

TERMS OF REFERENCE

CANADIAN AVIATION REGULATION ADVISORY COUNCIL (CARAC)

TECHNICAL COMMITTEE

CREW RESOURCE MANAGEMENT TRAINING WORKING GROUP (CRM WG)

BACKGROUND

Over 70% of aviation incidents and accidents are caused, at least in part, by a failure of the flight crew to make use of readily available resources¹; however, effective, contemporary Crew Resource Management (CRM) training and maintenance of CRM skills have resulted in an improved level of aviation safety². Due to the evolving nature of CRM, Transport Canada Civil Aviation (TCCA) has committed to develop a contemporary CRM training standard to replace the existing CRM training standard in subsection 725.124(39) of the Commercial Air Services Standards (CASS), and to extend a CRM training requirement to subpart 704 of the Canadian Aviation Regulations (CARs) for commuter pilots, and subpart 703 of the CARs for air taxi pilots.

The Transportation Safety Board (TSB) advised TCCA that it is considering the need for safety action to update the existing CRM training standard in CAR Subsection 725.124(39), following a TSB recommendation that TCCA require commercial air operators to provide contemporary CRM training for air taxi and commuter pilots operating under subparts 704 and 703 of the CARs (Recommendation A09-02).

CRM is widely accepted as the effective use of all human, hardware, and information resources available to ensure safe and efficient flight operations. CRM training encompasses a wide range of knowledge and skills including communications, situational awareness, teamwork, problem solving, and decision making. CRM training is currently only required for airline flight and cabin crew operating under subpart 705 of the CARs. Although most people think of CRM as applying only to situations in which there is more than one person in the cockpit, it actually applies to every flight because of the need even of a single pilot to manage resources.

The current standard for CRM training for airline operations in CAR Subsection 725.124(39), published in 1996, involves a basic approach to CRM training that does not reflect many contemporary CRM training concepts which lead to an improved level of aviation safety. CRM is not a static concept but rather an evolving science – as research into the field of human factors is ongoing, new initiatives continue to emerge. What began as “cockpit” resource management

¹ Civil Aviation Authority CAP 720, *Flight Crew Training: Cockpit Resource Management (CRM) and Line-Oriented Flight Training (LOFT)*, (previously ICAO Digest No. 2), August 2002

² Federal Aviation Administration, *Crew Resource Management Training*, 2004, Advisory Circular 120-51E; Aviation Week & Space Technology, *CRM Value Demonstrated*, April 30, 1990; Transportation Safety Board of Canada Aviation Investigation Report A07C0001, January 7, 2007

has expanded to include all areas of flight operations including Dispatch Resource Management (DRM) and Single-pilot Resource Management (SRM). Present-day CRM training concepts include Threat and Error Management (TEM), which speaks to the identification and analysis of potential hazards; the implementation of appropriate strategies to handle threats; and the implementation of steps to avoid, trap, or mitigate errors before they lead to undesired consequences such as an undesired aircraft state. Line Oriented Flight Training (LOFT) provides an effective opportunity for teaching CRM skills because it allows the flight crew to practice the skills and receive valuable reinforcement as part of the process.

TCCA conducted a risk assessment and committed to develop a contemporary CRM training standard for CAR 704 and 703 operations, as well as qualification requirements for CRM training providers, and an associated accreditation program. In association with this initiative, TCCA also plans to:

1. Develop contemporary CRM guidance material for air operators, crew members, and TCCA inspectors, as well as a training standard for CRM training providers;
2. Educate industry on the applicability of CRM in single pilot operations; and
3. Actively promote the provision of CRM training to personnel other than flight crew members.

PURPOSE

The purpose of this Working Group will be to develop contemporary CRM training requirements for commercial flight operations under subparts 705, 704, and 703 of the CARs. The goal is to improve the CRM knowledge and skills of commercial crew members engaged in a commercial air service, in order to reduce the frequency and severity of errors that are crew based. The expected reduction of the frequency of accidents and incidents within the scope of commercial flight operations would provide an enhanced level of aviation safety.

SCOPE

The Working Group will:

- Review and consider work already completed by TCCA in regards to CRM training, as well as regulations and proposals of the International Civil Aviation Organization (ICAO) and other regulatory authorities³ in an effort to adopt and harmonize regulations and best practices with those authorities, where appropriate.
- Determine the components of a contemporary CRM training standard, including TEM, and other topics such as decision making with respect to landing in deteriorating weather conditions.
- Determine how to extend a contemporary CRM training requirement to commuter and air taxi pilots operating under subparts 704 and 703 of the CARs, with respect to:
 - components;
 - duration;
 - delivery method(s);
 - incorporation into existing training programs;

³ Including the Federal Aviation Administration (FAA), which recently finalized a rule that requires non-scheduled charter airlines and air taxis conducting operations under part 135 to train pilots and flight attendants in CRM.

- inclusion in Company Operations Manuals; and
 - any other considerations deemed necessary by the Working Group.
- Determine which instructor qualifications will be required to provide CRM training, and how to implement an accreditation program for CRM training providers, with respect to:
 - qualification criteria;
 - issuance of credentials;
 - frequency of renewal;
 - administrative oversight; and
 - any other considerations deemed necessary by the Working Group.
- Perform any other work deemed necessary to adequately complete the project.

Deliverables

The Working Group will develop a set of recommendations, in the form of a report with supporting rationale, with respect to:

- A contemporary CRM training standard for pilots and flight attendants operating under subpart 705 of the CARs, which will enhance or replace the existing standard in subsection 725.124(39) of the CASS;
- Contemporary CRM training standards for air taxi and commuter pilots operating under subparts 704 and 703 of the CARs, in order to extend a CRM training requirement to subsections 724 and 723 of the CASS for aeroplanes and helicopters;
- Qualification requirements for CRM instructors; and
- An accreditation program for CRM training providers.

APPROACH

The Working Group deliverables should be compatible with the Government of Canada's policy on regulations as described in the Cabinet Directive on Streamlining Regulations (CDSR). The CDSR identifies the following key principles:

- **Protect and advance the public interest** in health, safety and security, the quality of the environment, and the social and economic well-being of Canadians, as expressed by Parliament in legislation;
- **Promote a fair and competitive market economy** that encourages entrepreneurship, investment, and innovation;
- **Make decisions based on evidence** and the best available knowledge and science in Canada and worldwide, while recognizing that the application of precaution may be necessary when there is an absence of full scientific certainty and a risk of serious or irreversible harm;
- **Create accessible, understandable, and responsive** regulation through inclusiveness, transparency, accountability, and public scrutiny;
- **Advance the efficiency and effectiveness** of regulation by ascertaining that the benefits of regulation justify the costs, by focusing human and financial resources where they can do the most good, and by demonstrating tangible results for Canadians; and
- **Require timeliness, policy coherence, and minimal duplication** throughout the regulatory process by consulting, coordinating, and cooperating across the federal

government, with other governments in Canada and abroad, and with businesses and Canadians.

The deliverables should also be compatible with the TCCA policy of making decisions based on a risk-based approach. Accordingly, the Working Group should use a risk based approach while conducting its business.

WORKING GROUP

The Working Group will be designated by the CARAC Technical Committee as the Crew Resource Management Training Working Group (CRM WG).

Working Group Leader:

The Working Group Leader will be selected in accordance with subsection 2.3.2 of the CARAC Management Charter and Procedures.

Members:

The Working Group Members will be selected in accordance with subsection 2.3.6 of the CARAC Management Charter and Procedures

Working Group members should be individuals with specialized technical knowledge in the subject matter, and have been nominated by members of the Technical Committee. Working Group members may be supported by technical advisors in accordance with the CARAC Charter.

Working Group members and advisers may be requested to provide supporting data to justify recommendations and should have data available during meetings.

The participation and involvement of aviation industry stakeholders, including crew members, air operators, and training providers, will contribute to the success of this initiative.

REPORTING

This Working Group will report directly to the CARAC Technical Committee.

The Working Group members are responsible to report all decisions reached, unresolved issues, and planned action back to their respective organizations.

The Working Group Leader(s) will report to the Technical Committee, and is (are) responsible for the submission of progress reports to the Technical Committee Chair regarding progress made, decisions reached, updates on schedules and issues which remain unresolved.

The Working Group Leader(s) is (are) responsible for keeping the CARAC Secretariat suitably apprised of the progress of the Working Group so that it may publish relevant information to the CARAC members as required.

The Working Group will strive toward reaching consensus. On issues where there is no consensus in the Working Group, all views will be properly recorded to allow the Working Group Leader(s) to make recommendations to the Technical Committee on those issues. Interim and Final Reports will include specific recommendations, the rationale upon which those recommendations are based and, where required, details of any dissenting points of view when consensus is not reached.

TECHNICAL COMMITTEE

The Technical Committee has the authority to accept, reject, or send issues back to the Working Group for further study. If the Technical Committee decides to send recommendations to the Transport Canada Civil Aviation Regulatory Committee (CARC), it may append its own comments to the Working Group's recommendations. The Technical Committee will not revise recommendations since they are the product of expertise of the Working Group members, which they themselves may not possess. This process is reflected in the CARAC Management Charter and Procedures.

TIMING

The Working Group will commence work once the Terms of Reference are approved and the members are defined. It is expected that regularly scheduled meetings will take place during 2011 through 2013. Teleconferences and/or videoconferences may be utilized.

This Working Group will have 2 years from the date the Terms of Reference are signed to complete the project. After that time, the Working Group may continue if the Technical Committee agrees to the extension.

It is anticipated that the Working Group will present an interim report/update at the fall 2012 CARAC Technical Committee meeting. The final report would then be presented at the following CARAC Technical Committee meeting in spring 2013.

BUDGET

Costs incurred by the organizations outside of TCCA are expected to be borne by those organizations.

Costs incurred by TCCA representatives are expected to be borne by their respective offices.

ADMINISTRATIVE

TCCA Standards Branch will be responsible for providing meeting facilities and secretarial support to the Working Group.

Approved by:

Jacqueline Booth
Executive Director, CARAC Technical Committee

Date