

REPORT ON AIR TRAFFIC INCIDENT

(Law on Aircraft Accident Investigation no. 35/2004)

M-04906/AIG-26

**Loss of separation between TF-AIR/FUA701W
Socata Tobago TB-10/Boeing 737
During approach to Keflavik Airport runway 20
17 August 2006**



The aim of the aircraft accident investigation board is solely to identify mistakes and/or deficiencies capable of undermining flight safety, whether contributing factors or not to the accident in question, and to prevent further occurrences of similar cause(s). It is not up to the investigation authority to determine or divide blame or responsibility. This report shall not be used for purposes other than preventive ones.

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1 FACTUAL INFORMATION

Place: At Keflavik Airport Control Zone
(Latitude, 64°02'10'' Longitude N, 22°29'30'' W)

Date and time: 17 August 2006, 12:33 UTC

Aircraft A:

- **type** Socata Tobago TB-10
- **registration** TF-AIR, registered as private owner
- **year built** 2000
- **serial number** 1901
- **CoA** Certificate of Airworthiness valid.
- **callsign** AIR

Aircraft B:

- **type** Boeing 737-86N
- **registration** EI-DJT
- **year built** 1999
- **serial number** 28592
- **CoA** Certificate of Airworthiness valid.
- **callsign** FUA701W

Type of flight: A: Training
B: Scheduled international passenger flight

Total on board: A: 2 B: Unknown

Injuries: None

Damage: None

Incident description: Loss of separation between aircraft A and B.

Crew aircraft A:

- **title** Flight Training Instructor
- **age, gender** 23 years, male
- **license** Holding a CPL license issued by the Icelandic Civil Aviation Administration on 22.05.2006, valid until 22.05.2011.

- **experience** When the incident occurred the total time of the instructor was 479,1 hours. Experience on type was 73,2 hours. He had flown 142,8 hours 90 days prior to the incident.

- **title** Student Pilot
- **age, gender** 28 years, male
- **license** Valid PPL

- **experience** When the incident occurred the total time of the pilot was 186,6 hours. Experience on type was 0,5 hours. He had flown 20 hours 90 days prior to the incident.

Crew aircraft B:

- **title** Captain
- **age, gender** 39 years, male
- **license** Valid ATPL

- **experience** When the incident occurred the total time of the captain was 7401:20 hours. Experience on type was 5801:40 hours. He had flown 209:50 hours 90 days prior to the incident.

- **title** First Officer
- **age, gender** 27 years, male
- **license** Valid ATPL

- **experience** When the incident occurred the total time of the First Officer was 5055:27 hours. Experience on type was 4808:09 hours. He had flown 208:41 hours 90 days prior to the incident.

Air Traffic Controller:

- **title** Air Traffic Controller
- **age, gender** 28 years, male
- **license** Valid

- **experience** When the incident occurred the Air Traffic Controller had held his license since 16 July 2004. Experience was 14 months in the Keflavik Airport Tower.

History of the flight

The crew of aircraft A was on a type difference training flight on a Socata Tobago TB-10 on 17 August 2006. The flight departed Reykjavik Airport (BIRK) at 12:18 with the intention to practice touch and go landings at Keflavik International Airport (BIKF).

The current weather conditions according to the flight instructor on aircraft A were scattered clouds with considerable mist in the air. The METAR for the area indicated 10 km visibility with scattered clouds at 1400 feet. Wind direction was 290°/3kt and temperature was 12°C.

After departure from Reykjavik Airport the student pilot of aircraft A radioed the Keflavik Tower to request touch and go landings. According to crew of aircraft A, the tower controller initially indicated to the pilot that he could choose any runway he wished but ended the radio communication by directing him to runway 20. The pilot acknowledged and followed the coastline to Keflavik in Visual Flight Rules. Approximately over the Keflavik harbor the tower controller gave directions that they were number one for runway 20. The student pilot acknowledged. No traffic was visible in the airport area.

A short while later the tower controller requested aircraft A to tighten the approach pattern and cleared them for a touch and go. The flight training instructor asked the student pilot to direct the aircraft straight towards the runway threshold. This led to an offset final approach (dog-leg).

When aircraft A was at 800 feet approaching runway 20 the tower controller instructed aircraft A to fly through the final and make a wide right hand 270 degree turn and go behind a Boeing 737 (aircraft B) that was five miles out on final approach to runway 20. The student pilot acknowledged transmission by indicating that they would turn right and come in for landing behind a Boeing 737 on final.

The student pilot commenced a smooth right hand turn. The Flight Training Instructor asked the student pilot to increase the turning rate and bank angle to speed up departure from the approach path to runway 20. Just as they were turning through north they noticed aircraft B appearing from the clouds and approaching from the left and slightly above. The instructor took controls and increased the bank angle and rate

of turn as avoidance action. The instructor noticed that aircraft B took immediate avoidance action by turning right and commencing a go-around. A transcript of communications follows in Table 1 below.

After the incident the tower controller radioed aircraft A telling them that they were supposed to fly through the final and go behind a Boeing 737 on final. The Flight Training Instructor and student pilot discussed the communication that took place between them and the tower controller. Both were unsure whether the tower controller initially instructed them to fly through the final before commencing the right hand turn.

Time	Station	Communication
12:31:30	TWR	AIR number 1 for runway 20
	Aircraft A (AIR)	Number 1 for 20 AIR
12:31:52	TWR	AIR make a tight approach, cleared touch and go runway 20
	Aircraft A (AIR)	Tight approach cleared touch and go AIR
12:32:37	TWR	AIR it is a slight change fly through the final and make a wide right hand 270 degree turn and go behind 737 on about 5 miles final runway 20
	Aircraft A (AIR)	Roger right turn and in behind the 737 on final AIR
12:33:02	Aircraft B (701W)	Keflavik tower good morning/afternoon this is Futura 701W fully established ILS for 20
	TWR	Futura 701W good morning wind is calm, cleared to land runway 20. Check I have single engine aircraft now crossing final. Should be no factor.
12:33:22	Aircraft B (701W)	OK fine we have the traffic right now in TCAS. OK traffic is clear.
12:33:35	TWR	AIR do you have the traffic in sight
	Aircraft A (AIR)	Affirm we have the traffic AIR.
12:33:41	TWR	AIR you were supposed to go through the final and go behind the 737
12:33:48	Aircraft B (701W)	We are making a resolution advisory
12:33:56	TWR	Futura 701W confirm you have traffic in sight
	Aircraft B (701W)	We just passed it right now. Climbing to 2000 feet and making a go-around because we have traffic just 100 feet below us.

Table 1: Communication sequence

After the incident the tower controller radioed to aircraft A that they had not followed his instructions. According to radar data (see figures 1-3) the minimum horizontal separation was 0.3 Nm and the minimum vertical separation was 200 feet.



Figure 1: Separation 0.5 Nm, 200 feet

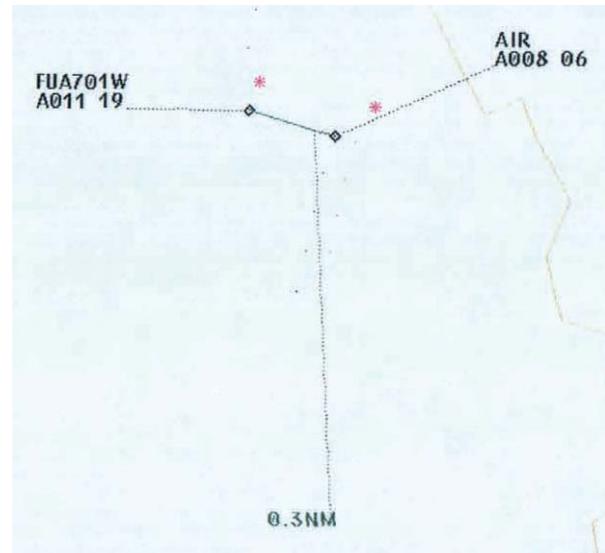


Figure 2: Separation 0.3 Nm, 300 feet

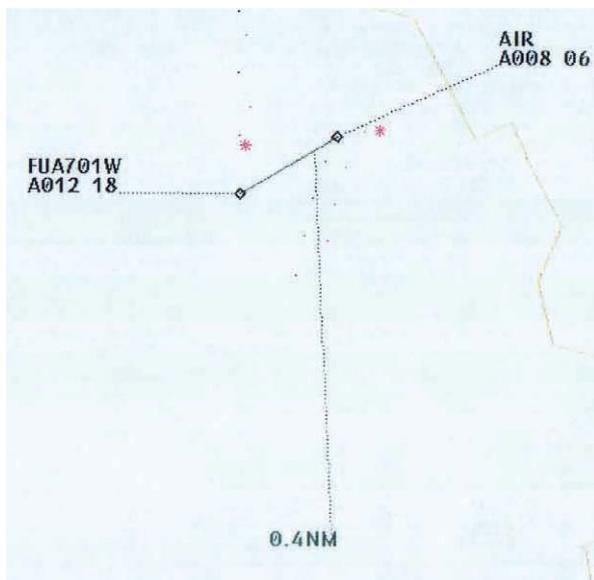


Figure 3: Separation 0.4 Nm 400 feet

2 ANALYSIS AND CONCLUSIONS

The Aircraft Accident Investigation Board (AAIB) concludes that the instructions given by the tower controller were clear as he instructed Aircraft A to fly through the final. The readback from the pilot of aircraft A was missing vital information such as flying through the final and they were supposed to make a wide 270 degree turn.

It is the opinion of the AAIB that the pilot of aircraft A should have asked the tower controller for better instructions as they were unsure of what they were instructed to do. Furthermore the tower controller should have restated his instructions as the readback was insufficient and missing vital information.

The AAIB reminds pilots to read back all vital information such as heading and direction instructions. Furthermore the AAIB recommends air traffic controllers to simplify instructions as much as possible and issue short instructions.

3 SAFETY RECOMMENDATIONS

None