



National Transportation Safety Board Aviation Accident Final Report

Location:	Casa Grande, AZ	Accident Number:	LAX05LA060
Date & Time:	01/03/2005, 1346 MST	Registration:	N135NW
Aircraft:	Eurocopter France EC135T1	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General Aviation - Instructional - Air Medical (Unspecified)		

Analysis

Following the in-flight separation of a main rotor control link, the pilots lost control and the helicopter hit the ground hard and rolled over. The pilots reported that as they turned base in the traffic pattern for landing at the airport, the helicopter pitched up violently and rolled to the right, followed by a hard roll to the left. Both pilots got on the controls and tried to regain control of the helicopter. The pilots lowered the collective and started down for a landing. During the descent, the pitching and rolling continued intermittently with the roll attitude reaching beyond 60 degrees. As the helicopter neared the ground, the pilots flared and the helicopter hit the ground in a tail low attitude and rolled over. A post accident examination of the helicopter, and examination of maintenance records by a Federal Aviation Administration inspector, occurred on site and after recovery. During the course of the examination it was determined that maintenance personnel had removed cyclic control links from the cyclic control levers to check the ball joints for excess free play during an inspection. The links are attached to the cyclic levers with bolts and castle nuts with cotter pins through the castle nuts as a safety locking device. The right lateral cyclic control link was found broken. The nut on the upper bolt was 1/4-inch away from the side of the attachment point. There was no evidence of the cotter pins having been added to the castle nuts after the link inspection/reinstallation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the separation of a main rotor control link due to improper maintenance installation.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: MANEUVERING

Findings

1. (C) ROTORCRAFT FLIGHT CONTROL, CYCLIC CONTROL ROD - NOT SAFETIED
2. (C) MAINTENANCE, INSTALLATION - IMPROPER - COMPANY MAINTENANCE PERSONNEL
3. (C) AIRCRAFT CONTROL - DIMINISHED

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings

4. TERRAIN CONDITION - GROUND

Factual Information

On January 3, 2005, at 1346 mountain standard time, a Eurocopter EC135T1 helicopter, N135NW, sustained a loss of control in flight and collided with terrain at Casa Grande, Arizona. The flight was operated by Omni Flight Helicopters, Inc., d.b.a. Native American Air Ambulance, under the provisions of 14 CFR Part 91. The helicopter was substantially damaged. The certificated commercial check pilot received a minor injury and the certificated airline transport pilot was not injured. Visual meteorological conditions prevailed, and a company flight plan was filed. The local area training flight originated at Mesa, Arizona, about 1330.

The pilots reported that as they turned base in the traffic pattern for landing at the airport, the helicopter pitched up violently and rolled to the right, followed by a hard roll to the left. Both pilots got on the controls and tried to regain control of the helicopter. The pilots lowered the collective and started down for a landing. During the descent, the pitching and rolling continued intermittently with the roll attitude reaching beyond 60 degrees. As the helicopter neared the ground, the pilots flared and the helicopter hit the ground in a tail low attitude and rolled over.

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Check Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	51, Male
Airplane Rating(s):	Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter; Instrument Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 With Waivers/Limitations	Last Medical Exam:	05/01/2004
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	11/01/2004
Flight Time:	14000 hours (Total, all aircraft), 150 hours (Total, this make and model), 13500 hours (Pilot In Command, all aircraft), 100 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Pilot Information

Certificate:	Airline Transport; Commercial	Age:	63, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2	Last Medical Exam:	04/01/2004
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	12/01/2004
Flight Time:	10500 hours (Total, all aircraft), 150 hours (Total, this make and model), 9500 hours (Pilot In Command, all aircraft), 36 hours (Last 90 days, all aircraft), 10 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Eurocopter France	Registration:	N135NW
Model/Series:	EC135T1	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	0010
Landing Gear Type:	Skid	Seats:	6
Date/Type of Last Inspection:	12/01/2004, AAIP	Certified Max Gross Wt.:	2720 lbs
Time Since Last Inspection:	8 Hours	Engines:	2 Turbo Shaft
Airframe Total Time:	4167 Hours	Engine Manufacturer:	Turbomeca
ELT:	Installed, not activated	Engine Model/Series:	Arris 2B1
Registered Owner:	Omni Flight Helicopters, Inc.	Rated Power:	670 hp
Operator:	Omni Flight Helicopters, Inc.	Air Carrier Operating Certificate:	On-demand Air Taxi (135)
Operator Does Business As:	Native American Air Ambulance	Operator Designator Code:	RMXA

Meteorological Information and Flight Plan

Observation Facility, Elevation:	PHX, 1133 ft msl	Observation Time:	1356 MST
Distance from Accident Site:	31 Nautical Miles	Condition of Light:	Day
Direction from Accident Site:	325°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:		Temperature/Dew Point:	13°C / 11°C
Lowest Ceiling:	Overcast / 5500 ft agl	Visibility	7 Miles
Wind Speed/Gusts, Direction:	5 knots, 210°	Visibility (RVR):	
Altimeter Setting:	29.85 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Mesa, AZ (IWA)	Type of Flight Plan Filed:	Company VFR
Destination:	Casa Grande, AZ (CGZ)	Type of Clearance:	None
Departure Time:	1330 MST	Type of Airspace:	

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	George E Petterson	Adopted Date:	02/28/2006
Additional Participating Persons:	Bill Sapp; Federal Aviation Administration; Scottsdale, AZ Joe Syslo; American Eurocopter; Grand Prarie, TX Archie Whitten; Turbomeca-USA; Grand Prarie, TX		
Publish Date:	02/02/2009		
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 pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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