



National Transportation Safety Board Aviation Incident Final Report

Location:	Atlanta, GA	Incident Number:	ERA15IA009
Date & Time:	10/01/2014, 2105 EDT	Registration:	N301EF
Aircraft:	FUNK RALPH Velocity XLRG	Aircraft Damage:	Minor
Defining Event:	Hard landing	Injuries:	1 None
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The purpose of the flight was to perform three takeoffs and landings at night. The pilot stated that the first takeoff and landing was uneventful and that, at touchdown, he used aerodynamic braking to slow the airplane by keeping its nose off the runway as long as possible. He added that the second landing was faster, that more runway was used, and that the nose landing gear (NLG) touched down "harder" than during the first landing. After the NLG touched down, the airplane pulled right and developed a shimmy. The pilot subsequently lost directional control of the airplane, and the NLG collapsed. Examination of the fracture surfaces on the NLG revealed features consistent with ductile overstress fracture. The overall fracture pattern was consistent with fracture under a lateral bending load.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this incident to be: The pilot's failure to maintain directional control during a hard landing, which resulted in the fracture of the nose landing gear.

Findings

Aircraft	Directional control - Not attained/maintained (Cause)
Personnel issues	Aircraft control - Pilot (Cause)

Factual Information

On October 1, 2014, about 2105 eastern daylight time, a Funk Velocity XLRG experimental amateur-built airplane, N301EF, sustained minor damage during a hard landing to Cobb County – McCollum Field (RYY), Atlanta, Georgia. The private pilot was not injured. Night visual meteorological conditions prevailed and no flight plan was filed for the local flight which departed RYY about 2105. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

In a written statement, the pilot stated that he intended to perform 3 takeoffs and landings for the purpose of maintaining night currency. He said the first takeoff and landing were uneventful, and that at touchdown he used "aerodynamic braking to slow down by keeping the nose off the runway as long as possible." The pilot explained that the second landing was the same as the first, only the approach was faster and more runway was used. He said, "I started braking as I dropped the nose and it came down harder than the first landing."

The pilot stated that after the nose gear touched down, the airplane was "pulling" to the right, and developed a shimmy. He said he attempted to maintain directional control with braking as the shimmy in the front end intensified, and then the nose gear subsequently collapsed, which resulted in minor damage to the nose landing gear doors and the nose enclosure. The pilot added that he has had the nose "drop harder onto the runway in the past with no ill consequences."

The pilot held a private pilot certificate with ratings for airplane single-engine land and instrument airplane. His most recent FAA second-class medical certificate was issued December 12, 2012. He reported 926 total hours of flight experience, of which 774 hours were in the incident airplane make and model.

According to FAA records, the airplane was manufactured in 2002. Its most recent conditional inspection was completed June 26, 2014 at 321 total aircraft hours.

According to maintenance records, a refurbished nose landing gear was installed September 26, 2014.

At 2120, the weather observation at RYY included clear skies and calm winds.

Examination of the airplane by an FAA aviation safety inspector revealed minor damage to the nose landing gear doors and the nose enclosure.

On October 27, 2014, the fractured segments of the nose landing gear leg were examined in the NTSB Materials Laboratory in Washington, DC. Examination of the fracture surfaces revealed features consistent with ductile overstress fracture. The overall fracture pattern was consistent with fracture under a lateral bending load.

History of Flight

Landing-flare/touchdown	Hard landing (Defining event) Landing gear collapse
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Pilot Information

Certificate:	Private	Age:	57
Airplane Rating(s):	Single-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 Medical Exam:	12/04/2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:	926 hours (Total, all aircraft), 774 hours (Total, this make and model), 12 hours (Last 90 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	FUNK RALPH	Registration:	N301EF
Model/Series:	Velocity XLRG	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	3RX105
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	06/26/2014, Conditional	Certified Max Gross Wt.:	2800 lbs
Time Since Last Inspection:	19 Hours	Engines:	1 Reciprocating
Airframe Total Time:	330 Hours	Engine Manufacturer:	CONT MOTOR
ELT:	Not installed	Engine Model/Series:	IO-550 SERIES
Registered Owner:	On file	Rated Power:	310 hp
Operator:	On file	Air Carrier Operating Certificate:	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	RYY, 1040 ft msl	Observation Time:	2120 EDT
Distance from Accident Site:	0 Nautical Miles	Condition of Light:	Night/Dark
Direction from Accident Site:	0°	Conditions at Accident Site:	Visual Conditions
Lowest Cloud Condition:	Clear	Temperature/Dew Point:	20° C / 15° C
Lowest Ceiling:	None	Visibility	10 Miles
Wind Speed/Gusts, Direction:	Calm	Visibility (RVR):	
Altimeter Setting:	30.03 inches Hg	Visibility (RVV):	
Precipitation and Obscuration:	No Precipitation		
Departure Point:	Atlanta, GA (RYY)	Type of Flight Plan Filed:	None
Destination:	Atlanta, GA (RYY)	Type of Clearance:	None
Departure Time:	2100 EDT	Type of Airspace:	Class D

Airport Information

Airport:	COBB COUNTY-MC COLLUM FIELD (RYY)	Runway Surface Type:	Concrete
Airport Elevation:	1041 ft	Runway Surface Condition:	Dry
Runway Used:	09	IFR Approach:	None
Runway Length/Width:	6295 ft / 100 ft	VFR Approach/Landing:	Traffic Pattern

Wreckage and Impact Information

Crew Injuries:	1 None	Aircraft Damage:	Minor
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 None		

Administrative Information

Investigator In Charge (IIC):	Brian C Rayner	Adopted Date:	12/14/2015
Additional Participating Persons:	Edmundo Rolon; FAA/FSDO; Atlanta, GA		
Publish Date:	12/14/2015		
Note:	The NTSB did not travel to the scene of this incident.		
Investigation Docket:	http://dms.nts.gov/pubdms/search/dockList.cfm?mKey=90220		

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