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Renault Clio 197/200 throttle body kits

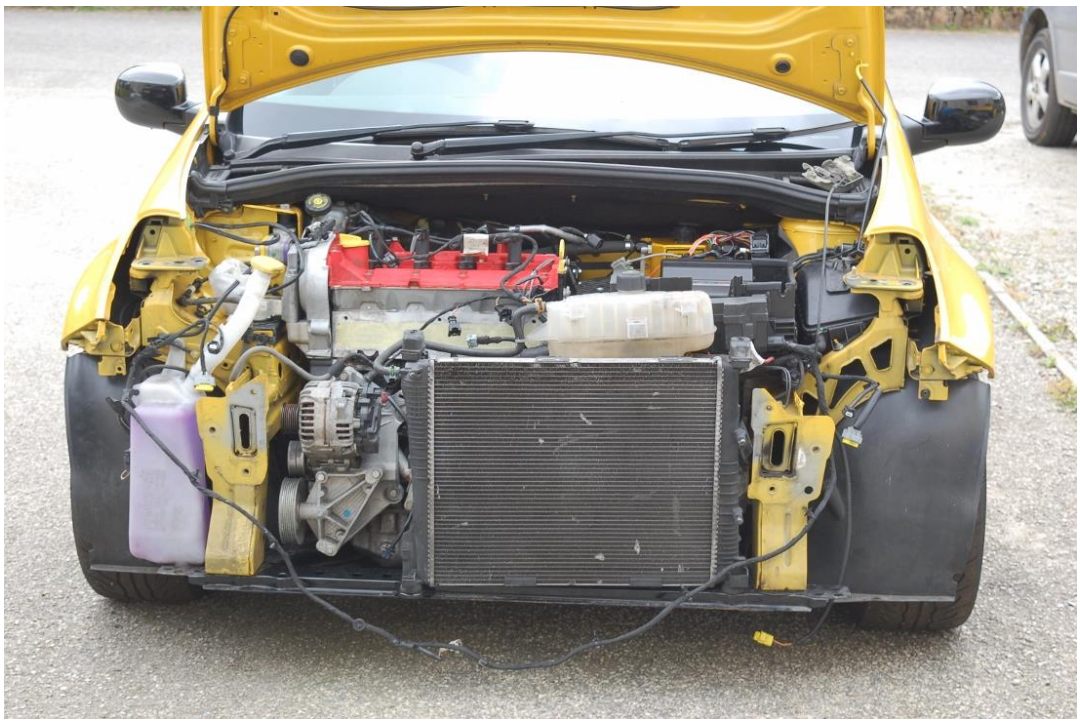
Throttle body kit with 48mm Jenvey DCOE pair and Pure Motorsport billet inlet manifold.

Fitting.

We strongly recommend that a professional with suitable experience fit this kit.
Just because we offer fitting instructions doesn't mean it is a DIY job!!
You need to have access to a flowmeter so that you can balance the throttles.

Preparing The Car

Remove the front bumper and both headlights. Remove the crash bar and unclip the wiring loom from the plastic front slam panel. Remove the horns and then the slam panel.



Degas the aircon system use best practice methods.

Drain the coolant and dispose of responsibly. Remove the radiator pack complete with fan and expansion tank.

Remove the entire standard inlet manifold.

Check the cambelt blanking plate fits snugly and trim any areas as required.

Manifold port matching

The billet manifolds that we supply should match the head very well in our own CNC ported cylinder heads but may require some port matching on a standard head.
For best results you need to match the head inlet ports to the manifold to remove any rapid flow deviations or change in cross sectional area.
You should only have to remove material from the head and not the manifold.
This is best done by scribing inside the manifold on the head face or using a pattern cut out of paper by tracing the manifold port using a pencil and transferring this to the head face.
Use a die grinder with carbide burr to remove the majority of the material and finish off using a flap wheel.
If the head is on the vehicle make absolutely sure that no swarf enters the ports or other internal areas of the engine.

Fitting the throttle body kit

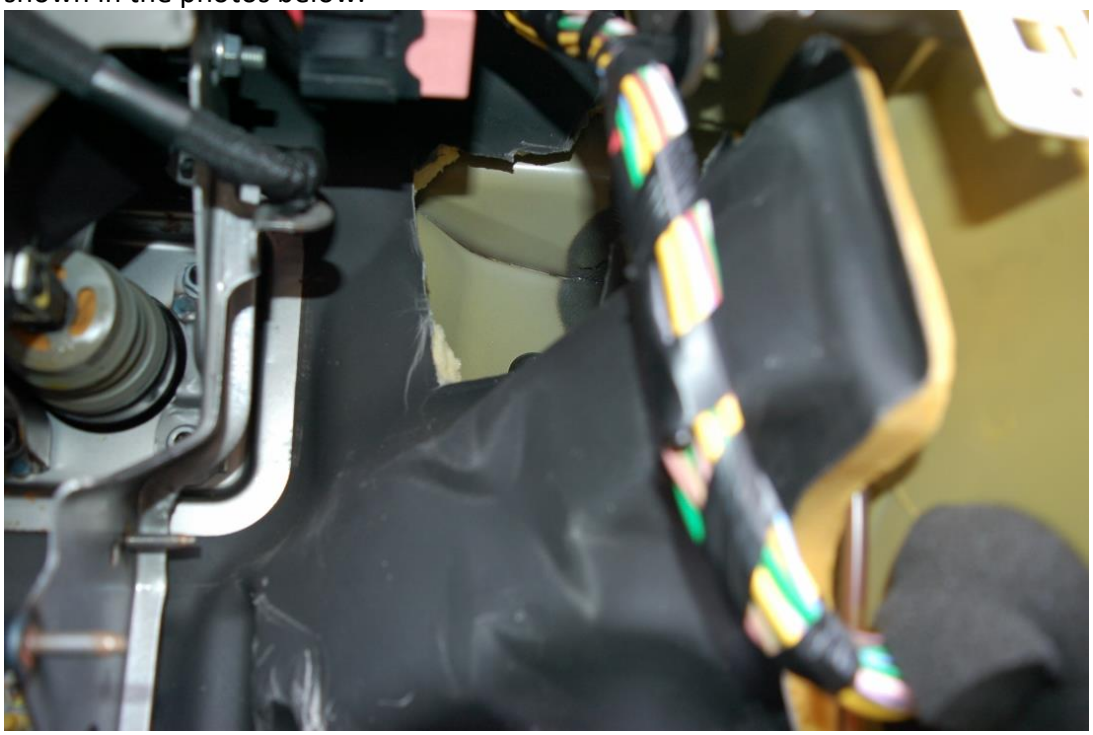
Place the laser cut cambelt blanking plate in place on the square threaded boss on the side of the inlet manifold. Once in place, seal any gaps with silicone sealer. Using some Loctite on the bolts provided, fit the throttle bodies. Open up the throttles to look at the port position to get the best alignment.

Nip up the bolts and ensure the cambelt cover/engine mount bolt pulls the threaded boss in flush before final tightening to ensure good alignment.

Throttle cable fitting

Remove the original drive by wire throttle pedal.

Trim a small section of sound deadening out from around the bulkhead grommet shown in the photos below.

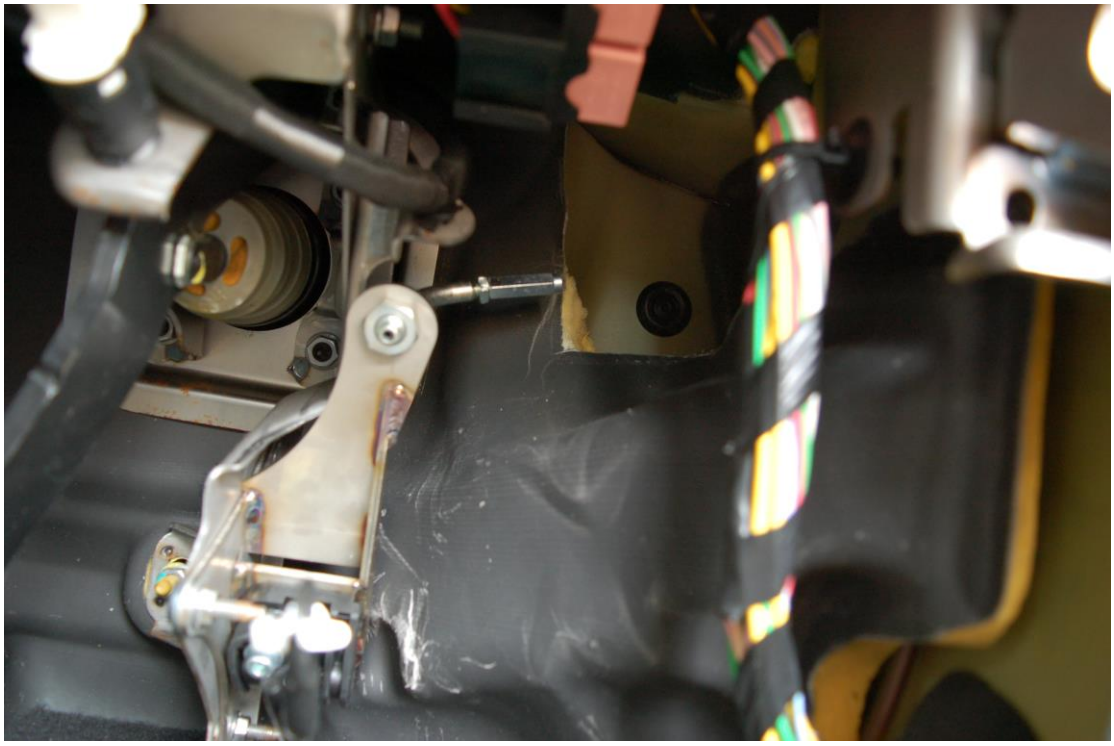


Push a sharp point through the grommet to open a little hole.

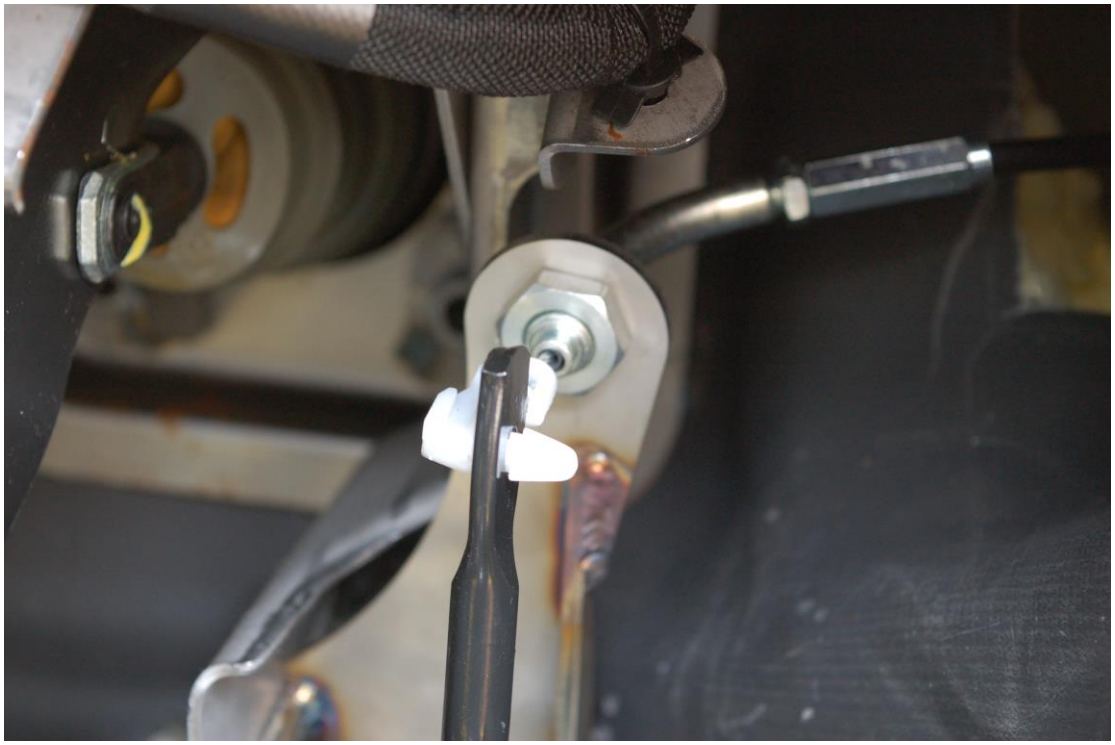
Fit the new pedal and bracket ensuring the top of the pedal is well aligned with the 90 degree cable fitting in the bracket.

From the footwell push the outer sheathing of the cable through the grommet and extract it from the engine bay side and pull through into engine bay until you have about the right length left in the footwell. Push the sheathing into the 90 degree fitting on the pedal bracket and into the throttle bodies. Trim the outer sheathing

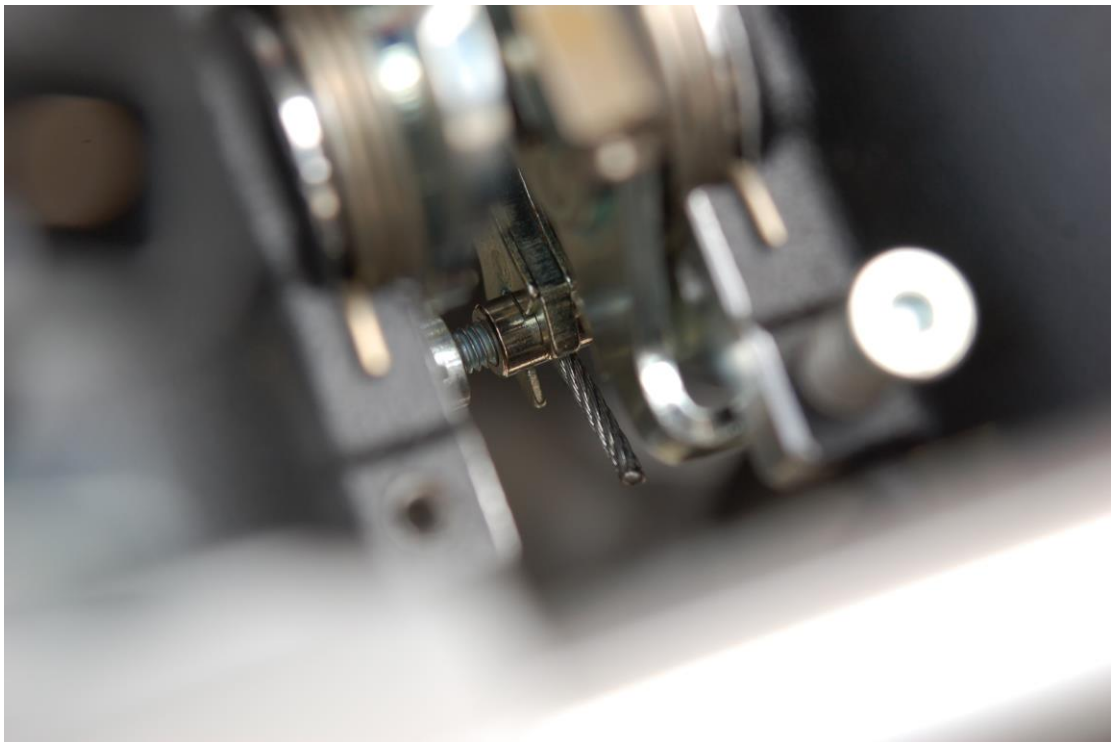
until you get a nice smooth cable run up to the 90 degree cable bend fitted to the throttle bodies.



From the inside of the car pass the new cable through the clip, through the 90 degree fitting in the bracket, into the outer sheathing and through the bulkhead and push the clip into the pedal.



Fit the throttle cable end clamp into the base of the throttle quadrant.
Run the cable through the 90 degree bend, the throttle quadrant, and finally through the throttle cable clamp.



Adjust the length of cable to make the pedal height suitable for the driver and tighten up the throttle cable clamp. Do not trim cable yet!
Check you can get full throttle opening, if not adjust cable.

Ideally you should have an adjustable throttle stop on the floor of your car set to stop the pedal after full throttle has been reached. This will ensure the throttle body linkage isn't over stressed.
Once happy with the cable activation, trim the excess cable leaving a small amount for any adjustment you may want to make.

Route the cable so that there are minimal sharp bends and keep it way from the exhaust manifold as much as possible. Using P clips or cable ties fasten the cable to the body or engine as required so that the cable doesn't chafe.

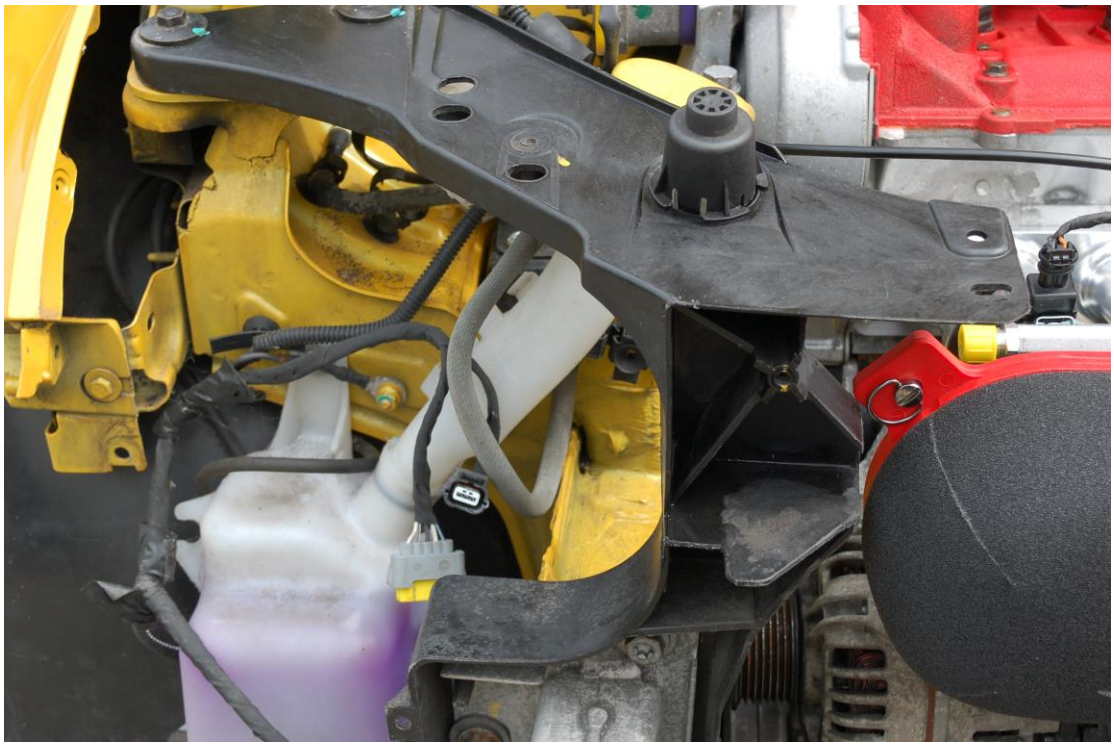
Servo plumbing

If you don't have a servo, ensure the threaded plug is fitted to the end of the manifold.

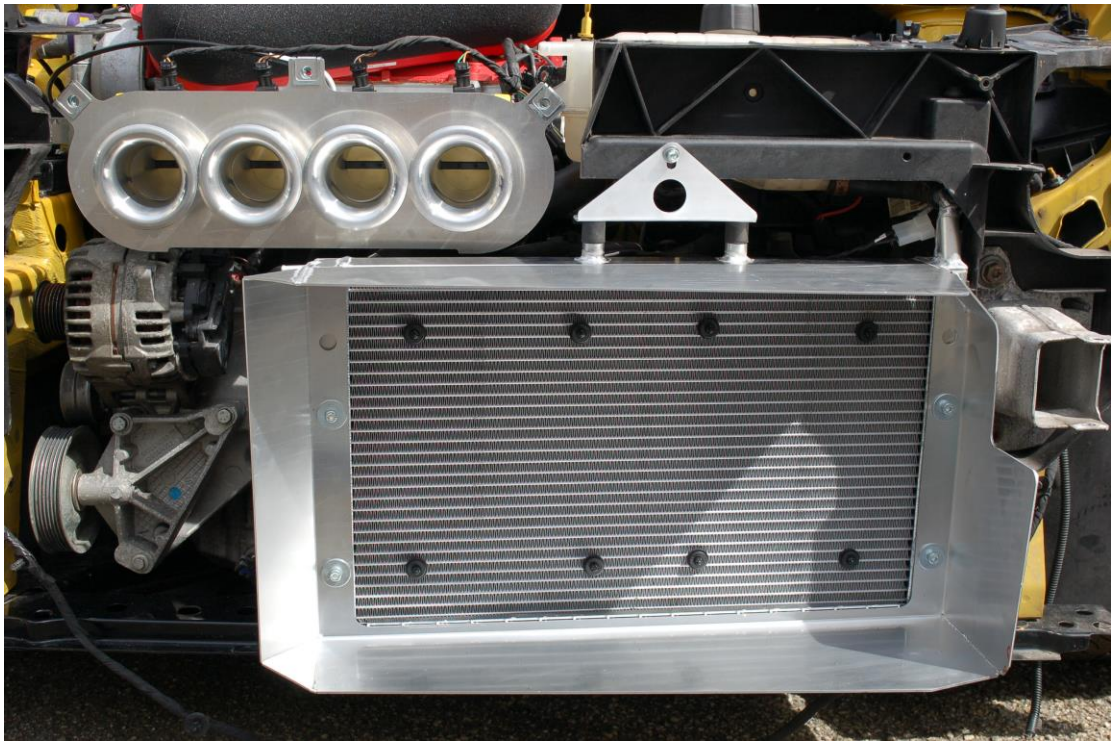
If you do have a servo – you will need to trim the existing servo hose to length. Using the 90 degree bend and plastic pipe supplied in the kit route the pipework next to the cylinder head through the P-clip and push into the supplied rubber hose and into the existing plastic hose - use the Clips to clamp the hose in place. Tighten the P-clip to an angle where the pipework doesn't rub.

Trimming Slam Panel

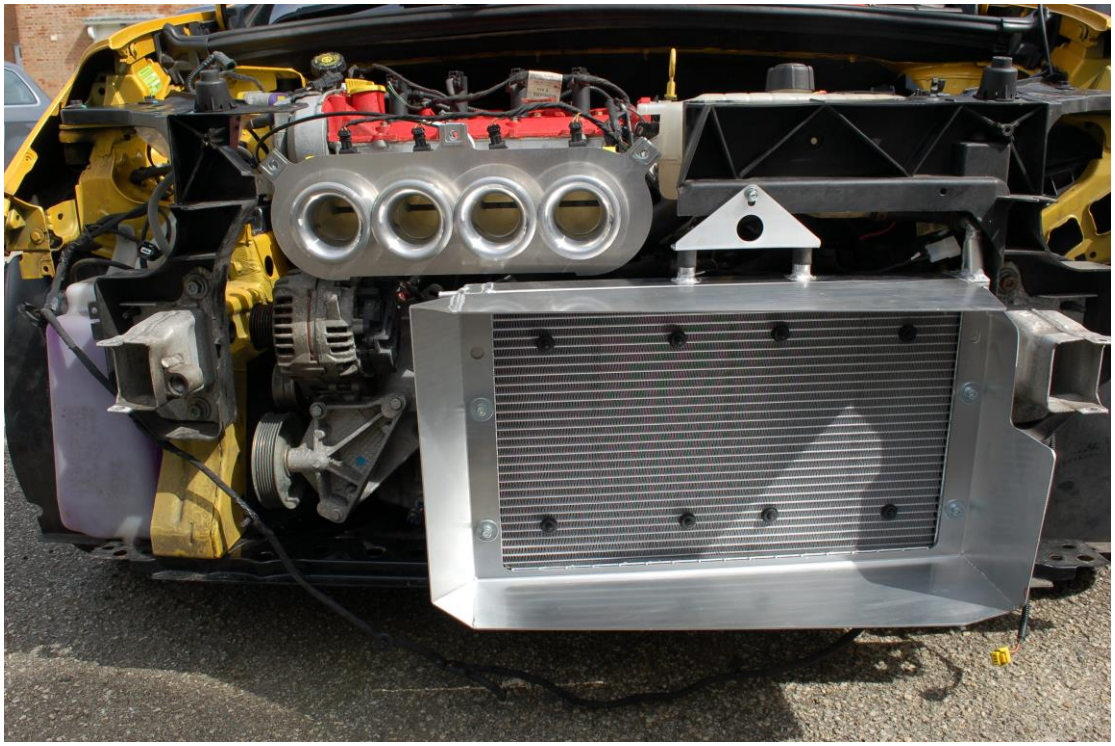
You will need to trim the slam panel in the areas shown to make room for the air filter.



Trim the edge off the hose clip on the expansion tank.



Fit our radiator pack into the original rubber mounts, adjust and bolt up the top radiator bracket. Using all the standard hoses and clips, refit the coolant hoses. Reroute the top expansion tank hose under the filter backplate and clip back to ensure it doesn't chafe on anything.



Horns

Fit a rivnut into the rear of the crash bar as shown and refit the horns. Reroute the front wiring loom section across the crash bar and clip back.

Refit head lights and front bumper.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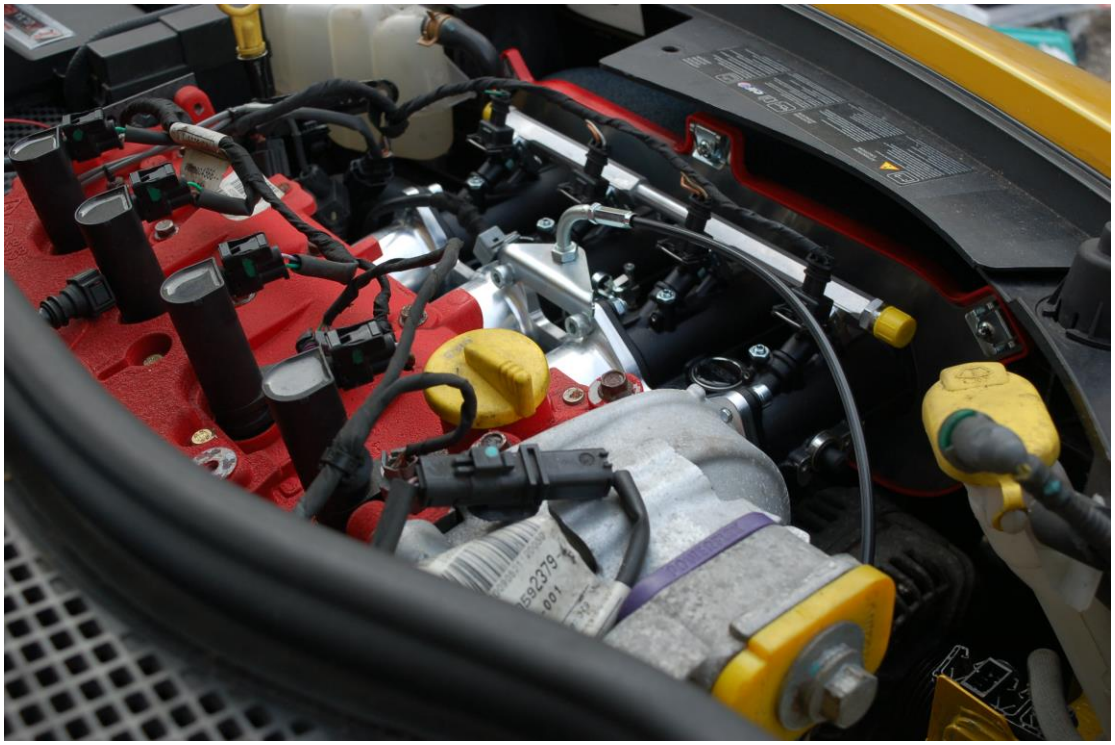


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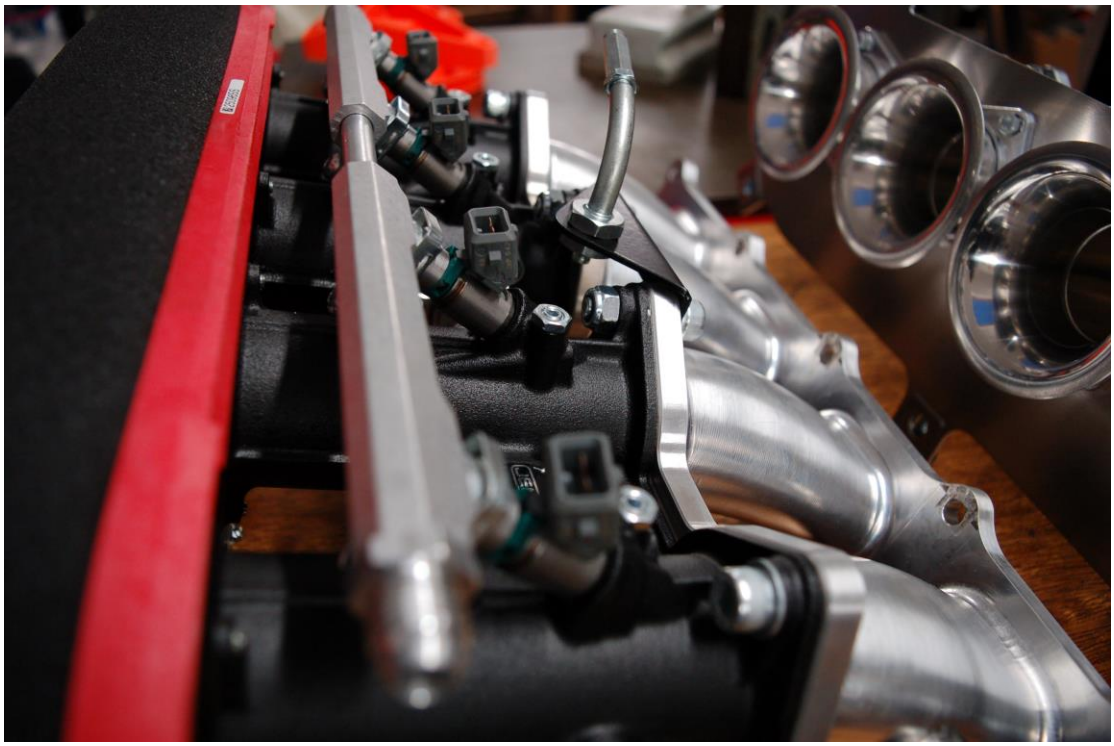
Injector fitting

If you haven't had injectors supplied as part of the kit you will need to fit suitable injectors.

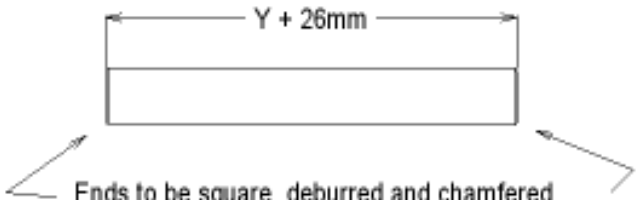
If you have only four injectors, then select a sizing that is suitable for your intended power output. Injectors that are working near their maximum duty cycle will produce better results than oversize injectors.

There is a handy guide and calculator here to help with fuel injector sizing: http://www.rceng.com/technical.aspx



Fuel rails

If injectors haven't been supplied as part of the kit the fuel rails will need to be fitted and requires the included interconnection pipe to be cut to length as follows;



1) Measure the distance between fuel rail ends (Y) as installed and add 26mm
2) Cut tube to the resulting length, ensuring that ends are clean and square
3) **Carefully chamfer ends at 15 to 30 degrees for a distance of 1 - 1.5mm. Ensure that there are no burrs or snags which could damage the 'O' ring on insertion.**
4) Lubricate ends of tube and fuel rail bores with grease or other suitable lubricant. Insert tube.

Note: The connecting tube is retained by the fuel rail fixing to the throttle bodies and the fuel system must not be pressurised with the rail unrestrained and free to move apart.

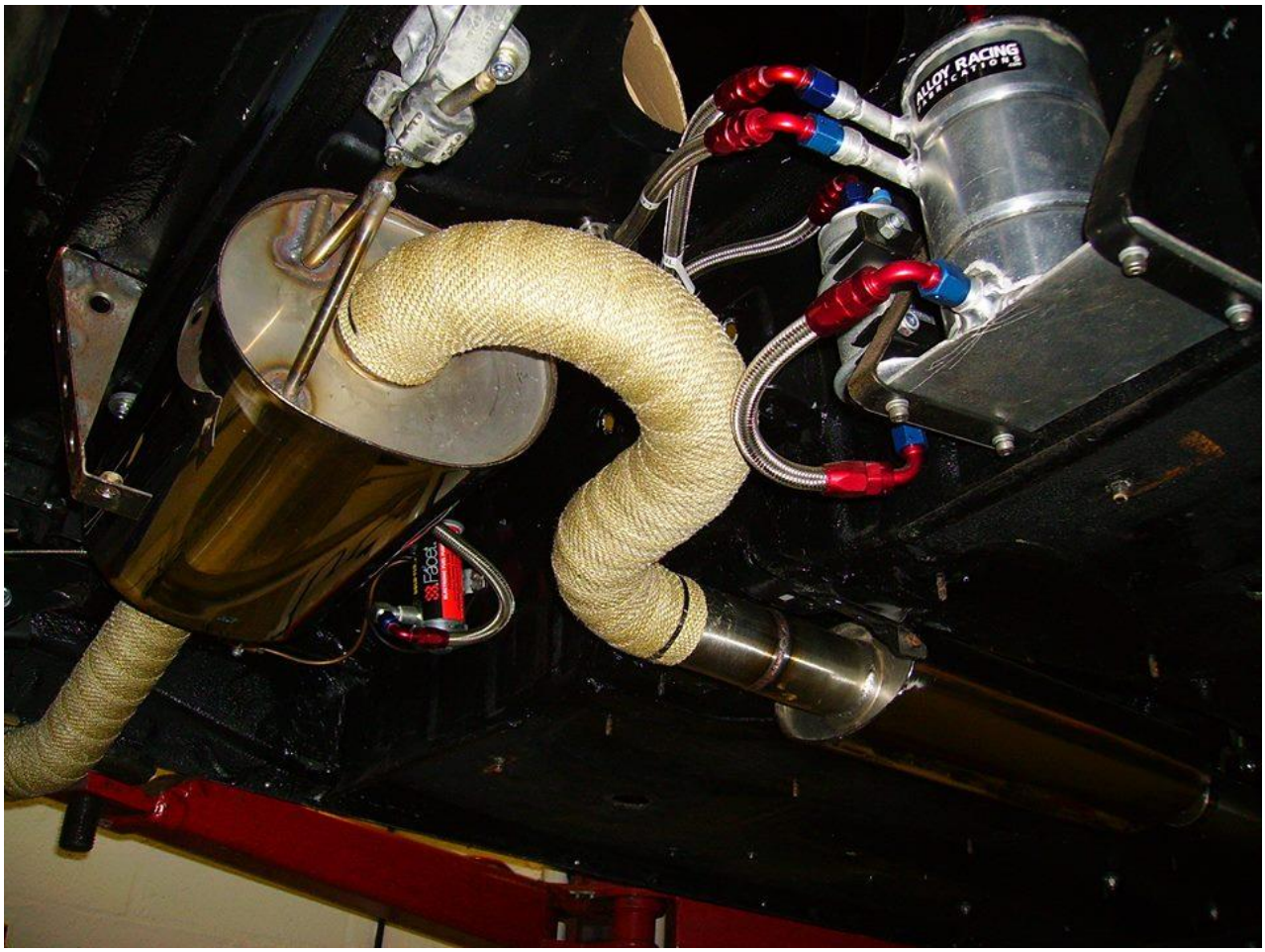
Failure to follow any part of these assembly instructions may cause fuel leakage and a resultant risk of fire.

Fit the injectors into the rails using a small smear of grease on the o-rings and retain using the clips provided.

Push the injectors, with rails connected, into the injector bores and use the supplied spacers with standard length injectors or for Pico injectors no spacers are required. Other lengths of injector may be accommodated by reducing the spacer length to suit. Ensure at least 0.5mm of end float when an injector clip is fitted.

Fuel system

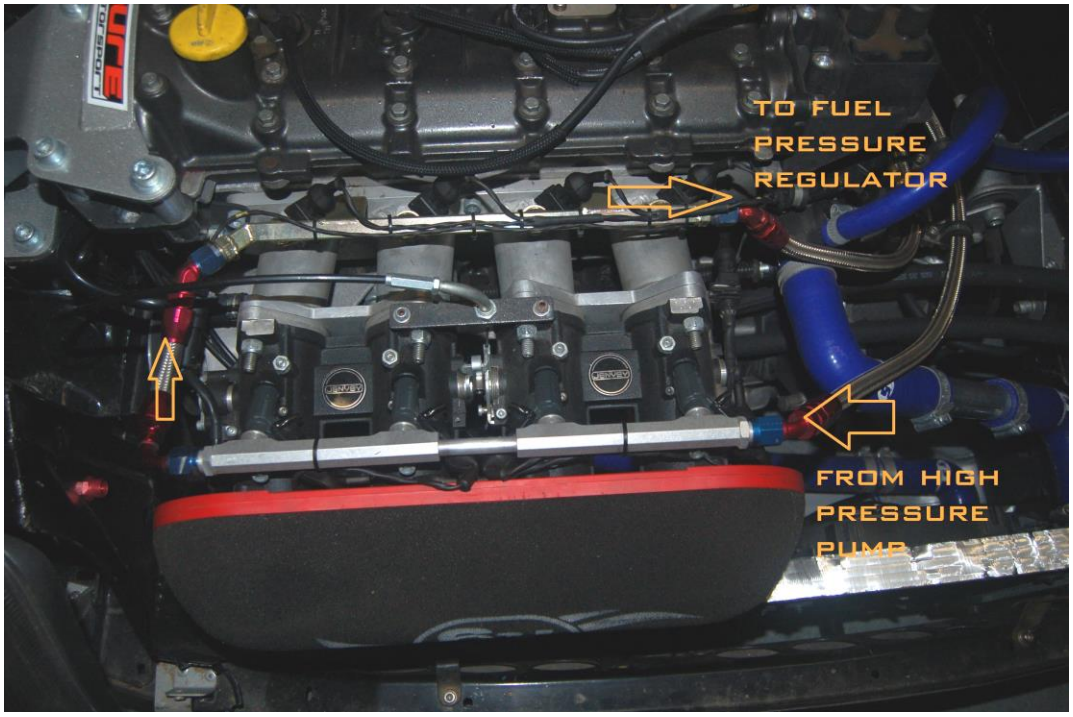
Use -6 bore hose for all of the fuel hoses and use screw on fittings where possible for maximum sealing and longevity.



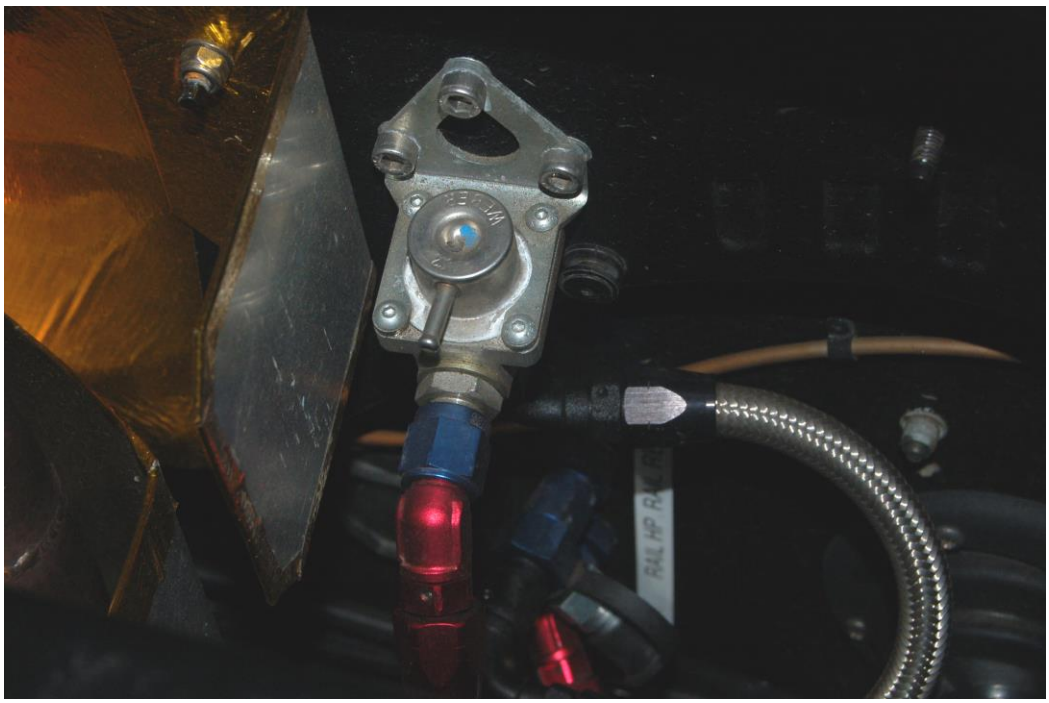
Ensure that the connection pipes are correctly mounted and do not pull tight with engine movement. Spigot-ended fuel rails are only 8mm diameter under the hose - insufficient to restrain an engine without breaking!

Ideally use a fuel swirl pot fuel system arrangement to ensure there is always adequate fuel supply even when cornering hard.

Plumb an 8 injector system in series with the outer injectors receiving fuel first.

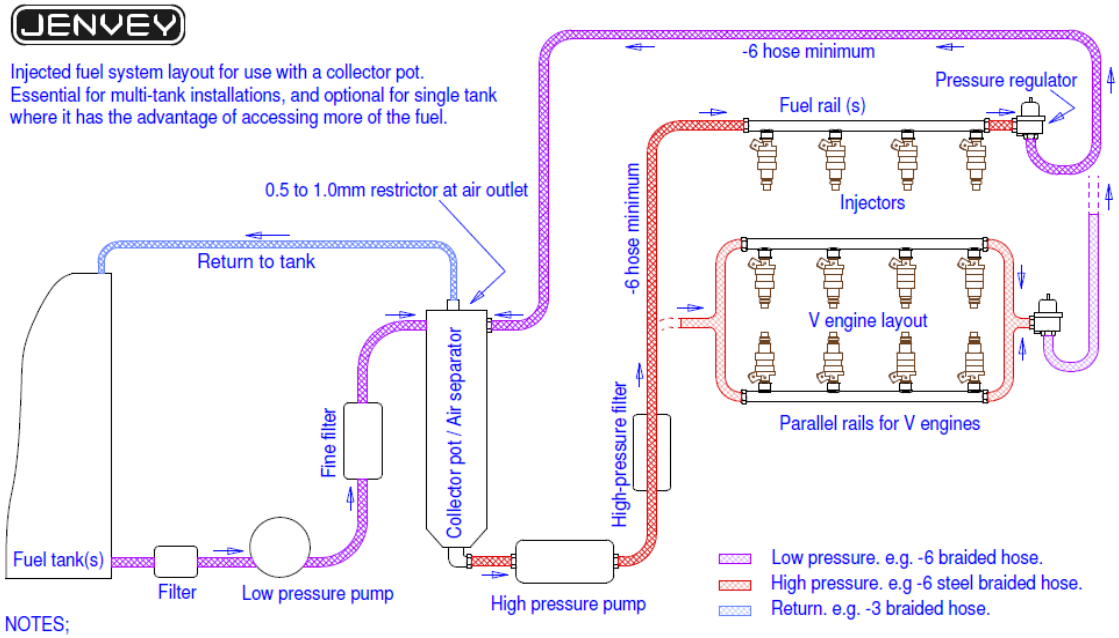


We recommend using a fuel pressure regulator fitted as close to the engine as possible but isolated from engine vibration and heat.



JENVEY

Injected fuel system layout for use with a collector pot.
Essential for multi-tank installations, and optional for single tank where it has the advantage of accessing more of the fuel.



NOTES;

* The Low pressure pump delivers fuel to the collector pot where any entrained air is returned to the tank.
Typical pressure range is 4 - 6psi and delivery at least 120 Litres / hour (31 US gallons/hour) for 200BHP, higher outputs in proportion.

* The high pressure pump supplies a surplus of fuel to the fuel rail and injectors at system pressure, which is set by the pressure regulator.

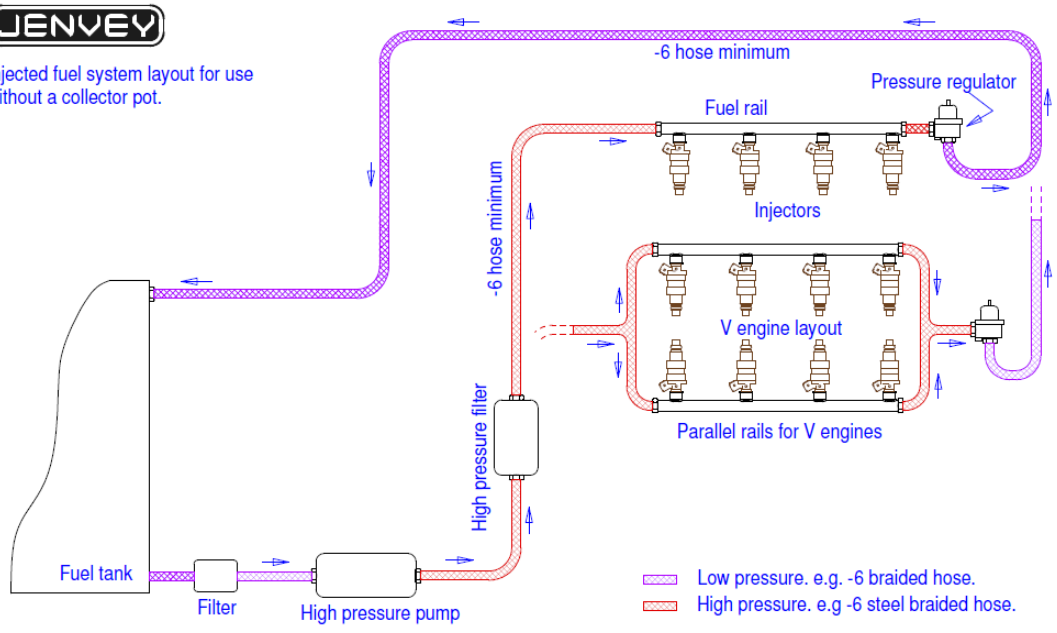
* The pressure regulator is set at the system pressure - typically around 3 -7 bar (45 - 105PSI) - to return surplus fuel.
At low power / fuel demand, most or all of the output from the pump will be returned and it is thus essential that the return circuit flows freely.

* Either the low pressure or both pumps may be embedded in the tank.

* Not all the filters are essential, but the very minimum is one large-capacity between the tank and the low-pressure pump.

JENVEY

Injected fuel system layout for use without a collector pot.



NOTES;

*The high pressure pump supplies a surplus of fuel to the fuel rail and injectors at system pressure, which is set by the pressure regulator.
Delivery needs to be at least 120 Litres / hour (31 US gallons/hour) for 200BHP, higher outputs in proportion.

*The pressure regulator is set at the system pressure - typically around 3 -7 bar (45 - 105PSI) - to return surplus fuel.
At low power / fuel demand most or all of the output from the pump will be returned and it is thus essential that the return circuit flows freely.

* The high pressure pump may be embedded in the tank.

Flushing the fuel system

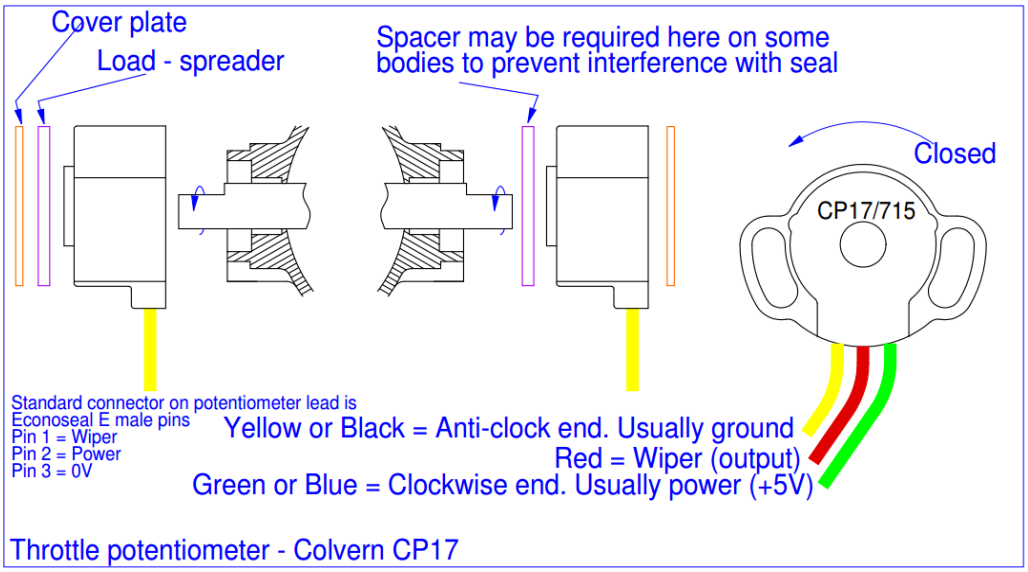
If the fuel system installation is new, flush the system adequately through the filter before connecting the supply to the fuel rail. You can do this by using a male to male connector, joining supply and return pipes together and bypassing the fuel rails. This will ensure no debris from new fuel hoses ends up in the fuel injectors.

Any lack of fuel supply to one cylinder during hard use can cause lean running and melting of a piston.

Fitting the throttle position sensor

If you have a system without the TPS already fitted use this procedure:

TP1 and TP2 throttle pots may be fitted either end of the throttle body, with due reference to the direction of rotation.



Using the fixings supplied tighten in a central setting. After fitting, eliminate any residual side load on the spindle by holding the butterflies slightly open (e.g. a 1mm gap under the butterfly) and lightly tap the opposite end of the spindle, a plastic screwdriver handle is the ideal weight and hardness for this. Ensure that the butterflies close positively with no signs of extra friction.

Set up the TPS using the directions given in your engine management system user manual and prepare the engine for start up.

If using our DTA engine management system and wiring loom please see the user manual supplied for setting up the TPS, base map uploading and starting the engine.

Balancing the throttles

Idle bleed screws (if fitted) should be closed at the start of this operation.

Before starting the engine adjust throttle balance by setting the single idle adjuster screw so that the nearest butterfly is just visibly open, and then adjust the cross-link screws so that the remaining butterflies are at a similar angle.

Start the engine and use a flow meter to check airflow through each throttle body bore, adjusting as necessary. It may be necessary to re-adjust the idle during this process.

Always re-check the balance on all bores after each adjustment and with the cross-link adjuster locking nuts tightened. Idle bleed screws (if fitted) may now be used to balance ports on twin bodies.
Initial set-up can be done with a feeler gauge matching the gap under the butterflies. If a flow meter is not available reasonable results can be achieved by using a length of small bore tube to listen to the flow through each bore.

Engine and fuel tank vapour

We supply an oil catch tank and breather plate kit for use with this throttle body kit – see our website for details.
You will need to find an alternative means of venting the fuel tank and if you vent to atmosphere, keep the hose away from sources of ignition and any aftermarket fuel tank should have a roll over valve fitted to any vent pipe.

If you get stuck please ring for help and advice.

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