

# WPS500X

# Pressure Transducer

pico<sup>®</sup>  
Technology



View, understand and  
diagnose vehicle pressure  
systems like never before!

# PicoScope<sup>®</sup>

[www.picoauto.com](http://www.picoauto.com)

# WPS500X – What is it for?

The WPS500X pressure transducer reveals the behaviour and performance of many pressure related systems, revealing:



## ENGINE

- Cylinder compression
- Intake manifold pressure
- Exhaust backpressure
- Camshaft timing
- Cylinder head valve sealing integrity
- Engine oil pressure
- Cooling system pressure
- Head gasket failure
- Vacuum pump efficiency

## FUELING

- Low priming pressure
- Fuel pressure regulator test
- Priming pump efficiency, petrol and diesel
- Injector back leakage

## CHASSIS

- Air suspension control pneumatic circuits and solenoids
- Brake servo evaluation and integrity

## TRANSMISSION

- Auto transmission line pressure

## TURBO

- Boost pressure evaluation (Variable vane errors)
- Wastegate operation

## ENGINE MANAGEMENT

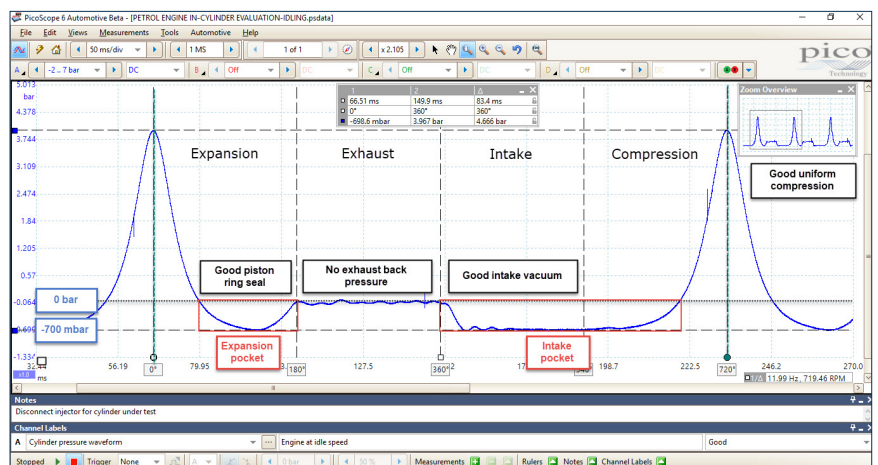
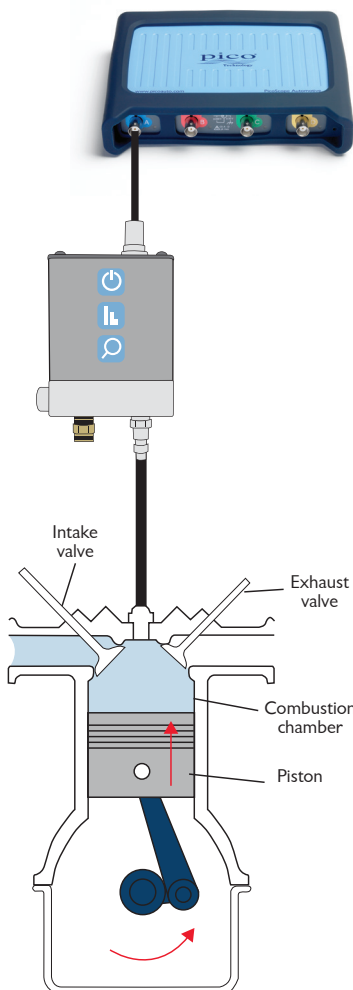
- Variable induction system
- Actuator/control integrity

## IN-CYLINDER COMPRESSION

Use the WPS500X to get an unrivaled view of the inner workings of your engine.

Connect PicoScope by removing a spark plug and installing the WPS500X Kit.

The high level of detail within the captured compression waveform provides you with the information required to confidently diagnose the cause of compression issues.



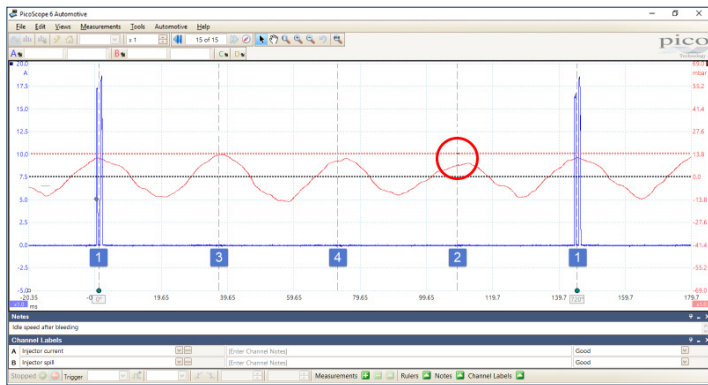
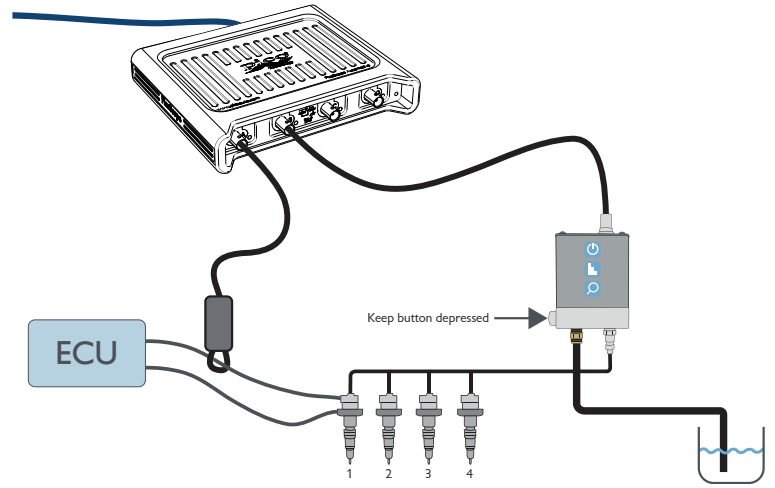
You can also test compression on diesel engines using our diesel glow plug adaptor set. Please refer to our software guided test for further information about how to perform these checks.

# INJECTOR BACK-LEAKAGE

For low pressure return systems, you can use our WPS500X to evaluate each diesel injector's contribution to back-leakage pressure.

When combined with a current clamp the WPS500X enables you to quickly diagnose issues with irregularities attributed to injector malfunction.

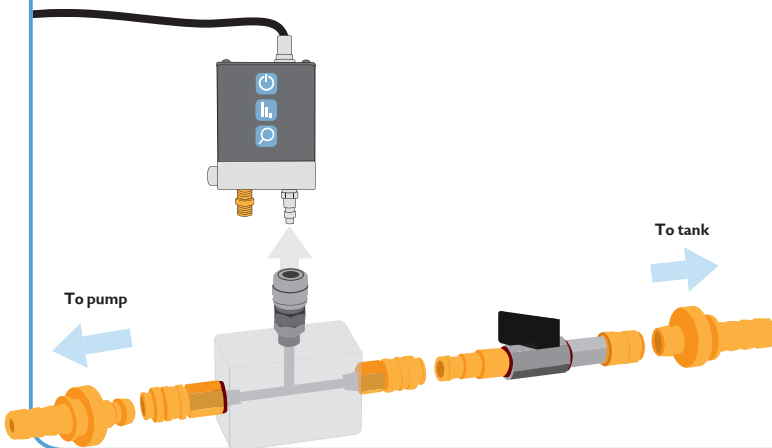
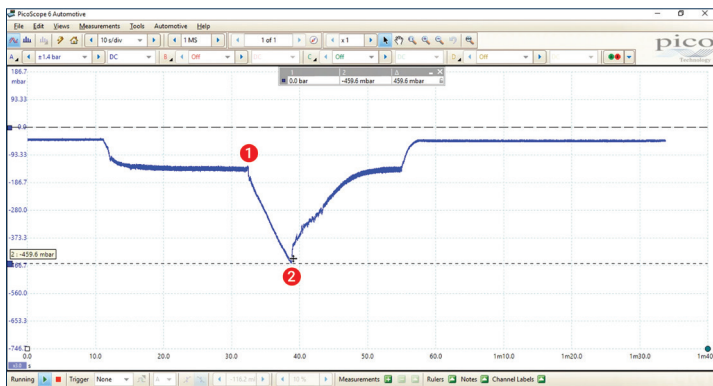
In our example below the current clamp is attached to cylinder 1 injector, enabling you to plot the firing order. You can now see lower contribution from injector two at idle alongside the back-leakage waveform.



## With the WPS500X and PicoScope, you can:

- Accurately detect and measure pressure changes with ultra-fast 100  $\mu$ s response time.
- Use the WPS500X's Zoom function for enhanced resolution.
- Save the results you capture into a folder just like any PC file, and back them up to the free Pico Waveform Library.
- Eliminate dismantling until diagnosis is confirmed.

# LOW FUEL PRESSURE TESTING



With PicoScope and the WPS500X you can verify the integrity of low-pressure fuel systems. We can look at priming pressure, low pressure associated with priming pumps in tank, fuel filter blockages, leaking pipes hoses or injectors, and aeration within the fuel system. To run this test place the Pico Sight block kit and WPS500X inline on the low pressure side between the high pressure pump and the tank.

Watch the sight block for any signs of aeration in the fuel.

Negative pressure (below atmospheric pressure) exists due to the rotation of the transfer pump. Closing the stop tap creates a greater vacuum (1) due to the pump pulling against the stop tap, giving a pressure drop. Reopen the stop tap and flow can resume, allowing the vacuum to reduce (2) proving the pump efficiency.

You can view this waveform alongside the fuel rail pressure sensor for a more in-depth view of your vehicle's fuel system operation.

cause of issues including:  
g • Engine noise • Emissions fault • Backfire

# Kit options

Our range of kits and adaptors gives you the ability to connect the WPS500X to a range of pressure components.



## PP939 WPS500X Kit

Kit containing pressure transducer and a range of adaptors primarily focused on testing petrol compression, exhaust back pressure and fuel systems, using Schrader valves.



## PQ038 WPS500X Maxi Kit

For a wider range of connectivity the WPS500X Maxi Kit includes all the items in the standard WPS500X Kit, plus fuel taps for breaking into fuel systems, and additional spark plug connectors and adaptors.



## TA323 Diesel Glow Plug Adaptor Kit

Add diesel compression testing to your list of available tests with the glow plug adaptor kit. It contains 15 different glow plug adaptors and covers the majority of glow plug styles commonly used in modern diesel engines.



## PQ071 Sight block kit

This kit is intended for diagnosing problems with low-pressure fuel systems up to the inlet of any high-pressure pump.



For details of all PicoScope kits please visit [www.picoauto.com](http://www.picoauto.com)

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