



DON'T FORGET

These instructions can be found in color and expandable at QA1.net

Technical Support Line: (952) 985-5675 Email: sales@QA1.net

INSTALLATION INSTRUCTIONS

QA1 P/N R157-170, R257-170, R357-170 Rear Suspension
1970-1981 GM F-Body

TOOLS AND SUPPLIES REQUIRED

- Floor Jack
- Jack Stands
- Mig Welder capable of ¼" penetration
- SAE Wrench Set
- Anti-seize
- Angle Grinder
- Four Large C-Clamps
- Ratchet & Socket Set
- Torque Wrench
- Tire Chocks
- Digital Angle Finder

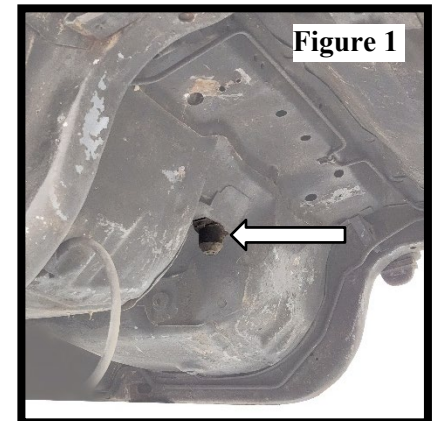
Note:

This installation requires welding near the fuel tank and fuel lines on the passenger-side frame rail. Ensure the fuel tank is nearly empty before beginning, as it will need to be removed.

Consider upgrading this suspension with the QA1 Rear Sway Bar (p/n 52828) and Subframe Connectors (p/n 52094 for '70-'74 or p/n 52095 for '75-'81)

Removal

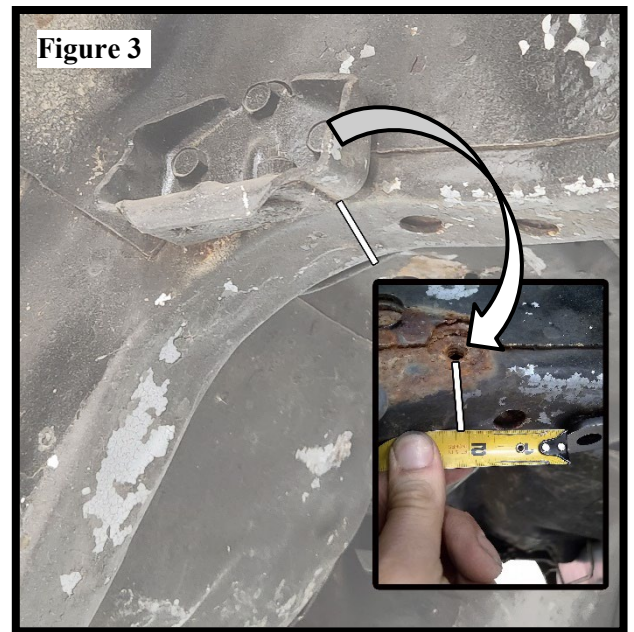
1. Measure the beginning ride height of the car from the fender down through the center of the wheel to establish the original ride height.
2. Measure the front-to-rear wheelbase from the center of the front hub to the center of the rear hub as a reference.
3. Disconnect the vehicle battery, as welding to the frame will be necessary for installation.
4. Raise the rear of the car and support it at the frame rail with jack stands on a stable surface.
5. Remove the rear exhaust section. Alternative exhaust routing may be required.
6. Support the axle before removing the upper shock connection. The axle may be hanging from the shocks and drop further during this step without support.
7. Mark the driveshaft phasing at the pinion and remove the driveshaft from the car.
8. Remove the brake line connection near the driver's side of the axle.
9. Remove the rear sway bar (if equipped)
10. Remove the fuel tank and any open lines near the welding area.
11. Loosen the front and rear leaf spring mounts. Do Not Remove At This Time.
12. Lightly support the axle using a jack or by setting the car slightly on the ground to contain the energy of the leaf springs.
13. Remove the front and rear leaf spring hardware and remove the axle from the car.
14. Remove the pinion snubber. **(Figure 1)**
15. On '74-'81 cars, remove the exhaust hanger brackets from both sides of the rear floor pan. **(Figure 2)**



If Using A Vehicle Lift-

Re-check the vehicle weight balance now that the heavy axle has been removed. Reposition the lift arms, or use a pole jack at the front of the vehicle, to improve stability.

16. Remove the front leaf spring mounts from the leaf springs. Mark the leaf spring mounts as they are right- or left-specific. If QA1 subframe connectors are being installed, the leaf spring mounts can be discarded.
17. Remove the driver and passenger side bump stops. The rear bolt hole of the bump stops will be used as a marker for the crossmember placement. Draw a line through the center of the rear bolt hole onto the bottom side of the frame before reinstalling the bump stops in their original location. **(Figure 3)**

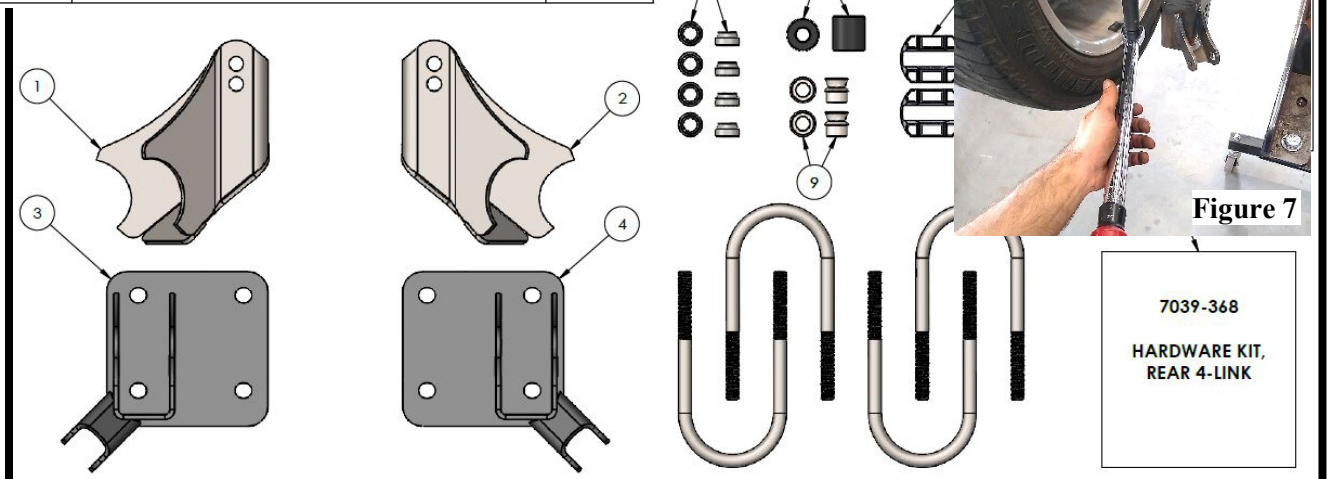


Installation

Note: This installation process will require the suspension to be mocked up at ride height before the axle is removed for welding the tabs to the axle and the cross-member welded into the car. All listed torque values for the hardware will be used upon final installation of the suspension.

1. Identify the right/left axle mounts. **(Figure 4, #3 & #4)**

BALLOON #	ITEM #	DESCRIPTION	QTY.
1	9039-361	WELDMENT, UPPER TRAILING ARM MOUNT, LH	1
2	9039-362	WELDMENT, UPPER TRAILING ARM MOUNT, RH	1
3	7740-446	WELDMENT, LOWER TRAILING ARM MOUNT, LH	1
4	7740-447	WELDMENT, LOWER TRAILING ARM MOUNT, RH	1
5	9039-437	PLATE, UPPER SHOCK BLOCK-OFF	2
6	SG88	SPACER ROD END SS, 1/2" ID	8
7	9033-530	SLEEVE, .5" ID X 1.2" OD X 1.3"	2
8	7791-175	TOOL, ALIGNMENT, AXLE PLATES	
9	SG12-88	HIGH MISALIGNMENT SPACER, .75" OD	
10	9012-339	U-BOLT, 1/2-20 X 3" X 6.75"	4
11	7039-377	HARDWARE KIT, SUSPENSION MOUNT BRACKET	1
12	7039-368	HARDWARE KIT, REAR 4-LINK	1



2. Drill the axle U-bolt holes to 1/2" before bolting the axle brackets to the axle using the included U-bolts and hardware. Evenly torque to 50 lb. ft. **(Figures 5,6,7)**

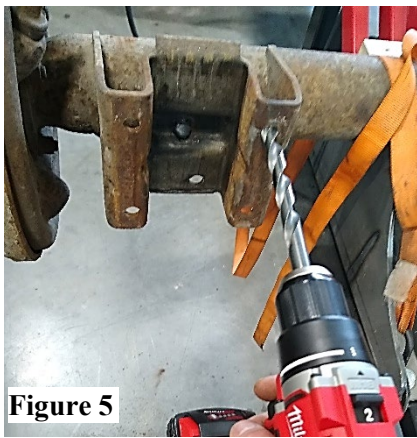
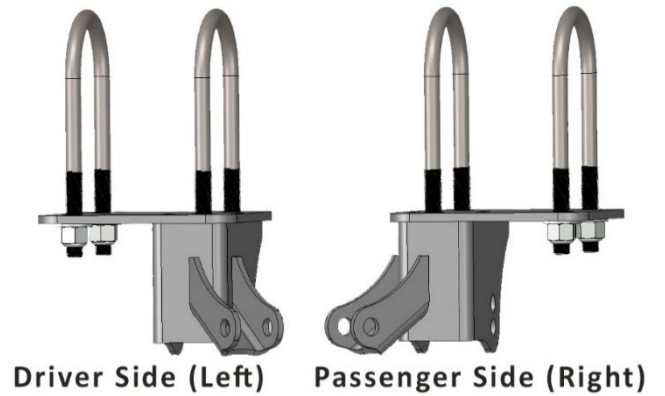


Figure 5



1. Remove the mounts holding the fuel lines to the frame rail. The fuel lines may remain in place while the crossmember is fitted to the car, but they will need to be pushed up and out of the way as much as possible before welding. Fuel lines should not be opened anywhere near the frame rail unless they will be fully removed during welding.
2. Place the QA1 crossmember in place using clamps. The center of the crossmember is adjustable to adjust for the narrower frame width of earlier cars. Loosen the jam nuts and adjust the hex as needed to fit the outer flanges against the inner frame rails. Tighten the jam nuts after adjusting. (Figure 8)

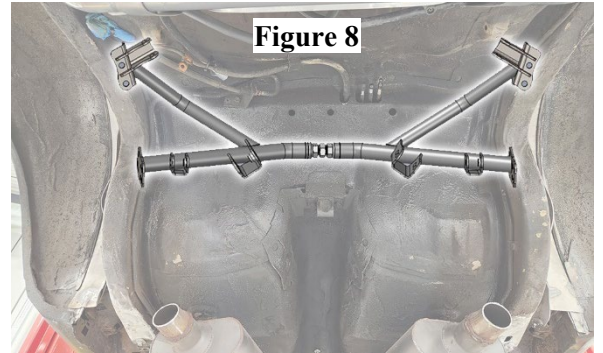


Figure 8

3. Measuring back from the rearmost bump stop mounting hole $2 \frac{3}{16}'' \pm 1/4''$, which will set the front to rear position on both sides. (Figure 9) The height of the front of the crossmember can be verified by measuring up from the bottom of the frame rail (using a straight edge) to the bottom of the weld plate. 1970-1974 cars should measure $7 \frac{1}{4}'' \pm 1/4''$. 1975-1981 cars will measure $7 \frac{7}{16}'' \pm 1/4''$ due to them having taller frame rails than earlier cars. (Figure 10) This should be the location of the lower front flange on both sides of the crossmember.



Figure 9

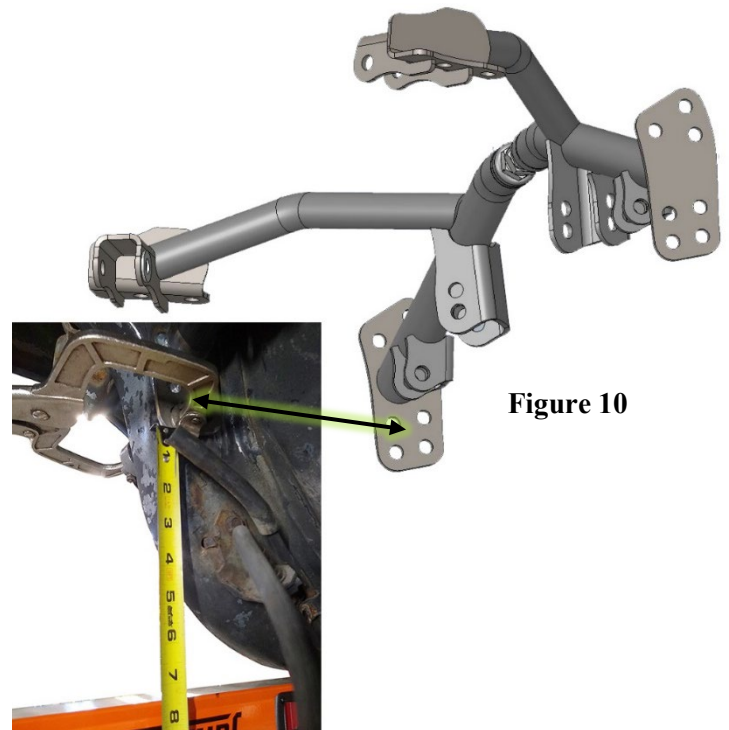
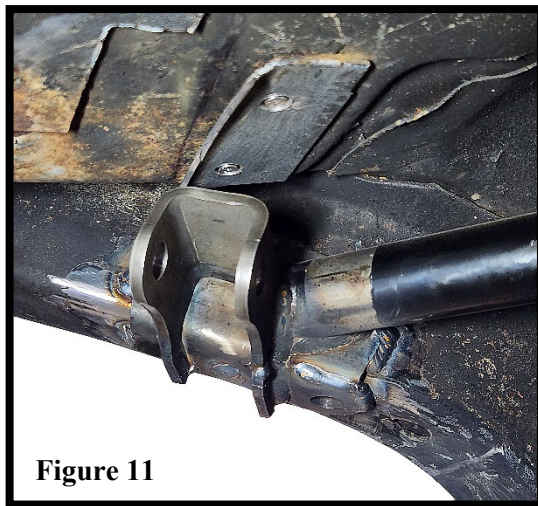


Figure 10

NOTE:

The rear upper crossmember flanges should sit flat against the bottom of the frame rail. The rear seat floor pan is not the same left to right, causing the crossmember to mount closer to the firewall on the left than on the right.

4. Mark the areas of the frame where the crossmember flanges will be welded.
5. Remove the crossmember and sand the marked frame rail areas to bare metal. Weld-through primer can be applied to the frame rails and the frame-facing flange faces to prevent future corrosion.
6. Reinstall the crossmember to the correct position using the measurements for the flange locations in step 3.
7. Remove all items from the trunk and leave the trunk lid open during welding. QA1 recommends keeping pressurized air nearby to eliminate hot spots during welding, which could lead to a fire.
8. Using a welder capable of 1/4" penetration, plug weld all holes in the front flanges and the flange edges of the rear flanges. **(Figure 11)** Alternate sides during welding to prevent overheating/warping of the flanges or frame rails. **Using compressed air to cool each weld and eliminate the risk of inner frame-rail fires is highly recommended.**



9. Prime and paint the finish-welded flanges of the crossmember.
10. Verify the QA1 lower trailing arm length is 25-1/8" center to center on the mounting bolt holes. The adjustment range after installation is 24-1/2" to 25-7/8". The trailing arms are right/left-specific as marked and will need to be mounted with the rear bent inboard to maximize tire clearance. **(Figure 12)**
11. Remove the factory u-nuts from the leaf spring mount location and replace with the included u-nuts included with the suspension.

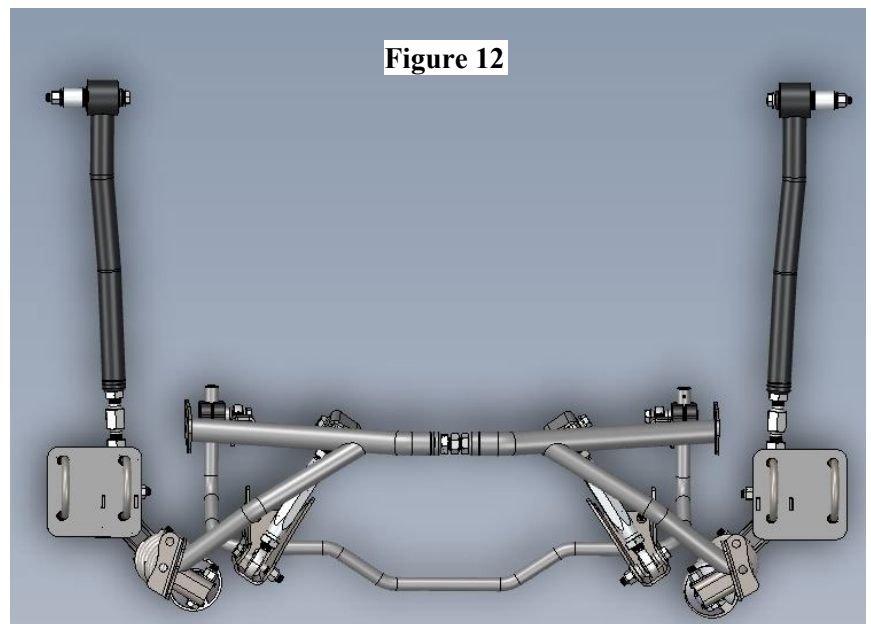
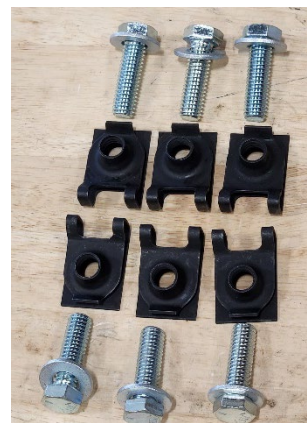


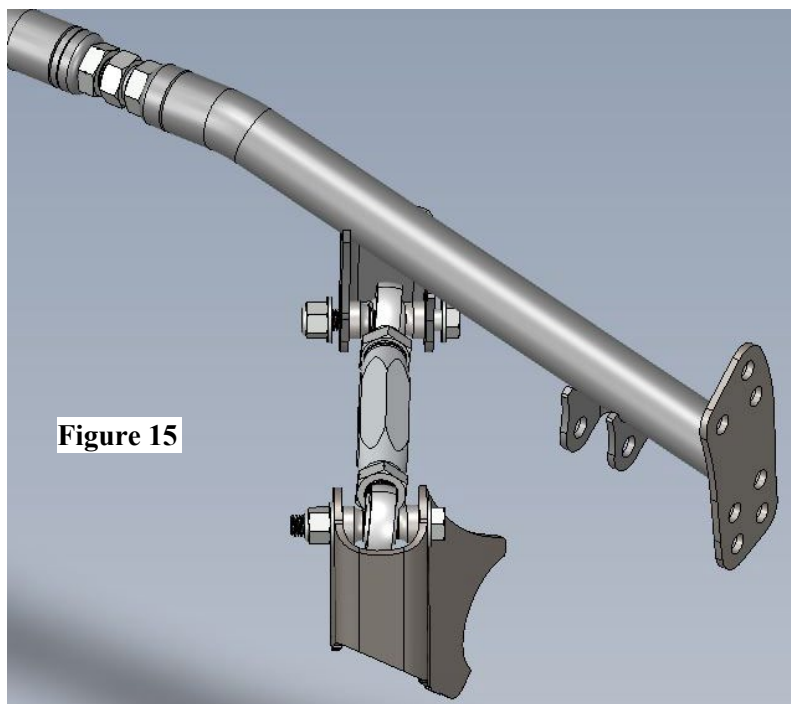
Figure 14

12. Using the brackets from the QA1 subframe connector kit or the OE leaf spring mounts, bolt the fixed bushing end of the QA1 lower trailing arms to the mounts with the rear portion of the trailing arms curved inboard at the rear. **(Figure 13)** using one 1.3" wide black spacer on the outboard side of the mount. This connection can only be accomplished with the leaf mounts/subframe connector removed from the car. Secure using a 1/2"x 5" bolt with two washers and one Nylock nut per side, with the bolt head on the inboard side of the mount. **(Figure 13)** This connection should be final torqued to 75 lb. ft. before reinstalling the subframe connector/leaf spring mounts to the car.



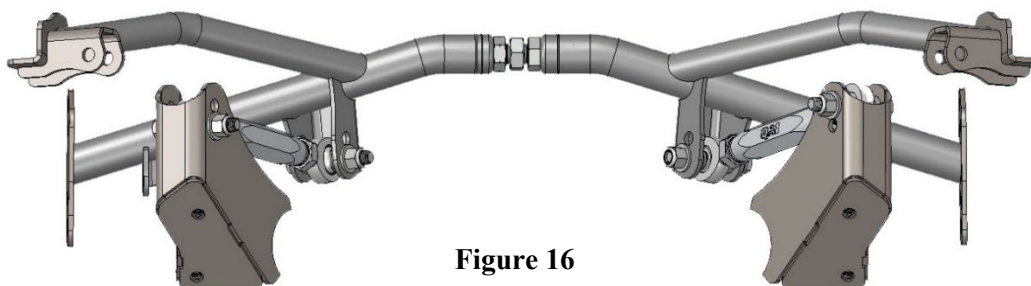
13. With the lower trailing arm attached to the factory front leaf spring mounts, reinstall the front leaf spring mounts onto the vehicle using the included new J-nuts and 3/8" hardware. **(Figure 14)** Torque to 30 lb. ft.

14. Verify the QA1 upper trailing arms are 9 3/4" center to center on the mounting bolts. The adjustment range after installation is 9-1/4" to 10-1/4".

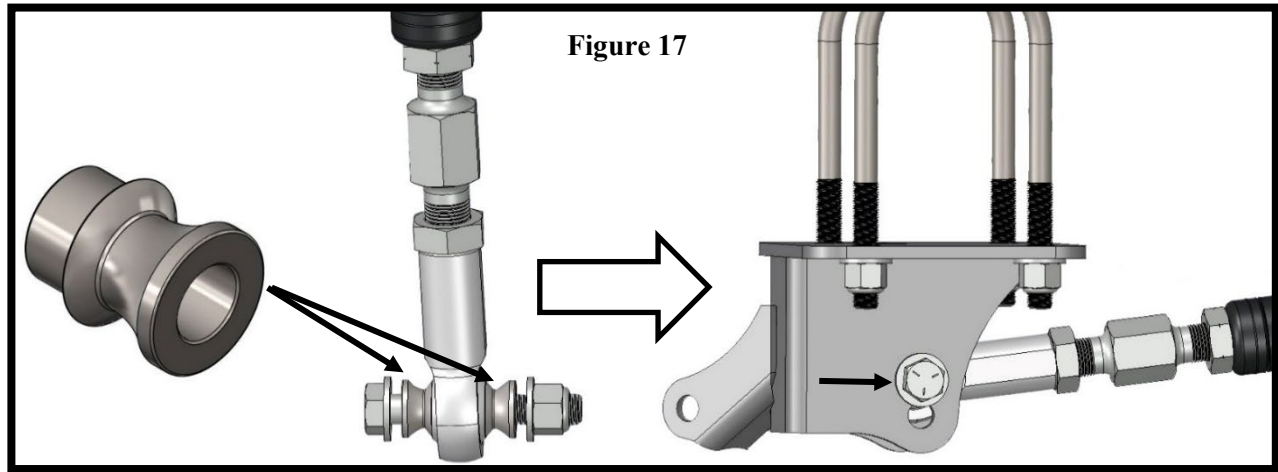


15. With one SG88 spacer on each side of the upper trailing arms, install the upper trailing arm into the inner mounting tabs at the front of the crossmember. Secure using 1/2"x 3.25" hardware with two washers and one Nylock nut per connection. **(Figure 15)** Torque to 50 lb. ft.

16. Identify the left/right weld-in mounts for the upper trailing arm to axle connection and install the red anodized upper trailing arms into the upper hole with one SG12-88 spacer on each side of the rod end. **(Figure 15)** Secure using 1/2"x 3.25" hardware with two washers and one Nylock nut per connection. The upper trailing arms should now hang from the crossmember using weld-in brackets in preparation for the axle mock-up. **(Figure 16)**



17. Mount the coil-over shocks (without springs for mock-up) onto the rear crossmember mounts using 1/2" x 2-3/4" hardware with two washers and one Nylock nut for the upper connection.
18. Roll the axle into place and support the pinion with a jack stand so that the axle does not roll.
19. With one SG12-88 high misalignment spacer on each side of the rod end, connect the lower trailing arms to the upper hole of the axle mounts using 1/2" x 3.25" hardware, with two washers and one Nylock nut. **(Figure 17)** Torque to 75 lb. ft.



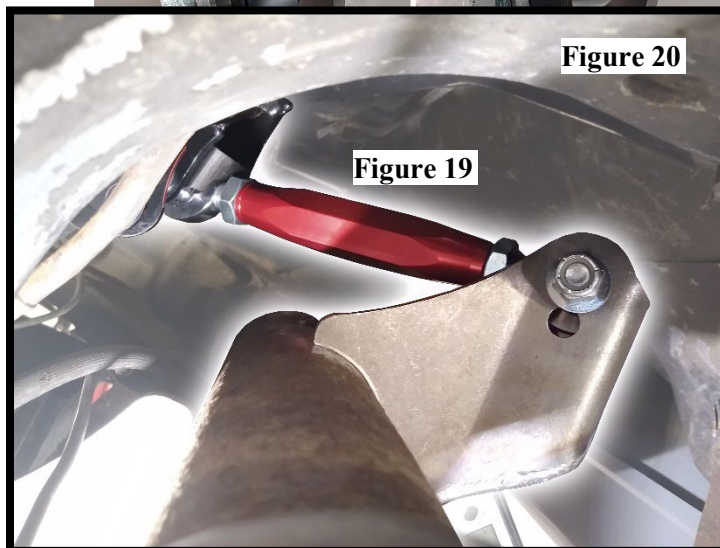
20. With the upper trailing arms swung above the axle, mock the axle up so that it is centered under the vehicle with an axle to bottom of frame measurement of 4-3/4". **(Figure 18)**
21. With the axle height set at 4.75", adjust the pinion angle to 0 degrees relative to the drive line.
22. Lift the upper trailing arms and clean the axle tube to bare metal where the mounts will be welded.
23. Double-check all clearances and measurements before continuing.



24. Install the 3D printed rod end alignment braces onto the front and rear rod ends of the upper trailing arms with the axle mounts resting on the axle. **(Figure 19)** These rod end braces align the rod ends in the tabs to get the mounts tack-welded and should be removed before finishing welding to prevent melting the braces.



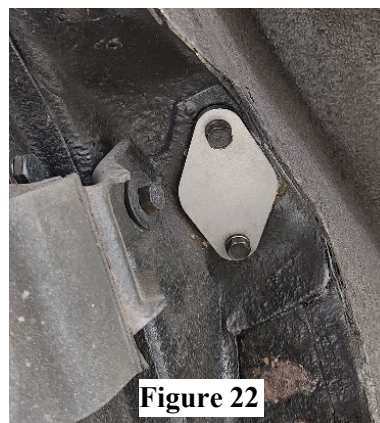
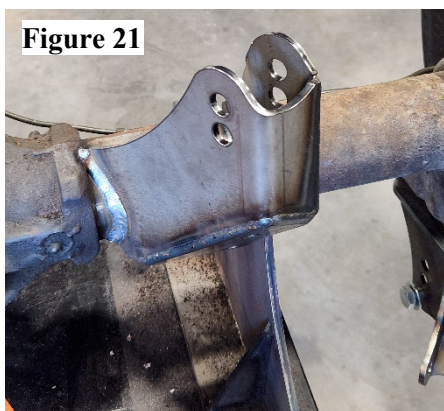
25. Double-check that your axle is 4-3/4" from the bottom of the frame, centered within the frame rails, and your pinion angle is still set to 0 degrees before tack-welding the upper trailing arm mounts to the axle. **(Figure 20)**



26. Double-check all measurements again before removing the axle from the vehicle for final welding. **(Figure 21)**

27. Weld the outside edges of the upper trailing arm brackets to the axle tubes. It is recommended not to fully weld the inner tabs to avoid introducing excessive heat into the tabs.

28. Coat the axle as desired to prevent future corrosion.



29. Install the included block-off plates to the factory upper shock mounts using the included 5/16 x 3/4" bolts and washers. Torque to 18 lb. ft. These plates will prevent road debris from entering the trunk. **(Figure 22)**

30. Reinstall the axle into the vehicle and reconnect the following:

CONNECTION	TORQUE SPEC
Lower Trailing Arm to Axle	75 lb. ft.
Lower Shock Mount to Axle	50 lb. ft.
Upper Trailing Arm to Axle	75 lb. ft.

31. Reinstall the brake lines and bleed the system.

32. Reinstall the drive shaft.

33. Refer to the coil-over assembly instructions included with the shocks.

34. Adjust the spring seats on the coil-over shocks so that 2" of threads are under the adjustment collars. This will be a good initial setting for setting the car down and checking the ride height. Re-adjust the collars with the weight off the car to the desired ride height, then tighten the lower locking collar into the spring seat collar. At final ride height, the shock should measure 13.25" to 14.5" center-to-center on the mounting bolts. Set the shock adjustment knob(s) for the intended driving only after the final ride height is set.

35. Install and modify (as needed) the exhaust system.

36. Double-check all completed work.

TIRE WIDTH CLEARANCE

The OE wheel opening allows approximately 10" of tire clearance before the tires will contact the inner wheel well towards the front of the wheel well. Clearance to the QA1 lower trailing arm is approximately 13 1/4" and should easily accommodate 335mm tires on a car with modified wheel tubs.

A professional four-wheel alignment is required before driving the vehicle.

Shock Valving Adjustments

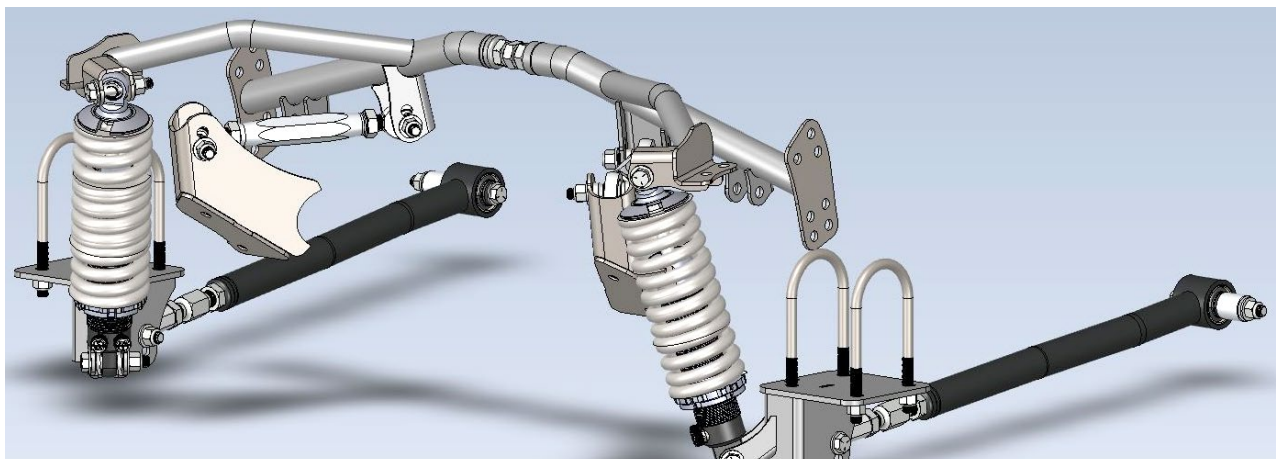
Shocks with one adjuster knob:

Shocks with two adjuster knobs:

Compression

Rebound

Drag Racing:	4-10 clicks	7-12 clicks	2-8 clicks
Nice ride and handling:	0-6 clicks	0-6 clicks	2-8 clicks
Firm ride & improved handling:	6-12 clicks	6-12 clicks	8-14 clicks
Aggressive handling:	13-18 clicks	13+ clicks	14-18 clicks



QTY/KIT	DESCRIPTION	2ND DESCRIPTION	QA1 #	WHERE USED
6	BOLT, HEX 1/2-13 X 3.25"	GRADE 5, CLEAR ZINC	N/A	TRAILING ARMS
32	WASHER, FLAT 1/2" SAE	.54" ID X 1.07" OD X .10", CLEAR ZINC	9005-228	TRAILING ARMS AND SHOCKS
12	NUT, NYLOCK, 1/2-13	GRADE 5, CLEAR ZINC	9014-520	
4	BOLT, 1/2-13 X 2.75"	GRADE 5, CLEAR ZINC	N/A	SHOCK MOUNTS
2	BOLT, HEX 1/2-13 X 5"	GRADE 5, CLEAR ZINC	N/A	LOWER TRAILING ARM, FRONT
8	BOLT, 7/16-14 X 1.25"	GRADE 5, CLEAR ZINC	N/A	LOWER SHOCK MOUNT BRACKETS
16	WASHER, FLAT 7/16" SAE	.47" ID X .92" OD X .07", CLEAR ZINC	9005-243	
8	NUT, NYLOCK 7/16-14	GRADE 5, CLEAR ZINC	N/A	U-BOLTS
8	NUT, NYLOCK, 1/2-20	GRADE 5, CLEAR ZINC	N/A	
4	BOLT, HEX 5/16-18 X .75"	GRADE 5, CLEAR ZINC, FULL THREAD	9012-185	STOCK SHOCK MOUNT BLOCK OFF PLATE
4	WASHER, FLAT 5/16" SAE	.34" ID X .69" OD X .065, CLEAR ZINC	9005-262	



READ ALL INSTRUCTIONS CAREFULLY AND THOROUGHLY BEFORE 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.

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