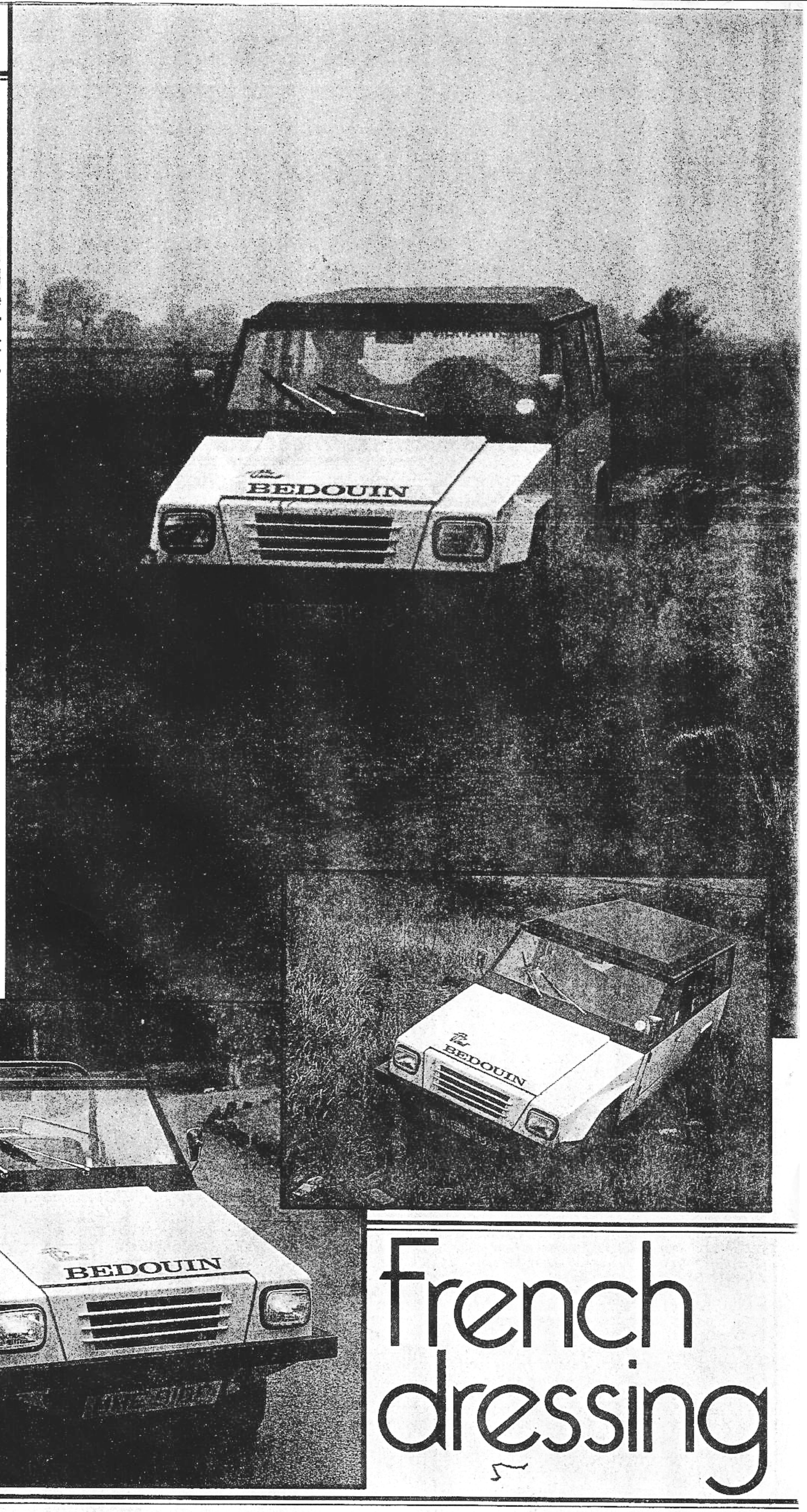
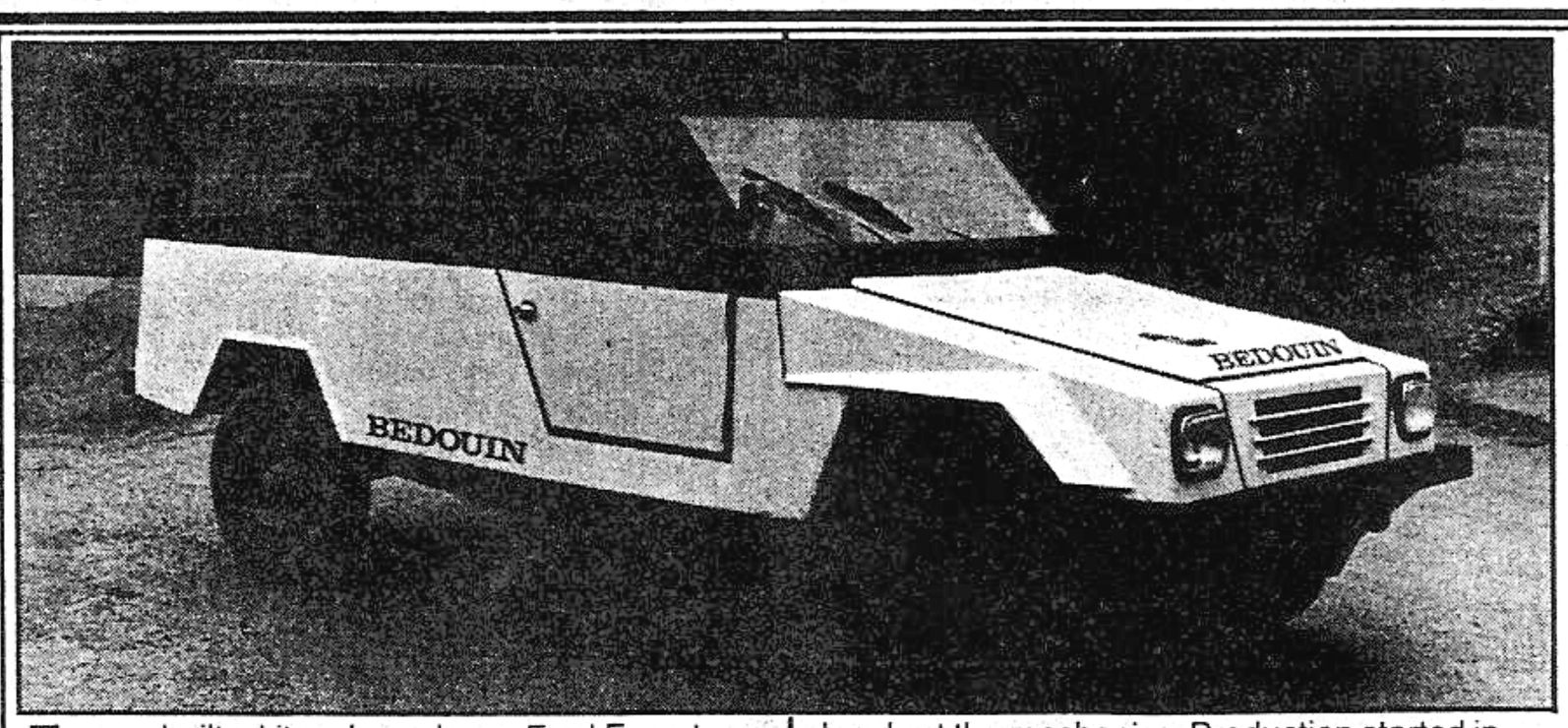
French dressing

We've said before that the small Citroëns are an ideal basis for a kitcar, and particularly a utility-style vehicle. One man who agrees is Bob Williams, designer and manufacturer of the new Bedouin. Peter Coxhead liked what he saw...





I once built a kitcar based on a Ford Escort for a man who treats his cars as if they were light tanks. Driving with him in London was something of an experience. My memory of one trip with him, from the suburbs to the inner city, is like a series of still shots from an action-packed film: a purple-faced taxi driver trying to tell us something; a pedestrian running backwards to the safety of the pavement; a lollipop lady dropping her pole; bus lanes used as personal highways; roundabouts approached at full throttle. . . and all the time the sound of peak rev[illegible]d screaming tyres.

[illegible]ught of the car that I had just built for him with so much loving care; how would it stand up to this sort of treatment? Well, I've seen this chap a few times since and he is well pleased with his kitcar but never fails to tell me, 'It does not perform as well as my old 2CV' – and in a way I know what he means.

The Citroën 2CV is a car that most people have an opinion about. Funnily enough, I've found that most criticism comes from people who haven't driven it. True, the engine is small and you have to keep the revs up to maintain momentum, but it does return over 50mpg and it is pretty well unbustable. Yes, I know the gear stick pokes out from the dashboard and requires a bit of getting used to, but once you have mastered it you begin to enjoy its positive action and relatively quick changes can be made.

Okay, the body does roll like a ship in distress on corners, but try keeping up with one being driven hard around tight bends. All four wheels stay on the ground and, confound it, it really corners quickly. And don't try to keep up with it across fields and over potholes – that daft suspension has a way of soaking up rough ground that ordinary cars can't cope with. That's why it is surprisingly comfortable for four people.

[illegible]oes this contradictory and typically French v[illegible]e have any drawbacks? Most certainly – it is not a vehicle for the poseur, and it rots. Leaving that aside for the moment, let's look a little more deeply at the mechanics. Production started in 1948, and was marketed as a cheap, versatile, go-anywhere, family car. Originally powered by a 375cc flat twin, it has been upgraded to 425cc and later to 602cc. This little engine is an air-cooled, horizontally-opposed, four stroke twin with overhead valves. The crankcase and cylinder head are aluminium. If correctly maintained, particularly with respect to adequate lubrication, this power unit is very reliable and robust and will give long and faithful service.

Being a front-wheel-drive car, the engine bolts straight on to the gearbox – each unit having an individual sump. It has a four-speed gear box with synchromesh on 2nd, 3rd and 4th, and some vehicles were fitted with a centrifugal clutch called a 'Trafficlutch', an excellent device which effectively eliminates the need to use the clutch pedal at low speed.

The unusual all-round independent suspension is what gives the car its highly individual ride characteristics. The front trailing arms and the rear leading arms are interconnected on both sides of the car by a central suspension cylinder, which basically consists of two springs, one for the front and one for the rear suspension. These coil springs are connected to the axle arm by tie rods, which are adjustable for length so that ride height can be changed. Damping is by telescopic shock absorbers front and back, mounted horizontally, and in some early vehicles inertia dampers were fitted to front and rear hubs.

The car has another unusual feature, which is central to the purpose of this article: the 2CV is one of the few cars with a separate chassis still in production. The separate chassis – a straight section unit, stiffened by crossmembers – contains all the mechanical parts and is quite rigid enough to be driven without the body in position.

As I said before, the car does have a problem: like all steel bodied cars it goes rusty, and in most MOT failures the floor pans and bottoms of the door pillars are found to be rusted. However, the mechanicals and the chassis are usually in good condition, making it an ideal base for a kitcar.

Bob Williams of CVC (Central Vehicle Conversions) thought so. He decided that there was a slot in the market for a practical, everyday car that could be easily converted to an open-top vehicle. It had to be easy and cheap to build, fun to drive and have a wide appeal.

He saw the 'wide appeal' part of the criteria as being essential. The 2CV occupies a very definite place in the market – after all, it has been in continuous production for over 37 years – and is well loved by a huge variety of people. A sports car or beach buggy-type vehicle would not be in keeping with the image at all.

Bob has been in the motor trade a number of years. He actually trained as a joiner but a life long interest in cars drew him into restoration work. (He specialises in Panhard restoration and is the only stockist of Panhard spares in the UK.) He is also experienced in off-road and rally work, particularly desert travel, and once he took part in an expedition that started in the Arctic, finished in Africa, and crossed the Sahara en route. This had a definite influence on his design, and without a doubt was also responsible for the name 'Bedouin', the name of a nomadic race.

Well, having decided there was a market for such a car, Bob sat down and designed one – just like that. Eighteen days later – that's right, 18 days – the prototype car was completed. This man Williams does not hang around. He did have some help though: two colleagues, John Fitzpatrick and Richard Dealtry, gave freely of their time and talents. The result is a very neat, well balanced vehicle. The design is such that it can be converted from an estate car into a 'jeep' in the twinkling of an eye.

Firm orders were taken before production began – indeed even before the car was announced – so with this sort of encouraging start, Bob Williams consulted marketing expert Richard Dealtry, and RW Services (no connection with RW Kit Cars of Melton Mowbray, incidentally) was formed.

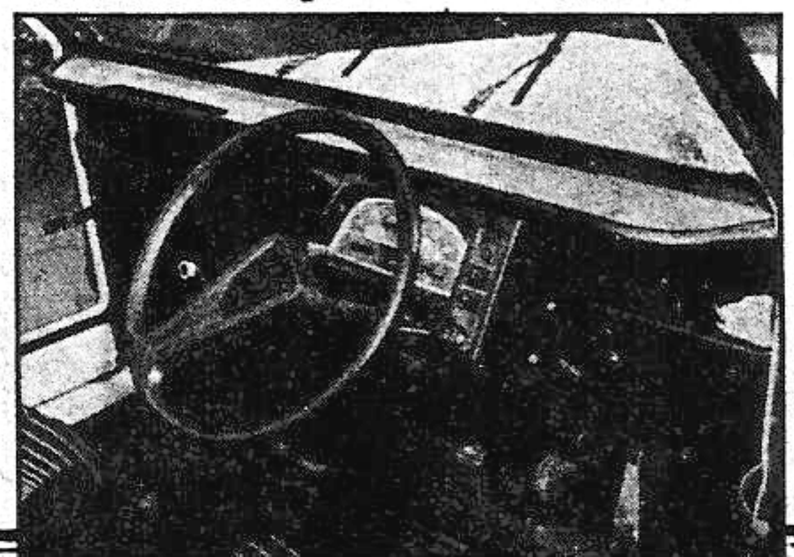
That's the background; let's look at the kit in a bit more detail. Obviously the basis of the car is the 2CV, Ami or Dyane running gear and chassis. No alterations are necessary to the basic mechanics of the car but most builders will want to recondition the mechanics before actually building the kit.

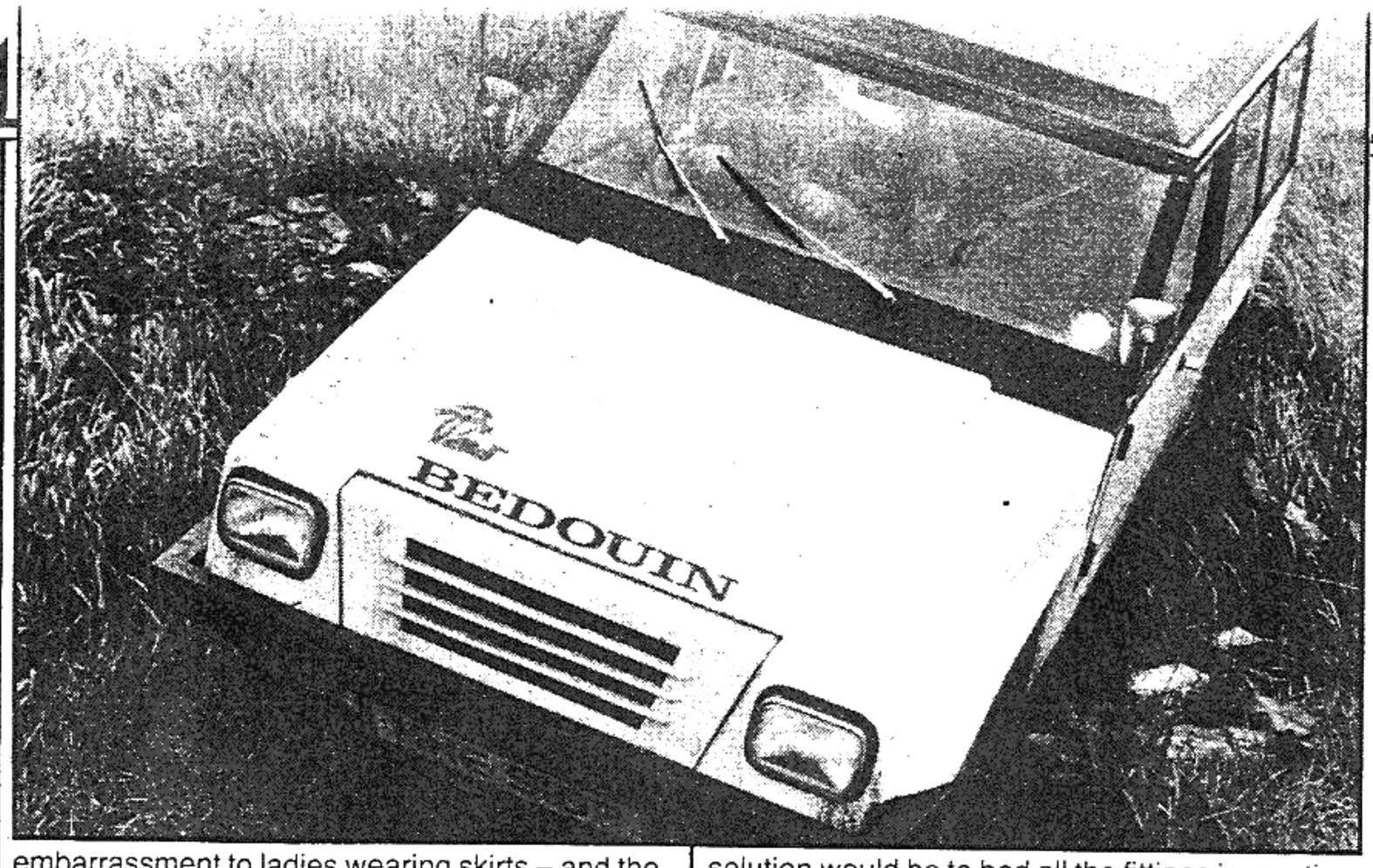
It doesn't matter how rusty the 2CV body shell is because it is discarded, but it is important that the chassis is in good condition. One particular point to look for is in the seams on the rear horns in the area of the petrol tank. These tend to rust and swell, and can even burst open, but usually they have just expanded a little. A good rake out and reseal is usually sufficient to cure the problem, though.

The Bedouin's body and hard top are two separate units, but are constructed in a similar fashion. A sturdy frame of 1 inch × 18swg, treated to prevent corrosion, forms the foundation, and on to this frame are fitted the body panels. The resulting structure is extremely rigid and will stand up to all sorts of abuse.

The body panels are currently manufactured from resin-coated plywood, but this will soon be replaced by GRP panels. Personally, I like the idea of the plywood panels. The system is quite well known in boat building and several ocean racers and many similar craft have been built using the plywood/resin composit. Wood has several advantages over other materials: it is relatively easy to cut and shape, and is also

All the body panels are supplied as part of the kit and the running gear and interior fittings are from the donor





inexpensive compared with other materials. More important, it has certain characteristics, which make it ideal for car bodies: its stiffness, light weight and resistance to fatigue are ideal qualities to stand up to the conditions of road use.

There are also some disadvantages. Wood is subject to rot, and it shrinks and swells with humidity and temperature change. When it has absorbed moisture it loses some of its strength and stiffness. The use of epoxy resin overcomes these disadvantages. Liquid resin, mixed with hardener, is painted on all surfaces of the wood so that no significant quantities of air or water can pass through this barrier to the wood. The resultant wood-epoxide composit is a stable material with a very favourable stiffness-to-weight ratio. It is also abrasion-resistant, taking paint finishes well, and damage repair is easy. It is also a warm material that does not encourage condensation.

Having said all that, Bob Williams is only building the first few kits using plywood panels, and from then on double skinned GRP panels will be the order of the day. It is simply a matter of economics – there is much more labour involved, for RW Services, putting together the timber version. Still, I'm sure Bob would turn out 'one-off' kits if specially requested.

All the finishing is done by RW Services. The panels are rivetted to the steel framing, the whole assembly is then finished and sprayed in any colour the customer chooses. The finish on the demonstration car was very good indeed, and the b shell was extremely stiff and solid. Thump it or the side and all you get is a bruised fist.

The basic vehicle consists of the main body tub with all the holes drilled, the complete wings ready to bolt on to the bulkhead, the front grille and bonnet assembly (again ready to bolt in position, all painted and signwritten), windscreen fitted to the steel frame ready to bolt on, and a pair of wiper arms. Heater ducting plate and modified steering column support are supplied on an exchange basis. All the customer needs is a donor 2CV – absolutely nothing else is required.

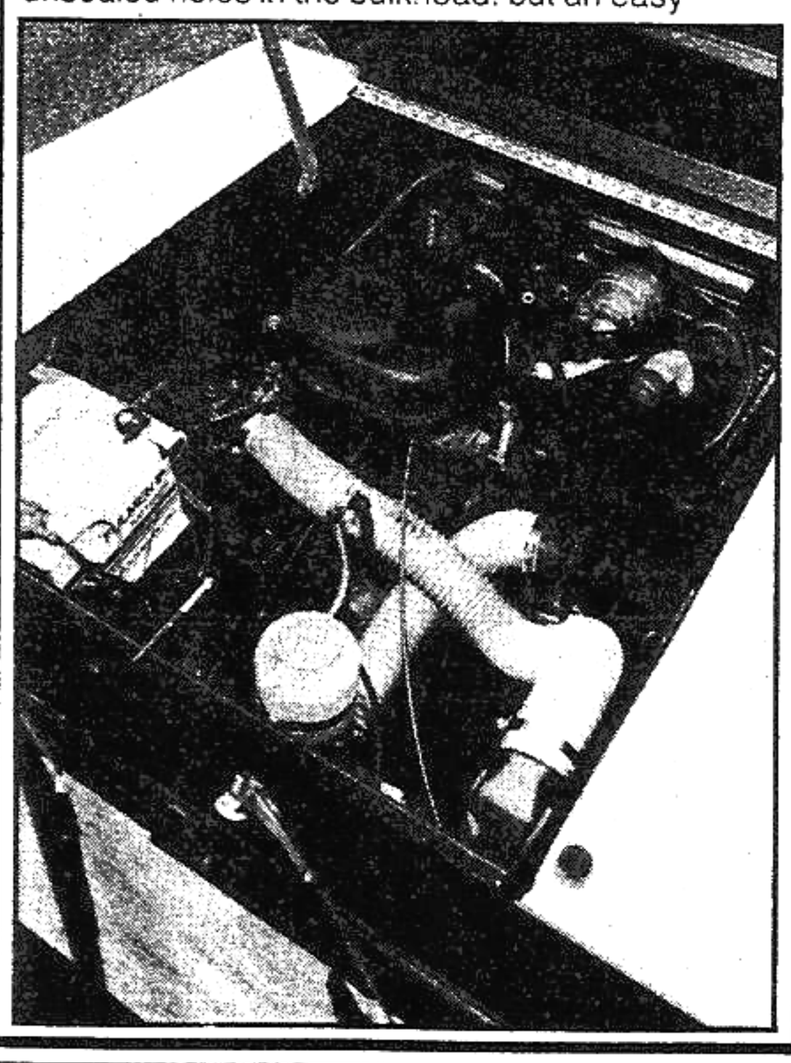
For the hard top version, the completed hardtop is supplied. The tailgate is fitted with window and gas strut in position, so all the customer has to do is to fit the perspex – or optional laminated glass – side windows provided.

The doors are steel framed and fitted with sliding perspex windows. Attention to details, like sliding window channel neatly welded to the window frame, rate these alongside some of the best I've seen. Quick-fit hinges allow the doors to be hung in a matter of seconds, and locks and catches by courtesy of 2CV. A big problem on many kitcars is door fit but on the Bedouin the door opening is also steel framed so a very accurate fit can be obtained. To my mind the hard top and door kit is what lifts this car from a pl nt alternative kitcar to a really outstanding ar rsatile mode of transport.

Bob Williams showed me how to change the 'jeep' into an estate car in about 15 seconds and the construction is such that a completely windproof and watertight seal is obtained. As you can see from the pictures, the hard top blends in with the body line to make a pleasantly balanced looking little estate car. I can imagine that the most popular combination in our unsettled climate would be with the hard top in position and one or both doors removed.

The acid test of any car is, of course, what it's like to drive and live with. Entry to the car was easy – not a bit awkward and certainly no embarrassment to ladies wearing skirts – and the amount of space inside the car is nothing short of amazing with plenty of leg, head and elbow room. Rear seats were not fitted in the demonstration car; instead, there was a wide, flat load-carrying area, ideal for all manner of things from carpenter's tools to dogs. The interior of the car was not trimmed, just finished in matt black paint, which looked very functional, but for those seeking a bit more luxury, full trimming would be easy because of the large, flat surfaces. The manufacturers also plan to offer a trim kit as an optional extra at a later date.

As for driving the Bedouin, well, it's exactly like driving a 2CV, except that it does not roll quite so much, due to the lower centre of gravity. We took the demo car out into the country and really hammered it over some very rough lanes, and apart from 'bottoming' the suspension once or twice it remained supremely indifferent to our unreasonable treatment – not a squeak or groan was emitted from the very well built body unit. Some water found its way into the footwells via unsealed holes in the bulkhead, but an easy solution would be to bed all the fittings in mastic during building.



The noise level inside the car was quite high due to the total absence of any soundproofing, but again this would be easy to rectify, although in a vehicle of this type a certain amount of noise does not seem out of place.

Back at the workshop I quizzed Bob about the built-up times. He pointed out that it is impossible to say how long any one individual would take to prepare the chassis and running gear, because there are too many variables: the condition of the donor car and the experience of the builder, for instance. Bob estimates about 50 hours to fit the body, wire up and connect the ancillary items and fit the steering column and pedals, etc.

I am usually very sceptical about manufacturers' claims of quick build-up times but in this case I don't think he is far out, because if you drive your 2CV to his workshop, he will remove the old body, fit the Bedouin body and wire up all for £300. You can pick the car up a week later. And if you are unsure about the condition of your 2CV, RW Services will inspect it for you and give you a price for any work needed to bring your vehicle up to MOT standard. An instruction manual is not yet available, but until one is produced personal instruction will be given at the time of purchase and during the build-up, if required.

What will it cost you? The estate version, complete with everything you need except the parts you remove from the donor car, is now selling at £1350, plus VAT. That may sound a bit expensive, but don't forget that you don't need to spend a penny more on extras. To be realistic, though, you will want to refurbish the chassis and running gear and maybe fit some new tyres – so say £2000 and you won't be far out.

That's not bad for a car as versatile as this one. I would consider it eminently suitable as a second family car, expedition vehicle, young person's first car, fun car, workhorse for tradesmen, retailers and farmers, town car, country car – and yes, you could also do a bit of posing in it.

Orders will be taken on a first come, first served basis, so please form an orderly queue at:

RW Services
Whitegates Farm
Wash Lane
Ravenstone
Leicestershire
Tel: 0530 813816

The two parts of the body are produced as separate units. Above: the 2CV engine. Right: Richard Dealtry and Bob Williams