Auxilliary Oil Cooler Thermostat- SUMMARY
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Ok. The thing is finally fixed, and my front cooler is working wonderfully (too hot to touch on the inlet, warm, but much much cooler, on the outlet.) Easy way to check for this, which I learned from a previous post, is to get the engine good and hot, and simply touch the lines around your aux oil cooler. If they're "ouch" hot, you're golden. Cold? You're not getting any benefit from the front cooler.

Easy fix: Spend the money, replace the thermostat cylinder. It's about $80 from Vertex, or $38 if you luck out on eBay like I did (eBay: gotta love it, gotta hate it.) Unless the housing itself is for some reason bad, there really isn't a lot to go wrong in there besides that thermostat, and I was very successful in replacing the 'stat with the housing still in the car.

I first removed the smaller piston, which faces down, and found that it is:

a) Simply a pressure valve.
b) Extremely difficult to reassemble with oily hands. There is a small seal at the top of the piston which looks as if it may well last longer than a pet parrot, so there really isn't any reason to touch it unless the thermostat fix proves ineffective. I also rediscovered that the phrase "scalding hot oil" has intense meaning, even after the car's been shut off for a couple hours. Perform this operation with the engine oil nice and coooool.

I then removed the larger cylinder, which faces sideways and slightly back, using a large pair of channel locks, and found the thermostatic component. It is a rather interesting arrangement, consisting of a weaker spring than the pressure valve, a piston, and a smaller thermostatic piston *within* the main piston. At 83C, the small piston pushes open, forcing the main piston open against the spring, and allowing oil to flow to the cooler.

With the old thermostatic piston assembly out of the car, I could easily pull the thermostatic piston out with my fingers, which I imagine would indicate failure. Removing this piston completely as a temporary fix (ala removing the thermostat in a water coolerd car) does *not* work, as the way the piston and oil routes work will simply cause the oil to head straight back to the oil tank and miss the cooler due to "path of least resistance", I believe. The oil pressure also seems to drop off a bit with the piston completely removed. The oil cooler and lines *did* fill up, consuming about another 2 or 3 quarts, and the oil looked pretty dirty. So, might be best to perform this in conjunction with a sludge remover, and VERY close to a fresh oil change, plus with a few quarts of "cheaper" oil (non-synth) to fill the cooler, then be changed out within a day or so of driving.

At any rate, if you're dextrous enough, and have the right size channel locks, it is possible to R&R the piston without even removing the passenger's side rear tire- simply jack up the pass. side, support on a jackstand, and get in there with your channel locks, making sure you have good engagement with the cylinder cover *only*. I know the channel locks are inelegant or even sacreligious to some, but they worked, and did not involve a special tool or removing the housing. When you unscrew the cap, you will lose some oil. I used a small plastic pan to catch it. It looked like about 1/4 qt.- no big threat. The cap and spring come free easily. The piston itself can be wiggled out by hand, or by use of some large 90 degree nose pliers, which make the job easier.

Reassembly is the opposite of assembly, making sure the thermostatic plunger faces *inward*, and the spring is seated properly on the cap. My new piston was slightly different than the old, with a rolled lip around the top, and a longer, slightly stronger spring. It was

tougher to get back together with the stronger spring, but still possible with the wheel on car jacked up, so not that bad. With the cylinder cover back on nice and tight, I fired the car up and made a sandwich. I waited for it to climb up to 2/3 on the gauge, like usual, but it never happened. I checked for leaks, found none, and grabbed the oil line up near the front (I have a 930S air dam and cooler), and it proved to be HOT for the first time in who-knows-how-long.

So, the car is now idling at much less than 1/2 the gauge, max, in 103F ambient temps, where before it would climb toward red within 25 minutes.

I'll drive it a bit, change the oil Monday, and call it done.

Hope this helps someone!

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