



# Paisley News



February 2014

**J . E . PAISLEY & C O L T D**

**For all your Diesel Fuel  
Injection and Turbocharger  
Requirements**

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J E Paisley has recently invested in the Hartridge CRi-pc common rail injector testing machine, one of only two in the country, as well as a Hartridge IFR-50 common rail injector flushing machine, the only one currently in the country.

The CPi-pc will run four injectors at a time and clamps them under tension simulating cylinder head conditions.

The machine will quickly run static return tests and then measure Idle, Part load at full load delivery's.

It will also measure,  
Injector coil resistance  
Injector response times  
Back leakage flow and temperature

The IFR-50 flushing machine will flush 4 injectors at a time, detecting high returns, seized or sticking needles before testing saving you time and money.



**Authorised Service to the world's leading Diesel Fuel Injection systems**



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**Diesel systems OAMARU**

Injectors with excessively high return quantities may have the following effects on engine performance.

- Poor engine starting
- No engine starting
- Engine cuts-out
- Reduced power output (limp-home or fail safe mode)
- High fuel consumption

To carry out the test the return pipes are disconnected from all injectors. Pinch off or plug the return pipes to stop fuel escaping. Connect the return quantity measuring graduates to each injector. The test can be carried out with the engine running or in the case of an inoperative engine at engine cranking. Generally the maximum permissible return quantity is 3 times the lowest measured return quantity. Start the engine and run until top mark is reached in one of the graduated beakers. Switch off the engine immediately.

#### Example 1

Injector 1 29ml

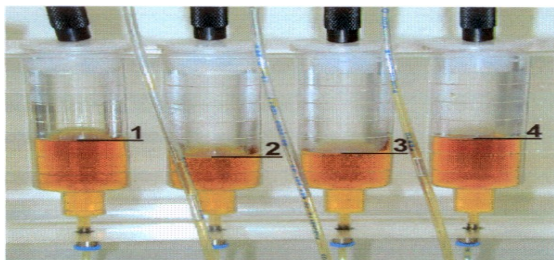
Injector 2 21ml

Injector 3 21ml

Injector 4 29ml

Max permissible return quantity:  $21\text{ml} \times 3 = 63\text{ml}$

All injectors OK



#### Example 2

Injector 1 53ml

Injector 2 21ml

Injector 3 21ml

Injector 4 13ml

Max permissible return quantity:  $13\text{ml} \times 3 = 39\text{ml}$

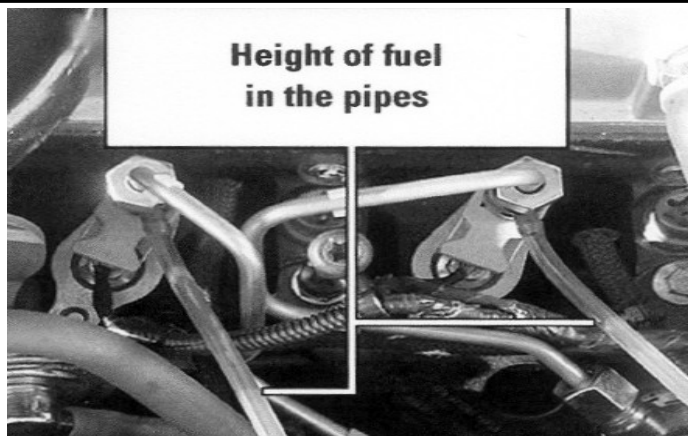
Injectors 2,3,4 are OK Injector 1 is defective



In the case if an engine not starting, it is only possible to measure the static leakage, ie no managed closed injectors.

For all applications use the same procedures to connect the leakage return measuring containers.

Activate the starter motor for a maximum of 5 seconds. **Note:** The engine speed under starter motor activation must be higher than 200rpm for the test to be valid.



Evaluate the return height in each of the pipes. Any injector with an excessive return should be considered as faulty and should be replaced or checked on the EPS200.

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