



Installation Instructions for 93031
Ingalls Stiffy™ [Engine Torque Damper](#) For 2003-2004 Pontiac GTO

The **Stiffy™ Adjustable Engine Torque Damper** is engineered to reduce deflection under hard acceleration and cornering for improved performance and power to weight transfer. Deflection in the motor mounts, as with the chassis and suspension, is a formidable enemy in power and weight transfer, robbing valuable horsepower and control. The innovative, built-in damper eliminates the huge amounts of “torque shock” that result from wheel-hop and once installed; transfers more power to the road and improves acceleration, shifting, overall control and balance. The adjustable feature allows the assembly to be tuned and pre-loaded for racing and street applications.

CAUTION: Observe proper safety and repair procedures for installation of all chassis parts. Some chassis parts require specialized tools and experience and therefore **MUST** be installed by a qualified technician otherwise an unsafe vehicle and/or personal injury could result. Wear safety glasses and other protection.

WARNING: Before beginning, check for any damaged or loose suspension connections. Loose connections here indicate worn or broken parts which **MUST BE REPLACED**. Failure to replace a damaged or worn spindle and/or link may cause the wheel to separate from the vehicle, possibly resulting in serious personal injury. Installer **MUST** check for proper clearance. Modification(s) may be required. Please proceed **ONLY** if the vehicle owner is completely aware of these potential suspension modifications.

Estimated Installation Time: One Hour

Technical Rating: Easy

Kit Includes:

- (1) Stiffy™ Engine Torque Damper
- (1) Engine Mounting Bracket
- (1) Chassis Mounting Brackets
- (1) Hardware Kit

Tools Required:

- Metric and/or SAE Socket Set
- Metric and/or SAE Open/Closed Wrench Set
- Metric and/or SAE Drill bits and 3/8” Drill
- Floor Jack and Jack Stands

Installation:

Note: You must first jack the vehicle into the air and remove the passenger's side front tire for proper installation. There is enough clearance to gain access to the inner fender and assemble the entire kit without actually removing the tire, but it will aid greatly in the assembly process.

1. Under the hood, locate the battery on the passenger's side just behind the headlamp assembly. Using a 10mm wrench, remove the positive and negative battery wire assembly from the battery posts. Remove the battery completely from the vehicle. **Refer to Illustration 1.**
2. Locate the face of the passenger's side engine cylinder head and remove the bolt that secures the ground wire that face of the head. **Refer to Illustration 2.** There will be three (3) threaded bolt holes on the face of the cylinder head and each those will be used to mount the engine bracket to evenly spread the loads of the assembly and eliminate any failure mode. Secure the Engine Mounting Bracket onto the cylinder head using the supplied 10mm x 30mm long bolts and lock washers, but make sure not to torque the bolts beyond 40 ft./lbs. **Note:** The engine bracket has a tab that mounts the torque damper and that tab should be pointing toward the back of the car. **Refer to Illustration 3.**
3. **As shown in illustration 4,** assemble two of the chassis brackets using the supplied 10mm x 20mm long bolts, washers and locking nuts, but do not torque all the way. **As shown in illustration 5,** locate the chassis mounting bracket assembly on the inner fender using the seam for the ABS tray as a guide. Mark the three 10mm holes for drilling using a marker or paint pen. **Note:** The holes on the brackets are slightly over-sized to compensate for vehicle production tolerances and to allow for some error in the drilling of the actual 10mm holes. Using a standard hand drill, place three 10mm (+/- 1mm) holes through the inner fender.

4. **As shown in illustration 6**, mount the chassis bracket assembly onto the inner fender with one bolt through each of the two holes on the rearward mounting bracket and place the backing plate onto the bolts from inside the tire-well. Next place the bolt through the forward bracket and secure the entire assembly using the supplied 10mm x 20mm long bolts, washers and locking nuts. **Refer to illustration 7. Note:** You cannot place the backing plate with all three bolts through the inner fender as the tolerance does not allow for that due to the curvature of the inner fender. You can now torque all five bolts on the Chassis Mounting Bracket assembly.
5. Install Stiffy™ Engine Torque Damper onto the Engine Mount Bracket using the supplied 10mm x 30mm bolts, o-ring, washer and locking nut. You may need to loosen the jam nut on the damper rod end with an open-end wrench (17mm) and adjustable wrench to increase the assembly length depending upon application. The supplied rubber o-ring is placed between the Stiffy™ rod end and the bracket to reduce any noise due to rotation of the damper. **Note:** Install bolts with bolt head on the rod end side of the assembly and the locking nut (black in color) on the bracket side of the assembly. **Refer to illustration 8** for proper assembly of the mounting hardware and o-ring onto the Engine Mounting Bracket.
6. Repeat step 5, mounting the Stiffy™ Engine Torque Damper onto the chassis mounting bracket assembly. **Refer to illustration 9.**
7. Replace the battery and passenger's side tire. Make sure to torque the wheel to 90+ ft./lbs. Before driving the vehicle and make sure that you have secured the battery using the same hardware removed in step 1.



Illustration 1



Illustration 2



Illustration 3



Illustration 4



Illustration 5



Illustration 6



Illustration 7



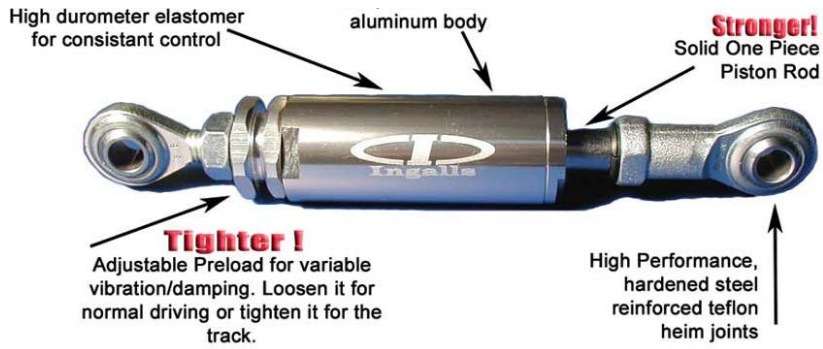
Illustration 8



Illustration 9

Note: Do not attempt to adjust Stiffy™ from its pre-set stiffness without consulting the Ingalls website. Large open-end wrenches are required to adjust stiffness. Most standard and mechanics tool kits do not include these types of wrenches.

The Stiffy™ Engine Torque Damper



Stiffy™ Engine Torque Damper Component Breakdown

Chassis Mount/Length
Adjusting Heim Joint
This end mounts to the
chassis and/or chassis
mounted bracket.

Preload Adjusting Plunger. This nut is adjusted in or out to set the stiffness of the damper. The range of adjustment is measured by the distance from the top of the adjuster plunger to the Aluminum Body. A maximum measurement of 15mm is for softest setting any more will strip the threads or cause it to loosen, damaging the ETD. Tighten down to a minimum height of 10mm for maximum performance setting.

Heim Joint Locking Jam Nut. Loosen this jam nut to lengthen or shorten the overall ETD length. Once length is set, torque jam nut to 25-30 ft. lbs. At no time should more than 10mm or 6 threads extend past the lock nut. Any more will strip the threads or cause it to loosen, damaging the ETD.

Locking Jam Nut for the preload
adjusting plunger. Once the preload is
set, tighten this jam nut to a MAX of
35 ft.lbs. Overtightening can cause
damage to damper or premature wear.

Chassis Mount Heim Joint
This end mounts to the engine
mounting bracket. DO NOT adjust
damper length at this end.



Measure between the
top of the adjusting
plunger and the top of the
main body.

The preload is measured from the top of the adjusting plunger to the top of the aluminum body. The factory setting on your ETD is at 14mm. This is on the soft side of the adjustment. For softest setting the maximum measurement is 15mm. For the stiffest setting the minimum is 10mm.

1. Install the mounting brackets following the instructions enclosed with your kit for your specific vehicle.
2. Set the Stiffy™ preload. The preload is measured from the top of the adjusting plunger to the top of the aluminum body. The factory setting on your ETD is at 14mm. This is on the soft side of the adjustment.
3. To adjust the preload loosen the Adjusting Plunger Jam Nut. For the softest setting turn the plunger outward to the maximum of 15mm, do not lengthen beyond 15mm or the damper will not work properly and possibly damage the ETD when used. To tighten the ETD shorten the distance between the top of the plunger and the aluminum body. Do not tighten beyond 10mm. 10mm is the stiffest setting. Going beyond 10mm can damage or cause premature wear to the ETD.
4. When the preload is set be sure to tighten the locking jam nut to 35 ft. lbs. DO NOT exceed 35 ft. lbs or the ETD may be damaged.
5. Measure the distance between the two mounting holes of the chassis and the engine mounting brackets. It should be very close to 7" center to center.
6. Measure the distance from center to center of the heim joints on the ETD.
7. Loosen the heim joint locking jam nut. By turning the heim joint only inward or outward lengthen or shorten the overall length of the ETD so that it matches the distance of the mounting holes on the brackets. The ETD should mount to the brackets without any force applied to unit.
8. Once the length is correct, tighten the heim joint locking jam nut to 25-30 ft-lb.
9. Mount the ETD to the brackets, following the installation instructions for you vehicle.