



# Aviation Investigation Final Report

<b>Location:</b>	Stratford, Oklahoma	<b>Accident Number:</b>	DFW07LA167
<b>Date &amp; Time:</b>	July 20, 2007, 11:00 Local	<b>Registration:</b>	N888TD
<b>Aircraft:</b>	Rotorway 162F	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

The 5,770-hour commercial pilot/owner/builder of the single-engine experimental helicopter was in cruise flight at an altitude of approximately 1,000 feet, at an estimated airspeed between 70 and 100 knots, when "the helicopter suddenly yawed to the right." The pilot immediately and simultaneously applied left torque pedal to stop the yaw, lowered the collective, and entered an autorotation into the wind, at an airspeed of 70 knots. The helicopter touched down in an "uneven" field, rolled over, and came to rest on its left side. The pilot added that there were no warnings prior to or during the loss of power. A review of photographs of the damaged helicopter revealed structural damage to the airframe. The pilot reported that he had a total of 10 gallons of fuel on board at the time he departed and there was a small fuel spill at the accident site. At the time of the accident, the helicopter had accrued a total of 60.6 hours. Examination of the engine by the pilot revealed that the supercharger had seized which accounted 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: The loss of engine power due to a seized supercharger. A contributing factor was the lack of suitable terrain for the forced landing.

## Findings

Occurrence #1: LOSS OF ENGINE POWER  
Phase of Operation: CRUISE

Findings

1. (C) EXHAUST SYSTEM,EXTERNAL SUPERCHARGER - SEIZED

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Occurrence #2: FORCED LANDING

Phase of Operation: EMERGENCY DESCENT/LANDING

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Occurrence #3: ROLL OVER

Phase of Operation: EMERGENCY LANDING

Findings

2. TERRAIN CONDITION - ROUGH/UNEVEN

3. (F) TERRAIN CONDITION - NONE SUITABLE

## Factual Information

On July 20, 2007, at 1100 central daylight time, a single-engine Lister Rotorway 162F experimental helicopter, N888TD, was substantially damaged during a forced landing to a field following a reported loss of engine power near Stratford, Oklahoma. The commercial pilot, sole occupant of the helicopter, was not injured. The helicopter was registered to and operated by the pilot. No flight plan was filed for the local flight that departed from the pilot's backyard near Stratford, Oklahoma, at 1045. Visual meteorological conditions prevailed for the personal flight conducted under 14 Code of Federal Regulations Part 91.

According to the pilot, the helicopter was in cruise flight at an altitude of approximately 1,000-feet, at an estimated airspeed between 70 and 100 knots, when "the helicopter suddenly yawed to the right." The pilot added that he immediately and simultaneously applied left torque pedal to stop the yaw, lowered the collective, and entered an autorotation into the wind, at an airspeed of 70 knots. The pilot landed the helicopter in an "uneven" field, and the helicopter rolled, coming to rest on its left side.

The pilot further stated that there were no warnings prior to or during the loss of engine power and there had been no recent mechanical problems with the helicopter. A review of photographs of the damaged helicopter revealed that the main rotors were twisted, the left landing gear skid was displaced inward, a tail rotor blade had separated, and the tail boom skin was wrinkled. The pilot reported that he had a total of 10 gallons of fuel on board at the time he departed and there was a small fuel spill at the accident site.

Additionally, the pilot reported that he was the builder of the helicopter and the Federal Aviation Administration (FAA) had issued an airworthiness certificate in January/February 2007. At the time of the accident, the helicopter had accrued a total of 60.6 hours. Examination of the engine by the pilot revealed that the supercharger had seized, which resulted in the loss of power.

The pilot reported having accumulated a total of 5,770-flight hours, of which 780-hours were in helicopters, with 60.6-hours in the same make and model.

Weather at the Ada Municipal Airport (ADH), near Ada, Oklahoma, located about 16-miles east of the accident site, at 1110, was reported as calm wind, visibility 10 statute miles, scattered clouds at 2,300 feet, scattered clouds at 2,900 feet, temperature 84 degrees Fahrenheit, dewpoint 71 degrees Fahrenheit, and a barometric pressure setting of 30.06 inches of Mercury. The weather report included a remark of lightning south of the airport.

## Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor; Private	<b>Age:</b>	62, Male
<b>Airplane Rating(s):</b>	Single-engine land; Single-engine sea; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane multi-engine; Airplane single-engine; Instrument airplane	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Without waivers/limitations	<b>Last FAA Medical Exam:</b>	August 1, 2006
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	December 1, 2006
<b>Flight Time:</b>	5770 hours (Total, all aircraft), 60 hours (Total, this make and model), 5015 hours (Pilot In Command, all aircraft), 16 hours (Last 90 days, all aircraft), 16 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Rotorway	<b>Registration:</b>	N888TD
<b>Model/Series:</b>	162F	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	001
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	2
<b>Date/Type of Last Inspection:</b>	February 1, 2006 Annual	<b>Certified Max Gross Wt.:</b>	1210 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	60.6 Hrs at time of accident	<b>Engine Manufacturer:</b>	Rotorway
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	RI 162F
<b>Registered Owner:</b>	Thomas Lister	<b>Rated Power:</b>	150 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	None

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	ADH,1016 ft msl	<b>Distance from Accident Site:</b>	16 Nautical Miles
<b>Observation Time:</b>	16:10 Local	<b>Direction from Accident Site:</b>	90°
<b>Lowest Cloud Condition:</b>	Scattered / 2300 ft AGL	<b>Visibility</b>	10 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	0 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	0°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30.05 inches Hg	<b>Temperature/Dew Point:</b>	29°C / 22°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	Stratford, OK (NONE)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	10:45 Local	<b>Type of Airspace:</b>	

## Airport Information

<b>Airport:</b>	None	<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>		<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	34.79111,-96.956108

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Yeager, Leah
<b>Additional Participating Persons:</b>	Joe Broker; FAA/FSDO; Oklahoma City, OK
<b>Original Publish Date:</b>	November 29, 2007
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=66277">https://data.nts.gov/Docket?ProjectID=66277</a>

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