2019 ANNUAL REPORT

AVIATION INVESTIGATION BUREAU

KINGDOM OF SAUDI ARABIA

2019 ANNUAL REPORT

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AVIATION SAFETY
Is not our choice,
It is our
COMMITMENT
AIB
AVIATION INVESTIGATION BUREAU

Contents

Abdulelah O. Felimban

March, 01 2020

Foreword by the Director General

2019 ANNUAL REPORT
Director General
Aviation Investigation Bureau

On behalf of the AIB team, I am pleased to present the annual report for the year 2019. This is the 6th annual report to be published since the establishment of AIB in 2013 as an independent body reporting to the Chairman of the Board of GACA.

With the commitment and dedication of the AIB team, we continue to pursue our objective in advancing aviation safety by conducting independent aircraft accident and incident Investigations, safety studies, and advocating safety recommendations.

The AIB staff is the backbone of the organization and the key to its success. Thanks to a Human Resource Management program, approved by HE the Chairman, controlling new hire selection process, induction and on-job training and professional training programs with reputable training providers. We also embedded in our processes mechanisms to allow knowledge and experience transfer and exchange between the experts and new joiners. This was essential as the AIB successfully recruited young and ambitious Saudi talents.

We continue to review our procedures and ensure that the AIB team – at all levels – is engaged in the process in order to achieve our mandate in the most effective and sustainable approach.

On the technical front, the AIB's Flight Recorders Lab (FRL) is now proudly recognized as an accredited laboratory by the International Society of Air Safety Investigators (ISASI) for Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR) replay and analysis. This was only possible by the generous support of HE the Chairman of the Board of GACA and his deputy. The AIB continues to collaborate and exchange with international leaders in this field through the International Recorder Investigator Group (IRIG) and the Executive Technical Cooperation Programs (ETCP) signed with leaders in the industry to maintain it's capability among the top best in class in the industry.

As much as we're proud of what we've achieved in 2019, our development and growth journey continues with the direction and support of the AIB's leadership and the professional commitment and dedication of the AIB team.

Thank you

Abdulelah O. Felimban
Director General

OVERVIEW

The Aviation Investigation Bureau “AIB” of the Kingdom of Saudi Arabia was established in 2013 as an independent government entity under the direct supervision of His Excellency the Minister of Transport, the Chairman of the Board of Directors of the General Authority of Civil Aviation.

The AIB is financially, administratively and operationally independent from the Regulator and the industry. It cooperates with the Regulator and the industry on issues relating to aviation safety. It also cooperates with international agencies and other States’ investigation authorities in conformance with the Standards and Recommended Practices (SARPs) of ICAO Annex 13 and in accordance with Chicago Convention and memorandums of understandings to which the Kingdom of Saudi Arabia is signatory to, in the interest of advancing aviation safety.

In discharging its functions of advancing aviation safety, the AIB:

- Conducts impartial investigations of aviation occurrences.
- Makes safety recommendations based on systematic processes.
- Follows up all safety recommendations.
- Performs safety studies to advance aviation safety.

VISION

To be recognized as an international leader in advancing global aviation safety.

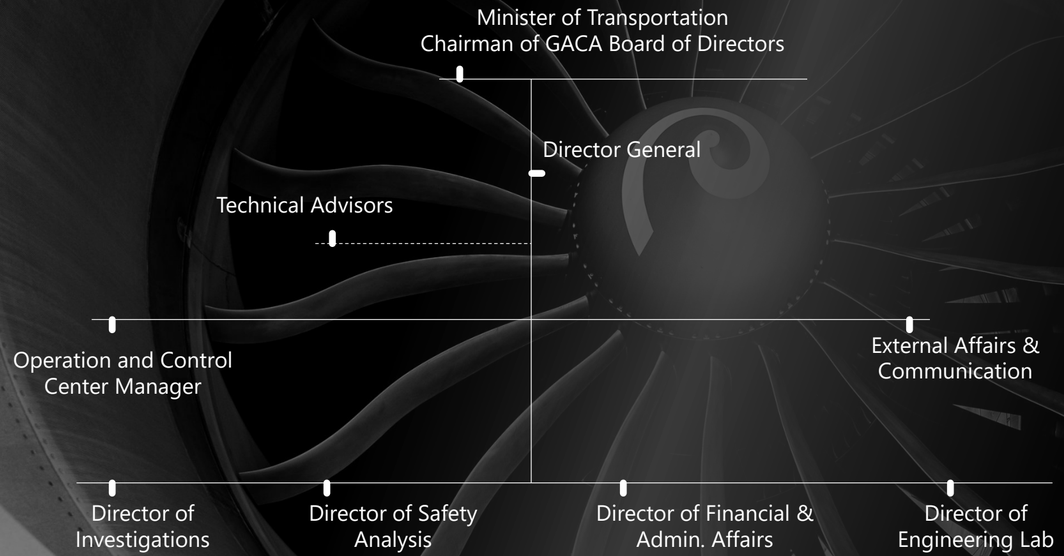
MISSION

To advance aviation safety through independent occurrence investigations and safety studies, promote an effective and comprehensive safety reporting system and communicate risks and safety recommendations.

VALUES

Respect
Fostering an environment that allows staff to contribute, innovate and excel.
Integrity & Impartiality
In all activities.
Competence
Continual professional and technical development.
Transparency
Exchange information to enhance aviation safety.

ORGANIZATIONAL STRUCTURE



Abdulelah O. Felemban
Director General

Ismail Y. Kashkash
Director of Engineering Lab

Albaraa M. Nasar
Operation and Control Center Manager

Theeb A. Al-Otaibi
Director of Safety Analysis

Abdulrhman M. Younis
Director of Investigations

Khalil A. Nagro
Director of Financial & Admin Affairs

AIB ACHIEVEMENTS TIMELINE
2013 | 2019

Since its establishment in 2013, as an independent entity with a mission of advancing aviation safety through conducting independent occurrence investigations and safety studies, the Aviation Investigation Bureau has grown and thrived on various dimensions.

The AIB is determined to reach a sustainable development that aligned with the nature of aviation industry, one of the fastest-growing industries.

Expansion of AIB assets and capabilities was in line of the AIB's ambitious vision especially in the last two years. Therefore, the following timeline highlights its most significant achievements for the period from 2013 to 2019.

AIB Achievements Timeline

The timeline below highlights AIB's most significant achievements through the last seven years since its establishment in 2013.

2013

The Establishment of the AIB

As an independent entity with a mission of advancing aviation safety through conducting independent occurrence investigations and safety studies

First Investigation Report

A RAMP incident with a case numbered as AIB-2013-0001. The investigation took nine months to be completed in accordance with the AIB regulations and ICAO standards.

2014

Publishing The First Annual Report

The Aviation Investigation Bureau was able to publish its first annual report in 2014.

Conducting The First Safety Study

A bird strike safety study was conducted to explore possible threats to the aviation industry. The study concluded with three safety recommendations

2015

On Flight Recorders Laboratory Relocation

Working towards the required independence of the accident investigation authority, the flight recorder lab was relocated from the General Authority of Civil Aviation safety department to the AIB facilities.

Acquisition of Investigative Equipment

The AIB was able to secure a dynamic inventory of he needed equipment for investigations. An initiative that has been paying off quantitatively and qualitatively ever since.

2016

Core Labs Service Agreement

In order to widen its range of capability, AIB signed a service agreement with King Abdullah University of Science and Technology (KAUST) enabling AIB to conduct more comprehensive and detailed analysis.

Flight Analysis System

AIB engineering lab acquired FAS in order to diversify the analysis capability of the aircraft data.

2017

Memory Access Retrieval System MARS

A collaboration with international institutions was initiated to develop a downloading tool that is compatible with the most commonly used flight recorders.

Underwater Search & Recovery

Hydrophones were acquired to locate the flight recorders underwater by detecting the acoustic signals from the attached underwater locator beacon (ULB).

Technical Advisor Program I

In cooperation with the prestigious Cranfield University of Britain, AIB held its first Technical Advisors Program Wave I to cover a wide range of expertise in aviation operations, technical, cabin & survivability, ATC, and Medical.

Creation of the Succession Planning Program

In order to maintain the accumulated knowledge of senior employees, AIB created a fast track program for high potential employees to maintain that knowledge, develop it, and take their place.

2018

Recommendation Tracking System

A computerized recommendation tracking system was developed internally to monitor and manage all safety recommendations issued by Investigations and safety studies, and to follow up with their responses.

Group Investigation Checklist Manual

A well-developed manual provided with appropriate directing principles for the conduct of investigations by the AIB staff.

Gender Equality & Women Empowerment

For the first time in the AIB's history, two females joined the office ushering a new era.

2019

Accredited Laboratory

The AIB flight recorders lab is recognized as an accredited laboratory by the International Society of Air Safety Investigators (ISASI) for FDR and CVR replay and analysis. The certification implies that the laboratory is in accordance with the standards of ISASI and ICAO

Saudization

Saudization rate reached its full peak of 100% for the first time since the Bureau's establishment.

Internship Program

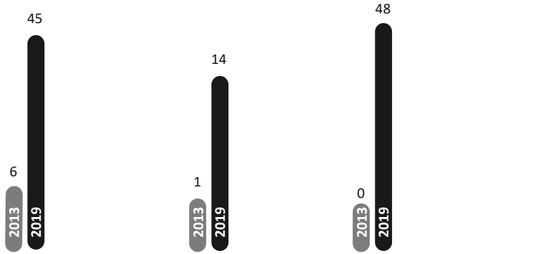
An internship program was Initiated

Technical Advisor Program II

The AIB conducted the Technical Advisor program in its second edition Wave II to further engage industry experts Technical Advisors in investigations.

Then | Now

2013 2019



Numbers of Employees

Cooperations *

Numbers of Technical Advisors

Numbers of Investigators

Numbers of Safety Studies

* For further information about AIB Cooperation, please see Appendices (E,F)

STATISTICS

- 2019 IN A GLANCE
- 2018 COMPARISON
- OCCURRENCES BY LOCATION
- OCCURRENCES BY MONTH
- RECOMMENDATIONS

2019 IN A GLANCE

The AIB Operations Control Center “OCC” maintains a 24/7 notification service receiving all reported events through telephone calls, e-mails, facsimiles, and web forms. The total number of events in 2019 reached 958 classified as follows:

958

EVENTS

Incidents	239
Serious incidents	7
Accidents	0
Notifications	712

26

INVESTIGATIONS

Accidents	0
Serious Incidents	5
Incidents	21

46

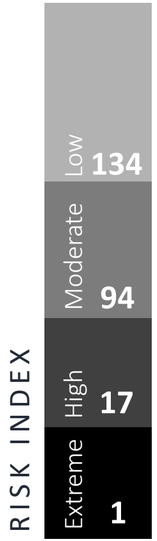
RECOMMENDATIONS

Safety Recommendations	25
Stand-alone Recommendations	2
Safety Study Recommendations	19

20

Recorders Downloaded and Analyzed

Emerging Risks
Total notifications in 2019



2018 COMPARISON

Although the number of events has increased between 2018 and 2019, when looking thoroughly there is a noticeable increase in the reporting culture, safety culture with fewer incidents and no accidents whatsoever. Below you can see the two years face to face.

612

2018 EVENTS

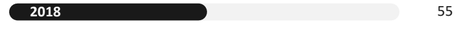
Incidents	504
Serious incidents	9
Accidents	4
Notifications	95

AVERAGE TOTAL REPORTED
NOTIFICATIONS/OCCURRENCES PER DAY

SIGNIFICANT EVENTS

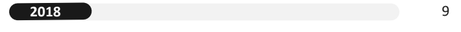
BIRD: Birdstrike
22% Increase

SCF-NP: System/ component failure or malfunction (non-powerplant)
63% Decrease



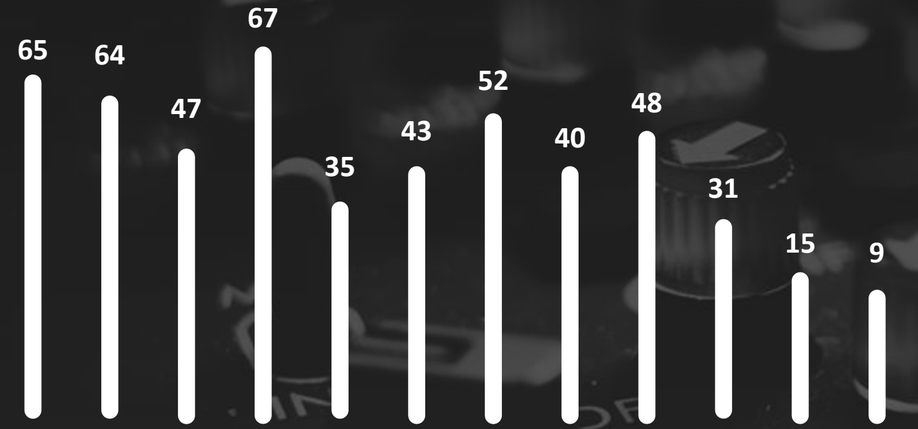
MAC: AIRPROX/near miss/ Midair collision
44% Decrease

RAMP: Ground Handling
63% Decrease

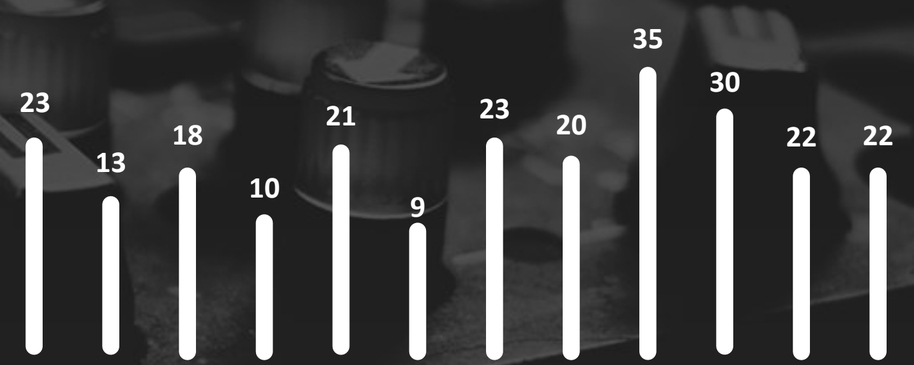


RI: Runway Incursion
56% Increase

OCCURRENCES BY MONTH

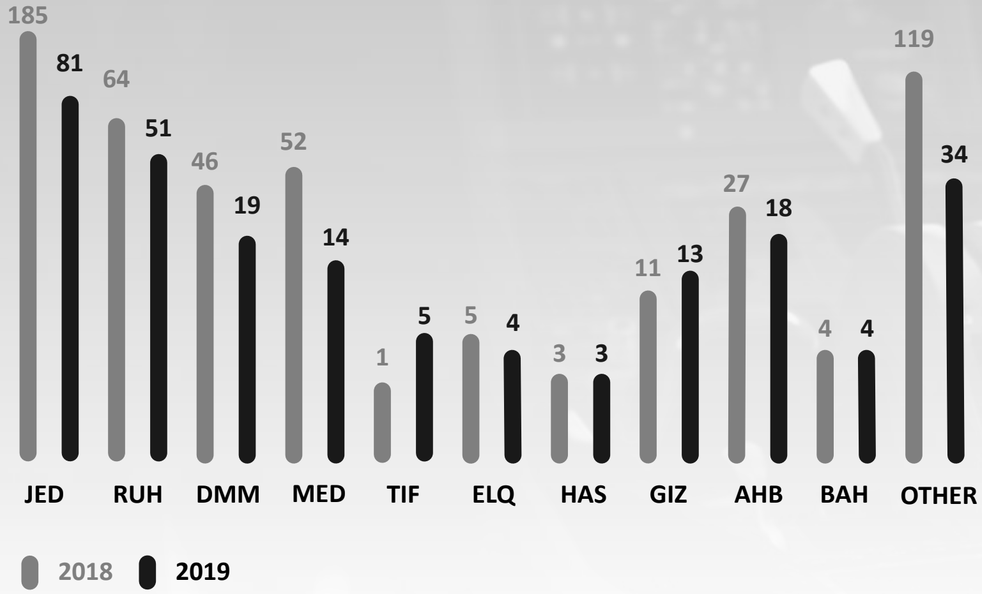


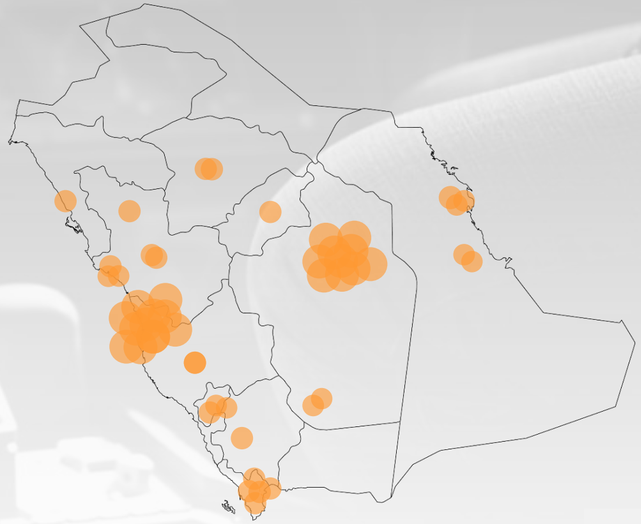
2018



2019

OCCURRENCES BY LOCATION





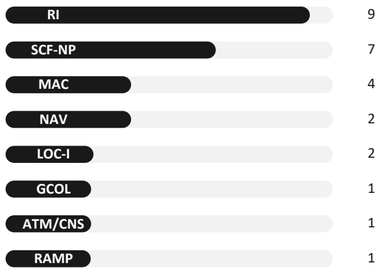
Reported Occurrences in
SAUDI ARABIA 2019

RECOMMENDATIONS

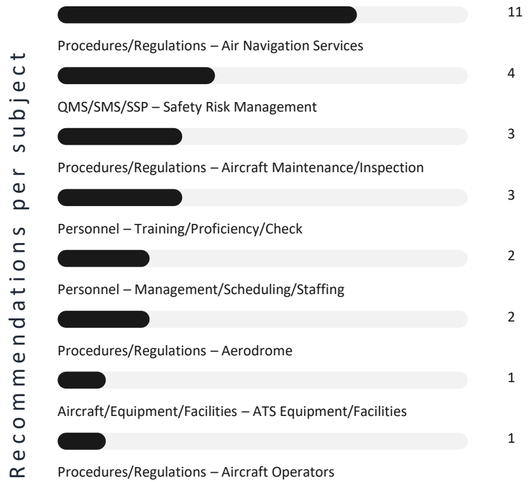
AIB has received 958 events in 2019 , 239 of which were incidents, and 7 serious incidents and the remaining 712 weren't qualified to be occurrences. AIB conducted 26 investigations in 2019 and issued 46 recommendations.

46

RECOMMENDATIONS	
Safety Recommendations	**25**
Stand-alone Recommendations	**2**
Safety Study Recommendations	**19**



Recommendations per category



Recommendations per subject

INVESTIGATIONS

- 2019 AIB INVESTIGATION REPORTS
- AIB SIGNIFICANT ONGOING INVESTIGATIONS
- AIB SIGNIFICANT COMPLETED INVESTIGATIONS
- SAFETY STUDIES
- SAFETY RECOMMENDATIONS

2019 AIB INVESTIGATION REPORTS

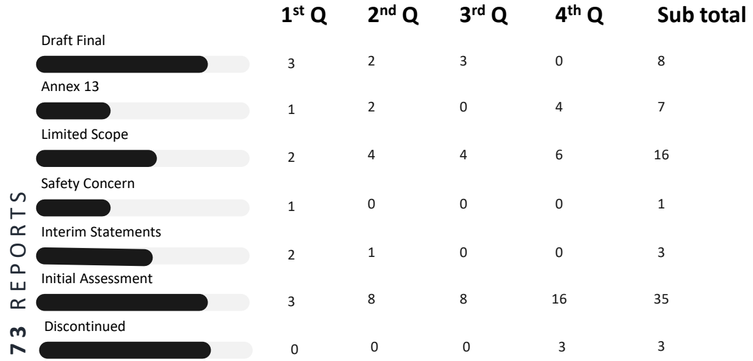
26
INITIATED INVESTIGATIONS

73
RELEASED REPORTS

During 2019, the AIB has initiated 26 investigations and completed a total of 73 various investigation reports. AIB also conducted two safety studies, and issued 46 recommendations.

1st Q	3
2nd Q	3
3rd Q	16
4th Q	4

26 INVESTIGATIONS



The initial assessment of a reported occurrence will reveal its severity and the expected outcome. Thus enabling the AIB to take the appropriate decision of commencing an investigation or not. Notwithstanding that approach, the AIB has taken the appropriate measures so not to impact its obligations to conduct core business activities in accordance with Annex 13 SARPs.

Additionally, the classification of the level of response and scope of investigation have greatly contributed to the success of the AIB to conduct objective safety investigations within a reasonable timeframe and resources. Short (limited scope) investigations have been conducted through either office-based settings or site-deployed efforts for occurrences that are common with underlying factors are well known.

Discontinued investigation and short closing reports for occurrences sharing similar factors with previously investigated occurrences have also served the AIB objectives. This is a common practice in most investigation authorities. A total number of 26 investigations were initiated in 2019 and 73 investigation reports were released including previous year open investigations.

SIGNIFICANT ONGOING INVESTIGATIONS

01

Occurrences Reference No | AIB-2018-0503
Classification | Incident
Category | System/Component Failure or Malfunction (SCF-NP)

SUMMARY

On 23 November 2018, a Saudi Arabian Airlines Airbus A320 -214, registration HZ-AS23 was performing a scheduled passenger flight SVA-1053 from King Khalid International Airport (OERK), Riyadh, to King Abdulaziz International Airport (OEJN), Jeddah, Kingdom of Saudi Arabia.

At approximately 22:14 UTC, SVA1053 landed at OEJN RWY-34R, aircraft exited the RWY and stopped on TWY-R short of RWY-34C. As the aircraft just started to move toward RWY-34C, the FDC heard a loud bang. The FDC interpreted the loud bang as a flat tire and opted to continue taxiing the aircraft to the assigned parking stand (3-6) with maximum speed of 7 knots. After parking, maintenance personnel informed the FDC that tire Number Two (2) was missing (figure 1). The FDC immediately contacted the ground controller and reported the incident and requested TWY-R inspection for possible Foreign Object Debris (FOD) (figure 2).

Wheel parts were found at various locations and distances from the aircraft holding point on TWY-R. The tire was found approximately 100 meters away.

Fuselage Damage

Damaged wheel and brake assembly

Location of Occurrence and direction of Departed Parts

SIGNIFICANT ONGOING INVESTIGATIONS

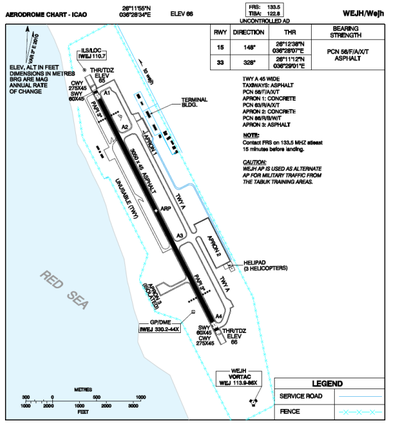
02

Occurrences Reference No | AIB-2019-0034
Classification | Incident
Category | Navigation Error (NAV)

SUMMARY

On 26 February 2019, A Saudi ARAMCO B737-800 aircraft, registration number N803XA, was being operated on a flight from Arar airport (OERR) to Wejh airport (OEWJ). Upon approach to OEWJ, the Pilot Flying (PF) landed the aircraft on a closed taxiway (TWY –A) instead of landing on the operational runway (RWY-15). Then, he taxied the aircraft to Apron 1, which was also closed at the time of the incident per active NOTAMs. No damage was reported to either the aircraft or the aerodrome. The AIB is in the process of drafting the Final Report.

Breaking marks on TWY-A



WEJH Aerodrome Chart

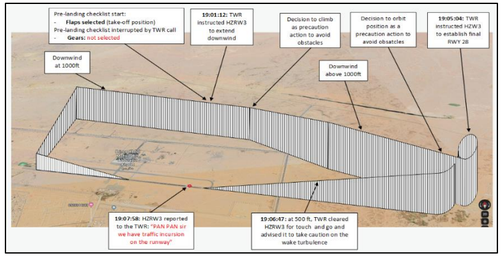
SIGNIFICANT ONGOING INVESTIGATIONS

03 **Occurrences Reference No |** AIB-2019-0191
Classification | Serious incident
Category | Abnormal Runway Contact (ARC)

SUMMARY

On 21st October 2019, Rabigh Wings Aviation School Pilot (IP) and his Student Pilot (SP) were flying a TECNAM P2006T aircraft on a night training flight from Rabigh airport (OERB) to Prince Abdul-Mohsin bin Abdul-Aziz international Airport (OEYN), Yanbu. The crew departed OERB and landed at OEYN at 18:00 and at approximately 18:38 the crew commenced their planned training flight. They performed their first Touch and Go (T&G) uneventfully on the active runway (RWY 28). On the second T&G attempt, the aircraft landed with the Landing Gear (LG) in "UP" position (belly landing) and came to rest on the runway at approximately 19:08. No injuries reported as a result of the occurrence.

The AIB rushed, from the Head Quarter in Jeddah, to OERB with an investigation team, collected the required essential data, and witnessed the recovery efforts of the aircraft

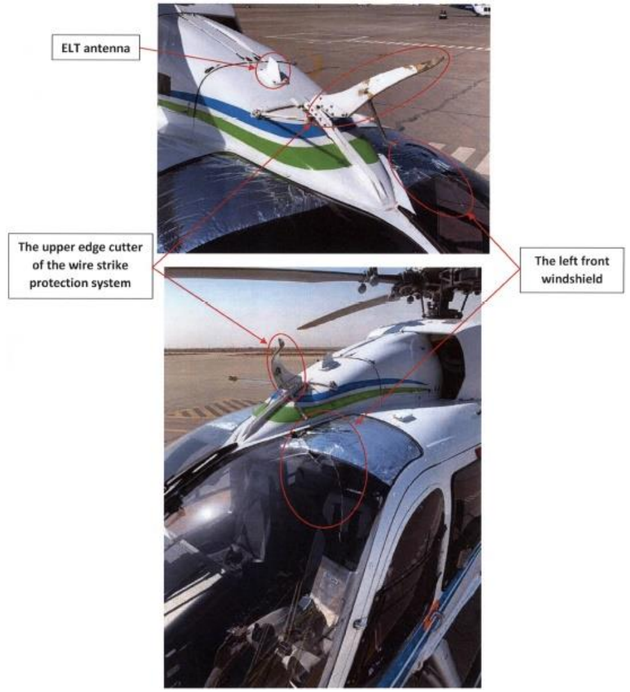


SIGNIFICANT ONGOING INVESTIGATIONS

04 **Occurrences Reference No |**AIB-2019-0210
Classification | Incident
Category | Abnormal Runway Contact (ARC)

SUMMARY

On 14th November 2019, the AIB received a notification from the National Transportation Safety Board of America (NTSB) about an occurrence involving an ARAMCO helicopter that suffered a minor damage and pilot flying (OF) sustained a minor injury while landing.



SIGNIFICANT ONGOING INVESTIGATIONS

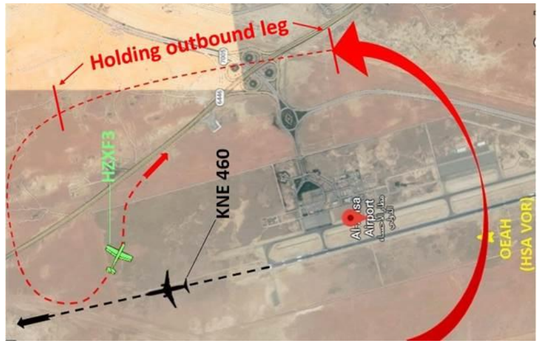
05 **Occurrences Reference No |** AIB-2019-0223
Classification | Incident
Category | Airprox /TCAS Alert (MAC)

SUMMARY

On 28 November 2019, a DIAMOND aircraft was operated by Saudi National Company of Aviation (Oxford Aviation Academy) from King Fahd International Airport (OEDF), Dammam to Al-Ahsa airport (OEAH) on a training mission.

While on ground, an Airbus A320 operated by FlyNas, a national carrier, from OEAH to Prince Mohammad Bin Abdulaziz International Airport (OEMA), Madinah received taxiing instruction by the AFISU to runway 34 of OEAH and to hold short of the runway. Then it received take-off message under pilot discretion. The crew did not transmit its intention prior to departure or while taxiing in accordance to Traffic Information Broadcast by Aircraft (TIBA) procedure.

After Fly Nas aircraft departure at approximately 11:28, both aircraft had each other in-sight. One aircraft's Traffic Collision Advisory System-Resolution Advisory (TCAS-RA) activated and the other aircraft's Traffic Advisory System (TAS) detected the conflict. Both aircraft maneuvered accordingly to avoid each other. Both flights resumed normally and uneventfully.



Avoiding maneuver illustration

SIGNIFICANT ONGOING INVESTIGATIONS

06 **Occurrences Reference No |** AIB-2019-0244
Classification | Incident
Category | Runway Incursion (RI)

SUMMARY

On 28 December 2019, a Boeing B777, operated by Saudia, a national carrier, was planned to perform a private flight from King Abdulaziz International Airport (OEJN), Jeddah to King Khaled International Airport (OERK), Riyadh. Two maintenance technicians were assigned to reposition the aircraft from apron 11 to apron 8.
While taxiing on "U", a custom's officer and a passports officer noticed R5 door on the right side of the aircraft open and attempted to inform the ground crew about it. A miscommunication took place between multiple parties involved in the operation of the aircraft including OEJN operations and the tower resulted in the unauthorized of the aircraft on Runway 34L (runway incursion, Class "D") and crossing towards apron 8 uneventfully.

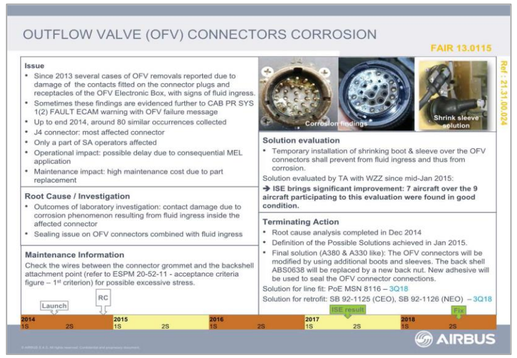
SIGNIFICANT COMPLETED INVESTIGATIONS

01

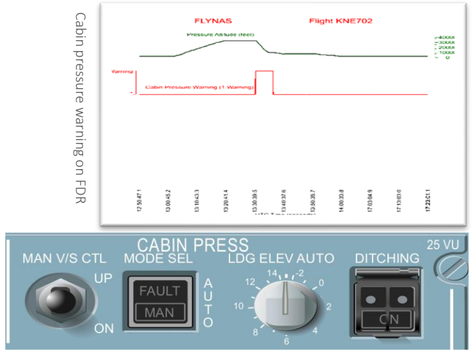
Occurrences Reference No | AIB-2018-0280
Classification | Serious Incident
Category | System/Component Failure or Malfunction (SCF-NP)

SUMMARY

On 02 June 2018, a Flynas Airbus A320, Registration VP-CXF was being operated on a scheduled domestic passenger flight KNE 702 from Prince Mohammed Ibn Abdulaziz International Airport (OEMA), Madinah, to King Fahad International Airport (OEDF), Dammam, Kingdom of Saudi Arabia. During flight, the cabin crew and passengers felt a change of cabin pressure. The Flight Deck Crew (FDC) received a warning from the aircraft's Electronic Centralized Aircraft Monitor (ECAM): [CAB PR EXCESS CAB ALT] then the cabin oxygen masks were deployed. Another ECAM warning was displayed: [CAB PR SYS 2 FAULT]. The FDC declared mayday, squawked transponder to 7700 and performed an emergency descent to FL100, then decided to divert to the nearest airport, Gassim (OEGS). Flight landed safely with no further issues. The investigation revealed that the causal factor was most probably attributed to the technical failure of Cabin Pressure Controller no. 2 and the associated Outflow Valve. The AIB issued a safety recommendation addressed to the operator, Flynas.



Airbus released Technical Follow Up (TFU) 21.31.00.024



CABIN PRESS control panel

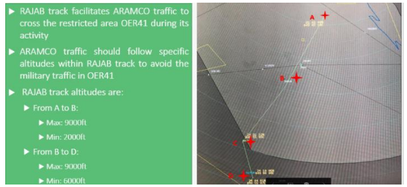
SIGNIFICANT COMPLETED INVESTIGATIONS

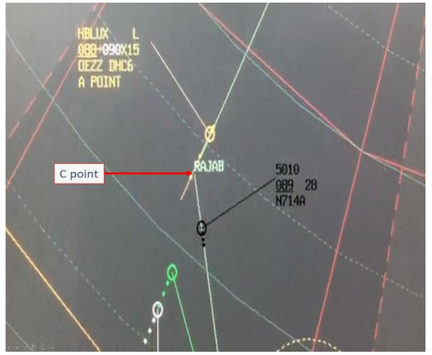
02

Occurrences Reference No | AIB-2019-0009
Classification | Incident
Category | Airprox /TCAS Alert (MAC)

SUMMARY

On 16 January 2019 at approx. 07:00, N714A departed KFIA to HARAD airport and received "next clearance" in advance from Dammam Approach. The next clearance stated; "Depart Harad to Dammam climb 9000 after departure Harad fly on heading 290 to establish RAJAB track at that time the military area must be active will be same squawk 5.0.1.0.". At 14:11, HB-LUX entered the non-controlled airspace flying at 9000 ft. Shortly afterwards at 14:21, N714A departed HARAD and flew heading 290 to intercept RAJAB track. A conflict situation between N714A and HB-LUX that could not be communicated among each other neither the controller could reach any of the traffic. At last, the conflict was resolved safely through the coordinated maneuver by both traffic to avoid Mid Air Collision. The investigation revealed a deficiency in VHF frequency coverage and the use of non-standard (next clearance) with lack of follow up. The AIB issued four safety recommendations addressed to the regulator, operator, air navigation services provider and the military air traffic control unit.





SIGNIFICANT COMPLETED INVESTIGATIONS

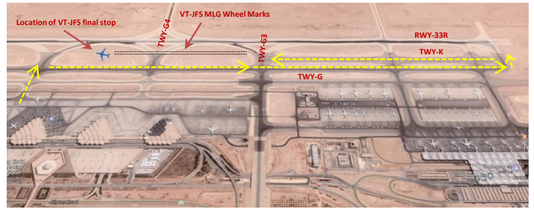
03

Occurrences Reference No | AIB-2018-0377
Classification | Serious Incident
Category | Navigation Errors (NAV)

SUMMARY

On 03 August 2018, a Jet Airways Boeing 737-8AL aircraft, registration VT-JFS, was performing flight number JAI-523 from King Khalid International Airport (OERK) in Riyadh, Kingdom of Saudi Arabia (KSA) to Mumbai Airport, Mumbai, India (VABB). JAI-523 was cleared for takeoff from runway "33R" (RWY-33R). Instead of entering RWY-33R, it entered the parallel taxiway "K" (TWY-K) and initiated the takeoff roll. Upon recognizing the error, the Flight Deck Crew (FDC) aborted take-off, overran the end of TWY-K and came to a stop on an unpaved ground approximately 2485 meters (m) from the beginning of the takeoff roll. No injuries were reported as a result of this occurrence and the aircraft sustained minor damage.

The investigation believes that the casual factor to this occurrence is FDC's failure to verify the runway and the runway's entry point visually. Two recommendations were issued to the operator, Jet Airways.



Layout of OERK aerodrome showing VT-JFS taxi and take-off path

Position of the final stop of aircraft VT-JFS showing the emergency escape slides deployed on an unpaved ground

SIGNIFICANT COMPLETED INVESTIGATIONS

04

Occurrences Reference No | AIB-2018-0263
Classification | Accident
Category | Loss of Control-Inflight (LOC-I) Low Altitude Operations (LALT)

SUMMARY

On 15 May 2018, at 06:05 local time of KSA, a single-engine Maule M7-235C light aircraft, registration number HZ-NC7, owned and operated by the Saudi Wildlife Authority (SWA), took off with two persons on board, the pilot flying (PF) along with a newly hired trainee pilot. The flight was on its first leg from the Aviation Department of the SWA based at Al Jouf Airport (OESK) to Al-Zawiyah station at Al-Khunfah Sanctuary. The mission was to take onboard SWA officials for an observation flight to track newly released animals at Al-Khunfah Sanctuary.

At 07:50, HZ-NC7 took off from Al- Zawiyah station with four occupants onboard. Approximately 30 minutes later, HZ-NC7 crashed while conducting its mission at low altitude flight. All four occupants were fatally injured and the aircraft was completely destroyed.

The investigation revealed that the accident was most probably caused by the following factors:

- Overweight and unbalanced aircraft flying out of designed center of gravity envelope.
- Inadvertent setting of the fuel selector valve to "OFF" position leading to engine fuel starvation.
- A power-off stall at a low speed/height configuration.

Maule aircraft, M7-235C model

Wreckage of aircraft HZ-NC7 after fire extinguishing

SIGNIFICANT COMPLETED INVESTIGATIONS

05

Occurrences Reference No | AIB-2018-0291
Classification | Serious Incident
Category | System/Component Failure or Malfunction (SCF-NP)

SUMMARY

On 7 June 2018, Flydubai Boeing 737-800 aircraft, registration number A6-FEE performing flight FDB813 from Dubai (United Arab Emirates) to Abha (Saudi Arabia), was en-route at about 270 NM east of Jeddah (Saudi Arabia).
The aircraft had a left-hand side Air Conditioning (A/C) PACK failure after takeoff from Dubai that could not be reset by the flight deck crew (FDC) and the flight continued as planned. During the descent to Abha, at FL255, FDC reported pressurization problems when the cabin altitude warning horn sounded and passengers' Oxygen masks deployed. The initial diversion requested by the FDC was to Taif, which was denied by ATC. Instead, the crew was granted permission to divert to Jeddah where they continued and landed uneventfully. Neither Injuries to persons nor damage to aircraft resulted from this occurrence.

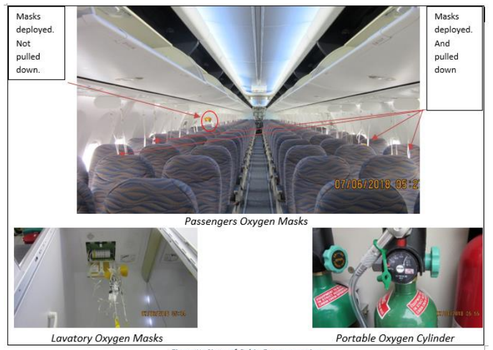


Figure T : Signs of Cabin Decompression

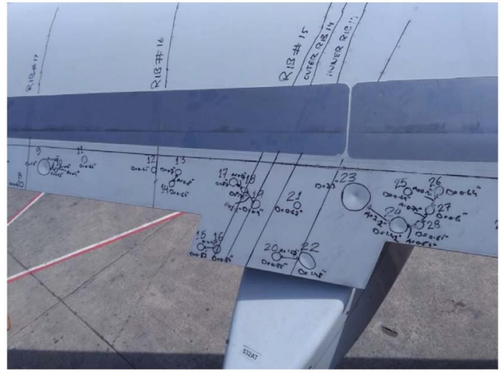
SIGNIFICANT COMPLETED INVESTIGATIONS

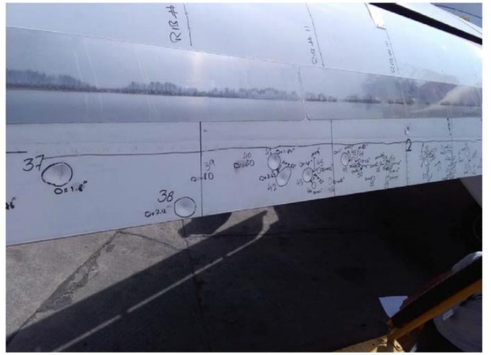
06

Occurrences Reference No | AIB-2019-0166
Classification | Serious Incident
Category | Wind Shear/Thunderstorm (WSTRW)

SUMMARY

A Shaheen Air International, a foreign carrier, aircraft encountered a thunderstorm with heavy hail which resulted in hundreds of minor dents on upper surfaces of the aircraft. The aircraft was preparing to depart Prince Muhammed Bin Abdulaziz International Airport (OEMA) in Madinah, Saudi Arabia and was operating to Islamabad International Airport (OPIS), Islamabad, Pakistan. The serious incident occurred on 24th February, 2018 and was reported to the Pakistani Safety Investigation Board (SIB). The SIB decided to investigate the occurrence and notified the AIB. Mr. Ehab Sabri, a technical investigator, was appointed from the AIB as an accredited representative (ACCREP) and a final report was issued by the SIB.





Dents from hail storm

SIGNIFICANT COMPLETED INVESTIGATIONS

07

Occurrences Reference No | AIB-2018-0267
Classification | Accident
Category | Abnormal Runway Contact (ARC), System/Component Failure or Malfunction (SCF-NP)

SUMMARY

On 21 May 2018, an Airbus A330-243, operated by OnurAir, a foreign carrier, was performing a commercial flight for Saudia (wet-lease agreement). The aircraft departed from Prince Mohammed Bin Abdul-Aziz International Airport (OEMA), Al-Madinah, Saudi Arabia, to Hazrat Shah-Jalal International Airport (VGHS), Dhaka, Bangladesh. Approximately twenty two (22) minutes post departure; the FDC decided to divert to King Abdul-Aziz International Airport (OEJN), Jeddah; due a technical failure.
In preparation to land, the FDC applied manual (Free Fall) landing gear extension procedures. However, the Electronic Centralized Aircraft Monitor (ECAM) and the landing gear cockpit panel did not display the Nose Landing Gear in the extended locked down position. After two low-passes for verification purposes, the FDC declared an emergency landing with a retracted Nose Landing Gear.
The aircraft came to a complete stop at approximately 700 meters before the end of the runway.
Passengers and crew evacuated the aircraft using the aircraft deployed slides. One passenger received a serious injury during the evacuation and was transported to the hospital.

Simulation image of occurrence

SIGNIFICANT COMPLETED INVESTIGATIONS

08

Occurrences Reference No | AIB-2018-0338
Classification | Serious Incident
Category | Runway Excursion (RE)

SUMMARY

On 10th July 2018, the AIB was notified of the occurrence involving a private business jet that landed on runway 34L, King Abdulaziz International Airport (OEJN) and skidded out off the runway. The AIB dispatched an investigation team consisting of an Investigator-In-Charge (IIC) to conduct a full-scope (Annex 13), and investigators in the following specialties; operations; cabin survivability; technical; and ATS/Aerodrome. The AIB also informed multiple Interested Parties (IPs). The AAIB of UK, appointed non-travelling Accredited Representative (ACCREP) on 17th July 2018.

Airbus released Technical Follow Up (TFU) 21.31.00.024

SIGNIFICANT COMPLETED INVESTIGATIONS

09

Occurrences Reference No | AIB-2018-0479
Classification | Serious Incident
Category | Airprox/TCAS Alert (MAC)

SUMMARY

The Serious Incident of breach of separation between a scheduled flight of a Saudia flight from Riyadh to Manila and a UPS flight aircraft from Suvarnabhumi to Mumbai occurred in Kolkata Airspace, India on 16/10/2018. The minimum separation between the aircraft was 2.5 NM laterally and 300 feet vertically.
The occurrence was classified as a “Serious Incident” by the Indian’s AAIB and was investigated by it. The AIB appointed Mr. Sami Gharsallah as an ACCREP to the case.

UTP9948, FL330 near XOPOX SVA862,FL330 and UPS15, FL320 near OLSAR

Figure showing positions of aircraft before Traffic Advisory came

Figure showing breach of separation between SVA862 and UPS15

SAFETY STUDIES

RAMP: Ground Handling Risks Study

Start Date 01/01/2019

The AIB conducted a safety study in 2019 addressing multiple concerns, such as; ground handling risks associated with the operations performed in airports. The study was aimed to identify the strengths and weaknesses of safety procedures, reporting system and safety culture.

<u>The required objectives of this study are as follows:</u>

01 Identify human errors and their greatest influences on ground handling safety.

02 Improve ground handling safety performance.

03 Reduce ground damage, injury, and operational incidents.

04 Enhance safety compliance in ground handling within operations to avoid future incidents and accidents.

AIB is keen to finalize this study, define the root causes and issue the appropriate safety recommendations .

SAFETY STUDIES

MAC: AIRPROX/Near miss/Midair collision Risks Study
Issued Date | April 4th, 2019

AIB conducted - in 2019 - a safety study addressing the Mid Air Collision (MAC), which also relates to AIRPROX and nearmiss risks associated with the operations performance including related stakeholders such as the General Authority of Civil Aviation(GACA)and the Saudi Air Navigation Services (SANS).

This is to help identify the strengths and weaknesses of safety procedures, reporting system and safety culture in our airspace.

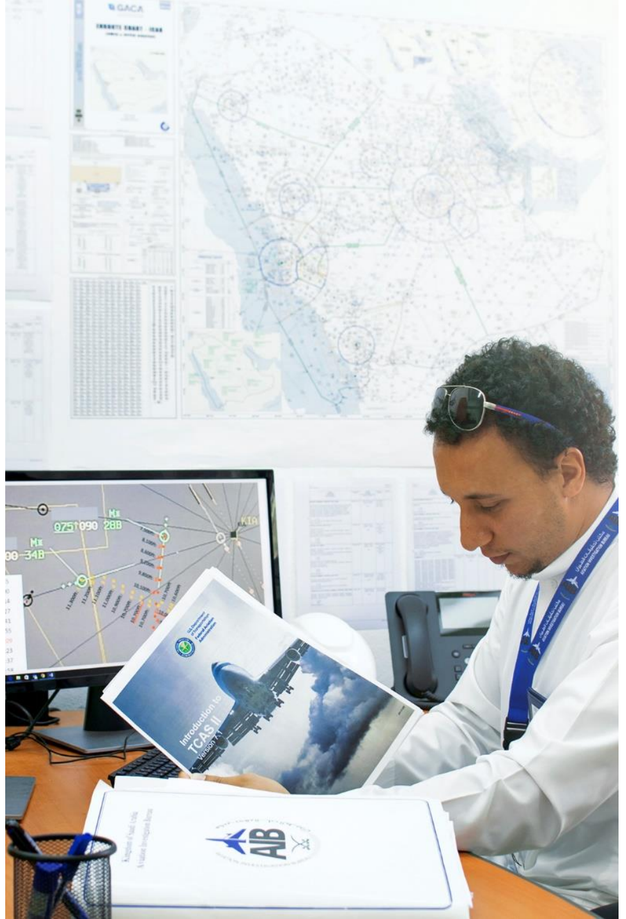
The required objectives of this study are as follows:

01 Holistic review of MAC occurrences analysis.

02 Identification of emerging trends and areas of focus to enhance safety and prevent occurrences

03 Continuous improvements and enhancement in operations, safety management, organization and investigation process.

Once this safety study was performed, the AIB was able to identify the root causes, thus all appropriate safety recommendations were issued.



SAFETY RECOMMENDATIONS

Recommendations of 2019

01 AIB-2017-0623-SAR-01
Status | Open

Saudi Arabian Airlines, to ensure that the correct and required cone-bearing is used on Nose Landing Gear Wheel Assemblies of the A330 fleet assembly part number as indicated and required in the Vendor CMM 32-41-89 Temporary Revision.

02 AIB-2017-0623-SR-01
Status | Accepted

Saudi Arabian Airlines, to conduct an in-depth reliability study on the persisting A330 nose wheel vibration issue, identify the causal factors and implement preventive measures to ensure the fleet health status.

03 AIB-2018-0263-SAR-01
Status | Open

GACA to consider certifying the Aviation Department of the Saudi Wildlife Authority under GACAR Part 133 "AERIAL WORK OPERATIONS" in alignment with the nature and the scope of its operations.

04 AIB-2018-0263-SR-01
Status | Open

Saudi Wildlife Authority (SWA) should study the feasibility of mitigating the risk associated with task saturation identified in the investigation report

05 AIB-2018-0280-SR-01
Status | Accepted

Flynas to monitor and implement the Manufacturers' recommendation and Technical Follow ups (TFU) as applicable.

06 AIB-2018-0291-SR-01
Status | Open

Flydubai to consider revising its QRH to include the transponder's setting to emergency code; Squawk 7700 when executing an emergency descent, in line with ICAO Air Traffic Management (PANS-ATM), paragraph 15.1.4.2.

SAFETY RECOMMENDATIONS

Recommendations of 2019

07 AIB-2018-0291-SR-02
Status | Open

The Saudi Air Navigation Service (SANS) to study the feasibility to unify the six VHF frequencies used by Jeddah ACC south sector to one frequency as the operation on the emergency frequency (121.5 MHz) to permit an automatic selection of the adequate ant

08 AIB-2018-0291-SR-03
Status | Open

The Saudi Air Navigation Service (SANS) to emphasize the use of the published Minimum Obstacle Clearance (MOC) – as provided in the AIP.

09 AIB-2018-0377-SR-01
Status | Open

The Jet Airways Company should emphasize to the FDCs the importance of the standard briefings with emphasis given to the applicable NOTAMs.

10 AIB-2018-0377-SR-02
Status | Open

The Jet Airways Company should emphasize to the FDCs the importance of visual verification of runway entry points.

11 AIB-2018-0477-SR-01
Status | Open

The Saudi Gulf Airlines to mitigate the risk associated with cognitive biases, particularly to the expectation bias within its Flight Operations Crewmembers.

12 AIB-2018-0477-SR-02
Status | Accepted

The Saudi Air Navigation Service (SANS) to share the lessons learned from safety investigations with all ATS units.

SAFETY RECOMMENDATIONS

Recommendations of 2019

13 AIB-2018-0477-SR-03
Status | Open

OEDF airport authority to study the feasibility of establishing a parallel taxiway along the west side of runway 34R/16L to reduce runway crossing.

14 AIB-2018-0477-SR-04
Status | Open

OEDF airport authority to study the feasibility of adding a pair of elevated lights to each end of the stop bar where the in-pavement stop bar lights in compliance with Annex 14, volume I of the Chicago convention recommended practices in paragraph (5.3.2)

15 AIB-2018-0503-SR-01
Status | Open

Saudi Arabian Airlines, aircraft reliability engineering to review the landing gear wheel assemblies' maintenance process in relation to the repeated tie bolt failures.

16 AIB-2019-0004-SR-01
Status | Accepted

Alpha Star to emphasize to its flight operations crewmembers the need to consider themselves "vacated" the runway when the entire aircraft is beyond the relevant runway-holding position which is materialized by the runway vacated sign.

17 AIB-2019-0004-SR-02
Status | Open

King Abdulaziz Airport authority to reassess the direction signs, especially, the one on the beginning of TWY B3 from RWY 34L and to ensure that the existing direction signs in the airport provide information related to the next intersection.

18 AIB-2019-0009-SR-01
Status | Open

SANS is required to study the possibility of enhancing VHF coverage in an area where there is significant movement of IFR aircraft.

SAFETY RECOMMENDATIONS

Recommendations of 2019

19 AIB-2019-0009-SR-02
Status | Open

The Military Air Control Unit should note to military observers the importance of adhering to the terminology in the Air Traffic Services Manual of PANS-ATM of the International Civil Aviation Organization (ICAO).

20 AIB-2019-0009-SR-03
Status | Accepted

Saudi Aramco aviation Dept. to assess the reasons N714A and HB-LUX TCAS incident after take-off from Harad Airport and provide the results of the AIB.

21 AIB-2019-0009-SR-04
Status | Accepted

The Civil Aviation Authority (GCAA) has to consider the possibility of adding to TIBA procedures that TIBA pilots should be notified when the final altitude of the Cruise Level is reached in unattended airspace.

22 AIB-2019-0026-SR-01
Status | Accepted

The Prince Abdul Majid Bin Abdul Aziz Int'l Airport Administration in Al-Ola Governorate undertakes a comprehensive risk study, taking into account all types of current and projected operational risks due to increased seasonal operational movement and taking proactive measures including

23 AIB-2019-0040-SR-01
Status | Open

The Saudi Air Navigation Service (SANS), when developing a system to monitor and ensure ATCO validity hours for working positions, should consider the need to use visual aids at the work stations/units that reflects an up-to-date ATCOs' duty hours required to maintain the unit/position(s) endorsement(s) validity.

24 AIB-2019-0057-SR-01
Status | Accepted

The Saudi National Guard Aviation to emphasize to its flight operations crewmembers the need for procedural and effective coordination on TIBA frequency with other traffic when flying in non-controlled airspaces.

SAFETY RECOMMENDATIONS

Recommendations of 2019

25 AIB-2019-0095-SR-01
Status | Open

The Royal Saudi Air Force to raise awareness of its “airport security and protection” members in all Kingdom’s airports regarding the nature of civil operations especially those pertaining to taxiways and runways and develop a mechanism to ensure members receive the airside driving training and certification required before they are deployed in civil airports.

26 AIB-2019-0095-SR-02
Status | Accepted

Riyadh Airports Company to increase effectiveness of its runway safety committee (RSC) – as an official platform that brings together all concerned parties within the airside – and follows up effectively with the implementation of the committee’s safety recommendations by the concerned addressees.

27 AIB-2019-0131-SR-01
Status | Open

Saudi Ground Services (SGS) to revisit its workforce recruitment, training, and qualification scheme – including seasonal recruits – in order to ensure its effectiveness in accordance with the established safety regulations and to cope with the rapidly ch

28 AIB-2019-SS01-SR-01
Status | Open

All of the KSA airports' authorities should manage an efficient SMS.

29 AIB-2019-SS01-SR-02
Status | Open

All of the KSA airports' authorities should take necessary measures to enhance and maintain the visibility of ground markings in the restriction for apron areas.

30 AIB-2019-SS01-SR-03
Status | Open

Ground service providers in all of the KSA airports should enhance securing the tie-down and towing mechanism of the
equipment on the ramp

SAFETY RECOMMENDATIONS

Recommendations of 2019

31 AIB-2019-SS01-SR-04
Status | Open

Ground handling service providers in all of the KSA airports should designate a safety officer for each.

32 AIB-2019-SS01-SR-05
Status | Open

Ground service providers should revisit the duty working hours and renovate rest area facilities.

33 AIB-2019-SS01-SR-06
Status | Open

All of the KSA airports' authorities should activate all safety programs, including the Airside Safety Committee.

34 AIB-2019-SS01-SR-07
Status | Open

Ground handling service provider in all of the KSA airports should provide appropriate recurrent training for all of the ground handling staff.

35 AIB-2019-SS02-SR-01
Status | Open

Conduct quarterly meetings between AIB, GACA and SANS.

36 AIB-2019-SS02-SR-02
Status | Accepted

Target one issue to be monitored, analyzed and followed up to be solved (ATC lack of coordination) as an example.

SAFETY RECOMMENDATIONS

Recommendations of 2019

37 AIB-2019-SS02-SR-03
Status | Open

Share information and lessons learned from safety investigation with ATS units.

38 AIB-2019-SS02-SR-04
Status | Accepted

Sharing and learning from AIB reports to all ATS Units.

39 AIB-2019-SS02-SR-05
Status | Open

Issue: Over Projection:
• Flow management.
• Situational assessment training.

40 AIB-2019-SS02-SR-06
Status | Open

Issue: Failure to detect, monitor, and track :
• Evaluate Handover practices.

41 AIB-2019-SS02-SR-07
Status | Open

Issue: Finding difficulty to determine severity of events.
• Agreed to demonstrate proposed Risk Analysis Tool (RAT) by SANS as part of their safety intelligence initiative. (This recommendation proposed by SANS).

42 AIB-2019-SS03-SR-01
Status | Open

Establish a committee to meet every year and discuss Wildlife and bird hazards prevention.

SAFETY RECOMMENDATIONS

Recommendations of 2019

43 AIB-2019-SS03-SR-02
Status | Open

The Bird/Wildlife committee will be chaired by AIB for the first year, then will rotate to another member.

44 AIB-2019-SS03-SR-03
Status | Open

Airport Locality Habitat Review (i.e. that area beyond the airport perimeter where bird attractants or related bird activity have the potential to directly affect the operational safety of aircraft using the airport) - note the ICAO definition of a 13km radius circle around the airport.

45 AIB-2019-SS03-SR-04
Status | Open

Activate “Best Practices For Bird/Wildlife Management Program On Aerodromes” according to ICAO manual 9137, part 3, Chapter 9.

46 AIB-2019-SS03-SR-05
Status | Open

Provide Airport Bird/Wildlife program training.

DEVELOPMENT

- DUTY OFFICER PROCEDURES OPTIMIZATION
- OPTIMIZE OPERATIONAL REQUIREMENT
- INVESTIGATION EQUIPMENT DEPLOYMENT (TRAILERS)
- OCC REORGANIZING PROJECT
- ACCREDITED LABORATORY
- TECHNICAL ADVISOR PROGRAM

2019 SYSTEMS OPTIMIZATION PROJECTS

At AIB, we realize the importance of consistent, efficient and scalable business processes and procedures. Thus, the 2019 was a start of many system optimization projects.

The main goal of these projects was to develop processes and activities that are specifically designed and tailored to meet AIB's needs, unique requirements and best practices.

First, the Bureau is seeking operational excellence thorough well analysis and understanding of its current processes and procedures. Later, Recommendations and solutions can be proposed and implemented to eliminate waste, increase accessibility to data, reduce duplication of efforts and boost productivity.

AIB goal is developing processes and activities that are specifically designed and tailored to meet its needs, unique requirements and best practices.

DEVELOPMENT

01 Duty Officer Procedures Optimization

Start Date 01/12/2018 | End Date 15/02/2019

The project of optimizing AIB Duty Officer (DO) Procedures started at the end of 2018 and continued until mid-February, 2019. It concerned with looking into the current DO procedures and analyzing defects, areas of weakness and current challenges. It also observed the AIB current capabilities, strengths, and future opportunities to conclude possible solutions and appropriate implementation plan.
The implementation plan started with creating the DO Procedures Manual (DOPM) to identify, organize and simplify all activities and processes regarding the DO receiving notifications. Then, conducting a full-day workshop to present and discuss the optimized DO system.

02 Empowerment of New Investigators to Optimize Operational Requirement

10/02/2019 & 17/03/2019

One of the AIB strategic objectives is recruitment to enhance the availability of diversity of specialized investigators. The Investigation Department has managed to hire two new technical investigators who will assume the responsibilities of conducting investigations onto reported occurrences, optimize the operational needs and overcome the backlog. Additional specialized investigators will be joining the AIB soon.

DUTY OFFICER WORKSHOP, JEDDAH

04/02/2019

03 Investigation Equipment Deployment (Trailers)

25/01/2019

One of the AIB strategic objectives is to enhance the deployment of investigation team and equipment. To achieve this, the AIB has procured customized Trailer Trucks for the deployment of investigation team members and equipment to the accident site. Three out of four trailers, with different sizes and features, have been received and put into operation.

04 OCC Reorganizing Project

06/03/2019

A committee has been formulated by the Director General (DG) of the AIB for the AIB's Operations & Control Center (OCC) reorganizing project. The objective of the committee is to increase the operational clarity and organizational alignment with internal and external parties, identify systemic deficiencies and propose improved processes for current OCC activities.

The targeted duration of the project was three months, and the first step taken by the committee was to gather all available and related data regarding the current OCC processes and functions. Followed by conducting quantitative and qualitative analysis of all gathered data, the committee also helped in identifying systemic deficiencies. The final step was to propose new processes and to build an initial implementation plan. The field phase of the project was completed, findings were accepted and recommendations were agreed upon by the DG of the AIB.

03 Accredited Laboratory

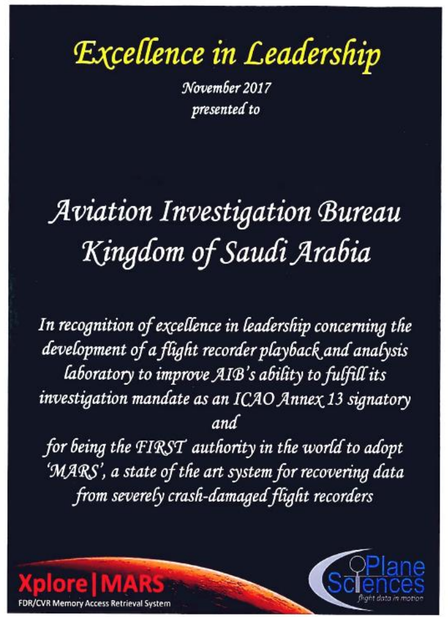
Date | 11/06/2019

The Flight Recorders Lab (FRL) of the AIB is now recognized as an accredited laboratory for FDR and CVR replay and analysis. It was certified by the International Society of Air Safety Investigators (ISASI). The certification implies that the laboratory is in accordance with the standards of ISASI and ICAO.

04 Excellence in Leadership

Date | 12/ 06/2019

The Memory Access Retrieval System (MARS) is a state-of-the-art system for recovering data from severely crash-damaged flight recorders. The AIB was the sponsor of the MARS project since its initial development in 2017, and the first adopter when it was launched. Therefore, the AIB was awarded the certificate of excellence in leadership by PlaneScinces, the developer of the project alongside the most recognizable flight data analysis software.



DEVELOPMENT

05

Joint ACAO/ICAO/CAAS Workshop | **Course on Customized Aircraft Accident Investigation Techniques**
Cairo, Egypt
07-11/07/2019

This course provided attendees with an understanding of aircraft accident investigation techniques and knowledge and skills to participate in and support formal investigations.

Topics covered were as follows:

- ICAO Annex 13.
- Use of Critical Data in:
  - Human Factors.
  - Writing the Final.
- Preparation to Conduct an Investigation.
- Technical.
- Survival Factors.
- Case Studies.
- On-site Investigation.
- Operations Investigation.
- Interviewing Techniques.

DEVELOPMENT

06

European Co-ordination Centre for Accident and Incident Reporting Systems (ECCAIRS) | **End User Training Course.**
Cairo, Egypt
14-18/07/2019

Hosted by: the ICAO Middle East (MID) Regional Office.
Course objectives: Provide hands-on experience with ECCAIRS as a tool to code, enter, analyze and extract safety data, as well as set up, configure and supply basic ECCAIRS user support.

Benefits acquired:

- Understand Accident/Incident Data Reporting (ADREP) taxonomy;
- Learn to install and use the ECCAIRS software suite.

End User Course Topics Covered :

- Use ADREP taxonomy;
- Complete reporting requirements as per ICAO Annex 13 Aircraft Accident and Incident Investigation;
- Conduct safety data collection, analysis, and exchange requirements as per ICAO Annex 19 Safety Management; and
- Learn to use the ECCAIRS software suite to perform the above mentioned

Implementation of the system in AIB: 8/8/2019

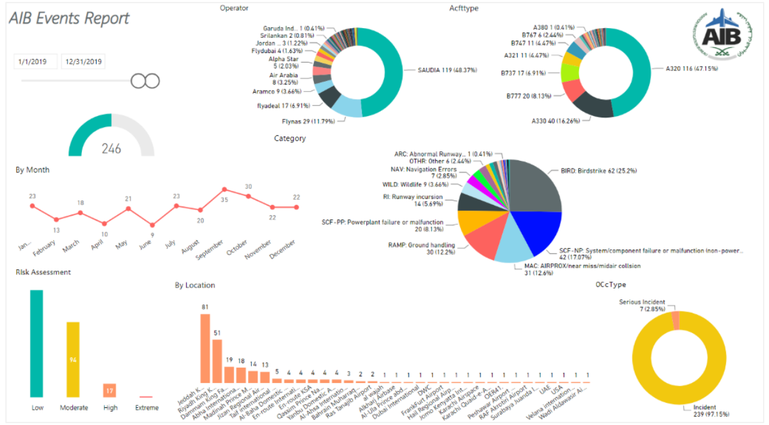
07 MARS F1000 Update
Jeddah, Saudi Arabia
21/07/2019

Memory Access Retrieval System (MARS) is a state-of-the-art system for recovering data from severely crash-damaged flight recorders and is proven alternative to the conventional Bench Unit recovery method. MARS was updated to include the capability of downloading L3 F1000 flight recorders to be added to the already supported Honeywell first generation recorders. This development comes as a step towards one of the aims of MARS to be a universal station for most commonly used and installed flight recorders.

08 Technical Advisor Program
Jeddah, Saudi Arabia
18-19/09/2019

During the period from 18th to 19th September 2019, and in continuation to its 1st round that was held in 2017, the AIB conducted the Technical Advisor program in its second edition Wave II to further engage industry experts Technical Advisors in investigations carried out by the AIB or when participating in overseas investigations with accredited representatives (ACCREPs). More than five key industry stakeholders were invited and actively contributed to the success of this program.

08 Safety Intelligence
Jeddah, Saudi Arabia
01/03/2019



Safety intelligence has given birth from the concept “Business intelligence” that has been developed since 1980’s to improve business decision making by using fact-based support systems. AIB Safety intelligence tool for data analysis & visualization had been empowered to support and meet its vision and objectives:

- Visualize all data and bring it to life via dashboards and reports.
- Create data analysis culture to share insights across the organization.
- Flexibility to share insights and distribute all data needed.
- Standardize big data and give a status of the current condition.

09 Emergency Response Planning (ERP) Training by Saudia Royal Fleet/Kenyon Int’l Emergency Services
Jeddah, Saudi Arabia
17-19/11/2019

The Bureau received a generous invitation from Saudia Royal Fleet (SRF) to nominate representatives to participate in a scheduled emergency preparedness training provided by the well-known crisis management giant; Kenyon Int’l Emergency Services and held in Prince Sultan Aviation Academy (PSAA) Head Quarter in Jeddah. The course contained material, presentation slides, as well as workshop-style exercises aimed at developing attendees’ skills in the following topics:

1- The 12 Principles of Crisis Management.
2- Crisis Management Center Operations.
3- Emergency Go-Team.
4- Humanitarian/Special Assistance Team Member.

10 Capability for L3 F5000 Flight Recorders

Jeddah, Saudi Arabia
02/12/2019

In line with the AIB objective to sustain and enhance its technical capability, Engineering Laboratories Department developed the capability to download four different types of the L3 F5000 Modular Airborne Data Recorder/Acquisition System (MADRAS) family of flight recorders. These types are widely used in helicopters, business, unique-missions and military aircrafts which expands the AIB capability coverage in different segments of aviation other than the large transportation jets.

11 Frame Format Description Files (FFD)

Jeddah, Saudi Arabia
01/12/2019

The FFD file are essential to convert the raw data from the flight data recorder to engineering units where each aircraft configuration has its own unique FFD file. The AIB FFD Files library increased in 2019 from 99 to 113 files covering most of the flown aircraft types in The Kingdom of Saudi Arabia.

ENGAGEMENTS

- SA 19 - SAUDI AIRSHOW
- SAFETY FIRST EXPO
- NATIONAL COMMITTEE FOR MARINE DISASTER ANNUAL DRIL
- MENASASI 6th ANNUAL SEMINAR

ENGAGEMENTS

01

SAFETY FIRST EXPO
King Abdulaziz New Airport , Jeddah
24 - 28/02/2019

The safety-first expo, at King Abdulaziz New Airport (Terminal 1), is a safety awareness campaign. AIB participated in this expo including other participants working within the aviation industry. The expo aimed to help recognize all of the efforts and services provided to operate the airport in a safe environment. AIB introduced itself as an independent governmental entity to conduct occurrence investigations and safety studies under the direct supervision of HE Minister Of Transport (MOT), Chairman of the Board Of Directors (BOD) of the General Authority of Civil Aviation (GACA) of the Kingdom of Saudi Arabia (KSA). Among other related investigative resources, the AIB shed the light on the use of the aircraft black boxes, the Cockpit Voice Recorder (CVR) and the Flight Data Recorder (FDR).

ENGAGEMENTS

02

SA 19 - SAUDI AIRSHOW
Thumamah Airport, Riyadh
12 - 14/03/2019

The Saudi Airshow in 2019 was launched under the patronage of HRH Prince Sultan Bin Salman Bin Abdulaziz, founder and chairman of Saudi Aviation Club (SAC). The show aimed to further connect the aviation and aerospace industry to the Kingdom of Saudi Arabia. The event provided the perfect platform to connect professionals across all areas of the industry. AIB participated in this event by demonstrating its capabilities, tools and gadget.

Gazan Port, Kingdom Of Saudi Arabia

ENGAGEMENTS

03 **NATIONAL COMMITTEE FOR MARINE DISASTER ANNUAL DRILL**
Saudi Coast Guard, Gazan Port
20/03/2019

The AIB is a permanent member of the National Committee for marine Disaster. The 1440H annual meeting was held in Gazan followed by search & rescue drill at Gazan Airport (40/1) international authority.

ENGAGEMENTS

04

Accident Investigation Authorities Interactive Workshop
GACA , Jeddah
26 - 28/03/2019

The AIB is in the spirit of regional and international cooperation to promote civil aviation safety. An interactive workshop was hosted in Jeddah, KSA to share and exchange implementation processes and procedures impacting selected critical phases of the business process common to Accident Investigation Authorities (AIA). The workshop is informal, interactive and structured for the purpose of learning exchanges and networking with peers. The workshop was attended by delegates from GACA, OMAN, Indonesia and Ukraine.

05 The 4th International Aviation Investigation Forum (IAIF)

Singapore
10/04/2019

The AIB participated in the 4th International Aviation Investigation Forum (IAIF) in Singapore. The forum highlighted the contemporary issues with investigations. The AIB gave a presentation on the topic of "Misuse of Situational Awareness in Occurrence Reports". The presentation was accepted positively.

06 King Fahad Air Base’s aviation safety Day

Taif
02/05/2019

The AIB was invited to participate in King Fahad Air Base’s (KFAB's) aviation safety day in Taif where the AIB presented a topic on human factors in safety investigation. In addition, the AIB was asked to discuss cognitive biases in decision making. KFAB awarded the Director General of the AIB with a token of appreciation.

ENGAGEMENTS

07

MIDANPIRG/17 – RASG-MID/7
Cairo, Egypt
15-18/04/2019

The AIB participated in ICAO's 17th Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG) meeting held in Cairo, Egypt. The meeting was fruitful and many topics were discussed regarding the different participants common interest in aviation safety.

ENGAGEMENTS

08

Safety Investigation Throughout the Aircraft Life Cycle – Design for Safety
Derby ,United Kingdom
02/05/2019

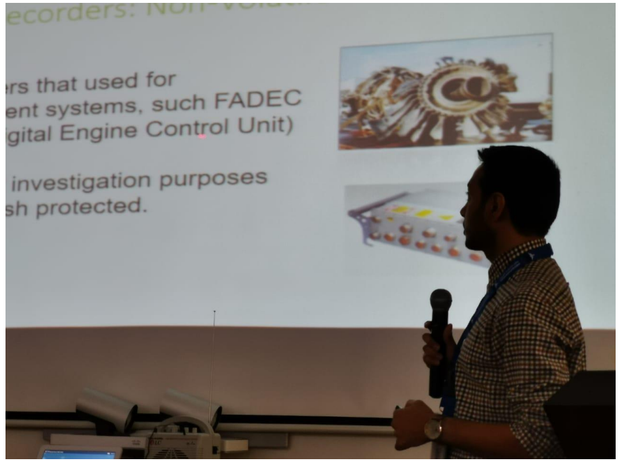
The 2019 ESASI Workshop entitled ‘Safety Investigation Throughout the Aircraft Life Cycle – Design for Safety’ was one of the AIB's participations in the second quarter of 2019. The workshop was held in Derby, United Kingdom. The AIB participated in the discussions regarding the investigation of aircraft design aspects and the effectiveness of safety actions/recommendations regarding aircraft design. The workshop was a valuable participation for the AIB in its ongoing mission of global civil aviation safety.

ENGAGEMENTS

09

Investigation Process Workshop
AIB, Jeddah
26-28/3/2019

AIB hosted a workshop in Jeddah under the name of "Investigation Process". The aim of the workshop was to exchange the followed practices during the investigations between the participating aviation investigative authorities and to discuss their common complications. The workshop was attended by different representatives from Ukraine, Indonesia and Oman. The AIB's Engineering Laboratories Department (ELD) participated in this workshop and gave a presentation on the current challenges of obtaining recorded data, and how those challenges will propagate in the future. The ELD also presented how these challenges are being tackled.



ENGAGEMENTS

10

ICAO Aviation Investigation Group Panel AIGP
Montreal, Canada
Location
29/4/2019 – 2/5/2019

The panel meets annually to discuss and finalize working papers proposed by Aviation Investigation Authorities. Working Groups (WGs) are tasked to propose amendments to the related ICAO documents to ensure that they are in line with the latest developments and additions in the industry and to ensure that the amendments are synchronized throughout all related documents. The WGs conducted periodic tele conference meetings for exchanges and discussions. There are 13 active Working Groups in which AIB is representing the Kingdom of Saudi Arabia in nine of them. The last meeting was attended by 26 states and representative from six different global organizations.

ENGAGEMENTS

11

The ISASI – International Society of Air Safety Investigators
The Hague, Netherlands
03-05/09/2019

The AIB The AIB represented Saudi Arabia at The International Society of Air Safety Investigators (ISASI), the most anticipated seminar of the year regarding aviation safety. The International Society of Air Safety Investigators (ISASI) celebrated its 50th annual seminar, in the city of The Hague, The Netherlands.
A beneficial program was presented with inspiring keynote speakers; there were 38 presentations and a panel. In addition, ISASI business, society and working group meetings were held to discuss topics of interest.

ENGAGEMENTS

12

AIR Meeting2019
Tokyo, Japan
10-12/09/2109

The AIB Accident Investigator Recorder (AIR) meeting is an annual meeting held under the International Recorder Investigator Group (IRIG) activities. The meeting is attended by experts representing leading accident investigation authorities where they share and discuss latest techniques in accident investigation and lessons learned from exceptional investigation experiences. Moreover, the platform serves as cooperative community to face challenges and difficulties in the recorded data analysis field. AIB participated in the meeting which was held in Tokyo, Japan by sharing a case that utilized the NVM data, as well as sharing an engineering analysis approach that was proposed in a system non power plant investigation.

Engineer Hesham Harthi sharing and presenting a new engineering approach to gather facts for analysis in a system failure investigation

ENGAGEMENTS

13 **CABIN AIR International Conference**
Derby ,United Kingdom
17-18/09/2019

AIRCRAFT CABIN AIR International Conference, 17 – 18 September 2019, Imperial College, London. It was a two-day event providing excellent networking opportunities for those seeking to understand the subject of contaminated air, the flight safety implications, the latest scientific and medical evidence investigating the contaminated air debate and the solutions available to airlines and aircraft operators.
This international conference mapping the business, regulatory and technical solutions to cabin air contamination, was the most in-depth conference ever held on this topic.

AIRCRAFT CABIN AIR
International Conference 2019

ENGAGEMENTS

14 MEBAA Conference & MENA Business Association Conference
Marrakesh, Morocco
24/09/2019

The Middle East and North Africa Business Aviation Association (MEBAA) strives to add tangible value to its members and their businesses throughout the region by providing them with enriching experiences. MEBAA Conferences gathers experts from across the Middle East and North Africa to address issues related to specific areas of business aviation and communicate the effect they impose on the industry. During the last conference which was held in Marrakesh, Morocco. AIB presented a case involving a Honda private jet occurrence to share with the community the lessons learned from the investigation and advocate the safety messages implied.

The AIB participated at the MEBAA conference in Marrakech, Morocco. The conference gathered stakeholders from the business aviation industry to discuss modern issues and pathways for further development. These topics ranged from the application of data science, the importance of international standards, and potential safety concerns in business aviation. The AIB also presented a topic, regarding the need for crew competency beyond the current regulatory minimums.

ENGAGEMENTS

15

Middle East and North Africa Society of Air Safety Investigators Annual Seminar (MENASASI 6th Annual Seminar)
Abu Dhabi, UAE
26-27/11/2019

MENASASI is the Middle East and North Africa Society of Air Safety Investigators. It is a chapter of the International Society of Air Safety Investigators (ISASI). The society gathers in an annual seminar in which the air safety is promoted by the exchange of ideas, experiences and information about aircraft accident investigations. AIB participated in the seminar of 2019 by sharing the analysis method that it has adopted in its investigations and the works that make the AIB an active member in the international community.

ENGAGEMENTS

16

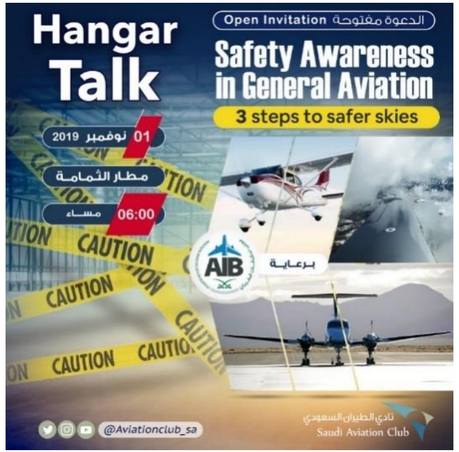
7th World Aviation Safety Summit
Dubai ,UAE
09-11/12/2019

The AIB shared insights on how service providers can use the investigation process, within their SMS, beyond just accidents/incidents investigation at 7th Annual World Aviation Safety Summit.
This represents the AIB's first participation at the World Aviation Safety Summit.

ENGAGEMENTS

17 Saudi Aviation Club Hangar Talk
Riyadh, Saudi Arabia
01/11/2109

The AIB was invited to present at the Saudi Aviation Club's monthly "Hangar Talk" at their headquarters, Al-Thumamah Airport, Riyadh, KSA. The AIB presented an aviation safety awareness program directed to general aviation practitioners. The presentation was widely accepted and marked the beginning of a series on safety awareness programs planned by the AIB.



ENGAGEMENTS

18 Annual MRO Safety Symposium by SAEI
Jeddah, KSA
24/11/2109

The AIB participated in the first SAEI MRO Safety Symposium as a guest speaker presenting on the importance of SMS investigations.

ENGAGEMENTS

19 Runway Safety Committee meeting at Riyadh Airports
Riyadh , Saudi Arabia
9/7/2109

The AIB has participated in the first Runway Safety Committee meeting in Riyadh Airports company that has been held in July 9, 2019. The RSC included many participants from various organizations such as service providers, operators, and civil aviation authorities...etc. The purpose of the RSC is to advise relevant operators, service provider's management and operational staff on prevailing local conditions on the runway, taxiways and adjacent areas, include recommending strategies for hazard removal, and develop mitigating measures and solutions to identify risk.

ENGAGEMENTS

20 Annual Safety Report Group By RASG-MID ICAO

Cairo, Egypt

25-27/11/2019

The AIB participated in a three-day meeting of the annual safety report group in Cairo, Egypt in the period from 25 to 27 November 2019. This meeting was the first of its kind and provided by International Civil Aviation Organization (ICAO) - MID Region with the participants of different states and organization within the region.

The MID-Annual Safety report is established to gather safety information from different available sources to identify and determine the main aviation safety risks in the middle East Region and develop the MID region safety report on an annual basis for review and endorsement by the RASG-MID; ensuring the confidentiality/de-identification of data

ICAO

APPENDICES

- ABBREVIATIONS
- DEFINITIONS OF OCCURRENCES CLASSIFICATIONS
- DEFINITIONS OF DIFFERENT TYPES OF INVESTIGATION
- DEFINITIONS OF RECOMMENDATION CLASSIFICATIONS
- REGIONAL AND INTERNATIONAL AFFILIATIONS
- MEMORANDUM OF UNDERSTANDING MOS

APPENDIX A | Abbreviations

Acronym	Definition
ACAC	Arab Civil Aviation Commission
ADREP	Aviation Data Reporting Program – ICAO
AIB	Aviation Investigation Bureau
AIG	Accident Investigation Group – ICAO
ARC	Abnormal Runway Contact
CVR	Cockpit Voice Recorder
DGCA	Directors General of Civil Aviation
FAS	Flight Analysis System
FDC	Flight Deck Crewmember
FDR	Flight Data Recorder
FRL	Flight Recorder Laboratory
GACA	General Authority of Civil Aviation (Kingdom of Saudi Arabia)
ICAO	International Civil Aviation Organization
ISASI	International Society of Air Safety Investigators
MENASASI	Middle East & North Africa Society of Air Safety Investigators
MLG	Main Landing Gear
NLG	Nose Landing Gear
OCC	Operation Control Center (AIB)
RAIO	Regional Accident Investigation Organization
SANS	Saudi Air Navigation Services
SAR	Stand-Alone Recommendation
SARP	Standards And Recommended Practices
SCG	Saudi Coast Guard
SR	Safety Recommendation
TCAS	Traffic Collision Avoidance System – Resolution Advisory

APPENDIX B | Definitions of Occurrences Classifications

Occurrence	Definition
Accident	An aircraft accident is an aviation occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down, in which: a) A person is fatally or seriously injured as a result of: 1) Being in the aircraft; or 2) Being in direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or direct exposure to jet blast, except when the injuries are from natural causes, self- inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or b) The aircraft sustains substantial damage or structural failure; or c) The aircraft is missing or is completely inaccessible; or d) A forced landing off an airport, irrespective of injuries or damage.
Serious incident	An incident involving circumstances indicating that there was a high probability of an accident.
Incident	An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
Other Occurrences	A reported event that does not classify as an accident or incident.

APPENDIX C | Definitions of Different Types of Investigation

Investigation Type	Definition
Annex 13	An aircraft accident A full scope investigation of accidents and serious incidents including site investigation, post site investigation, laboratory inspection and examination of affected aircraft parts in participation of national and international interested parties.
Limited Scope	Usually for office based investigation of an occurrence other than accident and serious incident that is associated with the operation of an aircraft which affects or could affect the safety of operation. There may be local and international parties participating in the investigation.
Discontinued	An investigation that is initiated on a reported occurrence and based on the gathered information it is determined that; • Underlying factors and circumstances are well known and they have been addressed in previous investigations • Safety actions taken by the concerned entity are satisfactory and more likely would prevent reoccurrence of similar incidents • Insufficient information to draw any specific conclusions regarding the circumstances Limited safety benefit would be expected from continuing the investigation and directing additional resources.
Safety Concern	A focused investigation addressing critical safety issue revealed from a reported occurrence. Or, when used as a standalone recommendation to swiftly address critical safety issues revealed during an on-going investigation. observation

APPENDIX D | Definitions of Recommendation classifications

Acronym	Definition
Safety Recommendation	A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including safety studies
Stand-alone Recommendation Report	Released if any safety deficiency becomes known during the course of the investigation for which prompt preventative action is required that is sent to all concerned parties including appropriate authorities in other States and ICAO whenever any ICAO documents are involved.
Safety Study Recommendation	A proposal of an accident investigation authority based on information derived from a Safety Study made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, Safety Study Recommendation will result from different sources other than investigations, such as safety Case study, trending analysis, and risk assessment analysis.

APPENDIX E | Regional and International Affiliations

Investigation Type	Definition
AIG	ICAO
IRIG	IRIG International Recorder Investigator Group
International Society of Air Safety Investigations	International Society of Air Safety Investigators
FSF	Flight Safety Foundation
MENA-SASI	Middle East Air Safety and Investigators North Africa

APPENDIX F | Memorandum of Understanding MOs

Organizations		Date	Location
The Bureau of Enquiry and Analysis for Civil Aviation Safety of France	BEA Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile	2015	Paris, France
The Interstate Aviation Committee of Russia		2015	Moscow, Russia
Civil Aviation Administration of China	CAAC		Beijing, China
Transport Safety Investigation Bureau of Singapore	TSIB SINGAPORE	2016	Singapore, Singapore
The Ministry of Equipment, Transport and Logistics of Morocco		2016	Rabat, Morocco
The General Civil Aviation Authority of the UAE	GENERAL CIVIL AVIATION AUTHORITY	2017	Jeddah, KSA
The National Bureau of Air Accidents Investigation of Ukraine		2018	Kiev, Ukraine
Public Authority of Civil Aviation of Oman	PACA	2018	Riyadh, KSA
National Transportation Safety Committee of Indonesia		2018	Jeddah, KSA

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