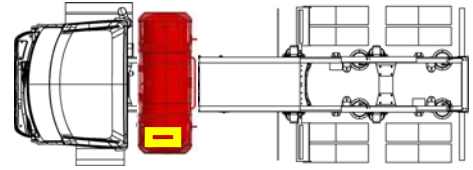


**Part Number:** 115696

**Part Description:** Fuel Storage Module (FSM)

**FSM no longer available, replaced by FSM 116353**



## Product Technical Specifications

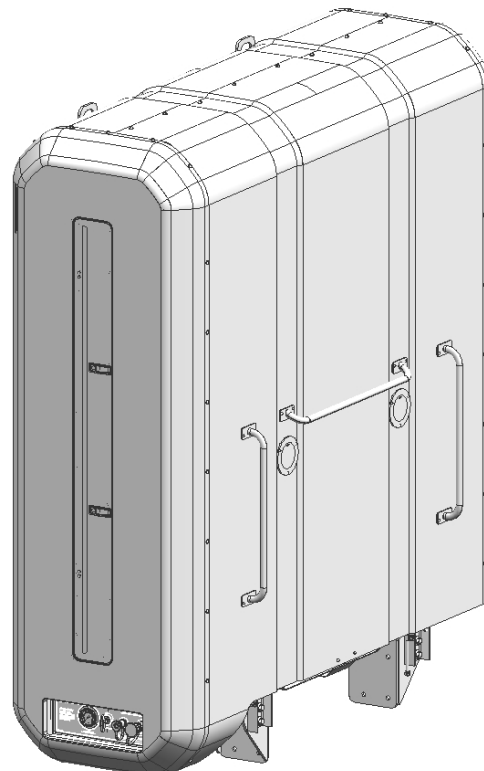
### General Specifications

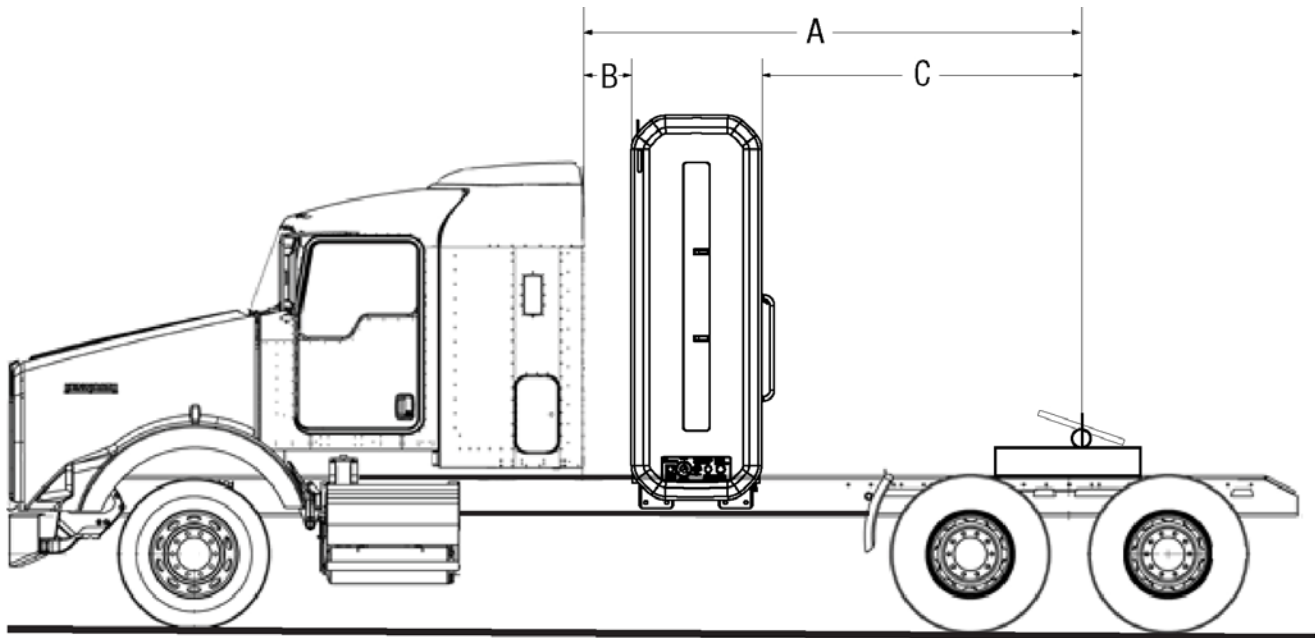
|  |  |
|--|--|
| Designed Location .....                  | Back Of Cab (BOC)                              |
| Gasoline Gallon Equivalancy (IA) .....   | 139.8 GGE                                      |
| Gasoline Gallon Equivalancy (NIST) ..... | 119.1 GGE                                      |
| Diesel Gallon Equivalancy (IA) .....     | 123.0 DGE                                      |
| Module Weight (Empty) .....              | 1700 lbs (771 Kg)                              |
| Module Weight (Full) .....               | 2500 lbs (1134 Kg)                             |
| Internal Volume .....                    | 417 ±6 Gallons (1584 ±24L)                     |
| Fill Panel Location .....                | Driver's Side (See Yellow Box in Illustration) |
| Cylinder Certifications (114093) .....   | NGV 2-2007                                     |
| Canadian Registration Number (CRN) ..... | N/A*   |
| Service Pressure .....                   | 3,600 psi (24.8 MPa) @ 70°F (21°C)             |
| Minimum Working Pressure .....           | 290 psi (2 MPa)                                |
| Module Temperature Range .....           | -40°F (-40°C) to 122°F (50°C)                  |

\* Contact Quantum for additional information.

### Standard Equipment:

- Grab Handles
- Load Lights
- Standard Flow Fill Valve
- High Flow Fill Valve
- System Pressure Gauge
- Coalescent Filter
- High Pressure Regulator
- Control Module
- Vent Valve





**⚠ DANGER**

The FSM has been approved to be installed with the front of the FSM facing forward. The correct installed position can be confirmed with the fill panel on the driver's side of the frame. Failure to install the FSM in the correct approved position may result in death or serious injury.

**General Vehicle Requirements**

|   |               |
|---|---------------|
| Maximum Distance Between Cab and Kingpin (A) .....  | 106" (2692mm) |
| Minimum Distance Between Cab and FSM (B) .....      | 5" (127mm)    |
| Minimum Distance Between FSM and Kingpin (C)* ..... | 70" (1778mm)  |
| Minimum Frame Height .....                          | N/A           |
| Minimum Frame Width .....                           | N/A           |

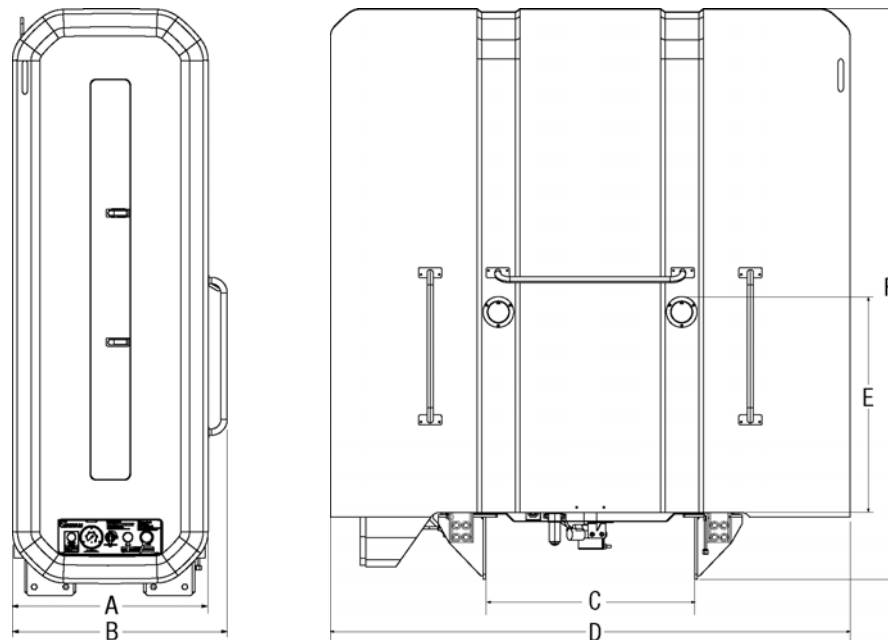
*\* Verify measurement with the 5th wheel in the forward most position. Trailers with non-standard (42" or 48") kingpins may require additional wheelbase and clearance.*

**Electrical Requirements**

|                                      |                        |
|--------------------------------------|------------------------|
| Voltage Range .....                  | 12-16 VDC              |
| Nominal Current Draw .....           | 2 A                    |
| Peak Current Draw .....              | 3.5 A                  |
| Electrical Interface Connector ..... | Deutsch HDP30-18-14 PN |

**Fluid Specifications**

|                    |                                  |
|--------------------|----------------------------------|
| Coolant Type ..... | Glycol / Phosphate Based Coolant |
|--------------------|----------------------------------|

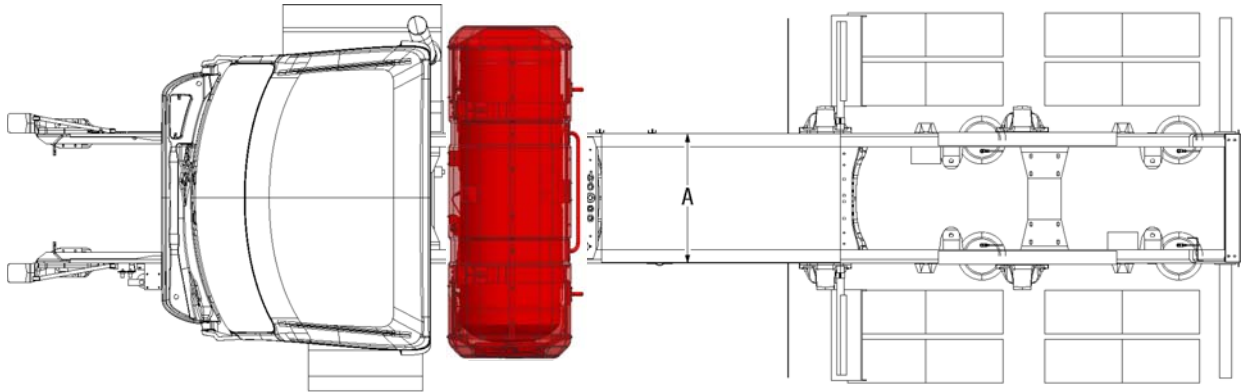


### FSM Dimensions

|   |                |
|---|----------------|
| Depth of CNG Fuel Storage Module (A) .....              | 30.7" (780mm)  |
| Depth of CNG Fuel Storage Module with Handles (B) ..... | 33.8" (859mm)  |
| Maximum Width Between Mounts (C) .....                  | 34.5" (876mm)  |
| Minimum Allowable Width (C) .....                       | 33.75" (857mm) |
| Width of CNG Fuel Storage Module (D) .....              | 84.3" (2142mm) |
| Height of Load Light (E) .....                          | 35.0" (889mm)  |
| Height of the CNG Fuel Storage Module (F) .....         | 93.0" (2362mm) |

### Width (C) / Part Number

|   |               |
|---|---------------|
| 116353-001 (PACCAR / Peterbilt / Kenworth, Standard Module) .....       | 34.2" (869mm) |
| 116353-002 (PACCAR / Peterbilt / Kenworth, Fuel Transfer Valve) .....   | 34.2" (869mm) |
| 116353-003 (Volvo / Mack, Standard Module) .....                        | 33.8" (859mm) |
| 116353-004 (Volvo / Mack, Fuel Transfer Valve) .....                    | 33.8" (859mm) |
| 116353-005 (PACCAR / Peterbilt / Kenworth, 1/2" Fuel Outlet Pipe) ..... | 34.2" (869mm) |



### FSM Vehicle Interface

|  |                                 |
|--|---------------------------------|
| Coolant Connection .....                 | 5/8" Hose Bib                   |
| Fuel Outlet Connection .....             | -12 37° Flare, Stainless Steel  |
| System Vent Valve Type .....             | 1/4 Turn Valve                  |
| Vent Valve Flow Rate (Approximate) ..... | 15 GGE/hr                       |
| Vent Port Interface .....                | 37° Male O-Ring Face Seal, 3/8" |

### Cylinder Information

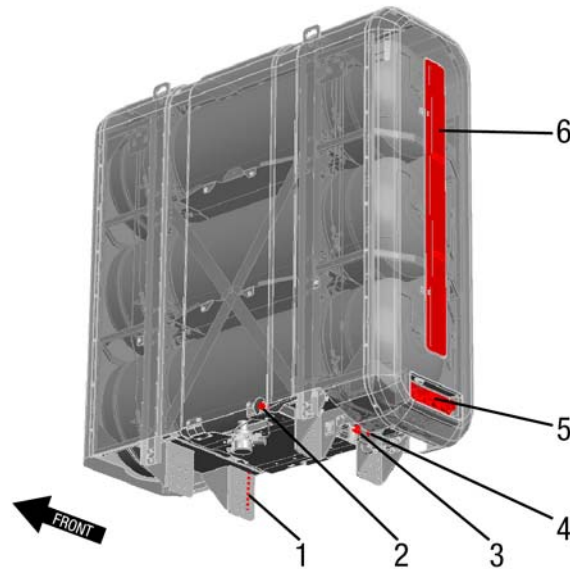
|  |                               |
|--|-------------------------------|
| CNG Cylinder Service Life.....             | See Cylinder Labels           |
| Recommended Minimum CNG Fuel Quality ..... | SAE J1616                     |
| Approved Service Gas .....                 | Compressed Natural Gas (CNG)  |
| Cylinder Construction .....                | Type IV                       |
| Cylinder Temperature Range .....           | -40°F (-40°C) to 185°F (85°C) |
| Cylinder Manufacturer .....                | Quantum Technologies          |

### Shipping Information

|  |                    |
|--|--------------------|
| Shipping Height .....                    | 99" (2.52m)        |
| Shipping Width .....                     | 96" (2.44m)        |
| Shipping Length .....                    | 75" (1.91m)        |
| Shipping Weight (One FSM / Pallet) ..... | 1898 lbs. (861kg)  |
| Shipping Weight (Two FSM / Pallet) ..... | 3588 lbs. (1533kg) |

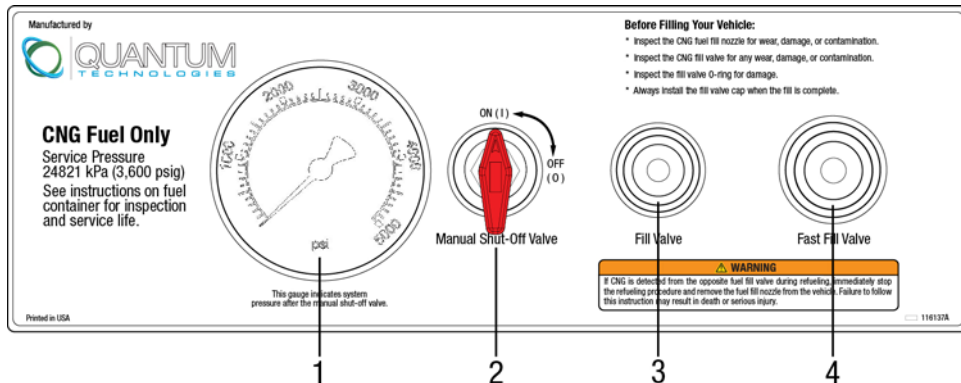
### Kit Contents

| Part Number  | Quantity | Description                             |
|--------------|----------|---|
| 115696       | 1        | Fuel Storage Module                     |
| S1-20298-014 | 16       | Screw, Heavy Hex Flange, M16-2.0 X 60   |
| N1-20300-006 | 16       | Nut, Crimp Lock, Hex Flange, M16-2.0    |
| 116161-001   | 2        | 1/16" Frame Mount Shim 0.0625" (1.6mm)  |
| 116161-002   | 2        | 1/8" Frame Mount Shim 0.125" (3.2mm)    |
| Select       | 1        | Interface Harness                       |
| 116510       | 2        | Hose Clamp, SAE No. 10, Stainless Steel |



**Component Location**

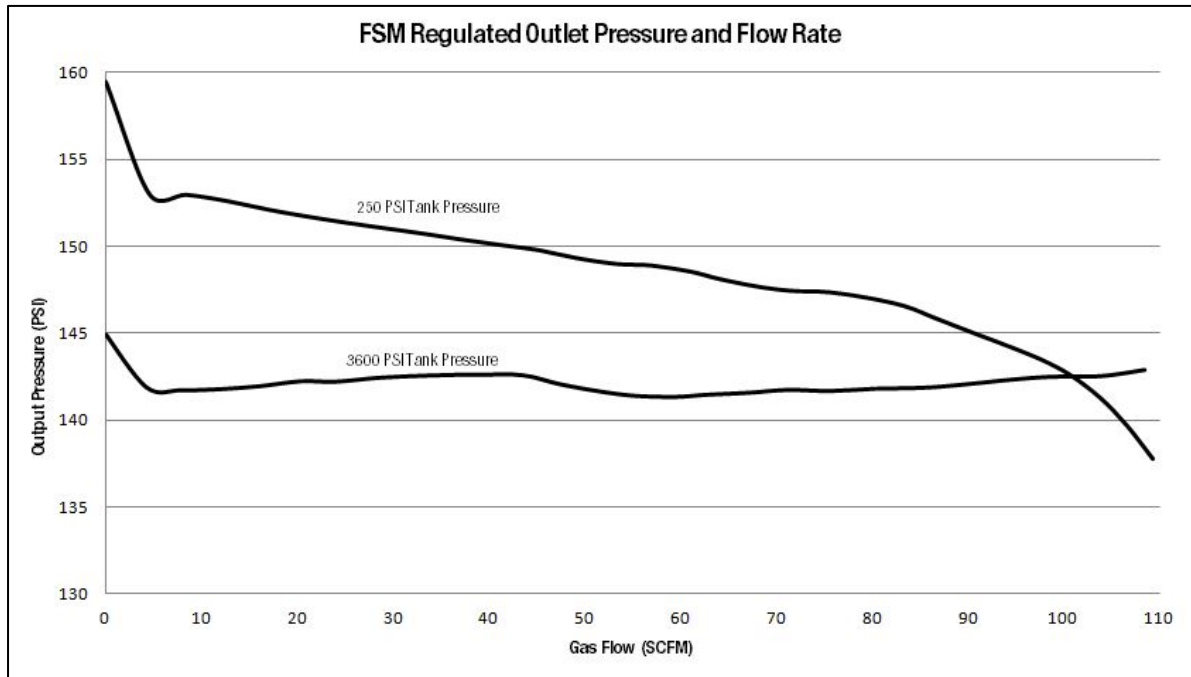
|  |  |
|--|--|
| Fuel Outlet Pipe (1) .....                 | Base of Back Cover / Next To Left Side FSM Support |
| Electrical Connector / Interface (2) ..... | Base Of Front Cover / Between Frame Rails          |
| System Vent Valve (3) .....                | Behind Fill Panel / Next To Filter                 |
| System Vent Cap (4) .....                  | Behind Fill Panel / Next To System Vent Valve      |
| Fill Panel (5) .....                       | Right Side / Base Of Side Cover                    |
| Cylinder Access Door (6) .....             | Right Side / Middle Of Side Cover                  |



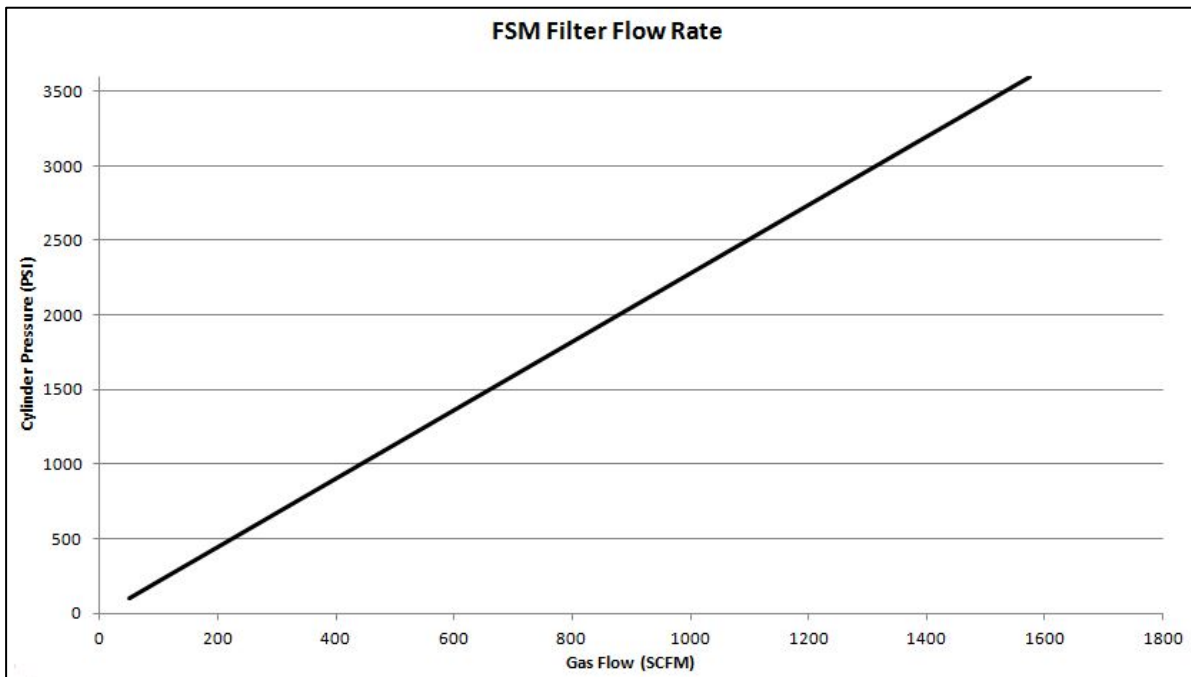
**Fill Panel**

|                                 |   |
|---------------------------------|---|
| CNG Pressure Gauge (1) .....    | 0-5000 psi (0-340 Bar)                  |
| .....                           | Liquid Filled Display                   |
| .....                           | Stainless Steel                         |
| Manual Shut-Off Valve (2) ..... | Isolate FSM from down-stream components |
| Fill Valve (3) .....            | NGV1 (Compliant to 3600 psi)            |
| Fast Fill Valve (4) .....       | NGV1 (Compliant to 3600 psi)            |

## FSM Regulated Outlet Pressure and Flow Rate



## FSM Filter Flow Rate (Omnitek)

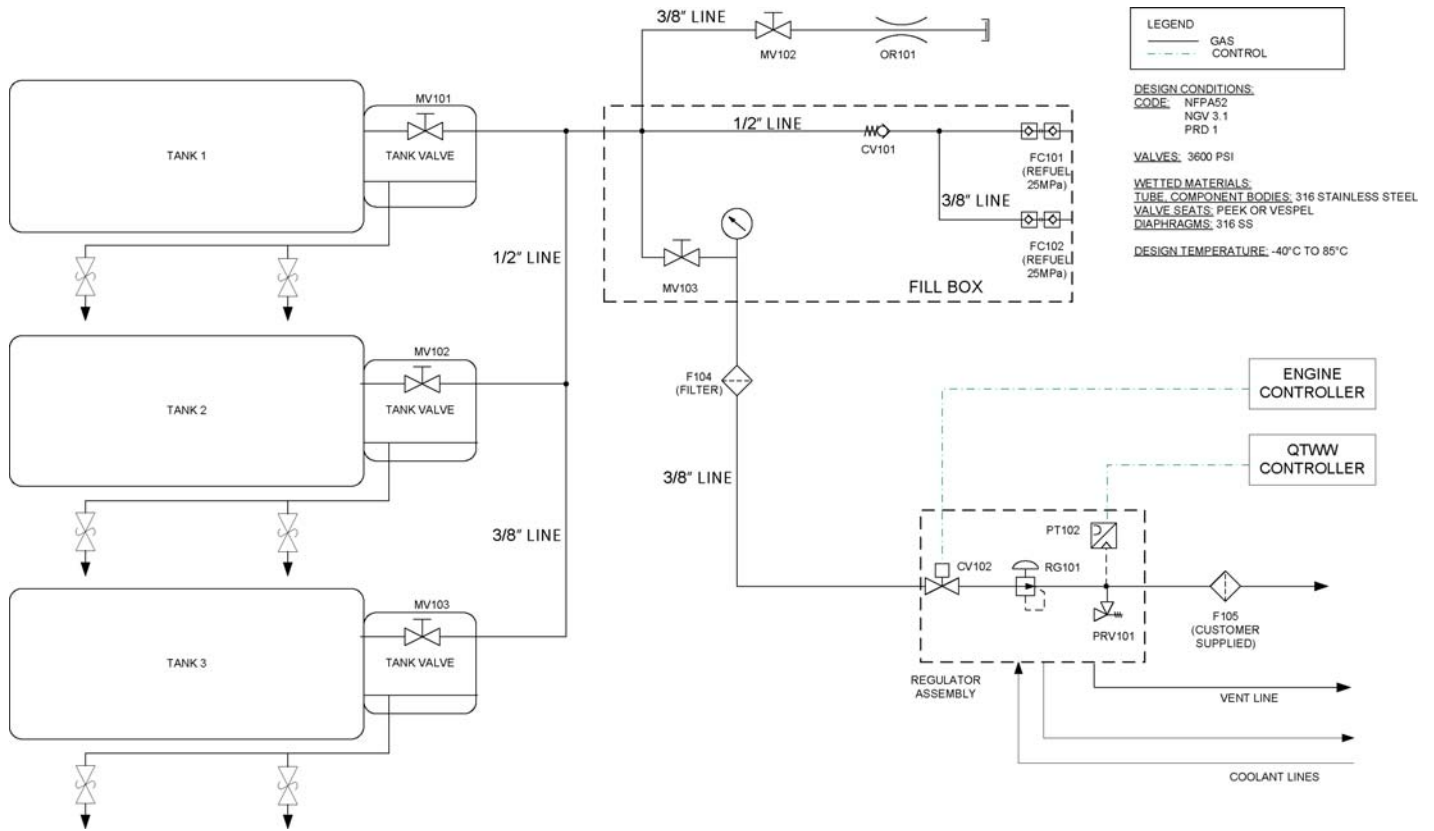


## Fuel Flow Data

Regulator Outlet Pressure ..... 150 psi (-10/+15 psi)  
 Maximum Regulator Flow @ 250 psi (Inlet) ..... 100 SCFM\*

\* Refer to the FSM Regulated Outlet Pressure and Flow Rate on the next page for additional information.

## System Mechanization



### Accessories

| Description                                   | Part Number |
|---|-------------|
| RH 25"x90" Slave Module                       | 116691      |
| RH 25"x80" Slave Module                       | 116727      |
| Fuel Outlet Pipe – Standard Module, Left Side | 115947      |
| 1/16" Frame Mount Shim (0.0625", 1.6mm)       | 116161-001  |
| 1/8" Frame Mount Shim (0.125", 3.2mm)         | 116161-002  |
| 10' CNG Low Pressure Flex Hose                | 116574-003  |
| 12' CNG Low Pressure Flex Hose                | 116574-004  |
| 18' CNG Low Pressure Flex Hose                | 116574-006  |

### General Maintenance

Inspect the CNG cylinder and brackets every 3 years or 36,000 miles (60,000 km), whichever comes first. The frequency and level of inspection may vary based on state and local requirements.

For additional information, refer to the *Type IV Compressed Natural Gas (CNG) Cylinder Installation and Maintenance Guide* available at [www.qtw.com](http://www.qtw.com).

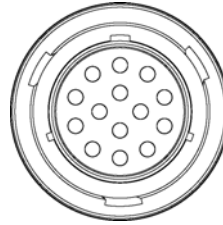
### Configuration Options

| Description                     | Part Number |
|---------------------------------|-------------|
| Fill Receptacles with Filter    | TBD         |
| Fill Receptacles without Filter | TBD         |
| Transfer Valve Kit              | 116665      |
| Grab Handle Relocation Kit      | TBD         |
|                                 |             |
|                                 |             |
|                                 |             |
|                                 |             |



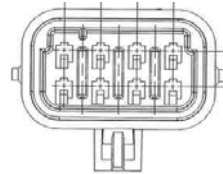
## Appendix A – Interface Connections

|   |                       |   |                       |
|---|-----------------------|---|-----------------------|
| A | Vehicle Ground        | H | Fuel Gauge Driver     |
| B | Low Voltage Disc 12v  | I | Fuel Gauge Driver     |
| C | Ignition Solenoid Pwr | K | Fuel Gauge Driver     |
| D | Key Switch 12v Pwr    | L | N/A                   |
| E | F-CAN                 | M | Fill Box Lighting Pwr |
| F | F-CAN                 | N | Lighting Ground       |
| G | Fuel Gauge Driver     | O | Load Lights Pwr       |



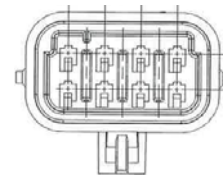
Electrical Connector / Interface

| PACCAR / Peterbilt / Kenworth |                       |   |                   |
|-------------------------------|-----------------------|---|-------------------|
| A                             | Vehicle Ground        | E | N/A               |
| B                             | N/A                   | F | F-CAN             |
| C                             | Ignition Solenoid Pwr | G | F-CAN             |
| D                             | Key Switch 12v Pwr    | H | Fuel Level Signal |



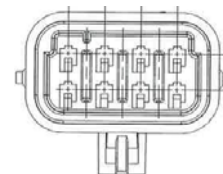
Vehicle 8-Pin Connector

| Freightliner |                       |   |                   |
|--------------|-----------------------|---|-------------------|
| A            | Vehicle Ground        | E | N/A               |
| B            | N/A                   | F | N/A               |
| C            | Ignition Solenoid Pwr | G | N/A               |
| D            | Key Switch 12v Pwr    | H | Fuel Level Signal |



Vehicle 8-Pin Connector

| Volvo / Mack |                       |   |                   |
|--------------|-----------------------|---|-------------------|
| A            | Vehicle Ground        | E | N/A               |
| B            | N/A                   | F | N/A               |
| C            | Ignition Solenoid Pwr | G | N/A               |
| D            | Key Switch 12v Pwr    | H | Fuel Level Signal |



Vehicle 8-Pin Connector

### Interface Harness Options

| Part Number | MFR Application               | Description                                   | Specifications             |
|-------------|-------------------------------|---|----------------------------|
| 116340      | All                           | Main Harness                                  |                            |
| 116338      | PACCAR / Peterbilt / Kenworth | Interface Harness                             | 0-5v Pulse Width Modulated |
| 116339      | Freightliner                  | Interface Harness                             | 0-5v Pulse Width Modulated |
| 116337      | Volvo / Mack                  | Interface Harness                             | 255 Ohms                   |
| 116334      | All                           | Load Lights w/ Pigtail Harness                |                            |
| 116336      | All                           | Interface Harness – Fill and Load Lights Only |                            |
| 116333      | All                           | Fill Panel Light Harness                      |                            |
| 116341      | All                           | Main Harness – Lights Only                    |                            |
| 116346      | All                           | Load Light Extension Harness                  |                            |
| 116818      | PACCAR / Peterbilt            | Fuel Gauge                                    |                            |
| 116817      | PACCAR / Kenworth             | Fuel Gauge                                    |                            |
| 116819      | PACCAR                        | Wire Harness – Fuel Gauge                     |                            |
| 116821      | Peterbilt - 300 / 600 SERIES  | Wire Harness – Ignition Jumper                |                            |
| 116815-005  | As Required                   | Fuse – ATO, 5A                                |                            |
| 116816      | Kenworth T800                 | Terminal – Fuel Gauge                         |                            |