



Integrity improvement of rotorcraft main gearboxes (MGBs)

Within the AIBN accident report of LN-OJF in 2016 in Norway, which involved an EC-225, a number of safety recommendations are made to the Agency addressing specific points related to the integrity of rotorcraft main gearboxes.

EASA is currently working on a research tender specification as part of the European Commission Horizon 2020 program to commission research addressing, mainly, the following safety recommendation:

- **SL No. 2018/01T:** The Accident Investigation Board Norway recommends that the European Aviation Safety Agency (EASA) commission research into crack development in high-loaded case-hardened bearings in aircraft applications. An aim of the research should be the prediction of the reduction in service-life and fatigue strength as a consequence of small surface damage such as micro-pits, wear marks and roughness.



Integrity improvement of rotorcraft main gearboxes (MGBs)

The research program shall consist of:

- Review of state-of-the-art with regards to:
 - Rotor and Rotor Drive System architecture concepts in order to develop possible new or alternative configurations to minimize the number of catastrophic failure modes.
 - Design parameters controlling the tolerance of Rotor and Rotor Drive System components to flaws.
- Analysis and tests to:
 - Identification of critical design parameters with regards to the damage tolerance characteristics of Rotor and Rotor Drive System components and quantification of their impact.
 - Definition of adequate limitations for those design parameters identified in the step above to ensure damage tolerant designs.
- Developing an analysis and testing methodology that support the adequate demonstration of the damage tolerance characteristics of these components.