

**ACCIDENT**

|                                        |                                                                                               |                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------|-------------------|
| <b>Aircraft Type and Registration:</b> | Alpi Aviation Pioneer 400, G-CPPG                                                             |                   |
| <b>No &amp; Type of Engines:</b>       | 1 Rotax 912 ULS piston engine                                                                 |                   |
| <b>Year of Manufacture:</b>            | 2013 (Serial no: LAA 364-15117)                                                               |                   |
| <b>Date &amp; Time (UTC):</b>          | 23 August 2016 at 1730 hrs                                                                    |                   |
| <b>Location:</b>                       | Thruxton Aerodrome, Hampshire                                                                 |                   |
| <b>Type of Flight:</b>                 | Private                                                                                       |                   |
| <b>Persons on Board:</b>               | Crew - 2                                                                                      | Passengers - None |
| <b>Injuries:</b>                       | Crew - None                                                                                   | Passengers - N/A  |
| <b>Nature of Damage:</b>               | Damage to aircraft underside                                                                  |                   |
| <b>Commander's Licence:</b>            | Commercial Pilot's Licence                                                                    |                   |
| <b>Commander's Age:</b>                | 81 years                                                                                      |                   |
| <b>Commander's Flying Experience:</b>  | 16,776 hours (of which 14 were on type)<br>Last 90 days - 73 hours<br>Last 28 days - 20 hours |                   |
| <b>Information Source:</b>             | Aircraft Accident Report Form submitted by the pilot                                          |                   |

**Synopsis**

On returning to the airfield the landing gear was selected down but did not lock down. The landing gear was recycled but would still not lock down. After touchdown, the landing gear legs collapsed. The failure of the gear to lock down was attributed to a bent nose gear screwjack extension rod.

**Description of the aircraft**

The Alpi Aviation Pioneer 400 is a four-seat development of the Pioneer 300 light aircraft, which has two seats. G-CPPG was home-built and was undergoing flight tests for the issue of a Permit to Fly.

The aircraft is of primarily wooden construction and has a retractable tricycle landing gear. Retraction and extension is by an electric motor which drives three screwjacks (one for each landing gear). When the legs are fully extended, the jacks operate overcentre mechanisms which lock the landing gear down. If the electric motor fails, for any reason, a hand crank can be used to drive the mechanism manually.

The indications for the landing gear are conventional. Three green lights illuminate when the landing gear is down and locked and a landing gear unsafe amber light indicates that it is in transit or unsafe.

## History of the flight

On returning to the airfield the landing gear was selected down, but its circuit breaker tripped and the gear unsafe light remained on. The circuit breaker was reset and the gear recycled but again the circuit breaker tripped. The manual landing gear extension crank handle was operated but could only be moved half a turn. The air/ground radio operator advised that the landing gear appeared to be down and the pilot could see through the transparent panel in the footwell that the nosewheel was no longer in its bay. A flaps-up landing was made on the grass strip parallel to the main Runway 25. During the round-out the right-seat observer switched off the magnetos and fuel, and the aircraft settled gently onto its belly, pitching nose-down at the end of the ground run.

When the aircraft was subsequently raised the landing gear dropped down under gravity.

## Aircraft examination

The aircraft was examined by a maintenance organisation that carried out the repairs. All the screwjacks had fractured as a result of the collapse, but the nose gear screwjack extension rod (which is 470 mm long) had also bent. The engineer believed that this extension rod was probably bent during takeoff when the aircraft hit a bump in the runway. A bent rod would also explain a slight sticking of the throttle lever that had been experienced, because this rod runs underneath the throttle quadrant. The bent rod could have prevented all three landing gear legs from reaching their overcentre positions.

The Pioneer 400 has suffered previous landing gear extension issues and the manufacturer is developing modifications. One of the modifications has been to change the nose gear screwjack extension rod from a hollow steel tube to a solid steel tube.