

Actual photo of the accident investigation.

Accident Report (abstract) by Tomy Ben Ari

Site of accident: 5 miles north west of Crete

Date of Accident: Approx 250 BC

Aircraft Type: Homebuilt, Man-Powered (ultralight class)

Injuries: 1 (fatal)

Investigator: Glutinous Maximus (Head of Air Ops, Mediterranean Sector)

Date of Report: 1/1/0001



Details of Accident

Considerable delay has occurred between the accident and the investigation, so the following notes detail the facts that have been established. The aircraft was a homebuilt ultra-light of original design, one of two constructed. The aircraft was constructed from a range of novel composite materials. The accident occurred on the first flight of the type. The pilot was the co-designer of the aircraft, and at the time of the accident had a total time of 25 minutes (all on type). At the time of the flight the wind was 180/3kts and cloud cover was 0/10 at all altitudes.

There are no records of the pre-flight inspection, indeed the indications are that none was performed. On the day of the accident witnesses report the aircraft to have successfully taken off from Crete, the pilot having announced the intention of making for Greece (although no flight-plan had been filed). The flight was in company of another aircraft of the same type flown by the co-designer and father of the pilot. The second aircraft was also on its maiden flight, and its pilot also had no experience on the type prior to the flight. Approximately 25 minutes into the flight, some 5 miles north west of Crete, the aircraft was observed to climb to a considerably higher altitude than its partner. At this point it appeared to suffer a substantial structural failure followed by a departure from controlled flight; the aircraft entered a dive from which it did not recover before impact with the sea.

There was no post-impact fire. No search was attempted due to lack of facilities, but the circumstances of the accident suggest that the pilot would have died on impact. The second aircraft proceeded successfully to its destination.

Analysis of Accident

Despite the elapsed time and total absence of surviving physical evidence it is felt that sufficient information exists to infer the sequence of events and the cause of the accident.

The novel composite structure of the aircraft was known to be the subject of physical restrictions on operating temperature. These restrictions had been carefully explained to the pilot before the flight. When the pilot climbed to a higher altitude the levels of ambient solar radiation probably led to these temperature restrictions being exceeded, resulting in a thermal degradation of the basic structure.

A progressive failure would have occurred, initial delamination of the upper skin material would have been followed by a compressive failure of the upper mainspar. Brazier forces would then have extruded the internal

wax core material leading to a catastrophic failure of the entire primary structure. This theory would help to explain why the second aircraft (at a lower altitude) experienced no such failure.

CAA Comment

This accident was clearly caused by an inexperienced pilot paying scant regard for the operational envelope of the airframe. Although the novel materials used in the airframe had strict limitations, these were well documented and explained to the pilot. It is regarded as significant that, despite the known thermal limitations of the materials used, no attempt had been made to protect the structure from infra-red radiation.

A layer of aluminised film over the outside of the structure would probably have prevented the accident by extending the operational envelope of the airframe. In view of this, and other, design deficiencies in the aircraft it is recommended that Form 100 signatory approval be withdrawn from this manufacturer.

It is further felt that from today (1/1/01) onwards no pilot should be permitted to attempt primary training flights as solo P1 on an experimental type. If this regulation had been in force at the time, Mr Icarus would probably not have attempted the flight.

EYEWITNESS ACCOUNT

The following eyewitness statement was made by Asticles, who was standing on the beach approximately 10 leagues away at the time of the accident. He reported seeing Greek Fire hit Icarus. Icarus then climbed an additional 150 rods before descending in a ball of fire.

Greek Navy Ship "The Amphora" in the vicinity reported that it was patrolling the area which is a known route for the Olive Oil smuggling trade. Testacles, the captain of The Amphora reported that ship had nothing to do with the incident and that all Greek Fire projectiles on board were accounted for.

ESTATE OF ICARUS AGAINST DAEDALUS ET AL

(Vince Brannigan)

Complaint in Product Liability , Negligence and Unlawful Detention

Summary

The deceased, Icarus, was killed while attempting to escape an unlawful imprisonment ergo Defendant King Minos is strictly liable for this death. The deceased was killed flying a defective homemade aircraft, designed and produced by the defendant Daedalus. The defendant's claim of the plaintiffs causing his own death are not supportable.

The defendant, Daedalus, an expert inventor and engineer, affixed feathers to the wings with heat soluble wax. Alternative glues were known to the builder. Daedalus failed to consider alternative, more heat-tolerant, glues.

The warning given to the operator Icarus, was inadequate given the age of the youth. In particular, the warning claimed to be given was "Icarus, my son, I charge you to keep at a moderate height, for if you fly too low the damp will clog your wings, and if too high the heat will melt them. Keep near me and you will be safe." This warning is in vague terms and failed to specify that melting the wings would lead to the death of the minor operator. Given the youthful age of the operator, it is critical that a warning be given in the clearest and most explicit language.

The only testimony supporting the claim that an oral warning was given is the self serving testimony of the negligent inventor. In any case a warning is inadequate if a safer non heat sensitive glue is available There was no clear definition of "moderate", "too high" or "too low" and the operator's experience was insufficient for him to determine the optimum altitude.

A water landing was a reasonably anticipated outcome of even a successful flight. No provision was made for a safe water landing. No safety equipment or training was provided.

Sources indicate that, notwithstanding the claim of instant injury, Icarus in fact drowned, Bullfinch states: While his mouth uttered cries to his father it was submerged in the blue waters of the sea which thenceforth was called by his name. His father cried, "Icarus, Icarus, where are you?" At last he saw the feathers floating on the water, and bitterly lamenting his own arts, he buried the body and called the land Icaria in memory of his child.

The claims that flying higher caused the sun to melt the wax is based on "junk science" inadmissible in this litigation. There is no evidence at all that radian solar energy increases at the heights involved in this matter and if anything the atmosphere cools as the flyer ascends

Given these facts plaintiffs estate demands 1,000,000 gold pieces in damages. If Icarus is proven to be the employer of Daedalus, as well as father to the youth, a further sum may be payable due to Employer's Liability. There may also have been a breach of the Health and Safety at Work Act.

Dave Eadsforth added the following comment:

It is worth citing the investigative work done by the AIB at Farnborough in the 1960s ('Aircrash Detective' by Stephen Barclay), which put forward a very convincing case for the wax not melting, but actually becoming brittle in the cold evening air (at the altitude estimated to have been reached by Icarus) and suffering structural failure. This explanation also resolved conflicting reports of where Icarus fell, as the two possible sites were 30 miles apart (When the airframe failed, Icarus fell straight down, to one traditional site, whereas the feathers were carried by the breeze to the other traditional site). This last part of the theory was confirmed by dropping wax tipped feathers from the top of one of the hangars at Farnborough. The whole four page analysis is a real beaut - worth tracking down a copy of the book!