Australian Government
Australian Transport Safety Bureau

Take off event involving a De Havilland DH-82 Tiger Moth VH-RAY

19 km NNE Coffs Harbour, New South Wales, 23 September 2013

ATSB Transport Safety Report
Aviation Occurrence Investigation
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Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150 (24 hours)
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

Addendum

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Ground event involving a De Havilland DH-82 Tiger Moth, VH-RAY

What happened

On 23 September 2013, the pilot of a De Havilland DH-82 Tiger Moth aircraft, registered VH-RAY, taxied at Sandy Beach aeroplane landing area (ALA), New South Wales to conduct circuits in visual meteorological conditions. The pilot was the only person on board.

The pilot taxied to the end of the runway and applied the brakes to conduct engine run up checks, then released the brakes and lined up on the runway heading and applied full power for take-off. The aircraft accelerated down the runway. As the airspeed increased the tail rose to the take-off position, at about 200 meters down the runway and at about 30 knots indicated air speed the nose of the aircraft dropped very rapidly and the aircraft flipped onto its back.

Pilot comment

The pilot reported that the aircraft was stored in an open hangar that is located about 4 km from the ocean and that everything was normal up until the accident.

The pilot inspected the grass runway after the accident and reported that there were no witness marks on the runway to show a skidding main wheel and that the runway was in good condition with nothing on the runway that could have resulted in the accident.

Maintenance report

The aircraft was modified in 1997, installing main wheel brakes in accordance with an engineering order. Following the accident, the aircraft was inspected by the maintenance organisation and it was determined that the left main landing gear brake drum had evidence of corrosion and the brake operating rod was found stiff to operate. When the brakes were applied and released the left brake did not release fully. After the brake was cleaned and lubricated the brake operated normally. The maintenance organisation suspects that the left brake was partially engaged on take-off. They also determined that the aircraft was last flown on 12 February 2013 and the aircraft was normally stored in a high corrosion environment.

Figure 1: VH-RAY

Source: Frank Redward

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has not been advised of any proactive safety action in response to this occurrence.

Safety message

This accident is a timely reminder of the work that the Civil Aviation Safety Authority (CASA) is conducting in response to the Australian Government's *Aviation White Paper - Flight Path to the Future* (December 2009) which encourages CASA to continue its focus on the safety of ageing aircraft in Australia. CASA is implementing an ageing aircraft management plan where they have found that there is no one simple solution to effectively manage the ageing-related problems of the Australian fleet. Aircraft age from the day of manufacture and the rate at which an individual aircraft ages is dependent on how it has been operated, maintained and stored. They have determined that the aircraft's maintenance program needs to be able to adapt to take into account the ageing process. For many general aviation aircraft, the original design assumptions are no longer valid (operation beyond notional life, incorporation of modifications and repairs, incorporation of new materials and technologies and the aircraft used in different roles from what they were designed).

The following links provide additional information on ageing aircraft:

- Details of CASA's Ageing Aircraft Management Plan (AAMP) is available at www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_100381.
- ATSB Aviation Research and Analysis Report – B20050205 *How Old is Too Old? The impact of ageing aircraft on aviation safety* *www.atsb.gov.au/publications/2007/b20050205.aspx*.
- CASA Flight Safety Australia January-February 2011 magazine article *Aging – it's not just chronology* *www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_93249*.
- CASA presentation Ageing Aircraft Management Plan Airworthiness & Sustainment Conference Brisbane July 2013 www.ageingaircraft.com.au/proceedings13.html.

General details

Occurrence details

Date and time:	23 September 2013 – 1600 EST	
Occurrence category:	Accident	
Primary occurrence type:	Collision with terrain	
Location:	19 km NNE Coffs Harbour, New South Wales	
	Latitude: 30° 09.33' S	Longitude: 153° 09.87' E

Aircraft details

Manufacturer and model:	De Havilland DH-82A Tiger Moth	
Registration:	VH-RAY	
Serial number:	3787	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Substantial	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.