Momentum System Trouble Shooting

Four Main OEM/System Issue Confusion

1. Crank But Will Not Start
2. Will Not Crank
3. Fuel Gauge Not Working
4. J1939 Issues

Electrical Components

Electronic Control Unit (ECU) controls FLIM, Starter Relay, Fuel Relay, Inductive Proximity Sensor, and Pressure Transducer.

Fuel Level Indicator Module (FLIM) works with fuel lever sending unit (Pressure Transducer).

Pressure Transducer a device that converts variations in a physical quantity, such as pressure into an electrical signal.

Fuel Relay 20/40 AMP

**Starter Relay 20/40 AMP**

Inductive Proximity Sensors (door sensor) is located on the fill panel of the FMM, functions as a safety interlock to prevent the vehicle from starting if the access door is open.

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Side Mount Fuel Management Module (FMM)
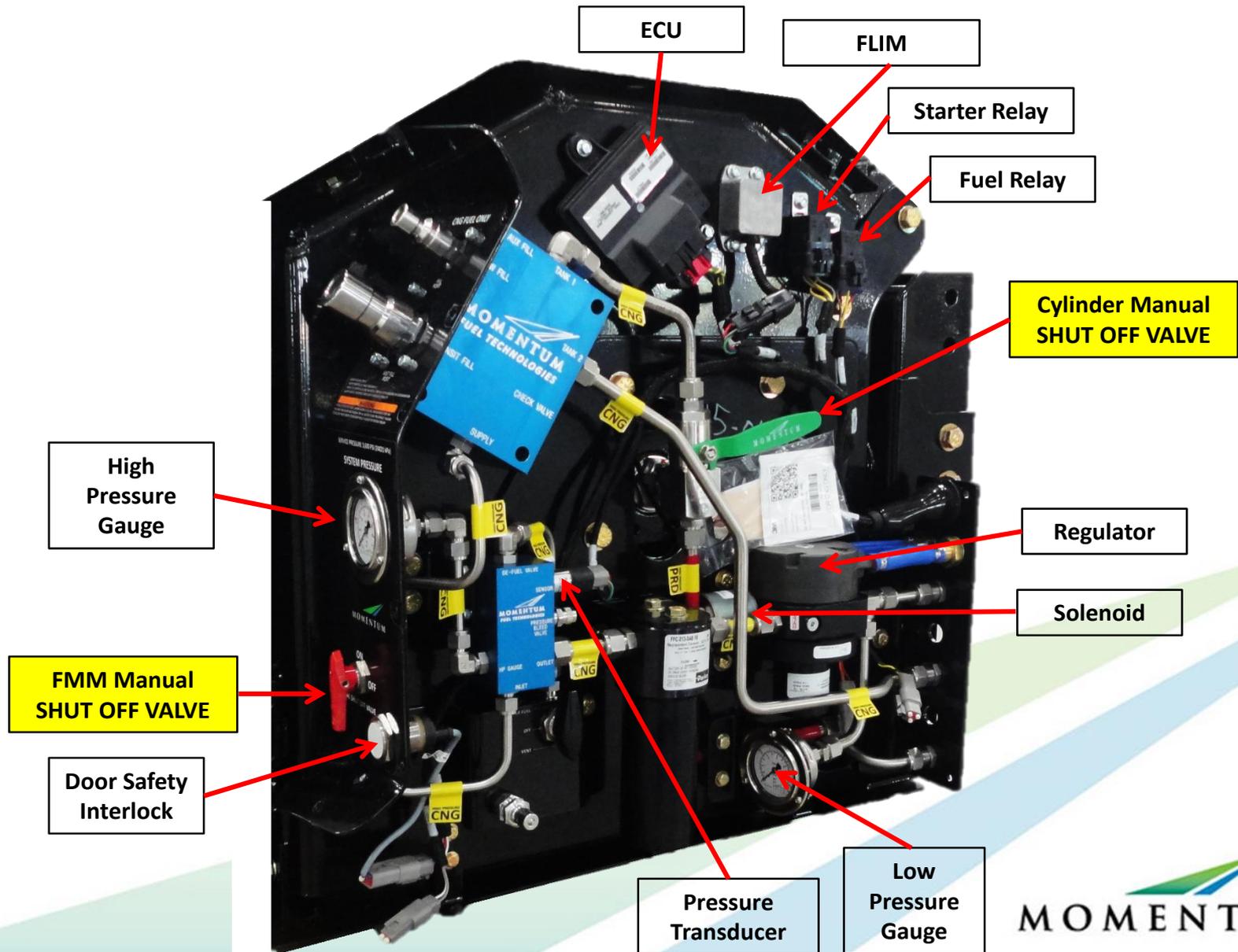
Chassis Wire Harness
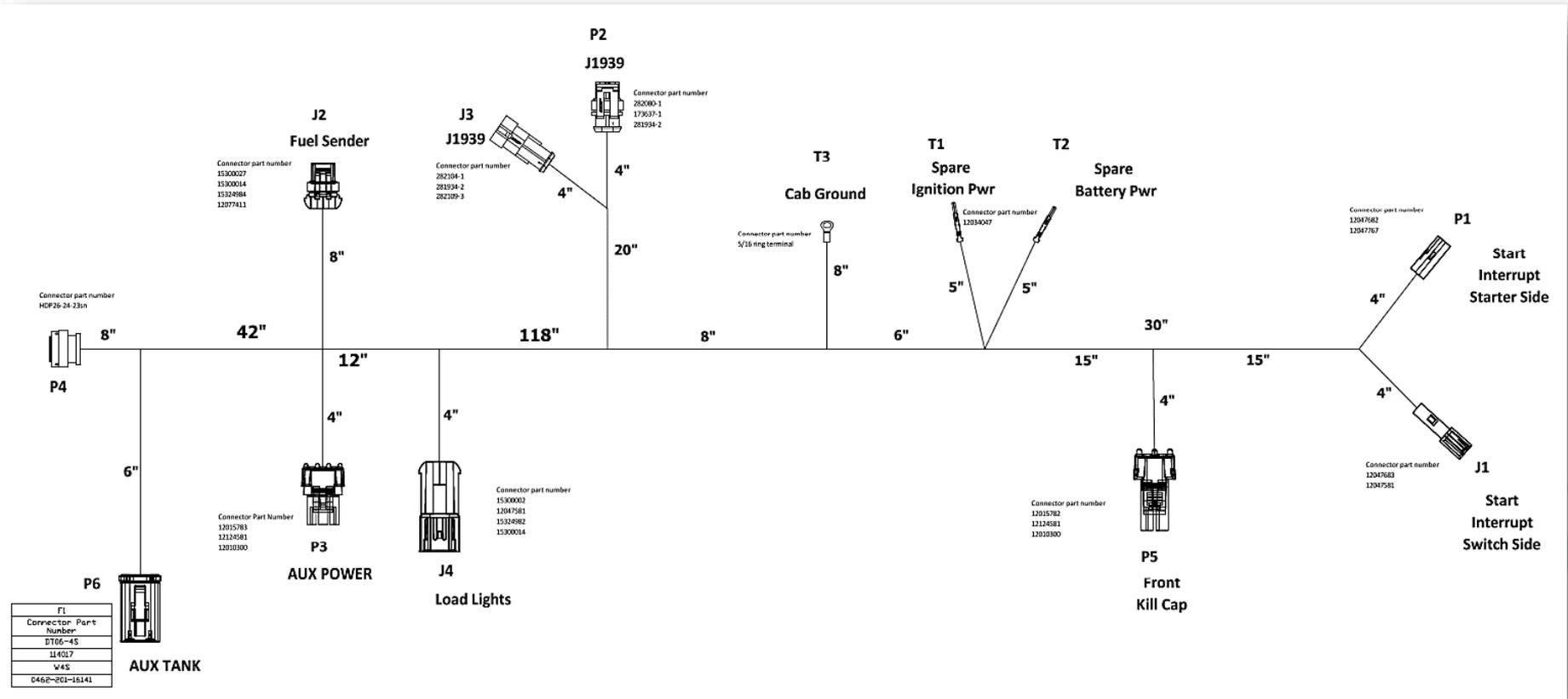
Fuel System Wire Harness
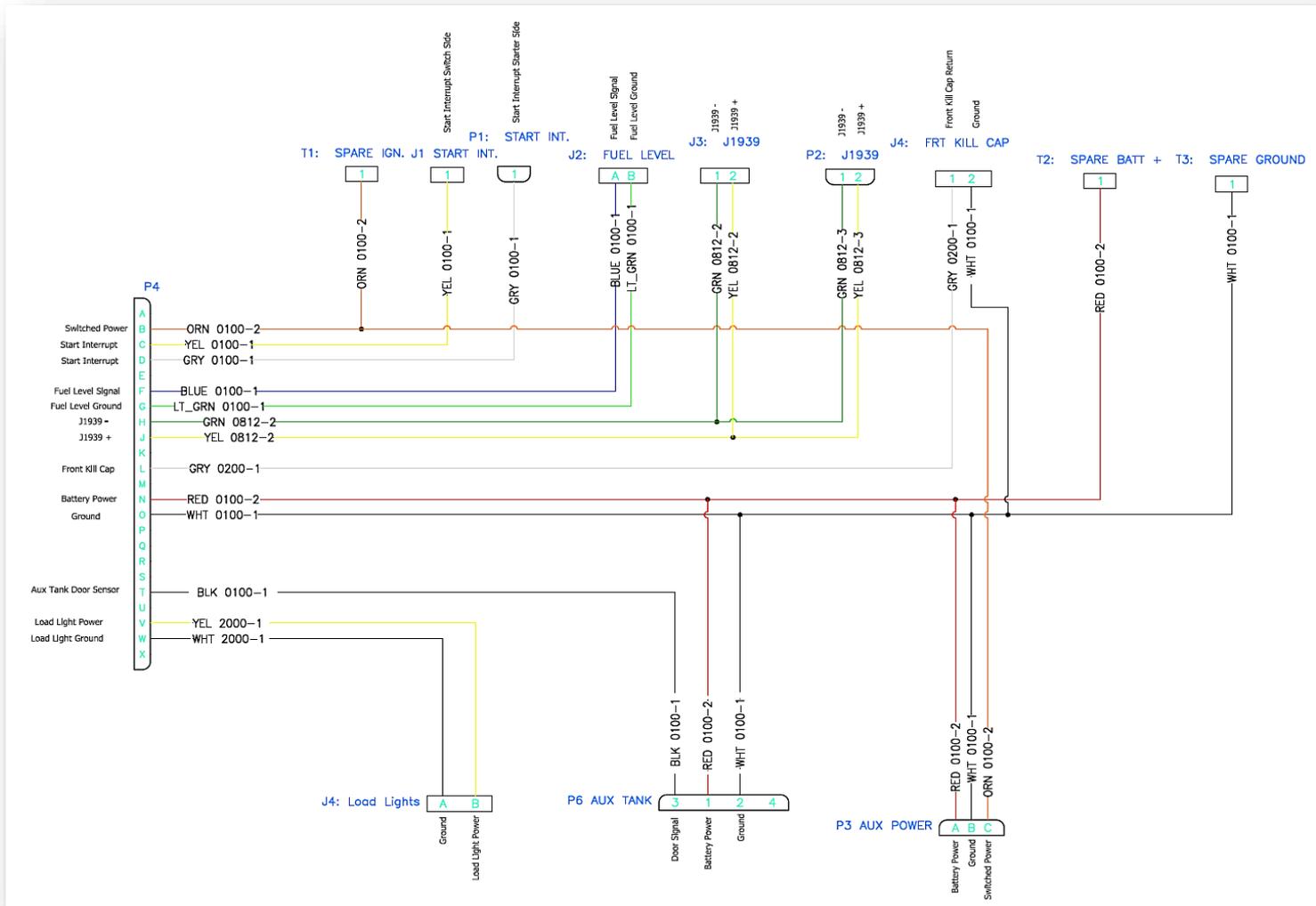
Crank But Will Not Start

Usually is not getting fuel pressure to the engine.

- With the key on check the low pressure fuel gauge. Should have approximately 125 psi. Should also be able to hear fuel solenoid valve click open.

    - If you do not, make sure that the tank valve and manual shut off valve are open and the high pressure gauge is reading pressure.

    - On the chassis find the "AUX" connector and measure for voltage between the white wire and red wire, and then white wire and orange wire. If you have 12 volts it is not an OEM issue.

    - If you do not have 12 volts on both the red wire and the orange wire, check fuses in the cab fuse panel.

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Crank But Will Not Start

Power and Ground come from Spare Circuits connector and ground stud in the cab. Make certain that they power is not in Spare LVD or Accessory positions.

- Red wire can either be to a Battery Power or Switched power in most installations. The only installation actually required to be Spare Battery Power is if there is a door light at the fill panel, which to date no systems have been built with that option.

Does have a safety system that if the engine rpms reaches 300 rpms and then drops below 200 rpms it will automatically close the fuel solenoid valve in case of accident where the engine stops running but driver does not turn off the key.

- To reset requires to cycle the key off and then back on.

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Will Not Crank

- Start Interrupt Circuit prevents the engine from cranking if any door that covers a fill receptacle is open or front bumper fill cap is not installed to prevent the driver from driving off if a fuel hose could be connected.

- Opening door or cap will not kill the engine if the engine is already running when the door is open. It only prevents cranking.

- Fuel System Chassis Interface Harness plugs into the Peterbilt and Kenworth Start Interrupt connectors in the Instrument Panel Harness/Main Cab Harness.

- Door sensors use 12 volt signals.

- Front bumper fill uses ground signal.

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Will Not Crank

- If the engine will not crank, and all the fuel system doors are closed, and the cap is on the bumper fill unplug the Momentum Chassis Interface Starter Interrupt Connectors (usually located directly behind the key switch) from the Instrument Panel Harness and plug the OEM connectors back into each other. If it cranks it is a system issue.

- If the chassis was not built with the connectors in the instrument panel from Peterbilt or Kenworth, we cut the cranking wire approximately 10" behind the key switch, install the same connectors used if it did come from the factory with the connectors, and then install the Chassis Interface Harnesses Start Interrupt Connectors between them.

- This allows the technician to remove the fuel system from the circuit and plug back in factory wiring without have to cut and splice anything.

- Yellow wire on Chassis Interface Harness goes to key switch side, and gray wire goes to firewall/ starter side.

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Will Not Crank

- NGP cab and Legacy Cab wiring used the same connectors, but the male/female connectors are on the opposite side from each other.
    - NGP cab has Chassis Interface connectors going directly to the OEM connectors. The connectors are labeled "Start Interrupt Switch Side" and "Start Interrupt Starter Side".
    - If the chassis is a Legacy cab, there is a jumper required to switch the gender of the connectors.
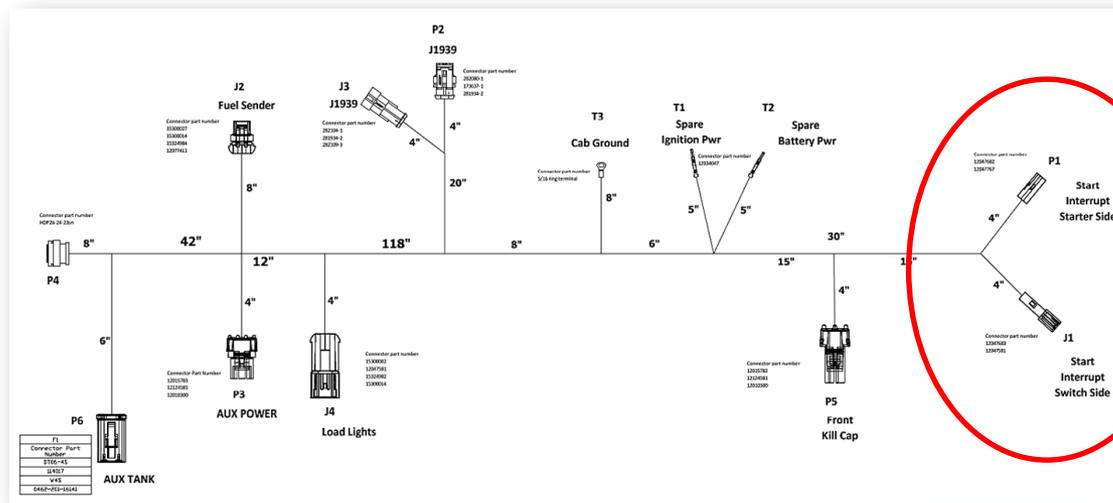
System Door Proximity Sensors

- System Door Sensors are Normally Closed Sensors

- Supply 12 Volt Signal When Door is Open

- Has LED light on back of sensor that should come on if key is on and door is open

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Bumper Fill Cap

- Has Start Interrupt Switch in Housing.

- Switch is pushed by cap and will prevent engine from cranking if cap is not installed.

- Sends ground to system ECM when the cap is installed.

- ECM controls starting

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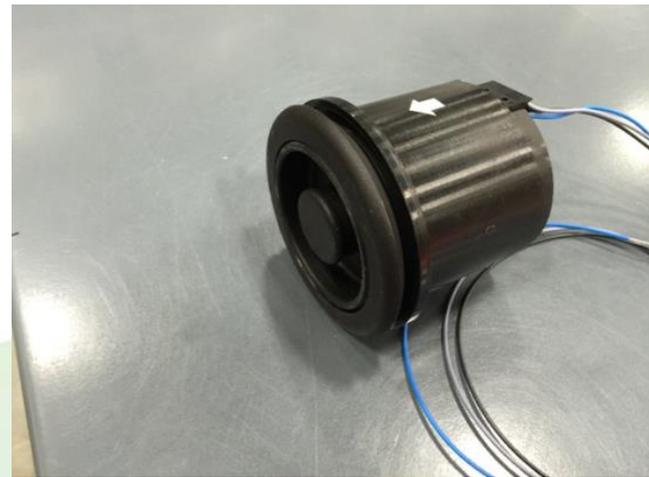
Fuel Gauge Inop

- System Drives OEM Fuel Gauge

- Send a PWM signal to CECU to replicate the exact same signal it would see if it were a diesel fuel tank sender.

- System Chassis Interface Harness Fuel Sender must be connected to OEM Chassis Harness LH Fuel Tank Sender connector

- OEM Fuel Gauge must be turned on in the CECU.

- Legacy Cab needs Primary Fuel Level Gauge Installed set to CVSG and Primary Fuel Level on V-Can set to Enabled

* Primary Fuel Level Gauge Installed			CVSG
Primary Fuel Level on V-CAN			Enable

- NGP Cab Needs Primary Fuel Level on V-Can set to Enabled.

Primary Fuel Level on V-CAN		Enable

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J1939 Issue

- Momentum Ties into the V-Can Public J1939 Circuit

- Chassis Interface Harness has Y-Harness built into it that Y's into the J1939 connectors on the OEM Engine Harness.

- Uses same Amp Superseal connectors as Paccar.

- If having J1939 issues can disconnect the Momentum Chassis Interface J1939 and plug the OEM connectors back into each other.

- Momentum system will function without J1939, but it is used as a safety feature. Fuel System reads the engine RPM off the J1939 data bus and will close the fuel solenoid valve if the system sees the engine rpm above 300 rpms and drops below 200 rpms.

- Momentum also broadcast fuel pressure and fuel temperature on J1939. If OEM does not broadcast fuel level on J1939, Momentum system will broadcast it.

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Temperature Compensated Cylinder Pressure	
3,600 psi service pressure calculated from the standard gas composition used to create the gasoline gallon equivalent	
Gas Temperature, Degrees F	Pressure in Full 3,600 psi CNG Container, psig
123.6	4,500
120.0	4,455
110.0	4,272
100.0	4,105
90.0	3,936
80.0	3,768
70.0	3,600
60.0	3,432
50.0	3,263
40.0	3,094
30.0	2,926
20.0	2,757
10.0	2,589
0.0	2,421
-10.0	2,253
-20.0	2,086
-30.0	1,919
-40.0	1,753

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