EASA
European Aviation Safety Agency

New CS-23 Content
What is different and why

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In general: 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

Open for other / new items

- The use of standards allows high flexibility and fast reaction on innovation
- ASTM is not necessarily the only standard which can be used
- The Standards used are AMC only. Applicants can deviate from that. Of course this requires supporting justification

Engine and Propeller

- It is no longer required to have engine and propeller certificated
  - CS-23.2400 Powerplant installation
    (a) …
    (b) Each aeroplane engine, propeller and APU must be type certificated, or meet accepted specifications.

- Normally a certificate for the engine and propeller is expected, but for future designs this might not be necessary (electric motor as part of design, …)

Aeroplane Categories are translated

- In the current CS-23 we have four Airplane Categories
  - Normal, Utility, Aerobatic and Commuter
  - This separtation 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**

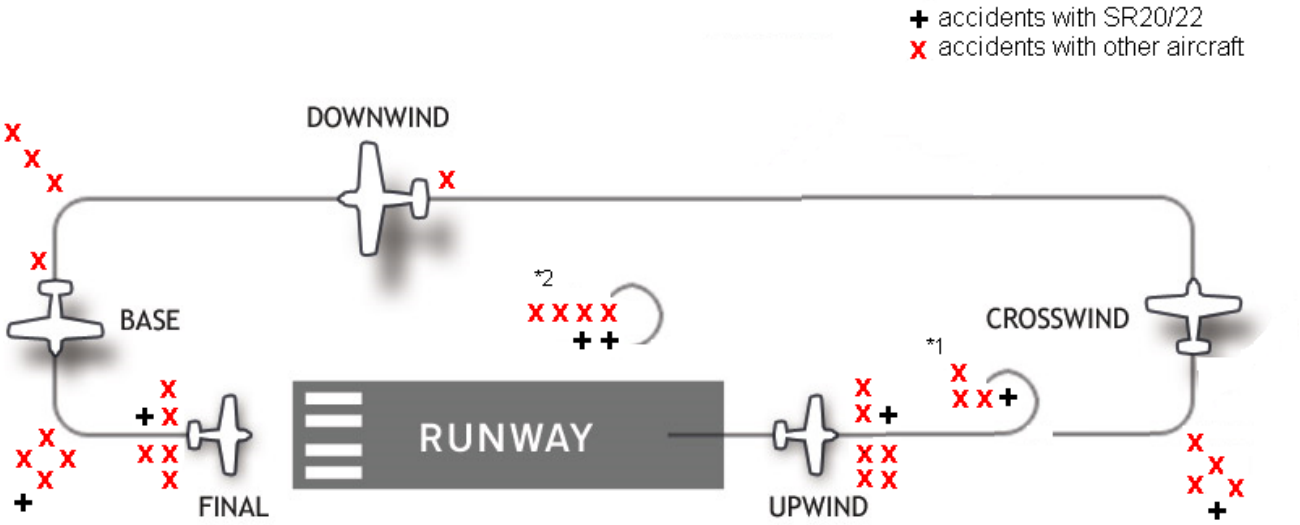
Aeroplane Performance Levels

- 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

3.2 Analysis of accident statistics and reports – Position of occurrences within traffic pattern



based on [17]

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

Crashworthiness

- Crashworthiness (reduced specific items, now open for other ideas)
  - CS-23.2270 Emergency Conditions

(a) The aeroplane, even when damaged in an emergency landing, must protect each occupant against injury that would preclude egress when:

(1) Properly using safety equipment and features provided for in the design;

(2) The occupant experiences ultimate static inertia loads likely to occur in an emergency landing; and

(3) Items of mass, including engines or auxiliary power units (APUs), within or aft of the cabin, that could injure an occupant, experience ultimate static inertia loads likely to occur in an emergency landing.

(b) The emergency landing conditions specified in CS 23.2270(a) must:

(1) Include dynamic conditions that are likely to occur in an emergency landing; and

(2) Not exceed established human injury criteria for human tolerance due to restraint or contact with objects in the aeroplane.

(c) The aeroplane must provide protection for all occupants, accounting for likely flight, ground, and emergency landing conditions.

(d) Each occupant protection system must perform its intended function and not create a hazard that could cause a secondary injury to an occupant. The occupant protection system must not prevent occupant egress or interfere with the operation of the aeroplane when not in use.

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Thank you!

Questions?

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