Aviation Investigation Final Report

Location:	Fresno, California	**Accident Number:**	WPR09LA472
Date & Time:	September 28, 2009, 08:45 Local	**Registration:**	N18MK
Aircraft:	American Legend Aircraft Co. AL3	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane veered to the right during the landing roll in calm winds and after the tailwheel was lowered to the runway pavement. Attempts by the pilot to correct back to the left were unsuccessful, which resulted in a ground loop to the right and substantial damage to the left wing and fuselage. Post accident examination of the airplane's tailwheel assembly, rudder controls and associated rudder cables revealed no anomalies which would have precluded normal operation.

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 during the landing roll.

Findings

Aircraft	Directional control - Not attained/maintained
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Landing-landing roll	Loss of control on ground (Defining event)
Landing-landing roll	Collision with terr/obj (non-CFIT)

On September 28, 2009, about 0845 Pacific daylight time, a tailwheel equipped American Legend Aircraft Company AL3 light sport airplane, N18MK, was substantially damaged following a loss of control during landing roll at the Fresno Yosemite International Airport (FAT), Fresno, California. The private pilot and his sole passenger were not injured. Visual meteorological conditions prevailed at the time of the accident, and a flight plan was not filed. The local flight, which was conducted under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91, departed FAT about 0745.

In a written statement submitted to the Safety Board investigator-in-charge (IIC), the pilot reported that after making a two-point landing on runway 11R and keeping the airplane on the centerline using both rudder pedals, the tail wheel came down as the airplane slowed. The pilot stated that he then applied right rudder to maintain a straight direction, and then applied left rudder, but "…the left rudder would not move." The pilot further stated that the airplane continued to the right, although he was applying left rudder. The pilot added, "I did a 180-degree turn to the right until coming to a full stop." As a result of the ground loop the airplane sustained substantial damage to the left wing and fuselage. The pilot stated that he was concerned about what caused the airplane to veer to the right, the right rudder "locking down," and the left rudder pedal being inoperative.

In a statement submitted to the IIC by a certificated Federal Aviation Administration (FAA) airframe and powerplant mechanic, the mechanic reported that he completed repairs and reassembly of the airplane on May 12, 2010. The mechanic stated that prior to the installation of the original tailwheel assembly, he disassembled the unit and inspected it for any signs of damage or wear that would explain its possible failure to provide directional stability. The mechanic reported that he found little or no evidence of abnormal wear to the tailwheel yoke assembly, and that while the wheel bearings were loose causing "a bit of wobble" about the axle which may cause a shimmy, all other components were normal, and the unit showed no signs of jamming. The mechanic further reported that on May 13, 2010, he conducted a number of test flights, landing both in the "three wheel" configuration and "wheel landing" [configuration]. The mechanic stated that he also made two flights with a 190-pound passenger in the rear seat, which replicated the accident flight, and that "…the aircraft, although controllable, was 'very twitchy' on landing. As soon as the tail wheel touched down the aircraft attempted to 'dart' one direction and then the other, requiring quick rudder input to stabilize directional control."

On October 9, 2009, accompanied by the airplane's pilot/owner, the IIC inspected the airplane at the pilot's hangar located at FAT. The IIC confirmed the reported damage to the left wing and fuselage. Inspection and operation of both rudder pedals and associated rudder cables revealed no anomalies which would have precluded normal operation.

Pilot Information

Certificate:	Private	**Age:**	61,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	None	**Restraint Used:**	
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:**	February 2, 2009
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	May 16, 2008
Flight Time:	1277 hours (Total, all aircraft), 240 hours (Total, this make and model), 1277 hours (Pilot In Command, all aircraft), 21 hours (Last 90 days, all aircraft), 7 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	American Legend Aircraft Co.	**Registration:**	N18MK
Model/Series:	AL3	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Experimental light sport (Special)	**Serial Number:**	AL-1084
Landing Gear Type:	Tailwheel	**Seats:**	2
Date/Type of Last Inspection:	March 13, 2009 Annual	**Certified Max Gross Wt.:**	1320 lbs
Time Since Last Inspection:	20 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	240 Hrs at time of accident	**Engine Manufacturer:**	Teledyne-Continental Motors
ELT:	Installed, not activated	**Engine Model/Series:**	O-200
Registered Owner:	Mahlon D. Buck	**Rated Power:**	100 Horsepower
Operator:	Mahlon D. Buck	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	FAT,336 ft msl	**Distance from Accident Site:**	
Observation Time:	08:53 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 9000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	29.75 inches Hg	**Temperature/Dew Point:**	26°C / 8°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Fresno, CA (FAT)	**Type of Flight Plan Filed:**	None
Destination:	Fresno, CA (FAT)	**Type of Clearance:**	None
Departure Time:	07:45 Local	**Type of Airspace:**	

Airport Information

Airport:	Fresno Yosemite International FAT	**Runway Surface Type:**	Asphalt
Airport Elevation:	336 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	11R	**IFR Approach:**	None
Runway Length/Width:	7205 ft / 100 ft	**VFR Approach/Landing:**	Straight-in

Wreckage and Impact Information

Crew Injuries:	1 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	2 None	**Latitude, Longitude:**	36.776111,-119.718055

Administrative Information

Investigator In Charge (IIC):	Little, Thomas
Additional Participating Persons:	Bjorn Beijens; Federal Aviation Administration; Fresno, CA
Original Publish Date:	October 21, 2010
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=74818