



FLATHEAD BLOCK FULL FLOW OIL FILTER MODIFICATION

This modification to the 1932-53 Ford / Mercury Flathead V/8 engine block is intended for converting the original Ford Partial Bypass oil filter system to a Semi-Full Flow oil filter system covering the entire system less the rear main bearing and connecting rod journals # 4 & # 8.

Necessary tools and supplies will include:

1. Standard length $21/64$ ", $37/64$ " & $45/64$ drills ($5/16$ ", $9/16$ " & $11/16$ " may be substituted if extreme care is used in tapping threads).
2. Long (6") $5/16$ ", $3/8$ " & $7/16$ " drills.
3. NPT taps in $1/8$ ", $1/4$ ", $3/8$ ", & $1/2$ ".
4. Socket head NPT plugs, 1 ea., in $1/8$ ", $1/4$ " & $1/2$ ".
5. Drill motor of adequate size to operate the above drill bits.
6. Extension tap handle device for reaching into difficult areas.

FOLLOW THE STEPS AS OUTLINED BELOW

1. Bore the horizontal and vertical oil passageways originating at the cast bell housing boss to $7/16$ "
2. Carefully bore both bell housing boss opening holes to $37/64$ " and tap for $3/8$ " NPT. One outlet will carry unfiltered oil from the pump to the filter while the other outlet can be used for the oil pressure sender.
3. Tap the first $1/2$ " of the horizontal passageway inboard from the intersection of the horizontal and vertical bell housing boss holes to $7/16$ " and tap to $1/4$ " NPT. **Note:** Run the threads in far enough to allow an allen head plug to be installed so as not to interfere with fittings installed in the $3/8$ " NPT holes described in (2.) above. This blocked passageway diverts oil to the filter.

(Over)

4. Drill a 1/4" pilot hole for the oil filter return through the outer block surface, intersecting the horizontal oil passageway inboard from the plug area described in (3.) above. **NOTE:** Use extreme caution when drilling this hole. A slight miscalculation will result in the drill penetrating the flywheel area near the horizontal oil passageway mentioned in (1.) & (3.) above. Since it is virtually impossible to cold weld an errant opening in cast iron, this error will usually relegate the block to the scrap heap. A handy way to accurately locate the oil return passageway hole is to pass a 7/16" drill or rod into the horizontal passageway before drilling. This provides a visual plane reference of the passageway that is to be intercepted. After carefully center-punching the location, drill the 1/4" hole, making sure that it intercepts the center of the horizontal passageway at an angle that will allow the installation of the required NPT fitting. Enlarge this hole by steps to 37/64" and tap to 3/8" NPT. **NOTE:** Some 1948 and earlier blocks, including the 59 series, have a pad cast into the bell housing to accommodate this hole.

5. Thoroughly clean the block and install an Allen head 1/4" NPT plug in the passageway described in (3.) above and install a suitable full flow oil filter between the 3/8 (#10) fittings installed in openings created in #2 & #4. After all connections are complete, filtered oil will be furnished to the entire engine with the exception of the rear main bearing, rod journal #4, and rod journal #8.

The following modifications will enhance oil flow throughout the entire lower end of the engine:

A. Enlarge the vertical 1/4" front main bearing oil hole that connects the bearing saddle, cam bearing cavity, and main oil gallery to 5/16".

B. Enlarge the vertical 5/16" center main bearing oil hole that connects the bearing saddle, cam bearing cavity, and main oil gallery to 3/8".

C. For future cleaning, drill out the front (all blocks) and rear (some 1953 & earlier) main oil gallery holes to 7/16" and tap to 1/4" NPT. (Use caution not to contact and damage the mild steel main oil gallery tube).

D. Enlarge the drilled passageway connecting the block oil pump cavity and the rear main bearing saddle to 3/8" and smooth out the sharp edges in the bearing saddle oil passageway.

E. On 1948 and earlier blocks the oil pressure relief is at the front of the main oil gallery tube. When the valve spills excess oil pressure it is directed through the block bulkhead to the back side of the timing gear where it lubricates the cam thrust.

When using a 1949-53 style oil pump (pump contains the oil pressure relief valve) in a 1948 and earlier block, it is suggested that the block relief valve be deactivated by removing the spring and check ball. It is further suggested that some provision be made for oiling the cam thrust areas under any circumstances or equipment combinations.

F. When using 1948 and earlier timing gears (rearward thrust) in a 1949-53 block, drill a .020" to .030" diameter hole in the oil gallery front plug to lube the thrust surface. When using a long nosed distributor adapter on a short nosed cam and / or 1949-53 (forward thrust) timing gears in any application, make sure that there is provision for oiling the front (thrust) side of the cam nose. The original Ford long nosed cam was drilled to pass oil from the front cam bearing to the thrust surface.

CONCLUSION: This modification will, with the installation of a suitable full-flow oil filter, furnish a continuous supply of filtered oil to all but the rear main bearing and the #7 & #8 rod bearings.

Note: Do not attempt to utilize the original Ford "toilet-paper-type" filter with this conversion. The O.E.M. unit is designed for a partial-flow filter system, and, will not handle the volume associated with the above-described conversion.