

## GEARCASE

### OIL PUMP

#### GENERAL

The oil feed and scavenger (oil return) pumps are gear-type pumps incorporated in one pump body with a check valve on the oil feed side. The feed section forces oil to the engine and the scavenging section returns oil to the tank.

The oil pump seldom needs servicing; therefore, before disassembling the pump for any repairs because of no oil pressure, be absolutely certain that all possible related malfunctions have been eliminated:

Check the level and condition of oil in the tank. If oil is diluted, pressure will be affected. In freezing weather, the oil feed line may clog with ice and sludge, preventing circulation of oil.

Check for a grounded oil pressure switch wire or a faulty switch if oil indicator light fails to go out with engine running. See "Engine Lubrication," Section 3A, for additional information.

Inspect the oil pump check valve. The check valve prevents the gravity flow of oil into the crankcase when the engine is not running and provides correct oil pressure for operation of the oil signal light switch. If the check valve is not seating correctly, oil will bypass the valve and drain oil from the tank into the crankcase and on starting the engine, a considerable amount of accumulated oil will be blown through the crankcase breather pipe. If this condition exists, disassemble and inspect the check valve. See "Disassembling Oil Pump Check Valve."

If no oil pressure or return oil is indicated at the oil tank (return line) when engine is running, or an excessive amount of oil is blown from the breather pipe, (after all other possible troubles have been eliminated, including inspection of the oil pump check valve), disassemble the oil pump for further inspection and repair. See "Disassembling Oil Pump."

When an oil pump has to be disassembled for repair, damage is usually caused by a foreign particle, such as a metal fragment, that has worked its way into the oil circulatory system. If this particle passes through the pump's protective screening, damage will result when it enters the pump. Primarily, the damage consists of a sheared oil pump drive lock pin (18, Fig. 3D-10), broken retaining ring (7) or subsequent damage to gears and other parts.

**DISASSEMBLING OIL PUMP CHECK VALVE (Fig. 3D-10)**

Thoroughly clean exterior of pump in gasoline or cleaning solvent before disassembly. Disconnect oil pressure switch wire and disassemble switch (1)

from motorcycle. Remove oil pump nipple (2). Free check valve spring (3) and valve (4) from pump body.

**CLEANING AND INSPECTING OIL PUMP CHECK VALVE (Fig. 3D-10)**

Clean all parts in gasoline or cleaning solvent. Blow out pump nipple (2) oil passage and the nipple valve spring guide. Examine the nipple for any damage that would bind or hinder the free operation of spring (3). Carefully examine the nipple threads for wear; if badly worn replace nipple.

Inspect spring (3) for breakage and rusted condition. Replace if worn or damaged. Free length of new check valve spring (3) is approximately 1-15/64 in.

Carefully inspect the oil pump check valve ball (4) for wear and rusted condition. Valve may have rings formed by action on valve seat. Valves not perfectly smooth and round should be replaced.

Using a light, inspect valve seat in pump body (16) for pits and for dirty condition. A small particle of foreign matter lodged on valve seat will prevent check valve ball from seating. If seat is only slightly damaged place check valve ball on seat and with a drift lightly tap against its seat to remove slight striation marks or pits. Replace pump body if valve seat is badly damaged. See "Disassembling Oil Pump."

**ASSEMBLING OIL PUMP CHECK VALVE (Fig. 3D-10)**

Assembly is essentially the reverse order of disassembly. Apply a light coating of oil to all moving parts. Make sure that check valve ball (4) is correctly seated and valve action is free. Be extremely careful to prevent dust, dirt or other foreign particles from getting on the parts when reassembling.

**DISASSEMBLING OIL PUMP (Fig. 3D-10)**

Because of interference from motorcycle frame it is necessary to remove engine to disassemble pump. First, remove the engine complete from the chassis and position on workbench. See "Stripping Motorcycle For Engine Repair," Section 3A.

#### NOTE

It is not necessary to remove valve tappets and valve tappet guides to service the oil pump.

The breather is a part of and drives the oil pump. When removing the oil pump, the breather will of course come out with it. Removing the pump does not require removing the circuit breaker, gearcase cover or removing timing gears. However, it must be remembered that in order to correctly time