Aviation Investigation Final Report

Location:	Huntsville, Alabama	**Accident Number:**	ATL05CA027
Date & Time:	November 19, 2004, 21:30 Local	**Registration:**	N38047
Aircraft:	Beech A36TC	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious, 3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The flight was being vectored for the ILS 18L approach when the pilot reported a loss of engine power approximately 7 miles from the airport at an altitude of approximately 2,000 feet mean sea level (MSL). The pilot stated that he switched main fuel tanks and performed the loss of power procedures as outlined in the Pilot's Operating Handbook, but his attempts to restore engine power were unsuccessful. The pilot performed an off-airport landing with the gear retracted, and the airplane collided with the ground and slid to a stop. The left main fuel tank and left tip tank were empty with no evidence of fuel leakage. Approximately 36 gallons of fuel was recovered from the right main fuel tank, and the right tip tank was empty with no evidence of fuel leakage. The fuel selector handle was positioned to the right tank. Examination of the engine revealed continuity from the cockpit throttle and mixture controls to the fuel servo. The exhaust pipe was crushed. Examination of the top spark plugs revealed no evidence of abnormal wear or deposits. In preparation for a test run, the damaged propeller was removed and a Hartzell three-bladed club prop was installed. A three-inch by three-inch hole was cut in the exhaust pipe above the crushed area to facilitate exhaust flow, and the air inlet was cleared of mud. A portable fuel tank was connected to the supply fitting at the right wing root, and the fuel recovered from the right wing tank was utilized for the test run. An engine start was accomplished utilizing the cockpit controls; the engine started within four to five seconds and was observed to run smoothly. The engine idled smoothly at 700 to 750 rpm, and the engine operated smoothly up to 1900 rpm; higher rpms was not attempted. A magneto check was performed at 1900 rpm, and a drop of 75 rpm was observed for each.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper fuel management, which resulted in a loss of engine power due to fuel

starvation and a forced landing to an open field.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - NONMECHANICAL
Phase of Operation: APPROACH - IAF TO FAF/OUTER MARKER (IFR)

Findings
1. (C) FLUID,FUEL - STARVATION
2. (C) FUEL MANAGEMENT - IMPROPER - PILOT IN COMMAND

Occurrence #2: FORCED LANDING
Phase of Operation: EMERGENCY DESCENT/LANDING

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. TERRAIN CONDITION - OPEN FIELD

Factual Information

On November 19, 2004, about 2130 central standard time, a Beech A36TC, N38047, registered to and operated by Repro-Air LLC, collided into a field following a loss of engine power in Huntsville, Alabama. The personal flight was operated under the provisions of Title 14 CFR Part 91 with an instrument flight rules (IFR) flight plan filed. Instrument meteorological conditions prevailed. The private pilot received serious injuries, the three passengers were not injured, and the airplane received substantial damage. The flight departed San Antonio, Texas, at 1800 central standard time on November 19, 2004.

The flight was being vectored for the ILS 18L approach to Huntsville International Airport, Huntsville, Alabama, when the pilot reported a loss of engine power approximately 7 miles from the airport at an altitude of approximately 2,000 feet mean sea level (MSL). The pilot stated he switched main fuel tanks and performed the loss of power procedures as outlined in the Pilot's Operating Handbook, but his attempts to restore engine power were unsuccessful. The pilot performed an off-airport landing with the gear retracted, and the airplane collided with the ground and slid to a stop.

The airplane came to rest upright in a cotton field approximately three miles north of the Huntsville International Airport. The underside of the engine cowl was crushed, and the fuselage was buckled at the left wing root. All three propeller blades were bent aft, and the air inlet was crushed and caked with mud. The left main fuel tank and left tip tank were empty with no evidence of fuel leakage. Approximately 36 gallons of fuel was recovered from the right main fuel tank, and the right tip tank was empty with no evidence of fuel leakage. The fuel selector handle was positioned to the right tank.

Examination of the engine at a recovery facility revealed continuity from the cockpit throttle and mixture controls to the fuel servo. The exhaust pipe was crushed. Examination of the top spark plugs revealed no evidence of abnormal wear or deposits. Dark blue staining was observed near the fuel injector nozzles on all cylinders except the No. 6 cylinder, and the staining was most pronounced on the No. 3 cylinder. In preparation for a test run, the damaged propeller was removed and a Hartzell three-blade club prop was installed. A three-inch by three-inch hole was cut in the exhaust pipe above the crushed area to facilitate exhaust flow, and the air inlet was cleared of mud. A portable fuel tank was connected to the supple fitting at the right wing root, and the fuel recovered from the right wing tank was utilized for the test run. The airplane's battery was absent of charge, and an external battery source was utilized. An engine start was accomplished utilizing the cockpit controls; the engine started within four to five seconds and was observed to run smoothly. The engine idled smoothly at 700 to 750 rpm, and the engine operated smoothly up to 1900 rpm; higher rpm was not attempted. A magneto check was performed at 1900 rpm, and a drop of 75 rpm was observed for each. The pilot reported no mechanical malfunction with the airplane.

A review of the Pilot's Operating Handbook for the Raytheon Aircraft Beech A36TC, Section III: Emergency Procedures, Engine Failure, In Flight, Fuel Depletion, states: "1. Fuel Selector Valve - SELECT OTHER TANK (feel for detent & visually check), 2. Auxiliary Fuel Pump - LOW, 3. Throttle - 1/2 OPEN."

Pilot Information

Certificate:	Private	**Age:**	39,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	
Instructor Rating(s):		**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	July 31, 2002
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	748 hours (Total, all aircraft), 436 hours (Total, this make and model), 51 hours (Last 90 days, all aircraft), 17 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N38047
Model/Series:	A36TC	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Utility	**Serial Number:**	EA-176
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Teledyne Continental
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	TSIO-520-UB
Registered Owner:	Repro-Air, LLC	**Rated Power:**	
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument (IMC)	**Condition of Light:**	Night
Observation Facility, Elevation:	KHSV,629 ft msl	**Distance from Accident Site:**	3 Nautical Miles
Observation Time:	21:19 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:		**Visibility**	1.5 miles
Lowest Ceiling:	Broken / 100 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.06 inches Hg	**Temperature/Dew Point:**	13°C / 13°C
Precipitation and Obscuration:	Light - None - Drizzle		
Departure Point:	San Antonio, TN (KSAT)	**Type of Flight Plan Filed:**	IFR
Destination:	Huntsville, AL (KHSV)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	Class C

Airport Information

Airport:	Huntsville International KHSV	**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	Unknown
Runway Used:	18L	**IFR Approach:**	ILS
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:	3 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	
Total Injuries:	1 Serious, 3 None	**Latitude, Longitude:**	34.640277,-86.773056

Administrative Information

Investigator In Charge (IIC):	Gagne, Catherine
Additional Participating Persons:	Edward H Blount; Birmingham FSDO - 09
Original Publish Date:	June 28, 2006
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=60589