

Top Dead Center Tester

Instruction Manual

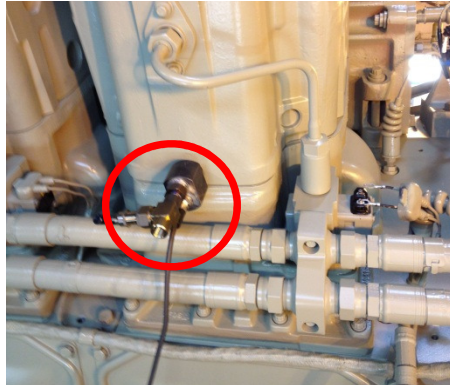
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Before making any connections to the engine make sure that it has been turned off for safety.

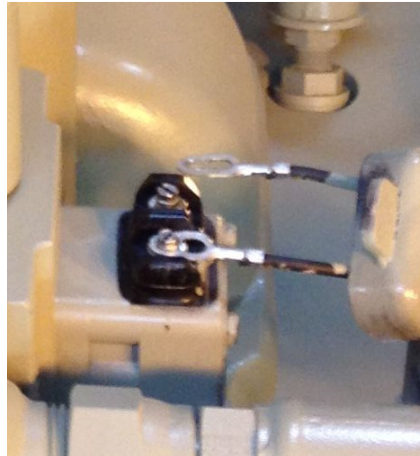
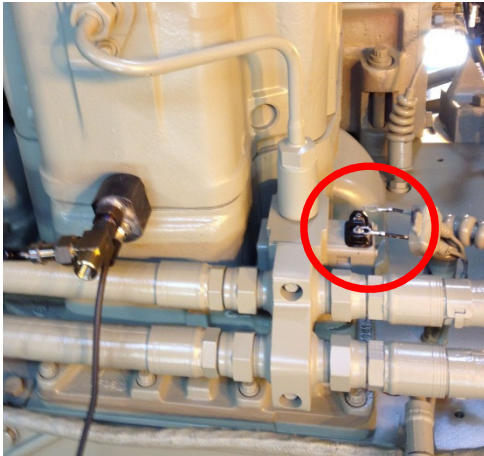
1. Connect the supplied pressure sensor (HE PN: 100-004) to the supplied pressure sensor mount (HE PN: 100-006 for FDL engines and HE PN: 100-007 for GEVO engines).

Be very careful when installing the pressure sensor because it is delicate and expensive.

2. Remove the compression relief from the proper cylinder on the engine. This will be the 8th right cylinder on the FDL engines and the 1st left cylinder on the GEVO engines looking from the alternator end. **BE CAREFUL. THE COMPRESSION RELIEF VALVE MAY BE EXTREMELY HOT IF THE ENGINE HAS BEEN RUNNING.**



3. Install the sensor/mount assembly into the place where the compression relief was just removed on the cylinder.
4. Disconnect one of the wires for the fuel pump to prevent the cylinder from firing.
Be sure to do this as a firing cylinder may damage the pressure sensor.



5. Connect the supplied pressure sensor cable (HE PN: 100-003) from the TDC tester to the pressure sensor itself.

6. Disconnect the speed sensor cable from the aux cab and connect the main test cable from the tester (HE PN: 100-002 for FDL engines and HE PN: 100-005 for GEVO engines). In the aux cab, the cable connects to EGU-A for FDL engines and ECU-2 for GEVO engines.

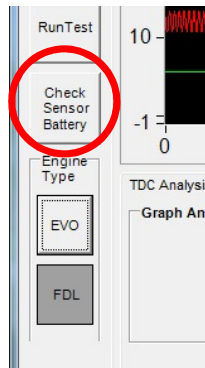


7. Reconnect the speed sensor cable from the engine to the backside of the main cable.

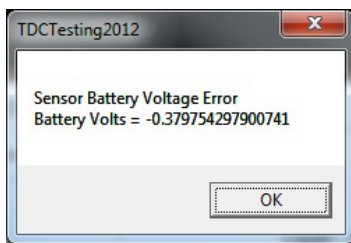


8. On the desktop double-click the icon for the TDC Testing 2012 icon for the engine type that you want to run (FDL TDC Testing 2012 or EVO TDC Testing 2012).
9. On the login screen enter the serial number of the engine to be tested.

10. The program will then pop up. On the left hand side of the screen click the “Check Sensor Battery” button to verify the voltage of the 9VDC battery and that the tester hardware is functioning properly.



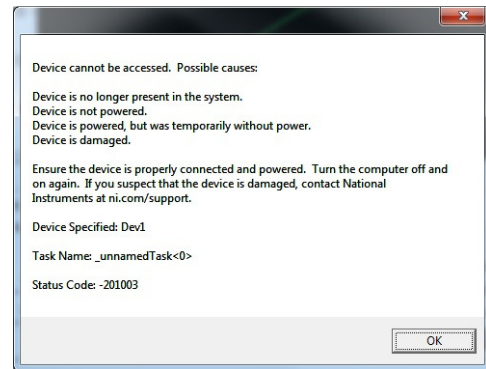
11. Near the middle of the screen, the battery voltage will pop up in the “Sensor Battery” box. If the battery voltage is low, or there is a problem with the tester hardware, a dialog box will pop up displaying any errors.



No Battery Connected



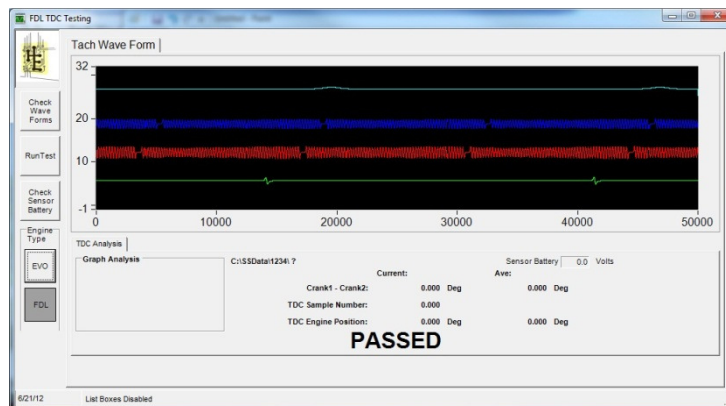
Dead Battery



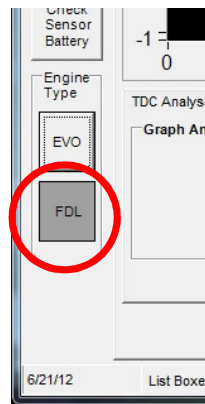
Internal Hardware Issue

12. Idle the engine.

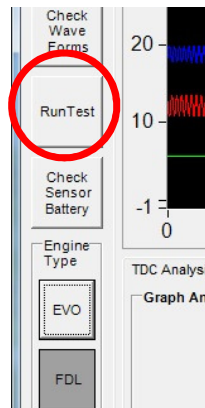
13. Click the “Check Waveforms” button on the left hand side of the screen to verify that the tester is receiving signals from the sensors. 4 different colors of waveforms should appear on the screen.



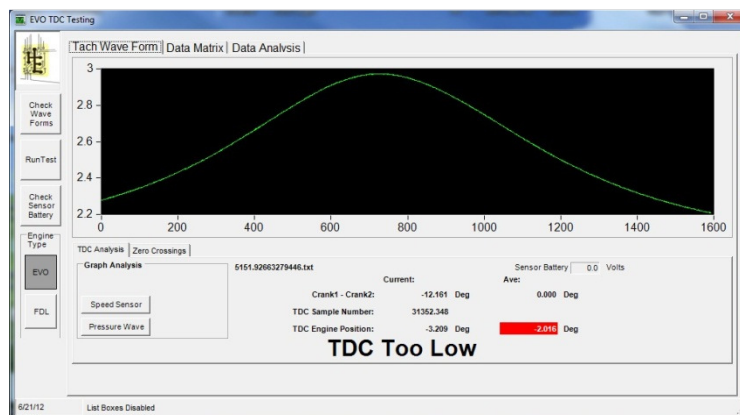
14. Before starting the test. Make sure that the correct engine type is highlighted gray on the left hand side of the screen.



15. Click "Run Test" on the left hand side of the screen.



16. The test should take approximately 5 minutes to complete. During the test there should be a message at the bottom of the screen that says "Running..." with the current step number.
17. When the test is completed, the final result will be displayed at the bottom of the screen in large font. Possible results are Passed, Failed, TDC Too High, and TDC Too Low.



18. When finished with the tester, repackage all supplied leads and sensors inside of the case and reconnect the compression relief valve and fuel pump wire on the engine. Remove 9-volt battery from tester to prevent it from draining while not in use. **BE CAREFUL. THE PRESSURE SENSOR/MOUNT MAY BE EXTREMELY HOT IF THE ENGINE HAS BEEN RUNNING.**

100-001: Complete TDC Kit



100-002: EGU (FDL) Main Cable



100-003: Pressure Sensor Cable





100-005: ECU (GEVO) Main Cable



100-006: FDL Pressure Sensor Mount



100-007: GEVO Pressure Sensor Mount



For Technical Support for the Top Dead Center Kit please contact our shop at 724 376 2239 or email us at bryan@hapeman.com OR jacob.peters@hapeman.com