Australian Government
Australian Transport Safety Bureau

Aircraft proximity event involving a Cessna 172S, VH-VMM and a Schweizer 269C-1, VH-FTR

9 km NE of Parafield Airport, South Australia, 1 September 2012

ATSB Transport Safety Report
Aviation Occurrence Investigation
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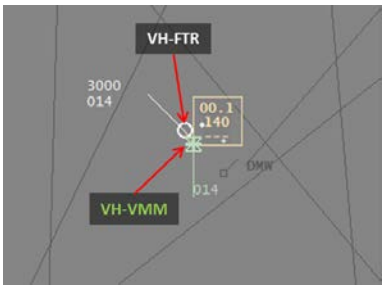
Aircraft proximity event involving a Cessna 172S, VH-VMM and a Schweizer 269C-1, VH-FTR

What happened

Aircraft positions at 1634:04



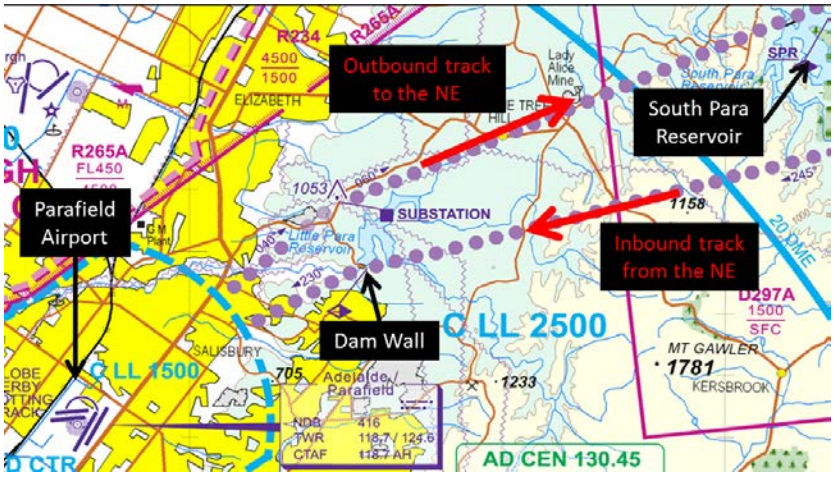
Source: Airservices Australia

On 1 September 2012, the flight instructor and student pilot of a Schweizer 269C-1 helicopter, registered VH-FTR (FTR), were conducting a training flight from Parafield, South Australia and return, via the 'Dam Wall', a visual flight rules (VFR) approach point (Figure 1).

At about 1629 Central Standard Time[1], the instructor of FTR advised Adelaide Centre air traffic control (ATC) that he was south-west of the South Para Reservoir on descent to 1,500 ft, inbound for the Dam Wall. Adelaide Centre advised the instructor that there was an aircraft above and to the left at 2,500 ft inbound and two other aircraft 3 NM behind (Figure 2). The instructor became concerned with the aircraft behind as he could not sight them. The instructor also stated that, soon after, he received a traffic warning on the helicopter's traffic warning system (TWS) for an aircraft 1 NM behind, at the same altitude.

At about the same time, a Cessna 172 aircraft, registered VH-VMM (VMM) was being operated on a solo training flight from Parafield and return, via the Dam Wall. When about 3-4 NM from the Dam Wall, at about 1,500 ft, the pilot was attempting to sight the Dam Wall when he observed a helicopter (FTR) in his 1 o'clock[2] position on a converging track. As a precaution, he reported conducting a 20° left turn and descending 100-200 ft. The turn could not be verified by Airservices Australia surveillance data. The pilot then temporarily lost sight of the helicopter as he became preoccupied with sighting the Dam Wall and preparing his inbound broadcast to Parafield Tower.

Figure 1: Inbound from the Dam Wall



Source: Airservices Australia

[1] Central Standard Time (CST) was Coordinated Universal Time (UTC) + 9.5 hours.

[2] The clock code is used to denote the direction of an aircraft or surface feature relative to the current heading of the observer's aircraft, expressed in terms of position on an analogue clock face. Twelve o'clock is ahead while an aircraft observed abeam to the left would be said to be at 9 o'clock.

Table 1 provides a summary of the subsequent events based on pilot recollections, and Airservices Australia data between the time 1633 and 1634.

Table 1: Summary of events between 1633 and 1634

Time	VH-FTR	VH-VMM	Separation
1633:18	FTR was maintaining 1,500 ft.	The pilot broadcast his inbound call to Parafield Tower, maintaining 1,500 ft, and received instructions to join downwind for runway 03 Right (R). He was advised of traffic in his 1 o'clock position at the same level. The pilot responded 'copy traffic'. Parafield Tower also advised that the aircraft's transponder had not yet been changed to the appropriate code (Figure 3). The pilot reported initially tracking for the base leg of the runway 21 Left circuit, but soon after, changed heading to track downwind for runway 03R.	Lateral separation was 0.7 NM; vertical separation was 0 ft.
1633:31	As the instructor could not sight the traffic behind, he advised the student to descend to 1,400 ft.	VMM was maintaining 1,500 ft.	Lateral separation reduced to 0.5 NM (Figure 4); vertical separation was 100 ft.
1633:51	FTR was maintaining 1,400 ft.	VMM was observed descending through 1,400 ft.	Lateral separation reduced to 0.2 NM; vertical separation was 0 ft.
1633:56	The instructor advised Parafield Tower that FTR was the traffic passed on to VMM [1633:18].	VMM was observed maintaining 1,300 ft.	Lateral separation reduced to 0.1 NM; vertical separation was 100 ft.
1634:04	Parafield Tower provided FTR with circuit joining instructions. FTR was maintaining 1,400 ft. The instructor and student observed VMM pass overhead.	VMM was observed climbing through 1,400 ft.	Vertical separation was less than 50 ft (Figure 5).
1634:18	The instructor advised Parafield Tower of the incident.		

Figure 2: Aircraft positions at 1629:00

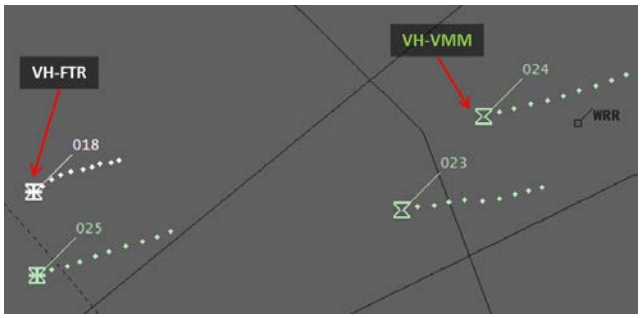


Figure 3: Aircraft positions at 1633:18

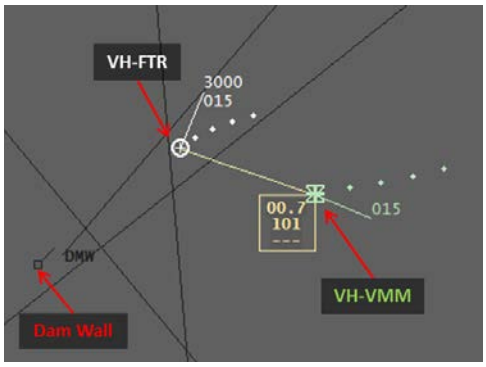


Figure 4: Aircraft positions at 1633:31

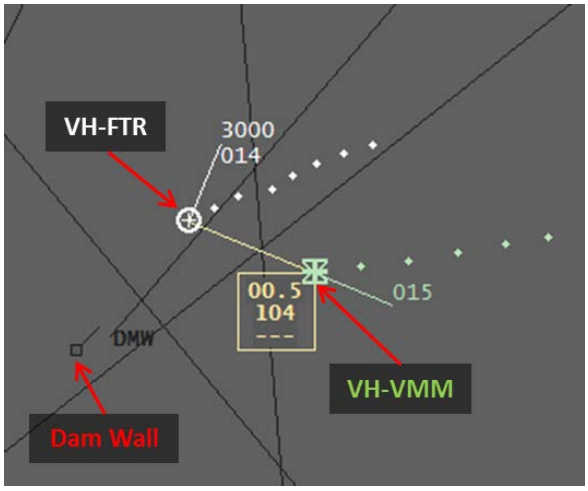
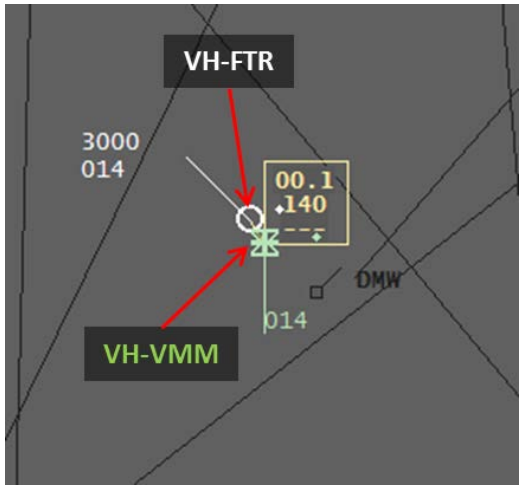


Figure 5: Aircraft positions at 1634:04



Source: Airservices Australia

Instructor comments (VH-FTR)

The instructor of FTR provided the following comments:

- **Approach points:** all aircraft inbound to Parafield from the north-east track via, and report at the Dam Wall, maintaining 1,500 ft. Consequently, all aircraft are directed to the same point at the same altitude.
- **Visibility:** when approaching the Dam Wall, it may be difficult to sight a helicopter as it may be obscured against the background of the suburbs and Parafield Airport below.
- **Radio frequency:** as pilots are required to change radio frequency near, or at the Dam Wall, aircraft operating in the vicinity may be on different frequencies, such as Adelaide Centre, the Parafield automatic terminal information service (ATIS) or Parafield Tower.
- **Speed disparity:** the typical cruising speed of a Cessna 172 type aircraft, such as VMM was nearly twice that of a helicopter such as FTR. Consequently, if a Cessna 172 was following a slower moving helicopter, and both were tracking for the same location at the same altitude, it is likely that the Cessna 172 may catch up with, or overtake the helicopter.
- **Blind spot:** the instructor commented that it is not only important to be aware of your operating environment, but to also be seen. Pilots need to take into account the respective blind spots of fixed-wing aircraft (below the nose) and helicopters (in the 6 o'clock position), particlarly when on the same track.

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.

Helicopter operator

As a result of this occurrence, the helicopter operator has advised the ATSB that they have taken the following safety action:

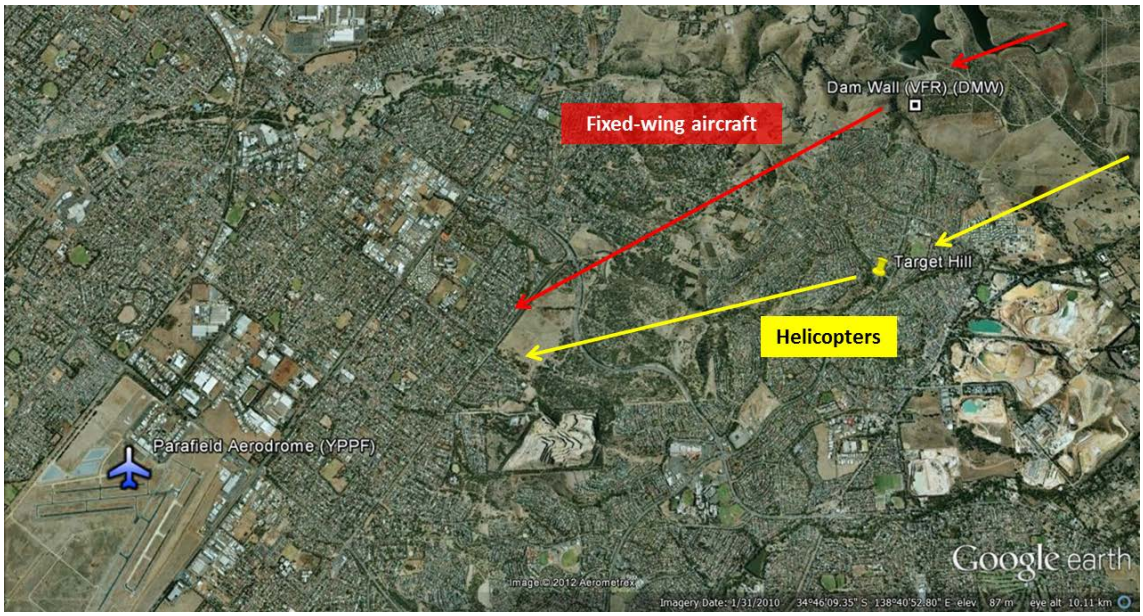
Proposed inbound track change

On 26 September 2012, the helicopter operator attended the South Australian Regional Airspace and Procedures Advisory Committee (RAPAC)[3] meeting and submitted a proposal to amend the Parafield Airport north-east inbound track for helicopters.

It was proposed that the inbound procedure for fixed-wing aircraft remain the same (Dam Wall), while helicopters track to a new VFR approach point, 'Target Hill' (Figure 4). This would provide for lateral separation between inbound fixed-wing aircraft and helicopters, and enhance pilot visibility[4]. Additionally, both would converge while operating on the same radio frequency within Class D airspace[5].

The Committee agreed in principle and forwarded the proposal to the Parafield Airport Users Group for consideration.

Figure 6: Proposed inbound track change



Source: Google earth/Helicopter operator

Safety message

VFR approach points, which are prominent landmarks, assist pilots with visual navigation and provide an orderly path for aircraft entering the circuit. When operating in and around high traffic

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[3] RAPACs are primarily state-based forums for discussion of all matters relating to airspace and related procedures in Australia, and specifically, in their areas of responsibility. Membership is open to all significant airspace users through their major industry associations/organisations or independently.

[4] Helicopter pilots are seated in the right seat, while fixed-wing pilots are positioned in the left seat.

[5] Class D: all aircraft must obtain an airways clearance and communicate with ATC. Instrument flight rules (IFR) aircraft are positively separated from other IFR aircraft and are provided with traffic information on all VFR aircraft. VFR aircraft are provided with traffic information on all other aircraft.

density areas such as VFR approach points, it is crucial that pilots maintain a heightened level of situation awareness.

The Civil Aviation Safety Authority (CASA) states that good SA begins with having focused attention. This focus is directed at a pilot's surroundings, and being aware of what does and does not belong. In flight, a pilot has to be several minutes ahead of the aircraft to perceive what's going on and anticipate how things will change. The following safety publications provide additional information on situation awareness and are available for purchase from CASA, at http://casa.cart.net.au/store/safety-publications/:

- 'Look out! Situational awareness' DVD and booklet'
- 'Safety Behaviours: Human Factors for Pilots'

General details

Occurrence details

Occurrence category:	Serious incident	
Primary occurrence type:	Aircraft proximity event	
Location:	9 km NE of Parafield Airport, South Australia	
	Latitude: 34°44.95' S	Longitude: 138°43.13' E

Schweizer 269C-1, VH-FTR

Registration:	VH-FTR	
Manufacturer and model:	Schweizer Aircraft Corp 269C-1	
Type of operation:	Flying training – dual	
Persons on board:	Crew – 2	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Cessna 172S, VH-VMM

Registration:	VH-VMM	
Manufacturer and model:	Cessna Aircraft Company 172S	
Type of operation:	Flying training – solo	
Persons on board:	Crew – 1	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The Bureau 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.