

## FSE Power boost valve - Fitting instructions

For Hotwire Fuel Injection Systems as fitted to Range Rover Classic, Land Rover Discovery, TVR, Morgan +8 3.9 Litre and many other kit cars.

These instructions are to supplement the FSE instructions that are supplied.



### Kit Contents:-

- 1 x FSE Fitting instructions
- 1 x Power Boost Valve
- 1 x Adaptor Plate
- 1 x Mounting Bracket
- 1 x Length of Fuel Hose
- 1 x Length of Vacuum Pipe
- 6 x Pipe Clips
- 2 x Bolts
- 2 x Washers
- 2 x Fan Dish Washers
- 2 x Nuts
- 2 x Screws (Self Tappers)
- 1 x Fuel Hose Connector

### Tools required:-

- 2 x 10mm Spanners
- 2 x 11mm Spanners
- 1 x 12mm Spanner
- 1 x Philips Screwdriver
- 1 x Flat Head Screwdriver
- 1 x Pipe Cutter (or Stanley Knife)
- A small amount of grease
- 1 x Fuel Pressure Regulator
- 1 x 4mm Drill Bit and Drill

### Step 1

First, you need to locate the original fuel pressure regulator. This is found towards the rear of the engine and is attached to the fuel rail as seen in the picture below.



**!!!WARNING!!! Please make sure that the car battery is disconnected while doing this conversion.**

### Step 2

The original fuel pressure regulator needs to be removed to make way for the adaptor plate. The fuel hose attached to this is the fuel return hose, it returns unwanted fuel to the fuel tank. This pipe needs to be disconnected.

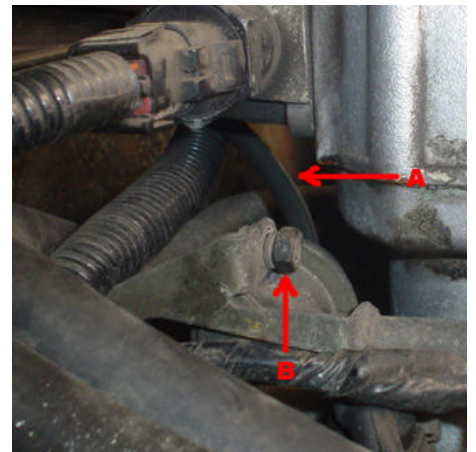


**!!!WARNING!!! When removing this pipe there will be some pressure left in the system and therefore some fuel will come out. Make sure your face isn't too close when doing this and have a rag beneath the connection to soak up fuel.**

### Step 3

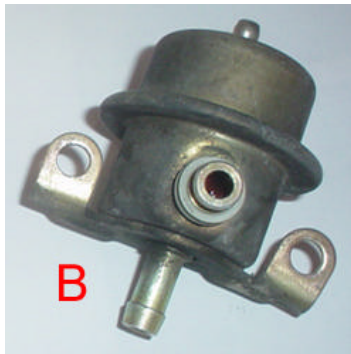
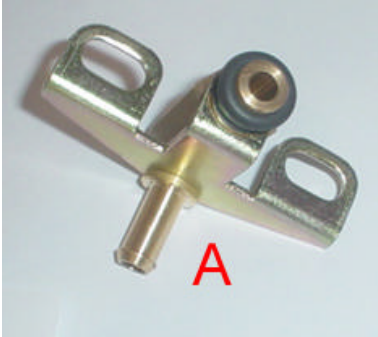
A vacuum hose is attached to the rear of the O/E (Original Equipment) fuel regulator and should be removed. See point A.

Finally, there are two bolts holding the O/E item onto the fuel rail (see point B showing the top one). You need two 11mm spanners (one either side). Undo these two bolts and keep them as they will be required later.



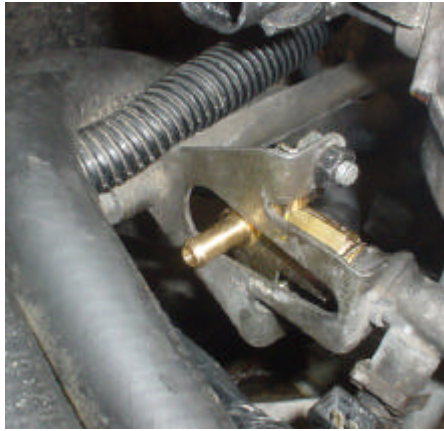
#### Step 4

As you can see below, the Adaptor plate (A) has exactly the same fittings as the O/E fuel pressure regulator (B). Once regulator is removed, make sure the O-ring and seal have come away from the fuel rail with it.



#### Step 5

To fit the adaptor plate you need to apply a small amount of general purpose grease to the seal and O-ring to ensure that when pushed into the fuel rail they have a proper seal and slide easily into place.



Use the two bolts removed earlier to secure this in place.

If, when you push the adaptor into place, it doesn't go fully into the hole on the fuel rail, don't worry, when the bolts are done up it will be pulled into place.

#### Step 6

Some forward planning is now required for the Power boost valve itself.

You need to decide where you are going to mount the valve so that you know what side you need the input pipe to be. When considering this, you should consider access to the adjuster on the front of the power boost valve.



The input pipe comes from the side of the Power boost valve and will be connected to the adaptor plate. As you can see, I have had to change the one for this Range Rover from one side to the other.

#### Step 7

Holding the mounting bracket in place where you have decided to mount the power boost valve, mark the two places for the drill holes. These two holes were drilled to 4mm, correct for the self tapping screws supplied, however, if the material you are screwing into is thicker, you may need to go to a 4.5mm drill bit).



At this point the bracket needs to be bent ready for the Power boost valve to be fixed to it. As seen in the next picture.



#### Step 8

Now fix the bracket to the vehicle using the two self tapping screws provided.



#### Step 9

The fuel return hose removed from the O/E fuel pressure regulator now should be fitted onto the brass pipe with the arrow pointing outwards on the rear of the power boost valve. You may need to shorten or lengthen this hose. If you have to lengthen it, use the fuel hose connector supplied in the kit.



To fix securely use one of the pipe clips provided in the kit.



### Step 10

Now mount the Power boost valve to the bracket using the bolts, washers and nuts provided. You will need two 10mm spanners for this, again using 1 either side to ensure it is fixed securely.



### Step 11

The adaptor plate now needs to be connected to the Power boost valve with the fuel pipe supplied. It is secured at either end with a fuel clip, also supplied in the kit. (See points A and B)



### Step 12

Now remove the vacuum hose from the rear of the plenum that was originally connected to the O/E fuel pressure valve. Using the red vacuum hose supplied, connect the vacuum port on the rear of the plenum to the port on the front of the Power boost valve.



### Step 13

Now that the Power boost valve is fitted, the fuel pressure needs to be set before starting the engine for the first time.

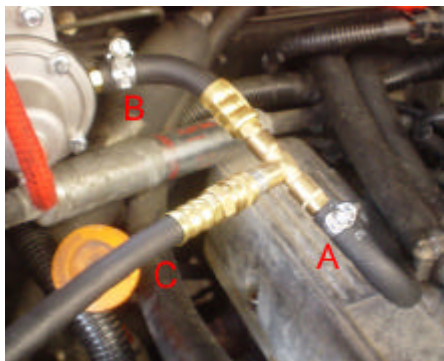
Using a 12mm spanner, remove the chrome domed lock nut from the front and put in a safe place.



Now loosen the second nut on the adjustment screw so that the adjuster can be turned.

### Step 14

Using the connections supplied, connect the gauge into the pipe between the power boost valve and adaptor.



As seen above.  
Point A was connected to the Power boost valve but is now joined to the pressure gauge T-piece.  
Point B is now connected to the Power boost valve so fuel is still flowing on its original path.  
Point C goes to the Gauge.

### Step 15

Take some time to double check all connections are tight and secure.

Following the instructions that came with the Fuel Pressure Gauge, remove any air from the system.

Now that the gauge is ready for use, the fuel pressure is set to the pressure suggested below.



### Step 16 - You need to reconnect the battery at this point.

Switch the ignition on so that the fuel pump is running **but do not start the engine.**

Your fuel pressure gauge should now have a reading on it. To adjust the pressure, the adjustment screw on the front of the power boost valve is turned. If more pressure is required, turn clockwise, if less pressure turn anti-clockwise. Once desired pressure is reached, switch the ignition off.

### Step 17 - It is essential to disconnect the battery for this step.

You can now remove the fuel pressure gauge from the fuel system (again being careful as there will be some pressure in the fuel pipes and petrol will come out). The fuel pipe should then be reconnected between the adaptor plate and the power boost valve. **Again make sure that all connections are tight and secure.**

The fuel pressures to the right are to be used as guidance only as every car is different depending on modifications.

3.9 Standard	3.9 Modified	4.6 Standard	4.6 Modified
35 p.s.i	Up to 38 p.s.i	Up to 38 p.s.i	Up to 42 p.s.i