

1979-04 MM Heavy Duty Torque-arm (MMTA-3 & -4)



The ultimate rear suspension for your Mustang is now available from Maximum Motorsports. Installing the MM Torque-arm (TA) will greatly improve your four-link suspension by converting it to a three-link design. Your car will have vastly improved traction, both in a straight line and when exiting corners. Your car will be much more stable and predictable, and you can get on the throttle sooner and harder while accelerating out of a corner.

In the stock four-link design, the rear upper control arms are trying to do two jobs at once. One is to control axle wind-up, the other is to locate the axle side to side. When pushed to the performance limit, the upper control arms don't do either job very well. Our TA suspension system separates the functions of the suspension components—each component has only one job, and is designed to perform that one function with no compromises. The MM TA controls axle rotation much better than the upper control arms. In addition, the Panhard Bar has the sole job of locating the axle side to side, which it also does better than the upper control arms. The lower control arms primarily have the job of thrusting the car forward under acceleration. The MM TA suspension system allows complete removal of the rear upper control arms and the quad shocks. The resulting three-link design will articulate freely, even during extreme cornering, acceleration and braking.

The free-moving three-link design has so much more traction that the grip at the front of the car will now be the limiting factor (understeer). You must raise the rear spring rate to increase the rear roll resistance, which takes some cornering load off the front. To meet your needs, Maximum Motorsports has determined the rear spring to match your front spring rate (see Spring Rate Table). These selected rear springs will give you better handling and improved ride quality with your MM TA suspension system.

MMTA-3,-4r4.indd

When we sat down to design our TA we listened to what our customers wanted. The three issues we heard mentioned time and again were concerns about ground clearance, exhaust clearance, and access to the differential cover. You talked, we listened! Compared to other TA's, Maximum Motorsports' has greater ground clearance, nearly one inch more exhaust clearance, and allows complete access to the differential cover.

The MM TA fits 1979-2004 Mustangs with an 8.8" axle (except for 1999-2004 Cobra with IRS). Use MMTA-3 for rectangular tube subframe connectors, or MMTA-4 for round tube subframe connectors. The difference is the brackets that weld to the subframe connectors.

Our Heavy Duty TA is rated for engine torque levels up to 900 lb-ft depending on the differential gear ratio and transmission. For more information, please visit the FAQ section of our website and click on "The Torque Arm" or the following [link](#).

Engine Torque Table		
Differential Ratio	Standard TA Max. Engine Torque (lb-ft)	Heavy Duty TA Max. Engine Torque (lb-ft)
4.56:1	300	475
4.30:1	330	510
4.08:1	355	550
3.73:1	400	620
3.55:1	425	660
3.27:1	475	725
3.08:1	515	790
2.73:1	590	900

Rear Lower Control Arm Recommendations

To get the best performance from your free-moving TA suspension system, you need rear lower control arms that don't cause suspension bind. Suspension bind keeps the rear axle from moving freely. When there is any suspension movement, the control arms not only pivot about their mounting bolts, they also move sideways in an angular motion. If that angular motion is restricted because of a poor bushing design, the suspension will bind up (not want to move). That binding increases the wheel rate, which in turn causes unpredictable performance as well as increased stress on the torque boxes. Bind is prevented by using rear lower control arm bushings that allow a

slight sideways angular motion. Control arm designs that do not allow enough angular motion include those with hard urethane bushings at both ends, solid metal bushings at either end, or solid plastic bushings at either end (Delrin/Nylon).

Subframe Connector Requirements

Your car must have suitable welded in Subframe Connectors installed **before** installing the Maximum Motorsports TA. Bolt-on connectors do not attach securely enough to the chassis. The following minimum dimensions must be met to make sure your subframe connectors are strong enough to support the load from the MM TA.

Subframe Connector Minimum Required Dimensions	
Rectangular	1.00" x 2.00" x 0.120" Wall
Rectangular	1.25" x 2.00" x 0.083" Wall
Rectangular	1.50" x 1.50" x 0.083" Wall
Round	1.50" x 0.120" Wall

Lateral Location Requirements

Your car must have a sturdy Panhard Bar or Watt's Link installed **before** installing the Maximum Motorsports TA. It is **YOUR** responsibility to determine the suitability of any device other than ours. *You* are responsible for the consequences if you do not use a strong enough locating device.

Spring Recommendations

Use the following chart to determine the proper springs to run with your TA. For customers running front coil-over spring rates of 350 lb/in and above, please contact your sales person for the proper rear spring.

Spring Recommendations	
Front Spring Rate (lb/in)	Rear Spring Part #
490-575	H&R 51650 or 51561
575-800	H&R 51650.99
800-900	MM 42TA5
900+	MM 43TA7
Coil-over 250	MM 42TA5
Coil-over 275-325	MM 43TA7
Coil-over 350+	<i>Requires coil-overs</i>

Exhaust Requirements

- It will be necessary to relocate the exhaust flanges rearwards. Obtain at least one foot of the appropriately sized exhaust tubing to allow repositioning of the exhaust flanges.
- Some aftermarket H-pipes position the cross-over tube closer to the rear of the car than the stock H-pipe. If you are unfortunate enough to have one of these H-pipes, the cross-over tube will have to be cut out and moved forward to provide clearance for the TA Crossmember. It is best to have this modification performed by a competent muffler shop before attempting the installation.

Tools Required

- 3/8" Drive Ratchet
- 1/2" Drive Ratchet
- 150+ Ft-lb Torque Wrench
- 15/16" Socket
- 9/16" Socket
- 9/16" Open End Wrench
- 3/4" Socket
- 3/4" Open End Wrench
- 14mm Socket
- 13 mm Socket
- 10 mm Socket
- Rubber Mallet
- Angle Finder
- MIG or TIG welder

Read all instructions before beginning installation!

1. Raise the car on a lift that supports the car by the tires, or jack up the car and support it firmly on jack stands. Place the stands under the rear axle (so it will be located as at ride height). Place the front jack stands on the front K-member between the pivots of the front control arms. Make sure the rear axle is not in a (body) roll situation due to the position of the jack stands. Each rear wheel must be positioned within 1/4" of ride height. To find ride height before raising the car, measure the distance from the fender lip down to the wheel. This distance should remain the same when the rear axle is supported on jack stands.
2. Remove the vibration damper from the front of the differential. Remember to pull off the bracket from the top side of the differential that the damper's retaining bolts were threaded into.

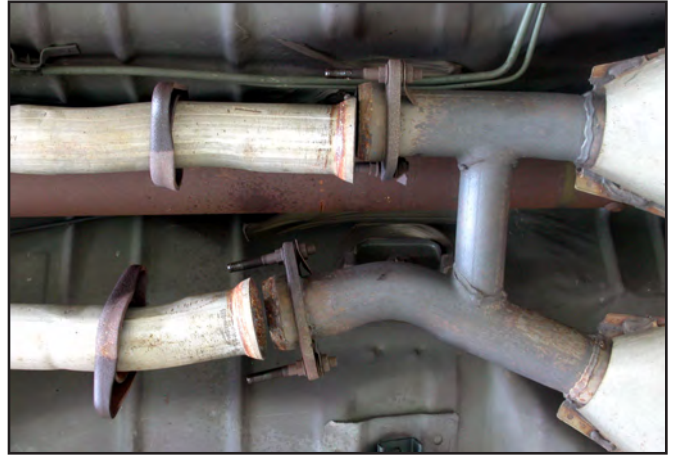


3. Remove the pinion snubber assembly from the bottom of the chassis (directly above the front of the differential). It is held in place with three small screws.



4. Clean and degrease the top and the bottom of the differential flanges where the vibration damper was bolted (typically, there is a lot of caked on dirt and grease). These flanges must be clean before attaching the TA.

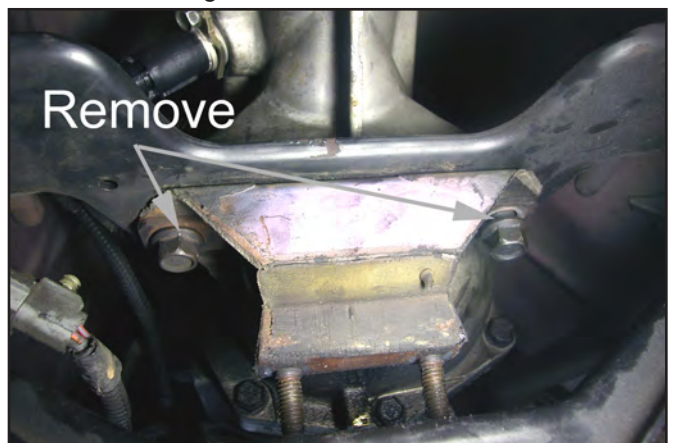
5. Remove both rear upper control arms.
6. Unbolt the rear portion of the exhaust from the H-pipe. Loosen, but do not remove, the 4 bolts (2 per side) holding the H-pipe to the headers.



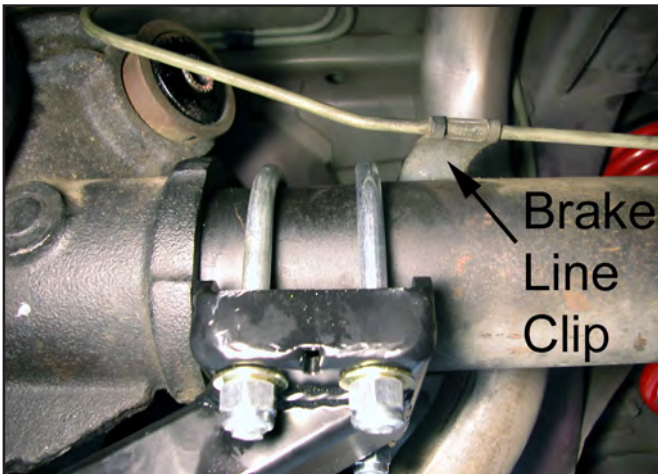
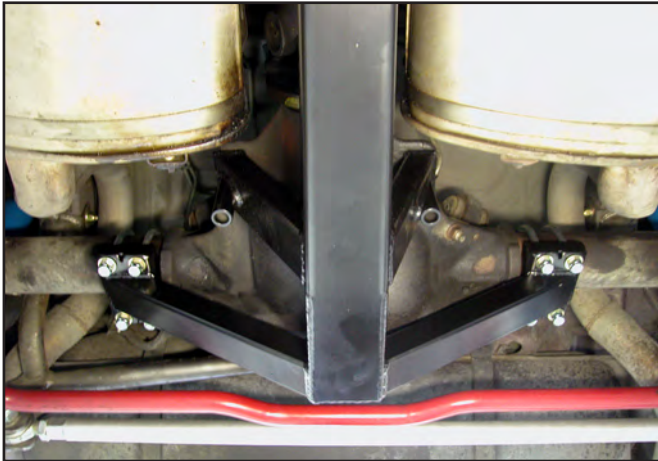
7. Remove the two nuts holding the transmission mount to the transmission crossmember. Support the transmission with a jack. Remove the two bolts holding the transmission crossmember to the chassis.



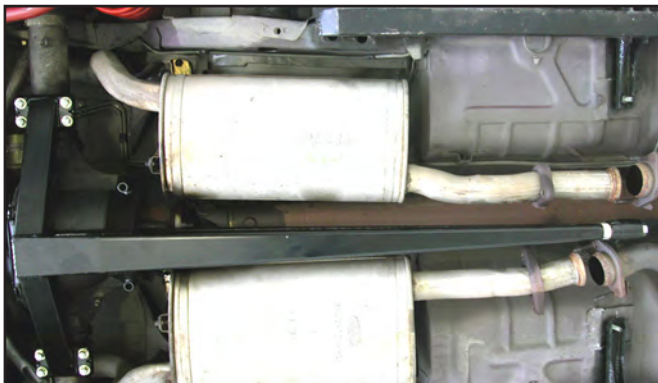
8. Lower and rotate the transmission crossmember to provide access to the two bolts holding the transmission mount to the transmission. Remove these bolts to allow the H-pipe to drop down away from the chassis during installation.



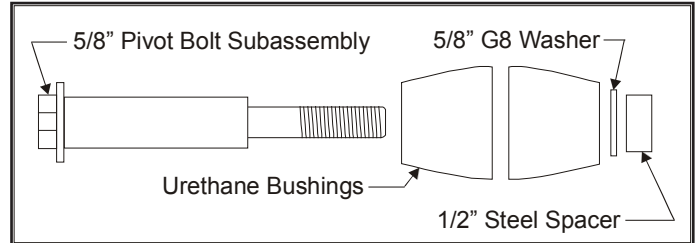
9. Attach the TA to the rear axle with two U-bolts per side. Slide the U-bolts between the brake lines and the axle tube. The brake lines may need to be slightly pushed away from the axle tube and the clip on the passenger side of the axle may need to be slightly re-bent. Place a 3/8" G8 flat washer and a 3/8" Nylock nut onto the threads of the U-bolts. The U-bolts must be snug enough to draw the TA saddle mounts into firm contact with the axle tubes, but not so tight as to prevent the TA from pivoting around the axle tube during installation. The two saddle mounts should be evenly spaced from the center section of the differential. The front of the TA will be prevented from dropping down and touching the ground because the back edge of the TA will touch the differential cover flange.



Brake
Line
Clip

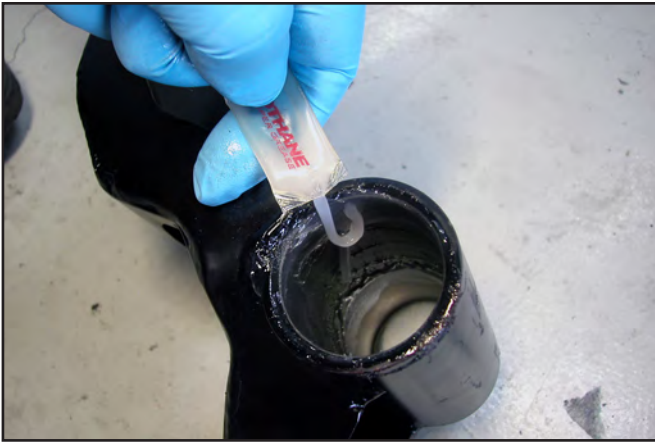


10. Lightly grease the Pivot Bolt Subassembly sleeve and the inside of the Urethane Bushings with the supplied water resistant Teflon grease. Slide the two Urethane Bushings onto the sleeve as shown. After the urethane, there must be one 5/8" G8 flat washer against the urethane on the threaded end of the bolt. After the 5/8" washer, you *must* place the 1/2" thick steel spacer.



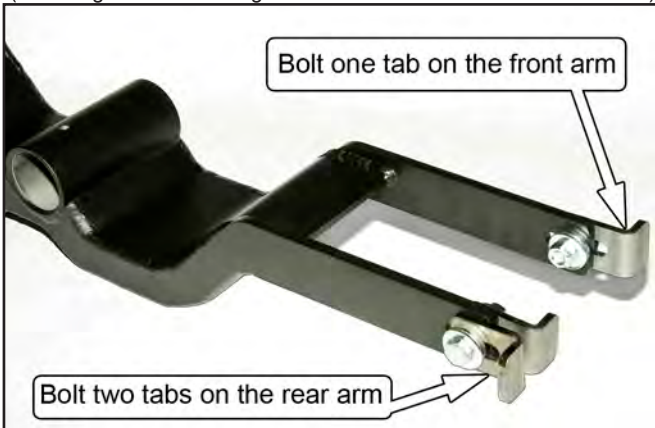
11. Install the Urethane Pivot Bolt Assembly onto the front of the TA. Torque the 5/8" Pivot Bolt Assembly to 220 lb-ft. Thoroughly grease the Urethane Bushings and the inside of the Receiver Tube with the supplied water resistant Teflon grease.





12. Bolt a single Mounting Tab to the front arm of the TA Crossmember using the 3/8 x 1-1/2" bolts with one 1/4" thick flat washers under the head of each bolt and nylock nut. Bolt two Mounting Tabs to the rear arm of the TA Crossmember using the 3/8 x 1-3/4" with one 1/4" thick flat washers under the head of each bolt and nylock nut.

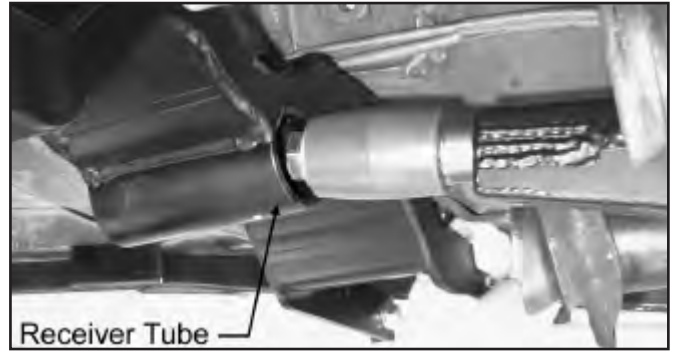
(Mounting Tabs for rectangular tube subframe connectors illustrated)



13. Slide the TA Crossmember over the top of the H-pipe.



14. The TA Crossmember may now be slid rearwards while inserting the Urethane Pivot Bolt Assembly into the TA Crossmember Receiver Tube.



15. The rearward edge of the urethane (closest to the TA) must be flush with the rearward edge of the Receiver Tube to provide proper clearance during suspension movement, and for the grease fitting to lubricate the Urethane Bushings properly.



16. Raise the TA Crossmember up to the bottom of the car. The TA Crossmember needs to be positioned as close to the bottom of the chassis as possible in order to provide the most exhaust clearance. You may want to bend upwards various metal tabs which protrude down from the floorpan so the TA Crossmember will be positioned as close as possible to the floorpan. If you have square tube subframe connectors you may use C-clamps or Vise Grips to clamp the Mounting Tabs to the car's subframe connectors.





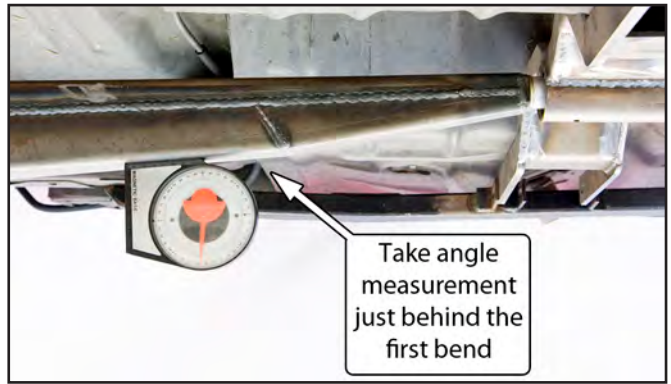
17. Mark the areas to be welded. Lower the TA and TA Crossmember and clean any paint or plating from the connectors in the area to be welded.
18. Remove the second tab on the rearward legs of the TA Crossmember so that there is only one tab per leg.



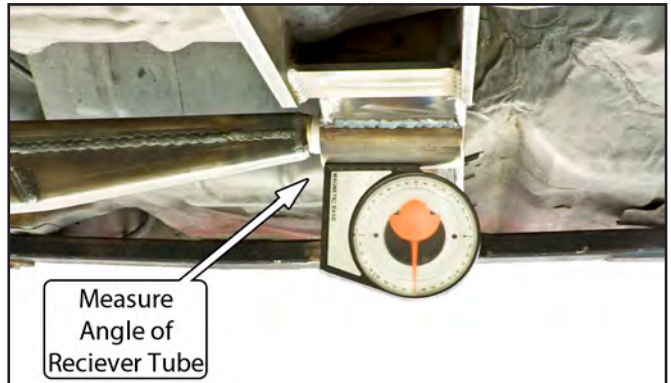
19. Raise the TA and TA Crossmember into place for final welding.
20. Check that the TA Crossmember is situated squarely in the car by measuring the distance between the front edge of the TA Crossmember and the transmission crossmember flanges on each side of the car. Remember, while squaring up the TA Crossmember, keep the rear edge of the Urethane Bushing flush with the rearward edge of the Receiver Tube.



21. Using an angle finder, measure the angle of the torque arm rearwards of the forward most bend.



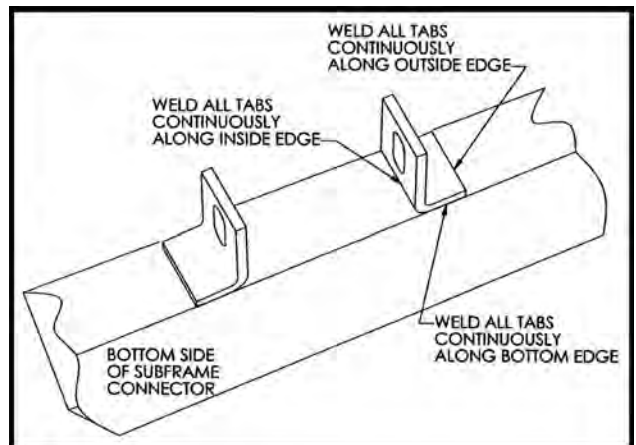
22. Measure the angle of the Receiver Tube.

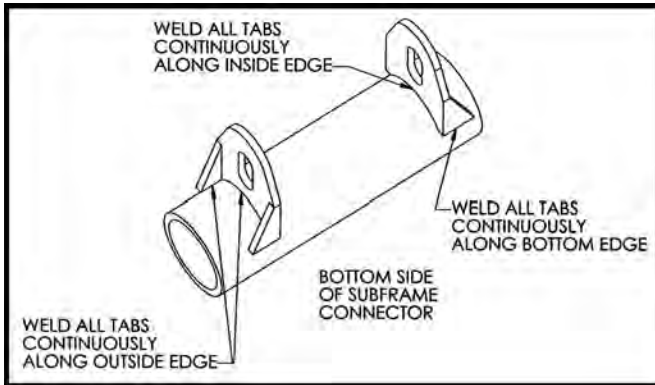


23. Adjust the crossmember until the angle of the receiver tube is 4° less than what was measured in Step 21. The goal is to make the Receiver Tube parallel to the Pivot Bolt Assembly.

EXAMPLE: The measurement in Step 21 was 10° up from horizontal. The Receiver Tube angle should be set to 6° up from horizontal.

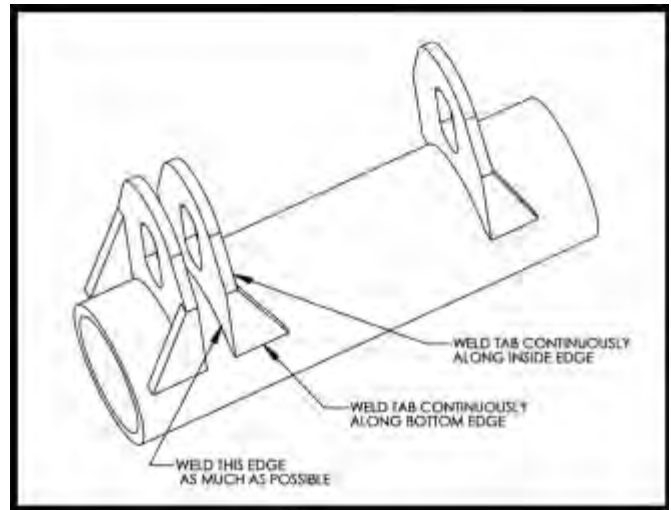
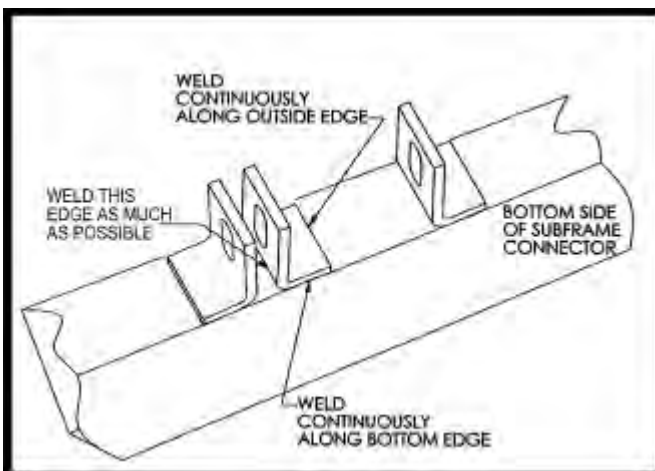
24. On rectangular subframe connectors the Mounting Tabs can be clamped to the subframe connectors (Step 16). Weld the Mounting Tabs to the subframe connectors. The weld area for each Mounting Tab is shown below.





25. Add the second tab to each rearward leg of the TA Crossmember. Position each tab flush with the subframe connector and weld as much of the exposed edges as possible.

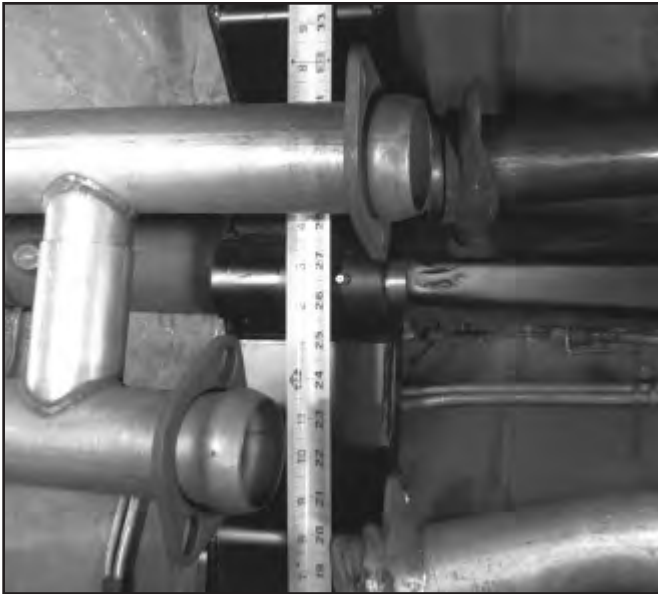
(Front of Vehicle ==>)



26. Install the Grease Fitting into the bottom of the Receiver Tube. The Grease Fitting should not be installed before this step because the airtight fit of the Urethane Bushings can make adjustment of the TA Crossmember very difficult.



27. Make sure the (4) 3/8" x 1-1/2" bolts holding the TA Crossmember to the subframes are loose. Measure the distance from the center of the Receiver Tube to the pinchweld seam (at the bottom of the rocker panel) on each side of the car. The TA Crossmember tube should be evenly placed between the seams, centering it beneath the car. If the TA Crossmember is not within +/- 1/2" of center, your rear axle is out of the normal factory tolerance, and there is a problem with your axle not being square or centered under the car.



Possible reasons for your axle not being square or centered under the car are:

- Your Panhard Rod length may not be correct, and therefore the axle is not centered under the car.
- The control arm bushings may be deformed. Make sure they are all in good shape.
- If you have aftermarket control arms, check their length. We've tested control arms from other companies that were not made to the correct length, or even the same length side to side - this will skew the axle under the car.
- If you have an adjustable-length control arm, make sure the length is set evenly side to side.
- Inspect your torque boxes and upper arm mounts for cracks. If there are cracks, the car has been badly stressed, and that may be the source of the problem.
- Check your lower control arm pivot bolt mounting holes. We have seen them incorrectly placed by Ford, both on the axle and on the chassis.

DO NOT attempt to force the TA Crossmember to the center of the car, as this will pre-load the TA, possibly binding the control arm bushings, and will lead to inconsistent handling of your car.

28. After you are satisfied the axle is square and centered under the car, paint the TA Crossmember Mounting Tabs and torque the (4) 3/8" bolts holding the TA Crossmember to the subframe connectors to 33 lb-ft.

29. Use a Sawzall or hacksaw to cut both exhaust flanges off. Be sure to cut square.



30. Cut a 3" and a 5" length of tubing the same diameter as your H-pipe tubing. Weld the 3" length of tubing onto the driver's side to extend the flange rearward. Weld the 5" length of tubing onto the passenger's side to extend that flange rearward. Shorten each tube between the flange and the muffler by the same amount the flange was moved rearward.



31. Raise the H-pipe and transmission exhaust hanger back into place. Re-attach the transmission mount to the transmission.



32. Bolt the transmission crossmember to the transmission mount. Slide the bolts between the transmission crossmember and the chassis in place. Lower the floor-jack supporting the transmission.



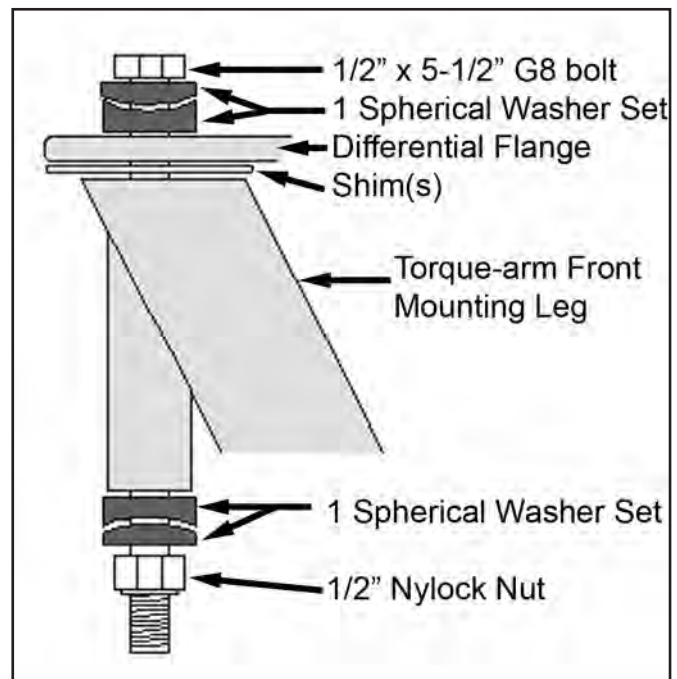
33. Check the clearance between the exhaust pipes and the TA Crossmember.
34. Once you are satisfied with the exhaust clearance, tighten all exhaust bolts and transmission mounting bolts.
35. Use the TA Front Mounting Leg tubes as drill guides. On the driver's side of the differential flange, enlarge the existing hole with a 9/16" drill bit. On the passenger side of the differential flange, you must drill a new hole using a 9/16" drill bit.



36. Use the appropriate number of 2" diameter Shims to bridge the gap between the TA front mounting legs and the bottom of the differential flanges. The flat side of each shim is towards the differential casting for clearance. The number of shims is not important at this point; this initial number of shims will create your baseline reading for further pinion angle adjustment.



37. Install one set of spherical washers (two-pieces) under the head of each 1/2" X 5-1/2" G8 bolt (thin half first - see drawing for the correct orientation). Insert each 1/2" bolt down through a differential flange, through the Shim(s), through the round tube of the TA front mounting leg, through another spherical washer set (thick half first - see drawing), and thread on a 1/2" G8 Nylock nut. The spherical washers prevent casting irregularities and adjustments to the pinion angle from placing a bending load on the bolts. Snug the 1/2" X 5-1/2" bolts.





38. Measure the pinion angle. The easiest way to do this is to place an angle finder on a straight edge and place the straight edge on the driveshaft mounting flange.

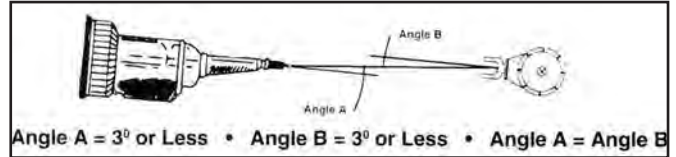


39. Measure the transmission output shaft angle. The easiest way to do this is to place the angle finder on the front of the crank pulley.



40. The goal is to make the pinion angle of the differential match the transmission output shaft angle. Each 2" shim will add or subtract 1/2 degree. Do not be surprised if you have to raise the front of the differ-

ential considerably. Ford sets the pinion angle 3 to 4 degrees below the transmission output shaft angle because of axle wind up. Axle wind up is allowed by the soft rubber bushings in the stock control arms; during acceleration the pinion angle will then come into alignment with the transmission output shaft. The TA controls axle wind up much better than the 4-link, and allows you to match the pinion angle to the transmission output shaft.



41. After you are satisfied with the pinion angle, torque the (2) 1/2" x 5-1/2" G8 bolts for the front mounting legs to 100 lb-ft. Torque the (8) 3/8" Nylock nuts on the U-bolts to 33 lb-ft. Tighten in an even pattern to avoid pulling the U-bolts over center.

42. Remove the quad shocks. Ford put the quad shocks on your Mustang to dampen axle wind-up (which leads to wheel hop). With the TA there is no axle wind-up, so the quad shocks are unnecessary. To reduce weight you may also remove the quad shock mounting brackets and the upper control arm differential bushings.

43. Because the TA is more rigidly connecting your rear suspension to the chassis, imbalance of rotating parts in the rear suspension will be more noticeable. To find the cause of vibration, first check the balance and roundness of the rear tires. Second, many Mustangs have a driveshaft that is poorly balanced; having your driveshaft professionally straightened and balanced should greatly reduce vibrations.

44. Safely lower your car to the ground and test drive.



25 lbs. of Parts off Your Car!

Hardware Kit MMTA-3 Includes the Following:

- 8 3/8" G8 Washers
- 8 3/8" x 1" x 1/4" Thick Flat Washers
- 4 1/2" Spherical washer sets
(one thin, one thick per set)
- 1 5/8" G8 Washers
- 4 3/8" U-bolts
- 2 3/8" x 1-1/2" Bolts
- 2 3/8" x 1-3/4" Bolts
- 2 1/2" x 5-1/2" G8 Bolts
- 12 3/8" Nylock nuts
- 2 1/2" G8 Nylock nuts
- 1 5/8" Pivot Bolt Subassembly
- 8 2" diameter Pinion Angle Shims
- 1 1/2" Thick Steel Spacer
- 2 Urethane Bushings
- 6 Mounting Tabs, rectangular subframe connectors
- 1 Zerk Fitting
- 1 Grease Packet

Hardware Kit MMTA-4 Includes the Following:

- 8 3/8" G8 Washers
- 8 3/8" x 1" x 1/4" Thick Flat Washers
- 4 1/2" Spherical washer sets
(one thin, one thick per set)
- 1 5/8" G8 Washers
- 4 3/8" U-bolts
- 2 3/8" x 1-1/2" Bolts
- 2 3/8" x 1-3/4" Bolts
- 2 1/2" x 5-1/2" G8 Bolts
- 12 3/8" Nylock nuts
- 2 1/2" G8 Nylock nuts
- 1 5/8" Pivot Bolt Subassembly
- 8 2" diameter Pinion Angle Shims
- 1 1/2" Thick Steel Spacer
- 2 Urethane Bushings
- 6 Mounting Tabs, round subframe connectors
- 1 Zerk Fitting
- 1 Grease Packet

MMTA-3,-4r4.indd

(2002 Mustang shown with MMTA-1)

