

ONAN CCKB OIL BYPASS FILTER SETUP

BY RICHARD HAWKINS

I want to keep my Onan CCKB engine for as long as possible. It is original to my MT-14, it was just refurbished, and I like the way it sounds. My main issue with the motor is that it does not have an oil filter and no apparent way to install one. Necessity is the mother of all creation, so I started conceiving a way to install an oil filtering system. The Onan engine provides a full pressure oil feed that deadheads at the gauge. Allowing that oil to flow through a filter and return to the sump via a bypass could be the solution.

Oil bypass configurations are fairly popular with diesel truck owners as well as hot rod, custom car and marine applications. Bypass filter adapters come in various configurations from different sup-



pliers; after some research I chose the Derale part # 25709. This is the key to the oil bypass system in my car. It allows a single inlet with two outlets.

I didn't want all of the oil to be pushed through the filter and not have enough backpressure to lubricate the motor nor to give a false low pressure reading at the pressure gauge. The answer was to add restriction to the filter's outlet. I chose a brass oil inlet restrictor with a .065" hole for the oil flow. These are commonly used when adapting turbochargers to car engines. Male and female threads on this one are 1/8" NPT.



Next up was a way to get the filtered oil back to the sump. The dipstick tube is a bolt-on assembly, providing direct access to the crankcase. Adding a custom-made adapter underneath it allows a connection to the filter without any modification of the aluminum Onan casting.

I traced the outline of the oil dipstick tube base, and then explained to a machine shop that in addition to the large center hole and the mounting holes, there would also need to be an intersecting hole drilled and tapped 1/4" female NPT. I indicated which side it needed to come from and that I would be installing a 1/4" hose barb for the oil return. Since the outside diameter (major dimension) of the male thread on the barb fitting is .54" a piece of 1" plate was selected.



Once the adapter plate was made, assembly was straightforward. Oil dipstick gaskets were ordered from Fredericksburg Shops to help with keeping the oil where it belongs. New longer bolts with lock washers were used to pass through dipstick tube flange as well as the new oil return adapter plate.

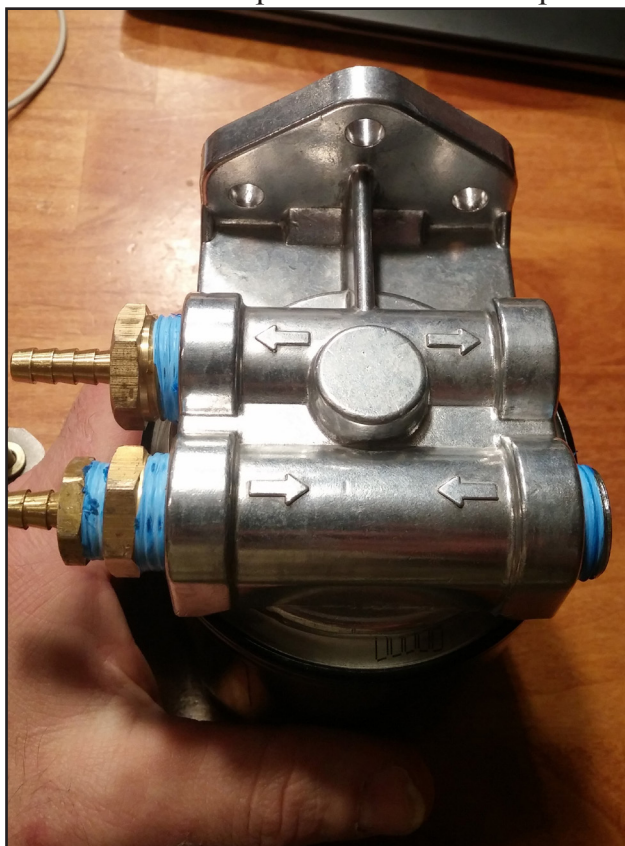


The oil sump return looked like this less the oil return barb. The barb fitting was put in after the engine was installed in the motorcar... not wanting to have it broken off during installation.

These are the connections to the filter adapter. I used Teflon tape to seal all the threaded fittings.

The top left outlet port gets a 1/2" NPT x 1/4" hose barb. This is the feed to the oil pressure gauge.

At the bottom left is the inlet port from the engine oil pump. It also gets a 1/2" NPT x 1/4" hose barb.



The top right outlet port gets a 1/2" NPT x 1/8" NPT reducer bushing. The oil flow restrictor then threads into the bushing and then a 1/8" NPT x 1/4" hose barb into that.

The bottom right inlet port is closed by a plug that is supplied with the filter mount kit.

I added a section of aluminum angle to the motorcar, then bolted the filter assembly to it via the integral mounting holes. Hoses were installed; stainless steel hose clamps made everything tight.

A WIX oil filter part # 51068 fit nicely on the Derale adapter; many screw-on interchangeable filters will also fit. About an extra quart of oil was added to offset the oil filter, filter mount, additional hose and be able to use the dipstick to check the oil level.

Low idle pressure is about 15psi. High idle or track speed is between 20 to 25 psi.... depending on your track speed.

Overall, I spent under \$100 for parts, not counting the adapter plate and machine shop labor. (If you're handy with the right tools, you could probably make that yourself.)

Now I have the added security of filtration for the oil in my freshened, original Onan engine. I'm planning on enjoying many miles on the rails.

