Aviation Investigation Final Report

Location:	Atlanta, Georgia	**Accident Number:**	ATL07LA057
Date & Time:	March 19, 2007, 21:55 Local	**Registration:**	N500JP
Aircraft:	Beech 95-B55	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

At the initiation of a right engine start, the pilot heard a "thump" and observed fire from the right engine cowling. After engine shutdown, examination of the right wing revealed that the right wing, from the engine nacelle to the wing tip, was damaged. Servicing of the right fuel tank after the accident revealed a leak at the "B-nut" fitting on the output side of the fuel pump, whether the pump was actuated or not. Examination of maintenance records for the accident airplane revealed that the right main fuel cell was replaced approximately 3 months, and 12 flight hours prior to the accident flight.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The improper maintenance of the "B-nut" fitting adjacent to the fuel pump by maintenance personnel, resulting in a fuel leak and wing explosion.

Findings

Occurrence #1: EXPLOSION
Phase of Operation: STANDING - STARTING ENGINE(S)

Findings
1. (C) FUEL SYSTEM,LINE FITTING - LEAK
2. (C) MAINTENANCE,INSTALLATION - IMPROPER - COMPANY MAINTENANCE PERSONNEL

Factual Information

On March 19, 2007, at 2155 eastern daylight time, a Beech 95-B55, N500JP, was substantially damaged following a right wing explosion during engine start at the Fulton County Airport-Brown Field (FTY), Atlanta, Georgia. The airline transport-rated pilot and the commercial pilot rated passenger were not injured. Visual meteorological conditions prevailed and no flight plan was filed for the positioning flight from FTY to Cobb County Airport-Mc Collum Field (RYY), Atlanta, Georgia. The airplane was registered to Caravan Leasing LLC and operated by Midline Airfreight Incorporated under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91.

The pilot stated that he landed at FTY to drop off a passenger, before returning the airplane to its home base. He said that after conducting a preflight inspection he started the left engine normally. He then primed the right engine with the electric fuel boost pump selected to "high boost," and initiated a right engine start. During the start, he heard a "thump" from the right side of the airplane, observed a small fire from the right engine cowling, and immediately stopped the engine. The pilot and passenger exited the airplane and noticed severe damage to the right wing from the engine nacelle to the wing tip.

During a telephone interview, the passenger stated that another company pilot reported a fuel leak from the same wing two weeks prior to the accident. The passenger further stated that he flew on the airplane five times after that report but never noticed a fuel leak.

Examination of the right wing revealed that the wing tip was split open, and the remainder of the wing was ruptured from the landing gear wheel well to the wing tip. An examination of the fuel system revealed that the fuel cell was not breached, neither were any of the fuel lines. Inspection of the wiring system did not reveal any chaffing or broken wiring throughout the wing, and all of the electric wiring was properly harnessed.

During examination and testing of the right main fuel tank, it was serviced with 29.2 gallons of fuel, which filled the tank. During the servicing, a "B-nut" fitting on the output side of the fuel boost pump leaked. The fuel that leaked from the fitting measured approximately "10 drops of fuel per-minute," and collected in the wheel well area. The fuel boost pump was then actuated in the "high-boost" position, and the "B-nut" fitting leaked at the same rate.

Examination of the maintenance logbooks revealed that the right wing fuel cell was replaced on December 29, 2006, at 3197.5 total aircraft hours. At the time of the accident, the airplane had accrued 3209.5 total aircraft hours.

Pilot Information

Certificate:	Airline transport; Flight instructor	**Age:**	66,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	September 1, 2006
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 1, 2007
Flight Time:	30650 hours (Total, all aircraft), 775 hours (Total, this make and model), 23280 hours (Pilot In Command, all aircraft), 272 hours (Last 90 days, all aircraft), 94 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N500JP
Model/Series:	95-B55	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	TC-2396
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	December 1, 2006 Annual	**Certified Max Gross Wt.:**	4880 lbs
Time Since Last Inspection:	12 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	3209 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-470
Registered Owner:	Caravan Leasing LLC	**Rated Power:**	260 Horsepower
Operator:	Midline Airfreight Inc.	**Operating Certificate(s) Held:**	None
Operator Does Business As:	Corp Jet	**Operator Designator Code:**	E7TA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KFTY,841 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	21:53 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.26 inches Hg	**Temperature/Dew Point:**	9°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ATLANTA, GA (FTY)	**Type of Flight Plan Filed:**	None
Destination:	ATLANTA, GA (RYY)	**Type of Clearance:**	Unknown
Departure Time:	21:55 Local	**Type of Airspace:**	

Airport Information

Airport:	FULTON COUNTY AIRPORT-BROWN FI FTY	**Runway Surface Type:**	
Airport Elevation:	841 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	2 None	**Latitude, Longitude:**	33.773887,-84.519447

Administrative Information

Investigator In Charge (IIC):	Alleyne, Eric
Additional Participating Persons:	James Parten; FAA/FSDO; College Park, GA
Original Publish Date:	June 30, 2008
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=65513