

## Group Visit to the JLR Motor Engine Manufacturing Facility on 13<sup>th</sup> January 2016

Thanks to Nigel Packer who made all of the arrangements we today visited the new Jaguar Land Rover Engine Plant just off Junction 2 of the M54.



The facility itself takes your breath away as you arrive, it is huge, and yet, thanks to very careful design, very low key and environmentally friendly, barely impinging on the landscape in which it is located. (Nice touches being that they have provided pathways under the roads to allow frogs, toads and other previous inhabitants of the space, to be able to move freely in their environment). Our Guide was very casual about such matters but slipped into the conversation during his introduction, that the site has a manufacturing area currently equivalent of forty football pitches, and growing, that they have the largest solar array in the UK, (possibly Europe), consisting of 21,000 panels which, despite the weather, actually earns JLR over £1,250,000 a year from the National Grid; that they produce around 450,000 engines every year and so it went on; the superlatives seemed not to stop but then the company had spent £500m on the plant and had designed it from scratch; this was clearly a good step up from a quick sketch on a napkin during a board meeting held at the local hostelry over a pint of Bank's best.

The tour was a lengthy walk around the two main manufacturing areas, the Block, Head and Crankshaft building and then to the area where all the bits are bolted onto the now assembled "Block" and made into an elegant very high-tech engine. The trot around is not for the faint hearted, being best part of 2.5 miles in length though our Guide was patient and ensured we noted all the rest stops en-route should these be needed.

The plant is quiet and almost surgical in its feel; these people, (such small numbers of them as were actually in place), are not building engines with grease and dirty overalls, grubby CNC Machines and the sound of spanners and wrenches competing with distorted Radio 1, these people are carefully monitoring the elegant symphony of robotic assembly processes that coalesce the various elements with magical precision into a world class power unit.

The amount of robots and automated processes that we saw was astounding, people primarily only get involved to watch screens and occasionally check that the micron precision expectations are being met by the cyber systems. This with the strange exception of the man who was charged with putting the push rods in place, where hand insertion and a mallet were the tools of the trade. (Maybe this was a concession to the old days and met with people's needs to feel that there was some real-world intervention in the processes)!

Everything is checked and double checked by the process, what the person has just supervised is checked by the person supervising the next stage of the process and so on. All this is done with measurement systems

that would have made a man with a micrometer, (even a digital micrometer), weep with desire, within a few parts of a second four inserted shell bearings were checked to be those that should have been inserted and that they were correctly sized to one-micron accuracy; if they were then the process would continue; if not then the process would stop and remedial action would be undertaken before the part could move forward; incredible. There is no space for error within this system whatsoever.

Whether technically adept or a complete layman, the tour was inspiring, showing just what could be achieved by careful design of a manufacturing plant and attention to detail. The superlatives take your breath away and show why this is a world class facility.

It is the Groups intention to organize another tour in the future, if you didn't make it for this one then you should be knocking at the door to make sure the Committee knows you would be interested in being part of the next visit; you will not be disappointed.

Dr. Jonathan Hughes/Paul Williamson 18.1.2016