Aviation Investigation Final Report

Location:	Tampa, Florida	**Accident Number:**	MIA06LA055
Date & Time:	February 15, 2006, 15:10 Local	**Registration:**	N12LE
Aircraft:	Beech C90A	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	1 None
Flight Conducted Under:	Part 91: General aviation - Positioning		

Analysis

The solo airline transport pilot was conducting a VFR positioning flight under Title 14, CFR Part 91, in a twin-engine, turboprop airplane. While on approach to the destination airport, the pilot moved the landing gear control selector to the down position, and he saw a red annunciator warning light, indicting that the right main landing gear was not safe for landing. The pilot then discontinued the approach, and referred to the emergency and abnormal procedures section of the checklist, but noted that he was unable to find any clear direction that pertained to his specific condition. Additionally, he contacted maintenance personnel to request technical assistance, but the technician was unable to offer any additional assistance. The pilot retracted and extended the landing gear three times, but the right main landing gear red annunciator warning light remained on each time. The pilot flew by the local control tower so air traffic control tower personnel, along with maintenance technicians could inspect the landing gear prior to landing. At the completion of the fly by, the pilot was advised that the right main landing gear appeared to be down, and the airplane was cleared to land. After landing, as the airplane's ground roll slowed, the right main landing gear collapsed. The right wing struck the surface of the runway and sustained substantial damage. A postaccident inspection revealed no preaccident mechanical anomalies. The right main landing gear actuator and the right main landing gear downlock switch were removed for additional testing and evaluation, and both functioned properly, with no mechanical anomalies noted. The airplane flight manual, abnormal procedures section, does give instructions for an alternate method of lowering the landing gear by pumping it down by hand until it reaches a locked position, or until maximum system pressure is reached if the down lock light does not illuminate. The pilot did not follow these procedures.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The collapse of the right main landing gear for an undetermined reason during the landing roll, which resulted in a collision with the runway. A factor contributing to the accident was the pilot's failure to follow the published emergency/abnormal procedures.

Findings

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

Findings
1. (C) REASON FOR OCCURRENCE UNDETERMINED
2. (F) EMERGENCY PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND

Occurrence #2: ON GROUND/WATER ENCOUNTER WITH TERRAIN/WATER
Phase of Operation: LANDING - ROLL

Findings
3. TERRAIN CONDITION - RUNWAY

Factual Information

On February 15, 2006, about 1510 eastern standard time, a Beech C90A turboprop airplane, N12LE, sustained substantial damage following a collapse of the right main landing gear after landing on runway 18L at the Tampa International Airport, Tampa, Florida. The airplane was being operated as a visual flight rules (VFR) cross-country positioning flight under Title 14, CFR Part 91, when the accident occurred. The airplane was owned and operated by ULAIR Aviation, LLC., Tampa. The airline transport pilot, the sole occupant, was not injured. Visual meteorological conditions prevailed, and company flight following procedures were in effect at the time of the accident. The flight originated at the Miami International Airport, Miami, Florida, about 1345.

The pilot submitted a written statement, dated March 4, 2006, which was included with the National Transportation Safety Board (NTSB) Pilot/Operator Aircraft Accident Report (NTSB Form 6120.1) submitted by the operator. The pilot reported that while on approach to the Tampa International Airport, he moved the landing gear control selector to the down position, and saw a red annunciator warning light indicating that the right main landing gear was not safe for landing. The pilot discontinued the approach, advised the local control tower controller of the situation, and climbed the airplane to 1,600 msl so he could evaluate the source of the unsafe landing gear warning light. During climb out he elected not to retract the landing gear.

The pilot said that during his assessment of the situation, he selected the landing gear control selector to the up position, and the landing gear retracted normally. He waited about 30 seconds, selected the landing gear control selector to the down position, and he again saw a red annunciator warning light indicting an unsafe right main landing gear. He referred to the emergency and abnormal procedures section of the pilot's checklist, but noted that he was unable to find any clear direction that pertained to his specific condition. He then contacted the Raytheon service center located at the Tampa International Airport, to request technical assistance, but the technician was unable to offer any additional assistance. The pilot said he retracted and extended the landing gear for a third time, but the right main landing gear red annunciator warning light remained on.

The Beech C90A airplane flight manual, abnormal procedures section states, in part: "If landing gear fails to extend... See landing gear manual extension" which provides instructions to manually pump the landing to the down and locked position. The manual further states: "If One or More Green Gear-Down Annunciators Do Not Illuminate, For Any Reason, and a Decision is Made to Land in This Condition" the manual states: "Alternate Extension Handle...Continue Pumping. (a) Continue to pump until maximum resistance is felt. (b) When pumping is complete, leave handle at the top of the stroke. DO NOT LOWER AND STOW." Additionally, the manual states that after landing: "Pump the handle again, when conditions

permit, to maintain hydraulic pressure until the gear can be mechanically secured.

The pilot retuned to the Tampa International Airport and prepared to land. Before landing he requested to fly by the local control tower so air traffic control tower personnel, along with technicians from the Raytheon service center, could inspect the landing gear prior to landing. At the completion of the fly by, the pilot was advised that the right main landing gear appeared to be down, and the airplane was subsequently cleared to land on Runway 18L.

The pilot reported that after landing, as the airplane's ground roll slowed to 20 knots, the right main landing gear collapsed. The right wing struck the surface of the runway and sustained substantial damage.

The airplane was recovered from Runway 18L and transported to the Raytheon service center hangar by recovery personnel. Recovery crews reported that during recovery efforts, and once the airplane's right wing was lifted, the right main landing gear would not lock into the down position. A recovery crew technician noted that a temporary bracing system had to be installed before the airplane could be towed to the Raytheon service center hangar.

A postaccident inspection of the main landing gear system revealed no preaccident mechanical anomalies. The airplane was placed on jacks and airplane's landing gear retraction system was cycled, numerous times, with no mechanical anomalies noted. Each time the landing gear was lowered, three green landing gear safe lights illuminated.

At the request of the NTSB investigator-in-charge (IIC), the accident airplane's right main landing gear actuator, part number 90-388000-1, and the right main landing gear downlock switch, were removed for additional testing and evaluation.

On March 8, 2006, a Federal Aviation Administration (FAA) aviation safety inspector assigned to the Manufacturing Inspection District Offices (MIDO), Wichita, Kansas, witnessed the functional test and examination of the right main landing gear actuator. The test was conducted at Airight, Inc, Wichita, Kansas. Airight, Inc. is the manufacturer of the actuator for Beech. According to the FAA inspector the landing gear actuator functioned normally, and no mechanical anomalies were discovered.

On October 4, 2006, at the direction of a service difficulty engineer from the FAA's Aircraft Certification Office (ACO), Wichita, the right main landing gear downlock switch was functionally tested. The testing was conducted at the Raytheon Aircraft Company's analytical laboratory in Wichita. According to the FAA engineer, as well as an air safety investigator from Raytheon Aircraft Company, the landing gear downlock switch functioned properly, with no mechanical anomalies noted.

The Safety Board released the airplane to the owner's representatives at the Tampa International Airport on February 15, 2006. The cockpit voice recorder (CVR), right main landing gear actuator, and right main landing gear downlock switch were the only components

retained by the Safety Board for examination. The right main landing gear actuator was released to Raytheon Aircraft Services, Tampa, on March 26, 2006. The CVR was released to Raytheon Aircraft Services, Tampa, on June 10, 2007. The right main landing gear downlock switch was released to International Loss Management, Miami, on July 3, 2007.

Pilot Information

Certificate:	Airline transport; Commercial; Flight instructor	**Age:**	40,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):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	July 1, 2005
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 1, 2005
Flight Time:	8500 hours (Total, all aircraft), 750 hours (Total, this make and model), 5500 hours (Pilot In Command, all aircraft), 39 hours (Last 90 days, all aircraft), 12 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Beech	**Registration:**	N12LE
Model/Series:	C90A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	LJ-1751
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	8
Date/Type of Last Inspection:	November 1, 2005 100 hour	**Certified Max Gross Wt.:**	10100 lbs
Time Since Last Inspection:	0 Hrs	**Engines:**	2 Turbo prop
Airframe Total Time:	47 Hrs at time of accident	**Engine Manufacturer:**	Pratt & Whitney Canada
ELT:	Installed, not activated	**Engine Model/Series:**	PT6A-21
Registered Owner:	Ulair Aviation, LLC	**Rated Power:**	550 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:	KTPA,26 ft msl	**Distance from Accident Site:**	
Observation Time:	14:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 3300 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	7 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.27 inches Hg	**Temperature/Dew Point:**	22°C / 6°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Miami, FL (KMIA)	**Type of Flight Plan Filed:**	None
Destination:	Tampa, FL (KTPA)	**Type of Clearance:**	None
Departure Time:	13:50 Local	**Type of Airspace:**	

Airport Information

Airport:	TAMPA INTL TPA	**Runway Surface Type:**	Asphalt;Concrete
Airport Elevation:	26 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	18L	**IFR Approach:**	None
Runway Length/Width:	8300 ft / 150 ft	**VFR Approach/Landing:**	Full stop

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:**	27.975555,-82.533058

Administrative Information

Investigator In Charge (IIC):	Monville, Timothy
Additional Participating Persons:	Robert Blake; Federal Aviation Administration ; Tampa , FL Linda M Nevin; Federal Aviation Administration; Tampa , FL Christy Eckerman; Federal Aviation Administration (ACO); Wichita, KS Chris Morgan; Federal Aviation Administration (ACO) ; Wichita, KS Charles P Owen; Federal Aviation Administration (MIDO) ; Wichita, KS
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Note:	
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