

FOREWORD by the Minister



Malaysia's aviation sector has grown significantly over the past decades with rapid expansions in our airlines operations particularly the low cost segments. As this growing trend is expected to continue in the future, so must our vigilance.

We are at a crossroads in civil aviation, a seminal moment where we can help to ensure a safe, secure and sustainable path to positive air-transport growth. We need not have to be reminded how important these safety and security procedures and policies are following the unprecedented tragedies of MH 370 and MH17.

Malaysia has actively participated in the ICAO Taskforce that has led to the mandatory requirement of real time tracking of passenger aircraft. We are also heavily engaged in the taskforce to ensure no other plane suffers the fate of MH17 when flying over a conflict zone.

Malaysia is fully committed to the goals stated by ICAO and will dedicate the energy and resources necessary to ensure that we reach those goals together.

Congratulations to AAIB Malaysia for taking the initiatives in promoting safety through its safety seminar. While this Bureau is relatively small, but I strongly believe that it will be able to meet industry safety need and ICAO requirements on accident investigation and safety risk management. AAIB will remain steadfast in its focus to ensure the highest level of cooperation amongst the stake holders. In line with the rapid expansion and growth of the industry, AAIB continues to promote the development and implementation of new safety initiatives in support of emerging safety issues.

- YB Dato' Sri Liow Tiong Lai

"The aviation sector has become a terror target, not only in the air but on the ground in and around airports. It is our duty as aviation regulator and accident investigation authority to protect the aviation sector. Not only must we focus on physical security but the threat of cyber attack must also be addressed."

- Foreword by the Minister
- Message from the CI
- Accident Records
- Special Investigators
- FDR Laboratory
- LIMA 2017
- BSKU Safety Seminar
- BSKU in 2017



2017 has been a good year for aviation safety in Malaysia. There were altogether 11 occurrences involving scheduled, non-scheduled commercial operations and general aviations. Out of the 11 occurrences, only one accident with fatality.

The accidents involved mainly the small aeroplane below 2250 kg. There was only one fatal accident involving GT500 micro lights in Sungai Rambai, Melaka. The 7 serious incidents were mainly scheduled commercial operations and one non-scheduled commercial operations. Out of 7 serious incidents, 4 of them were runway excursion, landing at night during adverse weather conditions.

BSKU had a good experience and exposure in investigating all these serious incidents. With the use of our new recorders laboratory, we have the opportunity to download and analyse those recorders, either voice or flight data recorders.

The investigation on the occurrences are ongoing. Three of them have been completed with preliminary reports. Basically BSKU is concerned on several hazards that have been identified throughout the investigation. The following are few of the significant hazards that need to be addressed by the stakeholders;

1. Lack of CRM knowledge.
2. Insufficient Airport maintenance.
3. Inadequate Runway Centerline markings/lightings.
4. Insufficient ERP.
5. Improper Instructional Techniques.
6. Lack of knowledge on local weather pattern.
7. Non detection of ELT signal.

The above hazards are very commonly existed as a factor towards accident and serious incidents especially in 2017. BSKU urged the stakeholders to examine those hazards and make use of the SMS risk mitigation matrix for acceptance of risk to As Low As Reasonably Practicable (ALARP).

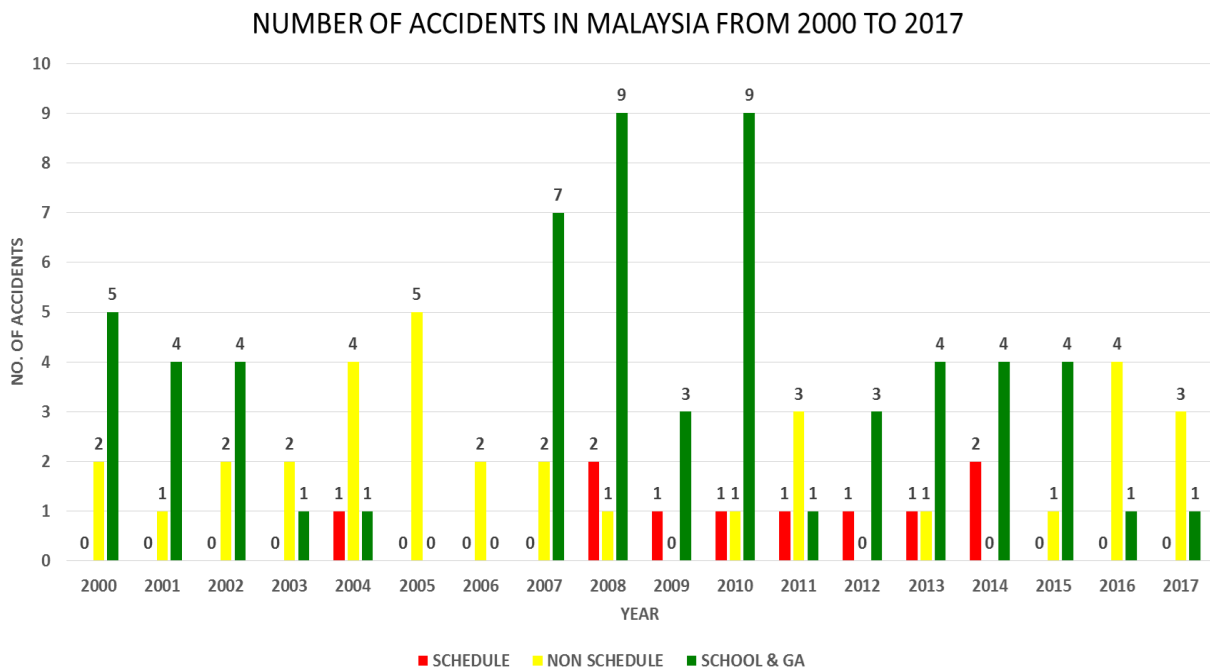
I wish a safer air travel in 2018 and aviators are encouraged to report any hazards encountered to the respective safety managers for overall operations of the aircraft. Aviators who need attention on safety issues with confidentiality please do not hesitate to use our voluntary reporting scheme @ www.mot.my/en/aviation/mycair.

Chief Inspector

BSKU/AAIB Malaysia

Accidents and incidents statistics From 2000 until 2017

These statistics are for all industry player to focus on their prevention as well as mitigation. The Safety Management Programme should take consideration on all the occurrence trend and category for this year safety program and budgetary allocation so that the focus will be on the weak areas as identified.



Number of accidents based on sectors

Accidents (A) and Serious Incidents (SI) for Year 2017

1.	SI 01/17	08/04/201 7	9M- MXX	B737-800	RE	A/C veered off runway
2.	SI 02/17	04/05/207	9M-XXS	A330-343	TURB	Severe turbulence in-flight
3.	A 03/17	04/06/201 7	9M-DRC	PA28-161	SCF-PP	Engine fuel starvation
4.	SI 04/17	13/06/201 7	9M- MXH	B737-800	RE	A/C veered off runway
5.	SI 05/17	25/06/201 7	9M-XXE	A330- 343X	SCF-PP	No.1 engine failed
6.	SI 06/17	03/07/201 7	9M-XXT	B330-343	BIRD	Bird strike on engine no.2
7.	A 07/17	08/07/201 7	9M-FBS	C-152	ARC	Hard landing, nose wheel collapsed
8.	SI 08/17	24/08/201 7	9M- WSK	Beechcraft	RE	A/C veered off runway during landing
9.	A 09/17	14/10/201 7	9M-EAC	GT500		A/C crashed into the river
10.	A 10/17	15/11/201 7	9M-SSZ	AS355F2	ARC	A/C slammed onto tarmac
11.	SI 11/17	30/11/201 7	9M- AHM	A320	RE	A/C overshoot end of runway

		Accident (A)	Serious Incident (SI)	Total	Fatality
	AFTO and GA	3	1	4	1
	Non Scheduled Operator	1	0	1	0
	Scheduled Operator	0	6	6	0
	Total	4	7	11	1

BSKU has identified 7 significant hazards based on 2017 occurrences investigation that need to be addressed. The table below referred to the hazards and its discussion.

No	Hazard	Discussion
1.	Lack of Crew Resource Management (CRM) knowledge	<p>Generally the investigation revealed that the crew lack of knowledge, skill and attitudes including communication, situational awareness, problem solving, decision making, and teamwork.</p> <p>CRM is concerned not so much with the technical knowledge and skill required to fly the aircraft but rather with cognitive and interpersonal skill needed to manage the flight. Cognitive skills are defined as the mental processes used for gaining and maintaining situational awareness, for solving problem and taking decisions between the crews involved. They are not confined to multi-crew aircraft only but also related to single pilot operations.</p>
2.	Insufficient airport maintenance	<p>Removal of runway rubber deposit and runway friction test was not properly monitored on its frequency and quality of the work done. Their activity has to be closely monitored.</p>
3.	Inadequate runway centerline markings/lighting.	<p>Runway centerline often obscured by rubber deposits and cannot be seen clearly by the pilot from the cockpit especially operations at night with rain. The type of paint used and frequency of repainting need close monitoring to ensure its clarify especially at night with rain. Consideration to install runway centerline light to airports that frequently exposed to Runway Excursion during adverse weather conditions is strongly recommended, although runway centerline light is not required for category 1 airport.</p>

No	Hazard	Discussion
4.	Insufficient emergency response plan	<p>Adequacy of vehicles to transport passengers from the aircraft to the terminal building during emergency evacuation is desirable. Accordingly, the responsibility to provide transport for passenger following any occurrences rest with the air operators.</p> <p>Discussion with relevant agencies, it is not possible to rely on the air operators to facilitate the transportation. It should be a concerted effort by all agencies within the airport to ensure expeditious handling of the situation in the interest of safety and wellbeing of the passengers & crew involved.</p>
5.	Improper instructional technique	<p>Training establishment (ATO) that involved in Aviation training for pilots like Flying Training School and Flying Clubs has to ensure proper guidance for the instructors and students in handling difficult situation during flying training. For students during initial solo flight and subsequent required special emphasis on action to be taken when the aircraft bounced during landing.</p> <p>The technique has to be written in the student guide and properly demonstrated before the solo flight. Similar accidents happened in 2014 and 2015.</p>

No	Hazard	Discussion
6.	Lack of knowledge on local weather pattern	<p>Malaysia is situated in Inter tropical convergence zone (ITCZ), whereby adverse weather is unpredictable. Traditionally the weather changes happen very fast and the weather fore- cast or obtained from ATIS can be superseded very quickly, what more when the ATIS information issued 1hour or 1.15 minutes in advance.</p> <p>Even Runway Visual Range (RVR) readout that was obtained from the Meteorological Department can change dramatically. This weather pattern makes reporting of actual weather conditions within next 15 minutes a difficult task to accomplish by the crew or ATC. Therefore, having the knowledge of the local weather phenomena is a crucial element.</p>
7.	Non detection of Emergency Locator Transmitter (ELT) signal	<p>All aircraft flying in Malaysia is required to be fitted with ELT. ELT is activated only on impact or manually operated by the flight crew. There has been several delay in alerting SAR especially for helicopters operations. With activation of ELT, it will obviously assist the ATC in its SAR activation.</p> <p>Currently ATC can receive the 121.5 MHz frequency but only on the principle of line of sight. Most ELT is also equipped with dual frequency of 121.5 and 406 MHz. 406 MHz frequency can be received by satellite known as COSPAS-SARSAT. Malaysia has bought COSPAS-SARSAT by APMM for purpose of alerting vessel SAR. Apparently the APMM COSPAS-SARSAT can also be used for aircraft ELT detection.</p> <p>The inactivation of ELT on several occurrences had led to delay in activation of SAR.</p>



THE ROLE OF SPECIAL INVESTIGATOR FOR AIR ACCIDENT INVESTIGATION

Air Accident Investigation Bureau (AAIB) Malaysia was established on 28 March 2013 following a Cabinet decision dated 14 December 2011 and is directly responsible to the Minister of Transport as an independent entity to conduct investigation to all accidents and serious incidents in the country and abroad. AAIB is established for seven (7) investigators with various backgrounds and expertise lead by an experienced Investigator named as Chief Inspector of Air Accident.

All investigation are carried out in accordance to the Regulation 186 of Civil Aviation Regulation 2016. The Regulation also conferred the Minister of Transport to come up with the Minister of Transport Directives. Currently the Directive No: 001/2016 dated 9 May 2016 are in use. The MOT Directives are in line with the requirement of Standard and Recommended Practices (SARP) of ICAO Annex 13.

AAIB is responsible to conduct all air accidents and serious incidents investigation whenever it occurred within the country as state of occurrence.

However due to manpower and expertise constraint, in the event of major accident that involved many fatalities and structural damage to the aircraft, AAIB will require more investigators with various expertise to conduct the investigation known as Special Investigator. The provision on the appointment of Special Investigator together with their powers, and qualifications are contained in paragraph 14A of MOT Directives No: 002/2016.

In the case of major accident like MH 370, 19 Special Investigators including the Investigator In-Charge were appointed by the Minister of Transport comprising of Investigators with various background like Pilots, Aircraft Engineers, Air Traffic controllers, and Pathology to conduct the investigation.

The Special Investigator appointed by the Minister shall satisfy at least having experience or expertise relevant to the matter being investigated or being employed in civil aviation industry. They have all the power conferred to the regular Investigator and be subjected to the direction and supervision of the Investigator in Charge (IIC).

AAIB is opening a data base for all volunteers from the industry who is willing to participate in accident investigation whenever he/she is needed. Your participation is very much appreciated and we will contact you when the need arise.

A milestone meeting between Ministry of Transport (MOT) Malaysia and Defense Science and Technology Research Institute (STRIDE) chaired by MOT's Secretary General, Dato' Sri Dr. Ismail Bin Haji Bakar on 29 October 2015 has reached an agreement of developing a Flight Recorder Laboratory for BSKU in STRIDE Building located in Kajang.

STRIDE is a research and development agency and innovation within the defense domain that is constantly embarking on the latest technological developments for the needs of the defence and security sector and taking various initiatives to help carry out research programs in related fields.

Under the 11th Malaysia Plan (11MP), the government had also approved the Flight Recorder Laboratory project, also known as the Construction and Procurement of Equipment for Black Box Laboratories - Phase 1 and would be implemented in 2016.

To realise this network of cooperation, a Memorandum of Cooperation has been signed between BSKU and STRIDE during Langkawi International Maritime Aerospace (LIMA 17) exhibition on 23 Mac 2017.



The notes of cooperation between BSKU and STRIDE explains for accident and serious incident involving civilian aircraft, BSKU will lead Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) analysis. STRIDE officers will only be involved when needed. Meanwhile, an accident and a serious incident involving military aircraft, FDR analysis and CVR will be led by STRIDE. The laboratory report will be released under the name of Flight Recorder Laboratory showing both the BSKU and STRIDE logo.

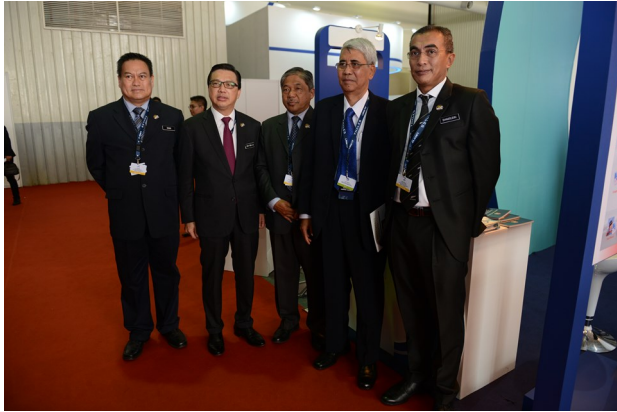


With the Objective of developing the BSKU capability on investigating aircraft accidents by analyzing the Flight Recorders (Black Box aircraft), the Flight Recorder Laboratory was developed and became fully operational before 31 December 2017.

The project took off with the strategy and implementation plan of collaborating with the Ministry of Defense through STRIDE where STRIDE provides the office space for a Flight Recorder laboratory or better known as the Black Box Laboratory or *Makmal Kotak Hitam* (MKH). This is one of the Blue Ocean initiatives by MOT.



For the first time since BSKU's formation, it participated in the Langkawi International Maritime and Aerospace Exhibition held in Mahsuri International Exhibition Centre, Langkawi from 21 to 25 March 2017. It was an opportunity taken to present our existence to the aviation world.



Various visitations to BSKU booth during LIMA 17



AIR ACCIDENT INVESTIGATION BUREAU (AAIB) AVIATION SEMINAR 02/2017

The seminar was held in Dewan Serbaguna, Ministry of Transport, Putrajaya on 14th September 2017. It was attended by 150 participants from 54 agencies from, ministry representatives, aviation stakeholders, scheduled operator, non-scheduled operators, General Aviation and Universities. During the opening ceremony 5 SUBs/HODs from MOT were also present.

A total of 6 papers were presented as follows:

1. AAIB 2016 annual report by CI BSKU.
2. Medical perspective on air accident by IAM, RMAF.
3. Emergency response plan – Family assistance by Mr. Rosli Bakar.
4. The importance of COSPAS SARSAT in aviation by HGT Canada/ HGT Asia Pacific.
5. Aircraft accident investigation support by UNIKL by UNIKL/MIAT.
6. Technical aspect on accident investigation by Strand Aerospace Sdn Bhd.

The objectives of the seminar are:

- Briefing on Accident Occurrences in the country.
- Update the Trend of Accident in the country.
- Enhance Safety Awareness to all participant.
- Establish Networking within aviation industries.
- Share Future Accident Preventive measures by BSKU





The seminar highlighted some recommendations for the attention of MOT:

- 1.To collaborate with MIAT on establishing an initial training for air accident investigation preferably in year 2018, the participants can either be from BSKU or the stake holders,
- 2.Emergency response under family assistance following any air disaster to have a structured ERP. It is recommended that Malaysia to have the requirement enacted under our primary legislation.
- 3.Delay in activating SAR in any air accident is not acceptable. To enhance on the quick activation of SAR, the assistance from COSPAS SARSAT facility is desirable.



9M-DRC accident in Kulai, Johor. The accident was due to engine fuel starvation.



9M-FBS incident in Subang, Selangor due to hard landing and its nose wheel collapsed.



9M-WSK incident in Kuching Airport, Sarawak. The Hornbill Aircraft veered off runway during landing.



An interesting investigation of a fatal accident involving a microlight aircraft 9M-EAC in Sungai Rambai, Melaka which required one of our investigators to dive in the muddy river to retrieve the ill fated aircraft.



BSKU visit to Malaysia



Vist to Airbus Helicopters



**Fifth Meeting of the Asia Pacific Accident Investigation Group (APAC - AIG/5)
Singapore, 1-2 August 2017**



CI and Kol Izani at the APAC-AIG/5 meeting in Singapore



CI presenting a talk during the Fire Rescue Service Chief seminar in Port Dickson, Negeri Sembilan.



SAREX during LIMA 17



BIRO SIASATAN KEMALANGAN UDARA

de Investigator



BSKU KIK team participated in the MOT KIK



BSKU supporting staff during the registration of seminar participants.



MOT Hari Raya Celebration

Contact Us

Biro Siasatan Kemalangan Udara,
Kementerian Pengangkutan,
Level 8, No 26,
Jalan Tun Hussein,
Precinct 4, 62100 Putrajaya

Tel: +603 8892 1072
Fax : +603 8888 0163
Email:
yahaya@mot.gov.my
AAIB@mot.gov.my

Visit us on the web at www.mot.gov.my