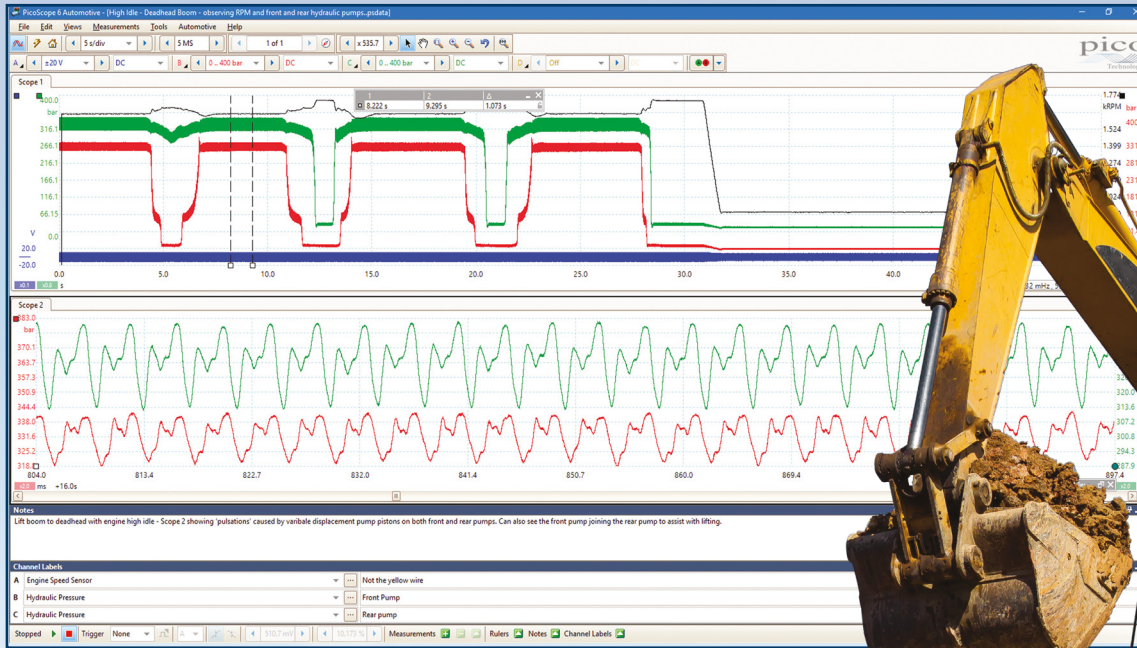


Engine and hydraulics testing



with the WPS600 hydraulic pressure transducer



Pico's Engine and hydraulics kit is designed for you to be able to diagnose problems on your equipment, relating to either engine or hydraulics.

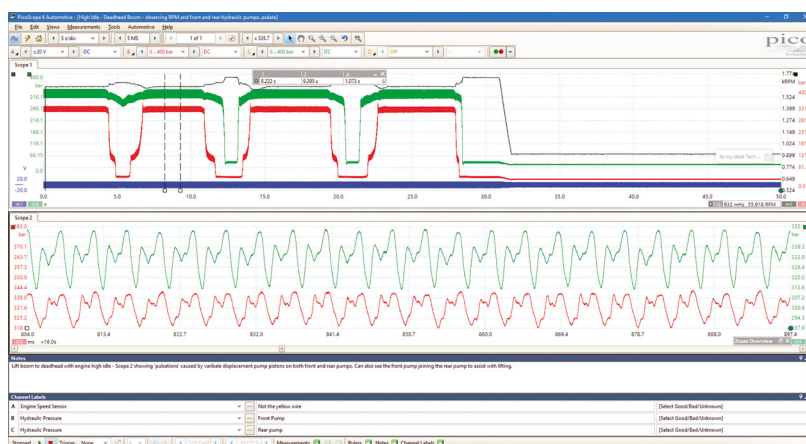
When our PicoScope software is combined with our WPS600C hydraulic pressure transducer, you are given an unparalleled window into your hydraulic system, showing true system performance in real-time.

Engine and Hydraulics kit

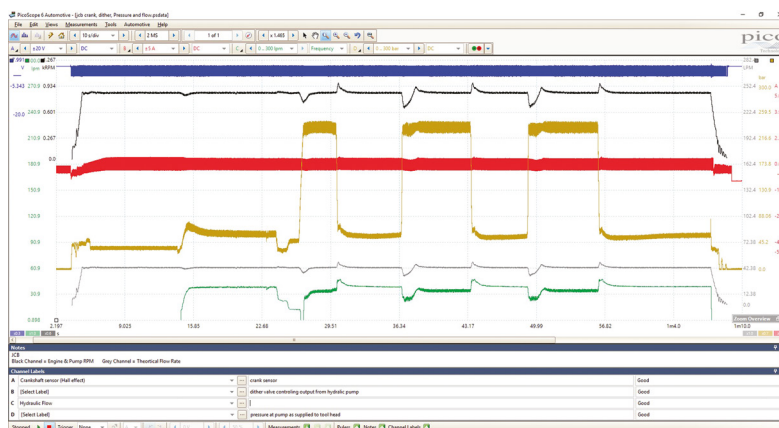
Mobile Construction and Agricultural machinery is getting ever more complex and we see more and more machines moving from mechanical diesel engines to modern high-tech common rail diesel injection systems. With the introduction of stricter emission standards and CAN communicated PVGs, the challenges the field support technicians are facing are changing, requiring both new skills and new tools.

By creating our Engine and Hydraulics Kit, we can now offer mobile repair technicians one single kit they can use to diagnose the majority of systems on expensive mobile plant such as tractors, back-hoe loaders, combine harvesters, telehandlers and all other mobile hydraulic machinery. With this kit, the technician is able to see the problems across the engine / hydraulic system boundary by directly relating engine characteristics to the performance of the hydraulic system and vice-versa. For example, you can now monitor the engine speed via signals such as the crank sensor, while also monitoring hydraulic system pressures in real-time.

With the clarity of the waveforms and PicoScope's powerful zoom functions, measurements and math channels, you can truly see what is happening and to a detail that has yet to be seen elsewhere. You can view the pulsations from a hydraulic pump and calculate and record pump efficiency. With this type of analysis, you can start to build a picture of health for the machine, recording how the system works. You can also save any capture for further analysis or for future maintenance, such as PQ test results.



You can now explore the operation of the whole system with one capture. In the waveform shown below you can see the performance of the hydraulic system on a telehandler using the optional 300 litre/min Webtec flowmeter.



There is a huge amount of diagnostic information in this capture, showing both the basic operation of the system and some of the feedback controls built into this vehicle. Engine speed can be inferred directly from the crank speed sensor by using a measurement, or as shown above, using a math channel.

Our Engine and Hydraulics kit can be used both for simple tests of purely electric signals, such as extending and retracting a hydraulic ram, to full system tests where you can investigate the state of the complete system. It is important to understand that a simple-sounding fault such as "the engine stalls when a heavy hydraulic load is applied" can be down to problems with either the engine or the hydraulic system. Having the ability to directly relate the hydraulic system's performance to engine signals such as injectors or the crank sensor can show the technician not only what is happening, but also what the ECU expects to be happening, highlighting possible issues.

The WPS600C

Nothing compares to the WPS600C. It is not unusual to require a different pressure transducer for each diagnostic test you want to run. The WPS600C eliminates this need by giving you a transducer with ultra-high resolution that can be used for a multitude of hydraulic diagnostics applications. With two pressure ranges and a rechargeable Li-Po battery, all enclosed in a durable housing the Dual WPS600C add-on kit is the cost-effective answer to pressure analysis.



WPS600C pressure transducer 60/600 Bar: TA092

The WPS600C pressure transducer gives the ability to test the hydraulics associated within a wide range of commercial vehicles and plant machinery. Once the WPS600C is connected to the relevant hydraulic test port, the Technician is able to view activity and transitions in hydraulic pressures of up to 600 bar in real-time.

- Hydraulic pump performance
- Hydraulic valve switching activity
- Hydraulic pressure control valve performance
- Hydraulic pressure decay
- Residual hydraulic pressure

The WPS600C:

- can accurately measure up to 600 bar (8700 psi)
- is ultra-fast; 100 microsecond response time (0% to 90% of full scale)
- has an internal rechargeable LiPo battery
- has an industry-standard M16 x 2 test point connector
- uses auto zeroing
- has high noise immunity
- is temperature compensated

Dual WPS600C add-on Hydraulic kit: PQ108



Kit contents

Engine and Hydraulics Kit: PQ117



- | | |
|---|--|
| 1 x Carry case | 2 x Small Crocodile/Gator Clip red |
| 1 x Carry case WPS600C | 2 x Small Crocodile/Gator Clip black |
| 1 x 4-channel Automotive oscilloscope (4425) | 2 x PicoScope Battery Clip red |
| 2 x WPS600C pressure transducer | 2 x PicoScope Battery Clip black |
| 1 x 200 A / 2000 A (high amps) DC current clamp | 4 x Flexible Back-pinning Probe black |
| 1 x 20 A / 60 A DC (low amps) current clamp | 4 x Flexible Back-pinning Probe red |
| 1 x Passive scope probe 100 MHz | 4 x Shrouded to Unshrouded Adaptor red |
| 1 x Ultrasonic parking sensor detector | 1 x 2 Pin AMP connector breakout lead |
| 1 x Keyless entry detector | 1 x ATC / ATO fuse extension lead |
| 1 x 10:1 attenuator | 1 x Maxi fuse extension lead |
| 4 x Premium test leads (4 colours) | 1 x Mini fuse extension lead |
| 1 x USB 3.0 cable (blue) 1.8 m | 1 x JCASE fuse extension lead |
| 2 x Insulated BNC to insulated BNC 2 m | 1 x 2-pin ACS connector breakout lead |
| 2 x Insulated BNC to insulated BNC 5 m | 1 x 3-pin Kostal connector breakout lead |
| 2 x WPS600C charging cable | 1 x CD-ROM Automotive software |
| 1 x Back-pinning Probe Set | 1 x PicoScope 4x25 Automotive Scopes Quick Start Guide |
| 2 x S-hook | 1 x WPS600C Hydraulic Pressure Transducer User's Guide |
| 2 x Multimeter Probe black | 1 x A guide to oscilloscope diagnostics |
| 2 x Multimeter Probe red | 1 x Automotive software poster |

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