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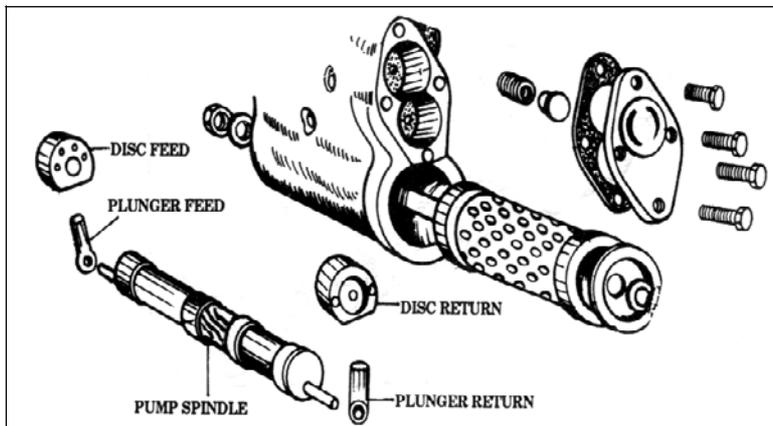
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BULLET LUBRICATION (Classic engines)

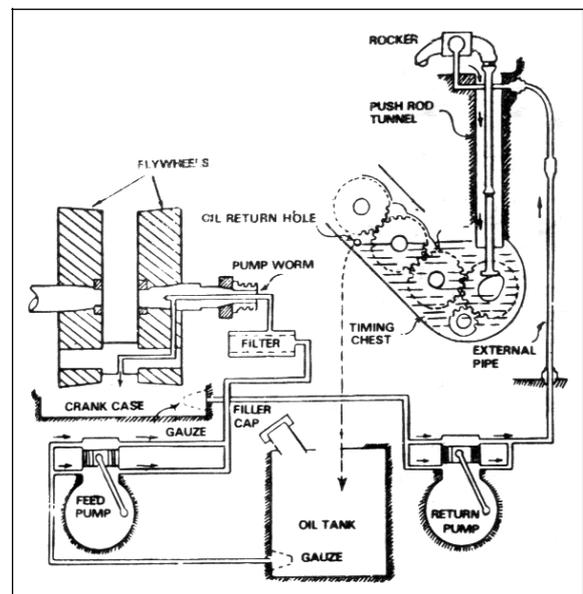


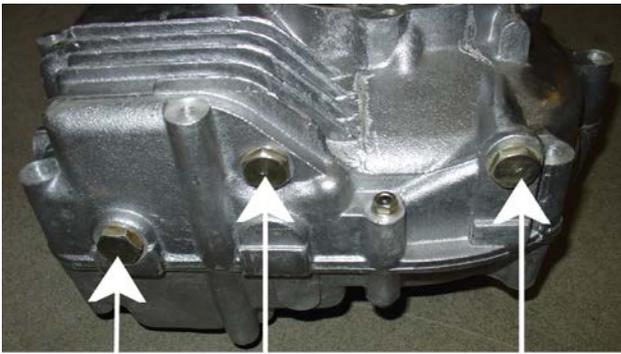
The engine lubrication system on your Bullet is a 'dry sump' type, with integral crankcase oil compartment. As can be seen from the diagram it consists of two plunger pumps in the timing chest cover. These are driven by the pump spindle, which in turn is driven by the crankshaft worm. The left hand (rear) one feeds the big-end via the oil filter and timing side shaft with its vital seal. The right hand (front)

one scavenges this oil from the crankcases, via the filter plug and feeds it by an external pipe to the rocker bearings. The oil then drains down the push rod tunnels to the timing chest, from where it overflows through a hole beside the intermediate timing gears back into the oil compartment.

All that most owners will need to do to ensure long trouble free service is to change the oil at regular intervals, cleaning the filter plugs and replacing the oil filter and oil feed seal, (in the oil pump worm), every 1500 miles, (this will vary depending on conditions and usage). [On later Bullets, the oil feed seal is bonded into the oil pump worm and this type is less prone to wear and only needs to be inspected at the service intervals and replaced if necessary.](#)

Perhaps the most common lubrication fault with a Bullet is 'wet sumping', when the flywheel compartment becomes flooded with oil causing excessive exhaust smoke on start up and/or blowing out of the crankcase breather. This can be due to oil seeping along the timing shaft (remember the timing chest is $\frac{3}{4}$ full of oil) or directly from the oil compartment. [\(Please note, the oil is stored in a separate compartment to the flywheels\).](#) Early Redditch engines relied on a bronze bush on the timing side to prevent oil seeping along the timing shaft, while the 350 Indian Bullets ran directly in the crankcase and once some wear occurs, has no effective sealing. In 1989 when the Indian 500cc Bullet was introduced a lipped seal was fitted in to the crankcase which went a long way to solve this. However this seal did not appear on the 350's until very recently. A gasket between the crankcase halves is fitted to all late Bullets to prevent seepage from the oil tank to the sump.

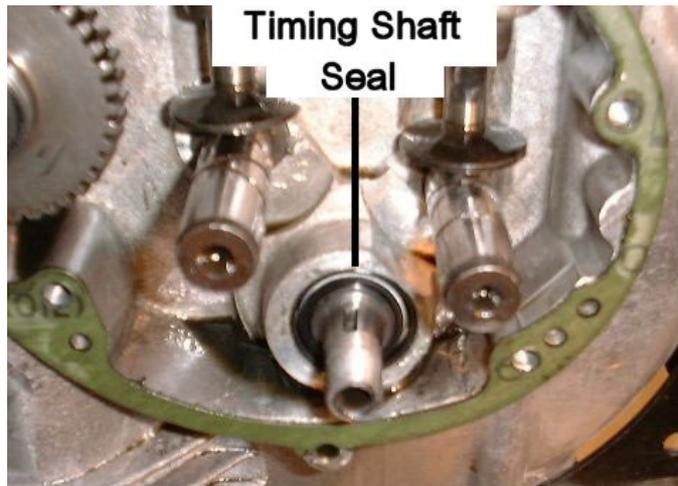




Drain plug for oil tank Filter plug for feed circuit Filter plug for return circuit also drains sump - slowly

There should only be about 30cc's of oil in the sump. Remove the front filter plug, (due to the small oil ways feeding this, leave to drain for 10 minutes) and this 30cc quantity will be confirmed. **Some later models have an extra drain plug for the sump, this can also be used but be sure this is for the sump and not the oil tank.** If you are suffering with wet sumping, providing it is not too bad, the pump will normally return this excess oil back to the oil compartment after about 5 minutes of running.

To change the timing shaft seal, if fitted, is a relatively easy job. Removing the timing cover and timing pinion accesses this. Ensure that the seal is fitted the correct way round i.e. with the spring facing the timing cover. The earlier bronze bush would involve a complete engine strip down, as would the changing of the crankcase gasket.



Provided oil is being supplied to both rocker bearings (loosen the banjos bolts on the cylinder head to check) with the engine ticking over you can be certain of adequate oil circulation. To prevent future problems always thoroughly clean all the oilways with a piece of stiff wire, when overhauling the engine and resist all attempts to cure oil leaks with excessive jointing compound. Put about half a cup of oil in the crankcases before replacing the barrel and piston. Pour a similar amount in the timing chest via the tappet inspection cover, this will help oil circulate around the engine faster on the initial start up.

An inefficient scavenges pump (at the front of the timing chest) will lead to rapid rocker gear/valve guide wear and excessive oil being blown from the breather tube. Check by measuring the quantity of oil in the flywheel compartment after the engine has been run for approximately 5 or 10 minutes. Remove the front filter plug and again only about 30cc's should trickle out. You may need to replace the pump plunger, disc, or spring and 'lap in' the new components if worn, or even strip, then clean out the oil ways to cure this problem. Again clean oil, regular filter changes and being very sparing with the gasket compound will prevent problems and give your Bullet a long economical life.

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