

A New Tool: Drilling the Right Side Oil Passage

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A by Slamaway Hamfist A surprise package arrived here several weeks ago. Inside was one of the slickest and simplest tools thought of. It's a guide for drilling out the right side oil passage on twins built before the change between the early twins and the /2s. For some reason the BMW designers thought it better to omit this oil passage to the right cylinder base. Some stories have it that the engineers thought there would be more than enough oil splashed onto the right side because of the left rotation of the crankshaft, ergo an oil feed passage on that side would be unnecessary. After several years in the field with riders blowing right cylinders off at the bases, the engineers supposedly thought to add the oil passage to the new model engines as a "fix" for the self removing jugs. A review of how the lubrication system in our engines works goes like this: Oil is drawn up from the sump by a two gear positive displacement pump driven by the crankshaft in the post 1950 twins, and off the camshaft in the singles and earlier twins. Oil is fed to the main bearings, to each cylinder base and to the camshaft timing gears (Singles use a chain and sprocket). Oil fed to the main bearings follows the path of least resistance as more oil is fed into the bearings. The spill off goes directly into the slingers (thin steel shells that act as centrifuges) attached to each crankshaft web. At one point on each slinger is a port that allows oil to be fed directly into an adjoining passage in each crank pin. Each crankpin has two small oil ports that shunt oil from the slinger directly to the roller bearings between the crank pin and the connecting rod. Centrifugal force is the driving energy that forces the oil from the slinger through the connecting rod bearings, and further beyond as an atomized mist being propelled out of each roller bearing. Imagine a wet dog shaking his head to get the water off. Yep, because of the pressure/suction inside the crankcase for every revolution of the crankshaft (in and out from both pistons) oil mist migrates through the push rod tubes out to the valve train. The mist that is spun out of the crankshaft lubricates everything else inside the engine, with the exception of adequate oil to the piston skirts. See VMCA News V6N2 for photos of oil pump gears and what the inside of the connecting rod bearings look like. In the July 2009 issue of the News (V5N3, Page 7) our editor makes a feeble attempt to show us how he butchers a crankcase while drilling the right side oil passage in a pre-1961 twin case. Photo on Page 13 shows Joe Ayres using the jig made (and donated to the VMCA) by Chris Chambers. The jig is slipped over the two bottom cylinder base lugs and held fast by two nuts. See photo below. A Fellow VMCA Member Joe Ayres The jig has a hardened steel sleeve to guide the drills (there are two that come with the kit, a short pilot drill and a longer 6mm drill). Chris recommends using cutting oil and frequent withdrawals to remove the swarf (that's a fancy machine shop word for chips, or cuttings). The drill is the right length to just reach the horizontal feed hole from the oil pump when the jaws of the drill chuck bottom out against the guide sleeve. For clean up, use an aerosol solvent such as carburetor or fuel injector cleaner, inserting the accessory tube into the newly drilled oil passage. Flush and blow dry with compressed air. Shows clean oil passage drilled using Chris Chambers' shop made jig. Caution: Use these chemicals in a well ventilated area, better yet, outdoors. This tool set is available for loan to VMCA members.

The Tool

Here's a better look at Chris's tool. The two holes at each end of the block slip over the two lower studs on the side cylinder base surface of the crankcase.

The small sleeve accepts a 9/64" drill (.14625" or 3.715mm) and is the guide to insure that the hole is drilled true to the horizontal oil passage from the pump.

Chris saw fit to include two different drill bit lengths, the shorter as the pilot and the second to complete the job.

To protect the tool from damage by over tightening of the nuts on the cylinder base nuts, washers will be included in the kit.

We have not yet written up instructions for use.

The tool is otherwise ready for loan to members.

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