



# Aviation Investigation Final Report

<b>Location:</b>	LACONIA, New Hampshire	<b>Accident Number:</b>	NYC88LA018
<b>Date &amp; Time:</b>	October 25, 1987, 16:25 Local	<b>Registration:</b>	N51699
<b>Aircraft:</b>	ENSTROM F-28C	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	3 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

THE PLT RPRTD HE WAS DEMONSTRATING A FULL TOUCHDOWN AUTOROTATION IN WINDS THAT WERE FROM 290 DEG AT 15 GUSTING 20 KTS. HE STATED THE TOUCHDOWN WAS SOFT WITH A LOT OF PITCH PULLED IN; HOWEVER, AS HE LOWERED THE COLLECTIVE AFTER TOUCHDOWN, THE RETREATING BLADE FLEXED DOWNWARD & SEVERED THE AFT PORTION OF THE TAIL BOOM & THE TAIL ROTOR DRIVE SHAFT. THE PLT BELIEVED HE HAD LOWERED THE COLLECTIVE TOO FAST AFTER TOUCHDOWN, WHICH WOULD HAVE ALLOWED THE BLADES TO FLAP DOWNWARD. ALSO, HE BELIEVED THE HIGH WIND & REDUCED RPM FROM THE AUTOROTATION WOULD HAVE ATTRIBUTED TO EXCESSIVE FLAPPING OF THE RETREATING ROTOR BLADES.

## Probable Cause and Findings

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

### Findings

Occurrence #1: MISCELLANEOUS/OTHER  
Phase of Operation: LANDING - FLARE/TOUCHDOWN

- Findings
1. (C) PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
  2. EMERGENCY PROCEDURE - SIMULATED - PILOT IN COMMAND

3. AUTOROTATION - PERFORMED - PILOT IN COMMAND
4. ROTOR RPM - NOT MAINTAINED - PILOT IN COMMAND
5. (F) WEATHER CONDITION - UNFAVORABLE WIND
6. (C) COLLECTIVE - IMPROPER USE OF - PILOT IN COMMAND

## Factual Information

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	38, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	October 20, 1987
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	666 hours (Total, all aircraft), 435 hours (Total, this make and model), 591 hours (Pilot In Command, all aircraft), 232 hours (Last 90 days, all aircraft), 4 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	ENSTROM	<b>Registration:</b>	N51699
<b>Model/Series:</b>	F-28C F-28C	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	416
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	3
<b>Date/Type of Last Inspection:</b>	October 8, 1987 100 hour	<b>Certified Max Gross Wt.:</b>	1950 lbs
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2753 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	HIO-360-E1AD
<b>Registered Owner:</b>	COPTERS UNLIMITED, INC.	<b>Rated Power:</b>	205 Horsepower
<b>Operator:</b>		<b>Operating Certificate(s) Held:</b>	On-demand air taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	FTJA

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>		<b>Distance from Accident Site:</b>	
<b>Observation Time:</b>		<b>Direction from Accident Site:</b>	
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	20 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	15 knots / 20 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	290°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	9°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	(LCI)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	15:45 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>	LACONIA LCI	<b>Runway Surface Type:</b>	Dirt
<b>Airport Elevation:</b>	545 ft msl	<b>Runway Surface Condition:</b>	Dry
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Simulated forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	2 None	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	3 None	<b>Latitude, Longitude:</b>	

## Administrative Information

**Investigator In Charge (IIC):** Hancock, Robert

**Additional Participating Persons:**

**Original Publish Date:** June 7, 1989

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.nts.gov/Docket?ProjectID=36043>

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