Safran powering the Bell 505 Jet Ranger X: a matter of trust

Bell Helicopter’s latest aircraft, the Bell 505 Jet Ranger X, which entered into service last March, rounded off 2017 with an order for 110 helicopters from a Chinese operator. The aircraft is equipped with the Arrius 2R engine, which largely contributes to its success. Nicolas Billecocq, Safran Helicopter Engines’ Vice President Light Helicopter Engines Program, provides some insights into this success story.

"Safran’s expertise, combined with the steadily improved performance of its in-service support over the last few years were crucial factors for Bell Helicopters when it came to choosing the engine manufacturer for its new light single-turbine aircraft", summarizes Nicolas Billecocq, Vice President Light Helicopter Engines Program. This collaboration gave rise to the Arrius 2R, the latest addition to the Arrius family of helicopter engines.

A tailor-made engine

Developed specifically for the new Bell helicopter, this turboshaft engine is the only one in its power range (500 shp) to be equipped with a dual channel full authority digital engine control (FADEC) unit. While this turbine incorporates innovations developed specifically for this helicopter, it also benefits from the expertise acquired by the engine manufacturer during the development of the previous models of the Arrius family "which have already logged more than 8 million flight hours" adds Nicolas Billecocq.

Developed through co-engineering

Initiated in 2014, this first ever collaboration between the two manufacturers was implemented from the development phases of the helicopter. "There is a real symbiosis between helicopter design and engine design, and we adopted a co-engineering approach with Bell Helicopter to ensure that the solutions we developed would be adapted optimally to the helicopter architecture", explains Nicolas Billecocq. For Safran Helicopter Engines, the challenge was also to prove its dedication to the helicopter manufacturer and its ability to keep to the development schedule. And the results lived up to its commitments: two years after the contract was signed, the engine was delivered on time! This collaboration, which continued throughout the flight test phases, ensured the timely certification of the engine in December 2015 and that of the helicopter in December 2016.

Since the helicopter entered into service in March 2017, customer feedback on the handling of the Bell 505 Jet Ranger X and its engine have been excellent, and the number of planned orders is in line with expectations. "Now that Safran’s performance in the development and production phases has been proven, the next step is to demonstrate our ability to provide in-service support", says Nicolas Billecocq.

Comprehensive in-service support

Safran Helicopter Engines and Bell Helicopter propose a specific solution for the in-service support of the Arrius 2R, combining the support per flight hour provided by Safran and the in-service support provided by Bell Helicopter. Customers can therefore benefit from comprehensive coverage of the helicopter and its engine as soon as it enters service. This is the type of contract that was signed between Safran and the Bell Helicopter Training Academy for engine support on their two Bell 505s. For Safran, this offer means it will have direct contact with helicopter operators, in locations all over the world. "The Arrius 2R program represents a very important milestone in the history of Safran, because through this program a whole section of our strategy is coming to fruition. All the development milestones achieved with Bell confirm the success of our partnership, and we share their confidence in
the success of the Bell 505 Jet Ranger X. We have sent a very strong message to the market”, concludes Nicolas Billecocq.

Learn more

With the 505 Jet Ranger X, the American manufacturer Bell Helicopter wanted to make a highly innovative light helicopter incorporating technical solutions at a competitive price. Equipped with Safran’s Arrius 2R engine, this single-engine, multi-mission helicopter is the successor to the Bell 206 Jet Ranger, which enjoyed phenomenal success in the helicopter market over recent decades.