

Fuel System Tubing Requirements, Description, and Installation

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The Hexagon® Agility® compressed natural gas (CNG) fuel system utilizes a network of specialized fuel [hoses](#), tubes, and associated [fittings](#) to circulate fuel from the fill panel to the [cylinders](#), back through the FMM, and on to the engine.

Proper fitting material composition, compatibility, and installation is essential to optimal fuel system operation.

CAUTION Fuel system tubing, fittings, and components must be repaired or adjusted by trained and qualified fuel system personnel.

Tubing Requirements and Safety

All fuel system lines must be cold finished stainless steel, bright annealed, seamless tube manufactured according to ASTM A269 or ASTM A213. Tubing can be 316 SS or 304 SS; maximum hardness 80 HRB. Fuel lines should be supported a minimum of every 24-in (600 mm). Refer to [Hose, Tube, Harness, and Cable Routing and Clipping](#) for more fuel line mounting specifications.

WARNING NEVER cut fuel tubing unless the system has been [depressurized](#).

WARNING NEVER attempt to tighten or torque tube fittings if unsure whether the system has been [depressurized](#).

WARNING NEVER bleed CNG fuel system by loosening or “cracking” a tube fitting connection.

Always perform a [leak check](#) whenever a fuel system fitting, tube, hose, or other component has been repaired or serviced.

Fuel System Tube Types

Most fuel systems contain four types of tubes:

1. **High-pressure (HP) fuel tubes** contain up to 3600 psi (248.2 bar)* during normal operation. HP fuel tubes convey fuel from fill receptacles to cylinder valves and to the [HP fuel filter / Manifold](#) before ultimately ending at the [standard](#) or [Marathon pressure regulator](#). HP fuel tubes employ double-ferrule [compression fittings](#) for optimal seal.
2. **Low-pressure (LP) fuel tubes** carry fuel from the LP side of the pressure regulator to tubes or hoses which feed the vehicle engine. Depending on the application, low-pressure is either 87 psi (6.0 bar) or 125 psi (8.61 bar) for systems equipped with the [standard pressure regulator](#). Low-pressure is 85 psi (5.86 bar) for all [Marathon pressure regulator](#) systems. Refer to fuel system FMM faceplate for LP specification. LP fuel tubes may utilize either [compression](#) or [flared tube fittings](#).
3. **Live PRD tubes** connect cylinder valves to [pressure relief devices \(PRDs\)](#) and always contain full cylinder storage system pressure up to 3600 psi (248.2 bar)*. Live PRD tubes are swaged with [compression fittings](#) to contain high-pressure CNG.
4. **PRD vent tubes** are non-pressurized and may be assembled with either [compression](#) or [flared tube fittings](#). PRD vent tubes connect to [integral PRDs](#) or [remote PRDs](#) and may connect to other PRD vent tubing before the vent plumbing terminates at [PRD vent caps](#). In the event of fuel release, PRD vent tubes are routed up and behind the vehicle and towards vehicle center to direct CNG away from the fuel storage system and curbside pedestrians and objects.

**System pressure may rise above 3600 psi (248.2 bar) in high temperatures.*

General Tubing Installation Instructions

Installing fuel system tubing properly requires training, correct parts, and appropriate tools. Tube fittings must be assembled and installed according to fitting original equipment manufacturer (OEM) specifications.

NOTICE NEVER disassemble new tube fittings prior to use.

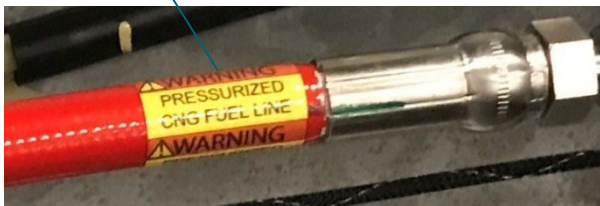
Fuel Line Decals – Current Fuel Systems

Fuel and PRD hoses and tubes must be labelled with warning decals according to function, pressure contained, and caution level. Labels must be placed within 3-in (76 mm) of all fitting junctions and every 18-in to 24-in (457 to 610 mm) thereafter.

WARNING PRESSURIZED
CNG FUEL LINE,
p/n 10602484 (*most recent*)



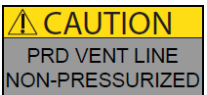
HP fuel hose



HP fuel tube



CAUTION PRD VENT LINE
NON-PRESSURIZED,
p/n 10302442 (*most recent*)



PRD vent tube



PRD
vent
hoses

LP fuel hose



CAUTION LIVE HIGH
PRESSURE PRD LINE,
p/n 10302277
(*most recent*)



PRD



live
PRD
tube

PRD vent tube

CAUTION LIVE HIGH
PRESSURE PRD LINE,
p/n 10602157 REV B
(*may still be in use*)



Fuel line decals which may be found on older fuel systems appear in **Appendix A** (*below*).

Appendix A: Fuel Line Decals – Older Fuel Systems

HP
fuel
tube



A CAUTION HIGH PRESSURE CNG FUEL LINE, p/n 10600076

live
PRD
tube



B CAUTION LIVE HIGH PRESSURE PRD LINE, p/n 10602157 REV A

PRD
vent
tube



C CAUTION DO NOT TAMPER WITH PRD TRIGGER LINE OR FITTINGS, p/n 10602158 REV A

