



Aviation Investigation Final Report

Location:	YARMOUTH, Massachusetts	Accident Number:	NYC91FA178
Date & Time:	July 12, 1991, 20:02 Local	Registration:	N36272
Aircraft:	PIPER PA-32RT-300T	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

AFTER RECEIVING CLEARANCE TO LAND, THE PILOT CALLED THAT HE WAS IN TROUBLE AND WAS GOING DOWN. WITNESSES SAW THE AIRPLANE AT A LOW ALTITUDE, AND HEARD THE ENGINE SPUTTERING AND THEN QUIT. THE LEFT WING STRUCK A TREE; THE AIRPLANE IMPACTED THE GROUND AND WAS COMPLETELY DESTROYED BY THE POST CRASH FIRE. ENGINE TEARDOWN REVEALED THAT THE CYLINDER #1 FUEL INJECTOR LINE HAD FAILED AT THE OUTER DIAMETER (OD) SURFACE AT THE MANIFOLD END NEAR THE B-NUT FITTING. METALLURGICAL EXAMINATION INDICATED THAT THE SEPARATION WAS DUE TO FATIGUE CRACKING THAT ORIGINATED AT THE OD SURFACE OF THE TUBE AT THE EDGE WITH THE BRAZED FILLER METAL. INTERGRANULAR CORROSION WAS OBSERVED AT THE FRACTURE ORIGIN WHICH OCCURRED DURING MANUFACTURE, WHEN THE LINE WAS SENSITIZED NEAR THE BRAZING JOINT. THERE WAS NO EVIDENCE OF CLAMPING OF THE TUBE AT MIDPOINT PER THE ENGINEERING DRAWING.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE FAILURE OF THE NUMBER ONE CYLINDER FUEL INJECTOR LINE DUE TO FATIGUE CRACKING INDUCED BY CORROSION AND PROPAGATED BY CYCLIC LOADING WHICH RESULTED IN A TOTAL LOSS OF ENGINE POWER. THE CORROSION WAS DUE TO THE MANUFACTURER'S PROCESS OF BRAZING THE METAL JOINT, AND THE CYCLIC LOADING WAS DUE TO THE ABSENCE OF A CLAMP TO MINIMIZE THE EFFECT OF VIBRATION. A CONTRIBUTING FACTOR WAS THE LACK OF SUITABLE TERRAIN DURING THE SUBSEQUENT FORCED LANDING.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings

1. (C) FUEL SYSTEM,LINE - CORRODED
 2. (C) MATERIAL INADEQUATE - MANUFACTURER
 3. (C) FUEL SYSTEM,LINE - VIBRATION
 4. (C) MAINTENANCE,INSTALLATION - IMPROPER - OTHER MAINTENANCE PERSONNEL
 5. (C) FUEL SYSTEM,LINE - FATIGUE
 6. (C) FUEL SYSTEM,LINE - SEPARATION
 7. (C) FLUID,FUEL - STARVATION
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Occurrence #2: FORCED LANDING

Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: APPROACH - VFR PATTERN - BASE LEG/BASE TO FINAL

Findings

8. (F) TERRAIN CONDITION - HIGH OBSTRUCTION(S)
9. OBJECT - TREE(S)

Factual Information

Pilot Information

Certificate:	Commercial	Age:	40, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	Last FAA Medical Exam:	March 20, 1991
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	1260 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	PIPER	Registration:	N36272
Model/Series:	PA-32RT-300T PA-32RT-30	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32R-7887030
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	May 4, 1991 100 hour	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	20 Hrs	Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	LYCOMING
ELT:	Installed, not activated	Engine Model/Series:	TIO-540-S1AD
Registered Owner:	JOHN & MARY SANTOIN	Rated Power:	300 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:	Dusk
Observation Facility, Elevation:	HYA ,55 ft msl	Distance from Accident Site:	1 Nautical Miles
Observation Time:	20:05 Local	Direction from Accident Site:	80°
Lowest Cloud Condition:	20000 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	10 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	200°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	22°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	MARTHAS VINEYAR, MA (MUY)	Type of Flight Plan Filed:	None
Destination:	HYANNIS , MA	Type of Clearance:	None
Departure Time:	19:49 Local	Type of Airspace:	Class D;Class E

Airport Information

Airport:	BARNSTABLE MUNI HYA	Runway Surface Type:	Asphalt
Airport Elevation:	52 ft msl	Runway Surface Condition:	Dry
Runway Used:	24	IFR Approach:	None
Runway Length/Width:	5430 ft / 150 ft	VFR Approach/Landing:	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:		Aircraft Fire:	On-ground
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 Fatal	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC): Yurman, Alan

Additional Participating Persons:

Original Publish Date: April 14, 1992

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=36800>

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