

مكتب تحقيقات الطيران
Aviation Investigation Bureau



ANNUAL REPORT

2020



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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



CONTENTS



The image shows a laptop screen displaying a webpage titled "Safety Management System". The page includes a table of contents with the following sections:

SMS Explained	Explanation
Term	Learn about the evolution of safety management and how SMS addresses the organization's role in safety.
Basis	SMS addresses the organization's role in safety.
Components	What are the four SMS components? Learn about each major component and how they work together as a system.
Quality and Safety Management	What are the similarities and differences between QMS and SMS? How do they complement each other?
Misconceptions	There are a lot of rumors about SMS. What are the most common misconceptions?

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Abdulelah O. Felemban

Director General of The Aviation Investigation Bureau

Foreword by the Director General

On behalf of the AIB team, I am pleased to present the annual report for year 2020. This is our 7th annual report since establishment in 2013 as an independent entity charged with investigating Aviation Occurrences in KSA, reporting to the Chairman of the Board of GACA.

With Covid 19, 2020 brought new challenges to the global aviation sector. AIB had its share of necessary adjustments and preparations to ensure the ability to conduct its functions effectively. This included work during lockdown, implementation of all health precautionary measures, deployment of investigation teams to occurrence sites and effective remote communication strategies. Our Operations and Control Centre received 858 event notifications, investigation teams conducted more than 13 investigations and issued 21 safety recommendations.

The AIB team, under the patronage of the Chairman of the Board of GACA, continues to be passionate and committed to its role as an integral part of the aviation system to advance aviation safety.

Thank you

Abdulelah Felimban
Director General

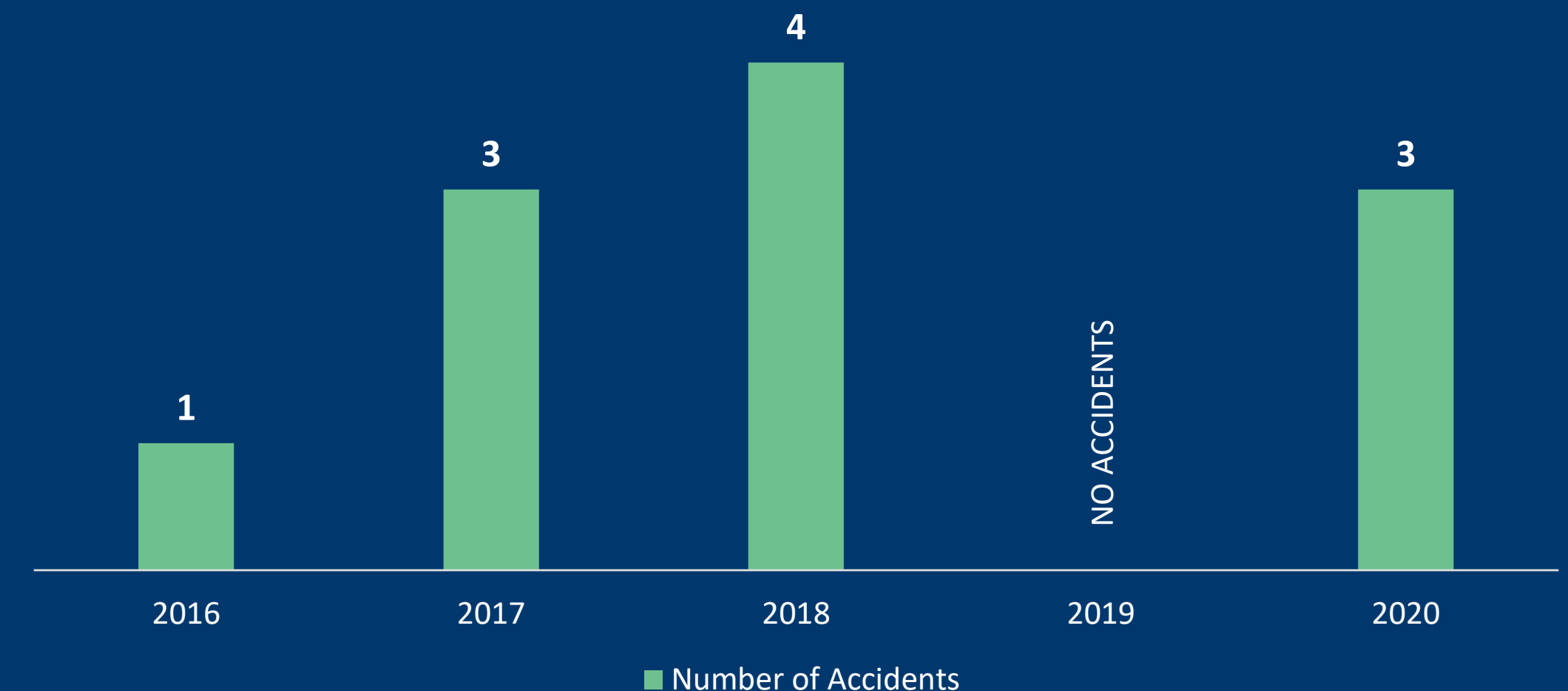
EXECUTIVE SUMMARY

The year 2020 had 858 events; 3 accidents, 1 serious incident and 208 incidents. The remaining events, 646, were not qualified to be occurrences. Cases that were under investigation totaled up to 13, and 21 safety recommendations were issued.

The yearly accident statistics indicate number of accidents occurred in the Kingdom of Saudi Arabia. As shown on the chart, the accidents rate in the past five years have unstable numbers. As reported, the state accident average rate was 0.47 accidents per hundred-thousand flights.

All accidents shown in the statistics include all operation types such as; scheduled commercial, non-scheduled, general, aerial-work and others.

Even though this year was full of obstacles and challenges, AIB was able to continue to grow and develop in many dimensions and keep strong engagement with stakeholders both locally and internationally.



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 fulfilling 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.

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.

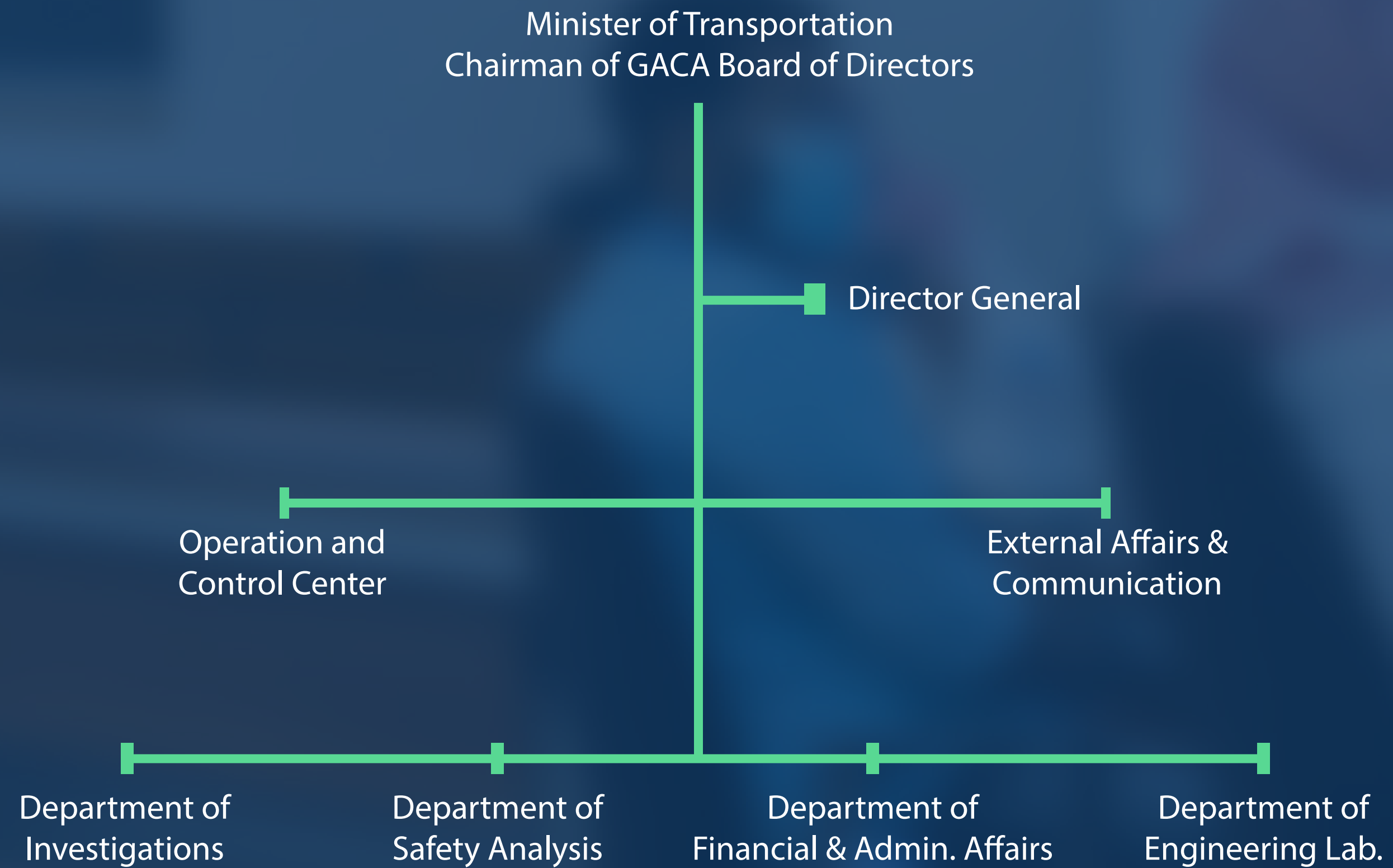
Competence

Continual professional and technical development.

Transparency

Exchange information to enhance aviation safety.

ORGANIZATIONAL STRUCTURE





ACHIEVEMENTS TIMELINE

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 aligns with the nature of aviation industry, one of the fastest growing industries.

Expansion of the AIB assets and capabilities was in line with the AIB's ambitious vision, especially in the last three years.

The timeline highlights AIB's most significant achievements through the last eight years.



2013

- The Establishment of the AIB
- First Investigation Report

2014

- Publishing The First Annual Report
- Conducting The First Safety Study

2015

- Flight Recorders Laboratory Relocation
- Acquisition of Investigative Equipment

2016

- KAUST - Core Labs Service Agreement
- Flight Analysis System



2017

- Memory Access Retrieval System (MARS)
- Underwater Search & Recovery capability
- Technical Advisor Program I
- Succession Planning Program

2018

- Recommendations Tracking System
- Group Investigation Checklist Manual
- Women Empowerment

2019

- Accredited Laboratory
- 100% Saudization
- Internship Program
- Technical Advisor Program II

2020

- Airside Safety Webinar
- Develop Brand identity
- Establishment of Birdstrike/Wildlife Group
- Develop AIB Strategy 2021-2025



THEN & NOW



Headcount



Number of Investigators



Number of Technical Advisors



Number of cooperations



“Flight recorders, commonly known as Black Boxes, provide the solid ground on which an investigation can be built upon.”

Ghazi Alharbi - FDR/CVR Specialist



UNDERWATER SEARCH

Retrieving the evidences from a crash scene can be a very complicated and delicate process on land which will make it in a whole another level of complexity if it was under the water. For that reason, what is arguably the most important evidence, the flight recorder, is fitted with an acoustic waves emitting device to increase the chances of locating it underwater. As the Kingdom of Saudi Arabia is bounded with water surfaces from the eastern and the western sides, AIB has invested in the technology for detecting the sound signals underwater including pinger receivers, hydrophones and surface acoustic receiver.

For the deeper waters and complex accidents, the AIB has several MOUs and service agreements with different governmental and private entities for underwater wreckage locating and salvation. Moreover, the AIB has licensed members among its team who can actively participate in these operations.



**SAFETY
ANALYSIS**

The AIB maintains a 24/7 notification service receiving all reported events through telephone calls, e-mails, facsimiles, and web forms. The total number of events received in 2020 reached 858.

The number of events has decreased by 10% in 2020, which can be expected due to COVID19. Also, AIB received 208 incidents, one serious incident and three accidents.

858 EVENTS

Accidents	3
Serious Incidents	1
Incidents	208
Non-Occurrences	646

12 INVESTIGATION REPORTS

Annex 13	3
Limited Scope	6
Preliminary	3

20 OTHER REPORTS

Initial Assessment	14
Safety Concern	1
Accredited Representative	2
Discontinued	3

21 RECOMMENDATIONS

Safety Recommendations	19
Stand-alone Recommendations	2

OPERATION TYPE

187 COMMERCIAL	2 AERIAL-WORK
22 GENERAL AVIATION	1 OTHER

AIRCRAFT TYPE

108 A320	27 A330	23 B777
13 A321	7 B787	6 B737
3 G450	3 B747	22 OTHR

25 RECORDERS DOWNLOADED AND ANALYZED

EMERGING RISKS

Aerodrome : **58% increase**



Other : **28% Increase**



Navigation Errors : **57% increase**

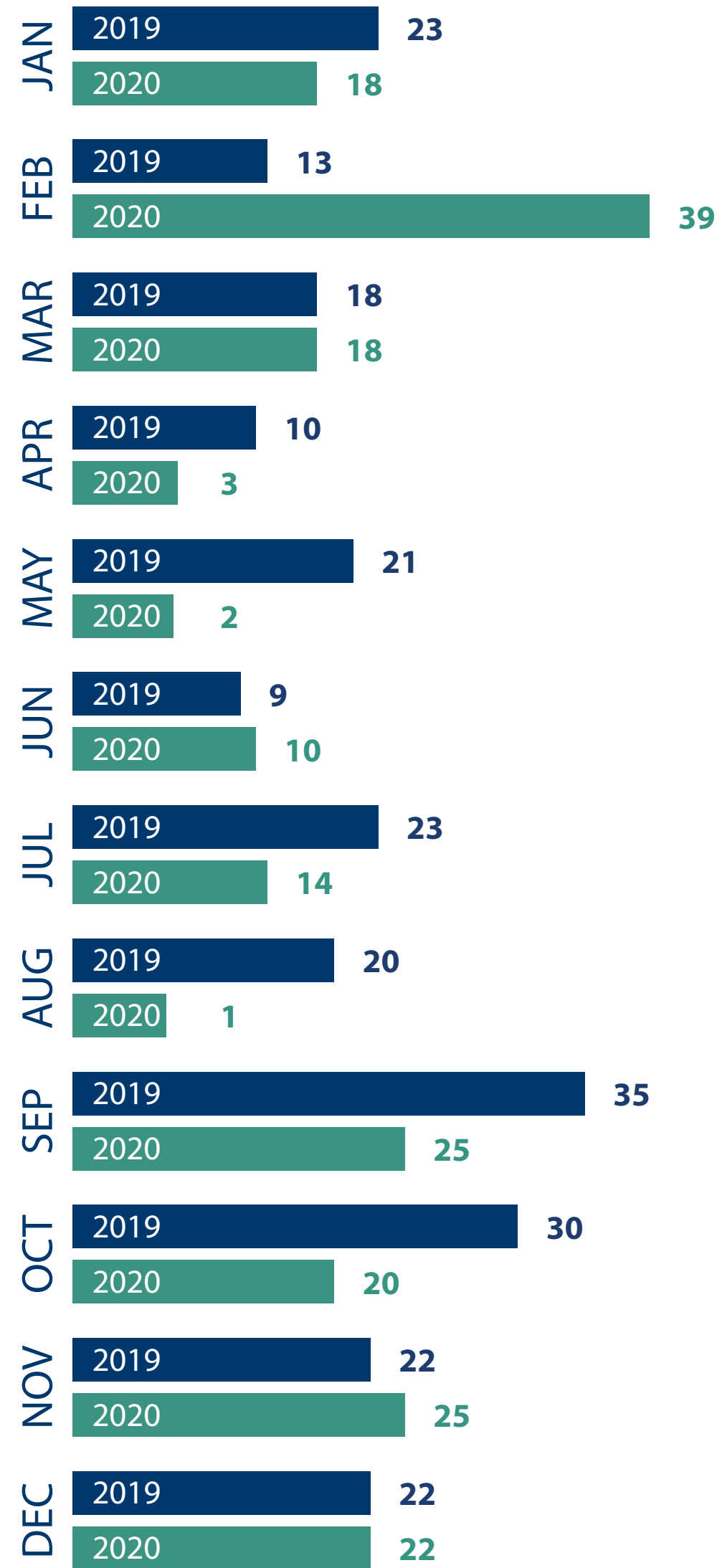


AVG. EVENT PER DAY : decreased 10%

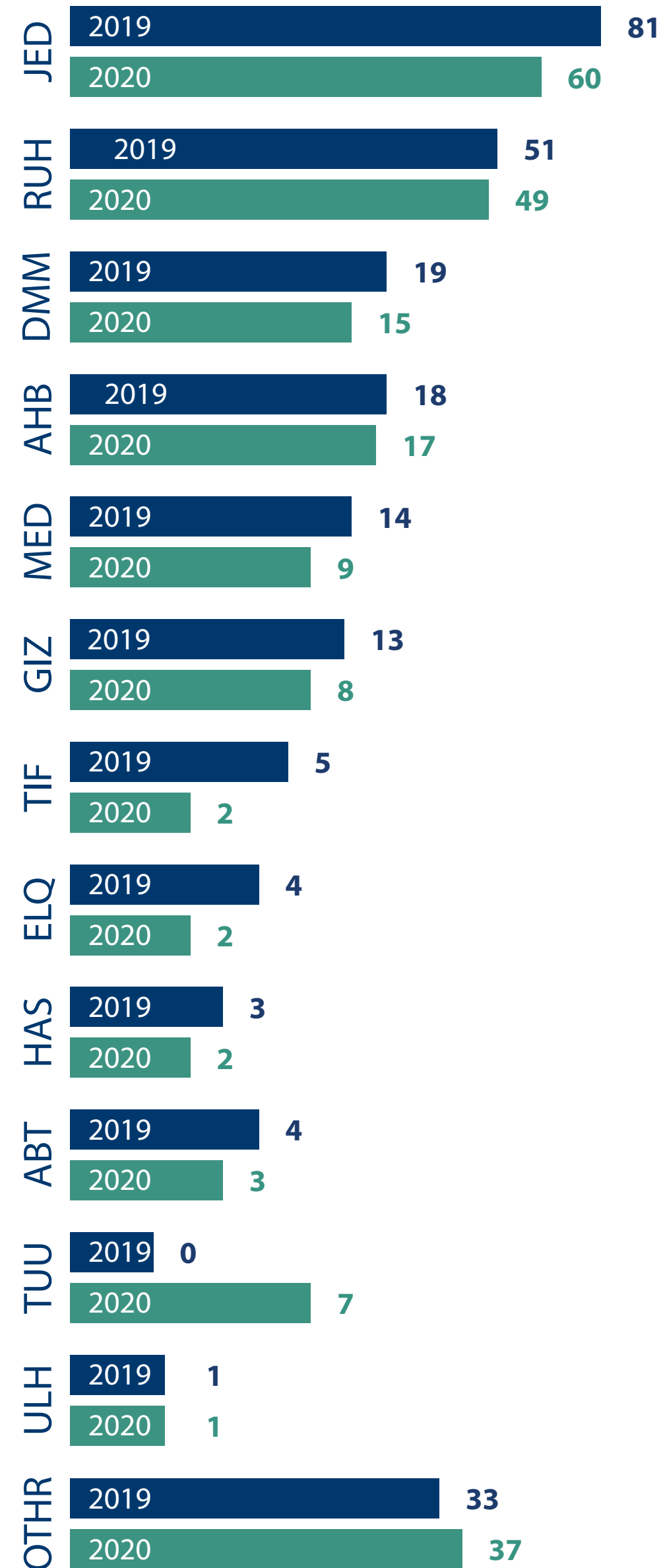


- Aerodrome: Occurrences involving Aerodrome design, service, or functionality issues.
- Other: Any occurrence not covered under another category.
- Navigation Errors: Occurrences involving the incorrect navigation of aircraft on the ground or in the air.

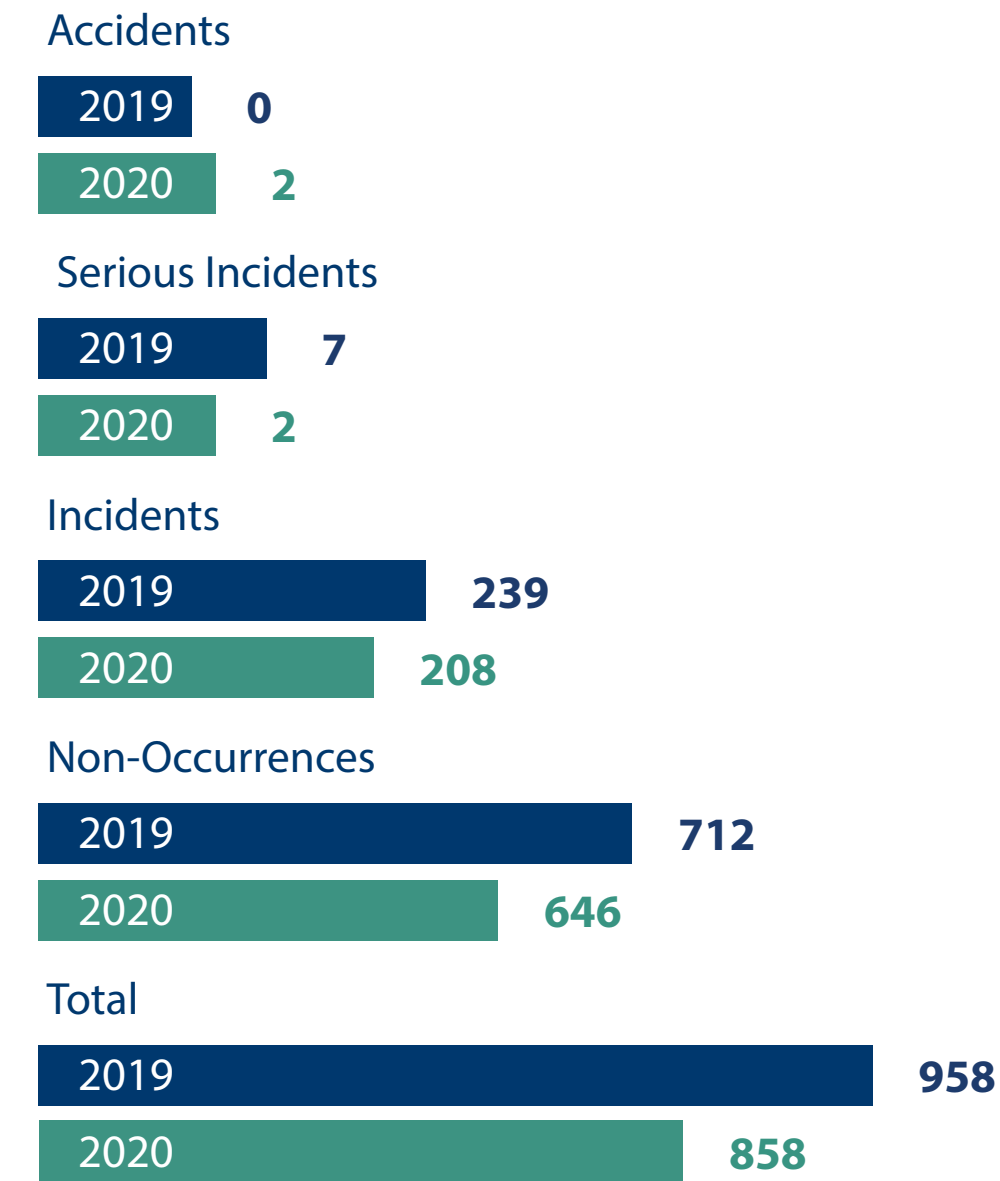
OCCURRENCES COMPARISON BY MONTH



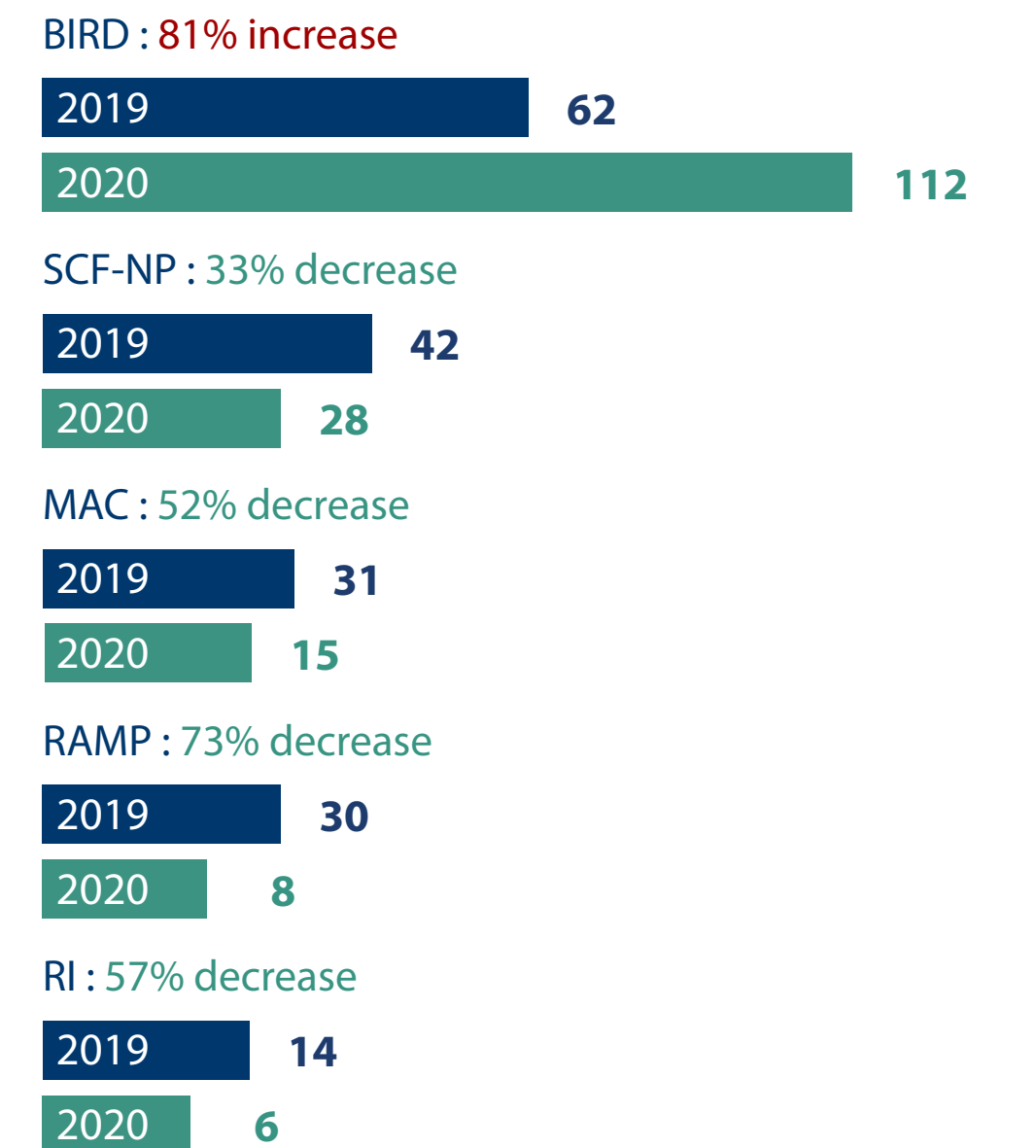
OCCURRENCES IN KSA AIRPORTS



OCCURRENCES COMPARISON



SIGNIFICANT OCCURRENCES



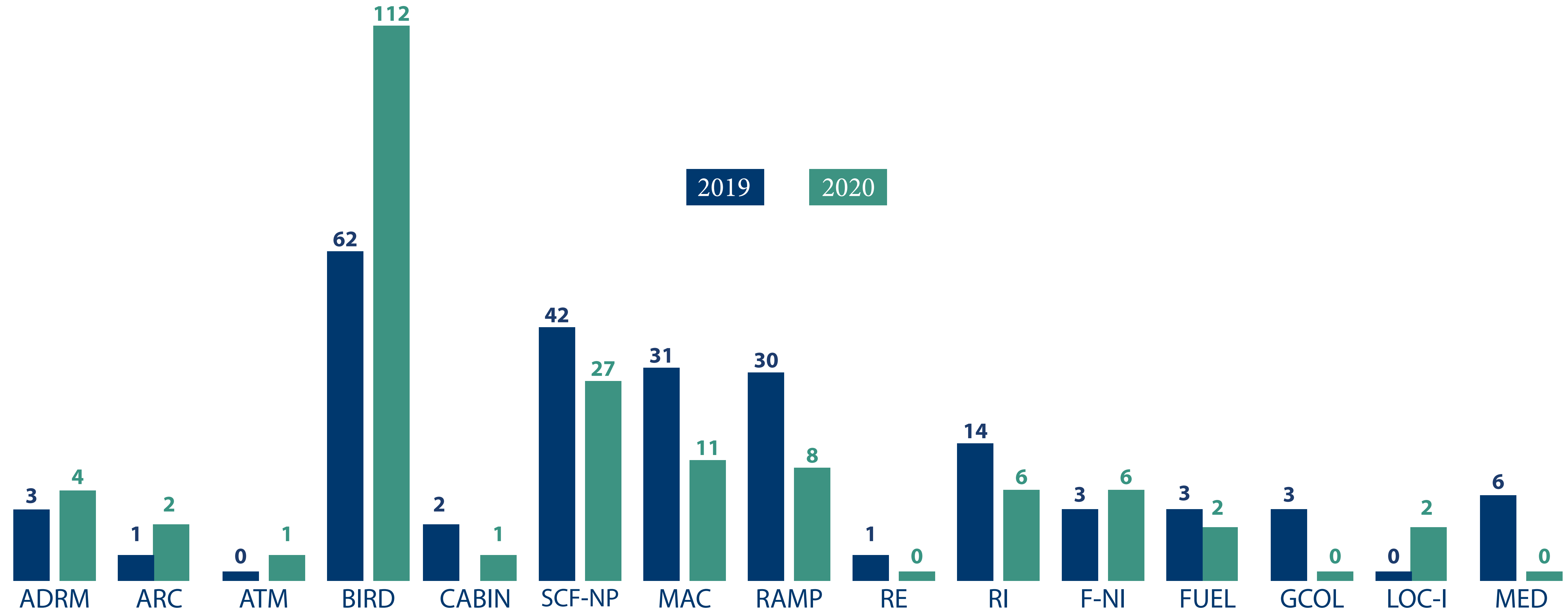
High-risk Categories of Occurrence

The high-risk categories of occurrence need to be addressed to mitigate the risk of accidents. The types of occurrences were selected based on high risk per accident or the number of accidents and incidents.

The following high-risk categories of occurrences (in no order) have been identified for the 2020:

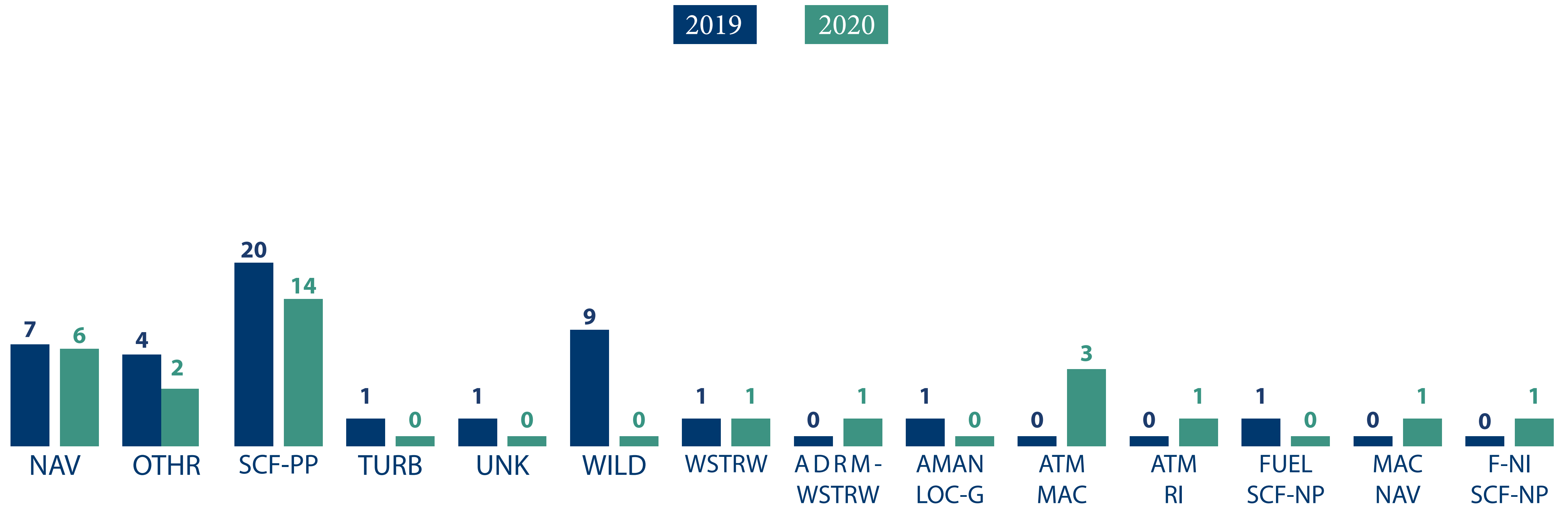
- System/component failure or malfunction (non-powerplant) (SCF-NP)
- System/component failure or malfunction (powerplant) (SCF-PP)
- Loss of Control – inflight (LOC-I)
- Abnormal Runway contact (ARC)
- Fire/Smoke (non-impact) (F-NI)

OCCURRENCES BY CATEGORY



Reference: ICAO common Taxonomy Team - Aviation Occurrences Categories (Definitions and Usage Notes).

OCCURRENCES BY CATEGORY



Reference: ICAO common Taxonomy Team - Aviation Occurrences Categories (Definitions and Usage Notes).

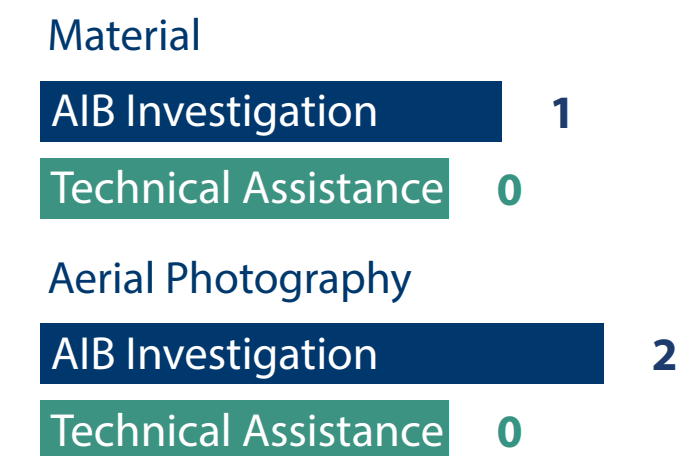
The image shows two men in a technical or industrial setting. The man on the left is wearing a dark blue jacket over a light blue shirt and a patterned tie. He has a black face mask with the AIB logo and a lanyard with an ID card around his neck. The man on the right is wearing a blue polo shirt with the AIB logo and a white surgical mask. Both are looking towards the left. The background is filled with complex machinery and pipes. A large green diagonal graphic element is overlaid on the right side of the image.

Engineering Activities

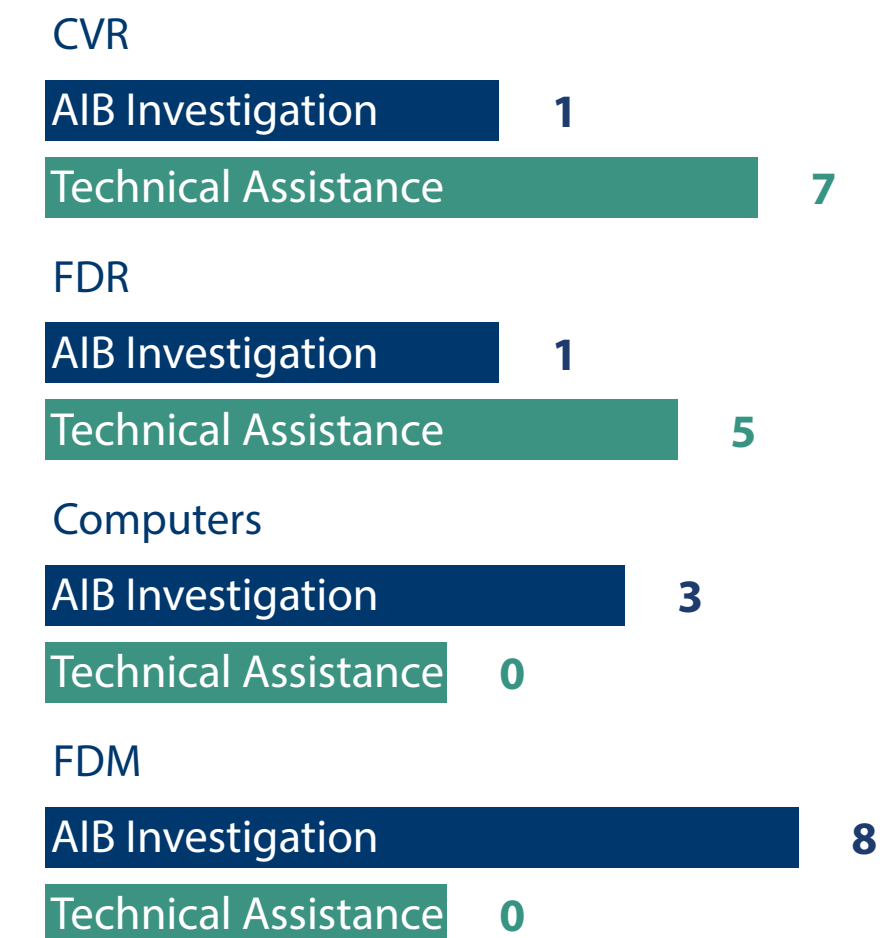
The AIB conducted various engineering works during 2020. These activities are essential to the investigation process as they provide the investigation with crucial factual information upon which the analysis can be based on. Such activities include the download and analysis of flight recorders, Cockpit Voice Recorders (CVRs) and Flight Data Recorders (FDRs), obtaining and analyzing data from Flight Data Monitoring (FDM) systems and developing the required capabilities to readout and analyze computer data (any recorded data other than CVR, FDR or FDM). Other works include material examination and aerial photography that can be used for 3D site reconstruction.

These activities can be done for AIB investigations or as a technical assistance for external parties supporting other purposes.

Examinations



Readout / Processing



“Investigating survivability identifies things that can be done to protect lives in accidents. Survivability data indicate that the improvements in occupant protection in air travel nowadays are the positive results of investigating survival factors of previous accidents”.

Mohamed Gari -Cabin & Survivability Investigator



Memory Access Retrieval System

Memory Access Retrieval System (MARS) is an ambitious project that aims to enable the download of the most common models of flight recorders when damaged with the exclusion of the complicated connections, software setups and specially the bench unit that involves the transplant of the memory board to a functional model unit. The AIB is a firm believer of the concept and the benefit that it will yield on the investigation community. Therefore, the AIB invested in the initial development of the project.

A project with this magnitude and concept to support the growing recorder variations is not to be made as a one-time product. Instead, its developed in phases where each phase covers a family of the most common types of recorders. As for today, "Honeywell SS 1st generation" and "L3 F1000", two widely used families of recorders, are supported by MARS and will soon be followed by the popular series "Honeywell HFR-5".

Although the core part of MARS is the download of the damaged recorders, the system can be expanded to include a microscope for visual inspection of the memory boards, electrical connection check tools, analysis software, audio mixer and many others to make a one stop station for the flight recorder.



**SIGNIFICANT
INVESTIGATIONS**

The AIB investigated a number of safety occurrences that involved extensive inquiry and analysis.

This section will highlight some of these investigations that were completed or initiated within the calendar year.

01

AIB-100220-115

Accident

Loss of Control – inflight (LOC-I)

Completed

On the 10th of February 2020, an Ayres S2R-T34, registration number 5Y-BZM, owned and operated by Farmland Aviation Ltd. under a wet lease agreement with Aerial Stream Company for aerial work services, was scheduled for a repositioning flight from Al Quz airstrip (OE48) to Al Sulayil (OESL). The aircraft struck mountainous terrain enroute to the destination airport. Emirate of Asir Province along with the local Civil Defense created a command center approximately 5 KM from the accident site. The Royal Saudi Air Force (RSAF) and Aviation Security helicopters conducted aerial search. The pilot was found and rescued the next day. The pilot was uninjured but the damage to aircraft was beyond repair (destroyed).

The pilot was to operate under VFR conditions to remain within the company Aerial Work Operating Certificate (AWOC). He received the flight briefing pack the evening before the 10th. The briefing pack which lacked terrain information was not referred to nor used by the pilot and on the morning of the flight the pilot created his own flight plan with the use of a Garmin Aera 500. Videos taken at the time of departure show the take-off in a sky with between “Scattered” and “Broken” cloud coverage; low overcast ceiling and show the mountain tops was obscured by fog. The aircraft entered the mountainous area under full IFR conditions shortly before the impact, The pilot records show no training for flight into mountainous areas, nor was he familiar with Saudi Arabia topography.

Numerous data were analyzed to track the flight progress and show that in the last minutes of flight the pilot was struggling to keep terrain separation between mountain ridges on both his right and left side. With the engine at full thrust and wings level, the aircraft struck with the right wing a rock formation. The airspeed (IAS) and engine (RPM) rapidly came down. The aircraft skipped and struck a tree completely uprooting it, scrapping its lower empennage, spun around and finally came to rest fully reversing the original impact heading.

The Ayres S2R-T34 was well equipped with terrain displays units: Satloc; GNS 430; and an iPad which were not utilized by the pilot and loaded the Garmin Aera 500 with direct course navigation. He planned his flight to cruise at 3,000 to cross a 7,865-foot high obstacle on his track. Farmland Aviation Ltd. and Aerial Stream Co. operation manuals allow for the pilot to dispatch himself provided he self-prepares with all the information required for a safe flight.

The AIB concluded the pilot’s improper planning and conduct of a VFR flight coupled with lack of terrain awareness. In addition, the poor utilization of available navigational equipment as the flight departed VFR conditions to be the casual factor for the accident. Contributing was the imprecise operations control exercised by the lessor (Farmland Aviation Ltd.).

The AIB issued 2 safety recommendations to the lessor and 3 to the involved civil aviation authorities.



02

AIB-2019-0034	Serious Incident	Navigation Errors (NAV)	Completed
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On 26 February 2019, a Saudi ARAMCO B737-800 aircraft, registration N803XA, scheduled for a three-sector flight that started from King Fahd International Airport (OEDF), Dammam, to Arar Domestic Airport (OERR), then to Al Wajh Domestic Airport (OEWJ) and then back to OEDF. On the second sector from OERR to OEWJ, the flight crew landed on the closed Taxiway-A (previously Runway-15T), the last sector back to OEDF was canceled and the AIB requested the Cockpit Voice Recorder (CVR) circuit breaker to be pulled. No injuries reported as a result of the occurrence.

Overall, a number of safety concerns were identified during the course of the investigation, these concerns included the flight crew’s lack of knowledge and/or understanding of the issued NOTAMS of the reopening of RWY-15, the closure of TWY-A, the closure of apron 1, and the cancellation of the RNAV approach for Runway-15T. Additional deficiencies with the dispatcher pre-flight briefing were observed.

The flight crew selection and execution of the canceled RNAV approach for RWY-15T restricted to VMC conditions was recorded by the Flight Data Recorder (FDR) and CVR. Safety recommendations addressing operating procedures and training were issued to the operator.

03

AIB-2017-0616	Serious Incident	(SCF-NP) & Fire/Smoke (Non-Impact) (F-NI)	Completed
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On 22 December 2017, Saudi Arabian Airlines, Airbus A321-211 aircraft, with registration number HZ-ASQ, was operating a scheduled passenger flight number SVA501, from Kuwait International Airport (OKBK), State of Kuwait, to King Abdul-Aziz international airport (OEJN), Jeddah, Kingdom of Saudi Arabia. HZ-ASQ landed safely on runway (RWY) 16R and taxied to the assigned parking stand at apron number (3-9). While the passengers were still on board the aircraft, the ground services staff tasked to place the parking chocks at nose landing gear observed fire on the right main landing gear. Initial firefighting was done by the Saudi Ground Services (SGS) staff. The Fire and Rescue Services (FRS) arrived at the aircraft stand, put out the fire, and restored the condition to normal. The passengers were deplaned safely using air stairs connected to L1 door. No injuries were reported as a result of this incident.

The causal factor of the brake fire incident could not be specifically determined. However, it is most likely the ruptured tie-bolt head was the trigger that started a chain of events of breakage and failures of parts and systems that ended with brake fire. During the progress of this investigation, a number of safety findings were observed and were communicated with the Operator, the Maintenance, Repair and Overhaul (MRO) and the FRS.

The following are corrective and preventive actions implemented to prevent or mitigate reoccurrence of similar incidents:

- The Operator mandated performing a Non-Destructive Testing (NDT) on the Main Landing Gears (MLG) wheel tie-bolt at every shop visit.
- MRO Shop technicians received vendor onsite training to improve their performance (including but not limited to tie-bolt maintenance handling process).
- The Technical Services Training Department released Training Bulletin number 431, dated 06 November 2019, as an awareness tool for addressing the tie bolt installation requirements and standard practice.
- FRS management issued and circulated an instruction letter to all staff, to strictly adhere to established safety standards and procedures whenever responding to any emergency situation as outlined in the Standard Operating Procedures (SOP).

The AIB issued a recommendation to the operator of performing a reliability study on current fleet and to test the performance of landing gear wheels and brakes consumable parts.

04

AIB-2019-0191

Incident

Abnormal Runway Contact (ARC) – Gear Up Landing

Completed

On 21 October 2019, Rabigh Wings Aviation Academy (RWAA) Instructor Pilot (IP) and Student Pilot (SP) on a TECNAM P2006T aircraft, registration HZ-RW3, intended to fly from Rabigh airport (OERB), Rabigh, to Prince Abdul-Mohsin Bin Abdul-Aziz Regional Airport (OEYN), Yanbu, to meet the night flight-training requirement. The plan was to proceed to King Abdul-Aziz International Airport (OEJN), Jeddah after executing (4) touch and go patterns.

HZ-RW3 landed in OEYN at 18:00 hrs. By about 18:38 hrs. the pilots began the touch and go training sessions on runway (RWY-28). The first touch and go was uneventful. On the second touch and go, the pilot extended the downwind leg, and became distracted by concerns with a departing traffic wake turbulence. The landing was 391m from the RWY threshold, while the landing gear selector was left in the “Up” position. As the aircraft fuselage settled on the runway surface the aircraft became disabled and effectively blocked the runway. Opening their respective doors, both pilots, uninjured, evacuated the aircraft.

The AIB concluded that the casual factor was lack of checklist discipline to where the student pilot did not select the landing gear knob to the “DOWN” position and the failure of the Instructor pilot to verify the landing gear to be in the “DOWN” position. Contributing was the absence of standardized pattern callouts, negligible Crew Resources Management (CRM); and the instructor pilot “wake turbulence instructional distraction” during the touch and go pattern.

The AIB recommended:

1. GACA to reassess the applicability of the current GACAR Part 141 waivers for RWAA operations;
2. GACA to mandate installation of the SD memory card for Garmin systems data on all light aircraft equipped with Garmin systems.



05

AIB-2019-0110

Incident

Runway Incursion (RI)

Completed

On 23 July 2019, a C130 aircraft was operated by Royal Saudi Air force (RSF265) from Prince Abdulmohsin Bin Abdulaziz Airport (OEYN), Yanbu to King Abdulaziz International Airport (OEJN), Jeddah. At approximately 10:58 (Local time) and when RSF265 was on short final to runway 34 right (RWY-34R)-OEJN, a vehicle crossed RWY-34R. The vehicle was a motorized equipment (forklift) with registration SV-G29899 operated by Saudia Aerospace Engineering Industries (SAEI) that was proceeding from SAEI main hangar in the west side of the airport to SAEI substation in the east side. RSF265 landed safely and the forklift operator proceeded to the determined destination uneventfully.

Overall, a number of safety concerns were identified during the course of the investigation, these concerns included the forklift operator’s lack of knowledge pertaining to airside driving procedures and safety in the vicinity of the airport maneuvering area (runways and taxiways), the absence of mandatory instructional signs on roads leading to the maneuvering area, and the lack of refresher training for license renewal.

Safety recommendations addressing current licensing process/requirements and service road identification were issued to the airport authority.

06

AIB-080120-121

Serious Incident

Runway Incursion (RI)

Completed

On 10 August 2019, Saudi Arabia Airlines operated flight SVA 305, an Airbus A330 aircraft with registration HZ-AQ20, on a scheduled service between King Abdul-Aziz International Airport (OEJN) in Jeddah and Cairo International Airport (HECA) in Cairo. An Airfield Operations vehicle (AF-02) conducting runway inspection was on the runway 34L (RWY-34L) when SVA 305 was cleared for takeoff on the same runway. SVA 305 continued its takeoff roll and rotated while the vehicle was not safely distanced from the aircraft and/or the effect of the jet blast. The flight crew were not aware of AF-02 close proximity as they rolled down the runway and rotated at VR. The Airfield Operations Officers (AOOs), in the inspection vehicle, were not monitoring the tower frequency and critically missed hearing ATC clearing SVA 305 for the take off. Unexpectedly and in total surprise they saw the aircraft accelerating down the runway and closing rapidly towards them. Evasively, they immediately vacated RWY-34L by exiting on taxiway-B5 (TWY-B5).

The maneuver to separate was estimated to take 7 seconds in time and at 120 meters (m) (90m from the wing tip) in terms of the distance. On one hand, individually, the Local Controller Aerodrome (LCA); the AOOs; and the flight crew actions were all examined against the regulatory requirements and against applying standard procedures; and, on the other hand, the Operations, involving runway management; runway inspection procedures and practices have been systematically evaluated. RUNWAY INSPECTIONS are considered as a core airport management safety activity demanding risk mitigation at the highest level.

The investigation referred to findings and recommendations of a SANS report dated 08 January 2020. The AIB concluded:

1. SVA flight crew did not report the occurrence and may not have observed the encounter;
2. KAIA Airport Operations Control (AOC) performed well within prescribed guidelines;
3. The Airfield Operations Officers and the Local Control Aerodrome deviated from regulatory and ICAO Standards and Recommended Practices (SARPs). The AIB also observed and listed Air Traffic Management (ATM) elements considered as contributing to the occurrence. In addition to applying ICAO’s Runway Incursion Risk Calculator assessment, the AIB evaluated this occurrence as a serious continued exposure threat to the safety of runway inspection operations regarded as a mandatory task that will always remain in practice.

Accordingly, the AIB issued a recommendation to improve the system, appropriately scaled to streamline and upkeep SARPs and encourage best safe practices.

07

AIB-080120-030

Incident

Air Traffic Management Mishap (ATM)

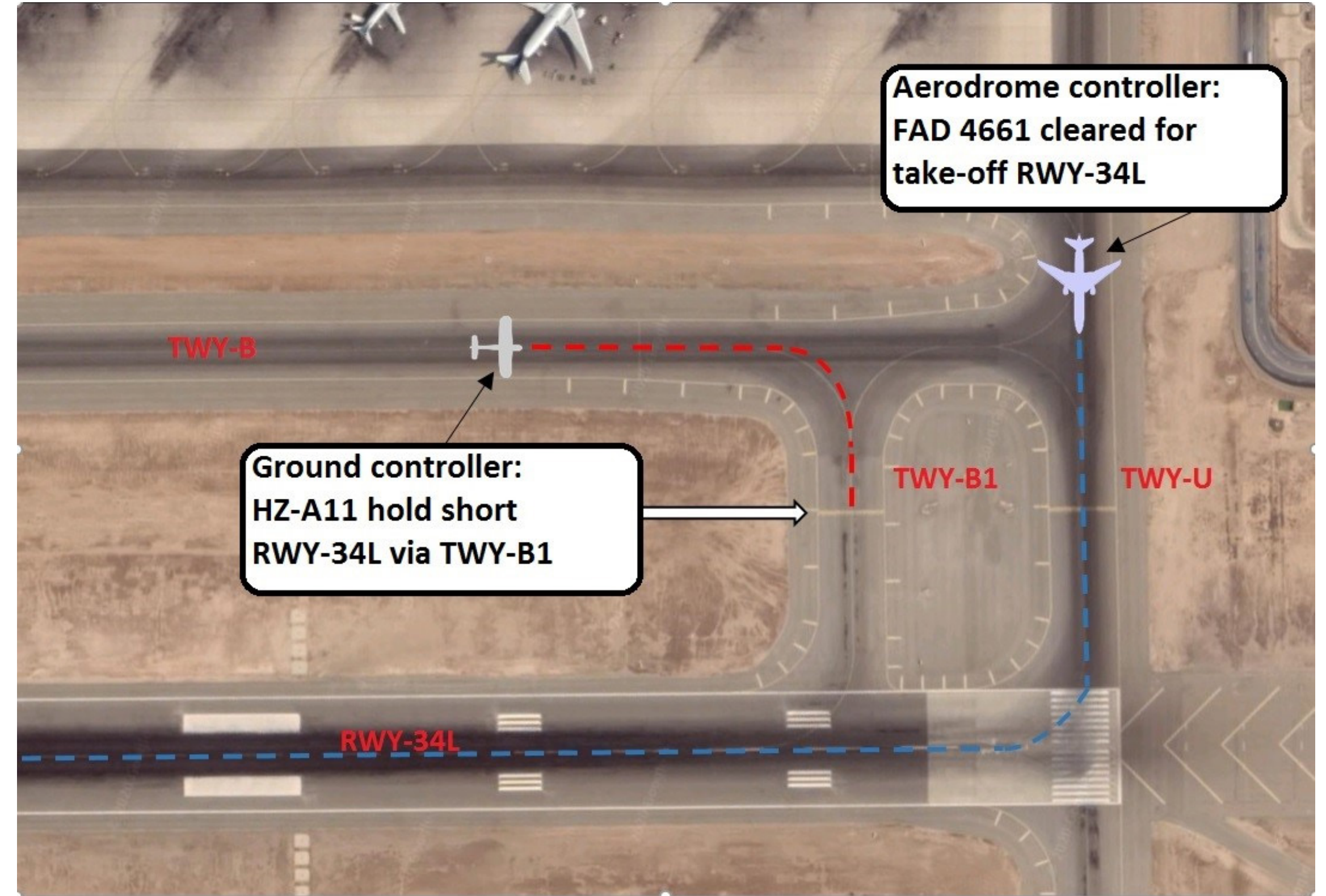
Completed

On 08 January 2020, flights HZ-A11 (an ATR 72) and HZ-FAC (an Airbus 320) flight number FAD 4661 were operating on the same route; from King Abdulaziz International Airport to King Khalid International Airport. HZ-A11 start-up was at 15:46:581 from the General Aviation (GA) apron (apron 16). Approximately 7 minutes later, FAD 4661 requested pushback and start from apron 3 stand 12. The aprons are at a considerable distance apart with HZ-A11 having to cover significantly more distance. Each flight taxied under the direction and clearances of its depicted area ground controller and on separate frequencies but headed towards the same active runway 34L (RWY-34L). With respect to the longer distance, HZ-A11 received a more complex taxi clearance involving specifically two hold short instructions, the first at taxiway Romeo (TWY-R) intersection and second at taxiway Uniform (TWY-U) intersection. As HZ-A11 moved closer to RWY-34L, Ground Controller West (GND-W) revised the clearance to hold short of RWY-34L via taxiway B1 (TWY-B1). Shortly after, HZ-A11 continued its taxi and accepted a takeoff option from TWY-B1 intersection, the TWY-B1 intersection was located closer up from RWY-34L threshold. An attempt to pass this information to the LCA controller was not successful. FAD 4661 after pushback received a short and simple clearance for a right turn on TWY-U and direct to RWY-34L. Both flights changed to the same LCA frequency, FAD 4661 receiving unconditional takeoff clearance, and HZ-A11 received non-standard conditional line-up and wait clearance. Clearances were dependent on LCA's sporadically scanning of the CCTV and not on real-time visual checks. With respect to a realistic distance factor, visual scanning of RWY-34L from the tower is considered to be challenging but as for this case where the investigation revealed that the LCA controller was without the medically certificate-required corrective lenses.

The LCA controller selective reliance upon CCTV images combined with the misunderstanding of critical radio transmissions led to:

1. Failed comprehension of the seriousness of HZ-A11 and FAD 4661 warning calls;
2. Severe miscalculation of which flight can possibly takeoff first.

The LCA controller hastily issued cancelled and revised takeoff clearances once gained awareness of the situation. And, possibly driven by concerns for traffic approaching RWY-34L on FINAL (KNE448), LCA controller's recovery actions effectively introduced a new set of perplexing faulty decisions. The AIB has concluded the causal factor of the occurrence is the substandard and undisciplined behavior of the LCA controller. The AIB has also determined that the physical sequencing of both aircraft had self-stopped the occurrence from developing into a much more serious one; and there are findings of carry-over organizational/systemic contributing factors repeatedly observed in previous reports requiring GACA's focused attention.



08

AIB-210120-254

Incident

MAC – AIRPROX

Completed

An air proximity event occurred on, 21 January 2020 between a Flyadeal (FAD4234) aircraft and a military air formation consisting of two Royal Saudi Air Force aircraft (FARES) as they approached Prince Sultan bin Abdulaziz Airport Tabuk. The investigation identified the following factors that caused the incident:

- The Transponder of the Formation Commander Aircraft (FARES) transmits an altitude 500 feet above from the apparent altimeter altitude.
- A malfunction in the second aircraft’s altimeter altitude meter (FARES) causing the Transponder to transmit altitudes lower than the actual aircraft.

As a result of the investigation, the AIB recommended the Royal Saudi Air Force’s Safety Department to investigate the causes that led to the difference in altimeter readings with the altitudes transmitted via the Transponder of the formation commander’s aircraft causing this incident and to do what is necessary to prevent its reoccurrence.

09

AIB-2019-0210

Incident

(ARC) - Main Rotor Blade Strike

Draft Report

On 14 November 2019, at 08:19, the AIB received a notification from the National Transportation Safety Board (NTSB) of America about an event involving a helicopter that suffered minor damage. The AIB contacted the operator, verified the occurrence and classified it as an incident.

The AIB opened a safety investigation and has completed the evidence collection and analysis phases. Currently, the investigation is in the draft report phase, the draft report has been disseminated awaiting all Interested Parties (IPs) feedback.



10

AIB-310120-092

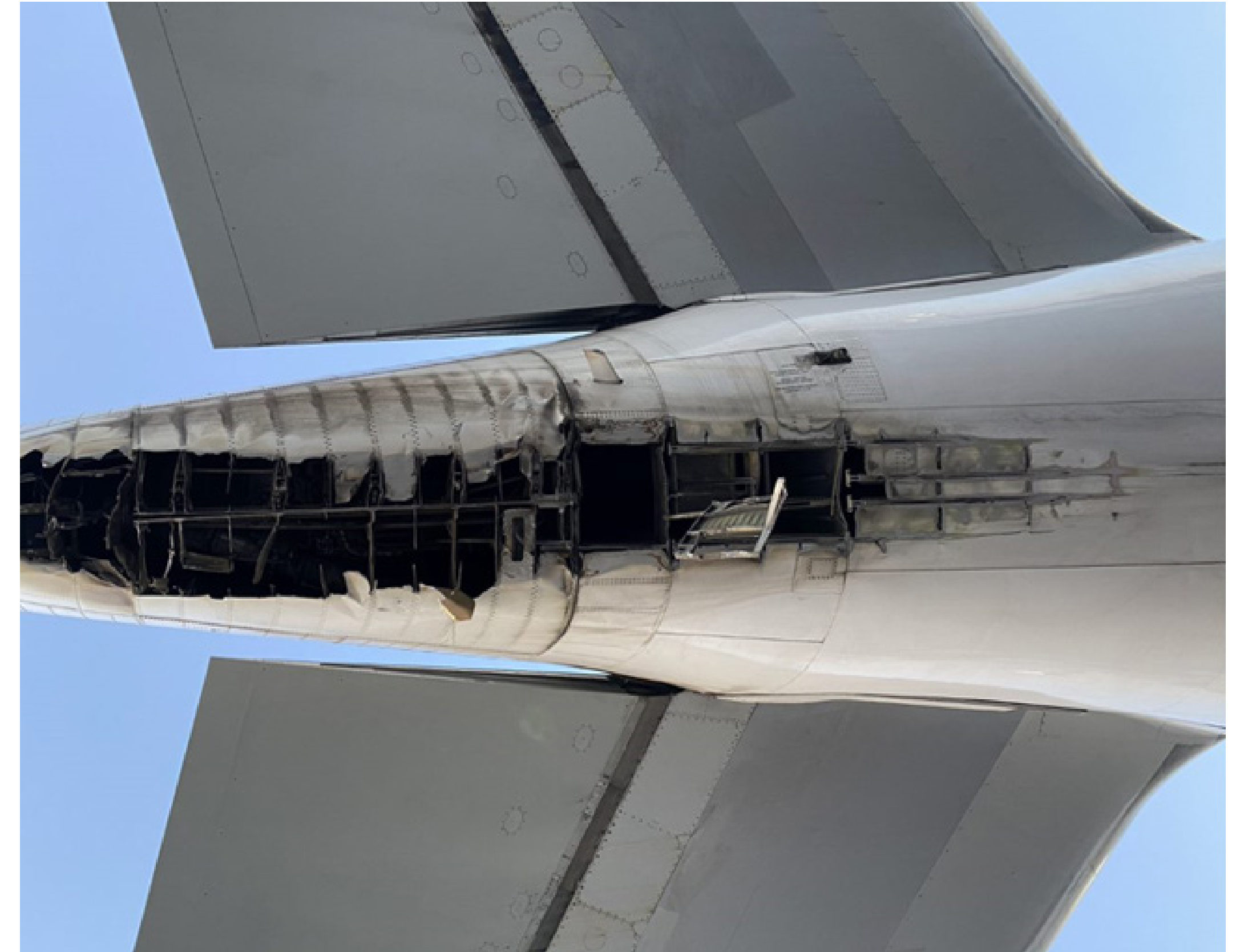
Accident

Abnormal Runway Contact (ARC) – Tailstrike on Take-Off

Draft Report

On 01 February 2020 at approximately 00:08, the Aviation Investigation Bureau (AIB) of the Kingdom of Saudi Arabia received a notification from Dammam Airports Company (DACO) of a tail strike occurrence involving a B747-400F aircraft, registration TC-MCT, flight SVA919 during departure from King Fahd International Airport (OEDF), Dammam, Kingdom of Saudi Arabia to Zaragoza Airport (LEZG), Spain and its final diversion to King Abdulaziz International Airport (OEJN), Jeddah, Kingdom of Saudi Arabia.

The AIB classified the occurrence as an accident and opened a safety investigation. An investigation team was formed to investigate the circumstances of the occurrence and, in accordance with ICAO Annex 13, a preliminary report was sent to the IPs on 30 March 2020. The evidence collection and analysis phases have been completed. Currently, the investigation is in the draft report phase, preparing the report before dissemination.



11

AIB-220920-530

Accident

SCF-PP and Loss of Control In-Flight (LOCI)

Analysis

The AIB was notified of an occurrence involving a Cessna 172S aircraft that crashed adjacent to RWY-17/35 at Al-Thumamah Airport (OETH) near the city of Riyadh, Kingdom of Saudi Arabia. A post-crash fire ensued after impact which consumed the aircraft. The airport Fire and rescue services rushed to the accident site and extinguished the fire. The pilot was fatally injured.

The AIB initiated an investigation and dispatched an investigation team to the occurrence site. The occurrence was categorized as “System/Component Failure or Malfunction (Power Plant) (SCF-PP)” and “Loss of Control In-Flight (LOCI)”, and classified it as an “Accident.” The investigation has completed the evidence collection and is currently in the analysis phase.



12

AIB-291220-849

Incident

BIRD

Evidence Collection

On 29 December 2020 at approximately 09:11, the AIB received a notification from safety department in Saudi Airlines that an Airbus A320 aircraft registration HZ-AS55, flight from Abha (OEAB) to Dammam (OEDF), rejected take-off and returned from taxiway. No injury to persons resulted from this occurrence. However, a minor damage at the aircraft left engine was reported.

The AIB immediately initiated an investigation into this occurrence and formed an investigation team which has already started investigating and currently in the evidence collection phase.



13

AIB-220620-313

Incident

MAC – AIRPROX

Draft Report

On 22 June 2020, an air proximity occurrence occurred between a Saudi Airlines aircraft flight number (SVA1527) and a Royal Air Force military aircraft flight number (SAUDI3) as they approached Prince Sultan bin Abdulaziz Airport in Tabuk (OETB), KSA.

The AIB conducted an investigation for this incident with the participation of the Royal Saudi Air Force, where recordings of the audio and radar calls of the air traffic control units were reviewed and the statements of the pilots and the relevant air traffic controllers were collected.

The investigation is in the draft report phase, the draft report has been disseminated awaiting all Interested Parties (IPs) feedback.

Experts Talk Program

In the AIB's increasingly dynamic environment, we believe that "Transferring Information" is very important to effectively capture and share the organizational knowledge and subject matter expertise between the AIB personnel.

Experts Talk sessions are conducted every other week, given by our employees, in their matter of expertise. The program was established to help achieve the knowledge transfer goal and facilitate the information sharing between the different expertise readily available at the AIB. All sessions are recorded and materials stored in the AIB's knowledge database that is accessible for all of the AIB personnel.

Experts Talk sessions started on Mid-June 2020

Platform: MS Teams

Number of sessions held: 12 Sessions given by 11 employees + 1 external guest

Categories Covered:

- Media Relations in Investigations.
- Evidence Collection and Preservation.
- Domain Specific Analysis in Investigations.
- Engineering Analysis in Investigations.
- Investigation Site Safety.
- AIB Case Studies.
- Personal Development.



RECOMMENDATIONS

Recommendations are the final product of all investigations and safety studies. It aims to enhance safety and it prevent re-occurrences.

The AIB issued 21 recommendations during the year 2020, 12 of which were accepted and closed.

21 RECOMMENDATIONS

Safety Recommendations	19
Stand-alone Recommendations	2

SAFETY RECOMMENDATIONS CATEGORY

ARC	2
ATM/CNS	5
LALT	5
MAC	5
NAV	2
RI	1
SCF-NP	1

SAFETY RECOMMENDATIONS SUBJECT

Aircraft/Equipment/Facilities – Aircraft Equipment	1
Personnel – Management/Scheduling/Staffing	1
Personnel – Training/Proficiency/Check	9
Procedures/Regulations – Aerodrome	1
Procedures/Regulations – Air Navigation Services	2
Procedures/Regulations – Aircraft Maintenance/Inspection	1
Procedures/Regulations – Aircraft Operators	3
Procedures/Regulations – ANS Maintenance/Inspection	1
Procedures/Regulations – Other	1
Procedures/Regulations – Oversight/Auditing	1

ATM/CNS

AIB-080120-030-SR-01 27/05/2020 SANS Closed - Accepted

The Saudi Air Navigation Service to reemphasize the correct usage of standard phraseology and conditional clearances amongst air traffic controllers

AIB-080120-030-SR-02 27/05/2020 SANS Closed - Accepted

The Saudi Air Navigation Service to reemphasize the requirement for controllers to maintain continued visual scanning at all times prior to runway entries, takeoff sequencing and takeoff runs.

AIB-080120-030-SR-03 27/05/2020 SANS Closed - Accepted

The Saudi Air Navigation Service to emphasize during the competency test and/or random inspections a protocol to validate compliance with any certificate limitations.

AIB-080120-030-SR-04 27/05/2020 SANS Closed - Accepted

The Saudi Air Navigation Service to reevaluate the process of keeping track of individual Key Performance Indicator (KPI) records for ensuring objectivity and fairness.

AIB-080120-030-SR-05 27/05/2020 SANS Open

The Saudi Air Navigation Service to conduct an in depth review for the “causes and remedy” to restore confidence and proper usage of the Stop Bar System.

LALT

AIB-100220-115-SR-01 18/10/2020 FAL Open

Farmland Aviation Ltd. to re-address a more active role in effectively exercising operational control specifically to manage personnel away from- base location(s).

AIB-100220-115-SR-02 18/10/2020 KCAA Open

Kenya Civil Aviation Authority (KCAA) and General Authority of Civil Aviation (GACA) to require certified Agricultural operators to have pilots use available and operable redundant instrumentation.

AIB-100220-115-SR-03 18/10/2020 KCAA Open

Kenyan Civil Aviation Authority (KCAA) to consider the reassessment of Farmland Operation Manual to insert tighter measures with respect to Ferry Flights preparations and planning.

AIB-100220-115-SR-04 18/10/2020 GACA Open

General Authority of Civil Aviation (GACA) to consider the reassessment of GACAR Part 133 (Aerial Work Operations) to insert tighter measures with respect to Ferry Flights preparations and planning.

AIB-100220-115-SR-05 18/10/2020 FAL Open

Farmland to re-evaluate the effectiveness of pilot checks especially for “locating and use of emergency equipment”.

MAC

AIB-2019-0223-SAR-01	05/01/2020	SANS	Closed - Accepted
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The Saudi Air Navigation Services (SANS) to ensure that all uncontrolled aerodromes provided with Aerodrome Flight Information Service Units (AFISU) adhere to traffic information provision in accordance with the AIP subsection ENR 1.1 (§ 1.1.4.2) and to refrain from issuing clearances/instructions to traffic.

AIB-2019-0223-SAR-02	05/01/2020	SANS	Closed - Accepted
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The Saudi Air Navigation Services (SANS) to study the feasibility of including additional message; such as "This is an uncontrolled Aerodrome; TIBA procedure is in effect" in the transmitted messages by the Automatic Terminal Information Service (ATIS) in all uncontrolled aerodromes where only Aerodrome Flight Information Service (AFIS) is provided to avoid possible misunderstanding by aerodrome and surrounding airspace users.

AIB-2019-0223-SR-01	29/10/2020	Flynas	Closed - Accepted
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Flynas to enhance the awareness among its flight crewmembers on the existing KSA AIP subsection ENR 1.1 (§ 1.1.4.2.2) regarding the responsibility to ensure their own separation from other traffic when operating in the vicinity of an aerodrome on which AFIS is provided.

AIB-2019-0223-SR-02	29/10/2020	OxfordSaudia	Closed - Accepted
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Oxford Saudia to enhance the awareness among its flight crewmembers on the existing KSA AIP subsection ENR 1.1 (§ 1.1.4.2.2) regarding the responsibility to ensure their own separation from other traffic when operating in the vicinity of an aerodrome on which AFIS is provided.

AIB-210120-254-SR-01	3/07/2020	RSAF	Open
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The Safety Department of the Royal Saudi Air Force should investigate the causes that led to the difference in the altimeter readings with the altitudes sent via the transponder device to the formation commander plane (FARES) causing this incident and taking the necessary actions to ensure that it does not reoccur.

ARC

AIB-2019-0191-SR-01	09/11/2020	GACA	Open
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GACA to reassess the applicability of the current GACAR Part 141 waivers for RWAA operations.

AIB-2019-0191-SR-02	09/11/2020	GACA	Open
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GACA to mandate installation of the SD memory card for Garmin systems data on all light aircraft equipped with Garmin systems.

NAV

AIB-2019-0034-SR-01	11/03/2020	ARAMCO	Closed - Accepted
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Saudi ARAMCO Aviation Department to introduce risk controls, ensuring procedural items of primary importance (4.6.1 of ARAMCO's FOM) are effectively followed during the preflight aircrew briefing.

AIB-2019-0034-SR-02	11/03/2020	ARAMCO	Closed - Accepted
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Saudi ARAMCO Aviation Department should revisit its Crew Resource Management (CRM) training program to ensure the effectiveness of the "Trans Cockpit Authority Gradients" and disseminating the lessons learned.

RI


AIB-2019-0121-SR-01	13/05/2020	KAIA	Closed - Accepted
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King Abdul-Aziz International Airport authority to implement a procedure by which a reminder call on the relevant ATCO frequency is transmitted by the vehicle on periodic basis throughout the entire time as long as the runway is occupied.

SCF-NP

AIB-2017-0616-SR-01	01/04/2020	Saudia	Closed - Accepted
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Saudi Arabian Airlines, to conduct reliability study on the performance of landing gear wheels and brakes consumable parts, in particular tie-bolts, to ensure the fleet healthy status.

A woman wearing a dark blue hijab and a matching long-sleeved top is shown in profile, looking towards the left. Her hands are near her chest, as if adjusting her hijab. The background is a soft, out-of-focus indoor setting. In the bottom-left corner, there is a decorative graphic consisting of several overlapping triangles in shades of teal and dark blue, creating a geometric pattern.

“The process of achieving sustainable development requires adopting a contemporary and flexible mindset which by challenges, gaps and weaknesses are distinguished as unlimited opportunities to evolve. To put it another way, challenges can be your best way to find and design smart solutions.”

Hanadi Alhazmi - Apprentice Safety Investigator

TECHNICAL ADVISOR

The AIB developed and maintained a Technical Advisor program as a capability to engage national experts within the aviation industry to support the AIB in its safety investigations or when participating in overseas investigations with accredited representatives (ACCREPs). All participants are required to take Technical Advisor training which the AIB facilitates. The training covers the investigation process and the applicable standards, regulations and legislation.

Number of Registered Technical Advisors: 62

A woman in a white lab coat and a pink headscarf is sitting at a desk, writing in a spiral notebook with a yellow pencil. The background is blurred, showing what appears to be a laboratory or office setting. A large, semi-transparent green arrow graphic points diagonally downwards from the top left towards the bottom right, partially overlapping the woman and the notebook. The word "ENGAGEMENTS" is written in white, bold, uppercase letters across the middle of the image, positioned over the woman's chest and the notebook.

ENGAGEMENTS

The AIB believes that cooperation is a powerful tool for AIB as an investigative authority. By combining the efforts and expertise of different organizations, all parties are better able to address challenges on many levels and therefore, this can result in greater achievements in the safety of the civil aviation.

1

The Yemen CAMA Flight Safety Visit

15/01/2020

Representatives from the Yemen Civil Aviation and Meteorology Authority visited the AIB facility. The AIB discussed and presented the investigation authority role, guidelines, capabilities and processes. The visit included a tour of the Flight Recorder Lab, site deployment equipment, investigation room equipment and the Operation Control Center. It was a fruitful and beneficial visit for both entities that based the ground for future cooperation.



2

General Security Aviation Command Visit

20/01/2020

Representatives from the General Security Aviation command visited the AIB Head Quarter. The AIB discussed capabilities, tools and procedures that could assist the General Security Aviation Command in their future investigations and safety analysis process. A short tour was conducted involved the following:

- Tour in Flight Recorder Lab
- Site deployment equipment
- Investigation room equipment
- Operation Control Center

This visit was a foundation for a strong cooperation between the AIB and the General Security Aviation Command.

3

Prince Mohammed bin Abdulaziz International Airport Visit

15/12/2020

A team of the Saudi Birdstrike/Wildlife Group visited Prince Mohammed Bin Abdulaziz International Airport located in Medina to bench mark, develop, and implement effective wildlife hazard management program. The attendee, representing a range of organizations, contribute their expertise in the interests of improving aviation safety. The visit was an initiative from the Saudi bird strike/Wildlife Group as recommended by the International Civil Aviation Organization (ICAO) under Document 9137 Part 3, Bird control and reduction.

The visit included

- Visual presentation about:
 - Prince Mohammed bin Abdulaziz international airport facilities.
 - Prince Mohammed bin Abdulaziz international Airdrome certificate.
 - Wildlife risk management program .
 - Wildlife Incident statistics.
- Airside field visit to:
 - Wildlife habitation hotspots.
 - Airside Valleys and waterways.
 - Cargo area where birds use it as habitat.
- Visit Conclusion meeting and recommendation conclude:
 - Take advantage of the experience PMIA wildlife hazard management program (WHMP).
 - Take advantage of activation of (Environmental Management System).
 - Consider PMIA offer to activate wildlife hazard management program (WHMP) and to start Environmental management systems to different Saudi airports.

4

Global Aviation Safety Plan 2020-2022

01-02/03/2020

Global Aviation Safety Plan 2020 – 2022 and National Aviation Safety Plan Workshop held back to back with the RSC/7 meeting. The Workshop was intended to develop competencies for persons involved in the planning and implementation of a national aviation safety plan, in alignment with the ICAO Global Aviation Safety Plan and the regional aviation safety plan. This includes identifying national operational safety risks and other safety issues, such as challenges related to the State Safety Program (implementation, and planning initiatives to address them). The Workshop also addressed the States strategic approach to managing safety in civil aviation, including national safety goals, targets and indicators. This event focused on flight operations and safety management specialists, civil aviation safety inspectors, airline safety managers and representatives from organizations involved in accident and incident investigations.

5

7th Meeting of the RASG-MID Steering Committee (RSC/7)

03/03/2020

The Seventh meeting of the Middle East Regional Office –ICAO MID Office (RASG-mid) steering committee held in Cairo discussed the Adoption of the Provisional Agenda and Election of RSC Co-Chairs, the global developments related to aviation safety, Regional Performance Framework for Safety and Coordination between RASG-MID and MIDANPIRG also discussed the working arrangements and future work program.



6

National Transportation Safety Center Committee Visit

01-02/03/2020

Members of the National Transportation Safety Center Committee (NTSC) responsible for the development of the planned Center visited the AIB facility. The AIB presented the current investigative capabilities and procedures, specifically in the areas of site deployment and site safety, evidence collection and human factors in investigations.

The visit included a tour and a demonstration of the following:

- Flight Recorder Lab & engineering equipment
- Investigation safety and evidence collection equipment
- Site deployment trailers

The effort was well received by the National Transportation Safety Center Committee.

7

ICAO AIG Working Group

11/05/2020

The AIB participated in the conclusion of the proposed amendments by the International Civil Aviation Organization Accident Investigation Working Group 18 (WG 18 to be submitted to the Accident Investigation Panel for approval). The group main tasks were to review the provisions in Annex 13 in relation to the Global Aeronautical Distress and Safety System and Doc 10054 regarding the recovery of automatic deployable flight recorders and the protection of transmitted flight recorder data. The submitted final working paper included proposals for a new standard and modified definition in Annex 13. It also proposed revisions to the guidance material in Doc 9756 for the read out of flight recorders.

8

Visit to SAEI Composite Materials Shop 24/08/2020

A team of the AIB staff visited the composite material shop in Saudia Aerospace Engineering Industries. The team received a thorough explanation of the capabilities and the work process related to composite materials in addition to the inspection and material processing techniques. The visit was followed by an induction session in the AIB facility conducted by a composite materials specialist from SAEI.

9

Flight Safety Day 2020 (KFAB) 04/11/2020

The AIB participated in the Flight Safety Day in King Fahd Air Base in Taif. The Bureau was introduced by presenting how it utilizes and processes the recorded flight data to produce plots for investigation analysis; and flight animations to provide a general understanding of the accident/incident circumstances. This type of engagement between the military and civilian oriented parties is essential to highlight the overlap between the two, and pave the road for firmer collaborations.



10

Visit to SAEI Line Maintenance 17/09/2020

A team of the AIB staff visited the line maintenance in Saudia Aerospace Engineering Industries. The visit aimed at providing an overview of the arrival check process including warehouse management and walk around inspections techniques with a highlight on the common areas of interest.

11

8th Annual MENASASI Webinar & Workshop 17/11/2020

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. The AIB participated in the 2020 webinar by sharing its view on what aviation investigation authorities can do to continue to create value for the civil aviation industry using a value matrix approach and shared an insight on the decision to investigate Unmanned Aerial Systems (UAS) occurrences.

12

Aviation Safety Awareness Session 02/11/2020

The AIB was invited to present an aviation safety awareness session directed to student pilots at Rabigh Wings Aviation Academy headquarter. The session emphasized the importance of preflight preparation, safety reporting and safety culture. The session was a continuation of the AIB's safety awareness series that was initiated in 2019.

13

Saudi Airlines Jet Propulsion Center Visit

06/10/2020

A team of the AIB staff visited Saudi Airlines Jet Propulsion Centre (JPC) in Jeddah. The visitors received a thorough explanation of the In-House Engines/APUs Main Process. JPC team guided AIB Staff in a tour throughout the facility to observe the multidisciplinary capabilities of the center. The visit was followed by a trip to the Engine Test Cell in King Abdulaziz International Airport. Engine receiving and testing process was demonstrated to the team in the test control room to obtain a comprehensive idea of the practice. Such exchanges are highly valued by the AIB as they lay up the bases for cooperation with the industry which will enable a more efficient safety advancement.



14

Airside Safety Webinar

2020-2021

The AIB and GACA have held an Airside Safety webinar that divided into four virtual regional Webinars as follows:

Western Region: 22/12/2020 Central Region: 13/01/2021
 Northern Region: 15/02/2021 Southern Region: 15/03/2021

The Airside Safety webinar has different attendees consisted of different airports, airlines, ground handling services providers and air navigation services to review safety in the airside. The objectives of the webinar are as follows:

- Enhance commitment to airside safety.
- Promote airside safety by all stakeholder's engagement.
- Los prevention/reduction in the airside.

Expected outcomes:

- Raise airside safety awareness.
- Enhance safety communication.
- Safety culture effective implementation.



“Level of success is measured by true values built on results.”

Abdulrahman Alessa - Admin Coordinator



DEVELOPMENTS

The AIB staff is the backbone of the organization and the key to its success. That's why we always ensure that our development programs are designed at a very high level in order to improve, enhance, refine and sharpen our employee's existing skills, and to also develop newer ones in support of the AIB's mission and objectives.

AIB's 2020 Developments:

- New Case Numbering System.
- Investigation Deployment enhancement.
- Duty Officer Training Program.
- Communication continuity strategy.
- MVP-50T Readout Capability.

A woman wearing a black hijab and a light blue surgical face mask is seated at a desk in an office. She is looking towards the camera with a slight smile. Her hands are clasped together, holding a white pen. In front of her is a laptop computer. The background is slightly blurred, showing other office equipment like a water bottle and a pen holder. The image is overlaid with several thick, parallel green diagonal stripes that run from the top-left towards the bottom-right. The word "APPENDICES" is written in a bold, white, sans-serif font across the middle of the image, partially overlapping the green stripes.

APPENDICES

Appendix A: Abbreviations

ACAC	Arab Civil Aviation Commission
ADREP	Aviation Data Reporting Program
AIB	Aviation Investigation Bureau
AIG	Accident Investigation Group
CVR	Cockpit Voice Recorder
DGCA	Directors General of Civil Aviation
FAS	Flight Analysis System
FDC	Flight Deck Crew-member
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
KAUST	King Abdullah University of Science and Technology
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

Accident	<p>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:</p> <p>a) A person is fatally or seriously injured as a result of:</p> <ol style="list-style-type: none"> 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 <p>b) The aircraft sustains substantial damage or structural failure; or</p> <p>c) The aircraft is missing or is completely inaccessible; or</p> <p>d) A forced landing off an airport, irrespective of injuries or damage.</p>
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.
Non-Occurrences	A reported event that does not classify as an accident or incident.

Appendix C: Definitions of Different Types of Investigation

- 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.

Appendix D: Definitions of Different Types of Investigation

- 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** 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: Aviation Occurrence Categories

ADRM	Aerodrome	LOLI	Low Altitude Conditions En Route
AMAN	Abrupt Maneuver	MED	Medical
ARC	Abnormal Runway Contact	NAV	Navigation Errors
MAC	Airprox/TCAS Alert/Loss Of Separation/Near Midair Collisions	OTHR	Other
ATM/CNS	AirTrafficManagementOrCommunication,Navigation,Surveillance	RE	Runway Excursion
BIRD	Birdstrike	RI	Runway Incursion
CABIN	Cabin Safety Events	SEC	Security Related
CTOL	Collision With Obstacle(S) During Takeoff And Landing	SCF-NP	System Component Failure Or Malfunction (Non-Powerplant)
CFIT	Controlled Flight Into Or Toward Terrain	SCF-PP	System Component Failure Or Malfunction (Powerplant)
EVAC	Evacuation	TURB	Turbulence Encounter
EXTL	External Load Related Occurrences	USOS	Undershoot/Overshoot
F-NI	Fire/Smoke (Non-Impact)	UIMC	Unintended Flight In Imc
F-POST	Fire/Smoke (Post Impact)	UNK	Unknown Or Undetermined
GTOW	Fuel Related	WILD	Wildlife
GCOL	Glider Towing Related Events	WSTRW	Windshear Or Thunderstorm
ICE	Ground Collision		
LOC-G	Loss Of Control - Ground		
LOC-I	Loss Of Control - Inflight		

Appendix F: ICAO Operation Type Definition

Commercial Operation	An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.
General Aviation Operation	An aircraft operation other than a commercial air transport operation or an aerial work operation.
Aerial-Work Operation	An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

التقرير السنوي ٢٠٢٠
Annual Report 2020

مكتب تحقيقات الطيران
Aviation Investigation Bureau



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