



# National Transportation Safety Board Aviation Accident Final Report

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|--------------------------------|-----------------------------------|-------------------------|-------------|
| <b>Location:</b>               | Grinnell, IA                      | <b>Accident Number:</b> | CHI07LA062  |
| <b>Date &amp; Time:</b>        | 02/02/2007, 1444 CST              | <b>Registration:</b>    | N41RH       |
| <b>Aircraft:</b>               | Hallburg Amphibian S21D           | <b>Aircraft Damage:</b> | Substantial |
| <b>Defining Event:</b>         |                                   | <b>Injuries:</b>        | 2 Fatal     |
| <b>Flight Conducted Under:</b> | Part 91: General Aviation - Ferry |                         |             |

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## Analysis

The airplane was recently purchased and was being ferried to the new owner when it impacted terrain. A witness reported seeing the airplane flying at a low altitude when the engine lost power. The airplane impacted a snow-covered agricultural field and sustained damage to the airplane structure leaving a debris field approximately 200 feet in length. Examination of the airplane revealed no usable fuel aboard the airplane. A tailwind prevailed at the time of the accident and the direction of the forced landing was perpendicular to the airplane's flight path. The engine driven fuel pump was tested within test specifications. The examination of the airframe and engine revealed no anomalies that would have precluded normal operation.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate preflight planning/preparation by the pilot in command and the fuel exhaustion during cruise flight. An additional cause was the inadequate forced landing procedure. A contributing factor was the tailwind.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER

Phase of Operation: CRUISE

Findings

1. (C) FLUID,FUEL - EXHAUSTION
2. (C) PREFLIGHT PLANNING/PREPARATION - INADEQUATE - PILOT IN COMMAND

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Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: EMERGENCY DESCENT/LANDING

Findings

3. (F) WEATHER CONDITION - TAILWIND
4. TERRAIN CONDITION - GROUND

## Factual Information

On February 2, 2007, about 1444 central standard time, an experimental amateur-built Hallburg Amphibian S21D, N41RH, received substantial damage on impact with terrain following a loss of engine power near Grinnell, Iowa. Visual meteorological conditions prevailed at the time of the accident. The 14 CFR Part 91 ferry flight was not operating on a flight plan. The pilot and passenger sustained fatal injuries. The flight last departed from North Platte, Nebraska, about 1030, en route to Iowa City, Iowa.

According to the Federal Aviation Administration, the airplane had not been flown by the previous owner for approximately 10 years when it was purchased by the current owner. The current owner hired a pilot to ferry the airplane with the current owner's son aboard from Washington to Florida with planned stops at North Platte, Nebraska, and Iowa City, Iowa. The ferry pilot had not flown the airplane prior to his arrival to pick up the airplane in Washington. When he arrived, he flew the airplane for approximately 0.5 hours and performed 3 takeoff and landings before departing on the ferry flight.

A fixed based operator (FBO) employee at the Jerome County Airport, Jerome, Idaho, reported that the airplane arrived there on January 26, 2007. The "pilot and copilot" came into the FBO office and asked if they would be able to have their airplane checked to confirm if the airplane's generator was malfunctioning. The FBO employee indicated to them that the rear generator bearing was "out." While trying to locate a replacement generator, they indicated to the FBO employee that the mechanical fuel pump was not working either, and they had been using the electric fuel pumps. The pilot stated "that it has been acting funny since their departure from Seattle." The FBO employee stated that he located a replacement generator, but it would not arrive until January 29, 2007.

On January 29, 2007, the pilot and copilot arrived and asked if they could assist with the repair of the mechanical fuel pump.

On January 30, 2007, the generator and mechanical fuel pump arrived and were installed on the airplane. The airplane was then run up and the generator was working and the fuel pump had pressure. They were unable to repair the mechanical fuel pump so a new pump was ordered. They then decided to depart; however, as they began to taxi out, the fuel pressure began acting "funny" again. They taxied back to the hangar where the cowls were removed in order to examine the fuel screens. There was "nothing" found in either screen.

On January 31, 2007, the FBO personnel along with the "pilot and copilot" decided that if the check valves did not close, the mechanical fuel pump could "build" pressure. At that point, they removed the check valves and located a "small O-ring" floating in the valve. After removing the O-ring, the valve was able to close all the way. The airplane was then run up and the pressure was as specified by the engine operator's handbook.

They then pushed the airplane to the fuel pump where the pilot topped off the main fuel tanks and added three more gallons to the right sponson. The "pilot and co-pilot" indicated the [right] sponson had not been transferring fuel but thought they were able to get it to work. They also said that they would stop every two hours to refuel and they would fly close to roads.

The FBO personnel stated that they did not "touch" the transfer system nor were they asked to do so. During the days preceding their departure from Jerome, Idaho, [the pilot and copilot] explained that they had been told not to retract the landing gear by an individual unidentified

to the FBO personnel. After the FBO personnel heard their story and all of the issues with the airplane, the FBO personnel asked them "why they didn't just go home until someone could look at their aircraft in further detail or even truck the plane home."

Later that day, the "pilot and copilot" called the FBO maintenance personnel and indicated they were in Rawlins, Wyoming, and "everything was running great."

On February 2, 2007, a North Platte, Nebraska, FBO employee stated that the airplane arrived mid morning and obtained 12 gallons of 100 low lead fuel in the right auxiliary fuel tank and topped off the main fuel tanks. The pilot told the North Platte FBO employee "not to worry about the left aux. tank." About 1000 MST, the Jerome, Idaho, FBO personnel received a call from the pilot stating that their airplane was "running well" and they were in North Platte, Nebraska. The airplane then departed at 1030.

A witness stated that he saw a small white airplane flying "real low." The engine noise ceased and the airplane descended "real fast." He stated that the airplane's path was from the northwest to the southeast. According to the on-scene Federal Aviation Administration (FAA) inspector, a 30-knot tailwind in the flight path direction prevailed at the time of the accident and the direction of the forced landing was perpendicular to the airplane flight path. The airplane impacted a snow covered agricultural field and sustained damage to the airplane structure leaving a debris field approximately 200 feet in length along a southwest direction.

Examination of the airplane by the FAA revealed no evidence of usable fuel aboard the airplane at accident site. Flight control continuity was confirmed.

The engine was disassembled and examined at Continental Motors, Mobile, Alabama, under the supervision of the National Transportation Safety Board. The engine driven fuel pump was tested within test specifications. The examination revealed no anomalies that would have precluded normal operation.

## Pilot Information

|                                  |   |  |            |
|----------------------------------|---|--|------------|
| <b>Certificate:</b>              | Airline Transport; Commercial; Flight Engineer                          | <b>Age:</b>                              | 34, Male   |
| <b>Airplane Rating(s):</b>       | Multi-engine Land; Single-engine Land; Single-engine Sea                | <b>Seat Occupied:</b>                    |            |
| <b>Other Aircraft Rating(s):</b> | None  | <b>Restraint Used:</b>                   |            |
| <b>Instrument Rating(s):</b>     | None  | <b>Second Pilot Present:</b>             | Yes        |
| <b>Instructor Rating(s):</b>     | Airplane Single-engine; Instrument Airplane                             | <b>Toxicology Performed:</b>             | Yes        |
| <b>Medical Certification:</b>    | Class 1   | <b>Last FAA Medical Exam:</b>            | 11/01/2006 |
| <b>Occupational Pilot:</b>       |   | <b>Last Flight Review or Equivalent:</b> |            |
| <b>Flight Time:</b>              | 5000 hours (Total, all aircraft), 15 hours (Total, this make and model) |  |            |

## Aircraft and Owner/Operator Information

|                               |                                  |                                |                 |
|-------------------------------|----------------------------------|--------------------------------|-----------------|
| Aircraft Make:                | Hallburg                         | Registration:                  | N41RH           |
| Model/Series:                 | Amphibian S21D                   | Aircraft Category:             | Airplane        |
| Year of Manufacture:          |                                  | Amateur Built:                 | Yes             |
| Airworthiness Certificate:    | Experimental                     | Serial Number:                 | D109            |
| Landing Gear Type:            | Retractable - Amphibian          | Seats:                         | 4               |
| Date/Type of Last Inspection: | 01/01/2007, Condition            | Certified Max Gross Wt.:       |                 |
| Time Since Last Inspection:   | 2418 Hours                       | Engines:                       | 1 Reciprocating |
| Airframe Total Time:          | 2418 Hours as of last inspection | Engine Manufacturer:           | Continental     |
| ELT:                          | Not installed                    | Engine Model/Series:           | E-185           |
| Registered Owner:             | James Osborne                    | Rated Power:                   |                 |
| Operator:                     | James Reynolds                   | Operating Certificate(s) Held: | None            |

## Meteorological Information and Flight Plan

|                                  |                        |                                      |                   |
|----------------------------------|------------------------|--------------------------------------|-------------------|
| Conditions at Accident Site:     | Visual Conditions      | Condition of Light:                  | Day               |
| Observation Facility, Elevation: | MIW, 974 ft msl        | Distance from Accident Site:         | 30 Nautical Miles |
| Observation Time:                | 1453 CST               | Direction from Accident Site:        | 45°               |
| Lowest Cloud Condition:          | Clear                  | Visibility                           | 10 Miles          |
| Lowest Ceiling:                  | None                   | Visibility (RVR):                    |                   |
| Wind Speed/Gusts:                | 17 knots /             | Turbulence Type Forecast/Actual:     | /                 |
| Wind Direction:                  | 250°                   | Turbulence Severity Forecast/Actual: | /                 |
| Altimeter Setting:               | 29.81 inches Hg        | Temperature/Dew Point:               | -13°C / -20°C     |
| Precipitation and Obscuration:   |                        |                                      |                   |
| Departure Point:                 | North Platte, NE (LBF) | Type of Flight Plan Filed:           | None              |
| Destination:                     | Iowa City, IA (IOW)    | Type of Clearance:                   | None              |
| Departure Time:                  | 1030 MDT               | Type of Airspace:                    |                   |

## Wreckage and Impact Information

|                     |         |                      |                       |
|---------------------|---------|----------------------|-----------------------|
| Crew Injuries:      | 1 Fatal | Aircraft Damage:     | Substantial           |
| Passenger Injuries: | 1 Fatal | Aircraft Fire:       | None                  |
| Ground Injuries:    | N/A     | Aircraft Explosion:  | None                  |
| Total Injuries:     | 2 Fatal | Latitude, Longitude: | 41.709167, -92.735000 |

## Administrative Information

**Investigator In Charge (IIC):** Mitchell F Gallo **Report Date:** 03/31/2008

**Additional Participating Persons:** Chris Manthe; Federal Aviation Administration; Des Moines, IA  
Terry Horton; Teledyne Continental Motors; Mobile, AL

**Publish Date:**

**Investigation Docket:** NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at [pubinq@ntsb.gov](mailto:pubinq@ntsb.gov), or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

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