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
AND CONSTRUCTION
OF THE SLOVAK REPUBLIC

AVIATION AND MARITIME INVESTIGATION AUTHORITY
Námestie slobody 6, P.O.BOX 100
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FINAL REPORT

on the safety investigation of an air accident

of flying sports equipment type **BKK-01-RIKI-1**

with the registration mark **OM-M723**

Reg. No: **SKA2017003**

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:	flying sports equipment BKK-01-RIKI-1
Registration mark:	OM-M723
Take-off site:	take-off and landing area Krakovany
	(hereinafter referred to as "VPP-KK“)
Flight phase:	climb after the take-off
Accident site:	field 200m to the right of the VPP-K 30 threshold
Accident date and time:	1 September 2017, 09:30

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

B. INFORMATION SUMMARY

On 1 September 2017, shortly after take-off, a pilot with flying sports equipment type BKK-01-RIKI-1, registration mark OM-M723 (hereinafter referred to as "FSE"), made an emergency landing on a field 200 m away from the VPP-KK 30 threshold after an engine shutdown. The pilot suffered serious injuries and the FSE was destroyed.

The accident was reported by telephone to the Aviation and Maritime Investigation Authority by the owner of VPP-KK.

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

Lic. Jaroslava Mičeková	Chairperson of the Safety Investigation Committee
Vladimír Záborský	Member of the Safety Investigation Committee

The Report has been issued by:

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

C. MAIN PART OF THE REPORT

1. FACTS

1.1 History of the flight

Before selling his FSE the pilot decided to perform a test of the brakes during taxiing before the flight with the buyer since a practical test conducted whilst changing a tyre and setting the brake showed that the FSE was swerving to the right. According to his statement, the pilot filled the petrol tank with 10 litres of petrol before the brake test. He did not check the weather conditions or oil level. After he started up the engine and checked the brakes, he taxied on VPP-KK 12. Then he performed a take-off run on the declivous VPP-KK 12 and took off after lifting the tail skid.

After he climbed to an altitude of about 50 m the engine shut down. The pilot adjusted his speed to approximately 80 km/h and decided to land to the left of VPP-KK 12 in a field. While levelling out, the FSE stalled and fell on the field with a little bounce from an altitude of 5 m, which resulted in its complete destruction.

Time period: day
Flight rules: VFR

1.2 Injuries of persons

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

1.3 Damage to FSE

The FSE was destroyed during the air accident - the airframe was twisted, the left wing and the bar were broken, the right wingtip was damaged, the undercarriage was destroyed, the propeller and the engine were destroyed, the cockpit supports were twisted and broken and the instrument panel was destroyed.

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

Pilot:

Citizen of the Slovak Republic, aged 67, holder of a flying sports equipment pilot license issued by the Slovak Federation of Ultralights of the Slovak Republic on 12 August 2010.

Medical certificate class 2 with marked validity until 12 February 2019.

Qualifications:

FSE pilot with marked validity until 29 July 2018.

Flight experience:

Total flight hours: 140 hours
Number of flight hours for the last 30 days: 4 hours 35 min on the FOX type
Number of flight hours on the type BKK-01-RIKI-1: 0 hours
Re-training for type BKK-01-RIKI-1 - not submitted.

1.6 FSE information:

Airframe:

Type:	Microlight – ML BKK-01-RIKI-1
Registration mark:	OM-M723
Serial number:	187197
Year of manufacture:	2003
Manufacturer:	Private person

Engine:

Type:	Volkswagen
Serial number:	SI-12 071101101
Manufacturer:	Volkswagen Germany

Engine card: only a record of motor installation data has been submitted to the Safety Investigation Committee.

Propeller:

Type:	Křemen Propellers
Serial number:	66052000
Manufacturer:	Křemen Propellers, Czech Republic

Propeller card: only a propeller installation record has been submitted to the Safety Investigation Committee.

LFE airworthiness certificate No. RS056, issued by the Slovak Federation of Ultralights of SR, marked as valid until 5 November 2007.

No flight test protocol for extending the validity of the LFE airworthiness certificate has been submitted to the Safety Investigation Committee.

Mandatory insurance: has not been submitted to the Safety Investigation Committee.

Permission for establishing and operating a radio station: has not been submitted to the Safety Investigation Committee.

Aircraft logbook: has not been submitted to the Safety Investigation Committee.

1.7 Meteorological information

The weather on 1 September 2017 from 09:00 to 12:00 in the area of Krakovany was semi-cloudy to cloudy, without precipitation. Cumulus Fractus was the prevailing type of cloud, later around lunchtime and in the afternoon also Cumulus Mediocris as well as Altocumulus Translucidus, while the cloud base was at 1,000 to 1,500 m. The air temperature during this time period rose gradually from 25 to 29 °C. Visibility was about 45 km. Only a gentle to mild, predominantly southerly to south-westerly wind was blowing with a speed of up to 4 m/s.

1.8 Aids to navigation

N/A.

1.9 Communications

N/A.

1.10 Information about aerodrome

VPP-KK direction12/30, grass surface, size 25 x 970 m, located 7 km far away Piešťany.

Coordinates and location of the reference point of the manoeuvring area:
N 48°38´02.17″ E 17°43´56.25″ - centre of the area.

Elevation - centre of the area: 199 m.

1.11 Flight recorders and other recording devices

N/A.

1.12 Information about the impact and wreckage

The FSE fell on a field 200 m to the right of the VPP-KK 30 threshold.

No petrol leaked of the FSE; one oil slick sized approximately 10x10 cm was found under the engine on the ground. There was no smell of petrol.

The fuel system and the fuel tank showed no signs of damage.


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1.13 **Medical and pathological findings**

After the air accident the pilot left the aircraft on his own and went to the Krakovany airport. He complained about back pain. A medical rescue service was called which took him to the hospital after an initial check.

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**

Samples of operating fluids were examined:

oil sample / unidentified oil type was examined by Slovnaft, a.s. with the following conclusions:

- oil contaminated by fuel; viscosity at 100°C could not be measured due to the presence of fuel in the sample.
- Potassium content indicates contamination by cooling liquid.
- A high content of silicon (Si) and aluminium (Al) indicate dust penetration.
- The abrasive metal content in the oil was high and indicated abrasion of the bearing and/or the bearing bush.

motor-vehicle petrol sample / unleaded petrol 95 was examined by EUROFINS BEL/NOVAMANN s.r.o. testing laboratory with the following conclusions:

- conformity assessment: the motor-vehicle's petrol sample was in accordance with the requirements of STN EN 228 in the selected parameters:
- VM octane number (min. 95.0), distillation test - distillation residue (max. 2%), benzene content (max . 1.0% of the vol.), olefin content (max. 18.0% of the vol.), oxygen content (max.2.7 (3.7)% of the mass).

The motor-vehicle's petrol sample was not in accordance with the requirements of STN EN 228 in selected parameters:
- density at 15°C (720- 775 kg/m3), distillation test – evaporated % at 70°C (24.0 (22.0)- 52.0 (50.0)), evaporated % at 100°C (46.0 - 72.0 (71.0)), evaporated % at 150°C (min.75.0), distillation end (max. 210°C) , aromatics content (max. 35.0% of the vol.) and vapour pressure (60.0- 90.0 kPa in the transition period).

1.17 Organizational and management information

N/A.

1.18 Additional information

Although the pilot claimed that he had filled the tank with 10 litres of fuel, there was 8 dcl of fuel in the intact fuel tank during sampling.

The FSE was not equipped with a low fuel warning system.

After the air accident there was no fuel in the fuel supply system or in the carburettor.

1.19 Useful or effective investigation techniques

Common investigation methods were applied.

2. ANALYSIS

Pilot activity

Before the flight the pilot did not consider the technical condition of the FSE, he did not perform pre-flight preparations or a pre-flight check; he did not have valid documentation for the FSE or a flight manual.

Although the pilot tried to direct the FSE to the selected landing area after the engine shutdown, he did not pay enough attention to maintaining a minimum manoeuvring speed during the manoeuvre, causing the FSE to fall.

Since the pilot was not able to provide any mandatory documentation, including flight and operation manuals, and the status of the operating fluids was not satisfactory, he may not have been performing the necessary maintenance on the FSE.

3. CONCLUSIONS / Causes of the air accident

3.1 Findings

Pilot

The pilot did not have any flight experience with the particular FSE type or type retraining.

FSE

- The FSE was in insufficient technical condition - not airworthy, without valid documentation, without a valid airworthiness certificate, without mandatory insurance;
- There was an insufficient amount of fuel of inappropriate quality in the fuel tank;
- The oil quality was inappropriate.

3.2 Causes of the air accident

- inappropriate technical condition of the FSE;
- failure to master the piloting technique during emergency landing into terrain;
- engine shutdown after fuel supply interruption.

4. SAFETY RECOMMENDATIONS

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

In Bratislava, 1 February 2018