ACCIDENT

Aircraft Type and Registration:	Jabiru UL-450, G-LEEE
No & Type of Engines:	1 Jabiru Aircraft Pty 2200A piston engine
Category:	1.3
Year of Manufacture:	2000
Date & Time (UTC):	8 June 2005 at 1230 hrs
Location:	Private airstrip, Burton-on-Wirral, Cheshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Left and right main landing gear, nose leg, propeller, engine and cowling, fuselage and left wing
Commander's Licence:	National Private Pilot's Licence
Commander's Age:	41 years
Commander's Flying Experience:	636 hours (of which 30 were on type) Last 90 days - 7 hours Last 28 days - 7 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

History of the Flight

The aircraft was taking off from a private airstrip whose runway was orientated east-west. The runway was 550 m long, 5 m wide and its grass surface was dry. The airstrip was surrounded to the east, west and south by woods, which encroached to within 50 m of the upwind end of Runway 27; the trees were estimated to be about 24 m high. The surface wind, assessed from the windsock at the airstrip, was 270º-300º at 6 kt; the visibility was in excess of 10 km and there were a few clouds at an altitude of 3,500 ft amsl. The temperature and dew point, as recorded at Liverpool Airport, 7 nm to the north-east, were +20º C and +8º C respectively. Before beginning the takeoff on Runway 27 the pilot carried out a power check, including the functioning of the carburettor heat control, and all the engine indications appeared to be normal.

Acceleration during the take-off roll felt normal but the pilot reported that the aircraft lifted off, at about 50 kt, further down the runway than usual. Thereafter the aircraft's acceleration and rate of climb 'did not feel right', although the engine rpm was indicating take-off power. Mindful of the trees at the upwind end of the runway the pilot decided to land immediately. He reduced the power to idle but reported that he misjudged the flare and the aircraft, having drifted to port, landed on its left main landing gear in long grass at the side

of the runway. The left main landing gear collapsed as the aircraft ground looped to the left and the nose leg detached in the process. The propeller struck the ground and the aircraft came to a stop facing south. The pilot exited through the left door, uninjured. The grass on the runway had been cut about three days before and was reported to be about three inches long. The grass at the side of the runway was estimated to be about nine inches in length.

The pilot commented that G-LEEE was usually airborne at an indicated airspeed of about 50 kt after a take-off roll of approximately 150 m and that, from his perspective, it had to 'feel' established in the climb by about 300 m. He considered that, on this occasion, the surface wind speed may have dropped giving rise to the aircraft's seemingly reduced rate of climb. He concluded that his concern about this, coupled to misjudgement of the flare and lack of appreciation of the drift to the left, had caused the accident.

Civil Aviation Publication (CAP) 428, entitled '*Safety Standards at Unlicensed Aerodromes*' states, in its introduction, that it:

> *'provides guidance to the owners and operators of unlicensed aerodromes on the physical standards that should be met and the facilities that should be provided in order that the aerodrome may be used safely by those pilots wishing and permitted to use it.'*

Later, on the subject of the *'Physical Characteristics of the Aerodrome',* it states that:

> *'there are certain minimum physical characteristics which it is important to meet if potential flying hazards are to be minimised.'*

The publication gives recommended minimum dimensions for runways and runway strips. For runways less than 800 m in length (short runways), it advocates a minimum width of 18 m. It also provides guidance on obstacle clearance in the vicinity of the approach and departure flight paths. For short runways it specifies a slope of 1 in 20, originating from the end of the airstrip, out to a distance of 1,600 m on the extended centreline, through which obstacles should not penetrate. Lateral dimensions for these obstacle limitation 'surfaces', as they are described, are also provided.

Advice on factors to consider when assessing an aircraft's take-off performance is given in General Aviation Safety Sense Leaflet number 7B, entitled *'Aeroplane Performance'*.