



**EASA**  
European Aviation Safety Agency

# Reorganized CS-23

## What does this mean for Panel 1/2 (Flight)

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22-Jun-2017





# The new CS-23 affects Flight

- Flight is one of two main areas where the new reorganized CS-23 and the standards in the back do have an impact
  - Requirement for Crashworthiness is changed to allow alternative means and with that compliance demonstration
  - CS-23 is no longer requiring stall-spin tests
- plus some general adaptations
  - Normal, Utility, Aerobatic and Commuter Category are gone
  - CS-VLA has been moved under CS-23
- What else?



# In a nut shell: CS-23 is no longer prescriptive

## ➤ Old:

### ➤ CS 23.1061 Installation (Liquid Cooling)

(b) *Coolant tank*. The tank capacity must be at least 3·8 litres (0·83 Imperial gallon/1 USgallon), plus 10% of the cooling system capacity. In addition – ....

## ➤ New:

### ➤ CS 23.2435 Powerplant installation support systems

(a) Powerplant installation support systems are all systems whose direct purpose is to support the powerplant or the energy storage device in its intended function as part of the powerplant installation.

....

(c) Powerplant installation support systems are designed for the operating conditions applicable to the location of installation. ...

### ➤ Plus ASTM standard



# Categories within CS-23

- In the current CS-23 we have four Airplane Categories
  - Normal, Utility, Aerobatic and Commuter
  - This separation into categories made sense in earlier times, but it doesn't reflect nowadays needs anymore, since everything is more and more mixed (system wise)
  
- In the new CS-23 we have four Certification Levels
  - CS-23.2005 Certification of Normal Category Aeroplanes
    - (b) Aeroplane certification levels are:
      - (1) Level 1 — for aeroplanes with a max seating config of **0 to 1 pax**
      - (2) Level 2 — for aeroplanes with a max seating config of **2 to 6 pax**
      - (3) Level 3 — for aeroplanes with a max seating config of **7 to 9 pax**
      - (4) Level 4 — for aeroplanes with a max seating config of **10 to 19 pax**



# New: Performance Levels within CS-23

- In addition the new CS-23 knows different aeroplane performance levels
  - CS-23.2005 Certification of normal category aeroplanes
    - (c) Aeroplane performance levels are:
      - (1) Low speed — for aeroplanes with a  $V_{NO}$  or  $V_{MO} \leq 250$  Knots Calibrated Airspeed (KCAS) or a  $M_{MO} \leq 0.6$ .
      - (2) High speed — for aeroplanes with a  $V_{NO}$  or  $V_{MO} > 250$  KCAS or an  $M_{MO} > 0.6$



# Stalling Behaviour

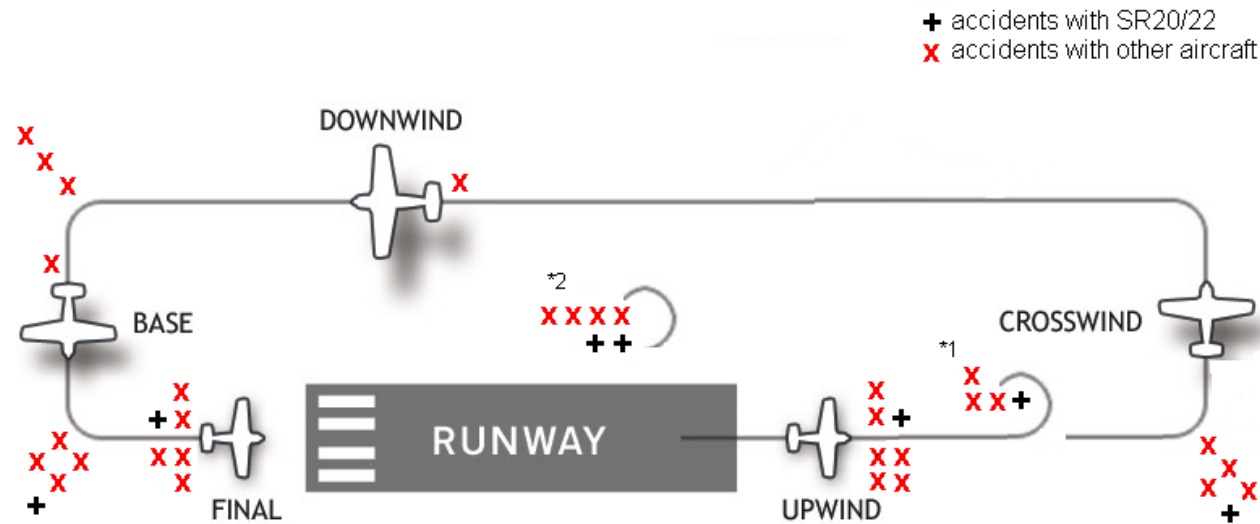
- We no longer look at the Spin
- Main focus is now on stalling behaviour



# Stalling Behaviour

## 3.2 Analysis of accident statistics and reports

- Position of occurrences within traffic pattern



Accident reports:

- No principal difference in sequence of events
- Hints on:
  - high / suddenly induced bank angles
  - unusually steep pull up



# Stalling Behaviour

- CS-23.2150 Stall characteristics, stall warning, and spins
  - (a) The aeroplane must have controllable stall characteristics in straight flight, turning flight, and accelerated turning flight with a clear and distinctive stall warning that provides sufficient margin to prevent inadvertent stalling. A stall warning that is mutable for aerobatic flight phases is acceptable.
  - (b) Single-engine aeroplanes, not certified for aerobatics, **must not have a tendency to hazardously depart from controlled flight inadvertently.**





# Stalling Behaviour

- (c) Level -1 and -2 multi-engine aeroplanes, not certified for aerobatics, must not have a tendency to hazardously depart controlled flight inadvertently from thrust asymmetry after a critical loss of thrust.
- (d) Aeroplanes certified for aerobatics that include spins must have controllable stall characteristics and the ability to recover within one and one-half additional turns after initiation of the first control action from any point in a spin, not exceeding six turns or any greater number of turns for which certification is requested, while remaining within the operating limitations of the aeroplane.
- (e) Aeroplanes intended for aerobatics have the ability to recover from any approved manoeuvre, without exceeding limitations or exhibiting unsafe characteristics



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**Thank you for your attention !**

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