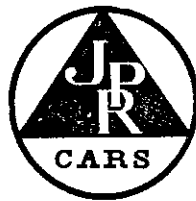


The Wildcat Roadster
**CONSTRUCTION
MANUAL**



Supershell Building
Goodwood Motor Racing Circuit
Goodwood Nr Chichester West Sussex.

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INTRODUCTION

The JPR Wildcat Roadster is styled on the classic looks of the Mk1 E Type Jaguar. It is different from the E Type in that the body across the back axle is eight inches wider and the cockpit is also wider at the rear.

There are also some detail changes such as the indicator lights are mounted beneath the bumper line and the front side lights are incorporated in the headlights. The rear light clusters are also different from those in the original E Type.

Despite these changes, the Wildcat retains the classic shape that is known and loved by many.

We believe that we have captured the spirit of the original car and at the same time made it available at a cost that is less than the E Type when it was launched and it will last a lot longer.

The heart of the Wildcat is the superb, tubular steel, spaceframe chassis, which has been designed to give strength and stability. It is fully bracketed and the ends of the tubes have been sealed to prevent the ingress of moisture.

Ford Cortina front and rear suspension, steering, engine and gearbox simply bolt in position. This instruction manual describes every operation.

The one piece bodyshell is made from Glass Reinforced Plastic (fibreglass). This material is immensely strong and ideal for motor car bodies, which is why it is used by Lotus, Reliant and all of the Formula One racing cars. (It is too expensive for the major manufacturers to use on their production lines.) The major tasks have been carried out for you, for instance, the doors are hung and fitted with handles and catches. Our aim is to make the Wildcat easy to build

Most of the mechanical and electrical parts are

obtained from the Ford donor car but a few non-donor car parts are required. Any specialised items are supplied with the kit. The remainder are standard spares and are available as optional extras, alternatively they can be purchased from your local breakers or as off the shelf items from a motor factor. A full description, with part numbers where appropriate, of what is required is given later in this manual.

A fully built Wildcat Roadster weighs only 825 kilos, which is about two thirds of the weight of the donor car. So it is obvious that the Wildcat has an extremely good power to weight ratio.

Any of the standard Ford Cortina engines will give a brisk performance and the 2 litre overhead cam engine, even in its standard, form will provide acceleration and top speed to meet most peoples needs. For the performance oriented driver, the Ford engines are easy to tune and many off-the-shelf modifications are available which enable the output to be increased for very little time and effort. And for the person requiring the ultimate in performance, the Rover V8 version of the Wildcat is now available and the Granada V6 option is on its way.....so there is no lack of choice.

In fact, the choice is even wider than that, because virtually any make four cylinder, V6 or V8 engines will fit in the Wildcat. The only limitation is that the gearbox which goes with the engine should be mounted on the rear of the engine in the conventional manner, and that the engine is upright and not inclined. Obviously we need to know in advance which engine and gearbox are to be fitted to the car in order that we can provide the correct engine mountings. There will be a small additional charge for making up engine mountings for engines other than the four cylinder Fords.

Building time? Well that's a question which is difficult to answer because it depends on so many variables. One builder may be happy to merely transfer the components from the donor car to the new chassis but others may follow our recommendation and take the opportunity to refurbish the parts before they are fitted. As a guide we would say that the average handy man will take about a week to ten days to build up the car from the point where the donor car parts are ready

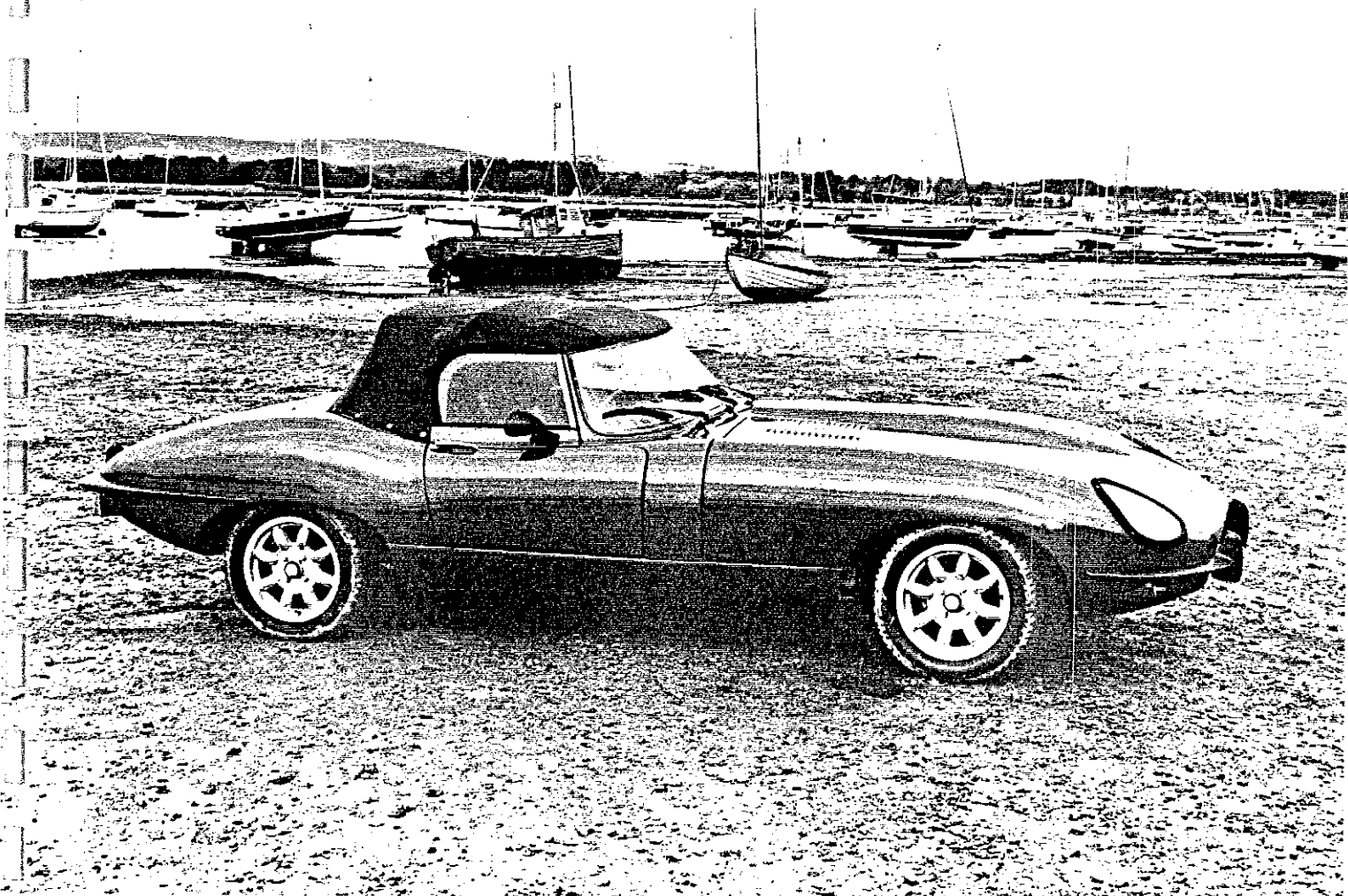
to fit.

However, we feel it is worth reminding you that building your Wildcat should be a pleasurable pursuit, not a race against time: the finished car will reflect the time and effort you are prepared to spend on it.

We have done every thing possible to produce a quality kitcar which is easy to build and a pleasure to drive. If you have any queries regarding the car or its construction please do not hesitate to contact us.

Happy building and many years of carefree motoring.

The Wildcat Roadster



ONE OF THE MOST COMPREHENSIVE KITS ON THE MARKET

The Wildcat Roadster kit consists of the following:

GRP body already bolted onto chassis. The bonnet is hinged. Boot lid and doors are fitted with new hinges, locks, door handles and wind-up windows.

A clear laminated windscreen is fitted complete with top chrome trim.

Also supplied dashboard, inner trim panels, rear light clusters, front flasher lights, pair of headlights, headlight surrounds and glass covers.

Set of bumpers, steering column bracket, clutch cable bracket and two front shock absorber brackets and instruction manual.

The servo bracket and steering column are modified in the basic kit.

The kit is available in two further stages of completion

Stage 1 Wildcat Kit

The Wildcat Rolling Chassis Kit includes all items as featured in the basic kit plus the following

Donor car is supplied, stripped down and all parts cleaned and sprayed black. The rear suspension is re-bushed and fitted to the Wildcat chassis using new shock absorbers.

The front suspension is re-bushed ● New top and bottom ball joints.

New tie rod bush and washer kits ● New coil over shock absorbers.

All fitted to Wildcat chassis.

New rear wheel cylinders and brake shoes fitted to rear axle.

New hand-brake cable fitted ● Hand-brake fitted into body.

New front disc pads fitted. Complete set of new brake pipes fitted.

Set of three new flexi hoses fitted ● Petrol tank is fitted and plumbed in.

Steering column is fitted along with pedal box, servo and brake master cylinder (from donor car).

The remainder of the donor car parts to be delivered to the customer for finishing the kit.

Stage 2 Wildcat Kit

The Wildcat Rolling Chassis, with all electrics Kit includes all items as featured in the basic kit and the Stage I Kit plus the following

The donor vehicle wiring loom is installed into the Wildcat using all of the donor electrical parts except for the parts listed, which are supplied new:

Head lights and front flashers fitted to bonnet, wired up using seven-pin plug and socket into loom.

Rear light clusters and number plate light fitted and wired into loom.

Dashboard is fitted with standard instruments consisting of:

Speedo and cable ● Rev counter ● Oil pressure gauge.

Water temperature gauge ● Fuel gauge.

Voltmeter and warning lights fitted and wired into loom.

New coil ● Twin air horns ● Battery fitted and wired up.

Lights, wiper and flasher switches wired up.

Second hand wiper motor and drive, wiper boxes, new wiper arms and blades fitted and wired.

Electric washer kit fitted.

The European Wildcat Kit

Consists of the Wildcat Kit plus these extras

Soft top ● Trim kit ● Two black reclining seats and seat runners.

Wood or leather rim steering wheel.

Pair of front coil over shock absorbers ● Pair of rear shock absorbers.

Set of brake pipes and flexi hoses.

Brake overhaul kit consisting of pads, shoes, rear wheel cylinders and handbrake cable.

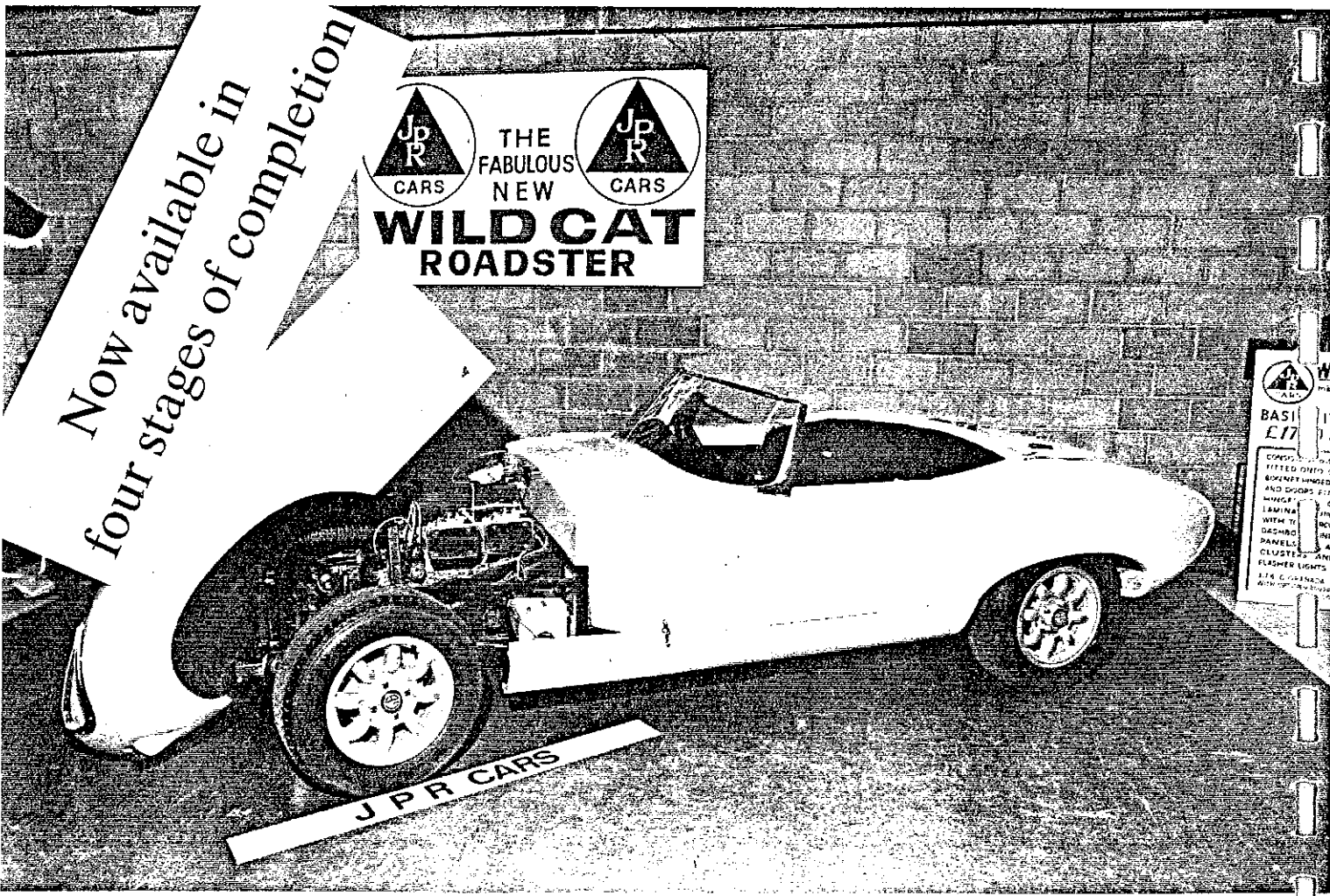
Suspension overhaul kit consisting of all bushes and ball joints for front and rear suspension.

Pair of track rod ends.

Second-hand fuel tank, heater, wiper motor and mechanism with new Jaguar E-Type wiper arms and blades.

Set of instruments ● Speedo with cable ● Rev counter.

Oil pressure gauge ● Fuel gauge ● Voltmeter ● Water Temp gauge.



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SAFETY

We do not feel that it is our responsibility to discuss all aspects of workshop safety in this book. All kit car builders must be aware of the danger inherent in using sharp edged tools and electrically driven tools of all types. However, there are some areas that need discussion both in the types of material being used and the use of some tools.

Safety is a discipline that sensibly and regularly followed becomes a habit that is carried out automatically and is neither an irritant or considered to be time wasting.

G.R.P.

Glass Reinforced Plastic, commonly called fibre glass, is the material with which most kit car bodies are made. It has a number of positive advantages over steel but there are one or two safety aspects that you should be aware of. Basically, fibre glass consists of a glass fibre mat that has been saturated with resin to which a hardener has been added. The mat and resin are applied in layers until the required thickness is obtained. When the resin has hardened, the resultant material becomes very hard and tough. There are three potential hazards when working with fibre glass:-

- 1) Splinters of glass fibre and rough edges.
 - 2) The dust caused when cutting, drilling and sanding.
 - 3) Toxic fumes when laying up.
-
- 1) The finish side of the fibre glass is a smooth 'gel coat'. This is the side that has been next to the mould and is the 'cosmetic' part that will be on general view. The inside of the material can be quite rough.

Also, where the fibre glass mouldings have been trimmed, sharp edges can appear right in the spot that your hands naturally fall when lifting or adjusting the body.

To prevent accidents caused by splinters, it is sensible to inspect the inside of the kit and sand down any obvious rough areas. Do the same with the sharp edges. When handling heavy units, such as the main body tub, wear industrial gloves.

- 2) Dust in any large quantity is a health hazard. It causes irritation to the eyes, blocks nasal and ear passages and generally causes respiration problems. We strongly recommend that a mask is worn on every occasion when fibre glass is sanded, drilled or cut. After every operation, use a vacuum cleaner to collect up the dust and regularly vacuum the floor and horizontal surfaces.

Safety (Cont'd)

- 3) Occasionally, but not very often in kit car building, you will want to carry out some 'laying up' of fibre glass mat and resin - as opposed to just cutting and drilling. You should work in a well ventilated space, use a barrier cream on your hands or wear gloves, because contact with resin and hardener can cause skin problems.

Some people react more violently than others, both to skin contact and the inhalation of fumes. As there is little actual fibre glass work needed, this is unlikely to be a major problem.

Jacking up the Car

Never ever get under a car that is supported only by a jack. Support the raised car on some axle stands or ramps. Do not use bricks, they are likely to topple, cement blocks can easily crumble. In any case, all of the Heath Robinson type of supports are usually a nuisance to position correctly and seem to take up an inordinate amount of room.

Eyes

Goggles are a must when carrying out many types of kit car operations; grinding, working under the car, cleaning with a wire brush, etc. Goggles are cheap and convenient to wear, so really it is common sense not to take any chances.

Fire Hazards

The average domestic garage is a fire prevention officer's nightmare! Tins of paint, cleaning fluids, paraffin, petrol, aerosols, timber, trimming materials, etc., etc. A decent size of fire extinguisher could save you an awful lot of grief. Working on the basis that prevention is better than cure, work to the following rules:-

- 1) No smoking in the workshop.
- 2) Petrol, paraffin and inflammable cleaning fluids kept in a separate locker outside, old oil ditched immediately.
- 3) All cleaning rags kept in a bin - not left lying around waiting for a spark from the welding set.
- 4) When leaving the workshop, check all appliances are unplugged - not just switched off.

Just imagine how much you could lose should you be unfortunate enough to have just one small fire!

Really the message is 'think before you act' and you won't have a silly accident to spoil your fun.

THE WORKSHOP

Building a kit car in the open is not a practical proposition. No doubt it is possible and has been done but the limitations by light and weather create formidable problems.

Let's talk about space first. Ideally, a double garage used solely for building the car. This gives room to work on the sub-assemblies and chassis and store the kits. There would be room for a bench and plenty of tool storage space. During assembly, there is room to lie out comfortably when working under the car, and when help is required, two people will not be tripping over one another.

Unfortunately, most builders have to use a single car garage and share it with the kids bikes and the lawn mower. As always, a bit of careful planning pays dividends and makes the best of what little there is.

If you are tight for space, a golden rule is to always keep the floor space clear. This means having adequate shelving. A good idea is to buy some steel shelves and uprights (they are so cheap that unless you already have the material, they are not worth making) and line one wall with 9" or 1' wide shelves. Your suppliers will also well you some plastic stackable storage bins, use these for nuts and bolts, small tools and items that you strip down from the donor car. If you decide to make shelves or buy odd secondhand ones that do not match, give them a coat of paint to smarten them up. This gives the garage a neat and tidy look, makes it more pleasant to work in and encourages you to keep it tidy.

Correct tool storage can save you a lot of time and trouble. Use peg board or chipboard and terry clips to hang your ready use tools on the wall. Here they will always be ready to hand, easy to identify and if you outline the shape of the tool in black, when you come to tidy up you can readily see when a tool is missing.

Roof space is a real bonus. If you have the sort of roof that uses 'A' shaped steel frames as supports, it is a good idea to partially deck them over so that bulky items such as seats can be easily stored.

Keeping the workshop tidy can also help to create space - as a minimum, tidy up at the end of each day and have a sweep up, so that when you start next time you walk into a clean and tidy, and as spacious as possible, workshop.

The Workshop (Cont'd)

Somewhere in your workshop make room for a bench. It need not be huge but it does need to be strong. The top should be at least two inches thick and well supported. Firmly bolted to the top should be the biggest engineer's vice you can get hold of, well a 6" opening, 4" jaws is fine.

One small power point tucked away in a corner, the focus for three or four cables that snake all over the floor feeding the electric drill, the lead lamp, the heater and the kettle - is a recipe for disaster. Not only is there a fire risk and the chance that you will trip over the cables but there is also a great deal of inconvenience involved in trailing cable all over the place. It is an easy job to make up a small ring main and fit a switched double, 13 amp outlet, at waist height, on each wall. This way you will always have an outlet near you, easy to reach in an emergency and the minimum amount of cable on the floor. Being at waist height, the fitting will not be subject to damage and is easy to reach.

Good lighting is equally easy to arrange, fluroescent lighting gives less shadow and is more economical. A light over the bench makes life easier.

BUYING THE DONOR CAR

Any year Mk Three or Four, Ford Cortina is suitable as a donor car, but there are one or two points to consider which may influence your choice.

Cortinas fitted with the 2000 cc overhead-cam engine (GXL, GT and the Two Litre Ghia) were fitted with a type B rear axle, which has a ratio of 3.44 : 1 (3.7 : 1 was optional) and this ratio is ideal for the Wildcat. That is not to say that the type A axle which is found in other models is unsuitable, it merely means that the type B will allow slightly brisker acceleration through the gears, whereas type A will return better economy

A variety of propeller shafts may be encountered; on some models a split prop shaft was fitted where a third universal joint is fitted behind the centre bearing. As an alternative to this third universal joint, a constant velocity joint may be found. Also, on some earlier 2000 cc models, a rubber coupling replaces the front universal joint at the splined end, this type is not suitable and should be avoided and is shown in Fig 1. All of the other types are suitable and Fig 2 shows a split prop shaft with conventional universal joints.

The estate car has a prop shaft on which the rear portion is exactly the right length at 29.25 inches.

Obviously, the condition of the bodywork is immaterial because only the mechanical components are used but it will pay dividends to obtain a car which is in reasonable mechanical condition. It is better to pay a little more for a low mileage car than it is to buy a vehicle which is so worn that it is going to cost a lot of money to recondition the components.

One way of checking out the car is to have it MOT

tested. Tell the operator what you want the car for and ask him to pay particular attention to the steering, suspension and wheel bearings.

Wildcat Technical Data		
	inches	cms
Length	168	427
Height	47	119
Width	70	178
Track	58	147
Wheelbase	96	244
Ground Clearance	5½	14
Weight	1819 lbs	825 kg.
Chassis:	Purpose-built multi-tubular steel diagonally braced space-frame	
Body:	Hand laid up GRP with white gel coat	
Performance:	Depending on whether 1.6 or 2.0 litre engine is fitted.	



Fig 1. This propeller shaft has a rubber universal joint and is not suitable for use in the Wildcat

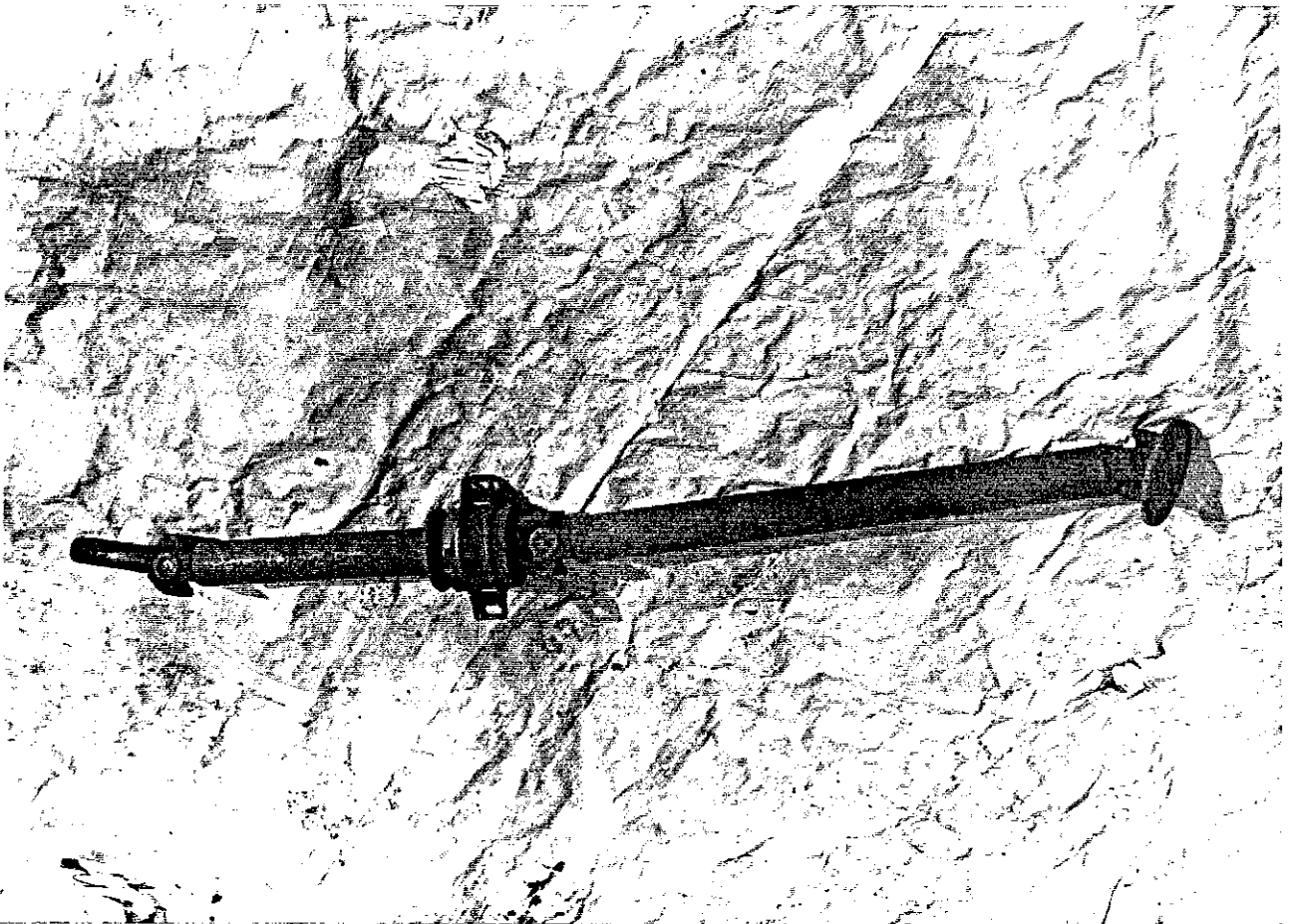
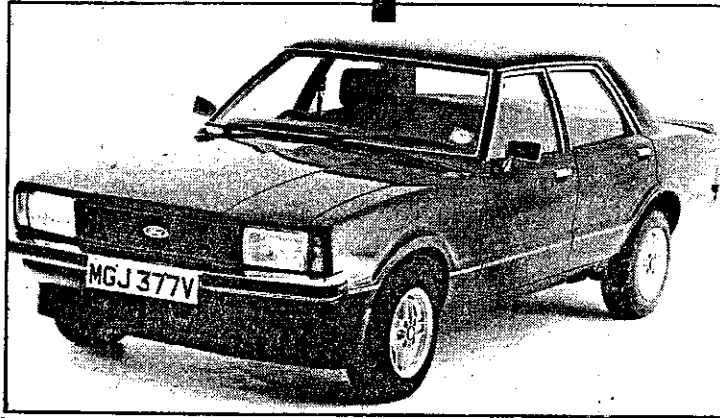


Fig 2. A typical propeller shaft. The centre portion is discarded. Ensure that the spline is suitable for the engine. ie A 1600 cc engine will have a different spline requirement to a 2000 cc engine.

Donor vehicle profile



Ford Cortina Mk 3-4

Tony Penn begins a new series of donor car profiles with a look at the Mk 3/4/5 Ford Cortinas – and gives a few general tips for anyone buying a donor car.

Millions can't all be wrong, I suppose, and as the later model Cortinas sold in vast numbers, there can't be much wrong with them. It's just that the Mk 3, 4 and 5 Cortinas never had the appeal of the original Mk 1, or even the flying banana Mk 2s, and they seemed to grow with each model change, until the Mk 4 looks like a flying whale compared with the Mk 1. By now you'll probably suspect that I am biased and that to me a real Cortina is a Mk 1 Lotus. The best thing to do with a Mk 3 is to cannibalise it to build up a kit car – particularly since the mechanics are pretty rugged, simple and certainly easily available round my way, where they seem to grow out of the hedges.

The first problem with choosing the Cortina as a base comes with selecting the right one, because they come with four different basic engines, three gearboxes, two back axles and umpteen trim combinations. Not many will be interested in the 1300 pushrod engine versions – they were pretty gutless – and there were two types of 1600 engine used, the early, up to 1973, models having the pushrod cross-flow and the later ones the over cam (OHC). The pushrod 1600 is one of the best production engines ever made in my opinion and I would use it in preference to the OHC every time; it's lighter, easier to maintain and all for a very similar power output.

The 2-litre models are all OHC engines with a twin choke Weber carb as standard. There are V6-engined Cortinas around, but these are fairly new and unlikely to be available at a low enough price for them to come into the donor car price range.

Decide which engine you want to use as a first step and then look for the Cortina with the right one. Don't buy bargain bits and pieces; it's far easier in the long run to buy a complete car and get all the bits and pieces required in the build-up of a kit. Buy them separately from a scrapyards and the overall price

soars to way above that of a complete car. Often the reason for buying a particular kit is having the right donor car mouldering away in the garden, but don't let sentiment stand in the way, take a step back and really look at the car, if it's a basic 1300 model is it really going to be a good basis? Or would you be better off buying a 2-litre?

Assuming you haven't got a donor car already, what's the best way of getting one? This will depend on the type of kit you're building up. If only mechanical bits are required then go for a complete rot box. If some body parts are required as well, aim to get hold of the latest model you can afford. But re-using panels off a donor car is a dodgy business – it's sods law that the panel required will either be rotten or dented if the mechanics are OK and vice-versa. Accident damaged cars should be avoided, unless you know exactly which parts you'll require and can assess the damage accurately. Front cross members in Cortinas tend to bend very easily in a front end shunt and their replacement is usually the main factor in a car being written off as an uneconomic repair, so if one's needed for the kit stay well clear of damaged cars.

As to where to buy a Cortina, look through the small ads in Exchange & Mart, or the local rag. You should see quite a few possibles, but look at more than one before buying. One of the best ways is to place a wanted ad: 'Wanted. Cortina Mk 3 or 4, any condition considered. Cash waiting'. Prepare to be inundated with calls, set yourself a cash limit, stick to it and buy the best of the bunch offered.

If possible, buy a complete running car with an MOT, even if its only got a few days left to run, then it can be driven around and the true condition of parts like the gearbox and diff can be assessed. If you see an old Cortina in someone's garden, don't be afraid to go and knock on the door and ask if it's for sale. I've got hold of quite a few cars in

this way in the past, some of them free of charge. Provided you're polite, you're unlikely to suffer anything worse than a firm 'No.' If possible, try to speak to the woman of the house, they are usually far keener to get rid of their husband/son's eyesore!

Transporting the car back home can be a problem. Towing is often possible, but with a car that's been standing a long time, the brakes will often be dodgy, or seized. Incidentally, if towing is resorted to, make sure you have a friend who knows how to tow properly, secure the rope around the cross-member, not the bumper, antiroll bar or suspension and let the towed car do the braking, keeping the rope taut at all times. Hiring a trailer or getting one of the recovery firms to move it for you can be a costly business, so take the transport costs into account when you calculate the value of your bargain car. A £75 transport bill, which is not at all unusual, is often more than you've paid for the car. The cost of transport is particularly important with an accident damaged car, which obviously will not be towable.

Cost is very much up to you and the size of your pocket, but don't fall into the trap of spending all your cash on the kit and donor car. In many cases the spending has only just begun and nothing is more frustrating than needing parts and not being able to afford them. I would hazard a guess that a lot of the unfinished kits around get abandoned for this reason rather than technical problems. I recently bought a Mk 3 Cortina for its 1600 pushrod engine and got the complete car for £25. After I'd sold some of the unwanted parts (seats, alternator, gearbox and tyres), I had made a profit.

Before touching the car, get it down to a local garage that does steam cleaning and have the whole car cleaned down, not just the engine bay. Steam cleaning makes for a lot easier stripping job later on and by removing the major gunge in one go, saves time in cleaning and preparing individual parts before re-installing in the kit. There is also far less risk of getting dirt into critical parts and it's far more pleasant working on a car if you're not up to your ear'oles in filth, with rust dropping down your neck or in your eye.

Work out where you're going to keep the donor car and kit before buying anything. That may sound a bit funny, but if you're working in a single garage with a narrow drive for instance, and start stripping the donor car before the main kit body and chassis is delivered, you've got a problem – cars without wheels take a lot of moving. When it does come to gutting the donor car, keep it in one piece as long as possible and remove such assemblies where you can, rather than individual parts. Be very careful of the bits you're removing and try to keep all the nuts and bolts together with their respective parts, it's very difficult to identify individual parts among the huge pile that will inevitably result when stripping a car.

I mentioned stripping by sub-assembly which means dismantling as little as possible in the car. For example, the front suspension can be dropped complete on the cross-member. Just disconnect the brake pipes and steering gear and unbolt

the crossmember from the main body. When it comes to humping out engines from cars it's a big struggle using a rope, a pole and three mates. Go down to your local hire shop, or an accessory shop that does tool hire, and get a tripod and hoist for the job. It's so much quicker and easier and the small extra cost is more than offset by it not giving you a hernia.

Once the donor car has been gutted of all useable parts, you'll need to get rid of the bodyshell. Councils will collect scrap cars for a charge which varies from area to area - in my area it is £15 (and they wonder why people dump old cars in the streets). Scrapies often advertise free collection of scrap cars, but they won't take bare body shells unless you're very lucky. The final resort is to cut it up and dump it on the local tip yourself, which takes a long time, a lot of scarred hands, and is exceedingly messy. By the time you've made several trips to the tip, the cost of petrol may make that council charge look a little less exorbitant and at least you can chuck a load of rubbish inside as well.

When re-using parts of old cars to build up a new one, obviously some of the mechanical parts will be worn and need adjusting or replacing. The Cortina is a pretty rugged design with a few basic weak spots, but any car which has done umpteen thousand road miles before you get hold of it will have some wear and tear. If you've bought the Cortina as a complete car, you will have a better idea of the overall condition. But there are many parts which should be replaced automatically.

All the rubber suspension bushes should be replaced. There's an awful lot of them, particularly on the rear, and they soon soften up allowing the axle to move sideways when cornering. Brake pipes always need replacing with both new rubber pipes and new bundy tubing throughout. Dampers can be replaced by either new standard units or preferably Bilstein gas filled dampers, which are available from Ford Rallye Sport dealers, under part numbers 905 1861/2 for front and rear, respectively, at a cost of around £30 each. If Fords can't supply, contact Magard at 372 East Park Road, Leicester, LE5 5AY. (Tel: 0533 730831) and ask for Paul Bamford. These dampers are a lot more expensive than the standard units, but their superior properties of an initial setting softer than conventional dampers and lack of fade make them far from a luxury item.

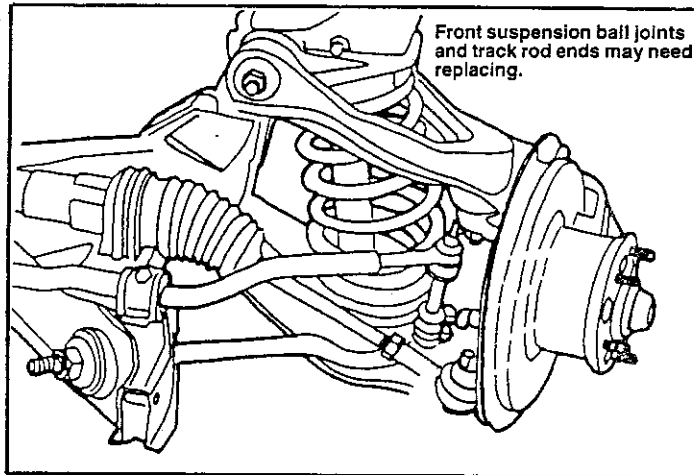
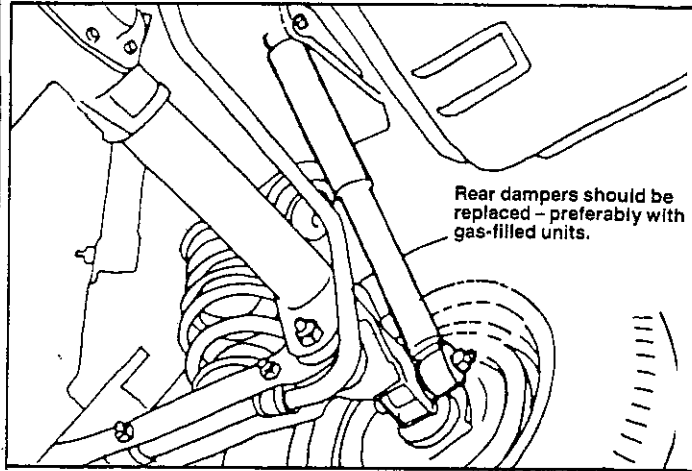
Parts for careful scrutiny include steering rack gaiters, brake linings, clutch cable, clutch lining, radiator hoses, heater hoses, wheel bearings and front hub grease seals. If you have any doubt about the condition of any part, replace it, you'll only have to pull the car apart to replace them when they fail. Look inside the rear brake drums to see if there are any signs of fluid leakage from the slave cylinders and also look for any sign of oil leaks from around the half shafts. If any oil has leaked, half shaft bearings (which contain an integral oil seal) should be replaced by pressing on new ones; a job for an engineering firm. Front suspension ball joints should also be replaced if their rubber gaiters are damaged, as should the track rod ends.

On the OHC engines, the toothed

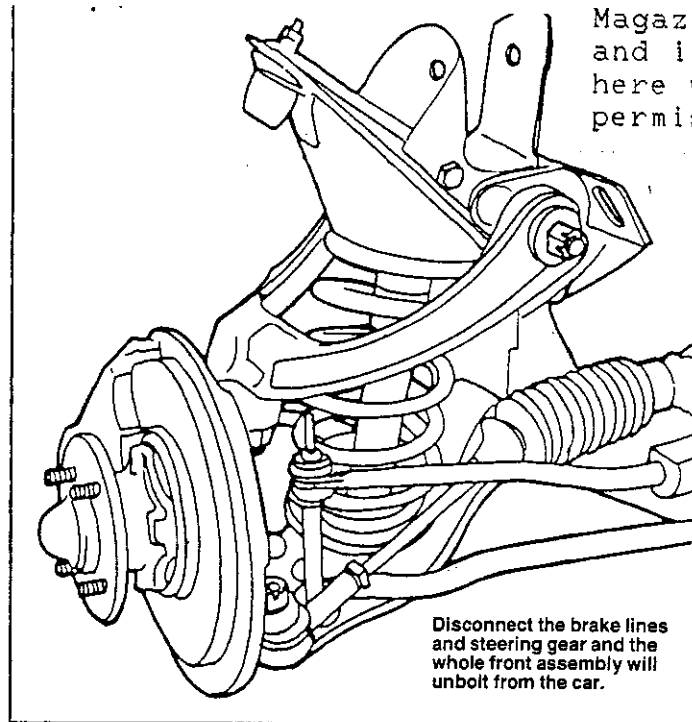
rubber cam belt should be replaced and beware of the dreaded clicky cam, which these engines seem to suffer from. Whether replacing the cam or not, the oil spray bar which runs alongside the cam should be replaced as blocking of the spray holes with gungy oil deposits resulting from infrequent oil changes are a major factor in early cam failure. The valve clearances should also be checked and kept on the mark as they are also a factor in cam failure. Make sure though that they are checked with the adjusters tightened up, because the tightening does affect the clearance quite dramatically. It's a bit fiddly, but once set they don't lose adjustment very quickly.

The automatic choke carbs give trouble on high milers and should be checked for clogging in the water ways. The best thing that can be done with the auto choke is to ditch it and convert to manual operation, which can be done with a bit of ingenuity and it will save a lot of petrol as well. Obviously a full engine service should be done, even if no other stripping and overhauling is planned, but make sure that the oil filter canister contains a non-return valve - some of the cheap ones don't. Without one, all the oil drains out of the filter back into the sump, which means that when the engine starts from cold, there will be no oil pressure until the filter and oil ways fill up again.

Before starting all this work, get hold of the workshop manual for the Cortina model you're using. This will certainly help speed the build up and may stop you stripping bits that you don't need to. When building up the kit, keep a written record of all the parts fitted, so that you'll know what's new and what's been re-used. Don't rely on your memory or you could change parts that were fitted new. This record of the build-up is particularly useful if any parts substitution has taken place, enabling the correct spares to be obtained without hassle. It can only add to the secondhand value of the kit when you come to sell it, the buyer should be impressed by the professional manner in which the kit has been built.



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STRIPPING THE DONOR CAR.

When working under the car always remember to support it on axle stands. Never rely on the jack alone, and piles of bricks or blocks of wood can slip.

Before diving in and starting work it is as well to carry out a little preparation.

First, have the underside of the donor car, and the engine bay, steam cleaned or at least pressure washed. It won't remove all of the grot and you may well decide to repeat the treatment once the sub-assemblies have been removed, but this initial clean clears away years of accumulated dirt and this makes working on the car so much more pleasant.

Gather together a quantity of plastic or paper bags and something to mark them with, these are for storing small items, and nuts and bolts, as you remove them from the car. If you mark the bags with the contents before you put them away, you won't run the risk of losing them or of not remembering what goes where.

Where possible, replace the fixing nuts and bolts in the component in which they belong; again, this saves time and temper when it comes to the build.

Some large cardboard boxes obtained from the supermarket are also useful for storing bigger components. A little time spent labelling and storing things now can save hours of searching later.

Before attempting to remove nuts which may be rusted, clean the area with a wire brush and apply penetrating oil and allow to soak for a few hours. One approach is to identify all the fixings which need to be removed and apply the penetrating oil irrespective. Some other task can be done while the oil is doing its work.

We recommend that the relevant Haynes manual is purchased and studied before work begins. In addition, it will help if this construction manual is read right through before starting the build.

Parts required from the donor car.

The Cortina provides everything you need to build the Wildcat, with the exception of one or two items which will be covered in a moment.

It is not necessary to provide detailed instructions for removing parts from the donor because all of the necessary instructions are contained in the Haynes service manual.

Here is a list of the parts you will need to remove and the order in which we feel it is most convenient to do so. Fig 3 illustrates most of the items referred to:

* Prop: shaft.

* Radiator complete with hoses.

* Engine and gearbox, either as one unit or separately.

* The wiring loom complete with all switches, instruments, fusebox, coil, relays, plugs and lights. DO NOT CUT ANY WIRES.

Plugs and sockets are used to connect the wiring loom and for connecting most of the components to the loom. But it will be necessary to remove some individually tagged wires. Carefully mark each wire as you remove it from its terminal. Use masking tape and a biro and mark clearly. Take care when handling the loom that you do not pull the tags off the wires. It's an idea to carefully tape a plastic bag over the end of a bunch of loose wires. Make it a small, neat parcel so that it will not snag.

* Steering column complete with switch-gear and lower shaft and clamps and the upper steering column mounting.

* Brake master cylinder and servo unit, complete with mounting bracket. Retain the large (8mm nut,

that is 13mm spanner size.)brake pipe unions at he back of the master cylinder (cut the pipe to get them off) because replacements are difficult to obtain, but discard the hydraulic pipes; we strongly recommend that the brake pipes are replaced through out.

* Handbrake lever and cable.

* Pedal box, accelerator, complete with bracket and cable.

* The complete front subframe which incorporates the steering and all the front suspension, hubs and brakes.

* The rear axle with the radius arms and springs.

* Retain all rubbers, which, although they may eventually be replaced, serve as reminders and as a pattern when ordering new ones. For this reason it is advisable to reassemble rubbers and washers in the order in which they were fitted.

* The donor car is a source of nuts, bolts, washers, selftapping screws and many other small items which you may find useful during the build. If it is your intention to ditch the donor bodyshell directly after removing the main components, then we advise you to make a collection of these 'come in handy' bits before you do.

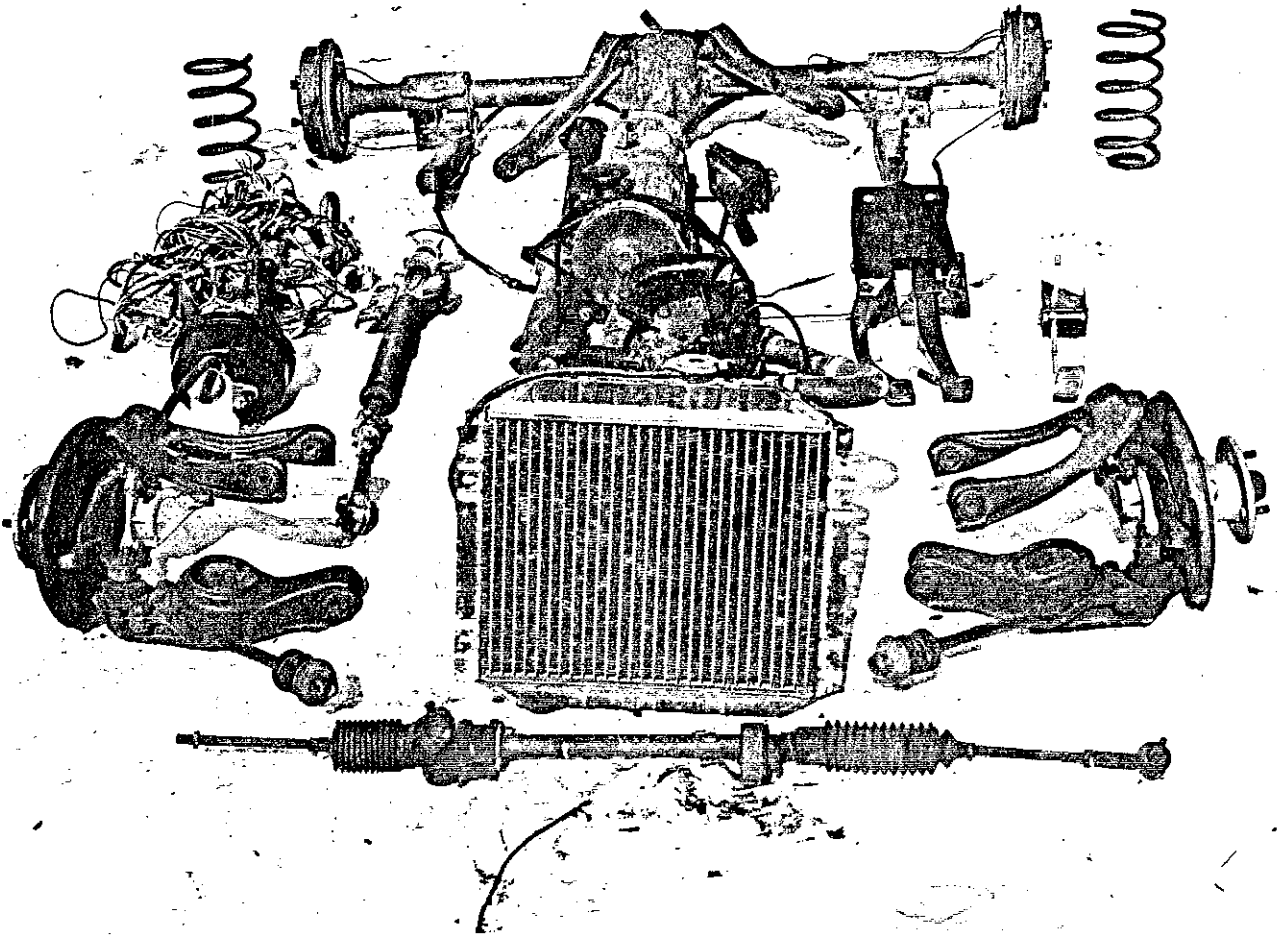


Fig 3. The components which are required for the Wildcat are shown stripped from the donor car.

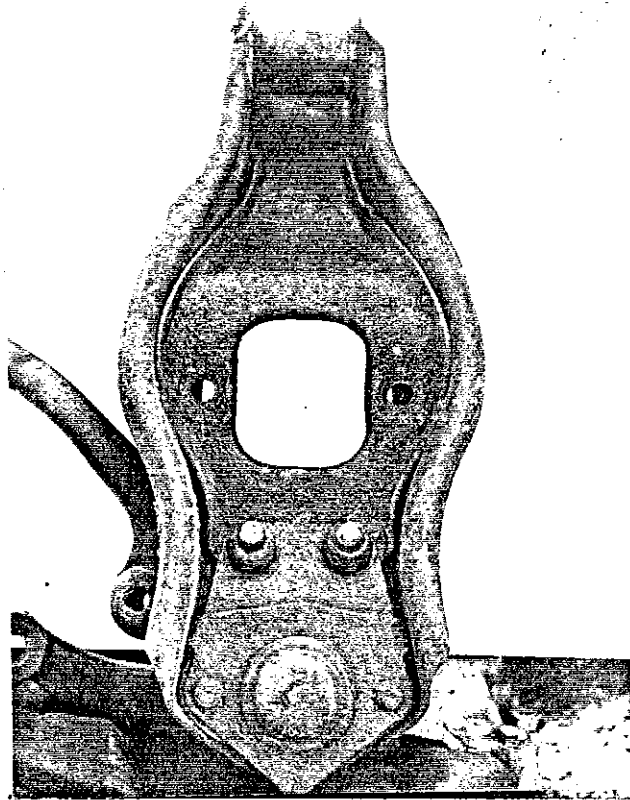


Fig 4. The lower front suspension arm with the spring locating pan removed, and the holes opened out to the correct size ready for the new bracket.

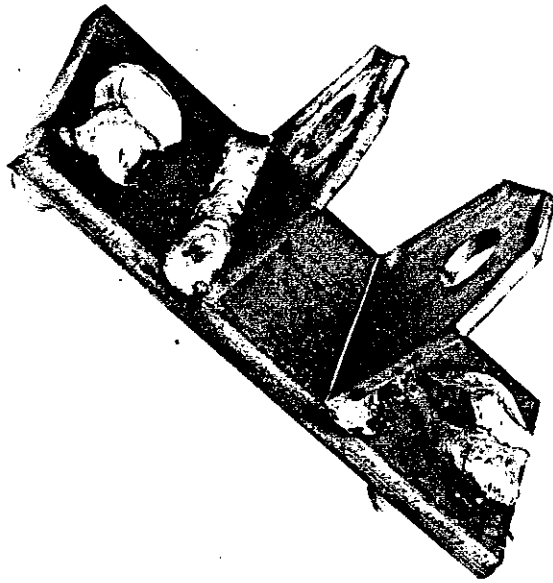


Fig 5 The new bracket for the lower coilover/damper mounting. It bolts to the lower suspension arm in place of the original spring pan.

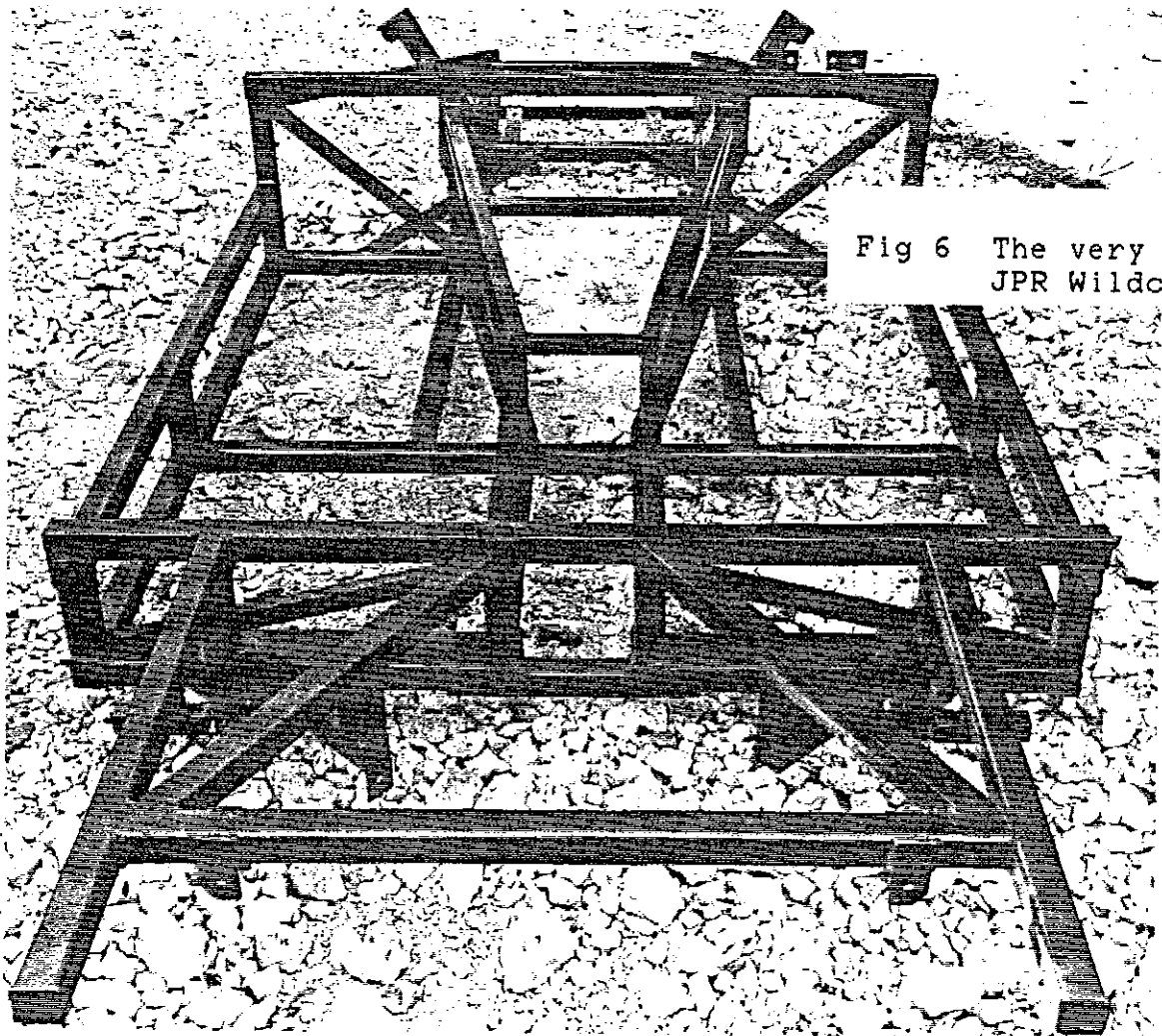
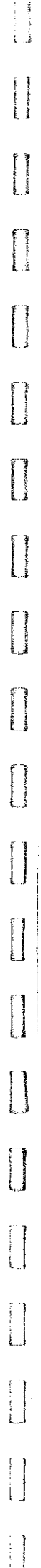


Fig 6 The very substantial JPR Wildcat chassis



MODIFICATIONS NECESSARY TO DONOR CAR PARTS.

Most of the donor car parts are used in their original form, however, one or two items require a small amount of work carried out and these are described below.

* The propeller shaft, as previously mentioned needs to be a specified length (29.5"). The easiest and cheapest course is to purchase a prop shaft from an Estate car. Then, remove and retain the spline and universal joint at the front end and remove the centre section of the prop shaft and discard it. Now, connect the front end containing the spine to the rear end via the universal joint..and the jobs done.

The other option is to obtain a prop shaft from a Cortina saloon (any type except that which has a rubber universal joint..these are not suitable) and have it cut and welded to the correct length by a specialist. We would strongly recommend that you do not tackle this job yourself unless you are an expert. In any event, it is probably cheaper, and definitely quicker, to buy the correct Estate car prop shaft off-the-shelf.

* The servo bracket also needs to be modified and this is carried out on an exchange basis and is again free of charge. Please bring the old one with you when you collect your kit.

* Because the weight of the Wildcat is much less than that of the Cortina, the front springs are not suitable. They are replaced with coilover damper units. These have a dimension of 13" eye to eye, with the eyes being 12mm in diameter. The fixing bolts should be high tensile steel 65mm x 12mm. The spring rate is 350 lbs.

These items are not supplied in the kit because many builders will want to source their own items from the very many after market items available. However, they are obtainable from JPR Cars as an

optional extra.

The safest way to remove the old springs is to cut through one of the coils with a hacksaw, while the spring is still in situ and under tension. This will remove the tension and allow the spring to be taken out. Spring compressors can be used if, for some reason, the springs are required to be kept undamaged. ON NO ACCOUNT SHOULD THE SPRINGS BE HELD UNDER TENSION BY MAKE-SHIFT MEANS, SUCH AS PIECES OF WIRE OR ROPE. IF THE TENSION IS RELEASED IN AN UNCONTROLLED MANNER FROM THE SPRINGS THEY CAN CAUSE PERSONAL INJURY.

The lower spring pans need to be modified in order to take the new coil/damper units. Remove the spring seating cups from the lower pans as shown in Fig 4. Using 3/8 UNF bolts, washers and Nyloc nuts fit the new lower spring/damper brackets, Fig 5, in place of the cups.

* The lower steering shaft requires to be modified and this is done free of charge on an exchange basis. In fact, it combines with a lower shaft from an Allegro. The Cortina lower column and the lower shaft from an Allegro should be exchanged for the modified part when collecting the kit.

PARTS REQUIRED OTHER THAN CORTINA

THE CORTINA supplies most of the parts required in the construction of the Wildcat, however, there are some parts needed which are from other sources. They are as follows:

- * The lower steering column, this is a modified Allegro lower shaft. More information on this later.
- * The fuel tank is from a Triumph Spitfire, also needed is a length of the inlet fuel pipe and the brass union with which it is attached to the tank.
- * The Cortina instruments are not really suitable for use in the Wildcat(although they could be used at a pinch, they would look horrible). So, suitable second-hand instruments can be used, such as Jaguar, MG, Spitfire etc: or after market items could be used. JPR Cars supply instruments as optional extras.
- * The rear shock absorbers are from the Triumph Spitfire. These too, can be supplied by us.
- * The front springs are replaced by coil/damper units and these can be purchased from accessory shops or supplied by JPR Cars.
- * The windscreen wiper motor, gearboxes and drives come from the Austin Maxi. Because the Wildcat uses a three wiper system it is advisable to obtain two sets of drives and gearboxes, this gives some spares should any prove to be worn.
- * Headlamps are 7" sealed beam units which incorporate the side lights, these are the same as those used in the Mini and many other production cars or they can be obtained new from accessory shops.
- * Rear lights are not supplied, except with the bumper set which is an optional extra. Any suitable rear lights can be used.

REFURBISHING THE RUNNING GEAR

Each builder will have different standards and budgets, so it is difficult to be precise about the amount of work which needs to be done on the donor car parts before they are fitted to the Wildcat chassis.

It is possible, but not advisable, to simply refit the parts just as they were removed from the donor car. This way you would have a car which was in every way similar to the original Cortina, and this includes the reliability pattern of a car which is likely to be ten, or even fifteen years old.

At the other end of the scale, it is possible to purchase every part new or reconditioned, the cost would be high but the result would be a new car, in every way.

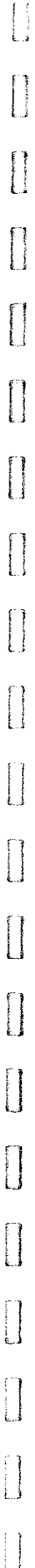
Most kitcar builders opt for a middle course. They inspect each component for wear and serviceability and make replacements as necessary. Some items are so cheap, such as rubber bushes, that it is worth replacing them while the component is stripped down. Other components may be difficult to get at when the car is fully assembled, and despite what may be a relatively high cost, it might be worth replacing the part before the build-up proceeds. A typical example of this would be the clutch components. Really it is a matter of personal preference and judgement.

However, we recommend that all of the brake pipes, including the flexibles, are replaced and that the wheel cylinders and master cylinders are carefully inspected for signs of leaking and replaced if there is the slightest doubt as to their serviceability. The drums and discs should be inspected for deep scoring and wear and replaced if necessary. Naturally, the shoes and pads should also be replaced.

On the steering gear, check the bearing pre-load

and rack damper adjustments, both are fully described in the Haynes manual and are straight forward jobs. Also, replace the gaiters and track rod ends.

On both front and rear suspension, replace the rubber bushes and washers. A bush extractor is a useful tool to have, the cost is modest (about £5) and it makes life easier.



FITTING OUT THE CHASSIS

In all cases the GRP body comes ready fitted to the chassis, the bonnet is hinged, boot lid and doors are fitted with hinges and locks and a clear laminated windscreen is fitted ,complete with top chrome trim.

When ever a component is bolted directly to GRP and any strain on the fixing will be present, large washers should be placed between the bolt head or nut, on the GRP side of the fitting, in order to spread the load.

It is obvious that the complete chassis will not be visible to the builder because much of it will be obscured by the body panels. For illustrative purposes only, a bare chassis and a chassis with the mechanical components fitted are shown in Figs 6 , 7 and 8.

A careful study of these pictures will show you much of the information which you need to know in order to fit the running gear.

The chassis is painted before the body is fitted and the ends of the chassis rails are capped, so no further protective measures are needed. It is possible, however, to inject Waxoyl, or any other rust inhibiting agent to the insides of the chassis members via the removeable end caps.

For ultimate protection, the chassis can be supplied galvanised but this must be stipulated at the time of order.

The fitting of the components to the chassis is really just a reversal of the strip down. The following words and pictorial sequence describe the procedures.

*** Please note throughout the build-up all nuts and bolts must be tightened to the recommended torque loadings.

FRONT SUSPENSION

Refer to Figs 9 & 10.

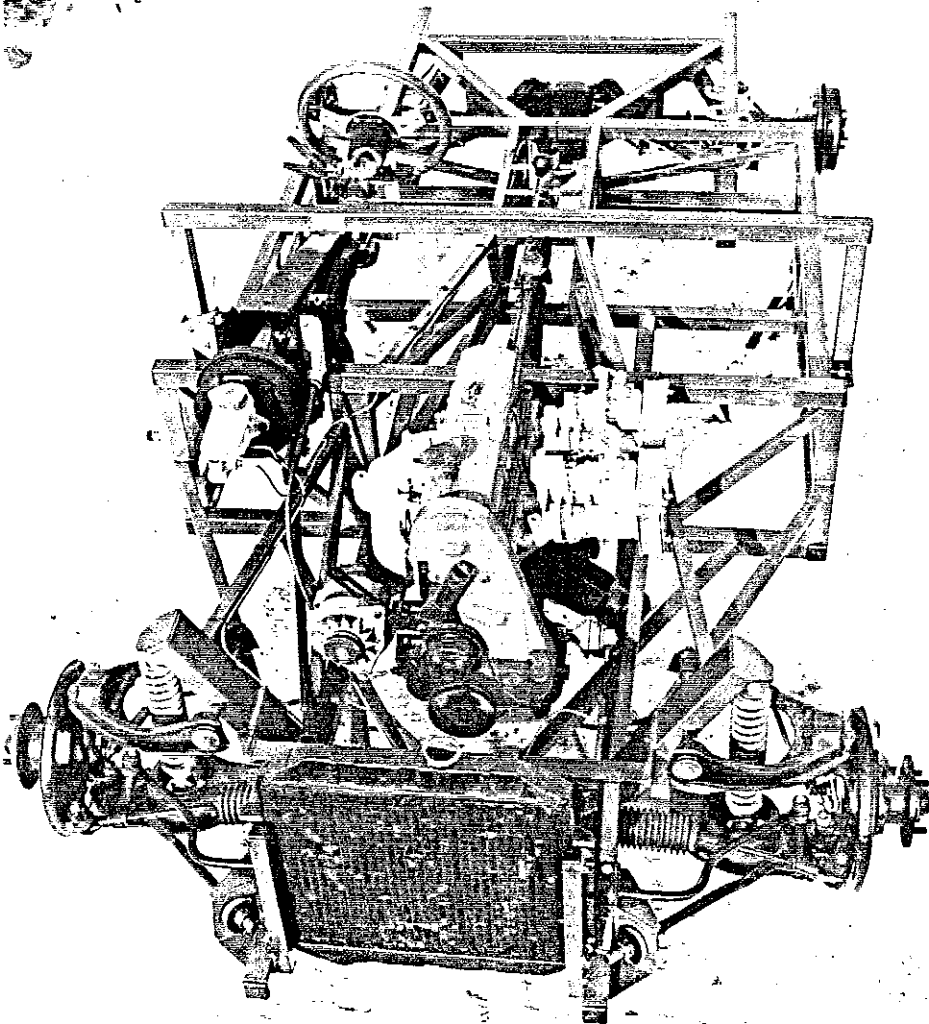
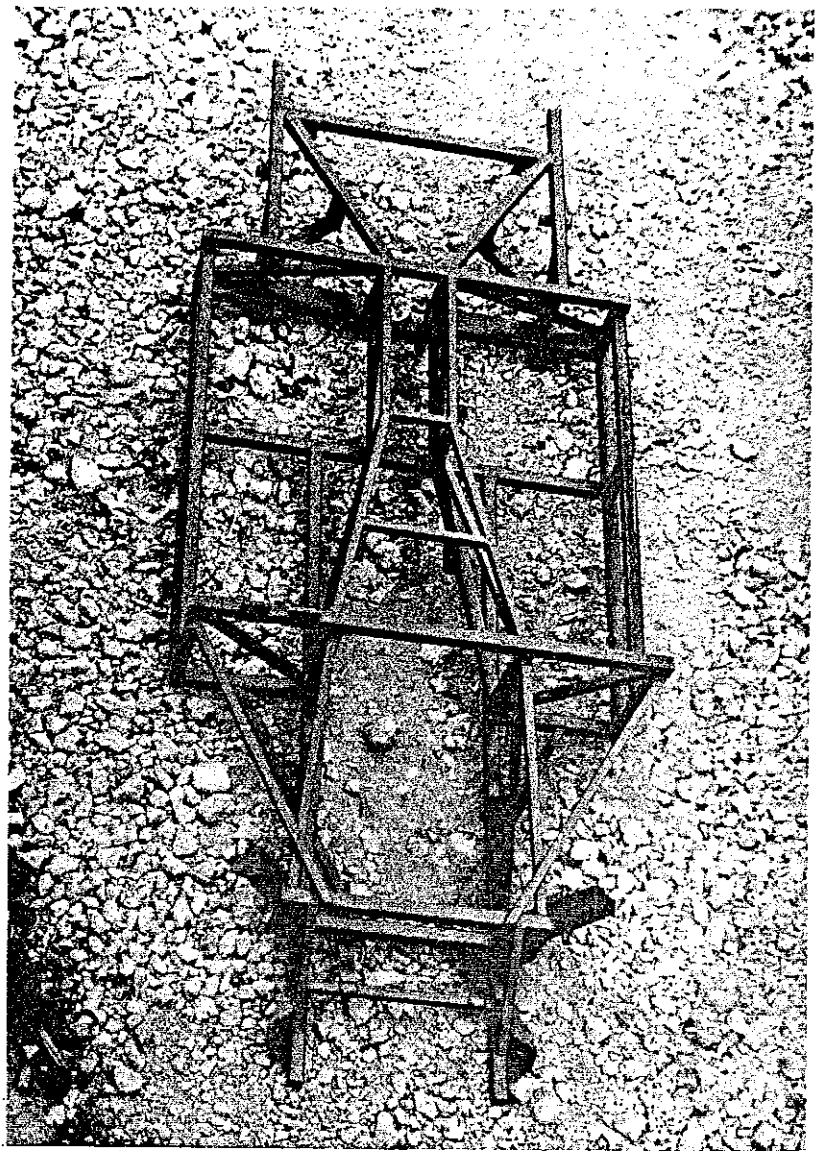
Fit the tie rods (D) and the lower swinging arms (G) together to the chassis. Use the original nuts and bolts if serviceable, but use a new split pins to lock the castellated nuts or use a new Nyloc nuts.

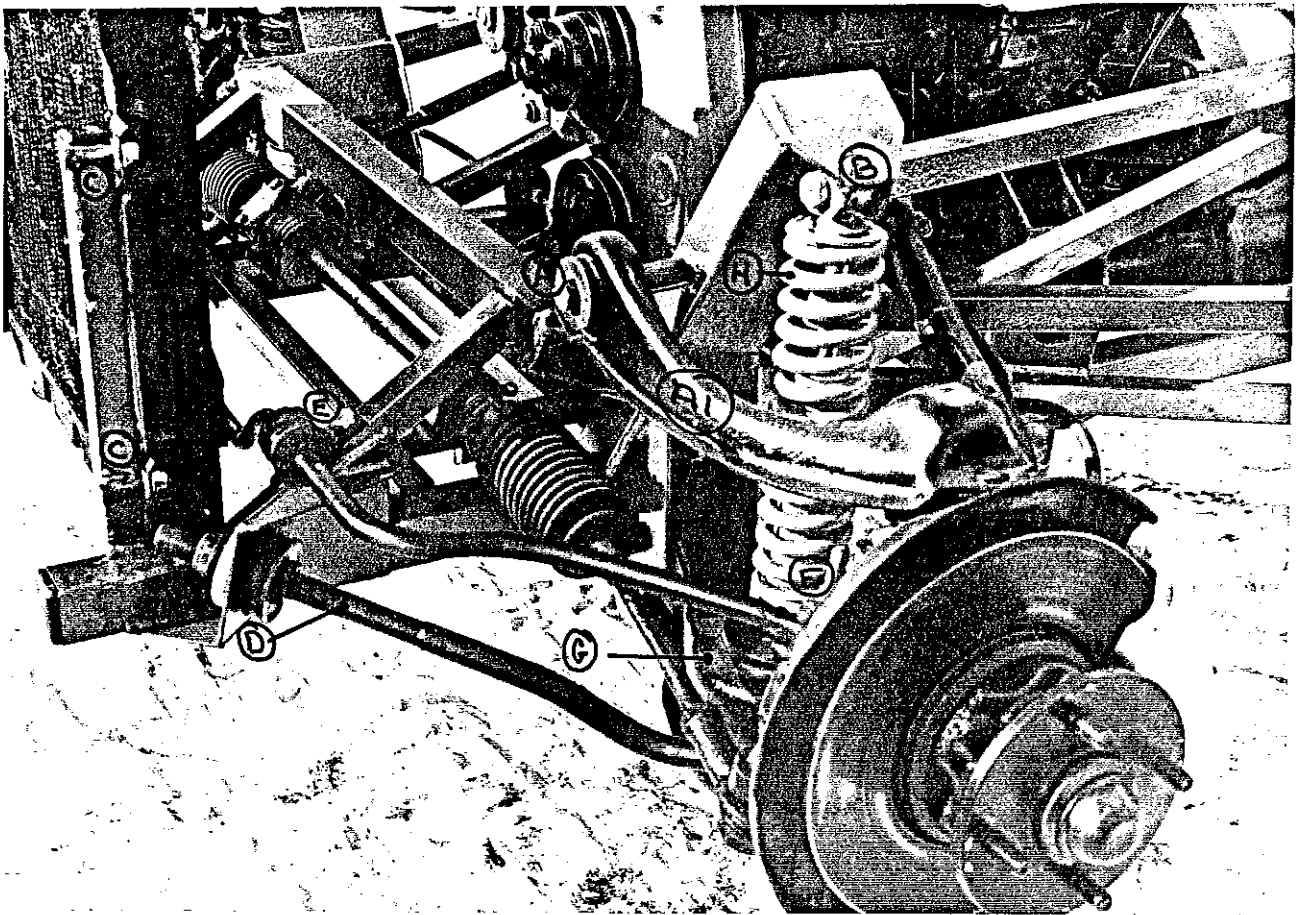
Fit the top wishbones (A1), using the original bolts (A) if serviceable. The same remarks as above apply to the nut.

Fit the stub axles using new split pins to the original castellated nuts.

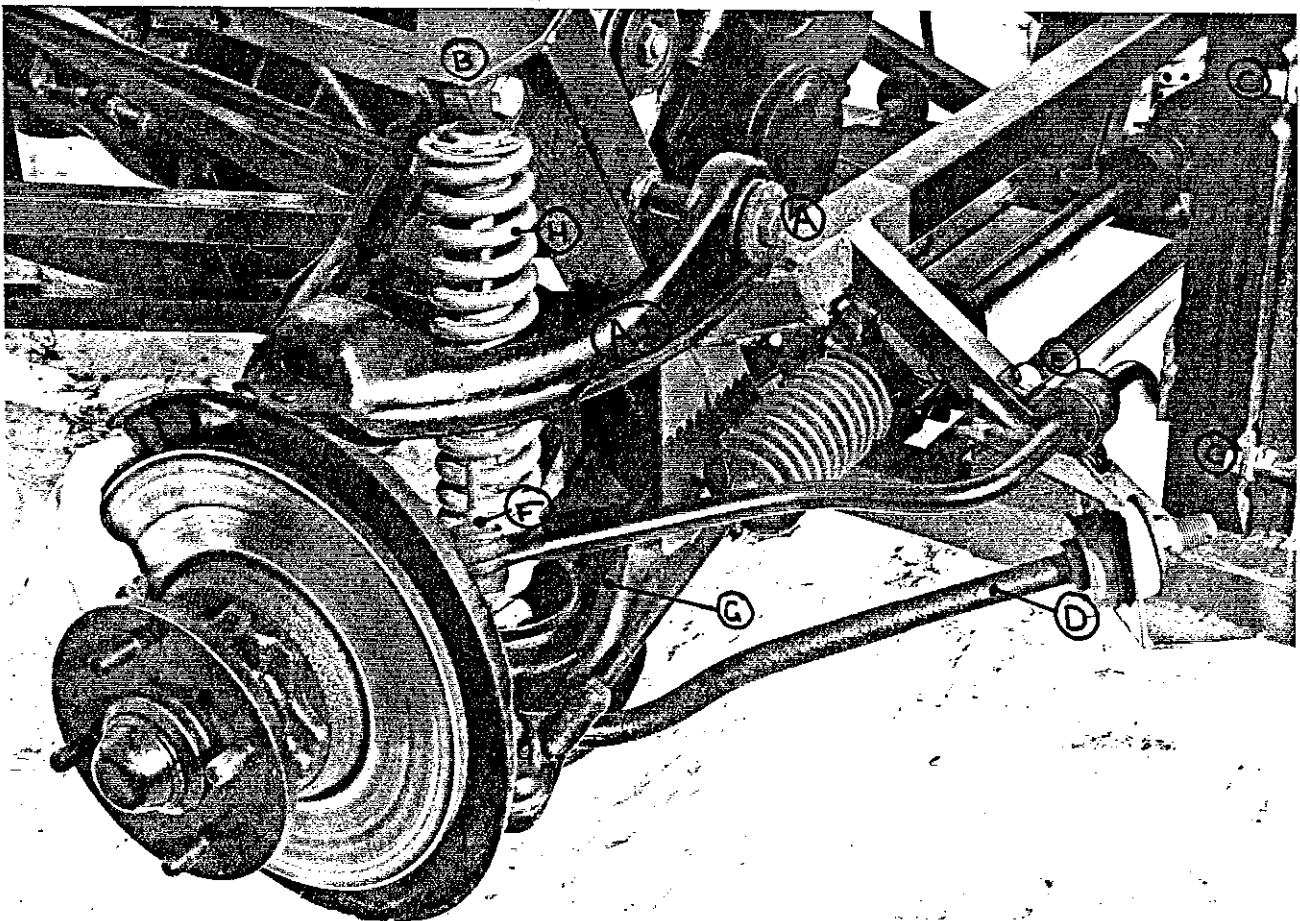
Fit the new coilover dampers (H). Use new bolts as previously described in chapter headed: 'MODIFICATIONS NECESSARY TO THE DONOR CAR PARTS'. The upper mounting bolt is at (B) and the lower mounting is shown in Fig 11 overleaf and Figs 4 & 5.

Fig 7 & 8. A rare sight for the Wildcat builder. The kit is delivered with the body ready fitted to the chassis but, for illustrative purposes, the body has been removed to show how the components fit to the chassis.





Figs 9 & 10. The upper picture shows the nearside front suspension and the lower picture illustrates the front off-side suspension. The letter key is: (A) top wishbone: (A) bolt for the top wishbone: (B) damper/spring unit upper mounting: (C) radiator mountings: (D) tie bars: (E) anti-roll bar chassis mounting: (F) anti-roll bar post: (G) lower suspension arm: (H) coil over damper unit.



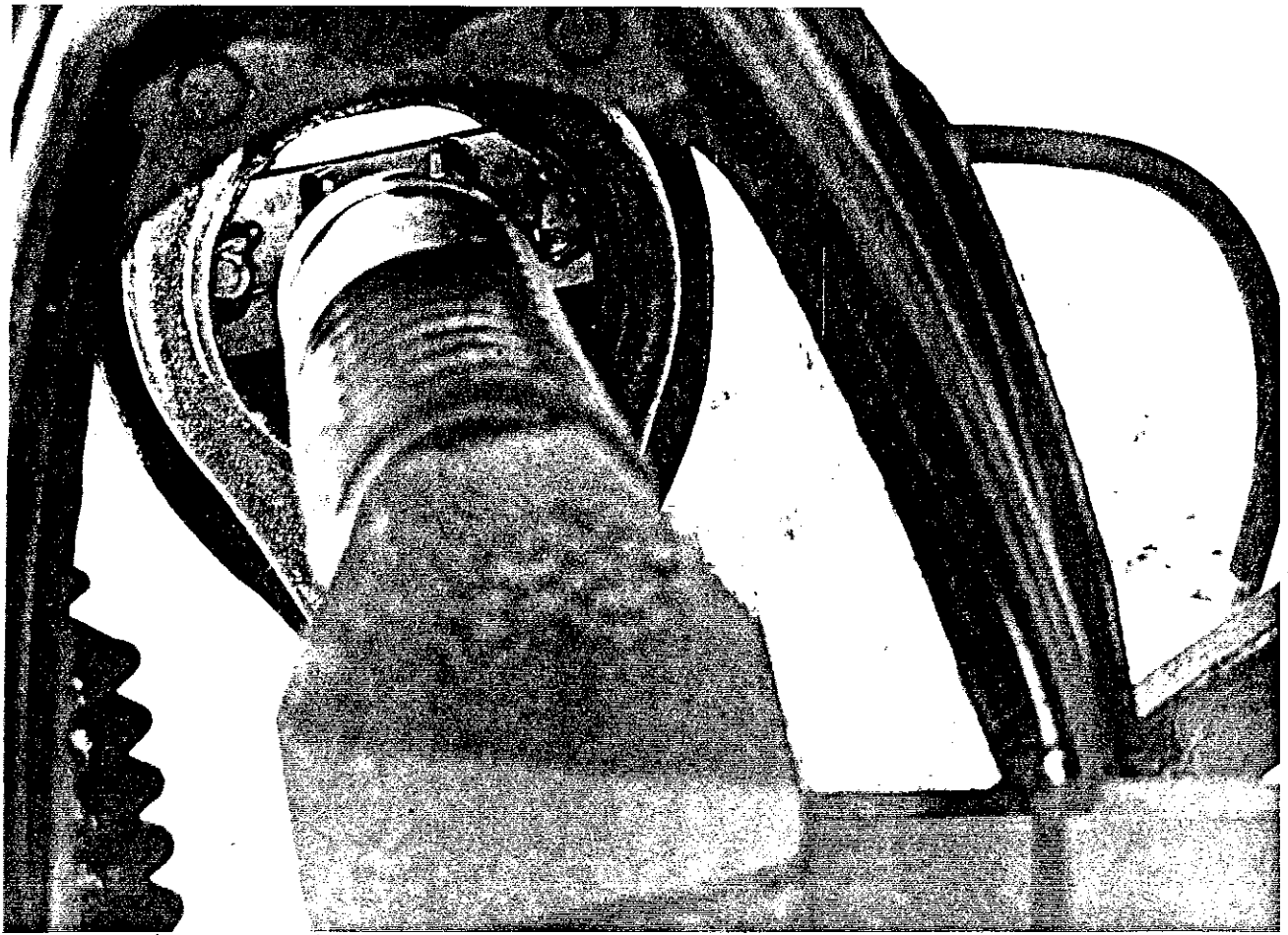
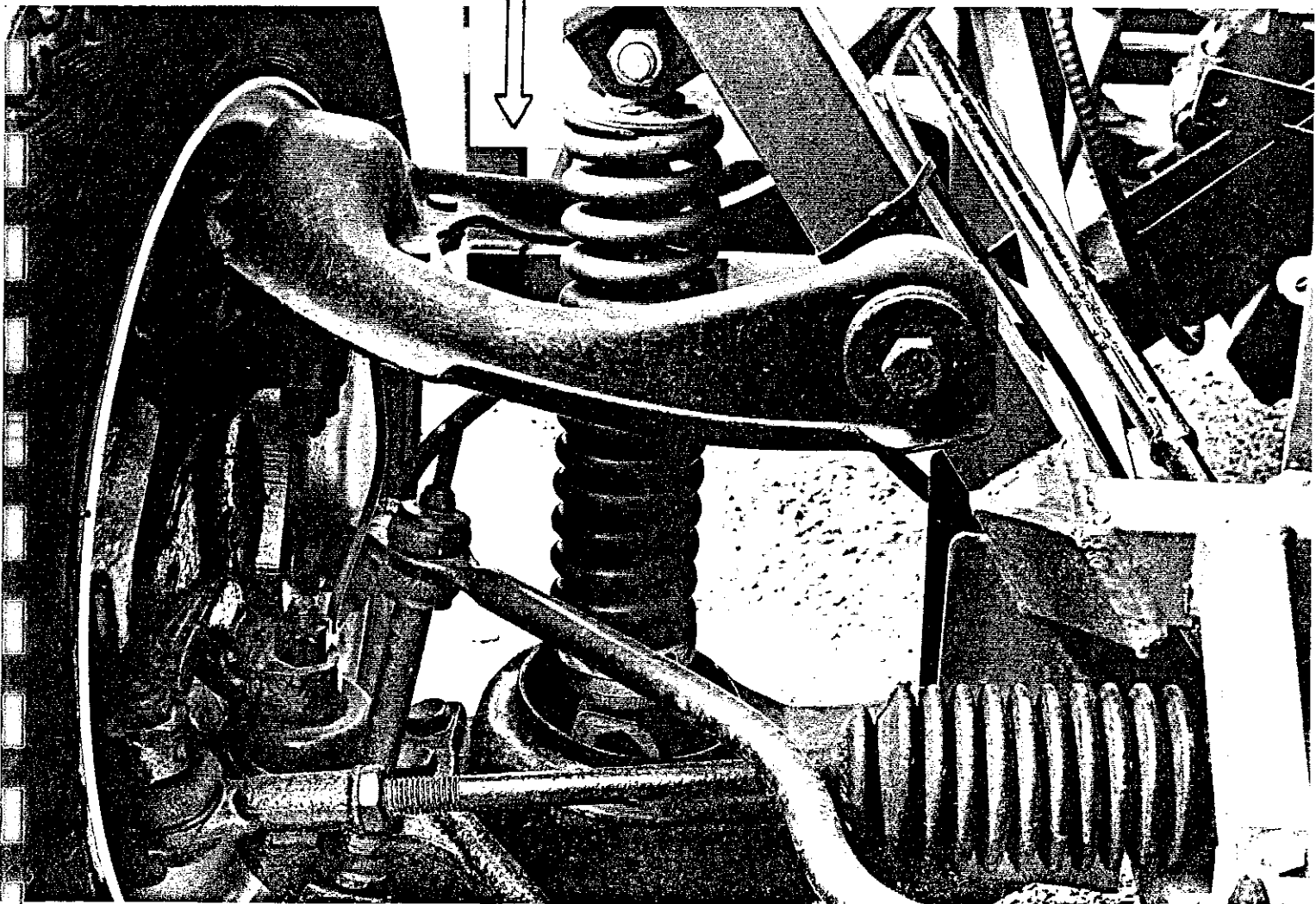
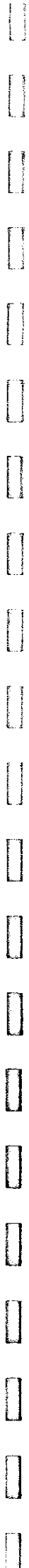


Fig 11 . Looking down through the upper wishbone, the lower coilover/damper mounting can just be seen.





FITTING THE ANTI-ROLL BAR

Refer to Fig 12 and Fig 9 & 10 on previous page.

Position the posts [(F)Fig 9 & 10 using the original bolts and spacers. Fit the roll-bar to the post, using new or original rubbers and allow the roll-bar to rest in its natural position on the chassis rail, see Fig 12. Using the clamp as a template, mark the position of the tongue on the clamp, on the chassis rail.

Using a suitable size drill, drill a series of holes adjacent to one another and open them out with a file to form a slot in which the tongue will fit.

Now mark and drill a 5/16" clearance hole for the fixing bolt. Use a 5/16" x 2" bolt to secure the clamp. It needs to be overlong in order to pull down on the rubber bush, especially if a new one is used.

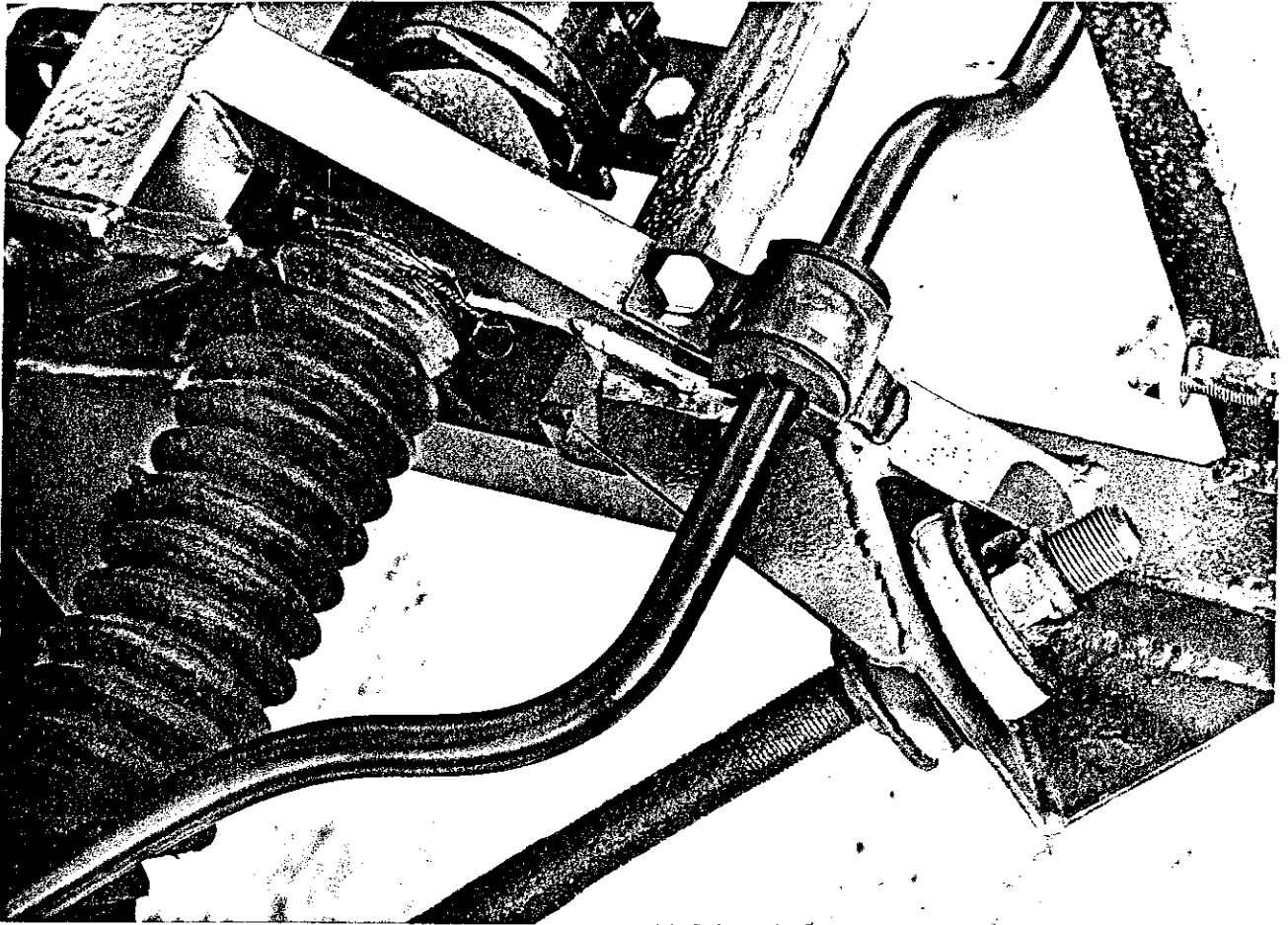


Fig 12. The rubber mounted tie bars, which control the castor angle, can in the lower right hand corner: just above the tie bar mounting is the anti-roll bar mounting and to the left of the picture is the steering rack gaiter.

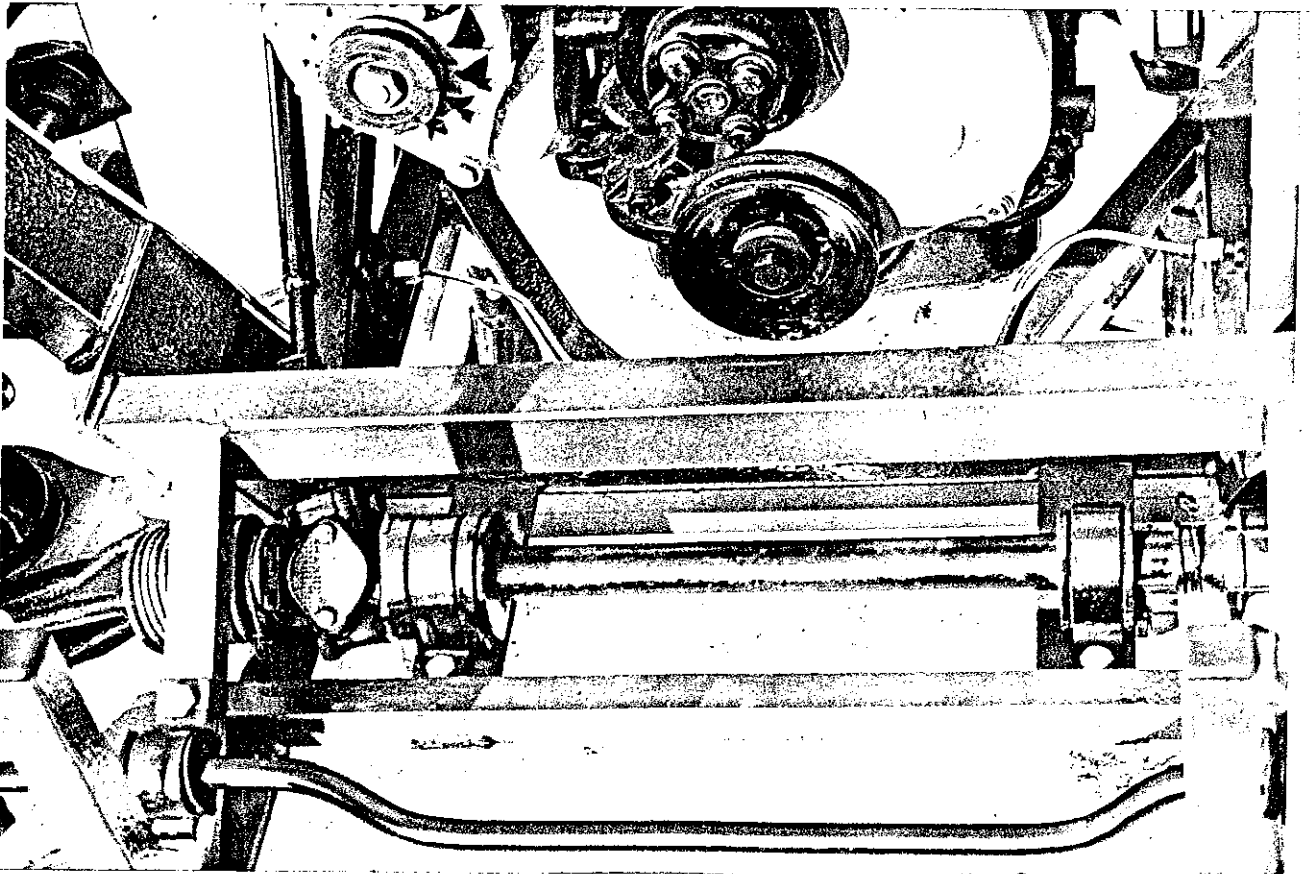


Fig 13. The steering rack mountings from another angle. at the top of the picture, the brake pipe unions and mountings to each front flexible hose can be seen.

THE STEERING

Bolt the steering rack in position using four new high tensile steel bolts, washers and Nyloc nuts. The bolt size is 1" x 3/8" UNF. Use the original clamps retained from the donor car and either new or the original rubbers. Fig 13.

Refit the track rod ends to the track rod, not forgetting the locknuts and then fit the track rod end to the steering arm on the stub axle using the original castellated nut and a new split pin. If new track rod ends are being fitted, they may be supplied with a new Nyloc nut.

FITTING THE BACK AXLE

Refer to Figs 14 and 15.

Some models are fitted with a rear anti-roll bar and it can be retained on the Wildcat rear axle. It is self contained within the lower radius arms and the original fixings can be used.

Use the original bolts to fasten the ends of the lower radius arms to the rear axle.

Now position the rear axle under the car and use 12mm x 90mm bolts to secure the other ends of the lower radius arms to the mounting brackets (A) on the chassis.

The upper, diagonally mounted, radius arms can now be fitted. The original bolts, (D) and (E), can be used for both ends of the arms.

Insert the springs, locating them on the lower radius arms on their original pans (B), and at the top on the chassis (C).

* NOTE Various spring rates may be encountered, depending on the model of the Cortina used as a donor car.

Fit which springs you have, build the car, allow it to settle and then cut the springs to the required ride height. This height should be the same at the back as it is at the front. The outside chassis rail should be 11" from the ground and parallel to it.

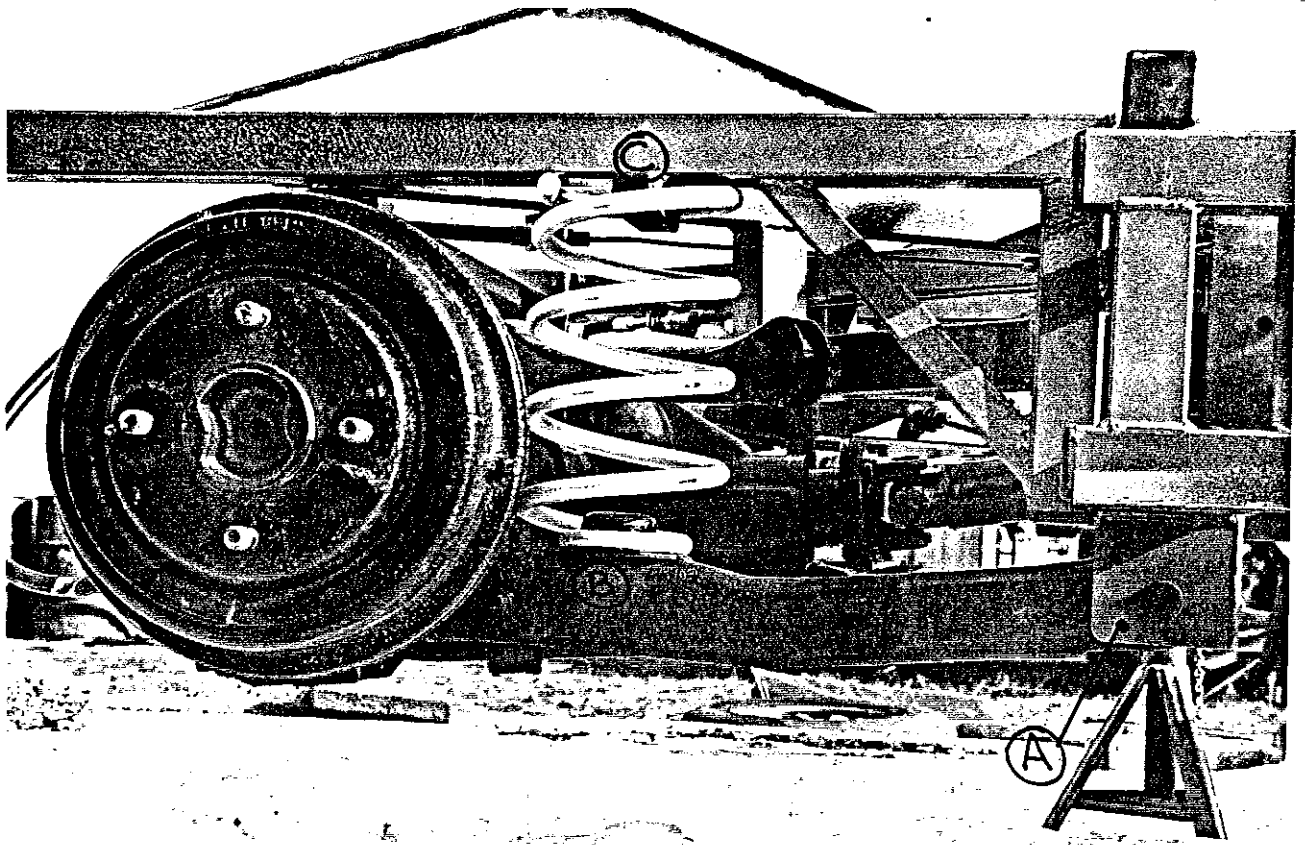


Fig 14. This view of the off-side rear suspension shows the method of mounting the rear springs and the lower radius arm.

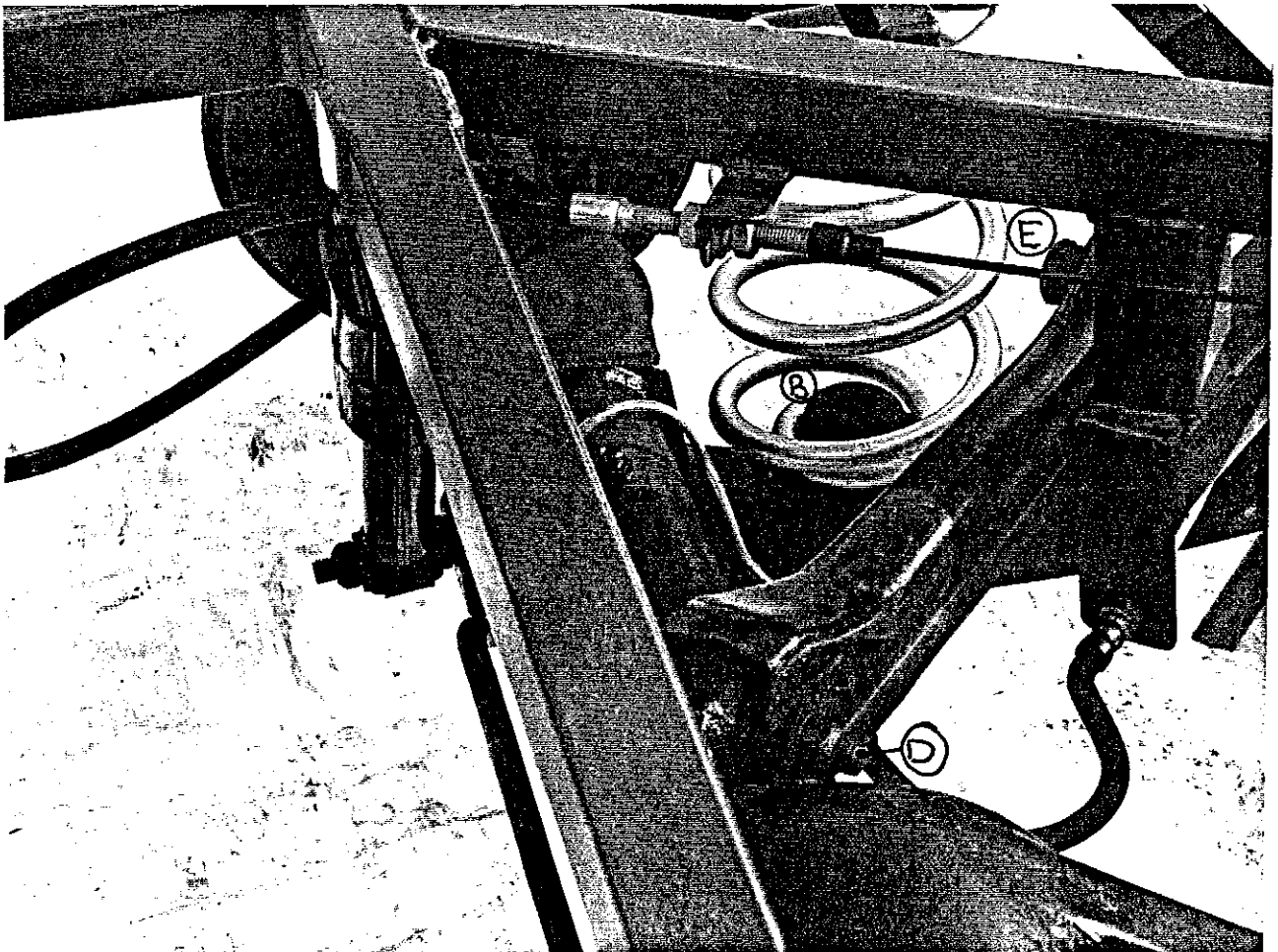


Fig 15. The nearside rear suspension.

REAR SHOCK ABSORBERS

Triumph Spitfire shock absorbers are used for rear end damping, these can be purchased from us or from after market accessory shops.

Fit the rear shock absorbers as shown if Fig 16. The original bolts are used on the bottom mounting and a new 12mm x 50mm bolt at the top.

THE PEDAL BOX AND SERVO

Working from the engine bay, locate the two tabs which are welded to the top tube of the chassis, just above the footwell. See Fig 18. These already have holes drilled in them.

With a 5/16" drill in the same holes, drill through the GRP bulkhead.

From inside the cockpit, offer up the pedal box (Fig 17) and insert the two lower bolts and tighten.

Still working from inside the car, drill through the top two holes into the GRP (Fig 19). Insert the bolts using large penny washers under the nut on the GRP side.

Now, working from the engine bay, mark a point midway between the two brackets. Fig 20. Using this as a central reference, mark out and cut a hole large enough to take the yoke of the brake servo operating rod. Figs 21 & 22.

Remove the four nuts previously fitted, but leave the two penny washers in place on the top two bolts to act as spacers, and fit the servo: fit new Nyloc nuts and tighten. Fig 23.

The tail of the pedal box bracket bolts to the same chassis member as the steering column and they share the same bracket. The position of the tail of the pedal box will already be fixed, drill through the tongue on the chassis member and bolt up using 5/16" UNF bolts and locknuts.

Fig 24 shows both the steering column and the pedal box bracket in position.

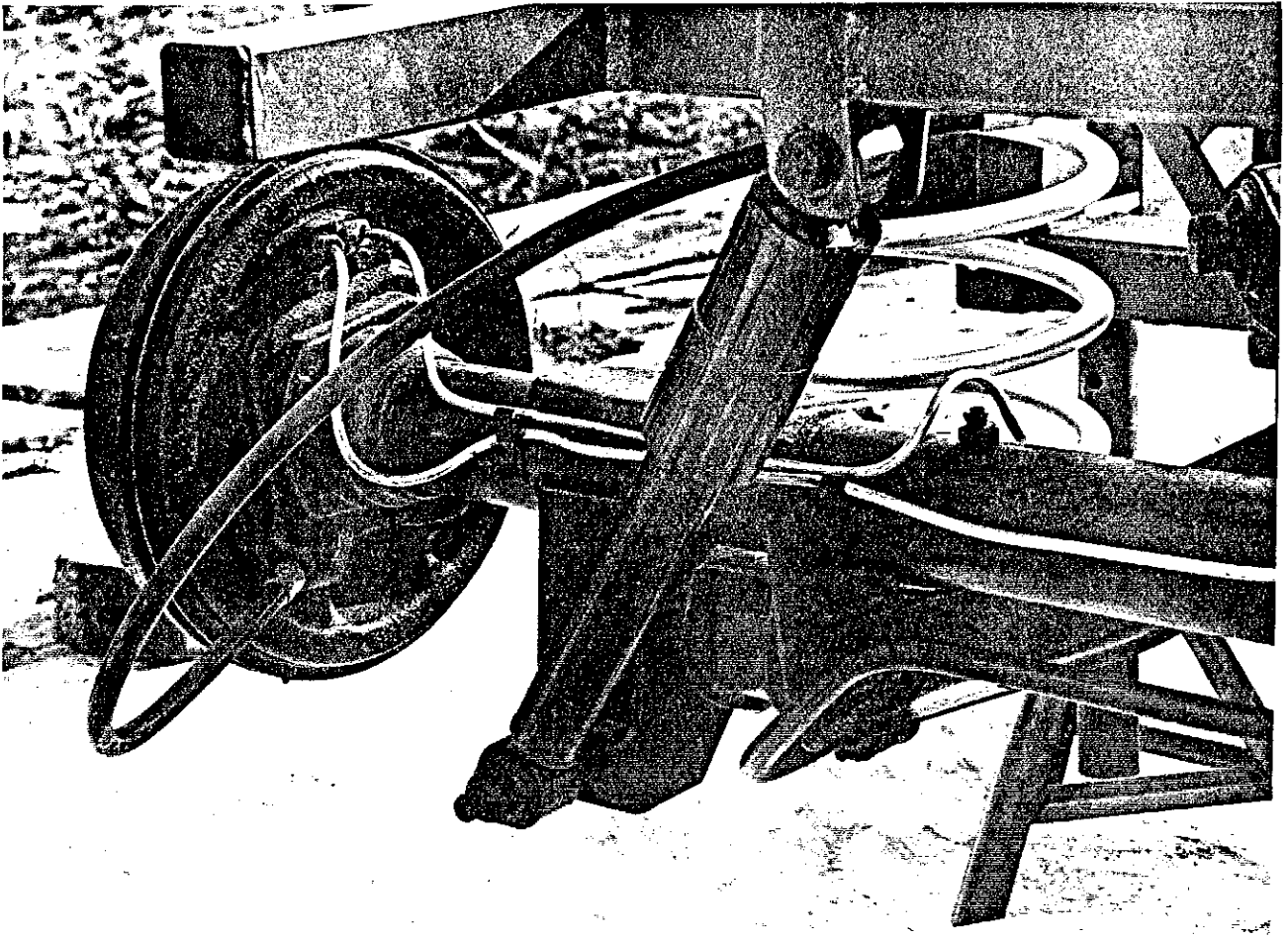


Fig 16. The upper and lower rear damper mountings; the brake pipe runs; the rear anti-roll bar and the handbrake cable.

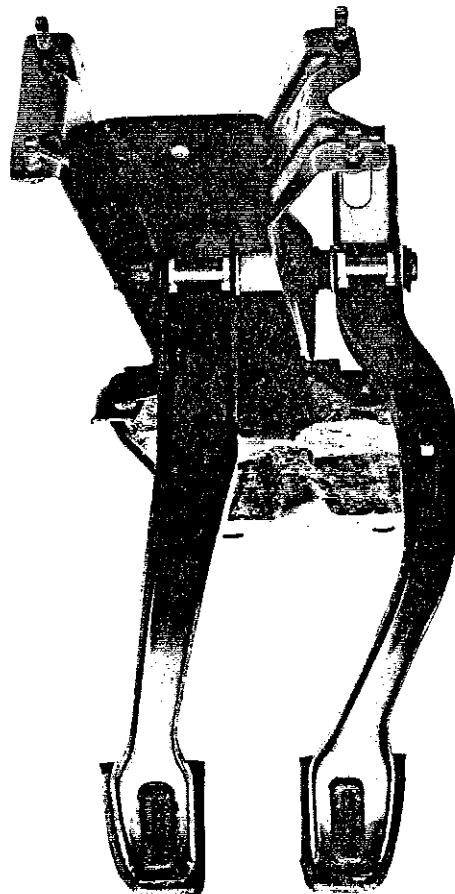


Fig 17. The pedal box.

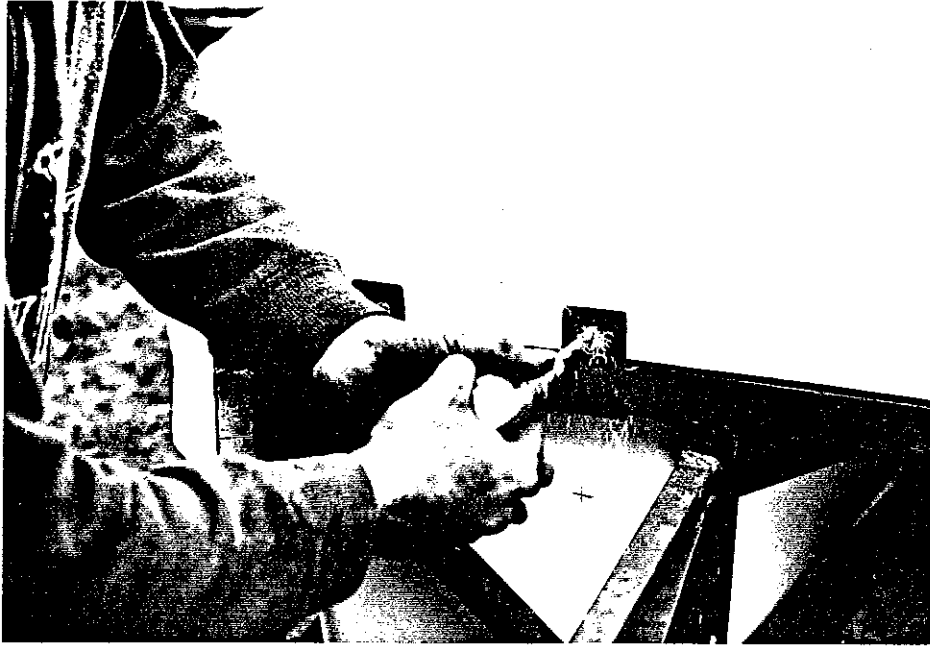
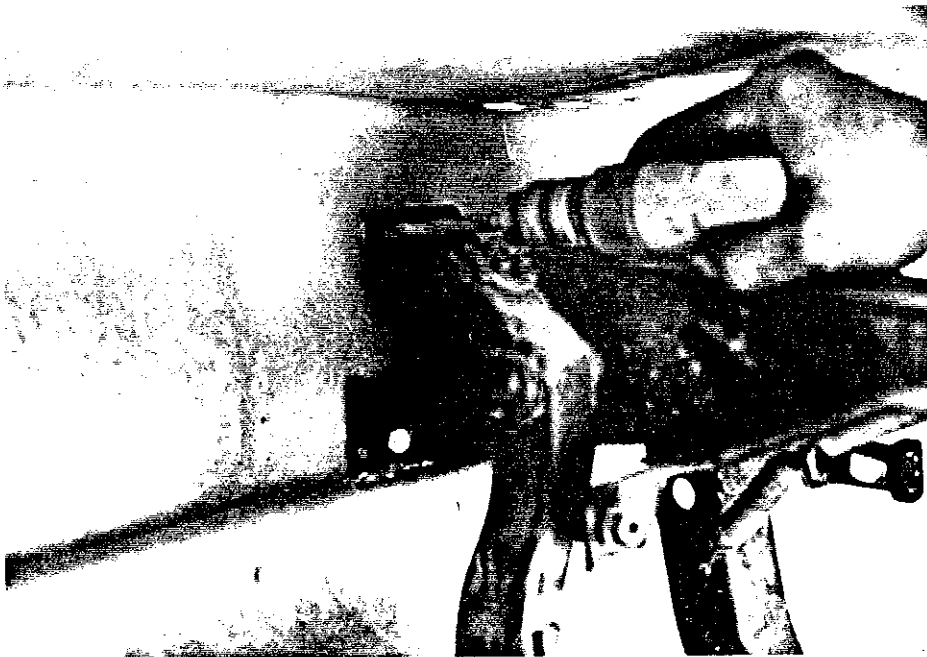


Fig 18 & 19. Fixing the pedal box. The lower fixing holes are drilled through from the outside, the top holes are drilled from the inside of the cockpit.



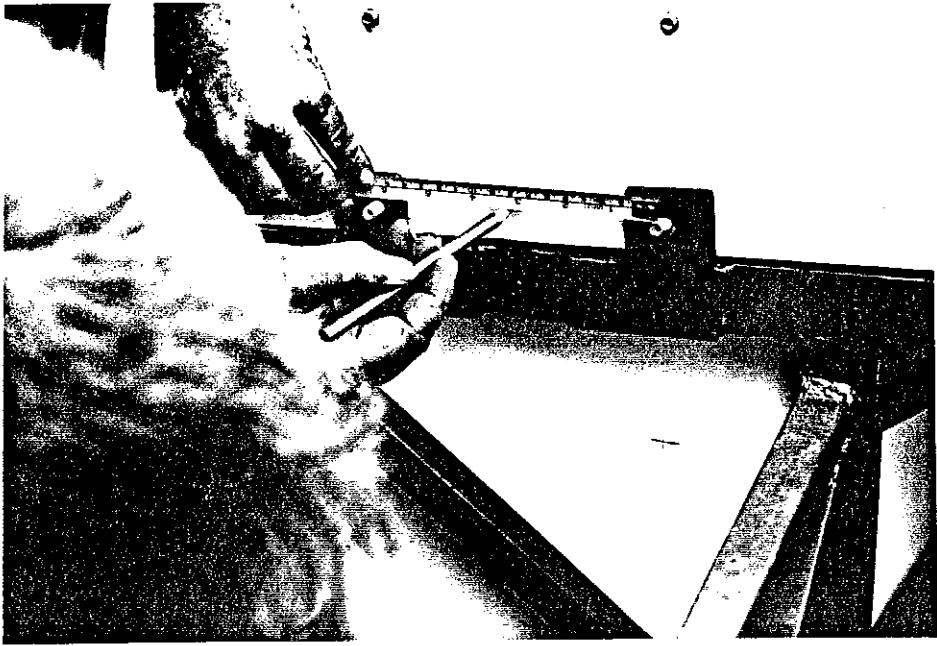
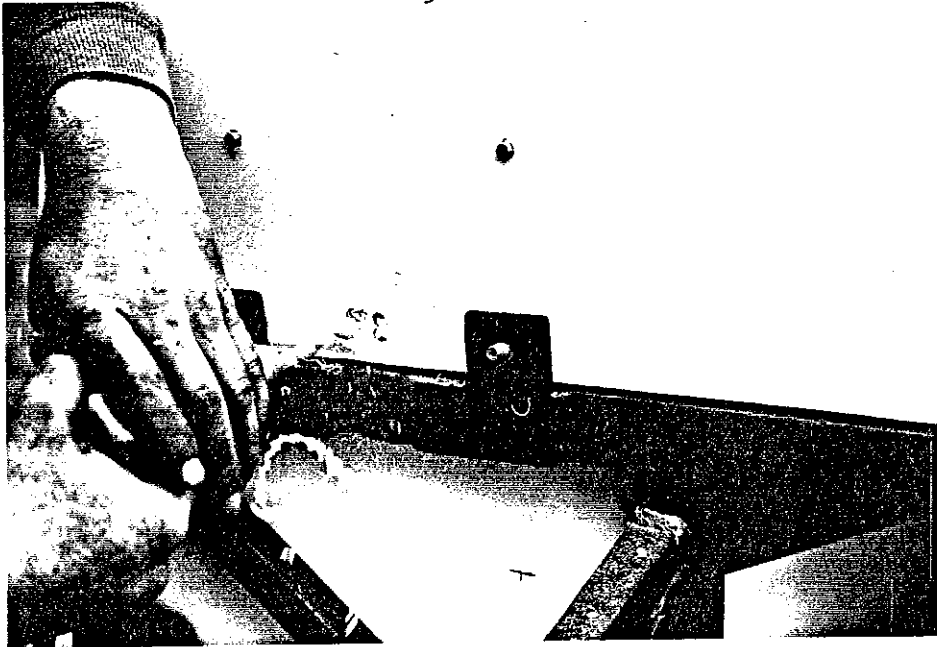


Fig 20 & 21. Marking and cutting the hole for the servo operating rod.



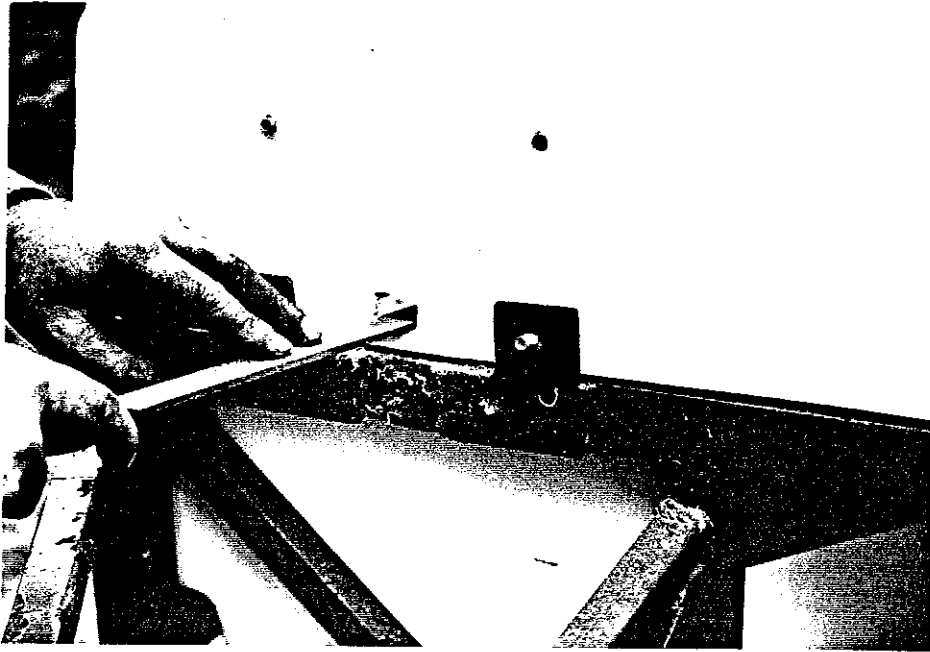
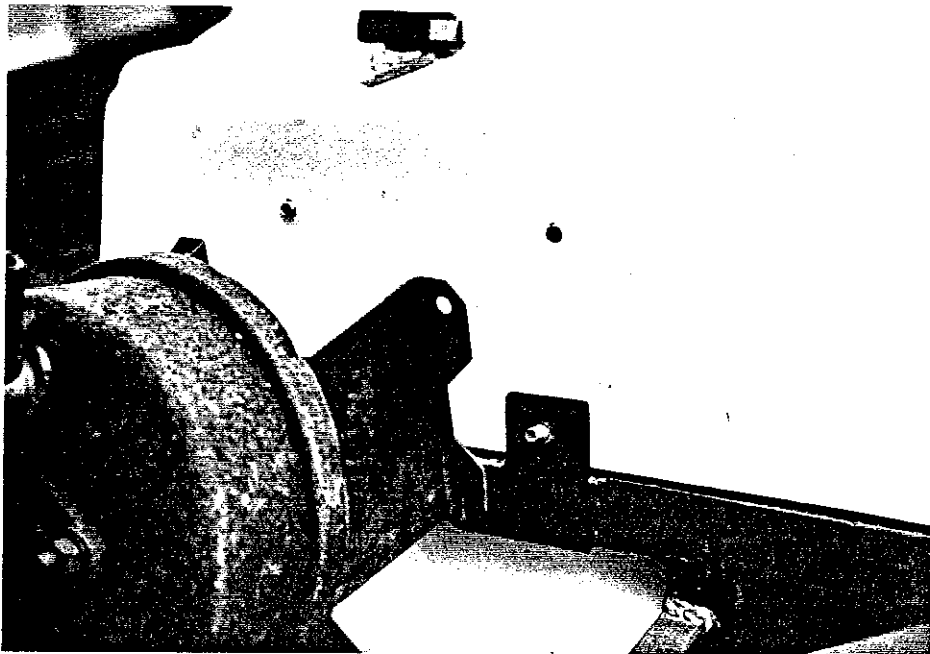


Fig 22 & 23 Fitting the brake servo.



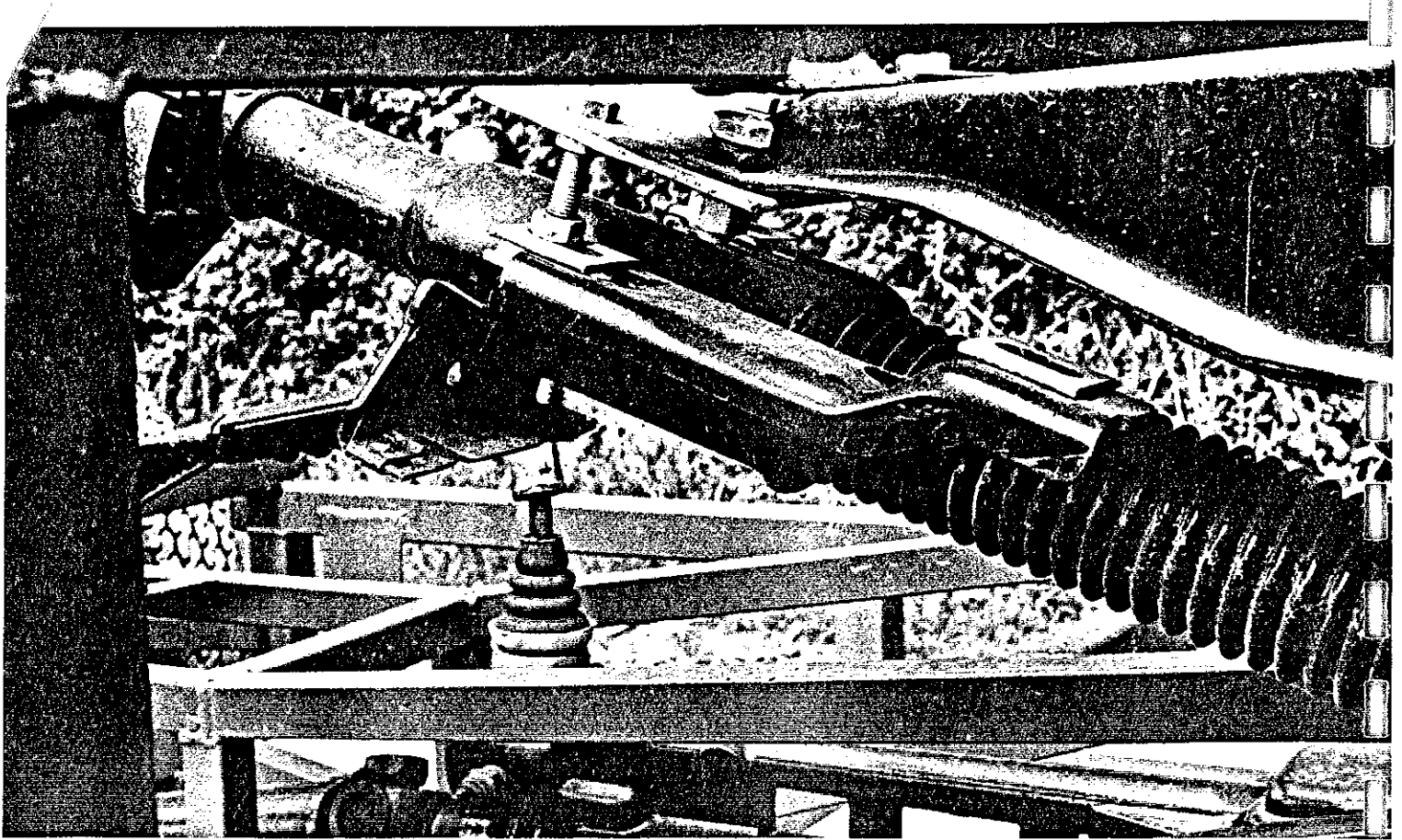


Fig 24. View of the rear pedal box bracket. attached to the pedal box with the steering column bracket.

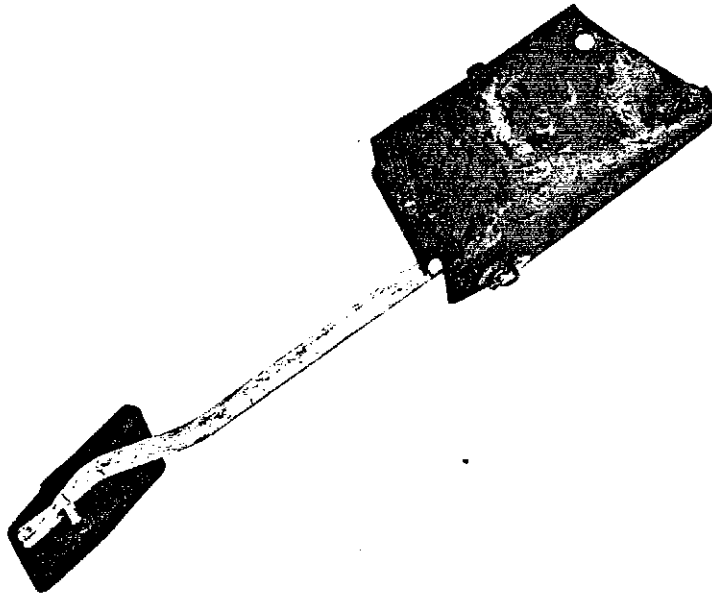
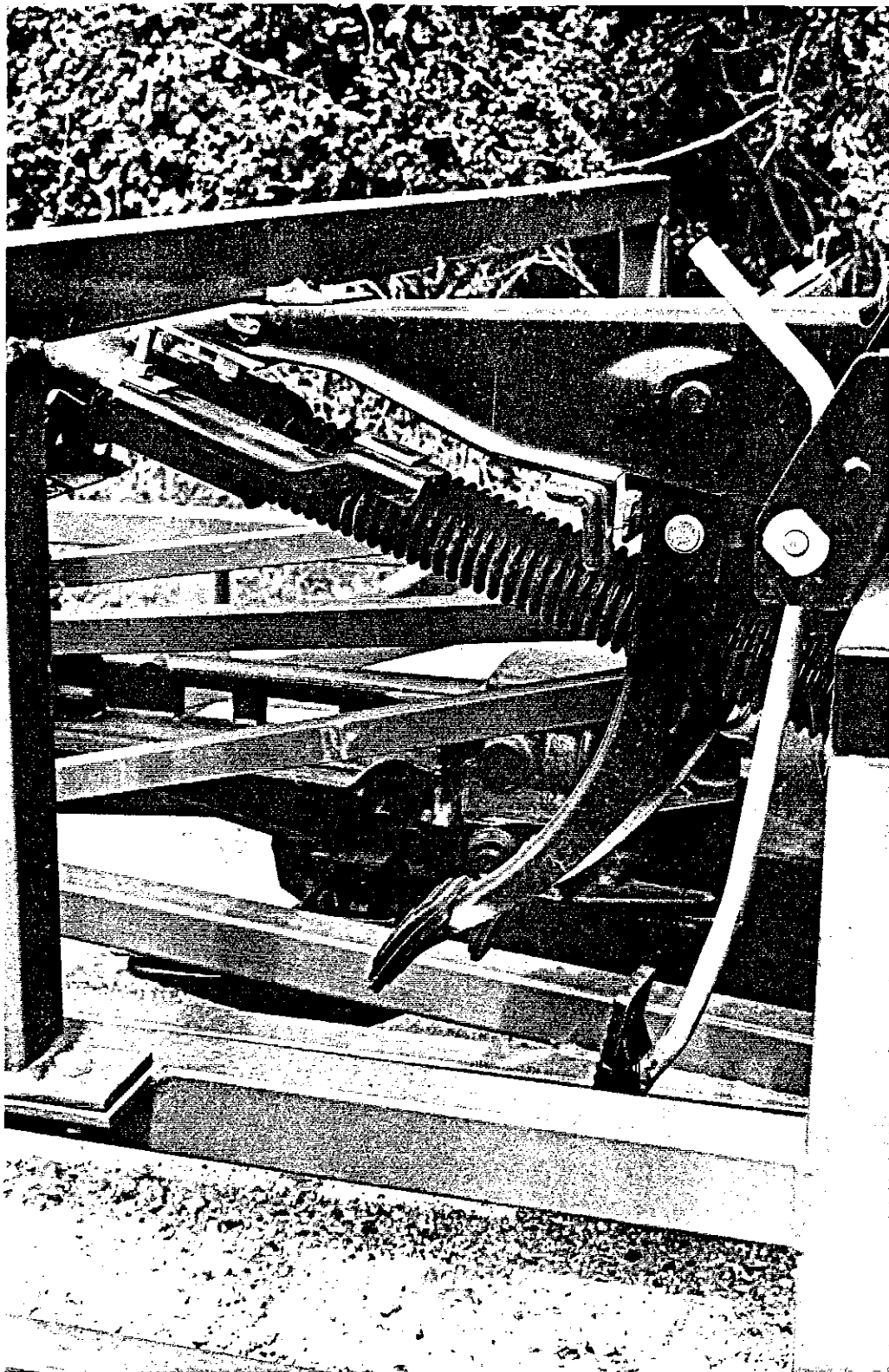
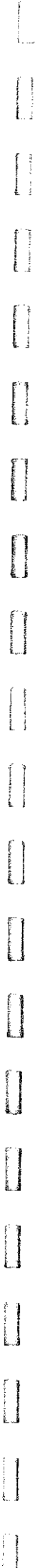


Fig 25. The accelerator pedal and bracket with the mounting studs drilled out.

ANOTHER VIEW OF THE STEERING COLUMN AND PEDAL BOX





THE ACCELERATOR PEDAL

First knock the studs out of the accelerator pedal bracket. Fig 25. Then line up the pedal on the front bulkhead to give a comfortable spacing for the feet.

Mark the position of the bolt holes, drill through the bulkhead and bolt up using 5/16" UNF bolts and penny washers. Drill a hole in the bulkhead large enough to take the eye of the accelerator cable, in line with the yoke in the lever. Fig 26.

FITTING THE CLUTCH CABLE

The clutch cable bracket, Fig 27, fits on to the two right hand (looking toward the rear of the car) pedal box fixing bolts, in the engine bay. Fig 28.

Place it in position, and with a thin pencil or scriber inserted in the cable guide tube, mark the position of the cable entry in the bulkhead.

Using the angle of the tube as a guide, drill a hole in the bulkhead to take the end of the clutch cable. Use a round file if necessary to open out the hole. Fig 29.

Thread the cable through the hole and attach it to the slotted end in the clutch pedal lever.

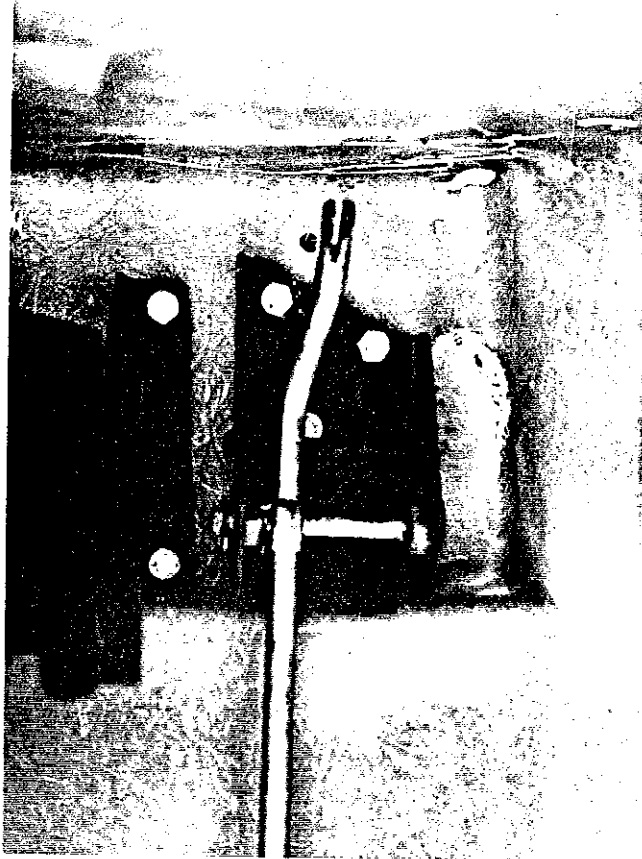


Fig 26. The accelerator cable passes through the bulkhead and fits into the yoke at the end of the pedal lever.

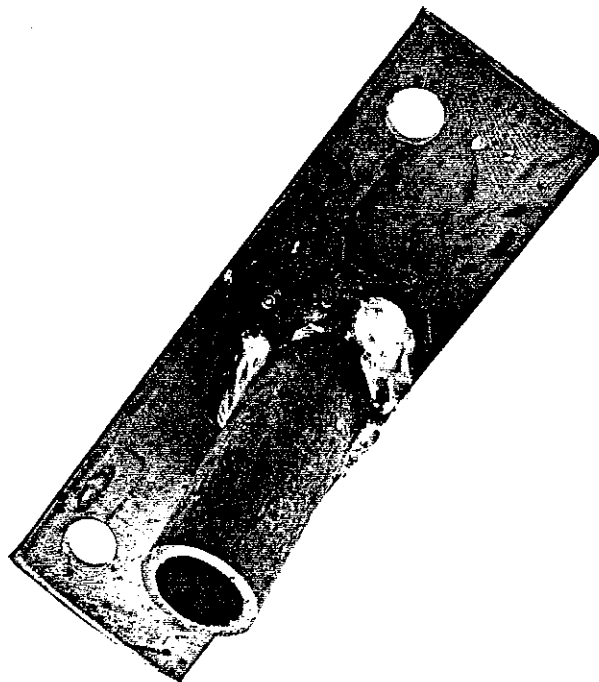
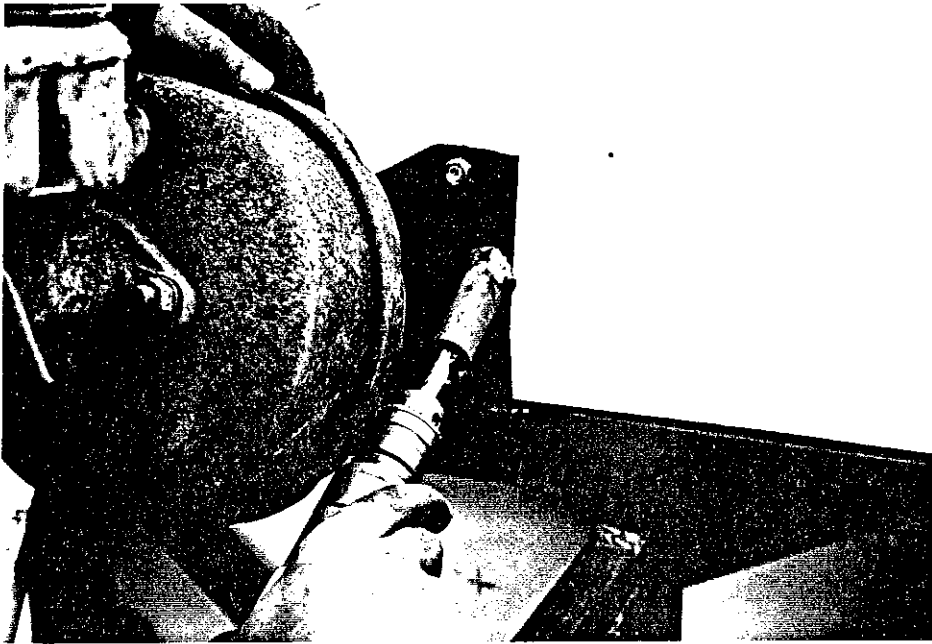
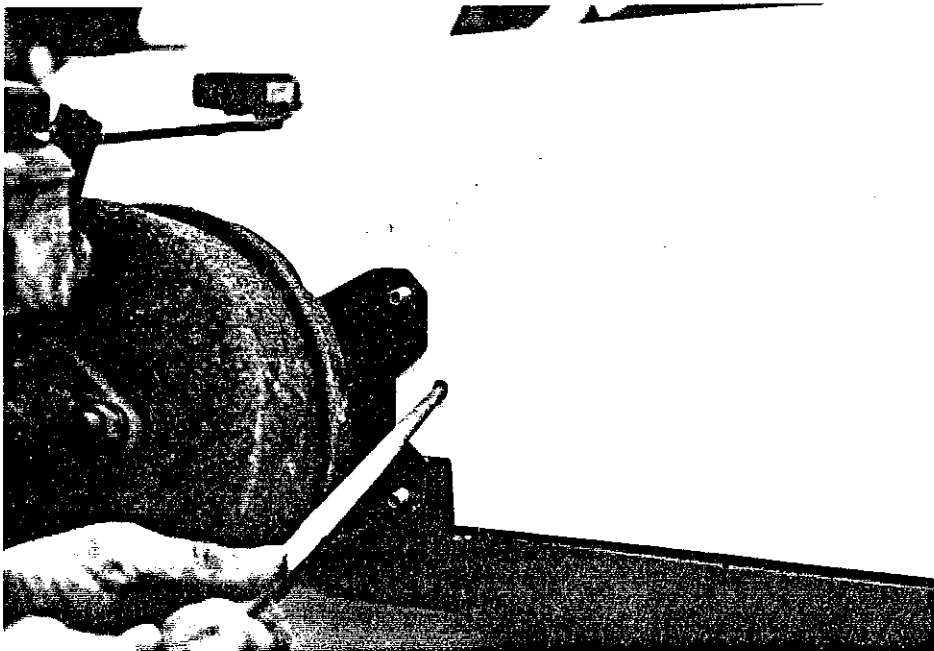
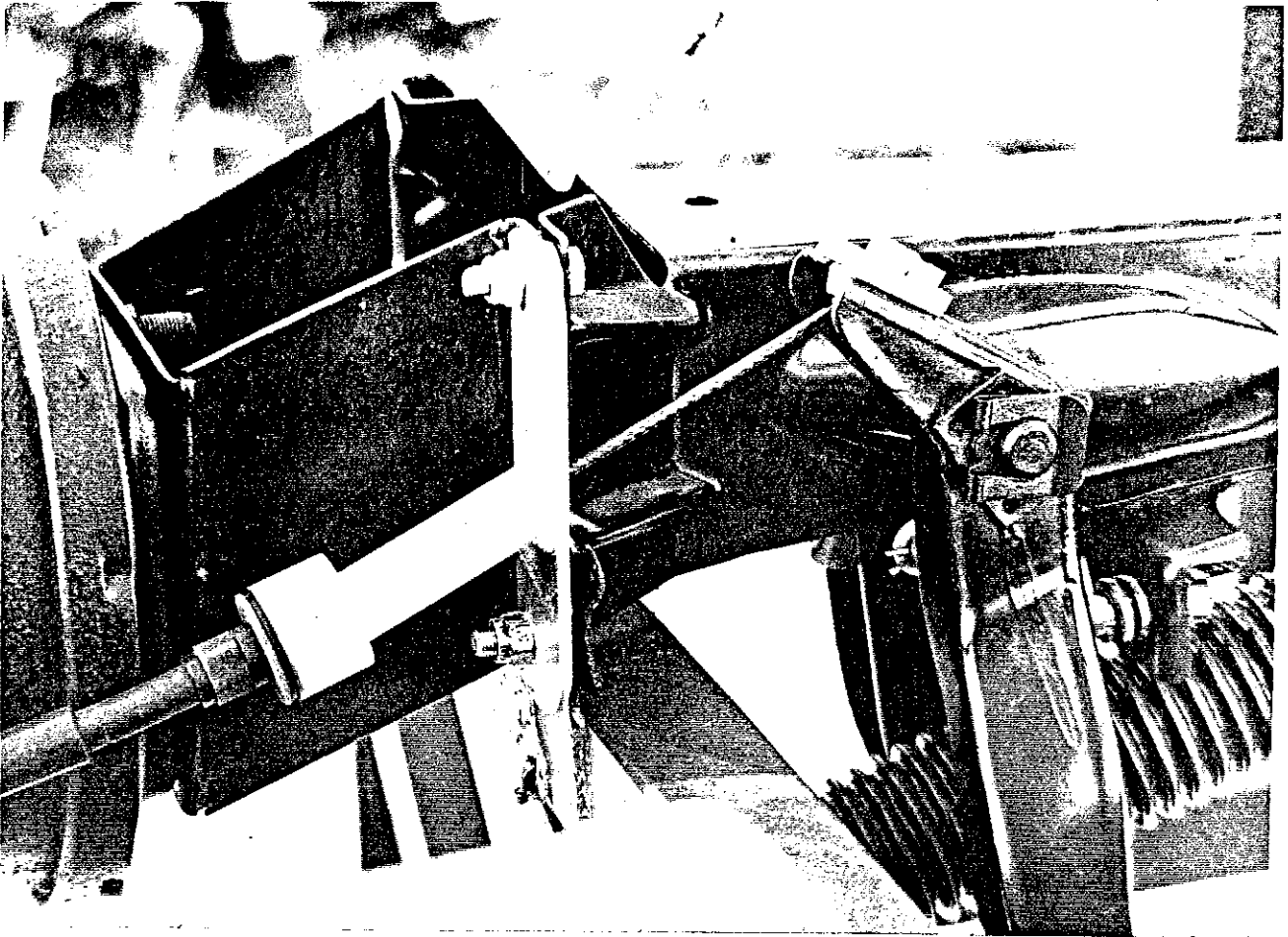


Fig 27. The clutch cable bracket bolts on to the two right hand serve bracket bolts.

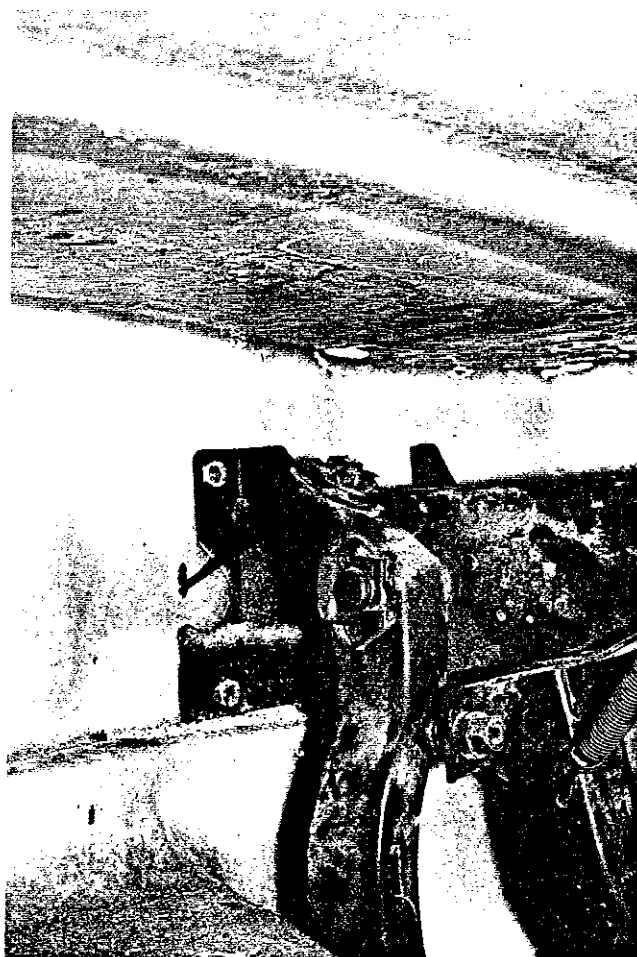


Figs 28 & 29. Making the hole in the front bulkhead for the clutch cable





Figs 30 & 31 The cable and bracket in position and connected to the clutch pedal. Fig 30 was taken before the bodyshell was fitted to the chassis and is for demonstration purposes only.



THE BRAKING SYSTEM

The handbrake, cables and quadrant was removed from the donor car. It is possible to reuse the cables if they are in good condition.

Figs 15 and 32, clearly show the cable run and the adjustment, which is the same set-up as in the Cortina, so further explanation on this point is not necessary.

An inspection of the back plate of the rear brake drum will show that there are two entry points for the cable. The cable entry should be changed from the existing forward facing position, to the rearward facing entry. Fig 16 shows this.

Assemble the cables in the drum, the adjuster brackets and the pulleys. Make sure that the outer sheath of the cable is fully located in the drum and the adjusters are set to give the maximum length of cable. Pull the cable as far forward as it will go and, from under the car, mark where the clevis pin on the cable quadrant meets the tunnel.

Drill up through the centre of the tunnel at this point and cut a slot forward from that hole, and at an angle of about 20 degrees to the centre line of the tunnel, away from the driver. Fig 33.

Insert the handbrake lever through the slot, make sure it is in the 'fully off' position, and connect the quadrant through the yoke of the handbrake.

Pull the handbrake as far forward as the cable will allow and mark the positions of the two fixing bolts of the handbrake bracket and drill two 5/16" clearance holes. Bolt up firmly using 5/16" UNF bolts and washers.

The thing to remember when fitting the handbrake

is to allow for as much adjustment as possible by making sure that, at all times, the cable is at maximum length.

The hydraulic brakes. JPR Cars are able to supply new brake pipe kits at very competitive prices, we mention this only to encourage you to fit new Bundy pipes and flexible hoses, in the interests of safety.

Plumbing the Wildcat is simple using made to measure pipes, and the route which the pipes take can clearly be seen in Figs 8, 13, 15, 16, 34, 35, 36.

Tabs are welded to the chassis to take the front and rear flexible pipes. In Fig 8 the pipes can be seen clipped to the chassis rail using plastic cable ties, in fact, the brake pipe clips are to be preferred. Small bore rubber hose, split and slipped over the pipe prevents any likely chafeing. Ensure that the pipes are not located on the bottom of a chassis rail where they may be damaged in the event of the car grounding. About halfway up the side of the rail would be fine.

The master cylinder fits in series with the servo and is mounted on the front of it. The entire system should be connected as it was in the Cortina.

When the system has been bled and the brakes adjusted, sustained pressure should be applied to the brake pedal with the engine running. All unions should be inspected for leakage and the pedal should remain firm.

NB Flexible hose lengths:

Front (both sides) 50 cm

Rear 30 cm

Note: measured between mounting plates



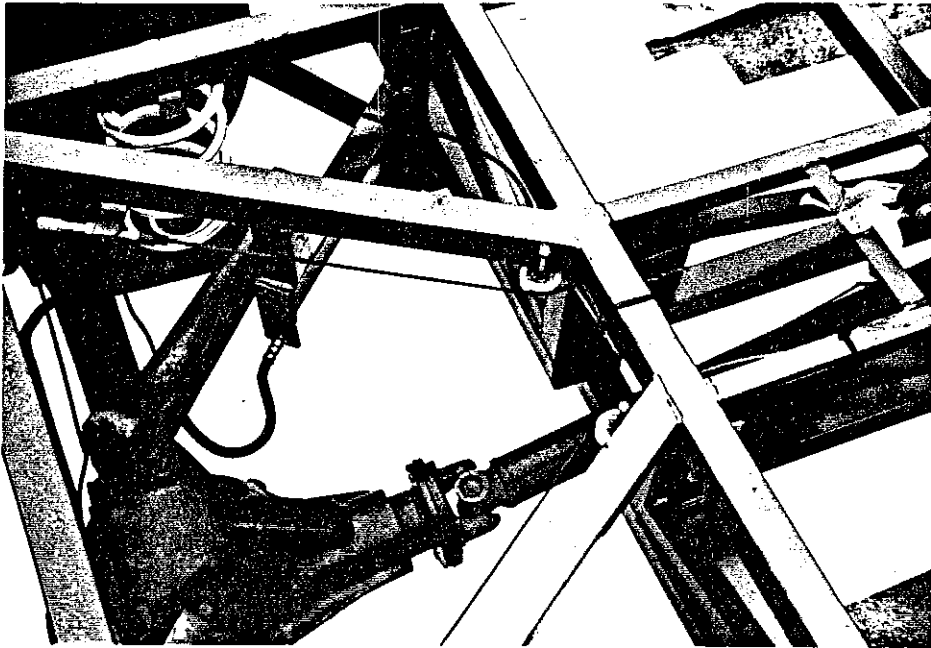


Fig 32. The brake cable runs. The pulleys are ready fitted to the chassis.

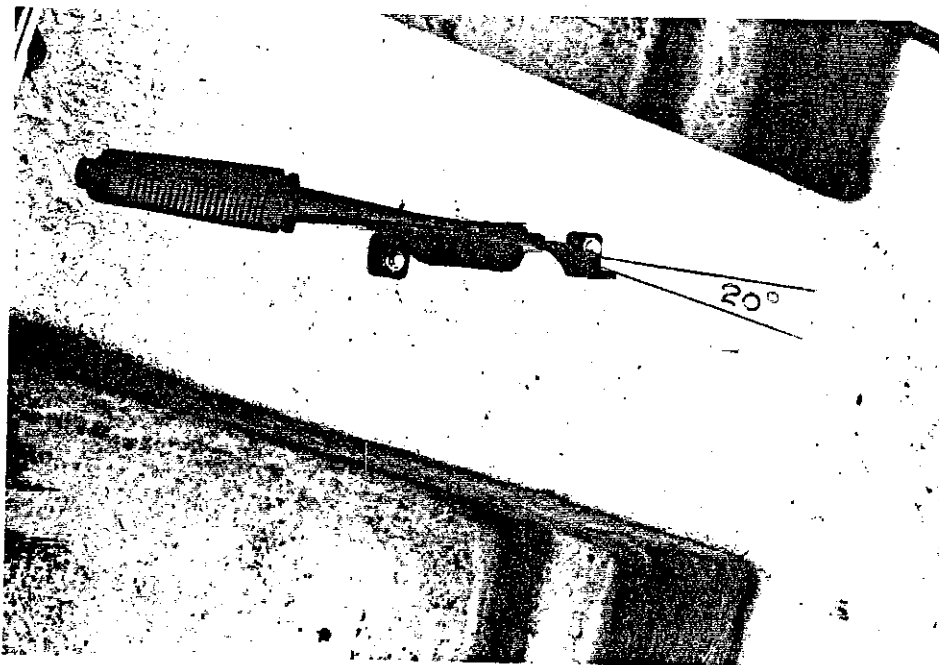


Fig 33. The handbrake is mounted at an angle of approx: 20 degrees away from the driver side of the tunnel centre line.

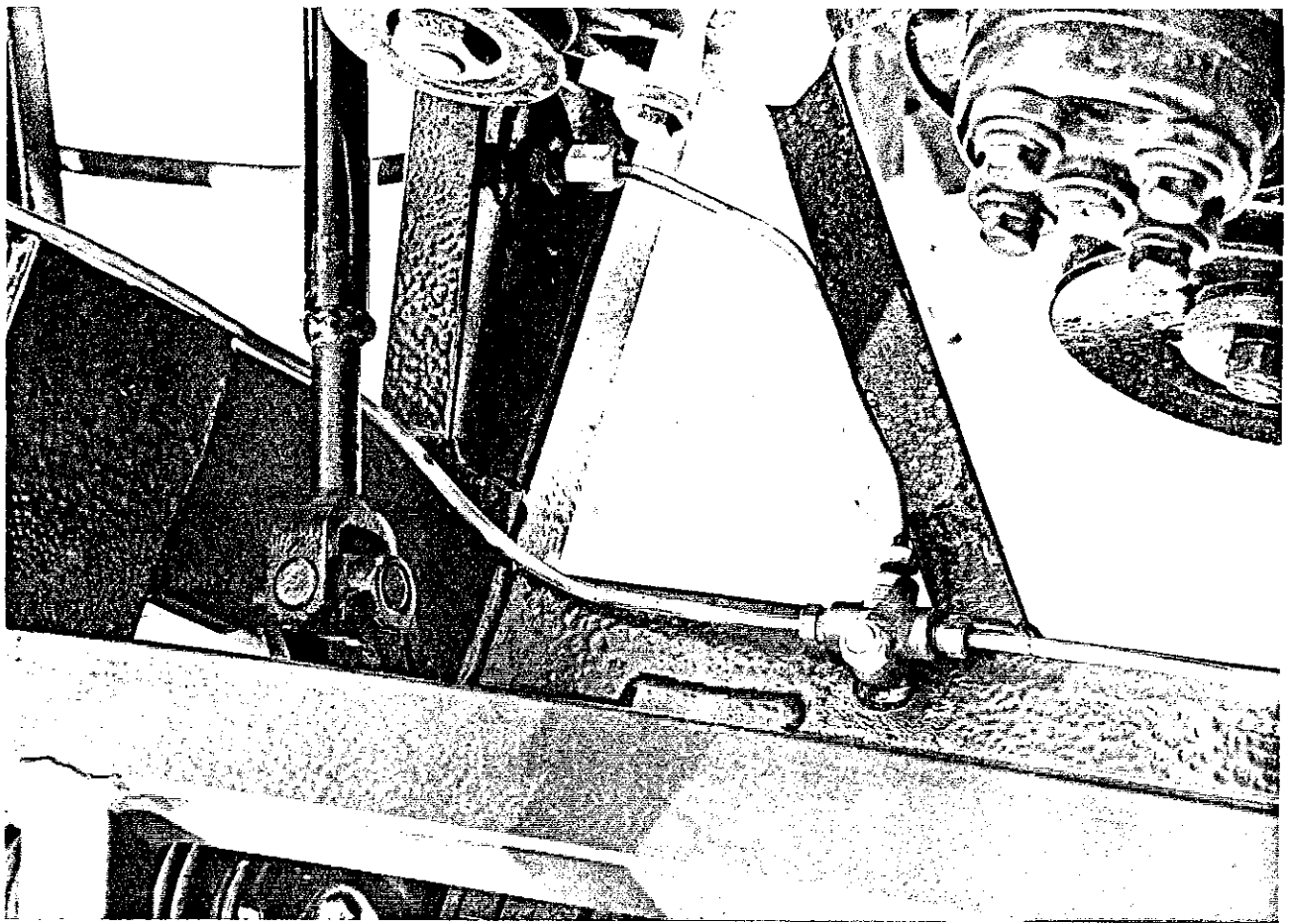


Fig 34. The lower steering column universal joint and the position of the three-way brake pipe union can be seen in this picture.

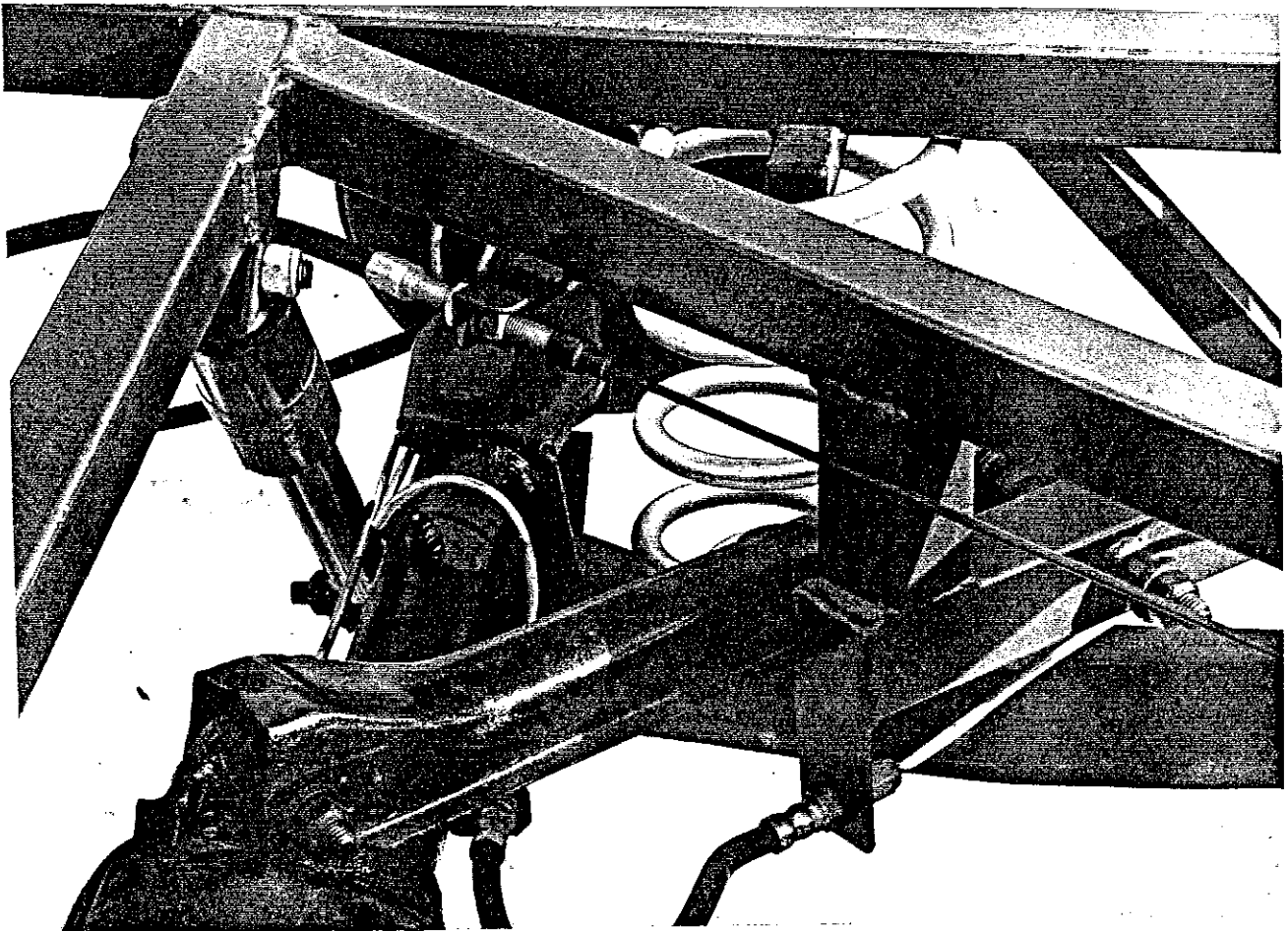


Fig 35. This illustrates the brake cable bracket, the flexible brake pipe mounting, and the inner and outer, upper radius arm mountings .

FITTING THE STEERING COLUMN

The steering column was removed from the donor car, complete with the upper mounting bracket as in Fig 37.

A supplementary mounting bracket, (A) Fig 37a, is supplied with the kit and it is used to mount the upper part of the steering column to the hoop under the scuttle. This mounting point is shared with the tail of the pedal box. See Fig 37 and 24.

The two bolts which secured the pedal box bracket are used to fix the supplementary bracket (A) : the upper mounting bracket on the steering column is now bolted to the two remaining holes in bracket (A). These bolts (B) can be made so that the steering column height is adjustable.

As in all the best mystery stories, 'X' marks the spot. In this case it is marked on the front bulkhead in the engine bay and it indicates the position of point where the steering column passes through the bulkhead.

You will notice that there is an inner and outer steering column: There is a bearing between the two which allows a smooth rotation of the inner shaft, which is the one that does the work.

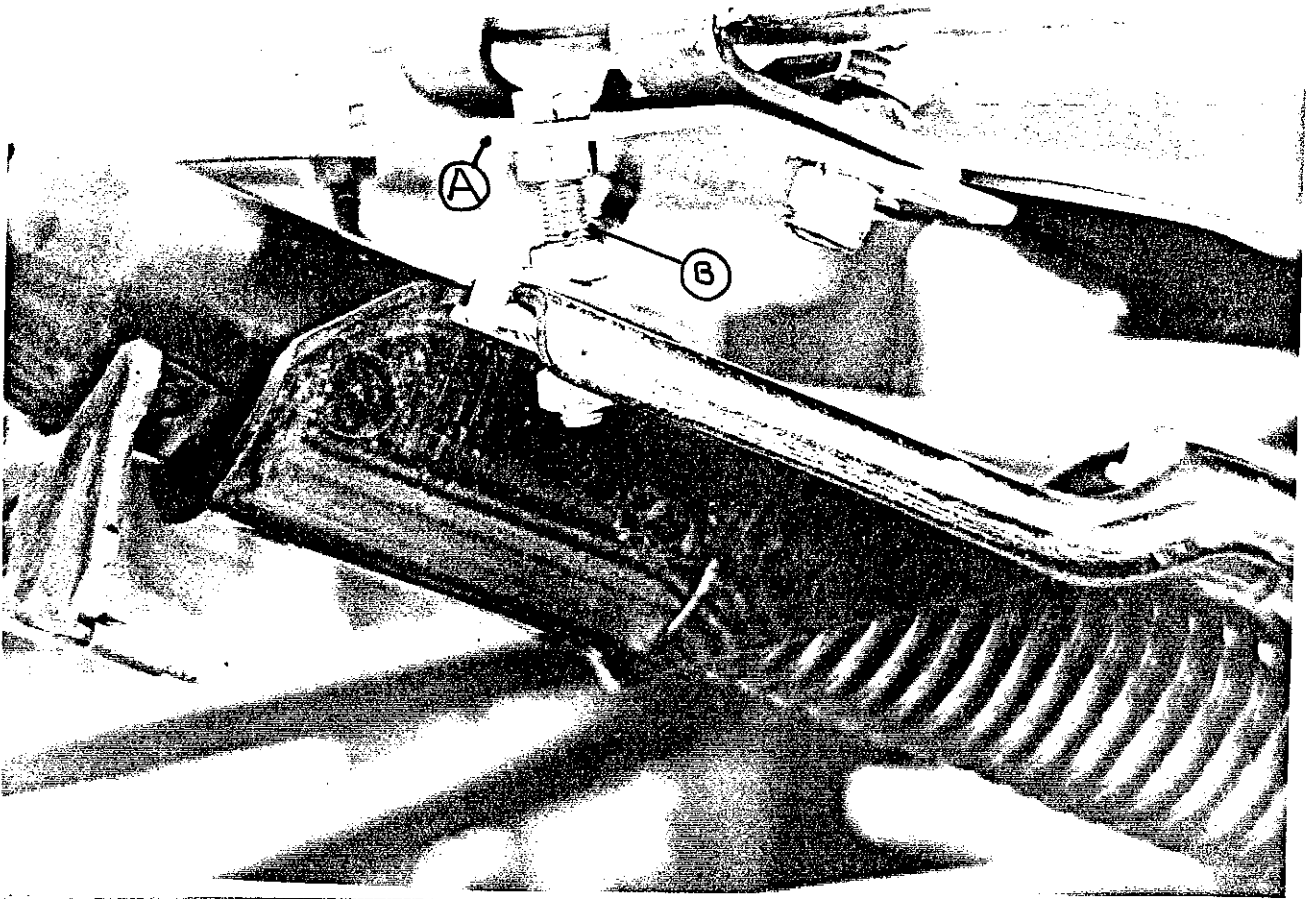
The outer shaft, or sleeve, must be a tight fit in the GRP bulkhead. So bear this in mind when opening out the hole in position 'X'. If the hole is made too big or, it is uneven and likely to leak, use some fibreglass filler to make a fillet around the shaft.

The modified lower steering arm can now be connected to the steering box and the triangular section of the upper steering column. Be sure to use locking tabs and new Nyloc nuts.

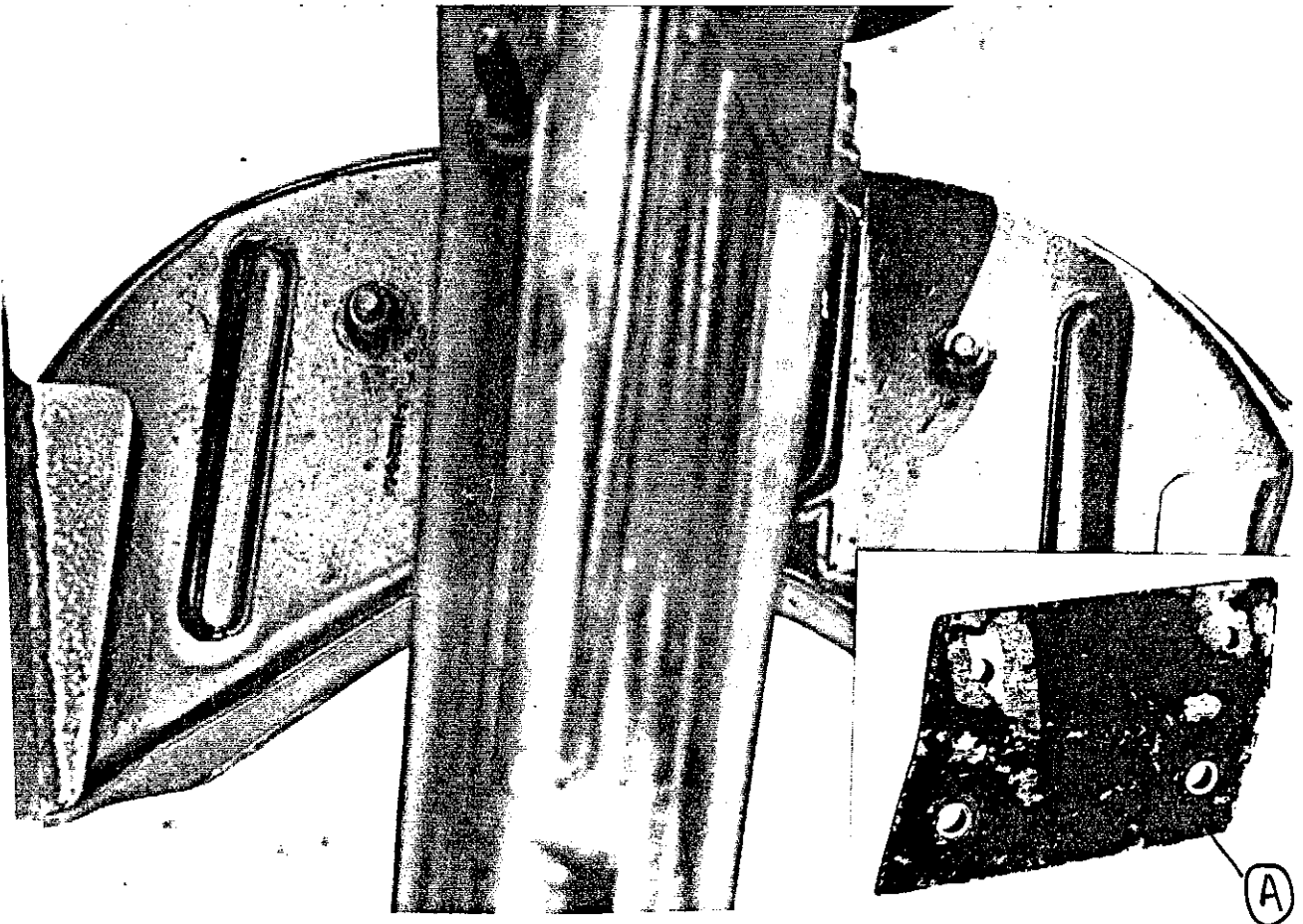


Fig 37a

Fig 36. The rear flexible brake pipe union and bracket.



Figs 37 & 38. The upper steering column mounting. The top picture shows the mounting plate which comes with the kit and the adjustable fixing bolts. In the lower picture is the upper bracket as it is removed from the car.



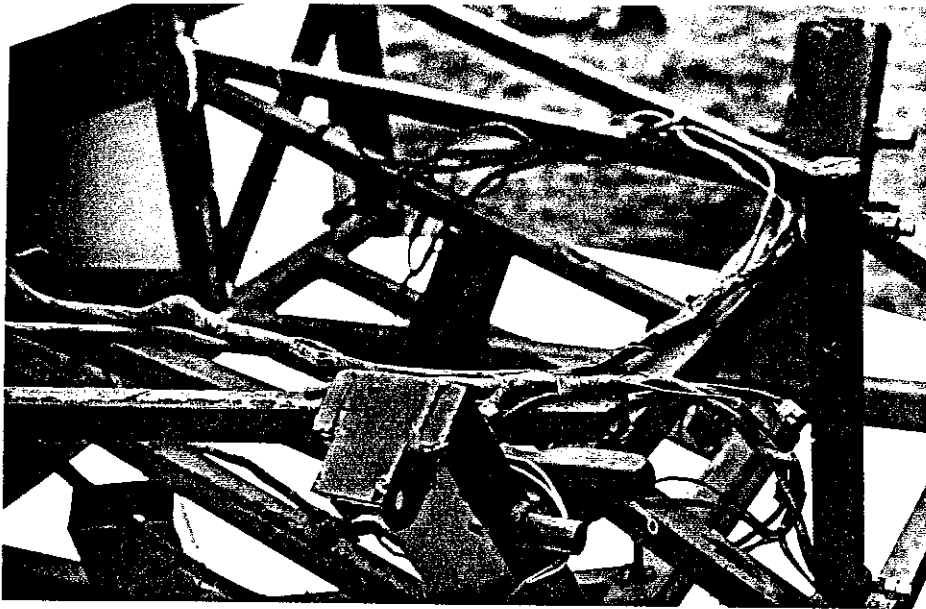


FIG 39

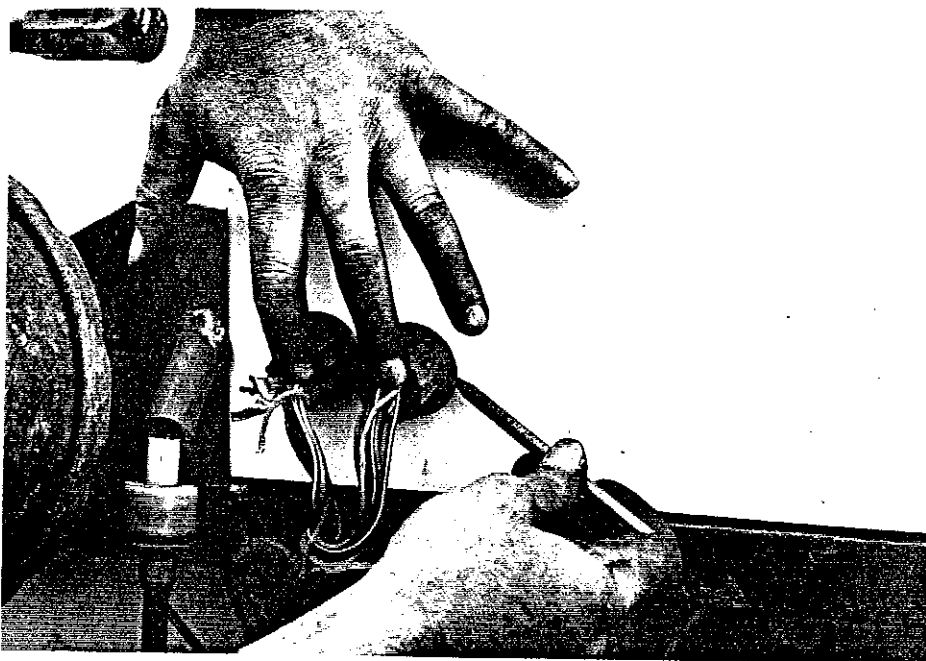


FIG 40

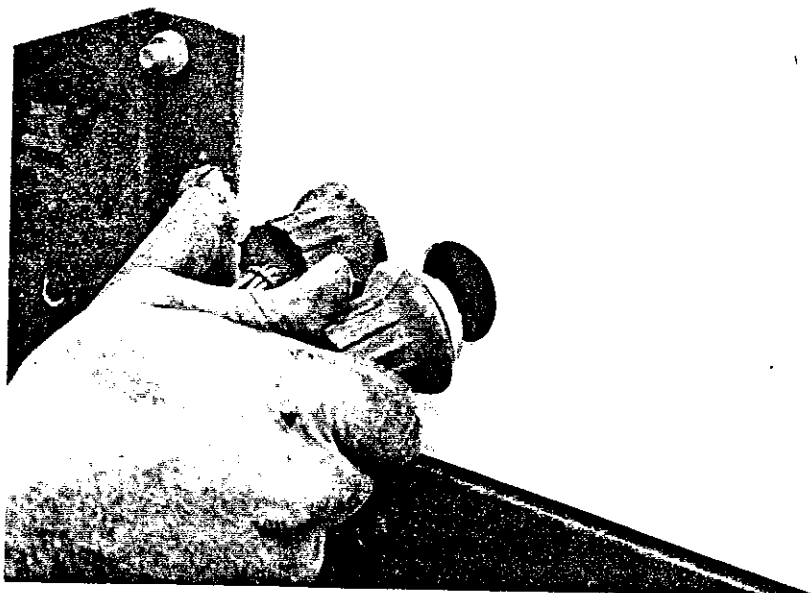


FIG 41

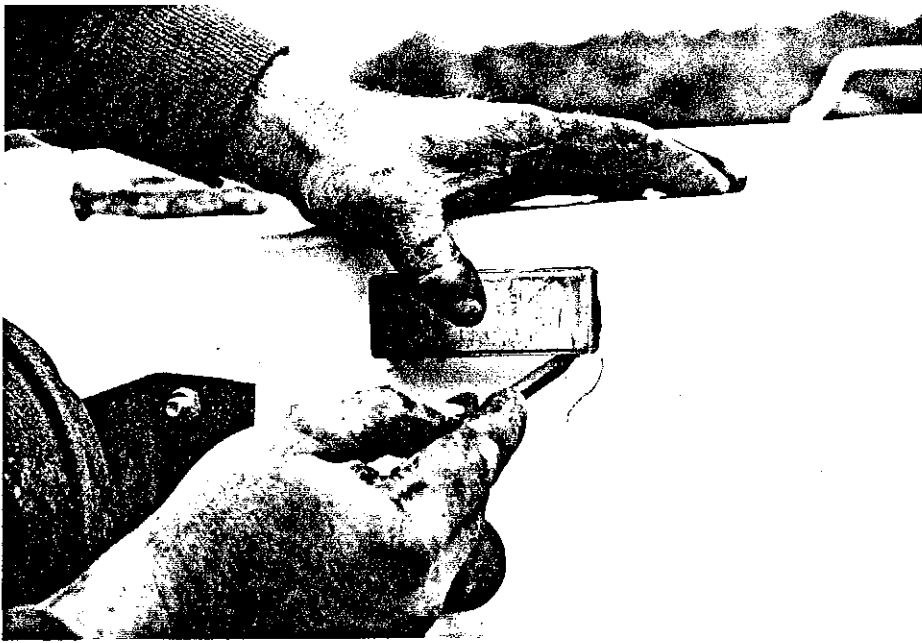


FIG 42

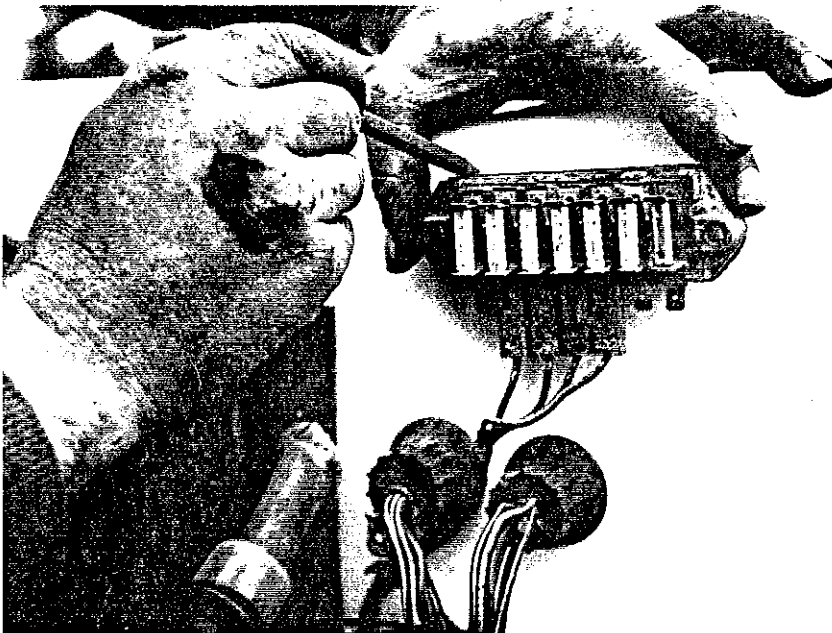


FIG 43

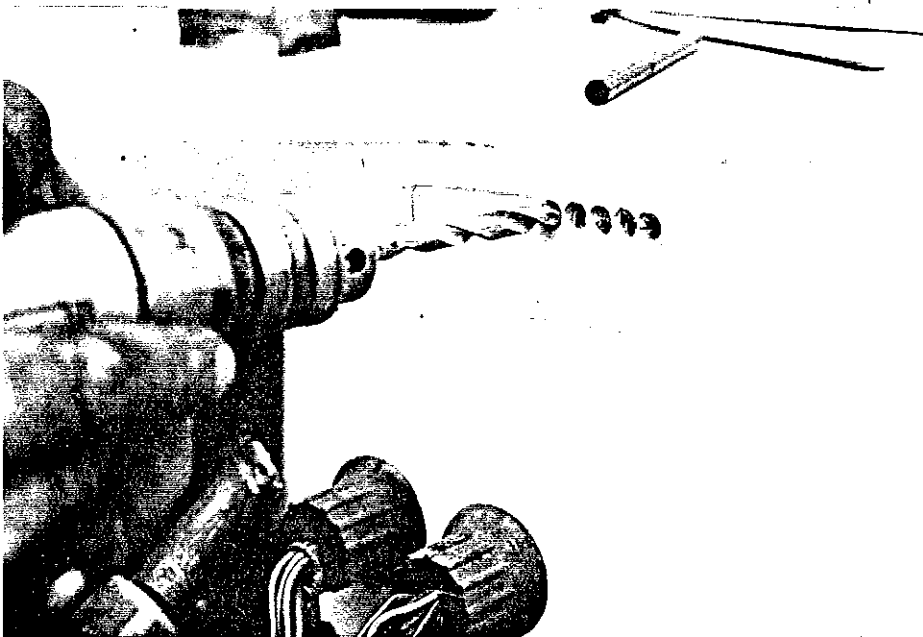


FIG 44

ELECTRICAL INSTALLATION

The electrical installation is one part of the build which many people dread. In fact, taken logically and carefully, and with confidence, the job is straight forward and should take a day or two only to complete. It is merely a matter of putting into the Wildcat, the components which you removed from the donor car but in the reverse order. If you use original Cortina components, you do not need to know any thing about electricity.

There is only one possible area where problems are likely to occur and that is with earth returns. Every electrical circuit needs a feed and a return to work properly. In a conventional car the earth return is usually made through the steel bodywork. This is not possible on the Wildcat because the GRP body will not conduct electricity. To overcome this, the chassis is used for earth

return. So, it is advisable to make three or four really good earth points on the chassis and run all the earth wires to one or other of these. The siting of the earth points is up to the individual but it is a good idea to have one on a front chassis member for the front lights, indicators and horn, another in the engine bay toward the front bulkhead, one under the dashboard and another at the rear of the car for the rear lights and fuel tank sender.

A convenient way to make the earth point is to tap a 6mm or 8mm thread into the chassis, clean the surrounding area of paint, insert a piece of studding (or a bolt with the head cut off) into the tapped hole and lock it in with a nut which has a washer under its head. The earth wires can then be finished with a ring terminal and locked down with another nut over the studding.

It is not possible in this manual to give a terminal by terminal account of wiring the car.

If you want to know more about car electrics generally, or how to wire up a set of spot lights, say, then there is a really good book which will tell you all about it. The book is by Haynes and it is called 'Automobile Electrical Manual'

If the thought of wiring the car still sends shivers down your spine, an auto electrician will always be prepared to do the job for you.

Meanwhile lets have a go and try to do it ourselves.

Inspect the donor car wiring loom for damage and repair worn covering with self amalgamating tape, this won't come undone like the conventional insulation tape.

Position the front part of the loom on the offside of the engine compartment (the left side, looking toward the rear of the car) so that it is well clear of any moving parts and away from heat. The diagonal chassis member makes a good securing point. See Fig 37. Run the headlamp and indicator wires forward , not forgetting to leave enough slack in the cable when the bonnet is lifted.

The fuse box and bulkhead plugs fit conveniently alongside the servo, on the front bulkhead. Mark the position of these and be careful to leave a comfortable amount of slack in the cables to avoid placing a strain on the connections.

The pictorial sequence in Figs 39,40 , 41, 42, 43, 44. showing the method of fixing both the plugs and fuse box, is self explanatory, but make the plugs a tight fit in their holes.

The main wiring loom can now be positioned inside the car. It is best to run the rear light, indicator and fuel tank wiring loom down the tunnel on the drivers side, it will not need fixing, the carpets will hold it in place, but if it annoys you meanwhile, a few pieces of waterproof tape, the wide silver type, will do the trick. The loom exits the cockpit at the base of the rear bulkhead, use a grommet here to prevent chafe and make the hole watertight.

The wiring will have to be altered for the new instruments. For second hand gauges the wiring diagrams will be found in the appropriate service manual. New instruments come with wiring instructions, where appropriate.

The connections to the steering column switches also plug in. Do not worry about trying to keep the wiring tidy at this stage, wait until all of the work on the electrics is finished and then use plastic ties to secure the cables out of sight.

It is likely that the plugs on the wiring loom for the lights, will not fit the new units. If you are using second hand units, and to be honest it is hardly worth the bother, then suitable plugs and sockets can be had from the donor car. Failing that, new ones can be purchased. Do not be tempted to use in-line connectors because this makes changing a headlamp unit difficult to do without getting the connections mixed up.

The small wiring looms which feed the rear lights, and indicators, are handed and separately fused, so be sure to connect them up correctly. It is embarrassing for Wildcat owners to signal left and turn right!

The battery is sited in the engine compartment on the passenger side, just in front of the footwell. Make sure that the battery feed and return cables are of the correct size, in other words, at least the diameter of the ones which were on the donor car.

Locations for the ancillary electrical items normally sited in the engine bay (coil, washer motor, etc) are up to the individual builder, but do try to keep things neat and tidy, with cable runs straight and cables clipped neatly together or to the chassis rails.

Fitting The Windscreen Wipers. As has been mentioned previously, the windscreen wiper motor and gear comes from the Austin Maxi or 1800, and the Wildcat has three wiper blades, which in turn means three drive gearboxes.

The wiper arms need to be short and suitable ones to use are Trico part no: TWA 13, these are adjustable down to 8" and as such ideal for our purpose. The wiper blades are replacement E Type units.

The position of the wiper drive shafts is marked in the gel coat of the GRP of the scuttle. Using one of the chrome chamfered spacers as a guide, drill a pilot hole through the scuttle at the correct angle. If you want to be really fussy

about this, make up a cardboard template as in Fig 45 & 46.

Because the drive shafts will be coming through the scuttle top at an angle, the resultant hole will be oval in shape. therefore it is easier to use a round file to make the correct shaped hole the right size to take the threaded spindle of the gearbox. A neat finish to this is quite important so take your time and get it right.

When all three holes have been made, bolt the gearboxes in place (Fig 47)and measure the distance between them so that you can cut the outer sheath of the drive cable to length. Remember to allow for the bit that is in the gear box and allow about 4" for the very end piece that will protrude from the end of the last gearbox. The ends of the outer sheath ('bundy pipe' to give it its generic term) have to be belled out so that they remain fixed in the gearboxes when the covers are replaced. This can be done carefully with a punch, or, alternatively, a couple of turns of thick copper wire soldered around the end, will do the trick.

The motor is situated at the steering column end of the dashboard and can be mounted in any suitable position which does not place too small a diameter bend in the drive. The hoop under the dashboard, on the steering column bracket or on top of the steering column have all been tried successfully. A bracket will have to be made up to suit which position is chosen.

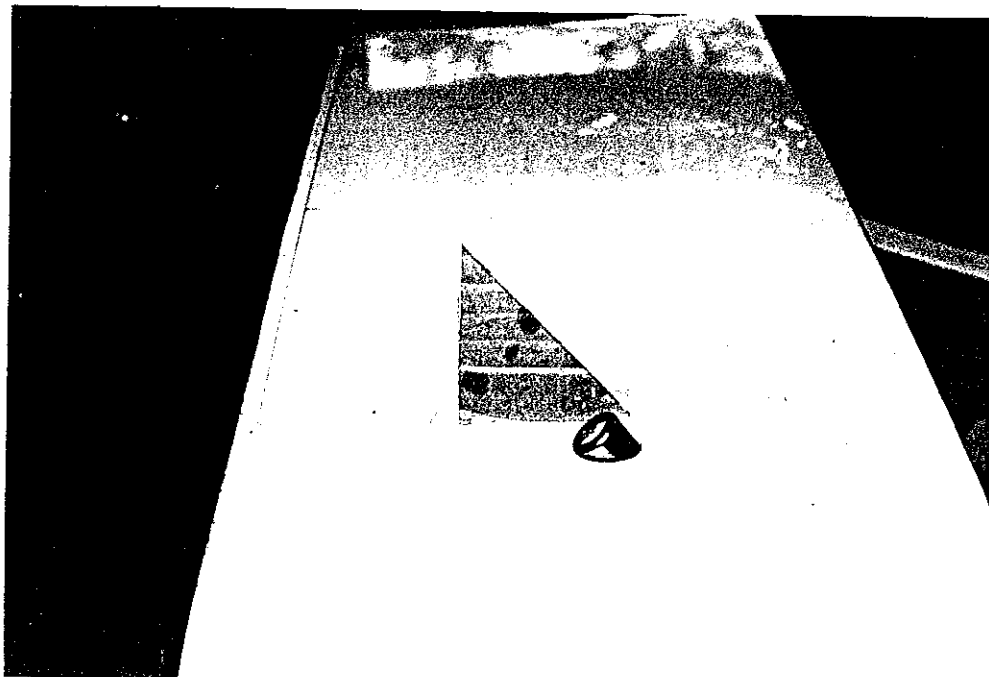
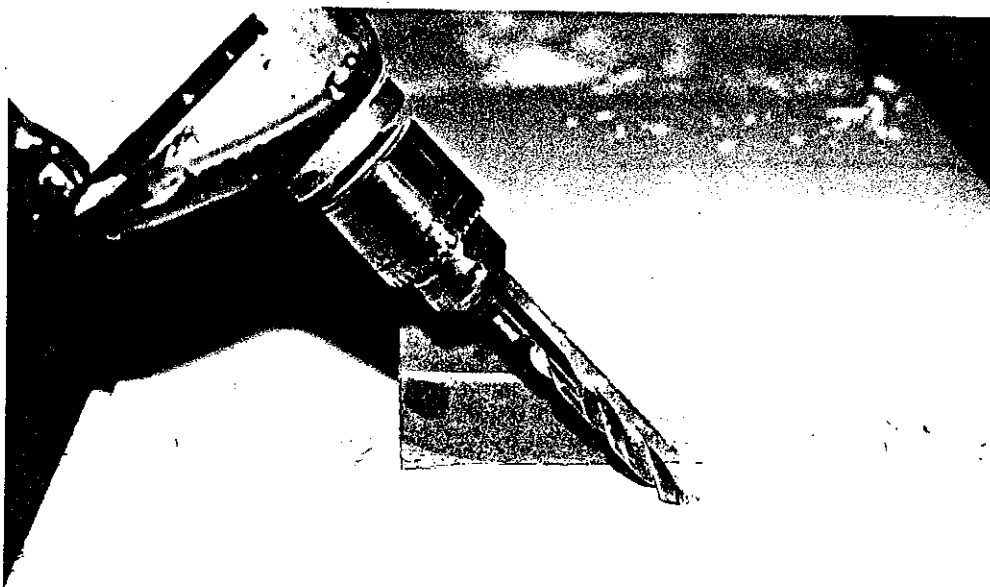


Fig 45 & 46. Using a template to obtain the right angle for the windscreen wiper drive, where it comes through the scuttle.



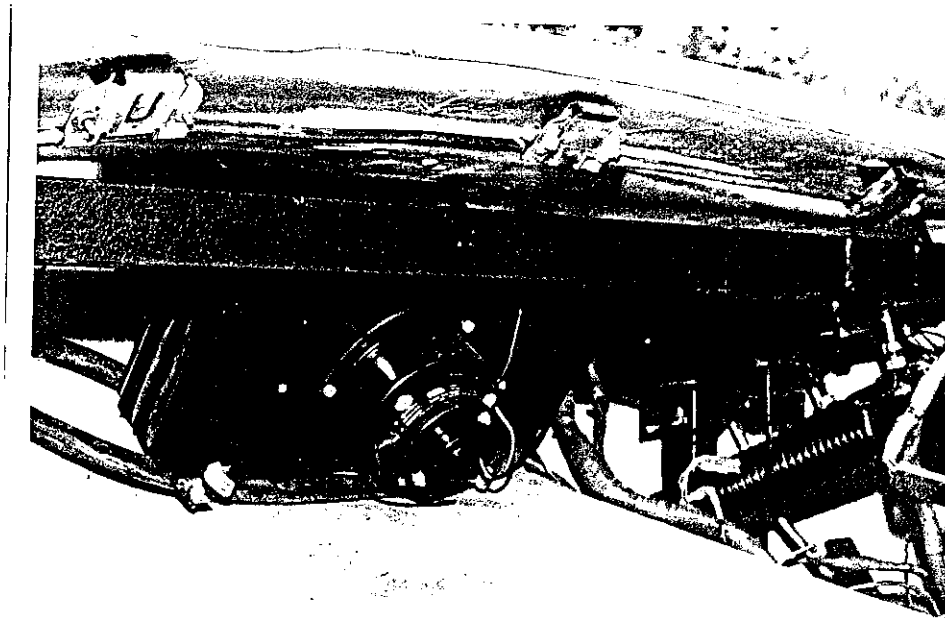


Fig 47. The heater is from a Reliant and it fits under the scuttle as pictured here. Room is restricted but the neat little unit fits in without trouble.

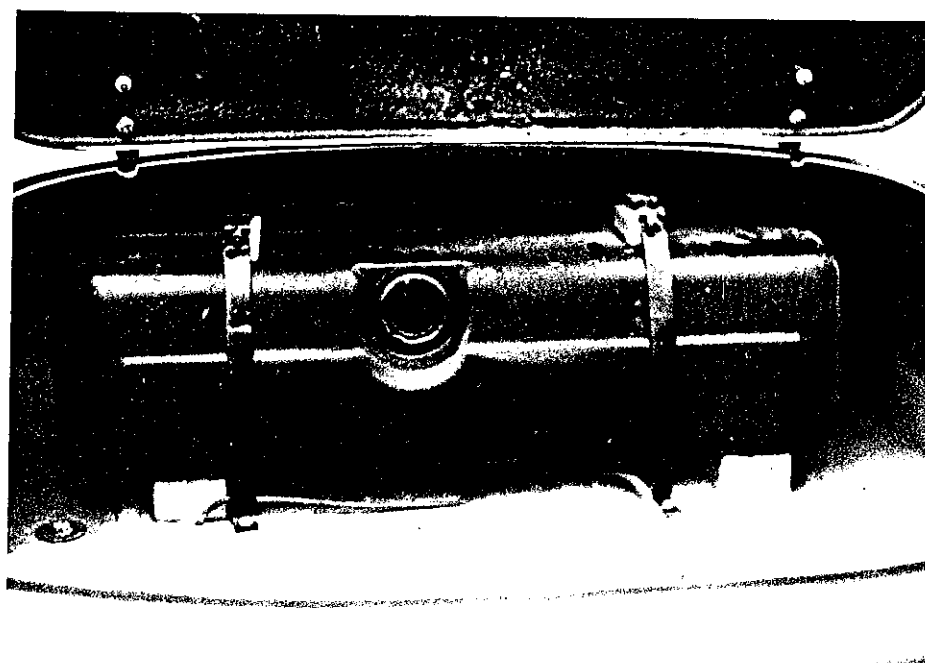


Fig 48. The Spitfire fuel tank sits in the boot on wooden blocks. Make sure that it is properly secured.

ENGINE AND GEARBOX

As has previously been described, the Wildcat owner is not limited in his choice of engines and gearboxes, in fact, virtually any four cylinder, V6, or V8 engine with its associated gearbox can be used.

Obviously, it would not be within the terms of reference of this book to try to cover all of the possible installations. So, the following information is confined to the four cylinder Ford engines up to the 2 litre OHC.

The engine and gearbox can be installed as a single unit or as separate items. The limitation is the strength of the lifting gear available. If a strong enough hoist is used, it is easier to fit engine and gearbox together.

It is quite a straight forward operation and it is fully covered in the Haynes manual. The engine mountings are standard Ford units, Fig 49.

The gearbox cross member should have been removed with the gearbox from the donor car and this locates directly on to the new chassis. The bolts are already in place and 3/8" unf Nyloc, nuts are required to complete the job.

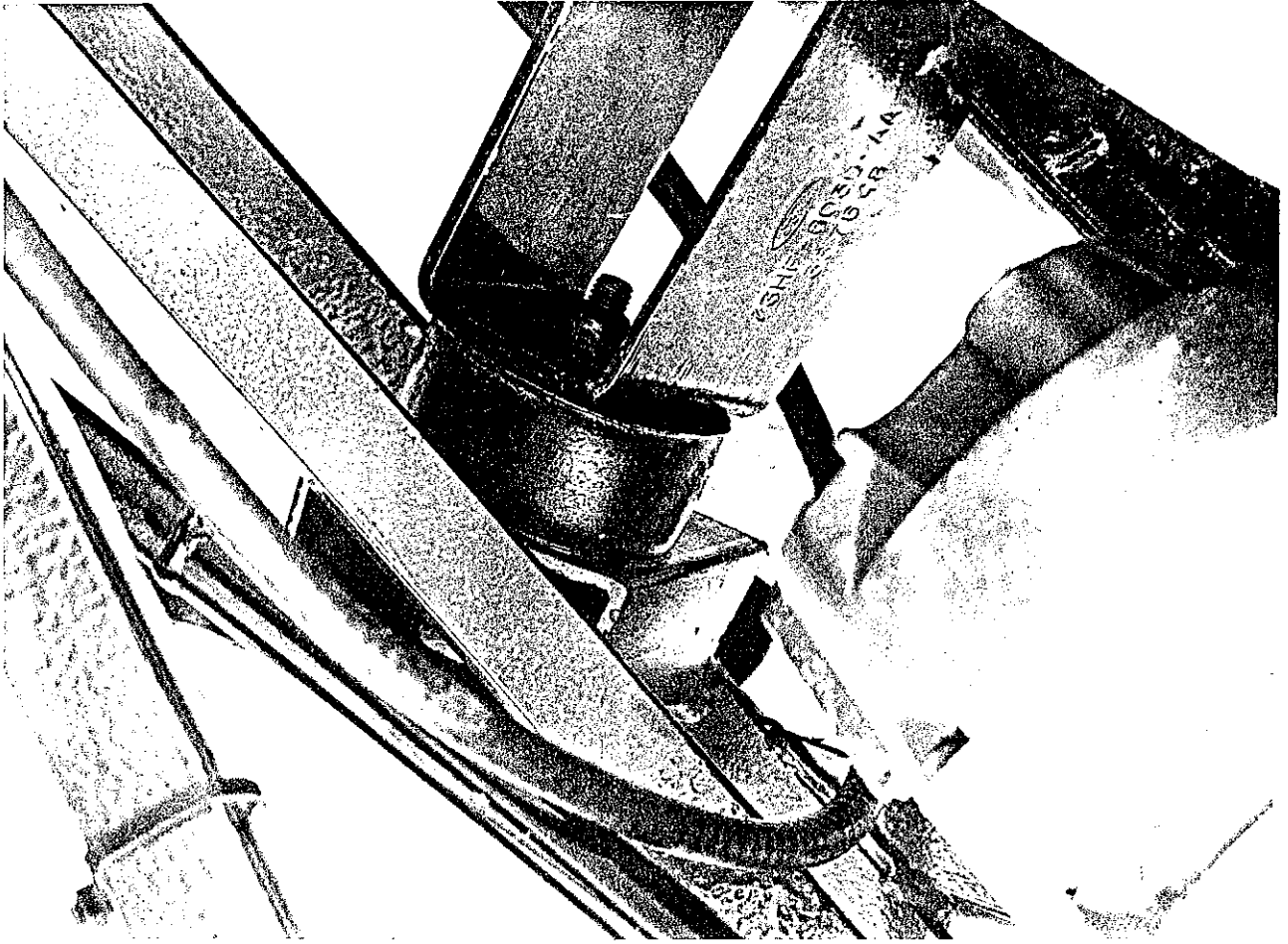


Fig 49. The engine mountings are standard Ford parts.

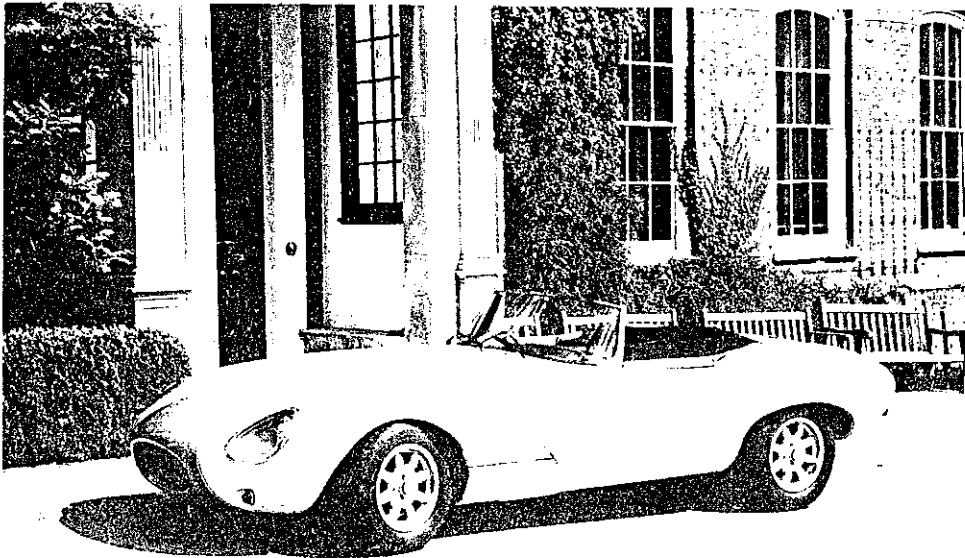


Fig 50. The reward for your hard work. A completed Wildcat ready for the open road.

THE FUEL TANK

It is best to cut the hole for the filler neck before fitting the Spitfire tank, this way the tank can be positioned directly under the filler and it is not important if the hole is a little inaccurately placed.

The filler cap is situated mid-way between the two boot hinges and in the centre of the flat portion behind the rear lip of the cockpit.

The original flip-top filler from the Spitfire can be used, together with the hose. Alternatively, use any one of a number of filler necks and caps available. If you replace the hose it must be with proper fuel hose and not ordinary rubber hose such as might be used for radiator systems.

Once the filler neck had been fitted, the fuel tank can be placed in position in the boot. Fig 48. Mount it on wooden blocks that have grooves cut in them to take the seam of the tank. Make up some straps, or use the original ones if they are sound, and bolt the tank securely in position, taking the bolts which secure the straps through the boot floor. It must be stressed that the tank must be secure. It is very heavy when full and if it should break loose during spirited driving, or in the event of an accident, the results could be very serious. For this reason we advise the use of large steel pads between the bolt heads and the GRP in order to spread the load. Penny washers will not be suitable in this case.

The fuel pipe should be run along the chassis member adjacent to the tunnel. It should not protrude below the level of the chassis member, in fact halfway up the its side is a good position, so that if the car is taken over rough ground, the pipe will not be damaged. Ensure too, that the pipe is securely clipped every 9" of its length: 'P' clips, riveted in position are ideal for this job.

SEAT BELTS

Seat belts are a legal requirement for road use in the UK and must be fitted.

The procedure is quite straight forward because

the mounting points are already fitted to the chassis. All you have to do is to locate the lower and upper mountings and drill through the holes in the chassis, from underneath, into the GRP bodyshell. The lower holes are threaded, so make sure that during the drilling process the threads are not damaged.

Supplied in the seat belt kit will be all of the necessary fixing bolts and these are simply inserted and tightened. The upper mounts require a locknut to be fitted to the bolt.

We do not recommend the use of second hand seat belts. We can supply brand new belts at a competitive price which are guaranteed to be right for the car.

FITTING OUT AND TRIMMING

Unlike most kits, building the Wildcat does not entail any panel fitting, this part of the job has all been done for you. However, there are one or two small fitting jobs to be done.

Headlight apertures will need to be cut in the bonnet. This is a simple task but it needs to be carried out carefully to make a neat job.

The front indicators are supplied in the kit and bolt on to the pedestals in the bonnet moulding. It will be necessary to drill a hole for the cable access. Rear indicators are available as an optional extra with the bumper kit or the customer can source his own.

Bonnet catches are necessary of course, but some folk may wish to make the bonnet lockable. On our demonstration car we use a simple spring type catch. Make sure the catch that you use holds the bonnet firmly, otherwise it will tend to lift at speed and rattle.

There are a variety of ways of trimming the car and this includes the type and finish of the dashboard and, once again, the choice of finish is down to the individual, some folk may decide that a professionally trimmed cockpit is the way to complete the car to a high standard. On the other hand, our trim kit is very easily fitted and it does give a high standard of finish. The edged and bound carpets are simply laid in place, over suitable insulation material if that is your wish, and the door trims screw into position. In a very short space of time the car is transformed.

