Discovery ABS Sensor Problem

An Autobiz Helpline member garage, had booked a Land Rover Discovery 4 into their workshop, for simple front wheel bearing noise, something that the workshop has performed on these models many times in the past. Being familiar with the repair, and how sometimes the bearing would require some heat to remove, they knew that often the ABS sensor would require replacement after the bearing work. They ordered a genuine sensor and replaced it along with the bearing, but after completion of the repair, the ABS system logged a hard fault code C0034 (Front right ABS sensor circuit).

Suspecting a possible bearing with encoder ring, that was checked but it proved good. Understanding the operation of this type of sensor is vital for correct diagnosis. The encoder ring has a magnetic face that must be facing the sensor, so correct orientation is vital when installing this type of bearing.

The sensor is an electronic device that switches a signal voltage under the influence of the magnetic field, from the encoder.

This first step is to compare the voltage levels from the bad side loom to the opposite side connector that has not displayed a fault. Typically, the voltage recorded between the 2 connector pins will be 12.0 volts. In this case the voltages were the same, 12.0 volts,





Tim Stock, Autobiz Helpline

Resistance across an MRE varies with direction

indicating there were no loom or ABS/ESP module issues.

The sensor is known as an Magneto Resistive Element type (MRE). When testing this type of sensor, you must be aware that the resistance value will change depending on the



With a scope set to "AC Coupled", the signal will be evident on the 12V side of the sensor connector polarity of the connection. Both sensors gave the same resistance values, so we swapped the new OE sensor to the good side loom connection. To our surprise, the fault migrated to that side, so there was an issue with the sensor.

Both sensors were placed side by side and retested, and then the fault became evident. The resistance values were the wrong way around on the new sensor, it had been manufactured incorrectly.

A typical MRE signal will only be around 300mV. With a scope set to "AC Coupled", the signal will be evident on the 12V side of the sensor connector.



Call now to join 01-905-9500