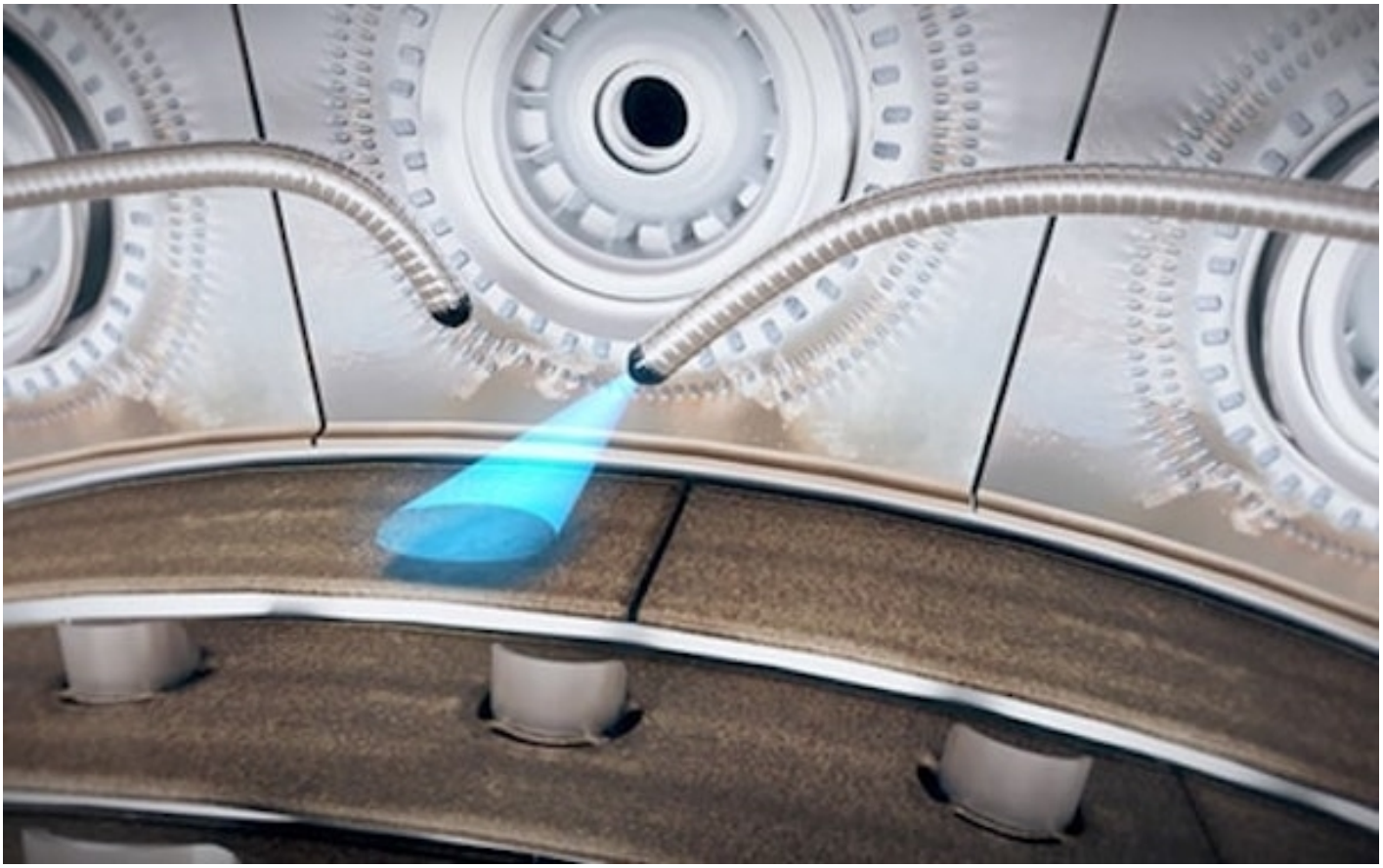
ROLLS-ROYCE TO ACCELERATE FUTURE AEROSPACE TECHNOLOGIES WITH ATI PROGRAMME

News / Manufacturer



A new project led by Rolls-Royce with support from the ATI Programme will make future aerospace servicing technologies a reality. Engineers will work on 20 technologies that will reduce disruption for airlines and lessen our environmental impact by repairing components rather than scrapping them. Other industries such as nuclear and off-shore renewables will also benefit from the project.

Technologies include:

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- **Snake robots which travel inside jet engines to access complex parts, enabling repairs which are not possible with today's tools;**
- **Engine sensors which send us data from the sky and allow us to better predict when engines need maintenance;**
- **Inspection and analysis tools to inspect parts buried deep within engines while they are being repaired;**
- **Advanced automated repair technologies targeting parts which cannot currently be repaired, meaning they do not need to be scrapped.**

Miniature maintenance and inspection tools as well as new repair technologies will be used on our existing engines such as the Trent XWB, while engineers will explore how to repair and maintain aerospace materials and components for future low-carbon engines, including electric technology.

They will work on inspection and repair solutions for composite fan technology, which reduces the weight of a jet engine and will be used in our next-generation engine design, UltraFan®.

The new technologies have the potential to avoid substantial amounts of CO2 every year by:

- increasing the time engines are available to fly, avoiding unnecessary maintenance;
- reducing scrappage by repairing more components, rather than replacing them;
- reducing the movement of people and parts by using more digital inspection techniques and key-hole surgery for engines.

Some of the technologies will have multiple uses and will benefit several other industries. For example, miniature chemical analysis tools can be used in nuclear power generation where human access is restricted. High-tech cameras and algorithms will help to identify damage on components in sectors as diverse as security and off-shore wind turbines.

Dr Ian Mitchell, Chief of Technology – Repair and Services, Rolls-Royce, said: "Our latest engines are quieter and cleaner than ever before, substantially reducing CO2 emissions. This programme will take that one step further by improving how we service our engines, creating technologies which will reduce waste, avoid emissions and minimise disruption, while laying the foundations to service the gas turbine and hybrid-electric engines of the future."

Business and Industry Minister Nadhim Zahawi said: "Our aerospace industry is leading the way in developing new technology to make air travel greener, backed by Government investment to spearhead new innovations.

"I am excited to see one of these projects go live today, which will see Rolls-Royce developing technologies to potentially slash thousands of tonnes of CO2 per year - a fantastic example of the how the industry can help us make strides towards our wider net zero ambitions."

Mark Scully, Head of Technology for Advanced Systems & Propulsion, ATI, said: "Through-life services are a critical aspect of ensuring propulsion systems continue to perform efficiently and with minimum impact on the environment. The ATI welcomes this project to the ATI Programme portfolio and are pleased to see a wealth of expertise from the supply chain and academia supporting this important development."

Ian Campbell, Executive Chair of Innovate UK, which is the funding agency for the ATI Programme, said: "This project represents the coalescing of aerospace innovation excellence in the UK supply chain and academia, and is the culmination of research and development to deliver

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technologies that place the UK at the forefront of in-service engine performance.”

Work has begun on the project – known as REINSTATE – in Derby, UK and will continue for more than three years, in conjunction with universities and SMEs including Roke Manor Research, BJR Systems, Clifton Photonics, the Manufacturing Technology Centre, the University of Nottingham, the University of Sheffield, and the University of the West of England.

The REINSTATE project is supported by the ATI Programme, a joint Government and industry investment to maintain and grow the UK’s competitive position in civil aerospace design and manufacture. The programme, delivered through a partnership between the Aerospace Technology Institute (ATI), Department for Business, Energy & Industrial Strategy (BEIS) and Innovate UK, addresses technology, capability and supply chain challenges.

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