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Volvo Cars of North America, LLC

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November 25, 2008

EDIR – VERR Coordinator
Certification and Compliance Division
U.S. Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, MI 48105

EPA # 3627

Subject: EDIR 07007D01B

Dear Emissions Defect Information Report Coordinator,

In accordance with the requirements of 40 CFR 86.1903, Volvo Cars of North America hereby submits Emission Defect Information Report No. 07007D01B. EDIR 07007D01B supersedes EDIR 07007D01A dated 2008-10-15.

Encl.: EDIR 07007D01B, 3 pages



EPA # 3627

Volvo Cars of North America
Emission Defect Information Report
EDIR No. 07007D01B
(Supersedes 07007D01A 2008-10-15)

November 25, 2008

1. Manufacturer's Corporate Name: Volvo Cars of North America, LLC

2. Description of Defect

Component Name: PCV Oil Trap Diaphragm and Crankcase Ventilation Hose

The oil trap diaphragm regulates crankcase pressure and mediates the flow of crankcase vapors into the engine air intake system. The crankcase ventilation hose provides a return path to the PCV system, via the crankcase PCV oil trap, for vapor from under the valve cover. The oil trap diaphragm membrane (certain MY04-08 vehicles) and crankcase ventilation hose (certain MY05-08 vehicles) materials may degrade and crack after long-term exposure to the crankcase environment.

3. Affected Test Group and Models

- 3.1 Test Group: 4VVXV2.43U2N
Model Year: 2004
Models Involved: S40 2.4i
Engine Description: B5244S4 (38) 2.44L 5-cylinder, OHV, DOHC, 20-valve naturally aspirated engine with OBDII, Denso engine management, SFI, HO2S, and TWC
- 3.2 Test Group: 4VVXV2.52U2T
Model Year: 2004
Models Involved: S40 T5
Engine Description: B5254T3 (68) 2.52L, 5-cylinder, OHV, DOHC, 20-valve turbocharged engine with OBDII, Bosch ME7 Engine Management, SFI, HO2S, TWC, turbocharger (TC), and charge air cooler (CAC)
- 3.3 Test Group: 5VVXV02.4S2N
Model Year: 2005
Models Involved: S40 2.4i, V50 2.4i
Engine Description: B5244S7 (39) 2.44L, 5-cylinder, OHV, DOHC, 20-valve naturally aspirated engine with OBDII, Denso Engine Management, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS) and TWC
- 3.4 Test Group: 5VVXV02.4U2N
Model Year: 2005
Models Involved: S40 2.4i, V50 2.4i
Engine Description: B5244S4 (38) 2.44L, 5-Cylinders, OHV, DOHC, 20-valve naturally aspirated engine with OBDII, Denso Engine Management, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS) and TWC.
- 3.5 Test Group: 5VVXX02.5U2T
Model Year: 2005
Models Involved: S40 T5, S40 T5 AWD, V50 T5, V50 T5 AWD
Engine Description: B5254T3 (68) – 2.52L, 5-Cylinder, OHV, DOHC, 20-valve turbocharged engine with OBDII, Bosch ME9, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS), TWC, Turbocharger (TC), and Charge Air Cooler (CAC).



- 3.6 Test Group: 6VVB02.5U2T
Model Year: 2006
Models Involved: C70 T5, S40 T5, S40 T5 AWD, V50 T5, V50 T5 AWD
Engine Description: B5254T3 (68) – 2.52L, 5-Cylinder, OHV, DOHC, 20-valve turbocharged engine with OBDII, Bosch ME9, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS), TWC, Turbocharger (TC), and Charge Air Cooler (CAC).
- 3.7 Test Group: 6VXV02.4S2N
Model Year: 2006
Models Involved: S40 2.4i, V50 2.4i
Engine Description: B5244S7 (39) 2.44L, 5-cylinder, OHV, DOHC, 20-valve naturally aspirated engine with OBDII, Denso Engine Management, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS) and TWC.
- 3.8 Test Group: 7VXV02.4S2N
Model Year: 2007
Models Involved: S40 2.4i, V50 2.4i
Engine Description: B5244S7 (39) 2.44L, 5-cylinder, OHV, DOHC, 20-valve naturally aspirated engine with OBDII, Denso Engine Management, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS) and TWC.
- 3.9 Test Group: 8VXV02.4S2N
Model Year: 2008
Models Involved: S40 2.4i, V50 2.4i
Engine Description: B5244S7 (39) 2.44L, 5-cylinder, OHV, DOHC, 20-valve naturally aspirated engine with OBDII, Denso Engine Management, SFI, HO2S, Heated Air-Fuel Sensors (HA/FS) and TWC.

4. Affected Vehicle Population by Test Group

4.1 Sales volumes are from Volvo's warranty records.

Test Group	US Sales
4VXV2.43U2N	7,414
4VXV2.52U2T	3,698
5VXV02.4S2N	4,745
5VXV02.4U2N	16,026
5VXX02.5U2T	11,473
6VVB02.5U2T	9,292
6VXV02.4S2N	5,623
7VXV02.4S2N	4,796
8VXV02.4S2N	1,907

4.2 Assembly plants producing the potentially affected vehicles are:

Volvo Cars Europe Industry
J. F. Kennedylaan 25
B-9000 Ghent
Belgium



5. Description of Failure Impact

No impact on drivability. The Check Engine (MIL) light may illuminate with DTC ECM-250A (P0171) (N/A engines) or 262A (P0171) and/or 261A (P1171) (MY04 Turbo engine) or 21CC (P2187) and/or 21AC (P2177) (MY05-> Turbo engines) (long-term fuel trim) and there may be unexpected noise coming from the engine.

6. Available Emissions Data

For model year 2004 there is no impact on evaporative emissions. For affected MY05-08 vehicles certified to PZEV standards, worst case scenario crankcase emissions, with 100% disconnected crankcase ventilation hose, were 532 mg/test in a 2-day test. These results exceed CARB allowable 2-day test levels [0.35 g/test (cert + low & high mileage in-use test)].

For affected MY05-08 vehicles certified to LEV II standards, worst case scenario crankcase emissions, with 100% disconnected crankcase ventilation hose, were 68 mg/test in a 2d test. These results do not exceed CARB allowable 2-day test levels for model year 2006 and earlier [1.14 g/test (cert + low & high mileage in-use test, including phase-in factor of 1.75)]

Volvo considered and tested a disconnected crankcase ventilation hose as worst-case, 100% crack (leakage). Technical material analysis confirms there is variation, but average cracks (leakage) are between 30 and 50% at time of diagnosis and repair. This lower percentage reduces the PCV evaporative emission contribution to a correspondingly smaller figure.

7. Anticipated Manufacturer Follow-up

For affected MY05-08 vehicles certified to PZEV standards, Volvo voluntarily decided to perform Voluntary Emission Recall 202 to upgrade the concerned cars with an improved oil trap and crankcase ventilation hose. Beginning on November 6, Volvo began mailing customers to inform them of their eligibility under this emission recall program. Volvo has marked all eligible vehicles in the warranty system.

For affected MY04-08 vehicles certified to LEV II standards, Volvo has voluntarily decided to offer Extended Warranty 205 to extend the vehicle emission warranty to 10 years or 120,000 miles, whichever comes first, to provide, at no cost to the customer, based upon valid customer complaint, an improved oil trap and crankcase ventilation hose. Covered customers who have already paid to have their cars repaired due to this condition within the extended warranty period may be eligible for a refund.

Volvo will conduct a mailing to inform customers of their eligibility under this extended warranty program and mark vehicles in the warranty system to indicate eligibility.