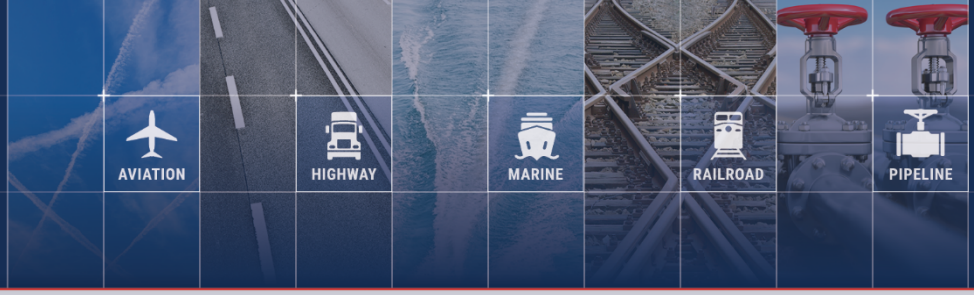

Aviation Investigation Final Report

Location:	Wingate, North Carolina	**Accident Number:**	ERA09LA025
Date & Time:	October 21, 2008, 12:45 Local	**Registration:**	N184GT
Aircraft:	MOSES TIM C QUICKSILVER	**Aircraft Damage:**	Substantial
Defining Event:	Nose over/nose down	**Injuries:**	1 Fatal, 1 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor and the student pilot just landed from a cross country instructional flight. They decided to conduct additional traffic pattern work and took off from the grass strip. During the takeoff, when the airplane was 200 feet above the ground, there was a total loss of engine power. The flight instructor elected to allow the student handle the emergency. They were not able to return to the grass strip and elected to land in a rough corn field. The airplane landed flat with the left main wheel touching first. When the nose tire touched the ground the airplane flipped over. The forward section of airframe structure, where the student pilot was seated, collapsed. An examination of the engine revealed a fractured crankshaft near the number 2 piston journal section. The airplane's maintenance records did not provide any history on the engine.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: A loss of engine power due to a fractured crankshaft.

Findings

Aircraft	Recip engine power section - Failure
Environmental issues	Rough terrain - Effect on equipment
Environmental issues	Rough terrain - Contributed to outcome

Factual Information

History of Flight

Takeoff	Loss of engine power (total)
Landing	Off-field or emergency landing
Landing-flare/touchdown	Nose over/nose down (Defining event)

On October 21, 2008, at 1245 eastern daylight time, an experimental, amateur-built, Quicksilver GT-500, N184GT, incurred substantial damage when it impacted into terrain during a force landing shortly after taking off from the Arant Airport (1NC6), Wingate, NC. The owner/student pilot was killed and the flight instructor received serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the Title 14 Code of Federal Regulations Part 91, instructional flight.

A witness stated that he saw the accident airplane takeoff from outside his hangar. Moments later he heard a “noise” and then did not hear the airplane anymore. He believed that they may have been practicing emergency maneuvers but decided to go check on them and discovered they had crashed. Another witness stated that he was preparing to fly his airplane from the same grass strip. He earlier seen the accident airplane (184GT) flying and land, only to take off again just ahead of the witness’s anticipated takeoff. The witness observed 184GT takeoff from inside his airplane as he continued his ground run-up check. Shortly after, he heard over his radio “184GT making emergency landing”. The witness looked up through the windshield to see 184GT about 100 feet off the ground making a 30-degree turn towards the landing strip; whence it just departed from. The left wing dropped abruptly and the airplane descended at a very steep angle into the field.

The certified flight instructor stated that he was given the owner/student flight lessons to get him ready for the practical portion for the sport pilot license. They had flown the day prior practicing flight maneuvers and procedures. The day of the accident, they were on a cross country flight and were returning back to 1NC6. The student performed a short field landing at 1NC6. They turned right around to depart from runway 16 back up to conduct pattern work. The takeoff was normal from the 2,300 foot long grass strip. The runway has a 500 foot runoff at the end and then it dog leg's toward the left. The airplane was climbing at 60 mph. When the airplane was about 200 feet above the ground, the engine rapidly lost power until it quit. The student continued flying the airplane and the instructor called out the airspeeds and coached the student throughout the maneuver. There were trees to the right and high tension lines ahead of them. The best direction was to turn to the left and try to make it back to the departing runway. The aft mounted engine on the airplane restricts the airflow over the rudder and elevator flight controls when it’s not running. The student did not panic and was doing a good job turning. He had to turn, lower the nose for airspeed, turn, and lower the nose to maintain 60 mph. Since insufficient altitude was gained during the takeoff climb, they were not

able to make it back to the runway. Just ahead of them was an open corn field; however, the terrain was rolling and uneven. Just before the landing, the instructor assisted the student to help flair for the landing. The airplane came in flat, at about 60 mph, the left main gear touched the ground first and then the nose wheel, which dug into the ground. The front section of the airplane was torn apart as the airplane flipped.

PERSONNEL INFORMATION

The student pilot, seated in the front, age 55, was last issued a third-class medical certificate on April 26, 1985, with must wear corrective lenses. A review of the student pilot's flight logbook showed that he documented 320 total flight hours.

The flight instructor, seated in the rear, age 48, held a commercial pilot certificate, with ratings for airplane single-engine land, airplane multiengine land, and instrument airplane. He also held a flight instructor certificate, with ratings for airplane single-engine land, airplane multiengine land, and instrument airplane. He was issued a second-class medical certificate on February 8, 2008, with must have available glasses for near vision and must wear corrective lenses. At that time, the pilot reported a total flight experience of 2,800 hours.

AIRCRAFT INFORMATION

The amateur built airplane was issued an experimental airworthiness certificate on Oct 10, 2006. The airplane was on a condition inspection program. A review of the airplane's maintenance records showed the last condition inspection was perform on June 29, 2008, at a total time of 312 hours. The airplane was powered by a Hirth F30, 110 horsepower rated engine. The engine was installed on the airplane on February 2, 2001, at which time the airplane had a total of 233 hours. The maintenance records did not provide history on the accident engine. A Hirth engine representative stated that company records show that the accident engine was sold to an ultralight company in Texas on April 15, 2000.

METEOROLOGICAL INFORMATION

The nearest official weather reporting station was the Charlotte-Monroe Executive Airport (EQY), Monroe, North Carolina, located 9 miles west of the accident site. The 1253 surface observation was: winds 250 degrees at 4 knots; visibility 10 statute miles; sky condition clear; temperature 21 degrees Celsius; dew point 7 degrees Celsius; altimeter 30.16 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The airplane crashed approximately 100 yards southwest of the south end of the landing strip in a cut corn field. The airplane's front section up to the forward section of the back seat area was crushed and ripped open. The airframe structure tubing and fuselage skin was destroyed. The tail boom supporting the empennage section broke at the aft fuselage location. The back

seat area remained intact. No external damage was observed on the aft mounted Hirth engine. One of the three blades of the propeller broke at mid point when it made contact with the ground as the airplane flipped over. The separated nose tire assembly was located where the nose wheel made contact with the ground. Airframe structure tubing and fuselage debris was lodged into the ground at the location were the forward section of the airplane made contact with the ground. Fuel was observed at the accident site.

An examination of the engine was conducted with Federal Aviation Administration oversight. The examination revealed a fractured crankshaft. The fracture was near the number 2 piston journal section.

MEDICAL AND PATHOLOGICAL INFORMATION

The Mecklenburg County in Charlotte, North Carolina, conducted a postmortem examination. The cause of death for the student pilot was blunt force trauma.

The FAA Civil Aeromedical Institute (CAMI) conducted toxicology testing on specimens from the student pilot. No carbon monoxide, cyanide or ethanol was detected. Omeprazole was detected in the blood.

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	46,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	February 8, 2008
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	2800 hours (Total, all aircraft)		

Student pilot Information

Certificate:	Student	**Age:**	55,Male
Airplane Rating(s):	None	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	April 26, 1985
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	320 hours (Total, all aircraft), 20 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	MOSES TIM C	**Registration:**	N184GT
Model/Series:	QUICKSILVER GT-500	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	GT5000184
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	June 29, 2008 Annual	**Certified Max Gross Wt.:**	1000 lbs
Time Since Last Inspection:	10 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	313 Hrs as of last inspection	**Engine Manufacturer:**	Hirthmotoren
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	F-30
Registered Owner:	On file	**Rated Power:**	110 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	EQY,679 ft msl	**Distance from Accident Site:**	9 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	270°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	250°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	21°C / 7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Wingate, NC (1NC6)	**Type of Flight Plan Filed:**	None
Destination:	Wingate, NC (1NC6)	**Type of Clearance:**	None
Departure Time:	12:45 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal, 1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal, 1 Serious	**Latitude, Longitude:**	35.055831,-80.449996

Administrative Information

Investigator In Charge (IIC):	Obregon, Jose
Additional Participating Persons:	Ralph Carr; FSDO/FAA; Charlotte, NC
Original Publish Date:	July 22, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=69326