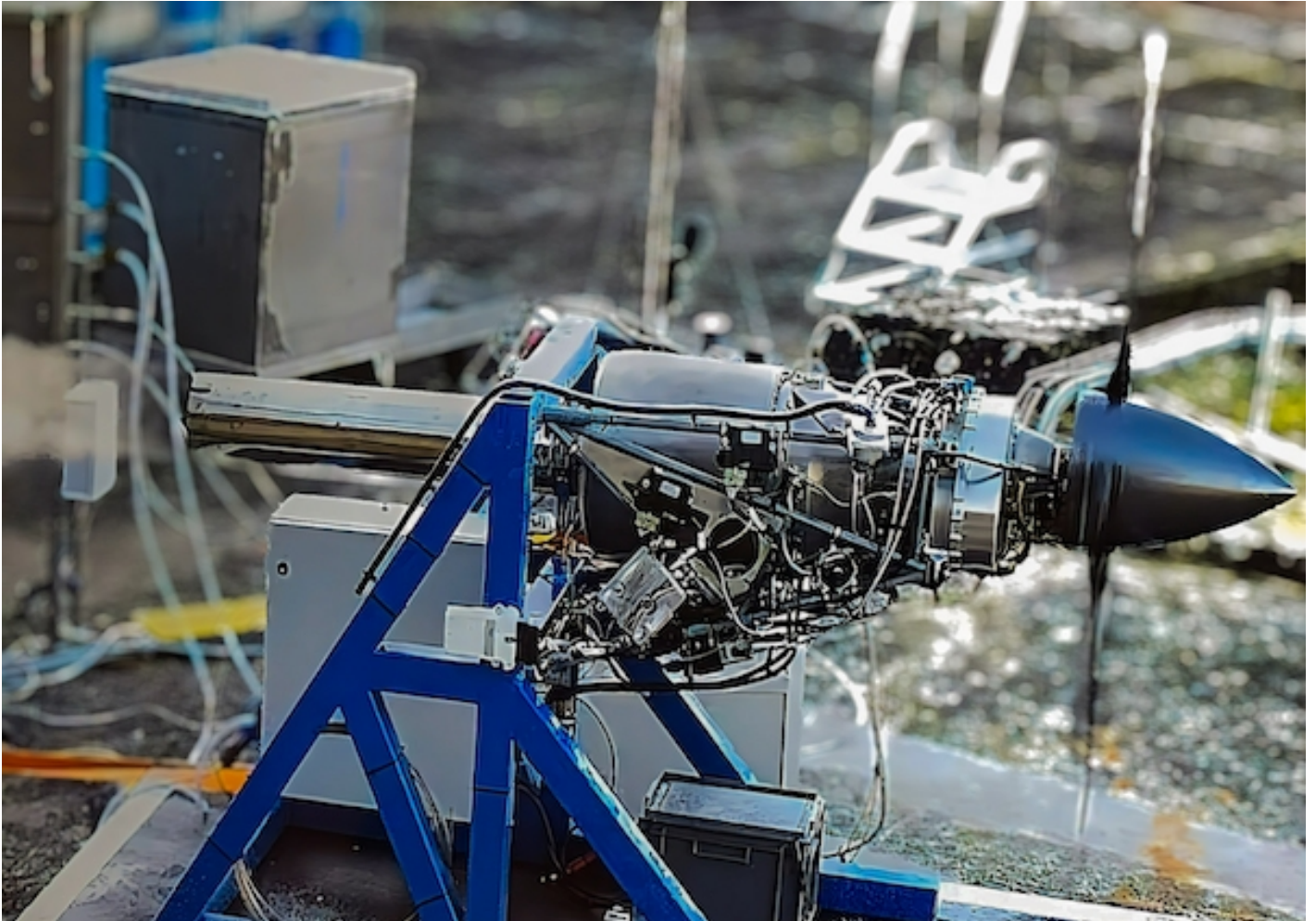




TURBOTECH AND SAFRAN TEST FIRST HYDROGEN TURBOPROP FOR LIGHT AIRCRAFT

News / Manufacturer



On January 11, Turbotech and Safran successfully completed the first test of a hydrogen-fueled aero gas turbine engine with ultra-high performance regenerative cycle. The test was made possible by ArianeGroup’s resources and decades of expertise in preparing and performing tests with hydrogen fuels for space applications at its Vernon test facility in France. This initial trial was carried out using hydrogen fuel stored in gaseous form. In a second phase later this year, the engine will be coupled to a cryogenic liquid storage system developed by Air Liquide to demonstrate the end-to-end integration of a propulsion system replicating all functions on a complete aircraft.

Damien Fauvet, CEO of Turbotech, commented: “This first experiment carried out using a Turbotech TP-R90 regenerative turboprop engine shows we can convert previously proven internal combustion technologies to create a working zero-carbon solution for general aviation. As we move to liquid hydrogen fuel, the aim is to offer a high energy-density propulsion system with real commercial applications. Our solution will be readily retrofittable on light airplanes and could

have potential in other market segments.”

Pierre-Alain Lambert, VP Hydrogen Programs for Safran, said: “This first stage of the project has already gone beyond our expectations. Our objective was to validate the behavior of the engine and fuel control system at all phases, from engine start to full throttle, as well as strategies in the event of a failure. For Safran, this kind of small-scale investigation is really valuable, because we can learn quickly and nimbly. It complements our other, larger-scale initiatives aimed at removing the barriers to hydrogen propulsion for air transport, such as our technology demonstration in partnership with CFM International as part of Airbus’s ZEROe program, supported by Clean Aviation. ArianeGroup’s expertise in hydrogen testing was decisive in the timely success of this crucial first step.”

Turbotech, Elixir Aviation, Safran, Air Liquide and Daher formed the BeautHyFuel joint research project in June 2022 to design and ground test a hydrogen propulsion system rated for light aviation and develop a methodology so it can be certified for retrofit. BeautHyFuel benefits from the unique combination of Turbotech’s ultra-efficient light turbine technologies, Safran’s expertise as an aeroengine manufacturer and fuel system designer, Air Liquide’s cryogenic hydrogen storage technologies for aerospace, Elixir’s role as a manufacturer of innovative fourth-generation light planes, and Daher’s experience in aircraft development, certification, production and maintenance.

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