Aviation Investigation Final Report

Location:	Peters, California	**Accident Number:**	LAX04LA324
Date & Time:	September 19, 2004, 16:13 Local	**Registration:**	N931CD
Aircraft:	Cirrus SR-22	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During climbing flight at 16,000 feet, the single engine airplane encountered the outer boundaries of severe convective weather; the airplane departed controlled flight, the pilot deployed the Cirrus Airframe Parachute System (CAPS), and the airplane was substantially damaged during the parachute landing in a walnut grove. The pilot did receive a standard weather briefing, checked radar, and satellite imagery prior to departing on the 600-mile cross-country flight. Throughout the flight the pilot recognized cloud build-ups and steered west to avoid the weather. About an hour into the flight he climbed from 13,500 to 16,000 in an attempt to stay clear of clouds; the autopilot was in heading mode and the vertical speed knob was set to maintain 100 knot climb. About this time radar depicted the airplane descending 1,100 feet in 23 seconds then climbing 1,300 feet in 14 seconds. The pilot heard a "whirring" noise in his headset, prompting him to disconnect the autopilot. The nose pitched up and the left wing dropped. It was at this time that the pilot transmitted that he was out of control and he deployed the CAPS. The airplane then descended by parachute to a landing in a walnut orchard. The radar track of the airplane combined with the weather surveillance radar imagery depicted the airplane encountering a level 5 (intense) area of convective activity moments prior to the final descent (CAPS deployment). Radar derived cloud tops indicated that the tops of the thunderstorms in the accident area were between 15,000 and 20,000 feet. Convective SIGMETs 44W and 47W, had been issued during the hour before departure, and warned of thunderstorms in the vicinity of the pilots' planned route of flight. SIGMET 49W, which covered the area in which the airplane was flying, was issued approximately 10 minutes prior to the airplane departing controlled flight. Examination of the airplane revealed no evidence of a preimpact malfunction or failure of the control system, autopilot, or power plant.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's decision to continue flight into adverse weather and the subsequent encounter with the outer boundaries of a level 5 thunderstorm, which resulted in his loss of control of the airplane.

Findings

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

Findings
1. (C) WEATHER CONDITION - THUNDERSTORM
2. (C) FLIGHT INTO ADVERSE WEATHER - CONTINUED - PILOT IN COMMAND

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: CLIMB - TO CRUISE

Findings
3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND

Occurrence #3: MISCELLANEOUS/OTHER
Phase of Operation: DESCENT - EMERGENCY

Findings
4. SAFETY SYSTEM(OTHER) - ACTIVATED
5. EMERGENCY PROCEDURE - PERFORMED - PILOT IN COMMAND(CFI)

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
6. TERRAIN CONDITION - HIGH VEGETATION

Factual Information

HISTORY OF FLIGHT

On September 19, 2004, at 1613 Pacific daylight time, a Cirrus SR-22 single engine airplane, N931CD, contacted trees in a walnut orchard during an emergency parachute descent near Peters, California. Following an encounter with weather and a loss of control, the pilot deployed the Cirrus Airframe Parachute System (CAPS) about 16,000 feet mean sea level (msl), and the airplane made a parachute landing into the walnut orchard. The owner was operating the airplane under the provisions of 14 CFR Part 91. The instrument-rated commercial pilot and single passenger were not injured, and the airplane was substantially damaged. Instrument meteorological conditions prevailed, and an instrument flight plan had been filed but not activated. The flight originated from Redding, California, about 1500, and was en route to Gillespie Field, El Cajon, California.

The pilot reported to the National Transportation Safety Board investigator-in-charge (IIC) that he had received a standard weather brief, and had checked the en route weather before departure using radar, satellite images, and visual observation. The pilot planned a 600-mile cross-country flight from Redding to El Cajon, California. The airplane departed Redding about 1500. About 50 minutes into the flight, the airplane passed through 14,000 feet mean sea level (msl) with the autopilot in heading mode and the vertical speed knob set for a 100-knot climb. The pilot and his passenger were using supplemental oxygen. There was a broken cloud layer 1,500 feet below the airplane and he was in visual meteorological conditions, steering west to avoid some weather. He heard a "whirring" sound in his headset and the nose pitched up. He disconnected the autopilot, the left wing dropped, and the airplane appeared to enter a spin. The pilot determined that the airplane would be in the cloud layer below before he could recover and decided to activate the CAPS. The CAPS deployment was successful; the airplane broke out of the clouds about 2,500 feet above ground level (agl), and parachuted into a walnut grove. The pilot stated to the county sheriff that he did not see any storm activity on his storm scope during the flight.

Radar and Air Traffic Control (ATC) Communication Information

Examination of Los Angeles Center radar records revealed that N931CD was at 16,300 feet and climbing steadily at 100 fpm up to 1604:47. From 1605:15 to 1605:38, the data displayed that the airplane descended from 16,300 feet to 15,200 feet. From 1605:43 to 1605:57, the airplane's radar return depicted that it ascended from 15,400 feet to 16,700 feet. After the time of 1605:57, the radar data showed that the airplane descended steadily at ground speeds between 75 and 18 knots, down to 7,700 feet, at which point the radar data file stopped (1609:43).

The Air Traffic Control (ATC) radio communication recordings between the controllers and the pilot of N931CD were examined. The pilot checked in at 9,500 feet with controllers at 1533, and requested a climb to 11,500 feet. About 1534, the pilot requested a climb to 13,500 feet. Four minutes later, controllers transmitted a traffic advisory to the pilot and his response was clear, quick, and direct. About 1602, the pilot said he was climbing to 15,000 feet to get over (cloud) build-ups. His speech was clear and distinct. About 1607, the pilot made an open transmission that he was out of control, and 3 minutes later, he transmitted that he had deployed the parachute and was descending through 10,000 feet. Around 1612, the pilot said he broke out of the clouds in his parachute descent at 2,500 feet (msl).

METEOROLOGICAL INFORMAION

AIRMETs/SIGMETs

The National Weather Service (NWS) issues in-flight weather advisories designated as Significant Meteorological Information (Convective SIGMET -WST and SIGMET - WS), and Airmen Meteorological Information (AIRMET - WA). In-flight advisories serve to notify en route pilots of the possibility of encountering hazardous flying conditions, which may not have been forecast at the time of a preflight briefing.

At the time of the accident, an AIRMET (WA6T) issued at 1245 for turbulence was valid for California, but it did not include the accident location. However, it noted that elsewhere turbulence could be expected in the vicinity of convective activity. A Convective SIGMET (49W) was issued at 1555, and was valid at the time of the accident. It indicated a severe line of thunderstorms 30 miles wide moving from 300 degrees at 15 knots, with tops to 27,000 feet. The SIGMET also noted the possibility of 1-inch hail and wind gusts up to 50 knots. Two other Convective SIGMETs, 44W and 47W, had been issued at 1355 and 1455, respectively. They warned of similar conditions near the accident area. Lastly, an AIRMET (ZULU) for icing conditions was valid at the time of the accident and included the accident location. It forecasted the presence of occasional moderate rime or mixed icing in clouds and/or precipitation between the freezing level and 19,000 feet, with the freezing level ranging from 7,500 to 12,000 feet over central California.

Terminal Aerodrome Forecast (TAF)

A TAF was issued at 1013 for the Stockton Metropolitan Airport, which is about 10 miles west of the accident site, and was valid from 1100 on September 19 until 1100 on September 20. In part, it stated the following:

Winds 260 degrees at 10 knots; visibility greater than 6 statute miles with moderate rain shower; and scattered clouds at 3,000 feet (agl) and overcast at 6,000 feet (agl). From 1700, winds 280 degrees at 8 knots; visibility greater than 6 statute miles; and skies scattered at 8,000 feet…

A TAF was also issued for Sacramento Executive Airport, which is about 30 miles northwest of the accident site. It was issued at 1314, and valid from 1300 on the day of the accident through 1100 of the following day. A portion of the TAF is presented below.

Winds 180 degrees at 11 knots; visibility greater than 6 statute miles; showers in the vicinity; and the sky conditions scattered at 4,000 feet and broken at 8,000 feet. Temporary condition between 1300 and 1700, winds 170 degrees at 13 knots, gusting to 20 knots; thunderstorm with moderate rain; and sky conditions broken at 3,000 feet with cumulonimbus.

Weather Surveillance Radar Data

The Sacramento, California, WSR-88D (Weather Surveillance Radar-1988 Doppler) was the nearest weather radar to the accident. This radar (DAX) was 43 miles away from the accident site at 317 degrees.

The color radar scan from DAX valid at 1605 on September 19, 2004, was examined. A color scale was on the right side of the image depicting the reflectivities ranging from 5 to 75 dBZ. A plot of the 1550 radar data and the flight track of the airplane were overlaid on to the DAX radar scan and showed the track intersecting an area reflectivity of 50-55 dBZ, which correlates to a level 5 (intense) measurement of convective activity. Radar derived cloud tops indicated that the tops of the thunderstorms in the accident area were between 15,000 and 20,000 feet.

A detailed weather description can be found in the Meteorological Factual Report section in the Official Docket for this accident.

TESTS & RESEARCH

Airplane Examination

Under the direction of the Safety Board IIC a pitot-static system test was performed on the airplane before it was removed from the landing location. The airspeed indicator was checked up to 200 knots with no leaks identified. The static system was tested up to 12,500 feet with an associated leak rate of 80 feet per minute identified (a maximum of 100 feet per minute is acceptable per 14 CFR Part 23.1325).

The airplane was examined by a Federal Aviation Administration (FAA) inspector and the manufacturer under the supervision of the Safety Board IIC at the Air Transport facility, Phoenix, Arizona. No pre-accident airframe or power plant discrepancies were identified. The airplane's autopilot was removed for further testing. An FAA inspector supervised the autopilot testing at the manufacturer's facility. The test results of the autopilot and associated components revealed no operating discrepancies.

ADDITIONAL INFORMATION

The Safety Board IIC released the airplane on September 18, 2004.

Pilot Information

Certificate:	Commercial	**Age:**	65,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 1, 2004
Flight Time:	2565 hours (Total, all aircraft), 498 hours (Total, this make and model), 2468 hours (Pilot In Command, all aircraft), 92 hours (Last 90 days, all aircraft), 31 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cirrus	**Registration:**	N931CD
Model/Series:	SR-22	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	261
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 1, 2004 Annual	**Certified Max Gross Wt.:**	3400 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	422 Hrs as of last inspection	**Engine Manufacturer:**	Teledyne Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-550-N7B
Registered Owner:	William K. Graham	**Rated Power:**	310 Horsepower
Operator:	William K. Graham	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSCK,30 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	15:55 Local	**Direction from Accident Site:**	220°
Lowest Cloud Condition:	Few / 6000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	13 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	50°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.84 inches Hg	**Temperature/Dew Point:**	18°C / 0°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Redding, CA (KRDD)	**Type of Flight Plan Filed:**	IFR
Destination:	El Cajon, CA (KSEE)	**Type of Clearance:**	VFR;VFR flight following
Departure Time:	15:00 Local	**Type of Airspace:**	Class E

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	37.995834,-121.061386

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	Rick Baker; Federal Aviation Administration; Oakland, CA Peter Betz; Cirrus Design; Duluth, MN
Original Publish Date:	January 31, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60205