



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Tehachapi, California	Accident Number:	LAX03LA237
Date & Time:	July 20, 2003, 09:54 Local	Registration:	N218DT
Aircraft:	Thompson Quickie Q2	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane entered a pilot induced oscillation during takeoff, collided with the runway, and was destroyed by a post impact fire. The accident occurred during the pilot's maiden flight in his experimental homebuilt airplane. Witnesses saw the airplane initially climb about 25 feet above the runway. Thereafter, the airplane descended until landing hard on the runway in a nose low pitch attitude. The airplane bounced/porpoised and impacted again whereupon it nosed over, slid to a stop, and was consumed by fire. Examination of the thermally destroyed composite airplane revealed no evidence of a preimpact mechanical malfunction or failure, and the reason for the pilot's failure to maintain control was not ascertained. No evidence of any preexisting physical disability was noted during the pilot's autopsy. Evidence of diphenhydramine was found in the pilot's blood and urine. This drug is an over-the-counter antihistamine preparations and typically results in drowsiness, and is associated with degradation of cognitive and motor tasks.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadvertent entry into a pilot induced oscillation and failure to maintain airplane control during the takeoff initial climb. A contributing factor was the pilot's likely impairment by an over-the-counter drug substance that degraded his physical and mental performance.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

1. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
2. (C) PORPOISE/PILOT-INDUCED OSCILLATION - ENCOUNTERED

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Findings

3. TERRAIN CONDITION - RUNWAY

Factual Information

HISTORY OF FLIGHT

On July 20, 2003, about 0954 Pacific daylight time, the pilot flying a homebuilt Quickie Q2, N218DT, experienced a loss of control during takeoff from the Mountain Valley (uncontrolled) Airport, Tehachapi, California. The airplane descended until impacting the runway, and it was destroyed. The private pilot was fatally injured. The experimental airplane was built, owned, and operated by the pilot. Visual meteorological conditions prevailed, and no flight plan was filed. The flight was performed under the provisions of 14 CFR Part 91, and it was originating at the time of the accident.

Witnesses reported to airport personnel and to a deputy Kern County coroner that the accident occurred during the pilot's maiden flight in his airplane. Reportedly, the airplane pitched upward after liftoff and gained several yards of altitude above the runway. Some witnesses described the climb angle as being steep. Thereafter, the airplane descended, yawed left, and impacted the runway. The airplane came to rest inverted, whereupon it immediately burst into flames. The post impact ground fire consumed the airplane. Propeller marks were noted on the runway over 200 feet from the main wreckage.

AIRCRAFT INFORMATION

A Federal Aviation Administration (FAA) aviation safety inspector verbally reported to the National Transportation Safety Board investigator that the pilot had made several modifications to his airplane. One of the modifications involved increasing its fuel tank capacity. The FAA inspector advised the pilot to correct several deficiencies with the airplane before he would issue the airplane an airworthiness certificate. The FAA inspector reported that the pilot complied with the advice he provided. Thereafter, several days prior to the accident flight, the FAA inspector issued the airworthiness certificate.

FLIGHT AND WRECKAGE AND IMPACT INFORMATION

According to the FAA inspector, during the accident flight the pilot was in Phase 1 of his homebuilt airplane's flight test program. The FAA inspector indicated that the flight was performed following completion of taxi tests and was in accordance with the specified flight test program.

The FAA inspector reported that he proceeded to the accident site and observed the burned and destroyed wreckage. He spoke with witnesses and observed evidence related to the accident.

In summary, the FAA inspector indicated that the pilot had taken off in a westerly direction with a tailwind. The wind was from the east, and its speed was estimated between 5 and 7 knots. After the airplane became airborne it climbed between 20 and 25 feet (estimated) above the runway. Thereafter, its wings rocked back and forth, and the airplane descended until impacting the runway with its propeller and wing tip. Then, the airplane bounced/porpoised and became airborne again. After gaining several feet of altitude above the runway it again descended, but in a steeper nose down attitude. The airplane's nose impacted the runway, the airplane nosed over, and it slid to a stop while veering off the side of the runway and igniting.

PILOT AND MEDICAL INFORMATION

A review of FAA records revealed that on October 1, 2001, the pilot was issued a third-class aviation medical certificate with the limitation that glasses be worn while flying. No other physical limitations were noted during the examination. The pilot reported having a total flight time of 500 hours. He reported having flown 20 hours during the preceding 6-month period.

According to the FAA's manager, Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma, diphenhydramine was detected in specimens of the pilot's blood (0.074 (ug/ml)) and urine. Also, dextromethorphan was detected in blood and urine. No evidence of carbon monoxide, cyanide, ethanol, or other screened drugs was found.

Diphenhydramine is contained in medications that are available on an over-the-counter basis. It is an antihistamine. Package warnings associate the use of this drug with the possibility of drowsiness, and it also has been associated with degradation of cognitive and motor tasks.

ADDITIONAL INFORMATION

Work associates having technical expertise in experimental aircraft design, construction, and propulsion systems examined the pilot's airplane within a few days preceding the accident flight. The associates suggested that the pilot perform his maiden flight at a nearby airport having emergency fire and rescue facilities. The pilot declined the recommendation. The associates reported that the pilot did not accept an offer to receive flight training in an airplane model similar to the one he had built. Also, he did not have previous test pilot flying experience.

One of the associates, who held an FAA airframe and powerplant certificate and a pilot certificate, subsequently reported that he viewed the accident site and airplane wreckage. The associate reported that a post impact fire had consumed the Quickie's composite structure. The associate opined that immediately after taking off the change in the airplane's pitch attitude and flight path might have resulted from a pilot induced oscillation scenario, following which control of the airplane was lost.

Pilot Information

Certificate:	Private	Age:	38,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Unknown
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	None	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 3 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	October 1, 2001
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	500 hours (Total, all aircraft), 0 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Thompson	Registration:	N218DT
Model/Series:	Quickie Q2	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental (Special)	Serial Number:	2173
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	July 1, 2003 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:	0 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	0 Hrs at time of accident	Engine Manufacturer:	Aero Engines (VW)
ELT:		Engine Model/Series:	
Registered Owner:	David R. Thompson	Rated Power:	
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	EDW,2302 ft msl	Distance from Accident Site:	30 Nautical Miles
Observation Time:	09:55 Local	Direction from Accident Site:	98°
Lowest Cloud Condition:	Clear	Visibility	25 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	250°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30.06 inches Hg	Temperature/Dew Point:	30°C / 10°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Tehachapi, CA (L94)	Type of Flight Plan Filed:	None
Destination:	Tehachapi, CA (L94)	Type of Clearance:	None
Departure Time:	09:54 Local	Type of Airspace:	Class G

Airport Information

Airport:	Mountain Valley L94	Runway Surface Type:	Asphalt;Gravel
Airport Elevation:	4220 ft msl	Runway Surface Condition:	Dry
Runway Used:	27L	IFR Approach:	None
Runway Length/Width:	5420 ft / 60 ft	VFR Approach/Landing:	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Fatal	Latitude, Longitude:	35.101112,-118.434722

Administrative Information

Investigator In Charge (IIC):	Pollack, Wayne
Additional Participating Persons:	Gary Bernard; Federal Aviation Administration; Van Nuys, CA
Original Publish Date:	December 20, 2005
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=57549

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