

“WHICH IS WHAT” WITH ADAS, CALIBRATION, AND SCANNING.



Since advanced driver assistance systems (ADAS), scanning, and calibration first started becoming relevant, members of the collision repair industry have required as much knowledge as possible on these subjects. But being a mature hands-on person who didn't like schoolwork, I find it difficult trying to get my head around which is what and all the new words and terms that go with this stuff. So, thinking I should check out any articles released that might make this a little easier to understand, I find there are many others like me who have had the same problem, so I-CAR has put together a series of articles that answer all these questions. The I-CAR Repairability Technical Support (RTS) team have compiled a list of some of their

publications that have proven to be the most helpful when dealing with ADAS, calibration, and scanning.

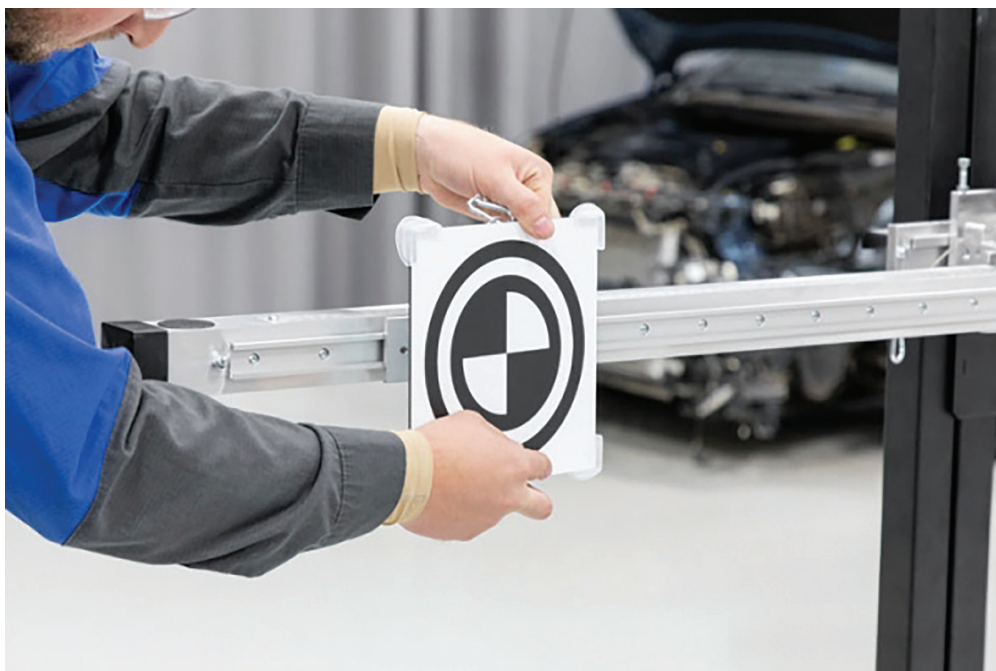
From definitions of commonly used terms, to understanding how each ADAS functions, there's something for everyone. We've broken down the list into easy-to-use categories so you can find the information you require. We will look at the first of these categories "Terms" in this issue and others such as Systems, Scanning, Calibration, OEM Specific and Best Practice in following issues of PanelTalk.

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What is Calibration?

The word calibration is thrown around a lot in the collision industry today, but what does it actually mean to calibrate something? How does "calibrate" fit into other words that we use to describe similar processes, and what are some of the differences?

In a simple way of saying it, to calibrate something means to teach it. The concept is similar to how your parents taught you right from wrong, or where you were and were not allowed to go. Not to be confused with programming, which is more along the lines of giving a computer or sensor the ability to think or learn. When calibrating something such as a radar sensor, you are telling the sensor where it is in relation to the vehicle and where to look.

There are two main types of calibration, static and dynamic. You can think of them similar to the way that people learn. Some people are able to learn by reading a book or being told, whereas others learn better by doing. Static is an in-shop setting where the vehicle is not moving. Dynamic is on the road, driving the vehicle.

In OEM repair information, other words are sometimes used instead of calibration, like initialization or relearn. When going through repair manuals, you may see many of these words used.

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What Is Programming?

Believe it or not, programming has been done now for decades. When on board diagnostics (OBD) became the standard, it brought along a lot of processes that had not previously been needed. Even though many collision repairers have been around this technology for a long time, many still don't understand what programming is or what it is doing. Often, programming can only be done with a high-level aftermarket scan tool or by a dealer with a factory scan tool. For the most part, when a module was replaced, a technician's involvement was to send the vehicle to the dealer with a SRS light on, and it came back without the light on. However, there are more components than ever on vehicles that require programming. For example, you may not be able to change a tail lamp without having to program it. What does it mean to program something?

The definition of programming is to provide a computer, or other machine, with coded instructions for the

automatic performance of a particular task. Which is exactly what we are doing when we program something. To try and better understand, an unprogrammed computer module on a vehicle is like a gas tank with no gas. All of the parts are there for the car to operate, but without gas, it will never function because it has no gas to send out. When you program a module, it is like putting gas in the gas tank. Essentially you are giving the module information to send out so that it can communicate to other modules of the vehicle and allow it to function.

Most times, programming is taking a new module and downloading the data needed from the OEM's scan tool. However, sometimes you may be required to download the data from the old module before it is disconnected. Then the data is transferred to the new module. This is a good example of where checking repair procedures will help you. If you just disconnect the old module and throw it away, you may have a delay when it comes time to deliver the vehicle.

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What Does Installation Mean?

You may have noticed that there are many cameras/sensors, that according to the OEM Calibration Requirements Search, require a system check or a calibration if installed. This statement has brought up questions from the collision industry. What does it mean to install something? If the tailgate that houses the 360° camera is installed, even though the camera wasn't removed from the tailgate, does that qualify as the camera being installed? Let's take a look at how to interpret this information.

The question of whether or not a camera/sensor is installed comes down to: was the camera/sensor removed from the vehicle. Even if the camera/sensor was not removed from the part it is attached to, this does not

mean that it wasn't installed. For example, in order to remove the side mirror from a vehicle, which the camera is a part of, you have to unplug the mirror assembly. Breaking this electrical connection can cause a calibration to be required. Also, when the mirror is installed, there is no guarantee that the position of the camera has not moved to a different position.

So basically, if the camera/sensor requires a system check or a calibration if installed, then you will need to calibrate any time the camera/sensor housing, mounting location, bracket, or the camera itself is replaced, repositioned, removed, or partially removed and installed on the vehicle.

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The Differences Between Scanning and Calibration

Scanning vehicles and calibration of advanced driver assistance systems (ADAS) has been a much-discussed topic throughout the collision repair industry. But what are the differences between the two, and what does it mean for collision repairs?

Scanning

“Often referred to as Pre-Repair Scan/Pre-Scan/Health Scan (Capturing Codes) is a step in the damage analysis/blueprinting process used to identify errors, faults, and/or damage related, and unrelated, to the collision. While a Post-Repair Scan/Post-Scan (Identifying/Clearing Codes) is a quality control process used to ensure all vehicle system diagnostic trouble codes (DTCs), related and unrelated to the collision, and those set during the repair, have been identified and cleared.”

Calibration

“A Post-Repair Calibration/Initialization (PRC/I) often referred to as aiming, module setup, relearn, zero-point calibration, initiation, or calibration is a required step following the removal, installation, and/or repair of many safety and driver convenience system parts.”

The collision repair industry often interchanges these two terms and that will lead to confusion. For example, if you send a vehicle out to the local dealer for a calibration and say, “It just needs a scan.” The dealer will most likely plug in the scan tool and clear codes, then return the vehicle as complete. In most cases the sensors/modules do not know they were replaced or that any calibration is required.

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