ACCIDENT

Aircraft Type and Registration:	Europa XS, G-IMAB
No & Type of Engines:	1 Rotax 912 ULS piston engine
Year of Manufacture:	2002 (Serial no: PFA 247-13128)
Date & Time (UTC):	4 August 2018 at 1555 hrs
Location:	East Kirkby Airfield, Lincolnshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - None Passengers - None
Nature of Damage:	Damaged fuselage, landing gear, engine and propeller
Commander's Licence:	Private Pilot's Licence
Commander's Age:	51 years
Commander's Flying Experience:	4,002 hours (of which 9 were on type) Last 90 days - 120 hours Last 28 days - 35 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The landing gear and flaps retracted without selection during the takeoff roll and the aircraft slid for approximately 50 m before stopping. The pilot and his passenger were uninjured.

History of the flight

The pilot flew from Rufforth to Breighton where he refuelled the aircraft, before flying to East Kirkby to visit the airshow. He described the takeoff roll from East Kirkby as bumpy and, just as he was about to rotate, the passenger saw "the gear lever shoot forward without any external input". The main wheel, flaps and outriggers then retracted and the aircraft slid to a halt.

Description of the landing gear retraction lever

The Europa XS has a retractable mainwheel with a fixed tailwheel and retractable outriggers on the wings. The landing gear and flaps are selected by a single lever on the centre console between the seats (Figure 1). The lever has two gates at either end of its travel, coinciding with the UP and DOWN positions; it is biased to the right so that it naturally enters the gates. To avoid inadvertent retraction, a safety latch rotates under its own weight, dropping into the retraction lever slot. Some owners have installed a spring to assist the operation of the safety latch, but this was not the case with G-IMAB.

To retract the landing gear, positive action is required to lift the latch out of the slot before the lever can be moved sideways out of the gate and pushed forwards. By design, if the lever is inadvertently moved out of the DOWN gate, the landing gear over-centre mechanism should stop the lever moving forwards without input.

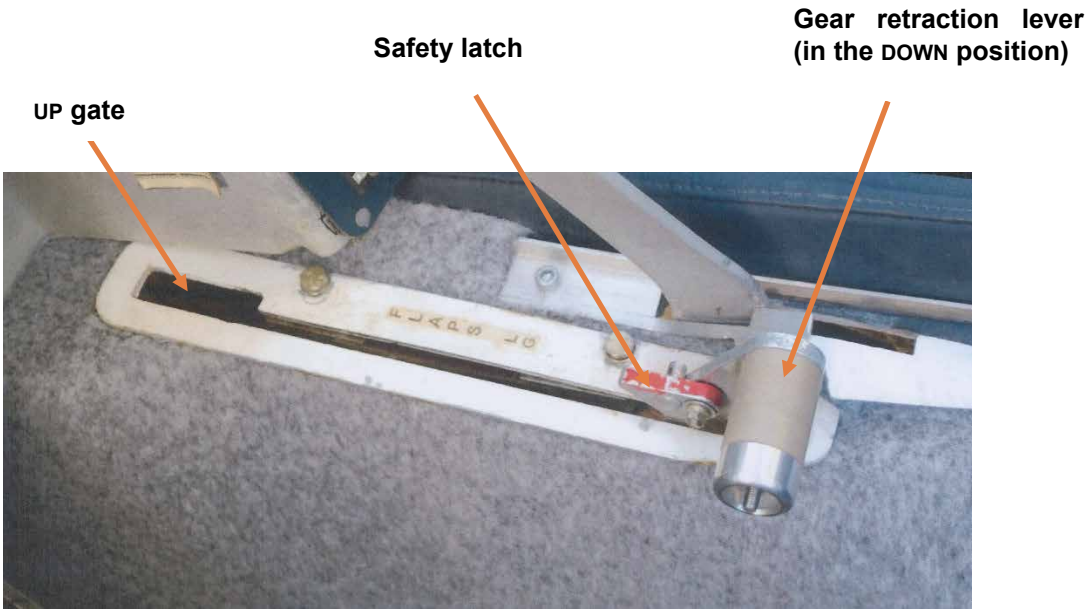

Figure 1
Landing gear operating lever

Pilot's assessment of the cause

The pilot had acquired G-IMAB a few months prior to the accident and his operating experience of the Europa XS was limited to this airframe. When describing the gear lever operation, he noted that "there appeared to be an undue amount of pressure required to engage the down position". Given his limited experience of the aircraft type, he considered this to be normal; a belief that was perhaps reinforced by flying the aircraft with another pilot who had previous experience of the type. He also said that the gear lever on G-IMAB was not biased to the right.

The pilot stated that he verified that the safety latch was in place during his pre-flight checks and he thought that the bumpy runway may have resulted in it jumping out of position. If the gear lever then moved sideways out of the gate, he considered the forces would have been sufficient for the landing gear to retract.

Initial aircraft examination and requirement for annual checks

An initial check by an LAA inspector found wear in the landing gear mechanism, but no obvious cause for the uncommanded landing gear retraction. At the time of writing, the aircraft was awaiting a more detailed inspection prior to repair.

The LAA Type Acceptance Data Sheet refers to Flight Safety Bulletin FSB004, which was produced after the Popular Flying Association carried out a review following a number

of undercarriage collapses on Europa and Europa XS aircraft. The bulletin describes mandatory annual checks on retractable monowheel aircraft, including the need for retraction checks and specific requirements relating to the main undercarriage, tailwheel and outriggers.

BULLETIN ADDENDUM

The original AAIB report stated that the aircraft had been repaired after a previous landing gear collapse but a previous owner, who had been associated with the aircraft for several years advised, that this was not correct therefore the following correction has been made.

The first paragraph of the '*Pilot's assessment of the cause*' section of the report has been replaced. The original text is stated below:

> **Pilot's assessment of the cause**
>
> The pilot had acquired G-IMAB a few months prior to the accident and his operating experience of the Europa XS was limited to this airframe. The aircraft had been repaired after a previous landing gear collapse before he bought it and when describing the gear lever operation, he noted that "there appeared to be an undue amount of pressure required to engage the down position". Given his limited experience of the aircraft type, he considered this to be normal; a belief that was perhaps reinforced by flying the aircraft with another pilot who had previous experience of the type. He also said that the gear lever on G-IMAB was not biased to the right.

The original AAIB report also stated that '*An initial check by an LAA inspector found wear in the landing gear mechanism, but no obvious cause for the uncommanded landing gear retraction. At the time of writing, the aircraft was awaiting a more detailed inspection prior to repair.*' This inspection has been completed and the LAA inspector reports that no anomalies were found with the landing gear system. The aircraft has been repaired and an optional spring to assist the operation of the landing gear safety latch has been installed.

The online version of this report was amended on 10 February 2022. Full details of the addendum can be found in the March 2022 Bulletin.