ASSEMBLY INSTRUCTIONS FOR TREK LIME

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These instructions, written for an experienced bicycle mechanic, explain the extra assembly steps required to assemble the Trek Lime bicycle. There are several procedures that are different from other bikes when assembling a Lime bicycle:

- Front hub installation
- Rear hub installation
- Connection and adjustment of the shift cable
- CPU (Central Processing Unit) adjustment
- Special parts installation or exchange

Front hub installation

The front hub has a dynamo (generator) inside, so the axle does not spin freely. No bearing adjustment is needed.
As you work with the front wheel, you might notice that the fork does not turn fully to either side. The fork has steering stops to prevent damaging the internal wiring that leads from the dynamo to the CPU.

1. Identify the direction of rotation of the hub. Before assembly, a card inside the hub shows the direction of rotation (Figure 1). If the card has been removed, the right side of the hub has electrical connections.
2. Remove the card from the hub.
3. Identify the hub connection parts (Figure 2):
   - Chrome hubcap, front (2)
   - Colored Lime cover (2, not shown)
   - Toothed washer (2)
   - T axle nut (2)
4. Place the wheel in the dropouts and attach the toothed washers (Figure 3).
5. Attach the wire to the front hub (Figure 4).
6. Snap a hubcap onto a toothed washer (the hubcap has teeth that fit into the notches of the toothed washer, Figure 5).
   Make sure the toothed washer is still engaged in the dropout.
7. Install the front axle T nut (Figure 6) and tighten to 174 lb•in (20 N•m).
8. Repeat for the other side.
9. Engage a corner of a hubcap with the end of the "striper," or colored accessory (Figure 7), and then align the notches of the hubcap and striper.
10. Snap the rest of the striper over the hubcap (Figure 8). Catch the other corner of the hubcap with the other end of the striper.
11. Repeat for the other hubcap.



Figure 1 Card in hub showing direction or rotation

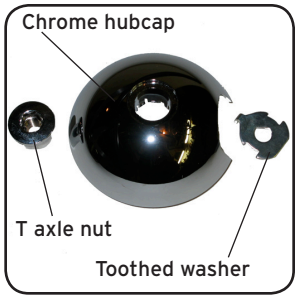

Figure 2 Hub connection parts

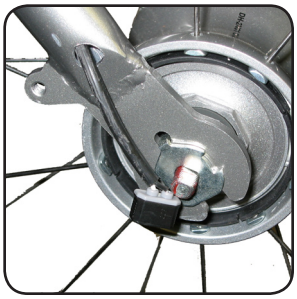
Figure 3 Toothed washer holding the axle in the dropouts

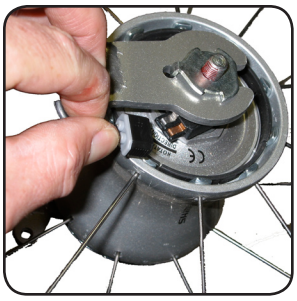
Figure 4 Attaching the wire to the front hub

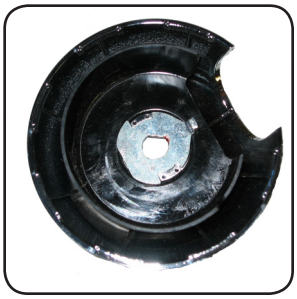
Figure 5 The teeth of a hubcap fitting into the notches of a toothed washer


Figure 6 Tighten the front axle T nut


Figure 7 Engage the pocket of the striper on the corner of the hubcap

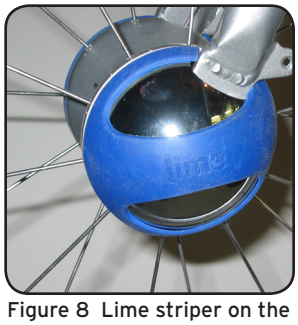
Figure 8 Lime striper on the hubcap

Rear hub installation

You do not have to remove the left rear hubcap. But mechanics like to see what is inside, so Figure 9 saves you some work. The axle stabilizers (allen-head bolts) replace a conventional coaster brake strap that prevents rotation of the axle during activation of the coaster brake.

1. Identify the parts of the right side of the rear hub (Figure 10).
2. Remove the right rear axle nut and washer (Figure 11). Leave the triangular hubcap holder.
3. Place the bell crank, washer, and axle nut onto the axle (Figure 12). Tighten the axle nut to 260-380 lb•in (30-45 N•m).
4. Insert the push rod (Figure 10) into the axle (Figure 12).

If the shift cable is not connected, go to **"Connection and adjustment of the shift cable"** on the next page.

5. Place the right rear hubcap (it is different from the left rear hubcap) over the hubcap holder.
6. Insert the two screws through the hubcap, into the hubcap holder (Figure 13).
7. Attach the striper onto the hubcap (Figure 14).



Figure 9 Left rear dropout

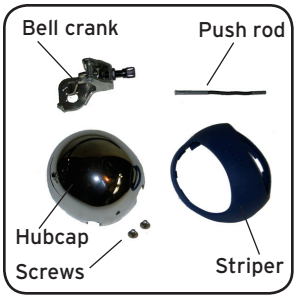

Figure 10 Parts for right side of rear hub

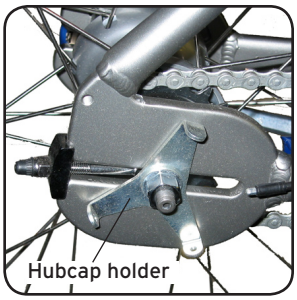

Figure 11 Right side rear dropout

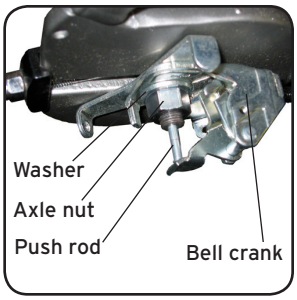

Figure 12 Bell crank with axle nut and washer

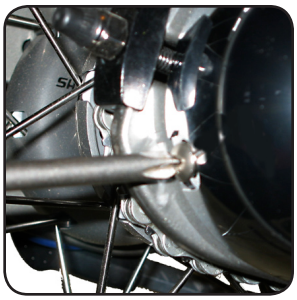

Figure 13 Rear hubcap screw



Figure 14 Right rear striper on hubcap

Connection and adjustment of the shift cable

The CPU cannot be opened while attached to the bicycle; remove it before any work.

1. Set the CPU mode to a setting other than N (Figure 15).
2. Remove the attachment screw that holds the CPU on the frame bracket (Figure 16). Then slide the CPU rearward to disengage it from the frame bracket.
3. Remove the two cover screws that hold the cover on the CPU (Figure 16). Remove the cover.
4. Place the cable in the correct path and insert the cable housing into the housing stop of the CPU (Figure 17).
5. On the rear hub, swing the link (the part that pushes on the push rod, Figure 18) out of the bell crank, away from the push rod.
6. With needle-nose pliers, pull the cable end up and out of the bell crank (Figure 18).

   There is a v-notch in the bell crank that allows the cable to be moved out of the way for the next step.
7. Swing the link back into the bell crank until it touches the push rod.
8. Push the link in against the push rod, pushing the push rod into the hub (Figure 19). At the same time, pull the cable down into the notch in the link (Figure 20).
9. With a 5 mm allen wrench inserted into the space provided in the CPU (Figure 21), rotate the allen wrench counter-clockwise until it stops. Then turn the allen wrench clockwise until it stops (this is the N position).
10. Turn the cable barrel-adjuster on the bell crank until the red line on the push rod lines up with the end of the rear axle.
11. Check the operation of the CPU. Spin the front wheel as if the bike was rolling forward.

    When the wheel spins, it powers the CPU. When the CPU has power, it should shift the rear hub into first gear.
12. Tighten the barrel-adjuster locknut to hold the adjustment.
13. Attach the cover to the CPU with the two cover screws.
14. Slide the CPU onto the frame bracket and replace the attachment screw.
15. Go to **"Rear hub installation,"** Step 5, and complete the installation.



Figure 15 Set CPU mode to other than N

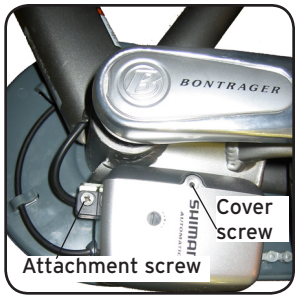

Figure 16 CPU attached to the bottom bracket


Figure 17 Cable stop inside CPU

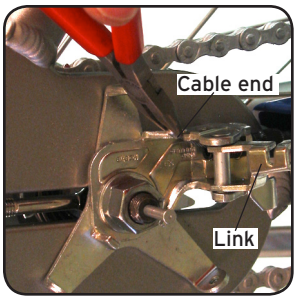

Figure 18 Pull the cable end up and out of the bell crank

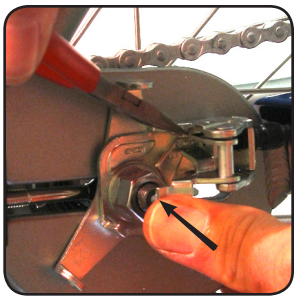
Figure 19 Swing the link in and push the push rod into the hub

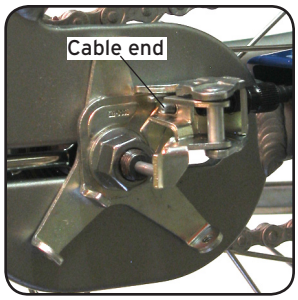

Figure 20 Drop the cable down into the notch of the link



Figure 21 Set the CPU to 'N'

CPU Adjustment

The CPU controls when the shift occurs, based on bicycle speed measured at the front wheel. You can make the shift occur at slower speeds or faster speeds, depending on the rider preference. To the rider, the shift timing may seem to be determined by their pedaling speed.

To change the shift timing, simply rotate the Mode switch on the CPU with a thin slot-type screwdriver (Figure 22).

Do not set the CPU to 'N,' which is for adjusting the cable tension when the hub is fully powered.



Figure 22 Setting the CPU shift timing

Troubleshooting

If you are having problems with the shift system, also refer to the Shimano instructions that accompany this bicycle.

Special parts installation or exchange

- Grip installation
  As with other grips, use an air compresor to blow the grips (Figure 23) off the handlebar.

- Top tube pad
  To remove, gently pull up at each of the contact points. A button holds the pad in place (Figure 24). To install a new pad, simply press the buttons back through the frame holes.

- Chainguard
  The chainguard has two pieces: an inner, grey piece and an outer piece that is colored to match the bike. To remove the outer piece, remove the chainguard screw (Figure 25) and gently separate the inner and outer (they are held together by simple snaps). To remove the inner chainguard, you must remove the bottom bracket. To install an outer chainguard, reverse the steps and tighten the bolt to 23-45 lb•in (2-4 N•m).

- Kickstand
  Tighten the kickstand attachment bolts (Figure 26) to 55-80 lb•in (5-7 N•m).



Figure 23 Colored grip



Figure 24 Top tube pad

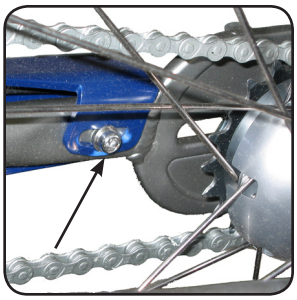

Figure 25 Chainguard attachment bolt

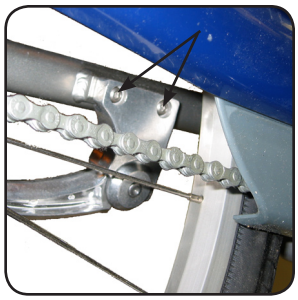

Figure 26 Kickstand attachment bolts