

What I Did on My Summer Vacation

It was intolerably hot in North Carolina July 2018. My daughter, lives in the northwest, she phoned to ask if I'd watch the farm for 10 days while the family was in Utah touring various national parks. Without reservation, I said yes and arrived a few days later in the cool-er northwest. That evening, she said, uh, by the way, there are some things that need your attention while we're gone. Apparently, this is what fathers are for..!

She had "the list." She loves lists, among the usual farm stuff, included were:

1. The John Deere's battery is not charging.
2. Repair the oil leak in the S70, again oil was spewing on to the hot manifold and the burning smell was overwhelming.
3. Repair the oil leak in the 2008 XC70. Oil was pouring out of all orifices; leaving a drip trail on the pavement. The local Euro auto shop can't figure it out. It uses a quart a day.
4. If you have time, inspect and if needed, replace the brake pads on the XC70.
5. The XC70's serpentine belt may need attention, too.

The following morning, I dropped the family off at the airport at zero dark thirty. After completing the usual chores, feeding livestock, turning the "free range" chickens out, get the irrigation going, and so on.

That afternoon, I tackled the John Deere. It cranked, volt meter read a steady 11.58 volts. No good, should be 14 volts plus or minus .5 volts. Checked and cleaned the electrical connections, no difference. I decided it was the voltage regulator. As luck would have it, I'd thrown a spare Deere voltage regulator in my luggage (doesn't everyone? I knew from previous conversations that SIL was running the Deere off battery.) Installed a new regulator and the charging system was producing a respectable 13.5 volts. I changed the oil and filter, greased the steering linkage and used a black sharpie to write on the cowling what'd I'd done, the date and engine hours. Why? So later when something isn't right, I'd have a historical repair record to consult.

The following morning, I power washed the engine bay of the S70 and used a leaf blower to dry it. I needed to find the source of the leak; some guys dump a dye in the oil and use a UV light to source the leak. I chose to cut some cardboard and place pieces in various places around the engine figuring the oil soaked cardboard would lead me to the leak. I drove the S70 a few miles and returned to the barn/shop. (Shop is equipped with a rolling gantry 5 ton chain hoist; can anyone say engine swap?)

Inspection of the cardboard below the exhaust camshaft position sensor was oil soaked. I removed the sensor and pulled the oil seal. Close inspection showed the seal was cracked. A trip to the local NAPA store produced a replacement seal for a few bucks. I installed the seal and cam sensor, new piece of cardboard and another test drive. This time, each piece of cardboard was oil free. Two jobs down and three to go! I was feeling good.

Day three: Completed morning chores and made certain the critters were fed and watered. Mid morning I sat down to read the stack of service invoices from the local European auto care center regarding the XC70's leaking oil. It seems the oil leak commenced with a recent oil change. Euro care guys replaced oil filters and gaskets three times in an attempt to resolve the leak without success. I concluded this was a case of synchronicity in that the oil leak was not related to the oil and filter change.

Again, I power washed a thoroughly oil saturated engine bay and dried the engine. I couldn't use cardboard oil leak detection scheme as oil was leaking from every seal. So, I reasoned the engine at high RPM was pressurized; thus pushing oil past every seal. Emission constraints terminated the naturally aspirated engine designs where exhaust piston blow by was vented to the atmosphere. Now-a-days, engines operate under negative pressure (vacuum) and the blow by gasses are carried via hoses to a oil trap which condenses the oil vapor, returns liquid to the crankcase and the remaining gasses the intake manifold where they are consumed by the motor.

To test my hunch, I used a specialty \$100 test instrument. With the engine at idle, I removed the oil filler cap, then reached into my wallet to withdraw a \$100 bill. When placed over the oil filler opening, it should be sucked downward firmly against the opening. The bill fluttered which told me the oil trap was partially obstructed. I returned an oily \$100 bill to my wallet.

So you ask, what are the consequences of a partially obstructed oil trap? Well, at an idle the vacuum is sufficient so the engine does not build enough internal pressure to push oil past seals. However, at 1500-2500 RPM, the internal pressure builds enough to squirt oil past the seals and empty the crankcase of oil resulting in catastrophic engine failure.

Praise: I must thank Volvo engineers for having the foresight to including an engine oil level monitor in the design because the low oil level warning prompted my daughter to immediately add a quart of oil to the crankcase, thus saving the engine.

Securing access to the T6's oil trap is fairly easy. Just remove the engine cover and it's on top along the back of the engine. I removed the trap and pursing my lips, blew into the oil vapor inlet opening. Sure enough, it was partially obstructed.

I secured a replacement oil trap from an area Volvo dealer; and with my 10% VCOA discount paid \$245. Of course, I could have purchased one from Flea-Bay China direct for \$45, shipping included, but I'd wait a month for delivery. (If the Flea-Bay seller is making a profit at \$45, why am I paying \$245?)

Returning to the shop, the new oil trap was installed, and another test drive ensued. This time a drive to the local homemade ice cream parlor at a nearby organic dairy would suffice. No trail of oil on the pavement. One triple custard ice cream to celebrate. Three down, two to go.

Again, morning chores completed without incident. Checked the brake pads on the 2008 XC70 and they had 10%-15% remaining lining. Another trip to the parts store (O'Riley's) to secure brake pads. Half way out the door, the parts guy hollered, "It's got electric parking brakes! You'll need a Scan tool to reset the brake actuator." I cursed.

Back at the shop, I changed the front pads without incident. So, I was half finished. I directed my attention to the rear brake calipers. The pads were almost to the metal carrier. I couldn't let this go. So, I phoned the local garage, across from the tractor place in Monroe, and asked the fellow if he'd change the rear brake pads. He replied in the affirmative and then I advised of the presence of electric parking brakes; he said, "hell no. It is too much trouble."

Redirecting my attention to the rear brake caliper and the electric actuating motor, I reasoned I could remove the electric brake actuator motor, compress the brake piston, insert the new pads, and then reinstall the caliper and actuator. I conjectured the actuator ratchets in one direction to compensate for brake lining wear when activated, and then twists a tiny bit in the opposite direction to free the brake pads when the parking brake is released.

I removed the motor, two torx screws, compressed the pistons as usual, installed the new brake pads, and replaced the caliper followed by the parking brake actuator. After pumping up the brake pedal to secure a firm pedal, I cycled the parking brakes three times. The mechanism worked perfectly. No scan tool required. If you are a DYler, and choose to use this method, which likely works on other European vehicles, keep the actuator opening clean and be certain to apply a film of Vaseline to the actuator O-ring before installation. If the O-ring is compromised, water will enter the actuator, it will fail and the caliper assembly must be replaced at considerable expense.

Next, I directed my attention to the serpentine belt from Hades. The belt on the T6 motor is located at the rear between the motor and transmission. That's not so bad, but appliances (pumps and alternator) are driven from both sides of the belt which means the belt cannot be removed without removing a bunch of accessories.

Who at Volvo thought this was a good idea? I so wanted 10 minutes alone with the Volvo engineering team that authorized this illogical remove/replace service design. Absolute insanity, I said to myself, "I'm getting too old for this nonsense." Reluctantly, I placed another call to the garage in Monroe to inquire whether Brandon would replace the serpentine belt, tensioner and pulleys on the 6 cylinder XC70. I received the standard answer, "nope, too much trouble. And good luck with that."

Since the serpentine belt was in good condition, I figured the swap could wait until the next family vacation.

Rant: its designs like this that makes routine service costs unnecessarily stratospheric to the consumer! The service tech's daily mantra is, "thank God Volvo owners are wealthy." Who else can pay for this kind of design arrogance? I've concluded that car manufacturers design for a 125K mile useful life. Therefore, vehicles are not engineered for quick maintenance and repair because owners are expected to discard the car after 100K-125K miles and replace it with a NEW one. In their mind, a vehicle has to last just that long. Under the current paradigm, the owner who cares for their "investment" will pay through the nose. Manufacturers must realize the cost of routine service must be modest; otherwise consumers will turn to other brands. They cannot just sell "safety," it has to be reliable and cost effective to maintain and repair.

I see so many Volvos in the salvage yard with no body damage and otherwise in pristine condition; owners have just given up paying expensive maintenance charges, they just junk it.

Considering the resources consumed to manufacture a luxury vehicle, you'd think the standard useful vehicle life would be 250K-300K miles following modestly priced service and maintenance programs.

Years ago, I read in the WSJ that 80% of the BMWs leaving the showroom are leased; 30% of new cars are leased. [US News and World Reports 9-27-2018]. The reason being; don't own it, just rent the car and the illusion of prosperity for 4 years and dump it. Such consumer behavior keeps the scrap yards full of parts cars and the practice wastes limited natural and manufacturing resources. Buying "payments" keeps consumers poor and perpetually in debt.

Oh, well; I'm not in charge. I just make reasoned observations, such as; leasing does not result in pride of ownership nor brand loyalty. Leasing is not an investment; but buying an off-lease vehicle is a great deal for people who have the financial ability to own.

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Prologue: this morning, I received the following email

*[I] Have a Volvo S40, yr 2000, original owner since ordering new in Japan Dec of 99. It has 89k miles. We know every noise and squeak on the car. Having some problems, mechanics local (non-Volvo) believe it's the transmission. Could be, I think it's the 1/2 shafts or both. Too bad we have to get rid of it; we had a great mechanic in Escondido, Ca. Could there be anyone in your Chapter who might be interested in the car? Or could help point us to a good mechanic? We would prefer to let it go real cheap rather than go straight to the crusher. **It appears to be a typical Volvo, body has held up real well, but you have to have a good mechanic [and lots of money] to keep it going.***

Enough said!