LECTRIC SERVICE CENTER: MECHANICAL DISC BRAKE REPLACEMENT

BEFORE YOU BEGIN

To accompany these instructions, Lectric eBikes has created a video to walk you through these steps with the XP 3.0. Find the video at **LectricеBikes.com/XP3-Mechanical-Brake-Replacement**

Or scan the QR code with your mobile device to watch the video.

LectricеBikes.com/XP3-Mechanical-Brake-Replacement

We recommend performing this with a bike on the bike stand. This will make this process easier and safer.

We highly encourage you to remove the battery from the bike when performing this maintenance. This will ensure that there is no voltage running through the bike.

TOOLS NEEDED

2mm Allen Wrench	17mm Long Socket	Wire Cutters
5mm Allen Wrench	15mm Socket	Caliper, or Ruler
5mm Allen Wrench	Hand Ratchet	Isopropyl Alcohol
4mm Allen Socket	Rotor Turning Tool or Crescent Wrench	Shop rag or Paper Towel
5mm Allen Socket	Corresponding Torque Wrenches	

REPLACING THE REAR BRAKE CALIPER

A note. You will notice that the front caliper and the rear caliper are exactly the same, and the process for replacing them will be identical.

It is important to note the length difference between the front and rear cable. The cable for the rear brake is much longer. Make sure not to mix these up as the front cable will not reach the rear caliper.

Let's start with the rear brake caliper.

Remove the Rear Mechanical Brake Caliper

1. First, loosen the cable retention screw so that the end of the cable is free, and easier to work with.
2. Next, snip off the end of the brake cable. This will remove the cable crimp on the end.
3. Remove the cable from the cable retention arm, and pull it though the lower barrel adjuster.
4. Up at the handlebars, line up the barrel adjusters so that the gap on both are facing the front of the bike. And, line up with the gap on the brake lever base.
5. Pull the cable through the opening, then pull the brake lever exposing the cable mount.
6. Remove the cable from the cable mount, and pull the cable completely out of the brake cable housing.
7. Next, remove the old brake caliper by removing the mounting bolts with a 5mm allen wrench. Make sure to hold on to these mounting bolts as they will be needed to mount the new caliper onto your bike.

Install the new Rear Mechanical Brake Caliper

1. Now, to put the new caliper back on, place it in the correct position, then insert the mounting bolts.
2. Snug these bolts up so that the caliper is mounted and can freely move over the rotor, but do not tighten them fully down as you will need to perform a brake alignment once the brake calipers are installed.

Install the new Brake Cable

1. Next, you will need to insert the new brake cable. Make sure that you have the longer of the two cables.
2. Roll the barrel adjusters all the way in so they are up against the brake lever base. Then, insert the brake cable mounting end into the mounting bracket. Begin feeding the brake cable through the brake cable housing. Keep feeding the cable until you see it come out down at the caliper.
3. Back down at the caliper, if it is not already, loosen the cable retention screw with a 5mm allen wrench. Then feed the cable through the lower barrel adjuster, then feed it through the cable retention arm.
4. Tighten the cable retention bolt so the cable will stay put for now.
5. Use a caliper, or a ruler to measure out 20mm of extra cable. Mark that spot, then snip the excess. Now, take a cable crimp, and crimp it onto the end of the cable you just snipped.

6. Then. Make sure there is no slack in the cable. Tighten the cable retention screw back down. While preloading the cable retention arm.
7. Make sure not to move the retention arm too much when tightening it. This is because the cable retention arm only has a small amount of useful movement.

Check the Brake Lever

1. Now you will want to pull the brake lever to test the tightness of the brake cable. You want to make sure that the brake lever is parallel to the handlebars when it is pulled.
2. If you pull the lever and it is too loose, meaning it goes all the way to the grips, you will need to go down to the caliper, and re-tighten the cable retention arm.
3. If you pull the lever and it is too tight, meaning you cannot get any range of motion, you will need to go down to the caliper and tighten the cable retention arm back up.
4. When your cable retention arm is tightened correctly, the brake lever will be parallel to the handlebars like this. This might take a few tries to get right so be patient.

REPLACING THE FRONT BRAKE CALIPER

1. First, loosen the cable retention screw so that the end of the cable is free, and easier to work with. Next, snip off the end of the brake cable. This will remove the cable crimp on the end.
2. Remove the cable from the cable retention arm, and pull it though the lower barrel adjuster
3. Now, using a 5mm allen wrench, remove the mounting bolts from the caliper. Make sure to hold on to these as you will need them to mount the new caliper onto the bike.
4. Up at the handlebars, like before, line up the barrel adjusters so that the gap on both are facing the front of the bike.
5. Pull the cable through the opening, then pull the brake lever exposing the cable mount.
6. Remove the cable from the cable mount, and pull the cable completely out of the brake cable housing.

Install the new Brake Cable

1. Make sure that you use the shorter cable, as this is the cable for the front brake.
2. First, roll the barrel adjusters all the way in so they are up against the brake lever base. Then, insert the brake cable mounting end into the mounting bracket. Begin feeding the brake cable through the brake cable housing. Keep feeding the cable until you see it come out down at the caliper.

Install the new Front Mechanical Brake Caliper

1. Now, to put the new caliper back on, place it in the correct position, then insert the mounting bolts.
2. Snug these bolts up so that the caliper is mounted and can freely move over the rotor, but do not tighten them fully down as you will need to perform a brake alignment once the brake calipers are installed.
3. If it is not already, loosen the cable retention screw with a 5mm allen wrench. Then feed the cable through the lower barrel adjuster, then feed it through the cable retention arm.
4. Tighten the cable retention bolt so the cable will stay put for now.
5. Use a caliper, or a ruler to measure out 20mm of extra cable. Mark that spot, then snip the excess. Now, take a cable crimp, and crimp it onto the end of the cable you just snipped.
6. Then, make sure there is no slack in the cable. Tighten the cable retention screw back down. While preloading the cable retention arm.
7. Make sure not to move the retention arm too much when tightening it. This is because the cable retention arm only has a small amount of useful movement.

Check the Brake Lever

1. Now you will want to pull the brake lever to test the tightness of the brake cable. You want to make sure that the brake lever is parallel to the handlebars when it is pulled.
2. If you pull the lever and it is too loose, meaning it goes all the way to the grips, you will need to go down to the caliper, and re-tighten the cable retention arm.
3. If you pull the lever and it is too tight, meaning you cannot get any range of motion, you will need to go down to the caliper and tighten the cable retention arm back up.
4. When your cable retention arm is tightened correctly, the brake lever will be parallel to the handlebars like this. This might take a few tries to get right so be patient.

PERFORM A BRAKE ADJUSTMENT

Now that both of your calipers have been replaced, you will need to perform a brake adjustment.

For this you will need to make sure you have isopropyl alcohol, a shop rag or paper towel, a 2mm allen wrench, and 5mm allen wrench, and a 5mm allen wrench, a rotor turning tool, or crescent wrench, a hand ratchet, a 17mm long socket, a 15mm socket, a 4mm allen socket, a 5mm allen socket, and the corresponding torque wrenches.

Before you adjust your brakes, it is important to clean your rotor truing tool or crescent wrench. This will keep grease, dirt or debris from contaminating your rotor.

There may be a rubbing noise coming from the brake pads and the wheel turn. You may also not see a gap of less than, or equal to a quarter to half a millimeter away from the rotor.

Adjust the Rear Brake Caliper

1. First, remove your bike from the bike stand and place it on the ground as straight as possible. You will be checking to make sure that the wheels are correctly seated into the dropouts.
2. Loosen the torque arms with a 4mm allen wrench,
3. Then loosen the axle nuts with a 17mm long socket. Make sure the wheel is correctly seated, then snug up the axle bolts with your 17mm long socket.
4. Once snug, torque the axle nuts to 35 Nm.
5. Next, you will want to place the bike back onto the bike stand, and torque down the torque arm screws to 8 Nm.
6. You might notice that your brakes are still rubbing. At this point you will want to adjust the position of the dynamic brake pad. Your caliper should still be loose and able to move freely over the brake rotor.
7. Align the dynamic brake pad back and forth until it is .5 to 1 millimeter away from the brake rotor.
8. Snug the caliper mounting bolts down with a 5mm allen wrench, then torque to 8 Nm.

Next you will want to adjust the static brake pad. You can find this on the inside portion of the brake caliper.

1. Using a 5mm allen wrench, adjust the static brake pad until it is almost touching the brake rotor or is less than or equal to a quarter to a half millimemeter away from the brake pad.
2. Now, tighten the set screw with a 2mm allen wrench, locking the static brake pad into place.
3. Next, preload the brake cable retention arm so there is no slack in the cable, then tighten the cable retention screw to preload the retention arm.

True the Brake Rotor

At this point you might notice that there is still a bit of rubbing coming from your brake rotor. This might mean that you need to true your rotor. To true your rotor, use your clean rotor truing tool, or crescent wrench and gently bend your rotor until it is able to spin perfectly straight.

1. Getting your brake to stop rubbing, or to get a gap on both sides of the brake rotor may take some back and forth between adjusting your caliper, and straightening your rotor, so please be patient.
2. Upon completion of your rear brake adjustment, you should see gaps on either side of the brake rotor and you shouldnt be able to hear any rubbing. Once there is a gap on either side of the rotor there should be no rubbing sound.
3. Finally, wipe down your brake rotor with isopropyl alcohol to remove any contaminants that might have gotten on it during this process.

Repeat this process to adjust the Front Brake Caliper

1. Use a 15mm allen wrench to loosen the axle nuts. Make sure the wheels are seated in the dropouts correctly, then snug the axle bolts back up.

2. Once snug, torque the axle nuts down to 35 Nm.
3. Place the bike back on the bike stand and adjust the position of the dynamic brake pad.
4. Then adjust your static brake pad, and tighten the set screw. Next, preload the cable retention arm. And if needed, true the rotor.
5. Once everything looks good, wipe down the brake rotor with isopropyl alcohol.

If you have completed all these steps and you are still experiencing issues with your brakes, you may need to take your bike to a bike shop to have your braking system looked at.

If you have any questions please feel free to contact our customer support team at **contact@lectricebikes.com** or give us a call at **602.715.0907**.

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