3 System failures from 1 Actual fault

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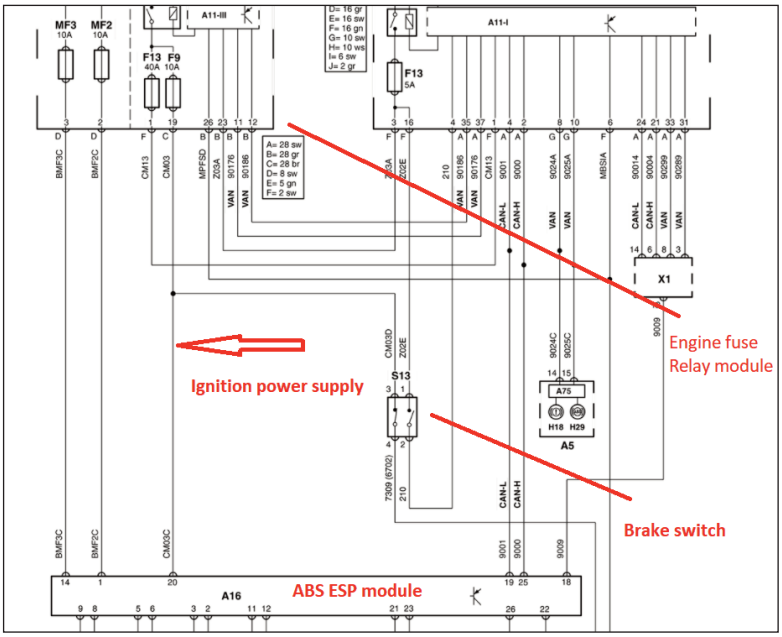
Case Study - Peugeot 207 1.4 2008 KFU

The customer complaint was that intermittently the engine warning light would illuminate and at the same time the ABS light and electronic power steering fault light. The speedometer would also stop reading.

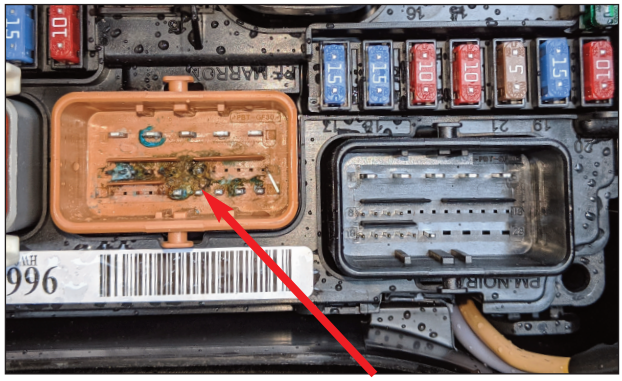
On a diagnostic scan, the fault code found stored in the Engine ECM and Electronic power steering system indicated loss of CAN communication with ABS and ESP system. But at the time of the diagnosis, the ABS system was communicating and no faults were present in any system.

The ABS wiring was checked at the module and no problems were found. Fifteen minutes into a test drive, all the symptoms returned.

Back in the workshop, all the tests were repeated and showed no issues. Suspecting the CAN network, a scope was setup to monitor the network signals on the next test drive. Shortly after starting the drive all of the faults returned, but the CAN still showed no loss of signal integrity on the network between the 3 affected modules. It was noticed that the brakes lights now remained on constantly.



The three affected systems crossed electical paths in the wiring connector to a relay module in a fuse box



Corrosion in the relay connector caused a short circuit and faults

On checking the circuit diagram for the brake light switch, a link was noticed to the ABS ignition power supply. A quick load test at the ABS module revealed a volt drop on that circuit.

Further investigation revealed the root cause of all the issues: Water damage to the switching protection unit. A replacement switching unit was fitted and the multiplug was repaired. No further issues reported and all faults were cleared.

Within 5 days, the exact same symptoms were reported to the Helpline on another 2009 Peugeot 207 model. The switching unit was checked first, and exactly the same water damage present. A fast fix this time.

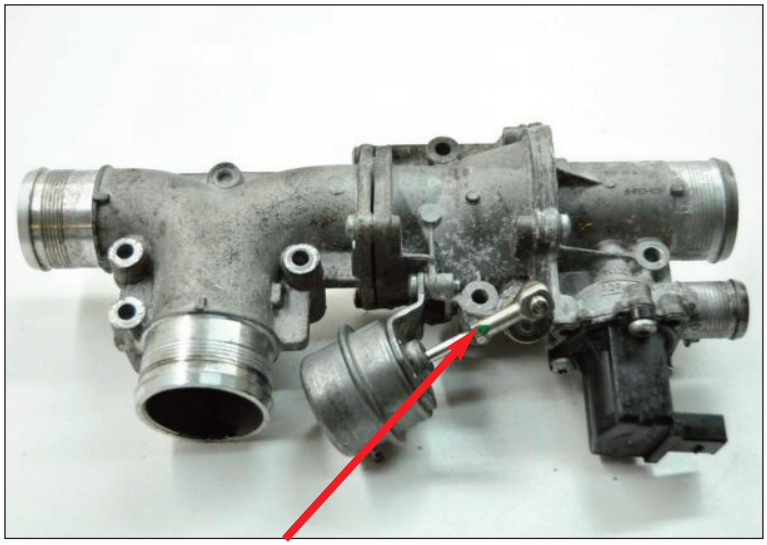
Range Rover/Jaguar MAF issues

Case Study - 2009 Discovery 4 3.0 TDV6

This vehicle was reported to the helpline for a performance issue. When power was demanded at 3000 rpm, it went into limp home mode and logged a code P006A (Mass or Volume Air Flow Correlation Bank 1).

As this vehicle has 2 Mass Air Flow (MAF) sensors, it was noticed during testing that the flow readings from these did not agree with each other. The right hand turbo feeds from one MAF sensor at a lower rate, until there is a demand for increased performance.

On investigation, it was found that the right hand turbocharger has a boost bypass valve that only comes into play when additional power is demanded. When driven at low power settings, this valve does not get regularly utilised. As a consequence, it has a tendency to get stuck. Freeing of the control rod cured this issue.



The bypass control rod (at arrow) gets stuck on the right turbocharger

It is worth noting this issue was also found on the Jaguar XF 3.0 TDV6 fitted with the same engine. And previously, we had a report of the same symptoms on a Jaguar S Type 3.0 TDV6. The technician was chasing a low MAF reading from one of the sensors, wrongly thinking that both turbos spool up at the same rate.