# HF, MCC, CRM, CRMI AND MCCI TRAINING AS ONE OF THE BASIC TOOLS IN SITUATIONAL AWARENESS DEVELOPMENT

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The article depicts the author's ”Concept for the improvement of Polish Military Forces aircraft crews through HF, MCC, CRM, CRMI and MCCI training” which relates to situational awareness development and is based on national and international aviation regulations. The article points out the objectives of the respective training modules as well as the place and time for their completion.

K e y w o r d s:

## 1. INTRODUCTION

Achieving an appropriate state of situational awareness in aircraft crew members and maintaining it at a desirable level depends on the proper selection of candidates in respective stages of training and ensuring the appropriate quality level of aviation training (theoretical training, flight simulator training and flight training) in all stages of aviation career. In the area of preventive activities, particular attention must be paid to the achievement of a suitable level of competence of aircraft crew members, according to the complexity level of present and anticipated aviation tasks. This may be pursued, among other things, through continuous and well-organized theoretical and practical aviation training. It is vital to ensure the regularity of practical training and to provide sufficient flying time for preserving and developing desirable habits in aircraft crew members. In turn, one of the essential goals of theoretical training should be the consolidation and further development of knowledge with regard to the type of present and anticipated air missions.

According to contemporary views on developing desirable habits of aircraft crew members, the completion of training in the areas of HF (Human Abilities and Limitations), MCC (Multi Crew Cooperation) and CRM (Crew Resource Management) is of great importance. This partially results from the fact that factors, such as inadequate situation assessment, or coming to inappropriate decisions by the aircraft crew in response to the situation on board the aircraft, are the present causes of about 70% of unwelcome aviation incidents, regardless of the kind of aviation being taken into account.

## 2. CONCEPT FOR THE IMPROVEMENT OF POLISH MILITARY FORCES AIRCRAFT CREWS THROUGH HF, MCC, CRM, CRMI AND MCCI TRAINING

Methodical formation and improvement of personal and professional qualities in respective groups of personnel involved in aviation activities, both during basic training and continued throughout their career in the field, should allow to achieve a suitable level of situational awareness. In order to meet the needs relating to the performance improvement of Polish Military Forces aircraft crew members, the author has worked out the ”Concept for the improvement of Polish Military Forces aircraft crews through HF, MCC, CRM, CRMI and MCCI training”. *The system of continuous performance improvement training* that is outlined in the Concept encompasses the following improvement and instructor courses (Fig. 1):

### 1. Human Abilities and Limitations (HF)

This training is currently being carried out within education programmes for particular groups of flying personnel in Polish Air Force Academy. It covers 40 hours of theoretical training. The primary objective of HF training is to familiarise trainees with the basics of operating in the man–aircraft–environment setup. This setup is to be interpreted as a specific system of managing resources and information through the acquisition of skills for problem recognition and identification of shortcomings in the areas of biological, cognitive and social human abilities.

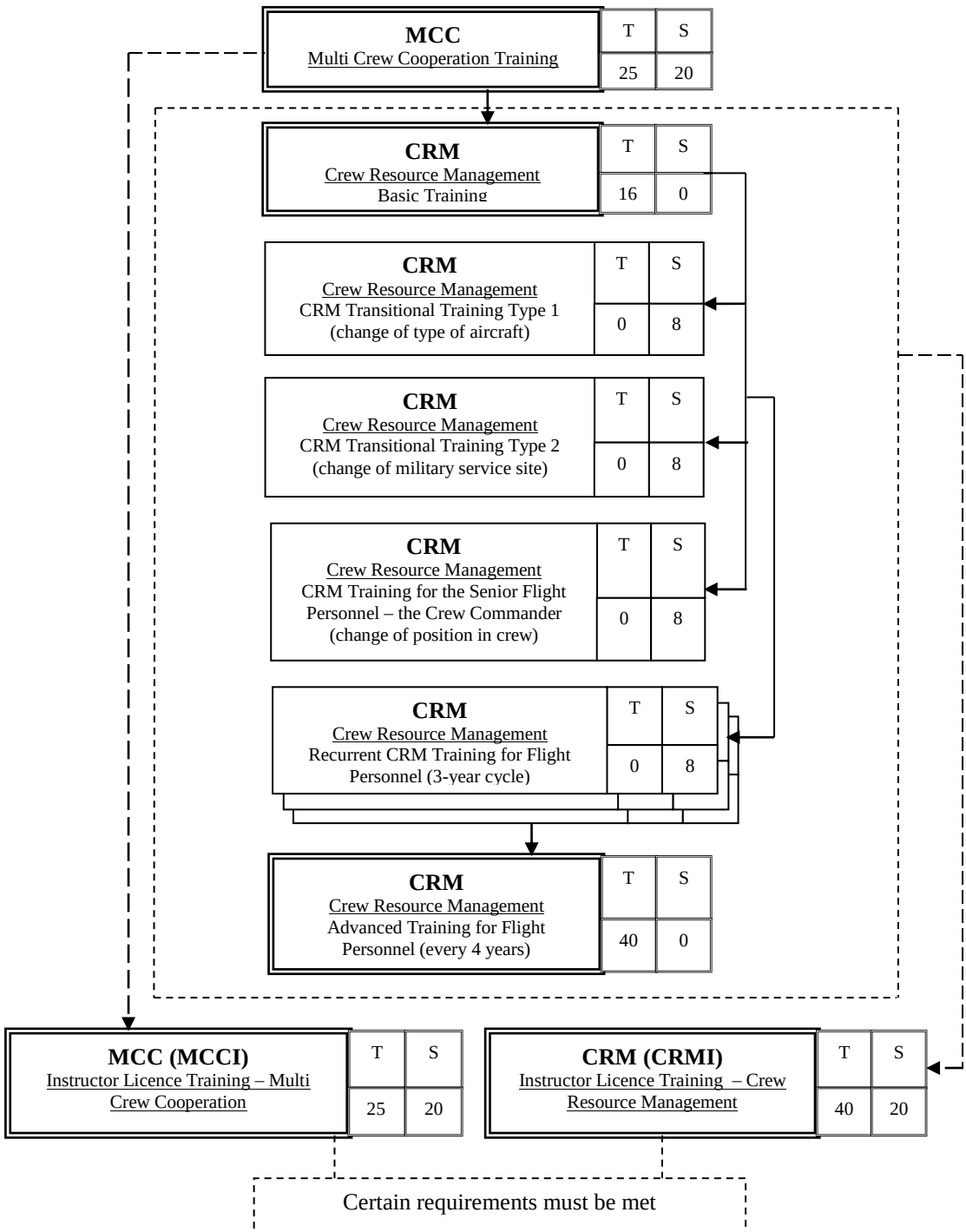
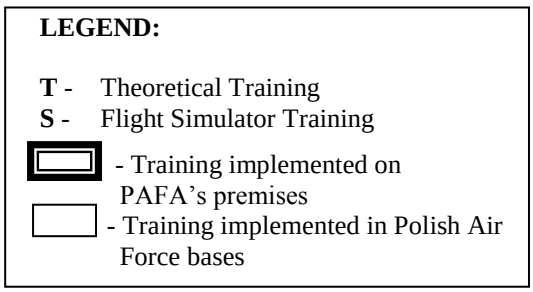



**Fig.1. The Concept for continuous performance improvement training for Polish Air Force flight personnel through HF, MCC, CRM, MCCI and CRMI training.**
Source: Author's own work




**2. Multi Crew Cooperation (MCC)**

Training is based on a programme certified by the Civil Aviation Office and will be pursued in Academic Flight Training Organization on PAFA's premises. It will cover 25 hours of theoretical training and 20 hours of certified FNTP-II flight simulator training. The primary objective of the MCC training is to teach basic rules of functioning in a multi crew environment and to develop skills that are essential for effective and reliable operation in the commander's or a multi crew member's position.

**3. Crew Resource Management (CRM)**

Depending on the type, this training will be pursued in PAFA and Polish Air Force bases. The basic goal of CRM training is to provide trainees with skills that enable them to effectively utilize all resources available aboard the aircraft, including other crew members, aircraft systems and installations as well as information that is needed to ensure a safe flight and effective operation on board. Its secondary goal is to improve the skills for managing members of an aircraft crew and communicating and cooperating in a multi crew. The following CRM training types are to be distinguished:

3.1. Basic CRM Training

Training will be pursued within education programmes for particular groups of flying personnel in PAFA. It covers 16 hours minimum of theoretical training. The primary objective of the Basic CRM Training is the improvement of aircraft crews in the area of human factor, including elements that have an impact on the safety in air missions.

3.2. CRM Transitional Training Type 1

Training will be carried out in Polish Air Force bases in cases of change of the type of aircraft by a flight personnel member. It will cover 8 hours minimum of practical training using aviation training equipment. The primary objective is to familiarise trainees with the specific nature of cooperation between crew members and develop good coordination skills with other members while handling aircraft systems, with particular focus on the type of aircraft.

3.3. CRM Transitional Training Type 2

Training will be carried out in Polish Air Force bases in cases of change of military service site by a flight personnel member without changing the type of aircraft. It will cover at least 8 hours of training using aviation training equipment. The goal is to familiarise trainees in detail with the specific nature of cooperation between crew members aboard the aircraft of a given type and develop good coordination skills with other members while effectively handling aircraft systems, with particular focus on effective dealing with the air safety system in an air force base.

3.4. CRM Training for the Senior Flight Personnel Member

Training will be carried out in Polish Air Force bases in cases of change of an area of responsibility in a crew by a crew member. It will cover 8 hours minimum of training using aviation training equipment. The objective is to improve the trainees' knowledge regarding specific nature of cooperation between crew members aboard the aircraft of a given type, develop good coordination skills with other crew members while effectively handling aircraft systems, and ensure that the trainee does well at dealing with the air safety system in the organization, with particular focus on the new area of responsibility in a crew. The trainee should be well acquainted with any unwelcome aviation incidents that have taken place aboard this type of aircraft. The new area of responsibility resulting from the new position in the crew should be taken into account.

3.5. Recurrent CRM Training for Flight Personnel

Training will be carried out in 3-year cycle in Polish Air Force bases. It will cover 8 hours of training every year using aviation training equipment. The objective is to improve the trainees' knowledge in the following areas: human abilities and limitations, specific nature of cooperation between crew members aboard the

given type of aircraft, developing good coordination skills with other crew members while effectively handling aircraft systems, and effective dealing by the crew members with the air safety system of the organization. Conclusions drawn by the instructor regarding the trainee's performance are the basis for determining which areas need more attention and require further study by the trainee.

An integral part of all types of training mentioned above is to inform trainees of any representative unwelcome aviation incident scenarios that have taken place in civil as well as state aviation, with particular attention to the type of aircraft used by the trainees and areas threatening safety of air missions.

**4. CRM (CRMI) Instructor Licence Training**

Training will be pursued on PAFA's premises. It will cover 40 hours minimum of theoretical training and 20 hours of practical training using aviation training equipment. The key objective of the training will be to equip the candidate with the knowledge and skills essential to conduct all types of CRM training sessions. The CRM Instructor Licence Training is a crucial element of the Concept, as it determines the proper implementation of all the other CRM courses specified therein. The appropriate training of the instructor personnel and the properly organized training base are the basic conditions for the achievement of a suitable level of improvement training in the areas of cooperation between the crew members and optimization of the management of resources available to the crew aboard the aircraft. Therefore, candidates for the CRM Instructor Licence Training will have to meet especially high level of requirements regarding the skills and aviation experience, and also the personal and professional qualities.

5. MCC (MCCI) Instructor Licence Training

Training will be pursued in AFTO on PAFA's premises and will be based on a programme certified by the Civil Aviation Office. It will cover 25 hours of theoretical training and 20 hours of FNTP-II-certified flight simulator training. The key objective of the training will be to equip the candidate with the knowledge and skills essential to conduct MCC training sessions. Similarly to CRMI Instructor Licence Training, candidates for the MCC (MCCI) Instructor Licence Training will have to meet especially high level of requirements regarding the skills and aviation experience, and also the personal and professional qualities.

The Concept, which has been presented here, has been approved for implementation in Polish Air Force bases. Currently, there is ongoing work on the development of training programmes for the respective courses with attention devoted to the assumptions specified above and the specific nature of air missions that are undertaken by military aviation.

## 5 CONCLUSION

A number of dangers inherent in high technological level and the automatisation of modern aircraft result in ever increasing level of requirements that are to be met by the crew. Evidence gathered so far points out that one of the key elements that have an impact on the safety in air missions is the state of situational awareness, exhibited by the crew. This is more so, because the challenges facing crews of modern aircraft (at the time of preparing and flying an air mission) tend to be of implicit nature and are not clearly visible, even for experienced and well-trained personnel. Therefore, a systematic approach to the improvement of skills of aircraft crew members is one of the key factors that foster the achievement and maintenance of suitable level of situational awareness at all stages during performing an aviation task. Such an approach also promotes the creation of conditions required for the proper counteracting/reacting to threats that result from the psycho-physical state of the crew, technical condition of the aircraft, the stage of the mission, or the condition of the environment.

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