EASA
European Aviation Safety Agency

Flight at high altitude in adverse conditions: EU training system.

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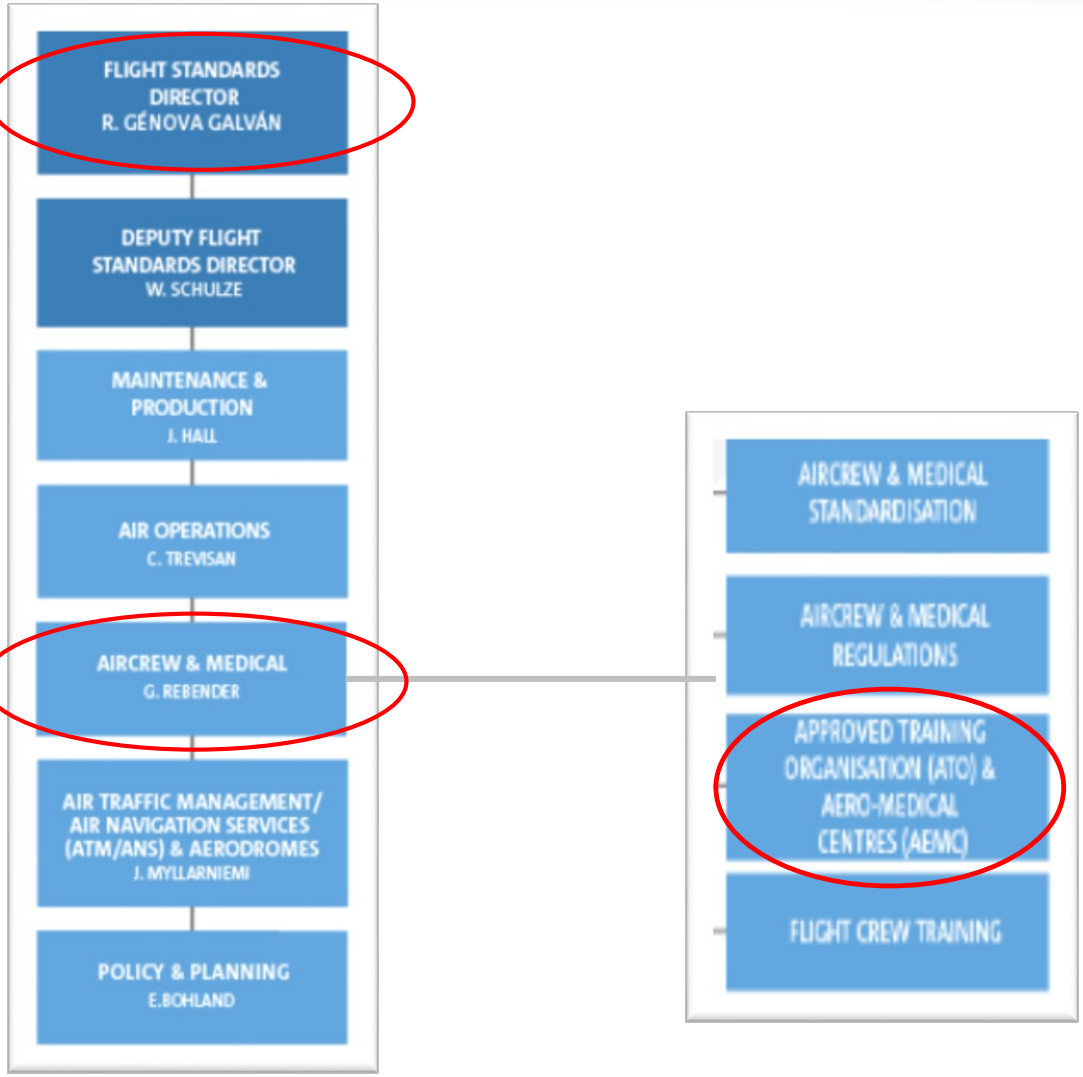
Your safety is our mission.

Key points

- Recent events
- Current status
- Main changes
- Action groups within the Agency
- Surveys

Introduction FS 3.3

FS 3.3



Recent events

In the last decade a series of accidents and incidents triggered the attention of National and International Safety Boards towards:

- Hazards connected with high altitude flying, especially in adverse conditions;
- Strength of the safety barriers in place;
- Research of more efficient mitigating actions.

Recent events

The result of the investigation always led to recommendation for training of crew to achieve:

- Knowledge and understanding of the threats;
- Avoidance of hazardous flying conditions;
- Recognition of the event and
- Recovery from undesired aircraft states.

Current status Theoretical Knowledge

Learning objectives

Notice of Proposed Amendment 2014-29 (D) (1) and (D)(2).

AMC1 FCL.310; FCL.515(b); FCL.615(b)

DETAILED THEORETICAL KNOWLEDGE SYLLABUS AND LEARNING OBJECTIVES FOR THE ATPL, CPL AND IR.

Including

- 040 Human Performance
- 050 Meteorology
- 081 Principles of flight
- 032 Performance

Current status Theoretical Knowledge

- FCL.725 Requirements for the issue of class and **type ratings**
  (a) Training course.

  …. mandatory training elements …defined in the operational suitability data (OSD).. established in accordance with Part-21.

- AMC1 FCL.725(a) Requirements for the issue of class and **type ratings**
  - I. SE AND ME AEROPLANES
    - (a) Detailed listing for aeroplane structure and equipment, normal operation of systems and malfunctions:
      - (8) **flight controls and high lift devices**:

      …..
    - (c) Performance, flight planning and monitoring:
      - (2) flight planning for normal and abnormal conditions:
        - **(i) optimum or maximum flight level;**

        ….
    - (e) Emergency procedures:
      - (1) **recognition of the situation as well as immediate memory actions in correct sequence and for those conditions recognised as emergencies by the manufacturer and competent Authority for certification.**

        …..

Current Status Human Factors training

- Human Factors :
  - MCC Course (AMC1 FCL.735.A) to create knowledge and understanding of:
    - Communication;
    - Situation awareness;
    - Workload management;
    - Problem solving and decision making;
    - Monitoring and cross-checking;
    - Task sharing, use of checklist and briefing;
    - Flight management and FMS use
    - Systems normal and abnormal operations
    - Environment, weather and ATC

Each of the above competencies are critical factors in operations of aircraftincluding flight at high altitude.

Current Status Hi Alt. Ops training

CRM Training (AMC1 ORO.FC115 & 215)

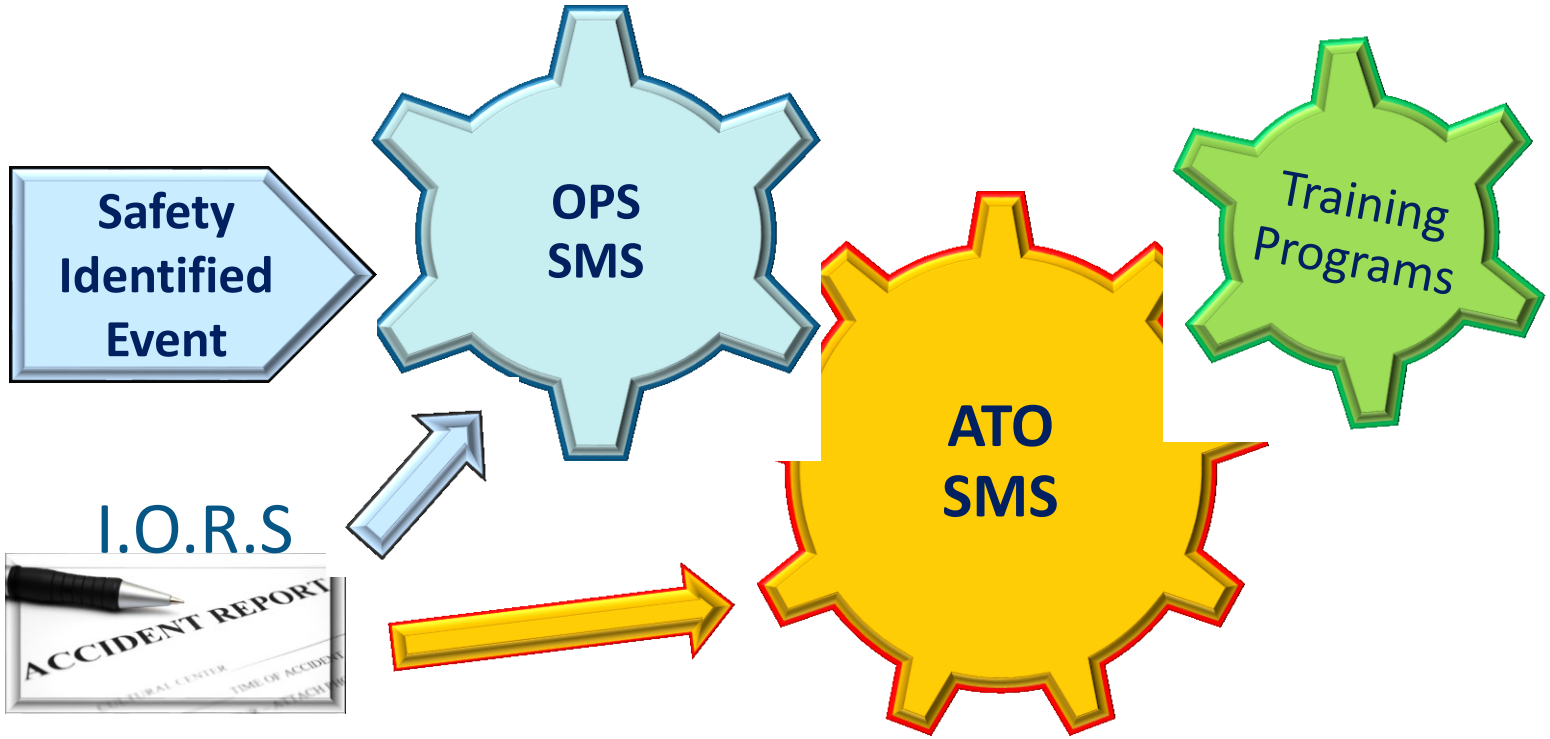
- Initial CRM training
- Operator conversion course;
- Command course;
- Recurrent CRM training;
- Automation and philosophy of use

Current Status Hi Alt. Ops training

- Recurrent training (AMC1 ORO.FC230):
  - Classroom training;
  - FSTD Training.
- Special operations training:
  - RVSM (SPA.RVSM);
  - MNPS (SPA.MNPS);
  - Route qualifications.

Main changes SMS in ATO

- ATO's SMS constitute a powerful tool to identify, evaluate and mitigate the hazards associated in high altitude flight;
- The ATO's SMS efficiency is enhanced by the reports of operators;
- Common reporting tool: IORS



Main changes SMS - Risk Assessment Ex.

Q2. What was (is) the effectiveness of the remaining barriers between this Safety Identified Event preventing the worst foreseeable situation?

Effective	Limited	Minimal	Ineffective
A	B	C	D

Q1. If this Safety Identified Event was (is) left to escalate, the effect on training may, in the worst foreseeable situation, be a contributing factor to:

4 A	4 B	4 C	4D	4 — Non-proficient pilot and /or Lack of knowledge and / or Lack of skill; May lead to an accident.
3 A	3 B	3 C	3 D	3 — Misunderstanding and /or Lack of awareness; May lead to an accident/incident.
2 A	2 B	2 C	2 D	2 — Inconsistent training.
				1 — No apparent effect on training.

Q3. How does (will) this Safety Identified Event relate to the training activity?

+3	+2	+1
Essential part of training / key activity	Integrated element of training	Training support

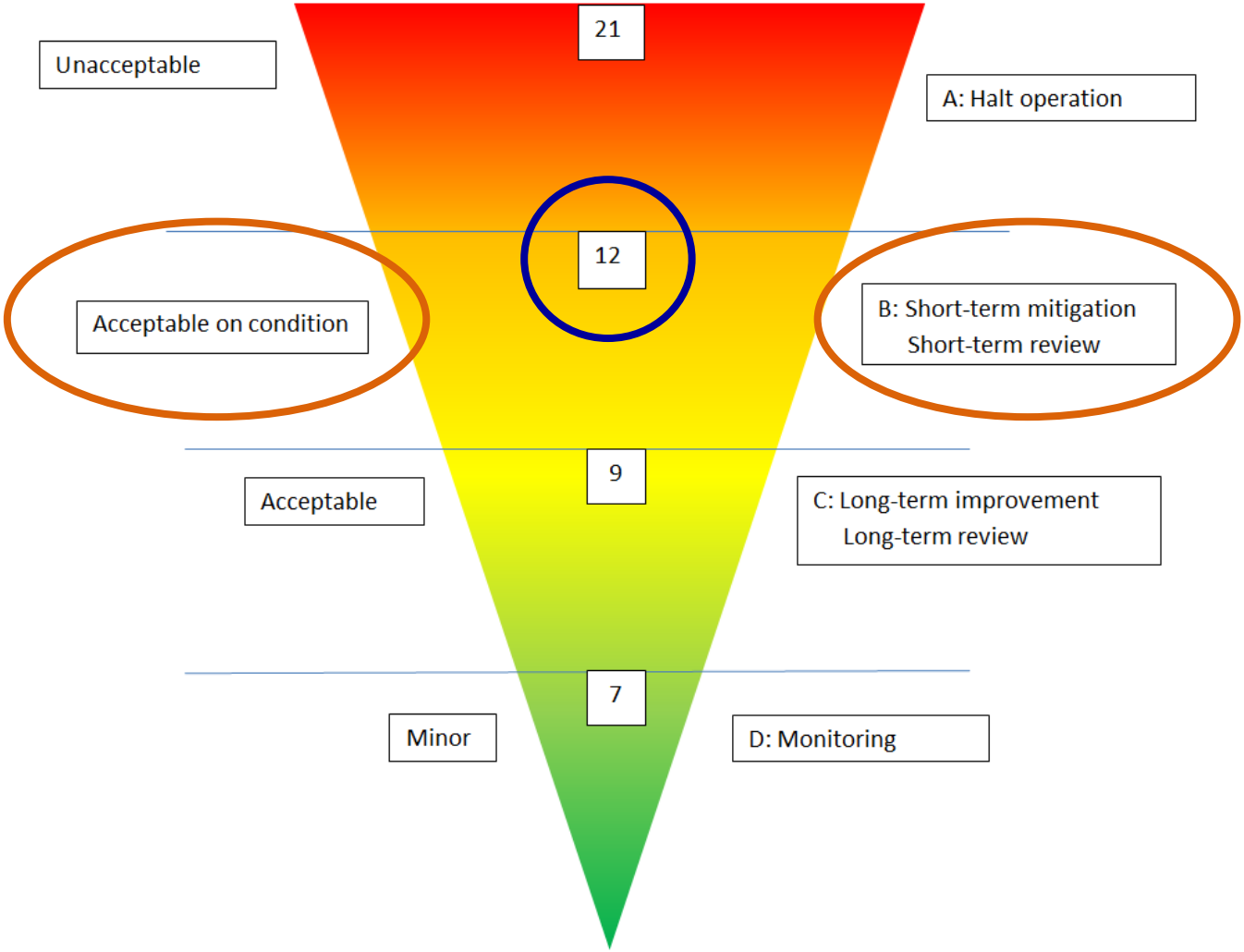
Q4. How often did (will) this Safety Identified Event relate to the training?

c	b	a
Often, at high rate (Weekly)	Regularly at steady rate (Monthly)	Irregular (Quarterly or less)

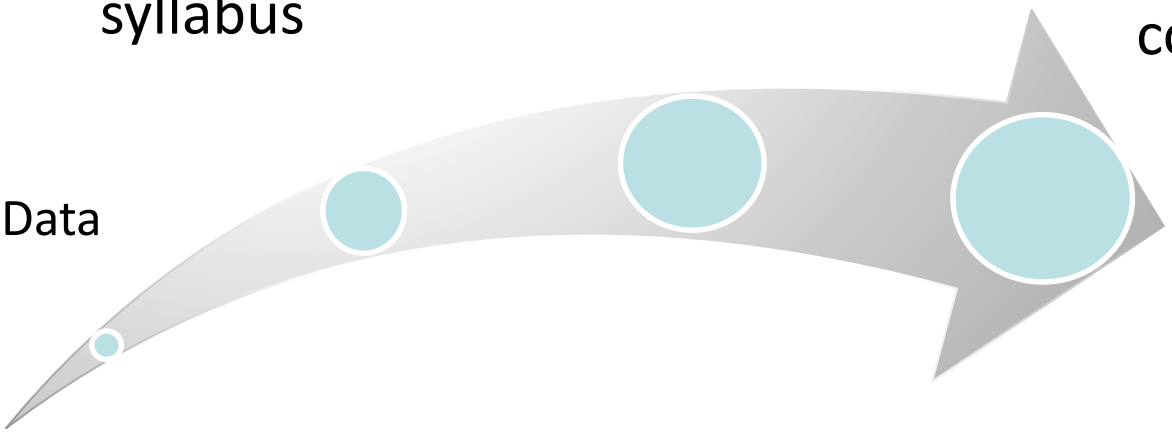
Risk Classification = 4B+3b

= Risk value = 12

Main changes SMS - Risk Assessment Ex.



Main changes OSD - TASE



Type certificate

Training

Main changes OSD - TASE

- Reviewed AMC as result of safety investigations
- High altitude handling training introduced
- Degraded flight envelope protection training

Main changes UPRT

NPA 2015-13

- All upset prevention and recovery training (UPRT) shall be conducted within an Approved Training Organisation (ATO);
- **When FSTD is used**, it shall be qualified for the training task, to avoid **negative training**;
- Instructor competencies requirements (FCL.920)shall be amended to ensure that all instructors will be competent in correctly delivering the UPRT principles.
- Training in an aeroplane to be mandated for the ATPL(A) and MPL training courses.
- FCL.745.A Upset recovery training course — aeroplanes
  - 5 hours of theoretical knowledge instruction;
  - pre-flight briefings and post-flight debriefings; and
  - 3 hours of upset recovery training in an aeroplane qualified for the training task

Main changes UPRT

NPA 2015-13

- Part FCL Appendix 9 amended:
  3.7 Upset recovery training for multi-pilot aeroplanes and single pilot, high-performance, complex aeroplanes in multi-pilot operations only. Recovery from stall events in:
  - **…..clean configuration near maximum operating altitude**;
- GM1 Appendix 9
  UPSET RECOVERY TRAINING FOR SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES IN MULTI-PILOT OPERATIONS AND MULTI-PILOT TYPE RATINGS
  - Stall event recovery template
  - "…**High-altitude stall event training should be included** so that flight crew appreciate the aeroplane control response, the significant altitude loss during the recovery, and the increased time required".

Action groups within the Agency

Survey

Data gathering/sharing worldwide to evaluate:

- Influence of factors:
  - Geographical area;
  - Cluster of operator/ATO;
  - Average crew experience;
  - Cultural background;
  - International communities;
- Level of Implementation of training/SOPs
- Effectiveness of training and checking processes.

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Questions?

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