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

FINAL REPORT

on safety investigation of an air accident
of a flying sport equipment type **EDEL / RESPONSE - M**
without a registration mark

Reg. No: **SKA2017007**

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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/Owner: private person
Operation type: General Aviation/Sports and Recreational Flying
Type: EDEL RESPONSE - M flying sport equipment
(hereinafter referred to as "PG")
Registration mark: without registration or a registration mark
Take-off site: Krivoštianka spot, Strážske municipality
Flight phase: flight
Accident site: 2.8 km to the east of the take-off site along
the Vihorlat mountain ridge
Accident date and time: 26 July 2017, occurrence time has not been identified

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

B. INFORMATIVE SUMMARY

On 26 July 2017 the PG collapsed during the flight. The pilot fell into tree-tops, suffering injuries as a result of which he died at an unidentified time.

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

Ing. Igor BENEK	Chairman of the Safety Investigation Committee
Ing. Róbert GREXA	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

The pilot took off at an unidentified time.

During the flight the PG probably collapsed and started to fall steeply. The pilot failed to bring the PG back to the flight mode. The pilot did not try to use the reserve parachute and fell into tree-tops on a mountain range near a tourist track where he remained hanging in his harness. However, the pilot managed to climb down the tree. During his fall into the tree-top he suffered injuries as a result of which he later died on the ground.

The occurrence was reported to the Aviation and Maritime Investigation Authority of the Ministry of Transport and Construction of the Slovak Republic by a member of the Slovak police.

Time period: day

Flight rules: VFR

1.2 Injuries of persons

Injury	Crew	Passengers	Other persons
Fatal	1	-	-
Serious	-	-	-
Minor	-	-	-
No injuries	-	-	-

1.3 Damage to the PG

The PG was damaged when it was being released from the tree-top.

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 Personnel information

A citizen of the Slovak Republic, aged 64.

The pilot was not a member of the Light Aircraft Association of the Slovak Republic (LAA SR) and he did not have a valid pilot license for paragliding.

Flight experience:

unidentified; the pilot did not have a flight logbook.

1.6 Information on the PG

Type: EDEL RESPONSE – M
Registration mark: without a registration mark
Serial number: C905/051

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Manufacturer: EDEL
Year of manufacture: 1999
Minimum - maximum take-off weight: 75-100 kg
Weight: 6.6 kg
Number of PG's flight hours: unidentifiable
No airworthiness certificate.

Information on the reserve parachute

Manufacturer: SKY Paragliders
Weight: 2.4 kg
Maximum flight weight: 110 kg

1.7 Meteorological information

On 26 July 2017 at 12:00, the airflow in the free atmosphere at the height of 1,500 m above sea level in the area above the Staré municipality was south-westerly to westerly with the speed of around 8 m/s. The air temperature at the above-stated flight level was around 8 °C.

South-westerly wind was blowing at the speed of about 8 m/s at the level of 1,000 metres above sea level and the air temperature was 13 °C.

At lower levels the wind was gradually changing to southerly or south-westerly, while the wind direction was affected by the near-by Vihorlat mountain range and the wind speed at 500 m above sea level was approximately 5-6 m/s. As it was gradually getting warmer in the morning, the wind speed and direction were influenced by the heat convection and the mountain-valley circulation.

1.8 Aids to navigation

N/A.

1.9 Communications

N/A.

1.10 Information about aerodrome

Starting point: Krivoštianka – Vihorlat.

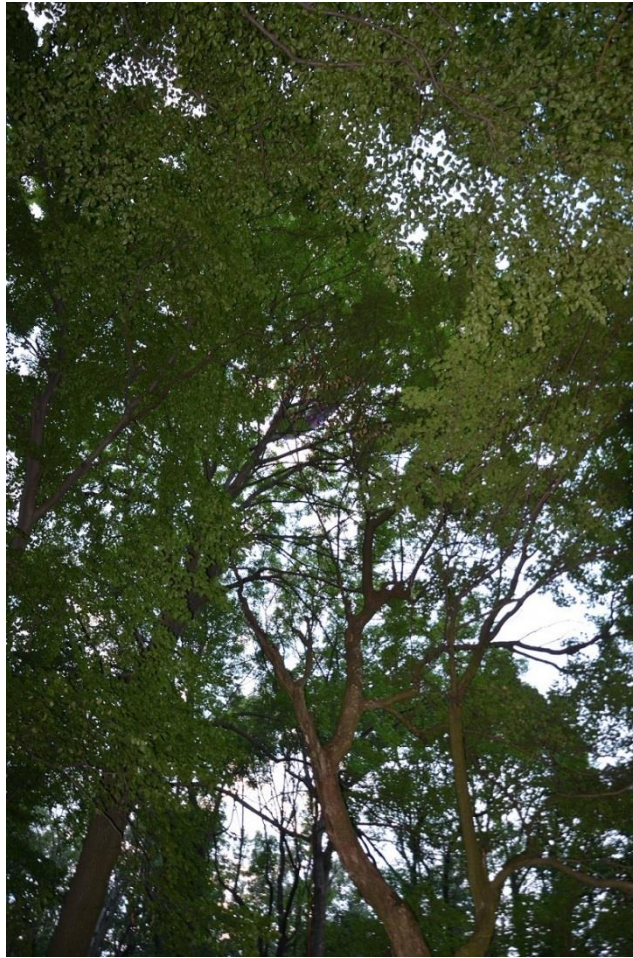
1.11 Flight recorders and other recording devices

N/A.

1.12 Wreckage and impact information

The PG hit trees near the "Vojtov kríž" spot on a tourist track leading along the ridge of the Krivoštianka hill.





PG impact site

1.13 Medical and pathological information

From the point of view of forensic medicine, it was a case of respiration failure resulting from chest injuries caused when the pilot hit a tree.

1.14 Fire

None.

1.15 Survival aspects

Search and rescue by SAR equipment was not performed. The pilot did not have a mobile phone to call for help even though he was alive and conscious for several hours after hitting the trees. There was no witness of the accident who could initiate any rescue action.

The pilot was found accidentally on 28 July 2017, i.e. two days after the accident.

1.16 Tests and research

The paraglider set's technical condition was assessed after the accident.

The PG:

was obsolete, manufactured in 1999. Before the accident it was in a poor technical condition and after the accident it was torn into two pieces. The leading edge and its openings were torn at about one third of the wing. The gallery, main lines and control lines were damaged; more of them were cut or torn. Free endings were not substantially damaged. The upper and the lower cover of the canopy was in a condition corresponding to the year of manufacture. The quality of the fabric and the permeability of the cover did not meet the standards and correspond to the age and the wear and tear of the PG. The upper and the lower cover of the PG was quite dirty as a result of its use.

The PG's wing geometry had not been set for a long time and the porousness of the wing cover fabric was not appropriate. As a result of significant damage to the wing caused when it was

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being released from the trees, it was not possible to check the paraglider's geometry but with regard to its age and to the material of the lines it may be assumed that line lengths deviated from the lengths determined by the manufacturer by as much as 5 cm. This has a major impact on flight characteristics of the PG (any change in the wing geometry results in a change in the angle of attack, in the profile shape, more frequent wing collapses, changes in the gliding speed, etc.). According to the gathered data, the take-off weight was not exceeded and corresponded to the authorized take-off weight range specified by the manufacturer.



Pilot's harness:

the pilot's harness manufacturer or an approximate age of the harness could not be identified. It is a very obsolete harness which does not correspond to current standards.

The harness was in a poor technical condition. The fabric it was made of was stiff, very dirty and torn at some places. The rings connecting the reserve parachute were corroded; the straps were extremely hard though functional. The spine guard was replaced by a piece of hardened polystyrene. A home-made denim bag for a reserve parachute was sewed to the right side of the seat.



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SKY SPARE 32 reserve parachute:

it was obviously older than 10 years, without any documentation. According to the manufacturer, the lifetime of such parachutes is 10 years. The fabric of the cover of the reserve parachute was stiff and without any elasticity. The pilot made a home-made bag for the reserve parachute because the seat did not have any space for a reserve parachute as is the case with modern seats. The bag was sewed from a piece of denim and it was attached to the seat. This solution was inappropriate because the reserve parachute was largely exposed to air humidity and its traces were visible also on the reserve parachute fabric.



Reserve parachute



Denim bag for the reserve parachute

1.17 Organizational and management information

Flight activities were not performed in accordance with aviation and tourist regulations valid in the territory of the Slovak Republic.

1.18 Additional information

N/A.

1.19 Useful or effective investigation techniques

Common investigation methods were applied.

2. ANALYSIS

Pilot activity

The pilot took off at an unidentified time. During his flight he was moving above the Vihorlat mountain ridge from the Krivoštianka spot probably to the Uhliská spot.

We may only assume all distances and heights since the pilot had no GPS recording equipment or camera and no witnesses were present at the time of the accident who could say anything about the history of the flight.

With regard to the weather condition we may assume that the pilot encountered difficulties probably after his PG collapsed as a result of thermal turbulence and the PG started to fall steeply. The technical condition of the PG only made the situation more complicated and the pilot was not able to bring the PG back into the flight mode. At the critical stage of the flight the pilot did not activate the reserve parachute and in the end the PG fell into tree-tops on a mountain ridge near a tourist track where he remained hanging in the harness.

After the fall the pilot probably managed to climb down the tree. When the pilot hit the tree or while he was climbing down the tree he suffered injuries. He was conscious for several hours but he did not have a mobile phone or any other device which would enable him to call for help and then he died at an unidentified time.

Paraglider set

The PG, the pilot's harness and the reserve parachute were in a poor technical condition. If the equipment had been checked by a technician of LAA SR, the pilot would not have received a permission to use the set. The accident was most probably caused by the technical condition of the set since PG's flight characteristics were deteriorated as a result of wrong geometry.

3. CONCLUSIONS / Causes of the air accident

3.1 Findings

- The pilot did not have the qualifications required for paragliding;
- The PG was not registered and did not have a valid airworthiness certificate;
- The PG was obsolete and did not correspond to current standards;
- The PG did not undergo any technical inspection and its lines arrangement (geometry) was not performed, what certainly meant considerable deterioration of its flight characteristics;
- The PG's technical condition was not appropriate for safe performance of flights and it probably largely contributed to occurrence of the accident;
- The Committee was not able to identify the manufacturer of the pilot's harness or its approximate age. It was an obsolete harness which does not correspond to current standards and it was in a poor technical condition.
- The reserve parachute was properly packed and attached to rings of the pilot's harness. The age of the reserve parachute could not be determined but according to the materials used it was obviously older than 10 years.

3.2 Causes of the air accident

- Inappropriate technical condition of the paragliding set;
- The accident may also have been caused by thermal turbulence present in the area where the pilot was flying.

4. SAFETY RECOMMENDATIONS

The Final Report on safety investigation of an air accident does not contain any recommendations.

In Bratislava, 19 February 2018