RNSA

Rannsóknarnefnd samgönguslysa

Final report on aircraft serious incident

Case no.: **18-007F002**

Date: **11. January 2018**

Location: **Reykjavik Airport (BIRK)**

Description: **Airplane took off without a takeoff clearance**

1. FACTUAL INFORMATION

Location and time	
Location:	Intersection of RWY 19 and RWY 13 at BIRK
Date:	11. January 2018
Time[1]:	10:11

Aircraft	
Type:	Cessna 525A
Register:	N525FF
Year of manufacture:	2007
Serial number:	525A0161
CoA:	Valid
Engines:	Two Williams FJ44-3A

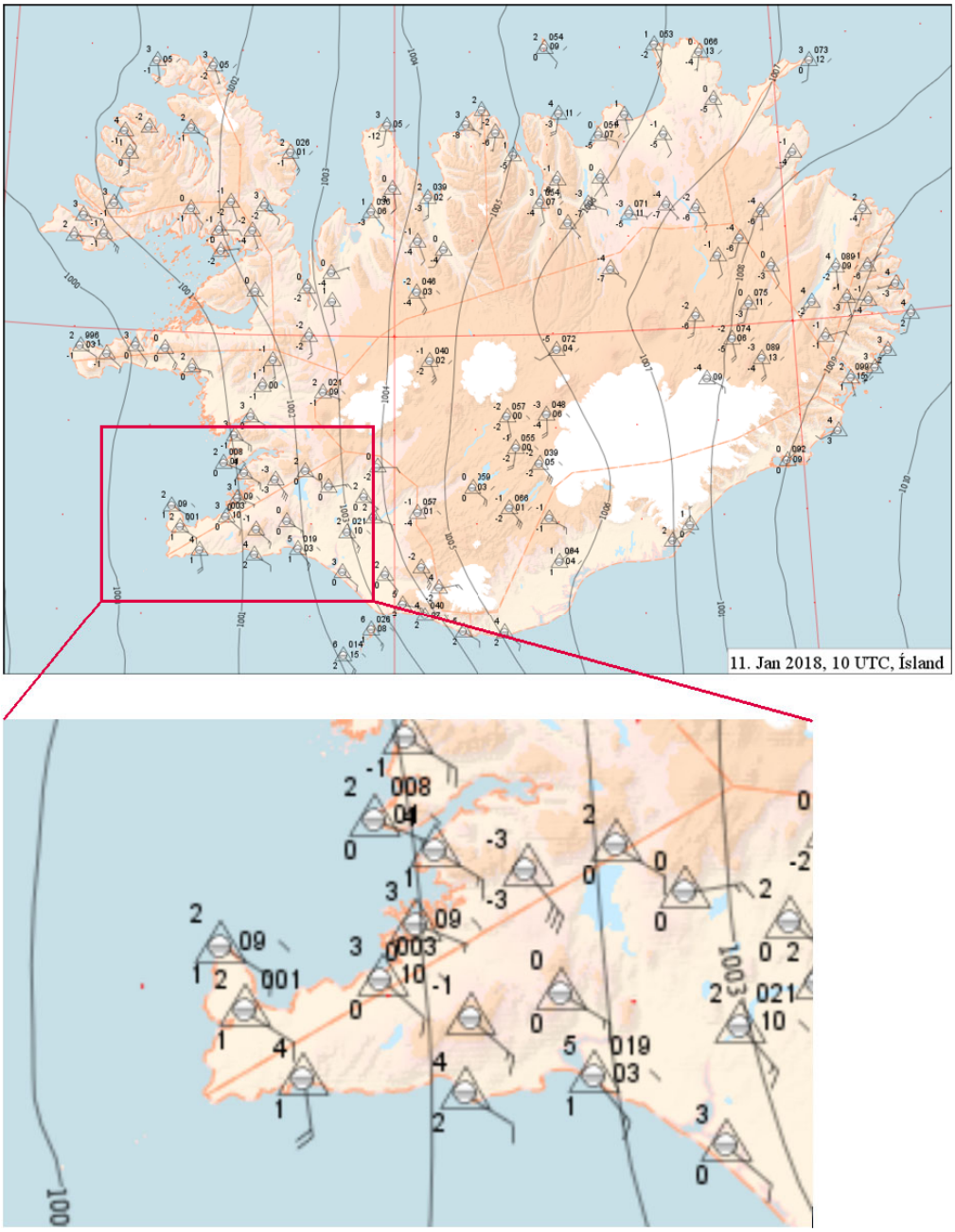
Other information	
Type of flight:	Private flight
Persons on board:	3
Injury:	None
Damage:	No
Short description:	Takeoff from BIRK RWY 19 without a takeoff clearance, while RWY 13 was being sanded

Pilot Flying	
Age:	68 years
Certificate:	FAA Commercial Pilot
Ratings:	SEP, Land MEP, Land IR C/CE-525S
Medical Certificate:	Class 2, valid
Experience:	Total flight hours: ~ 21,000 Total flight hours on type: 2670 Last 90 days on type: 49 Last 24 hours on type: 5:45

[1] All times in the report are Icelandic local times (UTC+0), unless otherwise stated

On the morning of January 11th 2018 rain showers were present, the temperature was around freezing point and the runway braking action was poor at Reykjavik Airport (BIRK).

At 10:01 AM, Reykjavik Approach ATC called the Air Traffic Controller Officer (ATCO) for Reykjavik Airport[2] to inform him of two domestic flights on approach for Reykjavik Airport. The braking action of RWY 13 had just been measured (21-21-23) and measurements of RWY 19 had just started. The ATCO advised Approach of the poor braking action on RWY 13 and that the braking action of RWY 19 was being measured.



[2] Located in another building at Reykjavik Airport

The airport's service department then contacted the ATCO at 10:03, on frequency 168.8 MHz[3] and informed him that the braking action on RWY 19 was 24-27-33. The ATCO requested both RWY 13 and RWY 19 to be sanded, starting with RWY 13.

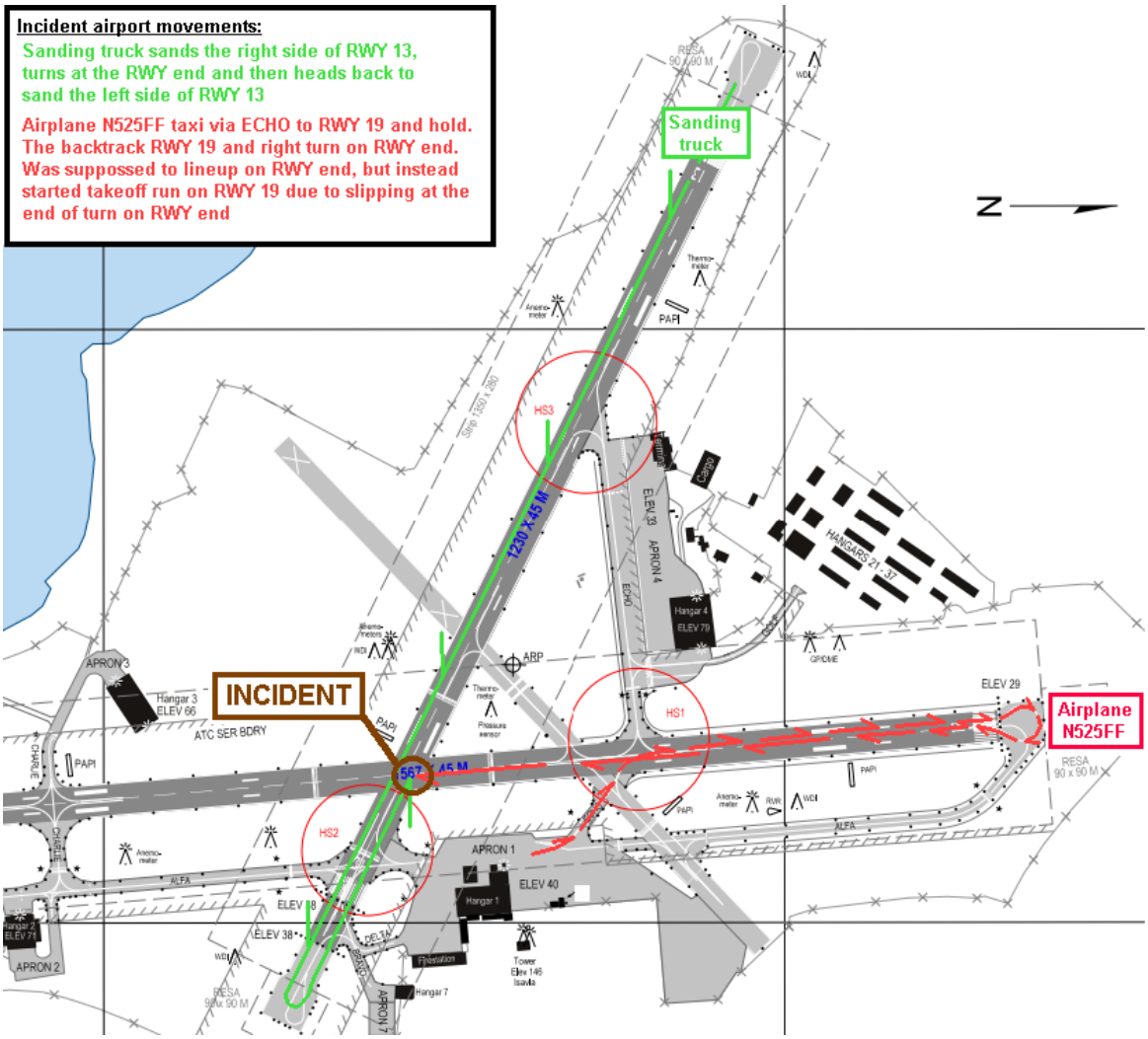
A sanding truck was sent by the airport service department to sand RWY 13. The sanding truck started by sanding the right hand side of RWY 13.

At 10:04 the ATCO contacted the flight crew of N525FF, via tower frequency 118.0 MHz, and informed them of the 24-27-33 braking action on RWY 19. At this time airplane N525FF was already taxiing from the apron towards ECHO. The ATCO asked if this braking action was sufficient for N525FF for takeoff. The flight crew of airplane N525FF confirmed that the braking action reported for RWY 19 was sufficient for them for takeoff. All communications between the ATCO and the flight crew of airplane N525FF were in English, as the flight crew of airplane N525FF was non-Icelandic. The ATCO then instructed the flight crew of airplane N525FF to "*Hold short RWY 19.*"

The flight crew of N525FF confirmed "*Hold short RWY 19.*" via tower frequency 118.0 MHz.

Then Approach ATC called the ATCO to inform that the first of the two inbound airplanes had been sent over to the tower frequency. Immediately thereafter, the flight crew of that airplane contacted the ATCO via tower frequency 118.0 MHz. The ATCO advised the flight crew of the inbound airplane of the poor braking action on RWY 13 and RWY 19 and that RWY 13 was being sanded. The ATCO offered the inbound airplane the options of RWY 13 or RWY 19. The flight crew of the inbound airplane decided to enter a holding pattern until RWY 13 had been sanded and its braking action had improved. These communications, which took place between 10:04 and 10:06, were in Icelandic.

[3] Radio frequency used for ground vehicle traffic at BIRK airport



In between the communications between the ATCO and the inbound airplane on frequency 118.0 MHz, the ATCO was also handling ground vehicle traffic at the airport on frequency 168.8 MHz. These communications, which took place between 10:05 and 10:06, were in Icelandic.

At 10:07 the ATCO gave the flight crew of airplane N525FF the following instructions on tower frequency 118.0 MHz:

> **"525FF *Backtrack line up RWY 19.*"**

The flight crew of N525FF read back:

> ***"Backtrack RWY 19 525FF."***

Subsequently, still at 10:07 the ATCO called Approach ATC to inform that the first inbound airplane was holding, while RWY 13 was being sanded and its braking action re-measured.

The ATCO also advised Approach that there would be outbound traffic N525FF from RWY 19.

At 10:08 the airport's service department contacted the ATCO to advise him of the progress of the sanding operation on RWY 13. The ATCO in return advised the service department that the first inbound airplane was holding until RWY 13 had been sanded and its braking action reported sufficient. The ATCO also advised the service department that N525FF would be taking off from RWY 19 after RWY 13 had been sanded, but before RWY 19 would be sanded. These communications were in Icelandic and on frequency 168.8 MHz.

Later, still at 10:08 the ATCO contacted the flight crew of N525FF on tower frequency 118.0 MHz:

"N525FF right turn line up RWY 19."

The flight crew of N525FF read back:

"Line up RWY 19 525FF."

Subsequently between 10:08 and 10:11 the ATCO communicated with the flight crew of an airplane getting ready for flight via Reykjavik Ground frequency 121.7 MHz[4], with airport ground vehicles via frequency 168.8 MHz, as well as calling Reykjavik Approach regarding the inbound traffic. All these communications were in Icelandic.

The sanding truck had finished its run down the right side of RWY 13. It then turned around at the end of RWY 13 to start its run down the left side of RWY 13, to sand that side of the runway.

While the ATCO was focused on communications he did not notice that the flight crew of airplane N525FF started their takeoff roll on RWY 19 after having turned at the runway end.

When the sanding truck that was sanding RWY 13 was about to cross RWY 19, its driver noticed an airplane very close on RWY 19, on his right side, just about to lift off. According to the sanding truck driver, he did not have sufficient time to react. The sanding truck was

[4] ATC Ground movement control for airplanes

already at the runway center line of RWY 19 when airplane N525FF reached the runway section where RWY 19 crosses RWY 13. Airplane N525FF took off and flew over the sanding truck at 10:11.

There was a serious risk of collision, as the minimum distance between airplane N525FF and the sanding truck is believed to have been less than 1 meter.

According to the PF of airplane N525FF, he recalled that they had been cleared to taxi and backtrack RWY 19. When they turned around to line up on RWY 19, the PF also recalled that the PNF transmitted that they were "*ready for departure*". At this time the PF had already increased the thrust significantly and the aircraft started to slide on the ice, so the commander (PF) said "we have to go" and commenced the take-off.

The ITSB analysis of the ATC recordings concluded that the above stated transmission by the PF "*ready for departure*", did not take place.

The flight crew of airplane N525FF did not have takeoff clearance from the ATCO.

As the airplane approached the intersection of RWY 19/13 and the airplane was rotated, the PF noticed the sanding truck crossing the runway.

The PF was not aware that RWY 13 was being sanded. The flight crew of airplane N525FF had heard communications on the tower frequency (118.0 MHz), but as they were in Icelandic they did not understand them. These were the communications between the ATCO and the first inbound airplane regarding the braking actions and sanding of RWY 13.

According to Iceland AIP GEN 3.4.3.4, English should be used in ATC communications with airplanes on international flights. Airplane N525FF was such a flight and English was used during communications between the flight crew and ATC.

According to Iceland AIP GEN 3.4.3.4, for domestic flights, either Icelandic or English can be used for ATC communications. During this case, communications with the inbound domestic flights were in Icelandic.

GEN 3.4.3.4 Notkun tungumáls
Language used

The primary language used in A/G communications is English for International flights. For Domestic flights either Icelandic or English is used.

The international aeronautical mobile service on the following frequencies shall be conducted in English language only:

Reykjavík Control:

1. Reykjavik Control East Sector:
   126.750 MHz, 125.500 MHz, 132.200 MHz, 128.800 MHz.
2. Reykjavik Control South Sector:
   119.700 MHz, 125.700 MHz, 123.900 MHz, 128.600 MHz, 132.300 MHz, 129.900 Mhz.
3. Reykjavik Control West Sector: 124.400 MHz, 126.900 MHz, 128.200 MHz, 127.500 MHz.
4. Reykjavik Control North Sector: 133.100 MHz, 134.300 MHz, 135.250 MHz.

Iceland Radio:

127.850 MHz, 126.550 MHz, 129.625 MHz

(General Purpose VHF) and all employed aeronautical HF frequencies (Families B, C and D).

Keflavik Approach: 119.300 MHZ, 119.150 MHZ.

The aeronautical mobile service on the following frequencies shall be conducted in English language only:

Keflavík Tower: 118.300 MHz

Keflavík Ground: 121.900 MHz

Keflavík Clearance Delivery: 121.000 MHz

The ITSB believes that if all the communications on the tower frequency would have been in English, then the flight crew of airplane N525FF might have been aware that RWY 13 was being sanded.

In both the ICAO[5] and Isavia's procedures[6] for clearance to enter runway and await take-off clearance, the ATC person shall state ***"LINE UP [and wait]."***

The ITSB believes that in this instance there was ample reason to include the optional instruction **"and wait"**, as airport service vehicles had authorization from BIRK TWR to cross RWY 19 at the RWY 13/19 intersection.

[5] ICAO Doc 4444 Air Traffic Management, chapter 12.3.4.10 f) Preparation for take-off
[6] Isavia MANOPS, Appendix A 3.4.10 f) Preparation for take-off

2. SAFETY RECOMMENDATIONS

The ITSB issues the following safety recommendations to ICETRA:

18-007F002 T01

> That ICETRA reviews Iceland AIP GEN 3.4.3.4 for BIRK and recommend that English is always used for ATC radio communications when at least one airplane on the ground and/or tower frequencies communicates in English.

The following board members approved the report:

- Geirþrúður Alfreðsdóttir, chairman
- Gestur Gunnarsson, board member
- Tómas Davíð Þorsteinsson, deputy board member

Reykjavík, 7. February 2019

On behalf of the Icelandic Transportation Safety Board

Ragnar Guðmundsson
Investigator-In-Charge