Seeing the future through a windscreen

Friday, 04 October 2013: Twenty years ago a driver with a smashed windscreen would contact an auto glass technician. The technician would match the glass, replace it, the adhesive would cure and the motorist would drive away.

These days it’s not so simple. Complex new technologies present in late model vehicles have transformed the requirements and responsibilities of the modern auto glass technician. Here, the newly formed Auto Glass Association (AGA) considers these changes and their potential impact on the industry.

“A windscreen is not just a pane of glass anymore,” comments Murray McGrath, President of the AGA. “As well as being central to a vehicle’s safety restraint system, modern windscreens can control cabin temperatures, prevent accidents, provide directions and tune radios. These developments have irrevocably changed the role of the autoglazier and the face of our industry.”

Here are some of the latest developments in windscreen technology.

Low E
Arguably the most significant development in windscreens of the past decade is Low E glass. As well as controlling heat in summer, Low E coatings improve the insulating properties of glass to offset the loss of free solar heat during winter, so providing both cooling and heating savings in all climates. It also reduces night glare, effecting the comfort and safety of the driver.

A microscopically thin and transparent coating of silver is sandwiched between layers of anti-reflective metal oxide coatings within the glass. The coating is ‘spayed’ onto the inner surface of the outer glass of the windscreen, next to the PVB. As it is protected between two layers the coating will last the lifetime of the windscreen.

Low E windscreens are distinguished by a light blue appearance, quite different from other solar glass.

The autoglazier must be experienced in the identification, repair and replacement of Low E glass as the coating can affect e-tags, antennas, etc.

HUD
New advances in HUD (head-up display) technology are announced almost daily in the auto world as manufacturers strive to dominate this high-tech field.

A small square depression on the dashboard contains a projector and mirror system that beams a clear, high-contrast image onto the windscreen, directly in the driver’s line of sight. According to BMW, positioning data in the driver’s sight line allows it to be processed up to 50% faster.

The screen displays data such as directions, speed limits, pedestrian alerts and urgent warning signals.
The name HUD originates from a pilot being able to view information with their head up and looking forward, instead of angled down looking at lower instruments. Initially developed for military aviation, in 1988 General Motors introduced HUD to automobiles.

A special windscreen is required for the HUD system to project a clear image. If replaced by a normal windscreen, a blurred double image will appear due to the reflective index.

**Rain sensors**
Infrared technology is used to detect the presence of rain, snow or debris on the windscreen, triggering the wipers to keep visibility unobstructed at all times without driver intervention. The wiper speed adjusts automatically according to the intensity of the rain or speed of the vehicle.

The rain sensor is typically located at the top of a windscreen, behind the rear view mirror.

**Light sensors**
Changes in external lighting conditions can be detected by light sensors, e.g. at dusk or when entering a tunnel, to automatically turn on the headlights.

The light and rain sensors are often found in the one unit, or are positioned next to each other on the windscreen. If the model does not have a rain sensor, the light sensor is usually embedded into the instrument panel and not on the windscreen.

**Humidity sensors (condensation sensors)**
Humidity levels and surface temperatures are continually monitored to prevent misting of the windscreen and maintain a comfortable interior for passengers.

In most cars, a humidity sensor is attached to the windscreen with soft double-sided tape. Auto glass technicians must be able to remove the sensor with a razor blade without destroying any of the circuitry, then replace it on the new windscreen in the exact position. Some car models need a new sensor when the windscreen is replaced.

**Lane departure warning**
A warning sound is emitted from the speaker when the vehicle moves outside of the lane without the indicator. A camera mounted at the top centre of the windscreen monitors the vehicle’s proximity to lane markings and determines whether or not it’s about to stray from its lane.

**Acoustic**
The engine, road rumble, wind noise and resonant vibration all contribute to noise within the vehicle. Superior acoustic performance is achieved with acoustic laminated glass, which contains a special deadening layer to significantly reduce the transmission of high and low frequency noise.

An acoustic PVB windscreen looks the same as a normal one, so it can be hard to determine whether a windscreen has acoustic PVB or not. Text or pictogram in the compliance mark on the glass will indicate this feature.

**Antenna**
Wire antennas are now combined into the laminated glass or printed onto the glass, replacing the old telescopic pole or shark-fin antenna.
**Full wire heater**
To ensure the visibility zone directly in front of the driver remains clear, wire heating lines are applied to the PVB before the windscreen is laminated. These lines remove ice, frost and fog by generating heat.

**Wiper park heater**
In cold climates, wipers can stick to the windscreen when they are in rest. A wiper de-icer or wiper park heater frees the wipers and keeps them pliable to ensure they cover the full wiper arc. Some models are activated by a button and others work automatically.

What was once a simple piece of glass is now an elaborate grid of different technologies, each playing a vital role in the performance, comfort and safety of a vehicle. For some time now, the onus has been on the individual auto glass technician to stay abreast of developments to ensure their work practice complies with modern standards and new recommendations from vehicle and glass manufacturers.

Murray McGrath comments, “The Auto Glass Association was launched this year as we saw the urgent need for an independent industry body to help Aussie auto glass technicians stay on top of this ever-changing field. Now more than ever our industry needs access to reliable information, updates and training.

“The first order of business for the AGA will be to review the standards relating to the repair and replacement of windscreens in Australia, and based on that review, provide recommendations for updates. From this we will develop a training program that focuses on the obligations of the technician and the safety of motorists,” Murray concludes.

Aussie auto glass businesses interested in joining the AGA can visit the new website at [www.autoglass.org.au](http://www.autoglass.org.au) or email info@autoglass.org.au for a registration form.

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**About the AGA**
The independent Auto Glass Association (AGA) is a central conduit for communication, training and representation operating in the interest of the entire Australian auto glass industry. AGA members comprise manufacturers, suppliers and technicians across the country that are serious about upholding the standards.

The provision of credible, unbiased information and advice is one of the AGA’s most important mandates as it serves its members through a code of practice, training program and marketing support.

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