

Subject: **INFORMATION**: Engineering Brief No. 61
Installation Procedures for Adjustable Light
Bases and Extensions

Date: February 6, 2001

From: Manager, Engineering and Specifications
Division, AAS-200

Reply to
Attn. of:

To: All Regions
ATTN: Manager, Airports Division and
AMA-600

Engineering Brief No. 61 provides guidance for the installation of stainless steel L-868 adjustable light bases and extensions. This guidance will eventually be incorporated in the appropriate advisory circulars as time and resources permit.

Any comments you have concerning this brief will be appreciated.

ORIGINAL SIGNED BY

John L. Rice

Attachment

ENGINEERING BRIEF NO. 61

INSTALLATION PROCEDURES FOR ADJUSTABLE LIGHT BASES AND EXTENSIONS

January 2001

PURPOSE

The purpose of this engineering brief is to provide guidance for the installation of L-868 adjustable light bases and extensions.

BACKGROUND

Federal Aviation Administration (FAA), Engineering Brief No. 50, Adjustable L-868 Extension advises the airport industry of the availability of adjustable L-868 light bases and extensions. The FAA, Office of Engineering Safety and Standards is in the process of updating the necessary advisory circulars (AC's) to provide the appropriate guidance for the installation of the adjustable light bases and extensions with specified airport lighting fixtures. Until all applicable documents are update this Engineering Brief along with the manufacturers guidelines shall serve as installation procedures for the L-868, adjustable light bases and extensions.

APPLICATION

The installation of L-868, adjustable light bases and extensions, certified in compliance with the Airport Lighting Equipment Certification Program (ALECP) outlined in AC 150/5345-53 and listed in the addendum of that document are approved for airport projects receiving Federal funds under the airport grant assistance or the passenger facility charge programs.

DESCRIPTION

This document includes step by step illustrations of the installation procedures for L-868, adjustable light bases and extensions. The illustrations show the procedures for new fixture installations and pavement overlays using existing L-868 bases and adjustable extensions. The drawing list is as follows:

New Fixture Installations with L-868, Adjustable Containers (Bases) and Extensions

- Figure 1 *Step 1, Base Installation*
- Figure 2 *Step 2, Concrete Anchor Installation*
- Figure 3 *Step 3, Paving*
- Figure 4 *Step 4, Fixture Installation*

Pavement Overlays with L-868, Adjustable Containers (Bases) and Extensions

- Figure 5 *Step 1, Preparation for Overlay*
- Figure 6 *Step 2, Protection Plate Installation*
- Figure 7 *Step 3, After Paving*
- Figure 8 *Step 4, Core Drilling*

Pavement Overlays with L-868, Adjustable Containers (Bases) and Extensions
(continued)

- Figure 9 *Step 5, Core Removal*
Figure 10 *Step 6, Adapter Ring Installation*
Figure 11 *Step 7, Adjustable Extension Installation*
Figure 12 *Step 8, Fixture Installation*
Figure 13 *Alternate Step 7, Adjustable Extension Installation*
Figure 14 *Alternate Step 8, Fixture Installation*

APPLICABLE DOCUMENTS

FAA Advisory Circulars

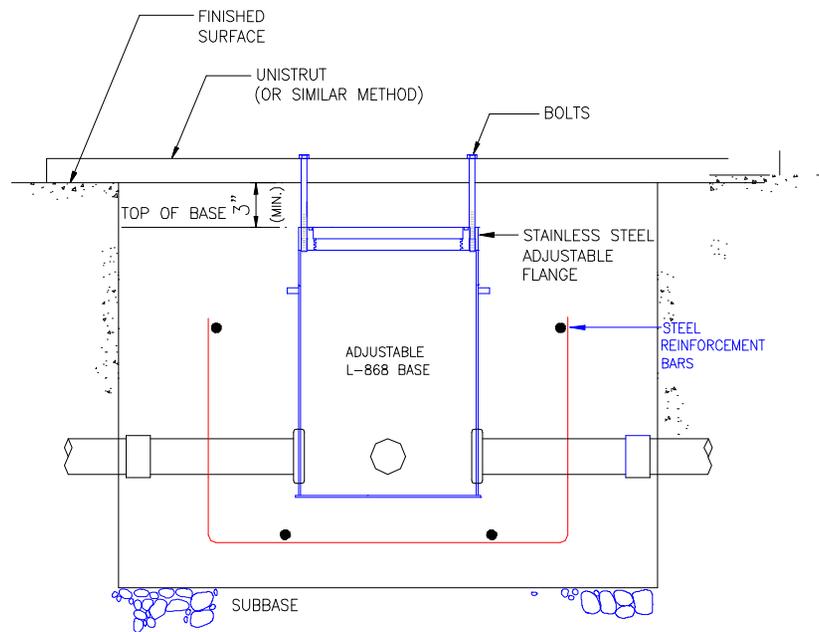
- AC 150/5340-4 *Runway Centerline and Touchdown Zone Lighting*
AC 150/5340-24 *Runway and Taxiway Edge Lighting Systems*
AC 150/5340-28 *Low Visibility Taxiway Lighting Systems*
AC 150/5340-29 *Land and Hold Short Lighting Systems*
AC 150/5345-42 *Specification for Airport Light Bases, Transformer Housing,
Junction Boxes, and Accessories*
AC 150/5345-53 *Airport Lighting Equipment Certification Program*

Engineering Brief

- EB No. 50 *Adjustable L-868 Extensions*

ORIGINAL SIGNED BY

Pamela J. Whitley
Electronics Engineer



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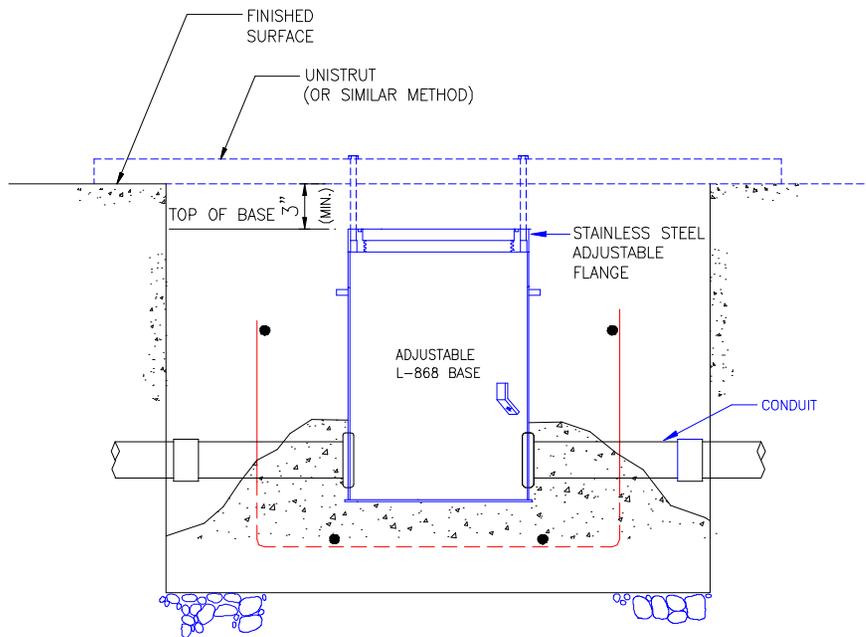
Procedures:

1. At each light location, make an excavation to accommodate the specified base.
(Note: The elevation of the flange, or top of the base must be at least 3 inches below the finished paved surface).
2. Insert the adjustable base in the light location. Hold the base in place with unistrut (or similar method) to maintain the proper base position until the concrete anchor is poured.
3. Connect each base to the conduit system.

Note:

1. If 3 or more inches are left after paving, the adjustable extension can be adjusted up a maximum of 1 3/4 inches or down a maximum of 3 1/2 inches. Extensions are available in different sizes.
2. The position of the azimuth may be adjusted as stated in the manufacturers installation guide.

FIGURE 1. New Fixture Installations with L-868, Adjustable Containers (Bases) and Extensions
Step 1, Base Installation



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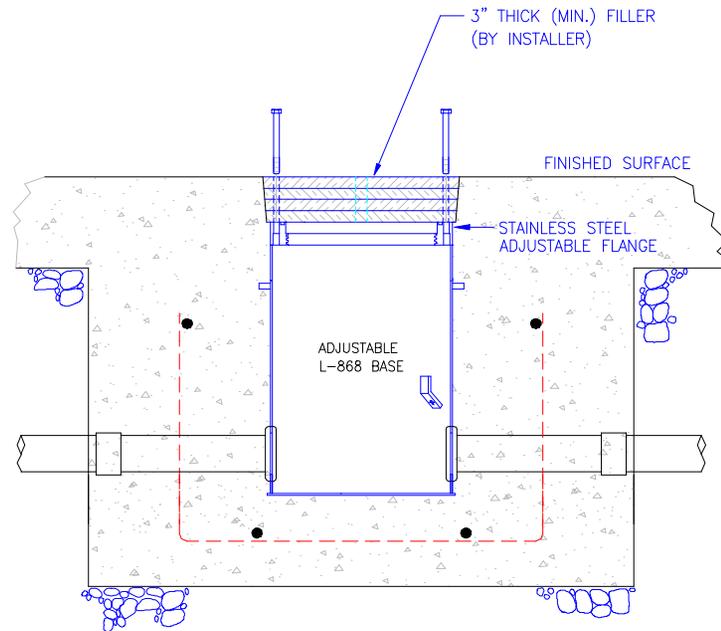
Procedures:

1. Pour the concrete anchor. Make sure the unistrut (or similar method) and the adjustable base remain level. The unistrut (or similar method) must remain in place until the concrete is set.
2. After the concrete is set, remove the unistrut (or similar method).

Note:

When two or more paving passes are required, the elevation of the flange, or top of the adjustable base shall not be more than the distance equal to the total of the two paving passes.

FIGURE 2. New Fixture Installations with L-868, Adjustable Containers (Bases) and Extensions
Step 2, Concrete Anchor Installation

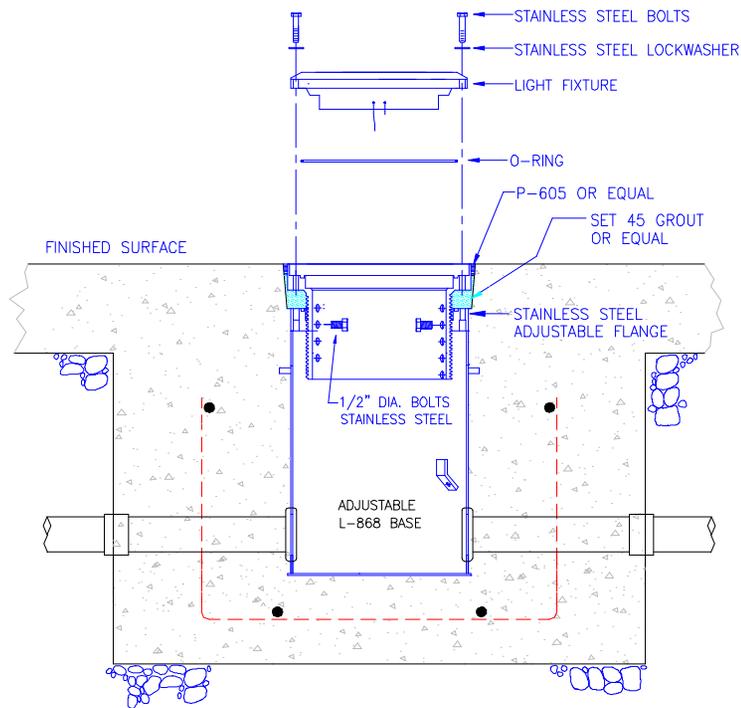


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Procedures:

1. Prior to paving, inset a 3 inch thick filler 1 inch larger in diameter than the base.
2. After the paving train has cleared the base, remove excess concrete from the top of the filler.
3. Remove filler.

FIGURE 3. New Fixture Installations with L-868, Adjustable Containers (Bases) and Extensions
Step 3, Paving

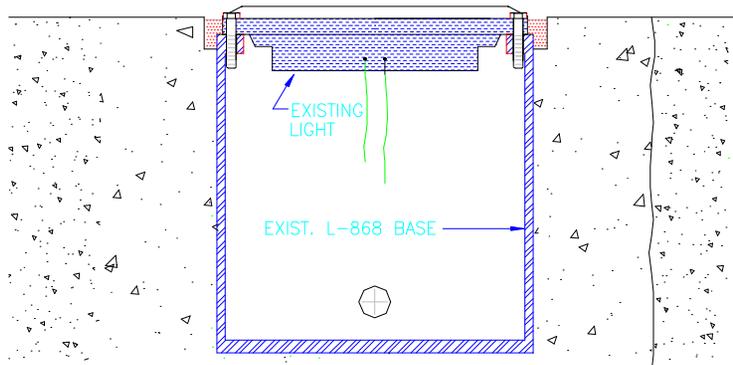


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Procedures:

1. Install the adjustable extension to the correct elevation and azimuth per the applicable FAA Advisory Circular for the specified lighting system.
2. Install three and one-half inch stainless steel hex head bolts through the threaded holes on the adjustable extension. Each bolt should make contact with the threaded surface of the flange.
3. Torque each bolt to 50 ft/lbs to secure proper elevation and azimuth alignment during the remainder of the installation.
4. Fill the void around the extension with set 45 grout (or equal) up to the bottom of the mud dam.
5. Install primary cables, transformers and connectors.
6. Install the "O" ring.
7. Install the light fixture, in compliance with FAA specifications. Apply nickel based anti-seize to all stainless steel bolts and torque bolts to the light fixture meeting the recommendations of the fixture manufacturer. (Note: To prevent over tightening the bolts, Do Not Use an Impact Drill Motor.)
8. Fill the void surrounding the mud dam with P-605 (or equal), until it is level with the top of the mud dam. Take caution to prevent any P-605 from flowing over the top of the mud dam.

FIGURE 4. New Fixture Installations with L-868, Adjustable Containers (Bases) and Extensions
Step 4, Extension and Fixture Installation

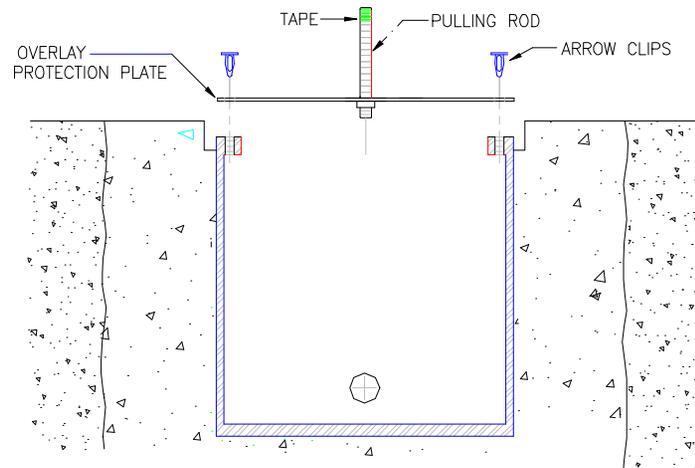


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Procedures:

1. Remove existing light and all related components
2. Remove the transformer and store for re-use.
3. Tap ends of all existing cables.

FIGURE 5. Pavement Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 1, Preparation for Overlay

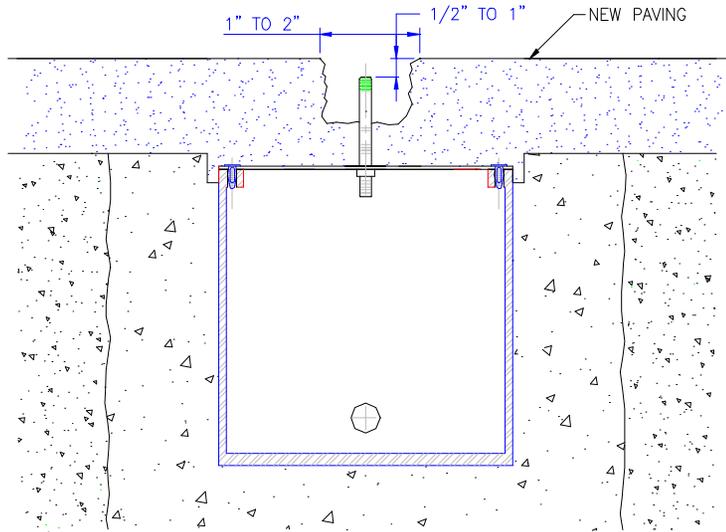


Procedures:

1. Place the metal overlay protection plate with a pull rod onto the existing base, aligning the holes with those in the base. The length of the pull rod should be 1/2 to 1 inch below the surface of the new pavement for clearance of the paving equipment.
2. Secure the overlay protection plate by inserting three arrow clips into the holes and secure them into place.
3. Protect the top 1 inch of the pulling rod threads with tape to prevent paving material from adhering to the threads.

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FIGURE 6. Pavement Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 2, Protection Plate Installation



Procedures:

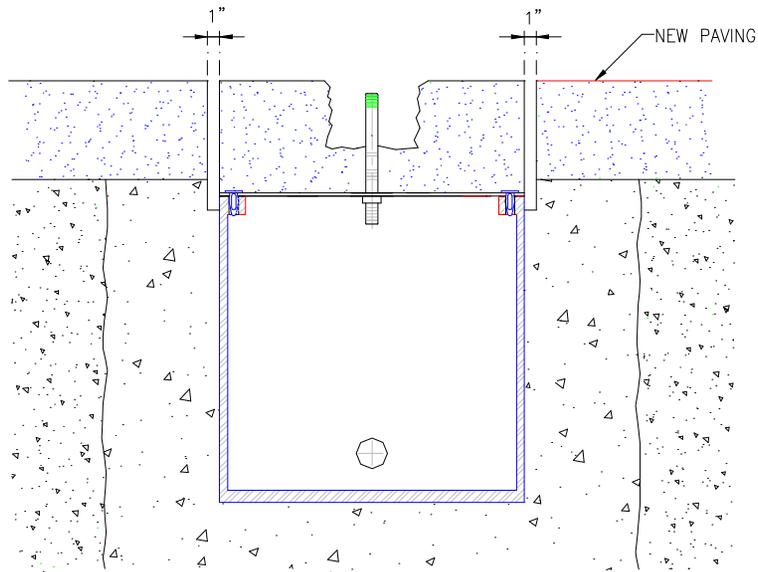
1. Determine the exact location of the pulling rod.
2. Remove a 1 to 2 inch diameter section of the new paving around the pulling rod to expose the rod as shown.

Note:

The exact location of the pulling rod may be established using a predetermined reference mark, a metal detector, or a magnet.

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FIGURE 7. Pavement Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 3, After Paving



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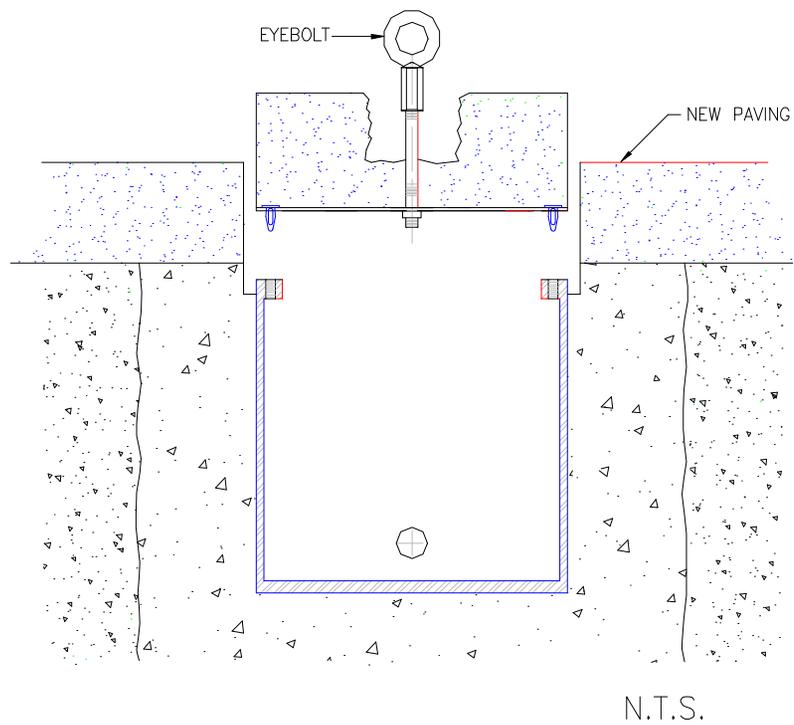
Procedures:

1. Mark the pavement for core drilling, using a wood template with the pulling rod as the center location of the base.
2. Core drill through the new paving down to the top of the base. The depth of the core should be enough to remove all the paving material and the overlay protection plate.

Note:

The core diameter should be the diameter of the light base plus 2 inches to allow for pouring the grout.

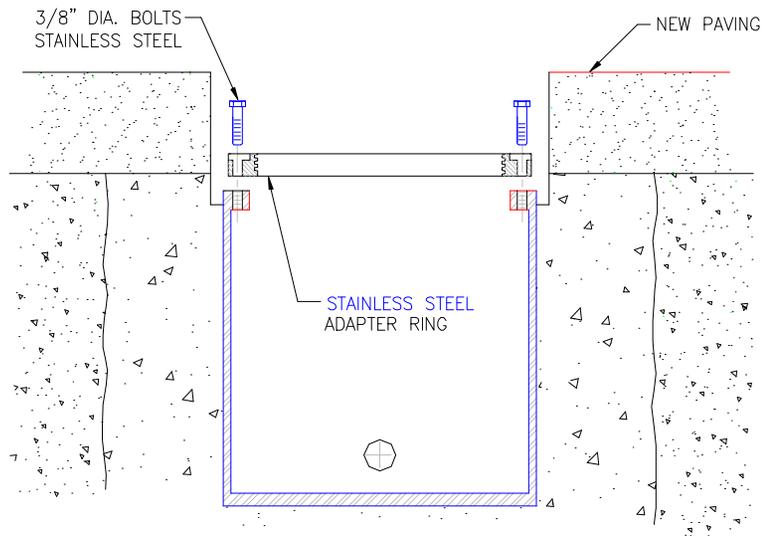
FIGURE 8. Pavement Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 4, Core Drilling



Procedures:

1. Remove protective tape and thread an eyebolt onto the pulling rod.
2. Lift the core of paving material in one piece.
3. Clean all debris away from the top of the existing base.

FIGURE 9. Paving Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 5, Core Removal

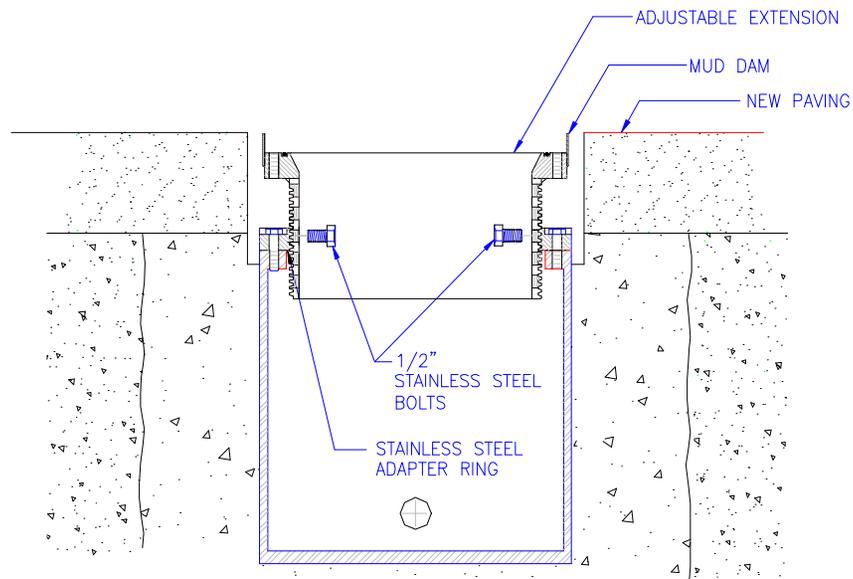


Procedures:

1. Bolt the threaded stainless steel adapter ring to the top of the existing base with 1 1/4 inch stainless steel bolts.
2. Apply nickel based anti-seize to all bolts prior to installation.

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FIGURE 10. Paving Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 6, Adapter Ring Installation

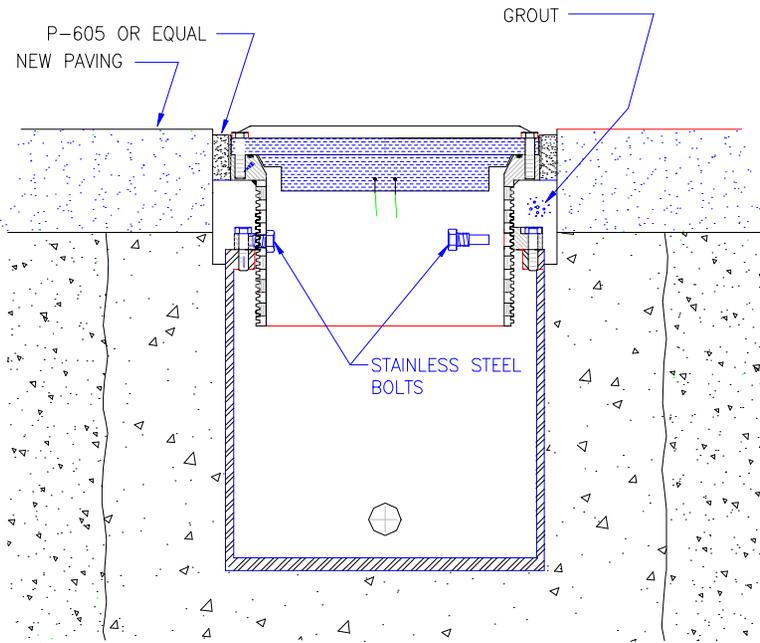


N.T.S.

Procedures:

1. Thread the adjustable extension into the adapter ring and adjust the extension below the new paving course to the required elevation and azimuth alignment, as specified in applicable FAA Advisory Circular for the specified lighting system.
2. Install three 1/2" diameter stainless steel hex head bolt through one of the threaded holes in the extension. The bolt should make contact with the threaded surface of the adapter ring. Tighten the bolt to secure proper elevation and azimuth.
3. Torque each bolt 50 ft. pounds in order to secure proper elevation and azimuth alignment during the remainder of the installation.

FIGURE 11. Paving Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 7, Adjustable Extension Installation

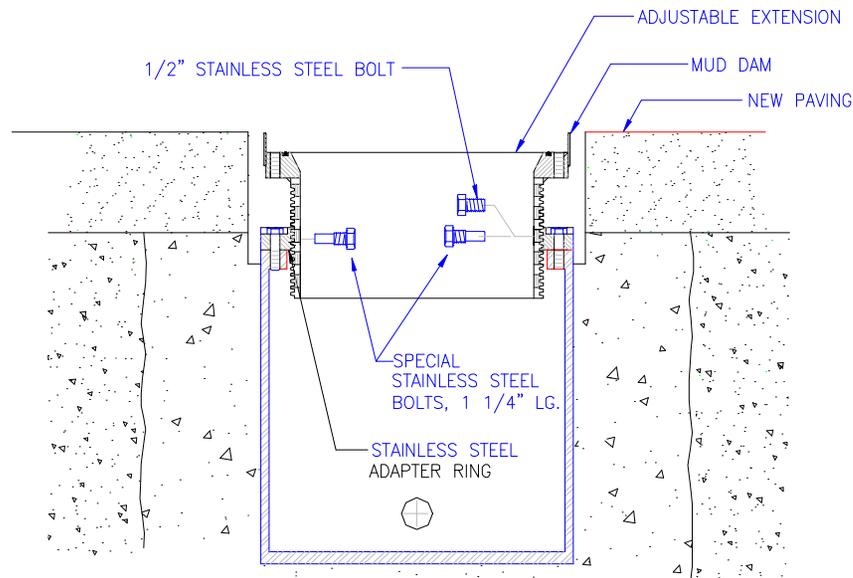


N.T.S.

Procedures:

1. Fill the void surrounding the extension with set 45 or equal up to the bottom of the mud dam.
2. Install primary cable, transformer and connectors.
3. Install the "O" ring.
4. Install light fixture, in compliance with FAA specifications. Apply nickel based anti-sieze to all bolts prior to installation and torque to manufacturer's recommendations. (Note: To prevent over tightening the bolts, Do Not Use an Impact Drill Motor.)
5. Fill the void surrounding the mud dam with P-605 or equal, until it is level with the top of the mud dam. (Note: Take caution to prevent any P-605 from flowing over the top of the mud dam.)

FIGURE 12. Paving Overlays with L-868, Adjustable Containers (Bases) and Extensions
Step 8, Fixture Installation

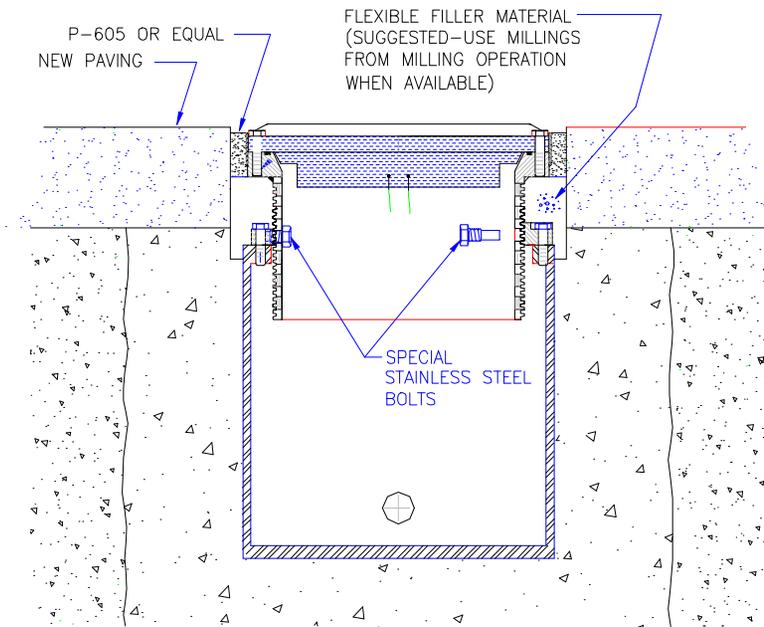


N.T.S.

Procedures:

1. Thread the adjustable extension into the adapter ring and adjust the extension below the new paving course to the required elevation and azimuth alignment, as specified in applicable FAA Advisory Circular for the specified lighting system.
2. Install one 1/2" diameter stainless steel hex head bolt through one of the threaded holes in the extension. The bolt should make contact with the threaded surface of the adapter ring. Tighten the bolt to secure proper elevation and azimuth.
3. Drill two 3/4" holes through the adjustable extension to the adapter ring.
4. Apply nickel-based anti-seize to the stainless steel bolts. Thread the bolts and hand tighten in place.
5. Remove the 1/2" stainless steel bolt that was used to temporarily secure the elevation and azimuth alignment. Repeat procedures 3 and 4 until there are three stainless steel bolts threaded through the extension and into the adapter ring.

FIGURE 13. Paving Overlays with L-868, Adjustable Containers (Bases) and Extensions
ALTERNATE Step 7, Adjustable Extension Installation



N.T.S.

Procedures:

1. Fill the void surrounding the extension with flexible filler material up to the bottom of the mud dam.
2. Install primary cable, transformer and connectors.
3. Install the "O" ring.
4. Install light fixture, in compliance with FAA specifications. Apply nickel based anti-sieze to all bolts prior to installation and torque to manufacturer's recommendations. (Note: To prevent over tightening the bolts, Do Not Use an Impact Drill Motor.)
5. Fill the void surrounding the mud dam with P-605 or equal, until it is level with the top of the mud dam. (Note: Take caution to prevent any P-605 from flowing over the top of the mud dam.)

FIGURE 14. Paving Overlays with L-868, Adjustable Containers (Bases) and Extensions
ALTERNATE Step 8, Fixture Installation