



Tim Stock

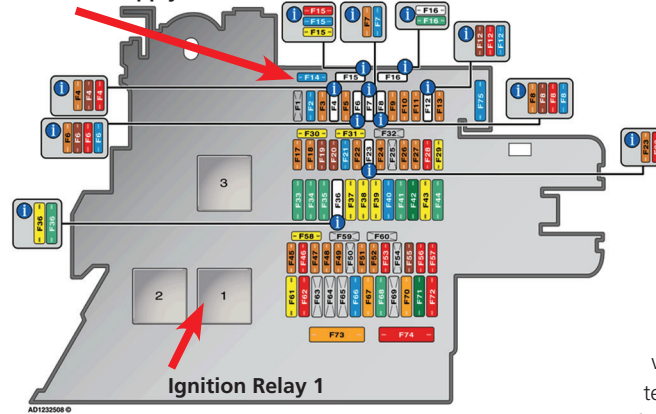
Cause and Effect - Non-starting 2016 1.4 TFSI Audi A4

When it comes to diagnosing an issue, there are two things we need to remember, cause and effect. These are better known as the initial symptoms, the reason we are diagnosing the vehicle in the first place. The underlying root cause for the symptoms is often overlooked.

A recent case comes to mind, an Audi A4 2016 1.4 TFSi that would not start. It had already been to a previous garage, who were unable to solve the problem.

On initial inspection the first symptom was no crank and flickering cluster warning lights. The battery was tested, and it failed. The voltage was down to 8 volts. The battery was

ECM Power Supply Fuse



Ignition Relay 1

replaced, and all of the modules on the Audi were scanned. The results showed that there were multiple codes for CAN missing messages, and there was no communication to the Engine ECM.

Diagrams were located for the Engine ECM and tests performed on the power, ground and CAN signals on the module. It was found that no power supply was present at 3 load terminals. Plug B terminals 1, 2 and 4. The relay proved to be working and the fuse number 14 was not blown. Further investigation showed that the terminal behind the fuse had melted, indicating too much current had been running through the fuse. The fuse box was repaired and power was restored to the ECM.

The ECM was now communicating. The

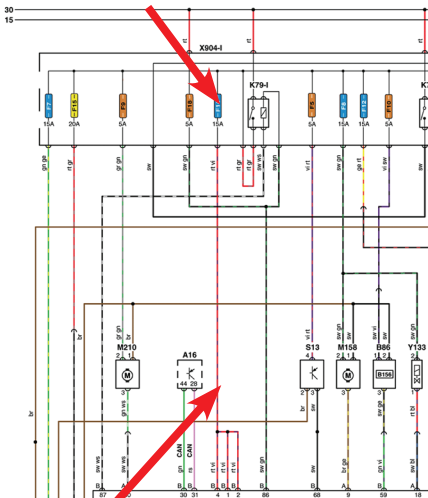
initial symptoms had been solved, and the module could be scanned. Now we get to the root cause of the fuse running hot, the fuel pump control valve circuit was reporting a fault. While testing the circuit, it was found that power supply and

duty cycle control both were connected to the ECM, and the valve had an internal resistance of only 0.3 ohms. This would put stress on the ECM and it's supply circuit over time, generating excess heat that had caused the fuse to melt.

Using Ohm's Law, the calculated consumption on the pump was around 45 amps, much more than the normal and expected 4 amps. After replacing the control valve, the ECM still reported a control circuit error for the valve. It was then easy to determine that the excessive current had damaged the valve control circuit within the ECM.

So, when diagnosing any systems, don't forget the root cause and not just the symptoms.

Over-heated and Melted Fuse



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