ACCIDENT

Aircraft Type and Registration:	Grob G115 D2, G-BVHF
No & Type of Engines:	1 Lycoming AEIO-320-D1B piston engine
Category:	1.3
Year of Manufacture:	1994
Date & Time (UTC):	6 June 2005 at 0844 hrs
Location:	Dundee Airport, Fife
Type of Flight:	Training
Persons on Board:	Crew - 2 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Right landing gear embedded in fence, nosewheel sheared off, right wing, nose and propeller severely damaged
Commander's Licence:	Commercial Pilot's Licence with Instructor rating
Commander's Age:	32 years
Commander's Flying Experience:	815 hours (of which 8 were on type) Last 90 days - 129 hours Last 28 days - 24 hours
Information Source:	Aircraft Accident Report Form submitted by the instructor plus flight testing by the flying school

History of the flight

The aircraft was being used for initial flying instruction of an Air Cadet student in the sponsored Air Cadet Pilot Scheme. It was the second flight in which the student was given full control of the aircraft, both in the circuit and for the landing, and the accident happened at the end of the second circuit. The aircraft was operating from Runway 28 and the weather was fine with good visibility and a reported wind of 300º at 3 kt.

The instructor reported that the earlier parts of the flight had gone well, with good pre-flight preparation and no apparent aircraft problems. Given the student's level of experience, the first circuit had been flown satisfactorily and he had demonstrated what he had been taught in the previous day's lesson by another instructor. The early part of the final approach was slightly high and the landing was 'firm'.

The instructor reports that the second circuit was flown in a similar way to the first, with more confidence. Again, the early part of the final approach to landing was flown slightly high but the student corrected this by reducing

power and lowering the nose. The approach was flown at a constant 65 kt and appeared stable. Permission for a 'touch and go' was received from ATC in good time.

Approaching the runway threshold, the student began to align the aircraft with the runway, as instructed, and smoothly to reduce the power for landing. At this point the instructor considered that he had no reason to take control and was 'following through' the student's control inputs. The aircraft then seemed to start a sudden roll to the left and the instructor immediately took control, stating "I have control". The student acknowledged this, although the instructor recalled that the student momentarily resisted his application of full power. The instructor applied control to stop the aircraft veering further left, raised the nose to an attitude slightly above the horizon and initiated flap retraction from the '60º' setting to the 'Takeoff' setting. However, the aircraft did not respond to his control inputs and the only viable option appeared to be a forced landing on the grass to the left of the runway. The instructor was later uncertain about the operation of the stall warning horn but commented that he believed it had sounded twice on the base leg but not during the approach nor during the go-around. He was also uncertain of the actual airspeed at the time.

The aircraft touched down some 10 m from the boundary fence, after an initial contact of the left wingtip with the ground. The aircraft ran into the fence at an angle of about 45º and, after an initial impact between the left wingtip and one of the fence posts, it slid to the right. The nose leg collapsed and there was extensive damage to the nose, which was embedded into the fence, and to the right wing, which was nearly severed by another fence post during the slide to the right. There was, however, no fire and the instructor and student were able to leave the aircraft without assistance and without injury.

Further information

After the accident the student prepared a written statement and this was consistent with the instructor's recollection. The student considered that he began to experience control difficulties at a height of about 100 ft and this worsened close to the ground. He concurred that, with full power applied and flaps returned to the 'Takeoff' setting, the aircraft did not appear to respond to the instructor's control inputs, and the left side of the aircraft seemed to drop.

Examination of the aircraft after the event did not show any mechanical deficiencies which would have preceded the event. The stall warning system, which operates off a vane on the left wing, was functional and there was no evidence of disruption or restriction in the flying control system. The position of the flaps, which are electrically actuated, indicated that they were travelling to the 'Takeoff' position, as selected by the instructor.

An ATC witness from the control tower, approximately 170 m to the right of Runway 28 and nearly abeam the touchdown area, had a good view of the event. It appeared to this witness that the "aircraft stalled at about 50 ft, on a go-around" and that the left wing dropped, followed by the nose. Before the aircraft struck the ground to the south of the runway, it appeared that the nose had been raised so that the initial impacts were on the left wingtip and the left main landing gear.

The flying school, which had recently acquired a total of four Grob G115 D2 aircraft, took a strong interest in the possible causes of this accident and discussed it with the AAIB. A senior instructor and the instructor involved in the accident attempted to replicate the accident conditions, at altitude, but without success. Further work by another instructor indicated that the conditions could

be replicated if go-around power was applied without sufficient compensating right rudder. The resulting left 'wing drop' would then be exacerbated if right aileron were applied alone, rather than 'picking up' the left wing with right rudder. The chief flying instructor concurred, adding that the instructor appeared to have been slow in taking control from the student on the final approach and that a contributory factor may have been the slight delay when the student momentarily resisted the instructor's application of full power.

The aircraft commander later took the opportunity to comment on this AAIB account of the accident. He emphasised, in particular, his recollection that the aircraft had not stalled and that he had not used any significant amount of aileron during the attempted go-around. He had followed through the student's control inputs and there was no delay in his taking control of the aircraft. He considered that a lack of aircraft performance had been a major factor in the event.