Aviation Investigation Final Report

Location:	Skiatook, Oklahoma	**Accident Number:**	CEN16LA323
Date & Time:	August 13, 2016, 11:00 Local	**Registration:**	N29225
Aircraft:	Cessna TU206C	**Aircraft Damage:**	Substantial
Defining Event:	Loss of engine power (total)	**Injuries:**	7 Minor
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The private pilot reported that the accident flight was the second skydiving drop flight of the day. The takeoff and initial climb were normal; however, between 900 and 1,000 ft above ground level, the engine experienced a total loss of power. The pilot executed a forced landing to a field, resulting in substantial damage to the airplane. About 5 gallons of fuel was removed from the airplane at the accident site before transport. During a detailed examination, flight control cable continuity was established from the cockpit to all control surfaces. The fuel selector valve was found between the right tank and off position. The valve functioned normally when rotated by hand. Although the fuel selector valve was found in between the "off" and right tank positions after the accident, it could not be determined if the valve was in that position during the flight. The fuel strainer showed a small amount of fuel present. The fuel was tested and the results were negative for water. There was a significant amount of debris observed in the fuel strainer and the strainer bowl. The debris was consistent with caulking and rust particles. The airplane had usable fuel onboard during the accident flight and the engine ran smoothly during the day's previous flight. Whether the debris found in the fuel filter bowl contributed to the loss of power could not be determined.

Examination of the engine revealed a loose B-nut fitting to the upper deck pressure line. The engine was test run once with the B-nut tightened, and once with the B-nut loosened; no anomalies were noted. Therefore, the loose B-nut was most likely not the reason for the loss of engine power.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

A total loss of engine power after takeoff for reasons that could not be determined based on the available information.

Findings

Not determined	(general) - Unknown/Not determined
Environmental issues	Rough terrain - Contributed to outcome

Factual Information

History of Flight

Enroute-climb to cruise	Loss of engine power (total) (Defining event)
Landing	Off-field or emergency landing

On August 13, 2016, about 1100 central standard time, a Cessna TU206B airdrop configured airplane, N29225, registered to the pilot and operated by Gypsy Moth Skydive LLC of Benton, Kansas, sustained substantial damage during a forced landing after a loss of engine power while maneuvering in the vicinity of Skiatook, Oklahoma. All seven occupants, the private pilot and six passengers (parachutists), sustained minor injuries. The local flight was being operated under the provisions of Federal Code of Regulations Part 91 and the intent was to climb to altitude and dispatch the 6 parachutists. Visual meteorological conditions prevailed and a flight plan was not filed. The flight originated from the Skiatook Municipal Airport (2F6), Skiatook, Oklahoma, about 1030.

According to the pilot, he had topped off the fuel tanks the night before. He was planning to sell the airplane and was giving some demo flights. On the morning of the accident, the preflight was normal. He conducted a flight for about 20-minutes and reported that the engine was running strong. After returning to 2F6, the airplane was shut down for 5-10 minutes. He loaded his air drop passengers and performed normal ground checks of the flight controls and engine. After takeoff, the climbout was about 85 knots and 500 feet per minute rate of climb. About 900-1,000 feet AGL, the engine lost complete power. He immediately nosed over, scanned landing options, and put in 10 degrees of flaps. He committed toward a field near a rural house and set the flaps committed towards field in front of a house, nosed further, set the flaps to 30-degrees a few seconds prior to impact with the ground. The airplane slid to a stop and everyone exited through the aft cargo door.

The initial examination of the wreckage was conducted under the supervision of the FAA. The airplane was resting in a grassy field near a house. The nose landing gear was separated from the firewall mounts and the right main landing gear was separated from the fuselage. the propeller was bent and the engine was separated from the firewall. The front portion of the fuselage was damaged and the forward section of the empennage was buckled. The airplane's wings were removed and the wreckage transported to a secure facility (Dawson Aviation, Clinton, Arkansas) for further examination. About 5 gallons of fuel was removed from the airplane prior to transport to Dawson.

The wreckage was further examined on August 18, 2013, at Dawson Aviation. The inspection was conducted under the supervision of the FAA. Flight control cable continuity was established from the cockpit to all control surfaces. The fuel selector valve was observed between the right tank and off position. The valve was placed in the right tank position and air was passed from the wing tank outlet to the fuel boost pump. The valve was placed in the off position and no air passed through the valve. The fuel strainer was removed and a small amount of fuel was observed. It was tested with water finding paste and the results were negative for water. There was a significant amount of debris observed in the

fuel strainer and the strainer bowl. The debris was similar to caulking along with some rust particles. The aircraft was equipped with Monarch Air fuel caps.

There were no seats in the rear of the aircraft. The aircraft was configured for air drop operations and had a bench seat in the passenger compartment. The passengers restraint system appeared to be homemade with the belts attached at the floor attachment location with aluminum snap hooks. Other than the fuel selector valve, and the debris in the fuel strainer bowl, no other anomalies were found with the airframe.

The propeller remained attached to the engine and no damage was observed to the spinner. One propeller blade was not damaged. The second blade exhibited a bend towards the flat side of the blade, about 5-inches in from the blade tip. The third blade was bent toward the flat side of the blade and was curled under the lower area of the engine cowling. The crankshaft of the engine was rotated by hand. There was continuity and air was expelled from all cylinders with thumb compression. Both magnetos produced sparks on the top spark plugs. A "B-Nut" was observed loose on the right side upper deck pressure line. The engine appeared in a condition to perform a test run and was shipped to Continental Motors, Mobile, Alabama.

On March 22, 2017, the engine was prepared for a test run at Continental Motors, Mobile, Alabama, under the supervision of the NTSB IIC. Initial inspection of the engine did not reveal any pre-impact anomalies. The cylinders were borescoped and all intake and exhaust valves were intact. The piston domes and valve faces exhibited normal combustion signatures. After test cell safety preparations, the engine was placed in the test cell for a run. Since the B-nut to the upper deck pressure was found in a loose condition at the accident site, prior to the initial engine test run, the B-nut was tightened. After the initial test run, the B-nut was loosened and the engine was run a second time with the B-nut loose as it was initially found.

During the initial test run and the second test run, the engine accelerated normally throughout various RPM ranges.

Pilot Information

Certificate:	Private	**Age:**	51,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	March 1, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	March 1, 2015
Flight Time:	(Estimated) 906 hours (Total, all aircraft), 63 hours (Total, this make and model), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N29225
Model/Series:	TU206C G	**Aircraft Category:**	Airplane
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	U206-1177
Landing Gear Type:	Tricycle	**Seats:**	7
Date/Type of Last Inspection:	August 1, 2015 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	86 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3688 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	TSIO-520-C
Registered Owner:	Monty A Lamar	**Rated Power:**	285 Horsepower
Operator:	Gypsy Moth Skydiving LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TUL,677 ft msl	**Distance from Accident Site:**	17 Nautical Miles
Observation Time:	10:53 Local	**Direction from Accident Site:**	360°
Lowest Cloud Condition:	Scattered / 2600 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	11 knots / 20 knots	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	10°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.95 inches Hg	**Temperature/Dew Point:**	28°C / 22°C
Precipitation and Obscuration:			
Departure Point:	Skiatook, OK (2F6)	**Type of Flight Plan Filed:**	None
Destination:	Skiatook, OK (2F6)	**Type of Clearance:**	None
Departure Time:	10:50 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Skiatook Municipal Airport 2F6	**Runway Surface Type:**	
Airport Elevation:	670 ft msl	**Runway Surface Condition:**	Vegetation
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	6 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	7 Minor	**Latitude, Longitude:**	36.381111,-96.010276(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Mark Schurig; FAA FSDO; Oklahoma City, OK Andrew Hall; Textron; Wichita, KS Mike Council; Continental; Mobile, AL
Original Publish Date:	September 10, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=93840