Aviation Investigation Final Report

Location:	Oak Grove, Louisiana	**Accident Number:**	CEN13LA063
Date & Time:	November 19, 2012, 08:30 Local	**Registration:**	N4031Q
Aircraft:	REDD TOM QUICKSILVER GT 400	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot had recently purchased the light-sport airplane and was on his first flight in the airplane. A witness reported seeing the airplane disappear from sight; the engine sound stopped, and immediately heard a crash. Examination revealed that the airplane collided with a tree, before impacting the ground in a nose down, left wing low attitude. Additionally, the examination revealed the airplane was equipped with a ballistic parachute system; however, the safety pin was found still installed in the parachute's firing handle. The airplane was equipped with an electric fuel pump installed in series with the engine's fuel pump. The engine manufacturer's manual states the following: "If the fuel tank is considerably lower than the engine, an electric pump should be used; this pump is to be connected in parallel as in case of series-connection the fuel pressure would be excessive." The fuel pump installed on the engine was identified as one typically used on two stroke engines. The engine technician noted that this style pump does not have the bleed holes in it, and without these bleed holes, this style pump may hydro lock. The in-line fuel filter installed was a paper type filter and appeared dirty with contaminates in it. Additionally, the installation manual states the following: "A suitable fuel filter of 0.15 mm mesh size must be fitted between pump and carburetor. Do not use paper filters." Although, the examination noted these abnormalities, a specific reason for the loss of engine power was not identified; however, it is likely that one or more of these abnormalities resulted in the engine's loss of power.

Probable Cause and Findings

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

Findings

Aircraft	(general) - Failure

Factual Information

History of Flight

Approach	Powerplant sys/comp malf/fail
Approach	Loss of engine power (total) (Defining event)
Emergency descent	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On November 19, 2012, about 0830 central standard time, an experimental, light sport Quicksilver GT400 airplane, N4031Q, impacted terrain near Oak Grove, Louisiana. The private rated pilot, sole occupant, was fatally injured and the airplane sustained substantial damage. The airplane was registered to and operated by a private individual under the provisions of 14 Code of Federal Regulations Part 91 as a personal flight. Day visual meteorological conditions prevailed for the flight, which operated without a flight plan.

According to family members, the pilot recently purchased the airplane and this was the pilot's first flight in the airplane. He departed about one hour before the accident and planned to fly locally. An individual, who lived near the airport, reported seeing the accident airplane headed north toward the runway. Once the witness lost sight of the airplane, he heard its engine stop flowed by a "crunch" sound.

PERSONNEL INFORMATION

The pilot held a private pilot certificate for airplane single engine-land. The pilot's logbook was not recovered; however, the pilot reported a total of 1,006 hours on this application for third-class Federal Aviation Administration (FAA) medical on October 31, 2005. A review of the pilot's medical records revealed that the pilot's application for a medical certificate was denied, due to coronary disease and medications.

AIRCRAFT INFORMATION

The accident airplane was a Quicksilver GT400, which was a kit built airplane and constructed from aluminum tubing, fiberglass, and covered with a polyester fabric. The airplane was configured with a single-seat and with fixed tricycle landing gear. The airplane was certified in the Experimental – Amateur Built category, and was originally equipped with a Rotax model 447 engine. At the time of the accident, the airplane was equipped with a Rotax 503 engine, and according to the previous owner had accrued a total of 69 total hours.

METEOROLOGICAL INFORMATION

At 0835, the automated weather station at the Arcadia-Bienville Parish Airport, Arcadia, Louisiana (5F0), located about 10 miles northwest of Oak Grove, Louisiana, reported wind calm, temperature 50

degrees Fahrenheit (F), dew point 42 degrees Fahrenheit, (F), visibility 10 miles, a clear sky, and an altimeter pressure setting 30.34 inches of mercury.

COMMUNICATIONS & RADAR INFORMATION

The pilot was not in contact with air traffic control/radar service and no distress call from the pilot was reported.

WRECKAGE AND IMPACT INFORMATION

An inspector from the Federal Aviation Administration (FAA) examined the airplane wreckage on site. The inspector reported that the airplane was equipped with a ballistic safety parachute; however, the safety pin was found still installed in the parachute's firing handle with the "remove before flight" tag still attached to the pin. Additionally, the main battery power switch was in the off position.

A tree located at the aft side of the airplane showed one limb had broken off; the limb was on the edge of a tree line. There was no impact damage to trees in the midst of the tree line. The damage to the tree limb is consistent with a near vertical descent of the airplane. Damage to the airplane and ground scars were also consistent with a left wing ground impact, a roll to the left, and finally coming to rest with the fuselage on its left side. The airplane's tail section was at an approximate 35 degree angle from the fuselage.

The fuel tank was found to be about half full of fuel. Only residual fuel were found in the fuel lines and the carburetor float bowls. Additionally, there was no fuel in the in-line fuel filter; the filter appeared to be dirty with unidentified contaminates in it. The transparent fuel lines appeared to be in a degraded condition.

An on-site examination of the engine did not identify any operational problems; however, the ignition switch would produce a shock to an individual, whenever the switch was turned to the "start" position. The switch was removed from the airplane and shipped to the NTSB Materials Laboratory in Washington, D.C.

MEDICAL AND PATHOLOGICAL INFORMATION

An autopsy was conducted on the pilot on November 19, 2012, by the West Carroll Parrish Coroner's Office, Louisiana. The cause of death was determined to be from multiple injuries.

The FAA Toxicology Accident Research Library, Oklahoma City, Oklahoma, conducted toxicological testing on the pilot. The results were negative for carbon monoxide, cyanide, and ethanol. Diphenhydramine and Stalol were detected in muscle and blood. Diphenhydramine is a sedating antihistamine and sleep aid available over the counter in drugs marketed under the trade names Benadryl and Unisom. According to the FDA, Sotalol is a prescription antiarrhythmic beta blocker with both Class II and III antiarrhythmic properties. It is used treat atrial fibrillation and ventricular arrhythmias but carries a warning that it may also cause life threatening ventricular arrhythmias.

TEST AND RESEARCH

The ignition switch installed in the airplane was an ACS Model No A-510-2. The switch was the subject of a 1993 Airworthiness Directive (AD) that required the switch to be periodically inspected to determine wear, corrosion, and to lubricate the switch. The switch is to be lubricated with Mobil grease 33. Examination of the switch prior to disassembly, produced indications of electrical continuity from the key through the rest of the switch, when the key was turned. The switch was dissembled, and a sample of the grease inside was identified as a graphite thickened lubricant.

Further examination of the airplane revealed that airplane was equipped with an automotive fuel pump installed outside of the fuel tank, and the fuel filter was installed on the outflow side of the pump. A Mr. Gasket fuel pump model 42s was installed in series with the engine's fuel pump. The Rotax 503 manual states the following: "If the fuel tank is considerably lower than the engine, an electric pump should be used; this pump is to be connected in parallel as in case of series-connection the fuel pressure would be excessive." The fuel pump installed on the engine was identified as a Mikuni pump, typically used on two stroke engines for snowmobiles and ATV's. The Rotax technician noted that, this style pump does not have the bleed holes drilled in it the way the pumps from Rotax do; without these bleed holes this style pump may hydro lock. The in-line fuel filter installed was a paper type filter. Additionally, the Rotax 503 installation manual states the following, "A suitable fuel filter of 0.15 mm mesh size must be fitted between pump and carburetor. Do not use paper filters." The sparkplugs appeared to be in new condition and were gapped at 0.030; the recommended gap is 018-.023 of an inch. A post-crash engine run was conducted; the engine started and was able to produce power.

Pilot Information

Certificate:	Private	**Age:**	68
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	None None	**Last FAA Medical Exam:**	October 31, 2005
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 1500 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	REDD TOM	**Registration:**	N4031Q
Model/Series:	QUICKSILVER GT 400	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	1444
Landing Gear Type:	Tricycle	**Seats:**	1
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	503
Registered Owner:	Jerry Swafford	**Rated Power:**	
Operator:	Randy Capers	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KBQP	**Distance from Accident Site:**	25 Nautical Miles
Observation Time:	08:35 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.34 inches Hg	**Temperature/Dew Point:**	10°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Oak Grove, LA	**Type of Flight Plan Filed:**	Unknown
Destination:	Oak Grove, LA	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	32.508888,-92.843887(est)

Administrative Information

Investigator In Charge (IIC):	Hatch, Craig
Additional Participating Persons:	Jason Adame; FAA FSDO; Baton Rouge, LA
Original Publish Date:	January 13, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=85626