



Advisory Circular

Subject: Line checks and quality assurance in Subpart 705 commercial air operations

Issuing Office: Standards

Activity Area: Oversight

File No.: Z 5000-7-1

RDIMS No.: 4359439-V4

Document No.:

AC 705-003

Issue No.:

01

Effective Date:

2009-01-05

TABLE OF CONTENTS

- 1.0 INTRODUCTION..... 2**
- 1.1 Purpose 2
- 1.2 Applicability 2
- 1.3 Description of Changes..... 2
- 2.0 REFERENCES AND REQUIREMENTS 2**
- 2.1 Reference Documents 2
- 2.2 Cancelled Documents 2
- 2.3 Definitions and Abbreviations 2
- 3.0 BACKGROUND..... 3**
- 3.1 Regulatory background and future direction..... 3
- 3.2 Role of line indoctrination and line checks..... 3
- 3.3 Regulatory references..... 3
- 4.0 POLICY ON THE CONDUCT OF LINE CHECKS 4**
- 4.1 Current policy 4
- 4.2 Future policy..... 5
- 5.0 ROLE OF LINE CHECKS IN THE QUALITY ASSURANCE OF FLIGHT OPERATIONS..... 6**
- 5.1 Optimizing the value of line checks..... 6
- 5.2 Obtaining additional safety data from line checks 6
- 5.3 Future expectations of the Line Check program under SMS..... 7
- 6.0 CONTACT OFFICE 7**

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 Advisory Circular (AC) is two-fold. First, it aims to provide an update on the status of the line check program required under Subpart 705 operations and the Type B ACP Delegation of Authority associated with line checks. Secondly, it aims to discuss the implementation of a feedback mechanism and quality assurance loop from operational and performance data obtained through line checks.

1.2 Applicability

This document is applicable to stakeholders holding an Air Operator Certificate under Subpart 705 of the CARs and individuals holding an ACP Delegation of Authority. This document is also made available for information purposes to Transport Canada Civil Aviation (TCCA) personnel tasked with safety oversight duties with respect to Subpart 705 air operators.

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) *Aeronautics Act*;
- (b) Subpart 705 of the Canadian Aviation Regulations (CARs) - *Airline Operations*;
- (c) Standard 725 of the Commercial Air Services Standards (CASS) - *Airline Operations - Aeroplanes*;
- (d) Transport Publication (TP) 6533, Ninth Edition, dated 11/2007 - *Approved Check Pilot Manual*; and
- (e) Advisory Circular (AC) 107-001 Issue 01, dated 2008-01-01 - *Guidance on Safety Management Systems Development*.

2.2 Cancelled Documents

Not applicable.

2.3 Definitions and Abbreviations

The following definitions and abbreviations are used in this document:

- (a) **CARS** means Canadian Aviation Regulations;
- (b) **CASI** means a Civil Aviation Safety Inspector;
- (c) **CASS** means Commercial Air Services Standards;
- (d) **CRM** means Crew Resource Management;
- (e) **CRP** means Cruise Relief Pilot;
- (f) **ETOPS** means Extended Twin-Engine Operations;
- (g) **Flight check** means a PPC or a line check;

- (h) **Line check** means a flight check conducted in accordance with paragraph 705.106(1)(d) of the Canadian Aviation Regulations (CARs) which is undertaken upon completion of line indoctrination and annually thereafter;
- (i) **POI** means Principal Operations Inspector;
- (j) **PPC** means a Pilot Proficiency Check;
- (k) **SMS** means Safety Management Systems;
- (l) **TEM** means Threat and Error Management;
- (m) **TC** means Transport Canada;
- (n) **Type A ACP** means an Approved Check Pilot (ACP) who is authorized to conduct Pilot Proficiency Checks (PPCs), and for operations under Subpart 705, line checks;
- (o) **Type B ACP** means an ACP authorized to conduct line checks (under Subpart 705 only).

3.0 BACKGROUND

3.1 Regulatory background and future direction

ACPs and specifically ACP types are legacies of a pre-CARS regulatory structure. While transitioning to the CARS and CASS, our regulations and standards associated with the conduct of line checks stopped mandating that an approved check pilot conduct all line checks. Exceptions to this rule are that an approved check pilot must conduct ETOPS and CRP line checks. In due course, TC intends to remove these two regulatory requirements and eliminate the need for a Type B Delegation of Authority.

3.2 Role of line indoctrination and line checks

Flight checks under Subpart 705 of the CARs consist of PPCs and line checks, which are very different in nature. The purpose of PPCs is to assess a flight crew's proficiency in manoeuvres and adherence to procedures in normal, abnormal and emergency situations. On the other hand, line indoctrination and line checks continue to play an important role in ensuring the safety of airline operations. As stated in the ACP Manual, while the primary purpose of line checks remain to evaluate flight crew performance under normal line operations, line checks can also provide an opportunity to evaluate the safety aspect and effectiveness of company policies and procedures that impact line operations, such as operational control, loading, fuelling, de-icing and air traffic control among others. Line checks and PPCs are equally important in assessing the level of safety provided by an air operator; therefore, line checks will remain a regulatory requirement in the future.

3.3 Regulatory references

Notwithstanding the two regulatory exceptions to this rule, regulations and standards associated with the conduct of line checks do not mandate that an approved check pilot, namely a Type A or Type B ACP, conduct them. As stated earlier, there are two exceptions to this rule. First, a recent amendment to the ETOPS training program standards now requires that ETOPS line checks be conducted by a qualified check pilot. The following CASS excerpts refer.

725.124 Training Program

(36) Extended Twin-Engine Operations (ETOPS) for Flight Crew Members

...

Only ETOPS qualified pilots shall be designated for flight training and/or checking for ETOPS operations.

(a) Initial training for flight crewmembers

...

(iii) **Flight training and checking**

...

(C) Upon satisfactory completion of the requirement of clause 725.124(36)(a)(iii)(B), each flight crew member shall complete an initial ETOPS line check in an actual ETOPS environment with a qualified check pilot assessing the comprehension of each of the elements listed in subparagraph 725.124(36)(a)(i). The ETOPS initial line check may be completed as an integral part of the line check required by paragraph 705.106(1)(d).

(b) **Recurrent training for flight crewmembers**

...

(ii) **Flight checking**

(A) Subject to clause 725.124(36)(b)(ii)(C), the air operator shall ensure that:

...

(III) The ETOPS line checks are conducted with a qualified check pilot assessing the comprehension of each element listed in subparagraph 725.124(36)(b)(i) in addition to the elements specific to ETOPS during a walk around;

...

The second exception concerns the line check of a CRP. The following excerpt from the CASS refers.

725.29 Flight Crew Members at Controls

"Cruise portion of a flight" - means that phase of flight between reaching initial cruise altitude and the beginning of descent at destination.

Providing the procedures for handover of responsibility are detailed in the standard operating procedures manual of the air operator, relief of a flight crewmember at the controls is permitted under the following conditions:

...

(5) A captain or first officer may be relieved by a cruise relief pilot providing the cruise relief pilot:

...

(g) has passed a cruise relief pilot line check conducted by an approved check pilot; and

...

4.0 POLICY ON THE CONDUCT OF LINE CHECKS

4.1 Current policy

4.1.1 Recognition of Type B ACP Delegation of Authority

The ACP Manual, 9th edition, continues to recognize the Type B Delegation of Authority that can be exercised for the conduct of Subpart 705 line checks, but does not provide unique or specific qualification, knowledge, experience and skill requirements for this type of delegation.

4.1.2 Common core of skills and competencies found in Type A and B ACPs

Despite the fact that Subpart 705 PPCs and line checks are very different flight checks, Type A and B ACP candidates must possess a number of similar skills and competencies that are found

in a common core of important training topics. Such topics include but are not necessarily limited to:

- (a) briefing / debriefing techniques;
- (b) assessment standards and techniques;
- (c) instrument flight procedures;
- (d) CRM; and
- (e) in concert with an ever increasing awareness of human and organizational factors, TEM.

4.2 Future policy

4.2.1 Individuals conducting the line check

It is TC's intention to devolve to the company the line checking function by letting the company appoint and manage its line check pilots. Primarily, current expectations remain that the person conducting a line check must be intimately familiar with all facets of the operation. The air operator is to identify such individuals within its organization. Until the regulations are amended there will continue to be a requirement for ACPs to conduct CRP and ETOPS line checks.

4.2.2 General expectations

In the case of Type B ACPs or operator-appointed line check pilots, a thorough knowledge of flight operations needs to be complemented by adequate knowledge in topics such as those identified in subsection 4.1.2 above. Therefore, an individual's currency in flight operations coupled with training in and/or experience with relevant topics taken from an ACP course outline should permit an air operator to qualify a line check pilot capable of conducting a safe, efficient and meaningful line check.

4.2.3 Specific requirements

- (1) To appoint a line check pilot, an air operator will ensure that:
 - (a) the individual possesses a suitable background and an adequate mix of skills and competencies to safely and effectively carry out duties as a line check pilot
 - (b) the individual has been adequately trained on core competencies such as those listed in but not limited to subsection 4.1.2
 - (c) the individual has been trained in and fully understands his role and that of a line check with respect to the quality assurance of flight operations as discussed in section 5 below
 - (d) the individual is currently acting as a pilot in command on type for the applicable air operator and
 - (i) has at least completed a consolidation period as pilot-in-command on type
 - (ii) has obtained no less than 100 hours as pilot-in-command on type

Note 1: These requirements are similar to the requirements of Type B ACP nominees. However, until TC amends the CARS, only Type A or B ACPs may conduct ETOPS and/or CRP line checks.

Note 2: It is understood that an air operator may face difficulties in meeting the experience requirements listed in (d) above, in cases where the air operator is starting operations under Subpart 705 or is a current Subpart 705 air operator starting operation of a new aircraft type. In such cases, the air operator should seek to resolve this situation in much the same way it would now in the absence of Type A or B ACPs experienced on the operation of the aircraft type with this particular air operator. The air operator's POI can provide further guidance in such cases.

- (2) ACP nomination criteria found in the current edition of the ACP Manual are for all intents and purposes identical for both ACP types and include among other things attendance to an ACP

course and the observation of PPCs before being monitored on the conduct of the appropriate flight check. The ACP Manual will be amended in due course to further discriminate between Type A and B ACP nomination requirements similarly with the material presented above.

4.2.4 Administrative record of nomination and training record

When using line check pilots for the conduct of line checks, TC expects that the air operator will maintain records as a means of documenting that line check pilots have received relevant training and are monitored on an adequate basis to maintain the level of skills and proficiency required to satisfactorily accomplish all duties associated with Subpart 705 line checks.

4.2.5 Recurrent or continuing training

The air operator will develop a system of recurrent training or continuing training to ensure that line check pilots remain proficient. The maximum cycle for training will be 3 years and should include a review of the company data accumulated to date and general findings on the proficiency of the pilot population as a means to bring about program changes when needed. Inter-rater reliability or referent rater reliability training will be conducted at intervals that maintain acceptable assessment reliability standards within the line check pilot group.

4.2.6 Checking of Line Check Pilots

Line check pilots do not need to be monitored by TC. On initial appointment however, line check pilot nominees must demonstrate competency to conduct an evaluation to the air operator. In order to be able to assess the competency of its nominees, the air operator is expected to implement, as soon as there is a need to nominate line check pilots, an on-going monitoring program which should adopt a recurrent monitoring cycle beyond initial appointment.

5.0 ROLE OF LINE CHECKS IN THE QUALITY ASSURANCE OF FLIGHT OPERATIONS

5.1 Optimizing the value of line checks

Human factors that contribute to safe or unsafe operating conditions are the focus of evaluation techniques in today's technology-driven flight environment. Line checks must provide an opportunity for flight crewmembers to demonstrate technical proficiency with respect to aircraft type, assigned position and type of operation, and demonstrate their ability to operate effectively in a crew environment. Even though the individual conducting the line check is part of the crew, ideally this person will occupy a seat not reserved for a flight crewmember. The segment(s), taking the type of aircraft and the nature of the operation into consideration, must represent routes normally flown. This will ensure that line checks measure flight crew performance, as well as operational safety and efficiency, under realistic flight operations. TC encourages air operators to use or develop a list of observable behaviours for recognizing, identifying and evaluating both human factors and CRM skills. Such a list will promote a standardized assessment and facilitate data collection.

5.2 Obtaining additional safety data from line checks

- (1) With the establishment of a systemic approach to safety under SMS and a growing familiarity with TEM concepts, air operators must look beyond human factors only and use those same line checks to develop a greater awareness of environmental, systemic and/or organizational factors that affect flight safety. The operator will need to develop a system to analyze line check data and identify negative trends or shortcomings in flight operations. The air operator will then evaluate whether policies, manuals and SOPs provide appropriate responses or if amendments are required.
- (2) When seeking individuals within their organization for line check duties, air operators are expected to select individuals who are willing and capable of fulfilling observer duties during line checks. The most important skill an observer should possess or develop is the ability to detect threats during the various phases of flight, and record the crew's or the air operator's responses to those threats. Observer skills training should concentrate on the particular TEM model and

tools selected by the air operator. Tools that best complement in-flight observations can take the form of multiple-choice questionnaires or surveys developed for each phase of flight for example; the collection of anecdotal information instead of multiple-choice categorized or canned statements would likely complicate the data collection and analysis process.

5.3 Future expectations of the Line Check program under SMS

Presently, line check data is not being collected and analyzed to any great extent. Aggregate line check data however will generate valuable information with respect to flight crew performance, operational safety, and efficiency. Therefore, TC expects air operators to establish a robust line check program with the objective of collecting meaningful data and analyzing it in accordance with pre-determined performance measurements established by each air operator. It is recommended for air operators to do so for all line check items as well as for observations recorded during those flight checks. The line check program should be integrated within SMS reporting systems and must be an important part of a quality assurance assessment of flight operations. Air operators are expected to document their line check program in company documentation as they would for any major component of their SMS by identifying program objectives, outlining processes and procedures, establishing data analysis and reporting protocols, and by ensuring that proper follow-up and monitoring policies are implemented.

6.0 CONTACT OFFICE

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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:

www.tc.gc.ca/CAIRS

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

Original signed by Wayne Chapin for Don Sherritt on January 22, 2009

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