



State Commission on Aircraft Accidents Investigation

FINAL REPORT

2022/5134

OCCURRENCE NUMBER

ACCIDENT

LOC-I: Loss of control – in-flight



The sole objective of the investigation and the final report 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.

Any use of the report for any purpose other than the prevention of aviation accidents and incidents may lead to wrong conclusions and interpretations.

**Skyvan Service Piotr Wojciech Jafernik Spółka
Komandytowa
Short Brothers PLC, SC-7 Skyvan series 3
VARIANT 100, SP-HIP
Głina k. Piotrkowa Trybunalskiego, 3 września
2022 r.**

The Final Report has been issued by the State Commission on Aircraft Accidents Investigation on the basis of information known at the time of its publication.

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

The report was drawn up in Polish.

Warsaw, 17 September 2026



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Table of Contents

INTRODUCTION.....	5
SYMBOLS AND ABBREVIATIONS	8
1. FACTUAL INFORMATION.....	11
1.1. Flight history.....	11
1.2. Injuries to Persons	12
1.3. Damage to the Aircraft	13
1.4. Other damage	13
1.5. Personnel information	14
1.6. Aircraft information	15
1.7. Meteorological information	19
1.8. Navigation aids	20
1.9. Connectivity	20
1.10. Aerodrome information.....	20
1.11. On-board recorders.....	22
1.12. Information on the wreckage and the occurrence	22
1.13. Medical and pathological information	23
1.14. Fire.....	23
1.15. Survival factors	24
1.16. Tests and studies.....	24
1.17. Information on organisations and management	24
1.18. Supplementary information	25
1.19. Useful or effective investigation methods.....	25
2. ANALYSIS	26
2.1. General provisions	26
2.2. Air operations	28
2.2.1. Crew qualifications and experience.	28
2.2.2. Operational factors.	28
2.2.3. Weather.....	28
2.2.4. Aeronautical communications.....	28
2.3. Aircraft.....	29
2.3.1. Aircraft maintenance	29
2.3.2. Aircraft operation	30

2.3.3. Mass and balance.....	30
2.3.4. Aircraft instruments.....	30
2.3.5. Aircraft systems	30
2.4. Survival... ..	30
2.4.1. Actions of the emergency services.	30
2.4.2. Survival aspects.....	30
3. CONCLUSIONS.....	31
3.1. Findings	31
3.2. Causes and contributing factors.....	32
4. SAFETY RECOMMENDATIONS	32

INTRODUCTION

LEGAL BASES

The State Commission on Aircraft Accidents Investigation is the safety investigation authority referred to in Article 4(1) of Regulation (EU) No. 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (Official Journal of the European Union L 295, p. 35, as amended).

The Commission conducts investigations based on the provisions of the Act of 3 July 2002 – Aviation Law (Journal of Laws 2025, item 1431, as amended) and European Union law in the field of civil aviation accidents and incidents and taking into account the standards and recommended practices contained in Annex 13 to the Convention on International Civil Aviation, drawn up in Chicago on 7 December 1944 (Journal of Laws of 1959, item 212, as amended).

BASIC INFORMATION ABOUT THE OCCURRENCE

Operator (user), flight number or type – Skyvan Service Piotr Wojciech Jafernik Spółka Komandytowa.

Manufacturer, type, model and registration marks of the aircraft – Short Brothers PLC, SC-7 Skyvan series 3 VARIANT 100, SP-HIP.

Place and date of occurrence – Głina k. Piotrkowa Trybunalskiego, 3 września 2022 r.

OCCURRENCE REPORT

PKBWL was notified of the occurrence under the mandatory occurrence reporting system on 3 September 2022.

The occurrence was assigned the registration number – 2022/5134.

Based on initial information, the occurrence was classified as an accident.

In the course of the investigation, the qualification of the occurrence was not changed.

NOTIFICATION OF THE OCCURRENCE

PKBWL notified the following bodies of the occurrence:

- state of manufacture of the aircraft – the United Kingdom;
- state of manufacture of the engines – the United States of America;
- state of manufacture of the propellers – Germany;
- ICAO;
- EASA;
- European Commission;

ORGANISATION OF THE INVESTIGATION

The investigation was conducted by PKBWL (State Commission on Aircraft Accident Investigation).

Investigator-in-charge (IIC) – Jacek Bogatko/ Krzysztof Miłkowski.

Specialist groups – no specialist groups have been appointed.

Accredited representatives (and their advisers)

- state of design – the United Kingdom;
- state of manufacture of the engines – the United States of America;
- state of manufacture of the propellers – Germany;
- state which provided relevant information, significant facilities or experts – Germany.

RECOMMENDATIONS

Unless otherwise indicated, the recommendations contained in this report are addressed to the regulatory authorities of the State responsible for the matters to which these recommendations relate. The decision on what action to take lies with these authorities. The details are given in Chapter 4 of this report.

TIME

The times in the report are given in the LMT. On the day of the occurrence, LMT was UTC + 2.

DATE

If a date is given in digital format in the report, individual digits stand for DD.MM.YYYY, where DD stands for day, MM for month and YYYY for year.

DRAWINGS AND TABLES

Unless otherwise stated in the report – source: PKBWL.

SUMMARY

On 3 September 2022, parachute jumps from an SC-7 Skyvan aircraft, organised by SKYVAN SERVICE, were being made at Piotrków Trybunalski aerodrome (EPPT). On the twelfth flight of that day, after the parachutists had been dropped, the aircraft began to descend for landing. After turning onto final approach, the pilot reported that he was a minute and a half from the threshold of runway 03. The flight operations supervisor issued a landing clearance, which the pilot acknowledged.

At a distance of approximately 2 kilometres from the threshold of runway 03, the aircraft climbed and simultaneously changed its heading, went into a descent and collided with the ground in a dive. As a result of the impact, the pilot and the passenger were killed on the spot and the aircraft was completely destroyed.

SYMBOLS AND ABBREVIATIONS

SYMBOLS

° Degree e.g. °C (temperature) and 1° (angle)

ABBREVIATIONS

A

AD	Airworthiness directive
AFTN	Aeronautical fixed telecommunication network
AGL	Above ground level
AIP	Aeronautical information publication
AMSL	Above mean sea level
ATC	Air traffic control

B

BEW	Basic Empty Weight
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C

C	Degrees Celsius / Cycle
CAA	Civil Aviation Authority
CG	Centre of gravity
CPL(A)	Commercial Pilot Licence (Aeroplane))

E

EASA	European Union Aviation Safety Agency
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F

F	Flight
FI	Flight instructor
FL	Flight level
ft	Foot / feet

G

GPS	Global positioning system
H	
h	Hour(s)
I	
ICAO	International Civil Aviation Organization
IIC	Investigator-in-Charge
IO	Operations Manual
IR	Instrument Rating
K	
kg	Kilogram(s)
kt	Knot(s)
L	
L	Litre(s) / Left (runway designator)
LH	Left Hand
M	
m	Metre(s)
MEP(L)	Multi-engine piston (land)
MET	Meteorological / meteorology / meteorological services, respectively.
min	Minute(s)
MTOM	Maximum Take-Off Mass.
N	
N	North / Northern latitude / Newton, respectively
P	
PJ	Parachutist qualification certificate
R	
R	Right (runway designator)
RH	Right hand
S	

s	Second(s)
S	South / Southern latitude, respectively
SB	Service bulletin
SEP(L)	Single-engine piston (land)
SIGMET	Significant meteorological information (information on en-route weather phenomena which may affect the safety of aircraft operations)
SPO	Specialised Operations

T

TMG	Touring Motor Glider
TSO	Time Since Overhaul

U

UTC	Universal Time Coordinated
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V

VMC	Visual meteorological conditions
-----	----------------------------------

W

W	West / Western longitude
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1. FACTUAL INFORMATION

1.1. Flight history

On 3 September 2022, parachute jumps from an SC-7 Skyvan aircraft, registration SP-HIP (hereinafter the “Skyvan”), organised by SKYVAN SERVICE, were being made at Piotrków Trybunalski aerodrome (EPPT). On the twelfth flight of that day, the pilots were changed. The pilot flew with parachutists on board and a female passenger in the right-hand seat. The parachutists were dropped at an altitude of approximately four thousand metres. The aircraft then began to descend for landing. The pilot reported joining the aerodrome traffic circuit for the right base turn for runway 03, for which he was cleared by the flight operations supervisor to land as number 1. A moment later, the base turn was also reported by a Tecnam aircraft, registration SP-LFH (hereinafter the “Tecnam”), carrying out a training flight in the aerodrome traffic circuit. The pilot of the Tecnam was cleared to make an approach to land as number 2, which he acknowledged. After turning onto final approach, the pilot of the Skyvan reported that he was a minute and a half from the threshold of runway 03. The flight operations supervisor issued a landing clearance, which the pilot acknowledged. At approximately 14:16, the aircraft entered a climb, probably in order to reduce speed and configure the aircraft for landing. While performing this climb, the aircraft began a turn to the right and simultaneously entered a dive; the aircraft was probably stalled at that moment and collided with the ground at a steep descent angle.

As a result of the impact, the pilot and the passenger were killed on the spot and the aircraft was completely destroyed. The location of the impact site is shown in Fig. 1. The pilot of the Tecnam, who was flying behind the Skyvan, transmitted information about the occurrence by radio.



Fig. 1. Location of the occurrence site.

1.2. Injuries to persons

Table 1. General – summary of the number of injuries

Injuries	Crew	Passengers	Total on board the aircraft	Others
Fatal	1	1	2	-
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-
TOTAL	1	1	2	-

1.3. Damage to the Aircraft

As a result of the collision with the ground, the aircraft was completely destroyed (Fig. 2).



Fig. 2. View of the aircraft wreckage [source: Police]

1.4. Other damage

As a result of the occurrence, a tree branch was broken off (Fig. 3).



Fig. 3. The damaged tree.

1.5. Personnel information

1. Pilot-in-command

Pilot: male, aged 44.

Licence: CPL(A).

Competences included in the above licence:

- SEP(L) valid until 31 August 2022;
- MEP(L) valid until 31 August 2022;
- Beach 400/ MU 300/ IR valid until 30 September 2022;
- FI valid until 30 September 2023;
- SC-7 Skyvan valid until 31 May 2023;
- Glider towing;
- Aerobatics;
- ICAO level 4 valid until 11 May 2023.

Licence: SPL – sailplane pilot licence.

Competences included in the above licence:

- TMG;
- Aerobatics;
- FI valid until 30 April 2022.

Total flight time: approximately 3,000 h, including:

- on aeroplanes 1,500 h;
- on gliders 1,500 h;

Type flight time:

- SC-7 Skyvan approximately 190 h.

Flight time before the occurrence:

- in the last 24 h – 1 h 36 min;
- in the last 7 days – 1 h 36 min;
- in the last 90 days – 60 h 40 min;
- In-flight check – check passed, carried out on 19 May 2022.

Aero-medical certificate – class 1 without restrictions, valid until 11 November 2022.

Rest in the last 48 h – the pilot was provided with the rest at home.

Knowledge of the aerodrome – the pilot knew EPPT aerodrome very well, he was a member of Aeroklub Ziemi Piotrkowskiej and regularly flew from Piotrków Trybunalski aerodrome.

Position in the cockpit and activities performed – during the occurrence, the pilot was occupying the left-hand seat as pilot-in-command.

The pilot obtained the SC-7 Skyvan type rating on 31 March 2021 and completed refresher training in May 2022.

In 2021, the pilot completed training and a skill test with the operator before taking up the duties of a pilot performing SPO flights; he completed the next training course in 2022 before commencing flights. The training programme and scope were in accordance with the provisions of the Operator's IO.

In addition, the pilot held a PJ parachutist qualification certificate and the qualification certificates of an ultralight aircraft pilot and a paraglider pilot.

On the day of the occurrence, the pilot made parachute jumps as a tandem pilot. The jumps were made on the 2nd, 5th and 8th flights. On the second flights, he made a tandem jump with the passenger who subsequently died with him in the accident.

1.6. Aircraft information

1. Airworthiness and maintenance

a) General information:

The SKYVAN SC-7 Series 3 is a twin-engine light transport aircraft with an unpressurised cabin, designed for single-pilot operations and fitted with dual controls. It is a strut-braced high-wing aircraft with twin vertical tail surfaces and a fixed tricycle landing gear with a nose wheel. The aircraft is powered by two turboprop engines. The fuselage has a rear cargo ramp and a cabin that can be configured to carry passengers (up to 18 persons) or cargo. Series 3 is intended for a variety of tasks, including the carriage of passengers and goods, dropping parachutists and other aerial work. The aircraft is able to operate from aerodromes with unpaved surfaces.



Fig. 3. Aircraft SP-HIP before the accident

manufacturer – Short Brothers PLC;

factory designation (model) – SC-7 Skyvan series 3 variant 100;

factory (serial) no. – SH.1962;

year of manufacture – 1978;

registration mark – SP-HIP;

owner – NORMAL Piotr Jaferník;

user – SKYVAN-SERVICE Piotr Wojciech Jaferník Sp. Komandytowa;

registration certificate – date of entry 7 October 2019 – valid on the day of the occurrence;

certificate of airworthiness – issued 17 September 2020, without restrictions – valid on the day of the occurrence.

b) Aircraft history:

flight time from the beginning of operation – 6,445 h 23 min;

flight time after overhaul – not applicable;

flight time since the last inspection (1M, 30D/100H, 1M, CAA 009-001-96) – 47 h 22 min;

Modifications – change of propellers to MTV-27-1-E-C-F-R(G) in accordance with STC SA1415 (EASA 2004-12060), installation of Garmin GNS 430/GNS 530/GI106A/dual GA56 in accordance with MCC ASR-2019-019, change of the transponder to Garmin GMA 340 in accordance with MCC ASR-2019-020 and installation of an ASPEN Avionics EFD 1000 Primary Flight Display in accordance with STC EASA 10046011 rev. 4;

Aircraft technical log – the technical log (PDT) No. 023/2022 of 03.09.2022 secured after the accident contains no entry for the 12th

flight, during which the accident occurred. Nor does it contain any information on the quantity of fuel uplifted before the 12th flight. Before the first flight of that day, a total airframe flight time of 6,232 h 17 min was entered, together with an operating limitation resulting from the next scheduled maintenance at a flight time of 6,331 h 07 min or on 29.09.2022. That technical log contained incorrect data, because before the first flight of that day the airframe flight time was 6,441 h 23 min¹. Despite its requests, the Commission did not obtain from the Operator or from the owner of the aircraft any earlier technical log sheets that would have made it possible to verify at what point the error arose that resulted in a discrepancy of more than 200 h of flight time. An integral part of the technical log was a maintenance statement setting out the aircraft's maintenance status in terms of the subsequent scheduled maintenance tasks to be performed. Maintenance Statement (MS) No. 01/HIP/08/2022 of 29.08.2022, secured after the accident, indicates that on the date of the maintenance certified by CRS No. Z03/07/2022 (no CRS bearing that number was found in the aircraft documentation) the airframe had 6,231 h 07 min of flight time and 6,089 F, the LH engine had a TSO of 765 h 27 min, the RH engine had a TSO of 1,205 h 42 min, and the LH and RH propellers had 86 h 41 min. The operating limitations given in that MS were as follows: airframe flight time 6,331 h 07 min, number of flights 6,295 F and the date 29.09.2022 (whichever occurs first). Those limitations were identical to the ones entered in technical log No. 023/2022;

Maintenance documentation – the aircraft was maintained in accordance with maintenance programme doc. No. POT/SC7/01, issue 1, rev. 5, by a Part 145 maintenance organisation whose scope of approval covers the maintenance of the SC-7 aircraft. CRS No. Z03/08/2022 of 29.08.2022 was secured after the accident. That CRS indicated that on the date of the maintenance the airframe had 6,231 h 07 min of flight time and 6,089 F, engine 1 (LH) had a TSO of 765 h 27 min and engine 2 (RH) had a TSO of 1,205 h 42 min; in addition, engine 2 (RH) was given an incorrect serial number, P90019 instead of P90325. Accordingly, that CRS contained incorrect data on the operating time of the airframe and the engines, because on the date of the maintenance the airframe in fact had 6,441 h 45 min of flight time and 6,618 F, engine 1 (LH) had a TSO of 976 h 05 min and engine 2 (RH) had a TSO of 3,422 h 12 min.

¹ Data from the airframe logbook

The Operator subsequently produced CRS No. Z03/08/2022/K of 05.08.2022, which was a correction of CRS No. Z03/08/2022. In email correspondence, the Operator advised that the errors appearing on the CRS and MS documents held by the Commission were the result of a counting-system error. A summary of the data is set out in Table 2.

Flight hours / cycles / flights	Data from MS No. 01/HIP/08/2022 of 29.08.2022	Data from the airframe logbook of 28.08.2022	Data from the LH engine logbook of 28.08.2022	Data from the RH engine logbook of 28.08.2022	Data from the LH propeller logbook of 31.07.2022	Data from the RH propeller logbook of 31.07.2022	Data from CRS No. Z03/08/2022 of 29.08.2022	Data from CRS No. Z03/08/2022/K of 05.08.2022
Airframe	6,231 h 07 min / 6,089 F	6,441 h 45 min / 6,618 F					6,231 h 07 min / 6,089 F	6,398 h 01 min / 6,507 F
LH engine (TSO)	765 h 27 min		976 h 05 min				765 h 27 min / 455 C	932 h 21 min / 491 C
RH engine (TSO)	1,205 h 42 min			3,422 h 12 min			1,205 h 42 min / 540 C	3,378 h 28' / 7,298 C
LH propeller	86 h 41 min				253 h 35 min			
RH propeller	86 h 41 min					253 h 35 min		

Table 2. Summary of flight times, numbers of flights and cycles of aircraft SP-HIP as at 29.08.2022.

At a later date, the Operator also sent certificates relating to maintenance carried out on 29.03.2022 (CRS No. Z02/01/2022), 29.04.2022 (CRS No. Z02/04/2022), 03.06.2022 (CRS Z02/05/2022) and 05.07.2022 (CRS No. Z02/06/2022). CRS No. Z03/08/2022, CRS No. Z03/08/2022/K and all the above-mentioned certificates of release to service were signed by certifying staff whose certification privileges under their aircraft maintenance licence had expired on 22.03.2022 because of the expiry of that aircraft maintenance licence.

Airworthiness directives – all applicable airworthiness directives were completed;

c) Engines and propellers:

Engine No. 1 (LH) – Garrett Airesearch TPE 331-2-201A No. P90189, operating time: 8,010 h 23 min since the beginning of operation, 979 h 43 min since the last overhaul, 147 h 52 min since the last periodic inspection (150H);

Propeller No. 1 (engine No. 1) – MT-Propeller MTV-27-1-E-C-F-R(G), operating time: 300 h 57 min since the beginning of operation, 147 h 52 min since the last periodic inspection (150H);

Engine No. 2 (RH) – Garrett Airesearch TPE 331-2-201A No. P90325, operating time: 9,399 h 26 min since the beginning of operation, 3,425 h 50 min since the last overhaul, 147 h 52 min since the last periodic inspection (150H);

propeller No. 2 (engine No. 2) – MT-Propeller MTV-27-1-E-C-F-R(G), operating time: 300 h 57 min since the beginning of operation, 147 h 52 min since the last periodic inspection (150H);

d) Fuel:

recommended – Jet A-1;

used in flight – Jet A-1;

quantity on board – approximately 400 L (estimated on the basis of the earlier refuelling operations that day);

distribution on board – evenly in both wing tanks.

e) Defects:

No list of deferred defects was produced. The aircraft documents collected after the accident contained no entries recording unrectified defects. Neither the witnesses nor the pilot who had flown earlier reported any irregularities in the operation of the aircraft noticed during the flights on the day of the accident;

f) Aircraft load:

MTOM – 5670 kg;

BEW – 3,721.27 kg

CG – 18.72 in

1.7. Meteorological information

GAMET weather forecast for 10:00 – 16:00 UTC on the day of the occurrence:

EPWW GAMET VALID 031000/031600 EPWAEPWW

WARSAW FIR/A4 BLW FL100

SECN I

HAZARDOUS WX NIL

SECN II

PSYS: 12 RIDGE OF HIGH OVER POLAND STNR NC

UPPER TROUGH OVER NE POLAND STNR NC

UPPER LOW OVER W UKRAINE MOV E NC

SFC WIND: 10/16 080/06KT

WIND/T: 10/16

1000FT AMSL 090/10KT PS17

2000FT AMSL 090/10KT PS15

3300FT AMSL 100/10KT PS11

5000FT AMSL 100/10KT PS06

10000FT AMSL 120/05KT LCA VRB/05KT 0000

CLD: 10/16 LCA FEW/SCT CU 4000/7000FT AMSL

FZLVL: 10/16 FM NE PART 8000FT AMSL TO SW PART 10000FT AMSL

CHECK AIRMET AND SIGMET INFORMATION

FAPL24 OKEC 030900

- wind at 1,000 – 5,000 ft AMSL from 90° – 100° at a speed of 5 m/s.
- air temperature at 1,000 ft AMSL – 17°C, and at 5,000 ft AMSL – 6°C.
- cloud cover moderate to heavy, cumulus clouds with a base of 4,000 ft AMSL.

The weather had no impact on the course of the occurrence.

1.8. Navigation aids

The aircraft was equipped with GPS. As the parachute-dropping flights were carried out in the vicinity of the aerodrome, no other navigation aids were used.

1.9. Connectivity

The pilot carried out standard radio correspondence with the flight operations supervisor in Polish. The correspondence in both directions was clear. The correspondence was carried out on the aerodrome tower frequency.

1.10. Aerodrome information

Piotrków Trybunalski aerodrome is located to the south of the town of Piotrków Trybunalski. It is a public-use aerodrome not subject to certification. Aerodrome manager – Aeroklub Ziemi Piotrkowskiej.

Aircraft are recommended to fly the aerodrome traffic circuit at an altitude of 1,000 ft (300 m) AGL – 1,700 ft AMSL.

For take-off direction 207° (21), a left-hand circuit is flown by all aircraft.

For take-off direction 027° (03), a right-hand circuit is flown by all aircraft.

The aerodrome has an asphalt runway, 03L and 21R, measuring 950 × 18 m, and a grass runway, 03R and 21L, measuring 860 × 50 m.

A layout of the aerodrome is shown in Fig. 4.

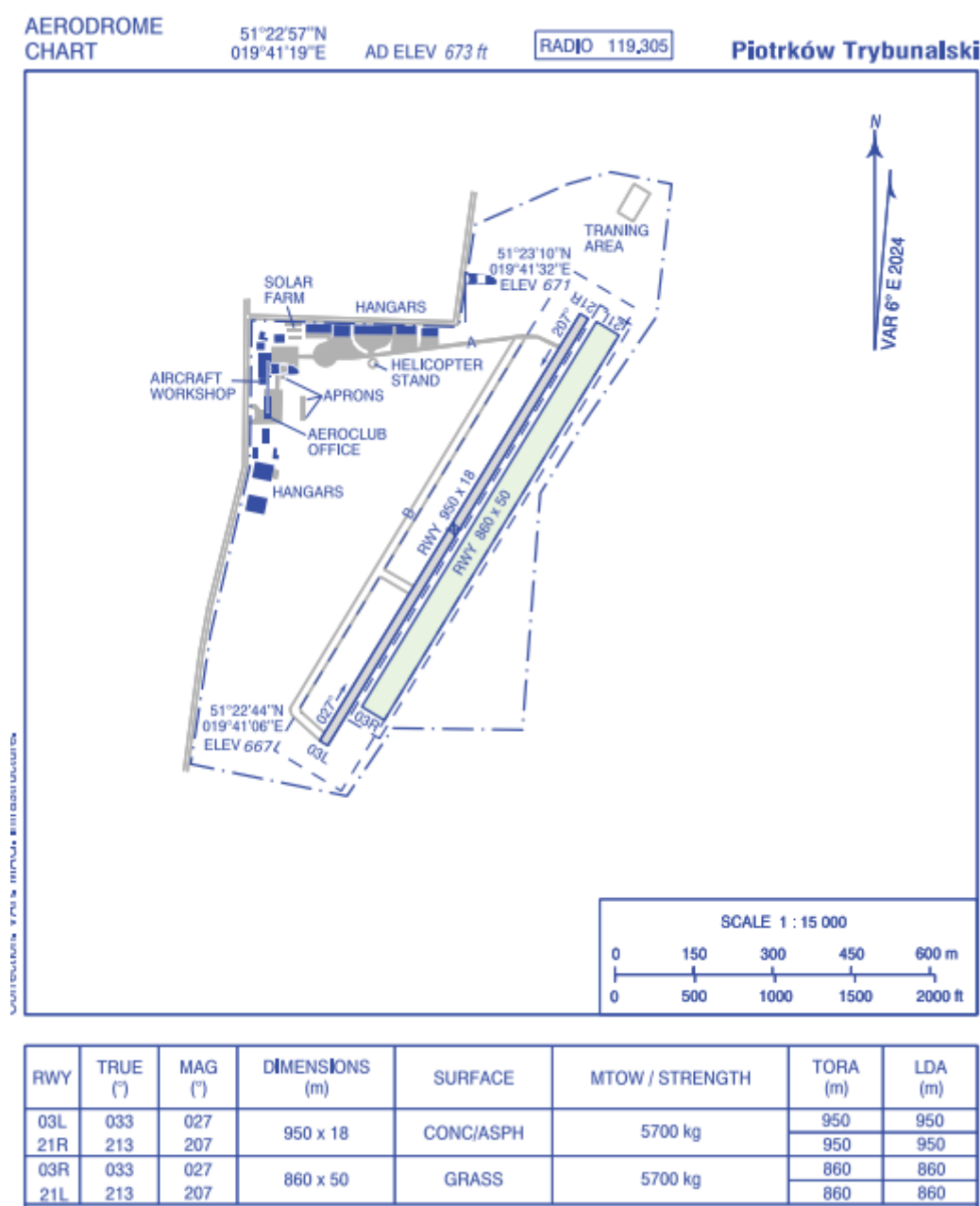


Fig. 4. Piotrków Trybunalski aerodrome (source: AIP Poland)

1.11. On-board recorders

The aircraft was not equipped with on-board recorders.

1.12. Information on the wreckage and the occurrence

The accident occurred approximately 2 kilometres from the threshold of runway 03L at EPPT.

A general view of the accident site is shown in Fig. 1.

The aircraft wreckage was scattered over a small area. The aircraft was lying on its left side. All the elements of the control system (elevator, rudder, ailerons, flaps) were located within the wreckage and in its immediate vicinity. The right wing had been torn off, together with the strut, at a point approximately 1 m from the engine. During the impact, the right engine separated from the wing and was found next to the wreckage of the forward part of the fuselage. The inboard section of the left wing, together with the engine, was located beneath the fuselage. The remaining part of the wing, together with the strut, was located beside the fuselage. During the impact, the fuel system lost its integrity and fuel leaked out. The fire brigade, which arrived at the site of the occurrence, protected the aircraft wreckage against fire using foam.



Fig. 5. The aircraft wreckage at the site of the occurrence.

1.13. Medical and pathological information

As a result of the accident, the pilot and the passenger occupying the seat beside the pilot were killed on the spot as a result of extensive multi-organ injuries.

No evidence was found that any illness, incapacity or physiological factors affected the pilot's actions.

The pilot was not under the influence of alcohol or other substances impairing his performance.

1.14. Fire

No fire broke out.

1.15. Survival factors

The pilot and the passenger had their seat belts fastened; however, the configuration and the forces occurring during the aircraft's collision with the ground caused their deaths.

1.16. Tests and studies

An inspection was carried out at the site of the occurrence and photographic documentation of the site and of the aircraft wreckage was produced.

The available technical documentation of the aircraft and the pilot's documentation were secured.

Radar recordings were obtained and analysed, and the radio correspondence was secured and analysed.

The aircraft engines, together with the propeller governors, were secured and sent to the manufacturer for expert examination. The examination was carried out under the supervision of NTSB inspectors.

The examination of the engines and the propeller governors revealed no malfunction of the engines or the governors before the accident. The engines were serviceable. All damage to them arose in connection with the accident.

The pilot's actions at the individual stages of flight were reviewed in the cockpit of an aircraft of the same type.

1.17. Information on organisations and management

On the day of the accident, training flights on aeroplanes and gliders were taking place at the aerodrome, as were parachute jumps. A flight operations supervisor, who coordinated the flights and the jumps, had been designated for the duration of the flying. During the flights and the jumps, the flight operations supervisor was in the aerodrome tower, and radio correspondence was carried out on the aerodrome frequency. The correspondence was analysed on the basis of the recordings received from the aerodrome manager. After listening to the correspondence, no irregularities were found; the correspondence was conducted in the standard manner. No situations were found that endangered safety or that were inconsistent with the rules for conducting correspondence on radio networks.

On the day of the accident, the Skyvan flew 11 flights to drop parachutists, and there was no information about any irregularities in, or comments on, those flights. Before the 12th flights, the pilot was changed.

In accordance with Part A, point 4.2.0(a) (*Designation of the pilot-in-command*) of the operator's SPO Operations Manual (IO):

"the pilot-in-command shall be designated by the Flight Operations Manager".

According to the statement of the person acting as Flight Operations Manager on the day of the occurrence, the change of pilot had not been agreed with that person.

The pilot took on board a passenger who was not acting as a flight crew member, as a post-holder in the organisation or as a person involved in the process of dropping the parachutists. The Flight Operations Manager was not notified of the additional person on board.

However, in accordance with Article 5(7) of Commission Regulation (EU) No 965/2012², during flights involving specialised operations:

"Except for crew members, persons other than those indispensable to the mission shall not be carried on board."

Following an internal analysis after the accident, the operator introduced the following provision into the IO:

"During specialised operations, except for crew members, persons other than those indispensable to the performance of the task shall not be carried on board."

Training on the amendment to the IO was also delivered to the pilots performing SPO operations

1.18. Supplementary information

1.19. Useful or effective investigation methods

Standard investigation methods were used.

² Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.

2. ANALYSIS

2.1. General provisions

On 3 September 2022, combined aeroplane and glider flights and parachute-dropping flights were taking place at Piotrków Trybunalski aerodrome. That day, the Skyvan have 11 flights to drop parachutists; all these operations were performed by one pilot. After the 11th flight, there was a break to refuel the aircraft. Once refuelling had been completed, the pilot was changed. Having taken over the aircraft, the new pilot took his seat in the cockpit and additionally took on board a passenger with whom he intended to make the parachute-dropping flight. After the parachutists had boarded the aircraft, it took off and climbed to the drop altitude of approximately 4,000 m. On reaching the required altitude, the pilot contacted the flight operations supervisor and advised that the parachutists would be dropped in 1 minute. The flight operations supervisor acknowledged that information, after which the pilot reported that the parachutists had left the aircraft and that he was descending. The descent was made to an altitude of approximately 600 m. The pilot reported that he would be flying “the right base for runway 03” (quotation) and was cleared by the flight operations supervisor to land as number 1. A moment later, the right base for runway 03 was also reported by the instructor of the Tecnam, who was carrying out a familiarisation flight. He was cleared to make the approach as number 2, which he acknowledged. The instructor pilot of the Tecnam stated that he had been watching the Skyvan, which was making its approach ahead of him, and that he was building up an appropriate separation between the aircraft. The Skyvan turned onto final approach for runway 03 and reported its position. The flight operations supervisor issued a landing clearance. This was the last transmission from the pilot of the Skyvan. The pilot of the Tecnam reported that, after turning onto final approach to land, the Skyvan had climbed while simultaneously banking to the right and turning right; after turning through approximately 90°, the aircraft lowered its nose and, continuing the turn, entered a dive; after a few seconds in a steep dive it collided with the ground approximately two kilometres from the threshold of runway 03L (Figs 6 and 7), on a heading opposite to the landing direction. On the basis of an analysis of the available material, including recordings from the aerodrome and private-property cameras, it may be assumed that the aircraft was stalled at the moment it performed the pull-up. The pilot reacted correctly and stopped the aircraft's rotation about its longitudinal axis; however, because of the low altitude he was unable to recover the aircraft from the dive and it collided with the ground at a steep angle.



Fig. 6. Frame-by-frame stills of the final phase of the flight, footage from the aerodrome CCTV camera.

(source: EPPT aerodrome)



Fig. 7. Frame-by-frame stills of the aircraft before the impact and of the impact itself (source: CCTV camera on private property)

The pilot of the Tecnam informed the flight operations supervisor of the Skyvan's collision with the ground. The flight operations supervisor instructed the pilot to fly towards the site of the occurrence in order to indicate the accident site to the emergency services. The flight operations supervisor notified the emergency services of the occurrence. The pilot of the Tecnam orbited over the impact site until the emergency services arrived and then landed on runway 03L.

As a result of the occurrence, the pilot and the passenger of the Skyvan were killed on the spot and the aircraft was completely destroyed.

2.2. Air operations

2.2.1. Crew qualifications and experience.

The pilot had the appropriate qualifications and experience to carry out the flights; he also knew the aerodrome and its vicinity and regularly flew from that aerodrome both as an instructor and as a pilot dropping parachutists. The pilot was also a post-holder in Aeroklub Ziemi Piotrkowskiej. On the day of the accident, the pilot made three parachute jumps as a tandem pilot; the jumps were made on the 2nd, 5th and 8th flights. On the second flight, he made a tandem jump with the passenger who subsequently died with him in the accident.

2.2.2. Operational factors.

Under the provisions of the Operator's IO, the designation of pilots and the supervision of the flights performed on a given day are the responsibility of the Flight Operations Manager. The pilot who had flown earlier stated that he had been surprised by the change of pilot for the subsequent flights, but thought that it had been agreed with the person responsible and took no further interest in the matter. He handed the aircraft over to the pilot and went to the operator's building. The pilot who flew the aircraft on the sortie that ended in the accident took on board a person who was not involved in the parachute-dropping operations and who, under the applicable rules (see point 1.17 of the Report), should not have been on board the aircraft. The person acting as Flight Operations Manager on the day of the accident stated that neither the change of pilots nor the taking of an additional person on board the aircraft had been agreed with that person.

2.2.3. Weather.

The flights on the day of the accident were carried out in VMC; the weather had no impact on the occurrence.

2.2.4. Aeronautical communications.

The pilot carried out correspondence with the flight operations supervisor. The Commission listened to the correspondence and found no irregularities in the conduct of correspondence with either the pilot of the Skyvan or the pilot of the Tecnam. The pilot of the Skyvan did not report any comments concerning the aircraft or the traffic situation over the aerodrome. The correspondence was conducted in accordance with the procedures for this type of operation.

2.3. Aircraft

2.3.1. Aircraft maintenance

The aircraft was maintained in accordance with maintenance programme doc. No. POT/SC7/01, issue 1, rev. 5, by a Part 145 maintenance organisation whose scope of approval covers the maintenance of the SC-7 aircraft. The maintenance documentation secured after the accident, in the form of CRS No. Z03/08/2022 of 29.08.2022, indicated operating hours for the airframe, the engines and the propellers that were significantly lower than those recorded in the airframe, engine and propeller logbooks. The Operator subsequently produced a corrected certificate, CRS No. Z03/08/2022/K of 05.08.2022. As with CRS No. Z03/08/2022, MS No. 01/HIP/08/2022 of 29.08.2022 indicated operating hours for the airframe, the engines and the propellers that were significantly lower than those recorded in the airframe, engine and propeller logbooks. According to the entries in that MS, the last maintenance was certified by CRS No. Z03/07/2022 of 29.08.2022. No certificate bearing that number appears in the documentation of aircraft SP-HIP.

The certificates of release to service of 29.03.2022 (CRS No. Z02/01/2022), 29.04.2022 (CRS No. Z02/04/2022), 03.06.2022 (CRS Z02/05/2022), 05.07.2022 (CRS No. Z02/06/2022), 05.08.2022 (CRS No. Z03/08/2022/K) and 29.08.2022 (CRS No. Z03/08/2022) were signed by certifying staff whose certification privileges under their aircraft maintenance licence had expired on 22.03.2022 because of the expiry of that aircraft maintenance licence.

The lack of validity of the certifying staff's privileges was not found to have had any effect on the course of the occurrence.

In email correspondence, the Operator advised that the errors appearing on the CRS, MS and technical log documents held by the Commission were the result of a counting-system error. At the same time, however, technical log No. 023/2022 of 03.09.2022 recorded, before the first flight on the day of the accident, a total airframe flight time of 6,232 h 17 min, that is to say slightly higher than the figure given in CRS No. Z03/08/2022 and MS No. 01/HIP/08/2022. The consistency of the flight times in the CRS, the MS and the technical log does indeed point to a counting-system error on the part of the continuing airworthiness management organisation which issued the aircraft's MS and the maintenance work order and which checked and archived the technical log.

The errors in the CRS, the MS and the technical log were not found to have had any effect on the course of the occurrence.

2.3.2. Aircraft operation

The aircraft was operating correctly before the occurrence. No unrectified defects capable of affecting the safety of the operations performed were recorded in the continuing airworthiness documentation. The post-occurrence inspection revealed no defects or malfunctions of the aircraft capable of contributing to the occurrence.

2.3.3. Mass and balance

The aircraft's mass and the position of the centre of gravity at the time of the accident were within the limits specified in the AFM. Mass and balance were not found to have contributed to the occurrence

2.3.4. Aircraft instruments

At the time of the accident, the aircraft was fitted with the instruments required to carry out parachute-dropping operations. No instrument defects were found, nor any effect of such defects on the occurrence.

2.3.5. Aircraft systems

The aircraft systems were operating correctly before the occurrence. No system, installation or part of the aircraft was found to have had any effect on the accident.

2.4. Survival

2.4.1. Actions of the emergency services.

The emergency services arrived at the accident site within a few minutes and secured the site of the occurrence. The bodies of the pilot and the passenger were found in the aircraft wreckage. The paramedics confirmed that the persons on board the aircraft had died as a result of the accident.

2.4.2. Survival aspects

The pilot and the passenger had no chance of survival. The aircraft collided with the ground at high speed and at a steep angle.

3. CONCLUSIONS

3.1. Findings

1. The pilot held the appropriate licence and aero-medical certificate and was rested for the flight.
2. The pilot carried out standard radio communications with the relevant ATC units and with the flight operations supervisor.
3. No evidence was found that the pilot's behaviour was affected by incapacity to perform duties or by physiological factors.
4. Neither the change of pilot nor the presence of the passenger on board had been agreed with the Flight Operations Manager.
5. The aircraft was certified and equipped in accordance with applicable regulations and approved procedures.
6. The aircraft had a valid certificate of airworthiness.
7. The aircraft's mass and centre of gravity were within the regulatory limits.
8. No evidence of malfunction or failure of the aircraft was identified that could have contributed to the accident.
9. All control surfaces were recovered, and all of the damage to the aircraft can be attributed to considerable impact forces.
10. Damage to the propeller blades indicated that the engines were producing power at the moment of impact.
11. Irregularities concerning flight time and the number of flights were found in the aircraft documentation.
12. Maintenance of the aircraft from 29.03.2022 until the day of the accident was certified by staff whose certification privileges under their aircraft maintenance licence had expired.
13. During the approach to land, the aircraft entered an uncontrolled turn to the right.
14. The low altitude did not allow the aircraft to be recovered from the dive.
15. Weather conditions had no impact on the accident.

3.2. Causes and contributing factors

The Commission did not determine the cause of the probable stall of the aircraft during the approach to land.

4. SAFETY RECOMMENDATIONS

The Commission did not issue any safety recommendations.

Signature on the original