WORLD FIRST SINGLE ENGINE HELICOPTER TO FLY USING 100% SUSTAINABLE AVIATION FUEL - BELL 505

News / Manufacturer



Bell 505 completed its first flight fueled solely by 100% Sustainable Aviation Fuel, marking the first-ever single engine helicopter to fly with 100% SAF. Bell collaborated with Safran Helicopter Engines, Neste, GKN Aerospace and Virent Inc. to make this Bell 505 flight possible. To achieve this flight, Bell collaborated with Safran Helicopter Engines, manufacturer of the Arrius 2R engine on the Bell 505; GKN Aerospace, the fuel system component supplier; Neste, the SAF supplier; and Virent, Inc., a Marathon Petroleum Corp. subsidiary that manufactures renewable fuels and chemicals. Safran Helicopter Engines and GKN Aerospace conducted thorough testing on the engine and fuel system components.

Michael Thacker, executive vice president, Commercial Business, Bell commented: “This flight is a monumental achievement for sustainability and decarbonization in the rotorcraft industry.

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Showcasing a single engine aircraft's flight capabilities with 100% SAF signals Bell's commitment to alternative fuel usage and builds on its sustainability practices in its flight operations."

Valentin Safir, executive vice-president, Programs, Safran Helicopter Engines said: "SAF is one of the key pillars in our strategy to decarbonize the helicopter industry. Our engines are certified to operate on up to 50% SAF and our objective is to certify in the coming years the use of 100% SAF, which can potentially result in carbon lifecycle emissions reductions by up to 80%."

Neste and Virent collaborated to blend, test, and deliver the SAF for this project as a 100% drop-in fuel. SAF, made from used cooking oil or other bio-based feedstocks, typically must be blended with petroleum products because it doesn't include a component called "aromatics," which is required to meet today's aviation fuel specifications. Virent manufactures an aromatics component made from renewable plant sugars, which was added to Neste's neat SAF, eliminating the need to blend SAF with petroleum fuel.The SAF supplied for this test flight by Neste and Virent is therefore a "100% drop-in" replacement for petroleum-based aviation fuel, requiring no engine modifications.

Bell own training fleet and demonstration aircraft currently use SAF in their operations. The team continues to guide customer conversations around its implementation and monitors SAF testing in a dedicated Bell 505 with Safran Helicopter Engines. This flight supports Textron's Achieve 2025 Sustainable Footprint goal for 20% reduction in greenhouse gas emissions across the enterprise, among other sustainability initiatives.

The Bell 505 is a five-seat aircraft designed for safety and efficiency while using the most advanced technology to date. The platform uses a fully integrated Garmin G1000H NXi avionics suite and Safran Arrius 2R engine with a dual-channel FADEC.



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