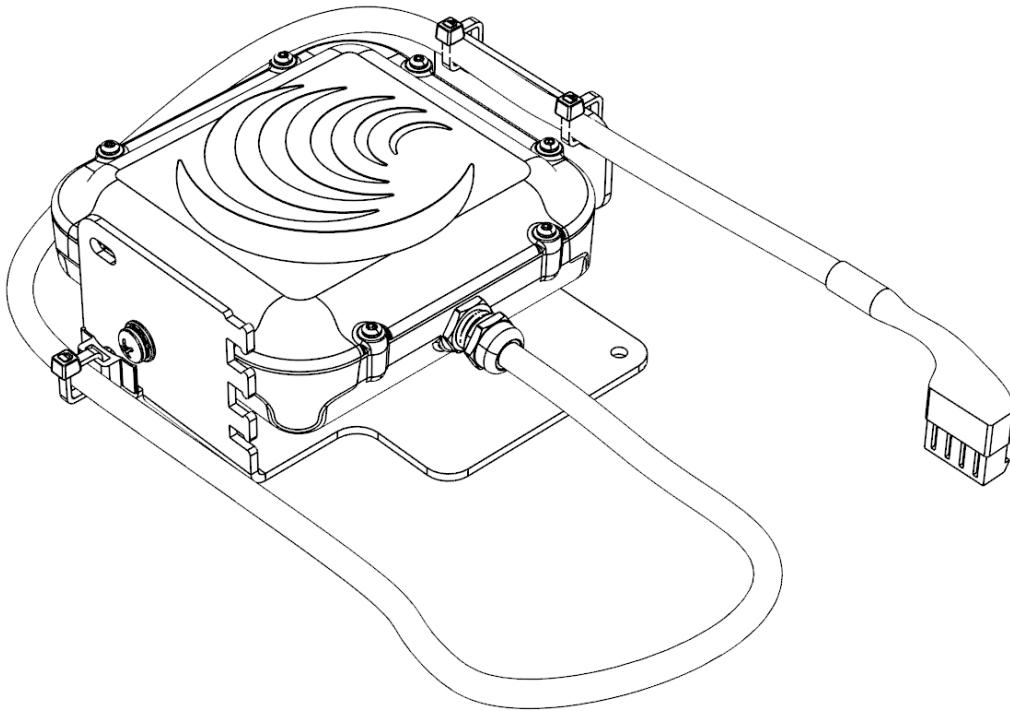




SPEEDCHECK®

SPEEDCHECK-18 RADAR REPLACEMENT GUIDE

For the SPEEDCHECK-18 radar speed signs



88415_REPLACEMENT_GUIDE_SPEEDCHECK-18_RADAR_REVB

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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 installation of Carmanah's SPEEDCHECK-18 replacement radar kit. 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 handling the batteries.



Solar panels produce DC electricity when exposed to light and can therefore produce an electrical shock or burn. To render solar panels inoperative, remove them from sunlight or fully cover their front surface with an opaque material.



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.



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 SPEEDCHECK-18 radar installation and is not a replacement for the complete SPEEDCHECK-18 product user manual.

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

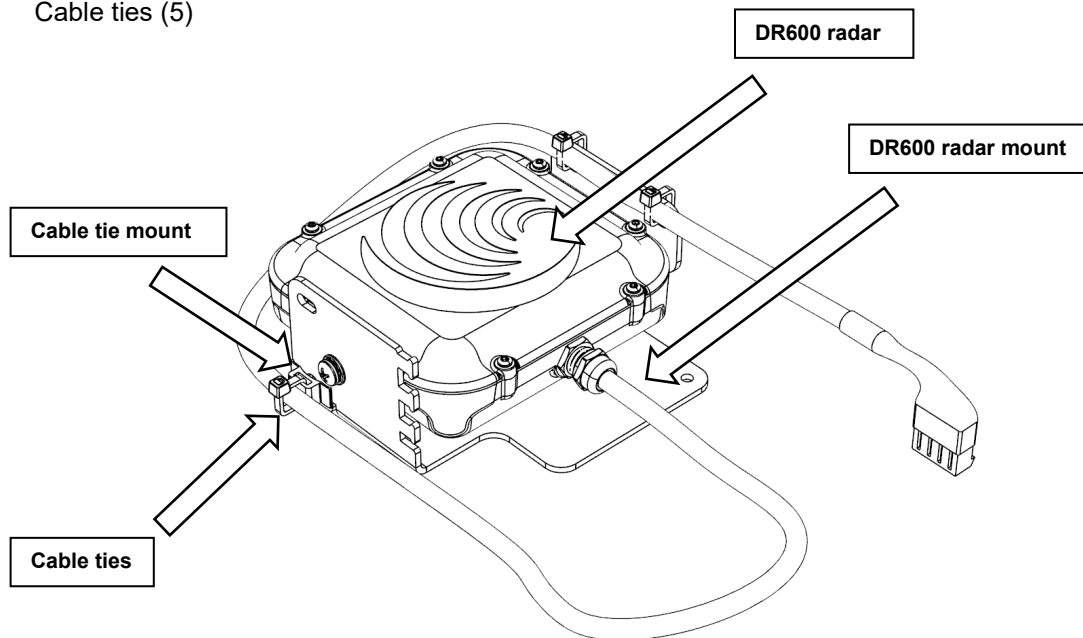
2.0 Radar Kit Overview

2.1 Radar Retrofit Kit Contents

The SPEEDCHECK-18 radar retrofit kit contains the components needed to replace the radar module in a SPEEDCHECK-18 sign. **The images in this guide may differ from your SPEEDCHECK-18 radar speed sign. They are for illustrative purposes only.**

The kit consists of:

- Houston Radar DR600 module (1)
- Houston Radar DR600 mounting bracket (1)
- Nylon locking nuts, #8-32 (3)
- Push-in cable tie mount (1)
- Cable ties (5)



3.0 Installation Procedure

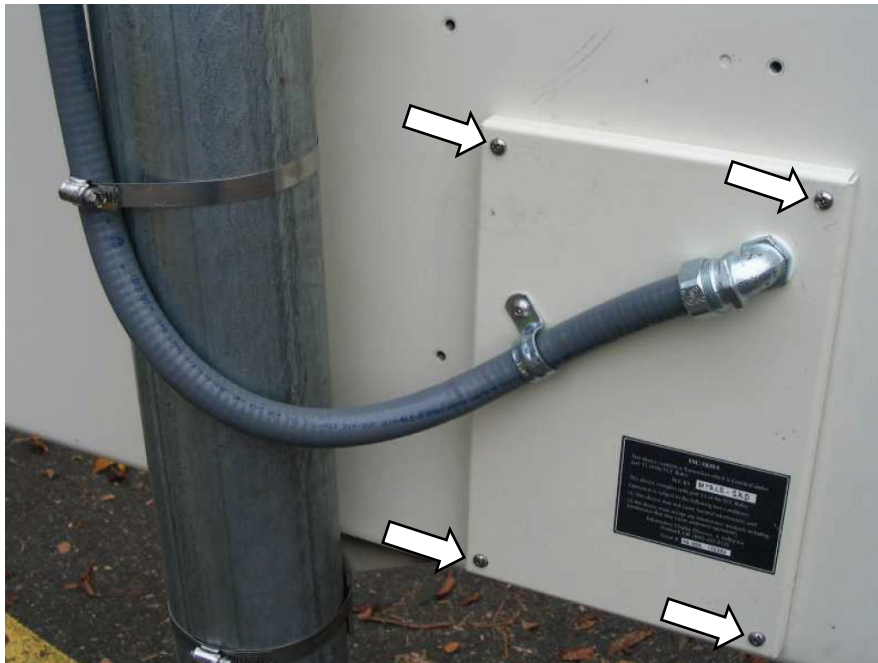
3.1 DR600 Direct Replacement Instructions

These instructions are required for a direct DR600 replacement.

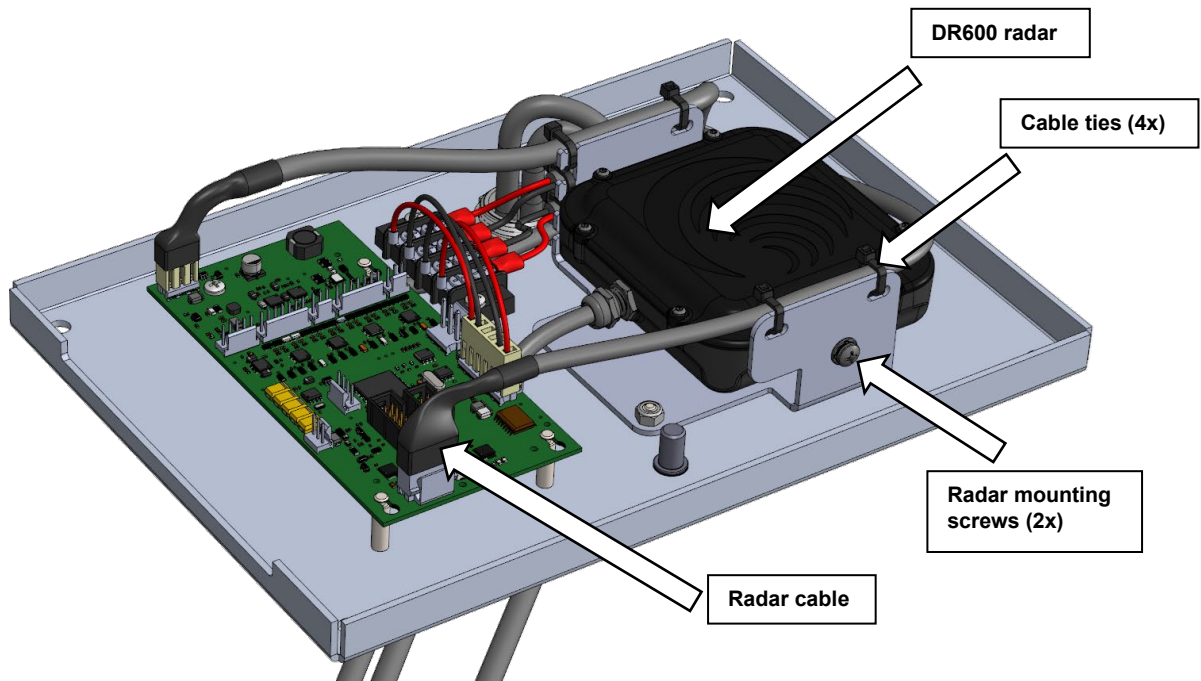


ENSURE DEVICE IS COMPLETELY POWERED OFF SO THERE IS NO DANGER OF ELECTRICAL SHOCK OR RISK OF DAMAGING EQUIPMENT.

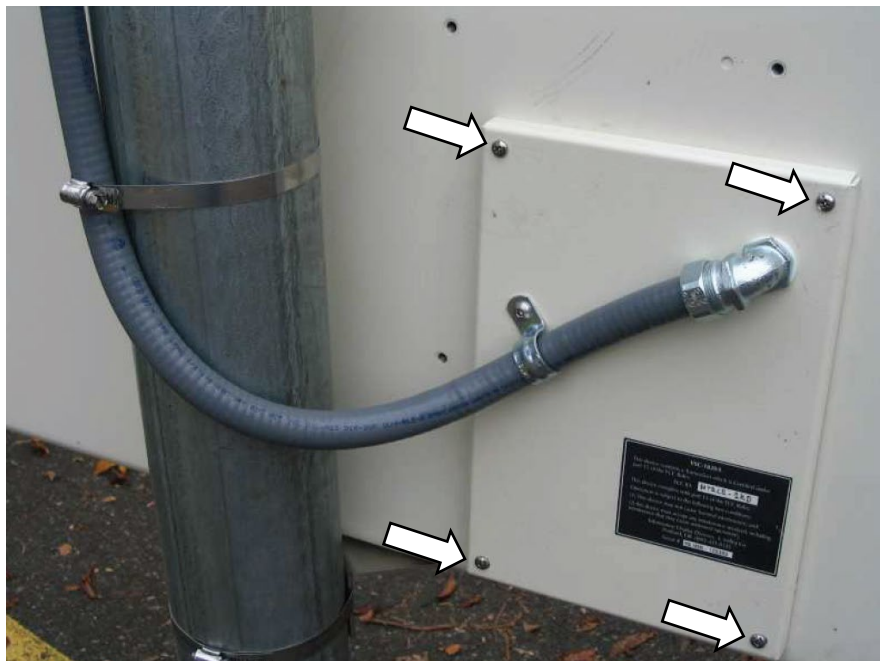
1. Disconnect power from the SPEEDCHECK-18 sign by turning off the breaker or removing the fuse(s) in the associated power cabinet.
2. Remove the four screws holding the back panel assembly to the back of the SPEEDCHECK-18 sign.



3. Remove the radar cable connected to the controller.
4. Remove the four cable ties securing the power and radar harness cables for the speed sign.
5. Remove the two mounting screws for the DR600 radar.
6. Remove the DR600 radar and replace with the new radar.
7. Secure with the radar with the two screws removed from step 5.
8. Route the new radar cable as per the previous method used (up and around the radar). Secure with four cable ties as shown below.



9. Plug the new radar cable into the control board. Ensure the connector engages fully with the friction ramp.
10. Reinstall the fuse(s) or close the breaker in the power cabinet to apply power to the radar sign. Confirm the control board status LEDs turn on and the display LED boards turn on. It may take up to 60 seconds to confirm all LED segments are operational during the start-up procedure.
11. Reinstall the back panel assembly to the SPEEDCHECK-18 sign. Ensure nothing gets pinched in the gasket. Tighten the four screws firmly.
12. Wait for traffic to activate the system and ensure radar sign is working properly.



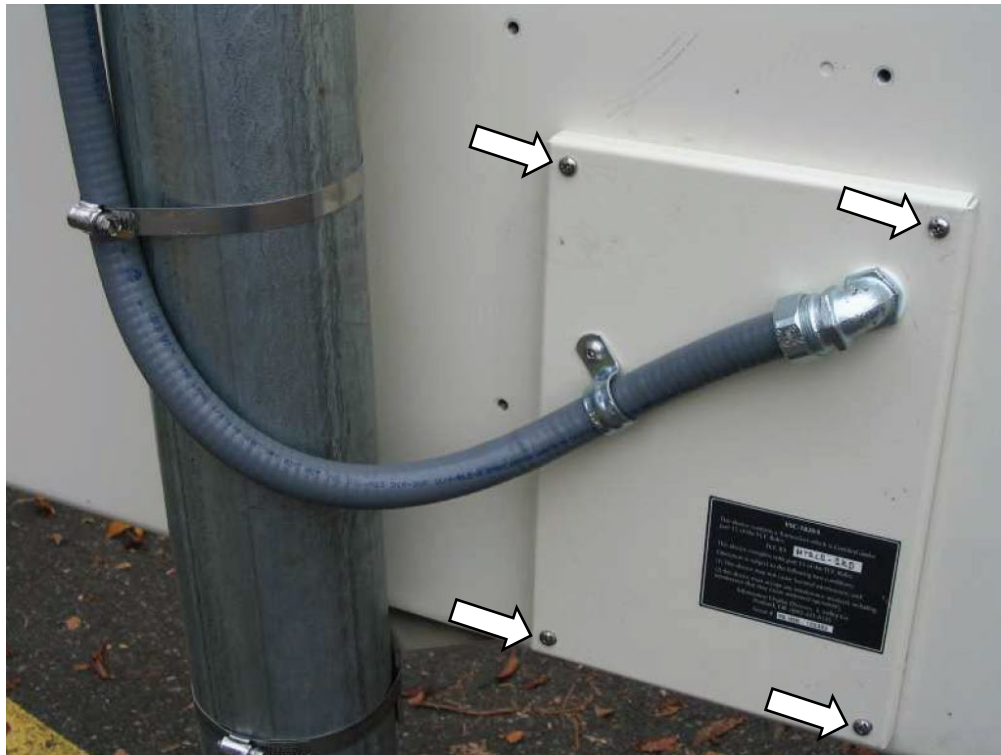
3.2 DR600 Retrofit Installation Instructions

These instructions are required for previous revisions that contain the DR500 or older radar. You may have a large inline capacitor installed in your system. These instructions will cover removing it as part of retrofitting to the DR600 radar.

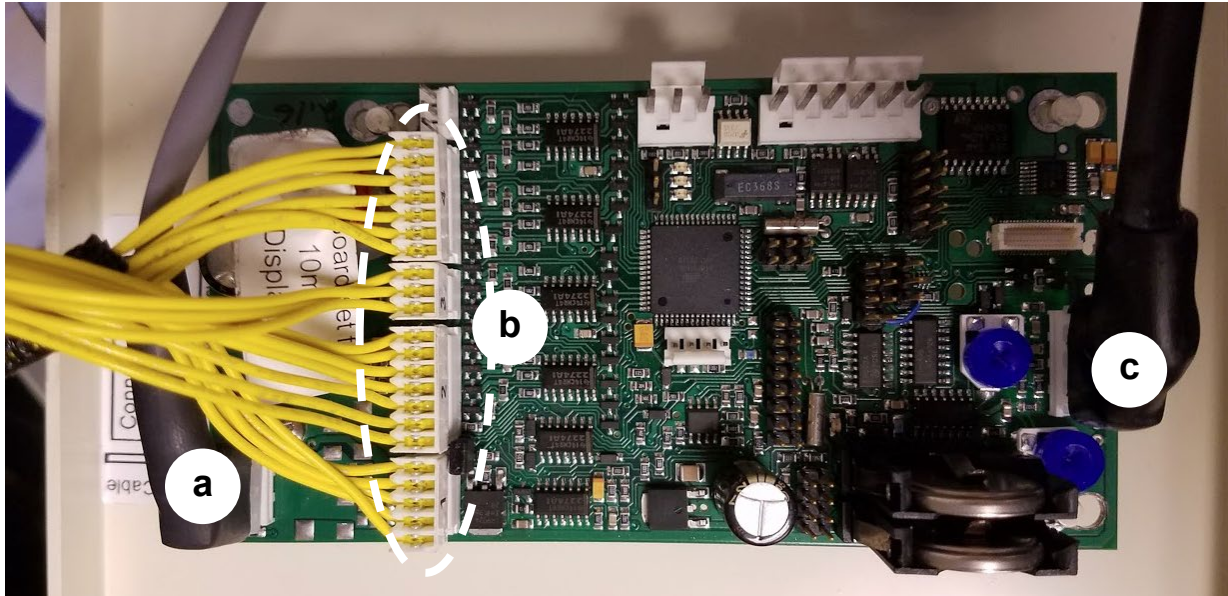


ENSURE DEVICE IS COMPLETELY POWERED OFF SO THERE IS NO DANGER OF ELECTRICAL SHOCK OR RISK OF DAMAGING EQUIPMENT.

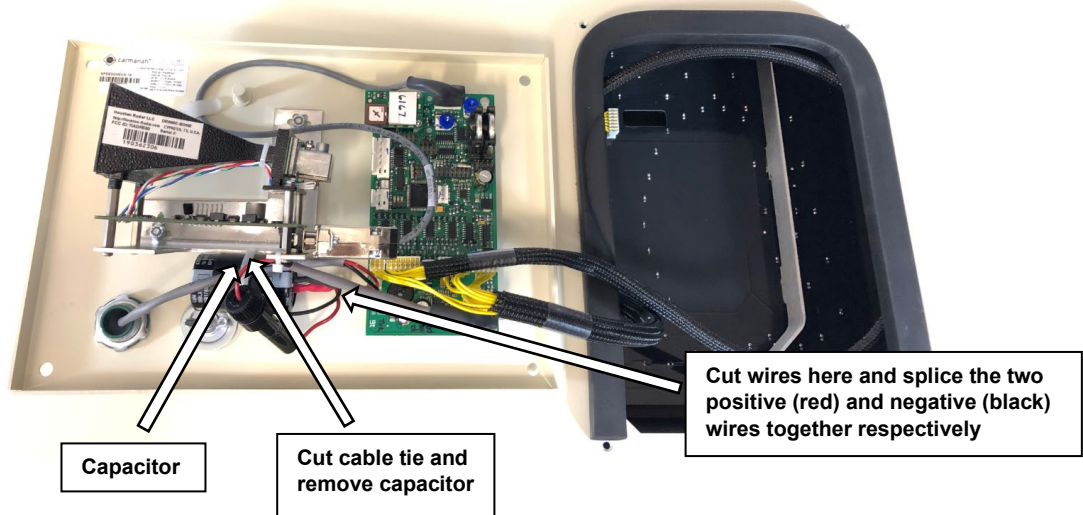
1. Disconnect power from the SPEEDCHECK-18 sign by turning off the breaker or removing the fuse(s) in the associated power cabinet.
2. Remove the four screws holding the back panel assembly to the back of the SPEEDCHECK-18 sign.



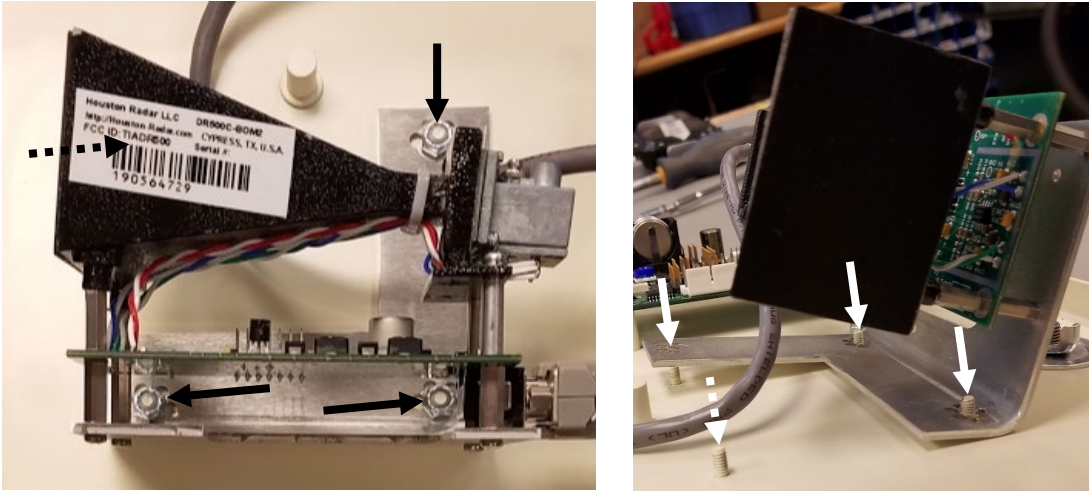
3. Remove the harness connectors from the control circuit board in the following order:
 - a. Input power harness connector
 - b. Display board harness connectors (4x)
 - c. Radar harness connector



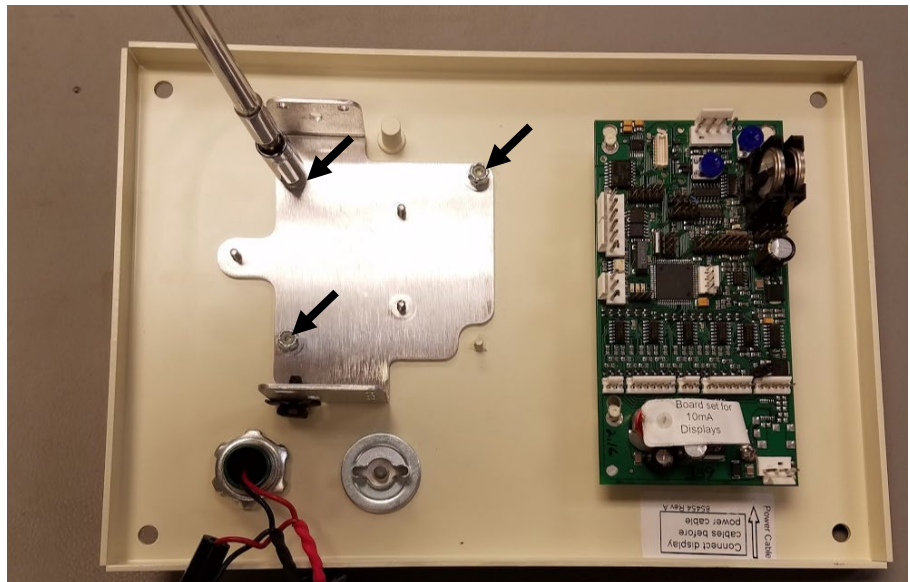
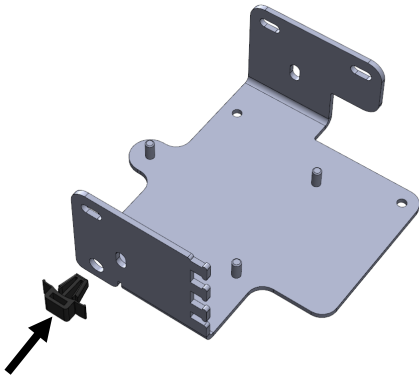
4. Cut the cable ties holding the capacitor and input power cable onto the radar bracket.
5. Cut the two positive and two negative wires going into the capacitor, just before the heat shrink.
6. Cut the cable tie (or remove the nyloc nut on legacy systems) and fully remove the capacitor from the system.
7. Butt splice the two positive wires together and then the two negatives together, using heat shrinkable butt splices. It is advised to also put heat shrink over the butt splice for added protection.
 - a. Wago splicing connectors are also an acceptable alternative to butt splicing.



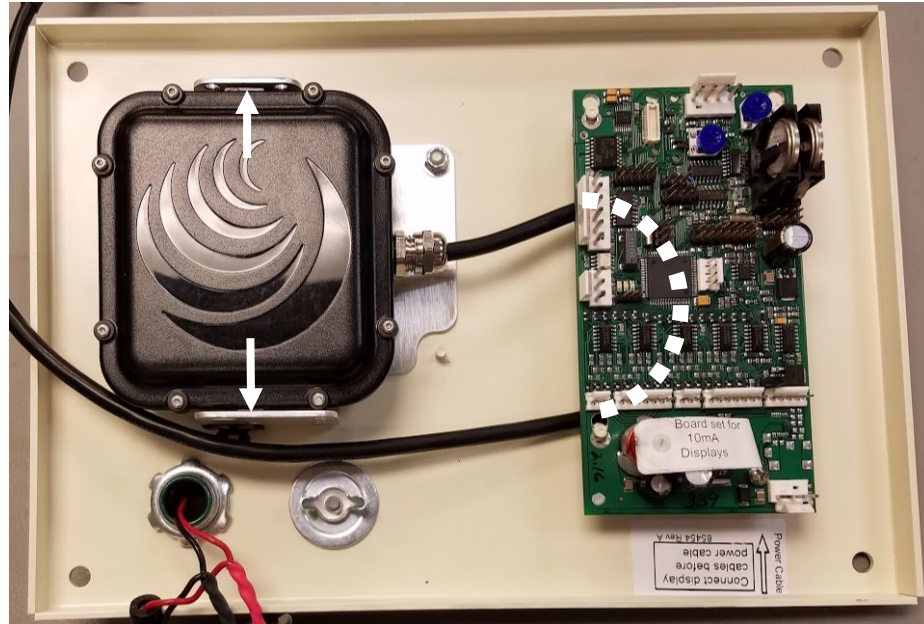
8. Remove the four nuts that fasten the radar bracket and cable clip (dashed arrow) to the back panel studs.



9. Remove and set aside the radar module assembly and cable clip.
10. Install the push-in cable tie mount into the hole shown on the replacement radar module bracket, and fasten the bracket to the back panel using three nuts as shown below.



11. Remove the two screws on the sides of the new radar module. Make a loop in the radar harness and slide it under the control circuit board as shown. Line up the threaded holes in the sides of the radar module with the slots in the bracket and reinstall the screws. Ensure the bottom of the module sits flat against the three studs on the bracket; tighten the screws firmly.



12. Route the radar harness as shown and connect the connector to the control circuit board. Make sure the radar connector is fully mated and use the cable ties provided to secure the radar cable to the bracket in three places as shown.

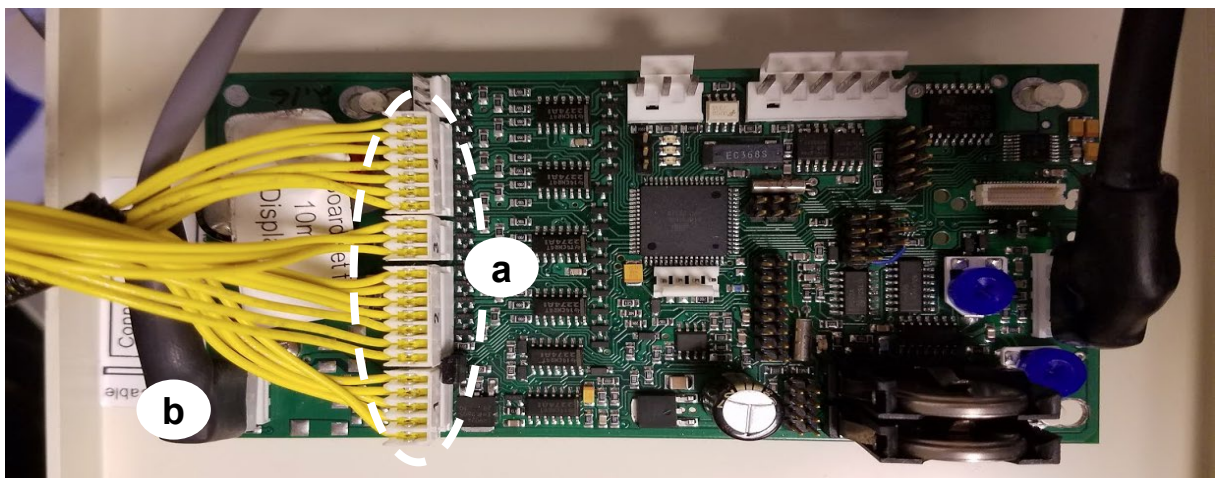


13. Cable tie the input power harness fuse holder to the radar cable as shown.

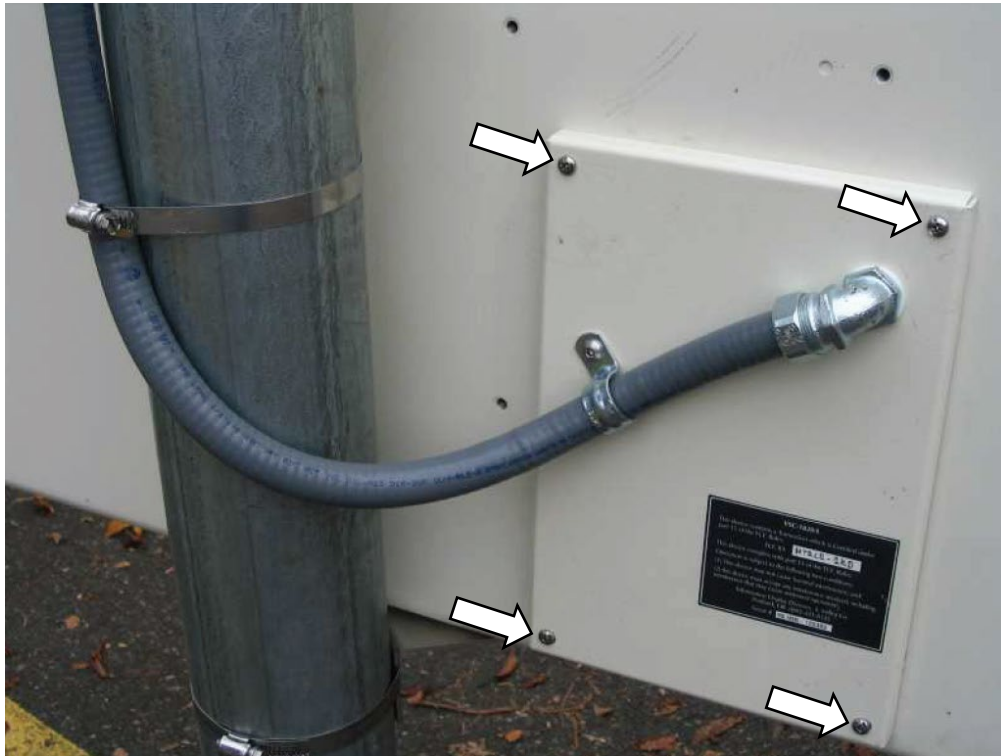


14. Mate the remaining control circuit board connectors in the following order:

- a. Display board harness connectors (4x)
- a) Input power harness connector



15. Reinstall the fuse(s) or close the breaker in the power cabinet to apply power to the radar sign. Confirm the control board status LEDs turn on and the display LED boards turn on. It may take up to 60 seconds to confirm all LED segments are operational during the start-up procedure.
16. Reinstall the back panel assembly to the SPEEDCHECK-18 sign. Ensure nothing gets pinched in the gasket. Tighten the four screws firmly.



17. Wait for traffic to activate the system to ensure radar sign is working properly.



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Technical Support:

Email: customersupport@carmanah.com

Toll Free: 1.877.722.8877 (US & Canada)

Worldwide: 1.250.380.0052

Fax: 1.250.380.0062

Web: carmanah.com