Aviation Investigation Final Report

Location:	Houston, Mississippi	**Accident Number:**	ERA14LA312
Date & Time:	June 25, 2014, 07:50 Local	**Registration:**	N800MK
Aircraft:	RAYTHEON AIRCRAFT COMPANY C90A	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	2 Minor, 3 None
Flight Conducted Under:	Part 91: General aviation - Executive/Corporate		

Analysis

The pilot reported that he was at the controls during the approach and landing. He stated that, just before touchdown, the right wing "rose severely" and that the copilot called out "windshear" and "go around." As he applied power, the airplane rolled left again, so he retarded the throttles. The airplane subsequently settled into the grass to the left side of the runway and then struck a ditch, spun around, and came to rest upright. The airplane was substantially damaged due to the impact and a postaccident fire. The copilot reported that it felt like the wind was trying to "lift the tail and cartwheel them over."

The airport did not have weather reporting capability; however, surrounding airports reported light wind with no gusts, and no windshear was reported. A review of weather radar and geostationary weather satellite data for the accident region did not identify any convective or gust-front activity, and a review of National Weather Service data did not identify the presence of, or conditions conducive to, ground-level windshear for the accident region at the time of the accident.

A review of the cockpit voice recorder (CVR) transcript revealed that, although the copilot called out "go around," he did not mention windshear or any other weather phenomena at any time during the approach or accident sequence. Based on the conversation between the pilots recorded on the CVR, the approach was probably unstable for a period of time before landing. The CVR transcript also revealed that the more experienced copilot provided a significant amount of "coaching" during the approach; however, it could not be determined what effect this might have had on the pilot's performance.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to maintain a stabilized approach and his subsequent failure to maintain airplane control during the landing flare, which resulted in touchdown off the side of the runway and collision with a ditch.

Findings

Aircraft	Descent/approach/glide path - Not attained/maintained
Personnel issues	Aircraft control - Pilot
Personnel issues	Incorrect action performance - Pilot

Factual Information

History of Flight

Landing-flare/touchdown	Loss of control in flight (Defining event)
Approach-VFR go-around	Off-field or emergency landing
Landing-landing roll	Collision with terr/obj (non-CFIT)

HISTORY OF FLIGHT

On June 25, 2014, about 0750 central daylight time, a Raytheon Aircraft Company C90A, N800MK, was substantially damaged following a runway excursion during an attempted go-around at Houston, Mississippi (M44). The commercial-rated pilot, co-pilot, and two passengers were not injured, while one passenger received minor injuries. The airplane was operated by BECS, LLC under the provisions of 14 CFR Part 91, and an instrument flight rules flight plan was filed. Day, visual meteorological conditions prevailed for corporate flight that originated at Memphis, Tennessee (MEM).

According to the pilot, who was seated in the left, cockpit seat, he was at the controls and was performing a visual approach to runway 21. Just prior to touchdown, while at 90 knots and with approach flaps extended, the right wing "rose severely and tried to put the airplane into a severe left bank." He recalled that the co-pilot called "wind shear" and "go around." As he applied power, the airplane rolled left again, so he retarded the throttles and allowed the airplane to settle into the grass on the left side of runway 21. The airplane struck a ditch, spun around, and came to rest in the grass, upright. A post-crash fire ensued in the left engine area. The pilot and passengers exited the airplane using the main entry door. The pilot reported no mechanical anomalies with the airplane prior to the accident.

The co-pilot reported the following. As they turned onto final, he noticed that the wind "picked up" a little by the wind sock. The final approach was stable, and as the pilot began to flare, he noticed the vertical speed indicator "pegged out." The airplane encountered an unexpected wind shear just above the runway. He called out for a go around. The pilot was doing everything he could to maintain control of the airplane. It was a "jarring" effect when they hit the shear. It felt like the wind was trying to lift the tail and cartwheel them over. He felt that the pilot did a good job of keeping the airplane from flipping over. In his 30,000-plus hours flying airplanes, he has never experienced anything quite like what they experienced with this shear. He has instructed on the King Air and does not feel that the pilot could have done anything different to avoid the accident.

PERSONNEL INFORMATION

The pilot, age 35, held a commercial pilot certificate with airplane single engine land, airplane multi-engine land, and instrument airplane privileges. He reported 2,105 hours total flight time, including 223 hours in the accident airplane type.

The co-pilot, age 56, held a commercial pilot certificate with airplane single engine land, airplane multi-engine land, instrument airplane, and flight instructor privileges. He reported more than 12,000 hours total time and more than 700 hours in the accident airplane type. He reported more than 7,000 hours as a flight instructor.

METEOROLOGICAL INFORMATION

M44 did not have weather reporting capability at the time of the accident; the airfield was equipped with a wind sock. The closest station with weather reporting capability was Tupelo, Mississippi, located 26 nautical miles (nm) to the northeast. The surface wind at 0725, 0753, and 0853 was from 260 degrees at 6 knots, 270 degrees at 6 knots, and 280 degrees at 6 knots, respectively. The surface wind Aberdeen/Amory, Mississippi (M40), located 27 nm east of M44, at 0735, 0755, and 0815 was reported as calm. The surface wind at Starkville, Mississippi, located 29 nm south of M44, at 0735, 0755, and 0815 was from 250 degrees at 5 knots, 250 degrees at 5 knots, and 280 degrees at 4 knots, respectively.

The weather conditions at the time of the accident were reviewed by a staff meteorologist with the NTSB. He reported that a review of surface weather stations in the region indicated the wind was generally from the west to southwest, with little variability beyond that, at magnitudes less than 10 knots. A review of both weather radar and geostationary weather satellite data for the accident region did not identify any convective or gust front activity. Forecast discussion products from the National Weather Service in Memphis, Tennessee, did not identify the presence of, or the conditions conducive to, ground-level wind shear for the accident region at the accident time.

AIRPORT INFORMATION

M44 was an uncontrolled airport with an elevation of 337 feet. There were no published instrument procedures at the time of the accident. Runway 3/21 was 4,400 feet long and 75 feet wide, and was constructed of asphalt. Runway 21 was equipped with a two-light precision approach path indicator (PAPI) set at 3.0 degrees.

FLIGHT RECORDERS

The airplane was equipped with a Fairchild A-100S cockpit voice recorder (CVR). The airplane was not equipped with a flight data recorder.

The CVR was removed by the FAA inspector and shipped to the NTSB Vehicle Recorders Laboratory, Washington, DC for examination. Due to quality issues with the recording, the speakers in this summary are referred to as "a pilot" or "the pilots." If a determination could not be made, the voice was referred to as "unidentified." The times referenced in the summary are elapsed time from the beginning of the recording (in minutes and seconds).

At 26:21, a pilot reported the flight was crossing midfield for a left downwind for runway 21 at M44.

At 26:51, one pilot asked the other, "You got it in sight brother?" followed by laughter. A pilot then said to the other, "One of the things you don't want to do" followed by unintelligible discourse. The pilots then confirmed that they could see the tower ahead.

At 27:42, a pilot said, "Alright turn base."

At 27:53, a pilot said, "Power power" and the other pilot responded "Yes sir." A pilot then said "Bring it on down." At 28:37, a pilot said, "Alright bring her on around." At 28:52, a pilot said, "Stop the turn."

At 29:11, an unidentified voice asked, "Can you get it in there?" and a pilot responded "Yeah."

At 29:39, an automated voice reported, "Five hundred."

At 30:02, a pilot was recorded at a higher volume saying, "Heading heading heading." During this time, a mid-level tone, similar to an altitude alert, sounded twice.

At 30:05, a pilot said, "You can't pull that power back." At 30:10, a pilot said, "Alright get it in there." At 30:14, a pilot said, "Come on. Get it. Get it in there."

At 30:17, a pilot was recorded at a high volume, saying, "Go around. Go around." The other pilot responded, "Goin' around." During this time, the engine sound increased.

At 30:21, a pilot asked, "You got it? You got it?" Another pilot said, "No." At 30:25, the sound of a "thunk" was recorded, consistent with an initial impact. The recording ended coincident with the end of the thunk.

WRECKAGE AND IMPACT INFORMATION

An inspector with the Federal Aviation Administration responded to the accident site and examined the wreckage. The airplane impacted and came to rest in a grass field to the left of runway 21, on airport property. He confirmed substantial damage to both wings and fire damage in the area of the left and right engines.

Pilot Information

Certificate:	Commercial	**Age:**	35
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	March 10, 2014
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	July 26, 2013
Flight Time:	2105 hours (Total, all aircraft), 223 hours (Total, this make and model), 1586 hours (Pilot In Command, all aircraft), 90 hours (Last 90 days, all aircraft), 37 hours (Last 30 days, all aircraft)		

Co-pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	56
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	3-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Without waivers/limitations	**Last FAA Medical Exam:**	March 28, 2014
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	January 23, 2014
Flight Time:	12000 hours (Total, all aircraft), 700 hours (Total, this make and model), 12000 hours (Pilot In Command, all aircraft), 80 hours (Last 90 days, all aircraft), 28 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	RAYTHEON AIRCRAFT COMPANY	**Registration:**	N800MK
Model/Series:	C90A	**Aircraft Category:**	Airplane
Year of Manufacture:	1996	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	LJ-1460
Landing Gear Type:	Retractable - Tricycle	**Seats:**	7
Date/Type of Last Inspection:	April 21, 2014 AAIP	**Certified Max Gross Wt.:**	10400 lbs
Time Since Last Inspection:		**Engines:**	2 Turbo prop
Airframe Total Time:	2708 Hrs as of last inspection	**Engine Manufacturer:**	P&W Canada
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	PT6A-21
Registered Owner:	BECS, LLC	**Rated Power:**	600 Horsepower
Operator:	BECS, LLC	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	TUP,345 ft msl	**Distance from Accident Site:**	26 Nautical Miles
Observation Time:	07:53 Local	**Direction from Accident Site:**	40°
Lowest Cloud Condition:		**Visibility**	10 miles
Lowest Ceiling:	Overcast / 600 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	6 knots / None	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	270°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.07 inches Hg	**Temperature/Dew Point:**	24°C / 22°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Memphis, TN (MEM)	**Type of Flight Plan Filed:**	IFR
Destination:	Houston, MS (M44)	**Type of Clearance:**	IFR
Departure Time:	07:15 Local	**Type of Airspace:**	

Airport Information

Airport:	Houston Municipal M44	**Runway Surface Type:**	Asphalt
Airport Elevation:	337 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	21	**IFR Approach:**	None
Runway Length/Width:	4400 ft / 75 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 Minor, 1 None	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 Minor, 3 None	**Latitude, Longitude:**	33.890277,-89.019447(est)

Administrative Information

Investigator In Charge (IIC):	Hicks, Ralph
Additional Participating Persons:	Steven Felts; FAA/FSDO; Jackson, MS
Original Publish Date:	August 11, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=89540