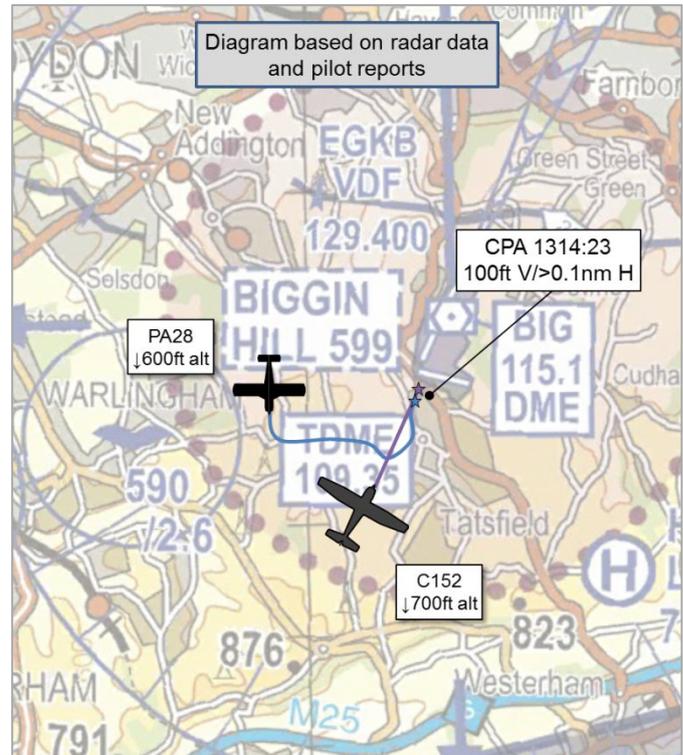


AIRPROX REPORT No 2017084

Date: 08 May 2017 Time: 1314Z Position: 5119N 00001E Location: Biggin Hill

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	C152
Operator	Civ Club	Civ Trg
Airspace	Biggin ATZ	Biggin ATZ
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Aerodrome
Provider	Biggin	Biggin
Altitude/FL	600ft	700ft
Transponder	A, C	A, C
Reported		
Colours	Red, White	
Lighting	Strobe	
Conditions	VMC	VMC
Visibility	10km	
Altitude/FL	700ft	500ft
Altimeter	QNH (1005hPa)	NR
Heading	030°	030°
Speed	80kt	70kts
ACAS/TAS	Not fitted	Unknown
Alert	N/A	Unknown
Separation		
Reported	50ft V/50m H	NK
Recorded	100ft V/<0.1nm H	



THE PA28 PILOT reports that he joined the circuit at Biggin Hill and was instructed to report downwind RW03, other radio traffic had delayed their downwind call so he reported it slightly late and called ‘downwind ready for base’; he was told that he was number 2. He looked for, and saw, the aircraft ahead on long final, and so he turned base. He realised he was catching up the aircraft ahead, so attempted to slow down and lost some height; he was aware that he wouldn’t get his approach in, which seemed to be what ATC were expecting, but he thought that he would see the one ahead land, and then go-around over the top of it. However, he found himself in a situation where the other aircraft was now in his 2 o’clock, higher and slower than him and he became uncertain of what he should do to resolve the situation. He thought the other pilot was aware of him, and the two aircraft did not seem to be converging, and eventually he went around. He asked the controller whether that had been an Airprox situation and they told him to discuss it with the other pilot on the ground. Once he had landed, he discussed the incident with various people, and the next day spoke to the other pilot, who was upset and angry. He was aware that this was a nasty incident which jeopardised the safety of both aircraft, and he was shaken by it. He realised he should have done something about the situation much earlier, such as orbiting downwind, or base leg or even leaving the circuit entirely, but once he had got into the situation where he was so close to the other aircraft at the time he didn’t know what to do. He opined that Biggin Hill had brought in new VFR procedures requiring aircraft to cross the runway at the mid-point during the join rather than at either end of the runway, which together with the tail-wind component meant that he had less time downwind to perform the pre-landing checks, resulting in a higher cockpit workload. These procedures also meant that aircraft going around are to fly down the runway not above 500ft, to deconflict with the joining traffic turning at 1000ft and that this was playing on his mind at the time. He now realised that he should have returned to 500ft and gone around as soon as he knew that he wouldn’t get the approach in.

He assessed the risk of collision as ‘High’.

THE C152 PILOT reports that he was the instructor and pilot, carrying out circuit training on RW03. They were advised to orbit at the end of the downwind leg to achieve spacing from an aircraft on the runway cleared for departure. He was aware of a PA28 that had joined the circuit and was told to orbit downwind. Once the runway was clear, the controller instructed them to roll out on a left base for a touch and go. They carried out a normal base leg and turned onto final with the airspeed initially at 70kts, tailing back to 65kts in the final stages of the approach. ATC issued a clearance for the touch and go. During this time he heard the PA28 pilot call downwind and the controller instructed him to report final. At some time during their approach he heard the controller ask the PA28 if he was visual with the C152, after a pause he called to say he was. He and his student were focusing on the touch and go, and the first time they saw the PA28 was when, at 400 to 500ft, he appeared very close on the left hand side (estimated 2-3 wing spans) descending underneath, going very fast relative to their speed, and turning right. The PA28 then rolled out deadside and carried out a normal circuit and landing.

THE BIGGIN HILL CONTROLLER reports that the C152 and the PA28 were orbiting in the downwind position. The C152 was instructed to roll out onto base for touch and go and the PA28 was instructed to report downwind. The PA28 pilot had previously been told about the C152 orbiting at the end of the downwind leg; he reported downwind and was instructed to report final, Number 2 following the C152. He acknowledged and later reported visual with the C152 while about to pass behind it at close range. The C152 was final at this point and continued the approach as normal, but the PA28 appeared to cross through the final approach track and turn back onto final from the eastern side; he then disappeared from view (and from the ATM), into the Biggin Valley. A few seconds later he called going around and was seen rapidly climbing at the western (left) side of the runway. Traffic Information was passed to the C152 pilot at the same time as the PA28 passed by.

Factual Background

The weather at Biggin Hill was recorded as follows:

EGKB 081320Z 36012KT 330V030 9999 BKN021 10/05 Q1027=

Analysis and Investigation

CAA ATSI

The PA28 was returning to Biggin Hill from the south-east on completion of a local flight. The C152 had booked out to fly VFR circuits.

At 1305:45 the PA28 pilot called for re-join instructions and was instructed by the Biggin Hill Tower/Approach controller to report 3 miles to run on the deadside, for a left-hand circuit to RW03 which was readback correctly by the pilot. At 1306:20 the C152 was cleared for take-off for left-hand circuits RW03. The PA28 pilot reported at 3 miles at 1309:05, and was instructed to join and report downwind left-hand for RW03, which again was readback correctly by the pilot.

At 1310:56 the C152 reported late downwind and was instructed to report on final approach, advising that they were No 2 to a "Seneca" (PA34) on short finals (Figure 1).

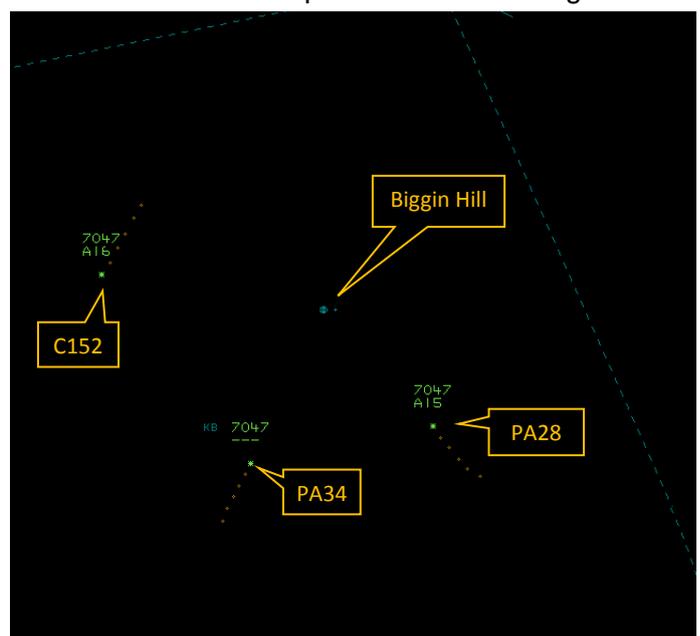


Figure 1 – 1310:56

At 1313:10 the PA28 pilot reported “*just turning downwind/, turning on base*”. The controller instructed the pilot to report final, advising that they were “*number two following a one five two on final*”. The PA28 pilot acknowledged their number in the sequence but not the aircraft that they were to follow. On the radar replay, the PA28 was observed already in the left-hand turn onto base leg when they made this call (Figure 2).

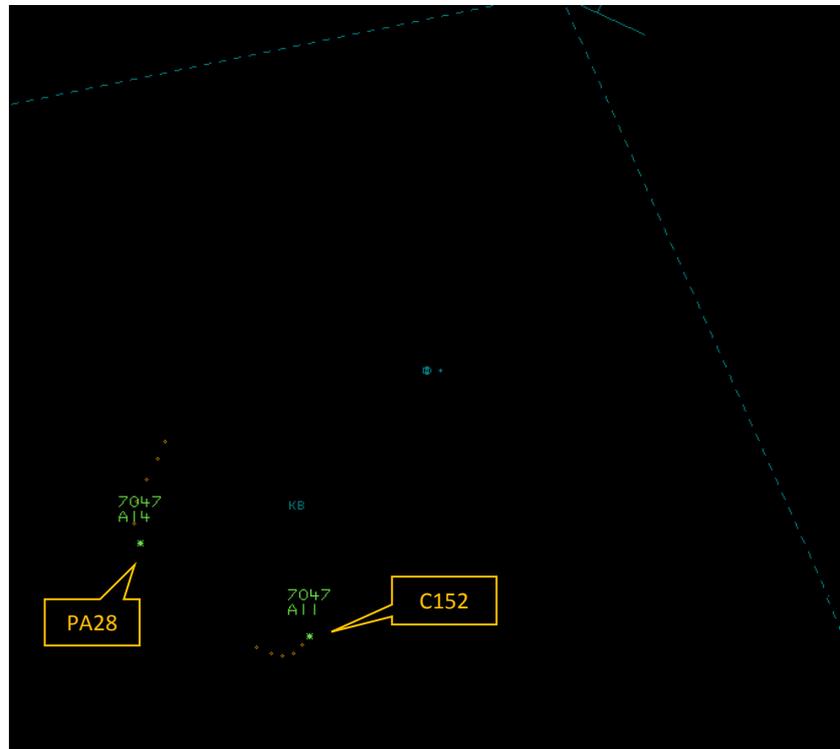


Figure 2 – 1313:10

At 1313:20 the C152 reported on final approach and was cleared for a touch and go. ATSI noted that at this time, according to the radar replay, the ground speed for the C152 was 42kts, and the PA28, 107kts (Figure 3).

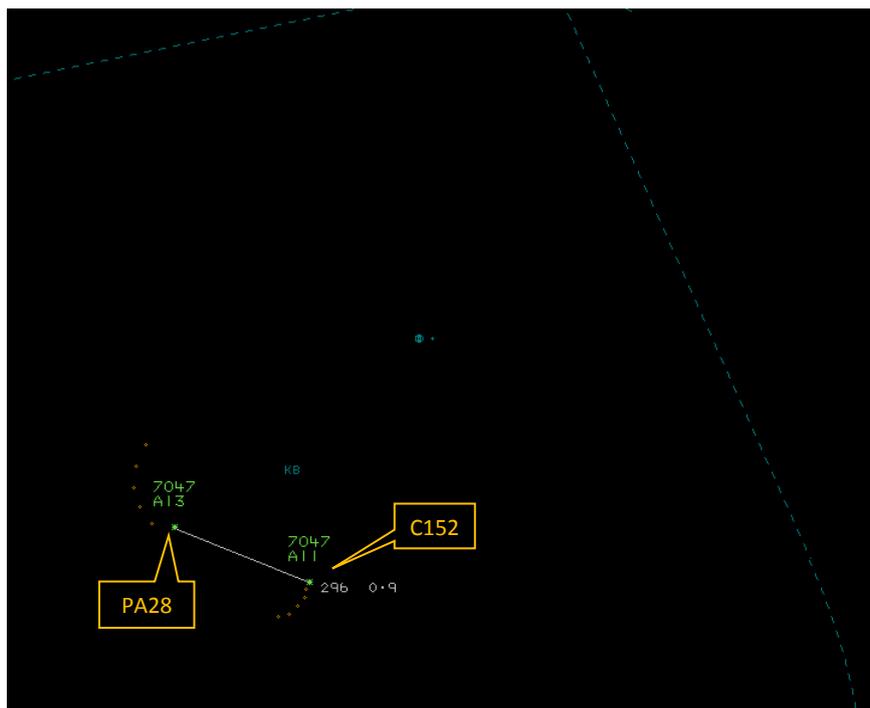


Figure 3 – 1313:20

At 1313:32 the PA28 was observed on a track towards and at an oblique angle to final approach, taking it to a point ahead of the C152 (Figure 4)

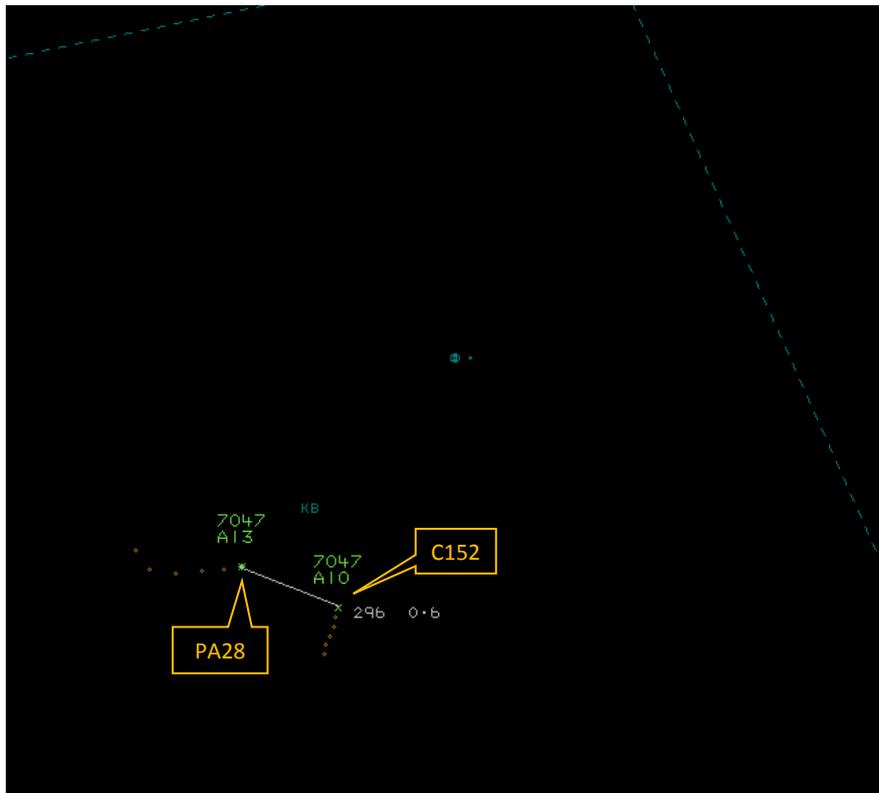


Figure 4 – 1313:32

At 1313:39 the PA28 was observed to make a turn to the right, onto a track which would take it behind the C152 (Figure 5).

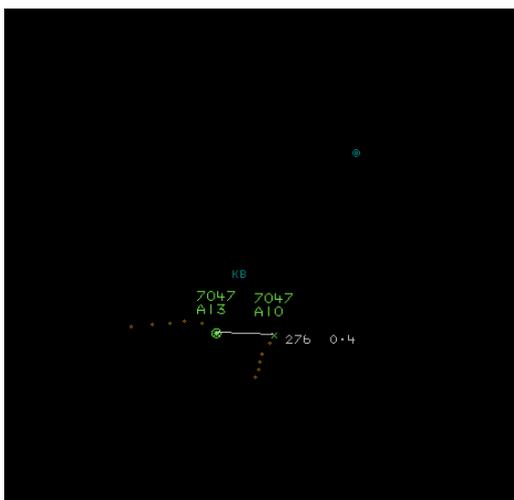


Figure 5 – 1313:39

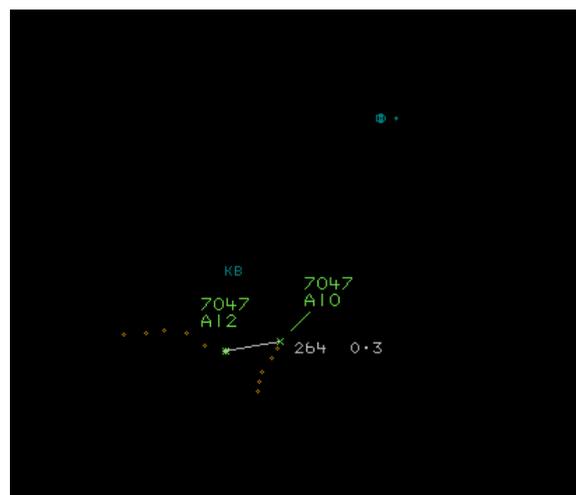


Figure 6 – 1313:44

At 1313:44 (Figure 6), the PA28 pilot reported *“traffic in sight”*. This was missed by the controller, possibly because the callsign was slightly clipped, and they asked the caller to repeat their call, which he did, in response to which the controller instructed them to continue their approach.

Figures 7-9 illustrate the situation as it continued to then develop:

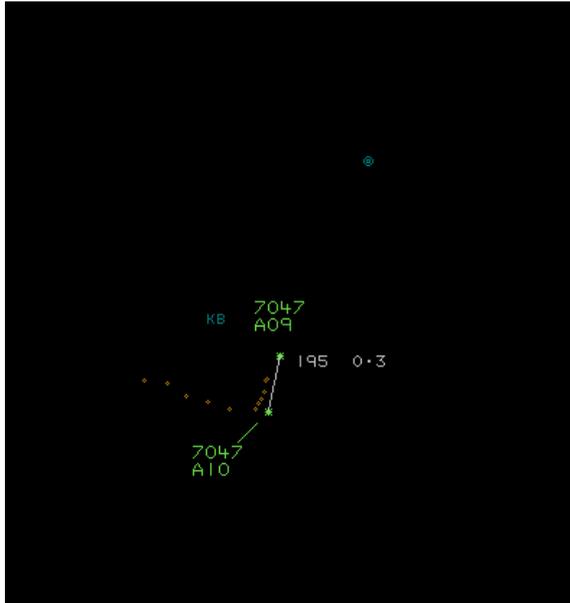


Figure 7 – 1313:54

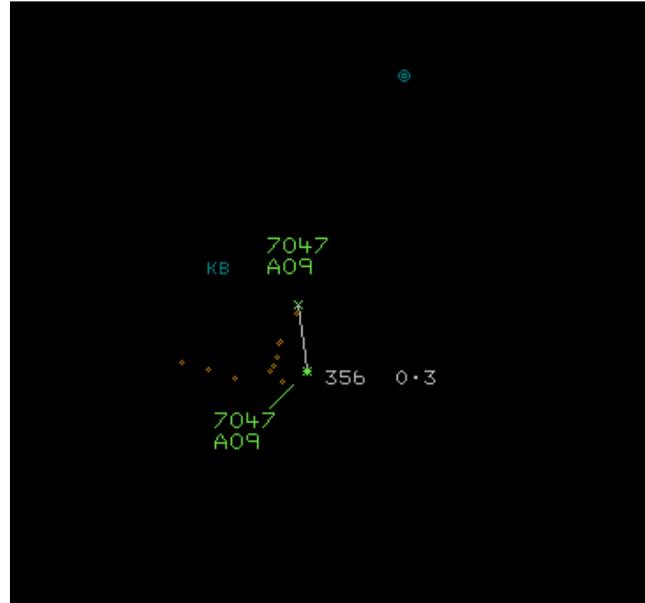


Figure 8 – 1314:00

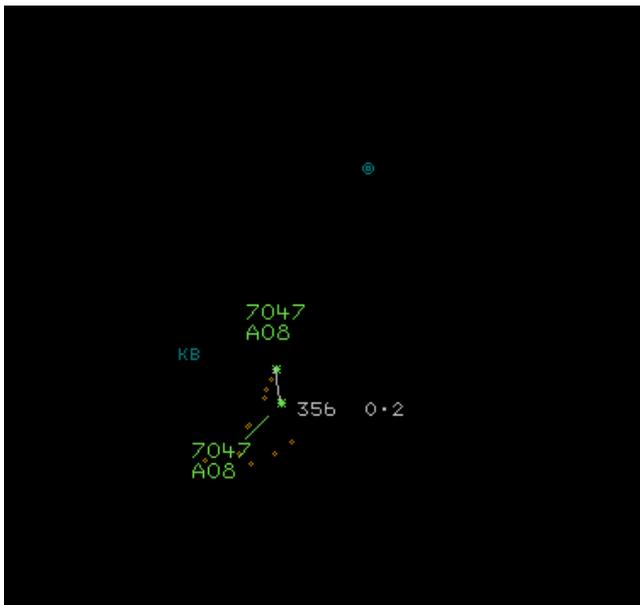


Figure 9 – 1314:06

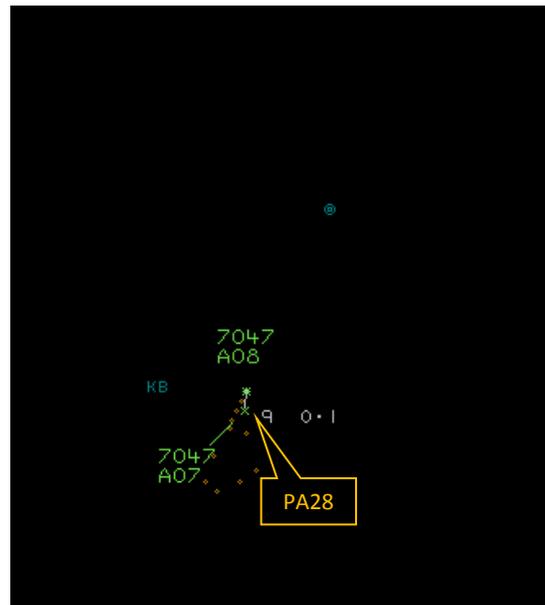


Figure 10 – 1314:10

At 1314:10 the PA28 pilot reported that the C152 was now above him (Figure 10).

At 1314:14 the pilot of the PA28 reported going around which was acknowledged by the controller (Figure 11). At 1314:20 the controller passed Traffic Information to the C152 on the PA28 which was acknowledged by the pilot of the C152 (Figure 12).

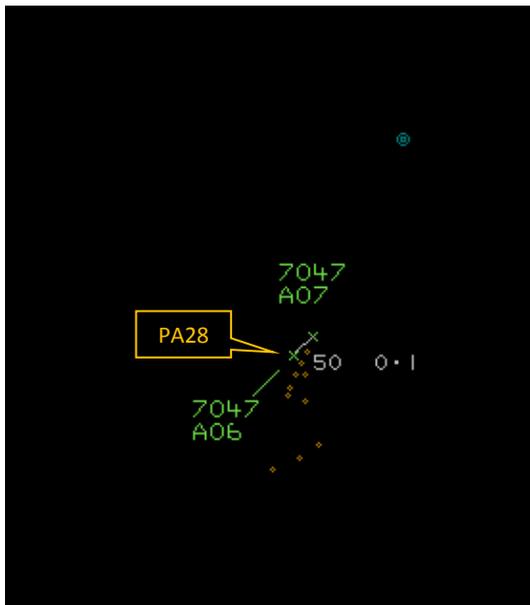


Figure 11 – 1314:14

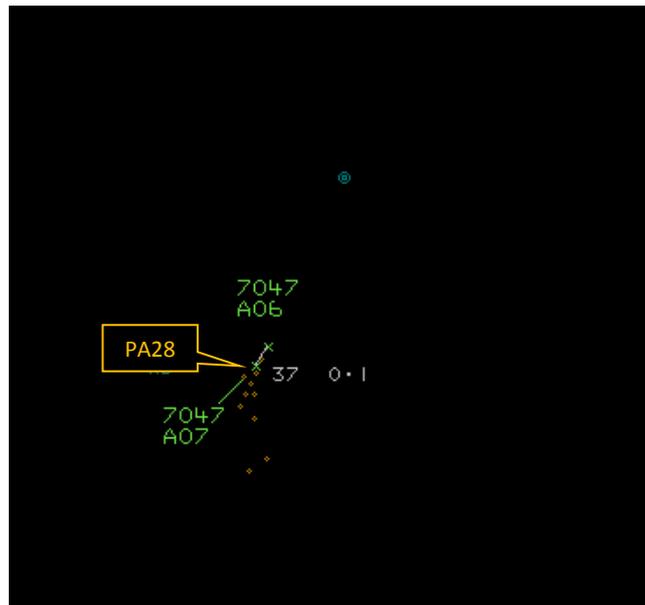


Figure 12 – 1314:20

Figures 13-14 illustrate the situation as it developed further. CPA took place at 1314:48 (Figure 14), with the radar replay showing both aircraft at the same altitude with <math><0.1\text{nm}</math> lateral separation.

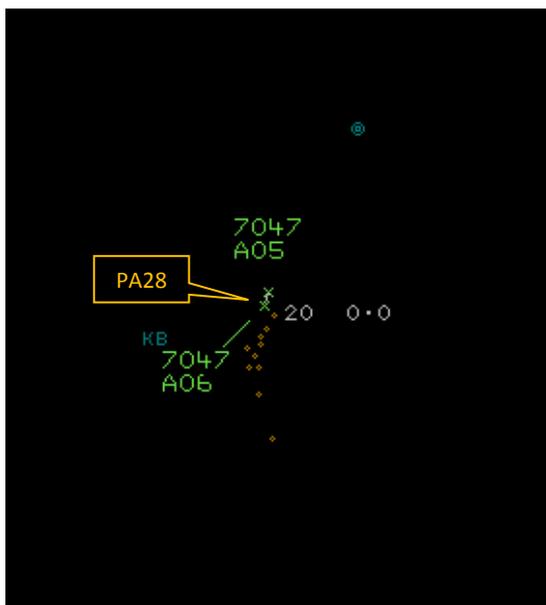


Figure 13 – 1314:23

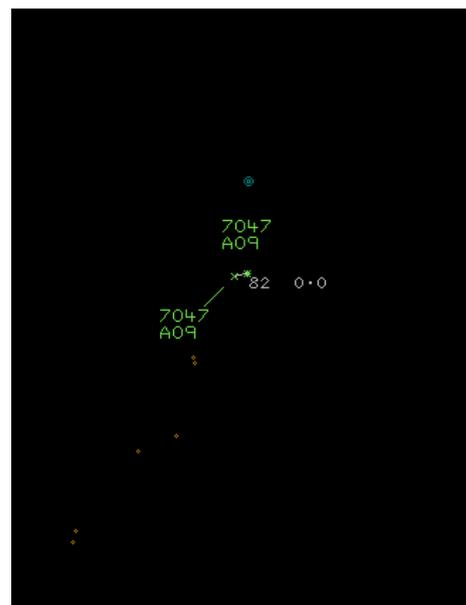


Figure 14 – 1314:48

ATSI reviewed the reports from the C152 pilot and the Biggin Hill controller, who both made reference to aircraft completing orbits prior to the Airprox. This did not match the radar replay and R/T transcripts. Having spoken to the Biggin Hill ATC Manager, it is apparent that, by coincidence, both reporters had effectively merged their memory of this circuit which led to the Airprox, and a later circuit involving the C152 and another aircraft (unrelated to the Airprox).

ATSI highlighted the requirement for accurate reporting by controllers to the ATC unit management. No unit investigation report was available at the time of this investigation, but under EU 376/2014 the unit has 90 days in which to submit any such follow-up report.

In his report, the pilot of the PA28 stated that they reported “*downwind ready for base*”. This was not what was evidenced in the radar replay and R/T. The pilot started to report downwind, whilst having already commenced a turn on to base leg. They appeared to then correct their call, by

changing it to “turning on base” (which they were). When they completed the turn, their track was taking them to a position ahead of the C152, which they then appeared to become visual-with, evidenced by a turn to the right which would take them behind the C152. This was then followed by the visual report by the pilot to the controller. The pilot also reported being surprised about the speed at which they caught up the C152. They also admitted to not knowing what to do about it, which was evidenced in the radar replay as the PA28 continued to remain in proximity with the C152 on final approach for some 45 seconds, until ultimately the C152 landed.

According to CAP493 – Manual of Air Traffic Services:

Aerodrome Control shall issue information and instructions to aircraft under its control to achieve a safe, orderly and expeditious flow of air traffic with the objective of:

(1) Preventing collisions between:

(a) aircraft flying in, and in the vicinity of, the ATZ;

(b) aircraft taking-off and landing;

(c) aircraft and vehicles, obstructions and other aircraft on the manoeuvring area.

Note: *Aerodrome Control is not solely responsible for the prevention of collisions. Pilots and vehicle drivers must also fulfil their own responsibilities in accordance with Rules of the Air.*

The controller provided specific Traffic Information to the PA28 pilot on the C152 to facilitate his integration in the circuit; however, this was hindered by the delayed downwind call by the PA28 pilot, (when he had effectively already turned onto base leg). Standard procedures are for the controller to pass Traffic Information on aircraft ahead when the aircraft in the circuit calls downwind.

UKAB Secretariat

The PA28 and C152 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation².

Summary

An Airprox was reported when a PA28 and a C152 flew into proximity at 1314 on Monday 8th May 2017. Both pilots were operating under VFR in VMC, in the Biggin Hill visual circuit and receiving an Aerodrome Service from Biggin Hill.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the PA28 pilot. Members commented that it was his responsibility to give way to other aircraft in the circuit as he joined and, having been told by ATC that there was one ahead of him when he was late downwind, he knew he needed to arrange his flight so that he was behind it. Members opined that there were plenty of options for him to take: he could have asked to orbit downwind; extended downwind with ATC permission (although members cautioned against extending too far downwind because this can also cause problems); slowed down; or gone around much earlier than he did. By not making an early decision, he allowed the situation to develop to a point where he was running out of options and then seemed to be unable to decide what to do to resolve things. This was compounded by him initially flying at a relatively high speed on finals, which indicated to the Board that he had also lost situational awareness of his aircraft's

¹ SERA.3205 Proximity.

² SERA.3225 Operation on and in the Vicinity of an Aerodrome.

dynamics. In the end, with the C152 looming ahead, the PA28 pilot took last minute avoiding action and went around. The Board noted his comments about the changes to the joining procedures, but felt that they weren't unusually restrictive and should have still allowed him plenty of time to turn downwind and complete his checks without causing undue time pressure.

Turning to the C152 pilot, the Board thought that there was very little he could do in the circumstances. He knew there was someone else in the circuit behind him, but he could rightfully expect that they would fit in around him given that he was ahead and had an ATC clearance to make his approach. He was therefore somewhat surprised to see the PA28 fly past so close and below him.

The Board then discussed the role that ATC had played in the incident. Noting that they had correctly told the PA28 pilot that there was one ahead when he had called turning base, controller members thought that ATC should have been monitoring the situation more closely, and should have been able to intervene before it developed as it did. Members were told that the controller had lost sight of the PA28 on finals, but they also heard that Biggin Hill had an ATM installed for situational awareness purposes, and that this was the ideal scenario to use it. The controller had described the PA28 pilot turning through the centreline and back towards the C152, and members thought that an early intervention at this point by the controller, by sending the PA28 pilot around, could have prevented this incident completely. Unlike AGCS units where the pilots were responsible for their own sequencing and integration, Biggin Hill ATC were providing an Aerodrome Service and the Board were surprised at the controller's inaction; furthermore, they thought that it contributed to the Airprox.

In determining the cause of the Airprox, the Board were quick to agree that the PA28 pilot had not integrated with the C152 in the visual circuit and had flown into conflict. They also decided that a contributory factor was that ATC did not exercise sufficient positive control. There then ensued a lengthy debate about the risk of collision, with some members believing it was a Category A situation (safety reduced to the bare minimum). Others thought that, notwithstanding his seeming lack of appreciation of how to resolve the situation, because the PA28 pilot had been visual at all times he was therefore unlikely to have actually flown into the C152. In the end the latter opinion prevailed, and the risk was assessed to be Category B, safety much reduced below the norm.

Finally, although not germane to this incident, whilst researching the new joining procedures at Biggin Hill the Board noticed that the Biggin Hill entry in the AIP was incorrect. Although the new circuit joining procedures were outlined in 2.22 para 1: Circuit Procedures, earlier in the AIP at 2.20 para 4: Warnings, the old circuit joining procedures were still in place, describing joining aircraft turning at the upwind threshold. The Board thought that this was misleading and should be updated as soon as possible.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The PA28 pilot did not integrate with the C152 in the visual circuit and flew into conflict.

Contributory Factor: ATC did not exercise sufficient positive control.

Degree of Risk: B.

Safety Barrier Assessment³

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

ANSP

³ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Situational Awareness & Action was assessed as **ineffective** because ATC was unaware that the PA28 was catching up the C152 on finals and did not give the PA28 pilot any advice to resolve the situation.

Flight Crew

Regulations, Procedures Instructions, Processes & Compliance was assessed as **partially effective** because the PA28 pilot only partially complied with circuit procedures.

Tactical Planning was also assessed as only **partially effective** because although the PA28 pilot was aware that the C152 was ahead, he was indecisive and did not have a fully effective plan to resolve the developing situation.

Situational Awareness & Action was assessed as **ineffective** because the PA28 pilot allowed himself to catch up with the aircraft ahead and did not take any effective action to resolve the situation.

See and Avoid was assessed as **ineffective** because although he was visual with the C152, the PA28 pilot did not take avoiding action early enough.

