

## ACCIDENT

<b>Aircraft Type and Registration:</b>	Pietenpol Air Camper, G-ECVB	
<b>No &amp; Type of Engines:</b>	1 Continental Motors Corp O-200-A piston engine	
<b>Year of Manufacture:</b>	2002 (Serial no: PFA 047-13014)	
<b>Date &amp; Time (UTC):</b>	23 July 2014 at 1750 hrs	
<b>Location:</b>	RAF Cranwell, Lincolnshire	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - 1
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	Right landing gear and right wingtip damaged	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	34 years	
<b>Commander's Flying Experience:</b>	133 hours (of which 58 were on type) Last 90 days - 4 hours Last 28 days - 1 hour	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

The right landing gear collapsed during a touch-and-go due to the failure of the right landing gear tie-rod-end. The Light Aircraft Association (LAA) investigation identified that the tie-rod-end was of a lower specification to that required by the production drawings. As a result of feedback on the condition of the tie-rod-ends on other aircraft, the LAA published Airworthiness Information Leaflet LAA/MOD/047/009 Issue 1 in November 2014 which introduced a routine inspection and a 100 flying hour life for landing gear tie-rod-ends.

## History of the flight

During a touch-and-go the right landing gear collapsed, so the pilot climbed to a safe altitude to assess the situation. The pilot informed ATC and then carried out a series of low passes to allow visual inspection of the landing gear by persons on the ground, followed by a number of practice approaches, before attempting a landing. The aircraft touched down on the left mainwheel and continued along the runway for approximately 150 m, until lift was lost and the right wing dropped, causing the aircraft to rotate horizontally though 180° prior to coming to rest. Neither the pilot nor the passenger received any injuries

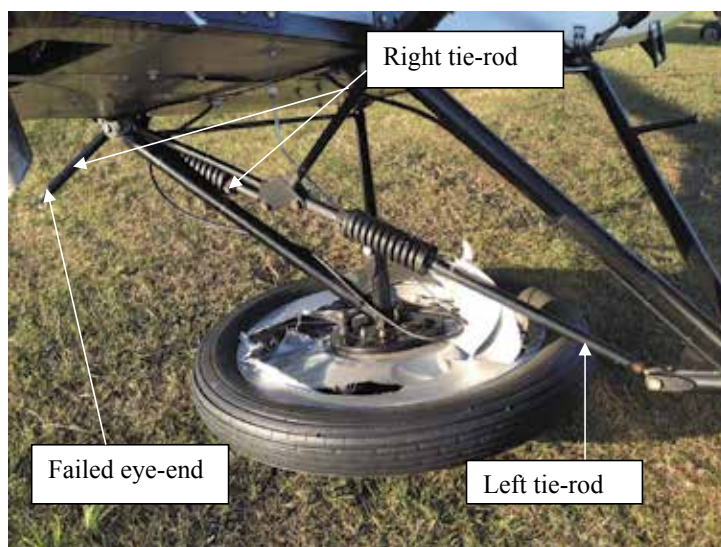
## Previous Pietenpol Air Camper landing gear failures

A number of Air Campers, including G-ECVB, have had their original wooden landing gear replaced with a steel tube landing gear similar that fitted to the Piper Cub. There have

been a number of incidents with this type of landing gear, caused by failure of the rod-end bearing. These previous incidents were only on landing gears which used bearings that incorporated a grease nipple. It was believed that the hole for the grease nipple was acting as a 'stress raiser' causing the rod-end to fail. As a result the Pietenpol Club published a service bulletin requiring owners to replace the rod-ends with ones which did not have a grease nipple.

### Investigation

Initial examination of G-ECVB showed that the rod-end bearing connecting the right mainwheel struts to the right tie-rod had failed, allowing the landing gear to collapse, Figure 1. The failed rod-end did not incorporate a grease nipple.



**Figure 1**  
Failed landing gear

A detailed examination was carried out by the LAA which determined that the rod-end was of a lower specification to that specified in the production drawings and that the failure appeared to have been as a result of progressive deterioration in-service. As a result of the investigation the LAA published details of the incident and findings in Light Aviation magazine.

#### **Safety action taken by LAA**

Feedback received by the LAA as a result of the article indicated that a number of other aircraft showed evidence of rod-end deterioration. After examining a number of these rod-ends the LAA published Airworthiness Information Leaflet (AIL) LAA/MOD/047/009 Issue 1 in November 2014 which required inspections of Cub type landing gear rod-ends to confirm that the correct parts were fitted and that there was no evidence of deterioration. In addition the AIL introduced a 100 flying hour life for the rod-ends. Publication of the AIL was highlighted in LAA Airworthiness Alert LAA/AWA/14/13.