



The Oil Pressure Gauge

by Jim Lunson

In discussing the roll of oil level in the engine and how it protects the moving parts of the engine brings up an interesting factor as it relates to one of the gauges on the dashboard. This gauge is the oil pressure gauge in all our MG cars. This gauge shows a pressure in pounds per square inch (psi). In a normal operating engine usually reads somewhere between 50 and 80 psi. What does this reading indicate?

Deep inside the internal working of all engines is an oil pump. It is driven by a gear on the cam shaft and spins as the engine runs. This pump sucks up oil from the bottom of the oil pan and pushes it upward through a maze of tubes and passages throughout the engine, spewing the oil out onto various vital moving parts such as the valve rockers, cam lifters, and the timing chain. After lubricating these vital parts, the oil then flows back down by gravity into the main oil pan where the journey starts all over again. At the same time, this pump also pushes oil up through the oil filter and out and back through the oil cooler in the front of the car. In other words, the oil pump is critical to get lubrication to every part of the engine except for the pistons and crankshaft which get their oil dousing by other means. Without this pump delivering oil, these other elements would soon fail, ruining the engine.



One of the passages that carry this oil from the pump to the oil filter has a branch in it. This branch line connects to a rubber hose on the side of the engine. This hose is then connected to a small metal tube (1/8") on the firewall that goes all the way across the car and connects onto the gauge in the dashboard. This passage is sealed at the gauge so no oil flows through it, but when hooked up with the gauge, measures the pressure that the oil pump is producing as it pushes the oil to all these other spots. That is the gauge we can see and read.

So a pressure reading on the gauge of 50 to 80 psi means the oil flowing through the engine is being pumped at this pressure. A lower pressure (20 or less) signifies that either the pump is not working very well or there is a clog in the system not permitting oil to flow as it should. Either case is a sign that something in the engine needs immediate attention or damage could occur. Only when the engine is idling and the pump is not spinning very fast should the pressure drop. That is the function

of this gauge: to show that the pump is working well and all passages are open. MGs have this gauge, but in newer cars, it was replaced by an idiot light, but the function is the same, alert the driver if the pump is not working.

Oil for this pump is drawn from near the very bottom of the oil pan, so this gauge is not an indicator of the level of oil in the engine. If the oil level in the engine is low enough to where it causes the pressure on the gauge to drop, there will have already been a serious shortage of oil in the engine causing significant damage. So don't use this gauge as a reading that you have the proper oil level in the engine, but only to indicate to you that the pump is working and oil is flowing properly to the areas noted above. That you have the proper amount of oil in the engine is only checked by using the familiar dipstick on the side of the engine.

One maintenance item that is important for our MGs and an item often overlooked is the small rubber hose noted above that connects the oil pump output to the metal tube that feeds across to the gauge. The small metal tube across the car to the gauge will last a long long time without concern, but this short hose (about 12" long and 1/2" diameter needs to be checked, as with any rubber item, it will deteriorate over time. And one of the problems with this hose is that it is under the same 50 to 80 psi that the pump is producing which is high for a rubber hose (about 5-6 times the pressure on a radiator hose for example), and a blowout failure of this hose in an operating engine will allow the oil pump to quickly suck out all the oil in the engine out and spray it all over the engine bay. So check this hose often. A problem with checking this hose is that the replacement hoses sold by the parts distributors are beautiful stainless steel mesh covered ones that looks great but prevent you from seeing at the condition of the rubber hose behind the shiny mesh. You need to see the rubber to see if it is deteriorating.

This hose blowout once happened to a club member on one of the MG drives. While driving, he suddenly noticed oil dripping on his foot while on the accelerator pedal. This looked very strange so he stopped to check under the hood to see what could possibly be causing this drip. The small hose to the gauge had ruptured and the pump had pushed out oil the split. This oil had completely soaked the entire engine bay and it was starting to make its way into the passenger compartment as he drove. Not a pretty sight. At that pressure, oil goes everywhere and very fast. Fortunately this horrible mess caught his attention before all the oil was pumped out so he was able to stop before any engine damage could occur. But he had a terrible mess to clean up in his car. Not to mention also was that he was suddenly now dangerously low on oil. We were able to concoct an emergency fix by cutting off the hose, inserting a bolt in the end and securing it with a small hose clamp. Then the crankcase had to be refilled using several members' spare quarts. He continued the

drive, even though his gauge now read zero pressure (because so much oil had pumped out, he knew the pump was working just fine). So when doing a regular inspection of the engine, check this hose thoroughly and if it is mesh covered so you can't check its condition, replace it every few years so you won't get stranded.

Another problem with this hose is that on the '75 and later MGBs, as this hose connects to the metal tube, it feeds through an electrical switch that connects to the anti-run-on valve. This was done as a protection for the engine. If the oil pressure drops below 20 psi in this hose due to a failure of the oil pump, the anti-run-on valve is activated and the engine shuts down. Great protection if the pump fails, but not so great if your engine suddenly stops and you have no idea what could be the problem. So if you have a later MGB and your engine suddenly stops for no reason, this is one item to check. You can short out the switch temporarily if necessary to keep the anti-run-on valve from stopping the engine, but you have to know this is the problem in order to solve it.

This oil pressure gauge was sort of a forerunner to the idiot light that replaced it not so long afterwards. Now, the idiot light for this oil pressure has been replaced by the service engine soon warning, but the function is still the same. So just like the old gauge, the light or sign does still not warn you if the oil level is low, but only that the pump is not working. So, while driving your MG, take an occasional peep at this gauge to make sure the pump is working, but don't think that a good pressure reading means you have plenty of oil in the crankcase. And when checking the hoses in your car before starting out on a trip, don't forget the small hose that goes to the pressure gauge. And remember if you can't see it because of the mesh covering, it may still be going bad and should be replaced about every 5 years no matter what. A failure here is just as devastating as a leak in a radiator hose, and may occur much faster.