

## Short summary of the occurrence

The type CESSNA 310 aircraft with registration mark HA-EAB performed belly landing (gear-up landing) inadvertently when practicing an emergency situation at Pécs-Pogány Airport (LHPP) because the flight crew had forgotten to extend the landing gears. The aircraft was badly damaged in the incident, but no one was injured. According to the Investigating Committee (hereinafter: the “IC”) of Transportation safety Bureau, Hungary, the serious incident was caused by deviation from requirements of the Flight Manual, and by inadequate supervision of the Student Pilot’s activity during landing. The IC found no circumstance which would warrant a safety recommendation.

## Factual information

<b>Occurrence category:</b>	Serious incident			
<b>Date of occurrence:</b>	06 Oct 2017, 14:04LT <sup>1</sup>			
<b>Location of occurrence:</b>	Pécs-Pogány Airport (LHPP)			
<b>Type and registration of aircraft:</b>	Cessna 310Q, HA-EAB			
<b>Year of manufacture, serial number:</b>	1972, 310Q0490			
<b>Number and type of engine(s):</b>	2 pcs, Continental IO-470-VO			
<b>Purpose of flight:</b>	Non-commercial (training)			
<b>People</b>		<b>Crew</b>	<b>Passenger</b>	<b>Other</b>
	<b>Number:</b>	2	0	0
	<b>Injured:</b>	Not injured	-	-
<b>Damage to property:</b>	<b>Aircraft:</b> Significantly damaged <b>Third party:</b> None			
<b>Licence and ratings of PIC:</b>	ATPL(A) <sup>2</sup> , IR(A) <sup>3</sup> , NVFR <sup>4</sup> , SEP(land) <sup>5</sup> , MEP(land) <sup>6</sup> , TMG <sup>7</sup>			
<b>Age and citizenship of PIC:</b>	55 years, Hungarian			
<b>Flight experience of PIC:</b>	<b>Total</b>	<b>Last 90 days</b>	<b>Last 7 days</b>	<b>Last 24 hours</b>
	<b>Flying hours:</b>	8,192 h	112.5	15.7
<b>Sources of information:</b>	Report, on-site investigation, witness interviews			

### History of the flight

On the day of the occurrence, the Flight Instructor and the Student Pilot flew over from Érsekcsanád to Pécs-Pogány Airport. After taking off from there at 13:44 LT, they performed practice flight near the airport, and at the end of the flight they simulated an engine failure and were preparing for landing on the paved Runway 16. Simulation by the Flight Instructor included reducing the RH side engine power to idle. Then, as reported by both pilots, the audio warning for gear extension was heard as usual. That is certified also by the record of radio communications obtained from the air traffic service. The Flight Instructor and his Student Pilot planned landing using a single engine in such manner that, with the flaps retracted, the Student Pilot was to extend the landing gears when at two miles from the threshold. When on the final approach during their flight with a single engine, the Student Pilot told his Flight Instructor that he was very close to getting a cramp in his left foot. According to the Student Pilot’s report, he could hardly give sufficient push to the pedal of the rudder to compensate for asymmetric thrust, so the Flight Instructor increased the power of the RH side engine slightly above idle in order to reduce such asymmetry. Roughly at the same

<sup>1</sup> Local Time

<sup>2</sup> Airline Transport Pilot Licence

<sup>3</sup> Instrument Rating

<sup>4</sup> Night Visual Flight Rules rating

<sup>5</sup> Single Engine Piston (land)

<sup>6</sup> Multi Engine Piston (land)

<sup>7</sup> Touring Motor Glider

time, they arrived at the point of the intended landing gear extension, so the Student Pilot moved the gear control switch toward the “GEAR DOWN” position, but neither he nor the Flight Inspector checked whether the relevant green lights indicated the extended and locked position of the landing gears. During the flare-out preceding the landing, they only detected the up position of the landing gears when the propellers and the belly of the aircraft impacted the pavement of the runway.

### The scene and the wrecks

The aircraft touched down in the middle of the paved Runway 16, slightly to the left of the centreline of the runway. From there, it slid ca. 260 metres and came to rest near the LH side edge of the runway. The propellers as well as the antenna installed at the bottom of the fuselage were destroyed by ground impact. The plates at the bottom of the fuselage were damaged.



### The crew

The Flight Instructor involved is a pilot who holds various licences and has over 8000 hours of flight experience. The IC found no information on any health problem of any of the two pilots which could have interfered with their fitness to fly. According to his report, the Flight Instructor spent the two days preceding the incident relaxing.

### The aircraft

Cessna 310 is a twin-engine, low-wing aircraft, made fully of metal. Its 194 kW, six-cylinder, petrol injection, and opposed-cylinder engines move 2-blade variable pitch propellers. Its landing gears with steerable nose wheel are electrically retractable and extendible. The switch for control of landing gear movements has three positions (top down): gear up, neutral, gear down. The landing gear control switch and the green lights indicating the extended and locked position of the landing gears are located in the lower left part of the central instrument panel. The intermittent tone (provided by the landing gear warning horn) triggers in the cockpit if any of the landing gears is not in down and locked position while the flaps are extended by more than 15 degrees or while pressure in the manifold of any of the engines falls below 40.6 kPa. Should the electrical system fail, the landing gears can also be moved manually, using the hand crank located at the side of the LH side pilot seat.



According to information in Page 2-11 of the Owner’s Manual of the aircraft, remaining engine power should be cut immediately after touch-down of the main wheels.

### Aerodrome

Pécs-Pogány Airport (LHPP) is situated 9 km south of Pécs city, at an altitude of 198 m above sea level. It has a paved runway, sized 1500x30 m, with 16/34 orientation, and a grass runway, sized 800x50 m, east of and parallel to the former one.

### Weather and visibility

The serious incident took place by daytime, in good visibility conditions.

### Previous case


On 2 February 2007, at Tököl Airport, a type Diamond DA42 aircraft with registration mark HA-DAI landed in similar circumstances, i.e. with its landing gears in retracted position. That occurrence was investigated by TSB

Hungary under case number 2007-033-4P. On that occasion, a CAA exam flight included an engine failure which was simulated by setting the LH side engine to idle, as a result of which the aural signal from the landing gear warning horn was disregarded due to its continuous activated state. Due to traffic situation, the landing as well as landing gear extension had to be delayed, and finally, neither the Pilot Candidate, who was striving with the asymmetric thrust, nor the Examiner supervising the Pilot Candidate's activity realised that the landing gears had not been extended. No one was injured.

### Analysis

The opinion of the IC is that during the simulation of an engine failure in the last phase of the exam flight performed by the Flight Instructor and his Student Pilot, the sound from the landing gear warning horn (warning of the gear-up position) stopped because the power of the RH side engine had been increased. Due to temporal proximity of this to the using of the landing gear switch, the pilots erroneously thought that the landing gears had been extended correctly. But in fact the Student Pilot did not switch the landing gear switch from neutral to GEAR DOWN but only from GEAR UP to neutral, because he had forgotten to switch it to neutral after take-off. As the landing gear switch was switched from GEAR UP to neutral, the landing gears remained in retracted (UP) position. The landing gear warning horn would have been triggered upon flap extension but, due to reduced engine power, the flaps (which increase the drag force) were not extended for the landing.

According to the position of the IC, the immediate cause of the serious incident was that the Student Pilot failed to extend the landing gears because he switched the landing gear switch from GEAR UP to neutral, and neither of the pilots checked the signal of the lights indicating the extended and locked position of the landing gears. Such human errors were facilitated by the mental load increased by the practice flight and by multitasking (practicing of an emergency situation, and the Student Pilot's foot fatigue). According to the IC, the small size of the landing gear switch contributed to the occurrence, because it hinders visual checking of the position of the switch. The IC found no circumstance which would warrant a safety recommendation.



György HÁY  
Investigator-in-charge



Gábor ERDŐSI  
IC Member

The sole objective of the safety investigation is to reveal the causes and circumstances of aviation accidents or incidents and to initiate the necessary technical measures and make recommendations in order to prevent similar cases in the future. It is not the purpose of this activity to investigate or apportion blame or liability.

Concerning this Final Report, the organisations, services and crew members defined by the relevant decree may make reflections within 60 days from the date of delivery/receipt, which are to be evaluated when compiling the final report. Therefore, this final report is not the final position of the investigators and shall not be published.

### General information

#### This investigation is being carried out by Transportation Safety Bureau on the basis of

- Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC,
- Act XCVII of 1995 on aviation,
- Annex 13 identified in the Appendix of Act XLVI. of 2007 on the declaration of the annexes to the Convention on International Civil Aviation signed in Chicago on 7<sup>th</sup> December 1944,
- Act CLXXXIV of 2005 on the safety investigation of aviation, railway and marine accidents and incidents (hereinafter referred to as Kbt.),
- NFM<sup>8</sup> Regulation 70/2015 (XII.1) on safety investigation of aviation accidents and incidents, as well as on detailed investigation for operators,
- In absence of other relevant regulation in the Kbt., in accordance with Act CL of 2016 on General Public Administration Procedures.
- The competence of the Transportation Safety Bureau of Hungary is based on Government Regulation № 230/2016. (VII.29.) on the assignment of a transportation safety body and on the dissolution of Transportation Safety Bureau with legal succession.

#### Pursuant to the aforesaid laws,

- Transportation Safety Bureau Hungary shall investigate aviation accidents and serious incidents.
- Transportation Safety Bureau Hungary may investigate aviation and incidents which – in its judgement – could have led to more accidents with more serious consequences in other circumstances.
- Transportation Safety Bureau Hungary is independent of any person or entity which may have interests conflicting with the tasks of the investigating body.
- In addition to the aforementioned laws, the ICAO Doc 9756 and the ICAO DOC 6920 Manual of Aircraft Accident Investigation are also applicable.
- This Report shall not be binding, nor shall an appeal be lodged against it.
- The original of this report was written in the Hungarian language.

Incompatibility did not stand against the members of the IC. The persons participating in the safety investigation did not act as experts in other procedures concerning the same case and shall not do so in the future.

The IC shall safekeep the data having come to their knowledge in the course of the safety investigation. Furthermore, the IC shall not be obliged to make the data – regarding which the owner of the data could have refused its disclosure pursuant to the relevant act – available for other authorities.

#### This Final Report

was based on the draft report prepared by the IC and sent to all affected parties (as specified by the relevant regulation) for comments.

#### Copyright Notice

This report was issued by:

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#### Translation

This document is the translation of the Hungarian version of the Final Report. Although efforts have been made to translate it as accurately as possible, discrepancies may occur. In this case, the Hungarian is the authentic, official version.

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<sup>8</sup> Ministry of National Development