

United Kingdom Overseas Territories Aviation Circular

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Crew Resource Management (CRM) Training

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GENERAL

Overseas Territories Aviation Circulars are issued to provide advice, guidance and information on standards, practices and procedures necessary to support Overseas Territory Aviation Requirements. They are not in themselves law but may amplify a provision of the Air Navigation (Overseas Territories) Order or provide practical guidance on meeting a requirement contained in the Overseas Territories Aviation Requirements.

PURPOSE

An operator is required to establish and maintain a ground and flight training programme, approved by the OTAA. The training programme shall include training in knowledge and skills related to human performance.

This OTAC gives guidance for implementing, reinforcing, and assessing crew resource management (CRM) training for flight crew members and other personnel essential to flight safety. CRM training should be designed to become an integral part of training and operations and this information is not sufficient alone to comply with all the relevant standards and requirements for CRM.

RELATED REQUIREMENTS

This Circular relates to OTAR Parts 121 and 135. OTAR Part 125 operators, in consultation with the OTAA, may wish to apply guidance in this OTAC that relates to their type of operation.

CHANGE INFORMATION

First issue.

ENQUIRIES

Enquiries regarding the content of this Circular should be addressed to Air Safety Support International or to the appropriate Overseas Territory Aviation Authority.

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1 Background

Investigations into the causes of aircraft accidents have shown that human error is a contributing factor in 60 to 80 percent of all aircraft incidents and accidents. Long-term research has demonstrated that these events share common characteristics. Many problems encountered by flight crews have very little to do with the technical aspects of operating in a multi-person environment. Instead, problems are associated with poor decision-making, ineffective communication, inadequate leadership, and poor task or resource management. Flight crew training programmes historically focused almost exclusively on the technical aspects of flying and on individual performance; they did not effectively address crew management issues that are also fundamental to safe flight. Industry and regulatory authorities have come to the consensus that training programmes should place emphasis on the factors that influence crew coordination and the management of crew resources. Coordinated efforts by representatives from the aviation community have produced valuable recommendations for CRM training.

2 CRM training – multi-crew operations

Training environment

CRM training should be conducted in the non-operational environment (classroom and/or computer-based) and in the operational environment (flight simulator training device (FSTD)/cabin training device and aircraft). Tools such as group discussions, team task analysis, team task simulation and feedback should be employed.

Classroom training

Whenever possible, classroom training should be conducted in a group session away from the pressures of the usual working environment so that the opportunity is provided for flight crew members to interact and communicate in an environment conducive to learning.

Computer-based training

Computer-based training should not be conducted as a stand-alone training method in the case of multi-crew operations but may be conducted as a complementary training method.

Flight simulator training devices (FSTDs)/Cabin crew training devices

Whenever it is practicable, parts of the CRM practical training should be conducted in training devices that reproduce a realistic operational environment and permit interaction.

Integration into flight crew training

CRM principles should be integrated into relevant parts of flight and cabin crew training and operations including checklists, briefings, emergency and abnormal procedures.

Combined CRM training between flight crew, cabin crew and technical crew

Operators should provide combined training for flight crew, cabin crew and technical crew during recurrent CRM training as much as possible. The combined training should make reference to the subjects in Appendix A or B.

CRM training should be adapted to reflect hazards and risks identified by the operator's SMS.

Contracted CRM training

In case of contracted CRM training the operator should ensure that the content of the course meets the specific culture, the type of operations and the associated procedures of the operator. When crew members from several operators attend the same course, CRM core elements should be specific to the relevant flight operations and to the trainees concerned.

Training elements and syllabus

The CRM training elements and syllabus including levels of training required to be covered are specified in the tables in Appendices A and B.

Initial operator, Conversion, Recurrent and Command CRM training

For initial, conversion, recurrent and command training, course duration should be as appropriate to cover all elements specified in the tables in Appendix A and B.

Recurrent CRM training should be conducted every year and all applicable elements should be covered over a period not exceeding 3 years as describe in the operator's operations manual.

Assessment of CRM skills

Assessment of CRM skills is the process of observing, recording, interpreting and debriefing crew members' performance using a validated or generally accepted methodology in the context of overall performance.

A validated and accepted method of assessment should be used. The non-technical skills (NOTECHS) framework is such a method.

Prior to the introduction of CRM skills assessment, a detailed description of the CRM methodology including terminology used for the assessment should be published in the operations manual.

Operators should establish procedures, including additional training, to be applied in the event that flight crew members do not achieve or maintain the required CRM standards.

3 CRM training – single-crew operations and small non-complex/complex multi-crew operations without cabin crew

For single-crew or small non-complex/complex multi-crew operations the CRM training guidance as described for multi-crew operations should be applied with the following exceptions:

Initial CRM training

The course duration of initial CRM training should cover all the elements in Appendix A and B.

Computer-based training

Computer-based training may be conducted as a stand-alone training method for initial, recurrent training and for all other training elements and syllabus as specified in the tables to Appendix A and B and described in the operator's operations manual.

4 CRM training – single/multi cabin crew operations

For single/multi cabin crew operations guidance as described for multi-crew operations should be applied with the following exceptions:

Operator's CRM training

The course duration should cover the elements as in Appendix B.

Computer-based training

Computer-based training may be conducted as a stand-alone training method for initial, recurrent training and for all other training elements and syllabus as specified in the tables to appendix B and described in the operator's operations manual.

5 Flight or cabin crew CRM trainer and flight or cabin crew CRM trainer examiner

Applicability

The provisions described herein should ideally be fulfilled by flight or cabin crew CRM trainers and flight or cabin crew CRM trainer examiners responsible for classroom training. Depending on the nature and size of the operation, where a trainer does not meet the qualifications as described below an alleviation may be granted by the OTAA.

Qualification of CRM trainer

A CRM trainer, in order to be suitably qualified, should ideally:

- (a) have adequate knowledge of the relevant flight operations, preferable through current experience as flight or cabin crew member;
- (b) have adequate knowledge of human performance and limitations (HPL),
- (c) have completed initial flight or cabin crew CRM training;
- (d) have received training in group facilitation skills;
- (e) have received additional training in the fields of group management, group dynamics and personal awareness; and
- (f) have demonstrated the knowledge, skills and credibility required to train the CRM training elements in the non-operational environment.

The following qualification and experience are also acceptable for a flight crew CRM trainer to be suitably qualified:

- (a) a flight or cabin crew member holding a recent qualification as a CRM trainer may continue to be a CRM trainer after the cessation of active flying duties if he/she maintains adequate knowledge of the relevant flight operations.
- (b) a former flight or cabin crew member having adequate knowledge of HPL may become a CRM trainer if he/she maintains adequate knowledge of the relevant flight operations and meets the provisions of points (c) to (e) above.

- (c) an experienced non-flight or cabin crew CRM trainer having adequate knowledge of HPL may become a flight or cabin crew CRM trainer if he/she meets the provisions of point (a) and (c) to (f).
- (d) trainers or instructors who are integrating elements of CRM into aircraft type training, recurrent training, or senior cabin crew member training should have acquired relevant knowledge of human performance and limitations, and have completed appropriate CRM training.

Assessment of CRM trainer

The operator should ensure that the process for the assessment is included in the operations manual describing methods for observing, recording, interpreting and debriefing the CRM trainer. The assessment should be conducted by the OTAA (e.g. a qualified FOI) or an authorised person (e.g. a nominated CRM trainer examiner) by the OTAA and the trainer should be acceptable to the OTAA. Each assessment should be valid for a period of three years. The process should be subject to the following provisions:

- (a) a CRM trainer should conduct at least two CRM training courses in any 12-month period. If this cannot be achieved, the operator may request an alleviation from the OTAA. An alleviation will not be granted unless the trainer has conducted one course during that period.
- (b) for continued validity, the CRM trainer should be assessed within the last 12 months of the three-year validity period by the OTAA or an authorised person (CRM trainer examiner).
- (c) the next three-year validity starts at the end of the previous three-year period.
- (d) renewal: If no assessment or training was conducted over the 3-year period, a CRM trainer should comply with the initial qualification requirements applicable for CRM trainers as above before resuming CRM instruction.

CRM trainer examiner

For assessing CRM trainers the operator may nominate qualified CRM trainers to act as CRM trainer examiners if acceptable to the OTAA. An operator who does not have the resources to conduct the assessment as described should utilise a contractor or an authorised person from the OTAA.

Continued suitability in the role of a CRM trainer examiner should be subject to the same provisions for CRM trainers as above.

6 Training environment, trainers and instructors

Flight or cabin crew CRM training can be separated as follows:

- (a) training in the non-operational environment:
 - (1) classroom; and
 - (2) computer-based;

- (b) training in the operational environment:
 - (1) flight simulator training device (FSTD)/cabin training device; and
 - (2) aircraft.

In general, CRM training is provided as follows:

- (a) classroom training by a CRM trainer;
- (b) training in the operational environment by an instructor with adequate CRM skills;
- (c) computer-based training as a self-study training method. If needed, direction concerning CRM related issues is provided by a CRM trainer or by an instructor with adequate CRM skills.

7 Design, delivery and evaluation of CRM training

The design, delivery and evaluation of CRM training should be described in the operator's operations manual and have been assessed/reviewed by a qualified authorised person from the OTAA.

8 Non-technical skills assessment

NOTECHS (non-technical skills) is a validated method for assessing flight or cabin crew CRM skills, other validated assessment tools may be utilised. The framework for assessing should be described in the operator's operations manual.

9 Helicopter operations

Helicopter emergency medical service (HEMS) operations should apply the CRM training guidance as described for multi-crew operations.

Appendix A Guidance on flight crew CRM training programmes

CRM training elements	Initial operator CRM training	Operator conversion course when changing aircraft type	Operator conversion course when changing operator	Recurrent training	Command course
General Principles					
Human Factors in aviation; General instructions on CRM principles and objectives; Human performance and limitations; Threat and error management.	In-depth	Required	Required	Required	Required
Relevant to the individual flight crew member					
Personality awareness, human error and reliability, attitudes and behaviours, self-assessment and self-critique; Stress and stress management; Fatigue and vigilance; Assertiveness, situation awareness, information acquisition and processing.	In-depth	Not required	Not required	Required	In-depth
Relevant to the flight crew					
Automation and philosophy on the use of automation	Required	In-depth	In-depth	In-depth	In-depth
Specific type related differences	Required	In-depth	Not required	Required	Required
Monitoring and intervention	Required	In-depth	In-depth	Required	Required
Relevant to the entire aircraft crew					
Shared situation awareness, shared information acquisition and processing; Workload management; Effective communication and coordination inside and outside the flight crew compartment; Leadership, cooperation, synergy, delegation, decision making, actions; Cultural differences.	In-depth	Required	Required	Required	In-depth

CRM training elements	Initial operator CRM training	Operator conversion course when changing aircraft type	Operator conversion course when changing operator	Recurrent training	Command course
Relevant to the operator and the organisation					
Operator's safety culture and company culture, standard operating procedures (SOPs), organisational factors, factors linked to the type of operations; Effective communication and coordination with other operational personnel and ground services.	In-depth	Not required	In-depth	Required	In-depth
Case studies	In-depth	In-depth	In-depth	In-depth	In-depth

Appendix B

Guidance on cabin crew CRM training programmes

CRM training elements	Operator's CRM training	Operator aircraft type conversion training	Annual recurrent training
Human Factors in aviation; General instructions on CRM principles and objectives; Human performance and limitations; Threat and error management.	Not required (covered under initial training as required).	Required	Required
Personality awareness, human error and reliability, attitudes and behaviours, self-assessment and self-critique; Stress and stress management; Fatigue and vigilance; Assertiveness, situation awareness, information acquisition and processing.	Not required (covered under initial training required).	Required	Required (3 year cycle)
Shared situation awareness, shared information acquisition and processing; Workload management; Effective communication and coordination between all crew members including the flight crew as well as inexperienced cabin crew members; Leadership, cooperation, synergy, delegation, decision making, actions; Cultural differences; Identification and management of the passenger human factors: crowd control, passenger stress, conflict management, medical factors.	In-depth	Required	Required (3 year cycle)

CRM training elements	Operator's CRM training	Operator aircraft type conversion training	Annual recurrent training	Senior cabin crew member (SCCM) course
Specifics related to aircraft types (narrow/wide bodied, single/multi deck), flight crew and cabin crew composition and number of passengers	Required	In-depth	Required (3 year cycle)	In-depth
Relevant to the operator and the organisation				
Operator's safety culture and company culture, standard operating procedures (SOPs), organisational factors, factors linked to the type of operations; Effective communication and coordination with other operational personnel and ground services; Participation in cabin safety incident and accident reporting.	In-depth	Required	Required (3 year cycle)	In-depth
Case studies	In-depth	Required	In-depth	In-depth

'Required' means training that should be instructional or interactive in style to meet the objectives specified in the CRM training programme or to refresh knowledge gained in a previous training.

'In-depth' means training that should normally be interactive in style taking full advantage of group discussions, team task analysis, team task simulation, etc. for the acquisition or consolidation of knowledge, skills and attitudes. The CRM training elements should be tailored to the specific needs of the training phase being undertaken.