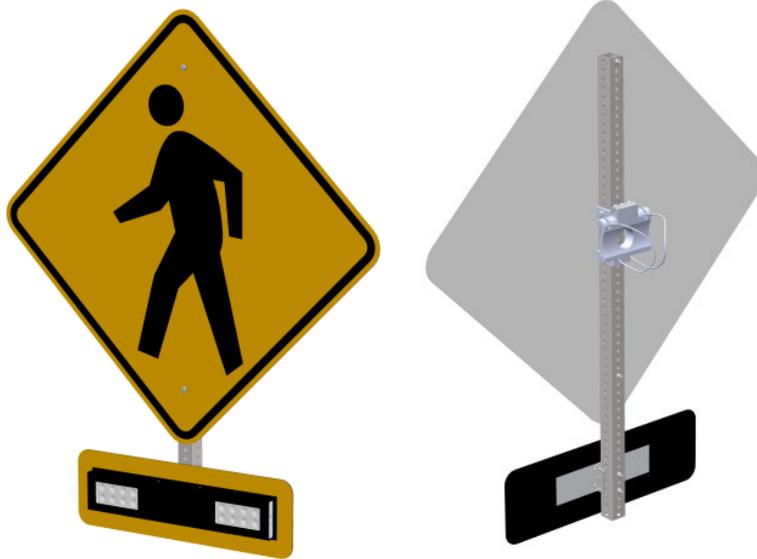




E / F / G Series RRFB MAST ARM KIT INSTALL GUIDE

For mast arm mounted RRFB applications



90630_INSTALL-GUIDE_RRFB-Mast-Arm-Kit_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



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.

NOTE

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.

**WARNING**

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

NOTE

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. Cable 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. 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:

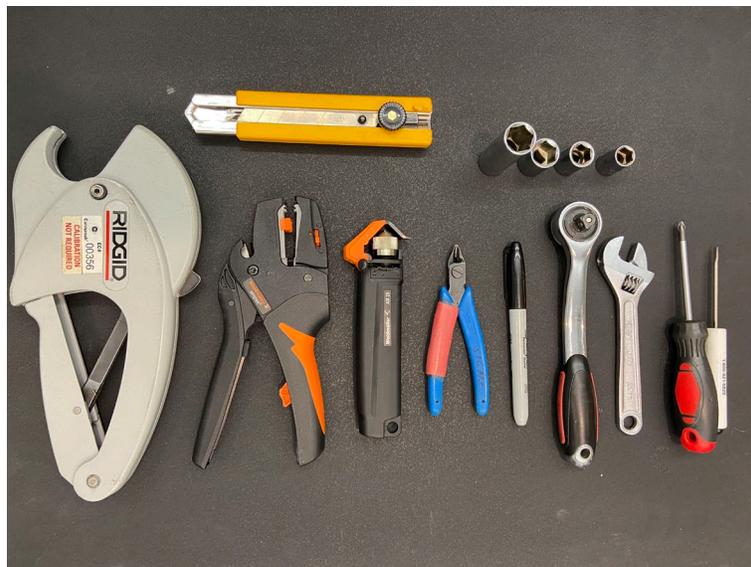


- **Do not overtighten hardware**
- **Do not reuse hardware that has been fully tightened**
- **Do not generate heat**
- **Do not use an impact wrench to install hardware**

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) |
|--|--|



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



- **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**

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. Layout 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).

4.2 Installing the Mast Arm Bracket

1. Feed the light bar cable through the mast arm.

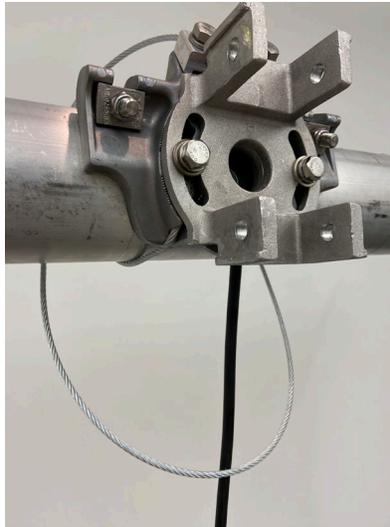
**NOTE**

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.

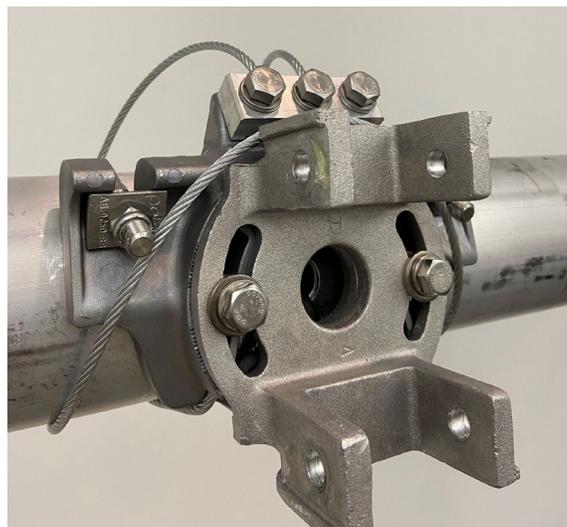
2. Install the mast arm bracket according to manufacturer's instructions. Install the bracket assembly in front of the light bar cable. Do not feed the light bar cable through the round opening in the bracket assembly. Ensure to observe correct fastener torque settings provided by the bracket manufacturer.

NOTE

The following two cable management steps may or may not apply depending on the diameter of the mast arm section.



3. Once the mast arm bracket is installed and angled correctly, feed the light bar cable through the loop formed by the bracket securement cable.
4. Place the loop in the securement cable on top of the bracket assembly as shown below.



5. Install the cable ty-back clamp provided by the manufacturer (optional).



4.3 Installing the Perforated Steel Tube

1. Mount the steel tube with the desired vertical offset above the top of the bracket assembly.
Feed both 7/16" hex bolts through the bracket and tube section prior to threading on and tightening the first lock nut.

**NOTE**

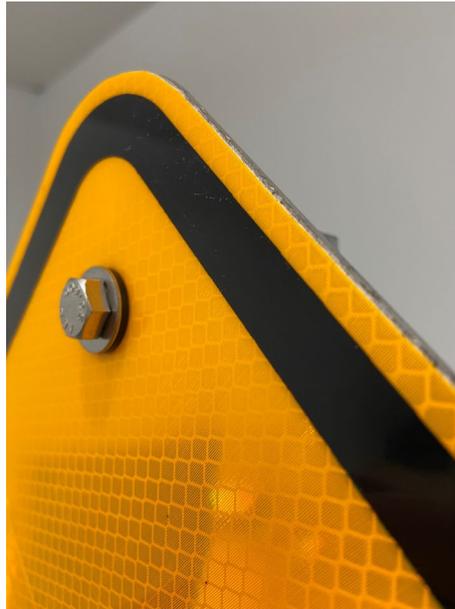
Due to the manufacturing tolerances on the bracket and the size of the supplied fasteners, there may be some slight interference when inserting the bolts. Use a rubber mallet if necessary to aid in assembly. Ensure to observe correct fastener torque settings provided by the bracket manufacturer.

4.4 Installing the Pedestrian Sign

NOTE

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

1. Install the pedestrian sign at the desired location on the steel tube. When feeding the bolt and washer assembly through the sign, ensure that the black plastic washer is against the sign face with steel washer on top – under the bolt head.

**NOTE**

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

4.5 Installing the Light Bar

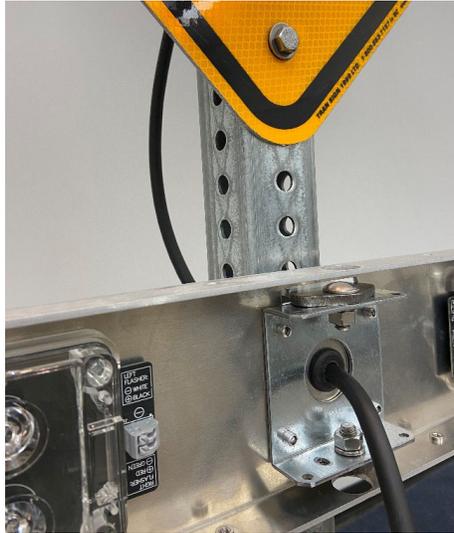
1. Install the light bar bracket in the previously marked location. Final spacing between pedestrian sign and the light bar assembly may need to be adjusted for the installation of an optional RRFB light bar backplate but should otherwise be determined by the project plans (if applicable).



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



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

**NOTE**

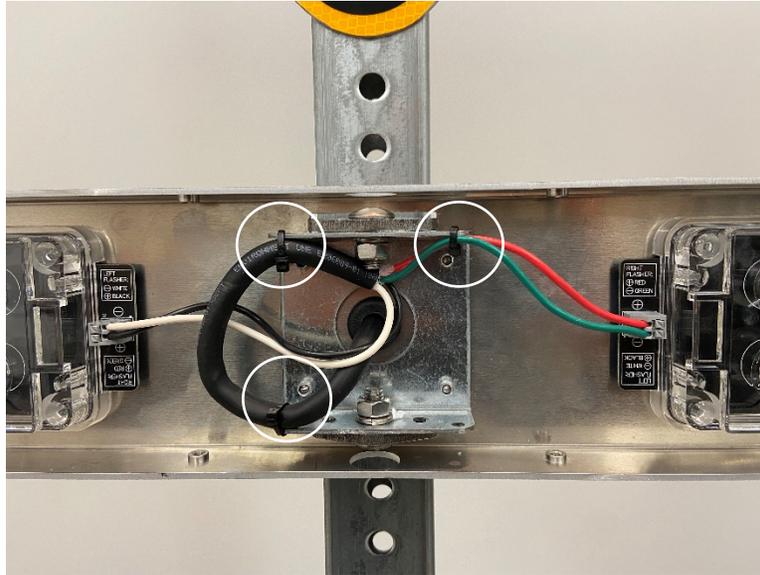
Ensure to leave enough cable length on the back side of the steel tubing to form a drip loop (see step 11 – this section).

4. Cut light bar cable to length.

**NOTE**

Ensure to 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 the inner light bar bracket as shown - using the small cable ties supplied with the 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 the cable is secured, cut the single conductors to length.
7. Strip the ends of the single conductors, and using a small blade screwdriver, depress the spring plunger on the terminals and insert each conductor into the correct positions as indicated. Ensure that the conductors are being retained properly by performing a light pull test on each one.

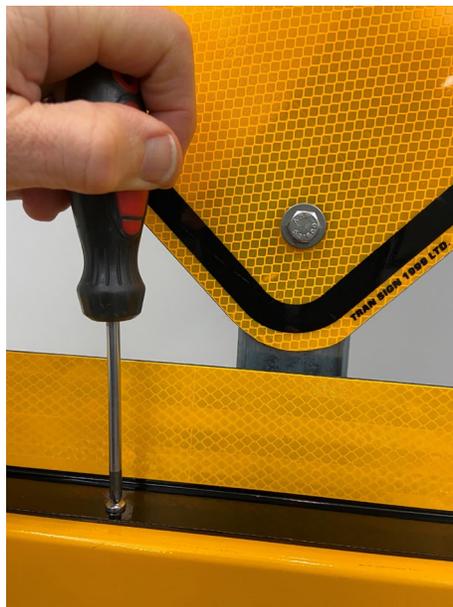
NOTE

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

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



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



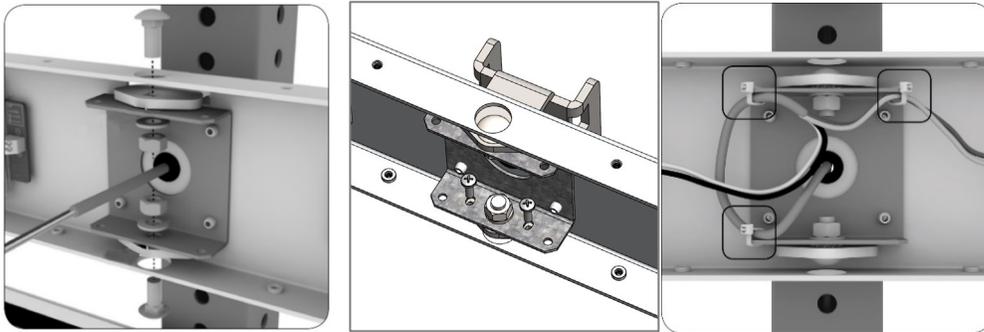
10. Using the supplied cable ties, form and secure a drip loop at the point where the light bar cable enters the back of the steel tubing.
11. Use remaining cable ties to secure the light bar cable to the steel tubing as required.



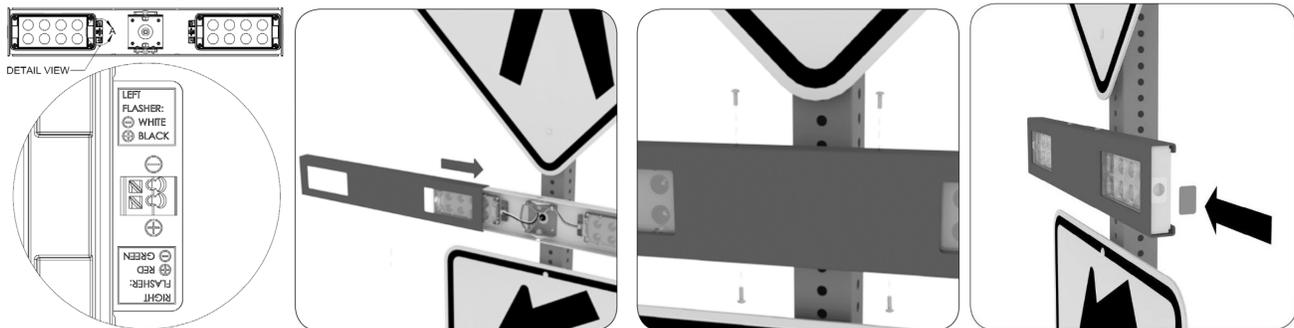
5.0 Appendix – Supplemental Light Bar Information

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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