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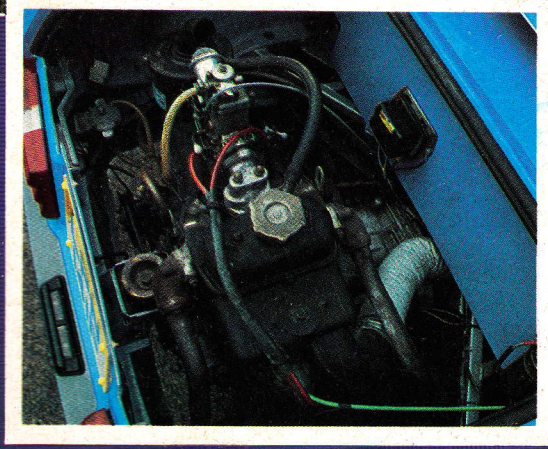
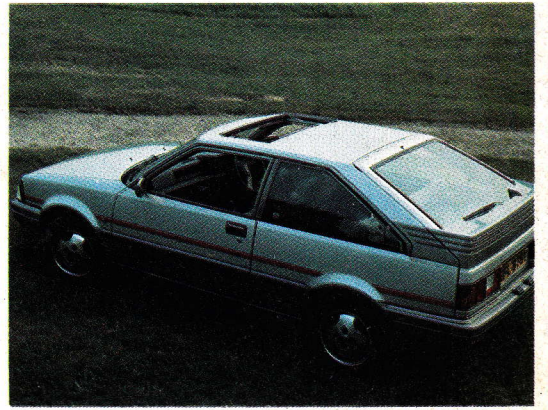
SPORTS & KIT CAR BUILDER

THOROUGHbred MERLIN

KIT EXAMINED

BLyDENSTEIN'S LATEST:

SPORTY STANZA



CIPHER: COMPONENT

CAR ARRIVES

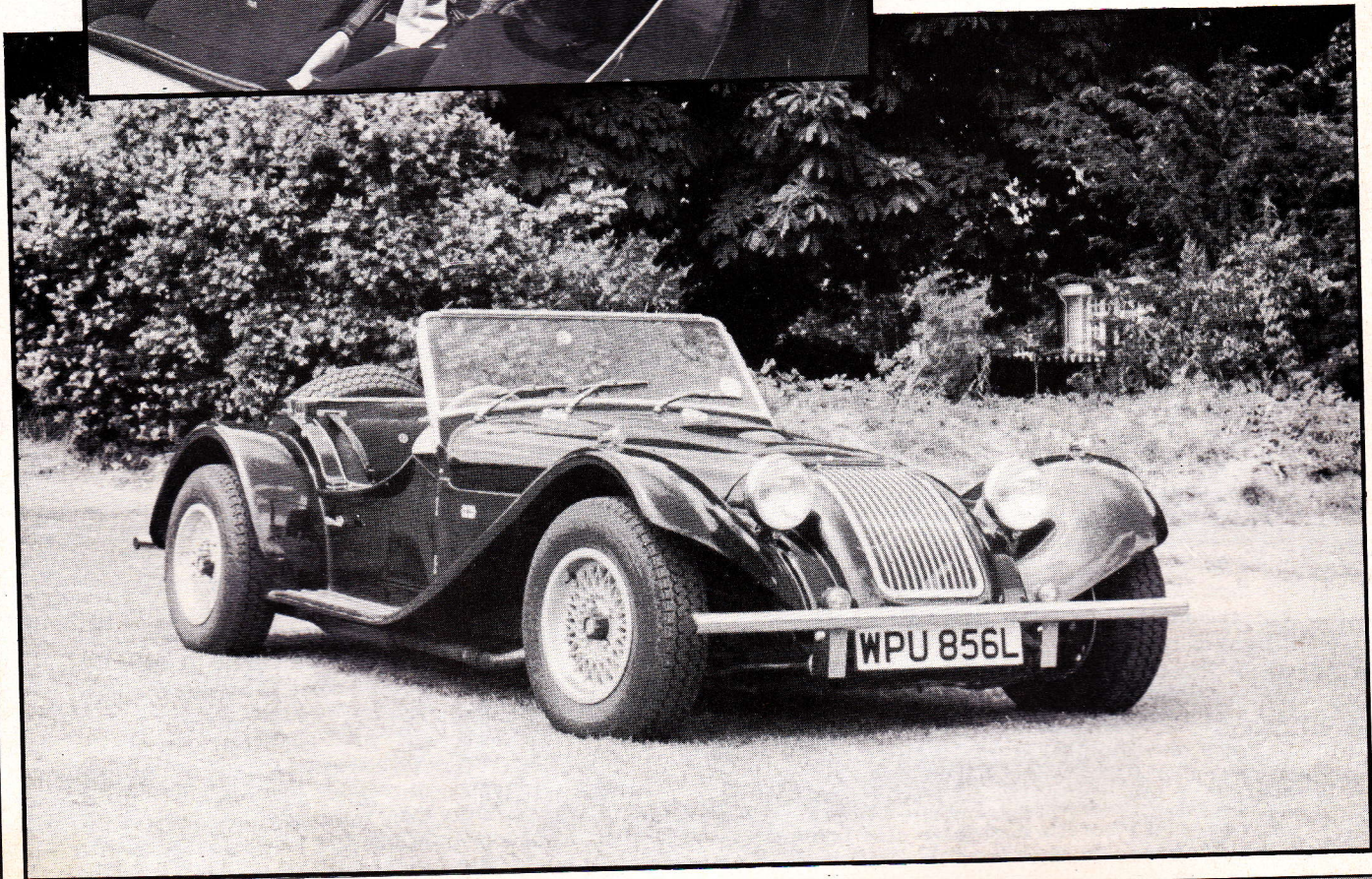
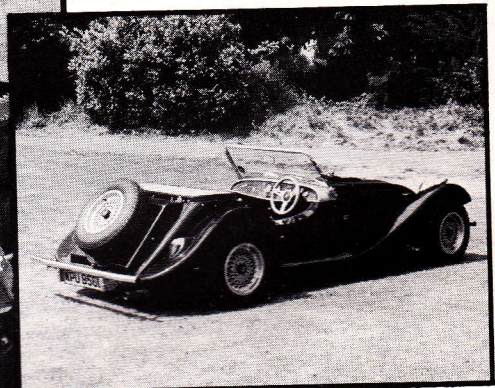
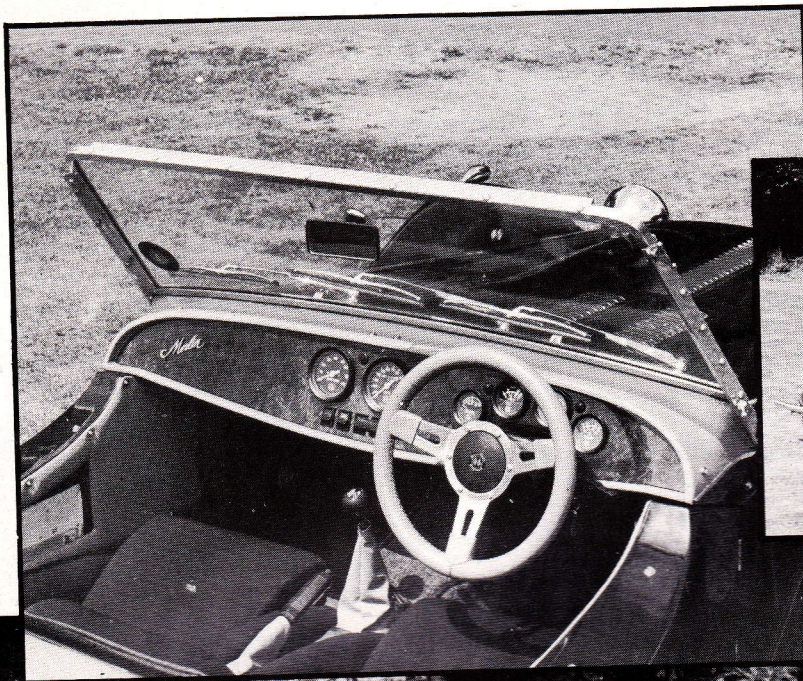
MARCOS RALLY:

FULL REPORT

Kit Check

MERLIN TF

Our monthly look at the engineering of a high quality kit car.



Take a look at any of the American kit car publications, and you'll find a surprising lack of straight 'body/chassis kits', moreover complete car kits which contain virtually every nut and bolt needed to finish the car. Build-up features reveal that these components are of high quality, and it is thus not unexpected, indeed it is quite respectable to build cars from kits costing over \$10,000. Always competing keenly with high-spec kits has been Thoroughbred Cars, and when Peter Gowing acquired the rights to produce these classically styled car kits for the thriving British market, his aims were to duplicate the standards of quality and precision of the well developed American kits. This month then, we analyse Thoroughbred Cars' (UK) Merlin roadster kit, to see exactly what it has to offer the British kit car builder.

STRUCTURE AND FUNCTION

As ever with the traditionally styled car, the ubiquitous ladder chassis forms the structure on which the Ford Cortina Mk3 or 4 components are hung. Of course simplicity is certainly not the keynote when it comes to chassis design, and no-one has ever claimed that the twin-rail frame is ideal for a machine capable of over 100mph, but safety has never been the traditional car's forte, whether it be a true classic or replica. The Merlin chassis may not represent the state of the art, but it is certainly no worse than many others, and can still provide enjoyable motoring.

There is a minimum of support for the suspension mountings, the Cortina cross-member at the front, and the coil springs at the rear. So the picture is of a competent rather than an inspired structure, reasonably suited to everyday conditions, but one would not be advised to compete in the Acropolis rally in it, not without substantial cross-bracing and triangulation at least. Having said that though, it must also be stated that the quality of the MIG welding was faultless, so those joints should be well able to withstand the strains.

When we move to the qualities of the fibreglass bodyshell, the situation becomes much more promising. Its design exhibits much to commend it to the kit car builder, and the mould standards are such that a gel coat finish is more than adequate, for the lighter colours at least. The wheelarches are not returned on the current model but the thickness of the GRP does realistically obviate the need for this. It is obviously grossly untraditional to have a one-piece bodyshell without separate bolt-on wings, but in fact this is where the Merlin shell derives its strength — the lay-up is very substantial indeed in the area of the wing/body interface. Hinges

for the bonnet and doors are all external types, working well and adding to the traditional flavour of the car.

Compared with most other kit cars, cockpit design and layout is excellent, showing painstaking attention to detail. Narrow it may appear, but the passenger area offers just enough width to accommodate a smart pair of Corbeau seats, and legroom to satisfy the tallest of drivers. Not only that, but the pedal box has a good degree of adjustability, so a satisfactory driving position is guaranteed. Seat belts, often neglected in kit cars, have been given high priority in the Merlin, and we find that all mounting points are on the chassis, that inertia reel belts can be fitted easily, and most importantly, that in use they are properly functional.

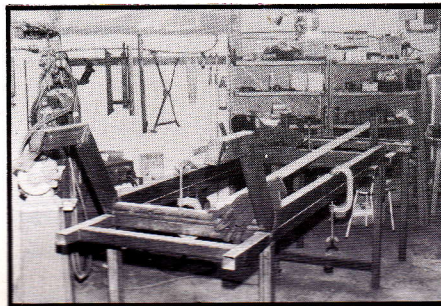
The dashboard is another area where the Merlin sets the standard by which other kits should be judged, since all aspects have been given full attention by Thoroughbred Cars. The steering wheel may be mounted on fibreglass rather than metal, but its location in exactly the right place is no mere coincidence, but the result of an intricate steering column extension which comes in the basic kit complete with new joints.

Many options are available to fill the dash itself, but for once, the builder

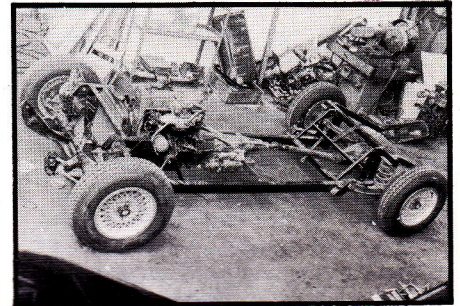
isn't forced to cannibalise scrap heaps, since Thoroughbred can supply a set of Icknield instruments and switchgear manufactured specifically for the car. Nor is there the need for lengthy head-scratching to determine how to attach them to a Cortina wiring loom, for on the list of Merlin accessories is a DBR wiring loom. The thousands of 'newly born' electricians who have wired cars for the first time with one of these looms will testify as to their superb design for the home constructor.

In our July issue, we commented in our Kit Car Weekend review, on the three-wiper Merlin being a mutant version — well, all previous Merlins have had only two! Well, the third wiper wasn't just stuck on for show, on a screen of this configuration it is the only way of clearing it sufficiently to give the driver a safe view in the rainy conditions which are not exactly infrequent in the UK.

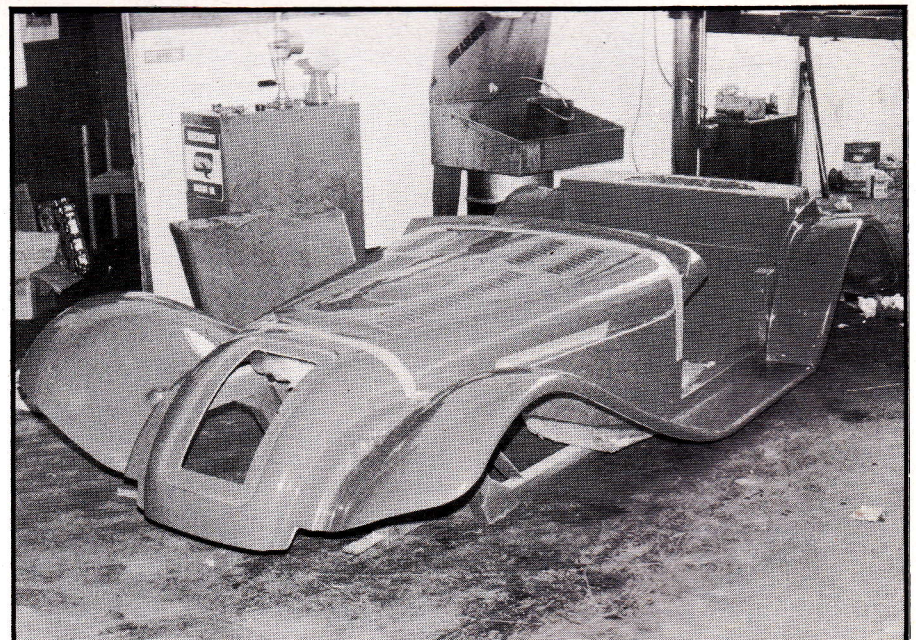
A modification so far not seen on kit cars, it is an external sign of the lengths Thoroughbred are going to satisfy the kit car constructor, but a look at some of the minor components and accessories on offer reveals that each operation of the build-up has been thoughtfully evaluated, and where necessary components have been specially fabricated.



The Merlin chassis at the jig stage — MIG welding ensures strong joints.



Thoroughbred's quality means you could be at rooling stage within a couple of days.



A minimum of finishing is required for the nicely moulded shell. Ready for collection, this body/chassis trailer assembly can be towed on a 50mm tow hitch.

STRIPDOWN AND BUILD-UP

Naturally, having decided to build a kit car you are now faced with something of a paradox — because before you can go any further you must dismantle your donor vehicle. No prizes will be awarded for getting the make and model correct, namely FoMoCo's old faithful but unlamented Cortina Mk 3 (you can also use the Mk 4, by the way). If you'll take the advice of one well used to the vagaries of stripping base vehicles, then you'll save yourself a great deal of heartache, not to mention a few skinned knuckles.

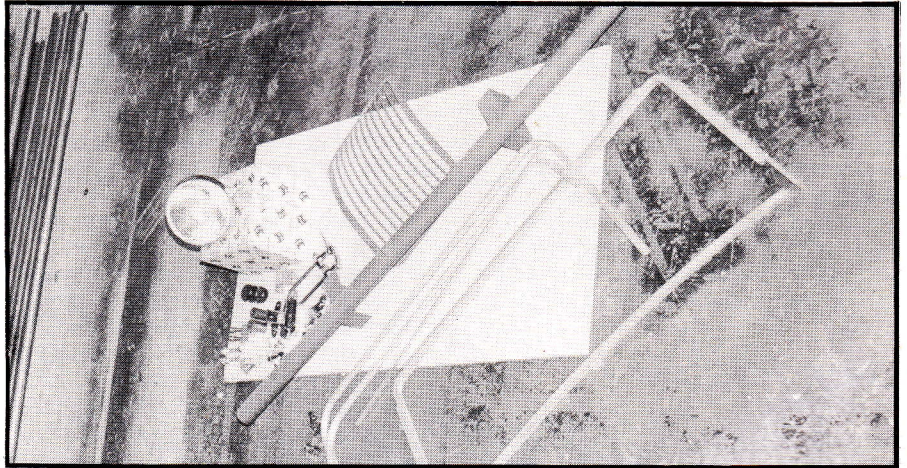
First step is to arm yourself with a goodly selection of hand tools, including a tough socket set, cold chisel and hammer, penetrating oil and a workshop manual in respect of the car being dismantled. Next, sit down somewhere quiet and read through the appropriate parts of the manual, cross-referring to the useful assembly manual as supplied by Thoroughbred Cars. Having done that, the next job is to make a list of all the parts you wish to remove from the donor car and stick it to your garage wall — assuming you're lucky enough to own a garage to do the work in. A final cup of tea and you're ready to get out there. To build a Merlin you'll need three major sets of components from the dead Cortina, namely the complete front suspension and steering gear, engine and gearbox and the rear axle. Other secondary items required from same include the pedal assembly, steering column, brake cylinders, propshaft, handbrake, battery, radiator, complete wiring loom including the fuse box, relays and coil, cables for the clutch and accelerator and finally the starter motor. If you didn't get all that, don't worry, as Thoroughbred Cars have thoughtfully listed the foregoing for you. Non-Cortina parts you'll need are a windscreen and a set of VW Beetle rear lamp clusters.

Probably the most fussy part of the operation is getting the old wiring loom out intact, and the best way to effect this is to strip out most of the trim from the lower inner sills and around the front inner bulkheads. Parcel shelves and the like are deftly removed with a slice of the chisel — certainly quicker than undoing rusted screws — and then most of the loom can be removed. Oops, nearly forgot, trust that the very first thing you did was to drain off the petrol from the tank and remove the battery! Right, back to the spaghetti. At this stage it is as well to carefully tag each and every connection that you undo, as this will save hours of head-scratching frustration later. Most of the Cortina instrument pods use printed circuit set-ups, so it's really just a matter of pulling off large multi-way connectors. Some careful hand-work

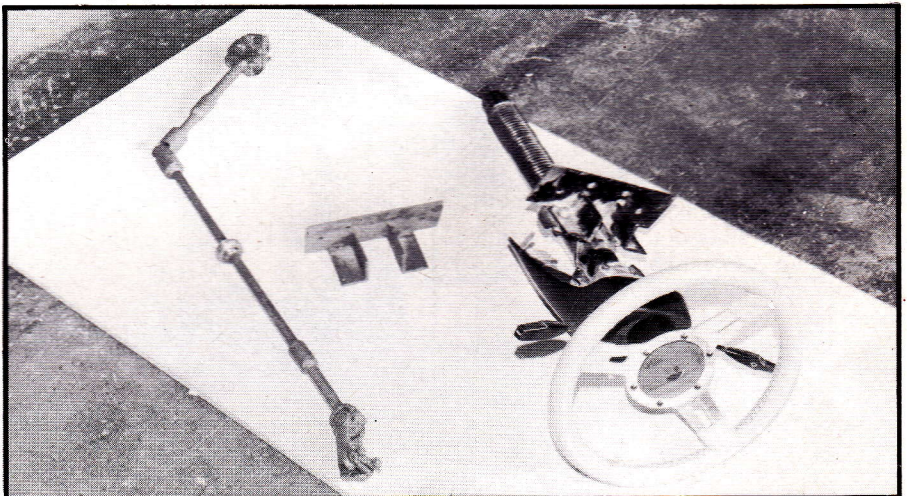
will see the bulk of the loom out safely, ideally complete with the majority of switches etc immediately re-attached, again to make life easier when you come to re-install the loom in the Merlin. Of course you do have the choice of the brand new DBR loom from Thoroughbred.

Next step is to make a cup of tea! You'll be surprised how thirsty you feel

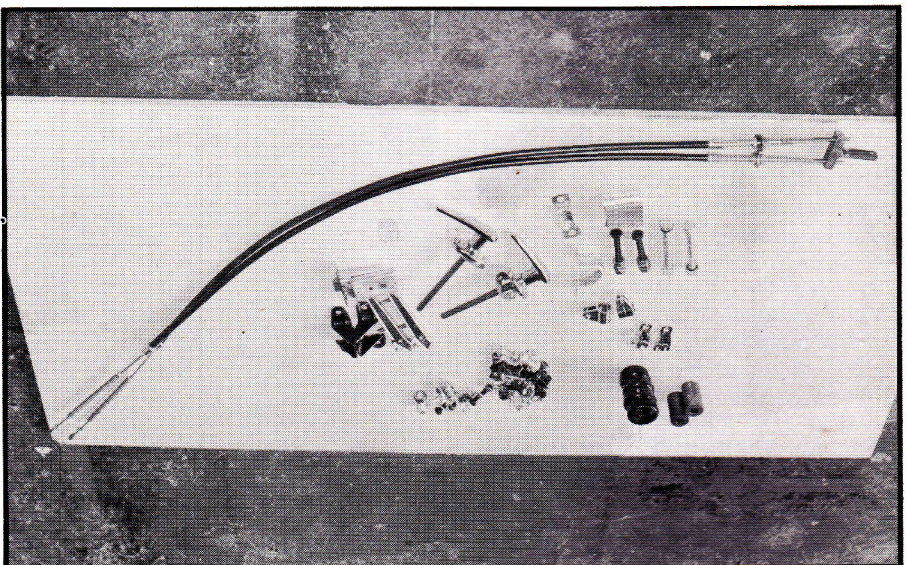
having spent a couple of hours pulling wiring out of various orifices that you never knew existed. Now for the heavy stuff — removing the engine and gearbox as a unit. Prior to attempting such an operation you must remove the propshaft, as per the workshop manual's instructions. After that, follow the manual's advice as to engine removal, which is a pretty



Aluminium hood stays, chromed bumper and grille, Marchal headlights — just a portion of Merlin's high quality accessories.



To ensure the perfect driving position — the steering column extension complete with new universal joints. Note also colour-keyed Mountney steering wheel.



To take the headaches out of kit car building — all those bits and pieces one might normally procure from the breaker's yard, including new handbrake cables.

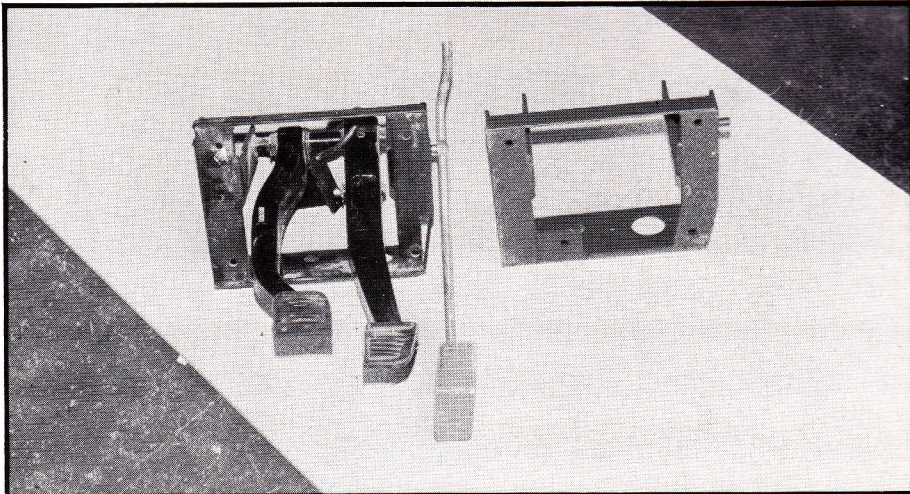
straightforward affair. Likewise, removal of the front suspension and beam is no problem. In fact, such was the sensible design of these early Ford saloons (!) that virtually all the bits and pieces you'll need to remove will come off without too much hassle, the biggest enemy will be rusted nuts and bolts, all of which can be overcome by a balanced mixture of penetrating oil, perseverance and brute force.

So, rather than spend valuable time telling you how to do basically simple jobs, we'll press on and detail the actual build-up. Most builders will readily agree that it's not worth spoiling the ship for a hap'orth o' tar. Thoroughbred Cars recommend that prior to assembling your Merlin you remove the body from the frame by loosening the ten bolts that hold it in place. Having split the bodyshell from the chassis it would be wise to cover the red oxide metalwork with several coats of Hammerite or Waxoyl to keep off the elements. That done, the chassis can be supported on axle stands and assembly of the rolling chassis can commence.

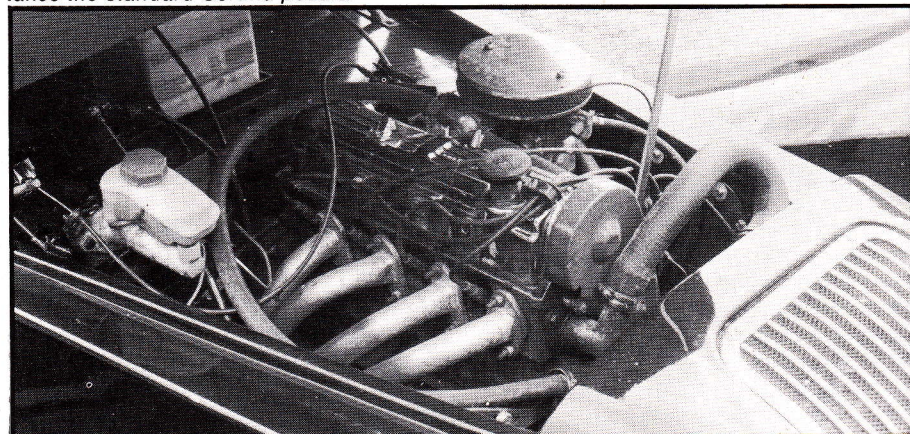
Fitting the front suspension is simply a reversal of the removal procedure, bolting through the top mounts first and using the brackets supplied to mount the secondary fixings on the underside of the beam. Once secured, it is an easy job to refit all the suspension components previously removed, as well as to check for wear in the ball joints, shock absorbers and replace the coil springs with those supplied with the kit. Now to the back of the car. Set the axle to the rear of the chassis, securing the suspension arms to the chassis using the standard coil springs from the donor car. Do *not* at this point fit the rear shock absorbers as this can be done later. Fit the wheels as soon as possible, as not only will the Merlin then be easier to work on, but it will begin to look like the car of your dreams rather than a half-naked lump of metalwork that's just escaped from a modern art studio!

Now for the motive source. Using a proper pulley and hoist fit the engine and gearbox unit, complete with all ancillaries — as removed from your donor car not so long ago. Using the cross member supplied, secure the gearbox in place with the rubber centre section from the standard Cortina item. Before refitting the body, several panels will require cutting out. These include the engine bay, grille opening and upper boot access. All the preceding three jobs are best done with the body raised off the ground, and all three operations are detailed in the Merlin manual.

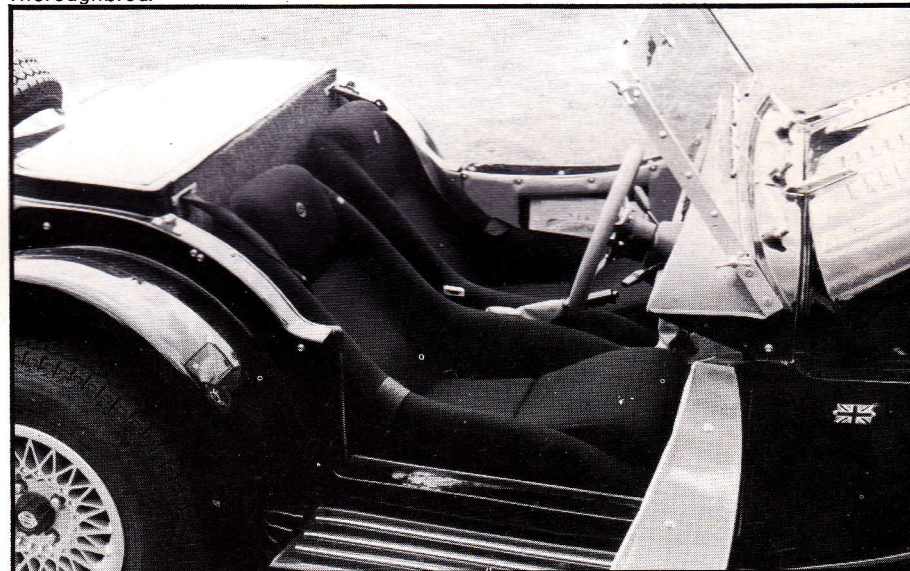
Next cut out the propshaft opening in the body tub, and to do this accurately it is best to replace the body on the rolling chassis. Again, the build-up manual advises on this operation. Once



One of the Merlin kit's most impressive components is this adjustable pedal box, which takes the standard Cortina pedals.



Underbonnet view of completed car shows tuned extractor manifold available from Thoroughbred.



A superbly trimmed interior is easily attained thanks to Thoroughbred's professionally prepared panels. Corbeau seats offer excellent support.

this has been done the petrol tank can go in through the boot aperture just cut out. Install the tank. Now it's time to fit the handbrake and mandatory cables before moving on to the fitting of the prop itself, which needs to be cut and shut (welded), and here it would be sensible to employ a professional to handle the job for you. To quote the assembly manual, '... trial and error is the only way of positioning the pedal assembly'. That is all the advice offered on this part of the build-up

Thoroughbred Cars, although they do provide diagrams as to the approximate positioning necessary. Minor mods will need carrying out to refit the pedals, but should present no problems to the handyman, nor should those necessary on the steering column. Fairly clear sketches as to the installation of the column are provided. Judging from the build manual fun and games will be had fitting the triple wiper set-up, but again, nothing that a little patience will soon resolve.