Aviation Investigation Final Report

Location:	Newburgh, New York	**Accident Number:**	ERA13LA224
Date & Time:	April 26, 2013, 15:15 Local	**Registration:**	N5314C
Aircraft:	Cessna 140A	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

During the landing, the pilot/owner adjusted for the left crosswind until the airplane touched down on the runway. He applied the left brake and rudder to maintain directional control during roll, but the left brake "seemed to lock up," and the airplane ground-looped left. The right tire separated from the right landing gear wheel and burst. A review of the airplane maintenance records revealed that, during the most recent owner-assisted annual inspection, the left-side brake caliper was found seized. It was removed, cleaned, lubricated, reinstalled by the owner, operationally checked, and found to be in airworthy condition. An unsupervised postaccident examination of the left wheel and brake assembly by the owner revealed that the wheel and tire would rotate with some resistance, that the caliper slides were rusty, and that the lubrication applied during the annual inspection did not completely allow the calipers to reliably move freely, which resulted in the brake binding on the final roll.

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 directional control when the brakes bound and a subsequent ground loop. Contributing to the accident was the inadequate maintenance of the brakes by the pilot/owner.

Findings

Aircraft	Directional control - Not attained/maintained
Aircraft	Landing gear brakes system - Incorrect service/maintenance
Personnel issues	Aircraft control - Pilot
Personnel issues	(general) - Pilot

Factual Information

History of Flight

Landing-landing roll	Sys/Comp malf/fail (non-power)
Landing-landing roll	Loss of control on ground (Defining event)

On April 26, 2013, about 1515 eastern daylight time, a Cessna 140A, N5314C, experienced a loss of control during the landing roll at Stewart International Airport (SWF), Newburgh, New York. The certificated private pilot/owner and two passengers were not injured. Visual meteorological conditions prevailed and no flight plan was filed for the local personal flight conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

According to the pilot, the tower reported variable winds and he was cleared to land the tailwheel-equipped airplane on runway 27. On final approach, the wind sock indicated a direct left crosswind at 10 to 12 knots. The pilot adjusted for the crosswind utilizing the ailerons and rudder until the airplane touched down on the runway, then applied the left brake and rudder to maintain directional control during rollout. The left brake "seemed to lock," the empennage swung to the right, the right tire separated from the right landing gear wheel, and the airplane came to rest facing about 190 degrees from the original direction of travel. The pilot and two passengers exited the airplane without incident.

Examination of photographs revealed the fuselage, wing, and firewall were substantially damaged. The pilot reported that the airplane was rolled backwards during recovery from the accident site and the left brake "unbound itself."

The pilot held a private pilot certificate with ratings for airplane single engine land. His most recent Federal Aviation Administration (FAA) third class medical certificate was issued October 4, 2011. He reported 245 total hours of flight experience, of which 35 hours were in the accident airplane make and model.

A review of the airplane maintenance records, receipts, and emails revealed that the most recent owner/assisted annual inspection was completed on January 8, 2013, at 3243.4 total aircraft hours. During that inspection, the right side brake caliper o-ring was leaking but the pilot/owner chose to defer that maintenance. The left side brake caliper was found seized. It was removed, cleaned, lubricated, reinstalled, operationally checked, and found to be in airworthy condition. In an email, the owner detailed work he had performed during the annual to include reattachment of the brake calipers.

After the accident, the pilot/owner disassembled and examined the left brake assembly prior to examination by either the FAA or the NTSB, and provided an email statement with his findings. His examination of the left brake caliper revealed rust on the caliper slides. In addition, he noted that while the wheel rotated, there was friction between the brake calipers and the disk.

ADDITIONAL INFORMATION

According to the FAA Airplane Flying Handbook:

Crosswind After-Landing Roll

Particularly during the after-landing roll, special attention must be given to maintaining directional control by the use of rudder and tailwheel steering, while keeping the upwind wing from rising by the use of aileron. Characteristically, an airplane has a greater profile, or side area, behind the main landing gear than forward of it. With the main wheels acting as a pivot point and the greater surface area exposed to the crosswind behind that pivot point, the airplane will tend to turn or weathervane into the wind. This weathervaning tendency is more prevalent in the tailwheel-type because the airplane's surface area behind the main landing gear is greater than in nosewheel-type airplanes.

Ground Loop

A ground loop is an uncontrolled turn during ground operation that may occur while taxiing or taking off, but especially during the after-landing roll. The pilot must exercise caution when applying corrective brake action because it is very easy to overcontrol and aggravate the situation.

Pilot Information

Certificate:	Private	**Age:**	41
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	October 4, 2011
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	June 8, 2012
Flight Time:	245 hours (Total, all aircraft), 3534 hours (Total, this make and model), 245 hours (Pilot In Command, all aircraft), 15 hours (Last 90 days, all aircraft), 8 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5314C
Model/Series:	140A	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	15434
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	January 8, 2013 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	15 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	3243 Hrs as of last inspection	**Engine Manufacturer:**	CONT MOTOR
ELT:	Installed, not activated	**Engine Model/Series:**	C90 SERIES
Registered Owner:	On file	**Rated Power:**	95 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	SWF,491 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	15:45 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 6000 ft AGL	**Visibility**	20 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	4 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	330°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.35 inches Hg	**Temperature/Dew Point:**	17°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Newburgh, NY (SWF)	**Type of Flight Plan Filed:**	None
Destination:	Newburgh, NY (SWF)	**Type of Clearance:**	None
Departure Time:	14:00 Local	**Type of Airspace:**	

Airport Information

Airport:	Stewart International Airport SWF	**Runway Surface Type:**	Asphalt
Airport Elevation:	491 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27	**IFR Approach:**	None
Runway Length/Width:	11817 ft / 150 ft	**VFR Approach/Landing:**	Full stop;Straight-in

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	2 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	41.505554,-74.098335

Administrative Information

Investigator In Charge (IIC):	Rayner, Brian
Additional Participating Persons:	Watson Joseph; FAA/FSDO; Teterboro, NJ
Original Publish Date:	April 23, 2014
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=86782