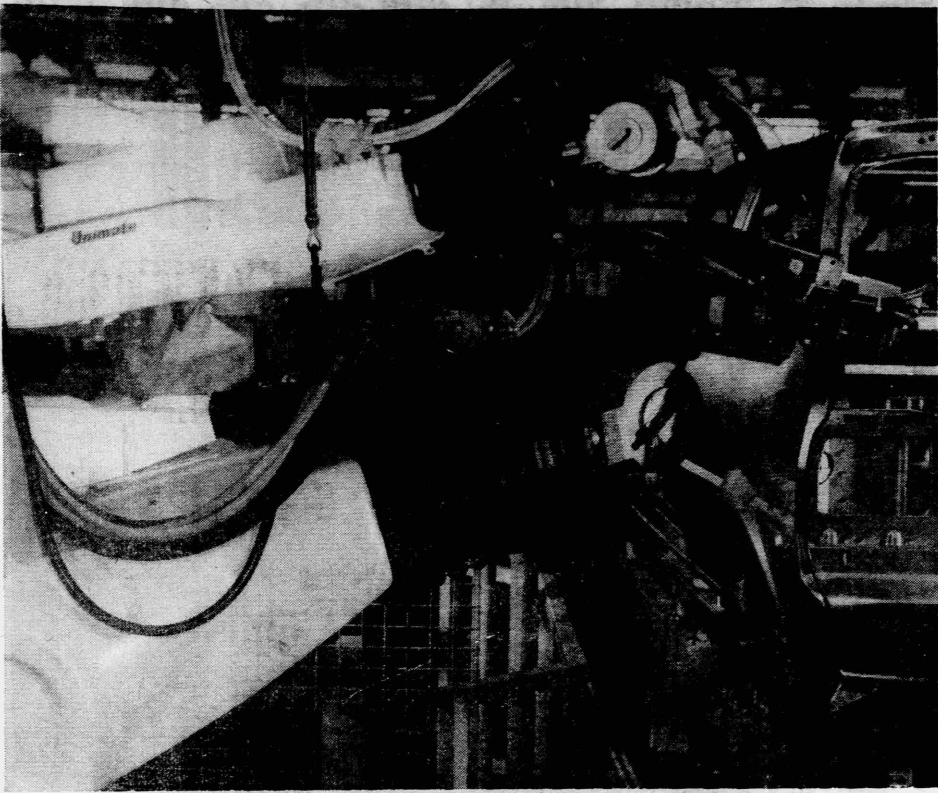


by **KEN WELSBY** and **TONY WILLARD**



Robots at work... and not a man in sight as a Metro body shell is built up.

It must be right first time

ONE thing is certain about Mini Metro: Austin Morris has to get it right first time. Thousands of motorists have chosen not to buy British because of the teething troubles of Princess, Allegro, Rover and other BL cars. Metro must not suffer the same problems. This is why the smart little three-door hatchback is going through a rigorous test exercise before the public gets a chance to buy it this autumn. It has already been driven 800,000 miles to weed out the problems. Mini Metro sounds like a new car from the Continent (it was the name Longbridge workers voted for in preference to Mini Maestro and Mini Match). But its job will be to woo buyers away from an impressive array of European "superminis."

The knack

How will Austin Morris crack this competition? Their recipe for success is to make the Metro the right car at the right time, and build in a high degree of quality. At today's prices the cheapest Metro would be about £3,000. Ford has always had the knack of getting a new car

in the showroom with supreme timing — that is not easy, since a modern car has a two-year incubation period. Metro is small, spacious, refined, economical — the car for the 80s. Fleet buyers, distributors and design consultants have all given Metro their blessing. To be a complete success, Metro must eventually be sold internationally at the rate of around 5,000 a week. What makes Austin Morris think it has a winner?

Reasons

The men working seven days a week to get it on sale on time give these reasons: **Space** — exceptional interior room in ratio to the external dimensions. **User costs** — cheap servicing and repairs. **Certainty** — customer confidence in reliability. **Comfort** — quality seating, with a new form of suspension. **Economy** — their "ace in the pack," and high miles per gallon figures will be a vital selling factor. **Safety** — plenty of protection for the driver and passengers. **Style** — it IS a good looker. And the first letter of those seven words spells SUCCESS.

When the machines start to wave their arms about

THE new Mini Metro works is one of the most highly automated car body plants in Europe — and will be among the most efficient in the world.

Each body is built up from more than 20 metal panels, ranging in size from a complete side to small sub-assembly components less than 18 inches long.

The panels are pressed on computer-controlled presses at Pressed Steel Fisher's Swindon factory, and delivered to the rear of Longbridge's New West Works by special trains and trucks.

Each pallet or tray of panels is labelled with a special identification code which is read by a computer as it is unloaded, and used to keep track of it thereafter.

The panels are stored in a giant automated warehouse which looks like a giant Meccano structure, and which holds enough supplies for seven and a half day's full production.

Driverless cranes roll up and down the aisles between the huge storage racks and can deliver any body panel within 57 seconds.

From the storage racks, fork lift trucks carry the panels to the robot welding machines —

Once the panels are loaded on to the start of the assembly line they are carried on 14 miles of overhead conveyors.

The first stage in the body building is to assemble the underbody from its three main panels — floor, boot floor and front bulkhead.

It is done on giant multi-welder machines,

about as big as the average semi-detached house, which clamp the panels together then weld them with pinpoint precision.

The job is completely automated, controlled from a push-button panel — and only 13 operators are needed, compare with 80 to do the job manually. And they turn out a complete underbody in just 42 seconds.

These underbodies are "mated" with the roof and other panels by a row of robots on either side of the main body assembly line.

The underbodies are dropped gently from the overhead conveyors and the other panels join them as they roll along at a brisk walking pace.

Smooth running

Operators at the side of the track load panels — such as roofs — into special magazines which feed them into the system one at a time.

To make sure that tea or toilet breaks do not stop the track, an operator can load the magazine with 15 minutes supply of panels.

With welding guns at their "fingertips" the robot

arms swivel, twist, bend and turn to reach under, over and inside the bodies, welding every joint and seam.

Assembled at Telford by Unimate — the American company which is the world's leading robot maker — they have been programmed by a team of experts at BL Systems, the Redditch-based company.

Conveyors carry the completed body shells across the bridge over the Bristol Road, first into the new paint shops, and then into the giant CAB-1 main assembly building, which has been completely modernised and extended.

The key to smooth running of the assembly plant is the new automated painted body store, controlled by a computer which decided every 42 seconds which car — in which colour — should be built next, and despatches the body by conveyor onto the assembly track.

Then the bodies roll out onto the track, ready for people to take over again.

For the job of fitting engine and transmission, electrics, glass, seat and interior trim is the part of final assembly which no robot can tackle — yet.

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