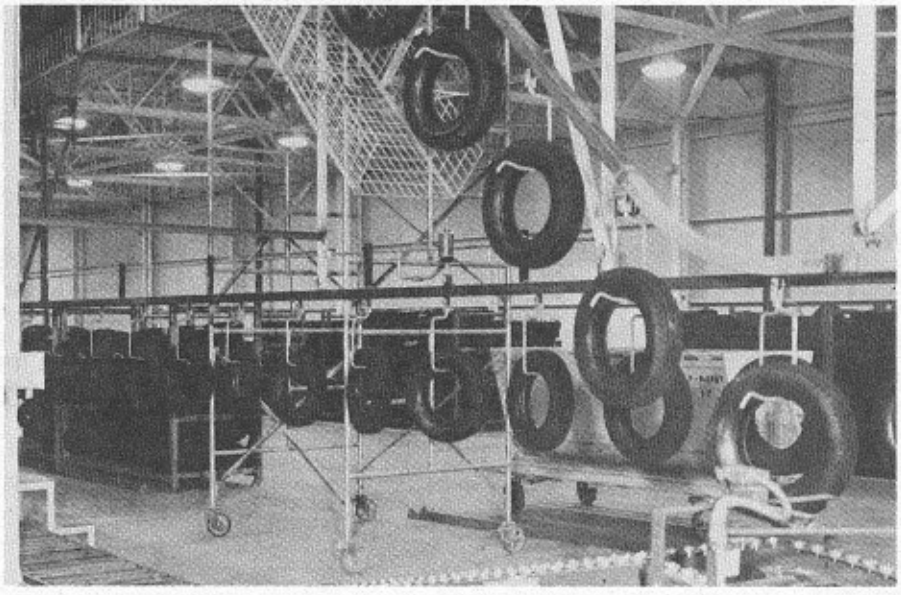
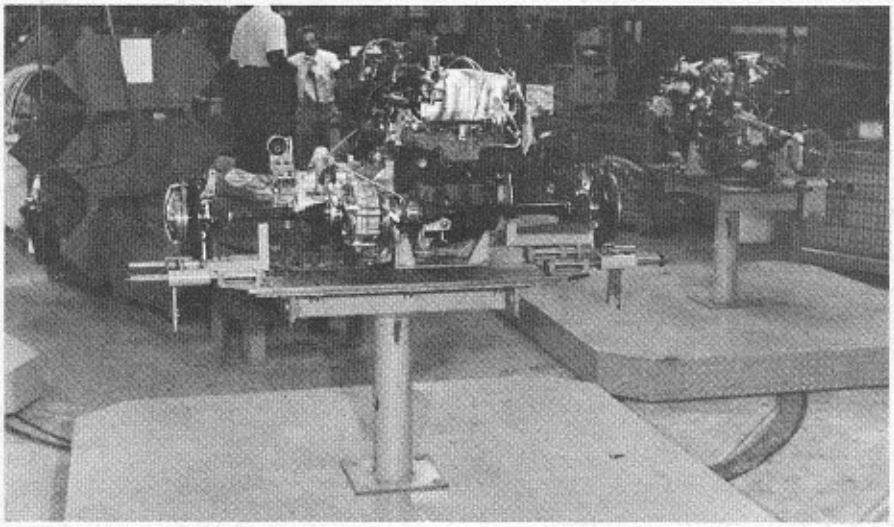
Where others duck phone calls and let secretaries take the message, the new VW plant created a special job designed to bring the complaints in faster. It isn't that they want the owner to get madder sooner, but when you're pouring out 800 cars a day, the trick is to find out about the complaint early before volume builds up and turns into a mass recall. So, one of VWs newest jobs is to coordinate suggestions and complaints coming from dealers and from VW service departments. In effect, the new Westmorland, Penn., plant wants to know about problems yesterday.

Instead of just opening the doors and turning on the switch, the plant has been working overtime at putting out the least possible amount of Rabbits; concentrating instead on training people, perfecting the operation and doing all the things that a team goes through in spring training. The State of Pennsylvania rolled out the royal carpet for VW, put in lots of effort and hoopla, and was accused of practically looting the state to bring in the interlopers. But, the hard facts of life are that VW received the plant as a shell—there wasn't even a floor—plowed in untold amounts of money in machinery, with more to come, and helped solve a small unemployment problem. For instance, there were enough acceptable applications to staff the plant twice over.

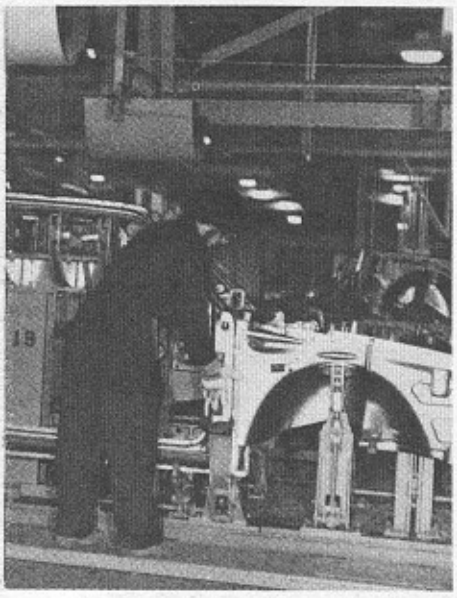
Many experienced ex-GM, Ford and Chrysler people have been busy shaping up the plant and getting it ready to go from a single to a double shift by the end of the year. This will mean 800 cars a day, 400 a shift. Naturally, wanting to see Rabbits proliferate, we immediately inquired about the potential of a third shift and were told that this is an absolute impossibility. They need downtime for repair of equipment, general maintenance, overlap between shifts, and there just aren't enough hours in the day beyond two shifts.

Operating an assembly plant is like orchestrating a symphony, only much more complex. There are long stacks of tires and wheels getting mated, body sections that must be preassembled, windshields come in from the top, engines are added from the bottom. The tuning is different for automatics than for stick shifts, so the correct assemblies must be funneled to the line at the





TOP BOTH PAGES, by the time the side section of the body is welded on, it contains a complete door frame, room for the windows, and has become a separate structural unit. THIS PAGE CENTER, tires for the Bunnies descend from a storage area to meet with the wheels and are assembled on automatic equipment. THIS PAGE LEFT, here an almost completed Rabbit descends from the sky with the help of a steel sling.



"WOLFSBURG" U.S.A.

A CLOSE LOOK AT THE RABBIT'S NEW HUTCH

BY ALEX WALORDY

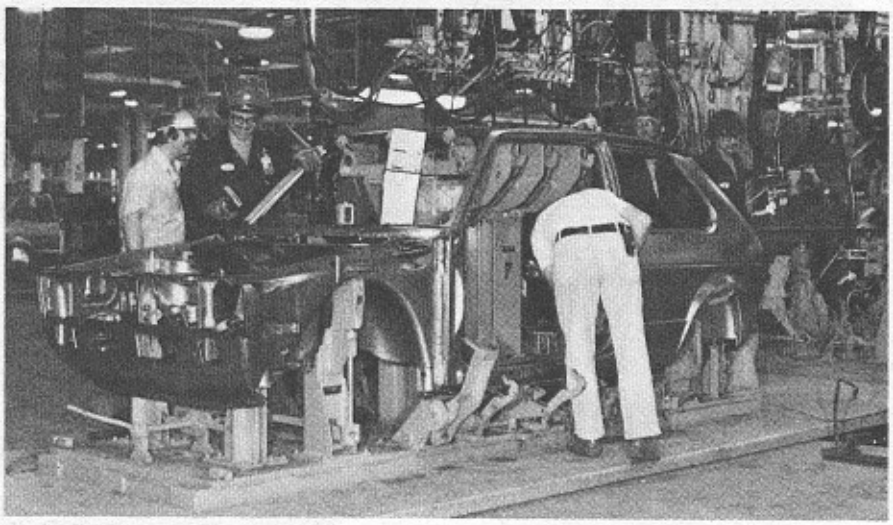
same time and each car is slightly different from the other. In the new Westmoreland plant, all of this adds up to an enormous amount of planning, sorting out, and get-ready time.

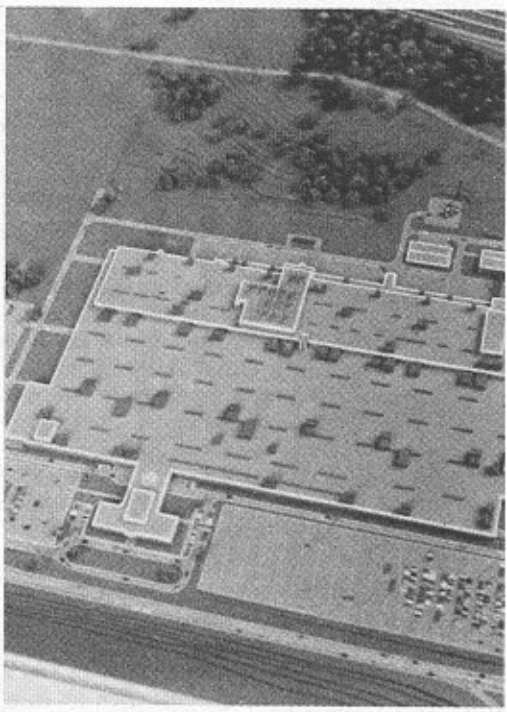
Originally VW had planned on a stamping plant adjacent to the assembly area. Along came the opportunity to buy a stamping plant from American Motors, already in place and operating, but located in Charleston, rather than in New Stanton, Penna. Flexible as always, VW now uses that plant for some American Motors parts, but mostly for their own use. Press tooling is predominantly American, and another press line is now in transit to Charleston so that they can meet the projected car assembly schedules. VW being truly international, sheet metal stampings move from Charleston to not only Pennsylvania, but also Mexico, and reverse traffic takes place with Pennsylvania receiving Mexican bottom floorpans.

Converging on Westmoreland are racks with 40 body sides apiece, separate inner and outer door sections, inner and outers for the hoods and other individual items which must then be made into sub-assemblies. Ample amounts of automatic equipment weld doors and complete the body sides. All of these sub-assemblies then converge at main body jugs, sides are welded to the floorpans, the roofs and the sides are hemmed in at the top, and also welded to each other. You can see large well-counterweighted welding guns sparking away, and rollers automatically crimping sheet metal together.

There is no such thing as filling in gaps with weld—everything must fit and it doesn't just happen by accident. All jigs are tested against a master body before being put into use. This ensures that they will be well-aligned. When science fails, working inspectors on the line give a hammer tap here and there, just like the elves in the Black Forest did on the original Beetles.

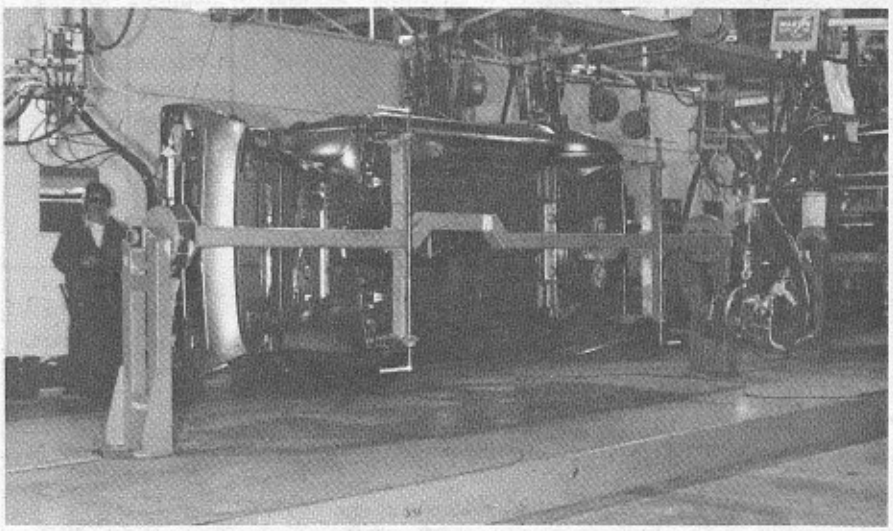
You can prepare a better Rabbit when everything is within easy reach, so the bodies are mounted on the automotive equivalent of a rotisserie spit; a turn of the crank and the body swings, exposing the underpan from either side of the line, so that welds and insulation can be conveniently completed. Not only do the bodies ride, as in a conventional assembly line, but so do the





OPPOSITE PAGE BOTTOM RIGHT, the engine arrives as a block and head assembly and is completely dressed with accessories, manifolds and transmission. THIS PAGE TOP LEFT, body panel fit is checked before welding. Special quick release fixtures hold the sections in place until welded. RIGHT, you'd think our staff photographer braved an airplane ride for this shot of the plant, wouldn't you? Not so—it's a model in the plant lobby.

LEFT, the windshields arrive on an overhead conveyor. Perfect body jigs are needed to assure correct fit. BELOW, assembly line has stands for mounting each body on a "spit" for ease of welding and assembly. CENTER, a look inside a Rabbit shows the ribbing, tunnel work and steel structure that help ensure a good ride and prevent body shake. BOTH PAGES BOTTOM, body panels also ride on a conveyor prior to fitting and welding.

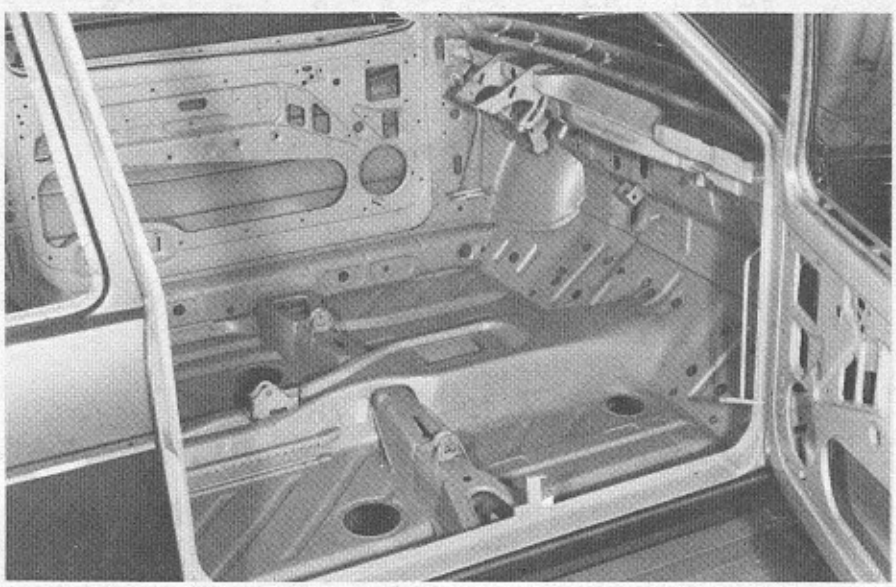


assemblers. It saves footsteps, wear and tear on the people, and makes for almost perfect Rabbits.

The paint application is the latest state of the art with automated electrostatic spray for everything except metallic. We are told that the painter must wear a ground strap before he walks into the paint booth, or he too gets painted. The electrically charged paint particles cannot differentiate between the car and painter. Long before the spraying there is a 7-step process with degreasing, phosphating and dips through primer tanks. A number of drain holes are built into the body so that the paint can flow in and out, leaving a coat in the most obscure corners as the car makes its way through the dip tanks. The paint line is designed to give the thinners a longer time to flash or evaporate before going into the oven. This gives the paint a better chance to flow out and adds depth to the color. Also, to save energy, VW picked paints which need less heat to cure.

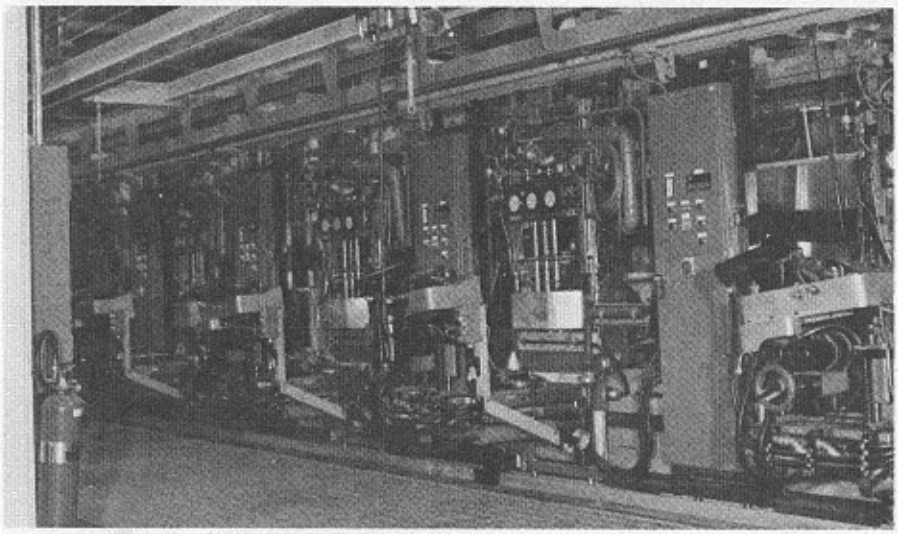
There is a separate paint line for each of the ten car colors, a surplus line that is on standby, and one line where colors can be switched by flushing out the system, to accommodate short runs. Then there are two luxury lines where metallics are sprayed and then protected by coats of clear. This two-step paint and clear process is very scratch resistant and makes for very bright metallics.

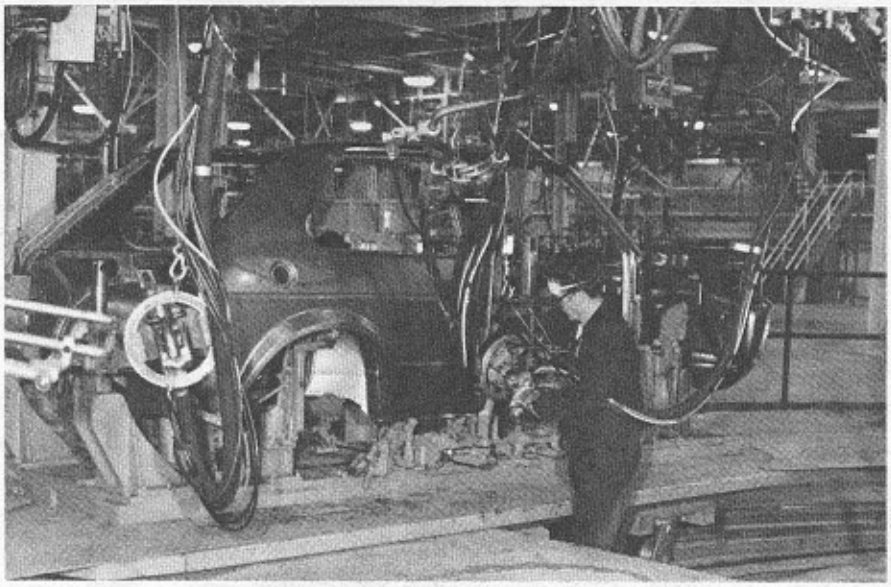
Technically, the engine arrives from Germany together with other drive train parts. In actual practice VW manufacturing gets a block with a pan and a rocker cover, which must then be fully

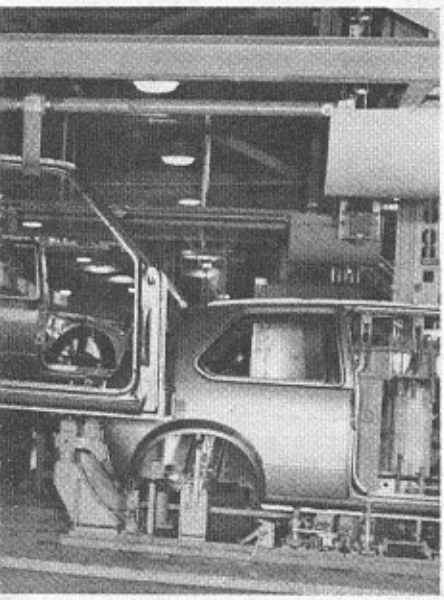


dressed with manifolds and accessories, after which the transmission and other drive train parts are added. Once the engine is together, it spends a full 17 minutes on a test stand in an unusually long running time. Felicia Howell, an ex-GM gal and Michigan State grad, showed us some of the neat features involved. Everything is quick disconnect, a fuel injection system is pre-rigged on the stand, and it takes just 3 minutes to hook up and disconnect. The remaining 14 minutes are running time, during which timing is set, oil is flushed through, and various noises are listened to. Felicia adds that the hardest part is not setting up the machine, but training inspectors to know exactly what they should listen for, from valves to bearings, so that corrections can be made before the engine is in the car.

BELOW LEFT, with all the complex equipment, the biggest difficulty is still to train operators. RIGHT, traveling conveyor lines and spits for rotating the body speed up the assembly and eliminates having to work from a pit. BOTTOM LEFT, a wide variety of complex welding equipment is needed to produce all the spots and seams. Here a welder puts a gun into position.







We puzzled at the injectors being on the test stand rather than on the engine and wondered how this would affect injector settings and tests. Dr. Goes, VW's engineering VP, explains that all fuel injection units are 100% inspected by Bosch and are then reinspected and calibrated on the car after all the wiring and vacuum lines are connected. This eliminates all variables and provides a more definite final check.

Some of the manufacturing touches involve a chain of moving platforms where the engine and transmission ride on a stand, and the people working ride with the stand instead of having the line pass in front of them. Here again the tools are on hand, walking is eliminated, and you can concentrate on the job. A few stations later, traveling lifts raise the engine to meet the body. Counting relief time, 50 engines are installed in an hour.

There are some manufacturing differences between Westmoreland and the German assembly lines. For instance, transmissions are added at an earlier stage to get better assembly space utilization. Also, at this date there is a little less automation in Westmoreland than in Wolfsburg. For instance, in Germany test engines are fired automatically and distributors are set automatically. Here the smaller volume doesn't warrant as much automation at this stage. Some of the higher skill welding and crimping operations will probably be automated before long. Sophisticated equipment is being added slowly, to prevent problems before they happen.

Right now Westmoreland is running only stick shifts, but automatics are coming soon. Also, there will be more diversity in models from basic to deluxe.

In an American car you need a 75% domestic content, so suppliers are having a field day. They come in with plans, smiles and bulging briefcases, then they meet Dr. Ernst Beuler, who is VW's quality assurance man. VW's comment: "We're setting somewhat stiffer standards than what some suppliers are used to . . . ."

Pieces are inspected from each shipment. If anything is wrong, the shipment receives 100% inspection. When a box of wiring harnesses arrives at the receiving dock, it is not released for assembly until samples have been inspected. Dashboard assemblies are totally inspected. Then, you get another 100% electrical inspection after the vehicle is assembled, which all adds up to a more perfect Bunny. ●