



Aviation Investigation Final Report

Location:	MT. PLEASANT, Tennessee	Accident Number:	ATL92LA063
Date & Time:	March 15, 1992, 11:45 Local	Registration:	N1740D
Aircraft:	BEECH A36	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious, 3 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

WHILE CRUISING THE ENGINE DEVELOPED A VIBRATION AND STARTED RUNNING ROUGHLY. THE PILOT REDUCED POWER AND ESTABLISHED A TRACK FOR AN EMERGENCY LANDING TO A NEARBY COUNTY AIRPORT; THE AIRPLANE CRASHED ABOUT ONE MILE SHORT OF THE AIRPORT. EXAMINATION OF THE ENGINE ASSEMBLY DISCLOSED THAT A PIECE OF THE CRANKCASE WAS BROKEN ABOVE NUMBER 2 CYLINDER AND THE CYLINDER WAS PARTIALLY SECURED BY ONE HOLD DOWN NUT ON THE BOTTOM LEFT SIDE. FURTHER EXAMINATION REVEALED FRETTING BETWEEN THE CYLINDER FLANGE AND THE ENGINE CASE. ALL CRANKCASE FRACTURES SHOWED SIGNS OF OVERLOAD FAILURE. THE ENGINE MAINTENANCE LOGS DISCLOSED THAT THE ENGINE'S CRANKCASE HAD BEEN REPLACED ON 10/24/90; THIS ENGINE MALFUNCTION OCCURRED 258 HOURS LATER. SUBSEQUENT TO THIS ACCIDENT, CONTINENTAL MOTORS ISSUED A SERVICE BULLETIN WHICH INCREASED THE TORQUE VALUE FOR THE CYLINDER HOLD DOWN NUTS, AND INSTRUCTED THAT THE STANDARD SIX POINT HOLD DOWN NUTS BE REPLACED WITH TWELVE POINT NUTS DURING OVERHAUL.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE MANUFACTURER'S FAILURE TO PROVIDE ADEQUATE TORQUE INFORMATION WHICH RESULTED IN THE LOSS OF TORQUE ON THE CYLINDER HOLD DOWN NUTS AND THE COMPLETE LOSS OF ENGINE POWER.

Findings

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

Findings

1. ENGINE ASSEMBLY,CYLINDER - SEPARATION
 2. (C) ENGINE ASSEMBLY,CYLINDER - UNDERTORQUED
 3. (C) MAINTENANCE,OVERHAUL - INADEQUATE - MANUFACTURER
 4. (C) PROCEDURE INADEQUATE - MANUFACTURER
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Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: DESCENT - EMERGENCY

Findings

5. OBJECT - TREE(S)

Factual Information

Pilot Information

Certificate:	Private	Age:	53, 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:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	Last FAA Medical Exam:	January 12, 1990
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	1420 hours (Total, all aircraft), 87 hours (Total, this make and model), 1262 hours (Pilot In Command, all aircraft), 24 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	BEECH	Registration:	N1740D
Model/Series:	A36 A36	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	E1796
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	January 7, 1992 Annual	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	30 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	3273 Hrs	Engine Manufacturer:	CONTINENTAL
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	IO-520-BB
Registered Owner:	SNYDER, MICHAEL C.	Rated Power:	285 Horsepower
Operator:	SNYDER, MICHAEL C.	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:	BNA ,598 ft msl	Distance from Accident Site:	35 Nautical Miles
Observation Time:	11:50 Local	Direction from Accident Site:	20°
Lowest Cloud Condition:	Clear	Visibility	15 miles
Lowest Ceiling:	Overcast / 4500 ft AGL	Visibility (RVR):	
Wind Speed/Gusts:	15 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	10°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	7°C / -6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HUNTSVILLE , AL (HSV)	Type of Flight Plan Filed:	None
Destination:	SPRINGFIELD , IL (SPI)	Type of Clearance:	None
Departure Time:	11:00 Local	Type of Airspace:	Class G

Airport Information

Airport:	MAURY COUNTY MRC	Runway Surface Type:	Asphalt
Airport Elevation:	1472 ft msl	Runway Surface Condition:	Dry
Runway Used:	5	IFR Approach:	None
Runway Length/Width:	5003 ft / 75 ft	VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	1 Serious, 2 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 3 Minor	Latitude, Longitude:	35.550575,-87.19065(est)

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	ROCKY DAVIDSON; NASHVILLE , TN
Original Publish Date:	June 30, 1993
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=8572

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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](#).