

GERF chair comments and proposals

Discussion paper for necessity of OBD system regarding advanced safety technologies (Automated driving technologies)

(Draft)

1. Necessity of OBD system for advanced safety technologies

- The performance level of advanced safety technologies (devices) should be maintained even during in-use situation as well as at the time of type approval.

We agree to this statement. The regulatory answer to this concerned is covered by two complementary means: UNECE type approval regulations define construction requirements, while periodic technical inspection checks if the maintenance of the vehicle is sufficient to ensure roadworthiness of the vehicle.

Is there any intention from Japan to define in-use performance measures as e.g. in EuroVI legislation (performance to be ensured during the first 700.000km / x years)?

- On the other hand, it is difficult to check the performance level by visual checking at the PTI and so on by user, because these systems are complicated, e.g. with a lot of sensors.
- Therefore it is necessary to provide the information of vehicle operational status regarding advanced technology systems to user or inspector who has primarily responsibility for safe driving or maintains the vehicle safety.

GRRF regulations (e.g. UN R13, R79, R131 etc.) are all defining the need for warning signals visible from driver's seat, to indicate faults in the electronic systems. These provisions applies to both the basic function (e.g. braking, steering etc.) and to complex electronics systems using the basic function for higher level functions (e.g. ESC, LKAS...). These warning signals are type approved and available for driver 365/24, as well as for the PTI inspectors. We believe current provisions fulfill the needs mentioned above, even for advanced safety technologies (Automated driving technologies).

2. Purposes of OBD information

- Providing the information of vehicle operational status regarding advanced technology systems in use
 - Giving the information to user/ inspector
 - Utilizing the information for the periodical check or maintenance of vehicles

In the context of GRRF, only the user and the inspector are relevant. Of course the workshop operators are also using the information available from warning signals, but the aim of GRRF regulations is to ensure safety, not to improve the efficiency of workshops to diagnose and repair faults in the safety systems. Each vehicle manufacturer or

independent workshops are developing and using their own diagnostics systems (in-house or from tool vendors), but this question is a matter of free competition, not a matter of safety. Whether the failure is diagnosed and repaired in a cost or time efficient manner is not relevant for safety or roadworthiness of the vehicle. The only relevant matter for safety is that the failure must be properly repaired and the warning signals on dashboard do not show up anymore.

- Ensuring the information of vehicle operational status at traffic accidents or emergency situation in order to clarify the relationship between driver's action and vehicle systems and to promote the accident analysis.
 - Vehicle should store the data of the vehicle operational status at traffic accidents or emergency situation and should make the data available according to the user's demand
 - Vehicle should be equipped with the interface to enable user to access the data.

Is this OBD or event data recorder?

The intention from Japan is "to clarify the relationship between driver's action and vehicle systems and to promote the accident analysis". Is it only this, or is there another intention behind, which could be to define share of responsibility between the driver and the system in case of an accident?

This is a hard point here...

3. Discussion items

- Detection items
 - Contents of information to the driver
 - Standards of information for maintenance
 - Standard of connector (ex. ISO 15031-3 / SAE J1962)
 - Setting the threshold of normal and fault conditions
 - Standard of communication between diagnosis system and vehicle (ex. CAN, Flex-Ray)
- Etc.,,,

Defining the type of connector or protocol cannot be done in UN R79. This is a wider topic than only steering (e.g. braking, AEBS) or even GRRF regulations (e.g. dynamic bending light system in UN R48). Furthermore, this would have a huge impact on the design of the safety systems, using different diagnostic standards.

OICA believes OBD is not a relevant item in the context of Automatically Commanded Steering discussions. The two discussions should be conducted apart from each other, and the first task should be to first define the objectives.

If an amendment to the UN R79 provisions on periodic inspection should be required by the group, we would suggest to keep it minimum and to use existing wording in e.g. UN R131 AEBS regulation, to avoid different provisions for the same purpose in different regulations. OICA approach could then be the following:

OICA approach:

When looking at the definition of an OBD system in GTR 5 (see extract below), we can see that our UN regulations already embed requirements which actually are OBD-related, while not identified as such, e.g. failure detection, classification of failure impact on performance (yellow and red signals in UN R13), warning signals to driver, power-on procedure to check warning signals means etc.

Definition of OBD in GTR 5:

- 3.12. "On-board diagnostic system (OBD)" means a system on board of a vehicle or engine which has the capability of detecting malfunctions, and, if applicable, of indicating their occurrence by means of an alert system, of identifying the likely area of the malfunctions by means of information stored in computer memory, and/or communicating that information off-board.

OICA believes the existing provisions are sufficient to fulfill the need to warn driver in real time, and to indicate present failures to PTI inspector. The text could be also amended to clarify that an electronic communication interface may be used to confirm the operational status of the system.

Proposal:

- 5.5.2. It must be possible to verify in a simple way the correct operational status of those Electronic Systems, which have control over steering. If special information is needed, this shall be made freely available. It must be possible to verify the correct operational status of those Electronic Systems ~~via the serial interface of the standard diagnostic connector (OBD).~~ by a visible observation of the failure warning signal status, following a "power-ON" and any bulb check.

In the case of the failure warning signal being in a common space, the common space must be observed to be functional prior to the failure warning signal status check.

Comments: text taken from the AEBS regulation.

- 5.5.2.1. At the time of Type Approval the means implemented to protect against simple unauthorized modification to the operation of the verification means chosen by the manufacturer (e.g. warning signal) shall be confidentially outlined.
Alternatively this protection requirement is fulfilled when a secondary means of checking the correct operational status is available, e.g. by using and electronic communication interface.