MARINA BASE TWO SEAT MARLIN ASSEMBLY INSTRUCTIONS

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MARLIN ENGINEERING, UNIT 6/7 HAXTER CLOSE, BELLIVER INDUSTRIAL ESTATE, PLYMOUTH, DEVON.PL6 7DD TEL:(0752)781302 8.30am-5.30pm.

SECTION 1: BEFORE YOU GET THE KIT

1.1 Buying a donor vehicle: In order to build your Marlin kit you will need all the mechanical components detailed in 1.3 from a 1.3 or 1.8 Marina MKI or MKII. The best way to do this is to buy a complete car that is either bent or rusty but mechanically sound. It is often worth buying a car that has an MOT as it will require less work. A car that is on its way to the scrapyard, or one that someone has 'given up on' will need a lot of money spent on re-conditioning.

An idea that rarely fails is to place a wanted advertisement in your local paper for one that is bent or rusty. This usually produces a choice with minimum effort.

We strongly recommend the purchase of a workshop manual as early as possible. In it will be found information to enable you to choose which car is best for your purposes, and which versions have peculiarities, e.g. estate cars have lower axle ratios and stiffer rear springs, vans have different wheel nut spacing and engine mounts.

1.2 Dismantling the base vehicle: It is an excellent idea to familiarize yourself with the vehicle by reading the relevant sections in the workshop manual beforehand.

When dismantling the car make sure you keep all the nuts and bolts, washers and grommets, etc, and that you know where they go. A little care at this stage can save time and money later. Resist the temptation to enlist help as you might not know how to assemble the parts that your friend has dismantled. Avoid the frenzied 'rip it to bits' attitude, as this is bound to cause damage.

The order in which to dismantle is briefly as follows: Remove the bonnet and then the engine, gearbox and all the components from the engine compartment. Remove all items required from inside the car then roll the shell onto its side or roof. Four people can do this easily. The front and rear suspension can then be removed in comfort and safety. The anti-roll bars and the front lever arm dampers can be left on the car as they are not required.

1.3 Parts needed from donor vehicle:

a) Engine and gearbox, complete with ancillaries and mountings and gear lever boot.

b) Instruments, electrical systems and sundries:- instrument cluster, switches, choke, complete wiring loom (label wires with masking tape before disconnecting) washer pump and pipes, voltage regulator (if fitted) starter solenoid (if fitted) fuse box, starter cables, battery and clamps, flasher unit and mounting clip, horns and relay, wiper motor and cable, heater fan and heater radiator matrix with foam packing and hoses, seat runners, seat belts (static all webbing only), hydraulic couplings, flexible brake pipes if good and radiator overflow tank.

1.3 cont.

c) Steering:- steering rack, mountings and backing plates. Steering column with switches - rubber universal and steering lower column (to be lengthened).

d) Pedals:- complete pedal assembly with throttle and servo if fitted. Pipe from master cylinder to first union.

e) Rear suspension:- rear axle complete with springs, rear shackles, telescopic dampers, damper top brackets and hand brake cable.

f) Front suspension:- hub carriers, hubs and brakes, lower wishbone, tie bar, lower wishbone eye bolt complete with top hat backing washers, torsion bars and reaction levers.

g) Propshaft:- see fig.1. and section 1.5.

1.4 Additional parts needed:

a) Radiator: Viva HB or HC 1300 (1.6 has larger tanks and same core, but will not fit).

b) Petrol tank:- Escort MK1 or II van or estate with sender unit.

c) Front upper wishbones from any Mini, wet or dry - complete with pivot rod and washers. These fit Marina MKII top swivel joints. Marina MKI's will accept MKII joints.

d) Steering universal joint from Triumph 2000, Leyland part No. 145377.

e) Telescopic dampers for front suspension, use Herald rears, these have integral bumpstops. We recommend spax adjustables.

f) Door catches, 75mm domestic door catch to fit 22mm hole. Use better quality like Chubb or Legge.

g) Windscreen wiper wheel boxes with approximately 22 teeth, e.g. Herald or Mini.

h) Wiper arms - Mini or similar, to be shortened.

i) Wiper blades - LandRover part No. GWB 195 (clip on to suit Mini arms) or GWB 128 (wrist action).

j) 1.8 single carb Marinas require LandRover engine mounts, part No. NRC 2054.

k) Steering wheel - Maximum diameter 11", larger wheels can be fitted but will need a bag letting into the tonneau cover. Larger than 12" will restrict access.

l) Headlamps - Cibie oscar H4 dipping or our GRP shells to fit Lucas 7" units, e.g. Mini, 1100, MGB, etc.

1.4 cont.

m) Front indicator lamps - Motor cycle units are ideal.

n) Wheels - The wings have been designed round 5½" rims and 185-70-13 tyres. When purchasing wheels, ask for those that fit Marinas to ensure the correct offset. Standard tyres are 145-80-13 but 155 or 165 could be fitted to standard 4½" rims.

o) Tube of sealer of the silicone or nitrile rubber type, but not the oil based mastic type, (for fixing the windscreen).

p) Seatbelts - Three point static belts with webbing straps all round.

The best way to buy many of the above items is to buy a copy of Cars and Car Conversions, and choose from the many discount mail order companies advertising. We have had excellent service from Mini Sport, Lark Speed and Accessory And Motor Supply.

1.5 Alteration to parts carried out by us:

The following are modified while you wait when collecting the kit, the work takes approximately 45 minutes. If your kit is being delivered they need to be sent to us well in advance, so that they can be returned with your kit.

a) Propshaft; cut the propshaft with a hacksaw as shown in fig. 1. Discard the centre universal joint and front shaft. Bring the rear shaft and the gearbox end of the front shaft.

b) Clutch and brake pedal; to be shortened, bring just the bare pedals.

c) Steering lower column; to be lengthened. Remove joints on either end first. If you wish to carry out the work yourself, figs. 2, and 3 will enable you to do this.

SECTION 2: ASSEMBLING THE KIT

2.1 Introduction: These instructions are intended to be used in conjunction with a workshop manual. These are generally so comprehensive that no attempt has been made to duplicate their information.

The order in which the work has been set out is probably the most convenient, but is not rigid and can be adapted to suit yourself. It is, however, a good idea to paint the outside of the car at a fairly late stage, after assembly but before trimming, which should be left till last.

Throughout assembly, coat each nut and bolt with grease to prevent subsequent seizing up. It is well worth the expense of buying about 50 5/16 UNF and 50 3/8 UNF nyloc nuts to make reconditioning of parts easier and neater.

2.2 Tools required: Set of A.F. spanners, vice, electric drill and H.S.S. Drill bits upto ½" diameter, assortment of files, hacksaw, fret saw, sealant applicator gun, soldering iron, a bottle jack and usual assortment of screwdrivers, pliers, etc.

2.3 Painting the chassis: The chassis and the inside faces of the body panels will benefit enormously from several coats of good quality exterior gloss paint. This will greatly extend the life of the car. The body panels can be unbolted and refitted after applying sealant to the mating surfaces.

2.4 Front suspension: First modify the lower wishbones to fig.4. using a file or grinder. This will enable the lower damper bracket to be fitted - fig. 7. (See note).

Access to the front suspension is improved by removing the radiator cowl. Assemble the lower wishbone and torsion bar to the chassis as in fig. 5. Check beforehand that the reaction lever fits into the 34mm hole beneath the foot well. With the torsion bar installed and the lever in mid position, drill a 7/16" hole for the clamp bolt. This generous clearance will allow some movement of the reaction lever for adjustment purposes. The suspension can be raised or lowered approximately 40mm by turning the torsion bar one spline. For smaller adjustments, the reaction lever adjuster bolt needs to be unscrewed by 4mm to increase ground clearance by 10mm. The correct setting dimension is 260mm from ground to under-side of front cross member.

Fit the top wishbone as in fig.6. MK II Marina top ball joints will need to be fitted to mate with Mini top wishbones. The hub carrier, brakes and tie bar can now be fitted.

Fig. 7. shows the telescopic damper arrangement. 4 sleeves and bolts are provided to attach the top and bottom.

Note:- 1.8 TC's and certain early cars may need an undrilled lower damper mount supplied in exchange for the standard mount.

2.4 cont.

The steering rack is mounted on the brackets provided on the chassis using the standard clamp and backing plates. Some Marinas were fitted with clamps with different bolt centres so the holes will need elongating with a round file to fit these. Ensure the four holes are elongated equally, so that the rack centre line is not effected. Installing the engine is easier if the rack is left un-clamped and resting on the chassis.

2.5 Rear Suspension: The axle is mounted in the same way as it is in the Marina, except that the dampers are mounted behind the axle instead of in front of it. To do this, turn round the lower mounting plates and inter-change them from side to side.

The standard springs will leave the tail approximately 40mm too high. To lower to the correct height use a proprietry lowering kit consisting of blocks and extended 'U' bolts. Such a kit is available from ourselves, comprising of machined HE 30 aluminium blocks and 'U' bolts. The block is tapered to replace the steel wedge fitted between axle and spring which is often missing on standard cars.

If a proprietry kit with parallel blocks is used, ensure that the wedge (3^{o}) is fitted, otherwise the rear universal will run at an excessive angle and the propshaft will appear too short.

The correct ride height will not be obtained until the car is complete and has been driven some miles to re-settle the springs. With the car static and laden, the passenger compartment floor should be parallel to the ground with a clearance of 170-180mm.

2.6 Engine: Welded to the chassis are two sets of engine mounts. The front ones are for the 1.8 'B' series motor and the rear ones for the 1.3 'A' series motor.

1.8:- The front set of brackets accept the standard rubber mounts. We recommend using two right hand mounts as the buffer mount usually fitted to the left hand side allows too much movement. In the case of the tall single carb engine, both mounts are replaced by the squat Land Rover mounts. Attach the mounts loosely to the engine and with the radiator cowl removed and the stteering rack lowered, lift the engine into place. Feed the studs into the mounting holes one side at a time.

Connect the propshaft to gearbox and axle with the sliding part at the rear. Support the gearbox with a loop of rope round the tail shaft and round a piece of wood resting on the transmission cover. Attach the H shaped gearbox mounting to the gearbox and drill the six holes in the transmission cover to line up with those in the mounting. The bottom of the mounting must be flush with the bottom of the transmission cover, fig. 8. Fasten with 6 5/16" set screws and the large flat washers supplied. The floor cannot be fitted until this stage has been reached. (see 2.7). The fan will need trimming to clear the steering rack mounts.

Some TC's were fitted with thick spaces between carb and manifold. This must be sawn down to ¼" thick or obtain thin ones from your local S.U. dealer.

2.6 cont.

Clearance between the steering universal joint and the dynamo/ alternator is minimal. Usually sufficient clearance exists when the fan belt is new, but this reduces with wear. The effect is made worse by using cheap raw edge belts, e.g. Power Train. It is therefore best to fit a belt that is slightly shorter and move the dynamo/ alternator inwards by drilling another hole in the adjuster strap.

Below is a list of belts used on 1.8 Marinas depending on year, size of pulley, etc. with their lengths. Also listed are two smaller belts and which car they are fitted to. Choose a belt approximately 1" smaller than the correct one for your car and underline it on the chart for future replacements.

FERODO REFERENCE	USED ON	OUTSIDE CIRC. INS.
V4909)		37.79
V4925)	MARINA	36.65
V4920)		36.03
V4958)		35.34
V925	AUSTIN 1800 WITH DYNAMO	34.65
V4999	1.7 PRINCESS	34.12

1.3:- The rear set of mounts accept the standard chassis to rubber mount brackets. The remainder of the fitting is the same as the 1.8 except that the fan does not need to be trimmed and there is no fan belt problem.

The gear lever on both versions will need some modifications to bring it within easy reach. Most people will find that simply shortening the lever is satisfactory. To re-fit the knob afterwards, either re-weld the threaded portion back on or drill and tap the end for studding. The amount of shortening will depend on the individual, the shorter the lever, the less the travel but the heavier the action.

For those with a shorter reach the lever will need bending rearwards before any shortening is contemplated. This should be done hot, and so the rubber bushed upper section must first be removed.

2.7 Floor: Fix the floor in place with counter sunk M6 set screws, to avoid lumps in the carpet. Paint the boards with primer after trimming and smoothing the edges. Apply sealer to the joints after drilling every 150mm, and use flat washers on the aluminium.

2.8 Radiator: See fig. 9 for mounting details. The radiator is mounted in front of the steering rack on the sheet aluminium brackets supplied.

This core is used by Vauxhall to cool engines up to 2000cc. The 1.3 version can also be fitted with a Mini or 1100 radiator and hoses, but the brackets must be adapted.

2.8 cont.

To fit the Viva radiator, cut the transverse mounting flanges off the radiator sides leaving only the fore and aft flange. Bolt the mounting brackets to the body sides using the same set screws that attach the radiator cowl. Offer up the radiator and mark out the mounting holes. Mount with four M6 set screws. Standard hoses can be used with some trimming.

It will be noted that the filter cap is inside the radiator cowl. Although filling with a hose presents no problems, filling with a can is possible with the aid of a piece of aluminium shaped and bent like a garden trowel.

2.9 Handbrake: A mounting plate is supplied for the handbrake lever, and a connector to grip the cable. Inside the cable clamp there is an aluminium disc, the cable must run beneath this with the clamp bolt on top. The Aluminium is then forced tightly round the cable. Only tighten fully when adjustment is correct.

Commence by removing the fork on the inner cable that normally connects to the handbrake lever. The best way to cut a cable is with a sharp blow from a sharp cold chisel backed up by a solid piece of steel, e.g. a vice..

See fig. 10 for the arrangement of components and the distance from the bulkhead. Mark out the position of the mounting plate the transmission cover and file away enough flange to clear the lever. Drill through the mounting holes and fit the assembly. Remove the inner cable and fit the outer cable which must be trimmed at the axle end with a hacksaw to give a smooth run. Ensure that the axle compensator arm is in mid position, and the adjuster end is screwed as far through the lever bracket as possible. Install the inner cable, thread it through the cable clamp and pull up tight. Nip up the clamp and check the operation. Note: the self adjusters inside the brake drums frequently do not work. The adjustment of the shoes must be perfect for correct handbrake performance. When the shoe adjustment is correct, the handbrake operating levers are fully returned when released and the axle compensating lever is approximately at 90^{o} to the axle when the handbrake is applied. Do not try to compensate by adjusting at the lever end as the efficiency of both hand and foot brake will be lost, and the cables will eventually touch the dampers.

2.10 Pedal Assemblies: The standard pedal unit including the optional servo is bolted into the aperture on the bulkhead. Two pieces of aluminium angle are provided to spread the load and are fitted from inside the cockpit at top and bottom. The standard throttle pedal is fitted to the two lower bolts. This will first need shortening by 4".

Note: Occasionally, a throttle pedal will be found with the pivot bracket assembled upside down. Although this did not prevent it being fitted to the Marina, it will not fit the Marlin. The correct fitting is with the bolts below the cross shaft. When fitting the inner wheel arch, ensure that one of the fixing bolts passes through the lower bulkhead flange. This will stiffen the pedal area.

2.11 Steering Column: The steering column is mounted upside down on the two pressed aluminium brackets provided, which are, themselves, bolted to the bulkhead.

Start with the rack assembled on to its mountings. Connect the lengthened lower column to the rack with the joint detailed in 1.3 (this is symetrical, about 75mm long with a pinch bolt at each end). Bolt the column to the mounts with 5/16 setscrews and large flat washers. Pass the assembly through the hole in the scuttle top (file if necessary) and connect to lower column with the rubber coupling. Check that the front is flush with the edge. Drill holes for six M6 set screws.

2.12 Wipers: The Marina wheel boxes do not give a large enough sweep for the narrow screen and so must be replaced with a smaller (approximately 22 teeth) wheel, e.g. Triumph Herald or Mini. A new interconnecting tube is supplied in the kit, the standard motor to wheel box tube can be retained. Fig. 12.

Drill holes in the centre of the bosses in the screen base clamp. File out to 16mm. Cut the top lip off the wheel boxes and fit into screen clamp. The tubular spacers will need shortening. Temporarily re-assemble screen clamp to scuttle and attach motor, guide tube and cable onto passenger side. Bend the tube into a curve and bolt down motor using the standard clamp to the top of the bulkhead.

Wiper blades must be 9" (225mm) the best and cheapest are Land Rover part No. GWB 195. These are 10" long, so cut ½" (12mm) off each end. These blades fit Mini arms which must also be shortened to 168mm from centre of boss to end of arm as follows:

There are many manufacturers of arms, so this shortening procedure is a general guide. Drill or punch out rivets and spread the lower end of the arm out sufficiently to remove the upper arm. Cut the upper arm to length and mark out three new holes with the same spacing as the old ones. Drill using a sharp drill. The material is stainless steel,so steady pressure, plenty of oil and a slow cutting speed is necessary. Bend up spring end in vice and re-assemble with a new rivet or 3mm stainless screw.

If the wipers park on the wrong side, with respect to the blade angle, the ends of the arms can easily be bent in the opposite direction as follows; gently tap on the side whilst resting on a vice that is 25-30mm open.

2.13 Windscreen: The screen supplied is laminated glass and must be installed totally stress free to ensure a long life. This is easily achieved with a tube of sealer of the silicone or nitrile rubber type. There are many trade names on the market and are all very similar to use. Avoid the oil based mastic type, as this never sets.

2.13 cont.

Remove the screen base clamp and fill the groove in the screen frame with sealer. The glass can be introduced into the frame at the bottom and then slid upwards into the centre of the groove. Support with a loop of string round the top of the screen frame. The glass can be centralised by dismantling some wooden clothes pegs and using them as pairs of wedges. Force sealer between the scuttle top and bottom edge of glass and fill the recess in the screen base clamp. Replace clamp ensuring that the glass is not distorted in any way when the set screws are tightened. When the sealer is set, trim off the excess with a razor blade or sharp knife.

2.14 Fuel Tank: Use Escort Van or Estate, MK I or II.

MK I tanks are mounted on the flanges on each side of the tank and the MK II's on the front and rear flange. Supplied are three pieces of steel angle. The long piece is attached to the rear flange of the MK II tank and is then bolted to the two flanges welded to the rear of the chassis (fig.13.). The two short pieces are to be used with MK I tanks and support the side flanges of the tank.

The escort filter neck and rubber connector can be used after shortening.

The fuel line should be made from a piece of ¼"(6mm) bundy tube or 6mm copper microbore tube. It is routed along the top of the near side transmission cover, across the bulkhead and forward along the body side above the exhaust. Connect each end with the rubber flexible hoses and support pipe every 300mm. Note that the route along the transmission cover is shared by the brake pipe and the wiring loom, so make the clips large enough.

2.15 Hydraulic System: See fig. 15 for pipe list and fig. 14 for pipe layout. Bend pipes to a minimum radius of 25mm and leave pipes straight for 25mm from each union. Bend the pipes round your thumbs, this will avoid kinking. All brake pipes must be supported every 300-400mm. The MOT inspector will be looking for this.

The front flexible hoses are fitted to the tags on the damper mounts, the rear hose to the small angle bracket supplied and attached to the rear bulkhead with an M6 set screw.

2.16 Heater: See separate sheet, fig. 16.

2.17 Doors: See separate sheet, fig. 17.

2.18 Wings: See separate sheet, fig.18.

2.19 Lights: a) Headlights:- If you are using our headlamp shells, install a complete Mini or similar lamp unit in the same way that it is attached to the original wing. Mount with a single 3/8" set screw and a large washer inside. With the headlamps attached to the lamp bar and the top wishbone corners in place, position the lamp bar level on the inner wings as far back as possible Ensure the lamps are set vertical and drill the six mounting holes. Attach with M6 set screws.

2.19 cont. b) Front side lights:- The side lights provided require a 13/16" hole made in the centre of the housing on top of the wing. Insert the rubber body into the hole and with the aid of rubber grease slide in the bulb holder. Use a 5w. double contact bulb.

c) Tail lights:- Mount the backing plates with the four M6 set screws provided. Drill two 3/8" holes in the wing for the wire entries. Stop tail bulb is a 21/5 double contact and the indicator is a 21w. double contact. The earth wire is fed to a contact on the indicator bulb holder and then on to the side screw of the stop/tail holder.

The brightness can be increased by providing aluminium D shaped back plates behind the bulbs.

d) Front indicators:- Use 12v motor cycle units positioned according to taste. The minimum height to the centre of the lamp is 17" and a maximum distance from the outer edge of the car is 16"to comply with the vehicle construction and use regulations. A part of the lens must be visible up to an angle of 80^{o} in the direction of turn and 45^{o} towards the outside of the turn.

2.20 Dashboard: A plywood blank is supplied which is intended to be covered with vinyl or used as a template for a special wood dash.

To use the standard Marina instruments, separate the chrome bezels from the front cover and cut holes in the ply to house them. The instrument cluster is then attached from behind. Several layouts are possible, but the instrument cluster must be fitted in the centre for space reasons. If you use a separate ignition switch, place it where the key ring and other keys will not get in the way.

It is worthwhile mentioning that a Spitfire MK IV speedometer and cable fit a Marina giving acceptable calibration accuracy. Fitting different instruments will involve more wiring behind the dash as the Marina has a convenient printed circuit and block connectors.

Mount the dash on the two aluminium brackets provided (fig. 19).

2.21 Electrical System: The loom can be used without alteration but will need extending to the front lights. Also the installation will look neater if the leads to the rear and those to the wiper motor are shortened.

Start by cutting holes for the two grommets on each side of the scuttle. The main loom passes through the far side one and the wiper leads through the smaller near side one. Connect the plug to the instrument cluster and make all the other dashboard connections. The fuse box and flasher unit are mounted inside the scuttle and if fitted, the voltage regulator and starter solenoid on the top of the bulkhead in the engine compartment. Connect all these items to the loom before fixing down to ensure an easy run for the wires.

2.21 cont.

The lead to the rear passes down the transmission cover, along the same route as the fuel pipe and brake pipe. All three can now be clamped together.

It is good practice to retain the earth lead throughout the system, grounding it at intervals. When modifying and extending the loom, use only wires that agree with the colour code, otherwise fault finding later on will be difficult.

The battery can be fixed on a bracket (not supplied) on the front of the bulkhead on the passenger side, or in a well on top of the bulkhead.

Finally, remember that an electrical installation that does not have each and every connector properly soldered on will be a continual source of unreliability.

2.22 Seats: Separate the seat runners from the Marina seats and tap out the long mounting studs. Bolt the runners to the seat shells as in fig. 20. Place seats in the car. With the seat runner's in their rear most position, the seat back should be just clear of the rear bulkhead. Hard contact at this point will abraid the trim. Angle the seat to the most comfortable position by packing up the front by between 50 and 100mm. Bear in mind that good thigh support is necessary on long journeys, but excess support will make gear changing on short journeys more tiring.

When you are satisfied with the height and rake, mount the runners in this position with hardwood wedges approximately 40mm wide.

2.23 Seat Belts: Use three point static belts with webbing straps all round. Kits can be obtained to fit on the rear seats of saloon cars.

The top strap passes over the steel tube hoop supporting the rear body and down to the mounting plate on the chassis. The two lap straps bolt into the sides of the rear corners of the seat well. Spreader plates are provided for the transmission cover mounting. To give the necessary clearance for the springs and propshaft, fit the bolts with the heads on the outside.

2.24 Exhaust: The best starting point for an exhaust system is the standard front half for a Marina. This contains a long down pipe and the main silencer box. For optimum ground clearance the down pipe should be cut and re-welded to emerge through the body side beneath the wing. The remainder of the system runs down the side and then turns outwards to deflect past the rear wheel. If you do not wish to tackle this part of the build, then many of the exhaust specialists will make and fit a system for you.

The system can be run beneath the car if ground clearance is not a problem. This requires far fewer modifications. Alternatively, a custom side pipe could be used with one of their 'hook up' kits.

2.25 Radiator Grille: See separate sheet, fig. 21.

2.26 Paint: Before painting, the body should be assembled with all the holes for head-lamp bar, tail lights, etc. already drilled. Smooth edges with 80 grit paper and give the rest of the car a good rub down with 360 or finer wet and dry to give a good key and remove any scratches.

Check before proceeding any further that the paint you intend to use does not react with the exposed chassis paint. If it does, then strip back to bare metal.

Detach the wings as these are best sprayed off the car, as is the bonnet. Remove grille and items like door handles and bonnet catches. Mask up well as the mist will go everywhere. Do not forget the wheels and tyres.

The first coat should be an etch primer, which is a two part paint and is readily available. Spray on very thin, do not try to cover. This will etch the G.R.P., aluminium and steel. Make sure you have adequate ventilation for this. Proceed to primer without rubbing down, you will need three coats, flatting after the second and third with 360 grit. Try to avoid removing the paint each time on the edges of panels.

The top coat will need a dry atmosphere to avoid bloom. Spray on at least three thin coats, any runs must be removed between coats. When paint has had time to harden (a few days) remove orange peel with rubbing compound. Do not polish for at least two weeks.

ALL DIMENSIONS IN MILLIMETRES

FIG. 1

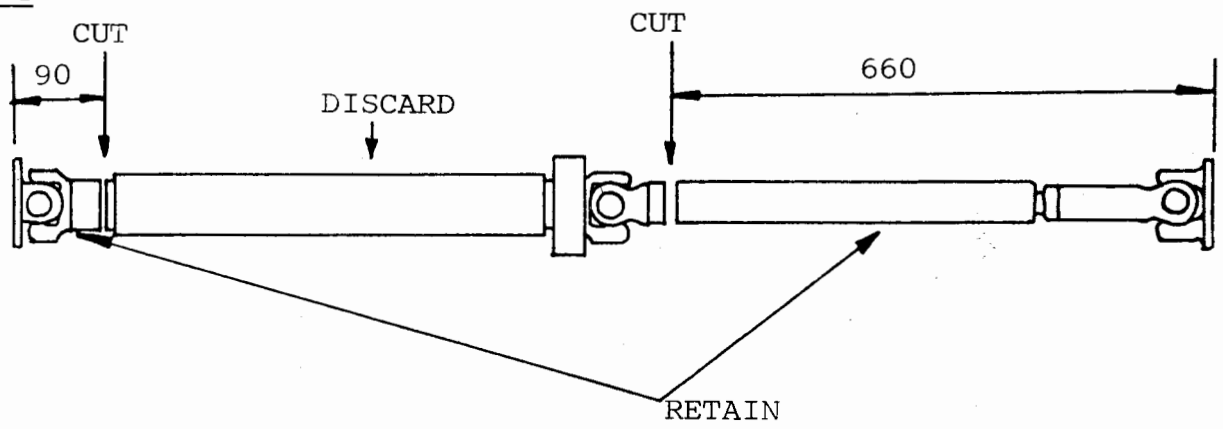


FIG 2

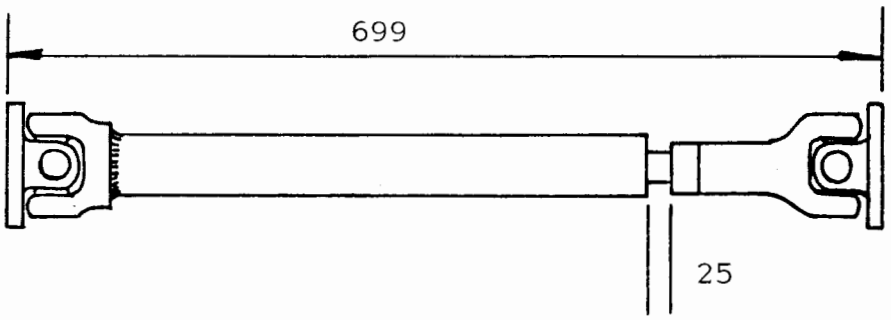
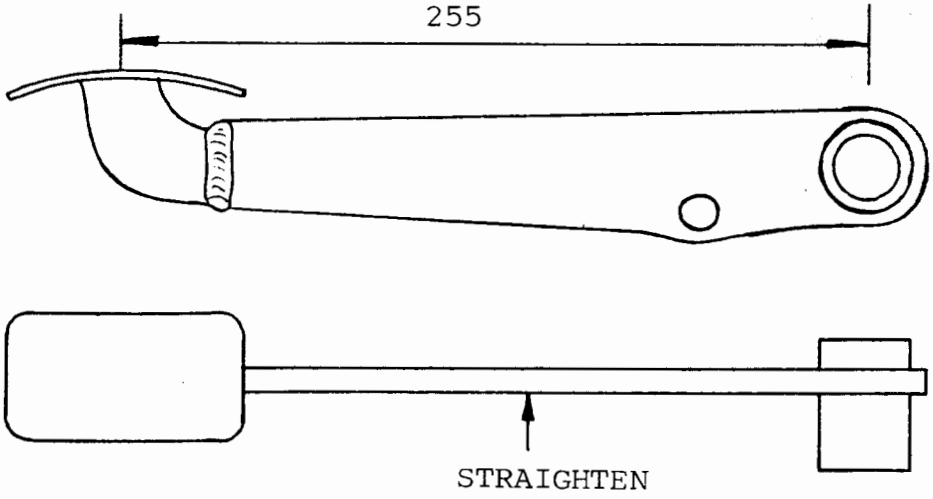


FIG 3



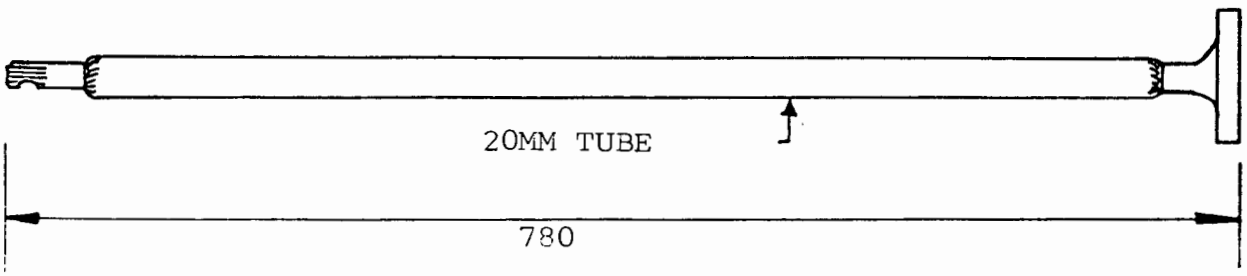
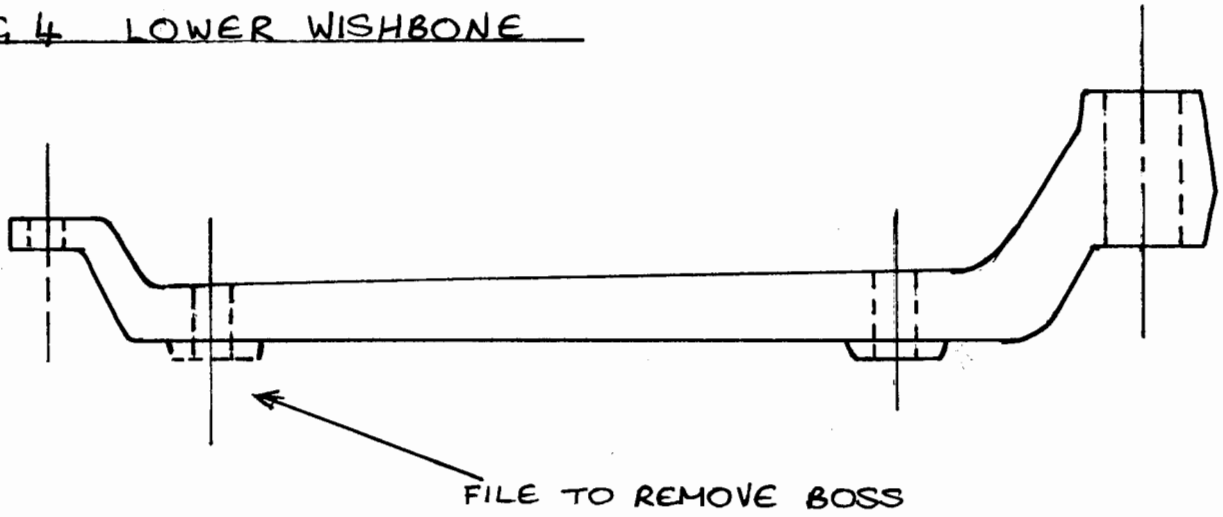
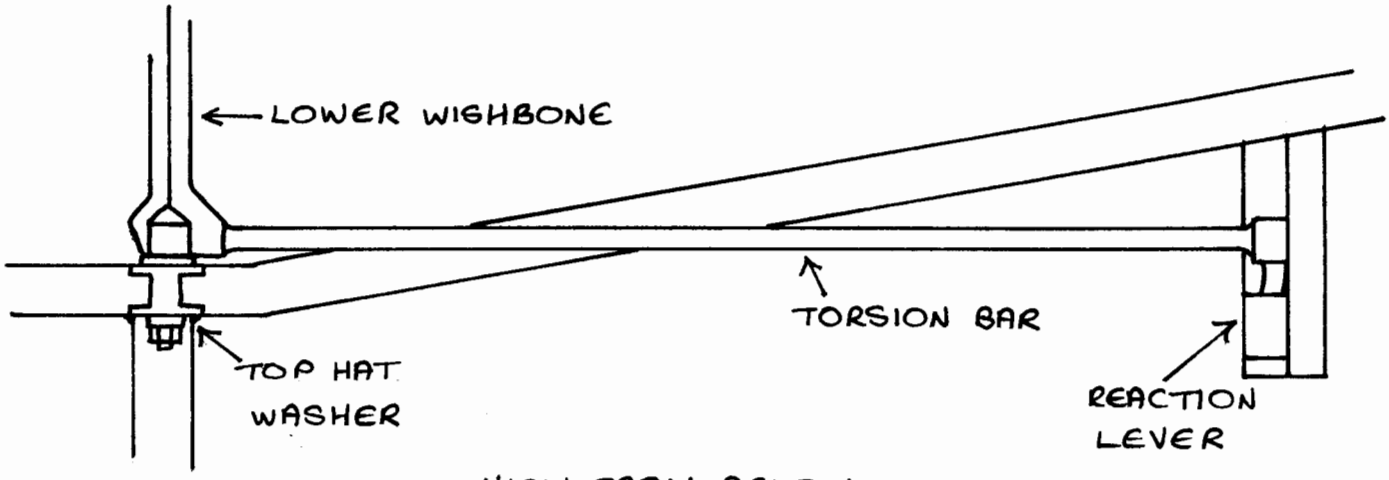


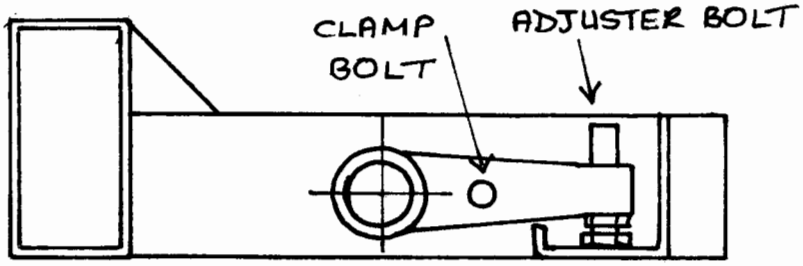
FIG 4 LOWER WISHBONE





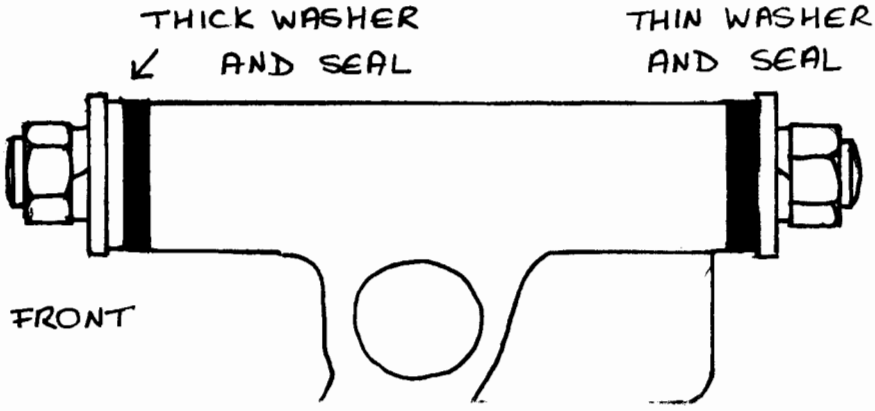
VIEW FROM BELOW

FIG 5 TORSION BAR



REACTION LEVER DETAIL

FIG 6 MINI WISHBONE MOUNTING



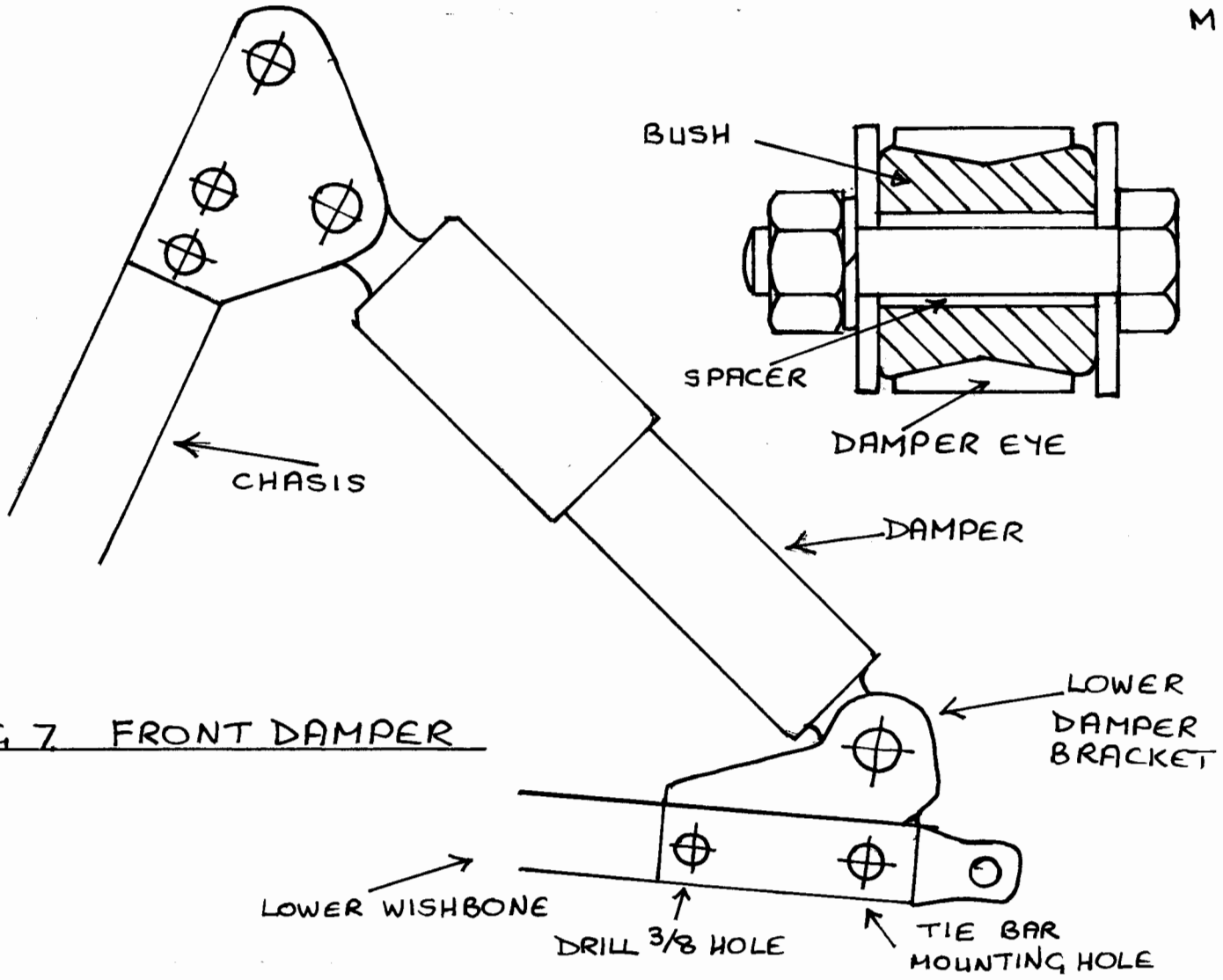
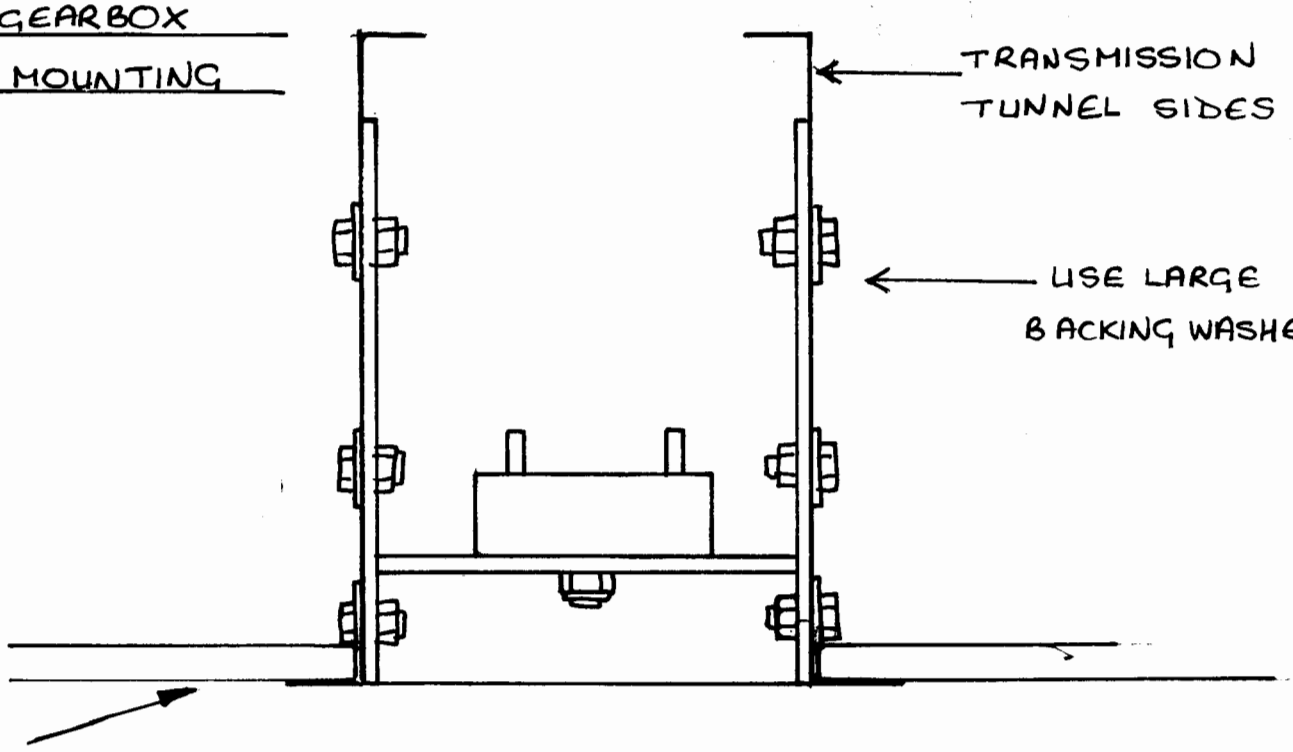


FIG 7 FRONT DAMPER

FIG 8 GEARBOX MOUNTING



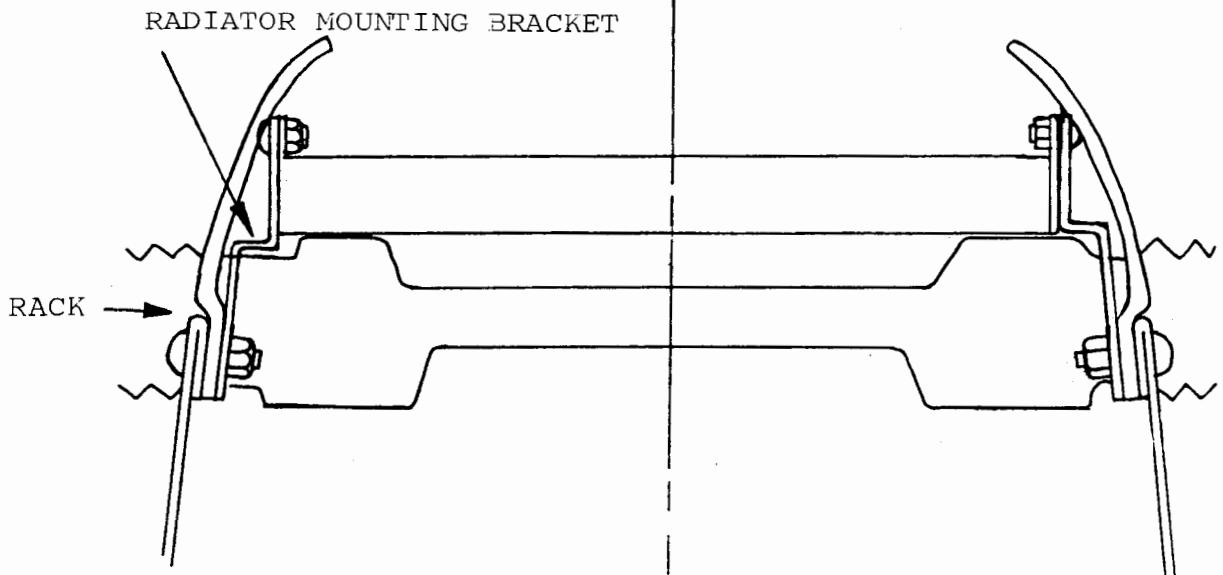


FIG 9 RADIATOR MOUNTING

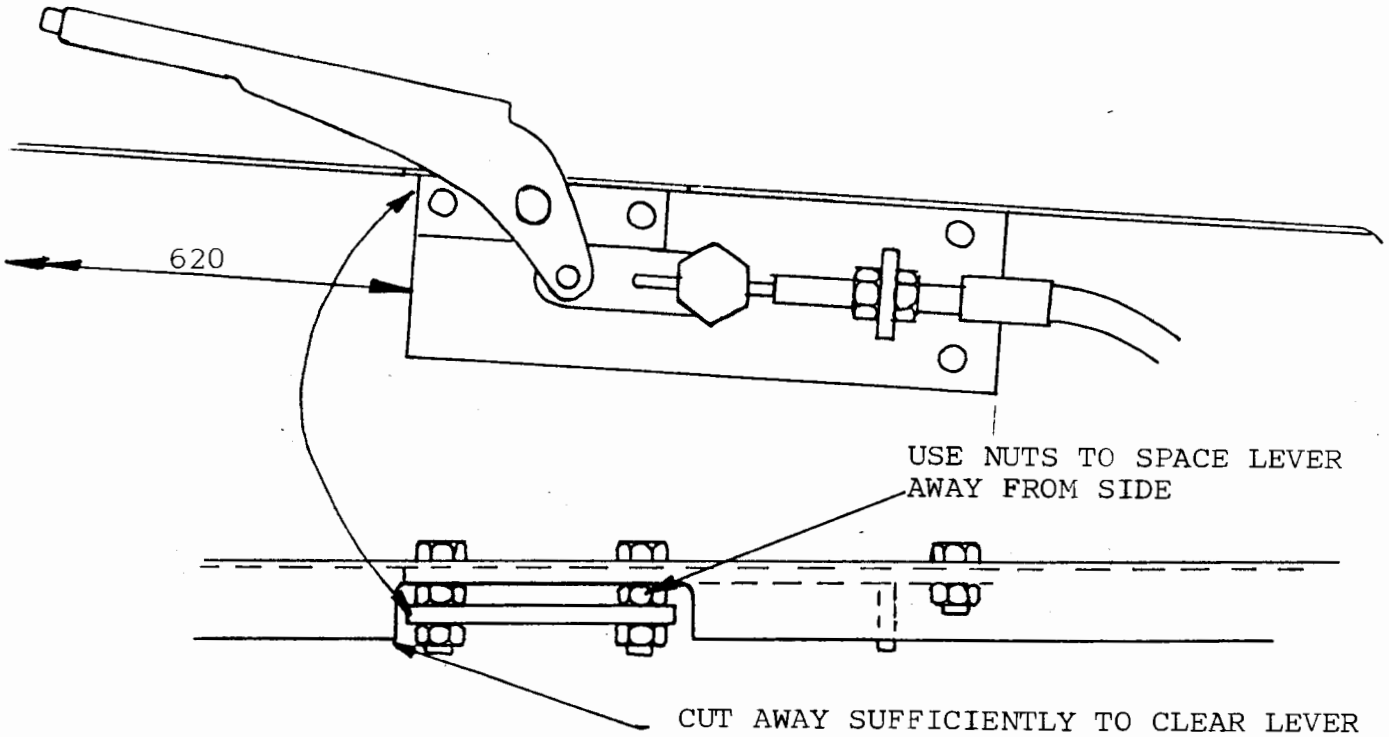


FIG 10 HANDBRAKE

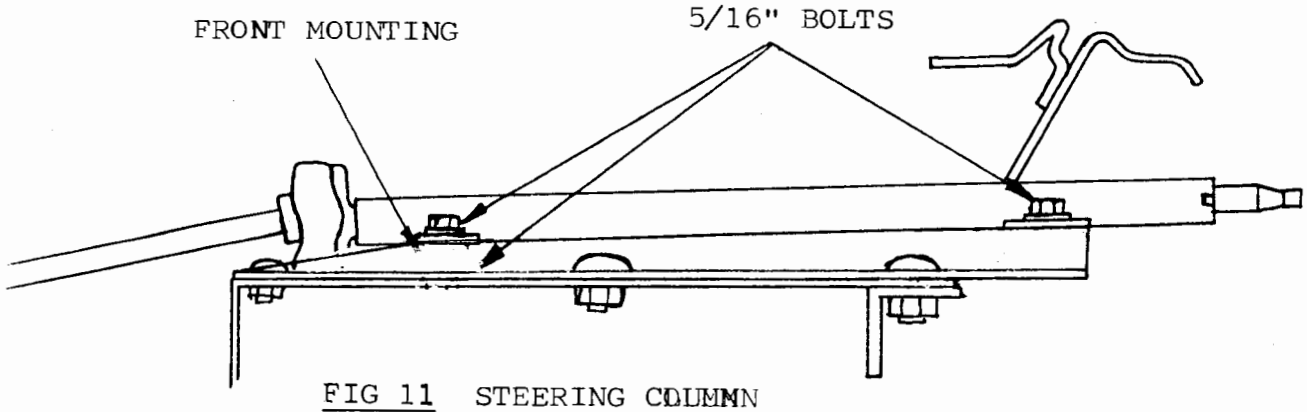


FIG 11 STEERING COLUMN

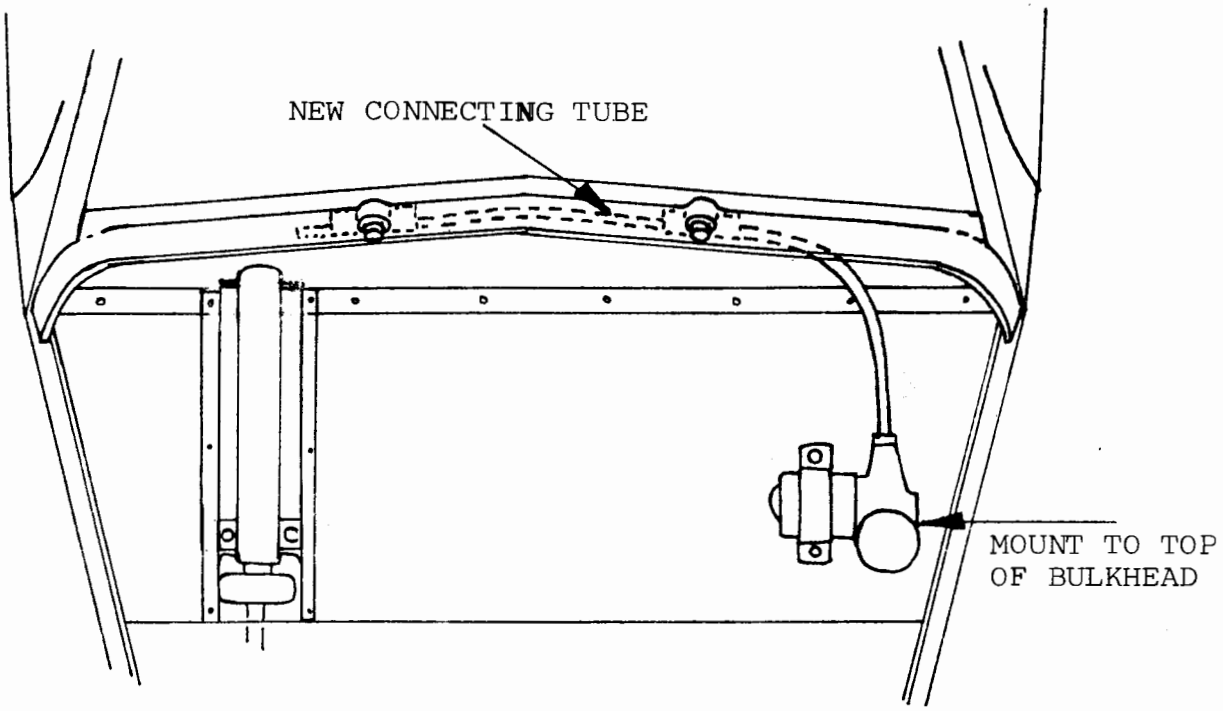


FIG 12 WIPERS

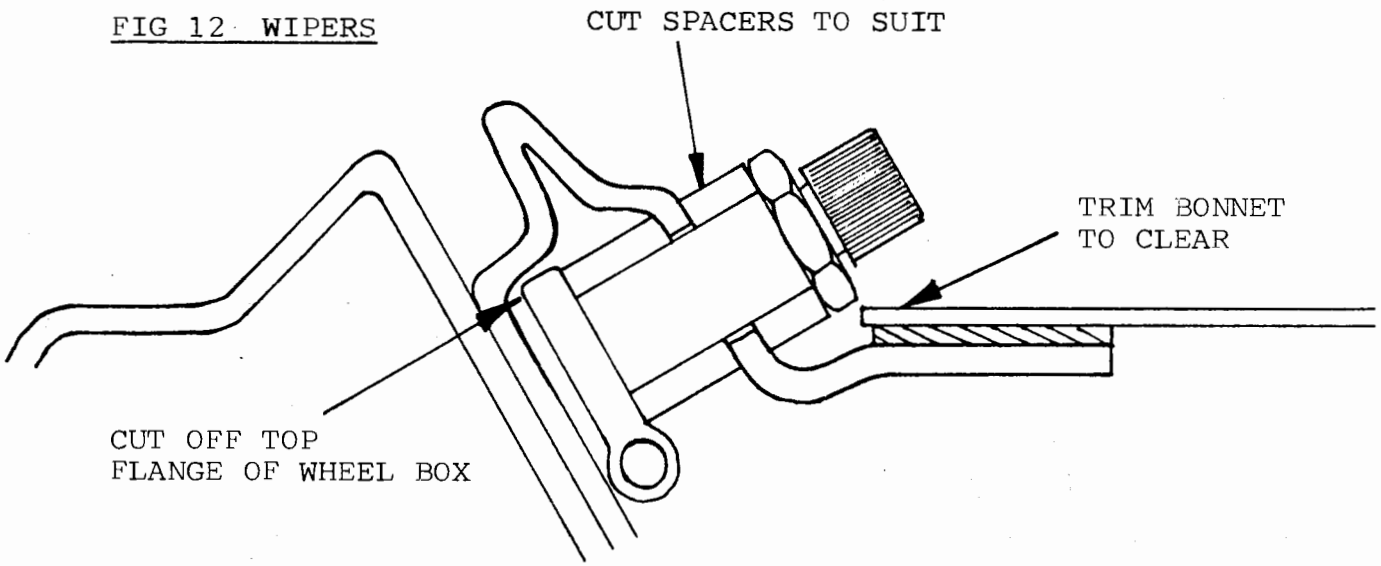


FIG 13
FUEL TANK

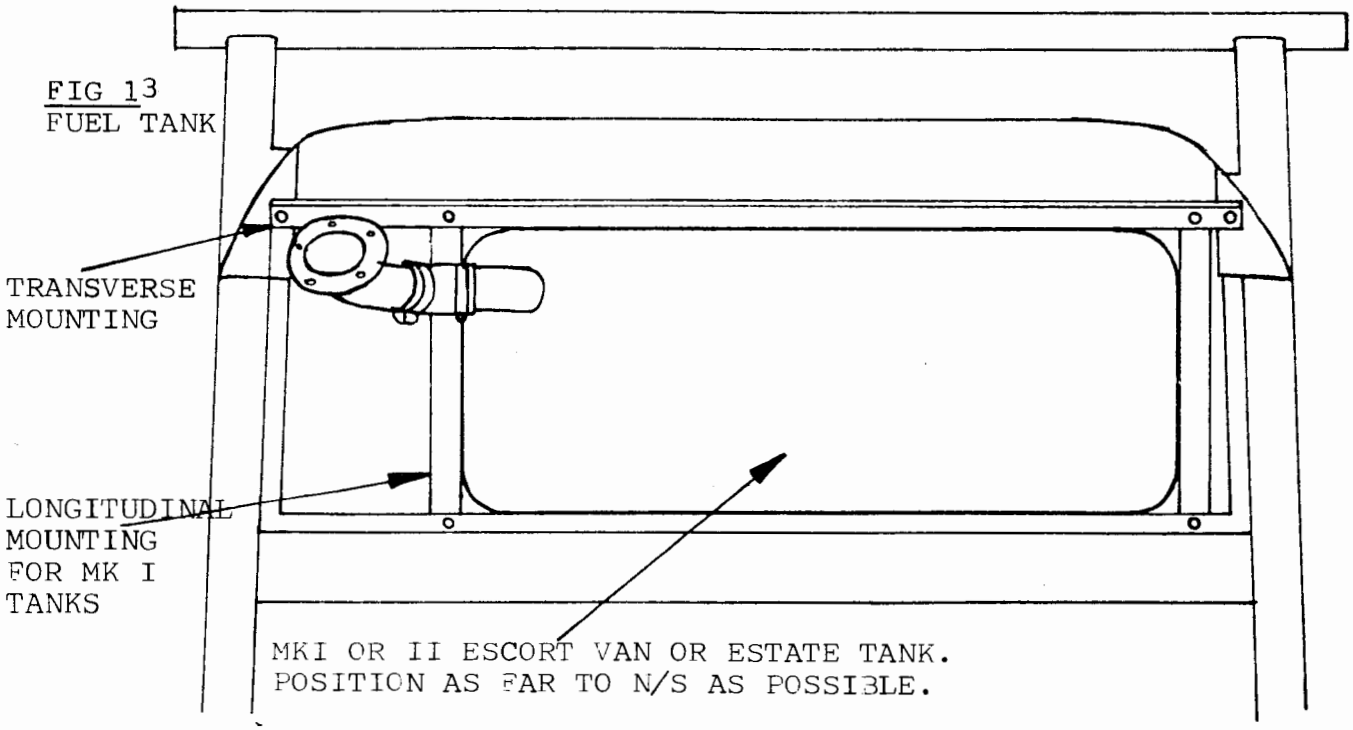
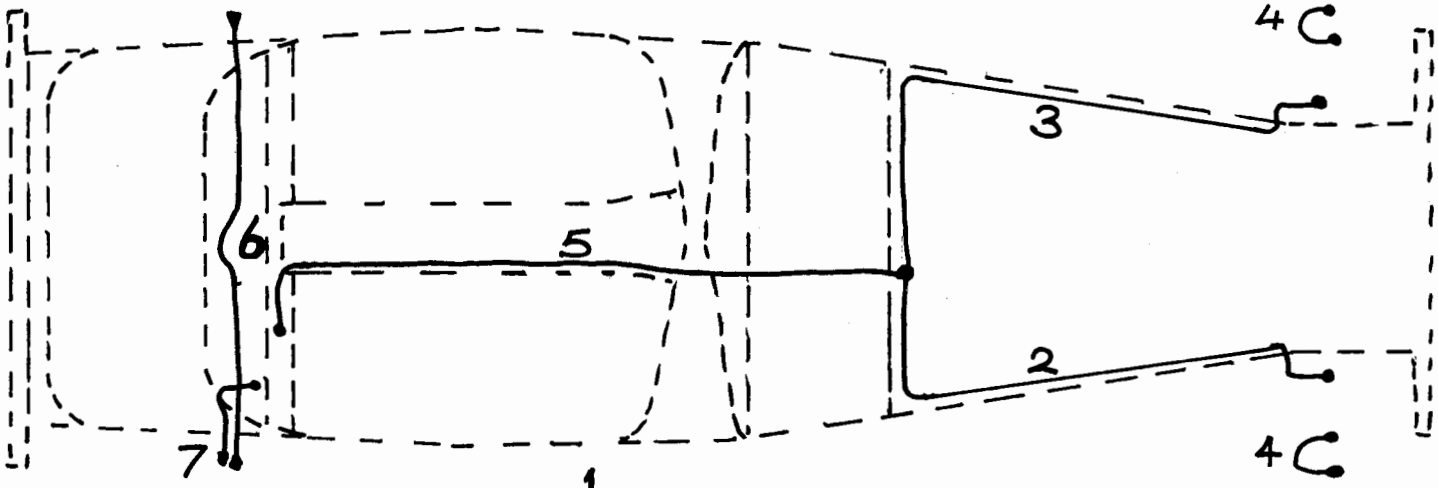
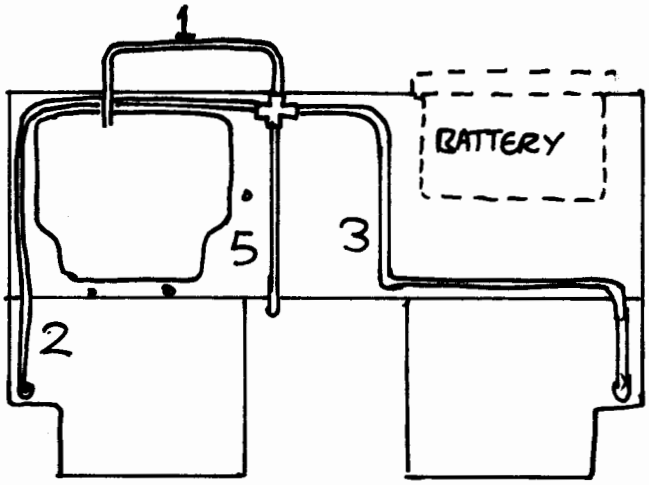


FIG 14 PIPE LAYOUT



CLIP PIPES TO BODY EVERY 30-40 cm

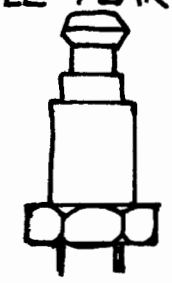


BULKHEAD

PIPE LIST FIG 15

1	MASTER CYL TO UNION	USE ORIG.
2	UNION TO FRONT O.S.	SF ← 68" → DF
3	UNION TO FRONT N.S.	SF ← 72" → DF
4	FRONT CALIPER BRIDGE (2off)	SF ← 8" → DF
5	FRONT TO REAR	SF ← 62" → DF
6	REAR AXLE CROSS OVER	SF ← 56" → SF
7	REAR FLEX TO WHEEL CYL	SF ← 12" → DF

SINGLE FLARE



DOUBLE FLARE

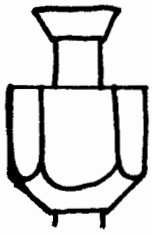


FIG 16 HEATER

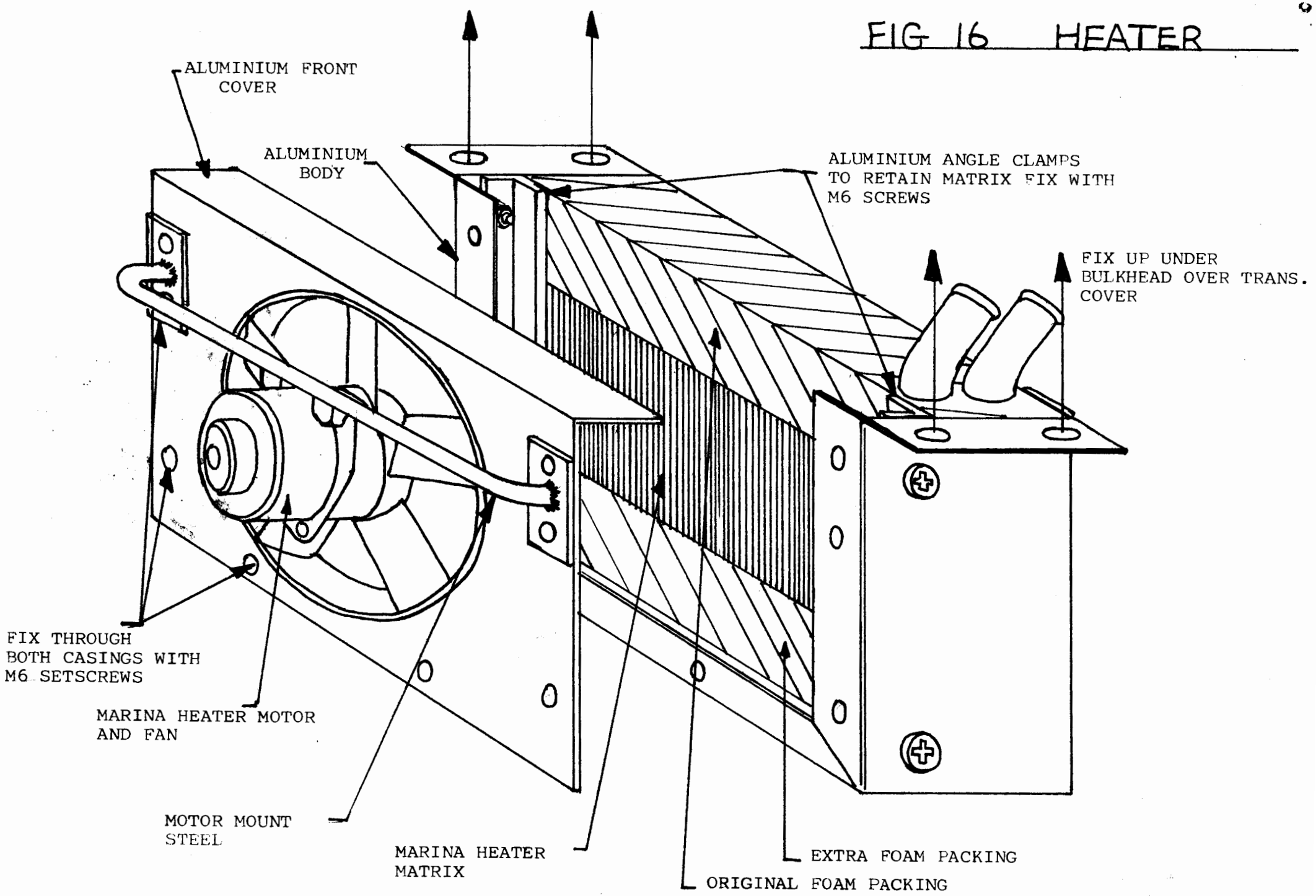
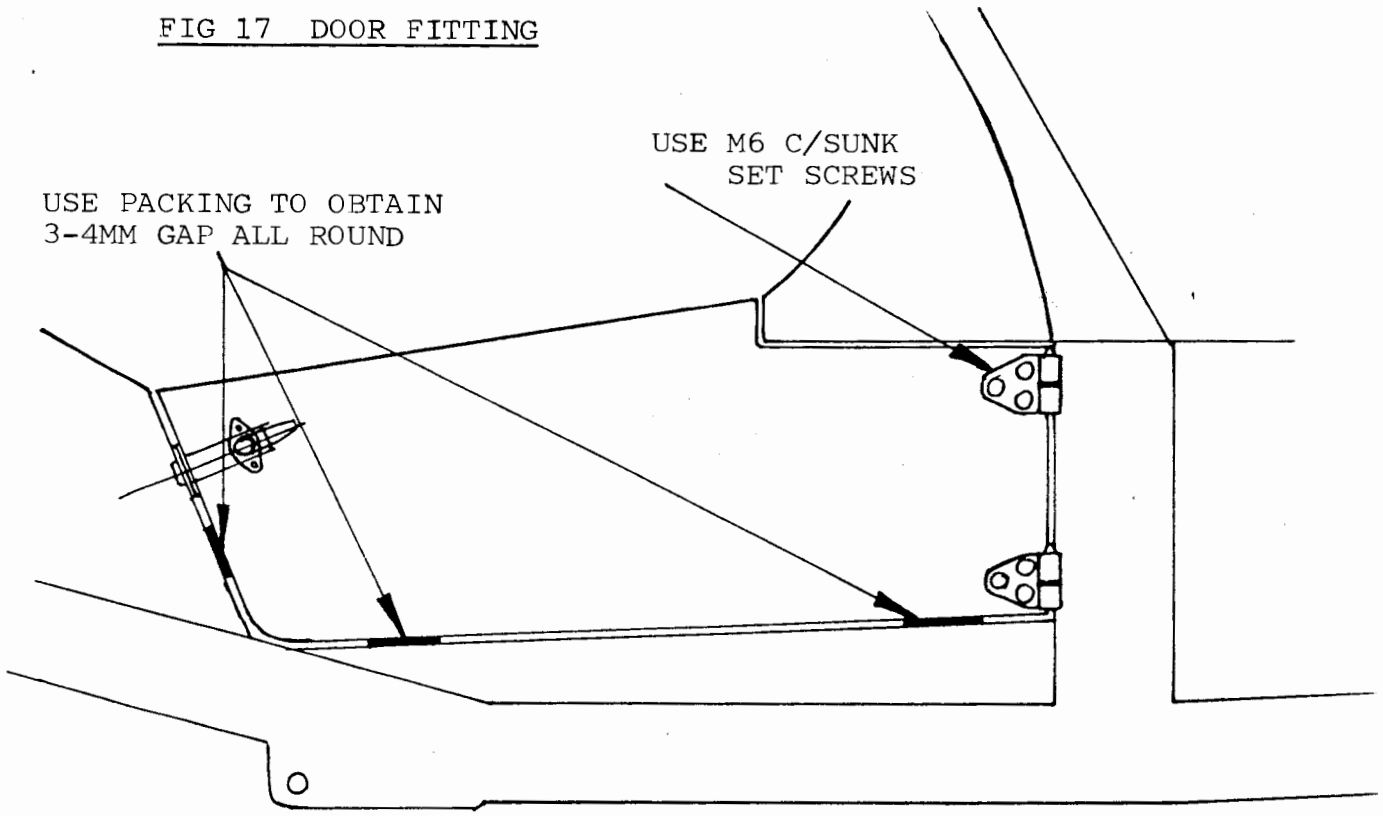
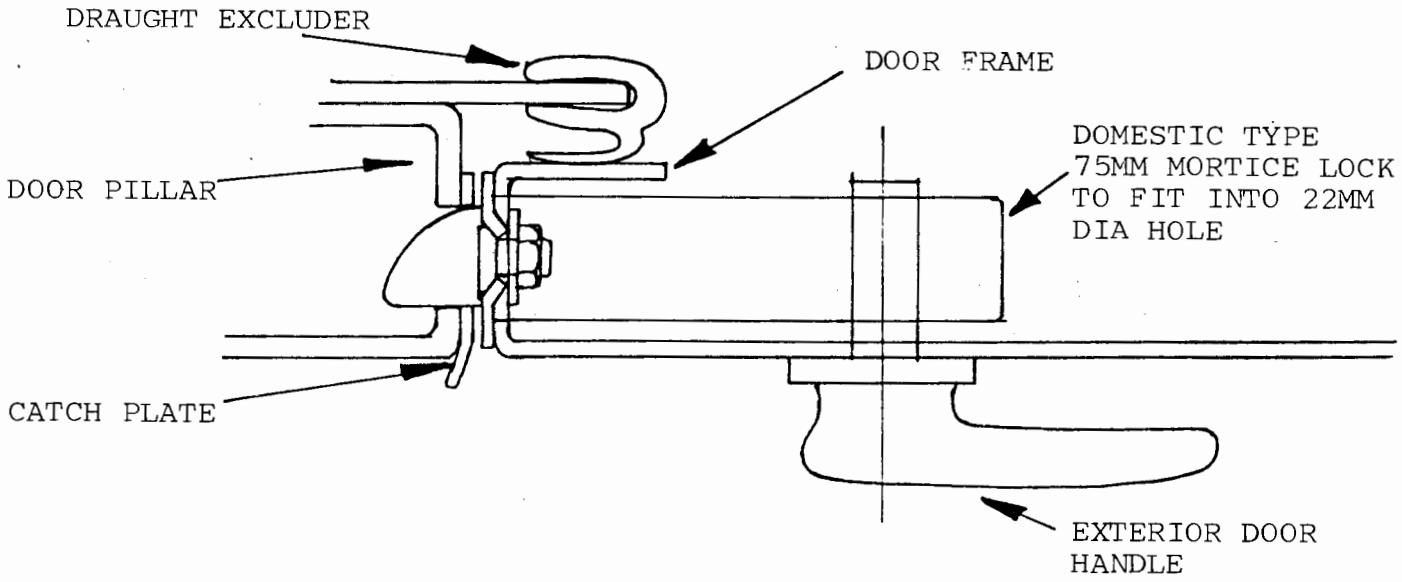


FIG 17 DOOR FITTING





TRIMMING

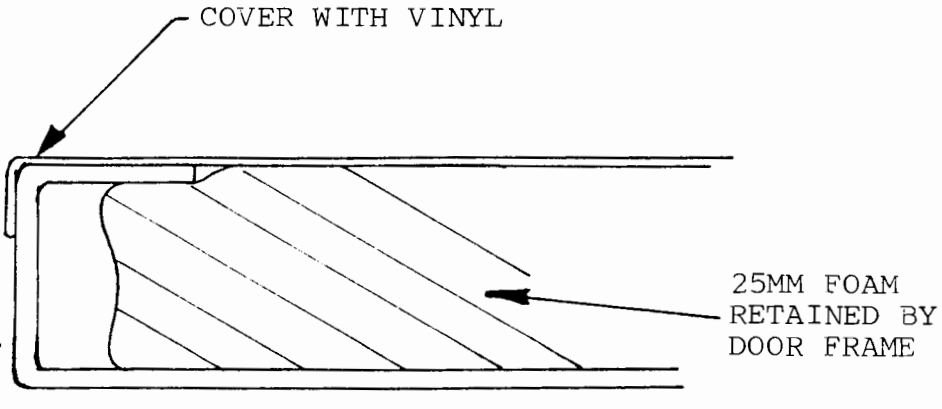
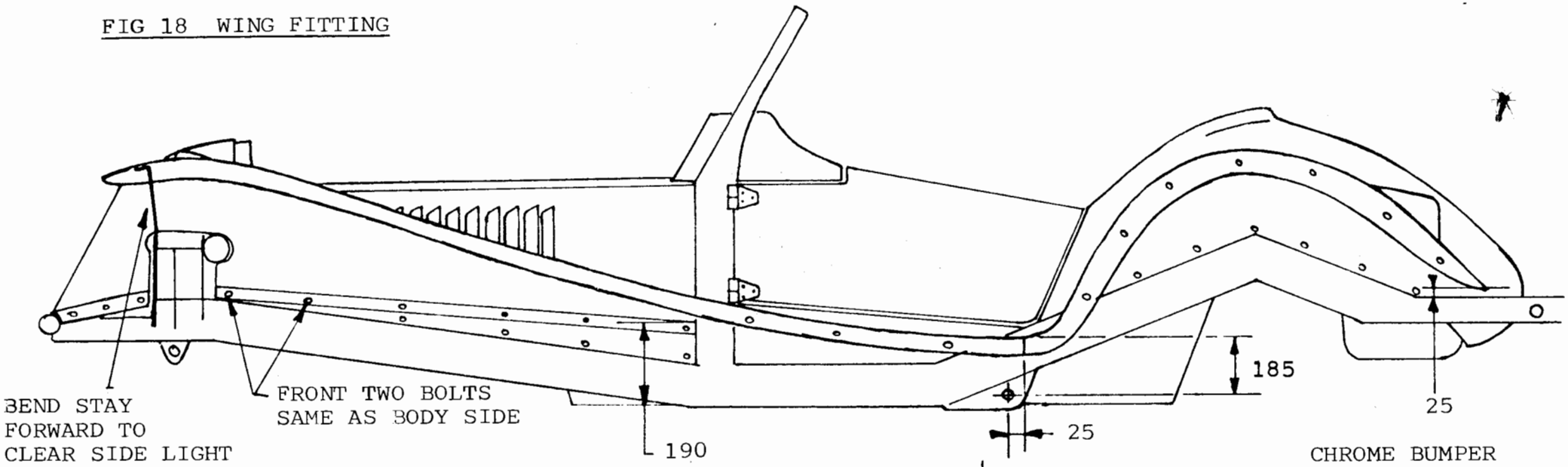
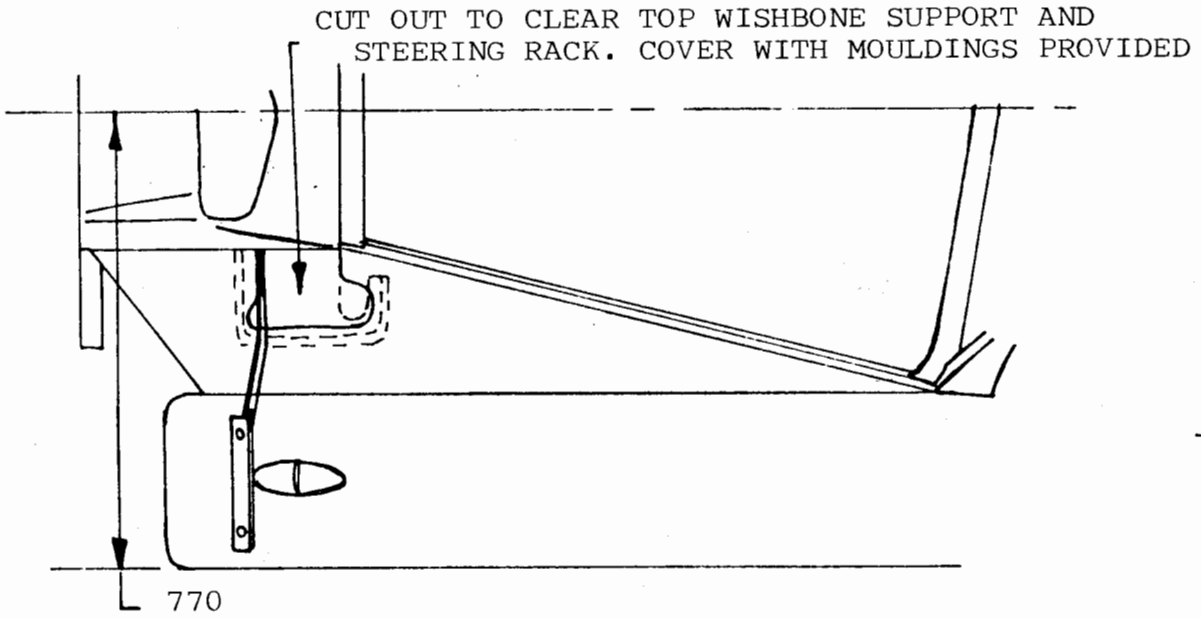


FIG 18 WING FITTING





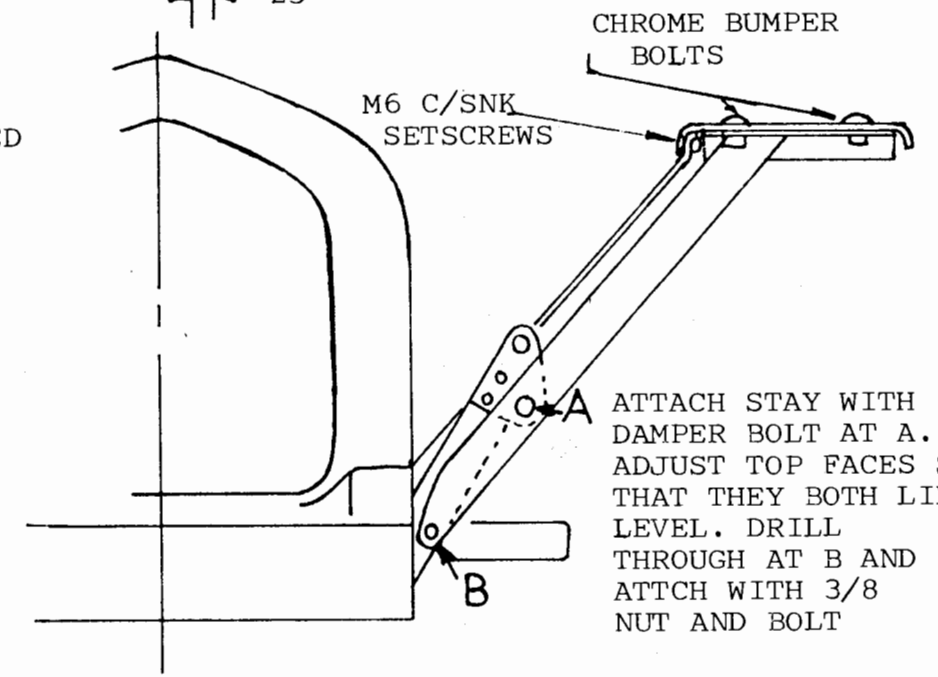


FIG 19 DASH MOUNTING

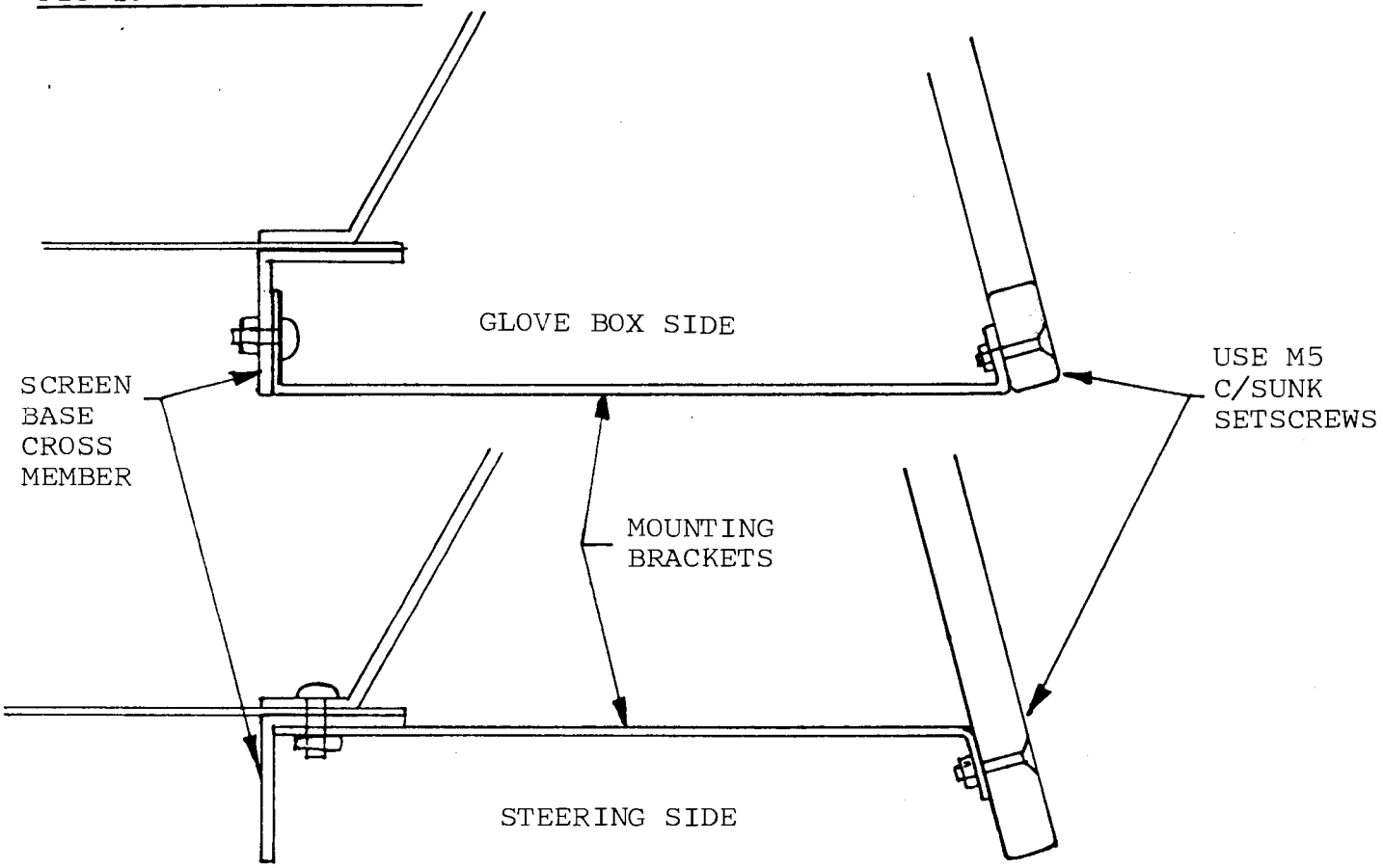
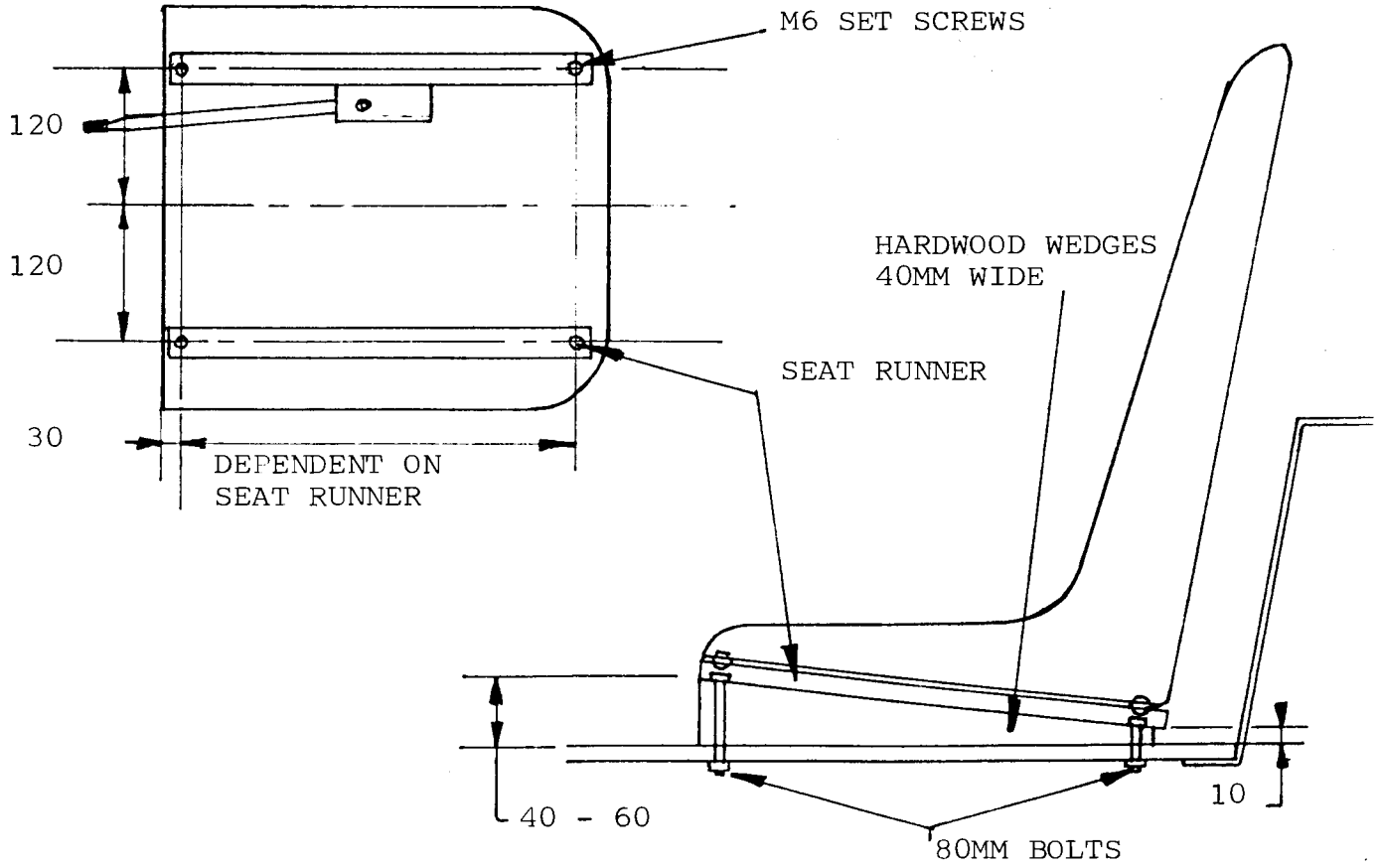
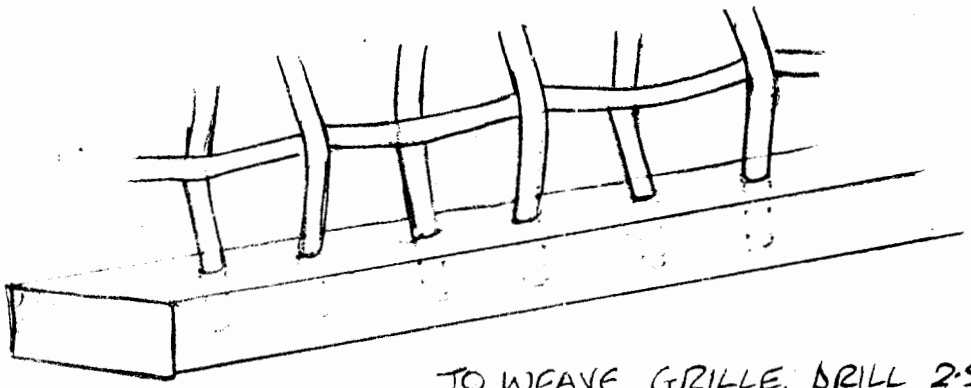


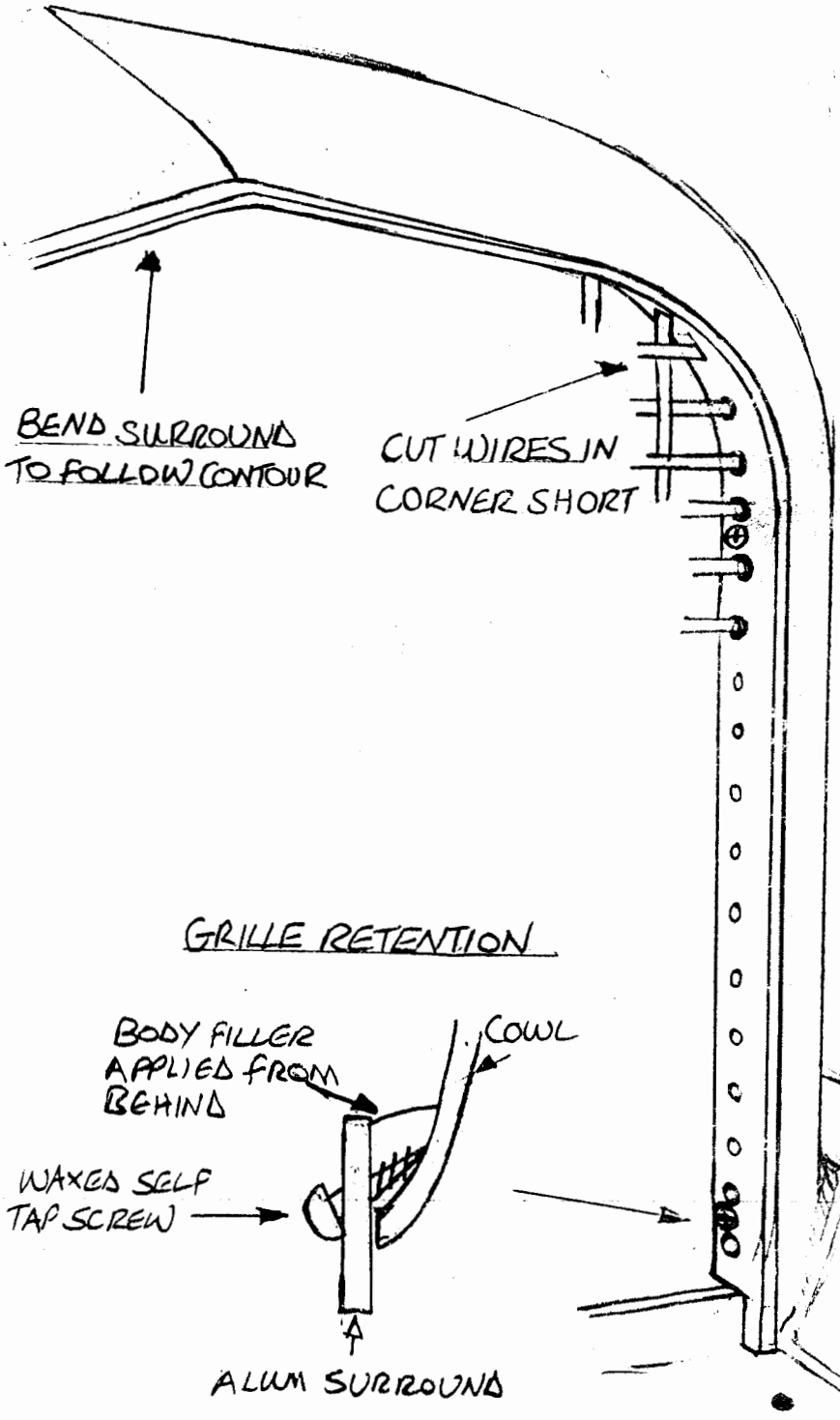
FIG 20 SEAT MOUNTING



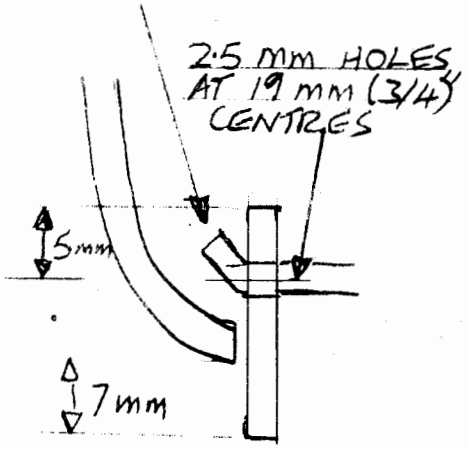
RADIATOR GRILLE



TO WEAVE GRILLE, DRILL 2·5mm HOLES IN A BLOCK OF WOOD, 19 mm (3/4") APART.



BEND OVER ENDS TO RETAIN



GRILLE RETENTION

DESCRIPTION SHEET

BASIC MARLIN KIT	Marina or Triumph with Marina rear axle base. Includes body chassis unit ready assembled. GPR running boards and rear wings, aluminium (Marina) or GRP (Triumph) front inner wings, etc., (as in brochure).
LONG WHEEL BASE	As above but the wheel base increased from 2337mm to 2489mm. The tail section is the same as the standard wheel base but the doors are longer, this increases the space behind the seats to between 200mm and 380mm depending on seat position. Weather equipment is available.
LONG COCKPIT	This is a small modification on the standard wheel base car to enable the over 6 ft. 2 inch driver to gain legroom. The rear bulkhead is moved back by 40mm and the more complex transmission cover is narrower at the seat position.
SEAT RECESSES	12g aluminium pans to recess the seat runners into the floor gaining 50mm in headroom.
ALTERNATIVE ENGINE MOUNTS	Other power units can be fitted - please enquire for details. Depending on engine we may require you to provide appropriate dimensions. The following engines have been fitted to our cars and are fairly problem free, in addition to engine mounts only, we can quotefor most other modifications involved. Alfa Romeo 4 cylinder DOHC with gearbox attached (not Alfetta type): requires modifications to bulkhead, transmission cover, steering column and special gearbox mount. The Alfa propshaft is required for modification. Ford Cortina OHC: requires cable clutch modification and gearbox mount. Marina and Ford propshafts required. Special transmission cover top available. Fiat Twincam (124 Sports coupe etc): requires cable clutch modification, gearbox mounts and gearbox lever extension. Fiat and Marina propshafts required.
LOUVRES	Row of pressed in vents along engine compartment sides.
TOW HITCH	Small and neat, welded direct to tubular steel bumper.
CENTRE HINGED BONNET KIT.	Brass hinge, aluminium stiffening strips and fastenings.
BRAKE PIPE SET	Complete set of hard pipes in copper nickel.
SUSPENSION LOWERING KIT	Aluminium blocks and longer U bolts to lower rear suspension by 42.5mm.
HEADLAMP SHELLS	Our GRP bowls to take Lucas 7" Mini type lamps.
SEAT SHELLS	Bare GRP shells for upholstery by customer.

/contd..

*UPHOLSTERED SEATS	Our seat shells ready upholstered in black or light tan. Other colours available at extra costs - please enclose colour sample which we will do our best to match.
WING PIPING	PVC trim in black to finnish off body to wing join.
CIBIE OSCAR H4 DIPPING HEADLAMPS	Complete lamp unit on adjustable base quartz iodine 60/55 Watt bulb.
WHEELS	Cosmic Ribster, silver (as on demonstrator).
*HOOD WITH ZIP-IN SIDESCREENS	Available in everflex (PVC with fabric backing) or double duck (double layer fabric with waterproof membrane.) Colours: black or light tan. Other colours available in everflex at extra cost.
*TONNEAU	To cover cockpit area of car when hood is not in use. Materials and colours same as the hood.
HOODFRAME	Stowable tubular steel frame complete with mounting sockets.
*CARPET SET	For standard wheel base and cockpit versions only. Trims everything but the doors, available in grey, beige, black, brown, red, green and blue.
*MARLIN SWEATSHIRTS	Available in S, M, L & XL. - please state size required.
*MARLIN TEASHIRTS	Available in S, M, L & XL. - please state size required.

* Please state colour required.