



# Aviation Short Investigation Final Report

Near Midair Collision (NMAC) between  
C6-KID - SF-340 and C6-JEF - PA-27

**Lynden Pindling Int'l Airport, Nassau, Bahamas,**

**22 September, 2018**

**AAID Aviation Occurrence Investigation**

**AO-18-000025**

**Final Report – April 8, 2019**

### **The Air Accident Investigation Department (AAID)**

The Air Accident Investigation Department (AAID) is the independent accident investigation department under the Bahamas Ministry of Tourism and Aviation (MOTA) charged with the responsibility of investigating all aviation accidents and incidents in the Bahamas.

The AAID's function is to promote and improve safety and public confidence in the aviation industry through excellence in:

- Independent investigation of aviation accidents and other safety occurrences
- Safety data recording, analysis and research
- Fostering safety awareness, knowledge and action.

**The AAID does not investigate for the purpose of apportioning blame or to provide a means for determining liability.** At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the AAID endeavors to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

The AAID performs its functions in accordance with the provisions of the Bahamas Civil Aviation Act 2016, Civil Aviation (Investigations of Air Accidents and Incidents) Regulations and Amendment Regulations 2017, International Civil Aviation Organization (ICAO) Annex 13 (Eleventh edition, July 2016 – latest revision) and, where applicable, relevant international agreements.

The Air Accident Investigation Department is mandated by the Ministry of Tourism and Aviation to investigate air transportation accidents and incidents, determine probable causes of accidents and incidents, issue safety recommendations, study transportation safety issues and evaluate the safety effectiveness of agencies and stakeholders involved in air transportation. The objective of a safety investigation is to identify and reduce safety-related risk. AAID investigations determine and communicate the safety factors related to the transport safety matter being investigated.

The AAID makes public its findings and recommendations through accident reports, safety studies, special investigation reports, safety recommendations and safety alerts. Unless otherwise indicated, recommendations in this report are addressed to the regulatory authorities of the State having responsibility for the matters with which the recommendation is concerned. It is for those authorities to decide what action is taken. When the AAID issues a safety recommendation, the person, organization or agency is required to provide a written response without delay. The response shall indicate whether the person, organization or agency accepts the recommendation, any reasons for not accepting part or all of the recommendation(s), and details of any proposed safety action(s) resulting from the recommendation(s) issued.

Official Copies of accident reports can be obtained by contacting:

Air Accident Investigation Department  
2nd Floor, Manx Corporate Center  
#45 West Bay Street  
P. O. Box CB-11702  
Nassau N. P., Bahamas  
Tel: 1 (242) 397-5513 / 5514/ 5509 / 5520 / 5525  
Fax: (242) 327-2192

Additional copies of the reports can be viewed on the **AAID's** website at: <http://www.baaid.org> or requested by email: [baaid@bahamas.gov.bs](mailto:baaid@bahamas.gov.bs).

## Near Midair Collision (NMAC) C6-JEF and C6-KID

### What Happened?

On 22 September 2018 around 7:00am, a near mid-air collision<sup>1</sup> occurred over runway 14/32 at Lynden Pindling Int'l Airport when two aircraft simultaneously departed the same runway, from opposite ends, headed toward each other.

Based on the tower log, at 11:04:41Z aircraft C6-JEF, a Piper Aztec, piston-driven aircraft, operated by a private operator, was given instructions to depart runway 27 from Kilo intersection at Lynden Pindling Int'l Airport, and continue on course to its destination of Great Harbor Cay, in the Berry Islands. Eight seconds later at 11:04:49Z, C6-KID, a SF-340 turbo-prop aircraft, operating as WST 701, was given instructions to depart from the threshold of runway 14, with instructions for a left turn after departure, destination Freeport, Grand Bahama. Although instructions were issued to C6-JEF to depart runway 27 at Kilo intersection, despite acknowledging instructions for runway 27 departure, C6-JEF taxied onto and departed runway 32, from intersection Lima, contrary to issued instructions.

Both aircraft eventually commenced takeoff roll headed toward each other. C6-JEF became airborne first and came into view from security camera footage at time 7:04:34am<sup>2</sup>, approximately midway between Bravo and Delta taxiways and appeared to be approximately 50 ft. in altitude when it was first observed.

From camera footage it is obvious C6-JEF departed several seconds prior to the timestamp of 7:04:34am. There could have been approximately 1,500ft covered, and 10 or more seconds elapsed since his takeoff roll from Intersection Lima, the aircraft becoming airborne and coming into view.

Approximately 12 seconds had elapsed since C6-JEF came into view during his climb out, before C6-KID was observed on camera footage passing taxiway Echo at 7:04:46am, commencing his take off roll, from the opposite direction, on runway 14, headed southwest. C6-KID rotation occurred just prior to taxiway Delta, slightly abeam the aircraft crash and rescue fire station, at 7:04:53am. By the time C6-KID rotated and became airborne, C6-JEF had already disappeared above him and out of camera range.

The near mid-air collision occurred adjacent to the Control Tower and Apron 5, out of camera range. Aircraft separation height over the runway unknown. Neither aircraft was aware of their close proximity or conflict possibility until advised by ATC. It is noted that aircraft C6-CAB was also on the active runway, lined up behind C6-KID, at the time of this incident.

#### **C6JEF**

C6-JEF was on a Visual Flight Rules (VFR), interisland flight plan from Nassau, Bahamas to Great Harbor Cay (MYBG) in the Berry Islands. The flight was planned for an altitude of 2,500 feet, with two souls on board (1 soul was actually onboard), a 25 minute enroute flight time and a 2 hour fuel duration planned. The pilot of C6-JEF admitted he forgot to follow instructions issued for departure on runway 27.

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<sup>1</sup> Near Midair Collision as defined from ICAO Doc. 8020.16 means – an incident associated with the operation of an aircraft in which the possibility of a collision occurs as a result of proximity of less than 500 feet to another aircraft, or a report is received from a pilot or flight crewmember stating that a collision hazard existed between two or more aircraft.

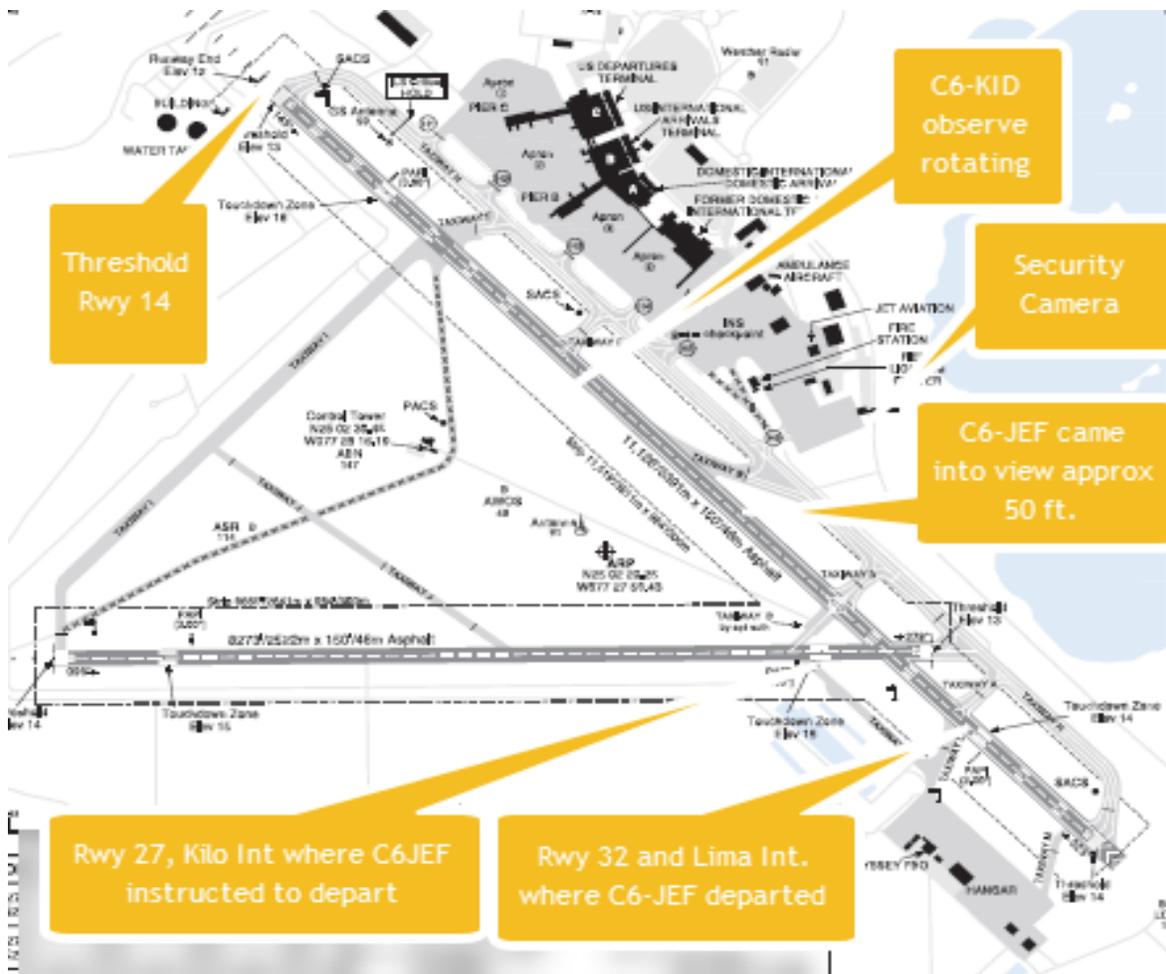
<sup>2</sup> There appears to be a time difference between the UTC/Z time from the official tower log and the time stamp from the security camera system. The camera system shows the aircraft airborne prior to the ATC timestamp when takeoff instructions were issued.

Playback of tower tapes and transcript confirmed ATC cleared the pilot to depart runway 27 from intersection Kilo, which he acknowledged.

**C6-KID**

C6-KID operated as Western (WST 701) was on a Visual Flight Rules (VFR), interisland flight plan from Lynden Pindling Int'l to Freeport Int'l Airport (MYGF) on the island of Grand Bahama, Bahamas. The flight was planned for an altitude of 8,000 feet, with twenty-five souls on board, a 40-minute enroute flight time and a 3-hour fuel duration planned.

Both aircraft continued their flight to their destination and eventually returned to Lynden Pindling Int'l Airport without further incidence.



## Investigation Findings

While findings in this report did not identify any abnormalities with either aircraft, or air traffic controller equipment, investigations uncovered related safety concerns that needed to be addressed as it relates to air traffic procedures, personnel licensing issuance and oversight, pilot and air traffic controller initial and recurrent training documentation, and air traffic control record keeping processes and documentation.

- The poor decision making exercised by the pilot of aircraft C6-JEF in not following directions issued by ATC, despite advising he understood the instructions given, has been determined as the probable cause of the near mid-air collision.
- Also contributing to this near mid-air collision was the actions of the air traffic controller by losing visual on the aircraft he issued instructions to, and the failure on the part of the crew of C6-KID for not observing that another aircraft was on the same runway at the same time before commencing their take-off roll.
- The AAID believes this loss of visual contact on the aircraft by the controller, may have been as a result of distraction due to the ongoing shift change at the time, and the fact that the controller was manning two separate radio frequencies<sup>3</sup> during a time of high traffic volume, while using a system that required additional training and frequent data input so that all systems can function properly with adequate current information.
- The AAID also believes the failure to notice the aircraft by the crew of C6-KID may be the result of distractions or preoccupation with completing final checks while on the runway, before take-off.
- Pilot training, qualification and air traffic controller training, licensing and record keeping practices has been investigated and while not directly contributing to the incident were noteworthy and required action.

### **Additional Findings of Significance**

#### **Air Traffic Controller**

- Medical Certificate had expired
- ATC license was not issued

#### **Bahamas Air Navigation Services Division**

At the time of this incident and commencement of this investigation it was noted that BANSD had;

- No documented process to track medical status of Air Traffic Controllers
- No ATC personnel in possession of required ATC licenses.
- Several ATC personnel were operating without the required current medical certificates.

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<sup>3</sup> ATC management advised this practice is not unusual having one controller manning more than one frequency at a time. However, the internal review conducted have concluded that this practice is unsafe (especially at periods of high traffic volume) and have made recommendations to address this unsafe condition.

***NOTE: An Air Traffic Control license with associated endorsed ratings, as well as a current medical certificate is required by Bahamas Civil Aviation General Regulations (CAGR) Schedule 8, Subpart B and Subdivision IX, when exercising the privileges of any required certificate.***

#### **Pilot C6-JEF**

- No record of required annual recurrent training as required by CAGR was documented.

#### **Crew C6-KID**

- Failed to observe other aircraft on the runway in time to abort. Possibly due to distractions or pilot duties, crew did not realize another aircraft was taking off toward them until it had passed directly overhead.
- Crew continued to their destination and only after returning did they advise they needed to be relieved of duty due to the near mid-air collision incident.

## **Personnel Experience**

#### **Captain C6-JEF**

The male captain was 53-years-old at the time of the accident. He had been issued a Private Pilot License by the Bahamas Civil Aviation Authority. His license bore the ratings Airplane Single and Multi-Engine Land, the captain was the sole occupant of the aircraft at the time of the incident.

#### **Crew C6-KID**

The aircraft was under the command of the first officer at the time of the incident. The crew comprised of the captain, the first officer and the cabin attendant. 25 passengers were on board the aircraft at the time. Both crews were qualified and current for the position they occupied.

## **The Aircraft**

#### **Aircraft Information**

The **Saab 340 (SF-340)** aircraft registration C6-KID is a 34-passenger seat, turbo-prop aircraft, registered in the Bahamas to Western Air Limited, a Bahamas Scheduled Air Operator Certificate Holder.

The **Piper Aztec (PA-27)** aircraft registration C6-JEF is a 6-place aircraft registered in the Bahamas to a private individual, who was also the pilot at the time.

#### **Airport Information**

According to the Bahamas Aeronautical Information Publication (AIP), Third Edition Amendment, 01/2016, Lynden Pindling International Airport (MYNN) is situated at coordinates 250220.25N and 0772758.43W. It is 16ft above sea level, and 6.81 NM from center of downtown. It caters to both IFR and VFR traffic and is government owned. It is operated 24 hours and served by customs and immigration services. MYNN is served by 2 runways aligned 090 and 270 degrees and 140 and 320 degrees. It is served by fire and rescue services and has capacity for aircraft removal. Both runways are asphalt and dimensions of 09/27 is 7,273 ft. in length x 150 ft. width, 14/32 is 11,236 ft. in length and 150 ft. in width. An air traffic control tower operates on a 24hr basis.

#### **Weather**

The weather at Lynden Pindling Int'l Airport at the time of the occurrence was Visual Meteorological Conditions (VMC). Bahamas Meteorological Department METAR Report indicated that the wind direction was 090 degrees with speeds at 04 knots. Visibility was reported at 7 nautical miles (nm).

Clouds were reported as scattered at 2,000 and 22,000 feet. Temperature was reported as 81°F and Dewpoint 73°F. Altimeter was reported as 29.98 inches of Mercury (“Hg).

## **Additional Investigation – Bahamas Air Navigation Service Division (BANSD)**

In addition to the investigation conducted by the AAID in respect of the near mid-air collision incident, a three-member internal review board was established by BANSD on October 8, 2018 with an investigator in charge, an operations officer and a representative of the union. The undertaking of the review board was to:

1. Review the procedures of the BANSD to determine whether an operational deviation took place, and if so, to ascertain its cause(s) and recommend corrective measures to prevent future similar occurrences.
2. Review BANSD 1142, Part II and the Industrial Agreement between the Government of the Bahamas and the Bahamas Air Traffic Controllers Union as the basis and guidelines for the review.

The purpose of the inquiry board was to provide an effective method for investigating and analysing causal factors so that deficiencies in human, procedural and equipment elements of the air traffic system could be identified and corrected.

A detailed report of the finding relative to the investigation, the causal factors and recommended corrective measures to prevent similar recurrence were presented to the Manager of Standards and Procedures at BANSD.

While the conclusion of the board of inquiry did find that “the primary reason for the incident was due to the incorrect actions taken by the pilot in command of C6-JEF, despite having accepted and acknowledged receipt of clear and specific instructions given by the aerodrome controller,” the board also concluded that “the aerodrome controller also contributed to the incident investigated.”

In the instance of this event, the controller was unable to effectively see and separate all aircraft under his control and remain abreast of the traffic situation in his attempt to expedite traffic, without regards to the amount of data entry required of the new traffic management system. While the workload of the controller having to operate two positions during a very busy time of the day and input all the required information into the new air traffic management system is a major concern of the board, the issue of additional manpower to address these concerns are critical.

While the internal review concluded and identified systemic internal deficiencies within the Air Traffic System, its procedures and policies in place, the board put forward a 14-point recommendation, however, due to the nature and sensitivity of those concerns and recommendations, they are not included in this report.

As they have been identified and communicated to management of BANSD, the board’s recommendations will not be included here as safety recommendations, but will be identified in the AAID safety tracking system and will be followed up at prescribed intervals to determine whether they are being addressed by BANSD management, as the AAID finds the findings and recommendations credible and critical to safety and air traffic management and can impact safety negatively, if not addressed.

**Bahamas Air Navigation Services Division (BANSD)  
Controller Training and Record Keeping Process**

According to records provided by the BANSD, the following have been noted:

**Controller**

- Training records reviewed for the aerodrome controller in question, showed his last training or evaluation activity occurred in 2007. No records outlining recurrent or requalification training was available or provided to investigators for the periods between 2007 and the date of the incident.
- It would appear as though there is no prescribed refresher training program for air traffic control personnel.

**Record Keeping**

- Investigations uncovered that BANSD **does not** have an effective process or procedures to verify whether its personnel are in possession of required medical certificates or air traffic control licenses as required by CAGR Schedule 8.

## Safety Recommendations

### Recommendations Classified in this Report issued to the following organizations

#### Safety Oversight Department of the Bahamas Civil Aviation Authority (SOD – BCAA)

1. Based on the results of interview conducted with the pilot of C6-JEF post-incident, recommendations were made to the BCAA to re-examine the pilot for his competence to hold a Bahamas issued pilot license.
2. Based on additional information post-incident, recommendation was made to have the pilot reassessed by a medical assessor for medical fitness.
3. Recommendation was made to issue all ATC personnel with ATC licenses as required by CAGR.

#### Bahamas Air Navigation Services Division (BANSD)

1. The AAID recommends that BANSD institute policies to address controllers medical certificate validity.
2. The AAID recommends that a process be put in place to insure ATC schedulers are aware of the medical status of ATC personnel prior to scheduling them for active duty.
3. The AAID recommends BANSD liaise with BCAA to ensure all personnel are issued required ATC licenses.
4. BANSD should address the practise of dual position assignment by one controller during busy periods of the day unless there is additional manpower to assist with entries required of its new system.
5. Recommendation is made that ANS refresher classes are conducted on a more structured and frequent basis (as no refresher was conducted of this controller since 2007, more than 11 years).
6. Recommendation is also made that refresher classes are conducted on the AIRCON2100 Traffic management system for all controllers using the system.
7. Recommendation is made that BANSD address the manpower shortage or institute a shift system as outlined in recommendation from the inquiry board, as this shortage of manpower and the increased workload on a single controller to be responsible for combined positions and frequencies during busy periods is a serious safety risk.

#### All recommendations in this report are classified as:

##### BCAA

- Recommendation 1 issued to BCAA “Closed”
- Recommendation 2 issued to BCAA “Open, Await Response”
- Recommendation 3 issued to BCAA “Open, awaits response”

##### BANSD

- Recommendation 1 issued to BANSD “Closed”
- Recommendation 2 issued to BANSD “Open, awaits response”
- Recommendation 3 issued to BANSD “Open, awaits response”
- Recommendation 4 issued to BANSD “Open, awaits response”
- Recommendation 5 issued to BANSD “Open, awaits response”
- Recommendation 6 issued to BANSD “Open, awaits response”
- Recommendation 7 issued to BANSD “Open, awaits response”

## Safety Action

Whether or not the AAID identifies safety issues in the course of an investigation, relevant organizations may proactively initiate safety action in order to reduce their safety risk.

**Prior to the publication** of this report the AAID notes the **following actions** or **inactions** of the respective agencies, to whom recommendations were addressed;

### BCAA

- The BCAA re-examined the pilot of C6-JEF for his competence to hold a Bahamas issued airman certificate. The reexamination results were found satisfactory.
- As there were issues with the medical capacity of the pilot, his license was subsequently suspended pending a review of the medical assessor.
- ATC personnel had still not been issued ATC licenses required when performing duties requiring a license as stipulated in CAGR Schedule 8, Subpart B and Subdivision IX.

### BANSD

- The controller was removed from active duty and underwent requalification training. He was also subjected to a period of supervised oversight.
- All controllers were in possession of required medical certificates.
- ATC personnel were **still not** in possession of required ATC licenses.
- No **process of record keeping, or tracking** were provided to address the shortcomings identified.

## Safety Message

Security video footage retrieved documented the takeoff and flight path of both aircraft. The exact takeoff point of C6-JEF on Runway 32 was out of camera range and the aircraft came into view at approximately 50 feet above the runway heading northwest. C6-KID subsequently became airborne from Runway 14 at approximately Delta intersection, abeam the fire station. By the time C6-KID became airborne, C6-JEF had already crossed over his path and was out of camera view.

While the incident investigated did not find that both aircraft were airborne at the same time that would create a conflict of a mid-air collision, the seriousness of two aircraft on opposite ends on the same runway, headed in opposite directions toward each other, cannot be understated.

While it was clear the pilot of C6-JEF did not follow instructions as issued by ATC, and acknowledged by him, it is still incumbent on all pilots entering an active runway to be cognizant and vigilant of traffic that may be crossing a runway, exiting a runway or in this case departing from a runway.

It is recommended that all traffic entering an active runway ensure all required checks are done prior to lining up for takeoff or ensure one crewmember (if multi-crew operation) is always vigilant and looking outside.

Based on the investigation of this incident, it appears the crew of C6-KID may have been pre-occupied, possibly with before takeoff checks, or may have been distracted, for whatever reason, and not raising the alarm with ATC when the aircraft was lining up on the opposite end of the same runway and departing toward them.

C6-JEF was airborne prior to the takeoff roll of C6-KID and therefore it is unlikely that the crew would not have seen the aircraft in time to abort the takeoff, had they been vigilant and focus was outside the

aircraft once on the runway in position for takeoff.

Transcript of the incident reviewed confirmed the instructions issued by ATC for C6-JEF to depart runway 27, the pilot acknowledged the instructions, but still failed to follow them and created a conflict that could have dire consequences had both aircraft become airborne at the same time, toward each other.

It is also recommended that greater vigilance be exercised by all ATC personnel when issuing instruction to aircraft while using simultaneous runways for departure or landings, to ensure aircraft are following instructions given. It is also recommended that BANSD either increase its manpower or institute a system whereby the workload is reduced for controllers or eliminate the dual positions or frequencies by a single controller during high traffic periods.

## About this report

Decisions regarding whether to investigate, and the scope of an investigation, are based on many factors, including the level of safety or security benefit likely to be obtained from an investigation.

For this occurrence, an in-depth fact-gathering investigation was conducted in order to produce a summary report and allow for greater organization and industry awareness of potential safety issues and possible safety actions to remedy the uncovered issues.

The Air Accident Investigation Department



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