



PAR-56

Steady-Burning Approach Light

Document No. 96A0119
Issued: April 11, 1990
Rev. E: Dec 4, 2009

Meets FAA Specification
FAA-E-982 for FAA-E-2628 and FAA-E-2325 Applications
and Meets Military Specification MIL-L-26764 (MB-2)

ADB

P.O. Box 30829
977 Gahanna Parkway
Columbus, OH 43230

Tel: (614) 861-1304
Fax: (614) 864-2069

Copyright © 2009 by ADB Airfield Solutions, LLC. All rights reserved.

Record of Changes

Page	Rev	Description	EC No.	Checked	Approved	Date
	A	Renumbered pages		EP	ED	2/23/94/
All	B	Reformatted and updated manual.	00869	JY	WT	12/13/02
6-1 thru 6-10	C	Section 6	01276	WT	WT	6/4/04
Pg 6-3,6-10	D	Corrected part numbers for the filter and lamp clip	01590	WT	WT	4/25/06
all	E	ADB and Parts updates	2482	ER	GM	12/04/09

Table of Contents

Record of Changes.....	ii
Table of Contents.....	iii
Warranties.....	v

Safety

Section 1 Safety.....	1-1
1. Introduction.....	1-1
2. Safety Symbols.....	1-2
3. Qualified Personnel.....	1-2
4. Intended Use.....	1-3
5. Installation.....	1-3
6. Operation.....	1-4
7. Action in the Event of a System or Component Malfunction.....	1-5
8. Maintenance and Repair.....	1-5

Description

Section 2 Description.....	2-1
1. Introduction.....	2-1
2. Options.....	2-2
Optional Color Filters.....	2-2
Optional 300 W or 500 W/ 20 A Shorting Device.....	2-2
Optional Mounting Slip Fitters.....	2-2
3. PAR-56 Approach Light: Required Equipment.....	2-3
4. Specifications.....	2-3
Lamps, Cordsets, and Filters.....	2-3
Optional Lamps.....	2-4
Rated Lamp Life.....	2-4
Input.....	2-4
Environmental Operating Conditions.....	2-4
Weight.....	2-5
Dimensions.....	2-5

Installation

Section 3 Installation.....	3-1
1. Introduction.....	3-1
2. Unpacking.....	3-1
3. Installation.....	3-2
Installing PAR-56 Approach Light.....	3-2
Mounting PAR-56 Approach Light.....	3-5
Converting FAA E-2491 Inset Light to FAP PAR-56 Fixture.....	3-11
Aiming PAR-56 Approach Light.....	3-12
Assembling Aiming Device.....	3-12
Aiming Approach Light (Platform or Ground Mounted).....	3-16
Aiming Approach Lights (Tower Mounted).....	3-19

Maintenance

Section 4 Maintenance.....	4-1
1. Introduction.....	4-1
2. Preventive Maintenance Schedule.....	4-1
3. Replacing Lamp.....	4-2

Troubleshooting	Section 5 Troubleshooting 5-1
	1. Introduction..... 5-1
	2. Troubleshooting Guide..... 5-1
Parts	Section 6 Parts..... 6-1
	1. Introduction..... 6-1
	2. Using the Illustrated Parts List 6-1
	3. PAR-56 Steady-Burning Approach Light Ordering Code..... 6-2
	4. PAR-56 Steady-Burning Approach Light Parts List 6-3
	5. Separate Line Items Optional Parts 6-8
	6. Separate Line Items Required 6-10
	7. Optional Parts..... 6-10
	8. Recommended Spare Parts..... 6-10

List of Figures

Figure 2-1 PAR-56 Steady-Burning Approach Light Assembly.....	2-1
Figure 2-2 Lamp Indexing Ring.....	2-2
Figure 2-3 Dimensions.....	2-5
Figure 3-1 Approach Light with Shorting Device.....	3-2
Figure 3-2 Approach Light without Shorting Device.....	3-3
Figure 3-3 Fiberglass Tower Mount.....	3-6
Figure 3-4 Aluminum Tower Mount.....	3-6
Figure 3-5 Platform Mount	3-7
Figure 3-6 Floor Flange Mount	3-7
Figure 3-7 EMT Mount	3-8
Figure 3-8 Stake Mount.....	3-9
Figure 3-9 Frangible Coupling Mount	3-10
Figure 3-10 Remove E-2491 Light Fixture.....	3-11
Figure 3-11 Conversion to FAP PAR-56 Elevated Light.....	3-12
Figure 3-12 Aiming Device Mounting Pad.....	3-13
Figure 3-13 Aiming Device Plate (Top View).....	3-14
Figure 3-14 Aiming Device Leg Clamp Locations (Top View).....	3-15
Figure 3-15 Aiming Device Leg Clamp Locations (Top View).....	3-16
Figure 3-16 Slip Fitter Dial Face and Adjustment Screws.....	3-18
Figure 6-1 PAR-56 Steady Burning Approach Light Ordering Code.....	6-2
Figure 6-2 PAR-56 Steady Burning Approach Light.....	6-3
Figure 6-3 Frangible Coupling (Type F2C)	6-94
Figure 6-4 Frangible Coupling (Type EMT)	6-95
Figure 6-5 Stake Assembly	6-46
Figure 6-6 Floor Flange	6-57
Figure 6-7 Adapter Sleeve.....	6-68
Figure 6-8 Cordset Used with Shorting Device.....	6-9
Figure 6-9 Cordset Used without Shorting Device.....	6-9

List of Tables

Table 2-1 Required Equipment Supplied	2-3
Table 2-2 Required Equipment Not Supplied	2-3
Table 2-3 Optional Equipment.....	2-3
Table 2-4 PAR-56 Lamp Part Numbers	2-3
Table 4-1 PAR-56 Approach Light Maintenance	4-1

Warranties

Products of ADB Airfield Solutions manufacture are guaranteed against mechanical, electrical, and physical defects (excluding lamps) for a period of one year from the date of installation or a maximum of two years from the date of shipment and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

ADB Airfield Solutions will correct by repair or replacement, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB Airfield Solutions written notice of such defects after delivery of the goods to Buyer.

ADB Airfield Solutions reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB Airfield Solutions further reserves the right to require the return of such goods to establish any claim.

ADB Airfield Solutions's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

ADB Airfield Solutions's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by ADB Airfield Solutions, warranty is limited to that extended by the original manufacturer.

This is ADB Airfield Solutions's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties being expressly disclaimed.

Disclaimers

This manual could contain technical inaccuracies or typographical errors. ADB Airfield Solutions reserves the right to revise this manual from time to time in the contents thereof without obligation of ADB Airfield Solutions to notify any person of such revision or change.

Details and values given in this manual are average values and have been compiled with care. They are not binding, however, and ADB Airfield Solutions disclaims any liability for damages or detriments suffered as a result of reliance on the information given herein or the use of products, processes or equipment to which this manual refers. No warranty is made that the use of the information or of the products, processes or equipment to which this manual refers will not infringe any third party's patents or rights. The information given does not release the buyer from making their own experiments and tests.

Section 1

Safety

1. Introduction

This section contains general safety instructions for using your ADB Airfield Solutions equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate. Note all warnings and follow all instructions carefully. Failure to do so may result in personal injury, death, or property damage.

To use this equipment safely,

- refer to the FAA Advisory Circular AC 150/5340-26, *Maintenance of Airport Visual Aids Facilities*, for instructions on safety precautions.
- observe all safety regulations. To avoid injuries, always remove power prior to making any wire connections and touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.
- read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
- store this manual within easy reach of personnel installing, operating, maintaining, or repairing this equipment.
- follow all applicable safety procedures required by your company, industry standards, and government or other regulatory agencies.
- obtain and read Material Safety Data Sheets (MSDS) for all materials used.

2. Safety Symbols

Become familiar with the safety symbols presented in this section. These symbols will alert you to safety hazards and conditions that may result in personal injury, death, or property and equipment damage.



WARNING: Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Risk of electrical shock. Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Wear safety goggles. Failure to observe may result in serious injury.



CAUTION: Failure to observe may result in equipment damage.

3. Qualified Personnel

The term *qualified personnel* is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance, and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain, and repair the equipment. It is the responsibility of the company operating this equipment to see that its personnel meet these requirements.

4. Intended Use



WARNING: Use of this equipment in ways other than described in this manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in this manual.

ADB Airfield Solutions cannot be responsible for injuries or damages resulting from nonstandard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or property damage. Unintended uses may result from taking the following actions:

- making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine ADB Airfield Solutions replacement parts
- failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards
- using materials or auxiliary equipment that are inappropriate or incompatible with your ADB Airfield Solutions equipment
- allowing unqualified personnel to perform any task

5. Installation

Read the installation section of all system component manuals before installing your equipment. A thorough understanding of system components and their requirements will help you install the system safely and efficiently.



WARNING: Failure to follow these safety procedures can result in personal injury or death.

- Allow only qualified personnel to install ADB Airfield Solutions and auxiliary equipment. Use only approved equipment. Using unapproved equipment in an approved system may void agency approvals.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Follow all instructions for installing components and accessories.
- Install all electrical connections to local code.

5. Installation *(contd.)*

- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.

6. Operation

Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.

Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.

- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

7. Action in the Event of a System or Component Malfunction

Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.

- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.

8. Maintenance and Repair

Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks. Only persons who are properly trained and familiar with ADB Airfield Solutions equipment are permitted to service this equipment.

- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in your equipment manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved ADB Airfield Solutions replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.
- Check interlock systems periodically to ensure their effectiveness.
- Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with electrical equipment.

Section 2

Description

1. Introduction

See Figure 2-1. This section describes the ADB Airfield Solutions Type FAP PAR-56 approach light assembly. The approach light assemblies are manufactured according to FAA specification FAA-E-982 or Military Specification MIL-L-26764 (MB-2) as a part of an elevated low-impact resistant approach lighting system such as an ALSF-1, ALSF-2, ALSF-2/SSALR or MALSR.

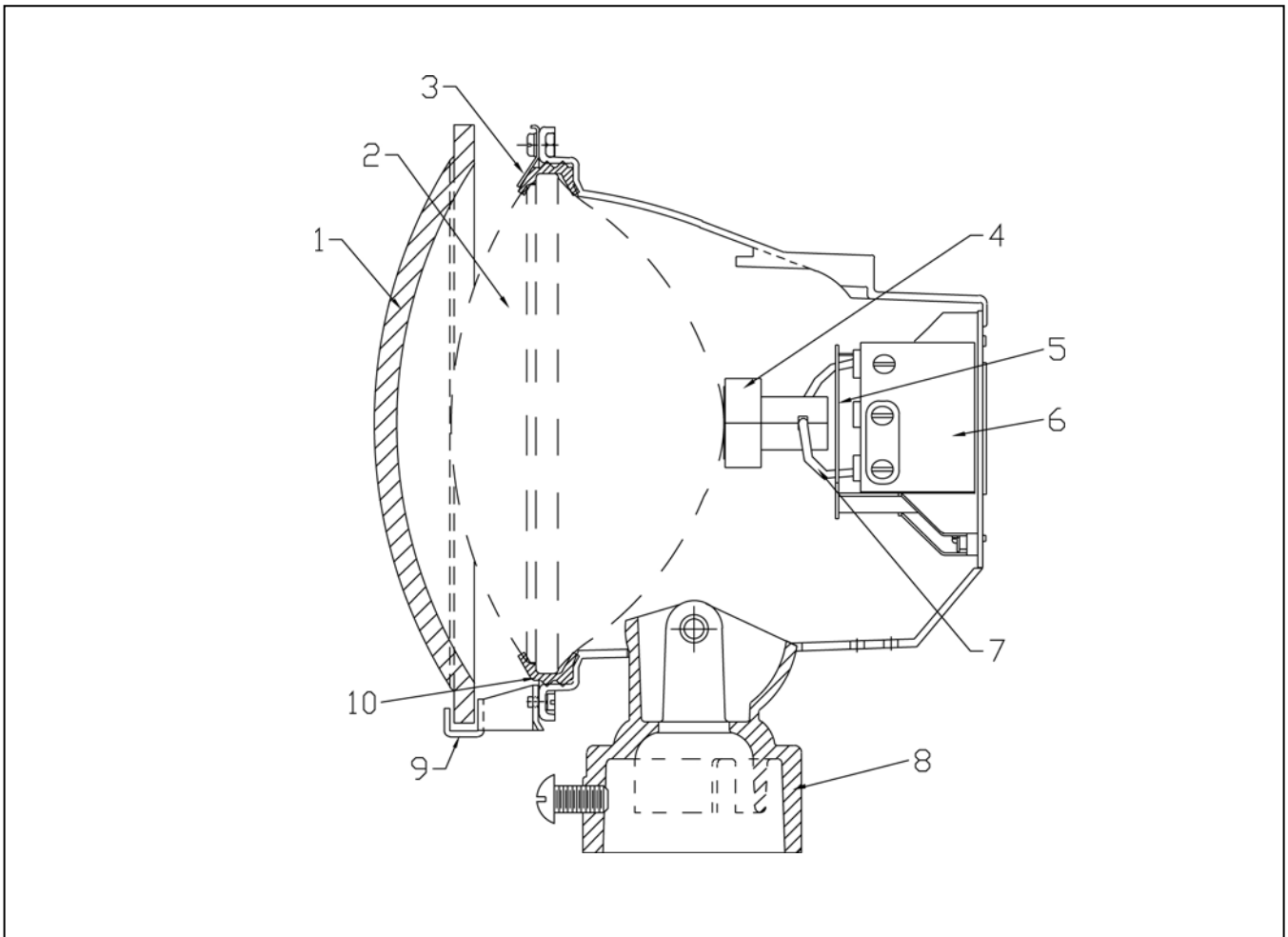


Figure 2-1 Type FAP PAR-56 Approach Light Assembly

- | | | | | |
|-----------|----------------|--------------------|----------------|-----------------|
| 1. Filter | 3. Lamp Clip | 5. Heat Shield | 7. Lamp Wires | 9. Filter Clip |
| 2. Lamp | 4. Lamp Socket | 6. Shorting Device | 8. Slip Fitter | 10. Lamp Gasket |

The PAR-56 approach light assembly consists of an aluminum die-cast housing with mounting slip fitter, high-temperature gasket, and lamp-clip assembly consisting of three lamp clips positioned at 120-degree intervals on the periphery of the approach light.

2. Introduction *(contd.)*

See Figure 2-2. A lamp-indexing ring on the flanged lip of the approach light ensures proper lamp installation. The index marks in 5-degree intervals from 0 to 25 degrees above horizontal are provided on the mounting assembly for alignment of the approach light. An aiming device, purchased separately, is used to set the angle of the PAR-56 approach light to within $\pm 1/2$ -degree of the actual aiming angle. A 7/8-inch-diameter hole at the bottom of the assembly is provided for entrance of two single conductor, AWG 12, 600 V wires.

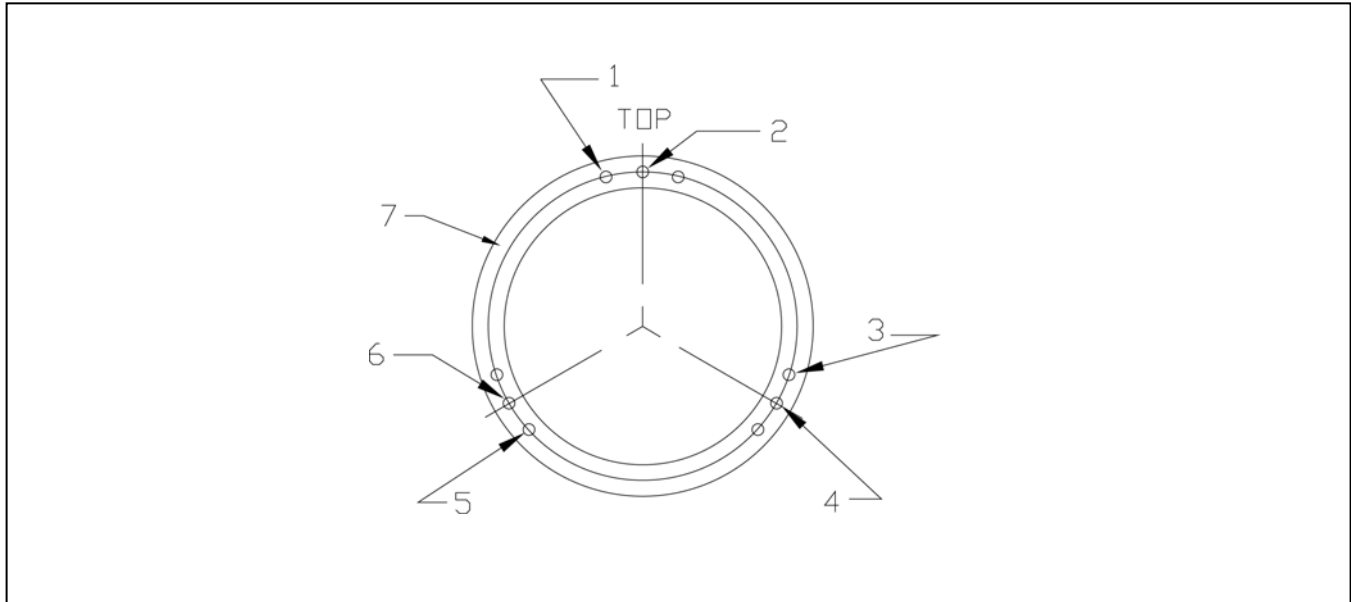


Figure 2-2 Lamp Indexing Ring

- | | | | |
|---------------------|---------------------|---------------------|-----------------------|
| 1. Filter Clip Hole | 3. Filter Clip Hole | 5. Filter Clip Hole | 7. Lamp-Indexing Ring |
| 2. Lamp Clip Hole | 4. Lamp Clip Hole | 6. Lamp Clip Hole | |

2. Options

Optional items include color filter, shorting device, L-823 cordset, aiming device, and mounting slip fitters. PAR-56 lamps must be purchased separately. Refer to the *Parts* section for part numbers.

Optional Color Filters

Optional color filters include red, blue, green, and yellow. Filter clips are supplied when the filter is ordered.

Optional 300 W or 500 W/ 20 A Shorting Device

See Figure 2-1. The optional shorting device (6) mounted in the housing is used for 20 A circuits to maintain the integrity of the 20 A series in case of lamp failure. The shorting device loads the circuit a maximum of 3 watts during normal operation of the lamp. No manual reset is required since the shorting device is automatically reset when the lamp is replaced.

Optional Mounting Slip Fitters

See Figure 2-1. Two optional mounting slip fitters (8) are also available to secure the approach light to either a 2-inch (50.8-mm) frangible coupling and Schedule 40 pipe or to a 2-inch (50.8-mm) electrical metallic tubing, 1-1/2-inch (38-mm) tube, or to aluminum or fiberglass towers.

3. PAR-56 Approach Light: Required Equipment

Refer to Table 2-1 for required equipment that is supplied. Refer to Table 2-2 for required equipment that is not supplied. Refer to Table 2-3 for optional equipment. Refer to the *Parts* section for ordering information.

Table 2-1 Required Equipment Supplied

Description	Quantity
Lamp gasket	1
Lamp socket	1
Lamp clips	3
Instruction manual	1 per order

Table 2-2 Required Equipment Not Supplied

Description	Quantity
PAR-56 approach light. Refer to Table 2-4.	1
Aiming device	1
Screwdriver	1
Torque wrench (0-200 in-lb) with socket for 3/8–16 round head screws	1

Table 2-3 Optional Equipment

Optional Slip fitter	1
Optional shorting device	1
Optional filter	1
Optional Filter clips (when optional filter is ordered)	3
Optional L-823 cordset	1

Table 2-4 PAR-56 Lamp Part Numbers

Approach Lighting System	Wattage	Lamp Type	Rated Lamp Life (Hours)	Replacement Hours	Part Number
MALSR	PAR-56 300 W, 120 Vac	Steady burning	2000	1600	48A0118
MALSR	PAR-56 200 W, 6.6 A Vac	Steady burning	600	480	48A0094
ALSF	PAR-56 300 W, 20 A	Steady burning	500	400	48A0091
ALSF	PAR-56 500 W, 20 A	Steady burning	500	400	48A0092
ALSF/ MALSR	PAR-56 XENON	Flashing	1000	800	48A0022
MALSR	PAR-38 120 W, 120 Vac	Steady burning	2000	1600	48A0078

4. Specifications

This subsection provides specifications for Type FAP PAR-56 approach lights.

Lamps, Cordsets, and Filters

The ALSF FAA-E-2628/FAA-E-982 PAR-56 approach light uses 300 W or 500 W, 20 A PAR-56 lamps. Normally, no cordset is required. It uses clear (no filter), red, or green filters.

The MIL-L-26764 (MB-2) PAR-56 approach light uses a 500 W, 20 A lamp. An L-823 cordset is usually required. Filters are clear (no filter), green, yellow, red, or blue.

The MALSR system per FAA-E-2325 uses 300 W, 120 Vac PAR-56 lamps. Normally, no cordset is required. Filters are clear (no filter) or green.

Elevated approach applications per AFMAN (I) 32-1187/TM 811-5 [VFC 3-535-01] are available as a special order. Contact ADB Airfield Solutions' Sales Department for further information. This application uses a 200 W, 6.6 A lamp with a red dichroic filter.

Optional Lamps

Refer to Table 2-4. Lamps must be purchased separately.

Rated Lamp Life

Refer to Table 2-4.

Input

The PAR-56 approach light input is 20 A or 120 Vac depending on the lamp used in the fixture. Refer to Table 2-4.

Environmental Operating Conditions

The environmental operating conditions include temperature range, relative humidity, and exposure.

Temperature Range

-55 to +70 °C (-67 to +158 °F)

Relative Humidity

0 to 100%

Exposure

Windblown rain, sand and dust particles, salt-laden atmospheres, solar radiation, and extreme thermal changes.

Weight

Weight of PAR-56 approach light with shorting device is 1.88 lb (1.6 kg)

Dimensions

See Figure 2-3.

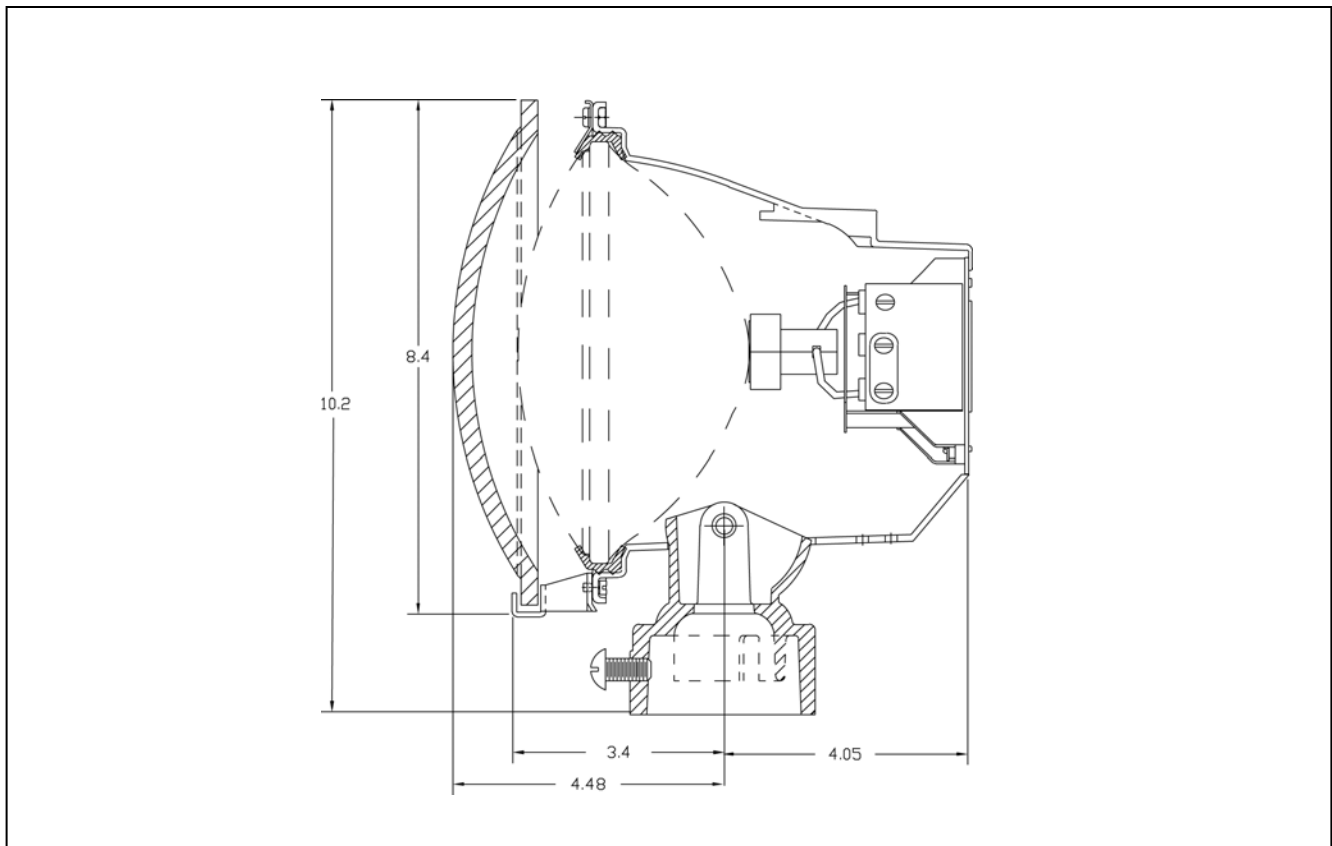


Figure 2-3 Dimensions

Section 3

Installation



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.



WARNING: Contents are static-sensitive. Must be grounded when handling PCB.

CONTENTS
STATIC-SENSITIVE
MUST BE GROUNDED
WHEN HANDLING PCB

1. Introduction

This section provides instructions for installing the Type FAP PAR-56 approach light. Refer to the airport project plans and specifications for the specific installation instructions and FAA-E-982 and MIL-L-26764 (MB-2).

2. Unpacking

The equipment is shipped ready for installation. Handle equipment very carefully to prevent component damage. Unpack the carton upon receipt and check the contents and their condition. Note any exterior damage to the carton that might lead to detection of equipment damage.

If you note any damage to any equipment, file a claim with the carrier immediately. The carrier may need to inspect the equipment.

The PAR-56 approach light is shipped completely assembled except for lamp gasket and optional filter and filter clips. These items are shipped in a separate package.

3. Installation

This section describes installation procedures. It includes information for installing, mounting, and aiming the PAR-56 approach light.

NOTE: Check packing list to verify that all parts are present before proceeding.

Installing PAR-56 Approach Light

To install the PAR-56 approach light, perform the following procedure:

1. If using an approach light with a shorting device and if no cordset is installed, perform the following procedure:
 - a. Connect two AWG 12 wires (length as required) to the terminal block on the interior of the approach light as shown in Figure 3-1.

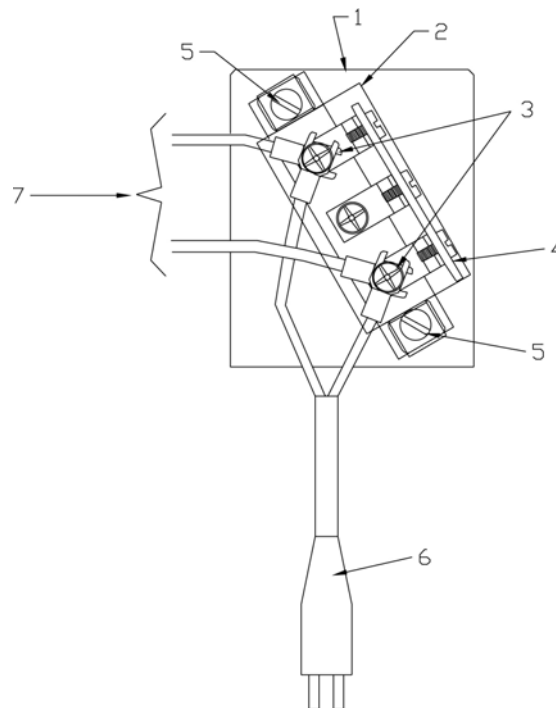


Figure 3-1 Approach Light with Shorting Device

- | | | |
|--|--------------------|----------------------|
| 1. Interior Wall of Approach Light | 4. Shorting Device | 7. Lamp Socket Leads |
| 2. Heat Shield | 5. Screws | |
| 3. Attach AWG 12 Wires if L-823 Cordset Not Used | 6. L-823 Cordset | |

Installing PAR-56 Approach Light *(contd.)*

- b. Route wires through opening in the base of the approach light.

NOTE: If the approach light is ordered with an L-823 cordset, the cordset should already be installed.

-OR-

If using an approach light without a shorting device, perform the following procedure:

- a. Remove the heat shield on the shorting device by removing two screws.
- b. Attach two AWG 12 wires (length as required) to the shorting device as shown in Figure 3-2.

NOTE: If the approach light is ordered with an L-823 cordset, the cordset should already be installed.

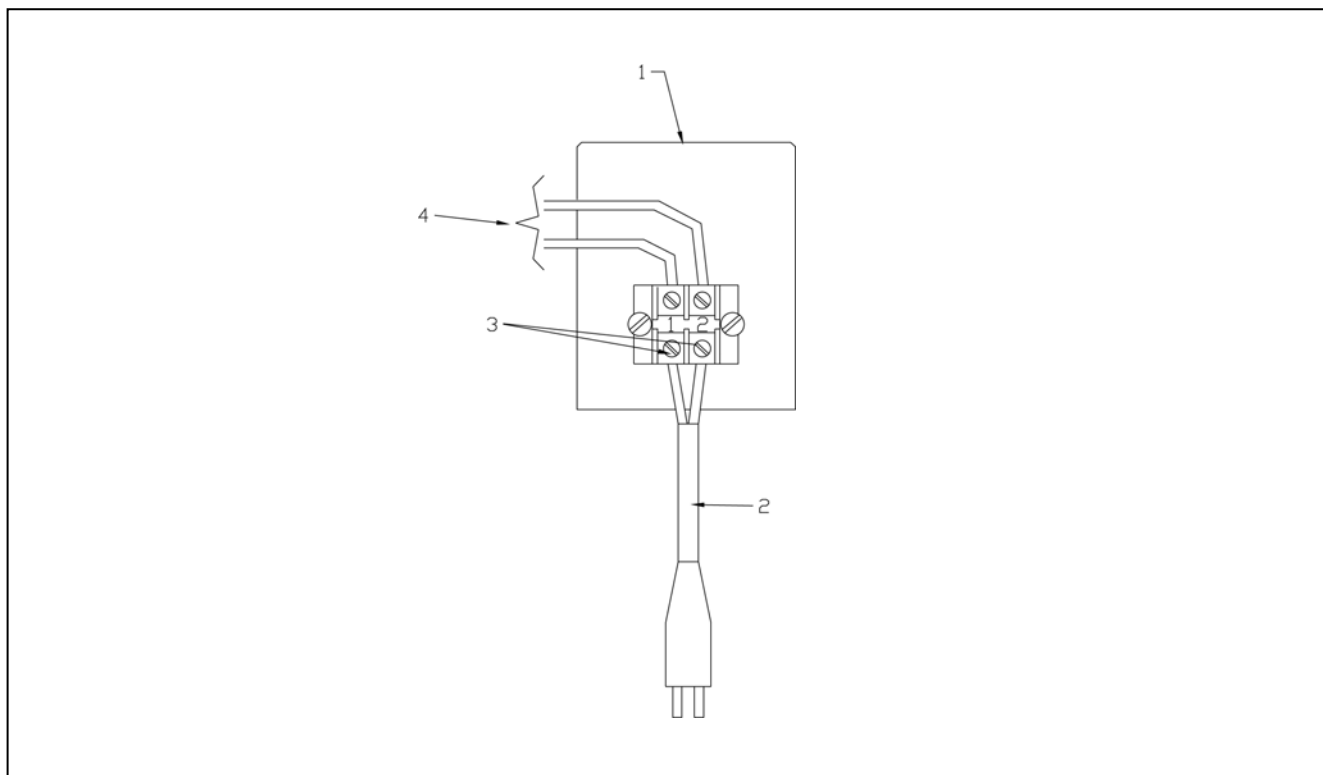


Figure 3-2 Approach Light without Shorting Device

- | | |
|--|----------------------|
| 1. Interior Wall of Approach Light | 3. L-823 Cordset |
| 2. Attach AWG 12 Wires if L-823 Cordset Not Used | 4. Lamp Socket Leads |

Installing PAR-56 Approach Light (*contd.*)

- c. Reinstall the heat shield after installing wires.
 - d. Route wires through the opening in the base of the approach light.
2. Place the lamp gasket on the lamp by performing the following procedure:
 - a. Check the gasket for cuts, cracks, brittleness, or any sign of deterioration. If in doubt, replace the gasket.
 - b. If re-installing or replacing the gasket, locate the word *TOP* that is molded into the outer lip of the gasket. The gasket lip that has the word *TOP* faces outward when installed.
 - c. Install the gasket over the outer diameter of the lamp so that the gasket lip that has the word *TOP* is on the front of the lamp. Turn the lamp over and inspect the backside of the lamp to ensure that the three molded relief slots in the gasket are aligned with the three sets of index pads that are molded on the backside of the lamp. If any of the index pads are covered by the gasket flange, rotate the gasket slightly until all of the index pads are within the relief slots in the gasket lip.
3. See Figure 2-1. Insert prongs of the lamp into the porcelain lamp socket (4) and then press the lamp into the rim of the approach light so that the small cutout in the lamp gasket is located at the bottom of the fixture and the word *TOP* (see Figure 2-2) on the lamp gasket is located at the top of the fixture.

NOTE: See Figure 2-1. When a shorting device is used, make sure the lamp wires (7) are routed so that they do not touch the edge of the heat shield (5) on the shorting device (6). The shorting device is automatically reset when a new lamp is installed.

4. Loosen the three 8–32 pan head screws holding the three lamp clips (3) on the rim of the approach light and rotate the clips over the lamp gasket and lamp. Tighten the three screws to secure the lamp to the approach light.
5. If an optional color filter is used, install the color filter clips (9) with the M4 x 8 pan head screws and lockwashers. See Figure 2-2 for filter clip hole location.

Mounting PAR-56 Approach Light

The PAR-56 approach light is comprised of the approach light assembly and the slip fitter.

To mount the PAR-56 approach light, follow the guidelines below.

- Refer to site drawings for location and mounting provisions.
- The slip fitter is designed to fit on 2-inch (50.8-mm) EMT, 2-inch (50.8-mm) frangible couplings, and 1-1/2-inch (38.1-mm) pipe.
- If mounted on a 1-inch (25.4-mm) outside diameter pipe, an adapter sleeve must be used.
- If mounted on either an LB1 or L-867B base plate, use a Type F2C frangible coupling. Refer to *Converting FAA 2491 Inset Light to FAP Par-56 Fixture* in this section.
- Connector kits and 2-conductor AWG 16 cable are required when mounting on frangible couplings. Align approach lights with the extended centerline of the runway.
- See Figures 3-3 through 3-9 for the PAR-56 approach light mounting options.
- When mounting the approach light on an aluminum tower, use an adapter sleeve. The slip fitter is secured by tightening three round head machine screws.

Mounting PAR-56 Approach Light
(contd.)

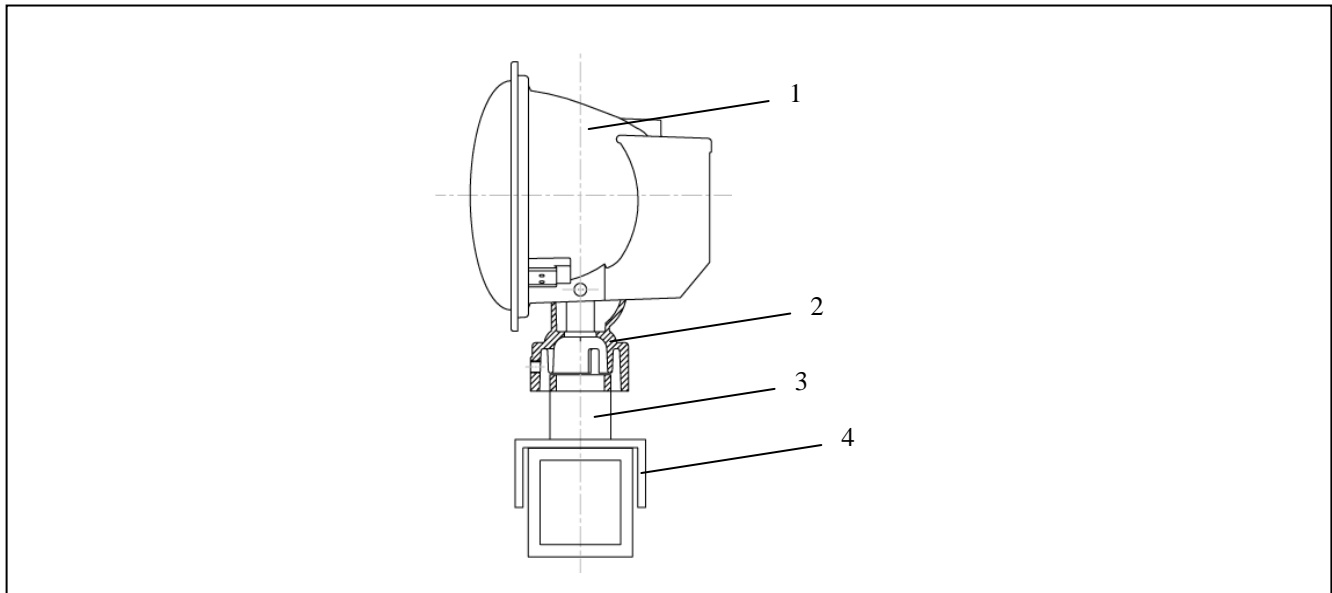


Figure 3-3 Fiberglass Tower Mount

- | | |
|----------------------------|-------------------------------|
| 1. Approach Light Assembly | 3. 1-1/2-Diameter Tube |
| 2. Slip Fitter | 4. Fiberglass Tower Cross Arm |

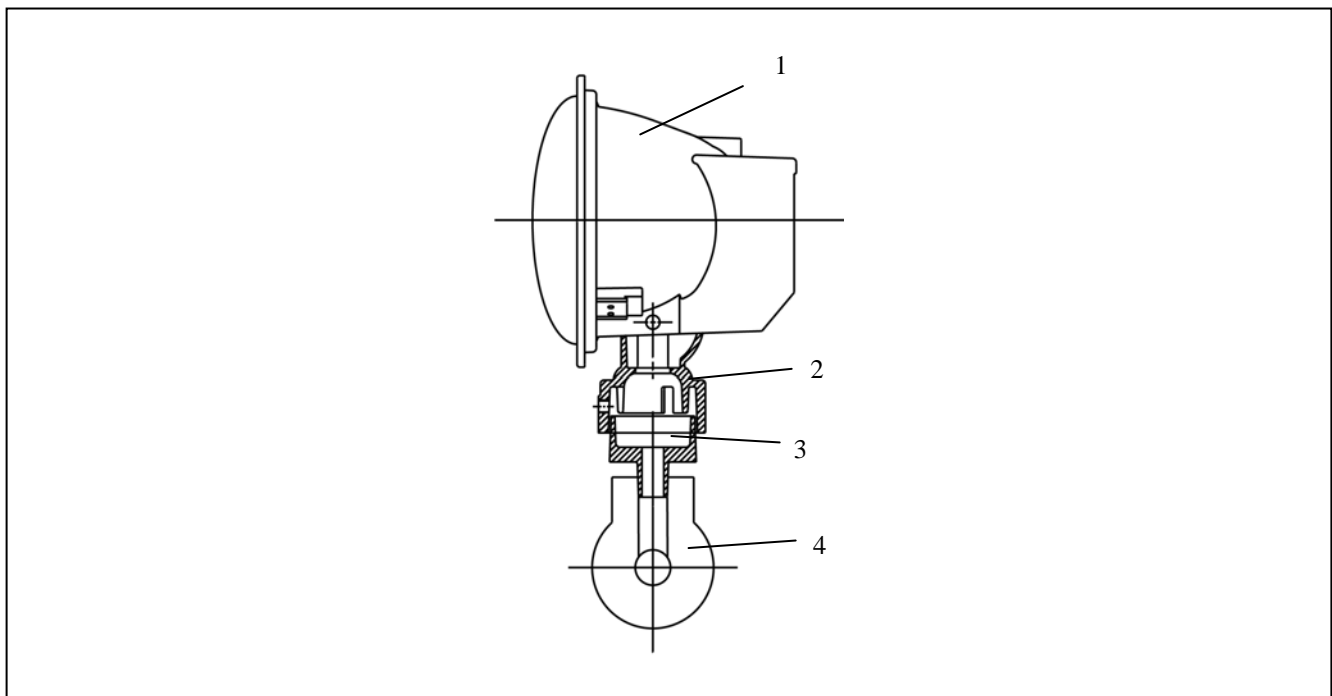


Figure 3-4 Aluminum Tower Mount

- | | |
|----------------------------|------------------------------|
| 1. Approach Light Assembly | 3. Adapter Sleeve (Type FAC) |
| 2. Slip Fitter | 4. Aluminum Tower Cross Arm |

Mounting PAR-56 Approach Light (contd.)

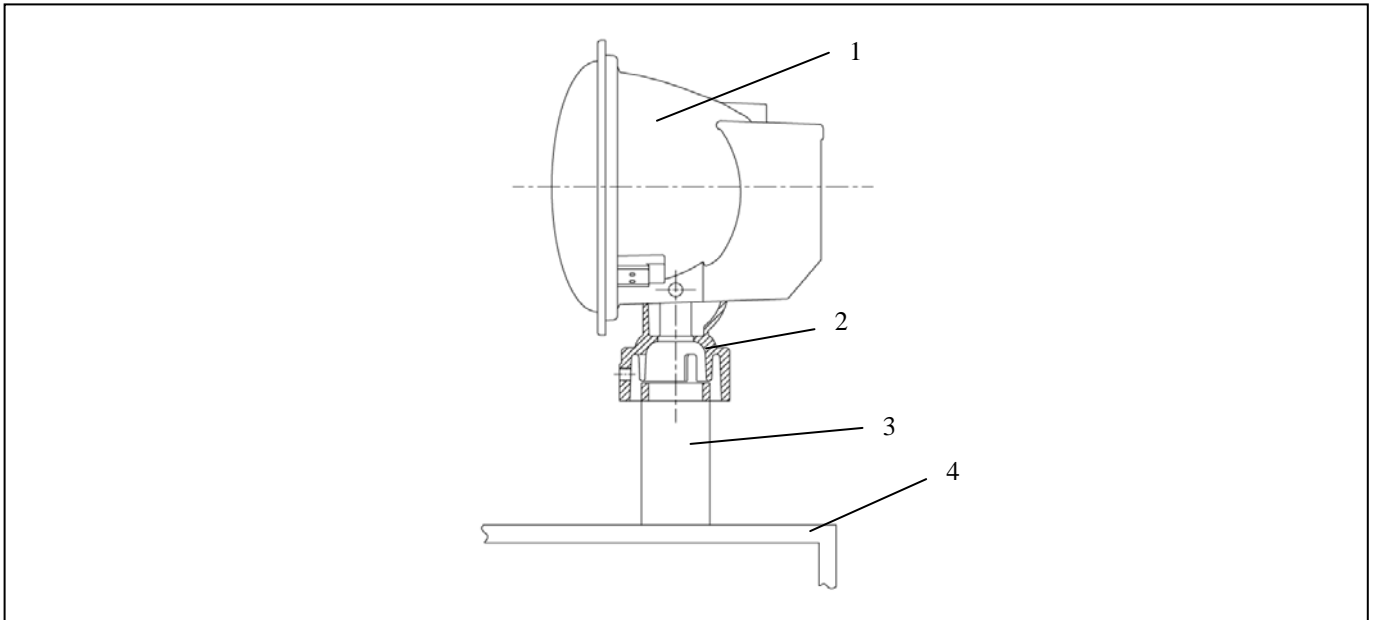


Figure 3-5 Platform Mount

- | | |
|----------------------------|---------------------------|
| 1. Approach Light Assembly | 3. 1-1/2 Schedule 40 Pipe |
| 2. Slip Fitter | 4. Platform Structure |

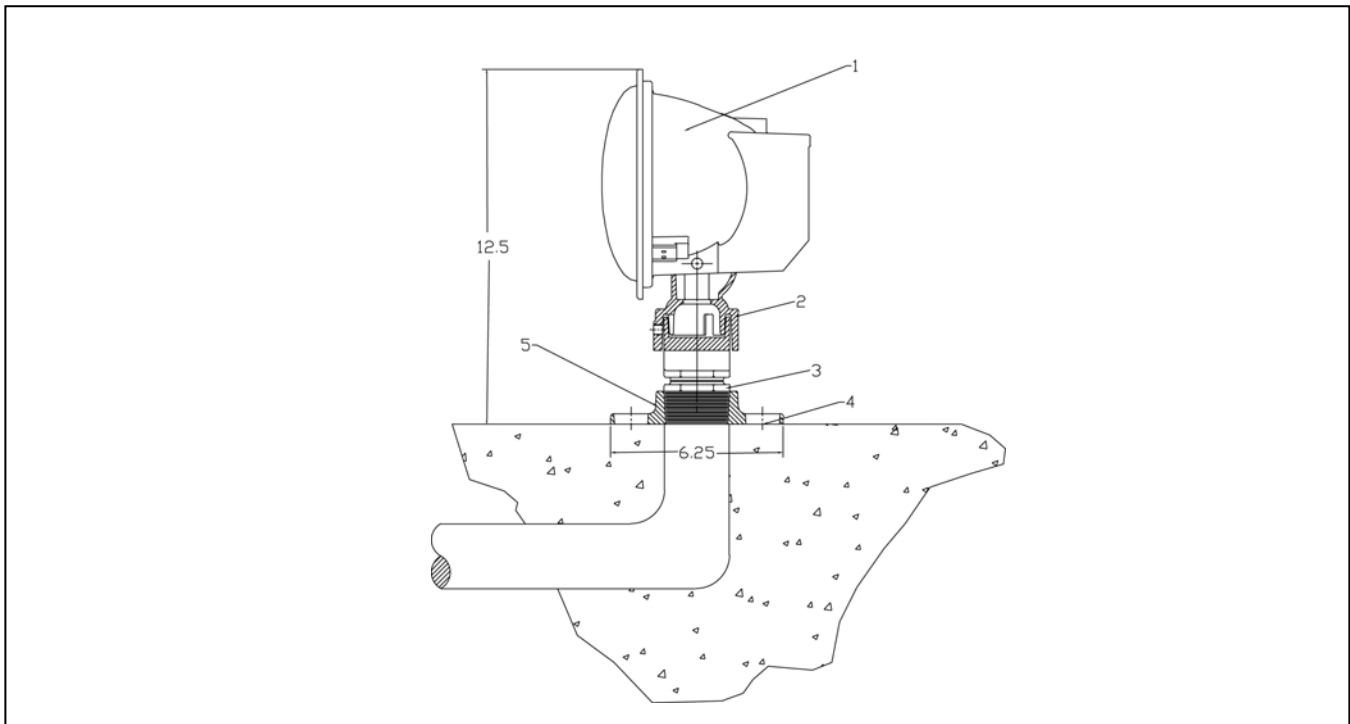


Figure 3-6 Floor Flange Mount

- | | |
|----------------------------------|---|
| 1. Approach Light Assembly | 4. 9/16-Diameter Through Holes Equally Spaced on 4-3/4-Diameter Bolt Circle |
| 2. Slip Fitter | 5. Floor Flange |
| 3. Frangible Coupling (Type F2C) | |

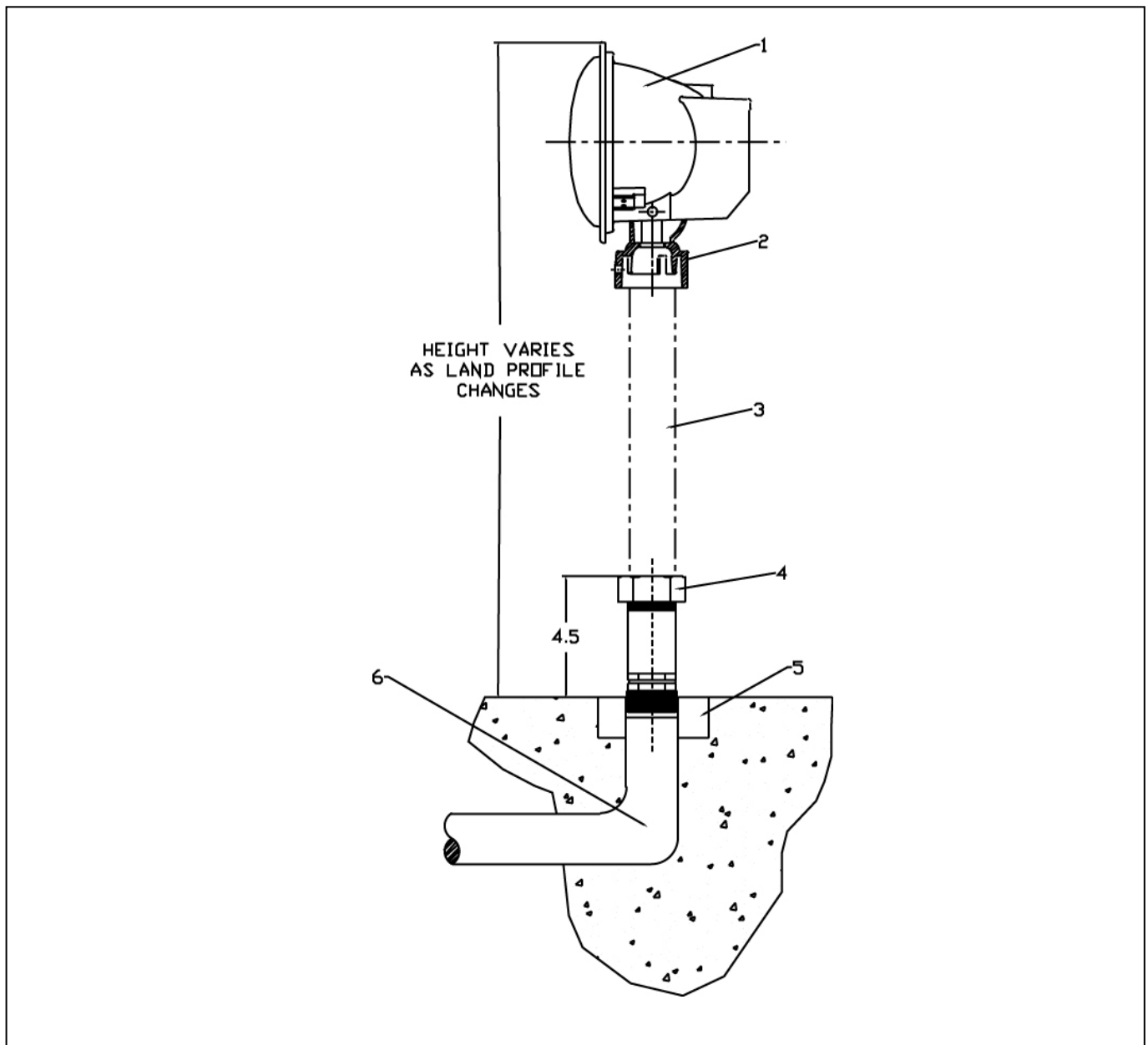
**Mounting PAR-56 Approach
Light (contd.)**

Figure 3-7 EMT Mount

1. Flashing Approach Light Assembly
2. Slip Fitter
3. Contractor-Supplied Two-Inch EMT
4. Frangible Coupling (Type EMT)
5. Contractor-Supplied Two-Inch Conduit Coupling
6. Contractor-Supplied Two-Inch Conduit 90-Degree Elbow

**Mounting PAR-56 Approach
Light (contd.)**

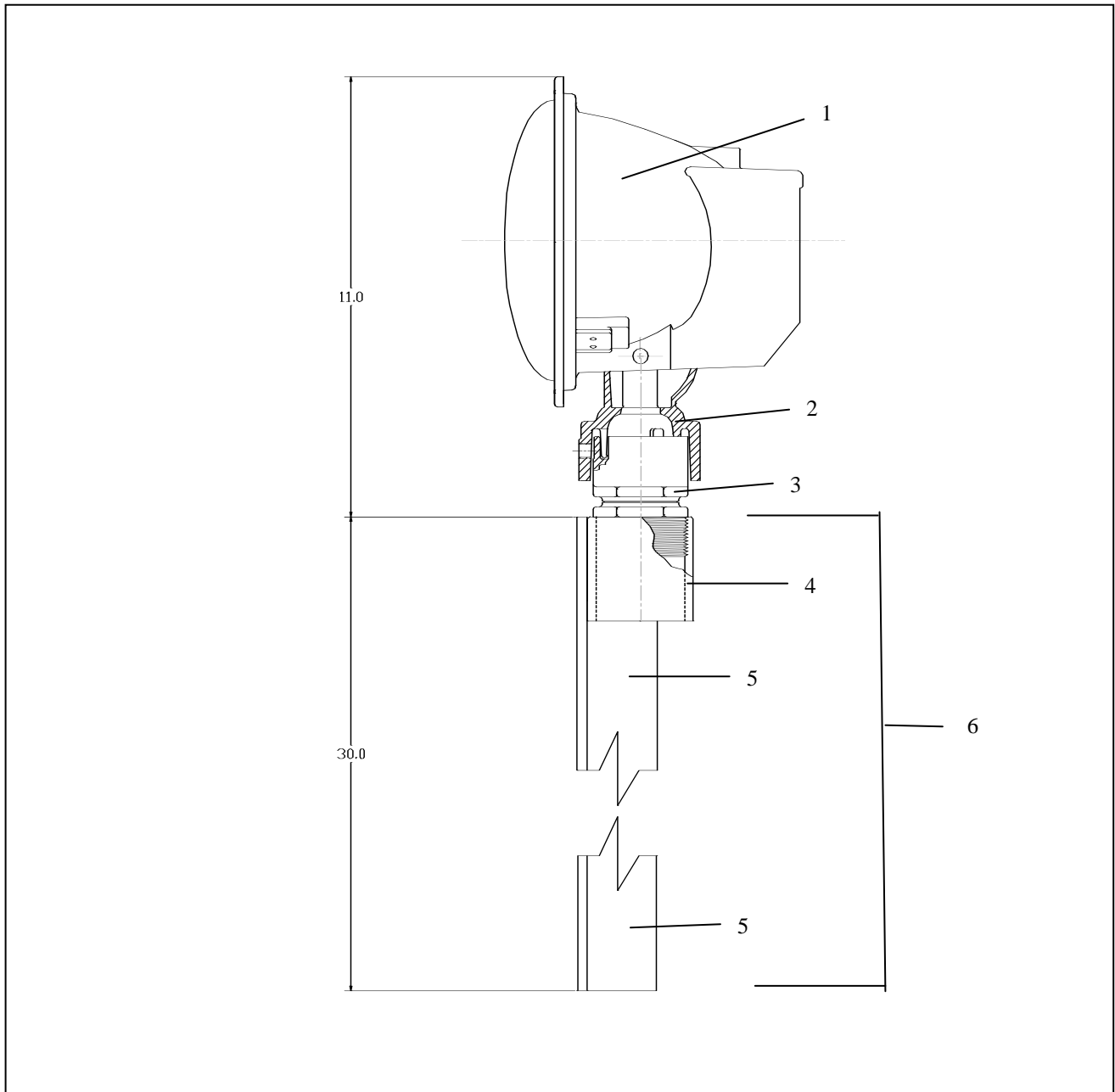


Figure 3-8 Stake Mount

- | | |
|----------------------------------|----------------------|
| 1. Lampholder Assembly | 4. Hub |
| 2. Slip Fitter | 5. 2 x 2 Steel Angle |
| 3. Frangible Coupling (Type F2C) | 6. Stake Assembly |

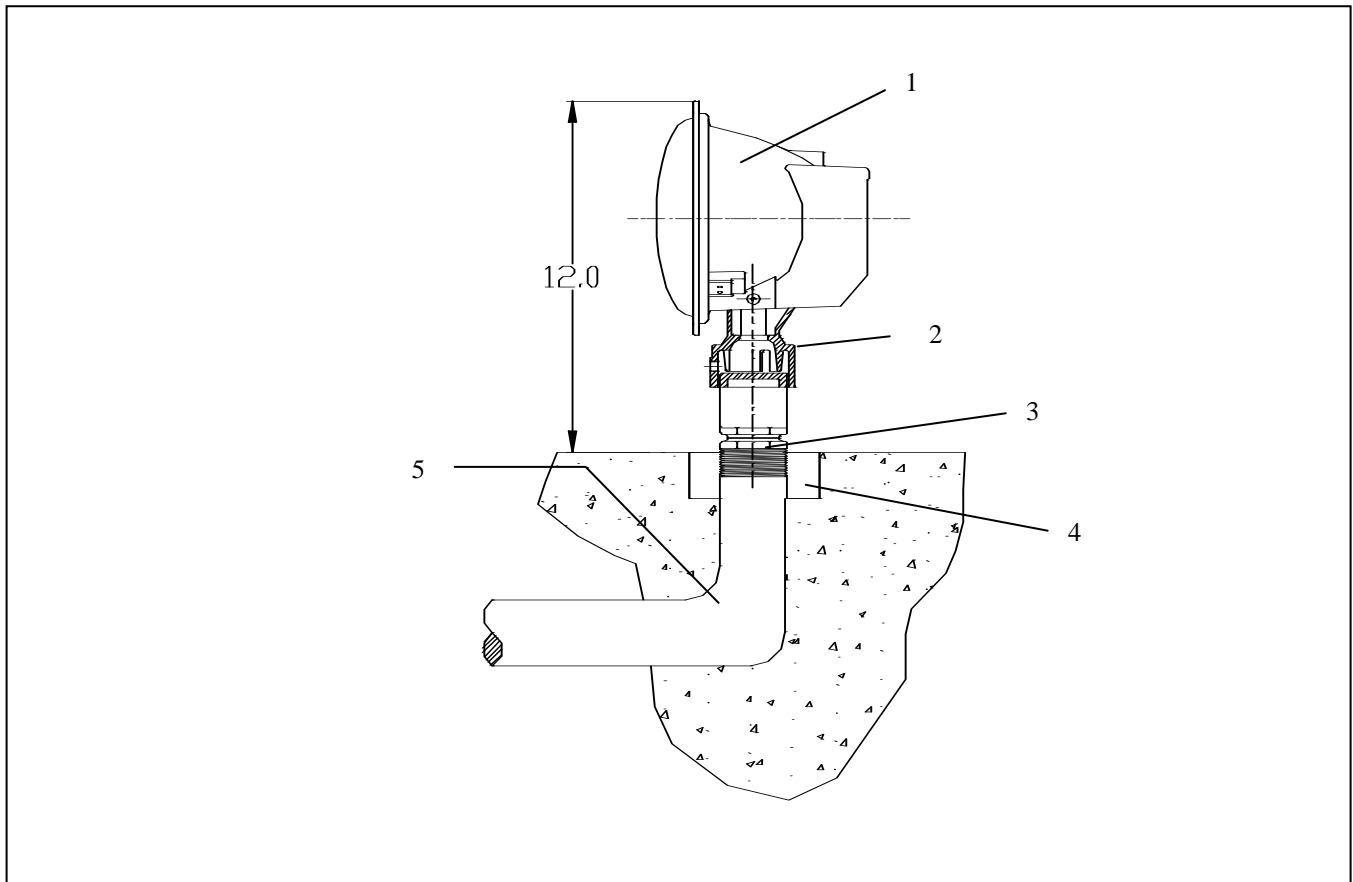
**Mounting PAR-56 Approach
Light (contd.)**

Figure 3-9 Frangible Coupling Mount

- | | |
|-------------------------------------|---|
| 1. Flashing approach Light Assembly | 4. Contractor-Supplied Two-Inch Conduit Coupling |
| 2. Slip Fitter | 5. Contractor-Supplied Two-Inch Conduit 90-Degree Elbow |
| 3. Frangible Coupling (Type F2C) | |

Converting FAA E-2491 Inset Light to FAP PAR-56 Fixture

To convert an FAA E-2491 inset light to an FAP PAR-56 fixture, perform the following procedure:

1. See Figure 3-10. Remove the E-2491 inset light fixture.

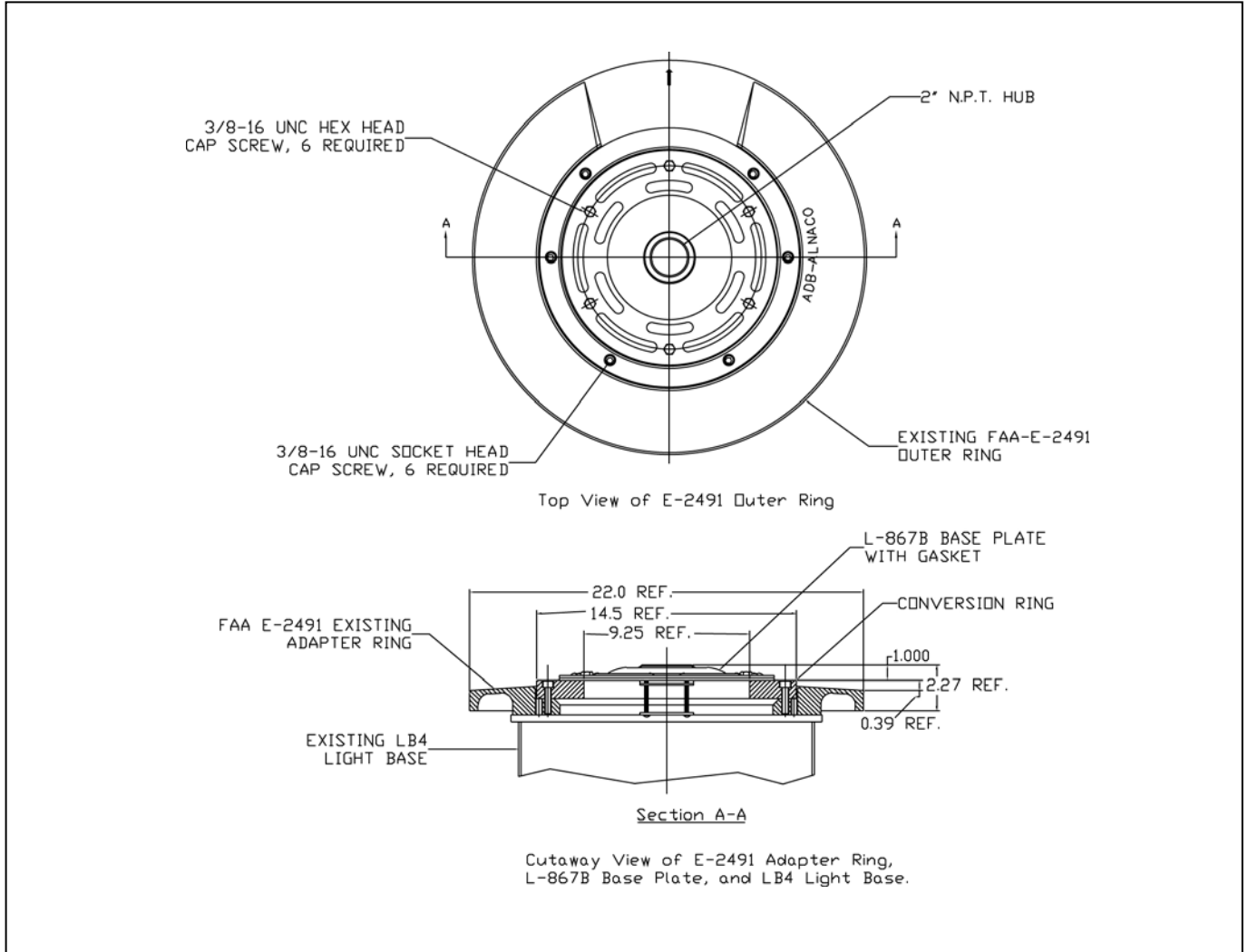


Figure 3-10 Remove E-2491 Light Fixture

- See Figure 3-11. Use the Olson conversion kit #2491CR127B02K to convert to the FAP PAR-56 elevated light fixture.

NOTE: L-867B base plate is non-load bearing. If load bearing is needed, contact ADB Airfield Solutions for information.

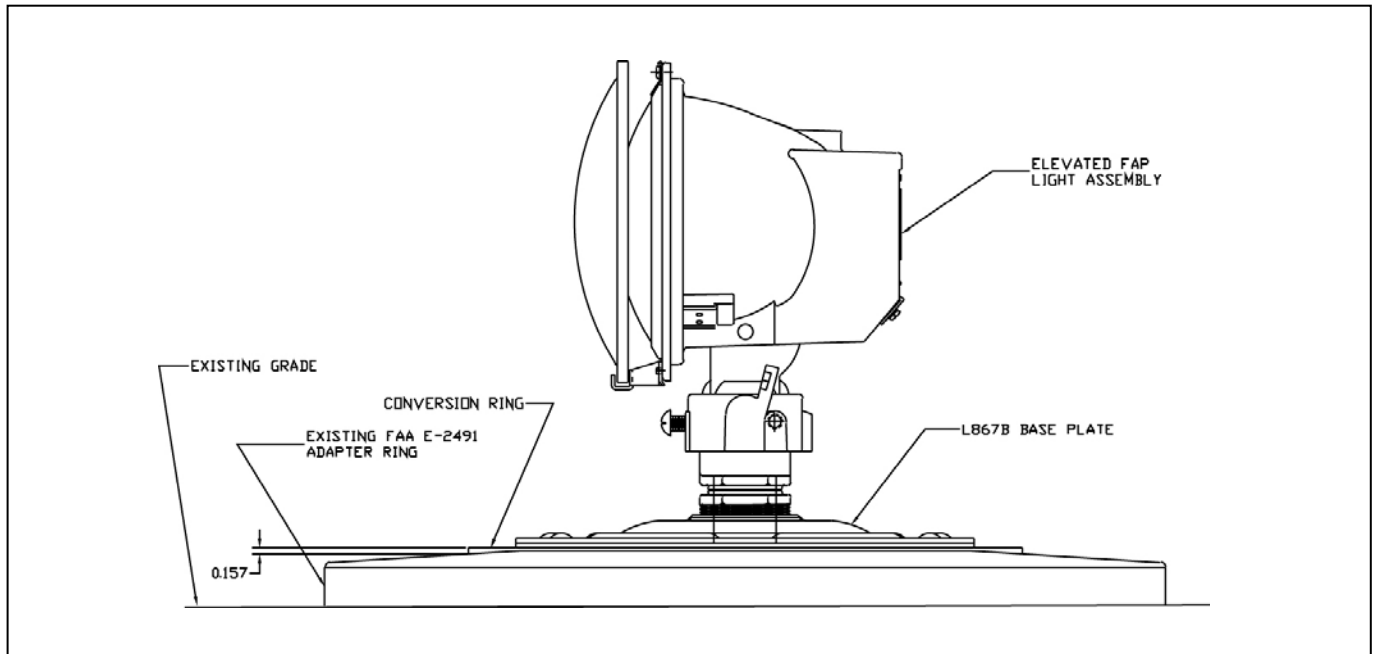


Figure 3-11 Conversion to FAP PAR-56 Elevated Light

Aiming PAR-56 Approach Light

This subsection provides information for assembling the aiming device and aiming the approach light. An aiming device is used to set the vertical angular position of the approach lights. The approach light is mounted on either conduit, pipe, or towers as outlined in the site installation drawings.

Assembling Aiming Device

To assemble the aiming device, perform the following procedure:

- Remove the aiming device components from the instrument case.

Assembling Aiming Device *(contd.)*

2. See Figure 3-12. Remove two 10-32 x 3/4-inch long screws (1) from the aiming device mounting pad (2).

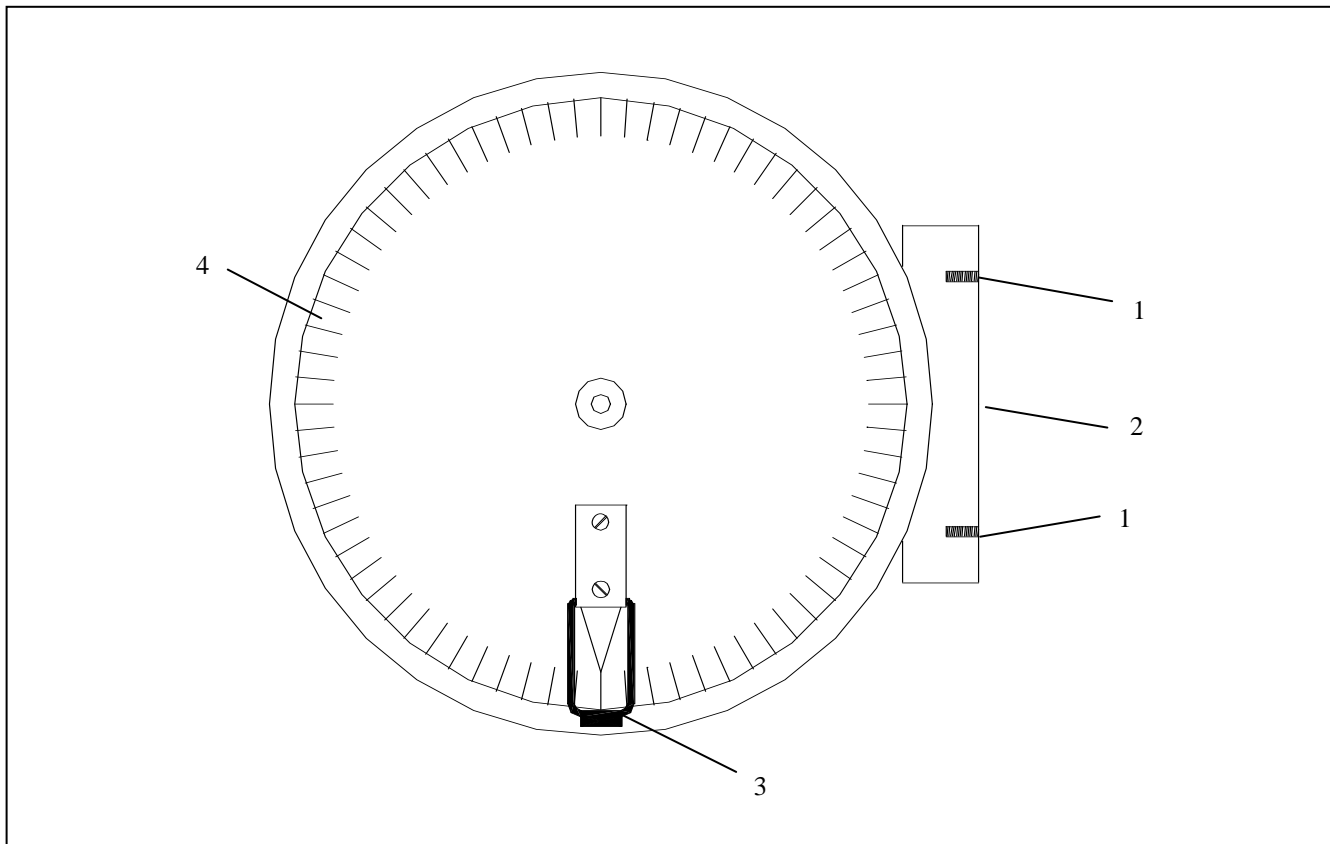


Figure 3-12 Aiming Device Mounting Pad

1. #10-32 x 3/4 Screws
2. Bottom of Mounting Pad
3. Locking Lever
4. Aiming Device Dial Face

Assembling Aiming Device (contd.)

3. See Figure 3-13. Take the base plate (6) and rotate it so that the standoff (3), located at 15 degrees above the horizontal, is positioned to the right of the assembler.

NOTE: The base plate is a round disc with three standoffs.

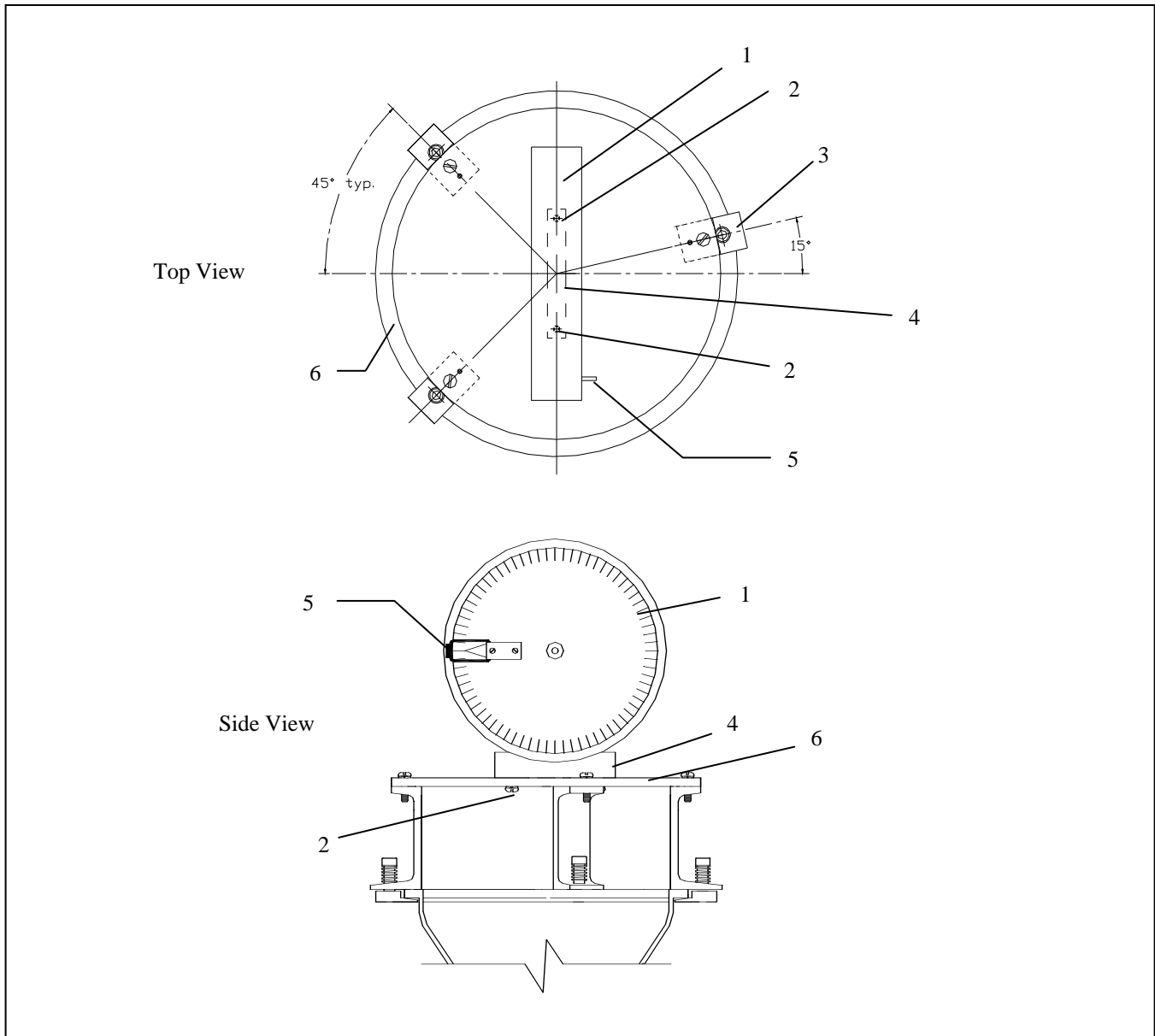


Figure 3-13 Aiming Device Plate (Top View)

- | | | |
|-------------------------|-----------------------------------|------------------|
| 1. Aiming Device Dial | 3. Standoff Located at 15 Degrees | 5. Locking Lever |
| 2. # 10-32 x 3/4 Screws | 4. Mounting Pad | 6. Base Plate |

Assembling Aiming Device *(contd.)*

4. Take the aiming device and turn it so that when mounted on the base plate (6) the dial (1) is facing toward the single standoff (3) located at 15 degrees. Position the two tapped holes in the bottom of the mounting pad over the mating holes in the base plate. Insert screws (2) and lockwashers and tighten the hardware.
5. See Figure 3-14. Rotate the three leg clamps (3) so the tapered leg clamp is at a right angle to the back edge of the standoff by pushing down on the spring-loaded shoulder screw (5).

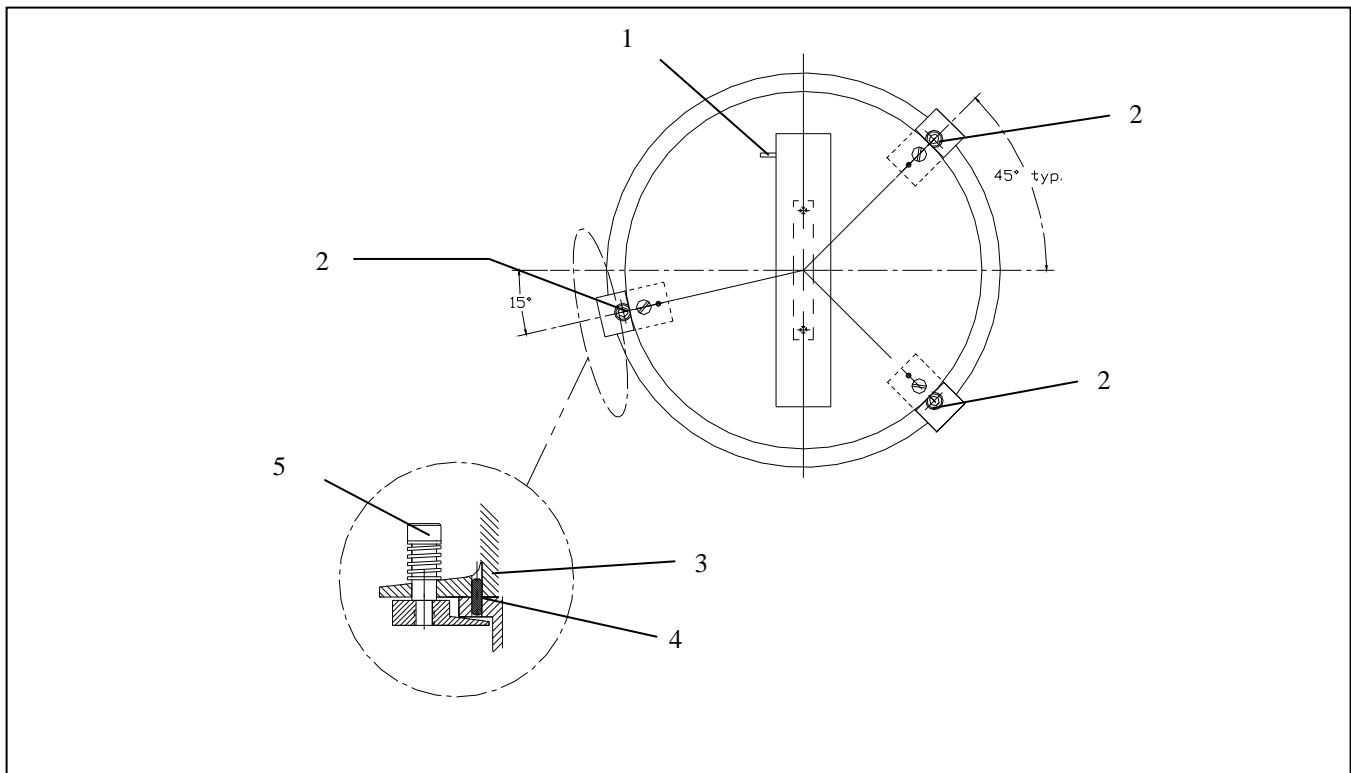


Figure 3-14 Aiming Device Leg Clamp Locations (Top View)

- | | | |
|------------------------|------------------------------|---------------------------------|
| 1. Locking Lever | 3. Section View of Leg Clamp | 5. Spring-Loaded Shoulder Screw |
| 2. Leg Clamp Locations | 4. Index Pin | |

6. Attach the snap-swivel and cord to the dial-locking lever (1) if the lever cannot be reached during the aiming procedure.

NOTE: The aiming device is now ready to be mounted on the approach light.

Aiming Approach Light (Platform or Ground Mounted)

This subsection provides a procedure to aim the steady burning or flashing approach lights that are mounted at ground level to approximately a six-foot (1.83-m) elevation (or easily reached by a ladder).

To aim the approach light, perform the following procedure:

1. Wire and secure the approach light to conduit, pipe, coupling, stake or base plate and align with the runway centerline per site specifications.
2. Secure the aiming device to the approach light.
3. See Figure 3-15. Take the aiming device and position it over the face of the lamp and align the three indexing pins, protruding from each of the standoffs, with the three mating index pin holes (2) found in the flanged lip of the approach light.

NOTE: These indexing pins and holes are located at 75 degrees, 225 degrees, and 315 degrees.

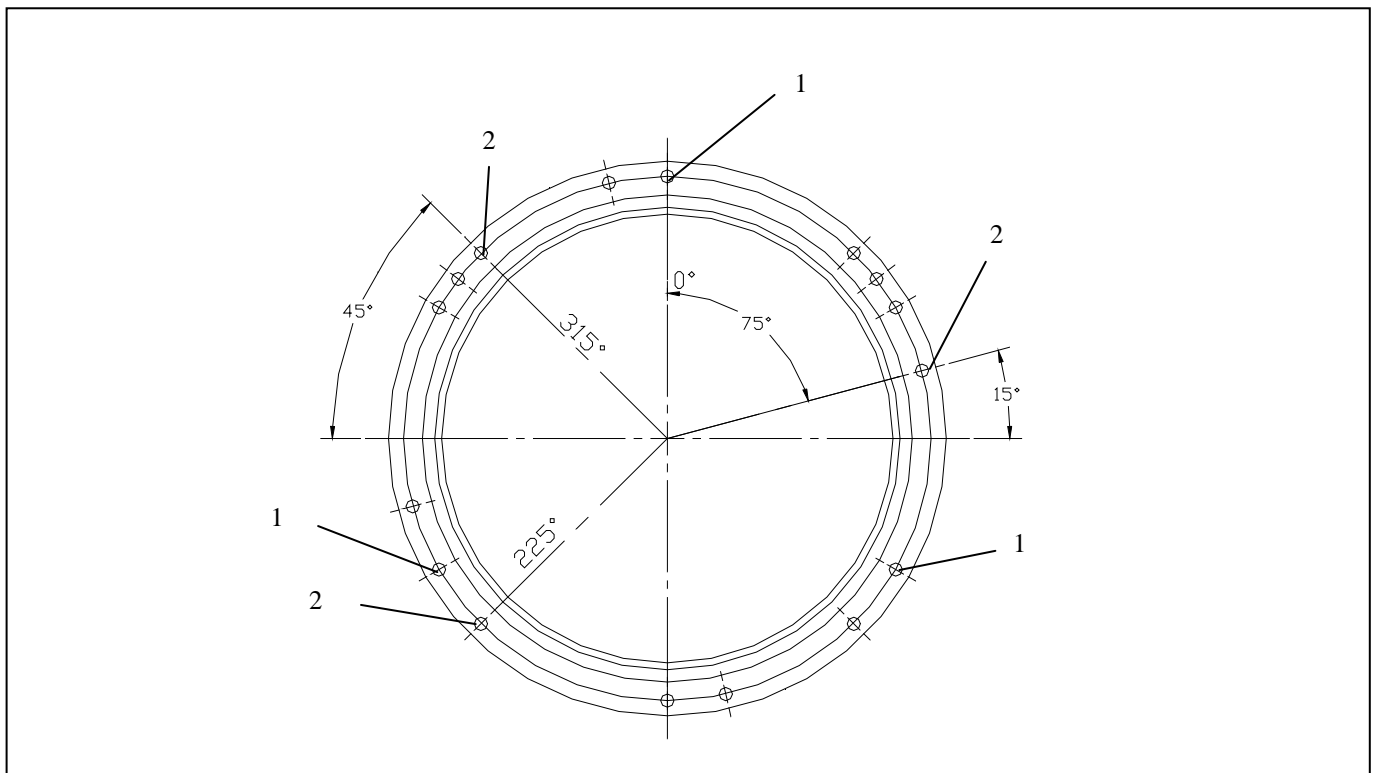


Figure 3-15 Aiming Device Leg Clamp Locations (Top View)

1. Lamp Clips 2. Index Pin Holes

Aiming Approach Light (Platform or Ground Mounted)*(contd.)*

4. See Figure 3-13. Place the index pin located at the standoff (3), located 15 degrees counterclockwise from horizontal, into the index hole located approximately at the 2 o'clock position on the approach light's flanged lip.

NOTE: After the first index pin has been installed into the correct hole, the other two index pins will fit only into their correct holes.

NOTE: See Figure 3-12. When the aiming device has been installed correctly, the aiming dial face (4) is located to the installer's right and the device hangs vertically.

NOTE: Once the aiming device is oriented correctly and the index pins are inserted into the index holes, the standoffs will set against the lip of the approach light.

4. See Figure 3-14. To clamp the aiming device onto the approach light, rotate the three leg clamps (3) by pushing down on the spring-loaded shoulder screws (5), so that the tapered tang grips the backside of the approach light's rim. Once the leg clamp is in position, release pressure on the spring-loaded shoulder screw.
5. See Figure 3-13. Release the aiming dial (1) by pulling back on the locking lever (5), and holding the lever open with the hasp.

Aiming Approach Light (Platform or Ground Mounted) (contd.)

6. See Figure 3-16. To aim the approach light to the required vertical setting, loosen the two 1/4–20 jam nuts (1) on the adjusting screws (2,4) located on the side of the approach light's slip fitter, and then turn both adjusting screws until the required elevation setting is reached on the aiming device dial.

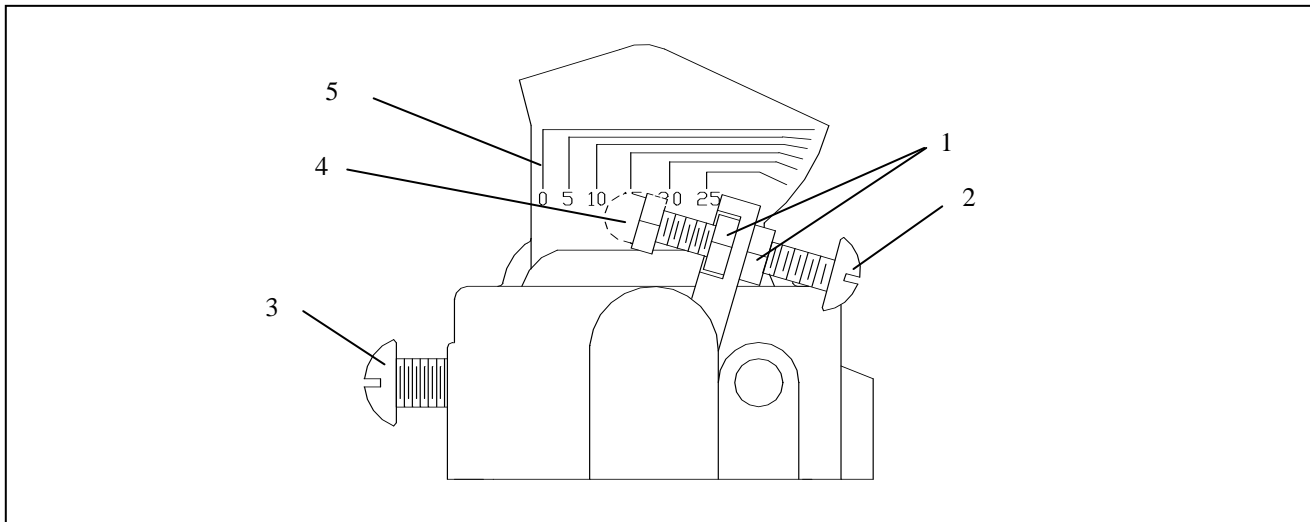


Figure 3-16 Slip Fitter Dial Face and Adjustment Screws

- | | | |
|--------------------|----------------------|---------------------|
| 1. Jam Nuts | 3. Slip Fitter Screw | 5. Slip Fitter Dial |
| 2. Adjusting Screw | 4. Adjusting Screw | |

NOTE: The scale on the dial is calibrated in 1-degree increments.

NOTE: The adjusting screws are designed to work against each other. If one screw is turned clockwise, as viewed from the head of the screw, then the other screw is turned counterclockwise to effect a change in elevation setting.

NOTE: The angle of repose must be used to compensate elevation settings before the tower is returned to the vertical position.

Aiming Approach Light (Platform or Ground Mounted) (contd.)

NOTE: To determine the elevation setting when the tower is vertical, the angle of repose must be subtracted from the dial reading as follows:

EXAMPLE: Elevation desired is 14 degrees. The aiming dial in free mode reads 84 degrees. The angle of repose (recorded previously) is 10 degrees.

To determine the elevation setting, perform the following:

First, turn the adjusting screws until the aiming dial reads 90 degrees minus 10 degrees = 80 degrees.

Second, subtract the desired elevation angle (14 degrees) from 80 degrees. The result is 66 degrees ($90 - 10 - 14 = 66$). This is the new angle required. Continue turning adjusting screws until this setting is reached.

7. Once the desired setting is achieved, make sure that both adjusting screws/nuts are seated against the screw stops, then retighten all jam nuts to lock the adjusting screws in place.

NOTE: Recheck to make sure the angle setting has not changed when the screws and nuts were tightened. If the setting has changed, loosen the nuts and adjust accordingly.

8. Remove the aiming device fixture by rotating the leg clamps away from the approach light's flanged lip.
9. Repeat Steps 1 through 8 for each approach light in the system.

Aiming Approach Lights (Tower Mounted)

This subsection provides information for aiming steady burning or flashing approach lights that are mounted on aluminum or fiberglass towers (masts).

To aim the tower mounted approach light, perform the following procedure:

1. Place the tower in the down position. Rest the tower on a sawhorse or other adequate support structure. Mount and wire the approach light and align with the runway centerline per site specifications.

Aiming Approach Lights (Tower Mounted) (contd.)

2. See Figure 3-16. Loosen the 1/4–20 jam nuts (1) on the adjusting screws (2,4) located on the sides of the approach light's slip fitter.
3. Turn the adjusting screws so that the bottom edge of the approach light is aligned with the zero angle setting as marked on the dial (5) on the side of the slip fitter. Re-tighten jam nuts to lock the approach light in the zero position.
4. See Figure 3-13. Take the assembled aiming device, remove the aiming dial, and then install the dial on the slip section supplied by the tower manufacturer using a dial strap clamp. Release the aiming dial by pulling back on the locking lever (5), and hold the lever open with a hasp. Read and record the angle of repose.
5. Remove the aiming dial from the tower's slip section. Reassemble on the base plate, and install the aiming assembly on the approach light.

NOTE: See Figure 3-16. To aim the approach light to the required vertical setting, loosen the two 1/4jam nuts (1) on the adjusting screws (2,4) again and turn the screws until the required elevation setting is reached. Refer to *Aiming Approach Light (Platform or Ground Mounted)* in this section, Step 6, for the formula for the angle of repose.

6. After setting has been reached, tighten both jam nuts on the adjusting screws to lock the approach light into position.
7. Lock the aiming dial in place by releasing the hasp. The locking lever will now prevent the dial from turning.
8. Attach snap-swivel and nylon cord to the locking lever before raising the tower.
9. Raise and lock the tower into the vertical position. Pull on the cord and hold it to allow the aiming dial to rotate so that it can measure the elevation angle of the approach light.
10. After the aiming dial has come to rest, release the cord and lock the dial in place. Lower the tower and read the elevation setting of the approach light. If the desired setting has not been obtained, release the dial and loosen the jam nuts on the adjusting screws. Turn the screws accordingly to correct the elevation setting.

Aiming Approach Lights (Tower Mounted) *(contd.)*

11. Repeat steps 5 through 9.
12. After correct elevation is achieved, secure the tower and repeat steps 1 through 10 for all remaining towers.

Section 4

Maintenance



WARNING: Only personnel authorized to work on high-voltage equipment should perform maintenance on the regulator.



WARNING: Operate regulator under local control (using the rotary switch) when performing maintenance tasks on the regulator. This will prevent the regulator from accidentally being turned on and causing serious injury or death. De-energize regulator by turning rotary switch to OFF, and remove input power to regulator by turning off disconnect switch or main circuit breaker before opening access door to service regulator.

1. Introduction

This section provides preventive maintenance for the Type FAP PAR-56 approach light.

The ADB Airfield Solutions PAR-56 approach light requires little maintenance other than periodically for lamp failure and checking the electrical connections for damage and the hardware for tightness. Refer to Table 4-1 for preventive maintenance schedule

2. Preventive Maintenance Schedule

To keep the FAP PAR-56 approach lights operating efficiently, follow a preventive maintenance schedule. Refer to Table 4-1.

Table 4-1 PAR-56 Approach Light Maintenance

Interval	Maintenance Task	Action
Daily	Check for burned out lamp.	Replace lamp after deactivating the system.
	Check for dimly burning lamp.	Clean the lens. Replace lamp if necessary.
	Check for cracked filter.	Replace cracked filter.
Every two weeks	Check for obscuration by vegetation.	Remove vegetation. Use weed killer.
	Check for dirty lens.	Clean lens with glass cleaner.
Monthly	Check for misaligned fixture.	Straighten and align fixture. Torque the three 3/8–16 screws on the slip fitter to 200 in-lb.

Continued on next page

2. Preventive Maintenance Schedule *(contd.)*

Table 4-1 PAR-56 Approach Light Maintenance

Interval	Maintenance Task	Action
Semi-Annually	Check for paint flaking off.	Paint.
Annually	Check for cracks, corrosion, and shorts in wires. Check for dirty lamp socket.	Repair or replace after deactivating the system. Clean lamp socket after deactivating the system.

3. Replacing Lamp

It is recommended that the lamp be replaced after it has reached 80% of its rated lamp life shown in Table 2-4.

To replace a lamp, perform the following procedure:

1. De-energize the lighting circuit and lock out the circuit before attempting to service the light fixture.
2. See Figure 2-1. If filter is installed, loosen the top filter clip screw and turn the screw 90 degrees. Remove the filter (1).
3. Loosen the screws on the three lamp clips (3) so all of the lamp clips can be rotated 90 degrees clear of the lamp.
4. Remove the lamp (2) and lamp gasket (10) from the fixture by inserting the blade of a screwdriver in the small cutout in the lamp gasket at the bottom of the fixture and prying the lamp and gasket loose from the fixture.
5. Pull the lamp out of the porcelain lamp socket (4). Check the lamp gasket for any signs of cracks or deterioration that could allow water to enter the fixture. If any evidence of deterioration is present, replace the gasket.
6. Install a new lamp by reversing the removal steps.

NOTE: If a shorting device is used, make sure that the lamp wires (7) are routed so that they do not touch the edge of the heat shield on the shorting device. The shorting device is automatically reset when a new lamp is installed.

7. Re-energize the circuit and verify that all the lamps are operating properly.

Section 5

Troubleshooting



WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.



WARNING: Before attempting to service fixture, de-energize the circuit and lock out the circuit or regulator so that the circuit cannot be energized by remote means.

1. Introduction

This section provides the following troubleshooting information for the Type FAP PAR-56 approach light.

2. Troubleshooting Guide

This subsection provides troubleshooting procedures

Problem	Possible Cause	Corrective Action
1. Lamp not energizing	Defective lamp Loose wiring connections Deteriorated wire insulation Moisture present in fixture Defective shorting device	Replace lamp. Tighten wiring connections. Replace wires. Open up and wipe the fixture dry. Inspect the lamp gasket for cracks. Replace the lamp gasket if any signs of deterioration is present. Replace the shorting device.

Section 6

Parts

1. Introduction

To order parts, call ADB Airfield Solutions Customer Service or your local representative. Use this four-column parts list, and the accompanying illustration, to describe and locate parts correctly.

2. Using the Illustrated Parts List

This subsection describes how to use the illustrated parts list covered later in this section. It does not provide the actual parts list.

The Part Number column gives the ADB Airfield Solutions part number.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

Part Number	Description	Quantity	Note
XXXXXXXX	Assembly	1	A
XXXXXXXX	Part	1	
XXXXXXXX	Part or Assembly		
XXXXXXXX	Assembly	1	
NOTE A			

The Quantity column contains the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

The Note column contains letters that refer to notes at the end of each parts list. Notes contain special ordering or product/part version information.

3. Steady-Burning Approach Light Ordering Code:

See Figure 6-1.

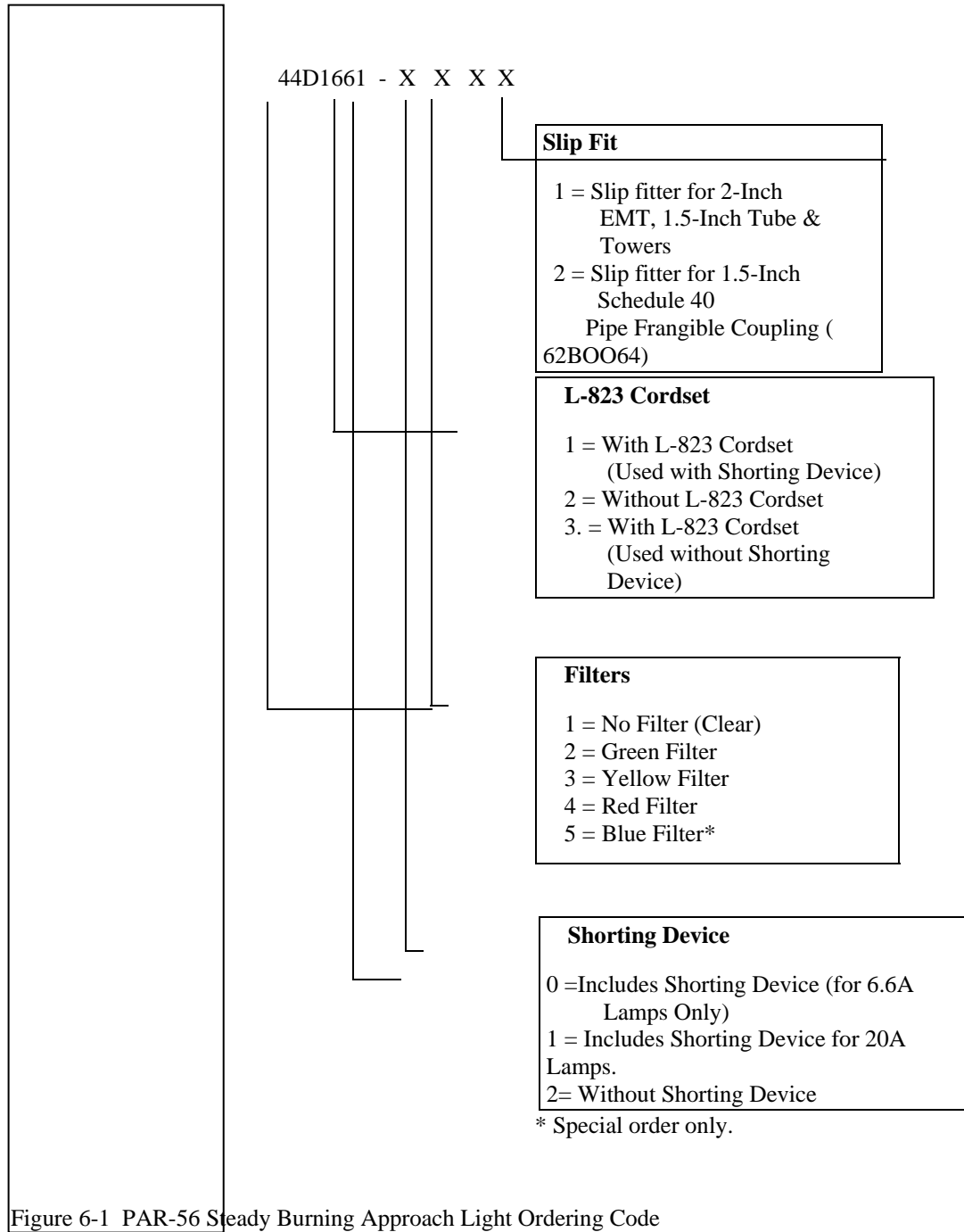


Figure 6-1 PAR-56 Steady Burning Approach Light Ordering Code

4. Type FAP PAR-56 Approach Light Parts List

See Figure 6-2. This subsection provides part numbers for the Type FAP PAR-56 approach light.

Item	Description	Part Number	Quantity	Note
3	Lamp clip	60B0900	3	
4	Lamp socket	49A0124	1	
7	Lamp gasket	63C0532	1	

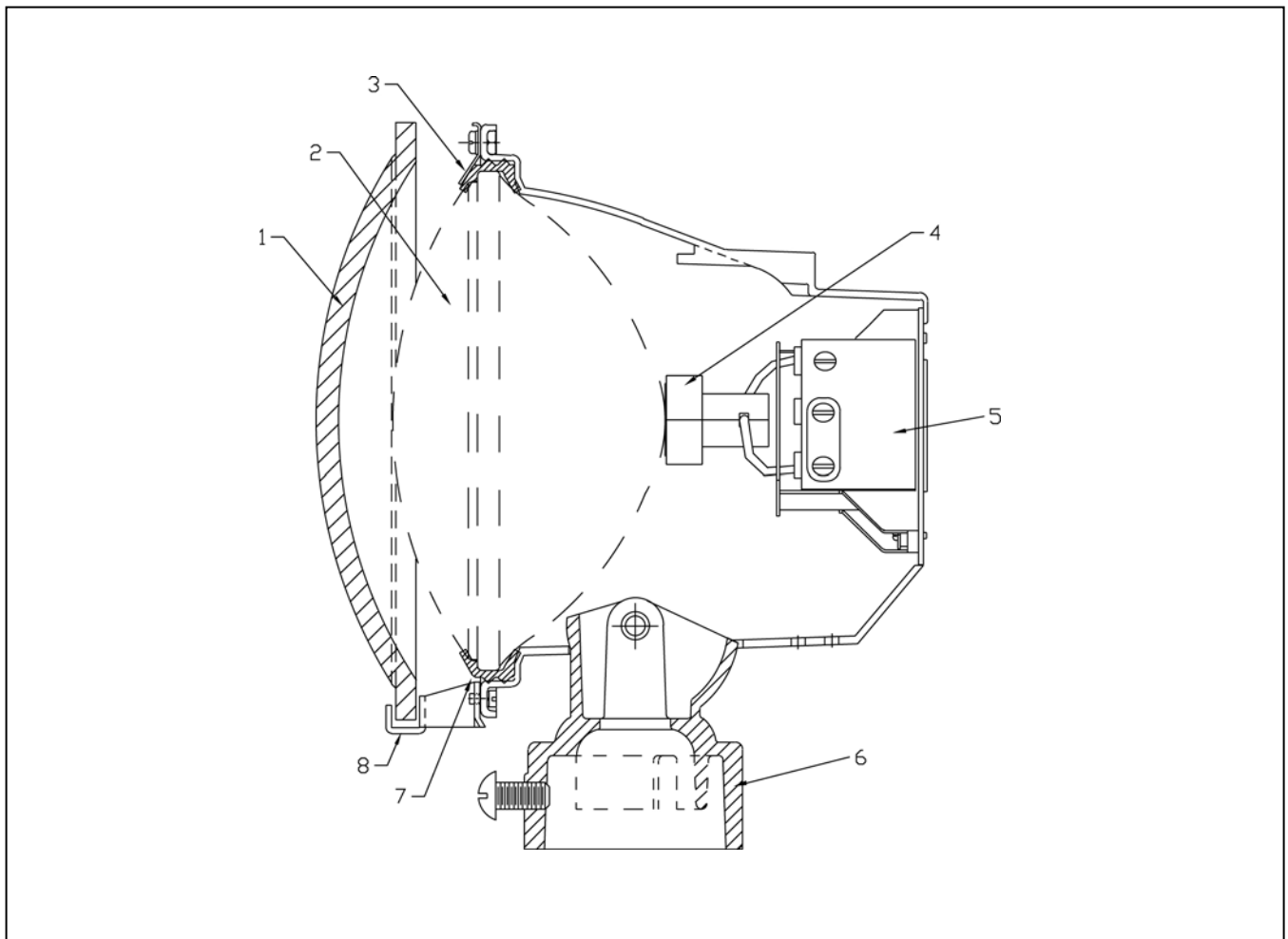


Figure 6-2 PAR-56 Steady Burning Approach Light

**4 Type FAP PAR-56
Approach Light Parts List**
(*contd.*)

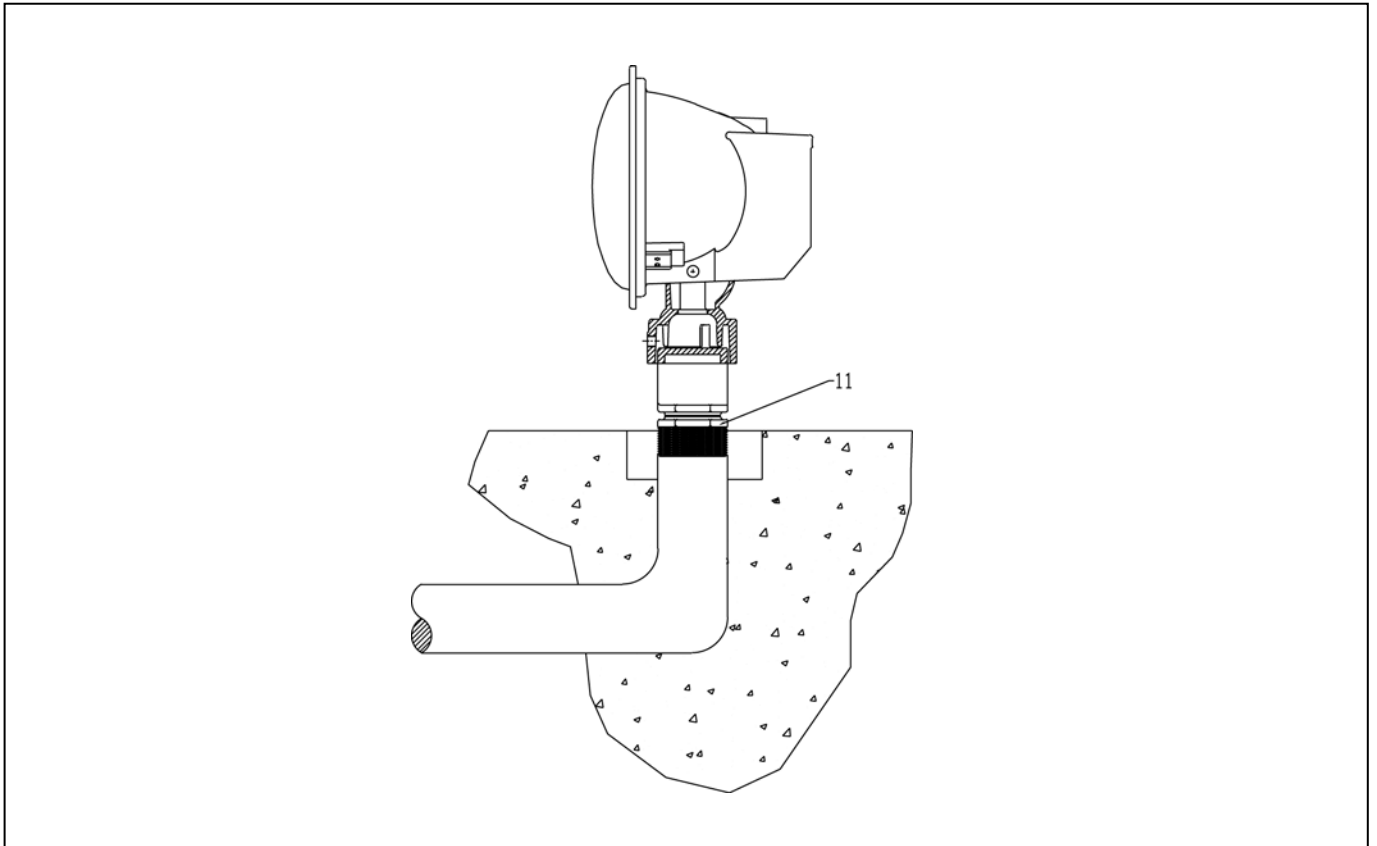


Figure 6-3 Frangible Coupling (Type F2C)

**4 Type FAP PAR-56
Approach Light Parts List**
(contd.)

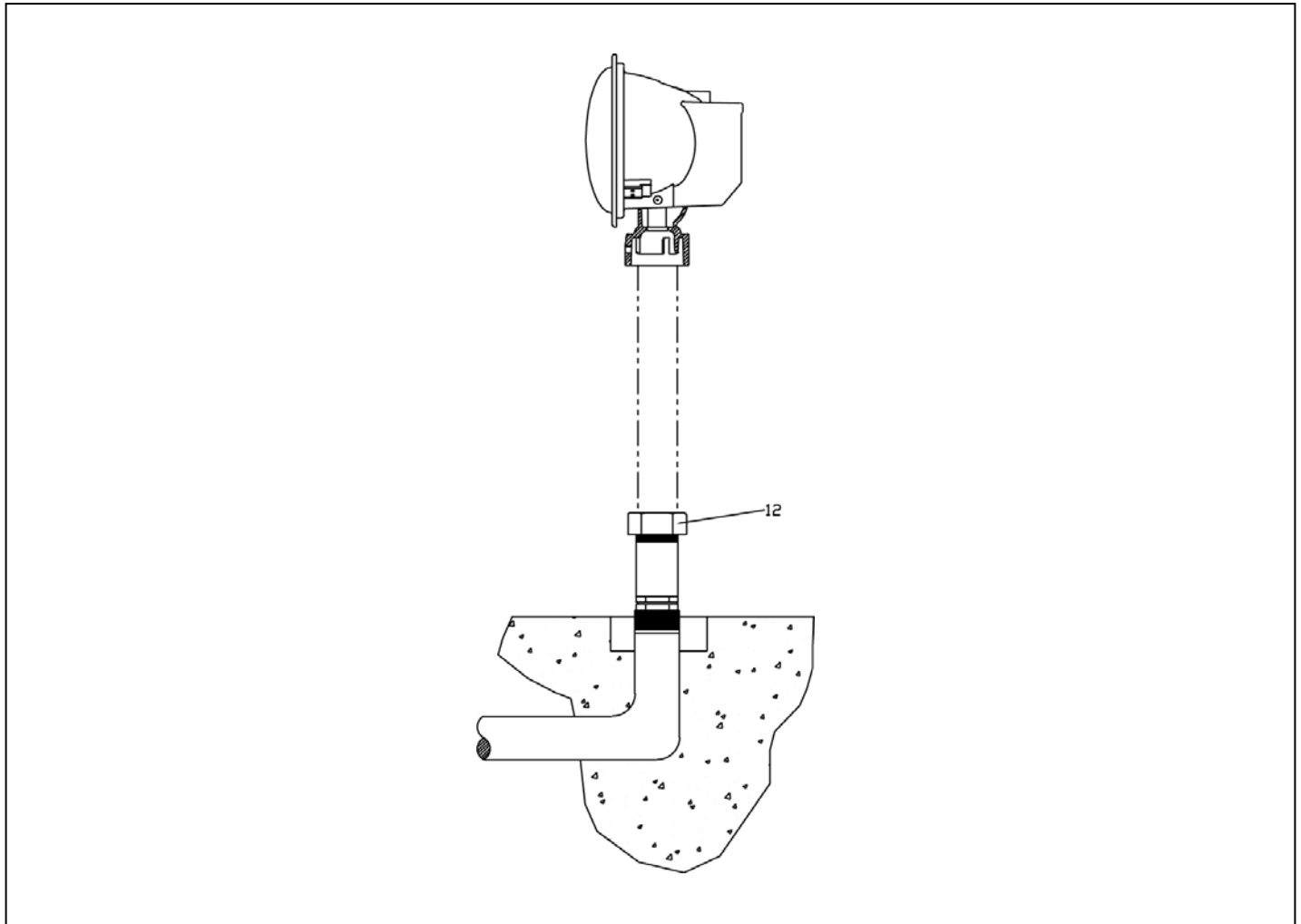


Figure 6-4 Frangible Coupling (Type EMT)

**4 Type FAP PAR-56
Approach Light Parts List**
(*contd.*)

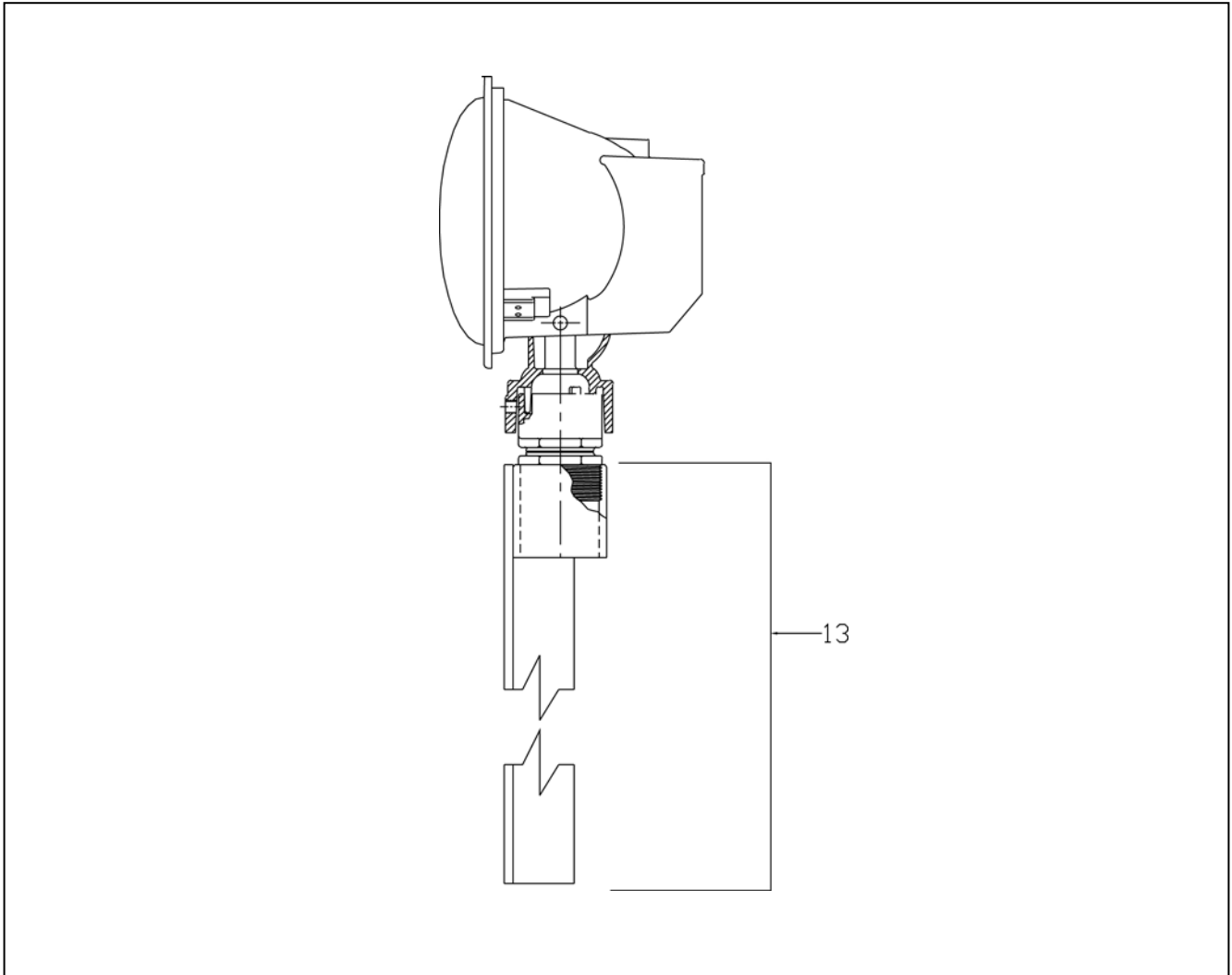


Figure 6-5 Stake Assembly

**4 Type FAP PAR-56
Approach Light Parts List**
(*contd.*)

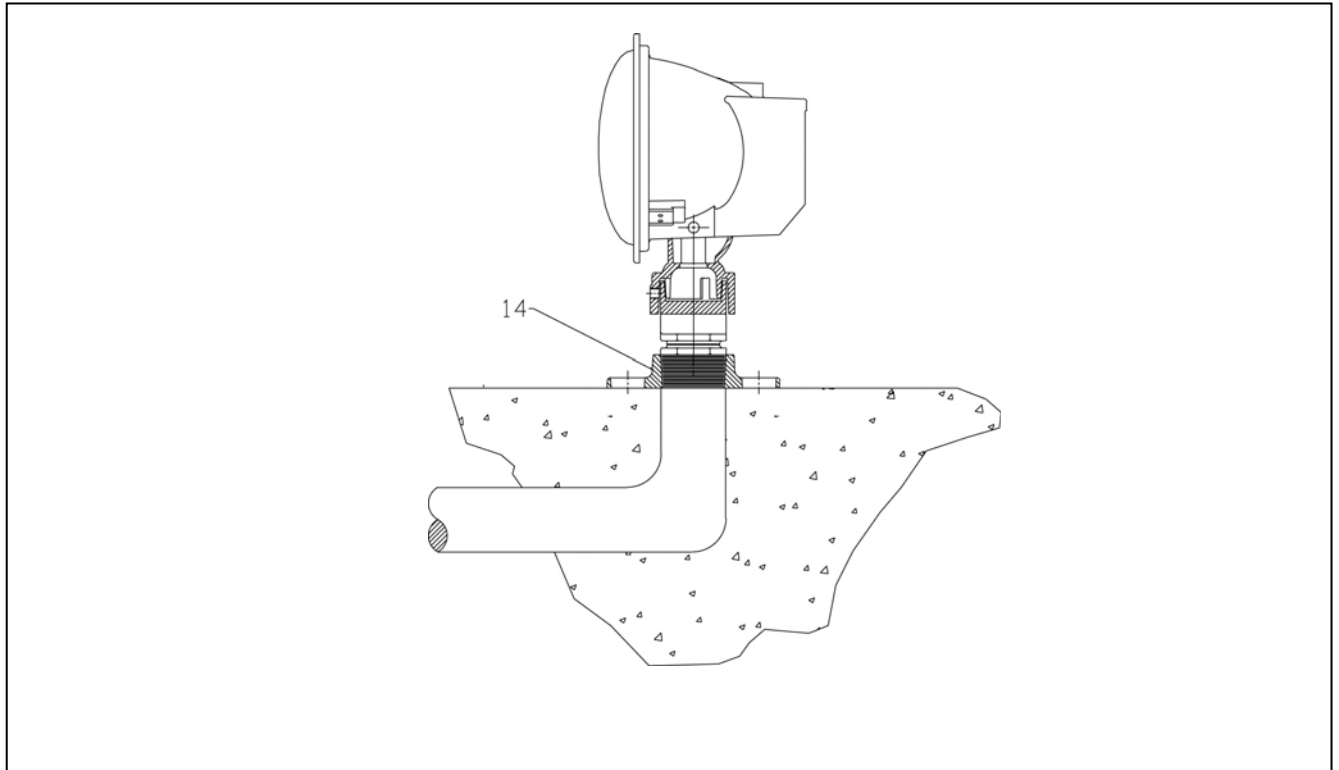


Figure 6-6 Floor Flange

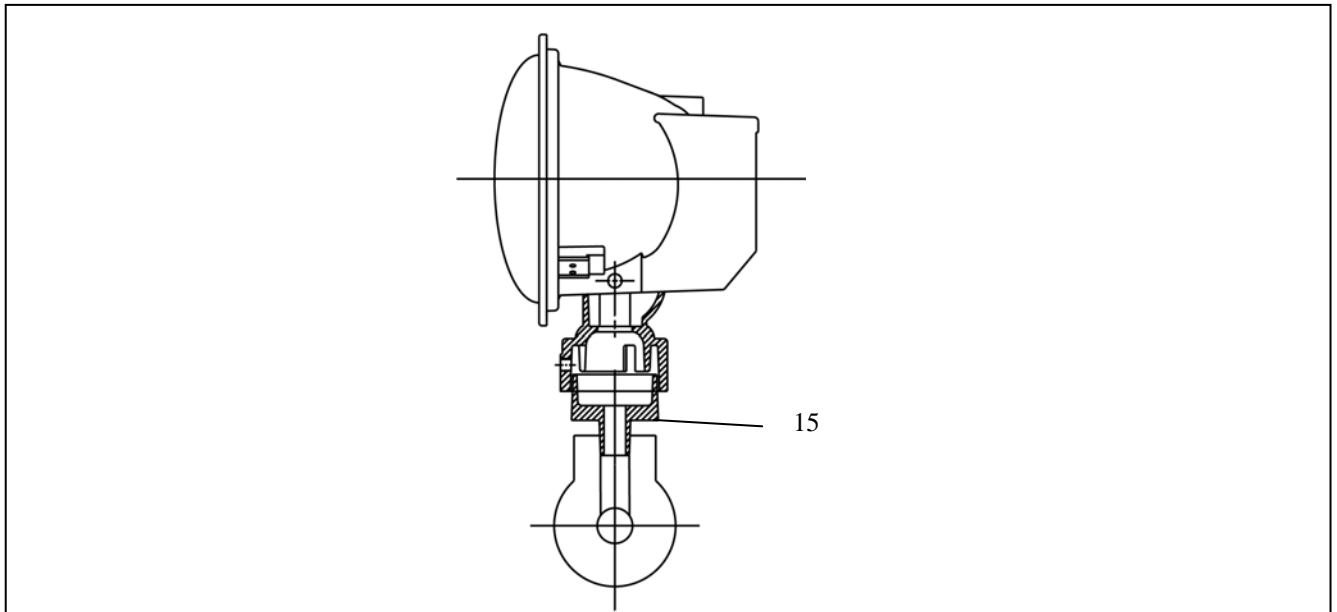


Figure 6-7 Adapter Sleeve (Type FAC)

**5. Separate Line Items
Optional Parts**

Refer below for optional equipment that must be ordered separately. See Figures 6-2 through 6-9.

Item	Description	Part Number	Quantity	Note
6	Slip fitter Slip fitter (for EMT, 1-1/2-inch tube and towers) Slip fitter (for 1-1/2-inch Schedule 40 pipe and type F2C frangible coupling)	62D0524-1 62D0524-2	1	
11	Frangible coupling (Type F2C)	62B0064	1	
12	Frangible coupling (Type EMT)	44B0180	1	
13	Stake assembly	44B1092W	1	
14	Floor flange	62B0107-2	1	
15	Adapter sleeve (Type FAC)	62B0537	1	
NS	Aiming device (for PAR-56 use only)	44D1654-1	1	
NS	Aiming device (for PAR-56 and PAR-38)	44D1654-2	1	

NS = Not Shown

5. Separate Line Items
Optional Parts – *Contd*

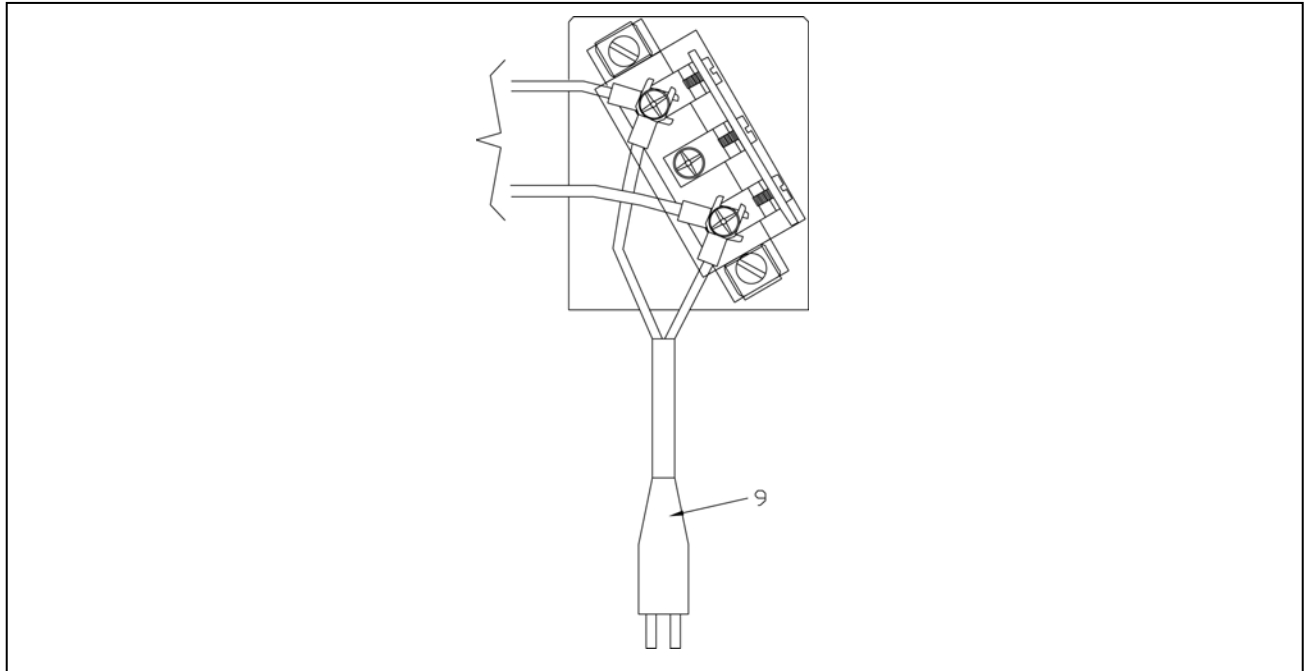


Figure 6-8 Cordset Used with Shorting Device

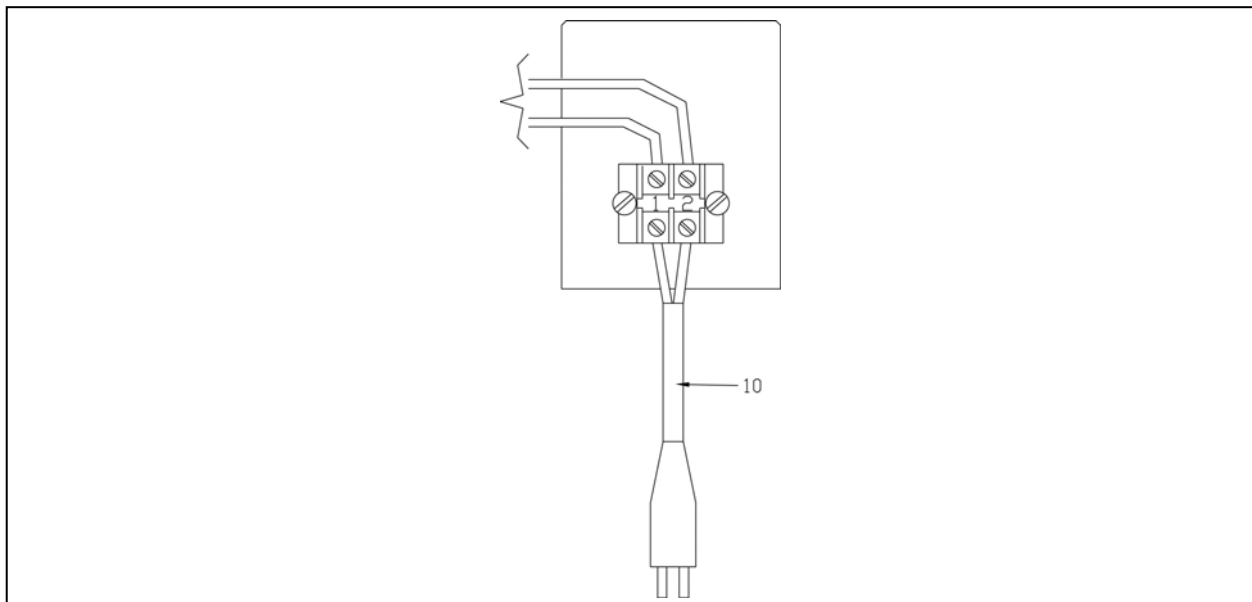


Figure 6-9 Cordset Used without Shorting Device

6. Separate Line Items Required

Refer below for required equipment that must be ordered separately. See Figure 6-2.

Item	Description	Part Number	Quantity	Note
2	Lamp		1	
	Lamp, 200 W, 6.6 A	48A0094		
	Lamp, 300 W, 120 Vac	48A0118		
	Lamp, 300 W, 20 A	48A0091		
	Lamp, 500 W, 20 A	48A0092		

7. Optional Parts

Refer below for optional parts. See Figure 6-2.

Item	Description	Part Number	Quantity	Note
1	Filter		1	
	Filter, yellow	63B0068		
	Filter, green	63B0023		
	Filter, red	63A0542		
	Filter, blue	63A0541		
8	Color filter clip (used for all color filters)	60B0896	3	
9	L-823 cordset (used with shorting device)	44A1750	1	
10	L-823 cordset (used without shorting device)	73A0057-84	1	

8. Recommended Spare Parts

See Figure 6-2. Refer below for recommended spare parts.

Item	Description	Part Number	Note
1	Filter		
	Filter, yellow	63B0068	
	Filter, green	63B0023	
	Filter, red	63A0542	
	Filter, blue	63A0541	
2	Lamp		
	Lamp, 200 W, 6.6 A	48A0094	
	Lamp, 300 W, 120 Vac	48A0118	
	Lamp, 300 W, 20 A	48A0091	
	Lamp, 500 W, 20 A	48A0092	
5	Shorting device assembly	44B2340-01	
NS	MALSR head door gasket	63A1024	
NS: Not Shown			