

# Spohn Performance, Inc.

494 E Lincoln Ave Myerstown, PA 17067  
1-888-365-6064 www.spohn.net

## Full Length Transmission Mounted Adjustable Torque Arm Part # 399 – 1982-2002 GM F-Body

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### Instructions

1. Raise car and support with jack stands under frame allowing rear suspension to fall to it's furthest position.
2. Remove both long bolts that attach the factory torque arm to the rear end.
3. Remove all three bolts that hold the torque arm front mount to the transmission and remove the entire torque arm and front mount assembly. Some cars require lowering the transmission crossmember in order to remove the bracket.
4. Separate the two halves of the factory clamshell front mount and remove from torque arm.
5. The factory mount requires minimal modification to accept the supplied polyurethane bushing. Locate the four rivets that attach the rubber bonded metal to the brackets and drill out or grind off the factory rivets to remove the rubber portion. Leave the outer half of the clamshell mount off and reinstall the half that bolts to the transmission. Tighten.
6. Place the polyurethane bushing onto the mounted half and install outer half **but leave the top bolt loose.**
7. Lube the polyurethane bushing and then slide the torque arm in through the bushing. Positioning the rear bracket over the rear end may require turning the torque arm adjuster to get the proper bracket angle. **Note:** All jam nuts and rear bracket cross bolts must be loose to turn adjuster. The rear end may also need to be levered into the proper position to slide the torque arm bracket over it. Once this is achieved, slide the factory bolts in through the top and tighten to 100 ft/lbs.
8. Tighten front mounting bolts to snug bushing.

9. Once pinion angle has been set, tighten all jam nuts and rear bracket bolts.

**Note:** Before adjusting your pinion angle, you must first loosen the two bolts that secure the two rear solid rod ends to the rear-housing mount. This allows the torque arm the ability to swivel up or down as you adjust the pinion angle. If you do not loosen these two bolts the assembly will bind and you will not be able to adjust the pinion angle. After setting the desired pinion angle, retighten these two bolts.

**Ford 9" Rears:** For those running a Ford 9" rear - You will notice that the rear mounting bracket of the torque arm has two sets of mounting holes. On the 9" rear you want to use the set of mounting holes that are towards the driver's side of the car. On a stock rear or 12-bolt rear, you would use the set of mounting holes towards the passenger's side of the car. The reason for this is that on a 9" rear, due to the larger center section, the torque arm mount on the rear is actually 1" further to the driver's side of the car compared to the OEM rear. Using the set of holes towards the driver's side of the car in our rear mounting bracket will move the torque arm back to the OEM location and line it straight up with the front mount. If your 9" rear is equipped with a nodular (large ribbed) center section, it may be necessary to grind away part of the rib so it does not interfere with the torque arm's rear mounting bracket.

## **Setting Pinion Angle**

There are two angles to deal with:

- 1) Driveshaft angle
- 2) Pinion angle

You subtract pinion angle from driveshaft angle to get TRUE pinion angle

Here's how you do it:

First, had you measured your stock drive shaft angle and pinion angle before you removed your stock torque arm, you would have calculated a 0 deg. TRUE pinion angle. This is how all cars come from the factory.

Using an angle finder place it on the underside of the driveshaft and record the angle indicated.

Next, place the angle finder under the flat surface where the torque arm mounts to the rear end (this surface is parallel with the pinion shaft) and record the angle indicated.

Record both angles from the driver's side of the car. On the driveshaft anything to the left of 0 is positive, on the rear end anything to the right of 0 is negative.

**Subtract the pinion angle from the driveshaft angle. The result is "TRUE Pinion Angle".**

In order to apply preload you need negative TRUE pinion angle. Adjust the torque arm so that the front of the pinion goes down; continue to check each angle until the pinion angle is more degrees down than the driveshaft angle.

We recommend -1 degrees on a mildly modified daily driven car. For high horsepower applications we have gotten the best results with -2 to -3 degrees. There is no reason to run more negative than that, it will actually hurt your performance because it will induce driveline bind.

You don't want to drive around with your suspension preloaded all the time, it's a lot of unnecessary binding on the u-joints and suspension. It should only be used when racing.

Here's a tip. When adjusting for your TRUE pinion angle, count the number of flats (or the 1/6 of a turn) as you turn the adjusting nut, to know how many it takes to adjust 1 degree of negative TRUE pinion angle and in what direction (clockwise, or counter-clockwise). Once you know that, then adjusting the arm at the track or before a race will take almost no time, and no angle finder will be needed.

**Adjusting your Spohn Torque Arm:** You adjust the pinion angle by turning the pinion angle adjuster, (located at the rear of the lower torque arm tube) either clockwise or counter-clockwise. As you turn the adjuster you will see the pinion nose of the rear housing moving up/down. Moving the rear housing's pinion nose down will give you more of a negative pinion angle degree, and up will give you more of a positive pinion angle degree.

You will quickly learn that it does not take many turns to adjust the angle by several degrees, so go slowly and check your angles often.