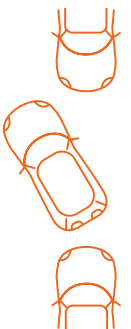
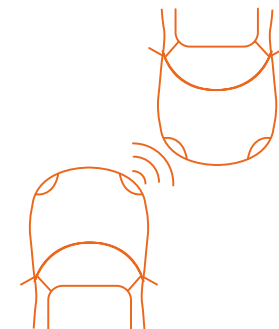
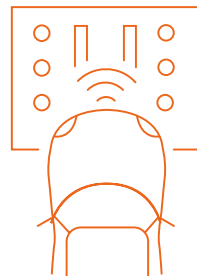




Guidance to support the implementation of:

**UK Insurance Industry Requirements (IIR) for the safe repair of ADAS-equipped vehicles**





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## Overview

### What are Advanced Driver Assistance Systems (ADAS)?

Advanced Driver Assistance Systems (ADAS) provide drivers with active safety support features.

Vehicles on UK roads are now commonly fitted with a wide variety of ADAS offering features with increasingly sophisticated capability.

The increase of ADAS features that support safety critical systems such as braking and steering, make the proper and effective function of ADAS ever more safety critical.

The functions of ADAS features rely on sensors that continuously and accurately monitor the environment around the vehicle, making these sensors a safety-critical aspect of any repair process.

### What are examples of ADAS features?



Autonomous Emergency Braking



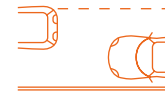
Traffic Sign Recognition



Adaptive Cruise Control



Blind Spot detection



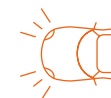
Lane Keep Assistance



Cross Traffic Detection



Remote Active Park Assist



Adaptive Headlamps





## Overview

### What are the UK Insurance Industry Requirements (IIR) for the safe repair of ADAS equipped vehicles?

- The IIR are outlined [here](#)

### Who put the requirements in place?

- The UK Insurance Industry consisting of:





## Overview

### When will the IIR be implemented?

- It is expected that insurers will direct their repair network to comply with IIR by no later than 31st March 2021.

### Why is there a delay in its implementation?

- While it will be possible to comply with the IIR before 31st March 2021, the transition period is set to provide time for those engaged in the claims supply chain to adapt their processes.

### Why are the IIR needed?

- As calibration requirements vary from vehicle-to-vehicle, it is essential that the vehicle manufacturers' technical specifications are met to reinstate the correct function of these ADAS features, so that the safety and functionality of the vehicle is not compromised.

### Why does BS10125 not apply / why is ADAS different?

- BS10125 does apply and ADAS repair really is not different. However, this new technology has caused confusion in the industry and the IIR aim to address that confusion.

### Why is advice needed?

- It is important to provide advice to support those engaged in repair, servicing or maintenance operations, in their responsibility to return vehicles to their fully functioning pre-accident / pre-repair condition and meet the UK Insurance Industry Requirements for Managing ADAS in Repair.
- Note: this advice is not intended to replace the training and expertise that is required from repairing organisations in order to provide safe and effective repairs. Repairing organisations should use their expertise to ensure that any information, process, procedure or specification, used in the repair of a vehicle, is fit for purpose and all repair instructions and guidance are followed correctly. Thatcham Research shall not be liable for any loss or damage incurred in relation to this advice (including as a result of negligence) save for in respect of death or personal injury or any other losses which cannot be excluded or limited by law.





## Overview

### Who made the advice and guidance?

- Guidance on how to comply with the IIR has been developed in consultation with a wide group of industry stakeholders

### Why was the advice and guidance created?

- The advice and guidance has been created to support the industry to meet UK Insurer requirements for managing repairs where ADAS is involved.

Some of the contributors include:



accident repair centres





## Overview

### When do the IIR apply?

- Inspection, realignment and calibration requirements must be considered in all repair situations where any of the following is included within the repair, service or maintenance procedure:
  - ADAS sensors,
  - parts likely to affect the operation and functionality of ADAS sensors, or
  - vehicle geometry
- When specified, inspection, realignment and calibration operations must be completed post repair to confirm that the sensors are functioning within the vehicle manufacturer's technical specification

For example, IIR applies in these scenarios:



Safe removal, installation, repair or aligning of any parts likely to affect the operation and functionality of ADAS sensors.



Making any body geometry changes or changes to the vehicle's wheel alignment, suspension geometry or ride height



Realigning, replacing or refitting any ADAS sensors or associated vehicle parts likely to affect the operation and functionality of ADAS sensors.

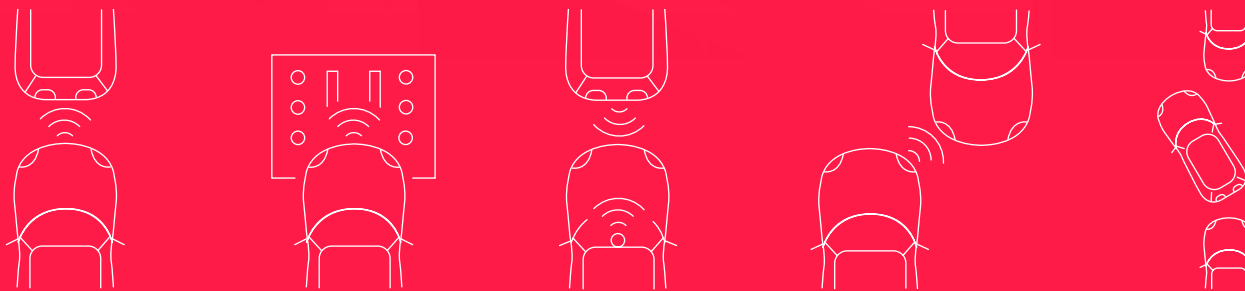




## Scope of the IIR

### What do the IIR say?

- A repairer shall, in all cases:
  - Identify the presence, or not, of ADAS on the vehicle and ensure this is recorded.
  - Where ADAS are present, ensure repair procedures clearly identify if inspection, realignment and calibration are required and why.
  - Complete all relevant inspection, realignment and calibration activities as detailed within the repair procedures.
  - Inspection, calibration, realignment and road tests shall be carried out by a currently competent person.
  - Ensure the calibration results confirm that the sensors are functioning within the vehicle manufacturer's technical specification.
  - Produce fully verifiable and auditable records and provide a copy to the Asset Owner / Work Provider.







## Definitions

### What are the definitions of key terms associated with the IIR or guidance?

- **ADAS** – Advanced Driver Assistance Systems.
- **Calibration** – The act of determining whether the ADAS sensor(s) in question are functioning correctly when compared to the vehicle manufacturer's technical specification.
- **Static Calibration** – The calibration of ADAS sensors by use of specialist calibration equipment and conditions which may include aiming targets, wheel alignment equipment and/or diagnostic tools. The process is carried out without driving the vehicle.
- **Dynamic Calibration** – The calibration of ADAS sensors by means of driving the vehicle on the road following the VM's prescribed method.
- **Self-Calibrating** – The automatic calibration of ADAS sensors without the need for specialist equipment or a prescribed driving profile. There may still be a prescribed process for self-calibration, seek advice from either the vehicle manufacturer or ADAS equipment supplier.
- **Diagnostic Tool** – A tool used to interface with, diagnose, and potentially reprogram or initialise vehicle control modules.
- **Calibration Equipment** – The equipment used in conjunction with a diagnostic tool to meet the calibration specifications.
- **Asset-owner / work-provider** – The entity that has placed the work with the repairing organisation and is paying for the work to be completed. Asset owner could be a lease or Finance organisation.
- **Repairing organisation** – The business contracted to undertake the repair work on behalf of the asset-owner / work-provider.
- **Repair instructions** – A set of methodical instructions for achieving a particular vehicle repair, servicing or maintenance task or process.





## Definitions

### What are the definitions of key terms associated with the IIR or guidance?

- **Competent person** - They will have passed and hold a current competency-based assessment on ADAS calibration, provided by vehicle manufacturers or registered awarding bodies.
  - The competent person will be capable of:
    - Identifying ADAS sensors and the need for calibration,
    - Performing the inspection, realignment and calibration requirements for ADAS sensors and their related components,
    - Be aware of the requirements for verifiable records related to ADAS sensor calibration.
  - The competent person shall be identifiable by a recordable proof of competence.
- **Vehicle Manufacturer's technical specification** – The specification details of the selected feature or system and the requirements for their repair and calibration.

*Note: Such information is available in accordance with type approval legislation - Relevant documents are publicly available on the EU commissions websites; EU 2018/858*
- **Windscreen** – Predominantly referring to but not exclusively limited to the front windscreen.
- **Relevant** – Connected / related to the task being done or considered.





## Process for managing repairs

### When should I follow the process?

- When repairing, removing and refitting, aligning or replacing any ADAS sensors or associated vehicle parts likely to affect the operation and functionality of ADAS sensors;
- When making any body geometry changes or changes to the vehicle's wheel alignment, suspension geometry or ride height;
- When carrying out any other repair, servicing or maintenance tasks which may affect the function of the ADAS sensors on the vehicle.





## Process for managing repairs

### What is the recommended process?





## Triage, Damage Assessment and Preparation

### What should I consider when assessing a vehicle for repair?

- Assess whether the vehicle has active ADAS sensors fitted, which systems they are enabling, and clearly identify the locations of the sensors
- Assess the capability of the repairing organisation to manage the process

### What should I do before I start a repair?

- Before starting any repair, servicing or maintenance procedure that might affect ADAS sensors, assess your capability to manage the process
- Assess whether the vehicle has active ADAS sensors fitted, which systems they are enabling, and clearly identify the locations of the sensors; make use of:
  - Direct questioning of the Asset Owner / Work Provider
  - Researching the vehicle model fitment information.
  - Use of 3rd party VIN or registration look up tools for fitment data.
  - Inspecting the vehicle – for more guidance see under Repair Planning
  - Use Diagnostic Tools to check vehicle data to verify what ADAS sensors are fitted.

- If no ADAS sensors are fitted to the vehicle, the vehicle can proceed through the normal repair, servicing or maintenance procedures; record for audit purposes that no ADAS sensors are fitted and no inspection, realignment and calibration is required.
- Where ADAS sensors have been identified, confirm what sensors are likely to be affected relevant to the repair, servicing or maintenance tasks being carried out and record for audit purposes.
- For each ADAS sensor identified as likely to be affected, confirm and document your capability to carry out the inspection, realignment and calibration of the sensor. Record details of;
  - the currently competent person and their proof of current competency
  - the relevant equipment that will produce auditable and verifiable evidence of a successful calibration
  - any 3rd party to which you intend to outsource the inspection, realignment and calibration of the sensor, including evidence that they meet the criteria of the IIR





## Repair planning

### What should the repair organisation include in its repair plan before they start a repair?

- All inspection, realignment and calibration requirements

### How should the repair organisation create a repair plan?

- Conduct a visual inspection of steering wheel, instrument panel and other areas, looking for controls for ADAS functionality that would indicate fitment. Should there be any doubt after a visual inspection, conduct a pre-repair diagnostic scan.
  - Where ADAS have been identified, confirm what sensors are on the vehicle in question (record for audit purposes).
  - Inspect the vehicle and consider the most appropriate method of repair or replacement.
  - Source repair instructions to support determination of the most appropriate repair or replacement process, taking note of any restrictions identified within the repair procedures and vehicle manufacturer technical data.
  - Determine which ADAS sensors have been affected or will be affected relevant to the repair or replacement process and record for audit purposes.
- Identify which ADAS sensors require which type of inspection, realignment and calibration, i.e. static, dynamic or self-calibrating or combination of these, by reviewing the technical requirements within the repair instructions.
    - *Note: - for dynamic calibration; if this procedure is conducted on the public highway then full safety and legal obligations should be observed.*
  - Determine the repairing organisation's capability to deal with the specified requirements.
  - Confirm the capabilities of any calibration equipment held to ensure the repairing organisation is able to calibrate the full vehicle system.
    - *Note: - equipment suppliers should ensure that information is available, detailing capability at a vehicle make and model level including the date at which the coverage of the vehicle was introduced, on the calibration equipment and which sensors are covered. This information may be required to be available for audit purposes.*
  - For vehicles outside a repairing organisation's calibration coverage or capabilities, identify sub-contractors capable of undertaking the calibration service in accordance with the criteria of the IIR.
  - Develop and finalise the full repair plan and confirm it includes all necessary operations.





# Calibration

## Who should do a calibration?

- All inspection, realignment and calibration activities should be completed by competent persons

### What needs to be recorded?

During and following successful inspection, realignment and calibration the following information should be captured and retained for records and shared with the Asset Owner / Work Provider:

- ✓ name and address of the repairer
- ✓ name and address of 3rd party contracted to complete the inspection, realignment and calibration if outsourced
- ✓ vehicle make and model
- ✓ vehicle registration
- ✓ vehicle Identification Number (VIN)
- ✓ vehicle Mileage
- ✓ date of calibration
- ✓ the competent person's recordable proof of competence
- ✓ the equipment used to calibrate the vehicle systems
- ✓ the creation and maintenance of auditable and verifiable evidence of the calibration result





## Automotive Industry Considerations



### **I'm a Vehicle Manufacturer. What could I do to align with the IIR?**

- When developing and making vehicles available to the market, that have or could have ADAS features available, VM's could provide:
  - access to vehicle data that supports the identification of the fitment location of operating ADAS systems, and their sensors.
  - information on the types of repair scenarios that would result in the need for inspection, realignment and calibration being required.
  - access to processes for the inspection, realignment and calibration of ADAS systems to ensure that the process is auditable and verifiable, sufficient to be sure that the ADAS sensor functionality can be restored to the vehicle manufacturer's technical specification.
  - provision of training information for ADAS calibration that has assessed outcomes to enable proof of competence of the operative.
  - appropriate ADAS technical specifications that enable the inspections of the system's functionality.







## Automotive Industry Considerations



### I'm an equipment supplier What could I do to align with the IIR?

- When developing equipment and / or software to support inspection, realignment and calibration of ADAS sensors, equipment suppliers could ensure:
  - that equipment used to calibrate provides auditable and verifiable evidence of calibration, confirming functionality of the sensor within the vehicle manufacturer's technical specification.
  - that capabilities of calibration equipment, at a vehicle make and model level, including which sensors can be calibrated by the equipment, are maintained and available to users of the equipment.
  - that calibration and realignment repair procedures are provided for all vehicles covered.
  - that verifiable records of calibrations conducted are retained and made available for audit purposes through the software.





## Automotive Industry Considerations



### **I'm a UK Insurer. What do I need to do to implement the IIR?**

- I must be confident of the repairing organisations' ability to manage the complete repair process, including calibration where this is required, and therefore should:
  - communicate my requirements for compliance with the IIR to any contracted repairer to whom I direct work.
  - identify capabilities within my existing network.
  - establish at triage, wherever possible, if ADAS is included on a vehicle.
  - Direct work according to the capability of the network.





## Automotive Industry Considerations



### **I'm a repairer. What do I need to do to comply with the IIR?**

- In accordance with the technical sections of this guidance, repairers should:
  - ensure I have the required capability, through investment in appropriate equipment and training to comply with the IIR or have an appropriate outsourcing procedure, that ensures all work meets the requirements.
  - assess for the presence of ADAS sensors, recording the outcome clearly.
  - research and seek guidance from relevant repair instructions and inspection, realignment and calibration instructions.
  - ensure all inspection, realignment and calibration activities are completed by a currently competent person(s).
- complete system inspection, realignment and calibration in accordance with the relevant repair procedure and vehicle manufacturer's technical specification.
- be able to demonstrate that the calibration of all affected sensors has been completed and the results of the calibration confirms functionality of the sensor within the vehicle manufacturer's technical specification.

