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BMW F30 and BMW F22 Headlight Ram Air Intake Installation Guide

Kit Contents (Full Kit)

Please review this document before attempting installation.
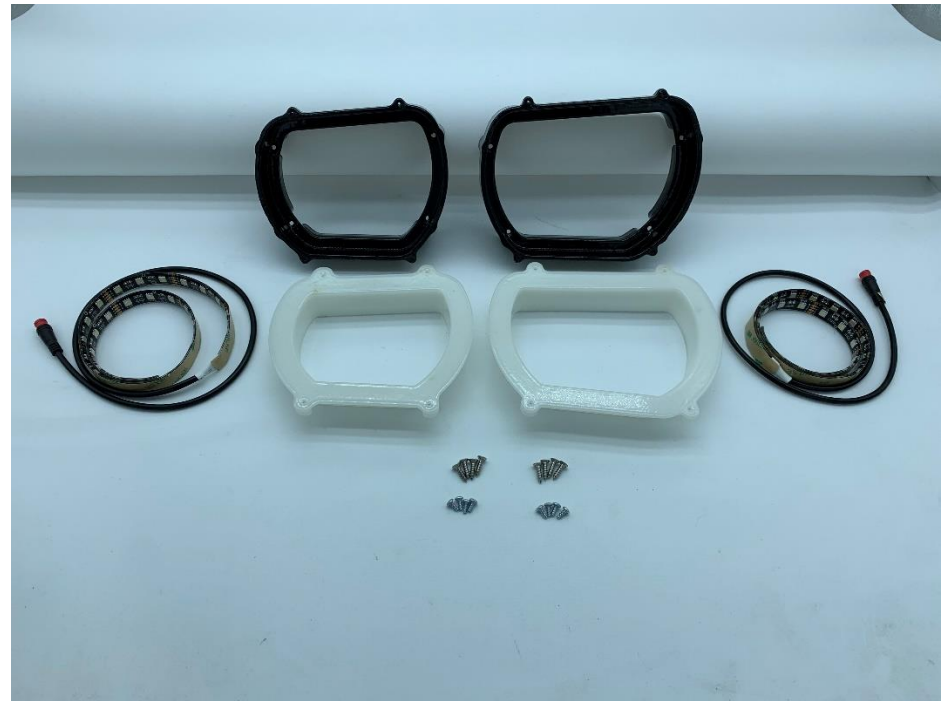
You will need basic hand tools and 2 hours of installation time.

Kit Contents	Qty
Fully assembled headlight intake kit	1

Kit Contents (Upgrade Kit)

Please review the table below and make sure you have received the kit contents.

Kit Contents	Qty
Cage (small duct)	1
Cage (large duct)	1
Diffuser (small duct)	1
Diffuser (large duct)	1
#4 x 1/4" self-threading screws	8
#6 x 1/2" screws	8
Diode Dynamics LED strip (50 cm)	2

Stock Components Removal

It is best to Google "how to remove headlight" for your particular trim.

Disclaimer:

The procedure for installing the headlight intake is demonstrated using a BMW F30 headlight but the same procedure applies if you've purchased this product for your BMW F22. The hardware and fastening principles are consistent for both products.
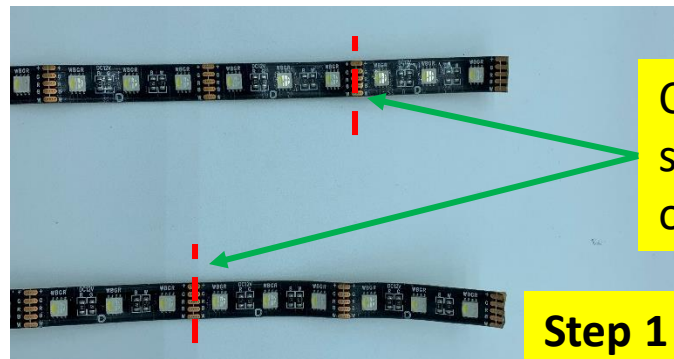
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Upgrade Kit

If you purchased a full Lit headlight intake kit, you may skip to slide 8. If you already own a headlight intake kit and have opted to upgrade to the Lit version, start by removing your existing headlight from your car. Installing the LEDs is a simple 4-step procedure:

1. Cut the LED strips to length
2. Attach the LED cages (black) to the headlight intake using #6 screws
3. Attach the LED strips to their corresponding cage
4. Attach the diffusers (translucent) to the cages using #4 screws

For the first step, use scissors to cut one of the 50cm LED strips at the first set of copper pads (this removes 3 LEDs) from the end. Cut the other 50cm LED strip at the second set of copper pads (this removes 6 LEDs) from the end. **It is critical that you make the cut as close as possible to the centerline of the copper pads.**

Cut one LED strip at the first set of copper pads. Cut the other at the second set.

Step 1

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Upgrade Kit

Next, install the cage to the corresponding duct using the provided #6 screws. Ensure the gap between the ducts and the cages have been closed after the screws have been tightened. For step 3, route the LED cable connectors through the holes on their respective cages: the shorter LED for the smaller cage and the longer LED for the larger cage. Remove the paper backing and attach the LED strips along the centerline of the inner wall such that they adhere well without any air gaps. Using glue for stronger adhesion is recommended.

Route connector-end first
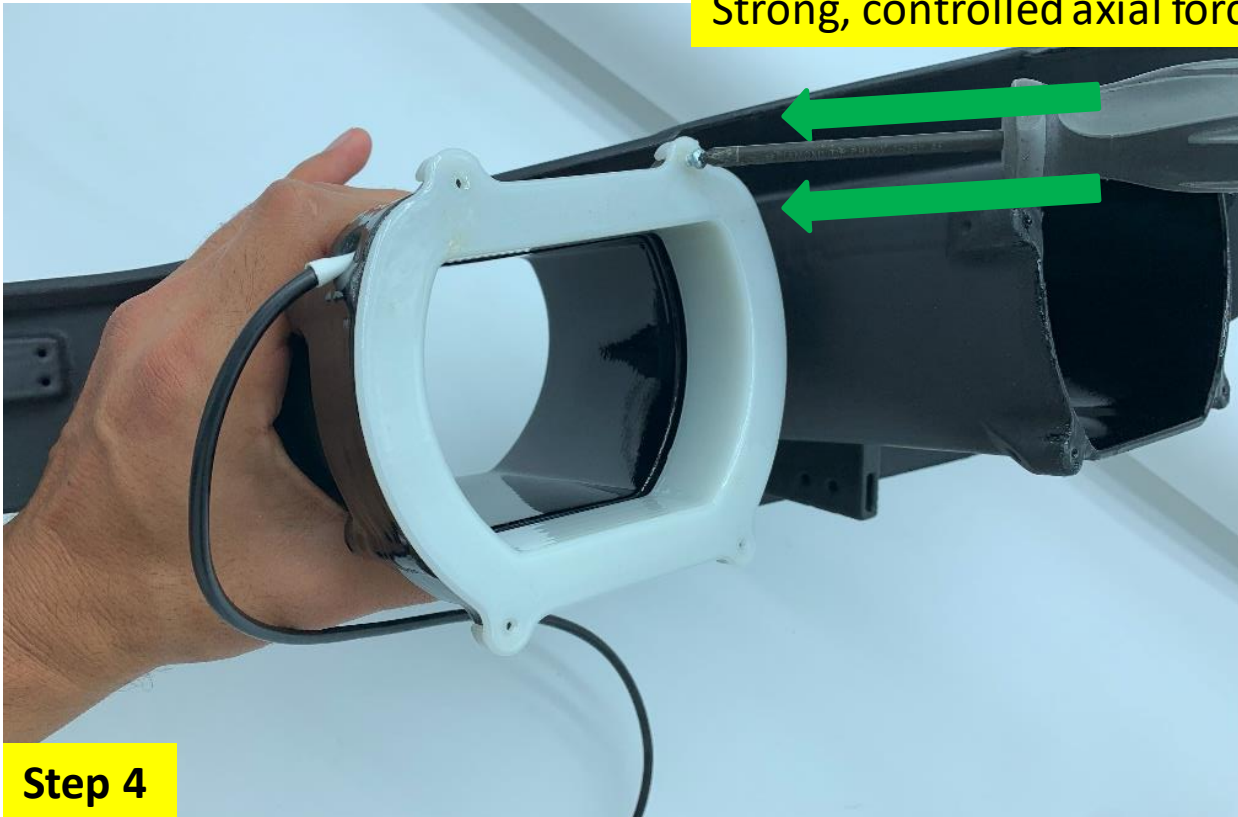
Step 3

Ensure gap is closed

Step 2

Route along centerline. Strong adhesion is critical.

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Upgrade Kit

Lastly, use a Phillips PH1 screwdriver to install the diffusers to their respective cages using the #4 screws. You will need to exert a strong, controlled axial force to allow these self-threading screws to take hold. Take care not to overtighten to avoid stripping the holes. **You should not need more than 6 half turns of the screw to properly fasten.**
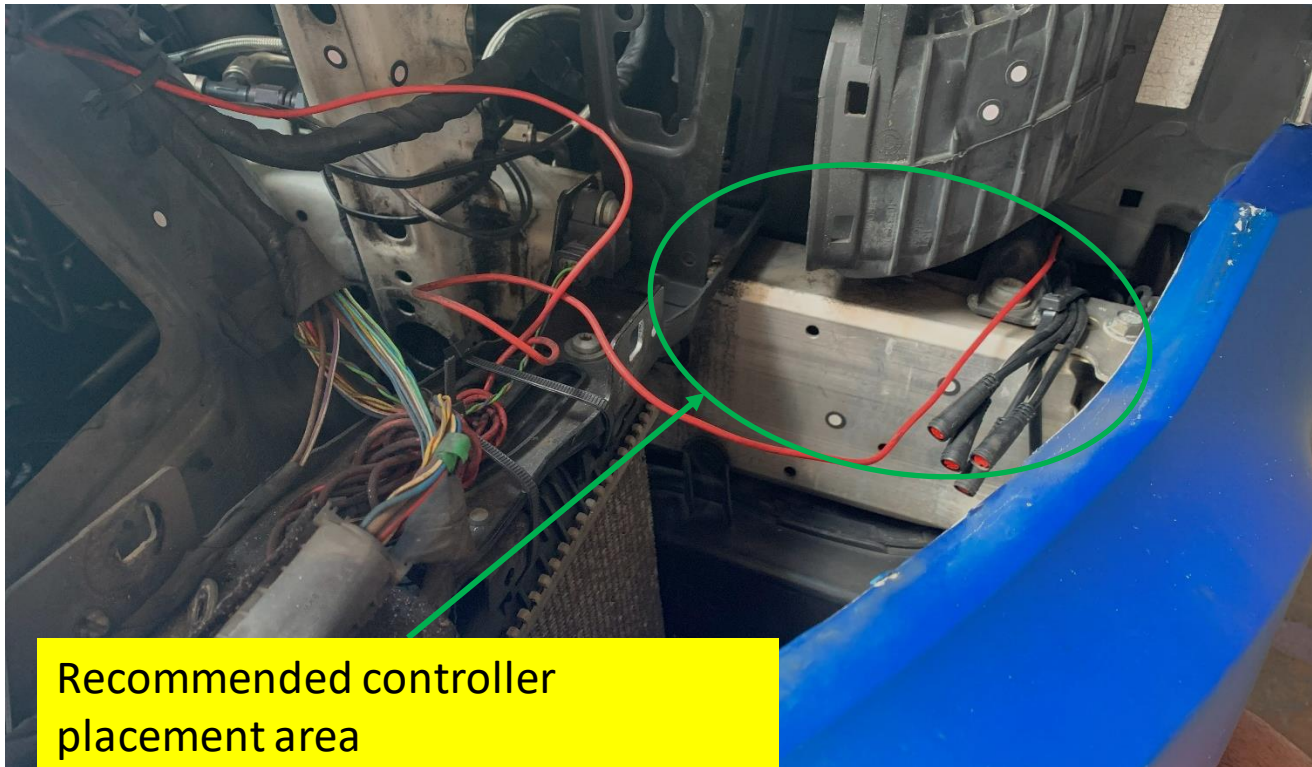

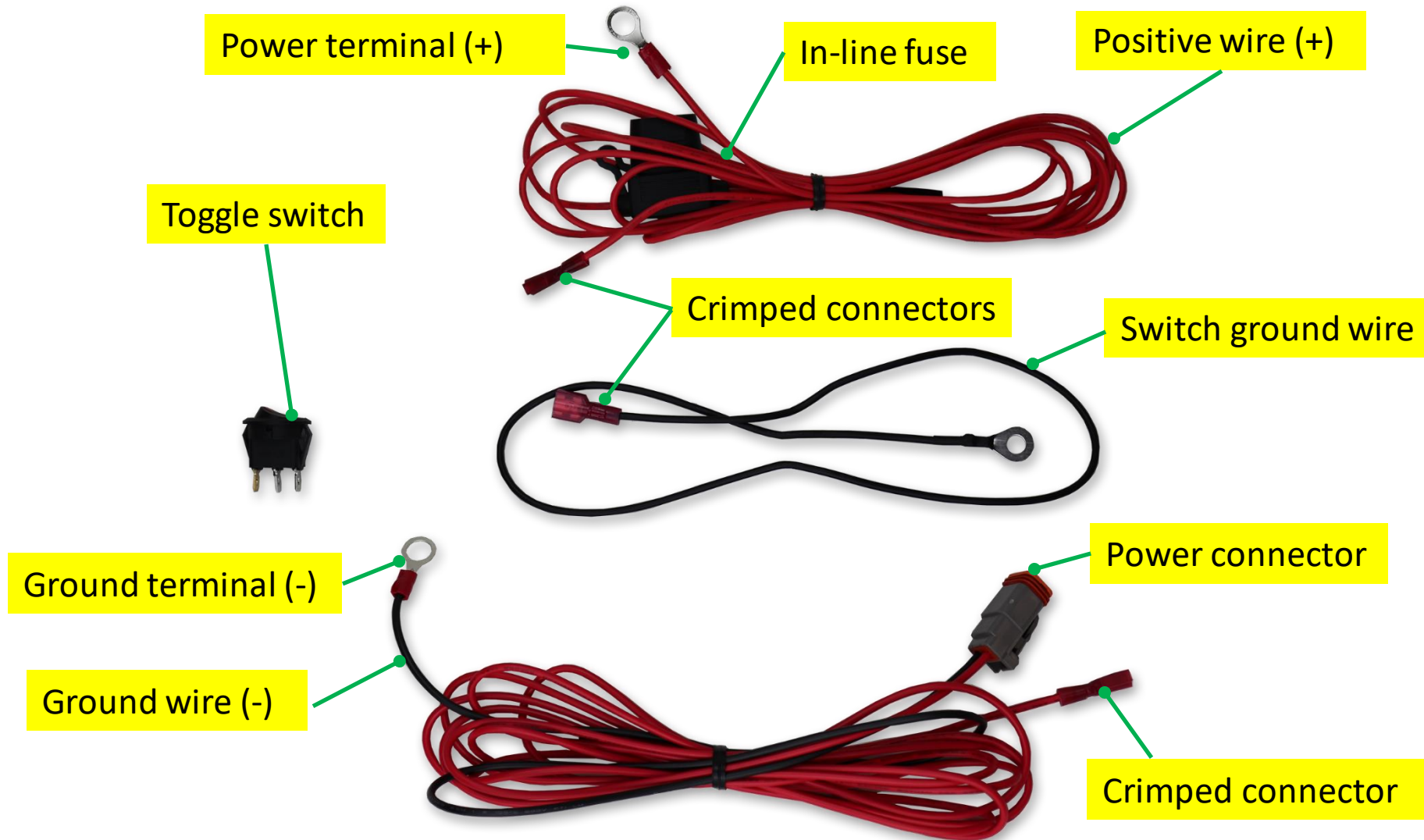Strong, controlled axial force necessary.

Step 4

Controller Placement

It is best to place the controller before installing the headlight intake to allow for some room to maneuver. When looking for a spot to place the controller, consider that it should rest on a flat surface where the Bluetooth signal will not be blocked by too many surrounding metal components. The LED ports also need to reach the LED cables on the headlight intake. Aim to install it in the recommended spot.
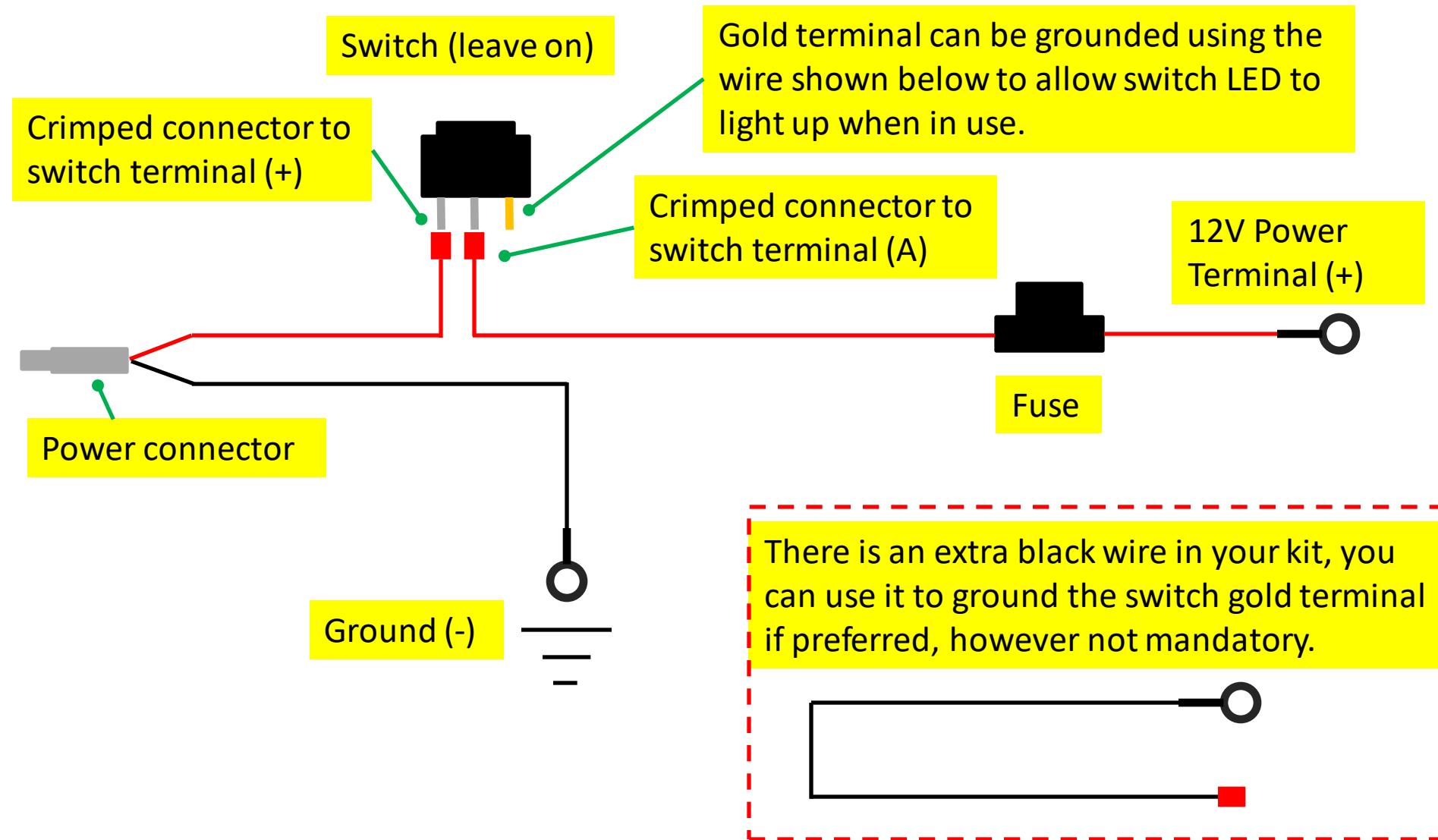

Recommended controller placement area

Wiring Harness

Power terminal (+)

In-line fuse

Positive wire (+)

Toggle switch

Crimped connectors

Switch ground wire

Ground terminal (-)

Power connector

Ground wire (-)

Crimped connector

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Wiring Harness Schematic

Switch (leave on)

Gold terminal can be grounded using the wire shown below to allow switch LED to light up when in use.

Crimped connector to switch terminal (+)

Crimped connector to switch terminal (A)

12V Power Terminal (+)

Fuse

Power connector

Ground (-)

There is an extra black wire in your kit, you can use it to ground the switch gold terminal if preferred, however not mandatory.
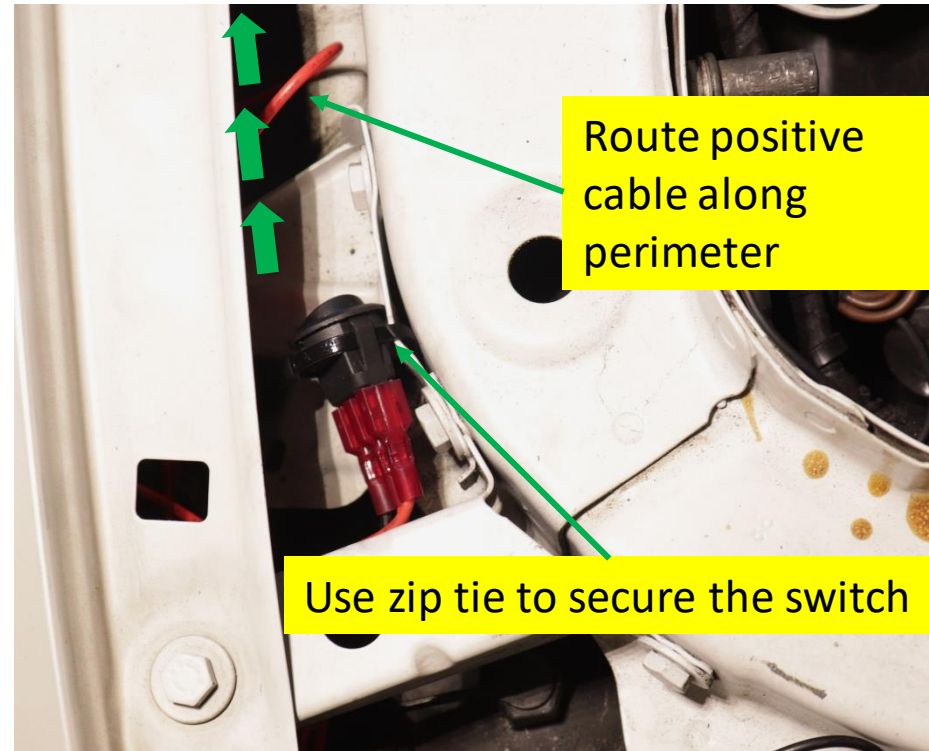
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Power the Controller

Connect the switch in accordance with the wiring harness schematic and use a zip tie to fasten it to the shown location. Take the positive wire with the in-line fuse and route it up along the perimeter.
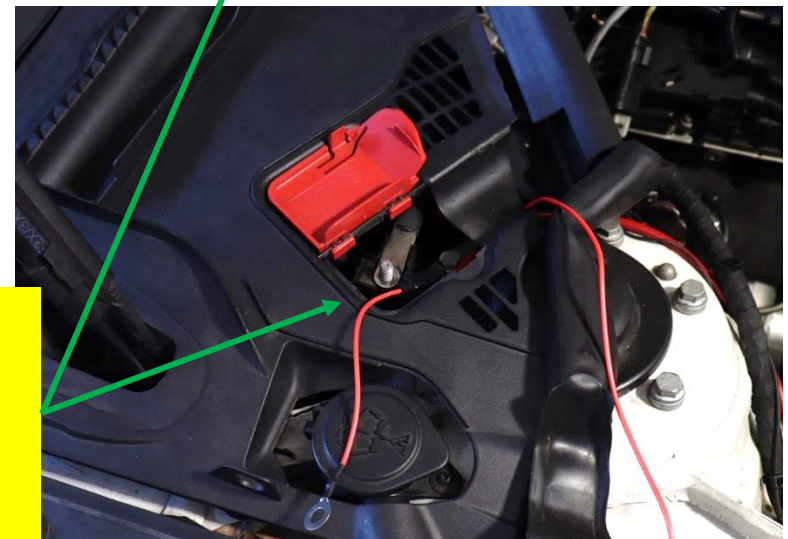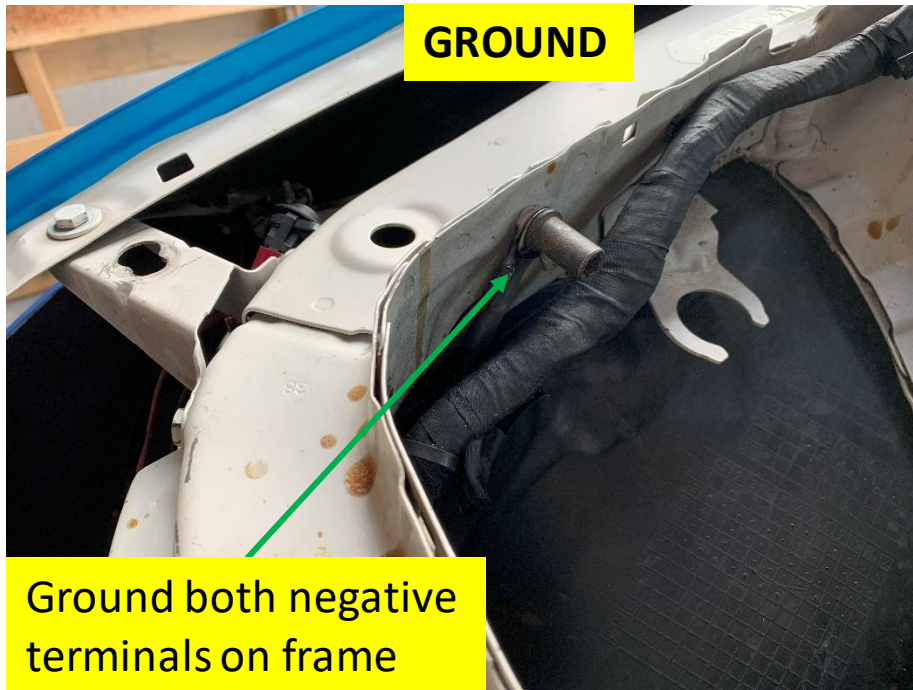

Route positive cable along perimeter

Use zip tie to secure the switch

Route wires under frame piece

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Power the Controller

Use the provided wiring harness schematic and indications below to provide power to and ground the controller.

GROUND

POWER
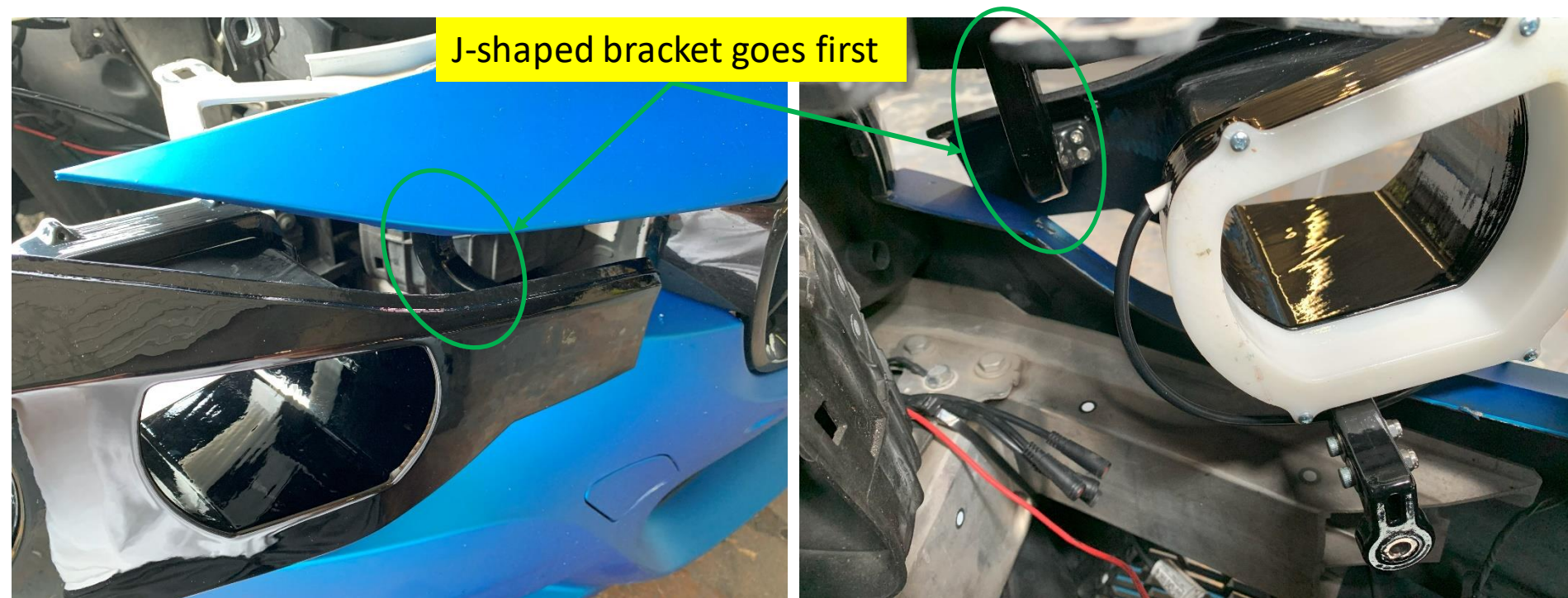
Ground both negative terminals on frame

Carefully connect the positive wire to the positive terminal after removing the oversized bolt. Reinstall bolt. Close the positive terminal cover. Turn the switch on to power the controller.

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Install Headlight Intake

Prior to installing the headlight intake, remove all three M6 x 25mm cap screws and the one M5 x 14mm button head screw with corresponding washers and nuts that are loosely attached to the ends of the headlight intake. Orient the headlight such that the right-side bracket (shaped like a J) goes through the opening first.

J-shaped bracket goes first

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Install Headlight Intake

Next, prioritize inserting the brackets attached to the 6" aluminum bars, followed by the bracket attached to the shorter 3" aluminum bar. Take care not to use excessive force, the headlight intake should go through easily. At this point, you may connect the LED cables to any of the 4 ports on the controller. **Make sure to line up the arrows on the connectors!**
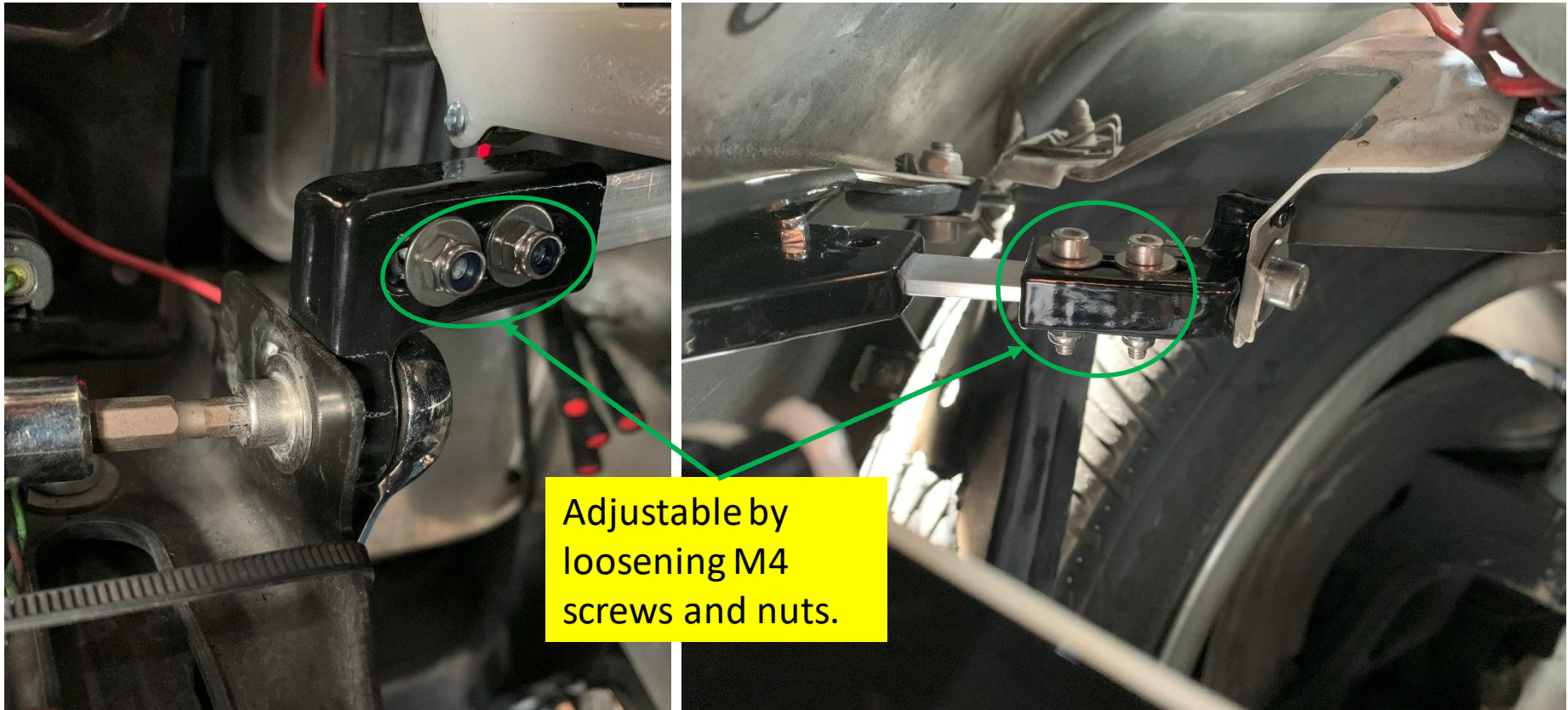
Brackets on 6" aluminum bar

Bracket on 3" aluminum bar

Install Headlight Intake

Align the brackets with their corresponding fastening points and use the M6 x 25mm cap screws, washers (one on each side) and lock nuts to install the headlight intake. **DO NOT OVERTIGHTEN.** The headlight intake positioning can be adjusted by loosening the M4 screws and nuts.

Adjustable by loosening M4 screws and nuts.

Install Headlight Intake

Align the M5 insert with the center of the indicated opening. Use the M5 x 14mm button head screw and the large 6mm washer to fasten. **DO NOT OVERTIGHTEN.**

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Phone App

Download the Diode Dynamics app and connect via Bluetooth.

How to connect to the app:

1. After installing the app from the app store, open the app on your device.
2. Cycle the power to the Bluetooth controller by unplugging it and plugging it back in or flick the power switch and wait a few seconds, then turn it back on.
3. Wait for the app to detect the controller, it will pop up on the app screen as a Bluetooth controller. If necessary, cycle the power once more to refresh the controller.
4. Once the controller shows up on the app, click it and connect. You have 30 seconds to select the controller once it shows up on the app. After 30 second you will need to refresh again to detect the controller again.
5. Note that if you mounted your controller behind a lot of metal components, this may degrade the signal and range.

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Final Assembly Review

Review the install and make sure nothing is binding or causing any preload on any parts, loosen and retighten if adjustment is necessary.

Re-assemble the bumper the same way it was removed to complete installation.