



## IPD TECH BULLETIN

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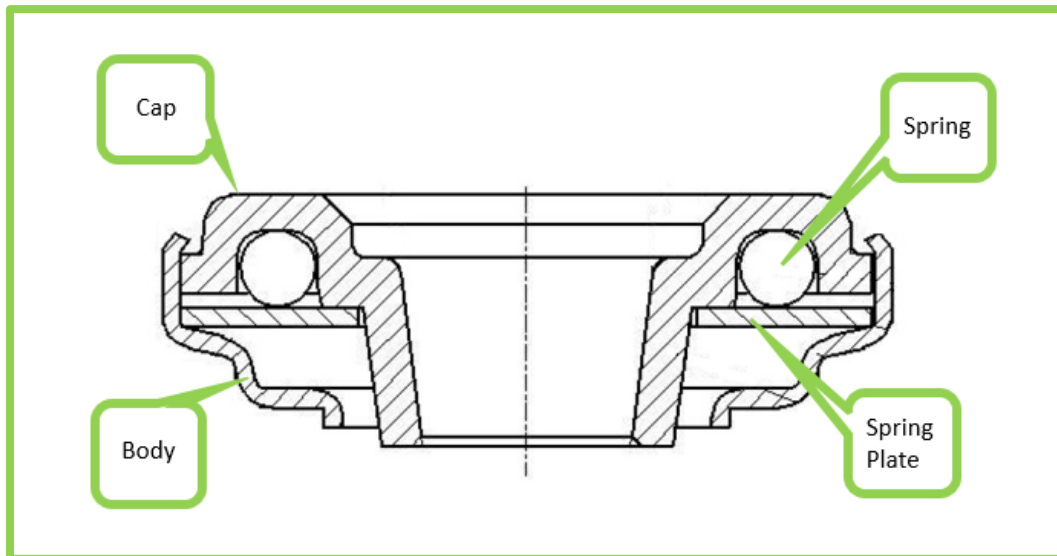
IPDTB-0001

### Valve Rotocoils

“Neglected”, “unappreciated”, “disregarded” and “overlooked” might summarize the service life of a valve rotocoil. These unsung workhorses in an industrial engine’s valvetrain are a major component in getting the full-service life from an engine. Plus, if this workhorse stops functioning, it can wreak havoc in your engine.

#### The Anatomy of a Rotocoil

Considering the job they do, they appear to be a simple component. The internal designs vary, but most consist of a cap, body, spring washer and a spring. Valve spring tension pushes upward on the body of the rotocoil. The valve locks (keepers) hold the rotocoil in position on the valve. The downward force from the rocker arm or valve bridge collapses the internal spring when the valve opens. During operation the force of the valvetrain compresses and releases the internal spring allowing the rotocoil to rotate the valve and reset.



Rotation of the valves result in:

- Uniform heat distribution
- Uniform wear of the valves and seats (inserts)
- Cleans deposits out from between the valve and seat (insert)
- Helps keep the valve from overheating

When valves stop rotating it can result in:

- Deposits being trapped between the valve and seat (insert)
- Overheating, weakening, and failure of the valve
- Hot spots on the valves that torch out the valve face
- Loss of compression



- Accelerated guides and valve wear
- Valves sticking in the guides
- Broken Valves

### How to Test a Rotocoil

Unfortunately, without specialized testing equipment or watching them on a running engine there's no reliable method to test a rotocoil. Most OE manufacturers do not recommend reusing rotocoils and do not publish specifications or methods for testing them. Unless they are damaged, or the spring has broken apart allowing the rotocoil to collapse, there's typically no outward appearances to indicate if a rotocoil is good or bad. In these photos one group is new, and the other group are used rotocoils with an unknown amount of service hours. Other than a few stains or nicks from handling they look very similar.

(New)



(Used)



However, internally they do not. The internal parts of the new rotocoil are as expected: surfaces are smooth, spring is straight, and coils are uniform.



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