



Aviation Investigation Final Report

Location:	GREENVILLE, Michigan	Accident Number:	CHI90LA249
Date & Time:	August 29, 1990, 18:50 Local	Registration:	N5481L
Aircraft:	Ryan PT-22A	Aircraft Damage:	Substantial
Defining Event:		Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE PILOT WAS IN CRUISE FLIGHT WHEN THE ENGINE BEGAN TO MISFIRE. WHEN HE REDUCED POWER TO IDLE, THE MISFIRING STOPPED, BUT WHEN HE ADVANCED THE THROTTLE TO CRUISE POWER THE ENGINE MISFIRED SEVERAL MORE TIMES AND THE NUMBER 1 CYLINDER DEPARTED THE ENGINE. THE PILOT EXECUTED A FORCED LANDING INTO A FIELD CONTAINING COR WHICH WAS 6-8 FEET HIGH. THE AIRCRAFT NOSED-OVER ON LANDING ROLL AND CAME TO REST INVERTED. THE INVESTIGATION REVEALED EVIDENCE THAT THE NUMBER 1 CYLINDER WAS LOOSE PRIOR TO SEPARATION.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: SEPARATION OF A LOOSE CYLINDER ASSEMBLY IN FLIGHT, AND UNSUITABLE TERRAIN ENCOUNTERED DURING THE EXECUTION OF A FORCED LANDING.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: CRUISE

Findings

1. (C) ENGINE ASSEMBLY,CYLINDER - LOOSE

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: NOSE OVER

Phase of Operation: LANDING - ROLL

Findings

2. TERRAIN CONDITION - HIGH VEGETATION

3. (C) UNSUITABLE TERRAIN OR TAKEOFF/LANDING/TAXI AREA - ENCOUNTERED

Factual Information

Pilot Information

Certificate:	Commercial	Age:	45, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Unknown
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):		Toxicology Performed:	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	October 18, 1988
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	
Flight Time:	1691 hours (Total, all aircraft), 43 hours (Total, this make and model), 1092 hours (Pilot In Command, all aircraft), 10 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Ryan	Registration:	N5481L
Model/Series:	PT-22A PT-22A	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	1861
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	September 30, 1989 Annual	Certified Max Gross Wt.:	1885 lbs
Time Since Last Inspection:	14 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	1245 Hrs	Engine Manufacturer:	KINNER
ELT:	Installed, not activated	Engine Model/Series:	R-55
Registered Owner:		Rated Power:	160 Horsepower
Operator:	DAVID R. STEVENS	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:	GRR ,794 ft msl	Distance from Accident Site:	20 Nautical Miles
Observation Time:	19:29 Local	Direction from Accident Site:	210°
Lowest Cloud Condition:	Scattered / 9000 ft AGL	Visibility	20 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	7 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	40°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	23°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GREENVILLE , MI (6D6)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	18:40 Local	Type of Airspace:	

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:		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:	43.169467,-85.249404(est)

Administrative Information

Investigator In Charge (IIC): Doub, Mark

Additional Participating Persons: JOHN MILLER;

Original Publish Date: December 14, 1992

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=14764>

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](#).