Aviation Investigation Final Report

Location:	Van, Texas	**Accident Number:**	FTW04LA004
Date & Time:	October 6, 2003, 12:50 Local	**Registration:**	N27JW
Aircraft:	Colliander RV-8	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The accident airplane assumed the number two position of a four airplane formation flight that departed toward Tyler, Texas and "encountered an unreported layer of clouds at approximately 1,000 feet msl." The formation flight climbed through a "hole" on top of the cloud layer, leveling off at 3,300 msl. The lead pilot reported the visibility to be approximately 5 to 7 miles with a "misty, milky white undefined layer above. The broken layer below was "well defined with lots of holes to see the ground." Northwest of Tyler, Texas, and "the undefined layer above started to come down toward the broken layer below." The formation flight turned to the right, heading northeast, then north, while still between the layers. The formation flight initiated a shallow climb "through the misty white undefined layer," turning to the west, with an "in-flight visibility of approximately five miles." The formation flight "popped through an unseen layer of clouds, then back into the same white misty mass with decent visibility." The formation flight entered "another unseen layer of thick clouds and heavy rain at 5,500 feet msl. Subsequently, the pilot of airplane number two called lost sight, followed quickly by the pilot of airplane number four. The lead pilot told both pilots to "go lost wingman as they briefed the previous day, get on the attitude indicator, and start a shallow descent." Several witnesses observed the airplane flying overhead with the "wings fluttering" and then suddenly "nose diving" into the ground. One witness reported the weather at the time of the accident to be "very low clouds, poor visibility, and a heavy rain shower that started approximately 10 minutes after the time of the accident." Weather reports obtained from Tyler, Texas reported visibility of 6 statute miles, cloud ceilings of 2,900 feet agl deteriorating to visibility of 1 1/2 statute miles and 1,000 feet broken. Doppler weather radar images indicated very strong weather echoes were present in the vicinity of Van, Texas, near the time of the accident. The non-instrument rated private pilot of airplane number two had accumulated a total of 746-hours total time, of which 18 hours were in the accident make/model aircraft.

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 control of the airplane due to spatial disorientation. Contributing factors were the low ceilings, rain, and fog.

Findings

Occurrence #1: IN FLIGHT ENCOUNTER WITH WEATHER
Phase of Operation: CRUISE

Findings
1. (F) WEATHER CONDITION - CLOUDS
2. (F) WEATHER CONDITION - LOW CEILING
3. (F) WEATHER CONDITION - RAIN
4. (F) WEATHER CONDITION - FOG

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings
5. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
6. (C) SPATIAL DISORIENTATION - PILOT IN COMMAND
7. WEATHER CONDITION - CLOUDS
8. VFR FLIGHT INTO IMC - ENCOUNTERED - PILOT IN COMMAND

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
9. TERRAIN CONDITION - GROUND

Factual Information

On October 6, 2003, approximately 1250 central daylight time, an amateur-built Colliander RV-8 single-engine tailwheel equipped airplane, N27JW, registered to and operated by a private individual, was destroyed following a loss of control near Van, Texas. The non-instrument rated private pilot and his passenger sustained fatal injuries. Instrument metrological conditions prevailed, and no flight plan was filed for the 14 Code of Federal Regulations Part 91 personal flight. The cross-country flight originated from the Gilmer Municipal Airport (4F4), near Gilmer, Texas, approximately 1240, destined for the Georgetown Municipal Airport (GTU), near Georgetown, Texas.

In a written witness statement provided to the NTSB investigator-in-charge, the lead pilot of the formation flight reported that the flight was supposed to depart 4F4 on October 5, 2003, but was delayed due to weather. During this downtime, the pilots of the formation flight discussed numerous topics, including "lost wingman procedures if unexpected weather was encountered."

On the morning of October 6, 2003, the pilots observed a line of storms west of Interstate 35 (I-35) moving southeast on an Aviation Digital Data Service (ADDS) weather computer, and DUATS website. Throughout the morning, the pilots continued to check the weather. Approximately 1000, the lead pilot conferred with flight service. They informed the lead pilot that the storms would clear I-35 after lunch. Approximately 1145, the pilots checked DUATS and ADDS, and observed that the line of storms had cleared I-35. They also checked the aviation routine weather report (METAR) at six reporting stations along the planned route of flight. According to the lead pilot, all of the stations indicated cloud ceilings between 1,800 feet and 2,400 feet, with 7-10 miles visibility. The Tyler Pounds Regional Airport (TYR), near Tyler, Texas, reported ceilings of 2,400 feet and the area near Waco, Texas, was clear. The pilots of the formation flight conferred and agreed that they would "proceed under the weather until they reached the clear area."

After departure, the four airplanes joined up in a close formation. The lead pilot stated that the accident aircraft was in the number two slot, located 45-degrees behind his left wing, the number three slot was 45-degrees behind his right wing, and the number four slot was directly right of number three's right wing. The formation flight proceeded southwest toward Tyler, Texas.

The lead pilot reported that several minutes after departure, the formation flight "encountered an unreported layer of clouds approximately 1,000 feet." The formation flight climbed through a "hole" on top of the cloud layer, leveling off at 3,300 msl. The lead pilot reported the visibility to be approximately 5 to 7 miles with a "misty, milky white undefined layer above. The broken layer below was "well defined with lots of holes to see the ground."

Proceeding southwest for approximately five minutes, the formation flight was located northwest of Tyler, when "the undefined layer above started to come down toward the broken layer below." The lead pilot turned the formation to the right, heading northeast, then north, while still between the layers. After consulting with the pilot of airplane number three about going below or above the cloud layers, the lead pilot initiated a shallow climb "through the misty white undefined layer, turning to the west, and believed we [the formation flight] would be on top shortly since it was so bright." The lead pilot stated in-flight visibility was approximately five miles and that he could still see the broken layer below. The lead pilot stated that airplane number two remained "on his left wing." The formation flight "popped through an unseen layer of clouds, then back into the same white misty mass with decent visibility." The formation flight entered "another unseen layer of thick clouds and heavy rain at 5,500 feet msl. Subsequently, the pilot of airplane number two called lost sight, followed quickly by the pilot of airplane number four. The lead pilot told both pilots to "go lost wingman as they briefed the previous day, get on the attitude indicator, and start a shallow descent."

The pilot of airplane number four reported after turning 30-degrees and descending below 1,000 feet msl, he encountered visual flight rules (VFR) conditions existed, and continued the flight to GTU without incident. The lead pilot and the pilot of airplane number three diverted to Terrell Municipal Airport near Terrell, Texas, and landed without incident. No further visual or radio communications were transmitted or received from the pilot of airplane number two.

The lead pilot stated that the sight procedures was for airplane two to turn left 30-degrees, and hold the heading for one minute and resume the original course; airplane four, the same procedure, but with a right turn.

According to a Federal Aviation Administration (FAA) inspector, who responded to the accident site, several witnesses observed the airplane flying overhead with the "wings fluttering" and then suddenly "nose diving" into the ground. Witnesses also reported hearing the airplane's engine "cutting in an out." One witness reported the weather at the time of the accident to be "very low clouds, poor visibility, and a heavy rain shower that started approximately 10 minutes after the time of the accident."

The pilot held a private pilot certificate with an airplane single-engine land rating. The pilot was issued a second-class medical on February 12, 2003, with the limitations stated "MUST WEAR CORRECTIVE LENSES, and "NOT VALID FOR NIGHT FLYING OR BY COLOR SIGNAL CONTROL." Review of the private pilot's logbooks revealed he had accumulated a total flight time of 746.6 hours, of which 18.4 hours were in the accident make/model aircraft. The pilot did not have an instrument rating.

The 2000-model amateur built Colliander RV-8, serial number RJC02, was a low wing, tandem seat, fixed gear, tailwheel-equipped airplane. The airplane was powered by a normally aspirated, direct drive, air-cooled, horizontally opposed, fuel injected, four-cylinder Lycoming IO-360-A1B6 engine, serial number L-15704-51A, rated at 180 horsepower. The airplane was

configured to carry a maximum of two occupants. The airplane's maintenance logbooks were not located.

Weather surface observation reports were obtained from the automated observing system at TYR, located approximately 16 miles southeast of the accident site.

At 1200, the TYR reported the wind from 150 degrees at 3 knots, visibility 6 statute miles, haze, few clouds at 1,600 feet agl, ceiling 2,900 feet agl broken, 4,900 feet agl overcast; temperature 70 degrees Fahrenheit, dew point 64 degrees Fahrenheit, and an altimeter setting of 30.05 inches of Hg.

At 1245, TYR reported the wind from 250 degrees at 3 knots, visibility 1 3/4 statute miles, moderate rain, mist, ceiling 1,300 feet agl broken, 1,900 feet agl overcast; temperature 68 degrees Fahrenheit, dew point 64 degrees Fahrenheit, and an altimeter setting of 30.05 inches of Hg. Rain began at 1233.

At 1253, TYR reported the wind from 230 degrees at 4 knots, visibility 1 1/2 statute miles, moderate rain, mist, ceiling 1,000 feet agl broken, 1,700 feet agl overcast; temperature 66 degrees Fahrenheit, dew point 64 degrees Fahrenheit, and an altimeter setting of 30.04 inches of Hg, ceiling 700 feet agl variable to 1,100 feet agl.

Doppler weather radar images obtained from the Fort Worth Spinks Airport, near Fort Worth, Texas, approximately 99 miles northwest of the accident site, indicated at 1747, 1752, and 1756, very strong weather echoes were present in the vicinity of Van, Texas.

Examination of the wreckage by the FAA inspector revealed the wreckage debris field was contained within an approximate 280-foot circumference to the main wreckage. The airplane came to rest inverted in a soft grass field. The engine was separated from the airframe and embedded in the soft terrain adjacent to the wreckage. The leading edges of the left and right wing were crushed aft. All flight control surfaces were located at the debris field. The right horizontal stabilizer remained attached to the empennage.

Due to the extent of the damage, the only cockpit instrumentation able to be documented by the inspector was the tachometer, observed at 1,900 rpm, and the manifold pressure gauge indicated 20 inches.

An autopsy was performed on the pilot by the Dallas County Medical Examiner's Office, Dallas, Texas, on October 7, 2003. According to the report, the pilot's cause of death...was the result of multiple blunt force injuries. Toxicological tests performed by the Federal Aviation Administration's Civil Aeromedical Institute (CAMI) were negative for drugs, and alcohol. Tests for carbon monoxide were not performed.

Pilot Information

Certificate:	Private	**Age:**	61,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 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	February 12, 2003
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	747 hours (Total, all aircraft), 18 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	Colliander	**Registration:**	N27JW
Model/Series:	RV-8	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	RJC02
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	1800 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	IO-360-A1B6
Registered Owner:	On file	**Rated Power:**	180 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TYR,544 ft msl	**Distance from Accident Site:**	16 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	120°
Lowest Cloud Condition:	1000 ft AGL	**Visibility**	1.5 miles
Lowest Ceiling:	Overcast / 1700 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	230°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	19°C / 18°C
Precipitation and Obscuration:	Moderate - None - Rain		
Departure Point:	GILMER, TX (4F4)	**Type of Flight Plan Filed:**	None
Destination:	GEORGETOWN, TX (GTU)	**Type of Clearance:**	None
Departure Time:	12:40 Local	**Type of Airspace:**	Class G

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Fatal	**Latitude, Longitude:**	32.47861,-95.63861

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Michael D Hamilton; FAA Flight Standards District Office; Dallas, TX
Original Publish Date:	June 30, 2004
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=58099