FINAL REPORT

INCIDENT 2021/4567

State Commission on Aircraft Accidents Investigation (PKBWL)

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FINAL REPORT

INCIDENT

OCCURRENCE NO – 2021/4567

AIRCRAFT – Airplane, Boeing 737 MAX 8, A6-FMC

DATE AND PLACE OF OCCURENCE – 11 November 2021, EPWA

The Report is a document presenting the position of the State Commission on Aircraft Accidents Investigation concerning circumstances of the air occurrence, its causes and safety recommendations. The Report was drawn up on the basis of information available on the date of its completion.

The investigation may be reopened if new information becomes available or new investigation techniques are applied, which may affect the wording related to the causes, circumstances and safety recommendations contained in the Report.

Investigation into air the occurrence was carried out in accordance with the applicable international, European Union and domestic legal provisions for prevention purposes only. The investigation was carried out without application of the legal evidential procedure, applicable for proceedings of other authorities required to take action in connection with an air occurrence.

The Commission does not apportion blame or liability.

In accordance with Article 5 paragraph 6 of the Regulation (EU) No 996/2010 of the European Parliament and of the Council on the investigation and prevention of accidents and incidents in civil aviation […] and Article 134 of the Act – Aviation Law, the wording used in this Report may not be considered as an indication of the guilty or responsible for the occurrence.

For the above reasons, any use of this Report for any purpose other than air accidents and incidents prevention can lead to wrong conclusions and interpretations.

This Report was drawn up in the Polish language. Other language versions may be drawn up for information purposes only.

WARSAW 2022

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Abbreviations

ACCREP	Accredited Representative
ADI	Aerodrome Control Instrument Rating
APP	Approach control service, Approach Control procedural rating endorsement
ATC	Air traffic control (in general)
ATCL	Air Traffic Control Licence
ATPL(A)	Airline Transport Pilot Licence (Airplane)
CAR	Civil Aviation Regulations
CVR	Cockpit Voice Recorder
GCAA	General Civil Aviation Authority
GMS	Ground Movement Surveillance Rating endorsement
LMT	Local Mean Time
PANSA	Polish Air Navigation Services Agency
RAD	Aerodrome Radar Control Rating endorsement
SMR	Surface Movement Radar
TWR	Aerodrome control tower or aerodrome control, Tower Control rating endorsement
ULC	Polish CAA (Urząd Lotnictwa Cywilnego)
UTC	Universal Time Coordinated

General Information

Occurrence reference number:	**2021/4567**			
Type of occurrence:	INCIDENT			
Date of occurrence:	11 November 2021			
Place of occurrence:	EPWA			
Type and model of aircraft:	Airplane, Boeing 737 MAX 8			
Aircraft registration marks:	A6-FMC			
Aircraft user/operator:	Flydubai Airline			
Aircraft Commander:	APTL(A)			
Number of victims/injuries:	Fatal	Serious	Minor	None
	0	0	0	160
Domestic and international authorities informed about the occurrence:	ICAO, EASA, ULC, General Civil Aviation Authority of United Arab Emirates (GCAA)			
Investigator-in-charge:	Grzegorz Pietraszkiewicz			
Investigating authority:	State Commission of Aircraft Accidents Investigation (PKBWL)			
Accredited Representatives and their advisers:	ACCREP GCAA			
Document containing results:	FINAL REPORT			
Safety recommendations:	NONE			
Addressees of the recommendations:	Not applicable			
Date of completion of the investigation:	21 November 2022			

Synopsis

During taxiing of the FDB1830 flight to the holding point short of RWY 29 on EPWA aerodrome, the crew was instructed by TWR to line up RWY 29 and wait. The crew correctly confirmed the instruction. At 21:05:50[1] hrs the plane lined up RWY 29. After 20 seconds the crew initiated take-off run. At 21:06:23 hrs the TWR, using urgent phraseology, instructed the FDB1830 crew to stop immediately. The crew confirmed the instruction. The take-off was aborted at the speed of 89 kt. The airplane stopped on RWY 29, about 250 m from the intersection with RWY 33, where the Boeing B-737/800 was about to land.

The investigation was conducted by:

Grzegorz Pietraszkiewicz	Investigator-in-charge (PKBWL member).

Cause of the occurrence:

The most likely cause of the take-off initiated without clearance was the crew's partial loss of situational awareness.

Contributing factors:

"Confirmation bias" phenomenon affecting the crew.

PKBWL has not proposed safety recommendations after the investigation.

[1] All times in the Report are in UTC. LMT = UTC + 1 h.

1. FACTUAL INFORMATION

1.1. History of the flight

The Boeing 737 MAX 8, A6-FMC registration marks and FDB1830 call sign was located on apron 13 of EPWA aerodrome, where it was de-iced. The plane was planned to fly to “OMBD Aerodrome Dubai International Airport”. At 21:03:18 hrs the crew of the FDB1830 reported readiness to taxi. EPWA TWR instructed the crew to taxi to the left via TWY L to the holding point short of RWY 29.

At 21:03:41 hrs the crew of the Boeing 737-800 aircraft, LOT2MP call sign, which was on the landing final on RWY 33, reported to the TWR. The LOT2MP was cleared to land.

Before the FDB1830 aircraft reached the holding point, the TWR controller issued an instruction to its crew to line up RWY 29 and wait. The crew read back the instruction correctly. At 21:05:36 hrs, during taxiing on RWY 29, the FDB1830 crew asked for confirmation whether they should establish communication on the 128.805 frequency after departure. The TWR controller confirmed the frequency. At that time, the EPWA APP staff asked the TWR controller whether the FDB1830 was taking-off. TWR controller replied that it was not taking off due to landing of another aircraft.

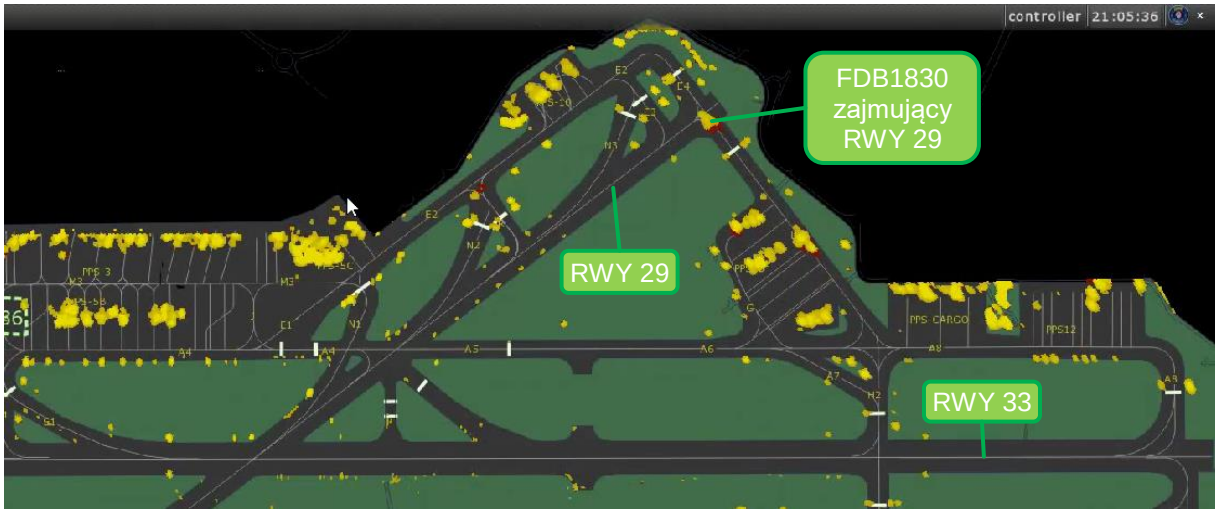

Fig. 1. SMR radar display screen [source: PANSA]

Meanwhile another plane was approaching the holding point short of RWY 29. The TWR controller issued its crew a conditional instruction to line up RWY 29 behind FDB1830. During that time, at 21:06:12 hrs, the crew of the FDB1830 started the take-off run. At 22:06:23 hrs TWR ordered the FDB1830 crew to stop immediately. The FDB1830 crew acknowledged the instruction. The take-off was aborted at the speed of 89 kt. The plane stopped at RWY 29 approximately 250 m from the intersection with RWY 33.

Fig. 2. FDB1830 aborted take-off: A – take-off run initiation, B – instruction to abort take-off, C – acnowledgement of the instruction, D and E – speed reduction, F - stop [source: PANSA, PKBWL]

The LOT2MP crew confirmed the validity of the clearance for landing with the TWR controller and continued the approach.

The TWR controller instructed the FDB1830 crew to enter RWY 29 and wait. The FDB1830 crew read back their clearance to line up RWY 29 and take off. The TWR controller thanked the crew for stopping the plane. Then the FDB1830 crew, following the instructions of the TWR controller, started taxiing to the holding point short of RWY 29. The take-off of the FDB1830 took place at 22:16 hrs.

1.2. Injuries to persons

Injuries	Crew	Passengers	Others	Total
Fatal	**-**	**-**	**-**	**-**
Serious	**-**	**-**	**-**	**-**
Minor	**-**	**-**	**-**	**-**
None	**6**	**154**	**-**	**160**

1.3. Damage to aircraft

None.

1.4. Other damage

None.

1.5. Personnel information (crew data)

1) Boeing 737 MAX 8:
   a) Captain:
      – Pilot Monitoring;
      – male, aged 43, holder of ATPL(A);
      – holder of valid class 1 aero-medical certificate;
      – total flight time: 11244 FH;
      – accident type flight time: 2722 FH for Flydubai.
   b) First Officer:
      – Pilot Flying;
      – male, aged 35, holder of ATPL(A);
      – holder of valid class 1 aero-medical certificate;
      – total flight time: 7013 FH;
      – accident type flight time: 2065 FH for Flydubai

2) TWR EPWA
   a) TWR controller:
      – male, aged 56;
      – holder of ATCL issued for the first time in 1992;
      – holder of ADI ratings and the TWR/RAD/GMS endorsement for EPWA aerodrome;
      – holder of valid class 3 aero-medical certificate.

1.6. Aircraft information

The Boeing 737 MAX 8 is a turbojet, twin-engine, narrow-body, passenger airplane, produced by the American concern – The Boeing Company.

Airplane mass: 74753 kg.

Fig. 3 Boeing 737 MAX 8 airplane, A6-FMC registration marks [source: Internet, www.planespotters.net/photo/1227123/a6-fmc-flydubai-boeing-737-8-max]

1.7. Meteorological information

METAR from 21:00 hrs for EPWA:

METAR EPWA 112100Z 14005KT 8000 FEW005 BKN025 06/05 Q1028 TEMPO BKN006=

The weather conditions did not impact the course of the occurrence.

1.8. Aids to navigation

Not applicable.

1.9. Communications

During the incident, the FDB1830 crew maintained communication with EPWA TWR. No concerns were raised on radio communications quality.

1.10. Aerodrome information

Warsaw Chopin airport – public aerodrome.

Aerodrome reference point coordinates: 52°09'57"N 020°58'02"E.

Airport elevation: 362 ft.

Runways:

- RWY 11/29, 2800x50 m, concrete/asphalt surface;
- RWY 15/33, 3690x50 m, concrete/asphalt surface.

Air traffic permitted: VFR / IFR.

Aerodrome category for firefighting: CAT 9 ICAO.

Fig. 4 EPWA aerodrome [source: PANSA, Google Earth - April 2019]

1.11. Flight recorders

The recordings of the flight recorders were not analyzed.

The CVR recording from the time of the occurrence was overwritten with subsequent data during the FDB1830 flight.

1.12. Wreckage and impact information

Not applicable.

1.13. Medical and pathological information

Not applicable.

1.14. Fire

Fire did not occur.

1.15. Survival aspects

Not applicable.

1.16. Tests and research

Tests and research were not conducted.

1.17. Organizational and management information

The FDB1830 aircraft performed a commercial flight as part of the activities of the Flydubai Airline based in the United Arab Emirates.

The EPWA TWR provided the EPWA aerodrome air traffic control service as part of the Polish Air Navigation Services Agency activities.

1.18. Additional information

On 16.09.2022. Draft Final Report was sent for comments to: EASA, NTSB, AAI GCAA UAE, Flydubai Airline, PAŻP. Comments were submitted by Flydubai Airline and PAŻP. The comments were taken into account in the Final Report.

1.19. Useful or effective investigation techniques

Standard investigation techniques were applied.

2. ANALYSIS

The FDB1830 cockpit crew arrived at EPWA aerodrome on the day preceding the occurrence, and their flight operations were completed at 20:15 hrs, followed by a rest in hotel conditions. On the day of the incident, the crew started their flight duty at 20:20

hrs. The conditions and time of the rest were in accordance with the provisions of “CAR OPS 1 SUBPART Q – FLIGHT/DUTY TIME AD REST REQUIRMENTS”[2].

PKBWL received a recording of relevant radio communication conducted from the EPWA TWR controller workstation. The analysis of that recording shows that the FDB1830 crew correctly read back the instruction to line up RWY 29 and wait.

After lining up RWY 29, the crew asked the TWR controller to confirm the APP Warszawa radio frequency of 128.805 MHz, which was confirmed by the TWR controller. As a standard, the TWR controller provides the crew with this information. The flight crew request to TWR controller may indicate that they experienced a disturbance in the awareness of the instruction received. If the crew assumed that they had received clearance to line up RWY 29 and take-off, they also wanted to receive information about the frequency of the next ATC unit before the departure.

It should be emphasized that the TWR controller did not provide the crew with information about the direction and speed of the wind for take-off and that neither the TWR controller nor the crew of the FDB1830 aircraft used the term "take-off" in their communication, which is used only when issuing an instruction to take-off or abort take-off. In other situations, the word "departure" is used to prevent confusion. Despite several facts proving that the FDB1830 crew had not received clearance to take-off, unexpectedly for the TWR controller, they initiated take-off run.

In the PKBWL opinion, the FDB1830 crew experienced a “confirmation bias”. The crew assumed as real the circumstances, which were leading to the execution of the planned mission, and that mission was the departure of the aircraft. Due to the phenomenon of “confirmation bias”, the FDB1830 cockpit crew experienced a partial loss of situational awareness.

12 seconds after the beginning of the take-off run, the TWR controller, using urgent phraseology, instructed the crew to immediately abort the take-off. The crew acknowledged that instruction and stopped the plane at RWY 29, about 250 m from the intersection with RWY 33, where the LOT2MP was about to land. The actions of the TWR controller and the crew, related to the abortion of take-off were correct.

During the second entering of RWY 29, the FDB1830 crew asked whether the TWR controller had analyzed communication from the first attempt to take-off. The TWR controller replied that at that time the crew had not confirmed the take-off clearance, but confirmed the frequency and the holding instruction.

No irregularities were found in the radio communication on either side.

[2] “CAR OPS 1 SUBPART Q – FLIGHT/DUTY TIME AND REST REQUIREMENTS” is a part of the “CAR PART IV OPERATIONS REGULATIONS CAR-OPS 1 COMMERCIAL & PRIVATE AIR TRANSPORTATION (AEROPLANES)” regulation implemented by GCAA UAE.

3. CONCLUSIONS

3.1. Findings

3.1.1. The cockpit crew

1) The crew members had the required licenses and qualifications to perform the flight.
2) The crew was rested in proper conditions.
3) The crew reported the occurrence after landing at the destination aerodrome.
4) The flight crew correctly confirmed their instruction to enter RWY 29 and wait.
5) The take-off run was initiated without the take-off clearance, which may indicate improper monitoring of the communication.
6) Most likely, as a result of the confirmation bias, the cockpit crew experienced a partial loss of situational awareness.

3.1.2. Operator

1) Flydubai Airline notified GCAA of the occurrence on 12 November 2021.
2) Flydubai Airline notified PKBWL of the occurrence on 19 November 2021.

3.1.3. Air Traffic Services

1) TWR controller had the required qualifications and aero-medical certificate.
2) The actions performed by TWR controller were correct.

3.2. Causes of the incident

The most likely cause of the take-off initiated without clearance was the crew's partial loss of situational awareness.

3.3. Contributing factors

"Confirmation bias" phenomenon affecting the crew.

4. SAFETY RECOMMENDATIONS

PKBWL has not proposed any safety recommendation after completion of the investigation

5. ANNEXES

None.

THE END

Investigator-in-Charge

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(Signature on original)