National Transportation Safety Board
Aviation Accident Final Report

Location:	Norman, OK	**Accident Number:**	DFW07LA032
Date & Time:	12/02/2006, 0845 CST	**Registration:**	N216RV
Aircraft:	Noble Vans RV-7A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The 325-hour private pilot lost control of the single-engine homebuilt airplane while initiating the approach and landing phase of the flight. The accident airplane was selected to be the last to land in trail as a flight of three. The tower operator cleared the flight of 3 airplanes to land on Runway 03. The tower operator reported that as he watched the first airplane land, he noticed the sun reflect off the third airplane and observed it go below a tree line. Numerous witnesses observed the accident airplane approach the airfield. Several witnesses reported that the airplane was low or very low, and as it approached the airfield. The witnesses observed the accident airplane made a sharp bank, just before impacting the ground. Furthermore, one of the witnesses stated that the airplane was "struggling, tipping left-and-right, and he thought it was going to tip over" before entering a sudden 90-degree turn and assuming a pronounced nose-low attitude. The pilots of the other two airplanes in the flight, stated that prior to the flight they had agreed to slow their airplanes to 70 mph, and then to 65 mph in order to maintain proper spacing between the airplanes during their approach to land. Flight control continuity was established and the flaps were confirmed to be in the fully extended position. An examination of the airplane and engine did not reveal any anomalies that prevented normal operation.

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 airspeed which resulted in an inadvertent stall. A contributing factor was the pilot's attempt at formation flying.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings
1. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND
2. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND
3. (F) FORMATION FLYING - ATTEMPTED - PILOT IN COMMAND

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
4. TERRAIN CONDITION - GROUND

Factual Information

On December 2, 2006, approximately 0845 central standard time, a single-engine Noble Vans RV-7A experimental airplane, N216RV, was destroyed upon impact with terrain following a loss of control while on approach to the University of Oklahoma Westheimer Airport (OUN), near Norman, Oklahoma. The private pilot and the passenger sustained fatal injuries. The airplane was registered to and operated by the pilot. Visual meteorological conditions prevailed and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 personal flight. The 11-nautical mile flight originated from the Twin Lakes Airport (2OK2), near Midwest City, Oklahoma, with OUN as their planned destination.

After the flight of three airplanes departed 2OK2, they lined up abreast with the accident airplane on the left, a Cessna 172 in the middle, and an RV-9A on the right side. The pilot of the RV-9A reported that as they approached OUN, the other two airplanes slowed to 65 mph, in order for him to land first, followed by the 172, and then finally the RV-7A (N216RV). The pilot of the 172 reported that as they approached the airport they slowed to 70 mph, and then to 65 mph for spacing, and the last time he observed the RV-7A, it was at the 7 o'clock position "about quarter to half mile" behind.

The air traffic control tower operator at OUN cleared the flight of 3 airplanes to land on Runway 03. The tower operator reported that as he watched the first airplane land, he noticed "he sun reflect off the third airplane and observed it go below a tree line." Shortly thereafter, the airplane was reported as having crashed in an open field between an automobile dealership and a Chinese restaurant, in a nose-low attitude.

Numerous witnesses observed that airplane approach the airfield. Several witness's statements are summarized below.

The first witness, who was standing outside at the automobile dealership stated that " [The airplane] seemed to be flying too low, the plane then turned sharp to the right... I could hear the engine rev-up and down, and when the airplane passed the interstate, it dropped out of the sky."

The second witness reported observing " the airplane at a very low altitude... Behind another aircraft, when it made a sharp turn to the left... then crashed to the ground."

The third witness, who was traveling south on I-35, stated that "[The airplane] was very low, maybe 100-200-feet off the ground, it looked like it was going to land on the highway, but then it turned sharply west. It lost almost all airspeed, then plummeted to the ground..."

A fourth witness commented to his wife that " it was strange that two airplanes were so close together, when the second plane fell from the sky and crashed..."

A fifth witness reported seeing the airplane "flying northbound and struggling, tipping left-and-right.... we thought it was going to tip over, then all of a sudden it took a 90-degree turn and crashed."

The last witness, who was on the south side of an automobile dealership, saw the airplane flying "very low" overhead and then enter "a sharp bank to the north-northwest." The witness

added that he "didn't hear any engine difficulty, no sputtering, hesitation, or cutting out."

A Federal Aviation Administration (FAA) Inspector, who responded to the accident site, noted that the airplane received major structural damage during the impact. The inspector also noted that when he arrived at the scene of the accident, the airplane's fuel tanks were leaking fuel.

The wreckage of the airplane was recovered to a secured location, near Lancaster, Texas. An NTSB investigator conducted a detailed examination of the wreckage at Air Salvage of Dallas.

The forward section of the fuselage was crushed with the nose landing gear pushed back and upward, with the nosewheel coming to rest just below the throttle quadrant. Both fuel tanks, which had been removed during the recovery of the wreckage, were breached during the accident sequence. The fuel tanks pick-up/flop-tube were found to be intact and secured.

The propeller remained bolted to the propeller hub, but had separated from the engine near the crankshaft flange, with a 45-degree shear-lip fracture. Both propeller blades were found twisted and curled. Additionally, both blades exhibited heavy gouges and nicks. Approximately 12-inches of the outer end of one of the blades was missing. The fractured blade was absent of any "beach" marks or evidence of fatigue.

The aileron push/pull tubes were disconnected during the recovery process. The elevator push/pull tubes were found in place and secure. The linear actuator for the flaps was in the fully-retracted position; corresponding to the flaps in the fully extended position.

The airplane was equipped with a Blue Mountain EFIS avionic system. The unit's processor was removed from the airplane and sent to the manufacturer for data recovery. However, the manufacturer reported that no data was retained for the accident flight.

The pilot held a private pilot certificate with a rating for airplane single-engine land and instrument airplane. Additionally, the pilot held airframe and powerplant (A&P), and repairman mechanic certificates. The pilot's third-class medical certificate was issued April 2005, at which time; he reported having accumulated a total of 205-flight hours. During the investigation a review of the pilot's logbook, indicated a total of 325-hours.

Pilot Information

Certificate:	Private	**Age:**	50, Male
Airplane Rating(s):	Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	
Medical Certification:	Class 3 With Waivers/Limitations	**Last FAA Medical Exam:**	04/01/2005
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	325 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Noble	**Registration:**	N216RV
Model/Series:	Vans RV-7A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental	**Serial Number:**	70256
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	Condition	**Certified Max Gross Wt.:**	1600 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Aero Engines
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360
Registered Owner:	On file	**Rated Power:**	180 hp
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	OUN	**Distance from Accident Site:**	
Observation Time:	0853	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 Miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	70°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.4 inches Hg	**Temperature/Dew Point:**	-2°C / -3°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	MIDWEST CITY, OK (2OK2)	**Type of Flight Plan Filed:**	None
Destination:	NORMAN, OK (OUN)	**Type of Clearance:**	VFR
Departure Time:	0835 CST	**Type of Airspace:**	

Airport Information

Airport:	UNIVERSITY OF OKLAHOMA WESTHEI (OUN)	**Runway Surface Type:**	
Airport Elevation:	1182 ft	**Runway Surface Condition:**	
Runway Used:	NA	**IFR Approach:**	Unknown
Runway Length/Width:		**VFR Approach/Landing:**	Traffic Pattern

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:**	

Administrative Information

Investigator In Charge (IIC):	Craig R Hatch	**Report Date:**	06/27/2007
Additional Participating Persons:	Joe Broker; FAA FSDO; Oklahoma City, OK		
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.ntsb.gov/pubdms/.		