

Oil for Rotary Engines

It is true that MAZDA does not recommend synthetic oil in the crankcase of Rotaries. I once had a client who used Mobil 1 15w-50 in their 86 Rx7 from the day he took possession of his new car. His first engine lasted 75,000 miles or so. The replacement one lasted less than 70,000. Both engine failures were due to apex seal failure. (Broken compression seals) Usually these engines last 130K +

This was very strange to me as well. Common thinking about synthetics was that they "lubricated better, could withstand more heat and still remain oil & suspended contaminants longer" Other of my clients who had used Mobil 1 in their reciprocating engine cars found longer engine life.

After a few months of research I found the answer. Rotary engines need 'top end lubrication' for the compression seals. They are similar to 2 cycle/stroke piston engines in that oil needs to be present in the combustion process. The internal oil pump has a limited role: It's only primary jobs are to plane the bearings & to cool the rotors. Cooling the rotors is done through 2 processes:

- 1) On the gear side of the rotor the oil comes off the plained bearing
- 2) On the rear side there are jets in the eccentric shaft that spray a mist of oil.

OK, no more about Rotors.

The inner oil control ring keeps the oil out of the combustion chamber. The outer oil control ring keeps the compression out of the oil. This is very similar to piston engine rings. The rotary system is more efficient in that almost no oil can get by the control rings.

The Oil Metering Pump injects a deliberate amount of oil into the your carburetor for the engine to burn. The nature of non-synthetic oils is that they leave a slippery residue even after a combustion process. This residue is what hangs around inside your engine to keep the apex seals "WET" Synthetic oils burn too clean to lubricate the compression seals in a rotary. Once it ignites, it's gone. Of course you cannot use pre-mix 2 cycle oil in the fuel as per the rules.

It is known that Zero Weight Mobil 1 will give your Spec 7 more HP especially on the top end but do you want to sacrifice engine durability? So many decisions to make.