

Rotorcraft Safety Overview and Unintended Yaw Analysis

November 29, 2023

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Unintended Yaw



Over the period 2017-2022, EASA has identified over 90 occurrences involving helicopters experiencing an unintended yaw and the loss of tail rotor effectiveness.

In the most of accidents, inappropriate actions or late corrective actions may have led to uncontrollable yaw; in addition most of the accident helicopters were too low for the pilots to achieve a recovery. The most number of occurrences occurred due to pilot's poor handling.

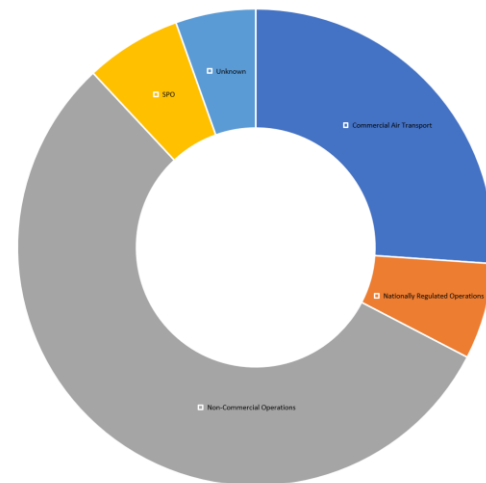
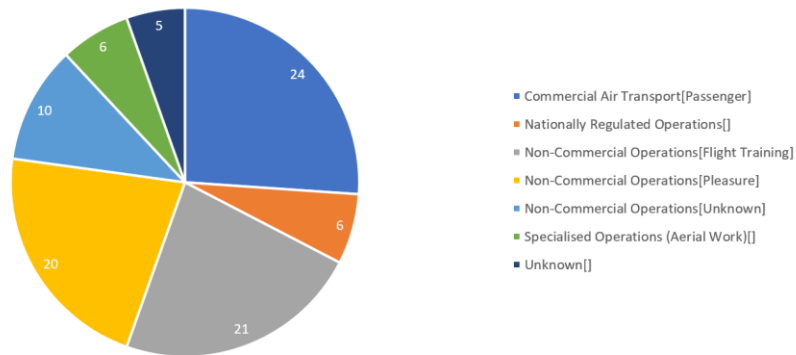
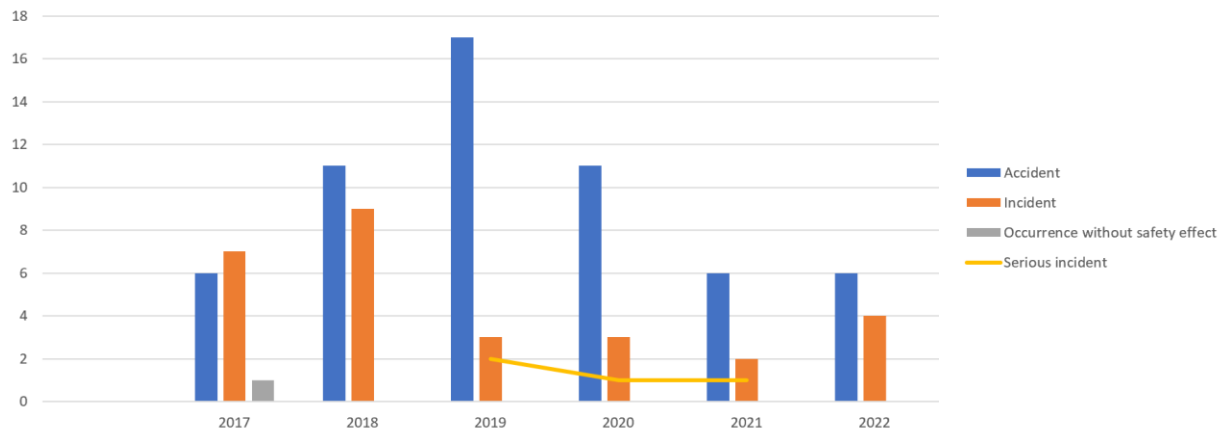
The risk of experiencing an uncontrolled departure in yaw is similar with a conventional tail rotor or a Fenestron. However, with a Fenestron, the response curve is different and the amount of pedal deflection is greater.

The Fenestron requires a slightly different technique when flying at low speed, however, the accident investigation reports shows that design is exceptionally efficient.

Data analysis summary

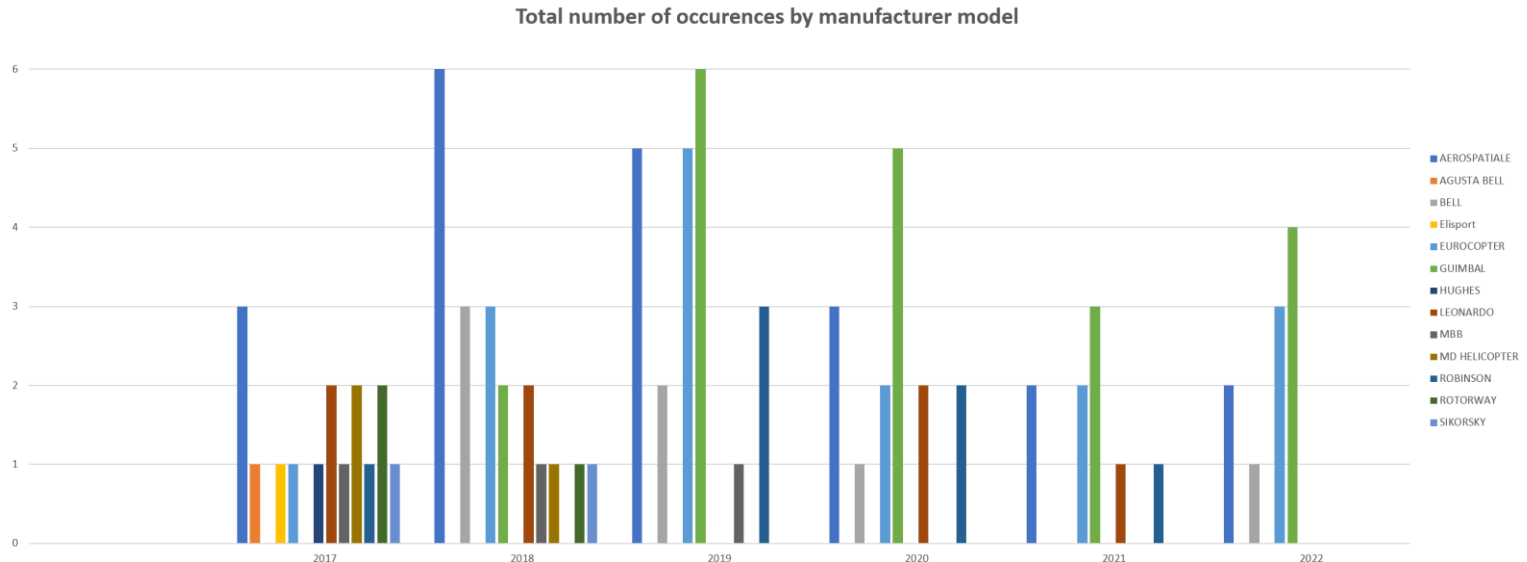
- Inexperienced pilots and/or pilots used to conventional tail rotors need to be particularly vigilant.
- Common element in these occurrences was inadequate and incorrect anti-torque pedal application by the pilot; inappropriate reactions by the pilot, who pulled on the collective lever.

Total number of occurrences by occurrence class



Data analysis summary

- The Fenestron tail gets represented in statistics. The Cabri G2 has certainly had more than its fair share of accidents.
- Occurrence data over **2017-2022** showed over 20 occurrences involving GUIMBAL Cabri G2 helicopters performing **training flights** linked to a **loss of yaw control** and their proportion with respect to the total number of accidents.



Contributing factors and Safety Recommendations

- According to Accident Investigation reports, pilots the need to be cognisant of factors that can induce unanticipated yaw, especially the relative wind direction.
- Most frequently was pilot's poor handling, lack of understanding the characteristics or behavior of the helicopter.
- Different types of helicopter would give different outputs in terms of flight dynamics, movements. Limited consolidation on the helicopter type.
- Lack of monitoring of flight training for private pilots.
- Flight instructors were not in full comprehension of the flight and/or the reactions of the instructors towards the maneuvers of the students were delayed.
- Need to assist training organizations with improving theoretical and practical training programmed and developing the associated training materials;

Thank you for your attention.

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