

## **LS SUPER DAMPER**

### **For LS1, LS2, LS3, LS6, LS7, LS9 & LSA Dampers**

**Tools needed:**

Damper Installation Tool	Torx T-40 Plus Bit	Ft/Lb Torque Wrench
Blue Loctite 242 or similar grade		

**Possible Tools needed:**

Torx T-45 Plus Bit	3/8-12 point Socket	Red Loctite
Allen Wrench Sockets	5/16-12 point Socket	

**Installing the hub onto the crank:**

1. Remove existing damper bolt and damper from engine. If necessary, use ATI Puller/Installer (p/n 918999) with Adapter for LS1/LS7 (p/n 918999SC) or similar damper puller. **Save your old bolt for installation in the last step. (OEM bolts are a 1-time use only bolt - do not reuse as a primary bolt!)**
2. Depending on the year of your engine / vehicle you may notice a thin "friction" washer behind the damper hub in front of the first oil pump gear. This washer should be left in place and will not hurt anything if you are or are not pinning or keying your crankshaft. If your year does not have this washer and you would like to add one, there must be a machined "lip" provision on the back of the hub to do so.  
**If you are not using a key or pin, you must fill the key slot with some high temp silicone so no oil leaks past the damper bolt washer!**
3. Inspect your crankshaft for any nicks or burs; lightly file to clean up if needed. Stone or file a slight radius on the end of the crankshaft to eliminate any sharp edges.
4. This would be the time to consider whether or not you would like to pin the crankshaft as the ATI damper has a keyway in the hub unlike many OEM dampers. If you decide to pin the crankshaft (a must for super charging), you will need to purchase ATI's LS1 Crank Pin Drill Fixture (p/n 918993) and follow the instructions enclosed with the Fixture before proceeding to step 6.
5. If a rear pulley (i.e. 4 rib A/C) is being used, it must be placed on the back of the hub before the hub is pressed on the crank.
6. It is imperative that you use anti-seize or another form of lubrication on the crankshaft snout before hub installation. The hub bore ID to crank snout OD should be an interference fit, and NEVER slip on. If the hub is a slip fit, please do not install and call ATI for what to measure. The Damper shell assembly can be bolted on after the hub is installed.
7. Test fit your parts. Then a nice trick is to heat the hub in boiling water or on a coffee maker plate so that it will slightly grow larger and add in the installation. **Do not use a torch as it will anneal the material in the heated places, thus voiding your warranty and cause premature hub failure. Do not heat more than 200° F!**
8. Once the damper hub is fully seated, install crank bolt and torque to manufacturer specs (see the gray box on page 2 for detailed instructions for each bolt that could be used).

**Assembling the damper to the hub: The damper hub to damper shell assembly fit is held to an extremely close tolerance!**

The Super Damper shell assembly is indexed to the crank hub with an offset hole marked by an indent dimple on the front of the hub and on the front face decal with an arrow. These must be aligned for proper assembly.

1. Align the indent dimples located on the outer shell and front of the hub.
2. Start the damper onto the hub. If you are exactly straight, it will slip right on. You may need to use your palms or fists to get it to go all the way back. If the shell assembly is on enough to start two bolts, do so 180° apart and "snug" them slightly opposite of each other so the shell will "walk" on. The shell assembly will slip on as the bolts straighten it out.
3. Start the other 4 countersunk flat head screws in the remaining tapered holes. Draw the damper assembly onto the hub evenly. Torque the six (6) flat head screws to 16 ft/lbs. Be sure to use Blue Loctite 242 and the **proper Torx-40 Plus Bit** in most cases. T40 PLUS is not a standard Torx bit. Using a standard bit will ruin the head of the bolt and make it nearly impossible to ever get the bolts out.

## **Installing an Accessory Pulley:**

**Note!** Most LS dampers will include a front or rear pulley for OEM accessory drives. If no front pulley is used and/or you choose not to use a front or rear mounted pulley, you **MUST** still put the additional (3) bolts through the unit for a total of (9) bolts holding the assembly together and to the hub.



***Damper damage will occur if you do not use at least nine bolts total!***

1. For front mounted crank pulleys with the 3/8" 12-point, 5/16" torx, 5/16" 12-point, or button head bolts provided, insert the (3) or (6) bolts through the pulley and into the hub. Make sure the pulley is located on the damper hub ID or in some fashion. Use Blue Loctite 242 on all bolts and torque any 3/8" bolts to 28-30 ft/lbs, and 5/16" bolts to 16-18 ft/lbs evenly.
2. For rear mounted accessory pulleys that are on the hub before installation, insert (3) 5/16" (or 3/8" in some cases) pulley bolts through the front pulley, through the damper body, and through the 3/8" tapped holes in the hub. If the damper is supplied with 3/8" rear pulley bolts (i.e. supercharger versions), they will pass through a hole cleared for this size bolt in the hub. These bolts will thread into the pulley and draw it up tight to the rear of the damper hub. Use Blue Loctite 242 on all bolts and torque any 3/8" bolts to 28-30 ft/lbs and 5/16" bolts to 16-18 ft/lbs evenly.

### **Using the GM Factory Bolt:**

***Note! The GM factory bolt is a 1-time use bolt! Directions are for installing a new bolt only (p/n 951499 for wet sump LS or p/n 951500 for LS7 / LS9).***

1. Use your old bolt to install the damper and torque to 240 ft/lbs, then remove it. This is to seat the damper completely.
2. Install your new bolt and tighten to 37 ft/lbs. We recommend Blue or Red Loctite here if you are doing any high performance driving with this engine.
3. This step is to get a reference on the front of the engine. With the torque wrench hanging at the spot where the 37 ft/lbs was achieved, reference 140° clockwise for another tightening cycle. Put a mark or a piece of tape where you need to tighten.
4. Then go another 140° from the 37 ft/lbs starting point and you are now tight.

***If using an aftermarket ARP Bolt for any LS damper, or bolt p/n 951359 (16 mm, 10.9 grade) supplied with Super Damper p/ns 918852X, 918839, 918844, 918845 and 918852):***

1. Apply high temperature RTV to both sides of the washer prior to installation.
2. Use 262 Red Loctite and tighten to 230 ft/lbs.