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
810 05 Bratislava 15

F I N A L R E P O R T

on the Expert Investigation of an Aviation Accident

of an aircraft type **NEICO Lancair 360**

registration number **SE-XRH**

Ref. No.: SKA2016009

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.

List of Abbreviations

ACC	Area control centre
ALERFA	Alert phase
APP	Approach control
ES/ACC	ACC Executive Supervisor
ESSU	ICAO code for the airport Eskilstuna
FIR	Flight information region
FL	Flight level
FPL	Filed flight plan
ft	Feet (dimensional units)
IFR	Instrument flight rules
IR	Instrument rating
KEÚ	Institute of Forensic Science (Kriminalistický a expertízny ústav)
kt	Knots
LPS SR, š.p.	Air traffic services of the Slovak Republic (Letové prevádzkové služby Slovenskej republiky, štátny podnik)
LZKZ	ICAO code for the airport Košice
LRBS	ICAO code for the airport Bucharest/Baneasa Airport – AUREL VLAICU
OAT	Operational air traffic
PC	Procedural controller
RC/ACC	ACC radar controller
RCC	Rescue co-ordination centre
SEP(L)	Qualification single-engine piston (land)
SHMÚ	Slovak Hydrometeorological Institute (Slovenský hydrometeorologický ústav)
UTC	Co-ordinated Universal Time
IFR	Instrument flight rules
VV	Vertical velocity
VzS OSSR	Slovak Air Force

A. INTRODUCTION

Operator / Owner:	private owner
Type of operation:	general aviation / sport and recreational flying
Aircraft type:	NEICO Lancair 360
Registration number:	SE-XRH
Take-off:	LRBS
Flight phase:	en route
Location of accident:	cadastral area of the town of Jakubovany
	N 49° 07´ 30.0´´ E 21° 08´ 26.27´´
Date and time of accident:	04/10/2016, 09:50

Note: All times in this report are in UTC time.

B. INFORMATIVE SUMMARY

The aircraft entered the FIR Bratislava through the KEKED entry point on FL190 and continued to the LENOV exit point. At 09:48, the pilot reported further unspecified engine problems. Subsequently, after being asked by the ACC radar air traffic controller about further action, he rejected the option of being diverted to the Košice International Airport and reported that the engine operation had resumed and he would continue as originally planned. Subsequently, he changed the flight course and flight level several times and then began to descend rapidly. Radar contact and radio communication were lost at 09:50.

The following committee was nominated to investigate the cause of the accident:

Ing. Juraj GYENES	Chairman of the Investigation Committee
Ing. Zdenko BIELIK	Member of the Investigation Committee
Ing. Jaroslav FIGNÁR	Member of the Investigation Committee

The report was issued by:

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

C. MAIN PART OF THE REPORT

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

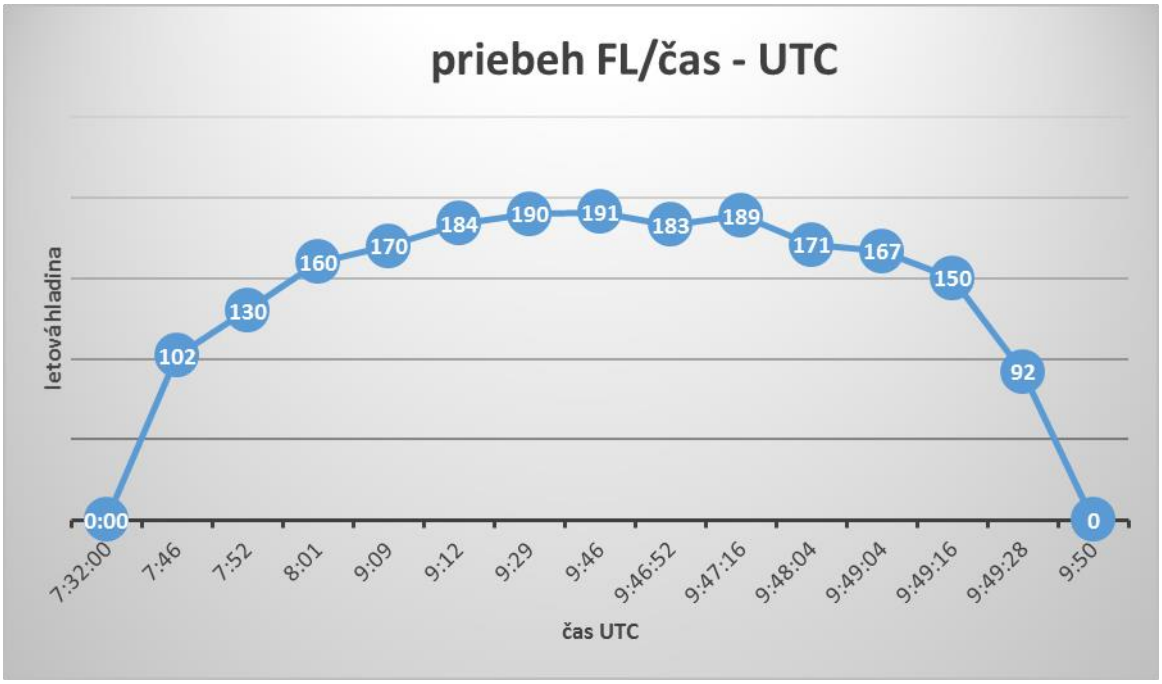
1. FACTUAL INFORMATION

1.1 History of the flight

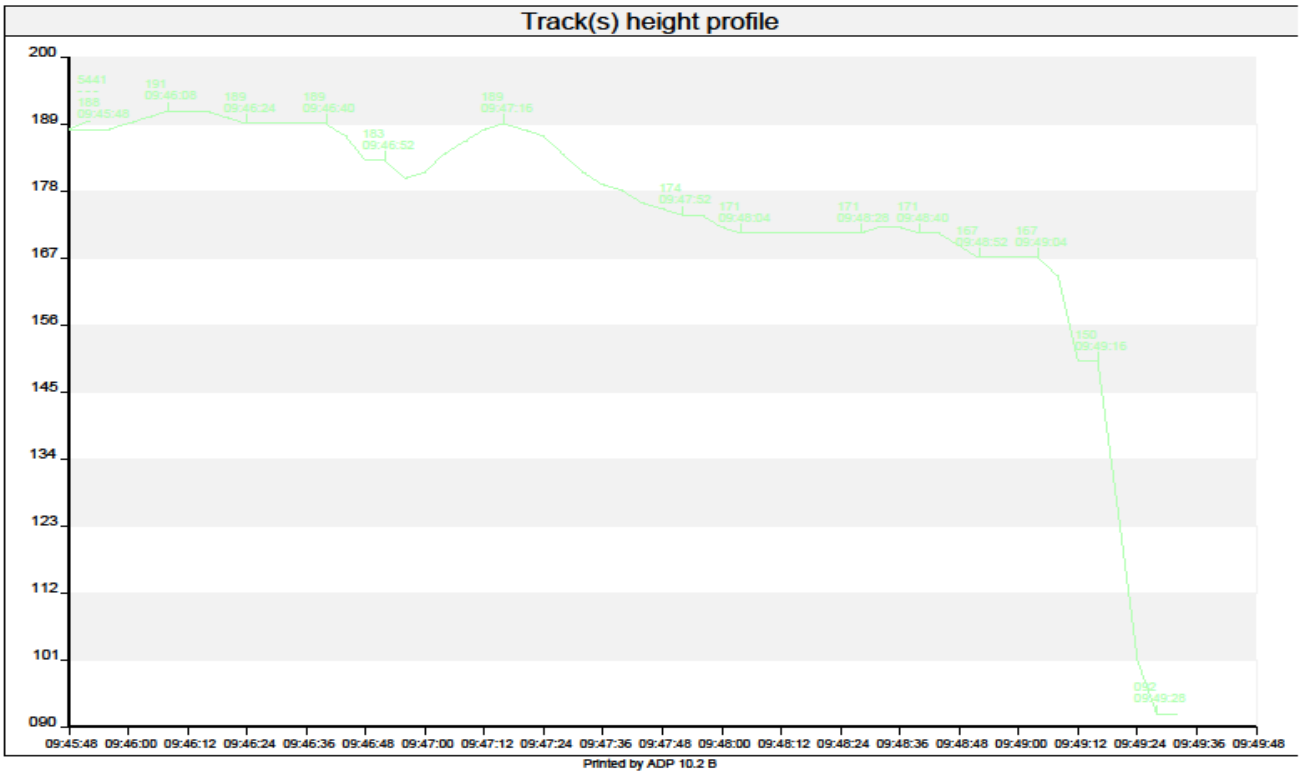
On 4 October 2016, the pilot took off from the LRBS Airport and continued through the territory of Hungary and Slovakia with the intention of flying to the destination ESSU Airport in Sweden. A flight plan was filed for the flight. The original flight plan indicated the planned flight level to be FL130. During the flight via Budapest FIR, he requested to climb to FL 190 and he entered the Bratislava FIR already at this flight level. During the flight over the territory of Slovakia, he reported engine problems at 09:47:09 and immediately after that, he responded to the question asked by the RC ACC, whether he requests guidance to the Košice International Airport, by saying that he would continue as planned and requested a change of FL to 130. At 09:48:05, PC ACC declared the ALERFA signal. After receiving permission, he started his descent but the descent was not smooth and the speed of descent and the slope angle were gradually increasing to extreme values. The aircraft subsequently crashed into the ground in the cadastral area of the town of Jakubovany at a high angle and high speed. Radar and radio contact with the plane was lost at 09:50.

The pilot sustained fatal injuries in the accident and the aircraft was destroyed.

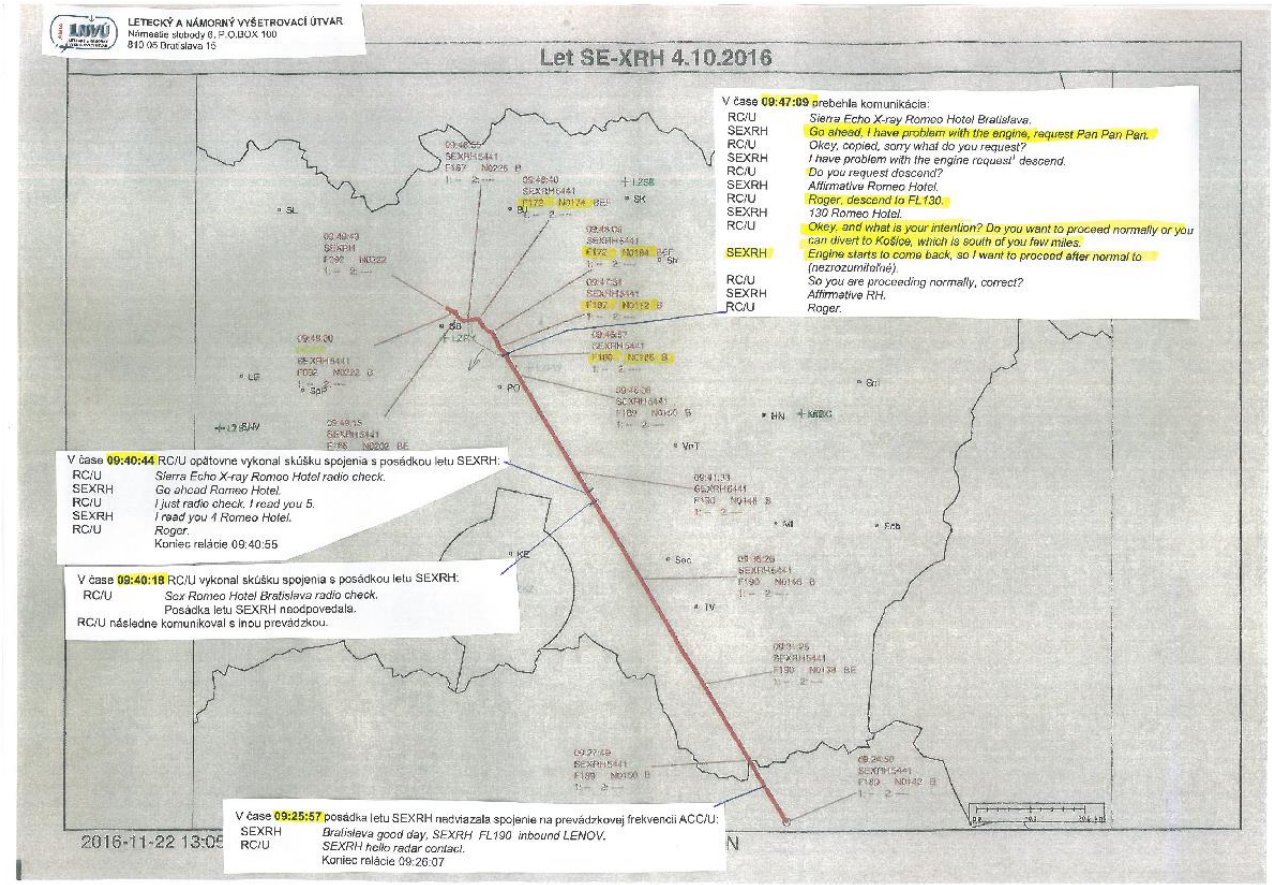
Time: day
Flight rules: IFR



Course of FL / UTC time



Altitude profile of the flight from 09:45:48 to 09:49:28



Record of the flight over the territory of Slovakia from the VzS radar

At **09:25:57**, the SE-XRH flight crew established connection at the operating frequency ACC/U:

SEXRH *Bratislava good day, SEXRH FL190 inbound LENOV*

RC/U SEXRH *hello radar contact.*

End of session 09:26:07.

At **09:40:18,** RC/U tested connection with the SEXRH flight crew:

RC/U *Sex Romeo Hotel Bratislava radio check.*

SEXRH flight crew did not respond.

RC/U then communicated with another aircraft.

At **09:40:44,** RC/U repeatedly tested connection with the SEXRH flight crew:

RC/U *Sierra Echo X-ray Romeo Hotel radio check.*

SEXRH *Go ahead Romeo Hotel.*

RC/U *I just radio check, I read you 5.*

SEXRH *I read you 4 Romeo Hotel.*

RC/U *Roger.*

End of session 09:40:55.

Between **09:45:00 and 09:47:09,** the displayed altitude of the SE-XRH flight changed several times between FL183 - FL191 (*Figure 1 – 3*).

Figure 1

Figure 2

Figure 3

At **09:47:09**, the following communication took place:

RC/U *Sierra Echo X-ray Romeo Hotel Bratislava.*

SEXRH *Go ahead, I have a problem with the engine, request Pan Pan Pan.*

RC/U *Okay, copied, sorry what do you request?*

SEXRH *I have problem with the engine request*[1] *descent.*

RC/U *Do you request descent?*

SEXRH *Affirmative Romeo Hotel.*

RC/U *Roger, descend to FL130.*

SEXRH *130 Romeo Hotel.*

RC/U *Okay, and what is your intention? Do you want to proceed normally? Or you can divert to Košice, which is south of you a few miles.*

SEXRH *Engine starts to come back, so I want to proceed after normal to (inarticulate).*

RC/U *So you are proceeding normally, correct?*

SEXRH *Affirmative RH.*

RC/U *Roger.*

End of session 09:47:57.

At **09:48:05**, PC/U informed ES/ACC and the OAT station about the ON ALERFA declared on flight SE-XRH.

[1] Word difficult to read and interrupted in the communication

At **09:48:14,** there was a significant change in the direction of the flight SE-XRH (*Figures 4 and 5*).

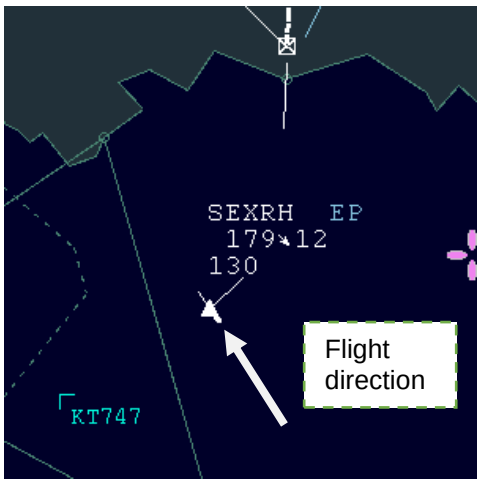


Figure 4

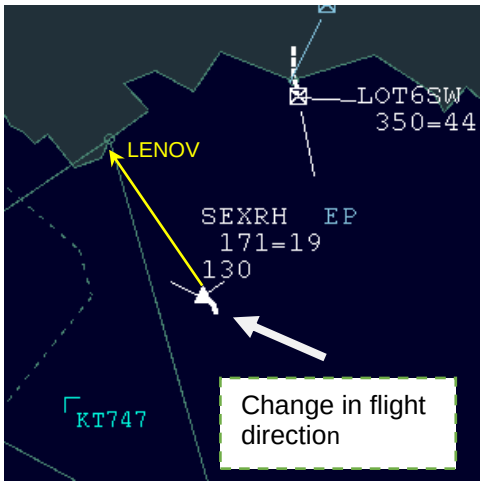


Figure 5

At **09:48:30,** flight SE-XRH was again heading towards LENOV.

At **09:48:46**, ES/ACC informed RCC about the ON ALERFA declared on flight SE-XRH.

At **09:48:48**, there was a significant change in the heading of the flight SE-XRH (*Figures 6 and 7*).

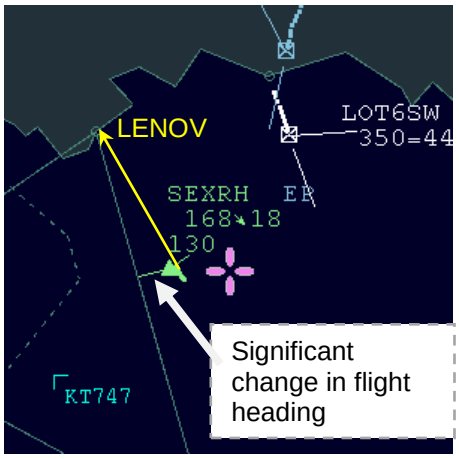


Figure 6

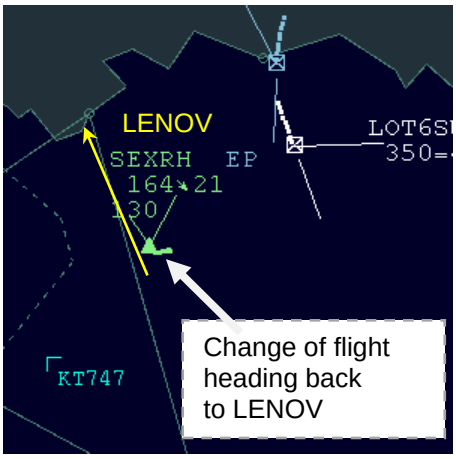


Figure 7

At **09:48:53**, the following communication took place:

RC/U *Sierra Echo X-ray Romeo Hotel.*
SEXRH *Go ahead Romeo Hotel.*
RC/U *Are you turning back somewhere?*
SEXRH *No sir, I´m going forward.*
RC/U *Sorry say again?*
SEXRH *I´m going forward Romeo Hotel.*
RC/U *Roger.*
End of session 09:49:24.

At **09:49:16,** flight SE-XRH was again heading towards LENOV (*Figure 7*).

Between **09:49:18** (*Figure 8*) and **09:49:23** (*Figure 9*), there was a significant change in speed of flight SE-XRH displayed on the radar.

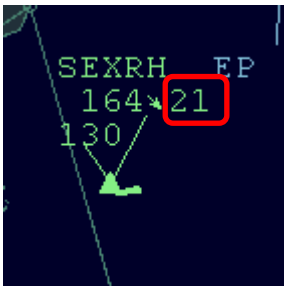


Figure 8

Figure 9

At **09:49:24,** PC/U informed ACC Krakow about the descent of flight SE-XRH to FL130 and on the declaration of ON ALERFA on this flight.

At **09:49:38,** RC/U called the SE-XRH flight crew at the operating frequency. He repeated the call several more times (**09:49:50, 09:50:02, 09:50:25**). SE-XRH flight crew did not respond.

At **09:49:51**, radar contact with flight SE-XRH was lost (*Figures 10 and 11*).

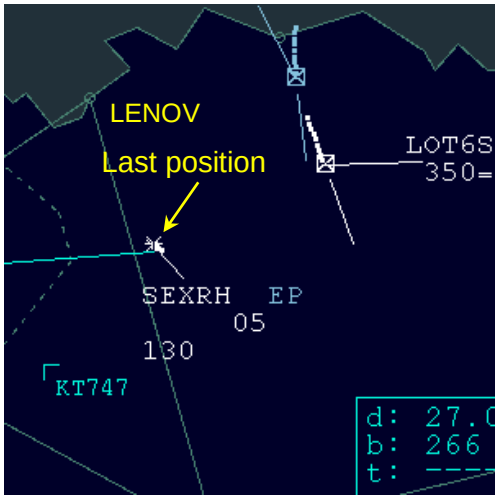


Figure 10

Figure 11

At **09:50:07,** PC/U called LZKZ APP to find out whether they could see the target on their radar at 5 min before LENOV. The LZKZ APP staff responded that they could not see it.

At **09:50:34,** RC/U informed the SE-XRH flight crew about the closest controlled airports in its vicinity.

RC/U *SEXRH for your information 25 miles west of you there is an airport, also south of you 30 miles.*

SE-XRH flight crew did not respond.

1.2 **Injuries to persons**

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

1.3 **Damage to aircraft**

The aircraft was destroyed in the aviation accident due to the impact with the ground.

1.4 **Other damage**

The Aviation and Maritime Investigation Authority has not been notified of any circumstances with potential claims for other compensation to third parties.

1.5 **Personnel information**

Pilot:

Person with Romanian and Swedish citizenship, 65 years of age, holder of a private pilot licence PPL(A) issued on 11 December 2007 by the Swedish Transport Agency.

Medical certificate class 2 with marked validity until 15/11/2016.

Qualification:

SEP(L) with marked validity until 31/12/2017

IR with marked validity until 31/12/2016

Total flight hours: 1,584 hours 10 minutes, 2,355 flights

1.6 **Aircraft information**

Type: NEICO Lancair 360
Registration number: SE-XRH
Serial number: 921-320-761SFB-987
Year of manufacture: 1999
Manufacturer of buildingkit for amateurs builder: Lancair International, LLC
Builder of the building kit: amateur builder
Total flight hours: 1,514 hours, 35 minutes
Engine: LYCO-360-A1A
Propeller: MTV-18_B

Flight permission issued by the Swedish Transport Agency, date of issue: 1 October 2015 with marked validity until 30 November 2016.

Registration Certificate No. 7081 issued on 9 August 1999 by the Civil Aviation Authority in Norrköping.

Insurance: International Insurance Company of Hannover SE, Sverige filial, valid from 25 October 2015 to 24 October 2016.

The aircraft was not adapted for flying in conditions of ice formation.

There was a portable oxygen system with the possibility of breathing through the cannula on board. It is not known, however, whether it was functional in terms of the fullness of the oxygen tank and whether it was used by the pilot in the relevant segment of the flight.

It is apparent from the witness testimonies, the results of debris investigation and aircraft documentation records that the technical condition of the aircraft before the accident and during the flight was not the cause of the aviation incident. The engine was exhibiting normal activity until the moment of the accident.

1.7 Meteorological information

On 4 October 2016, at 09:48, it was cloudy and misty in the town of Jakubovany with horizontal visibility of 4-6 km and there was a constant light to moderate rain which was severe initially and later, approximately from 09:15, it was gradually getting lighter to light to moderate. The cloud coverage was 10/10. The predominant types of cloud were Nimbostratus and Stratus, potentially Stratocumulus. At an altitude of 450 m, the cloud ceiling was 50 - 200 metres above the ground surface. The temperature was 10 °C and the relative humidity was about 90-100%. At 10 metres above the ground surface, there was a light northwest wind at a speed of 2-3 m/s.

On 4 October 2016 at 09:48, the air flow in the free atmosphere over the town of Jakubovany was as follows: At the altitude of 1,500 asl, there was a north wind at a speed of about 17 m/s. The air temperature was 4 °C. At the altitude of 1,100 m asl, the wind speed was approximately 15 m/s and the direction remained north. The Čergov Mountain Range also affected the air flow towards the lower levels. The wind speed towards the valley of the Torysa River was gradually decreasing and the wind direction was changing from north to northwest.

In the Čergov Mountain Range, at an altitude of 750 m asl, wind at a speed of 7 m/s was blowing at 10 metres above free terrain without obstacles and up to 5 m/s at 500 m asl, and the wind direction was northwest. Due to the leeside effect of the Čergov Mountain Range, local variable ascending and descending streams of air could have formed, occurring as a result of orographically formed air turbulence.

The possibility of ice formation on 4 October 2016 around 09:48 over the territory of the Prešov and Košice Regions:

- In the morning hours, there was a massive cloud system of the occluded front with the cloud ceiling at an altitude of about 550 m asl and cloud top at an altitude of about 5,200 m asl over the relevant area.
The zero-degree isotherm was at an altitude of about 2,300 m asl. From the altitude of 2,300 m asl to 4,400 m asl (-10 °C isotherm level), there were suitable conditions for the formation of moderate to heavy ice. At higher levels, with a further decrease in temperature as well as relative air humidity, there were worse conditions for ice formation. Only light ice could have formed above the altitude of 4,400 m asl to the cloud top.

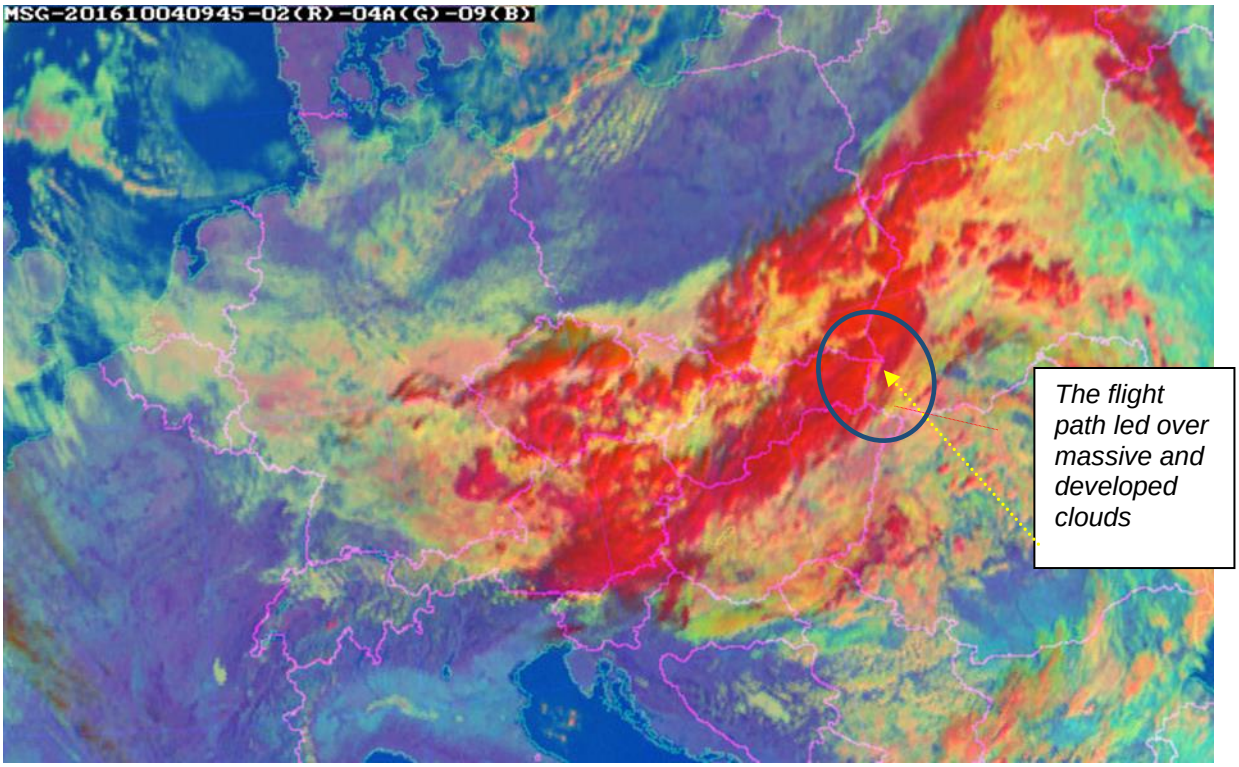


Fig. 12 Satellite images of the density of clouds over Europe

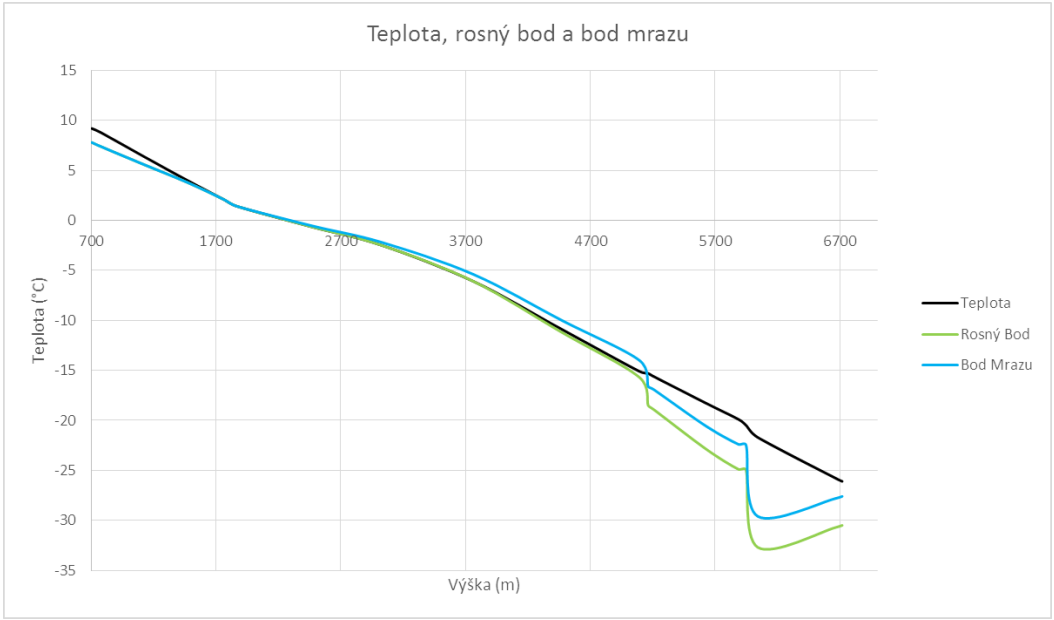


Fig. 13 Temperature and humidity profile according to radio probing measurements on 4 October 2016, noon, in Gánovce (temperature, dew point and freezing point)

Measurements of conventional climatological, precipitation and automatic meteorological stations of the SHMÚ observation network from north-east Slovakia were used for the preparation of the meteorological data. Furthermore, measurements from remote SHMÚ systems, specifically satellite and radar measurements as well as radio probing measurements from Gánovce and from Prostějov.

1.8 Aids to navigation

Not applicable.

1.9 Communications

The aircraft was equipped with a radio communication device that allowed two-way radio connection at every moment of the flight with all air traffic stations and rescue service stations.

1.10 Aerodrome information

Not applicable.

1.11 Flight recorders

On ground impact, the instrumentation of the aircraft was also totally destroyed so that no factual information from devices that were on board could have been evaluated. Radar records and records of correspondence of LPS SR, š.p., HUNGAROCONTROL, VzS OSSR, Civil Aviation Safety Investigation and Analysis Center Romania were used.

1.12 Wreckage and impact information

The aircraft initially caught onto a tree and then fell in a forested terrain with hard rocky subsoil. The debris was scattered across an area of about 100x50 m. The fuselage and wings of the aircraft were completely defragmented.

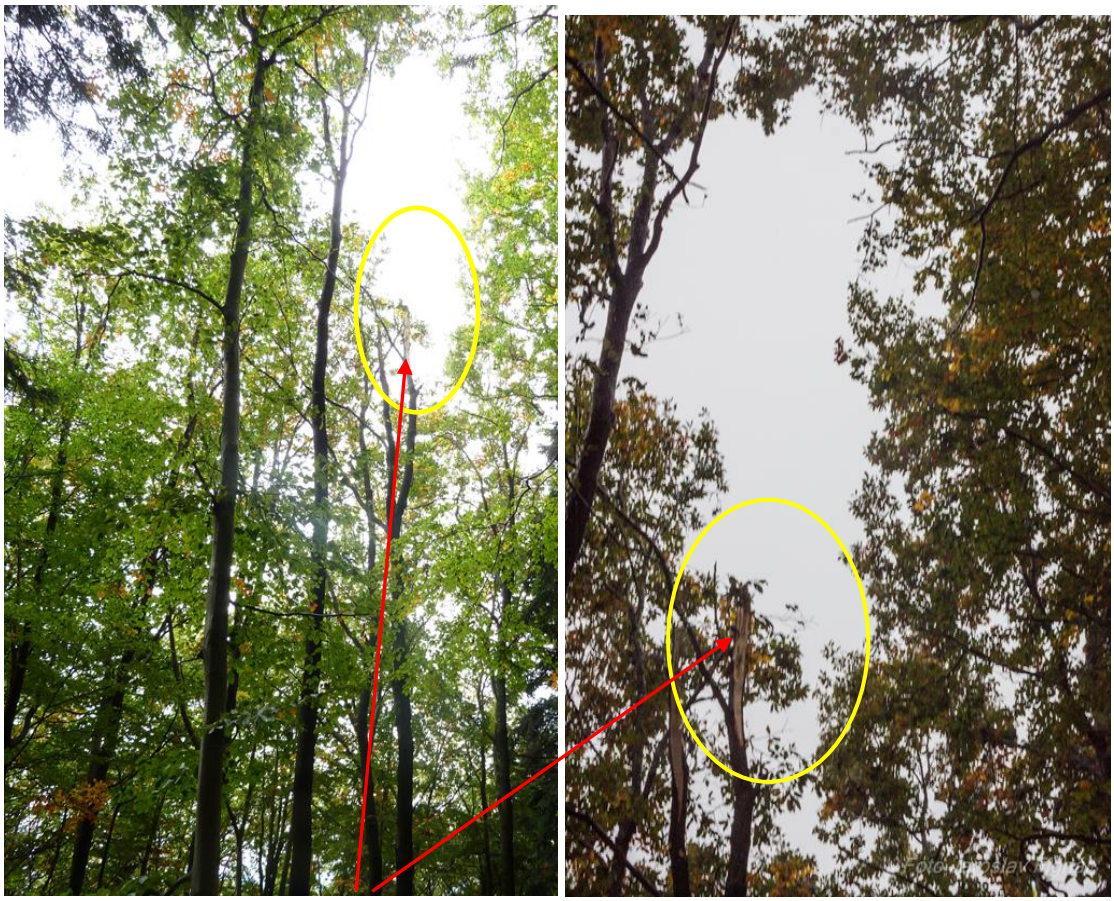


Fig. 14 Location of initial contact with a tree

Fig. 15 Location of the engine and traces of wings before impact with the terrain - incline about 35°

Fig. 16 Overall view of the scattered debris / impact direction

Fig. 17 Fragment of the coating with registration details

Fig. 18 Engine position

Fig. 19 Engine after partial uncovering

1.13 **Medical and pathological information**

A forensic medical examination was performed - assessment of the pilot's death associated with the calculated impact speed, evaluation of biochemical examinations, his health condition before the accident, detailed analysis of the mechanism of injuries suffered after the ground impact of the aircraft.

From the forensic medical point of view, it was a violent death - tearing of multiple tissues and internal organs during a polytrauma which is in a direct causal connection with all injuries that he suffered.

Based on the traumatic changes in upper limbs detected during the autopsy and during examination of the aviation accident location, it was possible to assume that at the time of impact - deceleration of the aircraft into the ground, it was very likely that the upper limbs, in particular the pilot's left hand, were in active positions on the controls, even though some of the described injuries of the limbs could have occurred during the impact of the aircraft at the high impact speed and at the nearly right angle of ground impact.

At the time of the accident, the pilot was not affected by alcohol, standard medication or narcotics, respectively drugs that could reduce his alertness during the flight.

Data obtained through the biochemical examination of the liver, skeletal muscle, heart and peripheral nerve could correspond to the metabolic response of the pilot's body at the end of the flight with short-term mental stress, highlighting the changes that occurred due to brain injuries without the pilot's survival after the accident, with simultaneous post-mortem changes of organs and tissues, while no such changes were identified that would suggest cardiac ischemia due to insufficient blood flow or hypoxia which could be in causal connection with the air accident.

A decrease in the total carbohydrates in the liver, the cardiac muscle, and the peripheral nerve, with a simultaneous increase in lactic acid in the sciatic nerve cannot be unambiguously evaluated, even though such findings can be theoretically interpreted as the application of rapid and short-term mental stress, in terms of a negative mental emotion resulting from awareness of the suddenly arisen crisis that resulted in an emergency situation with ground impact of the aircraft. However, due to the changes arising in the post-mortem autolysis of tissues and organs, as well as a result of the tearing and crushing of multiple tissues and organs in the polytrauma, the short-term mental stress can be evaluated only with great reservations, while the above results of the biochemical analysis do not suggest hypoxia of organs and tissues of the pilot shortly before the accident, although it should be emphasised that the results were reached from substantially traumatically damaged tissues and organs, without the presence of brain tissue, and therefore *theoretically the possibility of hypoxia cannot be* completely excluded.

During an external and internal examination as well as supplementary laboratory expert examinations of biological materials collected during the autopsy, no acute or chronic pathological changes were found that could have negatively affected the pilot's alertness and actions during the accident or that could have been in a causal connection with his death.

All injuries found were in a causal connection with the accident.

1.14 Fire

None.

1.15 Survival aspects

Due to the heading and the tilt angle of the aircraft upon impact into the ground and the air speed in the last phase, the pilot's body was completely devastated and disintegrated without surviving after the accident.

1.16 Tests and research

The propeller hub was submitted for investigation at the KEÚ Bratislava in order to ***determine whether the propeller was driven by the engine at the time of the impact***.

Fig. 20 Propeller hub presented as evidence No. 1

Fig. 21 Side view of one of the fracture areas of the broken-off bottom part of the propeller blade.

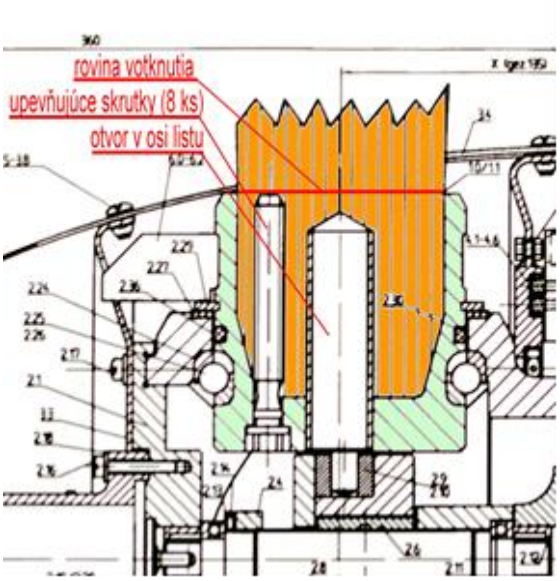


Fig. 22 Diagram of the attachment of the propeller hub of the projecting propeller

Fig. 23 Position of part of the blade in the fracture area in the hub above the level of fixation (light ellipse), indicated vectors of forward and peripheral speed and directions of the secondary chipping of the projecting wood

Fig. 23 also shows that the fracture area projecting above the level of fixation of the propeller blade is located substantially to the left from the forward speed v_d vector. This misalignment was caused by the presence of a significant vector of peripheral speed v_o, which was, in the present case, very likely greater than the forward speed of the aircraft ($\alpha > 45°$). For the left-hand propeller, this means that the engine driving the propeller was in revolutions, meaning that the propeller was driven by the engine at the time of impact.

Fig. 24 Fragment of the propeller blade submitted as evidence No. 2

Fig. 25 Significant longitudinal cracks and missing material in the rear of the propeller blade

Based on the nature of the damage to the presented fragment of the propeller blade, it can be stated that the main part of the load that caused the break-off of the rear of the propeller blade had an impact against the direction of rotation of the propeller, i.e. perpendicular to the direction of movement of the aircraft. This finding therefore suggests that the aircraft propeller was driven by the engine at the time of its damage.

Conclusion: At the time of impact, the peripheral speed of the aircraft propeller was greater than the forward speed of the aircraft, meaning that the propeller was driven by the engine at the time of impact.

1.17 Organizational and management information

Not applicable.

1.18 Additional information

The aircraft was not equipped with a de-icing system for the leading edges of the wing or the propeller.

The cockpit was not pressurized.

The aircraft was not equipped with a built-in oxygen system.

The pilot probably could have breathed oxygen from an oxygen tank (found among the debris) using a *cannula*.

1.19 Useful or effective investigation techniques

Conventional methods of investigation were used.

2. ANALYSIS

From 08:04:22, the flight took place at FL160 until 09:08:02, when the pilot began to climb and at 09:18:04 he reached FL190. He continued at this flight level until 09:47:09 when he reported a further unspecified engine problem. When comparing the altitude profile of the flight along the route taking into account the development of cloud cover over Europe, it is evident that the cloud cover significantly affected the changes of flight levels compared to the filed FPL and a substantial part of the flight (more than 1 hour and 50 minutes) took place at altitudes where breathing ambient air is insufficient to maintain life and it is necessary to breath oxygen. Although the forensic autopsy did not prove (or exclude) the effects of hypoxia on the pilot, changes in the voice and speech of the pilot could be identified in the audio recordings of his communication with the air traffic control. The most significant difference is apparent between establishing connection after entering the Slovak Republic and reporting technical difficulties. When establishing connection, his voice was clear, comprehensible and the reports were accurate. The last sessions showed no signs of increased stress, but the pilot's speech was slower and showed signs of inaccuracies - at the time of reporting that he was continuing straight, the aircraft turned left and then right (29 minutes on FL190).

It is clear from the available flight records and documentation on the weather conditions along the route that the pilot was aware of the potential effects of ice formation on the aircraft in the clouds, the top of which was gradually rising and his efforts not to fly into the clouds led to a gradual change of flight levels from the originally planned FL130 through FL160 to FL190. The aircraft was not equipped with a de-icing system for the leading edges of the wing or the propeller. This fact, along with the condition of atmospheric material, could have resulted in the formation of ice on these parts of the aircraft.

Although the pilot had an oxygen tank available on board, the cockpit was not pressurised and it is not known whether he was breathing oxygen before the accident. The noticeable change in this voice mentioned above points to probable changes in the pilot's body that could have been manifested by incorrect perception of the situation on board and the associated incorrect perception of a decrease in the air speed, which was caused by rapid changes in flight altitude and direction (manoeuvres in the horizontal and vertical directions). An analysis of the altitude and speed profile of the flight showed that the flight over the Slovak territory took place at a steady speed of 140-150 kt on FL189-190 without significant changes in flight direction. However, significant changes in all the above values occurred at 09:46:57, when the aircraft began to change direction and began to increase the horizontal air speed to 186 kt due to descent and then started to climb to the original FL rapidly, which caused a decrease in speed to 112 kt in 34 seconds. The pilot probably interpreted such a rapid decrease in speed as reduced engine thrust and reported the situation to the RC (*I have problem with the engine).* He requested a descent to FL130 after reaching FL187. After obtaining permission, he began to gradually descend at a vertical speed of about 5-6 m/s, the air speed increased from the original 112 kt to 226 kt and the flight direction also changed. After reaching FL167, the pilot stabilised the flight in the clouds at this level for about 40 seconds and then the aircraft began to change direction - this time it was rapid descent, i.e. between FL150 - FL092, the vertical component of air speed reached 147 m/s (530 km/h). However, this descent was no longer controlled and the aircraft was in a steep spiral which the pilot was not able to handle, also due to the dense clouds. In this movement and with the maximum engine performance, the aircraft first caught onto a tree and then at a tilt angle of 80° and a lateral incline of 35° the aircraft crashed into the ground in a forest *(Fig. 14-19).*

Taking into account the foregoing findings, it is highly likely that the pilot began to make piloting mistakes due to a lack of oxygen and with the simultaneous effects

of icing on the leading edges of the wings and propeller; he incorrectly assessed the situation as reduced engine thrust and began to address this problem. It is likely that he also realised that he had been flying at the unsuitable FL190 for a relatively long period of time and requested a descent to FL130, despite the fact that there was massive cloud cover of the occluded front underneath him *(Fig. 12)*, in which the likelihood of ice formation was even higher.

3. C O N C L U S I O N S / Cause of the Aviation Accident

3.1 Findings

- The pilot held valid qualifications to perform the relevant flight;
- At the time of the beginning of the crisis, the pilot was flying at a flight level (FL 190) where an oxygen system must be used for breathing;
- The aircraft was not equipped with an on-board flight data recorder, therefore the flight data analysis is based on the radar records, radio correspondence and witness testimonies;
- The aircraft had valid documentation and did not show any defects before take-off and during the flight;
- According to the available documentation, the aircraft met the airworthiness conditions before the critical flight.

3.2 Cause of the aviation accident

- It is very likely that the main cause of the accident was the development of hypoxia of the pilot and ice on the aircraft;
- The immediate cause of the accident was the crashing of the aircraft into trees and then into the ground after the aircraft fell into a dive at a high angle of longitudinal inclination.

3.3 Contributing causes

Presence of icing conditions in high cloud cover, the top of which was rising, forcing the pilot to climb to an unscheduled flight level.

4. SAFETY RECOMMENDATIONS

The final report on the investigation of the accident does not contain any recommendations.

Bratislava, 6 April 2017