



Aviation Investigation Final Report

Location:	Idabel, Oklahoma	Accident Number:	CEN10LA483
Date & Time:	August 16, 2010, 16:45 Local	Registration:	N513CM
Aircraft:	CIRRUS DESIGN CORP SR22	Aircraft Damage:	Substantial
Defining Event:	Collision with terr/obj (non-CFIT)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

While in cruise flight, the pilot detected a change in engine sound, followed by a muffled explosion and a total loss of engine power. He declared an emergency and received vectors to the nearest airport. When he realized he was not going to be able to glide to the airport, he deployed the ballistic parachute. The parachute opened properly and the airplane landed in a field. According to downloaded data from the Primary and Multi-Function Displays, about 1 minute after departure the current from alternator 1 began fluctuating, and 10 minutes later the current began to fluctuate again but at a slower rate. Approximately 45 minutes after departure, there was a sharp reduction in exhaust gas temperature and rpms, fuel flow decreased, and the airplane began descending at a rate between 1000 and 2000 feet per minute and at an airspeed between 100 and 130 knots. About 7 minutes later, the airplane experienced a sharp negative longitudinal acceleration at 800 feet pressure altitude. The engine was functionally tested after the accident and operated at various power settings, including full power, and no anomalies were noted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power for undetermined reasons.

Findings

Not determined

(general) - Unknown/Not determined

Factual Information

History of Flight

Enroute-cruise	Loss of engine power (total)
Emergency descent	Off-field or emergency landing
Emergency descent	Collision with terr/obj (non-CFIT) (Defining event)

On August 16, 2010, approximately 1645 central daylight time, a Cirrus SR22, N513CM, registered to and operated by Old Well Aviation LLC, Cincinnati, Ohio, was substantially damaged when the engine lost power and the pilot deployed the ballistic parachute 4 miles northwest of Idabel, Oklahoma. Visual meteorological conditions (VMC) prevailed at the time of the accident. The personal flight was being conducted under the provisions of 14 Code of Federal Regulations (CFR) Part 91 without a flight plan. The pilot and passenger on board the airplane were not injured. The cross-country flight originated in Dallas, Texas, and was en route to Cincinnati, Ohio.

The pilot said they had flown from Cincinnati (LUK), Ohio, to Jackson (MKL), Tennessee, then to Dallas (ADS), Texas, the day before the accident, arriving approximately 1620. The airplane performed well and was fueled to capacity at each location.

The next day, the pilot and his passenger arrived at the airport approximately 1610. The preflight was "routine." The pilot confirmed the airplane had been fueled to capacity, the fuel tanks were sumped, and he added 1 quart of oil to the 6 quarts that were in the crankcase. He departed ADS's runway 33. He said the takeoff and climbout were normal, and oil pressure was within normal limits.

After about 45 to 60 minutes into the flight, "there was a change in [propeller] pitch from the [engine] noise, not like a change in RPM, but rather like a wind shift." Later, he said it was an "explosion." Shortly thereafter, the plane "shuddered and bucked and, popped up in the air." The pilot said he thought the airplane might be coming apart. There was a smell in the cockpit at about the same time. The cabin became very hot. The air conditioner was operating, but was not producing cold air. The pilot said he was positive the fuel tank did not run dry because he switched back and forth between tanks during the flight. He declared an emergency and was vectored to the nearest airport. He established the 90-knot best glide speed and noticed the engine readout was 28 percent. Shortly thereafter it dropped to zero and he realized he did not have any power. When he realized he wasn't going to be able to glide to the airport, he deployed the parachute. There were three impacts: the first when the chute deployed, the second when the chute filled with air and the airplane swung like a pendulum, and the third when the airplane impacted the ground.

The airplane was equipped with an Avidyne Entegra EXP5000 Primary Flight Display (PFD) and

an EX5000 Multi-Function Display (MFD) capable of recording flight data. The units were removed from the airplane and sent to the National Transportation Safety Board's Vehicle Recorder Laboratory for readout. According to the downloaded data, the airplane departed at approximately 1426 CDT. The airplane climbed to 3,000 feet, then to 9,000 feet, and finally to 11,000 feet at 1456 CDT. At 1517:24, there was a sharp reduction in exhaust gas temperature (EGT), dropping from over 500 degrees F. to 0 in one sample. The valid range of the EGT sensor is from 500 to 1650 degrees Fahrenheit (F). There was also a reduction in RPM, from 2,800 RPM to approximately 2,000 RPM. Fuel flow decreased from approximately 12 gallons per hour to less than 1 gallon per hour at the same time. The airplane began descending at a rate between 1,000 and 2,000 feet per minute and at an indicated airspeed fluctuating between 100 and 130 knots. At 1524:24, the airplane experienced a sharp negative longitudinal acceleration approximately 800 feet pressure altitude. The MFD data end at 1524:36 and the PFD data ended at 1525:10. At 1427:30 CDT, alternator 1 current began fluctuating between approximately 19 and 30 amps until about 1438:30. At 1442, alternator 1 current began fluctuating between 19 and 30 amps again, but at a slower rate.

The airplane was recovered and taken to Air Salvage of Dallas (Texas) where, on September 1, 2010, it was functionally tested. The engine was started and operated at various power settings, including full power. No anomalies were noted.

Pilot Information

Certificate:	Private	Age:	56, 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):	None	Toxicology Performed:	No
Medical Certification:	Class 3 With waivers/limitations	Last FAA Medical Exam:	January 30, 2009
Occupational Pilot:	No	Last Flight Review or Equivalent:	June 11, 2010
Flight Time:	200 hours (Total, all aircraft), 150 hours (Total, this make and model), 120 hours (Pilot In Command, all aircraft), 32 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 5 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CIRRUS DESIGN CORP	Registration:	N513CM
Model/Series:	SR22 NO SERIES	Aircraft Category:	Airplane
Year of Manufacture:	2006	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	1981
Landing Gear Type:	Tricycle	Seats:	
Date/Type of Last Inspection:	June 8, 2010 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:	46 Hrs	Engines:	1
Airframe Total Time:	712 Hrs at time of accident	Engine Manufacturer:	CONT MOTOR
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-550-N
Registered Owner:	OLD WELL AVIATION LLC	Rated Power:	0 Horsepower
Operator:		Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	404,462 ft msl	Distance from Accident Site:	4 Nautical Miles
Observation Time:		Direction from Accident Site:	135°
Lowest Cloud Condition:	Scattered / 6000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	60°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.93 inches Hg	Temperature/Dew Point:	37°C / 19°C
Precipitation and Obscuration:			
Departure Point:	Dallas, TX (ADS)	Type of Flight Plan Filed:	IFR
Destination:	Cincinnati, OH (LUK)	Type of Clearance:	IFR
Departure Time:	16:00 Local	Type of Airspace:	Class E

Airport Information

Airport:	McCurtain County Regional 404	Runway Surface Type:	
Airport Elevation:	472 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	None

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:	33.885555,-94.839996(est)

Administrative Information

Investigator In Charge (IIC):	Scott, Arnold
Additional Participating Persons:	Joe Broker; FAA Flight Standards District Office; Oklahoma City, OK Dan Donnelly; FAA Flight Standards District Office; Oklahoma City, OK
Original Publish Date:	May 26, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=76997

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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](#).