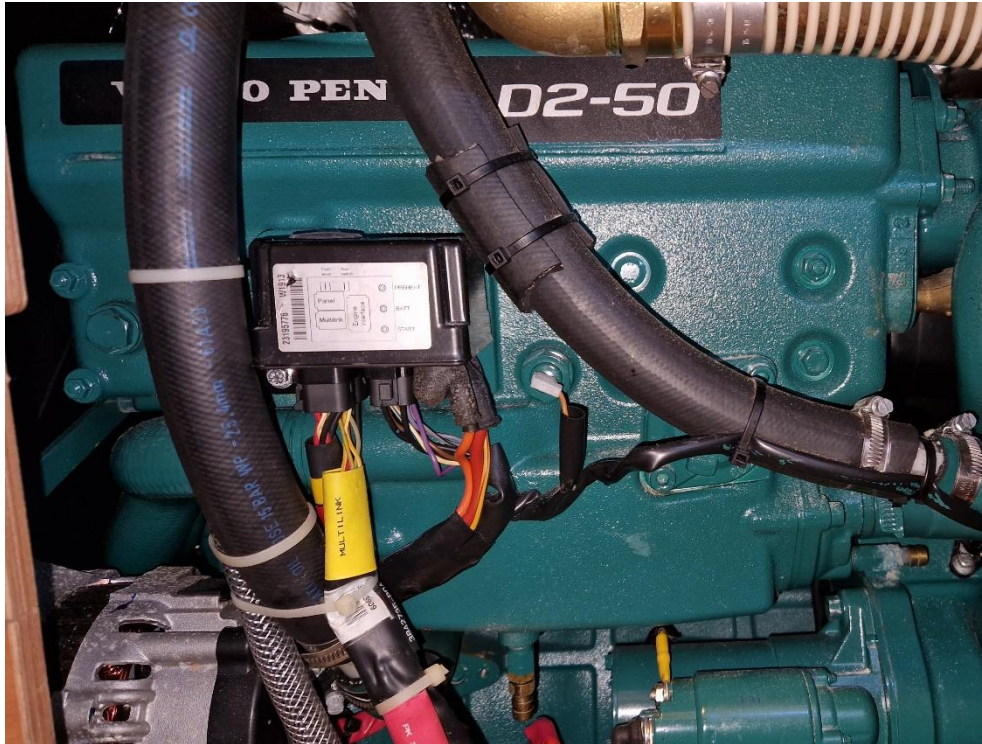


## Engine TROUBLE and potential SAFETY disaster!

Our 4 years old Volvo Penta D2-50 with 425h running time suddenly refused to start. The Volvo Penta starting panel was completely “dead”. Absolutely nothing happened when pressing the ON/OFF button or any other button. We switched off and on the battery power to the engine several times, dismantled the starting keypad, opened to the engine room and shook the electric harnesses for the MDI (Mechanical Diesel Interface) electronic control unit, disconnected/reconnected the connectors in the harness, etc, etc, but nothing helped. We prepared to leave the harbor by sail but then suddenly, without any special reason, the start panel woke up and the engine started as it should. We left without problems and decided to not switch off the engine but let it run the whole way home.

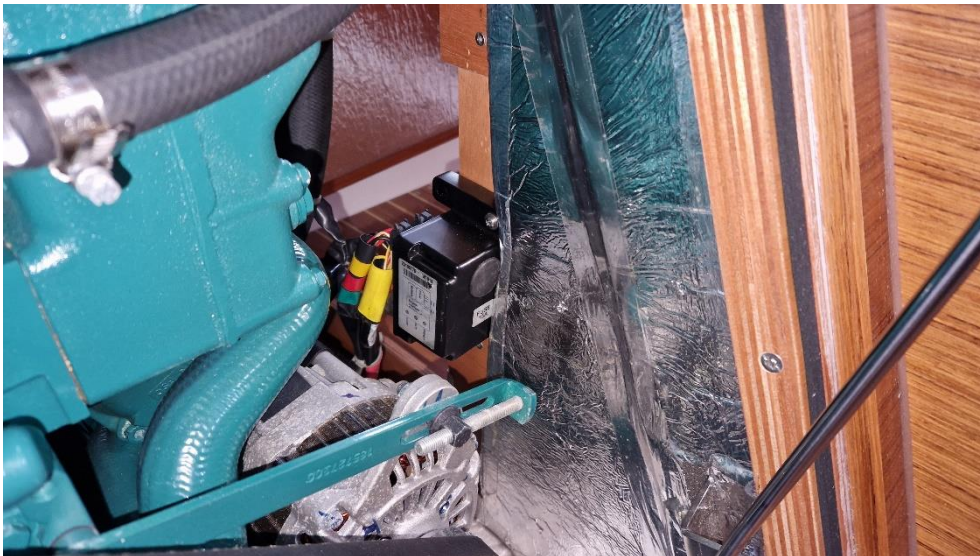
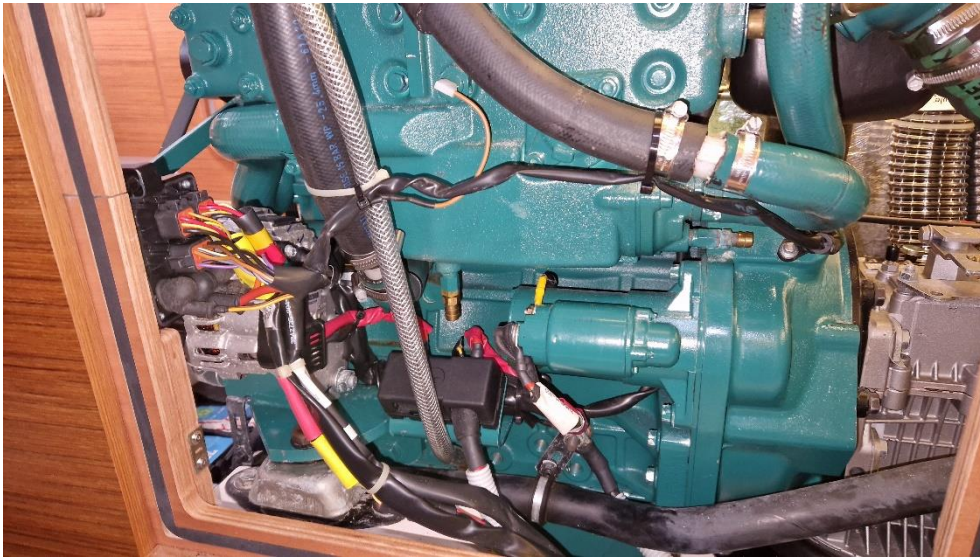


MDI control unit as standard mounted on engine. Vibrations and heat!

However, the MDI had other plans and surprises for us. After about half an hour the engine suddenly decreased its running rpm speed and then speeded up again and this continued several times. The display in the round RPM instrument showed the STOP symbol flashing up a little now and then when the rpm decreased and this is exactly the symbol that usually comes up when pressing the STOP button, ie when the MDI is in shut engine down mode. After a while everything seemed normal and we were happy the engine did not stop but this happiness did not last for long because suddenly the engine stopped. Luckily the starting panel was not dead this time and the engine started when pressing the START button. For the rest of the trip the engine worked fine and we moored in our home port. Now it was not possible to stop the engine by using the STOP button at first but after some attempts it suddenly worked and the engine was stopped electronically. As we all know the engine can be stopped mechanically with the lever on the fuel injection pump but this was not needed this time.

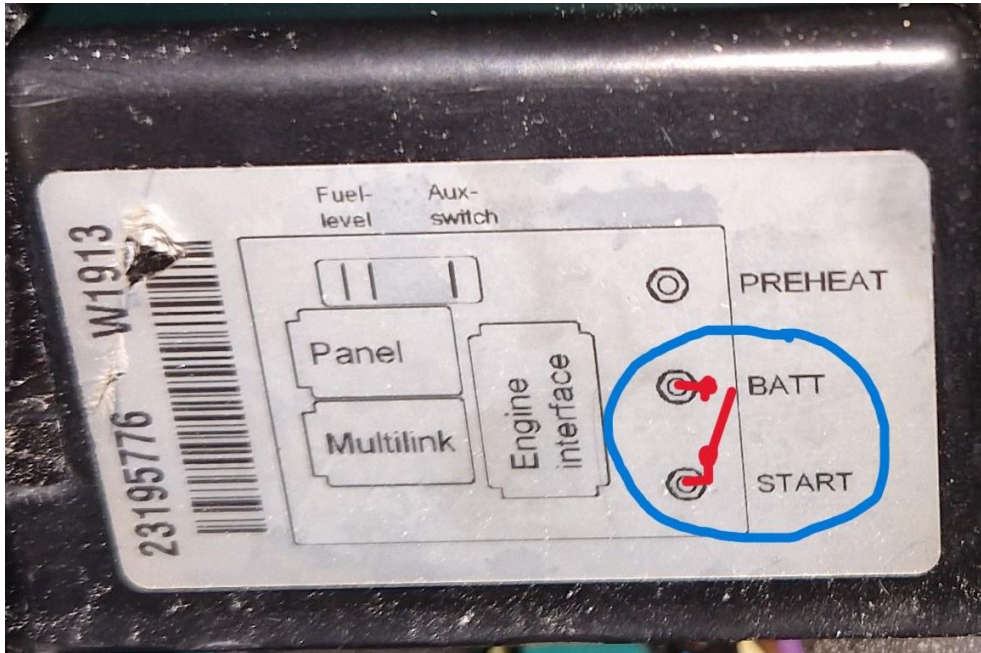
When searching the internet I found several articles about the problems with the MDI unit and many frustrated and upset users where some changed the MDI several times. Obviously this is a well-known problem and it seems it is continuing even after several upgrade revisions by Volvo Penta. We had the latest version, #23195776 label on our MDI, while the ordering number for some strange reason is #23231607. A new MDI had a price of around EUR 700 but we were lucky the engine had 5 years extended warranty for some types of faults and we got a new MDI without cost from Volvo Penta or maybe it was goodwill from their side.

The new MDI was mounted on the engine room bulkhead to decrease vibrations and heat. The harness was long enough and only the brown cable for the water temperature had to be extended.



MDI control unit mounted on engine room bulkhead

Added an emergency start button bypassing the MDI with a button connecting the MDI "BATT" and "START" connectors. Seems to be a diode or similar inside the MDI (ohm resistance measured) so the current does not go backwards into the MDI but to the start solenoid.



Emergency START button

An extra feature could also be to make sure the MDI cannot by itself switch off the engine as it already did for us with the old faulty MDI. The stop solenoid can be disconnected from the MDI and instead use the lever (via some mechanical arrangement maybe) on the fuel pump to stop. I tested this and with a 2.2kOhm resistor instead of the disconnected stop solenoid to not trigger the alarm that starts when the stop solenoid is disconnected. Just imagine what could happen when maneuvering by engine in harbor or close to shore/cliffs in leeward in strong winds and then suddenly the MDI decide to stop the engine. Indeed scary!!

Finally I decided to keep the solenoid connected since we now have a new MDI that is not mounted on the engine and exposed for vibrations and heat so we hope it will not break down anymore for us.

It can also be good to be prepared if the generator does not start charging. 12V may be required to connect to D+ on the generator which is done by (a working) MDI but may have to be done manually if the MDI fails. I have no extra equipment for this since it will not be time critical but I will solve it if/when needed with some spare cable.