Aviation Investigation Final Report

Location:	Hanson, Massachusetts	**Accident Number:**	ERA18TA236
Date & Time:	August 27, 2018, 12:50 Local	**Registration:**	N3115R
Aircraft:	Cessna 182	**Aircraft Damage:**	Substantial
Defining Event:	Runway excursion	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The commercial pilot reported that during the airplane's initial climb for the local skydiving flight, the radio stopped working. He continued climbing to 7,500 ft to allow skydivers to depart the airplane, noted that the engine was running roughly at that time, then circled down over the airport. The pilot reported that his approach was "a little faster and higher than normal" and that he landed longer than usual but chose not to execute a go-around because of the rough-running engine. Surveillance video and witnesses indicated that the airplane touched down near the midpoint of the 1,760-ft-long runway with a quartering tailwind. The airplane's tires left over 500 ft of skid marks before the airplane overran the departure end of the runway, encountered a ditch, nosed over, and came to rest inverted 183 ft beyond the departure end of the runway.

Postaccident testing of the brakes showed that they were operational and did not reveal evidence of any preimpact mechanical malfunctions or failures that would have precluded normal operation. In addition, postaccident examination of the engine revealed no evidence of any preimpact mechanical malfunctions or failures that would have precluded normal engine operation, except that the alternator belt was found off of its pulleys. However, the airplane's battery still indicated a normal voltage, and the airplane's flaps were found extended, indicating that the airplane's electrical system was still functional throughout the landing attempt. Despite the condition of the alternator belt, the airplane's engine never ceased producing power. The pilot should have been able to perform a normal landing but instead performed a faster and higher approach than normal and failed to attain the proper touchdown point.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to attain the proper touchdown point, which resulted in a runway overrun. Contributing to the accident was the pilot's decision to land with a quartering tailwind.

Findings

Aircraft	Descent/approach/glide path - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Personnel issues	Decision making/judgment - Pilot
Environmental issues	Tailwind - Effect on operation
Environmental issues	(general) - Contributed to outcome

Factual Information

History of Flight

Landing	Landing area overshoot
Landing-landing roll	Runway excursion (Defining event)
Landing-landing roll	Collision with terr/obj (non-CFIT)
Landing	Nose over/nose down

On August 27, 2018, about 1250 eastern daylight time, a Cessna 182L, N3115R, nosed over following a landing overrun at Cranland Airport (28M), Hanson, Massachusetts. The commercial pilot was not injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local skydiving flight, which originated at 28M and was operated under the provisions of Title 14 Code of Federal Regulations Part 91.

The pilot reported completing a thorough preflight inspection and runup prior to the accident flight, noting that there were no mechanical malfunctions or failures with the airplane prior to the flight that would have precluded normal operation, and no abnormal indications or battery discharge indications during the runup preceding takeoff. A witness stated that the airplane was jump-started by a vehicle just prior to the accident flight.

About 2,000 ft during the initial climb, the airplane experienced a radio failure and the pilot noted a slight change in engine sound. He consulted with the jumpmaster and continued to climb to 7,500 ft to allow the two pairs of skydivers to jump. He reported engine roughness after the jumpers departed the airplane. He considered going to a nearby airport about 8 miles southeast that offered longer runways but did not want to go to an airport that was unfamiliar to him. Instead, he circled down over the airport, keeping his approach "a little faster and higher than normal" so that if the engine lost total power he could still reach the runway. After extending full flaps, he tried to "bleed off speed" and lose altitude as quickly as possible. He landed longer than usual but preferred to not execute a go-around due to the rough-running engine. Despite maximum braking, the airplane overran the departure end of runway 18, encountered a ditch, nosed over, and came to rest inverted.

According to the jumpmaster, he noted no engine problems or other anomalies besides the radio failure prior to jumping. Once on the ground, he observed the landing and left main tire smoking from the pilot "locking up the brakes." According to the second jumpmaster, once back on the ground he saw the airplane "arriving fast" and heard the airplane braking before it overran the runway.

A review of the airport video revealed that the airplane touched down near the midpoint of the 1,760-ft-long runway. Additionally, a Federal Aviation Administration who responded to 28M shortly after the accident noted a quartering tailwind for the airplane's direction of landing. The recorded wind at an airport located 8 miles southeast of the accident site, about the time of the accident, was variable at 5 knots.

The airplane came to rest inverted 183 ft beyond the departure end of runway 18. Examination of the wreckage revealed that the airframe sustained substantial damage to the fuselage, both wings, rudder, and vertical stabilizer. The flaps were in the extended position. The main landing gear tires both displayed significant tread wear on one side with visible holes in the tread area. The runway displayed tire skid marks with geometry consistent to the accident airplane for537 ft. Additionally, rim marks were evident 158 ft after the first contiguous skid marks.

Examination of the airplane revealed that the alternator belt was located off the pulleys and on the lower right side of the engine firewall. It was examined, and no anomalies were noted. The battery was disconnected during the accident sequence, with the left post separated at impact. For examination, a replacement battery was wired to the airplane and the flaps operated normally. A multimeter was applied to the accident battery and it indicated 12.3 volts. Except for the alternator belt located off the pully, the engine was examined and no evidence of preimpact mechanical malfunctions were observed. Testing of the brakes showed that they were operational and did not reveal evidence any preimpact mechanical anomalies.

Pilot Information

Certificate:	Commercial	**Age:**	20,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	April 7, 2018
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	December 1, 2017
Flight Time:	703 hours (Total, all aircraft), 392.2 hours (Total, this make and model), 572.7 hours (Pilot In Command, all aircraft), 242.5 hours (Last 90 days, all aircraft), 47 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N3115R
Model/Series:	182 L	**Aircraft Category:**	Airplane
Year of Manufacture:	1968	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	18258515
Landing Gear Type:	Tricycle	**Seats:**	1
Date/Type of Last Inspection:	October 12, 2017 Annual	**Certified Max Gross Wt.:**	3525 lbs
Time Since Last Inspection:	69 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	6167.51 Hrs as of last inspection	**Engine Manufacturer:**	Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	O-470-U-50
Registered Owner:	516 Skydive Inc	**Rated Power:**	235 Horsepower
Operator:	Go Skydive Boston	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	PYM,148 ft msl	**Distance from Accident Site:**	8 Nautical Miles
Observation Time:	12:52 Local	**Direction from Accident Site:**	146°
Lowest Cloud Condition:	Few / 4400 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	5 knots /	**Turbulence Type Forecast/Actual:**	None / None
Wind Direction:		**Turbulence Severity Forecast/Actual:**	N/A / N/A
Altimeter Setting:	30.04 inches Hg	**Temperature/Dew Point:**	31°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Hanson, MA (28M)	**Type of Flight Plan Filed:**	None
Destination:	Hanson, MA (28M)	**Type of Clearance:**	None
Departure Time:	12:36 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	Cranland 28M	**Runway Surface Type:**	Asphalt
Airport Elevation:	71 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18	**IFR Approach:**	None
Runway Length/Width:	1760 ft / 60 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	42.02222,-70.837219(est)

Administrative Information

Investigator In Charge (IIC):	Spencer, Lynn
Additional Participating Persons:	Raymond Savard; FAA/FSDO; Burlington, MA Craig A Souza; FAA/FSDO; Burlington, MA
Original Publish Date:	September 27, 2019
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=98168