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In case of inconsistency original version in Slovak language is applicable.*



AVIATION AND MARITIME INVESTIGATION AUTHORITY
Námestie slobody 6, P.O.BOX 100
810 05 Bratislava 15

FINAL REPORT

on the safety investigation into a parachutist occurrence
of a parachute type SOLO 290

Reg. No: SKP2018001

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The investigation of occurrence has been conducted pursuant to Art. 18 of the Act No. 143/1998 on Civil Aviation (Civil Aviation Act) and on Amendment of Certain Acts and in accordance with the Regulation (EU) No. 996/2010 of the European Parliament and of the Council on investigation and prevention of civil aviation accidents and incidents, governing the investigation of civil aviation accidents and incidents.

The final report is issued in accordance with the Regulation L 13 that is the application of the provisions of ANNEX 13 Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation.

The exclusive aim of investigation is to establish causes of accident, incident and to prevent their occurrence, but not to refer to any fault or liability of persons.

This final report, its individual parts or other documents related to the investigation of occurrence in question have an informative character and can only be used as recommendation for the implementation of measures to prevent occurrence of other accidents and incidents with similar causes.

A. INTRODUCTION

Operator:	Slovak National Aeroclub of Gen. M.R. Štefánik
Parachute owner:	private person
Organizer of parachute operation:	Aeroclub Trnava
Jumping site:	Dubová airport / LZDV
Flight phase:	jump
Site of parachutist occurrence:	364 m to the N-NW of the centre of the threshold of the runway / RWY23 48° 20' 57.08" N 17° 21' 11.83" E
Occurrence date and time:	11/08/2018, 17:50

Note: All time data in this Report is reported in UTC time.

B. INFORMATIVE SUMMARY

A parachutist performed a jump 1,200 m above the terrain (hereunder referred to as "AGL") with automatic parachute opening (the canopy container tied to a rope). After the parachutist had jumped out of the aeroplane without any difficulties and the main canopy had been filled with air, the parachutist continued flying with his parachute to the specified aerodrome landing area. During the landing manoeuvre the parachutist levelled off his parachute high, approximately 5 m AGL. A loss of lift followed, increasing the rate of descent, and the parachutist hit the ground hard.

An ambulance and subsequently air rescue service were immediately called.

The parachuting occurrence was reported through the operator (by the organizer of the skydiving event) to the Aviation and Maritime Investigation Authority of the Ministry of Transport and Construction of the Slovak Republic.

A committee was set up to investigate the causes of the occurrence:

Lic. Jaroslava Mičeková	- chairperson of the Safety Investigation Committee
Miroslav GÁBOR	- member of the Safety Investigation Committee

The Report has been issued by:

Aviation and Maritime Investigation Authority
of the Ministry of Transport and Construction of the Slovak Republic.

C. MAIN PART OF THE REPORT

1. FACTUAL INFORMATION
2. ANALYSES
3. CONCLUSIONS
4. SAFETY RECOMMENDATIONS

1. FACTUAL INFORMATION

1.1 History of the flight

On 11 August 2018, a parachute operation organized by Aeroclub Trnava was held at LZDV Airport in accordance with the Rules for Skydiving Activities (Amendment No.4/2010) and the V-PARA-1 Directive.

Skydiving activities were carried out with an L-60S aircraft, registration mark OK-LKG, from the height of 1,200 m AGL.

During the sixth flight on that day the parachutist was performing a jump in the role as referred to in I.A of the V-PARA-2 Directive (Curriculum for training a basic introduction jump with automatic parachute opening by a static rope with the SL type parachute wing).

After the parachutist had jumped out of the aeroplane at 1,200 m AGL without any difficulties and the main canopy had opened automatically and been filled with air, the parachutist continued flying with his parachute. The parachutist performed the parachute descent and control without any mistakes and in the final phase of the flight, approximately 80 m AGL, the parachutist directed the parachute to a pre-determined aerodrome area. In the last landing phase the parachutist started levelling off the parachute high, 10 m AGL, which led to a loss of forward speed and an increase in the descent rate. In spite of the information given to the parachutist through a radio station navigating him and ordering him to release the control cords, the parachutist continued braking the parachute, which led to a loss of forward speed and of lift. The parachutist fell on the aerodrome surface from approximately 5 m AGL at a higher rate of descent.

Daytime: Day

1.2 Injuries of persons

Injury	Crew	Passengers	Other persons
Fatal	-	-	-
Serious	1	-	-
Minor	-	-	-
None	-	-	-

1.3 Damage to the parachute

No damage to the parachute mechanism was detected during a check of the parachute equipment.

1.4 Other damage

No circumstances have been reported to the Aviation and Maritime Investigation Authority which might lead to any other claims for compensation of damage against a third party.

1.5 Information about the parachutist

Citizen of the Slovak Republic, aged 64;
holder of a parachutist license - 'trainee in basic training' category;
valid medical certificate as of 18 September 2017 issued by an authorized medical facility.

Qualifications:

'trainee in basic training' category.

Experience:

number of jumps - 1 jump performed on 16 June 2018.

Course of the parachute activities:

theoretical training and ground preparation for the first jump were performed on 16 June 2018 when the first jump was performed as well. On 11 August 2018 a theoretical refresher training with theoretical examination was carried out.

The training was conducted by a licensed parachuting instructor in accordance with the V-PARA-2 Directive.

1.6 Information about the parachute

Main parachute:	SOLO 290, packed for jump on 11 August 2018
Serial number:	12364
Package with harness:	MARS OP-093/01M, PS-034S
Serial number:	02249/10
Reserve parachute:	MARS PZS-92
Serial number:	02203/09, packing valid until: 21 October 2018
AAD device:	VIGIL II Multimode
Serial number:	8247

1.7 Meteorological information

The meteorological conditions at LZDV at the time of the occurrence were suitable for performance of the jumps in question and it had no impact on the occurrence of the occurrence.

Wind direction and speed: from the direction of 310°, 1-2 m/s.

Cloud type, amount and height: clear.

1.8 Aids to navigation

N/A

1.9 Communications

N/A

1.10 Aerodrome information

LZDV is a public national airport with irregular traffic.

At the time of the occurrence it was suitable for performing flights for parachuting activities.

1.11 Flight recorders

N/A

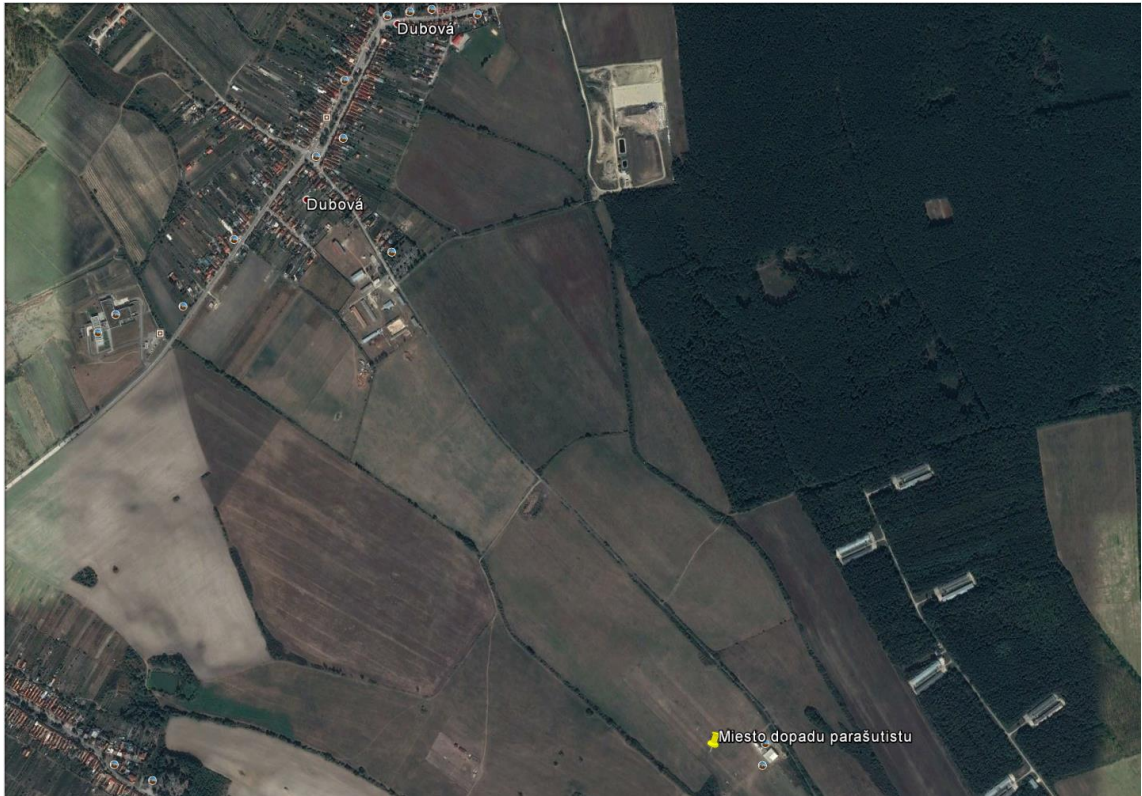
1.12 Wreckage and impact information

Incident site - the parachutist landed 70 m in the axis and after the threshold of RWY31 and it is delimited by the following coordinates:

48° 20' 57.08" N

17° 21' 11.83" E

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1.13 Medical and pathological information

The parachutist suffered serious injuries.

1.14 Fire

None.

1.15 Survival aspects

It was not necessary to perform any investigation or rescue by SAR equipment.

1.16 Tests and research

Parachute mechanism

Inspection of the harness and the parachute:

inspection of the main canopy and of the entire parachute equipment was performed at the Slovak National Aeroclub in Žilina after the parachute had been taken over from the District Police Department in Modra which had seized the parachute after the accident.

Inspection of the main canopy:

inspection of the main canopy and of its control elements showed that the brake lines were released and fully functional, indicating that the parachutist could have controlled the parachute until he landed. No damage or other malfunction of the carrier cord or the main canopy were detected during subsequent inspection that could have resulted in the occurrence of the accident.

Inspection of packing of the main parachute:

the symmetry of the main parachute canopy as well as the looseness of individual carrier and control cords indicated that the parachute was correctly packed prior to the jump and the parachute packing could not have had an impact on the occurrence of the accident, as confirmed by the video record of the jump.

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A VIGIL safety device was used on the parachute (Automatic Activation Device). The safety device was correctly installed and turned on in the "STUDENT" mode. The AAD was not activated; this was confirmed by the fact that during the last 317 m AGL the rate of descent was not over 20 m/s.

After an overall inspection of parachute mechanism documentation it may be stated that the parachute mechanism had been operated and maintained in accordance with the applicable legislation, and no facts were discovered which could have affected the occurrence of the accident.

1.17 Organizational and management information

The flight and parachuting activities were performed in accordance with aviation regulations valid in the territory of the Slovak Republic.

The parachuting activities were organized by Aeroclub Trnava. Pursuant to Act No. 83/1990 Coll. The aeroclub is a voluntary association of citizens performing hobby and sports activities related to motorized flying, non-motorized flying and parachuting.

The Aeroclub is voluntarily associated within a higher organizational unit – the Slovak National Aeroclub of Gen. M.R. Štefánik based in Žilina.

Parachuting activities for the particular day started when the jumps controller, the air traffic manager and the airport operator signed the Jumps Controller Log. No facts that could have affected the occurrence of the accident were found during inspection of the air traffic control.

1.18 Additional information

No facts indicating any cause or influence of a third party in relation to the occurrence were found during investigation of causes of the occurrence.

1.19 Useful or effective investigation techniques

Common investigation methods were applied.

2. ANALYSIS

Parachutist's activities

After the parachutist had jumped out of the aeroplane with the help of a rope, the main canopy opened automatically and the parachutist continued descending to the aerodrome. His descending flight was monitored by an authorized and properly instructed person who navigated him via a radio station to the specified aerodrome landing area. The entire descending flight continued without any difficulties down to 10 m AGL where the parachutist started braking the parachute strongly by pulling the control cords downwards. In spite of the information given to him via the radio station to raise his arms he did not respond and pulled his arms downwards even more as he was descending and his rate of descent was increasing. With such a manoeuvre the parachutist braked the parachute to such an extent that he lost the forward speed, which resulted in a loss of lift and an increase in the rate of descent.

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3. CONCLUSIONS / Cause of the Parachuting occurrence

Causes

- fall of the parachutist to the ground at an increased rate of descent;
- failure to perform the final landing manoeuvre correctly.

Secondary cause

Incorrect estimate of height in the final landing phase.

4. SAFETY RECOMMENDATIONS

The final report from the investigation of the parachuting occurrence does not contain any recommendations.

In Bratislava, on 26 September 2018