

Service Bulletin #31
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S&S Service Bulletin #31 Big Twin-Style Oil Pump Installation

S&S recommends the following installation procedure to insure correct oil pump operation. Consult S&S Oil Pump Instructions #00-6250 or Harley-Davidson service manual for additional information as needed.

1. Confirm that adequate clearance exists between oil pump body and crankcase by temporarily installing pump assembly on crankcase and inspecting areas indicated in photo. **See Picture 1.** It may be necessary to remove a small amount of material from oil pump body to obtain correct fit. **See Picture 2.**

NOTE - Remove minimum amount of material required for proper positioning of oil pump on crankcase. Avoid damaging gasket surface if pump body requires modification. After modification, clean pump body thoroughly with suitable parts cleaner solvent and compressed air to remove metal filings generated during procedure. Remove all traces of solvent prior to installation.

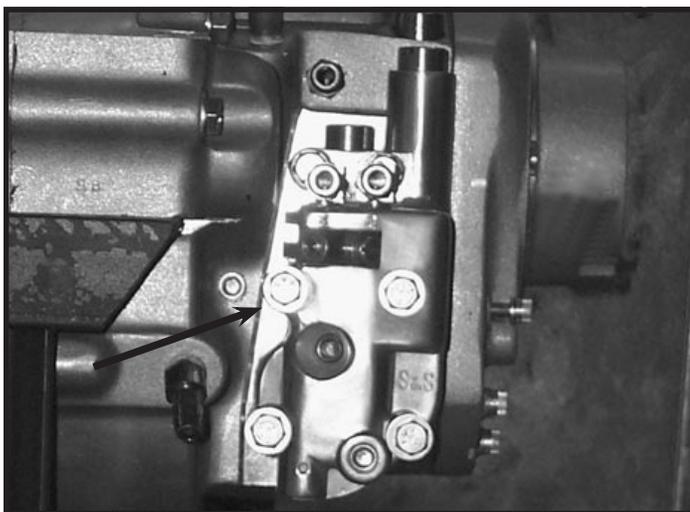
CAUTION - Failure to perform modification correctly may result in oil pump damage not covered under warranty. Do not use solvent that could damage driveshaft seal in oil pump body.

WARNINGS

- Many solvents are flammable and potentially toxic. Read solvent manufacturer's instructions prior to use.
- Compressed air is potentially harmful, especially to eyes and skin. Wear goggles and other protective clothing during use, and direct air stream away from yourself and others nearby.

2. Disassemble, clean, and inspect oil pump, leaving supply drive gear, key, and snap ring in place on shaft.

NOTE - In some instances, oil pump gears have index marks. To assure proper gear mesh, marks must align when gears are installed in pump body.



Picture 1



Picture 2

See Picture 3. Marks in photo have been darkened. They normally appear as light punch marks.

CAUTION - Failure to align gear marks may result in bind and possible damage to oil pump or other engine parts.

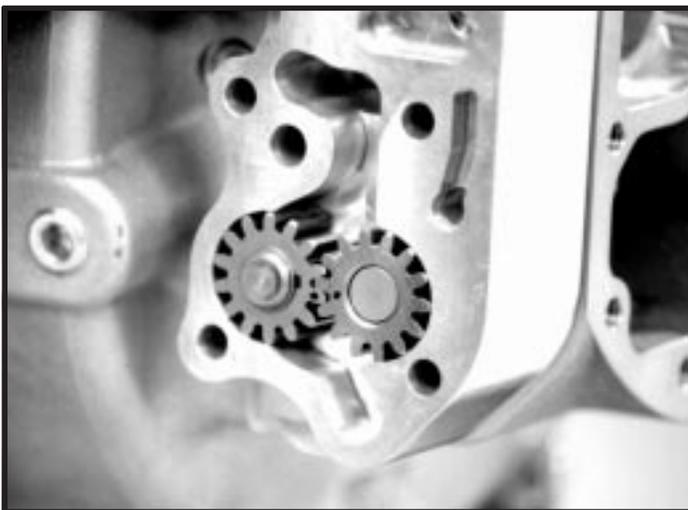
3. Reassemble pump dry, without lubrication. (Pump will be lubricated in final step.) Rotate gears as preliminary check for bind, and to confirm that drive gear keys are properly installed in pump.

NOTE - If bind occurs, determine whether problem is with supply or return gears by removing idler gear from either side and rotating pump. When binding gear is removed, pump will rotate freely. Problem can usually be corrected by rotating gear 180°.

4. Apply 20W50 engine oil to oil pump driveshaft and driveshaft bushing in crankcase. Install oil pump in crankcase in normal fashion, placing pump drive gear #33-4230 over driveshaft as shaft is passed through bushing and into crankcase gear compartment.

NOTE - A dab of Hylomar or other thin gasket sealer in corners may be used to hold gaskets in place if care is taken to avoid critical areas such as oil passages and interior of oil pump. Otherwise gaskets should be installed dry.

CAUTION - Gasket sealant may interfere with engine lubrication if allowed to contaminate oil pump or passages machined in crankcase.



Picture 3

Damage related to improper use of gasket sealant will not be covered under warranty.

5. Install driveshaft gear key and snap ring, taking care not to stretch or otherwise damage snap ring.

NOTE - Insure that drive shaft key and snap ring are installed properly. If snap ring is installed incorrectly, "sprung," or otherwise damaged, it may become dislodged or allow gear key to come out.

CAUTION - Loss of oil pump drive gear snap ring or key will result in disengagement of oil pump causing loss of oil pressure and extensive engine damage.

6. Loosely install 2 ea. ¼-20 x 1½" top oil pump bolts, followed by pump cover and 4 ea. ¼-20 x 2¾" mounting bolts. Do not tighten at this time.

Note - ¼-24 bolts are supplied for use on 1948-1978 H-D crankcases. Check thread fit by carefully installing bolts in crankcase before final assembly. Thread engagement should be smooth and free of resistance.

CAUTION - Use of incorrect mounting bolts will cause crankcase damage not covered under warranty.

7. While turning oil pump drive gear to check pump for binding, gradually tighten 4 ea. 2¾" bolts in X-pattern to final spec. of 8-10 ft-lbs. If pump binds, loosen screws and shift pump slightly while rotating gears; pump should operate smoothly if correctly aligned on crankcase. Retighten bolts while turning driveshaft to confirm bind-free pump operation. Carefully tighten two remaining bolts with thin box-end wrench.

8. Prime pump by removing oil pump check valve ball assembly and injecting clean motor oil into pump supply fitting while turning oil pump drive gear. (A large plastic squeeze bottle works well for priming pump.) Replace check ball, spring, and cap after oil fills check valve cavity. Refer to illustration and parts list near end of S&S Oil Pump Instructions as needed.