Oxford Mini Plant

REMS visited the Oxford Mini Plant on Thursday 3rd November. No, it's not a small sample from the botanical gardens. It's where they build the BMW Mini. The visit was so oversubscribed, that an overflow tour had to be arranged a fortnight later on 17th.

Production at the plant is at a rate of about one car every eight minutes. That's a little over seven an hour. A day's production in two shifts of 9¼ hours (but they *can* go up to 10) is about 140. So in a six day week they build more than 800 cars. They are not far from reaching the two millionth since the new mini was launched in 2001.

But what is truly amazing is that they are all different. Each customer plans his or her car on line (or an agent does it) and the choice is enormous. There are three models, Hatchback, Convertible and Clubman, each with variations. Two more models are to be added soon (Coupé and Roadster). There's a couple of dozen different colours and you can choose another colour and/or pattern for the roof, one of 27 different wheel trims, a diesel or petrol engine (choice from three sizes), right or left hand drive and a host of optional toys (like satnav, blue tooth etc). There will be a world-wide launch of the two new models in February 2012 followed by a UK launch in March. (Apparently UK and the rest of the world were the other way round at the last launch.) The basic price is about £12,000 but you can easily double that if you want everything.

You can try this for yourself at www.mini.co.uk but don't press the final buy button if you don't actually want to buy one. You will need to select the quick link "Design your Mini". The one I designed (at home, afterwards) cost £22,000.

Our guides, John and Terry, (both humorists) took us first to see the main assembly line. It was a surprise to see such a variety of cars streaming along it, every one a different colour or shape. Beginning with the basic shell, the bits are added one by one in sequence in a production line nearly a mile long. It turns back on itself a dozen times, goes up and down and even round and round.

At one point the bodies are gripped in a cradle that rotates so as to present itself to the workforce in an ergonomically optimal way. Nobody has to crawl underneath because the body is rotated through 90 degrees so that the bottom is on the side. Nobody has to stretch because the cradle is raised or lowered within reach. And so on.

Each body and each part are bar-coded so that the right component arrives at the right point at the right time, in accordance with the customer's specification. Even the engine is bar coded. It comes to Oxford as a complete unit, made elsewhere. Robots check that everything in the right position – gear lever, handbrake, coil springs – before other robots lift it

from below into position and then bolt it into place. Most importantly, robots check that it is the right engine for this individual car.

The correct fuel is put into the tank, coolant is measured in, and at the end of the line, the car is driven away. It undergoes rigorous tests before being loaded onto a train or transporter lorry and taken to its already known destination in the UK or world-wide. (It sells in 80 countries.) No cars are kept waiting on site.

After showing us the main assembly line our guides drove us in buses to the bodyshop. In an earlier process in Swindon, sheet steel is cut and pressed into several hundred differently shaped pieces. In the Oxford bodyshop these are spot welded together by robots. It was a surreal experience watching these monsters pick up a shape and, with great sweeping movements rotate it about three axes, and place it in position. Another robot would pick up another piece and with similar gestures hold it against the first. Electrodes closed in and, sometimes accompanied by huge sparks, made half a dozen or more welds, joining the pieces together. The joined up piece was then passed on to the next robot in the line.

One of the guides, Terry, without a flicker of expression said he was glad there were not very many ladies in the group. Occasionally one of the robots would reach outside the cage, pick one up and carry her inside. None had ever been seen again. None of the ladies laughed.

Somebody asked what current was involved in the welding. "Ten volts" was not well received. "Less than a volt" was better, but nobody was satisfied until "over two thousand amps" was elicited. Each weld took about a quarter of a second. Somebody muttered "Two hundred and fifty joules". Everyone was happy. Well, we *are* physicists.

I asked the other guide, John, whether the robots had a union. "Oh yes," was the dead pan response. "Unite!"

After the welding and before the assembly the body shells are painted. They wouldn't let us into the paint shop. It has to be scrupulously clean in there. The just had to take one look at us…

They wouldn't allow us to take any photos inside the other buildings. But they did allow a group photo in the reception area. One has the group standing between a small robot and a recently built mini, wearing the black protective coats they provided for the tour. The other was beside one of the first cars assembled on the site (in about 1912), a bull nosed Morris.

I have already been asked if I will arrange another visit next year. So if you'd like to come, watch out on John Belling's website.

John Temple