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Last updated: December 2nd, 2016

Husky

VDO Hour Meter Repair

This is my solution to fix the display on a combined VDO tachometer/hourmeter, which is used in many OEM installations, including Isuzu, Volvo Penta Yanmar, and many others.

Software (complete, with source code), and mounting instructions can be found below.

My solution is based on an idea from a member (Stuart) on the [Canal World Forums](#). You can find additional background information including son of how to fit everything in the VDO enclosure there.



Update December 2016

This repair has now been running for two years on my boat without any issues. Initially I was a bit worried about the OLED and humidity con but it does not seem to be a problem. Also the hour meter is very easy to read at night, and a bit difficult to read during daylight. However I l hunch that the original display would be no better during daylight, and certainly much worse during night.

Also note that [this guy \(boatstuff.se\)](#) started selling replacements of the original display in the spring of 2016. They're quite pricy, though at ~4 and they'll likely also have a limited lifespan. The proposed OLED solution shown here should be well below 10 EUR.

Arduino code for VDO repair

Use this code to have the Arduino Nano convert the 7-segment LCD memory map to OLED memory map.

To use:

1. [Install the Arduino IDE version 1.0.6](#)

Note: It has to be version 1.0.6 as the newer 1.6 series uses a new GNU compiler, which seems to be incompatible with older code, i this.

2. Import the OLED directory as an Arduino library
3. Compile and download this sketch
4. Enjoy

Release 2 has now been uploaded, it has the following improvements:

- Nicer Arial style font
- 7-segment font
- A tool to convert a picture into a startup splashscreen, so you can have the name of your boat shown on startup

Note that the OLED library has changed, so if you already installed the release 1 version you have to manually overwrite the files in your "My Documents/Arduino" folder.

Unless I get feedback about problems or feature requests I consider this the final version.

[Download the Arduino code](#)

If you find this useful, a small donation would be greatly appreciated :-)

Use the [contact form](#) to request my paypal account.

Of course you can also use the contact form if you have any questions!

Possible Improvements

- Put Arduino to sleep mode.
- Power consumption has been increased quite a bit with the LED and Arduino. Hopefully not too much!

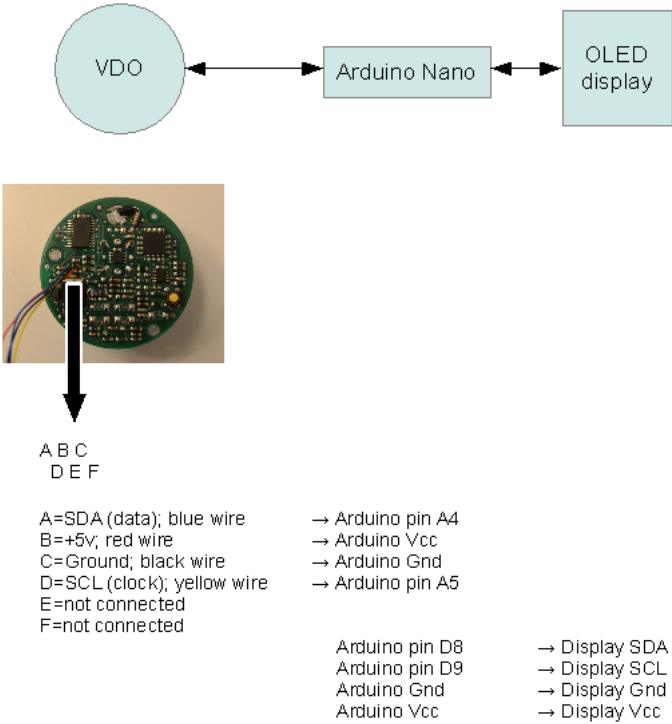
Connections

First connect the Arduino to the OLED display, as shown in the diagram below. Then download the code. When everything is good to go, co VDO unit to the Arduino. Note that the Vin pin should **not** be used as it is connected to a power regulator. Instead you can use the Vcc pin i is a second Vcc pin in the 6-pin ISP programming header, if you don't want to connect two wires to the same hole (it's not really meant for t so it's not super-easy to fit).

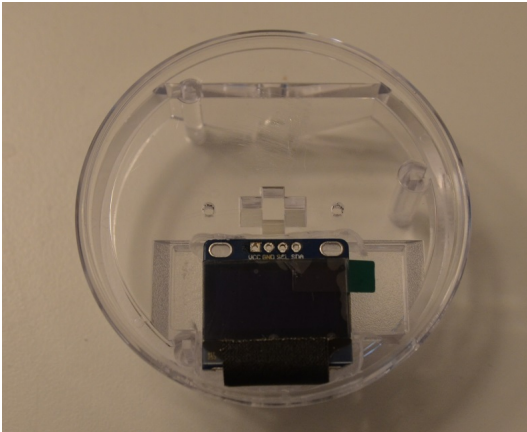
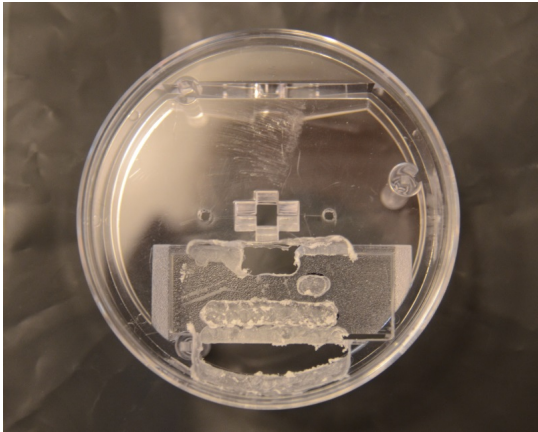
When the Arduino Vcc is connected to the VDO display you need to have 12V power on the VDO unit while the USB cable is connected t Arduino. Otherwise the VDO unit is drawing too much current from the USB connection so the Arduino will not function. Your Arduino Nar have a diode between the USB power and Vcc, which means that it is safe to connect USB power while the VDO powers Vcc on the Ardu However it is possible that certain cheap knock-offs are not fitted with this in order to save two cents, so be careful!

Btw: I used an Arduino Nano without pin headers mounted. There was not enough room in my VDO case for the pins to fit.

Diagram



Pictures

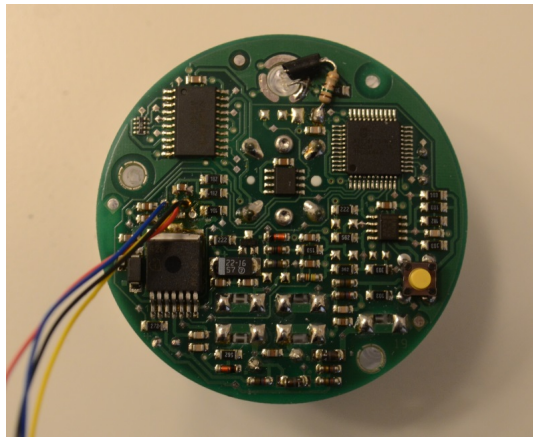


The transparent plastic milled to fit the OLED display. I deliberately tried to avoid cutting the outer circular part. It is used to reflect the red light onto the unit. The hole is for the wires and the deep areas are because some of the capacitors are a little raised. I used a Proxxon tool with a suitable milling bit.

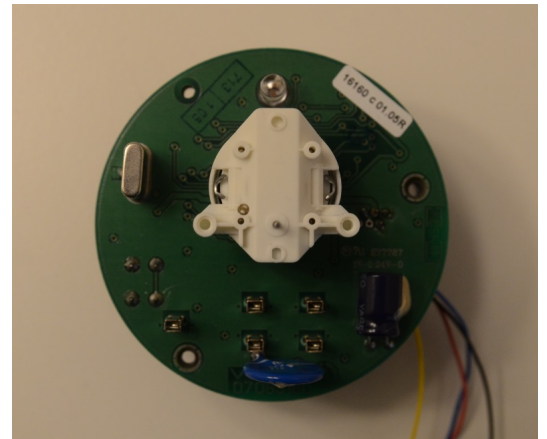
OLED display fits perfectly!



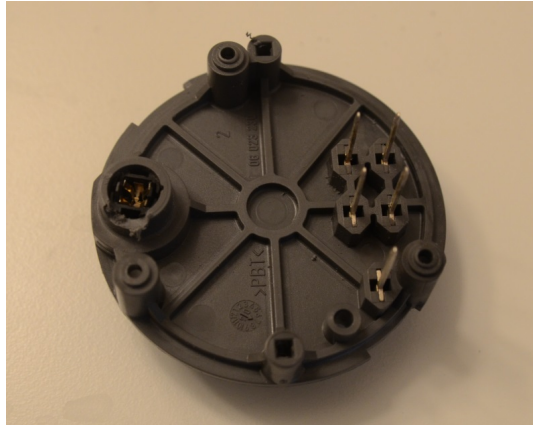
Cover added. The protective film on the OLED display is still fitted.



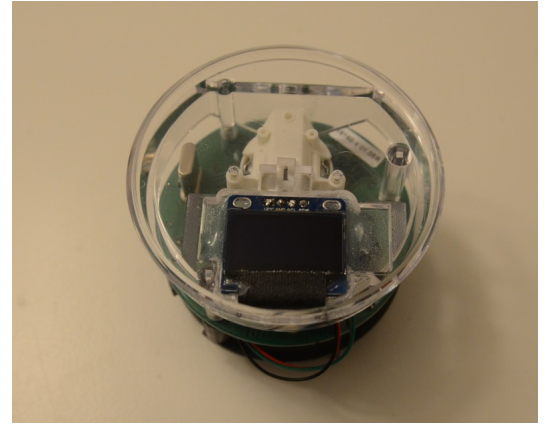
The PCB with wires and LED mounted.



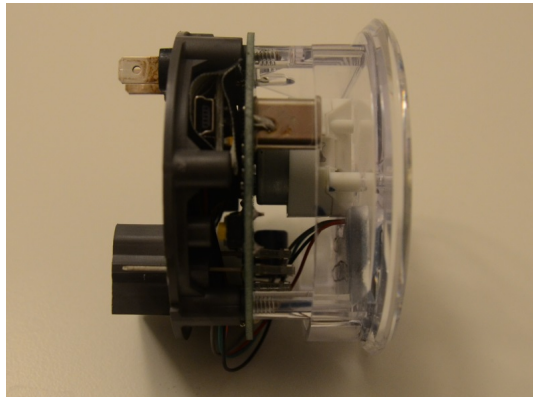
The PCB with the high bright red LED mounted.



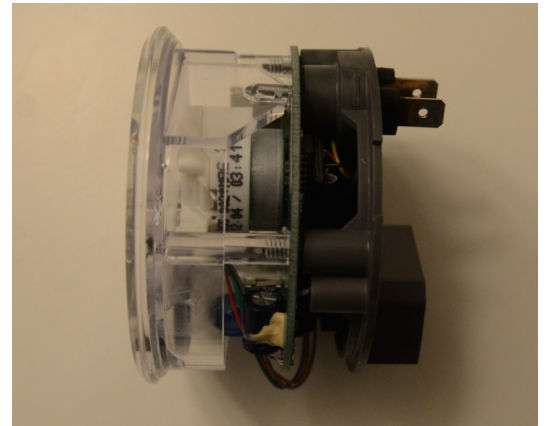
I had to mill the rear cover a little in order for the LED connections to fit.



Mounted and glued. I used silicon coating, but you can use any gl



It just barely fits with the Arduino!



From the other side.



Powered up with the custom logo. You can easily create your own using Paint and the tool I created.



Hour counter now working.



The VDO programming modes also work.



The VDO programming modes also work.



One picture of the arial style font. I forgot to take it before putting the instrument together..