

• JBA • FALCON • 2+2 •



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We couldn't believe it. There we were, frozen to the marrow, busy taking pictures of the JBA Falcon Plus Two in the beautiful Ribble Valley in Lancashire, when this nutter in an iron Capri nearly runs into the back of us. Can you imagine that? We hadn't seen another car all day, and there was miles of open moor for him to drive on, but he had to pick on us. At least it seemed like that at the time.

When we had quietly finished our heart attacks, the driver, Graham Levy, explained. Only three days previously he had visited the factory of JBA Engineering, miles away in Manchester, and placed his order for a Plus Two. He had seen the object of his dreams apparently abandoned in a wild and lonely spot being eyed-up by two furtive looking characters, so naturally he screeched to a halt.

It all goes to show that wherever you are, you are never far from a kitcar enthusiast. But please, Graham, a little more to the right next time, eh?

The Falcon Plus Two is the latest product from JBA and we were fortunate enough to be invited to carry out our searching Road and Workshop Test way back in the cold dark days of February. You will be reading about our findings in the early days of spring, and if you bought your issue promptly you should be able to get along and see it at the *National Kitcars and Specials Show* at Kenilworth.

The story so far . . .

Ken Jones, John Barlow and Dave Ashley all worked for British Leyland. They each followed the same career path by completing a full engineering apprenticeship and moving up to become design draughtsmen and, with drawing boards side by side, it was natural to find themselves discussing the state of the company and what they would do when the rumoured 'big chop' came. John, a car nut for as long as he can remember, mentioned his idea about designing a kitcar. It was not long before all three were fired with enthusiasm for the idea and some work on preliminary drawing began.

Ken and Dave acknowledge that John is the one with the design flair, but it took the combined efforts of all three to see the plans completed and the prototype built. In all it was to take about 18 months from the idea to the first kit being offered for sale. And by that time, of course, the three partners had taken voluntary redundancy.

They had quite clear ideas of the way they wanted the newly formed company to go. The partners felt that success would depend upon giving the customer quality and value for money, rather than offering a product aimed at a particular sector of the market.

The Falcon two-seater was JBA

We were impressed by the original JBA Falcon two-seater – and the company – when we exclusively revealed their two-seater back in our very first issue. Since then they have launched the Capri-based Javelin, and now the 2+2 version of the Falcon roadster. The styling is as understated as ever, but have they maintained their high standard of production? Have they compromised on materials to stay competitive?

We subjected their recently completed demonstrator to the Road and Workshop Analysis and were relieved to find some things don't change . . .

Engineering's first model. It featured an extremely strong chassis designed to take both GRP and aluminium body panels – the chassis took the stress, while the body panels were there just to keep out the weather. In line with the policy of continuing development, some changes were made to the design from time to time, but these were relatively minor. And it says something for the effectiveness of that original hard work on the drawing board that from the launch in January 1983 to February '86 over 140 Falcon kits have been sold.

Not being ones to rest on their

laurels, Messrs J, B and A quickly got to work on design number two, which was to be based on the Capri Mk 2 and 3. The successful recipe of an extremely strong chassis carrying the body panels was used again, but this time the bodysell was to be a one-piece GRP moulding. The Javelin, as it was called, was a full four-seater with an ingenious targa convertible roof, and it received nothing but praise at its launch at Manchester's Specialist and Sporting Car Show. It has been selling well ever since.

So that is the story so far – which brings us to project number three, The Falcon Plus Two.

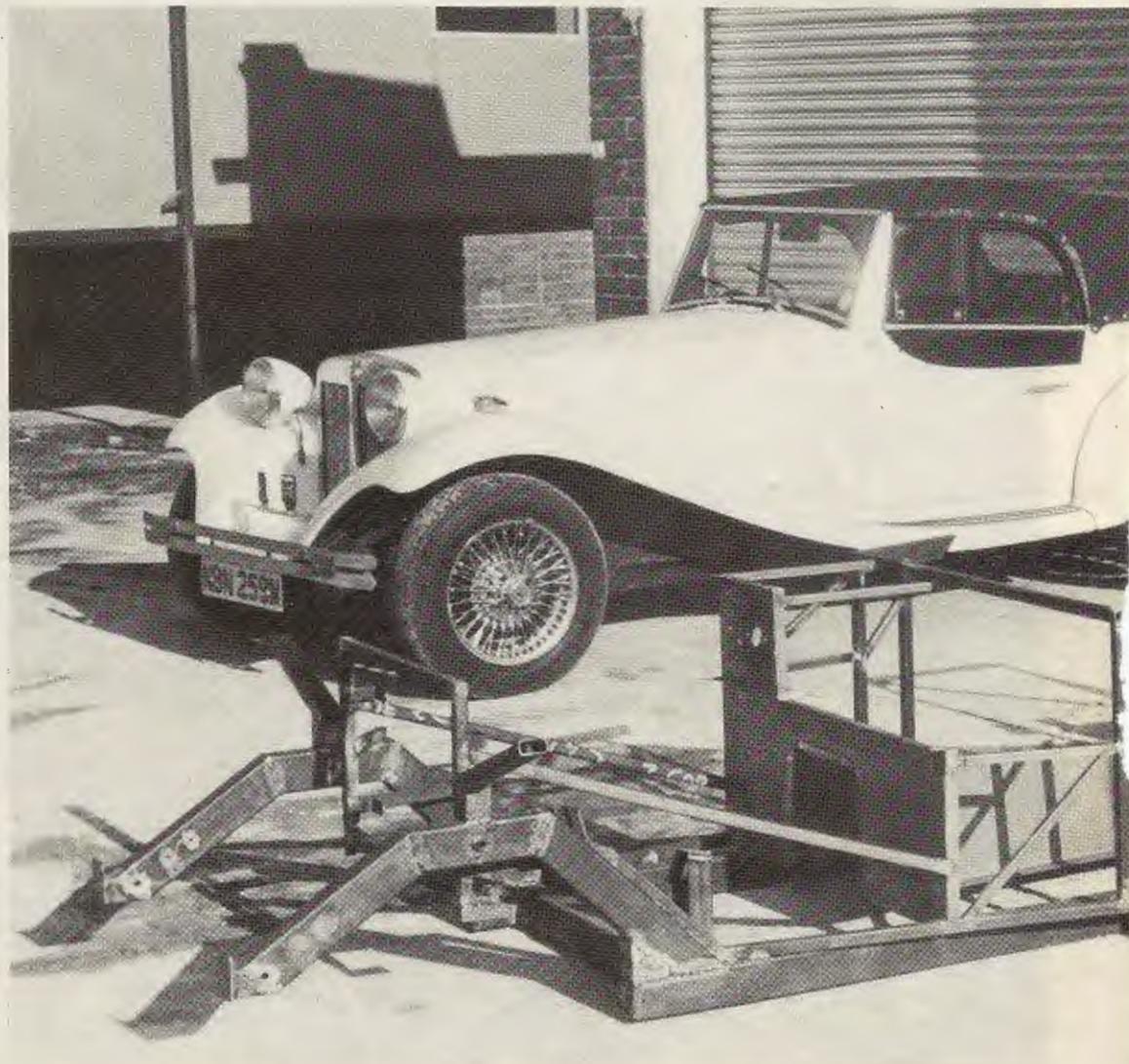
The construction

Before we go on to talk about the car, though, a few remarks about the workshops in which it is made would not go amiss. The double factory unit is on a trading estate in Standish, Nr Manchester, and the main area contains a laminating shop and a fabrication bay. From that you will gather the company carries out all of its own production work. All, that is, apart from some specialist jobs, such as the stainless steel work and the casting.

'We began by contracting out some of the GRP moulding, but it didn't work – by doing it ourselves we know it will be right' Dave explained.

The moulding is done under the strict eye of Dennis Royles, an ex-development engineer with TVR, and the layup stays in the mould for at least four days before release to ensure it is fully cured and stable.

Reinforcing inserts such as steel tubing are laminated in during the laying-up process – this too ensures the moulding remains stable – and a base gelcoat finish is given to the GRP panels. The construction method of the kit, as will be described later, uses a mixture of aluminium and glassfibre panels and as these have to be sprayed



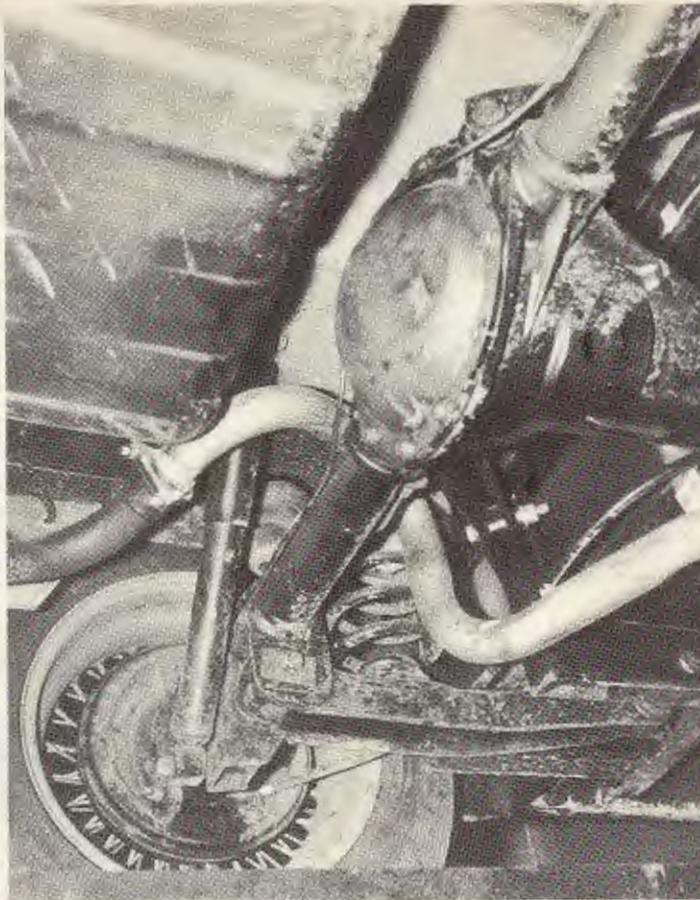
Below: the chassis consists of a box section perimeter frame with sheet steel tunnel and front and rear bulkheads, plus subframes to take front and rear suspension and super-structures which support the radiator and body panels. It weighs in at a massive 5½ cwt

Right: the kit includes two, specially cast pockets which bolt to the chassis and precisely locate the rear springs

anyway, there is little point in providing a gelcoat finish. There are other advantages: accidental damage caused during the building process is easier to repair and a painted finish does have a more professional look somehow.

The directors of JBA, being engineers themselves, realise the importance of giving the correct training to their workforce, so they not only have their own training programme on the shop floor, they also insist on their staff attending day release. The benefit to the company is long term, but as Ken Jones said: 'We aim to be around a long time, so we will see the benefit eventually.'

Visiting the fabricating shop we watched a chassis being made. A complicated jig was used to ensure complete accuracy was maintained throughout the construction process — essential for good panel fit later and, more importantly, to ensure



wings, and the ends are threaded to take an adjustable spacer so the right height is pressed to the right shape and angle to accept the brake servo; all of the holes are accurately drilled and bushed where necessary; the seat belt mounting points are ready threaded and have been tested and approved by MIRA; outriggers are provided to give added support to the running boards and uprights are positioned to provide hinge and door lock supports. To round off this sample of features, a hole is ready cut in the steel tunnel to take the gear lever, and the top edge of the hole is finished off with a lip to enable the gear lever boot to fit snugly. Now isn't that nice? It's an extra operation that has to be paid for, and few people would comment if it wasn't done. But it is done and it further illustrates JBA's fine attention to detail.

The Falcon Plus Two uses the mechanical components from the Ford Cortina Mk3 or 4. The reasons for choosing the Cortina as a donor have been covered here before — they are readily available, spares are cheap and easy to come by and the mechanicals are simple and easy to work on — and care has been taken to ensure that the kit makes use of as many parts as possible. In fact, the only other parts required are the headlights (Mini or 1300), front indicators (Mk2 Escort), rear bulb holders (Triumph 2000/Dolomite) and fuel tank (Escort van or estate).

The Falcon body panels are a mixture of GRP and aluminium units. The panels made from aluminium are the double hinging bonnet, side and rear sections, front lower side panels (engine bay sides) and the front tray. The GRP mouldings consist of double-skinned doors, side and door aperture panels, radiator shell, front and rear wings, floors, headlamp shells, rear light mouldings, and heater air box. A 4½ ounce lay-up is used for the glassfibre mouldings, and this is more than adequate when you consider that the outer skin of the car is completely unstressed.

The finish on both the mouldings and the aluminium panels is excellent and very little preparation is necessary before the paint is applied.

In the workshop

Before putting the car on the ramp for our examination we looked at the construction manual in order to get some idea of how the kit is built and to establish the quality of the instructions. The manual consists of 23, A4 pages of text and 20 photographs backed-up by 23 clearly drawn diagrams. The text is easy to read and all of the necessary dimensions and angles are given, so when used in conjunction with the illustrations it is possible to follow the building steps without

exact location of the suspension components.

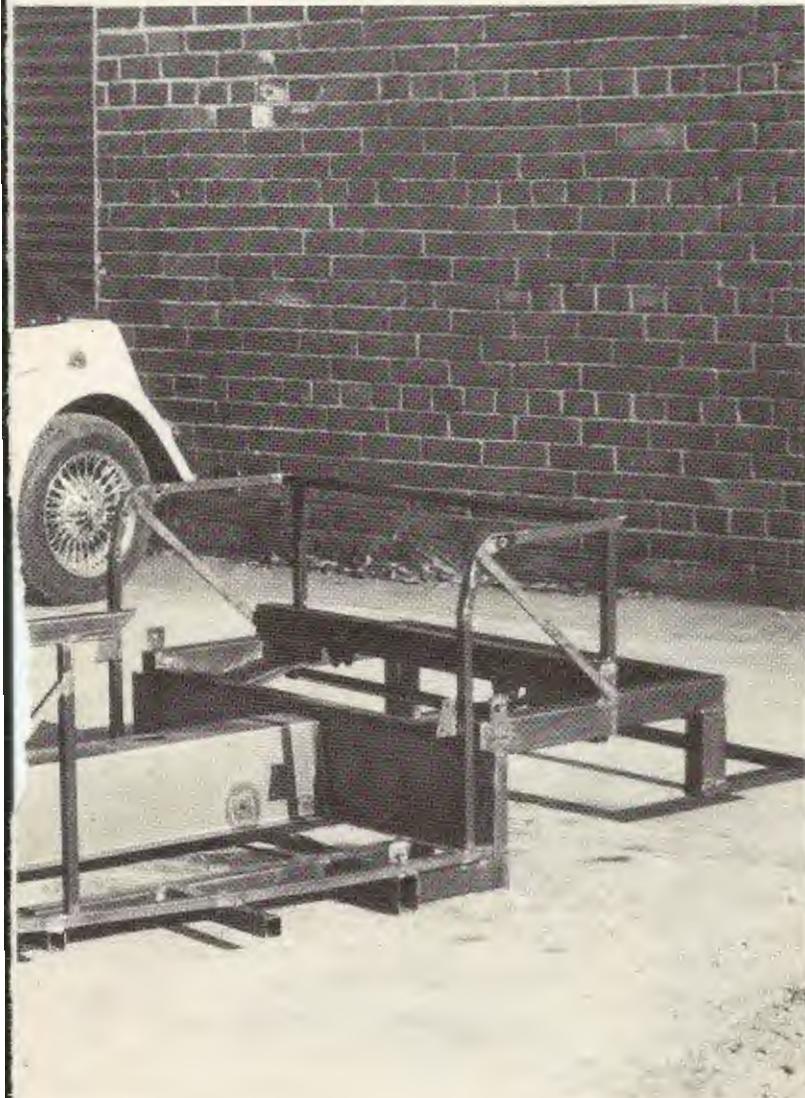
It is difficult to describe the chassis design because it does not conveniently fit into one of the conventional categories. It consists of a box section steel perimeter frame, on which are mounted a sheet steel tunnel and front and rear bulkheads. Subframes carry the suspension units, and a front and rear super structure built-on to carry the body panels and radiator also makes a contribution to an already strong and stiff unit.

John explained that door apertures are potential weak points on any open-top design. This has been overcome on the Falcon by the integrity of the basic structure, and by additional cross-bracing that ties the subframe to the chassis.

To call the Falcon chassis strong is a big understatement but we try to avoid the use of too many superlatives, so let us just say that if the bottom drops out of the kitcar market JBA could always sell their design to the Ministry of Defence for use on armoured cars. Or to put it another way, Colin Chapman designed the Lotus Seven chassis to carry a bodysell and suspension that was not much lighter than that of the Javelin. His chassis weighed about ½ cwt (25.4 kilos), that of the Javelin weighs in at 5½ cwt (279.4 kilos).

Some might even say it's a bit over done, but we wouldn't necessarily subscribe to that view. More of that later.

There are many features built-in to the chassis that are worthy of comment. Struts are taken from the chassis rails to support the front



moving from the armchair. If you could actually build the car from the fire-side perhaps a few more winter projects would have progressed a little faster . . .

The construction method employed in the Falcon is different to most kits, because the bodyshell is made up of several panels that are individually fitted to the chassis. The build-up should go something like this:

Fit the two door aperture mouldings and the scuttle to the chassis using bolts and rivets. Fit the pedal assembly and the steering column. Using rivets, fit the aluminium side and rear panels. Fix the heater box and the front side panels in place. Now the front and rear suspension assemblies can be bolted in position, and the engine and gearbox installed together with the propeller shaft and petrol tank.

Next come the doors, boot and boot lid and the wings, followed by the windscreen frame and that lovely, long aluminium bonnet. Now we are on the home stretch and the collection of parts have started to come together to look like a car.

All that now remains to be done is to spray, wire and trim the car, pack your bags, install your favourite person in the passenger seat and away you go. As easy as that? Well, not quite. Let's take another look at some aspects of the build-up in more detail.

First the donor car mechanicals. Despite the heavy construction of the Falcon Plus Two, it is still significantly lighter than the Cortina. This means the front springs of the donor car, if transferred directly to the kit car, would give a harsh ride. Down-rated springs are therefore recommended and these can be supplied along with the kit as an optional extra.

The engine is sited 20 inches further back than in the Cortina donor and the wheelbase is increased three inches. These changes obviously mean the propshaft dimensions have to be altered – in fact, 17 inches are removed and the entire centre section is also discarded, making it a one-piece unit. Again, JBA are able to supply this, or the builder can get his own made-up – but not, the company suggests, by the local blacksmith. Making and balancing a propeller shaft is a specialised job.

On the donor car, the rear springs sit in pockets located in the bodyshell. Obviously, these are not transferred to the Falcon, so instead JBA supply two, specially cast, aluminium pockets which bolt to the chassis and precisely locate the springs. An effective solution and one that demonstrates the attention to detail that soon becomes apparent during a close inspection of the car.

The steering column has to be extended using a Triumph part, and the wiring loom – if the donor car item is used instead of the purpose-made item available from JBA – will probably need some modification to suit the chosen instruments.

That about sums up the major alterations of the donor car components.

The body panels are made to mate accurately with the chassis, so what at first seems a complicated build-up, in fact turns out to be quite straightforward. However, it is fair to say, that it is a more time consuming job than building a kit using a one-piece body tub, and it does place more demands on the builder. This is seen as a positive advantage by some people who look for more involvement in the actual construction than some kits offer. They also like the structural benefits derived from this type of design.

Estimating build time is difficult. As we have said before, there are so many variables but taking into account the fact most people will want to refurbish the mechanical components from the donor car, and that it is not a race against time, we think that about 300/500 hours would be needed to produce a quality car.

A front to rear inspection of the interior, exterior and under-side of the demonstration car served to highlight the quality and strength of construction.

The doors, for instance, are double-skinned and fitted with anti-burst locks, and a steel T-piece is moulded into the interior of the door and this acts as a strong point from which to mount the hinges. Similarly, two steel uprights on the

chassis take the door striker plate and the other flap of the hinge. In other words, the door is hung on steel and shuts against steel, so there's no chance of it dropping or not shutting correctly.

An extruded aluminium channel is bent round to form the window frame. Two perspex windows slide in the channels, so it is possible to open them from the leading or trailing edge of the frame, and they are located with simple catches. We noticed, however, that the horizontal extrusion running along the top of the door was fixed to the curved part of the frame by L-shaped brackets riveted in position. It was clear that this was not a satisfactory arrangement because there was already considerable play at the top of the frame, where it met the hood. This is the very place where a good seal is needed, to keep out the wind and rain.

We mentioned this to Dave, who said the problem had already been picked up and a new design of frame, using welded corners, was on its way.

The windscreen uses a stainless steel surround, bolted to the steel scuttle frame, and is strong enough to take the weight of people who use it as a grab handle. Every fitting which has to take any load is tied back to the chassis.

Try as we did, it was difficult to find fault with the demonstration car's construction.

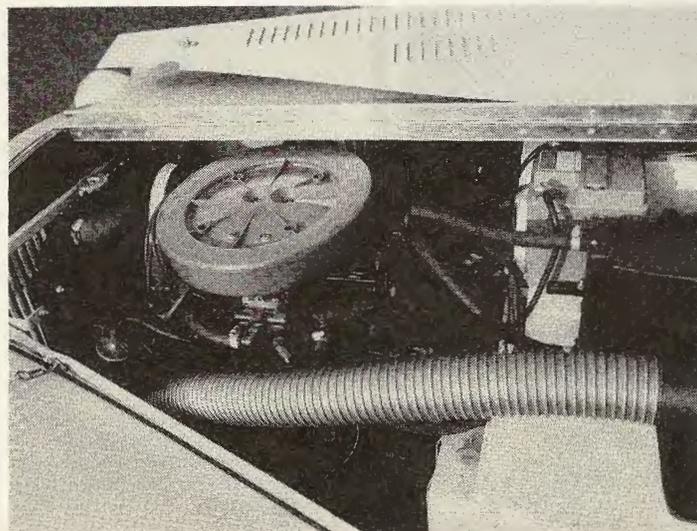
Now the thorny question of cost. Before we mention money, don't forget that it is not the bottom line that is important, it is the content and quality of the kit that counts. The Stage One kit contains everything you need to actually get the car running (although not roadworthy) and costs £1050 + VAT. Stage Two contains the remaining parts needed to complete the car, and costs £807 + VAT. The contents of each kit and the price list is given at the end of this feature.

On the road

We had almost ideal test conditions. The weather was sunny but cold, and on the first day of the test the roads were dry, but on the morning of the second day a heavy frost made the going a little tricky.

Entry into the cockpit is not a test of acrobatic skill as it is with some soft top cars, thanks to the wide doors and integral windows. The Cortina column, with its comprehensive range of stalk switches, kept the dashboard clear of clutter, and the familiar layout meant everything was easy to find. The brass-rimmed VDO instruments, with their white faces, looked very much at home in the varnished dash.

The leather-trimmed seat could



be adjusted to give over five feet from the front of the seat backrest to the front face of the brake pedal, and even a long-legged six-footer couldn't reach the pedals with the seat adjusted right back. The pedals were widely spaced, but there was no convenient place to rest the left foot, which was mildly annoying at first, but after a few miles we forgot

Above: it was perfectly comfortable driving the car with hood down and sidescreens up, even on the Yorkshire moors and at high speeds

Left: the test car ran a two litre OHC engine, mounted 20 inches nearer the back axle than in the Cortina, so resulting in some serious propshaft shortening. Engine access is good



all about it and it ceased to be a problem.

The 2 litre OHC engine fitted to the demo car didn't miss a beat throughout the test. It was quiet, revved well, pulled like a train and always started first time. Our first trip took us about 25 miles up the motorway towards the countryside for a photographic session. The car accelerated quickly and cleanly up to the legal maximum – well, perhaps a shade over – and with hands off the wheel, it ran straight and true with no hint of wander.

What was most impressive on this first drive was the absence of noise and the quality of the ride: there was no flapping of the hood; no whistling of wind around the windows; no intrusive exhaust boom, or road noise. It was a totally civilised environment in which we could conduct a normal level of conversion and driving was a real pleasure.

It has been mentioned before in these columns that it is difficult to strike the right compromise on spring rates to give good handling and ride under all load conditions. And this is more of a problem with a lightweight car, where petrol and passengers form a significant part of the weight and where the ratio of sprung to unsprung weight is low. The designer is very often in the position of having to fit springs that will cope with a full load, but which give a harsh ride when the car is lightly loaded. This may not be a problem with cars designed purely with performance in mind, but it is definitely a handicap for normal use. As we said before, the chassis in the Falcon is heavy, but it is this very weight that contributes to the smooth ride.

Once at the photographic location, the hood had to be removed and the car driven topless, but, despite the bitter cold this was not the chore it might have been. The hood is supported by two pram-type hoops which simply fold back after the front of the canopy is released by undoing three thumb screws and two press studs. With the hood down and the heater turned up full it is quite cosy in the cockpit. The permanent side screens prevent any draughts and even at 70 mph the wind only gently ruffles the hair.

The quiet, open, but twisting roads over the moors proved to be ideal for testing the road holding and overall handling characteristics. Generally, the car behaved very well and despite some hard driving it was difficult to catch it wrong footed. When driving into a bend too fast, it

understeered but came into line when the throttle was lifted. By driving well within the limits of adhesion of the tyres, remarkably fast progress could be made – and, more importantly, in an entirely fuss-free manner. Only one real criticism came to light – and this only during the more energetic manoeuvres – when the driver's right elbow kept hitting the door. Another two inches of elbow space would be useful here.

The following morning saw some icy road conditions and it was time for extreme caution. The Plus Two did not give a moment's concern, despite having to take emergency action to avoid an out of control car. Later in the morning we found our usual stretch of private road for the speed trials. The pacemaker was a two litre Ford Sierra, and in most respects the Falcon was a match for the Ford, although there was a strong side wind which buffeted both cars considerably and it was obvious that the Sierra's slippery shape was the more efficient – on a long up-hill straight, the Sierra, at an indicated 110mph, was still pulling away, but the Falcon Plus Two, stuck at just over the 100 mark.

Incidentally that high side wind did not seem to affect the stability of the Falcon as much as it did the Ford. It must be admitted though that, at high speed and with a high wind, the noise level in the cockpit rose considerably.

Conclusion

There is little doubt that, in many respects, the new car from JBA is one of the best kitcars we have tested.

Like most 2 + 2 sportscars the rear seat is only suitable for children up to about 10 years old, or maybe one adult for a short journey. In every other respect, it is a thoroughly practical motorcar.

It is not extreme in any sense of the word. The styling is restrained, the performance is good with the two litre Ford OHC engine fitted (for those requiring more power, V6 and V8 options are available), and the handling is safe. The weather equipment works well and the occupants of the car ride in comfort.

So it seems that Graham Levy is not a nutter at all. He's chosen to build a kitcar that will undoubtedly give him a lot of fun and driving pleasure, and is buying it from a company who take their responsibilities seriously. They are members of the Society of Motor Manufacturers and Traders, and as such they agree to abide by a certain code of conduct. Also the car has had to undergo certain safety and construction tests, so the customer can buy with confidence. And, to cap it all, he will be doing business with three thoroughly likeable people.

Graham can confidently expect to be running into more Falcons in the years to come. ■



Cost and contact

Basic kit:

Stage one – chassis including integral steel tunnel and bulkhead, door aperture mouldings (2), scuttle, doors (complete with hinges and anti-burst locks), rear floor, rear spring mountings, plywood dashboard, steering shaft extension, rear body panel moulding, fastener pack (basic), building instructions. £1050

Stage two – bonnet and body panels (aluminium), bonnet hinge, front and rear wings, boot, boot lid, boot hinge, front tray, windscreen (stainless steel), windscreen glass and sealing rubbers, radiator shell (GRP), heater air box, headlight mouldings, rear light mouldings, rear light lenses, JBA badge, aluminium trim, fastener pack (stage two), wing piping. £870

Stages one and two (purchased together) £1875

Extras:

| | |
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| De-luxe double duck hood (black) | £119 |
| Mohair hood (black, beige, brown) | £145 |
| Hood frame | £19.50 |
| Sliding windows (each) | £64.90 |
| Bumpers (unchromed mild steel) – each | £34.00 |
| Radiator grille (unchromed mild steel) | £69.50 |

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