



Australian Government

Australian Transport Safety Bureau

Loss of control during initial climb, involving a Cessna 150, VH-RXM

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ATSB Transport Safety Report

Aviation Short Investigation

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Addendum

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Loss of control during initial climb, involving a Cessna 150, VH-RXM

What happened

On 18 February 2014, an instructor from a local flying school prepared a Cessna 150 aircraft, registered VH-RXM (RXM) for a local trial instructional flight (TIF) at Moorabbin Airport, Victoria.

When the student, who had no previous flying experience, arrived at the flying school, he was shown a 15 minutes video, highlighting some of the basic principles of flight, and an overview of emergency procedures.

Once the instructor had completed the pre-flight inspection of RXM, he demonstrated the emergency procedures to the student who occupied the left seat in the aircraft.

The instructor then taxied RXM to the run-up bay, conducted the pre-take-off checks and re-briefed the student on his required actions during the take-off. These actions included the student slowly advancing the throttle control to attain full power; then manipulating the aircraft elevator control during the rotation and initial climb phases. These actions would be monitored by the instructor. However to enhance the 'flight experience' for the student, the instructor planned to have minimal input during this process. The instructor would however, maintain full control of the rudder pedals and take control of the throttle lever once the student had applied full power.

As the aircraft taxied to the runway holding point, air traffic control (ATC) advised there was a 3-4 kt tailwind on the duty runway, 35 Left (L). The instructor noted the windsock now showed a southerly wind; however, he advised ATC he would accept a departure on that runway. ATC then gave RXM a clearance to enter runway 35L and line-up.

After being cleared for take-off, the student, as briefed, used his right hand to slowly push the throttle in to obtain full power, while his left hand remained on the control column. Once the throttle was fully open, he placed his right hand back on the control column, allowing the instructor full control of both the throttle and rudder pedals. When RXM attained 60 kt, the student gently pulled back on the control column allowing the aircraft to rotate and commence a climb. Initially, the aircraft achieved a rate of climb of about 150 feet per minute.

Although the aircraft was achieving a suitable climb profile, the student continued to apply back pressure to the control column. This resulted in a reduction of the optimal airspeed, and a higher than normal aircraft nose attitude. The instructor applied some forward pressure to the control column to normalise the climb. As he applied the forward pressure, the aircraft commenced a roll to the left. The instructor noted the lowered left wing, and attempted to level the wings by neutralizing the ailerons. Almost immediately, the right wing unexpectedly dropped¹. The instructor responded by applying left aileron to raise the right wing. The aircraft commenced a rapid descent, with the right wing remaining low.

The instructor realised the student's hands were still on the control column, and asked him to remove them. However he reported the student may not have heard the instruction, and did not

VH-RXM damage



Source: Operator

¹ An unintentional wing drop at low airspeed typically indicates an exceedence of the critical angle of attack for that wing. Although many factors such as airspeed, aircraft profile and wing shape all contribute, it occurs when there is insufficient airflow over the wing to support the aircraft's weight. This is termed an aerodynamic stall.

respond. The instructor realised the right wing had now stalled and applied left rudder and full power in an attempt to recover. By now, the aircraft nose had lowered, and a high rate of descent had developed.

Realising impact was imminent, the instructor made every effort to straighten the aircraft with rudder, and pulled gently back on the controls to try and lessen the impact with the ground.

The aircraft hit the ground hard, and bounced before coming to a stop on its left side. It came to rest just off the sealed section of the runway. The instructor closed the mixture control then exited through the right door. As the left door was jammed, he also assisted the student through the right side of the aircraft. They then moved a safe distance away.

Soon after, emergency services arrived. The pilot and passenger sustained minor injuries, and the aircraft was substantially damaged.

Figure 1: VH-RXM side view of damage



Source: Flying school

Instructor comments and experience

The instructor held a Senior Grade 3 instructor rating and had in excess of 660 flying hours.

He had completed many similar TIF flights during the past 2 years.

Although he had checked the stall warning operation during the aircraft pre-flight, he reported it did not sound at any time throughout the accident sequence.

He also commented that RXM characteristically had a more pronounced wing drop to the right.

Student pilot comments

The student pilot reported, he concentrated on keeping the control column neutral during the take-off, and did not use the ailerons. He recalls the instructor asked him to release back pressure on the control column, which he did, but did not recall any further instructions.

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 been advised of the following proactive safety action in response to this occurrence.

Flying school

As a result of this occurrence, the aircraft operator has advised the ATSB that they are taking the following safety actions:

Change of procedure for trial instructional flights

Instructors are now to conduct the take-off and initial climb, without any student pilot input. This rule applies until the aircraft has reached at least 300 ft above ground level.

The flying school is also reviewing the standard video presentation to check the content relevance.

General details

Occurrence details

Date and time:	18 February 2014 – 1120 EDT	
Occurrence category:	Accident	
Primary occurrence type:	Loss of control	
Location:	Moorabbin Airport, Victoria	
	Latitude: 37° 58.55' S	Longitude: 145° 06.13' E

Aircraft details

Manufacturer and model:	Cessna Aircraft Company 150G	
Registration:	VH-RXM	
Serial number:	15065186	
Type of operation:	Flying training	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – 1 (Minor)	Passengers – 1 (Minor)
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.