الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY

United Arab Emirates

Air Accident Investigation Sector

Accident

- Preliminary Report -

AAIS Case Nº: AIFN/0001/2024

Helicopter Ground Impact During Landing

Operator:	Falcon Aviation Services (FAS)
Make and Model:	Leonardo S.p.A AW109SP
Nationality and Registration:	The United Arab Emirates, A6-RRR
Place of Occurrence:	Private Helipad, Ajman
State of Occurrence:	The United Arab Emirates
Date of Occurrence:	7 January 2024

Occurrence Brief

Occurrence Reference:	AIFN/0001/2024
Occurrence Classification:	Accident
Name of the Operator:	Falcon Aviation Services (FAS)
Manufacturer:	Leonardo S.p.A
Aircraft Model:	AW109SP
Engines:	Twin-Engines, PW207C Pratt & Whitney Canada
Nationality:	The United Arab Emirates
Registration Marks:	A6-RRR
Manufacturer Serial Number:	22353
Year of Manufacture:	2020
Flight Hours Since New:	1015:20
Cycles Since New:	2,630
Type of Flight:	Private flight
State of Occurrence:	The United Arab Emirates
Place of Occurrence:	Ajman
Date and Time:	7 January 2024, 2022 LT (1622 UTC)
Total Crewmembers:	One pilot
Total Passengers:	None
Injuries to Passengers and Crew:	None
Other Injuries:	None
Nature of Damage:	Substantial

Investigation Objective

This Investigation is conducted pursuant to the United Arab Emirates (UAE) *Federal Act No. 20 of 1991*, promulgating the *Civil Aviation Law, Chapter VII- Aircraft Accidents,* Article 48. It is in compliance with the *Air Accident and Incident Investigation Regulation (AAIR),* and in conformity with *Annex 13* to the Convention on International Civil Aviation.

The sole objective of this Investigation is to prevent aircraft accidents and incidents. It is not the purpose of this activity to apportion blame or liability.

The information contained in this Preliminary Report is derived from the data collected during the ongoing investigation of the Accident. Later Interim Statements, if any, or the Final Report may contain altered information in case of appearance of new evidence during the ongoing investigation.

Investigation Process

The Air Accident Investigation Sector (AAIS) of the United Arab Emirates was notified about the Accident at 2030 LT of the United Arab Emirates. The Occurrence was notified by the Safety Manager of Falcon Aviation Services (FAS), to the AAIS Duty Investigator (DI) hotline number +971506414667.

The occurrence was classified as 'Accident' and the AAIS assigned an Accident Investigation File Number AIFN/0001/2024 for the case.

The AAIS formed the Investigation team led by the investigator-in-charge (IIC) and members from the AAIS for different investigation areas. The Agenzia Nazionale per la Sicurezza del Volo (ANSV) of Italy, being the State of the Manufacture and Design, and the Transportation Safety Board of Canada, being the State of Manufacture of the engines, were notified of the Accident and both States assigned accredited representatives assisted by advisers from Leonardo S.p.A. and Pratt & Whitney. In addition, the Operator assigned an adviser to the IIC. The AAIS is leading the Investigation and will issue a Final Report.

This Preliminary Report is publicly available at:

https://www.gcaa.gov.ae/en/departments/airaccidentinvestigation/Pages/InvestigationReports.aspx

Notes:

1. Whenever the following words are mentioned in this Report with first Capital letter, they shall mean the following:
   - (Accident) – this investigated accident
   - (Helicopter) – the helicopter involved in this accident
   - (Investigation) – the investigation into the circumstances of this accident
   - (Operator) – Falcon Aviation Services
   - (Pilot) – the pilot of this accident flight
   - (Report) – this Preliminary Report.
2. Unless otherwise mentioned, all times in this Report are LT of the United Arab Emirates (UTC plus 4 hours).
3. Photos and figures used in this Report are taken from different sources and are adjusted from the original for the sole purpose to improve the clarity of the Report. Modifications to images used in this Report are limited to cropping, magnification, file compression, or enhancement of color, brightness, contrast, or addition of text boxes, arrows or lines.

Abbreviations

AAIR	*Air Accident and Incident Investigation Regulation* of the United Arab Emirates
AAIS	The Air Accident Investigation Sector of the United Arab Emirates
ANSV	Agenzia Nazionale per la Sicurezza del Volo of Italy
AOC	Air operator certificate
ATC	Air traffic control
ATPL-H	Air transport pilot license-Helicopter
CSI	Cycles since installed
CSN	Cycles since new
CSO	Cycles since overhaul
GCAA	The General Civil Aviation Authority of the United Arab Emirates
GPS	Global positioning system
ICAO	The International Civil Aviation Organization
IIC	Investigator-in-charge
MSN	Manufacturer serial number
QRH	Quick reference handbook
SOP	Standard operating procedures
TSB	The Transport Safety Board of Canada
TSI	Time since installed
TSN	Time since new
TSO	Time since overhaul
UTC	Coordinated universal time

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1. Factual Information

1.1 History of the Flight

On 7 January 2024, a Leonardo S.p.A AW109SP Helicopter, registration mark A6-RRR, was scheduled for a private flight operation from a private heliport, Ajman, the United Arab Emirates, to a temporary heliport located in Al Zohra, Ajman, 15 nautical miles from Sharjah International Airport, the United Arab Emirates. The Pilot, who was occupying the right seat, was the only person onboard.

Before departure, at about 1927 LT of the United Arab Emirates, the Pilot contacted Sharjah Tower, provided the assigned squawk code, and informed the Tower about the purpose of the flight, which was to relocate the Aircraft from a private location, to Al Zorah beach to pick up passengers, and then perform a flight to Dubai Police Academy in Dubai, United Arab Emirates, navigating through the Victor Romeo 3 waypoint. In response, the Tower issued instructions to maintain an altitude below 500 feet and requested a report upon airborne. The Helicopter took off at 1930, climbed to 500 feet, and proceeded towards Al Zorah.

A few minutes after takeoff, the Pilot attempted to land in Al Zorah. While on final approach, the Pilot visually inspected the landing area, emphasizing the middle ‘H’ marking, that was illuminated by two police cars. As the Helicopter descended, there was a sudden powder spread out into the air caused by the ‘H’ ground marking, as stated by the Pilot and eyewitnesses, caused by the Helicopter's downwash effect. This condition, created no reference points visually available, making it challenging to proceed with the landing as the Pilot stated.

Thereafter, the Helicopter rolled over to the right, leading to the main rotor blades striking the ground and subsequently bringing the Helicopter in a resting position on the ground, tilted to the right.

1.2 Injuries to Persons

The Pilot vacated the Helicopter safely with no injuries.

1.3 Damage to the Helicopter

The Helicopter was substantially damaged due to the ground impact of its main rotor blades and right-side structure (figure 1).

Figure 1. Structural damage

1.4 Other Damage

There were no other damages.

1.5 Personnel Information

The qualifications and experience of the Pilot at the time of the Accident were as shown in table 1.

Table 1. Pilot data

	Pilot
Age	56
Type of license	ATPL-H (air transport pilot license for helicopter)
Valid to	21 August 2031
Rating	AS350/EC130, AW109 Instructor and Examiner (TRI and TRE) for EC130-B4
Total flying time (hours)	9,002
Total command on this type (hours)	437
Total last 12 months (hours)	189.8
Total last 90 days (hours)	44
Total last 28 days (hours)	16.9
Total last 7 days (hours)	11.4
Total last 24 hours (hours)	4
Last recurrent training	8 July 2023
Last proficiency check	8 July 2023
Last line check	24 February 2023
Medical class, validity	Class 1, 20 February 2024
Medical limitation	VML[1]
English language proficiency (ELP)	Level 5

1.6 Helicopter Information

1.6.1 General data

Table 2 illustrates the Helicopter general data.

Table 1. Helicopter data

Manufacturer	Leonardo S.p.A
Model	AW109SP
MSN	22353
Date of manufacture	February 2016
Nationality and registration marks	United Arab Emirates, A6-RRR
Name of the Operator	Falcon Aviation Services
Certificate of registration	

[1] VML — Wear multifocal spectacles and carry a spare set of spectacles: Correction for defective distant, intermediate and near vision: whilst exercising the privileges of the license, the license holder should wear spectacles that correct for defective distant, intermediate and near vision as examined and approved by the AeMC or AME. Contact lenses or full frame spectacles, when either correct for near vision only, may not be worn.

Number	UAE-COR-1202
Issuing authority	General Civil Aviation Authority
Issuance date	11 January 2021
Certificate of airworthiness	
Number	UAE-COR-0661
Issuing authority:	General Civil Aviation Authority
Issuance date	31 January 2021
Valid to	*Airworthiness Review Certificate ARC-FAS-RRR-3*, 30 January 2024
Airworthiness Review Certificate	
Number	ARC-FAS-RRR-3
Valid to	30 January 2024
Time since new (hours)	1,015:20
Cycles since new	2,630
Last major inspection check, type, date and hours/cycles	200 hours/6 Months Inspection, and/or 12 months Inspection, 8 November 2023, at 996:45 hours/2,569 cycles
Time since last major inspection	18:35 hours
Cycles since last major inspection	61 cycles
Last inspection, type, date and hours/cycles:	90 Days Corrosion Prevention & Control Program Task, 4 January 2024, at 1,014:05 hours/2,626 cycles
Maximum take-off weight (kg)	3,175
Maximum zero fuel weight (kg)	2,326
Take-off weight (kg)	2,700
Take-off fuel weight (kg) (for the Accident flight)	300
Landing fuel weight (kg) (for the Accident flight)	285

1.6.2 Engine data

Table 3 illustrates the engine data.

Table 2. Engine data

Engine manufacturer	Pratt & Whitney	
	No.1 engine	No.2 engine
Model	PW207C	PW207C
Serial number	PCE-BH0763	PCE-BH0794
Date installed	12 November 2015 (about 3 months before the delivery)	18 November 2015 (about 3 months before the delivery)
Time since new (hours)	1,015:20	1,015:20
Cycles since new	2,256	2,252
Time since last inspection (hours)	1015:20 (at installation)	1015:20 (at installation)

1.7 Meteorological Information

1.7.1 OMSJ weather report

Table 4 describes the METAR for Sharjah International Airport on 7 January 2024, at 1500 UTC (1900 LT) which was given as below.

METAR OMSJ 071500Z 30004KT CAVOK 22/14 Q1019 N0SIG

Table 4. Description of METAR	
Wind	Direction 300 degrees/speed 4 knots
Visibility	10 kilometers or more, no clouds
OAT	22°C
Dew point	14°C
Pressure (Altimeter)	1019 mbar
Condition	No significant change of the weather

No weather station was available at the landing site.

1.8 Aids to Navigation

At the time of the Accident, the helipad was not equipped with the required aids such as the lighting system and windsock, as it had not yet granted a certificate from the GCAA as per The *Civil Aviation Regulations* of the United Arab Emirates, *CAR-AIR OPS – PART-Commercial Air Transport. (*More details mentioned in 1.18 section).

1.9 Communications

The only communications for the flight were conducted between the Pilot and Sharjah Tower before takeoff. The communication was clear and normal.

1.10 Helipad Information

The landing helipad was not certificated.

1.11 Flight Recorders

The Helicopter was not equipped with a flight data recorder (FDR) or cockpit voice recorder (CVR), and it was not required to be equipped with these recorders according to FDR/CVR relevant provisions in *CAR-OPS 3 − Commercial & Private Air Transportation (Helicopter).*

1.12 Wreckage and Impact Information

The Helicopter was substantially damaged as a result of ground impact.

1.13 Medical and Pathological Information

Drug and Alcohol test did not reveal any sign of psychoactive substance that could have adversely affected the Pilot performance.

1.14 Fire

There was no sign of fire.

1.15 Survival Aspects

The Pilot did not sustain any injuries.

1.16 Tests and Research

To be discussed in the Final Report.

1.17 Organizational and Management Information

To be discussed in the Final Report.

1.18 Additional Information

According to *CAR-AIR OPS –- Commercial Air Transport*[2]*:*

"(b) To operate on a temporary operating site, the operator should:

(1) Conduct and document an operational safety risk assessment prior to the conduct of operations. The risk assessment should include, but not limited to, the following hazards:

(i) Obstacles around the area;

(ii) Performance limitations of the aircraft;

(iii) Route/Role/Area qualification of pilots;

(iv) Weather conditions;

(v) Crew composition, qualification, competence and experience;

(vi) Passenger handling and crowd controlling;

(vii) Emergency Response and RFFS;

(viii) National Security; and

(ix) Any other condition.

(2) Notify GCAA Principal Flight Operations Inspector prior to the operation with the following documents:

(i) CAT.OP.MPA. 105.G;

(ii) No objection from the owner of the landing area; and

(iii) Safety risk assessment with the risk acceptance.

…"

1.19 Useful or Effective Investigation Techniques

The techniques employed during this Investigation will be outlined in detail in the Final Report.

2. Ongoing Investigation Activities

The Investigation is ongoing and will include further examination and analysis of:

- Helicopter's performance
- Helicopter's technical and engineering, including history of the maintenance
- Landing helipad facilities with temporary certification status.
- Operator policy, procedure, and management, including organizational factors

[2] Reference: CAR-AIR OPS – PART - Commercial Air Transport - Subpart B -Operating Procedures, Section 1 − Motor-Powered Aircraft, AMC2 CAT.OP.MPA. 105.G Use of aerodromes and operating sites the procedure to operate on a temporary operating site.

- Human factors aspects
- Any other safety aspects that may arise during the course of this Investigation.

All relevant factual information and its associated analysis, conclusions, and safety recommendations will be included in the Final Report.

3. Safety Concerns and Actions

Till date, the Investigation had not yet identified safety issues that necessitate prompt rectifications.

This Report is issued by:

The Air Accident Investigation Sector
The United Arab Emirates

P.O. Box 6558
Abu Dhabi, United Arab Emirates
E-mail: aai@gcaa.gov.ae
Website: www.gcaa.gov.ae