

RANGE RIDER

P H A S E III



The bike
to take you anywhere
you can go.

THE FRAMESET IS built entirely of Reynolds 531 butted tubing. It features a head angle of 71° combined with a trail of 2½" to provide a soft ride, and a rake of 1¾" for positive steering response. The seat tube angle is 73°, to promote, among other things, more efficient hill climbing. The wheelbase is 42½". The bottom bracket is a Durham 'Bullseye' sealed bearing unit which features roller bearings to take vertical load and ball bearings to take end thrust. The bottom bracket axis height is 12⅞". This added height gives an actual ground clearance of eight inches, which allows the use of long cranks for extra torque as well as the ability to jump considerable obstacles *en route*. Normally one must dismount, heave the machine over and remount; an operation which must, on occasions, be accomplished in confined and awkward circumstances. To avoid crushing the chainset whilst leaping these hazards there is a bolt-on 'bashplate' (1). This is, in effect, a plate set *inside* of the chainwheel with tangential extensions, one forward for anchoring on the front down tube and one rearward, following the line of the chain as far as the rim of the rear wheel, to prevent a rock or log that is being negotiated from ramming up between the chainset and rear wheel, aiding the general operation with a sort of *skating* action. With a little practice you are up, over, and away - even a log of 20" diameter presents no problem. The bottom bracket height results in a riding position that must be a compromise. To reduce this problem I fit Shimano 'Dyna-drive' pedals (2) and there is a brazed-on quick release seat pillar binder bolt (3), so that, with the half-turn of an allen key, the seat can be raised or lowered to suit the terrain. This allows one to use 'body-lean' to transfer your centre of gravity; a technique for maintaining balance in *nadgery* or maximising on traction in sticky patches. The wide, straight type handlebars impose tremendous torque on the steering tube, so there is a special stem clamp (4) fitted just above the top headset. This clamp prevents the handlebar stem working loose and overcomes the problem of having thus to overtighten the wedge bolt with the resultant swelling of the steering tube and the risk of sheering the bolt. To avoid bending the handlebar stem it should be set in as far as it will go; for this reason the headtube is longer than normal for this size of frame. The top tube is lowered to allow straddling, with a double taper duplex triangulating crossbrace (5). The frame is finished off with brazed-on cable guides, cables are fully enclosed throughout their length, pump pegs, water bottle bosses, vertical dropouts, steering lock bracket, shoulder strap brackets, rear carrier and mudguard fixing points and an alloy chainguard bracket. This chainguard (6), is set between the rear wheel and the chain top run, to reduce the

amount of mud that is transferred from the tyre onto the chain.

THE WHEELS ARE built from Super Champion '650B' 26" x 1½" alloy rims with rustless 12g spokes laced 2X and 'Cleland' small diameter alloy hub brakes. These hub brakes (7&8) are light in weight and offer all the advantages of hub braking efficiency and reliability. As well as this they feature heavy duty spindles; 10mm front and 12mm rear, and a 4mm shroud around the brake plate. The innertubes are made by Nokia of Finland. They are heavy duty tubes designed for use in sub-zero temperatures and are thus able to stand up to the low pressure use frequently necessary when *tough* rough stuffing. Tyres are 'Stud Hakkas', 1⅝" wide on the front and 2" wide on the rear. As with the innertubes, these are designed for snow and ice riding; not only do they have a deep, knobbly offset tread pattern, they are also fitted with tiny tungsten carbide studs. These will bite into slippery surfaces and offer grip - when all seems lost. These tyres perform well when inflated hard, but will offer unparalleled traction when used at low pressures (about 20lbs - *depending on load etc.*) without bottoming, rim creep, roll-off or sidewall splitting.

THE SADDLE IS a twin coil, narrow, *randonneur* type. A sprung saddle is absolutely necessary with upright riding, otherwise back problems will follow. A narrow saddle is desirable, to allow for slipping off and onto the rear carrier, in the event of steep descents or low branches ... *or both*. Seat pillar is Laprade, with a 200mm extension, for which micro-adjustment requires the turning of just one allen screw (11).

THE MUDGUARDS ARE made of unbreakable plastic with central rubber mountings and minimum tyre to mudguard clearances of 2" (9). The front mudguard features a large, fabric backed, PVC mudflap. This material is very strong yet flexible and so does not *self destruct*

like many others. The front mudguard also features a long forward extension (10), to prevent 'fly-back' mud, and is supported by two heavy duty rustless stays, designed to leave the front *wheel open* and eliminate the all too frequent danger of twigs and the like catching up between the spokes and stays - usually having you off.

THE HANDLEBAR ASSEMBLY has T6 alloy trials pattern handlebars. At each end, inside the Oakley 3 contoured handgrips are Sun Tour 'Thumbshifter' ratchet gear change levers (12&13). With these levers ratio changes can be made without taking your hands off the bars; the benefits of this feature must be obvious. Brake levers are special alloy, which is not brittle so that levers can be bent straight in the event of damage after a tumble. Made by Magura and normally fitted to motorcycles, they offer excellent leverage combined with the comfort afforded by the broad, smooth blades.

FOR THE TRANSMISSION I have selected the Shimano 'Deore' system. The chainset is a double: 28/45, and the outer ring is a very strong chain and set guard (14). Cranks are 170mm but, because of the 'dyna-drive' design, they are equivalent to a 180mm crank and effectively lower the bottom bracket height by 10mm, *without* any loss of ground clearance. The front gear mechanism has a high capacity with a

special inner plate to facilitate easier changes with wide ratios. The rear mechanism is of simple design, with sealed pivots. The freewheel is 14/34 offering a gear range from 22" to 87", chain is the very strong 'Sedisport'.

FOR THOSE OCCASIONS when you *have* to lift or carry the Range Rider - over a stile or up the stairs at railway stations (that is if you don't *ride* up the stairs ... someone will do it one day!), there is foam cushioning (15) at the lifting point on the seat tube with a broad leather shoulder strap (16) and a simple action steering lock (17). The special narrow alloy rear carrier is just 2½" wide and designed to accept panniers from the exceptional Andrew Hague luggage system, which offers the widest variety of cycling panniers and bags, all thoroughly tested before going into production. This carrier is more suitable for day or weekend use as its weight capacity is limited.

For further details contact:





These photographs show Range Rider prototypes on test in the Isle of Man.