



Aviation Investigation Final Report

Location:	Corpus Christi, Texas	Accident Number:	CEN12LA228
Date & Time:	April 3, 2012, 15:55 Local	Registration:	N3042D
Aircraft:	Enstrom 280FX	Aircraft Damage:	Substantial
Defining Event:	Sys/Comp malf/fail (non-power)	Injuries:	1 Minor, 1 None
Flight Conducted Under:	Part 91: General aviation - Other work use		

Analysis

After an uneventful flight, the pilot slowed the helicopter into a stable hover about 15 feet above the landing point. Although the engine continued to operate, the main rotor rpm suddenly decayed and the helicopter landed hard. The pilot, who had over 5,600 flight hours in helicopters, stated that there was no warning before the loss of main rotor drive. The helicopter was in a position whereby power to the rotor system was essential to conducting a safe landing. Examination of the helicopter revealed that the bolt that retains the clutch drive rod end in the clutch pivot fork had sheared, resulting in the clutch disengaging. Once the clutch disengaged, there was no drive to the rotor system, and the helicopter's descent could not be arrested. With the exception of the failed bolt, examination of the entire drive system did not show any preexisting mechanical malfunction or abnormalities that would have precluded normal operation. The helicopter had operated about 1,350 hours since it was new, and the retaining bolt was the original installation. The reason for the failure of the bolt could not be determined.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of the bolt that retained the clutch drive rod end, which resulted in a loss of main rotor drive and a subsequent hard landing.

Findings

Aircraft

Engine/transmission coupling - Failure

Factual Information

History of Flight

Approach	Sys/Comp malf/fail (non-power) (Defining event)
----------	---

On April 3, 2012, approximately 1555 central daylight time, an Enstrom 280FX helicopter, N3042D, registered to Travland Helicopters Intl INC., of Alpine, Texas, was substantially damaged during a hard landing after a loss of power at the Corpus Christie Airport (CRP), Corpus Christie, Texas. The commercial pilot received minor injuries and his passenger was not injured. Visual meteorological conditions prevailed and a flight plan was not filed for the flight. The business flight was conducted under the provisions of 14 Code of Federal Regulations Part 91. The flight originated from Edinburg, Texas, and Corpus Christie was its intended destination.

After an uneventful flight from Edinburg, Texas, and set up for landing at CRP, the pilot slowed the helicopter into a stable hover about 15 feet above the landing point, the rotor RPM suddenly decayed and the helicopter landed hard, resulting in substantial damage to the tailboom. The pilot, who had over 5,600 flight hours in helicopters, stated that there was no warning prior to the loss of main rotor drive. The helicopter was in a position whereby power to the rotor system was essential to effect a safe landing.

Examination of the helicopter by an FAA inspector revealed that the bolt that retains the clutch drive rod end in the clutch pivot fork had sheared. The ears of the pivot fork were worn on the inside, but not bent. The rod end to the clutch drive was not bent. The bolt was elongated and the pivot fork bushing was worn. The head of the bolt was not found. Examination of the entire drive system did not show any preexisting mechanical malfunction or abnormalities. The bolt was the proper hardware for the installation. The helicopter had about 1,350 hours since it was new, and the retaining bolt was the original installation.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	68, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Helicopter; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	August 1, 2011
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	June 1, 2011
Flight Time:	18000 hours (Total, all aircraft), 200 hours (Last 90 days, all aircraft), 100 hours (Last 30 days, all aircraft), 14 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	Registration:	N3042D
Model/Series:	280FX	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:		Serial Number:	2128
Landing Gear Type:		Seats:	3
Date/Type of Last Inspection:	January 12, 2012 Annual	Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	1350 Hrs at time of accident	Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	HIO-360-F1AD
Registered Owner:	TRAVLAND HELICOPTERS INTL INC	Rated Power:	190 Horsepower
Operator:	TRAVLAND HELICOPTERS INTL INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	CRP,44 ft msl	Distance from Accident Site:	
Observation Time:	15:15 Local	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	7 miles
Lowest Ceiling:	Broken / 3600 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	160°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.89 inches Hg	Temperature/Dew Point:	29°C / 22°C
Precipitation and Obscuration:			
Departure Point:	Edinburg, TX (EBG)	Type of Flight Plan Filed:	None
Destination:	Corpus Christi, TX (CRP)	Type of Clearance:	None
Departure Time:	16:30 Local	Type of Airspace:	

Airport Information

Airport:	Corpus Christie CRP	Runway Surface Type:	
Airport Elevation:	44 ft msl	Runway Surface Condition:	
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 1 None	Latitude, Longitude:	27.770277,-97.501113(est)

Administrative Information

Investigator In Charge (IIC):	Lemishko, Alexander
Additional Participating Persons:	Carlos F Gallardo; FAA FSDO San Antonio; San Antonio, TX
Original Publish Date:	September 12, 2013
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=83305

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).