



Advisory Circular

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1.0 INTRODUCTION

This Advisory Circular (AC) is provided for information and guidance purposes. It may describe an example of an acceptable means, but not the only means, of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

1.1 Purpose

The purpose of this document is to encourage Canadian Subpart 705 air operators to institute bounced landing recovery training into their flight crew training syllabus, and to provide bounced landing information in their company operations manual (COM).

1.2 Applicability

This document is applicable to all Transport Canada Civil Aviation (TCCA) employees, to individuals and organizations when they are exercising privileges granted to them under an External Ministerial Delegation of Authority. This information is also available to the aviation industry for information purposes.

1.3 Description of Changes

Not applicable.

2.0 REFERENCES AND REQUIREMENTS

2.1 Reference Documents

It is intended that the following reference materials be used in conjunction with this document:

- (a) Applicable aeroplane manufacturers Flight Crew Training Manual.
- (b) Flight Safety Foundation, Vol. 19, No. 8-11; *Approach and Landing Accident Reduction Tool Kit*, 6.4 Bounce Recovery – Rejected Landing.
- (c) Transportation Safety Board report A01W0117: 22 May 2001, Yellowknife, NWT; Boeing 737-210C.
- (d) Air Accidents Investigation Branch report Airbus A320, C-GTDK: 16 June 2003, Bristol, United Kingdom; Airbus A320.
- (e) National Transportation Safety Board report DCA04MA082: 19 September 2004, Memphis, TN; McDonnell Douglas MD-11.
- (f) National Transportation Safety Board report DCA05MA099: 18 September, 2005, Ft. Lauderdale, FL; Airbus A321.
- (g) National Transportation Safety Board report NYC06LA033: 19 November, 2005, State College, PA; Boeing 737-800.
- (h) Transportation Safety Board report A07O0124: 20 May 2007, Toronto/Lester B. Pearson International Airport; Bombardier CL-600-2B19.
- (i) Transportation Safety Board report A07F0093: 28 May 2007, Los Angeles, California; Airbus A320.
- (j) Transportation Safety Board report A08O0189: 22 July 2008, Hamilton, ON; Boeing 727

2.2 Cancelled Documents

Not applicable.

2.3 Definitions and Abbreviations

A “**bounce**” is a pronounced height gain following touchdown.

3.0 BACKGROUND

Incorrect recoveries from bounced landings have contributed to several accidents in which aeroplanes operated by Canadian Subpart 705 air operators have sustained substantial damage. After investigating the bounced landing and subsequent tail strike during the go-around of a Boeing 727 at the Hamilton International Airport, the Transportation Safety Board of Canada (TSB) has recommended, in part, in Air Investigation Report A08O0189 that air operators "...incorporate bounced landing recovery techniques in the flight manuals and to teach these techniques during initial and recurrent training."

4.0 ACTION

- (1) Air operators should ensure that bounced landing recovery information is available in company operating manuals for flight crew members and that training is provided to flight crew members by adequately briefing them on the proper techniques to be used.
- (2) As a minimum, air operators should include in their training syllabus the causal factors that can lead to bounced landings such as excessive sink rates, excess airspeed, late flare initiation, incorrect flare technique and power on at touchdown as well as the recommended recovery technique for the specific aeroplane. Air operators should consult the applicable aeroplane flight manual and the flight crew operating and training manuals produced by the manufacturers to determine the recovery techniques recommended for each aeroplane type that it operates. If the flight crew operating and training manuals do not provide bounced landing recovery techniques, then the air operator should contact the aeroplane manufacturer for guidance.
- (3) Section 2.1 of this Advisory Circular lists several accident reports for various aircraft types that were attributed to bounced landings. The accident reports can be used to provide real world examples of the factors leading to bounced landings.
- (4) Air operators should use their Safety Management Systems (SMS) program to track, identify trends and implement corrective action regarding bounced landings.
- (5) The bounced landing training is intended to be conducted in a classroom setting. Bounced landing recovery procedures cannot be adequately replicated in a flight simulator and should not be deliberately performed in an aeroplane.
- (6) Transport Canada will also put in place through the National Aviation Company Information System (NACIS) a means by which the voluntary implementation of any identified mitigation is tracked by the responsible enterprise.
- (7) Transport Canada will review the NACIS data one year after the issuance of the AC to assess the effectiveness of the approach taken. Should the data demonstrate that industry has failed to voluntarily address the identified hazard Transport Canada would then consider a more prescriptive approach to mitigating the risks.

5.0 SUMMARY

Dissemination of the information contained in this Advisory Circular will promote flight crew member awareness of the factors contributing to bounced landings and the proper use of bounced landing recovery techniques.

6.0 CONTACT OFFICE

For more information, please contact the:
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Suggestions for amendment to this document are invited, and should be submitted via the Transport Canada Civil Aviation Issues Reporting System (CAIRS) at the following Internet address:

<http://www.tc.gc.ca/eng/civilaviation/secretariat-cairs-menu.htm>

or by e-mail at: CAIRS_NCR@tc.gc.ca

Original signed by D. B. Sherritt on 2009-12-22

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