

OLDER CARS AND THE NEW OILS - A SEVERE PROBLEM

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From the information I have gathered, I feel that the new automobile oils (category **API-SM**) are a very real problem for many of our older cars. Probably the most vulnerable cars are the flathead V8 Cadillacs of 1936 through 1948 (re. the Bronze Idler gear), but the problem will most likely **damage the cam and lifters** in most cars that have "**flat**" **facd valve lifters** (in reality, the face may be slightly convex). Roller lifters should not experience the cam/lifter problems. What is the probable cause of the problem? What can we do to avoid/reduce the potential damage? What known damaged has occurred? Jerry Steelman (Minnesota) has been running tests on a Cadillac flathead engine, and Jon Lee (President of CCCA) has been involved with an MG-TF engine. Both engines have suffered damages.

The new automobile oils (API-SM) have had the level of ZDDP (Zinc-dialkyl-dithiophosphate) in the oil greatly reduced from previous levels. Why reduce the amount of ZDDP? To increase the life of catalytic converters. ZDDP provides protection to parts that experience high levels of pressure. Without it, you may (probably will) experience rapid wear to cam lobes and flat base lifters (on most engines that do not have roller lifters). In addition, the bronze idler gear in the 1936-1948 Cadillac V8s will probably wear out in a very short time (1,000 miles?). There have been several articles written about the new oils and the problems that might occur. Skinned Knuckles magazine (SK - an excellent restoration/repair, problem solving magazine) had two articles last year and Old Cars Weekly had one on the subject. They provided good information, but are cautious. They feel controlled testing is needed to confirm what the problem really is. Jon Lee sent me an excellent article on the cam and lifter problems that appeared in the MGA Club's Nov/Dec 2006 magazine. Their members are experiencing a lot of oil related cam/lifter problems.

WHAT CAN BE DONE AT THIS POINT IN TIME?

There are a few choices:

- Automobile oils, use API ratings **SH, SJ, and perhaps SL** (listed in decreasing order of preference).
- Simplest, use a camshaft and lifter break-in protection additive **with each oil change. GM has a good one (PN 12345501)**; an absolute must if you use the new API SM rated oil, and it won't hurt if used with any normal oils. It comes in a four ounce bottle (about \$11.00). I suggest a half dose of it with an **SL** rated oil.
- Some Farm Co-ops, like Cenex, have **off-road** oils that are similar to the oils in 1996 (Category SH?).
- Mobil 1 Hi-Performance Oil 15-50* (an **off-road oil**), not the standard Mobil 1 car oils.
- Additional comments at the end of this article.

* Any high viscosity oil (like 40 or 50 weight), in my opinion, is too high for long term use in the '36-48 Cadillac engines and will increase the load, and the wear, on the bronze gear and also might cause problems with the hydraulic lifters. These engines should use a 30 maximum viscosity oil for all normal use.

TESTS ON A V8 CADILLAC ENGINE, ETC.

The flathead 36-48 Cadillac engines have a very sensitive bronze "idler" gear that drives the oil pump and distributor. The original gears were good for 150,000 miles or more (with good oil). There have been many failures of poor quality replacement gears (I know of more than 20). These occurred prior to the new oil; I'm afraid we will see a great increase in the number of failures (including good gears) in those cars if they use the new API-SM oil without the proper additive.

Jerry Steelman (Minnesota) experienced a "fail to proceed" situation on the CCCA Alaska CARavan in 2005. He replaced the replacement gear in his 1946 Cadillac in Fairbanks, AK. This failure was not oil related. With so many poor quality gears on the market, Jerry decided that he would look into having a good quality gear made. I provided him with copies of the gear blueprint and material specifications/heat treatment information. He found a machine shop that would entertain the project and they found material they felt would be satisfactory. Two sets of test gears were made (both the bronze gear and the small steel gear for the oil pump/distributor shaft drive). In the meantime, Jerry had set up a "test engine" (electric motor driven) to run durability tests on the gears. (cont.)

Jerry ran the engine at the equivalent of 70 MPH and oil pressure of 40 PSI for 24 hours a day using Valvoline 10W-30 oil he had on hand (probably category SL or SJ oil (not the newer SM). The gear was removed at 10,000 mile intervals, measured for wear, and then reinstalled and the test continued. In the first 10K there was some "wearing in" change in measurements. The teeth, which have a top edge .100" wide when new, showed a reduction of .023 due to gear face wear. After that it settled in and showed almost no wear between measurements. At the equivalent of 60,000 miles the gear was checked and it looked great. At this point Jerry changed the oil, reinstalled the gear and continued the test. The oil was new Valvoline 10W-30 category SM oil. After about 1,000 miles, he visually checked the gear and was shocked. It had .080 wear and tooth width reduction (this width reduction is mainly at the center of the gear teeth, not at the ends).

Jerry checked out all of parts involved including the "stand" that houses the distributor shaft and found nothing wrong. He cleaned out the engine and installed a new bronze idler gear and steel oil pump/distributor shaft gear, and new oil (same category SM Valvoline). He started running the new test, but reduced the speed to only 50 MPH and the pressure to 30 PSI. The gear only lasted about 1,200 miles. It was so worn, the top of the teeth were razor sharp. At this point, the lobes on the camshaft were very worn, like they had gone 250,000 miles (instead of 60K). What was wrong? Jerry didn't know, then one night he woke up at 3:00 a.m., good hour for thinking, and he recalled reading something about the new oils having been changed (big reduction in ZDDP).

Jerry re-cleaned the engine and put in the first test gear (didn't have another new gear available). He then installed Mobil 1 Hi-Performance Oil 15-50 (not regular Mobil 1, but the off-road oil). He ran the worn gear for about 8,000 miles and visually it showed little or no additional wear. Jerry and I are convinced that the SM rated oil was the problem. Jerry is planning more tests when he gets some more gears.

A LIFTER PROBLEM

Jon Lee has been involved in an MG-TF-1500 engine that was recently rebuilt with new lifters that were supposedly designed to work with the new SM oil. Shell Rotella (the new CJ-4) diesel oil was used with a break-in additive. The lifters were pulled at 500 miles and looked okay. The oil was changed using Rotella (CJ-4) oil again, but with no additive. At 1,063 (total) miles a problem developed. The lifters were pulled again and they were galled. They have been sent back to the manufacturer for evaluation. The MG article Jon sent me was titled "Oil is Killing Our Cars" and includes comments from major camshaft suppliers such as Delta, and Crane, that the new approved oils are causing significant problems. Note: The Rotella oil (CJ-4) was expected to be better than the new SM car oil. CI-4 is much better than CJ-4.

**UNTIL WE KNOW MORE, JON, JERRY AND I FEEL THAT THE BEST BET IS TO
ADD A GOOD BREAK-IN OIL ADDITIVE TO EVERY OIL CHANGE.**

Input from members on this subject would be appreciated. Problems you have experienced, and suggestions/information of other options and what might be done to provide damage control. Please contact us at the following numbers:

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p.s. There are other oils that should work. Diesel oils of the cross-over variety and with earlier specifications such as, CG-4/SL, will work good in clean engines. They have both oil type designations, the letters after the slash (/) indicate usage in cars is okay. Careful, deisel oils are being reformulated, the new ones are CJ-4/ -, and it appears they may cause problems. They have had the level of ZDDP reduced because 2007 highway trucks must have Catalytic converters. Racing oils, most have high levels of ZDDP. Redline street rated oil is probably a good one. Motor Head Hi-Z Motor oil, it has a high level of ZDDP and is made by DCM Industries, Inc. and advertised by CROSMOBILE 1-800 343-8649. Be sure the viscosity is correct for the engine. Other additives that contain ZDDP may be good.