



Tech Tip

OIL FILTERS 180

CHRYSLER'S 3.6L PENTASTAR ENGINE With Oil Filter Housing Leakage

Imagine changing the oil and filter on a customer's vehicle and a few days later they return with a repair bill totaling several hundred dollars for a new oil filter housing to correct an oil leakage problem. You were the last person to service the vehicle and they are holding your shop responsible. The vehicle in question was a 2014 Jeep Wrangler with a V6-3.6L Pentastar engine. Chrysler, Dodge, Jeep and Ram trucks with the 3.6L engine are susceptible to the same. Some vehicle owners have been told that aftermarket oil filters would damage the oil filter housing and others advised that over-tightening the oil filter cap would crack the housing, promoting leakage. We agree that over-tightening the oil filter cap could damage the housing and each shop owner/service manager must caution his lube techs not to over-tighten the filter caps. With the assistance of a factory service bulletin, the 2014 Jeep was covered under warranty. If you encounter a 2014 application with the 3.6L Pentastar engine with an oil filter housing leakage condition, obtain a copy of Chrysler Service Bulletin #09-008-15, which identifies numerous 2014 Chrysler vehicles with the mentioned 3.6L engine and oil filter housing leakage concerns. Chrysler does not offer any explanation other than certain production vehicles are susceptible to leakage and those applications are being covered under warranty. We attempted to purchase the oil filter housing, only to determine it was currently on backorder with Chrysler. That means a lot of housings are being replaced.

OIL FILTER HOUSING/COOLER

Examining the oil filter housing assembly and considering its location makes it obvious that leakage could easily occur. The plastic oil filter housing and cooler assembly is positioned

beneath the intake manifold between the cylinders (see illustration 1), which is often referred to as the valley of the engine block. This area may hold a quart of oil before displaying any signs of leakage. This can result in the technician missing an oil leak condition following his lube service leak check inspection.

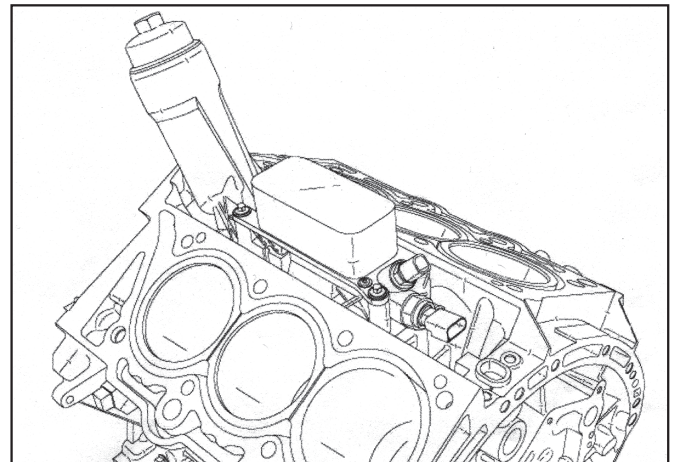


ILLUSTRATION 1

OIL AND COOLANT FLOW THROUGH HOUSING

The engine oil pump supplies oil to the oil filter housing inlet (1) to the oil filter element located within the housing (see illustration 2). The oil is filtered and then travels internally through the oil cooler and then to the main oil gallery (5). The oil filter by-pass is built into the housing and is not serviceable. Removing the oil filter cap from the housing allows oil to drain from the oil filter cavity into the crankcase (2).

Coolant flows from the right cylinder block water jacket (3) and from the left cylinder block water jacket (4) into the housing. The coolant flows through the oil cooler and exits the housing from

the rear hose nipple (6) and is returned to the water pump. A coolant by-pass in the housing is designed to direct excessive coolant flow around the oil cooler for continuous circulation (Illustration and description courtesy of Alldata). A lot of oil and coolant pass through the housing and O-rings. Any disturbance of the O-rings or a cracked housing can promote leakage.

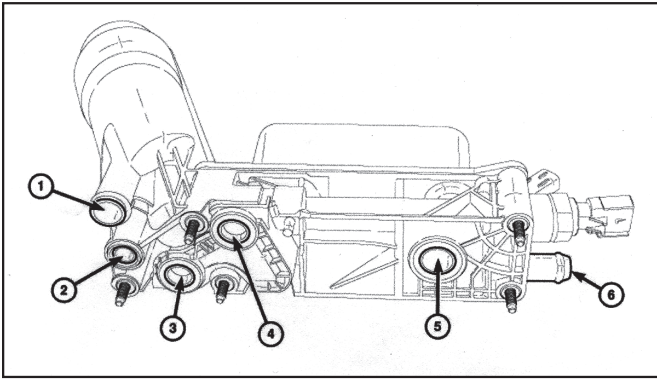


ILLUSTRATION 2

TORQUEING THE OIL FILTER CAP

While there has been no documentation that overtightening the oil filter cap has resulted in the damage to the filter housings illustrated in this writing, it is of major concern. The cap is stamped with a torque spec of 25 Nm (18 ft. lbs.). Overtightening the filter cap can result in damage to the oil filter/cooler housing in the form of cracks, or disturbing the housing O-rings, promoting leakage. This simple tightening procedure may save hundreds of dollars in unnecessary repairs.

We have seen a lot of caps cracked from overtightening and these conditions have most likely taken a few housings with them in the process. While this writing is focused on 2014 applications, other year model vehicles with this same oil filter/cooler arrangement are subject to the same.

OIL POOLING IN ENGINE VALLEY

We recommend checking for oil pooling beneath the intake (engine valley) on any application fitted with the same oil filter/cooler arrangement prior to performing a lube service. This simple

procedure can save you a lot of frustration and may prevent you from having to absorb some unnecessary parts and labor costs that were not of your making.

To check for oil pooling in the engine valley... fabricate a dipstick (a wood stick will better display the presence of oil and the depth) and insert the stick next to the oil filter housing and allow it to bottom out in the engine valley (see illustration 3). If oil is pooling in this area, the oil filter/cooler housing will most likely require replacement. A small amount of oil (wetness) on the tip of the fabricated dipstick may be the result of spillage when changing the oil filter and should be no cause of concern.

The presence of oil pooling in this area calls for an immediate discussion with the vehicle owner prior to performing a lube service. If the customer is not receptive to having the housing replaced, make certain you document your recommendation on the repair order and retain a copy for your records. We have read reports of vehicles encountering fires due to oil leakage from the oil filter housing.

Checking for leakage prior to performing a lube service on one of the mentioned vehicles just makes good business sense.

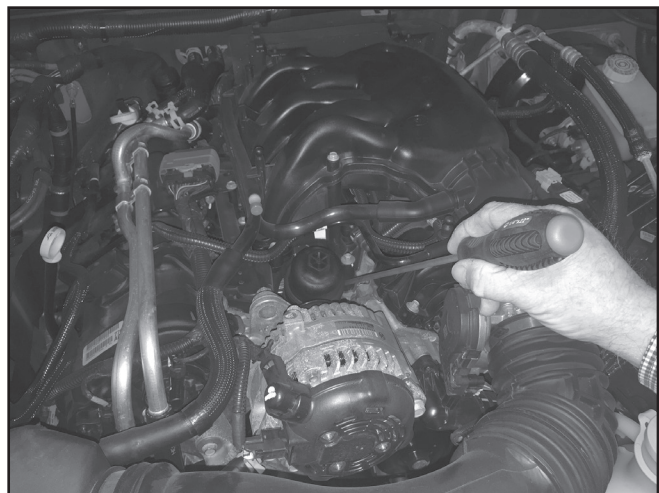


ILLUSTRATION 3

LARRY HAMMER, Technical Services
Mighty Distributing System of America



MIGHTY: THE PMPROS

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