



Installation Instructions

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DIESEL SUPER DAMPER



Duramax



Cummins

Required tools

Damper Installation Tool

Torque Wrench (ft/lbs & in/lbs)

Torx T-40 Plus Bit

Blue Loctite 242 or similar grade

Additional tools required depending on damper

Torx T-45 Plus Bit

3/8-12 point Socket

Red Loctite

Allen Wrench Sockets

5/16-12 point Socket

7/2016

Balance Information

MOST OEM built engines are factory balanced with the DAMPER and FLYWHEEL installed. OEM Dampers may have been drilled from factory specs to balance the engine at the factory. If you have the ORIGINAL damper that came on the engine OR your engine was balanced with a replacement damper installed, it is desirable to match-balance the new damper to your old unit. Your OEM damper must be in good condition and be certain that the outer ring has not moved! ATI can perform this service for \$60.00.

Balance Shops: When balancing external balance units, use only the Hub and Weight or Hub and Shell with the Weight attached. The inertia ring and inner / outer shell have been factory zero balanced during manufacturing. The inertia weight is held in place by elastomer rings, therefore it will move during the balance job. The inertia weight also needs to spin for the first time after being installed to center itself. ATI tries to manufacture all external-ly balanced dampers to the heavy side so that the balance shop will be able to remove weight to match OEM.

Zero balance units should not be drilled and **should not** be on the crankshaft for balancing. Install the damper at engine assembly. Since the inertia weight in the Super Damper is not bonded, it may not be on center until the engine is started. The damper may show out of balance until the engine reaches 2000 RPM the first time and the inertia weight centers itself.

Assembling the Damper to the Hub

NOTE: ALL BOLT HOLES MUST HAVE A BOLT INSTALLED!

NOTE: DAMPER HUB TO DAMPER SHELL ASSEMBLY FIT IS HELD TO AN EXTREMELY CLOSE TOLERANCE!

1. 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.
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 5/16" countersunk flat head 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 remaining (7), (4) or (2), (depending on pulley bolt configuration dampers) 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 / 45 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.

Installation of the Hub or Damper and Hub Assembly to the Crankshaft

1. Inspect your crankshaft for burrs, nicks, etc. and file to clean up.
2. Stone or file a slight radius on the end to break the sharp edge.
3. Inspect your key and replace as necessary.
4. It is highly recommended that you use anti-seize lubricant on the crankshaft before hub installation.
5. Press fit of the hub to the crankshaft is vital to transfer harmonics to the damper assembly.

Recommended press is as follows:

Crankshaft OD	Interference	Crankshaft OD	Interference
1.2510" - 1.3750"-----	.0008" to .0011"	1.6010" - 2.0000"-----	.0006" to .0008"
1.3750" - 1.6000"-----	.0007" to .0009"	2.0010" - 2.5000"-----	.0005" to .0007"

All cranks must be checked with micrometers and the hub with a dial bore gauge to verify fit. Most OEM cranks are held to +/- .0002" while most aftermarket cranks are held to +/- .0005." Hub bores are tight to accommodate aftermarket cranks and most hubs will require honing. ATI Can perform this service for \$40.00.

6. Rear mounted accessory pulleys must be placed on the rear of the hub before installation, insert (3) 5/16" or 3/8" 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 clearanced 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.
7. Press or install the Damper Hub assembly onto the crankshaft using the proper install tool. (Refer to your damper Installer/Removal tool instructions to properly press damper onto the crank.) If you need to install the hub onto the crankshaft first, use the proper installer.

Because of clearance issues in some vehicles, and certain design features on some ATI dampers, the hub may need to be installed before the damper body can be affixed to the hub (i.e. some Cummins and Fords). With these applications, make sure any rear pulley is placed on the rear of the hub before bolting the hub to the crank. On four bolt mount hubs, the hub to crank bolts must be tightened before the damper assembly is installed.

8. **Important: New Crank Bolt(S) Should Be Used For All Installations**

Install the OEM crank bolt(s) along with the correlating washer(s) and torque to the manufacturer's specifications. If longer crank bolts are required, they will be provided with your damper. Torque these to manufacturer's specifications as well.

A SINGLE LONG BOLT SHOULD NOT BE USED TO RETAIN THE DRIVE MANDREL AND THE DAMPER TO THE CRANK AS IT WILL STRETCH WHEN IT GETS HOT

9. 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) (4) or (6) bolts through the pulley and into the hub. Make sure the pulley is located on the damper hub ID or on the face register. 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. For applications where an external balance weight is bolted to the front pulley, use care in positioning the pulley in the right orientation. It will only go on one way with the bolts provided!

THESE BOLTS MUST BE INSTALLED AND TORQUED EVEN IF NO PULLEYS ARE USED.

Removal of your Super Damper

1. Remove at least (3) bolts from the damper on an equal pattern for use with damper installer/removal tool.
2. Refer to Damper Installer/Removal tool instructions to remove damper.

For applications that mount to the crank with 4 bolts, the damper body must be completely removed from the hub first!

To Tell When Your Damper Needs New Rubber

Drag Race Engines subject the damper to low total cycles at intermittent intervals. Elastomers in all units under 800 HP inspected will easily meet the ten year requirement. Nitrous and Drag Racing engines in excess of 800 HP that see frequent track use should be inspected and rebuilt annually.

Recommended Maintenance Schedules

For street and drag race motors (up to 800 HP) damper should be rebuilt every 10 years.

Above 800 HP, Blown or Nitrous racing, damper should be rebuilt annually.

Damper Mandrels and Mandrel Bolts

ATI dampers, in all cases, must be retained to the crank with a standard length bolt torqued to the manufacturer's specifications. Long bolts used to retain drive mandrels stretch when they get hot and should not be used. ATI manufactures special hubs for many engines to put the bolt below flush and allow drive mandrels to be located and bolted to the 3 pulley bolt holes. ATI can duplicate your existing long bolt drives to bolt-on mandrel type in one week without plating. Mandrels are drilled and tapped to retain pulleys and dry sump drives. Mandrels, pulleys and accessory drives are available from:



For mandrels that fit Duramax Diesel Super Dampers, contact Jones Racing. 610-847-2028

ATI 800-284-3433
CV Products 800-448-1223
Jones Belt Drives..... 610-847-2028

Moroso..... 203-453-6571
Peterson Fluid Systems 800-926-7867
RaceMate 800-671-1711



ATI's Puller Installer Kit

ATI's kit is great for the professional engine builder and home mechanic alike! The puller plate is CNC-machined to accept a variety of bolt sizes. It can be used as a universal puller and can be purchased with optional tooling for Duramax Diesel Dampers.

PULLER / INSTALLER KIT	918999	\$139.00
OPTIONAL INSTALLATION STUD AND WASHER FOR DURAMAX DIESEL	918999D	\$43.00



How Much Power Do You Make?



Damper Applications

APPLICATION	ENGINE	OUTER DIAMETER		DAMPER ASSEMBLY WEIGHT	DAMPER PART #	HUB STEEL
		STEEL - 4 RING	STEEL - 3 RING			
CATERPILLAR	3208		8.074"	20 lbs.	917367	916007
CUMMINS 1992-1998 2 TIMING SLOTS FOR TACH [5]	5.9L 6BT		8.074"	23 lbs.	917373	916014 [2]
CUMMINS IN-LINE 1989 - 1991 & 1998½ - 2002 [1]	4BT 6BT		8.074"	20 lbs.	917365	916014 [2]
CUMMINS 2003 - 2007 ½	5.9L		7.98"	18 lbs.	917374	916119
CUMMINS 2007.5+ , 8 RIB [6]	6.7L		7.98"	19 lbs.	917375	916138
CUMMINS ISC [3]	8.3L		7.95"	21 lbs.	917372	916083
DURAMAX, 6 RIB 2001 - 2005 LB7 & LLY	6.6L		7.425"	18 lbs.	917371	916081
DURAMAX, 6 RIB 2006 - 2010 LBZ & LMM	6.6L		7.425"	19 lbs.	917369	916081
DURAMAX, 6 RIB 2011+ LML & LGH	6.6L		7.425"	18 lbs.	917376	916081
FORD POWERSTROKE 2008 - 2010 [7]	6.4L		8.48"	26 lbs.	918887	916764
FORD 6.0 POWERSTROKE 2003 - 2010	6.0L		7.95"	16 lbs.	918888	916761
FORD F-250/350 POWERSTROKE 1999 -2003	7.3L		7.45"	15 lbs.	918889	916754
INTERNATIONAL	640	10.465"		36 lbs.	918642 [9]	---
INTERNATIONAL (LIGHTWEIGHT STEEL)	640	10.465"		32 lbs.	918642L [9]	---
INTERNATIONAL	640/466		8.074"	23 lbs.	917361	916013
JOHN DEERE w/ HEAVY INERTIA	466/619 6 CYL.		8.074"	19 lbs.	917364 [8]	916015
JOHN DEERE w/ HEAVY INERTIA	466/619 6 CYL.		7.074"	15 lbs.	917363	916015
JOHN DEERE w/ STANDARD INERTIA	466/619		7.074"	13 lbs.	917362 [8]	916015
OLIVER TRACTOR, 6 CYL. CHEVY FRONT	6 CYL.		7.074"	14 lbs.	917368	916008
PERKINS V-8	640		8.074"	20 lbs.	917366	916006

[1] For a race version with no pulley & shortened hub, order pt # 917365C.

[2] Requires a modified hub for competition, #916014M.

[3] OEM service calls for 2 year replacement.

[4] Requires front pulley #916118 for dual alternator.

[5] Damper OD is 9.254". OEM tach sensor may be relocated from 11 o'clock to 3 o'clock. Order an ATI bracket kit, part #917373BKT.....\$80.

[6] Shell assembly part #917114 includes an 8 groove trigger wheel.

[7] Drive pulley - part # 916162.

[8] Timing for a 466 John Deere will line up TDC on the bottom side of the damper at 180° so you will be under the engine to set from the 180° mark. Request a second 1/4" keyway to be cut for topside timing at no additional charge if requested at time of new order. The 619 timing will be set at TDC and straight up at 12 o'clock.

[9] Requires a custom hub. Call a Sales Technician for more information or visit ATI's website - <http://www.atiracing.com/pdf/custom-damper-form.pdf>.

[10] This damper is NOT an OEM replacement! Race application only! Please call a Sales Technician for more information before ordering. This damper is NOT returnable.

[11] Damper is 12% OD. Use NAPA belt 28-081253.

STEP KEY

STEP KEY FOR 3208
CATERPILLAR
DIESEL HUB

(.750" X .750")

918952 \$24.00



Should you need to return your Super Damper for any reason -- overhaul, repair, etc. -- please call ATI at 410-298-4343 or 800-284-3433 to receive your RGA # (Returned Goods Authorization).