3. The half shafts and brake drums on the new axle will be drilled to fit Ford wheels. These must be accurately re-drilled to accomodate wheels with Triumph wheel-stud spacings. (Wheels which run eccentrically are not healthy!). Because the Triumph stud spacings have a smaller diameter to Ford spacing it is also necessary to machine some metal from the shoulder of the half-shaft (where it 'bells-out" at the wheel end) to allow the wheel studs to seat properly.

4. All of the Capri brackets welded to the axle must be sawn/ground off so that the equivalent Marcos axle locating brackets can be welded on.

5. The appropriate Marcos brackets must either be made up or bought from Jem Marsh (£45 + VAT) and welded into place on the axle. Details of their location, along the width of the axle casing and of the angle they should bear to the nose-piece of the differential are available from Uncle Jem. Suitably positioned handbrake and flexible brake hose mounting brackets must also be made and welded onto the axle. Uncle Jem is currently charging around £90 + VAT to machine and drill the half-shafts, drill the brake drums and supply and weld all necessary brackets onto a Capri axle.

6. The speedometer (driven from the overdrive unit) will no longer be accurate following the installation of the new axle. Apparently, the speedometer drive gear, which fits into the overdrive can be simply pulled out and replaced by one having a different number of teeth. I gather that obtaining the correct speedo reading is basically a trial and error exercise, which may eventually involve having the the speedometer unit re-calibrated in addition to swapping drive gears. Can anyone advise on this???

7. Consider bank balance and sanity!

As you can see this isn't exactly a 'Sunday afternoon' job, but is potentially worthwhile, since it should make first gear useable and make high speed cruising more comfortable for both engine and car occupants. The table below illustrates the effect of different rear axle ratios on the revs necessary to attain 70 mph in overdrive top (overdrive is 0.82:1, tyres 13 inch 70 series).

70 mph overdrive 4th gear

| Differential Ratio | R.P.M. |
|---|---|
| 3.09:1 | 2,601 |
| 3.22:1 | 2,710 |
| 3.77:1 | 3,173 |

## DETERMINING YOUR DIFFERENTIAL

Those interested in determining the ratio of the differential fitted to their car, or to any other potential 'donor' car may find the following methods of use:

1) Method 1 - "It's your lucky day"
If you're really fortunate the differential will have a small alloy tag fixed to it by one of the bolts holding on the backplate or nose-piece; this tag will include, inter alia, the differential ratio. Look carefully because they're usually well hidden by accumulated oily grime. Easy eh?

2) Method 2 - "The nuts and bolts method"
This method involves dismantling the differential and counting the number of teeth on the pinion and crownwheel, dividing the first number into the second to obtain the ratio. This method gives absolutely definitive results, but will probably not be appreciated by the potential seller of an axle when the Marcos owner announces that it is not the ratio he requires and beats a hasty retreat, leaving a dismembered differential and accompanying pool of oil on the seller's driveway.
Dismantling other people's axles may seriously damage your health!

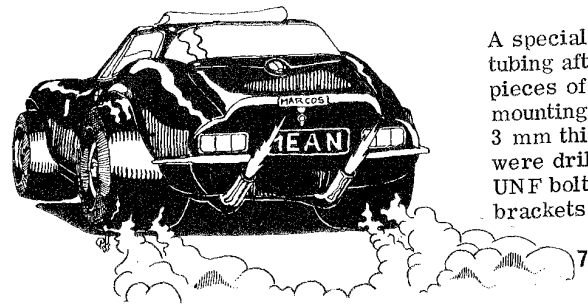


3) Method 3 - "A safe compromise"
Potential sellers of axles can often be persuaded to assist with this method and tend to enjoy the experience, especially if they're a bit short "upstairs" (thick). The exercise is as follows:

a) Jack up one of the back wheels.
b) Mark the air-borne wheel with a chalk line at its closest point to the ground.
c) Mark the differential pinion where it attaches to the propshaft at its nearest point to the ground.
d) Rotate the differential pinion by hand counting the number of revolutions of the differential....pinion and of the road wheel. Continue rotating the diff over and over again until the chalk marks on the diff and road wheel are simultaneously in the exact positions that they were in prior to commencing the rotations (i.e. chalk marks both at their nearest points to the ground).
e) Divide the number of rotations at the wheel into the number of rotations at the diff and multiply the answer by two. The answer is the diff ratio expressed as the number of revolutions of the diff required to produce one revolution of the road-wheel.

Examples

| Rotations of differential pinion | Rotations of road wheel | x 2 | Diff Ratio |
|---|---|---|---|
| 17 | 11 | | 3.09:1 |
| 8 | 5 | | 3.22:1 |
| 17 | 9 | | 3.77:1 |




Hovasvagen 5
S-430 80 HOVAS

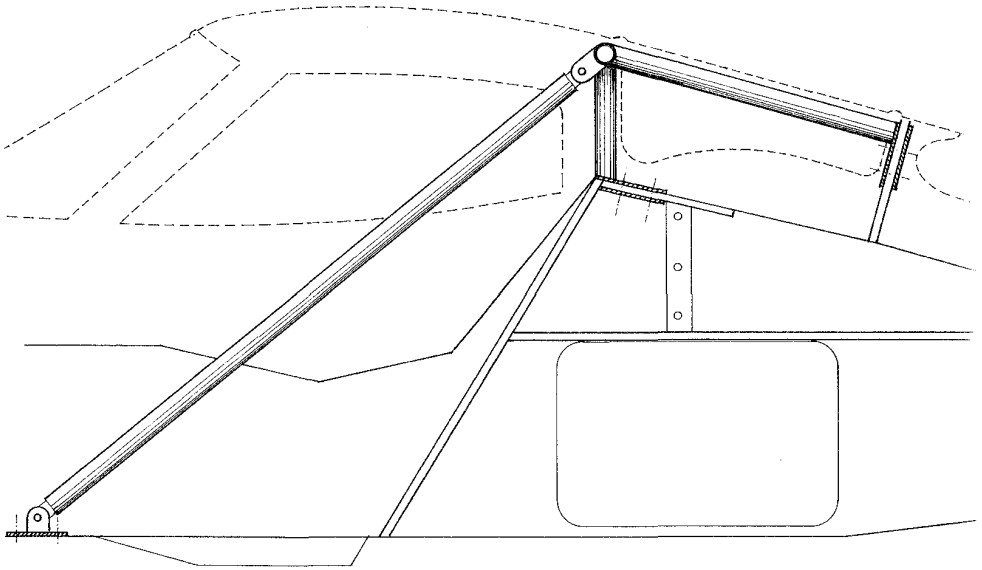
Dear Friends,

A few years ago, I think way back in the mid-seventies, I fitted a sun-roof to my 1800 GT. After having cut the aperture in the roof panel, I noticed how weak the roof and pillar construction really was. If the windscreen had been taken out, you could definitely swing the whole thing back and forth. This made me think: What happens if your car is turned upside down in an accident? I don't dare think of the consequences! Well, it is a bit strange that the manufacturing company has avoided to include any strengthening devices to the roof construction itself. Many other manufacturers of fibre-glass bodied cars have made excellent jobs in that field. Take, for example, my Reliant Scimitar GTE: a steel tube roll-over bar is integrated in the door pillars and roof. Why not in the Marcos?

It was not until I started with Historic Racing that I decided; I was going to make myself a roll-over bar for my car. I had previously been in contact with the people at Marcos but no assistance there. I had to do it on my own. First of all, I checked in the F.I.A. handbook to get the proper dimensions of steel tubing, as well as, mounting brackets and bolts. Then the seats, rear window and speaker panels were removed. To get the correct curvature of the roll-over bar itself I made up a cardboard template, giving the right outer size, leaving a clearance of about 5 - 10 mm to the roof. The bar should be installed as given in the sketches.

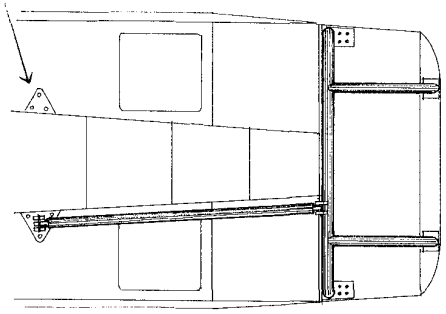
A specialist firm helped me to bend the tubing after the template. All other pieces of tubing are straight. The mounting brackets were then cut out of 3 mm thick steel, and countersunk holes were drilled. I used the specified 5/16" UNF bolts and nuts. There should be brackets on both sides of the plywood

SIDE VIEW



TOP VIEW

existing gearbox mounting



panels. The four mounting points were carefully measured out, and the brackets were fitted. Then the tubes were located with some spots from the arc-welder. The rearwards pointing tubes were cut to the correct length and the curved shape mated to the main bar, eventually. I now had the correct fit, and carefully the whole thing could be removed and be welded up professionally. As an extra safety precaution, I decided to fit a detachable strengthening bar pointing towards the front of the car. The floor mounting point was using the same bolts as the rear gearbox mounting bracket. No new holes! The upper mounting point was by means of two small brackets welded onto the main bar centre part. Both joints were secured by easily removable 'pin-pins'. This extra support strut, is of course, used only for racing purposes as it intrudes too much on the passengers space.

The whole roll-over bar was then painted matt black in order to be as invisible as possible. As the mounting points of the main bar intrude a bit where the seat head rest meets the door pillar, a cut out had to be made in the fibre-glass inside the cushion. I first thought that the cut out had to be made in the sponge rubber and vinyl cover as well, but I found out that the bar compressed the head rest in a nice way, so no damage had to be done to the cushion itself. You only had to use a little force when putting the seats back into the car. It really looked very professional!

On the sketches I have tried to illustrate how I made the thing. One picture tells more than 1000 words. Someone said! Hope you can get some ideas of how to make it. If you need any additional information on this subject please do not hesitate to contact me, whenever you feel like.

There is one thing I would like to point out. You may think that this mod is only for racing people, my opinion, however, is that, knowing how weak the roof really is, every Marcos, road car as well as racing car, should definitely have a roll-over bar fitted. The risk of turning the car upside down in an accident may well be bigger than in a racing car.

I would not say that this is a complicated job. Every normal, technically interested human being would definitely be capable of doing this modification.

Good luck.

Per Haegermark

P.S. All the above is only applicable to wooden chassis Marcos cars. Maybe someone else has done the same job on a steel chassis car?