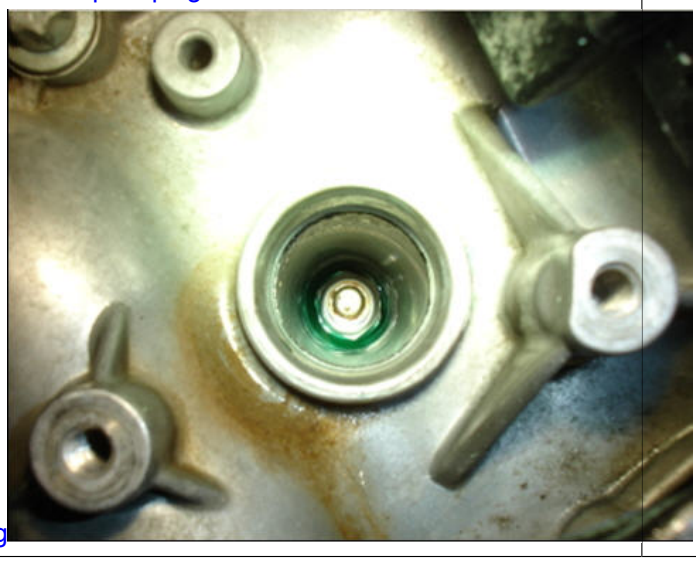
Coolant loss

Topic number	LI01.40-P-048649
Version	1
Function group	01.40 - Crankcase, timing case cover, end cover
Date	10/14/10
Validity	Engine 273 with 5.5 liters displacement in models 164, 209, 211, 216, 219, 221, 230, 251, 463 Engines with engine end numbers higher than 2739xx30270007 are not affected by this problem.
Reason for change	Cleanpoint added under Validity / Supersedes DTB S-B-01.40/25a

Complaint

Engine has coolant loss with engine end numbers up to 2739xx3 0270007 (approximately June 2008 production).
Approx. 0.5 – 2 liters coolant loss per 1000 km (about 750 miles).

Attachments	
File	Description
Coolant in spark plug reces-  s.jpg	Coolant in spark plug recess

Cause

Engine has internal coolant loss.

If cylinder liners are poorly connected, coolant can pass through the valve cooling bore between the cylinders into the not pressurized oil galley in the cylinder crankcase.

Note:

The cause of the coolant loss must be absolutely determined. Slow external leaks might occur as well as internal leaks, not related to the casting flaw. Considerable amount of coolant in the oil pan would not indicate the casting issue. Dealers might be debited when performing incorrect repairs.

Remedy

Checks to be performed:

- Check for external coolant leakage (check for leaks at heater core as well)
- Check spark plug holes for cracks
- Fill coolant up to maximum level and determine the quantity consumed at the next workshop visit by topping up again
- Pressurize coolant circuit at operating temperature while inspecting the combustion chambers with a light probe or pressurize coolant circuit over night and observe pressure drop the next morning.

If these checks fail to reveal the cause of the coolant loss, then there is internal coolant loss via the valve cooling bores.

This is repaired by gluing metal sleeves into the valve cooling bores in the cylinder crankcase.

Follow procedure described below and refer to attached illustrations:

- Remove left and right cylinder heads (refer to WIS document in group 01).
- Clean the coolant passages in the crankcase with compressed air and pipe cleaner (make sure there no obstruction in the coolant passage - metal sleeves to be inserted must go all the way into the 3 mm coolant passage). Apply some Loctite with a new pipe cleaner into the 3 mm coolant passages (on the intake side) all the way down.

Note:

Coolant passages must be dry and free of any grease or oil. Metal sleeves must be dry and free of any grease or oil.

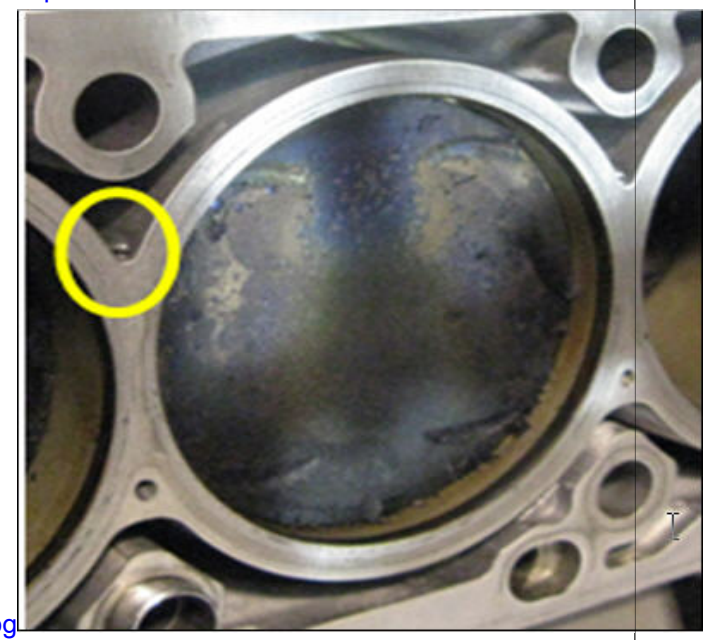
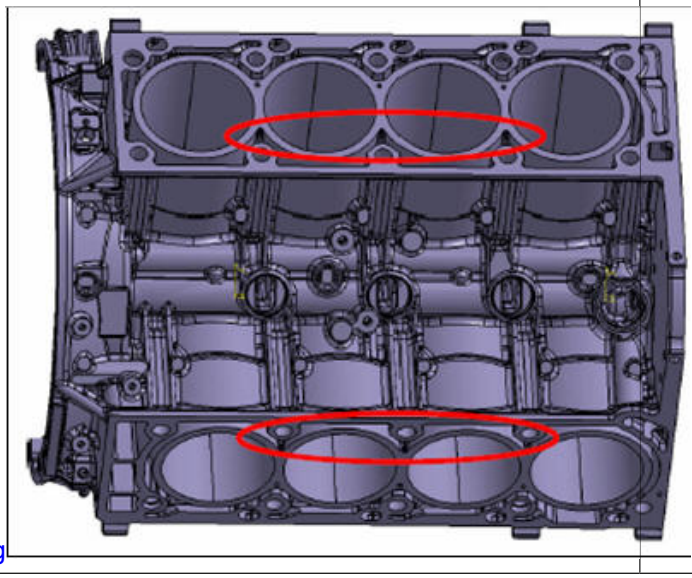
- Place one sleeve on a punch and apply Loctite 290 slightly on the whole surface.
- Insert the sleeve on the punch into the 3 mm coolant passage in the crankcase as shown in the illustration (metal sleeve must be flush with the coolant passage opening on the crankcase intake side).
- Fill the other side (4 mm) of the coolant passage (exhaust side) with Loctite nearly to the top. (Sleeves are only necessary for passages on the intake side - 3 mm opening of each cylinder bank.)
- Cover the 4 mm coolant passage opening (exhaust side) with a clean cloth. Remove the excess of Loctite applied after 2 hours by carefully blowing compressed air through the 3 mm side (intake side with the inserted sleeve) coolant passage opening. There is no concern that too much applied Loctite hardens in the coolant passage.

Note:

Read and follow Loctite product label information and warnings.

Attachments

File	Description
cleaning coolant passage.jpg 	cleaning coolant passage

Coolant passa-  ge.jpg	Coolant passage
Coolant passage-  s.jpg	Coolant passages

inserting metal slee-  ve.jpg	inserting metal sleeve

Symptoms
Power generation > Engine cooling system > Function > Coolant level too low
Power generation > Engine cooling system > Display message > Coolant - Serviced Required
Power generation > Engine cooling system > Leakage > Has coolant loss

Parts

Part number	ES1	ES2	Designation	Quantity	Note	EPC
A001 992 10 50			Metal Sleeve	6		X
A007 989 79 71 09			Loctite 290 *	1	* Sufficient for 5 cars, Submit as Qty. 0.2 on warranty claim	X

Operation numbers/damage codes

Op. no.	Operation text	Time	Damage code	Note
			0100112	