

	VT-0003	000	05/19	BBK
	Pressure Reducing Regulator Application and Installation			

Purpose

This document will provide key information to help identify the correct application and installation of the Pressure Reducing Regulator (PRR) for certain engine applications which require an engine fuel inlet pressure lower than the tanks economizer set pressure.

Overview

Chart has introduced a new Pressure Reducing Regulator for use on certain engine packages. The new regulator replaces the over pressure regulator on certain engines and is Chart part number 21150536-93. It is designed to continuously regulate the tanks delivery pressure to the engines fuel system inlet. The dome of the PRR appears slightly different than the over pressure regulator in that the PRR has a plug in the top of the dome, instead of an adjusting bolt protruding through the dome.

Engine Families

The regulator is currently used on LNG vehicles under two different engine manufacturers.

Cummins ISX12N natural gas (LNG) engines. Cummins 2019 model year and later 12 liter engines which are designated as Near Zero emissions, use the 93 psi version of the PRR exclusively. All other Cummins natural gas (LNG only) engines currently use the 145 psi over pressure regulator.

Power Solutions International (PSI) engines. Uses the 93 psi regulator on yard tractor applications running LNG.

Application\Installation

The regulator must be mounted in the gas supply line to the engine fuel inlet. It should be secured to a bracket that is typically attached to the frame rail, and capable of supporting the weight of the regulator under high vibration conditions. It should be located around the mid-point of the fuel line, between the tank and engine fuel filter inlet fitting. The regulator dome utilizes a vent fitting. The fitting opening must be pointed in a downward direction, pointing it downward minimizes the chance of moisture or water entering or accumulating inside the dome of the regulator. The photo on the following page shows a typical regulator installation inside the frame rail of the truck. The photo was taken from below the regulator.

This procedure is intended for use by trained technicians with experience on systems using LNG. Review all applicable safety documents before beginning this procedure.



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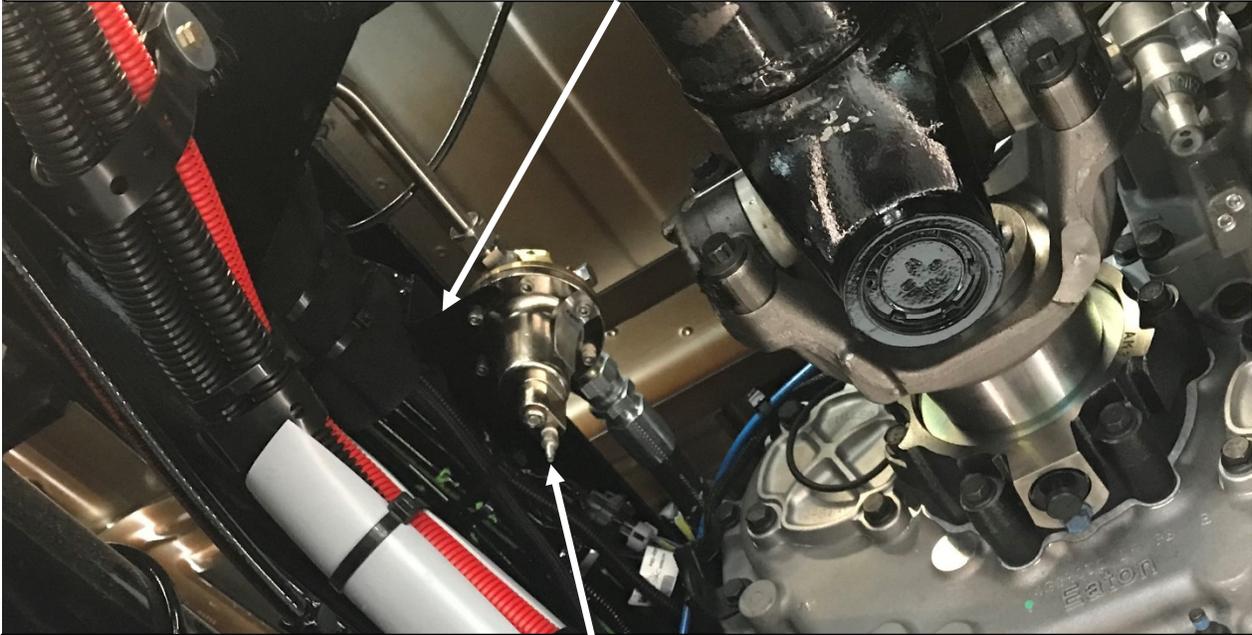
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Heavy duty mounting bracket attached to frame rail



Regulator vent opening pointed downward

Testing

The regulator pressure is factory set, so no adjustments are necessary during the installation and new fuel system set up phase.

If a regulator's output pressure setting ever drifts outside the specifications during its operating life span it should be replaced. Follow the steps below to test the regulator output pressure.

Note: The procedure below can be performed without de-fueling the tank or depressurizing the fuel system.

- Ensure the tank is at normal operating pressure (normally around 120 to 230 psi).
- Connect/utilize the engine manufacturer's software to the engine data connector to view the engine/fuel pressure regulator inlet pressure live (see example on next page).
- Check for any fuel pressure related fault codes.
- Start the engine and allow it to idle for three minutes.
- Shut off the engine.

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- Cycle the key on to energize/open the fuel shut off solenoid, but do not start the engine.
- View the engine software program and note the pressure of the fuel regulator inlet pressure.
- The PRR outlet, pressure/engine inlet fuel pressure should be between 88 psi/179 inHg and 98 psi/199 inHg.
- If the pressure is within the parameters the test is complete and the vehicle can be returned to service.
- If the pressure is outside the parameters, replace the PRR. Clear the codes and road test the vehicle.
- Once back at the shop allow the engine to idle for three minutes.
- Shut off the engine.
- Cycle the key on to energize/open the fuel shut off solenoid, but do not start the engine.
- View the engine software program and note the pressure of the fuel inlet pressure.
- The PRR outlet pressure/engine inlet fuel pressure should be between 88 psi/179 inHg and 98 psi/199 inHg.

INSITE 8.5.0.57 / DP - ISX12N CM2380 X120B - Engine Serial Number - 75081728 - ECM Code - JH10062.01

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Parameter	Value	Units	Minimum Measured	Maximum Measured
Fuel Control Valve Command	0.0	percent	0.0	0.0
Fuel Delivery System Make	CHART			
Fuel Delivery System Model	FUEL CONTROL			
Fuel Regulator Intake Pressure	194	inHg	194	195
Fuel Regulator Intake Pressure Voltage	2.1	V	2.1	2.1
Fuel Regulator Outlet Pressure	-0.4	psi	-0.4	-0.4
Fuel Regulator Outlet Pressure Sensor Voltage	0.00	V	0.00	0.00
Fuel Shutoff Valve	Closed			
Fuel Storage System Pressure Regulator Intake Pressure	223	psi	223	223
Fuel Storage System Supply Shutoff Valve Position	100.0	percent	100.0	100.0
Fuel Temperature Sensor	67.7	°F	67.2	67.7
Fuel Temperature Sensor Voltage	0.0	V	0.0	0.0
Gear Down Protection State	Active - Lower			
Ignition Control Module Software Version	0B0230			
Instantaneous Fuel Economy	0.0	mpg	0.0	0.0
Instantaneous Gas Fuel Economy	0.0	mpg	0.0	0.0
Intake Manifold Air Temperature	72.6	°F	71.8	72.6
Intake Manifold Air Temperature Sensor Signal Voltage	3.31	V	3.31	3.31

Fault Code	Status	Count	Lamp	Description	PID	SID	J1587 FMI	J1939 FMI	SPN
0285	Inactive	2	Amber	SAE J1939 Multiplexing PGN Timeout Error - Abnormal Update Rate		231	9	9	639
1117	Inactive	1	None	Power Supply Lost With Ignition On - Data Erratic, Intermittent, or Incorrect		251	2	2	3597
0197	Inactive	1	Amber	Coolant Level - Data Valid But Below Normal Operating Range - Moderately Severe Level	111	1	18	18	111

Connected to ECM. USBLINK (Auto Detect) Connection. RP1210A (J1939) Firmware: Not Available. 6:36 AM 4/17/2019

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