

ACCIDENT

Aircraft Type and Registration:	Diamond DA 42 NG Twin Star, G-SELC	
No & Type of Engines:	2 Austro E4-B piston engines	
Year of Manufacture:	2005 (Serial no: 42.032)	
Date & Time (UTC):	28 September 2012 at 1315 hrs	
Location:	Runway 22L, Stapleford Aerodrome, Essex	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - 2
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to propellers and nose cone	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	52 years	
Commander's Flying Experience:	2,299 hours (of which 870 were on type) Last 90 days - 37 hours Last 28 days - 15 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional information provided by the maintenance organisation	

Synopsis

The aircraft was landing after a number of practice touch-and-go exercises. Shortly after the nosewheel was lowered onto the runway, the nose landing gear collapsed. Investigation by the maintenance organisation after the event could find no fault with the retraction/extension or gear warning systems.

History of the flight

The aircraft was engaged on an Instrument Rating training flight, which included general handling and circuit practice. A student occupied the left front seat, the instructor the front right seat and a further student sat in the rear as an observer. After three acceptable touch-and-go exercises on Runway 22L, the decision was

made to land. The pre-landing checks were completed, with both the instructor and student checking that three green lights were illuminated, indicating that all the landing gears were down and locked.

The green lights were checked again as landing flap was lowered on final approach and touchdown occurred on the mainwheels just before the runway identification markings. The control column was held back before lowering the nosewheel onto the runway. All appeared normal until about three seconds later when the nose landing gear collapsed, causing the propellers to contact the runway. The aircraft came to a halt in a straight line close to the runway centreline. After informing

the control tower, all systems were shut down and the three occupants vacated the aircraft normally. Given the fact that everything had appeared normal and all three green lights had illuminated and were checked twice, the instructor was at a loss to explain the reason for the nosewheel collapse.

Additional information

The DA42 Twin Star has a tricycle landing gear configuration which is fully retractable. The nose gear retracts forwards and the main gears retract inwards. The gear is operated by hydraulic actuators powered by an electro-hydraulic pump. A manual 'free-fall' emergency system is provided for lowering the gear if the normal system has failed. In addition to the normal 'three greens' indication lights, there is a red GEAR UNSAFE indication whenever the gear is selected down and one or more of the legs is not locked down. A warning horn sounds in the cockpit if any gear is not locked down and either landing flap is selected, or the engines are at very low power.

Staff from the maintenance organisation attended to recover the aircraft. Several people pulled down on the rear fuselage to raise the nose off the ground. It was found that the nose gear leg then dropped down freely and went into lock. The aircraft was towed back to the hangar normally and placed on jacks. Approximately thirty retraction/extension cycles were performed with no malfunctions of the system or the associated warning. Maintenance company staff were of the opinion that, had there been pressure in the DOWN hydraulic line to the nose gear and if landing loads were being reacted by the retraction/extension system instead of the downlock mechanism, there would have been damage to the mechanism. However, no such damage was found.