
Overview

This standard is about recalibrating sensors in Advanced Driver Assistance Systems (ADAS) following removal and replacement of vehicle units/panels to facilitate vehicle fitting activities.

ADAS includes systems for driver safety, pedestrian safety, motion/stability control and collision avoidance systems.

Performance criteria

- You must be able to:*
- P1 use appropriate personal and vehicle protective equipment when carrying out recalibration activities
 - P2 support the identification of **Advanced Driver Assistance Systems** by reviewing vehicle technical data
 - P3 confirm and record presence and type of **Advanced Driver Assistance Systems and sensors**
 - P4 follow up-to-date and relevant industry codes of practice at all times
 - P5 prepare and check the required calibration **equipment** following manufacturer's instructions prior to use
 - P6 use all tools and **equipment** required for your recalibration activities, correctly and safely throughout
 - P7 use **recalibration techniques** which are relevant to the ADAS system type
 - P8 identify and record any system deviation from acceptable limits
 - P9 carry out all recalibration activities following:
 - P9.1 manufacturer's instructions
 - P9.2 recognised recalibration methods
 - P9.3 health, safety and environmental requirements
 - P10 work in a way that minimises the risk of:
 - P10.1 damage to other vehicle systems
 - P10.2 damage to other components and units
 - P10.3 contact with leakages
 - P10.4 contact with hazardous substances
 - P11 ensure the **calibration environment** is as identified by the manufacturer's instructions
 - P12 **recalibrate** ADAS **sensors** correctly to ensure that they operate to meet vehicle system requirements and function to the vehicle manufacturer's specified tolerances
 - P13 record the recalibration has been successfully completed and meets vehicle manufacturer's specified tolerances
 - P14 ensure your records are accurate, complete and passed to the relevant person(s) within the agreed timescale and in the format required
 - P15 complete all recalibration activities within the agreed timescale
 - P16 promptly report any anticipated delays in completion to the relevant person(s)

Knowledge and understanding

You need to know and understand:

- K1 the current health and safety legislation and workplace procedures relevant to workshop practices and personal and vehicle protection when recalibrating ADAS **sensors**
- K2 legal requirements relating to the **Advanced Driver Assistance Systems** and sensors
- K3 your workplace procedures for:
 - K3.1 recording recalibration activities
 - K3.2 completing and storing documentation relating to ADAS verifiable calibration
 - K3.3 the referral of problems
 - K3.4 reporting delays to the completion of work
 - K3.5 the **calibration environment** as identified by the manufacturer's instructions
- K4 types of ADAS recalibration equipment
- K5 the importance of documenting recalibration information
- K6 the importance of working to agreed timescales and keeping others informed of progress
- K7 the importance of customer interaction relating to which systems can/can't be calibrated
- K8 the relationship between time, costs and productivity
- K9 the importance of promptly reporting anticipated delays to the relevant person(s)
- K10 types of ADAS **sensors** and their function
- K11 identifying the types of **vehicle calibration**
- K12 features of **ADAS system operation**
- K13 how to prepare and check the accuracy of recalibration **equipment**
- K14 the types and causes of Advanced Driver Assistance System failures
- K15 the circumstances which will necessitate recalibration of ADAS **sensors** and other possible courses of action
- K16 how to find, interpret and use sources of information on Advanced Driver Assistance System operating specifications, recalibration procedures and legal requirements
- K17 how to select the most appropriate **recalibration** method for the ADAS system being worked upon
- K18 how to **recalibrate ADAS sensors**
- K19 the need to continually keep up to date with emerging ADAS system technology

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- K20 the legal requirements of dynamic calibration activity on the road
 - K21 the risk and potential legal implications of returning an uncalibrated vehicle to the customer
 - K22 the value of providing the customer with evidence of successful calibration
 - K23 the industry agreed autonomous vehicle capability levels

Scope/range

1. **Advanced Driver Assistance Systems** include:
 - 1.1. driver safety
 - 1.2. pedestrian Safety
 - 1.3. motion/stability control
 - 1.4. collision Avoidance Systems

2. **Tools and equipment** include:
 - 2.1. hand tools
 - 2.2. special purpose tools
 - 2.3. general workshop equipment
 - 2.4. dedicated and computer based diagnostic equipment
 - 2.5. fault code readers
 - 2.6. ADAS recalibration equipment

3. **Calibration environment** includes:
 - 3.1. targets
 - 3.2. lighting
 - 3.3. radar boards
 - 3.4. static, dynamic and combinations of static and dynamic

4. **Sensors** include:
 - 4.1. optical
 - 4.2. radar
 - 4.3. lidar
 - 4.4. ultra-sonic
 - 4.5. sound
 - 4.6. GPS

5. **Recalibrate** to include:
 - 5.1. static
 - 5.2. dynamic
 - 5.3. hybrid systems

6. **ADAS system operation** to include:
 - 6.1. steering
 - 6.2. braking
 - 6.3. lane departure
 - 6.4. driver assistance
 - 6.5. parking

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

Agreed timescales

Examples include manufacturers' recommended work times, job times set by the company or a job time agreed with the customer.

Collision avoidance system

For example, forward collision warning, surround view sound, night vision, lane departure warning, AEB (Autonomous emergency braking), adaptive cruise control and stability control.

Driver safety

For example, night vision, glare-free high beam and pixel light, automatic parking, blind spot monitor, driver drowsiness detector, driver monitoring system, traffic sign recognition.

Motion/stability control

For example, lane change assistance, hill descent control

Pedestrian safety

For example, pedestrian detection and warning systems.

Vehicles

These can be any of the following – light vehicles and commercial vehicles.

Additionally, these vehicles may be SI, CI, Hybrid, Electric or Alternative fuel vehicles.

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