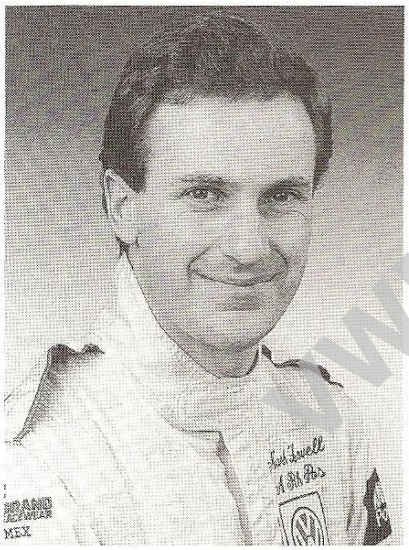
This month we talk to the driver of Gilders' Rallye Golf, Mark Lovell, and to Alistair Sutherland who heads the development team

Anatomy of a Rallye Golf



Mark Lovell

THE DRIVER

30-YEAR-OLD MARK LOVELL IS ONE of our top rally drivers. His record is impressive: '85 British National Champion in a Nissan 240 RS, '86 British International Champion in a Ford RS200, Irish Tarmac Champion in '87, '88 and '89 and winner of the Dutch championship in '88.

1990 was a development year, however, working with River Fame to turn the Gilders-sponsored Rallye Golf into a truly competitive machine.

Mark reckons that, for two reasons, the Rallye Golf has tremendous potential. It is a comparatively small car — just the right size for rally courses and far handier than some of the big Fords and Japanese competitors. Because of its compact size, it's also light and this gives it a tremendous advantage as far as power/weight ratio is concerned. It isn't there yet: the 1800 cc supercharged eight-valve engine has been pushed up to around 270 bhp but Mark reckons that 300 bhp is absolutely essential to achieve a power/weight ratio which will allow the Golf to stand on a level with the rest.

This is going to involve much development by River Fame. The supercharger is already being made to spin incredibly quickly and a few of them might well blow up on the dyno before the right formula is achieved.

From a driver's point of view, the Rallye Golf is a little too heavy at the front, like most of the Group A cars. Only the old Group B vehicles like the RS200 or Metro 6R4 were truly neutral; many of the front-mounted items such as battery and washer reservoir will have to be moved aft.

The viscous coupling is great: viscosity can be altered to make it tighter or looser for tarmac or gravel respectively. As Mark says, it's rather like turning a tap to suit the conditions.

Mark reckons that, with 300 bhp, the four-wheel drive Rallye Golf can be a worldbeater. In the past, Volkswagen has had some good class winners but, fully developed, the Rallye Golf could collect top honours. Admittedly, the new Golf will be here later next year but success now with Golf II could establish a reputation to ensure even greater success for Golf III.

THE DEVELOPMENT TEAM

THE TEAM AT RIVER FAME RE-sponsible for developing the Gilders Rallye Golf is headed by Alistair Sutherland who, like Mark Lovell, has a wealth of experience in rallying. He is responsible for developing all aspects of the car with emphasis on performance, reliability and ease of servicing.

Alistair is a firm believer in the importance of rallying to the manufacturer and importer: because Group A cars are so close to production models, the public can see a direct correlation. This is why Japanese manufacturers have taken such a firm hold of rallying as a means of promoting their road cars. The equation is clear: development of technology for rallying equals development of the next generation of road cars.

One of the key areas of development has been the gearbox. The standard Rallye Golf came with the new cable-operated 'box which was notable for the large gap between second and third gears. When Mark Lovell drove us at rally speeds round Millbrook's off-road course, he demonstrated how you could be screaming up to maximum revs in second and then find the power going flat when changing into third. This is a feature of so many VAG cars and it is clearly a limitation for competition.

Now River Fame has a new gearbox from VW Motorsport. This has six gears, the steps calculated to keep the engine right in the power range at all speeds. According to Mark, the ratios are superbly matched to the engine's power output. The dog-tooth syncromesh gears enable him to change without necessarily using the clutch, essential when employing a left-foot braking technique. This 'box is stronger, has bigger gears but still fits in the same space. A new right-angled drive housing links it to the propshaft.

River Fame had overcome selection problems with the earlier 'box by severely limiting the extent to which the engine/transmission could move during torque changes. This mounting is retained and VW Motorsport development of the linkage has made changes even better.

The parts which transmit drive from the gearbox to the propshaft are now stronger and the rear axle has a limited slip differential. The front differential also has limited slip and the bias is set up to give 20 per cent slip at the front and 80 per cent at the rear: ideal for forest stages.

The step-off ratio from the gearbox to the propshaft has been altered so that the viscous coupling brings the rear axle into drive at an earlier stage than before. This change to the drive ratio between front and back allows the driver to bring about directional changes much more easily.

Although no failures have been experienced, the driveshafts have been made stronger.

Increasing supercharger speed by changing the drive ratio has had a major influence on power increase but it is no good forcing the mixture into the inlet manifold if it does not flow freely. Unfortunately, the extent to which the porting can be modified is strictly controlled by the regulations. At present, the car uses a 2.2 drive ratio to the G-charger which results in it spinning at 15,840 rpm at the engine's limiting speed of 7,200 rpm. The double belt drive has proved very successful and was used on the Payne car in the Lombard RAC rally with complete reliability.

Camshaft development has continued and the engineers at River Fame have been surprised by how well the engine will cope with very high lifts without loss of low range torque. With further work it certainly looks as though the team's target of 300 bhp with reliability will be achieved. ■