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ATSB TRANSPORT SAFETY REPORT
Aviation Occurrence Investigation AO-2007-006
Final

Airprox event, Port Macquarie Aerodrome, NSW
17 May 2007

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Abstract

On 17 May 2007, a de Havilland Dash 8, registered VH-TQP, and a Beechcraft Baron D55, registered VH-ILS, were operating in the vicinity of the Port Macquarie CTAF(R)[1] Aerodrome. At the same time, the pilot of an Aeroprakt A22 Foxbat, registered 24-4422, was taxiing to conduct circuits from runway 21. The Foxbat was operating under the visual flight rules (VFR).

The pilot of the Baron initiated a go-round from short final approach to runway 03 as the Foxbat took off from runway 21. The crew of the Dash-8 subsequently conducted a go-round from final as the pilot of the Foxbat also turned onto final for runway 21 in front of the Dash-8.

A short time later, the pilot of the Foxbat landed without further incident. A club instructor inspected the Foxbat's radio after engine shutdown and found that the radio volume was at a low setting.

FACTUAL INFORMATION

On 17 May 2007, a de Havilland Dash-8, registered VH-TQP, was approaching Port Macquarie Aerodrome, NSW, in class G airspace from the south under the instrument flight rules (IFR). A Beechcraft Baron D55, registered VH-ILS, was also approaching the aerodrome under the IFR from the south-west, to conduct an area navigation global navigation satellite system (RNAV (GNSS)) non-precision approach to runway 03. At the same time, the pilot of an Aeroprakt A22 Foxbat, registered 24-4422, was taxiing towards the runway with the intent of taking off from runway 21 to conduct circuits. The Foxbat was being operated under the visual flight rules (VFR). The pilot of a Cessna C152, registered VH-VHF, was also taxiing towards runway 03, with the intent of conducting a navigational flight. A number of other aircraft were flying in the vicinity, but were not relevant to the occurrence. The airspace surrounding Port Macquarie aerodrome was designated as a CTAF(R).

The Australian Transport Safety Bureau (ATSB) examined recordings of the transmissions made on the Port Macquarie CTAF. That examination revealed that the pilot of the C152 commenced a departure broadcast, but was over-transmitted 2 seconds later by another broadcast from the pilot of the Foxbat, making both broadcasts almost incomprehensible. The pilot of the C152 stopped transmitting first and, when both transmissions had finished, the crew of the Dash-8 broadcast advice of the over-transmission and asked for a repeat by both pilots. Only the pilot of the C152 repeated the departure broadcast. The Dash-8 was overflying the aerodrome to join the circuit for runway 03 as the Foxbat was lining up on runway 21 and the Baron was on final approach for runway 03. The crew of the Dash-8 had observed the Foxbat and advised the pilot of the Baron of the Foxbat's position as the Foxbat commenced a take-off roll on runway 21. The pilot of the Baron initiated a go-around from short final approach for runway 03 as the Foxbat took off from runway 21. The crew of the Dash-8 modified their approach to join the circuit for runway 21 and subsequently conducted a go-around from final as the pilot of the Foxbat also turned onto final for runway 21 in front of the Dash-8.

The go-around by the Dash 8 was the first time that the pilot of the Foxbat became aware of other aircraft in the circuit. He conducted a touch and go landing on runway 21, broadcast his intention and then flew a few miles to the north of the aerodrome to fault-find his radio system away

1 Common Traffic Advisory Frequency, where the carriage and use of a very high frequency (VHF) radio was required for operations in the vicinity of the aerodrome.

from any circuit traffic. The pilot of the Foxbat did not find a fault with his radio system, broadcast his intention to return to the aerodrome to join the circuit for runway 21 and landed without further incident.

A club instructor inspected the Foxbat's radio after engine shutdown and found that the radio volume was at a low setting. In addition, the pilot of the Foxbat advised the ATSB that he subsequently believed that there was an intermittent fault with the Foxbat's radio.

Port Macquarie aerodrome was equipped with an aerodrome frequency response unit (AFRU) that automatically transmitted a voice identification of the aerodrome's name in response to any transmission greater than 2 seconds duration if there had been no transmissions within the preceding 5 minutes. That response was intended to confirm to a pilot that the aircraft's radio was transmitting on the correct frequency. Furthermore, the AFRU transmitted a 'beep' following a pilot's transmission if any other transmission of more than 2 seconds duration had been made on the CTAF within the previous 5 minutes. The pilot of the Foxbat stated that he knew about the characteristics of the AFRU and had noticed a helicopter in the vicinity shortly before his first broadcast, and was therefore not expecting to hear a voice identification from the AFRU after his first broadcast, on the assumption that the helicopter would have also made a broadcast within the preceding 5 minutes. However, the lack of a 'beep' in response to his broadcasts did not alert him to the fact that he was not hearing broadcasts from the pilots of other aircraft

On 11 June 2008, an Embraer ERJ 170 was conducting an instrument approach for runway 03 at Port Macquarie, when a solo student pilot in Foxbat 24-4422 broadcast that he was on base to land on runway 21. The crew of the Embraer could not establish contact with the Foxbat, and subsequently discontinued their instrument approach to make a visual circuit to land on runway 21. The start of the Foxbat pilot's flight had been with an instructor, and he had successfully established communications with other traffic in the CTAF. However, he had not heard any broadcast from other aircraft once the instructor departed the aircraft to allow the pilot to conduct solo flight, and he was not aware of the Embraer crew's actions until he was advised after the flight.

The issue of pilots not being fully aware of the significance of hearing (or not hearing) the transmissions of an ARFU at non-towered airports has been identified in previous ATSB investigations (e.g. see ATSB investigation 200700231 available at www.atsb.gov.au).

ANALYSIS

Separation between aircraft in the vicinity of Port Macquarie Aerodrome in visual meteorological conditions (VMC) was based on pilots visually acquiring and avoiding other aircraft. A diverse range of aviation activities occurred at Port Macquarie Aerodrome, with aircraft of different size and speed conducting a range of different operations. Visual acquisition was enhanced by the mandatory use of radio by pilots of all aircraft in the vicinity to make specified broadcasts, creating an alerted see-and-avoid environment.

The Foxbat pilot had been expecting to be alerted by radio to all traffic in his vicinity to help him gain visual acquisition. However, the lack of a 'beep' from the aerodrome frequency response unit (ARFU) in response to his broadcasts did not alert the pilot to his lack of radio reception either during the occurrence or during his subsequent efforts to fault-find.

The pilots of every aircraft except the Foxbat were using alerted visual separation. Despite the partial loss of communication by the pilot of the Foxbat, other pilots in the vicinity were aware of his aircraft and took necessary actions to maintain separation.

FINDINGS

From the evidence available, the following findings are made with respect to the airprox[2] event between the Foxbat, the Baron and the Dash-8 at Port Macquarie Aerodrome on 17 May 2007 and should not be read as apportioning

2 Airprox – an occurrence in which two or more aircraft come into such proximity that a threat to the safety of the aircraft exists or may exist, in airspace where the aircraft are not subject to an air traffic separation standard or where separation is a pilot responsibility.

blame or liability to any particular organisation or individual.

Contributing safety factors

- The pilot of the Foxbat did not hear broadcasts from the pilots of other aircraft operating in the Port Macquarie area.
- The pilot of the Foxbat had an awareness of aerodrome frequency response unit (AFRU) operation but had not fully considered the implications of a lack of response from the AFRU.

Other safety factors

Some pilots operating into non-towered aerodromes do not fully understand the significance of hearing (or not hearing) the various ARFU transmissions *[Safety issue]*.

SAFETY ACTION

The safety issues identified during this investigation are listed in the Findings and Safety Action sections of this report. The Australian Transport Safety Bureau (ATSB) expects that all safety issues identified by the investigation should be addressed by the relevant organisation(s). In addressing those issues, the ATSB prefers to encourage relevant organisation(s) to proactively initiate safety action, rather than to issue formal safety recommendations or safety advisory notices.

All of the responsible organisations for the safety issues identified during this investigation were given a draft report and invited to provide submissions. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

Safety issue

Some pilots operating at non-towered aerodromes do not fully understand the significance of hearing (or not hearing) the various ARFU transmissions.

Action taken by Recreational Aviation Australia

The National Operations Manager of Recreational Aviation Australia wrote an article, which was published in the March 2008 issue of the Recreational Aviation Australia Magazine on the use of an AFRU 'beep-back' to identify radio communications failure and efficient fault-finding. The matter was also discussed at the flight instructor forum at the Easter 2008 National gathering at Narromine, NSW. There was agreement on the benefits from a heightened awareness of the use of an AFRU as a tool for testing a radio communication system, which would be generally reinforced.

Recreational Aviation Australia updated its Operations manual in July 2007, which is being promulgated to all members in August 2008. This update includes a detailed syllabus for a radio operator certificate. The holder of a pilot certificate must demonstrate a thorough practical application of the radio failure procedures from the En Route Supplement Australia (ERSA) document in order to obtain a radio operator certificate.

Australian Transport Safety Bureau

The safety issue does not only relate to members of Recreational Aviation Australia and as such the ATSB issues to following safety advisory notice to the broader aviation industry.

ATSB Safety Advisory Notice AO-2007-006-SAN-037

The Australian Transport Safety Bureau advises that pilots operating into non-towered aerodromes should consider the safety implications of this safety issue and take action where considered appropriate.