



Bases for Inset Lights

Deep bases: L-868 and Shallow bases: HPI, Eurobase

User Manual

AM.05.120e, Rev. 3.0, 2025/03/14


**ADB
SAFEGATE**

A.0 Disclaimer / Standard Warranty

CE certification

The equipment listed as CE certified means that the product complies with the essential requirements concerning safety and hygiene. The European directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

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Note

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Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

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Note

See your sales order contract for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

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WARNING

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

ADB SAFEGATE cannot be held responsible for injuries or damages resulting from non-standard, unintended uses of its equipment. The equipment is designed and intended only for the purpose described in the manual. Uses not described in the manual are considered unintended uses and may result in serious personal injury, death or property damage.

Unintended uses, includes 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 SAFEGATE replacement parts or accessories.
- Failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards if not in contradiction with the general rules.
- Using materials or auxiliary equipment that are inappropriate or incompatible with your ADB SAFEGATE equipment.
- Allowing unskilled personnel to perform any task on or with the equipment.

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1.0 Safety

Introduction to Safety







This section contains general safety instructions for installing and using ADB SAFEGATE 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.

1.1 Safety Messages


HAZARD Icons used in the manual

For all HAZARD symbols in use, see the Safety section. All symbols must comply with ISO and ANSI standards.

Carefully read and observe all safety instructions in this manual, which alert you to safety hazards and conditions that may result in personal injury, death or property and equipment damage and are accompanied by the symbol shown below.

	<p>WARNING Failure to observe a warning may result in personal injury, death or equipment damage.</p>
	<p>DANGER – Risk of electrical shock or ARC FLASH Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.</p>
	<p>WARNING – Wear personal protective equipment Failure to observe may result in serious injury.</p>
	<p>WARNING – Do not touch Failure to observe this warning may result in personal injury, death, or equipment damage.</p>
	<p>CAUTION Failure to observe a caution may result in equipment damage.</p>
	<p>ELECTROSTATIC SENSITIVE DEVICES This equipment may contain electrostatic devices.</p>

Qualified Personnel

	<p>Important Information 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 ensure that its personnel meet these requirements. Always use required personal protective equipment (PPE) and follow safe electrical work practice.</p>
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1.1.1 Introduction to Safety



CAUTION

Unsafe Equipment Use

This equipment may contain electrostatic devices, hazardous voltages and sharp edges on components

- Read installation instructions in their entirety before starting installation.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to 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.
- Install all electrical connections to local code.
- 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 prior to returning power to the circuit.

Failure to follow this instruction can result in serious injury or equipment damage

Additional Reference Materials



Important Information

- IEC – International Standards and Conformity Assessment for all electrical, electronic and related technologies.
- IEC 60364 – Electrical Installations in Buildings.
- CSA – C22.2 No.180:13 (R2018), series isolating transformers for airport lighting.
- FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.1.2 Intended Use



CAUTION

Use this equipment as intended by the manufacturer

This equipment is designed to perform a specific function, do not use this equipment for other purposes

- Using 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.

Failure to follow this instruction can result in serious injury or equipment damage

1.1.3 Material Handling Precautions: Storage



CAUTION

Improper Storage

Store this equipment properly

- If equipment is to be stored prior to installation, it must be protected from the weather and kept free of condensation and dust.

Failure to follow this instruction can result in equipment damage

2.0 Bases Introduction

2.1 Types of bases

Over time, two main methods of installation of inset lights have been designed:

- Shallow bases allow installing the lights and bases after completion of the civil works. This method is widely used because of the separation of the tasks and an easier organisation of the works.
- The traditional FAA method uses deep bases that are put in position before constructing the pavement.



Note

Refer to FAA specifications AC 150/5340-30 and AC 150/5345-42 for complete information.

2.1.1 Shallow bases

Shallow bases are specifically adapted to the lights they support.

The ADB shallow bases exist in two diameters: 8" and 12"

Figure 1: An HPI Base



- There are two versions of the 8" bases:
 - The HPI base is an optimised version for different types of metric fixing hardware.
 - The Euro® base allows various hardware types including both metric and UNC threads.
- 12 inches bases only exist in Euro® execution.

8" lights can be installed on 12" shallow bases by using an adapter ring.

All above models can be delivered with various types of cable entries and fixing hardware.



Note

Refer to "Chapter 7: Parts lists", page 35, for information about available versions.

2.1.2 Deep bases

FAA has defined a complete range of deep bases. ADB inset lights have been designed for installation on L-868 size B bases (load-bearing bases, 12" diameter), either directly (12" lights) or by means of an 8"/12" adapter ring (8" lights).

FAA bases can be supplied in one piece or as multiple section assembly, and with various accessories.

Refer to "Chapter 7: Parts lists", page 35, for information about available versions.

Other types (L-867, E-1315) and sizes (15" etc.) of bases, together with specific adapter rings can be obtained from ADB. Please contact your local agent. Please refer to Chapter 5 for information about the installation method of the FAA deep bases.

2.2 Specifications

2.2.1 Shallow bases

There is currently no regulation specifically covering the requirements for shallow bases. ADB shallow bases are fully compliant with the mechanical and environmental requirements of FAA specification AC 150/5345-42 (current edition) and with the installation method described in AC 150/5340-30 (current edition). As they are supporting elements for lighting fixtures, they also comply with the conditions imposed to the lights in FAA specification AC 150/5345-46 (current edition) and specification IEC 61827.

2.2.2 Deep bases

Deep bases are in full compliance with FAA specification AC 150/5345-42, current edition.

3.0 Before starting the Installation

3.1 Important safety considerations

3.1.1 Limits of use



CAUTION

The shallow bases described in the present manual have been designed for the mounting of ADB Airfield Lighting inset lights in pavements made of asphalt or Portland cement concrete. In case of mounting of non-ADB material, the end-user takes complete responsibility for the coordination of installation details like (but not limited to) dimensions, mechanical resistance, type and fastening torque of the screws or nuts, electrical connection, etc.



Note

Please refer to the installation manual of the lighting fixture for complete information about the installation of the light on the base.

3.1.2 Fixing hardware

Various types of fixing hardware can be used for the fixation of the light on its base or adapter ring (e.g. screws or studs and nuts). Moreover, bases and adapter rings may be supplied with threaded holes according either to ISO metric or UNC standards.



WARNING

Only use fixing hardware of the same type as the one originally supplied with the base or adapter ring!



WARNING

Always tighten the fixing hardware to the recommended torque, using a calibrated torque wrench! Refer to the Instruction Manual of the light, for the tool to use, the eventual requirement for use of Loctite and the torque to apply.



CAUTION

It is possible to insert a 3/8"-16 UNC screw in a M10 thread. However, such a combination damages the female thread and does not ensure a correct fastening so that the screw could become loose under repeated solicitations operation of landing/rolling aircrafts. Using screws of incorrect length might lead to either damage to the female thread in the base or adapter ring or to an improper fastening of the lights.

Generally, using fixing hardware of a different type of the one originally supplied with the bases or adapter rings, or tightening at an incorrect torque, may lead to a loosening of the fixing hardware, damage to the light and base, and potentially to the separation of the light fitting or parts thereof from its base. This can lead to a highly dangerous situation of Foreign Object & Debris (FOD), with potential lethal consequences.

3.2 General recommendations

3.2.1 Reception and storage

1. Upon receipt of goods at the site store, check all packing for visible damage. Every damaged box should be opened and its contents inspected for damage.
If equipment is damaged, a claim form must be filed with the carrier immediately. It may then be necessary for the carrier to inspect the equipment.
2. Store the bases preferably in their original packing in a protected area.

- In order to avoid extra handling work, it is advisable to store the bases according to their type and application and taking into account the work schedule.

3.2.2 Base Earthing

Whatever the chosen installation method, it is strongly recommended to earth the base, especially in locations presenting a risk of lightning strikes.



CAUTION

This recommendation is extremely important in case of LED lights: this is the only way to guarantee a complete effectiveness of the protection system against voltage surges included in the LED light fitting.

Failure to earth correctly the base will void the warranty for all damages occurring to LED lights as a result of voltage surges.



Note

Note: Guidelines on how to realize the earthing of the base are given:

- for shallow bases, in Chapter 4: Installation of shallow bases, page 20 Note: Provisions for earthing connections (holes for self-tapping screws) are present on the inner cover of the lighting fixture and on the inner and outer surface of the base. An earthing kit available from ADB can be used to connect the earthing connection of the light to the base.
 - for deep bases, FAA advisory Circular AC 150/5340-30.
-

3.2.3 Location and tolerances

The applicable documents for location details and tolerances are the following:

Organisation	Applicable documents
ICAO	Annex 14
	Aerodrome Design Manual Part 4
FAA	Advisory Circular AC no. 150/5340-30

3.3 Installation equipment

3.3.1 Tool case

ADB has designed a tool case (ADB part number **1411.19.421**) containing the basic tools necessary for the maintenance of inset lights. It can also be used for the installation of the light fixture (please note: this is a general tool case, some tools may be of no use for your specific case). The table below lists the tools included in the case:

Description	CN	Description	CN
Empty box	6169.01.007	Screwdriver, flat blade 8x150	8961.05.250
Torque wrench	8961.06.203	Screwdriver, Pozidriv2x125	8961.05.220
Socket hex, 3/8", for 3/8" screw	8961.06.008	Loctite 2701	7870.05.130
Socket hex, 3/8", for M10 screw	8961.06.000	Loctite 222	7870.05.140
Socket, 1/4", 1.6x8 Flat	8961.05.050	Molycote BG87 INERTA grease (to replace prisms)	7850.05.060
Socket, 1/4", Pozidriv2	8961.05.060	Natural hydraulic vacuum silicone grease	7850.42.220
Extension, 1/4"	8961.06.220	Attack driver	8961.04.100
Adaptation, 1/4"-3/8"	8961.06.010	Dead blow hammer	8961.04.110
Hinged handle - short	8961.06.110	Bit holder	8961.04.120
Plier	8961.10.110	Bit Pozidriv2	8961.04.130
Opening tool	4071.53.220	Lifting tool assembly for inset lights	1411.19.550

3.3.2 Additional tools and equipment

A number of accessories are available to help in the installation of shallow or deep bases. If no code number is indicated in the table below, please contact ADB or its local agent for exact definition of the product.

Description	CN
Crimping tool for external crimp connection	-
High Precision Installation Jig for shallow bases:	
- for bases with M10 screw fixing kit	1411.17.030
- for bases with M10 stud fixing kit	1411.17.020
- for bases with 3/8" UNC screw fixing kit	1411.17.010
Telescope assembly for ditto	1411.19.251
Simplified Installation Jig for shallow bases	1411.19.260
Installation jig for deep bases	1
Diamond-toothed core drill 230 to 270 and 330 to 380 mm dia.	
10 mm thick diamond-toothed saw blade	
Sealing resin for shallow base installation (paste and liquid)	
Sealing resin for saw cuts	
Set of fibre brushes	
Base (shallow or deep)	see cat. leaf.

1. * Contact ADB Safegate

Description	CN
Adapter ring	see cat. leaf.
Sealing compound for adapter ring (RTV106)	7835.55.151

3.4 Installation jigs

3.4.1 Generalities

While high accuracy is necessary (see "Installation tolerances", page 18) in fact the installation of mounting bases is very easy and requires just some care and well-adapted jigs.

The jig is a tripod frame used to maintain the mounting bases in place until the sealant has set. In order to get the required stability it is advisable to weight the jig or the base down (e.g. by means of stones).

The jig allows for accurately positioning the base at the correct location, adjusting the elevation, the orientation and levelling the base as required.

The use of a jig does not release the installation personnel from the need to perform good survey work and to accurately position marks.

Jigs must have certain features to satisfy the installation requirements:

- independently adjustable feet (tripod: isostatic).
- strong and rigid structure
- accurate plate to permit survey measurements
- adaptable to any size of base in any level position
- easy to transport and to fix at any place
- easy to adapt to the top of the base without need to disassemble the lighting fixture or plywood cover, extending working time
- capacity to take additional load

ADB can provide standard jigs or complete assistance for installation.

3.4.2 Installation jigs for shallow bases

Two types of installation jigs for shallow bases are available to position and level the shallow base (HPI or Euro®):

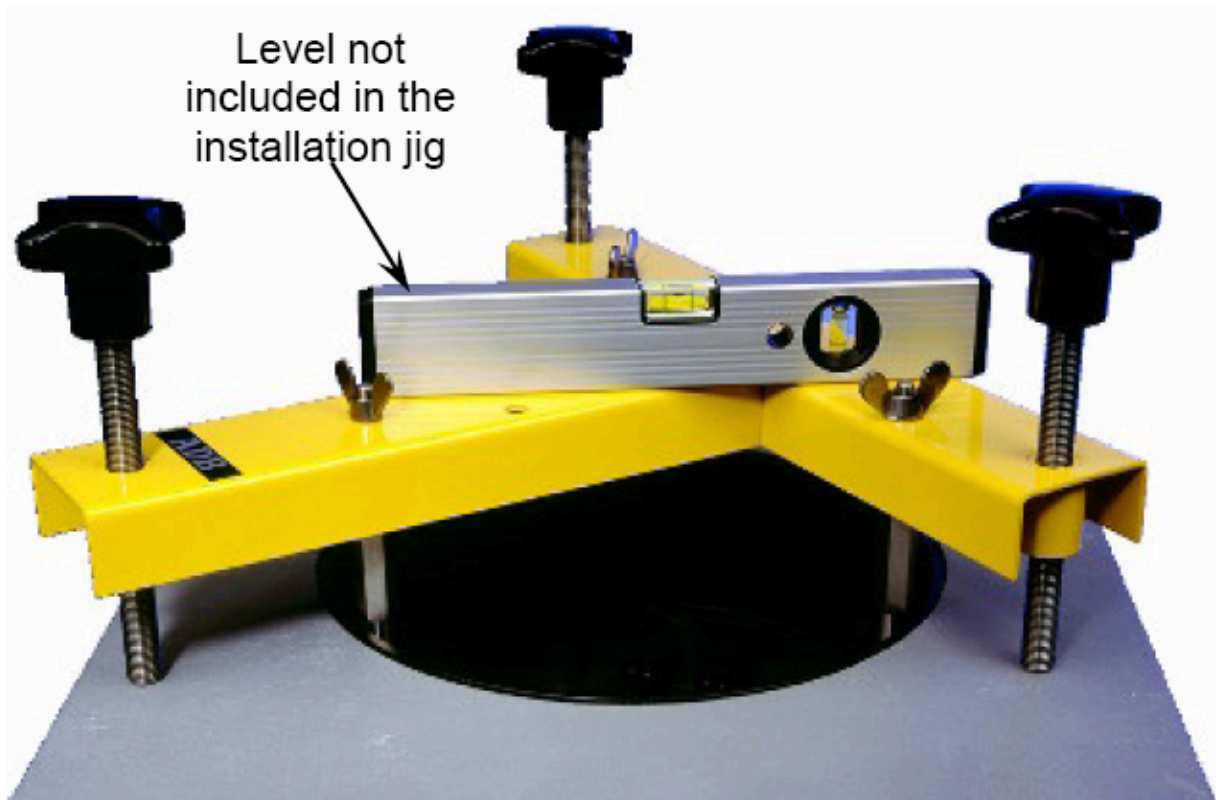
- The High Precision Installation Jig exists in three versions, depending on the type of fastening hardware (see table above). The telescope permits alignment with the highest possible accuracy. This jig can be used to install bases with the light already mounted (see Procedure 1 of the paragraph "Installation methods and procedures", page 21).

Figure 2: Precision Installation Jig



- A Simplified Installation Jig (1411.19.260) is also available. It is universal for any type of fastening hardware and includes 3 alignment studs for screw applications (metric or UNC) and 3 alignment studs for studs applications (always metric). Note that with this jig it is not possible to install the base with the light already mounted on top of it.

Figure 3: Simplified Installation Jig



Note

See "Site survey", page 19 for practical information on the convenient number of jigs.

3.4.3 Installation jig for deep bases

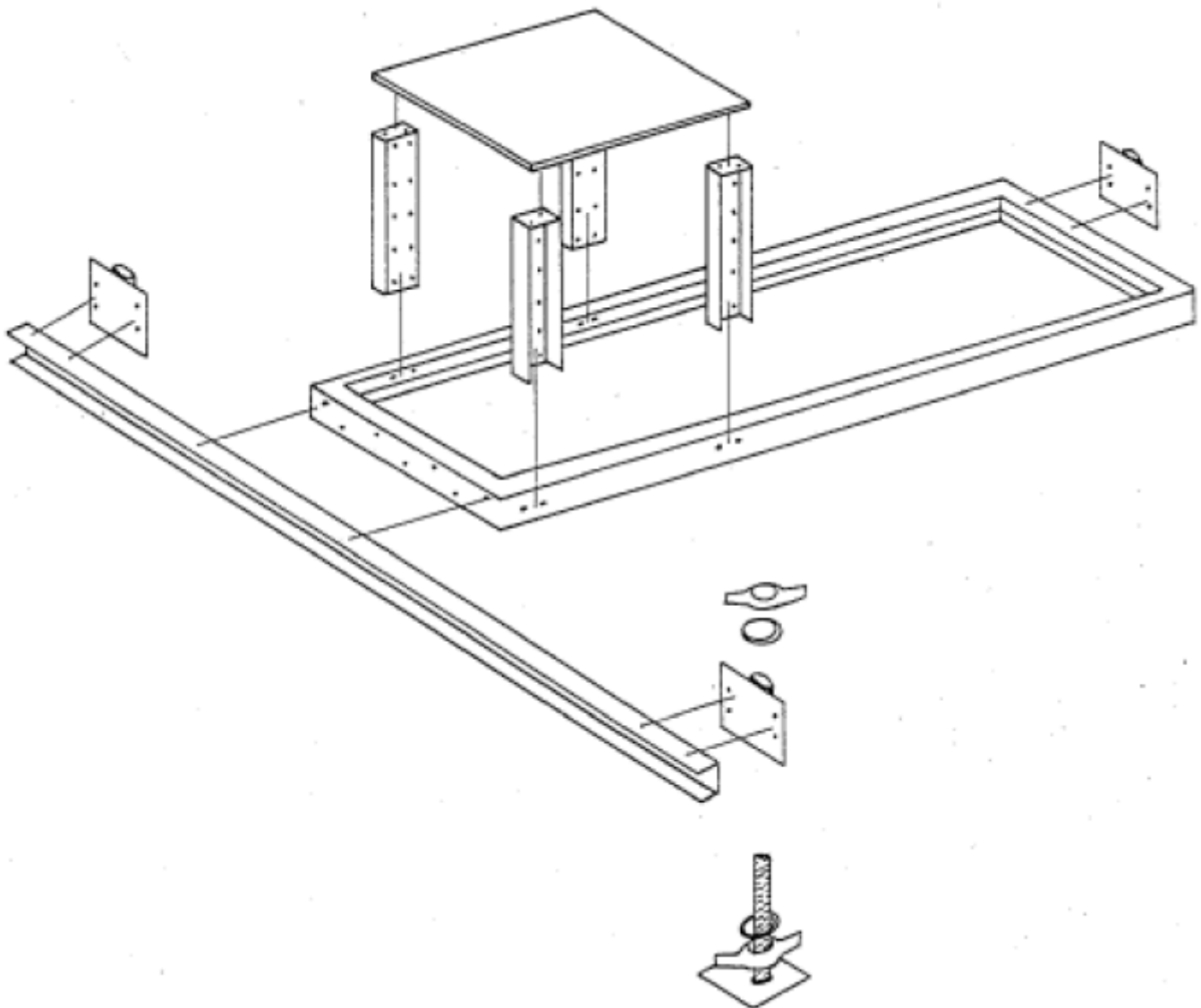
An installation jig is essentially made of an accurate adapter plate, with holes to hang the base from it, and a tripod structure. On-site building of installation jigs is simple and inexpensive. Each construction site is different, which may make adaptations in the design necessary. Therefore we recommend to design and build on-site installation jigs adapted to the local conditions. If doing so, the jig must be designed with accuracy and sturdiness in mind.

If required, ADB can also provide a standard jig.

See "Site survey", page 19, for practical information on the convenient number of jigs.

The figure below shows the mounting principles of an installation jig.

Figure 4: Illustration of a Deep Base Installation Jig



3.5 Sealants

Special attention must be paid to selecting the different sealants depending on the different purposes: base filling, wireways or shallow base fixing.

This choice depends on:

- pavement type: concrete, asphalt, ...
- application
- specific characteristics
- environment at installation & in service

Be sure to select a durable sealant providing good adhesion to the contact materials, sufficient flexibility, long aging time, good heat dissipation and resistance, and acceptable curing time for the conditions it will be used in.

Our local agent can give you advice on the choice of recommended sealants.

Refer to the technical data supplied by the manufacturer, particularly for resin preparation, weather and temperature limitations, pot life and curing time.



CAUTION

Always check validity date of sealing resin before using it. The use of resin beyond its validity date may lead to defective or unreliable sealing/binding.

4.0 Starting the installation: survey work

4.1 Introduction

Before sealing the bases, they need to be carefully positioned and aligned. This chapter contains the necessary information about installation tolerances and explains how to organise an accurate installation.

4.2 Installation tolerances

4.2.1 General

The applicable documents for location details and tolerances are the following:

Organisation	Applicable documents
ICAO	Annex 14
	Aerodrome Design Manual Part 4
FAA	Advisory Circular AC no. 150/5340-30

The above documents may be superseded by the specification document edited by the engineering consultant.



CAUTION

The installation of bases requires great care for the initial positioning. The bases are to support lights and these lights have very narrow positioning tolerance.

4.2.2 Corrections in case of wrong installation

Errors in base installation will invariably either bring extra costs for spacer corrective rings or involve extra work for breaking down already finished pavement.

In particular for inset lights there is no adjustment facility within the lights and the base position affects directly the position and orientation of the fixture.

For shallow bases, almost no correction is possible once the base is anchored. The only solution is to drill through the base and install a new one. For deep bases, some corrections are possible, but they are always costly and difficult, and lead to a delay in the completion of the works.



CAUTION

It is therefore highly important to take the greatest care in observing the above mentioned tolerances.

4.3 Site survey

4.3.1 Introduction

The site survey takes place in two steps:

1. Using a theodolite, all locations of the bases must be marked in order to prepare the necessary recesses (shallow bases) or excavations (deep bases).
2. After the excavations have been made at the marked locations, the bases are connected to the jigs, put in place and connected to the ducts. The base then needs to be positioned accurately within the tolerances defined above.



Note

Always keep in mind the tolerances as stated in "Installation tolerances", page 18, which means that a qualified team of surveyors familiar with their instruments is required.

Usually one theodolite and one spirit level are used:

- one theodolite for alignment (Mind environmental effects).
- one level for leveling

Using approved reference points, the surveyors will fix designed coordinates of each base in relation with their jig.

Alignment and level positioning are executed step by step, until final result satisfies both requirements.

The quantity of jigs to provide on the field depends on the rolling time of each jig, the total quantity of bases to install and the staff available for installation.

Let's take a practical example to illustrate this rolling time:

- Day 1:
 - Positioning of the jig by the survey team: alignment, elevation and azimuth based on design data within tolerances
 - Connection of cables, earthing, conduits
- Day 2:
 - Checking and approvals
 - Sealing
- Day 3:
 - Jig removal

If for instance 30 bases are to be installed per working day, 90 jigs will be necessary with this rolling time of 3 days. 30 bases are then installed in 3 days, 60 in 4 days, 90 in 5 days, etc...

The above figures are given only as examples, they may differ widely depending on the applied method.

5.0 Installation of shallow bases

5.1 Introduction

Several installation techniques are possible, depending on local requirements, site organisation or soil conditions. This chapter describes a standard technique, giving additional information regarding less frequent or more specific methods.

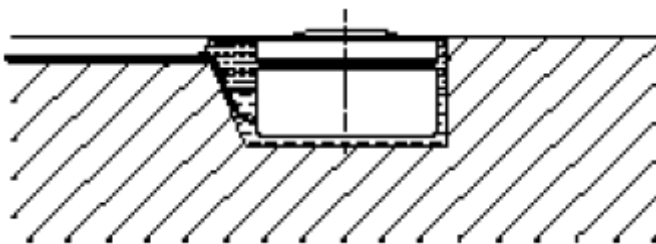
5.2 Installation methods and procedures

5.2.1 Two installation methods

The Shallow base (HPI or Euro®) is sealed into a recess cored out in the pavement. The isolating transformer is usually installed in a steel base or pit located in or next to the runway shoulder. Two methods are possible:

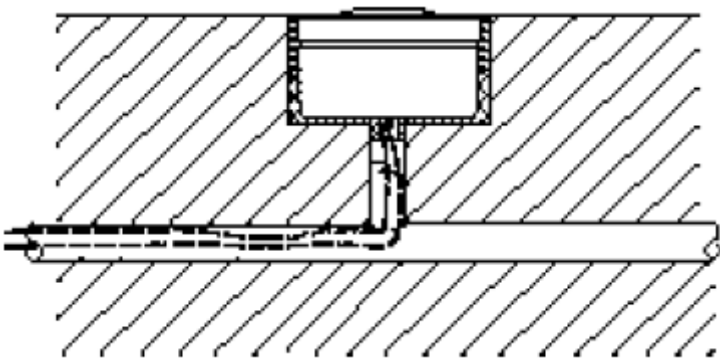
1. The light fixture is connected to the transformer by means of two wires sealed into a saw cut in the pavement.

Figure 5: Method 1



2. The light fixture is connected to the transformer by means of a two-core cable running into conduits in the subgrade or the lower layers of the pavement.

Figure 6: Method 2



5.2.2 Two procedures

There are two procedures to install 8" light assemblies with shallow bases (HPI or Euro®):

Procedure 1

1. In the workshop, mount the light unit onto the base.
See: Instruction manual of the light
2. Install the shallow base (HPI or Euro®) fitted with the light fixture.

Procedure 2

3. Install the shallow base (HPI or Euro®) and provide a temporary protection.

4. Mount, later on, the light unit onto the shallow base.

See: Instruction manual of the light



Note

We recommend procedure 1 for 8" light fittings installed according to Method 1. For 8" light fittings installed according to Method 2 and 12" light fittings, only procedure 2 is valid.



CAUTION

Note: Procedure 1 is possible only with the High Precision Installation Jig (see paragraph "Installation equipment", page 12).

5.2.3 Advantages of procedure 1

The advantages of procedure 1 are listed below:

- maintaining perfect waterproofness between fitting and base (or, if any, adapter ring) as the labyrinth gasket will never be exposed to dirt or other damage;
- assuring the correct positioning of the light fixture in the base;
- ease of installation, since the complete installation is achieved in one operation.

However, care should be taken to avoid damaging the lights already installed due to heavy trucks and construction equipment rolling over the lights before the runway surface has been cleaned and turned over to air operations. The presence of gravel, sand and other construction materials can damage the exposed optical surfaces when run over by vehicles.

For this reason, some contractors prefer to adopt procedure 2, which requires the provision of temporary covers (3/4" thick, plywood or steel) for the bases.

5.2.4 Important reminder: Fixing hardware

Please refer to the paragraph "Important safety notifications", page 10.



WARNING

Only use fixing hardware of the same type as the one originally supplied with the base or adapter ring!

Always tighten the fixing hardware to the recommended torque, using a calibrated torque wrench! Refer to the Instruction Manual of the light, for the tool to use, the requirement for use of Loctite and the torque to apply

5.2.5 Sealing resin quantity and recess dimensions

In the table below you will find an overview of the required sealing resin quantity and the recess diameter and depth:

	ADB 8" shallow base	ADB 12" shallow base	Saw cuts for wire ways (2 wires AWG10- ext. Ø 4.9 mm each) (see note)
Recess diameter	240 mm (-10 / +30 mm)	340 mm (-10 / +40 mm)	12 mm width
Recess depth	125 mm (-0 / +5 mm)	160 mm (-0 / +5 mm)	25 mm depth
Quantity of resin	± 2.1 dm ³ (HPI) / 1.4 dm ³ (Eurobase)	± 2.5 dm ³	± 0.30 dm ³ per meter



Note

Dimensions of the saw cut are given for information only. They may differ in function of various parameters including the number and type of cables. Dimensions of the saw cuts for various numbers or types of wires or cables are given in the ADB "Airfield Lighting Design Manual", Volume II.

5.3 Earthing

5.3.1 Instructions for earthing

In case the base and the lighting fixture are not equipped with three pole connectors, earthing must be done by direct connection of the earthing conductor to the shallow base.

Provisions for earthing connections (holes for self-tapping screws) are present on the inner and outer surface of the base, self tapping screws, Nomel washers and earthing lugs are supplied with the bases. Use the external hole for Installation Method 1 (wires in saw cut in the pavement) and the internal hole for Installation Method 2 (cable entering the base through a central hole). In the particular case of bases equipped with feed-throughs or cable glands situated at the bottom of an extension pot, use the external hole.



CAUTION

As mentioned before, failure to earth correctly the base will void the warranty for all damages occurring as a result of voltage surges.

Earthing of the shallow bases shall happen using a copper conductor, min. 4 mm², connected to the counterpoise cable protecting the electrical circuit. Each base may be individually connected to the counterpoise, laying the earthing wire in the same saw cut or conduit as the secondary supply wires of the light. Alternatively, several bases can be connected together, with one common earthing wire to the counterpoise.

The counterpoise cable shall be a non-stranded bare wire, min. 13mm², connected at least every 300m (1,000 ft) to copper-clad ground rods, and installed above the protected electrical cables.

5.4 How to drill the recess - Method 1 (with wire ways in the pavement)

5.4.1 Introduction

This part of the manual describes how to make the recess in the pavement in the case where the wires are laid in a saw cut. Please refer to next section for the case where wires are running in a conduit below the pavement.

The description below is based on the choice of [installation procedure 1](#). This means that the lighting fixture (plus adapter ring, if needed) has been mounted on the shallow base before starting the installation.



Note

Please refer to the Instruction Manual of the lighting fixture for this preliminary operation.

In case it has been decided to mount the light later on the base (installation procedure 2), a temporary protective cover (plywood or metal) should be provided to protect the shallow base. In the description below, explanations are given when installation procedure 2 differs from the one described.

5.4.2 Procedure

The table below shows the different steps to perform.

1. Determine the exact position of the light and mark it with reference marks to facilitate the positioning of the drill.



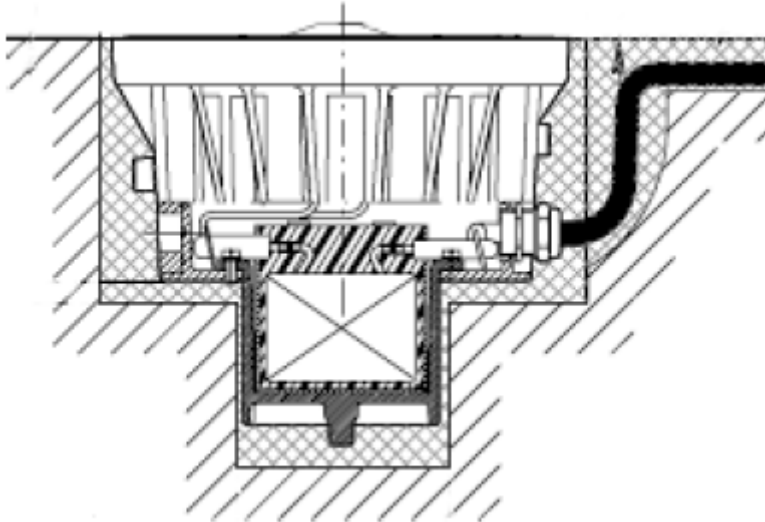
Note

Refer to the section "Site survey", page 19, for accurate positioning of the base.

2. Drill a recess (see dimensions page 22), by means of a diamond-faced core drill mounted on a sturdy rig.

3. The recess sides must be vertical; the bottom must be flat or slightly concave to ensure correct positioning of the base.
4. Specific case of the FTO 230V version, with transformer in an extension pot.
In this case drill an additional hole, 100 mm (-0 / +10 mm) in diameter and with a total depth of 205 mm (-0 / +5 mm), centered on the main hole.

Figure 7: Method 1 Cross-Section

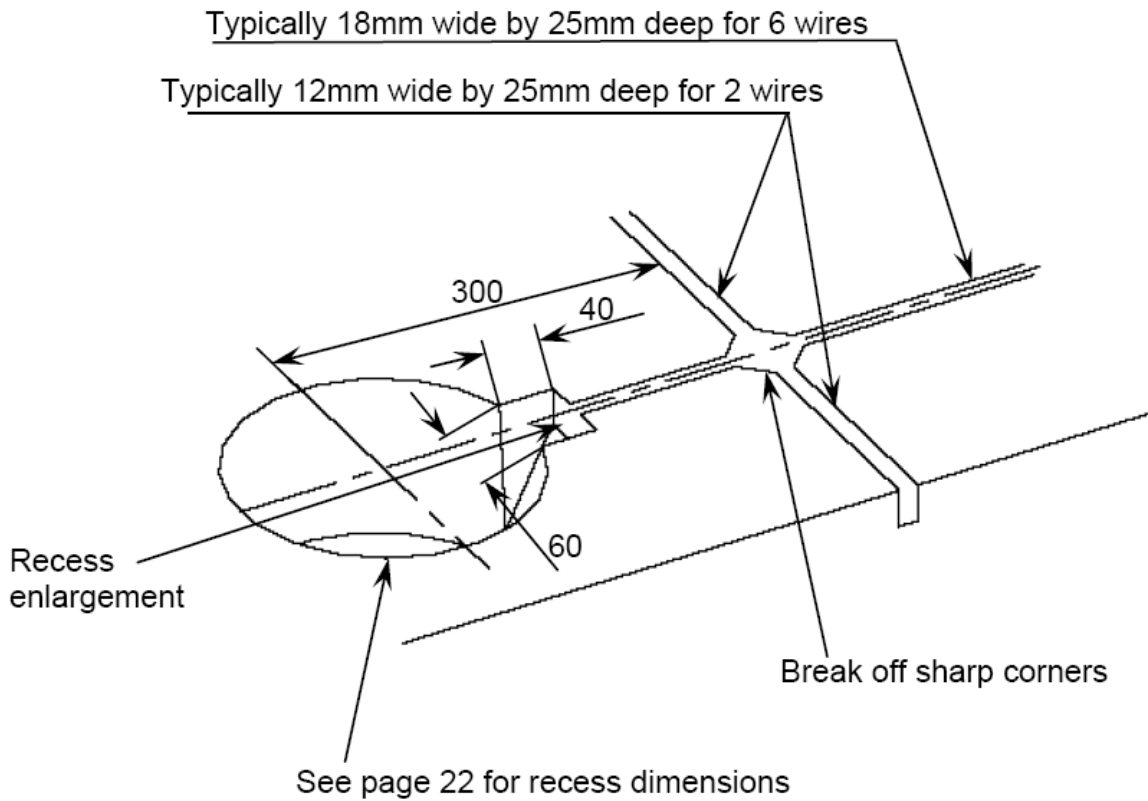


5. Saw the wire ways using a diamond-toothed saw. If wire ways cross construction joints, extend the sawcut 15 mm below the existing joint over a distance of 15 cm at each side of the joint. Enlarge the recess around the wire ways to allow an easy outlet of the cables out of the base.
6. Clean (pressure water wash) and dry the surface and sides of the recess before installing the light. The temperature of the base, the recess sides and wire ways should not be below the minimum curing temperature of the resin.

5.4.3 Illustration

The illustration clarifies this method:

Figure 8: Method 1 Illustration



Note

Dimensions of the saw cut are given for information only. They may differ in function of various parameters including the number and type of cables.

5.5 How to drill the recess - Method 2 (with conduits under the pavement)

5.5.1 Introduction

This part of the manual describes how to make the recess in the pavement in the case where the wires are running in a conduit below the pavement. Please refer to previous section for the case where wires are laid in a saw cut.

Usually, [installation procedure 2](#) is used in case of installation with conduits under the pavement. This means that the lighting fixture (plus adapter ring, if needed) will be mounted on the shallow base after installation of the base.

In this case, a temporary protective cover (plywood or metal) should be provided to protect the shallow base.

5.5.2 Procedure

The table below shows the different steps to perform.

1. Determine the exact position of the light and mark it with reference marks to facilitate the positioning of the drill.

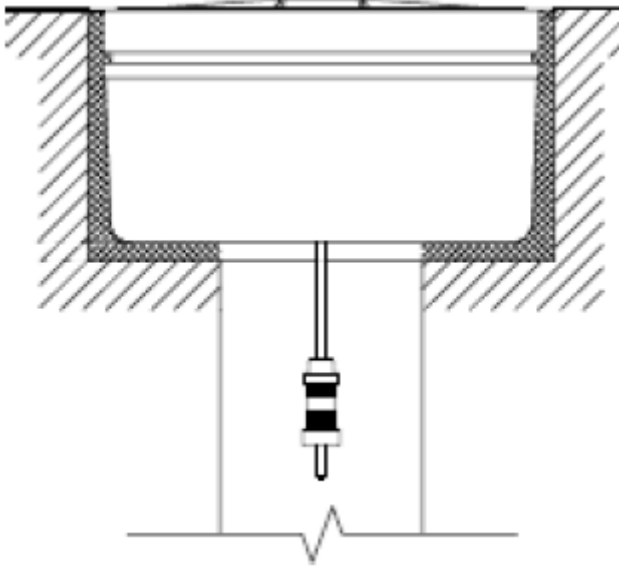


Note

Refer to the section "Site survey", page 19, for accurate positioning of the base.

2. Drill a vertical hole, 100 mm (-0 / +10 mm) diameter, in the pavement by means of a diamond-faced core drill mounted on a sturdy rig, until the drill reaches the conduit.
3. Drill a recess (see dimensions page 22), by means of a diamond-faced core drill mounted on a sturdy rig. Take care to centre the recess on the 100 mm diameter hole made in step 2.

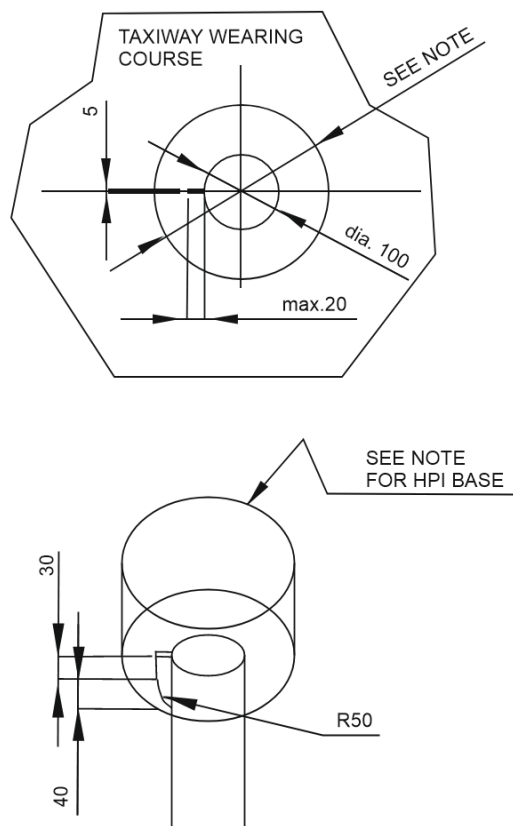
Figure 9: Method 2 Cross-Section



4. The recess sides must be vertical; the bottom must be flat or slightly concave to ensure correct positioning of the base.

- In the particular case of bases equipped with feed-throughs or cable glands situated at the bottom of an extension pot, make a notch according to the drawing on the top of the vertical conduit, aligned with the earthing hole of the base.

Figure 10: How to drill the recess



Note

(Note: drawing is for a 8" base, 12" is similar. See dimensions of the recess)

- Clean (pressure water wash) and dry the surface and sides of the recess before installing the light. The temperature of the base, the recess sides and wire ways should not be below the minimum curing temperature of the resin.

5.6 How to position and seal the base

5.6.1 Installation jig

The High Precision Installation Jig allows using either Procedure 1 or 2, while the Simplified Installation Jig can be used only for Procedure 2.



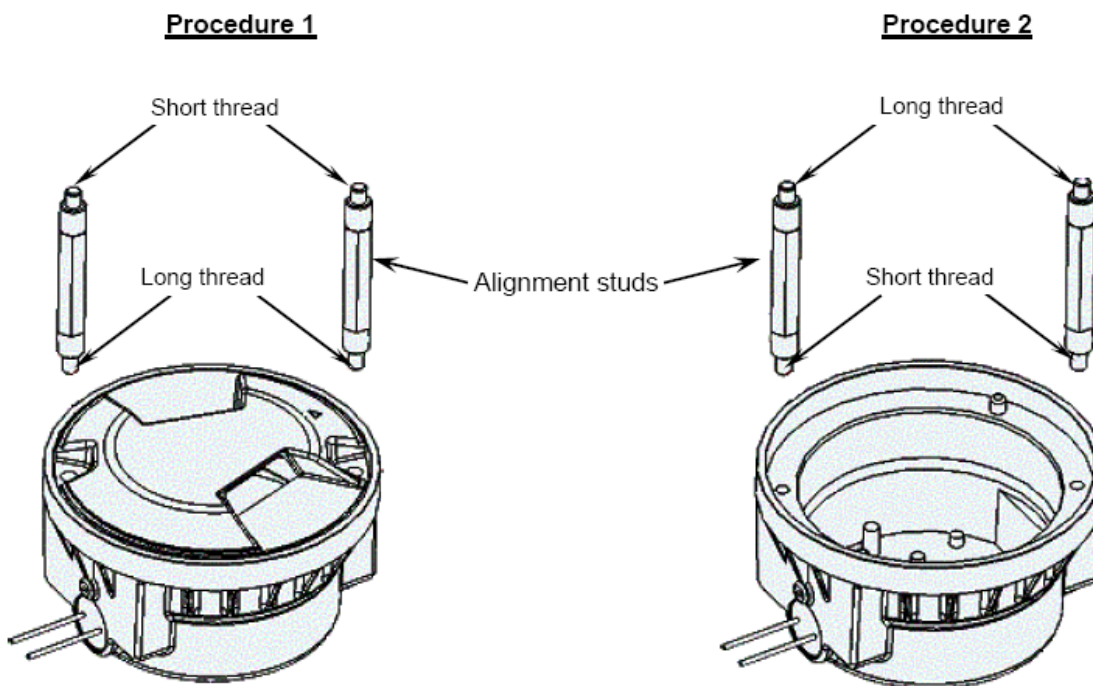
CAUTION

Never lift the light fixture by holding the wires as this may damage the insulation, break the waterproof sealing and cause electrical and moisture leakage.

5.6.2 Illustration

The figures below show how to use the alignment studs of the High Precision Installation Jig, for both Procedure 1 and 2:

Figure 11: High Precision Installation Jig Alignment Studs



CAUTION

Important Note: never use the alignment studs to mount the light on the base. Use the fixing hardware supplied with the base for that purpose.

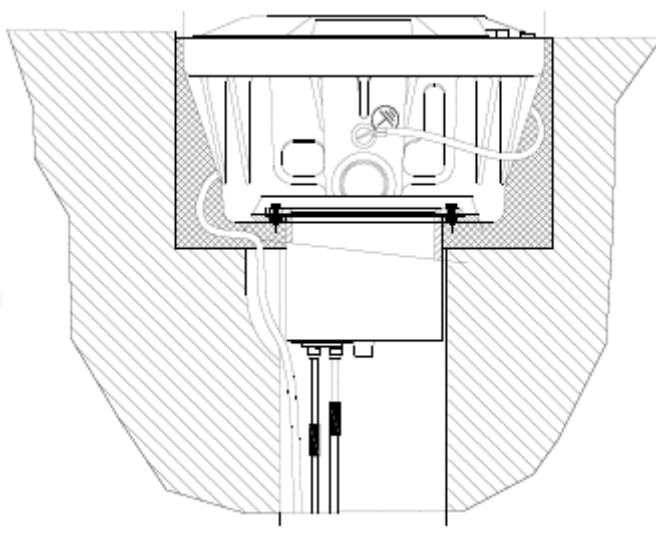
5.6.3 Procedure

To seal and position the base, proceed as follows:

1. In case of installation method 1 (wires in saw cuts), connect the earthing wire to the external hole provided on the shallow base.

In the particular case of bases equipped with feed-throughs or cable glands situated at the bottom of an extension pot, allow for enough slack in the earthing wire to make at least a complete turn around the base. Insert the wire in the notch, make it follow the bottom of the recess to its outer side and then follow the bottom of the side over one complete turn. Lift the end of the wire and connect it to the external hole provided on the shallow base.

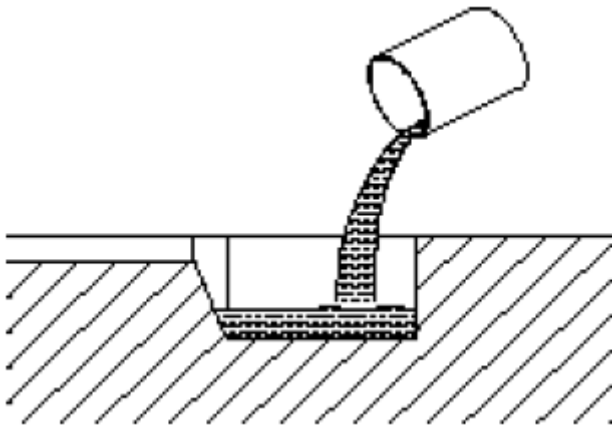
Figure 12: How to position the base



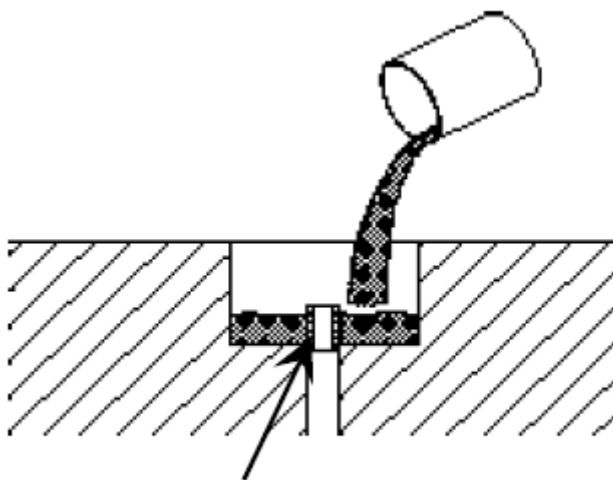
In case of bases with central hole, the earthing wire is connected later to the internal hole.

2. Remove the fixation bolts (or the self-locking nuts) and use the visible thread to fit the installation jig. Assemble the ADB installation jig, if necessary, and mount it onto the light as shown on the previous page. Refer to the illustration supplied with the installation jig. Screw the alignment studs **hand tight** in the provided base holes.

3. Pour approx. 0.6 dm³ (for 8" base) or 1 dm³ (for 12" base) resin into the recess.
This quantity will be sufficient to fill all voids under the base when installed.



or



(Stopper supplied
by thirds)



CAUTION

This operation has to be done in dry conditions.

- Position the assembly (shallow base with light unit and installation jig) in the recess and make sure that the wires are properly located on the bottom of the wire way.



Note

Refer to the "Site survey", page 19 for accurate positioning of the base.

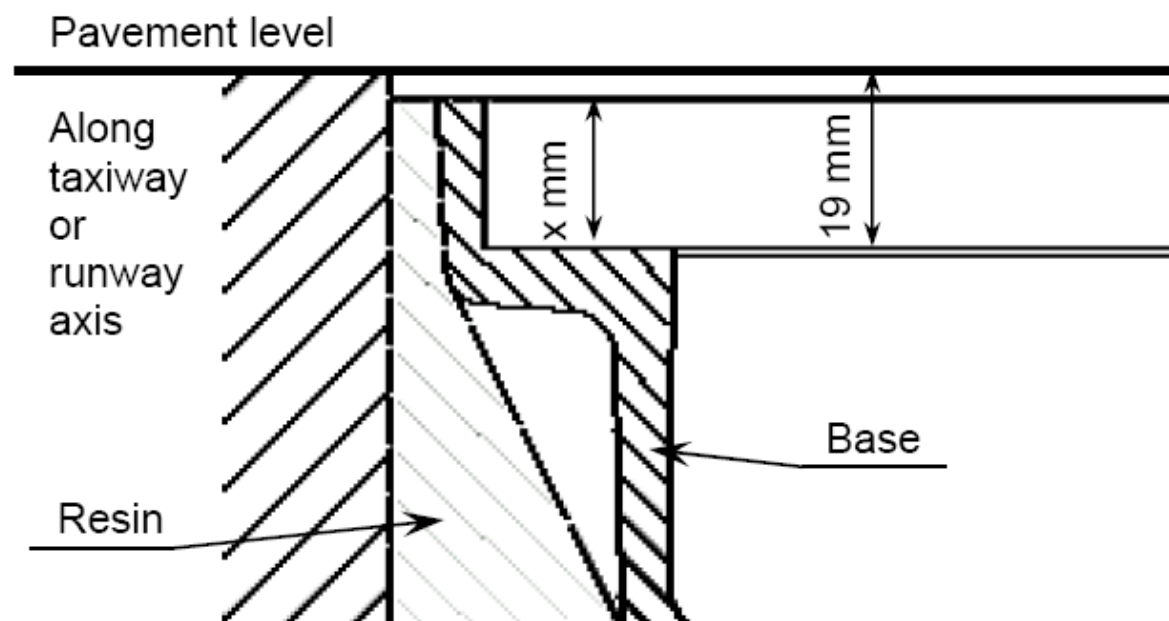
Follow the instruction included with the installation jig to properly position the shallow base in azimuth and in height.



CAUTION

The flange supporting the light in the shallow base should be 19 mm (-0 / +1.5 mm) below the pavement surface, to ensure a correct light output and fixture projection above pavement level.

Figure 13:



If the pavement is not plane, take the measurement where the pavement level is the highest, this is usually along the taxiway or runway axis.

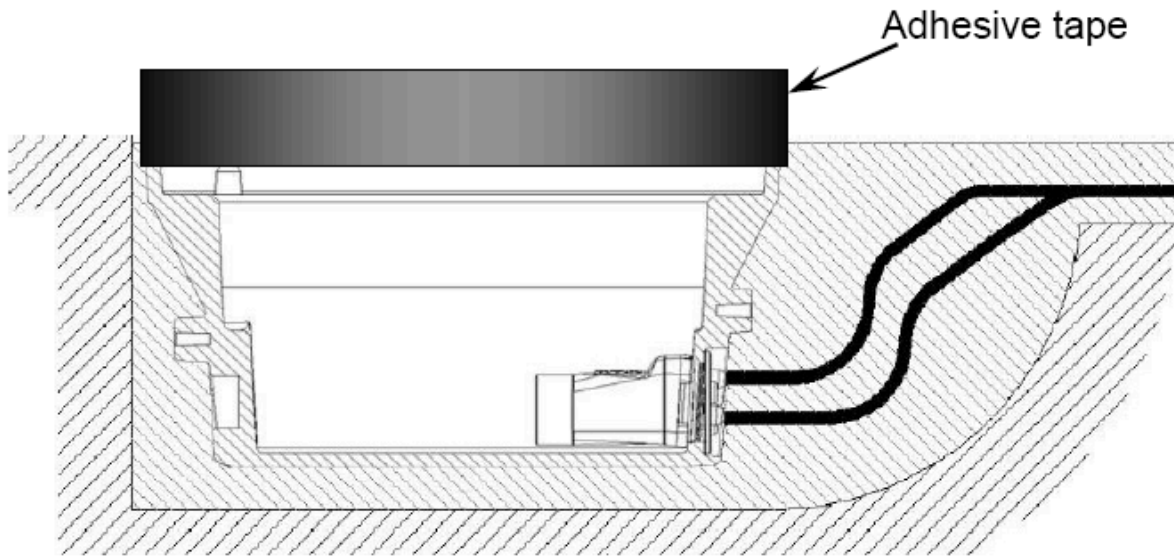


Note

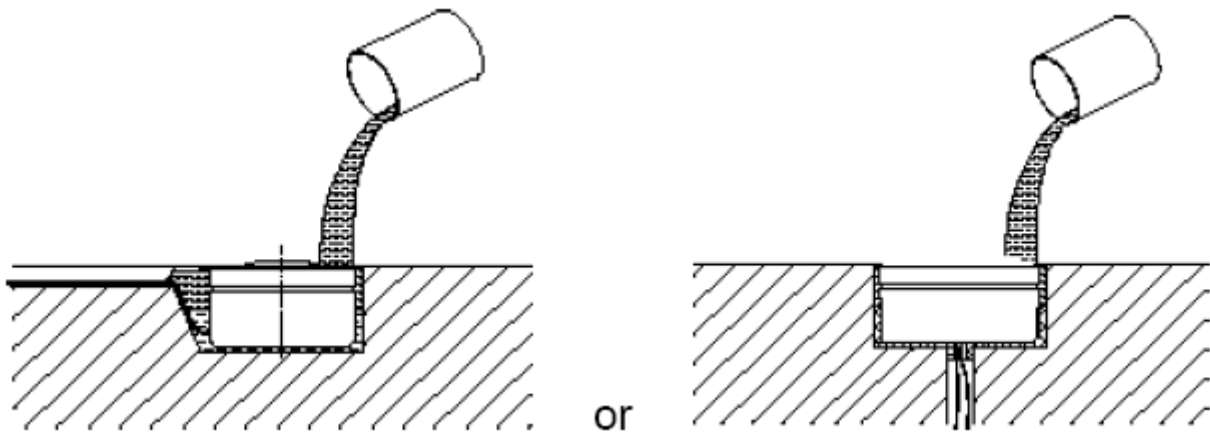
- $x = 18$ mm for 8" bases
- $x = 16$ mm for 12" bases

- To guarantee the stability of the base during curing, put a weight on the base/jig assembly (otherwise the base may be expelled from the recess by flotation).
To avoid spilling resin on the light fixture or in the annular space between the light and the base, a piece of adhesive tape should be installed around the top of the base as shown in the figure below.

Figure 14: Adhesive Tape Position



- Fill the remaining voids around the base using liquid resin, up to the base top.



Depending on the pavement slope, it may be necessary to make a dam using putty at the beginning of the wire way to prevent the liquid sealant from flowing into it.

- When the sealant has sufficiently cured, remove the installation jig. Remove the protecting tape.
- Connect the wires according to the procedure described on page 32, "How to connect the wires or cables" .

5.7 How to connect the wires or cables

5.7.1 Method 1

If the wires are laid in saw cuts (installation method 1), proceed as follows:



CAUTION

This operation has to be done in dry conditions.

1. Connect the light fixture wires to the supply wires coming from the transformer, using insulated crimp-on connectors.

Offset the connectors as shown below to save space in the wire way and avoid short circuits.



CAUTION

Use an appropriate tool that requires complete crimp before releasing.

Figure 15: Connectors Offset



2. Carefully insulate each connection using a small heat-shrinkable sleeve or by applying insulating tape.
3. Check the wires for continuity and insulation.
4. Keep the wires on the bottom of the sawcut.
Fill the wire way completely with a suitable sealing resin and let it cure.
5. If the installation has been done without the light mounted on the base (Procedure 2), mount it now.



Note

Please refer to the Instruction Manual of the lighting fixture for this operation.

5.7.2 Method 2

If the wires are laid in conduits underneath the light fitting (installation method 2), proceed as follows:

1. Connect the earthing wire to the internal hole provided on the shallow base.
2. Pull up the supply cable and plug the light fitting cable into the socket.
3. Apply insulating tape around the plug/socket assembly.
4. Mount the light on the base.



Note

Please refer to the Instruction Manual of the lighting fixture for this operation.

6.0 FAA standards for deep base installation

Deep bases are fully defined in FAA AC 150/5345-42. FAA also provides accurate guidelines on the installation of the bases in AC 150/5340-30. In addition, other specifications like FAA AC 150/5370-10, not directly related to the bases are relevant and determine accessories and/or details of the mounting bases.

These standards define mainly the ducts' inner diameter as a function of their cabling or wiring capacity, the type of sealant used to bind the bases into the pavement, the grounding system, etc...

Please refer to the above standards for any information relevant to the installation of deep bases.

Please also refer to IEC 61820 "Electrical installations for lighting and beaconing of aerodromes -Constant current series circuits for aeronautical ground lighting -System design and installation requirements".

7.0 Maintenance

7.1 Shallow Bases

No specific maintenance operation is required for the base itself. However, the tightening torque of the screws or nuts fastening the light on the base shall be checked regularly.



WARNING

When checking the tightening torque or installing a new light on the base, **always tighten the fixing hardware to the recommended torque, using a calibrated torque wrench!** Refer to the Instruction Manual of the light, for the frequency of the control, the tool to use, the requirement for use of Loctite and the torque to apply.



WARNING

Only use fixing hardware of the same type as the one originally supplied with the base or adapter ring!

When the lighting fixture is removed for any reason, it is advised to check the base for presence of water.

If any trace of water ingress is present, pump the water, clean the base and more specifically the gasket surface and mating surfaces with the lights, and re-install a maintained light using a new gasket.

In case shallow bases with studs are used and some studs are damaged, please contact ADB to receive the detailed repair procedure.

7.2 Deep Bases

Introduction

The maintenance of a steel base consists essentially of checking the water level. However, the tightening torque of the screws or nuts fastening the light on the base shall be checked regularly.



WARNING

When checking the tightening torque or installing a new light on the base, **always tighten the fixing hardware to the recommended torque, using a calibrated torque wrench!** Refer to the Instruction Manual of the light, for the tool to use, the requirement for use of Loctite and the torque to apply.



WARNING

Only use fixing hardware of the same type as the one originally supplied with the base or adapter ring!

The tightness of the grounding lug screw is also checked.

Water level

Semi-annually check the water level in the base or transformer pit.

This operation shall be included in the fixture inspection.

When removing the fixture, check for water level and if higher than 150 mm (6"), pump water from base.

8.0 Parts lists

8.1 Shallow bases

A wide range of shallow bases are available. They are adapted to the various customers' needs for what concerns:

- Size: 8" or 12" diameter
- Mounting hardware: screws, studs and bolts, in both UNC and metric sizes
- Types of cable entries: by a central hole, by ADB feed-through, by compression gland
- Number of cable entries: 1, 2 or 3
- Type of connectors
- Special executions

Please contact ADB via your local representative for the reference data of the shallow base you need.

8.2 Adapter rings

A complete range of adapter rings of various dimensions with various types of mounting hardware is available. Please contact ADB via your local representative for the reference data of the adapter ring you need.

8.3 Deep bases

A complete range of airport light bases and transformer housings, made to FAA AC 150/5345-42 (current edition), is available.

A temporary plywood cover is provided to protect the top flange during transportation and to ease installation. The bases are equipped with the appropriate type, quantity and position of duct entrance(s) and with earthing terminals (as required). The spacer and flange rings, accurately machined, are zinc -plated and chromated. They include stainless steel mounting screws and gaskets to ensure the watertightness of the assembly. The base covers are made from hot-dip galvanized machined steel or from zinc-coated or yellow painted pressed steel. These base covers are supplied with stainless steel mounting screws and with a gasket.

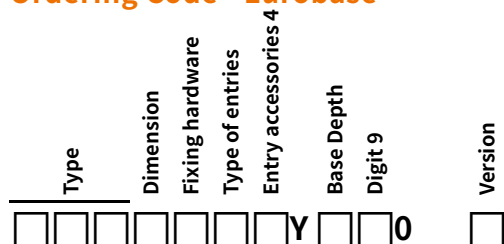
For ordering bases, please specify:

- Depth
- Number, diameter, type and location of conduit entrances
- Number and position of ground connection
- Drain hole
- Couplings. For the entries, the location(s) should be given with respect to the light beam axis (disregard beam toe-in or toe-out angle, if any).
- Special execution or optional extras

A comprehensive range of mud plates, plywood covers, screws, lock washers, polyethylene gaskets, grooved rings, cover plates with accessories, O-ring seals, spacer rings, ... are available for either single-section or multiple sections bases. Please contact your local ADB representative with your requirements.

9.0 Ordering Codes

Ordering Code - Eurobase



Type

MSB = Mounting Shallow Base

Dimension

A = 8" Eurobase

B = 12" Eurobase

Fixing hardware

0 = M10 screw nylon, for 8"¹

1 = M10 screw, 8"

2 = M10 stud 8" (Style II light)

A = M10 stud 8" short (Style III light)

3 = 3/8 x 16UNC screw 8"

4 = 3/8 x 16UNC screw 12"

5 = M10 screw 12"¹

6 = M10 screw nylon 12"

7 = M10 stud 12" (Style II light)

B = M10 stud 12" short (Style III light)

Type of entries

0 = Bottom hole 100mm

1 = Single side entry

2 = "Double side entry, same side"

3 = "Double side entry, opposite side"

4 = Triple side entry

5 = Bottom hole with "extension pot" 1 cable entry

6 = Bottom hole with "extension pot" 2 cable entries

9 = Single side entry (milled inside bottom), for FFL only^{2,3}

A = Bottom hole 100mm, for FFL only⁴

B = Triple side entry

C = Double bottom entry

D = Single bottom entry

Entry accessories⁴

0 = None

1 = Feed through without earthing

2 = Feed through with earthing

3 = PG16 for 2 core cable (OD 8 to 15mm)

4 = PG16 for 3 single wires⁵

5 = PG16 for 2 single wires

6 = PG16 2 single wires < PG16 3 single wires⁶

7 = PG16 for 4 single wires⁷

Base Depth

0 = Standard

1 = Extra deep, 8" 150mm

Digit 9

0 = Standard

1 = 4-bolts, 8"

Version

3 = Original version

Notes

- All 8" bases will be supplied with a concreteing collar of 18mm
- All 12" bases being supplied with 16mm collar

¹German version, supplied with:

- Anti-rotation pins mounted (in 8" Eurobase)
- Through passing fixation holes

²For flasher only

³Digit 7 must be "0", but base is delivered with special PG for flashing cable.

⁴Digit 7 can only be 0 if digit 6 is 0, A, or D

⁵French execution, for flat connector with earth

⁶Only available for the 8" Eurobase

⁷Only for 150mm

Ordering Code - HPI

Type	Fitting Version	Fixing hardware	Type of entries	Entry accessories ²	Fixed digit	Fixed digits	Version
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Type

MSB = Mounting Shallow Base

Fitting Version

C = HPI 8" base

Fixing hardware

0 = M10 screw nylon ¹

1 = M10 screw 8"

2 = M10 stud (Style II light)

A = M10 stud short (Style III light)

Notes

All 8" bases will be supplied with a concreteing collar of 18mm

¹German version, supplied with through passing fixation holes

²Digit 7 can only be 0 if digit 6 is 0

Type of entries

0 = Bottom hole 100mm dia

1 = Single side entry

2 = "Double side entry, same side"

5 = Central bottom hole with "extension pot" 1 cable entry

6 = Central bottom hole with "extension pot" 2 cable entries

Entry accessories ²

0 = None

1 = Feed through without earthing

2 = Feed through with Earthing

3 = PG16 for 2 core cable (OD 8 to 15mm)

4 = PG16 for 3 single wires

5 = PG16 for 2 single wires

B = Bottom entrance Φ 15 CN

C = Compression gland PG16 for 4 single wires

S = Side Entrance Φ 15 CN

Fixed digit

Y = extra earthing screws in and outside

Fixed digits

000 =

Version

3 = Original version

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