Aviation Investigation Final Report

Location:	Raeford, North Carolina	**Accident Number:**	ERA16LA059
Date & Time:	December 3, 2015, 11:20 Local	**Registration:**	N216PK
Aircraft:	PACIFIC AEROSPACE CORP LTD 750XL	**Aircraft Damage:**	Substantial
Defining Event:	Landing area overshoot	**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Skydiving		

Analysis

The commercial pilot of the single-engine turboprop airplane reported that he was preparing to release skydivers when he noticed that the engine torque indication was in the red arc. Specifically, the gauge was indicating a torque of 70 pounds per square inch (psi) when it should have been indicating about 25 psi; the maximum allowed torque indication was 64.5 psi. The skydivers jumped uneventfully. As the pilot was returning to the airport, the torque gauge was indicating 80 psi while the engine was at idle. At that time, the pilot decided to perform a precautionary engine shutdown and land with no engine power. During the landing, the airplane was fast and touched down about halfway down the 3,402-ft-long asphalt runway. The pilot applied heavy braking, but the airplane traveled about 1,000 ft beyond the departure end of the runway before coming to rest upright in a field with a collapsed left main landing gear.

Two examinations of the engine did not reveal any preimpact anomalies or evidence of overtorque. A test of the torque-indicating transducer and gauge also did not reveal any anomalies. The examinations did reveal that an automotive-type wiring bundle was used to wire the torque transducer to the airplane's electrical system. Although it is possible that the wiring bundle could have caused an intermittent faulty torque indication, subsequent testing was unable to duplicate the problem. The airplane was manufactured about 10 years before the accident, and the torque meter manufacturer upgraded the wiring connectors about 4 years before the accident.

Probable Cause and Findings

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

The pilot's failure to obtain the proper touchdown point and speed during a precautionary landing with the engine shut down. Contributing to the accident was an erroneous engine torque indication, which led the pilot to shut the engine down, for reasons that could not be determined during postaccident testing.

Findings

Aircraft	Descent/approach/glide path - Not attained/maintained
Personnel issues	Decision making/judgment - Pilot
Personnel issues	Aircraft control - Pilot
Not determined	(general) - Unknown/Not determined

Factual Information

History of Flight

Enroute-cruise	Miscellaneous/other
Enroute-cruise	Engine shutdown
Emergency descent	Landing area overshoot (Defining event)
Landing	Runway excursion
Landing	Collision with terr/obj (non-CFIT)

On December 3, 2015, about 1120 eastern standard time, a Pacific Aerospace 750XL, N216PK, registered to and operated by Paraclete Aviation LLC., was substantially damaged during a precautionary landing at P K Airpark (5W4), Raeford, North Carolina. The commercial pilot was not injured. The commercial skydiving flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the local flight, which departed 5W4 about 1100.

The pilot reported that the airplane was at 13,000 feet mean sea level (msl) as he was preparing to release the skydivers. He then noticed that the torque gauge was in the red arc and indicated a torque of 70 psi when it should have indicated about 25 psi; the maximum allowed torque indication was 64.5 psi. The pilot notified the skydivers of the anomaly and told them to jump, which they did uneventfully. As the pilot was approaching 5W4 for a normal landing, the airplane was at 9,000 feet msl and the torque gauge indicated 80 psi while the engine was at idle. At that time he decided to perform a precautionary engine shutdown to prevent catastrophic engine failure. The pilot further stated that during the landing with no engine power, the airplane was fast and touched down about halfway down runway 4, a 3,402-foot-long asphalt runway. The pilot applied heavy braking, but the airplane traveled about 1,000 feet beyond the departure end of the runway, before coming to rest upright in a field with a collapsed left main landing gear.

Examination of the wreckage by a Federal Aviation Administration (FAA) inspector revealed substantial damage to both wings. The airplane was manufactured in 2005 and equipped with a Pratt and Whitney PT6A-34 turboprop engine. Subsequent examination of the engine by the FAA inspector and a representative from the engine manufacturer did not reveal any preimpact anomalies or evidence of overtorque. A "dead weight" test was then performed, to simulate pressure from the engine and test the torque indicating transducer and gauge. The test was performed satisfactorily and no anomalies were noted with the transducer or gauge.

The operator subsequently performed a second examination of the engine due to a propeller strike during the precautionary landing. That examination also did not reveal any evidence of overtorque or anything that would have caused a faulty torque indication. The examinations did note that an automotive-type wiring bundle was used to wire the torque transducer to the airplane's electrical system. Although the results of the "dead weight" were satisfactory, the test may not have been able to detect an intermittent wiring anomaly. Additionally, the airplane manufacturer reported that the torque meter

manufacturer upgraded the wiring about 4 years prior to the accident, from spade connectors to overlap connectors.

Pope Army Airfield (POB), Fayetteville, North Carolina, was located about 12 miles northeast of the accident site. The recorded weather at POB, at 1118, included wind from 360 degrees at 10 knots, clear sky, and visibility 10 miles.

Pilot Information

Certificate:	Commercial	**Age:**	25,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	August 26, 2015
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 1, 2015
Flight Time:	379 hours (Total, all aircraft), 42 hours (Total, this make and model), 309 hours (Pilot In Command, all aircraft), 63 hours (Last 90 days, all aircraft), 27 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PACIFIC AEROSPACE CORP LTD	**Registration:**	N216PK
Model/Series:	750XL NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:	2005	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	114
Landing Gear Type:	Tricycle	**Seats:**	18
Date/Type of Last Inspection:	September 5, 2015 Continuous airworthiness	**Certified Max Gross Wt.:**	7500 lbs
Time Since Last Inspection:	107 Hrs	**Engines:**	1 Turbo prop
Airframe Total Time:	4213 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney
ELT:	C126 installed, not activated	**Engine Model/Series:**	PT6A-34
Registered Owner:	PARACLETE AVIATION LLC	**Rated Power:**	750 Horsepower
Operator:	PARACLETE AVIATION LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	POB,218 ft msl	**Distance from Accident Site:**	12 Nautical Miles
Observation Time:	11:18 Local	**Direction from Accident Site:**	40°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / None	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	360°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.17 inches Hg	**Temperature/Dew Point:**	10°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Raeford, NC (5W4)	**Type of Flight Plan Filed:**	None
Destination:	Raeford, NC (5W4)	**Type of Clearance:**	None
Departure Time:	11:00 Local	**Type of Airspace:**	

Airport Information

Airport:	P K Airport 5W4	**Runway Surface Type:**	Asphalt
Airport Elevation:	304 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	4	**IFR Approach:**	None
Runway Length/Width:	3402 ft / 60 ft	**VFR Approach/Landing:**	Full stop;Precautionary landing;Traffic pattern

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:**	35.019721,-79.191108(est)

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	John Combrinck-Graham; FAA/FSDO; Greensboro, NC
Original Publish Date:	January 18, 2017
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=92398