

How to Save a Few Bucks on Engine Oil (and almost ruin your engine)

Dewey Davis (VA) - I recently learned an old lesson about engine oil. **Airplane engines need good lubricants designed specifically for aviation.**

I had been flying my Cozy (O-320-D2J) for about 100 hours with Mobil AV-1. This seems to be a pretty good oil as I never had any engine problem while using it. However, it is also very expensive. Even when I order a case by mail, plus a couple of oil analysis kits, shipping, etc.), it costs nearly \$100; and that won't even cover two full oil changes.

I called Mobil and asked why Mobil AV-1 costs twice as much as regular Mobil 1. I got a vague and unconvincing answer that left me with the impression that they charge more because they can get away with it.

About the same time, I learned of another EZ driver that was experimenting with the new Castrol synthetic oil, Syntec. This oil had been performing well for many hours in his Continental O-200, has great viscosity specs (5W-50) and costs less than \$4 per quart; much cheaper than the Mobil AV-1 synthetic. I decided to try it in my Lycoming bad move!



The next part of the story was related by Vance Atkinson in the last newslet-

ter. I had just about 10 hours on this oil when I arrived at Fort Pierce, Florida. June and I were on our way to the Bahamas just after the Sun-N-Fun Fly-in. There, I discovered oil streaking from the cowling.

Investigation revealed a bent pushrod which was caused by a sticky exhaust valve during start-up at Lakeland. The consensus among the local mechanics was that sticky exhaust valves are not unusual with mid time engines like mine. We got the pushrod replaced and staked the exhaust valve well to assure it was moving freely. They recommended I use Marvel Mystery Oil in my gas and oil to prevent a similar problem in the future.

The engine ran great (actually it had been running fine with the bent pushrod too) so we pressed on and I resolved to get a thorough checkup upon return to home base. A few days later, in the Bahamas, the same exhaust valve stuck on start up and bent the push rod again. Now I really had a problem! Thank heaven for Vance Atkinson, Scott Carter, and Ken Francis. These guys stuck with me, helped diagnose the problem, and came up with a field expedient fix to get me going again.

Scott Carter performed his magic on the bent pushrod using the limited tools available on the island. (There is no truth to the rumor that he hammered it straight with a conch shell). We got the engine running again and it ran real solid, as it always had. It seems that the valve only sticks on start up, when the engine is cold. The contracted valve guide offers less clearance to the valve stem. Once the engine is started it runs fine.

I circled the island for a good long while before we made a dash across the pond to Florida. At 12,500 feet, I could see land most of the way, but the pucker factor was pretty high for the flight.

After clearing customs, I immediately took the airplane to the FIT school in

Melbourne where I knew they had plenty of mechanics, parts, and tools. I left it there overnight and told them to fix that valve.

They were good about letting me help with the repair. It was pretty interesting to see the "microsurgery" technique they used to remove the exhaust valve, ream the guide, and reinstall the valve without ever removing the cylinder.

I made an uneventful flight to Virginia. The next day, while preparing to taxi to my local FBO across the field, exhaust valve #3 stuck! Now one stuck exhaust valve might be written off as bad luck, but two stuck valves in the same week is no mere coincidence. Something was very wrong! At this point I called Lycoming. After describing the history, they told me that the Castrol synthetic oil was indeed the likely cause of the problem. Apparently, some of the additives in that oil will burn and make carbon residue. Lycoming engines, unlike automotive engines, do not have exhaust valve stem seals to keep the residue out of the valve guides. Ten hours with this oil had produced enough gunk to cause problems. All the guides needed to be cleaned.

Moral of the story: We builders have experimented with a lot of automotive products; alternators, starters, ignition systems, even entire engines as well as autogas. But sometimes, even the best automotive product is just not suitable for aviation use.

Be careful out there!

Lycoming Cylinders For Sale

Four Lycoming O-360-A1A cylinders. 1st time run out. \$175 each.

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