



FROM OPERATOR MISSIONS TO SERVICE LIFE LIMITS...

JOURNÉES THÉMATIQUES – ROTORCRAFT EXTERNAL LOADS

HELICOPTERS

LAURENT MONTOYA – Rotors & Suspensions Analysis
4th & 5th December 2018

AIRBUS

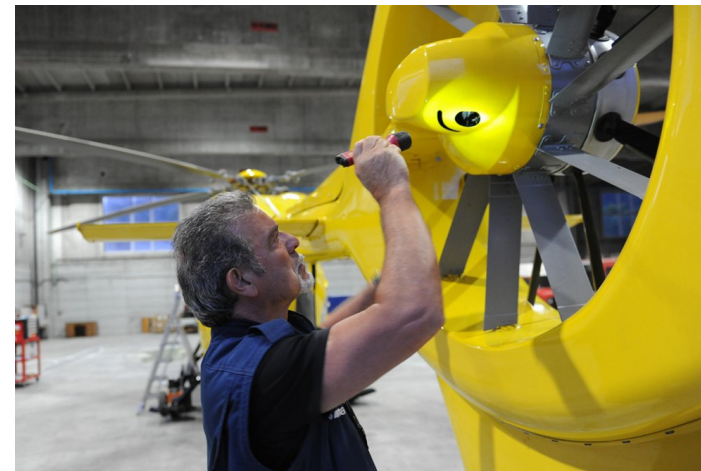
BEYOND AIRWORTHINESS LIMITATIONS SECTION...

AIRWORTHINESS



MAINTENANCE PROGRAMS

Maintenance programs ensure airworthiness while maximizing fleet availability and optimizing operators' maintenance resources.



... IS PART STRENGTH SUBSTANTIATION



Mission capabilities



Enhanced safety



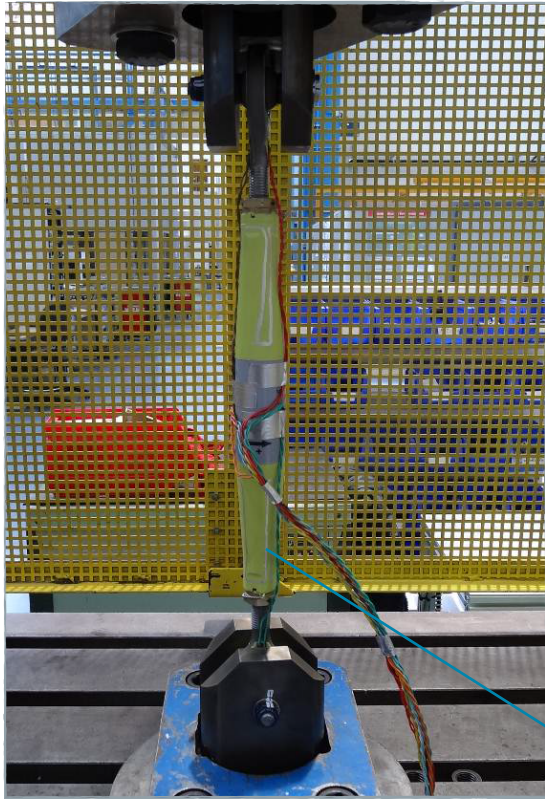
Improved maintenance



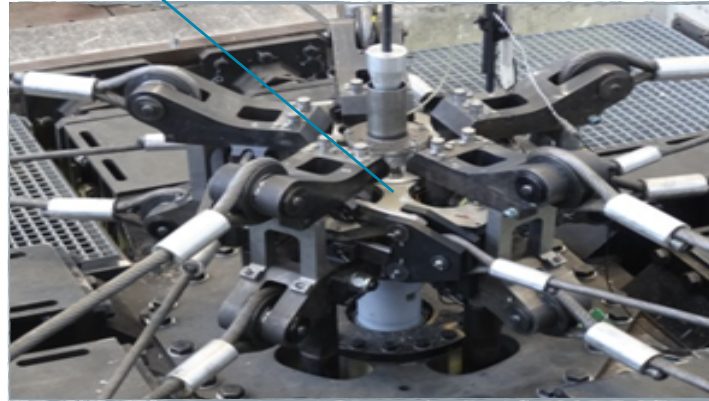
Better competitiveness

BEYOND PARTS STRENGTH SUBSTANTIATION... IS PARTS FATIGUE STRENGTH

▶ FATIGUE TESTS



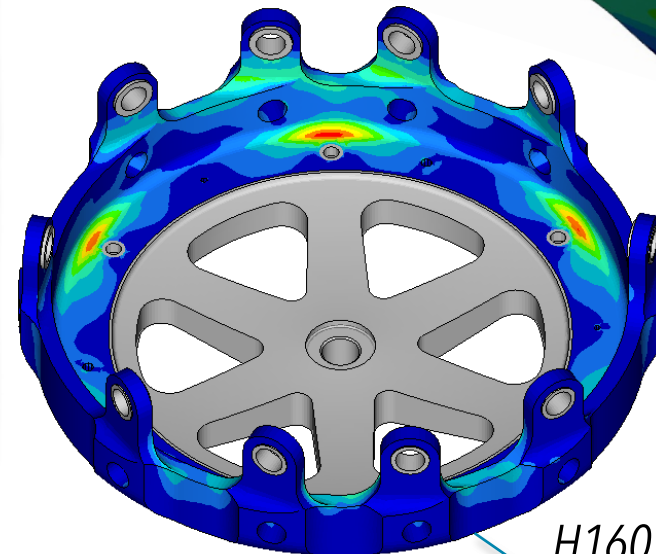
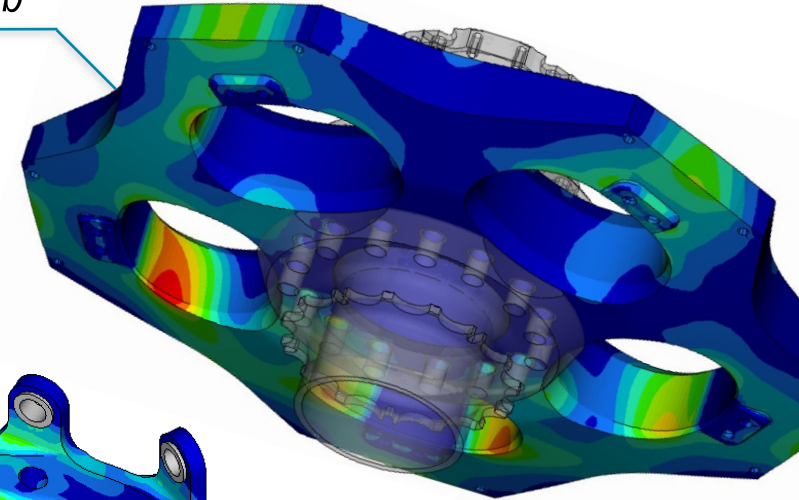
H160 Main rotor hub fatigue test



H160 Main rotor pitch rod fatigue test

▶ SIMULATIONS

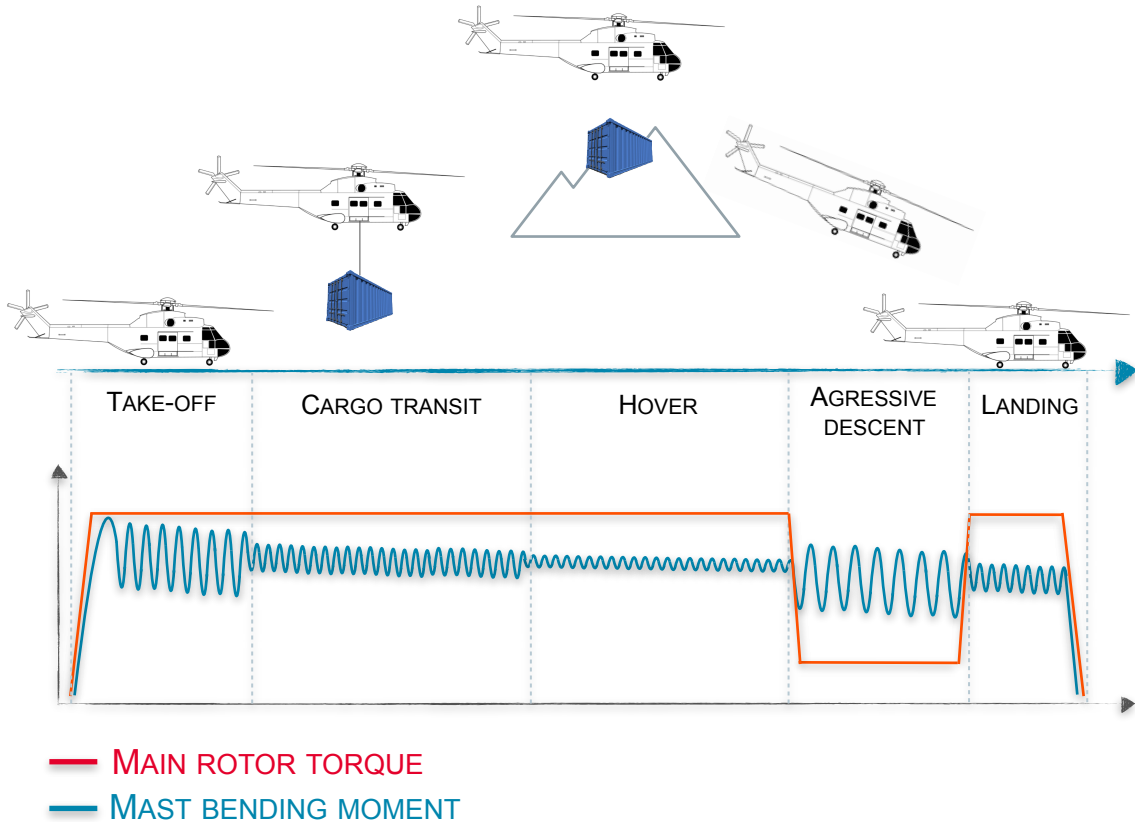
H160 Main rotor hub



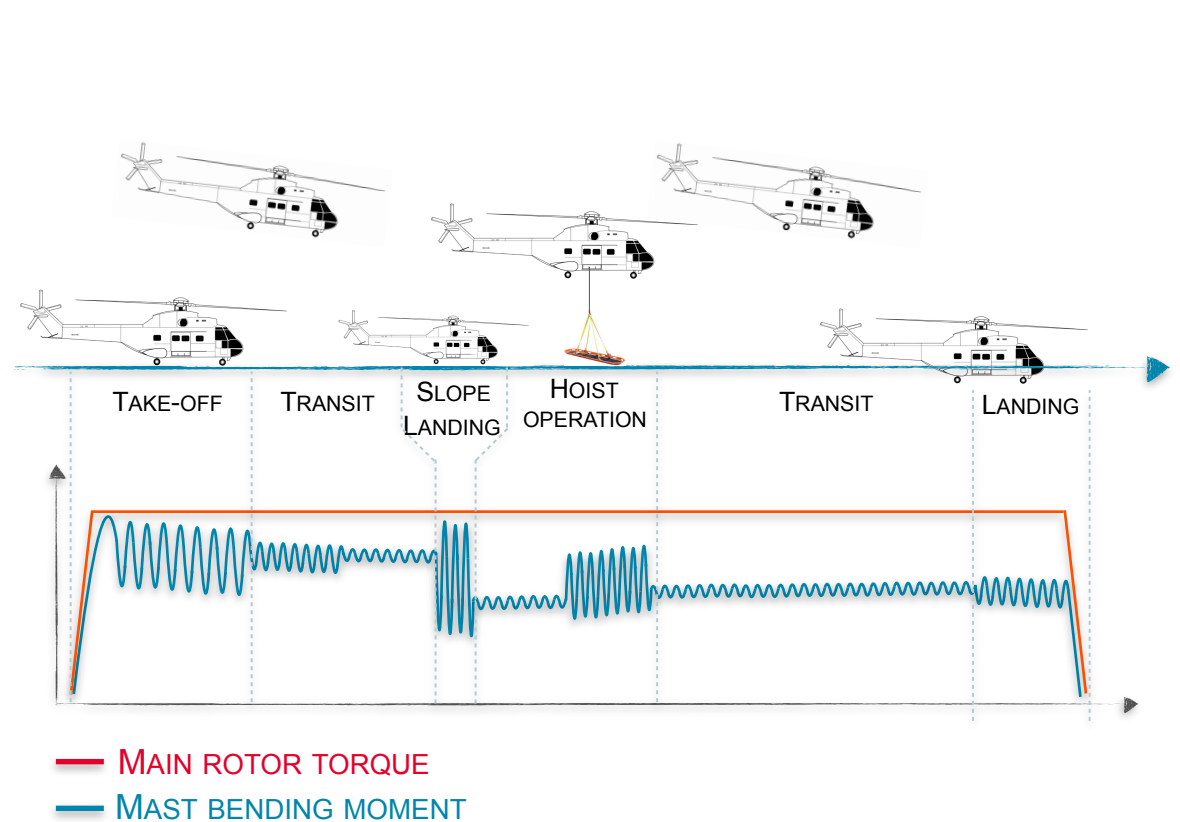
H160 Tail rotor pitch control plate

BEYOND PARTS STRENGTH SUBSTANTIATION... IS THE USAGE SPECTRUM

▶ CARGO SLING MISSION



▶ HOIST MISSION



DIFFERENT DAMAGE / FLIGHT HOUR

BEYOND PARTS STRENGTH SUBSTANTIATION... IS THE USAGE SPECTRUM

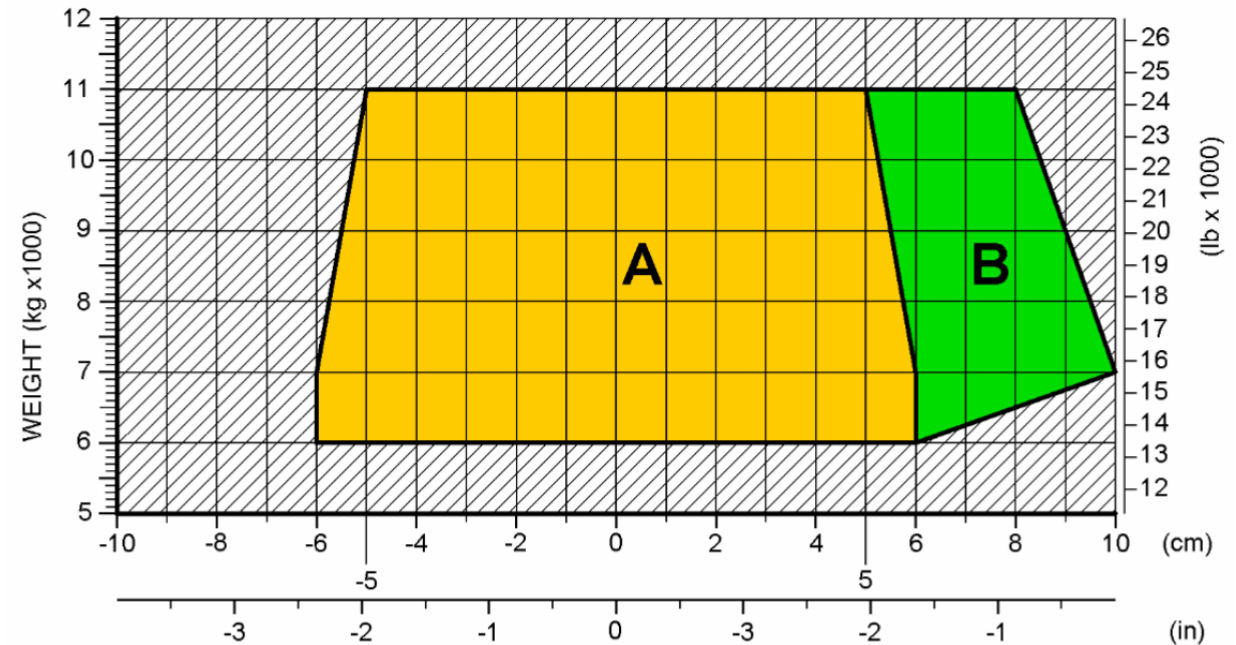
▶ TYPE OF MANEUVERS



▶ MANEUVERS DURATION

▶ WEIGHT & BALANCE

H225 Lateral CG diagram



Zone A : Normal envelope

Zone A + B : Hoist operation envelope

YOUR MISSIONS ?

Operational requirements are expanding the role of helicopter fleets. The design usage spectrum severely covers helicopters flying missions.

A more comprehensive operational usage could allow :

- To more accurately determine the life consumption of the helicopter components;*
- To extend maintenance programs.*

▶ HOIST MISSIONS

- ▶ *Are “common” limitations in bank angle (30°) / speed (90 KTS) restrictive for your missions ?*
- ▶ *Is hoist mostly used with front wind ? Are there statistical analysis ?*
- ▶ *Have you hoist mission profiles ?*
- ▶ *What is a typical hoist maneuver ?*
- ▶ *Are there statistical analysis of hoist duration ?*
- ▶ *Are there statistical analysis of hoist number / flight hour ?*
- ▶ *Are you in favor of sharing Usage Monitoring Systems data ?*

YOUR MISSIONS ?

Operational requirements are expanding the role of helicopter fleets. The design usage spectrum severely covers helicopters flying missions.

A more comprehensive operational usage could allow :

- To more accurately determine the life consumption of the helicopter components;*
- To extend maintenance programs.*

▶ CARGO SLING MISSIONS

- ▶ *Are “common” limitations in bank angle (30°) / speed (90 KTS) restrictive for your missions ?*
- ▶ *Have you Cargo sling mission profiles ?*
- ▶ *What is a typical cargo sling mission ?*
- ▶ *Are there statistical analysis of cargo sling number / flight hour ?*
- ▶ *Are there statistical analysis of torque cycles number / sling ?*
- ▶ *Could cargo sling missions cause over torque cycles ?*
- ▶ *Could cargo sling missions cause over speed cycles ?*
- ▶ *Are you in favor of sharing Usage Monitoring Systems data ?*

Thank you