



# Aviation Investigation Final Report

<b>Location:</b>	PERRY, Iowa	<b>Accident Number:</b>	MKC86LA084
<b>Date &amp; Time:</b>	April 10, 1986, 14:05 Local	<b>Registration:</b>	N8178N
<b>Aircraft:</b>	PIPER PA-32R-301T	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 None
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

SHORTLY AFTER TAKEOFF THE PIC NOTICED A LOSS OF ENGINE PWR AND FLAMES ERUPTING FROM THE ENGINE COWLING. THE PIC EXECUTED A TURN BACK TO THE ARPT AS THICK BLACK SMOKE FILLED THE COCKPIT. THE PIC OPENED THE SIDE VENT WINDOW TO MAINTAIN SIGHT OF THE GROUND AND LANDED THE ACFT IN AN OPEN FIELD. THE PIC EXITED THE ACFT AND USED AND HAND HELD EXTINGUISHER TO COMBAT THE FLAMES BELCHING FM THE ENGINE COWLING. THE ENSUING FIRE SUBSTANTIALLY DAMAGED THE ACFT. INSPECTION OF THE FIRE AREA REVEALED AN EXHAUST V-CLAMP LOOSE AND A DISTORTED GASKET AT THE EXHAUST JOINTS. THIS ALLOWED BLOW-BY OF THE HOT EXHAUST GASES WHICH MELTED THE FUEL BOOST PUMP CONNECTION SPEWING RAW FUEL INTO THE HOT ENGINE COMPARTMENT. THE EXHAUST SYSTEM HAD BEEN REMOVED TO REWORK A CYLINDER AND RE-INSTALLED 6 HOURS PRIOR TO THIS FLT. THE GASKET WAS DISTORTED DURING THE RE-ASSEMBLY OF THE EXHAUST SYSTEM.

## Probable Cause and Findings

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

### Findings

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

Findings

1. (F) EXHAUST SYSTEM,CLAMP - LOOSE
2. (C) MAINTENANCE,ALIGNMENT - IMPROPER - OTHER MAINTENANCE PERSONNEL
3. (F) EXHAUST SYSTEM,GASKET - DISTORTED
4. (F) MAINTENANCE,INSPECTION - INADEQUATE - OTHER MAINTENANCE PERSONNEL

-----

Occurrence #2: FIRE

Phase of Operation: TAKEOFF - INITIAL CLIMB

Findings

5. (F) FUEL SYSTEM,LINE FITTING - BURNED
6. (C) FUEL SYSTEM,LINE - FIRE

-----

Occurrence #3: FORCED LANDING

Phase of Operation: MANEUVERING - TURN TO REVERSE DIRECTION

## Factual Information

### Pilot Information

<b>Certificate:</b>	Commercial; Flight instructor	<b>Age:</b>	29, Male
<b>Airplane Rating(s):</b>	Single-engine land; Multi-engine land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	Airplane single-engine	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 2 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	August 22, 1985
<b>Occupational Pilot:</b>	Yes	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	3546 hours (Total, all aircraft), 1505 hours (Total, this make and model), 3360 hours (Pilot In Command, all aircraft), 90 hours (Last 90 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	PIPER	<b>Registration:</b>	N8178N
<b>Model/Series:</b>	PA-32R-301T PA-32R-301	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	8029072
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	6
<b>Date/Type of Last Inspection:</b>	April 1, 1986 Annual	<b>Certified Max Gross Wt.:</b>	3600 lbs
<b>Time Since Last Inspection:</b>	4 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	2407 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	TIO-540-S1AD
<b>Registered Owner:</b>	JERRY WOODKE	<b>Rated Power:</b>	300 Horsepower
<b>Operator:</b>	HAWKEYE EAGLE TRAILERS	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	DSM ,957 ft msl	<b>Distance from Accident Site:</b>	20 Nautical Miles
<b>Observation Time:</b>	13:51 Local	<b>Direction from Accident Site:</b>	140°
<b>Lowest Cloud Condition:</b>	Clear	<b>Visibility</b>	30 miles
<b>Lowest Ceiling:</b>	None	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	3 knots / 12 knots	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	320°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	29 inches Hg	<b>Temperature/Dew Point:</b>	17°C / -1°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	PERRY , IA (PRO )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>	SCHALLER , IA (SLB )	<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	14:00 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	None
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	Forced landing

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 None	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	In-flight
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	1 None	<b>Latitude, Longitude:</b>	41.84056,-94.090736(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Thorpe, Clint
<b>Additional Participating Persons:</b>	TOM WOOD; DES MOINES , ID
<b>Original Publish Date:</b>	
<b>Last Revision Date:</b>	
<b>Investigation Class:</b>	<a href="#">Class</a>
<b>Note:</b>	
<b>Investigation Docket:</b>	<a href="https://data.nts.gov/Docket?ProjectID=34156">https://data.nts.gov/Docket?ProjectID=34156</a>

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](#).