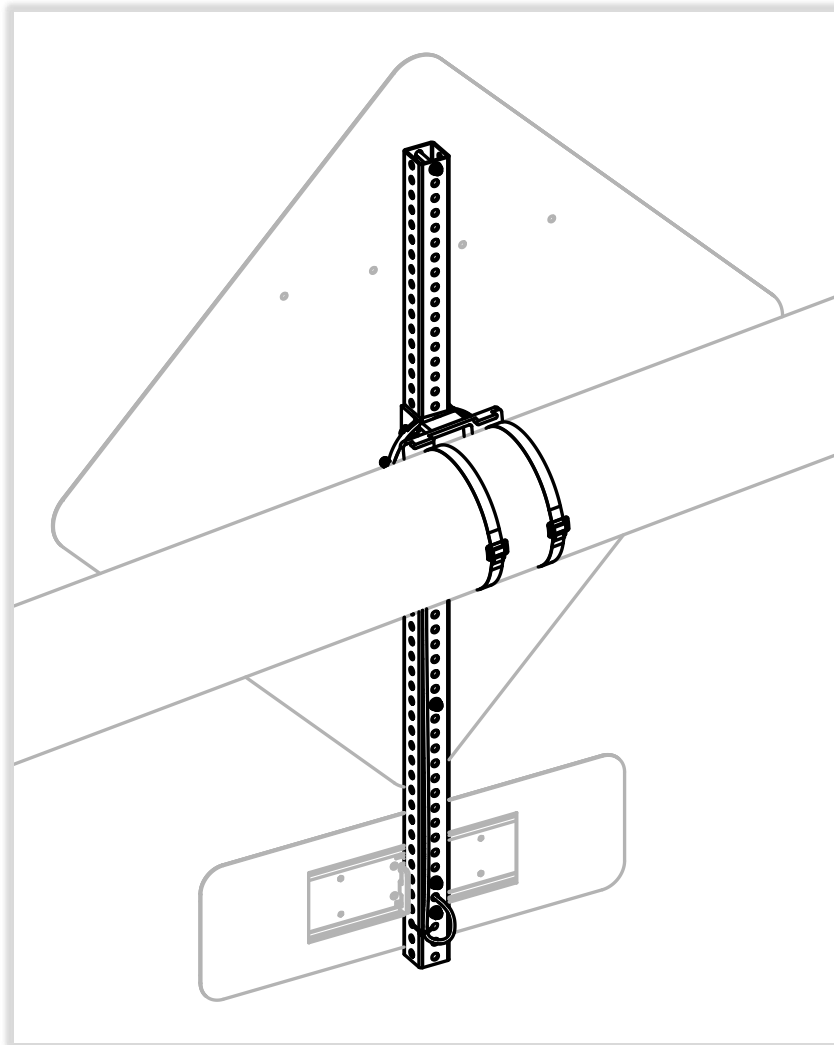


For mast arm mounted RRFB applications



92159_INSTALL-GUIDE_RRFB-Mast-Arm-Kit-Banding-Style_RevA

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1.0 Warnings and Precautions

The following symbols indicate important safety warnings and precautions throughout this guide:



WARNING indicates that serious bodily harm or death may result from failure to adhere to the precautions.



CAUTION indicates that damage to equipment may result if the instructions are not followed.



NOTE suggests optimal conditions and provides additional information.

1.1 Warranty Disclaimer

This guide will familiarize you with the features and installation of the Carmanah Mast Arm kit for RRFB applications. Failure to comply with the use, storage, maintenance, installation or placement instructions detailed in this guide could void the warranty.

1.2 Standards

Perform all installation, wiring, grounding and maintenance in conformance with local building and electrical codes. Adherence to the National Electrical Code (NEC) is mandatory to comply with any certification markings. Non-adherence to code may void the warranty.

1.3 Safety and Usage Precautions



The sign center should be mounted 4 – 6" above the mast arm center to keep wind forces balanced and prevent movement in high winds. Ensure banding has adequate strength for the application and is installed per manufacturer's instructions.



Use extreme caution when handling the batteries as they can generate hazardous short-circuit currents. Remove all jewelry (bracelets, metal-strap watches, etc.) before entering the cabinet.



Before lifting any heavy or bulky equipment, ensure the load is secured so moving parts do not shift, and that it can be lifted as far as needed without back strain or loss of grip. Installation may require more than one person.



Ensure the equipment is not powered during installation and wiring of the system.



Recheck all completed wiring for proper polarity prior to energizing the system.



Product can have sharp edges. Accidental movement of hinged components can cause injury.



Supplied bracket accommodates banding to mast arm diameters over 4". Supplied perforated steel tube accommodates signs up to 48" and may be cut shorter for smaller signs.



Changes or modifications to Carmanah equipment not expressly approved by Carmanah could void both the user's authority to operate the equipment and the warranty.



This guide is specific to installing RRFB light bars on mast arm poles and is not a replacement for the complete product user manual.

Visit support.carmanah.com to download the complete product user manual.

2.0 Mast Arm Kit

The Mast Arm kit includes:

1. Banding mount mast arm bracket assembly with hardware (1)
2. Galvanized steel perforated tubing (1) (54 inches in length)
3. 5/16"-18 X 2.75" stainless steel hex bolts (4)
4. 5/16" stainless steel flat washer (8)
5. 5/16" black nylon flat washer (2)
6. 3/8"-16 X 3.25" stainless steel hex bolts (2)
7. 3/8" stainless steel flat washer (4)
8. 3/8" stainless steel locknuts (2)
9. Weather resistant cable ties (4)

NOTE

This kit does not include the RRFB light bar, light bar backplate, or signage.

NOTE

This kit contains some large diameter, stainless steel fasteners, which can be subject to “galling” or seizing if not installed correctly:

In order to prevent hardware from seizing, always use an anti-seize thread lubricant and observe the following precautions:

 **WARNING**

- **Do not overtighten hardware**
- **Do not reuse hardware that has been fully tightened**
- **Do not generate heat**
- **Do not use an impact wrench to install hardware**

3.0 Tools and Materials Required

The following tools and materials may be required to install the Mast Arm kit, light bar, and pedestrian sign:

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none">1. Cable cutter2. Conductor jacket stripper3. Utility knife4. Cable jacket stripper5. Wire cutters | <ol style="list-style-type: none">6. Felt-tipped marker7. Socket set8. Adjustable wrench9. Phillips screwdriver10. Blade screwdriver (small)11. Torque wrench (not shown) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



4.0 Installation

NOTE

The images in this guide may differ from your final product and installation. These are for illustration purposes only.

4.1 Parts and Materials Preparation

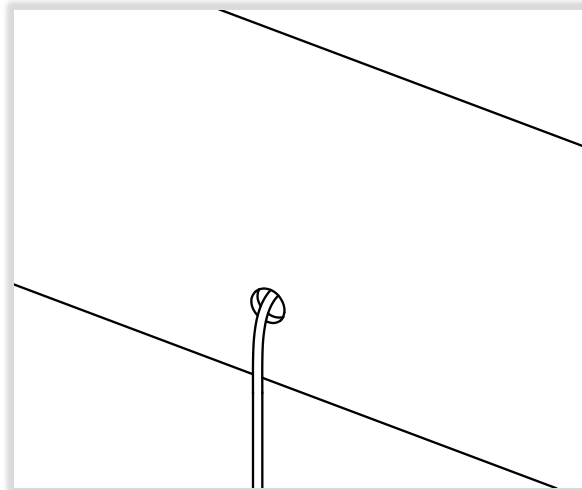
1. Lay out and mark sign and light bar mounting locations on steel tube.
2. Cut tube to length for pedestrian signs smaller than 36" X 36" (optional step).



The sign center should be mounted 4 – 6" above the mast arm center to keep wind forces balanced and prevent movement in high winds.

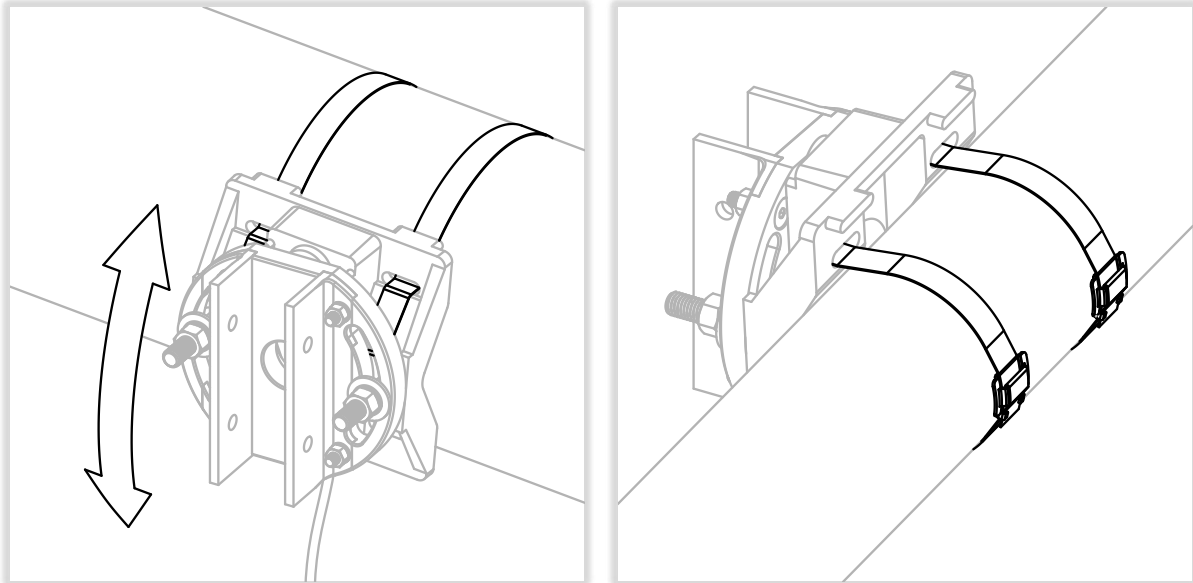
4.2 Installing the Mast Arm Bracket

1. Drill 1" hole for cable at desired location along mast arm. Deburr hole or use suitable grommet (not supplied) to protect cable.
2. Fish enough cable through hole to reach RRFB connectors.

**NOTE**

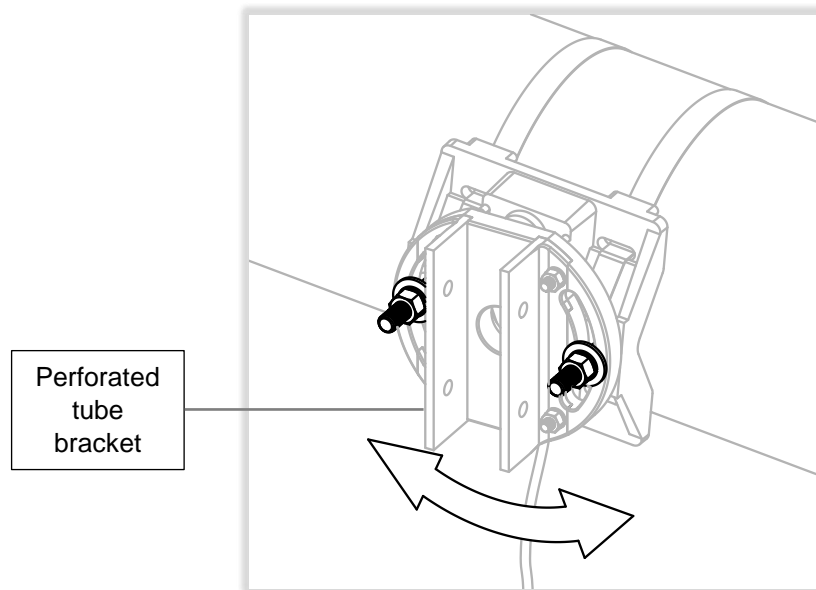
Feed enough cable through the mast arm to reach below the light bar mounting location. This will allow for final length adjustments when creating the recommended strain relief loop at the light bar and a drip loop on the steel tube – behind the light bar.

3. Place bracket over mast arm and fixture in place at desired tilt angle.
4. Install and tighten banding following banding manufacturer's instructions.



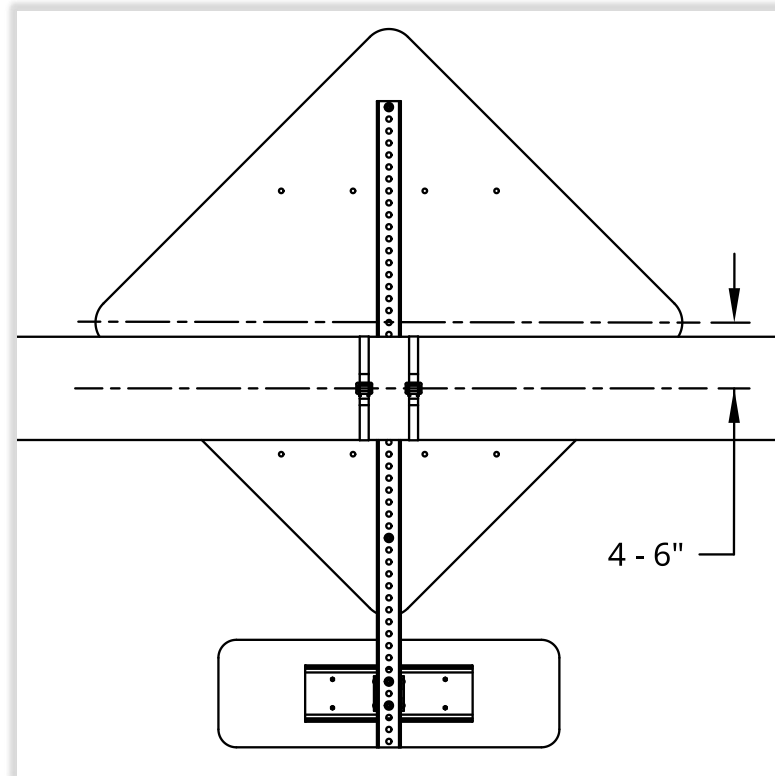
NOTE Do not feed light bar cable through center hole of bracket.

5. Adjust angle of perforated tube bracket and tighten two nuts to 37 ft-lb (lubricated) or 43 ft-lb (dry) to lock in place.

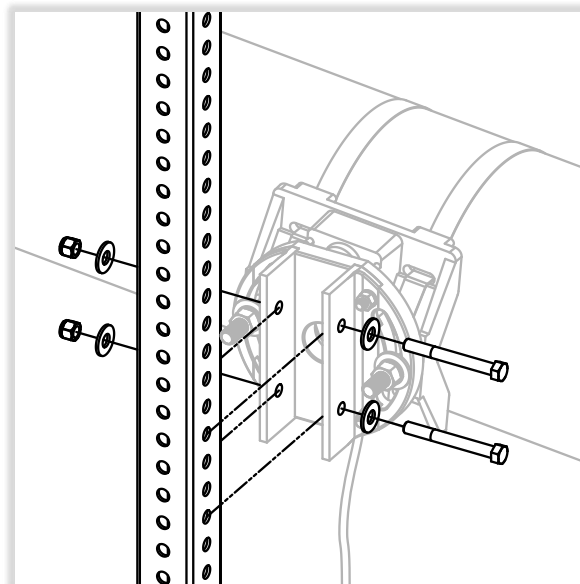


4.3 Installing the Perforated Steel Tube

1. Locate perforated tube on bracket so that an offset of 4 – 6" between mast arm and sign centers is achieved as shown below.



2. Mount supplied perforated tube to bracket using included 3/8" hardware. Tighten to 17 ft-lb (lubricated) or 20 ft-lb (dry).

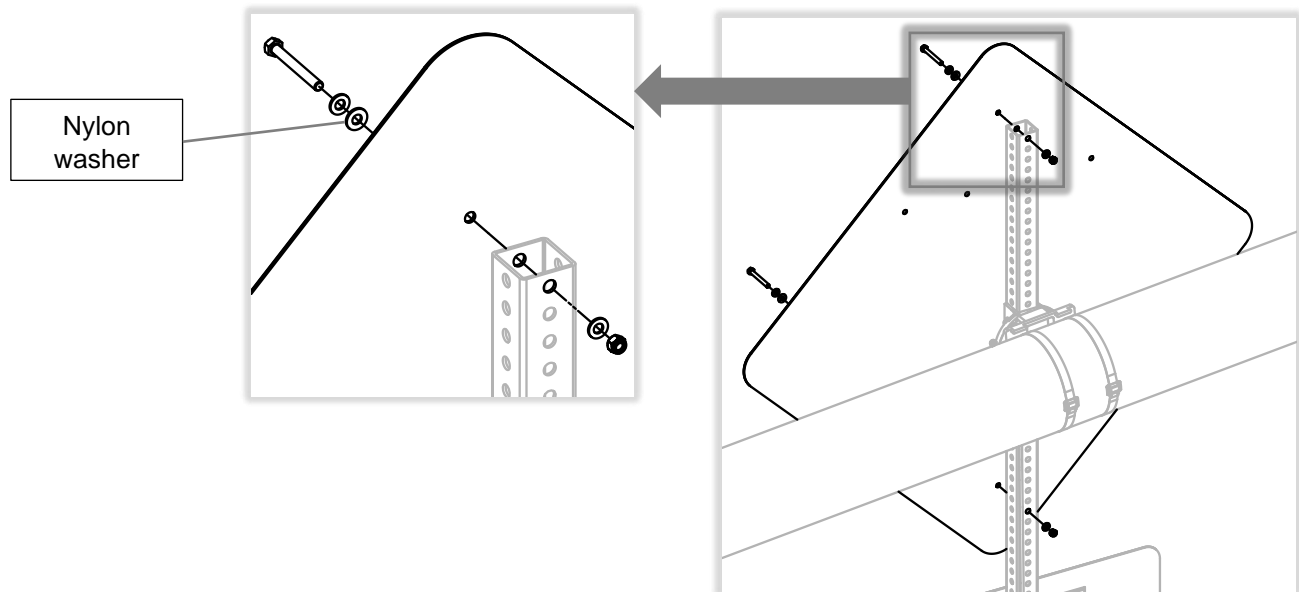


4.4 Installing the Pedestrian Sign

NOTE

This step can be performed before or after the installation of the light bar.

1. Mount sign to perforated tube using provided 5/16" hardware, ensuring nylon washer is against sign sheeting.

**NOTE**

Failure to install the supplied plastic washers may result in damage to the sign sheeting.

4.5 Installing the Light Bar

1. Install light bar bracket in previously marked location. Final spacing between pedestrian sign and light bar assembly may need to be adjusted for installation of optional RRFB light bar backplate but should otherwise be determined by project plans (if applicable).



2. Feed light bar cable through steel tubing and through light bar bracket.



3. Feed light bar cable through rubber grommet on light bar chassis and secure chassis to light bar mounting bracket with fasteners supplied with light bar. See appendix for additional hardware details.

**NOTE**

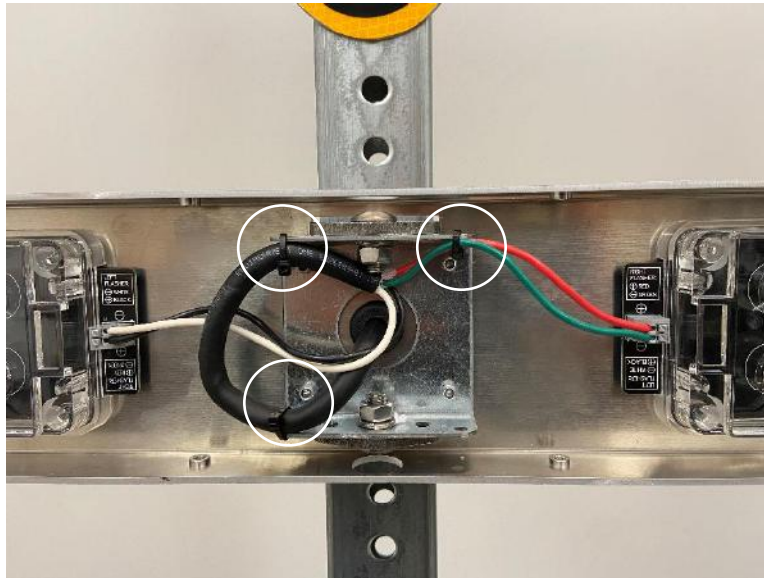
Leave enough cable length on the back side of the steel tubing to form a drip loop (see step 11 – this section).

4. Cut light bar cable to length.

**NOTE**

Leave enough cable length to form a strain relief loop on the inside of the light bar chassis (see step 5 – this section).

5. Form a cable strain relief loop and secure cable jacket and red and green conductors to inner light bar bracket as shown using the small cable ties supplied with light bar.

**NOTE**

Position the cable ties on the chamfered edges of the inner light bar bracket to provide clearance for the light bar cover to slide past the cable during the final assembly steps.

6. Once cable is secured, cut single conductors to length.
7. Strip ends of single conductors, and using a small blade screwdriver, depress spring plunger on terminals and insert each conductor into correct positions as indicated. Ensure conductors are being retained properly by performing a light pull test on each one.

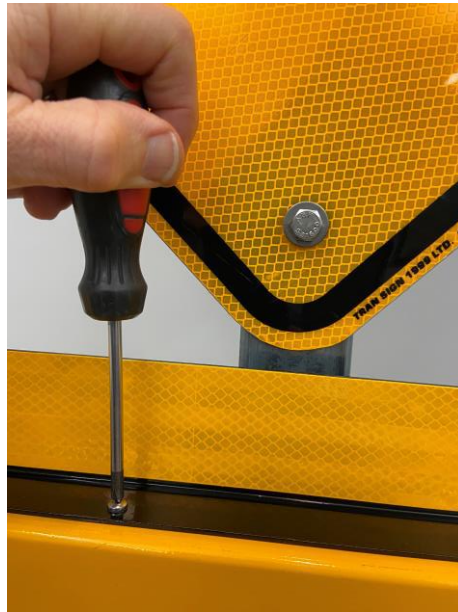
NOTE

For correct RRFB operation and MUTCD compliance, the black and white conductors must be landed on the left-hand side light bar, LED module.

8. Slide RRFB backplate over top of the light bar chassis as shown (if applicable).



8. Install light bar front cover and secure using four Phillips head screws provided with light bar hardware kit.



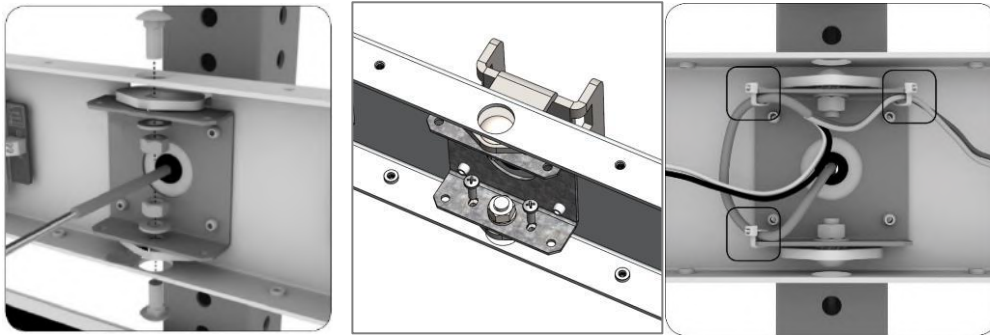
9. Using supplied cable ties, form and secure a drip loop where light bar cable enters steel tubing.
10. Use remaining cable ties to secure light bar cable to steel tubing as required.



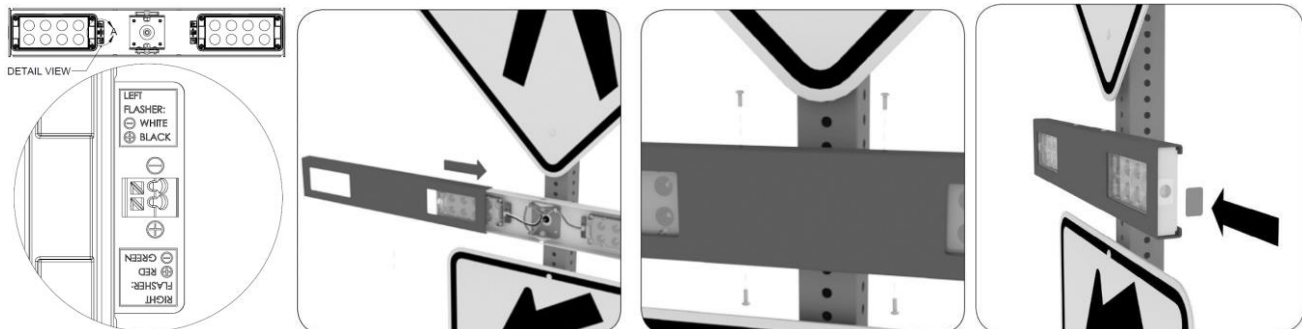
5.0 Appendix – Supplemental Light Bar Information

General Information on Light Bar Hardware and Installation:

1. Mount light bar(s) onto universal bracket(s) through slots in back. Bolt light bar to universal bracket as shown. Install two anti-vandal rotation locking screws (optional). Tighten mounting nuts. Secure cable using supplied cable ties as shown.



2. Align light bar as required. Push light bar wires into light bar connectors, following color scheme indicated on unit. **For FHWA compliance, mount light bar so black and white wires are on the left side.** Slide on light bar cover and secure with four screws provided. If the pedestrian confirmation light is not required, use the supplied opaque labels to cover the indicator light apertures on the ends of the light bar.





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