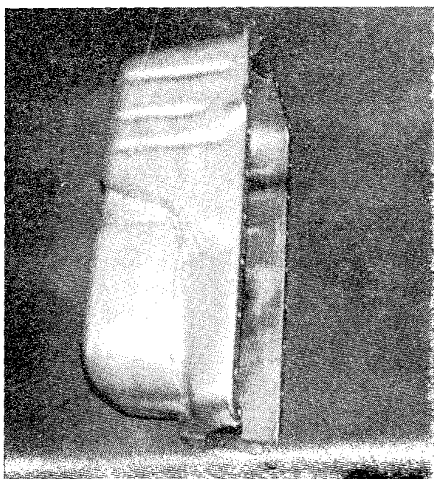


... quoted to me since I bought mine. I located the Mustang engine into the chassis only to find that the engine mounts are at the front of the North American version of the 2.8 litre V6. The first thing any auto wrecking yard does is torch off the mounts to get the engine and tranny out. I phoned every wrecking yard in the Niagara Peninsula before I found a Capri II with the correct mounts that hadn't been cut yet. But I still have to get the rubber portion and I think I have a chassis set up for a 3 litre V6 as the distance to the rear cross-members doesn't seem right. I am using the Seiman Hummer transmission, I will see what happens when the mounts arrive. I will also have to get a flywheel with a metric ring gear and Bosh starter. According to the Ford parts man the crank flange is the same on both the European and North American versions of the engine, so it shouldn't be an impossible swap. The build sheets say to reverse the exhaust manifolds left to right. This must refer to the 3 litre as it doesn't work with the 2.8L North American engine. I'll have to weld up some tuned tubular headers to suit after I've calculated the proper tuned lengths. I have the flange cut out already, the standard air filter and emission controls will have to go as the hood won't close on them. I think I'll have to use a K + N remote set-up with filter somewhere else, maybe in the footwell, and get through the air pollution test with some catalytic converters. The Capri and the Mustang also have their front cross-members in different locations, so have different shaped oil pans, front sump on the Mustang and rear sump on the Capri. Since the Marcos has no cross-member a good nod on any Marcos sump is to weld a full depth addition adding baffles and a windage tray. The increased capacity should be just as good as an oil cooler. I've also extended the sump under the panhard rod of the differential cover, adding about 30 cubic inches of capacity and a lot more surface area to dissipate heat.

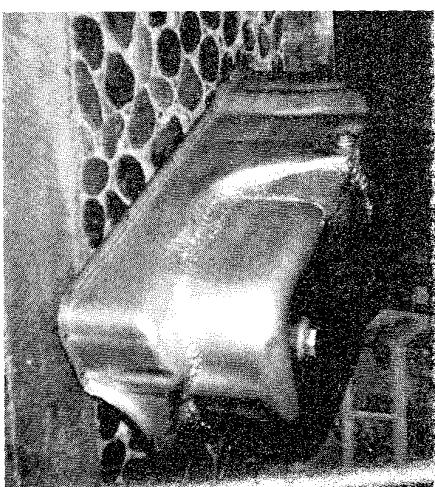
The Ford V6 and my Volvo 122S with B20B engine use the same filter, not so on the Capri, so I will transfer the remote filter adaptor with MGB oil cooler to the Marcos. I shouldn't have any overheating problem as I've read in some Marcos mags.

Yours truly,

William Rankin



One extended sump



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NWM 911H

3 Litre V6 Gearbox Modification

Several issues back I asked for members comments on the possibility of up-rating the second gear ratio of the V6 gearbox. I had two useful replies and have since had my gearbox appropriately modified.

The basic problem with the original box is that the ratios of first and second gear are very close together, leaving a yawning gap between second and third gear ratios. However, late Ford Capri 3 litres and Scimitars had an uprated gearbox in which all ratios, except second gear were revised from 2.214:1 to 1.95:1 giving a much more even spread of ratios in the gearbox. Unfortunately, the external appearance of the later box is quite different, especially as regards the gear selector rods, meaning that it is not possible/easy to install the later box into the Marcos.

However, the internal castings of the casings are identical, so that the internal components from a later box can be fitted to an early-type box, retaining the Marcos-type gear selector mechanism.

Gearbox interior

- | | | |
|---|---|---------------------------------|
| 1 Main drive gear | 13 Gear, 3rd speed | 25 Tap washer |
| 2 Bearing | 14 Gear, 2nd speed | 26 Retaining nut |
| 3 Circlip | 15 Circlip, 1st and 2nd synchroniser | 27 Cam, overdrive pump |
| 4 Circlip | 16 Blocker ring, 1st and 2nd synchroniser | 28 Circlip, cam retaining |
| 5 Needle bearing | 17 Synchroniser assembly, 1st and 2nd | 29 Split sleeve, mainshaft |
| 6 Mainshaft | 18 Spring ring, 1st and 2nd synchroniser | 30 Thrust washer, front |
| 7 Woodruff key, overdrive pump cam | 19 Blocker bar insert, 1st and 2nd synchroniser | 31 Roller bearing, countershaft |
| 8 Circlip, 3rd and top synchroniser | 20 Gear, 1st speed | 32 Retaining washer |
| 9 Blocker, ring, 3rd and top synchroniser | 21 Oil slinger | 33 Gear, countershaft |
| 10 Synchroniser assembly, 3rd and top | 22 Housing, mainshaft bearing | 34 Thrust washer, rear |
| 11 Spring ring, 3rd and top synchroniser | 23 Pin, housing locating | 35 Countershaft |
| 12 Blocker bar insert, 3rd and top synchroniser | 24 Bearing, mainshaft | 36 Gear, reverse idler |
| | | 37 Bush |
| | | 38 Shaft, reverse idler |

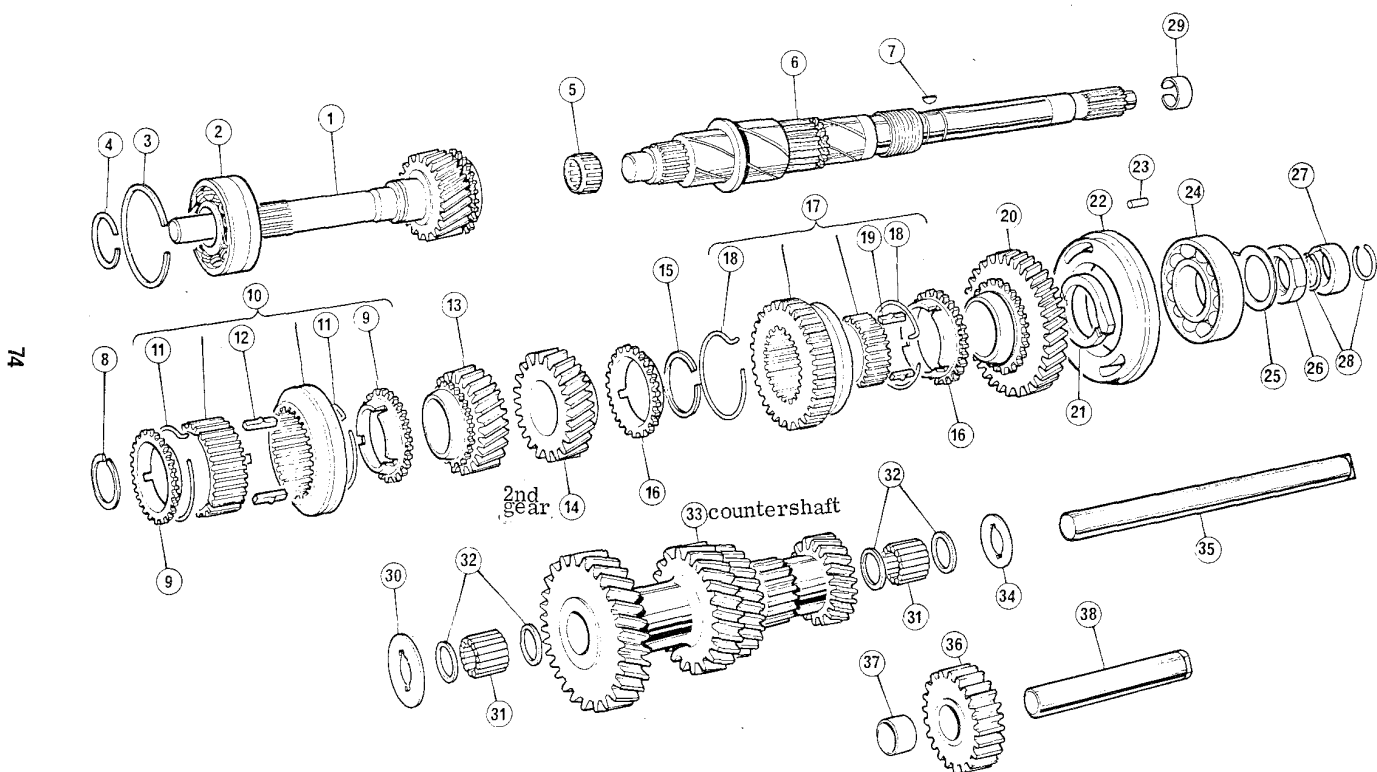
Basically, the only components necessary are the second gear wheel from the up-rated later box, plus the countershaft from the same box. (It is not possible to change individual gears on the layshaft since it is machined from a solid chunk of steel). The original second gear wheel must be pressed off the mainshaft and replaced by the revised gear. The box can then be re-built with the revised countershaft. (See diagram).

The following cars can be used as donors of revised second gear components:

Reliant Scimitar GTE from chassis 932477,
Ford Capri 3 litre 3000 GT, 3000E October 1971-1973.

The uprated box can easily be identified by its removable side cover (top cover on Marcos box) and by its 3 rod selector linkage mechanism (2 rod selector for Marcos box).

The best donor car is probably an overdrive Scimitar, since the entire contents of this gearbox can be slotted straight into the earlier gearbox casing without stripping down the mainshaft to swap the second gear-wheels. The Capri box never had an overdrive fitted, so the mainshaft isn't long enough for an overdrive Marcos box and the mainshafts must therefore be dismantled.



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The cost of this conversion using brand new components is phenomenal, but a gearbox reconitioner will not charge any extra for swapping the second gear ratios during the reconconditioning process; my box was reconconditioned and up-rated by a small independent gearbox reconitioner.....(who gives a 6,000 miles/6 months guarantee) for £60. (Name and address supplied on request).

This modification is probably only worthwhile if a revision of the rear axle ratio is also being contemplated, since the standard 3.77:1 differential renders first gear virtually useless anyway.

A 3.09 or 3.22 differential will, however, re-instate first gear as a "useful" ratio whilst the use of the uprated second gear ratio will provide an even spread of gearbox ratios, viz:

First	3.163:1
Second	1.95:1
Third	1.412:1
Fourth	1.0:1

The chart below shows that with uprated 2nd gear and differential ratios 60 mph is now attainable in second gear (241 (13 inch 70 series tyres) without over-revving the engine:

60 mph in second gear

Differential ratio.	Second Gear Ratio
3.09:1	1.95:1
3.22:1	2.214:1
3.77:1	3.09:1

After being used to the transmission on a Scimitar, two things struck me about the Marcos when I first bought it three years ago:

1. The rather low rear axle ratio which rendered first gear useless except for "laying down" rubber, and caused the engine to rev unnecessarily fast at

cruising speeds, even in overdrive on top gear.

2. The immense gap between the ratios of 2nd and 3rd gear, causing me to be flung towards the windscreen the first time I changed from 3rd to 2nd on the approach to a roundabout. (See mod., elsewhere in this issue.)

The V6 Ford engine is an extremely torquey unit producing a considerable amount of power at relatively low revs. Accordingly there is no reason why the engine should be 'buzzing' noisily at over 3,000 rpm in overdrive top at 70 mph as was mine when I bought it (I believe the rear axle ration is 3.77:1). For comparative purposes it is worth noting that the considerably heavier Scimitar has very adequate top gear performance, despite only revving at 2,500 rpm at 70 mph in overdrive top. The adoption of a more sensible rear axle ration thus improves noise levels/comfort at cruising speeds and re-instates first gear as a useable ratio.

Suitable donor axles are as follows:

- Ford Capri 3 litre GT 1969-Oct. 1971 3.22:1
- Ford Capri 3 litre GT/E Oct. 1971-'73 3.09:1

In my opinion, the seemingly rare 3.09:1 axle is preferable. Before embarking on this modification a few facts should be borne in mind:

1. These axles are both 3 or 4 inches wider than the original axles, so it is necessary to modify the handbrake mechanism used on the Marcos and to consider the need for flared wheel arches or wheels with different offset.
2. The differential pinion flange to which the propshaft is bolted, is a different size and has different drillings to that on the original axle. Consequently, it will be necessary to either re-drill the existing propshaft yoke (at the diff end) or to shorten and re-balance the propshaft from a 3 litre Capri.

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