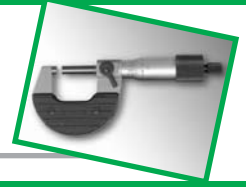




The Hard Liners™

## Valve Rotator Failure



APRIL 2000

IPD-TB-0001

## VALVE ROTATOR FAILURE

### Subject: Valve Rotator Failures:

Valve rotator failures can cause severe engine damage if not replaced during cylinder head rebuilding. There is no fail proof way of testing or knowing the condition of the internal parts of a valve rotator.

### How They Work:

When the crosshead or rocker pushes down on the valve, the valve spring coils twist, causing the valve to rotate. Without a rotator, the valve would just rotate back into its original location. It is during this cyclic motion that the valve rotates three steps forward and two steps back. IPD rotator bearing, spring surfaces and spring seats are hardened for added wear resistance.

### How They Can Fail:

Rotator bearings and springs experience heavy valve spring and compression loads. Abrasive wear begins with the added combustion by-products entering the lube oil system, under normal engine operation and maintenance. Once wear exceeds 50% of the bearing spring wire cross-section, breakage can occur.

### Results:

When a valve rotator quits rotating due to extreme wear or breakage of the internal spring, Valves will of course not rotate as they are designed to do. This can ultimately result in valve burning, guttering and breakage. Cylinder component damage such as piston to valve contact and possibly catastrophic failure is possible.



*Photo at left shows excessive spring wear resulting in breakage of spring and bearing after only 40,000 miles into second service life of part.*

IPD offers a comprehensive line of valve rotators for popular engines as listed below. Please contact your IPD Distribution Center for exact applications.

<u>IPD No.</u>	<u>Engine</u>	<u>Model</u>
1031800	3300	Caterpillar®
1W5300	3300	Caterpillar
6N7175	3400	Caterpillar
4W2474	3400	Caterpillar
4N6761	343	Caterpillar
7N7639	D353/379/398/399	Caterpillar
1333814	3500	Caterpillar
3081081	KT19, 38,50	Cummins®

IPD INC. • 23231 S. NORMANDIE AVE. • TORRANCE, CA U.S.A. 90501  
PHONE: 310-530-1900 • FAX: 310-530-6162 • E-MAIL: PARTSMASTER@IPDPARTS.COM  
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