

*The original of the Final Report was issued in the Slovak language.
In case of inconsistency original version in Slovak language is applicable.*



MINISTRY OF TRANSPORT, CONSTRUCTION
AND REGIONAL DEVELOPMENT
OF THE SLOVAK REPUBLIC



Aviation and Maritime Investigation Authority
Námestie slobody 6, P.O.BOX 100
810 05 Bratislava 15

FINAL REPORT

on investigation of accident
of paraglider **Avax 26 Gradient**
without registration number

Reg. No.: SKA2014001

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:	private person
Type of operation:	general aviation / sport and recreational flying
Type:	parachute glider Avax 26 Gradient (hereinafter "paraglider")
Registration No:	not issued
Take-off site:	Chmeľov
Site of planned landing:	Chmeľov
Flight phase:	ongoing flight
Place of accident:	Chmeľov N 49° 04' 26,1'' E 21° 26' 34,9''
Date and time of accident:	16.06.2014, time: 15:45

Note: All time data in this report are stated in the UTC time.

B. INFORMATIVE SUMMARY

On 16.06.2014 at 15:45 the pilot was making a paraglider flight in the area of community Chmeľov (used for mode aircraft flying) during which an air accident occurred. The pilot suffered serious injuries in the accident.

The following commission was appointed for investigation of the air accident:

Ing. Milan GREGA
Ing. Milan BOHUŠ

The report is issued by:

Aviation and Maritime Investigation Authority
of the Ministry of Transport, Construction and Regional Development
of the Slovak Republic

C. MAIN PART OF REPORT

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

1. FACTUAL INFORMATION

1.1 History of the flight

The pilot was making a paraglider flight in the area of community Chmel'ov that is used for mode aircraft flying.

Short after the take-off, in the phase of direct shallow descent, the bearing surface of the paraglider got deformed and the paraglider fell to the ground from a low altitude.

The pilot was conducting this flight operation in an area with elevation of the take-off site from the first possible landing of about 20 m.

Daytime: day

Flight rules: VFR

1.2 Injuries to persons

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

1.3 Damage to paraglider

The paraglider was not damaged in the accident.

1.4 Other damage

No circumstances with potential claims for compensation of other damage toward a third party were notified to the Aviation and Maritime Investigation Authority.

1.5 Personnel information

A national of the Slovak Republic, male, aged of 67 years

Holder of the flying sport equipment ("FSE") pilot licence issued by the Light Aircraft Association of SR on 28.04.1992, with marked validity until 07.08.2014.

Medical certificate issued on 07.08.2013 marked in the personnel record of professional staff of LAA SR, valid until 07.08.2014.

Flying experience:

Total flight hours: 91 h
Total flight hours: 3 h since he last prolongation in 08/2013

Qualifications:

Pilot, instructor of hang-gliders.

1.6 **Information about paraglider**

a) Type: Avax 26 Gradient
Registration No: not issued
Serial number: G03269811101
Year of manufacture: 1998

Total operating hours since manufacture: **not detected**

Certificate of airworthiness: **not issued**

Third-party insurance: **invalid**

FAI sport class	O - PG
Safety category (EN)	D
Minimum flight speed	22 km/h
Maximum flight speed	50 km/h
Minimum take-off weight	75 kg

b) **Take-off weight of paraglider at the time of accident**

Empty weight	6,7 kg
Weight of crew	81,0 kg
Weight of equipment and luggage	6,0 kg
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Total take-off weight at the time of accident:	93,7 kg

The maximum permissible take-off weight of paraglider for flight according to the Flight Manual is 95 kg.

The take-off weight of paraglider at the time of accident was observed.

1.7 **Meteorological situation**

Wind of north directions, wind speed up to 2 m/s with gusts up to 7 m/s, which subdued towards evening.

1.8 **Aids to navigation**

N/A.

1.9 **Communications**

The radio communication was not available.

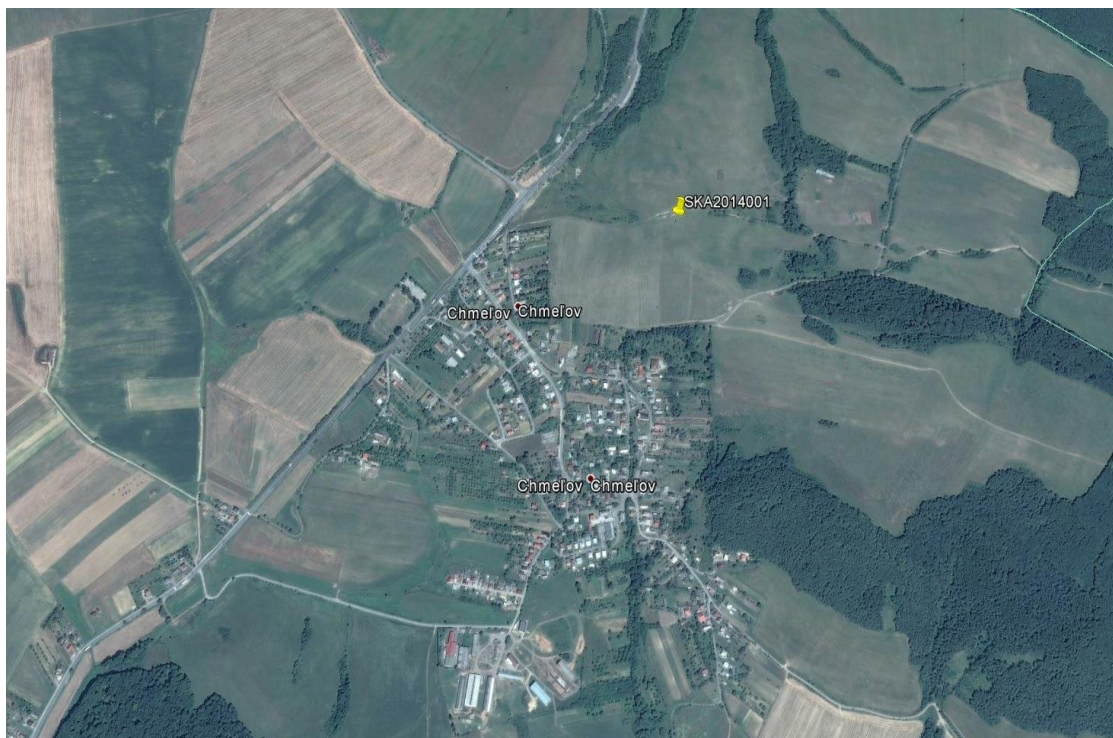
1.10 **Aerodrome information**

N/A.

1.11 Flight recorders

N/A.

1.12 Wreckage and impact information



1.13 Medical and pathological information

The pilot of paraglider suffered a serial fracture of ribs on the left side, left lung contusion and the air was detected in his left pleural cavity.

1.14 **Fire**

No fire broke out.

1.15 **Survival aspects**

The pilot of paraglider had not at his disposal an emergency parachute and his seat of older type, with the exception of three empty PET bottles placed in a packaging under his lower body was not equipped by any passive safety elements.

1.16 **Tests and research**

N/A.

1.17 **Organizational and management information**

N/A.

1.18 **Additional information**

1. During the flight the pilot had not with him a document proving the airworthiness of the paraglider and even did not produce it after the accident. This paraglider has not been included in the register of equipment of LAA SR.
2. The inquiry at the glider manufacturer about data on the paraglider was conducted. The manufacturer does not keep any record on inspection of the paraglider. According to the serial number the manufacturer confirmed its year of manufacture 1998.
3. The pilot did not hold a licence for paraglider flying.
4. The pilot had a long break in flying, exceeding the period of three months.

1.19 **Useful or effective investigation techniques**

Standard investigation methods were used.

2. **ANALYSIS**

The pilot of paraglider made the take-off and flight in the area of community Chmel'ov, which is used by aeromodellers and which is characterised by a very small height difference between the take-off site and the first possible landing site (about 20 m). From the first possible landing side this ground is further sloping and becomes more broken, which creates worse conditions for landing, especially due to the potential disordered air motion (turbulences) because of the rugged topography and clearway formed by a higher hill, in particular at higher wind speed.

According to his own statement, the pilot was not intensively flying paragliders and he decided to make this flight at his sole discretion, because he considered the meteorological conditions at that time as suitable. He knew the flight area because he used to fly there with a hang-glider and he also knew it from the activity of aeromodellers.

Based on accounts of witnesses, the flight itself progressed without problems in the straight direction with shallow descent until the moment when they registered a change in the shape of the bearing surface of the paraglider and its deformation, followed by a fall to the ground from a low altitude. According to accounts of one witness the pilot of paraglider had his arms spread out before the fall, with palms below the level of his shoulders, which allows an assumption that the pilot was steering the paraglider at a lower flight speed.

According to the witnesses the wind of northern directions subdued towards the evening.

The pilot of paraglider had relatively small flying experience with hang-gliders and had long breaks in flying.

The actual state of paraglider and equipment did not show any signs of excessive wear or damage. The pilot had not at his disposal an emergency parachute during the critical flight. The unfavourable flight situation occurred at a low altitude above ground – based on the height data of the take-off site and the point of ground impact, in an altitude lower than 20 m. As the paraglider fell from an altitude of less than 10 m, the use of rescue aids would be impossible even if they had been available. The pilot seat was not equipped by modern passive safety elements able to mitigate the consequences of the fall.

The type of paraglider involved in the accident is designed for executive flying and for very experienced pilots.

The commission even cannot exclude the potential influence of disordered air currents on the flight of the paraglider, which could have been caused by vegetation situated near the air trajectory.

3. CONCLUSIONS / CAUSE OF ACCIDENT

3.1 Findings

- The pilot had not valid qualifications for the critical flight.
- The certificate of airworthiness and other documents proving the inspections of the paraglider were not submitted.
- During the flight the pilot was holding the control ropes evenly retracted, which allows an assumption of flight at a low speed and subsequent achievement of stalling speed, followed by airflow separation from the bearing surface, loss of lifting force, deformation of the bearing surface and the final fall.

3.2 Causes of air accident

Deformation of the bearing surface of the paraglider due to the loss of flight speed.

4. SAFETY RECOMMENDATIONS

On the basis of investigation of the air accident of paraglider

Type	Avax 26 – Gradient without registration number
Date	16.06.2014

We recommend **LAA SR** to implement of the following measure:

- 1) To familiarise the pilots of LAA SR with this final report;
- 2) The LAA SR officials to provide as part of the following organised training a course for managers of the parachute flying training centres devoted to the analysis of aerodynamic characteristics of elliptical planform wings.

Bratislava, 27.08.2014