

SECTION 11... OIL

Note. Major changes and/or additions are in bold face font. Contributions by web members are underlined with dots and credit given when known. Minor changes, usually just wording, are not drawn attention to by any special font.

******* OIL *******

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OIL CAPACITIES: '48 and older..... 5 quarts with no filter
'49 thru '53..... 4 quarts with no filter

(All Ford Shop Manuals & Motors Manuals show these capacities.)
I have no problem with the capacity for the '49 and newer engines since their dipstick shows full with 4 quarts (no filter). But the '48 and older capacity shown in the shop manuals generated a problem area for me. My '46 engine's dipstick shows full with 4 quarts of oil (no filter). I figured the dipstick and dipstick tube were mismatched or I had a reduced capacity pan, so I didn't give it much thought and have been running 5 quarts (no filter) which puts the oil level a quart above the dipstick's full mark.

One day I was talking with an Early Ford V8 Club member with a low mileage '46. It has the untouched original 59AB engine. It's never been apart or worked on except for a single tune up and routine maintenance. We checked his dipstick and tube against mine. Both dipsticks and tubes are identical. His dipstick shows full when he puts in 4 quarts (no filter) during an oil change, so both oil pans are the same. Since then I've checked a dozen or more 59A engines. They all use the same dipsticks and tubes as mine. All show full with 4 quarts (no filter). Going back in my mind to the '48 convert I bought in '52 (with 12,000 miles), I can remember it took 4 quarts (no filter) for an oil change. This put the oil at the full mark on the dipstick.

RECOMMENDED OIL WEIGHTS: Ford engines '48 and older: SAE 10 below zero, SAE 20 below freezing, SAE 40 above freezing, and SAE 50 above 90 degrees F. The dealer memo this came from states these are daily high temperature readings. I've been told, Ford recommends the same for all '32-'53 flathead engines, but I've never seen that in Ford print.

OPERATING OIL TEMPERATURES: Minimum of 200 degrees F. Maximum should not exceed 250 degrees F (oil breaks down).

OIL PRESSURE: Oil pressure spec for early '48 and older engines is 30 psi @ 30 mph. For late '48 and newer engines it was increased to 57 psi. at 40 mph. Current performance flathead professional engine builders recommend pressure in the 80 psi range for hopped up street engines. Full race engines require more pressure due to their increased clearances and need pressure in the 100 psi range.

******* OIL PUMPS *******

OIL PUMP ID: "Long body" pumps were used from '36 thru early '48. Late '48-'53 Ford/Merc's went to the "short body" pump. These have higher pressure, a relief valve, and a different pickup screen than the previous long body type. These came with straight cut gears in late '48-'49 which Ford rated as 60 psi pumps. In '50 they were improved by changing to helical gears and Ford increased their rating to 80 psi.

OIL PRESSURE RELIEF SPRINGS IN SHORT BODIED OIL PUMPS: The relief spring spec's for the NOS short bodied pumps is 78-87 oz. @ 1.380" length.

As far as I can determine, Mellings is the only manufacturer of flathead stock oil pumps. They are the short bodied style with helical gears. Their relief spring is 2-1/16" long. Since stretching an oil pump's relief spring will increase oil pressure, I stretch them to 2-1/2" length to increase the oil pressure about 15 psi.

OIL PRESSURE RELIEF VALVE SPRING IN '48 AND OLDER ENGINES: The oil relief valve is located in the front of '48 and older engines. It has a steel dowel with a ball on one end, a coil spring, and a retaining bolt. The relief valve spring length and strength was calibrated to open at 25 psi. It's open when the oil pump makes any kind of oil pressure at all. The round ball has a flattened spot to by-pass a small quantity of oil when the ball is on its seat in the block. The stock spring length is 1-5/16". My notes from the old days showed we stretched these to 2-1/16" to increase oil pressure to 40 psi.

PLUGGING THE RELIEF VALVE IN EARLY '48 AND OLDER ENGINES: On my current engine, I'm running the newer "short" bodied pump with it's own relief valve. Because the stock relief valve in the valve chamber is no longer needed, I removed it and tapped and plugged the hole with a socket type screw and Loctite. It has not caused any problem. Many times I've heard that removing this relief valve would result in a huge oil leak which would reduce oil pressure and cause the mains and rods to starve. Maybe this would happen if the hole weren't plugged.... I don't know. But this is supposed to cut off all oil to the timing gears and cause them to fail due to lack of oil. I don't believe this for a moment. Oil is constantly being splashed and thrown on these gears by the spinning crank in sufficient quantity to more than adequately lubricate these gears. Also, how can plugging this hole cause problems since 8BA engines do not have such a hole and they get oil their timing gears? My engine has 65K miles with its relief valve hole plugged.

OIL PUMP PRIMING DURING ASSEMBLY: To assure the pump will pick up its prime, remove the bottom plate and fill the gear cavity with petroleum jelly. If too thick grease is used it could possibly plug the internal oiling system as it is pumped. If too thin grease is used it could drain off of the gears and could cause an air-type lock. Petroleum jelly works for me.

However, there are times when a pump refuses to pick up a prime. Remove the oil filter pressure line at the back of the block and use a drill driven oil pump to pump pressure oil into the block (see the next section for making such a pump). If this doesn't work, the pump will have to be pulled and filled with petroleum jelly.

(JWL on the Flathead Forum in the year 2000. He removes the timing gear cover and the timing gear. He made an adapter that fits into the slot of the cam and uses a reversible 1/2" drill to turn the cam, which will turn the engine's oil pump. He turns it backwards to fill the oil pump's gear cavity.)

******* OIL SYSTEM, SEALS, ETC. *******

PRE-OILING: It's a good idea to check the engine for possible oil leaks before installation. Also, an engine should be pre-oiled just before they're fired the first time. On OHV engines we use an old distributor shaft and drill to turn the engine's pump, but this won't work for a FH. So I made a primer out of some pieces of junk.

I used a 2½ gallon bucket, a length of 1" wide strap iron, an old Ford 6 oil pump with it's drive shaft (nearly any oil pump works), a few fittings, a couple of small hose clamps, and about 4½' of ½" clear plastic tubing (to verify visually oil is being pumped through the hose), and a ½" reversible drill.

The strap iron is laid across the bucket and the ends are bent down over the edges of the bucket and held in place by a couple pair of vice grips. I bolted the oil pump to the center of the strap iron using another piece of strap iron to lower the pump into the bucket. The oil pump's pick up screen is about 1/8" off the bottom of the bucket. The outlet of the pump got an adaptor fitting for the clear tubing. I used a similar fitting in the back of the block where the oil gauge sender goes and clamped the clear plastic tubing around both fittings. I installed a mechanical type oil pressure gauge in the block to see how much oil pressure the pump would make (40 psi). All in all, it took about 40 minutes to locate the junk and jury rig things. The oil pump's drive shaft is turned by a reversible ½" electric drill.

Leave the plug out of the oil pan and position the bucket directly under it. Dump in a few quarts of oil in the bucket and start the ½" drill. When it's turning the right direction it'll bog down quickly (within a few seconds) and the oil will be pumped through the clear tubing and into the engine. It'll be pumped through the engine and drain back into the bucket... where it'll be picked up and circulated through the engine again.

The last thing I do before starting a new engine is pre-oil it even though I did this while the engine was on the stand (sure don't want a dry start on a newly rebuilt engine). I pre-oil it for about 5 minutes.

INSTALLING A ONE PIECE OIL PAN FRONT SEAL. Bad part of these seals is you have to remove the pan, crank pulley and timing cover to get to them. A good thing is only the "O" ring needs replacing when reusing one. New ones cost \$0.40 each. The oil seal is usually still good.

To install: The lip (sharp edge) of the oil seal is directional and goes toward the rear of the engine. The aluminum adaptor installs with the oil drain hole at the bottom and facing towards the inside of the pan so oil will drain back into the pan instead of all over your front cross member and garage floor. Apply high temperature silicone sealer to the mating surface of the seal. Put some around the O-ring. Load up the groove the stock rope seal fits in with some silicone sealer before you install the oil seal adapter the final time.

(1/30/03 Billy, of the forum, caught an error in this garbage concerning my use of the term silicone. I'd always pronounced it silicone (like a cone used for scoops of ice cream), but had always spelled it silicon. The pronunciation was correct, but the spelling sure wasn't. Billy pointed out the differences. Silicon is the element (chemical symbol is Si) and is a dull brownish powder or a steel gray crystalline mass. Whereas silicone is any of various compounds containing a silicon-carbon bond and is used in lubricants, insulation resins,

waterproofing materials, etc. Silicone is what we commonly use. Thanks for the education Billy.)

STOCK REAR MAIN ROPE SEAL: From rodnut 2/25/01. "Soak for 2 hours in oil. Install by using the curved portion of a large socket wrench or pipe to roll it into place. Use a SHARP utility knife and trim the ends 1/16" proud. Trim a bevel on 3 sides (not on the crankshaft side) of the ends on both top and bottom rope seals to prevent the material from being crushed between the block and cap. Apply a dab of silicone RTV sealer on the ends of the seal before assembly"

If you can't find stock rope seals, try a Ford Tractor agency. They're the same as used in Ford Fergies and they always have them in stock. They're cheaper than from a Ford car dealership, too.

OPTIONAL REAR MAIN ROPE SEAL: Rope seals are used for front and rear mains on '83 Buick 3.8 liter V6 engines. These work as rear main seals on flatheads. They use newer technology and are not soaked in oil before installation. The front and rear have different cross sections. The rear ones have a rectangular cross section with rounded corners. The front ones have a round cross section. The rear (rectangular) ones work best, but I've used front ones when I didn't have any rear ones with no problem. The rectangular ones are not truly rectangular but have one side slightly longer than the opposite side (like a trapezoid). The long side of the rope seal should be installed towards the inside of the engine. Fel-Pro makes a rear gasket set #BSS13044-2. It takes two sets since one rope seal is not long enough to do both the top and bottom halves of a flathead's rear main. Measure the length needed and trim away the excess with a utility knife. The length should be not be trimmed proud like the stock rope seal (see the preceding topic). When installing the seals, rotate each one so their joints are about 1/2" up inside their receivers (this makes their ends NOT aligned with the joint where the main cap meets the block). Dab a glob of silicone RTV sealant where the two seals meet up inside the receivers. The only lubrication needed is a generous wipe of assembly lube on the seal where it contacts the crankshaft.

Tip: Engine rebuild kits come with a complete set of gaskets. These 3.8L GM gasket sets have both lip and rope seals for the front and rear mains. Engine builders use the lip seals and pitch the rope seals in the trash. I've asked a rebuilder here to save these for me. They're free too.

OIL DISTRIBUTION TUBE PLUGS IN 59 SERIES BLOCKS: Rear uses the flat bottomed threaded plug. Front uses the plug with the extended tit.

[Return to Home Index](#)