

## Yanmar 3GM30F Oil Line Replacement

During an investigation of an oil leak on Wonky Dog, my 1998 Catalina 320 manufactured in late 1997, Hull #514, I discovered corrosion on the external oil pipe on my 3GM30F.

If you discover corrosion on your external oil pipe, or oil anywhere on your engine below the pipe, and you think this might be a source of an oil leak you should replace the pipe. Unfortunately, the routing of this pipe makes it extremely difficult to be certain you have a pinhole leak in this pipe without removing the pipe. The pipe “disappears” between the starter and the engine. It is impossible to inspect this length of the pipe thoroughly while installed. This is one potential failure path that isn’t forgiving. If this pipe has developed a pinhole leak, the size of that hole could expand rapidly and it won’t be too long before your oil is pumped into the engine compartment tray, resulting in a seized engine fairly quickly.

### Preparation

If you are already self-winterizing your engine, and are handy with ratchets, box end wrenches, and don’t mind getting your hands dirty, you can certainly tackle this project.

### Tools required

1. A second set of hands (not required but incredibly helpful)
2. Camera (a phone camera will suffice)
3. Mechanics Mirror
4. Endoscope (not necessary but potentially useful)
5. Cleaning supplies (degreasers, oil absorbers, lots of towels)
6. Set of Metric wrenches and sockets (you will need both) from 8mm to 19mm
7. Plastic scraper (could be an old credit card)
8. Oil Extractor

### Parts list

15W-30 Oil

Penetrating Oil (liquid wrench or PB Blaster)

Thread Sealant (Permatex)

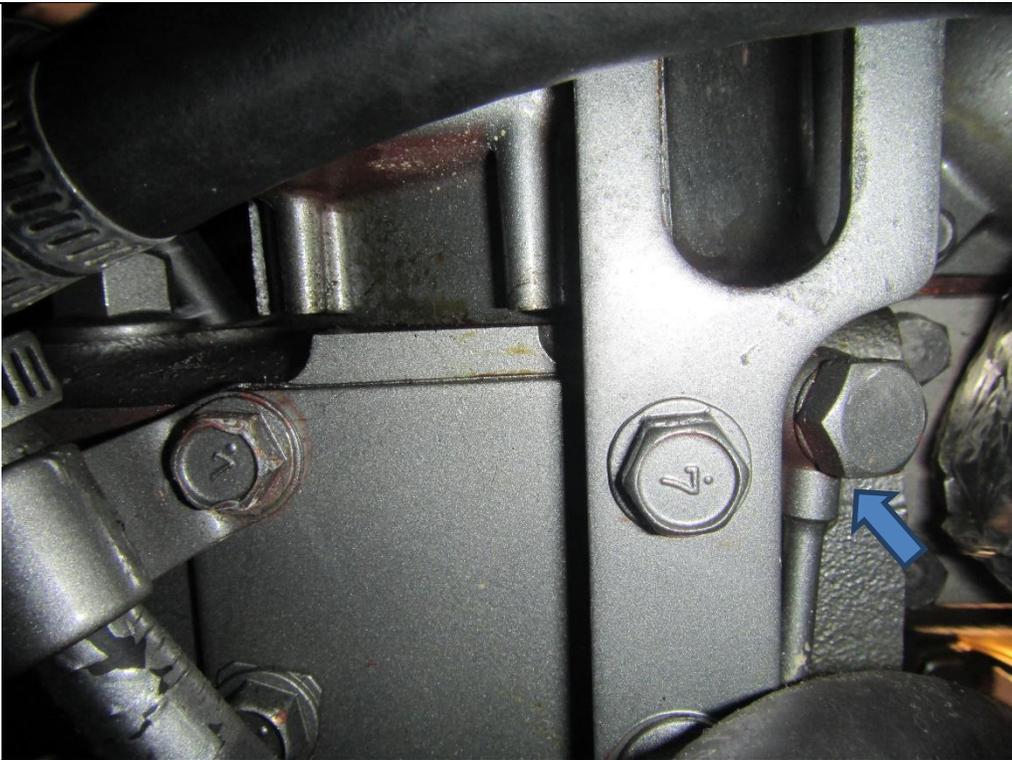
Engine Paint

Lube Oil Pipe Assembly (see Figure 31 of the Yanmar 3GM30 parts catalog

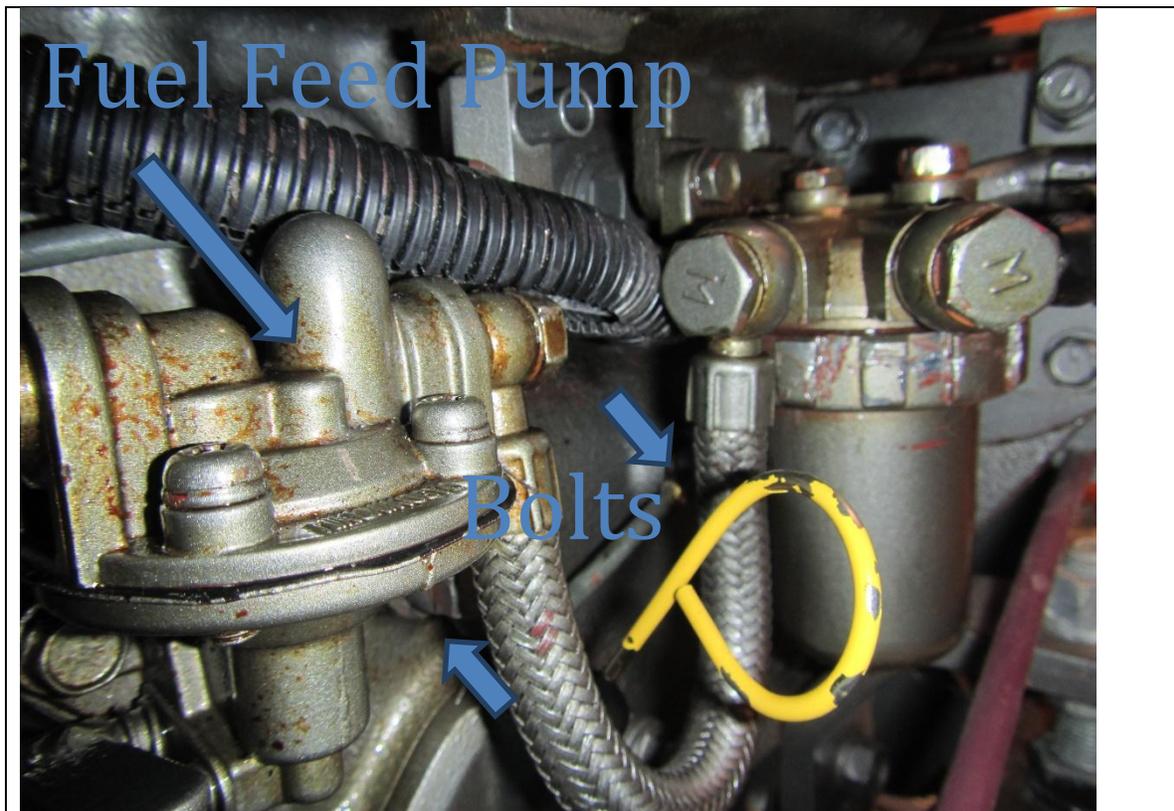
128370-39200 External oil pipe	Qty 1	~ \$50
23414-100000 10mm copper washers	Qty 2	~ \$1 ea.
23414-080000 8mm copper washers	Qty 6	~\$1 ea.



*Figure 1 Port side Banjo Bolt for External Oil Pipe*



*Figure 2 Aft Banjo Bolt for External Oil Pipe*



*Figure 3 Starboard side banjo bolts for External Oil Pipe*

Be sure to take lots of pictures during the process so you have a reference for where things were prior to taking them off the engine.

- 1) Use an oil extractor to remove the engine oil through the dipstick
- 2) Unbolt the fuel filter bracket from the engine, you will need to do this in order to get to the banjo bolt that is behind this filter. -You do not need to disconnect any fuel lines. (See Figure 3).
- 3) Clip any zip ties that hold the engine wiring harness in place near the starter to free up the harness away from the starter.
- 4) Unbolt the starter, this should give you enough room to remove the oil pipe. -You will need some socket extensions. -You will not need to remove any wiring.
- 5) Using a combination of sockets and box end wrenches, remove the 4 banjo bolts and 8 copper washers from the oil pipe. You will also need to remove the two bracket bolts that hold the fuel return lines and the oil pipe in place at the aft of the engine. You may notice a small amount of coolant drip from the oil pipe bracket bolt hole. It won't be much.

- 6) You should now be able to carefully remove the oil pipe from the engine. It will take some wiggling to get it all the way out.
- 7) The new oil pipe will be copper. It can be painted with self-etching primer and engine paint. **-Be sure to tape over the banjo fittings so that you do not paint the connections.**
- 8) Get the oil pipe into place and reverse your steps with new copper gaskets (washers). The copper gaskets are "Crush Washers" and can only be used once. Make sure all the mating surfaces are clean and free of deposits. **Do not overtighten the banjo bolts.** -These bolts are hollow and are not too difficult to shear off and the banjo fittings can also be damaged. When reinstalling the bracket bolts, use some thread sealant in order to prevent coolant leaks. There are no gaskets for these bolts and there are none identified in the parts catalog.
- 9) Reinstall the fuel filter bracket, and starter.
- 10) Replace zip ties that hold the wiring harness in place.
- 11) Replace the engine oil and check the level with the dipstick.**
- 11)12) Check coolant level to make up for any loss**
- ~~12)13)~~ Cleanup the engine, start, and look for leaks.