

Disclaimer:

These parts are intended for race use only. The parts are not certified for use on public roads, and as such may not be legal for highway use. Wilhelm Raceworks LLC is not liable for any damage directly or indirectly related to the use or mis-use of these components.

Parts List:

2x Knuckle (1 LH, 1 RH)

2x Strut Tab (pre-installed on knuckle)

2x Toe Arm

12x M12 x 1.25 x 40 JIS Bolts (4x pre-installed)

8x M10 x 1.25 x 35 JIS Bolts

2x ¼" x ½" steel dowel pin (preinstalled)

2x 5/8-18 x 4" Bolt

2x 5/8 Washer

2x 5/8-18 Nylon Lock Nut

2x .300" bump steer spacer (.060" for high misalignment rod ends)

2x FK JML10T 5/8 Rod End

Additional Items Required:

- 2x Front hubs from 2006-2012 Toyota Rav4. V6 Rav4 hubs match E153 axle splines, 4cyl Rav4 hubs match S54 axle splines. Both hubs are also available from 2011-2016 Scion TC. (The 4cyl hubs are also found in a number of other Toyota / Scion / Lexus models, Rock Auto is a great resource for cross referencing these.)
- Wilhelm Raceworks Suspension Geometry Kit. You will need the roll center adjusters and rear tie rod, or equivalent. Matching front geometry correction *highly* recommended.

Assembly and Torque Specs:

These instructions cover only items that are unique to the installation of these knuckles. Toyota factory service manual and install instructions for Wilhelm Raceworks Suspension Geometry Kit should be referenced as needed.

1. The strut tab is pre-installed to the knuckle. If this needs to be removed for some reason, torque to **85 ft-lb** on re-installation.
2. Install toe arms to knuckles with 4x screws each. Install with angled part of arm facing UP, unless using with Wilhelm Raceworks double A-arm conversion.bolt
Torque to **45 ft-lb**.
3. Install hub / bearing with 4x M12 bolts each. The Rav4 torque spec is **71 ft-lb**. You may find it easier to torque these after installation on the car, as the knuckle can be quite hard to hold onto otherwise (see notes on second page).
4. 5/8" bolt for rear tie rod should be installed with 5/8 washer under bolt head and .300" bump steer spacer between toe arm and rod end. Torque nut to **65ft-lb**.

Notes on Wheel Bearing Replacement:

Fitting a socket with extension around the CV joint is possible, but it is quite tight. You will most likely need to pull the CV joint out of the hub slightly. It may be helpful to remove the bolts holding the ball joint to the knuckle so that you can tilt the knuckle out for more clearance.

If speedy wheel bearing changes are a priority for you, it may be helpful to replace the included JIS flange head bolts with M12x1.25x45 socket head cap screws with M12 washers, and keep an extra-long 10mm hex driver in your tool box. This combination should allow you to more easily torque / loosen those bolts around the CV joint.

Notes on Bump Steer Spacers:

The included .300" (.060" for high misalignment rod end) bump steer spacer should produce an improvement in the toe curves compared to either the stock geometry, or the stock knuckles with the Wilhelm Raceworks geometry kit installed. However, one of the primary benefits to these knuckles is the ability to fine tune to the rear toe curve by adding or removing spacers above the rod end. Getting this just right can produce a big improvement in both handling and tire wear. Particularly on the Rev2+ (long tie rod) rear suspension, the toe curve is ride height dependent, and so fine tuning it may be quite beneficial.

Adjustment will require additional bump steer spacers, plus a bump steer gauge. You will need to remove the springs and jack the suspension through its range of motion while measuring toe change with the bump steer gauge.

- Adding additional spacer above the rod end will produce more toe in on compression / more toe out on rebound.
- Removing spacer will produce less toe in on compression / less toe out on rebound.
- Removing too much will result in toe out on compression and toe in on rebound!
- A change of .100" is quite a lot, adjust carefully! Zero toe change is not necessarily the goal.

Alignment Aid Threaded Hole:

The strut tab has an M8x1.25 threaded hole in the top, intended to be used as an alignment aid, or to reference a camber setting before removing the strut. This should allow the suspension to be easily put back to the same camber angle on reassembly.

If you have any questions about the installation process, please contact me via email at alex@wilhelmraceworks.com