

ollowing on again from the last I-CAR NZ Technical Report of "Which is What with ADAS Calibration and Scanning" we will look at a few more examples that have been addressed over recent years. This includes what we should be aware of in relation to ADAS, Calibration and Scanning. "WHICH IS WHAT" WITH ADAS, CALIBRATION, AND SCANNING.

Tools For Calibration



With all of the new advanced safety, driver convenience, and collision mitigation systems on today's vehicles, there has been a lot of talk about having to calibrate the system following collision repairs. Many industry professionals are wondering when is it required to

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recalibrate the system, which, if any, special tools are required, if a scan tool is required, and if there are procedures available. Here are some answers to these questions.

When a system needs to be calibrated depends on what

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has happened to the system. Most OEMs require calibration after removing a component such as a radar or forward-facing camera. Some need to be calibrated after the component that houses a camera or radar is removed, or when a part adjacent to the component is removed; a windshield replacement, bumper R&I, or side mirror removal, for example. Some systems may need to be calibrated even after a minor collision. To determine if calibration is required, access to OEM information is required.

Special tool requirements vary among the OEMs, but many have the same concept. Most of the tools required for camera aiming resemble some type of target. Some of the targets are available on the OEM's website and can be simply printed off; others need to be purchased.

The target mounting can vary from having to buy a specified stand, to being able to mount the target on a piece of plywood. Radar aiming has a little bit different concept. The radar units detect metal objects so the targets can range from a flat, reflective sheet of metal, to

a pyramid-shaped metal cone. These radar targets must be mounted on nonmetallic stands. These targets and stands are available from the OEM. Some OEMs even require that the vehicle be placed on an alignment rack.

Most calibration procedures recommend the use of a scan tool to initiate the aiming procedure.

The OEMs, calibration or aiming procedures may include specific in-shop procedures, where you need an open, level area and have to make measurements to position the target(s) in the proper place (static calibration). Other procedures require the vehicle to be driven under specified conditions (dynamic calibration), with a scan tool, and the systems will calibrate itself.

Failure to be properly informed about calibration can have catastrophic consequences. Make sure you know how the vehicle you are repairing is equipped, and which systems require calibration.



The Effects Of Wheel Alignment On ADAS

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A great majority of collisions can cause some type of suspension damage, which means a wheel alignment will be necessary. The list of additional steps after a wheel alignment keeps growing with the addition of advanced driver assistance systems (ADAS). These systems need to know what direction the vehicle is travelling down the road in order to accurately make safety corrections and predictions. However, there are still questions on what is required when ADAS and wheel alignments are concerned.

Vehicles equipped with ADAS, especially lane keep assist and collision braking, need to be properly aligned with how the vehicle is traveling down the road. Cameras and sensors use different inputs from the vehicle, such as inputs from the steering angle sensor. If the steering angle sensor is adjusted during a wheel alignment, the forward-facing camera, which controls the lane departure warning, may think the steering wheel is turned. This can signal the vehicle to correct the steering to stay on the road, even though the vehicle is traveling between the lines.

There are numerous OEMs that require the ADAS to be calibrated when a wheel alignment is performed. Some even go to the extent of requiring that the vehicle be placed on an alignment rack during calibration. Others have a wheel alignment as a step in the calibration process.

In order to find out if a calibration will be required after a wheel alignment, or if a wheel alignment is required as a step in a calibration procedure, you should always consult the OEM repair information. Also, many wheel alignment systems will warn you that calibrations may need to be performed after the wheel alignment is completed.

Collision Repair Diagnostics Definitions

As collision repair diagnostics continues there has been a level of confusion over some common terms. A few years ago in an effort to publish inter-industry developed and vetted definitions on three common terms (pre-repair scan, post-repair scan, and post-repair calibration), I-CAR gathered a number of subject matter experts (SME) from vehicle manufactures, collision repairers, insurance personnel, and scan tool manufactures. This group of SMEs met during the International Autobody Congress & Exposition (NACE), to develop and review the following definitions.

Following NACE, the draft definitions were sent to the group for review and edits. I-CAR personnel collected and updated the definitions and then sent them out for final review. The definitions are now final.

Please note, these basic definitions, developed and vetted by the collision repair inter-industry, and published by I-CAR, do not represent an all-inclusive list of collision repair diagnostic definitions or tasks. These definitions do not include diagnostic troubleshooting or repair, nor are they meant to represent when, or how, collision repair diagnostics should be performed.

Always refer to OEM information for scanning, calibration, and tool and equipment requirements. These definitions are intended to differentiate tasks associated with collision repair diagnostics and serve as a foundation for industry professionals.

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Pre-Repair Scan/Pre-Scan/Health Scan (Capturing Codes)

A step in the damage analysis/blueprinting process used to identify errors, faults, and/or damage related, and unrelated, to the collision. Pre-repair scanning is also done to capture diagnostic trouble codes (DTCs). A pre-repair scan is not possible if the 12-volt electrical

system and vehicle communication networks are disabled or cannot be maintained throughout the scan. If a pre-repair scan is not possible because of vehicle damage, it should be done as soon as repair progress allows it to be done safely.

Post-Repair Scan/Post-Scan (Identifying/Clearing Codes)

A post-repair quality control process used to ensure all vehicle system diagnostic trouble codes (DTCs), related to the collision, and those set during the repair, have been identified and cleared. A test drive may be required prior to clearing some codes; some codes may only appear after certain driving distances, key cycles, or other enable criteria have been reached.

Post-Repair Calibration/Initialization (PRC/I)

A required step following the removal, installation, and/or repair of many safety and driver convenience system parts. PRC/I may also be required if there is damage/trauma to the mounting location(s), R&I or R&R of the cameras/sensors/mounting locations, R&I or R&R of parts in front of, or behind, cameras and/or sensors, or R&R or R&I of closure/trim panels. Access to OEM information is mandatory to determine if post-repair calibration is required. A scan tool that has been

confirmed by the tool's provider to have the required initialization/calibration capabilities for the vehicle and model year involved, special tools, and/or a test drive following vehicle maker established parameters may also be required.

Post-repair calibration/initialization may also be referred to as aiming, health check, module setup, relearn, zero-point calibration, initiation, or calibration.



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