



# Aviation Investigation Final Report

<b>Location:</b>	Tuscaloosa, Alabama	<b>Accident Number:</b>	ERA15LA172
<b>Date &amp; Time:</b>	March 29, 2015, 13:30 Local	<b>Registration:</b>	N8JL (A1); N722DK (A2)
<b>Aircraft:</b>	MERIAN RICHARD F RV 8 (A1); KIGHT DANIEL H RV 6 (A2)	<b>Aircraft Damage:</b>	Substantial (A1); Minor (A2)
<b>Defining Event:</b>	Midair collision	<b>Injuries:</b>	1 None (A1); 1 None (A2)
<b>Flight Conducted Under:</b>	Part 91: General aviation - Air race/show (A1); Part 91: General aviation - Air race/show (A2)		

## Analysis

The two experimental amateur-built airplanes were part of an air show team that was participating in an air show. At the time of the accident, an RV-6 and another airplane were flying in formation at an altitude of 500 ft above the ground, while the pilot an RV-8 intended to circle around the two airplanes from behind. While circling in a counter-clockwise direction, the RV-8 converged on the two airplanes flying in formation. The propeller of the RV-6, and the right elevator and horizontal stabilizer of the RV-8 made contact. The pilot of the RV-6 reported that the maneuver called for the RV-8 to be 100 ft behind the leading airplane. He was flying straight and level and focused on the airplane flying in formation on his left side when his airplane began to experience a sudden severe vibration. The pilot of the RV-8 reported that his airplane had overtaken the two airplanes and that he did not correct to compensate. He observed one of the airplanes pass off his left and heard a "bang" at that time. The RV-6 sustained minor damage to its propeller and the RV-8 sustained substantial damage to its right elevator and horizontal stabilizer. Both airplanes subsequently landed without further incident.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The RV-8 pilot's failure to maintain adequate clearance from the RV-6 while maneuvering during an air show, which resulted in a midair collision.

## Findings

<b>Aircraft (A1)</b>	(general) - Not attained/maintained
<b>Personnel issues (A1)</b>	Aircraft control - Pilot
<b>Aircraft (A2)</b>	(general) - Not attained/maintained
<b>Personnel issues (A2)</b>	Aircraft control - Pilot of other aircraft

# Factual Information

## History of Flight

<b>Maneuvering-aerobatics (A1)</b>	Midair collision (Defining event)
<b>Maneuvering-low-alt flying (A2)</b>	Midair collision

On March 29, 2015, about 1330 central daylight time, an experimental amateur-built Vans RV-8, N8JL, and an experimental amateur-built Vans RV-6, N722DK, collided in midair while maneuvering over the Tuscaloosa Regional Airport (TCL), Tuscaloosa, Alabama. The RV-8 was substantially damaged and the RV-6 sustained minor damage. Both airplanes subsequently landed without further incident. The pilot of the RV-8 and the pilot of the RV-6 were not injured. Visual meteorological conditions prevailed no flight plan had been filed for the local demonstration flight that was conducted under the provision of Title 14 Code of Federal Regulations Part 91.

Both airplanes were part of "Team Aerodynamix" an air show team that was participating in the Tuscaloosa Regional Air Show.

At the time of the accident, the RV-6 and another airplane were flying in formation at an altitude of 500 ft above runway 04/22, while the pilot of the RV-8 intended to circle around the two airplanes from behind. An additional group of team airplanes were flying in the opposite direction. While circling in a counter-clockwise direction, the RV-8 converged on the two airplanes flying in formation, and the propeller of the RV-6, which was flying on the right side of the formation, and the right elevator and horizontal stabilizer of the RV-8 made contact.

The pilot of the RV-6 reported that the maneuver called for the trailing/circling airplane to be 100 ft behind the leading airplane. He was flying straight and level and focused on the airplane flying in formation on his left side, when his airplane began to experience a sudden severe vibration. Postaccident examination of the airplane revealed that portions of the propeller were missing.

The pilot of the RV-8 reported that the maneuver had been practiced many times previously. He began rolling to the left while positioned about 4 to 5 airplane lengths behind the two airplanes. During his third roll, his airplane had overtaken the airplanes flying in formation during the final one-fourth to one-half of the roll. The pilot added that he "didn't correct to compensate." He observed one of the airplanes pass off his left and heard a "bang" at that time. Postaccident examination of the RV-8 revealed that the outboard one-third of the right horizontal stabilizer, and the outboard two-thirds of the right elevator were separated.

### Pilot Information (A1)

<b>Certificate:</b>	Airline transport; Commercial; Flight engineer	<b>Age:</b>	64, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	5-point
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 With waivers/limitations	<b>Last FAA Medical Exam:</b>	February 18, 2015
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	March 7, 2015
<b>Flight Time:</b>	19100 hours (Total, all aircraft), 2000 hours (Total, this make and model), 15000 hours (Pilot In Command, all aircraft), 65 hours (Last 90 days, all aircraft), 25 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

### Pilot Information (A2)

<b>Certificate:</b>	Commercial	<b>Age:</b>	41, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Front
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Unknown
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	October 6, 2014
<b>Occupational Pilot:</b>	No	<b>Last Flight Review or Equivalent:</b>	March 7, 2015
<b>Flight Time:</b>	731 hours (Total, all aircraft), 146 hours (Total, this make and model), 44 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information (A1)

<b>Aircraft Make:</b>	MERIAN RICHARD F	<b>Registration:</b>	N8JL
<b>Model/Series:</b>	RV 8	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2001	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	81324
<b>Landing Gear Type:</b>	Tailwheel	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	February 27, 2015 Condition	<b>Certified Max Gross Wt.:</b>	1800 lbs
<b>Time Since Last Inspection:</b>	25 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2243 Hrs as of last inspection	<b>Engine Manufacturer:</b>	ECI
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	DIOX-370
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	205 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

### Aircraft and Owner/Operator Information (A2)

<b>Aircraft Make:</b>	KIGHT DANIEL H	<b>Registration:</b>	N722DK
<b>Model/Series:</b>	RV 6	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>	2002	<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	24298
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	December 5, 2014 Condition	<b>Certified Max Gross Wt.:</b>	1600 lbs
<b>Time Since Last Inspection:</b>	22 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2142 Hrs as of last inspection	<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-360-A1A
<b>Registered Owner:</b>	On file	<b>Rated Power:</b>	180 Horsepower
<b>Operator:</b>	On file	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	TCL, 150 ft msl	<b>Distance from Accident Site:</b>	0 Nautical Miles
<b>Observation Time:</b>	13:53 Local	<b>Direction from Accident Site:</b>	0°
<b>Lowest Cloud Condition:</b>		<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	Overcast / 4600 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	10 knots / None	<b>Turbulence Type Forecast/Actual:</b>	/ Unknown
<b>Wind Direction:</b>	180°	<b>Turbulence Severity Forecast/Actual:</b>	/ Unknown
<b>Altimeter Setting:</b>	30.28 inches Hg	<b>Temperature/Dew Point:</b>	16°C / 1°C
<b>Precipitation and Obscuration:</b>	N/A - None - Unknown obscuration		
<b>Departure Point:</b>	Tuscaloosa, AL (TCL ) (A1); Tuscaloosa, AL (TCL ) (A2)	<b>Type of Flight Plan Filed:</b>	None (A1); None (A2)
<b>Destination:</b>	Tuscaloosa, AL (TCL ) (A1); Tuscaloosa, AL (TCL ) (A2)	<b>Type of Clearance:</b>	Unknown (A1); Unknown (A2)
<b>Departure Time:</b>	13:05 Local (A1); 13:00 Local (A2)	<b>Type of Airspace:</b>	Class D (A1); Class D (A2)

## Airport Information

<b>Airport:</b>	TUSCALOOSA RGNL TCL	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>	170 ft msl	<b>Runway Surface Condition:</b>	Unknown
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Full stop

## Wreckage and Impact Information (A1)

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	33.220554,-87.611389(est)

## Wreckage and Impact Information (A2)

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Minor
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>		<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	33.220554,-87.611389(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Schiada, Luke
<b>Additional Participating Persons:</b>	Nina A McBride; FAA/FSDO; Vestavia Hills, AL
<b>Original Publish Date:</b>	May 5, 2021
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class 3</a>
<b>Note:</b>	The NTSB did not travel to the scene of this accident.
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=90946">https://data.nts.gov/Docket?ProjectID=90946</a>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).