Aviation Investigation Final Report

Location:	Gulfport, Mississippi	**Accident Number:**	MIA05LA108
Date & Time:	May 23, 2005, 20:30 Local	**Registration:**	N6654Y
Aircraft:	Beech 58	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

After being cleared to land, the pilot extended the landing gear and set the flaps to full to reduce speed rather than descend at an idle power setting. He observed three green landing gear light indications in the cockpit, and applied "slight" engine power during the landing flare and landed normally. The airplane "rocked" slightly side to side, and when the airplane's full weight was on the main landing gear, the left main landing gear collapsed, followed by the right main landing gear and nose gear. The airplane slid about 400 to 500 feet on the runway before coming to a full stop. The pilot reported that there had been no prior problems with the landing gear, and a recent landing gear inspection had been conducted due to previous slow landing gear extension, retraction, and noise. The slow extension/retraction and noise had been corrected by lubrication since the landing gears' operation had returned to normal after 3 or 4 flights. A mechanic performed postaccident maintenance to repair the landing gear, installing new Brace Assemblies (P/N 38-815125-12 and 38-815125-14). After installing the braces, the mechanic performed retraction tests, and the landing gear system functioned normally. As he was moving the airplane with a tug, he noticed that the right landing gear was about to fold again. He examined the landing gear, and found that the down lock mechanism had not pulled into place, and that the pulley, part number MS20219-2, was split on one side, allowing the cable to run into the split, making the downlock cable fall short of engagement. The pulleys had to be removed to see the split, and that he found the same condition on the left side. Both pulleys and both downlock cables where then replaced, which resolved the landing gear downlock problems. Examination of the airplane's logbook records show the airplane received a 100-hour and Annual inspection on July 31, 2004, about 70 flight hours before the accident. During this inspection the mechanic stated he performed a main landing gear retraction and emergency extension test.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The inadequate maintenance inspection by maintenance personnel which resulted in damaged landing gear pulleys, resulting in the failure of the landing gear downlock to engage, and collapse of the main landing gear during landing.

Findings

Occurrence #1: MAIN GEAR COLLAPSED
Phase of Operation: LANDING - ROLL

Findings
1. (C) MAINTENANCE,INSPECTION - INADEQUATE - OTHER MAINTENANCE PERSONNEL
2. LANDING GEAR,NORMAL RETRACTION/EXTENSION ASSEMBLY - WORN
3. LANDING GEAR - COLLAPSED

Factual Information

On May 23, 2005, about 2030 central daylight time, a Beech BE-58, N6654Y, registered to and operated by a private individual, as a Title 14 CFR Part 91 personal flight, had its landing gear collapse while landing at Gulfport-Biloxi International Airport, Gulfport, Mississippi. Visual meteorological conditions prevailed, and no flight plan was filed. The commercial-rated pilot was not injured, and the airplane incurred substantial damage. The flight originated in Baton Rouge, Louisiana, the same day, about 2000.

The pilot stated that when he was cleared to land on runway 18 by the control tower, he extended the landing gear, set flaps to full, to reduce speed, rather than descend at an idle power setting. He said he observed three green landing gear light indications in the cockpit, and applied "slight" engine power during the landing flare and landed normally, or "slightly softer than normal". He said the airplane "rocked" slightly side to side, and when the airplane's full weight was on the main landing gear, the left main landing gear collapsed, followed by the right main landing gear. He said he then pulled back on the yoke, as the left propeller struck the ground. Moments later the nose gear collapsed, and the airplane slid about 400 to 500 feet on the runway, before coming to a full stop. He said there had been no significant prior problems, and a recent landing gear check had been conducted due to him having previously experienced slow landing gear extension, retraction, and noise. He said he thought the slow extension and noise had been corrected by lubrication since the landing gear's operation and speed of operation had returned to normal after 3 or 4 flights. During postaccident inspection, the pilot said he noted that the battery and alternator were off, the landing gear circuit breaker had popped, and the left gear had not fully retracted

An FAA inspector responded to the scene and conducted an initial postaccident examination of the airplane. According to the inspector, there was "scraping" damage to the inboard landing gear doors, however the outer gear doors sustained no damage, and these items were consistent with the landing gear being extended when the airplane was too close to the runway surface in order for the gear to extend fully.

An FAA licensed airframe and power plant mechanic performed postaccident maintenance to repair the landing gear. The mechanic stated that during the course of his maintenance he installed new Brace Assemblies (P/N 38-815125-12 and 38-815125-14), in accordance with the Beech maintenance manual, since the braces had been bent when the gear had folded. After installing the braces he said he then performed retract tests, and the landing gear system functioned normally. As he was moving the airplane with a tug, he said he noticed that the right landing gear was about to fold. According to the mechanic, when examined he found that the down lock mechanism had not pulled into place, and that the pulley, part number MS20219-2, was split on one side, allowing the cable to run into the split, making the downlock cable fall short of engagement. The mechanic said that the pulleys had to be removed to see

the split, and that when he checked the left side, the same conditions existed. The mechanic replaced both pulleys and both downlock cables, which resolved the landing gear downlock problems.

Examination of the airplane's logbook records show the airplane received a 100 hour and Annual inspection on July 31, 2004, about 70 flight hours before the accident. During this inspection the mechanic stated he performed a main landing gear retraction and emergency extension test.

Pilot Information

Certificate:	Commercial	**Age:**	58,Male
Airplane Rating(s):	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 None	**Last FAA Medical Exam:**	June 1, 2004
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 1, 2004
Flight Time:	7336 hours (Total, all aircraft), 800 hours (Total, this make and model), 7336 hours (Pilot In Command, all aircraft), 39 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N6654Y
Model/Series:	58	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	TH-1061
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 1, 2004 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	70 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	4700 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	Installed, not activated	**Engine Model/Series:**	IO-520-CD-B
Registered Owner:	Garry Lewis	**Rated Power:**	260 Horsepower
Operator:		**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	GPT,38 ft msl	**Distance from Accident Site:**	
Observation Time:	20:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	0 knots / 0 knots	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.84 inches Hg	**Temperature/Dew Point:**	24°C / 21°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Baton Rouge , LA (BTR)	**Type of Flight Plan Filed:**	None
Destination:	Gulfport, MS (GPT)	**Type of Clearance:**	None
Departure Time:	20:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Gulfport -Biloxi International GPT	**Runway Surface Type:**	Asphalt
Airport Elevation:	28 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18	**IFR Approach:**	Visual
Runway Length/Width:	5000 ft / 75 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 None	**Latitude, Longitude:**	30.404443,-89.068611

Administrative Information

Investigator In Charge (IIC):	Lovell, John
Additional Participating Persons:	Robert F Mahaffey; FAA FSDO; Jackson, MS
Original Publish Date:	July 25, 2007
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=61599