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Continental Service Manual

R513, R573, R602,
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Operation and Maintenance Manual

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Right-Hand View



Left-Hand View

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Oil Filter Service

Each time the oil is changed the filter elements should be changed and the sludge chamber inside each filter housing cleaned thoroughly.

IMPORTANT: Always use a new filter element. Do not try to wash or otherwise clean the dirty element.

Lubrication Diagram

The lubrication diagram for this engine is illustrated on page 12. This diagram shows the oil flow through the screen and pump to all bearings to which oil is fed under pressure. The arrows indicate the direction of oil flow to each of the bearings, also how the oil flows through the oil cooler and oil filter. Oil is forced under pressure to all main bearings, connecting rod bearings, camshaft bearings and rocker arms. The timing gears at the front end of the engine are lubricated by a spray of oil in the gear case. The pistons, rings and cylinders are lubricated through drilled holes in the connecting rod and by oil thrown off by the connecting rod bearings.

This lubrication diagram is only intended to show the various parts lubricated under pressure and to show how the oil flows through the engine to reach the bearings and other parts. Accessories such as the ignition distributor, starter and generator all have their separate lubricating instructions which should be read carefully and followed exactly.

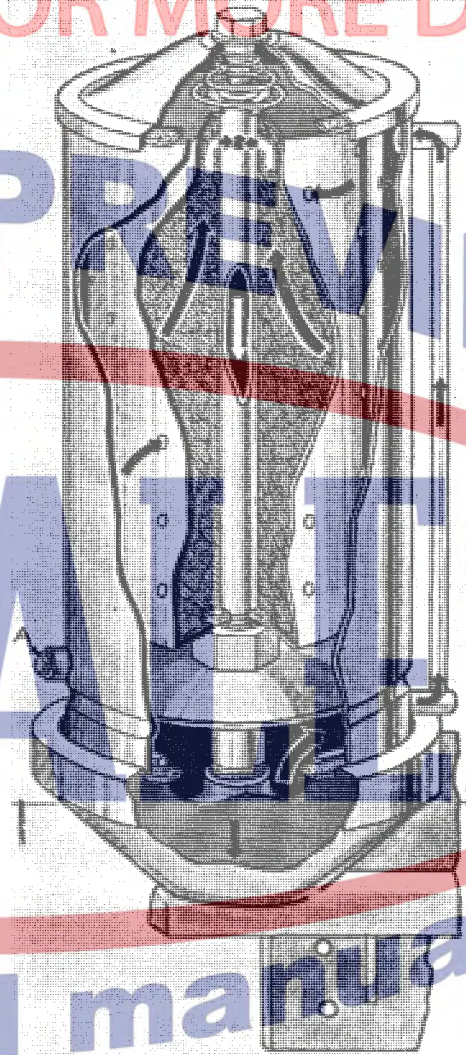


Figure No. 2

Oil Pump and Pressure Control

The oil pump is driven from the camshaft at the approximate center of the engine. The pump body is submerged in the oil. Inspection covers on the oil pump make inspection easy.

The oil pressure is regulated by a recirculating type of pressure regulator built into the pump body. The spring that controls the oil pressure is set to provide approximately 60 lbs. oil pressure. Excess oil beyond engine requirements is by-passed from the pressure side of the pump thru this regulator directly back to the intake side of the pump.

The oil pressure regulator consists of a plunger and a coil spring. The spring is calibrated to give the correct oil pressure, and under normal conditions will require no attention. Should the oil pressure drop after several hundred hours service, the pressure may be increased by adding one or two plain washers between the spring and plunger.

An auxiliary oil pressure regulator is built into the side of the engine and into the gallery line feeding oil to the oil cooler.

The difference between the pressure of the main regulator and that of the auxiliary regulator permits the oil to flow thru the oil cooler in the correct quantities.



Figure 12

VALVE CLEARANCE ADJUSTMENT

Correct clearance between the rocker arm and valve stems is essential for satisfactory operation and long valve life.

The correct clearance is .022 for exhaust and .017 for intake.

When the adjustment has been correctly made a .022 feeler will pass between the tappet and valve freely. A .023 feeler should be snug or fairly tight. Use .017 and .018 for intake.

IT IS RECOMMENDED THAT THE VALVES BE ADJUSTED WITH THE ENGINE RUNNING AT IDLE SPEED WHENEVER POSSIBLE. If it is not possible to make the adjustment with the engine running, it will be necessary to crank the engine until both valves are closed and the piston is on Top Dead Center on the compression stroke. As a final check start the engine and be sure the correct feeler will pass between the rocker arm and valves.

Operation and Maintenance Manual

WATER PUMP

The water pump used on this engine is a front-mounted centrifugal ball-bearing, self-sealing type. It incorporated the Schwitzer Cummins type carbon seal against a stainless steel thrust and should ordinarily give little trouble. The impeller is pressed on the shaft and locked in place with a grooved taper pin obviating any chance of a loose impeller. The bearings are of the sealed type, packed at the factory with Mobilgrease No. 5. This grease, or some equivalent quality, should always be used. A pressure gun type of fitting with a low-pressure pop-valve is assembled for greasing. This will require greasing only at very long intervals. The fan hub is locked to the bearing assembly by a nut on the front end of the shaft.

In case one desires to dismantle the water pump, the following procedure should be followed:

1. Remove the six screws holding the cover or support to the body. The entire shaft and hub assembly can then be removed from the pump.
2. Remove impeller by loosening set screw.
3. The seal can be removed from the impeller by first removing the lock wire in the bore of the hub.
4. If you wish to remove ball bearings, first remove fan hub and then the lock screw on top of the body.
5. To reassemble, reverse the procedure.

GASKETS

When replacing water pump gaskets, coat them with graphite grease, such as Gredag.

