



Aviation Investigation Final Report

Location:	LAPEER, Michigan	Accident Number:	CHI88LA014
Date & Time:	October 31, 1987, 16:58 Local	Registration:	N9583
Aircraft:	ENSTROM F-28A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE HELICOPTER WAS IN CRUISE FLT WHEN THE RGT SIDE HORIZONTAL STABILIZER ATTACH TUBE FAILED & SEPARATED FROM THE TAIL BOOM, THEN CONTACTED THE TAIL ROTOR. THIS RESULTED IN FAILURE OF THE TAIL ROTOR DRIVE SHAFT FLEX COUPLING AT THE TAIL ROTOR GEAR BOX. IN TURN, THERE WAS A LOSS OF TAIL ROTOR THRUST. THE PLT MADE A SUCCESSFUL AUTOROTATION IN AN OPEN FIELD. AN EXAM OF THE RGT HORIZONTAL STABILIZER ATTACH TUBE REVEALED IT HAD FAILED FROM FATIGUE AT THE RGT INBOARD ATTACH HOLE. THE FATIGUE ORIGINATED AT A SURFACE DEFECT ON THE OUTER DIAMETER OF THE TUBE WHICH WAS CAUSED BY MISALIGNED DRILLING.

Probable Cause and Findings

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

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE - NORMAL

Findings

1. (C) STABILIZER - FATIGUE
2. (C) MAINTENANCE, INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (C) STABILIZER - SEPARATION
4. ROTOR DRIVE SYSTEM, TAIL ROTOR DRIVE SHAFT COUPLING - OVERLOAD

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Findings
5. AUTOROTATION

Factual Information

Pilot Information

Certificate:	Commercial	Age:	40, Male
Airplane Rating(s):	Single-engine land; Single-engine sea; 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):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	July 1, 1987
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	714 hours (Total, all aircraft), 592 hours (Total, this make and model), 505 hours (Pilot In Command, all aircraft), 32 hours (Last 90 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	ENSTROM	Registration:	N9583
Model/Series:	F-28A F-28A	Aircraft Category:	Helicopter
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	112
Landing Gear Type:	Skid	Seats:	3
Date/Type of Last Inspection:	September 3, 1987 Annual	Certified Max Gross Wt.:	2150 lbs
Time Since Last Inspection:	21 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	1178 Hrs	Engine Manufacturer:	LYCOMING
ELT:	Not installed	Engine Model/Series:	H10-360-A1A
Registered Owner:	FRANK MANDERVILLE, JR.	Rated Power:	205 Horsepower
Operator:		Operating Certificate(s) Held:	None
Operator Does Business As:		Operator Designator Code:	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	FNT ,782 ft msl	Distance from Accident Site:	20 Nautical Miles
Observation Time:	16:50 Local	Direction from Accident Site:	40°
Lowest Cloud Condition:	Scattered / 25000 ft AGL	Visibility	14 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	5 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	90°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	14°C / 4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ROMEO , MI (D98)	Type of Flight Plan Filed:	None
Destination:	LUPTON , MI	Type of Clearance:	None
Departure Time:	15:50 Local	Type of Airspace:	Class G

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:	844 ft msl	Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Substantial
Passenger Injuries:	1 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	43.039016,-83.320266(est)

Administrative Information

Investigator In Charge (IIC):	Dinwiddie, Carl
Additional Participating Persons:	MIRLO E OCOHA; WEST CHICAGO , IL ROGER D BEEM; BELLEVILLE , MI JOSEPH H MCGARVEY; DES PLAINES , IL
Original Publish Date:	June 7, 1989
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=14007

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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](#).