

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 Steering Arm (pre-installed on knuckle)

4x M12 x 1.25 x 40 JIS Bolt (preinstalled)
8x M8 x 1.25 x 25 JIS Bolt (preinstalled)
6x ¼" x ½" steel dowel pin (preinstalled)
4x Washer Plate for Steering Arm (preinstalled)

8x M10 x 1.25 x 45 JIS Bolt
8x M10 x 1.25 JIS Nut

2x 5/8-18 x 4" Bolt
2x 5/8 Washer
2x 5/8-18 Nylon Lock Nut
4x .300" bump steer spacer (2x for high misalignment rod ends)
2x .060" bump steer spacer (for high misalignment rod ends)

Additional Items Required:

- 2x rear hubs from 2002-2011 Toyota Camry. 2002-2004 has a non-ABS option that is sometimes a little cheaper.
- 2x rear ABS sensor wire for 2002-2011 Toyota Camry (if you have ABS), plus 2 new connectors for the chassis end of this wire.
- Wilhelm Raceworks Suspension Geometry Kit. You will need the roll center adjusters and front outer tie rod end, or equivalent. Matching rear 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. The steering arm is pre-installed to the knuckle. Torque the steering arm bolts to **25 ft-lb** if removed or when changing ackerman. Steering arms are the same for both sides.
3. Install hub / bearing with 4x M10 bolts / nuts each. Torque to **55 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.
4. 5/8" bolt for the front tie rod should be installed with 5/8 washer under bolt head and 2x .300" bump steer spacer between toe arm and rod end. If using FK High Misalignment rod ends, use one .300" spacer and one .060" spacer. Torque nut to **65ft-lb**.

Notes on ABS:

Remove the brackets from the stock ABS sensor and install them on the Camry sensor wire. Cut the chassis end connector off of the Camry wire, and replace it with the new connector. Be sure to match wire colors through the connector with the colors on the chassis wiring.

Particularly when used with Wilhelm Raceworks "Extreme" top mounts, clearance between the ABS connector and the strut will be very tight. You will need to remove the extra strain relief back cap from the Camry sensor wire, and connect the wire before installing the strut.

Notes on Bump Steer Spacers:

The included 2x .300" (.300" + .060" for high misalignment rod end) bump steer spacer should produce a reasonable bump steer curve for most applications. However, other alignment factors such as camber and caster will both effect the ideal bump steer setting and it may be beneficial to fine tune this.

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 out on compression / more toe in on rebound.
- Removing spacer will produce less toe out on compression / less toe in on rebound.
- A change of .200" is quite a lot, adjust carefully! Zero toe change is not necessarily the goal.

Notes on Ackerman:

Ackerman adjustment changes the amount of toe out produced when steering. There are four settings, marked with dots on the bottom of the knuckle and producing ackerman settings approximately as shown below.

1-Dot	2-Dot	3-Dot	4-Dot
7%	15%	24%	34%

The toe arm is preinstalled in the 3-dot position, which is approximately equivalent to stock knuckles with the Wilhelm Raceworks geometry kit installed. The fourth position is approximately equivalent to stock ackerman without the geometry kit.

Optimal ackerman will vary with both how the car is used as well as with tire choice, don't be afraid to experiment. Changing ackerman will of course require resetting toe. Changes will also have a small effect on bump steer.

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