



LOC-I and UPRT Workshop, Lagos, Nigeria, 18-19 November 2019  
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ICAO SARPs

UPRT Provisions: **What do they say?**

# Overview

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- Why do we need UPRT SARPs?
- What do the ICAO provisions say?
- What are the big changes?
- What guidance is out there?

# Why do we need UPRT SARPs?

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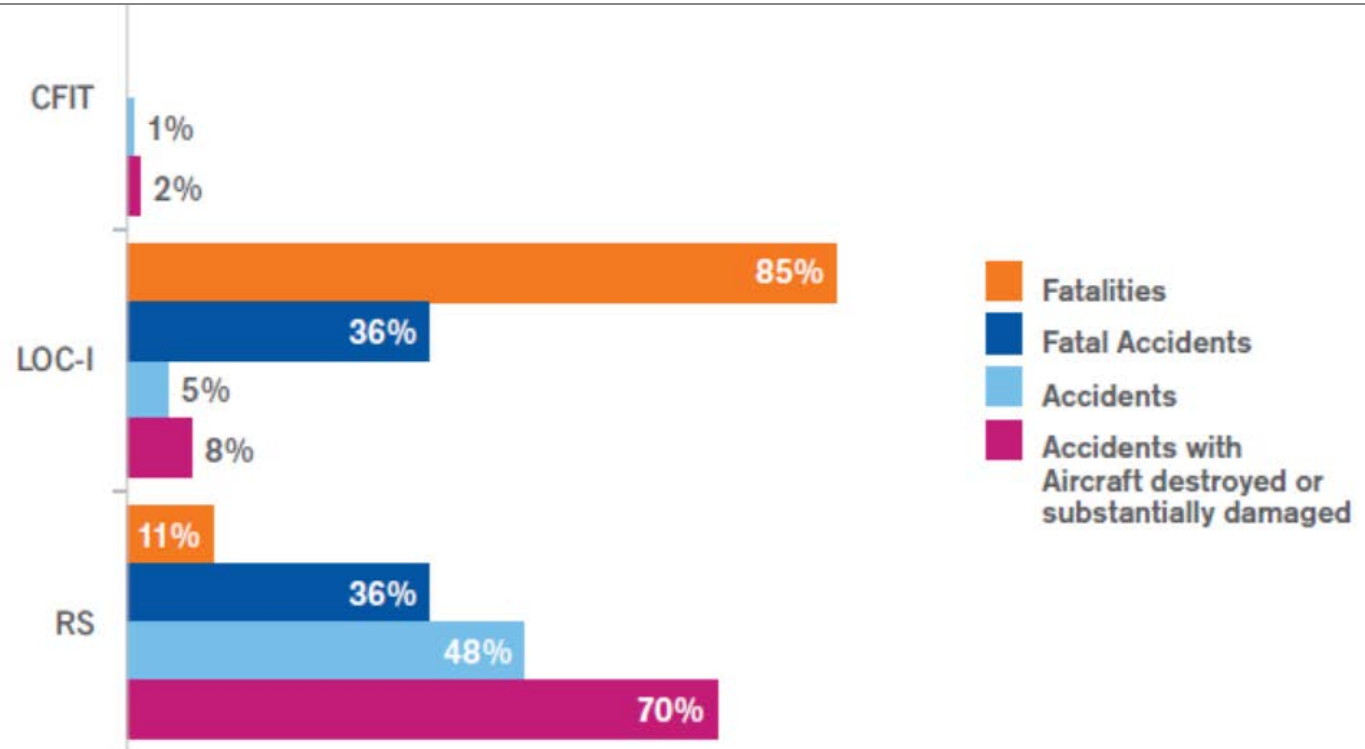
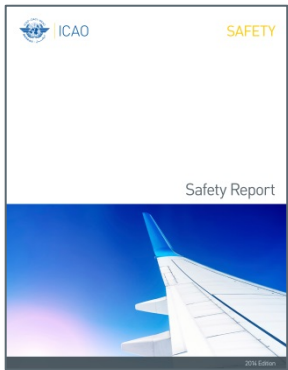
- Mitigating loss of control in-flight accidents is an *ICAO Safety Priority*
- Upset prevention and recovery training (UPRT) for pilots is **one means to address this priority.**

## Why do we need UPRT SARPs?

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- Only **aeroplane pilots** were considered:
  - Smaller ‘loss of life’ numbers in other categories (helicopter, airship, powered-lift, glider, free balloon)
  - No expertise in helicopters and other categories
  - Other means being developed for helicopter

# High-Risk Category Accident

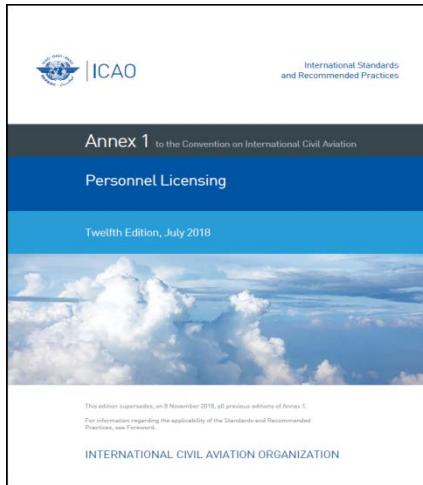


# What the SARPs say:

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- Pilots must be trained in upset *prevention* and recovery in order to meet:
  - Licensing requirements for CPL and MPL
    - MPL *must* include on-aircraft UPRT to be conducted by an ATO (Standard)
    - CPL *should* include on-aircraft UPRT to be conducted by an ATO (RP)
  - Licensing requirements for multi-crew type-rating
  - Commercial air transport pilot training programme requirements
- *Applicable:* 13 Nov 2014

# ICAO UPRT Provisions



## Annex 1

UPRT requirements for MPL and the type rating of multi-crew aeroplanes + RP for CPL



## Annex 6, Part I

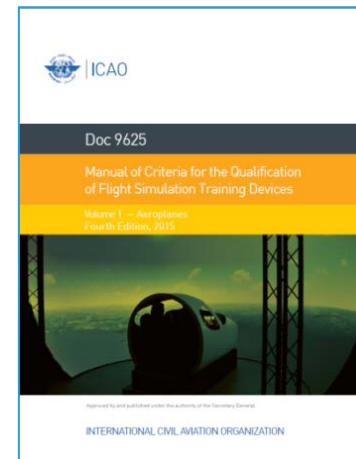
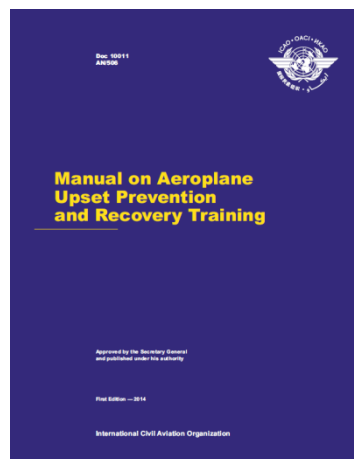
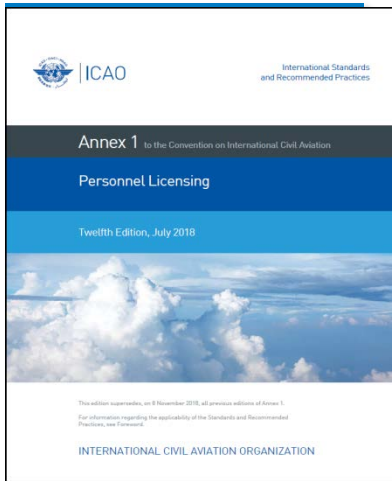
UPRT requirements for flight crew training



## PANS-TRAINING

New Chapter to support Annex requirements

# ICAO UPRT Provisions



# What are the big changes?

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## 1. Professional pilots to be trained in upset *prevention* and recovery:


### – Licensing

- *On-Aeroplane:* MPL
  - *In FSTD:* Multi-crew type rating
- CPL should be trained
- } Approved UPRT in an Approved Training Organization (ATO)

### – Commercial air transport training programmes in FSTD

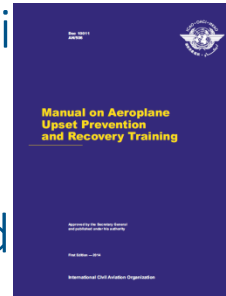
- Initial (conversion)
- Recurrent

Approved UPRT by air operator or in an ATO



# What guidance is out there?

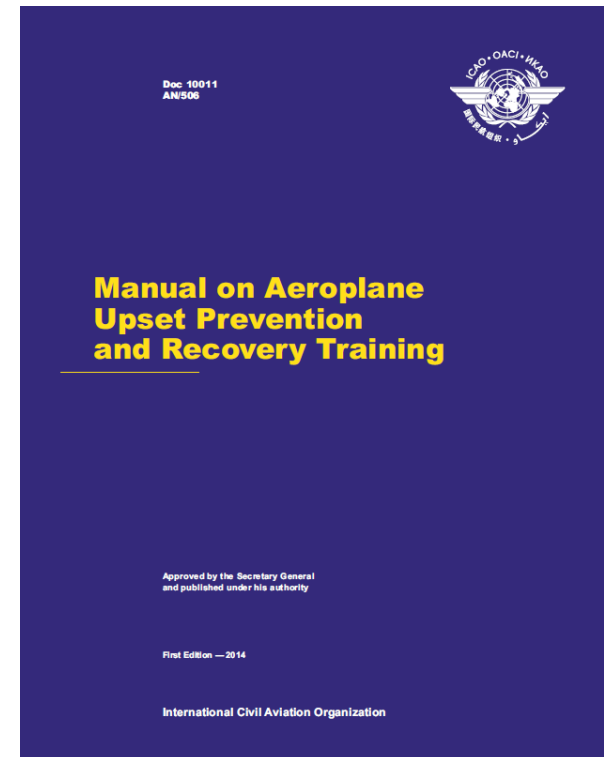
- Manual on Aeroplane Upset Prevention and Recovery Training (Doc 10011)
- Airplane Upset Recovery Training Aid
- Manual of Criteria for the Qualification of FSTDs (Doc 9625)
- ICAO LOC-I Website
- ICAO ESAF and WACAF websites



# Manual on Aeroplane Upset Prevention and Recovery Training (*Doc 10011*)

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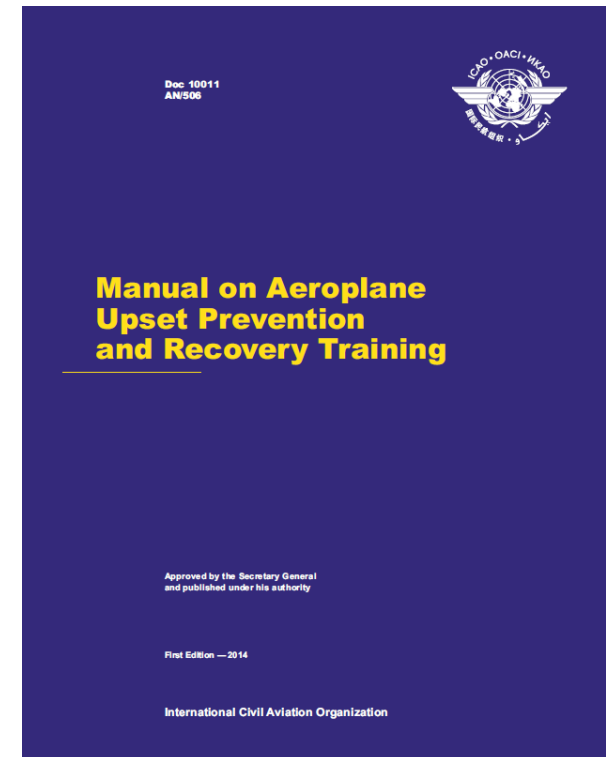
- Introduction:
  - Upset defined, history & applicability
- Training programme requirements
- Training:
  - Academic training
  - On-aeroplane training
  - FSTD training  
*(non-type-specific and type-specific FSTD)*
  - OEMs:
    - Recommendations and training scenarios
    - Upset recovery techniques



# Manual on Aeroplane Upset Prevention and Recovery Training (*Doc 10011*)

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- FSTD fidelity requirements for UPRT  
(*see later*)
- UPRT Instructors:
  - academic, on-aeroplane, FSTD
- Regulatory oversight
- Appendix:
  - Competency-based UPRT programmes



# Manual on Aeroplane Upset Prevention and Recovery Training (*Doc 10011*) – *Academic and Practical Topics*

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- *Aerodynamics*
- *Causes and contributing factors of upsets*
- *Safety review of accidents & incidents relating to aeroplane upsets*
- *G-awareness*
- *Energy management*
- *Flight path management*
- *Recognition*
- *Upset prevention and recovery techniques*

# Manual on Aeroplane Upset and Recovery Training (*Doc 10011*) – *Academic and Practical Topics*

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- *System malfunction*
- *Specialized training elements*
- *Human Factors:*
  - situation awareness
  - startle and stress response
  - threat and error management (TEM)

# Airplane Upset Recovery Training Aid

- Revision 2 has been updated:
  - Airplane Upset Prevention and Recovery Training Aid
    - By OEMs and with ICAO support
    - Covering turboprop and smaller aeroplanes
    - Free and easily accessible
    - User-friendly format



# Airplane Upset Recovery Training Aid

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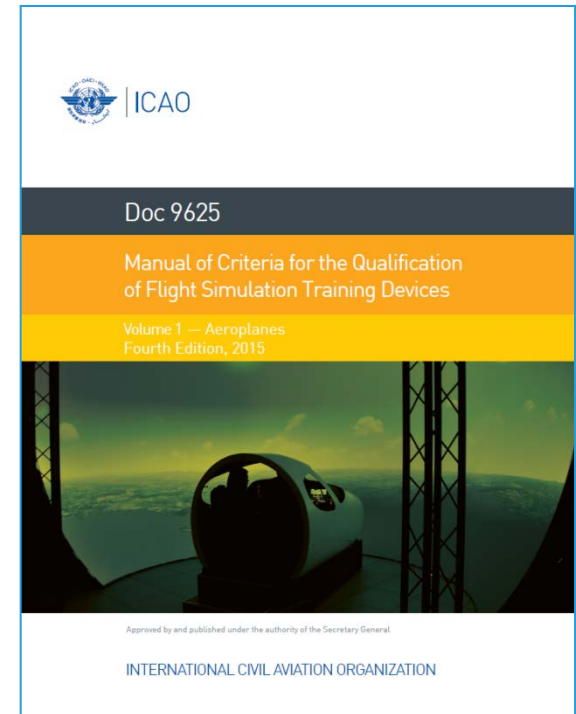
- Available on-line at:  
<https://www.icao.int/safety/LOCI/Pages/default.aspx>
- The version for laptop/desktop is for interactive use and not for download
- A version for download to mobiles (iPad...) is available:

Tablets and Smartphones: the application “AUPRTA” is available on iTunes and APPLE STORE for IOS devices, and on Google Play and Play Store for Android devices.”

# Manual of Criteria for the Qualification of FSTD

(Doc 9625)

- 4<sup>th</sup> edition (August 2015)
- New attachment P has guidance for UPRT: Models and qualification tests or requirements for -
  - Aeroplane type-specific recognition cues of the first indication of the stall (stall warning, aerodynamic buffet...)
  - Aeroplane type-specific recognition cues of an impending aerodynamic stall
  - Exemplar recognition cues and handling qualities from the stall break through recovery *if prescribed by regulations*
  - Engine and airframe icing evaluation





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- South American (SAM) Office  
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**Montreal**
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Cairo
- Eastern and Southern African (ESAF) Office  
Nairobi
- Asia and Pacific (APAC) Office  
Bangkok



**Thank You**