

Common Troubleshooting Tips

Vehicle Cranks but does not Start

The most common reason related to the fuel system that the engine will crank but does not start is because the engine is not getting the proper fuel pressure from the system regulator. The regulator is set to deliver approximately 125 psi to the engine.

With the key on, check that the low pressure fuel gauge is reading approximately 125 psi. The low pressure gauge is located inside the service panel on the end of the tank with the fuel management module on the side mount system and near the outlet of the regulator on the back of cab system.

If the low pressure gauge is reading 0 psi and does not move when the key is turned on, the most common causes are:

1. Not getting fuel pressure to the inlet of the regulator. Make sure the high pressure gauge is showing fuel pressure and make sure Manual Shutoff Valve is open and the tank valves are open.
2. The fuel solenoid is not opening. When the key is turned on there should be an audible click from the solenoid valve. If the valve is not clicking:
 - a. Check to make sure the harness is plugged into the fuel solenoid valve located on the inlet of the regulator.
 - b. Check to make sure the fuel solenoid relay is switching. The software controls the fuel solenoid relay and will not allow the fuel solenoid to open in certain situations. The most common is that if the engine reaches 300 rpm's and then drops below 200 rpm's the software will close the solenoid valve. This is a safety feature in case the engine stops running for some reason and the driver does not shut off the key such as in a rollover accident. Once the ECU sees the key switch cycled off and then back on it will open the solenoid again.
 - c. With the key on, measure the voltage between the two terminals on the fuel solenoid connector. It should have approximately 12 volts (battery voltage). If it does have 12 volts and the coil is not switching, replace the coil.
 - i. If there is not any voltage, check both the ignition power and battery power fuses in the fuse box. There is a 10 amp fuse for both the battery power and the ignition power.
 - ii. Check the ground connection. On a Peterbilt NGP connection it will be on a ground stud behind the driver's kick panel. On a Peterbilt legacy cab or medium duty chassis it will be in the spare power and ground connections behind the A-panel (panel with speedometer/tach).
 - iii. On the Momentum chassis interface harness near where it plugs into the fuel system, there is a three pin connector labeled Aux Power. Measure between the white wire (ground) and the red wire (battery power). It should be approximately 12 volts. Measure voltage between the white wire (ground wire) and the orange wire (switched power) with the key on. It should be approximately 12 volts. If there is not 12 volts on these check connections back towards the fuse block.

- iv. Inside the access panel there is a three pin connector labeled Aux Power with a white wire, red wire and orange wire. Measure between the white wire (ground) and the red wire (battery power). It should be approximately 12 volts. Measure voltage between the white wire (ground wire) and the orange wire (switched power) with the key on. It should be approximately 12 volts. If there is not 12 volts check connections between the chassis interface harness and the tank harness.
- d. If the fuel solenoid is clicking and there is pressure on the high pressure fuel gauge the issue is most likely the high pressure filter or the regulator itself.
 - i. Check the high pressure filter and make sure it is not clogged or frozen.
 - 1. Close all tank end valves.
 - 2. Open the bleed valve until all pressure is out of the tubing.
 - 3. Open the peep hole cover on the bottom of the end cap on a side mount system.
 - 4. Remove the filter housing and make sure it is not full of oil or other debris, and make certain it is not frozen.
- e. If the solenoid is clicking, there is pressure on the high pressure gauge, the filter is not clogged, and then the issue is most likely the fuel regulator. The regulator is not serviceable and most likely will need to be replaced.

Vehicle Will Not Crank

The chassis has a drive away protection system that prevents the engine from cranking if the fueling doors are open or if the cap is off the bumper fill receptacle. The fuel system ECU controls a Start Interrupt relay and prevents the engine from cranking if any of the doors covering fueling receptacles are open, or if the cap is off the bumper fill.

1. Check to make sure all the doors are closed. The door sensors are normally closed sensors and will send voltage to the ECM if the door is open.
2. Make sure the bumper fill cap is on. This will send a ground signal to the fuel system ECM.
3. If the doors are all closed and the bumper fill cap is on
 - a. Get a piece of metal and put on the face of the door sensor. The sensor has a light on the back of it, and as a piece of metal is brought to the face of the sensor and removed the light should go on and off.
 - i. If it does not, check to make sure all the connectors are in the sensor connector good and have not pushed out.
 - ii. Measure the voltage at the sensor and make sure there is battery voltage at the sensors.
 - b. Behind the key switch on the cranking wire from the key switch there will be connectors plugging into the Momentum chassis interface harness labeled Start Interrupt. Make sure the yellow wire in the Momentum Chassis Interface harness is plugged into the key switch side of the OEM harness and the gray wire should be going to the starter side.
 - c. Disconnect the OEM harness connectors from the Momentum Chassis Interface connectors and plug the two connectors in the OEM harness back into each other. If the engine still does not crank the issue is on the OEM side.
 - d. Remove the Starter Interrupt relay from the Momentum fuel system harness make certain the Momentum chassis interface harness Start Interrupt connectors are plugged back into the OEM dash start circuit that were removed in the previous step.

- i. With someone turning the key to start, measure the voltage between pin 85 and 86 of the Start Interrupt relay.
 1. If there is 12 volts, measure voltage between a ground in the cab and both of the start interrupt connectors in the cab from step C. If there is 12 volts on the yellow wire but not on the gray wire, check connections from the Momentum Start Interrupt relay back to the Start Interrupt Connector.
 2. Check the electrical connection between the Momentum chassis interface harness and the Momentum tank harness for any pushed terminals or corrosion.
 3. Check the relay to ensure it is switching.
 4. Remove the relay and place a jumper between pins 30 and 87 of the relay and see if it cranks. If it cranks replace the relay.

Common Maintenance Items

WARNING: PRD PRESSURE LINES ARE ALWAYS PRESSURIZED REGARDLESS OF POSITION OF ANY VALVES OR ANY OTHER COMPONENTS. IN THE MOMENTUM FUEL TECHNOLOGIES SYSTEMS THESE ARE THE RED LINES. IT IS NOT SAFE TO DISCONNECT OR TIGHTEN THESE LINES UNLESS THE TANKS ARE FULLY VENTED AND DEPRESSURIZED.

Fuel System Defueling Procedure

1. Isolate any cylinder which you do not want to defuel by turning the Manual Shut-Off Valve 1/4-turn clockwise to the OFF/CLOSED position.
2. To relieve the pressure on the defuel nipple, turn the 3-way defuel valve to Vent position. This will relieve any pressure between the valves and defuel nipple through the muffler.
3. Connect the defueling hose to the defueling nipple.
4. Connect earth ground between the cylinders and the vent system.
5. Connect the defueling hose to the vent system using a conductive high-pressure defueling hose.
6. Ensure that the defueling hose end is located outside and away from building and is above the height of any door openings.
7. Mark the vent hose end with marker and keep people clear from the area.
8. Turn the 3-way valve slowly to VENT, keeping the flow rate steady to prevent icing.

Draining or Changing the High Pressure Filter

Depressurizing Procedure

Before you drain or change the high-pressure filter, use the following procedure to remove fuel pressure from the lines connected to the high-pressure filter assembly.

1. Ensure that the ignition is turned OFF.
2. Turn all cylinder Manual Shut-Off Valves (one on each cylinder) 1/4-turn clockwise to the OFF/CLOSED position.
3. Ensure that the FMM Manual Shut-Off Valve is in the ON/OPEN position.
4. Start the vehicle and run the engine until it stops.
5. Turn the vehicle ignition switch OFF. Make sure that the proper vehicle lock-out procedures are followed. Remove the ignition key.
6. Check the gauges on the fill panel to ensure that all the pressure is relieved.

7. Open the FMM door or remove the service access panel. The location of the filter may vary by configuration.
8. Relieve the remaining pressure by slowly opening the bleed valve.

High Pressure Filter Drain Procedure

1. Remove the excess fuel in the filter per the depressurizing procedure, if not already done so.
2. Ensure the FMM Manual Shut-Off Valve is in the OFF/CLOSED position.
3. Locate and access the high pressure coalescing filter inside the service access door/panel. The filter location will vary, depending on your system configuration.
4. Locate the plugged drain port in the bottom of the filter bowl. Hold a cloth under the port to catch the draining liquid. Remove the plug and allow the accumulated liquid to drain from the filter.
5. Replace the drain plug and torque to 27 ft-lbs.
6. Confirm the bleed valve is closed.
7. Slowly open the FMM Manual Shut-Off Valve.
8. Check the high pressure gauge to determine if the fuel pressure has been restored.

High Pressure Filter Change Procedure

1. Remove the excess fuel in the filter per the depressurization procedure, if not already done so.
2. Ensure the FMM Manual Shut-Off Valve is in the OFF/CLOSED position.
3. Locate and access the high pressure coalescing filter inside the service access door/panel. The filter location will vary, depending on your system configuration.
4. Remove the filter bowl. It is threaded into the filter housing and equipped with wrench flats.
5. Empty and clean the bowl.
6. Grasp the filter element and pull it downward to remove. Install the new filter element by pressing it into place.
7. Install a new O-ring (supplied with the filter element) in the housing groove.
8. Replace the filter bowl in the filter housing and torque to 30 ft-lbs.
9. Check that the bleed valve is closed.
10. Slowly open the FMM Manual Shut-Off Valve.
11. Check the high pressure gauge to determine fuel pressure has been restored.

Re-pressurizing Procedure

Once the high-pressure filter drain or change procedure is complete, perform the following to re-pressurize the lines.

1. Ensure that the vehicle is OFF and remove the keys from the ignition.
2. Close the bleed valve and torque to 4-5 ft-lbs.
3. Ensure the filter bowl and the drain plug are installed and tightened.
4. Ensure the FMM Manual Shut-Off Valve is in the ON/OPEN position.
5. Slowly turn the cylinder Manual Shut-Off Valves (one on each cylinder) 1/4-turn counter-clockwise to the ON/OPEN position.
6. Re-install the fill panel cover (if removed).
7. Start the engine.