



International Civil Aviation Organization

RASG-MID Steering Committee

Fourth Meeting (RSC/4)
(Cairo, Egypt, 15 – 17 December 2015)

Agenda Item 3: Regional Performance Framework for Safety

**UPDATE ON DEVELOPMENT AND IMPLEMENTATION OF SEIS & DIPS
RELATED TO LOC-I**

(Presented by LOC-I Coordinator)

SUMMARY

This paper describes the activities and progress achieved related to implementation of SEIs and DIPS LOC-I/2 and LOC-I/3 covering the standard operating procedures effectiveness and the flight crew training and verification.

Action by the meeting is at paragraph 3.

REFERENCES

- CAST Plan

1. INTRODUCTION

1.1 Loss of Control In-flight (LOC-I) was identified as one of three focus areas in the MID Region. As a result, various DIPS (3 total) have been developed to reduce the risk of fatal accidents caused by LOC-I. Boeing has volunteered to lead this specific initiative.

2. DISCUSSION

2.1 Generally; effective SOPs are the product of healthy collaboration among managers and flight operations people, including flight crews. A safety culture promoting continuous feedback from flight crews and others, and continuous revision by the collaborators distinguishes effective SOPs at airlines.

2.2 To improve flight crew adherence to SOPs and reduce the risk of lost awareness of airplane state, airline operators should review, and update as needed, current SOPs for consistency with manufacturers recommendations in addition to requirements stated as at **Appendix A**.

2.3 To improve flight crew proficiency in handling issues that can lead to loss of airplane state awareness (ASA) Air carriers should review, incorporate, and adopt the best practices recognized by the aeronautical community with regards to upset prevention and recovery training, as indicated in **Appendix B**.

2.4 Distributed guidance material contained in the manual on airplane upset prevention & recovery (Doc 10011) and promoted best practices to all MID operators.

2.5 Plan to organize a workshop to launch the LOC-I programme. The workshop will be held in Dubai, UAE on 3 March 2016.

2.6 Will support the ICAO Safety summit planned in March 2016 to present the LOC-I programme.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review and endorse the Draft Safety Advisories as at **Appendices A and B.**

APPENDIX A

Regional Aviation Safety Group-Middle East (RASG-MID)

RASG-MID SAFETY ADVISORY – XXX (RSA-xxx)

Standard Operating procedures Effectiveness and Adherence

1. Introduction

1.1 The purpose of this Safety Advisory (SA) is to ensure that all airline operators publish and enforce clear, concise and accurate flight crew Standard Operating Procedures (SOPs) to reduce the risk of loss-of-control accidents.

1.2 In a Commercial Aviation Safety Team (CAST) study of 18 loss-of-control accidents and incidents, insufficient adherence to SOPs was a factor in 15 events.

1.3 The Commercial Aviation Safety Team (CAST) was founded in 1998 with a goal to reduce the commercial aviation fatality rate in the United States by 80 percent by 2007. To achieve this goal, the CAST developed and started implementing a comprehensive Safety Enhancement Plan. By 2007, CAST was able to report that, by implementing the most promising safety enhancements, the fatality rate of commercial air travel in the United States was reduced by 83 percent. CAST continues to develop, evaluate and add Safety Enhancements to the CAST Plan for continuing accident rate reduction.

2. Description

2.1 Many aviation safety organizations including the FAA have recently reaffirmed the importance of SOPs. For many years the National Transportation Safety Board (NTSB) has identified deficiencies in standard operating procedures as contributing causal factors in aviation accidents. Among the most commonly cited deficiencies involving flight crews has been **their non-compliance** with established procedures; another has been the **non-existence of established procedures** in some manuals used by flight crews.

2.2 In general, effective SOPs are the product of healthy collaboration among managers and flight operations people, including flight crews. A safety culture promoting continuous feedback from flight crews and others, and continuous revision by the collaborators distinguishes effective SOPs at airlines.

2.3 To improve flight crew adherence to SOPs and reduce the risk of lost awareness of airplane state, airline operators should:

1. Review, and update as needed, current SOPs for consistency with the manufacturers recommendations , focusing on completeness for all phases of flights and improved awareness and response during operations that are more prone to issues that result in high fatality risk (e.g. rushed and/or un-stabilized approaches, go-arounds, transfer of control, automation interaction, pilot flying/pilot monitoring duties).
2. Consult with manufacturers to check that SOPs are consistent with current manufacturer recommendations with regards to LOC and CIFT.

3. Review SOPs for compatibility with the most current ATC procedures, paying attention to airports where data show higher rates of un-stabilized approach or excessive bank angles.
4. Develop training programs to provide pilots with rationale for SOPs, focusing on those with lower adherence rates.
5. Airlines/operators and regulators should ensure that their training/standardization and monitoring programs emphasize the importance of adherence to SOPs and identify the rationale behind those procedures.
6. Airlines/operators should implement Flight Operational Quality Assurance (FOQA) programs to identify systemic procedural deviations and unsafe trend.
7. Airlines/operators incorporate processes to periodically review and update SOPs, other policies, and training based on results of monitoring programs for SOP adherence.

2.4 This Advisory Circular identifies the above broad topics that should be addressed in Standard Operating procedures effectiveness and adherence. Only a specific air operator and the respective airplane manufacturer knows what is best for particular circumstances.

References:

FAA Advisory Circular (AC) 120-71A, Standard Operating Procedures for Flight Deck Crewmembers
CAST Plan (located on Skybrary: http://www.skybrary.aero/index.php/Portal:CAST_SE_Plan)
CAST Safety Enhancement (SE) 2 — Standard Operating Procedures
CAST SE 11 – Crew Resource Management Training
CAST SE 26 – Policies and Procedures - Standard Operating Procedures (SOPs)
CAST SE 60 – Pilot Training – One Project: SOPs, CRM
FAA Order 7110.65, Air Traffic Control

APPENDIX B

**Regional Aviation Safety Group-Middle East
(RASG-MID)**

RASG-MID SAFETY ADVISORY – XXX (RSA-xxx)

Airplane States Awareness (ASA) -Training –Flight Crew training (Approach to stall & Up set recovery) Verification and Validation

1. Introduction

- 1.1 A CAST study of 18 loss-of-control accidents and incidents showed that, in many situations, the flight crew failed to properly respond to and recover with how they had been trained from an unexpected upset, approach to stall, or stall situation resulting from flight crew loss of airplane state awareness (ASA). In some of these events, a review of the accident report indicated proficiency issues with the pilot even after checking and qualification, particularly when training had been provided by an external training organization.
- 1.2 The purpose of this Safety Advisory is to reduce the risk of loss-of-control accidents by having Air Carriers conduct effective upset prevention and recovery training, including approach-to-stall, in realistic scenarios, using qualified flight simulator training devices.

2. Description

2.1 To improve flight crew proficiency in handling issues that can lead to loss of airplane state awareness (ASA) Air carriers should review, incorporate, and adopt the best practices recognized by the aeronautical community with regards to upset prevention and recovery training, including the following:

- a) Qualification of flight simulation training devices to satisfactorily represent aircraft characteristics for proposed scenarios. Air carriers should coordinate with airplane and simulator manufacturers to ensure that training devices satisfactorily represent aircraft characteristics for proposed scenarios.
- b) Approach-to-stall training in realistic scenarios. (i.e., up to the stall warning activation):
 - i. approach-to-stall with the autopilot engaged (including auto-throttles disengaged, inoperative or not installed), with emphasis on the effect of autopilot trim/auto-trim and combinations of auto-flight modes that can lead to low energy state (e.g., use of vertical speed modes in climb near the airplane's performance ceiling)
 - ii. a demonstration of recognition and recovery from initial improper response to approach-to-stall
 - iii. high-altitude approach-to-stall (service ceiling for the weight) to include recognition of low and high speed buffet, performance capabilities of the engines and flight control sensitivity
 - iv. low-altitude approach-to-stall (terrain critical) and recovery with ground proximity warning system (GWPS) alerts

- v. air data system failures that can present as, or lead to, stall
- c) Upset prevention and recovery training (UPRT) realistic scenarios including but not limited to:
 - i. Upsets encountered with and without auto-flight engaged
 - ii. Upsets occurring in instrument meteorological conditions (IMC)
 - iii. Sub-threshold roll (imperceptible roll rate) in IMC
 - iv. Pilot-induced upsets
 - v. Air data system failures (e.g., unreliable airspeed), with emphasis on subtle or intermittent types of failures that can be particularly difficult to recognize or diagnose.

2.3 Air carriers should verify and validate the quality and consistency of training, with emphasis on externally provided training. This should include examining both the content and conduct of training. Training verification and validation should include improving surveillance of and communication with third-party training providers. To accomplish this, air carriers should:

- a) implement a process to ensure their aircrew training program, including any externally provided training, is consistent with current airline and manufacturer policy and procedures.
- b) implement a process to validate the qualification and currency of trainers, including third-party training providers.
- c) validate contractor training by periodically observing training and/or checking events and auditing records to ensure consistency of aircrew training and pilot proficiency.

References:

CAST SEI 95
FAA Order 8900.1
FAA Information for Operators InFO 13003