

ELECTRA GLIDE LUBRICATION SYSTEM

This bulletin will serve as a guide in helping to solve service problems which may occur in the lubrication system of the 1965 and 1966 model Electra Glide.

The schematic diagram on the next page shows the 1966 lubrication system. It will be useful in visualizing the application of the service procedures outlined in this bulletin.

Various possible lubrication system problems are given under the following headings, along with the cause and remedy. Check each one for correcting a lubrication system problem you may have.

OIL DISCHARGE FROM ENGINE BREATHER PIPE

This usually results from faulty scavenger pump operation which allows oil to accumulate in gearcase compartment. When oil level builds up above breather outlet, crankcase pressure forces oil out in large quantities. Check the following:

1. Oil Filter and By-Pass Valve

The normal cause for restriction of return oil to the tank is a dirty oil filter and defective by-pass valve. By-pass valve should open up and discharge return oil from engine directly into tank if filter becomes blocked with dirt. To check, remove old filter and install a new one, or if a new one is not available, flush filter element thoroughly in clean gasoline to remove dirt and reinstall. Also disassemble, clean and inspect by-pass valve to be sure it works correctly.

IMPORTANT: Do not operate motorcycle without a filter at any time. This is very important because foreign material in oil will plug up the hydraulic lifters. It will also cause excessive wear of rings, piston, cylinder walls and bearings. Oil filter should be cleaned at least every 2000 miles, and element replaced every 5000 miles or one year.

If lifters do not operate correctly and engine is in a very dirty condition inside, as will result from operating without an oil filter, clean engine lubrication system according to the following procedure.

Run engine until it is hot. Stop engine, remove oil filter, drain oil and flush oil tank with kerosine.

Remove and clean tappet oil screen (if used). Remove push rods and pull hydraulic lifters from tappets. Disassemble lifters and wash in clean solvent. Blow out oil and dirt from tappet well, flush with

kerosine and blow out. Remove chain compartment inspection cover and magnetic drain plug (rear bottom of case) and flush compartment with kerosine admitted through inspection hole. Clean or replace oil filter. Replace oil tank drain plug, chain compartment drain plug and inspection hole plate. Replace tappet oil screen, lifters, push rods, and fill tank with fresh oil.

2. Rear Chain Oiler

It is possible that oil return to tank is being restricted at the rear chain oiler adjusting screw. Remove hose and fitting from pump to disassemble fitting and clean any accumulation of foreign matter from adjusting needle area.

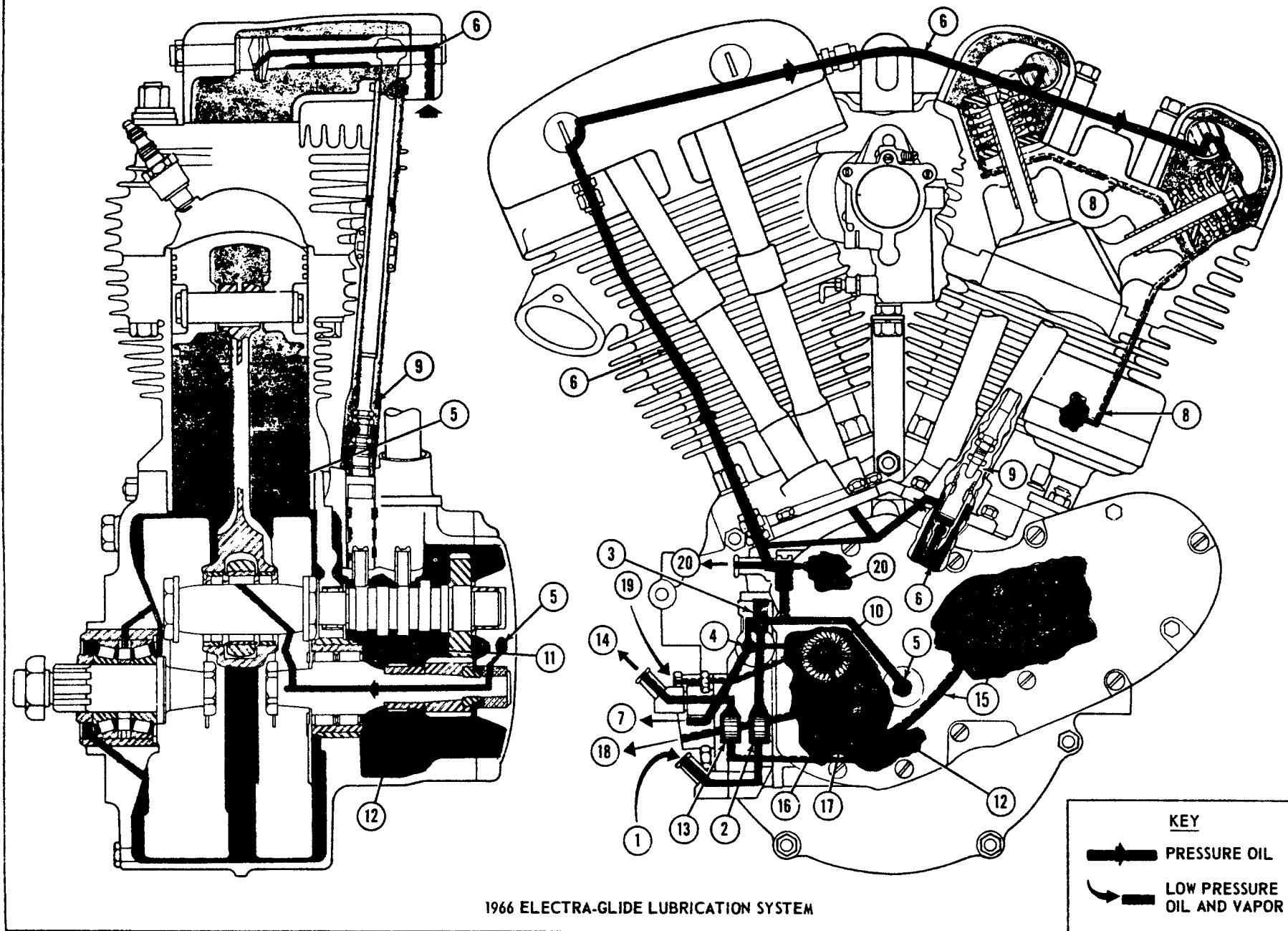
3. Scavenger Pump

Remove oil pump cover and check to see if scavenger pump (wide) gears have excessive side clearance as follows. Lay straight edge firmly across each of the scavenger gears and measure distance to the pump body surface (no gasket) with feeler gages. This measurement should be from 0.002 to 0.006 in. If it is less than 0.002 (or if gear is below body surface), install new parts order gears, Part No. 26320-36 and 26326-62. Use cover gasket Part No. 26257-50A and tighten pump cover nuts evenly to compress gasket a slight amount. After running engine a short time, again tighten the cover nuts. This will give the gears the closest possible side clearance fit in the pump.

If new gear of the correct width (0.503 in.) does not extend at least 0.002 in. above pump body, the gear pocket may be too deep and pump body should be replaced - recheck to see if gears are 0.002 to 0.006 above surface of replacement pump body. Check pump cover for a warped condition on gear side by laying a straight edge across surface. If not perfectly flat, replace cover or sand flat on a surface plate with emery cloth.

LOW OIL PRESSURE

Because the oil feed pump has a limited capacity, any excessive leakage through abnormal clearances at rocker arm bearings, tappets, pinion shaft cover bushing, leaking oil passages, etc., will reduce oil pressure. Also, the side clearance of the pump feed gears may be excessive preventing oil pressure buildup in the pump. To check oil pressure, remove pressure switch from oil pump and connect pressure gage to the threaded hole in the pump. The pressure should build up to 30 lbs. with a hot engine using Harley-Davidson 75 oil at speeds over 1500 RPM (30 MPH).



NOTE

If pressure is OK and signal light stays on at idle, pump check valve spring is probably too weak - install new spring Part No. 26363-36.

If pressure is below specifications the oil pressure loss can be isolated by blocking off oil distribution lines to following areas in order:

A. ROCKER BOXES

Remove overhead line fitting and plug threaded hole in crankcase with 1/8" pipe plug. Operate warm engine at same speed and check pressure difference.

B. TAPPETS

Remove slotted plug just above rear end of gearcase cover. Remove oil screen (if used) and plug center oil hole at bottom of cavity. (A wood point can be used.) Operate warm engine as before, keeping overhead feed line plugged, and check pressure difference.

1966 ELECTRA GLIDE ENGINE OILING AND BREATHER SYSTEM (SEE DIAGRAM)

1. Gravity feed from tank to feed pump.
2. Feed (pressure) section of oil pump.
3. Check valve prevents gravity oil drainage from tank to engine. Builds up oil pressure to operate oil signal switch.
4. Oil pressure regulating valve limits maximum pressure. Surplus oil is dumped back into gearcase.
5. Oil is forced through pinion gear shaft to lubricate lower connecting rod bearings from which oil splashes to cylinder walls, piston, piston pin and main bearings.
6. Oil is forced through drilled passages to supply hydraulic lifters and through an oil line to lubricate rocker arm bearings, valve stems, valve springs and push rod sockets of rear cylinder head and then through interconnecting oil line to front cylinder head.
7. Front chain oil. Oil is bled from by-pass oil for front chain lubrication.
8. Oil drains from cylinder head rocker housing through passage in each cylinder, then flows through hole in the base of each cylinder, lubricating cylinder walls, pistons, piston rings and main bearings.
9. Oil flows from the rocker arm housings through push rod covers into the gearcase compartment, lubricating push rods and tappets.
10. Rotary breather valve is timed to open on the downward stroke of pistons, allowing crankcase ex-

C. FLYWHEELS

Loosen gearcase cover and block off pressure oil transfer hole, leading to pinion cover bushing, with a piece of 0.002 in. shim stock and retighten cover. Operate warm engine as before and check pressure difference.

CAUTION

Operate engine for only a short time with oil to crankcase shutoff.

If there is no large pressure difference found in the preceding checks, the oil pump should be removed and the feed pump gear side clearance checked. Lay straight edge firmly across each of feed pump gears. Gear should be even with or higher than pump body surface (no gasket). If side of gear is not above gasket surface, check gear width (0.374 to 0.375 in.). If gears are OK, gear pocket in pump may be too deep, probably due to wear, and pump body should be replaced - recheck to see if gears are above surface of replacement pump body.

haust air pressure to expel scavenge oil from crankcase breather oil trap into gearcase. Breather valve closes on upward stroke of pistons, creating vacuum in crankcase.

During this interval, small ports in breather valve line up with passages in crankcase. Oil is then retrieved through passage (17) by vacuum from breather oil trap (16) in crankcase, and from front chain compartment (19) as indicated.

11. Oil blown and drained into timing gearcase (steps 4, 8, and 9), lubricates generator drive gear, timing gears and gear shaft bearings.
12. Gearcase oil settles in gearcase sump from where it returns to pump.
13. Scavenge (return) section of oil pump.
14. Engine oil return to tank.
15. Exhaust air baffle and transfer passage to breather oil trap.
16. Breather oil trap with screen.
17. Oil transfer passage to breather valve.
18. Crankcase exhaust air escapes from gearcase through outside breather tube.
19. Return line from chain housing.
20. Vent line to oil tank and chain housing.