#88-657-109: LOSS OF ENGINE COOLANT DIAGNOSIS AND REPAIR DESCRIBED - (May 23, 1988)

VEHICLES AFFECTED: 1987-88 VEHICLES EQUIPPED WITH 5.0L AND 5.7L ENGINES (PASSENGER CAR VIN E, F, G, H, 6, 8) OR (TRUCK VIN H, K, M)

Some 1987 and early 1988 vehicles equipped with 5.0L and 5.7L engines may experience loss of coolant which cannot be explained by external coolant leaks.

Service Procedure

A careful inspection should be made for signs of external coolant leakage. All hose connections, the water pump weep hole, the mating areas between the cylinder head and the block, and any other areas where an external leak can occur should be included in this inspection. When inspecting the cylinder head to block mating area, particular attention should be given to the outboard rear corner on the left cylinder head.

In addition to the absence of signs of external leakage, internal coolant leakage can usually be confirmed by inspection of the oil on the dipstick for signs of coolant contamination (turning the oil milky, opaque and lighter brown) or inspection of the underside of the oil filler cap for a creamy light brown residue.

If an internal leak is still suspected, a system pressure check should be performed.

If leakdown in pressure is experienced and no signs of external leakage have been found, the intake manifold side gaskets are the most likely suspected cause and should be replaced and the underside of the intake manifold inspected for porosity. As an added precaution, during intake manifold gasket replacement, the lifter galley walls should be inspected for cracks. (See Inspection Procedure).

If no leakdown in pressure is experienced, the lifter galley walls are suspect and should be inspected for signs of cracks or evidence of coolant leakage.

Inspection Procedure

Inspection can be accomplished in two manners. The first method involves removal of the intake manifold and direct visual inspection of the walls of the galley. Particular attention should be given to the areas of the galley within the first few inches below the deck (as Illustrated). A casting parting line may also be evident in this area and should not be mistaken for a crack. If an area looks suspect, cracks can be more positively identified by use of a commercially available penetrant dye such as magnaflux "spotcheck".

An alternate inspection procedure, effective in many cases, involves removal of the valve covers and inspection of the galley walls by shining a flashlight through the holes in the cylinder head into the qalley area and looking for a small buildup of greenish-brown deposits along the face of the wall. A typical crack (and therefore line of deposits) might be two or more inches in length and run approximately parallel to the deck. If no deposit line is evident, but indications of the presence of coolant in the galley area or a light brown creamy residue on the underside of the valve cover is seen during this inspection, the intake manifold gaskets should be replaced and the walls of the galley should be thoroughly inspected for cracks with the intake manifold removed. In addition, the underside of the intake manifold should be inspected for signs of porosity.

On vehicles equipped with non-roller lifters, if a crack is found in the galley wall and/or there is evidence of coolant contamination of the oil (as previously described) , the lifter feet and camshaft lobes should be inspected for signs of distress and replaced as necessary. Distress can be identified on the cam by one or more worn lobes with an even wear pattern across the face of the lobe. Distress can be identified on the lifter feet by a less smooth (scratchy, non-reflective) surface finish.

Cam or lifter damage due to coolant contamination of the oil is unlikely to occur on vehicles equipped with roller lifters because of the ability of the roller lifters and steel cam to withstand greater stress levels.

After an internal coolant leak is repaired, the oil and oil filter should be replaced.

Figure 1

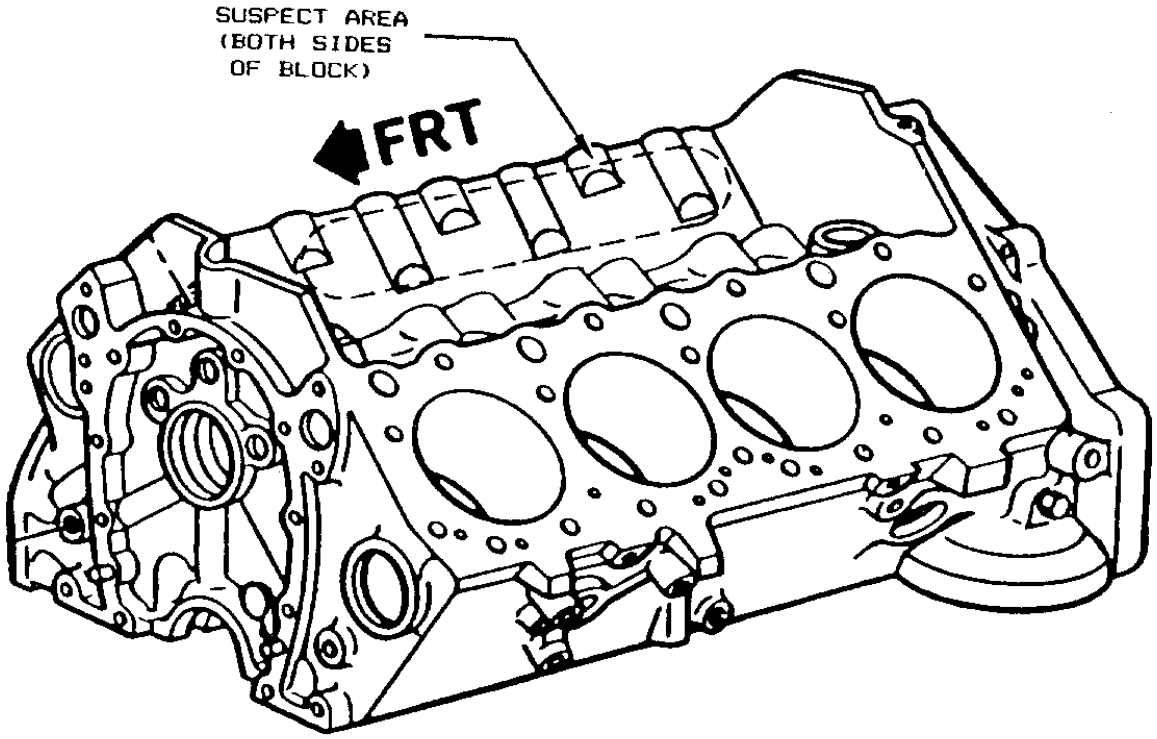

FIGURE 1

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