ROADIO

RadWagon 4 Install SOP

1. Gather your Roadio kit

Tools:
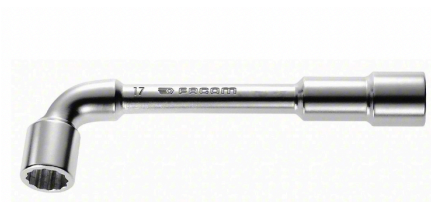
Allen keys (3mm & 5mm)   Flush cutters   Socket wrench (8mm)
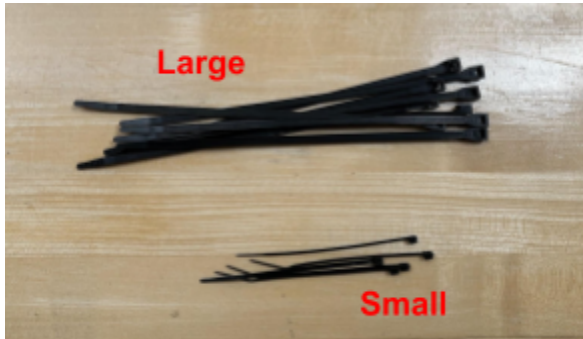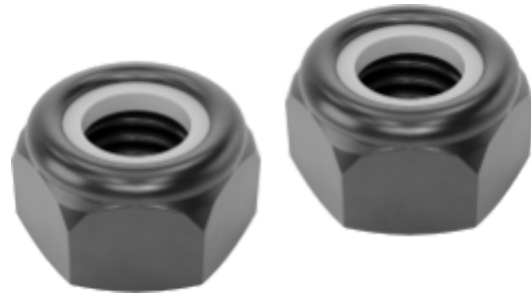
Fasteners:

Zip ties   2x **Lock nuts (M5x0.8)** (*spare*)

Large

Small

Roadio Hardware:

Rear camera+mount+1.2m extension cable   Front camera+mount+1.4m extension cable
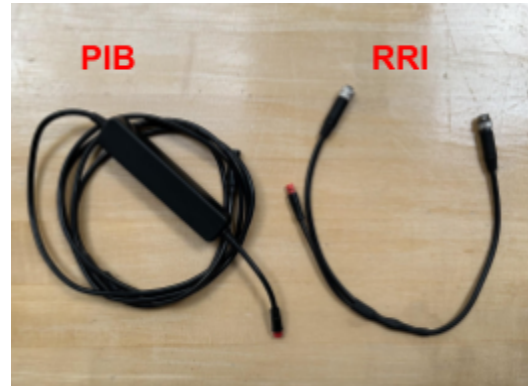
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Roadio controller+mount

PIB / RRI

Cable Cover

Lightning Cable (1.6m)

- **General tip**: Before inserting the connectors into each other, make sure the arrows on the housing point at each other. This ensures that the plugs are properly keyed together when they are connected.

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2. **Mount Front Camera**

- This step will occur at the front of the bike.

- Use a 5mm Allen key to unscrew the upper 2 headtube mounting bolts. Install the front camera **(above the mounting holes)** using the original bolts and tighten back down.

    a. The cable exiting the camera should be on the **left side** when you are facing the camera.

3. **Mount Rear Camera**

- This step will occur at the tail light on the rear rack of the bike.

- Disconnect the tail light cable.

- Using your socket wrench (*included in your kit*), loosen and remove the nuts that hold in the tail light bolts.

- Place nuts to the side for now.

Nuts to loosen and remove.

- Put the rear camera mount and tail light together as shown in the picture to the right.

Rear camera mount + tail light assembled together.

Note the rear camera mount held in place between bike and tail light.

- Add this assembly to the bike at the initial tail light location.

- Replace the 2 nuts you removed earlier and use your fingers to tighten them slightly.

- Use your wrench to tighten the nuts all the way down.

- Reconnect the tail light cable.

4. Mount Roadio Controller

- This step will occur at the bottom of the bike frame, behind and below the seat.

On the underside

● Use your 3mm Allen key to unscrew and remove the bolts on the bottom of the bike just behind the seat tube that anchor the front of the Rad controller.

Location of bolts anchoring front of Rad controller.

● Place these bolts through the remaining holes on the Roadio controller mount. Line the Roadio controller up so that the bolts go into their original holes, making sure the cable exit from the Roadio controller faces toward the **back** of the bike.

● Use your 3mm Allen key to re-tighten the bolts.

Roadio controller mount with bolts attached. Note cable exit going towards back of bike.

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5. **Attach Cable Harness**

- Route the rear camera extension cable along the railing of the rear rack on the left side of the bike (when facing toward the front).

  Once you reach the vertical bar at the front of the rear rack, route the cable down along this bar and toward the Roadio controller.

Rear camera extension cable route.

- Plug the rear camera extension cable into the Roadio controller at the appropriate connection (green connection labeled 'Rear').

Plugging the rear camera extension cable into the Roadio controller.

- Use 5 large zip ties to secure this cable: 4 along the horizontal rail of the rear rack and one on the vertical bar at the front of the rear rack. (*see picture for reference*)

  a. Make the heads of these zip ties are facing down and toward the inside of the bike.

- Use your flush cutters to cut the excess length of the zip ties.
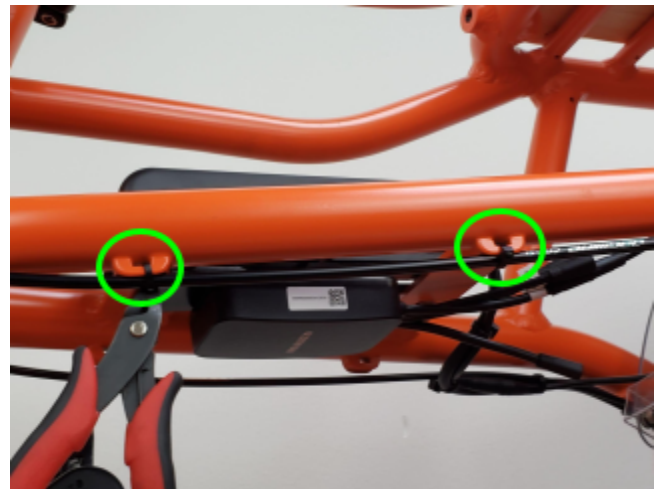

Zip tie locations highlighted in green.

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- This next step will take place next to the area where the Roadio controller was installed.
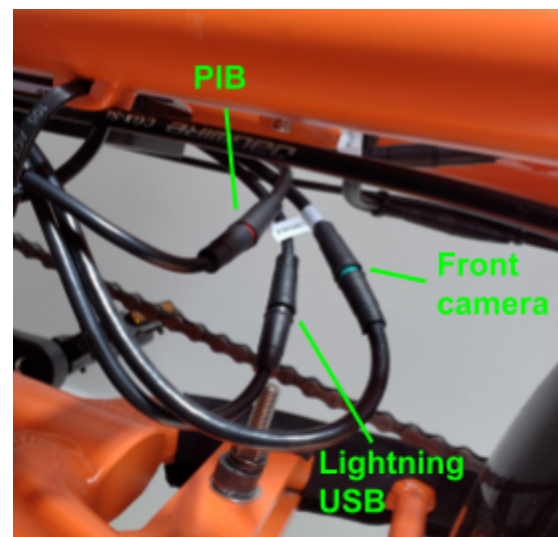
On the side

- Cut and remove the two zip ties holding the brake line (existing Rad cable) to the frame railing next to the controller.

- Connect the Front Camera extension cable, USB Lightning Cable, and PIB cable to the Roadio Controller at their appropriate connection ports.

    a. Note: The connectors are only plugged in halfway in this picture for visual clarity. When the cables are fully connected there will be no color showing between the connectors.

PIB

Front camera

Lightning USB

- Disconnect the front camera extension cable from the front camera (for now).

- Collect the PIB, Front Camera, and Lightning USB cables into a bundle under the frame piece. Use 2 large zip ties in the zip tie mounts mentioned in the last step to secure these cables to the frame railing.

  a. **Important:** DON'T fully tighten these zip ties just yet, they will be tightened in a later step.

- Route your 3 Roadio cables on the 'inside' of the battery cable (between the battery cable and the bike frame).

6. Cable Routing

- This next step will take place on the underside of the lower downtube of the bike.

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- Use your 3mm Allen key to unscrew and remove the bolts from the mounting points on the lower part of the downtube. Set these bolts aside for now.
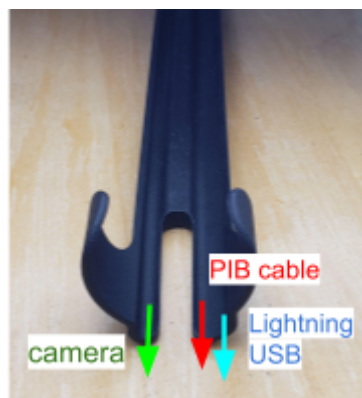

Towards handlebars

Narrower side for camera cable

Wider side for PIB and Lightning USB cables

Towards pedals

- The Roadio cable cover for the RadWagon 4 has a specific orientation and internal cable arrangement.

  a. The recessed channel on one side of the cable cover is smaller than the other. The front camera cable should lie alone in the smaller channel. The PIB cable and Lightning USB cable should lie together in the wider channel.
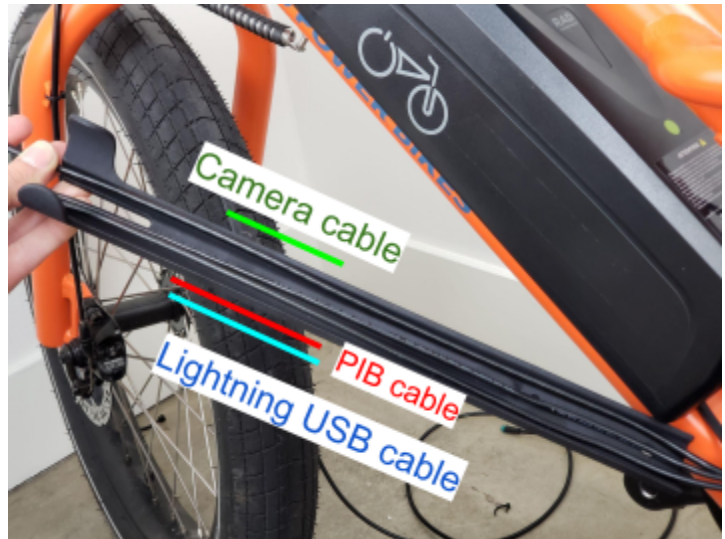
  b. The clip side of the cable cover will be closer to the handlebars when mounted to the lower downtube.

  c. It can be helpful to click the cable cover onto the tube first before routing cables to see how it will fit. The clip side of the cover will be closer to the handle bars.

camera   PIB cable   Lightning USB

- Align the cables in the cable cover as shown in the picture to the right.

    a. Ensure that the cables run parallel to each other and that they do not twist over one another. This will ensure that the cable cover can lie flush against the bike frame.
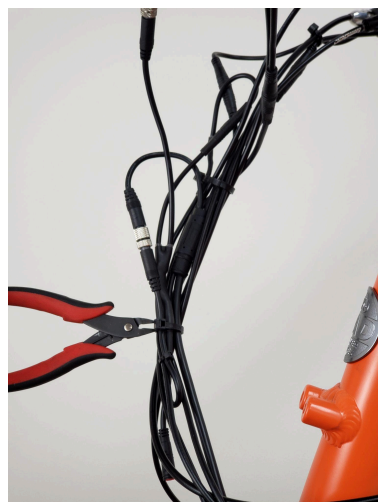

- Clip the cover to the tube of the bike.

  Put the two bolts that you removed from the downtube back through the cable cover into their original mounting points and use your 3mm Allen key to tighten them all the way.
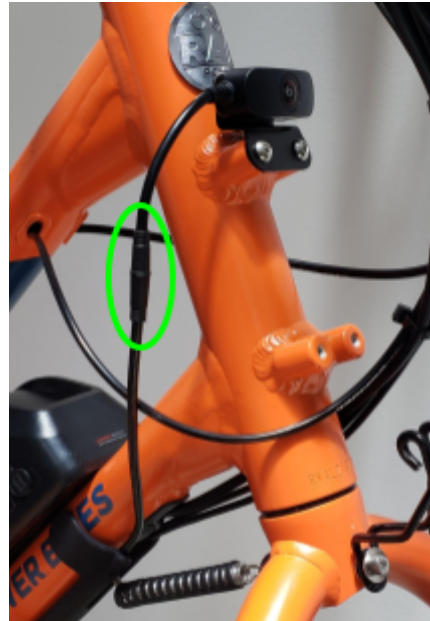

- At the front of the bike, use your flush cutters to cut and remove the zip tie holding the existing cable bundle.
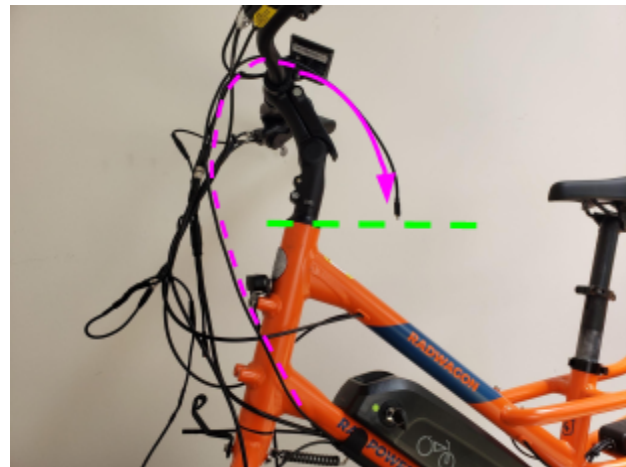
- Reconnect the front camera to the camera cable coming out of the cable cover.

- Drape the Lightning USB cable over the handlebars alongside the other Rad bike cables.

- Approximately match the length shown in the picture to the right.

- *IF NECESSARY*: If the cable is too long (as shown in the first picture on the right), pull on the Lighting USB cable at the base of the cable cover to remove slack from the line.

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- *IF NECESSARY*: If there is any extra slack from any of the cables coming out of the bottom of the cable cover, bundle it in the loose zip ties alongside the PIB if necessary.

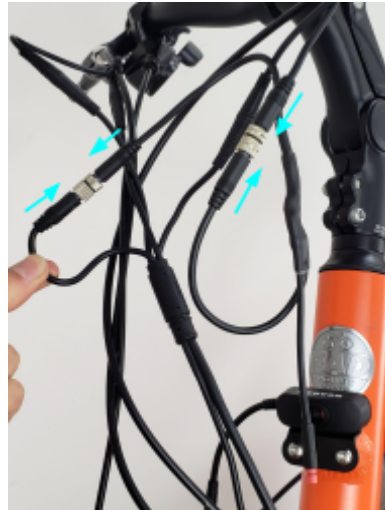- Tighten the two zip ties and cut off excess length with your flush cutters.

- Find and disconnect the silver display connector at the front of the bike.

    a. Unscrew the metal part of the connector until the threaded portion releases, then pull directly apart, without twisting, to unplug.
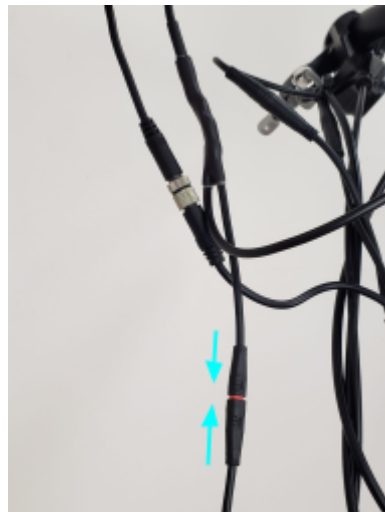
- Connect the RRI cable harness to each end of the display connector.

    a. Align the internal notch and pins and press together, without twisting, then twist the metal portion together until the connector is secure.

- Connect the red oval connector on the PIB cable to the red oval connector on the RRI.

    a. Make sure your oval connectors are oriented the same way when you plug them into each other.

- Bundle the handlebar cables with three small zip ties and use the flush cutters to cut off the excess zip tie length.
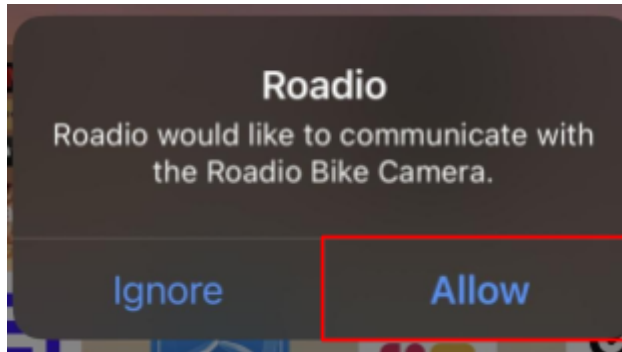
Red indicate zip tie locations.

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7. **Safety checks / Miscellaneous**

- Turn on the bike power, then plug in a Roadio-equipped phone to confirm that the system works.

  a. Check to make sure the video feed from the rear camera is clear and not tilted.

  b. Click (Allow) when given the option in the Roadio pop-up, then confirm that you are getting a live view from the rear camera.

- Using your flush cutters, make sure you have cut the excess length on all zip ties.

  a. **Important:** ensure zip tie cuts are flush, zip ties can leave sharp tips that can cut riders.

- **Safety check 1**: Are all nuts and bolts securely fastened? (including any existing on the bike that could have been affected).

- **Safety check 2**: Cable control - have you securely fastened all cables added or affected? Is there extra cable length anywhere that needs to be bundled / affixed to the bike? Specific checks:

  a. Make sure handlebar range of motion is not restricted.

  b. Confirm that loose cables / wire routing does not have the potential of getting in the way of pedaling, or snagged in any way near the rider, and that no loose wires or anything could get into the spokes. If any cables are loose, use zip ties to secure them tighter.

  c. Confirm that all cables are plugged into the correct plug on the Roadio controller. Follow the route of the cable from camera to controller for both the front and rear cameras.

- The install and safety checks are complete! You are now ready to plug your phone in and ride with Roadio!