

# **Commentary** *By Bob Nichols*

**WARNING!!** – **Using Shell Rotella T Motor Oil in Corvairs** - There has been a lot of talk about new motor oils labeled API “SM” not being suitable for the old engines with flat tappet camshafts (most 50’s and 60’s cars including Corvair). The oil additive ZDP (a zinc phosphate compound - **zinc dialkyl dithio phosphate** –sometimes called ZDDP) has been reduced to protect catalytic converters in modern cars. It’s commonly believed that the reduction of ZDP in today’s motor oil is causing an increase in flat tappet camshafts failures. The facts suggest otherwise.

The Communiqué (May of 2007), and a number of car magazines recommended Shell Rotella T Motor Oil API CI-4 Plus (commercial motor oil for diesel engines) because it contains the ZDP additive in amounts similar to pre 2001 gasoline engine motor oils. Unfortunately this is no longer true. Shell has reformulated Rotella T motor oil and reduced ZDP to comply with changes in diesel emission laws. The new Rotella T oil is labeled API CJ-4/SM.

**Don’t panic** – Technical consensus suggests the new oils are acceptable for normal driving. Extreme conditions like racing or “breaking-in” a new engine could be problematic. The new oils (API SM) still contain a level of ZDP greater than the amount found to provide a significant reduction of camshaft wear per the Society of Automotive Engineers in 1972 (document 720686).

The API “SM” designation (on any oil brand) signifies a probable reduction or substitution of ZDP in motor oil. I use the term probable because the oil manufactures complied with a request from car manufacturers to reduce the ZDP in oils certified for use in NEW cars (typically 5W30 or 10W30). Since 20W50 oils are NOT certified by manufacturers use in new cars they MIGHT have greater amounts of ZDP. Some manufacturers publish specifications (Valvoline racing VR-1 20w50 is API SM and has 0.13 Zinc). If you have a newly rebuilt engine or you’re racing, then oil with 0.12 to 0.13% zinc by weight will provide extra wear protection (Zinc 0.12 to 0.13% by weight is considered optimal for extreme conditions).

The prudent approach to protect a new camshaft is to use assembly lube during installation and a “break-in” oil additive from the camshaft manufacture per their instructions.

NOTE: - Teflon oil additives (PTFE) have NOT been scientifically proven to provide any engine protection (DuPont says NOT to use them). Molybdenum compounds reduce engine friction, but oil film failure protection for camshafts is inconclusive. **Also note, adding excessive ZDP** to motor oil (Zinc above 0.13% by weight in oil) **increases friction** (less power, more heat, more wear).