



Australian Government

Australian Transport Safety Bureau

Separation issue involving a de Havilland DH-82A (Tiger Moth), VH-BJE and a Robinson R44, VH-HOQ

at Redcliffe (ALA), Queensland, on 7 November 2015

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Addendum

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Separation issue involving a de Havilland DH-82A (Tiger Moth), VH-BJE and a Robinson R44, VH-HOQ

What happened

Early in the afternoon on 7 November 2015, a Robinson R44 helicopter, registered VH-HOQ (HOQ), was conducting pilot training on the western end of Redcliffe aerodrome, Queensland. HOQ was conducting a training sortie and had an instructor and student on board. The training involved practicing engine failures in the hover and while taxiing. Their operations were confined within the aerodrome boundary (Figure 1) and clear of the runway and taxiway. They had completed the initial part of the sortie on the grass area to the south of the taxiway.

Figure 1: Redcliffe Aerodrome layout showing the approximate position of the aerodrome boundary (yellow)



Source: Google Maps. Modified by ATSB

At the same time, a de Havilland DH-82A (Tiger Moth), registered VH-BJE (BJE), was taxiing for departure on runway 07. BJE was departing for a scenic flight with the pilot and one passenger on board. Both aircraft were operating under the visual flight rules,¹ and the weather conditions were fine and clear.

While BJE was taxiing for Runway 07, HOQ moved to the grassed area just north of the taxiway to practice engine failures while taxiing. These manoeuvres involved the helicopter flying at low level parallel to the taxiway and landing on the grass. Once they had reached the eastern end of the grass area the instructor would taxi back to the start point to allow more training to occur.

Due to the nature of the helicopter training being conducted, the focus of the instructor and student was reduced to their immediate operations. During the transit from the grassed area to the area next to the taxiway HOQ did not advise the change in operating area on the common traffic advisory frequency

¹ Visual Flight Rules (VFR): Rules that allow a pilot to operate an aircraft in weather conditions that are generally clear enough to allow the pilot to see where the aircraft is going.

(CTAF)² to other aircraft. While they were aware of the Tiger Moth they did not consider it to be a concern. This was because the helicopter operations were going to remain clear of where the Tiger Moth was intending to operate.

The pilot of BJE broadcast their intentions to taxi and enter the runway to other aircraft in the area on the Redcliffe CTAF. There were no other radio transmissions by other aircraft while BJE was taxiing and entering the runway. While taxiing, the pilot of BJE noted the position of the helicopter and saw that it was well clear. The pilot of BJE therefore did not expect that the helicopter would change operating area to conflict with their departure.

The pilot of BJE lined up for departure on the grass beside the runway, because the aircraft was fitted with a tail skid, not a tail wheel. The grass area for BJE's take off was within the runway strip to the side of the runway closest to the taxiway. BJE commenced the take-off run and, shortly after, the pilot noticed HOQ flying on a parallel track to BJE (Figure 2). The helicopter was to the right, slightly ahead and above BJE, and in close proximity.

Figure 2: BJE during the take-off run just prior to HOQ conducting the left turn



Source: Observer

Shortly after becoming airborne from the grass runway, at about 50 to 60 ft above ground level (AGL), the pilot of BJE saw the helicopter commence a left turn towards the runway. Thinking that there was going to be a collision, the pilot of BJE took avoiding action by conducting a hard left turn, with a high angle of bank, at low altitude. The approximate tracks of the aircraft are depicted in Figure 3.

² The CTAF is the frequency on which pilots operating at a non-controlled aerodrome should make positional radio broadcasts.

Figure 3: Redcliffe aerodrome showing the runway strip (white). The take-off run and left turn of BJE is indicated in orange. The track of HOQ when conducting the engine failures during taxi and the reversal turn is indicated in blue.



Source: Google Maps. Modified by ATSB

The instructor in HOQ was executing a reversal turn in order to reposition the helicopter for further training (Figure 4). The manoeuvre involved a 180-degree left turn, to reverse the direction of flight, with an increase in height to about 50-60ft and a bank angle of about 50°. The turn and track back down the grassed area would keep the helicopter outside the runway strip and clear of BJE. However, as the instructor had not advised their intentions on the CTAF, the pilot of BJE was unaware that the helicopter was going to remain clear of the aircraft.

Figure 4: View from the Tiger Moth when the helicopter was approximately half way through the reversal turn



Source: Video from passenger

Pilot comments

Instructor, HOQ: Teaching, demonstrating, and conducting, practice engine failures at low level is a very high demand task. The instructor's attention is, predominantly, directly ahead of the aircraft and in closely monitoring the student control inputs. This is to ensure that the student is executing the correct technique and safely executing the manoeuvre to avoid damage to the aircraft.

The operations in between the taxiway and the runway strip were going to be conducted so that they would always remain clear of other aircraft operating on the runway. The instructor did not advise the change in operating area as he assessed that there would be no conflict between the aircraft.

Pilot in Command, BJE: During the taxi to the runway the pilot noted the position of HOQ. At this time HOQ was operating to the south of the taxiway and not near the runway. The next time that the pilot of BJE saw HOQ was just after commencing the take-off roll. This surprised the pilot of BJE as he had not heard any transmissions advising that HOQ had changed their operating area. As a result, when HOQ commenced the reversal turn, he assessed that a collision was imminent. To avoid the possibility of a collision, the pilot of BJE turned the aircraft away to the left. The turn was made at low level, with a high angle of bank and at a relatively slow airspeed.

ATSB comment

Both pilots were monitoring the CTAF and the pilot of BJE had transmitted their intentions correctly. However, as the instructor of HOQ did not advise that they were going to conduct the reversal turn, the pilot of BJE did not know that the helicopter would remain outside the runway strip. The avoiding action taken by the pilot of BJE in this case may have been avoided if the helicopter pilot had communicated their intentions.

Safety message

Pilots are encouraged to 'err on the side of caution' when considering when to make broadcasts on CTAF, particularly when the aircraft operations are likely to be in close proximity to other aircraft.

The ATSB SafetyWatch program highlights broad safety concerns that emerge from investigations and occurrence data reported to the ATSB by industry.

One safety concern relates to operations around non-controlled aerodromes.

The ATSB [safety watch](#) website page, *Safety around non-controlled aerodromes*, includes the following relevant comments:

- Insufficient communication between pilots operating in the same area is the most common cause of safety incidents near non-controlled aerodromes.
- A search for other traffic is eight times more effective when a radio is used in combination with a visual lookout than when no radio is used.

The CASA booklet titled [Operations at non-controlled aerodromes](#) provides guidance with respect to the limitations of the see-and-avoid principle and relevant radio procedures. [Civil Aviation Advisory Publication 166-1](#) also provides relevant guidance with respect to CTAF procedures.



General details

Occurrence details

Date and time:	7 November 2015 – 1305 EST	
Occurrence category:	Incident	
Primary occurrence type:	Separation issue	
Location:	at Redcliffe (ALA), Queensland	
	Latitude: 27° 12.40' S	Longitude: 153° 04.07' E

Aircraft details: VH-BJE

Manufacturer and model:	de Havilland Aircraft DH-82A
Registration:	VH-BJE
Serial number:	A17-97
Type of operation:	Charter - Passenger

Helicopter details: VH-HOQ

Manufacturer and model:	Robinson Helicopter Company R44
Registration:	VH-HOQ
Serial number:	1456
Type of operation:	Flying training

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 operations involving the travelling public.

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.