

TECHNICAL SAFETY STANDARD

ADAS Windscreen Calibration Guide

Understanding why sensor recalibration is essential following glass replacement or removal

Advanced Driver Assistance Systems (ADAS) rely on precision forward-facing cameras and optical sensors mounted behind the windscreen. These sensors supply critical real-time data to safety features like **Autonomous Emergency Braking (AEB)**, **Lane Keep Assist (LKA)**, **Traffic Sign Recognition**, and **Adaptive Cruise Control (ACC)**. Whenever a windscreen is replaced or removed, calibration restores camera alignment to vehicle manufacturer parameters.

WHY CALIBRATION IS ESSENTIAL

1. Microscopic Misalignment & Magnified Error

A camera angle shift of even 1 millimetre or fractions of a degree compounds over distance. At speeds of 50–70 mph, a tiny misalignment causes safety software to miscalculate physical object locations on the road by several metres—potentially misreading lane lines or failing to trigger automated emergency braking in time.

2. Optical & Glass Curvature Variances

Every glass pane possesses subtle manufacturing differences, glass thickness tolerances, and optical refraction variances compared to original factory glass. Calibration teaches the vehicle's vision software to accurately read the road through the specific optical characteristics of the new glass.

3. Chassis Geometry & Ride Height Shift

Changes in wheel alignment, tyre wear/pressure, or suspension ride height shift the vehicle's thrust angle relative to the road surface, directly altering where the mounted camera looks.

PRIMARY CALIBRATION METHODS

Method	How It Works	Common Vehicle Makes
Static Calibration	Performed in a controlled workshop environment. The vehicle is parked in front of physical target boards/mats tailored to the vehicle manufacturer.	European makes (VAG Group, BMW, Mercedes-Benz), Honda
Dynamic Calibration	Performed while driving on public roads at specified speeds and conditions while plugged into a diagnostic tool that maps road markings.	American & Asian makes (Ford, Hyundai, Kia)
Dual Calibration	Requires both static target alignment in the workshop followed by a dynamic road calibration drive to complete setup.	Select luxury and high-tier safety platforms

SAFETY & COMPLIANCE NOTE

If an ADAS system remains uncalibrated after windscreen replacement, assistance features may disengage without warning, misinterpret surroundings, or falsely trigger emergency braking. Standard insurance guidelines and vehicle safety standards require recalibration whenever windscreen glass is replaced or camera hardware is unmounted.

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