



# EASA

European Aviation Safety Agency

## Welcome by Head of Aircrew Dept.

Rebender Georges

Head of Air Crew & Medical Department, FS.3 -  
Aircrew & Medical Department

## Your safety is our mission.

An agency of the European Union





# EASA

European Aviation Safety Agency

## Session 5 – Implementation of Upset Prevention & Recovery Training (UPRT)

**Francisco Arenas Alvariño**

Air Operations Regulation Officer

Flight Standards Directorate

FS2.1 Air Crew Dept. & FS.2.2 - Air Operations Dept.

Air Operations Regulations Sec.

**Your safety is our mission.**

An agency of the European Union 

TE.GEN.00409-001



## 1- Legal

Legal package on the EASA web

## 2- Upset prevention – goal

AMC1 ORO.FC.220&230 (a)

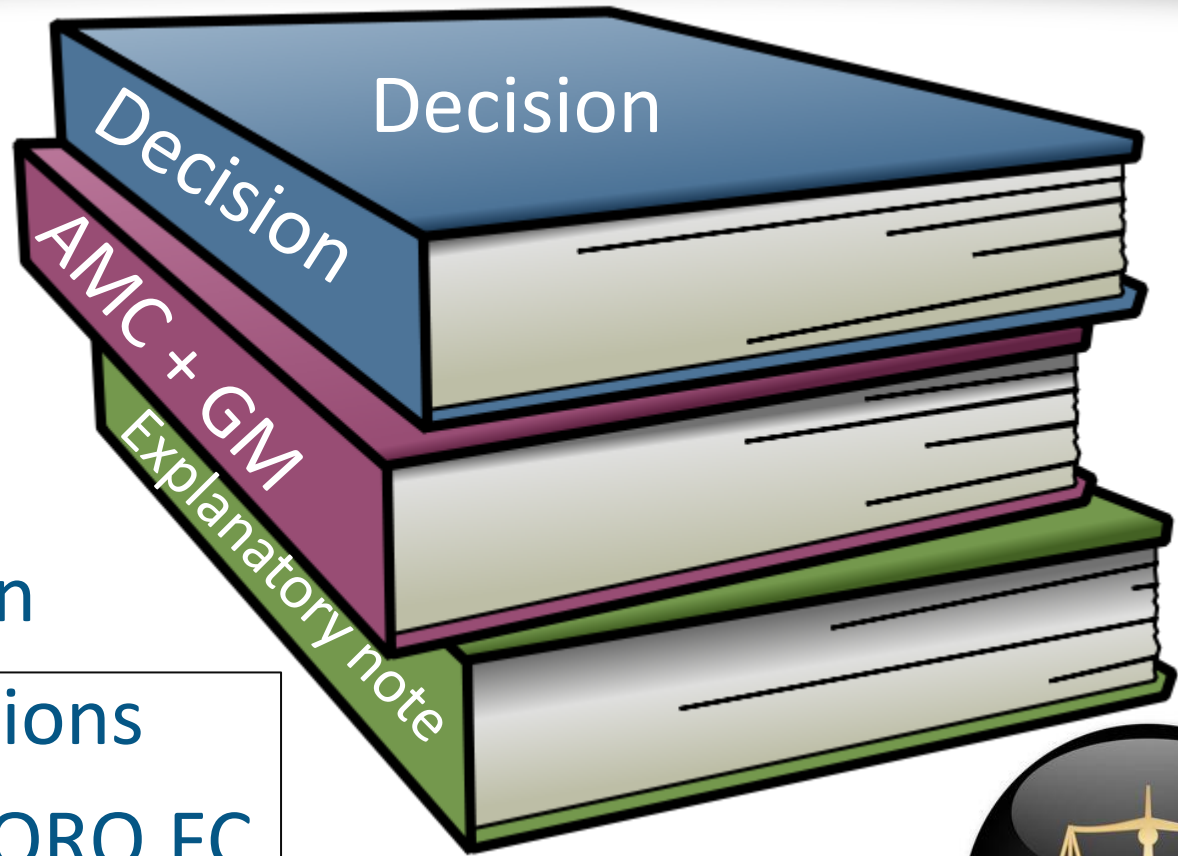
## 3- Upset recovery – stall events

AMC1 ORO.FC.220&230 (b)





# ED Decision 2015/012/R (04 May 2015)



- ED Decision
- GM definitions
- AMC+GM ORO.FC
- Explanatory note.





# ED Decision 2015/012/R (04 May 2015)

## Article 3- Enter into force ➡ 4 May 2016



ED Decision 2015/012/R

### Executive Director Decision

2015/012/R

of 4 May 2015

**amending the Acceptable Means of Compliance and Guidance Material to Part-Definitions and Part-ORO of Regulation (EU) No 965/2012**

**'GM to Part-Definitions —Amendment 3'**

**'AMC and GM to Part-ORO — Issue 2, Amendment 2'**

THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION SAFETY AGENCY,

Having regard to Regulation (EC) No 216/2008<sup>1</sup>, and in particular Article 38(3)(a) thereof,

Having regard to Commission Regulation (EU) No 965/2012<sup>2</sup>, and in particular ARO.GEN.120 thereof,

Whereas:

- (1) The Agency shall, pursuant to Article 18(c) of Regulation (EC) No 216/2008, issue Acceptable Means of Compliance as well as Guidance Material for the application of Regulation (EC) No 216/2008 and its Implementing Rules.
- (2) Acceptable Means of Compliance are non-binding standards adopted by the Agency which illustrate the means to establish compliance with Regulation (EC) No 216/2008 and its Implementing Rules.
- (3) Guidance Material is non-binding material developed by the Agency that helps to illustrate the meaning of a requirement or specification and is used to support the interpretation of Regulation (EC) No 216/2008, its Implementing Rules, Certification Specifications and Acceptable Means of Compliance.

...taking into account worldwide aircraft experience in service, and scientific and technical progress.

- (7) The Agency has determined the need to amend the Acceptable Means of Compliance and Guidance Material to introduce provisions for operator flight crew training. The objective of upset prevention and recovery training is to help flight crew acquire the required competencies in order to prevent or recover from developing or developed upsets. Upset prevention training prepares flight crew to avoid incidents whereas upset recovery training prepares flight crew to prevent an accident once an upset condition has developed.
- (8) Due to the importance of the issue and the short time frame, the Agency applied an 'accelerated' procedure, thereby only consulting the relevant Agency consultative bodies on the matters which are subject of this ED Decision.

HAS DECIDED:

#### **Article 1**

The Annex to Decision 2012/015/R of the Executive Director of the European Aviation Safety Agency of 24 October 2012 is amended as laid down in the Annex I to this Decision.

#### **Article 2**

The Annex to Decision 2014/017/R of the Executive Director of the European Aviation Safety Agency of 24 April 2014 is amended as laid down in the Annex II to this Decision.

#### **Article 3**

This Decision shall enter into force on 4 May 2016.

Done at Cologne, on 4 May 2015

*For the European Aviation Safety Agency  
The Executive Director*

Patrick KY



TE.RPRO.00072-002 © European Aviation Safety Agency. All rights reserved. ISO 9001 certified.  
Proprietary document. Copies are not controlled. Confirm revision status through the EASA intranet/Internet.

Agency of the European Union

Page 2 of 2



# EASA

European Aviation Safety Agency

# AMC-GM to Part-ORO + GM to Part-Definitions

**Your safety is our mission.**

An agency of the European Union 

TE.GEN.00409-001



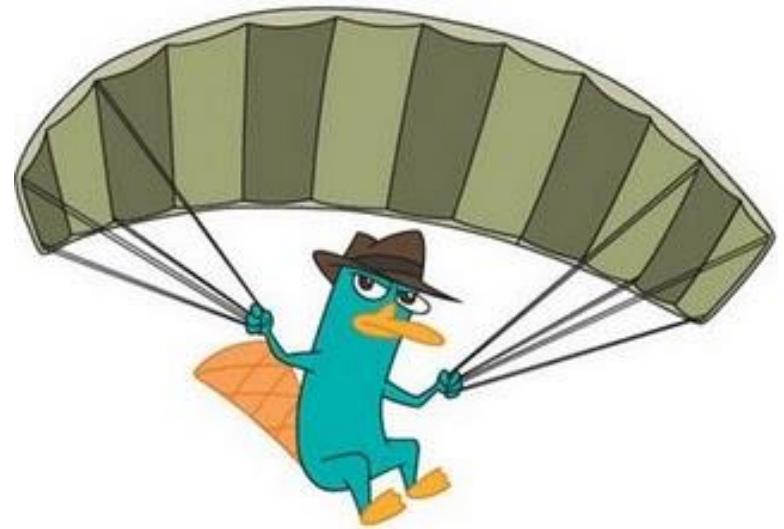
# Upset Prevention & Recovery Training

## Prevention



Prévention

## Recovery





**EASA**  
European Aviation Safety Agency

# Upset Prevention Training

## AMC1 ORO.FC.220&230 (a)

**Your safety is our mission.**

An agency of the European Union 

TE.GEN.00409-001





## AMC1 ORO.FC.220&230 (a)

- (1) Should consist of a combination of ground and FSTD or aeroplane training (pag 5 Exp.N)

**Table 1: Elements and respective components of upset prevention training**

Elements and components		Ground training	FSTD/ Aeroplane training
<b>A.</b>	<b>Aerodynamics</b>		
1.	General aerodynamic characteristics	•	
2.	Aeroplane certification and limitations	•	
3.	Aerodynamics (high and low altitudes)	•	•
4.	Aeroplane performance (high and low altitudes)	•	•
5.	Angle of attack (AOA) and stall awareness	•	•
6.	Stick shaker or other stall-warning device activation (as applicable)	•	•
7.	Stick pusher (as applicable)	•	•



## AMC1 ORO.FC.220&230 (a)(2)

**2 or +**

Upset prevention elements for the OCC

ideally based on the operator's identified risks (Ex.Note)

AMC1 ORO.FC.220&230 Operator conversion training and checking & recurrent training and checking  
**Table 1: Elements and respective components of upset prevention training**


UPSET AEROPL MORE T		Elements and components	Ground training	FSTD/ Aeroplane training
(a) U (1) (2) (3)	A.	<b>Aerodynamics</b>		
	1.	General aerodynamic characteristics	•	
	2.	Aeroplane certification and limitations	•	
	3.	Aerodynamics (high and low altitudes)	•	•
	4.	Aeroplane performance (high and low altitudes)	•	•
	5.	Angle of attack (AOA) and stall awareness	•	•
	6.	Stick shaker or other stall-warning device activation (as applicable)	•	•
	7.	Stick pusher (as applicable)	•	•



## AMC1 ORO.FC.220&230 (a)(3)

1 element every 12 calendar months and all the elements every 3 years

Elements and respective components of upset prevention training



	Component
A.	
1.	Characteristics
2.	and limitation
3.	and low altitudes
4.	(high and low
5.	and stall aware

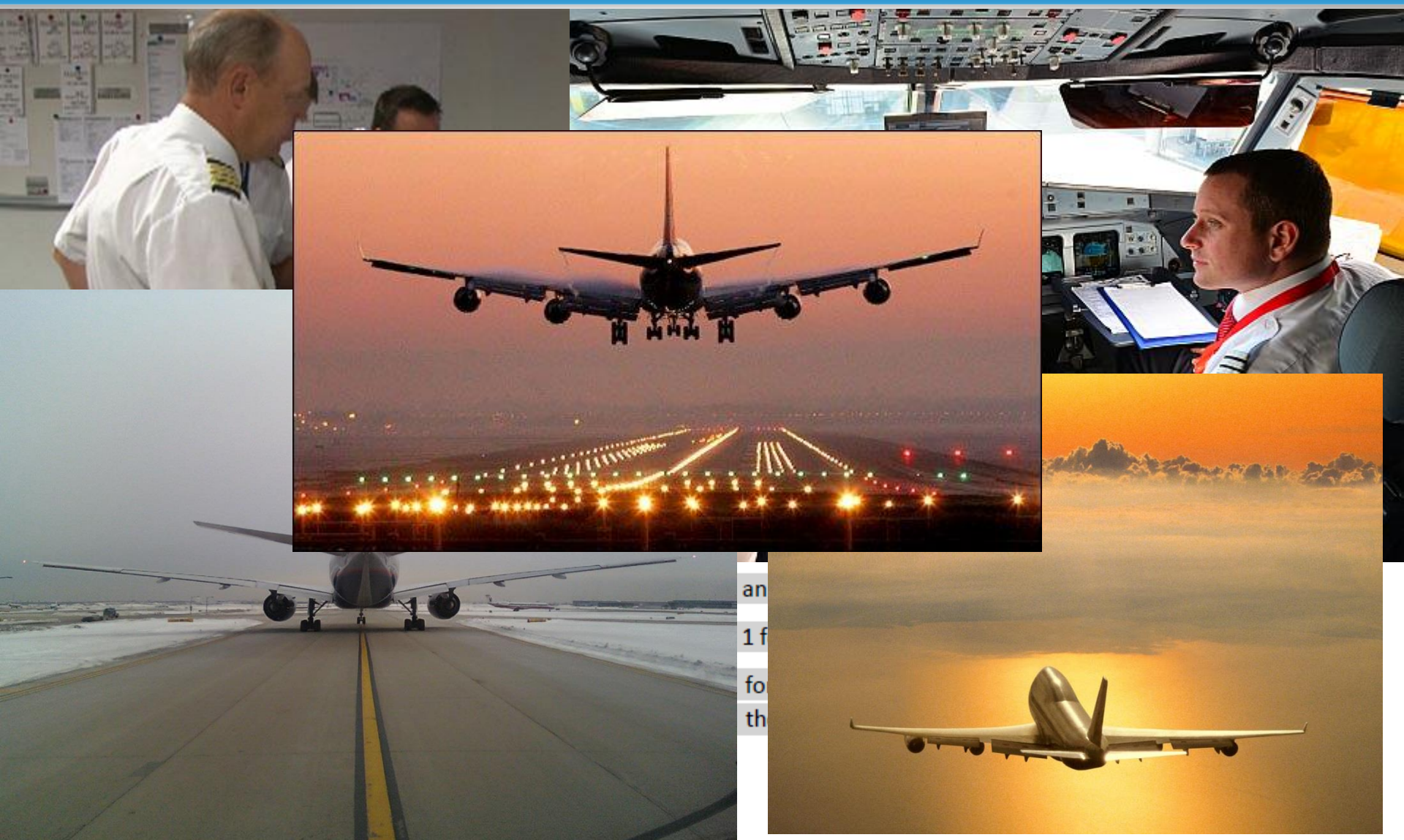


6.	Stick shaker or other stall-warning device activation (as applicable)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7.	Stick pusher (as applicable)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>





# Preventions starts in the briefing room





# Upset prevention training

- Try to im  
across yo  
ORO.FC.
- prioritise  
respectiv  
safety ris  
PREVENT  
POWERE
- GM1 OR  
knowled  
ENVIRONM  
PREVENTION OF AEROPLANE UPSETS



tion training elements  
program (AMC1  
imum once a year!)

elements and  
ing to the operator's  
230 UPSET  
OMPLEX MOTOR-  
and aerodrome  
ELATED TO THE  
SETS



# EASA

European Aviation Safety Agency

# Upset Recovery Training AMC1 ORO.FC.220&230 (b)

## Stall events

**Your safety is our mission.**

An agency of the European Union 

TE.GEN.00409-001





# Upset + Recovery

➤ Upset

➤ Recovery





# Upset recovery training

## (b) Upset recovery training should:

(1) consist of ground training and flight training in an FFS qualified for the training task;

(2) be completed from each seat in which a pilot's duties require him/her to operate; and

(3) include the recovery exercises in Table 2 for the recurrent training programme, such that all the exercises are covered over

**Table 2: Exercises for upset recovery training**

Exercises		Ground training	FFS training
A.	Recovery from developed upsets		
1.	Timely and appropriate intervention	•	•
2.	Recovery from stall events, in the following configurations; — take-off configuration, — clean configuration low altitude,		





# Why Stall events?

- Negative training - Explanatory note
- GM13 Definitions
  - “Stall Event” → approach-to-stall or a stall
  - “Approach-to-stall” → stall warning and stall
  - “Stall warning” & “Stall” are also defined
- Negative training – Personnel providing FSTD upset prevention and recovery training **GM5 ORO.FC.220&230.**
- Negative training – FFS qualified for the upset recovery training task **GM4 ORO.FC.220&230**
- Negative training – stall event recovery procedures of the OEM **GM3 ORO.FC.220&230**



# ICAO Doc 10011

Doc 10011  
AN/506



## MANUAL ON AEROPLANE UPSET PREVENTION AND RECOVERY TRAINING

### NOTICE TO USERS

This document is an unedited version of an ICAO publication and has not yet been approved in final form. As its content may still be supplemented, removed, or otherwise modified during the editing process, ICAO shall not be responsible whatsoever for any costs or liabilities incurred as a result of its use.

Approved by the Secretary General  
And published under his authority

First Edition — 2014

INTERNATIONAL CIVIL AVIATION ORGANIZATION





**EASA**  
European Aviation Safety Agency

**End slide**

**Your safety is our mission.**

An agency of the European Union

