



How the New Rover 3500 is Made

The Editor visits British Leyland's £31-million factory at Solihull

I WAS GLAD to avail myself of the GMW's expedition to the new Rover factory at Solihull last month, because this is a very significant contribution to Britain's hoped-for future prosperity. I had tried to look over this fine new factory previously, when testing the then-brand-new V8 Rover 3500, but there was nothing doing. There was nothing doing on the occasion of the later visit, in as much as the production-lines were temporarily at a standstill again. However, this enabled those GMW members who carry cameras to get some uninterrupted views of the vast assembly-lines, and on our long hike round this huge factory we enjoyed unexpected peace and quiet!

Having made the journey from Wales in, appropriately, a Rover 3500 Automatic, that is to say, in such quiet luxury that I believe this latest Rover to be the Thrifty-Executive's Silver Shadow, I had no complaints. And to say that this great new Solihull manufacturer of Rover private-cars, Land-Rovers and Range-Rovers impressed me, would be an understatement. It threw me back years, to the time, in 1955, when I was at Wolfsburg for the one-millionth VW Beetle release and was so enormously impressed when walking through that $\frac{3}{4}$ mile-long galley from which you were enabled to look down on the post-war outcome of Hitler's unrealised dream (MOTOR SPORT, Sept. 1955). At Solihull you look down on a 23-acre car-assembly hall, and inspect the unique three-story paintshop through giant glass windows which enclose the various spray-booths and drying-ovens. That is but part of this great new BL plant, which to my eye dwarfs the once-so-stupendous VW factory.

There are the statistics, if you want them. Such as, that to build this factory not far from Birmingham's Elmdon aerodrome required 8,900 tons of steel for the pvc-coated steel-and-brick structures of the two buildings. Foundations and floors took 130,000-tons of concrete.

The total paintshop area is 556,000 sq. ft., the aluminium roof-panels having an area of four acres, the area of the assembly hall 995,000 sq. ft., requiring seven miles of roof-glazing. In addition, there are six-acres of employee's car parks, and three miles of A1 standard roads round this vast complex, which has a total area of 1,500,000 sq. ft. It is mightily impressive and it is right that, as it was built with our money (it cost a total of £95,000,000 to launch the Rover SD.1), we Britishers should be proud of it. . . . Even the environmentalists should be happy, with the careful siting of this great plant, not far from Solihull's shopping centre. They tell you that the factory you come upon after driving down Darnson Lane is so immense that it couldn't be fitted inside the six Showhalls of the National Exhibition Centre, a few miles away.

What goes on inside this great new Solihull factory - when the operatives are at work, that is? At present it is used to produce Land-Rovers and Range-Rovers in the South Works, which was a jet-engine Shadow-Factory during the war, for painting and assembling the current Rover 3500 in the new East Works just described, which has a surplus of capacity, so that other Rover models and, eventually, another BL make will be assembled there, while the North Works, opened in 1963, is being converted to manufacture transmission power-trains. The new S.D.1 plant employs a total of 3,200 operatives staff, and has a present capacity of approx. 240 new Rovers per day. This Lode Lane site covers altogether 316 acres and employs some 8,000 persons. (There are also the old 8-acre rope-works in Garrison Street where 750 people make Land-Rover chassis and trim, and the small works in Clay Lane, Coventry, where 130 employees make Land-Rover roofs and body panels.) The total personnel involvement is around 10,600.

How is the fine new Rover 3500 made? The unpainted body-shells arrive from Castle

Bromwich six at a time, in ingenious double-decker transporters. They are taken into the works on one of six parallel lines, to be marshalled by computer. In the paintshop, processing is done on the ground floor, the drying and baking at the top. After degreasing, the body-shells are drawn on a flat-bed roller conveyor through the phosphating tunnel, where they are alkali and phosphate sprayed, and are then given five separate hot and cold rinses. After this, they are air-dried and are then cooled to the correct temperature for dipping in a 46,000-gallon primer bath. A thickness of 0.0008 in. of primer is electrically deposited on the external surfaces of the bodies and then they emerge from the tank at an angle of 30 deg., to drain off. They are next passed through ultra-fine filtered rinses and a de-mineralised water-spray. After air-drying the shells are lifted to the second floor of the paint shop, to be baked in a 420-ft.-long oven for 15 minutes at 360 deg. F. They are then moved to a raised deck on the first floor of the three-storey building, for crack-sealing.

The next operation is done on an overhead conveyor - the application of undercoating, applied by hand and then by twin sprays. This sealing is hardened at 180 deg. F by a hot-air blower. The surfacer coat is then sprayed on, at above outside pressure, air passing through this booth being filtered three times and controlled to ensure a settled coat. A 300-ft.-long wet sanding deck is entered next, where the surfacer-coat is smoothed by machine but where hand-flattening is also employed. After baking and inspection, the body shells are marshalled in a three-line area, where matching batches are built up for painting without too many colour changes, although, if necessary, such changes can be made without interrupting the flow of shells through the painting booths.

Painting of the Rover 3500 bodies is done in a 210-ft.-long booth containing four automatic sprays, with hand-operated stations between them. Four coats of acrylic paint are applied, wet on wet, to a final 0.0025 in. thickness. Any areas requiring special attention are looked after by the operatives. Here it is important to mention that this Rover installation not only has the aforesaid huge glass windows, giving good working conditions, but so well are paint fumes and contamination controlled that the operatives can dispense with the normal protective clothing and face-masks usual in other paintshops. A floor-level water stream collects paint surplus, which is later recycled, and very thorough air-filtering makes this happy situation possible.

After painting, the body-shells return to the top floor, where they go through a 400-ft.-long part-curing oven at 180 deg. F for five minutes. If they pass the next inspection they then have ten minutes at 255 deg. F in another stove. Yet another inspection follows, minor blemishes are rectified, then comes baking for two minutes at 180 deg. F. The thermoplastic paint flows and smooths itself, so that little polishing is required. But the bodies finally go to the top floor again, passing through a 630-ft.-long oven at 310 deg. F, where they remain baking for a minimum of 25 minutes. They are then allowed to cool naturally and if they pass a final inspection they go to the ground-floor storage area. At the time of my visit a new blue metallic finish was on the paint-lines. In all, 13 processes are involved in this very advanced and ingenious BL paintshop.

The operatives in the assembly-hall have similarly light and airy conditions in which to work. Instead of the body-shells being moved up and down for different operations to be done on them, in this new Rover factory they progress on

automatic flat-bed roller-transporters, in three lines, each line turning out some 80 cars a day, at an eight-foot level, so that components can be brought up to them easily, in some cases on pallet-trucks running in tunnels beneath the assembly-lines. Each assembly-line is 1,400-ft.-long and has 70 assembly stations. Quality inspection takes place at every 10th station.

From the paintshop the bodies go over a covered bridge to get to the ends of these assembly lines. As they proceed they are fitted with lamps, horns, mudflaps and electrical hardware, then with heaters and fuel tanks, etc., next with instruments, carpets and trim, then with handbrakes, screens, headlinings, etc., after which steering wheels, radiators, batteries, and so on, are fitted. An overhead conveyor then lifts the shells for their return on triple lines, back down the hall. At the beginning of the return lines the engines are delivered from the right-angle engine-build line and the axles from the similar but facing axle-build line. After these essential components have been fitted the engines – based on the old General Motors' Buick light-alloy power unit, but now revving to 6,000 r.p.m. and with sand-cast cylinder blocks, press-fit liners, die-cast cylinder heads and pressure-cast front timing covers, all supplied by Birmingham Aluminium of Smethwick – arriving on overhead conveyors – but the bodies then being dropped onto them, the seats, trimmed with velour upholstery made in the factory and the doors are sealed with a new material that seems to have cured the former chronic wind roar. The wheels and tyres are then added and the finished cars then proceed to the rolling test-beds, the final valeting-bays and the last careful inspection, well-known to anyone who has been to a modern car-making plant. Road-tests are also undertaken, sometimes for as much as 80 to 100 miles. That, in brief, is how the V8 five-door self-levelling Rover 3500 fast-back is made.

When I was at the Volkswagen plant in Germany 22-years ago I was amused to be able to hold a VW ignition-key aloft, as the millionth-Beetle rolled off the end of the production line. Last month I was pleased to have in my possession a Rover 3500 key. It is too early yet to tell you how reliable this car is going to be. But when the MD was running it in for me, he remarked that it was nice to find a British car that had given no serious trouble in the first 1,800 miles. The only snag was that Henlys, who supplied it, were unable to take it in for its 1,000-mile free inspection until it had done 3,185 miles. (The servicing seems to be geared to those who only do 12,000 miles a year.) Since then the mileage has gone up to 4,850, with continuing satisfaction. I hope to report equal satisfaction after a much longer spell of service, for we must pray that this new Rover 3500 (which in my case is returning 24.2 m.p.g. in Automatic form and which has, I understand, a far lower drag co-efficient than the former Rover 3500 or an Audi 100) sells to capacity, remembering that a very great deal of British finance, effort and work-force is involved. –W.B.



The vast new Rover complex covers 1,500,000 sq. ft.