

HELICOPTER BIRD STRIKE RESISTANCE

by

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Abstract

The hazard created by bird encounters for helicopter occupants does not account for a large percentage of serious accidents. For example no fatal accident due to a bird strike has been recorded, to date, on the Aerospatiale fleet.

However, some cases of cockpit penetration and of engine ingestion have indeed occurred. Furthermore the rotors, the sensible and vital part of the helicopter, must be proofed against bird strike effects.

The particularities of helicopter operation, as compared to its fixed-wing brothers, are essentially :

- usage of unprepared areas for take-off and landings
- necessity to provide for large transparent areas for pilot visibility
- low speed - low altitude operations
- no pressurization

The helicopter windscreens are tested to show compliance with the relevant BCAR regulations, and in some cases it has been necessary to improve the initial design.

The air intakes must be consistent with engine regulations regarding bird ingestion or protection. Tests are carried out to develop suitable protection and show compliance with engine regulations.

Rotor blades are not subjected to any regulation, but Aerospatiale has assessed, through similar testing and strain measurements, that bird strikes have only minor effects on blade integrity.

A movie is presented to illustrate typical tests conducted on these three sensitive areas of the helicopter.