

STEERING

For Group N cars, the regulations require the standard steering rack and power assistance, to be retained, though a different steering wheel may be fitted.

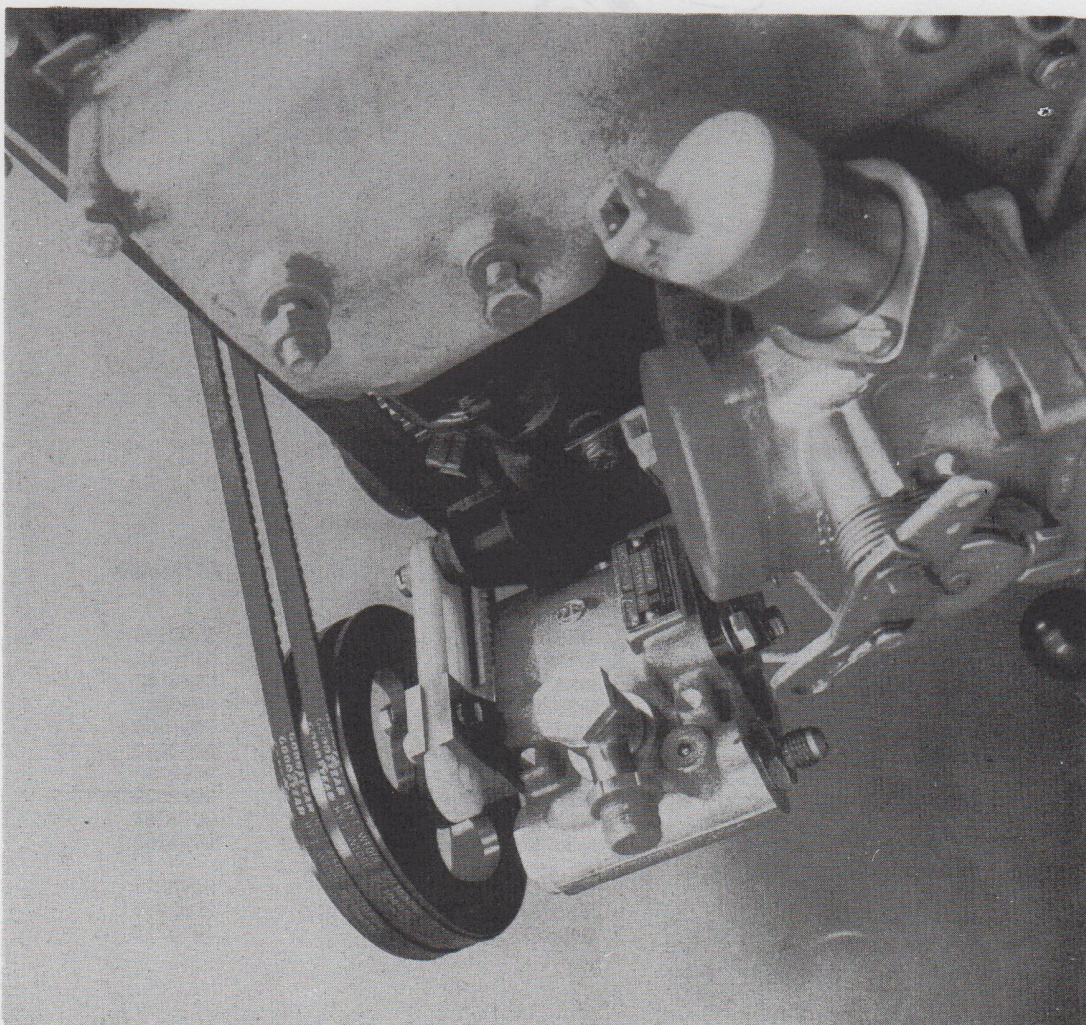
For Group A cars, more substantial modifications are authorised, but these have to be listed in the homologation papers.

Group N cars: On the SIERRA XR4 × 4 no changes are possible. On the SIERRA RS COSWORTH, there is a difference in turn-in response between early-production models and late-production models. On later-specification models, repeated high-frequency steering wheel movements cause the steering to become stiff, almost as if the hydraulic circuitry is 'blocking up'. This is a function of the internal settings of the power-steering circuitry.

We recommend that for motorsport purposes, the early-specification steering should always be used. Advice is available as to the internal modification necessary to convert a later-specification rack to an early-specification type. The fitment of a harder steering column Bush/Insulator (9092343) is advisable.

After Group N — the next step:

To improve further on the Group N steering, but without converting the car to a full 'works-specification' Group A steering installation, fit heavy-duty steering rack mounting bushes.



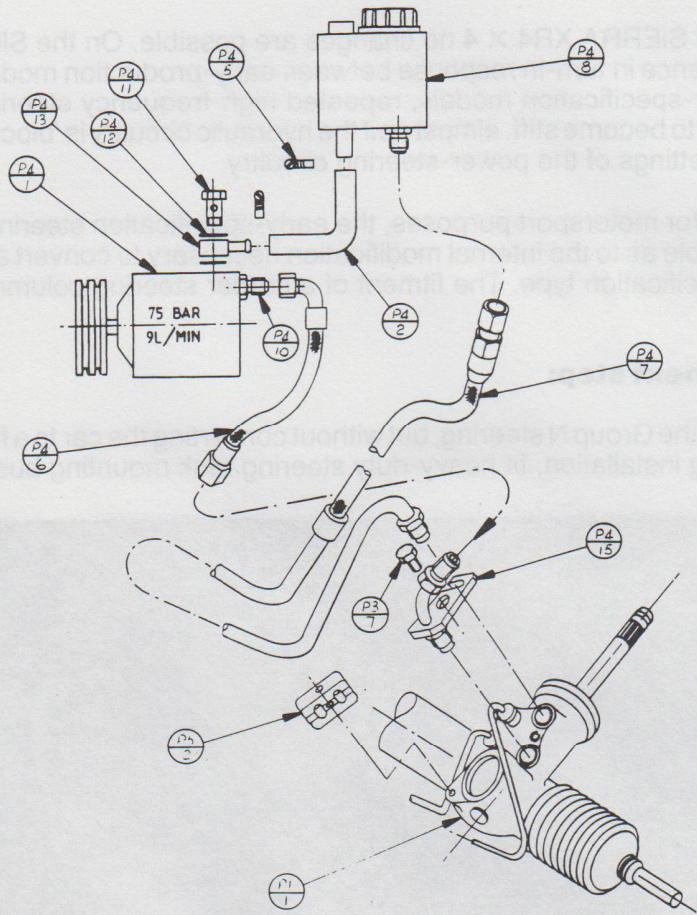
The mounting of the revised power assisted steering pump, as installed on the Group A SIERRA RS COSWORTH engine.

Group A cars:

On SIERRA XR4 × 4 models, the standard steering has 2.9 steering wheel turns from lock to lock.

On the SIERRA RS/RS500 COSWORTH, the standard steering has 2.63 turns from lock to lock, with a ratio of 54 mm/turn.

As with the Group N cars, it has been found that when the standard system, with a standard oil pump, is used in motorsport, a succession of sudden wheel movements tends to make the steering feel 'solid', or make it feel 'locked up'. This is disconcerting and is not a mechanical problem, but is caused by the limits of oil flow through the power-assisted steering system.

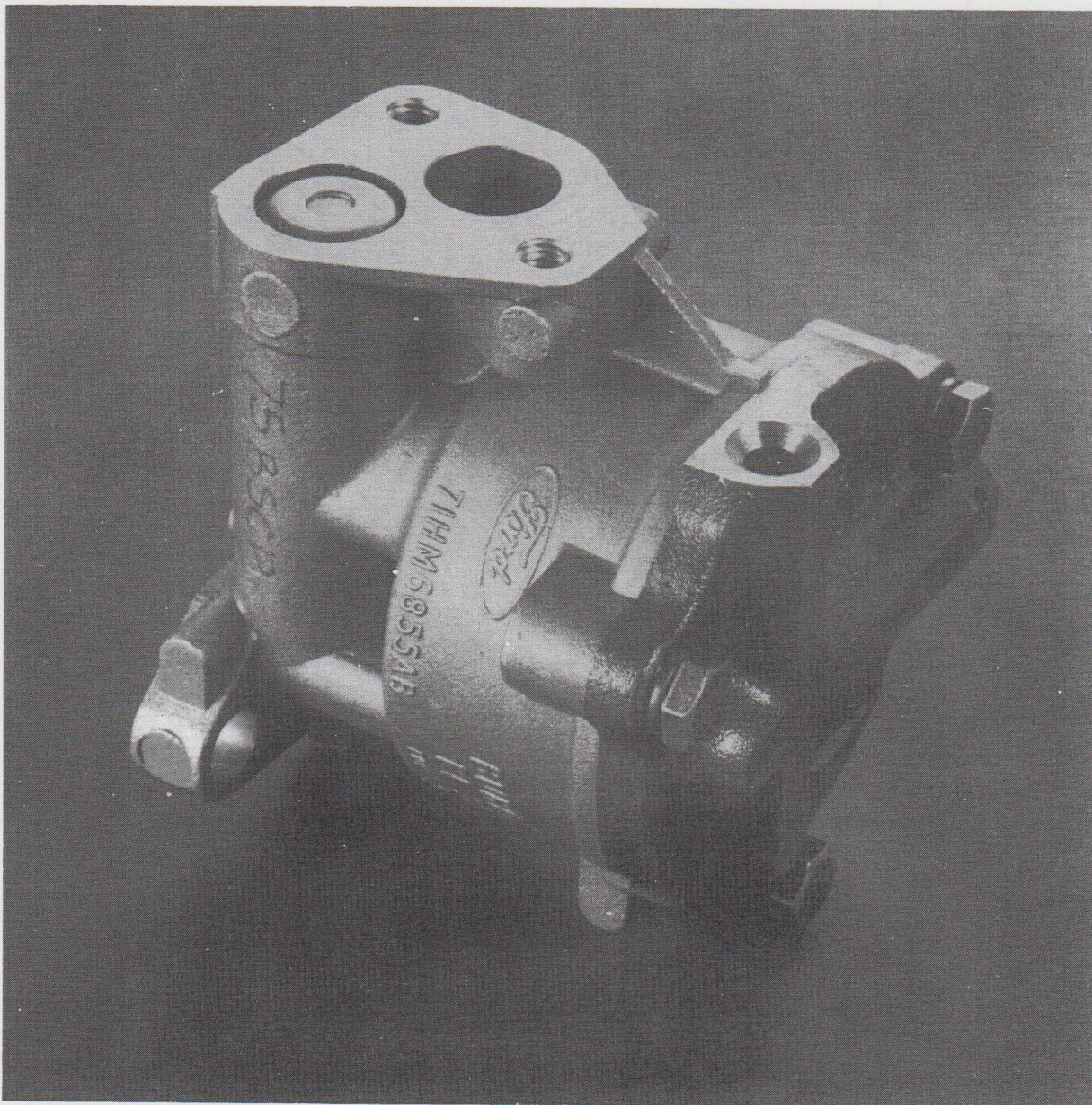


Details of the Group A power-assisted steering installation for the SIERRA.

Power Assisted Steering - SIERRA RS Cosworth

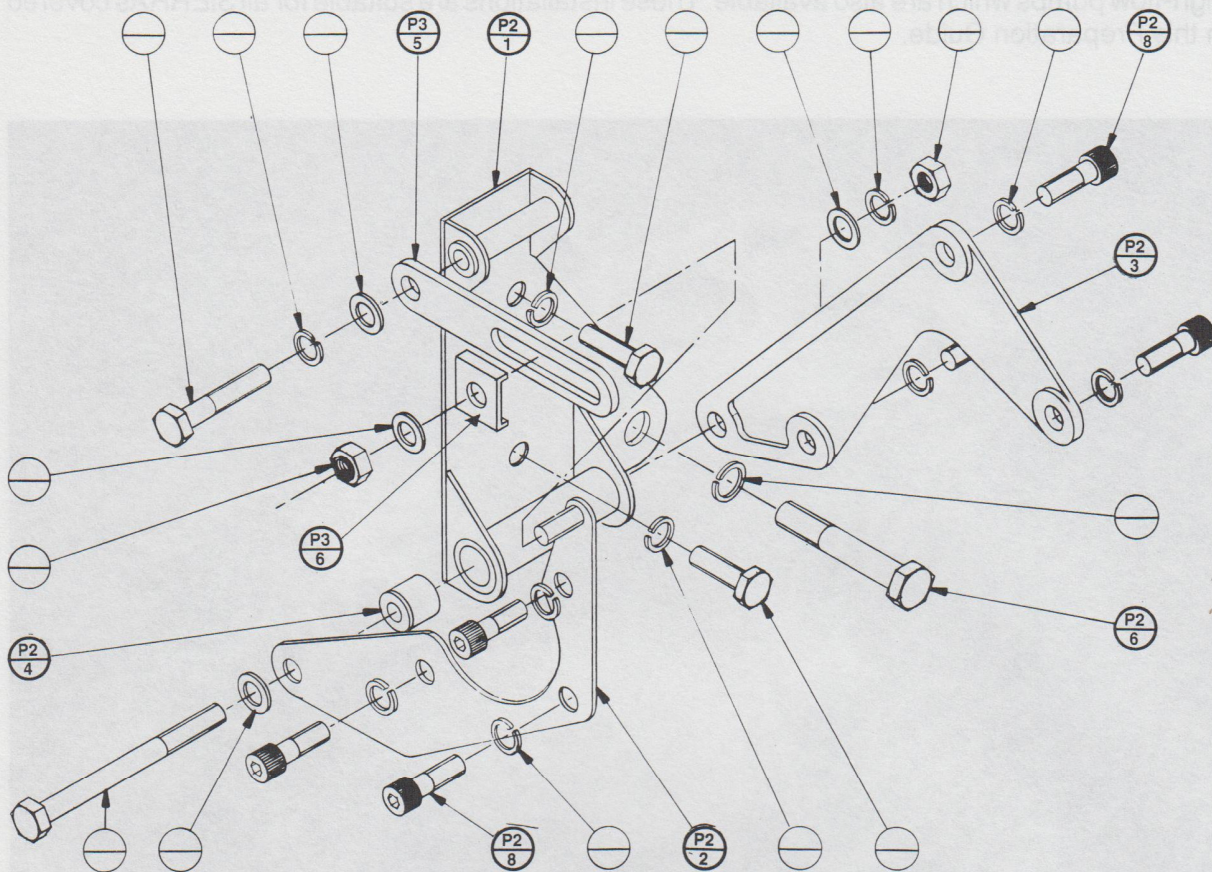
| Drawing Reference | Component | Part No. | Finis Code |
|-------------------|-----------------------------------|---------------|------------|
| P1/1 | P.A.S. Steering - left-hand-drive | MS87BB3503CA | 9090986 |
| P3/7 | Bolt | E801033S72 | 6137739 |
| P4/1 | P.A.S. Pump | MS87BB3A674AB | 9093182 |
| P4/2 | Hose | MS87BB3691AA | 9093267 |
| P4/5 | Clamp band | A800XB289EA | 5007666 |
| P4/6 | Hose | MS87BB3A719BA | 9093262 |
| P4/7 | Hose | MS87BB3A713BA | 9093263 |
| P4/8 | Reservoir, P.A.S. | MS87BB3R700AA | 9092502 |
| P4/10 | Adaptor | MS87BB3722AA | 9093284 |
| P4/11 | Banjo bolt | MS87BB3721AA | 9093283 |
| P4/12 | Washer — Copper, M16 × 1.5 | — | — |
| P4/13 | Banjo - pump feed | MS87BB3720AA | 9093277 |
| P4/15 | Connector | MS87BB3522AA | 9093285 |
| P5/2 | Clamp | E8652075 | 1610213 |

Accordingly, for fully-prepared SIERRAs to be used in motorsport, it is recommended that specially-developed high-ratio power-assisted rack and pinion installations are fitted, matched to the high-flow pumps which are also available. These installations are suitable for all SIERRAs covered in this Preparation Guide.



For all Group A use in the SIERRA RS/RS500 COSWORTH models, an uprated oil pump should be fitted.

The competitions rack-and-pinion steering kits include a new rack (which has a rating of 64 mm rack movement per turn of the steering wheel), an uprated pump (which is engine driven), together with all related engine brackets, pulleys, belts and reservoirs. No change is needed to the engine's crankshaft, either for V6 or turbocharged four-cylinder engines, or to their cylinder blocks.



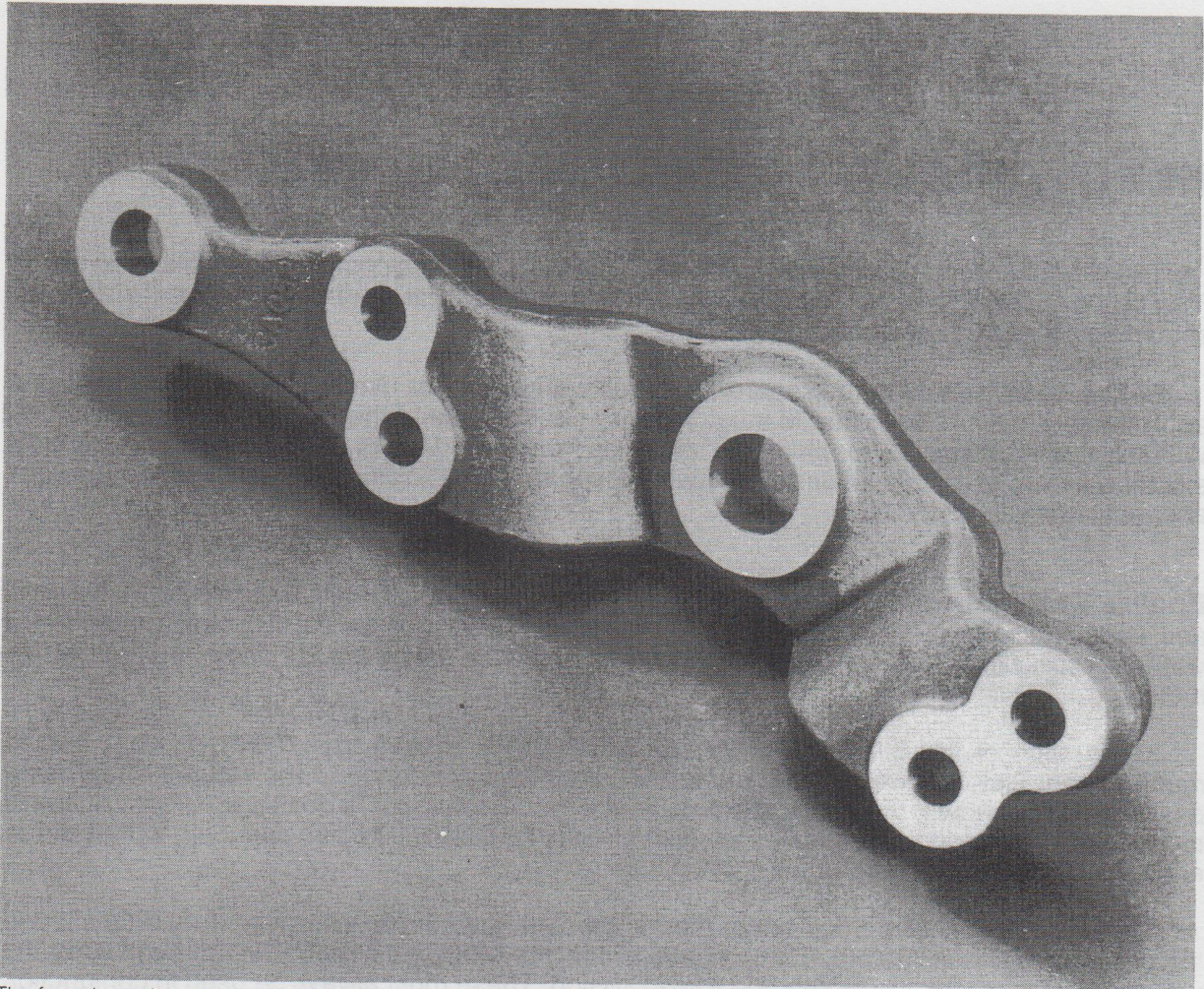
Details of the Group A power assisted steering bracket design for the SIERRA RS/RS500 COSWORTH.

Power Steering Brackets

| Drawing Reference | Component | Part No | Finis Code |
|-------------------|------------------------|--------------|------------|
| P2/1 | Bracket, PAS pump | H87WS3K738BD | 9092914 |
| P2/2 | Plate, front, PAS pump | H87WS3K739AC | 9092580 |
| P2/3 | Plate, rear, PAS pump | H87WS3K740AB | 9092579 |
| P2/4 | Bush | H85CS10315AA | 9093115 |
| P2/6 | Bolt | — | 1484421 |
| P2/8 | Bolt | — | 1470883 |
| P3/5 | Adjusting strap | H85CS10145AA | 9092600 |
| P3/6 | Adjuster clamp | H82MS10248AA | 9091941 |

During the development programme of SIERRA suspension and steering for Group A purposes, the installations were engineered as a package. This means that the Group A steering should always be matched to the Group A suspension (which incorporates special steering arms). The Group A rack has a different length and different geometry, than the standard rack. This has been done to improve the bump-steer characteristics.

It is not recommended that the Group A suspension should be mated to a standard rack, nor the Group A rack mated to standard suspension. The entire system has been designed and developed to give correct steering characteristics with 16 in. road wheels and Pirelli or Michelin tyres. The Group A rack is to be mounted solidly, without intermediate bushes, to the cross-member.



The forged steering arms designed for use with the rest of the Group A front suspension of the SIERRA models.

The recommended Group A steering installation for the SIERRA RS/RS500 COSWORTH is as shown in the accompanying diagram. Under no circumstances should the standard road-car power-steering pump be retained.

Other recommendations:

Set up the steering to give a 15 minute (15') toe-in at the front wheels. This gives optimum results.

Fit the heavy-duty steering column, which includes fine splines, which are very robust and should give no problems in continuous service.

Do not disconnect the power-assistance

There is no reason why the power-assistance to the steering should be disconnected. The use of power helps to limit driver fatigue on long events; and it also helps to damp out road shocks.

If the power-assistance is merely rendered inoperative, this could result in damage being caused to the quill shaft in the lower steering column and steering failure might follow.