(i) Tech Tips

Testing for a brake pressure **switch fault**

A fault code retreived from a car starts you on the journey to find out what caused the fault, but it does not tell you that some part is faulty. Ken Geer, Bosch Technical trainer and programme developer, explains an easy way to determine if an integrated brake pressure sensor is actually faulty.



Ken Geer, Bosch Technical trainer and programme developer

It is not unheard of for a mechanic to retrieve a code from a diagnostic scanner, locate the sensor in that circuit and then simply replace the sensor. The mechanic might just get lucky and that will solve the problem, but what if it doesn't? And what if it is an expensive sensor? How much are you willing to gamble as far as your time and the customer's money s concerned? Not fully understanding a problem can lead to digging a deeper hole, that can leave you lost and the car still not repaired.

After the fault code has been retrieved, the next step is to consider what could have caused the fault and examine all of the possibilities. It is the careful consideration and proper diagnostics that will get the repair done in the quickest time possible and with the least amount of problems.

A customer recently reported to the Bosch technical helpline, that they had a 2004 Audi A3 with the ABS/ESP light on. After connecting their Bosch KTS diagnostic equipment to the car, they retrieved the following fault code:

059B - Brake pressure sensor

This fault code may indicate a faulty brake pressure sensor, but it can also be triggered by other faults such as a signal or wiring problem. To ensure that the problem is properly diagnosed,



Without brakes applied, the brake pressure is zero and the brake light switch is not actuated



Ken Geer checking live data with the Bosch KTS, above. The brake pressure switch was an integral part of the hydraulic modulator control unit, at right.

the sensor should be tested to confirm if it is working correctly or not. The Teves Mk 60 ABS/ESP control unit on this particular vehicle uses the signal from the pressure sensor, to calculate the current brake pressure in the master cylinder; the pressure sensor is supplied with 5 volts and outputs a signal voltage of less than 1 volt with the brakes off. As the brake pedal is applied and brake fluid pressure rises, the signal voltage will increase.



Any brake application will change the status of the brake light switch and will raise the braking pressure accordingly

Because the brake pressure sensor is integrated into the hydraulic modulator control unit, the only real means of testing the sensor is to use a diagnostic tester, such as the KTS, to determine what the actual values that are being reported to the ECU for brake pressure. The brake light switch and related wiring should also be checked for proper operation at the same time.

Testing actual values has been made even easier with Bosch's new ESI[tronic] 2.0 workshop software. After selecting the correct vehicle in the diagnostic scanner, set the KTS to look at brake pressure and brake switch actual values, and then progressively press the brake pedal. The brake switch should immediately switch from "component not actuated" to "component actuated" as soon as the pedal moves. As increasing pressure is applied to the brake pedal, the brake pressure should increase proportionally. Be certain to determine that there are no problems with the wiring or connectors in the sensor circuit, as a loose or missing connection could definitely trigger

a fault code.

