

Chapter 5

Buyers' guide

So, which one will you choose? Whether you are buying a car to have fun in the mud or to work hard lugging big loads, the older Land Rover range has huge potential, and with prices very low many people can now afford to build their dream project.

There are a huge number of variations to choose from; often there were several model changes per year, with varying levels of usefulness. Each has its own charm, but they all share the same DNA and can be extremely capable on or off-road, or even converted into an all-out racing car.

This chapter begins by describing each of the three models' evolution, and then, because most buying advice is applicable across the model range (check the sills, rear crossmember, etc), it explains the common aspects and things to check when looking at a car to buy.

RANGE ROVER

The RRC has been through a number of changes in its lifetime. Before its launch, a handful of preproduction cars were sold off, named Velar, but the main production run started in 1970 with the two-door model. Legend has it that the trim design was not ready in time, but whatever the real reason, the original interior was very sparse; no carpets, minimal dash, and simple vinyl



The original Classic Range Rover when launched in 1970 had a beautiful simplicity. (Courtesy Land Rover PR)



The original Classic Range Rover interior; simple but functional, and reasonably comfy. (Courtesy Land Rover PR)

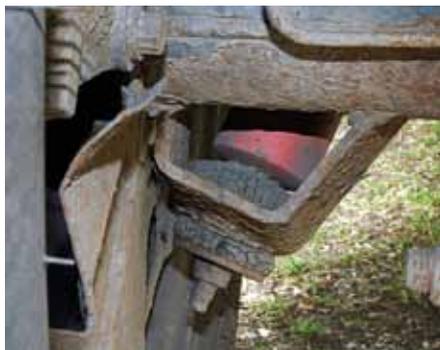
AGEING

Many parts age, even when not in use; most notably rubber, which reacts with oxygen in the air to become hard and brittle. Sunlight speeds up this process and tyres stored in the open will crack within a few years. But even hidden parts, such as cooling hoses and fuel pipes made of rubber, will perish. Ten years should be considered the maximum life of a rubber component, and six years the maximum life of a tyre, regardless of tread depth. Fuel pipes should be replaced for safety well before they show clear signs of perishing.

Engine coolant (antifreeze) gradually becomes acidic and must be replaced after about three years,



Door-mounted spare tyres receive higher levels of UV, and can perish even faster than the ones on the road. Spare wheel covers can help.



All rubber parts perish; these rear damper bushes have all but disintegrated whilst hidden from view, making handling feel slack.



The oil condition can be tested on special paper cards that let the drop of oil spread out into its component parts.

otherwise it will slowly start eating away at the cooling system and engine from within.

Mileage cannot be considered the only indicator that oil replacement is necessary. Oil ages and should be replaced every year, even if mileage is minimal. Oils also age whilst still in the can: additives separate out and form a jelly-like substance in the bottom of the can. When this happens the oil is no longer usable.

Brake fluid absorbs moisture. Sold in sealed containers, it starts to age as soon as the seal is broken, and must be discarded after a time – just as if it was in the car.

Fuel ages too, more so with modern complex blends. The lighter parts of petrol evaporate and leave a thick lacquer which can jam injectors and fuel pumps. If the car is to be laid up for a long period, fuel stabiliser fluids can be added to the tank.

Brake pads perish, and the bond between the friction material and the metal backing plate can crack, resulting in the pad failing. Often, the pads will work fine until the bond breaks entirely and the friction material completely falls out. The next time the brakes are used the pedal will travel a long way

as the calliper piston pushes the bare backing plate into the disc. The brake will appear to work again, but with a scraping noise from the metal to metal contact. However, in an emergency stop the car will veer sideways, before the backing plate is ejected, the piston falls out of the calliper, and all braking is lost. For this reason, inspect the bond on the brake pads very carefully, and replace them before they perish.



Brake fluid can turn dark grey as it ages. If it looks this black, the car is at serious risk from brake fade under heavy braking.



Look closely and the tiny crack between the friction material and the metal backing on this old brake pad is visible. The other pad on this calliper completely lost its friction material during an emergency stop.



The choice of tyre is bewildering, but each design is tailored to a specific use.

having a tyre that cuts the ground up is a definite no no.

The tyre carcass makes a big difference, too. A softer one allows the tread area to flex over the lumps and bumps on the ground, giving more traction, but it's also more susceptible to punctures and on long expeditions the drop in fuel economy can be a problem.

One of the problems with mud is that it sticks in between the tread blocks and effectively renders the tread smooth. Tyres designed for mud have deep channels radiating out from the

centre of the tread in a chevron pattern, so that as the tyre moves forwards the mud is pushed out sideways. But on sand, a mud tyre would simply cut down too deep, so a close tread pattern, similar to road tyres, is much better. Gravel tyres are designed with channels about the width of the gravel pieces, so they're gripped between the small flexible tread blocks. On mud these would just clog instantly, and even wet grass can send them sliding.

Some tyres have a mixture of tread types with a denser central band of



A narrower tyre can outperform a wide tyre where it has to sink through surface mud to reach hard ground. (Courtesy Land Rover)



This tyre has become blocked with sticky yet slippery mud, resulting in the winch being needed. (Courtesy Devon 4x4)



The tyre carcass has a substantial influence on performance; softer ones can have better grip at the expense of resistance to damage and punctures.



The chevron tread pattern has forced the sticky mud out into a band at the side of the tyre.



Of course, you could start making your own monster truck. Here, the tyre is offered up to work out wheelarch modifications. (Courtesy Devon 4x4)



be used for extended periods the heat issue goes away, too. As ever, it's a matter of choosing the right tool for the job.

A small lightweight winch doesn't necessarily mean less pulling power. By using pulley blocks you can double up the pulling power, in fact, with a pulley block on the front bumper and two attached to your anchor point, you can get four times the pull force. It will only travel a quarter of the distance, but



Sometimes the only way to get out is with a winch! Essential equipment on this Camel Trophy Defender 110. (Courtesy Land Rover)



The winch here is mounted behind the bumper, which reduces front protrusion, but means the grille must be modified to fit it.



This rear winch has a solid fairlead, synthetic rope, and substantial recovery eyes securely welded-on – ideal for doubling up the rope via a pulley.

There are many types of rope, and the right choice depends on the application. This synthetic rope is very strong and light.

that's usually enough to get you out of a hole.

There are three main types of winch, depending on how they're powered. The most common is an electric winch driven by a 12-volt motor, but this is limited in performance by the electrical system. Next on the list is a

how you are likely to use it. For Challenge competition machines, you need both speed and power, plus the ability to dissipate the considerable heat

generated by the motor. By comparison, a car designed for gentle Green Laning only needs a small winch, speed is much less important, and as it won't

hydraulic winch, powered by a hydraulic pump usually belt driven off the front of the engine. These offer very strong pulling power at low speeds and great



It's a brave man that cuts up his family car in order to build a dream. Here, the bulkhead is trimmed to fit the engine. (Courtesy F Buxton)



A full engine bay; supercharger, LPG system, split charge, winch controls, and ARB air pump all sit neatly together.



Engine ancillaries dictated that the steering box had to move outboard of the chassis. The solution is a P38a box and custom link rods.

fans, it also has a custom-built radiator for the air to water intercoolers with its own electric coolant pump.

All the associated wiring had to be stripped out and remade to incorporate the Jaguar electronic throttle and the engine control system.

The Sport exhaust manifolds were attached to a custom system made from a mixture of Land Rover parts cut-and-shut to fit.

At that point everyone was called

round for a ceremonial start up, and the engine fired up first time, sounding utterly awesome in the small garage.

As this was the main family car it had to be economical, so Franc fitted a top of the range LPG system with full sequential injection. It has two underslung tanks (with recesses in the floor for good ground clearance) plus one in the boot – range is important

for the annual family holiday as well as several Green Laning trips each year.

The car has several subtle but effective off-road modifications like protection plates, jackable sills, and the heavy-duty solid steel bumpers incorporating recovery points. Have a good look at the photos and you might just spot the front winch which is brilliantly subtle. The usual boot contents include a high lift jack, felling axe, and a bow saw (all of which

get used) so the car's total weight is approaching that of the Range Rover Sport.

As mentioned earlier, the auto 'box was not quite normal. Franc built his own gearbox ECU and now has full manual shift control commanded from a steering column switch, as well as an auto option with his own shift program.

The handling has been developed over time by Franc and is supple without being too soft. The front springs are off the back end of a Defender, and the rear ones are police spec RRC with 40mm spacers. Dampers are adjustable Konis all round and poly bushes keep the links under control. He also fitted Discovery anti-roll bars, which can be detached for extreme off-road use.

The inside bristles with technology. As well as the usual GPS and CB mounts, there's also a special platform for the laptop computer – useful for navigating, and for tuning the engine and gearbox ECUs.