

ACCIDENT

Aircraft Type and Registration:	North American T-28A Trojan, N14113	
No & Type of Engines:	1 Wright 1820-768 radial piston engine	
Year of Manufacture:	1951 (Serial no: 81-1)	
Date & Time (UTC):	30 April 2015 at 1111 hrs	
Location:	Duxford Airfield, Cambridgeshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Nose landing gear failure, engine shock-loaded, propeller blade tips bent	
Commander's Licence:	Airline Transport Pilot's Licence	
Commander's Age:	70 years	
Commander's Flying Experience:	17,915 hours (of which 160 were on type) Last 90 days - 2 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional inquiries made by the AAIB	

Synopsis

The aircraft was on its takeoff run for a test flight after annual maintenance. At approximately 80 kt IAS the pilot became aware of a severe lateral vibration which was followed by failure of the nose landing gear (NLG). The aircraft came to stop on the runway in a nose-down attitude, resting on the remains of the nose gear strut. The failure was caused by the propagation of a crack in the NLG forging, emanating from a bolt hole in the anti-shimmy damper bracket.

History of the flight

The aircraft was on its takeoff run for an air test after annual maintenance and, as it accelerated through 80 kt IAS, the pilot became aware of a pronounced and severe lateral vibration through the airframe. The pilot immediately closed the throttle and the nose of the aircraft simultaneously dropped as the nosewheel and yoke detached. The propeller struck the runway and stopped; the aircraft continued an estimated 150 yards before coming to a stop on the runway, resting on its main landing gear and the remains of the NLG strut. The pilot made the aircraft safe and exited without further incident. Figure 1 shows the nosewheel and yoke detaching during the takeoff run.



Figure 1

Nosewheel and yoke detachment during the takeoff run
(Picture courtesy of Mr Brian Marshall)

Engineering findings

The failure occurred at the top of the NLG forging as a result of cracking emanating from a bolt hole which was one of three holding the anti-shimmy damper bracket in place. An examination of the NLG after the accident found evidence of previous crack propagation in the same area and the cracks had not been detected during routine or pre-flight visual inspections. There is no specific non-destructive test (NDT) schedule in place for this component so, to prevent recurrence, the maintenance organisation responsible for the aircraft is putting in place its own safety action to carry out an NDT on the NLG forging during future routine maintenance.