

# CP4 .2 Disaster Prevention Bypass Kit

**Installation instructions**



 Spelab Racing

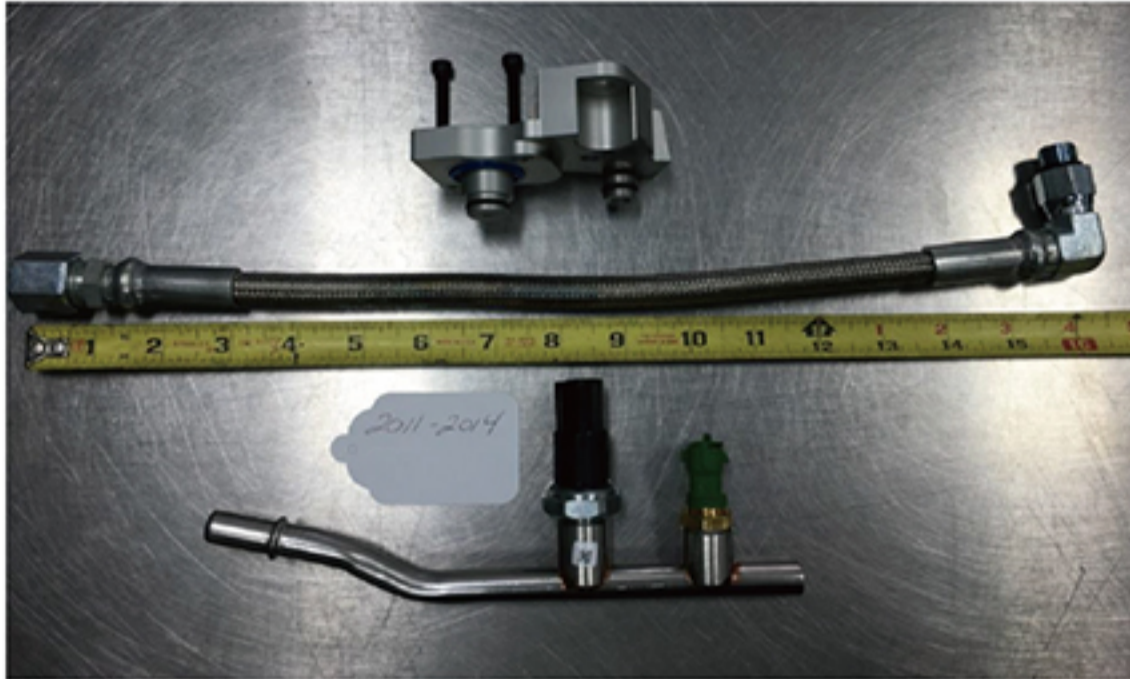
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These instructions assume the person performing the installation has a mechanical background and is familiar with the ford 6.7l power stroke engine and its fuel system. note there are two different kits, one for the early (2011 thru 2014) and one for the late (2015-2019) both are 50 state emissions legal. see pictures below.

**F 00H 6.7 4.2 FS 2011-2014****F 00H 6.7 4.2 FS 2015-2019**

Overview: the kit consists of an aluminum adapter block with o-rings and a section of high quality braided stainless fuel hose and fittings. early and late models use a different line length to accommodate the 2 sensor (early) or 1 sensor (late) equipped feed tube. also included are longer pump metering unit fasteners. new o-rings are provided or you may reuse existing o-rings from the stock feed line on the adapter block.

First steps involve removing the upper air manifolds to gain access to the top of the high pressure pump located in the valley of the engine as show below.

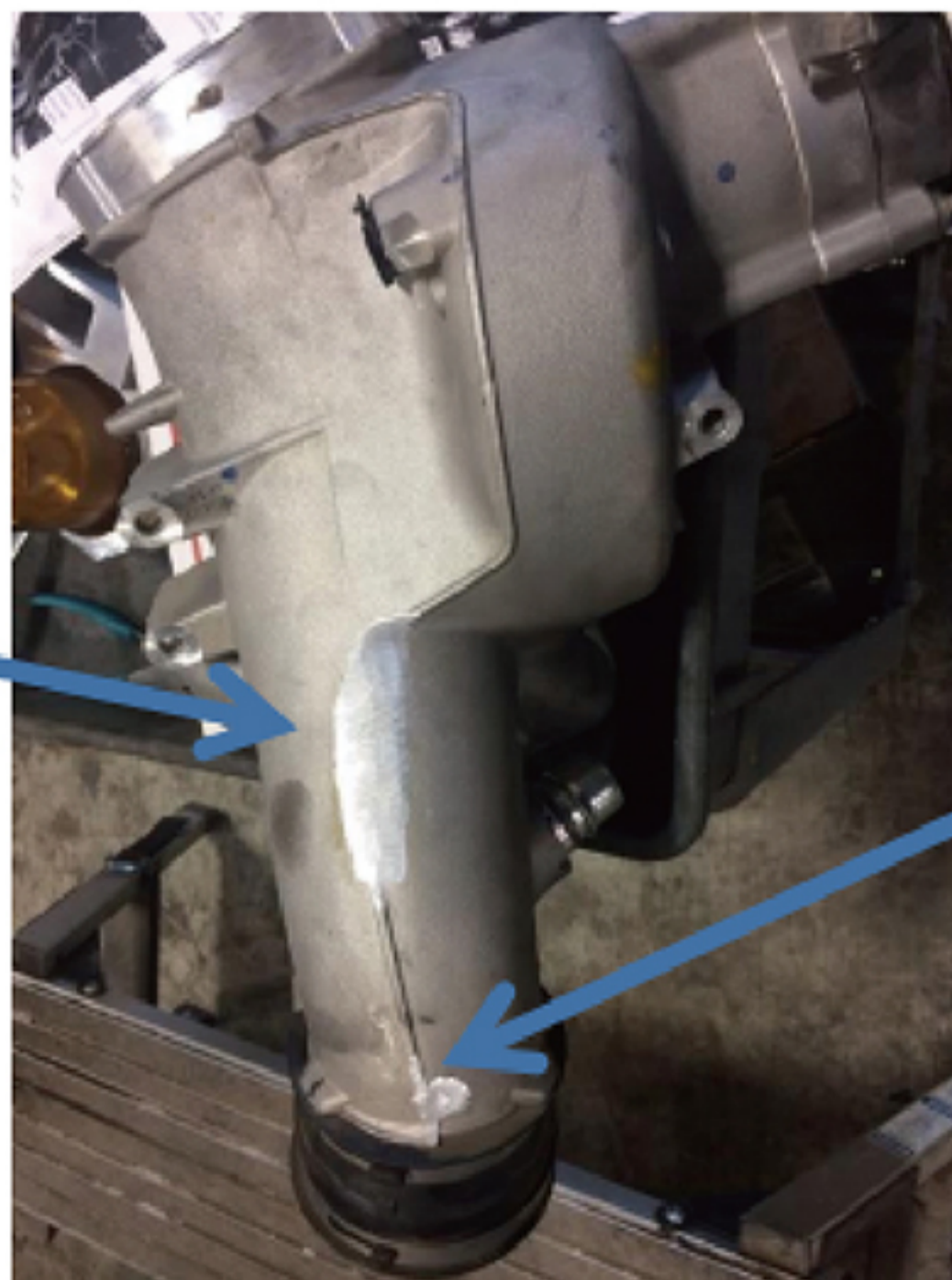


Removal of the fuel filter and fuel filter base housing is required to gain clearance to remove the upper plastic air manifold. Remove the hard plastic line from the filter to the fuel supply steel line that goes to the high pressure pump. the supply line to the pump is on the passenger side of the pump. see pic above.

THEN THE ALUMINUM MANIFOLD CAN BE REMOVED. THE LUG ON THE BOTTOM OF THE ALUMINUM MANIFOLD SHOULD BE CUT/GROUND OFF AS SHOWN TO EASE LATER REINSTALLATION.



CASTING FLASH  
REMOVED FOR  
MPRPOR CONNECTOR  
CLEARANCE



LUG REMOVED

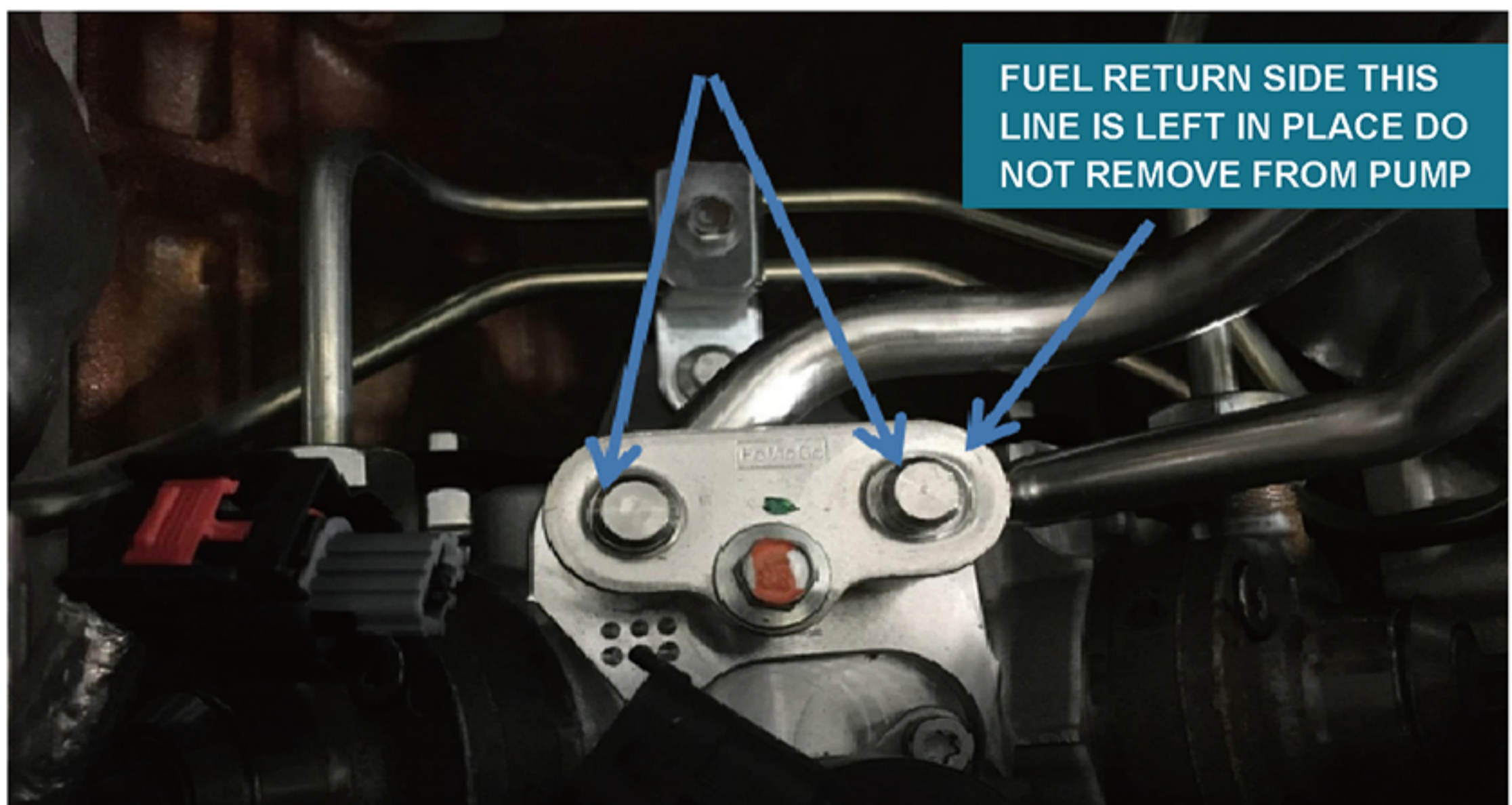
The casting flash rib in the area shown above should be removed to avoid interference with the mprop connector when the manifold is re-installed.

**REMOVE THE 2 HARD PLASTIC SUPPLY AND RETURN LINE CLAMPS AND SET ASIDE.**



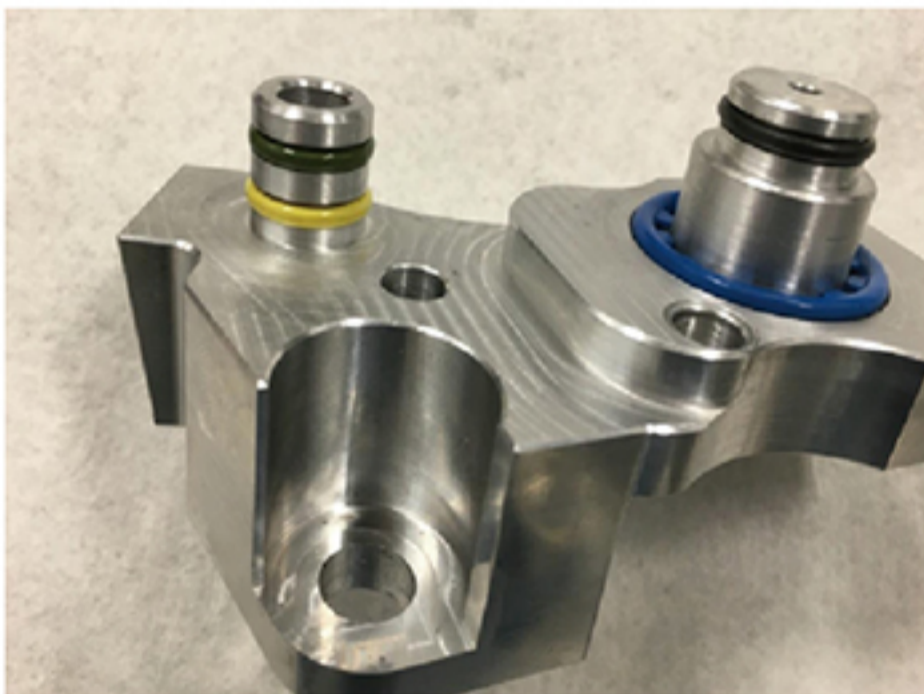
Before proceeding, carefully clean the top of the high pressure pump and surrounding areas to remove any loose dirt or debris as it is critical no contamination finds its way into the fuel system. this step can be dismissed at your own peril. when working with fuel systems cleanliness is an absolute must.

After cleaning, remove the circlips on both the supply (left side) and return (right side) fitting as shown.



Remove the “t-bar” shown in the picture above stamped “fomoco” by loosening the 10mm flanged head bolt. this bolt will be reused to attach the failsafe adapter. remove the hard fuel supply line from the top of the pump by lifting straight up. a little wiggling may be required to get the o-rings on the line to release. note- the return fuel line does not get removed. remove the metering unit (FCA) from the top of the pump. taking care to not allow any debris into the now open inlet and metering unit pockets. remove the two o rings from the supply tube and transfer to the adapter block or use new o-rings supplied. at the same time install the supplied o rings to the adapter block as shown. lubricate the o rings and install the adapter block in the top of the high pressure pump. Install the metering unit into the adapter block and install the longer metering unit fasteners. Install the center hold down bolt (from the original t-bar) and torque all fasteners. transfer and install o-rings – use new o-rings if old are worn.

After cleaning, remove the circlips on both the supply (left side) and return (right side) fitting as shown.



Install adapter block into pump after lubing o-rings. use caution to avoid cutting o-rings on install

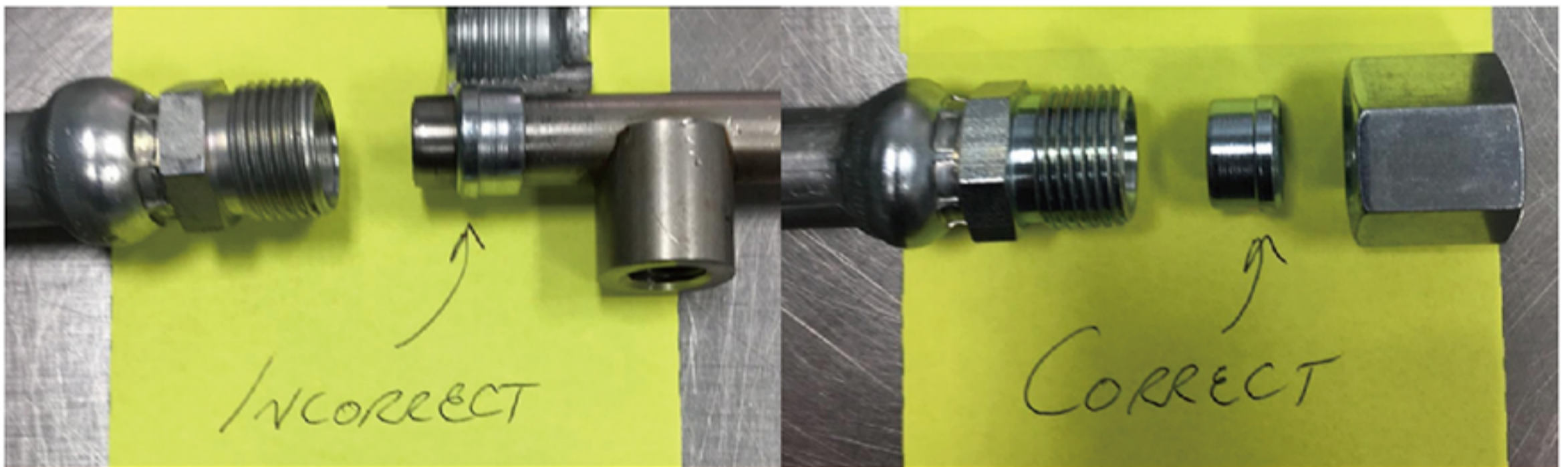


Install metering unit (FCA) and tighten all fasteners

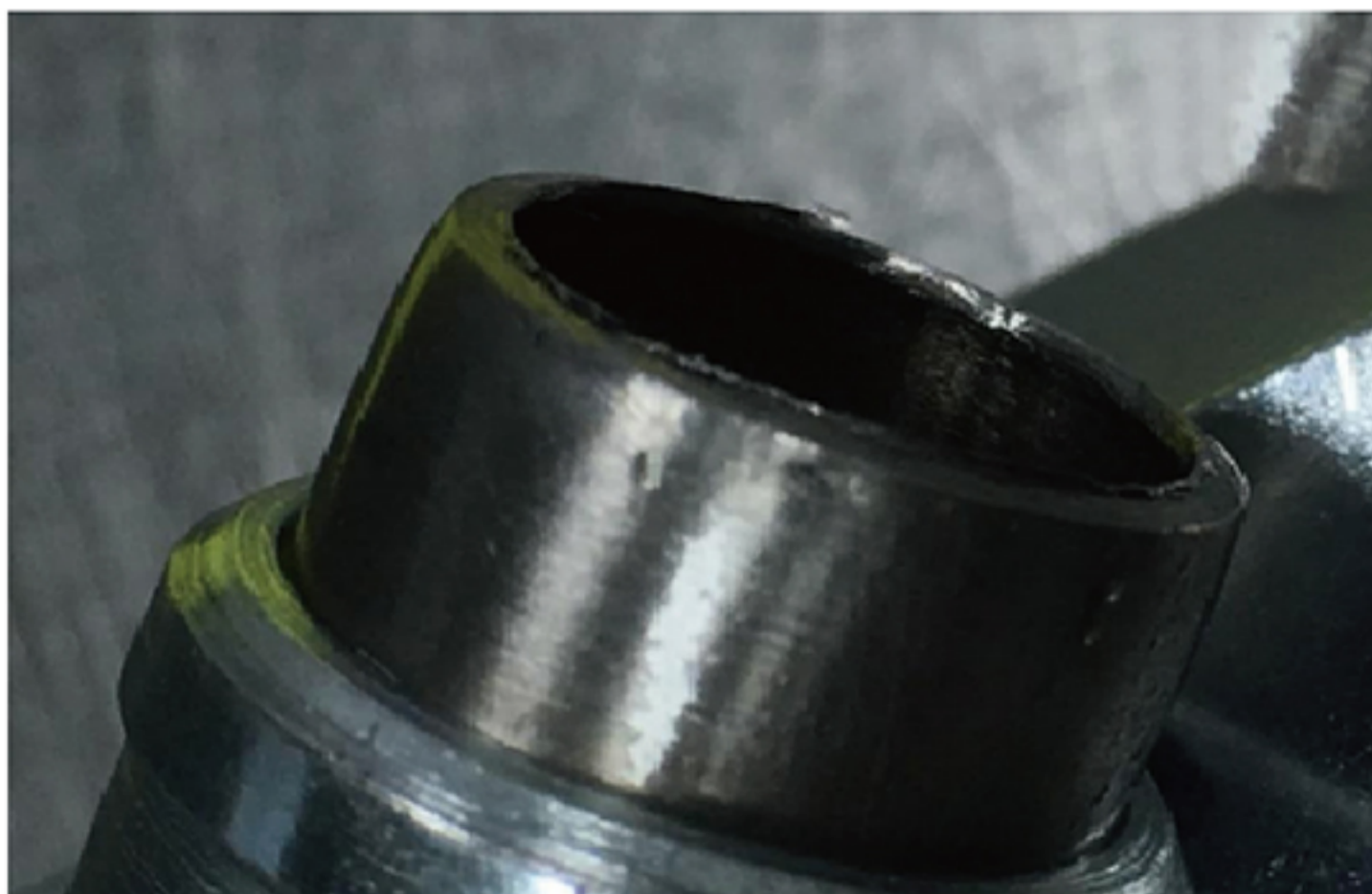


Take the supply hard line and cut as shown to allow connection to the supplied braided stainless fuel line. the line must be cut square and thoroughly deburred before tightening the compression fitting on the supply line. Inspect and clean the compression fitting after tightening to the hardline to remove any small debris. the picture below shows a line from a late single sensor model; early models have 2 sensors and require a shorter (16 inch early, 18 inch late) braided stainless line. See pic page 1.

In both cases make the cut of the supply line one inch from the sensor closest to the high pressure pump. fit the compression fitting end of the braided line to the steel tube. use a little lube on the fitting threads and thrust surfaces to assure smooth thread engagement.



**NOTE PROPER FERRULE INSTALLATION ON TUBING FLANGE END TOWARD NUT. THE TOP INCORRECTLY ASSEMBLED FITTING LEAKED AT INSTALL AND GENERATED DEBRIS WHEN TIGHTENED INTO THE MATING CONE.**



**POOR DEBURR ON CUT SUPPLY HARDLINE A TUBING CUTTER FORMS A LARGE SHARP EDGE ON THE INSIDE OF THE TUBING THAT MUST BE REMOVED. A BENCH GRINDER MOUNTED WIRE WHEEL ALONG WITH A DEBURR TOOL CAN EFFECTIVELY REMOVE THIS BURR. CLEAN THE TUBING THOROUGHLY AFTER DEBURRING**

These hardline assemblies are readily available from Ford so if you wish you can purchase the hardline feed and return assembly for modification. This will provide a clean feed line to modify as well as new orings for the adapter block. Loosen the braided stainless feed line compression fitting from the supply hardline, flush thoroughly with contact or brake cleaner to remove any debris and fit the braided stainless line to the adapter block on top of the high pressure pump. It is advised you cap or seal the end of the open braided stainless line after flushing to prevent contamination until final connection is made.

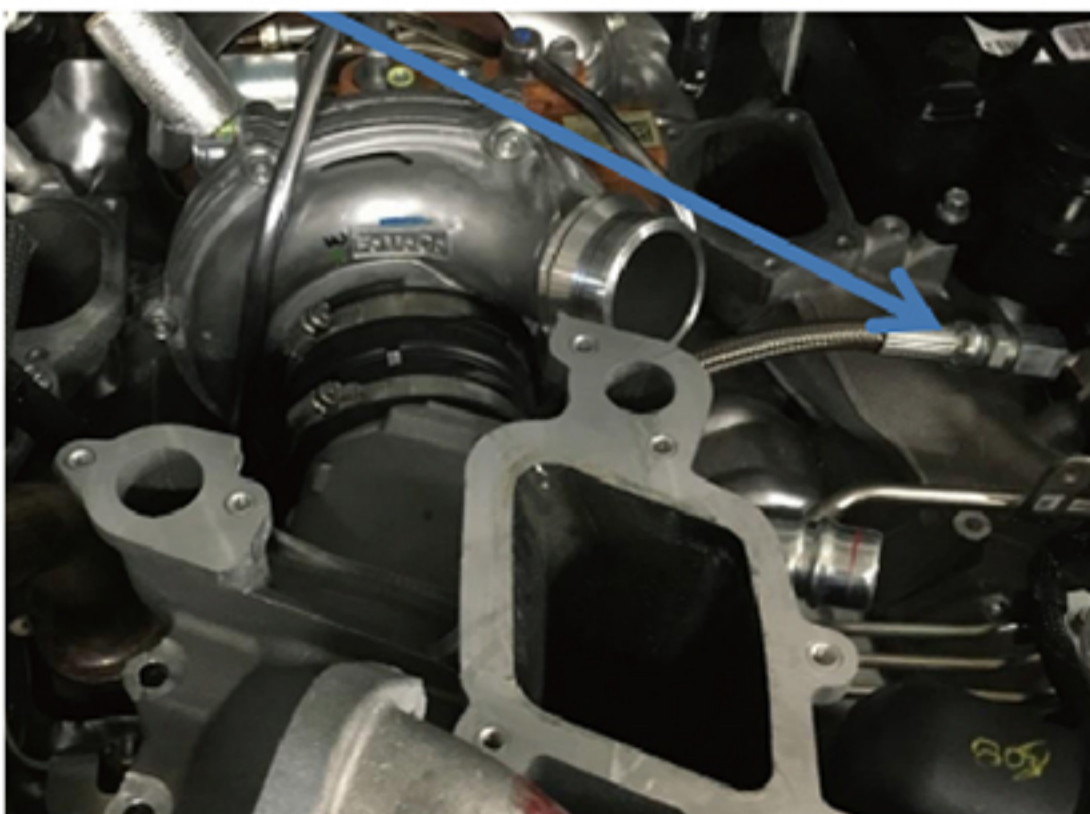


Note this braided line must not touch any component as it is fit into the valley and run out.



The line bracket that holds the supply and return hard lines is modified to allow attachment of the new braided stainless line by removing one of the "christmas tree" posts closest to the bracket mounting hole allowing the plastic snap to rotate and clear the braided stainless crimp collar. Top is unmodified bottom is modified. This is required for both versions of the kit. (pic page 11)

Reinstall the air manifolds and fuel filter base on the engine. Note the supply hard line is loosely assembled into the braided stainless compression fitting but not tightened. The compression fitting is tightened after the braided stainless line is routed in a manner such that it does not rub or contact any other component.



Christmas tree removed from plastic clamp to allow rotation in bracket.

The modified hold down bracket above can now be reinstalled and the new fuel supply line and return line fit, tightened and clamped in place. making sure the braided stainless supply line does not touch any components. on the models with a single sensor on the supply line the braided stainless line can be clamped in the modified stock plastic hold down block. the block can be swiveled allowing closure of the snap block around the braided stainless part of the feed line.



MODELS WITH 2 SENSORS ON THE FEED LINE WILL REQUIRE A HEAVY ZIP TIE OR TWO ZIP TIES CRISSCROSSED TO ANCHOR THE FEEDLINE TO THE STOCK PLASTIC BRACKET. AFTER CUTTING/GRINDING 1/2 OF THE STOCK BLOCK AWAY AS SHOW BELOW.



REFER TO PICTURE OF UNMODIFIED BRACKET

Reinstall the balance of the parts removed, making sure all electrical connectors are replaced and fasteners tightened to specification.



When first starting the vehicle after the kit is installed it is recommended you cycle the key on and off a few times purging air from the fuel system before cranking. key on – wait 5 -10 seconds then key off. you may hear gurgling as you do this until all air has been removed.

Your fuel injectors and rails are now protected should the cp4.2 high pressure pump fail. In the event of pump failure, pump replacement, along with flushing of the return lines and fuel tank is required. no failed pump debris will get into the high pressure side (rails, fuel injectors, high pressure lines) saving thousands of dollars in parts and downtime.

## **Troubleshooting after kit install:**

### **Problem - Loss of rail pressure control**

#### **Causes:**

a. Likely due to a missing or cut/pinched o-ring on the mprop or adapter block.  
remedy – disassembly mprop and adapter block, inspect o-rings for cuts and replace as necessary.

spare o-rings available from your S&S dealer.

problem –fault code – po183 – “fuel temperature sensor a circuit high Input” (2011-2104 only)

#### **Causes:**

a. temperature sensor not plugged in on the fuel supply line

b. damaged fuel temperature sensor wiring

c. bad fuel temperature sensor – should measure around 2.3 to 2.6 k ohm at room temp.

remedy – check plug and wiring for fuel temperature sensor. replace fuel temperature sensor.

problem – Intake manifold casting will not sit down on mounting bosses at install.

#### **Causes:**

a. Casting flash on bottom of intake casting was not removed and it is hitting the mprop connector. (see page 3)

b. In some cases the 90 degree connector on the braided stainless feed line may contact the intake casting. If this occurs, mark the area of interference on the casting, remove and grind/file a small relief in the casting, this is required only if interference holds up casting. slight contact is not a problem.

Remedy – cut or grind casting flash from intake until clearance is achieved. In extreme cases the top of the electrical connector must be trimmed. It will not affect the security of the electrical connection.

Problem – Rough running or hard to start after kit install

### **Causes:**

a. Air in system

remedy – turn off engine, cycle key on and off three or four times to allow the electric fuel pump to purge as much air as possible from the primary side of the fuel system.