

EGEA proposal for a procedure for an efficiency test to check all sensors and actuators of the brake system incl. ABS and ESC-sensors.

EGEA, the European Garage Equipment Association, regroups 12 national professional associations representing the interests of both manufacturers and importers of garage and test equipment.

EGEA welcomes the European Commission's public consultation on Periodic Technical Inspections (PTI) in order to create, adapt and update policies in this area taking into account the views of both the public as road users and vehicle owners, and the industries and public authorities affected – manufacturers of garage and test equipment, haulage companies, police and licensing authorities, and others.

One of the aims of the Road Safety Programme 2011-2020 is to reduce effectively the increased number of road accidents. We believe that a properly maintained and fully functioning vehicle meeting all safety requirements is less likely to be involved in a road accident. Therefore, EGEA would like to submit some suggestions on the need to efficiently test relevant safety components. It appears that most of the time a visual check and a check of the MIL lamp is not sufficient. As an example, when checking the ABS valves, the MIL might be off but in reality the ABS valves are not working properly.

EGEA position

Efficiency tests on the functionality of driver assistance systems

Practically it is not possible to check the functionality of driver assistance systems like ABS, ESC, brake assistant, etc. under simulated conditions of these systems during PTI.

But it is technically feasible, depending on the availability, to check the efficiency and the plausibility of the involved sensors as f.e. speed sensors, gravity sensors (all three dimensions), rotation angle, steering angle, steering rotation speed, brake pressure, pedal position, brake pad wear-out and involved actuators.

EGEA – recommendation: Inspection procedure to check relevant safety systems.

This procedure has to be considered as an extension of the existing brake efficiency test on roller benches.

- 1) Connect the scan – tool to the vehicle*
- 2) Vehicle enters the roller brake tester with the front axle.*
- 3) Activation of “PTI-mode”(via scan – tool) – “PTI-mode” implies*
 - a) Reading the speed sensors for each single wheel in m/s (km/h) (via scan-tool)*
 - b) Activating the ABS valves for each single wheel (via scan-tool)*
 - c) Activating the EPB (via driver activation point)*
 - d) Reading the steering angle in degrees DEG (via scan-tool)*
 - e) Reading the gravity sensor in all three dimensions (via scan-tool)*
 - f) Reading the internal brake pressure (via scan-tool)*
 - g) Setting the suspension on normal drive mode (via scan-tool)*

- 4) *AVAILABILITY CHECK of “all safety relevant components**” (via scan-tool)*
Identification of the system components and its variants
- 5) *SELF DIAGNOSIS STATUS CHECK of “all relevant safety components**”*
Polling the readiness of the system self tests (via scan-tool) (if available) [done/pending]
Polling the status of system lamp of the system control unit (via scan-tool) [on/off]
- 6) *Check plausibility of the steering sensor / gravity sensor(s)*
 - a) *Start the rollers of both wheel sides*
 - b) *Perform steering movements on both directions*
 - c) *Read the signal from the steering sensor and gravity sensor(s) (via scan-tool)*
 - d) *Check the plausibility of all readings*
- 7) *Perform the brake efficiency test for the service brake for the front axle (in accordance with the actual directive)*
Record the maximum brake force for each wheel (via roller brake tester)
Record the internal brake pressures (via scan-tool)
- 8) *Perform the ABS efficiency test for the front axle*
 - a. *Start the rollers at only one side of the axle*
 - b. *Read the speed sensor (correct sensor(y/n)/ (correct speed (y/n)))*
 - c. *Apply pedal brake force to reach minimum 50% of the maximum brake force achieved at step 7)*
 - d. *Open the ABS – valve completely via scan-tool of the tested wheel.*
 - e. *The brake force should drop beyond a level of 15% of the maximum brake force achieved at step 7)*
 - f. *Repeat a to e with the other wheel side*
- 9) *Parking brake*
If the parking brake affects the actually tested axle then perform the brake efficiency test.
- 10) *Repeat 7) to 9) for the rear (other) axles.*
- 11) *Disable “PTI-mode” (via scan-tool)*

(*) *To be defined by the EU-commission*