Aviation Investigation Final Report

Location:	Kernville, California	**Accident Number:**	WPR13LA145
Date & Time:	March 11, 2013, 15:01 Local	**Registration:**	N427GE
Aircraft:	CIRRUS DESIGN CORP SR20	**Aircraft Damage:**	Substantial
Defining Event:	Runway excursion	**Injuries:**	1 Minor, 2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that, while in the landing flare with the flaps configured full down, the airplane drifted right, and he then decided to execute a go-around. After he added power for the go-around, the left main wheel contacted the runway, and the airplane then veered left, continued off the left side of the runway, and impacted a ditch.

Flight data from the primary flight display showed that the airplane had a high engine rpm and a 9-degree left bank with a 17-degree nose-up pitch attitude and was at an airspeed of 56 knots during the attempted go-around. The Pilot's Operating Handbook states that, during a go-around, the best angle-of-climb airspeed (between 81 and 83 knots indicated airspeed [KIAS]) should be set and maintained and that the flaps should then be retracted. It also states that, if the airplane is configured with full flaps in a 15-degree bank angle, it will stall between 55 and 57 KIAS. It is likely that the excessive pitch angle and low airspeed during the go-around attempt resulted in an aerodynamic stall.

Probable Cause and Findings

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

The pilot's application of excessive pitch and his failure to achieve adequate airspeed during the go-around attempt, which resulted in an aerodynamic stall.

Findings

Aircraft	Pitch control - Not attained/maintained
Aircraft	Airspeed - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Landing-aborted after touchdown	Runway excursion (Defining event)

On March 11, 2013, at 1501 Pacific daylight time, a Cirrus SR20, N427GE, veered off the left side of the runway and into a ditch at the Kern Valley Airport, Kernville, California. The airplane was registered to East Pole Aviation, and operated by Justice Aviation under the provisions of 14 Code of Federal Regulations, Part 91. The private pilot and two passengers sustained minor injuries, and the airplane was substantially damaged. Visual meteorological conditions prevailed, and no flight plan had been filed. The flight originated at Bakersfield, California, about 1438.

The pilot stated that while in the landing flare with the flaps configured full down, the airplane drifted right so that the right main landing gear was no longer over the runway. The pilot decided to execute a go-around. After he added power for the go-around, the left main wheel contacted the runway; the airplane veered left, continued off the left side of the runway, impacted a ditch, and came to rest inverted. The pilot indicated in the NTSB Pilot/Operator Accident Report (Form 6120.1) that there were no mechanical malfunctions or failures prior to the accident.

The Avidyne Primary Flight Display (PFD) was removed from the airplane and sent to the NTSB Vehicle Recorders Laboratory for data download and review. The Avidyne PFD unit includes a solid state Air Data and Attitude Heading Reference System (ADAHRS) and displays aircraft parameter data including altitude, airspeed, attitude, vertical speed, and heading. The PFD unit has external pitot/static inputs for altitude, airspeed, and vertical speed information. The PFD has a data logging function, which is used by the manufacturer for maintenance and diagnostics. Maintenance and diagnostic recordings consists of system information, event data, and flight data. The data extracted from the PFD contained the accident flight and other flights on March 11, 2013.

The following data was extracted from the Avidyne PFD for the accident sequence of events.

At 1501:24, the data indicated that the airplane's roll was 7 degrees left, the pitch was 2 degrees nose down, and the airspeed was 69 knots.

At 1501:28, the data indicated that the airplane's roll was 3 degrees right, the pitch was 5 degrees nose up, and the airspeed was 66 knots.

At 1501:30, the data indicated that the propeller rpm was 1,350, the airplane's roll was 2 degrees left, the pitch was 2 degrees nose up, and the airspeed was 62 knots.

At 1501:30 and 1501:36, the propeller rpm was 1,350 and 2,400, respectively. During this time period, the pitch, roll, and airspeed were sampled at a higher frequency. As such, determining when power was applied relative to pitch increase is limited by the sampling rate differences. However, during this period the pitch increased from 2 degrees nose up to 12 degrees nose up, the roll increased to 9 degrees left, the

airspeed decreased to 56 knots, and by 1501:32, the longitudinal acceleration began to increase. Also during this period, the magnetic heading changed left from 351 degrees to 327 degrees.

At 1501:38, the pitch reached a maximum value of 17 degrees nose up when the airspeed was about 56 knots.

Between 1501:38 and 1501:41, the pitch decreased to 16 degrees nose down, and the aircraft rolled to 31 degrees right, before rolling back to the left through 20 degrees.

After 1501:41, the vertical acceleration increased to a full scale value of XYZ, the left roll angle increased to a full scale value of 180 degrees left, and the airspeed decreased to 0 knots.

The Cirrus SR20 Pilot Operating Handbook contains stall speeds for a gross weight of 3,000 pounds, flaps configuration, and angle of bank factors. The accident airplane configuration was flaps at 100% (full down), and for this configuration the stall speed at 15 degrees angle of bank is between 55-57 knots indicated airspeed (KIAS).

The Pilot Operating Handbook lists the following procedures for a Balked Landing/Go-Around.
1. Autopilot – Disengage
2. Power Lever – FULL FORWARD
3. Flaps – 50%
4. Airspeed – Best Angle of Climb (81-83 KIAS)
After clear of obstacles
5. Flaps – Up (0%)

Pilot Information

Certificate:	Commercial	**Age:**	54
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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 2 With waivers/limitations	**Last FAA Medical Exam:**	April 16, 2012
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 30, 2012
Flight Time:	1532 hours (Total, all aircraft), 34 hours (Total, this make and model), 1474 hours (Pilot In Command, all aircraft), 5 hours (Last 90 days, all aircraft), 2 hours (Last 30 days, all aircraft), 2 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	CIRRUS DESIGN CORP	**Registration:**	N427GE
Model/Series:	SR20	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	1984
Landing Gear Type:	Tricycle	**Seats:**	4
Date/Type of Last Inspection:	February 25, 2013 100 hour	**Certified Max Gross Wt.:**	3050 lbs
Time Since Last Inspection:	37 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1318 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-360-ES
Registered Owner:	EAST POLE AVIATION LLC	**Rated Power:**	200 Horsepower
Operator:	Justice Aviation	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KIKY,2457 ft msl	**Distance from Accident Site:**	30 Nautical Miles
Observation Time:	11:45 Local	**Direction from Accident Site:**	90°
Lowest Cloud Condition:	Clear	**Visibility**	20 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	2 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.23 inches Hg	**Temperature/Dew Point:**	16°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Bakersfield, CA (KBFL)	**Type of Flight Plan Filed:**	None
Destination:	Kernville, CA (KL05)	**Type of Clearance:**	VFR flight following
Departure Time:	14:38 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	Kern Valley Airport KL05	**Runway Surface Type:**	Asphalt
Airport Elevation:	2614 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	35	**IFR Approach:**	None
Runway Length/Width:	3500 ft / 50 ft	**VFR Approach/Landing:**	Straight-in

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor, 2 None	**Latitude, Longitude:**	35.728054,-118.419723(est)

Administrative Information

Investigator In Charge (IIC):	McKenny, Van
Additional Participating Persons:	Nick Cabiness; Federal Aviation Administratin; Fresno, CA Brad Miller; Cirrus Aircraft; Duluth, MN
Original Publish Date:	October 21, 2015
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=86400