

INCIDENT

Aircraft Type and Registration:	Pitts S-1S, G-EEPJ	
No & Type of Engines:	1 Lycoming O-360-A4A piston engine	
Year of Manufacture:	1991 (Serial no: PFA 009-11557)	
Date & Time (UTC):	10 August 2013 at 0710 hrs	
Location:	Leicester Airport	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Left landing gear collapsed, left wing and propeller tip damaged	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	54 years	
Commander's Flying Experience:	283 hours (of which 80 were on type) Last 90 days - 21 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot and AAIB enquiries	

Synopsis

The aircraft developed an uncommanded turn to the right as its speed reduced during a landing roll. The pilot applied left rudder to counter the turn with no effect and the right turn continued and accelerated to the point where the tailwheel unlocked. The aircraft then rapidly pirouetted clockwise through 180°, collapsing the landing gear and striking the left wing on the runway. The pilot was uninjured and vacated the aircraft. The loss of control of the tailwheel was probably caused by detachment of the left side ring which connects the chain and spring from the rudder to the tailwheel steering T-bar.

History of the flight

The pilot was landing at Leicester and as the speed reduced on landing to a fast taxi, the aircraft developed a “minor right turn”. The pilot made a left rudder input to counter the turn but to no effect. The turn to the right accelerated causing the tailwheel to unlock and the aircraft to pirouette through 180°. This motion overloaded the left landing gear struts and caused them to collapse and fold underneath the aircraft. During the rotation the left wing struck the ground and sustained damage to its lower surface and aileron. The propeller blade tips were also damaged. The pilot was uninjured and vacated the aircraft. Inspection of the tailwheel found the left tailwheel steering chain and spring hanging loose

having become detached from the tailwheel steering T-bar. Closer examination of the tailwheel assembly found that the connecting split ring was missing.

Steering system

The Pitts S-1S can be steered on the ground using the small castering tailwheel for assistance. There is a T-bar at the top of the tailwheel king pin which is connected to the rudder with chain linkage assemblies, springs and split rings. Rudder pedal inputs from the pilot move the rudder to the left and right as required, which in turn moves the tailwheel. The tailwheel king pin is connected to the T-bar via a spring-loaded detent assembly designed to unlock the tailwheel to rotate independently of the T-bar should an excessive side load occur.

Pilot's observations

The pilot was surprised at what had taken place. His previous takeoff and the landing, up to the incident, had been uneventful with the aircraft responding correctly to his steering inputs. On reflection he considered that

during the initial part of his landing the aircraft was responding to the aerodynamic authority of the rudder rather than steering control from the tailwheel. It was only at low speed, with reduced rudder authority, that the effect of the missing linkage became apparent. The pilot was unable to define the point at which the split ring detached and he walked the runways at Brighton and at Leicester after the incident in an effort to find the missing ring but was unsuccessful. He did note that in the past he had been unhappy with his aircraft having a "sloppy" steering response and requested an engineer take corrective action. This was done by the removal of a link from the left and right chains to reduce the slack in the system. As far as the pilot was concerned this had cured the problem and he had carried out satisfactory low speed taxiing on numerous occasions since.