What Is Vehicle Calibration and Why Is It Needed?

Many vehicles are equipped with front-facing camera sensors. These sensors are commonly used for automatic emergency braking, adaptive cruise control, lane departure warning, lane keeping assist and automatic headlight high-beam activation and dimming.o do their jobs, ADAS rely on inputs from a variety of sensors that allow the systems to "see" what is happening around the automobile. The most common are camera, radar and ultrasonic sensors. Steering sensors are also used to help determine the direction of vehicle travel. Some systems use information from a single type of sensor, but others combine information from multiple sensors – a process called sensor fusion – to obtain a more accurate "view" of the situation.

Most ADAS sensors are very precisely aimed and require calibration if their positions are disturbed in any way. Consider that a sensor on the car that is out of alignment by a fraction of an inch or even one degree will be aimed at an area significantly off axis 50 or more feet down the road. Misaimed sensors often result from collisions – even a minor fender bender can knock ADAS sensors out of alignment. However, calibration can also be required as a byproduct of common car service work such as windshield replacement, suspension repair or wheel alignment.
Failure to calibrate a sensor when necessary can result in faulty information that will cause ADAS to operate improperly or not at all.

Faulty sensor input can cause:

A warning light or message on the instrument panel
A diagnostic trouble code (DTC) being stored in the vehicle's computer memory
Steering wheel vibration
Vehicle steering pull
Increased steering effort
Problems like these can cause a driver to lose trust in a car's ability to provide safe transportation. ADAS failures may also raise questions about the quality of an auto repair shop's work. Sensor Types: The most common types of ADAS sensors are cameras, radar units, ultrasonic transmitters and steering angle sensors.