

Engine Oil Leakage *Troubleshooting Leakage Complaints*

For a lube shop, nothing is more frustrating than having a customer return with an oil leakage symptom. The sight of oil on a carport floor or driveway and the stench of oil on a hot engine is enough to elevate any customer's blood pressure.

Where do you start with the leakage complaint? Assuming you have just performed a lube service, do you just tighten or install a new filter and send the customer on their way? If you are lucky that may be the solution. If not, they will be back and more frustrated about having to return with the same symptom. Failure to accurately diagnose the cause of the leakage and having the customer return with the same complaint may result in a lost customer, accompanied by some negative publicity.

A Methodical Diagnosis

Pinpointing and repairing the problem should be the top priority, rather than throwing parts at the symptom and having the customer return with the same complaint. The biggest concern should be the potential for engine damage due to loss of lubrication.

Where do you start with a leakage complaint?

- 1) The first step in the diagnostic process should be a thorough clean-up to accurately determine the source of the leakage.
- 2) Does the filter canister display signs of leakage, damage or distortion due to excessive pressure?
- 3) Is there gasket material protruding from the filter due to overpressurization?
- 4) When removed for inspection, does the gasket material reflect signs of tears or splits, often due to a dry installation?

Oil Cooler Leakage

If the vehicle is equipped with an oil cooler, it should receive a thorough inspection, as they are often the source

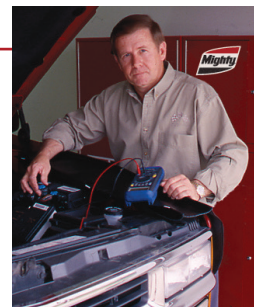
of the leakage, instead of the filter. Areas of concern:

- 1) The gasket that seals the cooler to the engine is often the source of the leakage.
- 2) Examine the oil filter side of the cooler for evidence of deformation, which can prevent the oil filter gasket from properly sealing against the cooler, promoting leakage.
- 3) Distortion or damage to the oil filter side of the cooler can result in a split or torn gasket.
- 4) Unlike the engine block, which has a machined surface, the cooler is a stamped piece of metal. Imperfections in the sealing surface can result in filter leakage.
- 5) Overtightening the cooler connector bolt/standpipe can damage or distort the cooler, promoting leakage. If the bolt/standpipe is not properly torqued, it can loosen during an oil filter change, especially if the oil filter was previously overtightened.
- 6) When oil coolers for a specific application become a popular purchase item on Amazon or eBay, that alone reflects a high failure rate.

Oil Pressure Control

Some engines are equipped with fixed displacement oil pumps, while others are equipped with variable displacement/two stage pumps equipped with a solenoid controlled by the powertrain control module. A stuck pressure regulating valve or solenoid in the oil pump will result in either a no oil pressure condition or excessive oil pressure, resulting in leaks or filter damage. Crankshaft driven oil pumps that encounter an unregulated event can result in pressures exceeding 700 psi. At this pressure, gaskets blow, and filter canisters become distorted or propelled from their mounting.

Pinpointing the source of the leakage requires a methodical diagnosis.



By Larry Hammer
Technical Services



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GET THE TRUE MEANING OF
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