



QA1 52340-x400 Front Coil-over Conversion System Instruction Manual

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TOOLS AND SUPPLIES REQUIRED

- Floor Jack
- Two (2) Jack Stands
- SAE Wrench Set

- Anti-seize
- Ratchet & SAE Socket Set
- Torque Wrench
- Engine Hoist
- Ball Joint Separator

PRE-INSTALLATION NOTES

Some big block applications will need a mid-sump oil pan as some stock oil pans will interfere with the steering rack. Milodon 30930 or 31580 oil pans will provide adequate clearance.

394 c.i. small block oil pans will not have enough steering rack clearance on A-body cars using this suspension.

Gen3 Hemi swapped cars can use a rear sump truck oil pan with custom headers or the Milodon 31000 with TTI headers.

The Milodon pan will use Milodon pick-up 18331 on pre-2008 engines and pick-up 18341 on 2009 and later Gen 3

DISASSEMBLY

1. Measure and record the vehicle ride height at the center of the wheel opening. This will help in setting the ride height after installation of the front suspension system.
2. Lift and support the vehicle on a solid surface. Support the vehicle by the frame rails allowing the suspension to droop.
A vehicle lift is best, but careful use of jack stands will work as well.
3. Remove the front wheels and tires.
4. Remove the shocks and front sway bar.
5. Remove the pressure on the torsion bars by loosening the adjuster bolts in the lower control arms.
6. Remove the snap ring at the rear of the torsion bar **(Figure 1)** Slide the torsion bar back and out of the car. **(Figure 2)**. Loosening the lower control arm pivot shaft and gently prying back on the control arm will help to remove the torsion bar.



Figure 1

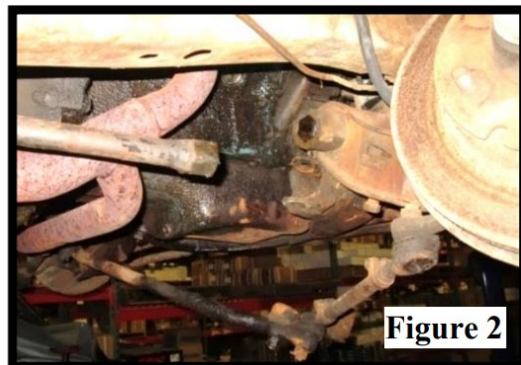


Figure 2

7. Remove the cotter pin from the lower ball joint. Loosen the castle nut, but do not remove. Separate the lower control arm from the ball joint and then remove the nut.
8. Remove the steering rods by disconnecting the tie rods from the spindles, the pitman arm, and the idler arm.
9. Remove the steering shaft from the steering box. The steering box will not need to be removed from the k-member for this installation.
10. Remove the strut rods from the k-member and lower control arm connections.
11. Locate the factory bump stops on both sides of the frame rails. There will be two bump stops per side. Remove

the bump stops by drilling out the spot welds. **(Figure 3)** After removing the bump stops, touch-up the frame using paint or undercoating to prevent corrosion.

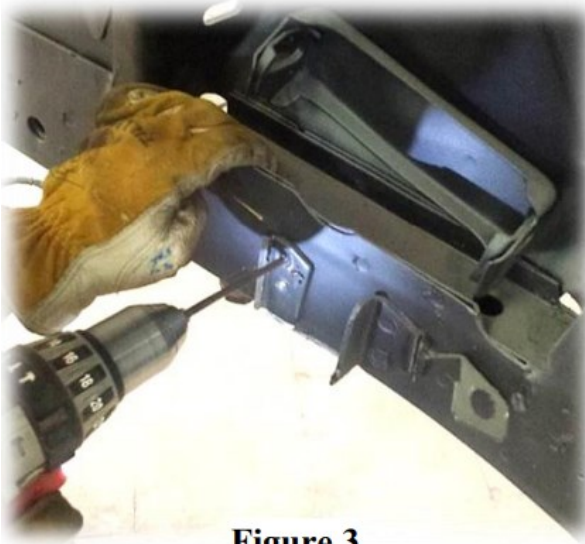


Figure 3

12. Unbolt the engine mounts from the k-member.
13. Support the engine using an engine hoist from the top or if using a lift for the installation, a transmission jack from below.

DO NOT CONTINUE UNTIL THE WEIGHT OF THE ENGINE IS OFF OF THE K-MEMBER.

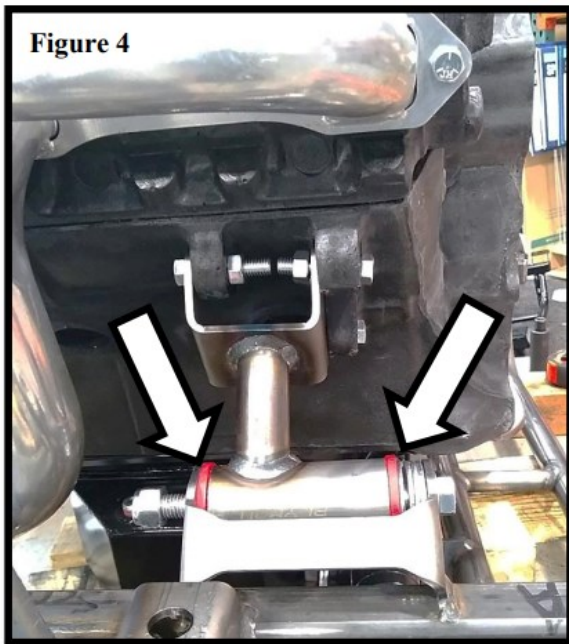


14. Unbolt the four k-member mounting bolts and remove from the car. Retain these bolts as they will be used to mount the new kmember.
15. Remove the engine mounts from the engine.
16. Remove both upper control arms from the frame.
17. Ensure the threads in the frame and the k-member mounting bolts are clean and free of debris.

ASSEMBLY

1. If using a big block requiring a mid-sump oil pan, install the pan with the correct oil pickup tube.
2. Using the factory k-member bolts, lift the new k-member into place and mount it to the frame. Torque to 150 lb. ft.
3. Identify the left and right-side engine mount indicated by the manufacturer's stickers.
4. Loosely install the engine mounts to the engine block reusing the factory hardware.
5. The engine mounts will attach to the k-member using 9/16" x 6.5" long bolts with one 9/16" washer under the bolt head and one 9/16" washer under the nylock nut. Four 5/8" washers per side are also included so that the

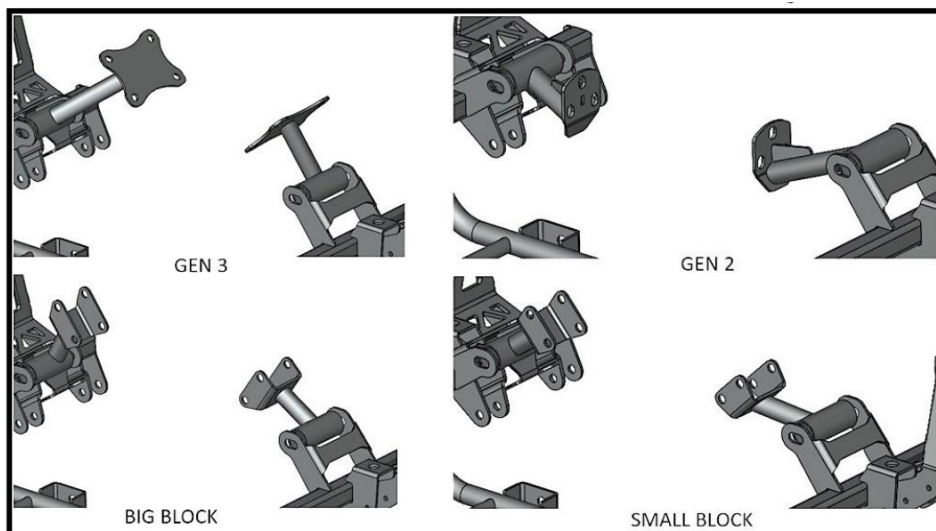
engine mounts can be adjusted front to back. Start with two washers on the front side of the mount and two on the back side and reposition the washers as needed to best align the engine in the engine bay. **(Figure 4)**



6. With the engine in position, torque the engine mount hardware to 55 lb. ft. The 9/16" hardware connecting the engine mount to k-member should be torqued to 75 lb. ft.
7. Slowly release the engine support once the hardware is torqued.

NOTE:

QA1 makes multiple sets of engine mounts for easy engine swaps. You can find the orientation for each set of mounts below.



NOTE:

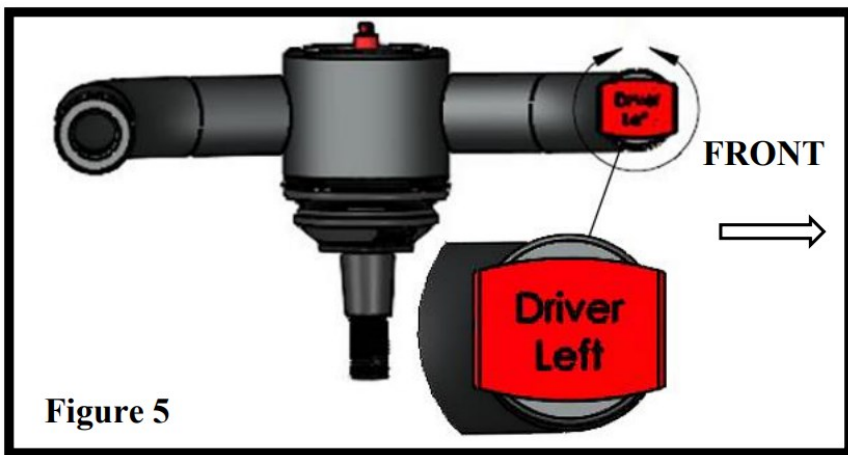
On some A-bodies there will be extra material on the rear lip of the front upper control arm mount. This does not apply to all A-bodies. If this extra material is present it will need to be notch the rearward part of the mount 3/8" on both sides of the vehicle to allow full motion of the new control arm.



UPPER CONTROL ARMS

8. Identify the Driver (left) and Passenger (right) upper control arms by the stickers placed on the arms. In the correct position, the arms can also be identified by the front connection being higher than the rear connection.

(Figure 5)



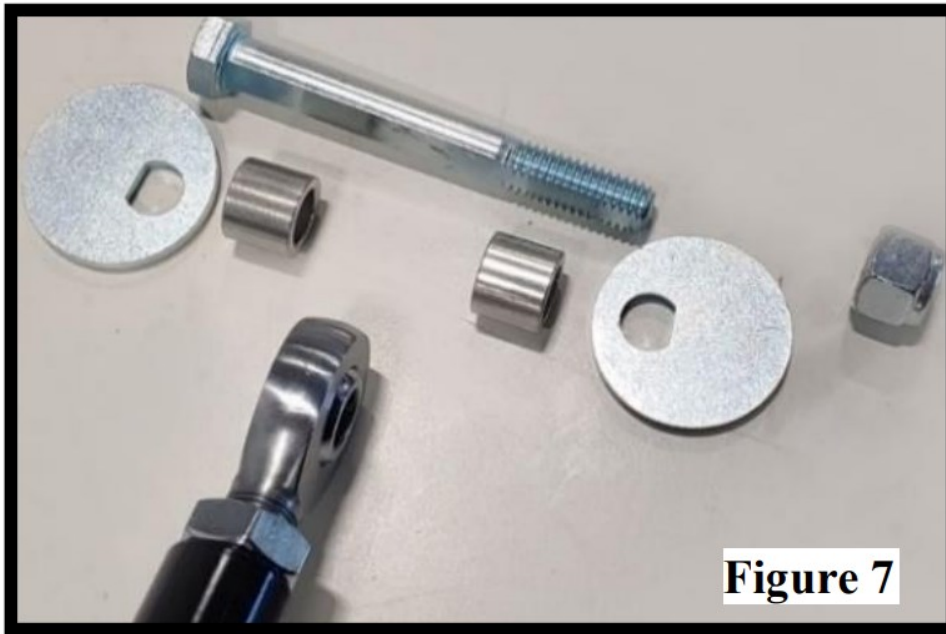
9. In preparation for installing the upper control arm, thread the 5/8" jam nuts onto the 5/8" male threaded rod ends. Thread the jam nut so that two threads are showing between the jam nut and the head of the rod end.

(Figure 6)



10. Apply anti-seize to the threads of the rod end and thread them into the upper control arms. Leave the jam nuts loose until the arms are installed to allow alignment with the mounting bolts.

11. Mount the upper control arm to the factory mounting points with two 5/8" wide spacers per connection. Fasten the arm to the factory mounts using 1/2" x 4" bolt with two washers per connection and nylock nut. Torque to 50 lb. ft. **(Figure 7)**



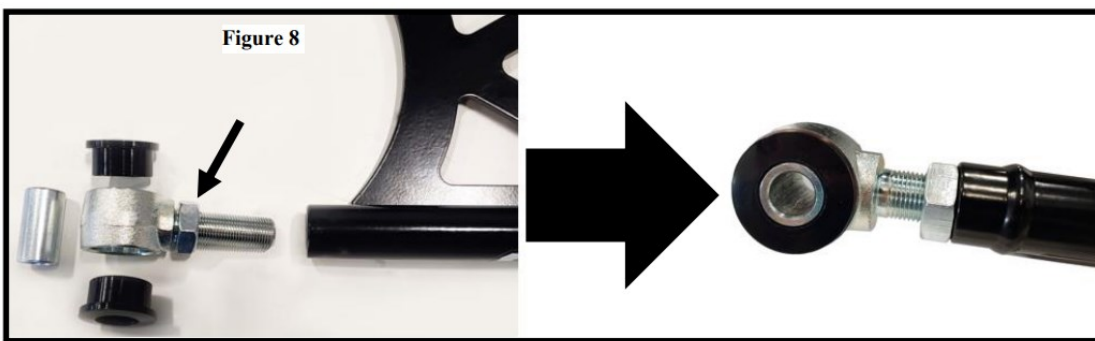
LOWER CONTROL ARMS

NOTE:

The Street Performance suspension comes with poly bushings for the lower control arm mounts. The Drag Racing suspension comes with rod ends for the lower control arm mounts. Installation of either style of mounting follows the same procedure.

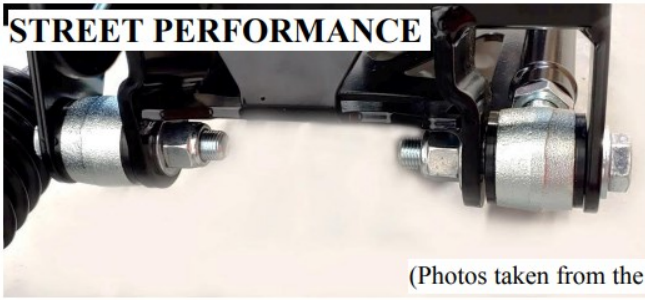
The lower control arms for this suspension will work on either side of the car and are not driver/passenger specific.

12. Assemble the included bushings and sleeves into the rod end (Street Performance kit only) **(Figure 8)**
13. Thread one 5/8" jam nut onto the 5/8" threaded rod end (drag kit) or 5/8" rod end bushing (Street Performance Kit). **(Figure 8)**

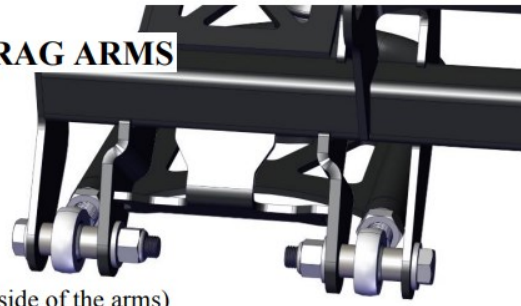


14. With anti-seize applied to the threads, thread the rod end into the lower control arm to the jam nut until approximately seven threads are showing between the jam nut and the rod end. (Figure 11) Leave the jam nuts loose until the arms are installed to allow alignment with the mounting bolts.
15. Mount the control arms to the k-member using 1/2" x 3" mounting bolts with one washer under the bolt head and one washer under the nut. Drag kits using rod ends for the pivot point will need one 7/16" spacer on the front side of each connection and one 3/8" spacer on the rear position of each connection. Torque to 50 lb. ft.

STREET PERFORMANCE



DRAG ARMS



(Photos taken from the backside of the arms)

STEERING RACK

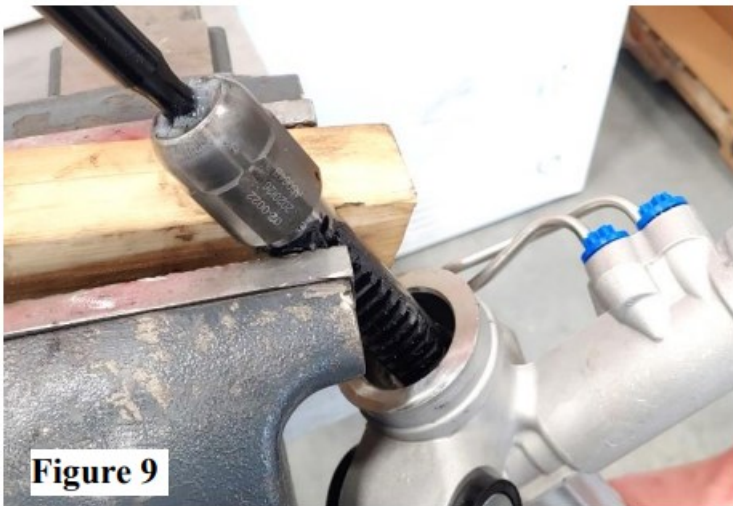
NOTE:

The power rack included with this suspension system needs the included rack extension kit installed ON ALL B & E BODY CARS before installation. A-body cars DO NOT use the rack extensions. (See step 16)

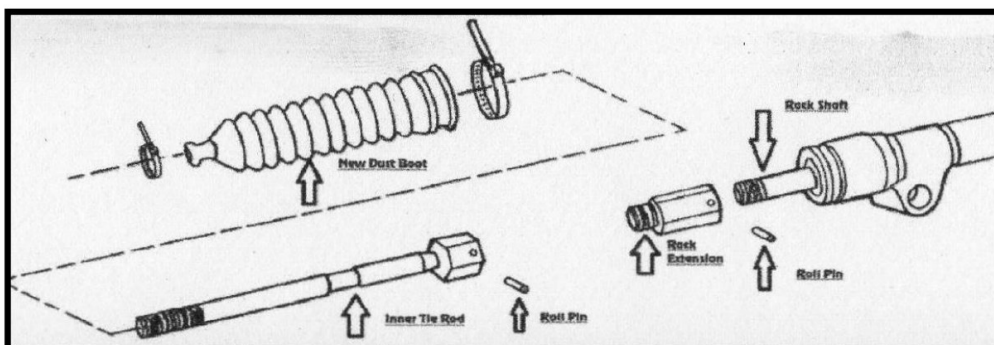
IF CONVERTING TO MANUAL STEERING:

The mounting is different for manual and power steering racks. QA1 crossmember is drilled with mounting holes for the power steering rack and pilot holes are present for the manual rack location. To convert to a manual steering rack, you will need to drill out the pilot holes to 5/8" diameter. The hole on the driver side will end up overlapping the power rack mounting hole. Use a step drill bit on this hole to avoid catching the drill bit in the original hole. The manual rack to use is Speedway Motors part# 91034344 and rack extension kit needed is Speedway part# 910-34345-MAN.

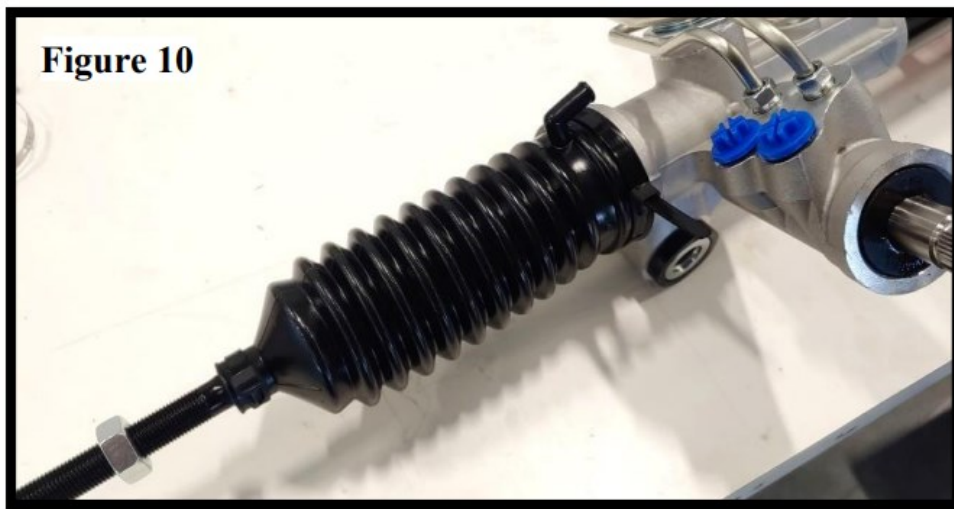
16. Remove the dust boots from the steering rack.
17. Run the steering rack out on the geared end and place in a vice. **(Figure 9)** The geared end of the rack does not pass through any seals. DO NOT PUT THE SMOOTH END OF THE SHAFT IN THE VICE OR DAMAGE THE TEETH ON THE RACK



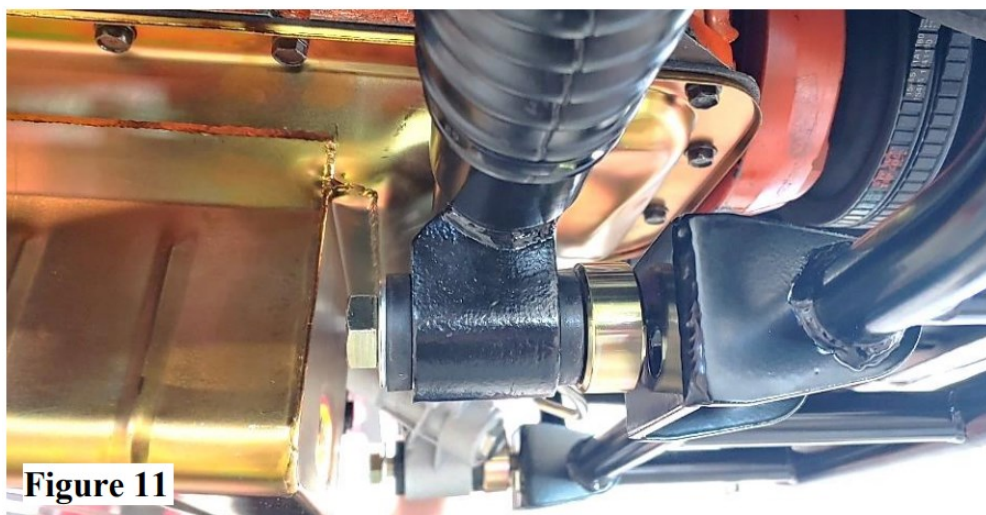
18. Remove the tie rod ends by unthreading them. The tie rods will be tight. Using a lever through the rack mount will help gain leverage on the tie rod.



19. Using a small amount of red Loctite thread the rack extensions onto the rack.
20. With a small amount of red Loctite, re-install the inner tie rod onto the rack extension.
21. Once the rack extensions are installed on both sides of the rack, install the new dust boots and secure with ties. **(Figure 10)**



22. Install the power rack to the cross-member with one 3/4" wide rack spacer between the rack and k-member. **(Figure 11)** Attach using 5/8" x 4.5" hardware with one 5/8" I.D. x 1.75" washer on the rack bushing side and one 5/8" I.D. x 1.25" washer on the k-member side of the mount. Torque to 90 lb. ft.



COIL-OVERS

23. Refer to the coil-over assembly instructions included with your shocks and assemble the spring onto the shock.
24. Install the upper shock connection with one .250" beveled spacer on each side of the shock eyelet with the smaller beveled edge facing the shock bearing. **(Figure 12)** Secure to the crossmember using 1/2" X 3" hardware with two washers and nylock nut. Torque to 50 lb. ft.

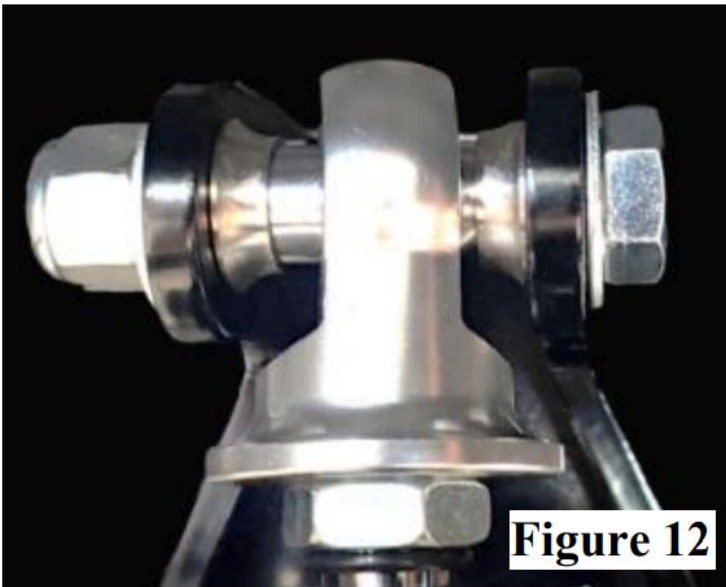


Figure 12

25. Install the lower shock connection to the lower control arm with the shock adjustment knobs towards the wheel/tire using the included 3/8" x 1.25" hardware and nylock nuts. Torque to 31 lb. ft. **(Figure 13)**



Figure 13

SPINDLES/BRAKES

26. Install the spindles with the steering arm forward to the upper control arm using one 9/16" (.188" thick) washer on the ball joint stud followed by the 1/2" castle nut. Torque to 55 lb. ft. Never loosen the castle nut to find the cotter pin hole. **(Figure 14)**



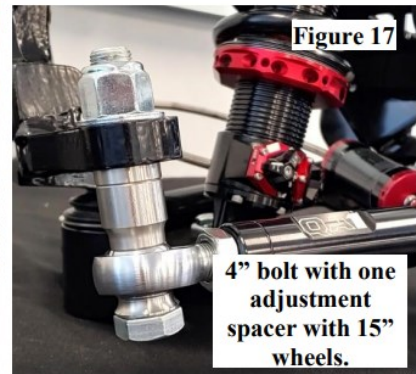
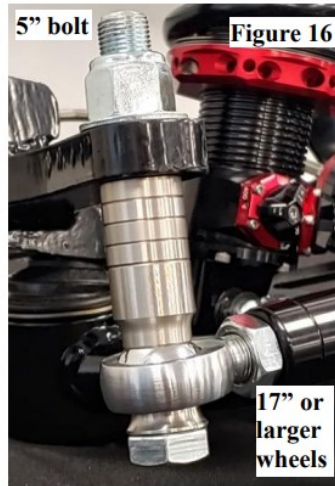
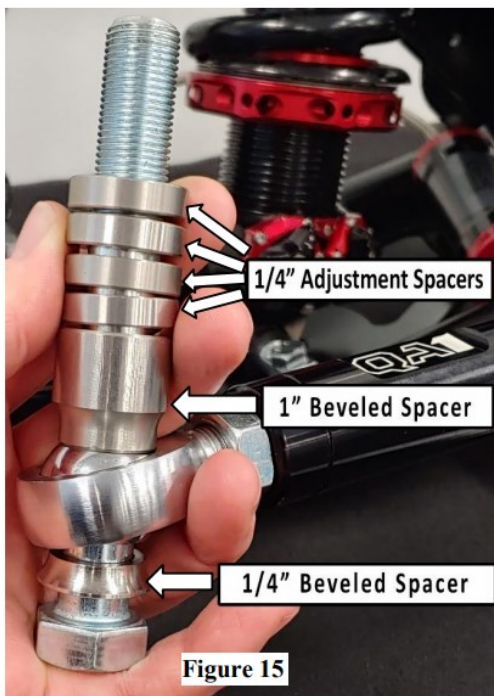
NOTE:

The upper control arm uses an extended upper ball joint stud for added camber gain. This extended ball joint stud will leave a portion of the stud exposed between the dust boot and the spindle. (Figure 14)

27. Install the lower ball joint into the spindle using one 9/16" washer and 9/16" castle nut. Torque to 65 lb. ft.
Continue tightening to line up the cotter pin hole. Never loosen the castle nut to find the cotter pin hole.
28. Thread one right-hand jam nut onto the inner tie rod and one left-hand jam nut onto the XML10 left-hand male rod end.
29. Using anti-seize on the rod end threads, thread the rod end into the left-hand threaded end of the QA1 tie rod sleeve leaving four threads visible between the jam nut and head of the rod end.
30. Thread the tie rod sleeve onto the inner tie rod until the spindle visibly appears to be at 0 degrees of toe.
31. Tighten the jam nuts to the adjustment sleeve.

Bump Steer Spacers

This suspension comes with 4" and 5" tie rod to spindle mounting bolts, 1" beveled spacer, 1/4" beveled spacer, and four 1/4" adjustment spacers per side. **(Figure 15)** To minimize bump steer, use up to 2" of spacers using the 5" bolt between the steering arm and tie rod end. **(Figure 16)** This will require at least 17" wheels to clear the tie rod. If using 15" wheels, the 1" beveled spacer with one 1/4" spacer on the 4" mounting bolt is the maximum length that will fit inside the wheel. **(Figure 17)** Vehicle ride height and caster setting will affect bump steer settings. Determine the amount of adjustment spacers that will fit within the wheel diameter and consult the alignment shop for further adjustments.



32. Determine whether the 4" or 5" long tie rod bolt will be used (based on the notes above). Attach the tie rod to the underside of the spindle with one 1/4" beveled spacer under the bolt head (narrow end of spacer towards the rod end) before inserting the bolt up through the rod end (threaded end up). Install the a 1" beveled spacer between the rod end (narrow end towards the rod end) and the spindle. Determine how many 1/4" adjustment spacers to install on the bolt before inserting the bolt up through the steering arm. Install a 5/8" washer and 5/8" nylock nut to secure. Torque to 79 lb. ft. Consult with your alignment specialist to determine if more/less adjustment spacers are needed.
33. Install the brake rotors and calipers according to the manufacturer's instructions. This suspension system uses standard or drop spindles based on the Mustang II.

STEERING SHAFT

NOTE:

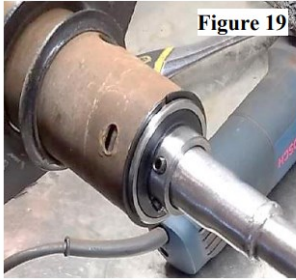
The factory steering shaft will need to be cut and fitted with the included u-joint to begin the routing of your new steering shaft. Where you cut the factory steering shaft will play a role in routing the new steering shaft around headers. It is important to test fit and plan the routing of the factory steering rack to achieve this.

34. Remove the steering column from the car by unbolting the four-bolt mount on the inside of the firewall and disconnecting the column to steering box coupling. A small pin will need to be removed from the coupling. The pin is located on top of the coupling and holds the shaft from sliding.
35. Cut the steering shaft to the ideal length that will best route the new shaft around your engine/header and deburr. (Figure 18)



36. Install the included bearing onto the steering shaft and press into the column housing with the allen head bolts

towards the steering rack (away from steering wheel). **(Figure 19)** Non-collapsible steering shafts will need the included bushing inside the bearing to fit 3/4" diameter steering columns. **(Figure 20)** Collapsible steering shafts will have a 1" diameter shaft and will use the bearing only.



NOTE:

On some cars, '73-'76 A-bodies in particular, the steering column housing will have a small lip that will prevent the bearing from being installed into the column housing. This lip will need to be removed using a Dremel or similar grinding device.

37. With the bearing pressed into the housing, torque the allen screws to 12 lb. ft.
38. Install the smooth end of one u-joint onto the steering column and weld into place. Use care not to overheat the joint or steering column support bearing. **(Figure 21)**



39. Reinstall the column into the car in the reverse order it was removed.
40. Install the splined end u-joint onto the steering rack with the allen screws lightly set. **(Figure 22)** The u-joints that complete the steering shaft need to be in phase. **(Figure 23)** Rotate the joints as needed before final installation.

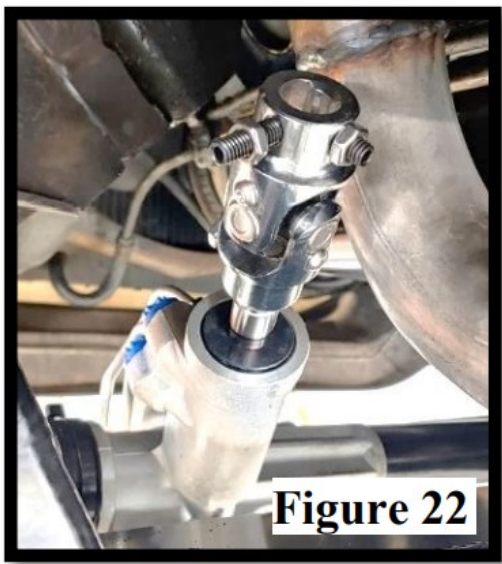


Figure 22

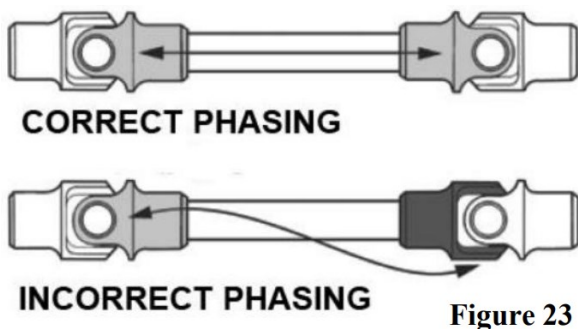
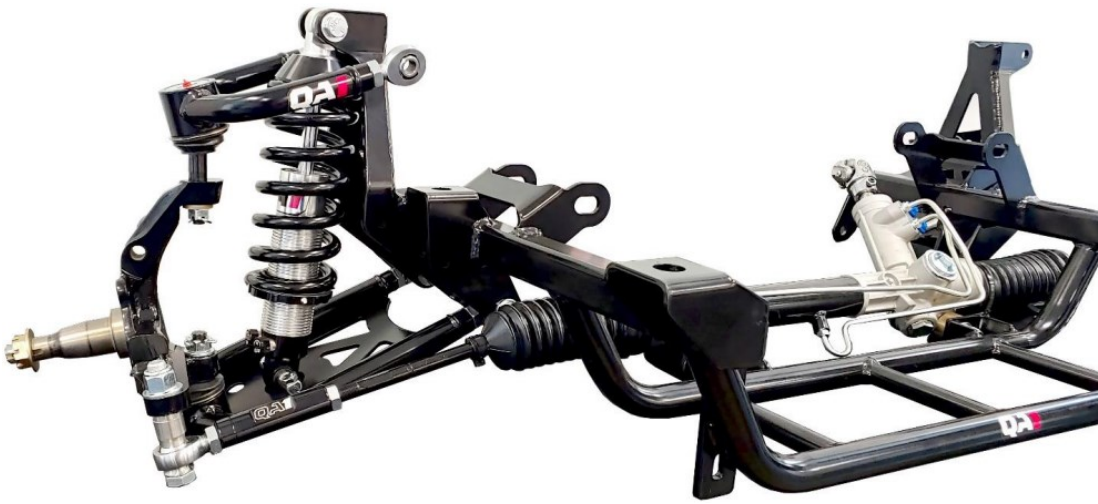


Figure 23

41. Measure the distance between the u-joints ensuring that the planned shaft length will not extend into the joint itself, which will cause binding. Cut the included steering shaft a bit longer than your measurement and test fit.
42. With the final length of steering shaft installed and no binding present, set the allen screws to 12 lb. ft.
43. Double check all work and hardware installation before re-installing the wheels/tires.

Power Steering Connections

- The steering rack included with this suspension is based on a Fox body Mustang. The rack has a 9/16"-18 pressure port and 5/8"-18 return.
- Adapter fittings to convert the rack to -6 AN can be found at Speedway Motors as p/n 910-4047. Custom -6 AN hoses will be needed.
- The Saginaw PS pump is a common OE pump that can be used. For the 5/8" inverted flair on the pressure side use Summit Racing p/n 961947ERL to convert to -6 AN.
- The factory Gen 3 Hemi pump puts out too much pressure for the included steering rack. Bouchillon Performance and CVF Racing offer a reduced pressure pump or can modify your pump to be used with this rack.



A PROFESSIONAL ALIGNMENT SHOULD BE PERFORMED BEFORE DRIVING THE VEHICLE

Recommended Alignment Specs

Caster: $+5^{\circ}$ to $+6^{\circ}$

Cross Caster: $\pm 0.5^{\circ}$

Camber: $-0.5^{\circ} \pm 0.5^{\circ}$

Toe: $+0.10^{\circ} \pm 0.15^{\circ}$ (positive is toe in)

SWAY BAR INSTALLATION



1. Install the sway bar to the control arms with the included end links. The sway bar and control arm connections will use two bushings and two washers with the sleeve separating them. **(Figure 24 & 25)** Tighten the end link until the bushings compress to the same diameter as the washers.
2. Install the frame mount bushings onto the front of the bar and mount the bar to the k-member using the included frame mounts and 3/8" hardware. **(Figure 26)** Torque to 31 lb. ft.



Figure 24

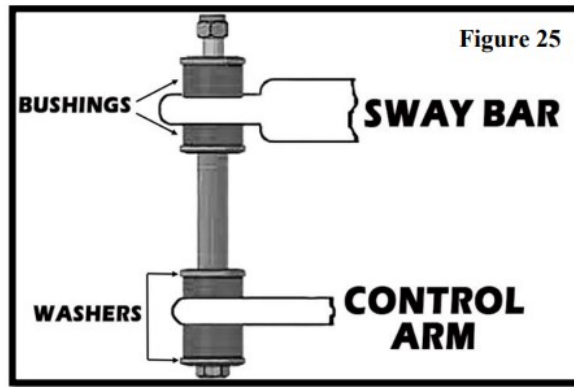


Figure 25



Figure 26

READ ALL INSTRUCTIONS CAREFULLY AND THOROUGHLY PRIOR TO STARTING INSTALLATION. PRODUCTS THAT HAVE BEEN INSTALLED ARE NOT ELIGIBLE FOR RETURN. USE THE PROPER JACKING LOCATIONS. DEATH OR SERIOUS INJURY CAN RESULT IF INSTRUCTIONS ARE NOT CORRECTLY FOLLOWED. A GOOD CHASSIS MANUAL, AVAILABLE AT YOUR LOCAL PARTS STORE, MAY ALSO AID IN YOUR INSTALLATION

DISCLAIMER / WARRANTY

QA1 WARRANTS THAT THE PRODUCTS WILL BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR ONE YEAR FROM DATE OF SALE TO THE ORIGINAL PURCHASER. QA1 MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. QA1 SHALL HAVE NO OBLIGATION UNDER THE FOREGOING WARRANTY WHERE THE DEFECT IS THE RESULT OF IMPROPER OR ABNORMAL USE, YOUR NEGLIGENCE, VEHICLE ACCIDENT, IMPROPER OR INCORRECT INSTALLATION OR MAINTENANCE, NOR WHEN THE PRODUCT HAS BEEN REPAIRED OR ALTERED IN ANY WAY. QA1'S LIABILITY IN THE CASE OF DEFECTIVE PRODUCTS SUBJECT TO THE FOREGOING WARRANTY SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT, AT QA1'S OPTION, OF THE DEFECTIVE PRODUCTS.

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- Frequently Asked Questions
- Quick Tips
- Install Information
- Tuning and Repair Guides
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