CIRCULAR N°_____/C/CCAA/DG of __07 JUIL 2025__

RE 000003

Crew resource management (CRM) training for flight crew

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1. INTRODUCTION

The purpose of this Circular is to provide acceptable means (AMC), among others, to establish compliance with the regulations and guidance material (GM) to support the interpretation of the regulations.

This Circular, by itself, does not establish, change or modify regulatory requirements or permit any violation, nor does it establish minimum standards.

1.1. Subject

(1) The purpose of this circular is to provide operators and training organisations with means of compliance and guidance material on flight crew CRM training.

(2) It covers:

- CRM training syllabus;
- Installation and equipment suitable for a CRM training;
- CRM training methods;
- Requirements for CRM trainer.

1.2. Applicability

This circular applies to aircraft operators, and training organisations who provide a crew resource management training to flight crew.

1.3. Description of changes

This circular is issued to replace provisions of Circular No. 451/CCAA/DNA/SDNA/ETA from August 22, 2006 regarding Crew Resource Management Training, to reflect the following changes:

(a) introduction of computer-based training as a training method;

(b) provisions for minimum training time;

(c) training provisions for a flight crew CRM trainer;

(d) details on flight crew CRM training syllabus.

2. REQUIREMENTS AND REFERENCES

2.1. Requirements

(a) Ministerial Order No. 606/MINT of 13 September 2006

(b) Ministerial Order No. 609/MINT of 13 September 2006

2.2. Reference documents

This document was drafted base on:

(a) EASA Easy Access Rules for Air Operations, from February 2025.

3. DEFINITIONS AND ABBREVIATIONS

(1) The following definitions are used in this circular:

(a) Complex motor-powered aircraft: means

  i. an aeroplane
  - with a maximum certificated take-off mass exceeding 5,700 kg; or
  - certificated for a maximum passenger seating configuration of more than nineteen; or
  - certificated for operation with a minimum crew of at least two pilots; or
  - equipped with (a) turbojet engine(s) or more than one turboprop engine.

  ii. a helicopter certificated
  - for a maximum take-off mass exceeding 3,175 kg; or
  - for a maximum passenger seating configuration of more than nine; or
  - for operation with a minimum crew of at least two pilots.

(b) Crew member: means a person assigned by an operator to perform duties on board an aircraft.

(c) Flight crew member: means a licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period;

(d) Flight simulation training device (FSTD): means a training device which is :

  iii. In the case of aeroplanes, a full flight simulator (FFS), a flight training device (FTD), a flight and navigation procedures trainer (FNPT), or a basic instrument training device (BITD) ;

  iv. in the case of helicopters, a full flight simulator (FFS), a flight training device (FTD) or a flight and navigation procedures trainer (FNPT);

(e) Technical crew member: means a crew member in commercial air transport operations other than a flight or cabin crew member, assigned by the operator to duties in the aircraft or on the ground for the purpose of assisting the pilot during operations, which may require the operation of specialised on-board equipment.

(f) Training hours: means actual training time excluding breaks and assessment.

(2) The following abbreviations are used in this circular:

(a) ATO: Approved Training Organisation

(b) ATPL: Air Transport Pilot License

(c) CRM: Crew resource Management

4. CONTEXT

This Circular is meant to update provisions of Circular No. 451/CCAA/DNA/SDNA/ETA from August 22, 2006 addressing crew resource management for flight crew, so that they cope with nowadays operational environment and the developments of training technics, methods and equipment.

5. CREW RESOURCE MANAGEMENT (CRM) TRAINING FOR FLIGHT CREW

5.1. Definition

(1) CRM is the effective utilisation of all available resources (e.g. crew members, aircraft systems, supporting facilities and persons) to achieve safe and efficient operation.

(2) The objective of CRM is to enhance the communication and management skills of the flight crew member concerned. Emphasis is placed on the non-technical knowledge, skills and attitudes of flight crew performance.

(3) The CRM training programme must be approved by the competent authority (the CAA of the country where the operator is based). This programme must be detailed in the operator's operations manual, or the ATO's training manual.

(4) The CRM training system is monitored by the competent authority, which may observe ground, simulator and online training sessions to ensure that standards are maintained.

5.2. CRM TRAINING — MULTI-PILOT OPERATIONS

(1) General.

a. Training environment CRM

Training should be conducted in a non-operational environment (classroom and computer-based) and in the operational environment (flight simulation training device (FSTD) and aircraft). Tools such as group

discussions, team task analysis, team task simulation and feedback should be used.

b. 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.

c. Computer-based training (CBT)
Computer-based training should not be conducted as a stand-alone training method but may be conducted as a complementary training method.

Complementary training method in the context of evidence-based training : advanced CBT following the aviation blended learning environment, such as virtual reality, chatbots, interactive scenario trainers, etc. may serve as the principal method to deliver training in the non- operational environment. In such case, the classroom training may be the complementary method

d. Flight simulation training devices (FSTDs)
i. Whenever practicable, parts of the CRM training should be conducted in FSTDs that reproduce a realistic operational environment and permit interaction. This includes but is not limited to line-oriented flight training (LOFT) scenarios.

ii. If the operator proficiency check is conducted in a FSTD, it should include a line-oriented flight during which a complementary CRM assessment should take place, in conditions that reproduce a realistic operational environment.

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

f. Combined CRM training for flight crew, cabin crew and technical crew
i. Operators should provide combined training for flight crew, cabin crew and technical crew during recurrent CRM training.
ii. The combined training will address at least :
   - Effective communication coordination of tasks and functions of flight crew, cabin crew and technical crew; and
   - Mixed multinational and cross-cultural flight crew, cabin

crew and technical crew, and their interaction, if applicable.

  iii. The combined training should be expanded to include medical passengers, if applicable to the operation.

  iv. Combined CRM training should be conducted by flight crew CRM trainer or cabin crew CRM trainer.

  v. There should be an effective liaison between flight crew, cabin crew and technical crew training departments. Provision should be made for transfer of relevant knowledge and skills between flight crew, cabin crew and technical crew CRM trainers.

g. Management system

CRM training should address hazards and risks identified by the operator's management system.

h. Competency-based CRM training

Whenever practicable, the compliance-based approach concerning CRM training may be substituted by a competency-based approach such as evidence-based training. In this context, CRM training should be characterised by a performance orientation, with emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

i. Contracted CRM training

If the operator chooses not to establish its own CRM training, another operator, a third party or a training organisation may be contracted to provide the training in accordance with applicable regulation. In case of contracted CRM training, the operator should ensure that the content of the course covers the specific culture, the type of operations and the associated procedures of the operator. When crew members from different operators attend the same course, the CRM training should be specific to the relevant flight operations and to the trainees concerned.

(2) Initial operator's CRM training

a. The flight crew member should complete the initial operator's CRM training once. When the type of operation of a new operator is not different, the new operator should not be required to provide the initial operator's CRM training to this flight crew member a second time.

b. The initial training should cover all elements specified in Table 1 of **§5.2.**

(3) Operator conversion course – CRM Training

When the flight crew member undertakes a conversion course with a change of aircraft type or change of operator, elements of CRM training should be integrated into all appropriate phases of the operator's conversion course, as specified in Table 1 of **§5.2**.

(4) Annual recurrent training

a. Annual recurrent CRM training should be provided in such a way that all CRM training elements specified for the annual recurrent training in Table 1 of **§5.2** are covered over a period not exceeding 3 years.

b. Operators should update their CRM recurrent training programme over a period not exceeding 3 years. The revision of the programme should take into account information from the operator's management system (SMS or QMS) including the results of the CRM assessment.

(5) Command course – CRM training

The operator should ensure that elements of CRM training are integrated into the command course, as specified in Table 1 of **§5.2**.

(6) Training elements

The CRM training elements to be covered are specified in Table 1 of **§5.2**. The operator should ensure that the following aspects are addressed :

a. Automation and philosophy on the use of automation

    i.   The CRM training should include training in the use and knowledge of automation, and in the recognition of systems and human limitations associated with the use of automation. The operator should, therefore, ensure that the flight crew member receives training on :

- the application of the operations policy concerning the use of automation as stated in the operations manual; and
- system and human limitations associated with the use of automation, giving special attention to issues of mode awareness, automation surprises and over-reliance including false sense of security and complacency.

    ii.   The objective of this training should be to provide appropriate knowledge, skills and attitudes for managing and operating automated systems. Special attention should be given to how automation increases the need for crews to have a common

understanding of the way in which the system performs, and any features of automation that make this understanding difficult.

iii. If conducted in an FSTD, the training should include automation surprises of different origin (system- and pilot-induced).

b. Monitoring and intervention

Flight crew should be trained in CRM-related aspects of operation monitoring before, during and after flight, together with any associated priorities. This CRM training should include guidance to the pilot monitoring on when it would be appropriate to intervene, if felt necessary, and how this should be done in a timely manner. Reference should be made to the operator procedures for structured intervention as specified in the operations manual.

c. Resilience development

CRM training should address the main aspects of resilience development. The training should cover :

i. Mental flexibility : flight crew should be trained to
- understand that mental flexibility is necessary to recognise critical changes;
- reflect on their judgement and adjust it to the unique situation;
- avoid fixed prejudices and over-reliance on standard solutions; and
- remain open to changing assumptions and perceptions.

ii. Performance adaptation : flight crew should be trained to
- mitigate frozen behaviours, overreactions and inappropriate hesitation; and
- adjust actions to current conditions.

d. Surprise and startle effect

CRM training should address unexpected, unusual and stressful situations. The training should cover :

i. surprise and startle effects;
ii. management of abnormal and emergency situations, including
- the development and maintenance of the capacity to manage crew resources;
- the acquisition and maintenance of adequate automatic behavioural responses; and
- recognising the loss and re-building situation awareness and control.

e. Cultural differences

CRM training should cover cultural differences of multinational and cross-cultural crews. This includes recognising that :

i. different cultures may have different communication specifics, ways of understanding and approaches to the same situation or problem;

ii. difficulties may arise when crew members with different mother tongue communicate in a common language which is not their mother tongue; and

iii. cultural differences may lead to different methods for identifying a situation and solving a problem.

f. Operator's safety culture and company culture

CRM training should cover the operator's safety culture, its company culture, the type of operations and the associated procedures of the operator. This should include areas of operations that may lead to particular difficulties or involve unusual hazards.

g. Case studies

i. CRM training should cover aircraft type-specific case studies, based on the information available within the operator's management system, including :

- accident and serious incident reviews to analyse and identify any associated non-technical causal and contributory factors, and instances or examples of lack of CRM; and

- analysis of occurrences that were well managed.

ii. If relevant aircraft type-specific or operator-specific case studies are not available, the operator should consider other case studies relevant to the scale and scope of its operations

(7)   CRM training syllabus

Table 1 below specifies which CRM training elements should be covered in each type of training. The levels of training in Table 1 can be described as follows :

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

b. **"in depth"** means training that should be instructional or 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.

Table 1 : flight crew CRM training syllabus

CRM training elements	Initial operator's CRM training	Operator conversion course when changing aircraft type	Operator conversion course when joining an operator	Annual 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	Not 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	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; - Resilience development; - Surprise and startle effect; - Cultural differences.	in depth	Required	Required	Required	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.	in depth	Required	in depth	Required	in depth
- Case studies	in depth	in depth	in depth	in depth	in depth

(8)   Assessment of CRM skills

a. Assessment of CRM skills is the process of observing, recording, interpreting and debriefing crews and crew member's performance using an accepted methodology in the context of the overall performance.

b. The flight crew member's CRM skills should be assessed in the operational environment, but not during CRM training in the non-operational environment. Nevertheless, during training in the non-operational environment, feedback from the flight crew CRM trainer or from trainees on individual and crew performance may be given to the crew members concerned.

c. **The assessment of CRM skills should**
   i. include debriefing the crew and the individual crew member ;
   ii. serve to identify additional training, where needed, for the crew or the individual crew member; and
   iii. be used to improve the CRM training system by evaluating de-identified summaries of all CRM assessments

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

e. **Methodology of CRM skills assessment**
   The assessment should be based on the following principles:
   i. only observable behaviours are assessed;
   ii. the assessment should positively reflect any CRM skills that result in enhanced safety; and
   iii. assessments should include behaviour that results in an unacceptable reduction in safety margin

f. 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.

5.3. CRM TRAINING — SINGLE-PILOT OPERATIONS

(1) For single-pilot helicopter operations with technical crew, **§ 5.2** should be applied.

(2) For single-pilot operations other than those specified in **(1)**, **§ 5.2** should be applied with the following differences:

a. Relevant training

Training should cover the relevant CRM training, i.e. initial operator's training, the operator conversion course and recurrent training.

b. Relevant training elements

The CRM training should focus on the elements specified in Table 1 of **§ 5.2** which are relevant to single-pilot operations. Therefore, single-pilot CRM training should include, among others:

    i. situation awareness;

    ii. workload management;

    iii. decision-making;

    iv. resilience development;

    v. surprise and startle effect;

    vi. effective communication and coordination with other operational personnel and ground services.

c. Computer-based training

    i. Notwithstanding (1)c. of **§ 5.2**, computer-based training may be conducted as a stand-alone training method.

    ii. The tool used for the computer based-training should permit real-time interaction between the trainees and the trainer, including speech and elements of body language. It should also be capable of transmitting any document to the trainee that the trainer wishes to present. The CRM trainer should establish the list of trainees in advance. Their numbers should be limited to 6 to ensure a sufficient level of interaction during the training session.

d. For operations with an aeroplane with a Maximum Take-off Mass (MTOM) of 2000 kg or less, which is not classified as "complex motor-powered aircraft", the relevant CRM training and its duration should be determined by the operator, based on the aircraft type and the complexity of the operation, notwithstanding (a) and (b).

5.4. FLIGHT CREW CRM TRAINER

(1) Applicability

a. The provisions described herein should be fulfilled by flight crew CRM trainers responsible for classroom CRM training.

b. The provisions described herein are not applicable to :
   i. Instructors holding a valid Type Rating Instructor (TRI), Synthetic Flight Instructor (SFI) or Multi-crew Cooperation Instructor (MCCI) rating in accordance with applicable requirements, when conducting CRM training in the operational environment ; and
   ii. trainers or instructors when conducting training other than CRM training, but integrating CRM elements into this training.

(2) Qualifications of flight crew CRM trainer

a. Prerequisites. A flight crew CRM trainer should:
   i. have adequate knowledge of human performance and limitations :
      - having obtained at least a commercial pilot licence in accordance with applicable regulation, or
      - having followed a theoretical human performance and limitations (HPL) course covering the whole syllabus of the HPL examination to ATPL.
   ii. have completed flight crew initial operator's CRM training;
   iii. have received training in group facilitation skills, except for Instructors holding a valid Type Rating Instructor (TRI), Synthetic Flight Instructor (SFI) or Multi-crew Cooperation Instructor (MCCI) rating in accordance with applicable requirements.

b. In order to qualify as flight crew CRM trainer, a person meeting the prerequisites should:
   i. have adequate knowledge of the relevant flight operations;
   ii. receive the initial training in accordance with **(3)c** ; and
   iii. have demonstrated the knowledge, skills and credibility required to train the CRM training elements in the non-operational environment, as specified in Table 1 of **§ 5.2.**

c. In order to act as flight crew CRM trainer at an operator or ATO, a qualified and current flight crew CRM trainer should meet one of the following conditions:
   i. have adequate knowledge of the relevant flight operations at that operator, in accordance with **(4)**; or
   ii. be part of a team of trainers in accordance with **(5).**

d. The period of validity of the flight crew CRM trainer qualification should be 3 years.

e. Recency and renewal of the flight crew CRM trainer qualification
  i. The flight crew CRM trainer should complete CRM trainer refresher training within the last 12 months of the 3-year validity period; and
  ii. The flight crew CRM trainer should meet one or both of the following conditions:
    - conduct at least 3 CRM training events within the 3-year validity period;
    - be assessed within the last 12 months of the 3-year validity period in accordance with **(6)**; and
  iii. If the flight crew CRM trainer qualification has expired, it can be renewed if all of the conditions below are met. The validity should be 3 years after completion of first and third bullet points below, whichever comes first:
    - complete CRM trainer refresher training;
    - receive refresher training on knowledge of the relevant flight operations, as necessary;
    - be assessed in accordance with **(6)**.

(3) Training of flight crew CRM trainer

a. The training of flight crew CRM trainers should be conducted by flight crew CRM trainers with a minimum of 3 years experience. Assistance may be provided by experts in order to address specific areas.

b. Training of flight crew CRM trainers should be both theoretical and practical. Practical elements should include the development of specific trainer skills, particularly the integration of CRM into line operations.

c. The initial training of flight crew CRM trainers should include the following:
  i. Introduction to CRM training :
    - ability to interact with and manage a group;
    - ability to pre-plan an objective and timely training session;
    - ability to deliver a good balance of 'telling', 'selling' and 'facilitating';
    - ability to connect realistically poor and good CRM to the operations;
    - ability to assess the performance, the progress and needs of trainees in a meaningfully way;
  ii. Operator's management system (SMS or QMS);

iii. Characteristics of the flight crew CRM training as defined in Table 1 of **§ 5.2**, and its integration into line operations:
- the different type of CRM trainings (initial, recurrent, etc.)
- combined training; and
- training related to the type of aircraft and operation.

Instructors holding a valid Type Rating Instructor (TRI), Synthetic Flight Instructor (SFI) or Multi-crew Cooperation Instructor (MCCI) rating in accordance with applicable requirements may be credited towards (i) and (ii) if they have completed the refresher training defined in **d.**

d. The refresher training of flight crew CRM trainers should include new methodologies, procedures and lessons learned, as well as additional topics such as the following:
i. group facilitation skills including team dynamics, moderation skills and use of questions ;
ii. course preparation, defining objectives and selecting methods to best convey knowledge (e.g. lecture, group work, case analysis, gamification, scenario-based training, individual research) ;
iii. safety culture and management systems ;
iv. an example of an analysis of CRM factors in an accident or serious incident;
v. new developments or research in human factors and CRM;
vi. Threat and Error Management (TEM) principles and their practical implementation in normal operations.

e. Instructors holding Type Rating Instructor (TRI), Synthetic Flight Instructor (SFI) or Multi-crew Cooperation Instructor (MCCI) rating, who are also CRM trainers, may combine the CRM trainer refresher training with instructor refresher training if the instructor refresher training meets all of the conditions defined in **d.**

f. Instructors for other than complex motor-powered aircraft should be qualified as flight crew CRM trainers for this aircraft category with no additional training, as specified in **c.** and **d.** when :
i. holding a valid Type Rating Instructor (TRI), Synthetic Flight Instructor (SFI) or Multi-crew Cooperation Instructor (MCCI) rating in accordance with applicable requirements;
ii. fulfilling the provisions of **(2)b. or (2)e.**

(4)   Knowledge of the relevant flight operations

a. The operator (or the ATO, when applicable) should evaluate the experience and knowledge of the flight crew CRM trainer. That evaluation should include at least:

    i.   the operational experience of the flight crew CRM trainer as a flight crew member;

    ii.   whether this experience as a flight crew member or a former flight crew member covers the aircraft category, the aircraft generation and the form of operations, as relevant to the operator.

b. If the flight crew CRM trainer does not have the relevant knowledge of the relevant flight operation based on the evaluation in **(a)**, a training should be provided to the flight crew CRM trainer to provide the adequate knowledge.

c. The operator (or ATO) should describe the assessment and training in the operations (or training) manual.

(5)   Team of CRM trainers

If the flight crew CRM trainer is qualified in accordance with **(2)** but does not meet the conditions defined in **(4)**, he or she may be assisted by a training assistant that has the knowledge of the relevant flight operations. Operator and ATO should ensure that all the following conditions are met:

a. The training assistant should meet the condition defined in **(3)** but needs not meet the conditions defined in (2). The training assistant should be an instructor or have experience in ground training.

b. The flight crew CRM trainer and the training assistant should prepare the training session together and adapt it to the operational needs of the operator.

c. If the flight crew CRM trainer and the training assistant have already provided training for the operator or for a similar operator, the operator may determine that condition **(b)** is met.

d. The flight crew CRM trainer and the training assistant should provide the training together.

e. The flight crew CRM trainer remains responsible for the training.

(6) Assessment of flight crew CRM trainer

a. A flight crew CRM trainer should be assessed by the operator or ATO when conducting the first CRM training course. This first assessment should be valid for a period of 3 years.

b. The operator or ATO should ensure that the process for the assessment is included in the operations manual (or training organisation manual) describing methods for observing, recording, interpreting and debriefing the flight crew CRM trainer. All personnel involved in the assessment must be credible and competent in their role.

c. The assessment should enable the flight crew CRM trainer to demonstrate the knowledge and ability to train the CRM training elements in the non-operational environment. Special attention should be given to fields such as group management, group dynamics and personal awareness.

d. The assessment of flight crew CRM trainers should be conducted by flight crew CRM trainers with a minimum of 3 years of experience.

(7) Operator / ATO should only select a qualified and current flight crew CRM trainer meeting the conditions defined in **(4)** or **(5).**

5.5. MINIMUM TRAINING TIMES

The following minimum training times are appropriate:

a. **Multi-pilot operations:**
   i. combined CRM training: 6 training hours over a period of 3 years, or, for Evidence Based Training operators a minimum of 3 training hours within 3 years; and
   ii. initial operator's CRM training: 18 training hours with a minimum of 12 training hours in classroom training;

b. **Initial operator's CRM training for single-pilot operations:** 6 training hours; and

c. **Flight crew CRM trainer :**
   i. basic training :
       - 18 training hours for trainees holding an instructor rating for complex motor-powered aircraft, which includes 25-hour training in teaching and learning; or

- 30 training hours for trainees who do not hold an instructor rating as specified in point above; and

ii. refresher training: 6 training hours.

6. CONTACT

(1) For more information, please contact:

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(2) Any suggestion to modify this circular will be highly appreciated and can be submitted via the above-mentioned email address.

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