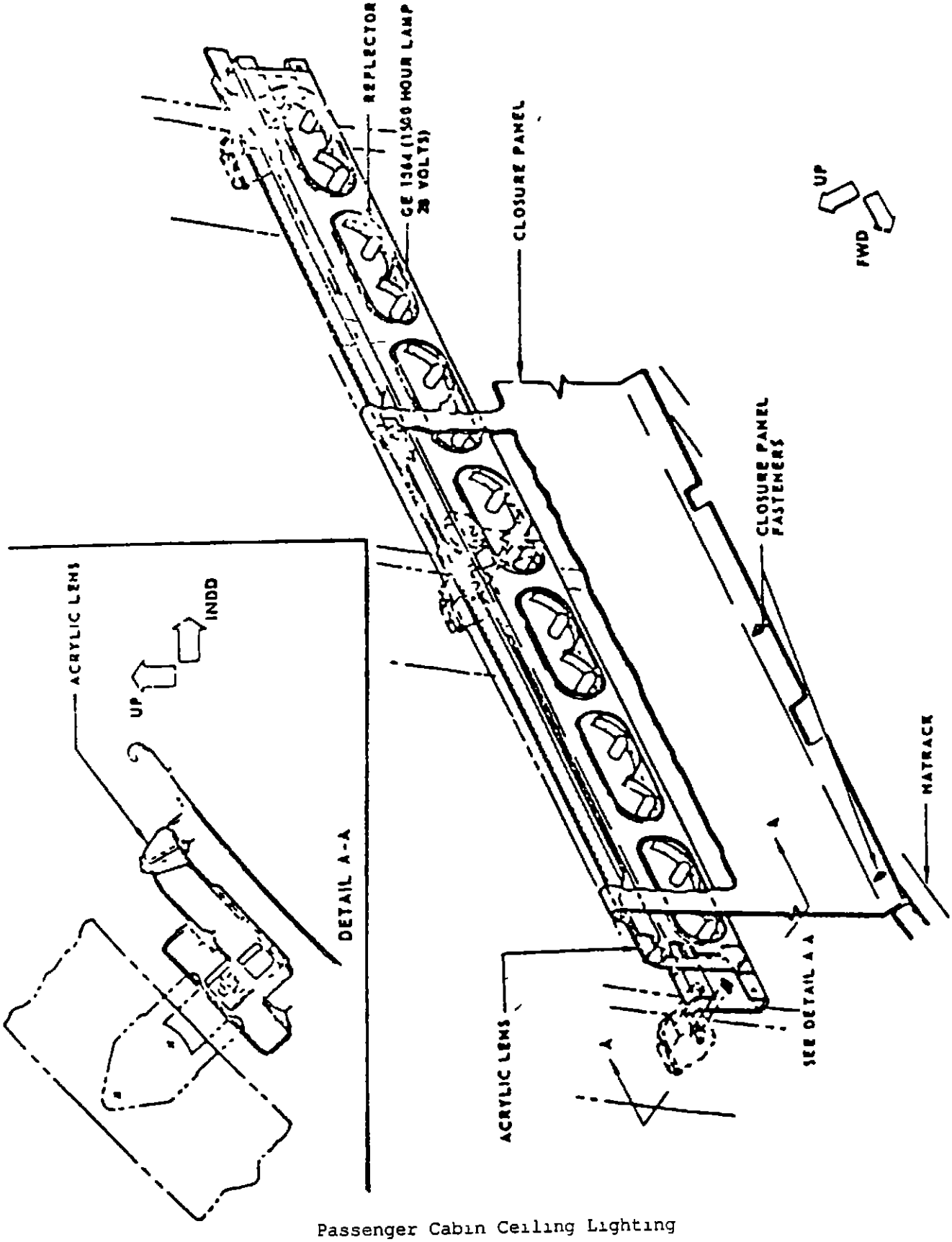
9 Lavatory Signs

A Indicator lights draw attention to LAVATORY OCCUPIED signs on the forward and aft lowered ceilings Each light is a single blue bulb in series with lavatory door lock actuated switches The forward light glows when both forward lavatory doors are locked, and the aft light is turned on when all three aft lavatory doors are locked Access to the light bulb is gained by unscrewing the cap for bulb replacement

10 Passenger Cabin Ceiling Lights

A The ceiling incandescent strip lights are located along both sides of the ceiling above the hat racks to provide reflected light The ceiling strip light fixtures are each fixed at three points to the cabin sidewall (See figure 5) Loosening the closure panel latches located outboard along the top edge, permits flexing the panel so the top curled edge may be snapped off exposing the lamps and semicircular reflectors The lights are energized by the CARGO - OFF - PASS switch on the cargo attendants' panel In the passenger (PASS) position the lights are intensity controlled at the aft attendant's panel In the CARGO position the lights are on full brightness to provide floodlighting of the cargo area Normal power is 115 volts a-c from circuit breaker panel P3, reduced by transformers in transformer panel to give variable light intensities (See figure 6)

B The ceiling strip lights at STA 553RH, 685LH, 935RH and 1205LH will automatically switch to BATTERY and ESS BUSSES for a T-R bus failure The lights will be on bright from the 28 volt d-c source



Passenger Cabin Ceiling Lighting
Figure 5

11 Passenger Cabin Aisle, Forward Entry and Aft Entry Lights

A Passageways outside the seating area are lighted by an aft aisle light, and a forward and aft entry light The forward and aft entry lights are in the same housing with the respective attendant reading light The aft aisle light is in the ceiling outside the aft lavatories

B Each light contains a single incandescent bulb, and is controlled by the CARGO - OFF - PASS switch on the cargo attendant's panel In the PASS position each light is energized by the ceiling light rotary switch on the aft attendant's panel. (See figure 6) Any on position will turn on these lights In the CARGO position the lights are turned on directly

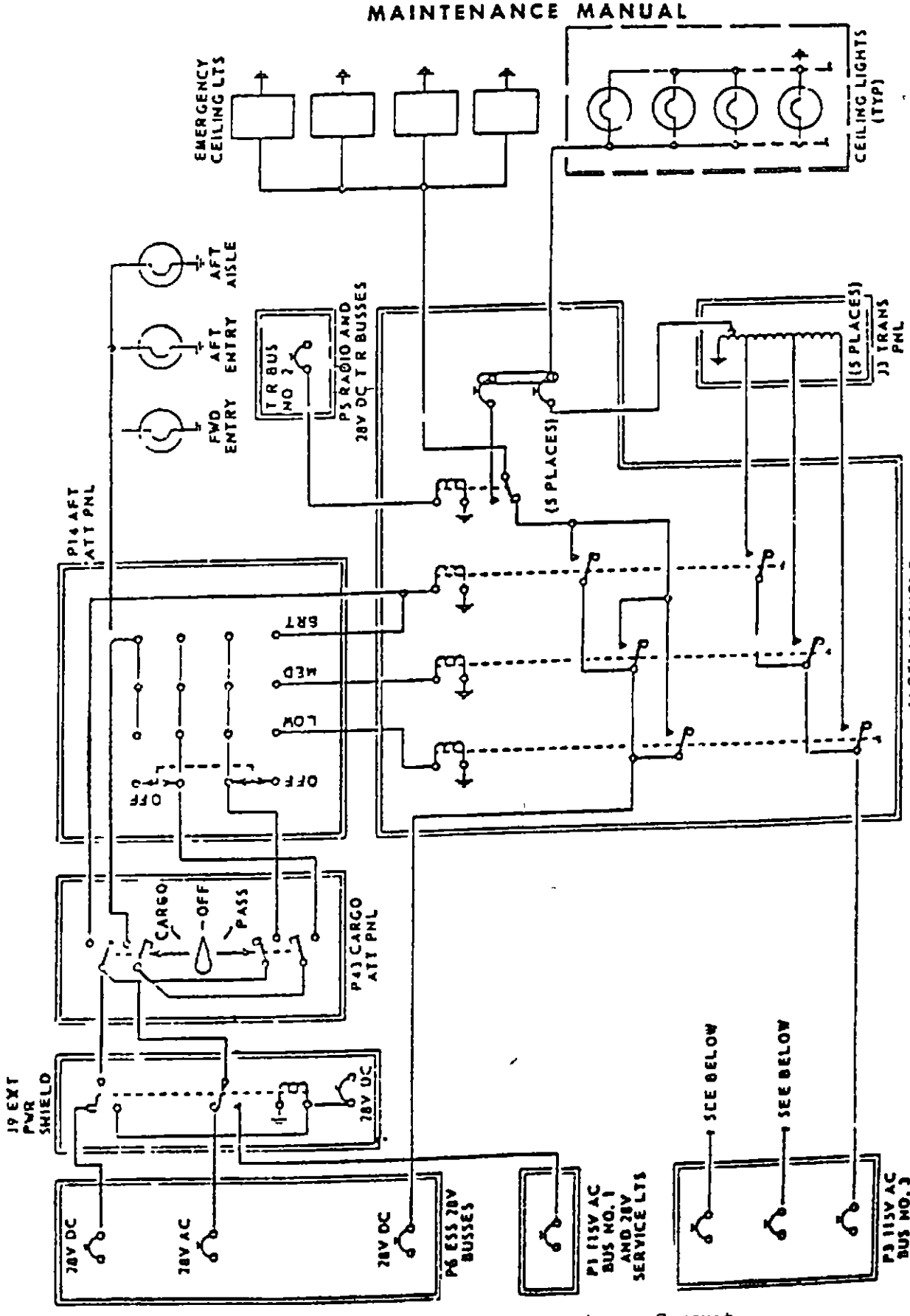
12 Passenger Reading Lights

A An individual reading light is provided for each passenger Three passenger reading lights are installed on each passenger service unit and each light is controlled by a pushbutton switch outboard of the light The light is adjustable laterally Tracking pins secure the lamp to front and rear tracking plates on the light assembly The lamp is adjusted when the pins are moved along curved slots in the tracking plates by positioning a locating spring dimple into one of eight numbered detents on the front tracking plate A thumb nut on the springs locks the dimple in place to secure the adjustment. The position of each lamp varies with the passenger seating arrangement The light beam centerline, tilted 18 degrees forward of the vertical, can be adjusted fore and aft by the positioning of the passenger service unit, except the lounge passenger service units which are recessed in the hatrack The passenger reading light cap reatiner rings, when installed, are to restrain free light caps from contacting exposed electrical terminals in the service unit, thus eliminating a potential fire hazard

13 Passenger Information Lights

A Display of NO SMOKING, FASTEN SEAT BELT and RETURN TO SEAT instructions is accomplished by lighted signs in various combinations in the passenger service units, lavatories, fixed forward lowered ceiling area, and above the entrance to the control cabin

B Two switches on the pilot's overhead panel control all passenger signs Closing the NO SMOKING switch lights the seat letters and NO SMOKING signs Turning the SEAT BELTS switch on lights the RETURN TO SEAT signs in the lavatories and the FASTEN SEAT BELTS signs



Passenger Cabin Ceiling Lighting Circuit
Figure 6

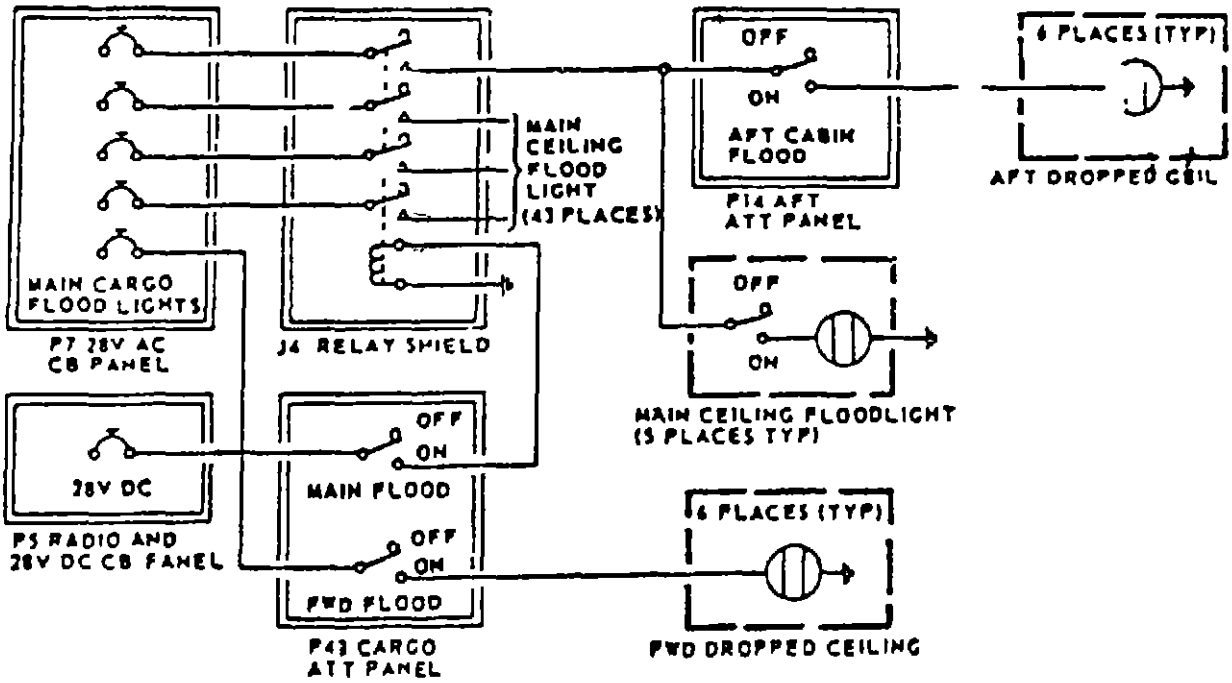
14 Main Cargo Door Floodlights

A Four incandescent lights above the main cargo door and two lights in the lower main cargo door frame illuminate the threshold (See figure 8) The top snap-on lamp cover in removed for relamping On all airplanes the lights are controlled by a BOARDING (BRD) light switch on the cargo attendant's panel This switch, when ON completes the circuit to the lights The center drop ceiling panels are removed to expose the main cargo door upper lights

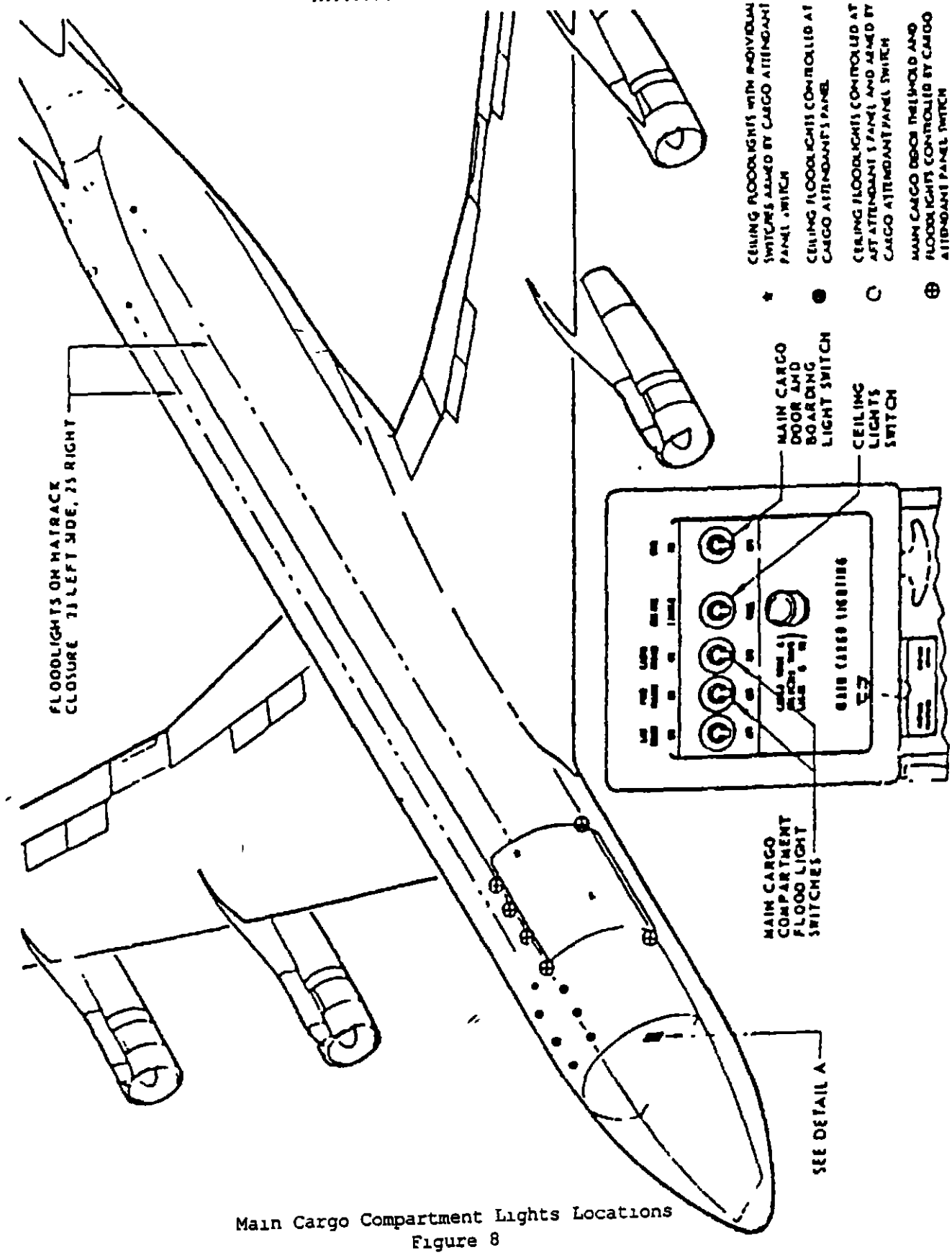
15 Main Cargo Compartment Floodlights

A Main cargo compartment incandescent floodlights are located in three distinct locations throughout the ceiling area of the main cargo compartment (See figure 8) When the aft section of the forward lowered ceiling is removed, six lights are exposed When the aft lowered ceiling is removed, six lights are exposed When the hatracks are stowed or removed, 23 lights on left side and 25 lights on right side are exposed The spacing of these lights in approximately 40 inches Each individual light panel may be lowered for relamping

B All cargo compartment lights are energized from switches on the cargo attendant's panel The six forward lights am turned on by the FWD FLOOD switch The six aft lights are armed by the CABIN FLOOD switch and all are turned on by the AFT CABIN FLOOD switch on the aft attendant's panel The main cabin floodlights are armed by the CABIN FLOOD switch and each individual light has an off-on switch The CABIN FLOOD switch also energizes an ac relay in the J4 shield to remove power from passenger reading lights from approximately STA 600e forward in the forward section of the main cabin compartment, except for LH passenger service units at approximately STA 382 and STA 365 (Fig 7)



Main Cargo Compartment Floodlights Circuits
Figure 7



Main Cargo Compartment Lights Locations
Figure 8

16 Passenger Berth Area Lights (Fig 7)

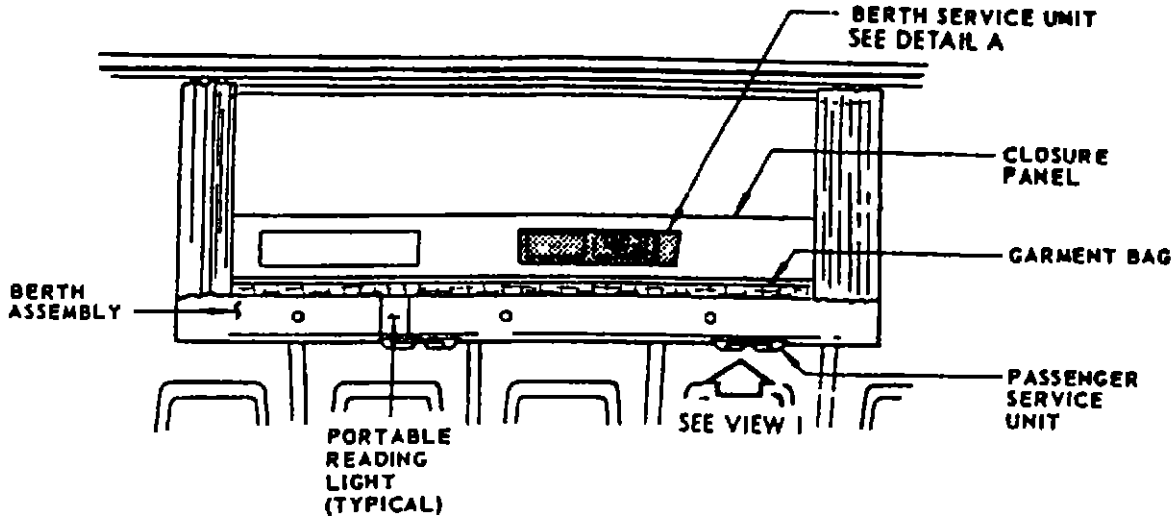
A Passengers and attendants reading lights are provided in the passenger service units and berth service units when the berths are installed The berth reading light is a bayonet-type lamp behind a plastic lens secured by screws The berth night light, in the same housing, is a bayonet-type lamp under a black cover with a plastic window The cover can be pulled for access to the light The night light switch is adjacent to the plastic lens Both lights are turned off by a cut-off switch when the berth is moved to the up position

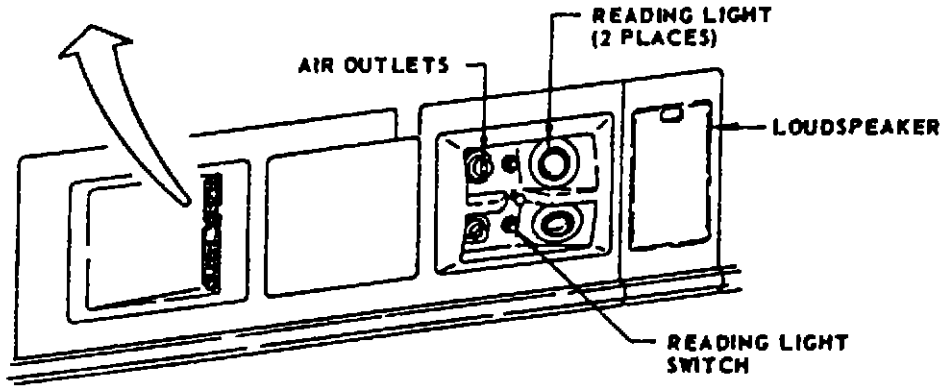
B The passenger service unit under the berth has two reading lights Each light is a bayone-type, spring-loaded incandescent lamp installed under a conical light cover which carries the connectors The cover is held in place by a spring loop which fits into a groove in the lens housing One of the lights has a glare shield to avoid light spillage The shield consists of a metallic sheet wrapped around the bottom of the light cover and attached by a screw. To relamp, the lens assembly can be pulled out and the lamp becomes accessible

C The no smoking - fasten seat belt sign below the berth is identical to those in the passenger service units in the cabin (Ref Passenger Information Lights) The sign housing is attached to a plate which is fastened by quick-release fasteners, in the same manner as the crew rest area passenger service unit. Plate and unit are interchangeable (Ref Chapter 25, Berths)

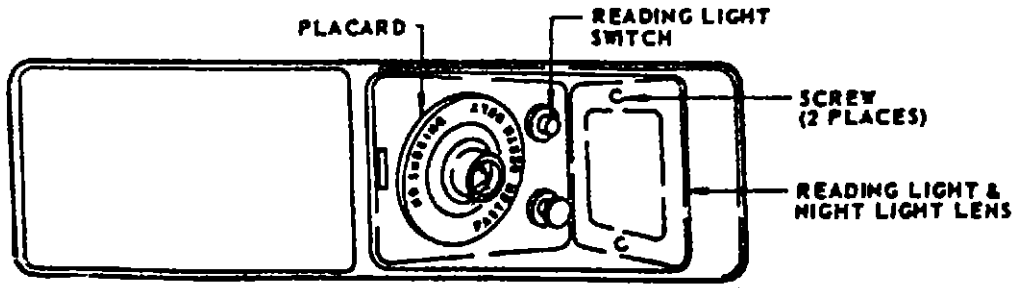
D Portable reading lights are provided for attachment to the inboard edge of the berths when 3-abreast configurations are used The lights can be clamped at any of five light receptacles on each berth Each unit consists of a plug assembly and a light assembly, held together by clamping screws The direction of the light can be adjusted from vertical to 20 degrees inboard by turning a screw adjacent to the light switch on the light assembly The action of the screw in to wind or unwind a spring

E Other lights in the berth area are of standard design For information on signs refer to 33-2-31, Passenger Information Lights





PASSENGER SERVICE UNIT
VIEW 1



BERTH SERVICE UNIT
DETAIL A

Passenger Berth Area Lights
Figure 7

EMERGENCY EXIT LIGHT NICKEL-CADMIUM BATTERIES - MAINTENANCE PRACTICES

1. Capacity Check

   A. Initial Battery Check

      (1) The purpose of the initial check is to determine if the batteries will power the exit light for a minimum of 20 minutes.

         (a) Discharge the batteries by lighting the exit light, noting that both lamps are lit. Lamps will suddenly grow very dim when batteries reach the discharged condition.

      (2) This initial check may be performed either in the aircraft or in the shop. Lights are turned on in the aircraft by means of the emergency lights control switch located on the pilot's overhead panel Note that the dc essential bus must be energized to provide control power for turning lights on and off in the aircraft.

         CAUTION: AFTER THIS CHECK IS PERFORMED IN AN AIRCRAFT, BATTERIES IN EACH OF THE AIRCRAFT LIGHT UNITS MUST BE REPLACED WITH FULLY CHARGED BATTERIES.

2. Charging

   A. Batteries from light units that checked OK in providing 20 minutes of illumination should be recharged at a rate of 150 milliamperes for 16 hours.

      CAUTION: BATTERY CHARGE RATE SHOULD NOT EXCEED 150 MILLAMPERES.

   B. Batteries from light units that did not provide 20 minutes of illumination on initial check, but show no sign of leakage or physical damage (see Condition Check below), should be charged at a rate of 150 milliamperes for 16 hours and then be rechecked in a light unit. If batteries then provide 20 minutes of illumination, they are acceptable and should again be charged at a rate of 150 milliamperes for 16 hours before returning to service.

3. Storage

A. It is preferred that batteries be kept on float charge (50-100 ma) until such time as they are installed in an aircraft.

(1) As an alternate, batteries may be taken off charge and stored "on the shelf" for a maximum period of 90 days, after which time they should be recharged before use.

B. Batteries should be individually labeled with the date charging is completed, if they are to be stored on the shelf.

(1) Batteries kept on float charge are ready for use indefinitely and need not be dated.

4. Condition Check

A. Batteries found in one or more of the following conditions should be taken out of service.

(1) Bulged at either or both ends.

(2) Positive terminal broken off.

(3) Leaking, as evidenced by an oily substance at the sealed end.

NOTE: The white powdery substance sometimes found at the seal is not harmful to the battery and may be brushed off. Leakage is associated only with the oily substance.

EXIT SIGNS - INSPECTION/CHECK

1 General

A. This check is to ascertain that the brightness of the exit signs is in accordance with requirements

2. Equipment and Materials

A Isolite Photometer, Model 1016 (U.S. Radium)

3. Check Operation of Exit and Emergency Exit Signs

A. Use isolite photometer to check luminescense of exit signs. Minimum allowable brightness for individual sign is 100 microlamberts.

B. Replace sign if brightness is below this minimum.