

The Rapport Turbo Range Rover

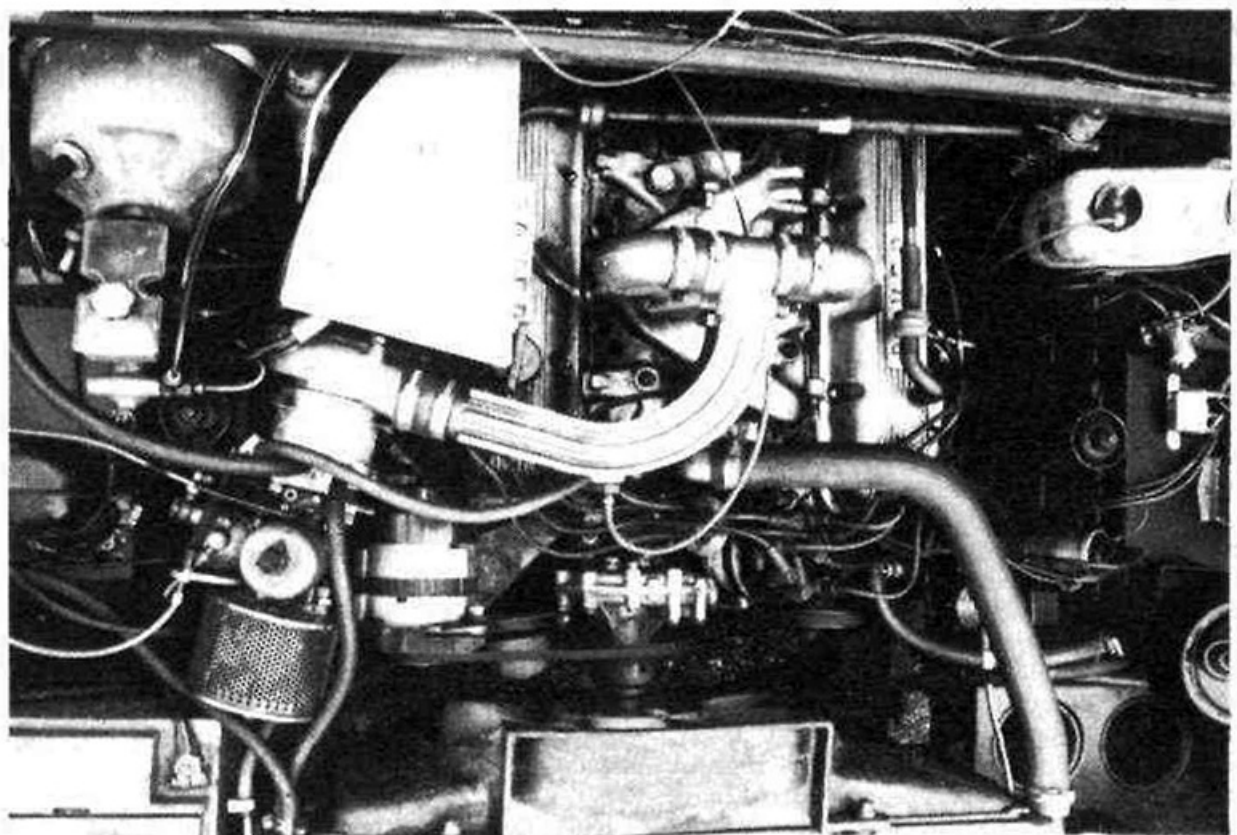
WHILE the ubiquitous Range Rover will rumble up to nearly 100 m.p.h. it is by no means the most agile of vehicles in the acceleration mode. After all, the push-rod aluminium V8 engine in this low-compression, 132 b.h.p. guise has a kerb weight of 34 cwt. to haul along, not very conducive to good mid-range acceleration. Burdened by a heavy trailer, the poor Solihull Jack-of-all-trades grows quite lethargic, especially when faced by an incline. Now there is a simple remedy to a Range Rover owner's dilemma: fit a turbocharger!

Range Rover specialists Rapport International Ltd. are offering just such a conversion as part of the incredibly comprehensive list of modifications they have available for this Leyland 4 x 4, ranging from £125-worth of electronic ignition to £50,000 plus "Middle East specials" fitted with such homely gadgetry as bullet-proof tailgates with facia-mounted, closed circuit televisions to show up would-be assassins on the sheikhs' tails. Their turbocharger installation is far from cheap at £1,495, but it transformed the test Rapport Range Rover Turbo into an almost vivid performer with a top speed of 110-112 m.p.h. and acceleration from rest to 60 m.p.h. in 11.3 sec., only a fraction longer than the standard product takes to reach 50 m.p.h. The garish, metalflake-finished test car



Modified frontal treatment makes the Rapport Turbo instantly recognisable.

proved considerably faster on mid-range acceleration, so important for safe overtaking, and impressively punchy at low speeds. Better still, the extra power and torque enabled the Rapport Turbo to take full advantage of the Fairey overdrive, a £395 option of such long-legged gait that the standard car can barely tug itself along in overdrive top except in ideal conditions. This mechanical overdrive became a very usable fifth gear and I would recommend any Range Rover owner contemplating a turbocharger to include the overdrive in the package. It operates on all four high-ratio forward gears (and reverse, I think), but a prominent warning plaque in the Rapport Turbo cautioned against its use on first and second gears: the overdrive unit will not tolerate the torque, as another journal had found



The single turbocharger is positioned alongside the o.s. bank and breathes through a 1 3/4" SU carburetter. It can be applied to both right- and left-hand-drive vehicles.



Sumptuous interior of the Rapport Turbo.

to its cost while attempting standing start acceleration tests using the full multiplicity of ratios.

The flexibility afforded by this untemperamental, turbocharged engine was quite astonishing, best illustrated by its ability to drive this heavy machine round and round in tight circles in the 27 m.p.h./1,000 r.p.m. overdrive top gear, foot off the throttle and the slightly pessimistic tachometer needle bouncing off the zero stop. And the engine had the penalty of a power steering pump to operate. No undue clutch punishment was necessary to persuade the vehicle to move off from rest in overdrive top, after which the throttle could be floored without a hiccup from the carburettor.

I said in my road test of the twin-turbo Janspeed Rover 3500 SD1 (MOTOR SPORT, April) that this 3,528 c.c. V8 seemed the perfect recipient for turbocharging treatment. The Rapport Turbo confirmed this impression, though the installation was quite different, using only one turbocharger boosting at a modest 5 p.s.i. maximum. Rapport sub-contract all their Range Rover work, so the real credit belongs with PAO Preparations Ltd. of Swindon. This Swindon-based firm run by John Clark has branched out from conventional tuning and preparation into the growing turbocharger field partly through the impetus occasioned by the employment of Alan Allard, renowned supercharger expert and son of Sidney, as a full-time consultant. PAO Allard Turbocharging Systems are offered on all manner of vehicles, from Mini 1000s to the Granada 2.1D and Mercedes 240D, but John Clark's professed enthusiasm is for his Range Rover and Land-Rover conversions. The Ministry of Defence is showing more than passing interest too, which could be encouraged by a fine class win for a PAO-turbocharged Army Land-Rover on the recent Welsh International Rally.

The PAO system on the Range Rover uses a Rotomaster turbocharger (AirResearch units may be used in later vehicles) mounted high alongside the engine's right-hand bank. A connecting pipe links the two exhaust manifolds. The compressor side of the turbocharger is connected to the standard Rover inlet manifold. A machined aluminium manifold incorporating a water-heated hot-spot is fitted between the compressor and the single 1 3/4" SU carburettor to prevent icing up or fuel vaporisation from heat soak. The brake servo

vacuum pipe is linked to this manifold. A single, big bore exhaust pipe takes waste exhaust gas from the turbocharger into the standard Range Rover exhaust and silencer system. PAO Allard claim up to 35% increase in power.

Cold or warm starts were perfectly reliable, subject to a couple of seconds of churning, useful for building up oil pressure to the turbocharger bearings. Cold starts needed full choke and continued enrichment was required for the first mile or so to prevent hesitancy. Once warm this single-turbo engine was untroubled by throttle-lag or any other idiosyncrasies found in many turbocharged cars and ran smoothly and happily on a light throttle without boost. Heavy application of the throttle brought in turbocharger boost, shown on a gauge in the fascia, in a smooth transition from as low as 1,600 r.p.m. The tachometer showed there to be little point in revving above 5,000 r.p.m., though I suspect that the genuine revolutions were a little higher. Given an adequate run on full throttle, this Rapport Turbo would persuade its tachometer to 4,100-4,200 r.p.m. in overdrive top, the speedometer indicating 120 m.p.h. or so, pretty impressive from the lofty seating position.

This greatly improved performance was done in much more hushed and relaxed fashion thanks to the muting effect of the turbocharger on the V8 rumble, though some induction hiss was noticeable from the small air-cleaner. Thick pile carpeting deadened the noise of underbonnet exertions too, but Rapport have been unable to cut down the wind noise occasioned by thrusting a barn door through the air at high velocity, nor to control the inherent transmission whine.

Rapport International, at Rapport House, Great Eastern St., London EC2A 3EJ (01-247 8341), offer the turbocharger conversion on new or second-hand vehicles, subject to suitable mechanical condition of the latter. For those owners who want to broadcast their swift Range Rover's underbonnet modifications more boldly the company offers a complete Rapport Turbo package, like the test car, incorporating flared wheel arches, a more streamlined nose treatment with modified grille, rectangular Volvo 264 halogen headlights and a spoiler and black, metalflake paint finish. The paintwork, rainbow-hued in sunlight, a dandruff-sufferer in dull-light, raised many a rude comment, plus a few complimentary ones, like that from a van driver in a traffic queue, who climbed from his seat to give praise. Additional extras on the £16,000 test Rapport included very beautifully executed, if a trifle garish, Drayton interior trim, extending even to the hidden seat-release bars, electric windows, electric door mirrors, thick pile carpeting and a huge and useful storage box between the front seats, the overdrive lever having to be modified to poke conveniently out of its front edge. Those reupholstered seats were most comfortable if not very practical for a Range Rover's more functional uses. The oil cooler was a trifle unnecessary in the cool weather of the test period and the big, chromed wheels shod with massive American 235 R steel-belted, white-walled radiators were out of balance. Standard, multi-purpose Range Rover tyres do not have a speed rating adequate for the Rapport Turbo's potential, a pity, because the handling and stability was inferior to Range Rover behaviour on standard equipment. Rapport had fitted Leyland's stiffer Norwegian specification suspension pack to this vehicle, raising the ride height by about 1 1/2".

Range Rover gearchanges are always pretty abysmal and this one, with 3,500 miles on the

odometer, was worse than most into second gear.

I have always enjoyed driving Range Rovers; this Rapport Turbo was enthralling. While I was unable to test its towing or cross-country ability the potential improvement is obvious and 100 miles in mixed conditions covered in relaxed comfort at a 63 m.p.h. average showed its capabilities as a solo road car, albeit to the tune of 11-12 m.p.g. Used less enthusiastically it ought to be at least as economical as a standard vehicle, though "economy" is hardly the right word. — C.R.