



National Transportation Safety Board Aviation Accident Final Report

Location:	Rio Verde, AZ	Accident Number:	LAX07LA025
Date & Time:	11/02/2006, 0816 MST	Registration:	N606RV
Aircraft:	Olson Vans RV-6	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The airplane collided with power lines while flying at low altitude over a river and descended into the water below. Witnesses observed the airplane flying low over a prolonged period in the area of a dam and along the river below the dam. One witness noted that the airplane appeared to be lower than the surrounding hills. Power lines are situated just south of the dam and proceed along the south-side of the river. The power lines cross the river to its north side at a point where the river makes a "U" shaped 180-degree turn, heading north momentarily and then reversing course to the south. The power lines cross the river in the southward leg of the "U" shape. The terrain in the middle of the "U" shape is about 150 feet higher than the river, which would likely block the view of the south flowing leg of the river, and perhaps the power line, from a pilot following the river at low altitude. The power line's wires were found frayed and damaged in the stretch that crossed the river. The airplane came to rest in the river near the power line crossing. Examination of the wreckage found that the right wing of the airplane contacted and was severed by the power line. No mechanical malfunctions or failures were found during the examination of airframe and engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain clearance from power lines while intentionally flying at a low altitude.

Findings

Occurrence #1: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: MANEUVERING

Findings

1. OBJECT - WIRE, TRANSMISSION
2. (C) LOW ALTITUDE FLIGHT/MANEUVER - INTENTIONAL - PILOT IN COMMAND
3. (C) CLEARANCE - NOT MAINTAINED - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On November 02, 2006, at 0816 mountain standard time, an Olson Vans RV-6, N606RV, collided with power lines and came to rest inverted in the Verde River near Rio Verde, Arizona. The pilot/owner was operating the airplane under the provisions of 14 CFR Part 91. The private pilot and passenger were fatally injured. The airplane sustained substantial damage. The local personal flight originated from Phoenix Deer Valley Airport, Phoenix, Arizona, about 0700. Visual meteorological conditions prevailed, and a flight plan had not been filed.

A helicopter was dispatched after Arizona Public Service received a report of a temporary power outage that occurred at 0816. The helicopter pilot stated that he overflew wires adjacent to the Verde River around 1340. He observed a white airplane wing about 2 miles downstream (southwest) from the Bartlett Dam. The wing was positioned 200 yards from a power transmission line that ran across the river. He noted a 10-foot section of the line's wires had a black coloration and appeared severely frayed. The pilot added that the frayed section was situated between the transmission towers, which were spaced about every 0.25 miles.

The airplane came to rest inverted, in an active river that consisted of fresh water 8 to 10 feet deep.

In a telephone interview with the National Transportation Safety Board investigator-in-charge (IIC), a witness reported that he lived about 4 to 5 miles from the accident site. He stated that the morning of the accident, he was outside his residence and observed an airplane flying from the east-northeast direction. He noted that the area normally has small airplanes passing through, but the subject airplane appeared to be flying quite low, about 500 feet above ground level (agl). He observed the airplane make a 90-degree left turn and continue toward the Bartlett Dam. He added that he saw the airplane making altitude oscillations, climbing and descending in 50-foot increments.

Two additional witnesses, who were camping near Bartlett Dam, spoke to the Safety Board IIC. Both stated that they observed the airplane flying low toward the west, following the turns of the river. One witness noted that the airplane appeared to be lower than the surrounding hills.

PILOT INFORMATION

According to the Federal Aviation Administration (FAA) Airman and Medical records files, the pilot held a private pilot certificate with a rating for single engine land airplane. He additionally held a repairman experimental aircraft builder certificate. The pilot was issued a third-class medical certificate in February 2005, with no limitations.

No personal flight records were recovered for the pilot, with the exception of a copy of two logbook pages. The last entry was dated July 02, 2005; at that date the logbook pages indicated that the pilot's total time was 920.4 hours.

AIRCRAFT INFORMATION

The RV6 single engine kit airplane, serial number 21778, was completed in 2003 by the accident pilot. An engine identification data plate was not affixed on the engine, but records indicated it was a four cylinder Textron Lycoming O-320-A2A (serial number L38687-27A) equipped with a Sensenich propeller (serial number 34558K). According to the maintenance

records, the airframe had accumulated a total time in service of 245.9 hours. The most recent condition inspection was signed by the pilot, as completed on July 01, 2006.

The FAA records indicated that the pilot had successfully accomplished both Phase One and Phase Two of the experimental operating limitations, with the later completed on April 23, 2003.

WRECKAGE AND IMPACT

Bartlett Lake is located 48 miles northeast from downtown Phoenix. The Verde River continues from the Bartlett Dam and runs in a south-southwest direction. Power lines are situated just south of the dam and initially progress on the south-side of the river. Maintaining a southwest course, about 1.5 miles southwest of the dam, the power lines cross the river to its north side and continue to the Phoenix area.

The Verde River follows a fairly straight southwest course from the dam for about 1.5 nautical miles (nm). In that vicinity, the river makes a "u" shape turn, heading north momentarily and then reversing course to the south; the terrain in the middle of the "u" shape is about 150 feet higher than the river. The power lines cross the river in the southward leg of the "u" shape. The wires that were frayed and damaged were located in the stretch that crossed the river.

MEDICAL AND PATHOLOGICAL

The Maricopa County Office of the Medical Examiner performed autopsies on both the pilot and passenger. The FAA Toxicology Accident Research Laboratory, Oklahoma City, Oklahoma, performed toxicological testing on both occupants. The specimens tested negative for carbon monoxide, cyanide, and ethanol.

TESTS AND RESEARCH

A Safety Board investigator examined the wreckage on April 3, 2007, at Air Transport, Phoenix, Arizona. The wreckage had been recovered and placed into storage prior to the examination. According to Air Transport personnel, the water was not drained from the engine following its removal from the river.

Airframe

The cockpit area of the RV6 sustained extensive damage consistent with impact. All major portions of the control surfaces were identified, excluding the right elevator, which was not located. The right horizontal stabilizer was separated from the structure. The rudder and left horizontal stabilizer were attached to the main wreckage. The left wing was intact and remained attached to the main spar. At the right wing position, the main spar was curled aft and the right wing was separated at its root and in multiple pieces. At the fuel tank, the right wing contained sooting. A 1-foot portion of the tank that contained the fuel cap did not have any sooting. This section was separated from the sooted section by a tear in the aluminum upper and lower wing skins. The wing section immediately behind the fuel tank had been separated, and was twisted and deformed at its center section. The flap remained attached. An outboard portion of the wing included the aileron control surface.

Control cables were traced from the cockpit area, aft to the rudder. The push pull tube from the horizontal stabilizer was connected at the control surface, and was continuous until the cockpit area where it had separated with the cockpit structure. Movement of the left side

control stick produced corresponding movement to the left aileron. The right aileron push pull tube was fractured where the left wing separated.

Engine

The engine remained attached to the firewall. The investigator removed the spark plugs. Upon removal of the bottom spark plugs, water and hard, rust-colored material pieces drained from the cylinders through the spark plugs holes. The spark plug electrodes were rust colored and contained the rust-colored material. After the spark plugs were cleaned, their gapping appeared similar and the electrodes were oval in shape. The valve covers were removed. All coloration on the valve covers was similar and there was no dark coloration evident. Upon manual rotation of the propeller, the valves moved in sequence and produced similar amounts of lift. Thumb compression was obtained on all cylinders. The ignition harnesses sustained impact and water damage and did not produce spark. The magnetos were removed and turned freely. Oil was present on the gearing to the accessory case.

The carburetor sustained impact damage and the bowl was not located. The floats and needle were crushed. The throttle and mixture control cables were traced from the carburetor to the cockpit control arms. The carburetor heat cable was connected at the cockpit control; however, it had been separated from the carburetor heat assembly at the engine.

The gascolator was removed from the firewall and fuel was drained from it. The fuel was light blue in color and consistent in odor to that of 100 low lead (LL). There were no contaminants noted in the gascolator bowl, the screen, and the fuel obtained from the gascolator.

Water was found throughout the engine. The oil sump was intact and contained a residual amount of oil. The oil filter was removed and water drained from it. The oil filter was dated March 15, 2005. The tachometer time written on the filter housing was 2.00.

The Sensenich propeller was fixed-pitch and 2-bladed. One of the blades was missing its tip. The other blade was not damaged.

ADDITIONAL INFORMATION

The Phoenix VFR Terminal Area Chart, dated October 26, 2006 (35th edition), pictorially depicted the power lines, showing them crossing the river at the area where the wires were compromised.

Pilot Information

Certificate:	Private	Age:	48, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3	Last Medical Exam:	02/01/2005
Occupational Pilot:		Last Flight Review or Equivalent:	
Flight Time:	920 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Olson	Registration:	N606RV
Model/Series:	Vans RV-6	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	34558K
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	07/01/2006, Conditional	Certified Max Gross Wt.:	1600 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	245.9 Hours	Engine Manufacturer:	Lycoming
ELT:	Installed, not activated	Engine Model/Series:	O-320-A2A
Registered Owner:	On file	Rated Power:	150 hp
Operator:	On file	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:		Observation Time:	
Distance from Accident Site:		Condition of Light:	Day
Direction from Accident Site:		Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	21 °C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	Calm	Visibility (RVR):	
Altimeter Setting:		Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Phoenix, AZ (DVT)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0700 MST	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		

Administrative Information

Investigator In Charge (IIC): Zoë Keliher **Adopted Date:** 06/27/2007

Additional Participating Persons: Jack Ogle; Federal Aviation Administration; Scottsdale, AZ

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, or at 800-877-6799. Dockets released after this date are available at <http://dms.nts.gov/pubdms/>.

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report.