



INSTALLATION MANUAL

**Modern Muscle Performance Drop-In Single Pump Billet Fuel Systems
GEN 4**

5.7L/6.1L/6.4L HEMI Engine Equipped LX/LC Vehicles – 2005-2018

6.4L HEMI Engine Equipped - 2019

(Excludes All Hellcat)

Please take a few moments to review this manual thoroughly before you begin work. Verify that your kit is complete (see parts list below). If you discover shipping damage or missing parts, please call us immediately. Review exactly what is required in terms of tools, time, and experience before undertaking this installation.

Note that this manual covers the forth gen single system as shown in the picture above.



Caution! - Modifying your fuel system without the proper knowledge, tools, or precautions can be dangerous! Fuel level must be below 1/8 tank before beginning the installation process to avoid fuel leakage into the passenger cabin of the vehicle. Check your area before you begin the installation process. Remove any open flames such as cigarettes or pilot lights. Install only in a well-ventilated area. DO NOT install inside of a standard garage or with the vehicle doors closed to avoid inhalation of toxic gas fumes and risk of explosion. DO NOT smoke in the installation area. Fumes and a small amount of fuel may be released when servicing the pump, basket or connections. In order to reduce the risk of personal injury, cover any fittings with a shop towel before disconnecting to catch any fuel that may leak out. Place the towel in an approved container when the job is complete.

Engine recalibrating devices can modify fuel and spark curve (including, but not limited to programmers) and are recommended when changing the pressure or volume of fuel delivered to the engine. Improper use of these programmers may cause engine damage or failure. Modern Muscle Performance is not responsible for engine or consequential damages.

Modern Muscle Performance is not responsible for damages, injury, or death caused by improper installation of fuel systems or components. Fuel system installations should be completed only by an authorized and qualified technician.

For technical support please contact:

Modern Muscle Performance

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Getting Started

Tools Required:

- Safety glasses
- Flat or Curved Cutters
- Medium Flat Head Screwdriver
- 10MM Metric Wrench or Equivalent
- Coarse Flat File
- Soldering Iron and solder (FP-295 Pump)

Helpful Tools:

- Shop Vacuum Cleaner
- Specialty Wrench: Fuel Hat Ring Remover OTC #6599
- Short and Long handle 3/8 drive ratchet drivers



Preparation

Step A.

Remove any items in your trunk that will keep you from removing the carpet insert in your trunk.



Step B.

Remove carpet insert from your trunk.



Step C.

Using the 10mm socket disconnect the vehicles negative wire connection to the battery.



Installation

Step 1.

Find a solid, clean, organized and well-lit work area for the installation of the performance fuel system. Remove the rear seat and use the shop vacuum cleaner to remove any debris from around fuel pump access cover to ensure that no foreign materials enter the fuel tank.



Step 2.

Move insulation blanket aside to expose top of fuel pump access cover.



Step 3.

Lift access cover and disconnect the wiring harness from the fuel hat.



Step 4.

Using care, turn the steel retainer ring 10 degrees counter-clockwise to release the retainer, allowing for removal. It is *strongly* recommended that the specialty tool OTC # 6599 be used for this step. A hammer and flathead screwdriver can also be used; but *a significant risk of damaging the fuel tank and / or creating sparks exists.*



Step 5.

Carefully remove the ring and lift the fuel pump lid to allow access to the fuel pump & the sending unit wiring harness located on the underside of the lid; disconnect both. Once disconnected the fuel pump lid and o-ring can be removed and set aside for later use.



Repeat this procedure for the passenger side fuel "basket". While some customers have reported that this step is not necessary, it is recommended to ease the installation of the 3/8" connector on the cross over line.

NOTE: Once the fuel hat lid is lifted from its original position, the trapped gasoline vapors will be released. Use EXTREME CAUTION during the rest of the basket installation as the gasoline vapors are EXTREMELY flammable. **NO SMOKING OR OPEN FLAMES!!!

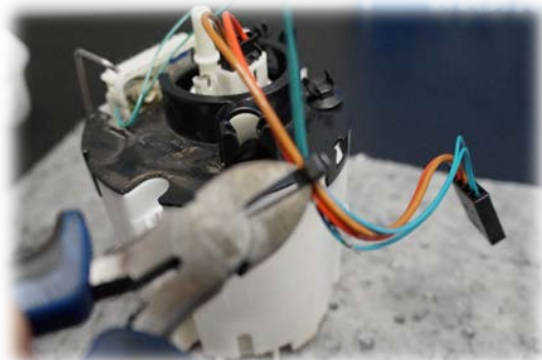
Step 6.

With the fuel pump lid removed; note fuel pump "basket" and the three lines connected to it. Remove the high-pressure line by pressing on the green tab and pulling upward; remove the remaining two lines by gently pulling up and away from the retaining tabs. Remove the fuel pump basket from the tank, taking care to not damage the sending unit float arm. Move the fuel pump basket to the prepared work area for tear down.



Step 7.

Using extreme care to avoid damage to wires or wiring insulation, cut and discard the harness retaining clip and "zip" ties on the pump wiring harness. Remove the small gauge wires from the retaining clip built into the top of the pump basket.



Step 8.

Remove the harness from the fuel pump. **Do Not Cut** any of the wires. Using a flat head screwdriver gently release the three tabs holding the top cover to the lower basket assembly. Remove and discard the top cover.



Step 9.

Carefully remove the fuel level sending unit.



Step 10.

Using a pair of side cutters, cut the 3 arms that connect the pump retainer to the lower basket. Cut as closely as possible to the basket.



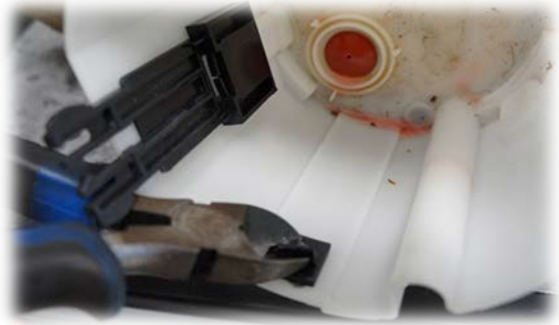
Step 11.

Remove the pump and retainer from the lower basket. Remove the fuel filter sock and venturi pump from the bottom of the fuel pump. Discard the filter sock and set the venturi pump aside for later use.



Step 12.

Using a pair of side cutters remove any remaining material from the retaining arms that might be left on the lower basket.



Step 13.

Using a coarse file, remove remaining material from the three retaining arms to within 1/16" of the inner wall of the lower basket.

Important! Once complete thoroughly wash the lower basket in warm water, removing all foreign material and debris.



Step 14.

The photo on the right shows a properly prepared lower basket, ready to receive the Modern Muscle Performance performance fuel pump assembly.

Note: For correct operation of the GEN 4) fuel pump system the orange anti-drain valve MUST BE REMOVED and discarded.



Step 15.

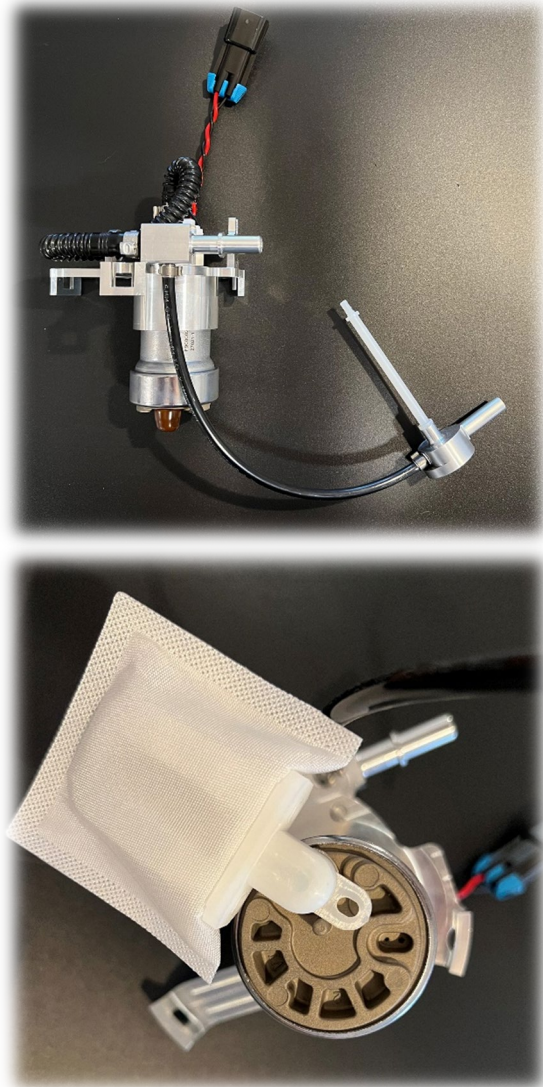
Preparation of the fuel system.

Note: It is recommended that the following steps be performed in a well heated environment. The nylon hoses are considerably more pliable when temperatures at and over 72° F.

Locate the venturi with attached locating rod. For shipping it will be taped to the side of the fuel pump holder. Remove the tape and position with opening facing down.

Next install the filter / strainer in the position shown:

(Note: Filter / Strainer may be installed prior to shipment. If so, disregard this step)



Install the venturi/ locating rod assembly to the pump housing. Position the outlet of the venturi in the same direction and parallel to the pump outlet as shown.

Secure with supplied nylon cap nut, tighten sufficiently to prevent rotation of the assembly off parallel.

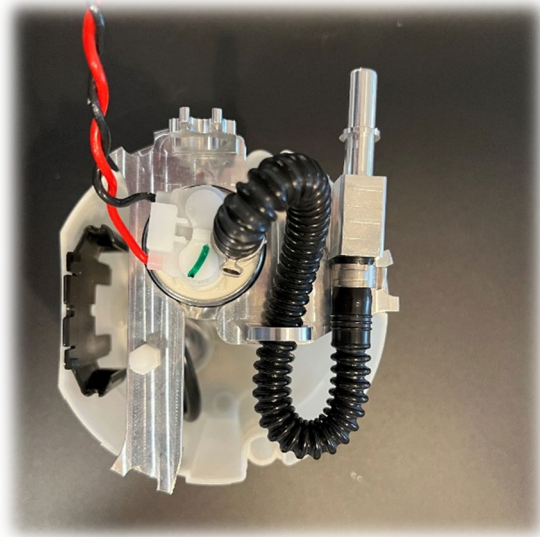
Note: When bending the 5mm feed hose, use your thumb to support the radius of the bend to prevent “kinking” hose:



Step 16.

Install the pump / venturi assembly into the prepared lower basket. Take EXTRA care to ensure that the venturi pump is FULLY engaged in its corresponding location in the bottom of the lower basket. This location is identified by a circular groove surrounding the orange anti-drain valve. The venturi pump will fit snugly and uniformly into the groove and will be level with the bottom of the basket. Once the placement of the venturi pump is correct, press down on the pump housing, engaging the three tabs with the corresponding locks on the lower basket.

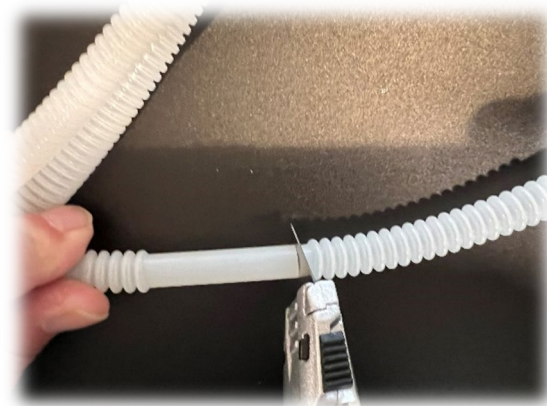
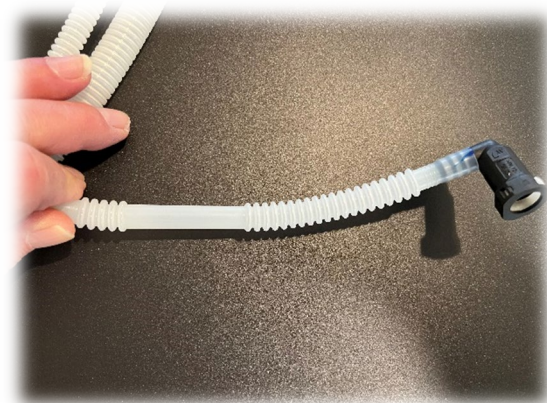
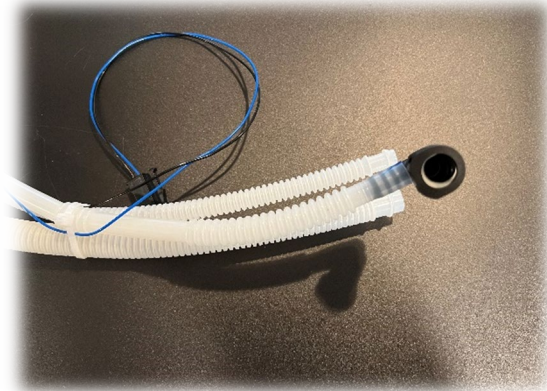
Note: Failure to ensure correct placement of the venturi pump will result in incomplete filling of the basket, which could cause catastrophic engine failure.



Step 17.

Next prepare the passenger-side “basket”. Locate the cross-over feed line which will have the 90° EFI style connector at its end. With a box cutter remove the fitting and the final length of corrugated hose (approximately 4”).

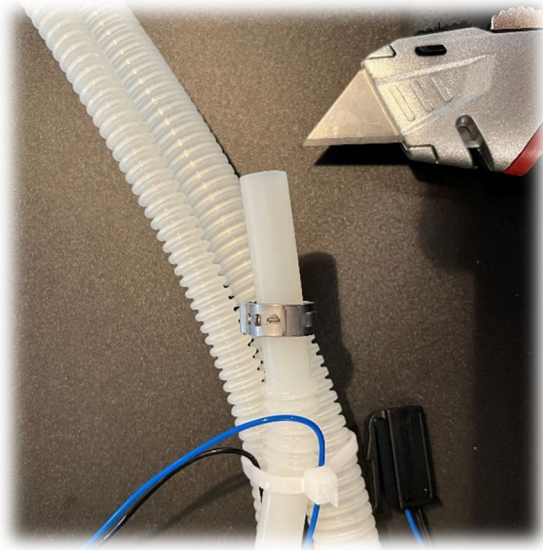
It is very important that this cut be straight, clean and even.



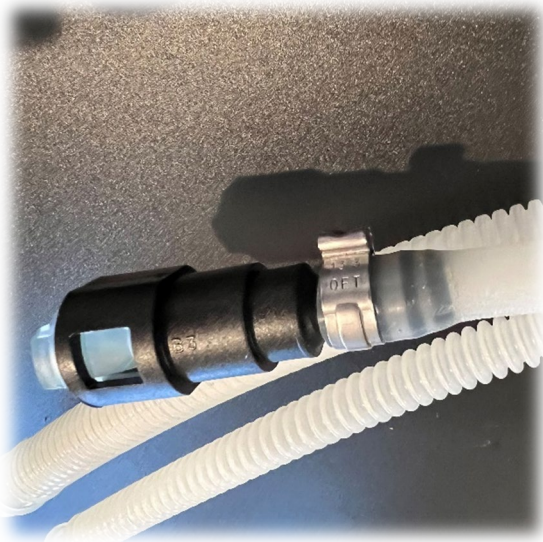
Locate the supplied 3/8" pinch clamp and place on the hose.

Locate the supplied 3/8" female EFI connector. Insert the connector in the feed cross-over hose. It is recommended that a liberal amount of standard engine oil be used to lubricate both the inside of the hose and the male end of the connector. Some force will be required to fully insert the connector into the hose.

After the connector is fully seated in the hose use an appropriate tool to crimp the clamp securely as shown:



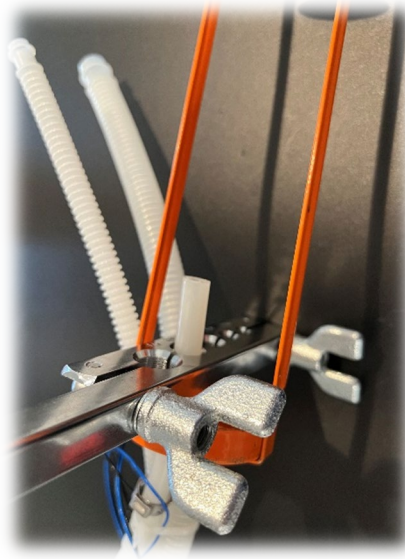
Note: It is important that the connector be fully seated in the hose as shown, failure to do so could result the failure of the connection and loss of fuel pressure.



Tips and Tricks:

Use a fixture to hold the hose and a standard caulking gun to press in the connector as shown:

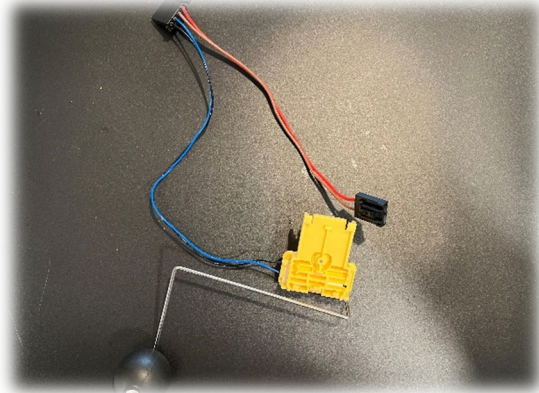
(In this example the hose holding fixture is from a double flair tool).



Step 18.

Prepare wiring harness.

Locate the level sending unit and power wiring harness from prior step.

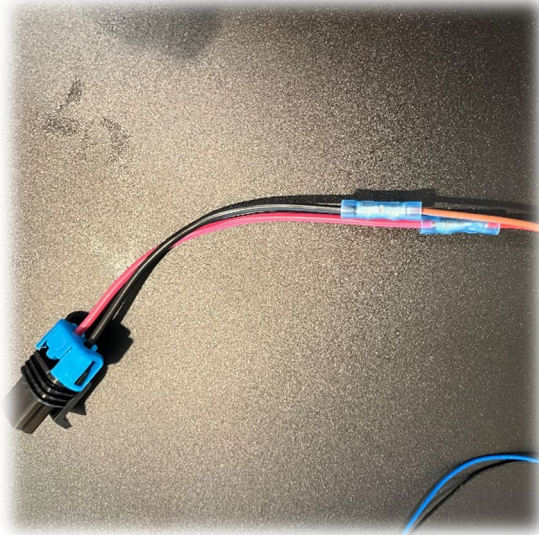
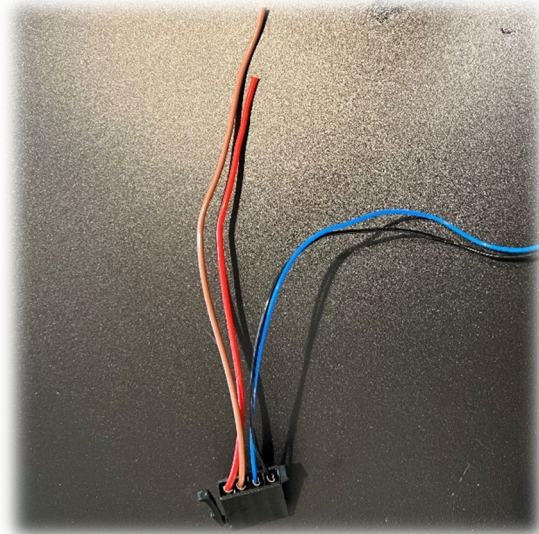


Remove the old pump connector from the harness but leave the wires intact at the connector that includes the sending unit wires:

Note the staggered cuts on the power / ground wires; this can prevent shorts in the event a connection fails.

Splice the supplied pump connector to this connector. Note the polarity of each wire; RED is positive on the replacement pump; BLACK is ground. In most cases the vehicle's positive wire will be red and the ground lead is brown; but this can vary. If there is any doubt, use a voltmeter to ensure the correct polarity prior to connecting the pump.

If solder connections are utilized ensure that fuel safe shrink wrap is used.



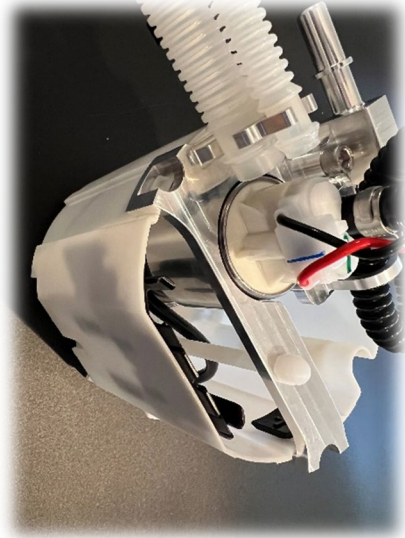
Step 19.

Return the completed fuel basket to the car. Locate the high pressure and return lines. While keeping ahold of the three lines, install the basket in the fuel tank as shown in the photo on the right.



Step 20.

Connect the return lines into the corresponding tabs on the top of the fuel pump housing. Next, connect the high- pressure line as shown in the photos to the right.



Step 21.

Connect the fuel pump and sending unit wiring harnesses (two connectors) to the pump lid.



Step 22.

Place the pump lid and large o-ring into the pump basket, in the stock configuration. Ensure that wiring is clear of the spring and float arm. Install and slightly engage the retaining ring.



Step 23.

Lock the retaining ring; confirm that it moves a full 10 degrees and the locking dimples are fully engaged. Connect the vehicle wiring harness to the pump lid in the stock configuration.

Note: Take care with this step, if the ring is not fully locked fuel can escape from the tank into the interior of the vehicle.



Step 24.

Reverse steps 1 – 3, returning the vehicle's interior to stock configuration.



Step 25.

Connect the negative battery cable. Start the vehicle and check for fuel leaks and validate correct fuel pressure at the fuel rail. (58 psi at idle). It is recommended that the vehicle is initially operated at less than 1/8 tank insuring correct filling of the basket.



Your Installation Is Complete.

Thank you!