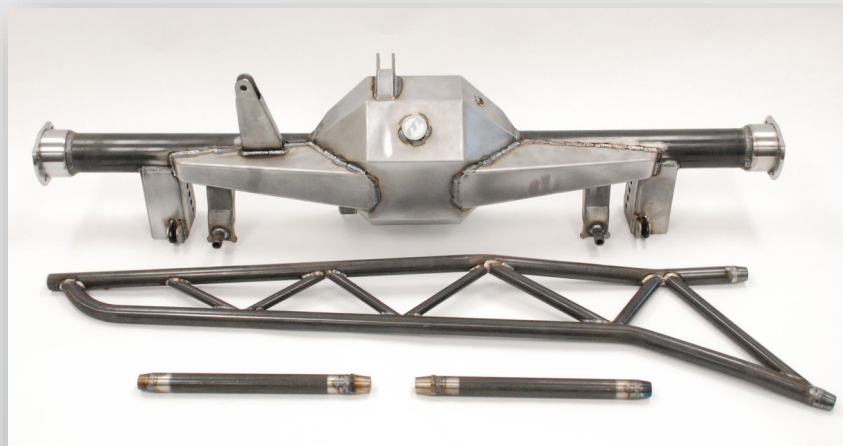


M9 Fabricated Housing/Torque Arm/Rear Assembly For GTO/Holden



This is a very involved project that should not be preformed by someone with less than average Mig welding skills. Please read through all of the following instructions before attempting this project.

The vehicle must be supported by the chassis structure as close to the corners as possible. Support the vehicle near the forward lower control arm pockets in the rear and the suspension mounting points in the front. Do not support the vehicle by any suspension components. This must be done on a hard, level surface. This is not a project for the faint of heart! There is welding that needs to be done to complete this project that should only be done by a qualified welder.

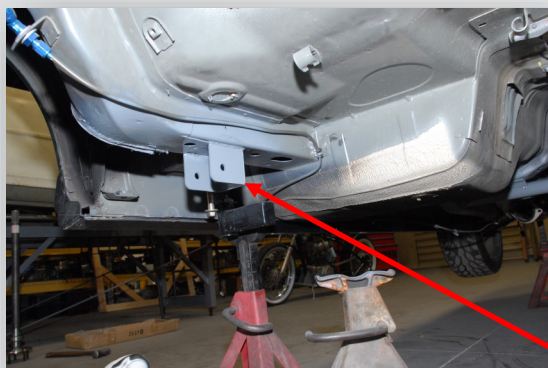
Safety precautions should be followed at all times!



Rev. IN21-53

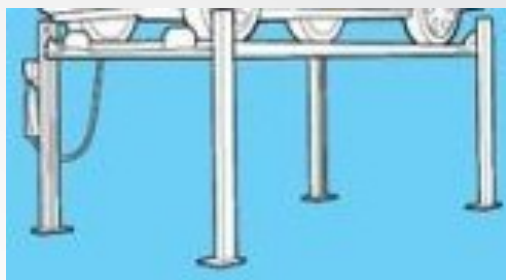
Step 1

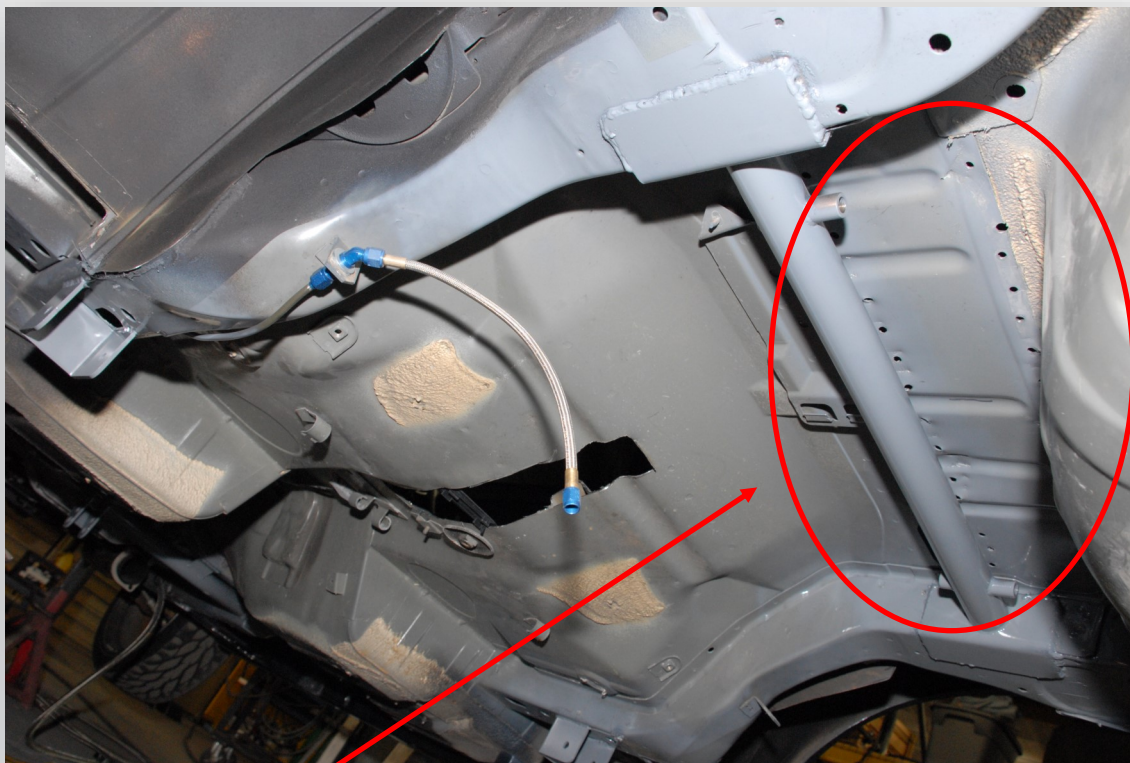
Start by disconnecting the battery, removing the front & rear seats, console & any flammable insulation or sound deadener on the floors, especially in the area of the welds. Remove the rear sub frame assembly and all associated hardware. Remove the gas tank, filler neck, fuel lines from the rear of the vehicle. Some sort of aftermarket fuel tank or cell, pump & lines will have to be used in this application.



Step 2

The forward control arm mounts are located by the existing forward rear sub frame mounting bolts. All of the dimensions required to locate the rear cross member & the anti roll bar are also measured from the centers of these bolts. The mounts are slotted towards the mounting bolt side of the mount, these slots are there for bending purposes, the mounts need to be bent slightly through these slots to help them conform to the floor pans. Once the mounts fit tightly against the floor pans you must remove any paint or galvanizing compounds from the factory sheet metal. This will prevent the welds from being contaminated. You will need 2 bolts with the same thread pitch to temporarily attach the forward control arms to the floors. Take the existing bolts to your local hardware store and tell them you'll need 2 about 1" long. They will allow you to bolt the mounts to the floor pans during the welding process. Once both the left hand & right hand mounts are bolted in place you will need to clamp a straight edge across the fronts of both mounts to hold them parallel in the vehicle. A piece of angle iron works well for this procedure. Once they are parallel and tight to the floor pan they can be welded in.



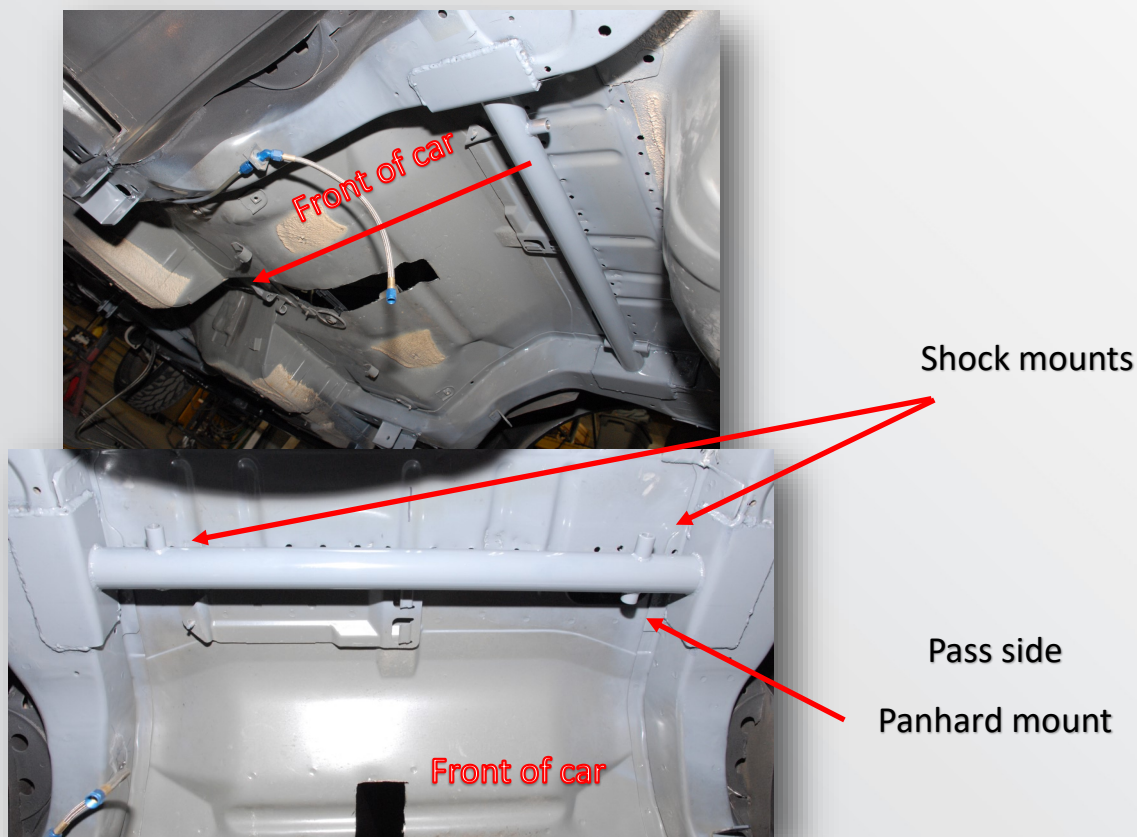


Step 3

Remove the rear sheet metal cross member between the rear frame rails, just in front of the spare tire well. The spot welds will need to be drilled out to accomplish this feat, drill through the center of each spot weld with a 1/8" drill bit, this will locate the spot weld drill, then use a 3/8" spot weld drill to finish the job. (Spot weld drills can be purchased at most auto supply stores.)

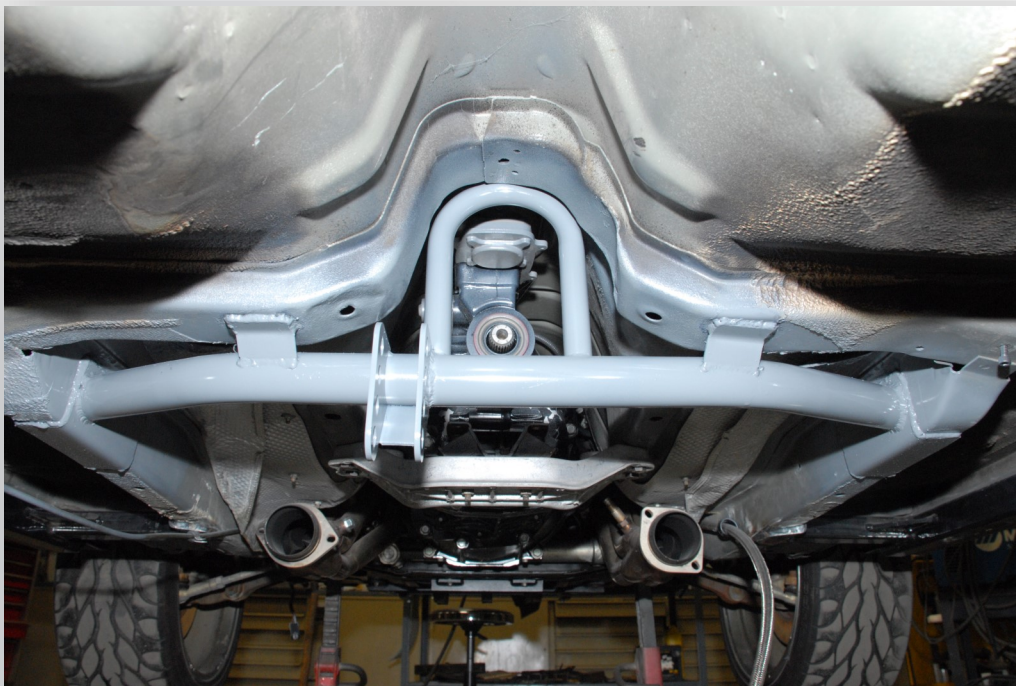
Step 4

All of the forward & aft crossmember locating measurements will be taken from the forward sub frame locating bolts. Keep in mind that the car needs to be level front to back & side to side for the measurements to work correctly. Use a plumb bob to transfer the bolt centers to the floor. Draw or strike a line from side to side to make the job of locating the crossmembers easier.



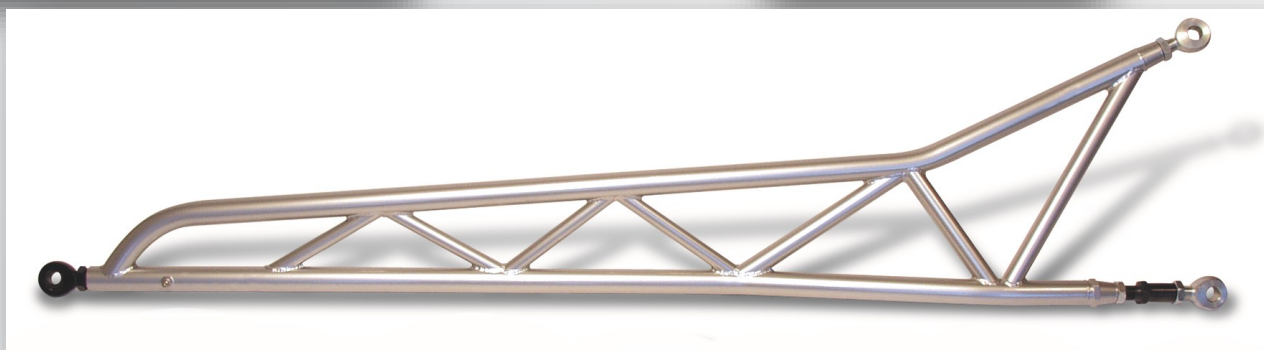
Step 5

Locate the rear crossmember 27 3/8" back from the center line of the forward sub frame mounting bolts to the centerline crossmember. Measure back 27 3/8" on each side of the car on the floor from the forward mount centerline you previously had drawn on the floor. Use a plumb bob to transfer this dimension to the inside of each frame rail. The crossmember has an angled stiffening plate welded to each end, they slip between the rear frame rails and are welded in to the existing rails. All paint and galvanizing must be removed from the existing rails in the area of the welds to prevent contamination of the welds. **Please note the crossmember is left & right handed!** The threaded bung on the right side of the crossmember is longer & sticks out both sides of the crossmember. The shock bolts on the rear of the crossmember and the Panhard bolts on the front of the crossmember.



Step 6

The front crossmember locates between the front frame rails, the insulating heat wrap will have to be removed to properly locate this crossmember. Push it up between the front sub frame rails with the back of the driveshaft loop touching the front edge of the seat crossmember. The weld gussets on the rear of the forward crossmember need to touch the bottom as well. Measure forward from the forward mount centerline to each side of the crossmember. These measurements should be equal to insure that the front crossmember is square in the vehicle. (With this crossmember & driveshaft loop combination a 4" steel drive shaft is the maximum diameter that can be used due to clearance restrictions.



Step 7

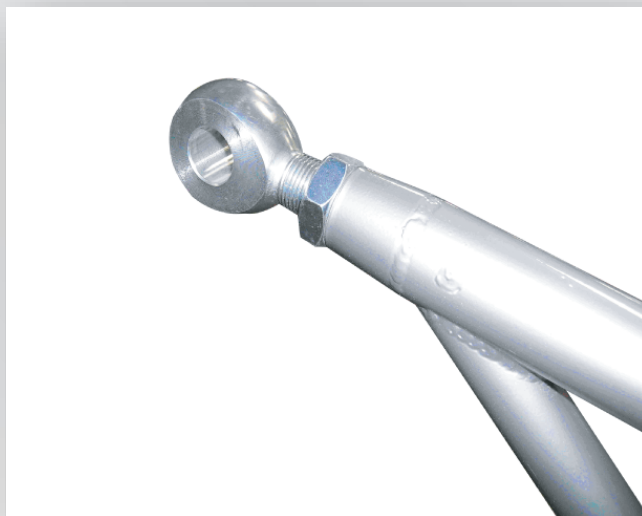
Now let's assemble the torque arm. Install the heim joint into the slider tube. There should be only 2-3 threads showing between the rod end and the jam nut. Use an anti-seize lubricant or a heavy grease on the threads to prevent them from galling during assembly. It is imperative that you tighten the jam nut securely against the slider tube to prevent the heim from backing out of the tube.

Step 8

Next install the lower adjuster in the bottom of the torque arm by threading the jam nut on the adjuster 7/8" as shown below. Use the same grease here to prevent galling of the threads. Insert the adjuster until the jam nut touches the tube adapter but do not tighten at this time as you will be making adjustments later.

**Step 9.**

Install the solid rod ends into the torque arm adjuster and the top tube adapter in the torque arm. Set the jam nuts on the rod ends at 7/8" as you did on the adjuster. Thread the rod ends into the tube until the jam nut touches the tube adapter and adjuster. Be sure to use the grease once again here and do not tighten at this time as it will be done after you have adjusted your pinion angle later.



Step 10.

Bolt the torque arm to the housing using the 3/4" bolts, nuts and washers supplied in the kit. Make sure you use the supplied washers so the bolts tighten properly against the housing brackets. You may need to grind the corner of the lower nut slightly to clear the housing. At this point the housing and torque arm assembly can be set on a jacks stand as its ready to install into position.

**Step 11.**

Start the installation of the housing & torque arm by carefully rolling the assembly into position below the car and then jacking it up into place. You will start with the front of the torque arm and lift it up into place in the front mount. Higher HP cars will want to use one of the lower hole settings while moderate HP cars will use one of the higher hole positions. Other factors such as gear ratio, tires, etc...may dictate your needed settings in the torque arm front location. **Make certain the flat washers go on the outside of the torque arm brackets between the bolt and nut heads and the tapered misalignment washers go between the heim and the brackets with the small part of the tapered washer against the heim itself.** Any other sequence could potentially damage the heim.





Step 12.

Lower Control Arms

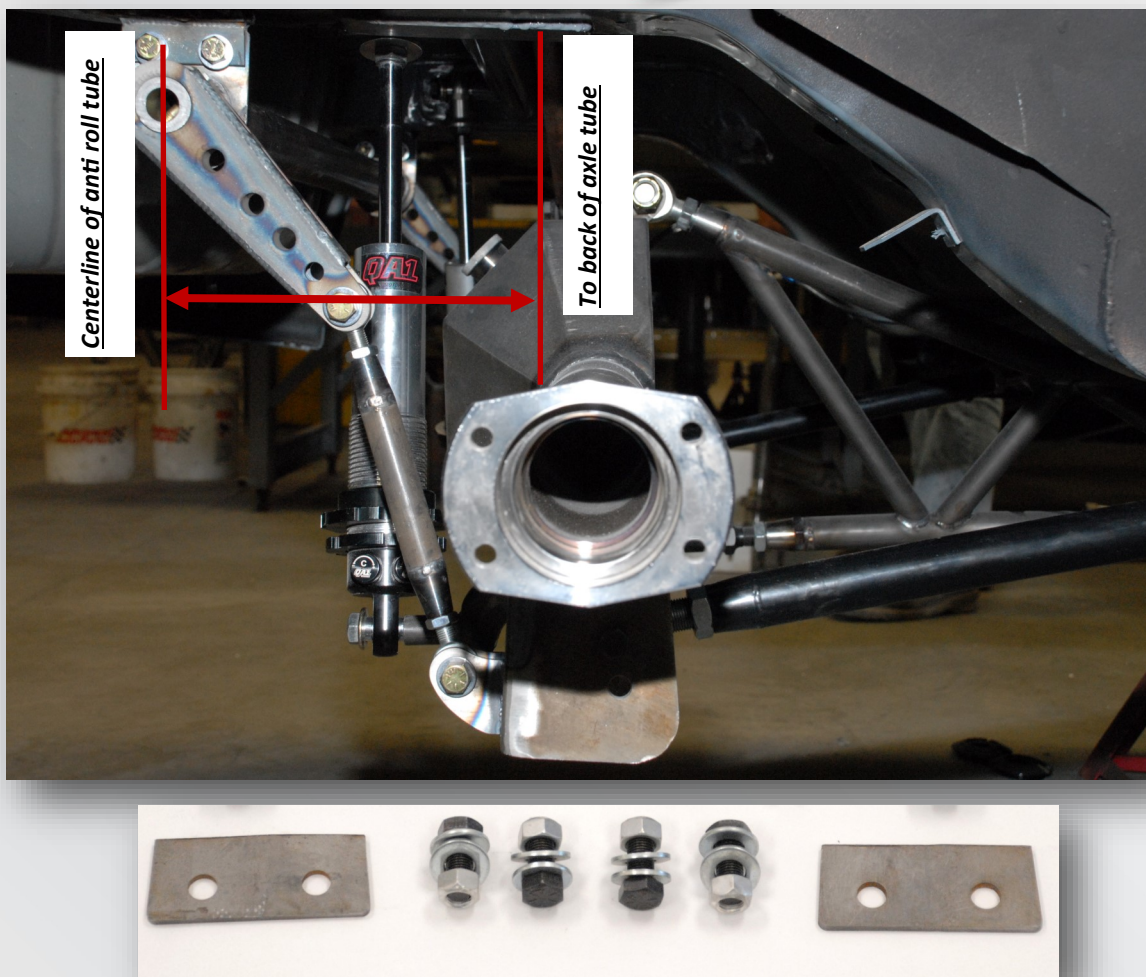
1. Be sure to add a little lube to the threaded end of control arms on each end. Now take the 4 Heims and install the jam nuts onto the Heims.
2. Screw the assembled Heims into the greased control arms.
3. Stand the Cone Spacers on end and mark each accordingly with a sharpie "L" for the (4) longs and "S" for the (4) shorts. The Long Cone Spacers "L" (1.230") goes between the rear end lower control arm brackets. The Long Cone Spacers "S" (1.170") goes between the front mounts on the chassis. Insert the cone spacers into the Heims (a little thick lube will help hold them in place until installed) and then adjust the Heims to match the stock control arms bolt hole to bolt hole length. Make sure to allow the same amount of thread to be shown in each end of the Heims. This will allow equal engagement and strength from both Heims and gives you the maximum adjustability. This spread from the stock arms gives you a good starting point for adjustment on the new one.
4. Once you set the length be sure to torque the jam nuts down tight. Be sure to also reinstall the control arms using the new supplied grade 8 bolts and nuts.



Step 13.

The torque arm & housing assembly needs to be temporarily installed in the car to locate the anti roll arm. Install the assembly into the car using the shocks without the springs installed to primarily locate the housing. The housing needs to be supported on both ends with jack stands. Set the centerline of the shock mounting points at **13 ¼" to 13 ½"**. Install the ½" Left Hand & Right Hand heims into the Panhard rod. Thread approx. ¾" of the heims into the rod. Using the supplied hardware, bolt one end of the rod to the upper right hand side on the front of the shock crossmember and the other end to the Panhard bracket on the housing. Using your plumb bob on the outside of the rear fender, measure from the line on the housing end on each side. This dimension should be equal on both sides of the car with the housing set at ride height. (**Ride height is determined by the 13 ¼" to 13 ½" shock centerline.**) If it is not equal, adjust the Panhard to equalize this dimension. Once the housing is located from side to side, adjust the axle centerline on each side of the car. Measure from the front of the wheel opening to the axle centerline and from the rear of the wheel opening to the axle centerline. This dimension must be equal, front to rear and on both sides of the car. **It is imperative that these dimensions be correct or the vehicle will not track properly.** Use a level on the outer anti roll tabs on the housing to locate the end to end location of the anti roll arm. It locates 33 7/8" from the front sub frame centerline to the centerline of the anti roll bar. Using the supplied hardware, install the 7/16" left hand and right hand threaded heims into the anti roll links. They will thread in approx. ¾". Use anti seize on the threads of all of the heims supplied in this kit. The anti roll bar is designed to decrease body roll and is adjustable by either lengthening or shortening either of the links. Install these links so that there is no binding in the heims, Typically you will lengthen the right link ½ to 1 turn to make the car work properly.

Once you've finished this step then install and adjust the coil springs on the shocks. Reset the shock ride height by raising or lowering the spring seat to the recommended height.



Step 14

Once the housing is correctly located under the vehicle you can now locate the anti-roll assembly. Bolt the mounting plates to the antiroll assembly then clamp into place against the frame using large c-clamps. ***The anti-roll mounts 7 1/4" from the back of the large axle tube to the centerline of the anti-roll tube.*** It centers from side to side in the vehicle. Tapping and moving into place until correct then tack weld the tabs to the frame. Once tacked measure again for plumb side to side and if good then weld into place.

Step 15

At this point everything can be disassembled, cleaned, painted and reassembled if it wasn't optioned with powder coat. Once the completed rear is re-installed in the car the driveshaft can be measured. Keep in mind **you can only use a 4" maximum diameter steel driveshaft with this kit.** Instructions on how to measure and order a driveshaft can be found on our website or call in and talk to one of our techs for more information. Moser Engineering can supply you with this driveshaft. The brake lines, fuel system & lines will be up to the customer's discretion. We strongly recommend at this time you install sub frame connectors to help eliminate chassis flex.

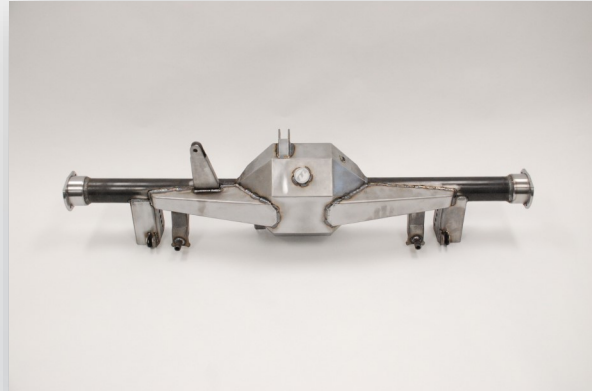
Testing

Once you're at the track and know that all the little bugs have been ironed out, determine what if any adjustments your car might need. Moving the torque arm down will increase squat, up will increase separation. Use the shock valving to determine what your car may want. If your car likes the shocks looser in extension, the car could possibly want more separation. Tighter and it will want more squat. This can be fine tuned with the control arms as well. Bar angle up in the front causes' separation, down causes squat. If you move the torque arm up or down, the pinion angle will need to be re-set.

Anti-roll is determined by body roll. Have someone watch the front of the vehicle, you're looking for the front end to stay level from side to side during launch. If the left wheel seems to come up higher than the right, lengthen the right link. Make sure when you're adjusting the anti-roll that you don't over adjust and cause the car to turn left or right during launch.

BOM
Housing

Qty.	part #	parts description
1	M9HPGTO	M9 GTO Housing


Anti Roll Assembly

Qty.	part #	parts description
1	728100	Anti-roll Arm Assy
2	70118761	1/4" nf x 2" Long GR8 Bolt for Anti Roll Bar and Tube
2	71137080	1/4" NyLock Nut for Anti-Roll Bar and Tube
4	728109	Anti-Roll Bar Chassis Tab
4	718833XX	3/8"-24x .875" Gr 8 Bolt
4	737082XX	3/8"-24 NyLock Nut
8	733815XX	3/8" Flat Washer
2	GTO	Anti-Roll Adjuster Assy (6.25")
2	7716SHJL	7/16" x 20 LH Heim for Ant-Roll Adjuster
2	7716JNLX	7/16" x 20 LH Jam Nut
2	7716SHJR	7/16" x 20 RH Heim for Ant-Roll Adjuster
2	7716JNRX	7/16" x 20 RH Jam Nut
4	718876XX	7/16-20x1.5" Gr 8 Mounting Bolt for Anti -Roll Adj
4	737083XX	7/16"-20 Lock Nut
8	733816XX	7/16" Flat Washer



Torque Arm

Qty.	part #	parts description
1	737500	Torque Arm Assy
Hardware		
2	73416SRE	3/4 x 16 Torq Arm Solid Rod End
2	3416JNR	3/4"x 16 Jam Nut for Solid Rod End
2	718365XX	3/4-16 x 2.5 Gr 8 Bolt for Housing Mount
4	733803XX	3/4 Gr 8 Washer for Housing Mount
2	737570XX	3/4-16 Nylon Lock Nut for Housing Mount
1	728108	Slider Tube
1	73416MHJ	3/4-16 x 5/8 CM Heim Joint for Slider
1	73416JNR	3/4"x 16 Jam Nut for CM Heim Joint
1	718315XX	5/8-18 x 2.75 Gr 8 Bolt for Front Slider Mount
1	737569XX	5/8-18 Gr 8 Nylon Lock Nut for Slider Mt
2	733802XX	5/8 Gr 8 Washer for Slider Mt
2	7SW58AX	5/8 Safety Washer
1	7651400X	Pinion Angle Adjuster
1	73416JNL	3/4 x 16 LH Jam Nut for Pinion Angle Adj
1	760105XX	1/4 x 28 Grease Zerk



Front Cross Member

Qty.	part #	parts description
1	GTO	front cross-member assy.

Rear Cross Member Assy

Qty.	part #	parts description
1	GTO	rear cross-member assy.

Pan Hard Assembly

Qty.	part #	parts description
1	71220HJL	1/2-20 X 1/2" Heim Joint LH
1	71220JNL	1/2-20 Jam Nut LH
1	71220HJR	1/2-20 X 1/2" Heim Joint RH
1	71220JNR	1/2-20 Jam Nut RH
2	70018914	1/2-20x2.0" Gr 8 PanHard Mount Bolt
1	71137084	1/2" Gr 8 Nylock Nut
2	71133817	1/2" Flat Washer
2	812LW	1/2" HD Lock Washer

Lower Control Arm

Qty.	part #	parts description
2	737100	Chromoly adj control arms
4	718167X	7/16-20x3.5" Gr. 8 Bolt
4	737083XX	7/16-20 Nylon Lock Nut
2	73416MHJ	3/4-16 X 5/8 Chromoly Heim Joint
2	73416JNR	3/4-16 Jam Nut RH
2	73416MHJL	3/4-16 X 5/8 Chromoly Heim Joint - LH
2	73416JNL	3/4-16 Jam Nut LH
4	758CSSXX	5/8" Cone Space - short
4	758CSLXX	5/8" Cone Spacer - long



Shock Mounts

Qty.	part #	parts description
2	728102	AFCO Shocks 1855
2	728103	AFCO Springs 22125
2	70118920	1/2-20x3.5" Gr 8 Lower Shock Mount Bolt
2	70018914	1/2-20x2.0" Gr 8 Upper Shock Mount Bolt
2	71137084	1/2" Gr 8 Nylock Nut
4	71133817	1/2" Flat Washer
4	812LW	1/2" HD Lock Washer



2	GTO	GTO Forward Control Arm Mount
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Rear Ends | Suspensions | Axles | Brakes





Rear Ends | Suspensions | Axles | Brakes

Notes

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