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Our Ref: AIC 25-R11/25-1001

Safety recommendation: AIC 25-R11/25-1001

Addressed to: Tropicair Limited

Date issued: 08 July 2025

Investigation link: AIC 25-1001

Action status: Issued

Safety deficiency description

A review of relevant ICAO manuals such as Doc 9863 (Human Factors Training Manual) and Doc 9995 (Evidence Based Training Manual) showed that there is no fixed/standard percentage for CBT (Computer-Based Training) vs. classroom delivery in CRM (Crew Resource Management) and ADM (Aeronautical Decision-Making) training. However, industry's best practices and ICAO standards support a blended approach.

According to ICAO Doc 9683, section 2.4.22 training delivery is also an important training requisite. CRM should at all times remain operationally focused. This means the avoidance of training activities that have nothing to do with the operational environment. Classroom "games" must be absolutely avoided. Delivery techniques that should be used in CRM training revolve around an adult-learning context. This means that there must be a balance between "telling" and "facilitating" the learning. In general, delivery techniques such as small group discussions, use of incident/accident videos, and presentations that centre on real line experiences offer the best learning opportunities for trainees.

CRM training delivery method is just as important as what is taught. Classroom activities or games should be connected to aviation tasks and simulate/reflect flight operations. CRM should be taught using methods suitable for adult learners, meaning the trainer should not just lecture (tell) but also engage learners in discussion and reflection (facilitate). Use realistic, engaging methods like case studies, cockpit videos, group problem-solving, and actual aviation events to make CRM meaningful and practical. CRM is not abstract theory, it's about developing real-world decision-making, teamwork, and communication skills that pilots need during operations.

ICAO Doc 9995 provides a training model that fully integrates CRM principles into pilot training through the use of competency frameworks, scenario-based delivery, and behavioural assessments.

CRM is not taught separately in EBT (Evidence Based Training) but is embedded and assessed throughout the program as part of core pilot competencies. Chapter 4 and 5 of Doc 9995 refer to non-technical skills and behavioural indicators, where CRM elements are evaluated during simulator training, briefings, and LOFT (Line-Oriented Flight Training).

According to the Training Module for Crew Resource Management-Aeronautical Decision Making (CRM-ADM) in the operator's Training and Competency Manual, Volume 1, Part D, the training is covered in the initial and, transition and recurrent training phases. The recurrent training is delivered every 12 months through CTS online and a file certificate is issued.

The following are covered in the CRM-ADM module:

Crew Resource Management:

- Authority of PIC

Aeronautical Decision Making:

- CRM skills
- Communication processes
- Building and maintaining a flight team
- Workload and time management
- Situational awareness
- Fatigue: effects and reduction strategies
- What is ADM
- Risk Management
- Operational pitfalls

The investigation found from the operators Training module for CRM-ADM Training in the Training and Competency Manual, Part D, Volume 1, that the recurrent training is completed every 12 months online and a certificate issued upon completion.

Tropicair Crew Resource Management (CRM) training is delivered through Computer Based Training (CBT) and consists of an online module followed by an exam online.

Both pilots received the initial CRM training. The CRM training is delivered through CBT by a certified aviation training organization. It requires between 5 to 7 hours to complete before a certificate is granted.

The PIC and Co-pilot had attended the one-day CRM-ADM training and were current at the time of the accident. The PIC completed the 1-day course on 20 March 2024, and the Co-pilot completed it on 30 November 2024.

Recommendation number AIC 25-R11/25-1001 to Tropicair Limited.

The PNG Accident Investigation Commission (AIC) recommends that Tropicair Limited establish and implement a structured Crew Resource Management (CRM) and Aeronautical Decision Making (ADM) training program incorporating a blended learning approach, including both computer-based and instructor-led classroom training.

Action requested.

The AIC requests that Tropicair Limited note recommendation AIC 25-R11/25-1001 and provide a response to the AIC within 90 days of the issue date, but no later than 06 October 2025 and explain, including with evidence, how Tropicair Limited has addressed the safety deficiency identified in the safety recommendation.



Maryanne J. Wal

Chief Commissioner

8 July 2025

Tropicair Limited Response to Safety Recommendation AIC 25-R11/25-1001

On 4 October 2025, Tropicair Limited responded via email providing their corrective action to address Safety Recommendation AIC 25-R11/25-1001.

Tropicair Limited advised that they had amended the Tropicair *Part A- Volume 2- Operations Manual, Section 1.3.5 Crew Resource Management (CRM) and Aeronautical Decision-Making (ADM)* to reflect the establishment of a structured Crew Resource Management (CRM) and Aeronautical Decision Making (ADM) training program. The revised section outlines the adoption of a blended learning approach, incorporating both computer-based and instructor-led classroom training.

1. Part A – Volume 2 Operations Manual, Section 1.3.5 (CRM and ADM)
 - o Establishes purpose, scope, and policy for CRM/ADM.
 - o Specifies principles of CRM, ADM frameworks (DECIDE, 3P, PAVE, 5P), and threat/error management.
 - o Outlines initial and recurrent training requirements, scenario-based exercises, cross-department workshops, responsibilities, and continuous improvement processes.
2. Part D – Volume 1 Training and Competency Manual, Section 2.5 (CRM and ADM)
 - o Defines CRM/ADM objectives, core elements, ADM decision models, and training program structure.
 - o Includes initial, recurrent, and cross-department training with scenario-based exercises.
 - o Assigns responsibilities for compliance, monitoring, and integration.
 - o Establishes assessment, monitoring, and continuous improvement procedures.
 - o Provides quick reference tools for pre-flight, in-flight, and post-flight operations.

Note: The full SOP and manual amendments are retained internally. The summary demonstrates alignment with the AIC safety recommendation. Tropicair Limited has provided copies of the Manual Amendments to the AIC.

PNG AIC assessment of Tropicair Limited's Response

The AIC reviewed Tropicair Limited's actions to address Safety Recommendation AIC 25-R11/25-1001 and notes that while these actions represent positive progress toward full implementation, AIC requires evidence that the program has been fully implemented and operationalised.

To demonstrate full implementation, Tropicair is requested to provide supporting documentation when available, such as, but not limited to:

- Training records or certificates indicating that pilots or flight crew have completed the CRM and ADM training under the new program; and
- Training attendance sheets, or course completion reports

Submission of records for the first group of pilots who complete/have completed the new CRM and ADM program will be sufficient to confirm implementation and enable the closure of this safety recommendation.

The AIC has assessed Tropicair Limited's response as demonstrating *Satisfactory Intent*.

Status of Safety Recommendation: **MONITOR**



Maryanne J. Wal

Chief Commissioner

28 October 2025

Tropicair Limited (Ltd) Response to Safety Recommendation AIC 25-R11/25-1001

On 28 October 2025 following the assessment of the evidence provided, the AIC requested from Tropicair to further provide additional supporting evidence when available, to confirm full implementation.

On 15 May 2026, Tropicair Ltd provided training records and certificates confirming that its pilots/flight crew had successfully completed CRM and ADM training under the revised program.

Summary of Tropicair Limited's Corrective Action:

Tropicair Ltd provided evidence demonstrating the full implementation of corrective actions to address the safety deficiency identified.

- The operator amended the **Tropicair Part A- Volume 2- Operations Manual**, Section 1.3.5 *Crew Resource Management (CRM)* and *Aeronautical Decision-Making (ADM)*, to establish a structured CRM and ADM training program. The revised program incorporates a blended learning approach comprising both computer-based and instructor-led classroom training.
- In addition, **Tropicair Part D – Volume 1 Training and Competency Manual**, Section 2.5, was amended to include CRM and ADM training as requirement, delivered through classroom instruction supported by selected computer-based modules.
- To support the delivery of the enhanced training program, the operator engaged PNG Air Training Academy, a CASA PNG-approved Part 141 Certificate holder, as a third-party Approved Training Organisation. Effective 24 December 2025, the Academy commenced the delivery of classroom-based CRM and ADM training for all Tropicair Limited flight crew.
- CRM and ADM Training was carried out through the third-party Approved Training Organisation from 24 December 2025.
- Training records and certificates confirming that its pilots/flight crew had successfully completed CRM and ADM training under the revised program.

PNG AIC assessment of Tropicair Limited's Response

The AIC assessed the evidence provided by Tropicair Limited and is satisfied that it demonstrates full implementation of corrective actions taken to adequately address the safety deficiencies identified in Safety Recommendation AIC 25-R11/25-1001.

The amendments to the operator's manuals, the establishment of a structured CRM and ADM training program, the engagement of an approved external training provider, and the completion of training by flight crew collectively demonstrate that effective action has been taken to address the identified safety issue. Accordingly, the AIC has assigned Tropicair Limited's response a **Fully Satisfactory** rating.

The AIC has recorded the status of the **Safety Recommendation AIC 25-R11/25-as: CLOSED-RESPONSE ACCEPTED.**



Maryanne J. Wal
Chief Commissioner

18 June 2026