

## Europa, G-BZHS

<b>AAIB Bulletin No: 6/2004</b>	<b>Ref: EW/G2003/09/29</b>	<b>Category: 1.3</b>
<b>Aircraft Type and Registration:</b>	Europa, G-BZHS	
<b>No &amp; Type of Engines:</b>	1 Rotax 912 piston engine	
<b>Year of Manufacture:</b>	2002	
<b>Date &amp; Time (UTC):</b>	26 September 2003 at 0911 hrs	
<b>Location:</b>	Cambridge Airport, Cambridge	
<b>Type of Flight:</b>	Training	
<b>Persons on Board:</b>	Crew - 2	Passengers - None
<b>Injuries:</b>	Crew - None	Passengers - N/A
<b>Nature of Damage:</b>	Propeller damaged and engine shock-loaded. Further damage to main wheel tunnel	
<b>Commander's Licence:</b>	Commercial Pilot's Licence with Instructor rating	
<b>Commander's Age:</b>	74 years	
<b>Commander's Flying Experience:</b>	Approx 10,000 hours (of which 250 were on type)	
	Last 90 days - 80 hours	
	Last 28 days - 31 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the commander and further enquiries by the AAIB	

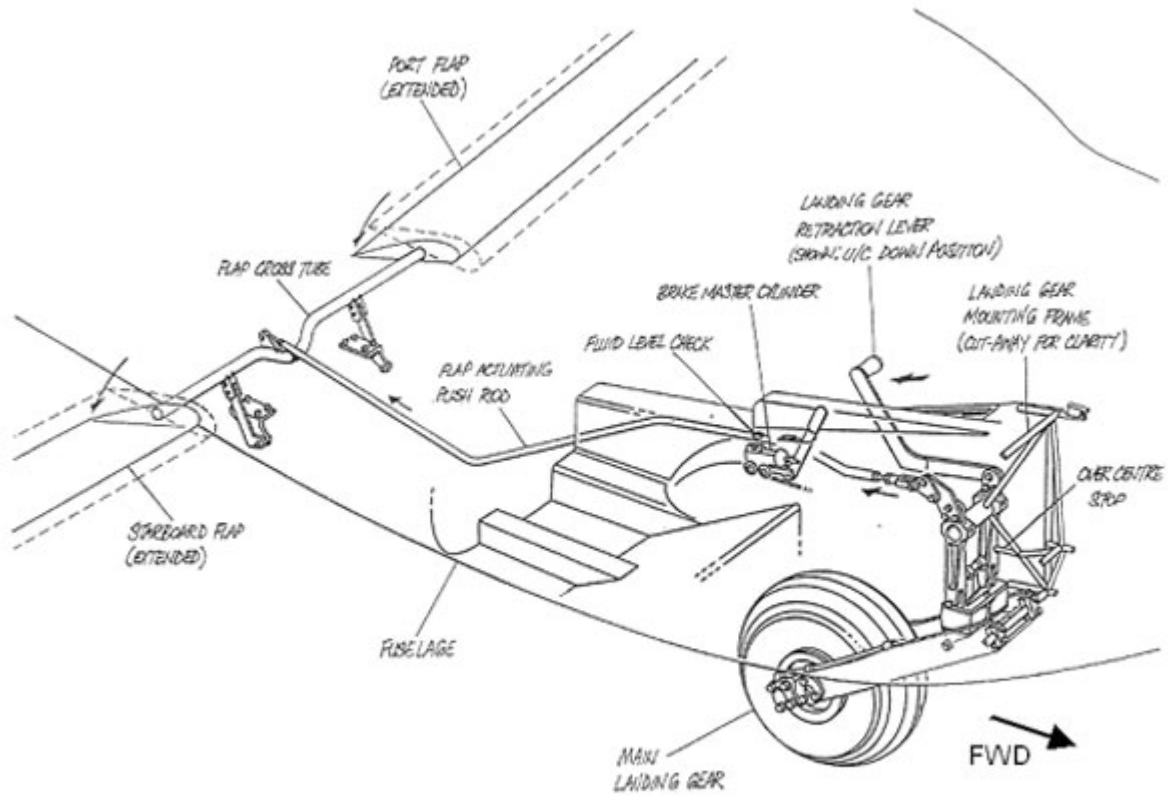
### History of the flight

The handling pilot was carrying out circuits as part of a Europa conversion course with the instructor. The pre-landing checks had been completed and both the pilot and the instructor had confirmed that the gear lever was in the down and latched position. Following a firm landing on Runway 23 (grass) the aircraft rolled on its wheels for approximately 15 to 20 metres before the mainwheel and connected outrigger wheels and flaps retracted. The aircraft travelled an additional 180 metres on its belly before coming to a rest. The crew was able to vacate the aircraft unassisted.

### Landing gear description

The landing gear on this aircraft type consists of a single retractable mainwheel, two retractable outrigger wheels under the outboard sections of the wings, and a fixed tailwheel. The flaps and outrigger wheels are attached to the same linkage. The gear lever operates the mainwheel, outrigger wheels and flaps in unison. The gear lever is attached directly to the gear operating linkage which incorporates an over-centre mechanism (see Figure 1).

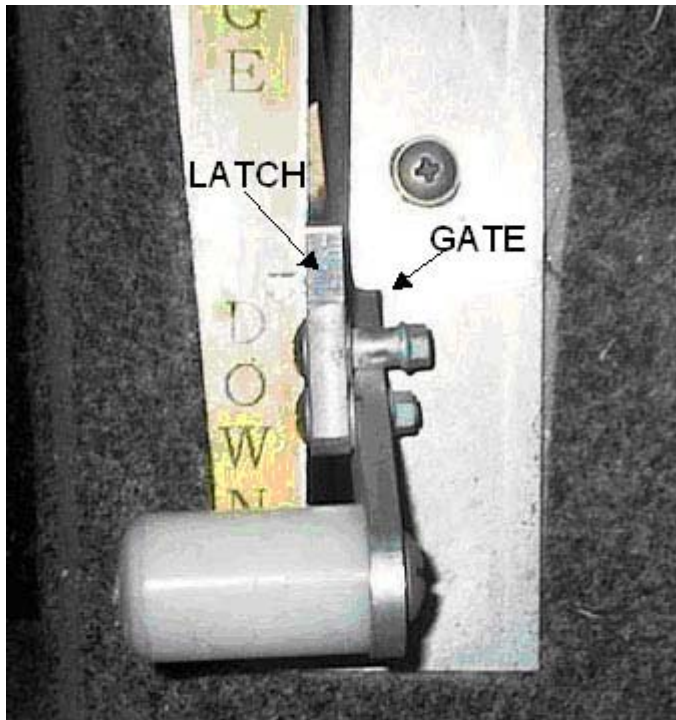
**Figure 1: Flap and landing gear operating mechanism**



**Figure 1** Flap and landing gear operating mechanism

To extend the gear the gear lever is pulled aft until it engages a gate (see Figure 3).

**Figure 3: Top view of gear lever in down & latched position**



**Figure 3** Top view of gear lever in down & latched position

A safety latch is attached to the lever and is designed to rotate under its own weight into the guide slot to prevent the gear lever from inadvertently 'popping' out of the gate (see Figures 2 and 4).

**Figure 2: Gear lever latch mechanism**

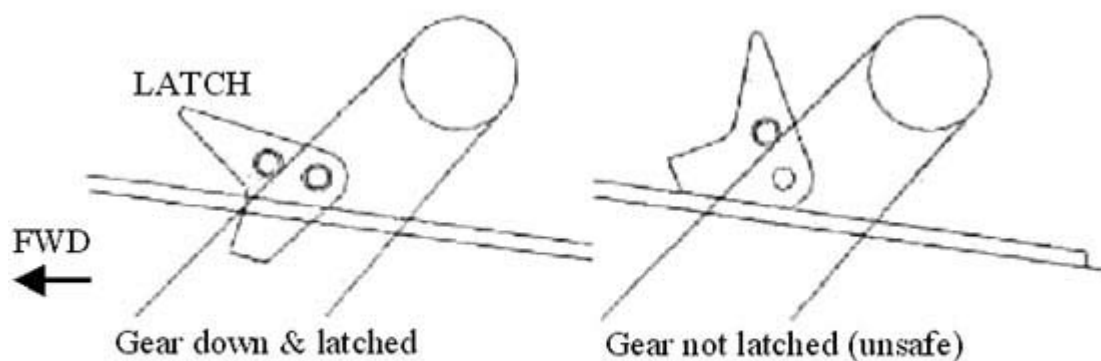


Figure 2 Gear lever latch mechanism

Figure 4: Side view of gear lever in down & latched position

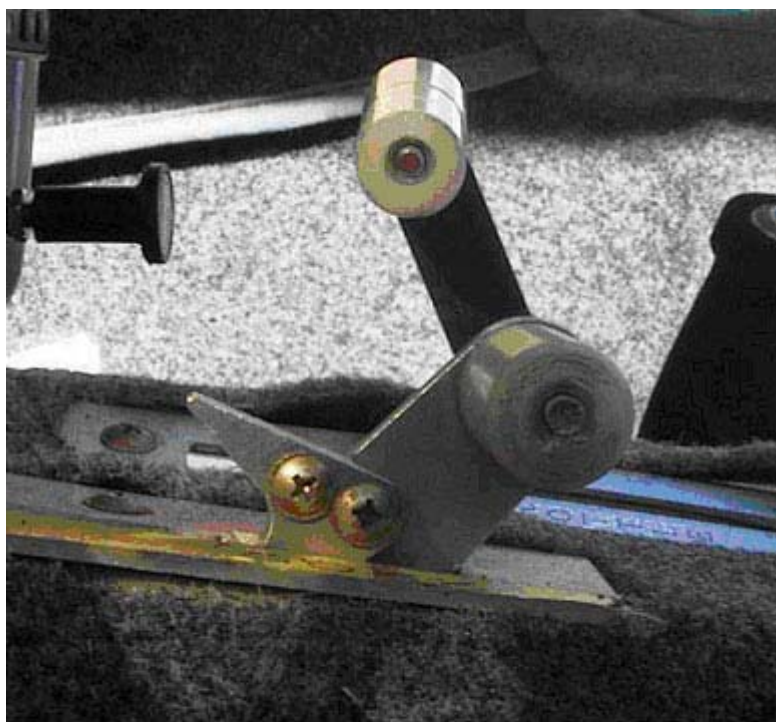


Figure 4 Side view of gear lever in down & latched position

A positive action is required to move the latch out of the slot, which then allows the retraction lever to be moved out of the gate.

The instructor reported that during the landing roll on another Europa aircraft he had noticed the latch bouncing up and down as the aircraft passed over undulating ground. He recommended that the latch be tightened to prevent inadvertent unlatching, but he also pointed out that the disadvantage of tightening the latch is that it will not automatically drop into place. The pilot would need to remember to push the latch down after selecting the gear lever down. One Europa pilot has installed a spring on the latch to help lock it in the down position.

## **Landing gear examination**

The aircraft was transported to the Europa kit manufacturer where it was examined by one of their engineers. The inspection revealed that the landing gear lever was correctly biased to engage into the down gate. With the gear lever in its down gate the retraction arms were found to make proper contact with the stops on the landing gear frame and the arms were over-centre with respect to the suspension block. The down latch was found to operate freely as designed. No fault was found in the construction or the function of the landing gear assembly.

## **Conclusion**

The gear was found to operate correctly and lock down correctly. Consequently, the only way the gear could have retracted during the landing roll is for the landing gear lever to have been unlatched. Either the latch was not fully engaged in the guide slot or the latch popped up during the ground roll.