SIMPLE STUFF
Oil, It's a Weighty Problem…

By Bob Vitrikas

My first car, a 1958 MGA, where my fascination with the oil pressure/water temperature gauge began.

Today's cars seem to have an aversion for displaying oil pressure, oil temperature, water temperature etc. The are some exceptions such as Ferrari and Corvette but generally "idiot lights" are the norm. If you own a vintage British ride, as many of us do, there is an oil pressure and water temperature gauge to draw our attention. In many applications they are combined into one instrument. I think they were on to something. Back many years ago when I bought my first car, a 1958 MGA, that combination gauge held my attention, especially on long drives from upstate NY to my work place in northern NJ. My MGA had a lot of miles on the motor and I was very aware of the drop in oil pressure once the oil and water temperatures were up and I cruised at 3,500 rpm along the Hudson River. My anxiety level rose with the drop in oil pressure from 50 psi to 40 psi to 30 psi and finally settling at 25 psi. I found that a can of STP (remember that?) would save the day, steadying the oil pressure at 25 psi for the second half of the trip. I ran nothing but 20W-50 oil in that aged MGA engine, not daring to go to a lighter weight oil for fear of ruining what was left of the engine. Believe me it was tough on the starter in the dead of the northern NY winter but my MG never failed me. Not once. With the

help of the combination water temperature and oil pressure gauge, I came to understand the general relationship between engine temperature, oil viscosity and engine oil pressure but the details escaped me.

Fast forward 20 years and I got into vintage racing with a 1966 Mini Cooper S. I stuck with 20W-50 oil but with a racing additive package added. Over the years I learned a couple of interesting things about oil and race engines. The higher the rpm, the more oil pressure was required to keep the hydrodynamic wedge of oil separating the rotating engine parts. The rule of thumb from my old school mentor and master engine builder- Tom Howen- was 10 psi for every 1,000 rpm. My Mini 1312 cc motor produced 100 hp per liter, red lined at 9,300 rpm, and ran with oil pressure of 100 psi hot. I raced the Mini for 15 years and never had an oil related engine problem.

I've discovered an interesting TV program "Engine Masters" on Motortrend TV. A recent show explored the relationship between engine oil viscosity, temperature, pressure and power. Using a big block American V8 with a lot of miles on it as their test motor, the team of seasoned (read mature) car guys did a series of test runs on the dynamometer under the following conditions. Oil and water temp cold, 100 degrees Fahrenheit; hot 212 degrees Fahrenheit. Lightweight oil 5W-20, heavy weight oil 20W-50. The team arrived at the following conclusions:

- Thinner oil produces more power up to the point that it compromises piston ring seal. At that point power drops due to the exploding fuel/air mixture blowing by the piston rings.
- Thicker oil ensures better ring seal under extreme conditions, which in turn means more power. Drag racers favor straight 70W engine oil!
- Changing from 5W-20 to 20W-50 oil raised the oil pressure 6-7 psi.
- Hot vs cold oil lowered pressure 13-14 psi for 5W-20 and 20W-50 oil.

Curious about the power difference? On this modified big block, horsepower jumped from 464.4 hp with cold 20W-50 to 478.5 hp running hot 20W-50 oil. By comparison, 5W-20 cold numbers were 468.8 hp vs 472.4 hp hot.

Now that I've got your head spinning with data, what's my take away from all this? If your engine is in good nick, follow the manufacturer's recommendations for oil weight and keep up with oil changes. It's cheap insurance to ensure your engine lasts! Modern engines favor a lighter oil, 0W-20 or 5W-30 to maximize fuel economy. On an older engine with some miles on it I run 10W-40 in the winter and 20W-50 in the summer. Simple enough?