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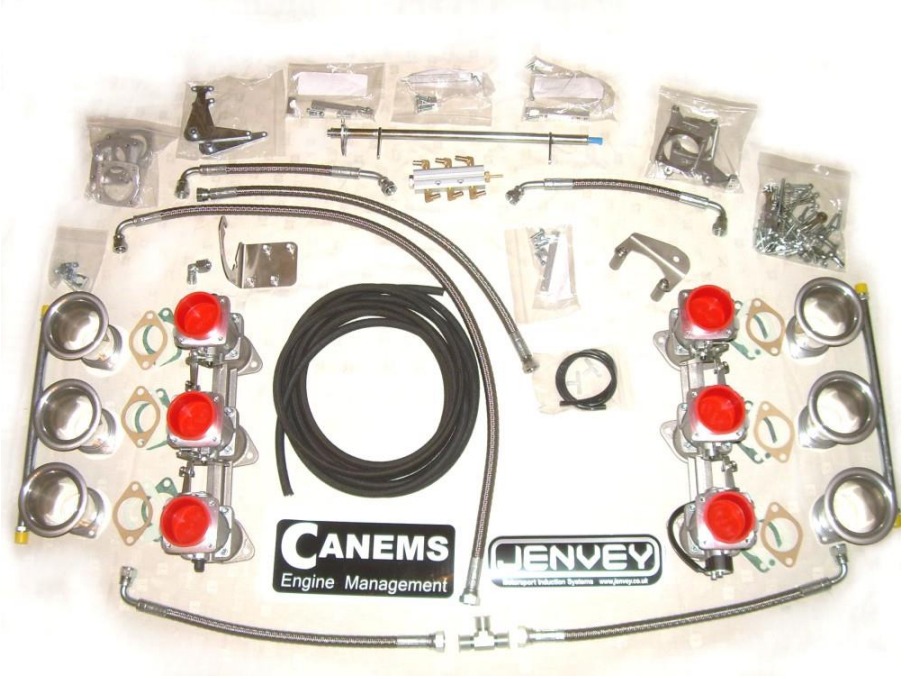
DRH Performance ECU

Porsche 911 3.2 Jenvey ITB conversion kit

Kit Contents

· Jenvey CKPE02 ITB kit (manifolds, fuel rails, throttle bodies and air horns)
· Stainless braided high pressure fuel hoses (Carrera to Jenvey conversion)
· Heat proof phenolic spacers, custom inlet manifold gaskets
· CNC stainless fuel pressure regulator bracket
· CNC stainless fuel damper bracket and spacers/screws.
· MAP sensor
· Throttle position sensor
· Air temperature sensor
· Plug and play conversion harness (Carrera loom to ITB / sensors)
· 6m x 6.0mm vacuum hose
· 8 way vacuum manifold / plenum
· 200mm x 4.0mm vacuum hose
· 2 x 4.0mm plastic tee pieces
· Non return valve (brake solenoid) & piping



Aim of conversion / Expected results

This kit aims to improve engine breathing (and therefore power) at high engine speeds. Throttle response is also vastly improved over the standard plenum arrangement.

The standard 3.2 fuel injectors, fuel regulator, fuel damper and fuel injector wiring harness can all be reused. Calibration files are available for our DRH Performance ECU, developed on the dyno and under real world driving conditions.

This kit is an ideal partner for all normally aspirated engine modifications such as performance camshafts, capacity increases & cylinder head modifications.

Hardware installation

Our Jenvey ITB conversion kit assumes you have some technical knowledge of the Carrera 3.2 engine already. If you are unfamiliar with the engine or doubt your techical capabilities, this conversion should be entrusted to your local Porsche specialist.

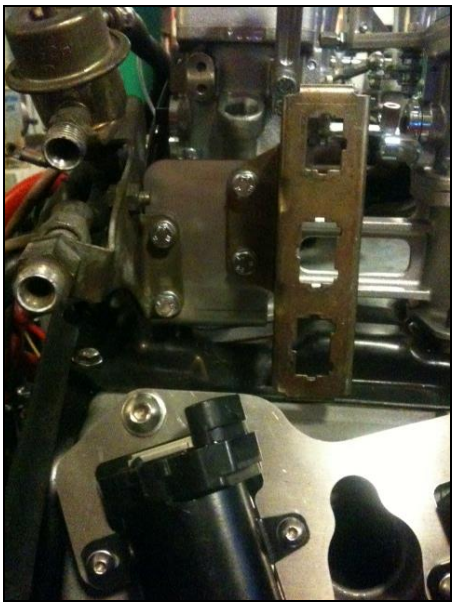
All modifications can be carried out with the engine in the vehicle. If you have not already done so, please remove the original Porsche plenum arrangement, fuel lines, injectors, regulator, fuel damper etc.

Remove the original intake manifold gaskets / phenolic heat proof spacers and install our gaskets and spacers instead.

Now bolt the Jenvey ITB arrangement in place. The throttle position sensor should be located on the throttle body for cylinder number four.

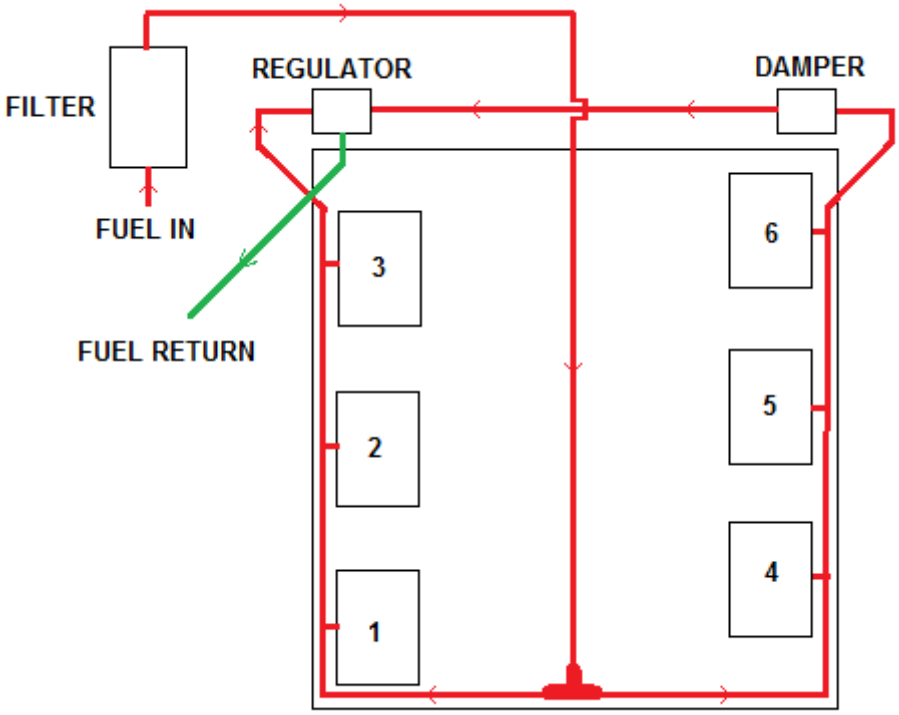
Rather than using the original circular nuts on cylinder number six, bolt the manifold to the cylinder head using the supplied stainless hex standoffs. Once tightened, the fuel pressure damper bracket is then bolted to these standoffs (shown below):

The fuel pressure regulator bracket & crank sensor brackets are attached under the manifold bolts on cylinder number three:



The throttle linkages and air horns can now be installed as per the instructions supplied by Jenvey. We recommend using the original Porsche throttle linkage pivot point which can be made to operate the Jenvey ITB linkage successfully.

You can now install the braided fuel hoses as per the diagram below. It is essential to follow this diagram correctly of course.



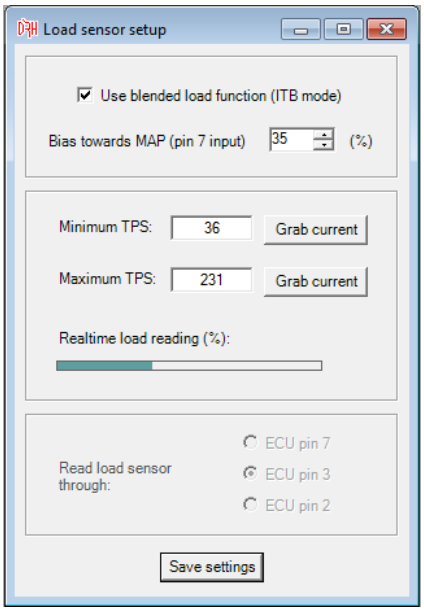
Use the ninety degree male to female adaptor to attach the fuel return hose to the fuel pressure regulator (as shown to the left). This prevents the hose from bending too far which could cause a kink / blockage.

You can now install the vacuum plenum. Use the 6.0mm vacuum hose to connect each port on the manifolds to the common plenum. Collecting the vacuum sources to a common reference point provides a stable signal for the MAP sensor, fuel pressure regulator, fuel damper and brake servo. Use the 3.0mm vacuum hose and nylon Tee pieces to connect the vacuum plenum to MAP sensor, fuel pressure regulator and fuel damper.

We recommend that the vacuum plenum is fitted towards the front of the engine bay between the two shock absorber mounting points.

Connect the non return valve to the large outlet on the vacuum plenum (use supplied Jubilee clips), and then connect the non return valve to the brake solenoid vacuum pipe which enters the engine bay on the left hand side near the fuel filter area. Ensure that the non return valve is orientated correctly (vacuum is stored in the brake servo even when there is no vacuum in the inlet manifolds).

Calibrating the TPS



It is important to calibrate the TPS before the engine is started and also once the idle speed has been set correctly (~850 RPM). To do this, you must connect your laptop to the ECU and then click 'ECU setup > Load sensor setup'. This will display the screen on the right.

Now close the throttles fully and click 'Grab current' next to 'Minimum TPS'. This reading is normally around 20.to 60

Now fully open the throttles and and click 'Grab current' next to 'Maximum TPS'. Usually this is around 210 to 250.

Balancing the Throttle Bodies

It is not possible to balance the throttle bodies properly until they have been installed on your engine. It is therefore CRUCIAL to complete this step correctly. You will need a vacuum synchrometer (carburettor balancer) to do the job properly. Start by setting the throttle blades to a similar physical position using a feeler blade or similar. Once all of the throttle blades are aligned in a similar fashion, start the engine and then measure the vacuum on each throttle. Adjust the throttle linkages as necessary until each cylinder draws the same vacuum figure. The importance of this step cannot be over emphasised.

Other Hardware Changes

If you're fitting this kit to a standard Carrera 3.2, you will need to 'backdate' the heater tinware on the left hand side of the engine bay. This is a very common modification and you've probably already done this if you have SSI exhaust systems or similar. The backdate is required because you'll be removing the heater blower motor to make room for the left hand bank of throttle bodies and air horns etc. We recommend Pelican Parts # 930-106-321-01-PH for this job along with suitable high temperature silicone ducting.

You will also need to fit a suitable oil catch tank on the right hand side of the engine bay. The 1" ID breather hose from the top of the oil tank will feed into this. Previously this hose would feed into the throttle body area on the original 3.2 plenum. Feeding this hose into a catch tank prevents the oil mist from clogging the air filters (if fitted) and

gradually filling the throttle bodies with a coating of oil. Ensure that your oil breather hose is still fitted with the metal insert (reducer), located inside the hose, close to the oil tank itself.

The black plastic ambient air valve (and associated pipework) can be removed from the vehicle completely. Simply install a bung over the 1/2" outlet on the oil tank.

Air filter arrangements

We can supply base plates (in both GRP and carbon fibre) and foam filters to suit the Jenvey ITB installation. Never be tempted to install metal gauze filters over the air horns; these lead to a dramatic power loss. As with any air cooled Porsche engine, large power gains can be created with more ignition advance. By default, all of our calibration files are supplied with a safe and conservative ignition timing curve. To push ignition timing to the maximum possible, it is wise to explore cold air feeds and ducting first.

Software Upgrades

If you purchased your ITB conversion kit at the same time as your DRH Performance ECU, all necessary software is already preloaded into the ECU. If you purchased the ITB conversion kit separately, you MUST upgrade the software in your ECU before attempting to start the engine. There are two alternative methods, depending on whether you have a programmable ECU.

Non-programmable ECU - Your ITB conversion kit contains a firmware upgrade CD. Follow the instructions on the CD to perform the upgrade. Alternatively you can return the unit to Canems for reprogramming.

Programmable ECU - As your ECU is programmable, there is no need to upgrade the firmware. Instead, you can simply load a new map (otherwise known as a *calibration file*) into the ECU. Your conversion kit contains a CD with this map installed. Follow the instructions on the CD to perform the upgrade, or alternatively consult your ECU manual and the section entitled '*Loading and Saving Files*'.

Further Modifications

Please note that the standard Carrera 3.2 fuel injectors are at the limit of their flow capacity with a standard engine and our ITB conversion kit. If you upgrade the camshaft profile, increase engine capacity or modify the cylinder heads you will need to fit new injectors with a higher fuel flow and/or increase fuel pressure by replacing the fuel pressure regulator.

If in doubt, monitor the 'duty cycle' readout box in the DRH Performance Tuner software which should not reach above 100% with a suitable air/fuel ratio.