Nordic Tugs, Inc.
11367 Higgins Airport Way Burlington, WA 98233
Phone: (360) 757-8847 Fax: (360) 757-8831

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To: Nordic Tug Owners and Dealers

Re: Cummins diesel view fuel tank calibration

Applies to all QSB, QSC, and QSL engine packages.

Tools needed: Volt Meter, #0 Phillips Screw driver from commissioning kit, 3/8" wrench or nut driver if a 42, 9mm wrench or nut driver if a 37.

All Nordic Tugs equipped with Cummins Quantum series electronic diesel engines use the diesel view display to monitor fuel levels in the fuel tanks. The following will explain how to calibrate this feature.

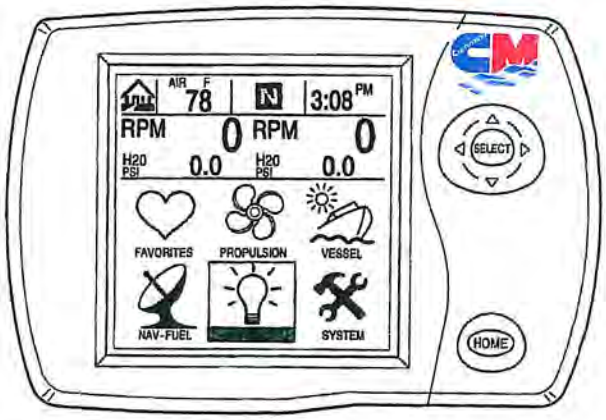


Fig. 1

1) Verify the Start battery is on and then turn the key switch on. The diesel view should power on and after hitting the HOME button should look like the menu in fig 1.
2) Toggle over to SYSTEM and press SELECT
3) Scroll down to SYSEM CONFIGURATION and press SELECT
4) Scroll down to TANK CONFIGURATION and press SELECT
5) Verify this menu displays STBD TANK 1 as FUEL and STBD TANK 2 as FUEL. PORT TANK 1 and 2 should be UNUSED. For a single

engine installation, the engine is designated STBD. Press SELECT when this is done

6) The next page the capacity of the tank must be entered. Please use the following figures:
   a. NT 37' use 162 Gal per tank (adjust by pushing the left or right arrow)
   b. NT 42' use 280 Gal per tank (adjust by pushing the left or right arrow)
7) The final step is to select DEFAULT calibration. Press SELECT and the diesel view will be calibrated.

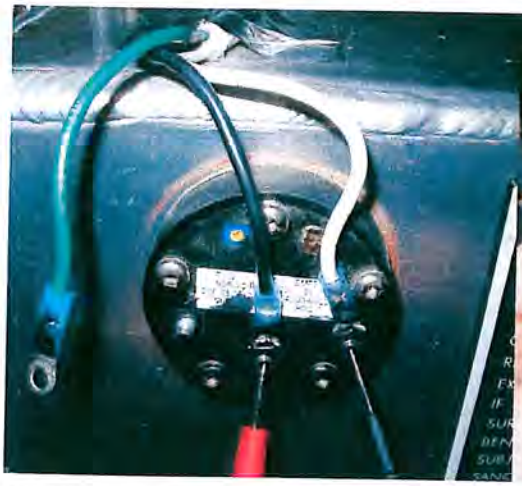
After completing these steps, power the diesel view down and then turn it back on. Once back at the home screen, select the "vessel data" menu and then toggle left or right with the arrows until reaching the fuel level screens. Wait for the tank level readings to stabilize. This make take up to one full minute. Read the displayed volume in each tank and compare it to the know volume (see chart 1). If this is accurate for both tanks, the installation is complete. If not, the full level potentiometer will need to be adjusted. Turn the key off.

1) Locate the sending units located on the fuel tanks. In the 42, these will be in the engine room on the aft end of the fuel tanks facing inboard. On the 37, they will be in the tank room located on the forward end of the fuel tanks facing inboard.

2) You will need to remove the green wire that is connected to the "signal" terminal on the sending unit (pic 1). This will require a 3/8" wrench or nut driver on a 42 and a 9mm wrench or nut driver on a 37. Once this wire is removed from the terminal, make sure it is not resting on the other two terminals and turn the ignition key back on (make sure the "instrument" breaker is on).

(pic 1)

3) With a voltmeter set to read 12 volts, place the positive probe on the white wire, and the negative probe on the black wire, located on the "neg" terminal (pic 2). If this reads 12 volts +/- .5 volts proceed to step 5. If this reads 0 volts, move just the negative probe to the green wire that was disconnected in step 2 (pic 3). If you read 12 volts between the white and green wire, proceed to step 4.



(pic 2)

(pic 3)

4) If there was 12 volts between the white power wire and the green signal wire, then turn off the ignition key switch and remove the black wire from the "neg" terminal. Now place the green wire onto the terminal labeled "neg" from which you just removed the black wire. Place the black wire on the terminal labeled "signal". Tighten the nuts and turn the key switch back on. Return to the fuel monitors in the "Vessel Data" menu.

5) Once you have verified the voltage to the correct terminals, it is time to adjust the full level potentiometer. This is a small white plastic Phillips head screw located in the upper left hand corner of the sending unit. Turn clockwise to increase the volume, and counterclockwise to decrease. Be careful, as a very small turn will have a dramatic affect on the readings. Make sure to wait 1 minute between adjustments, as the display will take this time to "settle" to the new reading. Due to some confusion, you will have to verify which tank the diesel view is monitoring. Tank 1 and Tank 2 are displayed on the diesel view, not Port or Starboard. If you start by adjusting the port tank potentiometer, have someone monitor the diesel view to see which tank (1 or 2) is changing. This will tell you which tank is tank 1 and which is tank 2. Record this in your ship's logbook for future reference. Once you have this established, continue to adjust the tanks in very small increments. It is very helpful to have someone monitoring the diesel view

and relay the volume read out back to you. This adjustment can be made with any amount of fuel in the tanks. Just refer to table 1 to verify quantity and adjust the read out to match those. Note: There is also a low level potentiometer that is sealed on the sender. This is adjusted and sealed by the sender manufacturer and should not be tampered with.

37 Fuel Tank Gallons	Inches from Bottom	**42 Fuel Tank** Gallons	Inches from Bottom
0.7	1	5.1	1
3.3	2	12.3	2
8.0	3	20.4	3
14.8	4	29.4	4
23.3	5	38.8	5
32.1	6	48.2	6
41.0	7	57.8	7
50.1	8	67.5	8
59.2	9	77.4	9
68.5	10	87.3	10
77.9	11	97.5	11
87.5	12	107.7	12
97.2	13	118.1	13
107.0	14	128.6	14
116.9	15	139.2	15
126.9	16	150.0	16
137.1	17	160.9	17
147.4	18	171.9	18
157.8	19	183.1	19
164.1	20	194.4	20
		205.8	21
		217.4	22
		229.1	23
		240.9	24
		252.8	25
		264.9	26
		281.0	27

(Table. 1)