

Oil Filters And Oil Analysis

Changing your aircraft engine's oil is a relatively simple task: You need a bucket large enough to contain the drained oil, probably a hose, some shop rags and tools appropriate to remove and reinstall the drain plug and filter, including its safety wire. What else? Well, cutting open the filter to inspect it for metal is considered an excellent way to monitor the engine's health.

You'll need a filter cutter of some kind, capable of handling the relatively large-diameter filter. These, like the Airwolf tool pictured, are available from the usual suspects. Cutting open the filter and disassembling its various components results in something like the bottom image, which was done on a new filter. (A used filter will have oil in it and will be much messier than shown—probably not a good idea to tackle this in the kitchen.)

To inspect it, cut the pleated filter media away from its retainer, unfold the pleats and look for shiny stuff. Anything less than, say, eight or 10 pieces of material is nothing to worry about. Bits of black material you can crush between your fingers—carbon— isn't anything to worry about, either. Anything more, or if you can read part numbers off what you see, and it's time to call a real mechanic for a look-see.

While you were draining the oil, you caught a sample to send off to your favorite oil analysis company. In a week or so, you'll get back a report detailing results of a spectroanalysis on your sample, plus other test results, depending on the vendor you use. Various engine parts are made from specific metals or alloys. By analyzing the metals found in the oil, a good oil analysis shop can identify abnormal wear and localize it to, say, piston pins or crankshaft bearings. A single sample may not be that useful; oil analysis is most valuable when performed over a series of oil changes, which can establish wear trends for the engine and identify abnormalities.

