Aviation Investigation Final Report

Location:	COEUR D'ALENE, Idaho	**Accident Number:**	SEA99LA063
Date & Time:	May 15, 1999, 12:30 Local	**Registration:**	N152WB
Aircraft:	Lake LA-4	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

While landing in variable, shifting winds, both the dual student and the instructor had trouble maintaining directional control of the aircraft. After touchdown, the aircraft started turning toward the right side of the runway, and the instructor could not get it to straighten out using maximum left brake and full left rudder. He therefore added power to get airflow over the rudder to increase its efficiency, but the aircraft continued to turn sharper, eventually departing the right side of the runway and impacting the segmented circle at the base of the wind sock. It was later discovered that an improper repair weld on one of the engine pylon mounting straps had failed from fatigue, allowing the engine pylon to twist out of alignment with the longitudinal axis of the aircraft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The fatigue failure of a repair weld on one of the engine pylon mount straps and the resultant reduction in directional control. Factors include an inadequate repair of the strap, variable wind speeds and sudden wind shifts.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: UNKNOWN

Findings

1. (C) FUSELAGE - FATIGUE
2. (C) FUSELAGE - FAILURE,PARTIAL
3. (F) MAINTENANCE,MAJOR REPAIR - IMPROPER - UNKNOWN

Occurrence #2: LOSS OF CONTROL - ON GROUND/WATER
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings
4. (C) DIRECTIONAL CONTROL - DIMINISHED
5. (F) WEATHER CONDITION - VARIABLE WIND
6. (F) WEATHER CONDITION - SUDDEN WINDSHIFT

Factual Information

On May 15, 1999, approximately 1230 Pacific daylight time, a Lake LA-4, N152WB, impacted the metal segmented circle at the base of the wind sock during a landing attempt on runway 19 at Coeur D'Alene, Idaho. The certified flight instructor (CFI) and his student, who holds a private pilot license, were not injured, but the aircraft, which was owned by the CFI, sustained substantial damage. The 14 CFR Part 91 instructional flight, which originated at Coeur D'Alene about three hours earlier, was being operated in visual meteorological conditions. No flight plan had been filed, and there was no report of an ELT activation.

According to the instructor pilot, the student allowed the aircraft to get high on approach while attempting to land in variable, quickly shifting winds. The instructor told the student to steepen the approach and to center the nose of the aircraft on the runway centerline, which he monetarily did. Just prior to the flare, the instructor noticed that the wind sock was "blowing from side to side," and he again "...instructed rudder correction." Then according to the instructor, during the flare, the nose of the aircraft "...veered sharply to the right and the nose pitched up." The student was unable to bring the aircraft back into correct alignment with the runway during the touchdown, and he allowed the aircraft to land hard while "...sideways on the runway." The instructor then took over just after the aircraft touched down, but it "...jerked sharply to the right and off the runway." The instructor was unable to get the aircraft realigned with the runway using full left rudder and left brake, so he added a burst of power because he thought the increased airflow over the rudder would cause it to be more effective. The addition of power did not help in the instructor's attempt to turn the aircraft back to the left, and instead, the rate of turn to the right increased as the aircraft departed the runway and impacted the segmented circle.

While the aircraft was being disassembled after the accident, the left side engine pylon mount upper strap was found to have failed through a weld that appeared to be part of a previous repair. A portion of the strap, to include the weld line, was sent to the NTSB materials laboratory for analysis. During that analysis, it was determined that there were crack arrest position marks along portions of the weld that were consistent with propagation of a fatigue crack. It was further determined that when the repair weld was made, it had inadequate penetration, minimal fusion, and numerous voids. Also, the strap, which was made of low-alloy steel, was welded using a stainless steel electrode.

A review of the log books did not reveal when the repair had been made, nor whether Service Letter #43, which calls for inspecting the straps for cracks every 100 hours, had been complied with. It was also noted that with the strap fractured, the engine mounting pylon would twist when a cylinder was grasped by hand and forward pressure was applied.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	49,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	October 16, 1998
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	4286 hours (Total, all aircraft), 52 hours (Total, this make and model), 75 hours (Last 90 days, all aircraft), 23 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Lake	**Registration:**	N152WB
Model/Series:	LA-4 LA-4	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	268
Landing Gear Type:	Amphibian	**Seats:**	4
Date/Type of Last Inspection:	August 11, 1998 Annual	**Certified Max Gross Wt.:**	2400 lbs
Time Since Last Inspection:	48 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1367 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	O-360-A1A
Registered Owner:	CHECKLIST TRAINING SYSTEMS	**Rated Power:**	180 Horsepower
Operator:	MIKE D. KINCAID	**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:	Unknown	**Visibility**	10 miles
Lowest Ceiling:	Broken / 3500 ft AGL	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	0°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	13°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(COE)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	VFR
Departure Time:	09:30 Local	**Type of Airspace:**	Class E

Airport Information

Airport:	COEUR D'ALENE COE	**Runway Surface Type:**	Asphalt
Airport Elevation:	2318 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	19	**IFR Approach:**	None
Runway Length/Width:	5400 ft / 75 ft	**VFR Approach/Landing:**	Full stop

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	47.779365,-116.710456(est)

Administrative Information

Investigator In Charge (IIC):	Anderson, Orrin
Additional Participating Persons:	JOHN BIANCO; SPOKANE , WA
Original Publish Date:	November 30, 2000
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=46443