



# Aviation Investigation Final Report

<b>Location:</b>	KAUFMAN, Texas	<b>Accident Number:</b>	FTW96LA078
<b>Date &amp; Time:</b>	December 27, 1995, 16:00 Local	<b>Registration:</b>	N5221P
<b>Aircraft:</b>	PIPER PA-24-250	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	2 Serious
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

THE ENGINE 'STARTED TO RUN ROUGH' AND SMOKE FILLED THE COCKPIT. DURING THE DOWNWIND APPROACH TO A FIELD, FORWARD VISIBILITY WAS LIMITED BY THE SMOKE. ON SHORT FINAL, THE PILOT OBSERVED A FENCE ACROSS THE LANDING AREA AND 'PULLED THE YOKE ALL THE WAY BACK.' FOLLOWING THE HARD LANDING, THE AIRPLANE TRAVELED THROUGH THE FENCE. THE NOSE GEAR COLLAPSED, AND THE ENGINE FUSELAGE AND WINGS WERE DAMAGED. ENGINE OIL WAS FOUND ON THE ENGINE COWLING AND IN THE AREA OF THE #4 CYLINDER. THE OIL SUMP CONTAINED APPROXIMATELY 1.5 QUARTS OF OIL. THE EXHAUST VALVE PUSH ROD AND THE PUSH ROD TUBE ON THE #4 CYLINDER WERE BENT AND WERE NO LONGER IN PLACE. ENGINE TIME SINCE THE LAST MAJOR OVERHAUL WAS 697.65 HOURS AND THE TIME SINCE THE LAST ANNUAL INSPECTION WAS 26 HOURS.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE LOSS OF ENGINE POWER DUE TO A BENT PUSH ROD AND THE RESULTANT LOSS OF OIL. FACTORS WERE THE COCKPIT SMOKE AND THE LACK OF SUITABLE TERRAIN FOR THE FORCED LANDING.

## Findings

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

Findings

1. (C) ENGINE ASSEMBLY,PUSH ROD - BENT
2. (C) FLUID,OIL - LEAK

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Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

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Occurrence #3: HARD LANDING

Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

3. (F) FUSELAGE,CREW COMPARTMENT - SMOKE

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Occurrence #4: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: LANDING - ROLL

Findings

4. (F) TERRAIN CONDITION - NONE SUITABLE
5. OBJECT - FENCE

## Factual Information

On December 27, 1995, at 1600 central standard time, a Piper PA- 24-250, N5221P, was substantially damaged during a forced landing following a partial loss of engine power near Kaufman, Texas. The private pilot and the passenger received serious injuries. The flight originated from Terrell, Texas, at 1515 and was being operated as a personal flight under Title 14 CFR Part 91. Visual meteorological conditions prevailed and a flight plan was not filed for the local flight.

The pilot reported that the engine "started to run rough" and subsequently, as the cockpit filled with smoke a field was selected for a landing. Forward visibility from the cockpit was "limited by the smoke" as the airplane flew downwind to the field. During the final approach the pilot observed a fence across the landing area and "pulled the yoke all the way back." Following the hard landing, the airplane traveled through the fence. The nose gear collapsed, and the engine cowling, fuselage and wings were damaged.

Examination of the engine and a review of the maintenance records by the Federal Aviation Administration (FAA) inspector and the manufacturer representative revealed the following information. Engine oil was found on the engine cowling toward the cockpit and in the area of the #4 cylinder. The oil sump contained approximately 1.5 quarts of oil. The exhaust valve push rod and push rod tube on the #4 cylinder were bent and were no longer in place. Crankshaft continuity to the accessory gears was confirmed. Valve action was confirmed on all cylinders except the #4 cylinder. The hydraulic tappet plunger assembly and hydraulic tappet socket for the #4 cylinder were missing. The exhaust valve on the #4 cylinder was "broken off at the push rod end" and "exhibited scoring on the stem." The exhaust valve guide in the #4 cylinder had a "foreign object imbedded in the wall." Engine time since major overhaul was 697.65 hours and the time since the last annual inspection was 26 hours.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	62, Male
<b>Airplane Rating(s):</b>	Single-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>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 3 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	November 29, 1994
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	802 hours (Total, all aircraft), 378 hours (Total, this make and model), 689 hours (Pilot In Command, all aircraft), 33 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	PIPER	<b>Registration:</b>	N5221P
<b>Model/Series:</b>	PA-24-250 PA-24-250	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	24-248
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	4
<b>Date/Type of Last Inspection:</b>	October 9, 1995 Annual	<b>Certified Max Gross Wt.:</b>	2800 lbs
<b>Time Since Last Inspection:</b>	26 Hrs	<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>	5347 Hrs	<b>Engine Manufacturer:</b>	LYCOMING
<b>ELT:</b>	Installed, not activated	<b>Engine Model/Series:</b>	O-540-A1C5
<b>Registered Owner:</b>	DEAN A. BENHAM	<b>Rated Power:</b>	250 Horsepower
<b>Operator:</b>		<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>	DAL ,487 ft msl	<b>Distance from Accident Site:</b>	290 Nautical Miles
<b>Observation Time:</b>	15:50 Local	<b>Direction from Accident Site:</b>	60°
<b>Lowest Cloud Condition:</b>	Unknown	<b>Visibility</b>	20 miles
<b>Lowest Ceiling:</b>	Broken / 22000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	11 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	20°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	15°C / -3°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	TERRELL , TX (69F)	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	15:15 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 Serious	<b>Aircraft Damage:</b>	Substantial
<b>Passenger Injuries:</b>	1 Serious	<b>Aircraft Fire:</b>	None
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	None
<b>Total Injuries:</b>	2 Serious	<b>Latitude, Longitude:</b>	32.579204,-96.299186(est)

## Administrative Information

<b>Investigator In Charge (IIC):</b>	Smith, Joyce
<b>Additional Participating Persons:</b>	JOHN B COX; DALLAS , TX
<b>Original Publish Date:</b>	February 14, 1996
<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=19731">https://data.nts.gov/Docket?ProjectID=19731</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](#).