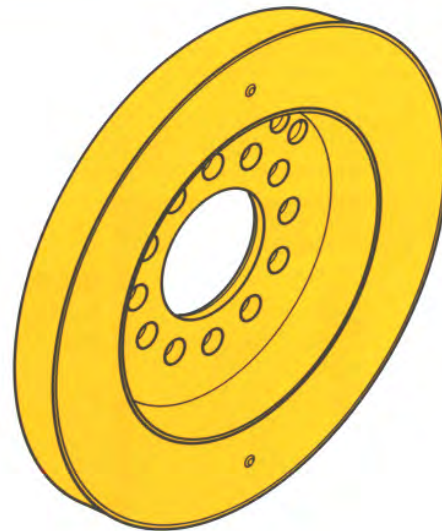




Vibrattech TVD® invented viscous damper technology in 1946. Since then, the design has been imitated but never duplicated. Fluid filled Vibrattech TVD® dampers are used by the largest names in diesel engine manufacturing for the following reasons: Quality, Dependability, and Longevity.

Features & Benefits

- Increase horsepower & torque
- Better fuel efficiency
- Extends the life of the engine
- Improves valve timing
- Paintable steel finish



CATERPILLAR®				
Reference Number	Vibrattech TVD Part Number	Engine Model	O.D.	Wt. / lbs.
V-2P1793 / V-1678133	712020-001	D / G379 / 398 / 399	21	90
V-4W0337	715452-000	3306 / 330C / 3304 / 333C	12.3	32
V-9S4444 / V-1678128	715462-000	D 343 / D 346	13.5	38
V-7E9520 / V-1678126	716405-000	C15 / 3408 / 3406 (A,B,C,E,PC) Adapter plate Incl./ C16	13.5	38
V-1933288	718019-600	3500 Series	21	107

Vibrattech TVD

180 Zoar Valley Road Springville, NY 14141

ph: (716) 592-1000 / fax: (716) 592-1001

www.vibrattech.tvd.com

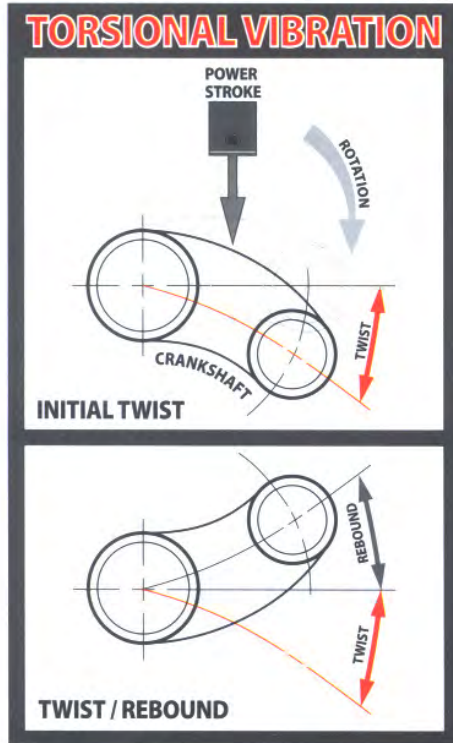
©2006 Vibrattech TVD. Printed in USA 4DVB04



The names Caterpillar®, Cummins®, International / Navistar®, Detroit Diesel®, Waukesha®, Cooper®, General Electric®, and all related descriptions, numbers, and symbols are used for reference only. It is neither inferred nor implied that any Vibrattech TVD aftermarket parts are a product of, authorized by, or in any way connected with the original equipment manufacturer, or that they are original equipment.

The Problem Torsional Vibration

Each time the air fuel mixture inside a cylinder is ignited, the combustion that results creates a torque spike – an extremely rapid rise in cylinder pressure. This pressure is applied to the top of the piston, which becomes the force that is applied to the crankshaft through the connecting rod. Each torque spike is like a hammer blow. It hits with enough intensity that it not only causes the crankshaft to turn, it actually deflects, or twists the crankshaft ahead of its rotation. This twisting action and rebound is known as torsional vibration.



Unchecked Torsional vibrations can cause:

- Crankshaft Cracking or Failure
- Excessive Bearing Wear
- Excessive Gear Wear or Failure
- Broken Accessory Drives
- Throwing or Slapping of Belts

Checked Torsional vibrations can:

- Increase Torque & Horsepower
- Improve valve timing
- Prolong engine life
- Extend fuel economy
- Quiet noisy belts & drives

Vibratech TVD's Viscous Torsional Vibration Damper

The Vibratech TVD viscous damper is a simple design consisting of a free rotating inertia ring surrounded by a high viscosity silicone fluid enclosed in a totally sealed, leakproof housing.

When crankshaft torsional vibrations occur, the outer housing of the damper reacts with the crankshaft, twisting while it rotates, while the inertia ring inside moves out of phase with the housing. This relative motion between the inertia ring and the housing causes the inertia ring to shear the silicone fluid, which reduces the vibration.

Damper Inspection and Replacement

Viscous Dampers

The nature of silicone fluid results in a high energy dissipation, which makes it an excellent damping medium. A worn out damper leaves crankshaft torsional vibration unchecked and can cause costly engine damage. That's why regular damper replacement is critical to longer engine life. While recommended replacement intervals vary depending on engine manufacturer, the average is about **500,000 miles (15,000 hours)** or at major engine overhauls and in-frame rebuilds, regardless of condition.



Elastomer Dampers

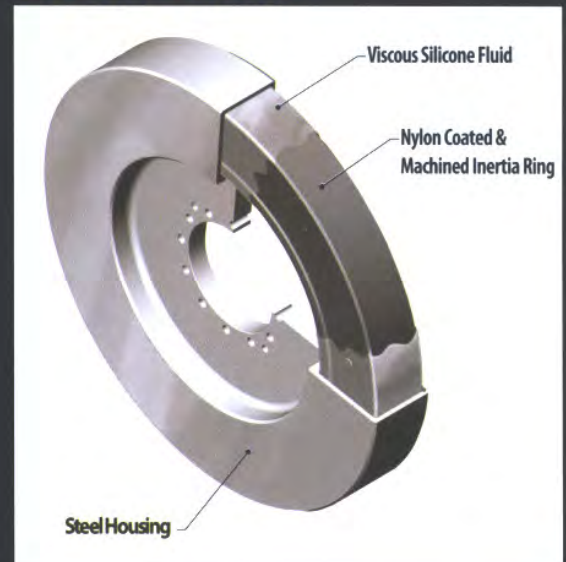
The elastomer or rubber O-rings in a stock elastomeric damper wear out after time. The rubber will dry out and crack. In some cases the rubber works itself out of the damper causing a visible wobble when rotating. Any sign of deteriorated rubber O-rings is an indication that the damper should be replaced.

Traditional Damper Design



Dampers that utilize rubber or elastomeric rings to dampen vibrations are prone to deterioration that may destroy engine components in as little as 1 to 3 years. Rubber damper rings dry out and crack over time, reducing the effectiveness of the damper. Exposure to oils and solvents can cause rubber damper rings to swell and quickly breakdown. These changes in durometer, over time, will cause damper failure and damage to costly engine components.

The Better Solution



Vibratech TVD dampers utilize an internal inertia ring that is surrounded by viscous silicone. Silicone is far superior to rubber for dampening because it is not adversely affected by temperature. Being a sealed unit, Vibratech TVD dampers last much longer, providing protection for hundreds of thousands of miles. Order your new Vibratech TVD damper today.

**Don't let your mechanic install a no-name, inferior aftermarket copy. It's your engine so always specify the best...
Vibratech TVD, made in the USA since 1946.**