ABSTRACT

The principal investigator of the Go-Around Safety Forum and its report was Mr. Blajev Tzvetomir; EUROCONTROL. This report describes the background, purpose and objective of this important forum which was initiated by the Flight Safety Foundation, the European Regions Airline Association, and EUROCONTROL. The forum took place on 18 June 2013 in EUROCONTROL Brussels. The purpose of the forum was to address the growing concerns with the dramatic increase in “approach and landing” accidents. The Go-Around Safety Forum was initiated to support the flight safety foundations Go-Around safety initiative and to help the early implementation of actions for the European Action Plan for the prevention of Runway Excursions (EAPPRE), issued in January 2013. The operational problem as stated in the Forum’s report and in various articles in Aviation Week & Space Technology (March 24th, 2014) is the growing number of approach and landing accidents and incidents. Indeed, ICAO reports that there about two runway excursions per week worldwide. Approach and landing accidents account for 62% of all accidents with indications that this trend will continue if decisive action is not taken.

Keywords: Approach and Landing Accidents, EUROCONTROL, European Action Plan for the Prevention of Runway Excursions (EAPPRE), Flight Safety, Go-Around Safety Forum

INTRODUCTION

The principal conclusions of this safety forum include the following:

• The go-around maneuver is a normal phase of flight and should be used without prejudice as conditions warrant;
• The majority of accidents that have occurred over the last decade have been “approach & landing” accidents. This category includes the final approach phase of flight, the landing maneuver and the roll-out maneuver. The lack of a go-around decision contributes to this operational problem and is considered to be the leading risk factor in these types of accidents. Yet, less than 5% of destabilized approaches lead to a go-around decision. Optimizing the go-around decision-making process could prove significant. Many believe that no other single decision could have as great an impact on the overall aviation industry accident rate;
• One in ten go-around reports record a potentially hazardous outcome, including exceeding important operational parameters;

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• The precise location for the execution of the go-around maneuver is important because of different challenges and risks tied to such a point.

The forum’s safety improvement strategies relate to the go-around decision-making process, execution of the go-around maneuver, training events covering important aspects of the go-around decision and maneuver, and Air Traffic involvement. These strategies are:

1. Enhance crew dynamic situation awareness;
2. Refine the parameters and policies regarding stabilized approaches;
3. Minimize the subjectivity and improve the effectiveness of the go-around decision;
4. Ensure that appropriate training and awareness reflect different risk execution scenarios;
5. Review (and re-formulate) all go-around policies, procedures and documentation to maximize their effectiveness, clarity and understanding;
6. Ensure low relevant experience of one or both crew does not prejudice the effectiveness of cross monitoring during approach, landing and go-around;
7. Communicate the stabilization/go-around issue to all industry leaders;
8. Communicate the stability/go-around issue to all operational stakeholders.

Commentary will include some complementary concepts and recommendations so as to stimulate some innovation from the readership. This forum and its attached report are important and deserve serious consideration throughout the aviation community - thus the reason for it being addressed in this journal.

A major line of inquiry for this journal over the next few years will be addressing ourselves to a more mission capable flight deck that is designed specifically from the ground up to provide the right information at the right time. We will be looking closely at such advanced concepts as Convergent Technology applications, Mission Adaptive Displays, On-Board Risk Management Decision Aids, and Flight Dynamic Assessment and Optimization. Much of the commentary of this paper will focus on certain aspects of flight dynamics involving stabilized approaches.

A combination of factors need to come together to ensure all critical flight maneuvers are executed at the appropriate time and with precision. Advanced training programs are essential. Also, of significant importance is the information being presented in the modern cockpit environment. In order to dramatically improve dynamic situation awareness, a major theme of this report, it is imperative that the flight crews be given more operationally useful “predictive” type of information.

FLIGHT DYNAMICS

Before we specifically discuss the actual recommendations of the safety forum, a brief discussion of aircraft flight dynamics may be useful. For ease of understanding we will use a portion of the Air transport Mission Performance Model. This model contains the following aircraft control functions:

• Flight Trajectory and Attitude Control;
• Power, Lift and Drag Control.

Flight Trajectory is defined as the lateral and vertical trajectory of the aircraft. Typically this is referred to as L-Nav for lateral movement, and V-Nav for vertical movement. The navigation system usually covers most of these functions.

Attitude control deals with aircraft pitch, roll and yaw. These relate to the three axes that make up the dynamic aspects of the aircraft. The pitch axis and corresponding pitch control is extremely important in all flight maneuvers. For all approach, landing and go-around maneuvers the target pitch attitude must be known prior to maneuver execution. This knowledge alone, which can be likewise represented on the primary flight display, could almost certainly...
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