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LIGHTS - DESCRIPTION AND OPERATION

1. General
   A. Power for lighting is principally supplied through individually inscribed circuit breakers in the P6 and P18 circuit breaker panels located aft of the captain's and first officer's seats. Generally, lamp numbers are marked adjacent to the socket and are applicable to lamps supplied by any vendor.
   B. Control cabin lighting provides general illumination of the control cabin and local illumination of control panels, instruments, and controls. Most light controls are on the overhead panels except some of the panel lighting whose controls are on the appropriate panel. Control cabin lights are powered by 28 volts ac except for the compass light, white dome light, and the pilots' fluorescent background lights; which are 28 volts dc, 28 volts dc, and 115 volts ac, respectively. The control cabin instrument panels use white lighting and are designed using the module concept for easier removal during maintenance.
   C. Passenger cabin lighting is accomplished by the use of white incandescent lights and white fluorescent lights, and is achieved principally by the use of ac power. General cabin illumination is provided by cabin window lights and ceiling lights. Emergency lights provide general illumination in the case of ac power failure. Galley lights and lavatory lights illuminate their respective areas. Threshold and entry lights illuminate the forward and aft door steps and entry areas. Passenger reading lights are located in the passenger service units. Passenger information signs illuminate to convey information to occupants of the passenger cabin and lavatories.
   D. Each cargo or service compartment is provided with illumination by dome, flood, or explosion-
      proof lights as required. Switch controls are either multiple or single for each area of illumination. The equipment rack and forward lower service compartment lights, air conditioning compartment lights, and aft accessory compartment lights are controlled by switches within the compartments. The forward and aft cargo compartment lights have switches adjacent to the access doors. The wheel well lights may be controlled on the forward overhead panel and individually in their respective areas. Power for all cargo and service compartment lights is 28 volts.
   E. Exterior lighting consists of navigation lights, landing lights, nose gear taxi lights, wing scanning lights, runway turnoff lights, and beacon (anticollision) lights. The controls for the exterior lighting are located along the lower edge of the forward overhead panels. Power for all the exterior lights is from circuit breaker panel P18-3.

F. Exit lights above entry doors and emergency exit lights above emergency escape hatches are automatically illuminated if all airplane power fails. Each light assembly contains two nickel-cadmium batteries which are trickle charged by transformer-rectifier units when the switch on the forward overhead panel is in the ARMED position. Some of the light assemblies are removable from their mount and can be used as portable lights.

CONTROL CABIN LIGHTING - DESCRIPTION AND OPERATION

1. General (Fig. 1)
   A. The control cabin lighting includes general cabin illumination and specific area lighting. Intensity or background variations provide contrast to achieve optimum visibility. Dome lights provide general control cabin illumination. The captain's and first officer's stations are illuminated by fluorescent and incandescent lights in the lightshield, above the main instrument panels, and by integral lights in the panel lightplates and instruments. The observer's stations are illuminated by the dome lights and the observers' reading lights. The fluorescent floodlamps in the lightshields provide high intensity lighting for use under adverse visibility.
   B. The EXIT light at the left of the control cabin door is controlled from the forward overhead panel and is normally switched to the ARMED position during flight. Illumination is then automatic in event of complete power failure (Ref 33-51-0, Emergency Lights).
2. Lightplates and Instrument Lights (Fig. 3)
   A. Lighting is supplied from behind the surface of the pilots' panels and most of the instruments with small incandescent lamps. The lamps operate on 5 volts. Each lightplate of the pilots' panels contains two or more of the small lamps. This keeps sufficient lighting of the lightplate if only some of the lamps come on. If the lighting becomes too dim, then you must replace the lightplate. To use a lightplate again, you must first send it to the shop for lamp replacement. Instructions for lamp replacement are in the vendor's manual.
   B. The 28-volt ac transfer buses No. 1 and 2 supply power to variable transformer light controls. The variable transformers supply 0 to 28 volts ac to step-down autotransformers which supply 0 to 5 volts ac to the light circuits. The variable transformer light controls are located on or adjacent to the panel lights they control.
   C. On airplanes with a 26V ac STBY PWR circuit breaker on the First Officer's P42 panel, the 26-volt ac standby bus will provide 5-volt power to illuminate the standby instruments (airspeed indicator, altimeter, and horizon indicator) in event of power loss at the 28-volt ac transfer bus No. 1. When de-energized, relay R237 connects 5 volts ac to the lights from transformer T168. Relay R237 and transformer T168 are located in P42.

3. Lightshield (Fig. 4)

   A. External background lighting for the pilots' main instrument panels is provided by three light assemblies located on the underside of the lightshield. Each light assembly contains a combination of incandescent and fluorescent lamps. A radio noise filter and the fluorescent light ballasts are located on the lower nose compartment ceiling beneath the instrument panels. The dimmable incandescent lamps provide low intensity floodlighting of panels when desired. Two additional incandescent lamps are also mounted adjacent to the other lights. These two lamps are automatically turned on by a relay (or solid-state switch) to provide emergency floodlighting in event of power failure.
   B. The 115-volt ac transfer bus No. 1 supplies power to operate the fluorescent lamps. The 28-volt ac transfer bus No. 2 supplies power to operate the incandescent background lights. The 28-volt dc battery bus provides power for emergency light operation.
   C. The variable transformer/switch marked BACKGROUND on the captain's main instrument panel provides control. Rotating the BACKGROUND control knob clockwise varies the intensity of the incandescent lamps from off to bright. At the clockwise stop position two switch contacts in the transformer module turn the incandescent lamps off and the fluorescent lamps on. This provides maximum intensity lighting when required. (See Fig. 4).

4. Dome Lights

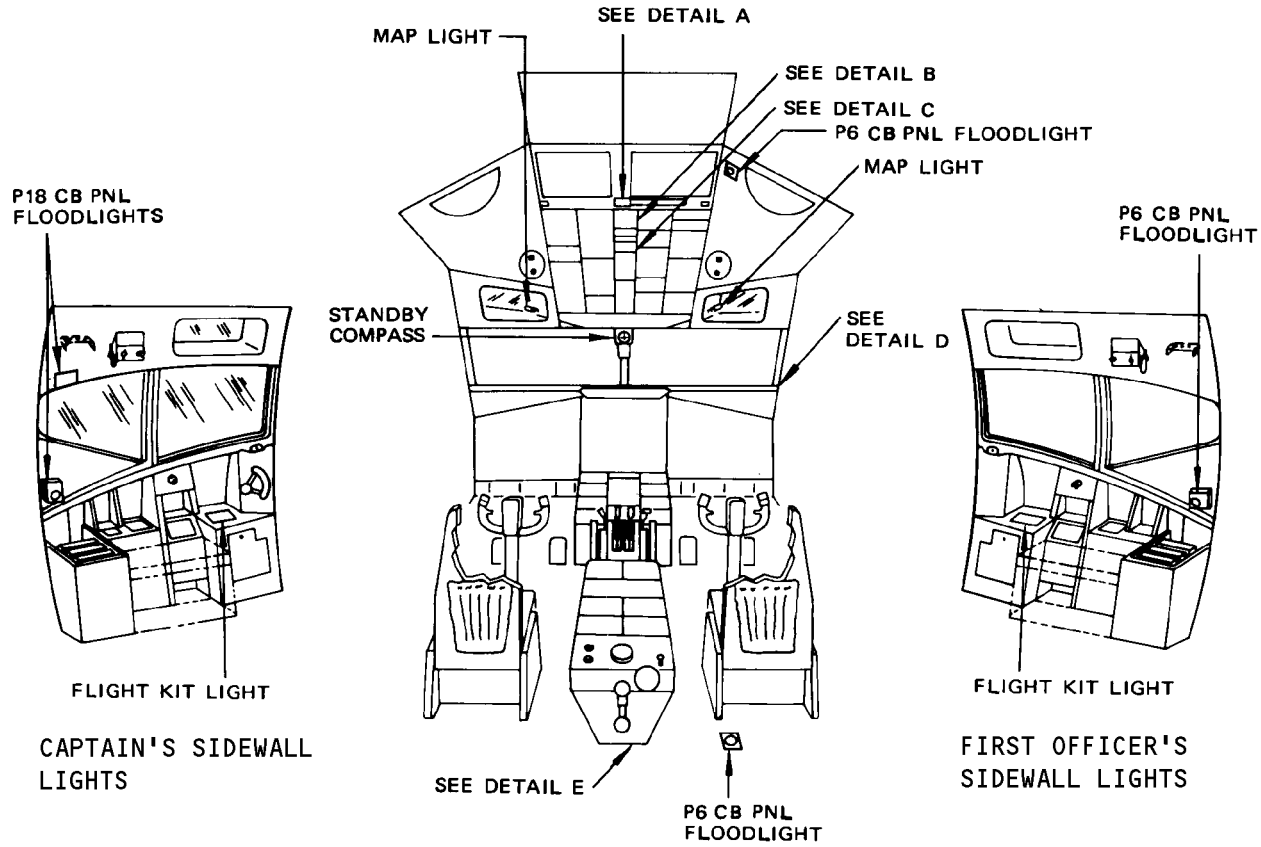
   A. Dome lights located on the aft portion of the control cabin provide general area illumination. Lighting intensity variation is provided by dome light controls on the aft overhead panel. See figure 1 for dome light location and controls.

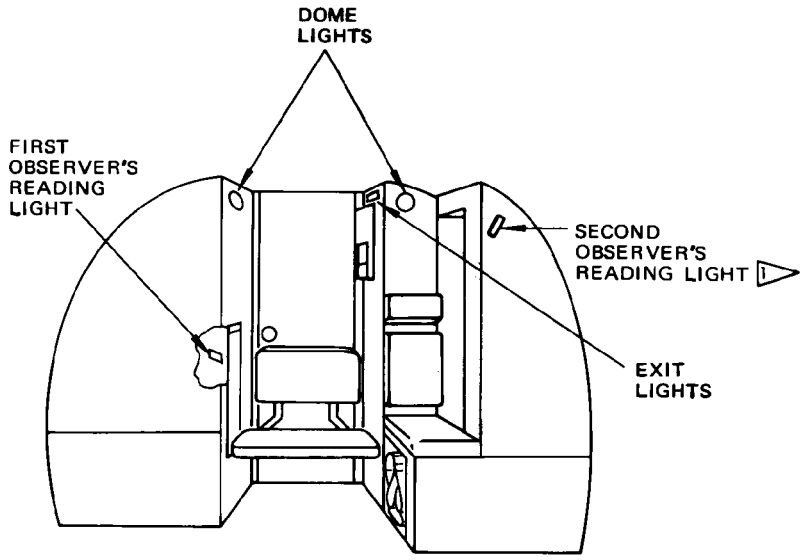
5. Control Stand Floodlight

   A. An incandescent light located above a cutout in the forward overhead panel provides general area control stand illumination. Intensity control is provided by a FLOODLIGHT variable transformer control on the aft control stand panel. (See figure 1.) The 28-volt ac transfer bus No. 1 supplies power for the control stand floodlight operation. (See Fig. 5.)

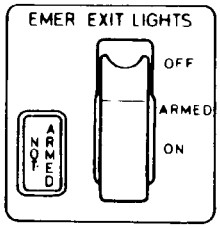
6. Flight Kit Lights

   A. 26 Flight kit lights are located on the control cabin sidewalls next to the captain's and first officer's seats. (See figure 1.) Rotation of the front housing provides either red or white lighting as desired; rotation of the rear housing controls light intensity. A wire catch holds the lens in position; for relamping, remove the catch and replace the lamp. The 28-volt ac transfer bus No. 1 supplies power for light operation. (See Fig. 6.)





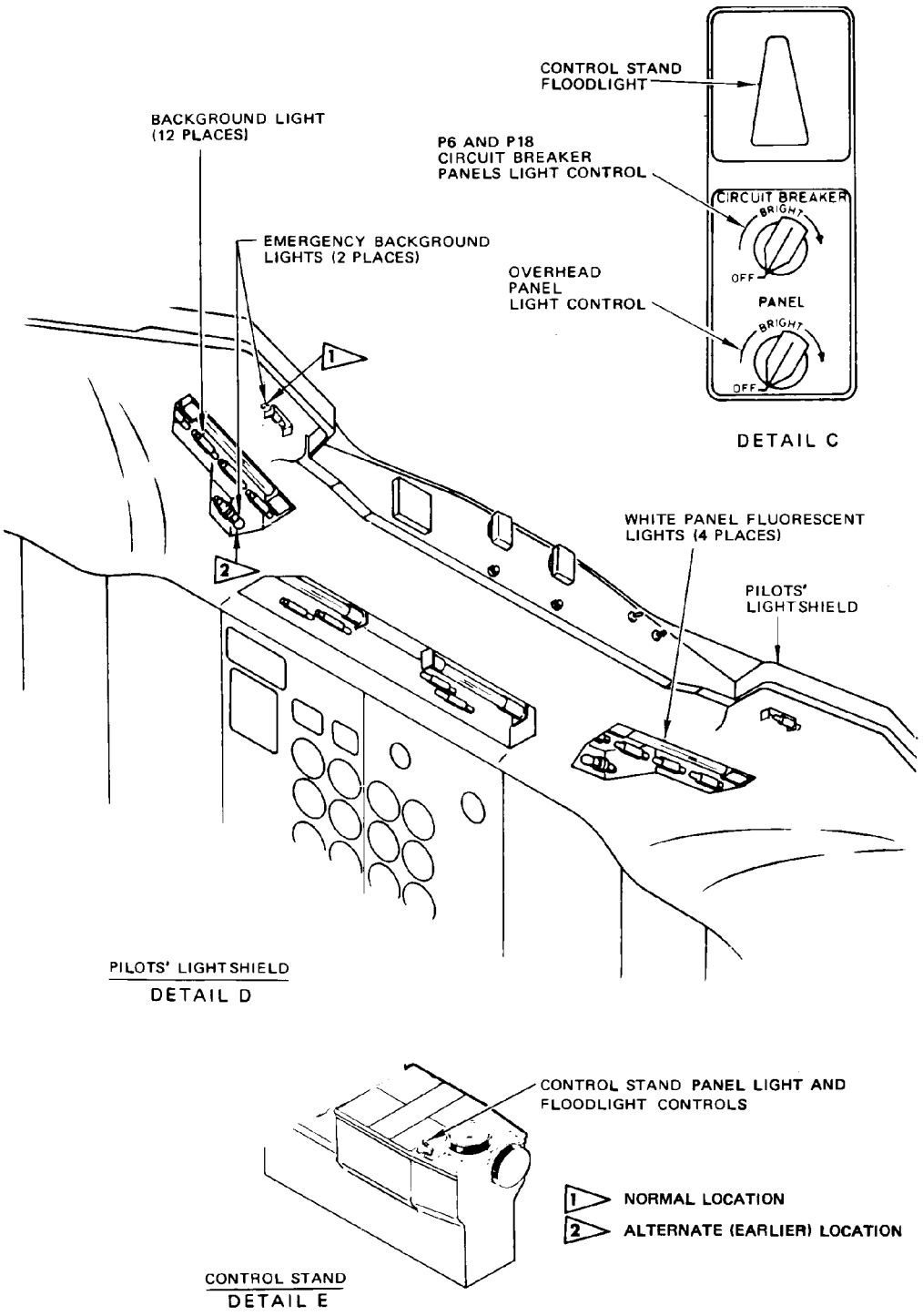
DOME LIGHT CONTROL SWITCH DETAILA



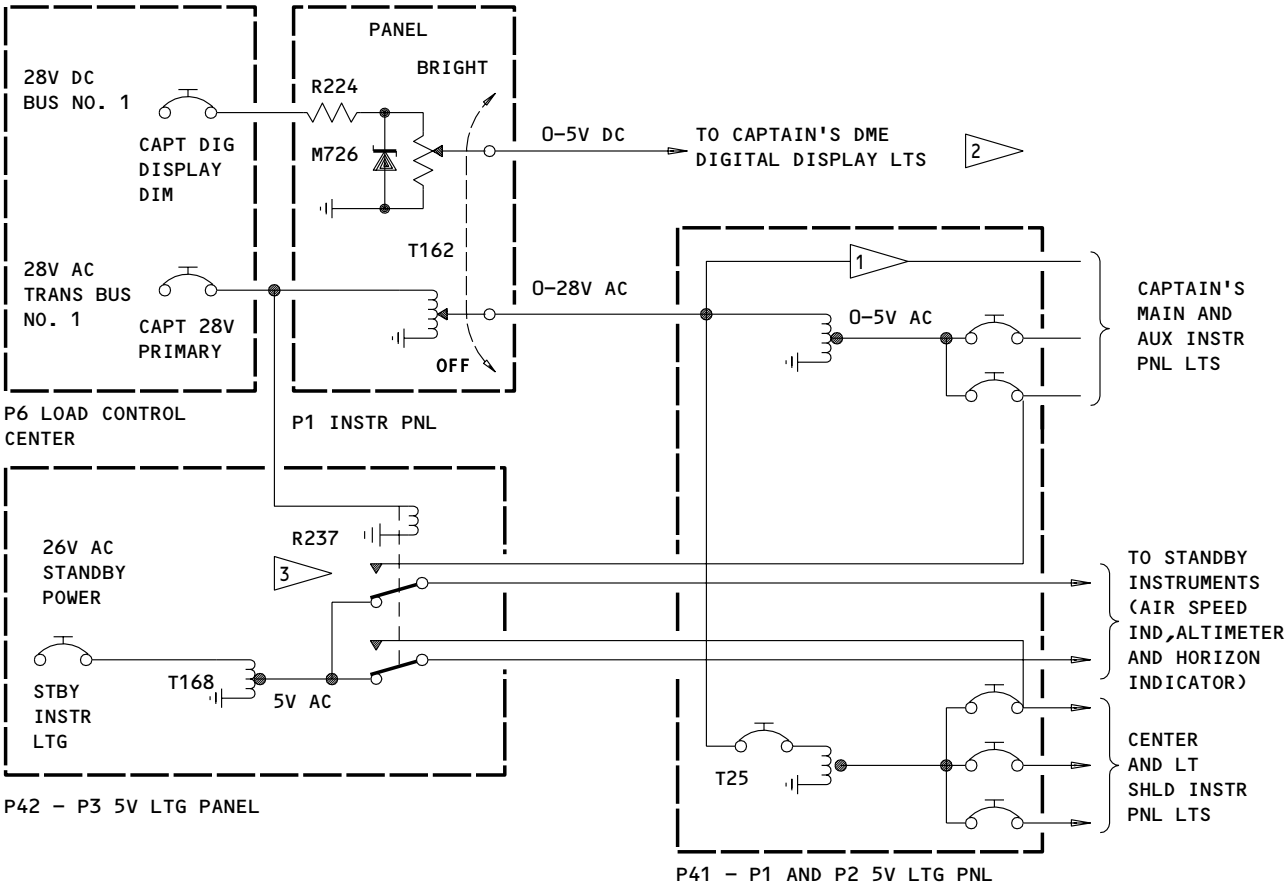
EMERGENCY EXIT LIGHTING CONTROL SWITCH DETAIL B

1 When installed

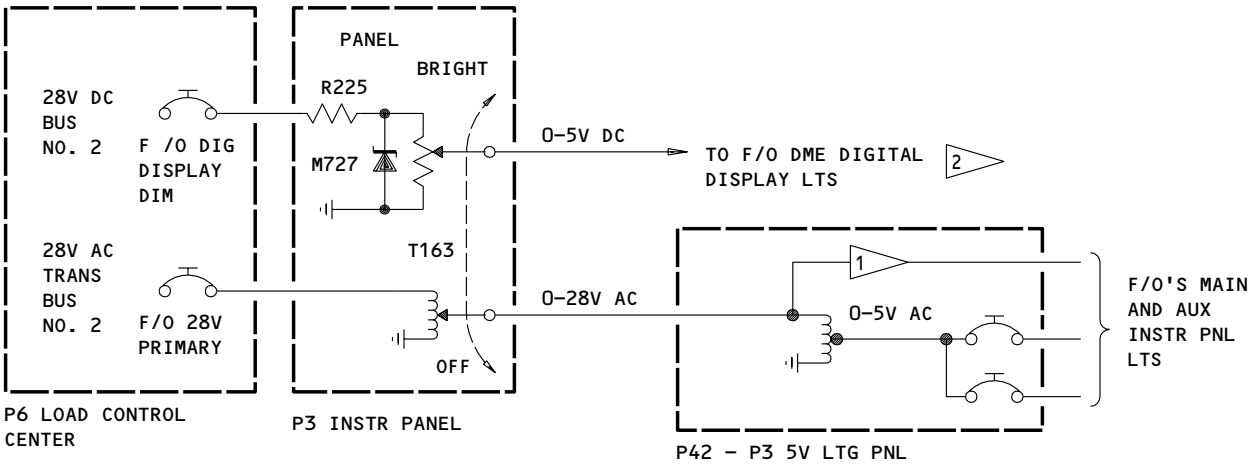
Control Cabin Lighting Equipment Location
Figure 1 (Sheet 1)



Control Cabin Lighting Equipment Location
Figure 1 (Sheet 2)



CAPTAINS AND CENTER INSTR PNL LIGHTS



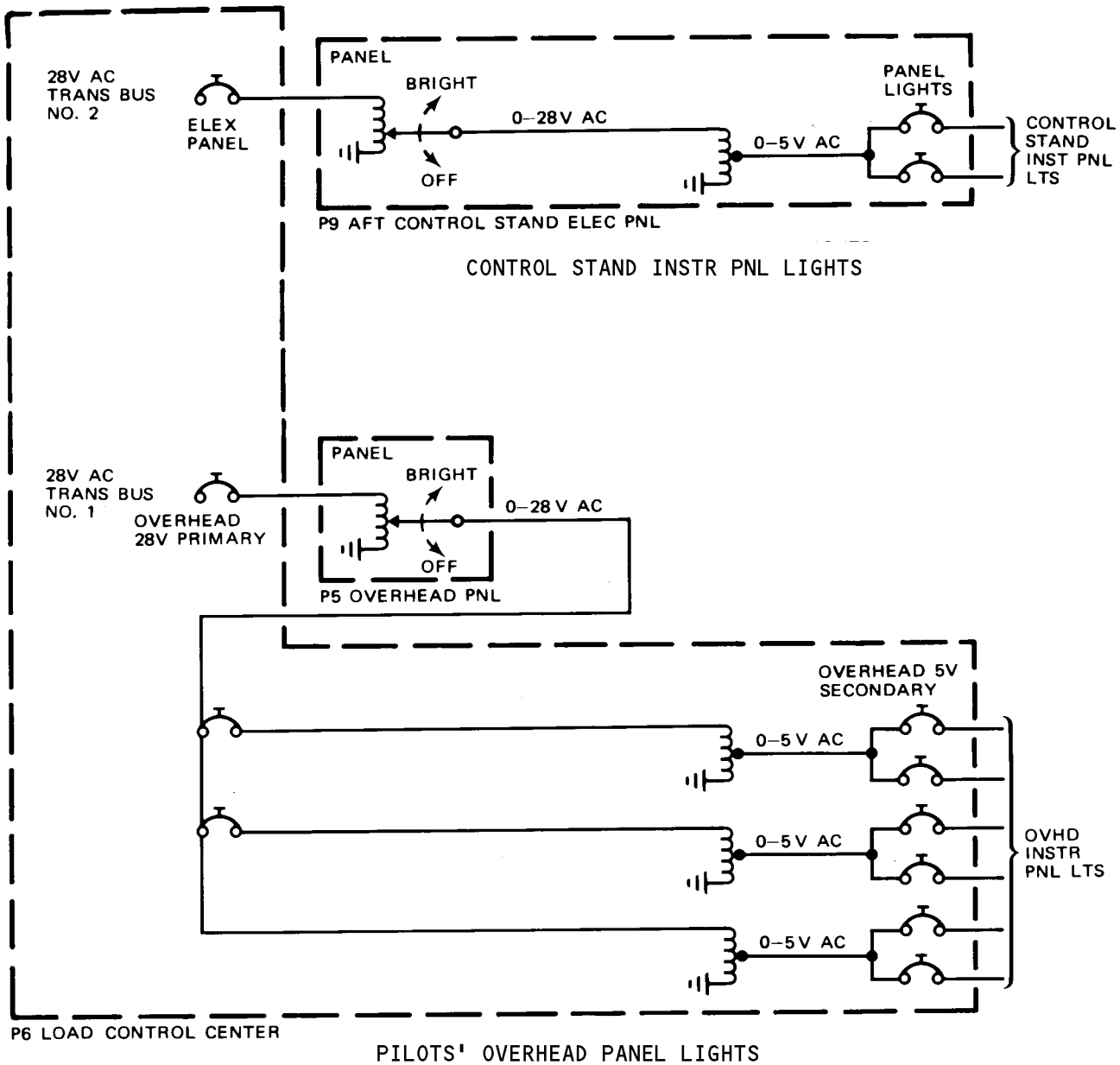
F/O'S INSTR PNL LIGHTS

1 PROVIDES 0 TO 28 VOLTS AC FOR OXYGEN REGULATOR PANEL LIGHTS (WHEN REQUIRED)

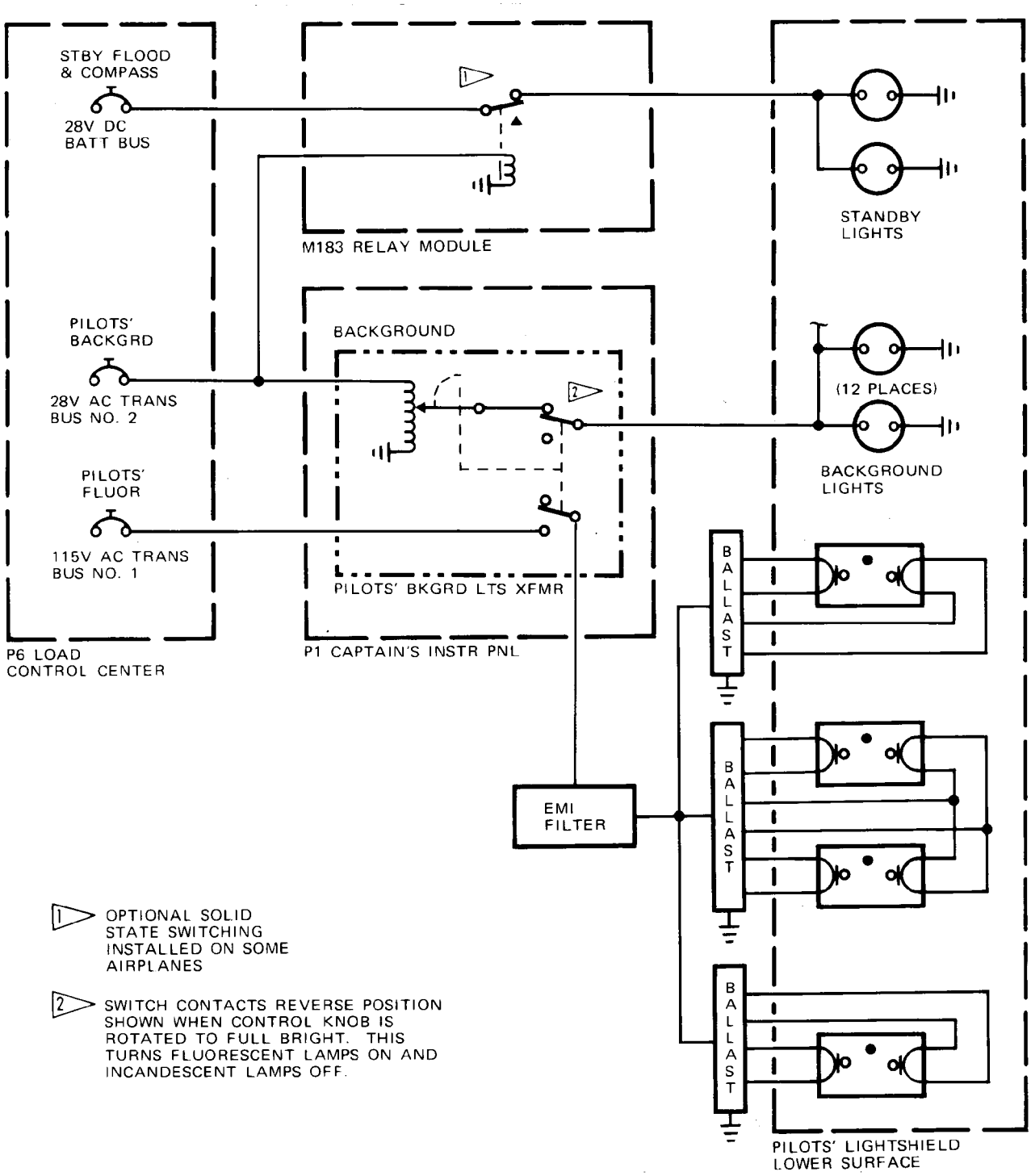
2 AIRPLANES WITH DIMMABLE DME DIGITAL DISPLAY LIGHTS

3 WHEN INSTALLED

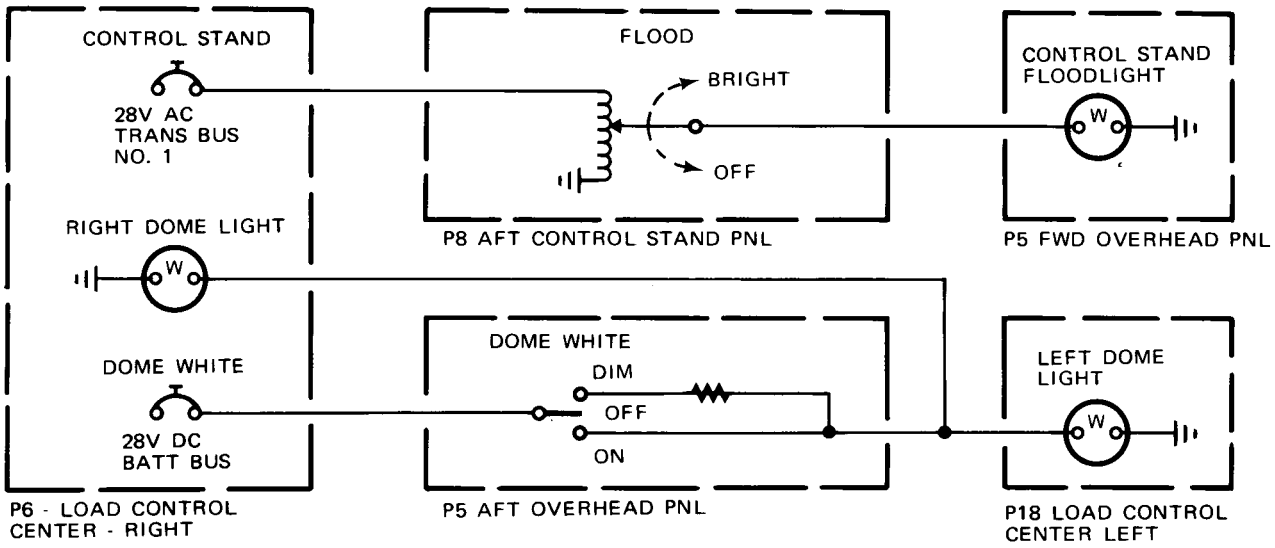
Lightplate and Instrument Lighting Control and Power Distribution Schematic
Figure 2



Lightplate and Instrument Lighting Control and Power 501
Figure 3

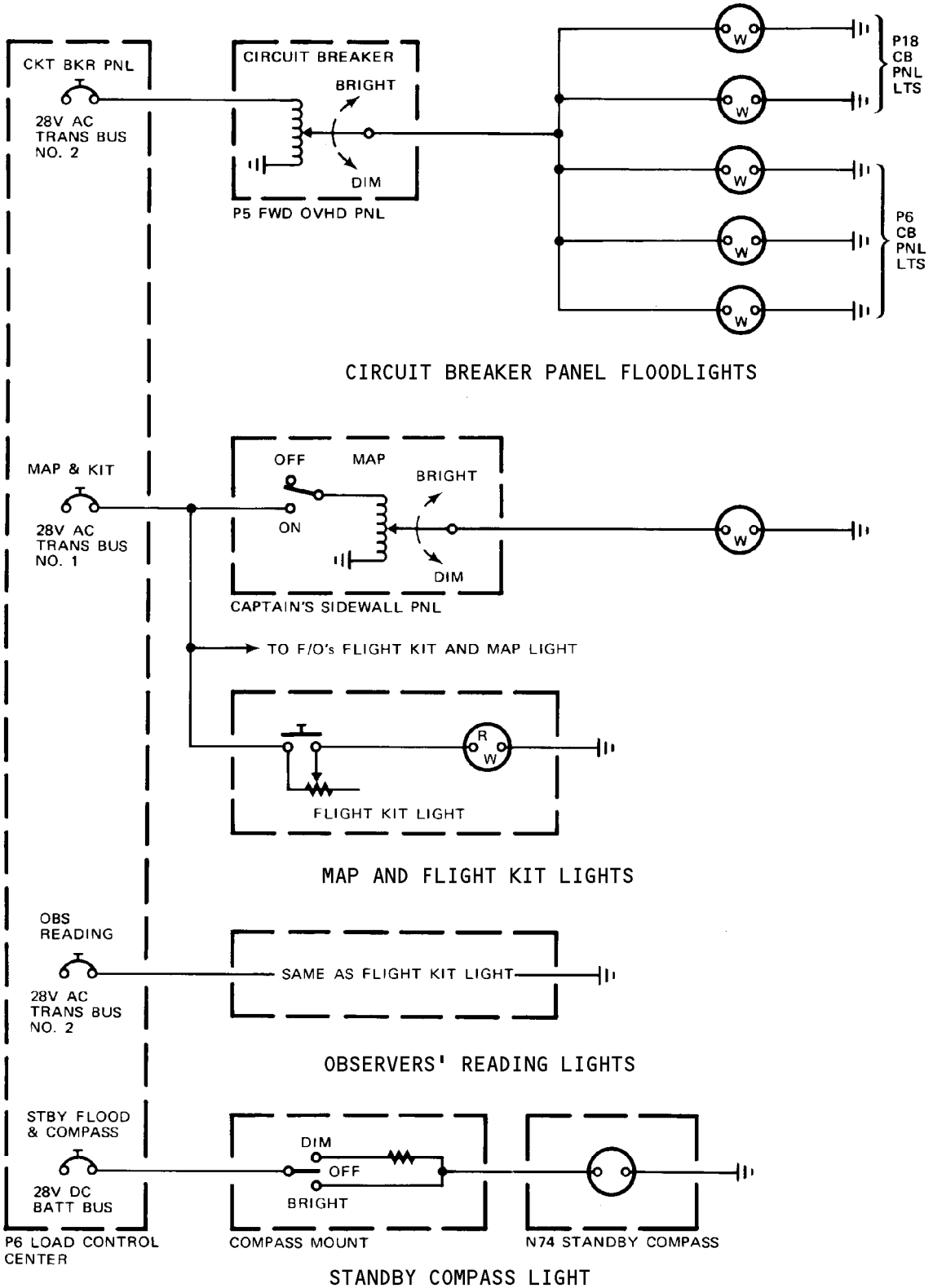


Pilot's Panel Background Lights Simplified Schematic
Figure 4



Dome Lights and Control Stand FloodLight Simplified Schematic
Figure 5

7. Map Lights
   A. The captain's and first officer's white map lights are in the upper center window cavities. The lights are controlled by a switch and an intensity control on the captain's and first officer's side panels. Rotation of the bottom housing controls the light spot diameter. The 28-volt ac transfer bus No. 1 provides power for light operation. (See figure 6.)
8. Circuit Breaker Panel Lights
   A. The circuit breakers on P6 load control center-right and P18 load control center-left are illuminated by floodlights. Three floodlights illuminate the P6 panel and two floodlights illuminate the P18 panel. A variable-transformer on the forward overhead panel provides control. (See figure 1.)
   B. The 28-volt ac transfer bus No. 2 supplies power to the variable transformer. The variable transformer supplies 0 to 28 volts ac to the floodlight lamps. (See figure 6.)
9. Compass Light
   A. The standby compass face is illuminated by a small white light inside the compass. (See figure 1.)
   B. The light is controlled by an adjacent three-position COMPASS light switch. In the DIM position, a resistor reduces the voltage and causes the light to illuminate dimly and in the BRIGHT position the light illuminates brightly. When in the OFF position, the light is off. (See figure 6.)
   C. Power at 28 volts dc from the battery bus is supplied through the STDBY FLOOD & COMPASS circuit breaker on circuit breaker panel P6.
10. Observers' Reading Lights
   A. The first observer's reading light is mounted in the entryway sidewall to the right of the first observer's seat. (See figure 1.) The second observer's reading light, when installed, is mounted to the left of the second observer's seat and above the P18 circuit breaker panel. The observers' reading lights are identical to the flight kit lights. The 28-volt ac transfer bus No. 2 supplies power to the observers' reading lights. The light controls are part of each light assembly. (See figure 5.)
11. Spare Lamp Box
   A. A spare lamp box is located on the sidewall forward and to the right of the first officer's seat.



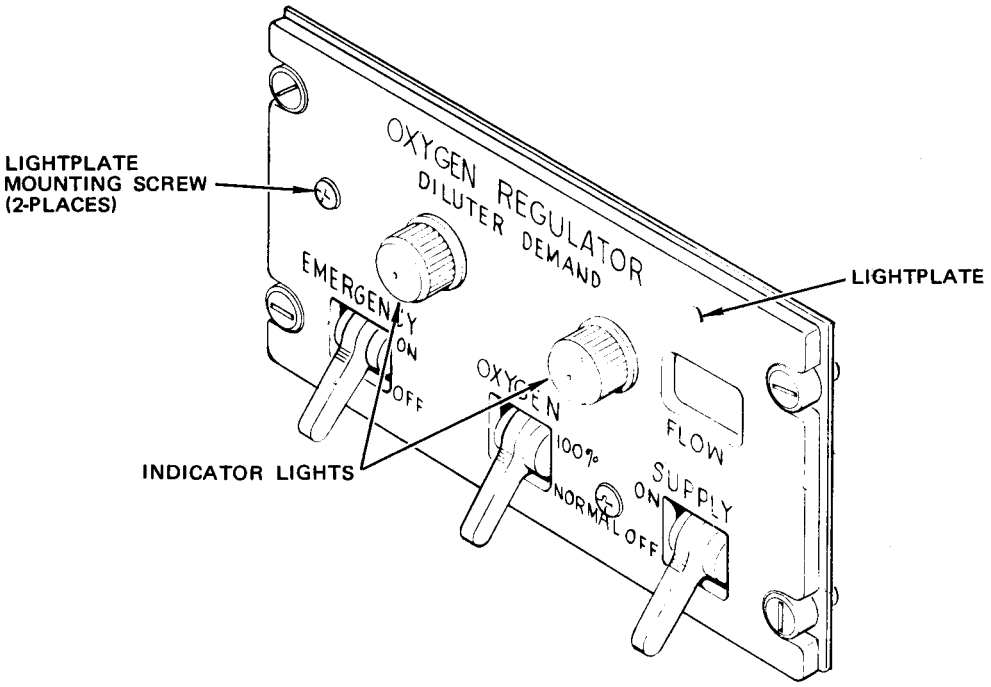
Flight Compartment Lights Simplified Schematic
Figure 6

OXYGEN REGULATOR LIGHTS - MAINTENANCE PRACTICES

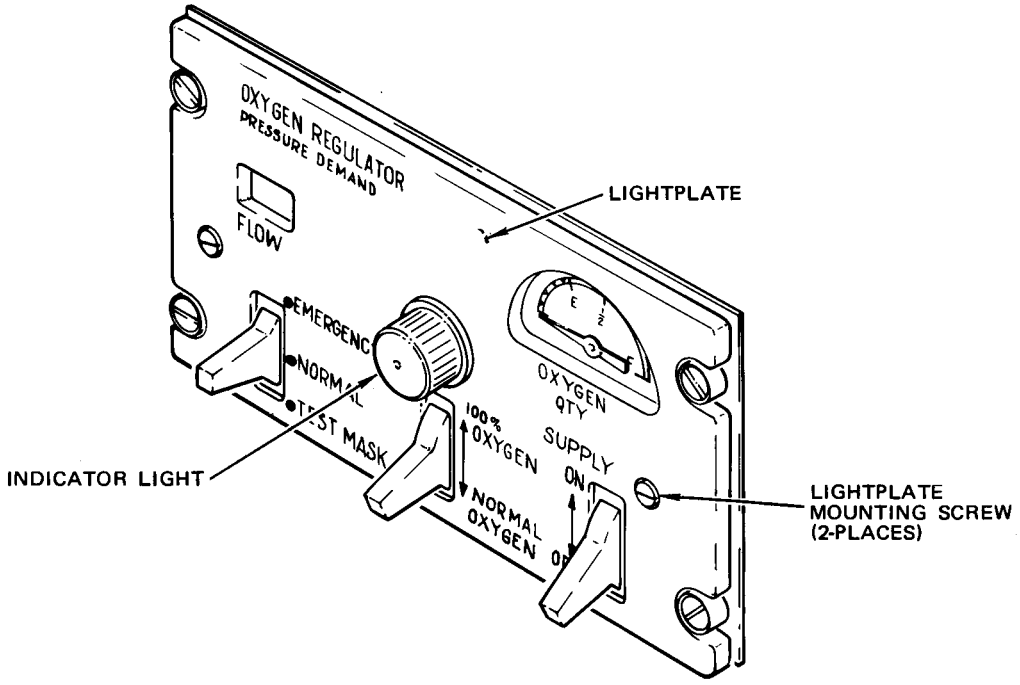
1. General
   A. An oxygen regulator is provided for each flight crewmember. The regulator lights consist of lightplates and indicator lights. A common power source is used for all lights on each regulator. The onboard repair of the lightplates is not recommended. The replacement of the lightplate assembly is the preferred maintenance practice. Instructions for the lamp replacement can be found in the Standard Overhaul Practices Manual (SOPM), Chapter 20-11-05 or the lightplate vendor manual. The indicator lights, when installed, are readily relampable as detailed in the following steps. (See figure 201.)
2. Relamp Oxygen Regulator Indicator Light
   A. Set PANEL light control knobs on captain' s and first officer's panels to OFF.
   B. Open PANEL & INSTRUMENT 28-VOLT PRIMARY circuit breakers on load control center P6.
   C. Unscrew light assembly cap on front of regulator panel. (See figure 201.)
   D. Remove lamp from light assembly housing noting position of glass portion of lamp.
   E. Insert lamp into light assembly housing glass bulb end first.

      CAUTION: DO NOT ATTEMPT TO INSERT LAMP INTO HOUSING WITH ELECTRICAL POWER APPLIED TO THE REGULATOR AS THE HOUSING INSULATION MAY BE DAMAGED BY ARCING.

   F. Install light assembly cap.
   G. Close circuit breakers opened in 2.B.



TYPICAL TWO-LIGHT REGULATOR 1



TYPICAL SINGLE-LIGHT REGULATOR 1

1 WHEN INSTALLED

Oxygen Regulator ReLamping
Figure 201

LIGHTPLATES - REMOVAL/INSTALLATION

1. General
   A. Lightplates give lighting to the components and words on the pilots' panels.
   B. When the lighting becomes too dim, you must replace the lightplate. Before you use a lightplate again, you must send it to the shop for lamp replacement. The onboard repair of the lightplates is not recommended. The replacement of the lightplate assembly is the preferred maintenance practice. Instructions for the lamp replacement can be found in the Standard Overhaul Practices Manual (SOPM), Chapter 20-11-05 or the lightplate vendor manual.
2. Prepare to Remove the Lightplate
   A. Supply electrical power (Ref 24-22-00).
   B. Set each switch for the lightplates to the bright position.
      (1) Identify each lightplate that does not come on or comes on dimly.
   C. Set each switch to the off position.
3. Remove the Lightplate
   A. If it is necessary, remove the control knobs that are in front of the lightplate.
   B. Remove the screws that hold the lightplate in its position.
   C. Carefully pull the lightplate from the panel frame and disconnect the electrical connector from the lightplate.
4. Install the Lightplate
   A. Carefully connect the electrical connector to the lightplate.
   B. Attach the lightplate to the panel frame with the screws.
   C. If removed, install the control knobs.
5. Do a Test of the Replacement Lightplate
   A. Set the switch for the replacement lightplate to the bright position.
      (1) Make sure the lightplate comes on brightly.
   B. Set the switch to the off position.
   C. Remove the electrical power if it is not necessary (Ref 24-22-00).

INDICATOR LIGHT - MAINTENANCE PRACTICES

1. General (Fig. 201)
   A. The standard rectangular indicator light electrical components consist of two lamps, two diodes, a fuse, a press-to-test switch, and four screw type terminals. The indicator light assembly is readily relamped from the front of the panel but access to the rear of the panel is required for indicator light assembly replacement. The cap assembly and the base assembly are removed through the front of the panel. The mounting sleeve and the terminal plate assembly are removed from the backside of the panel.
   B. Two types of standard indicator light assemblies are in service. One type is retained by two cross-recess (Phillips head) screws. The other type is retained by a single 5/64 hex-socket (Allen) screw.
2. Prepare for Maintenance (Fig. 201)
   A. Remove dc power.
   B. Gain access to rear of indicator.
      (1) Fold down panel or pull out module as required.
3. Remove Indicator Light Assembly (Fig. 201)
   A. Disconnect and tag electrical wires from indicator light terminals.
   B. Grasp cap assembly and pull from light assembly.
   C. Insert 5/64 hex key (Allen wrench or equivalent) and loosen indicator mounting screw.

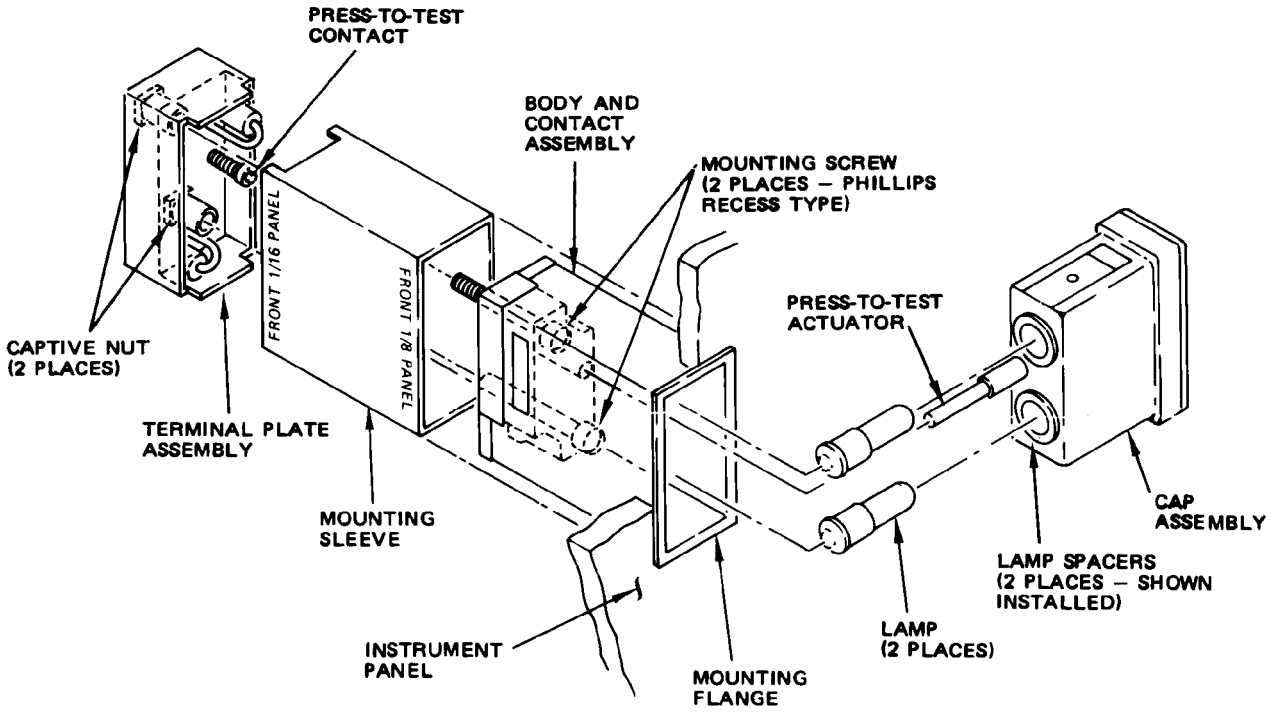
      NOTE: See Fig. 201, some indicator lights have two cross-recess (Phillips) head type mounting screws. For these assemblies loosen both screws.

   D. Check sleeve to verify which end is adjacent to panel.

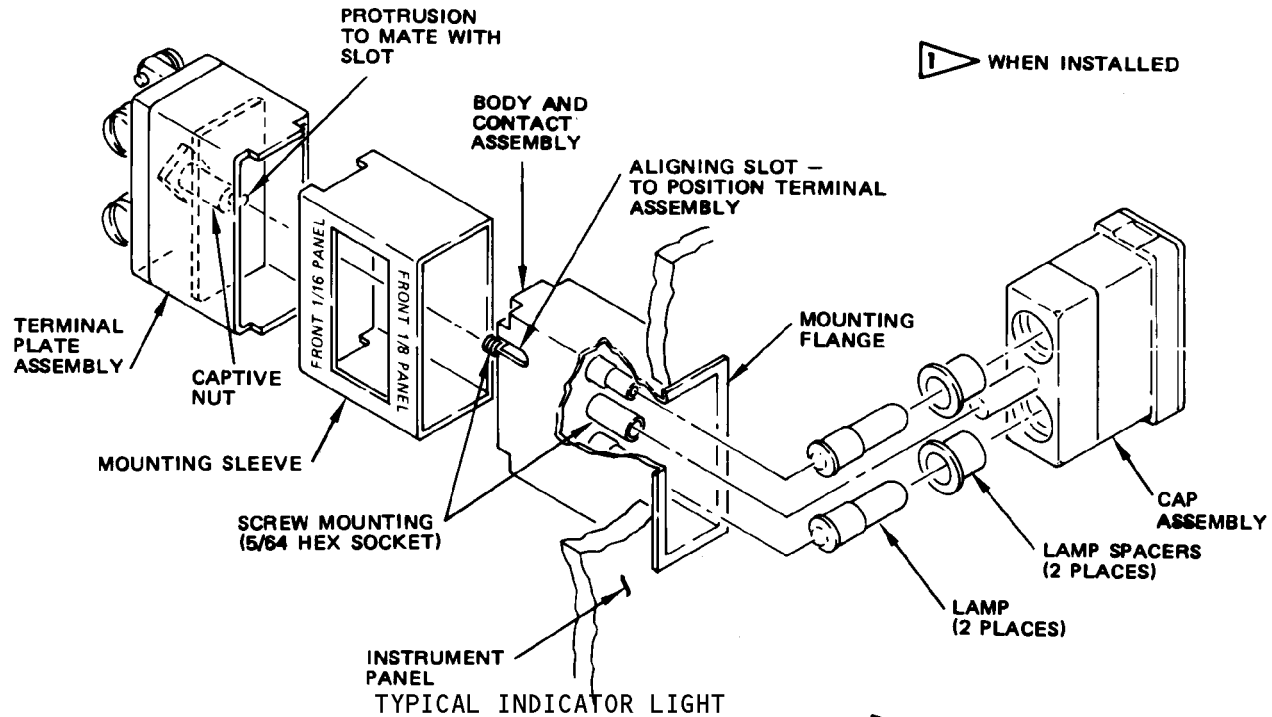
      NOTE: Sleeve is reversible to adjust for panel thickness.

   E. Remove terminal assembly and sleeve from rear of installation.
   F. Pull body and contact assembly from front of panel.
4. Install Indicator Light Assembly (Fig. 201)
   A. Insert body and contact assembly through front of panel.
   B. Slide sleeve over body from rear of panel. Check that sleeve is correctly oriented.
   C. Position terminal assembly and secure screw(s) in body and contact assembly.
   D. Press cap assembly into place.
   E. Connect wires to terminals on indicator base and remove tags.
5. Restore Airplane to Normal
   A. Replace panel or module removed for access.
   B. Close circuit breakers opened on step 2.A.

C. Test indicator light.
   (1) Provide electrical power.
   (2) Press the indicator light and check that it comes on.
   (3) Remove electrical power if no longer required.



TYPICAL INDICATOR LIGHT
(PHILLIPS MOUNTING SCREW TYPE) 1

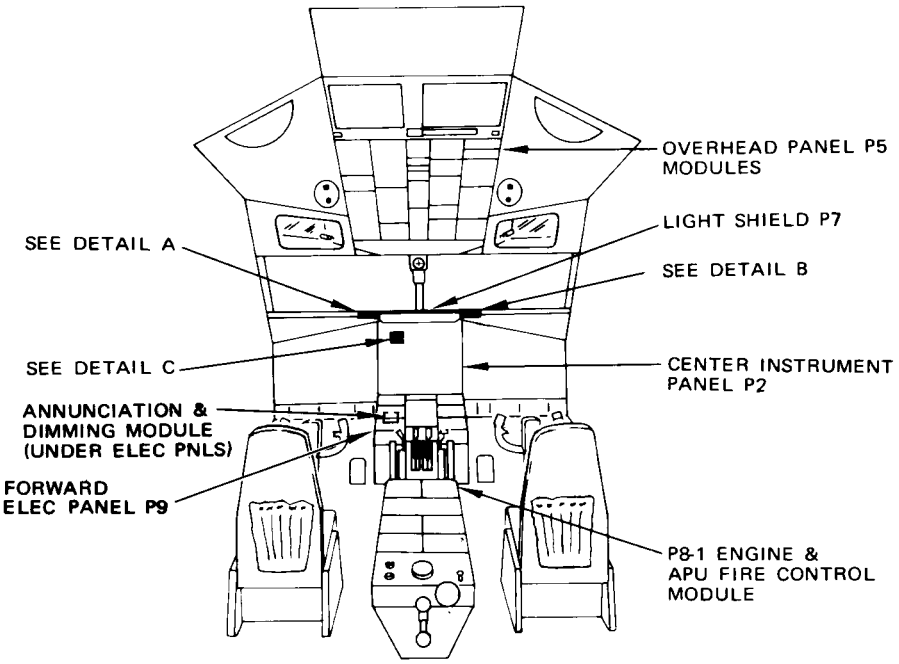


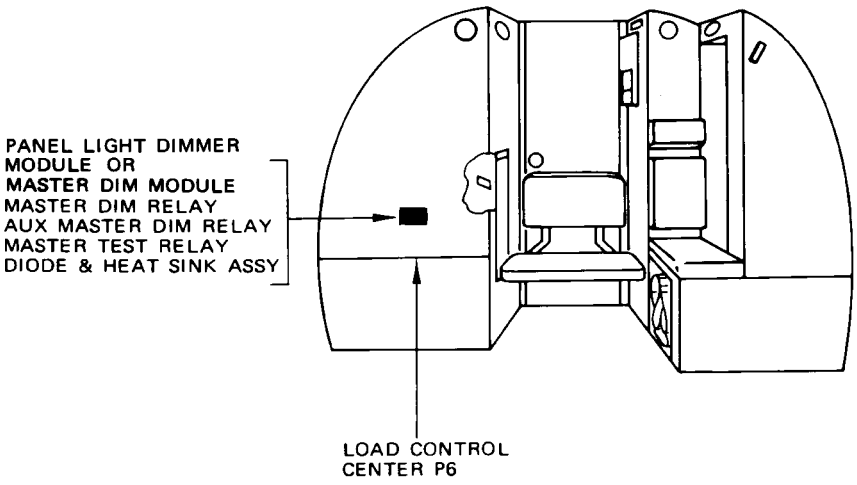
TYPICAL INDICATOR LIGHT
(HEX SOCKET MOUNTING SCREW TYPE) 1

Indicator Light Installation
Figure 201

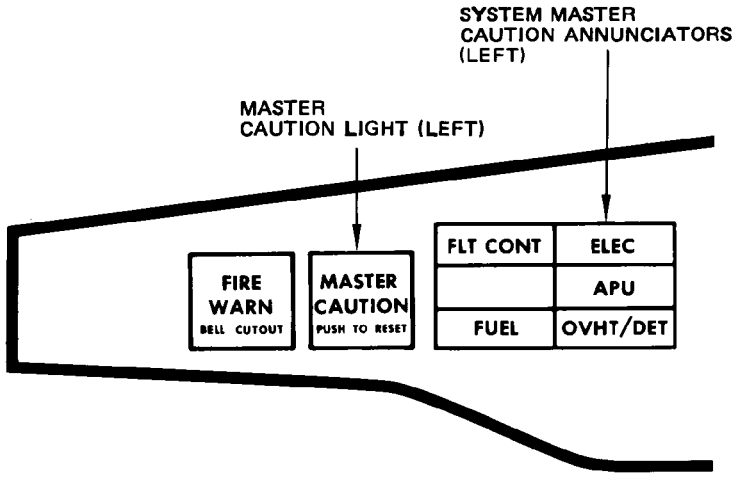
MASTER WARNING AND CAUTION LIGHTS - DESCRIPTION AND OPERATION

1. General (Fig. 1)
   A. Two master caution lights and two system master caution annunciators provide an indication to pilot's if a system indicator light has illuminated on overhead panel P5 or if an overheat light has illuminated on engine and APU fire control module P8-1. The master caution lights and annunciator are on the P7 lightshield. One master caution light and one master caution annunciator pair is on the left; the other pair are on the right. Each master caution annunciator is composed of six sections. One section is a spare; the other five are connected to five system modules on overhead panel P5. The left master caution annunciator is also connected to fire protection panel P8-1 (Fig. 2). Each P5 module contains logic circuits which cause the master caution light and corresponding section of the system master caution annunciator to illuminate when a system indicator light on the P5 module is turned on by the system fault detection circuit (Fig. 3). Annunciation and dimming module M469 in the control stand P9 panel contains diodes for isolating the master caution lights from the master caution annunciators. Pressing a master caution light extinguishes all master caution lights and annunciators. Pressing the system master caution annunciator recalls the previously illuminated system master caution annunciator. The FIRE WARN lights adjacent to the master caution lights are controlled by fire protection circuits and are not connected to the master caution lights (Ref Chapter 26, Fire Protection).
   B. Power for the master caution logic circuits on the P5 modules is either from the system power source or from a DIM & TEST circuit breaker on load control center P6-3 (Fig. 2). Two MASTER CAUTION ANNUNCIATOR circuit breakers labeled No. 1 and BAT provide a 28-volt dc dual power source for the master caution lights and system master caution annunciators. On some airplanes, three additional battery bus circuit breakers labeled AIR COND, FUEL and ANTI-ICE, under MASTER CAUTION on load control center P6-3, provide power for master caution logic circuits in the P5 modules.
   C. A master dim and test circuit is connected to all system indicator lights in the control cabin. A three position toggle switch labeled LIGHTS-DIM, BRT and TEST (on center instrument panel P2) controls relays and logic circuits which cause all illuminated system indicator lights to dim or when held to TEST, causes all system indicator lights to illuminate. The switch is momentary in the TEST position (Fig. 4). Three dim relays are energized when the switch is positioned to DIM. The relays insert zener diodes or resistances in the line and cause the voltage through the system indicator lights to be reduced. A master test relay is energized when the switch is held to TEST. The master test relay provides a ground or power as required to illuminate system indicators (Fig. 3). Master dim/test logic circuits and relays are in load control center P6.

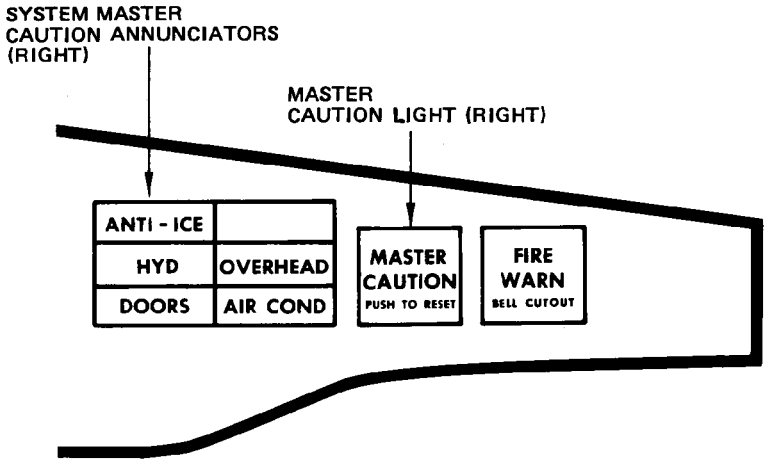




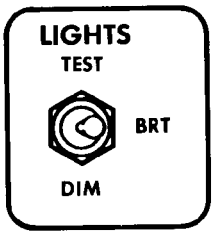
Master Caution and Dim/Test Components Location
Figure 1 (Sheet 1)



DETAIL A



DETAIL B



MASTER DIM AND TEST SWITCH
DETAIL C

Master Caution and Dim/Test Components Location
Figure 1 (Sheet 2)

D. Power for the lights in the master dim and test circuits is from three 28-volt dc circuit breakers labeled INDICATOR MASTER DIM BUS - NO. 1 DC, NO. 2 DC and BAT. The power sources are cross-fed to the lights (through diodes) to ensure power is still available in case one of the busses is de-energized. The three power lines are then connected through the master dim relay to six section circuit breakers where power is distributed to the various system indicator lights within the control cabin. A DIM & TEST circuit breaker provides 28 volts dc to the dim and test relays and to certain system indicator lights as well as the master caution circuits. All circuit breakers are on load control center P6-3.

2. Master Caution Light and Annunciator

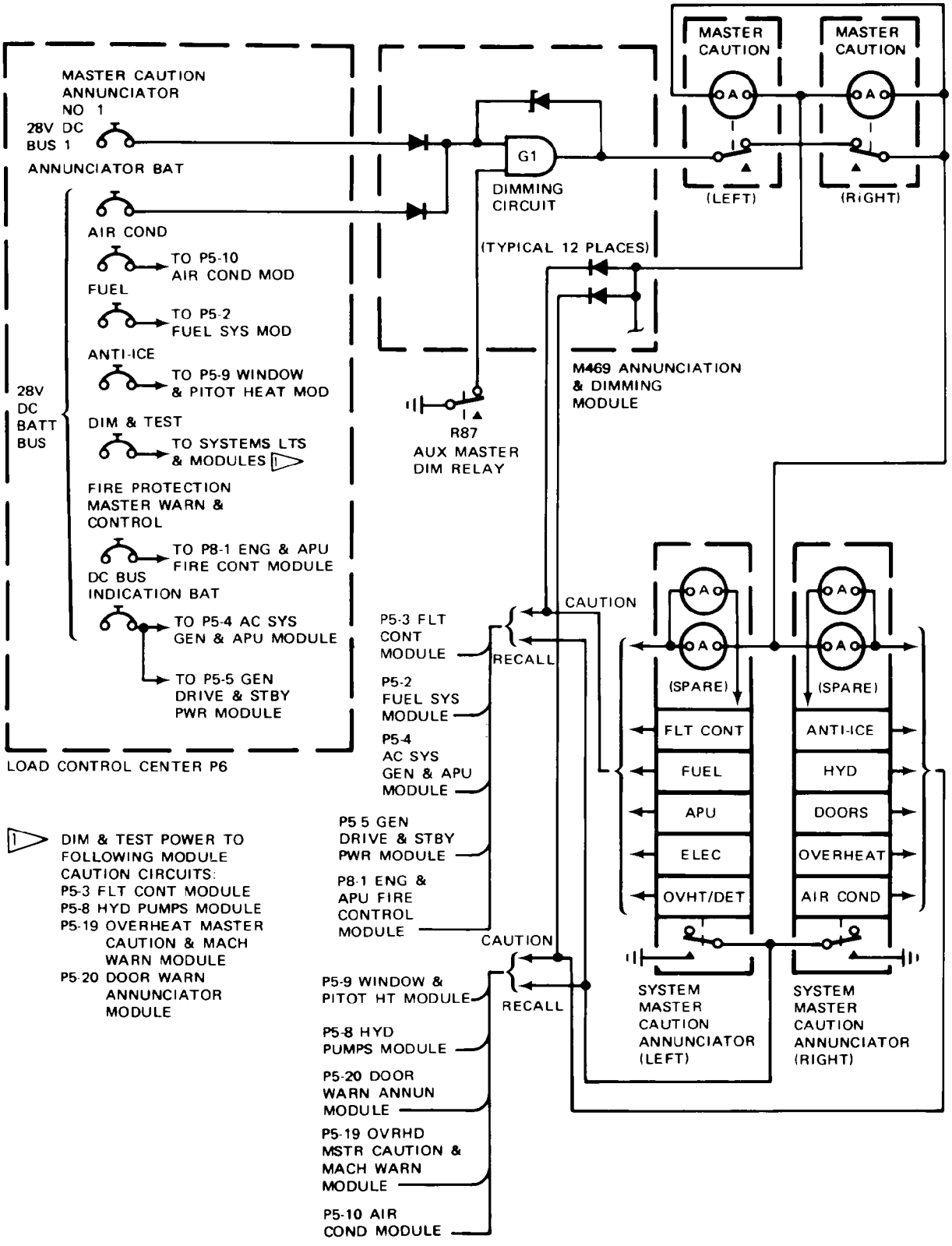
A. The master caution light consists of an amber light cap labeled MASTER CAUTION - PUSH TO RESET, a bulb and a base with an internal switch. Pressing the light cap operates the momentary switch and interrupts power to the master caution circuits causing the lights to go off. The light is easily relamped after pulling off the light cap.

B. The system master caution annunciator is composed of six sections with two bulbs in each section, a base with an internal switch and a light cap divided into six sections. The light cap sections on the pilot's side are labeled FLT CONT, ELEC, APU, FUEL and OVHT/DET; one is a spare and is not labeled. The light cap sections on the copilot's side are labeled ANTI-ICE, HYD, OVERHEAD, DOORS, and AIR COND; one is a spare and is not labeled. Pressing the light cap operates the momentary switch which applies a ground to master caution circuits causing all lights to illuminate. When released, only those systems with detected faults will have indicator lights on and the corresponding system master caution annunciator on. The annunciator is easily relamped after pulling off the light cap.

3. System Indicator Lights

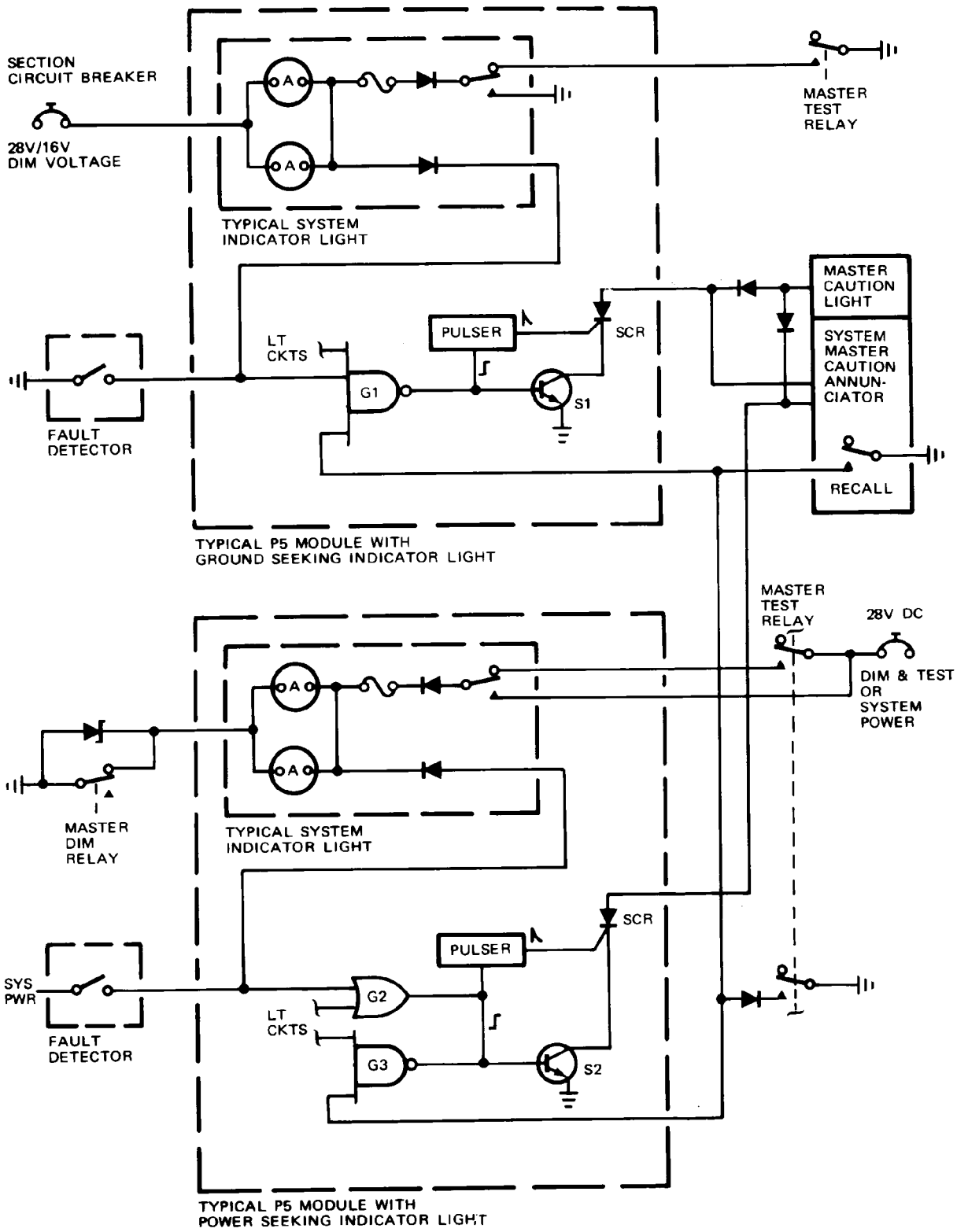
A. The majority of the system indicator lights on the various modules throughout the control cabin are composed of a light cap, two bulbs and a base with two diodes, a fuse and a momentary switch. Pressing the light cap operates the momentary switch which causes the light to illuminate (push-to-test). The annunciator is easily relamped after pulling the light cap assembly from the base.

B. Two types of lights are used, one is a ground seeking type which requires a ground controlled circuit to turn it on; the other is a power seeking type which requires a power controlled circuit to turn it on (Fig. 3). The majority of the lights are of the ground seeking type. A few lights contain only one bulb and no diodes, and are not connected to the master caution circuits; however, they are operated by the master dim and test circuits. Diodes for these lights are usually in annunciation and dimming module M469. Refer to the Wiring Diagram Manual for specific circuit details of each system.



Master Caution Annunciator Power Schematic
Figure 2

4. Annunciation and Dimming Module
   A. The annunciation and dimming module consists of three printed circuit cards, a transistor circuit and diodes mounted within a box. Two electrical connectors are on the side of the box and a mounting plate is on the front. The module is installed with screws on the right side of the control stand P9 panel. Card A3 contains diodes which isolate individual system control of the system master caution annunciators from the master caution lights and provide diodes for various systems indicator light circuits. Cards Al and A2 contain transistor circuits with zener diodes which cause certain system indicator lights to dim when the master dim and test switch is operated. The separate transistor circuit and zener diode is connected to the master caution lights and causes the master caution lights and system master caution annunciator to dim.
5. Master Dim Module and Panel Light Dimmer Module
   A. The master dim module (if installed) consists of a printed circuit card with a relay, diodes and a transistor circuit which replaces the panel light dimmer module on later airplanes. The card is installed in a card rack in load control center P6. The relay connects zener diodes and resistors in the light dimming circuits to the P5-4 ac systems generator and APU module and to the P5-
   10 air conditioning module. The diodes provide isolation between dual power sources for the master dim and test circuits. The transistor circuit is not used.
   B. The panel light dimmer module (if installed) consists of a single printed circuit card with four transistor circuits and diodes. The card is installed in a card rack in load control center P6. The diodes provide isolation for dual power circuits in the interphone system and isolation of dimming relays. The transistor circuits are used to dim lights on the P5-4 and P5-10 modules.
6. Operation - Master Caution Lights
   A. The master caution lights inform the pilots that a system fault indicator light has illuminated on overhead panel P5 or the P8-1 engine and APU fire control module. The system master caution annunciator informs the pilots which system has a fault. Pressing either the pilot's or copilot's master caution light extinguishes the master caution lights and the system master caution annunciators; however, the system fault indicator light on the P5 or P8 panels remains illuminated until the fault is corrected. The pilot's may recall faulted system indications on the system master caution annunciators by pressing either annunciator. All annunciator lights will illuminate while the annunciator is pressed. When released, only those systems with illuminated fault indicators will cause the corresponding system master caution annunciator to remain illuminated.



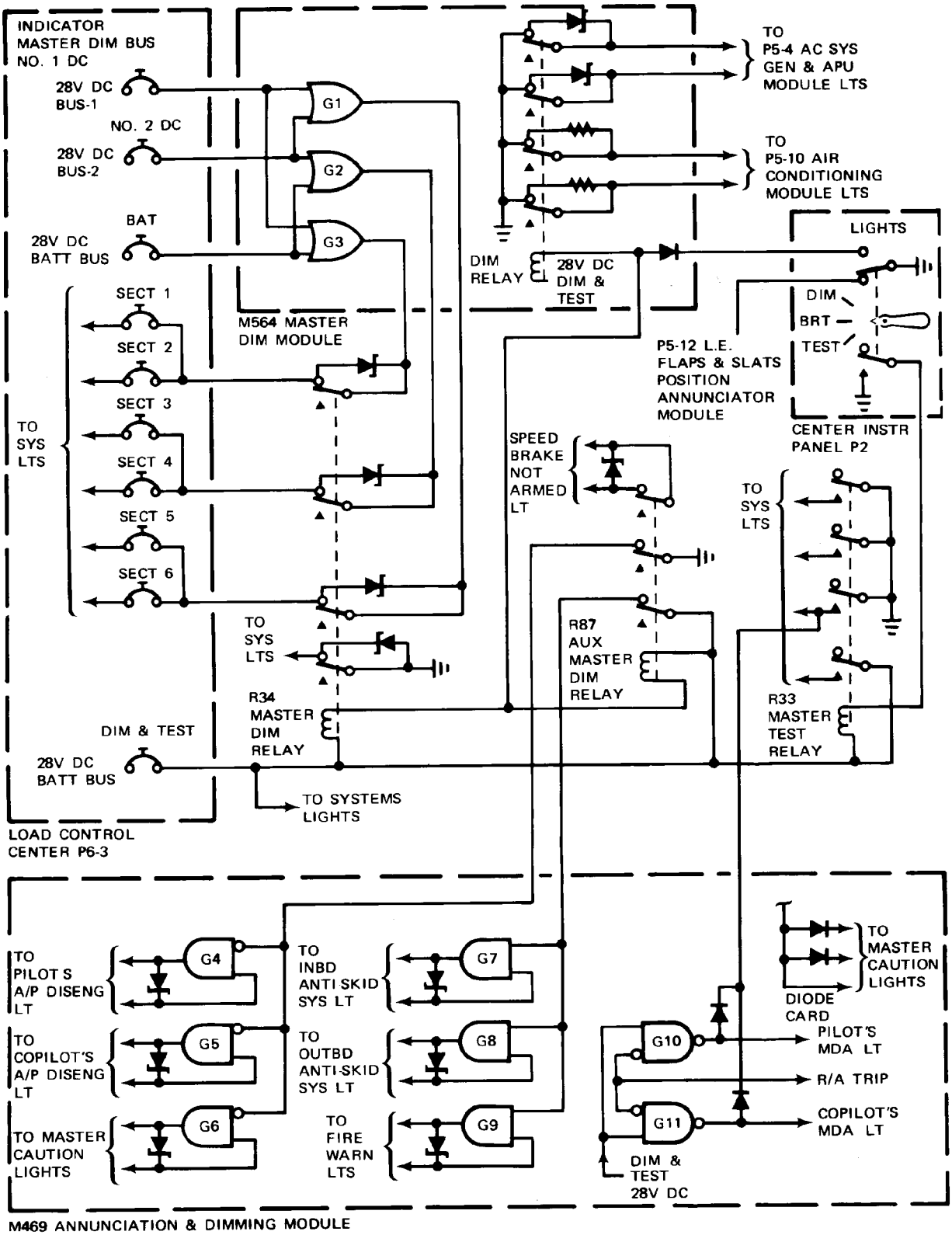
Typical System Indicator Light Circuit
Figure 3

B. Nine overhead P5 panel modules and the P8-1 fire protection module are connected to the master caution lights. Each module is also connected to one of the ten corresponding light sections of the system master caution annunciators. The master caution triggering and reset circuits are part of each system module. (See figure 3.) Two types of system indicator lights are used on the modules; a ground seeking type and a power seeking type. However, the basic caution circuits are similar. The majority of the lights are ground seeking. Referring to figure 3, and the typical ground seeking indicator light circuit, when a system fault is detected, a ground is applied to illuminate the system indicator light and is also applied to gate G1. More than one system indicator light and detection circuit is usually connected to gate G1 in each module. Power for the module is either from a system circuit breaker or from the DIM & TEST circuit breaker. Again referring to figure 3, gate G1 is normally off until a fault causes the input to gate G1 to go low. Gate G1 output then goes high, causes a pulser to trigger the SCR and biases transistor S1 on. A ground is then completed to turn on the system master caution annunciator and master caution light. Momentarily pressing the master caution light removes power from the SCR causing it to go off; thereby, extinguishing the master caution lights and annunciators. Pressing the system master caution annunciator completes a ground to gate G1 causing the pulser to operate again and retrigger the SCR. The SCR then turns on the system master caution annunciator again if the system fault is not corrected and the system indicator light is still illuminated.

7. Operation - Master Dim and Test

A. All the system indicator lights in the control cabin may be dimmed or tested with a LIGHTS switch. The switch is spring loaded from the TEST position to BRT position (Fig. 4). Holding the switch to the TEST position applies a ground to master test relay R33. The master test relay then applies either a ground or DIM & TEST 28 volts dc to the system indicator lights (Fig. 3). The limits then illuminate until the LIGHTS switch is released.

B. Power for system indicator lights is from three circuit breakers on 28-volt dc bus-1, 28-volt dc bus-2 and the 28-volt dc battery bus (Fig. 4). A diode network (gates G1, G2 and G3) provides a dual power circuit to each distribution line. Zener diodes are used for decreasing the voltage and dimming system lights. Secondary circuit breakers distribute power for the majority of the system indicator lights. Refer to the Wiring Diagram Manual for specific circuit details. A few lights use system power for their operation, in which case either a transistor and zener diode circuit (gates G4 thru G9 in annunciation and dimming module M469) is used to dim the light, or a ground and zener diode is applied directly to the light by master dim relay R34 or a dim relay in the master dim module. Auxiliary master dim relay R87 applies either dim 7 test 28 volts dc or a ground for operation of the transistor and zener diode dimming circuits in the annunciation and dimming module. The dim relays are energized when the LIGHTS switch is positioned to DIM. Master dim relay R34 and the dim relay in the master dim module (or transistor circuits in the panel light dimmer module) then insert zener diodes into the lights circuits to dim the lights. The dim relay also inserts resistors for dimming lights on the P5-10 air conditioning module. Auxiliary master dim relay R87 removes a ground from gates G4, G5 and G6 and applies power to gates G7, G8 and G9 causing them to go low and insert a zener diode in each light circuit. Gates G10 and G11 are used for testing the pilots' MDA (or DH) lights and are operated by the minimum decision altitude trip established on the radio altimeter indicator.



Master Dim and Test Control Schematic
Figure 4

MASTER WARNING AND CAUTION LIGHTS - TROUBLESHOOTING

1. General
   A. Troubleshooting the master caution lights and system master caution annunciators is best done in conjunction with use of the master dim and test switch. Inoperative light bulbs can be quickly located when the LIGHTS switch is positioned to TEST. If a specific section of system master caution annunciator is inoperative, the trouble can usually be traced back to the corresponding P5 module. Refer to the Wiring Diagram Manual for specific circuit details. If a specific system indicator light is inoperative but tests OK with the master dim and test switch, refer to the associated system troubleshooting procedures. Certain system indicators may always be illuminated whenever the airplane is on the ground (such as door open indicators); this is normal. The following charts indicate possible light failures, probable cause and corrective action. The charts assume the airplane is on the ground with power applied to all systems.
   B. All troubleshooting procedures are based on the assumption that wiring is OK and that electrical power is available. If the corrective action in the procedure does not correct the problem, check wiring using the wiring diagram.

      NOTE: When replacing component perform electrical check for proper operation before closing assembly.

2. Master Caution Troubleshooting Chart

TROUBLE	PROBABLE CAUSE	ISOLATION PROCEDURE	REMEDY
Master caution lights and annunciators do not illuminate for any system fault indication	Open transitor-diode dimming circuit in M469 annunciation and dimming module	Press system master caution annunciator. If master caution lights do not illuminate while annunciator is pressed, M469 module is faulty	Replace M469 annunciation and dimming module
Master caution lights and annunciators do not illuminate for systems on any one P5 (or P8-1) module	System module logic circuit inoperative	Refer to specific system and simulate a failure for module more than one system indicator light on module. If master caution lights and annunciators fail to illuminate, system module	Replace system module

TROUBLE	PROBABLE CAUSE	ISOLATION PROCEDURE	REMEDY
Master caution lights do not illuminate when system master caution annunciator is on	Diodes open in M469 annunciation and dimming module or master caution light inoperative	Hold LIGHTS switch to TEST. Observe master caution lights illuminate. If lights are on, M469 module is faulty. If one light is off, master caution light is faulty	Replace M469 annunciation and dimming module. Relamp master caution light.
Left (or right) master caution light does not extinguish master caution lights and annunciators when pressed	Master caution light inoperative	Press system master caution annunciator. Observe master caution lights illuminate. Press left (or right) master caution light; check that light goes off. If not, left (or right) master caution light is faulty	Replace master caution light
Left (or right) system master caution annunciator section is not recalled when annunciator is momentarily pressed	System module logic or system master caution annunciator inoperative	Observe which system indicator lights are illuminated on P5 modules. Momentarily press left (or right) system master caution annunciator. Observe corresponding system master caution annunciator sections illuminate. If none illuminate, annunciator is faulty. If only one annunciator section does not illuminate, relamp section and retest. If section still does not illuminate, corresponding system module is faulty	Replace system master caution annunciator. Relamp annunciator. Replace system module
Recall and master test functions for both master caution annunciators inoperative	Short to ground in a master caution annunciator recall switch, or master test relay (R33), or system wiring	Using system wiring diagrams, isolate short to component or wiring	Replace component (master caution annunciator module or master test relay) or repair wiring as applicable

Master Warning/Caution Lights - Troubleshooting
Figure 101

MASTER WARNING AND CAUTION LIGHTS - ADJUSTMENT/TEST

1. General
   A. The following procedures provide instructions for testing the operation of the master caution lights and system master caution annunciators as part of the master dim and test functional checks. The following tests are partial tests and do not test all systems master caution circuits. Each system indicator light and the corresponding test of the master caution and dim and test circuits are checked as part of the associated system test. Refer to the appropriate system chapter for the test of a system indicator light and associated system master caution annunciator section operation.
2. Master Caution Light Test
   A. Prepare to Test
      (1) Provide electrical power.
      (2) Close the following circuit breakers on load control center P6:
         (a) Nine circuit breakers under INDICATOR MASTER DIM BUS: BAT, NO. 1 DC, NO. 2 DC, SECT 1, SECT 2, SECT 3, SECT 4, SECT 5 and SECT 6
         (b) DIM & TEST
         (c) MASTER CAUTION. ANNUNCIATOR NO. 1, ANNUNCIATOR BAT, (AIR COND, ANTI-ICE, FUEL, if installed)
   B. Test Master Caution Lights
      (1) Hold LIGHTS switch on center instrument panel P2 to TEST. Observe all system indicator lights, master caution lights and system master caution annunciators in the control cabin illuminate bright.

         NOTE: If light is dim, one of the bulbs is burned out. Replace bulbs as necessary.

      (2) Release LIGHTS switch to BRT.

         NOTE: Some lights may not go off if system has a fault circuit operating which keeps system light on (such as a door open when on the ground). This is normal. If a system is suspected faulty, trouble shoot system.

      (3) Position LIGHTS switch to DIM. Observe lights dim.
      (4) Position LIGHTS switch to BRT.
      (5) Momentarily press pilot's MASTER CAUTION light. Observe master caution lights and system master caution annunciators are off.

(6) Momentarily press pilot's system master caution annunciator. Observe annunciators associated with systems with fault lights illuminated on P5 panel come on.

NOTE: All annunciator lights will illuminate while annunciator is held.

(7) Momentarily press pilot's MASTER CAUTION light. Observe master caution lights and system master caution annunciators are off.
(8) Momentarily press copilot's system master caution annunciator. Observe annunciators associated with systems with fault lights illuminated on P5 panel come on.
(9) Momentarily press copilot's MASTER CAUTION light. Observe master caution lights and system master caution annunciators are off.

C. Return Airplane to Normal
(1) Remove electrical power if no longer required.

3. Master Caution Lights Power Sources Test
A. Referenced Procedures
(1) AMM 24-22-00/201, Manual Control
B. Prepare to Test
(1) Supply electrical power (AMM 24-22-00/201).
(2) Make sure that these circuit breakers are closed:
(a) P6 Load Control Center-Right
1) AIR COND
2) ANNUNCIATOR BAT
3) ANNUNCIATOR No. 1
4) ANTI-ICE
5) BATT
6) DC BUS INDICATION BATT
7) DIM and TEST
8) ENGINES MASTER CAUTION
9) FIRE PROTECTION DETECTION MASTER WARN AND CONT
10) FUEL
11) No. 1 DC
12) No. 2 DC
13) SECT 1
14) SECT 2
15) SECT 3
16) SECT 4
17) SECT 5
18) SECT 6

C. Test Master Caution Lights Power Sources
(1) On the P2 panel, push and hold the LIGHTS switch to the TEST position.
(2) Make sure that the following lights come ON:
(a) Annunciator

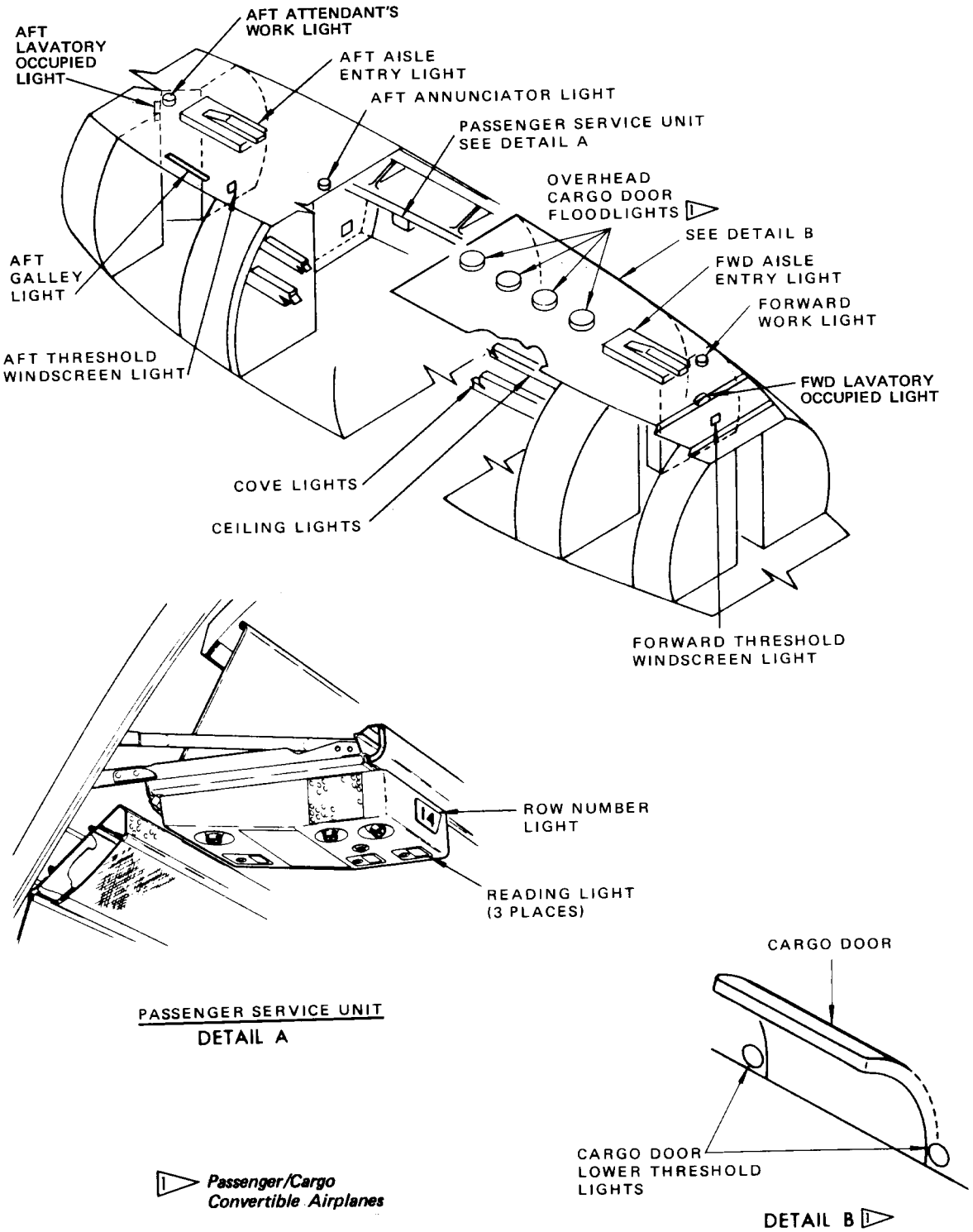
(b) Master Caution
(c) System Indicator

NOTE: If an indicator light is not bright, then one of the two lamps is defective. Replace the lamps as needed.

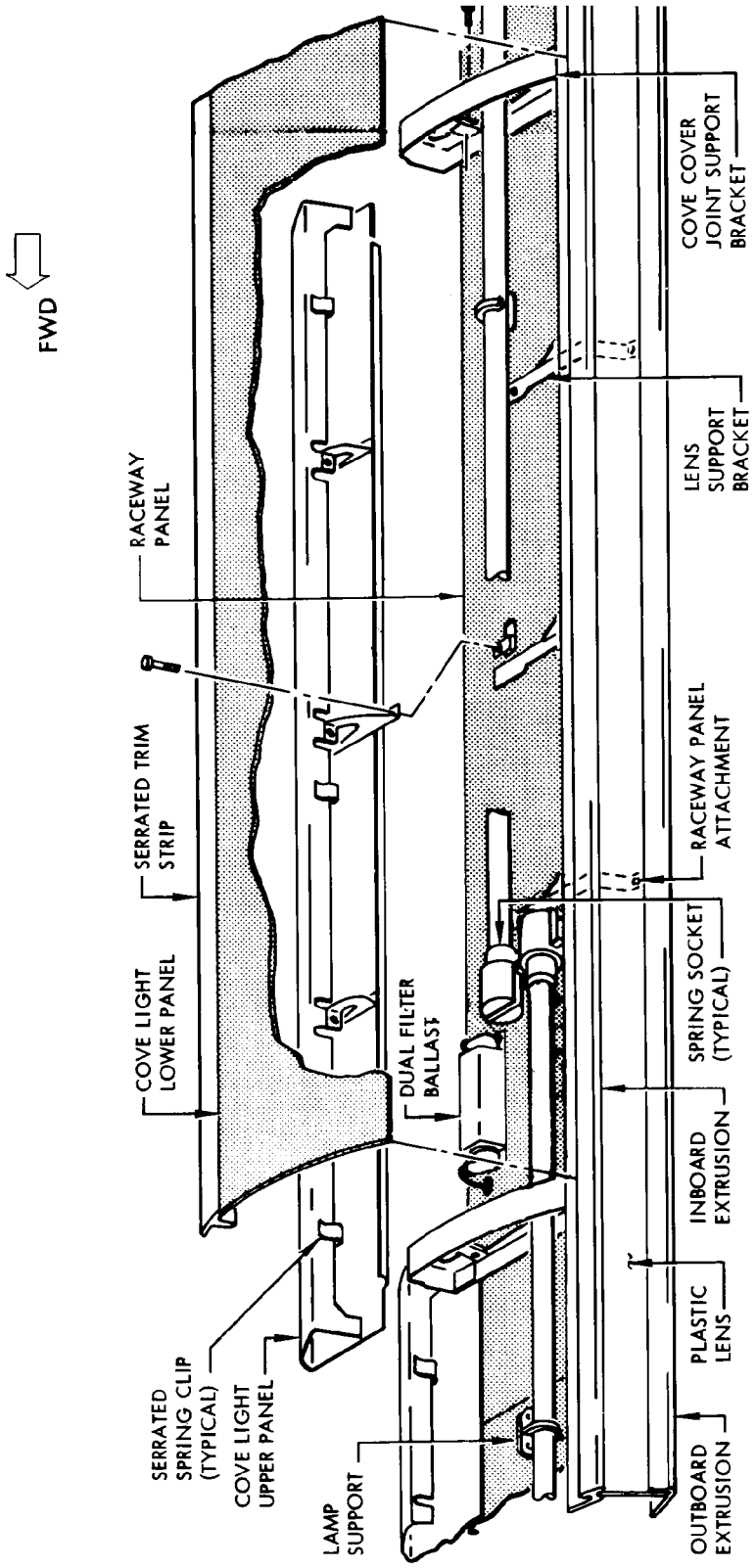
(3) On the P6-3 panel, pull and reset the following circuit breakers one by one and check that all labels stay illuminated on the FWD OVHD panel and pedestal.
(a) INDICATOR MASTER DIM BUS: BATT BUS C130
(b) INDICATOR MASTER DIM BUS: DC BUS 1 C311
(c) INDICATOR MASTER DIM BUS: DC BUS 2 C312
(4) On the P2 panel, release the LIGHTS switch.
(5) Remove power from the aircraft if no longer needed.

PASSENGER CABIN LIGHTING - DESCRIPTION AND OPERATION

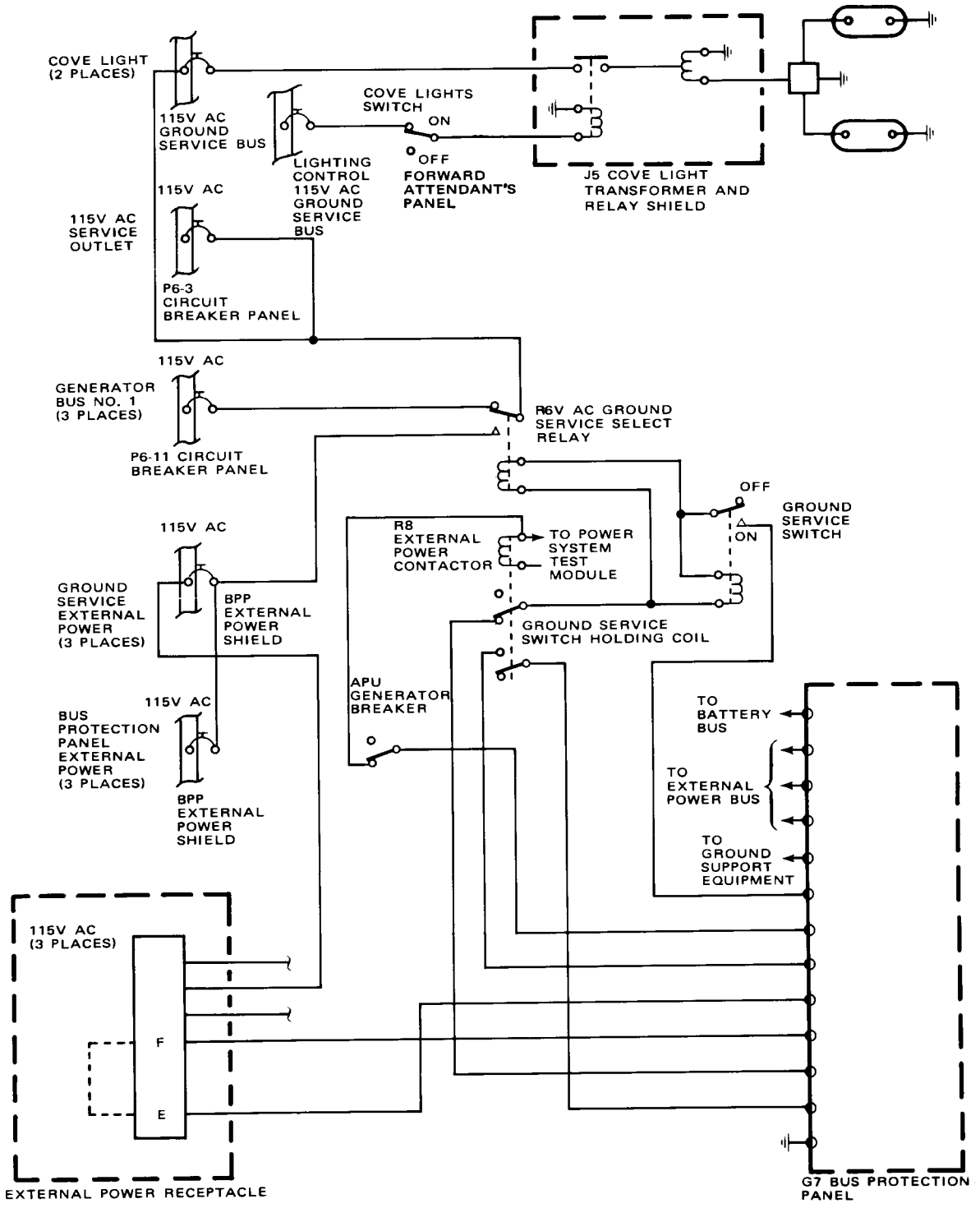
1. General
   A. Fluorescent cove lights extending along both sidewalls of the passenger cabin beneath the hatracks illuminate the sidewalls and lower areas. Incandescent lights extending along both sidewalls above the hatracks illuminate the ceiling (Fig. 1).
   B. Specialized passenger cabin lighting is used for entries, galleys, lavatories, passenger reading, signs, passenger to attendant call, maintenance, and emergency. These lights are used for area, flood, or spot lighting. Controls include nearby on-off , multiple station, automatic, and intensity switches (Fig. 1).
2. Passenger Cabin Cove Lights
   A. Fluorescent cove lights are along the sidewalls of the seating area of the passenger cabin below the hatracks. Raceway panels attached to the cabin walls provide means of mounting the lamps and dual filter ballasts, the upper panels, and the outboard extrusion pieces. These parts in turn support the serrated trim strip, lower panel, inboard extrusion, and plastic lens. Light is principally directed downward through the plastic lens, but a diffused light also comes through perforations in the upper panel. On Standard Passenger Airplanes the lights are controlled at the forward attendant's or galley panel, and on Passenger/Cargo Convertible Airplanes the lights are controlled at the galley attendant's or main cargo door control panels. Power of 115 volts ac from circuit breaker panel P18 goes through a cove light transformer and relay shield. Dual filter ballasts on the cove light raceway panel provide initial voltage surge, operating voltage, and a radio noise filter for each two lamps. With external power connected and the external power switch on the overhead panel in the ON position, power is available to the cove lights circuit breakers (Fig. 2 and 3).
3. Passenger Cabin Ceiling Lights
   A. Incandescent ceiling lights are along both sides of the ceiling above the hatracks to provide cabin lighting. The light fixtures are each fixed at three points to the cabin sidewall and at intervals to the ceiling panels by Velcro tape. Loosening the closure panel fasteners permits flexing the panel so the top curled edge may be snapped off exposing the lamps and semicircular reflectors. On Standard Passenger Airplanes the lights are controlled at the forward attendant's panel, and on Passenger/Cargo Convertible Airplanes the lights are controlled at the galley attendant's and cargo door control panels. Power to the lights is supplied from circuit breakers on circuit breaker panel P18. (See figure 4.)



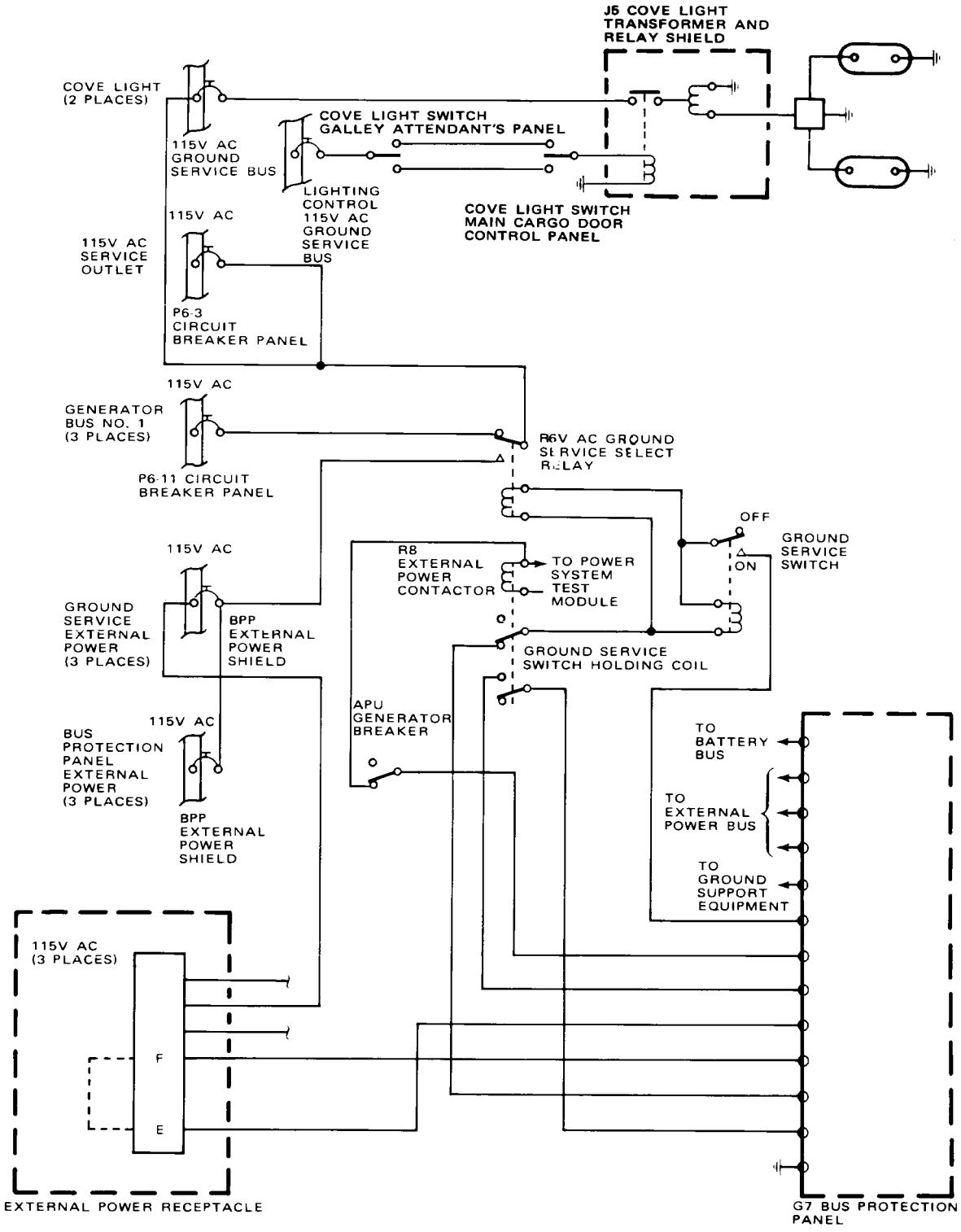
Passenger Cabin Lights Equipment Location
Figure 1



Cove Lights
Figure 2

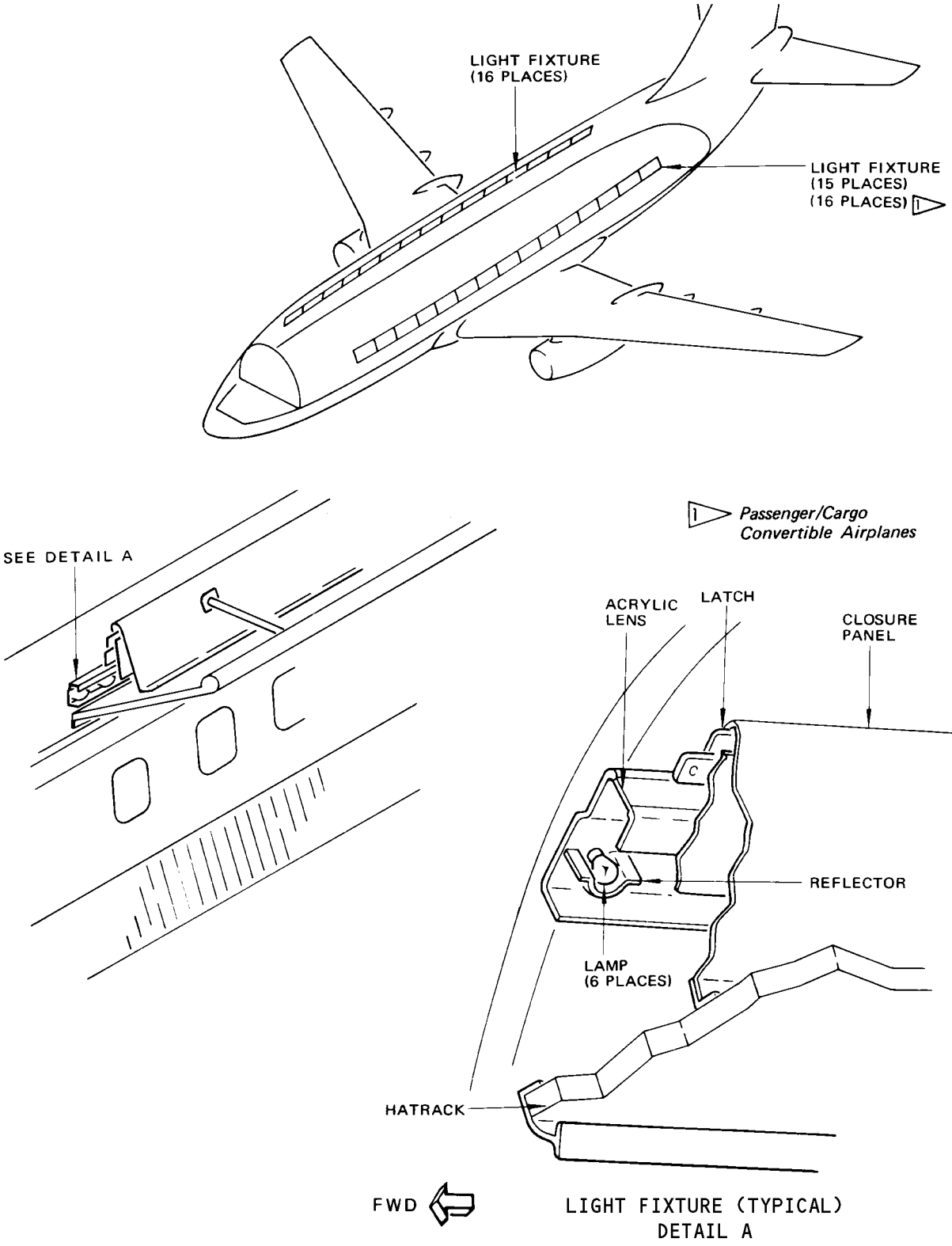


Cove Light Circuit
Figure 3 (Sheet 1)



Cove Light Circuit
Figure 3 (Sheet 2)

4. Passenger Reading Lights
   A. Individual passenger reading lights are in the passenger service units located above each seat. A retainer ring between the reading light cap and body, if installed, prevents the light cap from contacting and shorting exposed electrical terminals in the passenger service unit. Switches are adjacent to each light. The light beam is adjustable laterally by adjusting each lamp assembly after lowering the inboard end of the passenger service unit. Fore and aft change requires repositioning of the passenger service unit. Power from circuit breaker panel P18 is 28 volts ac.
5. Galley Lights
   A. The galley fluorescent lights are on the galley lowered ceiling. Intensity control is provided by a switch on the galley panels. In the DIM position, a single fluorescent light illuminates the galley and in the BRIGHT position two fluorescent lights illuminate the area. When the switch is in the OFF position no illumination occurs. Power from circuit breaker panel P18 is 115 volts ac. A ballast for each lamp is inboard on the ceiling panel just forward of the lamps. Access to the ballast may be gained by lowering the flight recorder access panel which will allow removal of ceiling panel between stations 993 and 984 on centerline of airplane.
6. Lavatory Lights
   A. One incandescent dome light in the ceiling of the lavatory provides general lavatory illumination. The light is illuminated by 28 volts dc from the 28-volt dc battery bus through the LAVATORY DOME LIGHT circuit breaker on the P18 circuit breaker panel.
   B. Two fluorescent mirror lights above the mirror are used to illuminate the mirror area when airplane power is on, or when external power is connected to the airplane. The lights are illuminated by 115 volts ac from the 115-volt ac bus No. 1 through the LAVATORY MIRROR LIGHT circuit breaker on the P18 circuit breaker panel by actuation of the lavatory door switch whenever the lavatory door is locked and airplane power is on. The lights are also powered by 115 volts ac from the 115-volt ac external power bus through the LAVATORY MIRROR LIGHT circuit breaker on P6 circuit breaker panel whenever airplane is on external power. Radio noise filters and ballasts are in the left ceiling aft of the entry door.
   C. A lavatory occupied light above the lavatory door illuminates when the lavatory door switch is actuated to indicate the lavatory is in use. The light is illuminated by 28 volts dc from the 28-volt dc battery bus through the LAVATORY DOME LIGHT circuit breaker on the P18 circuit breaker panel.



Passenger Cabin Ceiling Lights
Figure 4

461288

7. Attendant's Work Lights
   A. The forward attendant's area work light is above the forward attendant's station and is controlled by a switch on the forward attendant's auxiliary panel. The aft attendant's area work light is above the aft attendant's station and is controlled by a switch on the aft attendant's auxiliary panel. Power for the work lights is 28 volts ac through circuit breaker panel P18.
8. Aisle Entry and Threshold Lights
   A. On Standard Passenger Airplanes two ceiling fluorescent lights, one ceiling incandescent, and one incandescent threshold light provides illumination for the entryway. The lights are controlled by a switch on the adjacent attendant's control panel. In the DIM position only the dim incandescent ceiling light is illuminated, in the BRIGHT position the two fluorescent lamps and the threshold light are also illuminated. Power through circuit breaker panel P18 supplies 115 volts ac for the fluorescent lights, 28 volts ac for the threshold light, and either 28 volts dc from the battery bus or 28 volts ac from the ground service bus for continuous operation of the dim ceiling light. The fluorescent lights utilize a step up transformer which provides 450 volt ac operating- power. Ballasts and RFI filters are adjacent to each fluorescent light.
   B. On Passenger/Cargo Convertible Airplanes the forward entryway is illuminated by four fluorescent ceiling, one incandescent ceiling, and one incandescent threshold lights. The aft entry is illuminated by two fluorescent ceiling, one incandescent ceiling and one incandescent threshold lights. The control and power for the lights on these airplanes is identical to that of the Standard Passenger Airplanes.
9. Airstairs Lights
   A. The airstair treads are illuminated by incandescent lights on alternate sides of the treads. The lights can be controlled manually or automatically through airstair tread light switch on the adjacent attendant's panel. Placing the switch to ON will illuminate the tread lights on the airstairs independent of airstair position. Placing the switch to AUTO will illuminate the lights only when the airstair downlock microswitch is actuated. Refer to Chapter 52, Airstairs.
   B. The forward airstair light power is supplied from the 28-volt ac ground service bus through the forward airstair tread light circuit breaker.
10. Sign Lights
   A. Passenger sign lights include lights on the passenger service units over each passenger seats and passenger sign lights on cabin partitions. See 33-25-0, Passenger Call System for the row sign lights, which are also used for call signs, on the inboard side of the passenger service units. Power for the sign lights is supplied through circuit breaker panel P18. See 33-51-0: Emergency Lights, for integrally powered sign lights.
   B. NO SMOKING and FASTEN SEAT BELT signs in each passenger service unit are controlled by switches on the control cabin forward overhead panel.

C. Lavatory OCCUPIED signs and the alternate source of electrical power to the lavatory mirror lights are controlled by lavatory door latch actuated switches.

D. RETURN TO SEAT signs in each lavatory are controlled by the FASTEN SEAT BELT switches on the forward overhead panel and the aft attendant's panel.

E. NO SMOKING and PLEASE FASTEN SEAT BELT signs are located in various strategic locations throughout the airplane. When the NO SMOKING and FASTEN BELTS sign switches on the overhead panel are in the AUTO position, the NO SMKING signs will illuminate when the landing gear lever is down, and the FASTEN SEAT BELT signs will illuminate when the trailing edge flaps are extended and remain illuminated as long as landing gear lever is down. The signs are illuminated by incandescent 28-volt lamps and controlled on the control cabin overhead panel.

NOTE: If lamp is removed from any passenger service unit or passenger sign, the associated circuit breaker may trip and cannot be reset until missing lamp is installed.

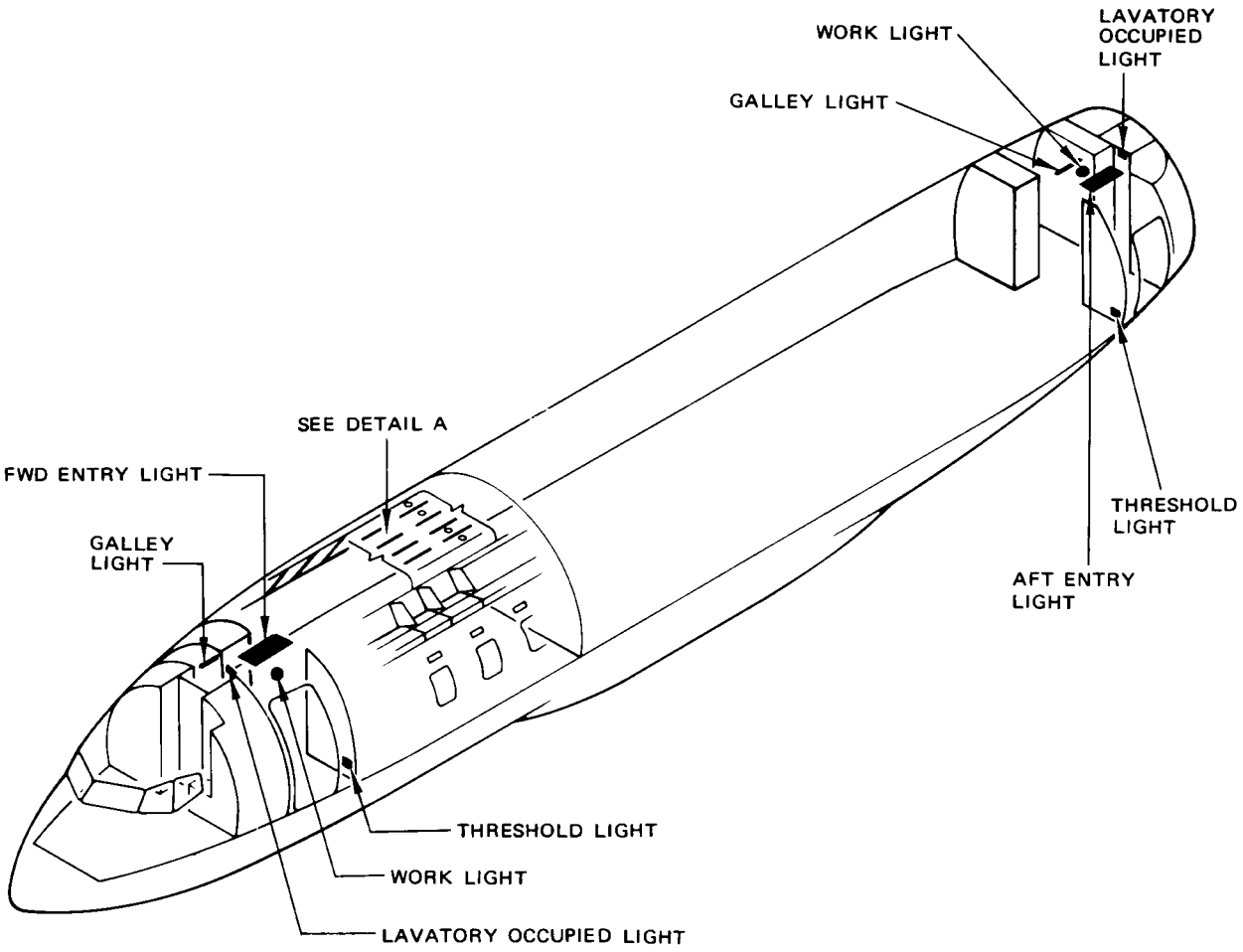
11. Main Cargo Door Floodlights (Passenger/Cargo Convertible Airplanes)

A. There are four cargo door floodlights in the main passenger cabin ceiling and a pair of threshold lights at the main cargo door which are controlled by the cargo door lights switch on the main cargo door control panel. Power to the cargo door and threshold lights is only available when the cargo door is open, thus energizing the cargo door floodlights relay.

B. Power for these lights and relay is 28 volts ac from the 28 volt ac ground service bus through the MAIN CARGO DOOR FLOOD LIGHTS circuit breaker on panel P18.

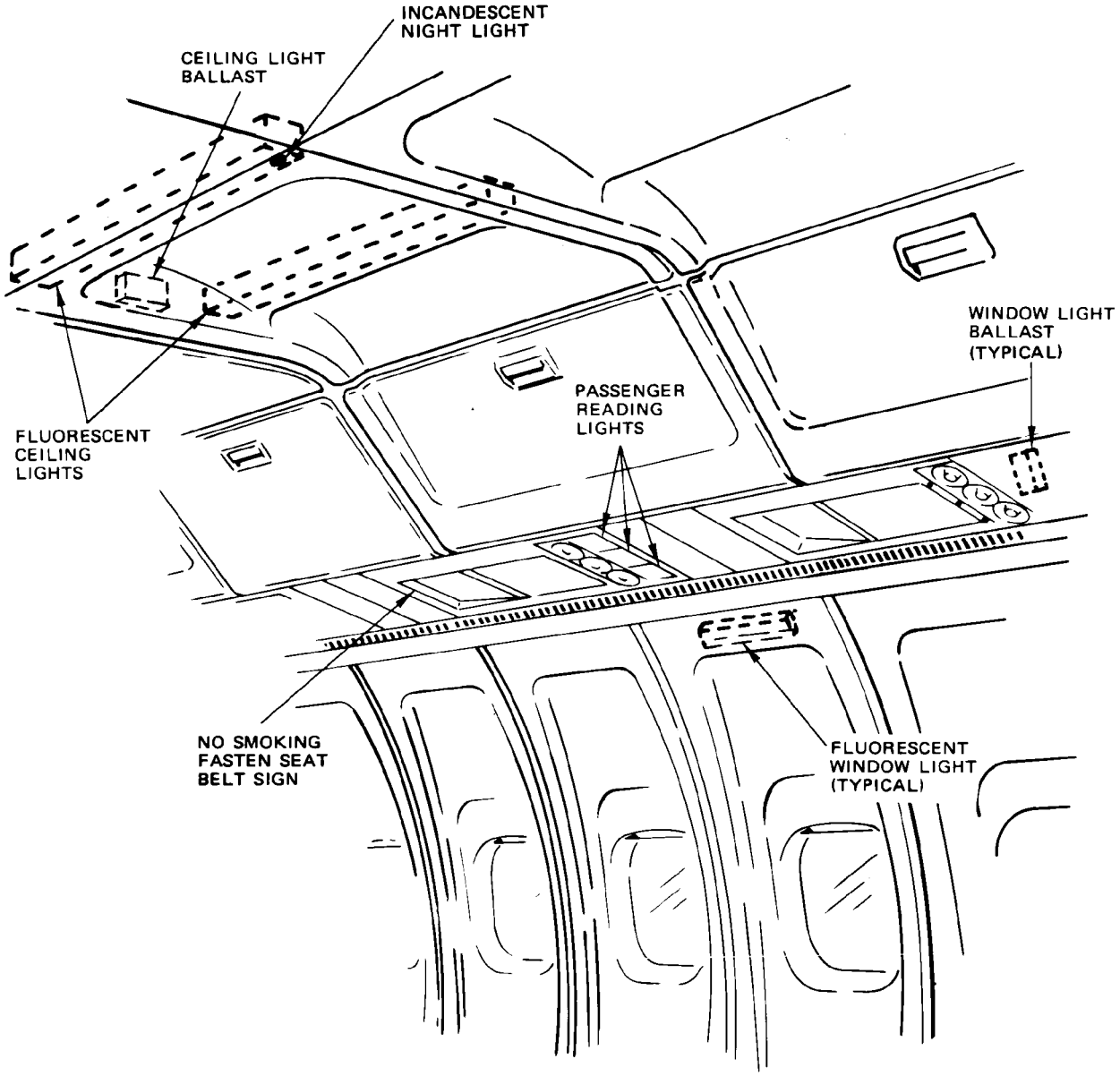
PASSENGER COMPARTMENT LIGHTING - DESCRIPTION AND OPERATION

1. General
   A. General cabin illumination is provided by fluorescent ceiling lights, fluorescent window (sidewall) lights, and incandescent night lights (Fig. 1).
   B. Specialized cabin lighting is used for entries, galleys, lavatories, passenger reading, and passenger information signs (Fig. 1).
   C. All lighting components are accessible and can be readily replaced without the use of special tools.
   D. The 115-volt ac buses provide primary power for the fluorescent lights and the 28-volt ac buses provide primary power for the incandescent lights.
2. Ceiling Lights
   A. The passenger compartment ceiling lights are comprised of fluorescent and incandescent light fixtures located in the curved ceiling panels. The fluorescent lamps provide either dim or bright general area illumination. The incandescent lamps are used for night lighting and/or standby cabin illumination in case of power loss to the ceiling lights. A typical ceiling light installation consists of an incandescent lamp, two fluorescent lamps, and a ballast. The ceiling panels are hinged on their lower outboard corners and swing down for easy replacement of lamps or ballasts (Fig. 1).
   B. The ceiling lights are controlled by a four position rotary switch that is located on the forward attendant's panel. The four positions are OFF, NIGHT, DIM, and BRIGHT. NIGHT turns on some of the incandescent lights for low level illumination. DIM turns on all fluorescent ceiling lights in the dim mode. BRIGHT turns on all the fluorescent ceiling lights in the bright mode (Fig. 2).
   C. The 115-volt ac ground service bus provides primary power for fluorescent ceiling light operation and control. Primary and secondary circuit breakers on the P18 load control center panel provide protection. Setting the ceiling lights switch on the forward attendant's panel to DIM energizes the ceiling light relay R120, which connects 115 volts ac to the ceiling light autotransformers. The autotransformers provide 260 volts ac to terminal A2 of the ballasts. This causes the fluorescent ceiling lights to come on in the dim mode. Setting the ceiling lights switch to BRIGHT energizes R120 as before and provides 75 volts ac, through secondary circuit breakers on P18 panel, to terminal A3 of each ballast and 250 volts ac to terminal A2. This causes the fluorescent ceiling lights to come on in the bright mode. The 75-volt power is obtained from the low voltage terminal of the same autotransformer as the 260-volt power. (See figure 2.)



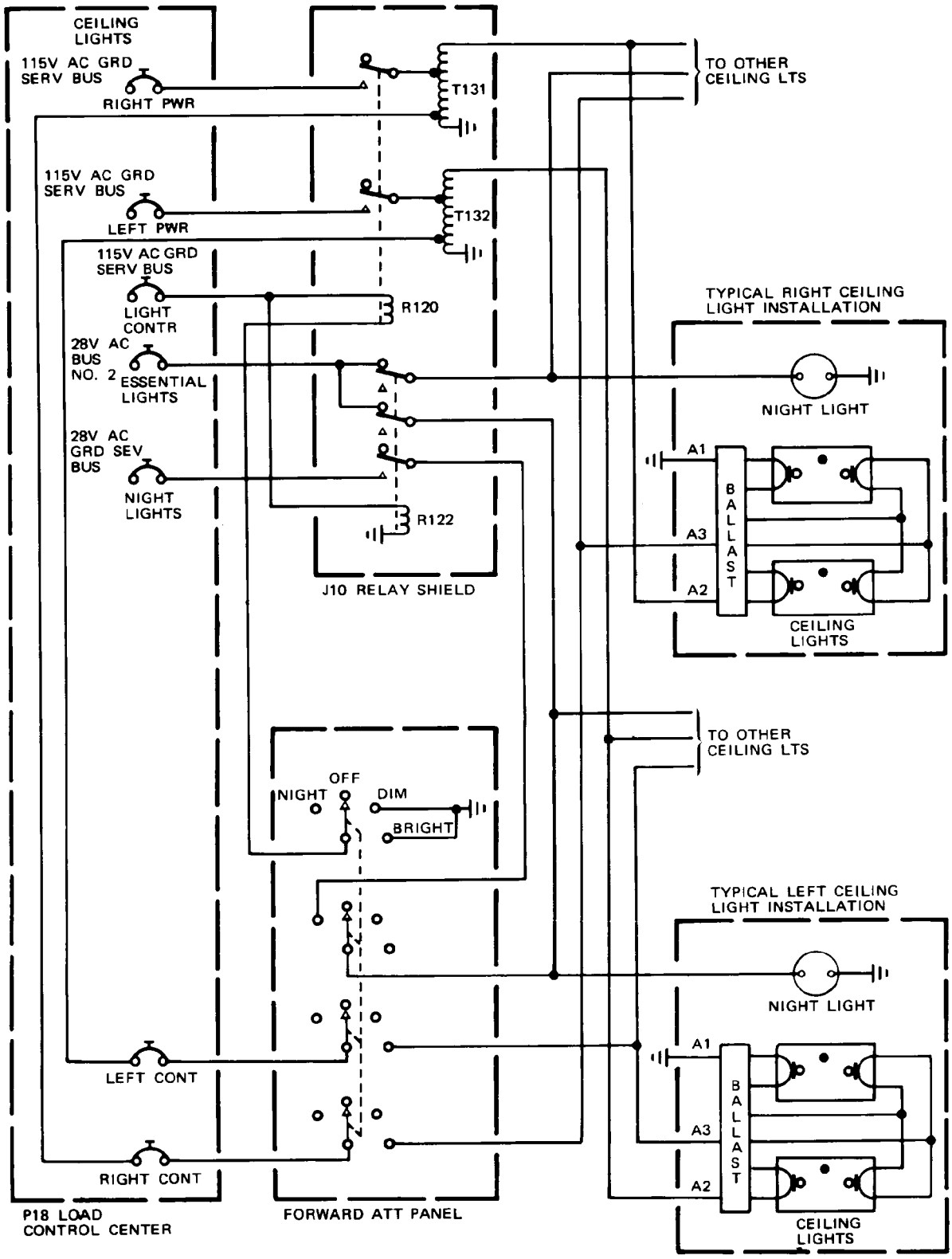
Passenger Cabin Lighting Components Location
Figure 1 (Sheet 1)

461306



DETAIL A

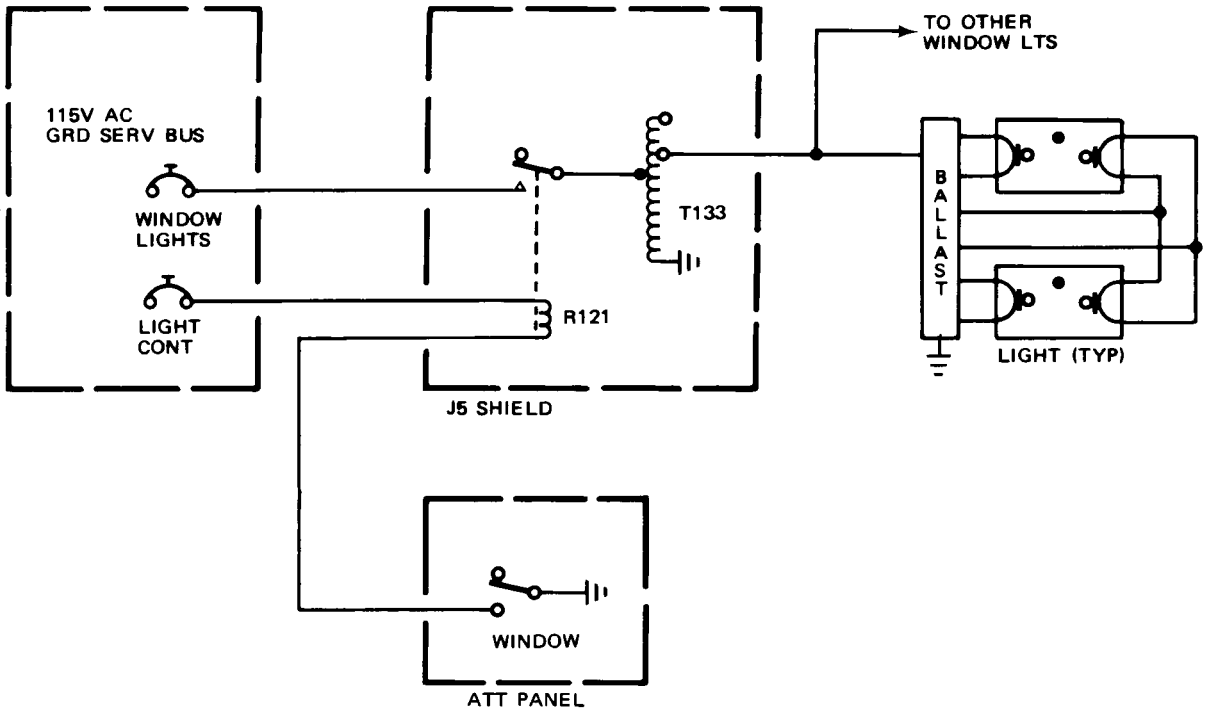
Passenger Cabin Lighting Components Location
Figure 1 (Sheet 2)



Ceiling Lights Simplified Schematic
Figure 2

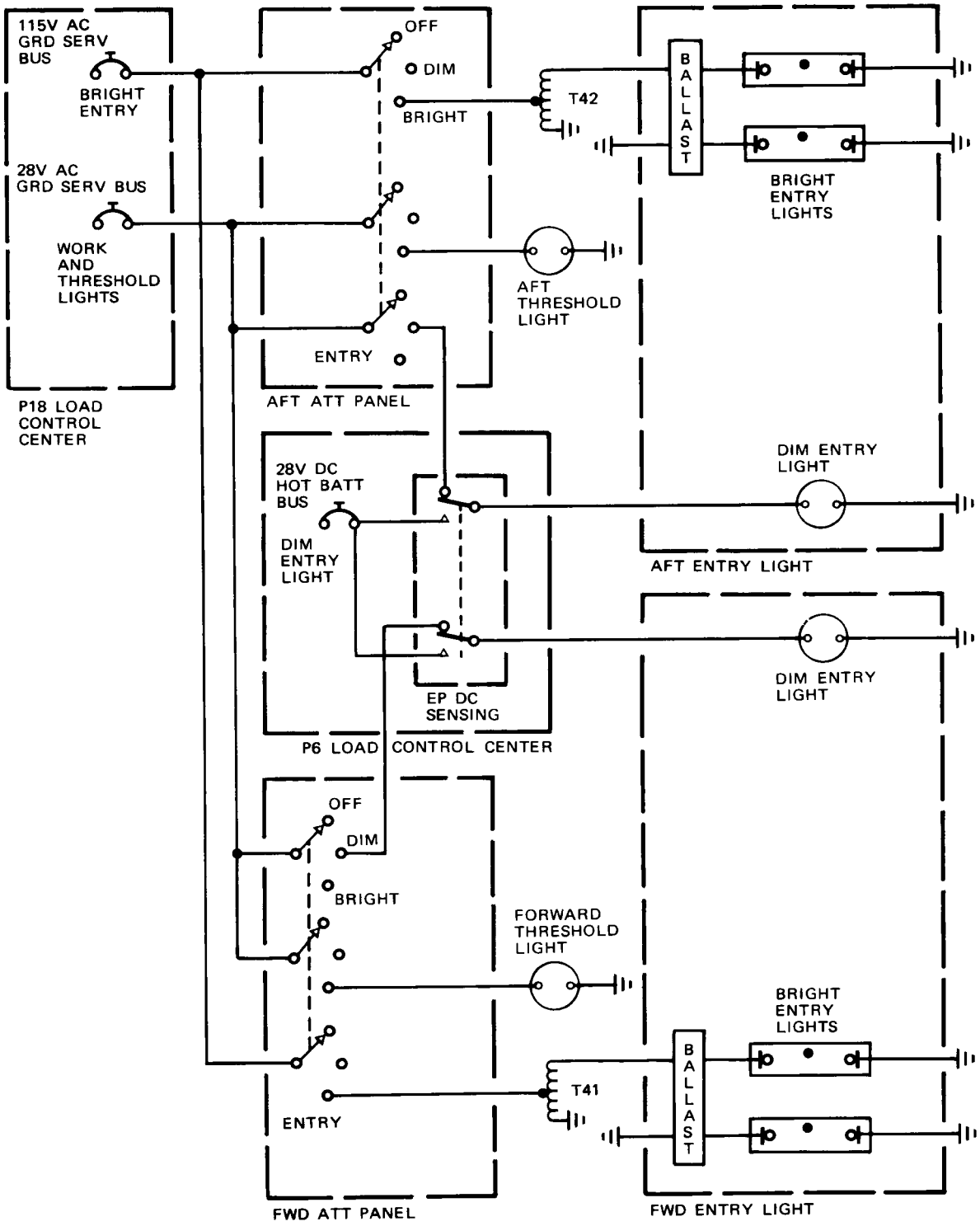
461396

3. Night Lights
   A. Incandescent night light lamps are installed in each ceiling panel adjacent to the inboard fluorescent lamp. The night light lamps perform two functions: one is to provide a low level night illumination and the other is as automatically activated standby lights to provide general area illumination in event of a partial power failure (power to fluorescent ceiling light circuit is lost). Approximately one-half of the lights come on when the night light circuit is energized, however, all of the lights come on in event of partial power failure. (See figure 2.)
   B. The 28-volt ac ground service bus provides power to the night lights for normal operation, and the 28-volt ac bus No. 2 provides power to the standby lights when required. Setting the CEILING light switch on the attendants' panel to NIGHT connects 28-volt ac ground service bus power to the night lights through the normally open contacts of night light relay. In event of partial power failure, the night light relay de-energizes and connects the 28-volt ac bus No. 2 power to the standby lights. (See figure 2.)
   C. When the ceiling light switch is set to DIM or BRIGHT, the night lights are off and power is available to the normally closed contacts of the standby light relay to provide illumination in case of partial power failure.
4. Window Lights
   A. A fluorescent light assembly is installed in the sidewall panels above each window. The window lights provide soft white sidewall illumination. The window light assemblies are removed for replacement or relamping by releasing two quick-release fasteners and disconnecting an electrical connector. The ballasts for the window lights are mounted on support structure behind the adjacent PSU. Access to ballasts is by releasing two quick-release fasteners and lowering the PSU. One ballast is used to control two fluorescent window lights in most installations. (See figure 1.)
   B. The window lights are controlled by the window light switch on the forward attendants' panel. The switch is a two position (ON-OFF) type. (Fig. 3)
   C. The 115-volt ac ground service bus provides primary airplane power for window light illumination. When external power is connected to the airplane, the power for window light illumination is automatically transferred by the power switching relay, to the external power source.
   D. Setting the window light switch to ON supplies a ground to the window lights relay connecting 115 volts ac to the window lights autotransformer. The transformer provides 200 volts ac to the window light ballasts causing all window lights to come on.



Window Lights Schematic
Figure 3

5. Entry Lights
   A. The forward entry is illuminated by two fluorescent lights and one incandescent light in the ceiling and a threshold light in the forward wind screen. (Fig. 1) The lights are controlled by a three position rotary ENTRY switch on the forward attendant's panel. In the OFF position, all lights are off unless ground power is applied. With ground power applied, control to the dim entry light (incandescent) is bypassed and the light is on. In the DIM position, the dim entry light is on and in the BRIGHT position, the two fluorescent lights are on. (Fig. 4)
   B. The aft entry is also illuminated by two fluorescent and one incandescent light and a threshold light in the aft wind screen. Power and control is identical to the forward entry lights except the switch is on the aft attendant's panel.
6. Passenger Reading Lights
   A. Passenger reading lights are mounted in the PSU's located above each seat group. A pushbutton switch located adjacent to each reading light enables the passengers to turn their reading lights on and off. Each reading light consists of an incandescent lamp and housing that is attached to a movable lens assembly by two spring clips. The reading lights can be adjusted fore and aft by the passenger; however, lateral adjustment requires lowering of the PSU and loosening the adjusting pins. Lateral adjustment is preset to provide a light beam direction that corresponds to the seat it serves. (Fig.1)
   B. The 28-volt ac buses No. 1 and 2 provide power for reading light operation through circuit breakers on the P18 panel. (Fig. 5)
7. Passenger Information Signs
   A. Passenger information signs include the no smoking, fasten seat belt, and return to seat. The 28-volt ac buses provide power for sign operation. The no smoking and fasten seat belt signs are housed in a common module and mounted on forward end of each PSU (Fig. 1) Two incandescent lamps illuminate the no smoking legend and three incandescent lamps illuminate fasten seat belt legend. The sign legends are not readily apparent unless illuminated. The return to seat signs are located in each lavatory and illuminate with the fasten seat belt signs.
   B. The signs are controlled by three-position switches on the overhead panel and by a flap switch in the right main wheel well and the landing gear lever switch in the center instrument panel. With the toggle switches in AUTO position, if the flaps are lowered, the seat belt signs illuminate and if the landing gear is lowered, both the no smoking and seat belt signs illuminate (Fig. 6).
   C. For lavatory occupied lights, refer to par. 8 and for passenger call signs, refer to 33-25-0.
8. Lavatory Lights and Signs
   A. One dome light in each lavatory is on at all times, providing low level lighting. When the door is locked the fluorescent mirror lights come on (Fig. 7).



Entry Lights Schematic
Figure 4

B. The occupied sign adjacent to the lavatory on the lowered ceiling is illuminated when the door is locked. Power is supplied the same as for the dome light (Fig. 1 and 7).

C. Fluorescent mirror lights provide added illumination. On the ground with external power on the airplane the lights are on when the door is unlocked. If the No. 1 115-volt ac bus is energized, the lights will be on when the door is locked. Airborne the lights are off except when the door is locked (Fig. 7).

9. Galley Lights

A. Fluorescent lights for the galleys are located on the ceiling above the galley entryway (Fig. 1). Power for the lights is from the 115-volt ac ground service bus through an intensity control on the galley. Dim or bright is determined by lighting one or two lamps (Fig. 8).

10. Attendant's Work Lights

A. The forward attendant's work light is located on the passenger cabin left sidewall above the forward entry door and is controlled by a switch on the forward attendant's panel. (See figure 1.)

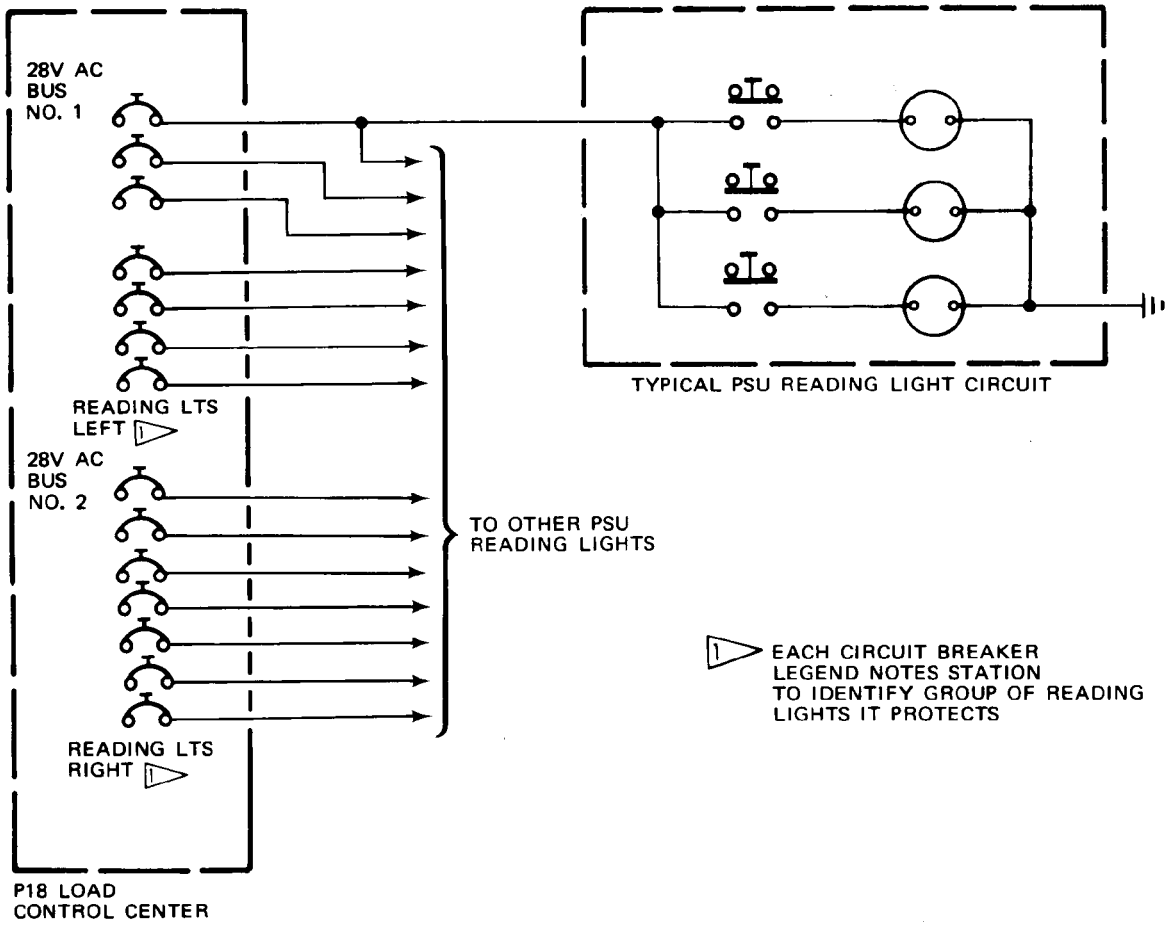
B. The aft attendant's work light is located overhead in the lowered ceiling near the galley light and is controlled by a switch on the aft attendant's panel. (See figure 1.)

C. Power for the work lights is 28 volts ac from load control center P18.

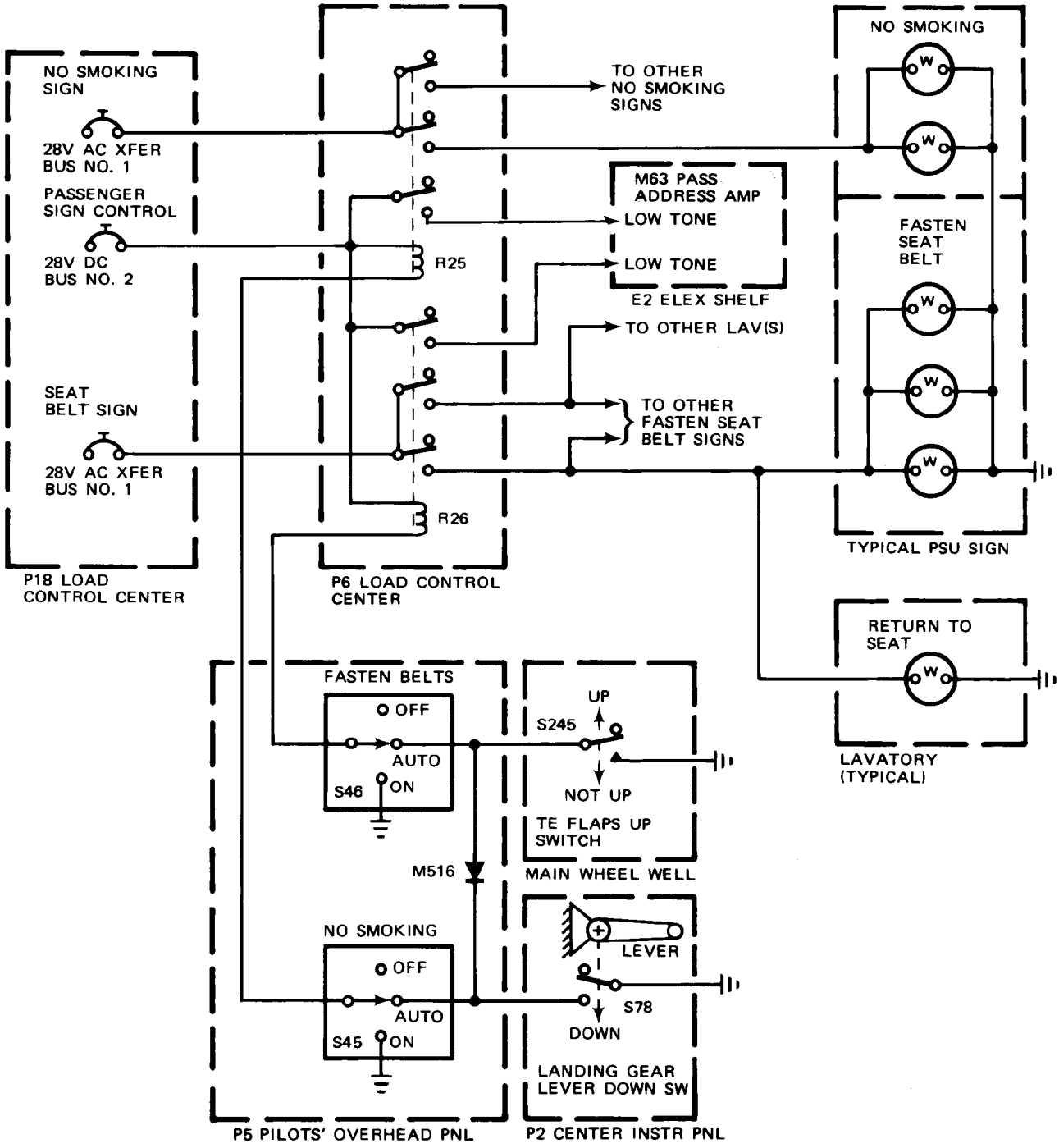
11. Airstair Lights

A. Two tread lights are mounted under the forward lower edge of each step of the airstairs. The lamps are powered by 28 volts through circuit breakers on the P6 panel.

B. The AIRSTAIR three-position toggle switch on the adjacent attendant's panel provides control. The three switch positions are ON, OFF, and AUTO. The ON switch turns the airstairs lights on independent of airstair position. The OFF position disables the circuit. With the switch set to AUTO, an airstair extend limit switch is connected in series with the switch on the attendants' panel. The extend limit switch will turn the airstair lights on whenever the airstairs are fully extended and turn the lights off when the airstairs are retracted. (See figure 9.)

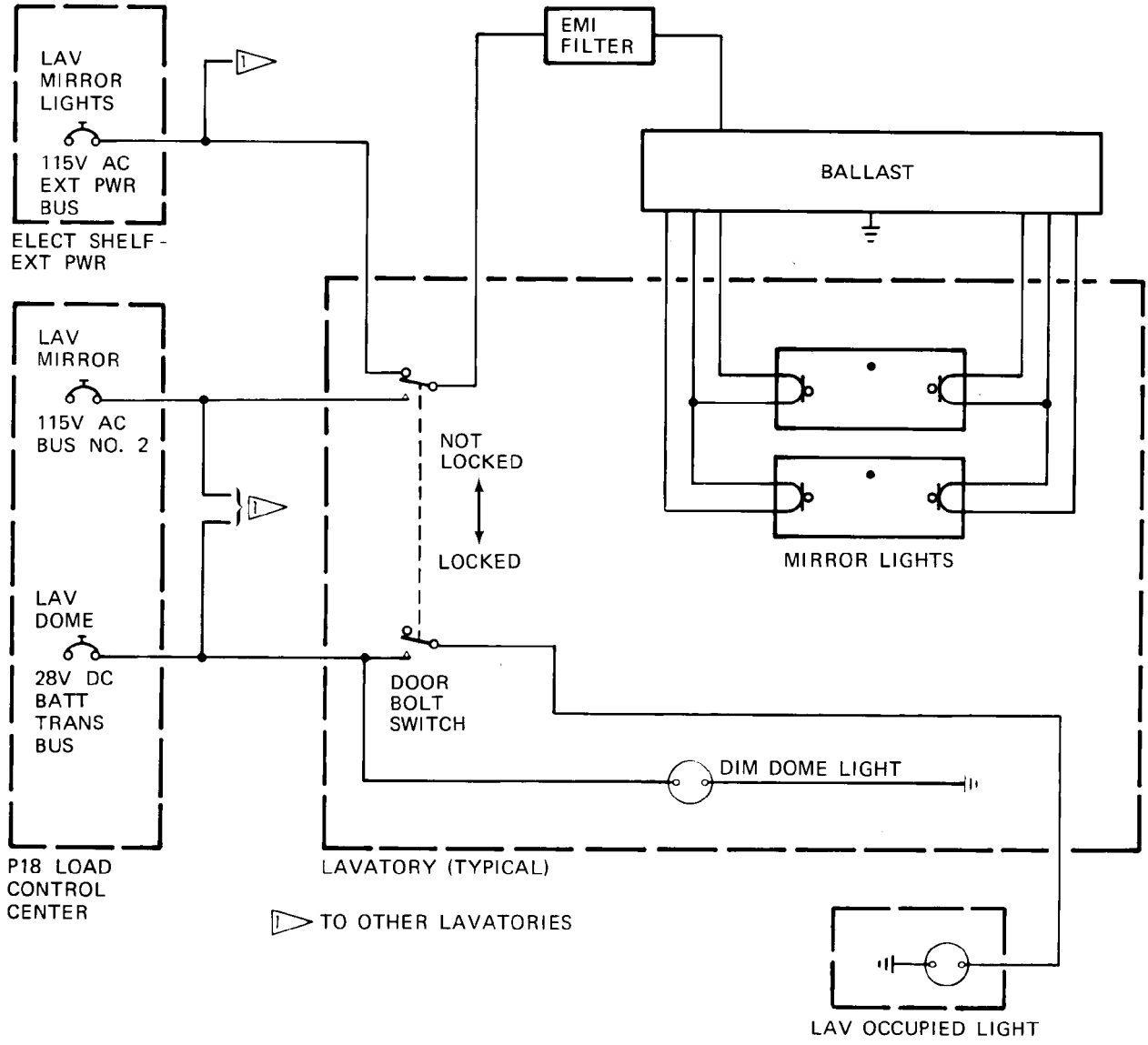


Passenger Reading Lights Schematic
Figure 5



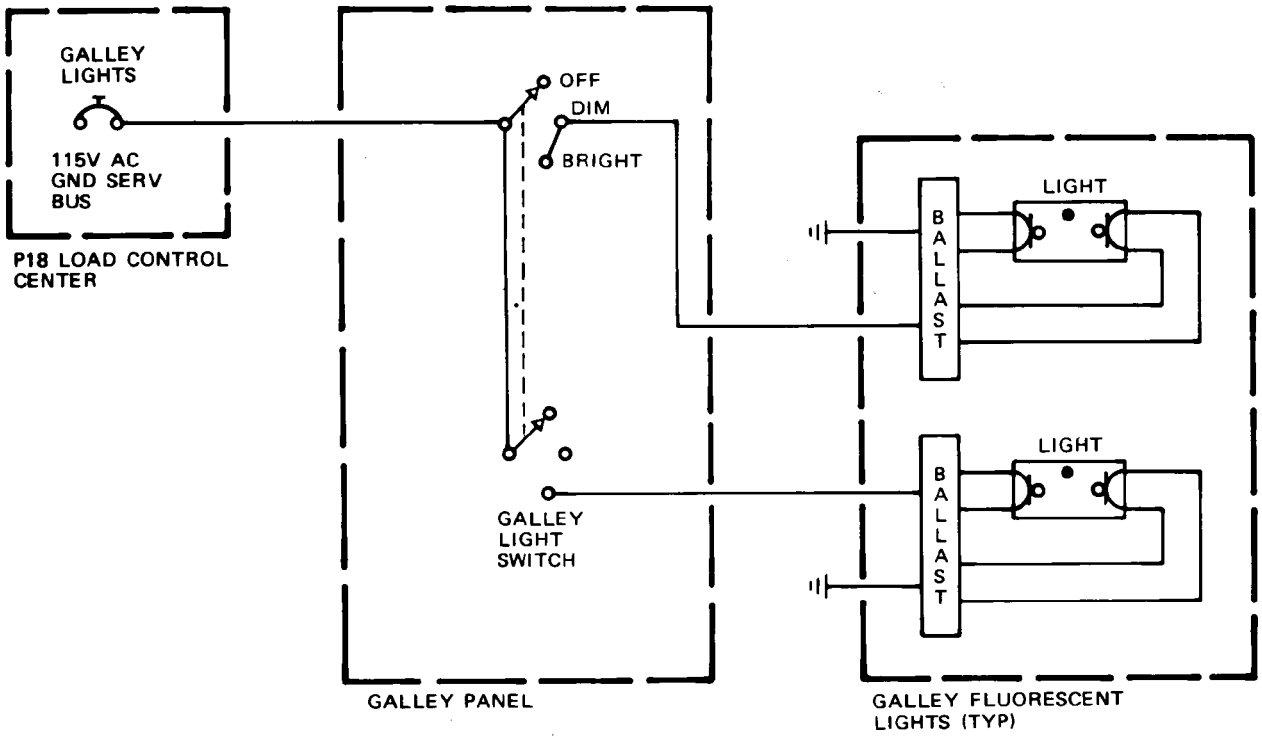
Passenger Information Signs Simplified Schematic
Figure 6

461359



Lavatory Lights Schematic
Figure 7

461371



Galley Lights Schematic
Figure 8

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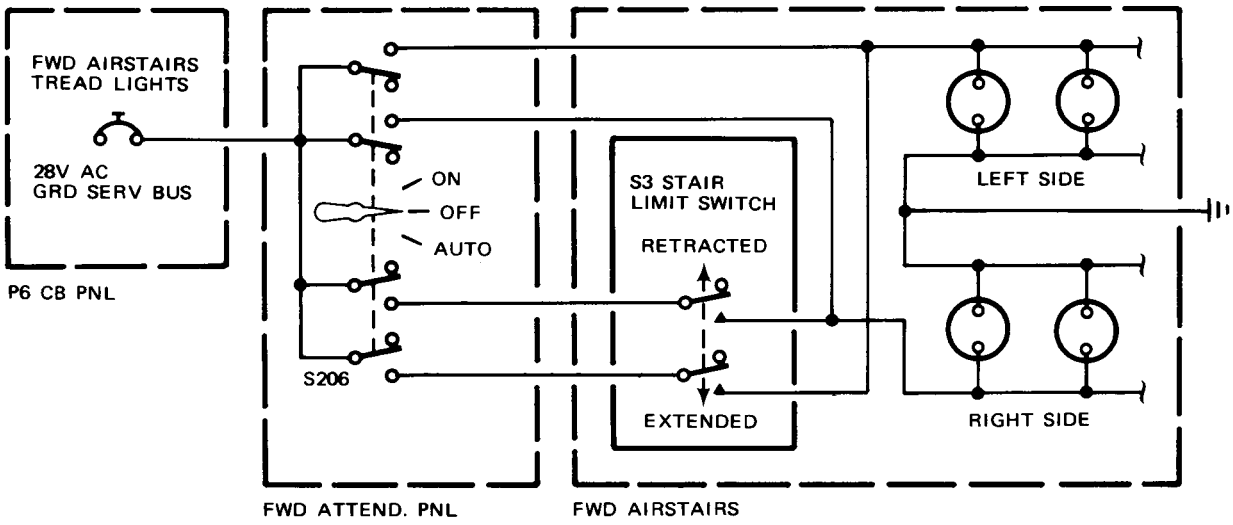
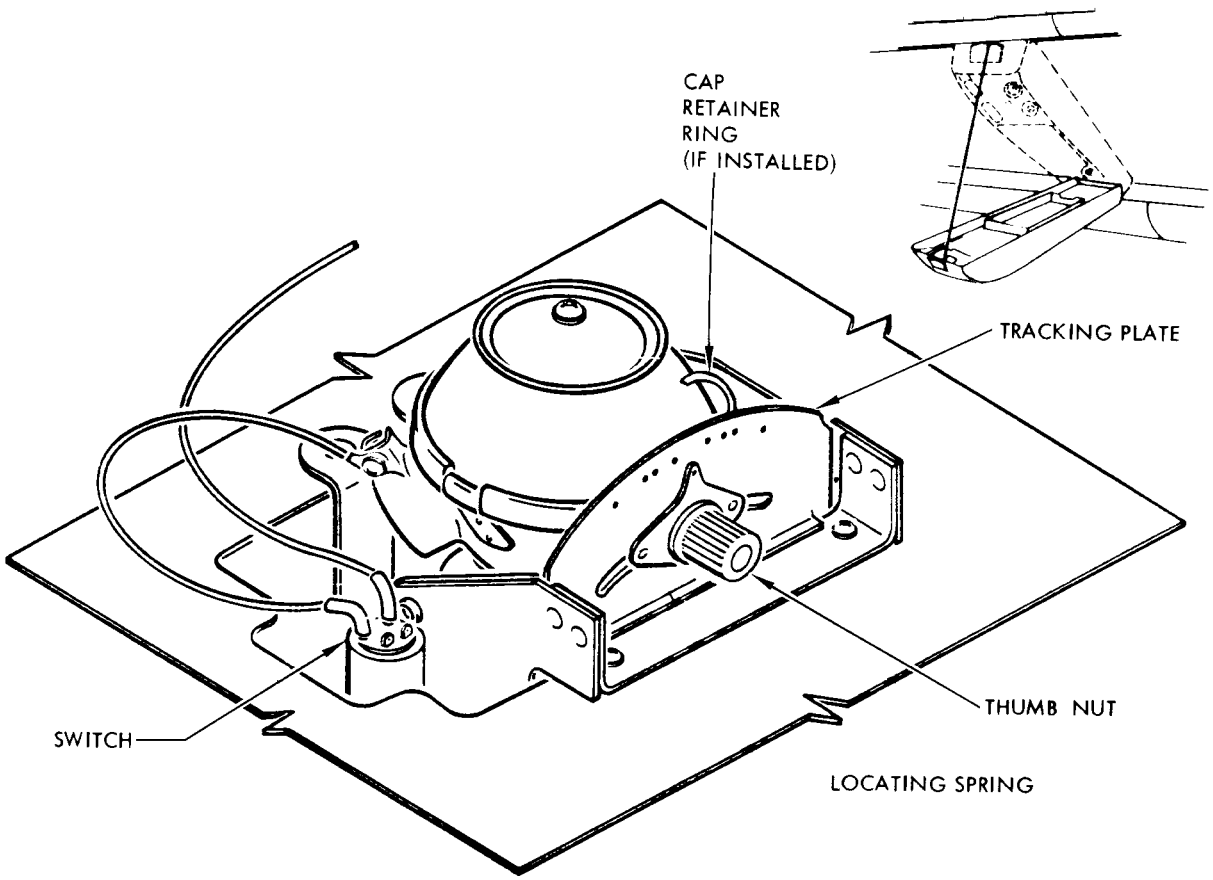


Airstairs Lights Simplified Schematic
Figure 9

461384

PASSENGER READING LIGHTS – ADJUSTMENT/TEST

1. Passenger Reading Lights Adjustment
   A. General
      (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. (Fig. 501).



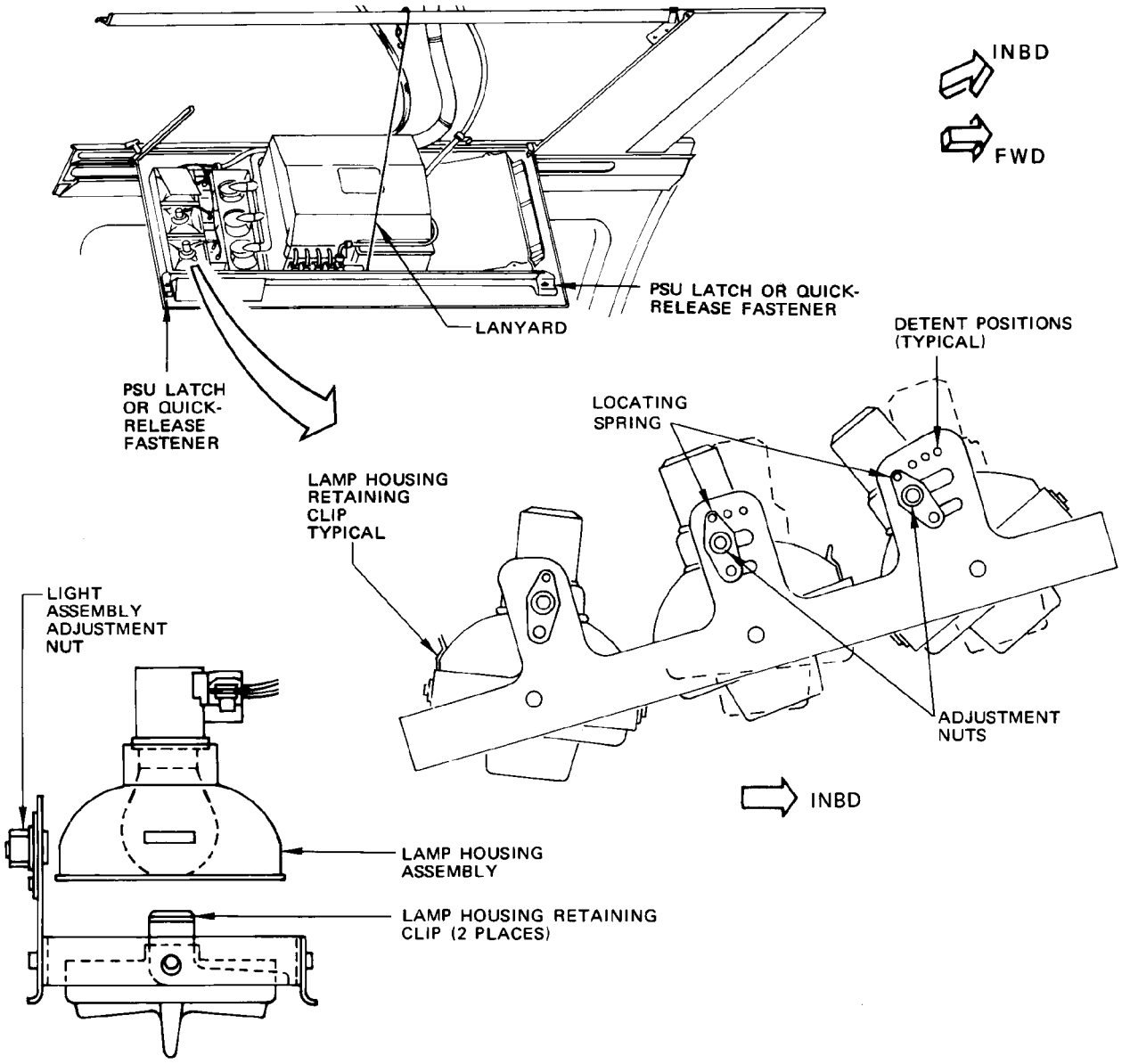
LIGHT ADJUSTMENT TABLE (DETENT POSITION)

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 501

PASSENGER READING LIGHTS - MAINTENANCE PRACTICES

1. Light Adjustment (Fig. 201)
   A. General
      (1) Each passenger service unit contains three reading lights. The two inboard reading lights are adjustable laterally to accommodate variations in seat arrangements. The outboard reading light is not used when a two-seat group of seats is installed. Detent positions on light adjustment provide a positive means of adjustment to satisfy any seat arrangement.
   B. Adjust Reading Lights
      (1) Release two quick-release fasteners near each inboard corner of PSU or insert small rod (or similar device) in each inboard corner and push to release latches, as applicable (use care not to mar PSU surface), and lower PSU until lanyard is taut.
      (2) Loosen adjustment nut and move locating spring to correct detent position.
      (3) Tighten adjustment nut.
      (4) Raise PSU and secure fasteners or check that latches are engaged, as applicable.
2. Relamp Light (Fig. 201)
   A. Release two quick-release fasteners near each inboard corner of PSU or insert small rod (or similar device) in each inboard corner and push to release latches, as applicable (use care not to mar PSU surface), and lower PSU until lanyard is taut.
   B. Release two spring clips and pull lamp housing assembly upward.
   C. Relamp.
   D. Press lamp housing firmly in place. Check that spring clips are seated in indents.
   E. Raise PSU and secure fasteners or check that latches are engaged, as applicable.
3. Test Light
   A. Provide electrical power.
   B. Check that applicable reading light circuit breakers on P18 panel are closed.
   C. Press each of the reading light switches on PSU and check that reading lights come on.
   D. Press switches and check that reading lights go off.
   E. Remove electrical power if no longer required.



LIGHT ADJUSTMENT TABLE (DETENT POSITION)						
SEAT POSITION	A LEFT (OUTBOARD)	B (MIDDLE)	C (INBOARD)	D (INBOARD)	E (MIDDLE)	F RIGHT (OUTBOARD)
6 ABREAST SEATING	*	6	6	6	6	*
5 ABREAST SEATING (DOUBLE SEAT)	*	5(2)	5(2)	5(2)	5(2)	*
5 ABREAST SEATING (TRIPLE SEAT)	*	5(3)	5(3)	5(3)	5(3)	*
4 ABREAST SEATING	*	4	4	4	4	*

* FIXED POSITION

Passenger Reading Lights Installation
Figure 201

CEILING LIGHTS - ADJUSTMENT/TEST

1. Ceiling Lights Test
   A. Test Ceiling Lights
      (1) Apply electrical power.
      (2) Check that ceiling light switches on attendant's panels are OFF.
      (3) Check that the LTG - CONT, CEILING - L FWD, CEILING - R FWD, CEILING - L AFT, CEILING - R AFT, CEILING - ESS, and CEILING -ESS GRD SERV circuit breakers on circuit breaker panel P18 are closed.
      (4) Position ceiling lights switch on main cargo or galley attendant's panel to ON. All ceiling lights will be on.
      (5) Open LTG CONTROL circuit breaker on circuit breaker panel P18. All ceiling lights will be off.
      (6) Close LTG CONT circuit breaker on circuit breaker panel P18.
      (7) Open CEILING - R FWD circuit breaker on circuit breaker panel P18. All right forward section of ceiling lights except the essential lights at station 580 right will extinguish.
      (8) Open CEILING - L FWD circuit breaker on circuit breaker panel P18. All left forward sections of ceiling lights except the essential lights at station 500 left will extinguish.
      (9) Open CEILING - R AFT circuit breaker on circuit breaker panel P18. All right aft section of ceiling lights except the essential lights at station 787 right will extinguish.
      (10) Open CEILING - L AFT circuit breaker on circuit breaker panel P18. All left aft section of ceiling lights except the essential lights at station 707 left will extinguish.
      (11) Open CEILING - ESS - GRD SERV circuit breaker on circuit breaker panel P18. The remaining four essential lights will extinguish.
   B. Restore Airplane to Normal Configuration
      (1) Close all ceiling light circuit breakers on circuit breaker panel P18.
      (2) Position CEILING LIGHTS switches on attendant's panels to OFF.
      (3) Determine whether there is any further need for electrical power on airplane, if not, remove power.

CEILING LIGHTS - MAINTENANCE PRACTICES

1. General
   A. Fluorescent ceiling lights are mounted in the ceiling panels above the stowage bins. A typical ceiling light installation contains two fluorescent light assemblies, a ballast for the fluorescent lights and an incandescent lamp used for night illumination and/or standby light purposes. The ceiling panels are hinged on their lower outboard corners and swing down for easy maintenance. No special tools are required.
2. Relamp Fluorescent Ceiling Lights
   A. Provide electrical power.
   B. Set light switch on forward attendant's panel to bright. Identify fluorescent ceiling light lamp(s) that requires replacement.
   C. Set switch to OFF, and attach do-not-operate identifier.

      WARNING: HIGH VOLTAGE (260 VOLTS AC) IS USED FOR CEILING LIGHT OPERATION. FAILURE TO DISABLE CIRCUIT MAY CAUSE INJURY.

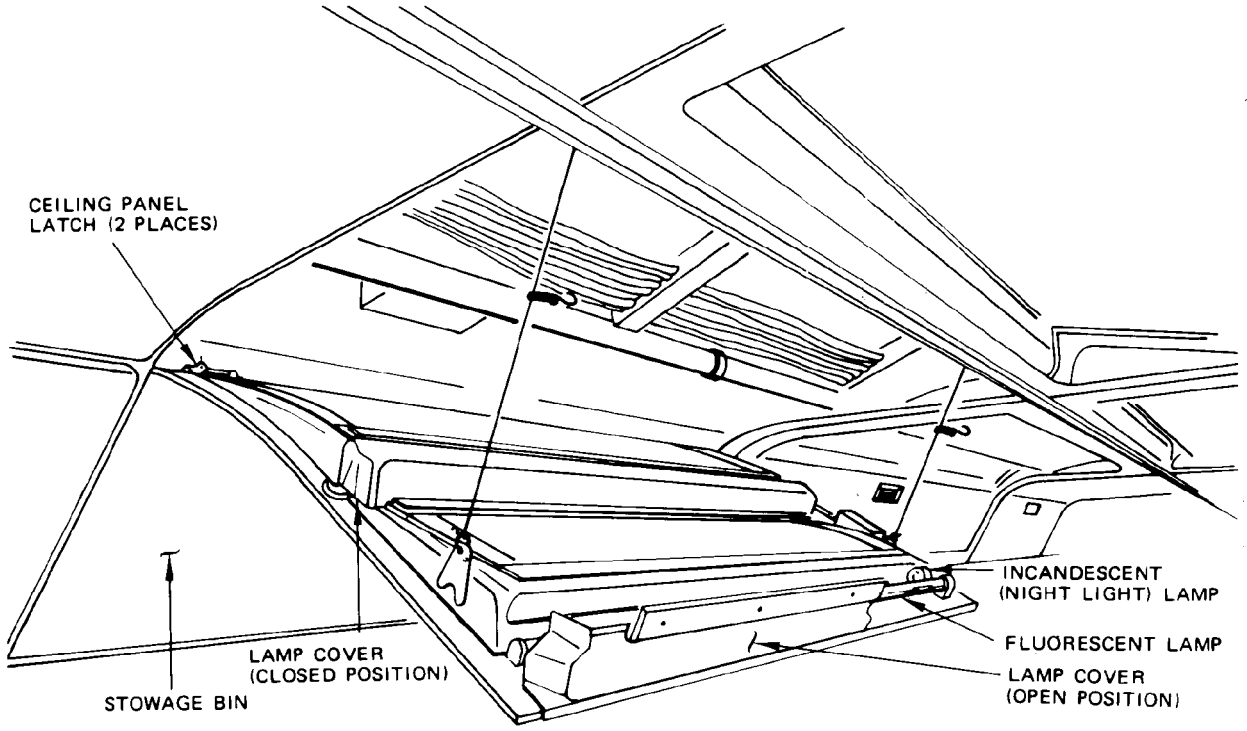
   D. Open stowage bin adjacent to ceiling panel with lamp to be replaced.
   E. Support upper inboard edge of ceiling panel with one hand, reach through stowage bin opening with other, and push up on trigger of each outboard ceiling panel latch mechanism (Fig. 201).

      NOTE: On some locations ceiling-mounted exit signs may interfere with the lowering of the ceiling panel. If this problem exists, remove exit sign assembly (Ref 33-50-91, R/I).

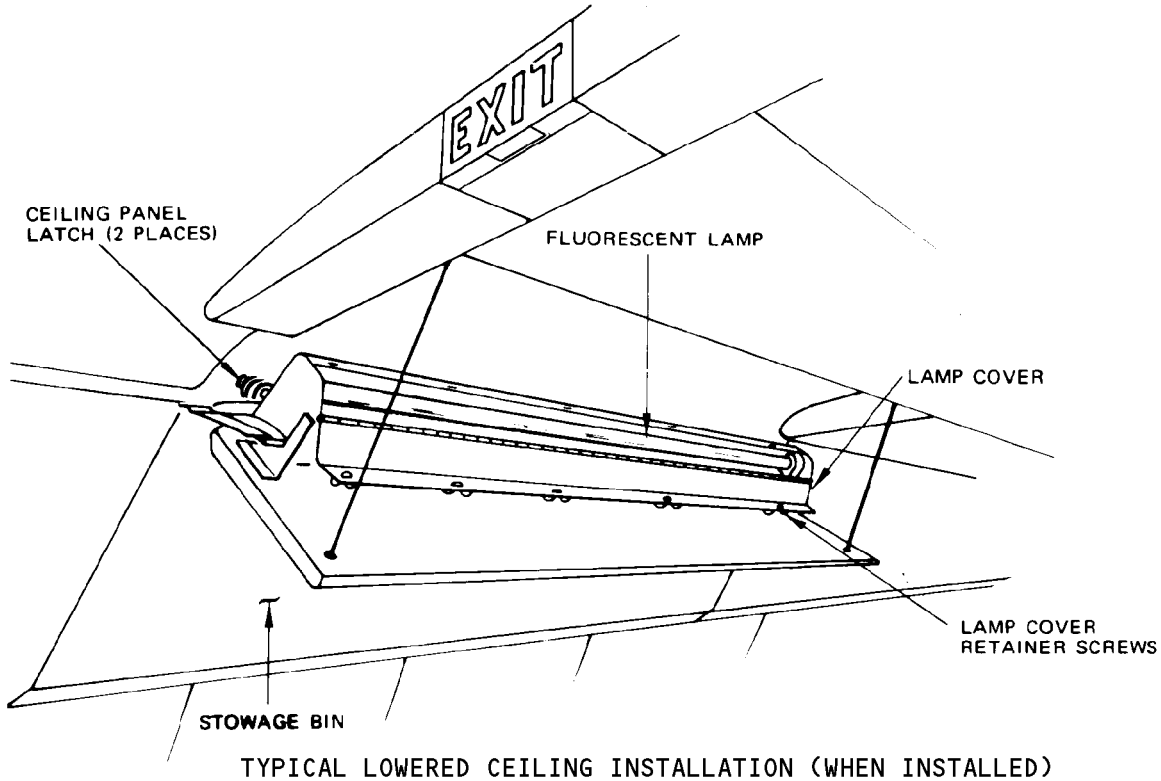
   F. Press upper inboard edge of ceiling panel in outboard direction until free of center support channel and drop inboard edge of ceiling panel until lanyard is taut.
   G. Release four captive screws on light assembly cover and rotate cover down and outboard.
   H. Grasp lamp, rotate 90 degrees, and remove.

      WARNING: OBSERVE NORMAL SAFETY PRECAUTIONS WHEN HANDLING FLUORESCENT LAMPS. BROKEN LAMPS MAY CAUSE INJURY.

   I. Remove protective cover.
   J. Install protective cover on new lamp.
   K. Insert replacement lamp rotate 90 degrees (until seated).
   L. Rotate lamp cover to closed position and tighten four screws.
   M. Test lamp.
      (1) Remove do-not-operate identifier and set switch on attendant's panel to BRIGHT. Check that lamp comes on.
      (2) Set switch to OFF.



TYPICAL RAISED CEILING INSTALLATION



TYPICAL LOWERED CEILING INSTALLATION (WHEN INSTALLED)

Ceiling Lights ReLamping
Figure 201

N. Raise ceiling panel to installed position pressing upper edge in outboard direction to clear support edge.

NOTE: Excess lengths of lanyard should be stowed along edge of ceiling panel so as to not wedge between panel and center support.

O. Move panel inboard to push inboard edge into support and push up on outboard edge to lock both outboard latches.
P. Check that flaps along edges of ceiling panel are overlapping adjacent panels properly.
Q. Close overhead stowage compartment beneath ceiling panel.
R. Remove electrical power if no longer required.

CEILING LIGHT BALLAST - REMOVAL/INSTALLATION

1. General
   A. Ballasts for the ceiling fluorescent lights are located on the same panel as the lights. Each ballast controls two fluorescent lamps.
2. Remove Ballast
   A. Open CEILING LIGHTS - LEFT PWR and RIGHT PWR circuit breakers on P18 load control center. Attach do-not-operate identifiers.

      WARNING: HIGH VOLTAGE (26OV AC) IS USED FOR CEILING LIGHT OPERATION. FAILURE TO DISABLE CIRCUIT MAY CAUSE INJURY.

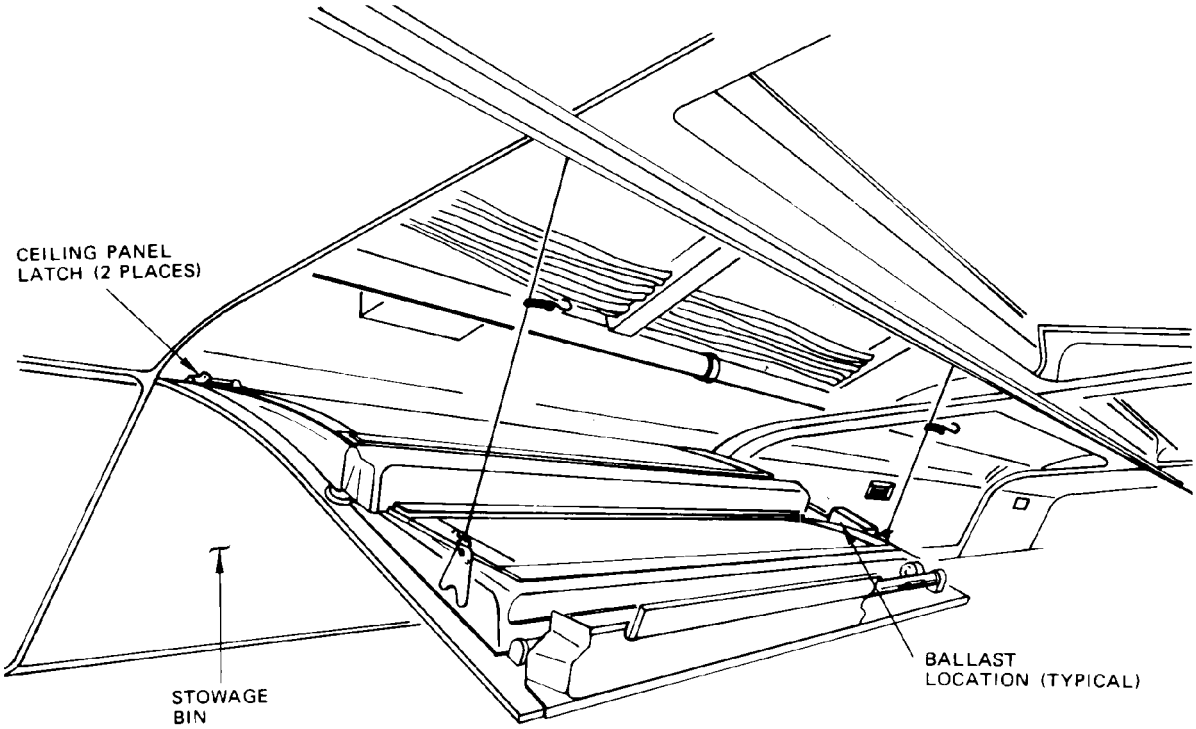
   B. Open stowage bin adjacent to ballast to be replaced.
   C. Support upper inboard edge of ceiling panel with one hand and reach through stowage bin opening with other and push up on trigger of each outboard ceiling panel latch mechanism.

      NOTE: On some locations ceiling-mounted exit signs may interfere with the lowering of the ceiling panel. If this problem exists, remove exit sign assembly (Ref 33-50-91, R/I).

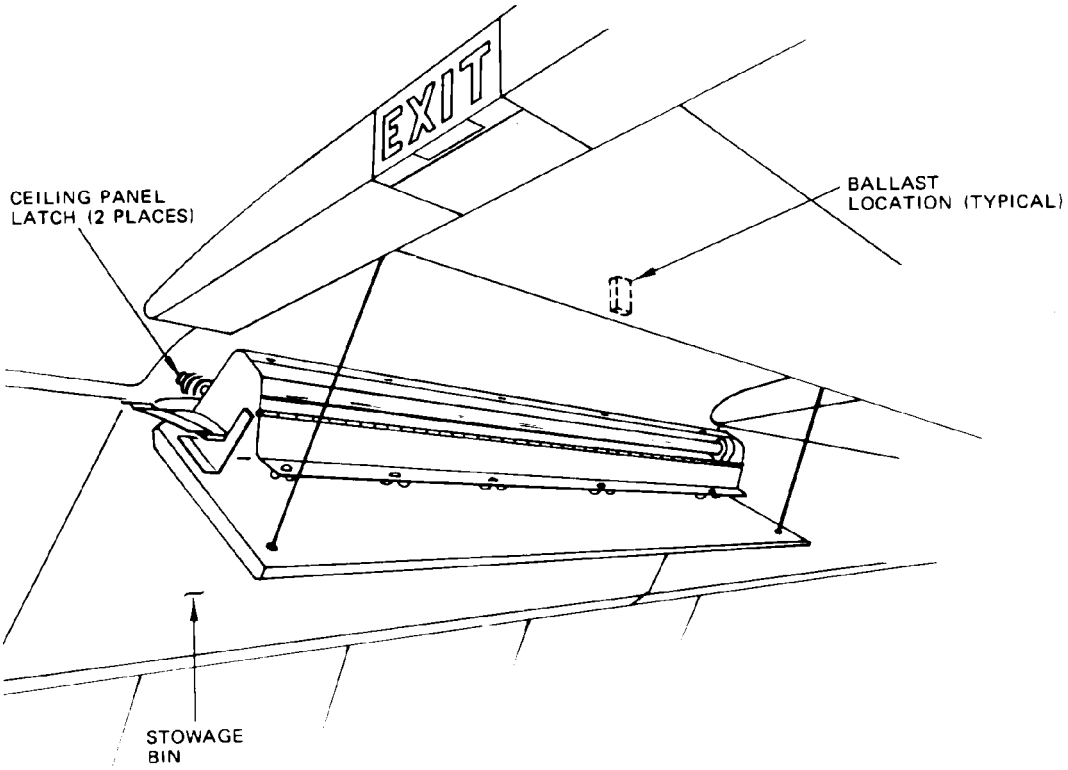
   D. Press upper inboard edge of ceiling panel outboard until free of support channel. Lower inboard edge of ceiling panel until lanyards are taut (Fig. 401).
   E. Remove protective shield from ballast terminals.
   F. Remove wire from terminals. Identify wires in accordance with terminals to facilitate replacement.
   G. Remove ballast mounting screws and remove ballast.
3. Install Ballast
   A. Install ballast and secure mounting screws.

      NOTE: Bonding jumper and washers, if installed, should be installed on replacement ballast.

   B. Attach wires to ballast terminals. Remove identifiers if used.
   C. Replace protective shields on wire terminals.
   D. Close CEILING LIGHTS - LEFT PWR and RIGHT PWR circuit breakers on P18 panel. Remove do-not-operate identifiers.
   E. Test Ballasts
      (1) Provide electrical power.
      (2) Set CEILING light switch on forward attendant's to DIM. Check that ceiling light(s) for replaced ballast come on in the dim mode.
      (3) Set switch to BRIGHT. Check that light(s) for replaced ballast come on in the bright mode.
      (4) Set switch to OFF.
      (5) Remove electrical power if no longer required.



TYPICAL RAISED CEILING INSTALLATION



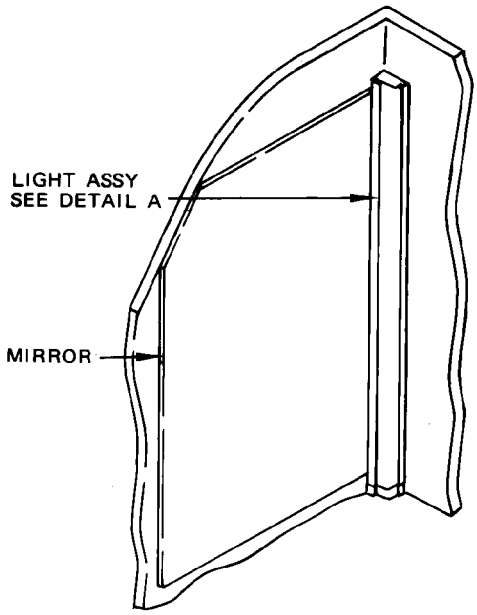
TYPICAL LOWERED CEILING INSTALLATION (WHEN INSTALLED)

Ceiling Lights ReLamping
Figure 401

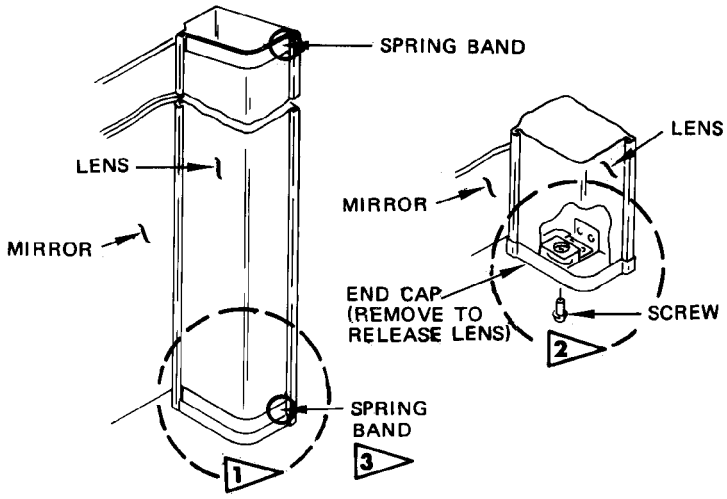
F. Close ceiling panel and check that latches are secure.
G. Close stowage bin and check that latch is secure.

LAVATORY LIGHTS - MAINTENANCE PRACTICES

1. General (Fig. 201)
   A. The lavatory mirror lights are mounted vertically along side of the mirror. The power to turn the lamp on is controlled by the lavatory door bolt operated switch. When external power is connected to the airplane and all buses are energized, the lavatory mirror lights receive 450-volt ac power with the door bolt switch in either the door open or door closed condition.
   B. Two types of fluorescent mirror lights are used.
      (1) One type has a spring metal band fastened to upper and lower edges of acrylic lens. This type of lens is rotated to expose lamps by pressing in on both spring bands and pulling applicable edge of lens out of engagement with light assembly housing. The lower end cap need not be removed. Lens is attached to light assembly by a cable.
      (2) The other type is rotated to expose lamps by removing lower end cap and then pressing applicable edge out of engagement with light assembly housing.
2. Relamp Fluorescent Light (Fig. 201)
   A. Open LAVATORY MIRROR LIGHTS circuit breaker on P18 panel and LAVATORY MIRROR LIGHTS circuit breaker on P6 panel.
   B. Gain access to lamps.
      (1) On light assemblies with spring bands on lens, press side of spring band until band and edge of lens are free of light assembly housing. Rotate lens.
      (2) On all other light assemblies, remove lower end cap. Press on sides of lens and rotate until free.
   C. Replace fluorescent lamps.
   D. Replace lens and check that it is firmly seated in light assembly housing.
   E. Install end cap if removed.
   F. Close circuit breakers opened in step A.
   G. Test lamps.
      (1) Provide electrical power.
      (2) Check that lamp comes on.
      (3) Remove electrical power if no longer required.
3. Relamp Lavatory Dome Light
   A. Open LAV DOME LIGHT circuit breaker on P18 panel.
   B. Relamp
      (1) Access to the lamp is obtained by pushing the plastic lens against spring pressure and rotating counterclockwise.
   C. Test Lamps
      (1) Provide electrical power.
      (2) Close LAV DOME LIGHT circuit breaker on P18 panel. Check that dome light comes on.
      (3) Remove electrical power if no longer required.



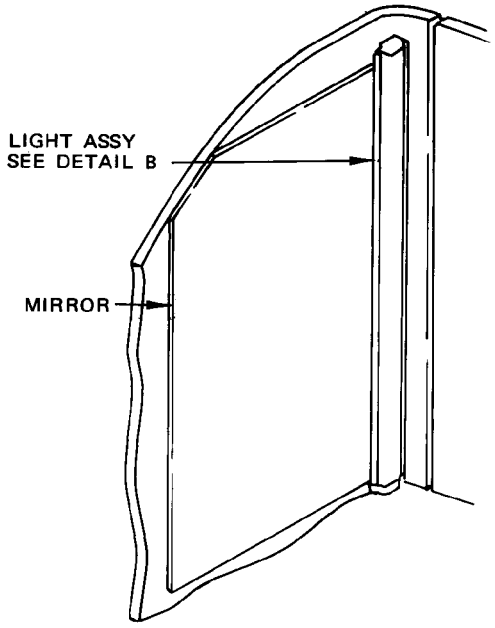
FWD LAVATORY MIRROR LIGHT



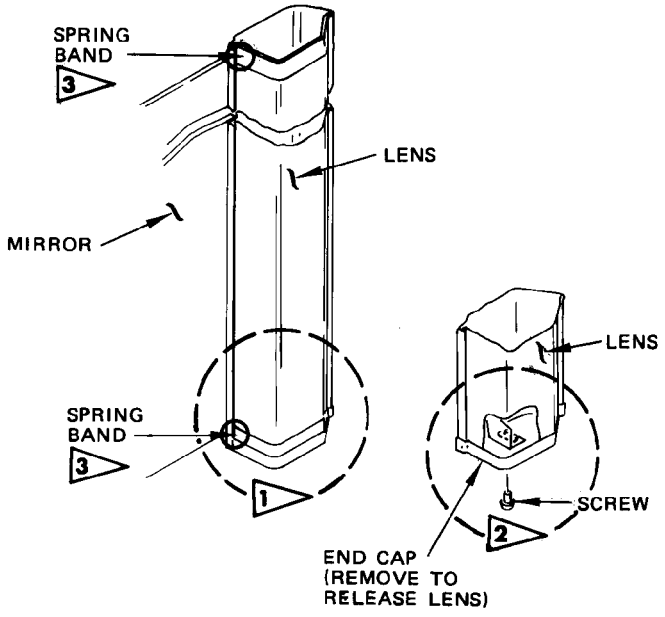
FORWARD LAVATORY FLUORESCENT MIRROR LIGHT

DETAIL A

1. LIGHT ASSEMBLIES WITH SPRING BAND LENS RETAINERS
2. OTHER LIGHT ASSEMBLIES
3. PRESS BANDS AT LOCATION SHOWN AND ROTATE LENS TO RELAMP



AFT LAVATORY MIRROR LIGHT



AFT LAVATORY FLUORESCENT MIRROR LIGHT

DETAIL B

Lavatory Fluorescent Lights
Figure 201

PASSENGER INFORMATION SIGNS - MAINTENANCE PRACTICES

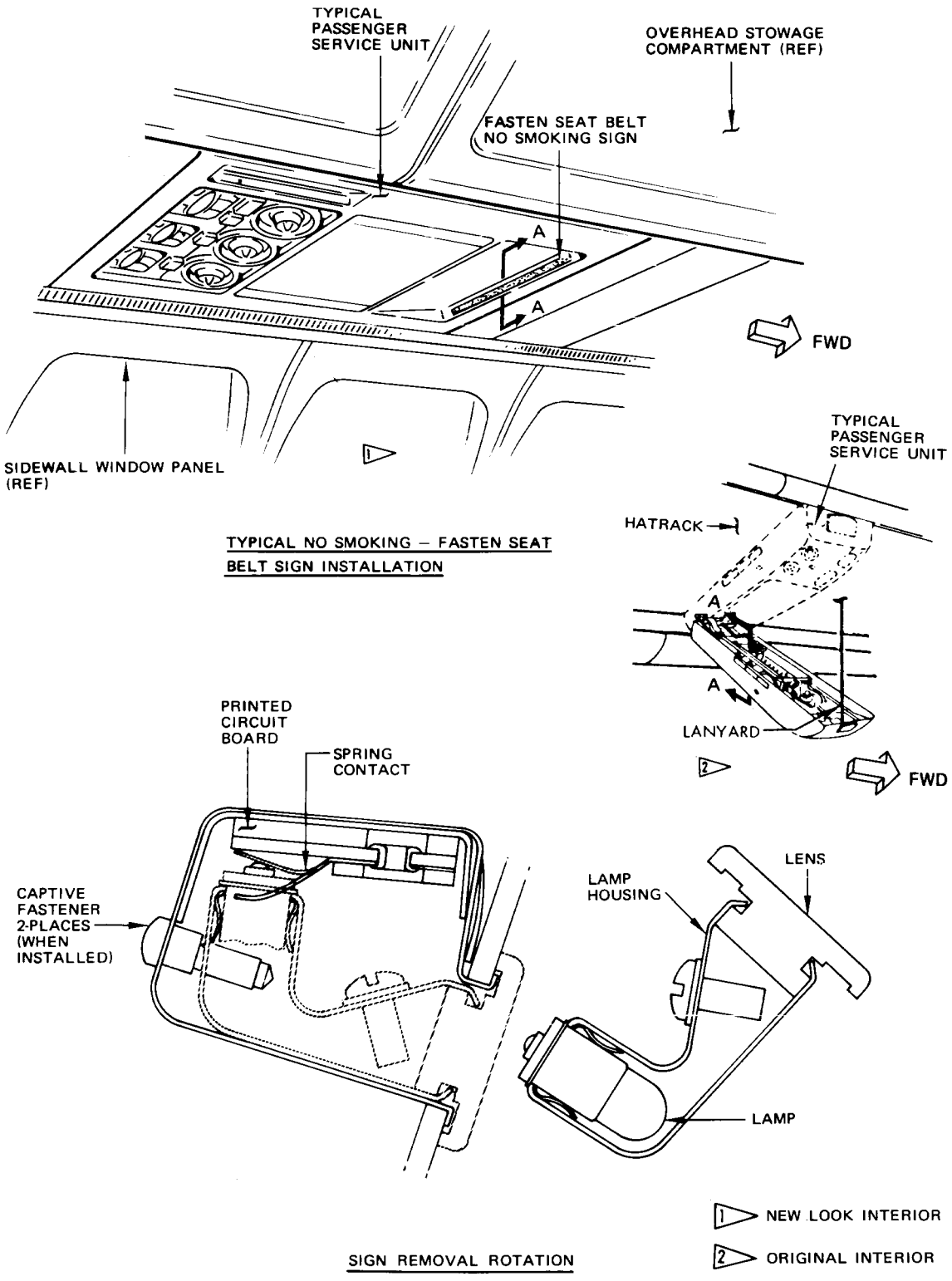
1. General
   A. Steps for relamping the no smoking, fasten seat belt and return to seat signs is provided in the following. The no smoking and fasten seat belts legends form a single sign module that is mounted in each PSU and on some vertical partitions. The return to seat signs are mounted in each lavatory. The no smoking and fasten seat belt sign switches on the pilots' overhead panel provide control.
2. Relamp No Smoking/Fasten Seat Belt Signs on PSU's
   A. Verify that the no smoking and fasten seat belt switches on pilots' overhead panel are set to off and attach a do-not-operate identifier.
   B. Lower PSU (and loosen two captive fastener on sign housing, when installed) and press on rear of lamp housing until free of retaining spring clips. (See figure 201.)

      CAUTION: DO NOT PRY ON LENS TO FREE LAMP ASSEMBLY. LENS MAY BREAK.

   C. Pull sign outboard and upward until lens and lamp housing assembly is removed. (See figure 201.)
   D. Replace lamps.
   E. Insert lens and lamp housing assembly and firmly press into place.

      CAUTION: DO NOT INSTALL LENS AND LAMP HOUSING ASSEMBLY WITH ANY LAMP(S) MISSING. A MISSING LAMP MAY ALLOW SPRING CONTACT TO TOUCH LAMP SOCKET PROVIDING SHORT CIRCUIT TO GROUND.

   F. Tighten two captive fasteners, when installed, on rear of sign module and raise PSU. (See figure 201.)
   G. Test lamps.
      (1) Provide electrical power.
      (2) Remove do-not-operate identifiers and set no smoking and fasten seat belt switches on pilots' overhead panel to on. Check that both the no smoking and fasten seat belt legends on relamped sign are illuminated.
      (3) Set switches to off.
      (4) Remove electrical power if no longer required.
3. Relamp Signs on Vertical Partitions
   A. General
      (1) Signs mounted on vertical partitions are accessible from the front side only. The signs can be removed and installed from the front side without special tools. Two types of signs are used. One is flush-mounted and is similar in appearance to the signs on the PSU's. The other type is framed by a bezel assembly. The lens assemblies for both types are held in place by spring clips and are pulled outward for relamping. (See figure 201.)



Passenger Information Sign Relamping
Figure 201

B. Verify that no-smoking and fasten-seat-belt sign switches on pilots' overhead panel are set to off and attach do-not-operate identifier.
C. Pull lens assembly from partition. (See figure 202.)

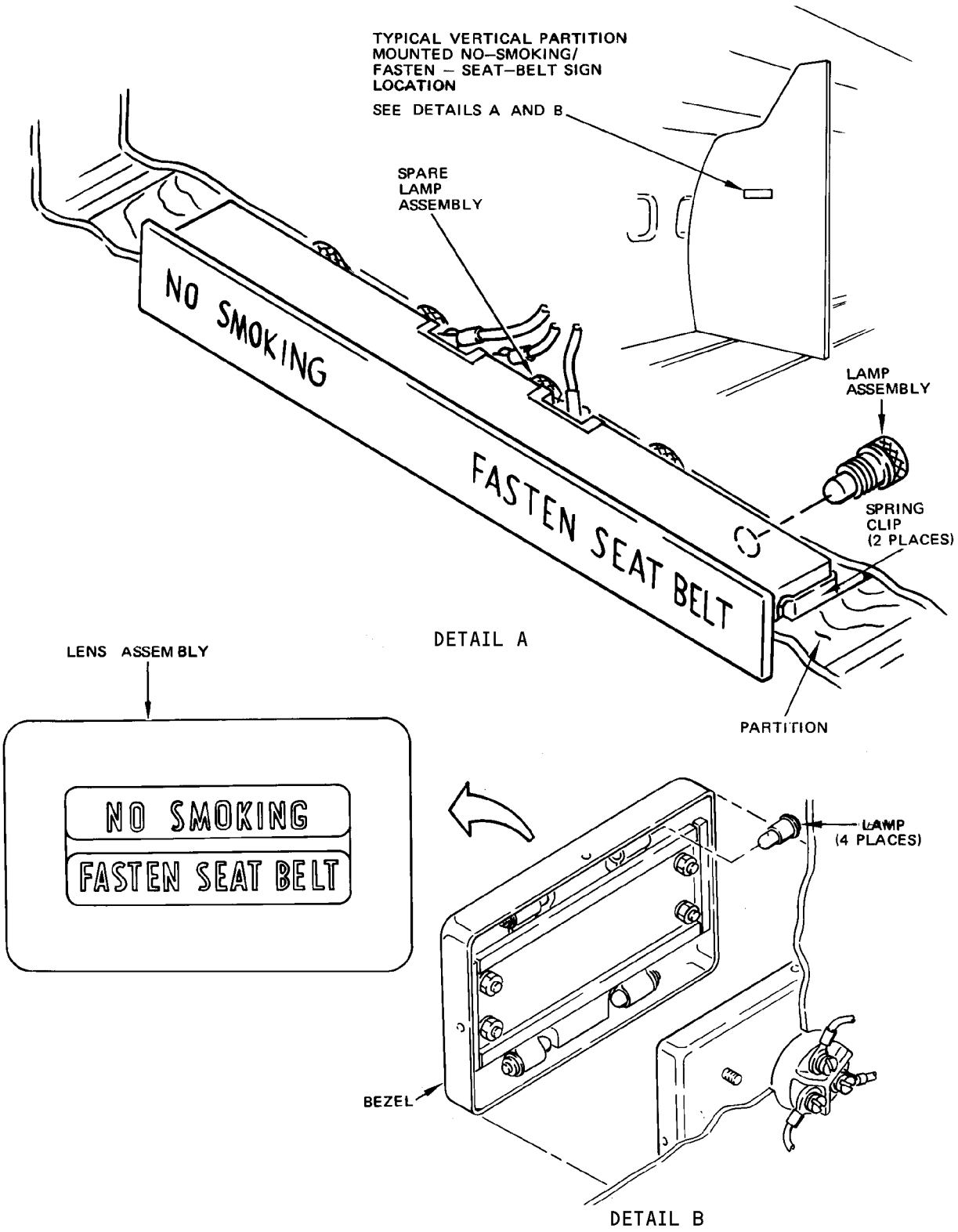
CAUTION: AVOID DAMAGING PARTITION SURFACE OR SIGN FINISH.

D. Replace lamps or lamp assemblies as applicable. (See figure 202.)
E. Install lens assembly. Press lens assembly into position.
F. Test lamps.
(1) Provide electrical power.
(2) Remove do-not-operate identifiers and set no smoking and fasten seat belt switches on pilots' overhead panel to on. Check that both the no smoking and fasten seat belt legends on relamped sign are illuminated.
(3) Set switches to off.
(4) Remove electrical power if no longer required.

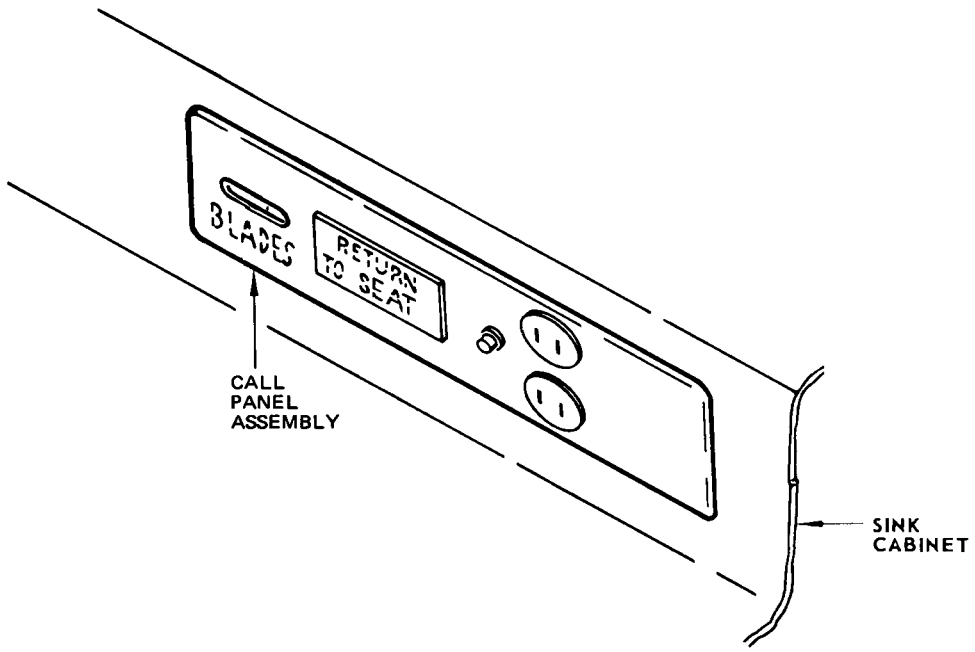
4. Relamp Return-to-Seat Sign
A. Verify that the fasten seat belt switch on the pilots' overhead panel is set to off and attach a do-not-operate identifier.
B. Pull out call panel assembly. (Fig. 202)

NOTE: Call panel assembly is attached by spring catches. A thin piece of plastic may be useful in prying call panel assembly loose.

C. Relamp.
D. Press call panel assembly into installed position until spring cables are fully engaged.
E. Test Lamp
(1) Provide electrical power.
(2) Remove do-not-operate identifier and set fasten seat belt switch on pilots' overhead panel to on. Check that relamped sign illuminates.
(3) Set switch to off.
(4) Remove electrical power if no longer required.



Typical Vertical Partition Sign Installations
Figure 202



Lavatory Call Panel Installation
Figure 203

PASSENGER INFORMATION SIGNS - ADJUSTMENT/TEST

1. General
   A. This procedure provides steps necessary to system test the passenger information signs electrical circuitry with the airplane on the ground.

      NOTE: The low tone chime should sound over the PA system each time the signs come on and go off (Ref 23-31-0, Passenger Address System).

   B. Landing gear downlock pins should be installed during portions of test requiring movement of landing gear control lever. In addition, trailing edge flap extension and retraction is required.
2. Prepare for Test
   A. Provide electrical power.
   B. Check that no-smoking sign and fasten-seat-belt sign switches on pilots' overhead panel are set to OFF.
   C. Check that passenger sign circuit breakers on P18-3 are closed.
   D. Check that trailing edge flaps are in up position.
   E. Check that all landing gear ground locks are installed.
   F. Move landing gear control handle to OFF position.
3. Test Passenger Information Signs
   A. Check that no-smoking, fasten-seat-belt and return-to-seat signs are off.
   B. Set no-smoking sign and fasten-seat-belt sign switches on pilots' overhead panel to AUTO. Check that signs remain off.
   C. Extend trailing edge flaps. Check that fasten-seat-belt signs and return-to-seat signs come on.
   D. Retract trailing edge flaps. Check that signs go off.
   E. Move landing gear control lever to DOWN position. Check that no-smoking, fasten-seat-belt and return-to-seat signs come on.
   F. Move landing gear control handle to OFF position. Check that signs go off.
   G. Set no-smoking and fasten-seat-belt sign switches to OFF and move landing gear control lever to DOWN position.
   H. Set no-smoking sign switch to ON. Check that no-smoking signs come on.
   I. Set switch to OFF. Check that signs go off.
   J. Set fasten-seat-belt sign switch to ON. Check that fasten-seat-belt and return-to-seat signs come on.
   K. Set switch to OFF. Check that signs go off.
4. Restore Airplane to Normal
   A. Restore flaps to original setting if required.
   B. Check that landing gear switch is in DOWN position. Remove landing gear ground locks if no longer required.
   C. Remove electrical power if no longer required.

WINDOW LIGHTS - MAINTENANCE PRACTICES

1. General
   A. Window lights are installed in sidewall panels above each window. The window light assemblies are retained by two quick-release fasteners in the light molding and can be easily removed for relamping or replacement.
2. Relamp Window Light
   A. Provide electrical power.
   B. Set WINDOW light switch on attendant's panel to ON. Identify lamp(s) to be replaced.
   C. Set switch to OFF. Attach a do-not-operate identifier.

      WARNING: HIGH VOLTAGE (200V AC) IS USED FOR WINDOW LIGHT OPERATION. FAILURE TO DISABLE CIRCUIT MAY CAUSE INJURY.

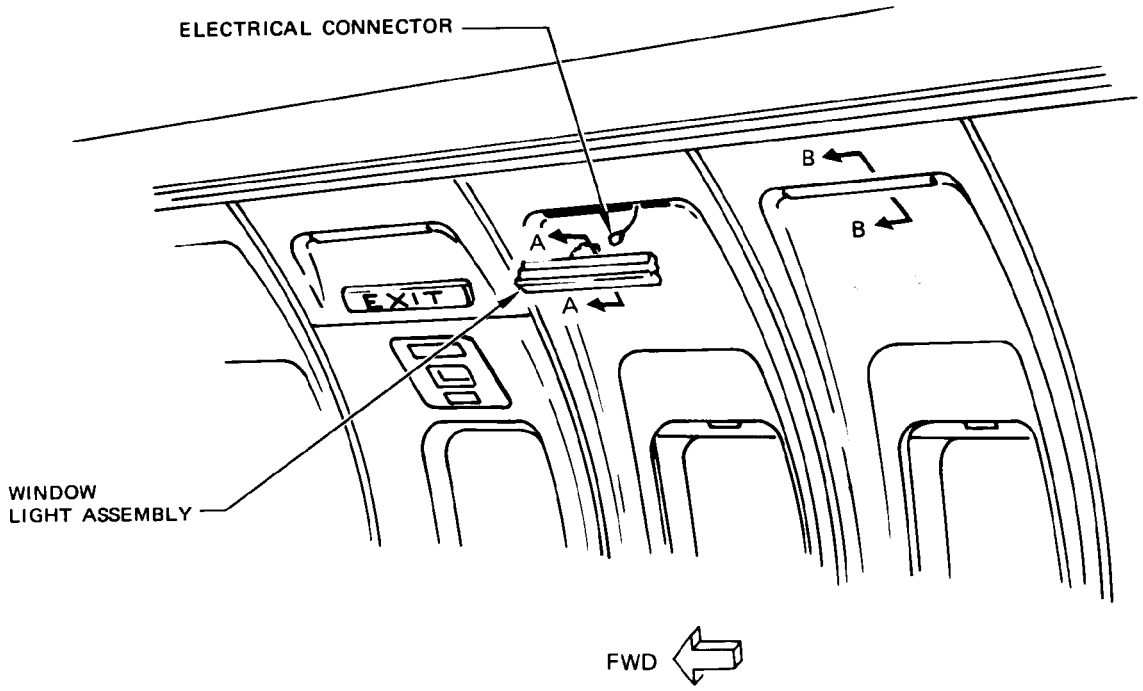
   D. Loosen two captive fasteners and pull window light assembly from sidewall panel (Fig. 201).
   E. Press center of lamp housing (side opposite hinges) and swing lens assembly on hinges until lamp is exposed (Fig. 201).
   F. Relamp.

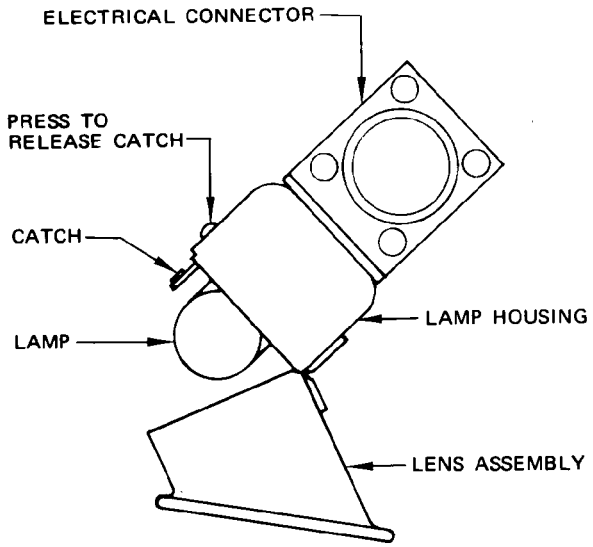
      WARNING: OBSERVE NORMAL SAFETY PRECAUTIONS WHEN HANDLING FLUORESCENT LAMPS. BROKEN LAMPS MAY CAUSE INJURY.

   G. Close lens assembly. Check that catch is engaged.
   H. Position light assembly in sidewall panel and secure two captive screws. I Test lamp.
   I. Test lamp.
      (1) Remove do-not-operate identifier and set WINDOW light switch to ON. Check that light comes on.
      (2) Set switch to OFF.
   J. Remove electrical power if no longer required.
3. Replace Window Light Assembly
   A. Open WINDOW LIGHT circuit breaker on P18 load control center. Attach do-not-operate identifiers.

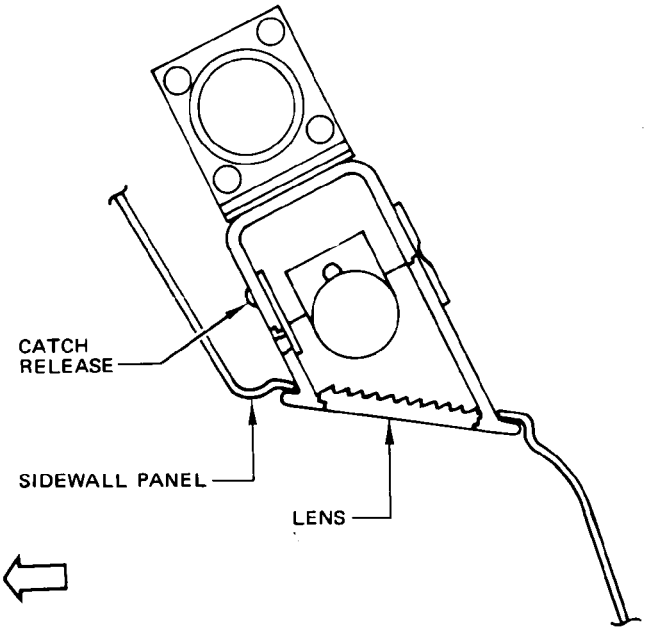
      WARNING: HIGH VOLTAGE (200V AC) IS USED FOR WINDOW LIGHT OPERATION. FAILURE TO DISABLE CIRCUIT MAY CAUSE INJURY.

   B. Loosen two screws and pull light assembly from sidewall panel.
   C. Disconnect electrical connector and remove light assembly.
   D. Connect electrical connector and install replacement light assembly.
   E. Install light assembly and secure two captive fasteners.
   F. Close WINDOW LIGHT circuit breaker on P18 load control center. Remove do-not-operate identifiers.





LIGHT ASSEMBLY IN RELAMPING POSITION
SECTION A-A



INSTALLED WINDOW LIGHT
SECTION B-B

Window Lights Installation
Figure 201

G. Test Window Light Assembly
   (1) Provide electrical power.
   (2) Set WINDOW light switch on attendant's panel to ON. Check that replaced light assembly is operative.
   (3) Set switch to OFF.
   (4) Remove electrical power if no longer required.

WINDOW LIGHT BALLAST - REMOVAL/INSTALLATION

1. General
   A. Window light ballasts are located outboard of PSU's (mounted to fuselage frames). Access to ballasts is by lowering PSU's. Most ballasts control two window light fluorescent lamps; however, single lamp ballasts may be installed on end-locations where a second window light is not available.
   B. The ballasts have pigtail wires (do not have terminals) which are connected to the electrical connectors for the lamps and an electrical connector (when installed) to the airplane wire bundle. It is recommended that ballasts be wired to electrical connectors and the assembly (ballasts, wiring, and connectors) be replaced as a unit.
   C. The three ac ground wires, one for each light assembly and one for the ballast, are connected to a common grounding stud. The ground stud is fastened to the airplane structure behind the insulation blankets. These wires may be cut and spliced to facilitate removal and installation of ballast assembly with wiring attached (Fig. 401, Detail A).
2. Remove Ballast
   A. Open WINDOW LIGHT circuit breaker on P18 load control center panel. Attach do-not-operate identifier.

      WARNING: HIGH VOLTAGE (200 VOLTS AC) IS USED FOR WINDOW LIGHT CIRCUIT. FAILURE TO DISABLE MAY CAUSE INJURY.

   B. Loosen two captive fasteners on each window light controlled by ballast and pull lights from mounting.
   C. Disconnect electrical connectors and remove window light assemblies. Tie strings to connectors to facilitate installation of replacement (Fig. 401).
   D. Insert small rod or similar device into hole near each inboard corner of PSU and push to release latch (use care not to mar PSU surface), and lower PSU until lanyard is taut.

      CAUTION: DO NOT LOWER PSU BEYOND VERTICAL POSITION. IF OPENED OUTBOARD BEYOND VERTICAL, UNIT MAY BE DAMAGED.

   E. Disconnect electrical connector to ships wire bundle and free wire to ballast.
   F. Disconnect three wires from ac ground stud and free wires from airplane wiring if required.

      NOTE: Wires may be cut to facilitate removal. When cutting wires, provide sufficient length for splicing on installation per airline standard practices.

   G. Remove two mounting screws from ballast (opposite end held by clips).

H. Pull ballast and wiring to lights from installation. Remove strings from connectors.

3. Install Ballast

A. Install ballast by placing one end in mounting clips, connecting bonding jumper and securing two mounting screws.

B. Using strings, guide window light electrical connectors to window light openings.

C. Remove strings and connect window lights to electrical connectors.

D. Install window lights and secure quick-release fasteners (two per light).

E. Connect electrical connector to airplane wire bundle.

F. Connect three ground wires to ground terminal.

NOTE: If wires to ground terminal were cut, splice wires on installation in accordance with standard airline practices.

G. Retie loose wire to airplane wire bundle as required.

H. Raise PSU and check that latches are engaged.

I. Close WINDOW LIGHT circuit breaker on P18 load control center panel. Remove do-not-operate identifier.

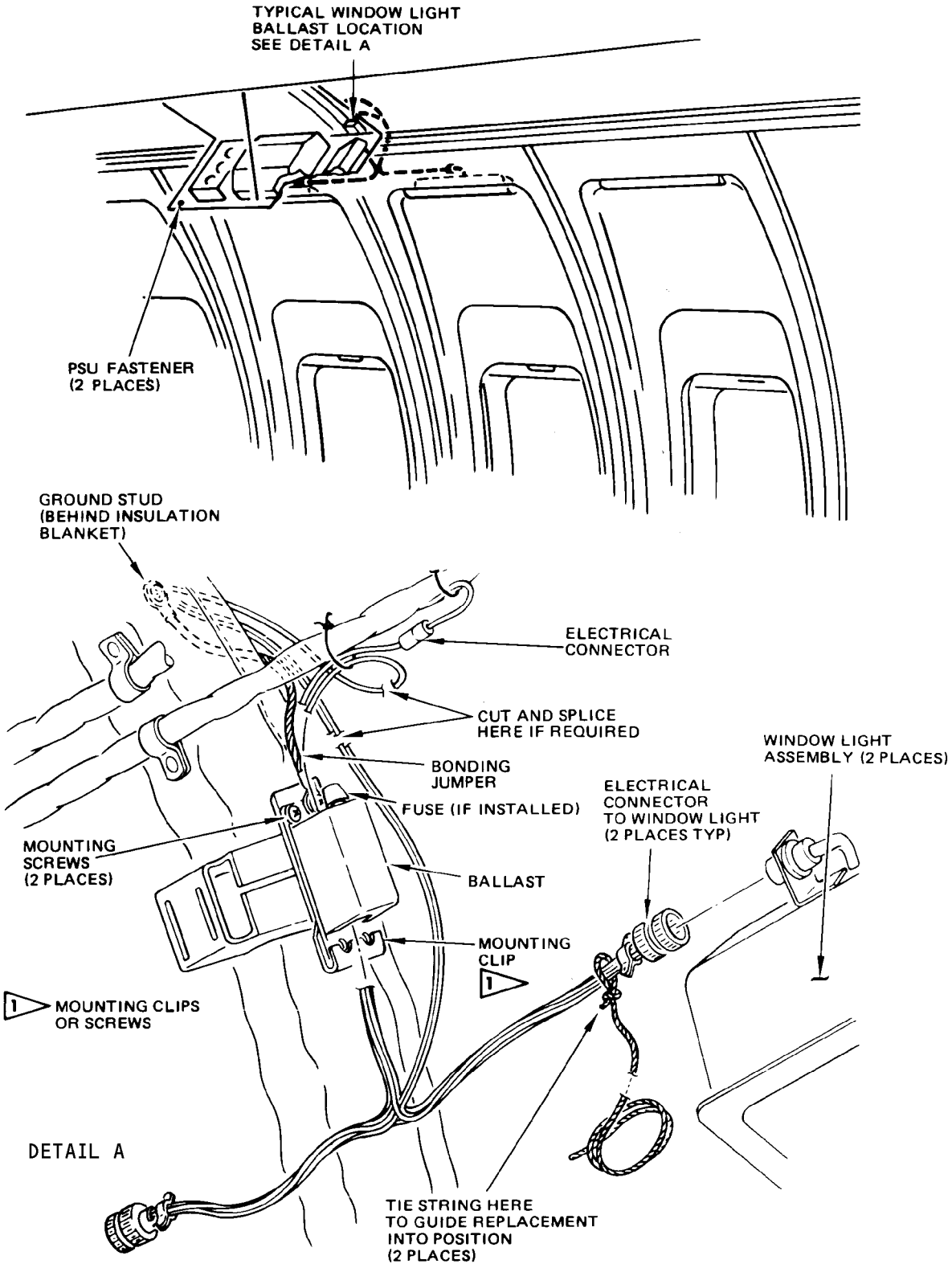
J. Test Ballast

(1) Provide electrical power.

(2) Set WINDOW light switch on attendant's panel to ON. Check that lights controlled by replaced ballast operate.

(3) Set switch to OFF.

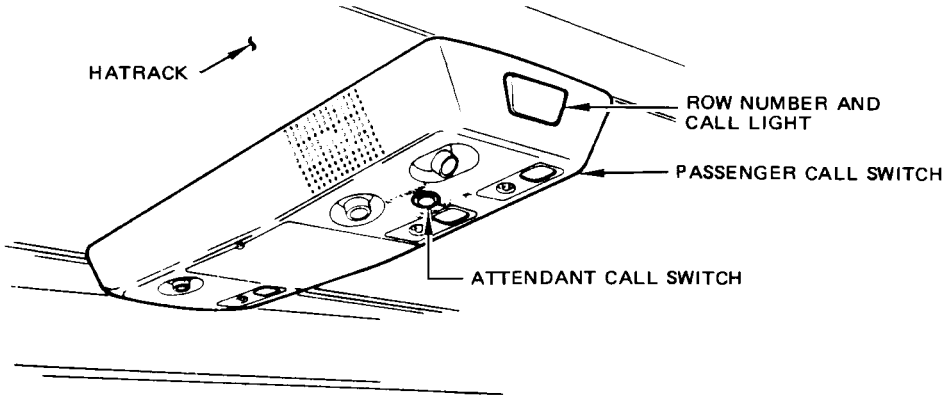
(4) Remove electrical power if no longer required.



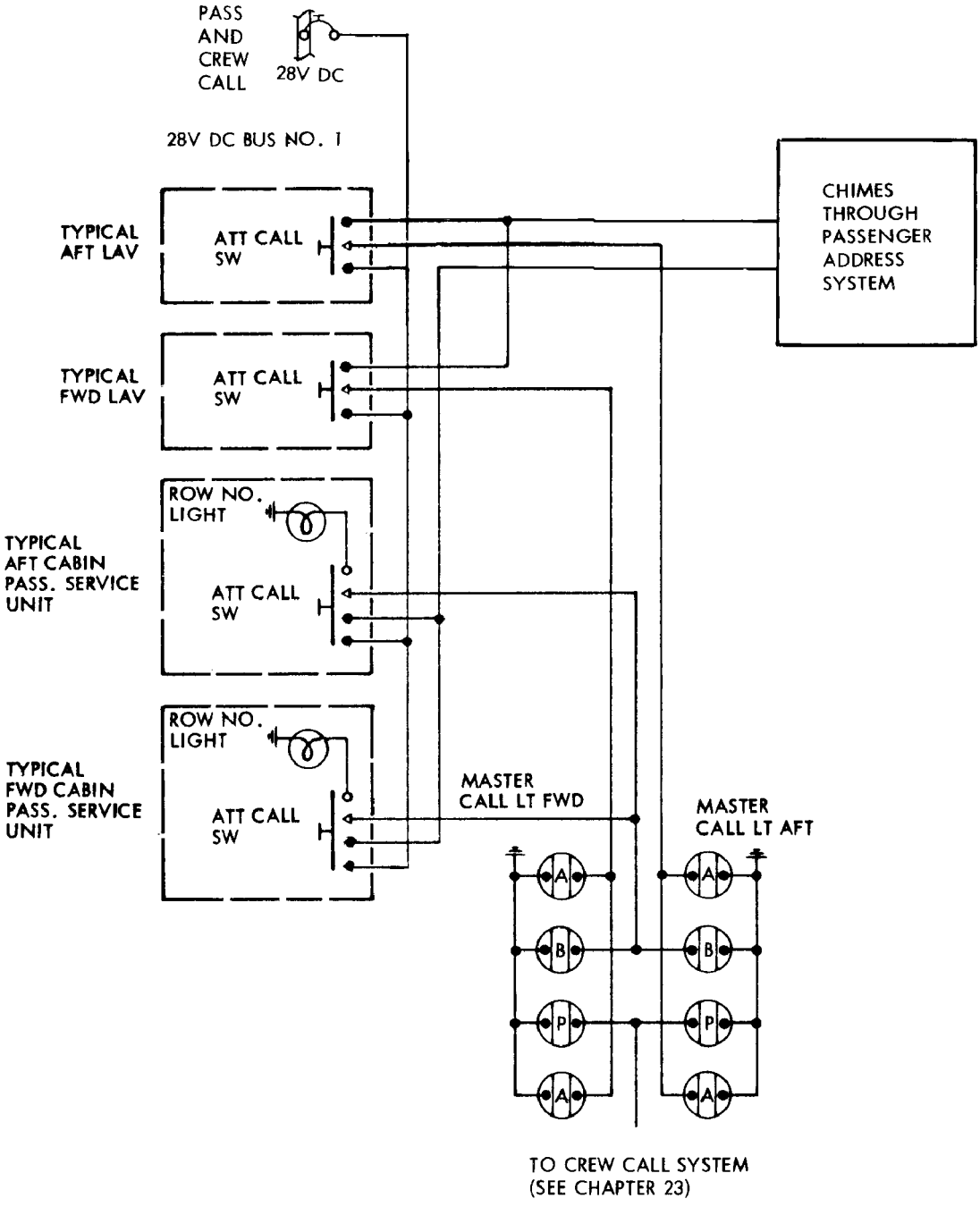
Window Light Ballast Installation
Figure 401

PASSENGER CALL SYSTEM - DESCRIPTION AND OPERATION

1. General
   A. The passenger call system is an electrical communication system which provides visual and audible signals for calling the attention of attendants.
   B. The call system consists of a pushbutton switch and the row number and call light on each passenger service unit, a pushbutton call switch in each lavatory, forward and aft master call lights on the passenger cabin lowered ceiling areas, and chime signals (Fig. 1 and 2). The call system is operated by 28-volt dc power through the PASSENGER AND CREW CALL circuit breaker on circuit breaker panel P18-4. The chime signals are broadcasted through the passenger address system (Ref Chapter 23, Communications).
   C. A passenger in any of the passenger in any of the passenger seats can call an attendant by pressing the attendant call switch on the passenger service unit. The passenger cabin chimes will sound a single one-tone stroke, and the master call blue lights and the row number light on the respective passenger service unit will illuminate. The lights will remain on until the attendant call switch on the passenger service unit is pulled out.
   D. A passenger occupying the washroom or any one of the lavatories can call an attendant by pressing the attendant call button switch in the compartment. The passenger cabin chimes will sound a single one-tone stroke. The two master call amber lights and the proper lavatory call light will illuminate. The lights will remain on until the proper switch button is pulled out.
   E. Turning on the FASTEN SEAT BELTS or NO SMOKING switch on the overhead panel will illuminate the respective passenger signs and operate the passenger cabin low one-tone chimes. Returning the switch to the off position will shut off the signs.



Passenger Call System Component Location
Figure 1



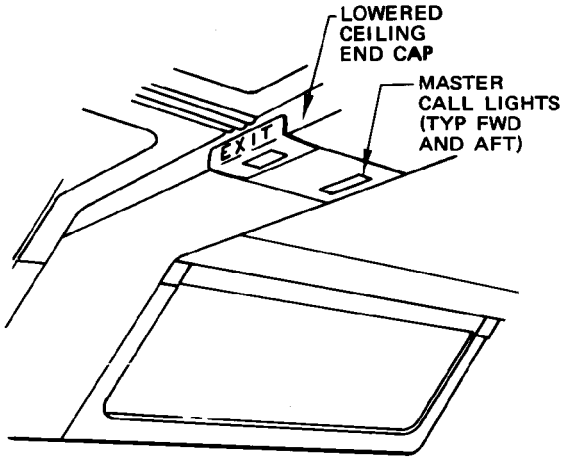
Passenger Call System Circuit
Figure 2

TROUBLE	PROBABLE CAUSE	ISOLATION PROCEDURE	REMEDY
Chime does not sound when call switch pushed. Other, indications normal.	Call switch	Try another call switch. If other call switch OK	Replace call switch
	PA amplifier	If other call switches also fail to operate	Trouble shoot PA amplifier (Ref Chapter 23)
Call light on PSU does not come on when call switch pushed.	Lamp or switch	None needed.	Relamp - If still not OK - Replace call switch
Master call light does not come on when call switch is pushed,other indications normal.	Lamp or switch	Try another call switch. If master call light comes on	Replace call switch
		If master call light is off after trying more than one switch.	Relamp

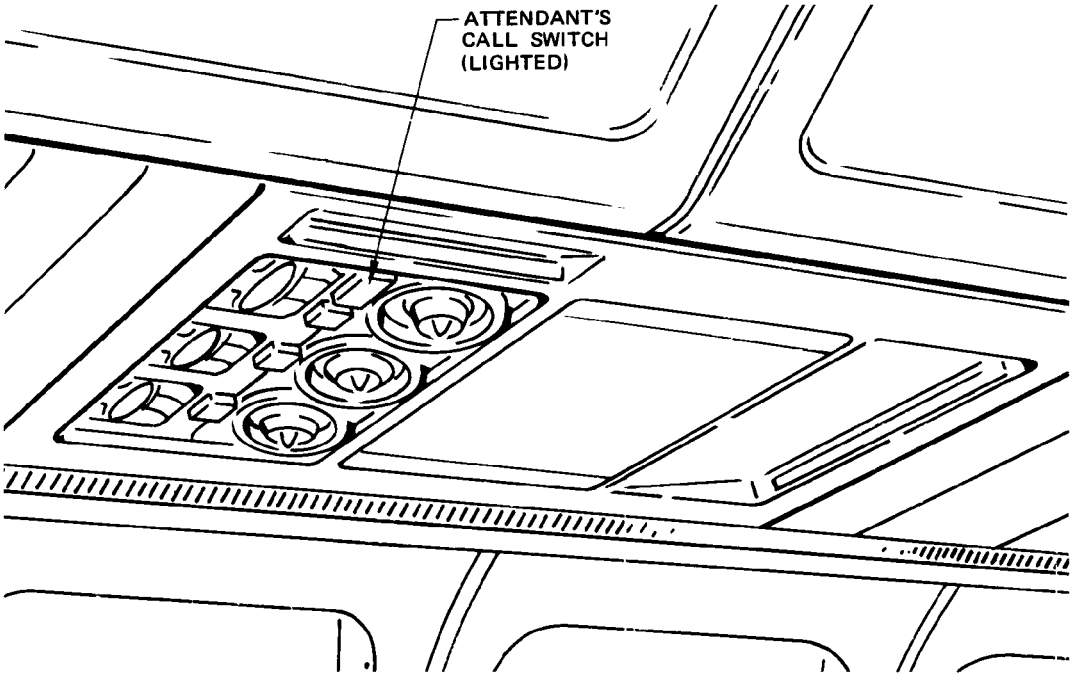
Passenger Call System - Troubleshooting
Figure 101

PASSENGER CALL SYSTEM - DESCRIPTION AND OPERATION

1. General
   A. The attendant call system enables individual passengers to signal attendants for assistance. ATTENDANT CALL buttons are located on each passenger service unit in the passenger cabin and in each lavatory. Pressing a call button sounds a high-tone chime over the passenger address system and turns on lights to identify source of call (Fig. 1).
   B. The 28-volt dc bus No. 1 supplies system electrical power from the passenger and crew call circuit breaker on the P18 panel. The passenger call circuit is electrically connected to the passenger address system high-tone chime sound input (Ref 23-31-0, Passenger Address System).
2. Passenger Seat Calls
   A. A push-on, push-off, ATTENDANT CALL switch is located on each passenger service unit. Pressing the attendant call switch provides 28 volts dc to the switch light on the PSU and a blue master call light on the lowered ceiling, and momentarily provides 28 volts dc to the passenger address amplifier high-tone chime input. This sounds a single high-tone chime over the PA speakers and turns the row number and master call lights on. Again pressing the attendant call switch on the PSU turns the switch and master call lights off (Fig. 2).
   B. The passenger seat master call lights are located on the forward and the aft lowered ceilings. The forward master call light will come on for calls originating in the forward attendant's service area. The aft master call lights will come on for calls from the aft attendant's service area.
3. Passenger Lavatory Calls
   A. A push-on, pull-off ATTENDANT CALL pushbutton switch is located in each lavatory. Pressing the attendant call switch provides 28 volts dc momentarily to the passenger address amplifier high-tone chime input and to two amber lights in the applicable master call module as long as the switch is left in the pushed position. This sounds a high-tone chime over the PA speakers and causes the amber master call light on the adjacent lowered ceiling to come on. Pulling the attendant call switch in the lavatory turns the amber call lights off and returns the circuit to ready condition (Fig. 2).

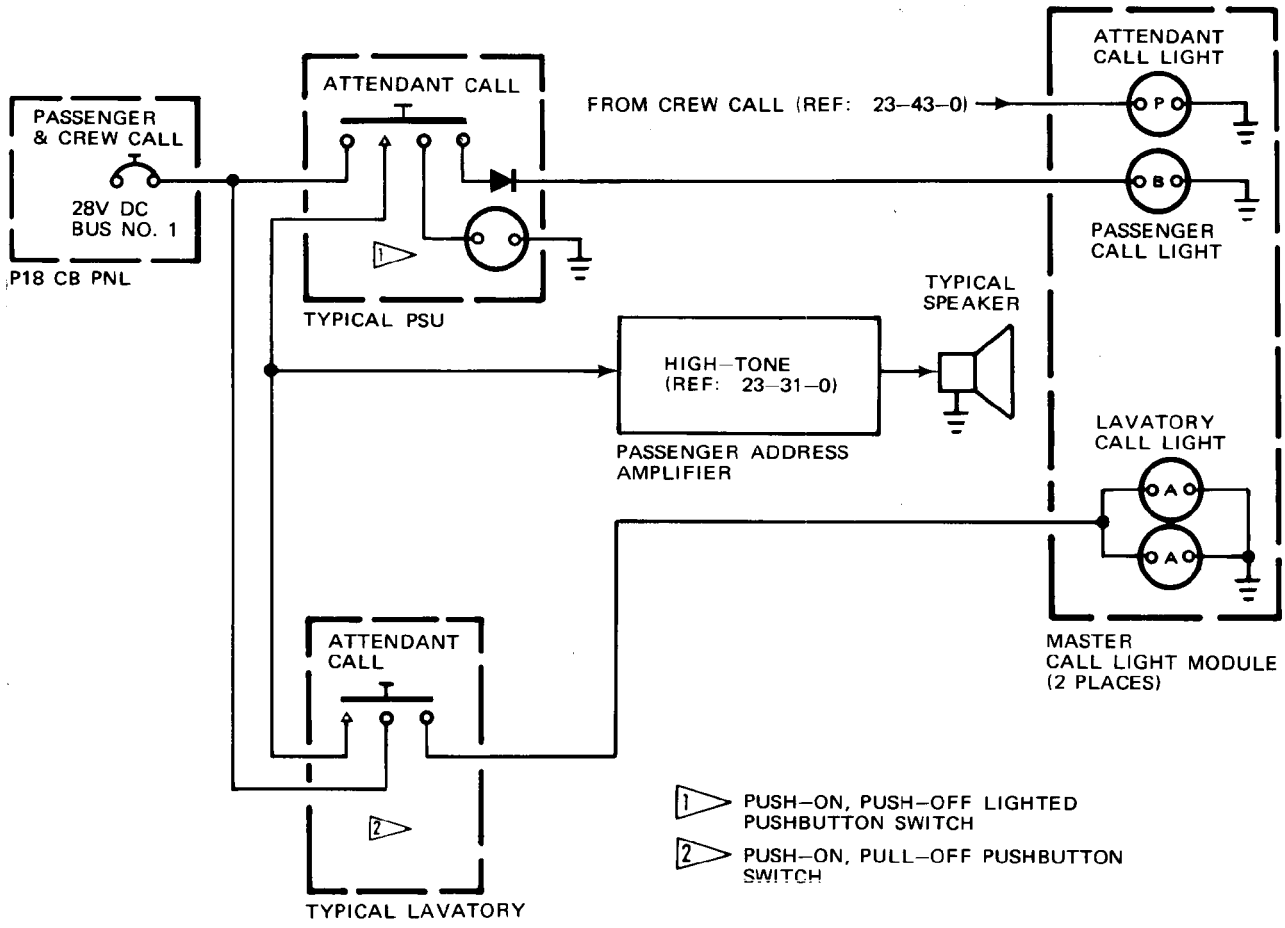


TYPICAL MASTER CALL LIGHT INSTALLATION



TYPICAL PSU INSTALLATION

Passenger Call System Component Location
Figure 1



Passenger Call Simplified Schematic
Figure 2

461587

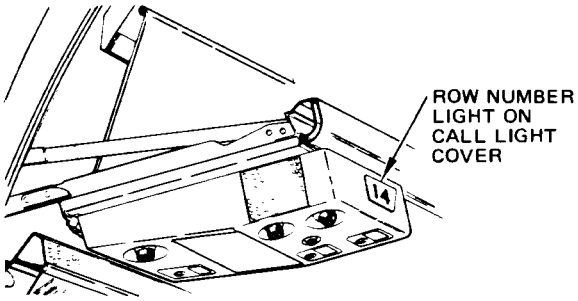
TROUBLE	PROBABLE CAUSE	ISOLATION PROCEDURE	REMEDY
Chime does not sound when call switch activated. Other indications normal.		Activate another call switch.	
	Call switch	If chime sounds -	Replace switch
	PA amplifier	If chime fails to sound -	Trouble shoot PA amplifier (Ref Chapter 23)
Call switch light on PSU does not come on when switch is activated. Other indications normal.	Switch lamp or switch	_____	Relamp. If not OK, replace switch.
Master call light on lowered ceiling (forward or aft) does not come on when call light		Activate another call switch.	
	Call switch	If light comes on.	Replace call switch
	Master call light	If light remains off.	Relamp master call light.

Passenger Call System - Troubleshooting
Figure 101

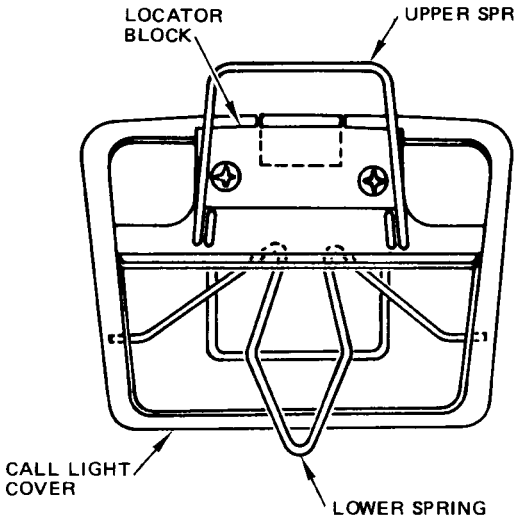
461588

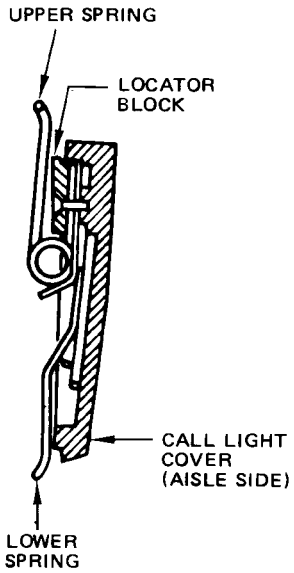
CALL LIGHT COVER - REMOVAL/INSTALLATION

1. Remove Call Light Cover
   A. Pull out at upper end to clear locator block (Fig. 401).
   B. Slide cover up about 1/4 inch to clear lower spring.
   C. Slide cover down and out to remove.
2. Install Call Light Cover
   A. Insert upper spring in opening in passenger service unit.
   B. Slide up till locator block touches edge of opening.
   C. Pull out on top to clear locator block and slide up until lower spring goes into opening.
   D. Slide down and then side to side until cover seats in opening.



PASSENGER SERVICE UNIT





Call Light Cover
Figure 401

TERMINAL MODULE - REMOVAL/INSTALLATION

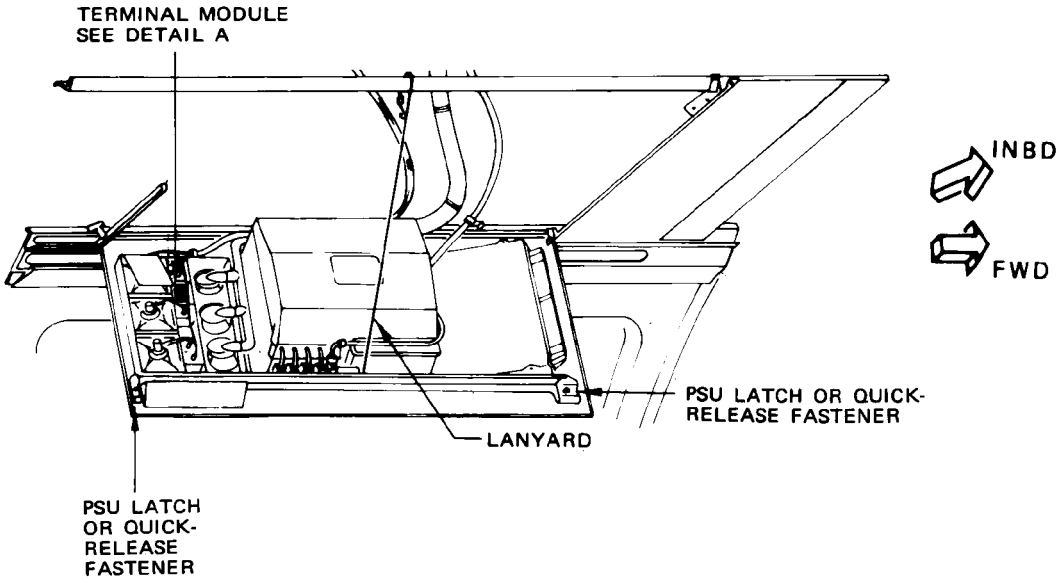
1. General
   A. Terminal modules comprised of terminal blocks, spacer, and track are mounted inside passenger service units, adjacent to the attendant call switches. The modules serve as a rapid wiring facility for variations in master call light and chime control configurations, and as a wiring point for the system blocking/steering diodes.
   B. Removal of the terminal blocks is achieved by removing retainer clip from track, sliding out terminal blocks, and removing wire connections.
2. Remove Terminal Module (Fig. 401)
   A. Open PASSENGER AND CREW CALL circuit breaker on P18 left load control center. Attach do-not-operate identifier.
   B. Release two quick-release fasteners near each inboard corner of PSU or insert small rod (or similar device) in each inboard corner and push to release latches, as applicable (use care not to mar PSU surface), and lower PSU until lanyard is taut.

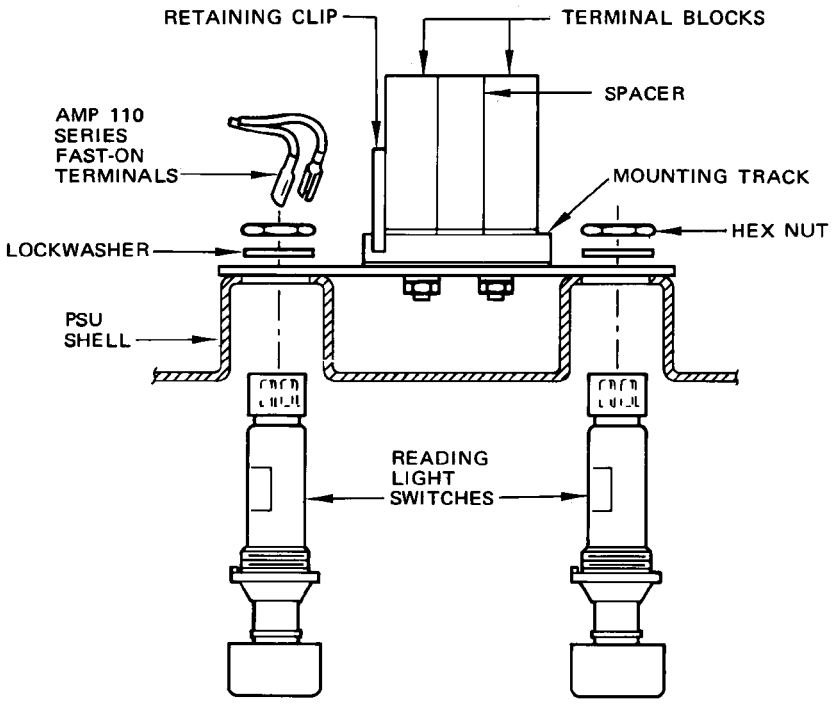
      CAUTION: DO NOT LOWER PSU BEYOND VERTICAL POSITION. OPENING UNIT OUTBOARD BEYOND VERTICAL MAY CAUSE DAMAGE.

   C. Remove retaining clip from terminal module track.
   D. Slide out terminal blocks and spacer.
   E. Remove wires from terminal blocks.

      NOTE: Remove cable ties that hinder extraction of wires from terminal block.

3. Install Terminal Blocks (Fig. 401)
   A. Install wires in terminal blocks.
   B. Slide terminal blocks and spacer in mounting track.
   C. Press retaining clip into mounting track until it snaps into place.
   D. Replace cable ties, if necessary.
   E. Raise PSU and check that latches are engaged.
   F. Close PASSENGER AND CREW CALL circuit breaker on P18 left load control center. Remove do-not-operate identifier.
   G. Test terminal module.
      (1) Provide electrical power.
      (2) Press PSU attendant call switch. Check that switch integral light and applicable master call light(s) come on. Verify also, that chime tones sound at applicable stations.
      (3) Press call switch to off.
      (4) Remove electrical power if no longer required.



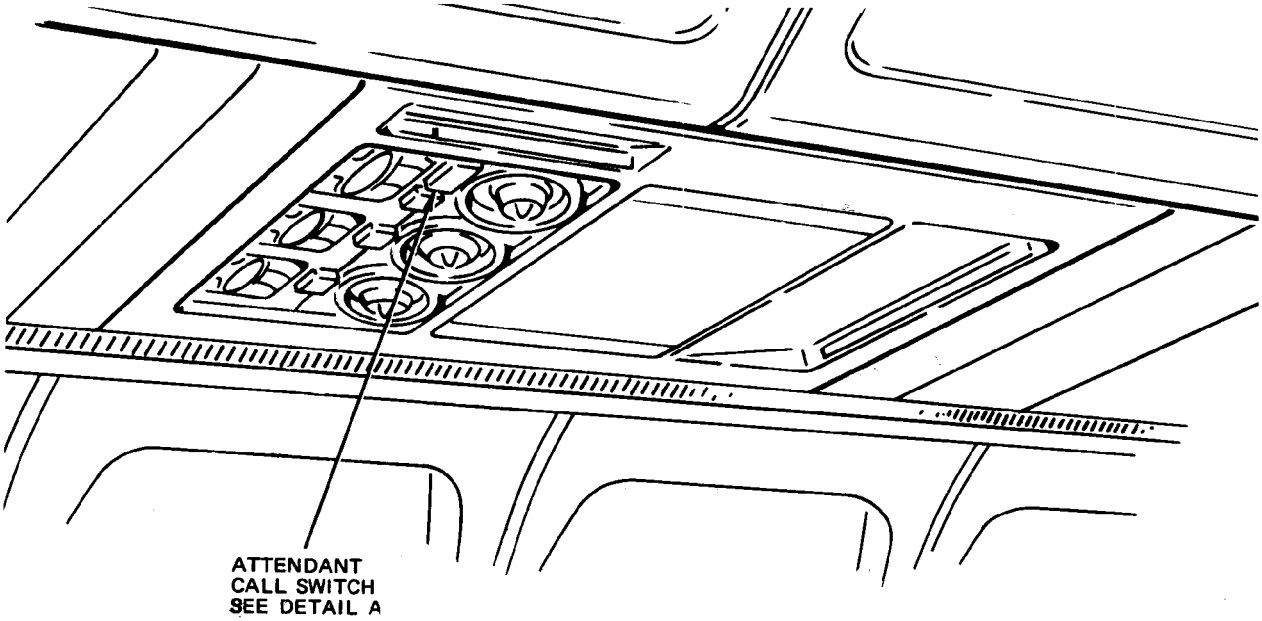


DETAIL A

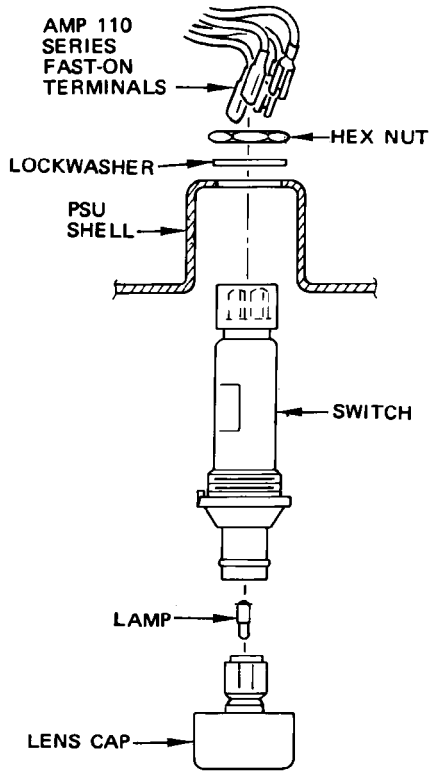
Terminal Module Installation
Figure 401

ATTENDANT CALL SWITCH - REMOVAL/INSTALLATION

1. General
   A. A single alternate action switch, mounted in the PSU's provides passengers with an attendant call facility. The switch is mounted from the underside of the PSU.
2. Remove Attendant Call Switch (Fig. 401)
   A. Open PASSENGER CAN CREW CALL circuit breaker on P18 circuit breaker panel.
   B. Release two quick-release fasteners near each inboard corner of PSU or insert small rod (or similar device) in each inboard corner and push to release latches, as applicable (use care not to mar PSU surface), and lower PSU until lanyard is taut.
   C. Remove wires from switch terminals.
   D. Pull cap assembly from switch.
   E. Remove mounting nut and lockwasher and remove switch.
3. Install Attendant Call Switch (Fig. 401)
   A. Install switch with lockwasher and retaining nut.
   B. Attach electrical wires to switch terminals.
   C. Press cap assembly on switch.
   D. Raise PSU and secure fasteners or check that latches are engaged, as applicable.
   E. Close PASSENGER AND CREW CALL circuit breaker on P18 panel.
   F. Test Attendant call switch.
      (1) Provide electrical power.
      (2) Press switch. Check that switch integral light and applicable master call lights come on. Verify also, that chime tone sounds at applicable stations.
      (3) Press switch to off. Check that system is reset.
      (4) Remove electrical power if no longer required.



TYPICAL PSU INSTALLATION



DETAIL A

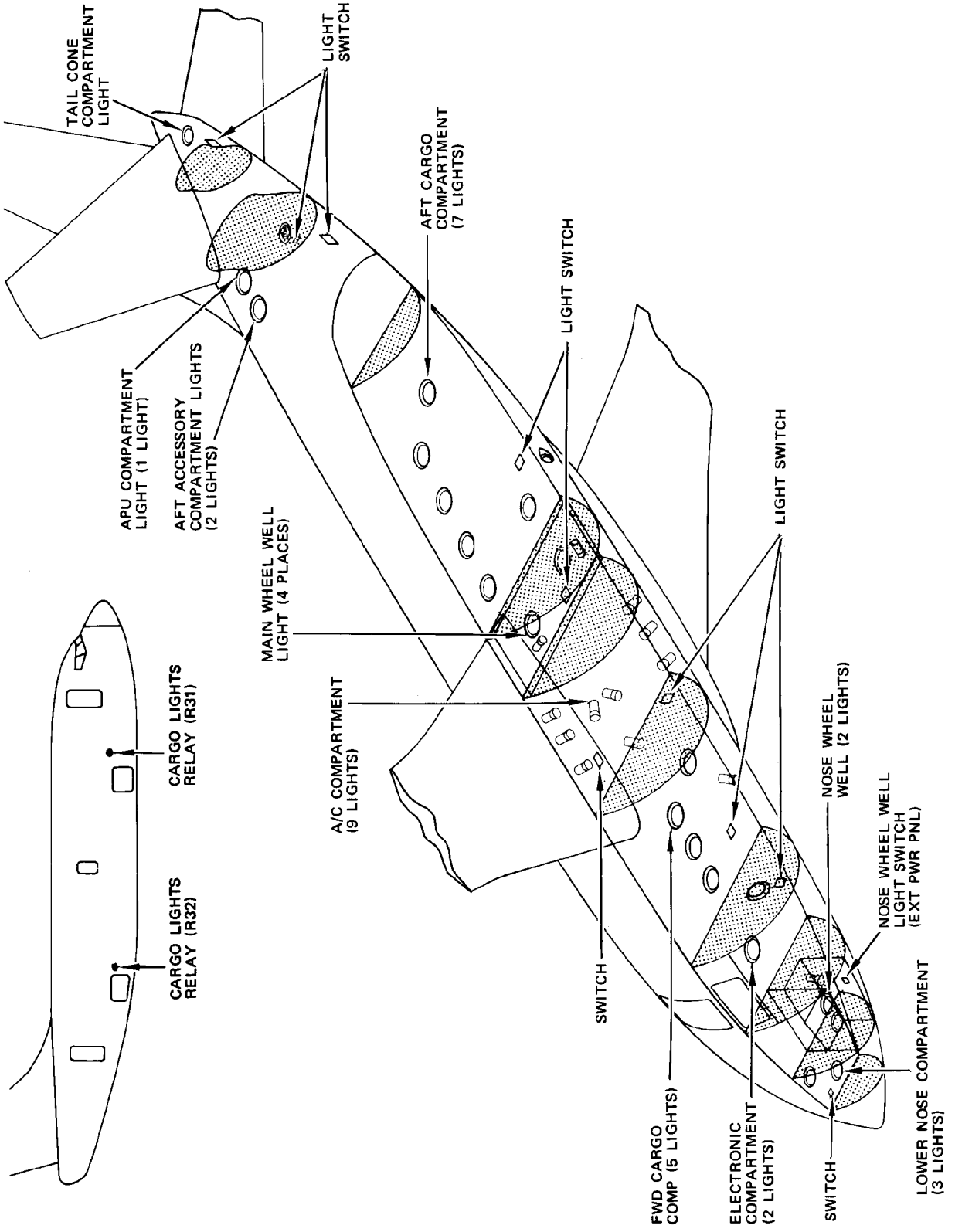
Attendant Call Switch Installation
Figure 401

CARGO AND SERVICE COMPARTMENT LIGHTING - DESCRIPTION AND OPERATION

1. General
   A. Cargo and service compartment lights provide illumination for the areas and compartments beneath the cabin floor of the fuselage and in the aft accessory, auxiliary power unit, and tail cone compartments as illustrated in Fig. 1. Single switches adjacent to lights are used except for cargo and wheel well lights. All lights use incandescent lamps. The 28-volt ac ground service bus supplies electrical power through circuit breaker panel P18.
2. Cargo Compartment Lights
   A. The forward and aft cargo compartments each are illuminated by dome lights mounted in the ceiling and a single spotlight in the upper door frame. The 28-volt ac ground service bus provides electrical power for dome light operation. Normal cargo compartment light control is provided by a switch located adjacent to the forward edge of each cargo door frame. When set to ON with the cargo door open, the cargo light switch connects 28 volts ac through the normally closed contacts of the cargo light relay and on Standard Passenger Airplanes the inspection window (viewer) light switch to turn the lights on. When the cargo door is closed, the cargo light relay energizes to disable the switch circuit.
   B. On airplanes with inspection windows, a toggle switch is located adjacent to each of the two inspection windows (viewers). When held to ON, the toggle switch adjacent to the viewer will override the cargo light switch and relay to turn the cargo lights on (Fig. 2). The forward viewer is in the forward passenger cabin between the right seat tracks. The aft viewer is in the aft passenger cabin between the right seat tracks (Ref Chapter 56, Viewers and Observation Windows).
   C. The forward cargo compartment light relay (R31) is located in the sidewall just forward of the door and slightly below top of door. Access to relay (R31) is by removing the applicable sidewall panel. The aft cargo compartment light relay (R32) is located in the sidewall just forward of the cargo door. Access to relay (R32) is by removing sidewall panel adjacent to the forward edge of the aft cargo door (Ref 25-52-121, or -123, as applicable, Removal/Installation).
3. Air Conditioning Compartment Lights
   A. The right and left air conditioning equipment compartments each have four floodlights, and share a floodlight mounted near the airplane centerline. The floodlights are mounted to brackets which are attached to structural members. The floodlights are oriented to provide maximum equipment illumination. A toggle switch located near the access door is provided for each side. (See figure 1.)

B. The 28-volt ac ground service bus supplies electrical power for light operation through the A/C COMPT LIGHT circuit breaker on the P18 circuit breaker panel. Setting either left or right air conditioning compartments to ON and OFF turns the four floodlights in that compartment and the center floodlight on and off. However, both right and left compartment switches must be in the OFF position to turn the center floodlight off.

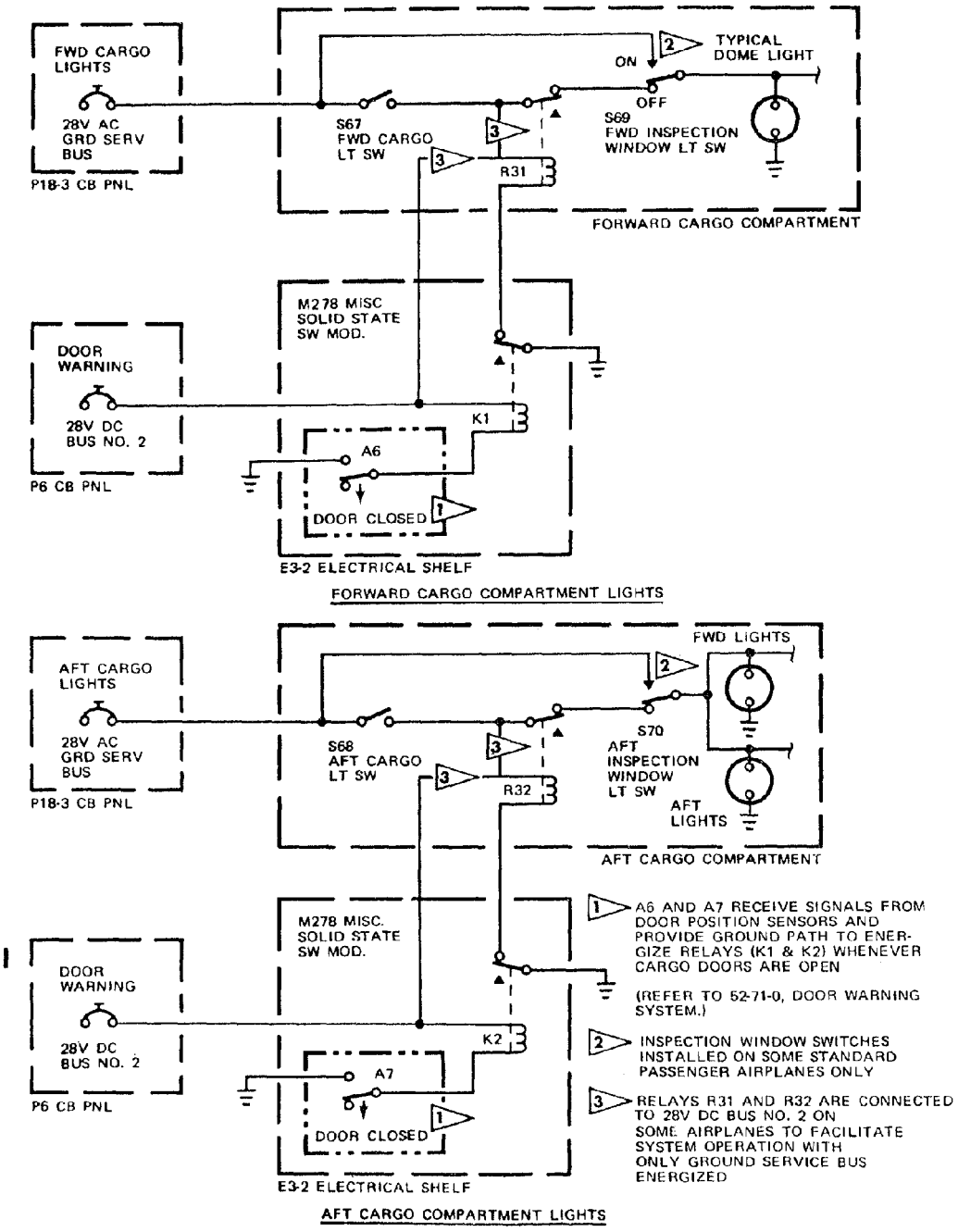
4. Wheel Well Lights
   A. One wheel well dome light and one gear inspection floodlight are installed in each nose wheel well and main wheel well. The main wheel well lights are controlled by a switch on the forward overhead panel and one switch in the forward left main wheel well area. Nose wheel well lights are controlled by a switch on the forward overhead panel and one switch on the external power receptacle panel in the nose wheel well. (See figure 1.)
   B. The 28-volt ac ground service bus supplies electrical power through the WHEEL WELL circuit breaker on circuit breaker panel P18. Setting the WHEEL WELL light switch on the overhead panel to ON, turns all wheel well lights on. Setting either the main wheel well light switch or the nose wheel well light switch to ON will turn the applicable wheel well lights on. The switch used to turn the lights on must be used to turn the lights off. (See figure 5.)
5. Electrical Rack Lights
   A. The electrical electronics equipment rack area is illuminated by two dome lights. A toggle switch located near the forward dome light and above the access door provides control. (See figure 1.) The 28-volt ac ground service bus supplies electrical power for light operation. (See figure 5.)
6. Forward Lower Service Compartment Lights
   A. The forward lower service (nose) compartment is illuminated by three dome lights mounted on the ceiling area. A toggle switch located near the aft edge of the access door provides control. (See figure 1.) The 28-volt ac ground service bus supplies electrical power for light operation. (See figure 5.)
7. APU Compartment Light
   A. The APU compartment is illuminated by a single explosion-proof dome light. A toggle switch located near the light provides control. (See figure 1.) The 28-volt ac ground service bus supplies electrical power for light operation. (See figure 5.)
8. Tail Cone Compartment
   A. The tail cone compartment is illuminated by a single dome light. A toggle switch adjacent to the access door provides control. (See figure 1.) The 28-volt ac ground service bus supplies electrical power for light operation. (See figure 5.)



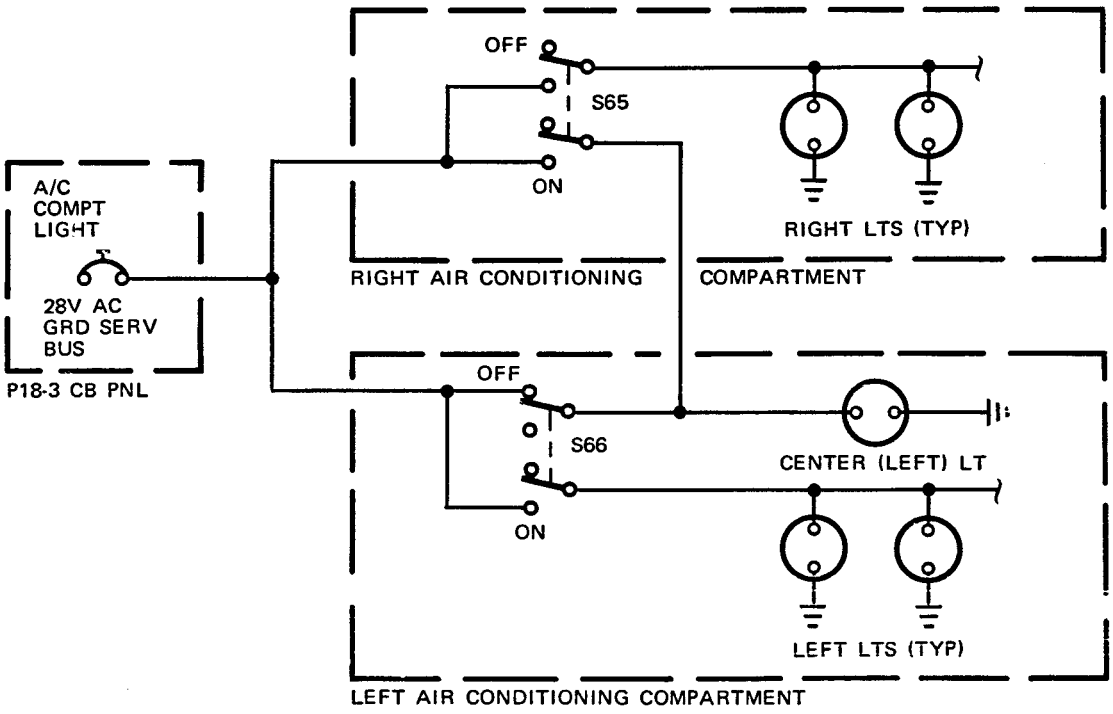
Cargo and Service Compartment Lights
Figure 1

9. Accessory Compartment Lights

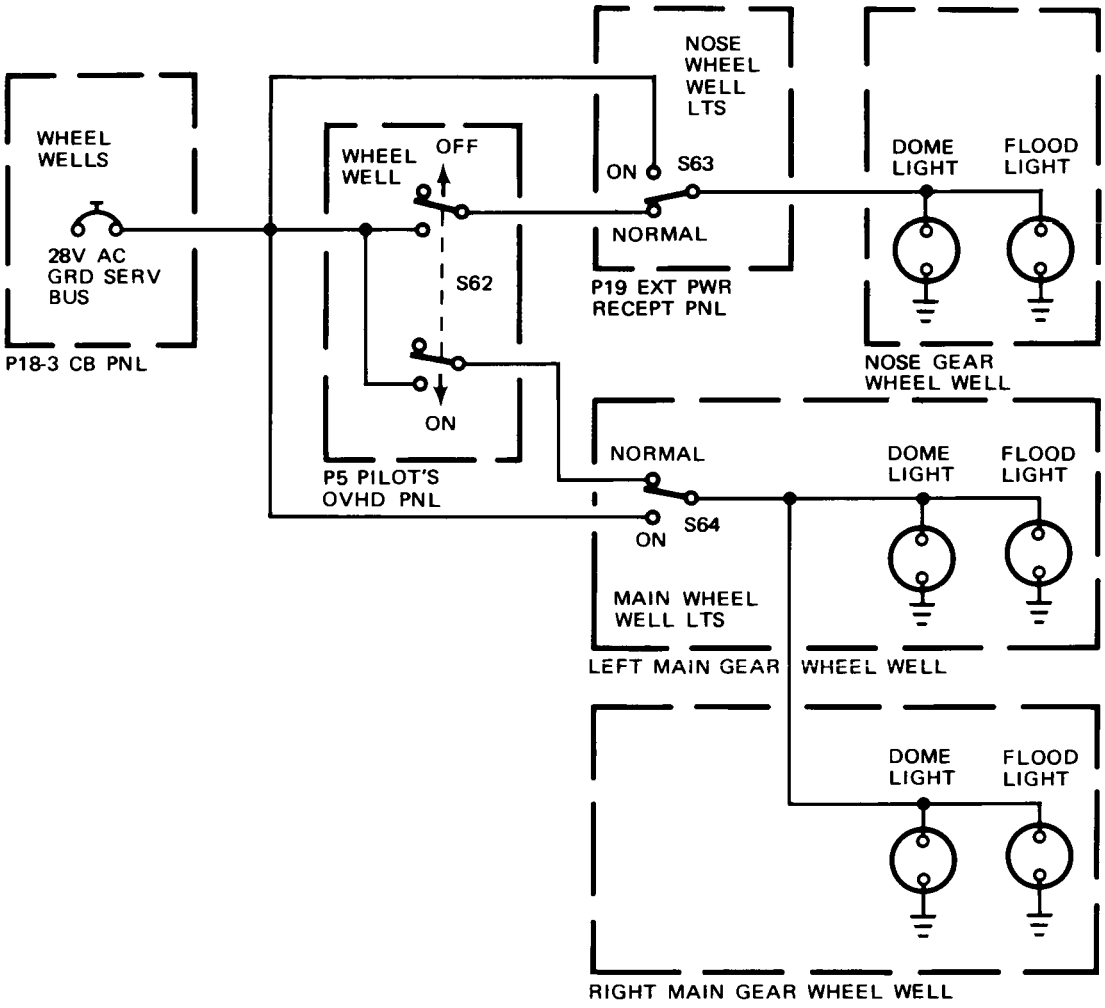
A. The accessory compartment is illuminated by two floodlights. A pushbutton switch located near the access door provides control. (See figure 1.) The 28-volt ac ground service bus supplies electrical power for light operation.



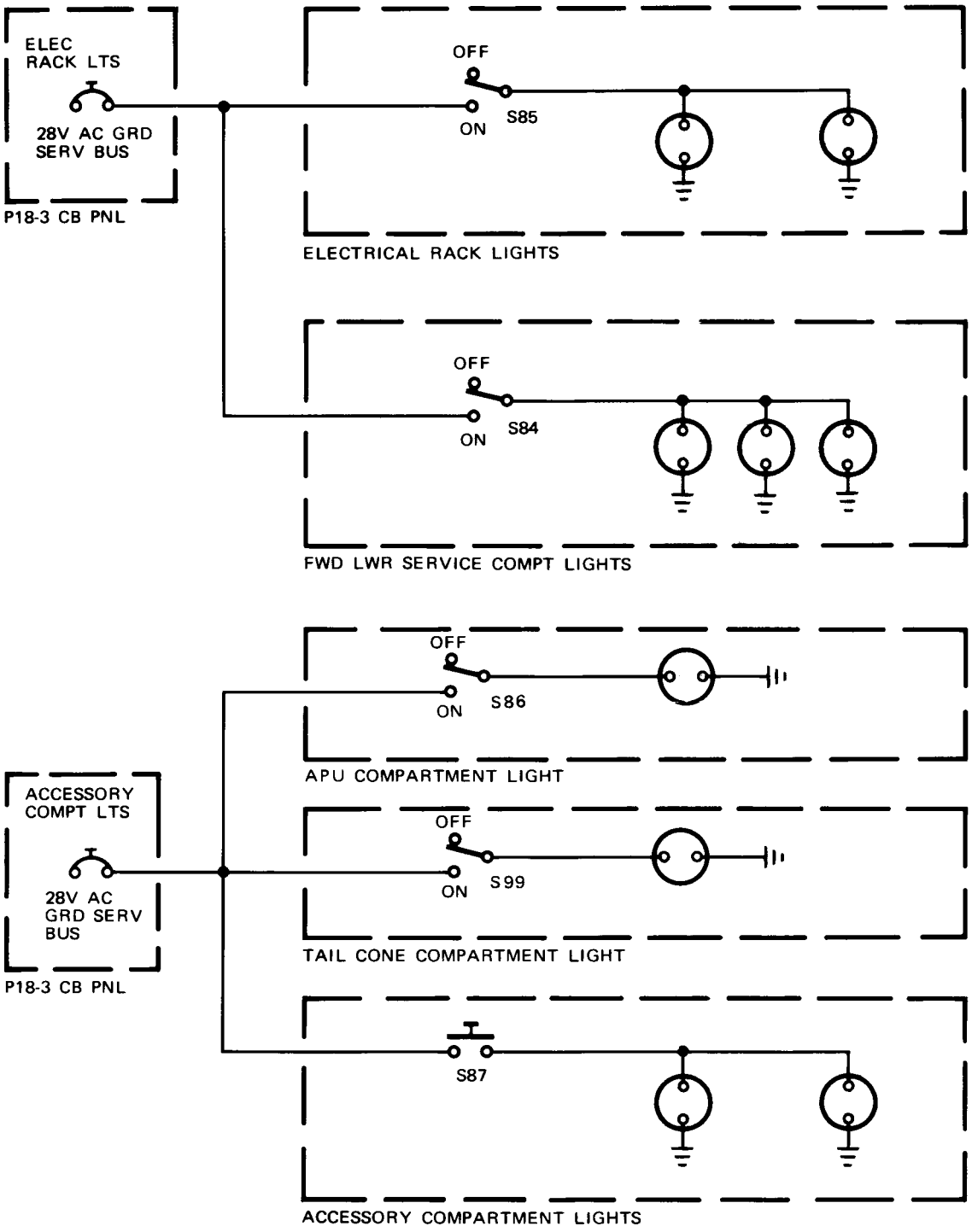
Cargo Compartment Lights Simplified Schematic
Figure 2



Air Conditioning Component Lights Simplified Schematic
Figure 3



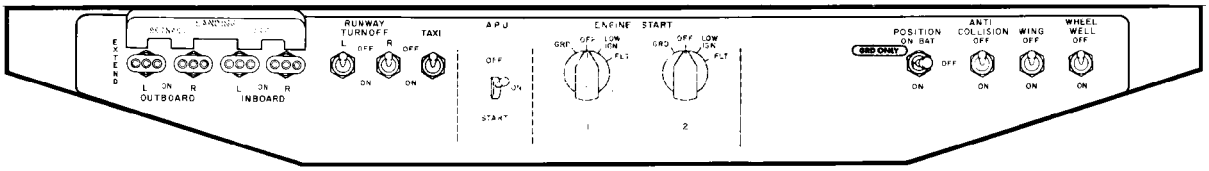
Wheel Well Lights Simplified Schematic
Figure 4



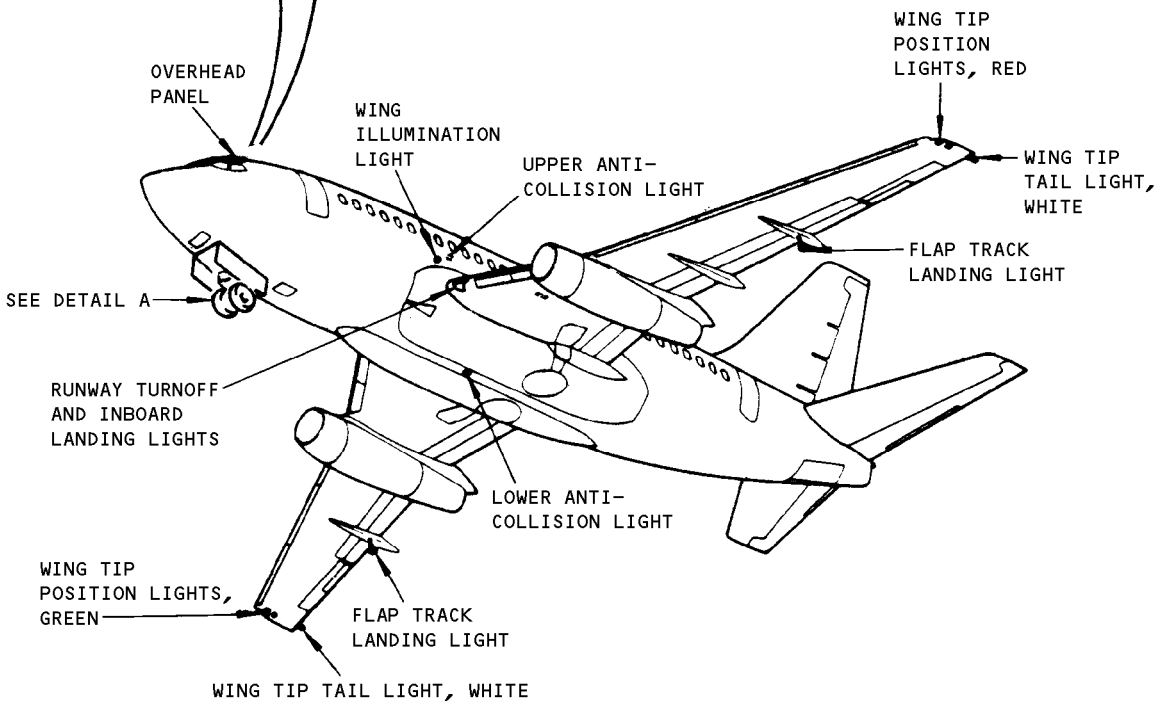
Service Compartment Lights Simplified Schematics
Figure 5

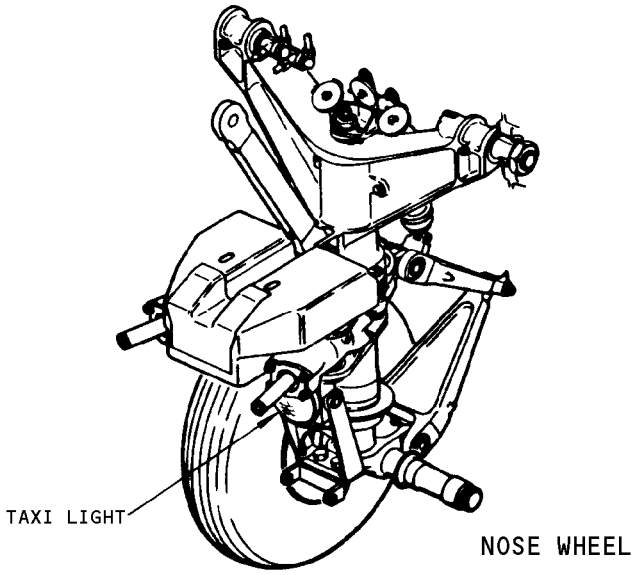
EXTERIOR LIGHTING - DESCRIPTION AND OPERATION

1. General (Fig. 1)
   A. Exterior lights for area illumination include: wing illumination lights on each side of the fuselage, inboard landing lights on the leading edge of the wing, outboard landing lights in the outboard flap track housing, runway turnoff lights in the leading edge of the wing, and, if installed, a taxi light on the nose gear.
   B. Exterior navigation (position) lights include red lights on the left wingtip, green lights on the right wingtip, and one white light located on each wingtip trailing edge.
   C. A beacon (anticollision) light is mounted on the upper and the lower fuselage at approximately midcabin position. The lights provide red flashing light beams in all horizontal directions.
   D. Exterior light control switches are along the forward edge of the overhead panel P5.
   E. Power for the exterior lights is through circuit breakers on load control center P18.



EXTERIOR LIGHTING SWITCH PANEL



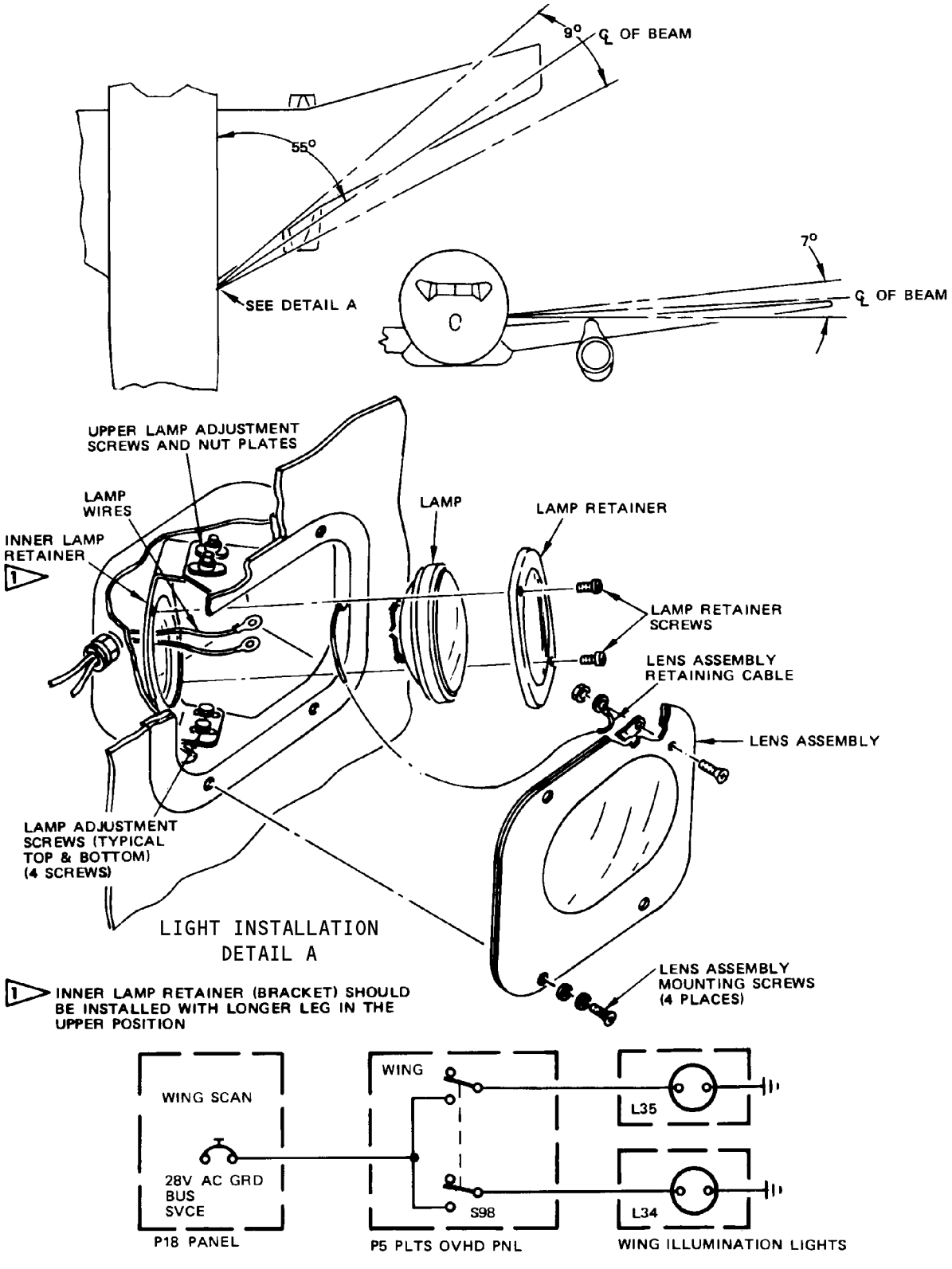


DETAIL A

Exterior Lighting
Figure 1

WING ILLUMINATION LIGHTS - DESCRIPTION AND OPERATION

1. General (Fig. 1)
   A. Two wing illumination lights mounted flush with the fuselage forward of the wings and just above the cabin floor level are both controlled by a switch on the forward edge of the pilots' overhead panel, P5.
   B. Each wing illumination light consists of a housing assembly mounted in the fuselage and sealed against weather. A sealed beam lamp is mounted in an adjustable retainer assembly that is attached to the lamp housing. A lens assembly is mounted on the outside of the housing assembly and retained by four screws. A cable prevents the lens assembly from falling when removed for maintenance.
   C. Power for the wing illumination lights is 28 volt ac through a WING SCAN circuit breaker on circuit breaker panel P18. The lights are operable from external power when the external power switches in either the ON or GROUND SERVICE position.



Wing Illumination Lights
Figure 1

WING ILLUMINATION LIGHTS - MAINTENANCE PRACTICES

1. General

A. The wing illumination lights may be relamped, adjusted, and tested without the use of special tools or equipment. Paragraph 2 provides steps for relamping, par. 3 provides steps for adjustment, and par. 4 provides steps for testing.

2. Relamp Lights (Fig. 201)

A. Open EXT LIGHTS - WING SCAN circuit breaker on P18 panel.
B. Loosen fasteners on lens assembly and suspend from cable.

CAUTION: PROTECT LENS FROM DAMAGE WHILE SUSPENDED.

C. Remove two screws and remove outer lamp retainer.

NOTE: Do not turn adjustment screws.

D. Remove lamp and disconnect wires from lamp terminals.
E. Connect wires to lamp and install lamp.
F. Place outer retainer on lamp and install two screws.
G. Install lens assembly and tighten screws.

NOTE: Clean lamp and lens with clean dry cloth.

H. Close circuit breaker opened in step A.
I. Test lamp per par. 4.

3. Adjust Lights (Fig. 201)

A. Loosen fasteners on lens assembly and suspend from cable.

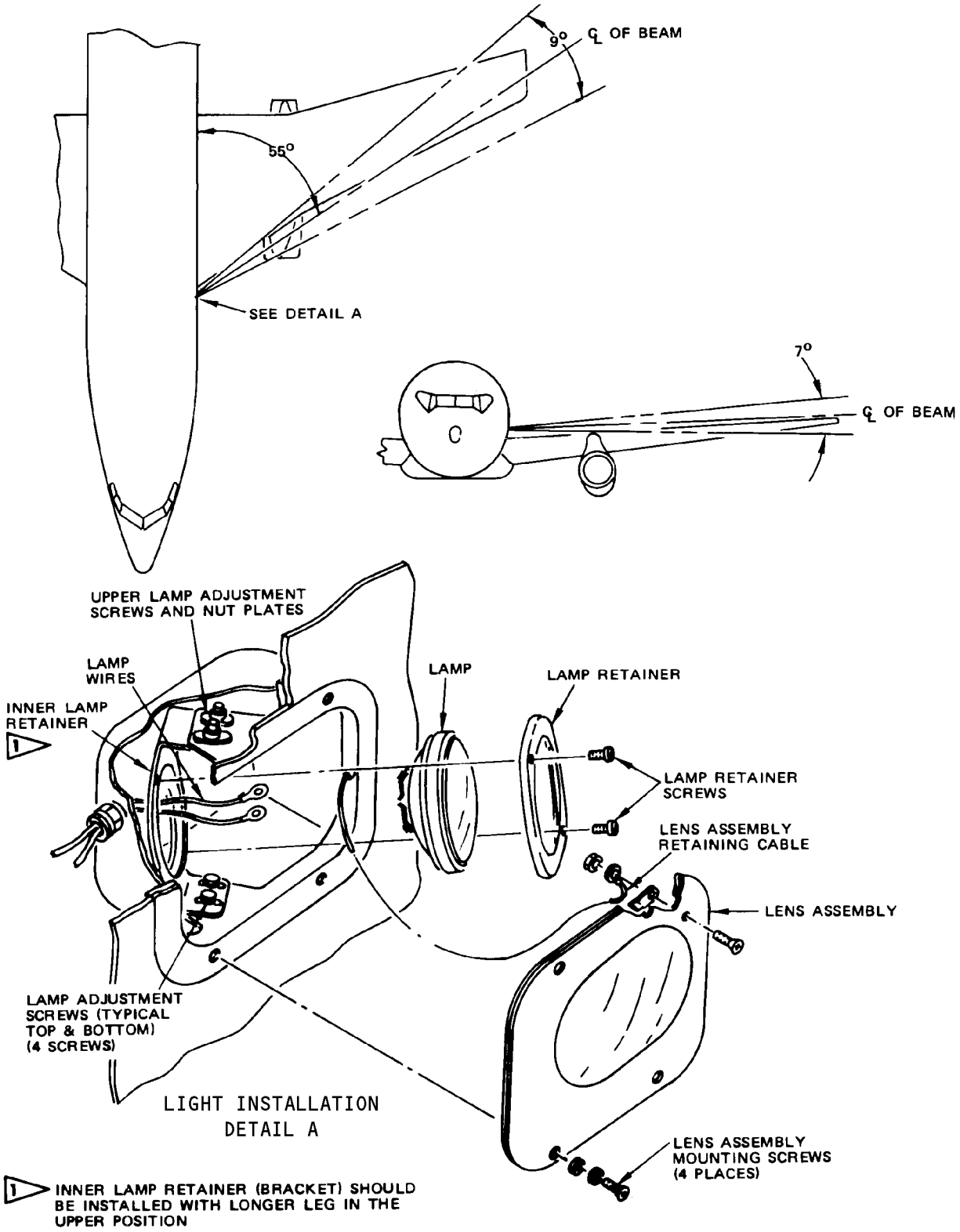
CAUTION: PROTECT LENS FROM DAMAGE WHILE SUSPENDED.

B. Loosen four adjustment screws.
C. Provide electrical power.
D. Set WING light switch on pilots' overhead panel to ON. Observe that the light comes on.
E. Adjust lamp position until center of beam is aimed as shown on Fig. 201.

WARNING: LAMP IS HOT. PROTECT HANDS WITH GLOVES TO PREVENT BURNING.

F. Tighten four adjustment screws while holding light beam direction as illustrated (Fig. 201).
G. Install lens assembly and tighten fasteners.
H. Set WING light switch to OFF. Observe that the lights go off.
I. Remove electrical power if no longer required.

4. Test Lights (Fig. 201)
   A. Provide electrical power.
   B. Set WING light switch on pilots' overhead panel, P5, to ON. Observe that lights come on and beams are aimed on wing as illustrated (Fig. 201).
   C. Set switch to OFF and observe that the lights go off.
   D. Remove electrical power if no longer required.



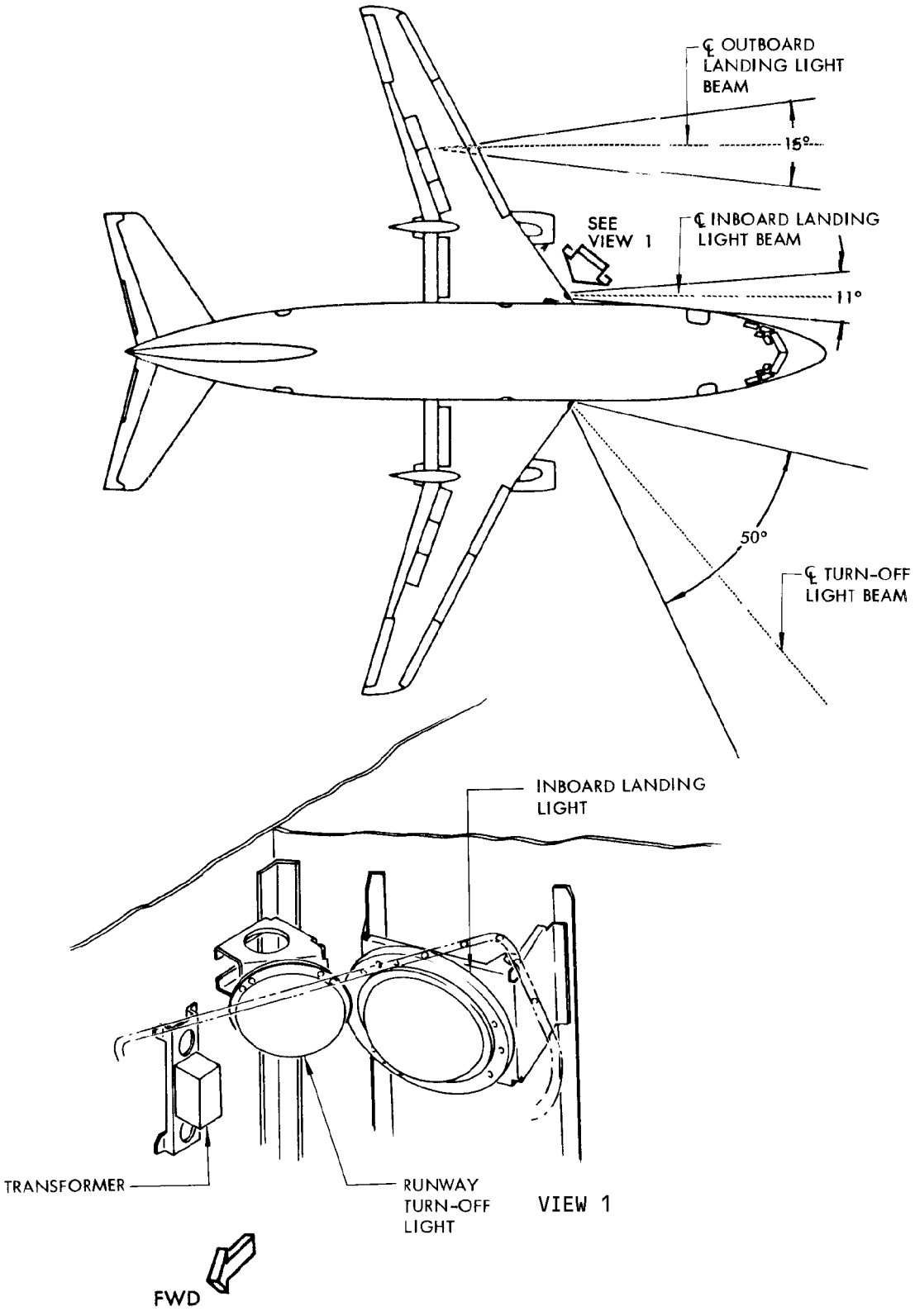
Wing Illumination Lights
Figure 201

LANDING AND RUNWAY TURN OFF LIGHTS - DESCRIPTION AND OPERATION

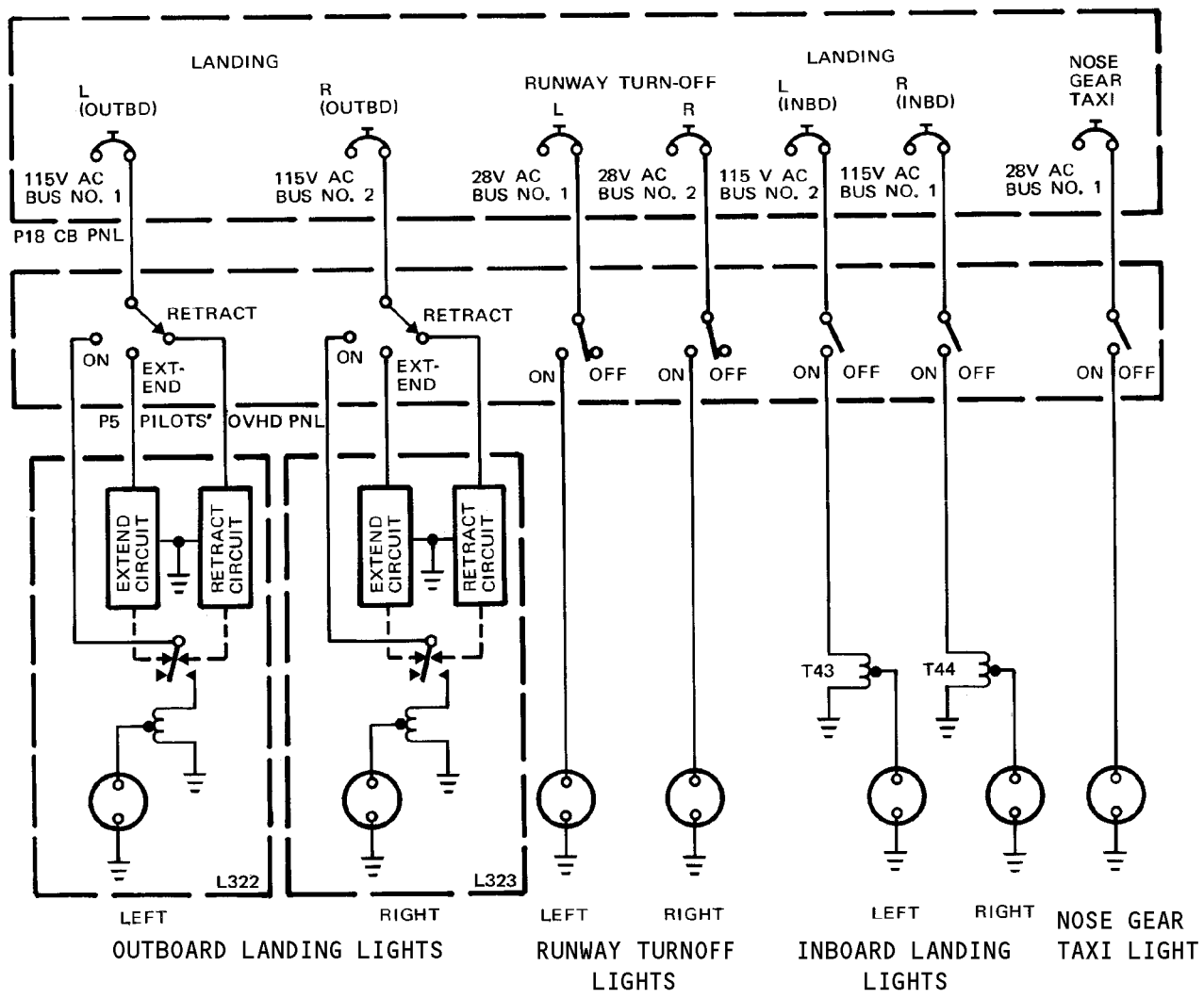
1. General
   A. Landing and runway turn-off taxi lights are adjusted to give optimum illumination when landing or taxiing. The lights are controlled by switches at the bottom of the pilots' forward overhead panel.

      CAUTION: THE LANDING AND TURN-OFF LIGHTS ARE HIGH INTENSITY TYPE AND THE LIGHT INSTALLATIONS ARE NOT DESIGNED FOR CONTINUOUS DUTY IN STILL AIR. LIMIT OPERATION TO A CYCLE 5 MINUTES ON AND 5 MINUTES OFF WHEN AIRPLANE IS STATIONARY.

2. Inboard Landing Lights
   A. Two inboard landing lights are in the wing leading edges near the fuselage. The lamps shine forward and down to the ground ahead of the airplane. (See figure 1.)
   B. Power to the lights is from circuit breaker panel P18 at 115 volts ac and is reduced by transformers. (See figure 2.)
3. Outboard Landing Lights
   A. A retractable landing light is on the outboard flap track fairing. The lamps shine forward parallel to the centerline of the airplane. (See figure 1.)
   B. Power is supplied to the outboard landing lights the same as that supplied to the inboard landing lights. (See figure 2.)
   C. The outboard landing lights are controlled by a three position switch on the forward overhead panel. In the EXTEND position, the lights will be extended. In the ON position, the lights can be turned on while they are in the extended position. In the RETRACT position, the lights will retract and will not illuminate when in this position. (See figure 2.)
4. Runway Turn Off Lights
   A. Two runway turn-off lights are adjacent to and inboard of the inboard fixed landing lights. The lamps shine outward approximately 30 degrees, and have a beam width of 50 degrees. (See figure 1.)
   B. Power to the runway turn off lights is from circuit breaker panel P18 at 28 volts ac. (See figure 2.)
   C. The lights are individually controlled by switches on the overhead panel. (See figure 2.)
5. Nose Gear Taxi Light
   A. The nose gear taxi light is on a bracket on the nose gear shock strut inner cylinder, and turns with the nose gear wheels. The light is controlled by a switch on the overhead panel.
   B. Power to the nose gear taxi light is from circuit breaker panel P18 at 28 volts ac, through the circuit breaker marked NOSE GEAR TAXI LT. (See figure 2.)



Landing and Turn-Off Lights
Figure 1



Landing and Taxi Light Circuit
Figure 2

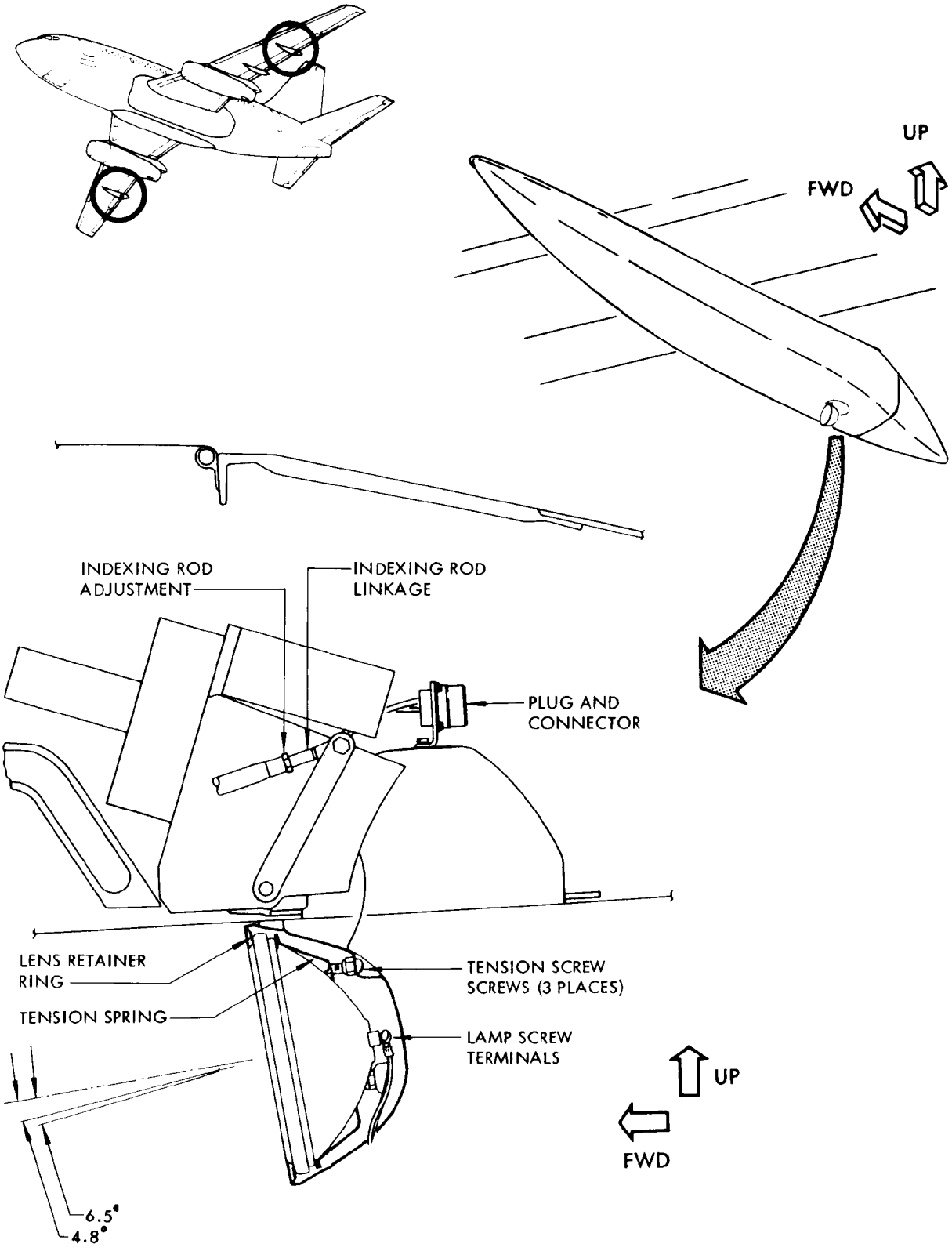
OUTBOARD LANDING LIGHTS - MAINTENANCE PRACTICES

1. General
   A. Each landing lamp at the wing flap fairing can be removed without disturbing the adjustment of the lamp. The following procedure is applicable to relamping the outboard landing light on either side.
2. References
   A. Standard Wiring Practices Manual (SWPM), 20-30-00
3. Prepare Outboard Landing Light for Relamping (Fig. 201)
   A. Provide electrical power.
   B. Check that applicable outboard landing light circuit breaker on P18-3 panel is closed.
   C. Extend landing light by positioning applicable outboard landing light switch to ON or EXTEND position on certain airplanes.
   D. Open applicable outboard landing light circuit breakers on panel P18-3 panel.
4. Relamp Outboard Landing Light (Fig. 201)
   A. Loosen the three tension spring screws in back of light assembly.
   B. Remove the lens retainer ring from around the outer edge of the lamp on the front side.
   C. The lens retainer ring has a gasket bonded to it. If the gasket is worn, replace the lens retaining ring assembly.
   D. Pull lamp forward and remove wires from screw terminals on back.
   E. Connect wires to screw terminals on lamp.
   F. Seal the electrical terminals for a fuel vapor area (SWPM 20-30-00).

      NOTE: The sealant does not have to become tack-free before the completion of this procedure and the dispatch of the airplane.

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

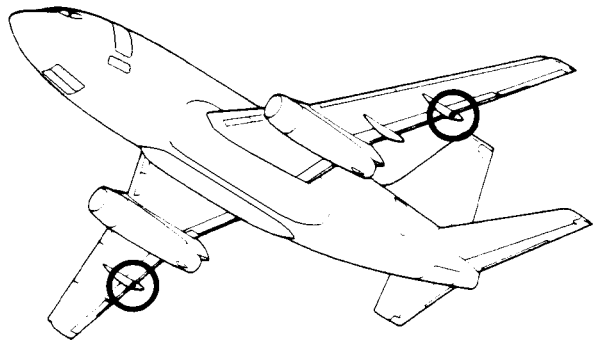
   G. Mount lamp in correct position inside light assembly.
   H. Install the lens retainer ring and make sure that the gasket points to the outer edge of the lamp.
   I. Tighten three tension spring screws on back side of light assembly.
5. Restore Airplane to Normal
   A. Apply electrical power.
   B. Close applicable outboard landing light circuit breaker on load control center P18. Check that light illuminates by positioning light switch to ON.
   C. Position outboard landing light switch on forward overhead panel to OFF or RETRACT position. Light will extinguish and retract.
   D. Remove electrical power from airplane, if no longer required.

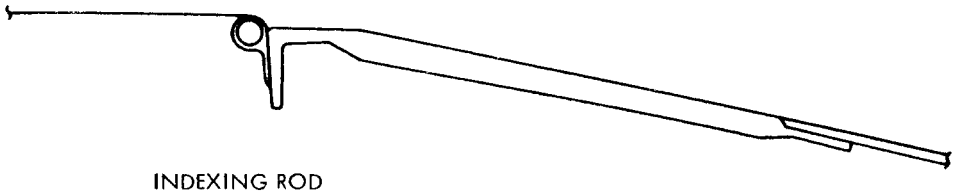


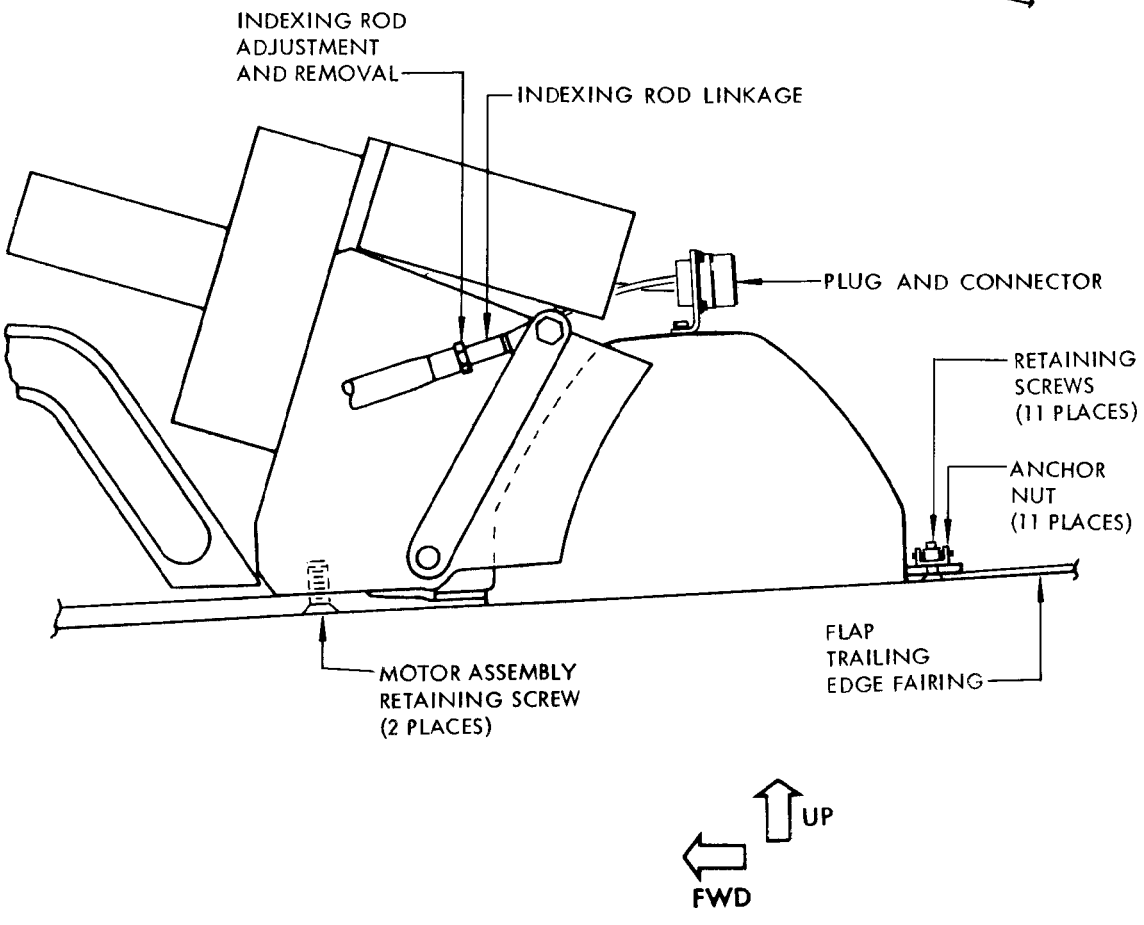
Outboard Landing Light Lamp Installation and Adjustments
Figure 201

OUTBOARD LANDING LIGHT - REMOVAL/INSTALLATION

1. General
   A. Outboard landing lights are installed in trailing edge flaps, and are retractable when not in use. The following procedure is applicable to the landing light on either side.
2. Prepare for Removal
   A. Pressurize hydraulic system A and set flap lever on control stand to 40 unit position (Ref Chapter 27-51-00 M/P).
   B. Open applicable outboard landing light circuit breaker on P18 panel.
   C. Remove applicable flap tail cone by removing the fifteen retaining screws.
3. Remove Outboard Landing Light
   A. Disconnect connector plug from top of light assembly (Fig. 401).
   B. Disconnect indexing rod linkage.
   C. Remove eleven retainer screws around circumference of light assembly.
   D. Remove two motor assembly retaining screws on bottom of flap.
   E. Remove light assembly.
4. Install Outboard Landing Light
   A. Position light assembly in correct position and install eleven retaining screws (Fig. 401).
   B. Install two motor assembly retaining screws.
   C. Connect and adjust indexing rod linkage (Ref 33-42-11 A/T).
   D. Install connector plug to top of light assembly.
5. Restore Airplane to Normal
   A. Close applicable outboard landing light circuit breaker on P18 panel.
   B. Check light adjustment. See Outboard Landing Lights - A/T.
   C. Install flap tail cone.
   D. Pressurize hydraulic system A and retract trailing edge flaps.







Outboard Landing Light Assembly Installation
Figure 401

OUTBOARD LANDING LIGHTS - ADJUSTMENT/TEST

1. General

A. The following information gives the procedure for the adjustment/test of the outboard landing lights after the assembly has been replaced. Lights may be adjusted individually as required with the airplane in a normal taxi attitude.

B. The following adjustment steps require the airplane to be level. The lights may be adjusted with the airplane in normal taxi attitude by hanging a plumb bob in the right wheel well (Ref. Chapter 8) and noting the airplane nose-up or nose-down angle. If nose-up, add angle to "A" index mark of adjustment tool protractor. If nose-down, subtract angle from "A" index mark of adjustment tool protractor.

2. Outboard Landing Light Adjustment (Fig. 501)

A. Equipment and Materials
   (1) Adjustment Tool - Boeing F80179

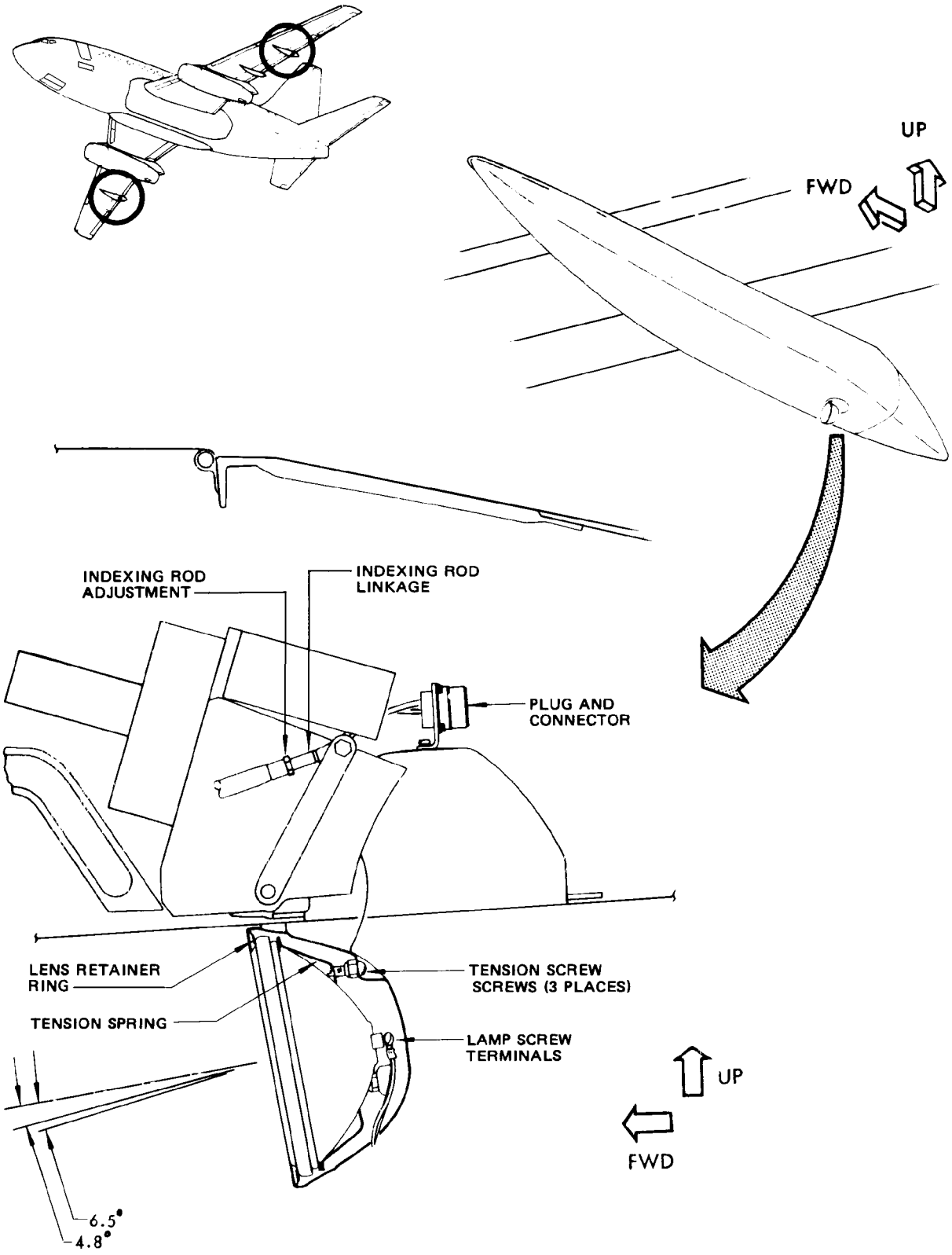
B. Prepare Outboard Light for Adjustment
   (1) Verify that airplane is level (Ref Chapter 8).
   (2) Provide electrical power.
   (3) Close OUTBD R & L landing light circuit breakers on circuit breaker panel P18-3.
   (4) Lower trailing edge flaps to 30-unit position (Ref 27-81-0).
   (5) Set outboard light switch to EXTEND or ON, as applicable.
   (6) Open circuit breakers closed in step (3).
   (7) Remove flap tail cone by removing retaining screws.
   (8) Install adjustment tool to outboard landing light as shown in Fig. 501.

C. Adjust Landing Light
   (1) Adjust indexing rod linkage to obtain a 6.5 +1 degree down attitude as indicated by the position of the adjustment tool pointer on the protractor light attitude scale.
   (2) Lower trailing edge flap to fully extended position, and verify that landing light is aimed in a down attitude of 4.8 +1 degree as indicated by the position of the adjustment tool pointer on the protractor light attitude scale.

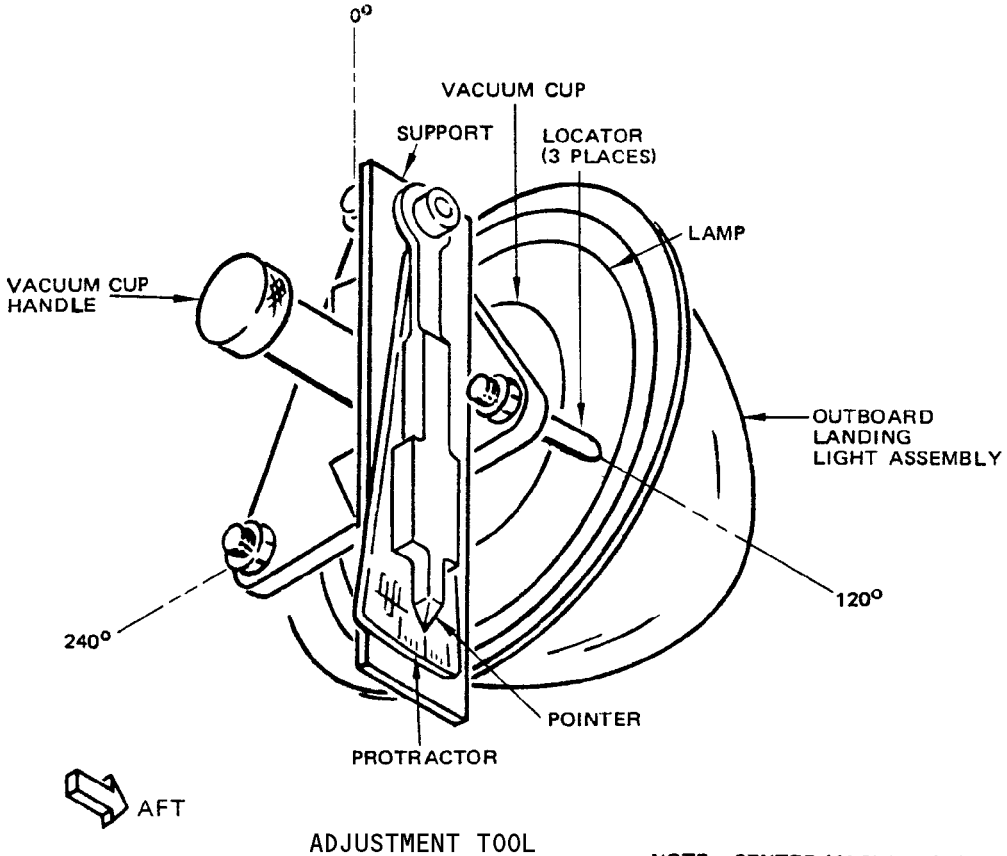
D. Restore Airplane to Normal Configuration
   (1) Remove adjusting tool.
   (2) Close circuit breaker opened in step 2.B.(6).
   (3) Position outboard landing light switch on forward overhead panel to RETRACT position to retract light.
   (4) Restore flaps to normal (Ref 27-81-0).
   (5) Remove electrical power if no longer required.

3. Outboard Landing Light Test

A. Test Outboard Landing Light
   (1) Provide electrical power.

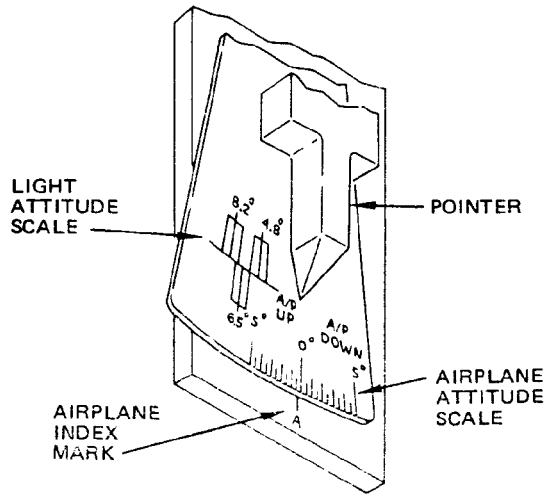


Outboard Landing Light Lamp Installation and Adjustments
Figure 501 (Sheet 1)



ADJUSTMENT TOOL

NOTE: CENTER VACUUM CUP ON LAMP AND POSITION LOCATORS AT 0°, 120° AND 240° POSITIONS.



SCALE DETAILS

Outboard Landing Light Lamp Installation and Adjustment
Figure 501 (Sheet 2)

(2) Check that OUTBD R & L landing light circuit breakers on circuit breaker panel P18-3 are closed.
(3) Position both outboard landing light switches to EXTEND. After lights have extended, position switches to ON. Check that lights come on.
(4) Position both outboard landing light switches to RETRACT. Check that lights go out then retract.
(5) Remove electrical power if no longer required.

INBOARD LANDING AND RUNWAY TURN-OFF LIGHT LENS ASSEMBLY (COVER) - REMOVAL/INSTALLATION

1. General
   A. This procedure contains two tasks for the inboard landing and runway turn-off light lens assembly (cover) (referred to as the lens):
      (1) The removal of the lens.
      (2) The installation of the lens.
   B. There are two types of lenses:
      (1) One lens is attached with screws and nutplates.
      (2) The other lens is attached with quick-release fasteners.
   C. The replacement procedures are the same for the left wing and the right wing.

      NOTE: The replacement of the lens does not change the adjustment of the light.

   D. The lens is made of thermally tempered glass.
   E. All surface damage decreases the resistance of the glass to cracks.
   F. Damage is usually caused by particles that hit the surface of the lens.
   G. You cannot repair the lens. A lens must be replaced if the damage is too much:
      (1) A crack in the lens:
         (a) When a crack in the lens starts, it will usually become larger automatically.
         (b) For a crack across the corner of the lens, schedule the replacement of the lens for the first available time. The crack must be one line that is less than 3.0 inches long.
         (c) For all other types of cracks, replace the lens before a subsequent flight of the airplane.
      (2) A chip or a dig in the lens.
         (a) A chip or a dig is an area on the lens where a small piece of glass has been removed.
         (b) Heat and vibration can cause a chip or dig to become a crack.
         (c) Replace the lens if the depth of a chip or dig is more than .01 inch.
      (3) A scratch in the lens:
         (a) A scratch is where a thin line of glass has been removed.
         (b) The ratio of depth to width is usually small.
         (c) Usually it is not necessary to change a lens which has small scratches.

(d) Replace the lens if it has a scratch with a depth of more than .01 inch.

NOTE: A temporary replacement lens assembly can be installed if a spare lens assembly is not available. Temporary lens assembly should be contoured, 0.063 inch thick 2024-T3 or 7075-T6 , or 0.04 inch thick 17-7PH. You can install temporary lens assembly on one or both sides. Install per lens assembly installation steps (Ref AMM 33-42-21/401). Consider lights behind temporary lens assembly inoperative (Ref 737-SL-57-045, dated June 7, 1994).

2. Inboard Landing and Runway Turn-off Light Lens Assembly (Cover) Removal (Fig. 401)

A. References
(1) AMM 27-81-00/MP, Leading Edge Flap and Slat Control System

B. Access
(1) Location Zone
303 Left Wing Inboard Leading Edge Including Slats
403 Right Wing Inboard Leading Edge Including Slats

C. Procedure

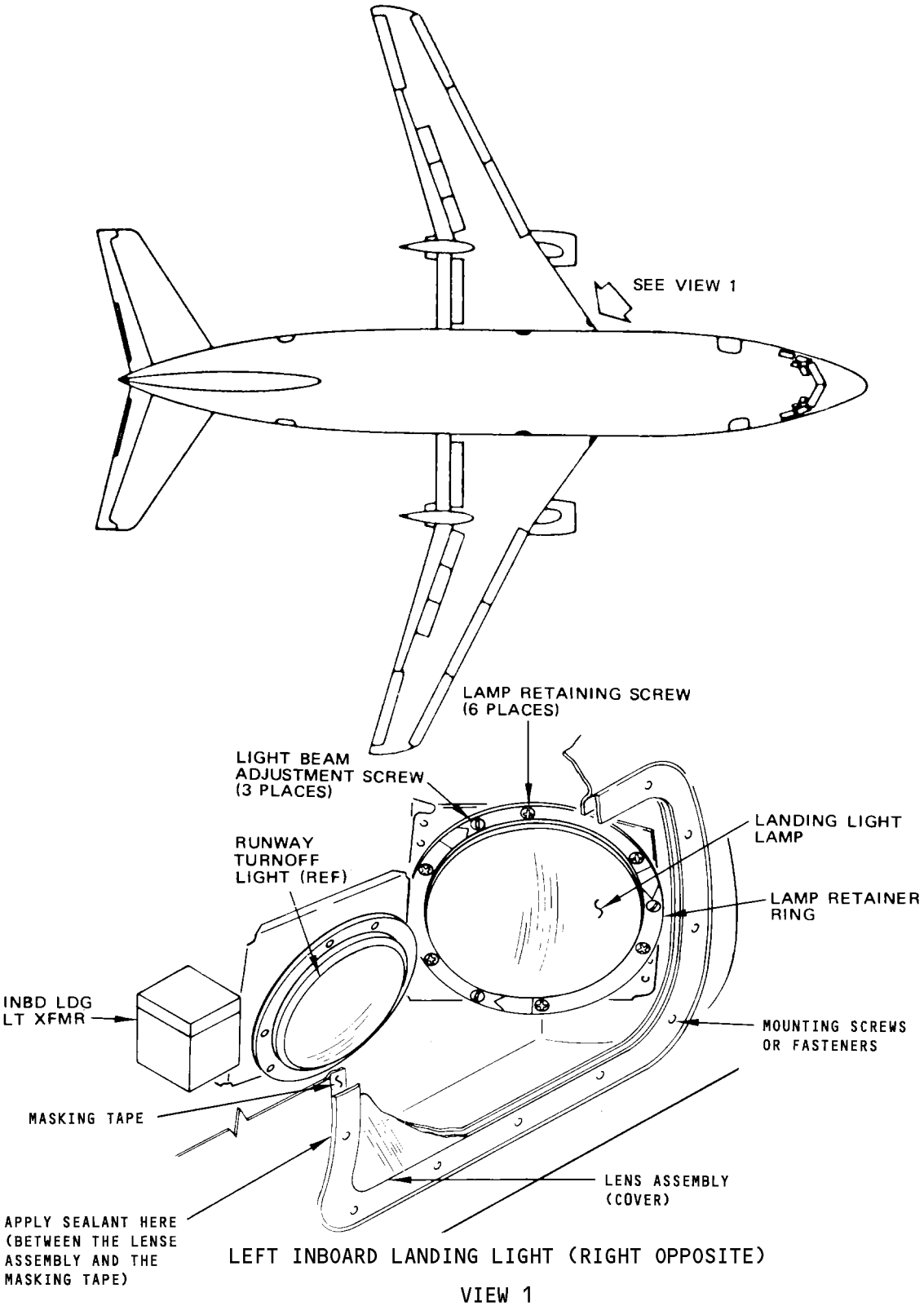
WARNING: YOU MUST CAREFULLY DO THE STEPS IN THE TASK BELOW TO INSTALL THE LEADING EDGE FLAP AND SLAT LOCKS CORRECTLY. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY IF YOU DO NOT INSTALL THE LOCKS CORRECTLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(1) Do this task: "Leading Edge Flap and Slat Locks Installation" (AMM 27-81-00/MP).
(2) Remove the lens:
(a) Remove the lens screws or release the quick-release fasteners.

NOTE: Make sure there is a lanyard attached to the lens. If a lanyard is not attached, hold the lens to make sure it does not fall.

(b) Carefully pull the lens from the wing leading edge, so that no damage occurs to the seal or the lens.

CAUTION: DO NOT DO MORE DAMAGE TO THE LENS WHEN YOU REMOVE IT FROM THE WING. YOU WILL USE THIS LENS AS A TEMPLATE TO IDENTIRY THE HOLES FOR THE NEW LENS.



Inboard Landing and Runway Turnoff Taxi Lights Lens Installation
Figure 401

3. Inboard Landing and Runway Turn-off Light Lens Assembly Installation (Fig. 401)
   A. Standard Tools and Equipment
      (1) Sealing gun - 6-inch length cartridge, Senco Research
      (2) Sealant cutting tool - hardwood or plexiglass
      (3) Varnish brush - 1- or 2-inch
      (4) Spatula
   B. Consumable Materials
      (1) A00091 Sealant - silicone rubber 93-006
      (2) B00316 Naphtha - Aliphatic TT-N-95A
      (3) G00001 Parting Agent - Green Strippable Vinyl Coating 4A-183
      (4) G00111 Sheeting, Plastic Film - Mylar, .0075 inch thickness
      (5) G00142 Tape, Masking - Permacel 70
      (6) G00150 Tape, Teflon - Permacel P421
      (7) G00412 Tape, Masking - Permacel 85
   C. References
      (1) AMM 27-81-00/MP, Leading Edge Flap and Slat Control System
      (2) AMM 51-31-00/MP, Seals and Sealing
   D. Access
      (1) Location Zone 303 Left Wing Inboard Leading Edge Including Slats 303 Right Wing Inboard Leading Edge Including Slats
   E. Procedure
      (1) Do these steps to install existing lens assembly:
         (a) Examine the sea on the wing leading edge.
            1) If the seal is damaged replace it as follows:
               a) Remove old seal and prepare surface for sealing (AMM 51-31-0/201).

                  CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE AND APPLY SEALNAT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

               b) Make new seal (Ref AMM 51-31-00/201).
            2) If the seal is not damaged, remove and reapply parting agent or parting tape if required.
         (b) Put lens back into position.
         (c) Install and tighten screws.
      (2) Do these steps to prepare a new lens for installation.
         (a) Make a copy of the used lens on a piece of the mylar sheeting.
            1) Attach the mylar sheeting to the used lens.
            2) Make a mark around the contour of the lens and at the location of each hole.
            3) Remove the mylar sheeting from the used lens.
         (b) Make the new lens the same as the used lens.
            1) Attach the mylar sheeting to the new lens.
            2) Make a copy of the contour and hole locations from the mylar sheeting to the new lens.
         (c) Drill countersunk holes in the new lens at the correct locations (Fig. 402).

(d) If it is necessary, cut or grind the edges of the new lens.

NOTE: Make the new lens the same contour and dimensions as the used lens.

(3) On a lens attached with screws and nutplates, install the new lens.
(a) Remove old seal and prepare surface for sealing (AMM 51-31-0/201).

CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE AND APPLY THE SEALANT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

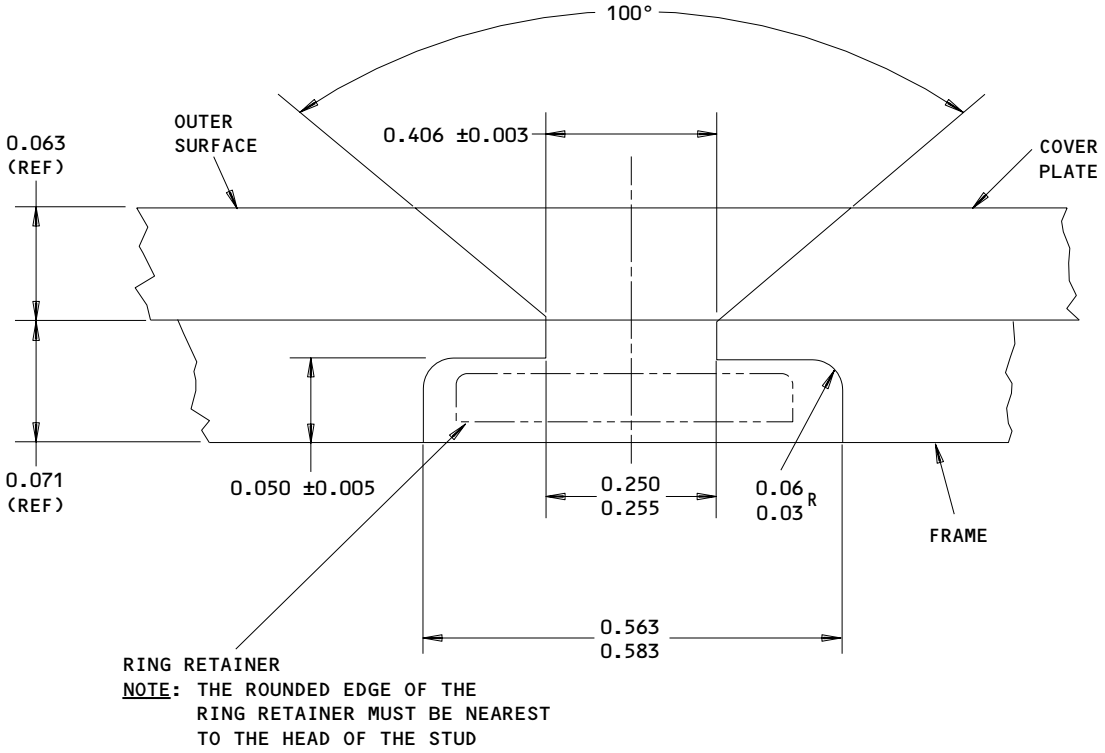
(b) Apply the parting tape to all the surfaces that connect on the lens assembly.

NOTE: The parting agent can be used as an alternative to the teflon tape (AMM 51-31-00/MP).

(c) Make a new seal (Ref AMM 51-31-00/201).
(d) Put the new lens assembly in its position.
(e) Put the screws that were removed from the used lens assembly into the holes in the new lens assembly.
(f) Tighten the screws.
(4) On a lens attached with quick-release fasteners, install the new lens.
(a) Spotface the lens assembly frame at each of the ring retainer locations (Fig. 402).

NOTE: This step is necessary to make sure the lens cover will correctly engage with the leading edge surface. If you do not spotface the lens frame at each hole, do not use the ring retainers.

(b) Put the studs through the holes in the new lens assembly.
(c) Attach the ring retainers on the studs (See Fig. 402 for the proper installation procedures).
(d) Remove old seal and prepare surface for sealing (AMM 51-31-0/201).



LENS ASSEMBLY – HOLE TOLERANCES FOR A STUD AND RING RETAINER

NOTE: ALL DIMENSIONS ARE IN INCHES.

Lens Assembly for the Inboard Landing and Runway Turnoff Lights Lens Installati
Figure 402

CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE AND APPLY THE SEALANT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

(e) Apply a parting agent to all the surfaces that connect on the lens assembly (AMM 51-31-00/MP).
(f) Make a new seal (Ref AMM 51-31-00/201).
(g) Put the new lens assembly in its position.
(h) Tighten the quick-release fasteners.

WARNING: YOU MUST CAREFULLY DO THE STEPS IN THE TASK BELOW TO REMOVE THE LEADING EDGE FLAP AND SLAT LOCKS CORRECTLY. THE LEADING EDGE FLAPS AND SLATS CAN MOVE QUICKLY IF YOU DO NOT REMOVE THE LOCKS CORRECTLY. THIS CAN CAUSE INJURY TO PERSONS OR DAMAGE TO EQUIPMENT.

(5) Do this task: "Leading Edge Flap and Slat Locks Removal" (AMM 27-81-00/MP).

INBOARD LANDING LIGHTS - MAINTENANCE PRACTICES

1. General
   A. The following procedure is for relamping the inboard landing lights. Adjustment after relamping is usually not required unless the mount or the adjustment screws have been disturbed.
   B. The landing and runway turnoff light-lens assembly is sealed to keep out water and fuel vapor (Ref 33-42-21, R/I).
2. Equipment and Materials
   A. Compound, Standard Wiring Practices Manual (SWPM), 20-30-00
   B. Cleaning Solvent - Keytone
   C. Teflon Tape - Permacel No. 422/4220
   D. Lock Assembly, Flight Controls - F80048-1, -2
3. References
   A. MM 33-42-21 R/I Inboard Landing and Runway Turnoff Light
   B. MM 27-51-0 MP Trailing Edge Flaps
   C. MM 27-81-0 MP Leading Edge Flaps and Slats
   D. Standard Wiring Practices Manual (SWPM), 20-30-00
4. Prepare Inboard Landing Light for Relamping (Fig. 201)
   A. Retract and lock leading edge flaps as follows:
      (1) Install flight controls lock on leading edge devices shutoff valve at standby hydraulic module (Ref 27-81-0, MP).
      (2) Install flight controls lock on trailing edge bypass valve (Ref 27-51-0, MP).
      (3) Check that alternate flaps arm switch is in OFF position and tag switch DO NOT OPERATE.

      WARNING: INSTALL FLIGHT CONTROLS LOCKS WHEN MAINTENANCE IS BEING PERFORMED IN THE WING LEADING EDGE AREA. FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

   B. Remove landing light lens assembly (Ref 33-42-21, R/I).
   C. Open INBD R and L inboard landing light circuit breakers on P18-3 panel.
5. Relamp Inboard Landing Light (Fig. 201)
   A. Remove retainer by removing six retainer screws.

      NOTE: Do not turn adjustment screws.

   B. Remove lamp from landing light frame.
   C. Disconnect wires from screw terminals on lamp.

D. Remove gasket from lamp and install gasket on replacement lamp.

NOTE: To install gasket, the gasket should be wiped clean with Keytone, or equivalent cleaning solvent. Then holding one end of gasket on rim of lamp, wrap gasket around lamp (keeping sufficient tension to cause gasket to form itself to the contour of the lamp) until ends of gasket are overlapped. If required, cut off excess gasket material so the overlap is approximately 1 inch. A piece of teflon tape may be used to retain overlapping gasket in position so that gasket will not come loose during lamp installation.

E. Connect wires to screw terminals on replacement lamp.
F. Seal the electrical terminals for a fuel vapor area (SWPM 20-30-00).

NOTE: The sealant does not have to become tack-free before the completion of this procedure and the dispatch of the airplane.

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

G. Set lamp in landing light frame.

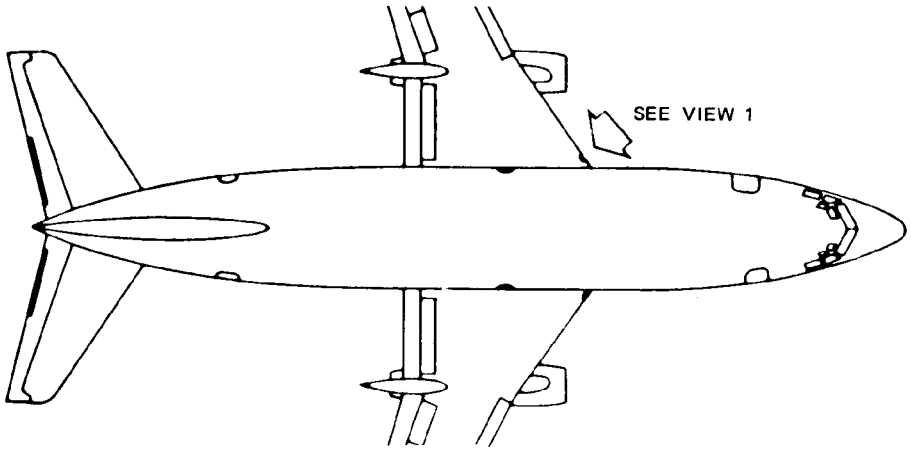
NOTE: When Q4559 (quartz halogen) lamp is used, install lamp with filament horizontal. When 4559 (tungsten filament) lamp is used, install lamp with filament shield inboard.

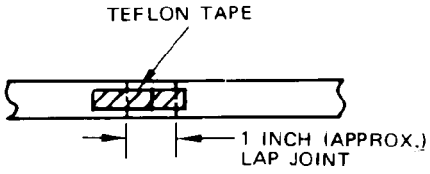
H. Place retainer on lamp, aligning holes with holes in frame, and instal1 six retainer screws.

6. Restore Airplane to Normal Configuration
   A. Close applicable inboard landing light circuit breaker on P18-3 panel.
   B. Test inboard landing lights.
      (1) Provide electrical power.
      (2) On forward overhead panel place inboard landing light switch to ON; check that both landing lights come on and illuminate symmetrical areas ahead of the airplane; and return inboard landing light switch to OFF.

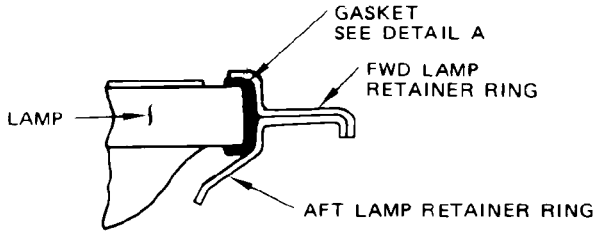
CAUTION: DO NOT LEAVE LIGHTS ON MORE THAN 5 MINUTES. ALLOW AT LEAST 5 MINUTES BEFORE TURNING ON AGAIN.

      (3) Remove electrical power if no longer required.
   C. Clean inside of lens with cloth.
   D. Install lens assembly (Ref 33-42-21, R/I).
   E. Restore leading edge flaps to normal as follows:
      (1) Remove flight controls lock from leading edge devices shutoff valve at standby hydraulic module (Ref 27-81-0, MP).
      (2) Remove flight controls lock from trailing edge bypass valve (Ref 27-51-0, MP).

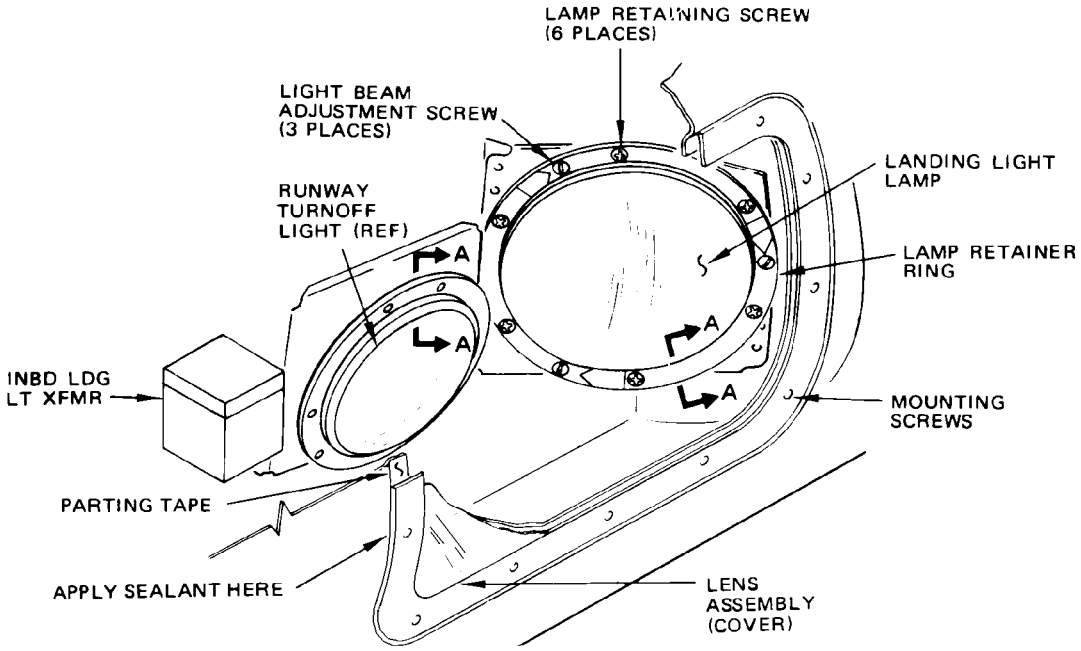




WRAP AROUND GASKET LAP JOINT
DETAIL A



WRAP AROUND GASKET INSTALLED
DETAIL A-A



LEFT INBOARD LANDING LIGHT (RIGHT OPPOSITE)
VIEW 1

Inboard Landing Lights Relamping
Figure 201

(3) Remove DO NOT OPERATE tag from alternate flaps arm switch.

WARNING: LEADING FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

INBOARD LANDING LIGHTS - ADJUSTMENT/TEST

1. General
   A. Each inboard landing light is adjustable laterally and vertically.
   B. Two adjustment procedures are provided.
      (1) Method 1 (Preferred) - requires the use of the light aligner, but does not require leveling the airplane.
      (2) Method 2 (Alternate) - does not use the light aligner, but does require the airplane to be approximately level (Ref Chapter 8).
2. Equipment and Materials
   A. Lock Assembly, Flight Controls - F80049-1, -2
   B. Light Aligner, Part No. PF 33-001, PF Industries, 9320 15th Ave. So., Seattle, WA 98108 (Method 1 - only)
3. Prepare Inboard Landing Light for Adjustment
   A. Retract and lock leading edge flaps as follows:
      (1) Install flight controls lock on leading edge devices shutoff valve at standby hydraulic module (Ref 27-81-0 MP).
      (2) Install flight controls lock on trailing edge bypass valve (Ref 27-51-0 MP).
      (3) Check that alternate flaps arm switch is in OFF position and tag switch DO NOT OPERATE.

      WARNING: INSTALL FLIGHT CONTROL LOCKS WHEN MAINTENANCE IS BEING PERFORMED IN THE WING LEADING EDGE AREA. FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

   B. Remove landing light lens assembly (Ref 33-42-21 MP).

      NOTE: Restrain light cover to keep it from falling and breaking.

4. Adjust Inboard Landing Light - Method 1 (Preferred) (Fig. 501)
   A. Position Light Aligner 264 +1 inches forward of light and 101 +1 inches right or left of airplane centerline.
   B. Adjust target height per Fig. 501.
   C. Provide electrical power (Ref 24-22-0 MP).
   D. Check that INBOARD LANDING LIGHT circuit breaker on P18-3 panel is closed.
   E. On pilots' overhead panel, place INBOARD LANDING light switch to ON.

      CAUTION: DO NOT LEAVE LIGHTS ON MORE THAN 5 MINUTES. ALLOW AT LEAST 5 MINUTES BEFORE TURNING ON AGAIN.

      (1) Verify that some alignment status indicators change from yellow to black. The remaining yellow status indicators show approximate location of center of light beam.

F. Turn adjustment screws until all status indicators change to black, except the center indicator, which will remain yellow.
G. Set INBOARD LANDING light switch to OFF.

5. Adjust Inboard Landing Light - Method 2 (Alternate) (Fig. 502)
   A. Prepare inboard landing light for adjustment.
      (1) Check that airplane is approximately level (Ref. Chapter 8).
   B. Apply electrical power (Ref. 24-22-0 MP).
   C. Check that INBOARD LANDING LIGHT circuit breaker on P18-3 panel is closed.
   D. On pilots' overhead panel, place INBOARD LANDING light switch to ON.

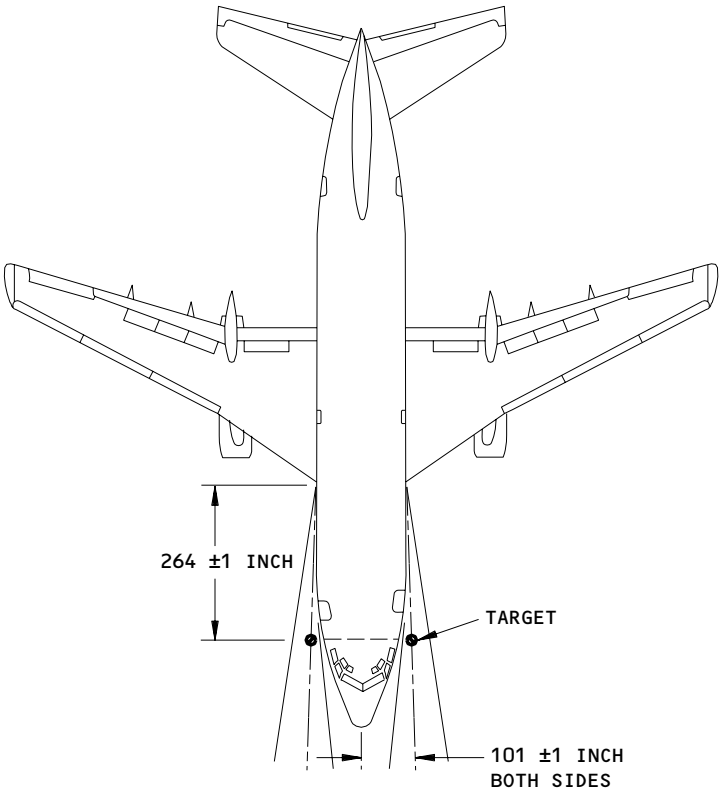
      CAUTION: DO NOT LEAVE LIGHTS ON MORE THAN 5 MINUTES. ALLOW AT LEAST 5 MINUTES BEFORE TURNING ON AGAIN.

   E. Turn adjustment screws as required to adjust light so that center of light spot is at point A or A' as applicable.

6. Restore Airplane to Normal Configuration
   A. Clean inside of lens assembly with cloth.
   B. Install and seal lens assembly (Ref. 33-42-21 R/I).
   C. Restore leading edge flaps to normal as follows:
      (1) Remove flight controls lock from leading edge devices shutoff valve at standby hydraulic module (Ref. 27-81-0 MP).
      (2) Remove flight controls lock from trailing edge bypass valve (Ref. 27-51-0 MP).
      (3) Remove DO NOT OPERATE tag from alternate flaps arm switch.

         WARNING: LEADING FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

   D. Remove electrical power if no longer required (Ref. 24-22-0 MP).

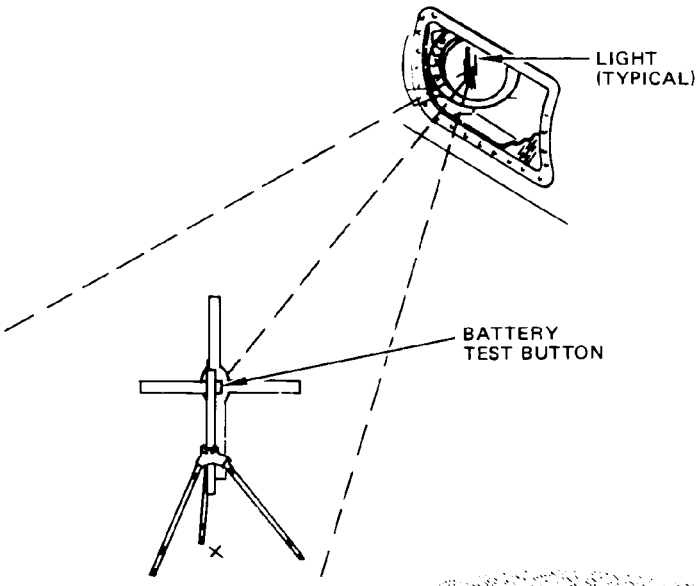


INBOARD LANDING LIGHT
1. MEASURE LAMP HEIGHT FROM GROUND 2. SET TARGET HEIGHT 23 INCHES BELOW MEASURED HEIGHT FROM STEP 1 ABOVE 3. MEASUSRE A/P NOSE ATTITUDE. ADJUST TARGET HEIGHT AS SHOWN BELOW.

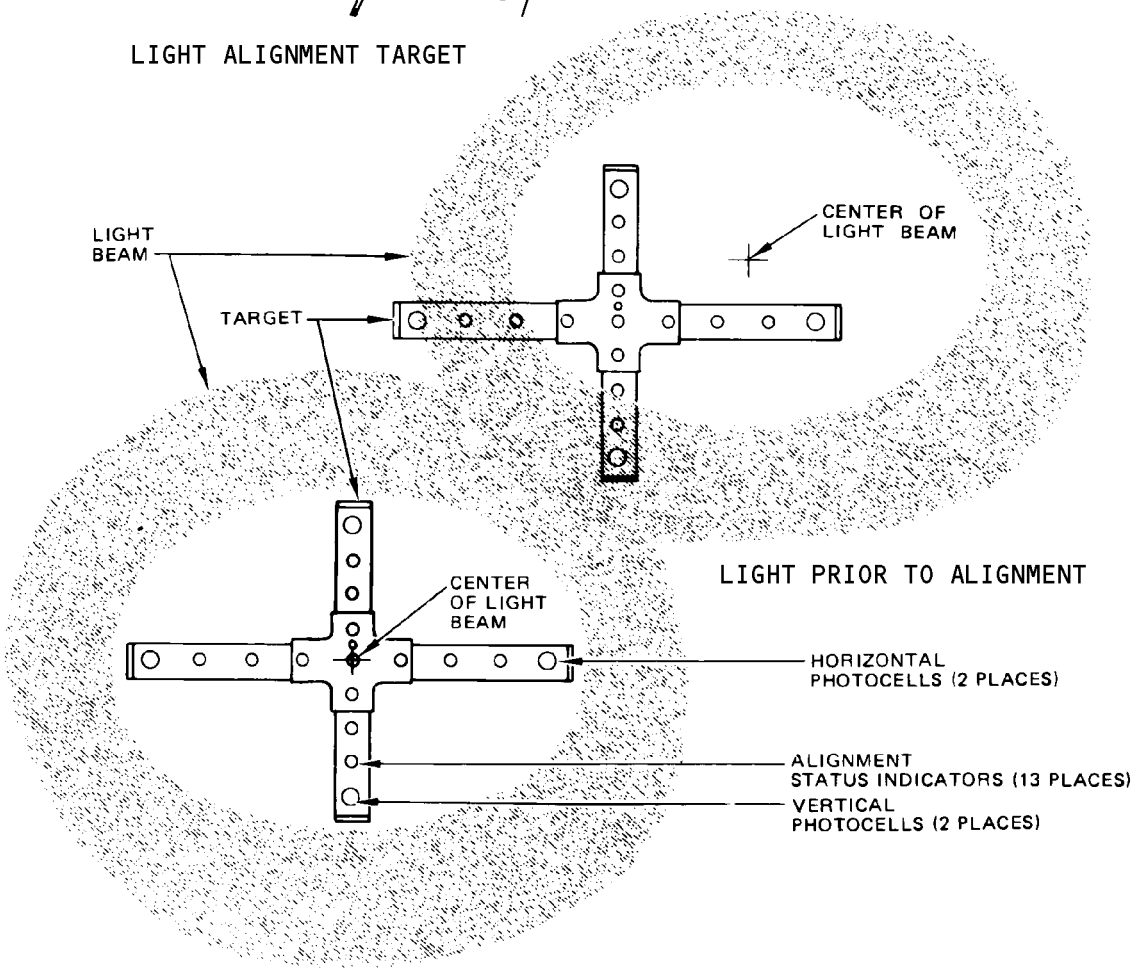
A/P NOSE ATTITUDE		TARGET HEIGHT ADJUSTMENT
UP	1/2°	+7.0 (INCHES)
UP	1/4°	+6.0
	0°	+4.5
DOWN	1/4°	+3.5
DOWN	1/2°	+2.5
DOWN	3/4°	+1.0
DOWN	1.0 (NOM)	0
DOWN	1 1/4°	-1.0
DOWN	1 1/2°	-2.5
DOWN	1 3/4°	-3.5
DOWN	2°	-4.5
DOWN	2 1/4°	-6.0
DOWN	2 1/2°	-7.0

METHOD 1

Method 1 (Preferred) Inboard Landing Light Adjustment
Figure 501 (Sheet 1)

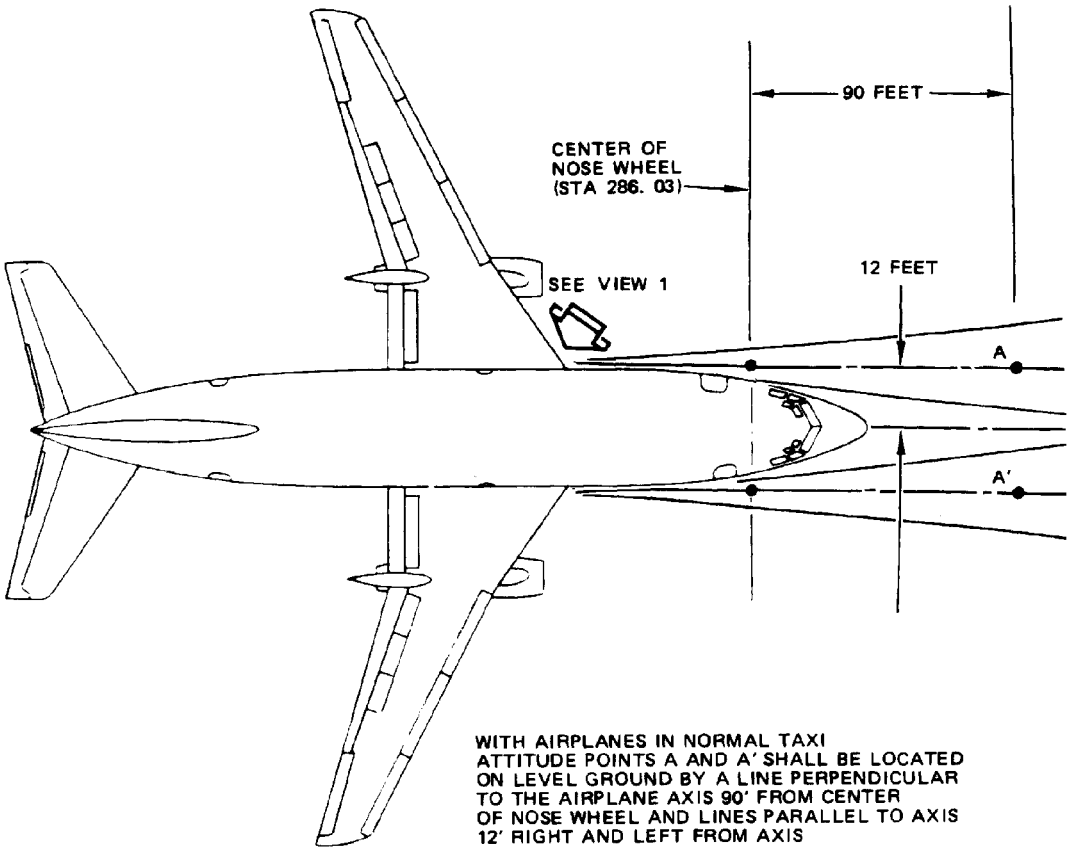


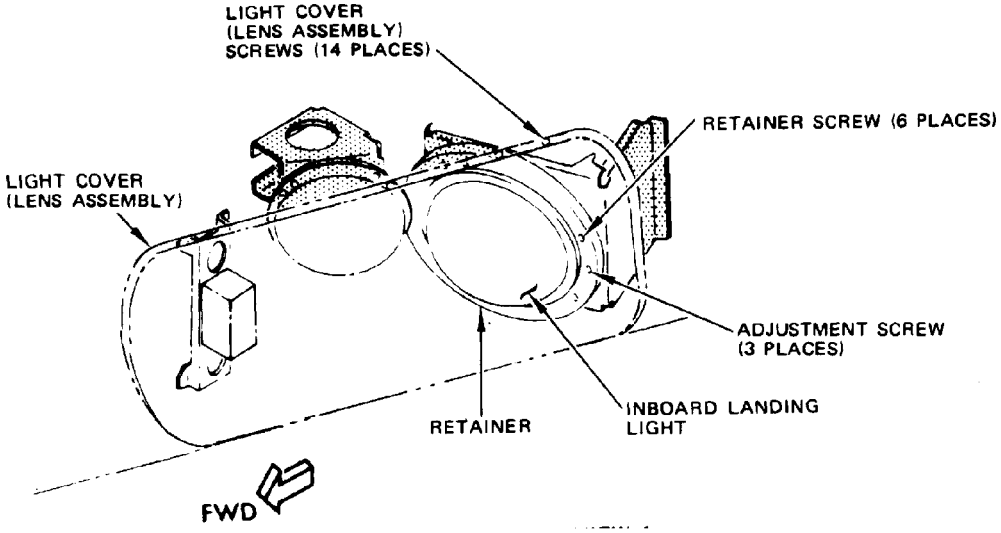
LIGHT ALIGNMENT TARGET



ALIGNED LIGHT ADJUSTMENT TOOL FOR METHOD 1

Method 1 (Preferred) Inboard Landing Light Adjustment
Figure 501 (Sheet 2)





Method 2 (Alternate) Inboard Landing Light Adjustment
Figure 502 (Sheet 1)

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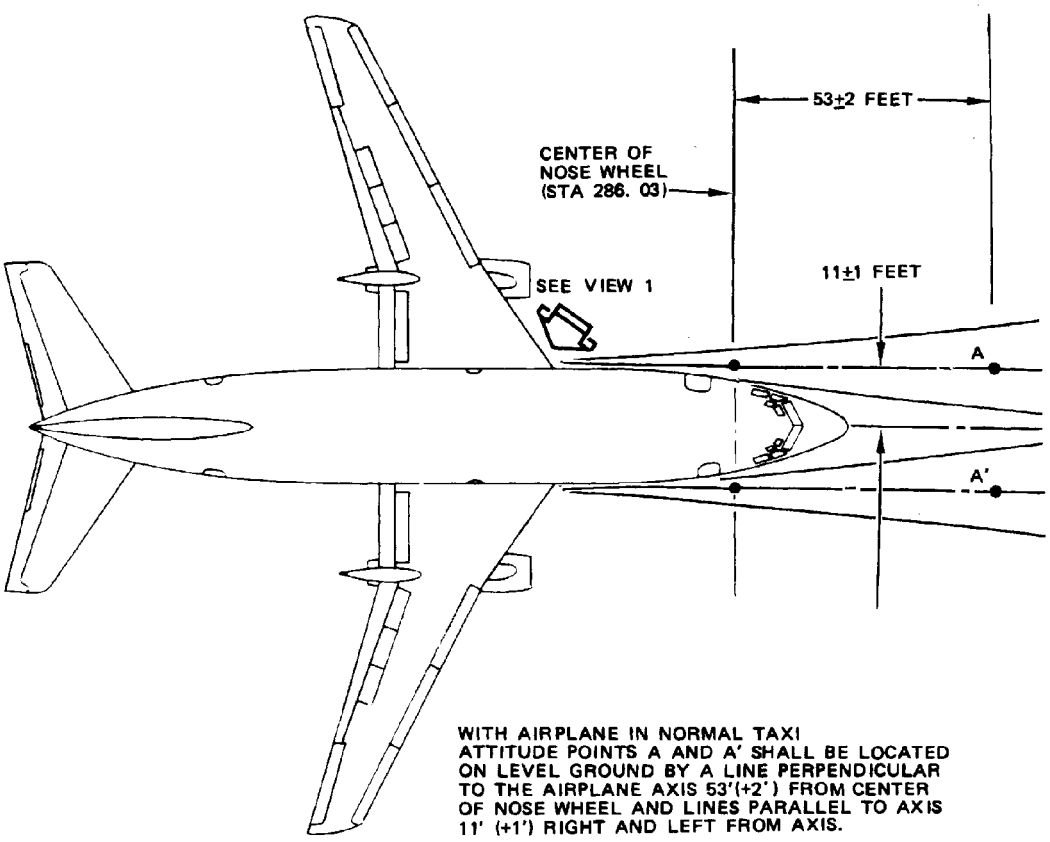
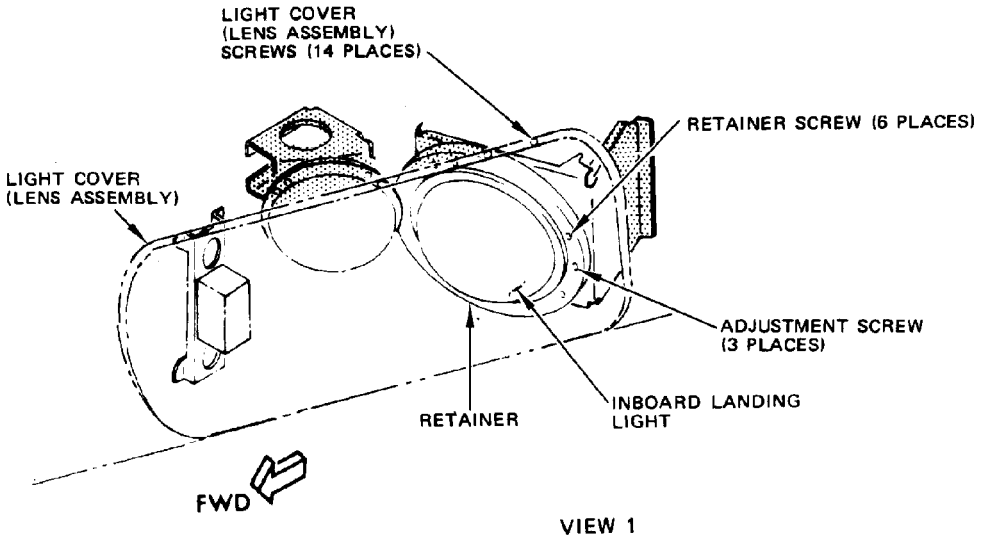




VIEW 1

Method 2 (Alternate) Inboard Landing Light Adjustment
Figure 502 (Sheet 2)

RUNWAY TURNOFF TAXI LIGHTS - MAINTENANCE PRACTICES

1. General
   A. The following procedure is for relamping the runway turnoff taxi lights. Adjustment after relamping is usually not required unless the mount or the adjustment screws have been disturbed.
   B. The landing and runway turnoff light lens assembly is sealed to keep out water and fuel vapors (Ref 33-42-21, R/I).
2. Equipment and Materials
   A. Compound, Standard Wiring Practices Manual (SWPM), 20-30-00
   B. Cleaning Solvent - Keytone
   C. Teflon Tape - Permacel No. 422/4220
   D. Lock Assembly, Flight Controls - F80049-1, -2
3. References
   A. MM 33-42-21 R/I Inboard Landing and Runway Turnoff Light
   B. MM 27-51-0 MP Trailing Edge Flaps
   C. MM 27-81-0 MP Leading Edge Flaps and Slats
   D. Standard Wiring Practices Manual (SWPM), 20-30-00
4. Prepare Runway Turnoff Taxi Light for Relamping (Fig. 201)
   A. Retract and lock leading edge flaps as follows:
      (1) Install flight controls lock on leading edge devices shutoff valve at standby hydraulic module (Ref 27-81-0, MP).
      (2) Install flight controls lock on trailing edge bypass valve (Ref 27-51-0, MP).
      (3) Check that alternate flaps arm switch is in OFF position and tag switch DO NOT OPERATE.

      WARNING: INSTALL FLIGHT CONTROLS LOCKS WHEN MAINTENANCE IS BEING PERFORMED IN THE WING LEADING EDGE AREA. FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

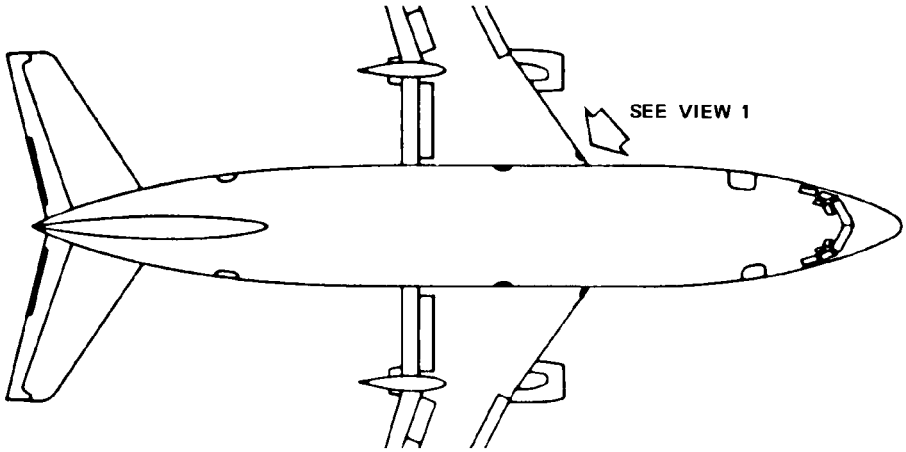
   B. Remove landing and runway turnoff light lens assembly (Ref 33-42-21, R/I).

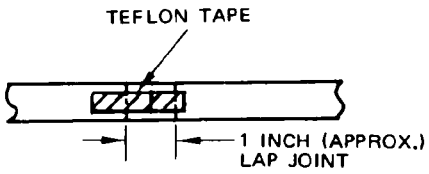
      NOTE: Restrain light cover to keep it from falling and breaking.

   C. Open applicable runway turnoff light circuit breaker on P18-3 panel.
5. Relamp Runway Turnoff Taxi Light (Fig. 201)
   A. Remove outer retainer by removing three retainer screws.

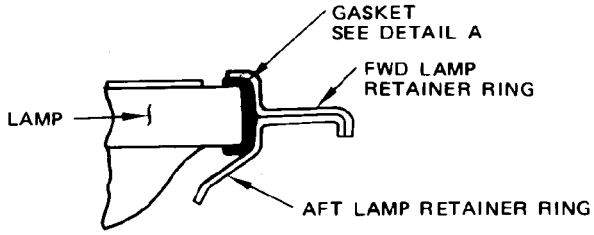
      NOTE: Do not turn adjustment screws.

   B. Remove lamp from inner retainer.
   C. Disconnect wires from screw terminals on lamp.

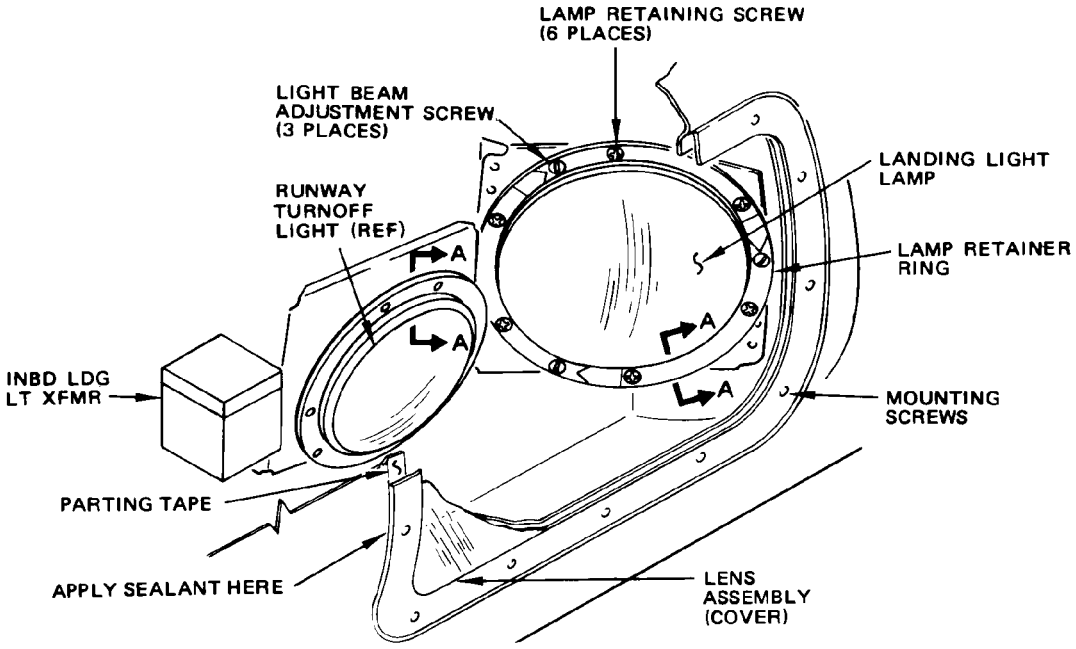




WRAP AROUND GASKET LAP JOINT
DETAIL A



WRAP AROUND GASKET INSTALLED
SECTION A-A



LEFT RUNWAY TURNOFF LIGHT (RIGHT OPPOSITE)
VIEW 1

Runway Turnoff Lights Relamping
Figure 201

D. Remove gasket from lamp and install gasket on replacement lamp.

NOTE: To install gasket, the gasket should be wiped clean with Keytone, or equivalent cleaning solvent. Then holding one end of gasket on rim of lamp, wrap gasket around lamp (keeping sufficient tension to cause gasket to form itself to the contour of the lamp) until ends of gasket are overlapped. If required, cut off excess gasket material so the overlap is approximately 1 inch. A piece of teflon tape may be used to retain overlapping gasket in position so that gasket will not come loose during lamp installation.

E. Connect wires to screw terminals on replacement lamp.
F. Seal the electrical terminals for a fuel vapor area (SWPM 20-30-00).

NOTE: The sealant does not have to become tack-free before the completion of this procedure and the dispatch of the airplane.

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

G. Align locating lug on lamp with slot in inner retainer so top of lamp is properly positioned. Set lamp on retainer.
H. Place outer retainer on lamp, aligning holes with holes retainer, and install three retainer screws.

6. Restore Airplane to Normal Configuration
A. Close applicable runway turnoff taxi light circuit breaker on P18-3 panel.
B. Test runway turnoff taxi lights.
(1) Provide electrical power.
(2) On forward overhead panel, actuate runway turnoff taxi light switch to ON; check that both runway turnoff taxi lights come on and illuminate symmetrical areas; and return runway turnoff taxi light switch to OFF.

CAUTION: DO NOT LEAVE LIGHTS ON MORE THAN 5 MINUTES. ALLOW AT LEAST 5 MINUTES BEFORE TURNING ON AGAIN.

(3) Remove electrical power if no longer required.
C. Clean inside of light cover with cloth.
D. Install and seal lens assembly (Ref 33-42-21, R/I).
E. Restore leading edge flaps to normal as follows:
(1) Remove flight controls lock from leading edge devices shutoff valve at standby hydraulic module (Ref 27-81-0, MP).
(2) Remove flight controls lock from trailing edge bypass valve (Ref 27-51-0, MP).

(3) Remove DO NOT OPERATE tag from alternate flaps arm switch.

WARNING: LEADING FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

RUNWAY TURNOFF TAXI LIGHTS - ADJUSTMENT/TEST

1. General
   A. Each runway turnoff taxi light is adjustable laterally and vertically.
   B. Two adjustment procedures are provided. Method 1 is preferred and requires no special airplane positioning. Method 2 requires airpane in normal taxi attitude.
   C. The landing and runway turnoff light lens assembly is sealed to keep out water and fuel vapors (Ref 33-42-21, R/I).
2. Equipment and Materials
   A. Lock Assembly, Flight Controls - F80049-1, -2
   B. Light Aligner, Part No. PF 33-001, PF Industries, 9320 15th Ave. So., Seattle, WA 98108 (Method 1 - only)
3. Prepare Runway Turnoff Taxi Light for Adjustment
   A. Check that airplane is approximately level.
   B. Retract and lock leading edge flaps as follows:
      (1) Install flight controls lock on leading edge devices shutoff valve as standby hydraulic module (Ref 27-81-0 MP).
      (2) Install flight controls lock on trailing edge bypass valve (Ref 27-51-0 MP).
      (3) Check that alternate flaps arm switch is in OFF position and tag switch DO NOT OPERATE.

      WARNING: INSTALL FLIGHT CONTROLS LOCKS WHEN MAINTENANCE IS BEING PERFORMED IN THE WING LEADING EDGE AREA. FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

   C. Remove landing and runway turnoff light lens assembly (Ref 33-42-21, R/I).

      NOTE: Restrain lens assembly to keep it from falling and breaking.

4. Adjust Inboard Landing Light (Method 1) (Fig. 501, Sheet 2)
   A. Adjust inboard landing light
      (1) Position Light Aligner 219 +1 inches forward of light and 228 +1 inches right or left of airplane centerline.
      (2) Adjust target height per Fig. 501, Sheet 2.
      (3) Provide electrical power (Ref 24-22-0, MP).
      (4) Check that RUNWAY TURNOFF TAXI LIGHT circuit breaker P18-3 panel is closed.
      (5) On pilots' overhead panel, set RUNWAY TURNOFF TAXI light switch to ON.

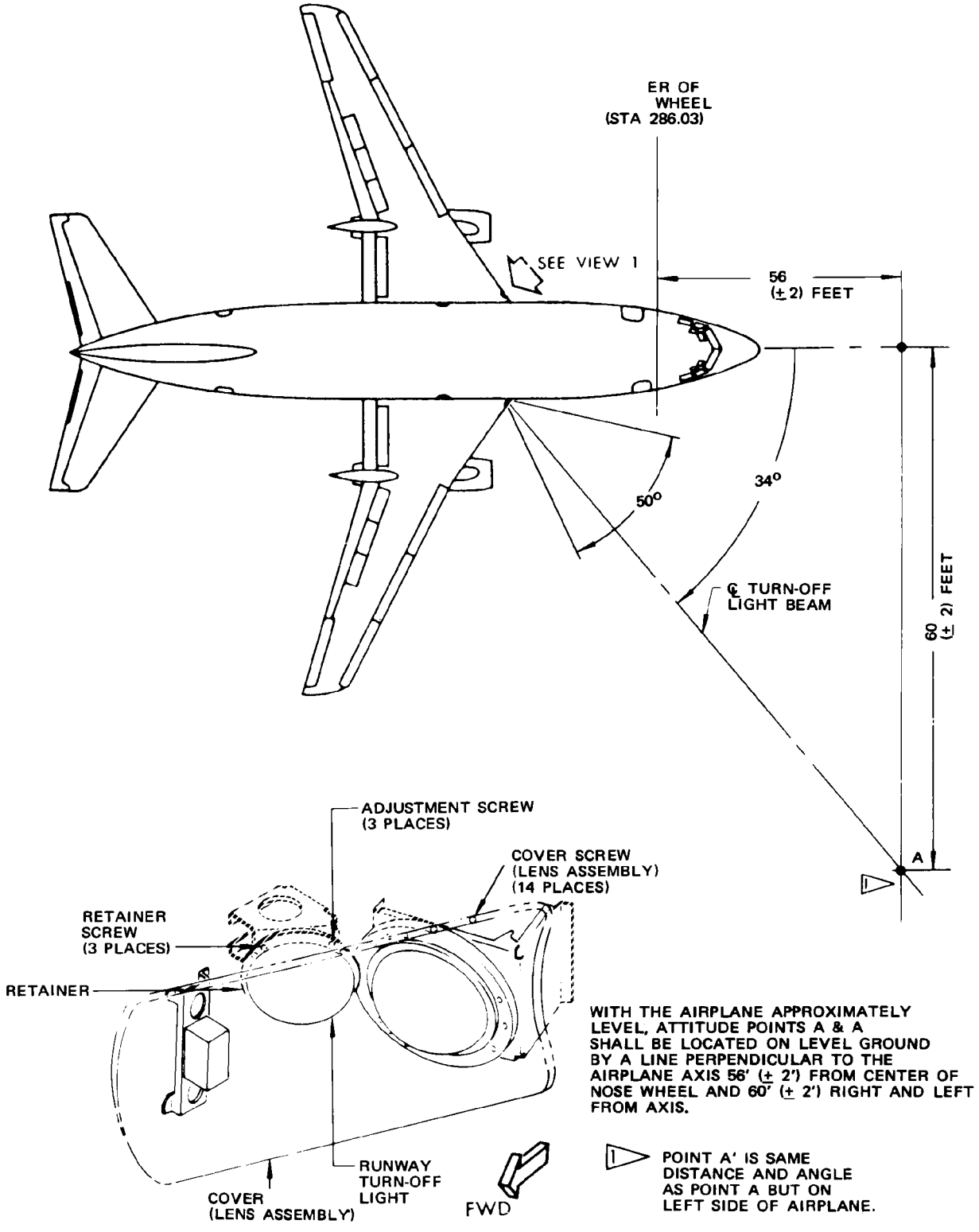
      CAUTION: DO NOT LEAVE LIGHT ON MORE THAN 5 MINUTES. ALLOW AT LEAST 5 MINUTES BEFORE TURNING ON AGAIN.

(6) Verify that some alignment status indicators change from yellow to black. The remaining yellow status indicators show approximate location of center of light beam.
(7) Turn adjustment screws until all status indicators change to black, except the center indicator, which will remain yellow.

5. Adjust Runway Turnoff Taxi Light (Method 2) (Fig. 501, Sheet 1)
   A. Turn adjustment screws as required to adjust light so that center of beam strikes point A.
6. Restore Airplane to Normal Configuration
   A. Clean inside of lens with cloth.
   B. Install and seal lens assembly (Ref 33-42-21, R/I).
   C. Remove do-not-operate marker from flap control lever.
   D. Restore leading edge flaps to normal as follows:
      (1) Remove flight controls lock from leading edge devices shutoff valve at standby hydraulic module (Ref 27-81-0 MP).
      (2) Remove flight controls lock from trailing edge bypass valve (Ref 27-51-0 MP).
      (3) Remove DO NOT OPERATE tag from alternate flaps arm switch.

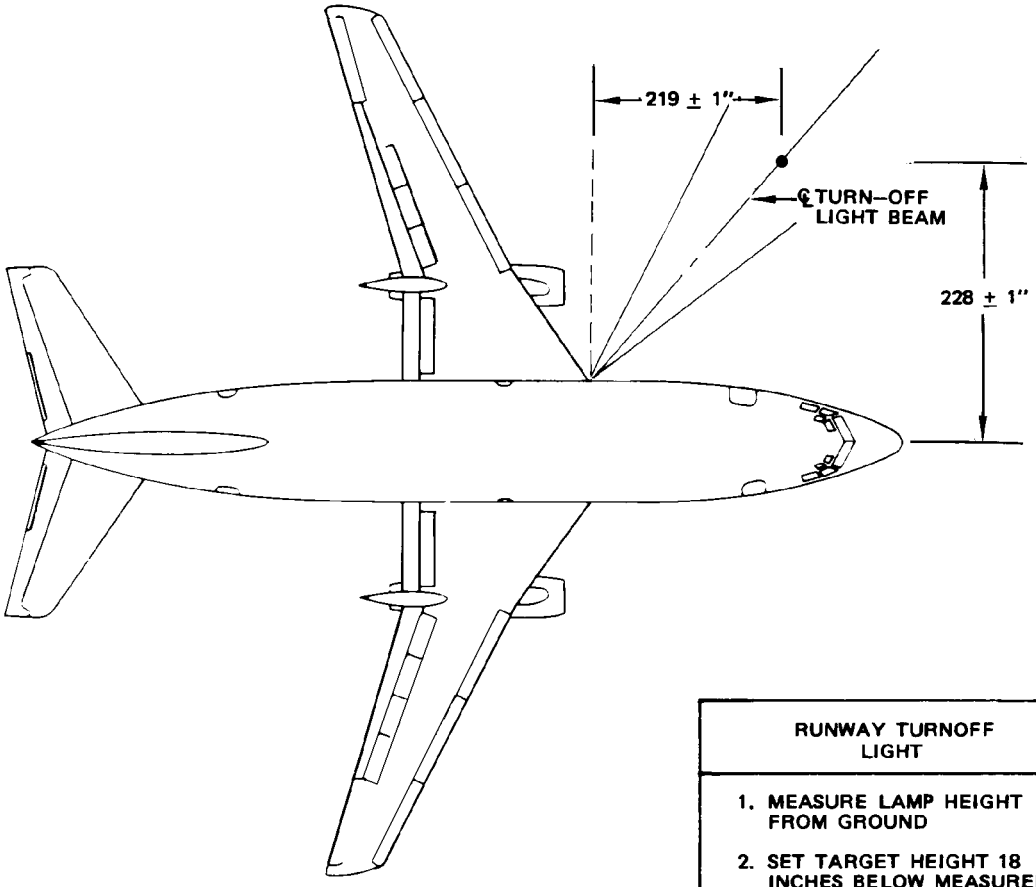
      WARNING: LEADING FLAPS ARE FAST ACTING AND CAN CAUSE SERIOUS INJURY TO PERSONNEL.

   E. Remove electrical power if no longer required (Ref 24-22-0, MP).



VIEW 1

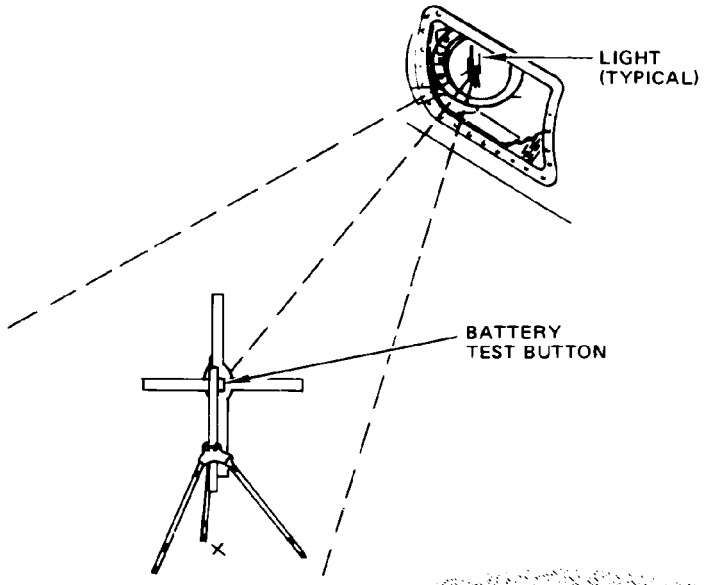
Runway Turnoff Taxi Lights Adjustment
Figure 501 (Sheet 1)



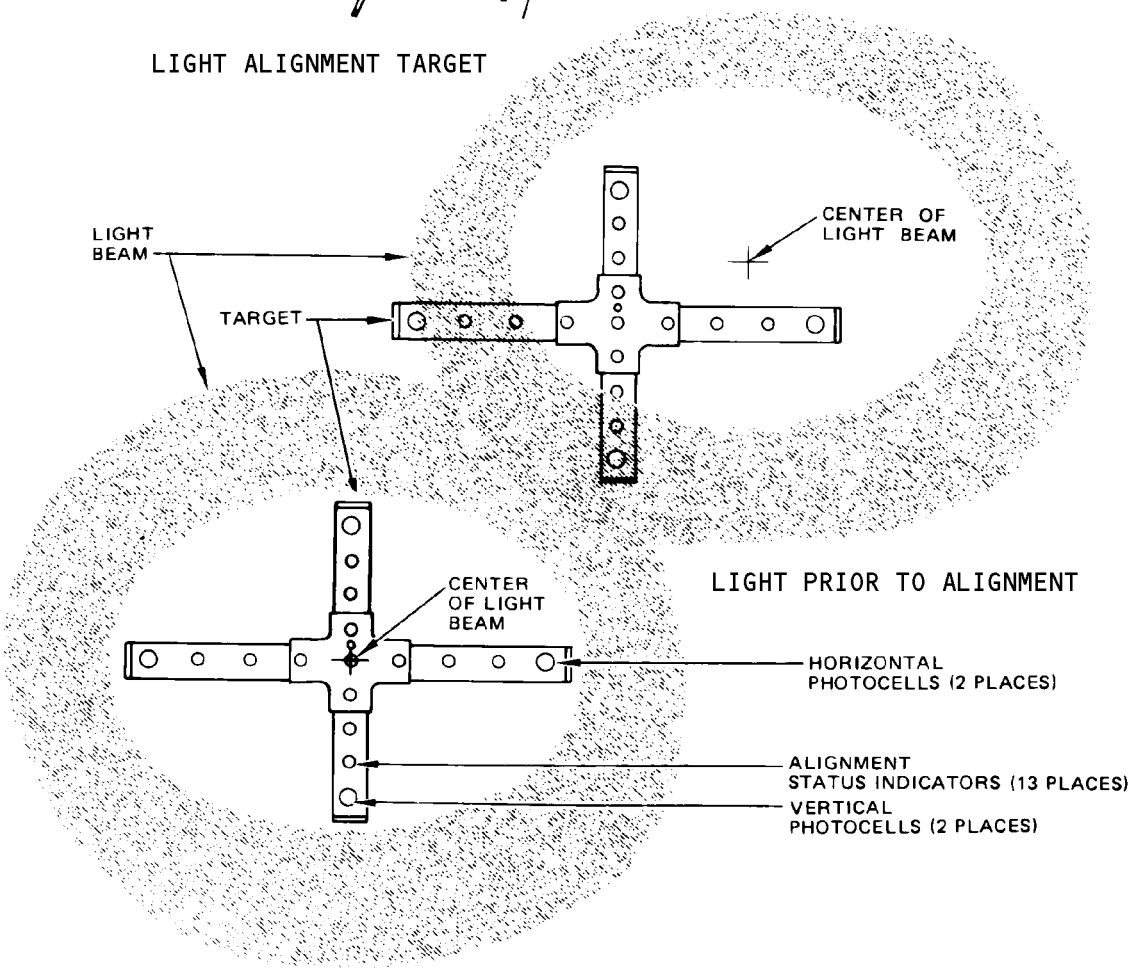
RUNWAY TURNOFF LIGHT
1. MEASURE LAMP HEIGHT FROM GROUND 2. SET TARGET HEIGHT 18 INCHES BELOW MEASURED HEIGHT FROM STEP 1 ABOVE 3. MEASURE AP/ NOSE ATTITUDE. ADJUST TARGET HEIGHT AS SHOWN BELOW

A/P NOSE ATTITUDE	TARGET HEIGHT ADJUSTMENT
UP 1/2°	+5.5
UP 1/4°	+4.5
0°	+4.0
DOWN 1/4°	+3.0
DOWN 1/2°	+2.0
DOWN 3/4°	+1.0
DOWN 1° (NOM)	0
DOWN 1 1/4°	–1.0
DOWN 1 1/2°	–2.0
DOWN 1 3/4°	–3.0
DOWN 2°	–4.0
DOWN 2 1/4°	–4.5
DOWN 2 1/2°	–5.5

Runway Turnoff Taxi Lights Adjustment
Figure 501 (Sheet 2)



LIGHT ALIGNMENT TARGET

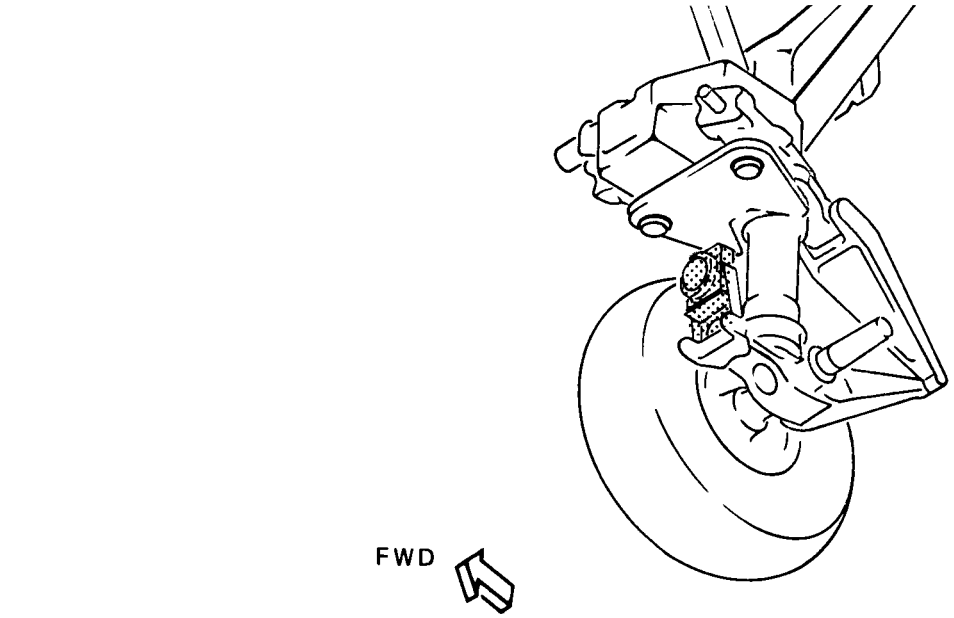


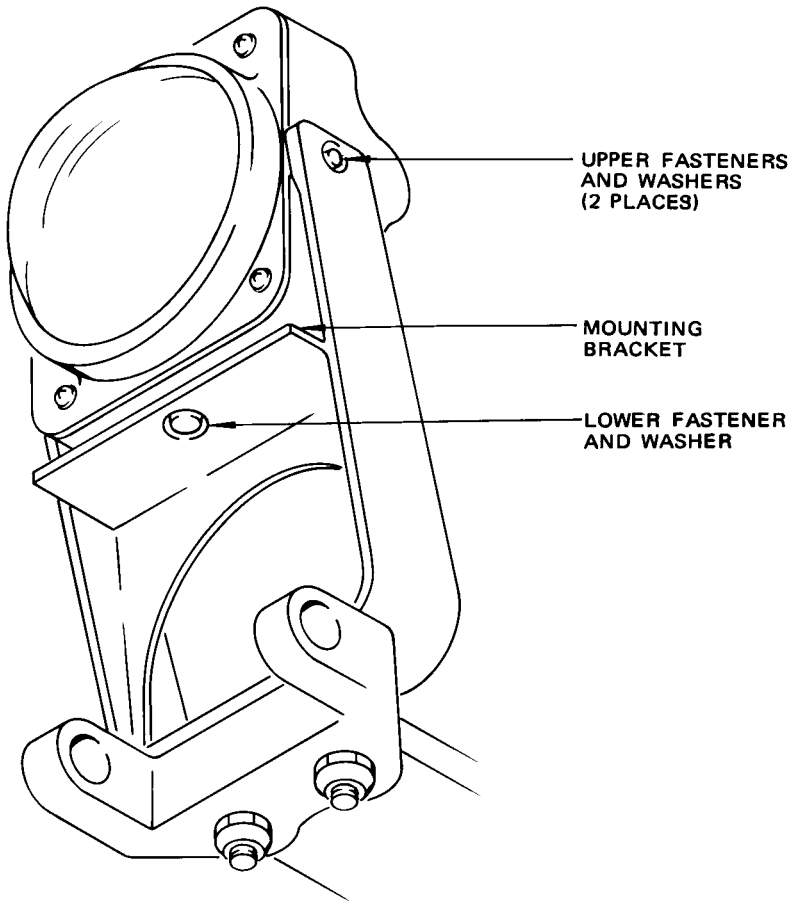
ALIGNED LIGHT ADJUSTABLE TOOL FOR METHOD 1

Runway Turnoff Taxi Lights Adjustment
Figure 501 (Sheet 3)

NOSE GEAR TAXI LIGHT - ADJUSTMENT/TEST

1. Nose Gear Taxi Light Adjustment
   A. General
      (1) This procedure is for the vertical adjustment of the nose gear taxi light. The light can be adjusted to any desired vertical direction only.
   B. Prepare Nose Gear Taxi Light for Adjustment
      (1) Check that airplane is in normal taxi altitude, 1 degree (+ 10 minutes) nose down. (See Chapter 8, Leveling and Weighing.)
      (2) Provide electrical power.
      (3) Check that NOSE GEAR TAXI LIGHT circuit breaker on panel P18 is closed.
      (4) On forward overhead panel, actuate taxi light switch to ON to determine position of light beam.
   C. Adjust Nose Gear Taxi Light
      (1) Loosen two upper fasteners. (See figure 501.)
      (2) Remove lower fastener and washer.
      (3) Prepare an undrilled washer made to same exterior shape as washer removed in step (2).
      (4) Adjust center line of light beam to desired angle, approximately 2 degrees, 30 minutes down from horizontal. (1 degree + 10 minutes as stated in paragraph 1.B.(l) should be taken into consideration.)
      (5) Mark and drill washer in step (3) to allow inserting fastener at new light position.
      (6) Bond washer to mounting bracket.
      (7) Install and tighten lower fastener.
      (8) Tighten upper fasteners.
   D. Restore Airplane to Normal Configuration
      (1) Turn off taxi light switch on forward overhead panel.
      (2) If no longer required, remove electrical power from airplane.

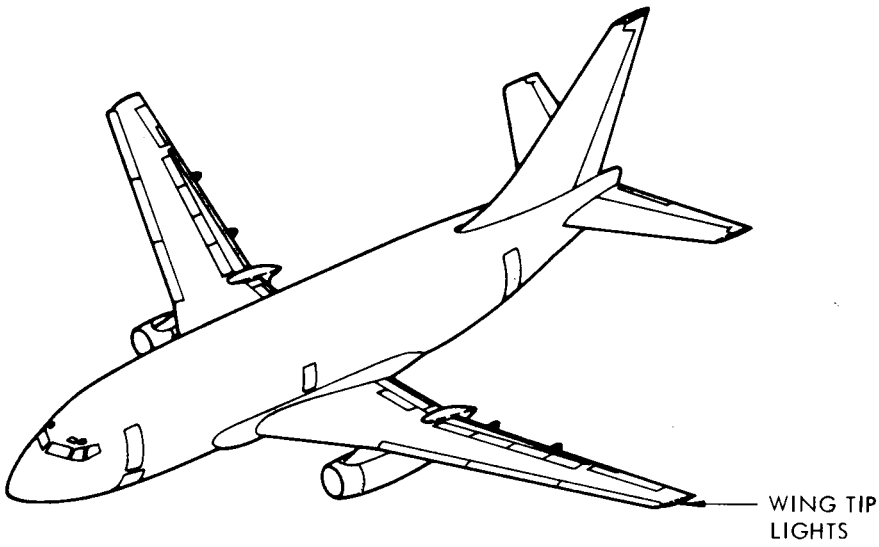


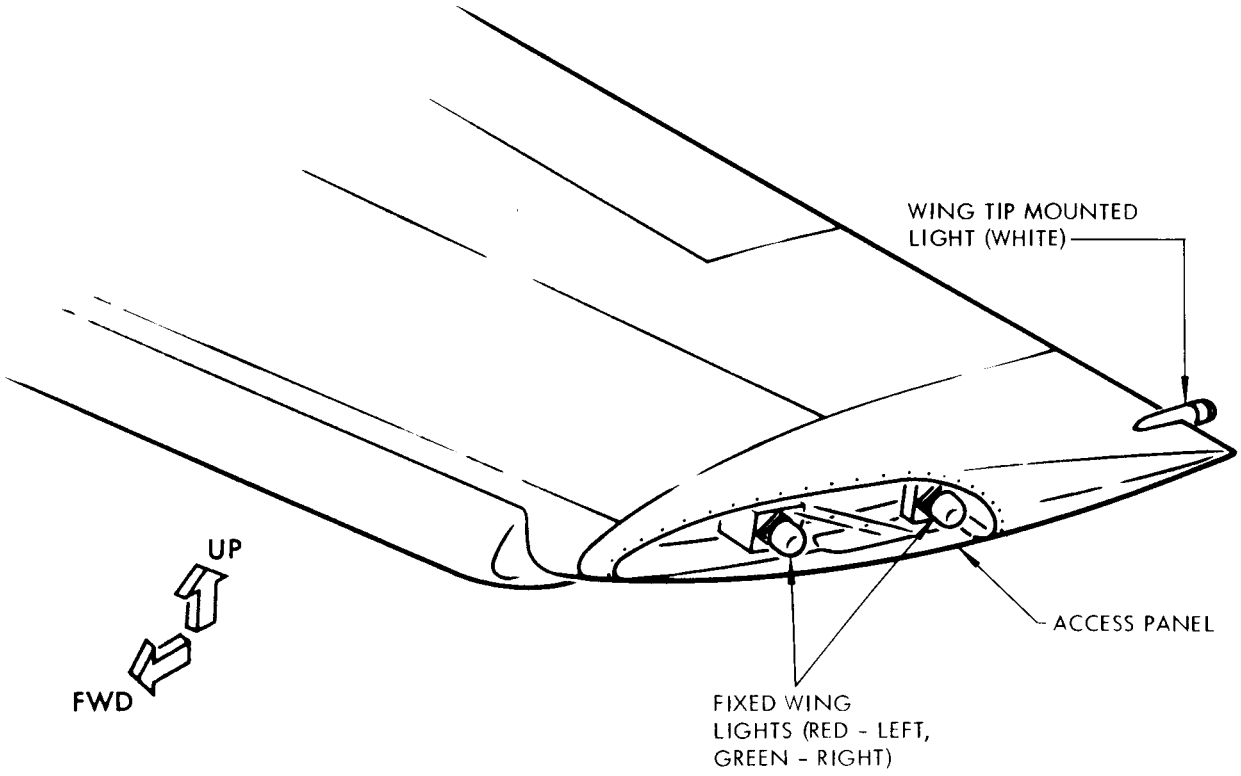


Nose Gear Taxi Light Installation
Figure 501

NAVIGATION LIGHTS - DESCRIPTION AND OPERATION

1. General
   A. Fixed navigation lights indicate airplane position, direction and attitude using red, green and white incandescent lamps (Fig. 1).
   B. The lights are powered from circuit breaker panel P18 and controlled by the position lights switch on the forward overhead panel. In the ON position, power is 28 volts ac from the No. 2 transfer bus through the POSITION NORMAL circuit breaker. In the event of power failure the switch is set to the ON BATTERY position, to supply 28 volts dc from the battery bus through the POSITION BATT circuit breaker.
2. White Navigation Lights
   A. The wing tip mounted tail lights on trailing edges of wing tips provide a steady horizontal beam aft from a line parallel to the airplane centerline to 140 degrees outboard. The vertical beam coverage is 180 degrees.
3. Colored Navigation Lights
   A. Fixed colored lights, red left and green right, are in the outboard edge of each wing. A steady beam provides a horizontal coverage of 110 degrees from a forward line approximately parallel to the airplane, and a vertical coverage of 180 degrees.





Navigation Lights
Figure 1

WING FIXED NAVIGATION LIGHT - MAINTENANCE PRACTICES

1. General
   A. The following procedures provide instructions for relamping and testing the colored navigation lights and the white navigation (tail) lights.
   B. The window covering the forward wingtip lights is carefully sealed against possible entry of fuel vapors from the wing and should not be removed for navigation light lamp replacement. A panel on underside of wingtip provides access for maintenance.
   C. Lightning strike or static discharge across a glass lens will appear as a blistered or crazed area on the outside surface of the lens. This area is usually very shallow and has little or no effect on the structural integrity of the lens.
   D. Lenses experiencing lightning strikes or static discharge damage can continue in service providing the affected area depth does not exceed 50% of total lens thickness and does not adversely affect minimum required lighting.
2. References
   A. Standard Wiring Practices Manual (SWPM), 20-30-00
3. Relamp Wingtip Forward Fixed Navigation Lights (Fig. 201)
   A. Open applicable position light circuit breakers on P18-3 panel.
   B. Remove screws securing access panel at wingtip and remove access panel.
   C. Loosen two base assembly retaining captive screws.

      NOTE: Do not remove lens assembly retaining screws.

   D. Remove base assembly. Ensure that index pin in base of light is not disturbed.
   E. Loosen pressure nut at end of shank two turns, and remove lamp noting position of silvered portion.

      CAUTION: DO NOT REMOVE PRESSURE NUT.

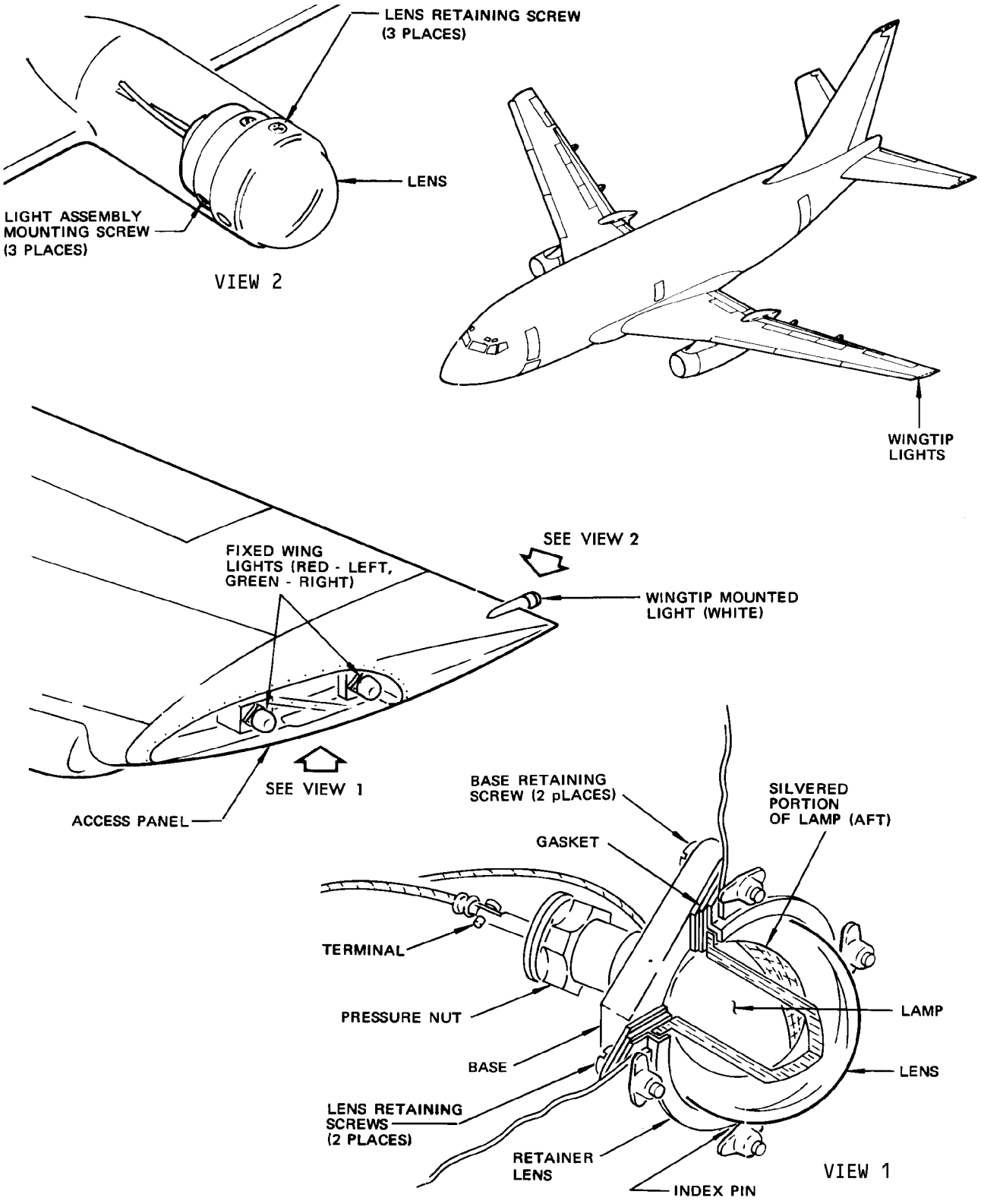
   F. Clean lens with clean, dry, soft cloth.
   G. Install lamp in bayonet socket making certain the silvered portion is in proper position, facing aft to airplane, and tighten pressure nut with finger pressure.
   H. Install base assembly and tighten two captive screws. Ensure that index pin is properly aligned.
   I. If light assembly terminals were disturbed, seal the electrical terminals for a fuel vapor area (SWPM 20-30-00).

      NOTE: The sealant does not have to become tack-free before the completion of this procedure and the dispatch of the airplane.

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

J. Close applicable position light circuit breaker on P18-3 panel.
K. Install access panel and secure fasteners.
L. Test lamp per par. 5.

4. Relamp White Navigation Tail Light (Fig. 201)
   A. Remove three lens retaining screws.
   B. Remove collar and lens.
   C. Replace lamp.
   D. Clean lens with a clean, soft, dry cloth.
   E. Slip collar over lens and install with three screws.
   F. Test navigation light per par. 5.
5. Test Navigation Lights
   A. Provide electrical power.
   B. Check that POSITION light circuit breakers on P18-3 circuit breaker panel are closed.
   C. Set POSITION light switch on overhead panel P5. Observe navigation lights come on.
   D. Return POSITION light switch to OFF.
   E. Remove electrical power if no longer required.



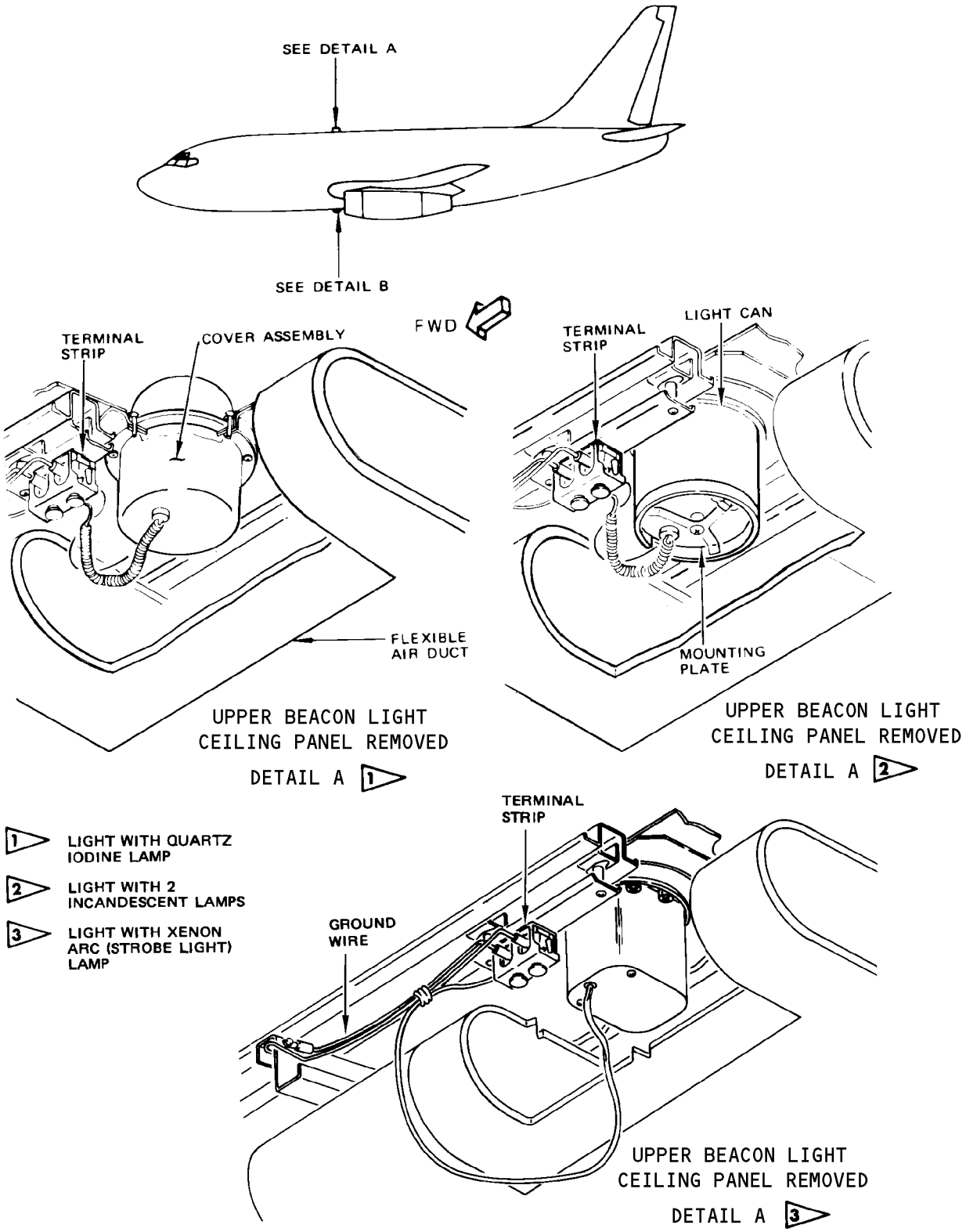
Wing Fixed Navigation Light
Figure 201

BEACON LIGHTS - DESCRIPTION AND OPERATION

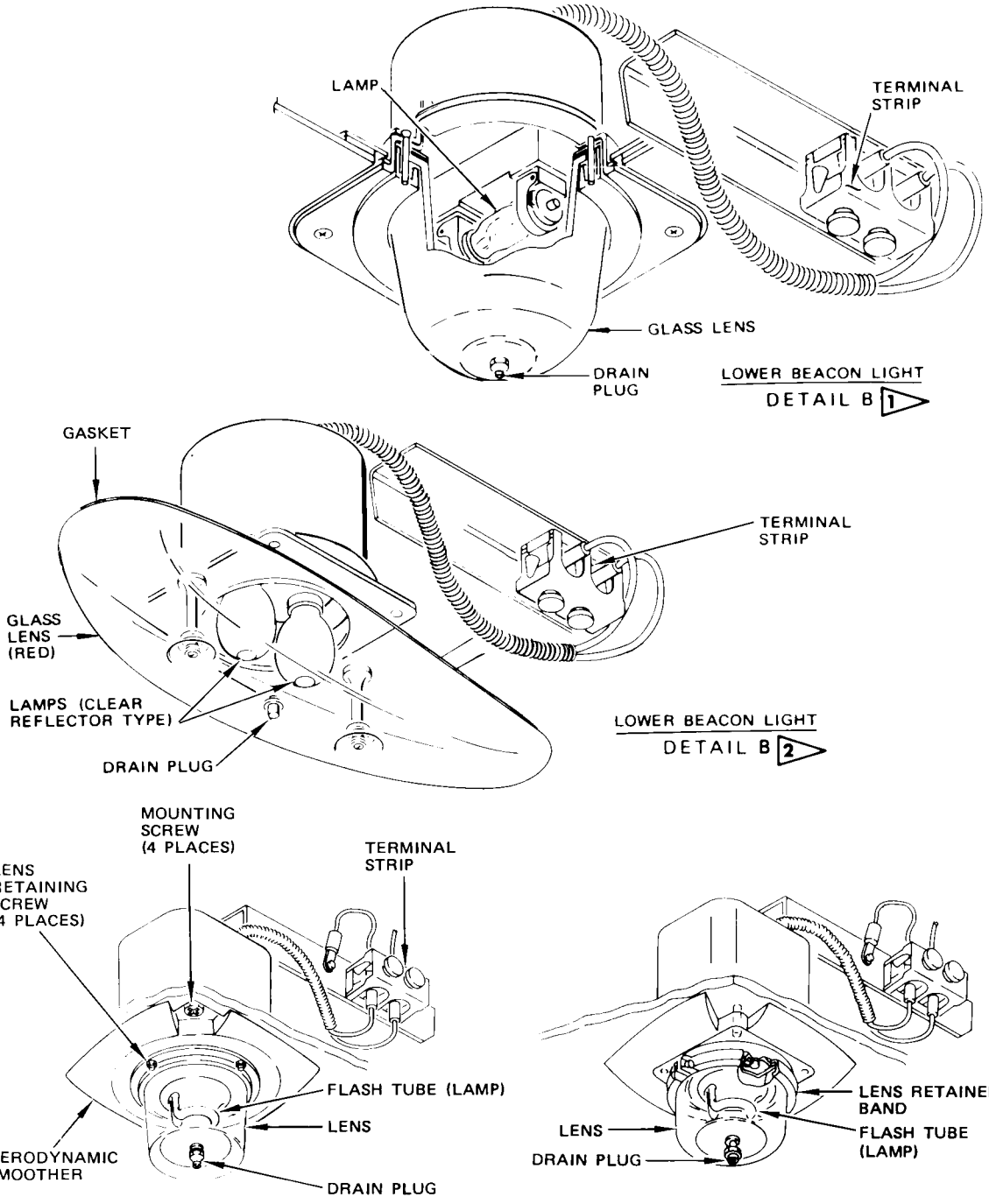
1. General (Fig. 1)
   A. Red flashing beacon (anticollision) lights are mounted on the top and the bottom of the airplane fuselage aft of the wing leading edge. The anticollision light switch on the pilot's forward overhead panel provides control.
2. Upper Beacon Light (Fig. 2)
   A. The upper beacon light is mounted through a cutout in the top of the fuselage. The beacon light installation consists of three basic components. These are the mounting plate that is permanently attached to the airplane structure; the lens, gasket, and retaining ring which are installed from the topside of the airplane; and the light assembly that is installed from the inside of the airplane. Three types of upper beacon lights are in use. They are:
      (1) Beacon light assembly consisting of two lamps (each having one side silvered to reflect and direct its light beam) mounted on a turntable. The turntable is rotated by an electric motor at approximately 42 revolutions per minute. The light assembly is removed for relamping or replacement from the inside of the airplane by lowering a ceiling panel and loosening four mounting screws, pulling the light assembly and disconnecting the electrical wiring.
      (2) Beacon light assembly consisting of a quartz-iodine lamp and its reflector mounted to a motor-driven turntable. The light assembly may be relamped from either the inside or outside of the airplane by removing four screws and pulling the lens or light assembly, as applicable.
      (3) Beacon light assembly consists of a xenon arc flashtube (lamp) encircling a parabolic reflector. The reflector directs the light beam horizontally. The reflector and lamp are mounted to a transistorized unit containing a timing circuit and a power supply. The timing circuit controls the flash rate at approximately one flash per second. The light assembly is removed from the inside of the airplane for relamping or replacement by lowering a ceiling panel, loosening four mounting screws, pulling the light assembly and disconnecting the electrical wiring.
   B. The 115- or 28-volt ac transfer bus No. 1 supplies electrical power for light operation through the ANTICOLLISION LT - UPPER circuit breaker on the P18 circuit breaker panel.
3. Lower Beacon Light (Fig. 2)
   A. Lower beacon light is similar to the upper beacon light. The light is mounted through a cutout in the bottom of the fuselage. A pan inside the fuselage provides a receiving area for the light assembly and fuel vapor isolation. The light assembly may be removed by removing mounting screws, pulling light assembly and disconnecting electrical wiring.

B. There are two types of strobe beacon lights for lower beacon light installations. One is similar to the upper beacon light. The other uses a flange assembly onto which the lens is fastened with a retainer band.

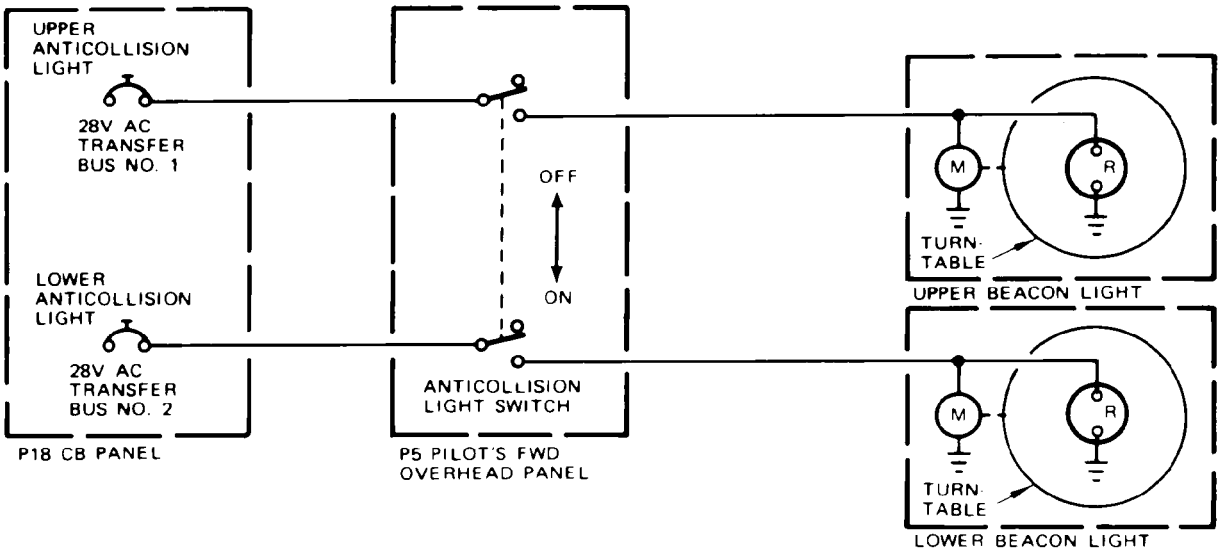
C. The 115- or 28-volt ac transfer bus No. 2 supplies electrical power through the ANTICOLLISION LT - LOWER circuit beaker on the P18 circuit breaker panel.



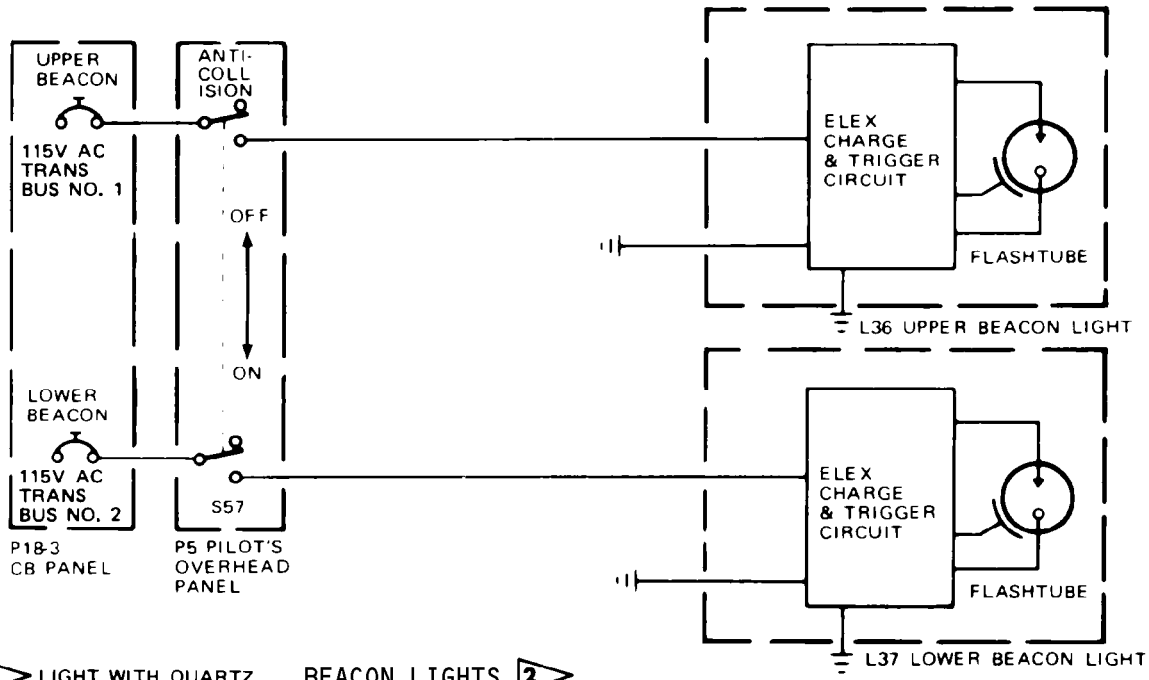
Beacon Light Equipment Location
Figure 1 (Sheet 1)



Beacon Light Equipment Location
Figure 1 (Sheet 2)



BEACON LIGHTS 1



1 LIGHT WITH QUARTZ IODINE LAMP

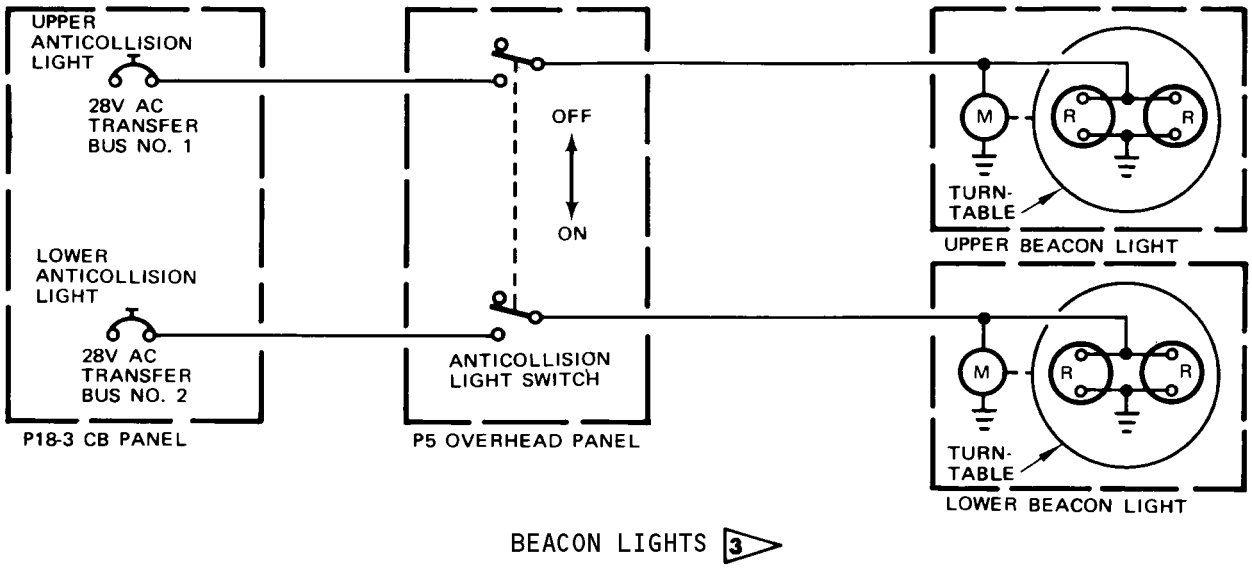
BEACON LIGHTS 2

2 LIGHT WITH XENON ARC (STROBE LIGHT) LAMP

3 LIGHT WITH 2 INCANDESCENT LAMPS

NOTE: AIRPLANES WITH STROBE LIGHTS ADDED MAY HAVE EITHER OF TWO (OPTIONAL) CONFIGURATIONS: ONE CONFIGURATION USES EXISTING 28 VOLT POWER SOURCE AND A 28/115 VOLT STEPUP TRANSFORMER ON LIGHT ASSEMBLY. THE OTHER CONFIGURATION USES 115 VOLT POWER SOURCE AND DOES NOT HAVE STEPUP TRANSFORMER ON LIGHT ASSEMBLY AS SHOWN ON SCHEMATIC.

Beacon Lights Simplified Schematic
Figure 2 (Sheet 1)

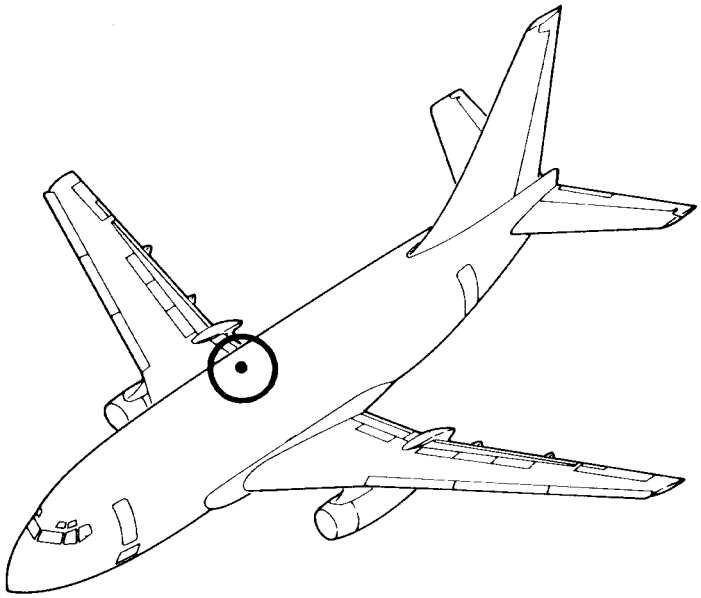


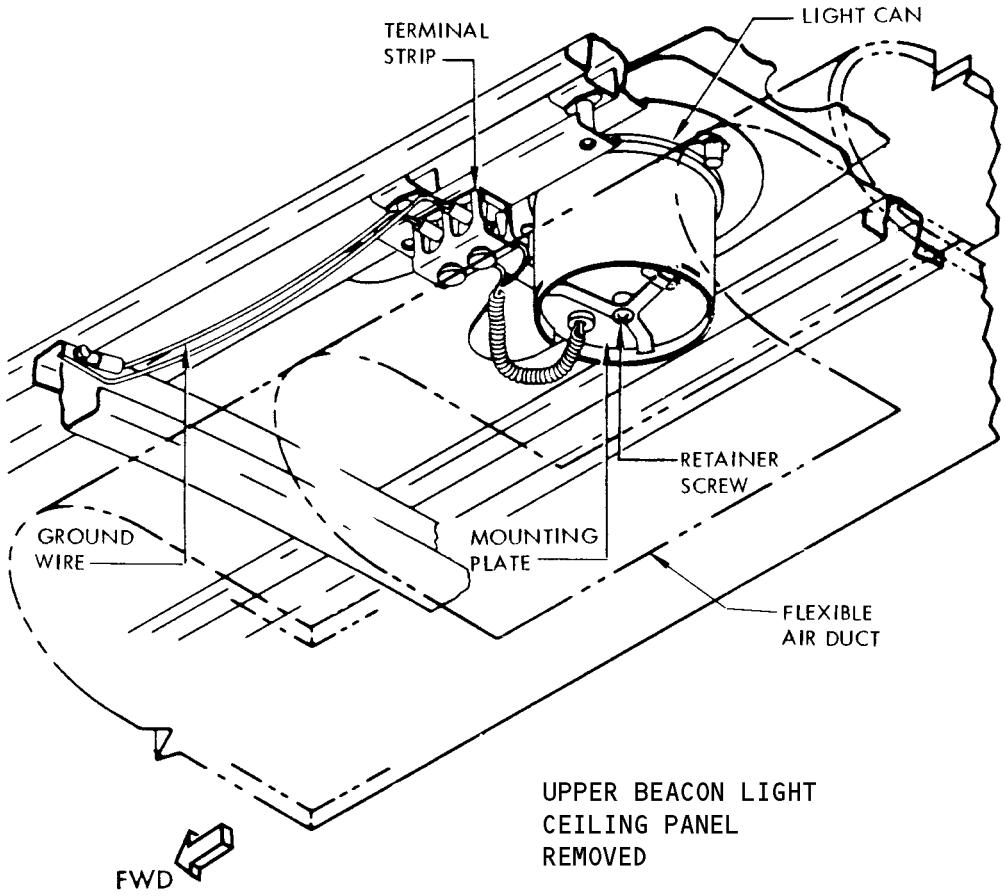
BEACON LIGHTS 3

Beacon Lights Simplified Schematic
Figure 2 (Sheet 2)

UPPER BEACON LIGHT - REMOVAL/INSTALLATION

1. General (Fig. 401)
   A. The upper beacon light assembly is mounted in a can which is riveted to the fuselage. Access is by lowering a ceiling panel at station 570 (Ref Chapter 25, Ceiling Lining and Insulation), and deflecting the convoluted section of the air distribution duct .
2. Remove Upper Beacon Light (Fig. 401)
   A. Open ANTICOLLISION LT - UPPER circuit breaker on P18 panel.
   B. Obtain necessary access .
   C. Disconnect two beacon light wires from terminal strip.
   D. Loosen retaining screw and remove mounting plate from light can.
   E. Remove beacon light assembly.
3. Install Upper Beacon Light (Fig. 401)
   A. Check that lens plug is secure.
   B. Place beacon light assembly and mounting plate into light can.
   C. Tighten retaining screw.
   D. Connect wires to the terminal strip being sure ground wire (black wire) is connected to ground terminal.
   E. Close ANTICOLLISION LT - UPPER circuit breaker on P18 panel.
   F. Replace parts removed for access.
   G. Test Light
      (1) Provide electrical power.
      (2) Set ANTICOLLISION light switch on pilots' forward overhead panel P5 to ON. Check that light comes on and flashes. Set switch to OFF.
      (3) Remove electrical power if no longer required.





Upper Beacon Light Installation
Figure 401

UPPER BEACON LIGHT - MAINTENANCE PRACTICES

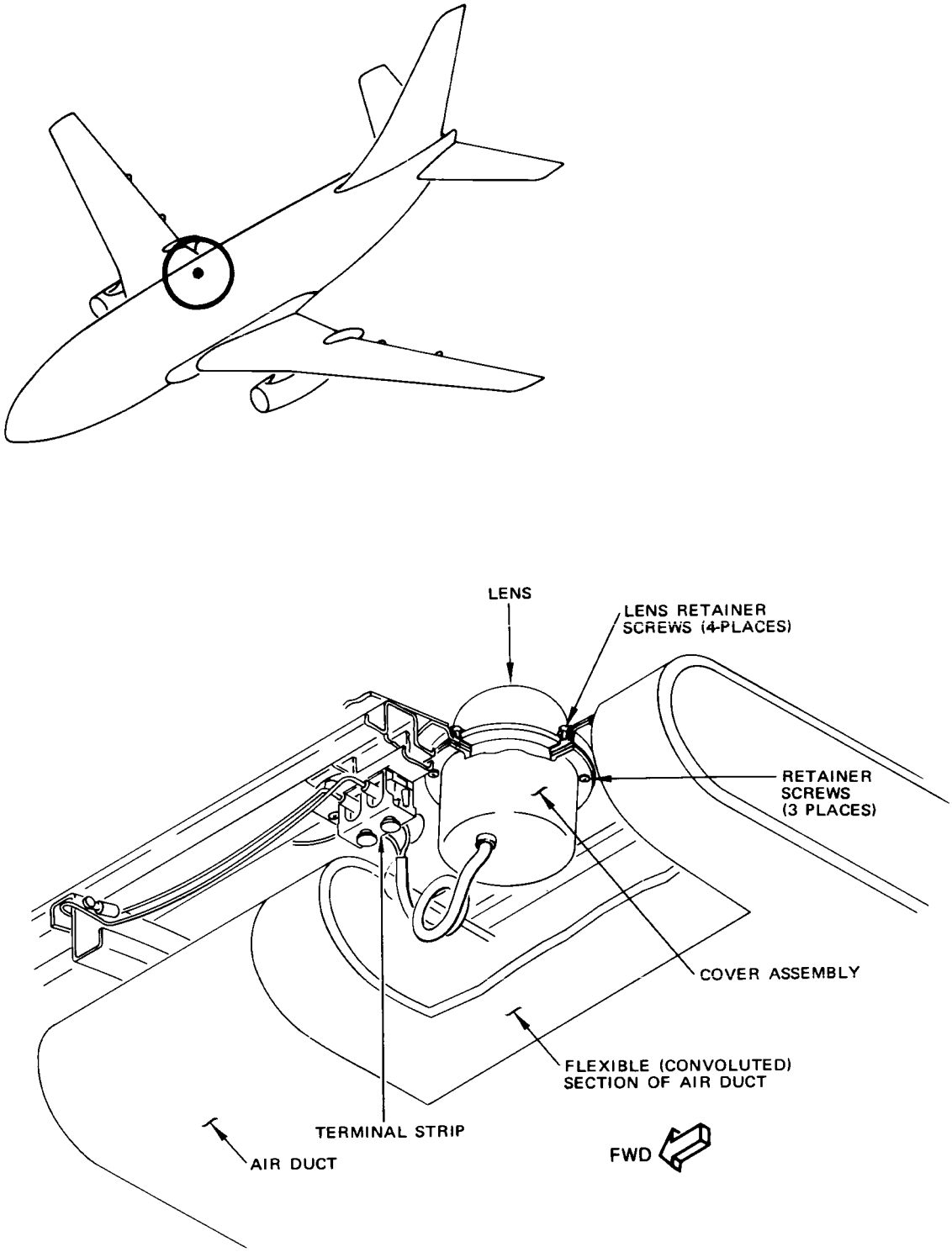
1. General (Fig. 201)
   A. The upper beacon (anticollision) light uses a single high-intensity quartz-iodine lamp. It may be relamped from either the inside or the outside of the airplane. To relamp from the outside, the lens and lens retainer are removed. To relamp from the inside, the light assembly is pulled from the mounting plate to expose lamp.
   B. The following steps are for relamping from the inside of the airplane; however, they are applicable to relamping from the outside of the airplane with exception of access to lamp.
2. Equipment and Materials
   A. Acetone - grease-free solvent
   B. Cloth - Abrasive, Federal Specification P-C-451
   C. Cloth - nonabrasive, lint-free
3. Relamp Upper Beacon Light (Fig. 201)
   A. Open ANTICOLLISION LT - UPPER circuit breaker on P18 panel.
   B. Lower ceiling (access) panel and depress convoluted section of air duct to provide access to beacon light retaining screws.
   C. Remove three retaining screws and pull beacon light until lamp is exposed.
   D. Rotate lamp holders to free lamp.
   E. Grasp lamp and pull from holders.
   F. Check lamp holders for oxidization. If oxidization is present, burnish or polish contact surfaces to remove oxidization (abrasive cloth may be used).
   G. Clean reflector and lens with clean dry cloth.
   H. Check that replacement lamp (glass envelope) is free from grease or fingerprints, then wrap lamp with a soft cloth or paper and press into lampholders.

      CAUTION: DO NOT ALLOW FINGERS TO TOUCH LAMP. OILS FROM SKIN MAY CAUSE LAMP TO EXPLODE WHEN HEATED.

      NOTE: If lamp glass envelope is contaminated, clean using a grease-free solvent such as acetone carefully applied with a lint-free cloth.

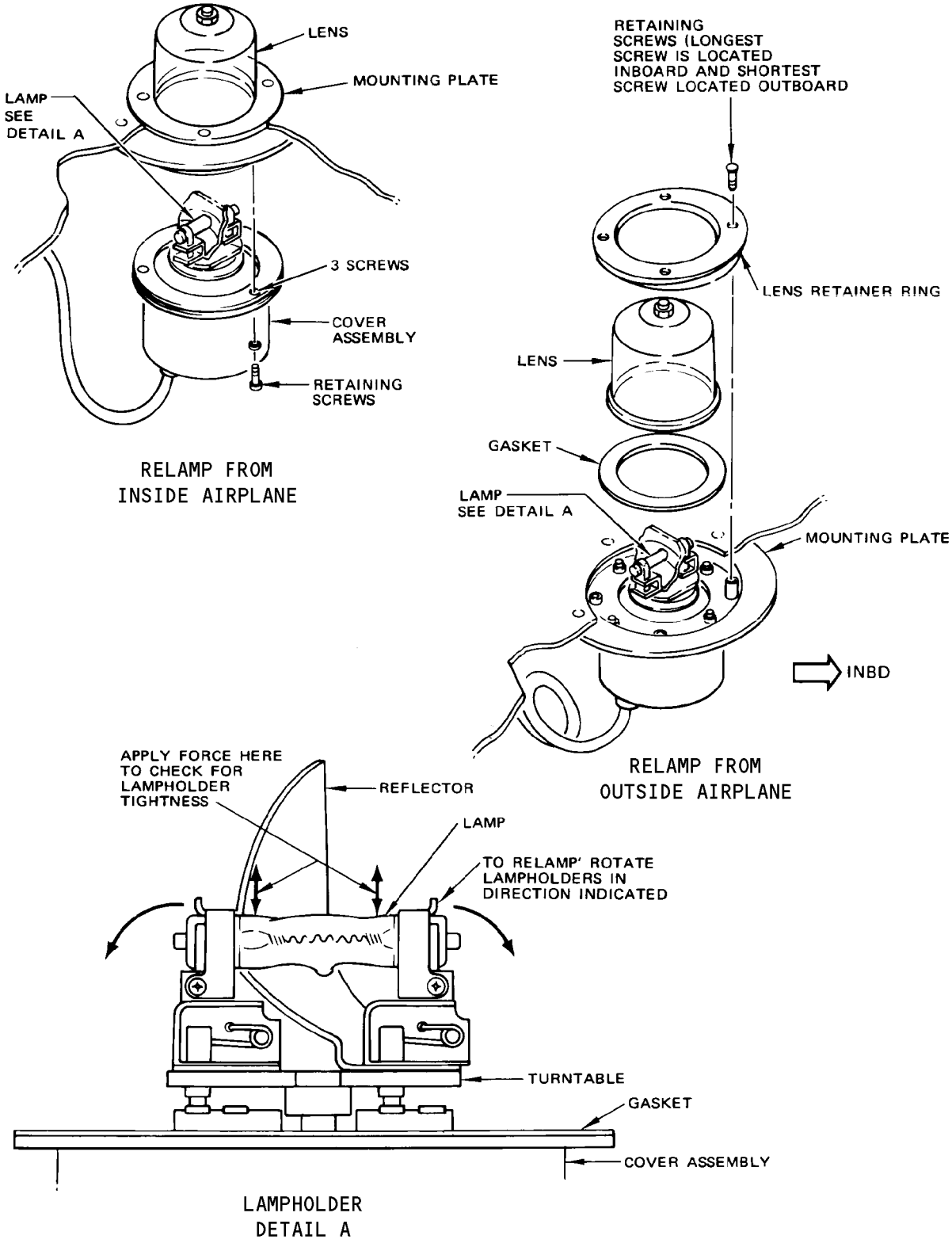
   I. Rotate lampholders into installed position. (See figure 201.)
   J. Grasp lamp (using wrap to prevent contamination) and apply approximately 2 pounds of force towards and away from holders to check each lampholder for tightness. Remove wrap.

      NOTE: Lamp should not move in holder with force applied. If loose, tighten holders or replace light assembly.



UPPER BEACON LIGHT CEILING PANEL REMOVED

Upper Beacon Light Relamping
Figure 201 (Sheet 1)

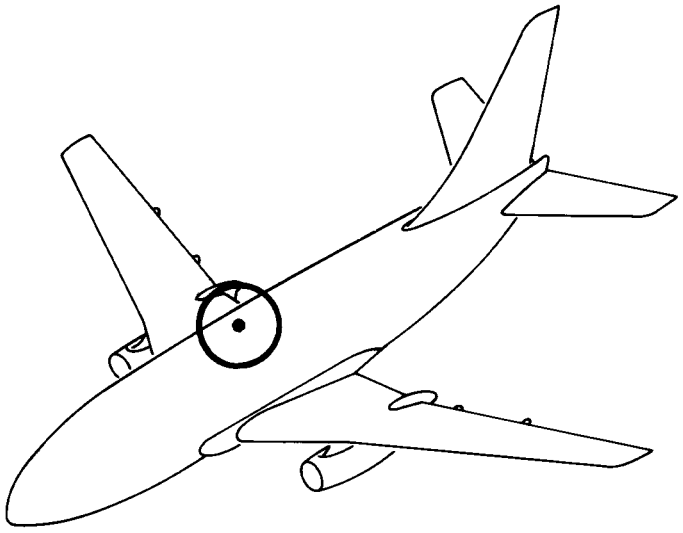


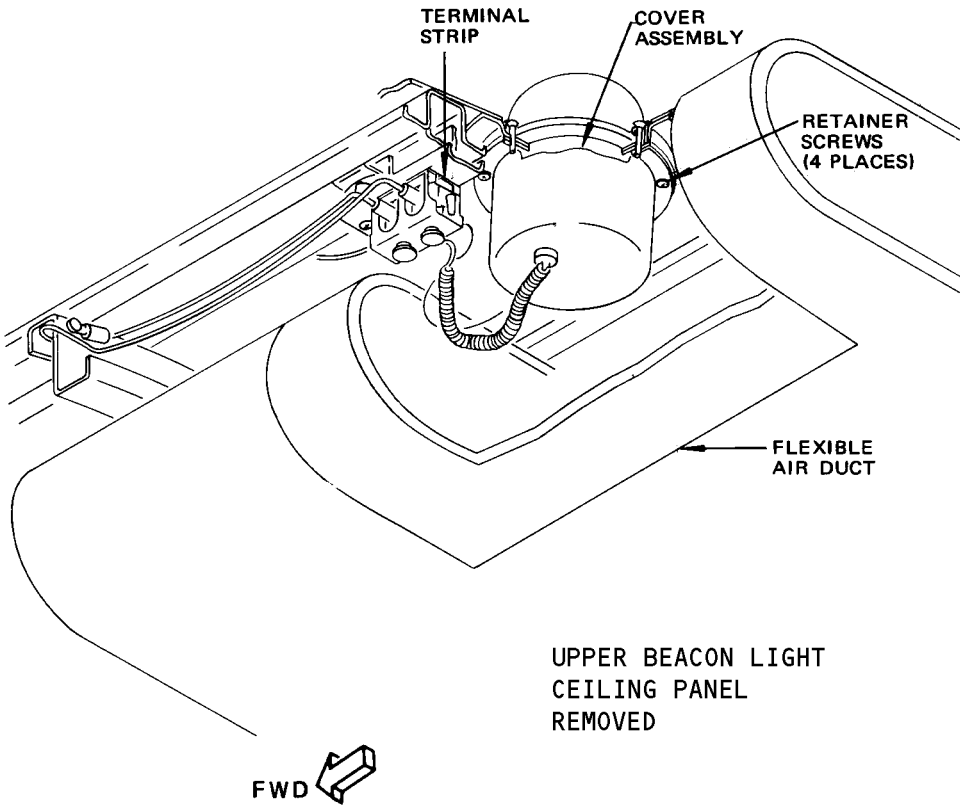
Upper Beacon Lights Relamping
Figure 201 (Sheet 2)

K. Install light assembly and secure three retaining screws. (See figure 201.)
L. Raise and secure ceiling (access) panel.
M. Close ANTICOLLISION LT- UPPER circuit breaker on P18 panel.
N. Test lamp
   (1) Provide electrical power
   (2) Set ANTICOLLISION light switch on pilot's forward overhead panel P5 to ON. Check that the upper beacon light comes on and flashes.
   (3) Set switch to OFF.
   (4) Remove electrical power if no longer required.

UPPER BEACON LIGHT - REMOVAL/INSTALLATION

1. General
   A. The upper beacon (anticollision) light assembly is attached to a mounting plate riveted to a cutout section of the fuselage. Access is provided by ceiling panels at body station 570 (Ref Chapter 25, Ceiling Lining and Insulation), and deflecting the convoluted section of the air distribution duct. The lens is replaced from the outside of the airplane.
2. Remove Upper Beacon Light
   A. Open ANTICOLLISION LT - UPPER circuit breaker on P18 circuit breaker panel
   B. Obtain necessary access (Fig. 401).
   C. Disconnect two beacon light wires from terminal strip.
   D. Restrain light and cover assembly and loosen retaining screws.
   E. Lower beacon light and cover assembly.
3. Install Upper Beacon Light
   A. Place beacon light assembly, cover assembly, and gaskets into position.
   B. Tighten retaining screws.
   C. Connect two beacon light wires to terminal strip being sure ground wire (black wire) is connected to ground terminal.
   D. Close ANTICOLLISION LT - UPPER circuit breaker on P18 panel.
   E. Replace parts removed for access.
   F. Test Light
      (1) Provide electrical power.
      (2) Set ANTICOLLISION light switch on pilots' forward overhead panel P5 to ON. Check that light comes on and flashes. Set switch to OFF.
      (3) Remove electrical power if no longer required.





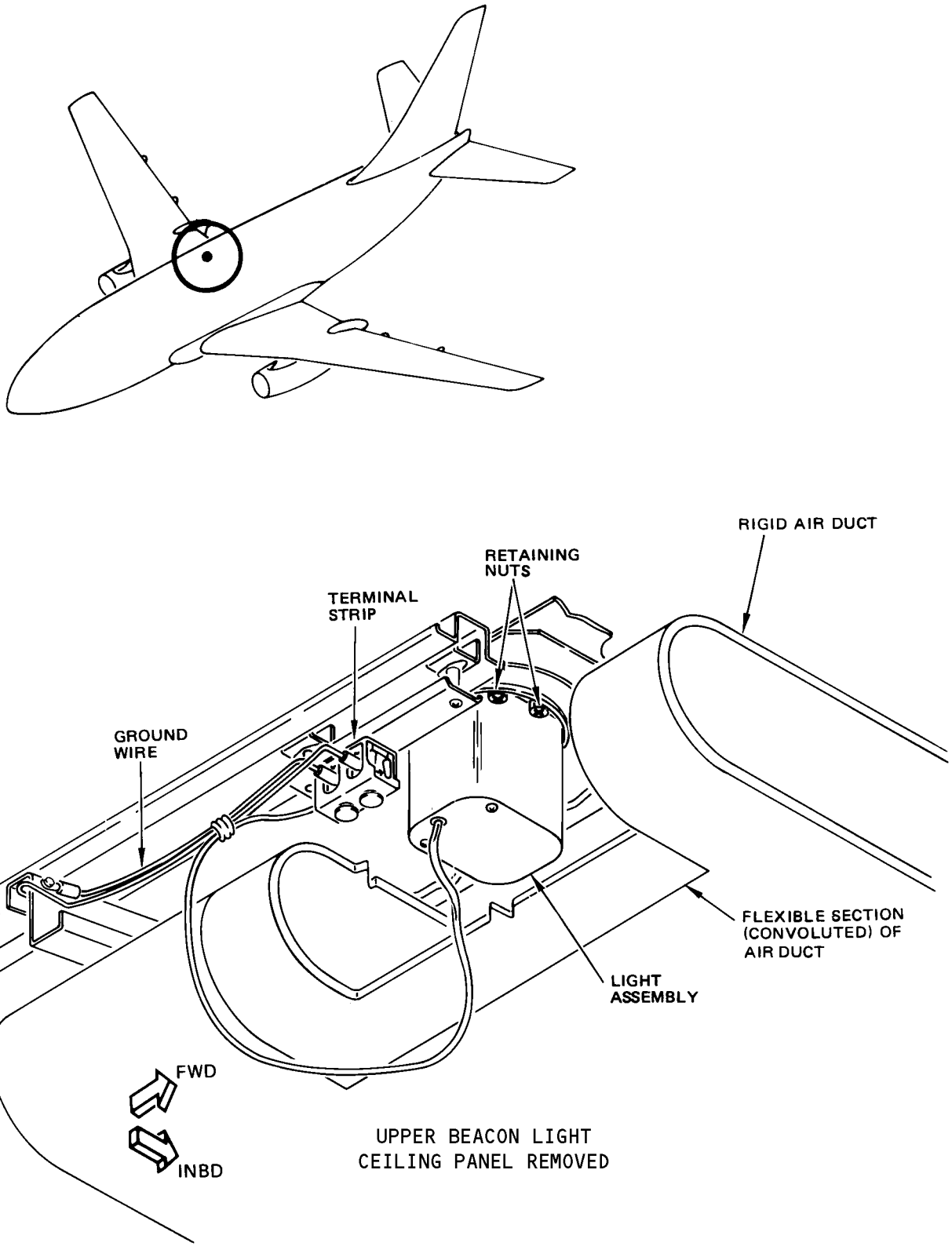
Upper Beacon Light Installation
Figure 401

UPPER BEACON LIGHT - MAINTENANCE PRACTICES

1. General (Fig. 201)
   A. The upper beacon (anticollision) light assembly is mounted on a flange assembly which is riveted to the fuselage surface at station 570. The entire light assembly (except the lens) must be removed. Repair of the assembly is then accomplished in the shop as an overhaul function.
2. Remove Light (Fig. 201)
   A. Open ANTICOLLISION LIGHT-UPPER circuit breaker on P18 circuit breaker panel.
   B. Lower or remove right ceiling panel approximately 60 inches forward of overwing escape hatch center (Ref 25-21-341, MP).
   C. Push inboard on convoluted section of airduct to provide access to beacon light.
   D. Disconnect two beacon light wires from terminal strip.
   E. Loosen four nuts retaining assembly; rotate assembly counterclockwise and remove light assembly.
3. Install Light
   A. Clean inside of lens with clean, dry cloth.
   B. Place light assembly in position and rote assembly clockwise to engage mounting screws.
   C. Tighten retaining nuts.
   D. Connect wiring to terminal strip.
   E. Close circuit breaker opened in step 2.A.
   F. Raise and latch or install (if removed) ceiling panel (Ref 25-21-341, MP).
   G. Test Light
      (1) Provide electrical power.
      (2) Set anticollision light switch on pilots' forward overhead panel (P5) to ON. Check that beacon light flashes.

          WARNING: DO NOT LOOK DIRECTLY AT LIGHT FROM CLOSE RANGE. LIGHT FLASHES MAY CAUSE TEMPORARY VISION IMPAIRMENT.

      (3) Return switch to OFF.
      (4) Remove electrical power if no longer required.



Upper Beacon Light Installation
Figure 201

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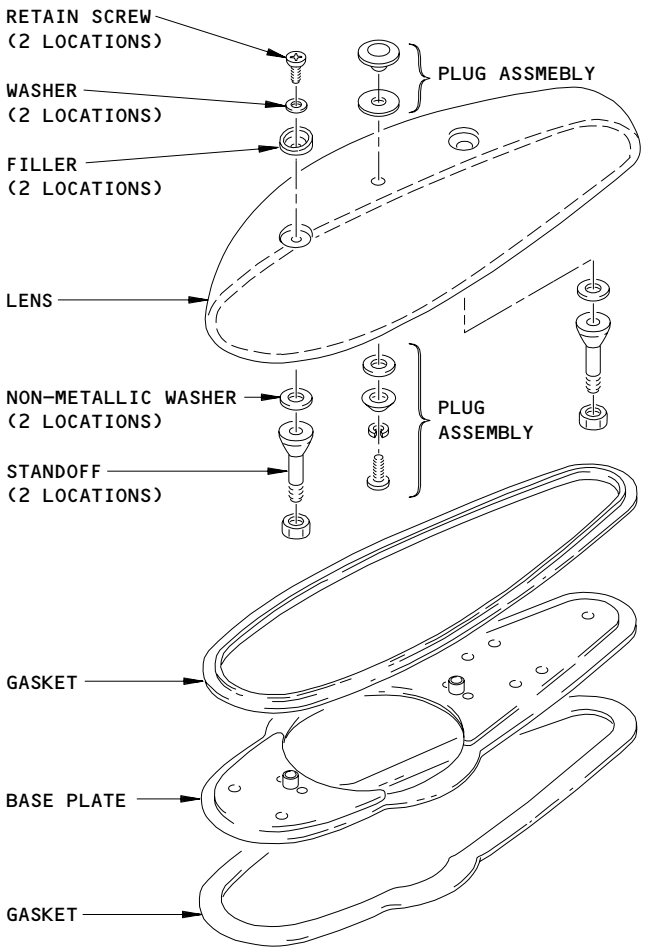
UPPER BEACON LIGHT LENS - REMOVAL/INSTALLATION

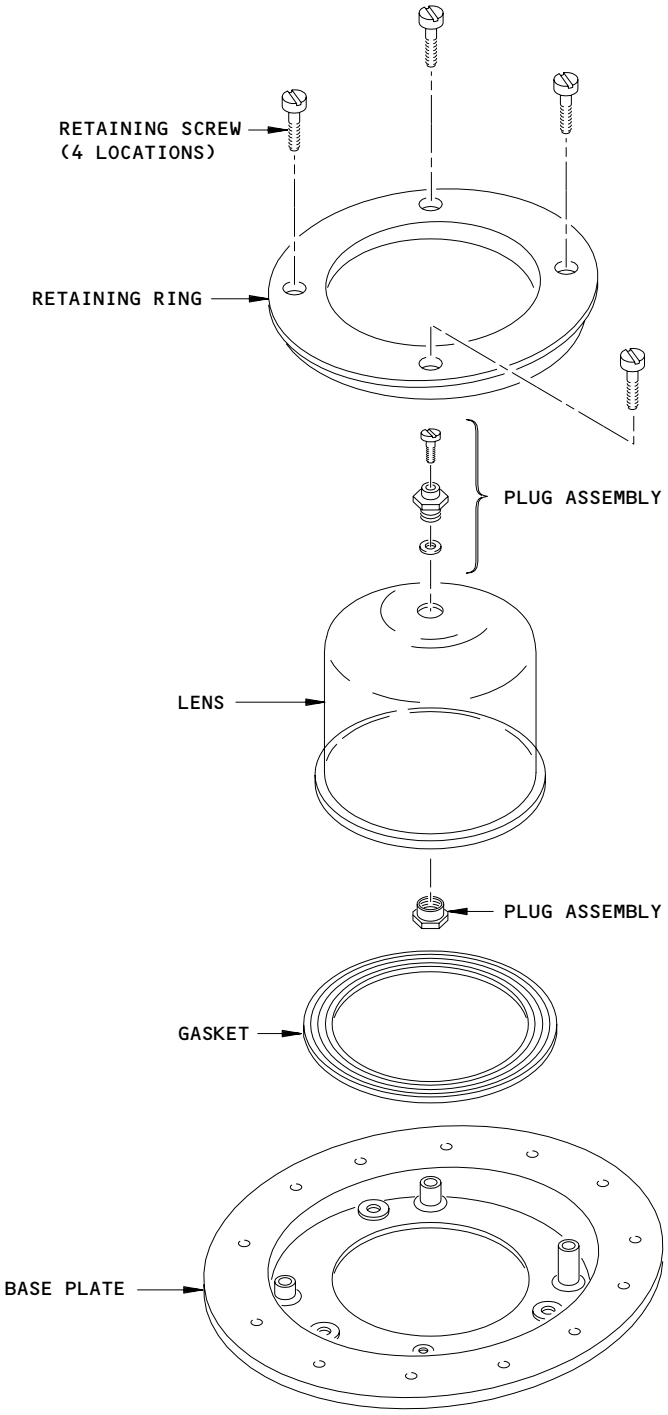
1. General
   A. The upper beacon light is located on top of the fuselage at station 568.5. The lens is removed from the outside of the airplane.
2. Equipment and Materials
   A. Acetone - grease free solvent, or equivalent
   B. Cloth - nonabrasive, lint free
3. Remove Lens (Airplanes with P/N 40-0173 Light Assy) (Fig. 401, Sheet 1)
   A. Open applicable circuit breaker for Upper Beacon Light on P18 panel and attach DO-NOT-CLOSE tag.
   B. Remove two retaining screws, washers, fillers and non-metallic washers.
   C. Remove lens and gasket.
   D. Clean lens with acetone and lint free cloth.
   E. Visually inspect lens for cracks and discoloration, replace as required.
4. Install Lens (Airplanes with P/N 40-0173 Light Assy) (Fig. 401, Sheet 1)
   A. Install lens and gasket.
   B. Install two retaining screws, washers, fillers and non-metallic washers.
   C. Close previously opened circuit breaker and remove DO-NOT-CLOSE tag.
5. Remove Lens (Airplanes with P/N 40-0196 Light Assy) (Fig. 402, Sheet 2)
   A. Open applicable circuit breaker for Upper Beacon Light on P18 panel and attach DO-NOT-CLOSE tag.
   B. Remove four retaining screws.
   C. Remove lens retaining ring, lens and gasket.
   D. Clean lens with acetone and lint free cloth.
   E. Visually inspect lens for cracks and discoloration, replace as required.
6. Install Lens (Airplanes with P/N 40-0196 Light Assy) (Fig. 401, Sheet 2)
   A. Install gasket, lens and retaining ring.
   B. Secure with four retaining screws.
   C. Close previously opened circuit breaker and remove DO-NOT-CLOSE tag.
7. Remove Lens (Airplanes with P/N 30-0837 Light Assy) (Fig. 403, Sheet 3)

   A. Open applicable circuit breaker for Upper Beacon Light on P18 panel and attach DO-NOT-CLOSE tag.
   B. Remove four retaining nuts.
   C. Remove lens retaining ring, lens and two gaskets.
   D. Clean lens with acetone and lint free cloth.
   E. Visually inspect lens for cracks and discoloration, replace as required.

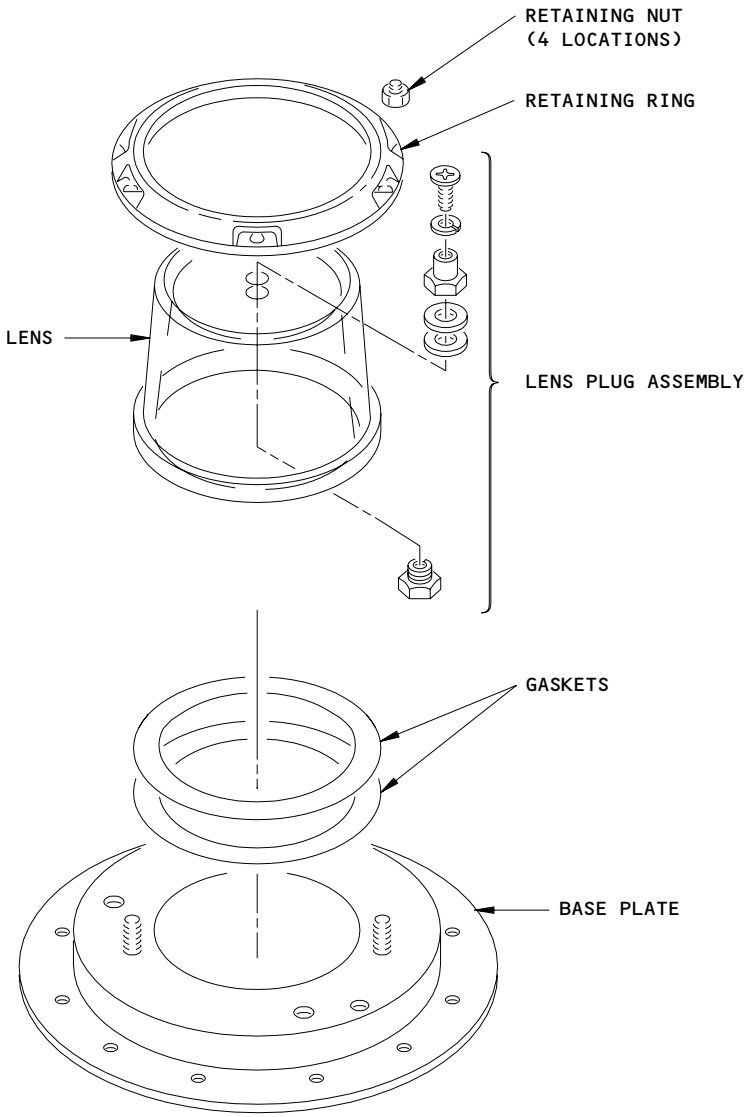
8. Install Lens (Airplanes with P/N 30-0837 Light Assy) (Fig. 403, Sheet 3)
   A. Install gasket, lens and retaining ring.
   B. Secure with four retaining screws.
   C. Close previously opened circuit breaker and remove DO-NOT-CLOSE tag.



Upper Beacon Light Lens Assembly (Airplanes with P/N 40-0173-XX Light Assembly)
Figure 401



Upper Beacon Light Lens Assembly (Airplanes with P/N 40-0196-XX Light Assembly)
Figure 402



Upper Beacon Light Lens Assembly (Airplanes with P/N 30-0837-XX Light Assembly)
Figure 403

LOWER BEACON LIGHT - REMOVAL/INSTALLATION

1. General
   A. The lower beacon light is located in a light pan in the air conditioning compartment and is accessible from the ground.
2. Equipment and Materials
   A. Compound, Electrical Insulating Coating - BMS 5-37 or equivalent
3. Remove Lower Beacon Light (Fig. 401)
   A. Open ANTICOLLISION - LOWER circuit breaker on P18 panel.
   B. Support lens and remove two lens retaining screws.
   C. Support light assembly and remove four retaining plate screws. Lower light assembly enough to gain access to wiring.

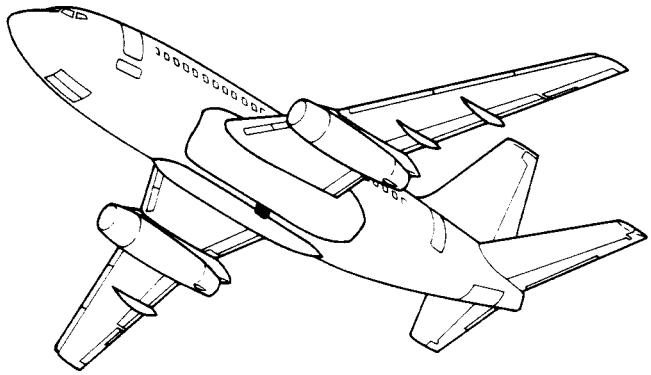
      CAUTION: RESTRAIN LIGHT SO THAT ASSEMBLY WILL NOT FALL AND BREAK LAMPS.

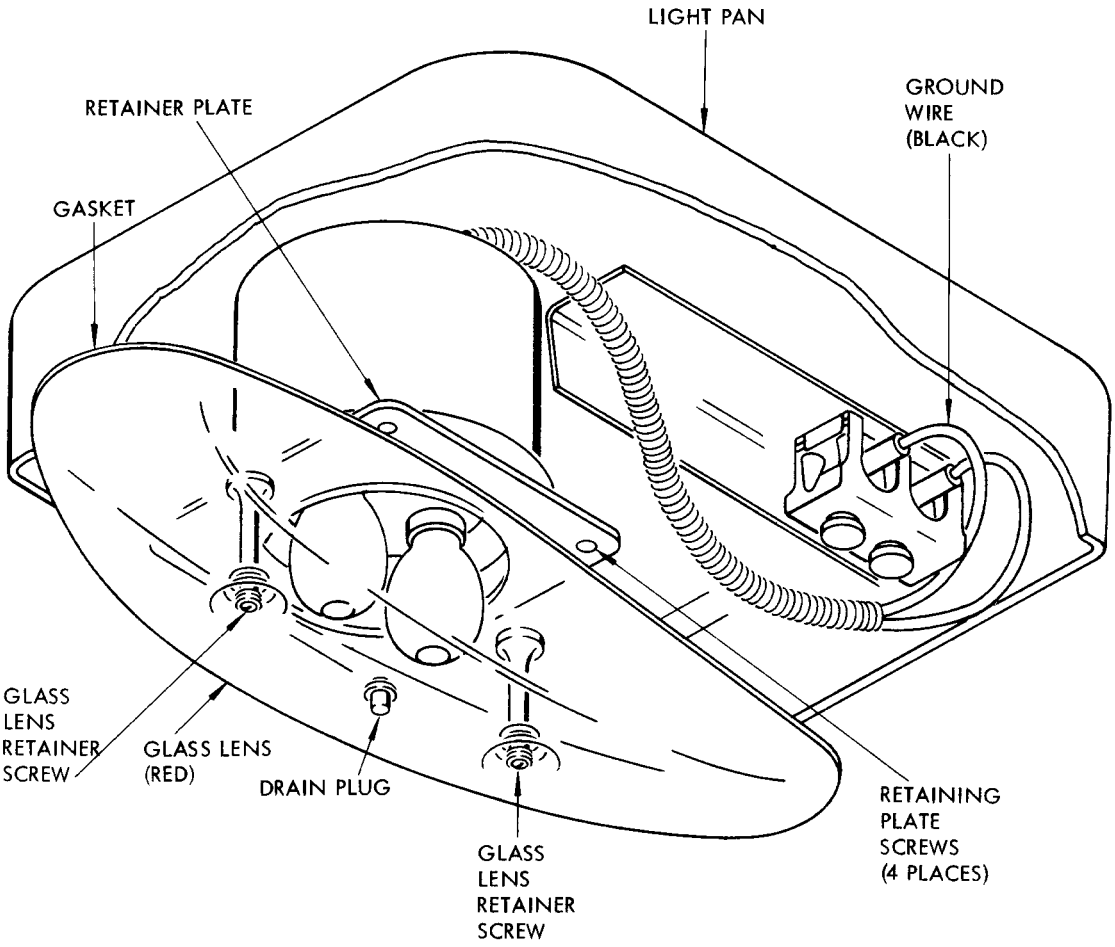
   D. Disconnect two electrical wires from terminal strip and withdraw assembly from airplane.
4. Install Lower Beacon Light (Fig. 401)
   A. Check that drain plug is secure.
   B. Support light assembly and connect two wires to terminal strip being sure ground wire (black wire) is connected to ground terminal. Coat electrical terminals with insulating coating.

      WARNING: THE LOWER BEACON AREA IS CONSIDERED A VAPOR AREA. COAT ELECTRICAL TERMINALS AND CONNECTIONS.

      NOTE: Brush terminals with a single coat of BMS 5-37, class A or B (Ref D6-5456, Electrical and Electronic Assembly and Installation Notes). All uninsulated portions of terminal should be coated.

   C. Place light assembly in position and secure the four retaining plate screws.
   D. Place lens and lens gasket in position and secure the two lens retainer screws.
   E. Close ANTICOLLISION - LOWER circuit breaker on P18 panel.
   F. Test Light
      (1) Provide electrical power.
      (2) Set ANTICOLLISION light switch on pilot's forward overhead panel P5 to ON. Check that light comes on and flashes.
      (3) Set switch to OFF.
      (4) Remove electrical power if no longer required.





Lower Beacon Light Installation
Figure 401

LOWER BEACON LIGHT - MAINTENANCE PRACTICES

1. General
   A. The lower beacon (anticollision) light uses a single high-intensity quartz-iodine lamp. It is relamped from the underside of the airplane by removing four screws and pulling the lens assembly.
2. Equipment and Materials
   A. Acetone - Grease-free solvent, or equivalent
   B. Cloth - Abrasive, Federal Specification P-C-451, or equivalent
   C. Cloth - Nonabrasive, lint-free
3. Relamp Lower Beacon Light (Fig. 201)
   A. Open ANTICOLLISION LT - LOWER circuit breaker on P18 circuit breaker panel.
   B. Remove four screws on lens retainer ring and remove lens and retainer ring.
   C. Rotate lampholders to free lamp.
   D. Grasp lamp and pull from holders.
   E. Check lampholders for oxidation. If oxidation is present, burnish or polish contact surfaces to remove oxidization (abrasive cloth may be used).
   F. Clean reflector with clean dry cloth.
   G. Check that replacement lamp (glass envelope) is free from grease or fingerprints; then wrap lamp with a soft cloth or paper, and press into lampholders.

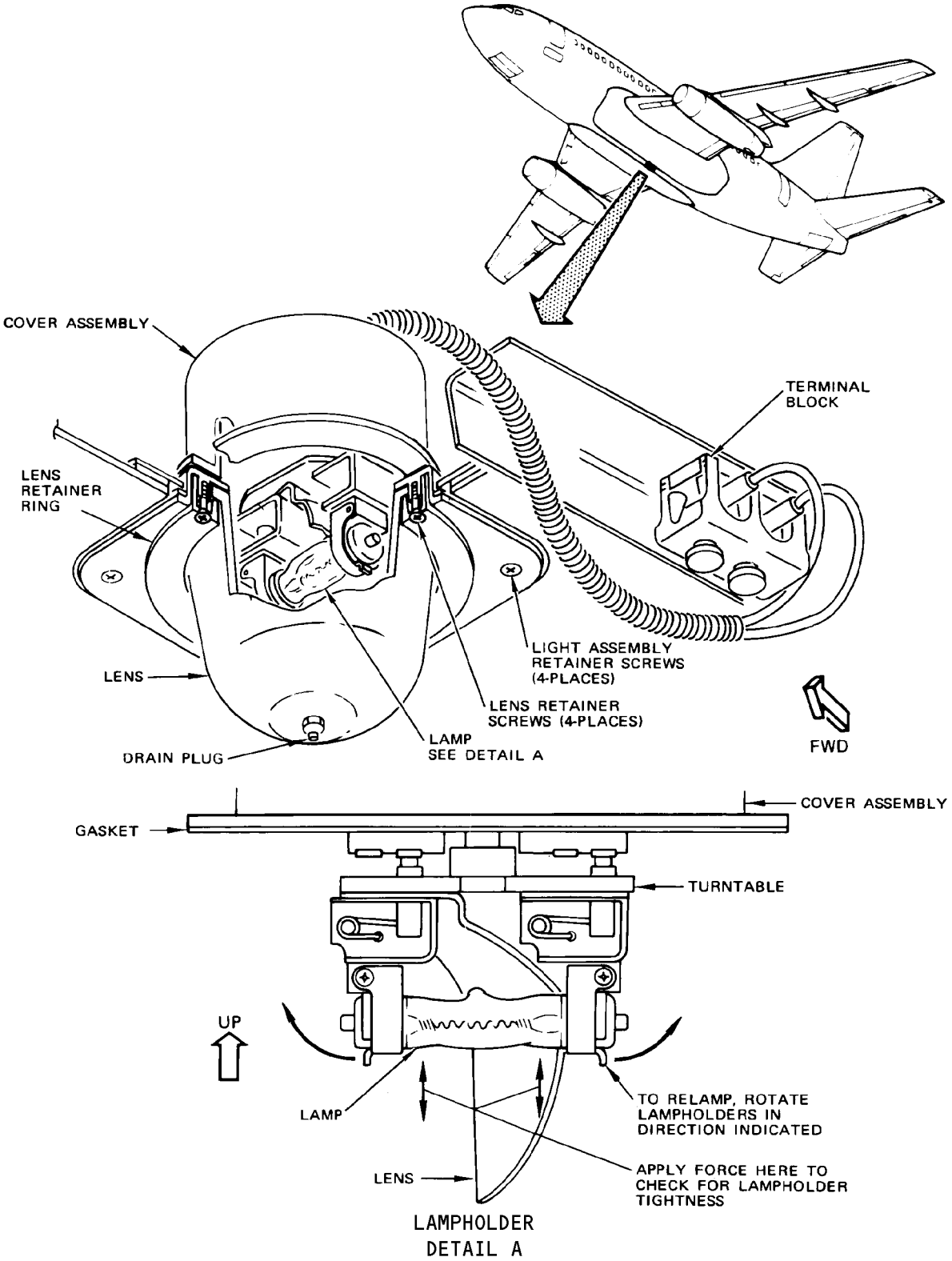
      CAUTION: DO NOT ALLOW FINGERS TO TOUCH LAMP. OILS FROM SKIN MAY CAUSE LAMP TO EXPLODE WHEN HEATED.

      NOTE: If lamp glass envelope is contaminated, clean, using a grease-free solvent such as acetone, carefully applied with a lint-free cloth.

   H. Rotate lampholders into installed position. (See figure 201.)
   I. Grasp lamp (using wrap to prevent contamination) and apply approximately 2 pounds of force towards and away from holders to check each lampholder for tightness. Remove wrap.

      NOTE: Lamp should not move in holder with force applied. If loose, tighten holders or replace light assembly.

   J. Clean lens using clean dry cloth.
   K. Install lens and lens retaining ring. Secure with four screws. (See figure 201.)
   L. Close ANTICOLLISION LT - LOWER circuit breaker on P18 panel.
   M. Test lamp.
      (1) Provide electrical power.



Lower Beacon Light Relamping
Figure 201

(2) Set ANTICOLLISION light switch on pilot's forward overhead panel P5 to ON. Check that light comes on and flashes.
(3) Set switch to OFF.
(4) Remove electrical power if no longer required.

LOWER BEACON LIGHT - REMOVAL/INSTALLATION

1. General
   A. The lower beacon light is located in a light pan in the air conditioning compartment and is accessible from the ground.
2. Equipment and Materials
   A. Compound, Electrical Insulating Coating - BMS 5-37, or equivalent
3. Remove Lower Beacon Light (Fig. 401)
   A. Open ANTICOLLISION - LOWER circuit breaker on P18 panel.
   B. Support light assembly and remove four retaining plate screws. Lower light assembly enough to gain access to wiring.

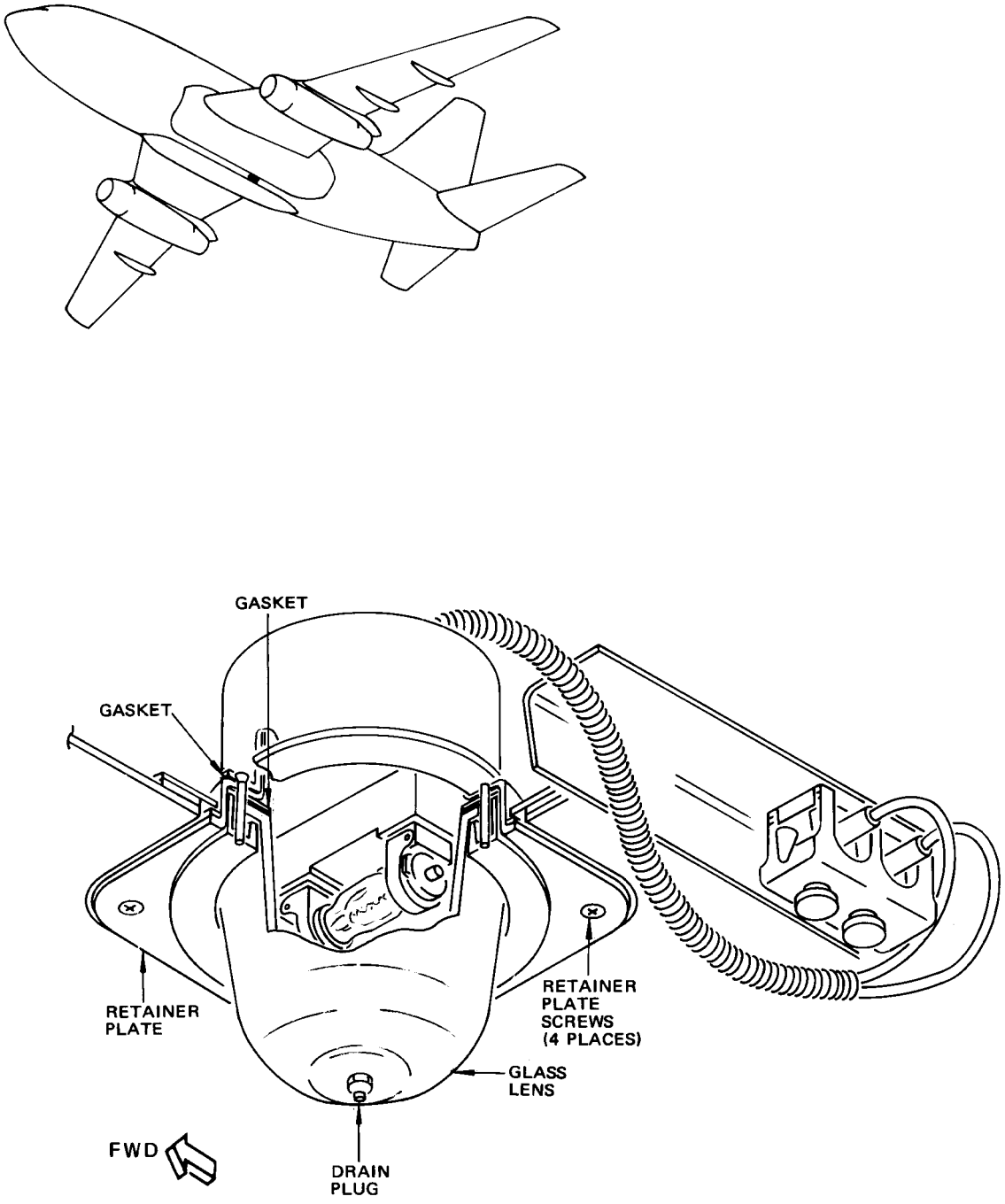
      CAUTION: RESTRAIN LIGHT SO THAT ASSEMBLY WILL NOT FALL AND BREAK LAMPS.

   C. Disconnect two electrical wires from terminal strip and withdraw assembly from airplane.
4. Install Lower Beacon Light (Fig. 401)
   A. Check that drain plug is secure.
   B. Support light assembly and connect two wires to terminal strip being sure ground wire (black wire) is connected to ground terminal. Coat electrical terminals with insulating coating.

      WARNING: THE LOWER BEACON AREA IS CONSIDERED A VAPOR AREA. COAT ELECTRICAL TERMINALS AND CONNECTIONS.

      NOTE: Brush terminals with a single coat of BMS 5-37, class A or B (Ref D6-5456, Electrical and Electronic Assembly and Installation Notes). All uninsulated portions of terminal should be coated.

   C. Place light assembly and gaskets in position and secure the four retaining plate screws.
   D. Close ANTICOLLISION - LOWER circuit breaker on P18 panel.
   E. Test Light
      (1) Provide electrical power.
      (2) Set ANTICOLLISION light switch on pilot's forward overhead panel P5 to ON. Check that light comes on and flashes.
      (3) Set switch to OFF.
      (4) Remove electrical power if no longer required.



Lower Beacon Light Installation
Figure 401

LOWER BEACON LIGHT - MAINTENANCE PRACTICES

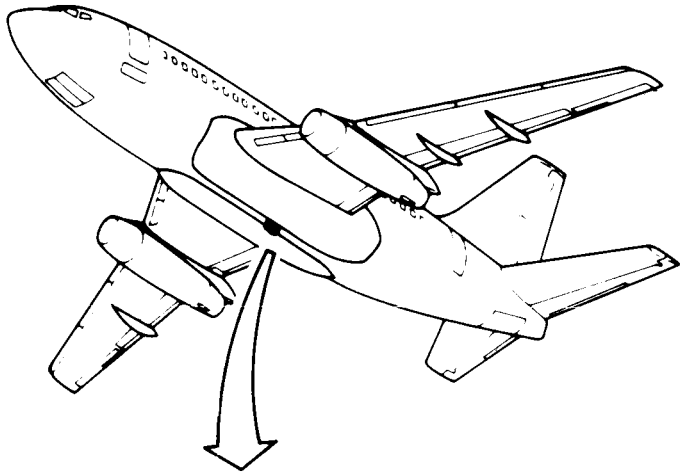
1. General
   A. The lower beacon (anticollision) light is installed on a mounting plate on the underside of the fuselage. The entire light assembly must be removed. Only the lens can be replaced as a separate part. Repair of the assembly is accomplished in the shop as an overhaul function.
   B. The lower beacon light base (surface lens assembly mounting ring is attached to) should be faired to the airplane by aerodynamic smoother (Refer to 51-31-0, Maintenance Practices for smoother application). The surface of the aerodynamic smoother should be convex between light assembly and fuselage.
2. Equipment and Materials
   A. Equipment
      (1) Sealing gun - 6-inch length cartridge, Senco Research, or equivalent
      (2) Varnish brush - 1- or 2-inch
      (3) Spatula
   B. Materials
      (1) Aerodynamic smoother and weather sealant - BMS 5-79, or equivalent
      (2) Accelerator - as indicated on sealant container
      (3) Aliphatic Naphtha - TT-N-95, or equivalent
      (4) Compound, (SWPM) 20-30-00
3. References
   A. Standard Wiring Practices Manual (SWPM), 20-30-00
   B. MM 51-31-0 MP Seals and Sealing
4. Remove Light (Fig. 201)
   A. Open ANTICOLLISION LIGHT-LOWER circuit breaker on P18 circuit breaker panel.
   B. Remove aerodynamic smoother from beacon light base (AMM 51-31-0/201).

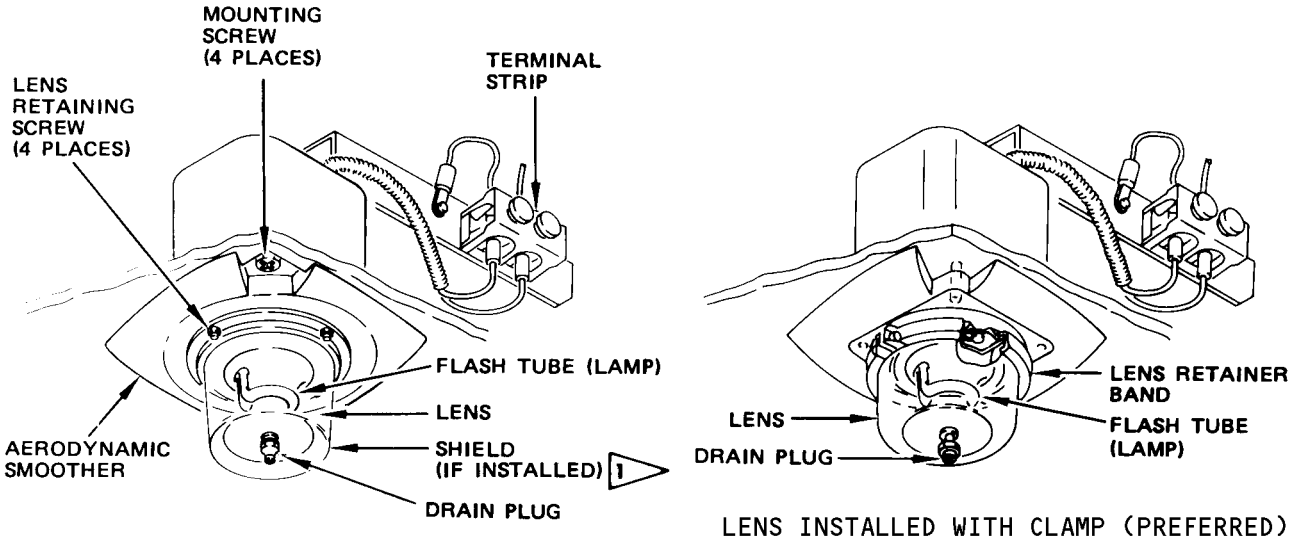
      CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE THE AERODYNAMIC SMOOTHER. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

   C. Remove four mounting screws and lower light assembly to gain access to wiring.
   D. Disconnect two beacon light wires from terminal strip and remove light assembly.
5. Install Light
   A. Remove sealant from light assembly mounting on fuselage (AMM 51-31-0/201).

      CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE THE SEALANT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

   B. Remove grease, oil, dirt and chips from mounting surface. Use smal1 varnish brush to apply fresh aliphatic naphtha for cleaning. Wipe cleaner off with clean cloth.
   C. Support light assembly and connect wires to terminal strip.





LENS INSTALLED WITH SCREWS

LENS INSTALLED WITH CLAMP (PREFERRED)

LOWER BEACON LIGHT
(ALTERNATE CONFIGURATION)

1 FAIRING FROM ROTARY BEACON LIGHT MAY BE INSTALLED IN PLACE OF SHIELD

Lower Beacon Light Installation
Figure 201

D. Seal the electrical terminals for a fuel vapor area (SWPM 20-30-00).

NOTE: The sealant does not have to become tack-free before the completion of this procedure and the dispatch of the airplane.

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

E. Position light assembly and install mounting screws.
F. Using sealing gun, apply sealant around light assembly base until a convex ring is formed.

NOTE: Make certain no air is trapped in recess during filling. Overfil1 recess to allow for smoothing and forming.

G. Fair smoother to fuselage and remove excess compound (AMM 51-31-0/201).

CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE THE EXCESS COMPOUND. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

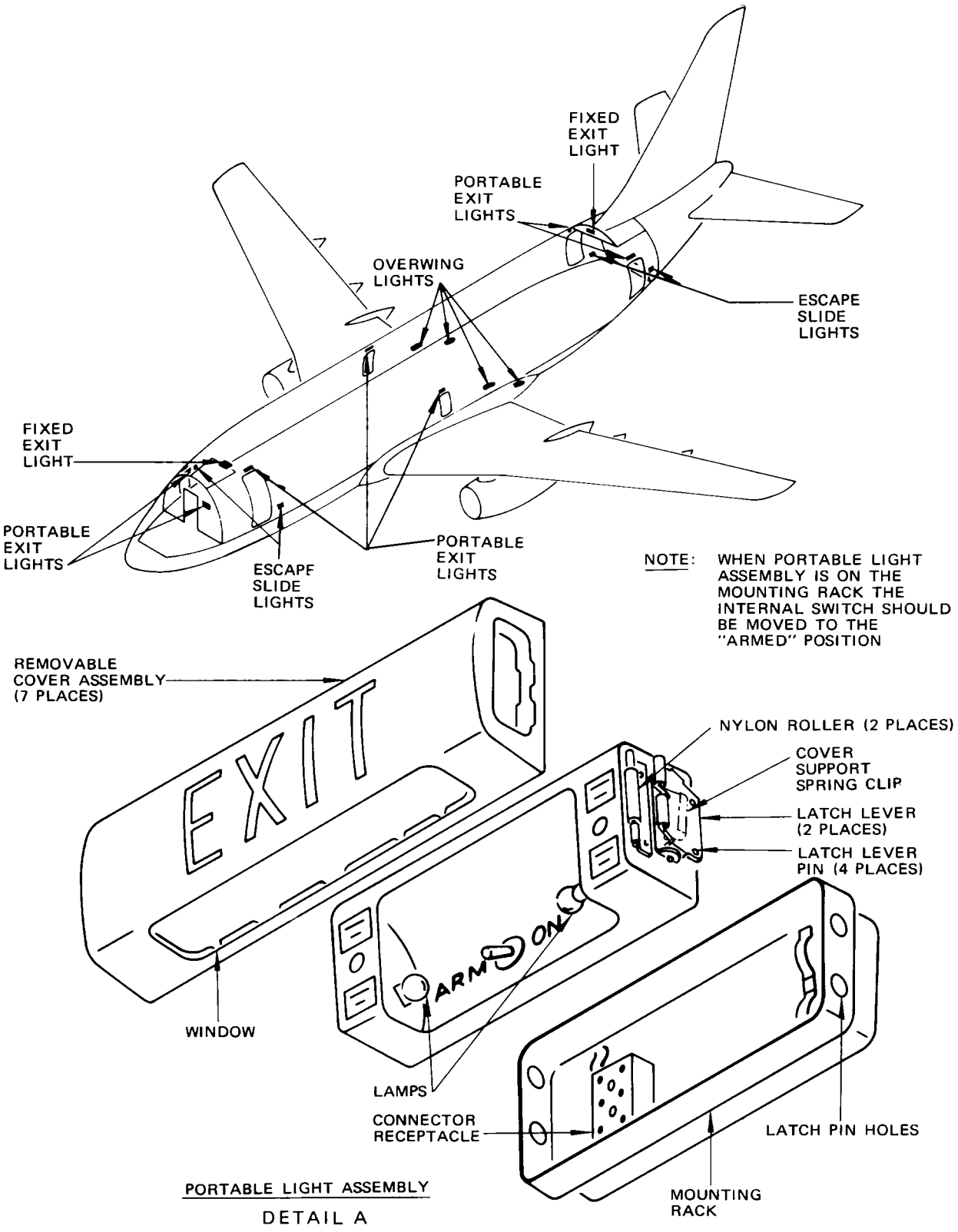
H. Test Light
(1) Provide electrical power.
(2) Set ANTICOLLISION light switch on pilots' forward overhead panel to ON.

WARNING: DO NOT LOOK DIRECTLY AT LIGHT FROM CLOSE RANGE. LIGHT FLASHES MAY CAUSE TEMPORARY VISION IMPAIRMENT.

(3) Return switch to OFF.
(4) Remove electrical power if no longer required.

EMERGENCY LIGHTS - DESCRIPTION AND OPERATION

1. General
   A. Emergency lighting is provided in the event of a partial or total power failure. If a partial failure occurs, certain lighting is transferred to the essential power bus and if all ac power fails, certain lights are illuminated by battery power.
2. Control Cabin Emergency Lights
   A. Two white lights in the lightshield will automatically illuminate if ac power fails. Battery power is also available to the white dome lights in the control cabin (Ref 33-11-0, Control Cabin Lighting). Also, a portable type battery -operated emergency light/exit sign will come on if the 28-volt dc bus No. 1 fails.
3. Passenger Cabin Emergency Lights
   A. Loss of 28 volts ac from the ground service bus to the ceiling lights de-energizes the essential ceiling light relay which, when de-energized, 28 volts ac from the bus No. 2 will be available to certain ceiling light strips. If 115 volts ac is lost all ceiling lights will extinguish (Ref 33-21-0, Passenger Cabin Lighting).
   B. The lavatory dome lights receive power from the battery transfer bus and in case of a power failure , the battery will supply power to these lights (Ref 33-21-0, Passenger Cabin Lighting).
4. Emergency Exit Lights
   A. Interior Emergency Lights
      (1) All emergency exits are provided with battery powered emergency lights. The emergency lights above the entry doors, emergency exit doors, the service doors, and the control cabin door are portable. The emergency exit lights on the ceiling are fixed lights. Each portable light assembly consists of a mounting rack, a light assembly and a cover marked EXIT. The fixed emergency lights are similar to the portable light except they cannot be removed from their mountings and operated (Fig. 1).
   B. Escape Slide Lights
      (1) There are four escape slide lights located on the exterior of the airplane as shown in Fig. 1. One light is located adjacent to each entry and each service door. A power supply module located in the forward-left part of the forward cargo compartment provides power and control for the two forward escape slide lights. A power supply module located in the aft-right side of the aft cargo compartment provides power and control for the aft two escape slide lights. The power supply modules are transistorized and operate the same as the other emergency lights, except that they operate remotely located lights.



Emergency Exit Lights
Figure 1

C. Overwing Lights

(1) There are four overwing emergency exit path lights as shown in Fig. 1. Two overwing light power supply modules are located in the forward part of the aft cargo compartment, one on each sidewall. Each power supply module provides power and control for the two overwing lights on the same side of the airplane. The power supply modules operate the same as the escape slide power supply modules.

(2) A door-operated switch is located on both overwing escape hatches. When an escape hatch is opened, the switch disables the 28-volt dc power to the adjacent power supply module causing the lights for that escape hatch to come on if the system is in the armed condition.

D. Self-Illuminating Exit Signs

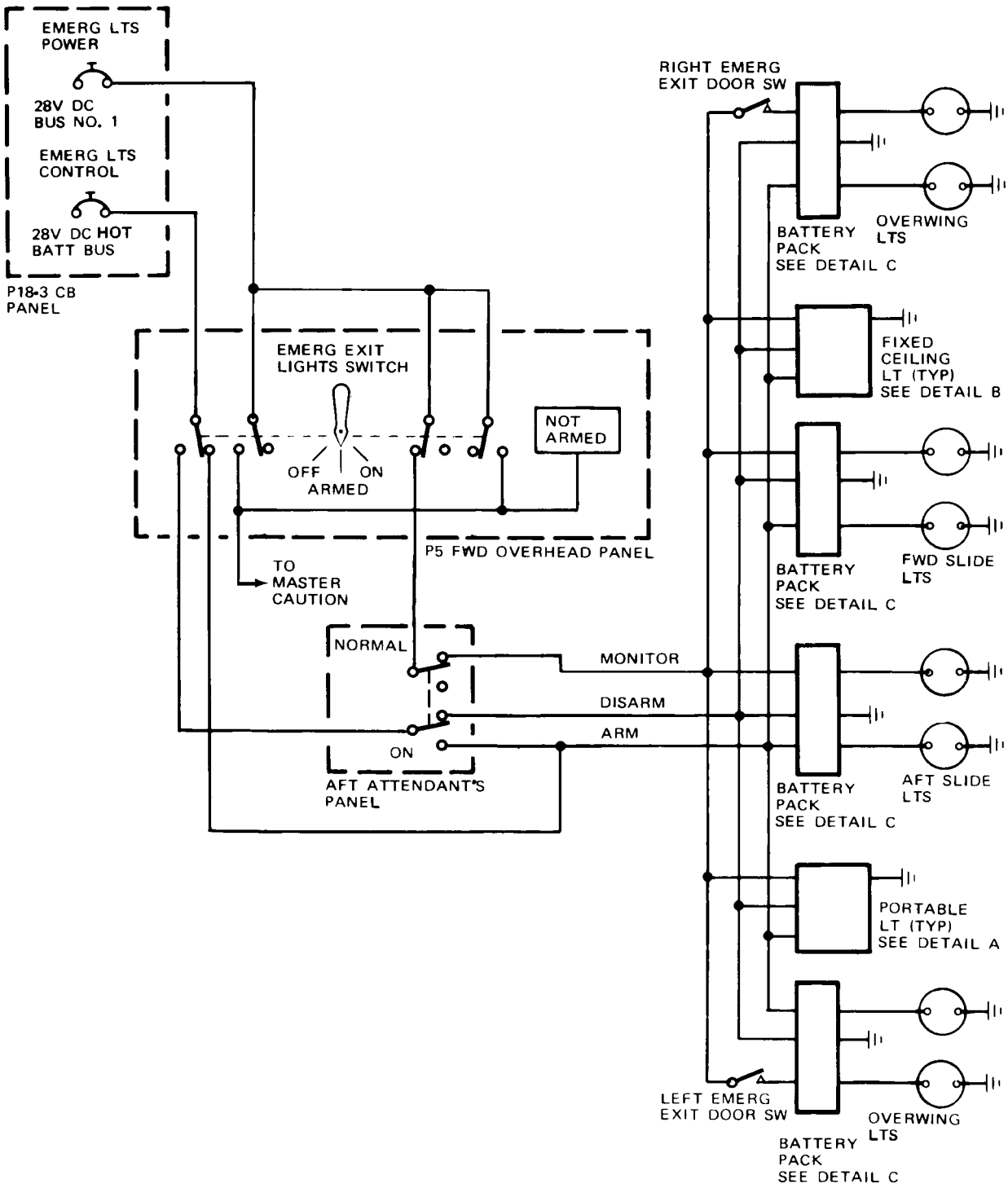
(1) Self-illuminating (nonelectric) exit signs are installed on each lowered ceiling and on the raised ceiling between the emergency escape hatches. These signs use tritium gas radioactivity to cause phosphorescent material in the signs to glow. The tritium gas is sealed in glass capsules at sea-level atmospheric pressure. The capsules are cushioned by a silicone rubber adhesive and imbedded in the durable plastic rectangle that makes up the sign. Normal handling or slight abuse will not damage sign.

(2) The radioactive tritium gas presents no radiological health hazard when signs are intact. However, if the signs are cracked or broken the radioactive gas may escape, thus presenting a health hazard if the material is 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 governmental regulations.

WARNING: CRACKED OR BROKEN SIGNS REQUIRE SPECIAL HANDLING TO AVOID ANY POTENTIAL RADIOLOGICAL HEALTH HAZARD CONDITIONS. REFER TO 33-51-41, SELF-ILLUMINATING SIGNS MAINTENANCE PRACTICES FOR HANDLING PROCEDURES.

5. Operation

A. The emergency exit lights are controlled by a three-position switch, ARMED ON and OFF, on the forward overhead panel. Each portable emergency exit light also has a two position switch, ARMED and ON, integral with the portable assembly (Fig. 2). An additional switch if installed on the aft attendants' panel can override the pilot's emergency light switch to turn all emergency lights on. The attendant's switch has two positions, ON and NORMAL. With the attendant's switch set to NORMAL, the pilot's switch has control of the emergency lights.



Emergency Lights
Figure 2 (Sheet 1)

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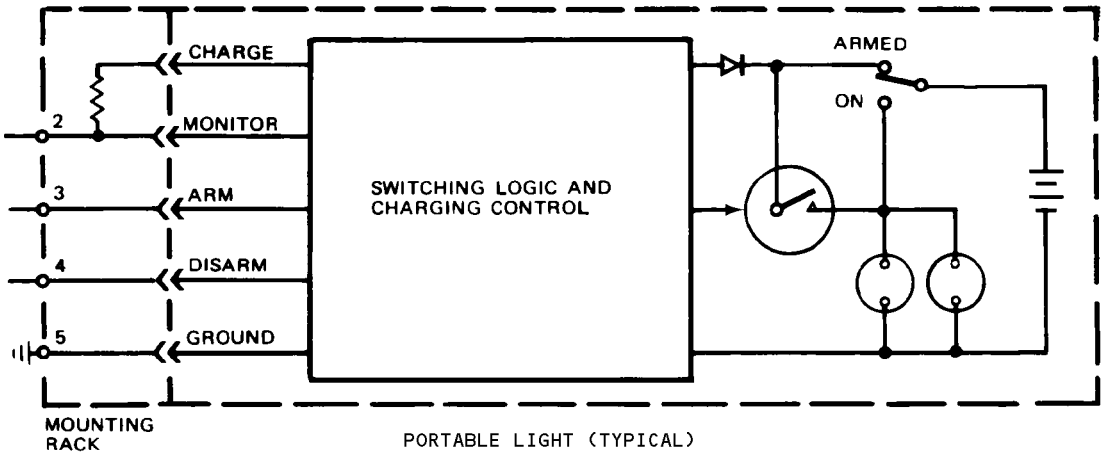
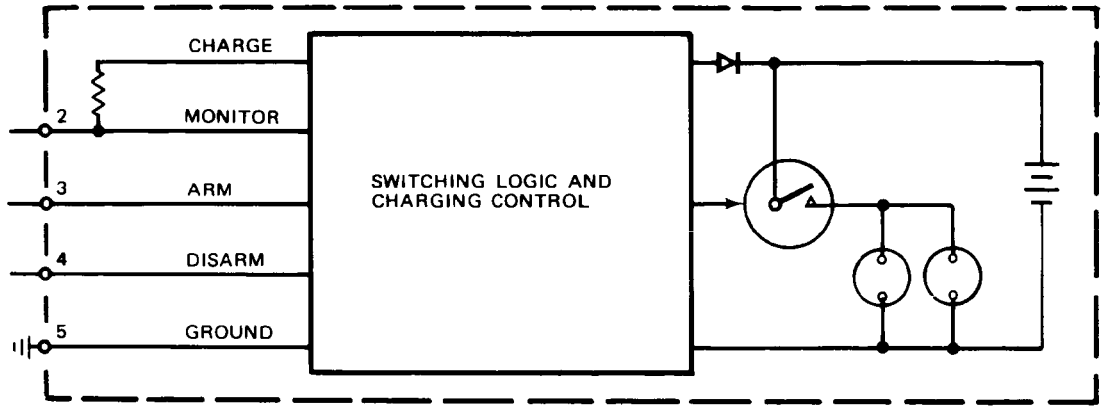


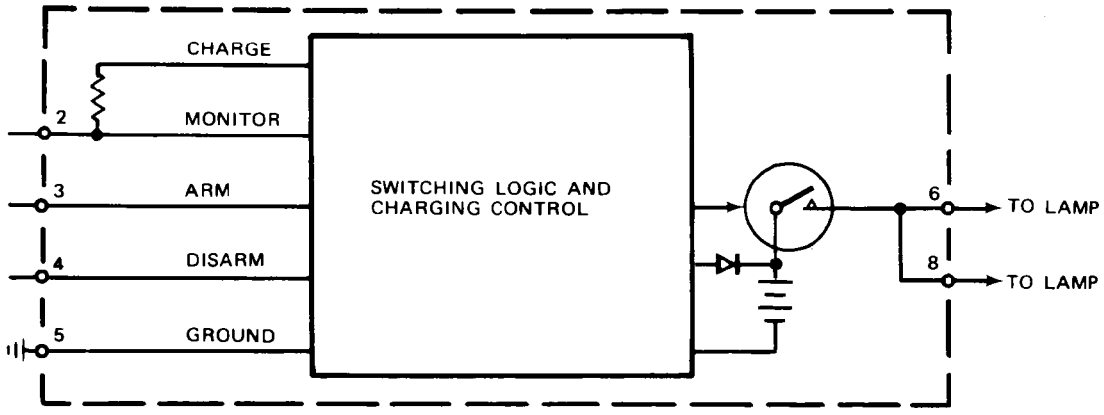
PORTABLE LIGHT (TYPICAL)

DETAIL A



FIXED CEILING LIGHT (TYPICAL)

DETAIL B



BATTERY PACK (TYPICAL)

DETAIL C

Emergency Lights
Figure 2 (Sheet 2)

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B. During normal airplane operation, the emergency light switches are set to ARMED, and the attendant's emergency light switch is set to NORMAL. With the switches set to these positions and the 28-volt dc bus No. 1 energized, all emergency lights will remain off and their batteries Will receive a trickle charge. If the 28-volt dc bus No. 1 loses power, the control logic circuit in each emergency light and battery pack will turn its emergency lights on. The lights can be turned off by setting the pilot's emergency light switch to OFF. With the pilot's or attendant's emergency light switch set to ON, the battery emergency lights will come on. With the pilot's emergency light switch set to OFF, the lights will remain off, independent of the 28-volt dc bus No. 1. However, the batteries will receive a trickle charge if the 28-volt dc bus No. 1 is energized.

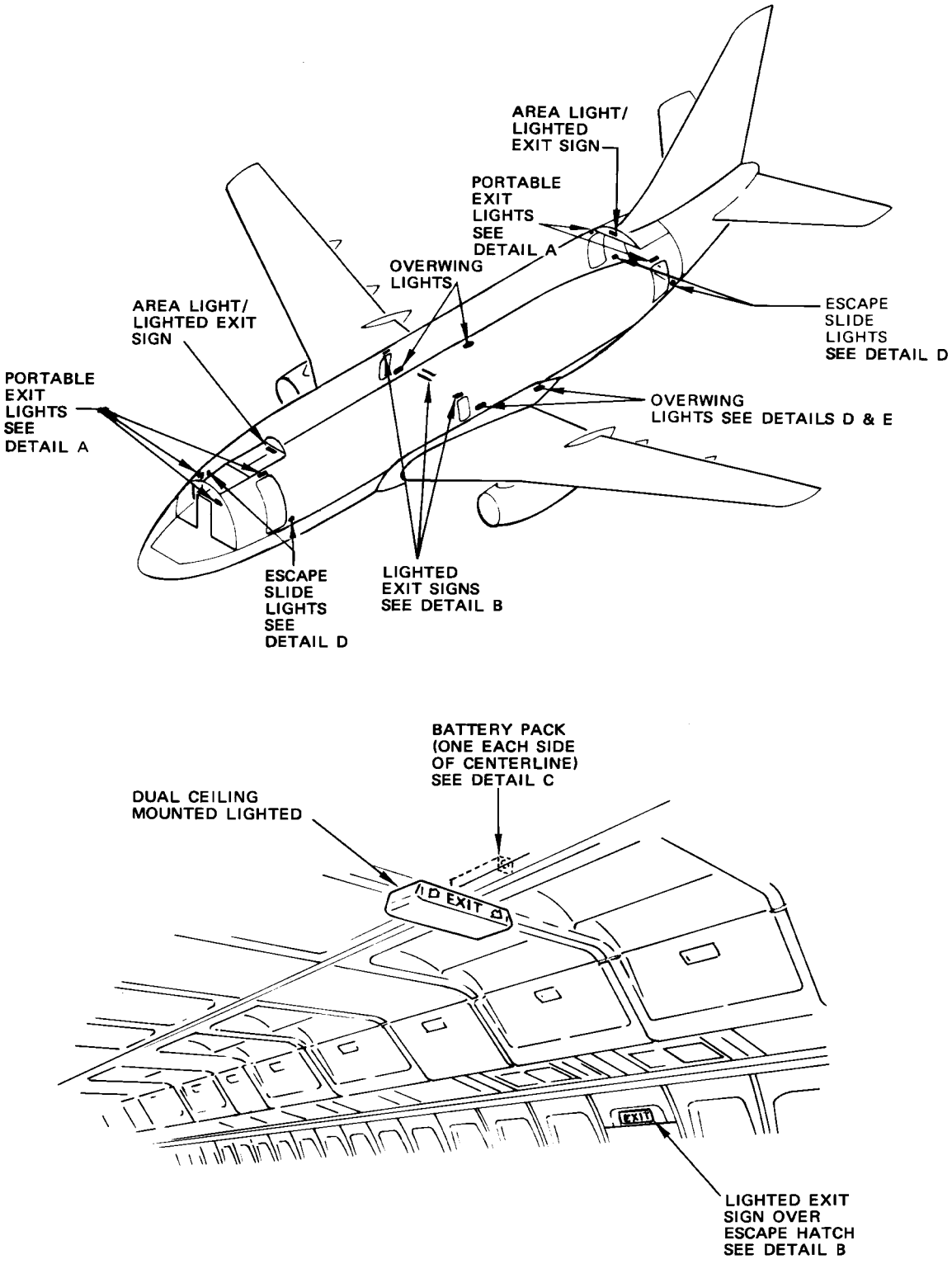
C. When the portable emergency exit light assemblies are removed from their mounting plates, the portable lights are controlled by the integral ARM-ON switch, with the ARM being the switch off position. The pilot's emergency light switch should be positioned at OFF before removing any portable light 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/ARM switch until it is reinstalled on a mounting plate.

D. If external power is removed from the aircraft with the overhead panel emergency exit light switch in the ARMED position, the lights will illuminate and discharge the individual emergency exit light batteries. The lights should be extinguished as soon as possible by placing the airplane battery switch to ON, the overhead panel emergency exit light switch to OFF, and returning the airplane battery switch to OFF. If a fixed emergency exit light remains on, it must be replaced.

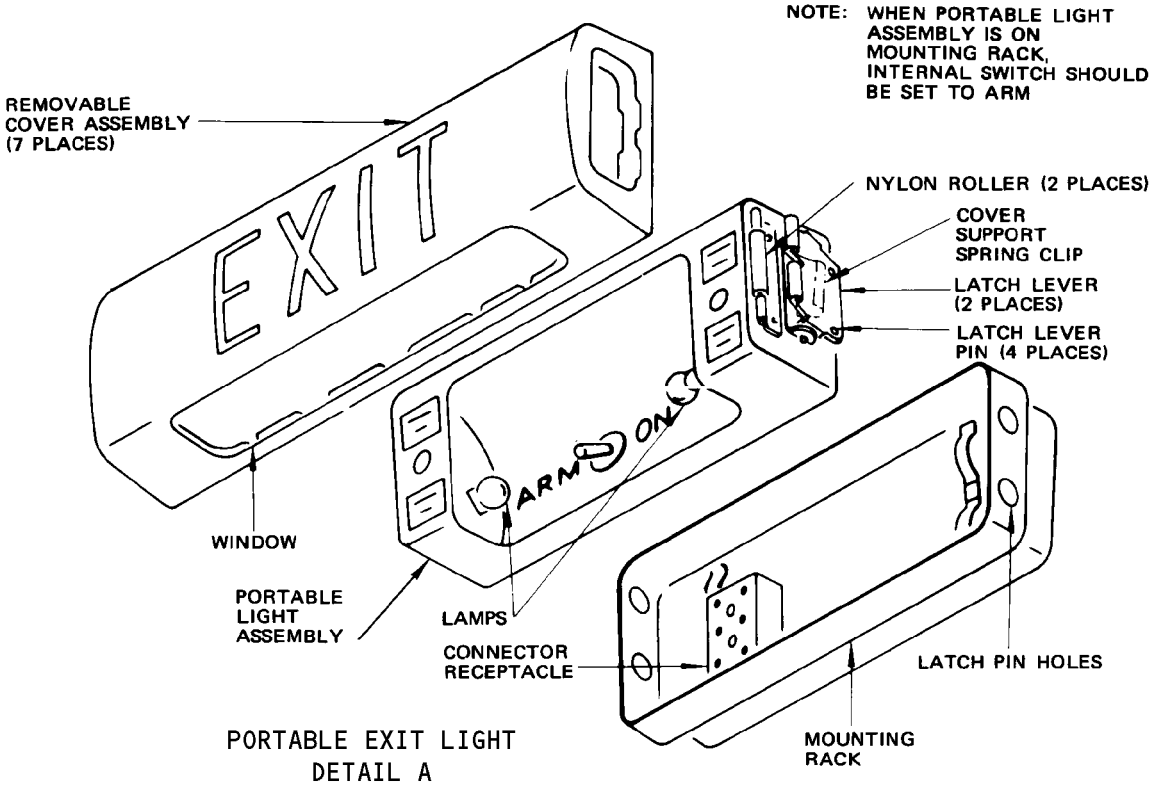
E. If any portable exit light remains on after the above operation, remove the front cover(s) to gain access to the light switch, and momentarily position the applicable emergency exit light switch to ON then ARMED. The light should extinguish. If it remains illuminated, the portable assembly must be replaced.

EMERGENCY LIGHTING - DESCRIPTION AND OPERATION

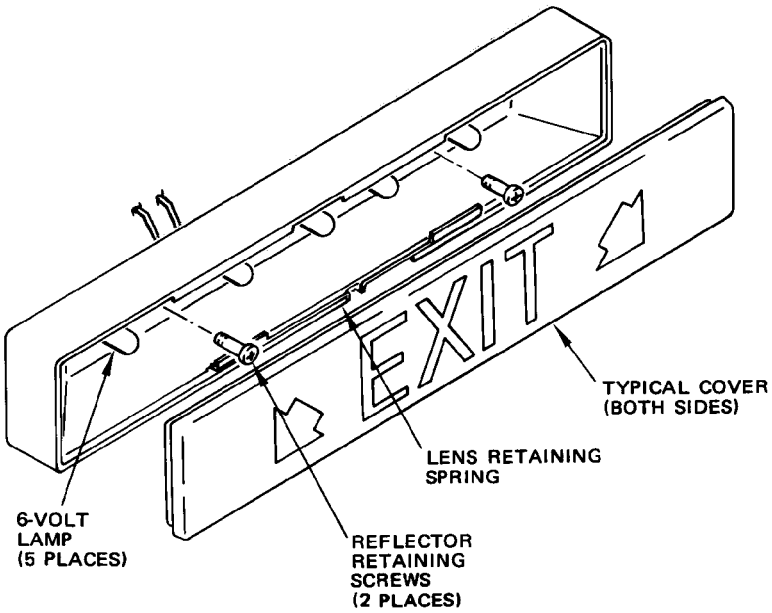
1. General
   A. Emergency lighting is provided in the passenger cabin, lavatories, control cabin, over the inboard wing and on the escape slides. If a partial power failure occurs on the main ac bus or ac transfer bus, some of the ceiling lights are transferred to the essential ac bus. If a complete power failure occurs, certain lights will be illuminated from the battery bus or battery transfer bus and emergency exit lighting will automatically be illuminated by batteries associated with the light assemblies. A switch on the pilots' overhead panel controls the 28-volt dc hot battery bus power that provides light control and the 28-volt dc bus No. 1 power that charges the batteries. All airplane power is from the P18 load control center (Fig. 1).
2. Control Cabin Lights
   A. The white incandescent lights in the pilots' lightshield are normally illuminated from the 28-volt ac essential bus. If essential power fails, two emergency lights in the shield are automatically connected, by the pilots' background lights relay in overhead panel P5, to the battery bus. The control cabin white dome lights and compass light receive power from the battery bus and will remain illuminated in case of generator power failure (Ref 33-11-0, Control Cabin Lighting).
3. Passenger Cabin Ceiling Lights
   A. Emergency incadescant lights installed in the fluorescent light assemblies throughout the passenger cabin are normally illuminated from the 28-volt ac transfer bus. If power to the ac transfer bus is lost, the night light relay will de-energize and connect the emergency lights to the 28- volt ac bus No. 2 (Ref 33-21-01, Passenger Cabin Lighting).
   B. A dome light in each lavatory is illuminated from the battery bus; therefore, lighting is provided in case of generator power failure.
4. Interior Battery Powered Lights
   A. Portable Exit Light
      (1) A portable light assembly is installed over the entry, control cabin, and aft galley doors. The portable light assemblies having integral battery packs may be removed from their mountings and used as a flashlight



Emergency Lights Components Location
Figure 1 (Sheet 1)

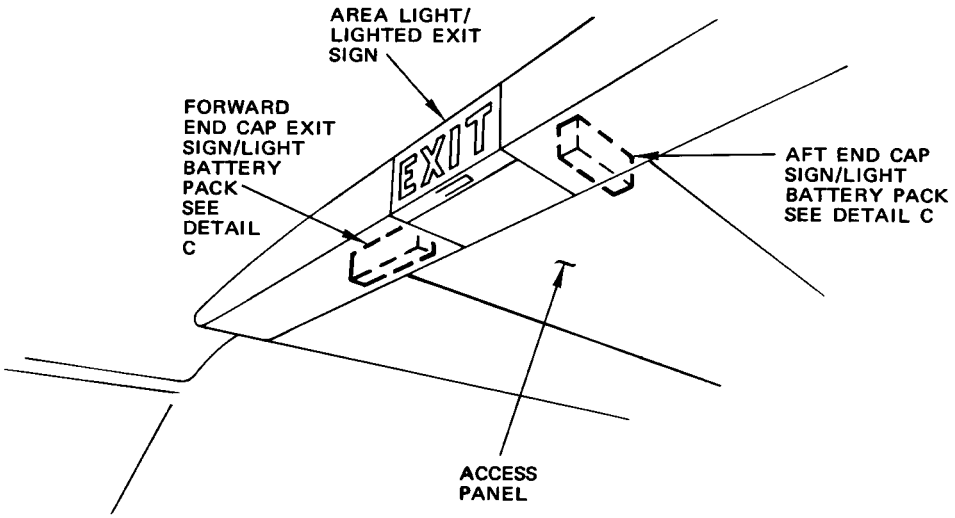


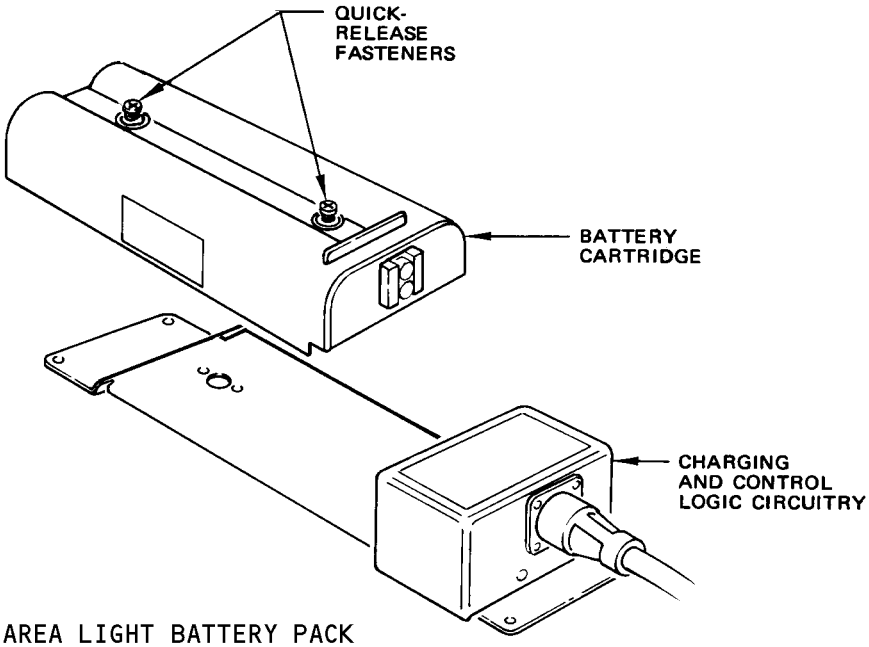
PORTABLE EXIT LIGHT
DETAIL A



TYPICAL (LIGHTED) EXIT SIGN
DETAIL B

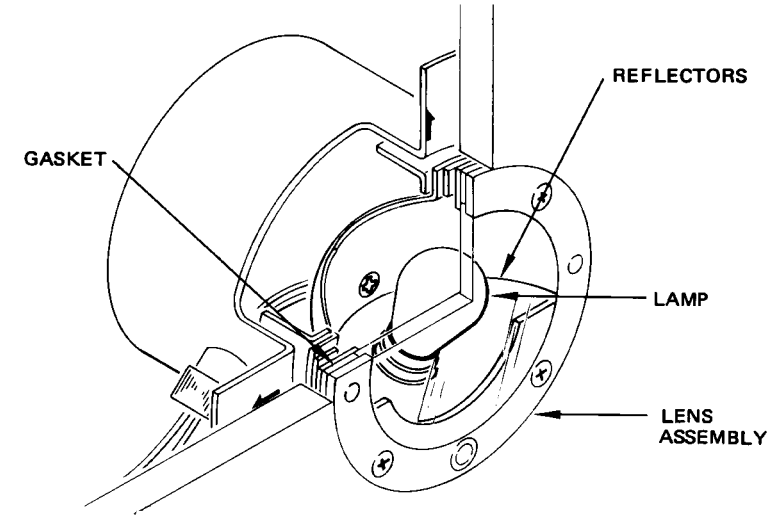
Emergency Lights Component Location
Figure 1 (Sheet 2)



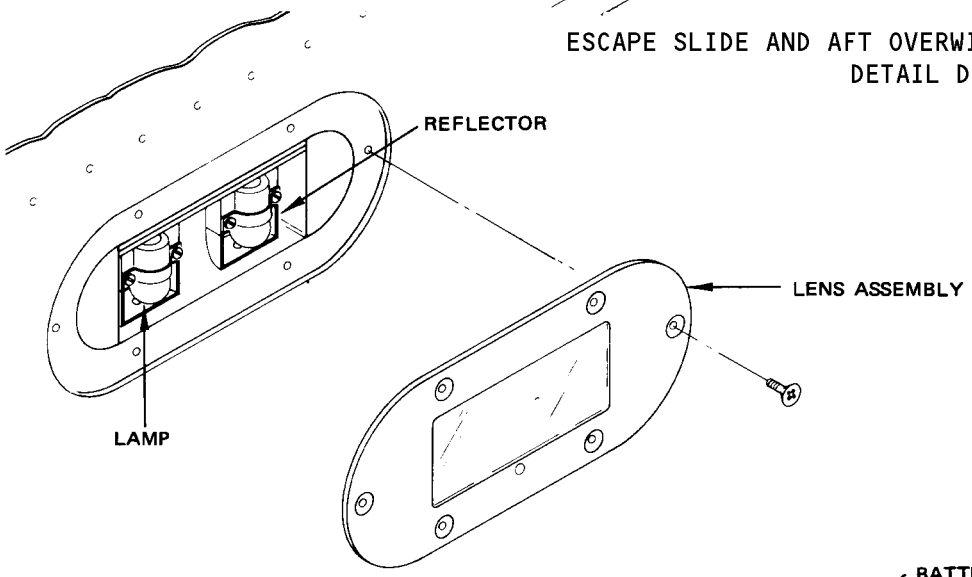


EXIT SIGN/AREA LIGHT BATTERY PACK
DETAIL C

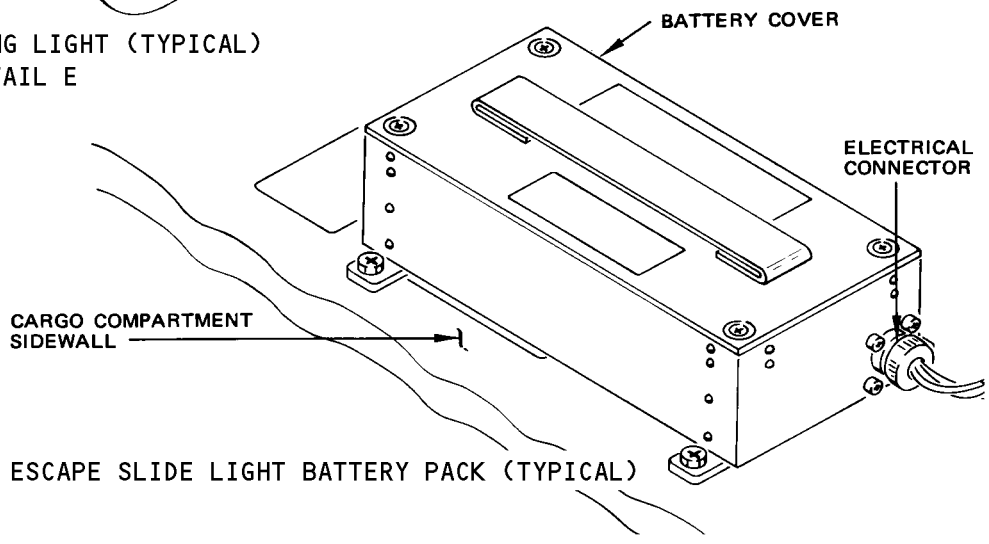
Emergency Lights Component Location
Figure 1 (Sheet 3)



ESCAPE SLIDE AND AFT OVERWING LIGHT (TYPICAL)
DETAIL D



FORWARD OVERWING LIGHT (TYPICAL)
DETAIL E



OVERWING AND ESCAPE SLIDE LIGHT BATTERY PACK (TYPICAL)

Emergency Lights Component Location
Figure 1 (Sheet 4)

(2) Each portable light assembly consists of incandescent lamps, a solid-state switching logic, a battery-charging control circuit, nickel-cadmium batteries, and a two-position switch. The lamps receive power from the internal batteries only as controlled by solid-state switching logic. A plastic case houses the portable light assembly. The portable light plugs into a mounting plate which is bolted to the airplane interior. A cover that also functions as an EXIT sign is mounted over the light assembly. The light cover may be released from the light assembly by pulling out on the ends of the light cover, thus allowing the cover to slide over a nylon retaining roller. The light assembly may be removed from the mounting and used as a flashlight after pressing in on a spring-loaded lever latch on each end of the light case and releasing the case from the mounting. The toggle switch on the light assembly can then be used to turn the light on when positioned to ON, or off when positioned to ARM. When the light is installed, the switch on the light assembly must be positioned to ARM. The batteries may be replaced, if faulty, after removing two screws and a cover on the back of the case (See figure 1.)

B. Fixed Exit Lights

(1) The fixed exit lights mounted on the lowered ceiling end caps function as a lighted exit sign and an emergency area light. A separate battery pack with logic and charging circuits is mounted near each light. Each light assembly is comprised of a housing assembly that mounts to the lowered ceiling structure and a lens assembly. The housing assembly contains five midget incandescent lamps for exit sign illumination and two bayonet type incandescent lamps for area illumination. All seven lamps are connected in parallel. The acrylic cover assembly has a translucent coating on all areas except a small clear portion on bottom which is used for area light emission. The cover can be readily removed for relamping by pressing two press-lock type fasteners on its lower side and rotating the cover upward and outward

C. Lighted Exit Signs

(1) Lighted exit signs are mounted in a recess over each emergency escape hatch and a pair of lighted exit signs are mounted on the center of the raised ceiling between the escape hatches. Each sign uses five midget incandescent lamps to illuminate the exit legend. The translucent acrylic cover has the exit legend on its front side. The cover is removed for relamping by releasing a single latch on its lower center exterior. A single battery pack is used to provide power and control for two exit sign assemblies. The battery packs are installed above the ceiling-mounted exit signs located approximately midpoint between the escape hatches. The battery packs are identical to the battery packs used for the emergency exit sign/lights installed on the lowered ceiling end caps (Fig. 1).

5. Self-Illuminating Exit Signs
   A. Self-illuminating (nonelectric) exit signs are installed on each lowered ceiling and on the raised ceiling between the emergency escape hatches. These signs use tritium gas radioactivity to cause phosphorescent material in the signs to glow. The tritium gas is sealed in glass capsules at sea-level atmospheric pressure. The capsules are cushioned by a silicone rubber adhesive and imbedded 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 radiological health hazard when signs are intact. However, if the signs are cracked or broken the radioactive gas may escape, thus presenting a health hazard if the material is 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 governmental regulations.

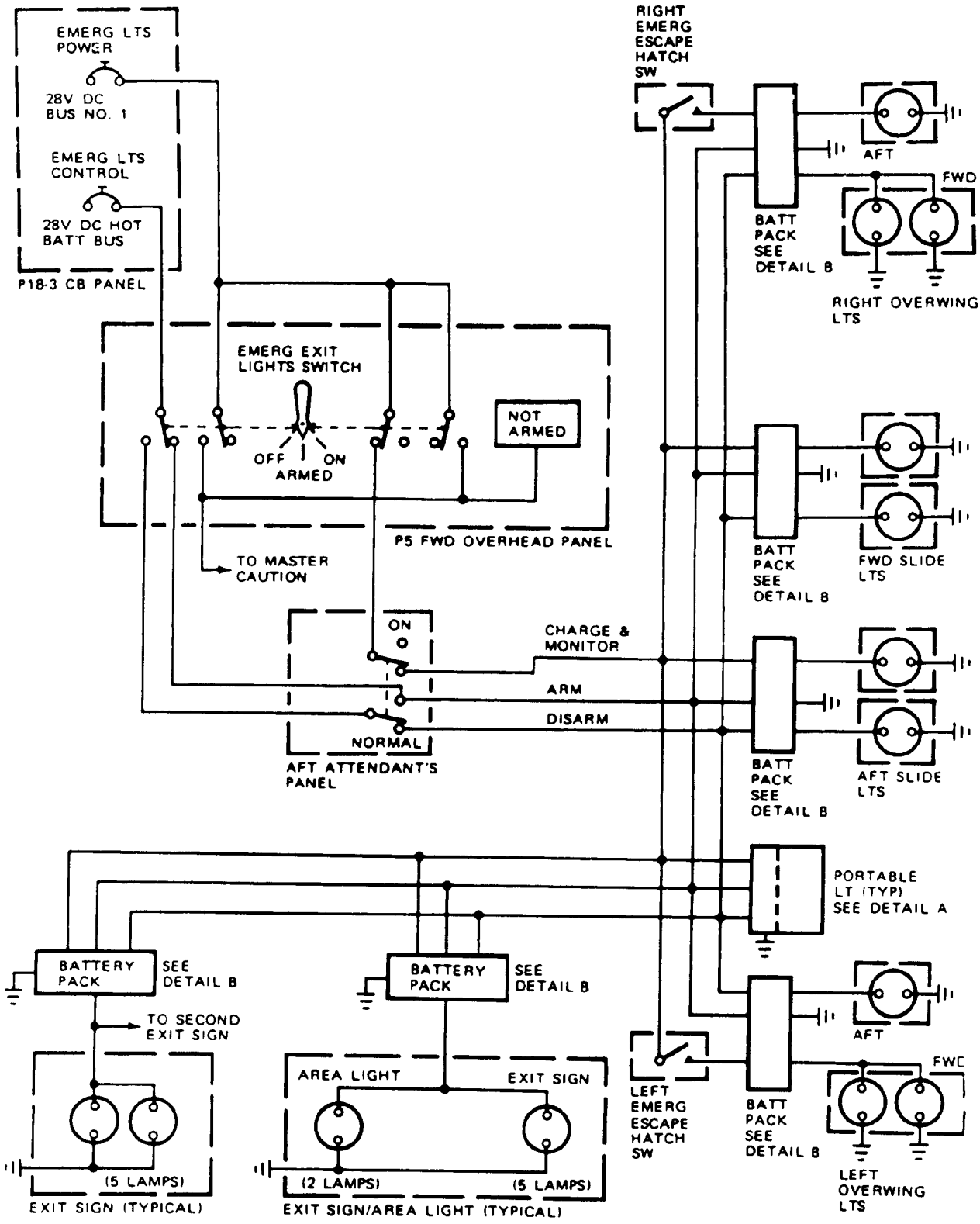
      WARNING: CRACKED OR BROKEN SIGNS REQUIRE SPECIAL HANDLING TO AVOID ANY POTENTIAL RADIOLOGICAL HEALTH HAZARD CONDITIONS. REFER TO 33-51-41, SELF-ILLUMINATING SIGNS MAINTENANCE PRACTICES FOR HANDLING PROCEDURES.

6. Exterior Emergency Lights
   A. Escape Slide Lights
      (1) There are four escape slide lights located on the exterior of the airplane as shown in figure 1. One light is located adjacent to each entry and each service door. A power supply module located in the forward-left part of the forward cargo compartment provides power and control for the two forward escape slide lights. A power supply module located in the aft-right side of the aft cargo compartment provides power and control for the aft two escape slide lights. The power supply modules are transistorized and operate the same as those for the other emergency lights, except that they power remotely located lights.
   B. Overwing Lights
      (1) There are four overwing emergency exit path lights as shown in Fig. 1. Two overwing light power supply modules are located in the forward part of the aft cargo compartment, one on each sidewall. Each power supply module provides power and control for the two overwing lights on the same side of the airplane. The power supply modules operate the same as the escape slide power supply modules.
      (2) A door-operated switch is located on both overwing escape hatches. When an escape hatch is opened , the switch disables the 28-volt dc power to the adjacent power supply module, causing the lights for that escape hatch to come on if the emergency light switch on the pilots' overhead panel is set to the ARMED position.

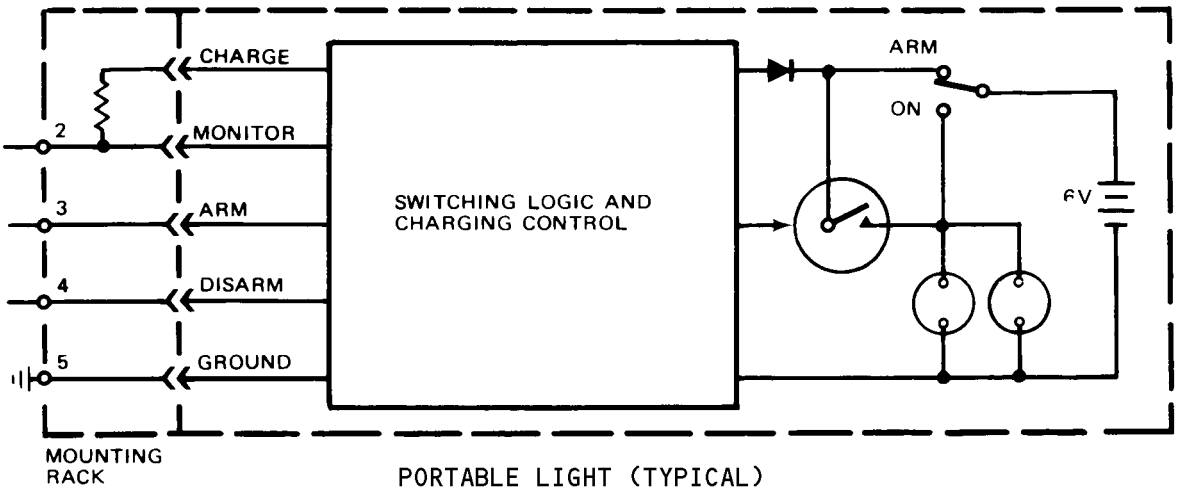
7. Operation
   A. The emergency exit lights are controlled by a three-position switch, ARMED, ON and OFF, on the forward overhead panel. Each portable emergency exit light also has a two position switch, ARM and ON, integral with the portable assembly (Fig. 2). An additional switch on the aft attendants' panel can override the pilot's emergency light switch to turn all emergency lights on. The attendant's switch has two positions, ON and NORMAL. With the attendant's switch set to NORMAL, the pilot's switch has control of the emergency lights. The hot battery bus supplies power to arm and disarm the emergency lights through individual battery pack control circuits. This enables the emergency lights to be turned on or off with power removed from the airplane. The 28-volt dc bus No. 1 provides power to charge batteries and power failure inputs.
   B. During normal airplane operation, the emergency light switch on the pilots' overhead panel is set to ARMED, and the attendant's emergency light switch is set to NORMAL. With the switches set to these positions and the 28-volt dc bus No. 1 energized, all emergency lights will remain off and their batteries will receive a trickle charge. If the 28-volt dc bus No. 1 loses power, the control logic circuit in each emergency light and battery pack will turn its emergency lights on. The lights can be turned off by setting the pilot's emergency light switch to OFF. With the pilot's or attendant's emergency light switch set to ON, the battery emergency lights will come on. With the pilot's emergency light switch set to OFF, the lights will remain off, independent of the 28-volt dc bus No. 1. However, the batteries will receive a trickle charge if the 28-volt dc bus No. 1 is energized.
   C. When the portable emergency exit light assemblies are removed from their mounting plates, the portable lights are controlled by the integral ARM-ON switch, with the ARM being the switch off position. 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/ARM switch until it is reinstalled on a mounting plate.
   D. If external power is removed from the aircraft with the emergency lights switch on the pilots' overhead panel in the ARMED position, the lights will come on and discharge all emergency light batteries. The lights should be turned off as soon as possible by placing the emergency light switch on the overhead panel to OFF. If a fixed emergency exit light remains on, it must be replaced.

E. If any portable exit light remains on after the above operation, remove the front cover(s) to gain access to the light switch, and momentarily position the applicable emergency exit light switch to ON then ARM. The light should extinguish. If it remains illuminated, the portable assembly must be replaced.

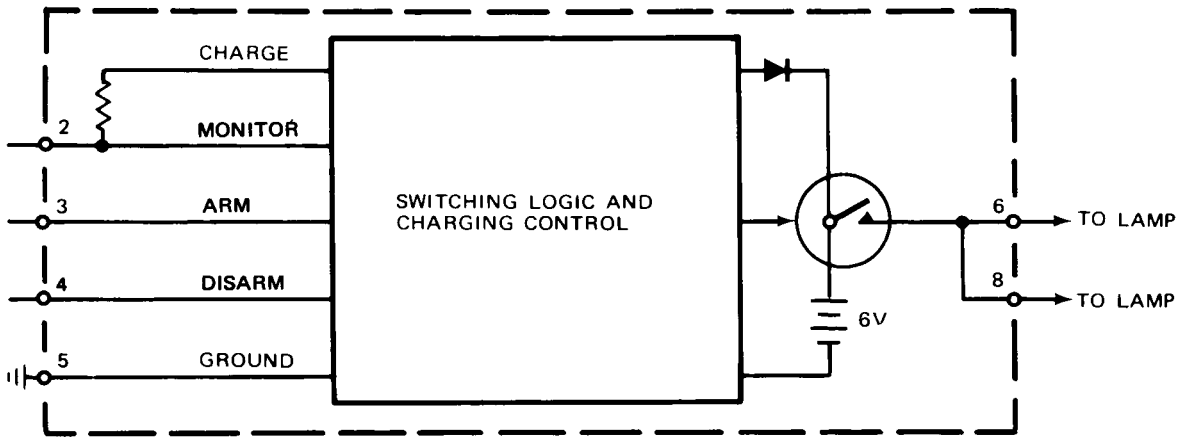
F. The pilot's emergency light switch should be set to OFF before disconnecting electrical wires or connectors to any emergency light or battery pack. Interrupting power to pin 2 of any light or battery pack with the pilot's switch set to ARMED will cause the disconnected emergency lights to come on and discharge their batteries.



Emergency Lights
Figure 2 (Sheet 1)



PORTABLE LIGHT (TYPICAL)
DETAIL A



BATTERY PACK (TYPICAL)
DETAIL B

Emergency Lights
Figure 2 (Sheet 2)

EXIT AND EMERGENCY LIGHTS - ADJUSTMENT/TEST

1. General
   A. The emergency lights system batteries should be fully charged prior to testing. If batteries are discharged, provide electrical power for at least 16 hours prior to testing.
2. Exit and Emergency Lights Test
   A. Prepare to Test Exit and Emergency Lights
      (1) Provide electrical power (AMM 24-22-0/201).
      (2) Check that EMERGENCY EXIT PWR and EMERGENCY EXIT CONT circuit breakers on panel P18 are closed.
      (3) Check that two MASTER CAUTION BUS, DIM AND TEST, and nine INDICATOR MASTER DIM BUS circuit breakers on panel P6 are closed.
   B. Test Exit and Emergency Lights
      (1) With EMER EXIT LIGHTS switch on forward overhead panel in OFF position, and EMER EXIT switch (if installed) on aft attendant's panel in NORM position, check that the following conditions exist:
         (a) All emergency exit, overwing lights (if installed) and escape slide lights (if installed) are off.
         (b) NOT ARMED light on forward overhead panel illuminates.
         (c) Both MASTER CAUTION LIGHTS on pilots' lightshield illuminate.
         (d) OVERHEAD system annunciator light on pilots' lightshield illuminates.
      (2) Press either MASTER CAUTION light on pilots' lightshield. Check that the following conditions exist:
         (a) Both MASTER CAUTION lights on pilots' lightshield extinguish.
         (b) OVERHEAD system annunciator light on pilots' lightshield extinguishes.
         (c) NOT ARMED light on forward overhead panel remains on.
      (3) Momentarily press either MASTER CAUTION light on pilots' lightshield. Check that the following lights illuminate:
         (a) OVERHEAD system annunciator light on pilots' lightshield.
         (b) Both MASTER CAUTION lights on pilots' lightshield.

         NOTE: Other master caution annunciator lights may come on but may be disregarded.

      (4) Set EMER EXIT LIGHTS switch on forward overhead panel to ARMED. Check that the following lights extinguish:
         (a) NOT ARMED light on forward overhead panel.
         (b) Both MASTER CAUTION lights on pilots' lightshield if no other master caution lights are on.
         (c) OVERHEAD system annunciator light on pilots' lightshield.
      (5) Open EMERGENCY EXIT PWR circuit breaker on panel P18. Check that all emergency exit, overwing lights (if installed) and escape slide lights (if installed) illuminate.

(6) Close EMERGENCY EXIT PWR circuit breaker on panel P18. Check that all emergency exit, overwing lights (if installed) escape slide lights (if installed) extinguish.
(7) Open right emergency escape hatch. Check that right overwing lights (if installed) illuminate.
(8) Close right emergency escape hatch. Check that right overwing lights (if installed) extinguish.
(9) Open left emergency escape hatch. Check that left overwing lights (if installed) illuminate.
(10) Close left emergency escape hatch. Check that left overwing lights (if installed) extinguish.
(11) Set EMER EXIT switch on aft attendant's panel (if installed) to ON and check that following conditions exist:
    (a) All emergency exit, overwing lights (if installed) and escape slide lights (if installed) illuminate.
    (b) NOT ARMED light on forward overhead panel remains off.
(12) Set EMER EXIT LIGHTS switch on forward overhead panel to OFF. Check that all emergency exit lights, overwing lights (if installed) and escape slide lights (if installed) remain on.
(13) Set EMER EXIT switch (if installed) on aft attendant's panel to NORM. Check that all emergency exit lights, overwing lights (if installed), and escape slide lights (if installed) extinguish.
(14) Open EMERGENCY EXIT CONT circuit breaker on panel P18.
(15) Set EMER EXIT LIGHTS switch on forward overhead panel to ON. Check that following conditions exist:
    (a) All emergency exit lights, overwing lights and escape slide lights are off.
    (b) NOT ARMED light on forward overhead panel illuminates.
    (c) Both MASTER CAUTION lights on pilots' lightshield illuminate.
    (d) OVERHEAD system annunciator light on pilots' lightshield illuminates.
(16) Close EMERGENCY EXIT CONT circuit breaker on panel P18. Check that all emergency exit lights, overwing lights (if installed) and escape slide lights (if installed) remain on.
(17) Set EMER EXIT LIGHTS switch on forward overhead panel to OFF.
(18) Actuate each exit light by operating switch at light assembly. If lamps do not light, or the light appears dim, the light assembly is defective and should be replaced.

CAUTION: DO NOT LEAVE EMERGENCY LIGHTS OPERATING AFTER COMPLETION OF TESTS. PRIOR TO REMOVING POWER FROM AIRPLANE, CHECK THAT POSITION OF THE EMERGENCY EXIT LIGHTS SWITCH ON THE FORWARD OVERHEAD PANEL IS OFF.

(19) Remove electrical power if no longer required (AMM 24-22-0/201).

3. Emergency Lights System Capacity Test

CAUTION: TEST REQUIRES COMPLETE DISCHARGE OF BATTERIES. POWER TO CHARGE BATTERIES SHOULD BE AVAILABLE FOR AT LEAST 16 HOURS PRIOR TO NEXT FLIGHT.

A. Prepare to Test Emergency Light System Capacity
   (1) Perform steps 2.A.(1) thru (3) and 2.B.(1) thru (4). If Exit and Emergency Lights Test has just been completed, proceed to step (2).
   (2) Open EMERGENCY EXIT PWR circuit breaker on panel P18. Check that all emergency exit, overwing lights (if installed) and escape slide lights (if installed) illuminate. Leave circuit breaker open until lights are extinguished.
      (a) Verify emergency exit, overwing lights (if installed) and escape slide lights (if installed) remain illuminated for at least 15 minutes.
   (3) Close EMERGENCY EXIT PWR circuit breaker on panel P18. Check that emergency exit, overwing lights (if installed) and escape slide lights (if installed) extinguish.
   (4) Set EMER EXIT LIGHTS switch on forward overhead panel to OFF.

      CAUTION: DO NOT LEAVE EMERGENCY LIGHTS OPERATING AFTER COMPLETION OF TESTS. PRIOR TO REMOVING POWER FROM AIRPLANE, CHECK THAT POSITION OF THE EMERGENCY EXIT LIGHTS SWITCH ON THE FORWARD OVERHEAD PANEL IS OFF.

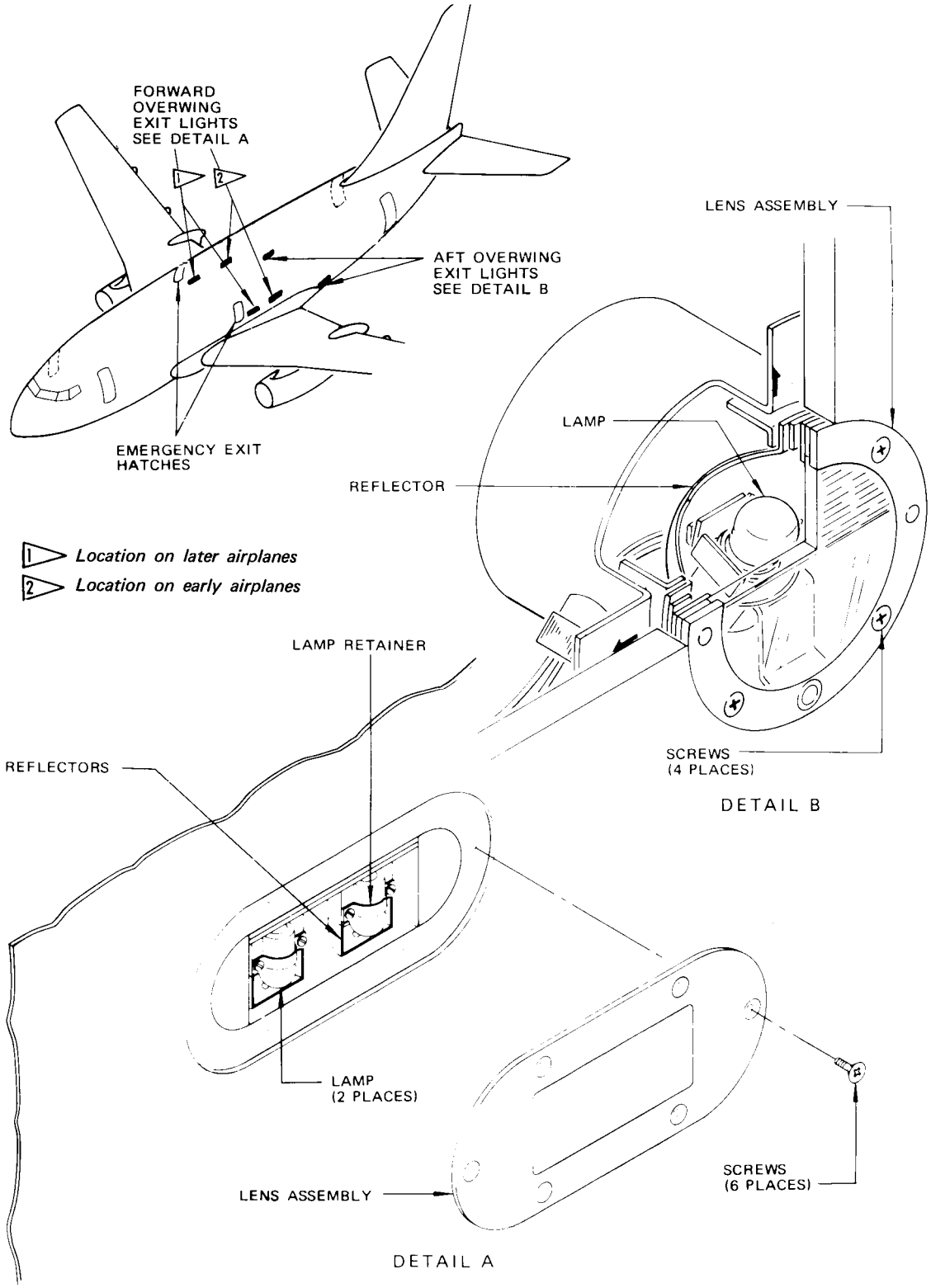
   (5) Charge batteries by providing electrical power for at least 10 hours.
   (6) When batteries are fully charged, remove electrical power if no longer required (AMM 24-22-0/201).

EMERGENCY EXIT OVERWING LIGHTS - MAINTENANCE PRACTICES

1. General
   A. The overwing lights are composed of two separate units: the light assembly and the battery pack assembly. Lamps in the light assembly are accessible from outside the airplane.
2. Relamp Exit Overwing Lights
   A. Remove lens retaining screws (Fig. 201.)
   B. Carefully pry loose and remove lens assembly and gasket (if installed).
   C. Remove screws on lamp retainer on the forward overwing exit lights, and press down on lamp and turn to disengage bayonet lamp from retainer on the aft lights.
   D. Remove lamp.
   E. Clean light assembly with a clean dry cloth.
   F. Install lamp, secure with retainer and screws on forward overwing exit lights. On aft overwing lights press down on lamp and turn to engage bayonet lamp in retainer.
   G. Test lamp.
      (1) Momentarily set emergency lights switch on either pilots' overhead or aft attendant's panel to ON then return switch to prior setting. Check that lamp comes on and goes off.

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

   H. Install lens assembly and gasket with four screws.



Emergency Exit Overwing Lamp Installation
Figure 201

EMERGENCY EXIT OVERWING LIGHT BATTERY PACK - MAINTENANCE PRACTICES

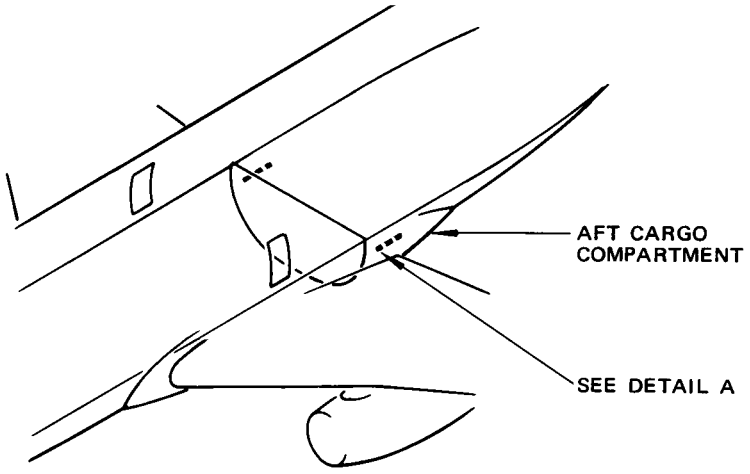
1. General
   A. This procedure provides the steps necessary to replace batteries in the overwing emergency exit light battery packs. The packs are mounted behind access panels on the aft cargo compartment sidewalls (station 727A, right and left sides).
2. Replace Batteries
   A. Gain access to battery pack by removing access panel in aft cargo compartment sidewall.
   B. Release four quick-release fasteners (Fig. 201.)
   C. Remove cover.
   D. Remove batteries.
   E. Install replacement batteries.

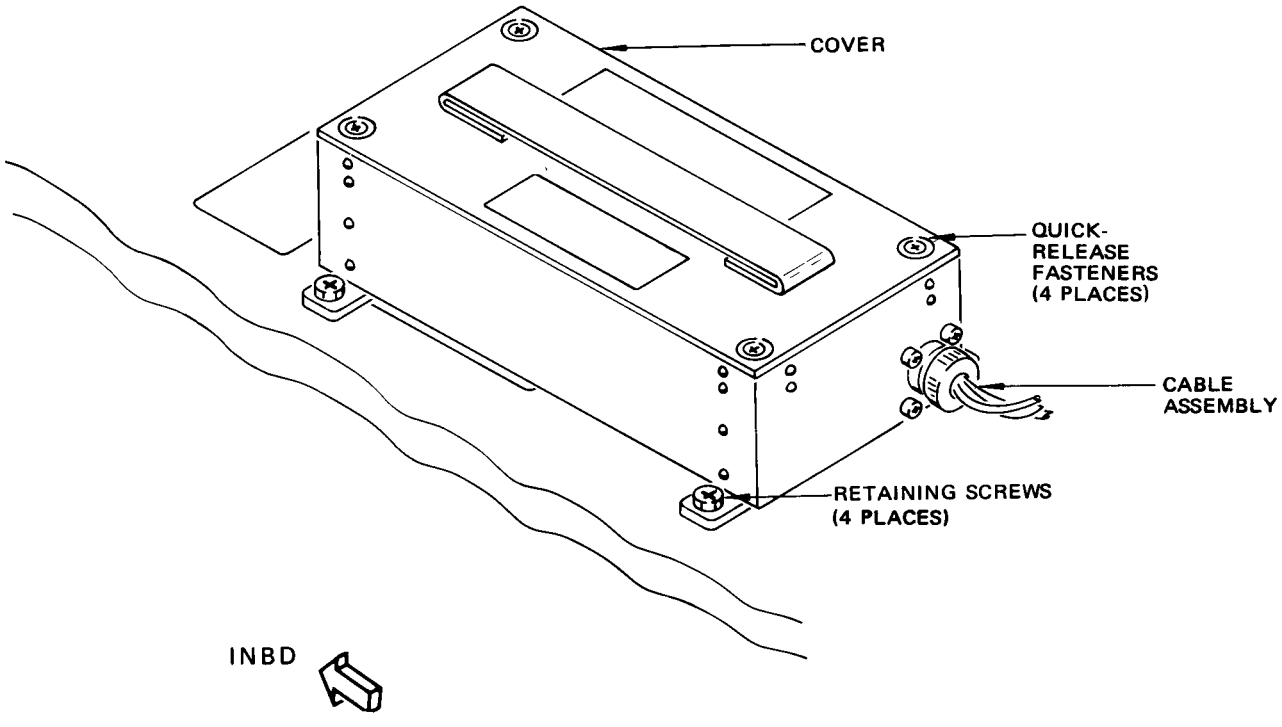
      CAUTION: OBSERVE CORRECT POLARITY OF BATTERIES WHEN INSTALLING.

   F. Replace cover.
   G. Engage four quick-release fasteners.
   H. Test battery operation.
      (1) Momentarily set emergency lights switch on either pilots' overhead or aft attendant's panel to ON then return to prior setting. Check that lights powered by battery pack come on and go off.

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

   I. Install access panel in aft cargo compartment.





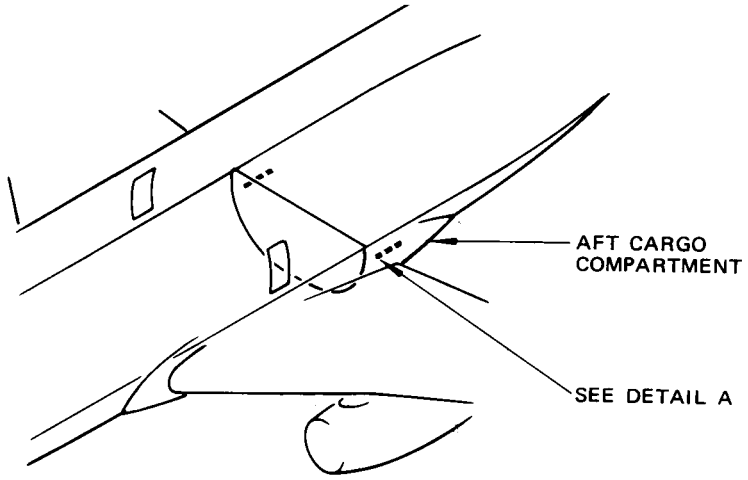
Emergency Exit Overwing Battery Pack Installation
Figure 201

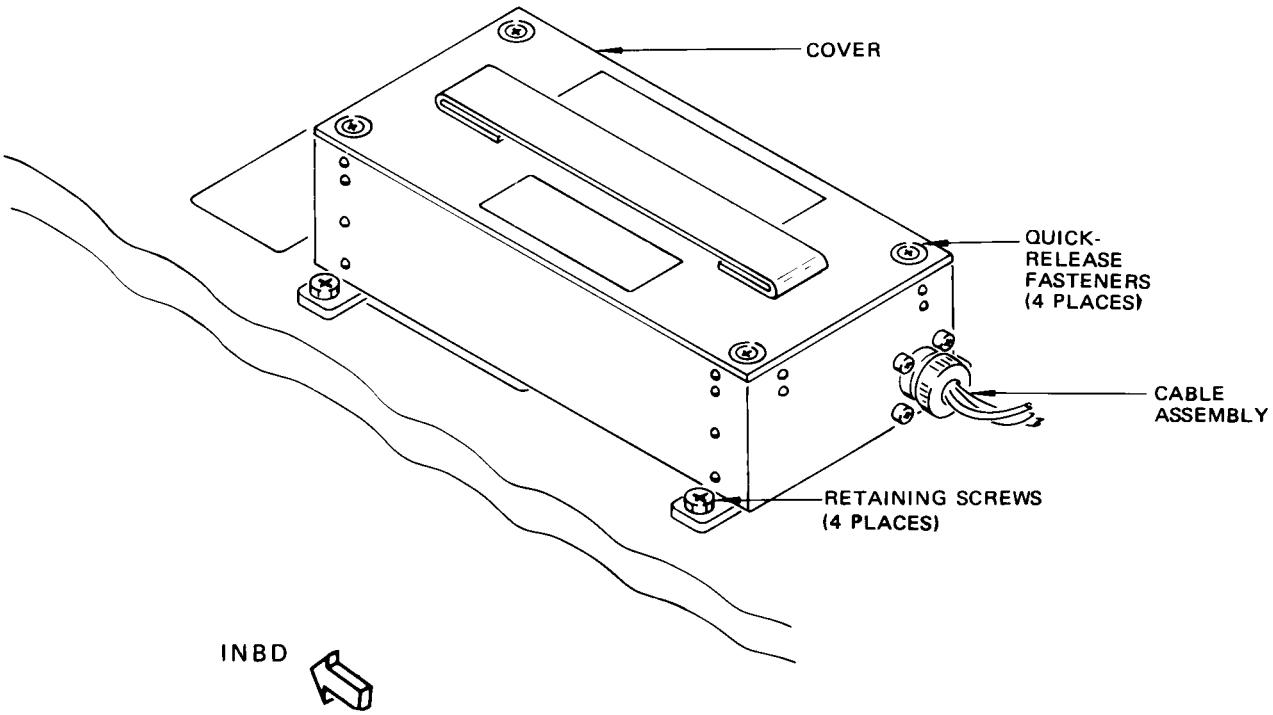
EMERGENCY EXIT OVERWING LIGHT BATTERY PACK - REMOVAL/INSTALLATION

1. General
   A. Access to either overwing light battery pack is obtained by removing an access panel in aft cargo compartment sidewall (station 727A, right and left sides).
2. Remove Battery Pack
   A. Verify that emergency lights switch on pilots' overhead panel is set to OFF.
   B. Open EMERG LTS POWER and EMERG LTS CONTROL circuit breakers on P18 circuit breaker panel.
   C. Remove cable assembly (Fig. 401.)
   D. Remove four retaining screws and remove battery pack.
3. Install Battery Pack
   A. Install battery pack with four retaining screws. Ensure batteries are in pack (Fig. 401.)
   B. Install cable assembly.
   C. Close EMERG LTS POWER and EMERG LTS control circuit breakers on P18 circuit breaker panel.
   D. Test battery pack operation.
      (1) Momentarily set emergency lights switch on either pilot's overhead or aft attendant's panel to ON then return switch to prior setting. Check that lights powered by battery pack come on and go off.

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

   E. Install access panel in aft cargo compartment.



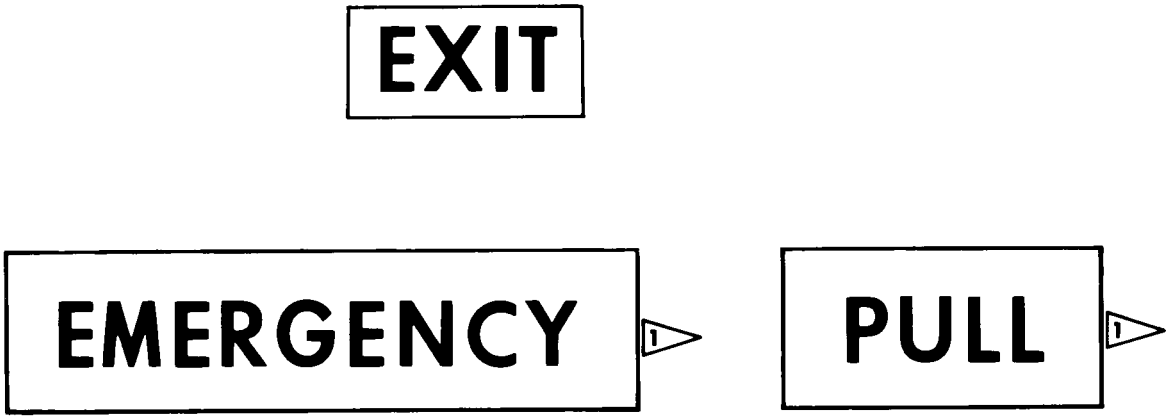


DETAIL A

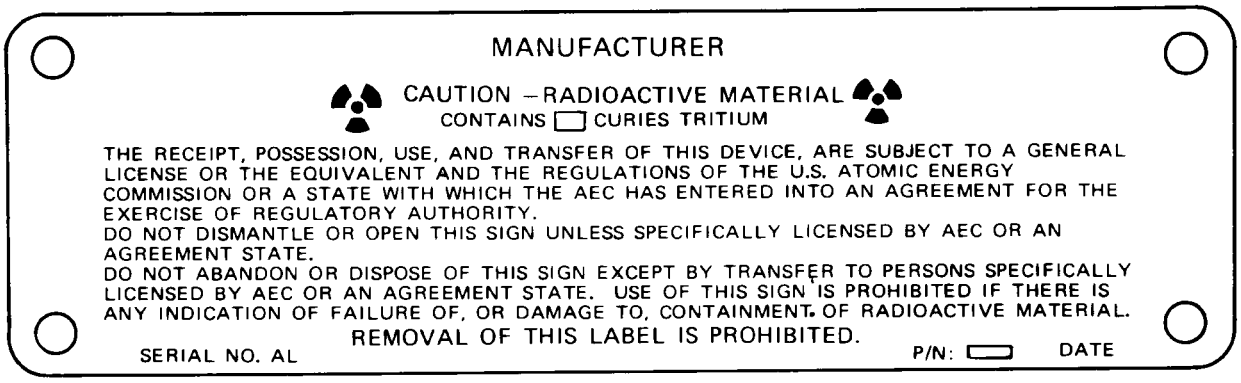
Emergency Exit Overwing Battery Pack Installation
Figure 401

SELF-ILLUMINATING SIGNS - MAINTENANCE PRACTICES

1. General (Fig. 201)
   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 (installed on airplanes with New Look Interior), 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 radiological health hazard when signs are intact. However, if the signs are cracked or broken the radioactive gas may escape, thus presenting a health hazard if the material is inhaled or absorbed into the body. Minor scratches, nicks, etc., on sign do not present any hazard.
   C. Special procedures should be followed in the handling of signs.
      (1) Airplane air distribution system should be operating during the handling of self-illuminating signs to dissipate radioactive gas in case of breakage.
      (2) Disposal of signs is subject to the control of radiation protection personnel who must comply with the governmental regulations.
      (3) Storage of signs should always be in protective containers placed in a well ventilated area such as an open shelf.
      (4) The original manufacturer is the only company authorized to alter these signs in any manner.
2. Inspection/Check Self-Illuminating Signs (Fig. 201)
   A. General
      (1) Total darkness is preferred for sign luminescence check. If total darkness is not feasible, partial darkness and an opaque shield may be used to prevent external light from impinging on sign.

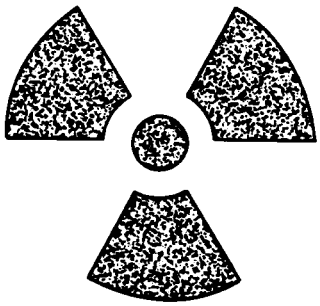


TYPICAL SIGNS



TYPICAL DATA ON REAR OF SIGN

1 ON AIRPLANES WITH NEW LOOK INTERIOR INSTALLED



RADIOACTIVE MATERIAL SYMBOL

Radioactive Material Identification
Figure 201

B. Equipment and Materials
C. Examine sign for physical damage. If sign is damaged, replace.

WARNING: CRACKED OR BROKEN SIGNS REQUIRE SPECIAL HANDLING TO AVOID ANY POTENTIAL RADIOLOGICAL HEALTH HAZARD CONDITIONS. REFER TO HANDLING PROCEDURES.

D. Brightness Measurement

WARNING: TO AVOID RADIOLOGICAL HEALTH HAZARD POSSIBILITY REFER TO HANDLING PROCEDURES.

NOTE: For signs with luminescent letters, focus photometer on center of letters. For signs with opaque letters, focus photometer on luminescent background adjacent to letters.

(1) For measurement with a comparator, place the comparator baseplate flat on the portion of the sign to be measured. Compare the brightness of the sign portion seen through the viewing aperture with the calibrated source to determine if sign brightness satisfies requirement of 100 microlamberts.
(2) For measurement with a meter, hold photometer in front of sign and focus on luminescent area. Read brightness measurement on meter to determine if sign brightness satisfies requirement of 100 microlamberts.

E. Replace sign, if any area of sign fails to satisfy brightness requirement.

3. Handling Self-Illuminating Signs
A. Equipment and Materials
(1) Rubber gloves
(2) Plastic bag to hold sign
(3) Metal container for sign disposal
(4) Cushioning material to pack sign in container
B. Replace Undamaged Signs
(1) Provide conditioned air to airplane.

(2) Remove mounting screws and remove sign.

WARNING: IF SIGN IS CRACKED OR BROKEN DURING REMOVAL, LEAVE AREA IMMEDIATELY. KEEP AIR DISTRIBUTION SYSTEM OPERATING. AFTER APPROXIMATELY 20 MINUTES, REMOVE SIGN.

(3) Wrap sign in cushioning material to prevent damage. Place signs in a sturdy container and secure container. Limit each container to a maximum of 100 curries (by radioactive tritium content marked on back of each sign).
(4) Consult radiation protection personnel who are knowledgeable about radioactive material disposal regulations and procedures or contact The Boeing Company for disposal handling instructions. Sealed container of undamaged signs presents no health hazard. Storage is not critical; however, container should be stored in a well ventilated area.
(5) Install new sign and check for damage.
(6) Turn off air distribution system and remove air supply if no longer required.

C. Replace Cracked or Broken Sign
(1) Provide conditioned air to airplane.
(2) Wearing rubber gloves, remove sign, place in plastic bag, and leave bag open.

WARNING: DO NOT HANDLE SIGNS MORE THAN NECESSARY.

(3) Immediately remove sign and rubber gloves to outside or well ventilated area away from personnel and leave for approximately 2 hours.
(4) After 2 hours, seal plastic bag and rubber gloves in airtight metal container.
(5) Consult radiation protection personnel who are knowledgeable about radioactive material disposal regulations and procedures or contact The Boeing Company for handling instructions. Sealed container reduces health hazard in case of broken gas filled capsule in sign. Container should be stored in a well ventilated area.

(6) Install new sign and check for damage.
(7) Turn off air distribution system and remove air supply if no longer required.

4. Disposal of Self-Illuminating Signs

A. Non-U.S. Airlines

(1) The responsible governmental agent should be contacted to obtain locally prescribed procedures for the authorized disposal organizations. Alternatively, parts may be sent to the part manufacturer after obtaining instructions for handling.

B. All Airlines

(1) If disposal instructions cannot be obtained from any of the above sources, contact one of the following for instructions.
(a) Safety Light Corporation (Formerly United States Radium Corp.) 4150-A Old Berwick Road Bloomsburg, PA 17815, U.S.A. Telephone 717-784-4344 TWX 510-655-2634
(b) Boeing Commercial Aviation Services - Safety Office Telephone (206) 544-0994

C. Packaging Radioluminous Material for Shipment

(1) Remove radioluminous exit sign and place in plastic bag.
(2) Place plastic bag in tight metal container, such as empty small paint can, with sufficient packing material to prevent excessive motion in can. No more than five signs should be shipped in any one package.

SELF-ILLUMINATING SIGNS - REMOVAL/INSTALLATION

1. General
   A. Self-illuminating signs use gas filled capsules of radioactive tritium to cause the phosphorescent material in the sign to glow. No radiological health hazard is present when signs are intact. However, if a sign is cracked or broken a potential health hazard exists.

      WARNING: TO AVOID HEALTH HAZARD POSSIBILITY (REF 33-51-41 MP).

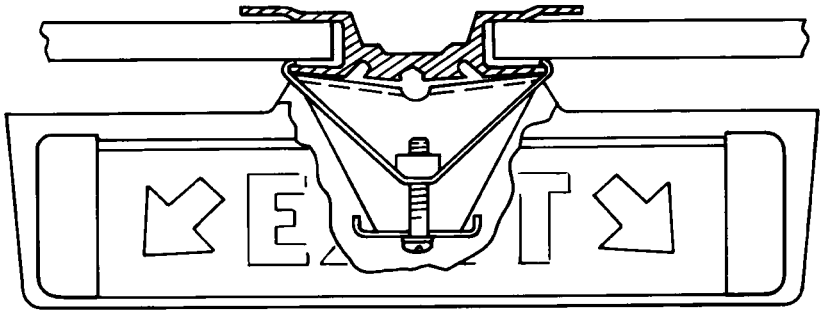
   B. This procedure deals primarily with the ceiling mounted EXIT signs between the overwing escape hatches, if installed. However, the handling steps apply to replacement of any self-illuminating sign.
2. Remove Sign (Fig. 401)
   A. Provide conditioned air to airplane.
   B. Remove mounting screw through hole in bottom of sign holder and remove sign holder assembly.

      WARNING: IF SIGN IS CRACKED OR BROKEN DURING REMOVAL: LEAVE AREA IMMEDIATELY; KEEP AIR DISTRIBUTION SYSTEM OPERATING; AFTER APPROXIMATELY 20 MINUTES REMOVE SIGN PER 33-51-41 MAINTENANCE PRACTICES.

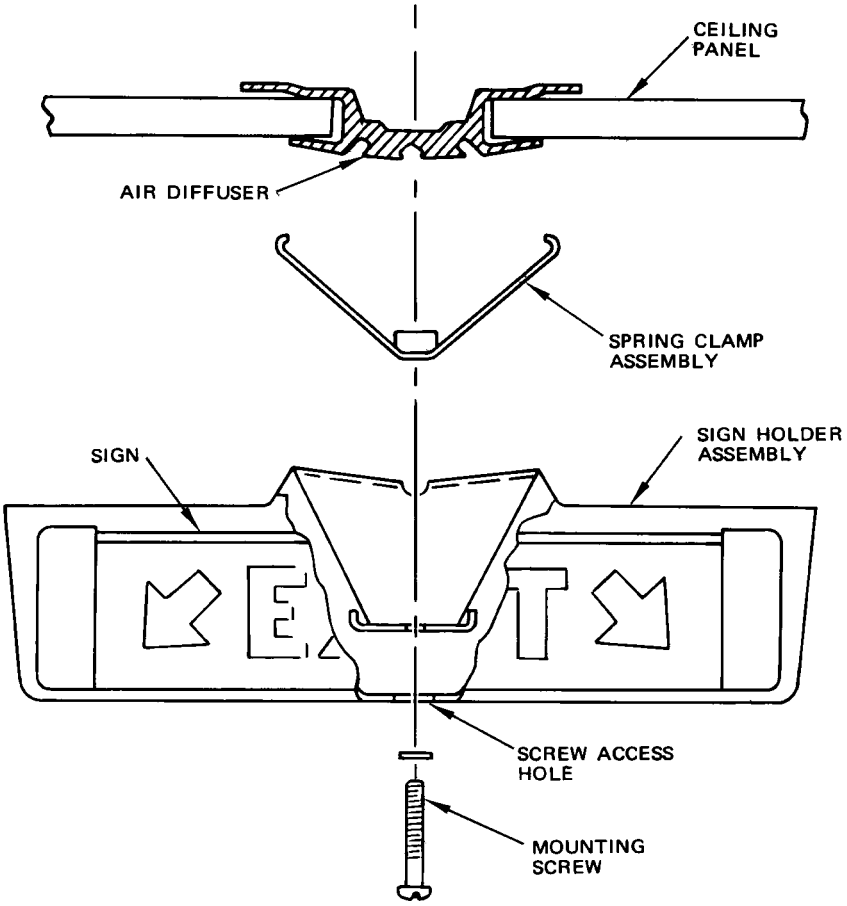
      CAUTION: SIGN HOLDER SHOULD BE COMPLETELY REMOVED WHEN REPLACING OR MOVING SIGN TO PREVENT MARRING OF DECORATIVE SURFACES.

   C. Remove spring clamp.
3. Install Sign (Fig. 401)
   A. Snap spring clamp in position on air diffuser.
   B. Position sign holder assembly under spring clamp and install screw.

      CAUTION: DO NOT OVERTORQUE MOUNTING SCREW. TIGHTEN ONLY UNTIL SIGN HOLDER IS SEATED AGAINST AIR DUCT. IF SCREW IS TOO TIGHT, SIGN HOLDER MAY BOW AND POSSIBLY CAUSE SIGN TO BREAK.



TYPICAL INSTALLED SIGN



INSTALLATION DETAIL

Sign Installation
Figure 401

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 electrical power must be supplied 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 O.K. in providing 2 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 must be recharged before use.
   B. Batteries must 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.

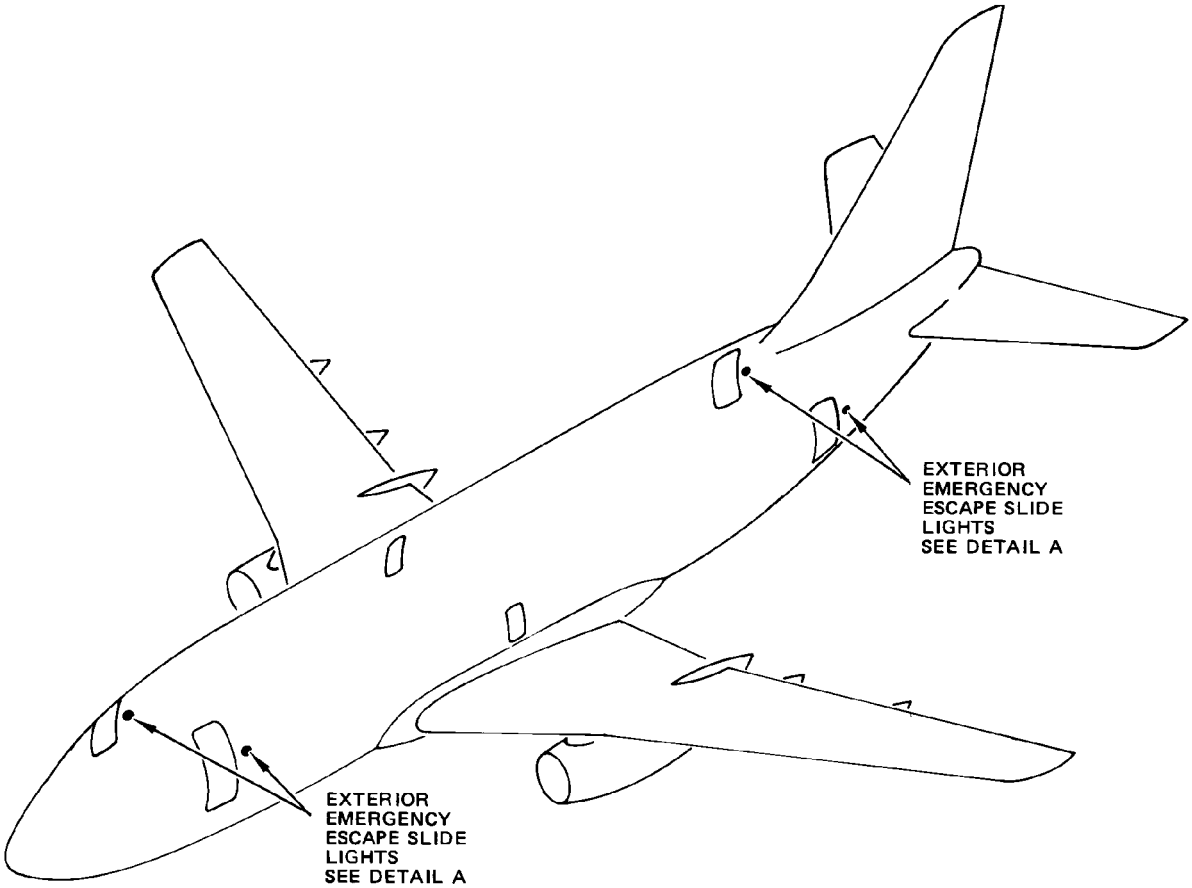
NOTE: The white powdery substance sometimes found at the seal is not harmful to the battery and may be brushed off. Leakage is associated only with the oily substance.

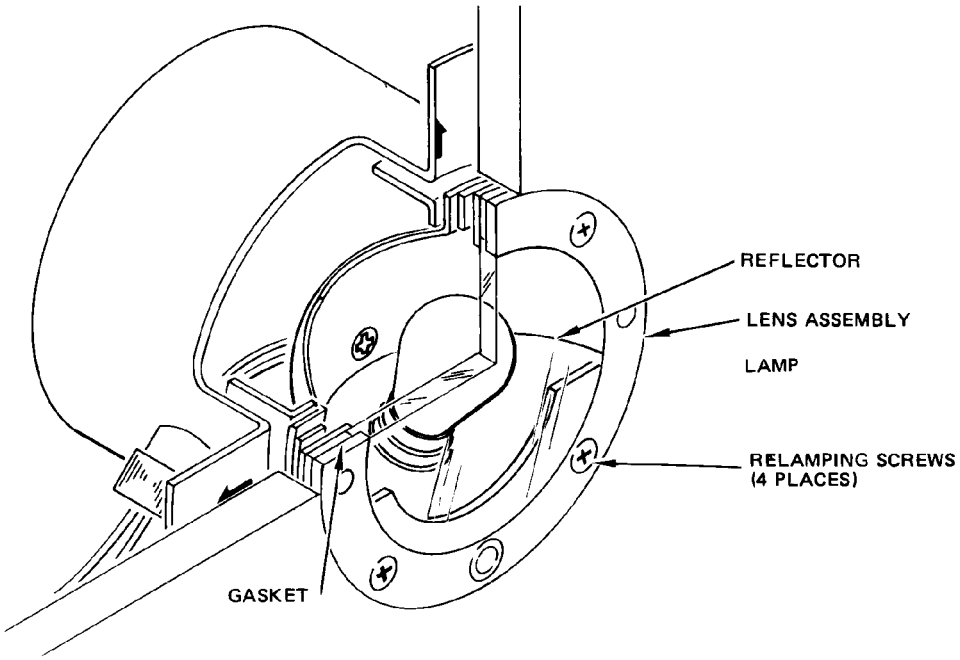
EMERGENCY ESCAPE SLIDE LIGHTS - MAINTENANCE PRACTICES

1. General
   A. This procedure is for replacement of the lamps in the light assemblies which illuminate the escape slide areas.
2. Relamp Escape Slide Lights
   A. Remove four relamping screws. (See figure 201.)
   B. Carefully pry loose and remove lens assembly and gasket.
   C. Remove lamp.
   D. Clean light assembly with clean, dry cloth.
   E. Install new lamp.
   F. Test lamp.
      (1) Momentarily set emergency lights switch on either pilots' overhead or aft attendant's panel to ON then return switch to prior setting. Check that lamp comes on and goes off.

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

   G. Install lens assembly and gasket with four screws.





DETAIL A

Emergency Escape Slide Lamp Installation
Figure 201

EMERGENCY ESCAPE SLIDE LIGHT BATTERY PACK - MAINTENANCE PRACTICES

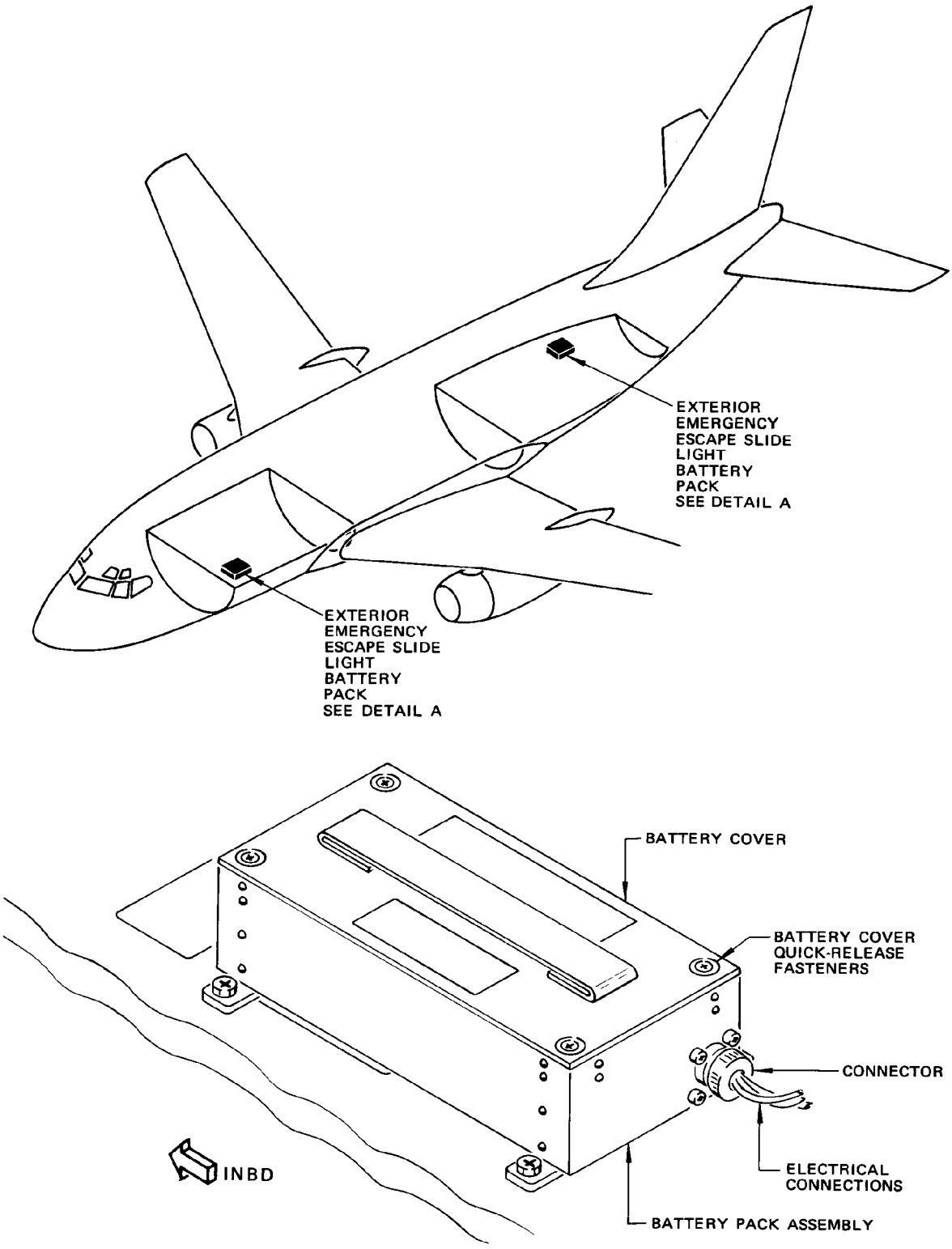
1. General
2. Replace Batteries
   A. This procedure provides steps necessary to replace batteries in the escape slide light battery packs. The battery pack for the forward escape slide lights is mounted behind an access panel on the left side of the forward cargo compartment (station 390). The battery pack for the aft escape slide lights is mounted behind an access panel in the aft cargo compartment sidewall (station 920) (Fig. 201).
   B. Gain access to the battery packs through access panel in cargo compartment sidewall.
   C. Disengage four quick-release fasteners on top of battery pack cover.
   D. Remove cover.
   E. Remove batteries.
   F. Install replacement batteries.

      CAUTION: OBSERVE CORRECT POLARITY OF BATTERIES WHEN INSTALLING.

   G. Replace cover
   H. Engage quick-release fasteners on top of battery pack cover.
   I. Test batteries.
      (1) Momentarily set emergency lights switch on either pilots' overhead or aft attendant's panel to ON then return switch to prior setting. Check that lights powered by battery pack come on and go off.

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

   J. Install access panel in cargo compartment sidewall.



DETAIL A

Emergency Exit Escape Slide Lights Battery Pack Installation
Figure 201

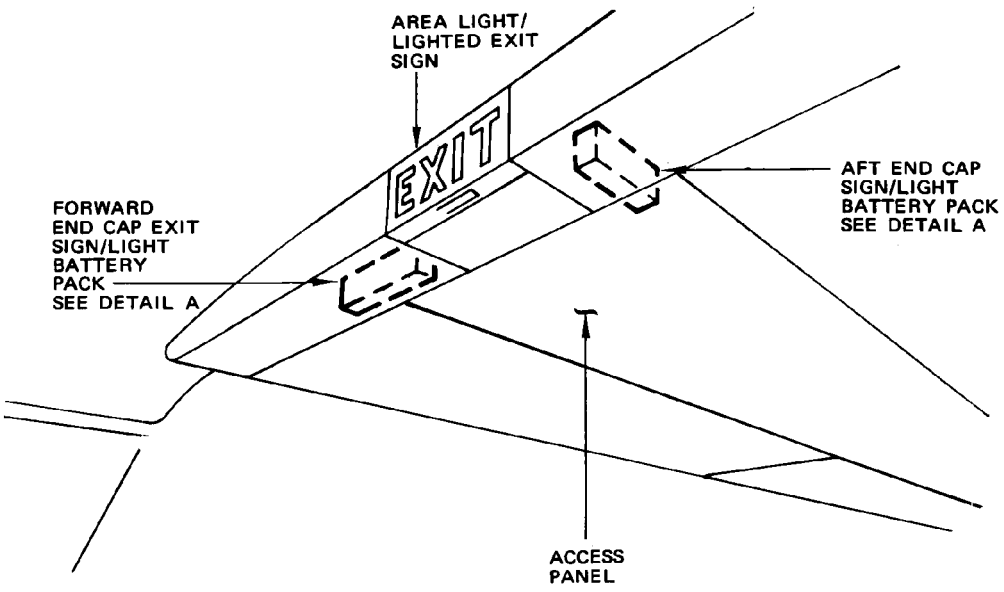
FIXED EXIT SIGN/LIGHT BATTERY PACK - MAINTENANCE PRACTICES

1. General
   A. The battery packs for the exit sign/lights on the lowered ceiling end caps are located inside the end caps. Access is through a panel on the lowered ceiling (Fig. 201).
   B. The battery packs for the overwing escape hatch exit signs on each side of the airplane and the midceiling-mounted exit sign are located in ceiling above ceiling-mounted exit sign. Access is through the ceiling panels.
2. Replace Remote Batteries
   A. Gain access to battery pack by lowering applicable ceiling panel.

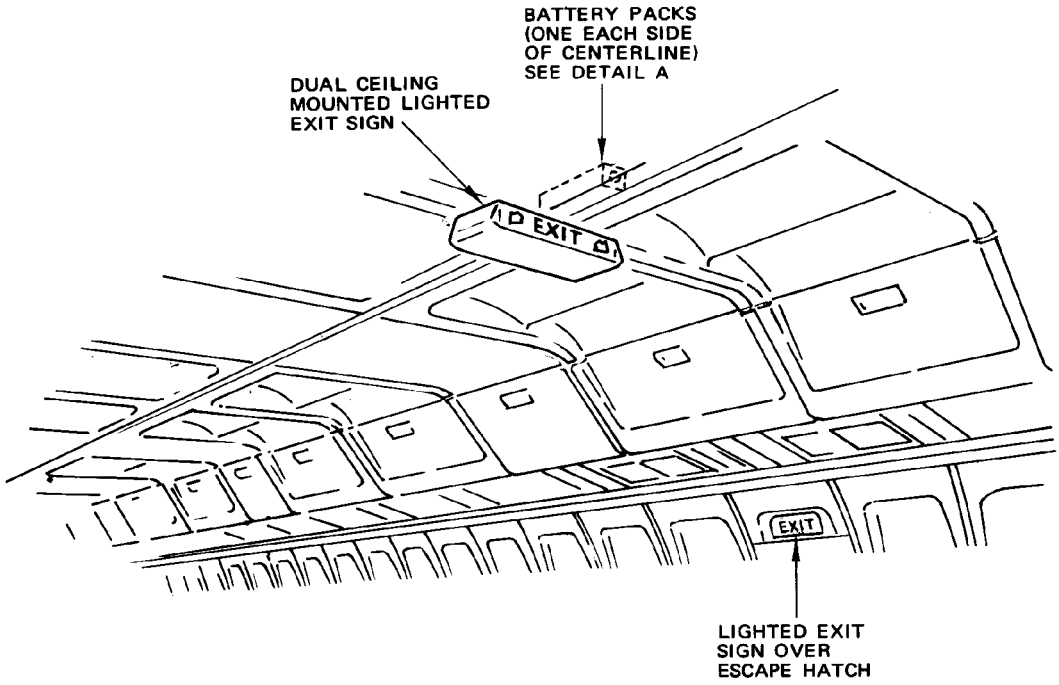
      NOTE: For battery packs above ceiling-mounted exit sign, remove sign before lowering ceiling panel (Ref 33-51-91, R/I).

   B. Release quick-release fasteners on battery pack and remove battery cartridge.
   C. Install replacement battery cartridge and secure fasteners.
   D. Raise ceiling panel.
   E. Test battery pack
      (1) Momentarily set emergency lights switch on either pilots' overhead or aft attendant's panel to ON, then return switch to original setting. Check that lamps powered by replaced batteries come on and go off.

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

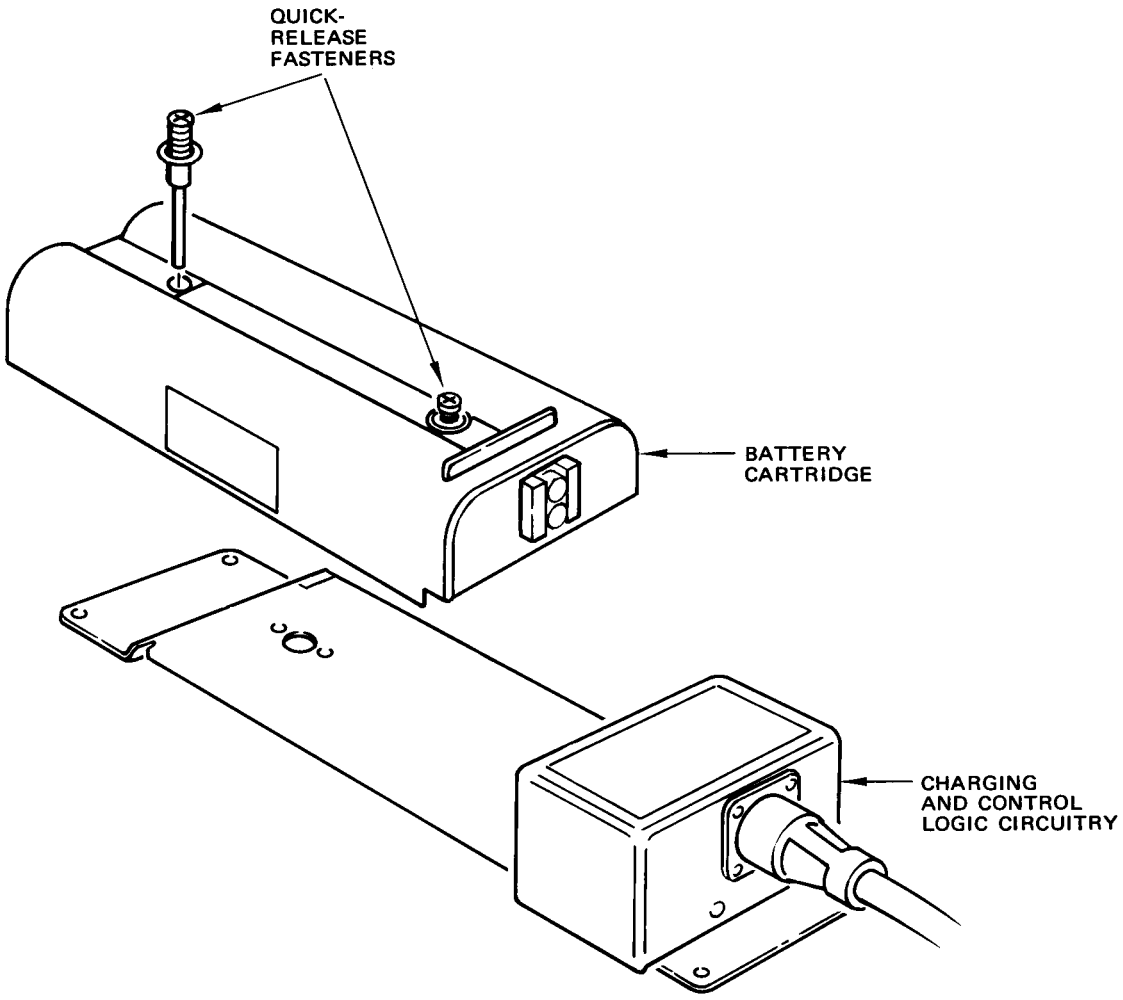


TYPICAL LOWERED CEILING INSTALLATIONS



RAISED CEILING INSTALLATION

Battery Pack Installation
Figure 201 (Sheet 1)



EXIT SIGN/AREA LIGHT BATTERY PACK
DETAIL A

Battery Pack Installation
Figure 201 (Sheet 2)

462171

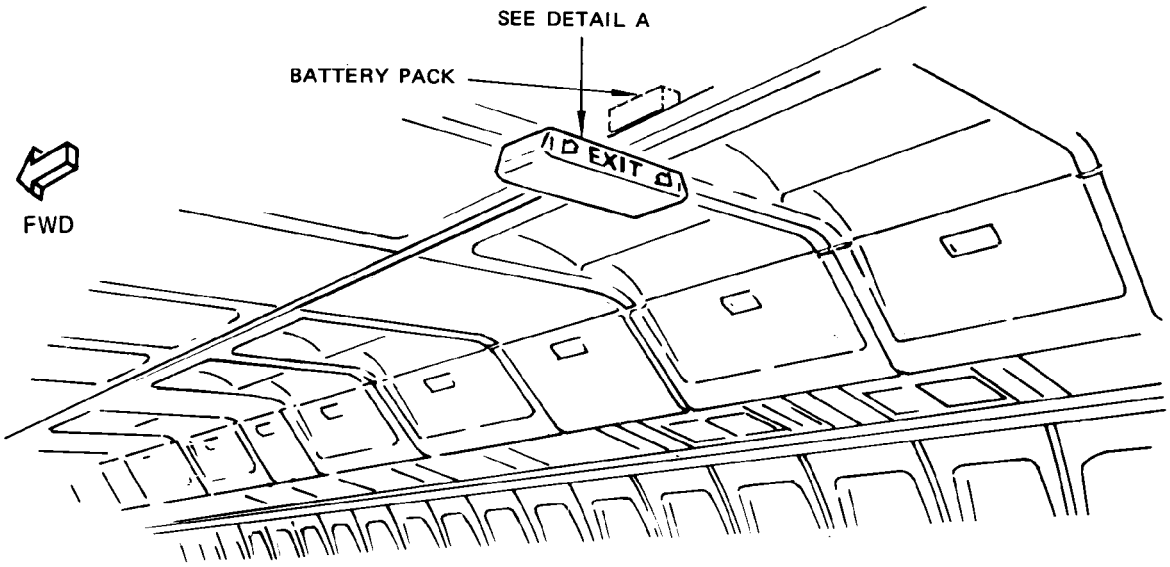
CEILING MOUNTED EXIT SIGN - REMOVAL/INSTALLATION

1. General
   A. The fixed ceiling mounted exit sign is powered by batteries located above the blank ceiling panel forward of the light (Fig. 401). This procedure provides information for replacement of the complete light assembly.
2. Remove Ceiling-Mounted Exit Sign
   A. Place emergency exit light switch, that is located on pilot's overhead panel, to OFF position.
   B. Remove both lens by moving lens retainer spring to the side and pulling out on base of lens.
   C. Remove reflector retaining screws on each reflector and disconnect wires from terminals.
   D. Loosen clamping bolt and remove shroud assembly from ceiling.
3. Install Ceiling-Mounted Exit Sign
   A. Position shroud assembly on ceiling and tighten clamping bolt.

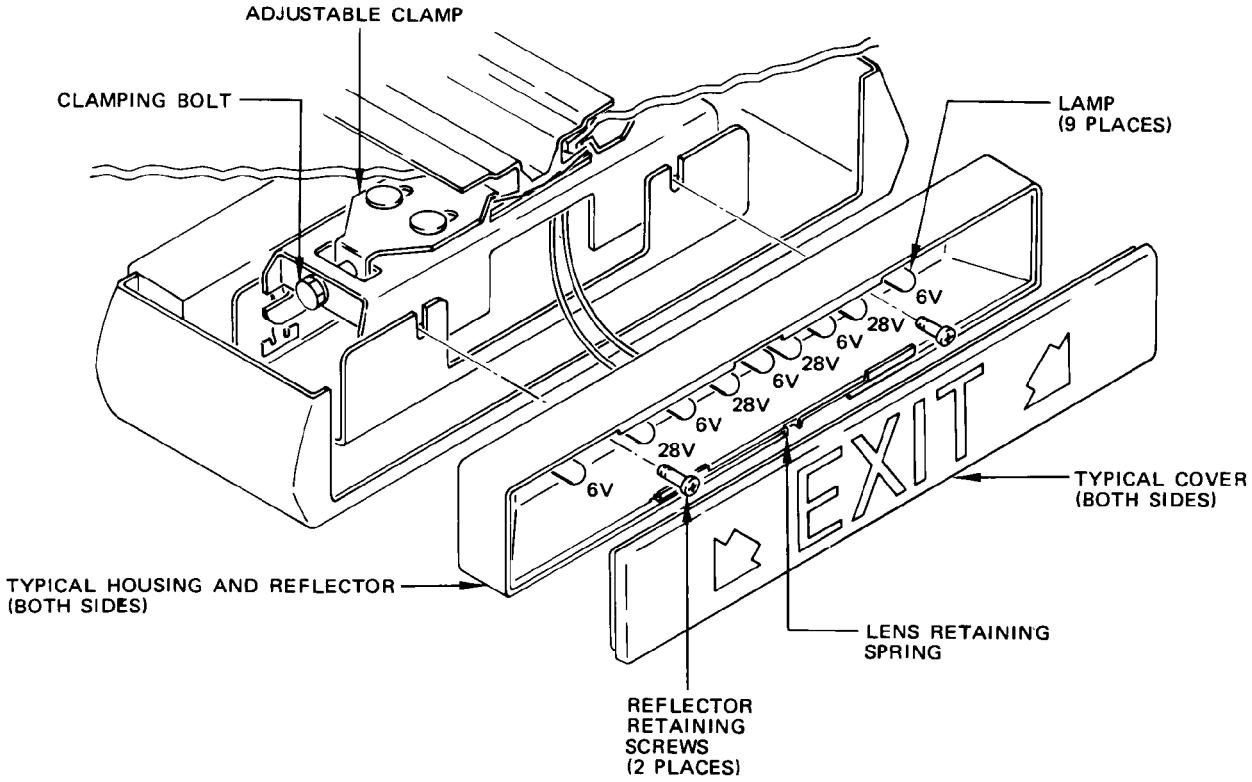
      CAUTION: DO NOT OVERTIGHTEN CLAMPING BOLT. THE CEILING CHANNEL CAN BE DAMAGED.

   B. Connect wires to proper terminals on both reflectors. Position reflector in shroud assembly and secure with screws at each end.
   C. Slide each lens into position and secure lens by sliding latch spring to the side, press in on lens and release spring.
   D. Return emergency exit light switch to original position.
4. Test Ceiling-Mounted Exit Sign
   A. Momentarily set emergency light switch on either pilot's overhead or aft attendant's panel to ON, then return switch to original position. Check that lamps on both sides of exit sign come on and go off.

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



TYPICAL DOUBLE EXIT SIGN



DETAIL A

Ceiling-Mounted Exit Sign
Figure 401

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.

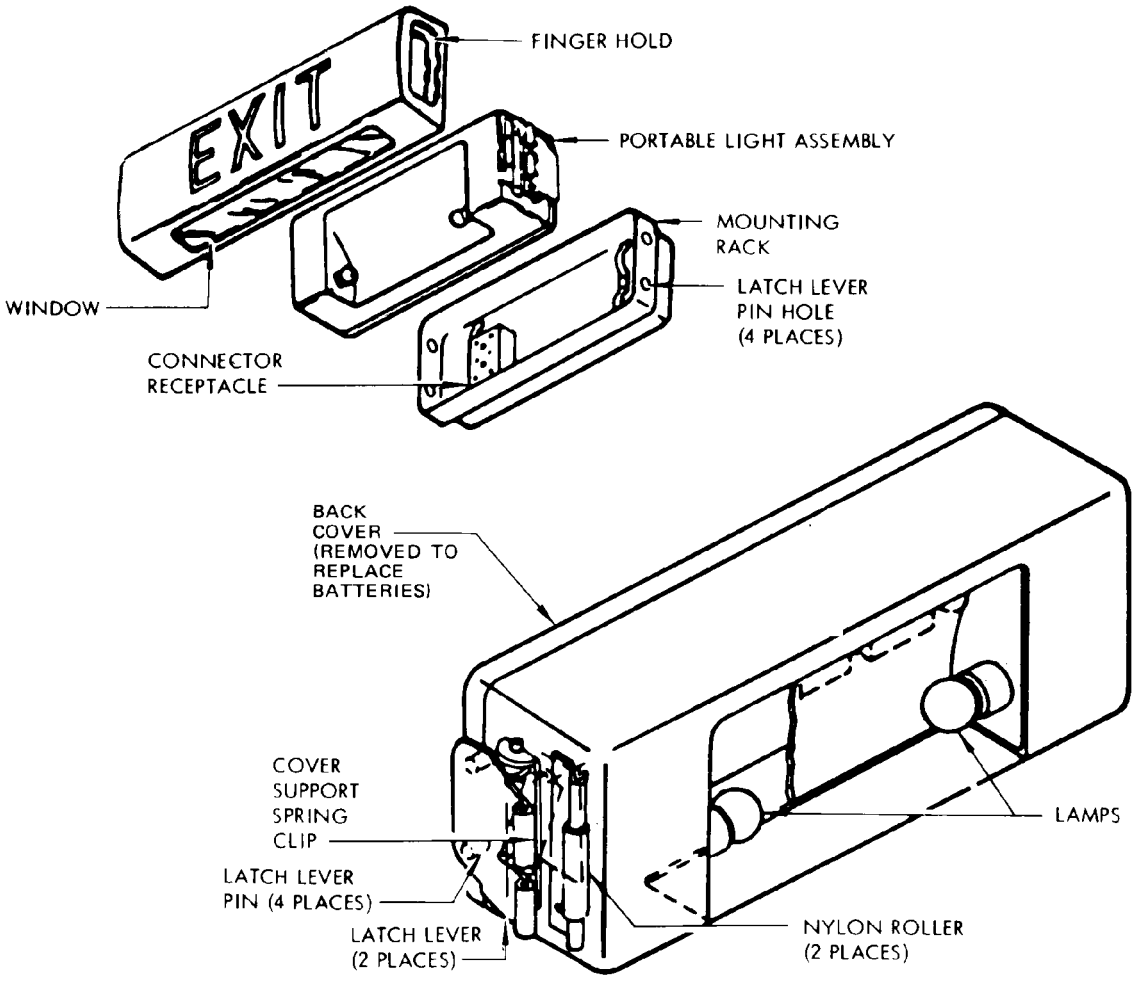
   D. Install battery case.
   E. Install back cover on light assembly and secure fasteners.
4. Install Light Assembly (Fig. 201)
   A. Press in on latch levers and push light assembly into place, engaging latch lever pins in holes in mounting plate.

      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.



Portable Emergency Exit Light Assembly Installation
Figure 201

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).
          NOTE: A discharged battery pack can cause a low voltage. It is OK to disconnect the
                battery pack for this test.
   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.