



Garage

Tech Bits with Tim Stock

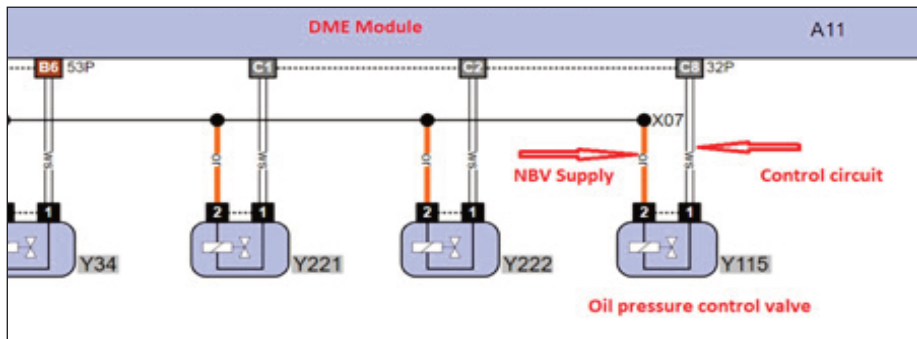
Technical ^{AUTOBIZ} Helpline

Call to join
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Tim Stock

Mini high and low oil pressure issues



The oil pressure control valve is controlled by the DME Module and varies engine oil pressure depending on engine speeds

The Helpline continues to receive calls regarding the oil pressure control on engines fitted to both the Mini and PSA variants. These engines operate on a variable engine oil pressure control principle. This variable oil pressure can be used to reduce the load on the oil pump drive system when engine does not require a high oil pressure.

These systems utilise a solenoid control valve installed in the main oil gallery that returns excess oil back to the sump, precisely controlling the pressure in the main gallery.

The minimum oil pressure recorded at idle should be 0.7 bar, and the controlled pressure at 3000 rpm should be between 1.2-6.5 bar.

The oil control solenoid is fitted with an inlet screen to filter out any contamination that could damage the valve.

The valve is controlled by varying the duty cycle on the ground side circuit. And the power supply comes from the DME module. The default for a failed circuit is to close the valve and run at maximum oil pressure. This can result in a fault code for circuit failure, and for high oil pressure.

But the valve can get stuck in the open position, usually due to contamination getting past the filter screens. This results in a lower oil pressure

than required, and a resultant fault code P33FD logged.

So before condemning the oil pump for a low-pressure issue, check the control valve for contamination. For high-pressure fault codes, check the control valve circuit. Typical control valve resistance is approximately 7 ohms. The best solution for checking the signal is to scope the current trace on the control valve. Typical current should be 2 amps during the control on phase indicating circuit integrity.

Other manufacturers are utilising this type of oil pump control to reduce engine emissions, so these faults may not be limited to one vehicle brand.



Contaminated filter screens like this can seize the solenoid and cause low engine oil pressure