



Australian Government

Australian Transport Safety Bureau

Separation issue involving a Cessna 208, VH-LNH, and a Cessna 207, VH-WOX

near Kununurra, Western Australia, 15 May 2015

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Addendum

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Separation issue involving a Cessna 208, VH-LNH, and a Cessna 207, VH-WOX

What happened

On 15 May 2015, at about 0600 Western Standard Time (WST), a Cessna 207 aircraft, registered VH-WOX (WOX), departed Kununurra Airport, Western Australia, for a local scenic charter flight with a pilot and four passengers on board. A few minutes later, a Cessna 208B (Caravan) aircraft, registered VH-LNH (LNH), also departed Kununurra for a local scenic charter flight, operated by another company, with a pilot and 12 passengers on board. Three other Cessna Caravan aircraft from that company departed at around the same time, with LNH the third of the four Caravans in sequence.

The pilot of WOX reported maintaining visual and listening awareness of the other aircraft throughout the scenic flight. On returning to Kununurra, the company procedure for WOX was to overfly the airfield at 2,000 ft then descend about 5 NM to the north before returning and joining the circuit on base leg for runway 12. The company procedure for LNH was to approach the airfield from the south and join the circuit on the crosswind leg for runway 12. While conducting aerial work to the north of the field, the pilot of WOX heard the pilots of the first two of the Caravans broadcast inbound calls on the common traffic advisory frequency (CTAF).

At about 0812,¹ when about 5 NM from the airfield on an extended base leg, the pilot of WOX broadcast that they had completed airwork and were tracking to join on base for runway 12 (Figure 1). At the time, the first of the Caravans had landed and the pilot of the second Caravan, then ahead of WOX, had broadcast turning base. About 10 seconds later, LNH broadcast joining midfield crosswind. Eight seconds after the broadcast from LNH, the pilot of WOX reported being about 2 NM from the runway, on base leg. The pilot of WOX then broadcast that they had both the aircraft ahead on final approach, and LNH abeam WOX and turning downwind, in sight.

The pilot of LNH reported conducting an oval-shaped circuit pattern, flying a curved base leg with a constant left turn from the downwind leg to the final leg for runway 12. After commencing the turn, the pilot of LNH reported hearing the broadcast from WOX stating they had LNH in sight. The pilot of LNH did not sight WOX and assumed the pilot would sequence to join the circuit behind LNH.

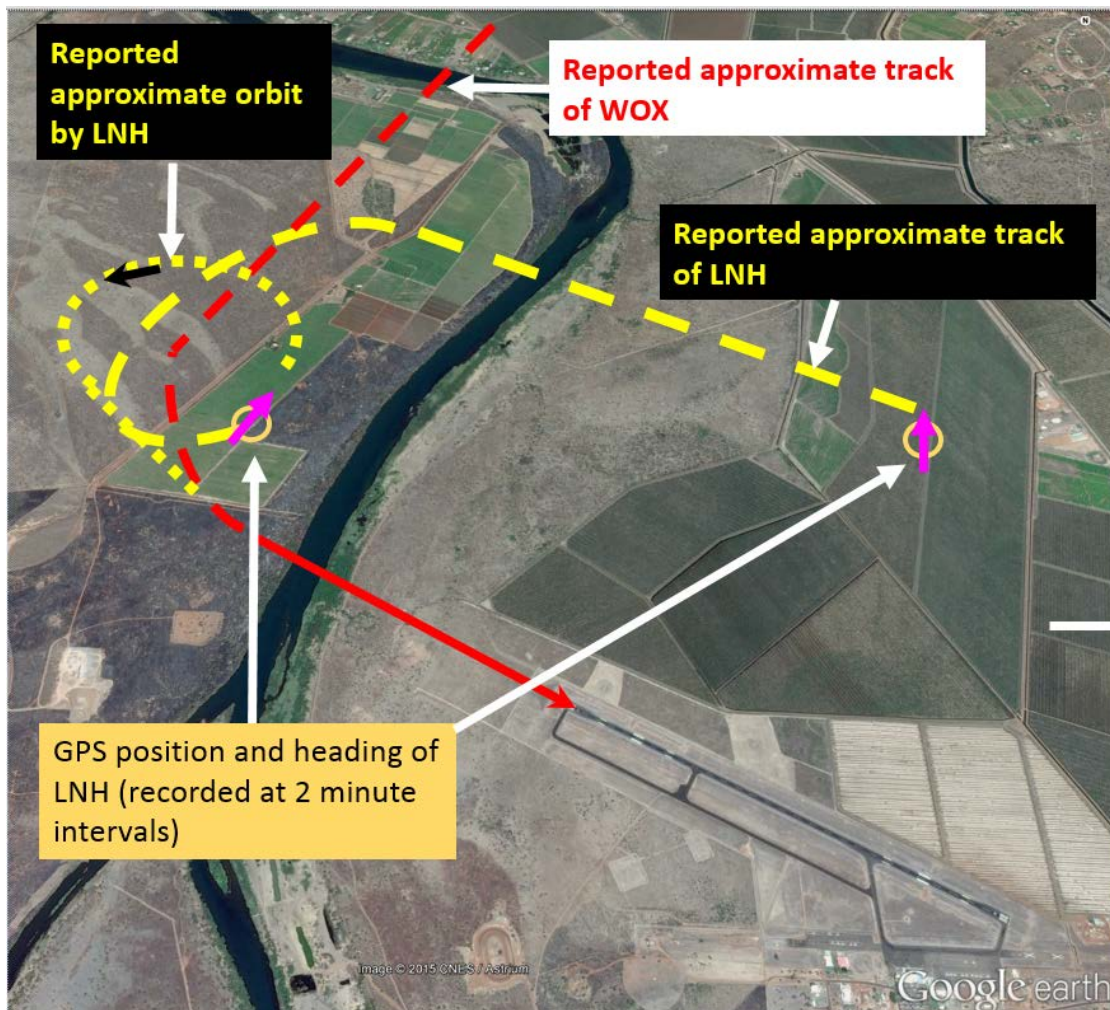
At about 0813, the pilot of WOX turned onto final for runway 12 and broadcast doing so. The Caravan ahead had landed and cleared the runway. LNH did not broadcast turning base and the pilot of WOX assumed that LNH was then still well behind WOX. When about three quarters of the way through the continuous left turn from downwind and approaching the final leg, the pilot of LNH configured the aircraft for landing and selected full flap. At that time, the pilot of LNH reported hearing WOX broadcast turning final. A few seconds later, the pilot of LNH sighted WOX ahead, to the right, slightly above, and in close proximity to LNH. The pilot of LNH then continued a steeper left turn to increase separation with WOX. As the aircraft turned to the north-east, the pilot of LNH sighted a company aircraft on downwind and at about 0815, broadcast conducting a left orbit. The pilot of LNH also asked the pilot of the following aircraft to conduct an orbit to increase separation between those two aircraft.

At that time, WOX was on late final approach to runway 12. The pilot of WOX assumed LNH had conducted the orbit to increase separation and ensure WOX would be clear of the runway. The

¹ The ATSB obtained copies of the recorded CTAF broadcasts. The timestamps of the CTAF recordings appeared to differ from the GPS 'Spidertracks' obtained from VH-LNH by about 3 minutes. All times are therefore approximate.

pilot of WOX was not aware of the separation issue subsequently reported by LNH. Both aircraft landed safely without further incident.

Figure 1: Kununurra aerodrome with the approximate aircraft tracks



Source: Google earth annotated by the ATSB

Pilot comments

Pilot of VH-WOX

The pilot of WOX provided the following comments:

- The aircraft that landed ahead of WOX had completed a normal square base leg and the pilot assumed that LNH would therefore do the same.
- The aircraft ahead of WOX was closer to WOX than LNH was, when the pilot joined base. The pilot assessed that there was sufficient distance for adequate separation from the aircraft ahead and from LNH, and therefore did not ask the pilot of LNH to confirm they had WOX in sight.

Pilot of VH-LNH

The pilot of LNH provided the following comments:

- The pilot had not sighted WOX when the pilot broadcast joining base, and assumed it would join behind LNH.
- As the wind was about 15 kt from the south-east, the downwind leg of the circuit was completed in relatively short time.

- The pilot of LNH had previously worked for the company that operated WOX. While flying for that company, the pilot joined an offset base leg to intercept the final leg at about 2.5 to 3 NM. The pilot believed that WOX would have conducted a similar joining procedure. From this procedure, the pilot assumed that WOX would therefore sequence behind LNH, which was already in the circuit.

Operator comments

The operator of LNH provided the following comments:

- Joining the circuit on base was not a standard procedure. Pilots of aircraft joining the circuit in a non-standard manner were required to give way to aircraft established in the circuit.
- There was never a formal nor an informal company procedure to conduct an oblong circuit. The use of a constant turn from downwind to final has subsequently been removed from pilot training and that change communicated to all company pilots.

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.

Operator of VH-LNH

The operator of LNH issued a safety notice to company pilots titled *Circuit Operations*. The notice included the following:

- Pilots were directed to fly a standard rectangular base leg to enable greater visibility of aircraft in the circuit area. The practice of conducting a curved approach was to cease immediately.
- Pilots were reminded to complete all cockpit checks early when joining the circuit. This was to maximise the time available for pilots to scan outside the aircraft and to avoid distractions.
- Pilots were reminded to make position reports in a timely manner and acknowledge radio calls where required. A double-click of the radio transmitter was not deemed to be an acceptable means of a read-back.

Operator of VH-WOX

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

- Company aircraft are to track for a 3 NM final when there is other traffic in the circuit.
- Company pilots are to confirm with other aircraft that they have visual confirmation of the location of their aircraft. If they do not, then the pilot is to ensure they maintain separation.

Safety message

The ATSB SafetyWatch highlights the broad safety concerns that come out of our investigation findings and from the occurrence data reported to us by industry. One of the safety concerns is safety around non-towered aerodromes www.atsb.gov.au/safetywatch/safety-around-aeros.aspx.



As detailed in the booklet *A pilot's guide to staying safe in the vicinity of non-towered aerodromes*, available at [www.atsb.gov.au/publications/2008/ar-2008-044\(1\).aspx](http://www.atsb.gov.au/publications/2008/ar-2008-044(1).aspx), ATSB research found that, between 2003 and 2008, there were 709 airspace-related events at, or in the vicinity of non-towered aerodromes. This included 60 serious incidents and six accidents (mid-air and ground collisions). Most of the 60 serious incidents were near mid-air collisions.

Issues associated with unalerted see-and-avoid have been detailed in the ATSB research report *Limitations of the See-and-Avoid Principle*. The report highlights that unalerted see-and-avoid

relies entirely on the pilot's ability to sight other aircraft. Broadcasting on the CTAF is known as radio-alerted see-and-avoid, and assists by supporting a pilot's visual lookout for traffic. An alerted search is more likely to be successful as knowing where to look greatly increases the chances of sighting traffic. The report is available at www.atsb.gov.au/publications/2009/see-and-avoid.aspx.

This incident highlights the importance of broadcasting an aircraft's position and of other pilots in the vicinity then ensuring they have the aircraft sighted following the broadcast.

General details

Occurrence details

Date and time:	15 May 2015 – 0815 WST	
Occurrence category:	Incident	
Primary occurrence type:	Separation issue	
Location:	near Kununurra Aerodrome, Western Australia	
	Latitude: 15° 46.68' S	Longitude: 128° 42.45' E

Aircraft details: VH-LNH

Manufacturer and model:	Cessna Aircraft Company, 208B	
Registration:	VH-LNH	
Serial number:	208B0590	
Type of operation:	Charter - passenger	
Persons on board:	Crew – 1	Passengers – 12
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Aircraft details: VH-WOX

Manufacturer and model:	Cessna Aircraft Company, 207	
Registration:	VH-WOX	
Serial number:	20700130	
Type of operation:	Charter - passenger	
Persons on board:	Crew – 1	Passengers – 4
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

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.