



## **PMM FORD GALAXY SRS DIAGNOSTICS**

This month's topic is one, which for safety reasons I must not underestimate airbag diagnostics. My topic is based on a Ford Galaxy, VW Sharan etc. etc.

The procedures and data contained within this topic are relevant **only** to this system type and must not be taken in general terms and applied to other vehicles. The golden rule never to be broken when working on air bags or controlled explosive deployment systems "when in doubt DON'T".

### **THERE ARE SEVERAL CRITICAL ELEMENTS YOU MUST HAVE CONTROL OVER.**

- 1) Comprehensive serial accessibility to include DTC's live data, and program capability.
- 2) A technical information system to include a) Safety procedures b) System Schematics c) Wiring diagrams d) Technical data
- 3) A scrupulous diagnostic procedure to include zero tolerance on risk assessment and the highest calibre of circuit test equipment.

Before we continue with the problem vehicle I would ask all readers to consider that if any doubt should arise from the above, refer the repair to a genuine diagnostic specialist.

It is also strongly recommended that technicians obtain reading material relating to the construction and operation of air bag systems and become familiar with all aspects of its operation, and deployment.

Having put the fear of God in most of you by now let me reassure you of a degree of safety that exists with air bag systems.

Under normal conditions to deploy the air bags the vehicle has two critical devices fitted in series.

- 1) A safing sensor, sensitive to G force and duration.
- 2) Crash sensor, which is directional sensitive.

Both must go active to deploy the system.

However indiscriminate voltage spikes applied to the "system" may trigger the SRS system. Do not use anything other than passive probing when the system is intact. When using a DMM (which has a battery) to conduct continuity testing, remove the battery supply short across the terminals of the vehicle loom to remove any voltage potential difference, and disconnect all ignitable components. PCMs contain several capacitors to store voltage in the event of main power failure

You may have noticed that all sockets to ignitable components have an automatic earthing or shorting pin when you disconnect the connectors.

This may all sound a bit time consuming, but remember unless you have a thing going on with the nurse at the eye clinic it's worth it, and besides you are getting paid "I hope". PS disconnect the PCM as well.

The problem with our vehicle, the SRS mil lamp was on, displaying a DTC, driver's airbag resistance high fault current.

The vehicle came from a body shop having suffered a side impact to the off side front wing. The repair had been carried out, and was sent to us for SRS system re-set.

There are two possible routes to take from the above evidence 1) replace the drivers airbag 2) conduct wiring tests on the effected circuit.

Upon gaining access to the airbag wiring immediately adjacent the steering column, it was obvious the vehicle had been dismantled previously, this was denied by the body shop. The air bag had not been deployed and the module did not contain any deployment data for the crash or safing sensor, why, simple, the ECM is directional often side impacts do not register enough energy to deploy.

We convinced the body shop of the necessity to do a full wiring check, first disconnect the battery and short the loom across with jump leads. Remove all panels to access 1) the module (PCM) the steering coloumb (clock spring) and the air bag module.

We checked the loom from the clock spring connector to the PCM, and were happy with 0.42 ohms across both ignighter circuits. We then checked the clock spring in a similar way, to do this we had to stick a piece of plastic strip between the shorting pin and igniter circuits. Upon checking the clock spring we found a intermittent contact high resistance and open circuit, try turning the steering wheel, intermittent faults often show up with movement.

Content with our findings we replaced the clock spring, which comes, locked in the neutral, central position noting a reading of 0.38 ohms through the contacts.

We Re-assembled the critical components before reconnecting the battery and confirming with our serial tool that the circuit errors was correct

Job done cost £250.00 + VAT and parts. Myself and David my son carried out most of the circuit testing, the connectors are small and require careful probing to guarantee accurate results.

Air bag systems that have been deployed will require a new module, and this often requires coding to the vehicle, hence our comments regarding the ability of your serial tool to achieve this, check carefully before buying.

This topic brings to an end the current series, however I can guarantee with your support, it's further continuance.

On a personal note I would like to thank all the readership for the support these topics have received, it gives me great encouragement, this is an Industry which deserves better support, better respect, better conditions. Together we can all make a difference, don't

undervalue your skills, offer a superior product and price your time to reflect your commitment and investment.

Frank Massey