



How To

Refurbish alloy wheels

Refurbishing and diamond-cutting alloys has changed beyond recognition in recent years. Here's how to get yours looking as good as new.

In the wheel world, diamond cutting is the daddy. That super-bright shiny surface that isn't polished is just the result of running a diamond-tipped cutter in a controlled manner across the surface of the wheel to produce that distinctive, clean look.

But it's never been easy – traditionally, the practice has meant making a pattern for a copy-lathe to follow. This has to be ultra-precise otherwise you run the risk of ruining the wheel's profile – and this takes time and effort with the consequential impact on the price.

Yes, you can buy new, diamond-cut wheels at bargain prices but then you could be running the same as everyone else. And what happens if you kerb the wheel, or the winter weather does its worst?

The answer has always been wheel refurbishment, and as it's been a while since we looked at the process – it's been seriously updated!

Info

Contact:
Paint It UK
01277 634968
<http://paintituk.com>

We dropped in to see Ash Lambert's Paint It UK outfit based in Essex. They can completely strip and restore your wheels using the latest processes. Paint It UK's plant is impressive – they can remove the most stubborn lacquer, shot blast and repair rim damage, powdercoat them and then do the all-important diamond cutting in the most modern and efficient way.

The shape of the wheel can be traced by a probe linked to a computer. Its co-ordinates are then read and that shape is instantly plotted. This is fed into a CNC lathe and the profile is accurately traced, cleaning the wheel to near perfection.

To demonstrate how it works, Ash showed us the whole process on a set of previously manky RS four-spokes. OK, we'll admit we cheated just a tad to get the whole lot done in the time we had available – not every wheel in the photos is the same one – but it does show the whole process from start to finish. Here's how it's done.

REFURBISHING OLD WHEELS

The whole process is great, but you have to bear in mind that you are dealing with old wheels – as they say, bad things happen and you really don't know what's hidden in the depths of the casting. There can be pockets of air – , and equally, areas with trapped gases and maybe even some fluids. These can have an effect on the surface finish and can bubble through. Obviously, Paint It UK will do their utmost to ensure you get perfect wheels but sometimes things can go beyond even their control – they've been known to strip even near-perfect wheels back to square one because of the most minor imperfection – but they're not gods and some things can be beyond their control.

On the whole it's alloy wheels they specialise in – magnesium alloy is another kettle of ball games and you'd really have to seek their advice, although it's not something they reckon is generally successful. They will also powdercoat steel wheels and can even straighten them, too.



EXPERT CLINIC

You have the problems? Our experts have the solutions.

84

CUSTOM BRAKE GUIDE

How to choose the right callipers and discs for your car.

88



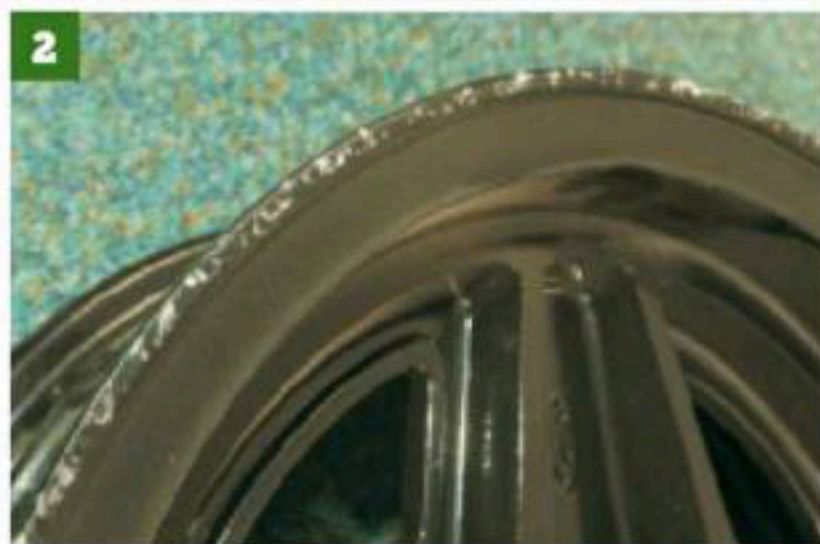
ON TEST: PAINT RESTORERS

Six of the best paint restoration products tested and rate.

92



Here's our manky four-spoke that someone's previously rattle can painted in black. It's already pretty straight, although Paint It UK can correct bent rims by heat treating, too.



There's only minor kerb damage, which will come out when the wheel is diamond-cut. Anything more than this will probably need grinding back and material added by TiG welding — we'll come onto this shortly.



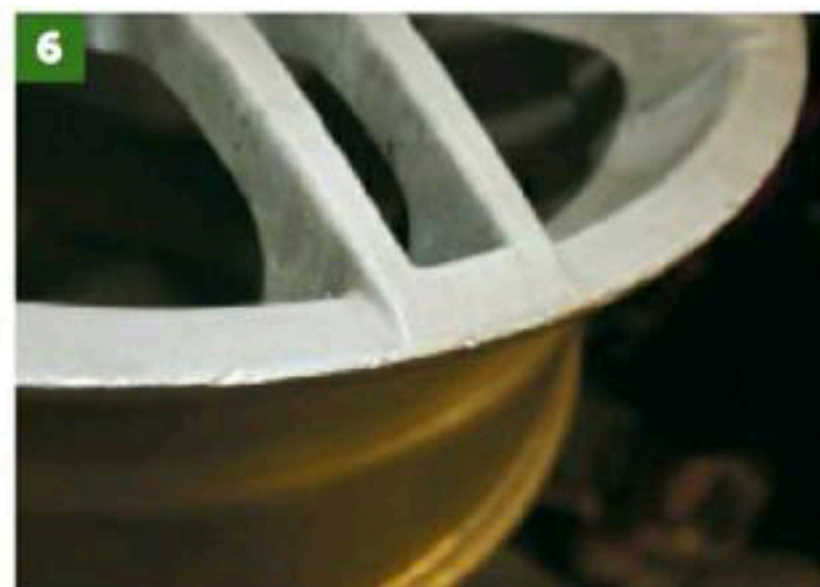
First the wheel needs stripping, which is why you hand your rims over to a specialist because the chemicals they use are extreme and of course you need the correct licence to be able to use them. They work, though — the most stubborn lacquer is removed in no time.



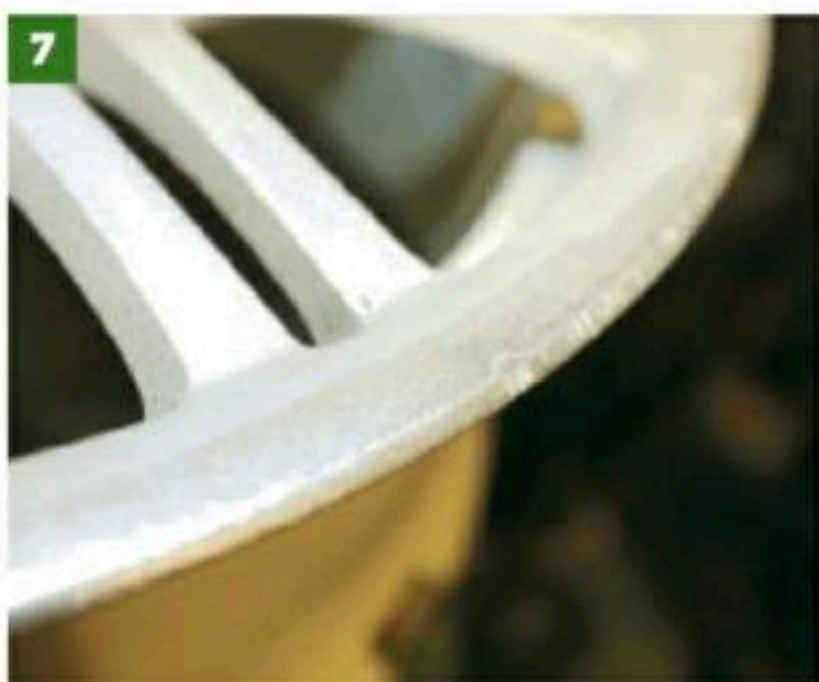
Neutralising's the next step with yet more chemicals followed by a thorough pressure washing, which blasts off the remaining paint or lacquer.



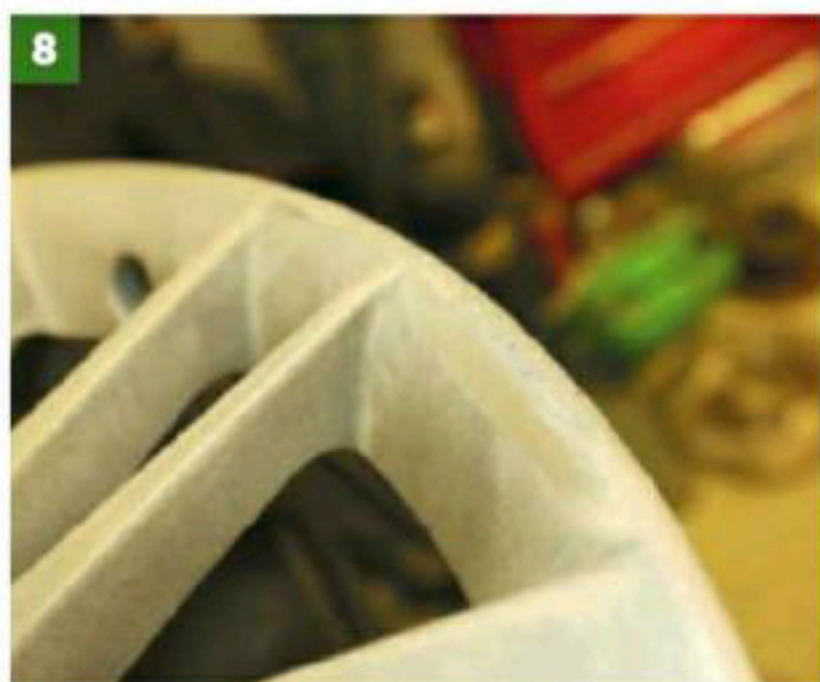
After the wheel's dry, Ash shotblasts the rim, which will clean it of any stubborn staining, especially to the back since that bit's not usually diamond-cut. It should also give a better idea of how damaged the rims actually are and how much repair's needed.



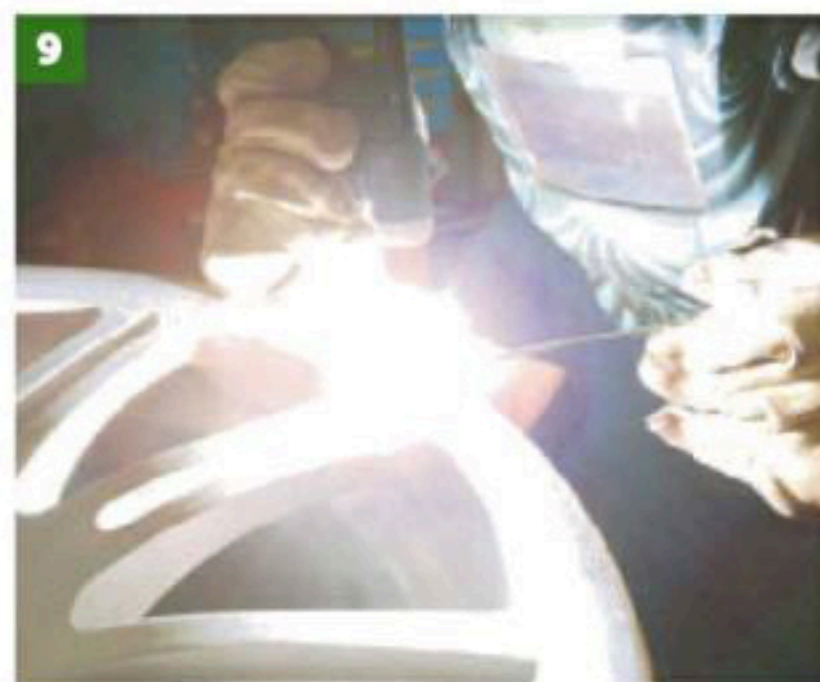
Admittedly, these aren't four-spokes, which is good news since they're not that badly damaged — these examples are more typical of the kerb damage you'd expect, especially some of the cheaper wheels that seem to be made from cheese.



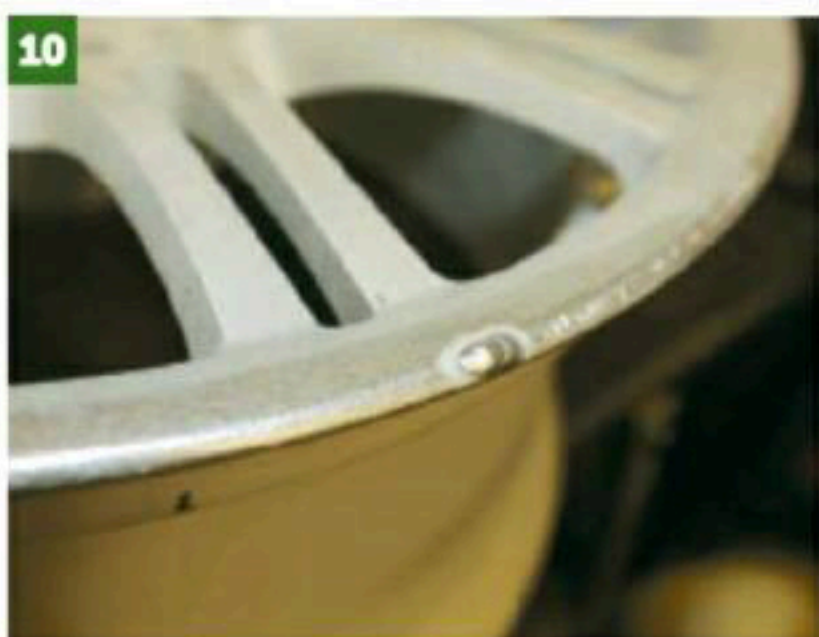
This chunk would need some proper remedial attention — this can simply be welded up as-is but...



...more extreme damage needs to be completely ground out. This wheel's rim is flattened...



...then Ash TiG welds some material into the area to build it up.



This is then roughly knocked back — although its shape doesn't have to be perfect as they can do that bit on the CNC lathe via diamond-cutting.



Once all the damage has been repaired, the wheel can be prepared for powdercoating — first it's heated in Ash's enormous ovens that'll hold 64 wheels at a time in racks.



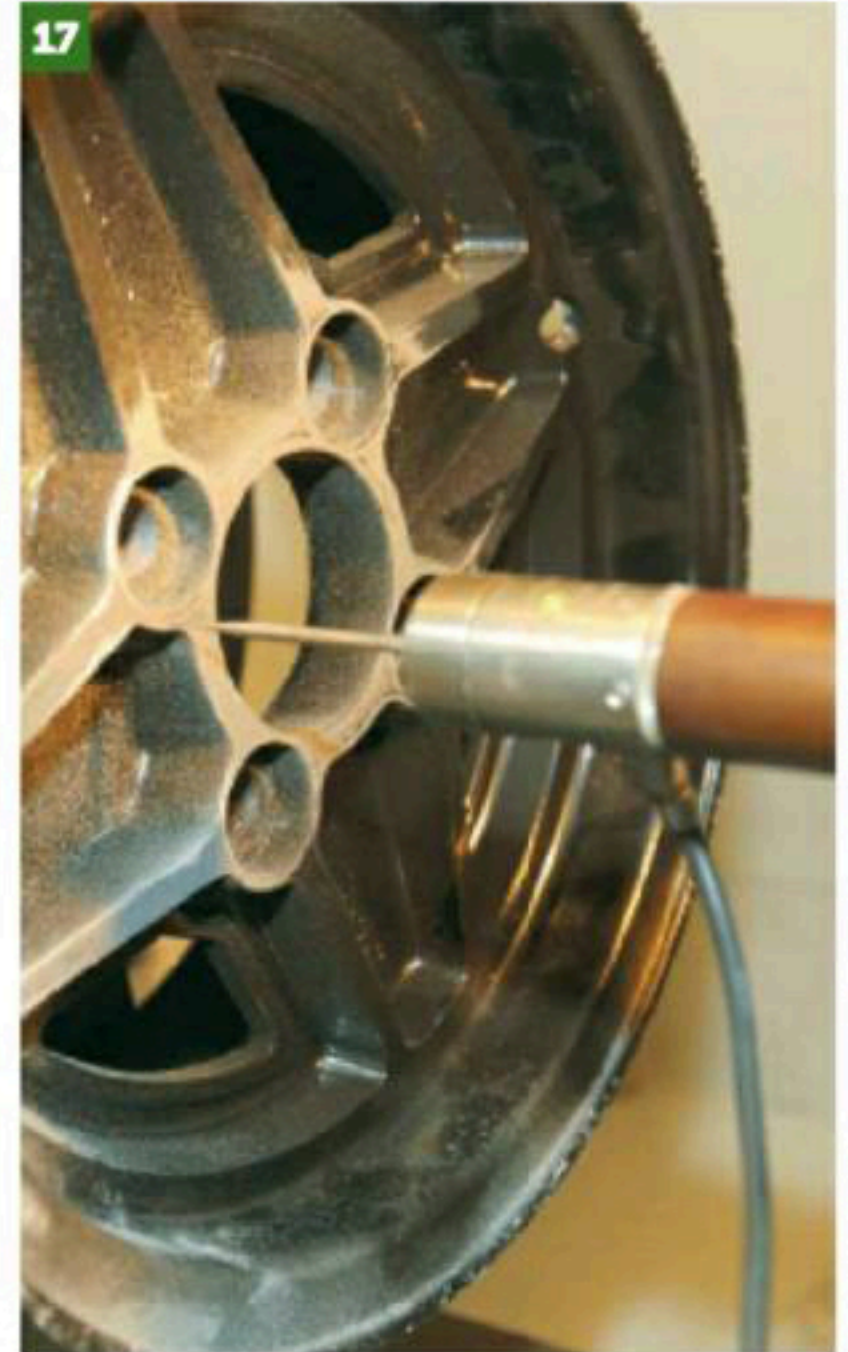
Our RS four-spoke will be pretty hot by now and it's hung up on a purpose-made hook that allows clearance all the way around the wheel. This is attached to a sliding track mechanism.



Next, powdercoating, which is done with an electrostatically charged gun. The powder goes on dry but it sticks to the metal because of the electrical charge running through it.



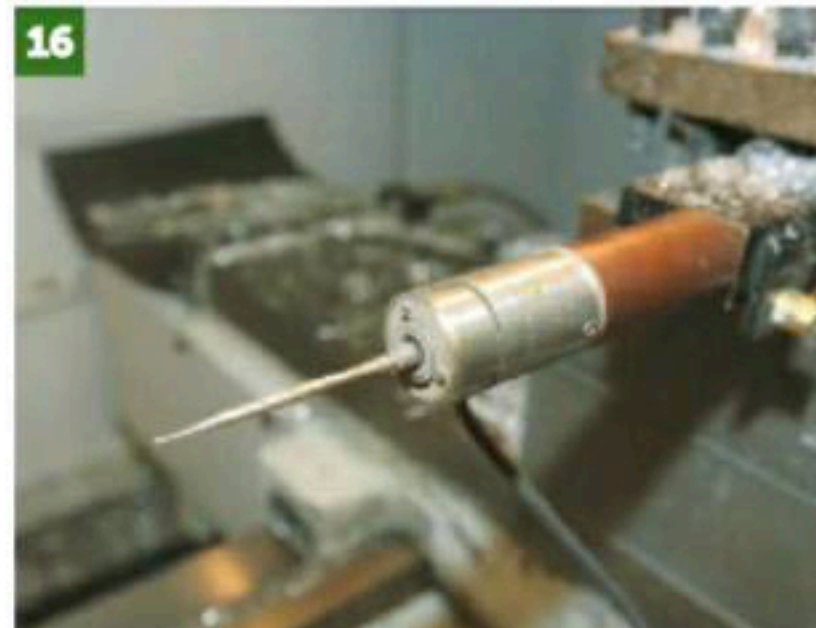
Ash works his way round the wheel until it's completely coated, back and front – it's now ready to go back in the oven and heated again, so that the powder flows and smooths out to a gleaming, bright finish.



The probe is drawn into the centre of the wheel – but you can't simply trace straight across because there are depressions in the wheel's centre. Therefore, it takes a bit of stopping and starting to rotate the wheel clear of the depressions.



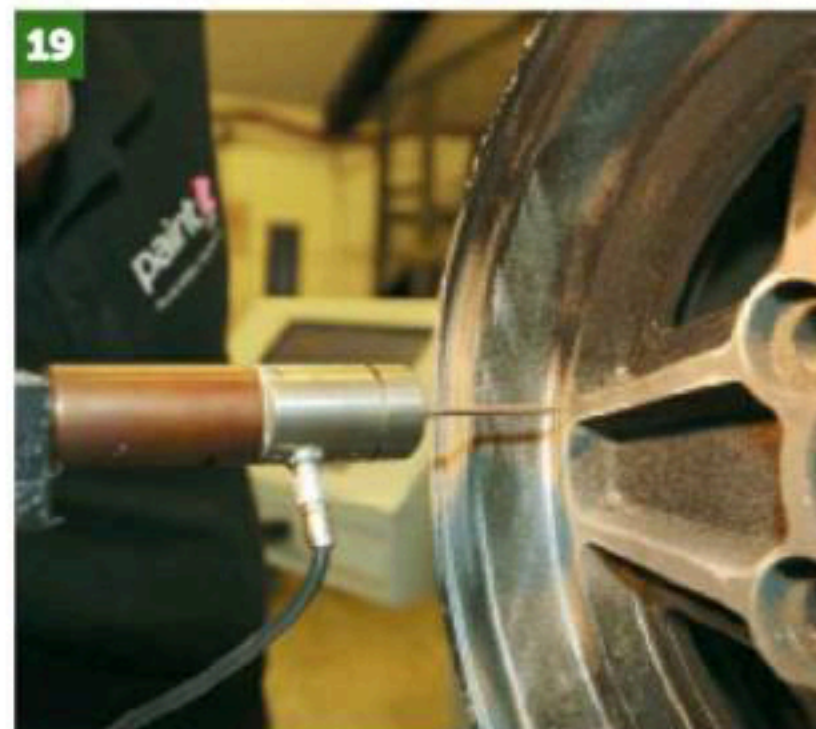
Once it's cooled down, Ash can mount the wheel in to the CNC lathe. Yes, this is an earlier wheel which was already black, so they did the diamond cutting out of sequence.



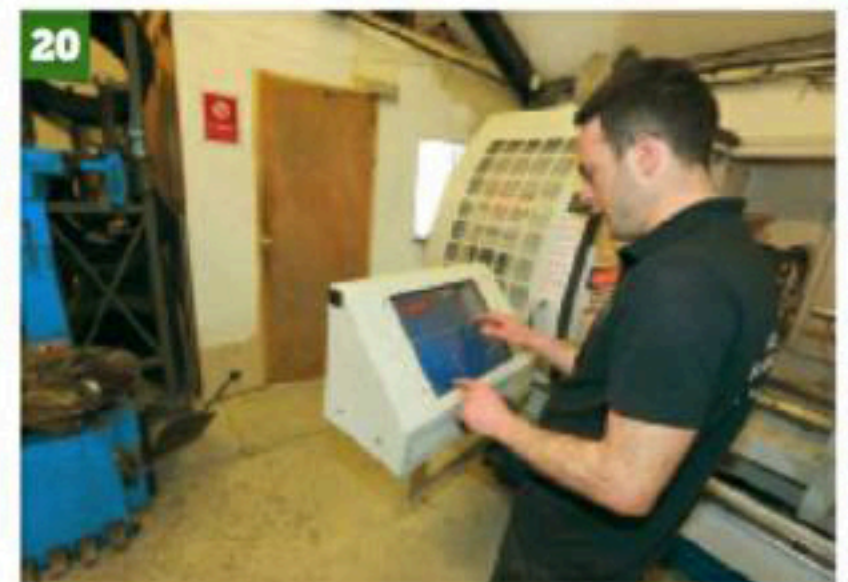
Now the good bit — this is the probe that Paint It UK use to trace the profile of the wheel, which is linked to a computer.



Ash can manually move the probe via a joggling device, while rotating the wheel itself manually...



...ending up at the extreme outer edge of the rim.



All the time, the co-ordinates of the wheel's surface are fed into the on-board computer and a programme is written, which will later control, the cutter.



Displayed on the computer's monitor is the profile of our RS four-spoke, which Ash will use for all four of the wheels — that's it, done, we can now cut the rims.



Ash starts the diamond-tipped cutter in the centre of the wheel and the computer does the rest, moving the cutter across following that profile via CNC.



23 It will take several passes to get out all the damage and possible salt staining. It's not an infallible process though – some staining can go way too deep.



24 But the majority comes out, leaving that classic super-bright finish we all love — but we're not finished yet!



25 Next step is to deburr all the edges, which is done manually with a very sharp deburring tool. This simply rounds the edges over so you can't cut yourself.



26 The last process begins: lacquering. The wheel is again put into Paint It UK's racks and put back into the oven to heat it to a very high temperature.



27 Ash uses a completely dedicated, clean booth for this bit, but the lacquering is exactly the same process as the coloured powdercoat.



28 When it's coated, the entire wheel goes a milky white – handy because Ash can see exactly where to spray the powder and therefore, not miss any.



29 It does look a bit weird, but don't panic though because once it's heated, it'll all go clear!



30 Straight back in the oven now for a tonne more heating...



31 ...and voila — one perfect RS four-spoke!