Specialist Components

SPi 5 Port EFI Kit

Version 1.1 Sept 2012

Congratulations on the purchase of your SPi 5 port EFI Kit!

Kit Content:-

Alloy inlet manifold – gasflowed to suit 45/50mm throttle body

Injector housing – as bolted to inlet manifold

2 new 440cc injectors + injector clips and stainless steel fuel rail

45/50mm throttle body with bespoke ram pipe/inlet stub

Throttle cable and abutment for cable ends

Typhoon ECU – with base map

SPi Plug and Play Loom Adapter, Injector, Throttle Postion Sensor and Coolant Temperature Sensor Adapter Looms.

ECU CAN interface dongle (Software free to download from www.specialist-components.co.uk)

Wiring loom

Coil pack kit inc custom plug leads

Water temp sensor and Custom Billet Thermostat Housing

Fuel Pressure Regulator

Brake Servo Adapter and Part Load Breather fitting

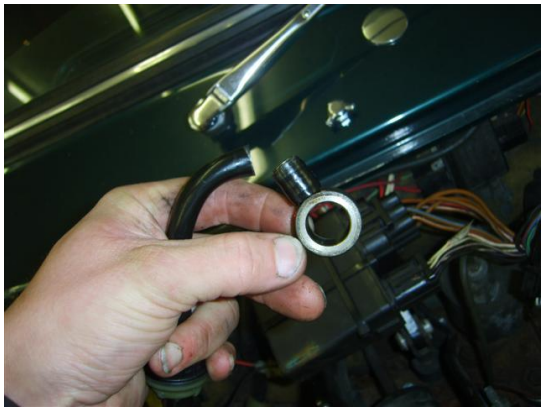
Part Load Breather Manifold

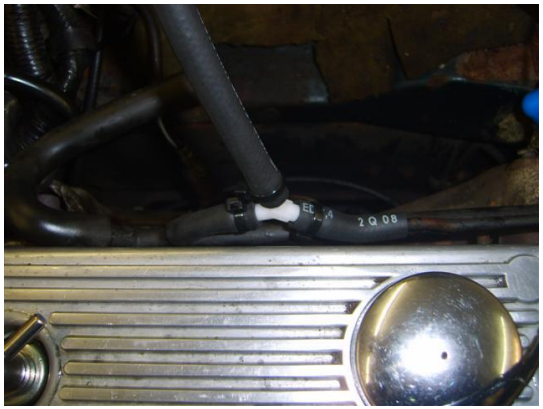
Fitting the SPi 5 Port Kit:-

- Remove Bonnet to allow easier access to the engine bay for fitment.
-Remove Airbox from existing SPi inlet manifold. Careful of vacuum connections underneath. You will need to remove the air temperature sensor for reuse with the kit also (green plug)

- Disconnect the Battery.
- Drain Engine coolant (necessary as there is Coolant in the Inlet manifold)
- Remove the throttle cable, water heater pipes from Inlet manifold, fuel hoses (be careful of any residual pressure in the lines! Also note which was the top and bottom fuel line – Bottom should be the Feed line and Top Line the return.)
- Disconnect the full and part load breathers from the engine too.
- Undo Servo take off banjo bolt from the Inlet Manifold.

-Carefully remove Inlet Manifold and Throttle Body assembly from the cylinder head. There are the connections and pipes on the underside that require removal. Check gasket condition as you may need to replace this.
- Cut the end off of the Servo take off for the banjo bolt, leave this as long as possible. (see picture)
- Join together the two coolant water heated pipes that feed the Inlet manifold heater with the large 90 degree joiner piece supplied.
- Fit the Y piece, part load breather to the pipework behind the rocker cover. This may need some trimming to suit. (see picture)



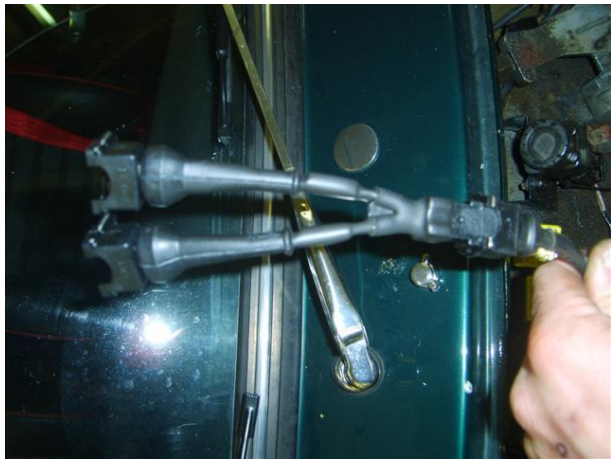


- Before fitting the Inlet manifold assembly it is necessary to drill a few holes. A step drill is the best method of doing this.
- Drill one 10mm hole down low in the Backplate for the Air Inlet Temperature sensor (m10 fine nut for this is provided) and a 16mm hole for the full load breather grommit and associated 90 degree adapter. (see pic) Careful of not placing too close to the edge of the backplate.

- Now you can bolt the new Inlet manifold and Throttle body assembly onto the engine.

- Now you need to plug in the adapter parts for the wiring loom. These are:

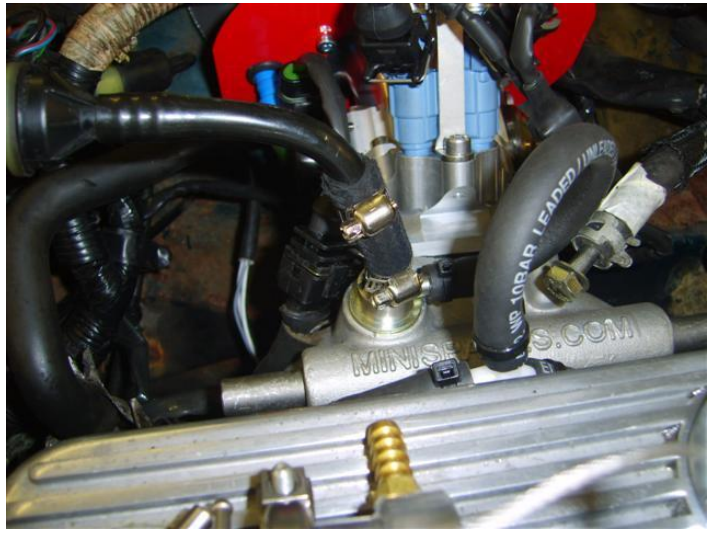
Injector Adapter Harness



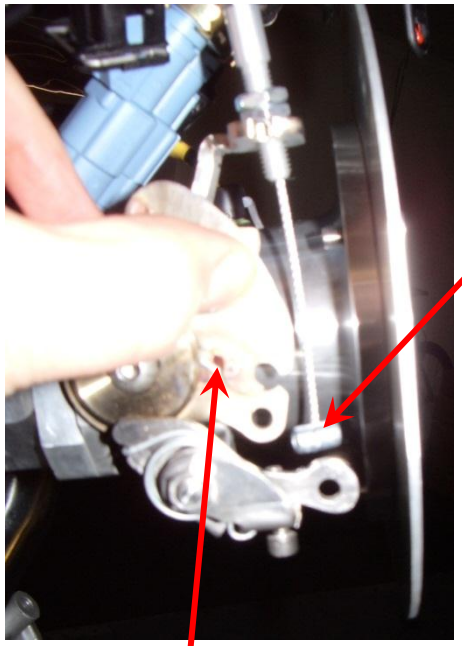
TPS Adapter Harness

Coolant Temp Sensor

-Fit Part load breather adapter and Servo take- off adapter into Inlet manifold. This requires some sealant on the threads before fitting to ensure it is airtight. Try to tighten it so the side lines up to provide an easy path for the part load breather adapter piping.
- Use the connector pipe to join the plastic servo pipe into the top of the adapter. Careful when tightening.

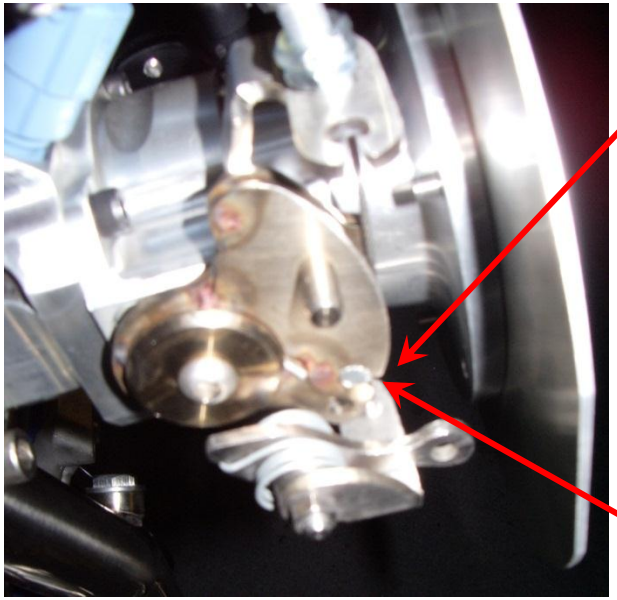


-Now fit the throttle cable, ensure that the cable abutment is fitted to the throttle body first. (as shown). Put the outer cable (black piece) into the bulkhead adapter and the aluminium abutment you have put into the throttle body. Then you can feed the inner cable into the outer cable, being very careful not to damage this part as it may affect the operation of the kit.



Remove outer cable, insert inner
Cable from below – through adjuster
To this position:-

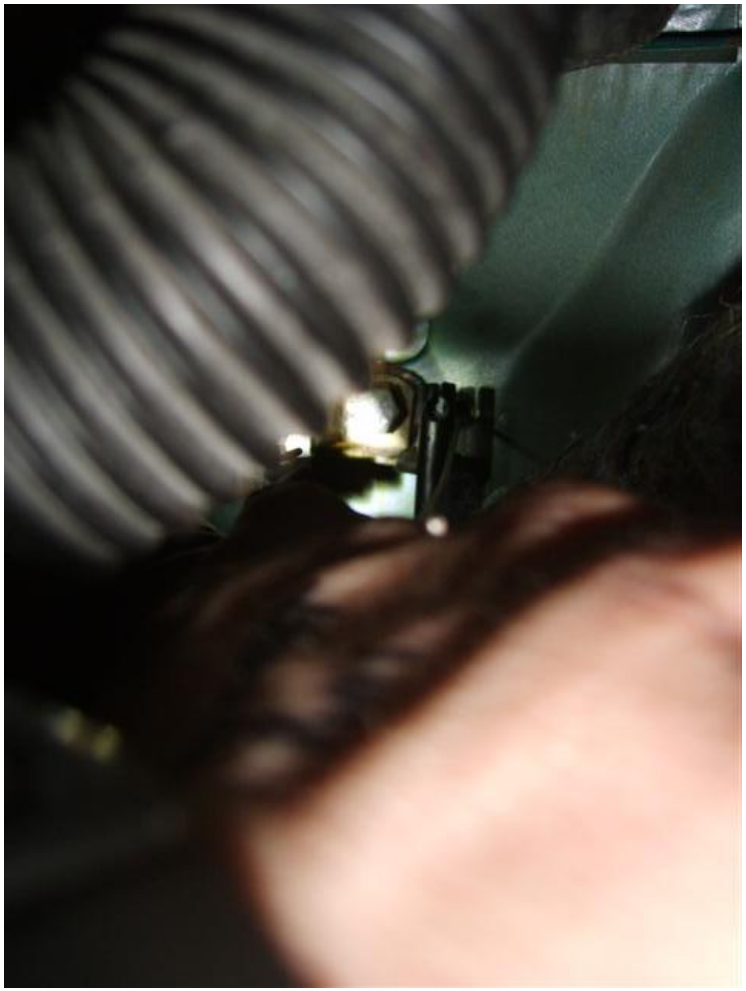
Push throttle quadrant upwards

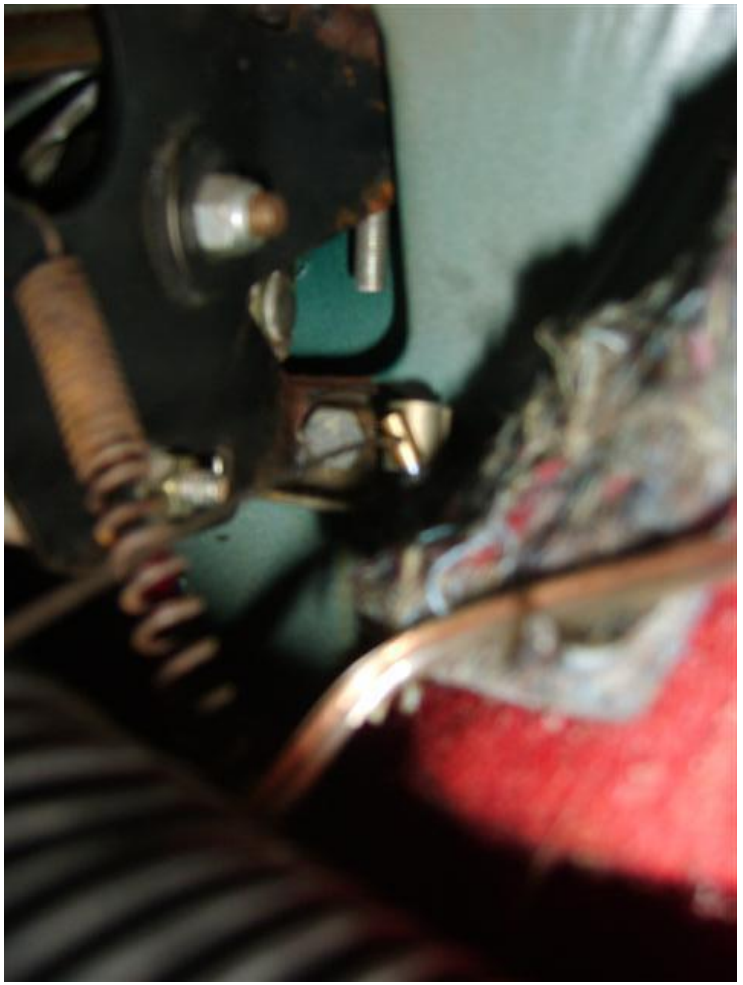


With quadrant still held upwards – insert the
Nipple into the locating hole – IMPORTANT
The nipple is shorter one side than the Other. Ensure the thinner side is this side
Of the quad as shown. Fitting the thicker
End to this side will result in in-correct Operation of the throttle and potential Sticking – very important.

Note nipple flush
To quadrant

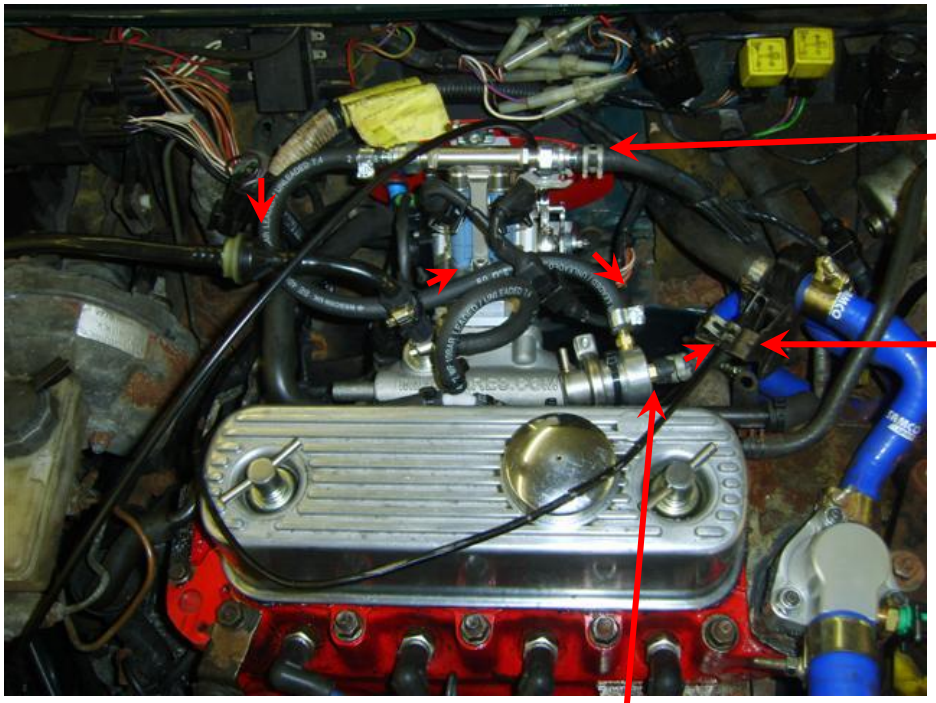
- Now go to the inside of the car, feed the throttle cable through the top of the throttle pedal and through the retaining clip. Now use the solderless nipple provided to hold the end of the cable and ensure the correct length. See pictures below.





- The next part of the installation is the fuel system, first of all you need to change the fuel pump module in the fuel tank in the boot. This is very simple to do, use the Haynes manual if you encounter any problems.

- Back in the engine bay, the standard fuel lines are marked up as an orange pipe which is the feed line from the fuel tank and a green line which is the return line to the tank. See the photo below for the plumbing layout. The original feed line secures onto the fuel rail for the throttle body, also the original return line easily attaches to the bottom of the fuel pressure regulator, then you merely need to bridge the remaining piece from the other end of the fuel rail to the side of the fuel pressure regulator. Be sure to use a high pressure fuel injection hose capable of **at least 3.5 bar or 50psi** and appropriate hose clips. Around 40cm or 16” of 8mm fuel hose is enough for this. **The standard SPi fuel pump will need to be upgraded to a MPi pump attain the correct pressure.**



-Now we need to fit the new thermostat housing. Prior to fitting this to the engine it is best to fit the Coolant Temperature Sensor (supplied) to the housing.
- The threads on this sensor are an interference type, so you do not need the sealing washer but some sealant on the threads is recommended. Wind the sensor into the housing around 3 or 4 threads until it feels tight on the threads and has a good thread engagement into the housing.
- Fit this to the engine, you should use a new gasket for this to ensure proper sealing.
- Reconnect the pipe to the radiator and connect the Coolant temperature sensor extension piece to the sensor.
- Refill coolant.

- Remove old Rover MEMs ecu, disconnect the electrical connector and vacuum pipes that are attached as these are no longer required for use with the Typhoon ECU.
The Typhoon ECU will sit in a suitable position on the existing Rover Bracket with the Plug and Play adapter loom, mark this position and drill this off the car.
Attach the Typhoon ECU to this bracket and refit to the car along with the plug and play loom.
Reconnect the Battery

This is the installation complete. The next part is to check the system for any fuel leaks, idle setup and the sensor setup.
Turn on the car to the Ignition 2 postion, so that the fuel pump sends a priming pulse. This should pressurise the fuel system, be careful to check for leaks at this stage. Check that the Throttle Position sensor (tps) is working correctly and that other sensors such as the Coolant temperature are functioning correctly
- If everything is working correctly, then start the car. If the car will not idle fast enough or too fast, then you will need to adjust the idle bleed screw on the top of the throttle body (see picture overleaf). This should be around 850-950rpm when the engine is warm.

-- The engine calibration supplied with the kit will be matched as closely as possible with your engine specification but may need setting up on a Chassis dyno/Rolling road by an experienced operator to perfect.

Idle adjustment screw. Anti-clockwise
To raise speed, clockwise to
Reduce idle speed. Always lock
Off the adjustment with locking
Nut.