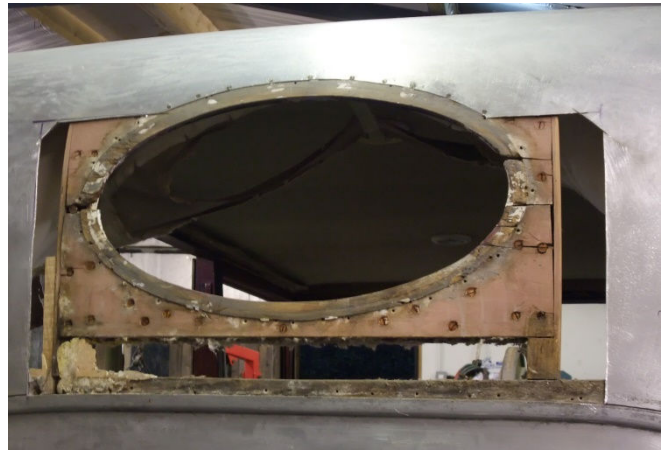


## Window glass – replacing a curved rear window

Tom Jones

The wood frame surrounding a window is sometimes damaged by water seeping between the glass and the frame. After all, our cars are nearing 100 years old. Not until my 1927 Hooper GXL39 was being stripped for a bare metal respray did I notice that the wood frame was beginning to rot, see photograph. I also noticed for the first time that the rear oval window



glass was curved to follow the shape of the D-back. This immediately caused a problem; I could not re-fit the glass because it was cracked, and being standard 4mm window glass it would be illegal to use it anyway! I could have replaced it with a piece of plane Triplex or toughened glass (the wooden window frame had to be re-built anyway) but I decided to look into obtaining a proper curved replacement window.

I discussed the possibilities with my local glass specialist, and local windscreen agency. They were extremely helpful: the former said a piece of glass could be cut oval, curved in a furnace over a mould of the correct profile, and then toughened by heat treatment. As a one-off it would cost “thousands rather than hundreds”. The windscreen agency said they could try and find a laminated windscreen of the correct profile and cut an oval from it. In their experience even if they managed to find a donor windscreen of the correct profile, the chance of successful cutting would be low, and they would only have two chances per expensive donor windscreen. Then they suggested polycarbonate sheet which is often used for side and rear windows in off-road vehicles because it is so tough. Kindly, they gave me sufficient 4mm polycarbonate sheet to carry out my own experiments and make several windows.



After researching on the internet and experimenting with our kitchen Aga oven, I succeeded in making an acceptable window. The process is quite exacting: first the polycarbonate must be heated to about 115°C for a several days to remove water (the Aga was most useful here). Water is a by-product of the polymerisation reaction and remains dissolved in the solidified plastic. If the water is not removed, it will form steam bubbles when the plastic is heated to the higher temperatures needed for bending: the plastic then becomes opaque, see photograph, left.

Using the old glass window as a template, I cut the correct oval shape from the polycarbonate sheet. Then, again using the old glass as a template, I made a former of the

correct profile, shaped like the cross-section of a model aeroplane wing, from wood with a thin plywood skin. The fully dried polycarbonate sheet is held over the former and heated to about 175°C until it softens and drapes onto the profile.



**Old glass and wood former for shaping the polycarbonate**



**Repaired rear window frame – outer**



**Repaired rear window frame - inner**



After cooling to room temperature the inside curved surface was not quite perfect because of the texture of the plywood. I could have repeated the exercise using polished stainless steel for the curved surface, however I decided to remove the roughness from the inside surface using a professional glass polishing kit that I borrowed.

The result was nearly perfect and fitted the rebuilt window frame exactly!