

The Harley-Davidson Motor Company logo, featuring the word "MOTOR" in a shield, "HARLEY-DAVIDSON" in a rectangular box, and "COMPANY" in a shield, with a registered trademark symbol (®) to the right.

2020-03-26

Refer to Table 1.

Date	Revision Description
2020-03-26	Sealant removal and typo issue
	* Updated Outside Diameter, Required Dealer Action
2020-03-25	Initial release

To inform dealers on how to diagnose leaking seals or gaskets. This can sometimes be difficult, unless oil is obviously pouring out of the seal. Usually, a seal will weep or leak at a very slow rate.

Any vehicle with seals or gaskets.

All markets are affected.

Seals do not simply fail. If a seal is leaking on a new or relatively new motorcycle, chances are good that another issue caused the seal to fail. Premature seal failure is usually due to damage to the seal lip or an issue with the bore the seal is installed in. Over time, seals can also wear or deteriorate due to environmental effects. Seal technology has improved throughout the years with new and better materials and a better understanding of surface finishes required for specific applications.

Always examine the seals internal and external mating surfaces carefully when making repairs.

Avoid making unnecessary repairs. With an unnecessary repair, there are risks of cosmetic damage, introducing debris, re-introducing assembly lube and/or misassembly, which does not justify the unnecessary service.

There are two basic types of seal leaks:

- Leaks from the inside diameter past the lip.
- Leaks from the outside diameter between the seal and the bore it is mounted in.

The seal lip material is affected to a high degree by the surface finish over which the seal must slide. Mating surfaces that are too rough can be abrasive and create leak paths. These include burrs, tool marks or some other foreign matter on the surface the seal lip contacts. Examine the surface the seal lip contacts for any imperfections that could cut or wear the lip of the seal.

If a fork seal leaks between the seal lip and the fork tube, nicks caused by stones or dried insects are often the cause. Stones can cause small nicks on the tube surface which will quickly wear a seal or tear the lip. Dried insect carcasses are extremely sharp and can also damage a seal. Clean them off as soon as possible. If the issue is found to be stone nicks, the fork tube must be replaced or the nick repaired using a fine sharpening stone. Neither of these causes of seal failure are considered warranty items.

If the leak is found to be around the outside diameter of the seal, remove the seal and inspect the bore that it is pressed into. The surface finish of the bore can create a leak path and is difficult to diagnose. Tool marks from the boring operation could be present and not allow the surfaces to correctly seal. If the seal is not properly seated or oil is leaking from around the outside of the seal and there are no obvious surface defects, it is possible there is a surface finish issue. It may not always be a rough surface on the bore but a surface finish that is too smooth. In this case, coat the outside of the seal with crankcase sealant before installing the seal.

Some leaks are due to a gouge that was created in the surface of the bore when the seal was removed. If the leak is due to damage created during seal removal, the repair is more involved than this document can cover. Gouges and other marks caused during seal removal and installation usually require replacement of a housing and are not covered under warranty.

See Figure 2. By design all seals leak at a very low, controlled level. For example, dust will sometimes be seen at a seal interface over time. Unless fluid is running or dripping, this is acceptable. Otherwise the replaced seal is expected to perform comparably.

NOTE

In the interest of preserving customer safety and satisfaction, always check for outstanding recalls whenever any motorcycle is brought into your dealership for either maintenance or service.

[illegible]

Only replace a seal if confirmed to be running or dripping fluid.

Residual Assembly Lubricant

See Figure 1, Figure 2 or Figure 3. Powertrain components may be lubricated at assembly and in service. This is true of O-rings and seals, as well as some fastener threads. This is done for consistent, quality assembly. Though cleaned post-assembly, residual lubricant can appear at joints and valleys in the first operating cycles. Also, oil can drip and collect in a groove or gland in service. This can likewise migrate out later in operation, so understanding the source of the fluid is important. Such observations should be wiped away.

Required Dealer Action

To efficiently diagnose an oil leak the technician needs to confirm that the fluid is not residual from assembly or an earlier service repair by following these steps:

1. Using an aerosol cleaner, clean all the oil, dirt or other debris around the suspected area.

2. Add the fluorescent additive dye to the oil.

Special Tool: FLUORESCENT ADDITIVE (OIL)
(HD-28431-6A)

- a. Use the HD-35457 I-Sheet.

3. Warm engine up and take vehicle for normal test ride.

4. Using a black light, check for fluorescent glow around the suspected area.

Special Tool: BLACK LIGHT LEAK DETECTOR
(HD-35457)

- a. **Dye is visible:** Repair should be made.
- b. **Dye is not visible:** No leak present, do not repair.

NOTE

Harley-Davidson recommends documenting these conditions with photos.

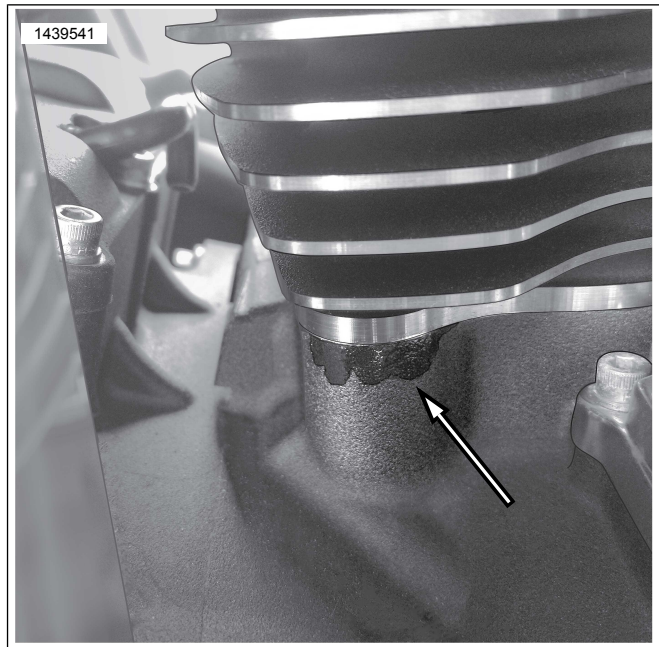


Figure 1.

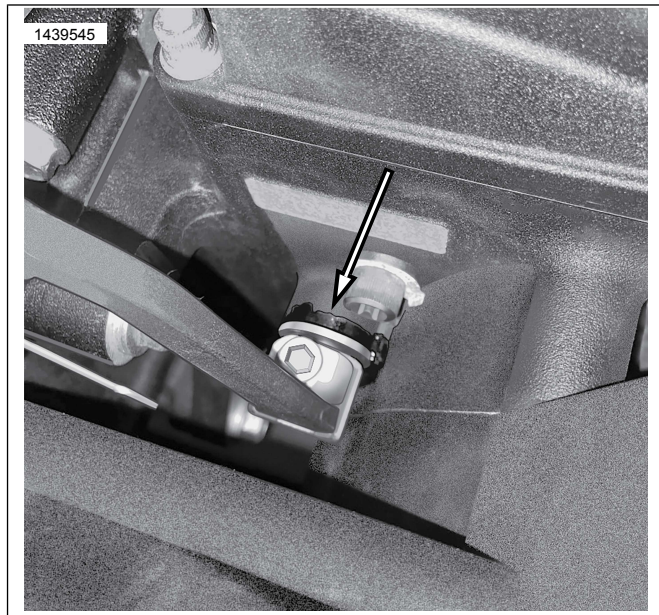


Figure 2.

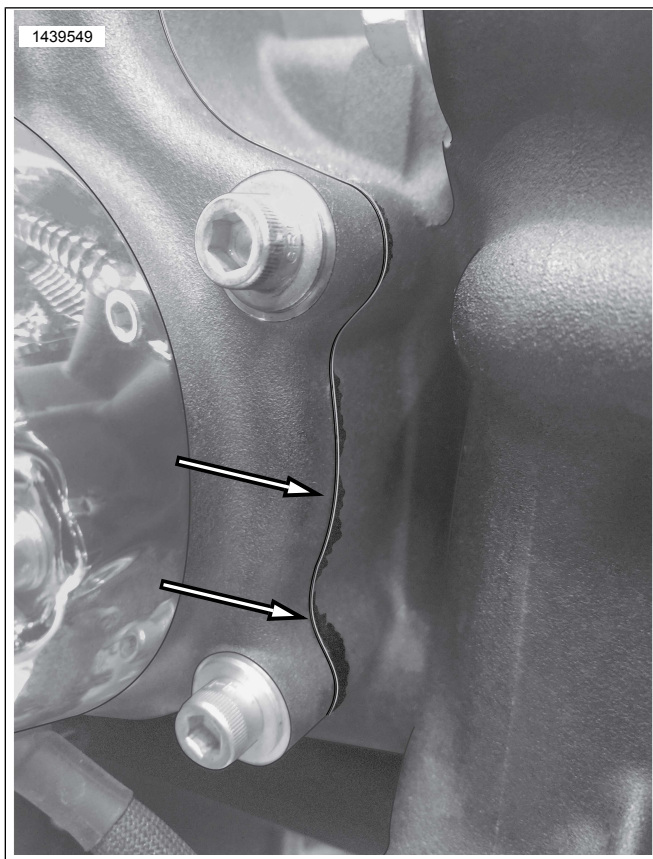


Figure 3.