

*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 flying sport vehicle type **SKY STAR**
Registration No. **OM-M506**

Reg. No.: **SKA2014007**

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:	Kornel NÉMETH
Owner:	János DARU
Type of operation:	general aviation / sport and recreational flying
Type:	flying sport vehicle SKY STAR (hereinafter „FSV“)
Registration No:	OM-M506
Take-off site:	Airport Šurany / LZSY
Flight phase:	take-off
Place of accident:	LZSY
Date and time of accident:	19.10.2014, 14:50

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

B. INFORMATIVE SUMMARY

On 19.10.2014 the pilot performed flights with FSV, registration No. OM-M506. At the second take-off, during the climb-out, FSV started banking to the right, entered into a steep descent and hit the ground by its front fuselage.

The accident was reported by telephone to the Aviation and Maritime Investigation Authority of the Ministry of Transport, Construction and Regional Development of the Slovak Republic on 19.10.2014. The paramedics and the police were called to the place of accident.

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

Lic. Jaroslava MIČEKOVÁ
Ing. Milan CIBÁK, CSc.

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

On 19.10.2014 the pilot made a navigation flight of 1:35 hours without any problems.

He intended to make the following flight as a circling flight with another person onboard.

Before the takeoff the rotor was cranked up to prescribed 210 – 220 rpm and the switching-off of the signal light indicated the achievement of required speed. The pilot powered up the engine and after achievement of the required forward speed he unstuck FSV, which is standard take-off procedure.

When FSV left the grass runway (hereinafter “RWY”) 15/33 it suddenly started turning and banking to the right side.

The pilot reacted to the situation by actuating the foot and hand controls up to extreme positions, but in spite of full actuation of the controls FSV did not stabilize and entered into a steep descent from a height of 5 m. Finally it hit the ground with the front fuselabe and landed on its right side.

Daytime: day

Flight rules: VFR

1.2 Injuries to persons

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

1.3 Damage to FSV

FSV was destroyed due to collision of its right landing gear with the ground.

The following impact of rotor blades and, due to spring compression, of the pusher-type airscrew to the ground caused their destruction. FSV was sliding on the ground about 330 cm from the place of impact until it stopped and rolled onto the right side.

FSV was destroyed 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

Pilot:

A national of the Slovak Republic, aged of 50 years

Holder of the private pilot licence, issued by the Civil Aviation Authority of the Slovak Republic on 28 July 2009.

Qualifications:

SEP(L) with marked validity until 31.08.2015

Holder of the FSV pilot licence, issued by the Slovak Federation of Ultra-light Flying /SFUL on 20 April 2002.

Qualifications:

Pilot of FSV with marked validity until 31.05.2015

Instructor of FSV with marked validity until 31.05.2015

Pilot of FSV autogyro with marked validity until 31.05.2015

Instructor of FSV autogyro with marked validity until 31.05.2015

Holder of the limited radio telephonist certificate OFI – 13/07 issued by the Telecommunication Office of SR on 29.03.2007.

Medical certificate of 2nd class with marked validity until 14.04.2015.

Flying experience:

Total flight hours 1170 h 20 min

Total SEP(L) 103 h 15 min

Total UL klasik 564 h 29 min

Total UL autogyro 502 h 36 min

1.6 Aircraft information

Type: SKY STAR

Manufacturer for amateur builders: János DARU, Hungary

Registration number: OM-M506

Serial number: SS-001/DJ

Total operating hours since manufacture: 30 h 10 min and 259 flights

Certificate of airworthiness No. RS297 issued by the Slovak Federation of Ultra-light Flying – authorized organization, with validity until 12.05. 2015.

Third-party insurance: Allianz – Slovenská poisťovňa a.s., certificate No. 491 100 464 / Add.4, valid until 31.12.2014.

1.7 Meteorological situation

Clear sky, amount of clouds 3-4/8, visibility above 10 km.

1.8 Aids to navigation

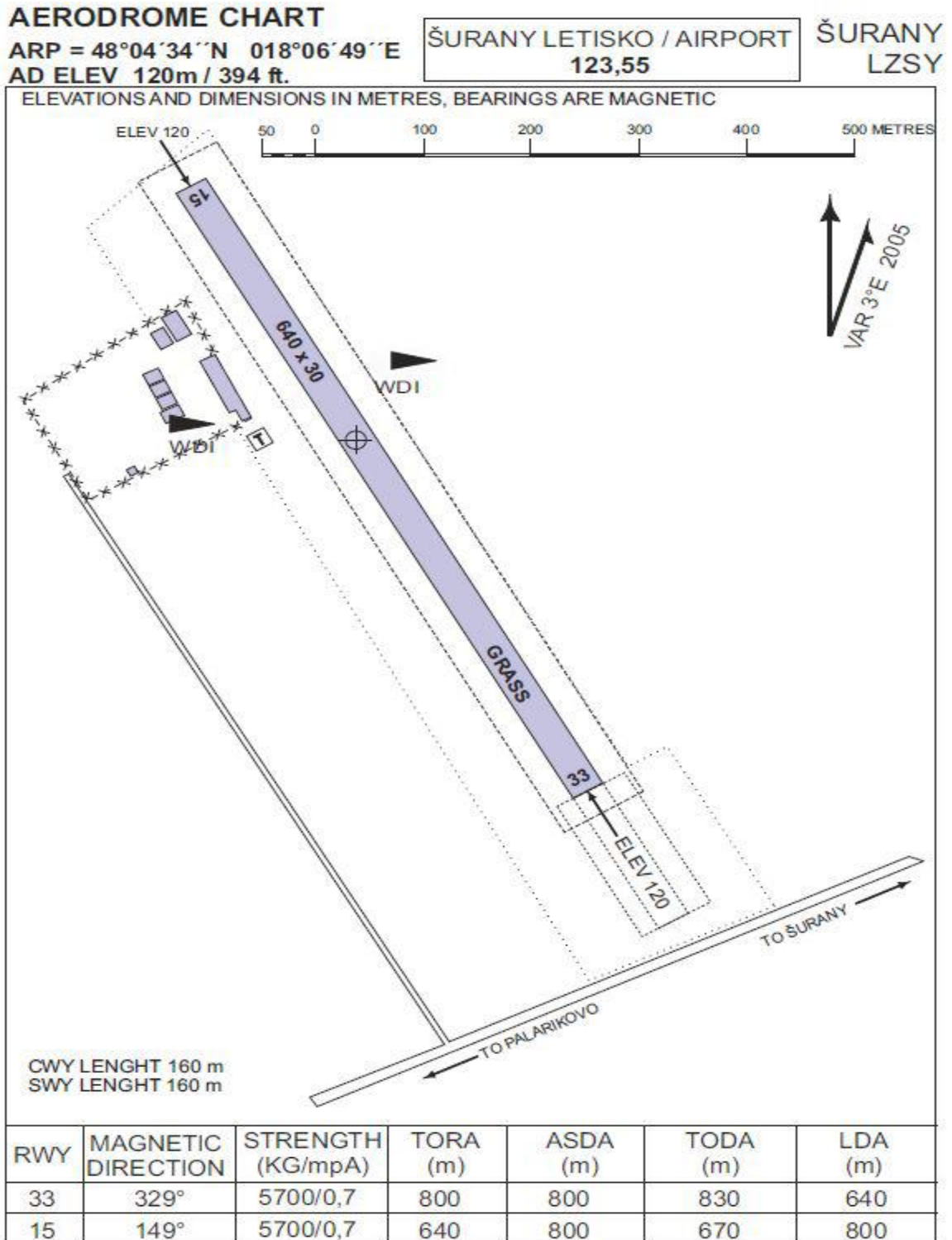
N/A.

1.9 Communications

N/A.

1.10 Aerodrome information

The airport LZSY is a non-public domestic aerodrome intended for take-off and landing of civil aircraft up to MTOM 5700 kg.

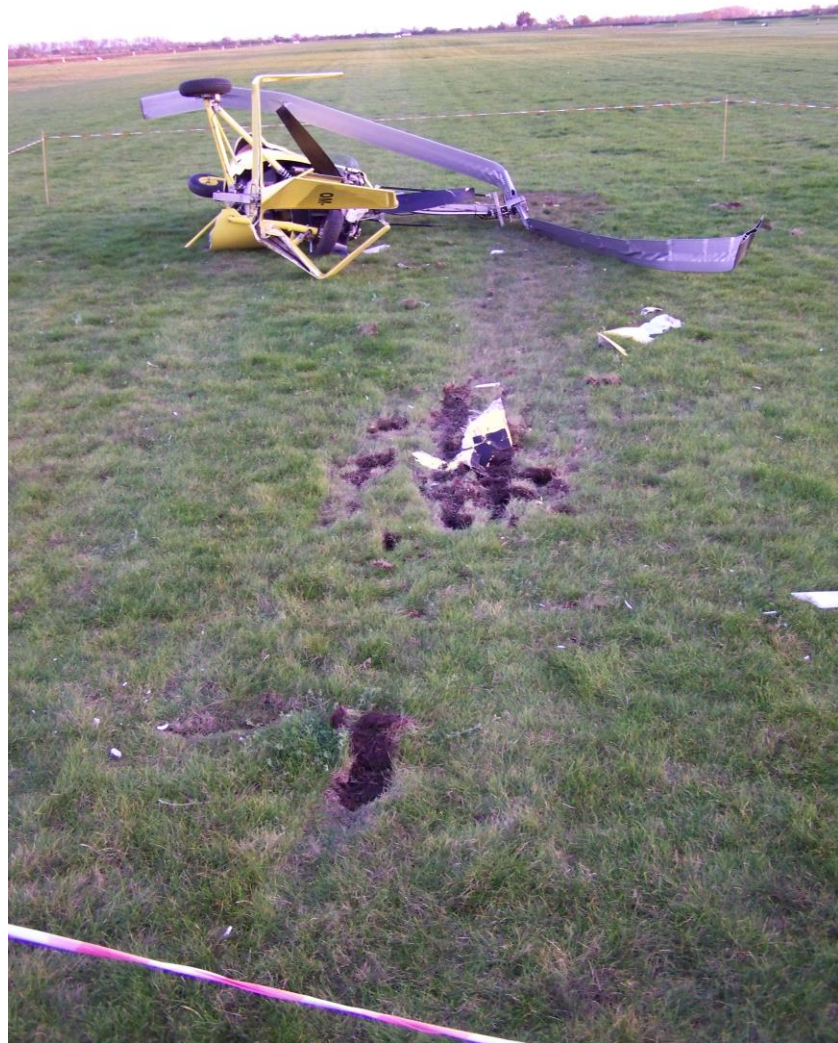


1.11 Flight recorders

N/A.

1.12 Wreckage and impact information

The place of impact in a half length of the RWY15 of airport LZSY.



1.13 Medical and pathological information

The pilot was slightly injured and transported to the hospital.

The other person onboard FSV suffered no injury.

1.14 Fire

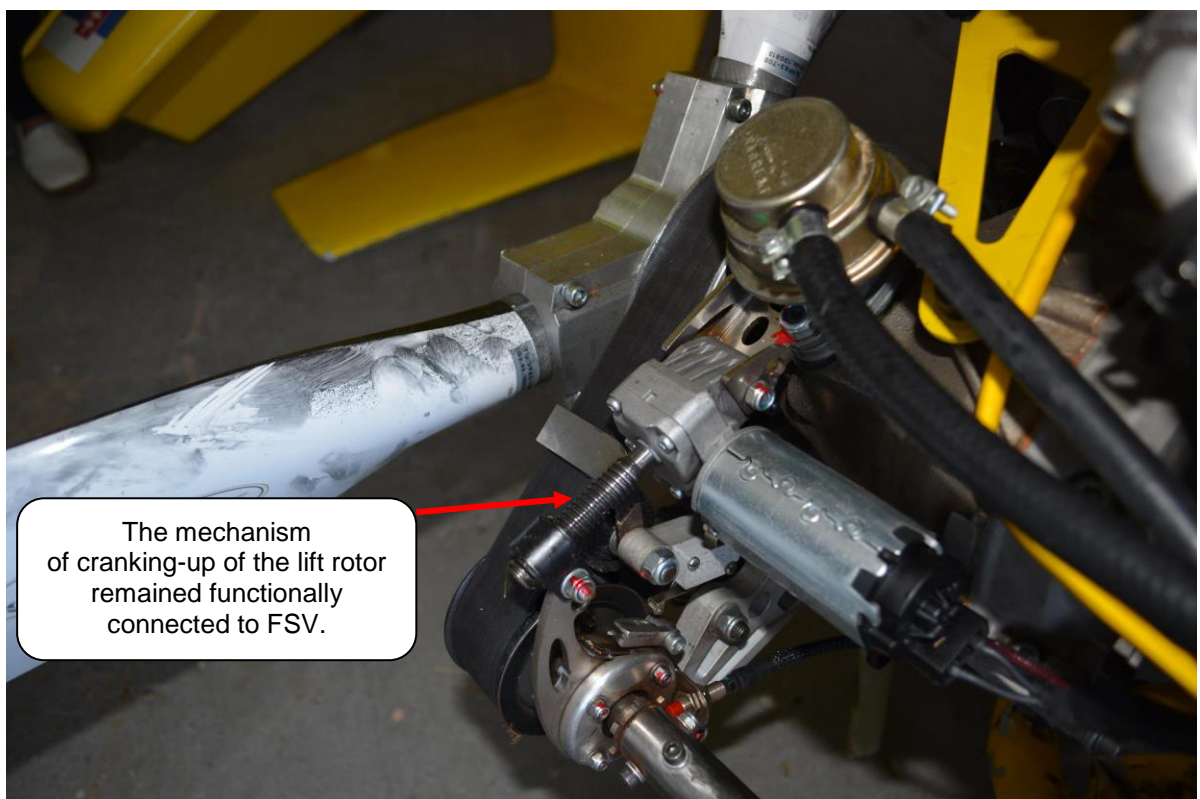
No fire broke out.

1.15 Survival aspects

The search and rescue operations by SAR means were not required.

1.16 Tests and research

The inspection of FSV wreckage detected that the mechanism of cranking-up of rotor before the take-off had not automatically disconnected when the prescribed engine speed was achieved, but remained functionally connected to the rotor during the take-off.



1.17 Organizational and management information

The flying activity was performed in accordance with aviation regulations valid in the territory of the Slovak Republic and with local rules for sport and recreational flying.

1.18 Additional information

N/A.

1.19 Useful or effective investigation techniques

Standard investigation techniques were used.

2. ANALYSIS

Activity of pilot

The failure of disconnection of the mechanism cranking-up the rotor before the take-off created the reaction moment during the take-off, which caused the turning of FSV to the right and the resulting gyroscopic moment caused its bending to the right side.

This connection also prevented the lift rotor from cranking up to a higher speed and developing the required lift for further climb of FSV.

The pilot reacted to the situation by actuating the controls to the extreme positions in order to put FSV to a horizontal flight, but this correction was insufficient and FSV became uncontrollable in all three axes.

3. CONCLUSIONS / CAUSE OF ACCIDENT

3.1 Findings

Pilot

- According to submitted documentation the pilot had valid qualifications for flights with aircraft of this category.
- The pilot had sufficient flying experiences for the critical flight.
- At the time of accident the pilot was not under the influence of alcohol, drugs or common medicaments which might have decreased his attention during flight.

FSV

- FSV had valid documentation and did not show any fault before the incident.
- The mechanism cranking-up the lift rotor remained functionally connected due to failure of electric motor.

3.2 Causes of air accident

Generation of non-compensable reaction moment, which was caused by steady mechanical cranking-up of the lift rotor during the take-off.

4. SAFETY RECOMMENDATIONS

On the basis of investigation of causes of accident involving FSV

Registration No. **OM- M506**

Date of accident **19.10.2014**

We recommend the **organization SFUL** to implement the following measure:

For building FSV autogyro with automatic disconnection of cranking up of the lift rotor to require the building-in of a device signalling disconnection of this mechanism.

Bratislava, 08.12.2014