

ROAD ROVER TO RANGE ROVER

The early history of the Range Rover and V8 engine.

(Extracted from "The Land Rover, Workhorse of the World, by Graham Robson, 1979)

No other 4 x 4 vehicle anywhere in the world combines the same virtues as the Range Rover. Rover hit the jackpot in 1948, and they did it again in 1970, when the Range Rover, like the earlier Land-Rover, started a new trend and left the rest of the world to struggle along behind.

A Range Rover is no Land Rover. For one thing its price puts it in a completely different league, as does its performance. Even so, the Land Rover design team can claim it as one of their own, as the badge on the car's tailgate testifies, and much of the design philosophy is the same. If you consider the latest military Land Rover – the 101in wheelbase vehicle – and notice how Range Rover engine and transmissions have been fitted without change, you will see how one layout feeds from the other.

The most remarkable thing about the Range Rover is that it took so long to evolve. Almost as soon as the big vee-8-engined machine had appeared there was a Press chorus of 'Why haven't Rover done this before?' In fact Rover wanted to, many times, but somehow there were always more pressing matters to be settled first.

Gordon Bashford, one of the designers says: *"The original prototype was, in fact, four wheel-drive, with a lot of Land Rover parts, though we had to chop about the chassis a lot to achieve this. Maurice Wilks had come up with another new name – the Road Rover – which was perfect, and told you everything. But that first car looked very odd and we all called it The Greenhouse. It really did look like one too! It was more or less styled by Maurice Wilks."*

Maurice Wilks announced his intentions to his co-directors in 1952, and they came to a tentative agreement that the car should be put into production in 1953. Work was to carry on for several more years, however, and the specification of the car to be changed quite radically and often. Yet it was never seen in public. Gordon Bashford explains why:

"Everybody seemed to like the first car, and after the directors had approved it the vehicle was moved into Dick Oxley's area. This meant that it had become a current project – my department dealt with basic research. Despite Dick's efforts to maintain the original, simple, slab-sided concept on Land Rover lines, his brief from management escalated. They thought the original was too austere, and asked for changes to the light-alloy body shell, involving the shape and needing complicated pressings. In this way it got bigger, grander, heavier and more costly.

It never really had much priority, and by the time all the modifications had been done, Land Rover station-wagon production had built up so far that it didn't look viable. Of course, also, the Road Rover was in no way a cross-country vehicle. With conventional rear-wheel-drive it couldn't have been. It was initially meant to be only an austere station wagon – in the end it wasn't all that austere any more."

By 1957, with production tooling still not wholeheartedly committed, the Road Rover had the following specification. Although the basic P4 passenger car chassis was used, its wheel base was chopped from 111in to 97in, while the main side members were narrowed by ¼in. Front and rear suspensions were like the P4's, but modified in detail, for the designers had decided to use independent front suspension with laminated

torsion bars. The steering gear was mounted well forward in the chassis, so that there was space for future optional engines to be installed.

The engine itself was to be the 1,997cc four cylinder Rover 60 unit, which was also fitted to Land Rovers at the time. If the Road Rover had reached its customers, the standard engine would almost certainly have been the ohv 2.286cc unit, which Land Rovers inherited in 1958. There was to be no optional engine at first, though as prototype work had been done with the six cylinder 2,638cc Rover 90 engine, and space existed in the engine bay, this was a distinct possibility.

The usual private-car gearbox with fitted, a Laycock overdrive would have been optional, and the gearing was like that of the saloons. Even the tyres might have been the same, though oversized 'knobbles' were to be optional.

The body itself, recently restyled and looking very much like a current Chevrolet wagon, would have had a two door shell, with upper and lower opening tailgates. The dash panel, door inner frames and a few other details would have been pressed from steel sheet, but the rest, including all the skins, would have been pressed from Birmabright.

In spite of the light-alloy body panels, the Road Rover ready for the road with its 2-litre engine weighed about 2,850lb, which seems heavy until one remembers that the P4 passenger car from which it was derived weighed 3,300lb and provided much less space. It was not too large, either: the overall length was 13ft 8in, the width 5ft 3in and the height 5ft 3in. The ground clearance was a mere 5.4in, which would have precluded any cross-country travel the management might have had in mind.

Spencer and Maurice Wilks were still interested in the type of car the Road Rover represented, but they could not bring themselves to put it into production. With more time to spare, and if dramatic developments like the all-new Rover 2000 project had not been brewing, they might have worked another miracle. A Board meeting in March 1958 administered the *coup de grâce*: 'In view of other commitments it had been found necessary to postpone the introduction of the Road Rover'.

The idea of the car was not forgotten. Always, nagging away at the back of the minds of Wilks and others was a conviction that perhaps the world **would** buy a lot of luxury Land Rovers. By the middle of the 1960s the big Jeep Waggoners in North America had shown that a successful cross-country machine did not have to be stark and uncomfortable; from Japan (and this was hurting most of all) came Toyotas which combined Land Rover agility with much higher trim and furnishing standards; and a BBC Wheelbase program had heavily criticised the Land Rover, even though it was still demonstrably a worldwide success.

Once planning had started on the new machine, it was agreed that it could have little in common with the Land Rover. Spen King, as usual, enlisted Gordon Bashford to be his co-thinker and right-hand man on the project. Both were convinced that they could not provide any sort of luxury if they retained the Land Rover's hard and rugged suspensions. What they wanted was much more wheel movement, space and refinement. These could not be got from the 88in or the 100in Land Rover, so a radically new vehicle was needed. In any case, even though King and Bashford were agreed about four-wheel drive, the new concept was quite new; the Land Rover was a cross country vehicle that could be used on the roads, but the new design would be a road car that could cross unmade terrain if necessary. The new machine would be much more like a private car than its ancestors.

This concept made the next phase easy. It would be possible to start from the almost mythical 'clean sheet of paper', a rare pleasure for any engineer. Even though the

designers would have to accept one of Rover's existing engines, the rest – transmissions, engineering, packaging and proving – was all up to them. Gordon Bashford still recalls the way he started the design:

"We started off in the early 1960s by considering the car with the old six cylinder P5 3-litre engine. We called it the 100in Station Wagon because when I had finished sketching up the first package, the wheelbase turned out to be 99.9in, so I said we should round it up, and call it after that dimension. That was one of the few things we didn't change from first to last. We had no serious competitor in view at that time, because I don't think there was an existing machine which did what we were trying to do.

In order to get a good ride and acceptable performance across country, an awful lot of thought had to go into the suspension design. It was then that we decided that we must have low spring rates, large wheel movement, and good damping. (Self-levelling (which we have at the rear) came in at the same time. If you have low rates and long wheel movements with a high payload potential, then levelling is essential. That wasn't going to be easy, but Spen King and I visited the Frankfurt Motor Show that year where, lo and behold, we saw the Boge Hydromat levelling strut. It was ideal for what we needed. It wasn't a damper and it didn't need extra power – it powered itself, pumping itself up to pre-set level as the car started off up the road. Reliable too – Mercedes were using it on their passenger cars."

Even as first conceived, the 100in would have been a good car, but possibly not dramatically so. Something was missing. But that arrived a little later – Rover's new vee-8 engine!. There is no doubt that the Range Rover with its glorious, powerful light-alloy power unit is twice the machine it might have been; and although petrol consumption can sometimes be heavy, the engine is one feature that really 'sells' the car.

A vee-8 engine, however, after years of slow progress at Rover, may seem surprising. The credit must go to ex-Managing Director William Martin-Hurst, and it is his story:

"I was on a visit to Mercury Marine in North America to talk Carl Keikhaefer into buying Rover gas-turbine engines for his pleasure boats. However, by the time he and his chief engineer Charlie Strang had studied all the details, documents and balance sheets relating to Rover, Strang suddenly said, 'I see you have a 2¼ litre diesel', which was, of course, the Land Rover diesel. He then told me how they were developing an inboard-outboard scheme for Chinese fishermen and that they were using Mercedes diesels. So I supplied him with a couple of Land Rover diesel engines which he fitted into boats down at his private lake in Florida."

That might have resulted in very substantial business for Rover, but in the event it led to more sensational developments.

"One day I was in his experimental workshops in Fond du Lac, in Wisconsin, talking about this and that, when I saw that lovely little light alloy vee-8 engine sitting on the floor. I said, 'Carl, what on earth is that?', and he told me it was for a racing boat, and that he'd winched it out of a Buick Skylark car. I asked him whether it would be available, and I was astounded when he told me that General Motors had just taken it out of production!"

Martin-Hurst then ran a rule over it and found it to be very little longer than the Rover 2000's four cylinder unit, and only a few pounds heavier. As Rover were busily trying to slot six and five cylinder engines into the new Rover 2000 at the time, with expensive

results, Martin-Hurst was intrigued at the possibilities for Rover, and decided to approach General Motors: *"I then had incredible difficulties finding the right man at GM to talk to, and I ended up having breakfast with Ed Rollert (who was at the New York Motor Show) to talk about it. For a long time nobody at GM would take me seriously – they didn't see why Rover, in England, wanted to use one of their cast-off designs!"*

Negotiations took months, but at last Rover acquired their vee-8 production rights. The engine was redesigned to suit British methods, with the help of a GM engine designer near retirement who was flown to Solihull, installed in a flat, and used as a design consultant. As far as the Range Rover was concerned, it had found its engine, and its prospects were transformed.

The vee-8 engine found its way into the stately old P5 3-litre car, into the P6 (as the Rover 3500), and even into the Morgan sports car. It would also have been used in Spen King's masterpiece, the P8 saloon, if British Leyland had not killed it off as too good to compete with Jaguars, and it is one of several engines to be offered in Rover's brand new 1976 saloon car. In every way the ex-Buick vee-8 3.52cc engine has become a cornerstone of the Rover structure.

Such was the King-Bashford reputation in new vehicle concepts that they were allowed, even encouraged, to style their new creation. As they meant the car to be a practical estate car, with lots of ground clearance and a permanent four-wheel drive for cross-country going, many dimensions were already fixed for them, and their efforts were remarkably successful. Rover's Styling department under David Bache, were most complimentary about the prototype. In any case in the mid-1960s, the department was far too busy to take on another new project, for they were engaged in retouching the old P5 3-litre, preparing the Rover BRM Le Mans car, and starting on the very important P8 saloon.

Externally, the Range Rover as we know it, is recognisably the same as that prototype built in 1967. When it was handed over to David Bache's office, much attention was given to detail construction, to fittings and to 'produceability'. The fascia and controls, too, were a Styling specialties. Even so, the general shape, the layout and the styling masses were left strictly alone.

All the mechanicals, of course, were new. Engine, main gearbox and the four-wheel drive layout would be peculiar to this car.

The one big change in philosophy was that the new machine would have permanent four wheel drive. Then, as now, people could not understand why a more luxurious machine, likely to spend less of its time 'off the road', should have this feature, when on the more rugged Land Rover it had to be plugged in manually. It was rather a marketing somersault. The Land Rover, of course, had an optional four-wheel drive, and matchless cross-country performance; the Road Rover would have had rear-wheel drive without this option; and now the new machine was being given four-wheel drive, also without the option.

Rover planners refused to accept that this was confusing. They never had qualms, and alternatives were never seriously considered. The reasons for their choice lay in the pricing, and in the type of machine they thought the Range Rover should be. However, the simple type of four wheel drive layout found in every Land Rover was not refined enough for the new car. To take care of transmission wind-up, and to improve traction even further, the new car was to have a third, central differential, with limited-slip mechanism inside it (now deleted). That allowed the removal of one of the crop of gear levers in the driving compartment, though one was still required to select the low range gears, essential for really exceptional climbing.

Apart from the new power train, there was plenty of technical innovation to keep the press happy. Disc brakes on all four wheels, self-levelling rear suspension, a live front axle where independent suspension might have been expected, safety belts built into the front seats, and a host of other details all added to the interest.

Prospects for the new car were so encouraging that its release was rushed forward by the new British Leyland management. Rover managers, unaccustomed to haste when it came to capital commitments, might have taken more time if the firm had still been independent. The first prototype was not finished until August 1967, several months after Rover had merged with Leyland-Triumph, but the first production car was shown to its public in June 1970. This was not dramatic progress by comparison with the first Land Rover which made the same jump in about one year, but by current Rover car standards it was breakneck speed. To experienced observers of the motoring scene, the rush was obvious. Deliveries started very slowly and waiting lists built up rapidly. Once deliveries began, a new legend began to form. Surely Rover had done it again? This was another versatile machine that could go on for a generation.

The customers had to decide for themselves what sort of machine it was, as they had done with the Land Rover. Rover's management were sure of its engineering, sure of its versatility, but unsure of its new clientele.

At first they had to sit back and wait for trends to develop. They had to find out whether the Range Rover would sell to cross-country users, to the well-to-do, to the 'leisure and pleasure' market; and whether it would be used as a workhorse or as a large and commodious estate car. With the original Land Rover, of course, they had guessed wrongly. They had intended it to be a tractor that could be used on the road, but its customers had found other uses for it. What about the Range Rover?

In a survey carried out in 1972 Rover distributors in Britain persuaded several hundred Range Rover customers to list their professions, and their plans for their new buy. Nearly two-thirds of the vehicles were being bought for dual purpose use, which scotched the theory that the Range Rover was too elegant to be taken off the roads, and the vast majority of the customers were engaged in business, farming, estate management, building or construction. Only three purchases stated that their Range Rovers would be used purely for business, and of the rest, the purely 'private' customers, most were in the director/senior executive/professional classes, and would use them for leisure and pleasure. More than 70% of the respondents said they would be using Range Rovers for towing such loads as horse boxes, caravans, boats and trailers; and nearly half said that their new machines would not normally be used 'off the road', except for manoeuvring and in emergencies.

The bad news was that about one in three of these customers were trading in Land Rovers or Rover cars, and said they would normally have made a direct exchange. In motor industry terms this was 'substitutional selling', something any firm would rather do without, for it is not good for any new model if its sales are achieved at the expense of existing cars in the same maker's range. This figure however, was falling all the time, and was expected to continue falling.

Peter Garnier, then Editor of Autocar, soon found out what the Range Rover was not: "*I found myself wondering exactly what market my Range Rover appeals to. When I first took it over, I made a point of showing it to several farmer friends at home.*

I've got just the car for you, I said proudly, It'll do everything you want – run around the fields all day, loaded up with hay, cattle-feed, pigs, anything you like. And then you can put on your glad rags and go out to dinner in it in the evening.

Invariably the answer was: You're wrong. We use our Land Rovers all day for the job, and the only cleaning they get is when the muck starts falling off them. We want something entirely separate in the evenings ...who wants to go to a party in something that smells of pigs?"

What the Range Rover has, however is a presence, an ambience and a touch of authority. On the very day the car was announced, a friend arrived at my house in a press car version, and we went out for a spin. First impression was of the magnificent view. A range Rover is 5ft 10in high, much more lofty than most modern cars, and I had forgotten how much of the countryside is no longer visible from them. The second impression was of the way other traffic reacted. We would drift up behind another car, then toot and wait for the reaction. The driver, glancing in the mirror of his car and seeing the massive Range Rover nose behind him would soon make way.

The Range Rover won Coachwork Gold Medals at Earls Court in 1970 and 1971, in addition to the Don Safety Trophy for its engineering features, and in 1971 the RAC's Dewar Trophy, Britain's highest automotive award, for 'advanced development in automobile design'.

There were a few complaints which were speedily dealt with. The steering was a touch heavy for a woman driver to haul around, and power steering therefore became optional. The rear window could become coated with dirt, so a wipe/wash feature is now standard. Trim and furnishings were thought to be somewhat spartan, and the latest specification with its carpeted floors is rather more comfortable. Instrumentation is now comprehensive, to take care of the original criticism that it was too meagre; and dogs that could not keep their footing on the untrimmed rear deck are now able to stand comfortably on a moulded floor mat,

When the Range Rover's British selling price broke through the UKP4,000 barrier in 1975, some Rover managers were a little apprehensive. No Rover car had been so expensive before. Would it be too much for the customer? It was not. Sales have continued to mount and more than 10,000 were built in a year for the first time.