

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.

- This conversion is NOT designed to work with stock struts. Shorter stroke coilovers are required.
- Do NOT attempt to connect a rear sway bar to the strut in the stock location. If you wish to use a rear sway bar, attach it to the tab provided on the lower control arm.

Parts List:

- 4x Weld in upper a-arm boxes
- 2x Upper control arm assembly
- 2x Lower control arm assembly with double ball joint
- 2x Upper control arm adapter (preinstalled on knuckles if purchased with knuckles)
- 2x Upper ball joint strap (preinstalled if purchased with knuckles)

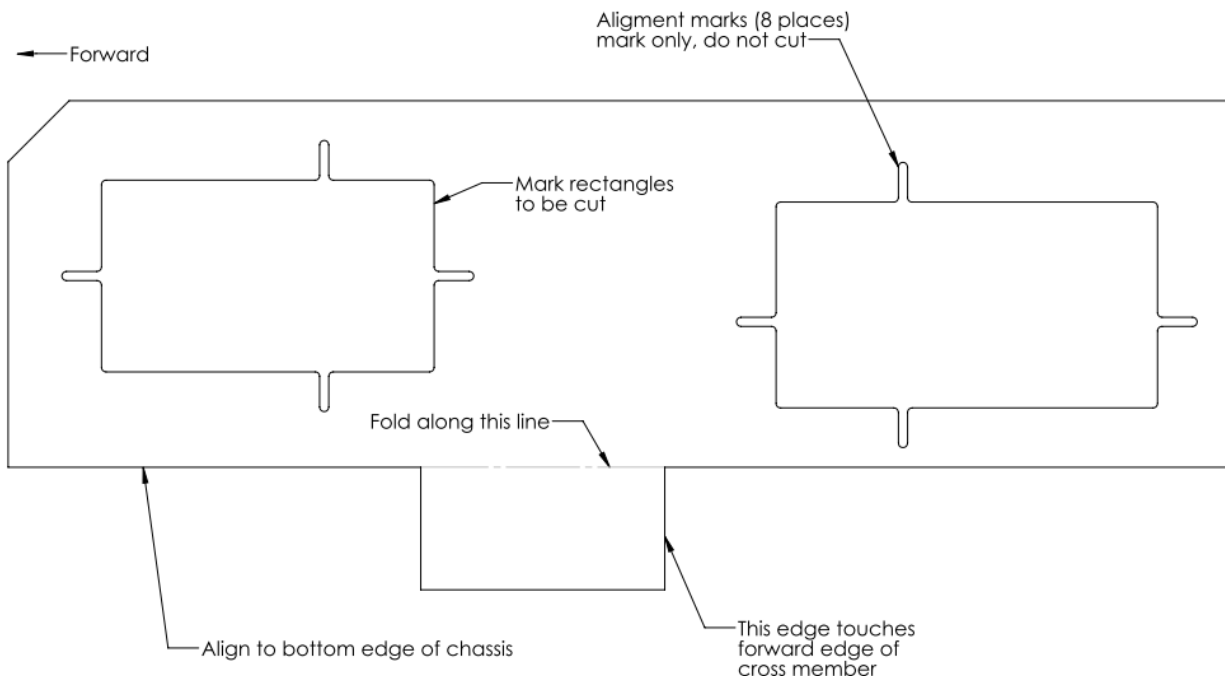
- 12x M12x1.25x70 JIS Flange Bolt
- 2x M10x1.25x20 JIS Flange Bolt
- 2x M10x1.25x60 JIS Flange Bolt
- 4x M8x1.25 Rivnut
- 2x M6x1.00 Rivnut

- 1x Installation Template

Chassis Modifications:

You may wish to refer to the blog posts at wilhelmraceworks.com for additional pictures and details.

1. The included template is intended to help you both accurately locate the a-arm boxes, as well as ensure they are located the same on both sides. See below for description of template features.



2. Prime and / or paint the back side of the boxes (except for the edges that are to be welded).
3. Align the template as described above and mark the rectangles to be cut, as well as the four alignment marks around each rectangle. Remove paint from the areas to be welded before making the alignment marks.
4. Cut each rectangular hole (I used a grinder with cutoff wheel for this).



5. Inside the forward cutout on each side you will find reinforcement ribs that must be trimmed for clearance. Remove the minimum amount to allow the boxes to fit.
6. Each box has notches on the edges. Align the notches with the marks made from the template. Note that the forward boxes are symmetric, while the rears have a RH and LH version. The pivot point is offset **DOWNWARD** from the center line of each box. Weld the boxes in place. You may need to tack two or three corners and bend the last one inward with a hammer to achieve the best fit. Fully weld the perimeter of each box.



7. Prime and paint the boxes and exposed metal in the wheel well for rust prevention. You may also wish to apply cavity wax or similar to the inside of the frame (you may need to drill a couple of holes to allow this, although there are a number of existing holes that can be used).
8. Determine where the brake line bracket will be reinstalled. You may need to bend it forward a little to ensure it will be out of the way of the forward upper control arm. Drill two holes through the lower flange of the box and install the included M8 rivnuts. If the car is equipped with ABS, use a tubing bender to bend the tube holding the ABS sensor wire so that it clears the rear box and install the M6 rivnut to secure the tube.

Installation:

1. Install upper control arms with included bushings and M12x1.25x70 bolts. **Torque to 60ft-lb.** Leave the 3/8" bolt at the outer end of the upper control arm loose for now. The fixed (welded) side of the upper control arm should point forward.
2. Install lower control arms with included bushings and stock bolts. Torque control arm to **98 ft-lb** and strut rod bolt to **83 ft-lb** (stock specs). Leave the 1/2" bolt connecting the control arm and strut rod loose for now. Note that there is a left hand and right hand version of the lower arm, pay attention to the angle of the ball joint cup vs the strut rod tabs. The tabs should point slightly up with the cup flat.
3. Install the knuckle assembly. Attach to control arms with three M12x1.25x70 bolts at the bottom and one at the top with lock nut and washer. **Torque all to 80 ft-lb.** Attach to coilover with included bushings and M10x1.25x60 bolt with lock nut and washer. **Torque to 50 ft-lb.** Attach to tie rod with 5/8-18x3.5" bolt with .1" bump steer spacer between rod end and knuckle. You may wish to temporarily install a plain nut here until setup is complete, to be replaced with the locking nut after bump steer adjustment.

Setup:

1. Set your ride height first. I recommend starting with a ride height that puts the lower control arms horizontal.
2. The suspension conversion has 4 adjustments:
 - Lower control arm - primarily adjusts camber.
 - Strut Rod - primarily adjusts upright inclination (aka, caster)
 - Upper Control Arm - Adjusts upright inclination if you thread one in and one out equally, or adjusts camber if you adjust both in the same direction. This one is tricky to use since it adjusts two things at once.
 - Tie rod - Adjusts toe only.
3. Start by setting the strut rods to 17-3/8" (441mm) pivot bolt to pivot bolt, and set the lower control arms so you have about 1/4" (6mm) of rod end thread exposed beyond the jam nut (so you have some adjustment in both directions). Ideally, both lower control arms and lower strut rods should remain equal left to right.
4. Adjust upright inclination (front to rear tilt of the upright) so that the upright is vertical when the car is at ride height. At the same time, set camber to your target camber angle, -2° should be a good starting point. Adjust this with the upper control arms. Turning both shorter or longer will adjust camber only, turning one shorter and the other longer in roughly equal amounts will adjust inclination. *This step is much easier if you have access to a set of hub stands so that you can make adjustments with the car at ride height on the ground.*
5. For future camber adjustments (fine tuning), adjust using the lower control arms by removing the inner pivot bolt and turning the rod end. This avoids having to worry about inclination at the same time.
6. Set toe last. And always check toe after adjusting anything else, as all of the adjustments will effect toe.
7. I highly recommend checking / fine tuning bump steer. You will need to remove the coilover (remove the 3/8" bolt from the upper control arm and swing the rear control arm out of the way) and jack the suspension through its range of motion while using a bump steer gauge to measure toe change. As a starting point you are looking for roughly equal amounts of toe in on both compression and rebound. Keep in mind that any change in upright inclination will effect bump steer, so it is worth checking bump steer if any adjustments are made to the upper control arm.