The sole objective of safety investigations is the prevention of future aviation accidents and incidents.

The Commission does not apportion blame or liability. The investigation is independent and separate from any judicial and administrative proceedings.

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FINAL REPORT

of the State Commission on Aircraft Accidents Investigation

of **25 August 2026**

regarding the aviation accident

2024-0070

OCCURRENCE NUMBER

AK1-3 helicopter, SP-HLLI

25 August 2024, Łosiewice, near Łochów

LOC-I: Loss of control – in-flight

This Report was issued by the State Commission on Aircraft Accidents Investigation on the basis of information available on the date of its issue.

This Report presents the circumstances of the aviation occurrence concerned, as well as its causes, contributing factors and safety recommendations, if issued.

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1. Course of the events

Fig. 1. The AK1-3 helicopter, registration marks SP-HLLI, involved in the occurrence [source: R. Kukowski, jetphotos.com]

On 25 August 2024, the pilot of the ultralight helicopter AK1-3, registration marks SP-HLLI, went on a cross-country flight from Tałty, near Mikołajki, to Wola Korytnicka, and then on to the area in the vicinity of Łochów. The flight was carried out in accordance with VFR and within Class G airspace as a private flight. A flight plan was not required and was not submitted. The take-off was in the morning, preceded by an inspection of the helicopter in line with the flight manual. The pilot took his seat on the left-hand side of the cockpit. After taking off, the pilot set the friction lock on the collective to avoid having to hold the control up with his hand all the time.

The flight lasted about an hour and was smooth. At around 8:00 AM[1], the helicopter was near the pilot's home. He then decided to make a stopover on his own property. The altitude was approximately 500 metres, and the speed between 100 and 120 km/h.

According to the pilot's statement, before making the descent, he released the lock on the collective. Unlocked, the control dropped suddenly of its own accord, causing the collective pitch angle to decrease. As a result, the helicopter went into an uncontrolled descent. At the same time, the helicopter lost directional control and started turning left. The pilot's reaction was to sharply increase the

[1] All times in the report are in Local Mean Time (LMT). On the day of the incident, LMT was UTC+2 (UTC – Universal Time Coordinated)

collective pitch and press the right pedal down as far as possible. As a result, the main rotor speed fell, but remained within the operating range. The helicopter stopped rotating left, but started rotating right after a brief moment as a result of the pilot's reaction. The helicopter's descent was not fully brought to a halt. The helicopter was flying over an undeveloped area, near a medium-voltage overhead power line.

The helicopter struck the ground with its left skid, then bounced and struck the power line pylon with the front of its fuselage. There was no damage to the line itself. As a result of the ground collision, the battery fell out, causing the electrical system and engine to shut down. The pilot suffered light bodily injuries, while the helicopter was severely damaged.

The pilot left the helicopter of his own accord. He did not call the emergency services to report the accident, but went to an ER at a hospital. There, he was treated for his injuries and tested for alcohol in breath (with a negative result).

2. Relevant information

2.1. Injuries to Persons

Table 1. General – summary of the number of injuries

Injuries	Crew	Passengers	Total on board the aircraft	Others
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	1	-	1	-
None	-	-	-	-
TOTAL	1	-	1	-

2.2. Damage to the helicopter

As a result of the accident, the helicopter sustained the following damage:

- broken tail boom;
- broken main rotor blades;
- damaged tail rotor;
- broken cockpit glazing;
- damaged landing gear.

Fig. 2. Damaged helicopter [source: helicopter owner]

Fig. 3. Damaged helicopter [source: helicopter owner]

2.3. Pilot information

The pilot was a 44-year-old man with an ultralight helicopter (land) pilot's licence issued in October 2022, valid on the day of the accident. He held a valid Class 2 and LAPL aero-medical certificate on the day of the accident.

He had approximately 105 total flight hours under his belt, of which 70 were flown on AK1–3 helicopters, and the remainder on the Dynali H3. The pilot carried out regular flights, ensuring there were no long breaks in his training.

2.4. Aircraft information

The DB Aerocopter AK1-3 is a two-seater single-rotor light helicopter with a three-blade main rotor and a two-blade tail rotor. Its maximum take-off mass (MTOM) is 600 kg, empty mass – 398 kg, main rotor diameter – 6.84 m, length (with rotors in operation) – 8.1 m. The main rotor rotates clockwise. The design of the control system is conventional and comprises the cyclic control, the collective pitch control and pedals (foot control) operating the tail rotor pitch. It is a dual control system.

The helicopter involved in the accident was manufactured in 2011 by LLC 'KB-Aerocopter' with the serial number 0048 and was covered by a Ukrainian Type Certificate ТП 0008[2]. Per the Type Certificate, the helicopter's maximum take-off mass was 650 kg.

In April 2019, the helicopter was entered in the aircraft register under category K6E (Experimental), subcategory 'UL-H Helicopter.' Information that the aircraft did not comply with airworthiness standards within the meaning of Annex 8 to the Convention on International Civil Aviation was included in the flight manual and displayed on an information plate in the helicopter cabin.

In 2023, the helicopter was modified by a company listed by the Civil Aviation Authority as an approval organisation. The modifications included, among others, the application of Gyro-Tech main rotor blades and a change to the position of the engine radiator. They had no impact on the occurrence and the course of the events.

At the time of the accident, the SP-HLLI had 361 hours of total flight time.

Its airworthiness review certificate, issued on 1 July 2024, was valid. It specified a maximum airspeed of 180 km/h as an airworthiness limitation; this limit was not found to be exceeded. In the airworthiness review certificate, the assessment authority used the designation AK1-3.PL, highlighting the modifications made with respect to the original design; however, these modifications are not reflected in the registration certificate or any other documents.

The course of the accident does not show that there was a technical fault with the helicopter or any other technical defect.

[2] Type Certificate under Annex 8 to the Convention on International Civil Aviation.

2.5. Pilot's action

The series of events leading up to the accident began with the pilot releasing the lock on the collective control. At the basis of the lever is an adjustable knob that tightens the friction lock (Fig. 4). When adjusted correctly, it prevents the collective pitch angle from changing inadvertently during the flight, whilst still allowing the pitch to be adjusted during manoeuvres. From practice, the control cannot be locked too tightly, as it would make it difficult, among others, for autorotation to occur in the event of an engine failure. In accordance with the pilot's operating handbook, the lever lock must be checked and adjusted before take-off. Any unlocking should be smooth and in small movements to prevent the collective from moving uncontrollably. It is worth noting here that the lock knob is at the base of the control, so the lever has to be released when adjusting the knob. In the case at hand, when the lock was released, the collective control dropped inadvertently, causing an unplanned reduction in the collective pitch to the minimum. As a result, the thrust of the main rotor decreased suddenly and triggered an accelerated descent. The reduction in collective pitch also brought about a reduction in the main rotor drag torque and a resulting increase in the rotor's rotational speed.

Fig. 4. The collective (on the left) and the lock knob (on the right)

The pilot stated that at that very moment the helicopter started turning left[3]. It should be noted, however, that the main rotor in that helicopter rotates clockwise, so the reaction torque tends to cause the helicopter to turn left; with the torque decreased as a result of a reduction in pitch, the helicopter would be expected to tend to turn right. The position of the other controls has not been established, but the pilot may have unwittingly pressed the left pedal whilst reaching for the

[3] Counter-clockwise, viewed from above

collective lock knob. This may have been due to the negative G-force acting on the pilot as he began to descend.

The helicopter's sudden descent took the pilot by surprise, and he reacted by pulling the collective up sharply and forcefully. This resulted in a significant increase in the collective pitch angle. As a result, the rotor's reaction torque increased, exacerbating the helicopter's tendency to turn left.

Apart from pulling the collective lever up, the pilot pressed the right pedal down as far as possible to counteract the turn in the left direction. This did not have an immediate effect; pilots point out that they can "run out of pedal" with the increased tail rotor thrust. It is reasonable to assume that even the maximum thrust was not sufficient to restore directional stability immediately.

2.6. Meteorological information

The weather near the scene of the accident was as shown in the meteogram – Fig. 5. The weather conditions were suitable for the flight in question and had no impact on the occurrence and the course of the events.

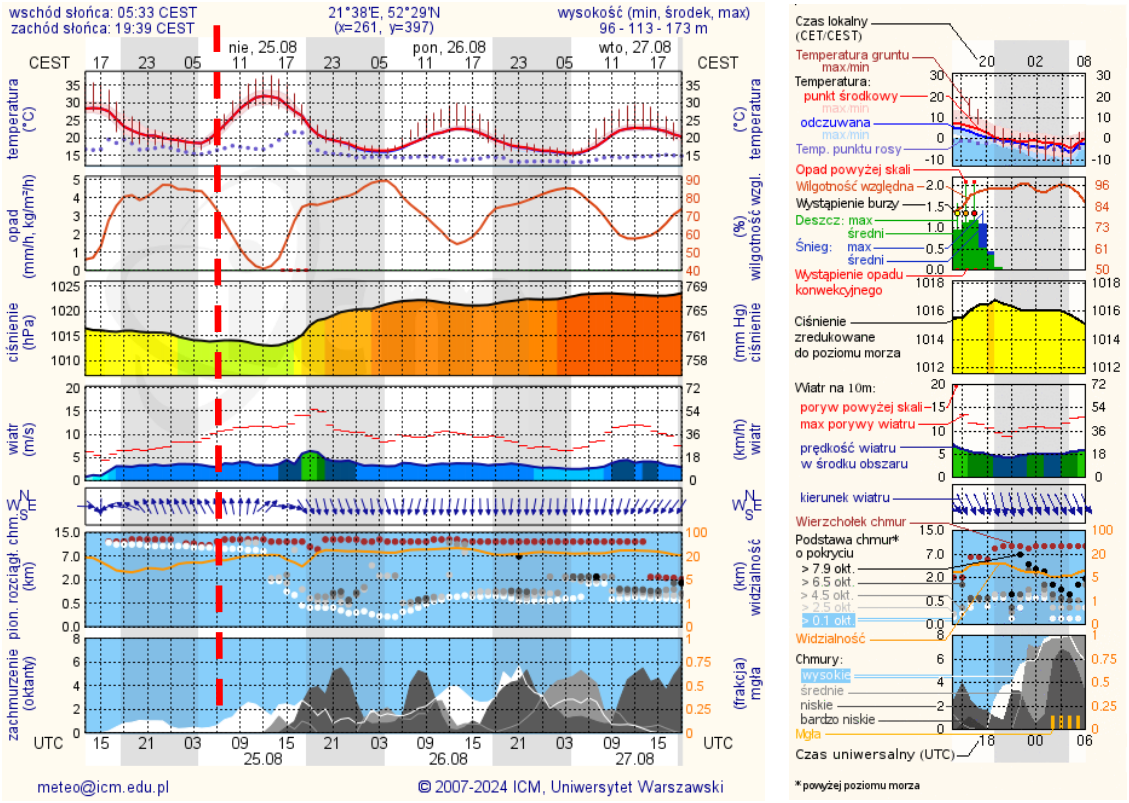

Fig. 5. A meteogram showing the weather conditions on the day of the accident (for the Łochów area) [source: www.meteo.pl]. The red dotted line marks the moment the accident took place.

2.7. Supplementary information

Prior to the publication of the final report, PKBWL consulted its draft version, asking the parties involved for comments. The owner and operator of the helicopter and their Accredited Representative, acting on behalf of the state of manufacture – Ukraine – submitted comments which were partially taken into account in this Report. The pilot did not submit any comments.

3. Conclusions

3.1. Findings

(1) The pilot held a valid UHP(L) licence.
(2) The pilot held a valid aero-medical certificate.
(3) The helicopter was airworthy at the time of the occurrence.
(4) The helicopter had been entered in the aircraft register and it had a valid airworthiness review certificate.
(5) The modifications to the aircraft had no impact on the occurrence and the course of the events.
(6) As a result of the accident, the helicopter was seriously damaged.
(7) The weather had no impact on the course of the occurrence.

3.2. Causes and/or contributing factors

(1) The friction lock on the collective was incorrectly adjusted.
(2) The excessive loosening of the friction lock on the collective brought about an uncontrolled collective pitch reduction.

4. Safety Recommendations

No recommendations were formulated.

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