



TECH TIP

LUBE SERVICE 205

SERVICE SOLUTIONS

Challenges for the Lube Service Technician

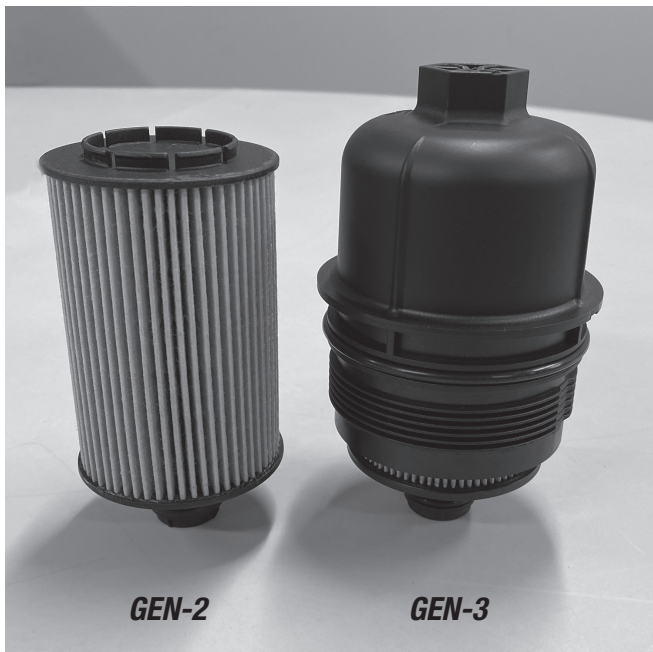
DODGE AND JEEP OIL FILTER IDENTIFICATION

Precaution must be taken when selecting the correct oil filter for the 3.0L Turbo Diesel engines used in the following applications to prevent engine damage. The vehicle manufacturer cautions about the design differences in the GEN-2 and GEN-3 oil filter cartridges used in 3.0L diesel engines and the importance of selecting the correct filter for the application.

- 2020 (DT) RAM 1500 Pickup
- 2020 (JL) Jeep Wrangler
- 2014-2019 (DS) RAM 1500 Pickup
- 2014-2019 (WK) Jeep Grand Cherokee

The filters GEN-2 and GEN-3 are different in design and installing the incorrect filter can result in premature engine failure.

The DT and JL vehicles (see above code) require the GEN-3 style filter, while the DS and WK vehicles require the GEN-2 style filter (see filter illustrations).



Vehicles equipped with the GEN-3 3.0L engine may encounter an illuminated Malfunction Indicator Lamp (MIL) if the oil filter cap is not tightened to 18 ft. pounds (221 inch pounds). Trouble code P0524 may also be stored in memory on the DT and JL vehicles due to an improperly tightened cap.

The GEN-3 design filter is designed to be replaced as an assembly. Do not remove the filter from the cap, as damage to the filter or cap can result in engine damage.

FILTER EFFICIENCY AND BYPASS SETTINGS

The vehicle manufacturers offer warnings that engine damage can occur due to an incorrect or improperly installed oil filter. The warnings are not intended to discourage the use of aftermarket oil filters, but instead to impress that the correct oil filter for the application should be installed on the engine. For example, GM cautions that current production engines have precision clearances and technologies that require different oil filtration needs than those engines produced in the past. The bearing clearances are tighter and the replacement of lead overlay with aluminum overlay bearings has put an increased significance on proper oil filtration, which is affected by media surface area and filtration efficiency.

Make certain the oil filter selection is not based on physical dimensions alone and instead is based on the correct application data. Know and trust your filter supplier to provide the correct filtration for the application, as catastrophic engine damage can result. New technologies, tighter tolerances, two stage oil pumps and high flow lubrication system requirements result in higher pressure differentials across the filter media, requiring a higher bypass valve setting. A bypass setting lower than that required for the application results in unfiltered oil flowing through the engine, resulting in premature bearing and component failure.

Some engine applications utilize oil pumps that regulate main gallery feedback instead of pump out pressure. With this system the oil pump does not begin to regulate until pressure is built up in the main gallery. This method reduces the amount of time it takes to provide oil to the bearings and valve lifters during cold start conditions. These applications require a filter with a higher bypass setting to prevent unfiltered oil from flowing through the engine during those starting conditions. For example: A filter with a 15psi bypass rating will result in unfiltered oil flowing through the engine during a cold start condition. On these applications a bypass valve rated at 22-25psi is required.

The oil filter must have the correct bypass setting for the application, element integrity, filtration performance, the required media particle trap specification and burst strength of the canister.

CHRYSLER 3.6L PENTASTAR OIL FILL LEVEL UPGRADE

Chrysler Service Bulletin 04-001-21 recommends rechecking the oil fill level after filling the engine to the correct specification. The notice involves the following vehicles:

2021	(WL)	Jeep Grand Cherokee
2016-2021	(WK)	Jeep Grand Cherokee
2016-2021	(WD)	Dodge Durango
2017-2021	(RU)	Chrysler Pacifica
2019-2021	(DT)	RAM 1500 Pickup
2018-2021	(JL)	Jeep Wrangler
2020-2021	(JT)	Jeep Gladiator

The information contained in the Service Bulletin applies to the aforementioned vehicles equipped with the 3.6L Pentastar engine. The complaints involve an overfill on the dipstick following an oil change. Some applications require a 5-quart fill capacity, while select applications have a 6-quart capacity oil pan.

The Pentastar Upgrade engine has a slower oil drainback rate. After filling the engine to the correct oil recommendation posted in the capacity specifications guide, the oil level may reflect a low oil level on the dipstick due to the slower drainback rate. Crankcase overfilling can occur if sufficient time is not allowed for

the oil to completely drain back into the oil pan. DO NOT overfill the engine.

The 3.6L Pentastar Upgrade engine can be identified by an EGR cooler mounted to one of the cylinder heads and a Variable Valve Lift solenoid on the front of each valve cover.

Make certain the engine oil level is filled according to the oil capacity specification required for the specific application. Allow sufficient drainback time and verify the oil level is correct prior to releasing the vehicle.

DIAGNOSING GM ENGINE VIBRATIONS

Imagine performing a lube service on a vehicle and the customer encountering an engine vibration. The symptoms may occur while the vehicle is stationary or accelerating from a stop.

Case in point: Several hours of diagnostic time proved futile in isolating the cause of the vibration. Later, it was determined that the symptoms occurred following a lube service. The crankcase had been overfilled when performing the lube service.

Make certain the crankcase is filled according to the vehicle manufacturer's recommendation and follow any details concerning checking the oil level, such as drainback intervals, etc. Also, an overfill due to coolant in the oil or fuel contaminated oil can result in the same.

GM has documented engine vibration conditions due to crankcase overfill in TSB PIP5503B. The information contained involves numerous applications fitted with the following engines ranging from production dates 2014-2020...4.3L LV1, 4.3L LV3, 5.3L L82, 5.3L L83, 5.3L L84, 6.2L L86, 6.2L L87 and 6.2L LT4.

Summary: The lube service technician has the responsibility to ensure the correct filter, oil viscosity and the correct volume of lubricant is installed when performing the lube service. Failing to follow those recommendations can result in a catastrophic engine failure and costly repairs that the shop may be responsible for. Stay off the cell phone when performing a service and always check for leaks prior to releasing the vehicle.

LARRY HAMMER, Technical Services
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