

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.



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 Tapers)
- 1 x Fuel hose connector

Tool 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

Firstly 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 ignition is switched off and that the keys are removed when doing this conversion.



Step 2

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

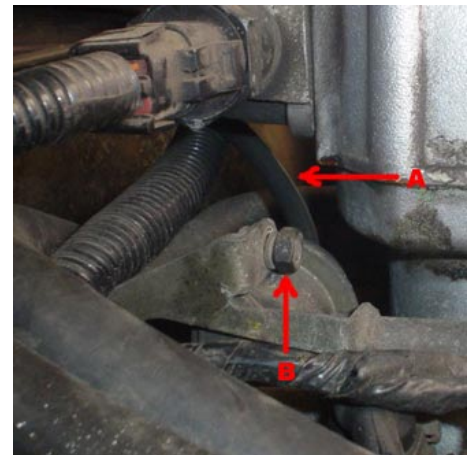


!!!WARNING!!! When removing this pipe there maybe a small amount of pressure left in the system and therefore some fuel may come out. It is advisable to ensure that your face is not to close when doing this and also advisable to have a rag below the connection to soak up any fuel.

Step 3

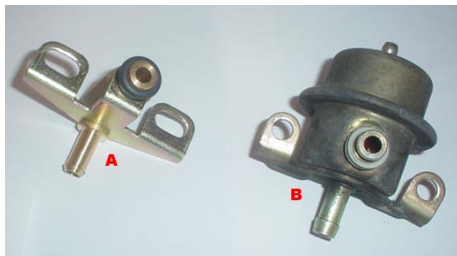
There is a vacuum hose attached to the rear of the O/E (Original Equipment) fuel regulator which needs to be removed. See point A.

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



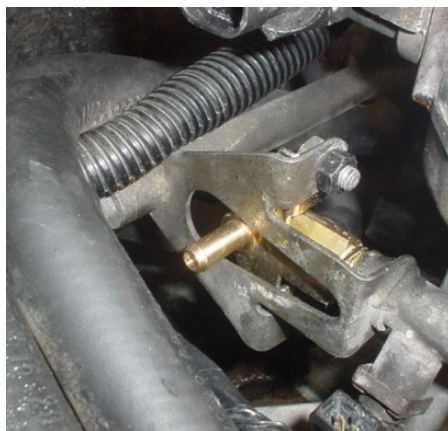
Step 4

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



Step 5

To fit the adaptor plate you will 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 it has a proper seal and also so that it slides into place a little easier.



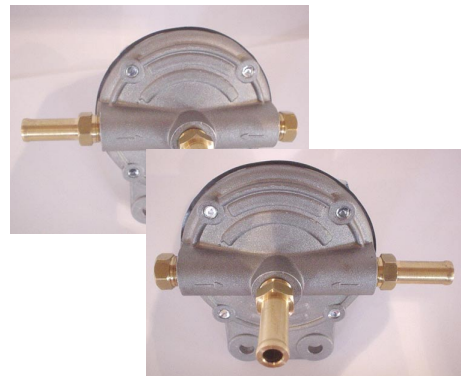
You should use the two bolts that were removed earlier to secure this in place.

If when you push the adaptor into place it does not go fully into the hole on the fuel rail do not worry. When the bolts are done up it will get pulled into place.

Step 6

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

You will need to figure out where you are going to mount this so that you know what side you need the input pipe. When thinking about this you will need to take into consideration access to the adjuster on the front of the power boost valve.



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

Step 7

Holding the mounting bracket in place to where you have decided to mount the power boost valve mark the two places for the holes to be drilled. I drilled these to holes to 4mm which was correct for the self tapping screws supplied. (However if the material you are going to be screwing into is thicker you may need to go to a 4.5mm drill bit.



At this point I also bent the bracket ready for the Power boost valve to be fixed to it. As seen above.

Step 8

It is now best to fix the bracket to the vehicle using the two self tapping screws provided.



Step 9

The fuel return hose which was removed from the O/E fuel pressure regulator now needs to be fitted onto the rear of the power boost valve. This is the brass pipe with the arrow pointing outwards on it. It may be required to shorten this hose or even lengthen it. If you are having to lengthen the fuel return hose please use the fuel hose connector that is supplied in the kit.



Step 10

Now mount the Power boost valve to the bracket using the Bolts, washers and Nuts provided. You will need to 10mm spanners for this again using 1 either side to ensure that they are tight.



Step 11

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



Step 12

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



Step 13

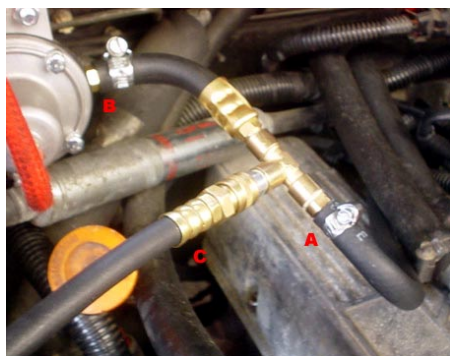
Now that the Power boost valve is fitted the fuel pressure needs to be set before starting the engine for the first time. Using a 12mm spanner remove the Chrome domed lock nut from the front and put it in a safe place.



Now loosen then second nut that is on the adjustment screw.

Step 14

Using the connections that are supplied with any good quality fuel pressure gauge 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 that the fuel is still flowing on its original path. Point C is going off to the Gauge.

Step 15

At this point you should 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 pressures suggested below.



Step 16

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 the adjuster is turned clockwise, however if less pressure is required then it should be turn anti-clockwise.

Step 17

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 from them. The fuel pipe should then be reconnected from the adaptor plate to the power boost valve. **Again make sure that all connections are tight and secure.**

The pressures to the right are to be used as guidance only.

3.9 Litre Standard
35 p.s.i

3.9 Litre Modified
Up to 38 p.s.i

4.6 Litre Standard
Up to 38 p.s.i

4.6 Litre Modified
Up to 42 p.s.i