



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	LAFAYETTE, LA	<b>Accident Number:</b>	FTW97LA001
<b>Date &amp; Time:</b>	10/01/1996, 0900 CST	<b>Registration:</b>	N7MH
<b>Aircraft:</b>	CONTINENTAL COPTERS EL TOMCAT MK-5A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Serious
<b>Flight Conducted Under:</b>	Part 137: Agricultural		

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## Analysis

The pilot reported that he and his groundcrew were preparing to commence an aerial application job for a farmer who was reportedly 'anxious' to get the job underway. The helicopter was transported to the job site on a trailer from which it was normally operated. After a preflight, the pilot prepared to take off from the trailer. Upon lift-off, the rear portion of the left skid became 'snagged' on the left rear tiedown. According to a witness and the pilot, the aircraft 'pitched up, rolled left', and at 'least one of the main rotor blades struck the ground.' Subsequently, the skid broke loose from the tie down, and the nose pitched down and impacted the ground. During this sequence, the tail boom separated from the helicopter. The pilot reported that he and his groundcrew were fatigued when they arrived on the job. During a 168 day time period, he had flown over 400 hours, and had spent approximately 656 hours driving to jobs. He reported his normal work day to be 0500 to 2300 (allowing 6 hours for sleep). The pilot stated that he needed 8 hours of sleep on average to feel fully rested.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's failure to ensure a proper preflight and the groundcrew's failure to remove the tiedown. Factors were pilot and groundcrew fatigue.

## Findings

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Occurrence #1: ROLL OVER

Phase of Operation: TAKEOFF

### Findings

1. (C) TIE DOWN - NOT REMOVED - GROUND PERSONNEL
2. (F) FATIGUE(FLIGHT AND GROUND SCHEDULE) - GROUND PERSONNEL
3. (C) AIRCRAFT PREFLIGHT - INADEQUATE - PILOT IN COMMAND
4. (F) FATIGUE(FLIGHT AND GROUND SCHEDULE) - PILOT IN COMMAND

## Factual Information

On October 1, 1996, approximately 0900 central standard time, a Continental Copters-Darling El Tomcat MK-5A helicopter, N7MH, was substantially damaged after impacting terrain during takeoff near Lafayette, Louisiana. The commercial pilot, sole occupant who owned and operated the agricultural helicopter, sustained serious injuries. Visual meteorological conditions prevailed and no flight plan was filed for the Title 14 CFR Part 137 aerial application flight.

The pilot reported that he and his ground crew were preparing to commence an aerial application job for a farmer who was reportedly "anxious" to get the job underway. The helicopter was transported to the job site on a trailer from which it was normally operated. After a pre-flight, the pilot prepared to take off from the trailer. Upon lift off, the rear portion of the left skid became "snagged" on the left rear tie down. According to a witness and the pilot, the aircraft "pitched up, rolled left", and at "least one of the main rotor blades struck the ground." Subsequently, the skid broke loose from the tie down, and the nose pitched down and impacted the ground. During this sequence, the tail boom separated from the helicopter.

The pilot reported that he and his ground crew were fatigued when they arrived on the job on the morning of the accident. He stated that during a 168 day time period, he had worked 164 days, flown over 400 hours, and spent approximately 656 hours driving to jobs. He reported his normal work day to be 0500 to 2300 (allowing 6 hours for sleep). In an interview with the investigator-in-charge, the pilot stated that he requires an average of 8 hours of sleep per day to feel fully rested. He submitted the following calculations to quantify his reported fatigue:  $164 \text{ days} \times 8 = 1312 \text{ hours}$   $164 \text{ days} \times 6 = 984 \text{ hours}$   $1312 \text{ minus } 984 = 328 \text{ hours total sleep deficit in 168 days prior to the accident.}$

The above calculations are similar to data that are currently being studied at the NASA AMES Research Center regarding fatigue and work/sleep cycles in the transportation industry. The NTSB and NASA sponsored a "Fatigue Symposium" on November 1-2, 1995, at Tyson's Corner, Virginia. The symposium proceedings were published and are available through the NTSB, Office of Public Inquiries, Washington, D.C.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	42, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-engine Land	<b>Seat Occupied:</b>	Center
<b>Other Aircraft Rating(s):</b>	Helicopter	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane; Helicopter	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane Single-engine; Helicopter	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	01/05/1996
<b>Occupational Pilot:</b>	<b>Last Flight Review or Equivalent:</b>		
<b>Flight Time:</b>	11700 hours (Total, all aircraft), 4000 hours (Total, this make and model), 11700 hours (Pilot In Command, all aircraft), 300 hours (Last 90 days, all aircraft), 150 hours (Last 30 days, all aircraft), 10 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	CONTINENTAL COPTERS	<b>Registration:</b>	N7MH
<b>Model/Series:</b>	EL TOMCAT MK-5A EL TOMCAT	<b>Aircraft Category:</b>	Helicopter
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Restricted	<b>Serial Number:</b>	MHTE-7
<b>Landing Gear Type:</b>	Skid	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	09/01/1996, Annual	<b>Certified Max Gross Wt.:</b>	2450 lbs
<b>Time Since Last Inspection:</b>	200 Hours	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Lycoming
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	VO-435-A1F
<b>Registered Owner:</b>	KENNETH E. SQUIRES	<b>Rated Power:</b>	260 hp
<b>Operator:</b>	KENNETH E. SQUIRES	<b>Operating Certificate(s) Held:</b>	
<b>Operator Does Business As:</b>	PENN-TEX HELICOPTERS INC.	<b>Operator Designator Code:</b>	PCXG

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0000	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	2 Miles
Lowest Ceiling:	Overcast / 500 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	80°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	25° C / 23° C
Precipitation and Obscuration:			
Departure Point:	(NONE)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0900 CST	Type of Airspace:	Class G

## Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	ALEXANDER LEMISHKO	Report Date:	05/02/1997
Additional Participating Persons:	XAVIER RODRIQUEZ; BATON ROUGE, LA		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinquiry@ntsb.gov">pubinquiry@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).