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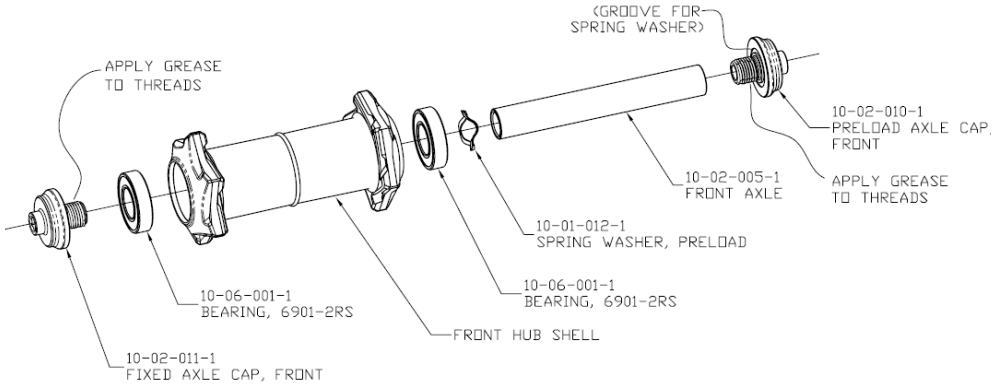
Front Axle Assembly Instructions

Tools

2 pcs. 5mm hex keys. We recommend Park Y-wrenches because they have good leverage.
1 pc. Axle clamp. This is the black part provided in the kit.
1 pc. 3mm hex key. To tighten the axle clamp.
Anti-seize grease – only a small quantity is needed.
1 pc. Torque wrench with 5mm hex key adapter.



FRONT AXLE ASSEMBLY - EXPLODED VIEW - FIG. 1

Front Hub Disassembly

1. Insert a 5mm hex key into each of the two axle caps and unscrew one relative to the other (see fig. 2). One of the axlecaps will unscrew from the axle. Unthread this axlecap most of the way, leaving 2-3 threads still engaged.

2. Push on this unthreaded axlecap to drive the opposite bearing out of its bore in the hub shell. Then completely unthread the axlecap and withdraw the axle (which will still be assembled with the bearing and the opposite axlecap.

3. The remaining bearing may be now be removed from the hub shell.

4. The next step is to unthread the opposite axlecap from the axle. Assemble the Axle Clamp over the axle and tighten the pinch bolt. It is best to then mount the Axle Clamp in the vise to augment the pinch bolt. With the axle fixed, the axlecap may then be unthreaded with the 5mm hex key. This will release the bearing.

5. Take special care not to deform the spring washer that is located behind the preload axlecap. At this point, the front axle has been completely disassembled. Refer to the exploded view of the front axle assembly.

Front Hub Reassembly (using original or early-style axle kit)

1. Install the bearings in the hub shell, making sure that the bearing is fully seated against its stops (the ends of the internal ribs).Take special care to assure squareness and alignment of the bearing.

2. Apply a small amount of anti-seize grease to the internal threads of both ends of the axle.

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3. Thread the preload axlecap into the axle until it is stopped against the end of the axle (the preload axlecap is the one with a groove for the spring washer). Wipe off the axle with a cloth and isopropyl alcohol – to be sure that the outside of the axle itself is free of any oil or grease.

4. Slide the spring washer over the axle, making sure that the crests of the spring washer are nested in the mating groove of the preload axlecap.

5. With the axle pointed straight up (to allow gravity to keep the spring washer in place), slide the hub down over the axle (see fig. 3). Take care that the spring washer does not become dislodged.

6. Thread the fixed axlecap down onto the opposite end of the axle until finger tight.

7. Clamp a 5mm hex key in a vise with the stub end sticking up. Flip the wheel over and fit the fixed axle cap over the stub end of the 5mm hex key.

8. Using a torque wrench with a 5mm hex key attachment, tighten the preload axlecap to a torque of 130 to 140 inch-lbs (14 N-m to 16 N-m).

9. Test the axle smoothness. If there is intermittent roughness, try loosening the axlecaps just to break the threads free and then retighten as above.

Explanation: As the two axlecaps are threadably drawn together, the spring washer applies a precise axial preload to the inner race of the bearings for optimal performance and longevity. Then, when the axlecaps are further tightened, they actually expand the axle slightly to grip the bearings in that precise position. This patent pending "shoulder-less" design makes for a much smoother and accurate bearing placement than hubs by other makers, which all use shoulders to locate their bearings.

Front Hub Reassembly (using new-style axle kit)*

Note: The new-style axle kit has the fixed axle cap already pre-assembled to the axle. Do **not try to disassemble this connection.*

1. Install the bearings in the hub shell, making sure that the bearing is fully seated against its stops (the ends of the internal ribs).Take special care to assure squareness and alignment of the bearing.

2. Apply a small amount of anti-seize grease to the internal threads of the exposed end of the axle. Note that a new axle kit will already have anti-sieze grease pre-applied. Wipe off the axle with a cloth and isopropyl alcohol – to be sure that the outside of the axle itself is free of any oil or grease.

3. With the preload axle cap pointed thread-side up (to allow gravity to keep the spring washer in place), set the spring washer into its mating groove of the preload axlecap. Take care that the spring washer does not become dislodged from the groove throughout the procedure.

4. With the wheel set in the horizontal plane and the preload axle cap pointing up, thread the preload axlecap into the axle until it is stopped against the end of the axle and finger tight.

5. Clamp a 5mm hex key in a vise with the stub end sticking up. Flip the wheel over and fit the fixed axle cap over the stub end of the 5mm hex key.

6. Using a torque wrench with a 5mm hex key attachment, tighten the preload axlecap to a torque of 130 to 140 inch-lbs (14 N-m to 16 N-m).

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7. Test the axle smoothness. If there is intermittent roughness, try loosening the axlecaps just to break the threads free and then retighten as above.

Explanation: As the two axlecaps are threadably drawn together, the spring washer applies a precise axial preload to the inner race of the bearings for optimal performance and longevity. Then, when the axlecaps are further tightened, they actually expand the axle slightly to grip the bearings in that precise position. This patent pending "shoulder-less" design makes for a much smoother and accurate bearing placement than hubs by other makers, which all use shoulders to locate their bearings.

Figure 2.

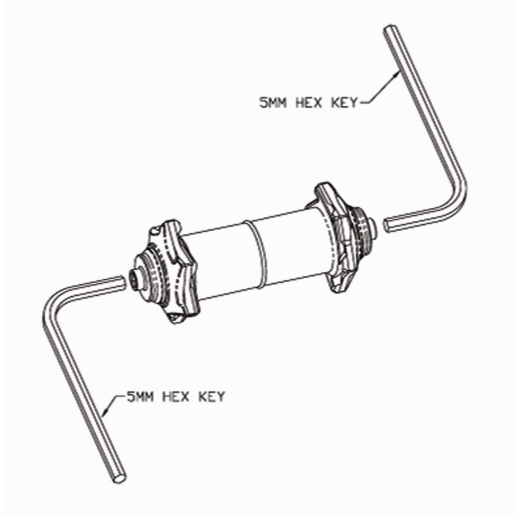

Figure 3.

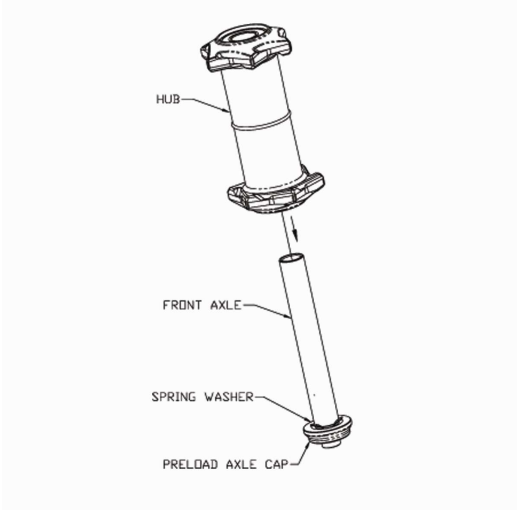

Figure 4.