



National Bureau of Air Accidents Investigation

INTERIM REPORT ON INVESTIGATION INTO (FATAL) ACCIDENT

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Accident site:	Sheparivtsi village, Kolomyia district, Ivano-Frankivsk region.	Number of the case/investigation:	48/2021
Date and time:	28.07.2021 10:35 UTC	AC registration number:	UR-PAMA
AC Type:	WT-10 ADVANTIC	Injuries:	4 persons killed
Type of Flight:	Sightseeing		

Introduction

This report provides information obtained by the NBAAI during the course of the investigation within a year starting from the date of the accident. The purpose of the report is to inform the industry and the public about the progress of the investigation. The interim report does not contain an analysis and the conclusions about the causes of the occurrence, which will be described in detail in the Final report.

According to paragraph 6.6 of Annex 13 to the Chicago Convention, the State conducting the investigation shall publish an interim report on investigation on each anniversary of the accident date. Due to a large-scale military aggression of the Russian Federation against Ukraine, which has begun on February 24, 2022, the timely preparation and publication of the interim report were prevented by the circumstances arisen.

In accordance with the Third Part of Article 119 of the Air Code of Ukraine, being based on the results of the investigation, the NBAAI does not make a decision on the guilt or liability of legal entities and individuals. The sole purpose of this investigation is to prevent future aviation accidents and incidents.

According to Part Five of Article 119 of the Air Code of Ukraine, this report may not be used by administrative, official, prosecutorial, judicial bodies, insurers to establish guilt or liability.

Note: This report is a translation of the Ukrainian original investigation report. The text in Ukrainian shall prevail in the interpretation of the report.

Pilot's Qualification. Work Experience.

Position: Pilot-in-Command of WT10-Advantic
Date of Birth: 13.07.1961
Education:
Chernihiv Higher Military Aviation School of Pilots, 1984. Qualification: Pilot Engineer;
Flight Academy of the National Aviation University of Kropyvnytskyi, 2017, specialty:
"Aircraft Flight Operation."

Total Flight Hours:	3156 h 16 min
On military aircraft	2100 h
On WT10-Advantic aircraft (total)	1056 h
(the flight hours were recorded by the pilot personally)	
For the last 90 days	25 h 12 min.
For the last 7 days	9 h 15 min.
For the last 24 hours	5 h 45 min.

Flight Crew Member's Certificate UA.FCL.No. 008500, issued by State Aviation Administration of Ukraine on October 1, 2020.

Ratings:

SEP (land), single-engine, piston (land), inspection date 22.08.2020, valid until 31.08.2022;

SEP (land) FI(A), single-engine, piston (land), flight instructor (aircraft), date of inspection 22.08.2020, valid until 31.08.2023.

Medical certificate:	No. 94555
Date of issue:	27.11.2020.
Valid until:	27.11.2021.

Aircraft Data.

Aircraft of amateur design	WT10-Advantic
MSN	AD-006/2016
State and Registration Marks	UR-PAMA
Owner	private person
Operator	private person
Manufacturer	AEROSPOOL Ltd (Slovak Republic)
Date of Manufacture and Start of Operation	16.06.2016.
Aircraft Registration Certificate No. RP 4367/1	issued on 21.11.2017.
Flight Permit No.1851	issued on 17.12.2020.
Term of Validity	till 16.12.2021.
Flight Hours Since New:	803 h.

Maintenance:

Aircraft maintenance is carried out in accordance with the maintenance schedule. The last maintenance of the WT-10 Advantic aircraft in the volume of 200 hours was performed on 16.06.2021 at 803 flight hours. Certificate of the person, who performed the aircraft maintenance, was No. UA.66.2347.

Engine and Propeller

Engine:	
Type:	Rotax – 914 UL3
Manufacturing Plant:	BRP-Powertrain GmbH & Co. KG, (Austria)
Manufacture Date:	05.05.2015
Serial No.	7683992
Operating Time Since New:	803 h.
Last Maintenance	16.05.2021.
Propeller:	
Drawing No.:	MTV-34-1-A/ 175-200
Serial No.:	160082
Date of Manufacture:	02.02.2016
Manufacturing Plant:	MT-Propeller, Entwicklung GmbH (Germany).
Operating Time Since New:	803 h.
Installed on the engine:	30.09.2017

Fuel:

Recommended fuel: A-95
According to the research results, it was established that A-92 fuel was used on the aircraft.

Aircraft Defects and Failures:

None

Mass Characteristics:

Empty weight:	432.8 kg
Maximum takeoff weight:	850 kg
Maximum landing weight:	850 kg
Center-of-Gravity (CG) position range: 0.300 ÷ 0.640 m - the mean aerodynamic chord.	from the leading edge of

Aircraft Center-of-Gravity Position

The total estimated weight of the pilot and passengers was 338 kg.

According to the Aircraft Flight Operation Manual, the CG position of the aircraft was 0.619 m from the leading edge of the mean aerodynamic chord, which is in the range of 0.300 ÷ 0.640 m from the leading edge of the mean aerodynamic chord and within the established limits.

Meteorological Information.

The actual weather at the Kolomyia weather station at 06.00 to 12.00 UTC 28.07.2021 was as follows:

For 06.00 UTC Kolomyia:

Total cloud number: 3 high cumulus points. Visibility 20 km. Surface wind is calm (quiet). Air temperature +22.6°C, dew point temperature +18.5°C. Pressure reduced to sea level: 1014.8 hPa. Barometric trend (- 0.4) hPa.

For 09.00 UTC Kolomyia:

Total cloud number: 3 cirrus cloud points. Visibility 20 km. Surface wind direction 100°, speed 1 m/s. Air temperature +30.0° C, dew point temperature +18.0° C. Pressure reduced to sea level 1013.3 hPa. Barometric trend (-0.6) hPa.

For 12.00 UTC Kolomyia:

Total cloud number: 6 cumulonimbus rain points, cloud base 600 m. Visibility 20 km. Surface wind direction 060° speed 2 m/s. Air temperature +32.8°C, dew point temperature +17.6°C. Pressure reduced to sea level - 1011.5 hPa. Barometric trend (-1.4) hPa.

During the flight, no dangerous weather phenomena for aviation were observed.

Navigation Aids.

The aircraft is equipped with:

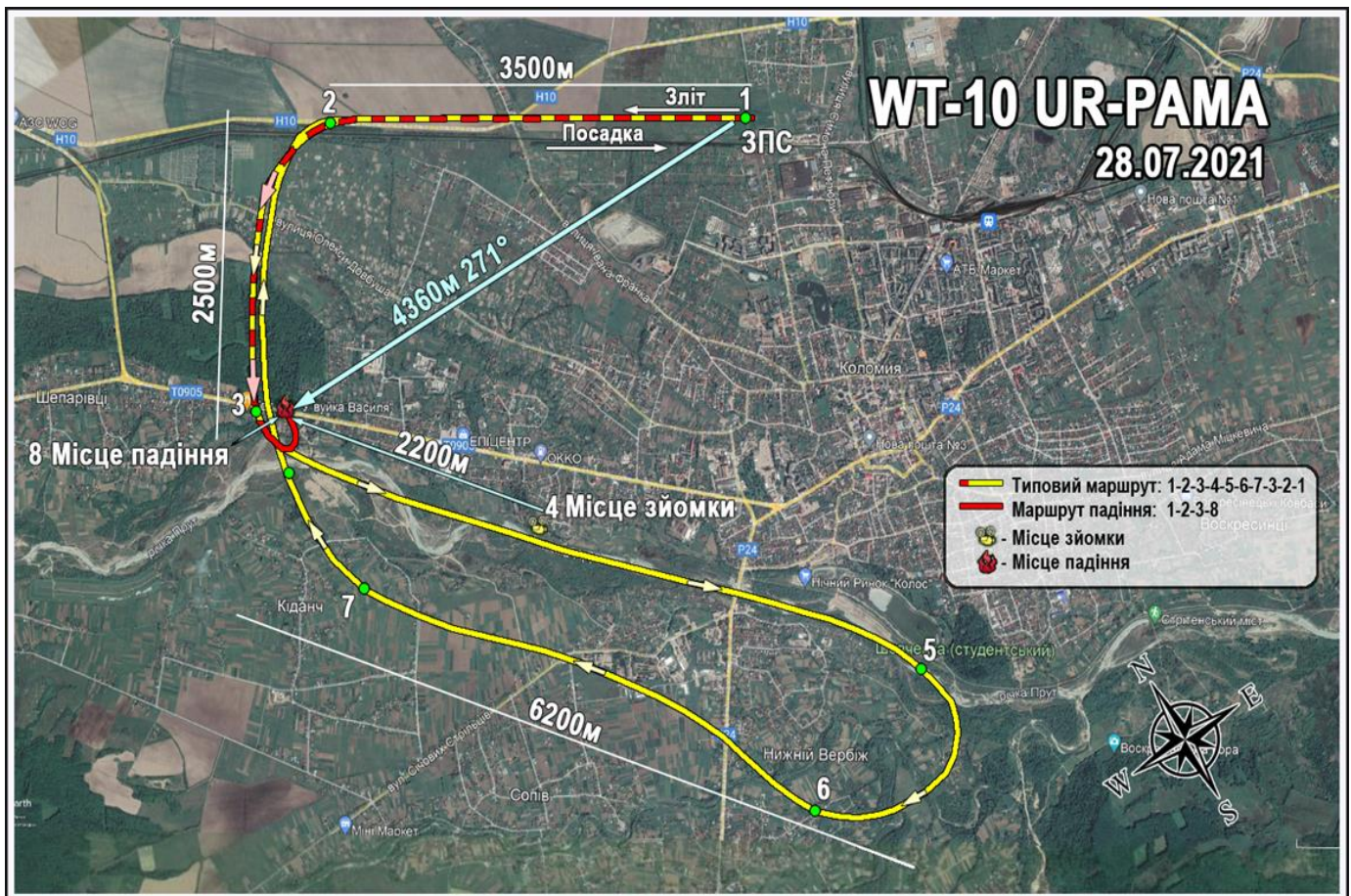
- Magnetic compass;
- Flight Instruments Air Speed Indicator;
- Flight Instruments Altimeter;
- EFIS - Sky View;
- Transponder.

Communication.

The Kolomyia Airfield is equipped with a VHF radio station operating at a frequency of 131.250 MHz (call sign - "Kolomyia") and intended for radio communication between the flight supervisor and Pilot-In-Command (PIC). During the flight operation, the PIC was in radio communication with the operator of the ground station of the Kolomyia Airfield.

The PIC performed information communication with units of the Combined Civil-Military Air Traffic Management System (JCM ATMS) using a cell phone. During flight operation from Kolomyia Airfield, the senior coordinating authority for the airspace use is the Lviv Air Traffic Management Center.

Calculation of Aircraft Flight Trajectory and Movement Pattern.



Inscriptions:

Місце падіння = Ground Impact Location; *Місце зйомки* = Filming Location.

Посадка = Landing; *Зліт* = Take-Off; *ЗПС* = Runway. **In Yellow**: typical route: 1-2-3-4-5-6-7-3-2-1. **In Red**: aircraft crash flight route: 1-2-3-8.

During the flight operation, the PIC used RW 30/12, the take-off was performed with the magnetic heading $MH=299^\circ$, and landing with $MH=119^\circ$. The flight route went through waypoint 1 (take-off point), waypoint 2 (first turn), waypoint 3 (turn over the Prut River) with the subsequent flight over the river bed to waypoint 5. The number 4 on the route indicates the location of eyewitnesses, who filmed the last minutes of the flight.

After waypoint 5, the aircraft performed a right turn through waypoints 6, 7, 3, 2 and 1 back to the Airfield for landing and change of passengers.

The last flight passed through point 1. Approximately in the area of point 2, the aircraft began to lose altitude abruptly, collided with ground obstacles and impacted the ground at the location marked with number 8. The last flight is marked in red on the diagram.

Aircraft Parachute Rescue System

The aircraft is equipped with the Magnum 901 rescue parachute system, which is designed for a maximum flight weight of 950 kg at a maximum flight speed of 320 km/h. The minimum height, at which the rescue system can be used, is 200 m above the ground. The rescue system was not used by the pilot.

Airfield Information.

See Preliminary Report on Fatal Accident.

Flight Recorders.

The aircraft is not equipped with on-board recorders. There are no requirements for this aircraft type to be equipped with onboard recorders.

Wreckage and Impact Information.

The plane impacted the ground on a private yard under the wall of a two-story stone house on the Prut River side. As a result of the crash, the wires of the power line were broken, the power supply to the surrounding houses was cut off, fruit trees were broken and damaged, the roofs and walls of two outbuildings, the wall of the house and the metal fence of the private territory were damaged. The aircraft wreckage is scattered on the ground on the territory of about 600 m². During the ground impact, a fire broke out, as a result of which the plane completely burned down. Only the engine and some metal parts of the aircraft remained.

Medical and pathological information.

The pilot had a valid Class 1/2 medical certificate No. 94555 valid until 27.11.2021. There is no information about any deviations in the physical or mental state of health. The forensic medical examination of the pilot's body was carried out by the Kolomyia District Department of the Ivano-Frankivsk Regional Bureau of Forensic Medical Examination.

According to the findings of the examination, no alcohols and their isomers were found in the pilot's blood and urine. The pilot died as a result of combined trauma to the body, with multiple fractures of the skeleton bones, damage to internal organs and thermal burns of the body.

Pathological examinations of the victims' bodies were not conducted.

Fire in Flight.

There was no fire before the aircraft hit the ground.

The fire broke out after the aircraft impacted the ground. The fire engulfed the aircraft and spread to the building. All four people on board the aircraft received fatal injuries. The people in the house escaped on their own. The private house partially burned down.

Survival Factors.

On 28.07.2021, at 13.36, an eyewitness reported to the 7th State SAR Unit of the Kolomyia District Department of the Main Directorate of the State Emergency Service of Ukraine in Ivano-Frankivsk region. The accident site was determined by the street and house numbers, as well as by smoke and fire. Due to the fact that the plane was made of composite materials, it completely collapsed and burned down after the impact. The passengers were secured with fastened seat belts. The rescue parachute system was not used by the PIC.

Tests and Research.

The results of the examination of the samples of the fuel, which was used during the aircraft operation indicate that, according to the detonation resistance requirements, the fuel filled into the aircraft does not meet the requirements of the Technical Regulations on the requirements for motor gasoline, diesel, marine and boiler fuels, approved by the Resolution of the Cabinet of Ministers of Ukraine dated 01.08.2013 No. 927, as regards A-95 gasoline. According to the tested indicators, the used gasoline meets the requirements for A-92-Euro-5 gasoline.





Abbreviations That Can be Used in Text

AAIB – Air Accident Investigation Branch	QNH – code designation of pressure reduced to mean sea level (Q-code Nautical Height) by standard atmosphere
AC – Aircraft	SAA – State Aviation Administration of Ukraine
AMM – Aircraft Maintenance Manual	SAR – Search and Rescue
FCL – Flight Crew License	UHC – Ukrainian Hydrometeorological Center
JCM ATMS – Joint Civil-Military Air Traffic Management System	UTC – Universal Time Coordinated
MH – Magnetic Heading	VMC – Visual Meteorological Conditions
NBAAI - National Bureau of Air Accidents Investigation	VFR – Visual Flight Rules
NTSB – National Transportation Safety Board	
PIC – Pilot-in-Command of the aircraft	
POH – Pilot’s Operational Handbook	