National Transportation Safety Board
Aviation Accident Final Report

Location:	Plant City, FL	**Accident Number:**	ERA12LA264
Date & Time:	04/01/2012, 0800 EDT	**Registration:**	N415BA
Aircraft:	POWRACHUTE LLC AIRWOLF 912ULS	**Aircraft Damage:**	Minor
Defining Event:	Loss of control in flight	**Injuries:**	1 Serious, 1 Minor
Flight Conducted Under:	Part 91: General Aviation - Instructional		

Analysis

The flight instructor was providing a demonstration/instructional flight to the passenger the day after the powered parachute had been setup as a static display at an air show. After performing a preflight inspection and arranging the parachute, the flight instructor briefed the passenger that they would approach the runway from the northwest, and then depart along the runway to the south. The flight instructor then started the engine, “kited” the parachute, and proceeded southeast toward the runway and the 75-foot-tall trees along its eastern edge. Upon reaching the western edge of the runway, the flight instructor increased the engine power, and the powered parachute lifted off from the ground; however, it was still oriented at an angle to the runway, and it continued on its southeasterly track toward the trees ahead. The flight instructor attempted to use the steering controls of the parachute to steer the vehicle to the right away from the trees but found them to be ineffective. He then attempted to pull on both of the steering lines to give the parachute additional lift, but the vehicle then impacted the tops of the trees and fell to the ground. A postaccident examination revealed a noticeable relative difference in the adjusted length of the left and right steering lines, which was also evident in an onboard video of the accident flight. According to published FAA guidance regarding takeoffs in powered parachutes, “The takeoff surface should be firm, free of debris, and not have any obstructions along the takeoff path.”

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The flight instructor’s failure to ensure an obstruction-free takeoff path prior to initiating the takeoff and his inadequate preflight inspection of the powered parachute’s flight controls, which resulted in a collision with trees during the takeoff.

Findings

Personnel issues	Incorrect action selection - Instructor/check pilot (Cause)
	Preflight inspection - Instructor/check pilot (Cause)

Factual Information

HISTORY OF FLIGHT

On April 1, 2012, about 0800 eastern daylight time, an Powrachute LLC Airwolf 912ULS, N415BA, incurred minor damage when it struck trees and terrain during an attempted takeoff from Blackwater Creek Ultralight Flightpark (9FD2), Plant City, Florida. The certificated sport pilot/flight instructor incurred minor injuries and the passenger was seriously injured. Visual meteorological conditions prevailed, and no flight plan was filed for the local instructional flight, which was conducted under the provisions of Title 14 Code of Federal Regulations Part 91.

According to the flight instructor, he was conducting an introductory powered parachute flight with the passenger. The powered parachute had been on static display at an air show the previous day, so the flight instructor had taken "extra care" in conducting his preflight inspection. During the inspection the flight instructor noted that the throttle was in the full open position, the keys were missing, and the battery was disconnected. After completing the preflight inspection and briefing the passenger, the flight instructor prepared to depart, and made one final check of the parachute lines and layout. The flight instructor had set up the powered parachute adjacent to a turf runway, with the powered parachute oriented toward the southeast, and eventually planned to depart to the south.

After starting the engine, the flight instructor "kited" the parachute, checked to ensure that it had properly inflated, and checked for other traffic inbound to the turf runway. The flight instructor then increased engine power for takeoff, and began pushing on the foot bars in order to turn the powered parachute away from the oncoming trees that ran parallel to the runway. Once the powered parachute's wheels left the ground, the flight instructor continued to push the foot bars to turn the vehicle away from the trees; however, since the steering lines were fully extended, the flight instructor was unable to change the shape of the parachute enough to turn to the right, away from the trees.

The flight instructor then attempted to "pump" the steering lines in an attempt to fill the parachute with more air, and increase its climb performance. The vehicle then struck the tops of the trees, stopping its forward travel, and after remaining momentarily suspended in the trees, the vehicle fell and impacted the ground resulting in serious injury to the passenger.

PERSONNEL INFORMATION

The flight instructor held a sport pilot certificate with an endorsement for powered parachute land. He also held a flight instructor certificate with a sport rating and an endorsement for powered parachute land. He reported 314 total hours of flight experience, all of which were in the accident powered parachute make and model.

METEOROLOGICAL INFORMATION

The weather conditions reported a Plant City Airport (PCM), Plant City, Florida, located about 8 nautical miles south of the accident site, at 0755, included 7 statute miles visibility, scattered clouds at 1,700 feet, calm winds, a temperature and dewpoint of 17 degrees Celsius (C), and an altimeter setting of 29.96 inches of mercury.

AIRPORT INFORMATION

The Blackwater Creek Ultralight Flightpark was comprised of a single 2,300-foot-long by 150-foot-wide turf runway oriented in a 17/35 configuration. An area for aircraft parking was located on the west side of the runway and extended from about the runway mid-point about 300 feet to the north and south. Trees about 75 feet tall ran parallel to the runway along its eastern edge.

A Federal Aviation Administration (FAA) inspector, who responded to the scene following the accident, identified the area where the flight instructor had set up the powered parachute in preparation for the flight as about 300 feet west of the runway centerline, at roughly the runway midpoint.

WRECKAGE AND IMPACT INFORMATION

A Federal Aviation Administration inspector examined the wreckage at the scene following the accident. According to the inspector, all of the parachute canopy and trim lines were secure with no anomalies noted. The engine appeared intact and exhibited no obvious signs of damage or pre-impact failure, and one of the three propeller blades was missing its tip. Several of the support tubes comprising the frame of the vehicle were broken consistent with impact.

After viewing video of the accident flight, the inspector returned to examine the wreckage on April 4, 2012. Inspection of the trim and steering lines revealed that the left trim line exhibited noticeably more slack that the right side trim line.

ADDITIONAL INFORMATION

Manufacturer's Preflight Checklist

The airframe manufacturer's pilot operating handbook, Preflight Checklist (Detailed), provided a suggested preflight inspection routine that included the inspection of both the on-ground and in-flight directional steering systems. With regard to the in-flight steering system, the checklist specifically advised, "Check that the foot bar is secure, pivots freely, steering line in good order, [sic] pullies in good order and trim system secure, moves freely and in proper takeoff position."

FAA Guidance

The FAA Powered Parachute Flying Handbook (FAA-H-8083-9) described the procedures necessary for a successful takeoff, and described that "The takeoff surface should be firm, free of debris, and not have any obstructions along the takeoff path. The takeoff surface should have sufficient length to permit the powered parachute to quickly accelerate to normal flight speed."

Accident Video

Videos depicting the accident flight were by the passenger's spouse, who was standing at the mid-point of the runway at its eastern edge, and a video camera installed on the powered parachute. Review of the exterior video showed the powered parachute as it began rolling toward the runway and the parachute began to inflate. During this time, the engine sound remained relatively constant, as did the vehicle's speed across the ground. Just before reaching the runway's western edge the engine sound increased, consistent with an increase in engine power, and the powered parachute began accelerating. Just after crossing the runway's western edge, the nosewheel of the powered parachute left the ground, followed by the main landing gear about 1 second later. As the powered parachute left the ground, it continued to track southeasterly, down the runway and towards its eastern edge. The camera then panned away from the vehicle as it disappeared behind the trees.

The video taken onboard the powered parachute depicted a similar series of events, and confirmed the FAA inspector's observation of the relative slack between the left and right steering lines.

History of Flight

Prior to flight	Aircraft inspection event
Initial climb	Loss of control in flight (Defining event) Collision with terr/obj (non-CFIT)

Flight Instructor Information

Certificate:	Flight Instructor; Sport Pilot	**Age:**	42, Male
Airplane Rating(s):	None	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	Sport Pilot	**Toxicology Performed:**	No
Medical Certification:	Sport Pilot	**Last Medical Exam:**	
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	01/11/2012
Flight Time:	314 hours (Total, all aircraft), 314 hours (Total, this make and model), 299 hours (Pilot In Command, all aircraft), 34 hours (Last 90 days, all aircraft), 6 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	POWRACHUTE LLC	**Registration:**	N415BA
Model/Series:	AIRWOLF 912ULS	**Aircraft Category:**	Powered Parachute
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Experimental Light Sport	**Serial Number:**	A134ULS
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	03/21/2012, Annual	**Certified Max Gross Wt.:**	1150 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	128 Hours	**Engine Manufacturer:**	ROTAX
ELT:	Not installed	**Engine Model/Series:**	912ULS
Registered Owner:	POWRACHUTE LLC	**Rated Power:**	100 hp
Operator:	POWRACHUTE LLC	**Air Carrier Operating Certificate:**	None

Meteorological Information and Flight Plan

Observation Facility, Elevation:	PCM, 153 ft msl	**Observation Time:**	0755 EDT
Distance from Accident Site:	8 Nautical Miles	**Condition of Light:**	Day
Direction from Accident Site:	180°	**Conditions at Accident Site:**	Visual Conditions
Lowest Cloud Condition:	Scattered / 1700 ft agl	**Temperature/Dew Point:**	17°C / 17°C
Lowest Ceiling:	None	**Visibility**	7 Miles
Wind Speed/Gusts, Direction:	Calm	**Visibility (RVR):**	
Altimeter Setting:	29.96 inches Hg	**Visibility (RVV):**	
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Plant City, FL (9FD2)	**Type of Flight Plan Filed:**	None
Destination:	Plant City, FL (9FD2)	**Type of Clearance:**	None
Departure Time:	0800 EDT	**Type of Airspace:**	

Airport Information

Airport:	Blackwater Creek Flightpark (9FD2)	**Runway Surface Type:**	Grass/turf
Airport Elevation:	80 ft	**Runway Surface Condition:**	Dry
Runway Used:	17	**IFR Approach:**	None
Runway Length/Width:	2300 ft / 150 ft	**VFR Approach/Landing:**	None

Wreckage and Impact Information

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

Administrative Information

Investigator In Charge (IIC):	Dennis Diaz	**Adopted Date:**	04/10/2013
Additional Participating Persons:	Hector Diaz; FAA/FSDO; Tampa, FL		
Publish Date:	04/10/2013		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=83272		

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