



# Specialist Components

## 5 Port EFI Kit

Version 1.1 Jan 2011

## **Congratulations on the purchase of your fantastic 5 port EFI Kit!**

### **Kit Content:-**

Alloy inlet manifold – gasflowed to suit 50mm throttle body

Injector housing – as bolted to inlet manifold

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

50mm billet shaftless throttle body with cold start fast idle mechanism and bespoke ram pipe

Throttle cable and abutment for cable ends

Typhoon ECU – with base map

ECU CAN interface dongle + software disc with manual etc

Wiring loom

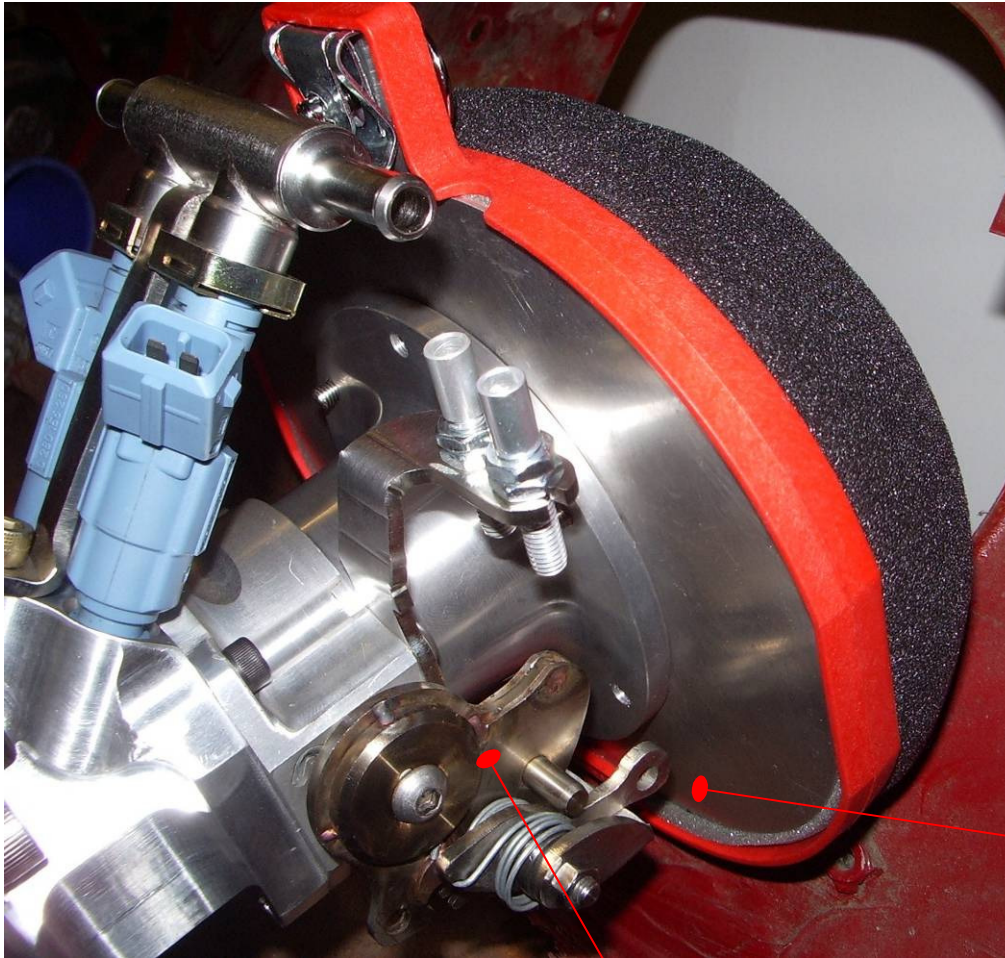
Coil pack kit inc custom plug leads

Water temp sensor and air temp sensor

SC Trigger wheel kit

### Fitting the 5 Port Kit:-

- Remove carb and inlet manifold. If replacing an all in one inlet/exh manifold an lcb manifold will be required.
- You can leave the mechanical fuel pump in place but we would advise removing it and utilising a pump blanking plate to cover the hole.
- You can now fit the assembled 5 port EFI manifold set up in exactly the same manner as the std carb inlet.
- There is no need for water heating on the manifold – hence the stubs have been removed to neaten up the manifold.
- Connect the throttle and choke cables. We supply a new throttle cable, the nipple fits to the linkage end and the “open” end is passed through the bulkhead where the “solderless” nipple is used to position the pedal – ensure the screw is fully tight to ensure the cable does not slip through it. The choke cable on the car can be reused. Position the adjustment ferule as shown in the photo and offer up the choke cable. If the inner cable does not reach the nipple position on the fast idle mechanism the outer sheath on the cable will need cutting back – suggest very sharp side cutters for this task. Once satisfied that the inner cable will pass through the solderless nipple, insert cable and tighten solderless nipple. For both throttle cable and choke cable you need to leave a little “slack” at the throttle body – use adjustment ferrules to leave a little play on both mechanisms.
- Fuel supply, for neat/quick install we advise using a Mini MPI fuel tank assembly – direct replacement for carb tanks. The SPI tank can be used but the fuel pump should be swapped for an MPI one. You will also need an adjustable regulator – our system requires fuel at 3.5 bar continuous pressure, you can purchase fixed regs at this rate also.
- Fuel lines – again MPI fuel lines can be used or a return line can be added alongside the existing single feed line on carb cars. Copper brake line (of the correct dia) is easy to form and the ends can be flared to offer good rubber hose retention – always use rubber hose suitable for 3.5 bar pressure. The fuel reg should be fitted at the opposite side of the fuel rail to the fuel tank supply – this way the fuel rail is always at the correct pressure. On many aftermarket fuel regulators there is a vaccume port – there is no need to connect this on normally aspirated cars only forced induction.
- The throttle bodies we supply all come with the throttle stop set for a certain vaccume setting – different engines will require different levels of vaccume for stable idle. Note the adjustment screw and locking nut.

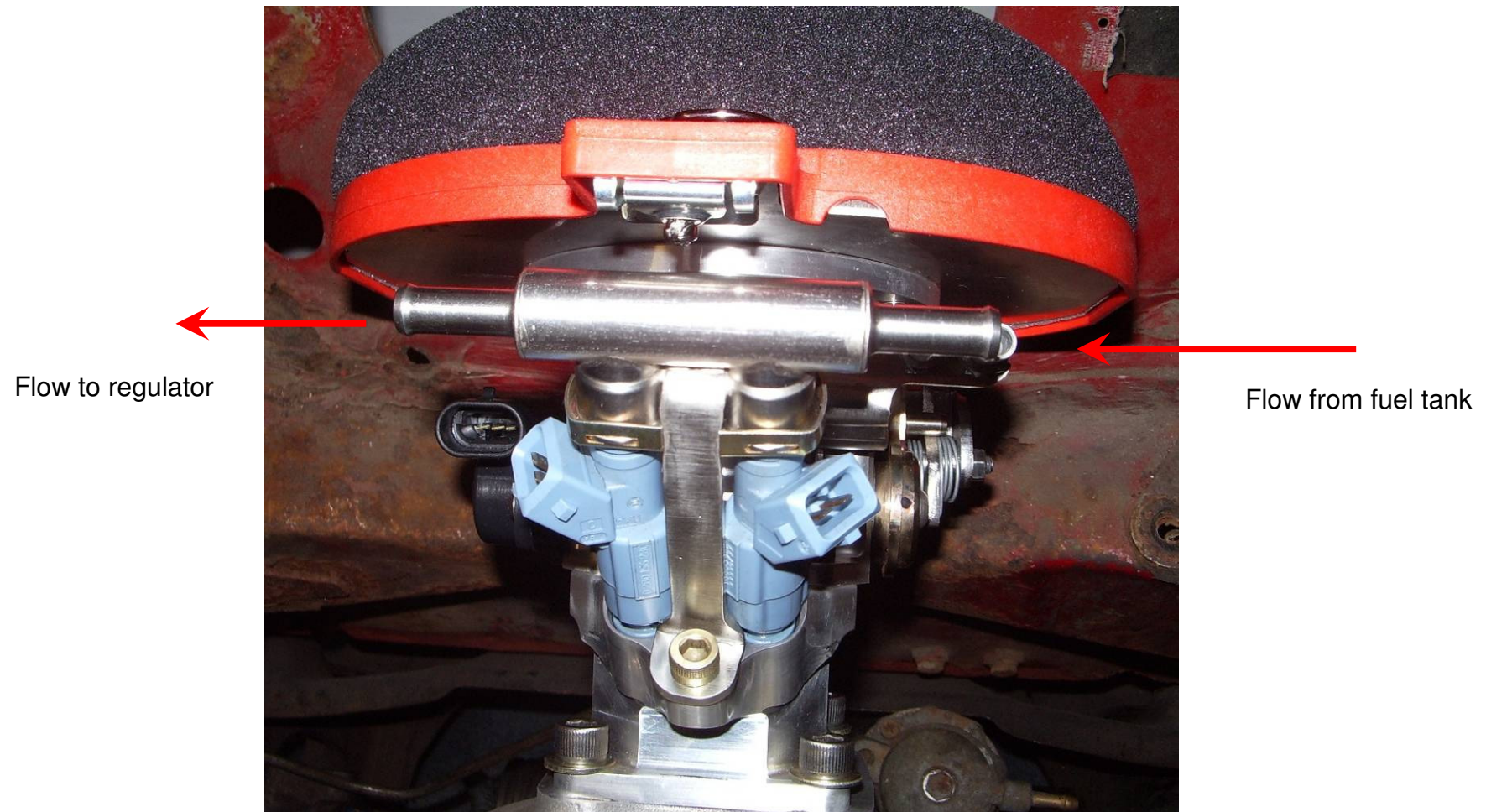


Fully assembled EFI set up as  
Supplied – optional air filter shown

Use these two adjusters to set cables  
For fast idle and throttle cable. The  
Throttle cable is the one nearest the  
Injectors.

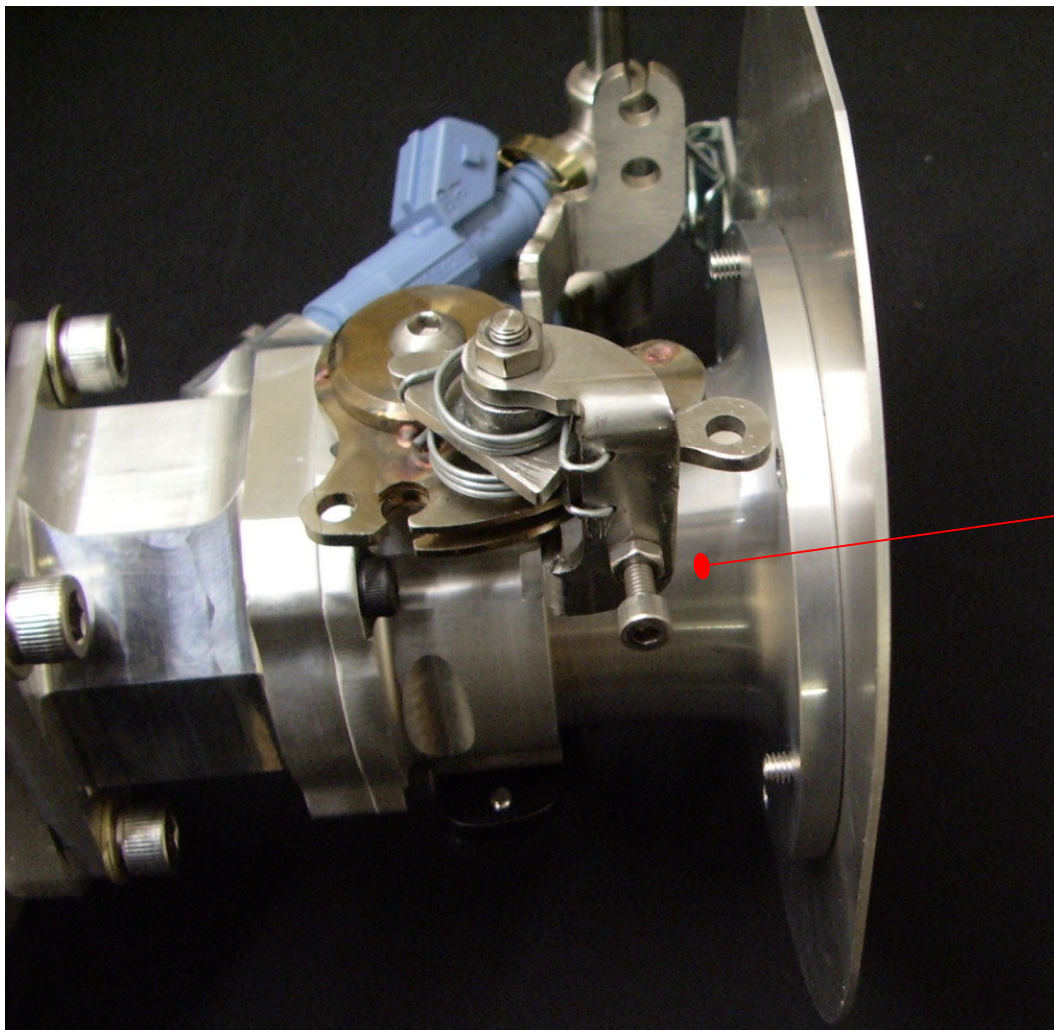
Fast idle lever – for use on cold starts  
Just like choke on carb

Throttle quadrant



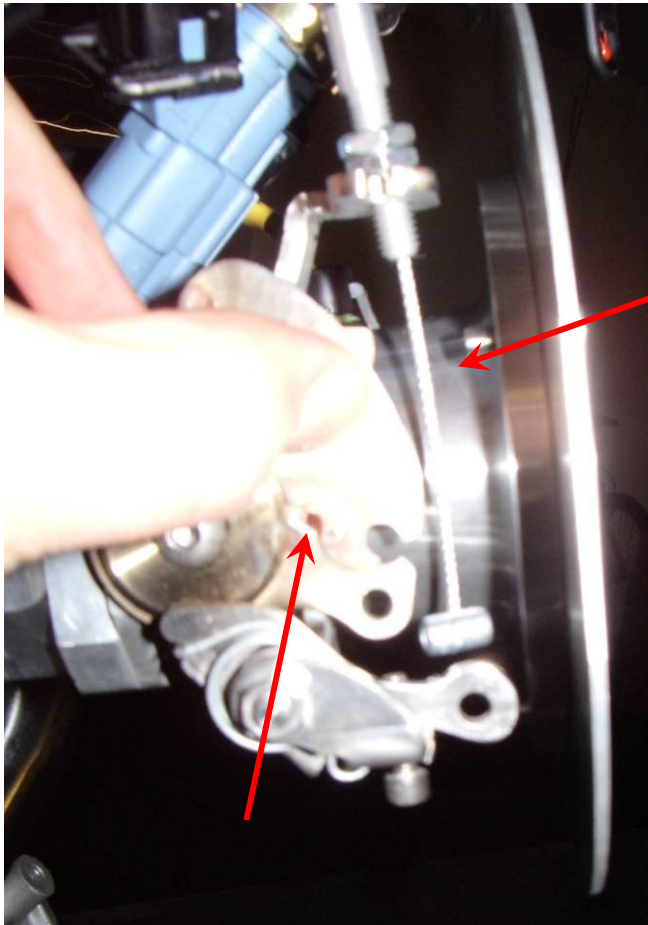
The picture shows that having the regulator on the opposite side of the rail to the fuel feed will always ensure the rail pressure is held at 3.5bar – once reg is adjusted. From the reg the un used fuel is passed back to the fuel tank.





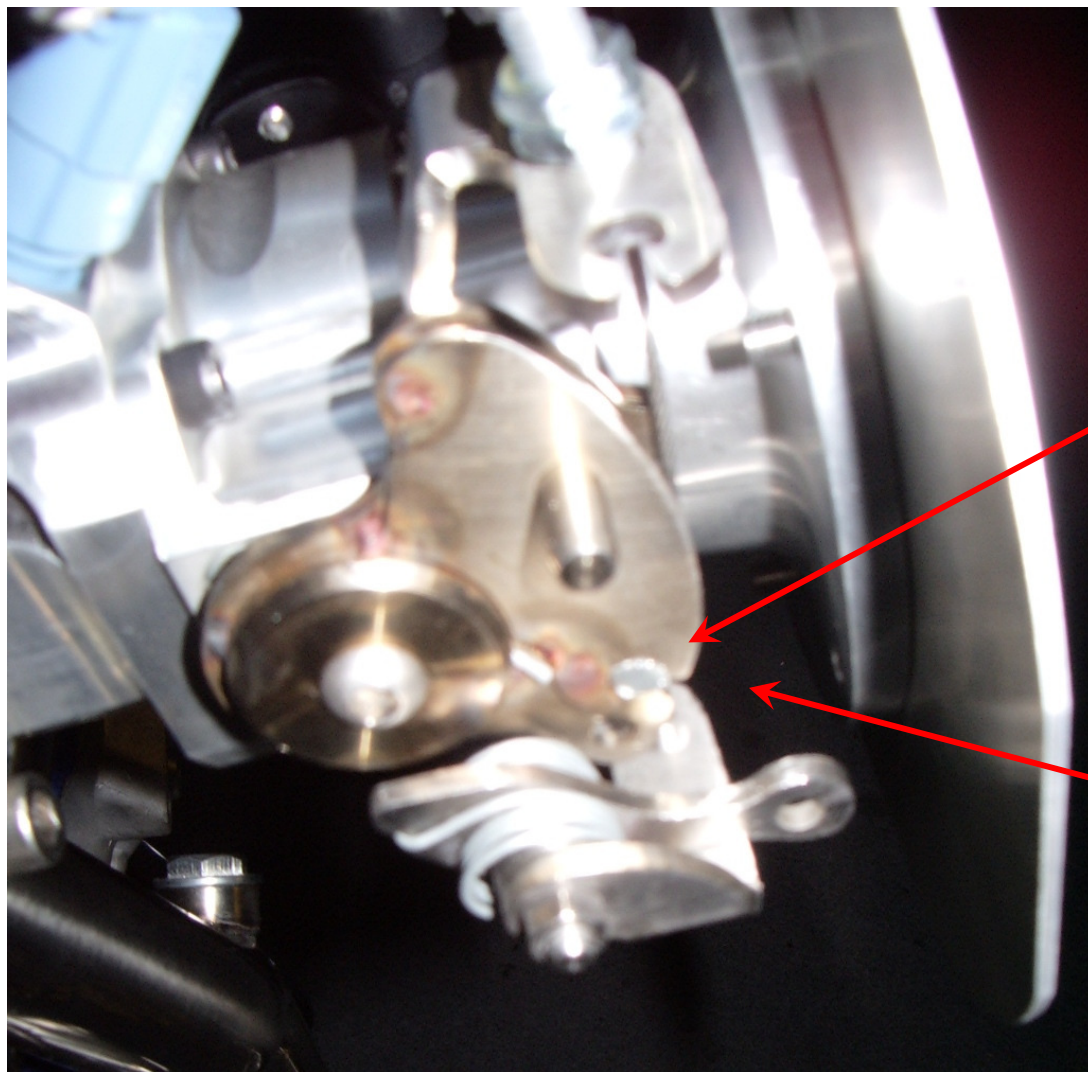
Idle adjustment screw. Clockwise  
To raise speed, anti-clockwise to  
Reduce idle speed. Always lock  
Off the adjustment with locking  
Nut.

## Throttle Cable fitting



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

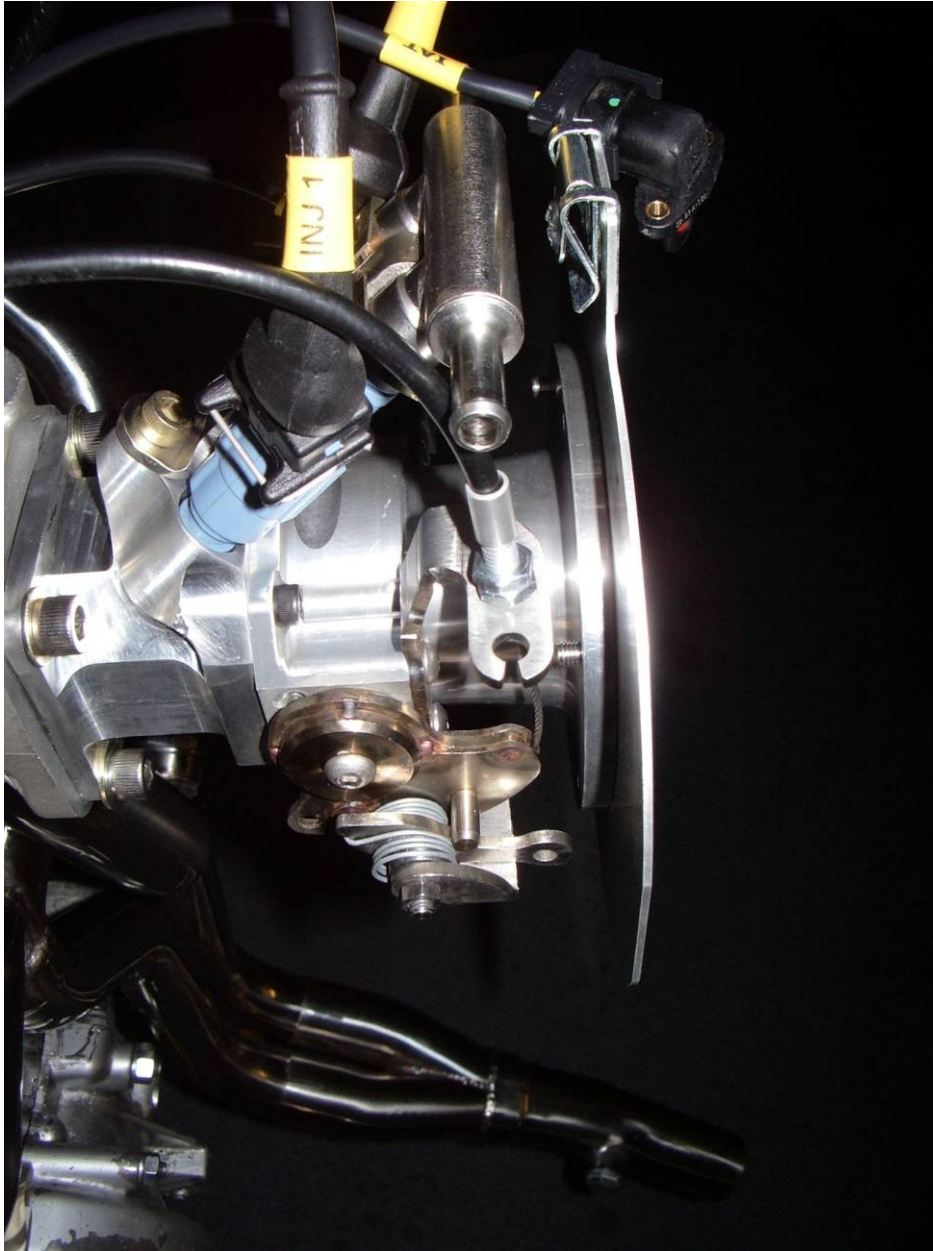
Push quad upwards



With quad 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 quad

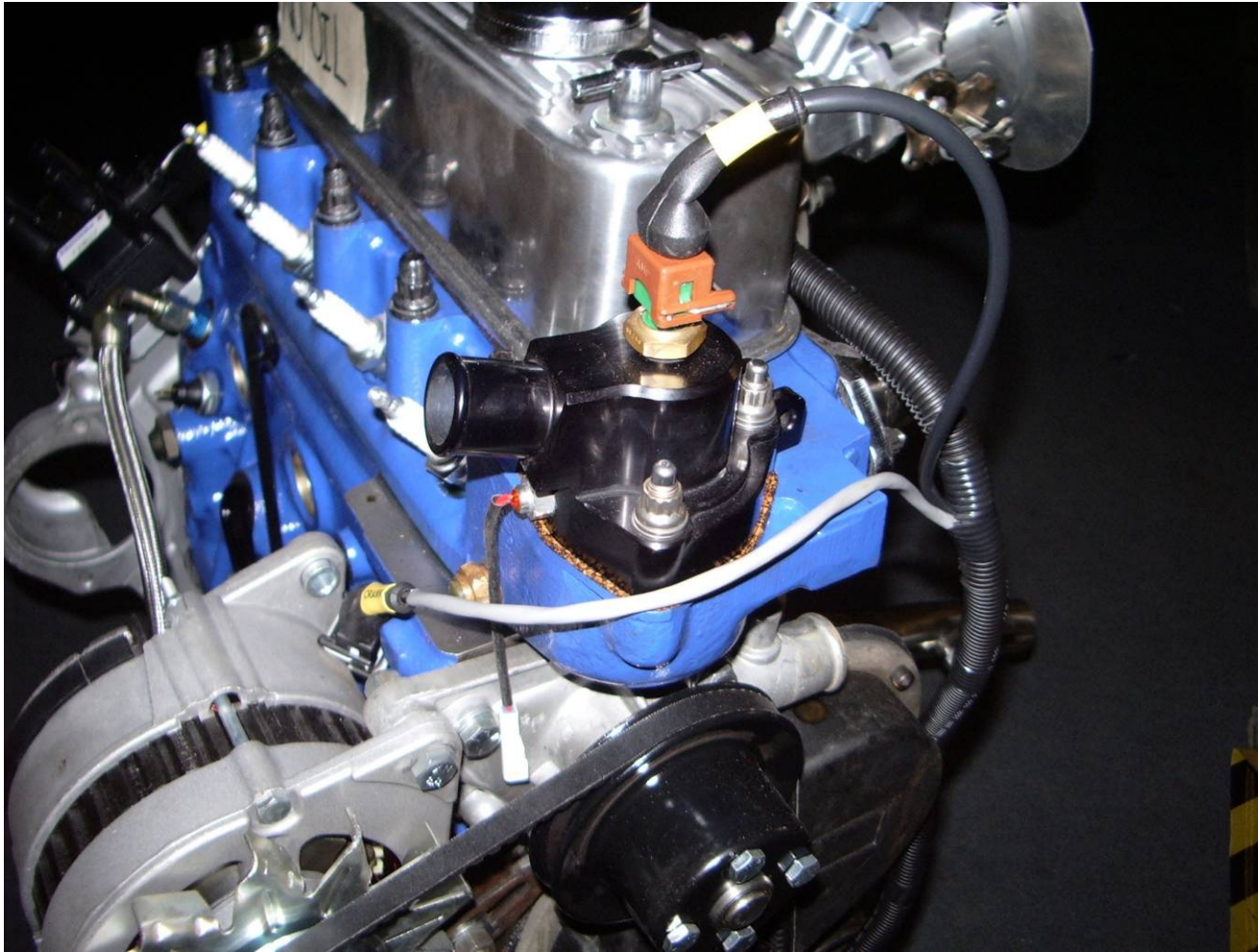




Correctly fitted cable which allows full return of quad

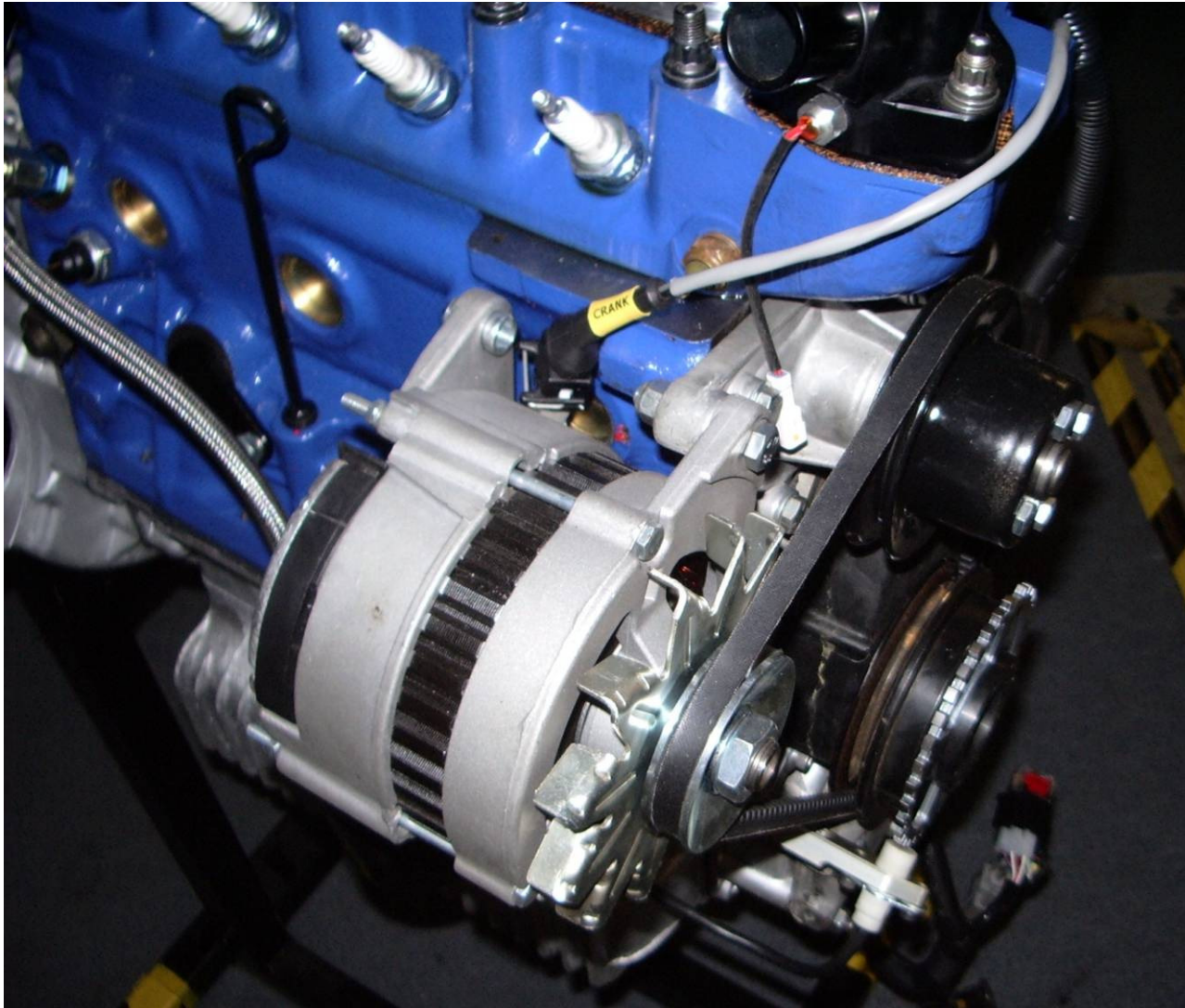
Next pass the cable through the std Mini b/head hole  
And pass inner cable through hole in throttle pedal –  
Attach solderless nipple – set pedal height to preference  
And fully tighten the screw in the nipple to hold the cable  
Check throttle operation and adjust to give a little free  
Play at throttle body end. Make sure cable does not slip  
When operated.

## Wiring:-

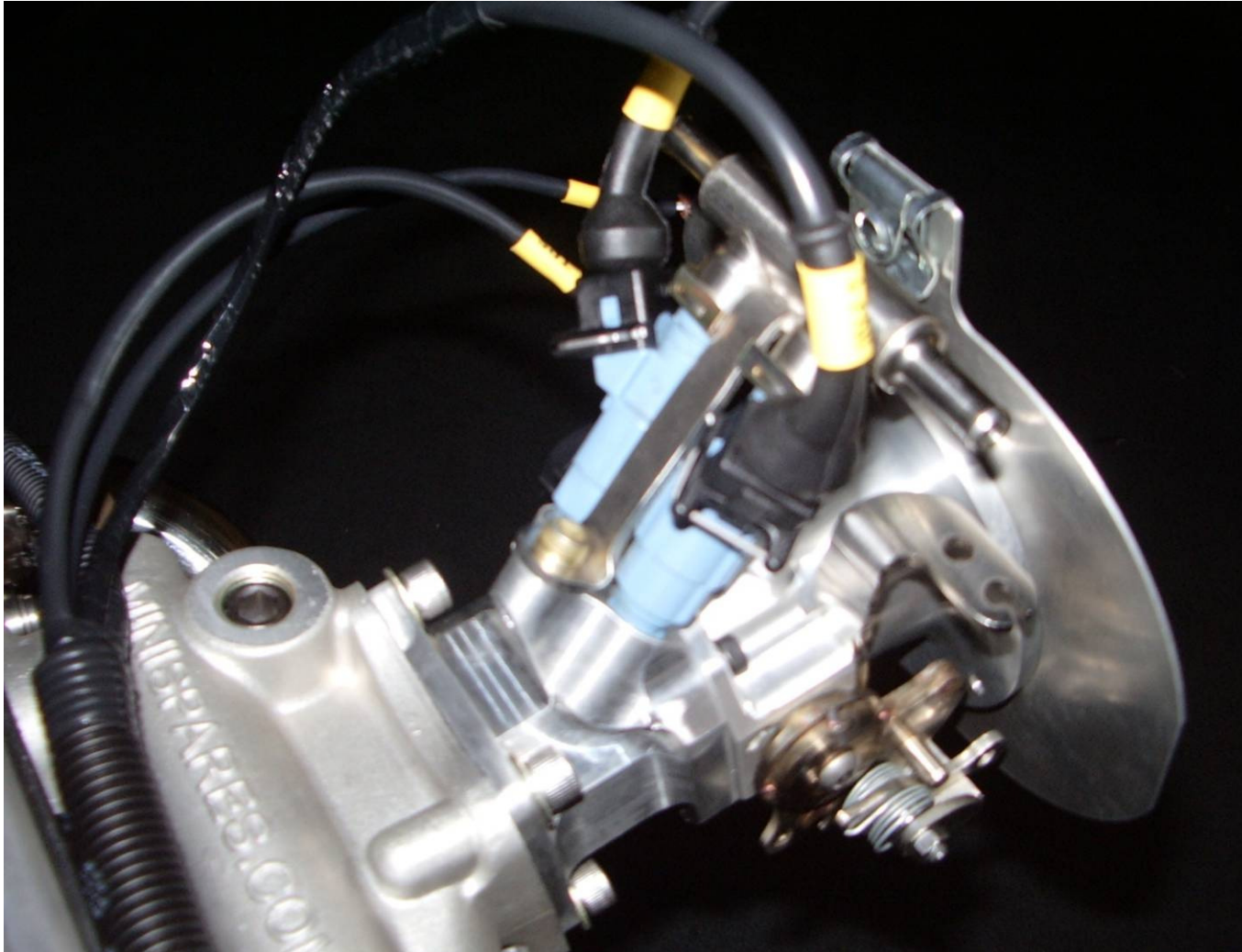


Wiring loom basically assembled onto the engine. Note routing of crank trigger wire – grey and water temp sender position. If you do not have one of our thermostat housings (extra to kit) then you can put the sensor into the top hose with an adapter



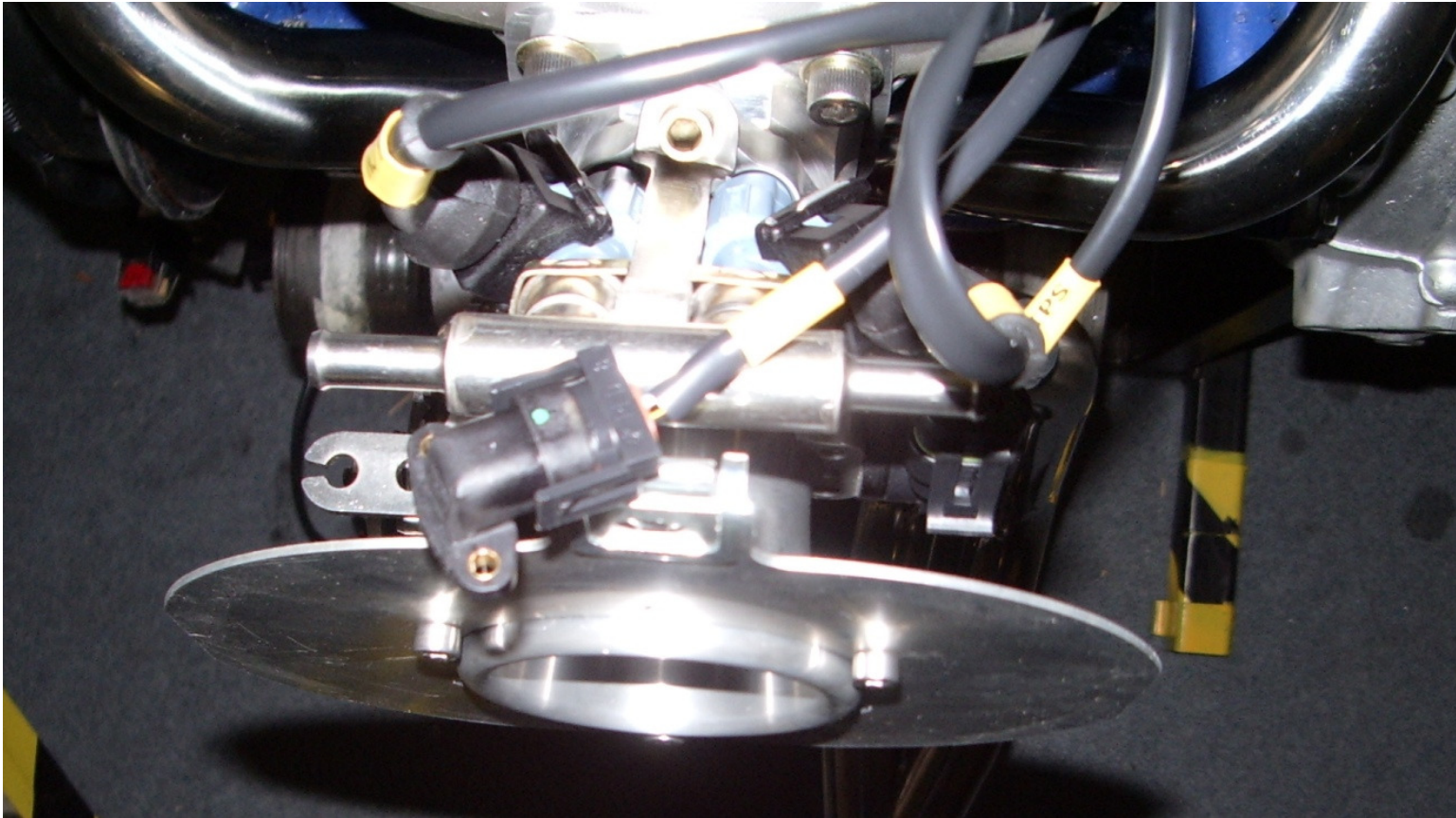


Another view of crank wire run – note labelling on all sensors wires



Injector connectors in place – it does not matter which injector you call inj1 and inj2



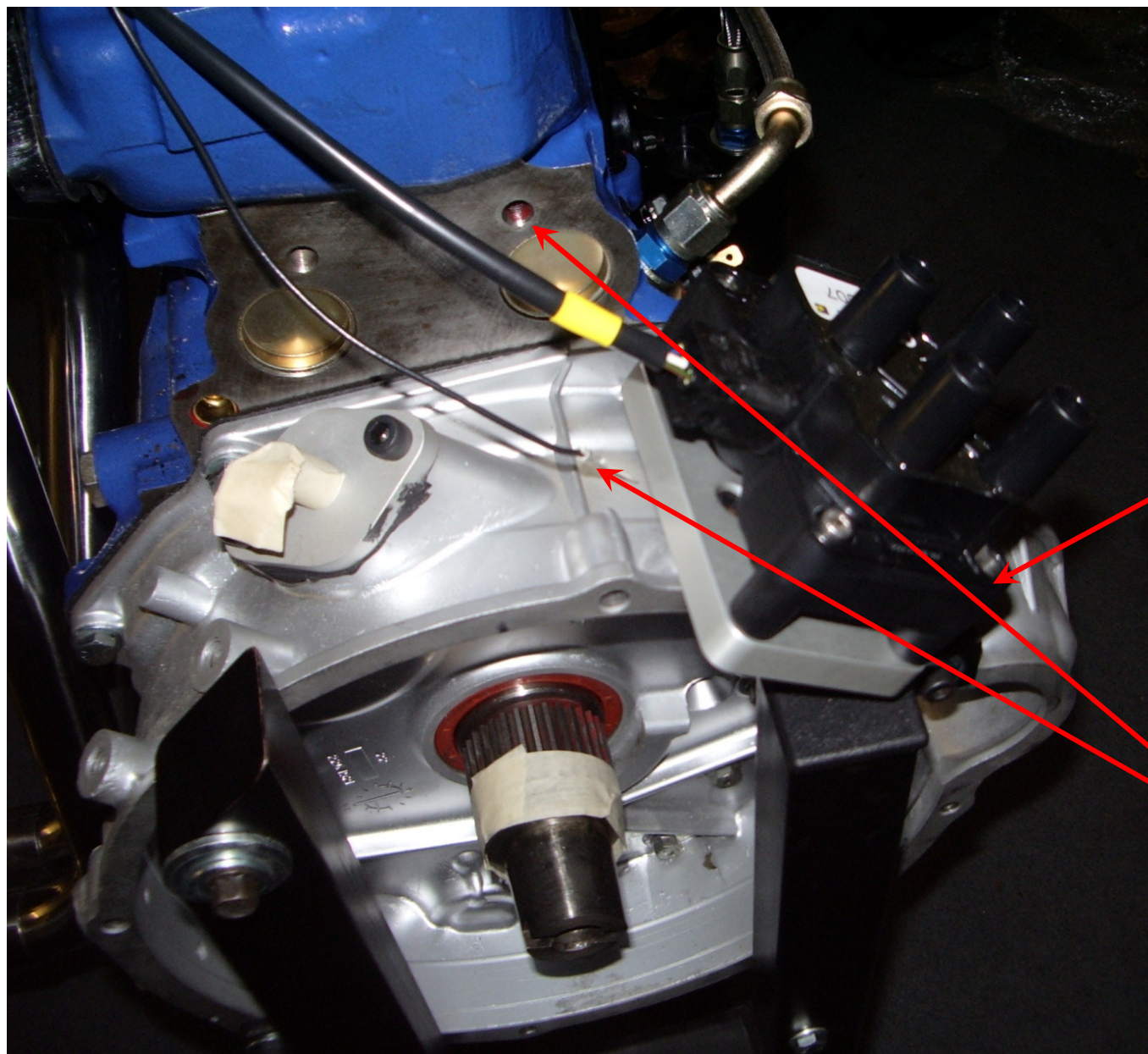


Injector connectors in place and TPS sensor. The IAT (inlet air temp) is shown loosely placed – this can be mounted outside Of the air filter or could be mounted through the base plate of the filter. Its function is to monitor the air temp the engine is Drawing in.



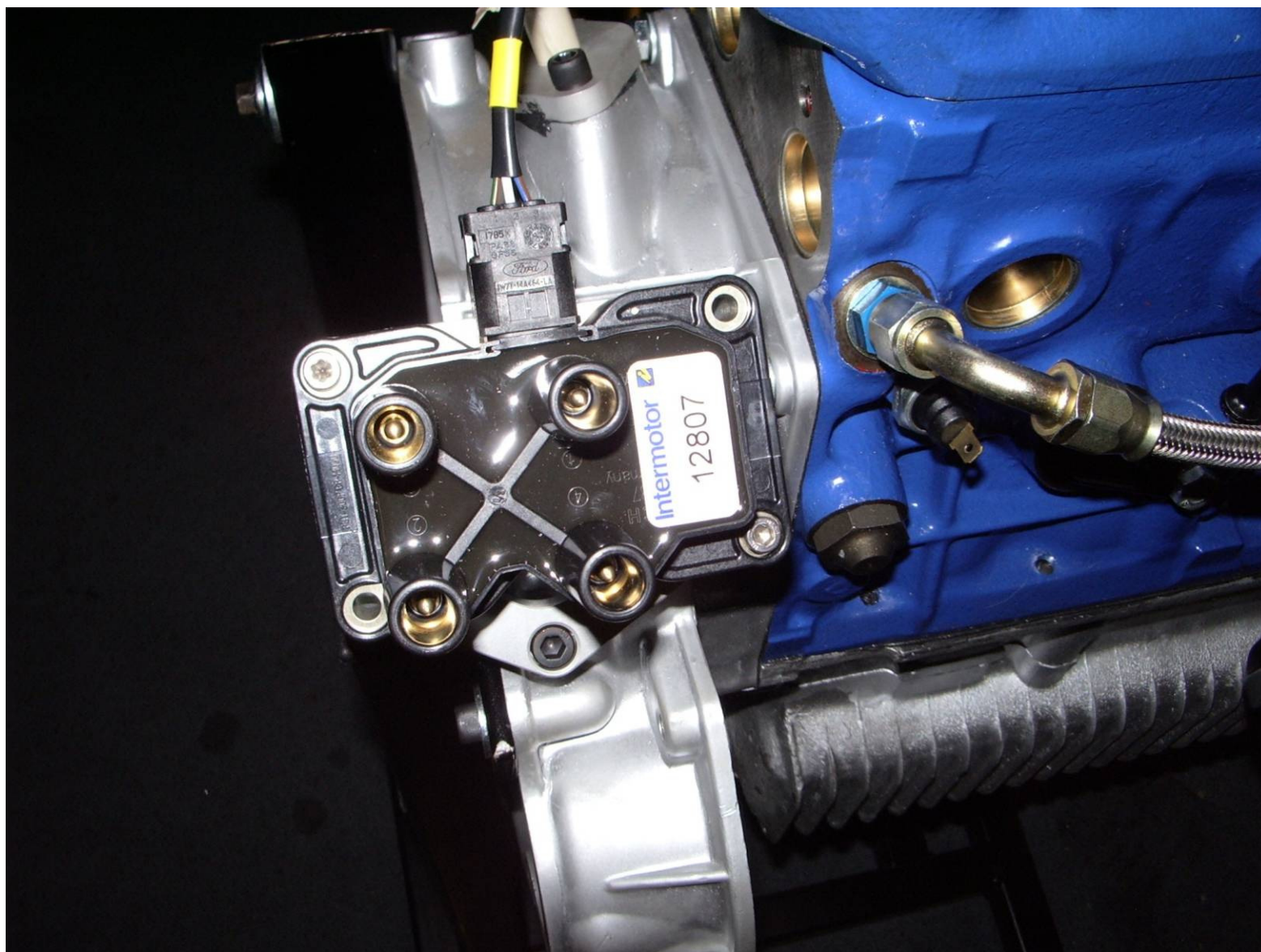
Basic cable routing around rear of cylinder head – clip wiring away from heat sources once installed



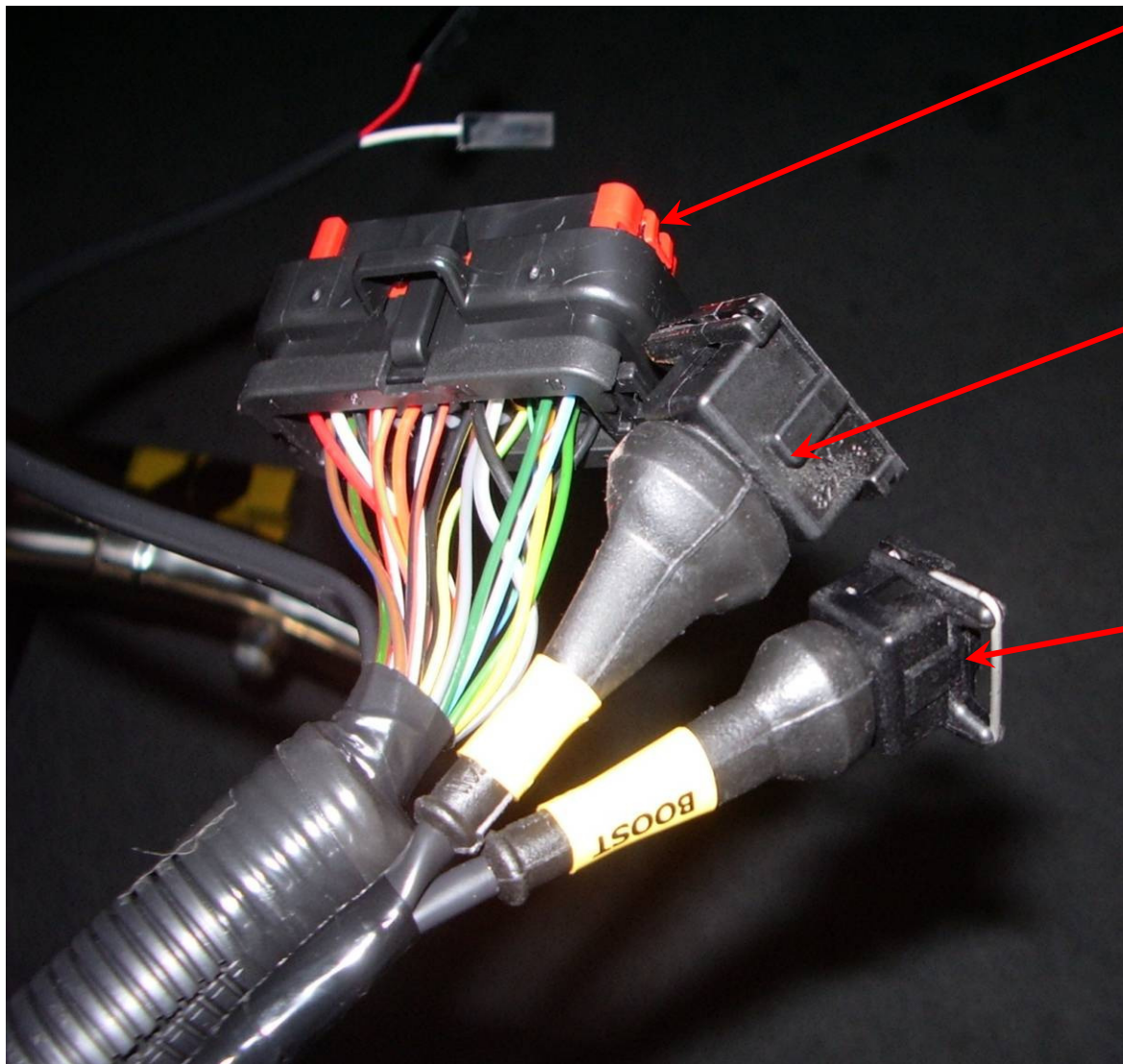


Coil in position  
And connected.

This is the wiring loom earth tag  
And is connected to this position  
Once installed in car.





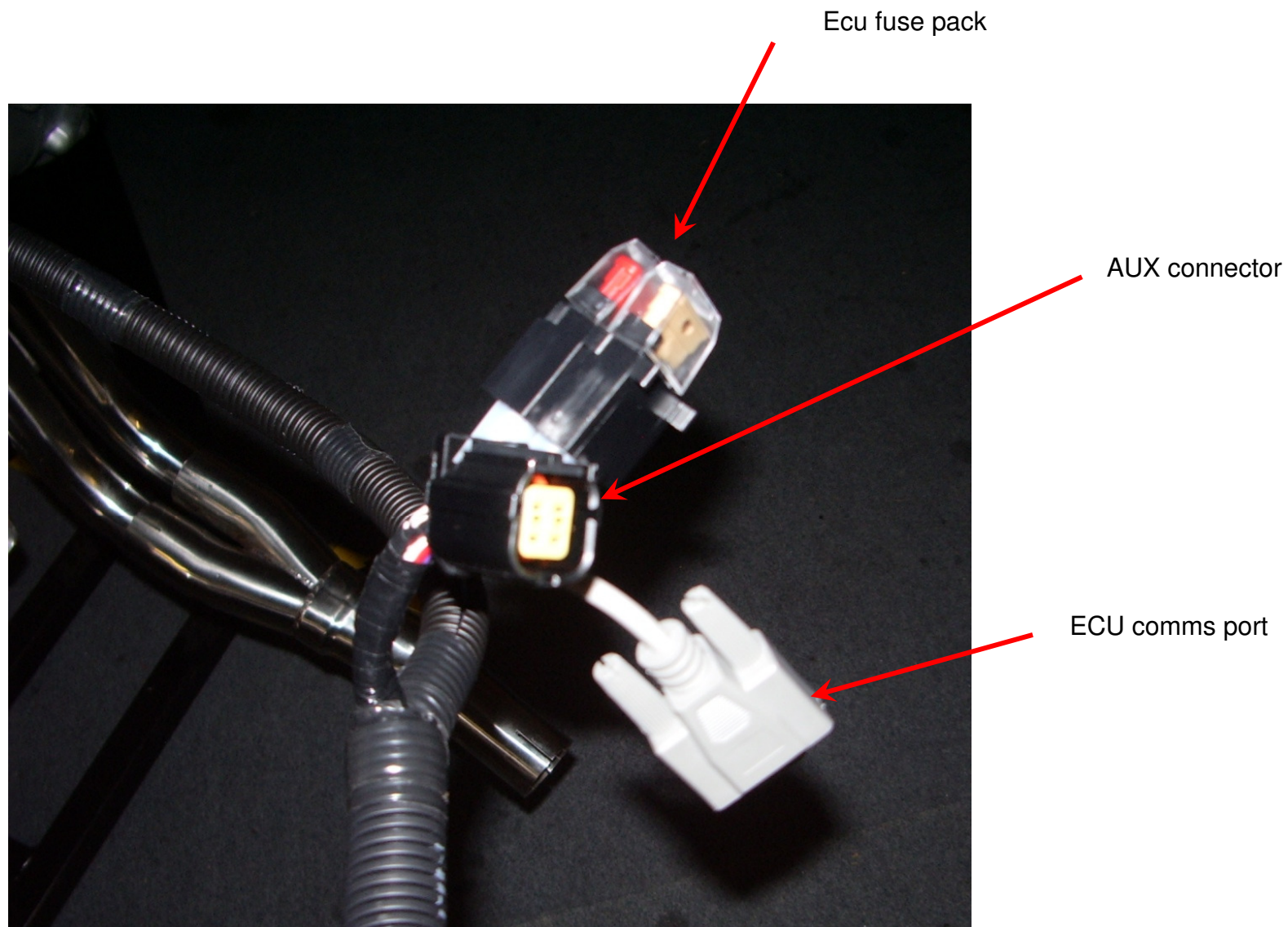


Ecu connector

MAP sensor for turbo/super  
Charged cars only

Boost solenoid – for turbo/  
Supercharged cars only

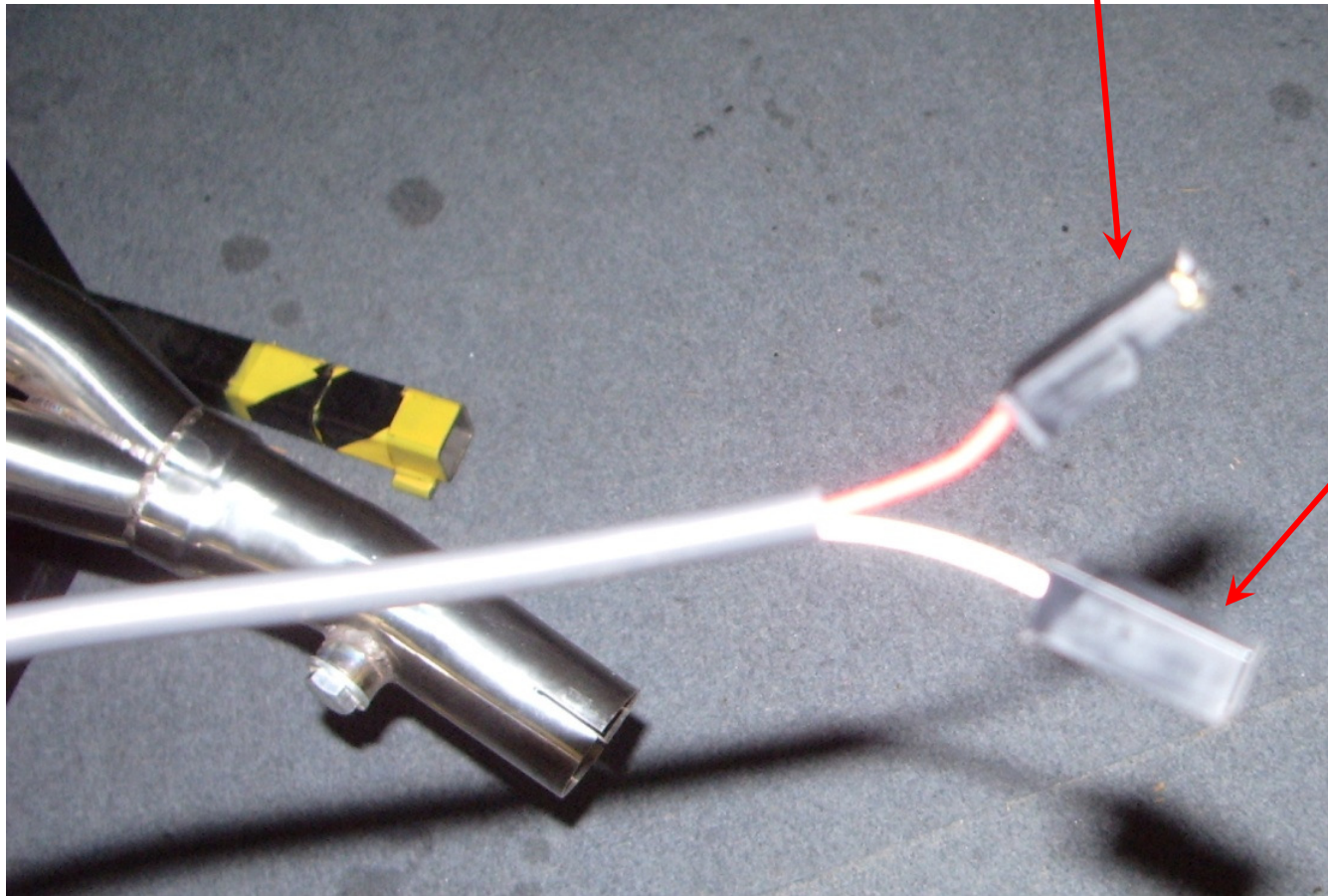
There is enough loom length to mount  
The ecu either in the car or on the  
Bulkhead under the bonnet.



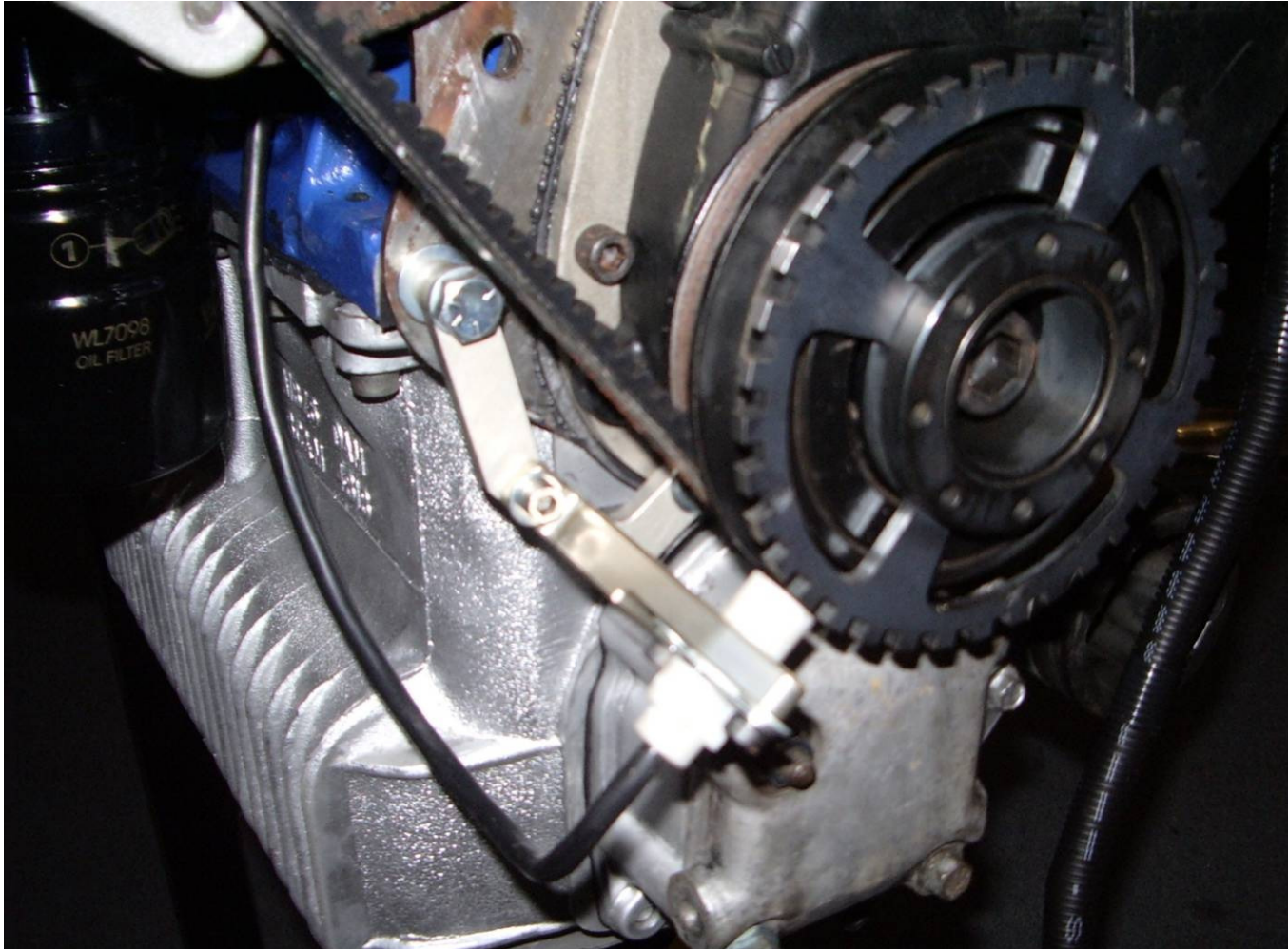


Note:- your Mini fuse box will have  
Spare terminal positions for these  
Two connections unless it has been  
Modified or is non standard

Perm +12v supply – from Mini fuse box – refer to owners manual



+12v switched – supply from Mini  
Fuse box – refer to manual



Trigger wheel in position

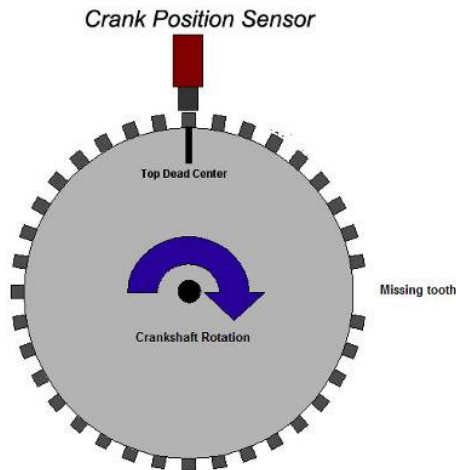




## A-Series Crank Trigger Kit Installation Instructions

### Kit Contents

- Trigger Wheel & Boss
- Extended Crank Bolt
- Crankshaft Position Sensor
- Sensor Mounting Bracket



- 1.You will need access to the crankshaft pulley to mount the trigger wheel and boss onto your engine's crankshaft. To gain sufficient access on a Mini you may need to remove the front grille and the radiator bottom mounting bracket.
- 2.Remove the starter motor and lock the engine in position by inserting a screwdriver blade or similar between the flywheel ring gear and transfer housing.
- 3.With the engine locked, loosen and withdraw the crankshaft pulley bolt. Fit the trigger wheel and boss assembly onto the crankshaft pulley. At this point the lock ring which clamps the trigger wheel onto the boss should only be finger tight, so that the trigger wheel can still be rotated. Fit the supplied extended crank bolt, apply thread locking compound and tighten to 150lbft.
- 4.Refit the starter motor.
- 5.Install the crankshaft position sensor and bracket using the timing cover bolts.
- 6.Ensure that the crankshaft position sensor is aligned with the trigger wheel and set the gap between the crankshaft sensor and the trigger wheel to 0.8-1.0mm using washers between the sensor and bracket to adjust the gap.
- 7.Set the engine to top dead centre (TDC), indicated by a notch on the crankshaft pulley and pointer on the timing cover.
- 8.Rotate the trigger wheel until the gap in the teeth aligns with the crankshaft position sensor, then rotate the wheel clockwise (in the direction of engine rotation) by 9 teeth. The centre of the sensor should be aligned exactly with the centre of the 9<sup>th</sup> tooth after the gap. (This corresponds to 90 degrees as the teeth are 10 degrees apart).
- 9.Lock the wheel to the boss by tightening the locking ring, ensuring that the wheel doesn't move relative to the crank. After tightening, recheck the position of the wheel. If it has moved, loosen the locking ring and repeat the procedure steps 7-9.

Some tacho's require a pull up resistor to register the correct rpm

## Tacho Pull-Up Resistor

