

TJ

PETROL INJECTION

RICHARD D. ATKINS & COMPANY

MAIN AGENTS

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The TJ system, developed by Petrol Injection Ltd., is based on the principle of continuous injection into the induction tract of each cylinder between the throttle butterfly and the inlet valve. The complexities of timed injection are thus avoided.

The basic advantages of the TJ system may be summed up as follows:

The absence of carburettor and choke permits a larger air charge per cylinder, thus giving increased power from improved engine breathing.

Smoother engine running, particularly at low speed as all cylinders are fed with an equal fuel/air charge.

Quicker engine pick-up and consequently better acceleration.

The improved flexibility enables one to install modifications such as big valve cylinder heads and wild valve timing normally associated with full race power units.

Richard D. Atkins and Company was formed to give TJ Petrol Injection's existing and new customers a first class and efficient personal service.

I hope that you find this publication formative and of interest - should you have any queries please do not hesitate to contact me.



THE T.J. PERFORMANCE CONVERSION SYSTEM

Wherever possible, the existing feed line, A, from the tank to the high flow L.P. fuel pump, should be utilized. If the tank take off incorporates a fine filter element, this should be removed.

The base of the swirl pot is an aluminium casting incorporating two ports, marked IN and OUT. Connect line B between the L.P. pump outlet and swirl pot port IN.

The electric gear pump and the check and bleed valve are supplied mounted on the same bracket, and interconnected by Bundy tubing. Install line C between the swirl pot port OUT to the remaining port in the electric gear pump.

Fit the line D between the check and bleed valve and the engine driven pump. Connect to the check and bleed valve at the port located 180° from the port to which the feed from the electric gear pump (bundy tube) is coupled. Connect at the pump end to the tapping on the rear of the pump casing marked IN.

Install line P between the engine driven pump and the relief valve, (green cap identification). Use the pump port marked DRV. The relief valve has two ports marked DRV. Connect to either of these but ensure that the remaining DRV port is securely blanked off, using the plug provided.

Route the pipe R between the check and bleed valve and the relief valve (green cap). Connect to the relief valve port marked RT. The check and bleed valve has only two interconnected ports left; connect to either port.

Couple pipe S to the remaining port on the check and bleed valve and route the pipe to the swirl pot. Make the connection to either of the two ports in the top of the swirl pot.

Connect the pipe E between the remaining swirl pot port and the fuel tank. If no tapping is available on the fuel tank, it will be necessary to make a tapping into the tank filler neck.

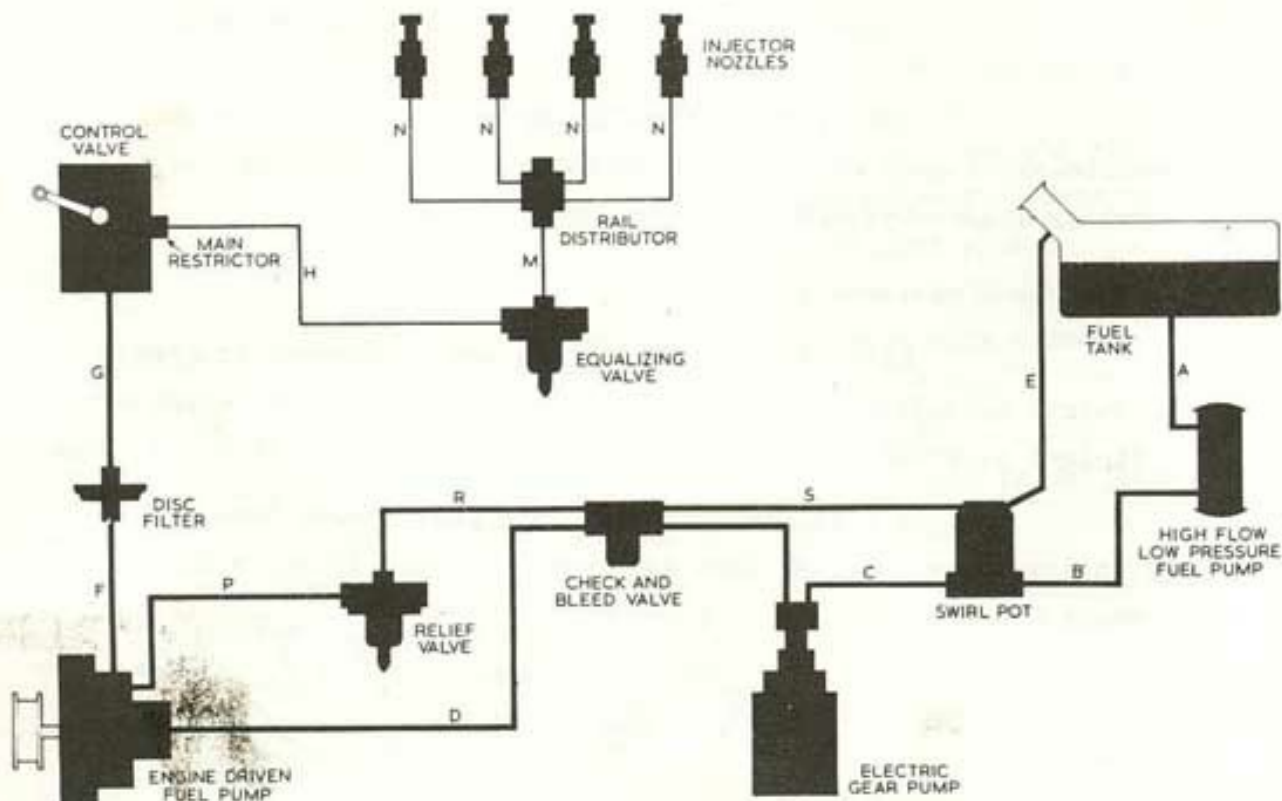
Install line F between the engine driven pump and the disc filter, connecting between the pump high pressure port marked CV and the IN side of the disc filter.

Route line G between the disc filter and the control valve. Connect between the OUT side of the disc filter and the port in the side of the control valve. This port is set in a raised boss and is marked EDP.

Install pipe H between the control valve and equalizing valve (blue cap). Fit the 7/16 in. x 5/32 in. adaptor into the port located in the flat top surface of the control valve and fit the main restrictor to this adaptor. Fit a similar adaptor into one of the two equalizing valve ports marked DRV and blank off the other DRV port, using the plug provided. Couple pipe H between the main restrictor and the adapted part of the equalizing valve, using the 5/32 in. thin wall nylon tube supplied.

Fit a 7/16 in. x 5/32 in. adaptor into the equalizing valve port marked RT. Connect line M between this port and any port in the rail distributor, using the 5/32 in. thin wall nylon tube supplied.

Connect the fuel feeds between the rail distributor and the injector nozzles, using the red nylon tube provided. Ensure that all the nozzle feed pipes are of similar length. Maximum tolerance ± 1 in. (± 25 mm).



INSTALLATION

Cleanliness of components, work areas and tools is of the utmost importance when installing TJ petrol injection equipment. All components must be kept in dust-proof containers until actually required.

All piping must be routed and clipped well clear of the exhaust system and where it passes through bulkheads or panelling protective grommets must be employed.

Sharp bends likely to develop kinks must be avoided.

Blanking plugs should be left in position until final connections are made.

A nylon tube assembly tool, Part No. AT 86133, is available

Engine Driven Fuel Pump - Although the basic system pressure is provided by the Electric Fuel Pump, an additional pressure component is required to give increased fuel metering as engine speed increases. An additional filter is provided in the inlet to the pump. A range of camshaft pulleys of various sizes is available to ensure that the pump speed does not exceed 6500 r.p.m.

The Engine Driven Fuel Pump is mounted at the front of the engine on the bracket provided, with the outlet connection marked CV at the highest point. Direction of rotation must be clockwise when viewed from the driving pulley end. Remove the existing crankshaft pulley and securing bolt and fit the pulley and bolt supplied. If the engine is to be used at speeds in excess of 6500 r.p.m. for prolonged periods, a crankshaft pulley to pump pulley ratio is selected which will reduce the maximum pump speed to 6500 r.p.m. This is determined at the factory and must not be changed.

The drive belt between the two pulleys must not be over-tensioned. When correctly fitted there should not be less than $\frac{3}{8}$ in. - $\frac{1}{2}$ in. (10 - 13 mm) lateral movement of the belt.

Rail Distributor - Install this unit as close as possible to, and below the level of, the injector nozzles.

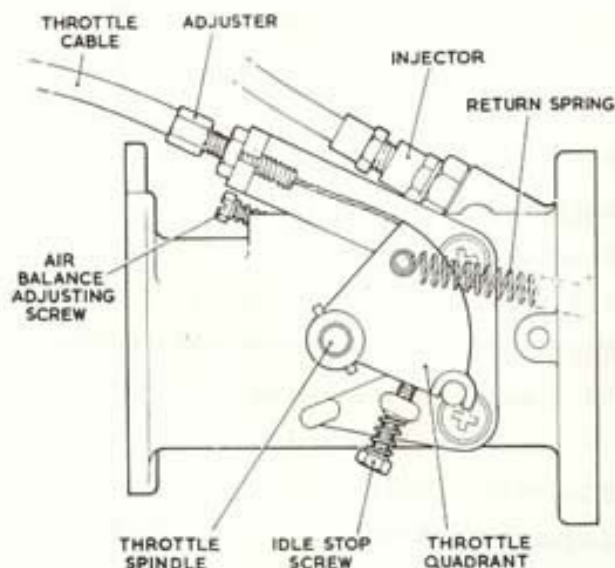
Control Unit - Mount the control unit in such a position that most of the accelerator linkage can be used without modification. This is largely determined by available space and bonnet line.

Relief Valve - This controls the datum pressure of the system and is pre-set at 18 lbf/in² (1.3 kgf/cm²). The valve is identified by a GREEN plastic cap.

Equalizing Valve - This unit acts as a pressure reducer and passes fuel at the correct pressure to the rail distributor. The valve is pre-set at 17½ lbf/in² (1.2 kgf/cm²), and is identified by a BLUE plastic cap.

Swirl Pot - This serves two functions:

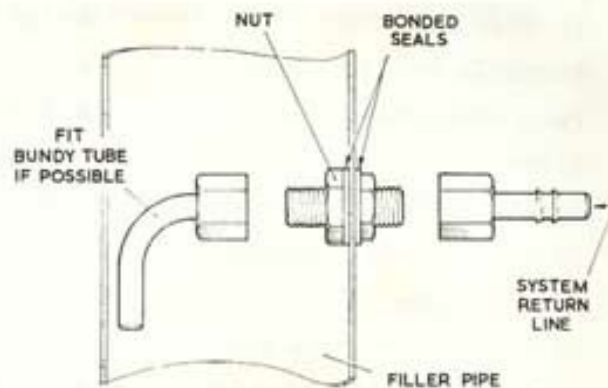
- It contains a large capacity filter, needed where special purpose fuel tanks are fitted, e.g. rubber lined tanks sometimes throw off debris from the welding flash.
- An anti-surge device to assist in eliminating fuel surge caused by high 'G' forces resulting from acceleration, braking, cornering and 'yumping' (rally term). Fuel surge induces air into the system and must, therefore, be reduced to an absolute minimum.



Adjust the throttle cable tension so that with the throttles just starting to open a .040 in. (1 mm) clearance exists between the eccentric cam on the Control Unit and its stop.

If this clearance exceeds .040 in. the engine will run rich over the whole operating range, if less than .040 in. it will be weak over the whole range.

When correctly adjusted ensure that the outer cable locknut is securely tightened.



Return to Tank Connection

To avoid drilling holes in the fuel tank the return line is normally connected to the tank filler pipe. This requires one hole to be drilled and a connector installed. To prevent spillage the connection should be as far from the filler cap as possible.

If the tank is vented through the filler cap ascertain that it vents in both directions. If only one way, a $\frac{1}{8}$ in (3 mm) hole should be drilled in the vent valve.

PRICE LIST

Standard throttle body	£20.00
Control box	£20.50
Control box & accl.device	£23.75
Fuel cam	£ 7.15
Engine driven fuel pump	£22.00
Electric fuel pump.	£20.00
Electric fuel pump & brkt.	£21.50
Elec.pump,brkt.&check&bleed.	£25.00
18 p.s.i. relief valve	£ 3.50
17 p.s.i. relief valve	£ 3.50
Non-return valve	£ 1.56
Injector nozzle	£ 2.85
Main restrictor	£ 1.72
Pipe & fittings pack	£25.80
Swirl pot	£13.00
Swirl pot filter	£ .77
Disc filter	£1.60
Drive belt 160 to 190	£ 1.00
Drive belt 200 to 310	£ 1.15
Toothed pulleys	£ 3.10
Throttle cables from:	£ 1.07
Pump brackets from:	£ 5.70
7/16" bushing	£ 0.19
7/16" blanking plug	£ 0.15
7/16" to 5/16" reducer	£ 0.21
1/4" spigot	£ 0.24
1/4" bend	£ 0.15
1/4" Bore nylon pipe/ft.	£ 0.10
5/32" Ø/dia. nylon pipe/ft.	£ 0.05
Air horns from	£ 3.50
Four cylinder kits from:	£155.00
six cylinder kits from:	£220.00

NOTE. Prices and descriptions may have changed. Ask for the latest details.

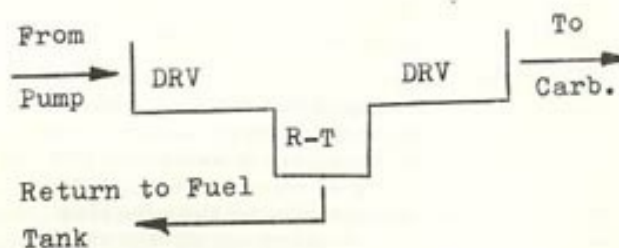
This brochure is not an offer to sell at the prices shown.

For rolling road or dynanometer development work in the Oxford area, Your TJPI expert is: Mr.David B. RAY
Oselli Engineering Ltd.,
Tel: EVENLODE 522/545

3 to 7p.s.i. standard relief valve for use with formulae Ford etc..

£3.50 - with fittings £4.50.

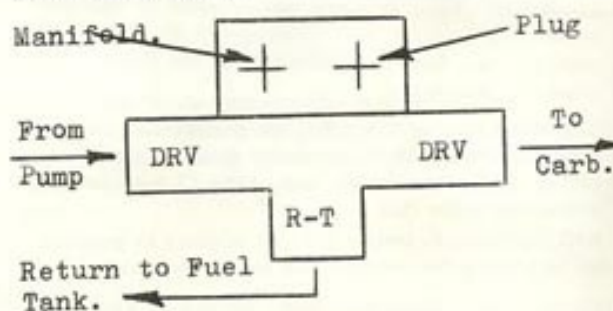
Pipe up as follows :-



3 to 7 p.s.i. supercharge relief valve, for use with turbo or supercharge power units.

£6.50.. with fittings £7.50

Pipe up as follows :-
From induction



Typical applications:-

- Lotus twin-cam all states of tune.
 - Ford cross-flow most tunes.
 - BMC 8 port mini.
 - Blydenstein Vauxhall 2.3 & 2.5 race.
 - BMW 2002 race & rally
 - Ford V6 3000c.c. 150 to 240 BHPc.
 - Ford V8 289 cu.inch.
- If your unit is not here, we may have it in stock.

Our representative in France is
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