

This is an assembly document for the Transition Relay Version 1. This document will start with a bare Relay Frame and go through the step-by-step process of how to install the Fazua Ride60 motor, battery rack, and battery, and connect all of the wires and lines into the frame. During assembly, it is important to have a clean organized space and use the proper tools and components.

Tool List:

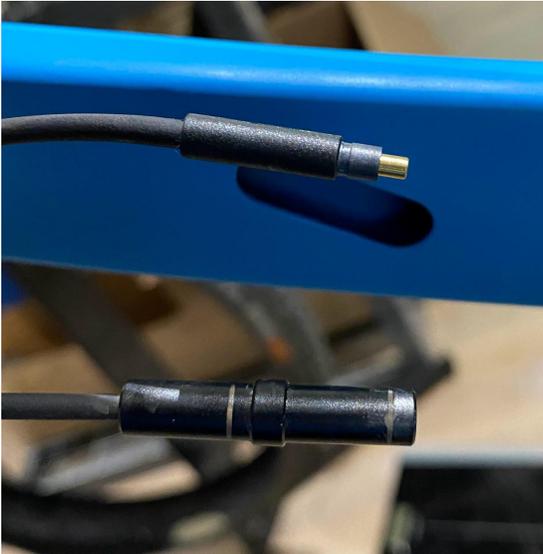
- Pick
- Torque Wrench
- 2.5mm Allen Wrench
- 3mm Allen Wrench
- 8mm Allen Wrench
- T10 torque Wrench
- T25 torque Wrench
- T30 torque Wrench
- Deep socket 16 notch 41OD bottom bracket tool such as the ParkTool BBT-59.2
- General Bike shop tools
- Good attitude
- General Bicycle Mechanical Knowledge
- Small zip ties

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Routing the speed sensor

Note: The speed sensor will be run through the port on the inside of the non-drive chainstay and exit through the non-drive port located on the bridge of the chainstay. To gain access to the exit port on the chainstay bridge, remove the Main Pivot Axle before installing the sensor.



1. Identify the Speed Sensor and feed the plugged end through the port on the non-drive side chainstay. We recommend using a pick to help guide the wire past the bend in the chainstay before exiting the frame.



2. Twist the speed sensor cable while feeding it through the chainstay to help guide it out of the exit port.

Step 2: Routing the Rear Brake Housing

Note: The rear brake will be run through the port on the inside of the non-drive side chainstay and exiting through the non-drive side port of the bridge of the chainstay. It will then enter through the non-drive side port above the “bottom bracket/motor” hole. The brake hose will run through the downtube and exit through the preferred brake hose port in the headtube.



1. Insert the brake hose into the port on the inside of the non-drive chainstay and feed it through to the exit on the non-drive side of the chainstay bridge. The brake line will run parallel to the speed sensor cable. It is convenient at this point to loosely attach the brake caliper to the brake mount on the seat stay.



2. Feed both the speed sensor cable and the rear brake hose through the non-drive side port above the “bottom bracket” area.



3. This is a good time to reinstall the main pivot axle. Tighten to **19Nm** with an 8mm Allen. Use grease on the spindle and blue loc-tite on the threads. Install the main pivot taper nut and screw. Tighten the main pivot taper nut screw to **10Nm**.



4. Feed the rear brake line through the downtube and out your desired port. We recommend the upper port on the rider's left for the "rear brake right" brake setup and the upper port on the right for the "rear brake left" brake configuration. This bike is set up so the rear brake is on the right side of the handlebar.



5. The Speed Sensor fits snugly into a U-shaped bracket that will bolt directly into the frame.



5. Attach the speed sensor to the inside of the non-drive chainstay using a T10 torque wrench. Tighten to **4Nm**.



6. Insert the speed sensor cable into the frame guide clip and install the 3mm bolt through the clip and into the inside of the non-drive side of the seat stay. Tighten to **4Nm**.



7. Install the frame grommet around the brake hose and speed sensor cable and install the grommet into the inside of the non-drive side of the chainstay.



8. The brake hose should have a gentle curve to it and the speed sensor cable should be just barely tight enough to not have any play, but loose enough to not have tension on the cable. The final wiring should look like the image to the left.

Step 3: Assembling the battery rack

Note: Next we will be pre-assembling the rack before installing it into the downtube of the frame. Directions will include installing the battery side of the energy cable into its RoPD mount, zip-tying it into place, and installing it into the rack. They will also include pre-placing zip ties into place to prepare for final assembly.



1. Obtain the energy cable and the RoPD mount, pictured in the image, and click the head of the energy cable into the mount. The head of the energy cable will click in from the back of the mount.



2. Place a zip tie around the casing of the energy cable head, this should go around the cable and on top of the cable. Cinch the zip tie down and clip the tail of the tie. This will keep the plug head in place.





3. Click the RoPD mount into the top of the rack and feed two zip ties to the ports to the side of the RoPD mount and through the rack.

4. Feed another two zip ties on either side of the rack through the holes in the rack just below the crossbar in the center of the rack.

5. Feed and loosely close another zip tie around the crossbar of the rack. Later on, this will be cinched down to hold the energy cable in place once connected to the motor.

See image for final result.

Step 4: Installing the Rack

Note: Before starting this step, we recommend installing the dropper post and rear brake housing/hose through the frame. Turn the frame upside down in the stand so that the battery hole is facing upwards and low enough that you can access the inside of the downtube comfortably.



1. Loosely fit the rack inside the frame. The Energy cable will be towards the headtube. Make sure the brake hose is on the rider's left side of the frame and the dropper housing is on the left.

2. Loosely install the rack nuts on the top and bottom of the rack with blue loc tite. Line up the four T25 bolt holes on the rack with the holes in the downtube.

3. Loosely cinch the open zip ties from the rack around the brake and dropper post lines. Once the ties are around the lines, tighten down the rack nuts to **10Nm**.



(Lower rack nut)



(Upper rack nut)

Step 5: Installing the LED Hub and the Ring Controller

Note: Flip the bike back over so that the bike is right side up in the stand.



1. Carefully guide the LED Hub frame into the bike's frame bottom end first. The tab at the bottom of the LED Hub frame will sit in the frame.



2. Gently snap the upper end of the LED Hub frame into the frame and tighten it with a T10 to **2Nm**. In order to snap, the upper end of the LED Hub frame into the frame loosen the the T10 bolt and press it into the frame. It may take some coaxing to settle into the frame flush.



3. Feed the two wires (one for the Ring controller, one for the power supply) down through the lower hole of the LED Hub frame and down and out the battery port hole of the bike frame.



4. Guide the LED Hub into the LED Hub frame, bottom end first. Magnets will pull the top of the LED Hub into place, making it sit flush into the frame.



The final installation should look like this.



5. Insert the cable end of the ring controller into the lower right-hand side cable port on the headtube. Feed the cable down the downtube where you will have access to the end of both the ring controller wire and its mate coming from the LED Hub. Plug these two cables into each other. They will only go into each other one way, so be sure to align the cables in the correct orientation.



6. Slide the frame grommet onto the Ring controller wire and into the frame.

Step 6: (Optional) Spare Cable Control



There is a spare cable coming off the Drive Unit that is for a range extender or an internal charging system. If you are not running either of these, it helps with noise to wrap the cable in foam and zip-tie it back on itself. This will keep the cable from rattling inside the frame.

Step 7: Installing the Drive Unit.



1. Connect the speed sensor cable to the matching cable on the drive unit.



2. Connect the LED hub to the matching cable on the drive unit.



3. Feed the Drive Unit power supply cable into the frame through the Drive Unit port while guiding the Drive Unit into place. At this point, it is helpful to turn the bike back upside down. This will allow gravity to hold the Drive Unit in the frame and give you access to the battery port in the downtube.



4. Guide the Drive Unit power supply cable through the bottom of the battery rack. This is a tight fit for the head of the cable so it can be helpful to loosen and temporarily turn the lower rack nut 90° to allow the head of the power supply cable to pass. Be sure to reinstall the rack nut once the cable is past.



5. Connect the Power supply cable to the energy cable head in the middle of the battery rack. This should be fed through the zip tie that was left loose in the middle of the rack. Once the Energy cable is connected, the zip tie in the middle of the rack can be cinched down to keep the cable in place.

The complete battery rack assembly should look like the image. Once complete, the rest of the zip ties in the battery rack assembly can also be cinched down and trimmed.

Step 8: Installing the Drive Unit

Note: Loosely install the 6 Drive unit bolts into the Drive unit through the frame. It may take some light movement to align the bolts in the frame and Drive Unit. Fazua recommends a small amount of loc-tite on these bolts.



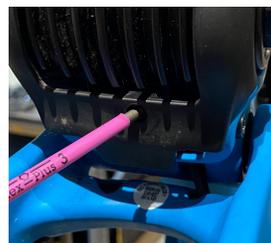
1. Starting on the **non-drive side** of the bike, torque the Drive Unit mounting bolts to **14Nm** with a T30 Torque wrench.



2. Once the non-drive side is tight, torque the **drive-side** Drive Unit mounting bolts to **14Nm**.



3. Install the Drive Unit cover with a 3mm Allen wrench. Tighten to **3Nm**. There will be three bolts, two on the downtube side and one located just under the main pivot axle.



Step 9: Installing Battery Rack Covers



1. Install the damper grommets into the battery rack covers from the back side.



2. Install the Lower Rack cover into the Battery Rack. The Rack Cover is stiff so this will take a bit of coaxing. There is a small lip at the bottom of the Rack Cover that will slide into the Battery Rack. There will be two tabs on either side of the Rack Cover that will click into the Battery Rack.



3. Install the upper Rack Cover into the Battery Rack. Feed two zip ties through the sides of the Rack Cover, through the Battery Rack, and around the various cables on either side of the rack. Close the zip ties and cinch them closed.

Note: The Rack Covers will help with battery position and rattle as well as keeping your cables in place in the downtube.

Step 10: Installing the chainring and cranks



1. Install the chainring onto the chainring bash guard using a T25 torque wrench. Tighten to **40Nm**.



2. Install the non-drive crank. Tighten to **40Nm** using an 8mm Allen.



3. Slide the chainring and bash guard onto its spindle on the drive unit with ample grease. Thread the chainring lockring with grease over the spindle tightening counterclockwise.



4. Use a deep socket 16 notch 41OD bottom bracket tool such as the ParkTool BBT-59.2 to tighten the chainring spider onto the spindle (counterclockwise). Tighten to **30Nm**. You can use the non-drive crank as counter leverage as you tighten down the lockring.



5. Install the drive-side crank arm using an 8mm Allen. Tighten to **40Nm**.

Step 11: Installing the speed sensor magnet.



1. Remove two rotor bolts.
2. Install the universal speed sensor magnet onto the rear rotor using the rotor bolts.
3. Tighten rotor bolts to the manufacturer's recommended spec.

Torque specs will depend on the brand. Consult your manufacturer or component manual for specific torque specs.

Step 12: Installing the Battery and Battery Cover



1. Place the lower end of the battery into the lower battery rack cradle.



2. Raise the upper end of the battery into the frame. You will hear an audible click and the battery lights will turn on when the battery is securely in and connected. Simply as a safety precaution, pull down on the battery, it should not budge at all.



3. Rotate the locking mechanism of the battery cover into the open position. Insert the lower end of the battery door into the frame. There are a series of tabs that will sit nicely into the frame.



5. Raise the upper end of the battery cover into place. As the battery cover presses up against the frame and battery, rotate the locking mechanism into the locked position. The tab of the locking mechanism will slide under the frame, holding the battery cover in place.

Step 13: Final bicycle assembly



From here, use your bicycle assembly knowledge to complete the build.