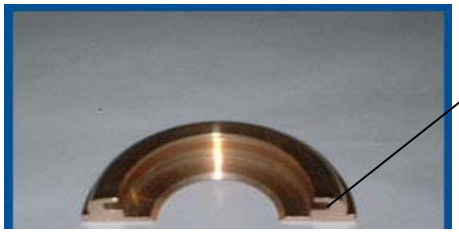
Full Circle Rear Thrust

The following info is a mixture of my opinion and info gleaned from conversations with Rich @ Antique Engine Rebuilding. (I use a lot of his components when rebuilding an engine.) Due to the most common practice of mounting of the 1/2 circle thrust at the rear of the block (not cap), a 1/2 circle thrust runs a bit dry under certain driving conditions. With a 1/2 circle thrust mounted on the block much of the oil passing from the rear main bearing at idle dribbles between the block and the crank and is not passed to the thrust surfaces. With a full circle thrust, all oil from the rear main must pass over a thrust washer and if both rear thrust surfaces (of a full circle thrust) are properly aligned it is then swept to the other thrust as well keeping all surfaces oiled and cool. From my understanding, most of the 1/2 circle thrust failures happen in "Parade" driving conditions. (Low rpm with the clutch pedal down.) With a “dry” thrust, holding the clutch in builds a lot of heat between the rear thrust surfaces.
I believe the one piece combination bronze thrust and seal is a better system than the original aluminum seal and 1/2 bronze thrust washer.

Combination bronze thrust & seal shown below:





Oil collection groove

This thrust washer is installed under the combo seal (in the rear main cap) to provide a full circle thrust. The combo seal/thrust is held in place by the rear cap and being fixed, it prevents the floating ½ thrust washer from rotating.



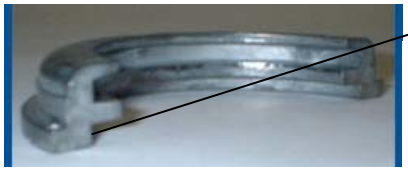
Machining of rear cap to accept ½ thrust washer using a rotary table on a vertical mill. Note hollow dowels for cap alignment that are used on all three main caps.





The oil is held closer to the thrust surface and at any rpm some of the oil thrown to the seal area (groove) will come back down to the thrust surface. The multi piece system has a void between the outer perimeter of the thrust washer and the aluminum seal that allows the oil to drop to the cap without being drawn back to the thrust area.

Multi piece components shown below: (I don't use this system but many do with success.)



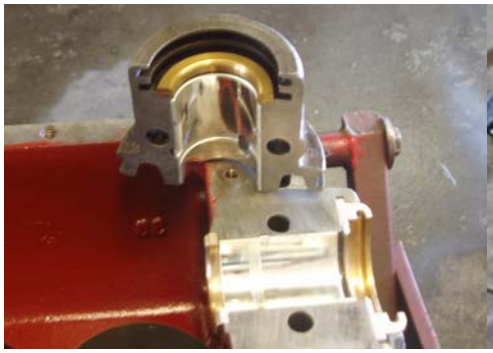


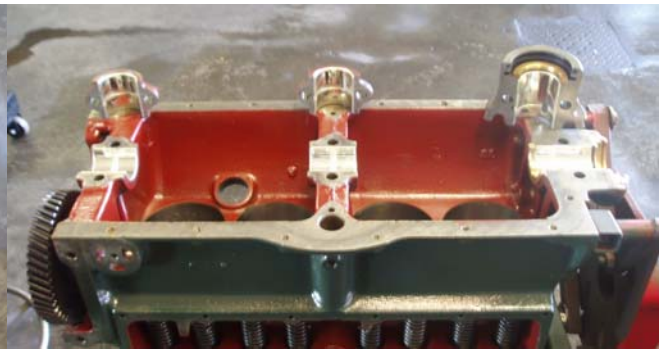
Void @ aluminum seal provides a quick path out for oil when used with a single thrust mounted to the block.

Two washers are used with the original seal for a full circle thrust.

Photos below: Caps and block completed and ready to set the crankshaft

The ½ thrust within the crankcase has a chamfer at the leading edge to eliminate wiping the oil from the crankshaft





Mostly my opinion on this stuff….but I spent a lot of time refining the full thrust system I am describing about 3 years ago and feel it is worth the effort.
FWIW: Rich, at Antique Engine Rebuilding, is now installing a full rear thrust in all of his rebuilds.
Good Day!
Dave in MN