



**1960 FACEL
VEGA HK500**

No two Facel Vegas are ever alike so getting this car's front proportions right involved the manufacture of a special one-off plywood buck created by a laser scanner

EPIC RESTORATIONS

'We cut the entire back end off'

Making this abandoned restoration Facel Vega perfect again involved every technique from panel beating to laser scanning and 3D printing

Words NIGEL BOOTHMAN Photography LAURENS PARSONS



It could be a restorer's absolute worst nightmare: a rare, hand-built car with many unavailable body and trim pieces, bespoke glass, a one-off dashboard and technical shortcomings that were never addressed by the factory. You can almost hear the sound of hair being torn out.

So why did the owner and restorer Hans Ruhé (opposite page, top) take on this 1960 example that had languished part-dismantled for more than 30 years? Simple. You might have been able to buy a useable Facel Vega HK500 for £25,000 ten years ago; its relatively low profile, American V8 engine and high restoration costs kept values down relative to thoroughbred Italian equivalents. But things are looking up for Facel Vegas these days: you may have to add a zero to that £25,000 if you want a good one.

To call the car in our pictures 'a good one' would be to damn it with faint praise. It has been restored using a mixture of the traditional and the ultra modern – literally hammers and laser beams. The end result is like no other. It includes subtle 21st century solutions to Fifties design issues and while it looks worthy of an investment vault, its new owner entered it into two road rallies before the work was even completed.

METALWORK

'One Facel Vega's hand-made body trim won't fit another'

The dismantled hulk that Hans Ruhé (opposite) acquired ten years ago was clearly going to need a lot of new metal; rust had taken a severe toll on almost every panel and box section below the belt-line. The chassis hadn't escaped either, though its sturdy twin-tube construction meant it was in a less parlous state than the body. The early phase of the restoration took place in Ruhé's home town of The Hague before being transferred to Classic Job for the remainder of the work.

'We had to cut the entire back end off,' says Ruhé. 'It was the only way we could renew the inner wheelarches thoroughly and efficiently. We also found some bodged repairs of accident damage in the left rear wing.'

Mounting the body on a jig and bracing it internally maintained the three-dimensional stability required to replace the sills, floors and transmission tunnel. One tricky job was repairing the base of the C-pillars. This area would not only be highly visible but also had to fit the rear screen glass, calling for immense patience. The team welded sections of flat bar inside each C-pillar before cutting away the rusty lower section and fitting extra cross-bracing into the rear window aperture to make sure it stayed square. The repair pieces welded into the gaps had to fit three separate pieces of external brightwork on each side as well as the rear screen.

'It's important that every piece of trim is present when you buy a Facel Vega,' says Hans. 'It was hand-made and usually body numbered – try to use it on a different car and it won't fit. Having to create or convert trim can incur considerable additional costs.'

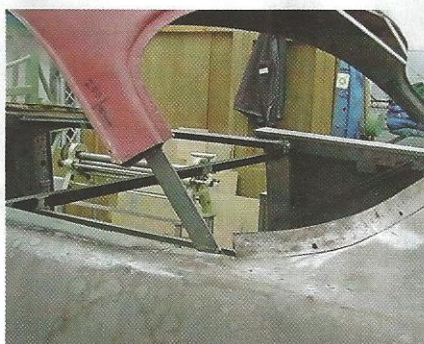
Hours taken: 600.

EXPERT TIP

'You need to check the fit of everything throughout the project after welding and priming every time. Being merely correct to the nearest millimetre can cause problems in some places.'



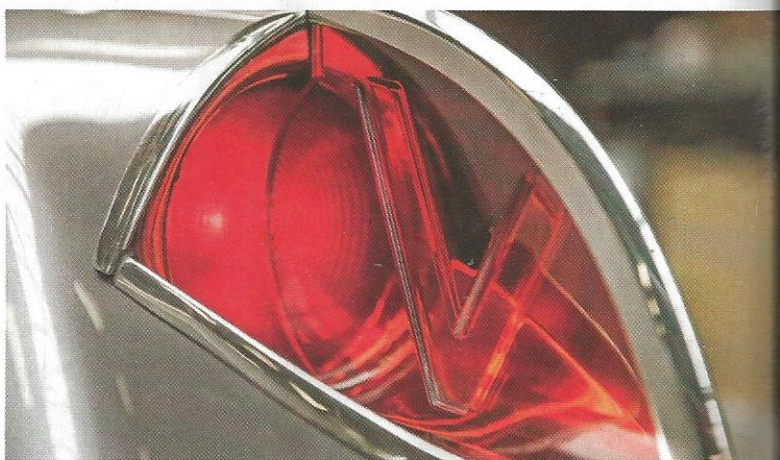
Lopping off the entire rear end might seem drastic, but it's necessary when there's nothing solid underneath



Delicate C-pillar repairs called for millimetric precision



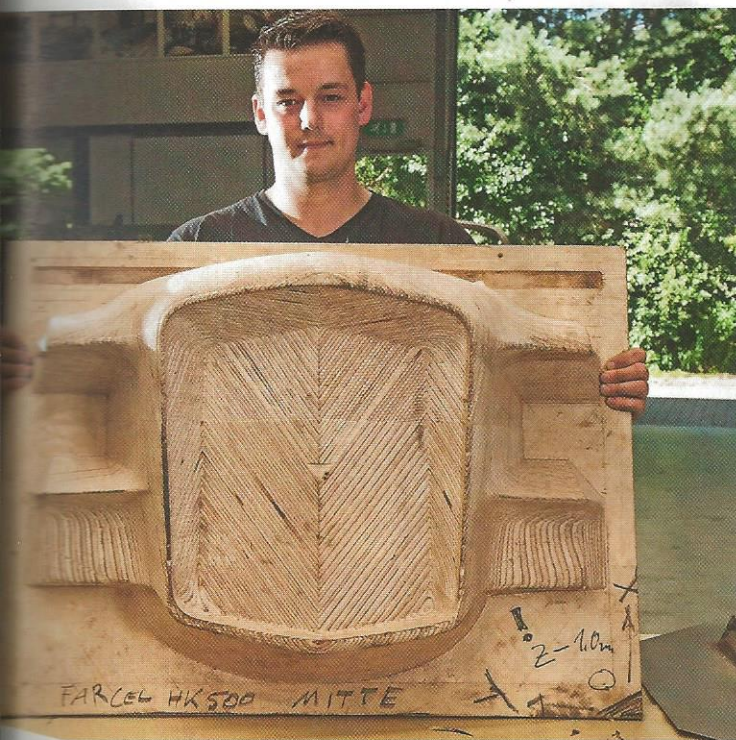
New floors went in following extensive body work



Some Facel Vega details are almost architectural – such as the tail lights, which illuminate this side-facing letter



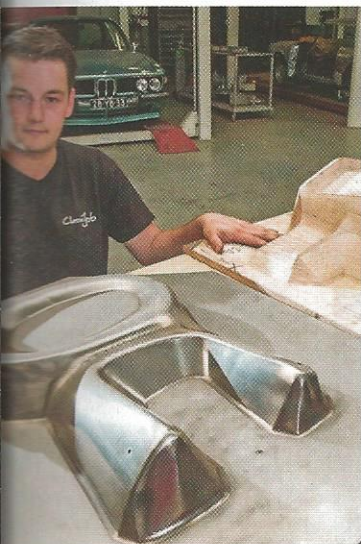
There is a great deal of trim on an HK500 and each piece is specific to a single car – which is bad news if it's missing



Brouwers holds the heavy plywood buck machined from a laser scan of an HK500 nose section



The new nose section was formed using a CNC tool to press sheet steel on to the wooden buck



Pressing from a Facel II - a very neat end product



3D-printed light bracket and steering boss

HANS RUHÉ



Hans Ruhé has been this car's follower, rescuer, owner, restorer, project manager and eventual vendor. He founded Amicale Facel Holland as a spare-time business in 1990 after living with his own Facel Vega since his student days. Such was his dedication that in 1993 he quit his day job to work full time selling parts for these little-known French luxury cars in the pits of the early-Nineties recession.

'I've known about this car since the early Eighties, when I saw it standing on a driveway,' he says. 'It had been imported from America but the bumpers had been cut off. It seems a restoration began with another car bought to act as a donor, but it never worked out and changed hands a couple of times.'

'Restoration work began again and the car went to a painter, who took it to pieces. It stayed there, dismantled, for several years but I kept track of it until I could obtain it in 2005.'

NEW TECHNOLOGY

'We laser-scanned the car's front to get a 3D map of its nose'



Cutting, folding and welding sheet steel was a major part of this car's restoration, but so was the repair or replication of apparently minor castings that did very important jobs. Job Brouwers (pictured) had some interesting options when it came to replicating both flat sections and complex curves for exterior panels, plus the tricky pot-metal castings commonly used for brackets and bosses, but which corrode and can turn to dust over time. Most impressive of these is a small-scale machine pressing process that allows highly contoured bits of Facel Vega to be quickly replicated in steel without the need for hugely costly body presses.

'Hans found a firm in Germany called Beauvry GMBH that used a technique for forming sheet metal pressings in small series,' says Brouwers. 'A plywood buck is produced from a laser scan before a sheet of steel is forced down over the buck by a CNC tool.'

The end result always needs finishing. 'The technique has its limits; we still need craftsmanship,' says Job – but the process is much quicker than it would be if someone had to create it on an English wheel in small sections, then weld together the sections and finish the piece with laborious planishing, especially when more than one copy is required. Lasers can come into play when replacing some of the simpler components of a Facel Vega body, as Brouwers explains. 'There are some flat floor and boot panels that are manufactured for us with laser cutters. It produces a very consistent, precise result and allows us to execute the restoration of badly rusted bodies much more efficiently than in the past,' he says.

Classic Job's use of 3D printing speeds things up even more. This form of rapid prototyping uses lasers to melt particles of plastic dust into multiple layers until a 3D shape is gradually built up. The resulting components are slightly flexible but surprisingly tough and proved sturdy enough to replace the Facel's decaying headlight brackets and steering column boss, among other things.

'There's now a 3D printer that works with aluminium powder too,' Brouwers adds.

Will we soon see companies able to create a credible alternative to cast aluminium components using a quiet 3D printer? Watch this space.

Hours taken: 100.



Single four-barrel carburettor is standard on all automatic transmission HKs

DRIVELINE, CHASSIS, RUNNING GEAR

'HK500s were delivered with wooden handbrake wedges on a rope for the driver to throw out'



Jorrit Vincent (pictured) looks after the rebuilds of many sickly engines at Classic Job. The approach he takes mirrors the work done to the HK500's big V8.

'You can't get the crankshafts for this particular Chrysler engine any more,' he says 'so we had to grind it undersize and use oversize bearings. Like most American V8s the rest of the engine is fairly understressed but it's in a high state of tune in the HK500. With the twin carburettors for the manual gearbox version it was rated at 360bhp, and this automatic car with a single four-barrel carb was rated at around 335bhp; they do suffer from wear, especially if poorly serviced. However, throughout the driveline and running gear we only replace what we cannot rebuild or restore. The brakes in particular contain a clever modification that's designed to overcome a famous Dunlop disc-brake failing.

'Disc brakes were a new feature back then but the handbrakes weren't good enough,' says Hans. 'Jaguar, Ferrari, Jensen and Bristol all faced the same problem but Facel Vega delivered some cars with two wooden wedges on a rope for the owner to throw out from the driving seat to prevent the car from rolling back.'

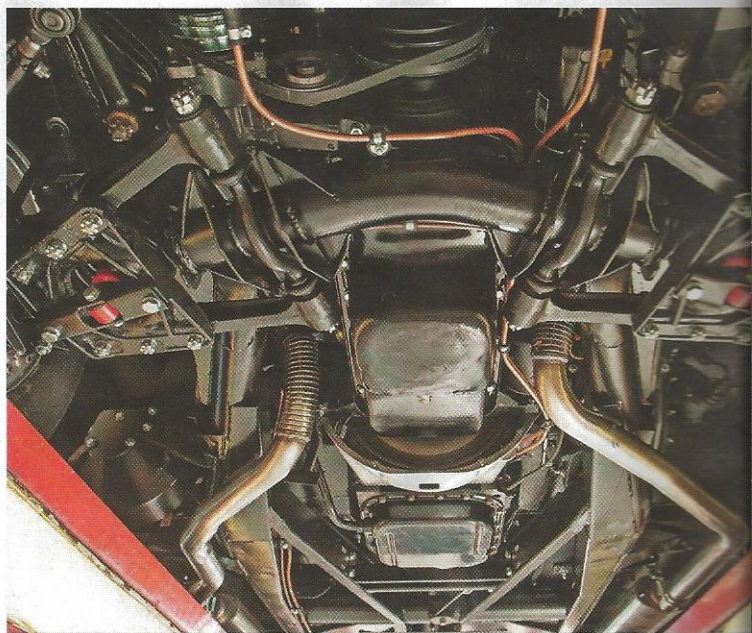
An apprentice made up a set of reproduction wedges as a bit of fun but Hans introduced an American system called Mico-Lock for more practical real-life use. It comprises a one-way valve fitted into the hydraulic circuit for the rear brakes. Flick a switch and pushing the brake pedal traps pressure in the system to hold the car on an incline. Jorrit adds, 'I wired it to the horn to give an audible warning if the pressure in the brake circuit decreases.'

Hans and Classic Job developed the car's compact electric power steering system in conjunction with a Dutch company called EZ Power Steering. It involves cutting the steering column and driving the lower half with a powerful electric motor. 'The assistance can be varied using an adjusting knob,' says Vincent. 'The car is still stable at speed but much easier to park.'

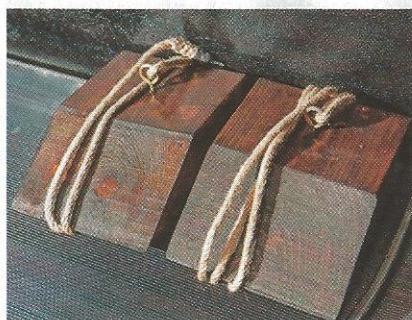
Hours taken: 400



Chassis and body were separated for long periods of the restoration to allow work to progress in parallel



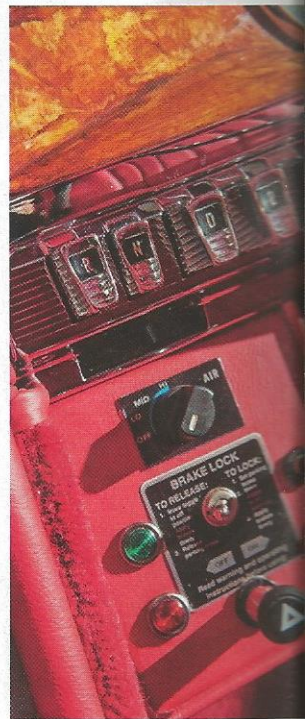
The V8's crankshaft is no longer available; repairing the original entailed grinding it back and using oversize



Novelty wooden blocks used as an emergency handbrake



Upgraded rear brake system with Girling calipers



Rear brakes can be locked via this new panel

PANELWORK AND PAINTING

'It's difficult to get a Facel's body right. It calls for more effort'



Most of the HK500's bodywork was repaired and prepared by Harry van der Sluis (pictured left). He's a veteran of 37 years in the restoration business, much of it with exotic classics. 'Facel Vega used a lot of lead in finishing the bodywork. Most people think the steel beneath won't have rotted, but we remove it anyway if there's any doubt and often find rust.'

Harry prefers to cut away areas of bodywork as defined by the extent of the corrosion not the original factory welds, in order to preserve original panelling and difficult-to-replace large sections. He says, 'The seams are easily hidden if the welding is neat enough. It's important to not leave any holes in the welds because it can cause problems later on when painting.'

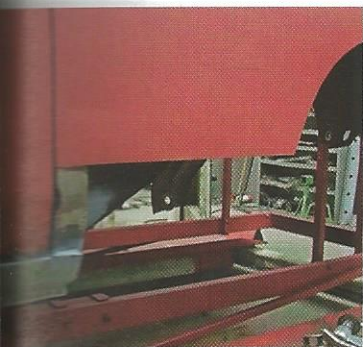
And he should know, because he is also responsible for this car's flawless paint finish. 'I filled by hand to start with and rubbed it down,' he says. 'Then I used an epoxy primer and spray filler that I sanded yet again. More sanding followed a finer application of spray filler and then it was on with the primer, two or three coats of paint and three coats of clear lacquer.'

Clearly this entailed weeks of work. 'The colour is "Grigio Glacé" reconstructed from the original Glasurit colour,' says Harry. 'It's difficult to get a Facel right and calls for more effort. People tend to think, "If they can do it, I can do it" but that's not always true.'

Hours taken: 350

EXPERT TIP

'You start with the bumpers when sorting an HK500's bodywork. You can't really adjust them and they fit very closely to the wings, so it's best to take this approach from both ends. Every panel fit then follows on from there.'



...and the stainless steel trim panels suffered...



...so plenty of new metal had to be let in



...complex body to this stage involved epoxy primer, two different grades of spray filler and a coat of primer



...finish is a painstaking recreation of the HK500's original Glasurit colour sampled from the old paint

ASSEMBLY AND TRIM

'Each painted metal dashboard is unique with a different grain'



The final phase of the restoration is a team effort but Jochem Colenbrander (left) and Hans took on much of the assembly work. 'We have to find many new solutions,' says Jochem. For example, Facel used the English-made Piper electric window mechanisms, but parts for this system are extinct. We modified a system from the USA intended for the hot rod industry.'

Ruhé also created a neat installation for the owner's chosen stereo system complete with fold-out satnav screen. A second control box with an iPod connector and USB port sits under the glovebox and the satellite antenna is concealed within the rear view mirror.

The boxes are trimmed in the same sumptuous leather used throughout. 'Our upholsterer said it's more difficult to get the details correct than on a Rolls-Royce or Bentley,' says Ruhé.

If there's one aspect of the car that sums up the effort required to get a Facel Vega HK500 right it's surely the dashboard. It looks like walnut veneer but is actually painted steel. And it doesn't make do with one of the floating transfers commonly used in American cars of the Forties and Fifties either – each one was painted by hand. 'We have a lady who paints them for us,' says Hans. 'She does one at a time and like the originals, each is unique with a different grain and shade.'

Such a time-consuming, expensive and individual approach could almost have been Facel Vega's signature. This car has been restored to an astonishing standard with several non-original upgrades. But look at it this way – what could be more in keeping with Facel Vega's long-standing philosophy than a few bespoke tweaks to make the car even more comfortable, capable and luxurious for its owner?

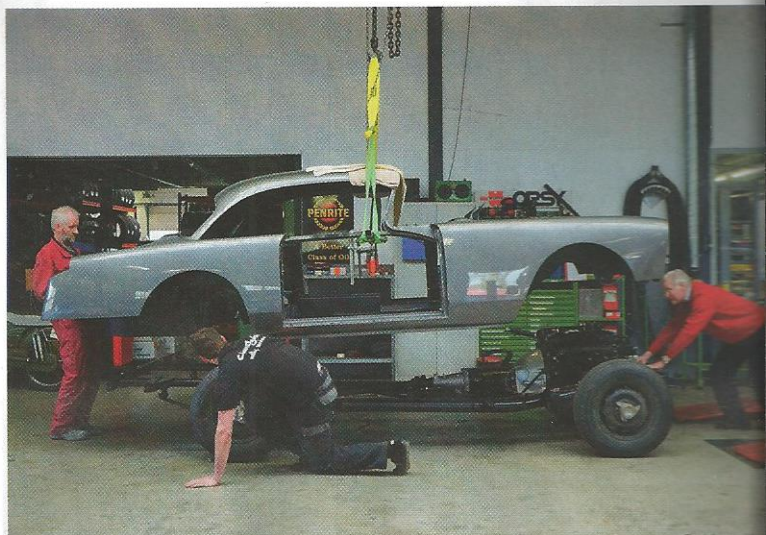
Thanks to: Hans and Marian Ruhé of Amicale Facel (classicgarage.com, amicalefacel.nl), Job Brouwers, Jaap van Oenen and all at Classic Job (classic-job.nl)

NEXT MONTH

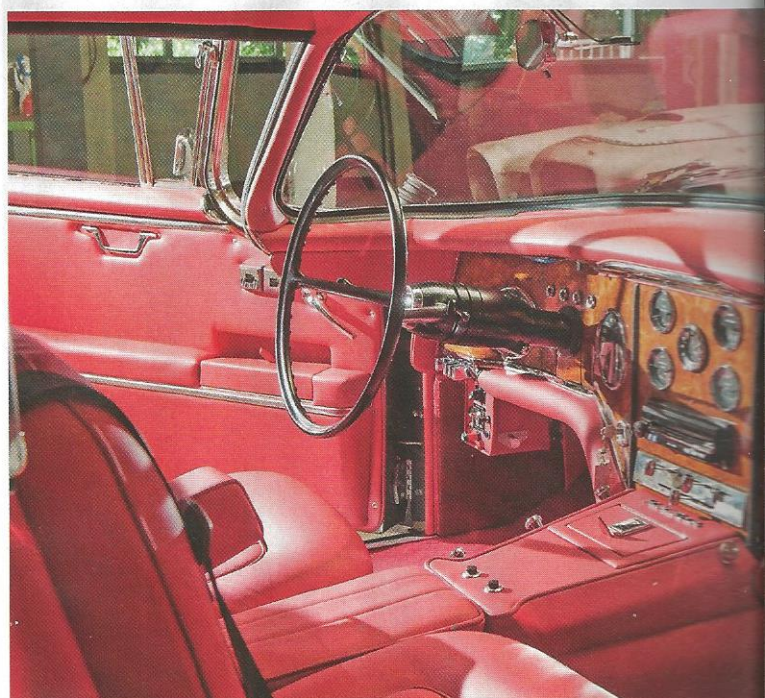
Where do you start on the restoration of a 90 year-old Bentley 4 ½ litre when almost everything needs major attention? We meet the team that had to find out.



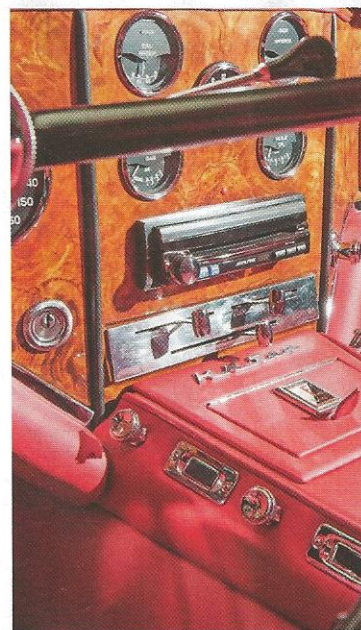
Finished car looks stunning but has already been entered into two road rallies



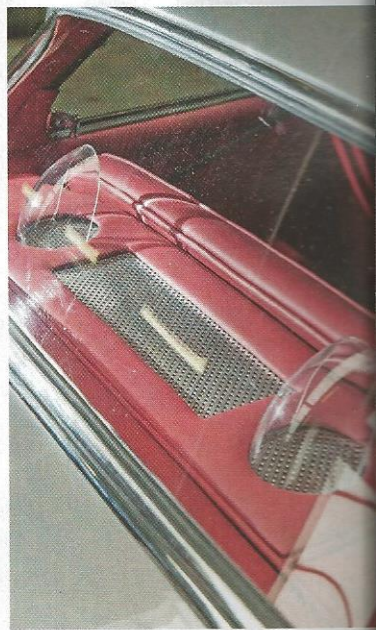
Reassembly and final refitting of the HK500 took the team a gruelling 750 hours to fully complete



Distinctive interior is dominated by hand-painted wood-effect metal dashboard. Each one is unique



Modern head unit stands out amid classy controls



Space-age cowls top off rear-mounted air conditioning