

## ACCIDENT

<b>Aircraft Type and Registration:</b>	DH82A Tiger Moth, G-ANLD	
<b>No &amp; Type of Engines:</b>	1 De Havilland Gipsy Major 1C piston engine	
<b>Year of Manufacture:</b>	1943 (Serial no: 85990)	
<b>Date &amp; Time (UTC):</b>	22 May 2019 at 1015 hrs	
<b>Location:</b>	Goodwood Aerodrome, West Sussex	
<b>Type of Flight:</b>	Private	
<b>Persons on Board:</b>	Crew - 1	Passengers - 1
<b>Injuries:</b>	Crew - 1 (Minor)	Passengers - 1
<b>Nature of Damage:</b>	Substantial damage to wings, landing gear, propeller, engine, and nose	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	79 years	
<b>Commander's Flying Experience:</b>	643 hours (of which 485 were on type) Last 90 days - 4 hours Last 28 days - 1 hour	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot	

## Synopsis

The aircraft veered to the right during the takeoff roll. The pilot left full throttle applied and attempted to climb away from obstructions. The aircraft did not gain sufficient airspeed, stalled at low altitude and struck an airfield hut and some ground equipment.

## History of the flight

The aircraft was on a local flight from Goodwood Aerodrome. The weather was good with a light southerly wind, and Runway 28 was in use. Runway 24 would have been closer to the wind but was out of use.

The pilot completed his takeoff checks and everything appeared normal, so he applied power for takeoff. Video evidence showed that, as the tail lifted from the grass, the aircraft veered to the right. The pilot reported that he applied full left rudder but was initially unable to arrest the yaw, leaving the aircraft heading toward a wooden hut approximately 150 m from the runway edge. He considered that if he closed the throttle, the aircraft might not stop before the hut, but he thought he had enough speed to lift off, climb and turn left to avoid the obstruction. The video showed the aircraft continue along the ground towards the hut in a tail-low attitude before lifting off briefly. It then stalled, struck the ground and collided with the hut and some ground equipment.

Both those on board were flung forward in their harnesses and sustained minor leg and facial injuries. The pilot switched off the engine ignition and turned off the fuel supply. Both occupants were assisted from the aircraft by ground personnel.

### **Tiger Moth takeoff characteristics**

Tiger Moth aircraft do not accelerate as quickly as normal during takeoffs with a tail-low attitude. However, the positive angle of the wing to the oncoming air can cause the aircraft to lift off before it reaches proper flying speed. In these circumstances, the tail-low, high-drag attitude of the aircraft prevents it from accelerating or climbing, and it either continues to 'fly' level in ground effect<sup>1</sup> or stalls if the pilot tries to climb.

### **Analysis**

The aircraft took off with a crosswind from the left. Due to the high keel area and somewhat limited control authority the aircraft is quite restricted in terms of crosswind capability. The pilot recalled deflecting the ailerons into wind for the crosswind takeoff. The tendency of this aircraft type is to yaw right with full power applied because of propeller slipstream effects. In this case, the yaw began before the aircraft was airborne indicating that it was still at relatively low speed and perhaps explaining why the rudder did not control the yaw initially.

A few seconds after the right yaw commenced the aircraft direction stabilised but with the aircraft tracking away from the runway towards a hut on the airfield perimeter. The aircraft has no wheel brakes and the pilot was concerned that should he close the throttle the deceleration would have been insufficient to avoid striking the hut. He therefore maintained full power to continue the takeoff, although it is likely that the tail-low attitude and bumpy surface impeded the aircraft's acceleration. The aircraft left the ground briefly before stalling, descending and striking the hut and adjacent ground equipment.

### **Conclusion**

The aircraft veered right from its takeoff roll and exited the runway. The pilot maintained full throttle to try and continue the takeoff to avoid a hut on the airfield perimeter. Although the aircraft became airborne briefly, it stalled and collided with the hut.

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#### **Footnote**

<sup>1</sup> Ground effect: increased wing lift when flying in close proximity to the ground.