Aviation Investigation Final Report

Location:	COURTLAND, Alabama	**Accident Number:**	MIA99LA137
Date & Time:	April 21, 1999, 16:43 Local	**Registration:**	N769LW
Aircraft:	Beech A36	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 Serious
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During cruise flight, throttle response was not possible and the engine rpm decreased to near idle. While descending for a forced landing with the landing gear extended, the pilot later stated that he could not recall the last several thousand feet of the descent. The airplane collided with trees then the ground. Postaccident examination of the airplane revealed a castellated nut which secures a lever onto the throttle plate shaft was loose by 10.5 turns of the 6 sided nut; no cotter pin was found. This condition would not allow movement of the throttle plate shaft with movement of the throttle control. Postaccident, the engine was removed from the airplane, placed in a test cell, and found to operate normally. Following collapse of the nose landing gear August 1998, the engine and fuel control valve were overhauled. Following the engine overhaul, the engine was test run. The air throttle assembly was then removed for shipping, the lever was loosened, and the engine and boxed air throttle assembly were shipped to where the airplane was being repaired. The air throttle assembly was installed on the engine which was installed into the airplane. The engine was then run and no engine related discrepancies were noted.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The failure of maintenance personnel from Signature Flight Support to assure that a cotter pin was installed at the air throttle assembly lever following installation of the overhauled fuel control valve onto the overhauled engine. This resulted in the partial loss of engine power due to the failure of the pilot to adjust the throttle control. A factor in the accident was the premature extension by the pilot of the landing gear which reduced the glide distance.

Findings

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

Findings
1. THROTTLE/POWER LEVER,LINKAGE - LOOSE PART/BOLT/NUT/CLAMP/ETC
2. (C) MAINTENANCE,INSTALLATION - INADEQUATE - OTHER MAINTENANCE PERSONNEL

Occurrence #2: IN FLIGHT COLLISION WITH OBJECT
Phase of Operation: EMERGENCY DESCENT/LANDING

Findings
3. OBJECT - TREE(S)
4. (F) GEAR EXTENSION - PREMATURE - PILOT IN COMMAND

Factual Information

HISTORY OF FLIGHT

On April 21, 1999, about 1643 central daylight time, a Beech A36, N769LW, registered to Camp Associates Llc., collided with trees then the ground near Courtland, Alabama. Visual meteorological conditions prevailed at the time and no flight plan was filed for the 14 CFR Part 91 flight. The airplane was substantially damaged and the private-rated pilot, the sole occupant, sustained serious injuries. The flight originated approximately 1600 from the Houston Municipal Airport, Houston, Mississippi.

The pilot stated that he performed a normal preflight to the airplane, and after departure air traffic control communications were transferred to several facilities. While in contact with Huntsville Approach Control at the cruise altitude, he later recalled attempting to reduce the engine rpm from 2,500 to 2,450 with no effect. He then advised Huntsville Approach Control of the situation and requested a vector to Courtland Industrial Airpark which he could see approximately 10-15 miles away. He began a descent and when reducing the manifold pressure, the rpm suddenly dropped rapidly to just above idle and he was unable to increase it. He realized that he was unable to reach the Courtland Industrial Airpark and selected a east-west oriented field for a possible landing area. He continued to descend with the flaps retracted, lowered the landing gear during a point in the descent that he could not recall, and stated that he does not recall the last several thousand feet of descent nor does he remember the impact. A ground and air search was initiated and the first units arrived at the accident site at approximately 1903, as determined by radio logs with the Lawrence County Sheriff's Department. The pilot further stated that the next thing he remembered was a search helicopter that was overhead.

According to a transcription of communications with Huntsville Air Traffic Control Tower, at 1632:10, the pilot advised the controller "roger niner lima whiskey looks like i've got a throttle problem up here and descending." The controller acknowledged the transmission and asked the pilot if he needed any assistance. The pilot responded with "uh nine lima whiskey roger it looks like my uh---part of my throttle is gone i'm going to have to land without power." At 1634:47, the pilot advised the controller that the Courtland airport was in sight and that "...what happened uh my throttle is stuck uh looks like the throttle cable might have come off i'm not sure." The transcription also indicates that the controller advised the pilot the distance from and the common traffic advisory frequency of the intended airport.

AIRCRAFT INFORMATION

The airplane was involved in an incident on August 20, 1998, in which the nose landing gear collapsed on landing while being flown by a pilot other than the accident pilot. Following the

incident, the engine was overhauled by Mena Aircraft Engines, Inc., a FAA certified repair station located in Mena, Arkansas. The fuel control valve was overhauled by Mike's Aircraft Fuel Metering Service, Inc., a FAA certified repair station located in Tulsa, Oklahoma. The lever at the air throttle assembly was not replaced when the fuel control valve was overhauled. According to the president of Mike's Aircraft Fuel Metering Service, Inc., when the lever is sent with the fuel control valve, the lever retaining nut is left loose for final adjustment when the unit is installed on the engine. The overhauled fuel control valve was sent to Mena Aircraft Engines, Inc., who tightened the lever on the air throttle assembly with attached fuel control valve and installed the air throttle assembly on the engine for a test run. The engine was test run and following it, the lever was loosened and left hanging on the throttle plate shaft. The air throttle assembly with attached fuel control valve was removed from the engine for shipping purposes and placed in a box. The engine and separately boxed air throttle assembly were delivered to Signature Flight Support, Huntsville, Alabama, in a Mena Aircraft Engines, Inc., company truck. Signature Flight Support then installed the air throttle assembly/fuel control valve onto the engine and the engine into the airframe.

Following the engine installation, an engine logbook entry was made stating, "Reinstalled O.H.C. engine by C.R.S. #S9QR340N (MENA Aircraft Engine's Inc). Installed new Lord Mounts. Serviced the engine with 12 qts of Aero-shell 100 mineral oil. Degreased and ran the engine leak and functional checks good." The post engine installation ground run and inspection documents indicated that the engine was ground run, and all indications were normal. The airplane was repaired; the maintenance records indicate that the repair was performed in accordance with (IAW) the manufacturer's maintenance manual; the entry was dated December 30, 1998.

Further review of the maintenance records revealed a work order with an opened date of March 26, 1999, and a closed date of April 1, 1999, which indicate a discrepancy that the engine runs rough when pulled back to 15 inches manifold pressure. The corrective action indicates that the idle mixture was adjusted IAW the maintenance manual. The maintenance records do not indicate any further maintenance being performed to the fuel injection system. The airplane had accumulated approximately 17 hours since engine installation as determined by the tachometer at the time of the accident. Additional information pertaining to the airplane is contained on page 2 of the Factual Report-Aviation.

WRECKAGE AND IMPACT INFORMATION

Examination of the airplane at the accident site by an FAA airworthiness inspector revealed that the airplane came to rest upright on a magnetic heading of 130 degrees, surrounded by trees. A segment of the left wing was separated outboard of the stall warning vane. The leading edge of the right wing was damaged nearly along the entire length and the leading edge near the wing tip was displaced upwards and aft. The engine with attached propeller was resting on the left wing near the wing root. The nose section of the airplane was displaced aft and to the left. Both fuel tanks were found to contain a minimum of 16 gallons of fuel; no contaminants were noted. Examination of the flight controls revealed no evidence of

preimpact failure or malfunction. The landing gear was determined to be extended and the flaps were determined to be retracted.

Examination of the engine revealed no cotter pin was found in the castellated nut or drilled passage in the throttle plate shaft of the air throttle assembly; there was no evidence of sheering of a cotter pin in the castellated nut or in the throttle plate shaft. The castellated nut which secures the lever onto the throttle plate shaft was found positioned at a point which allowed a .060 inch feeler gage between the nut and the lever. The castellated nut was found to be loose by 10.5 flats of the six sided nut, and with the position of the castellated nut as found, manipulation of the throttle control would not result in movement of the throttle plate shaft. Examination of the lever revealed an area with damage to the tops of the serrations on the inside of the lever. Additionally, impressions which resembled the threads of the throttle plate shaft were noted on the inside diameter of the lever. The impressions were located at the outer portion of the lever adjacent to the castellated nut. The engine was removed for an attempted engine run at the manufacturers facility.

The engine was placed in a test cell at the manufacturers facility and operated for approximately 5 minutes with a test club propeller installed to 2,652 rpm. The airplane type certificate data sheet indicates that maximum rpm is 2,700.

ADDITIONAL INFORMATION

The emergency locator transmitter (ELT) was not installed in the airplane at the time of the accident. It was removed from the airplane on March 22, 1999. Signature Flight Support prepared a logbook insert indicating that the ELT was removed from the airplane but the insert was not installed in the aircraft logbook. The glovebox was placarded showing removal of the ELT.

The wreckage minus the retained engine was released to Kevin J. Twiss, insurance adjuster for Phoenix Aviation Managers, Inc., on April 23, 1999. The retained engine, fuel control, and air throttle assembly were also released to Kevin Twiss on January 12, 2000.

Pilot Information

Certificate:	Commercial; Private	**Age:**	59,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Helicopter	**Restraint Used:**	
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	December 8, 1997
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	1597 hours (Total, all aircraft), 1395 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N769LW
Model/Series:	A36 A36	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal; Utility	**Serial Number:**	E1028
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	May 11, 1998 Annual	**Certified Max Gross Wt.:**	3600 lbs
Time Since Last Inspection:	74 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Continental
ELT:	Not installed	**Engine Model/Series:**	IO-520-BA
Registered Owner:	CAMP ASSOCIATES LLC	**Rated Power:**	285 Horsepower
Operator:	JOSEPH W. CAMP	**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:	HSV ,630 ft msl	**Distance from Accident Site:**	27 Nautical Miles
Observation Time:	16:56 Local	**Direction from Accident Site:**	86°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	18 knots / 22 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	200°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29 inches Hg	**Temperature/Dew Point:**	29°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	HOUSTON , MS (M44)	**Type of Flight Plan Filed:**	None
Destination:	HUNTSVILLE , AL (HSV)	**Type of Clearance:**	None
Departure Time:	16:00 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	INDUSTRIAL AIRPARK 9A4	**Runway Surface Type:**	
Airport Elevation:	588 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious	**Latitude, Longitude:**	34.660175,-87.309631(est)

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	GEORGE A COLBOW; BIRMINGHAM , AL GEORGE HOLLINGSWORTH; RESTON , VA STUART E BOTHWELL; WICHITA , KS
Original Publish Date:	November 2, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46148