

## Removing the Onan 7500 From a Discovery Without a Generator Slide

My problem was a failed temperature sensor but as most of us early D owners know, anything more than basic service (oil, filters, spark arrestor service, coolant) requires the removal of the genny from the D. I got a quote from my local Cummins shop for about \$1,800 labor (\$200/hour) to change the \$47 sensor. They had removed my genny in 2014 for \$600 labor. Richard Ruck encouraged me to do it myself so I did and reported this in the above mentioned thread.

Here is how I did it:

- 1. Remove the lower half of the front cap (everything below the "hood"):** There are about a dozen 1/4" bolts and 3 pop rivets that hold the fiberglass cap on. A bit difficult to access a few of them but with a ratchet and end wrench, certainly possible. There are also 4 - 3/8" bolts on brackets that bolt to the two frame rails. That is all that holds the cap in place. However, one must also remove both headlights, 4 bolts each, and the wires to the fog lights. It is not heavy, just lift it out of place and move aside.
- 2. Remove the generator from the D:** First you need to disconnect both the DC cables from the batteries (used to start the genny) and the AC wires which carry the current from the genny to the BCC. Remove the fuel lines (feed and return). The genny is supported by two cradles. I chose to leave the cradles in place and remove the 4 - 5/16 bolts which hold the genny to the cradles and slide the genny forward. I used a transmission jack and some blocks. A little tricky but no lifting, let the jack do the work.
- 3. Disassemble the genny housing:** I moved the entire genny into my shop and put it on some steel saw horses. The top and 3 sides can be removed quite easily which exposes the entire engine and generator.
- 4. Replace the "wear" items and failed components:** The "failed" temperature sensor is right below the thermostat housing and easily accessible. A utube said it is often rusted in and difficult to remove but mine came right out. I also replaced a perfectly good thermostat and gasket. The water pump is driven by a V-belt with NO tensioner! The belt I removed was installed in 2014 and has about 200 hours of use, but was, in my opinion, very loose. I installed the new OEM belt and it had significantly more tension. But I conclude even a "loose" belt will turn the very small water pump due to the 180 degree wrap of the belt.
- 5. Test run it on the bench:** I decided it was best to run it before reinstalling in the D. I used the bottom half of a milk jug with diesel fuel in it and put both fuel lines below the fuel level. Ran a set of jumper cables from my pickup battery, PRIMED it, and it started right up. I ran it for 15 minutes, at idle. I had no way to "load" the engine. But with the failed temperature sensor it would only run for 5 minutes (with no load) then shut down.
- 6. Reinstall genny in D: Just reversed the process.** Lifted in place with transmission jack and bolted in. My buddy noticed the entire genny seemed to be "twisted" and we discovered one of the cradles had been bent so I had to remove it and straighten it. I replaced all the 1/4 bolts with stainless steel. I will mention the terminal block which connects the AC wires from the generator fields to the cables going to the BCC, was quite rusty and I had to soak them with PB Blaster for a couple of days. When I reinstalled it one of them stripped. I tapped it out to one size larger and made sure to put anti oxidant grease on all connections. I then test ran it at 50 amps, about 6,000 watts (1500 watt space heater, microwave, air fryer, and water heater) for 15 minutes and declared success.
- 7. I would say I spent 20 - 30 hours total.** Probably 6 of those were fussing with the rusty terminal block.

Here are a few photos of the process.

New belt installed and test running on bench with fuel lines in milk jug



Carrying genny with tractor to reinstall



Genny on transmission jack ready to roll into place



Genny bolted in and ready to lift front cap into place



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