

ULM A-016/2022

TECHNICAL REPORT

Accident involving an ICP SAVANNAH VG 912 homebuilt ULM aircraft, registration EC- XTX, on 11 June 2022 at Villanueva de la Cañada Aerodrome, in the municipality of Villanueva de la Cañada (Madrid – Spain).

Please note that this report is not presented in its final layout and therefore it could include minor errors or need type corrections, but not related to its content. The final layout with its NIPO included (Identification Number for Official Publications) will substitute the present report when available.



FOREWORD

This report is a technical document that reflects the point of view of the Civil Aviation Accident and Incident Investigation Commission (CIAIAC) regarding the circumstances of the accident the object of the investigation, its probable causes, and its consequences.

In accordance with the provisions of Article 5.4.1 of Annex 13 of the International Civil Aviation Convention; Article 5.6 of Regulation (EU) No 996/2010 of the European Parliament and of the Council, of 20 October 2010; Article 15 of Law 21/2003 on Air Safety; and Articles 1 and 21.2 of Regulation 389/1998, this investigation is exclusively of a technical nature, and its objective is the prevention of future aviation accidents and incidents by issuing, if necessary, safety recommendations to prevent their recurrence. The investigation is not intended to attribute any blame or liability whatsoever, and it's not prejudging the possible decision taken by the judicial authorities. Therefore, and according to above norms and regulations, the investigation was carried out using procedures not necessarily subject to the guarantees and rights usually used for the evidence in a judicial process.

Consequently, the use of this report for purposes other than that of preventing of future accidents may lead to erroneous conclusions or interpretations.

This report was originally issued in Spanish. This English translation is provided for information purposes only.

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ABBREVIATIONS

00:00	Hours and minutes (period of time)
00.00:00.....	Hours, minutes, and seconds (chronological time)
°C	Degrees Celsius
AESA.....	Spain's National Aviation Safety Agency
C.G.	Centre of gravity
DCG	Weight-shift control rating
dd/mm/yyyy	Day, month, and year (date)
ft	Feet
HP	Horsepower
kg.....	Kilogrammes
km/h.....	Kilometres per hour
LAPL	Light aircraft pilot license
m.	Metres
MAF.....	Multi-axis fixed-wing
PK.....	Kilometre point
rpm	Revolutions per minute
TULM.....	Ultralight aircraft pilot license
ULM.....	Motorised ultralight aircraft
UTC	Coordinated universal time
VFR	Visual flight rules

SYNOPSIS

Owner and Operator:	Private
Aircraft:	HOME BUILT ULM ICP SAVANNAH VG 912, registration EC-XTX
Date and time of the accident:	11 June 2022, at 09:30 hours ⁽¹⁾
Site of the accident:	Villanueva de la Cañada Aerodrome, municipality of Villanueva de la Cañada (Madrid – Spain).
Persons on board:	1 crew, unharmed.
Type of flight:	General aviation - Private
Flight rules:	Visual flight rules (VFR)
Phase of flight:	Landing – Landing roll
Date of approval:	27 th September 2023

Summary of the accident.

The homebuilt ICP SAVANNAH VG 912 ULM aircraft, registration EC-XTX, took off at 09:15 hours from runway 03 at Villanueva de la Cañada Aerodrome (Madrid) with the pilot as the only occupant on board, to fly circuits of the aerodrome's traffic pattern.

After completing the first circuit, with a touch and go, the aircraft flew a second circuit, intending to make a final full-stop landing. On landing, the aircraft made initial contact with the runway on its main landing gear, lifted back into the air and then made contact again, this time with its forward landing gear, which buckled backwards, causing the propeller to hit the ground. The pilot was unhurt, but the aircraft suffered significant damage.

The investigation has determined that the accident was produced by an incorrectly executed landing manoeuvre, which caused the aircraft to make abnormal contact with the runway, resulting in a bounce that was not adequately corrected.

No operational safety recommendations were issued as a result of the investigation into the accident.

⁽¹⁾ All times referenced in this report are local time.
UTC can be calculated by subtracting two hours from the local time.

1.- FACTUAL INFORMATION.

1.1.- History of the flight.

The homebuilt ICP SAVANNAH VG 912 ULM aircraft, registration EC-XTX, took off at 09:15 hours from runway 03 at Villanueva de la Cañada Aerodrome (Madrid) with the pilot as the only occupant on board, to fly circuits of the aerodrome's traffic pattern.

According to the information provided by the pilot, after completing the first circuit, with a touch and go, he flew a second circuit, intending to make a final full-stop landing.

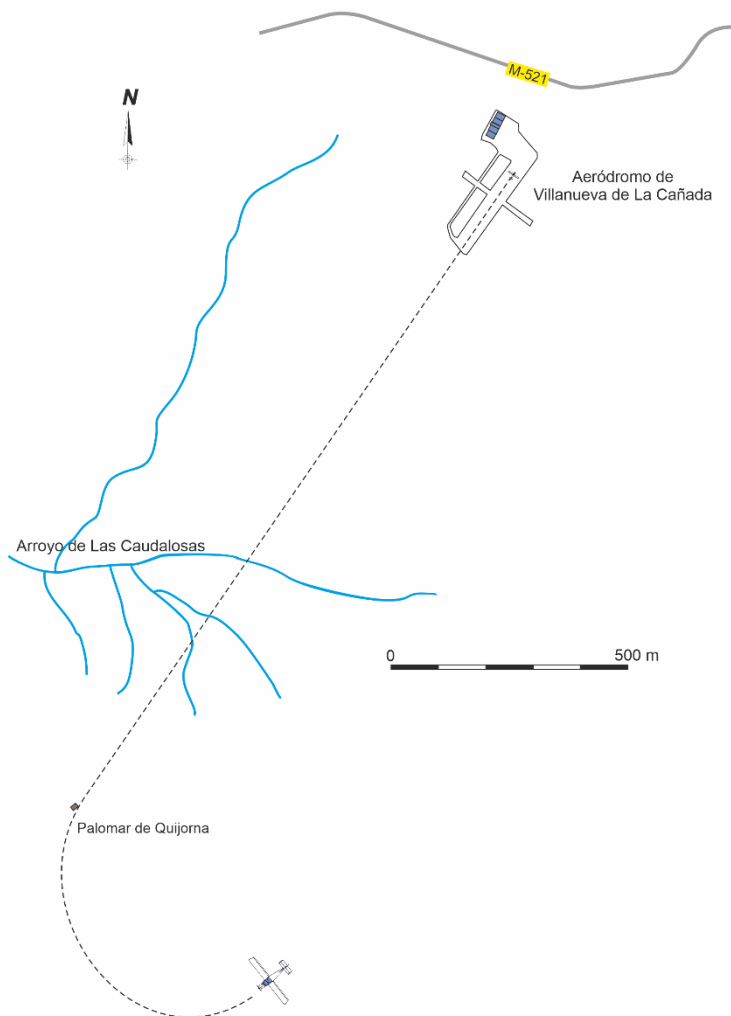


Figure 1.- The aircraft's trajectory.

After the second take-off, he joined the downwind leg, turned to the base leg when he reached Palomar de Quijorna, which sits on the extension of the runway centreline at a distance of approximately 1,200 m from the runway 03 threshold, and began the approach to runway 03.

The landing was witnessed by the flight manager of the Villanueva de la Cañada Aeroclub; according to both the pilot and the flight manager, the aircraft made initial contact with the runway on its main landing gear. It then bounced into the air and came back down in a nose-down attitude, hitting the ground with its nose landing gear, which buckled on impact and caused the propeller to strike the ground. After travelling a short distance, the aircraft came to a stop just past the centre of the runway, at the intersection with runway 12/30.

The pilot was unharmed and evacuated the aircraft without assistance.

Figure 1 shows the path of the aircraft, based on the information provided by the pilot and the final position of the aircraft.

1.2.- Injuries to persons.

<i>Injuries</i>	<i>Crew</i>	<i>Passengers</i>	<i>Total in the aircraft</i>	<i>Others</i>
Fatalities				
Serious				
Minor				N/A
None	1		1	N/A
TOTAL	1		1	

1.3.- Damage to the aircraft.

As a result of the accident, the aircraft sustained damage to its forward landing gear, lower engine cowling, engine cooling circuit radiator and propeller.

1.4.- Other damage.

There was no other damage.

1.5.- Personnel information.

The 59-year-old pilot had an ultralight pilot licence (TULM) dated 29/05/2008, with weight-shift control (DCG) and multi-axis fixed-wing (MAF) ratings valid until 31/10/2023, all issued by Spain's National Aviation Safety Agency (AESA).

He also had an LAPL medical certificate, issued on 07/12/2021 and valid until 07/12/2023.

According to the information provided by the pilot, his experience was 420:30 flight hours, of which approximately 100 were in DCG, and 46 were in the type of aircraft involved in the accident.

1.6.- Aircraft information.

The homebuilt ICP SAVANNAH VG 912 ULM aircraft, registration EC-XTX, is a two-seat, side-by-side, high-wing aircraft with flaps and ailerons combined into flaperons, a full-metal with load-resisting panels airframe and tricycle landing gear, assembled from a kit designed and manufactured by ICP srl, Italy. It is powered by a Rotax 912 UL engine, capable of delivering a maximum power output of 80 HP at 5,800 rpm, and a DUC composite (carbon fibre) two-bladed, ground-adjustable propeller, 172 cm in diameter.

It has a wingspan of 8.98 metres, a length of 6.40 metres and measures 2.58 metres tall at its highest point.

1.6.1.- Airframe.

Manufacturer: Private (Homebuilt)
Model: ULM ICP SAVANNAH VG 912
Manufacturing No.: 19009-2883
Year of manufacture: 2021
Registration number: EC- XTX
Operator: Private

1.6.2.- Certificate of airworthiness.

Class: Special restricted
Category: Private
Technical performance: Normal
Aircraft for visual flight only
Date of issue: 16/07/2021
Validity: 15/07/2023

1.6.3.- Maintenance records.

Total flight hours: 76:20
Last 50-hour overhaul: 20/02/2022
Hours since last 50-hour overhaul: 49:40

1.6:4.- Engine.

Make: ROTAX
Model: 912 UL
Manufacturing No.: 3792767
Flight hours and maintenance interventions as airframe.

1.7.- Meteorological information.

There were no limiting meteorological conditions for visual flight.

At the time of the accident, the sky above Villanueva de la Cañada Aerodrome was clear, there was a light north-easterly wind of 10 to 12 km/h, and the temperature was 30 °C.

1.8.- Aids to navigation.

Not applicable. The flight was operating under visual flight rules.

1.9.- Communications.

Not applicable. The aircraft was not equipped with communications devices.

1.10.- Aerodrome information.

The Villanueva de la Cañada Aerodrome is located at kilometre 2 of the M-521 road in the municipality of Villanueva de la Cañada (Madrid - Spain). Its reference point (40° 26' 12" N 04° 01' 30" W) has an elevation of 652 m / 2,140 ft. It has two compacted earth runways with 03/21 and 12/30 orientations, measuring 260 x 40 m and 150 x 15 m, respectively. It should be noted that runway 03/21 has a 2% slope running uphill from runway head 03 to 21.

It has a designated traffic circuit to the east of the airfield, at a height of 400 ft above the ground.

1.11.- Flight recorders.

The aircraft was not equipped with flight recorders. They are not a requirement for the type.

1.12.- Wreckage and impact information.

The aircraft's initial contact with the ground was made with the main landing gear wheels 50 m from the threshold of runway 03. It bounced back into the air, then fell 60 m further along the runway in a nose-down attitude, landing on its nose leg, which subsequently collapsed and caused the propeller to strike the ground while rotating, breaking the blade tips; the aircraft then travelled a further 40 m, stopping just past the centre of the runway, 150 m from the threshold.

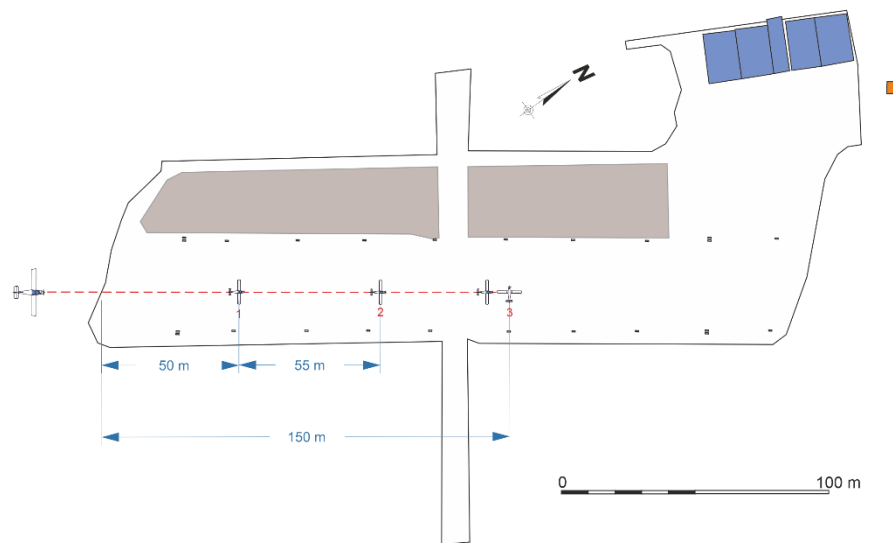


Figure 2 - Final approach and the aircraft's trajectory on the ground

The sketch in figure 2 shows the points at which the aircraft made contact with the ground and its final position.

1.13.- Medical and pathological information.

The pilot was unhurt and did not require medical assistance.

1.14.- Fire.

There was no fire.

1.15.- Survival aspects.

The harnesses and restraint systems worked adequately, and the cabin interior maintained its structural integrity.

1.16.- Tests and research.

1.16.1 - Inspection of the aircraft wreckage.

The aircraft was inspected where it was usually kept in the hangar at Villanueva de la Cañada Aerodrome by investigators from the Civil Aviation Accident and Incident Investigation Commission.

During the inspection, the following damage to the aircraft was noted:

- Rearward collapse of the nose landing gear, with the wheel resting on the underside of the fuselage.
- Breakages and deformations in the lower engine cowling due to impact and dragging.

- Deformations, due to impact and dragging, on the lower part of the cooling circuit radiator of the engine's cylinder heads.
- Breakage of the propeller blade tips due to impact with the ground while the propeller was rotating with power applied.

Figures 3 and 4 show photographs of the damage described. No further damage was identified.



Figure 3.- General view of damage and detail of the engine coolant radiator.



Figure 4.- Close-up of the buckled forward undercarriage

With regard to the condition of the aircraft, the control systems and components of the aircraft and engine were found to be in good condition; no components were found to be in a visible state of disrepair, nor was there any evidence that any aircraft or engine component had malfunctioned.

1.17 - Organisational and management information.

Not applicable.

1.18.- Additional information.

Not considered necessary for the investigation into this accident.

1.19.- Useful or effective investigation techniques.

None applied.

2.- ANALYSIS.

On Saturday, 11 June 2022, at approximately 09:15 hours, the aircraft took off from runway 03 at Villanueva de la Cañada Aerodrome with the pilot as the only occupant on board, to fly circuits of the aerodrome's traffic pattern.

The weather conditions were suitable for the flight, with clear skies, good visibility and a light, near headwind.

After completing the first circuit, with a touch and go, the aircraft flew a second circuit, intending to make a final full-stop landing. On landing, the aircraft made initial contact with the runway on its main landing gear, lifted back into the air and then made contact again, this time with its forward landing gear, which buckled backwards and caused the propeller to hit the ground. The aircraft stopped shortly afterwards, just past the centre of the runway, at around 09:30 hours. The pilot was unharmed and evacuated the aircraft without assistance.

These circumstances suggest that the approach was made at an excessive speed that was not reduced sufficiently on the final leg, and that the flare was executed incorrectly, which meant that the rate of descent was not adequately reduced before contact with the runway, causing the aircraft to bounce and the pilot to lose control.

Once it was airborne again, the pilot could not regain adequate control of the aircraft, and it fell back to the ground in a nose-down attitude, initially contacting its nose gear, which collapsed.

3.- CONCLUSIONS.

3.1.- Findings.

- a) There were no limiting meteorological conditions for visual flight.
- b) After completing the first circuit, with a touch and go, the aircraft flew a second circuit, intending to make a final full-stop landing.
- c) On landing, the aircraft made initial contact with the runway on its main landing gear, bounced back into the air and then made contact again, this time with its forward landing gear, which buckled backwards, causing the propeller to hit the ground.

3.2.- Causes / Contributing factors.

The investigation has determined that the accident was produced by an incorrectly executed landing manoeuvre, which caused the aircraft to make abnormal contact with the runway, resulting in a bounce that was not adequately corrected.

4.- SAFETY RECOMMENDATIONS.

No safety recommendations have been issued as a result of the investigation into this accident.