Safety Bulletin

SB No.: 03/2023

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Subject: CREW RESOURCE MANAGEMENT TRAINING

For the attention of: Thai Air Operators

Purpose:

The purpose of this bulletin is to provide guidelines for developing, implementing, reinforcing, and assessing crew resource management (CRM) training for flight crew members and other personnel essential to flight safety.

Introduction:

According to the Mandatory Occurrence Reports (MOR) analysis submitted by Thai AOC, the route cause and contributing factor have shown that human error is a contributing factor of all Thai AOC's incidents and serious incidents. Many problems encountered by flight crews have very little to do with the technical aspects of operating in a multi-person cockpit. Instead, problems are associated with poor group decision-making, ineffective communication, inadequate leadership, and poor task or resource management. Pilot training programs historically focused almost exclusively on the technical aspects of flying and on an individual pilot's performance; they did not effectively address crew management issues that are also fundamental to safe flight.

SUGGESTED CURRICULUM TOPICS: The topics outlined below have been included in many current CRM programs. Specific content of training and organization of topics should reflect an organization's unique culture and specific needs.

a. Communications Processes and Decision Behavior. This topic includes internal and external influences on interpersonal communications. External factors include communication barriers such as rank, age, gender, and organizational culture, including the identification of inadequate SOPs. Internal factors include speaking skills, listening skills and decision-making skills, conflict resolution techniques, and the use of appropriate assertiveness

and advocacy. The importance of clear and unambiguous communication must be stressed in all training activities involving pilots, flight attendants, and aircraft dispatchers. The greater one's concern in flight-related matters, the greater is the need for clear communication. More specific subtopics include the following:

- Safety. A captain's briefing should address emergencies that might require an airplane evacuation (e.g., cabin fire or engine fire) and should highlight the functions of flight crew and flight attendants during an evacuation. A captain's briefing should stress to flight attendants the importance of identifying able-bodied passengers and briefing them, in turn. Passengers in exit rows are particularly important resources, and flight attendants should brief them on what to do during an evacuation.

- Security. A captain's briefing should address general security topics, especially hijack, and any known or suspected specific threat pertaining to the flight. Flight attendants should identify able-bodied passengers, including exit row seat occupants, and may enroll them as resources who might be called upon to help contain a disruption caused by a passenger(s).

- Inquiry/Advocacy/Assertion. Training in the potential benefits of crewmembers advocating the course of action that they feel is best, even though it may involve conflict with others.

- Crew Self-Critique (Decisions and Actions). Illustrating the value of review, feedback, and critique focusing on the process and the people involved. One of the best techniques for reinforcing effective human factors practices is careful debriefing of activities, highlighting the processes that were followed. Additionally, it is essential that each crewmember be able to recognize good and bad communications, and effective and ineffective team behavior.

- Conflict Resolution. Demonstrating effective techniques of resolving disagreements among crewmembers in interpreting information or in proposing courses of action. Demonstrating effective techniques for maintaining open communication while dealing with conflict.

- Communications and Decision-making. Demonstrating effective techniques of seeking and evaluating information. Showing the influence of biases and other cognitive factors on decision quality. There are benefits in providing crews with operational models of this

group decision process. Crews may refer to these models to make good choices in situations when information is incomplete or contradictory.

b. Team Building and Maintenance. This topic includes interpersonal relationships and practices. Effective leadership/followership and interpersonal relationships are key concepts to be stressed. Curricula can also include recognizing and dealing with diverse personalities and operating styles. Subtopics include:

- Leadership/Followership/Concern for Task. Showing the benefits of the practice of effective leadership through coordinating activities and maintaining proper balance between respecting authority and practicing assertiveness. Staying centered on the goals of safe and efficient operations.

- Interpersonal Relationships/Group Climate. Demonstrating the usefulness of showing sensitivity to other crewmembers' personalities and styles. Emphasizing the value of maintaining a friendly, relaxed, and supportive yet task-oriented tone in the cockpit and aircraft cabin. The importance of recognizing symptoms of fatigue and stress, and taking appropriate action.

- Workload Management and Situation Awareness. Stressing the importance of maintaining awareness of the operational environment and anticipating contingencies. Instruction may address practices (e.g., vigilance, planning and time management, prioritizing tasks, and avoiding distractions) that result in higher levels of situation awareness.

- Individual Factors/Stress Reduction. Training in this area may include describing and demonstrating individual characteristics that can influence crew effectiveness. Research has shown that many crewmembers are unfamiliar with the negative effects of stress and fatigue on individual cognitive functions and team performance. Training may include a review of scientific evidence on fatigue and stress and their effects on performance. The content may include specific effects of fatigue and stress in potential emergency situations. The effects of personal and interpersonal problems and the increased importance of effective interpersonal communications under stressful conditions may also be addressed. Training may also include familiarization with various countermeasures for coping with stressors. Additional curriculum topics may include examination of personality and motivation characteristics, self-assessment of personal style, and identifying cognitive factors that influence perception and decision-making.

EVOLVING CONCEPTS OF CRM:

a. Crew Monitoring and Cross-Checking. Several studies of crew performance, incidents, and accidents have identified inadequate flight crew monitoring and cross-checking as a problem for aviation safety. Therefore, to ensure the highest levels of safety, each flight crew member must carefully monitor the aircraft's flight path and systems and actively cross-check the actions of other crewmembers. Effective monitoring and cross-checking can be the last line of defense that prevents an accident because detecting an error or unsafe situation may break the chain of events leading to an accident. This monitoring function is always essential, and particularly so during approach and landing when controlled flight into terrain (CFIT) accidents are most common.

b. Joint CRM Training. More AOCs are discovering the value of expanding CRM training to reach various employee groups beyond flight crew and flight attendants. Dissimilar groups are being brought together in CRM training and in other activities. The objective is to improve the effectiveness and safety of the entire operations team as a working system.

c. Error Management. It is now understood that pilot errors cannot be entirely eliminated. It is important, therefore, that pilots develop appropriate error management skills and procedures. It is certainly desirable to prevent as many errors as possible, but since they cannot all be prevented, detection and recovery from errors should be addressed in training. Evaluation of pilots should also consider error management (error prevention, detection, and recovery). Evaluation should recognize that since not all errors can be prevented, it is important that errors be managed properly.

d. Advanced CRM. CRM performance requirements or procedures are being integrated into the SOPs of certain air carriers. Specific callouts, checks, and guidance have been included in normal checklists, the quick-reference handbook (QRH), abnormal/emergency procedures, manuals, and job aids. This integration captures CRM principles into explicit procedures used by flight crews.

e. Culture issues. While individuals and even teams of individuals may perform well under many conditions, they are subject to the influence of at least three cultures – the professional cultures of the individuals themselves, the cultures of their organizations, and the national cultures surrounding the individuals and their organizations. If not recognized and addressed, factors related to culture may degrade crew performance. Hence, effective CRM training must address culture issues, as appropriate in each training population.

SUMMARY: Effective CRM begins in initial training; it is strengthened by recurrent practice and feedback; and it is sustained by continuing reinforcement that is part of the corporate culture and embedded in every stage of training.

REFERENCE:

- AOCR Appendix G - Guidelines for Crew Resource Management (CRM) Training for All crew

- TCAR OPS – Part ORO, ORO.FC.115 - Crew resource management (CRM) training

- Thai Air Operator's Mandatory Occurrence Report (MOR)

- FAA - AC 120-51E, Crew Resource Management Training

CONTACT:

For further information, contact:

The Civil Aviation Authority of Thailand (CAAT),

Aviation Safety Management and Standards Assurance Office (SMO),

Aviation Safety Standards Group (AG)

E-mail: smo_ag@caat.or.th

Tel: 02-568-8812