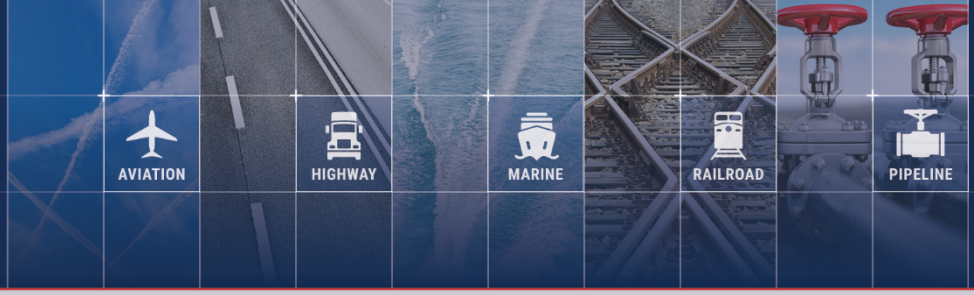

Aviation Investigation Final Report

Location:	Spokane, Washington	**Accident Number:**	WPR10LA374
Date & Time:	July 27, 2010, 10:00 Local	**Registration:**	N360N
Aircraft:	Lancair 320	**Aircraft Damage:**	Substantial
Defining Event:	Flight control sys malf/fail	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot reported that, after initiating a go-around and during a climbing left turn to re-enter the traffic pattern, his attempt to roll out of the turn was unsuccessful. The bank angle continued to near 90 degrees before he was able to maneuver the airplane close to the runway. The airplane ultimately stalled and collided with the runway surface. A postaccident examination of the airplane revealed an asymmetric flap condition. Shortly after the accident, the airplane kit manufacturer issued a Service Bulletin that addressed the asymmetric flap problem. The bulletin advised operators to inspect for adequate clearance and ensure that sufficient stiffness is established such that when fully deployed, the flap's leading edge will not have a tendency to flex upward and snag the trailing edge of the wing. The condition could jam the flap and subsequently preclude its retraction.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: Loss of airplane control due to the asymmetric flap condition.

Findings

Aircraft	TE flap control system - Malfunction
Personnel issues	Aircraft control - Pilot
Aircraft	Lateral/bank control - Attain/maintain not possible

Factual Information

History of Flight

Initial climb	Flight control sys malf/fail (Defining event)
Approach-VFR pattern final	Loss of control in flight
Uncontrolled descent	Collision with terr/obj (non-CFIT)

On July 27, 2010, about 1000 Pacific daylight time, an experimental Lancair 320, N360N, was substantially damaged after impacting terrain following a loss of control while maneuvering on final approach to land at Felts Field (SFF), Spokane, Washington. The commercial pilot, the sole occupant, sustained minor injuries. Visual meteorological conditions prevailed for the local flight, which was operated in accordance with Title 14 Code of Federal Regulations Part 91, and a flight plan was not filed. The flight had departed SFF at 0904.

In a report submitted to the National Transportation Safety Board investigator-in-charge (IIC), the pilot reported that after turning onto final approach to land, he observed another airplane just ahead landing on the same runway. The pilot further reported that he commenced a go-around as instructed by the air traffic control tower controller, during which he raised the landing gear, but left the flaps at 10 degrees. The pilot stated that after establishing himself on downwind he put the gear handle down, but at about the same time he experienced a complete electrical failure. The pilot added that with no gear down indication he continued the pattern, and that the airplane responded normally to power and flight controls. The pilot revealed that he descended to his normal touchdown height, and when the wheels did not touch the runway as expected he initiated a go-around in a left climbing turn back to pattern altitude where he tried a manual gear extension. The pilot reported that at this time the airplane would not roll out of the left turn, but in fact with full right stick and rudder, the airplane continued to a near 90-degree left bank. The pilot stated that he reduced power and lowered the nose enough to maintain airspeed just above a stall, then banked enough to get over to runway heading. The pilot added that when he was about 4 to 5 feet above the runway he brought the nose up just slightly and instantly the airplane stalled and collided with the edge of the runway, sliding to a stop on the runway surface.

According to a Federal Aviation Administration (FAA) airworthiness inspector who performed a post accident inspection of the airplane, the right-hand flap leading edge structure was located above the trailing edge of the wing's surface, which resulted in an asymmetric flap condition. The inspector further reported substantial damage to the airplane's left wing, damage to the propeller, and that all three landing gear had separated due to impact forces with the ground.

On September 23, 2010, Lancair issued Service Bulletin SB073-0910, Flaps and Wing Skin Interface – 235,/320/360, Ref: 320/360 Build Manual, Chapters 9 & 10. The SB states, "All Lancair 235, 320, and 360's with flaps hinged on the bottom of the wing skin must review

Chapter 9 and 10 of the 320/360 build manual. Apparently there has been an instance where the flap can travel above the trailing edge of the wing, but only when the trailing edge is not stiffened as per the manual instructions." The SB further states, "This service bulletin is an advisory requesting an inspection of the flaps and trailing edge interface on Lancair 235, 320 and 360 kit aircraft. Before the next flight, inspect flap hinge attachments and lower wing skin trailing edge structure for proper stiffness."

The SB also noted under the subheading Action:

WARNING: Adequate clearances must be established and sufficient stiffness established such that the flaps upper rolled L.E. when fully deployed, will not have a tendency to flex upward and snag on the upper wing T.E. Such a condition could jam the flap and thus not allow retraction of the flap. This could be dangerous on an aborted landing and subsequent "go-around." Check this closely.

Pilot Information

Certificate:	Commercial	**Age:**	71,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):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	July 29, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	October 8, 2009
Flight Time:	2355 hours (Total, all aircraft), 42 hours (Total, this make and model), 2300 hours (Pilot In Command, all aircraft), 3 hours (Last 90 days, all aircraft), 3 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Lancair	**Registration:**	N360N
Model/Series:	320 NO SERIES	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	330
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	July 22, 2010 Annual	**Certified Max Gross Wt.:**	1850 lbs
Time Since Last Inspection:	1 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	437 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360
Registered Owner:	Larosun Services Inc.	**Rated Power:**	180 Horsepower
Operator:	Larry O. Sundholm	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SFF,1953 ft msl	**Distance from Accident Site:**	
Observation Time:	09:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	12 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	50°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	24°C / 13°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Spokane, WA (SFF)	**Type of Flight Plan Filed:**	None
Destination:	Spokane, WA (SFF)	**Type of Clearance:**	VFR
Departure Time:	09:04 Local	**Type of Airspace:**	

Airport Information

Airport:	Felts Field SFF	**Runway Surface Type:**	Concrete
Airport Elevation:	1953 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	03L	**IFR Approach:**	None
Runway Length/Width:	4500 ft / 150 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Minor	**Latitude, Longitude:**	47.67889,-117.331947(est)

Administrative Information

Investigator In Charge (IIC):	Little, Thomas
Additional Participating Persons:	Eric Barr; Federal Aviation Administration; Spokane, WA
Original Publish Date:	December 13, 2011
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=76795