

# AAIB SAFETY BULLETIN



**Air Accident Investigation Bureau  
Malaysia**

As we step into a new year, I am honoured to present the Annual Safety Bulletin of the Air Accident Investigation Bureau (AAIB) Malaysia. The aviation industry, like many others, confronted unparalleled challenges during the recent global pandemic. Emerging from the shadows of COVID-19, civil aviation is now resuming operations with renewed vigour. However, this resurgence demands an enhanced commitment to safety as flying activities escalate to pre-pandemic levels.

In the pursuit of progress, it is imperative to recognise that the surge in aviation activities is accompanied by an increase in air accidents and incidents. In the past year, our nation encountered seven accidents and serious incidents, serving as a somber reminder that safety must be paramount. Notably, the serious accident in Elmina, Shah Alam, in August 2023 resulting in the tragic loss of 10 lives—eight passengers and crew aboard the ill-fated aircraft, and two motorists on the ground—weighs heavily on our hearts. Our deepest condolences go out to the families and loved ones affected by this unfortunate event.

## Foreword By CI AAIB



The aviation industry must remain vigilant and steadfast in its commitment to safety. As a pivotal stakeholder in aviation safety in Malaysia, the AAIB has recommenced its operational activities, training, and exercises to uphold and enhance our investigative processes and capabilities. Throughout the year, we have engaged extensively with various partners in the aviation industry, both domestically and internationally, to foster collaboration and ensure that safety remains a collective priority.



## Foreword



Looking ahead, our strategic initiative for 2024 aims to elevate AAIB's investigation capabilities in alignment with the Standards and Recommended Practices (SARPs) adopted by the International Civil Aviation Organisation (ICAO). Through a series of detailed action plans, we aspire to address the diverse Protocol Questions (PQs) of the ICAO's Universal Safety Oversight Audit Programme (USOAP) to achieve the Effective Implementation (EI) targets of the nation's safety oversight system. Our medium-term target, set under the National Aviation Safety Plan (NASP), is challenging but achievable—to achieve 85% EI of the PQs under the Aircraft Accident and Incident Investigation (AIG) audit area by 2026.

As we embark on this journey, we recognise that the pursuit of excellence in safety is a collective responsibility, requiring dedication, collaboration, and an unwavering commitment to continuous improvement. This Annual Safety Bulletin stands as a testament to our dedication to transparency, accountability, and the well-being of all those involved in aviation.

Along with increased aviation activities, may this year also bring an unyielding dedication to the highest standards of safety. Together, let us shape the future of aviation safety and ensure that every journey, from take-off to landing, serves as a testament to our shared commitment to the well-being of all.

Safe skies,

Brigadier General Tan Chee Kee RMAF  
Chief Inspector  
Air Accident Investigation Bureau Malaysia



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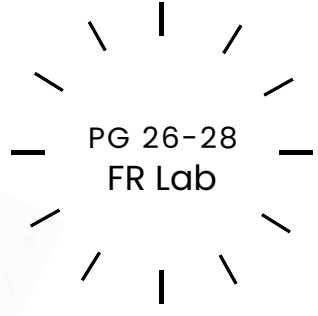
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### Change-Over Ceremony Chief Inspector of AAIB



The Chief Inspector of AAIB change-over ceremony between Maj Gen Datuk Yee Yit Hong RMAF and Brig Gen Tan Chee Kee RMAF took place at the MOT General Secretary's office on 27th July 2023.

MOT and AAIB warmly welcome Brig Gen Tan, and thank Maj Gen Yee for his outstanding service and wish him well in his future endeavours.





## Air Accidents (A) and Serious Incidents (SI) 2023

File No.	Date of Occ.	Aircraft Reg.	Aircraft Type	Place of Occ.	Cat.	Nature of Occ.	Fatality
SI 01/23	14/02/2023	9M-SKJ	Piper Archer TX PA28-181	Jasin, Melaka	SCF-PP	A/C forced landing on an open area	0
SI 02/23	17/02/2023	9M-ZAB	Cessna 172	Ipoh Airport	ARC	A/C hard landing on runway	0
A 03/23	22/07/2023	9M-BOF	AW 189	UniKL MIAT, Subang	LOC-G	A/C spun during taxi	0
SI 04/23	04/08/2023	N188SJ	Socata TBM 700A	Kota Bharu Airport	ARC	A/C hard landing on runway, nose wheel tire burst	0
A 05/23	17/08/2023	N28JV	Beechcraft 390 Premier 1	Elmina, Shah Alam	LOC-I	A/C loss control inflight and crashed onto a highway	10 (8+2)
SI 06/23	18/08/2023	9M-ITQ	Piper PA28	Malacca Airport	ARC	A/C hard landing on runway, nose wheel collapsed	0
SI 07/23	07/09/2023	9M-MTL	A330-300	Melbourne, Australia	RE	Runway overrun	0

### Aviation Occurrence Categories

- ARC : Abnormal Runway Contact
- LOC-G : Loss of Control - Ground
- LOC-I : Loss of Control - Inflight
- RE : Runway Excursion
- SCF-PP : System/Component Failure or Malfunction (Power Plant)



# Investigation

## Accident Involving Aircraft Hawker Beechcraft 390 Premier I, N28JV at Elmina, Shah Alam on 17th August 2023



On 17th August 2023, at about 1408 LT, a Hawker Beechcraft Model 390, Premier 1, call sign N28JV, operated by Jet Valet Sdn Bhd departed Langkawi International Airport (WMKL), Langkawi, Kedah to Sultan Abdul Aziz Shah Airport (WMSA), Subang, Selangor. At about 1449 LT, N28JV impacted the ground while manoeuvring for landing at the Sultan Abdul Aziz Shah Airport (WMSA), Subang, Selangor.

The airplane was destroyed following the ground impact and subsequent fire. The eight (8) occupants and two (2) ground bystanders were fatally injured.

The Preliminary Report of the accident has been issued and investigation is ongoing.



## Accident Involving Helicopter Leonardo AW189, 9M-BOF at UniKL MIAT Hangar, Subang on 22nd July 2023

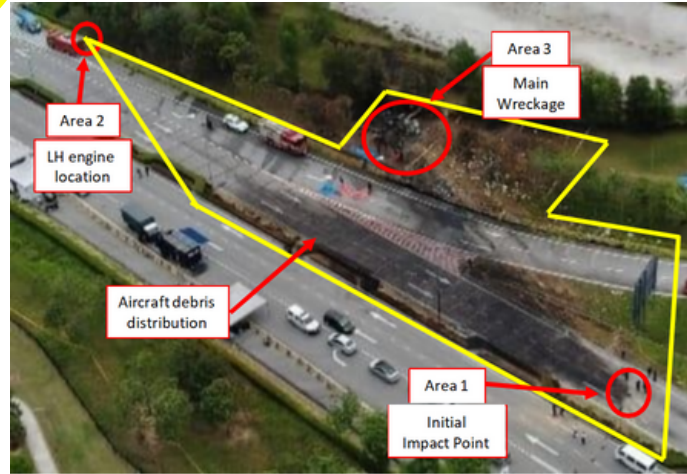


A Leonardo AW189 helicopter, bearing registration 9M-BOF, was scheduled for a post maintenance flight with 7 people on board at the Kuala Lumpur University – Malaysian Institute of Aviation Technology (UniKL MIAT) Subang Campus nearby Sultan Abdul Aziz Shah Airport (WMSA). Before taking off, the helicopter began to veer and spun to the left for no apparent reason before rolling over onto its right side. Despite the helicopter's significant damage, all of the passengers were able to evacuate with minor injuries.

Investigation of the accident is in its final stage and the Final Report is expected to be issued in the first quarter of 2024.



## Significance of Wreckage Mapping in Accident Investigation



The General Map of Wreckage and Impact Information holds significance in an aircraft investigation for several reasons:

- **Assessment and Analysis:** It provides a visual representation of the extent and severity of the damage caused by an incident, aiding in the assessment and analysis of the situation. This information is crucial for understanding the scale of the impact.
- **Decision Making:** Authorities, emergency responders, and investigators rely on this map to make informed decisions about resource allocation, rescue operations, investigation priorities, and safety measures.
- **Documentation and Reporting:** It serves as an essential tool for documenting the event, recording the affected areas, and providing detailed reports. It contributes to the overall documentation of the incident, which is crucial for further analysis and historical records.

- **Safety and Planning:** Understanding the distribution of wreckage and impact areas helps in ensuring the safety of responders and planning subsequent actions for recovery, cleanup, and future prevention measures.
- **Legal and Investigative Purposes:** The map serves as valuable evidence in legal proceedings, investigations, and inquiries related to the incident. It aids in reconstructing the sequence of events and determining liability or causes of the incident.

In summary, the General Map of Wreckage and Impact Information plays a pivotal role in understanding, managing, and responding to incidents by providing a clear visual representation of the affected areas and facilitating informed decision-making processes.





## Aircraft Flight Data Recorder



The Flight Data Recorder (FDR) is a crucial device in aviation, primarily known for its role in recording various parameters of an aircraft's performance. This data serves two significant purposes: aiding safety investigators in determining the cause of accidents and supporting day-to-day operations by detecting maintenance issues and enhancing operational efficiency. The flight recorders not only capture flight data but also record voices and other sounds in aircraft cockpits just before a crash.

Despite its increasing use in routine flight operations, the FDR's most renowned function remains as one of the "black boxes" recovered post-accident (alongside the Cockpit Voice Recorder - CVR). The FDR's core functions encompass three critical roles:

- Flight Data Acquisition Unit (FDAU): Gathers diverse data during flight operations.
- Solid-State Memory (SSM): Records and stores the acquired data.
- Crash-Survivable Memory Unit (CSMU): Safeguards the recorded data, ensuring its preservation in the event of an accident.

The flight recorder boxes are constructed from stainless steel or titanium, designed to endure high impact velocity or a crash impact of 3,400 Gs, and withstand temperatures up to 2000 degrees F (1,100 degrees C) for a minimum of 30 minutes. Inside these boxes, the recorders are encased in a thin layer of aluminum and a high-temperature insulation layer. The regulations require all flight recorders to be painted in 'international orange,' ensuring they are highly visible and easily distinguishable in the event of an incident.

The recorder is typically installed in the most crash survivable section of the aircraft, often located in the tail. The data collected in the FDR system can assist investigators in determining whether an accident resulted from pilot error, an external event (such as windshear), or an issue with the airplane's systems.

The FDR records data from computers, radar, and sensors, providing investigators with crucial information for determining the cause of an accident. The FDR is an indispensable tool, providing vital information for post-accident investigations while simultaneously contributing to ongoing efforts to enhance aviation safety and operational efficiency.



## Post-Crash Fire Impact on CSMU Recovery

The Crash-Survivable Memory Unit (CSMU) in a L3Harris series Flight Data Recorder protects the memory puck that is housed within from post-crash fire damage. The memory puck stores recorded flight data that is vital in accident investigation. If the CSMU is exposed to elevated temperature for a prolonged duration, the thermal absorption material would melt into semi-liquid state, absorbing the thermal energy to reduce amount of heat transfer to the memory puck.

The memory puck's temperature witness seal is yellow in colour in its original state. If the memory puck is exposed to elevated temperature for a sufficiently long duration, the temperature witness seal will change to black colour. If the temperature witness seal has turned black, the manufacturer should be contacted for assistance to extract the stored data.



In the case of the air crash in Elmina, Shah Alam in August 2023, the memory puck from the CMSU of the aircraft's Cockpit Voice Recorder was extracted, and the temperature witness seal was found to be in its original yellow colour

Only the exposed portion of the ribbon cable connecting the memory puck exhibited signs of thermal damage, while the assembly of printed circuit boards (PCB) and memory chips were found to be in good condition. Th stored cockpit voice data was successfully recovered from this memory puck



**Top:** Memory puck with its base cover removed, showing the memory PCB. This puck was in good condition. Only the ribbon cable exhibited thermal damage from exposure to the post-crash fire.

**Bottom:** View of each layer of the disassembled memory puck.



# Flight Safety

## Drone (1/2)

### Navigating the Skies Safely: A Guide to Drone Safety in Malaysia



Unmanned Aerial Vehicles (UAVs), commonly known as drones, have become increasingly popular in Malaysia for recreational, commercial, and industrial purposes. As the skies become busier with these flying devices, it is crucial to prioritise safety to prevent accidents and ensure responsible drone usage. This article aims to highlight key safety guidelines and regulations to promote responsible drone operation in Malaysia.

- **Registering Your Drone:**

In Malaysia, it is mandatory to register your drone with the Civil Aviation Authority of Malaysia (CAAM) before operating it. This ensures that the authorities are aware of the drone's presence and can monitor airspace activities effectively. Failure to register may result in penalties.

- **No-Fly Zones:**

Be aware of no-fly zones and restricted airspace areas. These zones are in place to protect critical infrastructure, public safety, and sensitive locations. Airports, military installations, and government buildings are examples of areas where drone operations are prohibited. Refer to CAAM guidelines and use designated apps that provide real-time information on no-fly zones.

- **Operational Limits:**

Adhere to the operational limits set by CAAM. For recreational drone users, this includes flying below 120 meters (400 feet) and maintaining a safe distance from people, buildings, and vehicles. Commercial operators must follow additional guidelines outlined in their specific permits.



# Flight Safety

## Drone (2/2)



- **Maintain Visual Line of Sight (VLOS):**

Always maintain a clear and unobstructed line of sight with your drone during operation. This ensures that you can monitor your drone's position, avoid obstacles, and respond quickly to any potential risks.

- **Respect Privacy:**

Respect the privacy of individuals and property. Avoid capturing images or videos in private spaces without consent. Be mindful of cultural sensitivities and local regulations regarding photography and filming.

- **Weather Conditions:**

Consider the weather conditions before flying your drone. Strong winds, heavy rain, and adverse weather can impact the stability and control of your drone. Ensure safe weather conditions before taking off.

- **Insurance:**

While not mandatory, having insurance for your drone is advisable. This can provide coverage for potential damages or accidents caused by your drone. Check with insurance providers for policies tailored to drone usage.

- **Educate Yourself:**

Stay informed about the latest regulations, guidelines, and safety tips related to drone operations in Malaysia. Continuous education ensures that you are aware of any changes or updates in the regulatory landscape.

As the popularity of drones continues to soar in Malaysia, responsible and safe drone operation is paramount. By adhering to registration requirements, respecting no-fly zones, and prioritising safety measures, drone enthusiasts can contribute to a secure and harmonious integration of drones into Malaysian airspace. Always fly responsibly and with a commitment to ensuring the safety of yourself, others, and the surrounding environment.





## Basic Air Accident Investigation Course 1/2023



The Basic Air Accident Investigation Course 1/2023 was held from 17th to 28th July 2023 at the Malaysia Aviation Academy (MAVA), Sepang.

Air Accident Inspectors from the AAIB were invited as speakers, and among the course participants were four new AAIB Inspectors.



## *Kursus Penyiasatan Insiden dan Kemalangan Aktiviti Angkasa (MOSTI)*



The Ministry of Science, Technology and Innovation (MOSTI) conducted a course on Investigation of Incidents and Accidents of Space Activities from 23th to 24th August 2023 at Putrajaya.

Air Accident Inspectors from the AAIB were invited as speakers. They presented the module on the investigation standards and practices laid out in the ICAO Annex 13 - Air Accident and Incident Investigation.





## Safran Helicopter Engines Accident Investigation Seminar



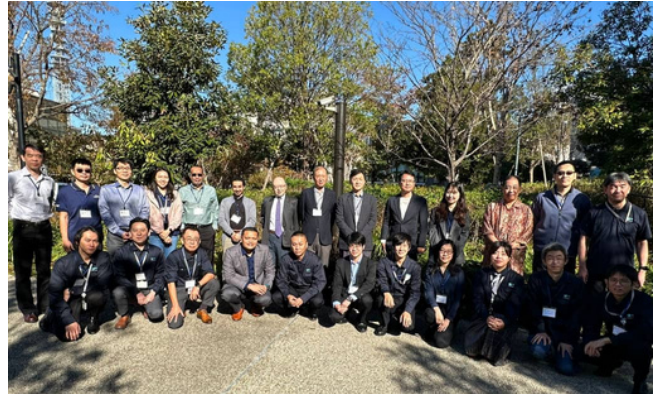
Safran Helicopter Engines Pte. Ltd. (Singapore) with the Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA) France conducted the 16th Safran Engines Accident Investigation Seminar from 21st until 23rd November 2023 at Seletar, Singapore.

Two Air Accident Inspectors from the AAIB attended the seminar, Col Mohammad Yazed bin Akhmat RMAF and Lt Col Juma'in Bin Saadon RMAF. The objective of the seminar was to share knowledge and experience on the aviation safety, as well as information on helicopter engines that are useful for accident investigation.



## Asia-Oceania AIR Meeting 2023

The Asia-Oceania Accident Investigator Recorder (AIR) Meeting (Asia-Oceania AIR Meeting) took place in Tokyo, Japan from 28th to 30th November 2023, and was attended by Major Mohd Sani Shafie as the representative of AAIB Malaysia. This event was organised by the Japan Transport Safety Board (JTSB), gathering laboratory operators regularly involved in activities related to flight recorders (FDR, CVR, etc.).



The Asia-Oceania AIR Meeting provided a platform for insightful discussions and knowledge sharing among the attendees, fostering a deeper understanding of best practices in flight recorder analysis and investigation techniques. Representatives from various nations actively engaged in dialogue, exchanging valuable experiences and expertise in enhancing aviation safety. The collaborative nature of this event highlighted the significance of international cooperation in air accident investigation. Participants left with enriched perspectives and strengthened professional networks, paving the way for continued advancements in aviation safety across the region.





# Courses & Training

## Drone Training



Drone handling training was carried out on 28th December 2023 at the STRIDE facility. The training is to provide exposure to new AAIB Inspectors in drone operation as well as aerial mapping and surveying for investigation purposes.



# Events & Meetings

## LIMA 23 Exhibition



The Ministry of Transport Malaysia signed three MOUs concerning cooperation with the AAIB during the LIMA 23 Exhibition, on 25th May 2023. The first signing was with the Ministry of Home Affairs for the MOU with the Royal Malaysian Police (RMP).

Then, it was followed by the Ministry of Local Government Development, Malaysia for the MOU with the Malaysia Fire and Rescue Department. And, lastly, with the Malaysia Airports Holding Berhad for the MOU with the Airport Fire and Rescue Service (AFRS).



Experience Sharing session with MOT AO/LO for LIMA 23 Exhibition at KLATCC Auditorium on 11th May 2023





## ICAO APAC Regional Accident Investigation Workshop & APAC-AIG/11 Meeting, Singapore



The Chief Inspector of AAIB, BG Tan Chee Kee RMAF, and Air Accident Inspector Mr. Khairulnizam Jamaludin, attended two back-to-back regional air accident investigation events that were held in Singapore from 15th to 17th August 2023.

The first event was the ICAO APAC Regional Accident Investigation Workshop held on 15th August 2023, followed by the Eleventh Meeting of the Asia Pacific Accident Investigation Group (APAC-AIG/11) on 16th and 17th August 2023.



## AAIB Aviation Safety Seminar 2023 (1/2)



Putrajaya, 8th August 2023. The AAIB Aviation Safety Seminar 2023 organised by the AAIB, Ministry of Transport, Malaysia (MOT), was held at the MOT with participants from various Ministries, Departments, and Government and private agencies as well as representatives from the local aviation industry and several institutes of higher learning.

The seminar's objective was to share information and knowledge amongst aviation safety professionals from the Malaysian industries on various topics on aviation safety.





# Events & Meetings

## AAIB Aviation Safety Seminar 2023 (2/2)



Among the topics presented were during the AAIB Aviation Saefy Seminar were:

- AAIB 2019 to 2022 Safety Report by Maj Gen Datuk Yee Yit Hong, former CI AAIB
- Malaysia State Safety Programme - Policy Overview by Mr. Mohamad Radzuan bin Mazlan. Undersecretary of Aviation Division, MOT
- AAIB – Challenges and Way Forward for Air Accident Investigation Final Reports by Mr Khairulnizam bin Jamaludin, Air Accident Inspector, AAIB
- Regulatory Challenges & Way Forward by Dato' Captain Norazman bin Mahmud, CEO CAAM
- Air Accident Investigation – Medical Investigation presented by Dr Ng Ling Seow, Chief Medical Assessor CAAM



## MAG Safety Seminar 2023



On 12 Dec 2023, the CI and three AIB inspectors were invited by the Malaysian Aviation Group (MAG) Group Safety and Security team under the auspices of the MAG Training Review Council to the MAG Safety Seminar at Citta Mall.

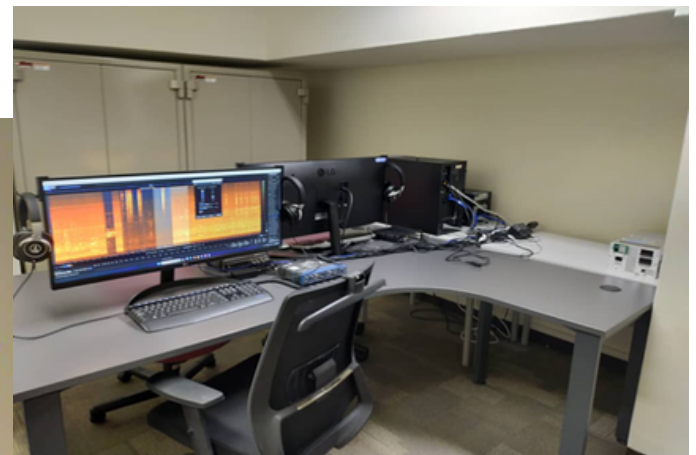
The theme of the seminar was Challenges in Training to Uphold Safety Culture in MAG to Prevent Accidents and Incidents.





# Visits

## Visit to The Singapore Transport Safety Investigation Bureau (TSIB)



Two AAIB Inspectors, Col Mohammad Yazed bin Akhmat RMAF and Lt Col Juma'in Bin Saadon RMAF, made a working visit to the Singapore Transport Safety Investigation Bureau (TSIB) at the Changi International Airport on 24th Nov 2023.

The visit aimed to strengthen cooperation between the two organisations, as well as to exchange experiences and information. Discussions were held on Flight Data Laboratory capability, training and competency.





# Visits

## Visit to AAIB by the RMAF Inspectorate



A team comprising inspectors and auditors from the Royal Malaysia Air Force (RMAF) Inspectorate paid a visit to the AAIB, MOT, Putrajaya on 19th December 2023.



## Special Briefing to PDRM Selangor



On 29th Sep 2023, CP Dato' Hussein bin Omar Khan, Chief of Police of Selangor received a special briefing from the AIB, MOT regarding the investigation of the air crash at Elmina, Shah Alam.



## Flight Recorder Laboratory Hand-Over Ceremony



A Flight Recorder Laboratory Hand-Over ceremony was held on August 18th, 2023 marking Col Marzuki RMAF handing over the responsibilities of the Laboratory to Col Mohammad Yazed RMAF.

Ending his tour of duty in the AAIB, Col Marzuki RMAF has been transferred back to the RMAF, his parent organisation. AAIB thank Col Marzuki RMAF for his service and wish him the best in his new appointment





## Visit by MOT Secretary General to Flight Recorder Laboratory



August 18th, 2023 marked the scheduled visit of the MOT Secretary General, Dato' Jana Santhiran Muniayan, to the AAIB's Flight Recorder Laboratory at the STRIDE, Kajang.



## Visit by CEO of CAAM to Flight Recorder Laboratory



On August 19th, 2023, the CEO of CAAM, Dato' Captain Norazman bin Mahmud, visited the AAIB's Flight Recorder Laboratory at the STRIDE, Kajang.





# The AAIB Team & Contact Details



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*Col Hasnan*



*BG Tan*



*Col Muhammad*



*Lt Col Jumain*



*En Khairulnizam*



*Maj Sani*



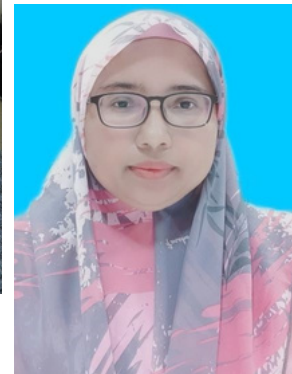
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*Puan Liza*



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