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ACCIDENT REPORT

CAPELLA AIRCRAFT, GAPSTED, 3 Nov 2002

1. FACTS

1.1 History of Flight
The aircraft departed Porepunkah Airfield sometime after 4.00pm on the day of the accident. The occupants were the same people later found in the aircraft at the site of the accident. The aircraft was next reported at between 4.00 and 4.30pm above the township of Myrtleford; here five witnesses report sighting the aircraft at low level, (80 to 600 feet) four report rough running of the engine. The aircraft was last sighted in flight near the Gapsted Winery, over a lightly forested area at an estimated 2 to 3 metres above tree top height, this witness reports that the aircraft engine was spluttering, he estimates the time to be 4.35pm. Between 4.20 and 4.25pm two winery employees hear a thud or bang, at about 4.30pm a customer reports the crashed plane in the winery grounds.

1.2 Injuries
Both occupants suffered fatal injuries at the time of impact.

1.3 Damage to Aircraft
The aircraft was destroyed on impact.

1.4 Pilot In Command
The pilot was a 52 year old male. He had been flying ultralight aircraft for 14 years. Prior to that time he had acuired considerable aexperience as a glider pilot. He was considered by his peers to be an accompolished pilot and an extremely competent tradesman. He had built a number of ultralights and his workmanship was held in high regard.
He held a current AUF Pilot Certificate correctly endorsed for the operation

1.5 Passenger
The passenger was a 72 year old male. He did not hold any pilot qualifications.

1.6 Aircraft Information
The Capella is a high wing monoplane. It was constructed from an imported kit in 1994. The fuselage is fabric covered chrome /moly tube, with alloy covering on the wing. It was purchased by the deceased in December 2001. The original power plant was a Rotax 582 two stroke but was re-engined it with a Rotax 912 four stroke in mid 2002.

1.7 Serviceability
Witnesses report that the owner was meticulous with his work on the aircraft. The new engine was fitted over a period of approximately four months and the aircraft was first flown with the new engine for around two months prior to the accident. The witness went on to state that the pilot had flown the Capella around a dozen times since the new engine was fitted. The Capella was involved in a taxying accident with another aircraft and a hangar door some three weeks before the accident. The resulting wing puncture and wingtip damage were properly repaired prior to the day of the final flight.
There is a passenger witness report alleging that on a previous flight he observed rippling of the wing skin on the starboard wing. In a high wing aeroplane the passenger can only observe the bottom wing surface. To create rippling on this underwing surface requires negative "G". Possible ways of acquiring that condition is to either perform some unusual

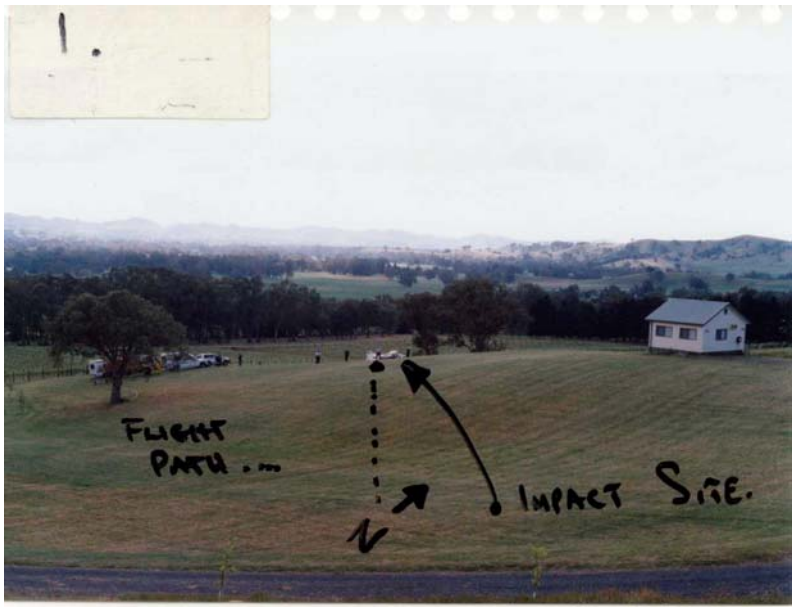
flight manouvre (bunt) or to be flying in turbulence. In either of these flight conditions it would be normal to see rippling of a light alloy wing surface such as the Capella.

1.8 Weather

Weather was reported to be fine with good visibility.
A 10 to 15 knot wind with strong gusts was blowing from the North to Northwest.

2. WRECKAGE & IMPACT INFORMATION

2.1 Location Photos 1/2: The aircraft had impacted the ground almost on the apex of a small rise and about half way down the slope in a lawn area within the grounds of the Gapsted Winery.



2.2 Final Flight Path and Impact Points

Photos 3/4: Initial inspection indicated that the aircraft had been travelling in a Northwesterly direction when it impacted the ground, skidding along that path whilst at the same time slewing right. The aircraft came to rest facing to the North, approximately 12.8 metres from the initial point of impact.
Although damage to the aircraft was extensive it was found to be basically complete. With the exception of the starboard wing tip and the starboard undercarriage leg and wheel (later found), aircraft components and fragments of the aircraft were found along the path from the initial impact point to the point where the aircraft had came to rest.

2.3 Impact Damage

Indentations in the ground and damage to the aircraft indicate that the aircraft had initially contacted the ground at a relatively low forward speed with high downward force. Impacting first on the right undercarriage wheel and with the right wing down. Major Damage was concentrated at the lower right side firewall frame and lower cockpit longeron which had compressed rearward, upwards and in towards the left, consistent with the deformation at the lower right firewall corner, the engine was cantered down and to the right.
1st impression in the ground matches wheel size.

Photo 5: Right main wheel has significant compression damage.
Right main undercarriage leg and right lift strut bracket torn from their respective mounting points at the fuselage, Leg with wheel attached later found 70 metres diagonally and down-hill of initial impact point.
The right wing tip was later found 130 metres rearward of the impact point.

Propeller
Photo 6/6a: Damage to the propeller spinner was contained to an area of about 50% of its radius. Two blades of the 3 blade composite propeller were severed at their base with the remaining blade severed at a point approximating half the blade length; the propeller hub was not damaged. The damage is consistent with an engine delivering minimal power at

time of impact.

2.4 Structure

Photo 7: The engine had skewed to the right and downward, consistent with damage to the firewall and right side cockpit area. No 1 cylinder (front right) was cracked and the water inlet pipe was broken, additionally the push rod tubes and exhaust to that cylinder were compressed upwards. Both carburettors were torn from their rubber mounts and both air cleaners were crushed.

Photo 8: The Engine stator magneto housing had contacted the firewall mounted fuel tank, which had severed cables to the ignition system. The firewall mounted fuel tank had ruptured.

Photo 9: The right wing had failed at the forward root attachment. The wing leading edge has collapsed downward and then folded rearward coming to rest inverted parallel to the fuselage.

Photo 10: The left wing strut failed at the attach point at the fuselage similar to the right hand side, the wing separated at the forward root attach point coming to rest along-side the fuselage. The flap in its entirety had separated from the wing after contacting the fuselage. Failure of both left and right forward wing root attachments appear to follow strut failure.

Photo 11: The left undercarriage leg had collapsed outward and at right angles to the fuselage. Consistent with heavy vertical down force.

Photo 12/12a/12b: Damage to the cockpit cage is concentrated mainly on the right hand side and below the window line it appears that the greatest force was applied upward and then rearward.

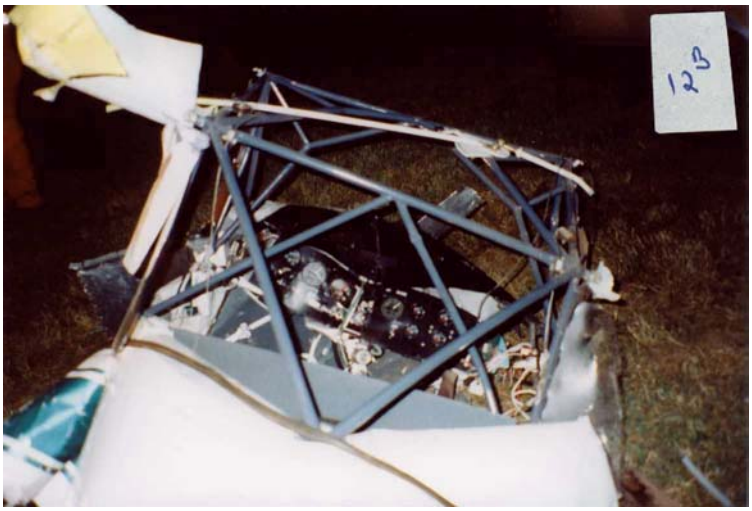


Photo 13/13a: The fuselage rear of the cockpit area was in the main undamaged, the exception being that the right side horizontal stabiliser at the outboard tip was damaged after the right wing had made contact.

2.5 Controls

AILERONS: Testing of the aileron system was not possible as a result of impact damage, however all linkages, bell cranks and pulleys were intact and were considered to have been operating correctly prior to impact.

FLAPS: The port flap was torn from the aircraft shortly after impact, the starboard flap remained attached to its wing, the actuating system was severely damaged as a result of the impact, however it is considered that the flaps and operating system were functional prior to impact.

ELEVATOR & RUDDER: Both the elevator and rudder and their respective control linkages were relatively undamaged, a test was completed and both systems functioned normally.

2.6 Engine

Photo 15/15a/15b:

A 3mm triangular piece of fuel line was found in the fuel line on the outlet side of the fuel filter, this piece together with a fuel sample was delivered to the Coroner's office for analysis.

The engine was removed from the aircraft and transported to an Engine Specialist for inspection. Other than impact damage (see section "impact damage" paragraphs; photo 7 & 8) the engine appeared to be complete.

After replacing the following items destroyed by impact:

- Oil pump housing (all internal parts from the original pump were re-used)
- Trigger coil set, and
- 2 inlet manifold rubbers

The engine was started (fired instantly) and after initial warm up it was found to perform as normal.

The mechanical engineer stated "It is my opinion that the engine would have been operational at the time of the accident.

2.7 Fuel System
The firewall mounted fuel tank had ruptured on impact, determining the amount of fuel in the tank at the time of impact was not possible. A strong smell of fuel was noticed at the scene some ten or more minutes after the aircraft was first discovered. All fuel lines from the tank to the fuel filter/ fuel pump and then to the carburettors were intact. A small fuel sample was taken from the carburettors and given to the coroner's office for analysis.

3. CAUSAL FACTORS

- **Low level operation.**
- **Gusty wind and mechanical turbulence.**

4. CONCLUSION

- The pilot was fit to fly.
- The pilot was familiar with the area and the terrain.
- The pilot was a regular customer at the Gapstead winery and had told one of the staff (allegedly in jest) that he would land there one day.
- A number of witnesses (non-pilots) at Myrtleford saw the aircraft operating at very low level and reported misfiring.
- One witness at Myrtleford (a pilot) also saw the low flying aircraft and stated that the engine was operating normally as it departed to-ward Gapstead.
- There are open spaces in the vicinity of where the witnesses reported the aircraft at Myrtleford, where the pilot could have landed if he had concerns about the engine.
- The pilot did not track from Myrtleford to home but elected to track via Gapstead.
- There is open country just beyond the Gapstead winery quite suitable for an emergency landing if the pilot had been in trouble.
- The engine ran normally when tested.
- The wind direction and strength combined with the topograghy at the accident site (see photo 2) would have combined to produce a small standing wave with the downwash just to the south of where it is indicated that the wing tip was found. An aircraft approaching at minimum speed and tree top height could expect significant sink in that area! This could translate to loss of speed if the pilot was concentrating soley on touching down on a given spot.
- The position of the wing tip is believed to have come about due to the impact force throwing it into the air and the wind carrying the lightweight moulding back along the flightpath.

" The AUF investigates accidents and incidents with the SOLE intention of preventing the same accident happening again."

Canberra
March 2003