

GUERNSEY ADVISORY CIRCULAR (GACs)



GAC OPS-4



**Upset Prevention
and Recovery
Training**

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First Issue

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Enquiries regarding the content of this publication should be addressed to the Director of Civil Aviation, Guernsey Airport, Airport Terminal Building, La Villiaze, Forest, Guernsey, GY8 ODS.

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1 - Purpose

The purpose of this Guernsey Advisory Circular (GAC) is to present to AOC holders an acceptable means of compliance with the requirement for a training programme for upset prevention and recovery training for flight crew.

2 - Related laws, regulations and requirements

This GAC relates to GAR 135/121.950a7.

No rights can be derived from this document. For exact details please refer to The Air Navigation (Bailiwick of Guernsey) Law, 2012 (Law). In case of conflict between this guidance document and the Law, 2012, the latter shall prevail.

3 - Definitions

Definitions, in the context of this GAC shall have the meanings listed in GAR Part 1 (Definitions, Abbreviations and Units of Measurement).

4 - Introduction

With issue 3 of GAR 135/121 the requirement for the flight crew training programme to include upset prevention and recovery training was introduced. The effectivity date is 1 September 2018¹. This requirement is as follows:

135/121.950 Training programmes – general

- a. The operator shall establish and maintain a ground and flight training programme, approved by the Director, to ensure that operating staff, including flight crew, cabin crew and other crew members are adequately trained and competent to perform their duties; as follows:
(...)
7 The training programme for flight crew shall include upset prevention and recovery training.

This requirement is pursuant to section 9.3.1d of ICAO Annex 6, Part I, which became applicable on 13 November 2014². Separately, ICAO introduced upset prevention and recovery training provisions as part of flight crew licensing. These provisions became effective on the same date, meaning that pilots who were issued their licence on or after that date should have received such training as part of their initial training. However, it is known that not all states have implemented this at the same date. As an example, EASA currently has this provision in the rulemaking stage with the rule expected to be published by the European Commission in 2018.

¹ Channel Islands Aviation Journal, section 4-1.11.8

² Introduced with Amendment 38

This GAC gives guidance to AOC holders as to means of compliance for meeting the requirements of GAR 135/121.950a7³. When approving the ground and flight training programme, the Director will consider a training programme meeting the acceptable means of compliance as listed in section 6 as compliant with the GAR. An AOC holder may propose for approval a different means of compliance, together with an explanation of the reason for the difference and a substantiation that the difference complies with the intent of the GAR.

5 - Phased implementation

To allow sufficient time for AOC holders to implement full UPRT compliance a phased implementation timeframe will be adopted.

- All AOC holders must submit their UPRT course material to the DCA by 1 September 2018.
- Full UPRT implementation must commence by 1 January 2019. This date is set as a commencement date. Should AOC holders have their UPRT courses approved by the DCA before this date, then UPRT can commence earlier, which is desirable.
- Should an AOC holder not be in a position to commence UPRT by 1 January 2019, an extension may be applied for in writing to the DCA together with a justification. Extensions will be considered by the DCA for exceptional circumstances only.

6 - Acceptable means of compliance

6.1 Upset prevention training

Upset prevention training should:

- consist of ground training and flight training in a full flight simulator or an aeroplane
- for the conversion training course include upset prevention elements from Table 1;
- for the recurrent training programme include upset prevention elements in Table 1 at least every 12 calendar months such that all elements are covered over a period not exceeding 3 years.

³ This guidance is based on that of EASA as published in relevant AMCs.

Table 1: Elements and respective components of upset prevention training

Elements and components		Ground training	Simulator/ aeroplane training
A	Aerodynamics		
1	General aerodynamics 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)	√	√
8	Mach effects (if applicable to the aeroplane type)	√	√
9	Aeroplane stability	√	√
10	Control surface fundamentals	√	√
11	Use of trims	√	√
12	Icing and contamination effects	√	√
13	Propeller slipstream (as applicable)	√	√
B	Causes and contributing factors to upsets		
1	Environmental	√	√
2	Pilot-induced	√	√
3	Mechanical (aeroplane systems)	√	√
C	Safety review of accidents and incidents relating to aeroplane upsets		
1	Safety review of accidents and incidents relating to aeroplane upsets	√	√
D	g-load awareness and management		
1	Positive/negative/increasing/decreasing g-loads	√	√
2	Lateral awareness (sideslip)	√	√
3	g-load management	√	√
E	Energy management		
1	Kinetic energy vs potential energy vs chemical energy (power)	√	√
F	Flight path management		
1	Relationship between pitch, power and performance	√	√
2	Performance and effects of differing power plants (if applicable)	√	√
3	Manual and automation inputs for guidance and control	√	√
4	Type-specific characteristics	√	√
5	Management of go-arounds from various stages during the approach	√	√
6	Automation management	√	√
7	Proper use of rudder	√	√
G	Recognition		
1	Type-specific examples of physiological, visual and instrument clues during developing and developed upsets	√	√

2	Pitch/power/roll/yaw	√	√
3	Effective scanning (effective monitoring)	√	√
4	Type-specific stall protection system and cues	√	√
5	Criteria for identifying stalls and upsets	√	√
H	System malfunction (including immediate handling and subsequent operational considerations, as applicable)		
1	Flight control defects	√	√
2	Engine failure (partial or full)	√	√
3	Instrument failures	√	√
4	Loss of reliable airspeed	√	√
5	Automation failures	√	√
6	Fly-by-wire protection degradations	√	√
7	Stall protection system failures including icing alerting systems	√	√
I	Manual handling skills (no autopilot, no autothrust/ autothrottle and, where possible, without flight directors)		
1	Flight at different speeds, including slow flight, and altitudes within the full normal flight envelope		√
2	Procedural instrument flying and manoeuvring including instrument departure and arrival		√
3	Visual approach		√
4	Go-arounds from various stages during the approach		√
5	Steep turns		√

6.2 Upset recovery training

Upset recovery training should:

- consist of ground training and flight training in a full flight simulator qualified for the training task, if available;
- be completed from the seat in which a pilot's duties require him to operate; and
- include the recovery exercises in Table 2 for the recurrent training programme such that all elements are covered over a period not exceeding 3 years.

Table 2: exercises for upset recovery training

Exercises		Ground training	Full flight Simulator
	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, • clean configuration near maximum operating altitude, • landing configuration during the approach phase	√	√
3	Recovery from nose high at various bank angles	√	√
4	Recovery from nose low at various bank angles	√	√
5	Consolidated summary of aeroplane recovery techniques	√	√

6.3 Competency of personnel providing UPRT

The operator should ensure that personnel providing simulator or aeroplane UPRT are competent and current to deliver the training, and understand the capabilities and limitations of the device or aeroplane used.

7 - Further guidance

Further guidance is available in the following documents:

- ICAO Document 10011;
- EASA GM1 ORO FC.220&230 Operator conversion training and checking & recurrent training and checking;
- EASA GM2 ORO FC.220&230 Operator conversion training and checking & recurrent training and checking;
- EASA GM3 ORO FC.220&230 Operator conversion training and checking & recurrent training and checking;
- Flight Safety Foundation, Airplane Upset Recovery Training Aid.

END