

New Engine Test Results - October 22, 2020

To All,

It has come to my attention that many people on my Email list are not involved with online social groups. This Email is a summary of the test results and is being sent to those on my Email list and will also be posted on online forums.

We were on a very tight schedule at the 3rd party evaluator to assemble the engine, check for clearances, run it on a test stand, and install it in a car for a hill climb.

After the new Model A engine was assembled with a stock oil pump (for a baseline), filled with 10w-30 oil and started, there was no oil pressure, so we pulled the pan and installed a modified Model A oil pump that was machined to increase the volume by doubling the area of all oil passages. We had a Stipe oil pump on hand, but didn't use it because the pump outlet would have needed modification by an outside machine shop for use in a stock appearing engine without an oil filter.

When the new engine was started with the modified Model A oil pump, we had oil pressure but it was much lower than expected.

Oil pressure was measured at the output of the oil pump, and at the end of the main oil galley.

I was disappointed with the low oil pressure. The new engine has 15 bearings (5 main, 4 connecting rod, 5 camshaft, and rear thrust) that are pressure-lubricated, so there are 29 places for oil to leak which reduces pressure. Since we had some oil pressure at the end of the main oil galley and there were no bad sounds, I made the decision to continue testing. The first test after assembly was break-in. Instead of driving easy for the first 1000 miles, we broke the engine in hard by running it at 3100 RPM for 6 hours. 3100 RPM is equivalent to 75 MPH without overdrive. During this test, oil temperature was above 260 degrees F, but we still had minimal oil pressure.

After this test, we drained the oil and strained it through a clean rag to look for particles. The oil was dark, but there were no particles.

The next day, the oil was replaced with O'Reilly 20w-50 oil in an effort to gain oil pressure and we ran the engine at 2000 RPM for 4 hours. During this test, the head temperature reached 260 degrees F when we accidentally ran it out of water.

The final test was to install the new engine in a car for a hill climb of 1700 feet elevation gain in 5 miles.

After the hill climb, the engine was removed from the car and shipped to me for disassembly and examination.

I removed the oil pan and found that a 3/8-16 UNC setscrew oil plug was missing. This missing 3/8 inch plug vented the main oil galley directly to the crankcase.

Further disassembly showed no signs of excessive wear on the bearings or any other parts despite the low oil pressure and overheating when we accidentally ran it out of water.

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During engine assembly, we found a few minor things that need to be changed to provide a better product. These changes have resulted in drawing changes for the production run. We are working on a website to take orders and deposits, a "Builders Guide", and several other things.

We have placed an order with the factory in China and are in the queue to receive parts near the end of January 2021.

We have committed to present the new engine in a seminar at the MARC membership meet in Bay City, MI on April 9, 2021.

Terry Burtz

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