Northport | 360 Solar Area Light

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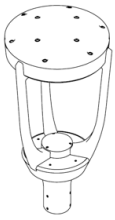
Installation Guide

Included Components



Luminaire

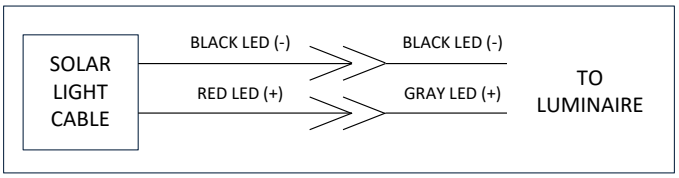
6X - Set screw for Tenon mt

Solar Light Cable (obtained from Solar Kit)

Tools Required

- Safety glasses
- Hex key, 5mm
- Level
- Proper personnel, crane or lift for hoisting unit onto anchors

Level



WIRING DIAGRAM: Solar Light Cable to Luminaire

WARNING

Pole mounted luminaires must be attached either before or immediately after pole installation. Failure to do so may cause vibration damage to the pole and will void the pole warranty.

WARNING

Strain relief must be provided between solar light cable and splicing connector wires. Examples of strain relief include using cable ties (hardware not included) anchored to the inside of the luminaire or employing a strain relief knot between the solar light cable and splicing connector wires. Failure to do so may cause electrical failure and will void warranty.

Procedure for Wiring Northport:

The Northport solar luminaire is assembled at the factory. The light cartridge is mounted into the head of the luminaire and will not need to be removed during installation. This assembly is meant to be specifically used with the solar kit wiring and solar lighting poles provided by Landscape Forms. Use of wiring and/or solar components other than provided is not recommended and will void the warranty.

The wiring schematics are to be used to connect the solar light cable to the luminaire. It is the responsibility of the installer to make sure that all connections are made in accordance with the NEC and local building codes.

Wiring:

1. Connect the ferrule end of the solar light cable (obtained from solar assembly kit) to the splicing connectors attached to the luminaire. The splicing connectors are accessible from the underside opening of the luminaire (refer to Fig. 1 and 2). Connect the ferrule end of the solar light cable to the splicing connectors according to the wiring diagram.
   NOTE: To connect to the splicing connector, lift the lever of a vacant terminal, fully insert the ferrule, then engage the lever.

Install Luminare/ Pole Assembly:

NOTE: *This step is done after completing the installation of the top solar module.*

1. Route the installed solar light cable's connector end through the tenon opening of the pole and install the luminaire over the tenon mount on pole. Route until the connector end is accessible at the hand hole of the pole. Orient the luminaire according to Fig. 4.
2. Using a 5mm hex key, install and tighten all 6 set screws to secure luminaire to tenon and level as required (refer to Fig. 3).
3. Refer to solar pole installation guide to complete assembly.

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Assemble with Care!

Pangard II® Polyester Powdercoat is a strong, long-lasting finish. To protect this finish during assembly, place unwrapped powdercoated parts on packaging foam or other non-marring surface. Do not place or slide powdercoated parts on concrete or other hard or textured surface – this will damage the finish causing rust to occur. Use touch-up paint on any gouges in the finish caused by assembly tools.

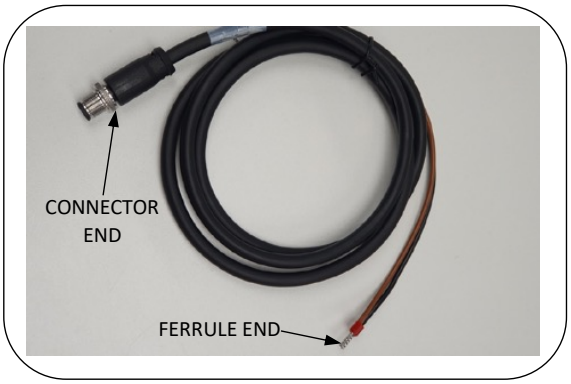

Fig. 1 - Solar Light Cable

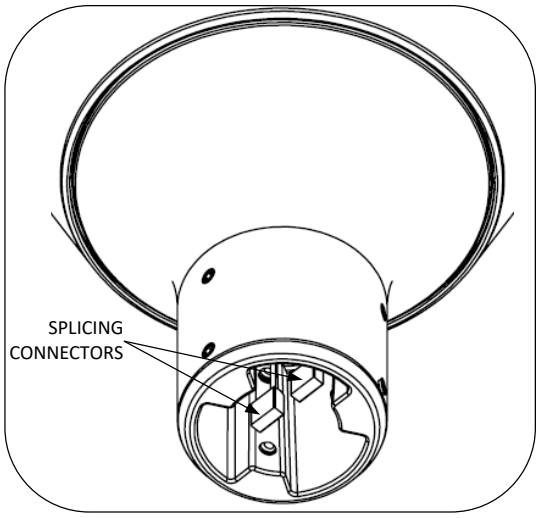

Fig. 2 - Splicing Connectors

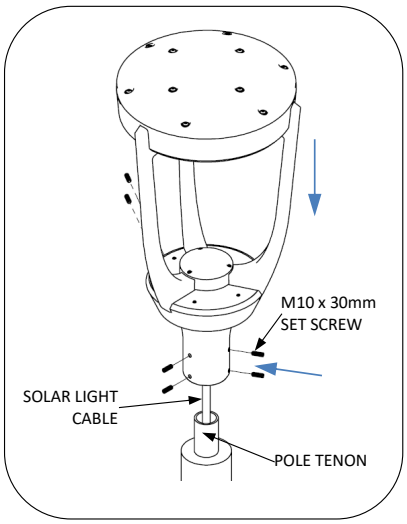

Fig. 3 - IInstall luminaire and Route Light Cable

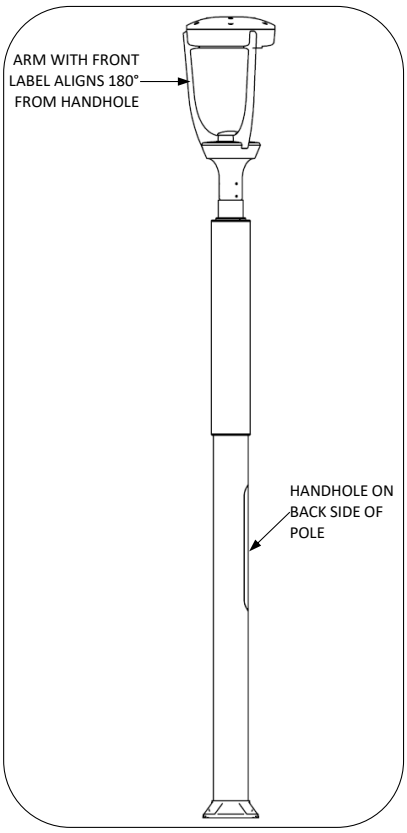

Fig. 4 - Pole Orientation

Table of Contents

1. Important Message Before Getting Started

Always use proper personal protective equipment (PPE) when working on 360 Solar products.

It is highly recommended to perform these installation instructions with at least two personnel. This can help prevent damage to the solar modules and/or other components.

The solar modules are made of glass; special care should be taken when manipulating these components. Improper handling of the solar modules may result in permanent irreversible damage to the solar module. Do not bump the solar modules against other surfaces. Do not apply external for or torque to the solar modules.

The solar modules are not load bearing components. Do not lift the poles at the solar modules as this may cause the glass to crack.

Handle all electronic components with care.

Failure to correctly adhere to all steps in this installation document will result in the warranty being voided.

360 Solar assemblies are connected to the internet. This enables remote verification of proper installation and system functionality. After installation it may take up to a few weeks for the 360 Solar assembly to charge, calibrate and assume normal operation.

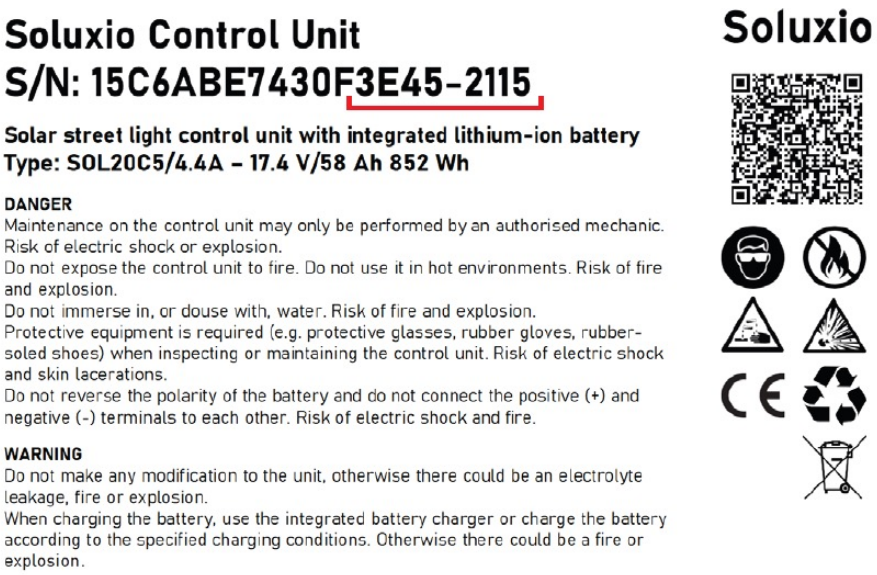

Fig. 1-1: Serial Number on Control Unit

If there are any questions regarding installation or functions of the product, please contact your lighting customer service specialist. Please also include the serial number of each individual control unit (refer to Figure 1-1).

2. Parts Overview

Fig. 2-1: Solar Module

Fig. 2-2: Control Unit (including GSM and GPS antennas)

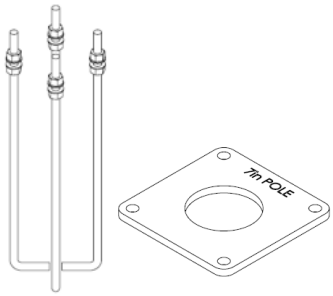

Fig. 2-3: Anchor (Threaded J Hook) Bolts, Nuts and Washers and Anchor Template

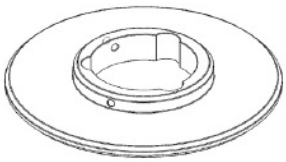

Fig. 2-4: Top Adapter Ring (including bumpers and 3x M6 set screws)

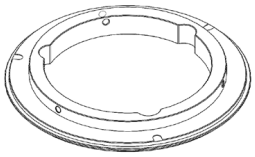

Fig. 2-5: Middle Adapter Ring (including bumpers and 3x M6 set screws)

Fig. 2-6: Bottom Adapter Ring (including bumpers)

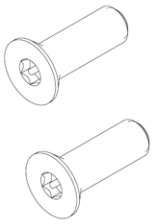

Fig. 2-7: 1/4-20 x 3/4 Security (Center Pin) Flathead Screws for Hand Hole Cover

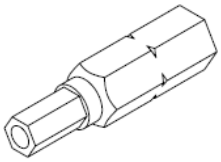

Fig. 2-8: 5/32 Hex Security Bit with Center Hole (not included)

Fig. 2-9: Cable Grommets (One per Solar Module)

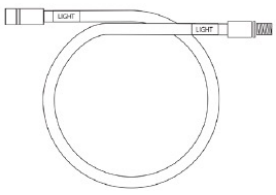

Fig. 2-10: Light Cable

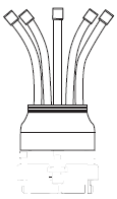

Fig. 2-11: Control Unit Breakout Cable

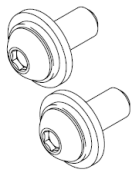

Fig. 2-12: 1/4-20 x 5/8 Button Head Screws with Lock and Flat Washers for Control Unit Mounting

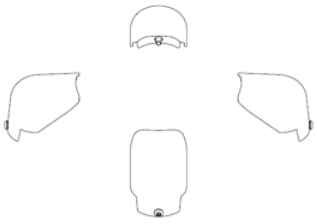

Fig. 2-13: Nut Covers and Nut Cover Bolts

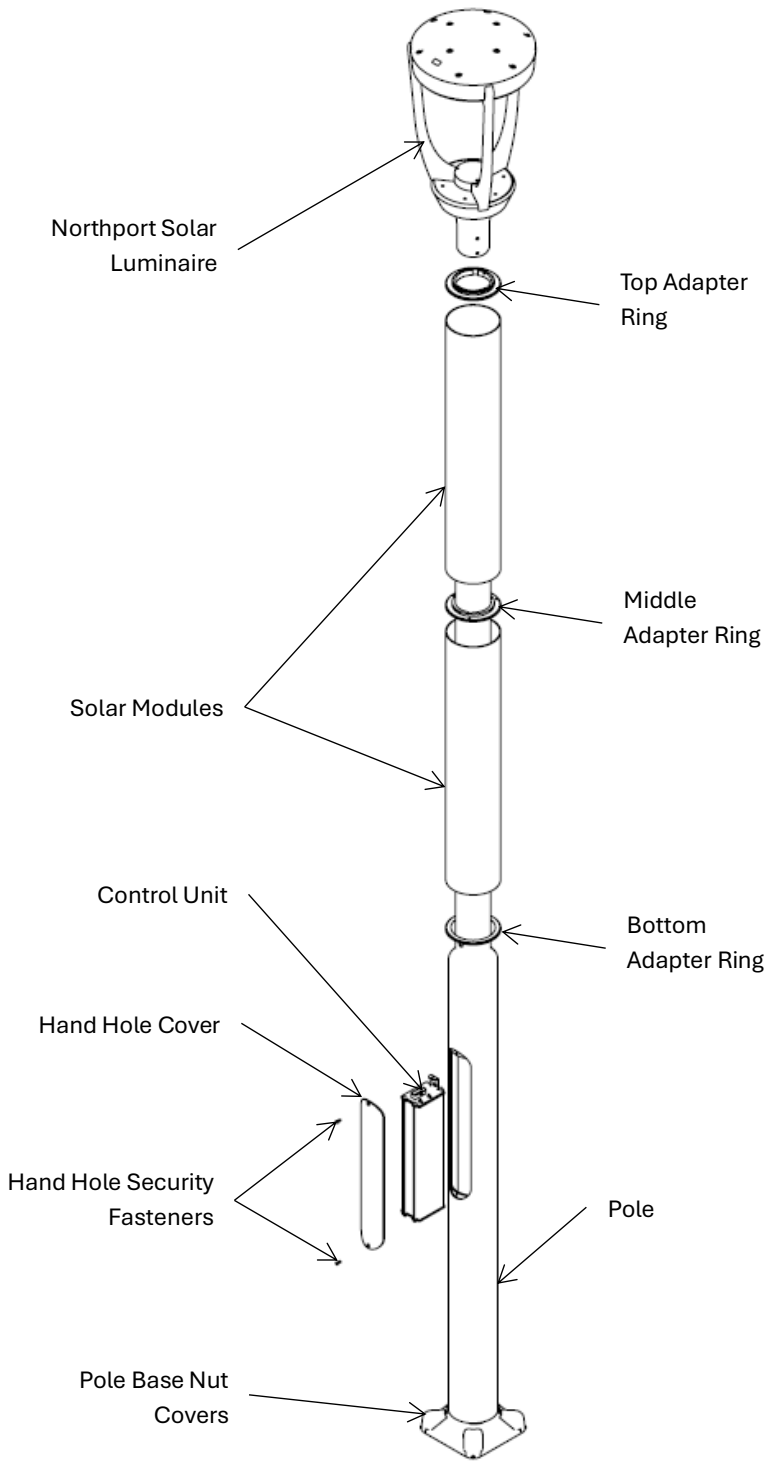

Fig. 2-14: Northport Solar Pole Assembly

3. Required Parts per Solar Assembly Kit

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Quantity per Solar Assembly Kit

LFI Part Number	Description	Single Cell, Single Luminaire (850Wh)	Double Cell, Single Luminaire (1277Wh)	Double Cell, Double Luminaire (1277Wh)	Triple Cell, Single Luminaire (1277Wh)	Triple Cell, Double Luminaire (1277Wh)
67274	Solar Module (2m Cable)	1	1	1	1	1
67275	Solar Module (3m Cable)	-	1	1	1	1
67276	Solar Module (4m Cable)	-	-	1	1	1
67277	Breakout Cable P110	-	-	-	-	-
67278	Breakout Cable P220	-	1	1	-	-
67279	Breakout Cable P330	-	-	-	1	1
67280	Luminaire Cable (3m)	1	1	2	1	2
67281	Luminaire Wire Harness	1	1	2	1	2
67282	Light Splitter Cable	-	-	1	-	1
67283	Top Adapter Ring	1	1	1	1	1
67284	Middle Adapter Ring	-	1	1	2	2
67285	Bottom Adapter Ring	1	1	1	1	1
67286	Control Unit (850Wh)	1	-	-	-	-
67287	Control Unit (1277Wh)	-	1	1	1	1

Table 3-1: Part List per Solar Kit Assembly

4. Required Tools

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- Hex keys
  - 3mm for Middle and Top Adapter Rings
  - 4mm for Torres Solar Luminaire
  - 5mm for Ashbery and Northport Solar Luminaire, Torres Solar Luminaire
  - 5/32 for Nut Cover Bolts
  - 5/16 for LEO Solar Luminaire
- 5/32 Hex Security Bit with Center Hole for Hand Hole Fasteners (Not Included)
- 17mm Socket Wrench for Torres Solar Luminaire
- 1-5/8 Wrench for Anchor Bolt Nuts
- Electrical Wire Fish Tape
- Tape (Duct Tape, Isolation Tape or Similar)
- Screwdrivers
  - Flathead
  - Phillips
- Pair of tongue-and-groove (Channelock®) pliers
- Level
- Personal Protective Equipment
- Crane or Lift for Hoisting Unit onto Anchors
- Optional: Aerial Lift Platform if Assembling Pole Vertically

5. Solar Pole Installation Location

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The 360 Solar light pole is off-grid and fully solar powered. Make sure the pole is placed on a location with as much sunlight as possible. 360 Solar light poles perform best in an open environment. Obstacles such as trees and buildings can create shading on the solar panels and dramatically decrease the amount of energy generated by the solar panels. It is therefore not recommended to position the 360 Solar assemblies in environments such as forests, parks and high-rise urban environments. Make sure no trees, buildings or other objects block the sunlight. In mountainous regions care needs to be taken to avoid shadowing. While there might be plenty of sun on one side of the mountain, the other side might not be suitable for solar energy. Secondly, surrounding mountains can also block sunlight and cause shadowing, resulting in a lower yield of solar energy. Low irradiation can especially occur during winter periods when the sun is at a low point.

Check the following points before installation:

- Direction of sunlight.
- The changing angle of the sun during the year. In the winter, the sun will stand lower on the horizon.
- Potential shading caused by trees.
- Potential shading caused by buildings and other objects.

Fig. 5-1: Location and Installation Guide

6. Installation Preparation

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NOTE: Ensure components stay dry during installation.

NOTE: Solar modules are fragile, handle with care.

1. Prepare the assembly close to the final location where the pole will be installed. The pole can be installed horizontally or vertically.
   - When the pole is assembled vertically, an aerial work platform will be required.
   - When the pole is assembled horizontally, it will be lifted and installed after assembly. During assembly, the pole can be placed on supports. Make sure the top of the pole is accessible so that the solar panels and luminaire can be placed easily.

NOTE: Be aware of the weight distribution during assembly of the pole.

NOTE: Be aware of the weight distribution during assembly of the pole.

2. Carefully remove the pole from its packaging and ensure that the paint is not damaged.

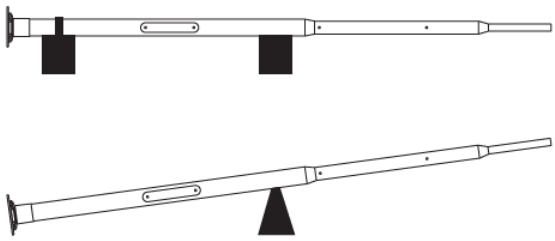

Fig. 6-1: Pole Layout Recommendations during Assembly

7. Grommet Installation

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NOTE: Cable grommets must be installed when routing the solar module cables through the pole and towards the hand hole. The grommets provide the following functions:

- IP67 Ingress Protection
- Strain relief
- Prevention of damage to cables due to sharp edges

Cable grommets must be installed for every solar module cable. Failure to properly install cable grommets may result in water and/or cable damage and void the warranty.

1. Before routing cables through holes in the pole, verify that a grommet has been placed on the cable. If not, slide the cable through the hole in the grommet. Do this before the cable is inserted into the pole.

NOTE: The text on the grommet should be visible on the outside of the pole (refer to Figure 7-1).

Fig. 7-1: Orientation of Cable Grommet with Text Visible on the outside of the Pole

2. Install the grommets for every hole. A flathead screwdriver can be used to help with the alignment of the grommet in the hole (refer to Figure 7-2). Repeat for every solar module cable hole.

Fig. 7-2: Alignment of Cable Grommet in Hole with Flathead Screwdriver

3. Use electrical tape to secure the grommets in place (refer to Figure 7-3). This is done to prevent grommets from loosening due to vibration.

Fig. 7-3: Use Electrical Tape to Secure Cable Grommets

8. Installing the First Solar Module

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1. Obtain the bottom adapter ring.

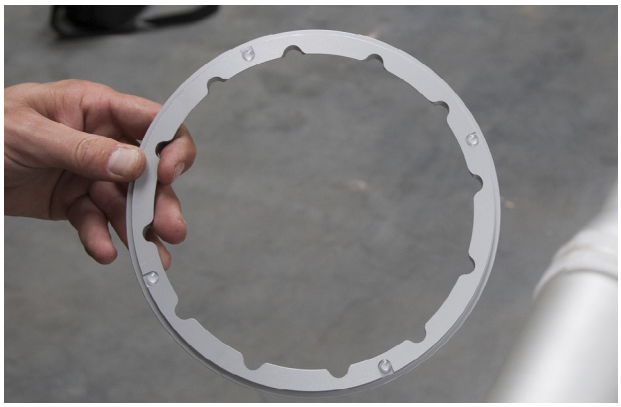

Fig. 8-1: Bottom Adapter Ring with Bumpers

2. Orient the bottom adapter ring so that the bumpers face the top of the pole and slide it over the pole from the top (refer to Figure 8-2).

Fig. 8-2: Orient Bottom Adapter Ring with Bumpers Facing Top of Pole

3. Obtain the first solar module (shortest cable).
NOTE: The length of the cable is indicated on the packaging and cable itself.

WARNING: Do not use a knife to open the solar module box to prevent accidentally scratching the glass surfaces of the solar modules. The solar modules are fragile, handle with care.

Fig. 8-3: Opening Solar Module Packaging

4. Carefully slide the first solar module onto the pole. Orient the module so the cables run down the pole (refer to Figure 8-4).

Fig. 8-4: Guide the Solar Module onto the Pole

NOTE: Be aware of the cables (refer to Figure 8 5) inside the solar module when sliding the module onto the pole to prevent the cables from being snagged or pinched.

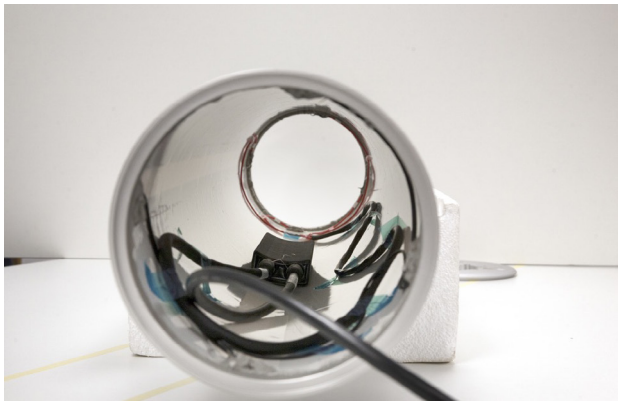

Fig. 8-5: Solar Module Internal Cables

5. Obtain the solar module's cable and guide it through the hole on the pole (refer to Figure 8-6).

Fig. 8-6: Route Solar Module Cables through Hole on Pole

6. Carefully rotate the solar module 180° to 270° so that the cable is twisted around the pole (refer to Figure 8-7). This functions as strain relief for these cables.

NOTE: Ensure there is sufficient slack in the solar module cables to prevent tension in the cables. ***Failure to apply adequate strain relief to the solar modules' cables may result in damage to the cables.***

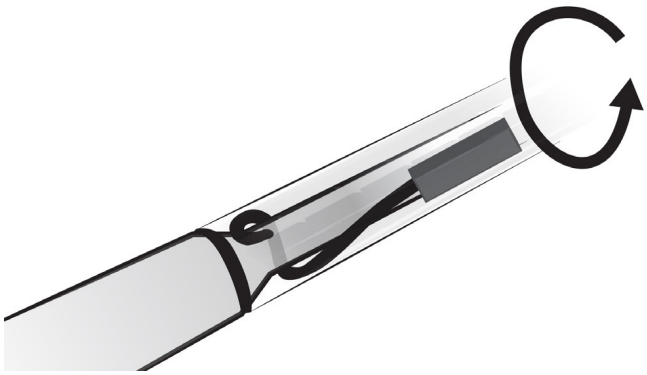

Fig. 8-7: Twist the Solar Module Cables around the Pole to Provide Strain Relief

7. Install the cable grommet according to Section 7.

NOTE: ***Cable grommets must be installed for every solar module cable. Failure to properly install cable grommets may result in water and/or cable damage and void the warranty.***

8. If only installing one solar module, proceed to Section 10 step 7. Otherwise, slide the middle adapter ring onto the pole. Orient so that the set screws and plastic bumpers face the top of the pole (refer to Figure 8-8).

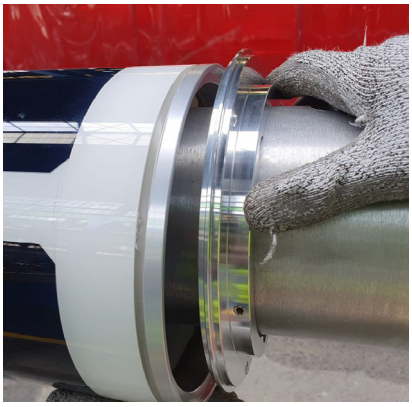

Fig. 8-8: Orient Middle Adapter Ring with Set Screws and Bumpers Facing Top of Pole

9. Lower the solar module until it rests on the previously installed bottom adapter ring (refer to Figure 8-9).

Fig. 8-9: Rest Solar Module onto Bottom Adapter Ring

10. Ensure the solar module is fully seated between the bottom and middle adapter rings (refer to Figure 8-10).

NOTE: The solar module can be rotated as desired as long as its cable allows. The solar module is not intended to rotate freely.

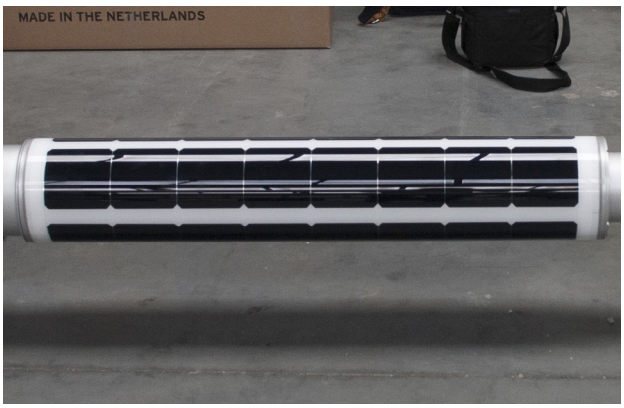

Fig. 8-10: Solar Module between Adapter Rings

11. Evenly fasten the middle adapter ring with the three (3) set screws using a 3mm hex key. Apply firm downward pressure on the middle adapter ring while mounting. This ensures good contact between the solar module and the bumpers on the bottom adapter ring (refer to Figure 8-11).

NOTE: Install screws with a torque wrench at 39.8 in-lbs. [4.5 Nm].

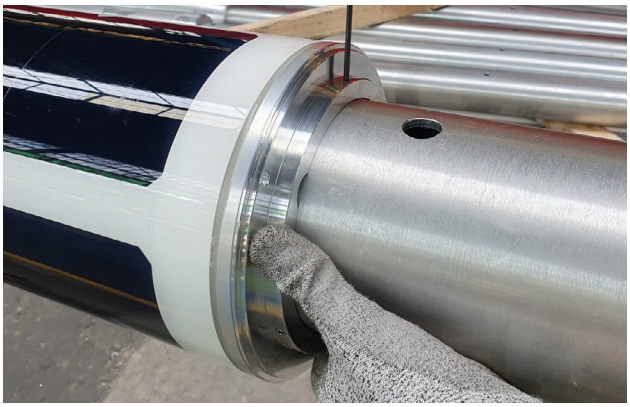

Fig. 8-11: Installing Middle Adapter Ring Set Screws

9. Installing Intermediate Solar Modules

1.Slide the fish tape through the hole above the previously installed solar module. Slide the fish tape downwards until it is accessible at the hand hole (refer to Figure 9-1).

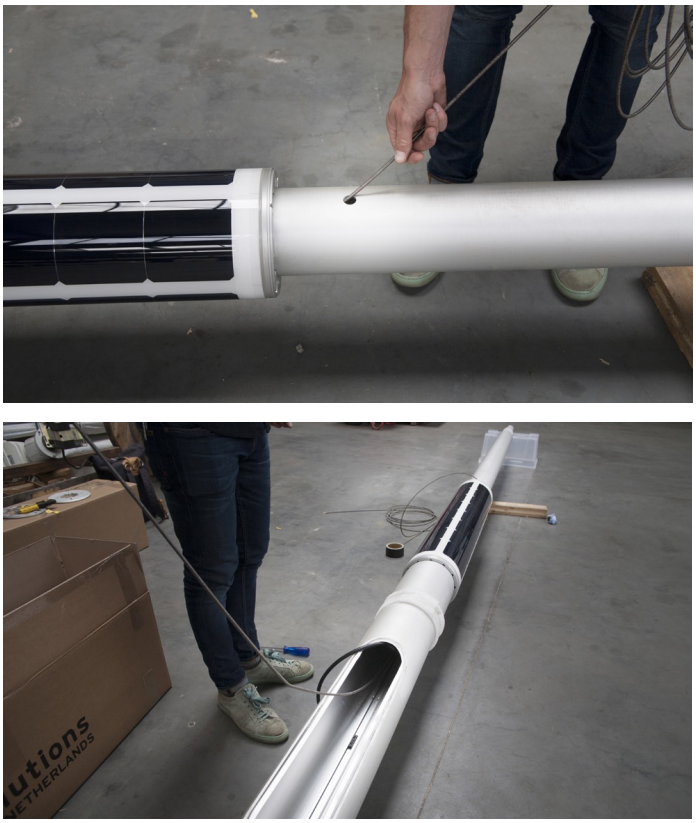

Fig. 9-1: Fish First Solar Module Cable to Hand Hole

2. Obtain the next solar module.
NOTE: The next solar module's cable will be 1m longer compared to the previously installed solar module's cable. The length of the cable is indicated on the packaging and cable itself.

WARNING: Do not use a knife to open the solar module box to prevent accidentally scratching the glass surfaces of the solar modules. The solar modules are fragile, handle with care.

3. Carefully slide the solar module over the pole from the top end towards the previously installed solar module (refer to Figure 9-2).

NOTE: Be aware of the cables (refer to Figure 8 5) inside the solar module when sliding the module onto the pole to prevent the cables from being snagged or pinched.

Fig. 9-2: Slide Intermediate Solar Module over Pole

4. Install the cable grommet according to Section 7.

NOTE: ***Cable grommets must be installed for every solar module cable. Failure to properly install cable grommets may result in water and/or cable damage and void the warranty.***

5. Attach the solar cable to the fish tape and gently pull the cable and tape until the cable reaches the hand hole (refer to Figure 9-3).

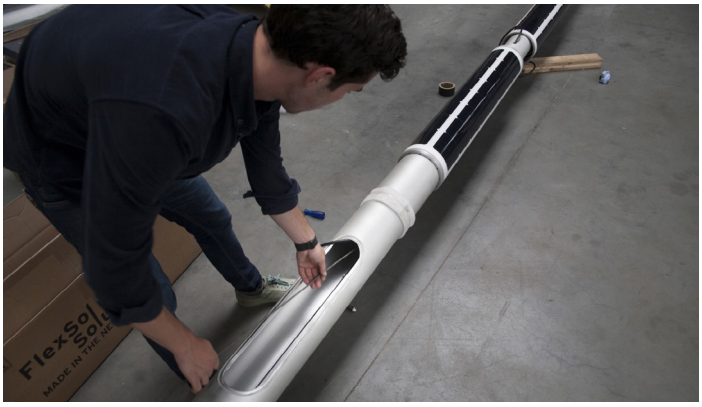

Fig. 9-3: Fish Solar Module Cable to Hand Hole

6. Carefully rotate the solar module 180° to 270° so that the cable is twisted around the pole (refer to Figure 8-7). This functions as strain relief for these cables.

NOTE: Ensure there is sufficient slack in the solar module cables to prevent tension in the cables. ***Failure to apply adequate strain relief to the solar modules' cables may result in damage to the cables.***

7. Slide the second middle adapter ring onto the pole. Orient so that the set screws and plastic bumpers face the top of the pole (refer to Figure 8-8).

8. Lower the solar module until it rests on the previously installed adapter ring. Ensure that the solar module rests securely between both rings (refer to Figure 8-9).

9. Evenly fasten the middle adapter rings with the three (3) set screws each using a 3mm hex key. Apply firm downward pressure on the adapter ring while mounting. This ensures good contact between the solar module and the bumpers on the bottom adapter ring (refer to Figure 8-11).

NOTE: Install screws with a torque wrench at 39.8 in-lbs. [4.5 Nm].

10. Rotate the solar module so that the solar cells are aligned with the other solar modules if desired (refer to Figure 9 4).

NOTE: The solar module can be rotated as desired as long as its cable allows. The solar module is not intended to rotate freely.

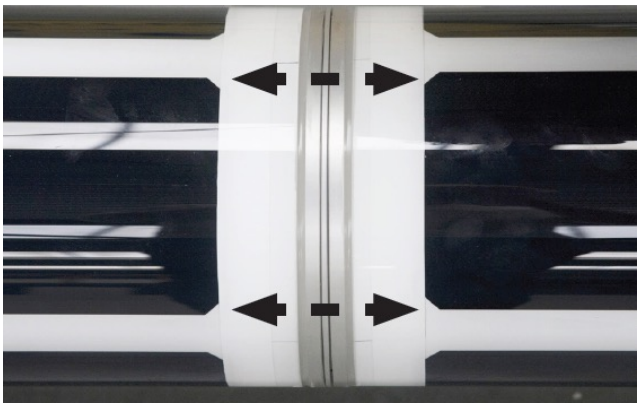

Fig. 9-4: Alignment of Solar Module Panels

10. Installing the Top Solar Modules

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1. Slide the fish tape through the hole above the previously installed solar module. Slide the fish tape downwards until it is accessible at the hand hole (refer to Figure 9-1).

2. Obtain the next solar module.
NOTE: The next solar module's cable will be 1m longer compared to the previously installed solar module's cable. The length of the cable is indicated on the packaging and cable itself.

WARNING: Do not use a knife to open the solar module box to prevent accidentally scratching the glass surfaces of the solar modules. The solar modules are fragile, handle with care.

3. Carefully slide the solar module over the pole from the top end towards the previously installed solar module (refer to Figure 9-2).

NOTE: Be aware of the cables (refer to Figure 8 5) inside the solar module when sliding the module onto the pole to prevent the cables from being snagged or pinched.

4. Install the cable grommet according to Section 7.

NOTE: ***Cable grommets must be installed for every solar module cable. Failure to properly install cable grommets may result in water and/or cable damage and void the warranty.***

5. Attach the solar cable to the fish tape and gently pull the cable and tape until the cable reaches the hand hole (refer to Figure 9-3).

6. Carefully rotate the solar module 180° to 270° so that the cable is twisted around the pole (refer to Figure 8-7). This functions as strain relief for these cables.

NOTE: Ensure there is sufficient slack in the solar module cables to prevent tension in the cables. ***Failure to apply adequate strain relief to the solar modules' cables may result in damage to the cables.***

7. Slide the top adapter ring onto the pole. Orient so that the set screws and plastic bumpers face the top of the pole (refer to Figure 10-1).

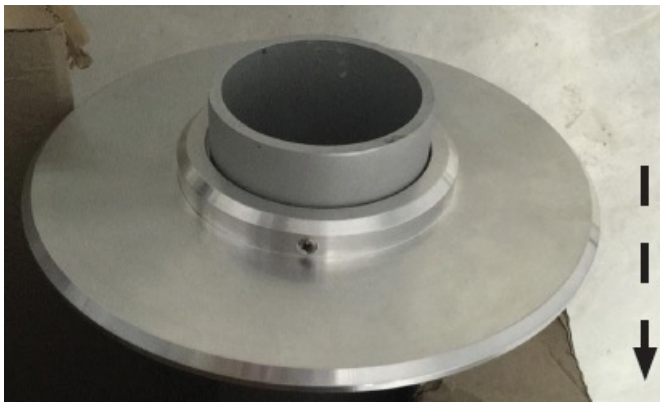

Fig. 10-1: Orientation of Top Adapter Ring

8. Lower the solar module until it rests on the previously installed adapter rings. Ensure that the solar module rests securely between both rings (refer to Figure 8-10).

9. Evenly fasten the top adapter ring with the three (3) set screws using a 3mm hex key. Apply firm downward pressure on the adapter ring while mounting. This ensures good contact between the solar module and the bumpers on the bottom adapter ring (refer to Figure 8-11).

NOTE: Install screws with a torque wrench at 39.8 in-lbs. [4.5 Nm].

10. Rotate the solar module so that the solar cells are aligned with the other solar modules if desired (refer to Figure 9-4).

NOTE: The solar module can be rotated as desired as long as its cable allows. The solar module is not intended to rotate freely.

11. Luminare Cable Installation

landscapeforms

1. Assemble the solar luminaire and light cable according to their respective instructions.

Fig. 11-1: Solar Light Cable

2. Obtain the light cable from the hand hole of the pole.

3. Connect the light cable:

NOTE: Mating cables are keyed and only allow for one installation orientation. Ensure cable connector orientation is correct.

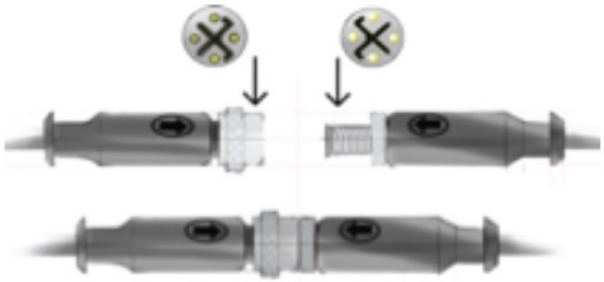

Fig. 11-2: Keyed Feature of Connectors

a. Orient the mating cable connectors correctly and push together to engage (refer to Figure 11-2).

b. Loosely engage the threads of the connector.

c. While pushing the connectors together, hand tighten the collar of the female connector several turns.

d. Use a pair of tongue-and-groove pliers to turn the connectors an additional 90° (refer to Figure 11-3). This will prevent disconnection due to vibrations.

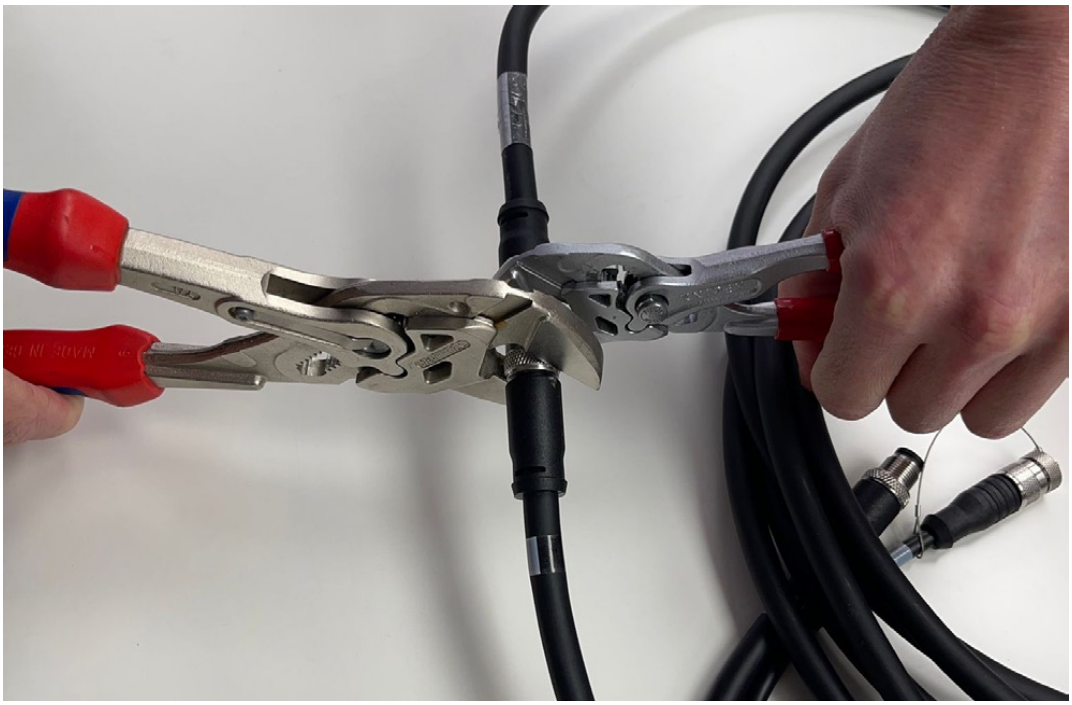

Fig. 11-3: Tighten Connectors with Tools up to 90°

12. Control Unit

landscapeforms

12.1 Installation

1. Use a 5/32 hex security bit with center hole to uninstall the hand hole security fasteners (refer to Figure 12.1-1). Remove the hand hole cover and retain uninstalled hardware.

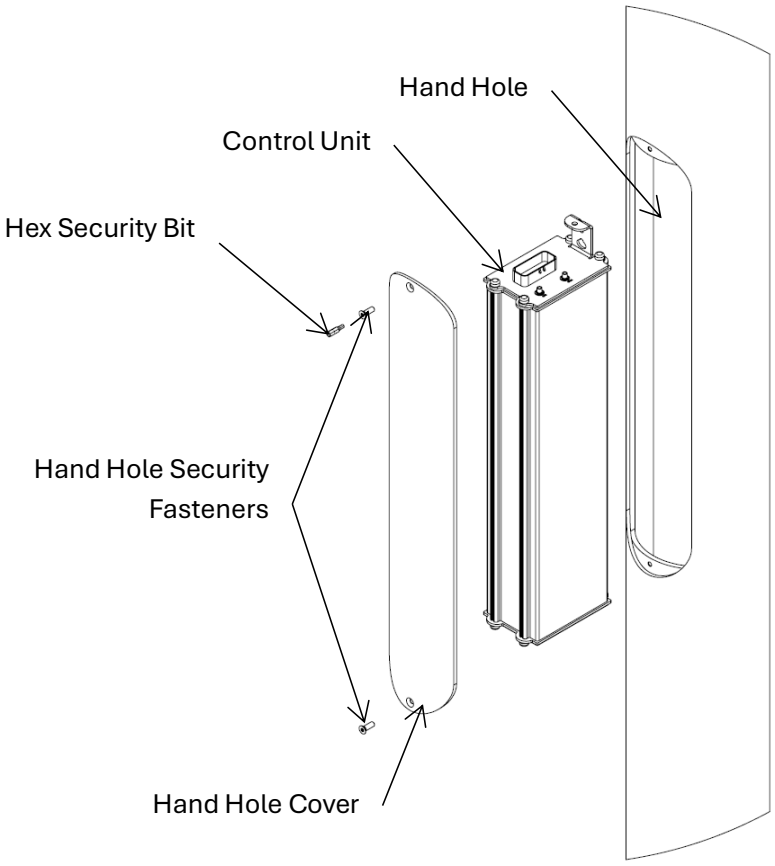

Fig. 12.1-1: Accessing Pole Hand Hole

2. Obtain (1) one of the 1/4-20 x 5/8 button head screws for mounting the control unit. Loosely install it into the lower threaded hole of the transformer mounting bar in the hand hole of the pole (refer to Figure 12.1-2). This screw will help hold the control unit in place while the other fastener is being installed.

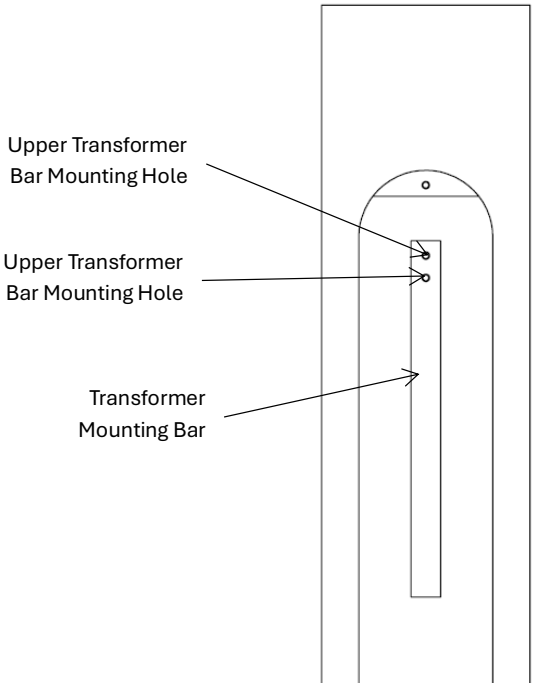

Fig. 12.1-2: Transformer Bar for Mounting Control Unit

3. Obtain the control unit from its package. Retain the packaging for future storage. Keep the control unit 35-pin connector cover on until the breakout cable is ready to be installed (refer to Figure 12.1-3). This will prevent accidental damage to the connector pins.

Fig. 12.1-3: Control Unit 35-pin Connector Cover

4. Insert the control unit into the hand hole. Hang the control unit by engaging the mounting tab lower hole onto the previously installed screw (refer to Figure 12.1-4).

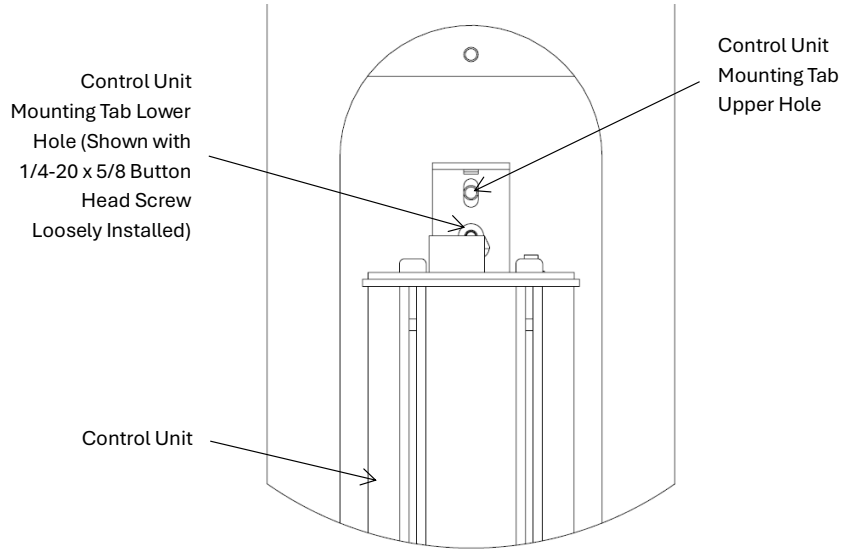

Fig. 12.1-4: Loosely Install Control Unit Mounting Screw

5. Install (1) one 1/4-20 x 5/8 button head screw, lock washer and flat washer (in specified order, refer to Figure 12.1-5) into the upper transformer bar mounting hole (refer to Figure 12.1-2) to fasten the control unit to the transformer bar.

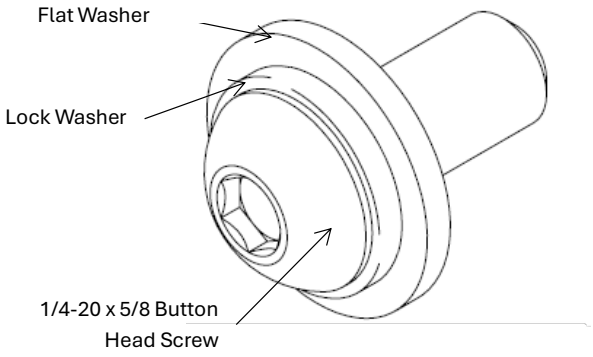

Fig. 12.1-5: Control Unit Mounting Hardware Sequence

6. Uninstall the previously loosely installed 1/4-20 x 5/8 button head screw in the lower transformer bar mounting hole. Reinstall that screw along with the lock washer and flat washer (in specified order, refer to Figure 12.1-5).

7. Connect the control unit breakout cable to the solar and light cables.

NOTE: Mating cables are keyed and only allow for one installation orientation.

Cables are labeled on both ends (refer to Figure 12.1-6).

Fig. 12.1-6: Breakout Cable Connectors to Solar and Light Cables

a. Orient the mating cable connectors correctly and push together to engage (refer to Figure 11-2).

b. Loosely engage the threads of the connector.

c. While pushing the connectors together, hand tighten the collar of the female connector several turns.

d. Use a pair of tongue-and-groove pliers to turn the connectors an additional 90° (refer to Figure 11-3). This will prevent disconnection due to vibrations.

8. Remove the 35-pin connector cover from the control unit. Retain this cover for future storage. Connect the breakout cable end to the 35-pin connector on the control unit (refer to Figure 12.1-7).

NOTE: ***Only connect the breakout cable to the control unit after all solar and light cables have been connected.***

Ensure that the breakout cable latch engages with the mating connector on the control unit. This is indicated by a tactile and audible click (refer to Figure 12.1-7).

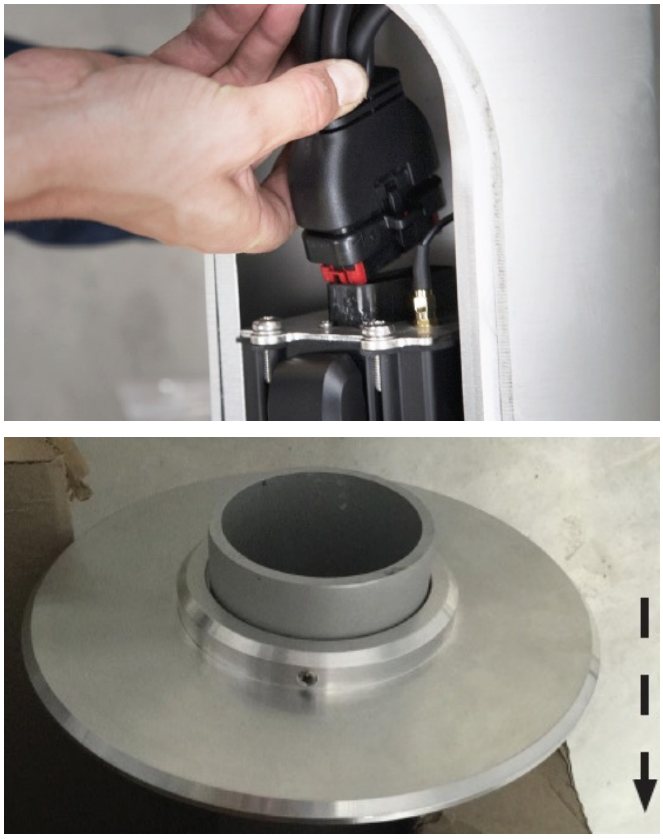

Fig. 12.1-8: Breakout Cable Connection to Control Unit

9. Route all cables inside of the hand hole of the pole such that a drip loop is formed (refer to Figure 12.1-8).

NOTE: ***Only connect the breakout cable to the control unit after all solar and light cables have been connected.***

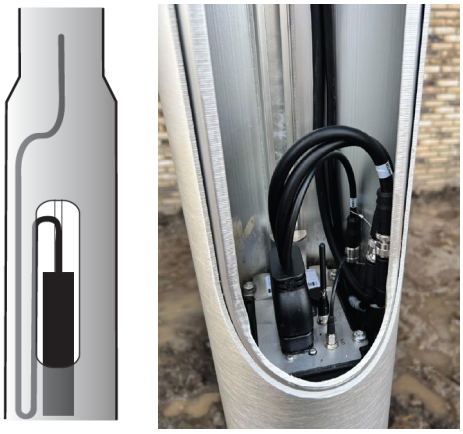

Fig. 12.1-8: Cable Drip Loop above Control Unit

10. Optionally, a lock (not included) can be installed on the top mounting tab hole to provide additional security to the control unit (refer to Figure 12.1-9). This blocks access to the upper mounting screw.

Fig. 12.1-9: Installing a Lock on the Control Unit

12.2 Uninstallation and Storage

1. Unplug the breakout cable by carefully prying the breakout cable latch away from the 35-pin connector on the control unit and pulling the cable upward (refer to Figure 12.1-7).

Fig. 12.2-1: Disengage Latch to Release Breakout Cable

2. Obtain the previously removed 35-pin connector cover and install it onto the control unit (refer to Figure 12.1-3).

3. Store the control unit vertically upright in a cool and dry place.

NOTE: It is recommended to store the control unit in its original packaging in an upright orientation.

Avoid storing in extremely hot or cold environments.

13. Antennas

1. Install the GPS and GSM antennas onto their respective connectors on the control unit (refer to Figure 13-1).

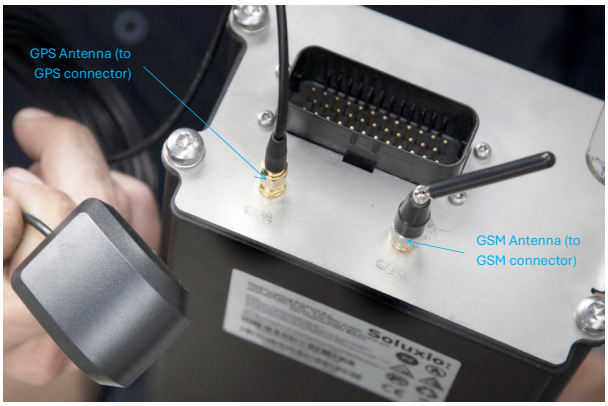

Fig. 13-1: GPS and GSM Antenna and Connections on Control Unit

a. Hand tighten the antennas.

b. Use a pair of tongue-and-groove pliers to further tighten the antennas (refer to Figure 13-2).

Fig. 13-2: Tighten Antenna Connections with Tools up to 90°

2. Attach the GPS antenna to the control unit using the adhesive backing tape (refer to Figure 13-3).

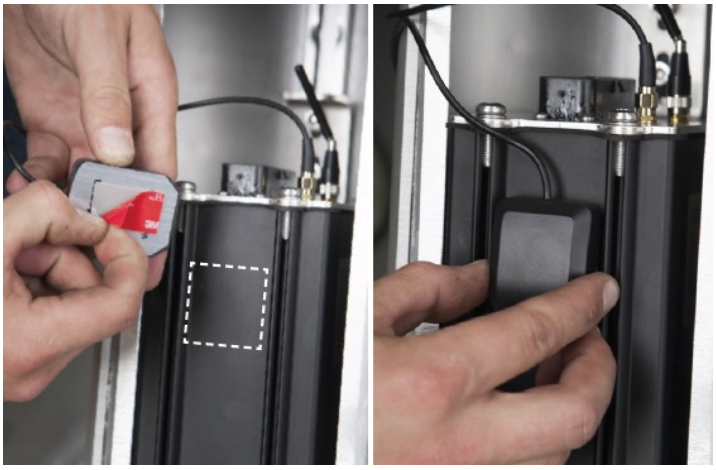

Fig. 13-1: Installing GPS Antenna onto Control Unit

3. Use a 5/32 hex security bit with center hole to reinstall the hand hole security fasteners and cover (refer to Figure 12.1-1).

14. Anchor Bolt Installation

landscapeforms

1. Refer to solar luminaire installation instructions for orientation and location of poles if applicable.

2. Prepare footing as required by local codes.

3. Install anchor bolts, nuts, washers and anchor template as shown in Figure 14-1.

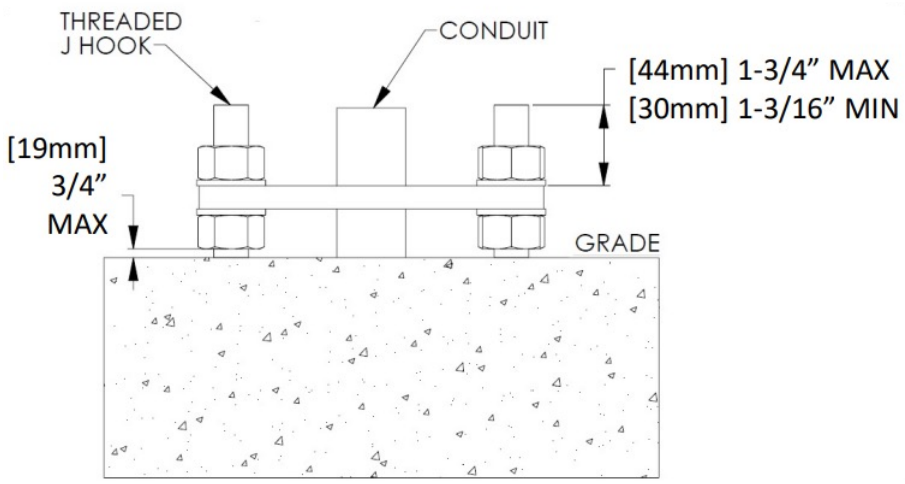

Fig. 14-1: Anchor Install Detail

4. Level anchor template in all directions.
NOTE: The anchor template thickness is less than base plate thickness. Dimensions given account for the difference.

5. After the footing has properly cured, remove the anchor template.
NOTE: Do not remove lower hex nuts or washers.

15. Pole Installation

landscapeforms

1. Use proper personnel and equipment to hoist the pole assembly onto the previously installed anchor bolts in Section 14.

2. Use a 1-5/8 wrench to install the nut and washers to secure the pole to the anchor bolts (refer to Figure 15-1).

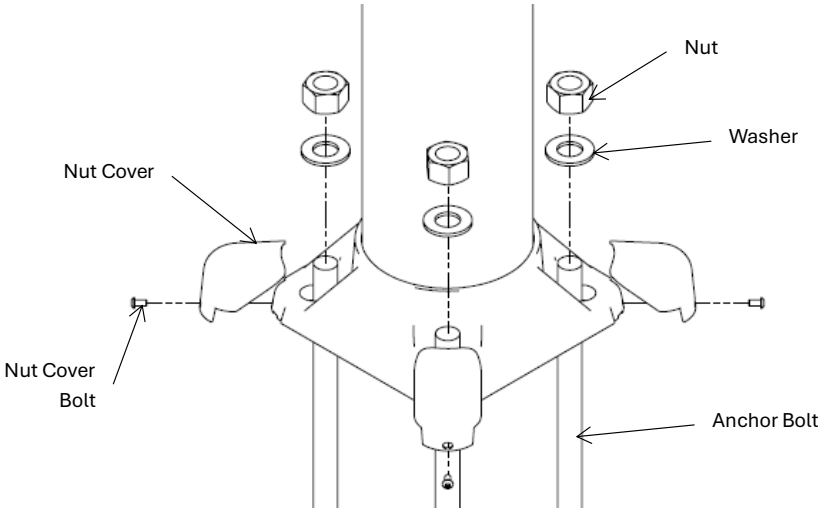

Fig. 15-1: Anchor Nuts and Washers and Nut Covers

3. Use a 5/32 hex key to install the nut covers using the provided bolts (refer to Figure 15-1).