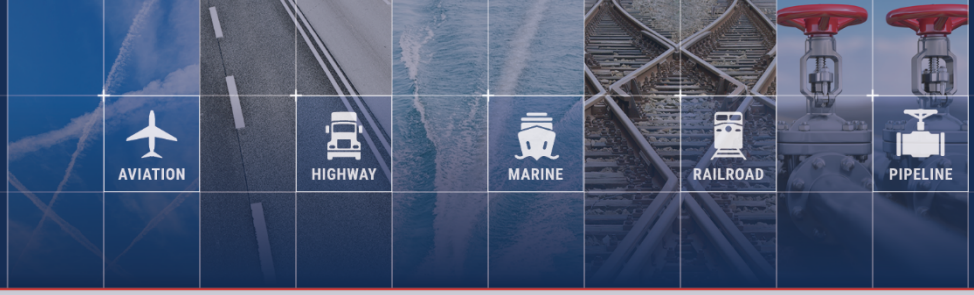

Aviation Investigation Final Report

Location:	Argyle, Texas	**Accident Number:**	CEN15LA224
Date & Time:	May 6, 2015, 14:26 Local	**Registration:**	N8011Q
Aircraft:	Enstrom F-28F	**Aircraft Damage:**	Substantial
Defining Event:	Settling with power/vortex ring state	**Injuries:**	2 Serious
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

According to the pilot receiving instruction, he and the flight instructor were performing the third in a series of confined area takeoffs in the helicopter. The previous two takeoffs were conducted with no anomalies observed. The pilot stated that, on the third takeoff, he performed a vertical climb to just above treetop level. As the helicopter transitioned to forward motion, it began to settle, and the flight instructor assumed the flight controls to attempt to return to the departure point. The helicopter continued to descend and subsequently impacted trees and terrain. Postaccident examination of the helicopter revealed no mechanical anomalies that would have precluded normal operation.

Probable Cause and Findings

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

The pilot and flight instructor's inadvertent encounter with settling with power during a confined area takeoff at an altitude that was too low for recovery.

Findings

Aircraft	Climb rate - Attain/maintain not possible
Aircraft	Altitude - Not specified

Factual Information

History of Flight

Takeoff	Settling with power/vortex ring state (Defining event)
Takeoff	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On May 6, 2015 at 1426 central daylight time, an Enstrom F-28F, N8011Q, impacted trees while maneuvering over a field near Argyle, Texas. The helicopter sustained substantial damage. The private pilot and flight instructor sustained serious injuries. The helicopter was registered to US Aviation Group LLC and operated by Longhorn Helicopters under Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed the time of the accident. The local flight originated from DTO about 1330.

According to a Federal Aviation Administration (FAA) inspector from the North Texas Flight Standards District Office, the pilot stated he and the flight instructor had flown for approximately 30 minutes prior to the accident. The pilot stated that the helicopter engine seemed to be functioning normally, and he did not recall any unusual power fluctuations or noises. The pilot and flight instructor were practicing confined area takeoffs and had accomplished two confined area takeoffs just preceding the accident with no abnormal issues. During the third confined area takeoff, the helicopter developed power up to 32 inches of manifold pressure and they began the vertical climb to just above tree top level. At that time he stated that they began transition to forward motion and the helicopter began to "settle with power". The pilot stated that as the helicopter began to descend, the flight instructor announced that she "had the controls" and began to attempt increasing power and immediately turned the aircraft around intending to return to the departure point, away from the trees. The helicopter continued to descend and impacted the trees in a slight nose down attitude.

According to the FAA inspector, on-scene examination of the helicopter revealed that it made contact with a group of trees, approximately 10 feet from the pasture in which the confined area takeoff maneuver was initiated. The trees were estimated to be 30 feet in height. Debris was confined to the location in which the aircraft impacted. Fire/rescue personnel removed approximately 30 gallons of fuel from the helicopter, which had a fuel capacity of 40 gallons.

The right side of the cockpit impacted a tree which penetrated up to the right side collective. The bottom of the cockpit area on both sides near the rudder pedals sustained major damage from impact with the ground. The tail boom and engine area sustained minor damage due to impact with trees and the helicopter remained intact although it was resting in approximately a 30 degree angle with the tail boom suspended in a tree to the rear of the crash site. The main rotors were in a high pitch setting and intact. One main rotor had substantial damage from impact with a tree the other two main rotors did have some bending suggesting a largely vertical descent.

The flight instructor stated that she believed that the engine turbocharger waste gate malfunctioned, which prevented them from receiving the extra power required.

No mechanical anomalies that would have precluded normal aircraft operation were noted during the examination.

The required National Transportation Safety Board Pilot/Operator Accident/Incident Report, form 6120, was not received from the private pilot.

Student pilot Information

Certificate:	Private	**Age:**	23,Male
Airplane Rating(s):	None	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	Helicopter	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	None	**Last FAA Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:			

Flight instructor Information

Certificate:		**Age:**	25,Female
Airplane Rating(s):		**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):		**Second Pilot Present:**	Yes
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:		**Last FAA Medical Exam:**	
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	**Registration:**	N8011Q
Model/Series:	F-28F	**Aircraft Category:**	Helicopter
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	732
Landing Gear Type:	Skid	**Seats:**	
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Lycoming
ELT:		**Engine Model/Series:**	IO360
Registered Owner:	US AVIATION GROUP LLC	**Rated Power:**	
Operator:	US AVIATION GROUP LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DTO,642 ft msl	**Distance from Accident Site:**	5 Nautical Miles
Observation Time:	13:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 2400 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	Broken / 3000 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	15 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	150°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.92 inches Hg	**Temperature/Dew Point:**	25°C / 20°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Denton, TX (DTO)	**Type of Flight Plan Filed:**	None
Destination:	Denton, TX (DTO)	**Type of Clearance:**	None
Departure Time:	13:30 Local	**Type of Airspace:**	

Wreckage and Impact Information

Crew Injuries:	2 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Serious	**Latitude, Longitude:**	33.360713,-97.169937(est)

Administrative Information

Investigator In Charge (IIC):	Gallo, Mitchell
Additional Participating Persons:	Cameron Baker; Federal Aviation Administration; NTX FSDO; Irving, TX
Original Publish Date:	September 12, 2016
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=91146