

AIRPROX REPORT No 2014159

Date/Time: 31 Aug 2014 1630Z (Sunday)

Position: 5627N 00259W
(Dundee)

Airspace: Dundee ATZ (Class: G)

Aircraft 1 Aircraft 2

Type: PA28 C152

Operator: Civ Trg Civ Trg

Alt/FL: 750ft 800ft
QNH (NK hPa) QNH (NK hPa)

Conditions: VMC VMC

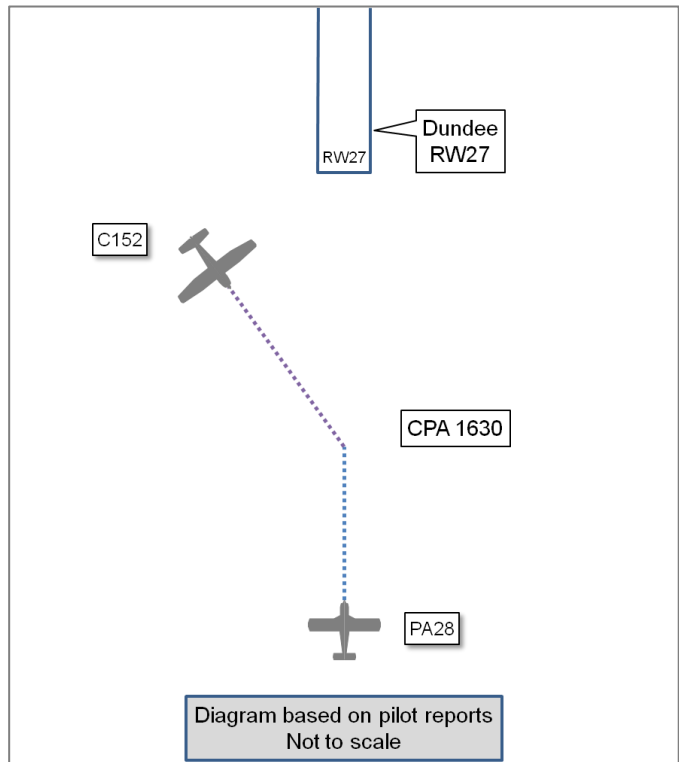
Visibility: 10km 10km

Reported Separation:

100ft V/0m H Not seen

Recorded Separation:

NK

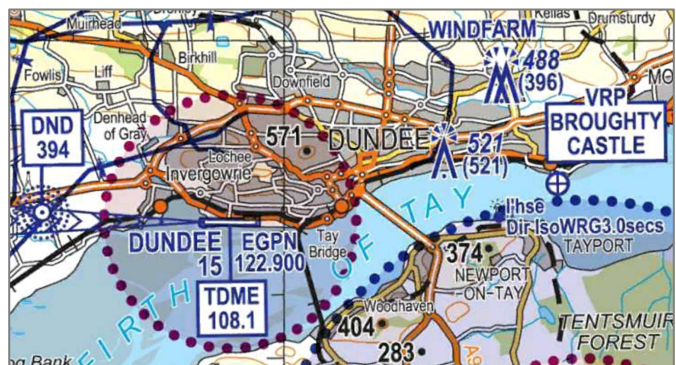


PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE PA28 PILOT reports conducting training flight with a student. The white and blue aircraft had strobe, navigation and landing lights selected on, as was the SSR transponder with Modes A and C. The aircraft was not fitted with a TAS. The pilot was operating under VFR in VMC and reported in receipt of a Basic Service from Dundee Tower¹ as he recovered to the airfield. 'Air Traffic' informed him of two aircraft departing to the east via Broughty Castle VRP. He maintained 1500ft until the road bridge where he had first sight of the departing traffic. Air Traffic cleared him to land and he began the final descent to land, heading 270° at 80kt. He had descended to approximately 750ft when they both saw a Cessna in front of them, to the left and slightly lower, approaching from the opposite direction, passing from left to right across the final approach to RW27. The PA28 pilot immediately increased power to stop the descent but, because he didn't see the approaching aircraft until the last minute, it was almost below them before he could initiate a climb. He immediately informed Air Traffic.

He assessed the risk of collision as 'High'.

THE C152 PILOT reports conducting a navigation exercise to Dundee and return to his operating airfield. The white and yellow aircraft had beacon, navigation and landing lights selected on, as was the SSR transponder with Modes A and C. The aircraft was not fitted with a TAS. The pilot was operating under VFR in VMC and reported in receipt of a Basic Service from Dundee Tower¹. After completing a touch-and-go he climbed away and, at 500ft, made a climbing crosswind turn to the left. During this process he was instructed to stay below 1000ft, which he acknowledged and complied with, flying at 800ft. Turning [left] downwind over the river, placing the runway to his left at the 9 o'clock position, he was instructed to fly towards Broughty Castle VRP and report at the road bridge. En-route to the road bridge, he was informed of 2 aircraft inbound via Broughty Castle VRP. He acknowledged this and confirmed that he had one in sight, in the 2 o'clock position, several miles away on the opposite side of the river, and would keep an eye out for the other. This was the only call



¹ Actually in receipt of an Aerodrome Control Service.

he had with ATC with reference to other traffic that he could recall. After reporting at the road bridge, which he believed he crossed at about the mid-point, he continued to head to Broughty Castle VRP. He did not see any other traffic in close proximity.

He assessed the risk of collision as 'None'.

THE DUNDEE CONTROLLER reports the C152 pilot did not following the standard circuit pattern for a downwind departure. This led to him passing 50ft underneath an inbound PA28 that was 1500m from the threshold of RWY27. The C152 pilot had been given and acknowledged Traffic Information on this PA28 and another, following, PA28.

Factual Background

The weather at Dundee was recorded as follows:

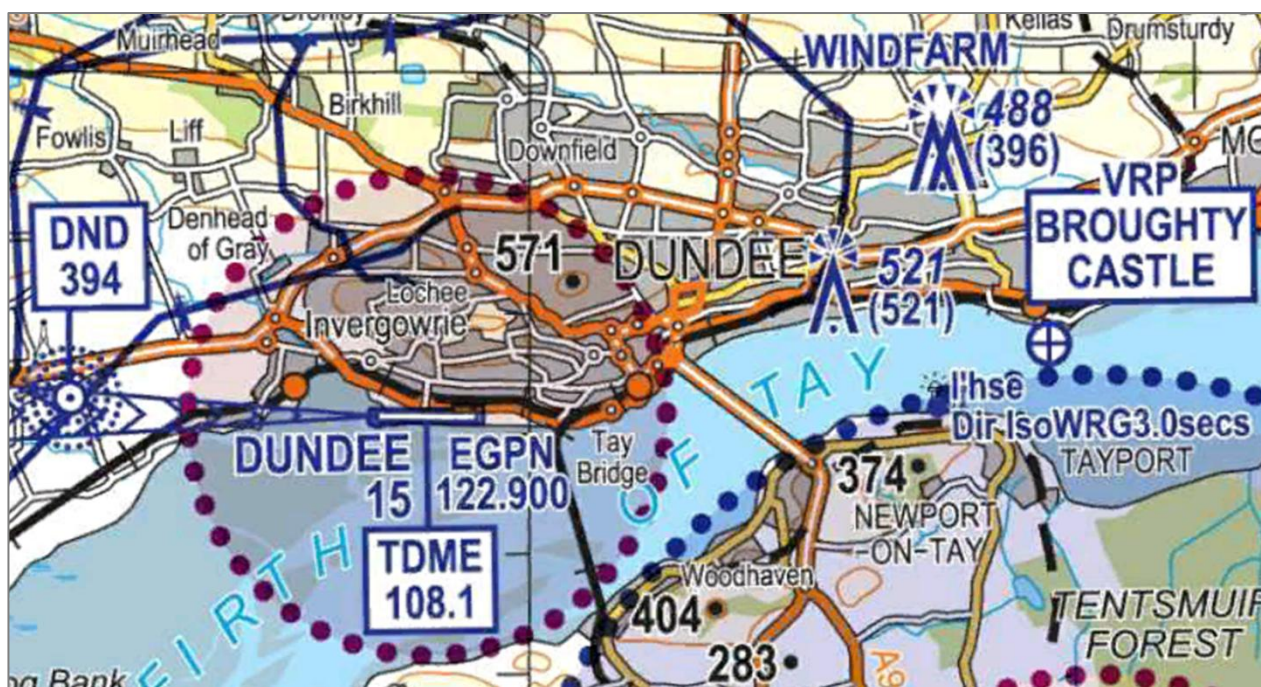
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EGPN 311620Z 23007KT 9999 FEW048 20/13 Q1013=
EGPN 311650Z 22009KT 9999 FEW048 19/13 Q1013=
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Dundee aerodrome has an ATZ defined in the UK AIP as a circle, 2nm radius, centred on RW09/27 from surface to 2000ft aal. Because of operational difficulties caused by the position of the ATC facility, flight in the ATZ to the north of RW09/27, and the extended centre-line, is not normally permitted. The departure procedures are stated in the UK AIP AD2.EGPN-8 as follows:

'2 Departures

- (a) To reduce conflict with traffic operating within the Leuchars MATZ, ATC may instruct VFR aircraft departing to the east to remain at not above 1000 ft amsl until passing Broughty Castle northbound. (See paragraph 5).
- (b) Aircraft departing to the North are required to either climb straight ahead to 2000 ft before setting course or are to turn south off runway heading and set course overhead not below 2000 ft.'

A local area section of the 1:250000 scale Topographical Air Chart is reproduced below:



Analysis and Investigation

CAA ATSI

ATSI had access to reports from both pilots and the Dundee Tower/Approach controller together with area radar recordings and RTF and transcript of the Dundee Tower/Approach frequency. The ATSU also provided further information on the occurrence. Radar recordings did not display the Airprox. The PA28 pilot was operating under VFR on a local flight from Dundee and was in receipt of an Aerodrome Control Service from Dundee Tower. The C152 pilot was operating under VFR on a flight to Dundee and return and was in receipt of an Aerodrome Control Service from Dundee Tower.

At 1620:05, the C152 pilot contacted Dundee, four miles from Broughty Castle VRP. He was instructed to report at Broughty Castle VRP for a straight in approach to RW27. At 1622:23, the PA28 pilot then contacted Dundee, one mile north of Carnoustie, requesting rejoin. He was instructed to report at Broughty Castle VRP also for a straight in approach to RW27. Both the PA28 and the C152 pilots were passed Traffic Information on the other.

When the C152 pilot reported at Broughty Castle he was instructed to report at the road bridge. He was subsequently asked by Dundee to confirm that, after the planned touch-and-go, his intention was to depart downwind "*back towards the castle*", which he confirmed. At 1627:17, the C152 pilot reported being above the rail bridge for a touch-and-go and was given touch-and-go clearance.

At 1627:55, the Dundee controller passed traffic information to the PA28 pilot on the departing C152. The PA28 pilot acknowledged the information and reported at Broughty Castle. He was instructed to report at the road-bridge (approximately 2nm final for RW27) which was read back. The PA28 pilot stated that he would remain at 1500ft until visual with the outbound traffic. The Dundee controller then confirmed with him that there were two aircraft that were relevant traffic; a departure (not involved in the Airprox), on which Dundee had previously passed Traffic Information, and the C152. The Traffic Information was acknowledged by the PA28 pilot.

At 1629:10, the C152 pilot was instructed to remain not above altitude 1000ft until Broughty Castle and to report at Broughty Castle. This was read back correctly.

At 1630:00, the PA28 pilot reported at the road bridge descending to circuit height and was given clearance to land by Dundee. The C152 pilot was passed traffic information that the PA28 was at the road bridge, and also on other inbound traffic. The C152 pilot replied "*traffic sighted er and I will keep an eye out for other one [C152 C/S]*"

From 1630:40, there were a number of crossed and indistinct transmissions including a call from the PA28 pilot stating "*final*". The Dundee controller confirmed with the PA28 pilot that he was cleared to land. The PA28 pilot read the instruction back and then stated "*Cessna passed about fifty feet below us on the final approach*". The Dundee controller acknowledged the information and asked him to confirm that the traffic was opposite direction. The pilot confirmed that was the case. The PA28 pilot landed safely and the Dundee controller passed Traffic Information on the C152 to the next inbound aircraft.

The report from the unit stated that the Dundee ATCO was involved in other operational tasks, did not notice that the C152 had departed from the standard circuit pattern and that the first indication that the C152 was out of position was the call from the PA28 pilot stating that the C152 had just passed 50ft below. The Dundee ATCO did not mention the incident to the pilot of the C152 so as not to cause concern to him during the subsequent flight.

The Dundee controller passed timely and appropriate Traffic Information to both the C152 and the PA28 pilots prior to the Airprox and was not aware that the C152 pilot had not followed the standard circuit pattern on departure and had positioned into conflict with the PA28. When the

C152 pilot reported one of the two aircraft in sight it was not clear which aircraft the pilot was referring to but it is possible that the Dundee controller believed that the C152 pilot was referring to the Airprox PA28 as it was the closer of the two aircraft.

UKAB Secretariat

The PA28 and C152 pilots shared an equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision². The C152 pilot was required to conform to the pattern of traffic intending to land at Dundee or to remain clear of the airspace in which the pattern was formed³. If the incident geometry is considered as head-on then both pilots were required to turn to the right⁴, notwithstanding their responsibility not to collide or create a danger of collision.

Summary

An Airprox was reported when a PA28 and a C152 flew into proximity at about 1630 on Sunday 31st August 2014. Both pilots were operating under VFR in VMC, both in receipt of an Aerodrome Control Service from Dundee Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, radar photographs/video recordings, a report from the air traffic controller involved and a report from the appropriate ATC authority.

The Board quickly agreed that a number of factors had combined to result in what appeared to be a very near miss. Considering the pilots' actions first, the C152 pilot had conducted a straight-in approach to RW27, performed a touch-and-go, and then departed left hand downwind. The Board noted that he had simply been instructed to depart downwind and report at Broughty Castle VRP, remaining below 1000ft; there had been no specific instructions on where to route, but he was passed Traffic Information on the two PA28 aircraft inbound, one at the road bridge (the Airprox PA28) and the other inbound to Broughty Castle VRP, further to the east. For his part, the C152 pilot replied that he had 'traffic sighted' and that he would 'keep an eye out for the other one'. The Board opined that, from the C152 pilot's report, it was apparent that he was most likely in visual contact with the second PA28 (approaching Broughty Castle VRP) but not the closer Airprox PA28 (approaching the road bridge). Because this was not explicitly stated on the RT, members agreed that the Dundee controller probably assumed the departing C152 pilot was visual with the closer PA28 and therefore that no further Traffic Information was required. In fact, it transpired that the C152 pilot had not seen the closer, Airprox, PA28. Turning to the actions of the Airprox PA28 pilot, the Board noted that he had been cleared for a straight-in approach to RW27 and was passed Traffic Information on an outbound PA28 and the outbound C152. With this in mind, he had elected to maintain '1500ft until visual with the outbound traffic' and transmitted his intentions as such. About 2min later, despite not having the C152 in sight, he transmitted that he was at 'the road bridge descending to circuit height' and one minute later transmitted that he had passed close to a Cessna whilst on final approach. Noting that he would have needed to descend soon if he was to complete a successful straight-in approach from the road bridge, the Board nevertheless thought that he may have been better served by abandoning his approach and maintaining height rather than commence a descent towards known traffic that he did not have sight of.

It was apparent to the Board that the geometry of the arriving and departing traffic paths were such that they had allowed the pilots to pass close to one another. Study of the local area map showed that a direct track from the start of RW27 downwind to Broughty castle VRP would cross the approach path at approximately the middle of the road bridge at a range of 2.27nm from the RW27 threshold (see below).

² Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions).

³ *ibid.*, Rule 12 (Flight in the vicinity of an aerodrome).

⁴ *ibid.*, Rule 10 (Approaching head-on).

A 3° visual glide slope would place approaching traffic at an altitude of about 700ft at that same position. Departing traffic turning towards the Broughty Castle VRP later in the downwind leg, or on a wider or tighter circuit pattern, would only marginally change the geometry and hence present a similar confliction risk. The Board felt that a more specific departure instruction such as “route to Broughty Castle VRP via the south end of the road bridge” might have assisted, or perhaps even an instruction for the C152 pilot to depart to the west and then north in order to avoid routing against the incoming traffic flow at all. The Board agreed therefore to recommend that Dundee review their departure and arrival procedures and phraseology to ensure traffic deconfliction.



The PA28 pilot stated that he had maintained 1500ft until the road bridge, which would have placed him at about 800ft above the glide slope and 700ft clear of the C152 at that point. In the absence of a radar recording it was not possible for members to state the actual course of events but it was agreed most likely that the C152 and PA28 pilots' flew into conflict somewhere to the west of the road bridge, probably near the ATZ boundary.

The Board were not able to establish a requirement to follow the standard circuit pattern for a downwind departure, although it was accepted that this would be a sensible track to take. However, members agreed, as previously explained, that the easterly VFR departure procedure had a risk of confliction built into it as a result of the geometry imposed by departing traffic having to cross the runway centreline to track toward the Broughty Castle VRP and inbound traffic being brought in from the same VRP. Whilst it was self-evident that the controller did not intend the aircraft to be flown into conflict, members agreed that the C152 pilot had followed the instructions given to him by ATC, which he was obliged to follow, and that this had resulted in a confliction, however inadvertent. The Board also agreed that the C152 pilot had a duty to ensure adequate separation from the approach path with 'straight-in' traffic inbound and that this was causal to the Airprox. Notwithstanding, the Board also commented that the PA28 pilot also had a responsibility to avoid collisions and would have been better served by not descending until he had had the C152 visual, or abandoning his approach altogether. Although the CPA was not apparent on radar recording, members agreed that the PA28 pilot's description of the incident was such that it was apparent that separation was reduced to the minimum and that chance had played a major role in the outcome.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	Dundee ATC gave instructions which resulted in the C152 pilot flying into conflict with the PA28.
<u>Contributory Factor:</u>	The C152 pilot did not ensure adequate separation from the approach path.
<u>Degree of Risk:</u>	A.
<u>ERC Score⁵:</u>	20.
<u>Recommendation:</u>	Dundee review their departure and arrival procedures and phraseology to ensure traffic deconfliction.

⁵ Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.