

TECHNOLOGY IN TRANSITION

When it comes to the efforts needed to recalibrate and repair advanced driver assistance system (ADAS) technologies in the event of an accident or incident, it's fair to say that for a long time, the commercial vehicle sector was playing catch-up to the passenger car world. Now, however, one systems supplier at least claims recent breakthroughs have led to big changes, making it more akin to a 'plug-and-play' situation, where screen-mounted cameras and sensors, such as pictured above, can be simply remounted on new glass and allowed to recalibrate themselves in a matter of minutes.

In the past, the recalibration efforts required manually checking, with the use of target boards at specified distances (such as the Beissbarth system pictured below). Now, however, things have moved on. "There have been requests for many years from the industry to make the recalibration process automatic," explains Pierre Gompertz, product line director for automated driving at Magna. The Tier One supplier has worked on systems to smooth the repair process for end users.

Advances in ADAS componentry have made replacing and recalibrating the systems much easier than it used to be, but challenges still remain. John Challen explains all

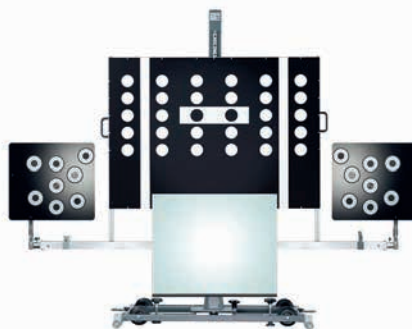
Now fully automated, the Magna solution goes through two sets of calibration. "There is one calibration that we do ourselves when we build the camera, because we need to make sure all the components are going to work properly together and create the baseline, because all cameras are slightly different," he explains, adding it is what Magna calls intrinsic calibration.

"Then there is extrinsic calibration, which is done when the camera is

mounted on a replacement screen," he continues. "There are big tolerances on the mounting - usually it's 2.5° - and even the offset of the camera will lower up to 10cm. But when you drive a certain distance, the camera will recalibrate itself." Gompertz didn't specify an exact length but hinted that, when referring to the Magna system specifically, the process would be completed in less than 200m.

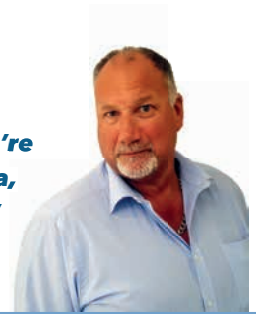
What gives companies such as Magna confidence in their products is the work that is done before the ADAS technology leaves the production line. "We have an extensive end of line test, which applies to all products," he explains. "When the camera goes through production, it is given a certificate that details all the parameters of that exact camera. So when it's delivered to an aftermarket outlet - such as a dealership - it is ready to be mounted. To make it easier there are clips now attached to the windscreen, instead of having to glue it on."

In fact, Gompertz says one of the biggest issues is ordering the wrong parts but, even then, the mistake is pretty obvious. "Even within the same platforms and brands there are so



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many different cameras, so making sure you get the right windscreen and the right camera is becoming more and more difficult. That’s where dealerships and repairers need more training now - helping them to identify which screen and camera is required. But, if you get the wrong windscreen or camera, you simply won’t be able to fit it. There are special patterns when you clip them and if you have the wrong one, it just will not work.”

CLEAR CALIBRATIONS

Not all systems are as advanced as the Magna technology, however. From the glass supplier’s point of view, more caution is being urged. Autoglass recently announced four new ADAS recalibration centres around the country for passenger cars and LCVs, such is the demand for the service.

When it comes to HGVs, however, Tim Camm, technical training manager at Autoglass, says most operators still require the traditional calibration process to be carried out either on their premises, or where the issue has occurred. He also believes that as ADAS becomes more advanced and commonplace, there will be an even greater need for compliance.

“There’s a lot more to ADAS now than there used to be,” he reasons.



“Therefore, you’re getting what we call fused systems - a combination of camera, radar, LiDAR, all talking to each other to make the decisions. The technology on trucks has moved to that from a black and white camera, so the new developments present many challenges on the system.”

Camm says Autoglass has just started looking at its HGV offering and says the biggest obstacle is calibration. “We won’t fit a screen where we can’t recalibrate,” he says. “And the reason we often can’t calibrate is because you have to present the camera to a target board for alignment. Then you have to follow a drive cycle, which is completed under normal road conditions, checking road markings, etc, which adds to the complexity.”

The Autoglass provision for LCV is also being looked at, because the company uses a Bosch DAS 3000 calibration system, which only goes up



to LCV-sized vehicles. As part of a trial, it is working with ‘a major fleet’ and the strategic hub will be in Leicester. “We’re going to run it at one of the operator’s sites and with a specific small fleet of vehicles, but a fleet that is wide-ranging,” he explains. “There are five manufacturers represented, for example.”

FIT FOR PURPOSE

Within Autoglass, there are specific technicians - called ‘specials’ - who cover everything from LCVs to motorhomes to HGVs, as well as some plant machinery. “They use specialist vans because they are carrying bigger pieces of glass. They also need need access equipment to work on these vehicles, which is required under our health and safety standards. The tooling is the same, but training-wise they will do the same as passenger car, but also an extra module and need different licences. All are trained to IMI Level 3 accreditation. Anyone doing ADAS must have more than three years’ experience before they can work on those systems.”

A final word of warning comes from Camm in relation to upcoming legislative changes. “There’s a British Standard coming in March 2023 - BS:au242 version 2020, (which replaces Standard 242A) - relating specifically to where you can repair and what you can repair on windscreens. If the impact is in a certain part of the zone where there’s any ADAS or visual display - including head-up displays - it has to be replaced, not repaired.” **TE**

OTHER ADAS SYSTEMS

Away from the main windscreen-mounted technology, there is also a big need for recalibration. Essentially, workshops are still liable for ensuring the necessary checks are made when maintenance or repairs are carried out, so it is vital that sensors that control other functions such as lane keeping assist are properly calibrated. ATS Euromaster has warned of insurance being invalidated if those carrying out repair work don’t ensure best practice.

“More and more vehicles come to us for work now that will require ADAS recalibration that the customer just isn’t fully aware of,” says Mark Holland, operations director at ATS Euromaster.

Holland gives the example of changing a car’s tyres and the need for wheel alignment. “You need to ensure the radar and the front camera are recalibrated to factory settings, otherwise it may not work correctly,” he reasons. “We’d also advise fleet managers to ensure their drivers know to take their vehicle in for fault analysis if one of the ADAS dashboard warning lights come on,” he says.