AAIB SAFETY BULLETIN

Air Accident Investigation Bureau Malaysia

Foreword

By CI AAIB

As we step into 2025, it is my privilege to present the Annual Safety Bulletin of the Air Accident Investigation Bureau (AAIB). This publication underscores our steadfast dedication to aviation safety, offering a reflection on the challenges and advancements of the past year.

The resurgence of aviation following the pandemic has brought renewed opportunities but also heightened safety challenges. In 2024, Malaysia recorded two accidents and eight serious incidents—an increase compared to the previous year. Tragically, one accident claimed two lives, while the other resulted in serious injuries to two crew members. These events serve as a poignant reminder of the complexities of aviation operations and the critical need for vigilance, preparedness, and continuous improvement.

Throughout the year, the AAIB has intensified efforts to align with the International Civil Aviation Organisation's (ICAO) Standards and Recommended Practices (SARPs). Strategic initiatives under the National Aviation Safety Plan (NASP) have focused on enhancing investigative processes and addressing the Protocol Questions (PQs) under ICAO's Universal Safety Oversight Audit Programme (USOAP). These initiatives are integral to achieving our goal of 85% Effective Implementation (EI) in the Aircraft Accident and Incident Investigation (AIG) audit area by 2026, ensuring that Malaysia's aviation safety oversight remains among the best in the region.

Foreword (...cont.)

Beyond our core investigation operations, the AAIB has undertaken a wide range of initiatives throughout the year, reflecting our dedication to collaboration and mutual progress. These include comprehensive training programmes, safety seminars, technical workshops, emergency preparedness exercises, and cooperative engagements with both domestic and international partners.

Such efforts not only enhance our investigative capabilities but also build strong partnerships, foster shared learning, and bolster resilience across the aviation ecosystem. By harnessing collective expertise and embracing best practices, we continue to drive meaningful advancements in aviation safety.

Safety is not a solitary endeavour; it is a shared responsibility. The slight rise in incidents over the past year underscores the importance of a collaborative and proactive approach. Every stakeholder—whether operators, regulators, investigators, or the broader aviation community—plays a vital role in ensuring that safety remains central to every operation and decision.

As we look to the future, I encourage the aviation community to prioritise innovation, resilience, and collaboration. Together, we can shape an aviation ecosystem that not only meets the highest standards of safety but instils trust and confidence in every journey.

Thank you for your unwavering support and commitment to aviation safety. Let us continue to work together to ensure the skies remain safe for all.

Safe skies,

Brigadier General Tan Chee Kee RMAF
Chief Inspector
AAIB Malaysia

AAIB MALAYSIA

Contents

AAIB MALAYSIA

News

AAIB Holds Final Briefing for Families of N28JV Victims

On 15 August 2024, the AAIB conducted the final briefing for the families of the victims of the N28JV (Beechcraft 390 Premier 1) accident, which occurred on 17 August 2023. Held at the Ministry of Transport (MOT), the session aimed to provide closure to the families by presenting the findings of the completed investigation.

The briefing was led by the Chief Inspector, Brig Gen Tan Chee Kee RMAF, and attended by YBrs. Dr. Nor Fuad Abdul Hamid, Deputy Secretary General (Management) of MOT.

During the session, Brig Gen Tan presented a comprehensive overview of the investigation, addressing the causes and contributing factors behind the tragic accident.

This session underscored the AAIB's dedication to transparency and its commitment to supporting the NOK while reaffirming its broader mission to enhance aviation safety.

Accident Statistics

Air Accidents (A) & Serious Incidents (SI) 2024

File No.	Date of Occ.	Aircraft Reg.	Aircraft Type	Place of Occ.	Owner/ Operator	Cat.	Nature of Occurrence	Fatality
SI 01/24	23/01/2024	9M-ITX	Piper PA28	Malacca Airport	IATAC	ARC	A/C hard landing on runway	0
SI 02/24	11/02/2024	9M-AZP	Cessna 172P	KKIA	LLFA	RAMP	A/C damaged due to jet blast from a Global 5000	0
A 03/24	13/02/2024	I-POOC	Gabriel BK 160TR	Kapar, Klang	Private	SCF-NP	A/C crashed into terrain	2
SI 04/24	13/02/2024	9M-LCM	Boeing B737-800	Enroute KUL/SBW	Batik	SCF-PP	A/C experienced rapid cabin decompression	0
SI 05/24	26/04/2024	N566CB	Diamond DA42	Subang Airport	Private	ARC	A/C belly landing on runway	0
A 06/24	04/05/2024	9M-ADA	Cessna 172N	Slim River, Perak	LLFA	CFIT	A/C crashed into terrain	0
SI 07/24	24/06/2024	9M-MTW	Airbus A330	Enroute KUL/BKK	MAB	SCF-NP	A/C encounter high cabin pressurisation during flight	0
SI 08/24	19/07/2024	9M-MXQ	Boeing B737-800	Yangon Int. Airport	MAB	SCF-NP	A/C had an uncontrolled cabin pressurisation	0
SI 09/24	05/08/2024	9M-SKF	Piper PA28	Malacca Airport	MFA	RE	A/C veered off runway during landing	0
SI 10/24	09/09/2024	9M-ITZ	Piper PA28	Malacca Airport	IATAC	UNK	A/C power loss and force landing on runway	0

Aviation Occurences Categories:

- **ARC** : Abnormal Runway Contact
- **RAMP** : Ground Handling
- **SCF-NP** : System/Component Failure or Malfunction (Non-Power Plant)
- **SCF-PP** : System/Component Failure or Malfunction (Power Plant)
- **CFIT** : Controlled Flight Into Terrain
- **RE** : Runway Excursion
- **UNK** : Unknown or Undetermined

Accident Involving Blackshape Gabriel BK 160TR, I-POOC

On 13 February 2024, at about 1328 local time (LT), a Blackshape Gabriél BK 160TR, bearing the registration I-POOC, call sign ADV429 and operated by Aviation Safety Technology Pte Ltd, Singapore, departed Sultan Abdul Aziz Shah Airport (WMSA), Subang, Selangor, for a recreational flight to the area west of Kapar.

The flight was routine until about 1336 LT, when ADV429 crashed into a small oil palm plantation at the village of Kampung Tok Muda, near Kapar, Selangor.

The aircraft was destroyed upon impact with ground, and both occupants on board sustained fatal injuries.

The draft Final Report was issued by AAIB on 21 November 2024.

Investigation

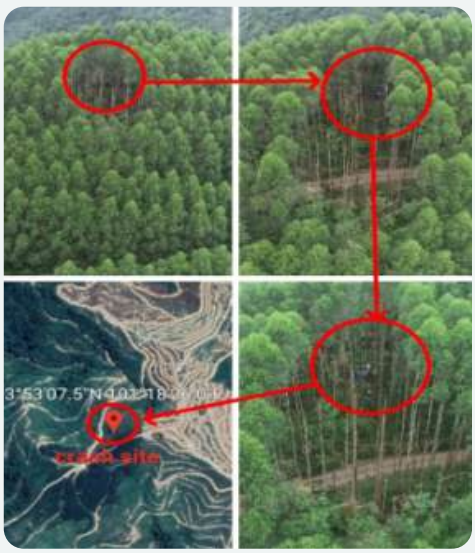
Accident Involving Cessna 172N, 9M-ADA

On 4 May 2024, a Cessna 172N, registered as 9M-ADA with callsign LYG 1531, departed Sultan Azlan Shah Airport (WMKI), Ipoh, at 0754 LT. Operated by Layang Layang Flying Academy (LLFA), the flight was conducting a planned navigation training sortie.

The flight proceeded routinely, with the last recorded ATC communication at 0935 LT, providing a positional update. However, by 0938 LT, all radio transmissions from LYG 1531 ceased.

At 0955 LT, the LLFA Operations Room in Ipoh received a report via phone indicating that the aircraft had crashed in a forested area near Slim River, Perak.

The Preliminary Report on the accident has since been issued, and investigation is ongoing to determine the contributing factors and to recommend safety improvements.



Investigation

Selected Serious Incidents - 2024

On 23 January 2024, a Piper Archer III training aircraft, registered as 9M-ITX and operated by IATAC, Malacca, experienced a hard landing at Malacca Airport, resulting in the detachment of its nose wheel.

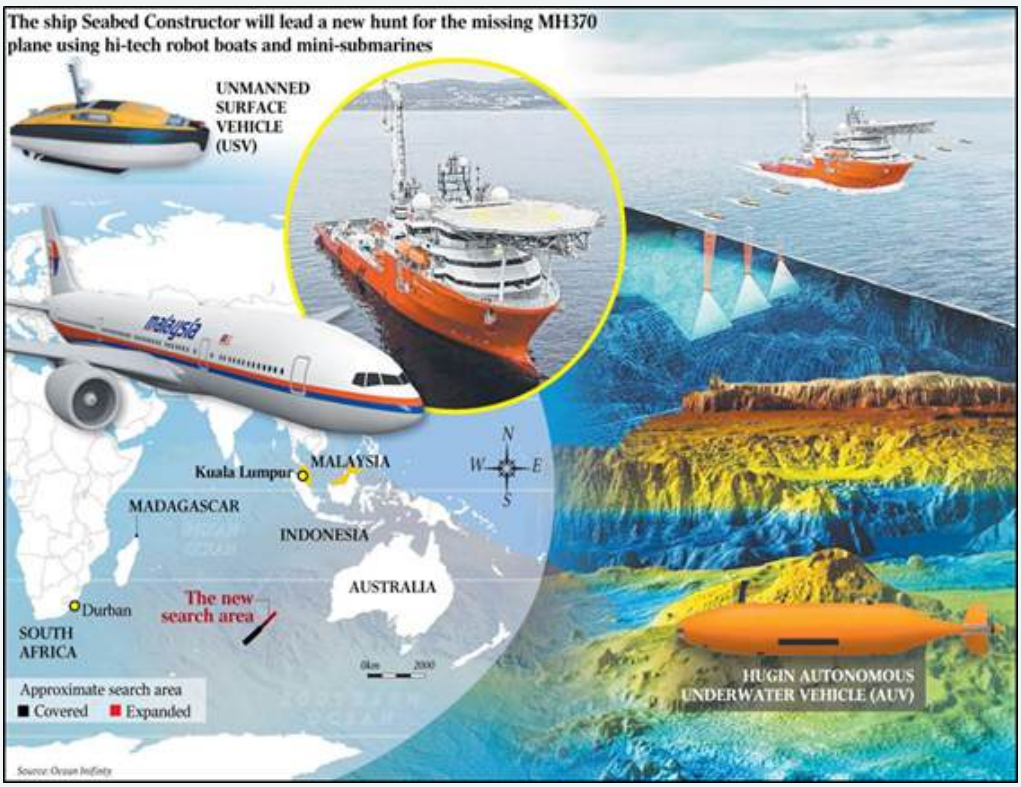
On 26 April 2024, a Diamond DA-42 light aircraft, with registration N566CB, and operated by Techstrait Ltd., made an emergency landing (belly landing) at Subang Airport, Selangor.

Flight Safety Articles

Underwater Searches for Flight Recorders

Flight recorders, or "black boxes," are critical for aviation safety investigations, comprising the Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR) to capture cockpit audio and flight data. They provide essential insights into accidents, helping to identify causes and improve safety protocols.

Recovering these devices from underwater is complex, involving sonar, remotely operated vehicles (ROVs), and underwater locator beacons (ULBs). Challenges like deep ocean environments, vast search areas, and limited beacon battery life make the task demanding but vital for uncovering key information.

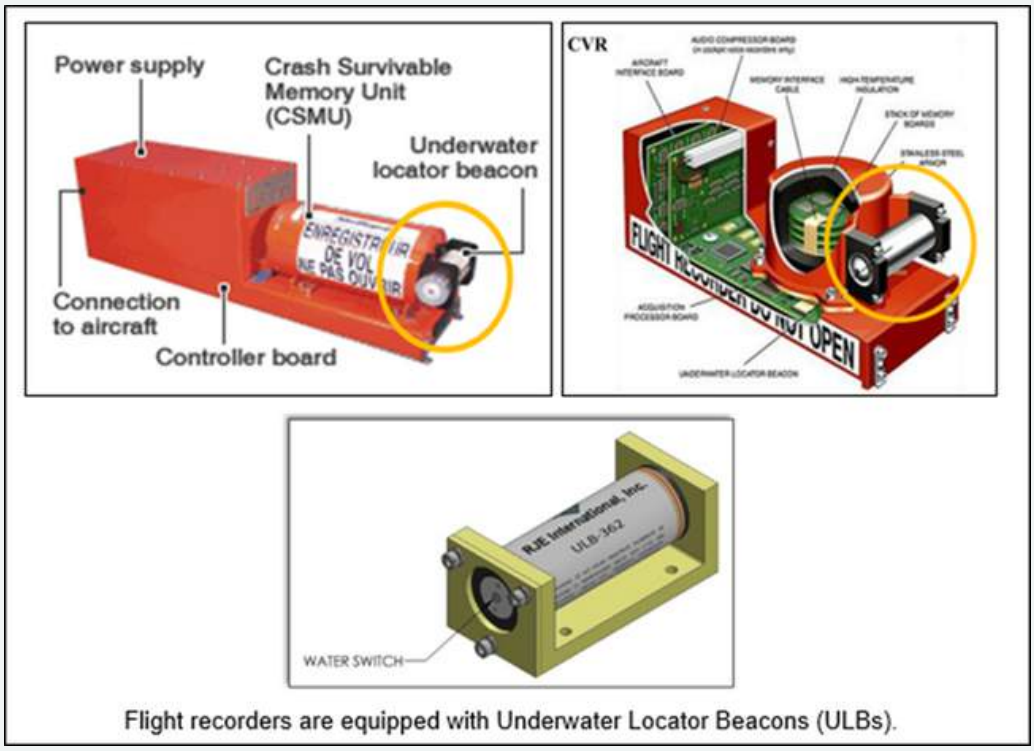


Flight Safety Articles

Challenges of Underwater Searches for Flight Recorders:

- **Depths and Terrain**: Recorders often sink to the ocean floor, which can reach depths exceeding 6,000 meters. Irregular underwater terrains like trenches and ridges further complicate the search.
- **Environmental Conditions**: Strong underwater currents, poor visibility, and marine life interference make the task arduous.
- **Search Area Size**: Identifying the crash zone can take weeks or months, as debris spreads over large areas.

Role of Underwater Locator Beacons (ULB)



Flight recorders are equipped with Underwater Locator Beacons (ULBs).

Key Features:

- **Beacon Signals**: Emit acoustic "pings" detectable up to 3 to 5 kilometres under water.
- **Battery Life**: Operate for about 30 days after activation, making timely searches critical.
- **Frequency**: Transmit at a standard frequency of 37.5 kHz to be picked up by specialised hydrophones.

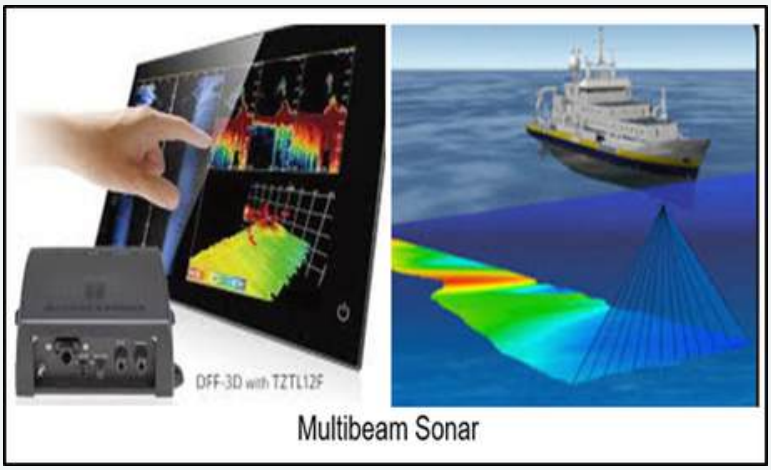
Flight Safety Articles

Technologies for Recovery:

- **Towed Pinger Locators** (TPLs): These are dragged behind ships to detect pings from ULBs.
- **Remotely Operated Vehicles** (ROVs): Deployed once a signal is located for closer inspection and retrieval.
- **Autonomous Underwater Vehicles** (AUVs): Perform sonar sweeps of large areas and navigate complex terrains.
- **Multibeam Sonar**: Maps the ocean floor to identify wreckage or locate recorders.

Autonomous Underwater Vehicles (AUV)

Remotely Operated Vehicles (ROV)



Multibeam Sonar

Towed Pinger Locaters (TPL)

Case Studies:

1. Malaysia Airlines Flight MH370 (8 March 2014): An extensive multinational search was conducted using advanced sonar systems and autonomous underwater vehicles (AUVs).

Despite these efforts, the main wreckage and flight recorders remain undiscovered in the vast Southern Indian Ocean.

2. Air France Flight 447 (1 June 2009): The flight recorders were recovered after two years, located at a depth of 3,900 metres in the Atlantic Ocean.

Autonomous underwater vehicles (AUVs) and towed pinger locators (TPLs) were instrumental in detecting and retrieving the devices.

Flight Safety Articles

Innovations in Search Technologies:

- **Longer-lasting Beacons**: Efforts to increase ULB battery life beyond 30 days.
- **Acoustic Modems**: Allow real-time data transmission during initial descent or post-crash.
- **AI in Sonar Analysis**: Speeds up detection of crash-related anomalies on the ocean floor.

AAIB experience - Underwater Search Operation

On 5 March 2024, an AW139 helicopter operated by the Malaysian Maritime Enforcement Agency (APMM) crashed in the waters near Pulau Angsa, Klang, Selangor.

The AAIB assisted APMM in the search for the aircraft's flight recorder, deploying the Detector for Pinger Receivers (DPR 275) and the Pinger Receiver System (PRS 275). The flight recorder was successfully recovered on 17 April 2024.

Underwater flight recorder search operations for the APMM aircraft crash near Pulau Angsa

Courses & Training

CAAM Remote Pilot Certificate of Competency-Basic (RCoC-Basic)

Four AAIB Inspectors participated in the Remote Pilot Certificate of Competency - Basic (RCoC-Basic) course at the University College of Aviation Malaysia (UniCAM), Dengkil, from 10 to 17 May 2024.

This certification enables the Inspectors to operate drones, enhancing their capabilities for future investigations.

Courses & Training

Air Accident Investigation Course 2024

The Air Accident Investigation Course took place from 24 June to 5 July 2024 at the Malaysia Aviation Academy (MAvA), serving as a key platform for advancing aviation safety expertise. Air Accident Inspectors from the AAIB were invited as speakers, sharing their extensive knowledge and practical insights into accident investigation processes.

The course attracted participants from various aviation organisations, including two newly appointed AAIB Inspectors. Their participation marked an important step in building their foundational skills and integrating them into the AAIB's investigation team, reinforcing the Bureau's commitment to cultivating a skilled and knowledgeable workforce for aviation safety.

Courses & Training

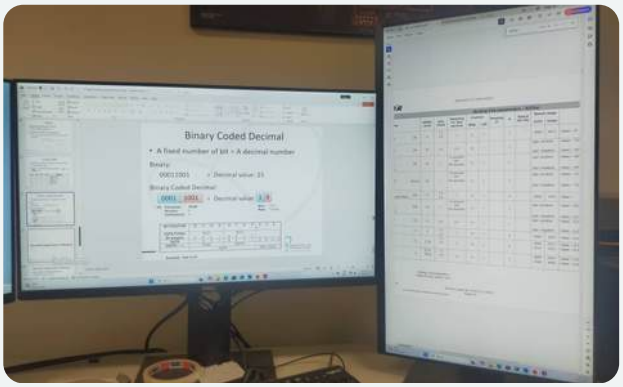
Flight Data Training Course 2024

The Basic Flight Data Analysis Course, organised by Flight Vision Company, was held from 7 to 20 August 2024 at the Malaysian Aviation Academy (MAvA) in Sepang. This intensive three-week programme provided participants with essential skills to analyse flight data, a critical component in aviation safety and accident investigations.

Representing the Malaysian AAIB, Lt Col Sani attended the course, furthering his expertise in flight data interpretation. This training is instrumental in enhancing the AAIB's capability to decode and analyse data from Flight Data Recorders (FDR) and other relevant systems, enabling more thorough and precise accident investigations. The programme also underscored the importance of continuous professional development in advancing aviation safety standards.

Courses & Training

On-the-Job Training - Flight Recorders



From 7 to 11 October 2024, the Transport Safety Investigation Bureau (TSIB) of Singapore conducted an On-the-Job Training (OJT) programme on flight recorders. The five-day practical training aimed to enhance participants' understanding of flight data analysis and recovery techniques.

Two AAIB inspectors, Col Yazzed and Lt Col Sani, attended the OJT, which focused on the fundamentals of operating the INSIGHT flight recorder software and recovering data from undamaged flight recorders. This training strengthens their technical capabilities, ensuring more efficient handling of flight recorder data during investigations.

Courses & Training

Continuous Training - Drone Operation

The AAIB has consistently prioritised the enhancement of technical skills among its investigators by conducting a series of continuation training sessions on drone operations. These sessions ensure that investigators remain proficient and up-to-date in operating drones, a critical tool in modern accident investigations for capturing high-resolution aerial imagery, mapping crash sites, and accessing areas that may be otherwise difficult to reach.

The training sessions are held at the Science & Technology Research Institute for Defence (STRIDE) in Kajang and are organised on an opportunity basis, leveraging available resources and operational requirements. By maintaining this regular training schedule, the AAIB ensures its investigators are prepared to deploy drones effectively whenever the need arises, further bolstering the bureau's investigative capabilities.

Seminars, Meetings & Conferences

ICAO Regional Accident Investigation Workshop & APAC-AIG Meeting 2024

The ICAO Regional Accident Investigation Workshop for the Asia and Pacific Region was held on 27 August 2024, immediately followed by the 12th Meeting of the Asia Pacific Accident Investigation Group (APAC-AIG/12) on 28 and 29 August 2024. Both events were organised under the auspices of the ICAO Regional Aviation Safety Group - Asia and Pacific Region (RASG-APAC) to foster collaboration and enhance accident investigation practices across the region.

Hosted by the ICAO Asia and Pacific Regional Office, the events took place in Bangkok, Thailand. Two representatives from AAIB Malaysia, Brigadier General Tan Chee Kee RMAF and Mr. Khairulnizam bin Jamaludin, successfully participated in both the workshop and the meeting, contributing to discussions aimed at strengthening regional accident investigation capabilities and sharing best practices.

Seminars, Meetings & Conferences

Joint Aviation Safety Seminar 2024

The first Joint Aviation Safety Seminar was held on 5 September 2024 at the Sama-Sama Hotel, KLIA, organised by the AAIB in collaboration with the Airport Fire Rescue Services (AFRS) of Malaysia Airport Holdings Berhad (MAHB). The seminar aimed to facilitate the sharing of information and expertise among aviation safety professionals from various sectors of the Malaysian aviation industry.

The seminar featured the presentation of the 'AAIB 2023 Safety Report' by the Chief Inspector of AAIB, Brigadier General Tan Chee Kee RMAF.

In addition, three insightful papers were delivered by distinguished speakers:

1. 'Enhancing the RFFS: An Air Accident Investigation Perspective', presented by Tn. Hj. Muhammad Hidayat Ismail, General Manager of AFRS, MAHB.
2. 'Aviation Safety Standards: Regulatory Challenges & Way Forward', presented by Captain Md Jani Md Dom, Deputy Chief Executive Officer (Regulator), Civil Aviation Authority of Malaysia (CAAM).
3. 'Airline Responsibilities Towards Air Accident', presented by Major Mahadi Shukor RMAF (R), Head of Emergency Response Unit, Batik Air Malaysia.

The event successfully brought together key stakeholders to exchange knowledge and strengthen the commitment to advancing aviation safety across the industry.

Seminars, Meetings & Conferences

AAIB Legislation Development Workshop

The AAIB Legislation Development Workshop was held from 11 to 13 November 2024 at the Sama-Sama Hotel, KLIA, aimed at finalising the draft legislation governing air accident investigations in Malaysia.

Key stakeholders attended the workshop, including representatives from the Legal Department, Royal Malaysian Police (PDRM), National Disaster Management Agency (NADMA), and the Aviation Division (BU) of the Ministry of Transport (MOT). The sessions focused on collaborative discussions to refine the draft legislation, ensuring alignment with both national priorities and international standards.

The legislative development process is still ongoing, with additional workshops planned for the upcoming year to finalise the framework comprehensively and effectively.

AIR-IRIG Meeting 2024

Lt Col Sani represented the Malaysian AAIB at the Accident Investigator Recorders - International Recorder Investigator Group (AIR-IRIG) meeting held in Reykjavik, Iceland, from 18 to 20 November 2024.

This three-day event brought together flight recorder analysis experts from across the globe to discuss advancements, challenges, and best practices in the field of recorder investigation. The meeting served as a platform for exchanging knowledge and enhancing international collaboration in aviation safety.

Seminars, Meetings & Conferences

2nd ICAO Symposium on AAAVF 2024

The 2nd ICAO Symposium on Assistance to Aircraft Accident Victims and Their Families (AAAVF) took place from 26 to 28 November 2024 in Haarlem, Netherlands. The event emphasised ICAO's call for member states to adopt legislation, regulations, and policies that ensure comprehensive support for civil aviation accident victims and their families.

The symposium also fostered international cooperation, focusing on the implementation of practical measures to address various aspects of victim and family assistance effectively. This year, Col Juma'in represented AAIB Malaysia at the three-day event, contributing to the discussions on enhancing global frameworks for victim support.

Courtesy Visit to Director General of STRIDE

On 17 December 2024, the Chief Inspector of AAIB, Brigadier General Tan Chee Kee RMAF, made a courtesy visit to the newly appointed Director General of STRIDE, YBrs. Mr. Nor Azlan Mohd Ramli, at his office.

The objective of this official visit was to strengthen the strategic partnership between the two organisations, particularly in relation to the Flight Recorders Laboratory as the main focus, along with other technical services.

The renewal of the Memorandum of Understanding (MoU) between AAIB and STRIDE was also discussed during the visit.

Overall, the visit successfully achieved its objectives, with STRIDE reaffirming its willingness to assist AAIB within its capacity and capabilities.

Exercises

Aerodrome Emergency Exercises

Throughout the year, the AAIB actively participated in annual emergency exercises at various airports, including KLIA, Subang, Alor Setar, Langkawi, Ipoh, Malacca, Kota Kinabalu, Kuching, Limbang, and Sandakan. These exercises were organised by the respective airport management teams to enhance readiness and coordination during aviation emergencies.

AAIB inspectors contributed their expertise in both Table-Top Exercises (TTX) and Field Exercises (full-scale and partial), serving in roles such as Evaluators, Observers, or Participants. Their involvement underscores the AAIB's commitment to fostering a robust safety culture across Malaysia's aviation sector.

Aerodrome Emergency Exercise: KLIA

Exercises

Aerodrome Emergency Exercises




Aerodrome Emergency Exercise: Limbang Airport



Aerodrome Emergency Exercise: Subang Airport

Exercises

Aerodrome Emergency Exercises

Aerodrome Emergency Exercise: Kuching Airport

Aerodrome Emergency Exercises at Various Airports

Events

Other Activities 2024

Pameran MADANI Rakyat at
Kuala Selangor on
23 to 25 February 2024

MOT/AAIB
Hari Raya Celebration
in April 2024

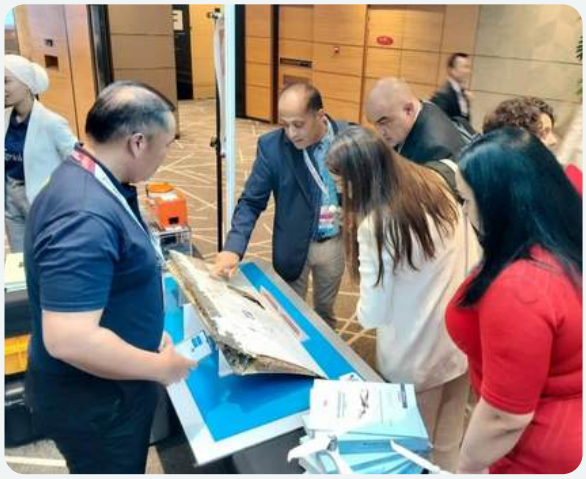
Pameran MADANI Rakyat at
Sg Nibong, Penang
on 3 to 5 May 2024

Technical discussion with
SIRIM QAS-CPCT team
at Shah Alam on 11 July 2024

Events

Other Activities 2024

AAIB booth at MOT Psychology Synergy Programme Day on 1 to 2 Oct 2024



AAIB Booth at ICAN at Sunway Hotel on 21 to 25 Oct 2024

Knowledge Sharing Session at the PETRONAS Safety Symposium, at the Hotel InterContinental, KL on 7 November 2024,

Events

Other Activities 2024

Farewell for
BG Muhammad RMAF
on 13 Nov 2024

Farewell for Puan Rozita (EO)
on 6 June 2024

Farewell for
BG Hasnan RMAF
on 3 Dec 2024

Working Discussion on the MoU
Renewal with MIAT-UniKL
at AAIB on 26 Nov 2024

The AAIB Team

Col Yazzed

En. Khairulnizam

BG Tan CK

Col Juma'in

Lt Col Rosli

En. Joseph

Lt Col Sani

Lt Col Amir

Pn. Hasiah

Pn. Norhaslyza

Pn. Rosazwani

AAIB Contact Details:

Ministry of Transport Malaysia,
Air Accident Investigation Bureau (AAIB),
Level 8, No. 26, Jalan Tun Hussein, Precinct 4,
Federal Government Administration Centre,
62100 F.T. PUTRAJAYA, Malaysia

Tel: +603 8892 1072 (24-Hours)
Email: AAIB@mot.gov.my