

SERIOUS INCIDENT

Aircraft Type and Registration:	Diamond DA 42 NG Twin Star, G-SLCT	
No & Type of Engines:	2 Austro E4-B piston engines	
Year of Manufacture:	2005	
Date & Time (UTC):	4 March 2020 at 1310 hrs	
Location:	Stapleford Aerodrome, Essex	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Nosewheel, left and right propellers damaged	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	49 years	
Commander's Flying Experience:	2,312 hours (of which 784 were on type) Last 90 days - 63 hours Last 28 days - 11 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

On the first touch-and-go of a circuit training detail, the aircraft ballooned during landing and the instructor took control. He retracted flaps and applied full power for takeoff. During the ensuing takeoff roll the aircraft travelled past the point where the runway surface changed from asphalt to grass. Due to recent inclement weather the ground condition was soft. Despite continuing to apply full power, the aircraft did not accelerate and the instructor elected to bring the aircraft to a stop. While decelerating, the aircraft's nosewheel sunk into the soft earth and separated from the aircraft.

History of the flight

The aircraft was undertaking a circuit training detail on Runway 21L at Stapleford Aerodrome, Essex. The wind was reported as calm, from an East-South-Easterly direction. The instructor reported that during the touchdown on the first touch-and-go, the student pilot 'slightly ballooned' the aircraft. The instructor did not consider it necessary to prompt or initiate an immediate go-around, and instead took control to stabilise the aircraft on the ground roll. He then applied full power and retracted the flaps, having assessed that there was sufficient runway remaining to complete the takeoff. While he was attempting to achieve 'unstuck,' the aircraft passed the point where the runway surface transitions from asphalt to grass. This initially caused the aircraft to decelerate, preventing takeoff, but thereafter the airspeed remained constant. The instructor assessed that there was still

adequate runway remaining to safely complete the takeoff and continued to apply full power to try and accelerate the aircraft, but the airspeed did not increase. Not having achieved the desired increase in airspeed, he closed the throttles and applied gentle braking to bring the aircraft to a controlled stop. During the latter part of the deceleration, the aircraft nosewheel sank into the soft grass and separated from the aircraft. The nose lowered, both propellers struck the ground and the aircraft subsequently came to rest close to the end of the runway (Figure 1 and 2). Both occupants were uninjured and exited the aircraft without assistance.



Figure 1

G-SLCT after coming to rest



Figure 2

G-SLCT's nosewheel

Airfield information

Stapleford Aerodrome is a licensed airfield with three runways: grass Runway 10/28, grass Runway 03L/21R and grass/asphalt Runway 03R/21L.

Runway 21L is 1,077 m long, with the first 600 m having an asphalt surface and the remainder being grass. The asphalt section is comprised of a 23 m starter extension, and a displaced threshold of 177 m. There is also a 50 m clearway at the end of Runway 21L. The declared Takeoff Run Available (TORA), Takeoff Distance Available (TODA) and Landing Distance Available (LDA) are therefore 1,100 m, 1,150 m and 900 m respectively. The elevation is 115 ft at the Runway 21L threshold and 185 ft at the 03R threshold, giving a +1.98% upslope on Runway 21L.

Instructor's comments

The instructor commented that excessive rainfall throughout winter and particularly in the days immediately prior to the incident, had led to soft ground conditions. Additionally, the absence of a headwind component and the high aircraft weight due to it being fully fuelled, both served to increase the required landing distance and takeoff run.

The student was in the early stages of undertaking training for a multi-engine piston rating and training continuity had been interrupted due to recent poor weather. Their most recent experience had been on tailwheel aerobatic aircraft. The instructor considered that during the flare and hold-off, the student had reverted to a technique more appropriate to the type they had most recently flown. This caused the aircraft to balloon on landing and as a result increased the takeoff run required for the touch-and-go.

Based on the ground conditions, the instructor considered that in future faced with similar circumstances, he would:

- Abort the takeoff if the aircraft transitioned, or he assessed that it could transition, onto the grass section of Runway 21L.
- Set the flaps to the approach setting, in accordance with the procedure for short field departures in the aircraft flight manual.
- Not conduct circuit training details if there was no headwind component.

Conclusion

While performing a touch-and-go the aircraft ballooned on landing, increasing the landing distance required and causing the instructor to take control. During the ensuing takeoff roll the aircraft travelled past the point where the runway surface changed from asphalt to grass. The soft ground conditions on the grass surface prevented the aircraft from accelerating sufficiently to achieve takeoff speed. As the aircraft was being brought to a stop the nosewheel detached.