Turning Circle

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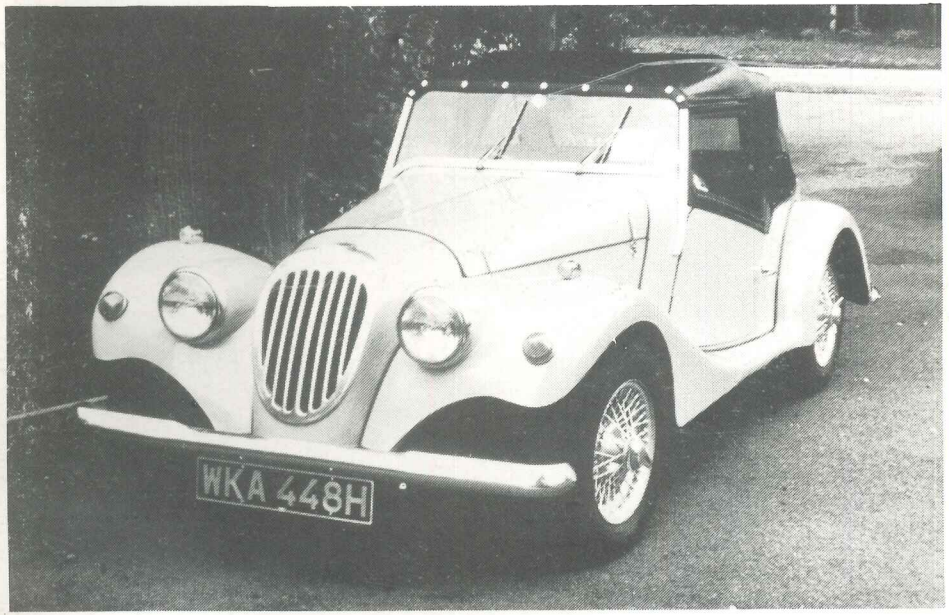
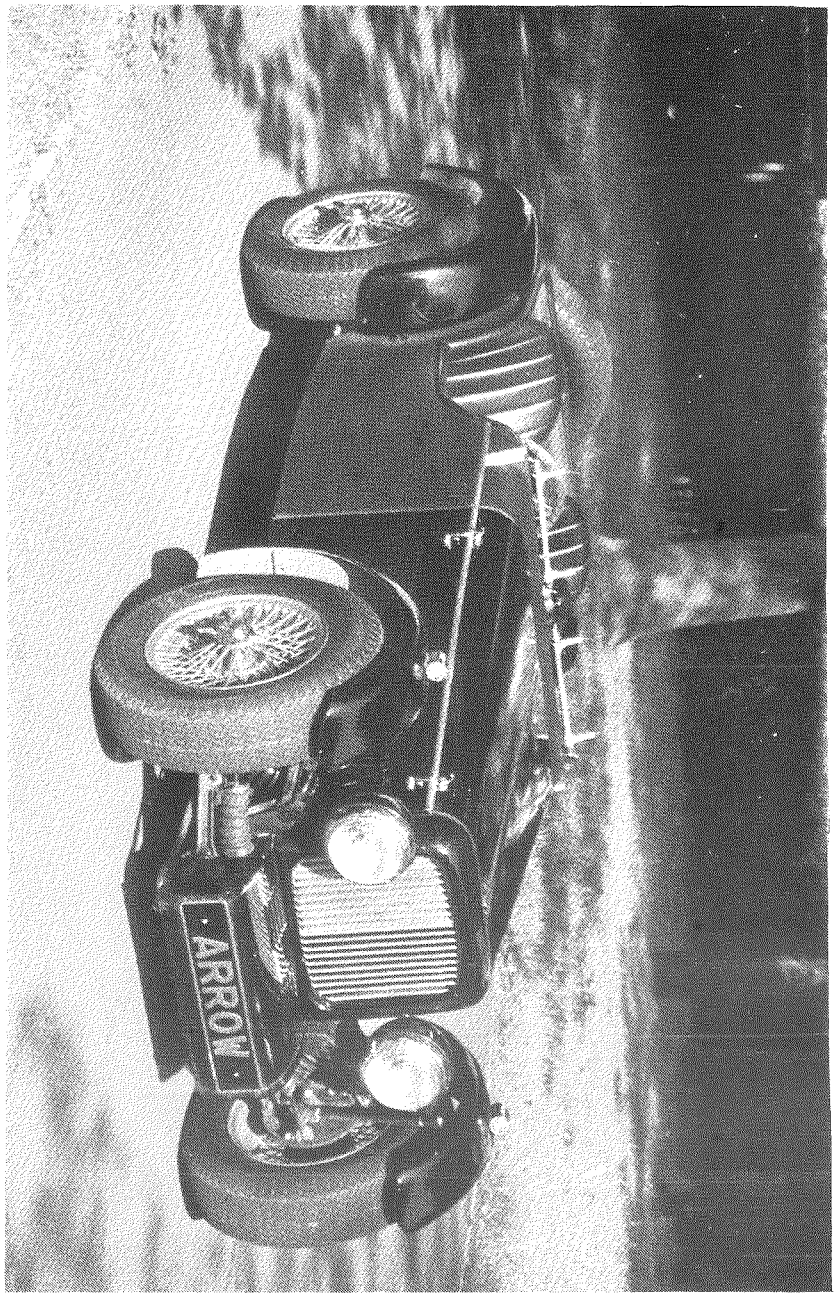


TRIUMPH BASED SPECIALS

TRIUMPH SPORTS SIX CLUB



BURLINGTON ARROW

TURNING CIRCLE
Editor: W. E. SUNDERLAND

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Photographs within this Magazine were produced courtesy of Ron Butcher (Cover), Brian Grant, Mr G J Holt and Bruce Atkinson.

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EDITORIAL

This 'Specials' Turning Circle will, I hope, be of interest to both owners of the conventional-type Triumph and the more modified versions. Personally, I have found it most interesting and refreshing to read just how versatile and inventive 'Specials' builders are; obviously a great deal of thought and skill go into each individual vehicle, making every car unique. I had never appreciated before just how many hours of hard work go into creating a kit-car - the job must take a lot of staying power!

It must be remembered, in nearly all cases 'Specials' builders use Club cars which are beyond repair and in this way, are continuing the preserve the name of Triumph albeit in a different form. They create a different dimension for the Triumph Sports Six Club in that they look to future engineering and not the past.

Hopefully after reading this copy of Turning Circle, members will help to promote the 'Specials' Register along with all other Club cars in an effort to further the TSSC as a forward thinking Club. The Specials market is surley on the increase and deserves much credit.

BILL SUNDERLAND

A TRIUMPH OF ENGINEERING

Despite the fact that is is now rapidly heading towards "classic" status, it would be hard to imagine a less inspiring car than the Triumph Herald and to a lesser degree, the Vitesse, so it is perhaps surprising just what a transformation can be brought about simply by throwing the body away and starting again. Even during its production life specials builders were quick to realise the potential of its simple chassis and running gear and during the last few years it has become a very popular basis for a kit-car: here we shall be showing you just what to look for when you set out to buy a car for your build-up, what you can do to repair the ravages of time and what you can do to make improvements.

But first some history and model definition. The first point to be made is that despite their similarities, the Spitfire and GT6 sportscars are rather different from their more staid saloon relatives and apart from one or two examples the former are not widely used by kit-car manufacturers. There is a notable example of a Spitfire/GT6-based kit though, the recently announced Hurrican from Vincent Cars of Reading and we shall be having a look at this later but naturally it is towards the Herald and Vitesse that this feature is weighted.

The first Herald (in Saloon, Coupe, Convertible and even the rare 'S' form) was current between 1959 and 1964, while during the Spring of 1961 and early in 1962, the 1200 range was introduced, some models running concurrently with the earlier 948-engined range. The 1200 was available in Saloon, Coupe, Convertible, Estate and even a rare van format and of these it is the Saloon and Convertible which you are most likely to come across. The former was made until December 1970 (over 200,000 were actually built), while 43,000 Convertibles were built up to September 1967. Also fairly common is the 12/50 Saloon which was built between March 1963 and September 1967, the following month, October, then seeing the introduction of the 13/60 Saloon, Convertible and Estate - this range was then in production until about the middle of 1971.

As far as the Vitesse is concerned, the MK1 was in production from May 1962 to September 1966 but as this has the distinction of having no less than a 1600cc, six-cylinder engine and the rather suspect rear suspension of the Herald, this is perhaps best avoided. October 1966 saw the fitting of the two-litre six cylinder engine that had proved such a success in the Triumph 2000, then exactly two years later in October 1968 the Vitesse MKII was announced, with, amongst other improvements, a rear suspension system that was rather more resistant to the infamous "tuck-under" - but more on that later.

The pick of the bunch then, boils down to one or two choices: the 13/60 Saloon or Convertible was built in sufficient numbers to be reasonably cheap, has mechanical simplicity in its favour and represents the youngest type of car that you will find. Its modest 1296cc engine also keeps insurance companies happy and combined with a lightweight GRP body usually provides outstanding fuel economy! If on the other hand, nothing less than a Vitesse will do, then go for a MKII either in Saloon or Convertible form - like the 13/60 this was built after 1971 so you should be able to find a decent example - and certainly be wary of the earliest 1600-engined cars.

WHAT TO LOOK FOR

The one thing you don't want to buy is a rusty chassis cleverly hidden beneath a recently tarted-up body, although having said that the fact that you are building a kit-car does put you in an excellent bargaining position. The most common reason for scrapping a Herald or Vitesse these days is because of MOT

failure caused by corrosion of the chassis outriggers. Quite simply this is not normally practical to repair because the body has to come off to make a good job of it but as any kit-car builder will be throwing the body as far away as possible he will have no problem.

For this reason it is well worth making sure that no bodged repairs have been carried out in the past as this is more than likely to have resulted in the body being welded to the chassis, a less than ideal state of affairs when you are struggling to get the body off! So, with grovelling mat in position, have a good look at the lonitudinal chassis rails beneath the doors and between the two wheels, then have a poke at the lateral box section rails that sprout from the main chassis back-bone. Now it is most unlikely that you will find a perfect chassis and to be honest even one that appears reasonable will probably start to lose its outriggers when you do get the body off, so it is almost worth budgeting for a complete set of new chassis sections to rectify the damage. This is what we had to do with our Herald/Moss and as John Cowperthwaite pointed out at the time, it really does have to be bad before a chassis is rendered useless. What you should avoid though, is a car with terminal rust in the main box-sections either side of the rear axle as this just cannot be repaired properly: needless to say this is rather hard to spot with the body in position and you will have to crawl under the back of the car with a torch and screwdriver to make a thorough inspection. This corrosion incidentally, is caused by inadequate drainage of the chassis rails, so if you do find a good one give it a dose of Waxoyl and then keep the the relevant drainage holes clear in the future.

Obviously impact damage is another nasty to avoid, without always being easy to spot but do remember that a Herald/Vitesse chassis that has had a good whack will probably be scrap: while it has fairly good beam strength (i.e.) resistance to bending in the middle) it has little torsional rigidity and you can easily find that it is badly twisted. That's why chassis repairs should be carried out on as flat and level a floor surface as possible and why plenty of diagonal measurements should be taken to check for accuracy.

The one other well-known Herald rust spot is the rear outriggers, the two box sections running to the tail of the car under the boot floor but fortunately most kits require that these are cut off anyway, or alternatively repair sections are readily available. In fact as we found out when preparing our Moss chassis, cutting off these sections then reveals just how bad is the corrosion in the main rails either side of the diff. but at the same time allows good access for future rustproofing.

Fortunately the Spitfire/GT6 is much less prone to rusting because of the absence of the Herald's outriggers but badly fitting doors could be the give-away of a chassis that is sagging in the middle: needless to say it is worth making sure that this is caused by no more serious a fault than badly adjusted hinges or catches.

POWER UNITS AND TRANSMISSION

If the chassis could present problems, then it's reassuring to think how reliable the small four cylinder Triumph engine is. Apart from the usual checks for oil and water leaks (the Herald radiator does tend to crack fairly easily) and untoward noises from the pistons, timing chain and big and small-ends, there really isn't much you can do. As ever you should try to buy a runner so that you can carry out the best possible test on the engine and indeed the gearbox, final drive, steering, suspension and brakes; needless to say you cannot expect shattering performance from a Herald engine, although the two-litre Vitesse engine should propel the car at a fair rate of knots. Having said that though we would tend to steer well clear of a 1600 Vitesse unless the rest of the car was perfect for your purpose and unless you had a spare two-litre unit to fit in its place.

As far as the transmission is concerned, you will rarely find an early gearbox with perfect synchromesh and bearings and there is always the possibility of the box jumping out of gear; you can check for this by alternately pressing and then releasing the accelerator fairly quickly. If you really feel so inclined you can crawl under the car again to check the propshaft universal joints and for oil leaks and then move to the back axle and check that - they will all have a certain amount of filth adhering to them and obviously neglect will have taken its toll on the internals but there are no particular weaknesses to look out for.

BRAKES AND SUSPENSION

If the power train is relatively trouble-free, then the suspension will probably give you plenty of work to do. Despite the use of a very neat and capable system at the front (consisting on unequal length wishbones with threaded steering trunnions and a simple coil-spring/damper unit) the most commonly used rear system is a bit of a mess.

The layout follows normal irs practice in that the differential is attached to the chassis, conveniently reducing the cars unsprung weight but unlike most other systems the wheels are actually sprung by a single transverse leaf spring which has its centre bolted to the top of the diff and its free ends bolted to the rear hub carriers. This would be all very wonderful if the car was only ever driven in a straight line but hard cornering allows the driveshafts to tuck-under so far that they cannot then return to their normal position and violent oversteer sets in. To be fair, the MKII Vitesse and GT6 do have a vastly improved set-up that largely prevents this rather undesirable phenomenon and all you can really do with a Herald or Spitfire-based car is remember what you are driving and stay within its limitations! Unfortunately it is rather difficult to fit the later Vitesse rear suspension and we would suggest that if you are that concerned about handling then a Vitesse would be a better buy in the first place.

In fact John Cowperthwaite of Moss fame recommends that one or two leaves be removed from the transverse spring to cater for the lighter GRP body of his car and this has the added benefit of decambering the suspension and largely eliminating the problem of tuck-under: we did this on our own chassis and would suggest that it really is worthwhile. All you have to do is remove the large eye bolt from each free end of the spring and then unbolt the complete unit from the diff. Then remove the large bolt through the centre of all the leaves, then the small clamps and discard the relevant leaves. Reassemble the spring, not forgetting the long bolt from its centre, then refit the complete unit to the diff and finally lever the free ends of the springs upwards so that the two bolts may be refitted. Spring bushes get in a state after a hard life - needless to say these should be replaced without question.

After this the only other point worth checking at the rear is the adjustment and security of the radius rods which run from the rearmost chassis outriggers to the rear hubs; obviously any deformation of the chassis will upset the wheel alignment as will removal and replacement of the rods without the correct number of shims between the front bracket and chassis. If you are in doubt get the wheel alignment checked on proper optical equipment but of course, only after the car has been finished and is in normal road trim.

At the front of the car, irrespective of model, your only major problem will be seizure of the steering trunnions which will most likely have been caused by an attempt to pump grease through the nipples provided - the threads should be lubricated by EP90 gear oil or the result could be an embarrassing collapse of the front suspension as the threads strip and the king-pins pulls out. You will soon know if there is a problem here by the incredibly heavy steering and the loss of any self-centreing action but a fault like this could always be a good bargaining point to get a few pounds knocked off the car's price. In fact we detailed what is involved in this job in the June issue of KC (pages 30-32) and at least the simplicity of the system means that it is cheap to overhaul: all the bits we needed came to less than £30.

Front brakes and the steering rack seem boringly reliable, although it's worth making the usual checks for worn pads, fluid leaks and then for splits in the steering rack gaiters. About the only modification you might have to do at the front end is swop the engine bearers round - on the Moss for example this allows much better weight distribution and engine access when a six cylinder engine is fitted although it is necessary even on a four cylinder Burlington.

WHAT CAN YOU BUILD?

First on the list of Herald/Vitesse-based cars is the Burlington SS from Haydn Davies. This is a traditional two seat roadster with more than a passing resemblance to a certain famous sportscar from Malvern and the illusion really is good enough to fool most people, most of the time! The main body tub is made from GRP and plywood with an alloy skin, the bonnet and wings are high quality GRP mouldings and the whole lot then bolts to a slightly modified Triumph chassis - as we said earlier for example, you will have to swop the engine bearers round in order to move the power unit back slightly and obviously this will then entail shortening the propshaft. The price of the basic body unit (but less wings etc.) is from £546 including VAT and further details may be obtained by sending £1 to Haydn Davies at the Burlington Motor Co. Ltd., 32 Avenue Road, Leamington Spa, Warks, tel: 0926-36152.

Continuing the replica/lookalike theme, the RMB Gentry is a fairly close copy of the MG TF using a tubular steel body frame with plywood inner panels and an aluminium outer shell. The doors, wings and rear apron are GRP mouldings and the whole assembly bolts to a Triumph chassis with the side members removed, so here at least chassis rust wouldn't present such a problem. The basic bodyshell starts at £670 plus VAT and there are options of interior trim kit, windscreen, weather equipment and even a hardtop. You can get further details by sending £1 to RMB Motors, Mill Street, Barwell, Leics, tel: 0455-46302.

If you have been reading through the magazine (also featured in T. Circle) you will doubtless have seen our Analysis feature on the Marlin but just to remind you, it has a strong tubular chassis clothed with alloy panels, this assembly then being fitted with GRP wings, boot section and nose cone. The full kit complete with windscreen, bumpers and sidelights sells for £895 including VAT and there are options of seats, tonneau cover, full weather equipment and a special body with opening doors. You can get more details from that feature or by contacting Marlin Engineering, Unit 7, Haxter Close, Belliver Industrial Estate, Plymouth, tel: 0752-781302.

Then we come to the Moss, a rather ingenious blend of Morgan, MG and even Jaguar styling, the end result being a pleasant, practical and very economical roadster. The main body tub, finished in self-coloured GRP has a strong plywood floor and to the body/chassis structure are bolted the GRP bonnet, doors, plus front and rear wings. The full body assembly costs £947 including VAT, and options of trim, seats, hood, tonneau and carpets are available. For more details write to the Moss Motor Company, 20 Store Street, Sheffield, tel: 0742-754849.

Finally, the last car in our Herald/Vitesse-based section is Haydn Davies' latest creation, the Burlington Arrow. In fact the car is so new that it was only as recently as the Santa Pod Rally on June 5th and 6th that it had its first public showing and needless to say it created a great deal of interest. What Haydn has done is to return to the original and now rather forgotten, thinking behind the kit-car, i.e. to let the builder fabricate as much of it as he can. For this reason the amount of GRP used has been kept to a minimum and the body is built mainly from steel tube, aluminium and sheets of plywood. In fact all you really need to buy from Haydn is an instruction and plans pack, the GRP scuttle top and the radiator cowl. However, for those who don't relish the thought of the work this entails and would rather pay someone else to do it, the body can be supplied as a set of parts ready to be bolted together and dropped onto the chassis.

The car has the classic lines of a two seat roadster, with nice big wheels and the radiator grille in line with the front hubs and would make an ideal project for somebody who wants to combine carpentry with car building.

The car's price structure is difficult to comment on as each individual builder will want to approach it slightly differently, so we would suggest you contact Haydn for further details. However, £300 will see you a long way towards owning an Arrow.

Moving on now to Spitfire-based cars, the first under consideration is the DSL Spyder. This is best described as a cross between a Spitfire and a Dutton Phaeton and in that it consists of GRP panels for fitting to the front and rear ends of a Spitfire is more a conversion than a kit as such. The main Triumph body structure, doors, running gear and interior remain unchanged allowing one to carry out a simple and cheap update on the base vehicle; all panels can be purchased separately if required.

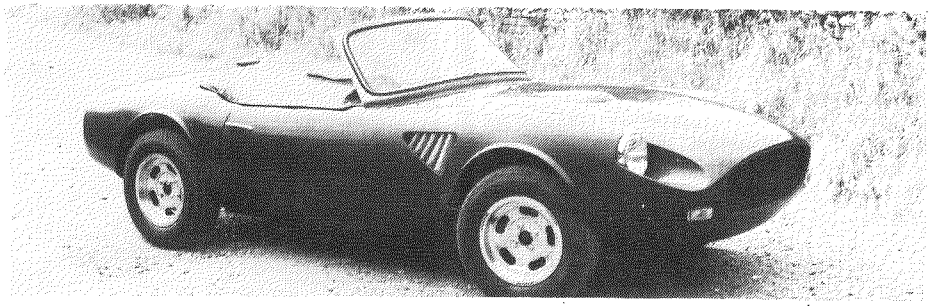
You can get further details by writing to DS Ltd., Unit 10 Hambridge Trading Estate, Worthing, Sussex, enclosing 50p to cover costs and postage.

Finally, the last car on the list is the Spitfire-based Hurricane from Vincent Cars, which is an interesting departure from the other Triumph-based kits in that it isn't a thirties and forties style two seat roadster, more an interpretation of the typical sixties, seventies and even eighties style open sportscar; although the kit consists of a brand new complete bodyshell, it has been designed to accept virtually all the fittings from the base vehicle, which with most Spitfire models even includes the wind-up windows.

The kit actually comprises a partially stressed GRP body/floorpan unit, a forward hingeing front end with concealed hinges, doors and finally bootlid. The car has been designed to accept the hood, windscreen and door windows from any MK1, 2 or 3 Spitfire, although the MK 3 is apparently the best type to use as it folds down behind the seats when not in use. The power unit can be anything from the smallest 948 Herald unit right up to a fuel-injected 2.5 from the big Triumph Saloon and chassis and suspension may be from any Spitfire or GT6, although you do have to specify which car you will be using on your order.

Price of the Hurricane is a very reasonable £695 plus VAT for a complete body unit and although we hope to bring you more details of this interesting new devleopment soon, more information can be obtained from Vincent Cars, 12 Millbank Crescent, Woodley, Reading, Berkshire.

Courtesy of Kit Cars/September 1982



THE HURRICANE

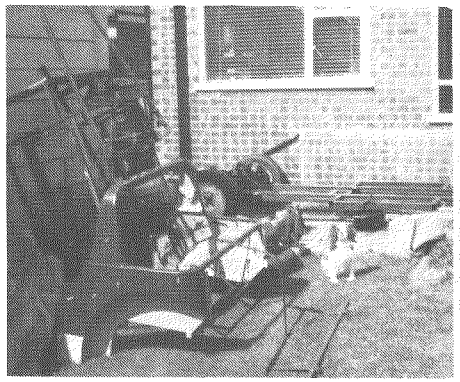
BUILD SPARTAN'S

The Spartan car was and is the brainchild of one much maligned Jim McIntyre who actually started producing kits some ten years ago. The driving force behind the idea being the belief that a true sports car should have a separate chassis. To this end the Herald/Vitesse proved an ideal basis for a replacement body. The body style is based on the late thirties and early fifties cars. It is not, however, a replica but there are obvious MG lines.

The body consists on an 1" square steel tube frame with an alloy skin. The rear wheelarch and side section is an alloy casting which carries the roll-over bar and hood frame. The roll-over bar shows mid-70's design when the American regulations were killing off open cars. The front and rear wings are bolt-on glass-fibre, the only modern items.

The first kits were only body sections. As the years passed, good, solid chassis units of Triumph origin were becoming rather scarce, so logically an alternative item to take the Triumph running gear was made available. As a further progression, a chassis was produced to take a Ford beam axle. The ladder style of the chassis had the further advantage of making any engine fitment possible. I've seen every Triumph unit fitted: MGB, Fiat twin cam, Rover V8, Ford OHV, OHC and V6 and a Sunbeam Rapier 1725 plus a few others. The best loved is the Triumph six unit.

Customer demand produced a +2 version around 1978. This was really a stretched two-seater. The +2 cannot be built on a Triumph chassis, as the wheelbase is stretched by six inches. The body change was put into the doors and an increase in height of the roll-over bar. The design has an advantage of not looking like a pram with an engine, the Morgan four-seater with the hood up shows this point. The disadvantage being that the +2 part is as most



+2 designs, i.e. +2 halves, of course, with the top down "the sky's the limit" (excuse the pun).

Unfortunately, the Triumph-based Spartan is no longer in production as it has now been replaced by a Ford only based model; I and quite a few others would have liked to have seen a progression to the Dolomite range.

MEV 80C

My own car started as a rolling Vitesse 1600 chassis. As a +2 model model was to be built, all mechanics were transferred to the Spartan chassis. As a GT6 was found broken, I purchased the carbs., front suspension 3.89:1 diff. and heater. Before fitting all parts were re-conditioned as necessary. The mechanical specification was Vitess 1600cc, re-bored + 20 thou., 9:1 comp. flowed head, overdrive gearbox, 3:89:1 diff., GT6 rear spring, SAH GT6 front springs, Spax front and rear shocks and standard exhaust system.

The body kit was now collected and most unwanted parts were stored away in the attic. I once read a report that said, "The Spartan is not so much a kit-car as an outomotive jigsaw".

The building up took eight months of steady struggle. Many threats of putting my bed in the garage may convey the hours involved.

Insurance was arranged and, to my surprise, the car was classed as a standard Vitesse 1600. The MOT was passed first time. Registration was also less of a problem than anticipated and I kept the original number, thus avoiding car tax. It was now time to have the car sprayed, the colour was the choice of my wife Sue, Ford (sorry to keep using that word) Diamond White. That done, it was a matter of trimming and refitting all the lights before any driving could be undertaken.

Total time from start to finish was 12½ months and cost went way over budget. The best advice on that point is to work out how much you anticipate and double it! This also seems to apply to restorations.

The next three years saw Land's End, Inverness, Aberdeen twice and Innsbruck. The car has proved to be a very good long-distance tourer and returned an overall 32 mpg.

I had the desire for a bit more go, so looked into the viability of tuning or going up in cc's. I contacted my insurance Broker as to the cost of fitting a 2-litre and also about a 2.5-litre. To my surprise, the 2-litre would not affect my premium and a 2.5 would cost an additional £9 only. Out came the 1600 engine and box and in went the 2.5 and O/D box. The propeller-shaft had to be shortened and a GT6 radiator with a Fiat 132 fan were also fitted. The rear end was converted to MKII Vitesse and a 3.27:1 diff. fitted. The gearing gives 24mph per 1,000rpm in O/D fourth. The consumption has gone to 38mpg touring with a trailer on tow and 31 pottering about. Wheels fitted are Wolfrace 6" x 13" Turbo, with 185 - 70 Michelins, which cannot put the power down in the wet. Despite the gearing being for touring, the car will leave an XJ6 4.2 well behind from a standing start and has wiped the grin off a Cavalier SRi driver, who was left well behind on the usual roundabout exit G.P. (Grand Prix). I have further plans but that is for the future.

Q49 KEW

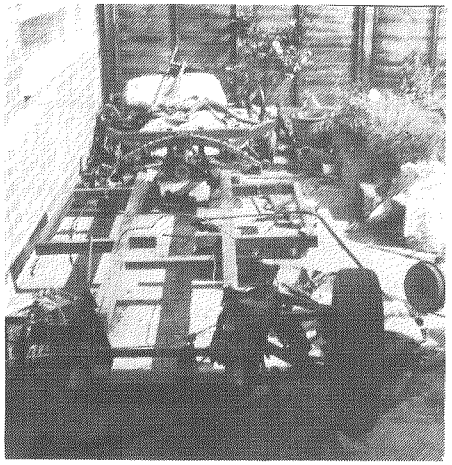
My brother had the desire to own a Spartan but hadn't the time to build one as he is building his own house, as and when time permits. He had the good sense to get it built for him by me.

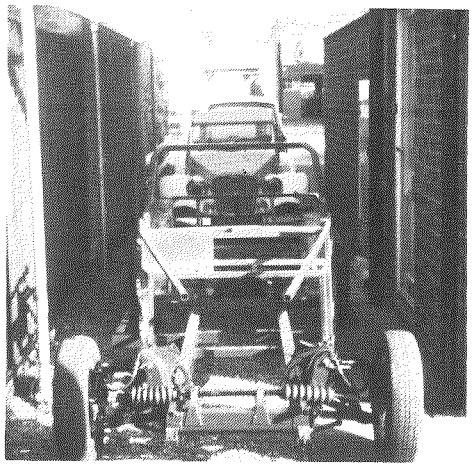
An abandoned kit was purchased and stripped back to the chassis. Many body panels were bodged so these were replaced by new items. During the build-up I did quite a lot of chassis and body frame strengthening. This car is also a +2 model. A Vitesse MKII engine and O/D box were fitted. A 3.89:1 diff., Wolsley six brake servo, MKIII GT6 long drive shafts and centre pivot spring went into the rear. Spax shocks again were fitted. The cooling was taken care of by an 1800 rad. and Fiat fan.

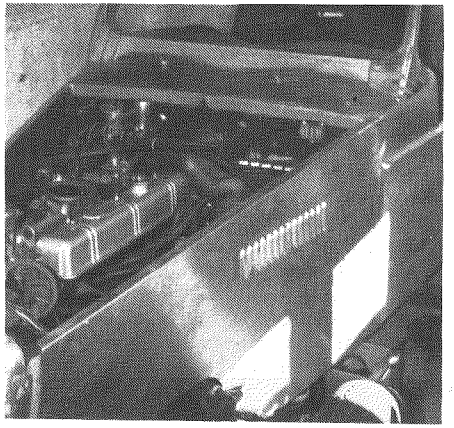
The build took 950 hours and 12 months. The colour on this car is Mercedes Light Ivory. On the road I think I prefer the suspension to my MKII set-up, but the chassis and body mods. that were incorporated may account for some of this. It is also a fact that I learned how to sort out the swing axle back in the days of my Herald Coupe ownership.

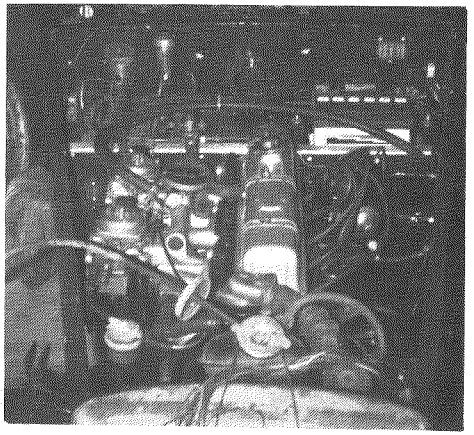
Q49 KEW now resides near Aberdeen and is causing a bit of surprise to both the driver and other road users as to its ability to get up and depart.

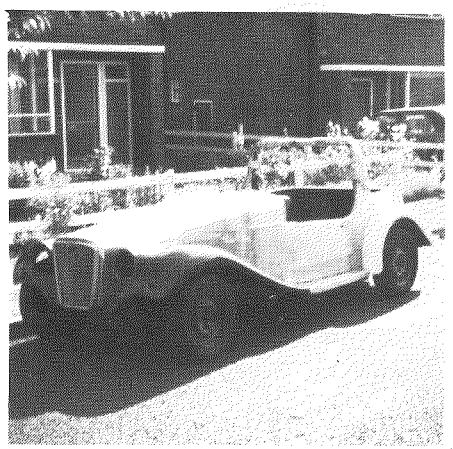
By Brian Grant











BUILDING A SAINT

Mr G J Holt, a Teacher at St Leonard's R.C. Comprehensive School in Durham City and a member of the TSSC, has been introducing his students to the delights of kit-car building in the form of this School 'Special Project'. The following article is the result of their labours.

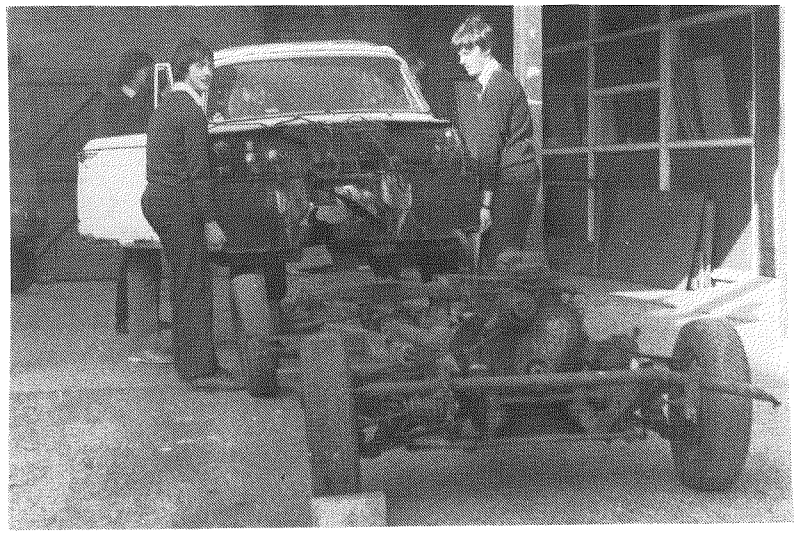
The school was invited in Nov. 1982 to build a car for exhibition at the North of England Motor Show (to be held in July, 1983 at Whitley Bay, North Tyneside). Bodywork had to be of our design and the vehicle had to be driveable, steerable and stoppable. Some discussion with the Lower Sixth Chemistry set resulted in an idea for a 1930's - '40's roadster and being a 'Herald' man, I immediately suggested this should be built on a Herald chassis. Word was then spread through the Sixth Form for a suitable vehicle - free, of course - and the very next day a Sixth Form girl informed me that a Vitesse was dumped in a relative's field and that we could have it for nothing.

Upon inspection a sorry looking Herald 13/60 (with bits of Vitesse trim) was found, which had only 66,000 miles on the clock and several new bits (brake hoses and exhaust), although the body and floor were in a poor state and the bonnet was missing, (see **fig. 1**). The chassis was difficult to inspect, but looked reasonable.

Problems in transport then arose (along with snow and the Christmas holidays) but a garage break-down crane was borrowed for a £10 fee. Also the farmer had a set of tyres and wheels hidden away and, using his forklift tractor, fitted these: this did the chassis siderails no good at all! After one false start - when the break-down crane broke down - the car was moved to the school on 23rd February, 1983. Removal of grass and stripping down of removable (stealable) bits commenced at once. This continued for the next few days - every-

Fig. 1
Original condition
January 1983

Fig. 2
Removing body
(8-boy power)
4th March, 1983



thing possible was removed from the body to lighten it, but the roof and doors were left on to brace it.

Eight-boy power removed the body on 4th March, 1983 (see **Fig 2**) and the chassis was wire brushed. It was not as good as we thought - the mice were in! Eventually six members were replaced and a rear one (newish but rotten at the roots) was shortened and welded back on. Both rear members were altered to run parallel to the side rails. The main chassis was also heavily plated.

The chassis was finished with Hamerite paint on 16th March, 1983. The body was then tipped on one side and the 'floor' - a collection of large holes held together with bits of metal - inspected. A stip of plate was welded across the floor joint in the body to brace the structure. Two new floor pans were welded in and plating done over a wide area. The steel for this came from a redundant forge, which was broken up and was of good thickness. New mounting points were made up of thick Dexion angle and welded on.

After the Easter holidays and by 25th May, 1983, this work was complete, painted with Hamerite, small gaps filled with 'catty' and the whole undersealed. The body was then lifted back on and, after a little hammering and drilling, bolted back down (easily said, but not so easily done!).

The body sides, roof, etc. were then completely stripped off, including the boot floor, except for the front bulkhead. We were then faced with the rebuild and source of materials. These were provided by a parent from a scrap IBM computor! Yes, the car was built by computor! The large steel side panels from the computor were used for plating the body, while the 1" square box steel framework was cut up and re-welded to shape the body framework. The back bulkhead from the Herald was re-used but re-positioned in front of the rear wheel arches. The two pieces of inner bodywork carrying the seat belt mountings were also welded back in. We decided

on no doors, as these were too difficult to arrange quickly.

Items were also assembled from scrap vehicles. One of our intentions was to use parts readily available from breakers so that other vehicles of similar design could be built (would anyone be so foolish?). Accordingly VW rear wings (modified), lights and modified running boards were used, with a Citroen 2CV bonnet, (cut down as a boot-lid), headlights and front wings, (a 2CV windscreen with wipers and folding roof were also obtained for later use).

An S-type Jaguar bonnet was cut down and rewelded to form a bonnet, held with Herald boot hinges and rally-type pins. An old petrol filler cap formed a fake radiator cap. The tank was patch-welded and refitted across the back bulkhead with the battery in the boot.

Because of time shortage, the Herald windscreen was cut off and aircraft screens made from plastic sheet. The radiator grill was made from a chrome-plated computor software basket, fitted with a 'Saint' mofit, made from sheet copper. Our intention was a white spray finish but we ended by brush-painted in black and fitting trim and seats actually on the car trailer, just before going to the show on 21st July, 1983. Needless to say, we didn't win prizes for the body finish, but the BBC/TV reporter was impressed and good TV coverage resulted. The car looked great from 30 feet away!

On the mechanical side, new copper brake lines were fitted and the brakes overhauled. The engine had been left in the open for over a year (no bonnet) and the manifold was missing due to the cast iron lower half being broken (common fault?). A "scrap" manifold and a bit of towing soon had the car re-started and going very quickly, but a jammed valve necessitated a head change two days before the show, wasting much time in our body building efforts.

Since the show, other problems have emerged: we badly need a 13/60 radiator and a frost penny in the head is rotten, plus the electrics are playing us up. Also we have fitted the 2CV screen with Herald side screens and are attempting to construct a convertible, using the 2CV folding roof (see **Fig. 4**). We need the sides of an old Herald soft top to stitch to this. Finally, the body and grill need refining and the body repainting white. I would prefer round headlights but we cannot afford these.

Our intention is to get the car MOT'd and re-registered (Q reg?) before November, 1984, so that the school may sell it, if this is decided upon. The cost so far has been about £250.

By G J Holt - 83/66II

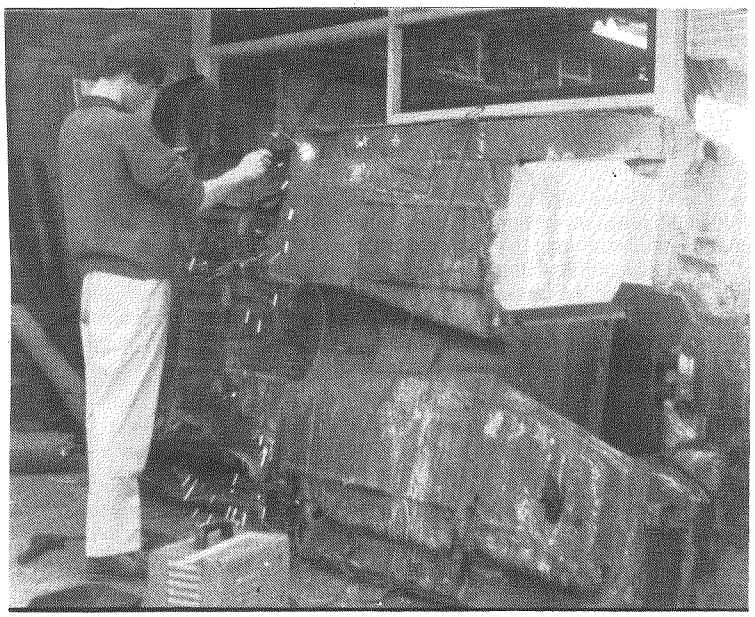


Fig. 3
Welding floor pan
April 1983

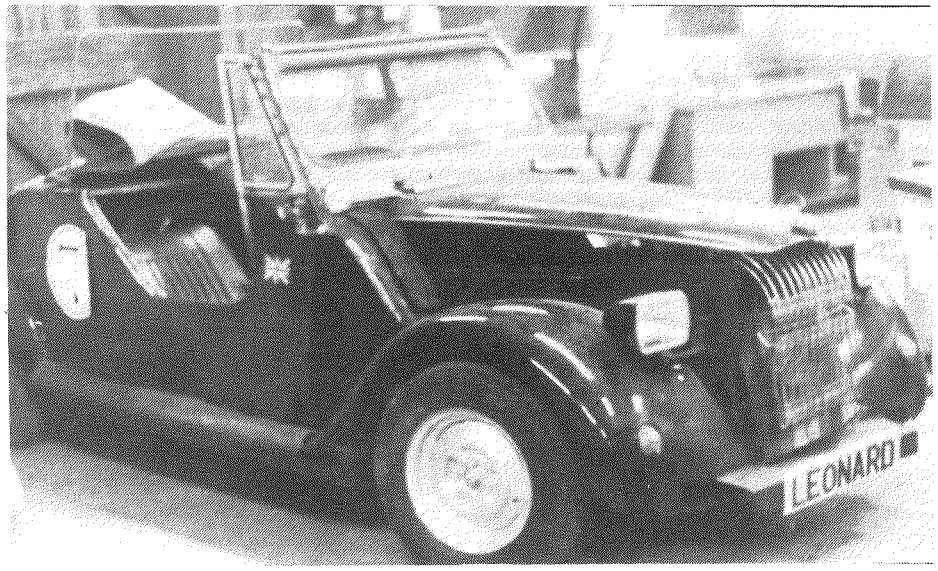


Fig. 4
Present state of 'The Saint'
Windscreen and beginnings
of convertible mod.

BURLINGTON SS

Chris Horton takes an in-depth look at one of the bravest ventures currently operating in the kit car industry

There are times when the differences between Britain's major car manufacturers and the alternative producers seem so great as to stun the imagination. The Fords, BLs and Vauxhalls of this world spend vast fortunes on developing new models, setting up tooling and production facilities, and then more often than not turning out a car that is bland, if not boring and with a life span of around 10 years if you are lucky. The 'other' car makers have a rather different approach though; money is nearly always in short supply, time is a precious commodity and quite simply they cannot afford to make mistakes.

Haydn Davies is one such manufacturer. With only part-time help he has created the car that is the subject of this month's analysis but more to the point he has got it right first time.

Working from a tiny lock-up railway arch in Leaminton Spa's town centre, he has taken the car through from the first idea to a fully completed, viable vehicle and probably for the sort of outlay BL spend on paper clips each year.

Of course, as far as styling is concerned he had quite a bit of help along the way from a certain sports car manufacturer in Worcestershire, although Haydn maintains that the car was in no way intended to be a replica; he says he simply used the four wings and the nose cone from a Morgan as the basis, so in view of that it is hardly surprising that the car looks like it does.

First Impressions

The general appearance of the car is excellent, due in no small part to the quality of workmanship. Haydn Davies makes the main body tub from half an inch of exterior grade plywood, joining the various bits and pieces together with a combination of angle iron and fibreglass matting. The outer surfaces are then skinned with aluminium sheeting - which provides an excellent surface for painting - and the bonnet and nose cone are moulded in GRP. The GRP wings are supplied by an outside contractor but again the quality is superb, as is their fit to the main tub. Paint quality was good too, especially considering the hard use to which the one and only demonstrator has been put.

Some measure of the car's success must be in the way it fools most people; unlike the Morgan, it has no doors and the distance between the rear wings and the rearmost point of the cockpit aperture is very much shorter but the overall effect is there. From the front it really does look superb; rear and rear threequarter views are less successful. The tail of the car seems too low and as it stood, the rear wheelarches could do with filling out rather more ..... and the rear wheels are already fitted with spacers! A further departure from the Morgan is that the spare wheel is not recessed but again this is the sort of thing that only a true Morgan afficionado would notice.

The test car was fitted with plenty of period hardware, which was a nice touch. There were a couple of aeroscreens for example and we liked the ball type wing nuts fixing the windscreen frame to the body.

Nuts and Bolts

So what will you need to build a Burlington and what do you get from the manufacturer?

The car is based on the proven and easily available Triumph Herald/Vitesse chassis and running gear, the only modification required being to move the engine back a few inches; you can do this simply by swopping round the suspension towers/engine mountings. You may have a few more clearance problems if you use the two litre engine because of its extra length but it does fit in. the test car did in fact use a Spartan chassis - more on that later - but there is no reason why you couldn't unbolt the body from your rotting Herald and fit the Burlington tub back on almost straightaway.

Unfortunately, during your build you will require one or two bits and pieces from other cars but they should not present too much of a problem. You will have to get hold of a Maxi plastic radiator expansion tank and a 13/60 Herald radiator (or late 1200/1250 unit), as well as a Spridget petrol tank and filler neck. You will also need Sprite MKI or 2 wiper arms and blades and two sets of plastic wiper shaft mounting pods from a Mini. Suspension-wise, another requirement is the fitting of Spitfire springs front and rear to compensate for the lighter weight of the Burlington.

The test car also used A35 front sidelights, number plate lights from a Mini and rear lights and bumpers from a Hillman Imp, although here the choice is up to you; suffice to say this is the combination that probably looks just 'right'.

As far as the kit is concerned, you get the main tub, bonnet, scuttle top, engine compartment sides, bonnet hinge and all alloy extrusions and steel brackets for £426. The four wings and the nose cone will cost you £230 and a windscreen and wiring loom £56 and £35 respectively; all these prices are exclusive of VAT.

At the time of writing a hood is under development and in fact it should be available as you are reading this; the price for this, including all sticks and fittings is £100 plus VAT. Originally a tonneau cover was available too but Haydn realised that the wide variety of seats and steering wheels that are likely to be used make it very difficult to standardise, so this is now left to the customer; most vehicle trimmers would be happy to make one up for you at quite a reasonable cost.

Construction

It makes a refreshing change to find a kit car manufacturer who admits from the start that building the car will take you at least three or four months of spare time work. It could be done more quickly than this but the end result would probably betray the haste. An electric drill is claimed to be the most advanced tool you will need and provided you have an adequate range of tools to enable you to cope with the greasy bits, then we can't see any problems.

You will require a certain amount of machining to be done; the propshaft will have to be shortened and both the gear lever and steering column lengthened but most engineering firms will happily do this for you.

Your first step should be to reduce the base Triumph to a heap of rubble and in view of the comprehensive instructions that are supplied this should be a piece of cake. A list of parts that must be saved in an undamaged condition is provided, as are full details of modifying the engine and gearbox mountings.

The work required on the chassis will obviously depend on what sort of state it is in but bearing in mind how old the average Herald is these days, it is probably wise to reckon on renewing just about anything that moves; sloppy, tired suspension is the one thing that betrays a car's age and origin, so if you take the trouble to do a good job here then you will reap the benefits later on.

Fitting the body to the chassis appears straighforward enough. You will have to drill mounting holes yourself, first making sure that the body is in exactly the right position and you may need to juggle around with wooden spacers to get everything level. Very comprehensive instructions are provided on the subject of

wings and the nose cone as this is the one area that can make or mar the car. The last twelve inches of the front wings are left to the builder to trim because there will always be slight variations in body dimensions and at the rear you will have to trim the innermost edge of each wing to get the right width. It was nice to see, incidentally, that the join between front and rear wings has been improved over the original so that they fit flush and without a great gap. Plastic beading is fitted between the wings and body, so to get a good finish it is recommended that the various components are painted first; otherwise it is very difficult to avoid unsightly overspray and to get paint behind the beading as well.

After Sales Service

One only has to talk to Haydn Davies for a few minutes to realise how totally involved he is with the car and how ready he is to help owners build themselves a vehicle they can be proud of. Despite the lack of facilities and time he has produced a most informative build-up manual and although some of the drawings are a little crude, they do the job well enough.

The instructions themselves run to nearly thirteen pages of type and are detailed enough so that even someone completely new to kit cars should have no problem; and let's face it, you have to have some idea of what you are doing anyway. While he obviously can't spend all day on the 'phone sorting out problems, Haydn is an approachable sort of chap and would certainly help you if you were really stuck.

He has also taken the trouble to put together an informative sales leaflet about the car, listing some of the questions that most people seem to ask, like can the car be built on a Spitfire or GT6 chassis (no, the wheelbase is too short) and is a left hand drive version available? (... we can do almost anything).

You can have the body delivered to you, albeit at a charge of 25 pence per mile each way, so it would be cheaper for you to hire a Transit and pick it up yourself - apparently one customer turned up with a Cortina and a roof-rack and made it all the way back to Leeds.

Some 35 kits have been sold to date and only minor modifications have been made along the way, so that must say something for the soundness of the original idea. But no doubt if, during the course of your build-up, you came up with some really devastating new idea to make it easier or cheaper to build, Haydn would be most happy to hear from you!

Getting It On The Road

Pleasant as it is to have a nice new X registration, you really are better off with the donor car's number. This drastically reduces the amount of paperwork and money that changes hands between you and the licensing authorities and although you will have to get an MOT certificate from the word go, that new number would be out of date in a year anyway. In addition you could argue that an older number suits a car like this much better, especially when you take the trouble to fit a pair of old type pressed aluminium plates; anything registered after August 1st, 1972 has to have reflective plates and you can imagine how awful they would look on a car like the Burlington.

Insurance will obviously depend to a large extent on your age, driving record and the engine in the car but to give you some idea, we got a couple of quotes from the two specialist car insurers, Adrian S Flux and Anthony Gover. Our first typical owner was a 23 year old living in London, using the standard 13/60 engine and with two years' no claims. For third party, fire and theft, he would pay £200 through Adrian Flux and £186 through Anthony Gover. Our second chap was a 32 year old living in Oxfordshire, with full no claims and using a 2 litre Vitesse engine. Through Adrian Flux he would pay £106 for third party, fire and theft and £261 for fully comprehensive cover and using Anthony Gover, £93 and £208 respectively.

Behind The Wheel

It is on this part of an analysis feature that one has to be careful to remain impartial; no two cars will ever turn out exactly the same, so to criticise the siting of controls and the lack of creature comforts on Haydn's own demonstration car can be misleading.

To be totally honest, I did not find the Burlington the most comfortable car to sit in or drive, simply because it had been designed to suit its 6' 3" builder, one Haydn Davies, rather than a mere 6' journalist. The Spitfire seats were fixed to the floor so that fore and aft adjustment was out and so that I could reach the pedals with some degree of certainty we had to wedge the board to which are attached the seat backs in a slightly forward position. This gave a tolerable seating position, although the consequent lack of lumbar support started to play havoc with my back after the first thirty miles or so. The driving position has a very vintage feel to it; the steering wheel is quite close to one's chest and almost vertical to it and one is conscious of that long stretch down towards the pedals, especially the throttle.

The gear lever could usefully have been longer too, although the handbrake was reasonably positioned on the nearside of the transmission tunnel; it didn't work but that's up to the individual!

Despite the lack of doors, getting in and out was easy thanks to the cut-outs in the body sides where doors would normally be and of course this means that one has plenty of elbow room; there is certainly no feeling of claustrophobia in the cockpit, although we haven't yet tried the car with a hood fitted.

The instruments (again, most of which didn't work - tut, tut!) were from a Jaguar saloon and looked very nice, although some could have been sited with a little more thought; but once again this is up to each owner to work out.

On The Road

This, unfortunately, was where the test car betrayed the rather dubious past of some of its mechanical components. The engine and gearbox had both covered in excess of 100,000 miles and so were well past their best. Admittedly the engine coped well enough with the meagre weight of the Burlington but changing gear proved to be a most amusing exercise; the gate on the lever was non-existent, so one had to be very careful not to change from second to first instead of from second to third. The third to top change also took some getting used to if one was to avoid finding all sorts of falce neutrals!

The car also tended to attract attention for one or two dubious reasons ... like the noise. As Haydn would be the first to admit, the exhaust system was not as good as it might be and it did sound rather like a Lancaster bomber on its take off run.

I was also conscious of a large number of assorted rattles and squeaks from the suspension and chassis, especially on indifferent road surfaces and, in fact, this showed up another weakness of this particular car, i.e. its steering. The test car has a Spartan chassis which for some reason means that the steering track roads are of vastly differing lengths, the effect of which is to produce interesting bump steer. So, although to all intents and purposes the cornering was good, with very little roll, one was never sure exactly what the car would decide to do halfway round a bend, so I was unable to find out what it was capable of. Even with Spitfire springs the ride was quite firm and again on bad road surfaces this could become very tiring. The brakes, on the other hand, were good and inspired great confidence.

I felt that a little more protection from the weather would have been an advantage too. Admittedly a hood is now available but the whole point of having a car like the Burlington is to drive it with the hood down. Now I must admit straightaway that I have never been that keen on convertibles simply because of the turbulence one gets in the cockpit but sitting in the Burlington at anything over 50 was like being in a whirlwind.

With only a windscreen to deflect the slipstream one gets blasts of air whipping round the screen pillars and it would have been nice to see some deflectors to match the aeroscreens. Nevertheless, I would imagine that with the right clothing on one could drive the car with the hood down even in the depths of winter; the test car was not fitted with a heater, but there was plenty of warmth coming up through the footwells and transmission tunnel. Paradoxically this could in itself present a problem if you were stuck in a jam on a very hot day ...

So don't go up to Leamington expecting to drive a luxuriously appointed and beautifully finished Burlington demonstrator. Haydn's car has to work hard for its living and although he is arguably doing himself an injustice by not having a perfect demonstrator, he is content to let the quality of what he actually makes and supplies speak for itself.

Owner's Experience

When looking at a machine like the Burlington it is all too easy to let the manufacturer's enthusiasm obscure the realities of what the car is like to build and live with, so to give me the other side of the picture Haydn introduced me to Paul Atkins, who has just completed his car.

As a self-confessed newcomer to cars in general and kit cars in particular, Paul's efforts were most encouraging and he himself was pleased with the result. He found no great problem in building the car and agreed that Haydn was only too willing to give advice. Living in Leamington he was naturally at an advantage in that he could call in at the factory without any difficulty but he had done an excellent job, even incorporating one or two interesting ideas of his own. For example he had panelled in and carpeted the boot area (reached by tilting forward the board behind the seats) and had also fabricated an adjustable pedal assembly to cater for smaller drivers and in view of my similar comments I would hope that perhaps Haydn would build this feature into subsequent cars.

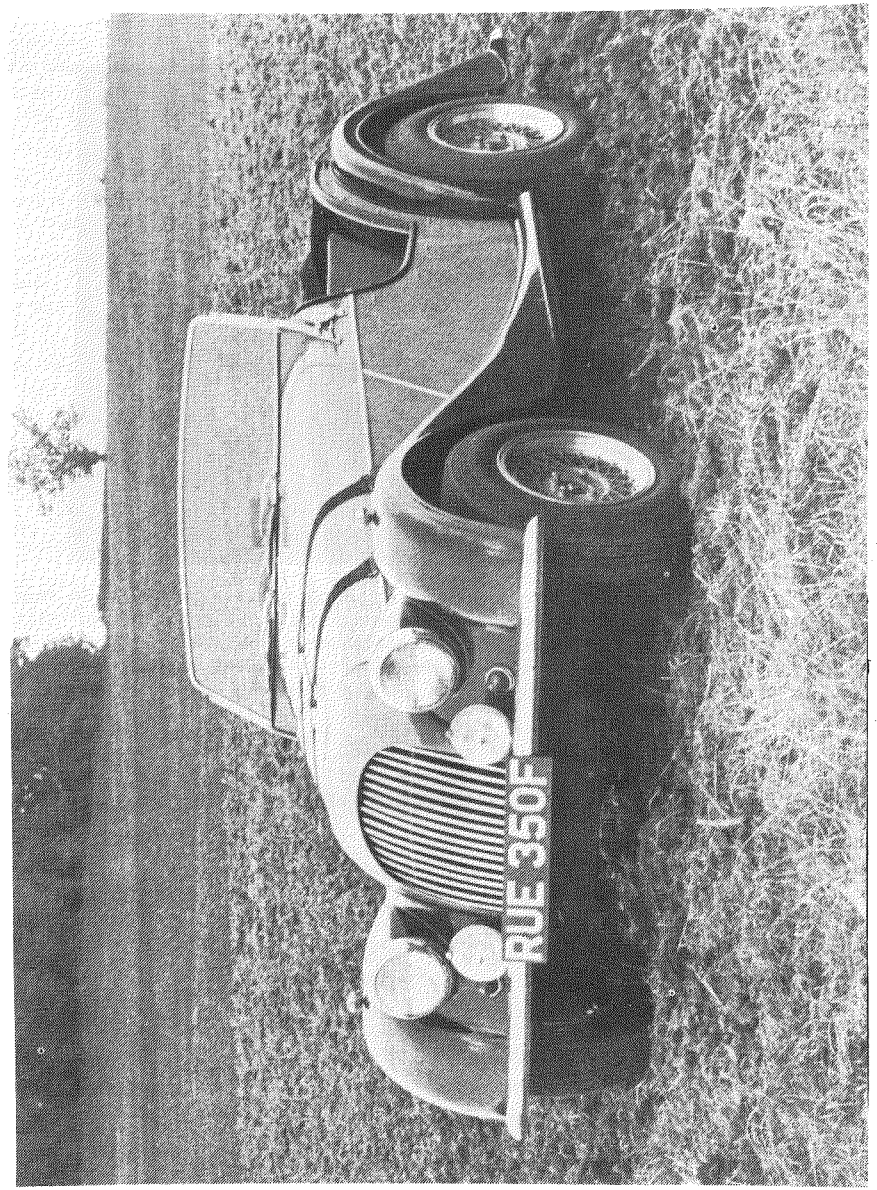
Paul did his own spraying, again making a very good job of it, especially in view of the fact that he had chosen a two tone metallic finish and the car looked very smart. The fit of all the panels was good on this second car too, although the bonnet had been trimmed a little too enthusiastically along its forward edge.

Conclusion

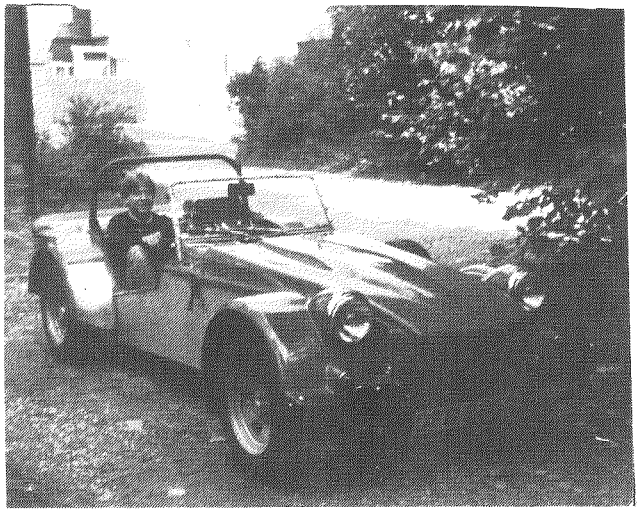
The most difficult part of this analysis was in deciding how critical to be of the mechanical condition of the test car. If it had been a car from one of the large mass-producers then there would have been no problem but because one can see how the smaller manufacturers have such limited resources and because they are making no pretence at selling complete cars that are perfect in every detail, this is a very grey area. Without a doubt, the body components that Haydn Davies sells are of a very high quality and depending on the individual builder could be made into a highly desirable car. So the fairest thing we can say is that we liked the concept of the Burlington and the quality of the kit itself. We have tried to ignore that fact that the test car was something of a mechanical disaster and would hope that you, the reader, would do the same; all the same it is definitely worth careful scrutiny if it is the sort of car you are looking for. As Peter Filby remarked in his brief test in Alternative Cars some months ago, given the choice between Burlington and its Worcestershire cousin, I know which one I would rather have.

Courtesy of Kit Cars, November/December 1981

BURLINGTON SS



DUTTON PHAETON SERIES 1



Why a Dutton? Because it utilises Triumph running gear. So do several other kit-cars. It does not have doors! No doors, thus no wobbly bits of chassis. For several years I have had an urge to compete in the relatively safe and inexpensive forms of motor sport: sprints and hillclimbs. I also felt that to be sporting it should be possible to drive the vehicle to and from the event, collect the shopping and pose around the town.

I purchased a complete car, built in 1980, fitted with a series I Vitesse engine and gearbox, taxed and tested and on the road - which is much cheaper and easier than starting from scratch. Having re-built and renovated several cars and motor-cycles in the past, the actual building of the car did not hold much attraction. The car which I purchased had been built to a high standard, both mechanically and cosmetically. Apart from the basic requirements there are the following refine-ments:- Front and rear fog lights, stereo radio/cassette, heater, burglar alarm, two anti-theft switches. Additional parts supplied by Dutton included a side-mounted spare wheel, soft top, side panels and tonneau, all of which fit into the small, lock-able boot.

The chassis is of square section-welded steel tubes, forming a very rigid space frame (cos it's got no doors). The body is of unstressed aluminium and self--coloured fibreglass, which shows signs of crazing.

The interior accomodation does, however, leave a little something to be desired - the seats (standard) consist of a fabric covered foam pad for the base and the same for the back. The standard seat belts are to be replaced by a four point harness and the built in roll-over bar could do with another coat of paint. Rear suspension is a GT Cortina axle on Hillman Imp front springs with 25% uprated shock absorbers, all located by three radius arms and a Panhard rod, which sounds worse than it looks and it does work. The front suspension and steering are from the Triumph Vitesse; again the shock absorbers are 25% stiffer. So what does this all add up to? The straight line performance is quick by any standards with 60 mph reached in slightly less than eight seconds. Around bends I must confess that I have yet to discover the limits, as the 185/70 x 13 tyres on 6 inch Weller Magnum rims give the effect of cornering on rails. For those of you who are bored by the part on engine tuning, now is the time to read the adverts.

Removing the engine is not simple and it does require a little patience. First of all, the ancillaries have to be removed, including the head; then after much push-ing and heaving, the remains are lifted out rear end first - most undignified! After stripping the engine, the usual checks are made for wear.

With 97,000 miles recorded, the crank showed less than .0005" ovality, the oil pump was well within the maker's tolerances and the bores showed no signs of scoring and a new set of rings, fitted by a previous owner, held the compression to within the manufacturers figures. It just proves that Triumphs were built to endure.

The tuning has been undertaken by **Geoff Dodd** of **Autosprint, Livery Street, Birmingham.** The crank assembly has been balanced and the flywheel lightened. The camshaft has been re-ground to a road/sprint profile to give power from 2500 - 6500 rpm.

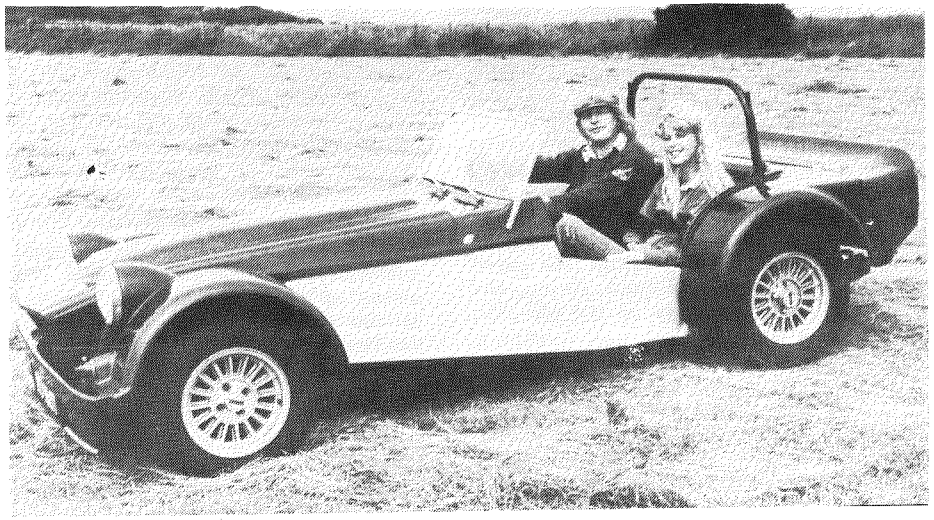
The head has had the ports and combustion chambers gas-flowed and the com-pression increased to 10 - 1. Larger valves from the series II engine have been fitted with new guides and standard springs, which I have been assured are quite adequate for the performance required.

Twin 2 inch S.U. carburetors have been grafted onto the standard manifold with the help of S.A.H. adaptors. The exhaust manifold is as yet standard, due to an attack of financial cramp - if any member has a sound, extractor manifold cheap, please 'phone.

The goal is 130 bhp at the flywheel, which combined with the light weight of the vehicle, should give about 250 bhp per ton and reasonable reliability.

To conclude, the Dutton is a great deal of fun, along the lines of a poor mans Lotus Seven, which should be capable of humiliating a Golf GTI and some of the family model Porches - albeit in a crude and brutal manner.

By Bruce Atkinson, Worcestershire



RAZOR-EDGED MARLIN

Ask any kit-car enthusiast what he would like to do most in life, given the time, money and facilities and the chances are that he would say 'design and build a car'. Unfortunately few of us ever get the chance to realise that ambition and fewer still get things right at the first attempt but Paul Moorhouse is one man who has found all the right ingredients; building a series of Triumph Herald-based specials, he soon came to the conclusion that the only way to get a car that was just as he wanted was to design and build the thing himself and working on the principle that what suited him would probably suit a sufficiently large number of people to make production worthwhile, he entered the realms of full-scale car manufacturing just over two years ago.

Certainly this was at a time when there were far fewer kit-cars available but it must still have taken a great deal of courage to attempt to break into the most popular and competitive of markets, for open sports cars and it can only be seen as a measure of the Marlin's instant appeal that at the time of writing well over 200 have been sold and Paul's company, Marlin Engineering, is going from strength to strength.

But just stop and take a look at what the Marlin has going for it; quite apart from its very competitive price is the cheapness and ready availability of the Triumph Herald or BL Marina running gear needed to finish it, the quality and strength of the basic body/chassis unit and if all that wasn't enough, the Marlin actually looks something special, something totally individual within the open sports car tradition, without owing any of its styling to the likes of the MG TD, Morgan or whatever.

APPEARNCE

The first thing one realises about the Marlin is that it is exceptionally well proportioned, with not a trace of over-styling for its own sake and not a trace of what might be termed as the 'flab' found on some similar cars. Despite the rounded rear section and the smooth radiator grille surround, one's main impression of the car is of sharpness and a certain impatience to be off and show what it can do, a feeling that is soon confirmed when one ventures out onto the road.

What Paul has tried to do is recreate the classic lines of the typical thirties roadster but at the same time to update the improve where necessary to make the car look attractive for the eighties. Looking at the car from the side, one is aware of the "wheel at each corner" approach, the classic position for the slightly rearward sloping grille dead in line with the front hubs and the separate headlamps, although here cost and practicality dictate that these are rather smaller than they might normally have been.

Initially we were not too keen on that rather razor-edged ridge in the centre of the bonnet or the stubby tail section but these do become quite endearing features. We also liked the fact that neither front nor rear wings are an inch longer than they have to be and the raising of the running boards to a line drawn through both wheel hubs, all of which gives the car an aggressive, ready-to-spring air. As Paul's brouchure says and we can only agree with him, "the body is designed to flow and look good from any angle without the recourse to imitation".

Certainly there are one or two fussy details that might not appeal to everybody; the separate panels which sweep up from the base of the grille to the inner edges of the front wings for example, as well as the rather complicated little mouldings that are screwed to them on the Marina-based car to cover the steering gear but overall the Marlin is just one of those cars that looks right from any angle at least everything has been done for this reason. The tail lights and front side lights for example, blend in perfectly with the contours of the wings and the ridge down the centre of the bonnet does at least allow positive location for a panel that is merely clipped on rather than hinged. We also liked the neat way in which front and rear bumpers (substantial enough to actually do some good if need be) have been incorporated into the chassis, although the rear spring hangers are unfortunately a little too prominent for our liking.

NUTS AND BOLTS

For a car that has only been in production for a couple of years, there is a remarkable number of options available; originally the Marlin was based on the Triumph Herald/Vitesse range with a Marina live rear axle available as an option but now a completely Marina-based car is offered and the simple front engine and rear wheel drive configuration allows the fitting of a wide variety of power units. In fact the car we drove was fitted with no less than a 1750 Alfa Romeo engine, but more on that later!

Starting with the Triumph-based car, virtually any Herald or Vitesse can be used but as you will need the rear suspension from a MKII Vitesse you would probably find it a lot easier to go straight for the Marina axle. Then in addition to the rest of the running gear, you will need an Anglia 105E radiator, the fuel tank from an Imp or Spitfire complete with a suitable filler neck and the windscreen wiper arms and blades from a Sprite or Midget. The propshaft will need shortening (this can be done on a while-you-wait basis when you collect the kit) and several items requiring modification are supplied on an exchange basis when the kit is collected. The pedals for example, need to be shortened and the lower steering column needs to be lengthened, then the builder is left to do one or two simple modifications. The engine mountings must be cut off the engine bearers to allow clearance for the wings and the heater must be reduced in height by cutting off its lower mounting feet. You will also have to remove the vertical mountings on which the seat normally pivots by drilling out the fixing rivets and both the indicator and headlamp control stalks will need shortening to suit the smaller steering wheel. The Marina-based car uses the Viva HB or HC radiator, although on the 1.3 version only, a BL Mini or 1100/1300 unit can be used instead. To complete the front suspension you will also need the front upper wishbones from any non-Hydrolastic Mini complete with pivot rods and washers and these fit straight onto the Marina MKII top swivel joints, although don't worry if you are building a MKI-based car as these will accept the later balljoints and don't worry if the front lever arm dampers are worn out as these are replaced by telescopic units attached between a bracket bolted to the lower wishbones and a special bracket on the chassis. You will also need the steering column universal joint from a Triumph 2000 and a lengthened lower column; this can be done for you on collection of your kit, as can the shortening of the brake and clutch pedals. The propshaft will also have to be shortened, another job that can be handled by Marlin and the company makes a very valid point that although the Marina staked type universal joints are officially not renewable, they do stock a proprietory kit which neatly gets round the problem!

But as we have already prointed out, the choice of engines doesn't stop there. To date the overhead cam and crossflow Ford units have proved popular and Paul's own car has been fitted with the engine and five speed gearbox from an Alfa Romeo Giulia. Obviously the propshaft will need tailoring to suit the engine used but the only other modifications needed on Paul's car were to the steering column (fitted with universal joint in the middle) and the radiator filler which is now positioned in the middle of the top hose by the simple expedient of brazing a filler neck to a copper Tee-piece. In addition a remote-mounted servo was necessary because of the shape and size of the engine, although as Paul pointed out, this is

no great problem to arrange.

So much for the running gear but what of the body/chassis unit? In answer to that question the best way of describing the chassis would be to say it wouldn't look out of place holding up a railway bridge, although that by no means implies that it is unsophisticated, quite the reverse in fact. The basis of the assmebly is a perimeter frame built from 3mm thick rectangular box section steel tube to dimensions of either 70mm by 70mm or 100mm by 50mm for Triumph and Marina-based cars respectively.

On top of the main frame is welded a very stiff tubular body frame which extends upwards to scuttle height, then on top of this is a slim but immensely strong windscreen surround, the overall effect of which is to provide excellent roll-over and side impact protection for the car's occupants. In fact the screen frame is so strong that it makes an ideal handhold for levering oneself in and out of the car and of course it dispenses with the ugly roll-bar that is such a feature of one or two open cars. Front and rear bumpers are strong enough to mean business and in fact can be attached directly to it without any need for additional reinforcement.

In addition to taking the trouble to design a very rigid structure, Paul has also made sure that it will last a long time by closing off all tube ends and all through fastenings are sealed with tubular spacers. The chassis is jig-built to ensure a consistently high degree of accuracy and to anyone who is used to the abysmal standard of welding to be found on the typical Japanese motorcycle, the Marlin will be a delight to behold; in fact Paul tells the story of one of his welders being so conscientious and making his welds look so good that production was in danger of falling behind. But as he said, how can you complain if someone's standards are too high?

The body itself is a mixture of alloy panels and high quality GRP mouldings these being attached to the chassis by means of closely spaced nuts and bolts through a right-angled strip welded to the chassis rails in the appropriate positions. The main reason for this is to minimise the risk of corrosion that would otherwise be caused by hundreds of holes drilled in the chassis but it also means that the panels are easily removed quite apart from being very neatly fitting in the first place.

The bonnet, body sides, bulkhead and transmission cover are formed in 16 gauge alloy sheet. Apparently this is thicker than necessary but it does give the car a nice soild feel and it is quite reassuring to be driving something with such an obvious reserve of strength at a time when mass-production car bodies are getting thinner and thinner. The boot section, radiator cowl and scuttle are made from high quality primer-finished GRP and like the alloy panels, come ready fitted to the chassis, although the four GRP wings are supplied separately to make transport easier. Also supplied is a laminated windscreen, a set of side and tail lights, all the brackets you will need, a complete nut and bolt set, a set of plywood floor panels, a wooden blank from which you can make up your dashboard, a lamp bar and a pair of wing stays.

BEHIND THE WHEEL

Despite the Marlin's diminutive size, there should be few people who cannot somehow be accommodated inside it. Even with the hood in position, getting in and out is reasonably easy thanks to the sensibly shaped doors and as we have already said, that hefty windscreen frame makes an excellent handhold.

Our first impression of the driving position itself was that the steering wheel was angled downwards very slightly towards the driver's knees but Paul assured us that this was no more than an optical illusion and in any case the wheel is quite easy to use in practice. all the pedals were nicely positioned too and pleasantly weighted, although we were aware of a stretch forward to reach the Alfa gearlever but as we didn't have the chance to try out a Marina or Herald-engined car, we obviously cannot comment for the entire range. Unlike a great many other sports cars the handbrake is nicely positioned too, and being well forward of the driver, can be pulled on and off with ease. Seatbelts too were obviously thought about right from the word go rather than being added as a tiresome necessity at the fitting-out stage and they fitted perfectly and very comfortably.

We were impressed by the layout of the instrument panel; obviously each builder will have his own ideas and his own set of gauges to fit but the blank supplied with the kit should enable a thoroughly good job to be made of it. Visibility was good too, even with the hood in position and Paul has sensibly provided a decent sized rear window aperture in the material, with the hood down visibility is positively outstanding of course and despite the long bonnet, parking is easy thanks to the fact that the driver can see the tips of both front wings. It was also nice to see just how easy the hood is to erect and dismantle; if the TVR Tasmin Convertible is the easiest volume production drophead to live with then the Marlin must be the easiest kit-car drophead.

Putting up the hood is simply a question of assembling the simple push-together frame over the seats, hooking the front edge of the hood over the top of the screen surround and over the framework then fastening the appropriate press-studs on the rear scuttle; then when not in use, the hood can be stored in the reasonably-sized luggage area behind the seats (accessible from inside the car) and the framework can be dismantled and placed immediately behind the seats.

Even more appealing is the fact that the weather equipment does a very good job of keeping the occupants warm and dry and even without side-screens, the car could be driven in pretty foul weather; hardy souls like Paul tend to drive the car as a convertible all year round but that's another story ...!

ON THE ROAD

Any car with such a high power to weight ratio as the Marlin will be quick, but that is not always the same thing as saying that it will be fun to drive. But the Marlin is pure entertainment. From the moment you turn the key and hear that twin cam Alfa engine burst into life you know there is something special under the bonnet and your suspicions are confirmed when you hit the throttle. Naturally the test car had to be rowed along on the gearlever, as does any Alfa and Paul feels that to all intents and purposes the 1.8 Marina engine (or MGB of course) makes for a very rapid, economical means of transport ... the Alfa conversion was done simply to prove that it was possible.

Again the use of a very light body/chassis unit means that suspension, brakes and steering are well able to cope with the performance available, although slight modifications to the front suspension and the use of wide tyres seem to make the steering incredibly responsive. There is nothing wrong with that, of course, but if you have just climbed out of a car with recirculating ball steering, it does take some getting used to ...

The wheel at each corner approach and the rearward shifting of the engine means that weight distribution is excellent and stability is very good, although we did notice some tendency for the front to weave slightly under heavy braking, yet this was probably caused by the driver hanging onto the steering wheel a little too tightly!

Even more impressive is the Marlin's strength and total lack of annoying rattles. Not being stress engineers, we can only take Paul's word that the fairly simple looking perimeter chassis has enough torsional rigidity to do the job but the proof of the pudding as they say, is in the eating. On one occasion we were more than a little surprised when Paul headed straight for a fairly high grass bank at the side of the road and instead of stopping to turn round just carried straight on and up onto the

edge of Dartmoor, happily threading his way through boulders and across ruts that would have made even a Range-Rover driver think twice. The car showed no sign of protest at this unconventional shortcut and in fact its high ground clearance and the fact that the exhaust is tucked up next to the main chassis rail should make it ideal for trialling/hill-climbing etc.

GETTING IT ON THE ROAD

Looking at the rows of Marlins to be found at the various kit-car meetings that take place up and down the country, it doesn't take much to see that they are usually sporting five to ten year old registration numbers and provided you use all the major mechanical components from one base vehicle, you can retain the car's number and thus avoid paying Car Tax. Even if you should go for a new number on your Marlin you will have to struggle to pay more than about £100 in tax but even so we would tend to stick with an older, preferable pre-suffix letter number as this does suit the car so much better than an X or even a Y plate!

Fortunately, the Marlin seems equally easy to insure and Paul Moorhouse suggested that customers contact him first if they want to be put in touch with one or two sympathetic brokers. The lowest possible grouping would seem to be about 4 for a 1300 Marina or Herald-based car and obviously modifications like fitting that Alfa engine or even a fuel-injected 2.5 Triumph unit will force up the premium quite dramatically. Paul also made the valid point that you should stress the fact that the car is mainly aluminium and steel when searching for cover, as even now most companies do seem to fight shy of GRP. The fact that the wings are bolt-on replacements costing only £25 or so each also makes a good bargaining point and in fact to judge from the owners we spoke to in compiling this feature insurance would seem to be a very minor problem.

Finally, while still on the subject of getting a car on the road, you may have decided that you would like to drive a Marlin but don't have the time or inclination to do the job yourself, in which case Marlin Engineering can put you in touch with one of the kit builders they have scattered around the country and who should do the assembly job to suitably high standards; at the time of writing prices range from about £3,500 to £4,500 for a complete, ready to drive car.

AFTER SALES SERVICE

As ever it is very pleasant to meet a car manufacturer who cares about his product and his customers so much that he lives, breathes and thinks Marlin almost twenty four hours a day. Paul Moorhouse takes the very sensible attitude that quality is everything; if you don't get it right the first time the customer will only bring the car back and complain so you might as well take the trouble to do a good job. He also takes the trouble to talk to customers in detail before they place an order and in fact while we were at the factory Paul was having a long conversation with someone who happened to be on holiday in the area and called in on spec. Naturally Paul or one of his staff would be only too happy to answer any queries that might arise during the building of a Marlin, and the fact the he was able to put us in touch with half a dozen or so Marlin owners amply demonstrates that he doesn't just forget about a car as soon as it has left the factory.

Despite the many advantages to be gained from producing a car in a place like Plymouth, Paul is acutely aware that it is a little out of the way for most people when it comes to picking up the kit, so the company offers a very reasonably priced delivery service, which means that even if you lived as far away as Tyneside you would only pay about £65.

The only other points to note are that there is currently a waiting list of five months for delivery of a kit and that the £100 deposit payable with each order is returnable in full if you change your mind within six weeks of placing the order.

OWNERS' EXPERIENCE

If we had to go from one end of the country to the other to drive the car, at least we were able to speak to an owner almost on our doorstep. Roy Williams from Crawley is the owner of car number 017, in this case a Triumph Vitesse-based version complete with the much more effective MKII rear suspension. He has had the car on the road for some eighteen months, uses it daily to drive to work and apart from one or two early teething troubles has had no problems with it. He found for example that the Ford 105E radiator wasn't really up to the job of cooling a hard-worked 2-litre Vitesse engine, even with an electric cooling fan and had to make one or two modifications to the handbrake mechanism to get the efficiency up to the required level for the MOT test.

But he told us how impressed he was with the car's surefootedness and general toughness, as well as its practical value as an everyday means of transport although he made the point that the early cars not fitted with doors can be a little tricky to get in and out of with the hood errected and that legroom was a little restricted; needless to say the Marina-based car we drove was much better on both counts. He agreed just how helpful Paul is should there be any problems in building the car and told us that the instructions supplied with each kit were perfectly adequate to do the job properly.

As far as insurance was concerned Roy was pleasantly surprised at the low quote he received for fully comprehensive cover for the first year (£60) and although this went up to £110 for the following year it still isn't very much to pay for a 2-litre sports car; certainly the driver's age and record will be taken into account by the company concerned but at least they seem prepared to take the risk on and Roy completed the deal merely by sending them a photograph of the finished car and a complete run-down of its specification.

RON'S MOSS ROADSTER

Schoolteacher Ron Butcher details how he turned a ravaged but running Triumph Herald 13/60 Estate into a splendid Moss Roadster.

Why choose a Moss Roadster? That's a question everyone seems to ask us. For a Physics teacher whose youth was mis-spent riding (and falling off) Aeriel Trials motorcycles, the brochure seemed very attactive; self-coloured GRP, separate panels (so ease of replacement), standard engine location if the car was Herald-based, so no messing about with shortened propshafts.

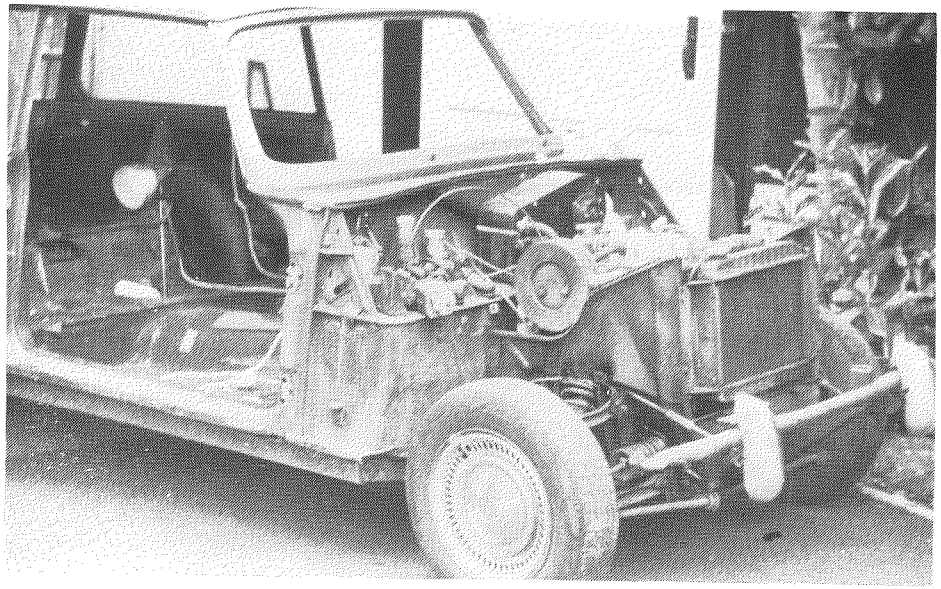
The upshot was a trip to Sheffield in the current tin-box, followed by a brisk run in a Vitesse powered Roadster. My wife Myrtle decided on Golden Yellow with black trim for 'our' car, so we paid our £100 deposit and then looked around for a donor car.

THE HERALD ESTATE

We decided to buy a 'runner' - a 1970 13/60 Estate. Mileage was 124,000, the engine looked like the bottom on an oil well but the chassis seemed sound and the bills indicated some maintenance had taken place. After handing over the necessary folding paper, we convoyed back to Ashford. Apart from a howl in the gearbox in the lower gears and high speed vibrations from unbalanced wheels, all was OK. Steering was light and positive, the brakes were good and the engine was still responsive. My wandersome mind was already in yellow heaven!

PREPARATION

After steam-cleaning the engine compartment in an attempt to minimise transference of grime to my good self, shares were taken in Plus-Gas and Swarfega and I set to. Major sources of leaks were the cylirder head, sump and timing chain cover oil seal - quite encouraging. The Herald



and Vitesse were probably the last of the great 'Meccano cars' and it was felt that armed with the correct spanners, no real problems would arise - the Estate was attacked with gusto.

The first task was to remove the seats, trim and bonnet. The Lucas sealed beam headlamps were found to be in a useable condition and were kept; the pods were removed by drilling out the retaining rivets and were then cleaned and repainted.

WIRING

Next thing was the wiring harness. Much time was spent unplugging, cleaning and labelling each section of the harness prior to removal. There is a problem at the rear of the Estate - the harness runs up through a minute hole in the rear roof pillar - very fiddly but if the loom is in good condition it is worth the effort to avoid the cost of a new harness. After cleaning, self-adhesive labels were rolled round each connector, function and colour detailed and then covered with a double layer of Sellotape.

The dashboard was removed at this stage, complete with wiring and when the back of the instruments were accessible, this part of the harness was also labelled, along with the gauges (by this time I had progressed to using white liquid paper). The entire harness, dash panel and ancillary equipment were then removed to a 'safe' place - the spare bedroom to be joined by wiper motor, mounts, drive cable, tubing, heater blower, hot air ducts and tubing. The wheelboxes were discarded in favour of new Mini items. The battery was relatively new and was stored together with ignition components.

REMOVAL OF BODYSHELL

At this stage the steering wheel was removed, followed by the upper (collapsible) column and supports. Removal of the inner wings (screws in the chassis extensions bolt onto suspension towers) left only the roof, cab and rear section to remove. The roof was unbolted from the windscreen mount at the front and from the side panels at the rear - removal time 15 minutes!

Before the front section could be removed, the handbrake lever and mounting had to be taken off, together with the adjuster stud. The tunnel-mounted seat belts were difficult - thirteen years of underseal proved a problem, only solved by brute strength - pity I wasn't a brute! the chassis mounting brackets were eventually chiselled off - no cause for concern since they are unnecessary on the Moss. Set-screws on the floor join the cab and rear section, while the main shell itself if held by bolts through the front, centre, rear side rail extremities, with two bolts to the rusty outriggers.

While I waited for the penetrating oil to do its job on these, the fuel tank was drained and removed with its sender unit (six screws). I decided to re-use the body bolts and so undid them without chewing them up, cleaned them and re-united them with washers and nuts, before storing them in a labelled plastic bag (an invaluable technique - the weight of all nuts and bolts removed was over 5lb). The last vestiges of the bodyshell were lifted off and deposited under a tree in the front garden - eventually to be removed by the local Council.

CHASSIS RENOVATION

Removal of exhaust system and powertrain went exactly according to Hayne's Manual. For this the 2½ ton endless chain hoist from the Physics Lab proved handy, suspended from a stout oak beam in the garage roof. When the engine/gearbox were taken to the end of the garage, I now had room to work on the chassis and suspension.

After cutting back the front and rear extremities as shown in the photos, the entire chassis was stripped back to bare metal. New side rails proved to have been fitted to

the new outrigger outer sections but only tack-welded to the bottom. On Triumphs, without body removal the top cannot be welded, unless to the bodyshell, so the result is a poor repair. The centre outrigger had the usual rusted section around the bolt hole, caused by water and salt lying in the recesses around the body washers. My friendly BR welder welded on the U-plates I made to go round these areas; in addition he made a 'proper' job of welding on the side rails and closed the junction between rails and front and rear outriggers. After plating a hole in the truncated rear outriggers, we now had a comparatively sturdy chassis which was almost as new.

The reason for its good condition was easy to understand - the constant flow of oil over the bottom of the car had acted as a water-repellent, resulting in the Triumph drain-holes staying unblocked. Trustan 23 was used before painting - it's most impressive to see apparently clean metal turning purple as the chemical reaction progresses. After the recommended 24 hours, two good coats of zinc-based primer were used, followed by three good coats of black Hammerite. A point worth mentioning here - Hammerite is a good, hard enamel - eventually. Over the next few days, it's very easy to damage, as it's still soft.

A pause had to be made here to allow a trip to Moss HQ by Transit to collect the pristine mouldings, together with the optional modified Cobra bucket seats, bumper extensions trim panel, hood, tonneau and side-screens. Home again, more help from Myrtle to move the body in the garage alongside the half-painted chassis. You should see her muscles now!

SUSPENSION RENOVATION

When the chassis had been completely repainted, the transverse rear spring was removed. At this point one of the hub-nuts proved to be only finger and not 150ftlb tight! Back to the Haynes Manual - the rear hubs were stripped, cleaned, repacked with grease and reassembled. Dampers proved sound but the brakes were relined and the frayed hand-brake cable replaced. Rear trunnions were also found to be in sound condition and so were merely reassembled.

There was an almost new steering rack but the front suspension was dismantled; the dampers and trunnions were checked and then cleaned, painted, greased and reassembled.

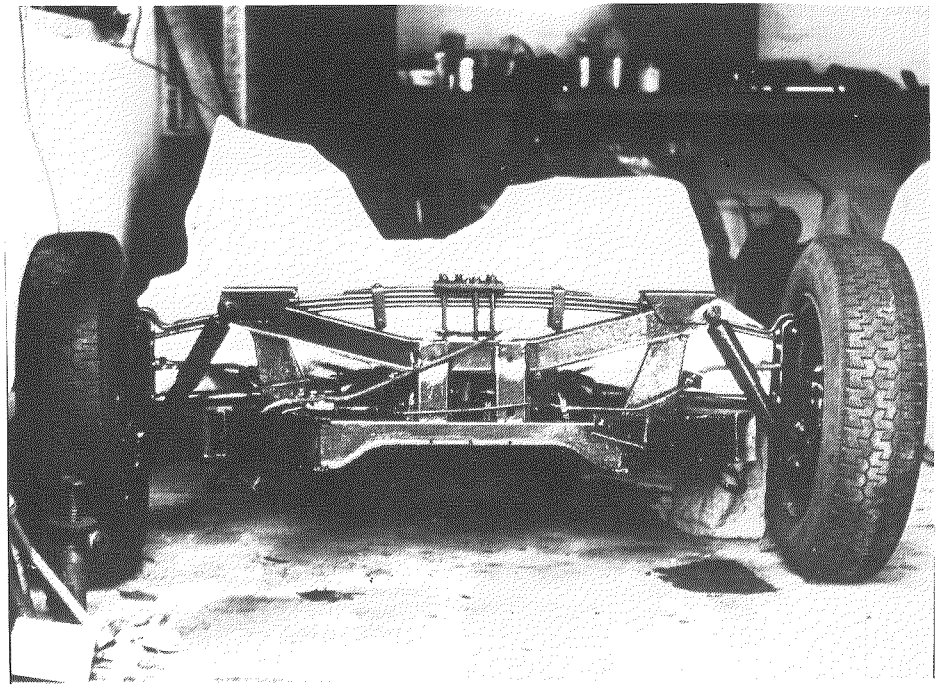
Back to the rear spring - this had to be rebuilt due to the lighter Moss body. Removing alternate springs after the first two left a new four-leaf spring (Estates normally have seven leaves, remember). This was cleaned, de-rusted, painted and re-assembled initially with, but finally without, the suggested block under the spring (without this, there is about -5° camber on our car).

At the front suspension overhaul stage, new pads were fixed to the calipers, the discs checked and found to be within limits and brake pipes replaced with Kunifer piping (dead easy without the body in the way).

POWERTRAIN OVERHAUL

Attention was now turned to the engine and gearbox. The engine was stripped down and rebuilt, courtesy of Ernie Unger and the Special Car Builders Club. To smarten things up a bit in the engine compartment, the block, head and rocker cover were lacquered before build-up.

The savings I had made by using the SCBC were used on a new guaranteed gearbox. The case was cleaned and lacquered prior to mounting on the clean bell-housing. A new clutch release bearing was fitted but the friction plate was undisturbed, as it had only been installed a few months earlier. Ernie's new engine mounts were pressed into service and the engine/gearbox restored to its rightful position. The propshaft was refitted. I now had a bright, shiny restored rolling chassis, waiting for the Moss bodyshell.



To give working space in the garage, we mounted the chassis on extended axle-stands, hoisting the body tub into roughly the correct position and glueing strapping between tub and chassis. The pedal frame was mounted on the front bulkhead, sandwiching the GRP between top and bottom frames. Pedals were fed through slits in the shelf and the master cylinders mounted back in their repainted Herald brackets. Inside, the throttle pedal mounting was bolted to the floor, the cable left for later and the restored heater bolted to the interior of the front bulkhead, with heater slits cut in the top valance.

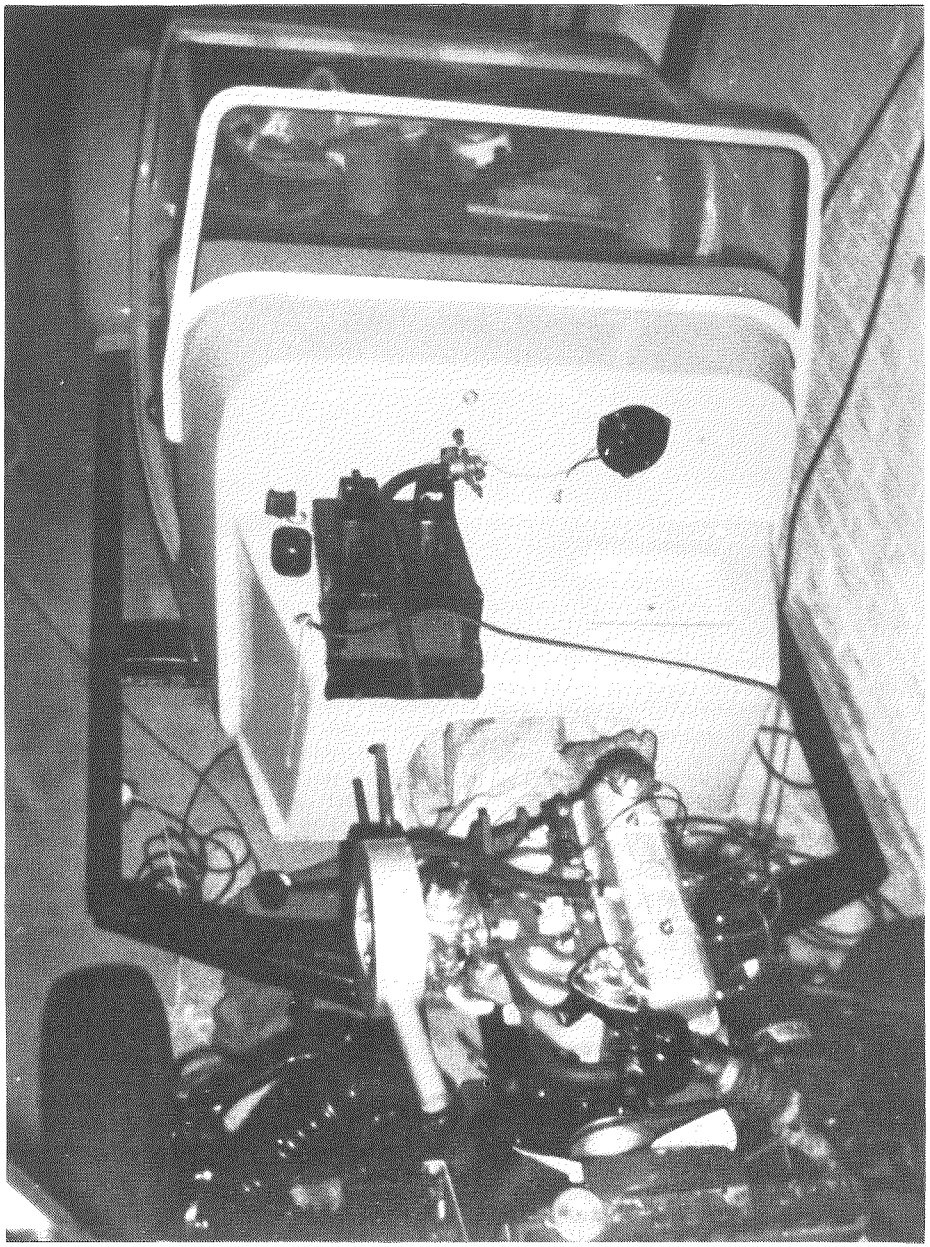
SCREEN AND DASHBOARD

Next in the build-up came the windscreen - laminated and ready mounted in its frame and bolted to the tub by bolts passing through side legs, mounting blocks and internal reinforcing hardwood blocks using 2" penny washers to spread the load. Before tackling the dashboard, new Mini wheelboxes were bolted up in front of the screen using angled rubber mounts, drive fed to the wheelboxes and shortened wiper arms with Morgan flat blades fitted. The parking position was set by rotating the 'cam' at the gearbox end, thus setting a new limit switch position.

The ends of the dashboard were chamfered to fit the tub well and the top flange bolted through from above, the ends glassed in. This, together with the laminated screen, gives good protection in case the unthinkable happens. Instrument layout was designed using full size patterns and card faces. These were then used as templates to cut the instrument holes using the 'chain-drill' method and an Abrafile. Fitting of instruments was delayed until the wiring had been completed.

BODYSHELL ASSEMBLY

The handbrake was now assembled to the supplied top plate, top and bottom plates sandwiching the flat GRP platform when bolted together.



Final cable correction was delayed until body bolts were fitted. Build-up of the bodyshell was completed in four simple stages: **Stage 1**, fitting the rear wings, bolted up from front to rear with aircraft quality bolts, HT nylon nuts and penny washers. Care was taken to obtian symmetrical mounting viewed from the rear. **Stage 2**, mounting the nose cone. First the radiator had to be located in its new position, using the brackets provided, followed by piping up the water circuits. The cone moulding was now bolted to the tub along flanges and to the chassis at the front, wing piping fitted between cone and tub and the aluminium grille casting was bolted to the front of the nose cone. **Stage 3**, running boards were bolted to the front wings, the combination clamped in position and bolted up. Again, care was taken to obtain a symmetrical mounting. Before final tightening-up, wing piping was fitted in one long strip, back to front, each side. The bodyshell was now basically complete except for ..... **Stage 4**, bonnet halves were bolted to the brass full-length piano hinge, locating holes for hinge pins drilled and bonnet installed. The oversize halves were trimmed to fit into locating recesses in the nose cone - a laminate surform plane proved useful for this. Spring catches were fitted and then the complete bonnet assembly was removed to a safe place (our bedroom actually!).

The completed bodyshell was accurately positioned and then bolted down through the centre and rear outriggers and, after an ash strengthening member has been fitted, to the rear suspension towers using the original captive nuts. This task was carried out after the hole for the tank had to be cut out, as shown in the photo. A new Midget 6½ gallon tank was fitted, bolted down on to a thick bed of non-setting mastic, filler pipe made up and the vented cap fitted. New petrol pipes were made up, flexible at the thirsty end and quarter inch copper at the tank end; the new Imp sender unit 'adjusted' (i.e. float arm bent) until giving an accurate reading and then permanently installed with a new rubber seal.

Extension of the remote control gearchange was tackled next using the longer rod supplied. Two formers were glassed to the underside of the propshaft cover, one either side of the gear lever section of the aluminium housing, which had been bolted to the underside of the propshaft cover. This set-up gave a stiff cover at this end and resulted in a very slick, precise gearchange.

Front and rear bumper extensions were welded on (the only job I didn't tackle personally). the rear into the main rails, the front above the anti-roll bar mountings. New Escort MK1 bumpers were fitted front and rear using chromed bumper bolts through the cross-members. two 1300-type chromed rear number-plate lamps being mounted on the rear bumper.

WIRING

The original Triumph harness was re-used, laid in the bottom of the car and led to the outside through small grommets in the inner rear wings and a large grommet in the front bulkhead. The harness was shortened front and rear, one circuit at a time, bullet connectors used and a new thick earth wire added. The control box was mounted inside the front bulkhead, the coil and horn to the nose cone and starter solenoid to the vertical bulkhead, the harness being clipped to the side of the nose cone. At the other end, stop/tail and indicator lamps were bolted on, using brass nuts and bolts to ensure a good earth connection was available. The side lamps doubled as wing-stay bolts, with a second hole drilled through the stay face for the wiring. Holes for the headlamp bowls were then chain-drilled out.

Repainted original bowls were fitted, housing Lucas 7" sealed beam units, with Mini chromed covers and the connections to the harness made. The original controls were mounted

onto the dashboard, wires led across to the instruments and these fitted and bolted up. No problems were met with the wiring - the whole lot only took eight working hours.

Now it was time to elongate the inner steering column by 15", welding a solid rod between the two halves of the cut original. The outer case was fitted with new nylon bushes and bolted up to the underside of the dashboard and lower section of pedal box, using the original brackets. The lengthened inner column was refitted. the column set to its upper position and a 13" mahogany rimmed wheel fitted - at last I could go round corners!!

CREATURE COMFORTS

At this stage, I had set about learning a new skill - interior trimming. Moss Cars supplied a set of blank panels to which I stuck a quarter of an inch foam padding, covered with top grade vinyl, stretched taut and glued at the rear with Thixofix; there are 15 grades of vinyl to choose from. Acoustic felt was glued to all horizontal and vertical sections of the tub, hardwood blocks glassed in for trim panel mounting at appropriate places. Next to fit was the gearbox cover which was padded inside, covered outside and screwed in place to the bulkhead and floor using non-setting mastic as a seal.

Modified Cobra bucket seats were fitted onto cut-down subframes. giving longitudinal adjustment and tilt facility for access to the rear space. Subframes were bolted to the floor using 2" penny washers to spread the load. Seatbelts were fitted - inertia reel type. of course - mounted onto steel plates 'glassed-in to wheel arches, propshaft cover shoulders and floor. Carpets were glued to the inner wheel arches. luggage compartment and propshaft cover, then trim panels screwed in place. Finally, floor carpets were fitted, held in place by Velcro strips. All we needed now were doors and a hood! Hinges were fitted to notched doors, shims used to align the doors and MG T-type slam locks fitted over the inner trim panels. Matching chrome outer handles were screwed to the outside. Finally, the hood and sidescreens were made from German material for me by Car Hood Ltd. of London, to Moss' patterns. The fitted hood enhances the appearance as well as keeping us warm and dry.

To help towards the fifties style sports tourer appearance. we lashed out on a set of new MGB Dunlop centre-lock wire wheels with splined adaptor plates fitted to the Triumph studs, using the original wheel nuts.

This wheel size indicates a 165-14 radial tyre and has the advantage of filling the spare wheel recess fully. The spare wheel is retained by a large alloy hub nut, a threaded rod passing into a threaded nut 'glassed into the tub. A wing nut screwed on the inside of the tub discourages theft or loss of the spare. Luggage capacity was increased by fitting a Morgan-type chromed horizontal luggage rack to the rear of the car and a more comfortable ride has been gained by fitting wind-deflectors - again, courtesy of Morgans.

ROLLING AT LAST!

Finally, an MOT test! After fitting a pair of black and silver plates, the car passed first time. On to the load weighbridge: all-up weight 650kg with a full tank, 800kg with us in it. This is a saving of no less than 8cwt over the base car and explains the amazing consumption of 50-60mpg at a speed of 50-55mph. This drops to the 40mpg mark at speeds in excess of 65mph as the dreaded aerodynamic drag takes over from frictional rolling resistance. Top speed is in excess of 90mph though I've not yet exceeded 87mph on the re-calibrated speeds with 600rpm to go to peak power (bigger wheels and tyres mean higher gearing of course).

Current view of the project - we have toured North Yorkshire in snow at Easter, splashed through Norfolk in September and dripped our way to Wincanton, Kenilworth and Lincoln. The Moss has proved comfortable, cosy, fun to drive and enjoyable, and relatively easy to build! We've covered over 5,000 miles since August and look forward to the next 5,000.

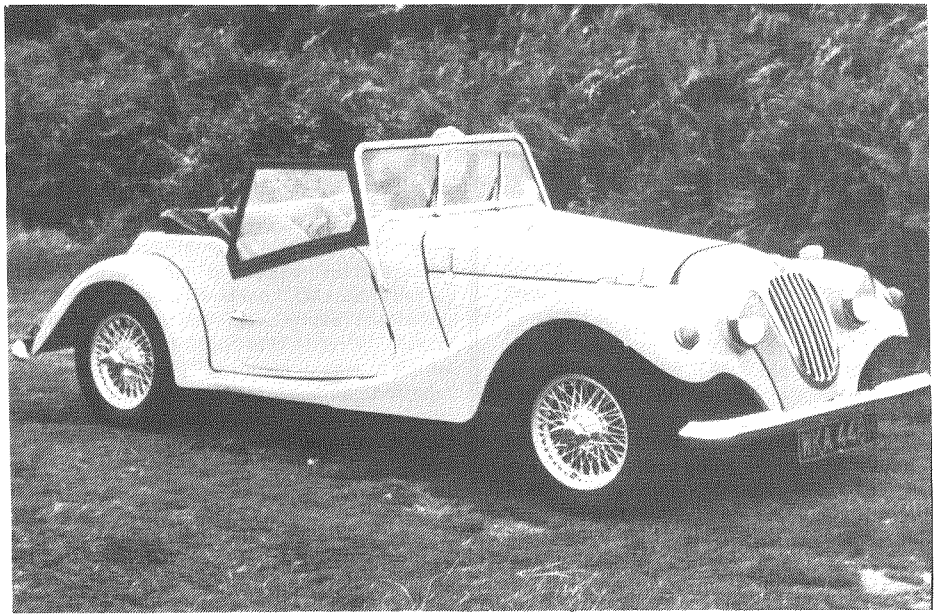
Lastly, I would like to point out that this is an early MK1 Moss Roadster - the MK11 Roadsters incorporate many of the ideas fed back by us 'Mossees', so the built-up is now even simpler.

By Ron Butcher
82/4712 - Ashford, Kent

Footnote:

I would like it to be known that I regard the Moss project as a re-body of the Herald. With this in mind, the entire chassis is Herald but with the front and rear outrigger extensions shortened. All the mechanical components are standard, so is the wiring (with different rear lamps and indicators, it's true!). So, as far as I am concerned, the Moss Roadster MKI takes its place with Herald, Vitesse, Spitfire and GT6, as members of the Herald family.

Incidentally, it is living up to the family tradition - we have driven 360 miles each way, non-stop to and from North Yorkshire for a day visit - and at one stage we were the only people driving up a flooded A1 near York: all the little tin boxes had pulled up or flooded their engines. We've been invited to show the car at the Potterbsy Festival on the Milton Keynes Club stand and look forward to seeing people there.



RON'S PRIDE & JOY !!!

GORGEOUS GENTRY

Nick Welch's stage by stage account of building his Gentry, XXE 249

Always an MG enthusiast at heart, my first two cars being TC's twenty years ago, and always having had the longing to build a special but never the time, money or opportunity, I was facinated by a chance encounter with an article in a third hand copy of Motor in tha autumn of 1976. This showed a bodyshell available to bolt onto a Triumph Herald chassis and showing a remarkable resemblance to the MG TF, surely the ultimate T-type? Attracted by the advantages of modern mechanics and a body constructed from aluminium and fibre-glass to ward off the dreaded tin worm, I sent off for the brochure. Reading the literature, I was 95% convinced that this was exactly what I wanted; however, having lived through the 'specials' era of the 50s and 60s and remembering some of the poor and flimsy mouldings of those days, I arranged with Roger Blockley of RMB Motors to see his own car one Sunday. I was immediately impressed with the construction and strength of the body and the fact that, being bolt-on components, none of the fibre-glass panels were stressed. The quality of the mouldings was excellent and their strength was exemplified by Roger sitting on the front wing and bouncing his 14 stone frame up and down with no protests from the car!

TAKING THE PLUNGE

A fortnight later saw my deposit in the post and the start of my search for a suitable Herald. As luck would have it, a colleague has a coupe for sale which had not been run for seven months, so without further ado I went to look at it. Body condition was obviously totally unimportant - my main concern was whether the chassis was sound. Bearing in mind that the outrigggers are simply and cheaply replaced when the body is removed, the main areas to look at are where the chassis main members dip down under the rear drive shafts and also the inside of the boxed-in main members on either side of the propshaft. The front of the chassis which generally gets covered in grease, oil and other gunge is normally no problem but the back end does have a tendency to rot out. A drain hole is fitted under the drive shafts but this tends to get clogged and the inevitable rot sets in.

A battery was installed and the engine fired up almost immediately, albeit on only three cylinders. Cursory inspection revealed that nothing serious was wrong - all the wobbly bits under the rocker box were working and big lumps came to the top of the bores as the engine turned over. As it turned out, after I had trailered the car home and the misfire was no worse a problem than a cracked distributor cap, so having set my mind at rest, dismantling began the following Saturday.

A waiting list of nine months for the bodyshell meant that I would have plenty of time to completely strip and rebuild the chassis to concours standard and from the outset I decided that the car would be finished to the highest standard I could achieve within the limits of my finances and ability.

STRIPPING THE BASE HERALD

Dismantling the car proved to be very dirty, amusing in parts, much easier than expected and great fun. Doors, bootlid, bonnet and hood were unbolted, along with seats and interior trim. From this poiint on, anything which was removed was carefully labelled and stored in boxes; this is important as it could be anytime in the future when they would be required again and it is amazing how easy it is to forget where all the thousand and one bits come from. Every single component was removed from the body shell and care was taken to make notes and label every wire in the wiring loom, checking them against the workshop manual which was found to be inaccurate in a few respects.

The Herald body, I discovered, is made in two halves, the floorpan being joined together with about eight self-tapping screws (really!) across the centre outriggers. These undone, I enlisted my neighbour's help to lift off the rear section. Much struggling ensued until it was discovered that the centre seat belt anchors were still holding the body to the chassis. These undone, the rear came off easily and was quickly followed by the windscreen and bulkhead assembly. Whilst I doubt if this will always be the case, every nut and bolt came undone first time, no cold chisels, nut splitters or hack-saws being needed. So, by mid--afternoon the drive and lawn looked remarkably like a scrap yard but the most important thing that was standing in the middle of the mess was the object of the exercise - a rolling chassis. The bonnet and doors were sold off for £50 and the rest of the body dumped on a trailer and taken to the local tip.

Stripping and rebuilding the chassis was planned in two phases, front and back, so that there were always two wheels to manoeuvre it around the garage wheelbarrow fashion - also to save floor space, already piled high with cardboard boxes of bits.

HERALD CHASSIS REBUILD

The sound outriggers were cut to about 1" longer than the dimensions given by RMB, ready for shortening to exact length on receipt of the body. Those outriggers which needed replacing were removed, having first carefully measured their relative positions, both front and back and diagonally for subsequent replacement.

Every single part was removed from the chassis, dismantled, cleaned, paint stripped and rust removed down to the bare metal. Following treatment with Jenolite rust remover, next came a coat of Kurust, primer and two coats of polyurethane paint. Gradually, bit by bit, the parts were reassembled on the chassis which had been liberally sprayed internally with a proprietary rust preventer. On top of the paint already applied, the chassis received two coats of underseal - not as attractive as a painted finish but more practical in the long term.

The engine, which had done almost 69,000 miles, was rebuilt with new bearings and seals. Bore wear indicated that new rings would suffice rather than a rebore and after reassembly the block received Kurust, primer and two coats of Valspar enamel. A high temperature paint was not used as previous experience with Valspar had proven this paint to be quite adequate.

Brake and fuel lines were refitted along with the exhaust system, the latter being painted, as was the exhaust manifold, with Holts Zincplate. This produces an attractive finish in matt grey and will certainly give twelve months' service before needing another coat.

SUSPENSION MODIFICATIONS

One modification recommended by RMB is a decambered rear spring, mainly one suspects to get rid of the positive camber of the rear wheels caused by the reduction in body weight in the area. Not only does the spring need decambering but softer spring rate is required, and substitution with a Spitfire rear end overcomes both problems neatly. Equally the front springs require replacing with softer ones to counter any understeering caused by the new rear spring and also to provide a softer ride. In the interest of aesthetics, these should also be shortened. Indeed, modified Spitfire springs have worked very well over the two years that I have driven the car.

BODY FITTING

By the time the rolling chassis had been rebuilt, some eight months having passed, mid-August had arrived and I eagerly awaited the receipt of the bodyshell, due at the end of the month. There are two ways to buy the body, either assembled or in kit form. When I ordered mine, the price difference was about £70 and it hardly seemed worth the extra effort involved. However, the difference today is about £170 and even in kit form the body is fairly well advanced; it may be worth considering this alternative even though it

may involve an extra two or three months' work.

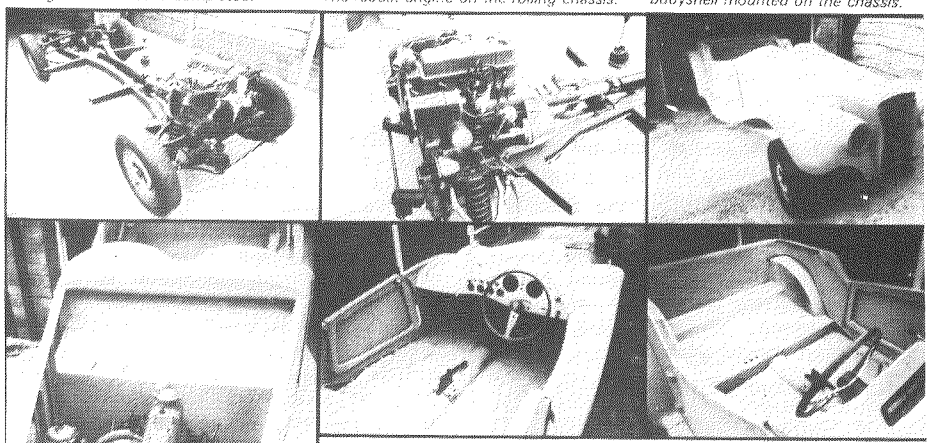
Many people collect their shells from the factory but I had mine delivered and found that two of us could easily carry it up the drive and then lower it into position on the prepared chassis. Having sawn the outriggers to the correct length and drilled the extra six holes to bolt the body to the chassis (the other six are standard pick-up points for the Herald body), the body was lifted off so that the underside, especially the wooden floor, could be thoroughly undersealed before finally bolting it down.

you're on your own. For me this was just what I wanted - it would mean that I could build the car exactly as I desired - but many people buy the kit assuming that it is just a bolt-together job before driving off into the blue. This is far from the truth and may account for many unfinished projects, a problem not confined to the Gentry, of course, but common throughout kit cars after the first flush of enthusiasm has worn off and the grafting seems never-ending. If nothing else you will become a world expert at fabricating brackets and bring great joy to the shareholders of 1/8" drill manufacturers!

Rolling chassis rebuild completed.

The rebuilt engine on the rolling chassis.

This picture shows the ex-factory bodyshell mounted on the chassis.



This shot of the interior shows the handbrake, part of the wiring loom and the half-finished dashboard.

Rear of the interior. Note the demister ducts, wipers and wa hers.

Close-up of the engine bay.

At this point it is wise to formulate some sort of ordered plan, which will probably be modified many times in the ensuing months. it is so easy to overlook tightening one nut which could be fatal, so try and complete every task fully as you go, making sure you have all the necessary bits before commencing that particular task. Keep a pad handy to write down anything that may be forgotten.

REASSEMBLING THE MECHANISMS

The only holes already drilled in the Gentry assembly are for the master cylinders and two large holes in the dash for speedo and tacho; after that

WIRING AND STEERING

I had decided to use the original wiring loom which meant that all the electrical components would need to be located in much the same positions as on the base vehicle. So a well was moulded into the top of the footwell for the battery, followed by an aperture to accept the Herald heater unit, suitable new hoses being obtained to mate this to the engine. The master cylinders were fitted, complete with the pedals which largely determined where the steering column was to be located. The brake lines were fitted and the system bled. The steering column needs lengthening about $4\frac{1}{2}$", a fairly simple job providing you have another column assembly to scrounge bits from. It is then possible to utilise the standard controls for indicators and lights etc. A slot for the upper column was cut out of the dash and a tiny hole drilled in the front of the footwell to accept a long, thin, steel rod which was used to align the top of the column with the steering rack shaft. By trial and error the exact position for this hole can be found and the complete column fitted. The brake lever then had to be bent sideways to prvent one of the column clamps from fouling it as the wheel was turned.

DRIVING POSITION

I had decided that the relative positions of seat, pedals and steering wheel should be the same as on my wife's MGB, so with a seat placed roughly in position the next problem manifested itself - I needed four foot long arms to reach the gearlever! Not only that, but the gearlever would not engage first or third because it fouled the bulkhead. So the gearshift extension was removed, cut in half and extended 8" rearwards using steel straps on the extension and welding a steel tube over the gearshift rod.

My attention then turned to the cooling system and a standard 13/60 radiator was bolted to the body framework with the by now inevitable home-made brackets. There was at least $\frac{1}{4}$" to spare to fit this rad as construction continued, very tight clearances became the order of the day. One grew used to bashed knuckles; only being able to turn nuts 1/12th turn at a time and distorting one's human frame into contortions for which it was never intended. By careful positioning it was possible to use standard radiator hoses, a useful feature for any future replacements.

FITTING THE FUEL TANK

The regulator, coil, starter solenoid and flasher unit were fitted to the bulkhead and all the ingnition wiring connected in the engine bay. Having water and sparks, all I needed now was some fuel, so it was back down to the scrapyard to obtain a Spitfire tank. Either a Spitfire or an A60 tank can be used; both types should be in good condition as they live inside their respective boots so are not exposed to the ravages of road dirt etc. A steel angle member was bolted across the two rear outriggers which in fact serve no other purpose except as mounting for the rear bumper and silencer. The bottom flange of the tank was then bolted to this angle iron. 'L' shaped brackets were fabricated to hold the top edge of the tank to the rear suspension towers, using the two bolts which hold the body to the chassis at that point.

The fuel tank lurks underneath a dummy tank cover shaped like that from an MG TF. In order to fit the filler cap (a flip-top Spitfire unit) in the correct place on the nearside top of this dummy tank, two HB Viva filler pipes were cut from scrap cars. Segments were taken out of the bends in these pipes and brazed back together to form almost right angle bends. The Viva pipes were the only ones in many scrapyard visits that I could find with a bend in and having the same diameter as the Spitfire ones. Three pieces of rubber hose joined these pipes together, the fuel line was connected and petrol poured in.

With the ignition switch wired up but lying on the floor of the car, the moment of truth arrived. Prime the mechanical pump, turn on, one more twist of the key and she fires up first time - hoorah! By the time the engine had warmed up, nothing terrible had happened except a drip from the water pump which was rectified by yet another visit to the scrapyard after being quoted £14 for a new one!

The clutch was next to be connected and bled so that the first tentative trip could be made. Sitting on the floor because the seat squabs were too high to get under the steering wheel the clutch was gently let out and the car was driven twenty feet out of the garage and reversed in again - terrific!

FITTING BODY HARDWARE

Vitesse seats were fitted (although others are equally suitable) because I feel they are comfortable and look a fair representation of the TF seats. Two problems here, they were too high off the floor and if the doors were panelled they would not close. The height was reduced by altering the front mounting brackets, remaking the skirt frame and reducing this by $2\frac{1}{2}$", then cutting the main frame, reshaping and welding back so that the whole seat was $2\frac{1}{2}$" lower and flush with the floor. The driver's seat was fitted with modified Spitfire seat runners whilst the passenger's is fixed but will tilt forward on yet more home-produced brackets.

Whenever appropriate, MG parts have been used - for instance, TF door handles were fitted using Mini door locks. To fit these locks, wooden strengtheners were fitted to the doors, supporting the back edges of the locks. One criterion was that the doors should be able to 'slam shut' and the lock tongue (or is it bolt?) proved to be too long, fouling the body panels, so this was shortened and latch plates fabricated and screwed on, with allowance for adjustment. All worked well except that when the handle was fully depressed the now shortened tongue disappeared inside the lock and jammed up. Obviously some kind of physical limit to the tongue's travel was called for, so the locks were dismantled and a bolt inserted at an appropriate place to limit the movement of the handle. Chromed Mini door handles were used on the inside of the locks.

Apart from the dash and instruments the only 'mechanical' things required on the interior were demister ducts (having been told by the factory that these were not possible, I was determined to have them), a gearbox cover and handbrake. Heavily modified Herald demister fishtails were fitted with at least ten thou' to spare; the slots cut in the scuttle top were neatly covered with reshaped Herald outlets. The old Herald gearbox cover was shortened by $2\frac{1}{2}$", a new front mounting flange made from aluminium, fitted with sealing rubber and bolted to both floor and bulkhead. The handbrake lever from the Herald was utilised with a mounting assembly fabricated from some old seat runner crossmembers. This was fastened to the fibre-glass propshaft tunnel using strengthening plates underneath. The relay lever was then mounted under the body with suitable brackets made to simulate the Herald's normal mountings. the rear cable was too long and was shortened sufficiently by cutting some of the adjusting thread from each end and shortening each clevis, along with the return springs. To connect the handbrake to the relay lever the primary cable was replaced with a $\frac{1}{4}$" diameter rod, threaded $\frac{1}{4}$" UNF at each end to provide adjustment. A dummy propshaft cover was then made from the old bootlid so that it mated with the rear end of the gearbox cover. A screwed cover allows access for handbrake adjustment from within the car.

LIGHTING

The completion of the wiring, headlamps, side lamps, rear lamps, stop lamps, indicators, heater, horns and windscreen wipers were all next on the list. My chassis was first registered in 1959 so I was able to use white and red flashing indicators. This thankfully meant I wouldn't have to spoil the car's appearance by fitting amber indicators. Double filament MG side lamps and rear lamps were used; the only (currently) non-original MG feature is that the stop lamps are installed in 'D' lamps on either side of the rear number plate. These 'D' lamps started life as a very common form of trailer light with the amber part removed and the internals shuffled around a bit so that they serve three purposes: stop lamps, number plate illumination and reflectors. The sealed beam headlamps came from the original car with new chromed wire mesh stone guards. Brackets were made for a pair of air horns - not terribly original, I agree, but they were on the Herald so I used them. They are however tucked away under the radiator where they can't be seen.

WIPER INSTALLATION

Before installing the wipers, the screen assembly was fitted. The bolts holding the front of the windscreen feet were probably the most difficult to fasten on the whole car (although working under the dashboard takes a bit of beating!). The holes have to be drilled very accurately or it is impossible to fasten a nut on the back. With the screen fitted, two holes were drilled $12\frac{1}{4}$" apart on the scuttle top to take the wiper wheelboxes which came from a Mini as I recall. Herald spindles are too short to fit at the acute angle required. The wiper rack outer tubes had to be tailor-made to length, reforming the bell ends, and a new, tightly curved piece made to mate up with the motor, now mounted at a peculiar angle on the offside top of the bulkhead on a bracket made from an old outrigger end. The rack was shortened, the cut end rewelded and the whole lot assembled into position. Fitting Mini wheelboxes overcomes the problem of the sweep angle of the blades (normally 130° on the Herald) and this is reduced to about 95°. Sprite MKI arms and blades are recommended but being unable to find any of these I used Mini ones with shortened arms, weaker springs and shortened blades.

HAPPY CHRISTMAS!

Christmas had now comeround, some eleven months since commencing the project and it was at this point that a great sacrifice was made - I spent the whole of Christmas Day in the house, reacquainted myself with my long-suffering wife and was astounded to find how much the kids had grown!

Once the instruments and controls had been fitted, the transfer of mechanical parts from the Herald would be complete and I could concentrate on hood fitting, making sidescreens, trimming and putting on all the pretty bits.

The speedo was transferred from the Herald, with a Spitfire dial and new odometer ratchet gears to compensate for the proposed fitment of 15" wheels. The Herald wheels were sent off to the Motor Wheel Services to have their centres turned out and welded into TR2 wheels. "Delivery in 3 weeks" the man said, so the instruments gathered on the main visits to the scrapyard over the previous year were installed along with the controls and switches required. All along I had tried to build as faithful a copy of the MG TF as possible, however one particular item on the TF which I personally do not like is the dash layout so I designed my own, around the two big holes provided. The tacho came from a Sunbeam Alpine (I think), Vitesse and Minis providing the minor instruments. Great chunks of the $\frac{1}{2}$" thick wooden dash had to be removed and replaced with aluminium panels as the threads on the control knobs and switches were too short to go through the wood. The whole dash was covered in Formica before glueing on walnut veneer to match up reasonably well with the attractive wood rimmed steering wheel which came with the Herald. Many coats of polyurethane varnish were applied and rubbed down between coats until a reasonable finish was obtained.

HOOD AND SIDESCREENS

At this point in the proceedings, a move of house came about and guess what? - I'd not received my new wheels back so had to borrow a set from my, by now, friendly scrapyard man. Work almost came to a standstill over the next six months and little progress was apparent although plenty of time was spent in designing bits, working out how to make and fit all the other things which still needed putting on.

Later in the year I restarted in earnest, eager to dirty the nice new floor of the double garage which had kept me busy over the previous months.

Fitting the hood presented untold problems and eventually I stripped the

hood frame down, chopped 2½" out of its width, altered pivot points and mounting points until I was happy with its fit. Too many specials look like specials because of ill-fitting weather equipment and I feel it pays dividends to take care here, not only for appearances' sake but also of course, if everything fits, it won't let the weather in.

The fibre-glass sidescreens supplied were a bit crude and were taken apart, covered in vinyl, Morgan sliding channel obtained and fitted along with sliding perspex windows. Steel frames were made for the rear sidescreens so that the car could be driven without the hood but all four sidescreens errect; this has been very successful in reducing the buffeting experienced at high speed. It seems easy now, writing this down, but as with everything else the time taken to accomplish a task seems to be the square of the estimated time. Bearing in mind the sidescreens had to be designed and made, had to fit at the front against the screen without draughts and the same at the back, had to be perfectly weatherproof where they meet the hood yet still be able to open and close the doors easily, it can possibly be appreicated why the better part of three months was spent on this one item and why building a kit will always take longer than you thought.

DRAUGHT-PROOF DOORS

Having got a leakproof hood and sidescreens, leakproof doors seemed like a good idea. The body around the door aperture is only ½" thick compared to the doors themselves which are about 1½" deep. This posed a problem as I wished to use a conventional door draught excluder. To this end the body thickness around the door aperture was increased to 2" by laminating on ½" tickness of timber up to the required depth (ply is no good here as screws need to be put into the end grain and lamination is necessary due to the curvature of the body). This done, 'T' shaped anodised aluminium extrusion was obtained and shaped to fit all around the opening so that BMC 1100 draught excluder rubber could be slipped on to provide a seal agains the interior trim panel in the same fashion as in a normal saloon. This has been perfectly successful and as a result the interior has proved to be very comfortable and cosy.

BODY HARDWARE

Before any interior trimming was attempted, the rest of the exterior hardware was fitted. Angle iron supports for the bumpers were fabricated although bending these in the grid in the road was none too successful so as a trip to a blacksmiths was called for tc get their shapes just right. No provision is made for mounting the spare wheel, so a front hub and disc assembly was obtained from a scrapyard and more fabricated members made up to mount the spare. This just about completed the exterior after running board strips, chrome trim, hinges, bonnet catches etc. had been fitted along with the MG Magnette grille on brackets which would not show any external screws.

At this point the front wings and bonnet side panels were removed so that the latter could have the correct louvres put in (the body came with plain panels) and this was done by local sheetmetal workers who had an appropriate tool for their flypress. The offside bonnet panel has a power bulge supplied as an extra by RMB and it is essential to order this if using either twin carbs on a four cylinder engine or the six cylinder Vitesse. Several Gentry club members have made up ingenious ways of fitting air filters although generally speaking there is no room for them.

INTERIOR TRIMMING

Having pretty well completed the exterior some six months after starting the venture, I turned my attention to the interior. An open car is potentially leaky and cardboard or hardboard trim panels would be susceptible to damp and warping. I chose to use marine ply, cut to shape for each individual panel (as with most handmade things, each panel differs slightly in size) and then given three coats of polyurethane varnish. Wadding was obtained from Paul Beck in Norfolk, black vinyl and piping from a local supplier. Tins of

Photos by John Brandwood

Evostick, a staple gun, Stanley knife and scissors were the equipment needed and being the dead of winter, I made a welcome return to the warmth of the house and the kitchen floor to assemble the panels. A pocket-shaped cut-out was inserted into the door panels to give sufficient width for the Vitesse seat squabs. Karvel carpet was used - very nice to work with - it cuts easily with a Stanley knife and does not fray but is now very difficult to come by as it has not been made for several years.

One part of the trimming which presented a challenge was around the top edge of the rear and sides of the body. After rejecting various rubber and alloy sections, I decided to carve it from a piece of 6" x 3" timber left over from the garage roof. When it was shaped to a 'D' section this was covered with flannelette and then black vinyl to match the rest of the interior.

PAINTING

Having now effectively finished the car, it was completely dismantled for spraying. It is so easy to slip with a drill or spanner that I decided to finish all work on the body prior to spaying which was done in a friend's garage. Starting to rub down the panels with 220 grade paper, we were a bit concerned that the primer which the shell arrived in would not feather back where rubbing had revealed the aluminium. Suspecting the primer used, I then rubbed the whole body down to bare metal using worn out 220 grade wet and dry. A self-etch primer was then used, followed by six coats of primer, rubbed down every three coats. Following the primer came seventeen coats of red cellulose completely flattened down between every third coat, the final two applied by my expert friend as I did not feel competent enough to do the final finishing myself.

The whole job took five weeks, consisting of twenty one full days and evenings plus about fourteen evenings. It was very hard work but most rewarding in the end.

FINAL ASSEMBLY

Having trailered the car back home, final reassembly took place over the next three weeks. An MOT was booked and the car driven the twelve miles to the garage. It was on this trip that the deliberate mistake number one came to light - there was nowhere to put my clutch foot! After passing the MOT and obtaining its first tax disc, the gearbox cover was removed and a well moulded into its side to rest the left foot when not actuating the clutch pedal.

CONCLUSION

Since completion in May 1979 the car has proved fast enough (with the 75bhp Spitfire engine I fitted later) to surprise many other drivers. With 15" wheels upping the final drive ratio by 13.2% giving an overall fuel consumption better than 39 mpg, it is very economical. Accurate enough a copy to fool 95% of the people all the time that it is an MG TF, eyecatching and resonably practical with a fair amount of luggage space behind the seats and very pleasant to drive (especially without the hood on those rare hot sunny days), the Gentry has fulfilled everything I could have wished for and will, hopefully, give much more enjoyment in the years to come.

As long as building a kit car is approached in the right frame of mind, it will prove most enjoyable to construct and very rewarding when completed. Be prepared, however, to spend countless days scouring scrapyards for bits, and for the job to cost much more than originally estimated and to take far longer than expected. The total time taken to build XXE 249 was logged at 2,970 hours, spread over two and a half years. To put this in perspective, at 40 hours per week most people work about 2,000 hours in a year, and the cost was coppers under £2,000 based on prices up to four years ago.

Would I build another? Probably not, mainly to prevent my wife from filing divorce proceedings against me (who would wash my greasy jeans then?), although a restoration might in many respects be far easier and quite interesting. Anybody got an MG PB, dismantled, in a box, for a song?

ANALYSIS MARLIN

2 years ago, I decided to up my GT6 MKII ready for one of the Club's annual trips to Luxembourg. It didn't take long to realize exactly how rusty my car had become. I panicked, sent off for information on every Triumph-based kit car, blew over the rust and went to Luxembourg (a truly great event). When I got back I read through all the brochures and for various reasons, decided none of them were for me. So I chose the most expensive route i.e. re-building the GT6. If the Hurricane had been around I would probably have been registered with the Specials section of the TSSC today.

The Hurricane is, as far as I know, the only kit car designed around the Spitfire/GT6 chassis and running gear and indeed, a combination of chassis and running gear for these cars can be used. In fact it is not so much a 'kit' as a new fibre-glass body, in over simplified terms - you merely throw the old body (rust!) away and put on the new one.

I first saw a picture of the car in the magazine called 'The Complete Kit Car Guide 1983'. The concept and design intrigued me, so I contacted the makers, Vincent Cars, with a view to satisfying my own curiosity and writing this article.

The firm is run by 2 blokes, Martin and Robin Vincent. Robin, I discovered, is a fellow TSSC member and I gratefully accepted his invitation to see the car.

The 'kit' consists basically of 5 items; a bodyshell, doors and bootlid and replaces all the metal panels of the donor car with the exception of the windscreen surround.

The bodyshell is a one piece, fibreglass moulding, which includes the rear wings, sills, floorpan and bulkhead. The rear wings, boot floor and heelboard (the vertical panel immediately behind the front seats) are all strengthened with marine ply, which is completely encased in fibreglass. The sills are also strengthened by the injection of rigid urethane foam. A small, tubular steel frame provides the only other strengthening required and supports the door hinges, windscreen surround, dashboard and steering column. The result is a body which the Vincent brothers claim is more rigid than the Spitfire and, having seen both, I am quite prepared to believe them. The only major change from the Spitfire/GT6 layout being the removal of the battery tray which, for weight reasons, is now sited behind the passenger seat.

The bonnet is another one-piece moulding designed to take any of the Spitfire or GT6 engines and because of the height and width of the design, triple webbers should cause no problems and neither would PI, so a 2.5 engine could easily be fitted. Sensibly the front hinging operation and, therefore, the engine accessibility is kept.

One of my reservations of fibreglass bonnets for 'our' vehicles is that the operation of the side bonnet catches introduces a stressed area, which has been known to split the steel. That sort of stress in fibreglass is likely to result in 'starring' or 'crazing' or worse. However, this problem is cleverly solved in the Hurricane by altering the design to a centrally mounted catch system, operated from inside the car as per more modern cars.

The doors are strengthened with another small steel tubular frame which allows the original window winding mechanism to be used.

Incidentally, neither the doors nor bonnet can be used as replacement panels on standard cars as the section is much more bowed than the original.

I was very impressed with the weight and quality of the fibreglass mouldings, the end result should be a substantial, long lasting car and certianly not a 'flimsy kit'.

Perhaps the most appealing aspect of the Hurricane over some other kits, is the sheer practicality of the car. I have already mentioned that any of the Spitfire/ GT6 chassis and mechanics can be used, as can the window winding mechanism and heating and ventilation equipment. So too can the tonneau, soft top and even the hard top from the early Spitfires (pre MKIV), though the Spitfire MKIII soft top is the ideal choice as it is the only top which folds away behind the seats.

One major problem in building this car could be finding a good, early Spitfire windscreen surround and, although fairly expensive, it would certainly be worth obtaining a new one from Leyland if they still have any.

Another problem is that the Hurricane has no bumpers, which could make minor accidents more serious. Possibly an enterprising builder could fit some but, in my opinion, they would spoil the lines of the car. More serious crash damage could be easier to repair than the steel cars, as Vincent Cars can produce any panel section required.

A roll bar for the car is under consideration at present and, as one of the 'fixed head' TSSC members, I would certainly feel this item is a necessity.

I was very pleased to be able to see this car and I found the design to be even more attractive in the flesh than in the photographs I'd seen. Washing the finished car must be bliss as all the seams and clutter of the normal cars is removed. I was only sorry that at the time of my visit, they had no driveable examples, as I would have dearly loved to have tried one (hint, hint, Robin!).

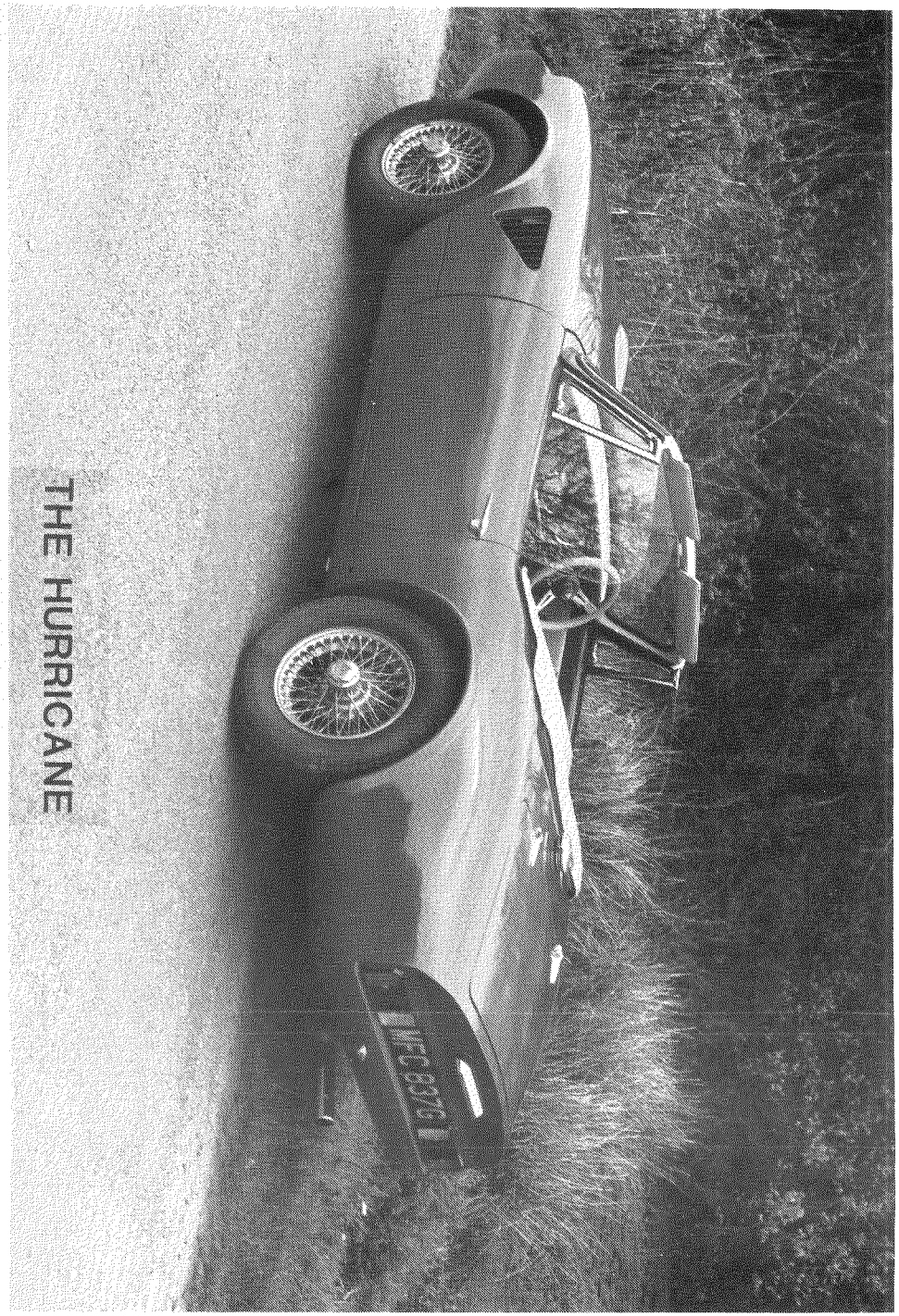
Whilst as a GT6 fan, I would not like to see all GT6's and Spitfires converted into Hurricanes, there are enough vehicles being scrapped through rust or damaged to produce a very healthynumber of Hurricanes. The cost of the kit is about £990 plus VAT and complete cars can be produced to customers' specifications. The spraying is normally carried out by a third brother, Jeremy Vincent, who runs a separate company, Trident Engineering: This is conveniently adjacent to Vincent Cars. Full details are available from **VINCENT CARS, NORTHEND, TURVILLE HEATH, HENLY-ON-THAMES, OXON RG9 6LE. TELEPHONE 049 163 720,** and you should enclose £1.00 for the brochure. You may have to be a little patient as I understand demand was such that the original print run of brochures was very quickly used up.

Below is a rough table showing some components you will need to obtain for different models, some of the items can be supplied by Vincent Cars and in any case, the accuracy of the table below should be checked with them.

X indicates items required.

		Rear lights	Soft top	Windscreen frame	Petrol tank	Door windows
Spitfire	I	X	X			
	II	X				
	III	X				
	IV	X	X	X		
GT6	I	X	X	X	X	X
	II	X	X	X	X	X
	III	X	X	X	X	X

By Jonty Wild



THE HURRICANE