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

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:**	N174OD
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