OASIS TECHNICAL COMMITTEE

FORMAT OF AUTOMOTIVE REPAIR INFORMATION

Comments from EGEA - Test and Diagnosis

Document Control

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1. Introduction

Document SC1-007 - comments from EGEA on Test and diagnosis Section 2.2.4.2

The next SC1 subcommittee meeting on Thursday 28th will be held to finalise the Autorepair Requirements Specification before presentation to the full technical committee on Friday 29th. Due to time constraints at the last meeting the Test and Diagnosis section (2.2.4.2) of the document tabled by AFCAR (SC1-007) had little discussion also the manufactures representatives felt that more discussion between their experts was required.

The EGEA therefore created this background information, to aide understanding of the proposed section, for consideration before the meeting on Thursday.

Section 2.2.4.2 is attached with comments on each bullet point, which will hopefully be helpful to all parties and enable an agreed section to be formulated at the next meeting.

This section is attempting to specify the existing information which the manufactures already make available to their dealer network in order that emission related repairs on their vehicles can be completed. In some cases without this information, although the faulty component may have been identified and replaced the vehicle system (ECU etc.) will not accept that replacement part and may continue to produce fault codes and the vehicle system may not function as intended.

It has already been raised at the Technical committee meetings that Independent Repairers (including Roadside Assistance) require an 'all makes' solution to the tool used to identify and rectify emission related faults.

2. Section 2.2.4.2 Test and diagnosis

Notes on the Test and Diagnosis section for each Bullet point to aid understanding of the requirement - notes in italics

This information requirement relates to 'OBD' Directive 98/69/EC Annex XI Appendix 1.6.5.3.6. and 2.19.

The following information is required on component tests and diagnosis :

• A description of tests to confirm its functionality - at the component or in the harness.

DTC’s read from the ECU may imply one or more components are faulty, however the problem could be related to the wiring harness between the ECU and the component, connectors of this harness, the component itself or even the ECU. Any tests made available by the Vehicle manufacture, to it’s dealer network, to pinpoint the faulty area should be made available.

• Test Procedure including test parameters

The test procedures to confirm the integrity of sensors and actuators
• Connection details including min/max input/output driving/loading values & or torque settings

These tests will undoubtedly require electrical measurements to be taken with the sensor or actuator in known states. Information on the state of the sensor, where to make these measurements (e.g. pins of the sensor connector) and the pass fail limits for these measurements.

For example to validate a coolant temperature sensor voltage measurements whilst connected to the harness (or resistance measurements when open circuit) may be required. The values expected at given coolant temperatures will be required together with the connector pins where the measurements should be taken.

This information is important when testing the sensor dynamically using the Generic scan tool in order to give the repairer an indication to whether or not that particular sensor is out of range and to therefore limit the chance of an incorrect diagnosis being made. It is anticipated that this information is made available to the independent scan tool manufacture to incorporate into the generic scan tool.

• Any additional protocol information, not covered (may be better to change wording 'not covered' to 'not reference') by ISO15031, required to enable complete system diagnostics of OBD related components. Including any additional hardware or software protocol information, parameter identification and transfer functions, fault code reading, functional tests (device activation or control), resetting adaptive learns, variant coding and replacement component setup, customer preferences, etc., access/security codes required for repair functions, and control module updating required to effect the repair.

Many ECUs have additional functions built in to aid the validation and diagnostics of sensors and actuators together with their associated harness. These facilities may take the form of routines in the ECU to exercise the actuators so that meaningful measurements, both electrical and physical measurements including visual inspection of operation.

When a faulty component is replaced some ECUs require details of the new component to be coded into the ECU. The component may in some case have to be calibrated by a procedure, details of the procedure and how to code the calibration values into the ECU will be required to effect a repair.

If the ECU is the faulty component calibration values for components fitted to the vehicle together with other vehicle information e.g. build level of the vehicle and customer preferences may have to be coded into the ECU.

Some ECUs may restrict access to these functions with security access codes so these would have to be made available, in a controlled way, to allow this functionality so the repair can be completed.

• Typical values expected under certain driving conditions including idling
• Typical electrical values for the component in its static and dynamic states

This information is required as above to confirm the serviceability of the component.