

ACCIDENT

Aircraft Type and Registration:	Europa, G-BWIJ	
No & Type of Engines:	1 Mid-West rotary engine	
Year of Manufacture:	1996	
Date & Time (UTC):	23 May 2007 at 1145 hrs	
Location:	Near Kemble Airfield, Gloucestershire	
Type of Flight:	Private	
Persons on Board:	Crew -1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Main wheel pushed upwards into the wheel well, minor scrape to the left outrigger and lower fuselage and slight damage to the propeller blade tips	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	67 years	
Commander's Flying Experience:	1,794 hours (of which 369 were on type) Last 90 days - 19 hours Last 28 days - 18 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and engineering examination by a PFA Inspector	

Synopsis

The aircraft, whilst undergoing a test flight, suffered a seizure in the landing gear extension/retraction system which resulted in the landing gear becoming stuck in the almost fully retracted position. A landing was carried out which resulted in some damage to the aircraft. Examination revealed that the main landing gear pivot bearings had seized onto the shaft of the main gear mounting frame.

History of the flight

Following its construction by the owner, the aircraft was undergoing a series of test flights that were flown by a PFA Inspector with a view to recommending the issue of

its first Permit to Fly. The accident flight was the fourth in this series of test flights.

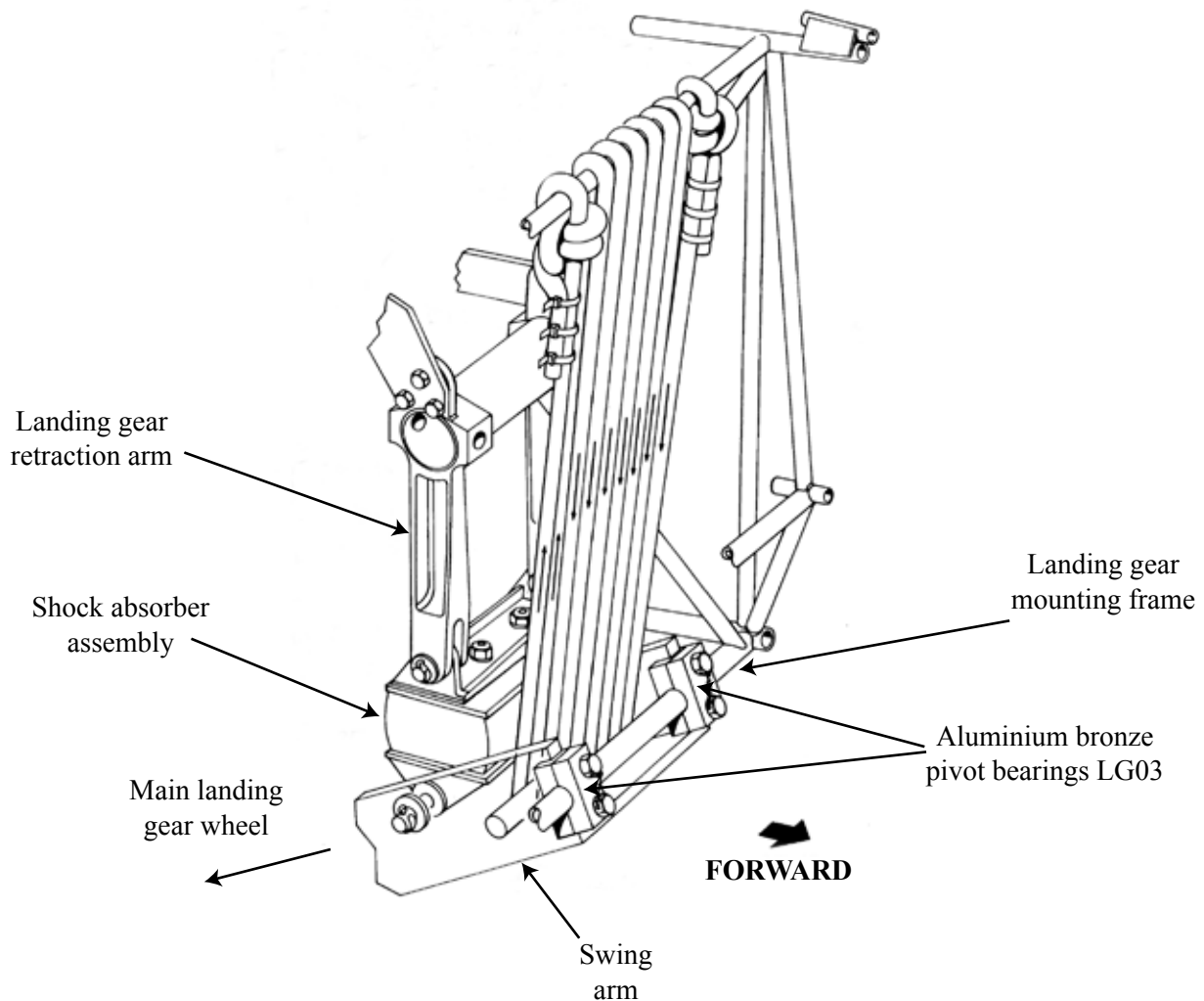
After conducting a pre-flight inspection the pilot started the engine, taxied the aircraft to the runway and took off. Shortly after takeoff the pilot attempted to retract the landing gear but found that the landing gear lever became 'solid' as it was moved towards the retracted position. The pilot discontinued the test flight and returned to the airfield. When the aircraft entered the downwind leg of the circuit the pilot found that he could not move the landing gear lever to the extend position; it appeared to be seized. He flew the aircraft

past the ATC tower and the controller reported that the landing gear was in what appeared to be its normal retracted position. Whilst keeping ATC informed, the pilot flew to the north and attempted to free the landing gear by conducting negative and positive 'g' manoeuvres, coupled with adverse yaw, but to no avail. After a number of attempts to lower the landing gear the pilot elected to carry out a flapless gear-retracted landing, using the up-slope high-friction section of the runway to his advantage. After stopping the engine the approach and touchdown were as planned and the aircraft quickly came to a halt. There was smoke in

the cockpit from the almost retracted landing gear tyre rubbing within the wheel well. The pilot evacuated the aircraft without difficulty. The airfield fire service arrived quickly at the scene but there was no fire.

Engineering examination

The pilot, who was also a PFA Inspector, carried out a detailed examination of the landing gear system and found that the aluminium bronze pivot bearings, part number LG03 (Figure 1), that allow the main landing gear swinging arm to rotate around the landing gear mounting frame, had seized onto the steel shaft of



Adapted from manufacturer's drawing

Figure 1

Main landing gear pivot

the mounting frame. There was very good evidence of aluminium bronze pick-up on the steel shaft of the mounting frame and there was also evidence of corrosion on the steel shaft.

Inspection requirements

Following final assembly there is no requirement to dismantle the aluminium bronze pivot bearings to inspect their condition. There is an annual requirement to place the aircraft on trestles and retract and extend the landing gear. Providing that this function check is completed satisfactorily there is no requirement to examine, in detail, any part of the landing gear extension/retraction system.

Other information

The aircraft was complete towards the end of 2006 following a build lasting several years. Following the third test flight it was found that the engine coolant was well above the normal operating temperature. The aircraft was dismantled and transported uncovered by road, on an open trailer, to a facility where larger capacity radiators were fitted. During the road journey a very heavy rain storm was encountered. The aircraft was then stored for approximately two months in an unheated covered facility whilst awaiting the fitting of the larger radiators. It is possible that this could have contributed to the corrosion in the landing gear system.