

**FINAL REPORT ON THE ACCIDENT
OCCURRED ON 10 MAY 2008 AT
HARVENG
ON A AVIAT HUSKY A-1 REGISTERED
OO-HUS**

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FOREWORD

This report is a technical document that reflects the views of the investigation team on the circumstances that led to the accident,

In accordance with Annex 13 of the Convention on International Civil Aviation, it is not the purpose of aircraft accident investigation to apportion blame or liability. The sole objective of the investigation and the Final Report is the determination of the causes, and define recommendations in order to prevent future accidents and incidents.

In particular, Article 13 of the King's Decree of 9 December 1998 stipulates that the safety recommendations made in this report do not constitute any suspicion of guilt or responsibility in the accident.

Unless otherwise indicated, recommendations in this report are addressed to the Regulatory Authorities of the State having responsibility for the matters with which the recommendation is concerned. It is for those Authorities to decide what action is taken.

The investigation was conducted by L. Blendeman.

NOTE: For the purpose of this report, time will be indicated in UTC, unless otherwise specified.

Synopsis

Date: **10 May 2008**

Time: **16.33 UTC**

Type: **Sky International Inc. Aviat Husky A-1**

Operator: **Private**

Registration: **OO-HUS**
CofR /CofA Nr : **4772;**

msn : **1128**
Manufacturing Date: **January 1990**

Engine(s): **Textron Lycoming O-360-C1G (180 HP).**

Crew: **Fatality: 2 / Occupants: 2**

Aircraft Damage : **Total Loss**

Location: **Near the entrance to the castle of Harveng.
14 Km S-E of EBSG.
N 50°23,605'
E 003°59,061'.**

Phase: **In Flight.**
Nature: **Private**

Departure Airport: **EBZH**
Destination Airport: **EBSG**
Flight Number: **N/A**

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1. Factual Information

1.1. Chronology of the events

The airplane was put on sale by its owners, and was being presented to a potential buyer in EBZH.

The airplane arrived at 13.50 in EBZH, coming from EBSG with two persons on board, both holding a pilot license and having flown this airplane before.

The potential buyer made a 15 minutes local flight, to evaluate the airplane. After having discussed the possible sales of the airplane, the two persons got back to the airplane, and departed from EBZH one hour later.

The airplane can be flown from the two positions and each of the two occupants held a pilot's license and had flown with this aircraft before. It is therefore impossible to determine with certainty which of the two occupants was actually piloting the airplane at the moment of the crash. For the purpose of this report, we will designate the person sitting in front as the 1st pilot and the person sitting in the rear position as the 2nd pilot.

The flight from EBZH to EBSG occurred in a nearly straight line, except that the zone around Casteau (SHAPE) is restricted. The airplane went south, and came in the vicinity of the villages of Harmignies and Harveng.



Estimated Flight Path.

The airplane was seen by witnesses circling around the village center, first Harmignies, then Harveng. These people report the airplane flying at very low altitude, and performing “aerobatic” manoeuvres (sharp turns).

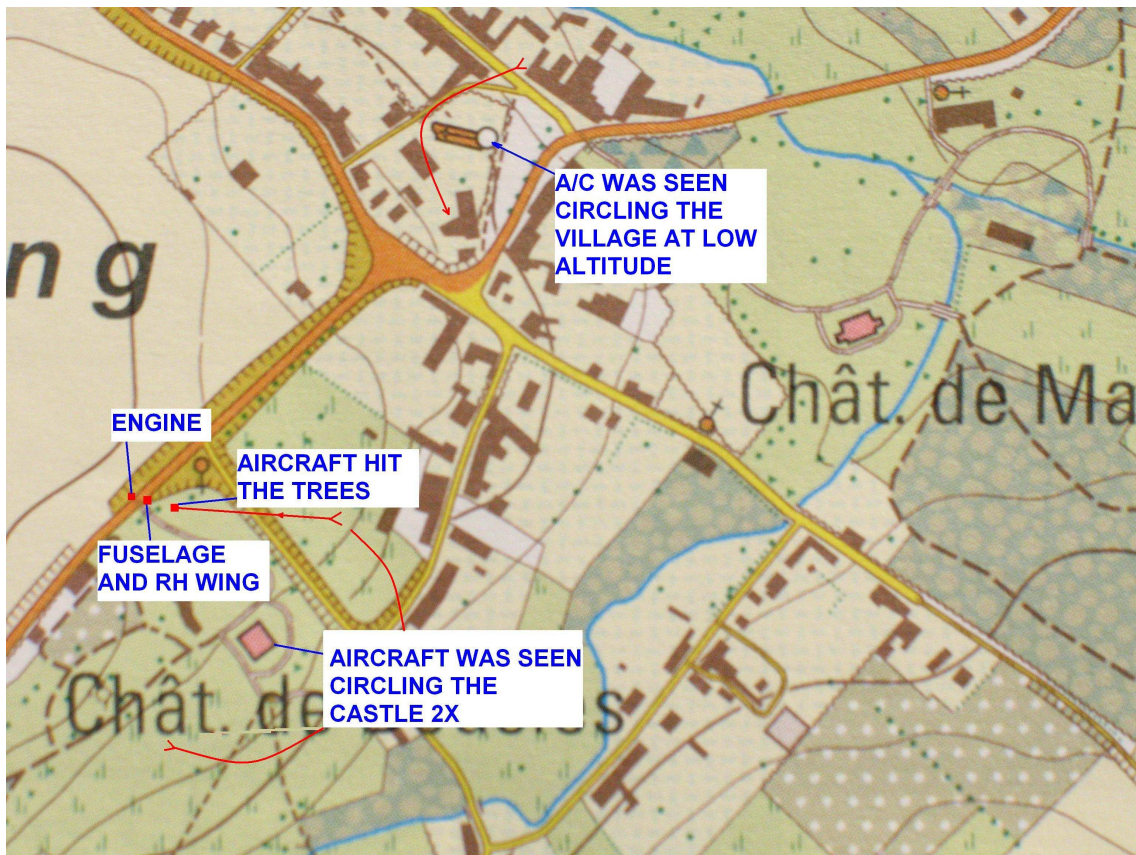
Finally, the airplane flew around Harveng’s castle, at tree top level. Upon completing the second circle, the airplane hit the tree bordering the main Harveng road (route Macadamisée).

The airplane hit a tree nose first; the crankshaft broke at the propeller flange, liberating the propeller. The left wing was severed by the impact, and remained caught in the tree, while the fuselage and right wing whirled down, and crashed before the gates of the castle.

The two persons on-board were killed instantly. The 1st pilot was ejected from the airplane, and was found, still attached to its seat, next to the engine, that also separated from the fuselage.

The 2nd pilot was still attached to his seat, inside the fuselage.

The airplane was totally destroyed. There were also a couple of tree trunk severed by the impact.



Crash Site

1.2. Injuries to persons

Injuries	Pilot	Passenger	Others	Total
Fatal	1	1	0	2
Serious	0	0	0	0
Minor	0	0	0	0
None	0	0	0	0
Total	1	1	0	2

1.3. Damage to aircraft

The aircraft was totally destroyed.

1.4. Other damage

The airplane hit several trees, whose trunks were severed.

1.5. Personnel information

1st Pilot (and co-owner)

Sex: Male

Age: 62 years-old

Nationality: Belgian

Licence: PPL (SEP land - French), issued on 12/03/2003 by conversion of an existing national licence issued on 06/07/2000; valid until 30/06/2009.
ULM licence, issued on 05/04/1996

The pilot had a total of 250 FH on Single Engine aircraft, from which 13 FH on OO-HUS (PIC) in the last 6 months.

2nd Pilot

Sex: Male

Age: 60 years-old

Nationality: Italian

Licence: PPL (SEP land - Belgian), first issued on 10/04/1996; issued on 26/11/2007; valid until 26/11/2012.

The pilot had a total of 400 FH on Single Engine aircraft (PIC), he flew occasionally on OO-HUS (DC).

1.6. Aircraft information

Aircraft

Airframe

Manufacturer: Christen (Aviat Industries)
Type: Husky A-1
Serial Number: 1128
Built year: 1990
Registration: OO-HUS
Certificate of Registration: 4772
Airworthiness
Review Certificate: Issued 8 August 2007, valid until 10 August 2008
Total Flight Hours: 597:12 FH

Engine

Manufacturer: Lycoming
Type: O-360-C1G
Serial: L-32401-36A
Power: 180HP
TT: 597:12 FH

Propeller

Manufacturer: Hartzell
Type: HC-C2YK-1BF
Serial: CH40436B

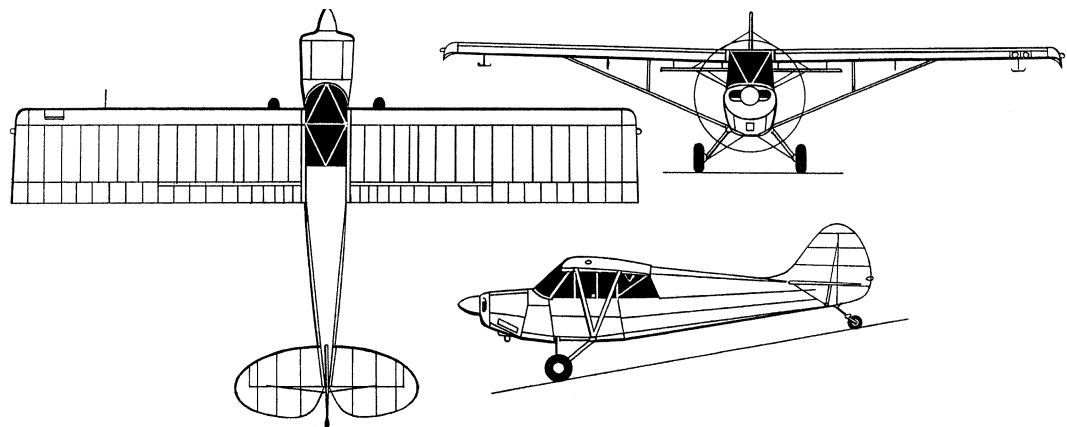
Owner

R Services SPRL.

The **Aviat Husky** (originally designed by Christen Industries in 1988) A-1 is a two-place tandem, dual control, high wing strut-braced monoplane with a fuselage, landing gear and empennage constructed of welded steel tubing and wing constructed of aluminum spars and ribs.

The entire airframe is covered with Dacron fabric.

The aircraft is equipped with an Hartzell constant speed propeller.



Maintenance.

The airplane was maintained in accordance with the manufacturer's maintenance programme, including a 50-hours and 100-hours inspection.

The 100-hours inspection was last performed in August 2007.

The annual inspection by BCAA for the renewal of the Airworthiness Review Certificate was last performed on 8 August 2007. Except for minor findings (small cracks in non-structural parts), the airplane was in good condition.

All applicable Airworthiness Directives were complied with.

1.7. Meteorological information

The METARs at Charleroi airport:

EBCI 10/05/2008 16:20:18 METAR EBCI 101620Z 05015KT CAVOK 25/07 Q1016 NOSIG=
EBCI 10/05/2008 16:50:20 METAR EBCI 101650Z 06014KT CAVOK 24/07 Q1016 NOSIG=

The meteorological conditions had no influence on this accident.

1.8. Aids to Navigation

Not applicable.

1.9. Communication

The airplane was equipped with a radio,. No distress signal was sent by the crew.

1.10. Airport information

Not applicable

1.11. Flight Recorders

Not applicable.

1.12. Wreckage and Impact information

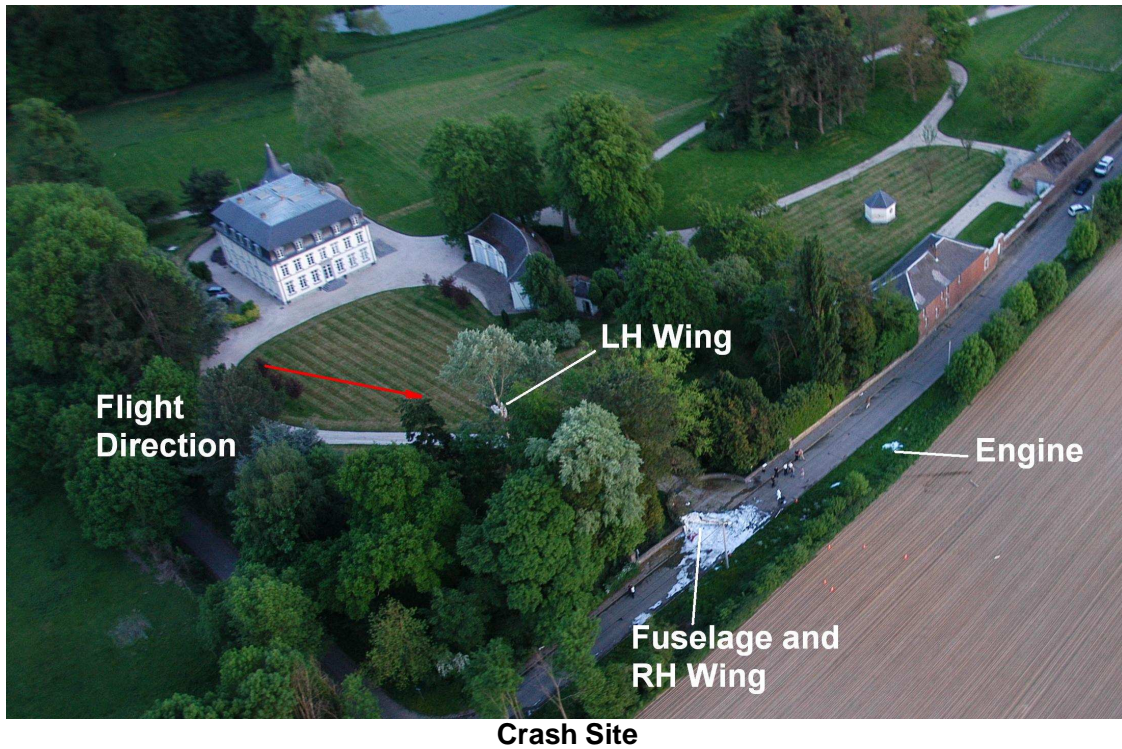
The airplane hit a tree nose first; the crankshaft broke at the propeller flange, liberating the propeller that fell inside the castle perimeter at the foot of a tree.

The left wing was severed by the impact, and remained caught in the tree.

The fuselage and right wing whirled down, and crashed before the gates of the castle.

The fuselage had the nose directed towards the castle, and the RH wing sat on top. The engine with the instrument board still attached was found at 9m from the fuselage, on the other side of the street.

The wheels were found inside the castle perimeter, close to the fence.



1.13. Medical and Pathological information

The two occupants were killed on impact.

1.14. Fire

There was no fire.

1.15. Survival Aspects

The two occupants were attached with their belly straps; they did not use the shoulder straps. Nevertheless, the impact shock is believed to have been extremely violent. The 1st pilot was ejected forward, still attached to his seat.

It is believed that this accident was not survivable.

1.16. Test and Research

Findings.

The wreckage was inspected, the continuity of flight and engine controls were checked; there was no sign of failure prior to the impact.

The engine controls handle was fully forward. The trim controls was set at full nose up. The fuel selector was on.

Propeller.

The propeller separated from the engine at an early stage of the shock; the propeller was found at the foot of a tree inside the castle perimeter, which was found unusual.

The propeller blade itself did not show catastrophic damage.



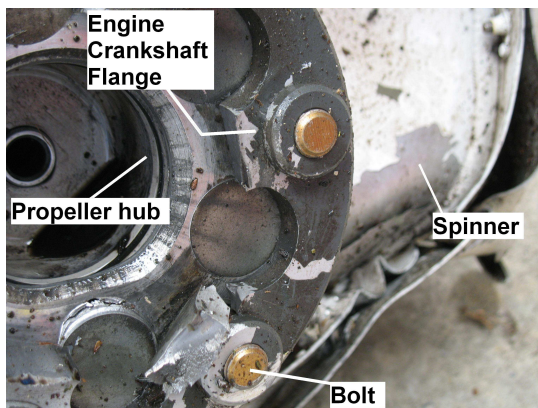
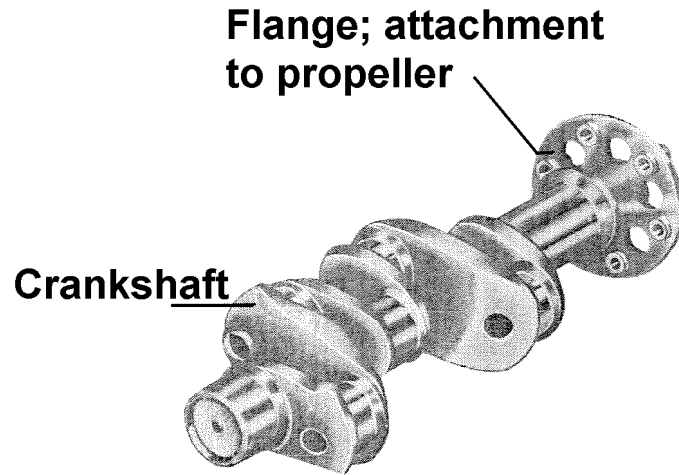
Propeller.

Deformations on the spinner indicate that the propeller took a near frontal shock

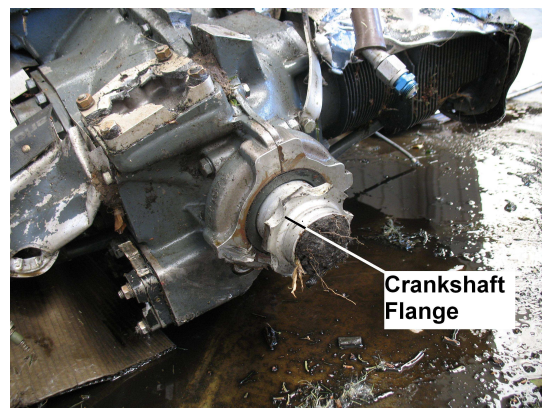


Spinner; front view

The crankshaft flange, the attachment point between the engine crankshaft and the propeller hub was found sheared off.



Propeller;
hub still bolted on the engine crankshaft flange



Engine:
Crankshaft flange.

The remains of the crankshaft and the propeller hub were scrutinized.

All fractures were found to be caused by shear stress due to the frontal impact of the airplane with a tree; There was no crack or corrosion prior to the shock visible. We can conclude that the engine was operating upon impact.

FAA AD 2006-18-15 mandates an EC inspection on the propeller hub, in order to prevent a possible separation of the propeller. The maintenance records indicate that the propeller was changed for compliance with the subject AD.

2. Analysis.

All findings made on the crash site indicated that the airplane hit the trees at (relatively) high speed, then the airplane left wing got caught by a tree trunk (probably the same trunk that got the spinner).

Forward visibility.

The pilot used a GPS – EKP-IV for navigation. This GPS features a 17.8 cm diagonal LCD screen. The screen was installed above the instrument panel, in the middle.



On this airplane; the GPS installation is not certified, therefore, the installation is not verified for adequacy.

On an aircraft such as the Husky (or similar Piper Cub), with such installation, the 1st pilot would be facing the LCD screen, and a large portion of its forward view would be obstructed.

A possible contributing factor to the accident could have been the forward view restriction by the GPS screen, in the event the 1st pilot was the pilot flying.

Impact speed.

We cannot determine the speed of the airplane, but owing to the damage to the airplane and obstacles, we can be certain that the speed was well above the stall speed.

Regulation.

The regulation on the Rules of the Air – King's Decree of 15 September 1994 – defines that VFR flights shall be conducted at a minimum elevation of 1000 ft above populated area.

3. Conclusions.

3.1. Findings

- The airplane had a valid Certificate of Airworthiness.
- Both occupants had a valid Pilot's license, and medical certificate.
- The examination of the wreckage showed no sign of in-flight structural failure.

3.2. Causes.

The accident was caused by the loss of situational awareness of the pilot, flying at a very low altitude.

A possible contributing factor is the presence of a large GPS screen mounted on top of the instrument panel, that could have prevented the pilot to notice the presence of the trees on time (in the case the 1st pilot was the pilot flying).

4. Safety recommendations.

There are no specific safety recommendations issued for this particular accident.