Feature

Rolls-Royce

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INNOVATIVE ROLLS-ROYCE ENGINE DESIGN UNVEILED AT FARNBOROUGH

Rolls-Royce unveiled a novel jet engine 'concept' on the opening day of Farnborough International Airshow this year. Its unique modular construction makes it a fraction of the weight of a conventional jet engine; throughout its life it will emit absolutely no CO_2 and it could cut noise by an amazing 100 per cent.

Such pioneering engineering does however present some significant challenges. It is made up of 152,455 components and it took 1,280 hours to assemble. More significantly, it produces no thrust and would not be capable of transporting any passengers. The engine in question, being known internally as the *Trent 152,455*, is made entirely of LEGO.

The Trent 152,455, a scale replica of the Rolls-Royce Trent 1000, which powers the Boeing 787 Dreamliner, is on display in the Innovation Zone at the Farnborough Airshow. Rolls-Royce graduates and apprentices helped to develop the 'prototype' and ensured the final product is an accurate replica of the real thing.

With full moving parts the engine will allow people to see the complex inner workings of a Rolls-Royce jet engine. At over 300kg and more than 2 meters long, it is one of the most complex LEGO structures ever built.

Rolls-Royce developed the engine to catch the attention of budding scientists and engineers and to demonstrate how exciting careers in high-technology engineering can be.

Ed Diment from Bright Bricks, who helped transform such a complex piece of engineering into LEGO, explains how challenging the project was: "There are very few straight or flat components in a real jet engine as they are designed to be ultra-efficient – this means lots of complex curves and moving parts. A real Trent 1000 engine is one of the most sophisticated machines ever built. When building the LEGO engine we had to reflect that sophistication and complexity, replicating everything from the huge fan blades to the control systems. That's not easy to do and it made me realise how amazing the actual Trent 1000 is."

Inspiration for the future

On display throughout the week at Farnborough Airshow, the Trent 152,455 engine is part of ongoing efforts by Rolls-Royce to inspire young people about science and engineering.

"It is important that we encourage young people to pursue their interests in science, technology, engineering and maths" Graham Schuhmacher, Head of Development Services at Rolls-Royce explains. "Developing skills in these areas can lead to highly rewarding careers and the opportunity to work with some of the world's most advanced technology."

He added "If we are able to inspire the young people of today then who knows what they might go on to achieve? Jet engines of the future could be very different if we encourage young people to engage in science and technology and to come up with new ideas."

Ben Russell, an engineering apprentice at Rolls-Royce who worked on the project said: "I have the opportunity to work in an amazing environment, with inspiring technology, while also continuing to study. Working on tomorrow's jet engines is a really exciting job and I think our LEGO engine can highlight the fun side of the industry. It was a challenge, but we certainly had fun."

Over 10,000 school children are expected to attend Futures Day at Farnborough on Friday, where they will have the opportunity to learn more about aerospace technology, the people who develop it and the exciting career opportunities available in this area.

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For further information, please contact:
Stephanie Watters
Communications Officer
Tel: +44 (0)207 227 9140
Mobile: +44 (0)7824 607 328
Email: stephanie.watters@rolls-royce.com

www.Rolls-Royce.com