



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	TUCSON, AZ	<b>Accident Number:</b>	LAX97LA031
<b>Date &amp; Time:</b>	11/01/1996, 1743 MST	<b>Registration:</b>	N95HS
<b>Aircraft:</b>	Rainey RANS S-12	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	2 Fatal
<b>Flight Conducted Under:</b>	Part 91: General Aviation - Personal		

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## Analysis

The 2 seat, ultralight type, homebuilt aircraft was observed climbing out after takeoff toward the area of the accident site. Ground witnesses stated that they heard the high pitched hum of the engine, which went completely silent and was followed by a bang or thud; however, they did not see the aircraft crash. An FAA inspector examined the aircraft and reported that it impacted the ground in a near vertical nose down descent and that the empennage was torsionally twisted. No broken or disturbed vegetation, or other ground scars were observed beyond the immediate area of the wreckage. No preimpact mechanical problem was noted with the airframe or flight control system. The engine was examined by a power plant mechanic, who was familiar with the Rotax engine. He reported that both spark plugs had no spark due to a broken wire in the ignition coil.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a broken wire in the ignition coil, which resulted in a loss of engine power; and failure of the pilot to maintain adequate airspeed, which resulted in a stall/spin and uncontrolled collision with the terrain.

## Findings

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Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF  
Phase of Operation: CLIMB - TO CRUISE

### Findings

1. (C) IGNITION SYSTEM,IGNITION COIL - FAILURE,TOTAL  
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Occurrence #2: FORCED LANDING  
Phase of Operation: EMERGENCY DESCENT/LANDING  
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Occurrence #3: LOSS OF CONTROL - IN FLIGHT  
Phase of Operation: EMERGENCY DESCENT/LANDING

### Findings

2. (C) AIRSPEED - NOT MAINTAINED - PILOT IN COMMAND  
3. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND  
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Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

On November 1, 1996, about 1743 hours mountain standard time, a homebuilt experimental Rainey Rans S-12, N95HS, collided with the ground following an in-flight loss of control near Tucson, Arizona. The aircraft was owned and operated by the pilot and was on a local area personal flight. Visual meteorological conditions prevailed at the time and no flight plan was filed. The aircraft was destroyed in the ground collision sequence. The certificated private pilot and the one private pilot passenger onboard sustained fatal injuries. The flight originated from Tyler Field, a private ultralight airpark in Marana, Arizona, at 1720.

There were no witnesses to the accident. The aircraft was observed climbing out after takeoff toward the area of the accident site. Another ultralight pilot flying in the area observed the crashed aircraft on the desert floor and reported the event to 911. One witness stated that the ultralight flew over him and another person and, "as we were talking you hear the high pitched hum of its motor going behind us. Then it went completely silent and then we heard a bang or thud. I thought that it had just went over the hill and backfired or something."

Another witness who arrived on scene stated that the ". . . engine had stopped in flight. The condition of the propeller blades were as such as the blades broke over the motor. If the engine had been running on impact, the blades would have been sheared off."

In one statement made to the Federal Aviation Administration (FAA) airworthiness inspector, the individual stated that ". . . this pilot liked to fly high and he was in a hurry to get airborne before the sun set." The FAA inspector further stated in his report that "another pilot did tell me that this particular aircraft has a higher stall speed [than] most other ultra lights. Also two stoke Rotax engines can cold seize in a long climb."

Both the pilot and the pilot-rated passenger had access to the flight controls. According to responding law enforcement personnel, the pilot/owner was found in the pilot's seat and the passenger occupied the normal passenger station. No definitive pathological evidence was found to make a determination of which pilot was at the controls of the aircraft at the time of impact.

An FAA airworthiness inspector from the Scottsdale, Arizona, Flight Standards District Office responded to the accident site and examined the aircraft. The inspector reported that the aircraft impacted the ground in a near vertical nose down descent, and that the empennage was torsionally twisted. No broken or disturbed vegetation, or other ground scars were observed beyond the immediate area of the wreckage. The aircraft was examined with no abnormal conditions noted with the airframe control system or the engine.

Following recovery of the aircraft the engine was examined by a power plant mechanic familiar with the Rotax engine. He reported that both spark plugs had no spark due to a broken wire in the ignition coil.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	59, Male
<b>Airplane Rating(s):</b>	Single-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	Yes
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	
<b>Medical Certification:</b>	Class 3 Valid Medical--w/ waivers/lim.	<b>Last FAA Medical Exam:</b>	11/30/1995
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	280 hours (Total, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Rainey	<b>Registration:</b>	N95HS
<b>Model/Series:</b>	RANS S-12 RANS S-12	<b>Aircraft Category:</b>	Ultralight
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental	<b>Serial Number:</b>	1090026
<b>Landing Gear Type:</b>	Tricycle	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	Unknown	<b>Certified Max Gross Wt.:</b>	960 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Rotax
<b>ELT:</b>		<b>Engine Model/Series:</b>	582
<b>Registered Owner:</b>	HUGH S. RAINEY	<b>Rated Power:</b>	65 hp
<b>Operator:</b>	HUGH S. RAINEY	<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Dusk
Observation Facility, Elevation:	TUS, 2641 ft msl	Distance from Accident Site:	30 Nautical Miles
Observation Time:	1650 MST	Direction from Accident Site:	115°
Lowest Cloud Condition:	Clear / 0 ft agl	Visibility	10 Miles
Lowest Ceiling:	None / 0 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	21° C / 3° C
Precipitation and Obscuration:			
Departure Point:	(0AZ1)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	1720 MST	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:	

## Administrative Information

Investigator In Charge (IIC):	JEFF RICH	Report Date:	08/21/1997
Additional Participating Persons:	BRUCE BESSETTE; 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 <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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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. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).