

AIRPROX REPORT No 2014181

Date/Time: 24 Sep 2014 1614Z

Position: 5130N 00115W
(1.2nm NW of COMPTON)

Airspace: London FIR (Class: G)

Aircraft 1 Aircraft 2

Type: Merlin PA28

Operator: HQ JHC Civ Club

Alt/FL: 2500ft 2800ft
 QNH (1014hPa) NK

Conditions: VMC VMC

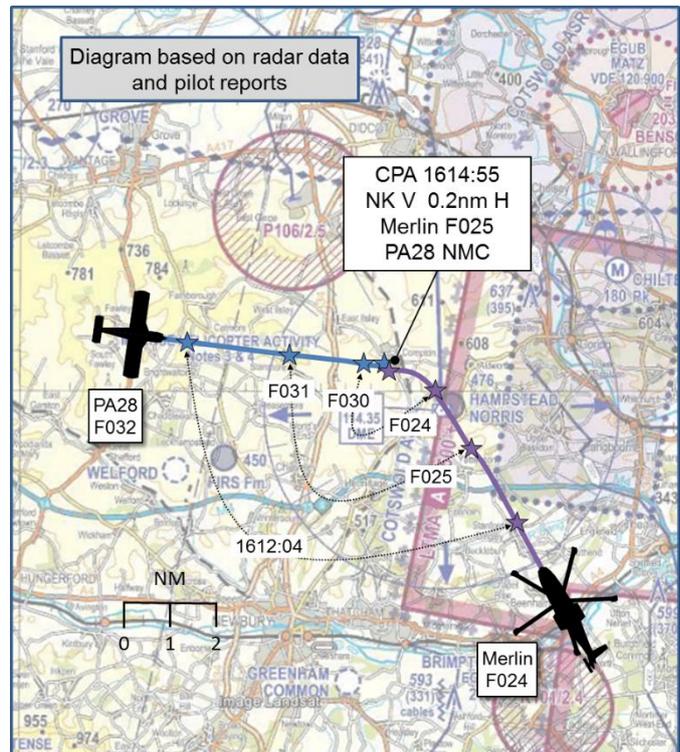
Visibility: 9km NK

Reported Separation:

0.5nm V/NK H NK V/NK H

Recorded Separation:

NK V/0.2nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE MERLIN PILOT reports flying a green helicopter with strobe and navigation lights illuminated, and squawking transponder Modes 3/A, C and S, with no ACAS fitted. The aircraft was being flown at 120kt, heading 300°, into the Vale of the White Horse 2000ft below cloud. The PF¹ was in the right-hand seat operating under an IF-visor, but the PM² was looking out from the left-hand seat and the crewman was providing additional lookout to the right. They had agreed a Traffic Service with Benson Approach and received Traffic Information on a light aircraft in their 11 o'clock, 5nm away, at 3000ft. The crew proceeded on track but the in-to-sun visibility towards the other aircraft meant that they did not see it until it was 0.5nm away, slightly above, and on a constant bearing from them; the PM took control and made a steep, left avoiding action turn. The pilot could see that the low-wing, single-engine, white and red aircraft stayed above the helicopter throughout and horizontal separation did not decrease below 0.5nm, but he assessed that TCAS 'would have drastically enhanced the crew's situational awareness' in a busy area.

He assessed the risk of collision as 'Low'.

THE PA28 PILOT reports flying a red, white and blue aircraft as a student pilot on their first solo land-away and squawking transponder Modes 3/A and C. The aircraft was on a heading of 091°, at 90kt, cruising straight-and-level at 2800ft. The pilot was in receipt of a Basic Service from Benson Zone, but did not see the other aircraft and so could not assess the risk of collision.

THE BENSON APPROACH CONTROLLER reports operating as the OJTI³ in the Radar Approach position, which was bandboxed with Director and Zone. The Merlin was carrying out an Odiham-CPT SID⁴ and was 3nm southeast of CPT when Approach saw a radar track squawking Mode 3/A 7000, 6nm northwest of the Merlin, indicating 500ft above it; Traffic Information was passed to the Merlin crew. The controllers could see that 500ft vertical separation was being maintained and, when the unknown aircraft was 1nm west of CPT, its pilot freecalled Benson Zone and requested to cross the southern MATZ⁵ stub; the pilot was a student, who sounded nervous and the call was a little

¹ Pilot Flying

² Pilot Monitoring

³ On-the-Job Training Instructor

⁴ Standard Instrument Departure

⁵ Military Air Traffic Zone

protracted. At the time of the PA28 pilot's initial call there was approximately 1.5nm horizontal separation and 500ft vertical separation and, once a Basic Service had been agreed, the controller assessed that there was no conflict and instructed the pilots that they could operate within their 'required block'. The Merlin pilot replied that he could see the PA28.

He perceived the severity of the incident as 'Low'.

THE BENSON SUPERVISOR reports that the Unit's and the controller's workload were low.

Factual Background

The weather at Benson at 1550 was recorded as:

METAR EGUB 241550Z 28010KT 9999 FEW042 16/03 Q1014 BLU NOSIG

Analysis and Investigation

Military ATM

Factual data

At 1612:56 (Figure 1) information was passed as, "[Merlin callsign] traffic left 10 o'clock 5 miles crossing left to right indicating 500 feet above." The pilot responded with, "looking".

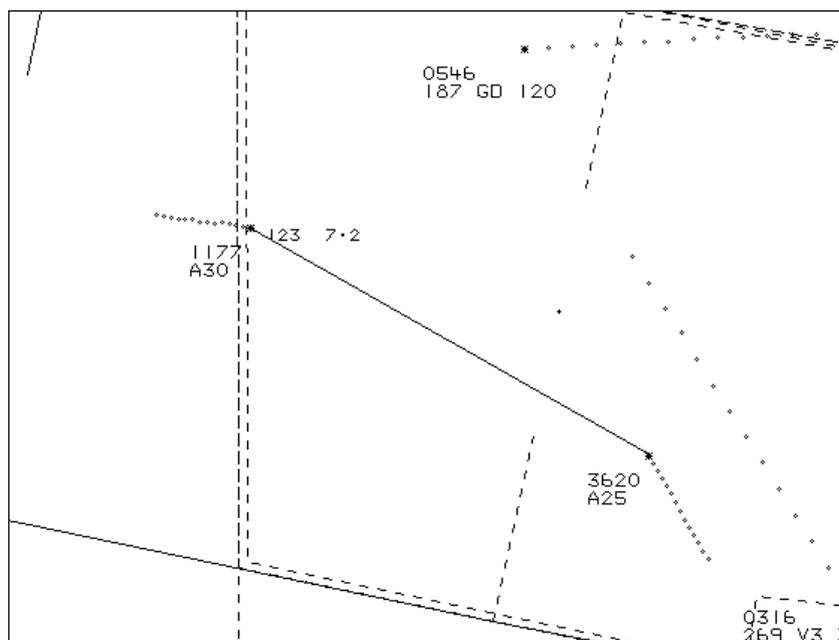


Figure 1: Traffic Information at 1612:56
(PA28 squawking 1177; Merlin squawking 3620).

At 1613:48 (Figure 2) the PA28 free-called requesting a Basic Service. Benson replied with, "Student [PA28 callsign] Benson Zone squawk 3601, Basic Service, pass message."

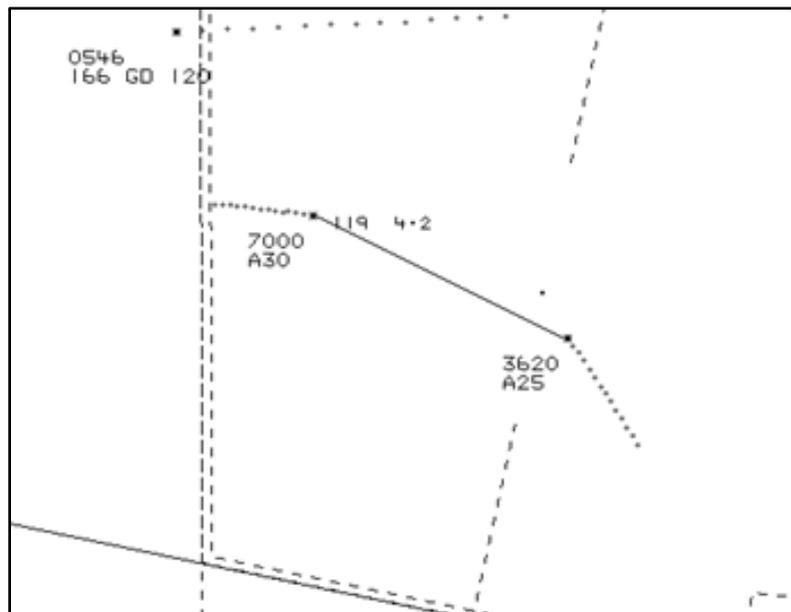


Figure 2: PA28 freecall at 1613:48.

At 1614:06 (Figure 3), the PA28 pilot responded with, “Squawk 3601, Basic Service, Student [PA28 callsign] PA9 er PA28, White Waltham, sorry Kemble to White Waltham, via Wooton Bassett, 2800 feet, em crossing {unreadable} Junction 4, QNH 1010, eh, request Basic Service and MATZ penetration.”

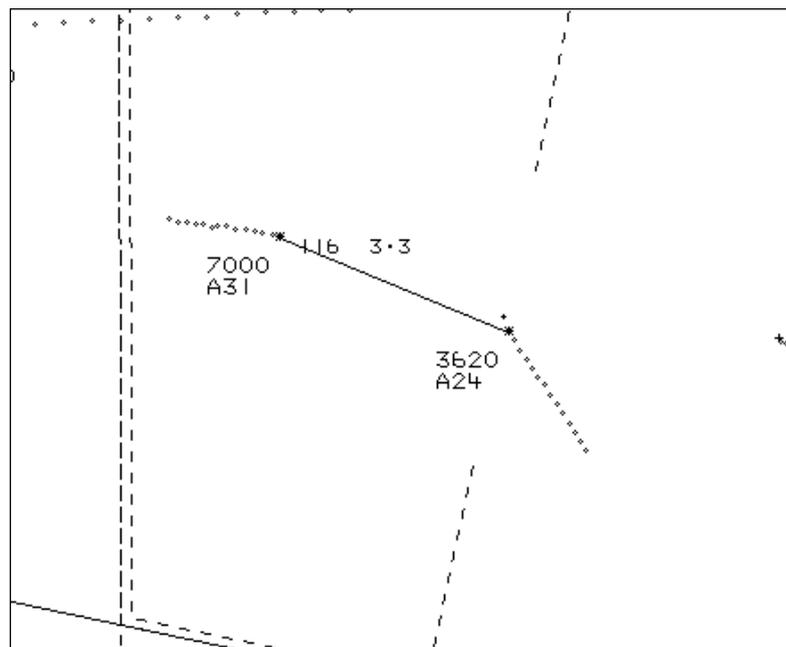


Figure 3: Geometry at 1614:06.

As the aircraft were on different frequencies (Approach on UHF and Zone on VHF), transmissions from both aircraft overlapped at 1614:22, as the Merlin reported SID complete. At 1614:31 (Figure 4), Approach transmitted, “[Merlin callsign] manoeuvre in the block altitude 2000 to 4000 Benson QNH 1014, responsible for your own terrain clearance, report complete.”

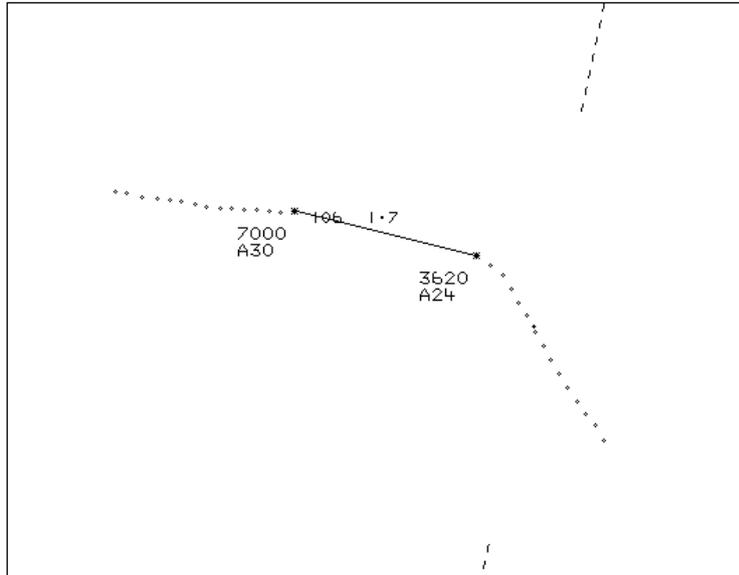


Figure 4: Geometry at 1614:31 as the Merlin was cleared to manoeuvre in the block 2000 to 4000 feet.

At 1614:40 (Figure 5), the Merlin pilot responded with, “[Merlin callsign] *that is copied, looking for previously reported traffic.*”

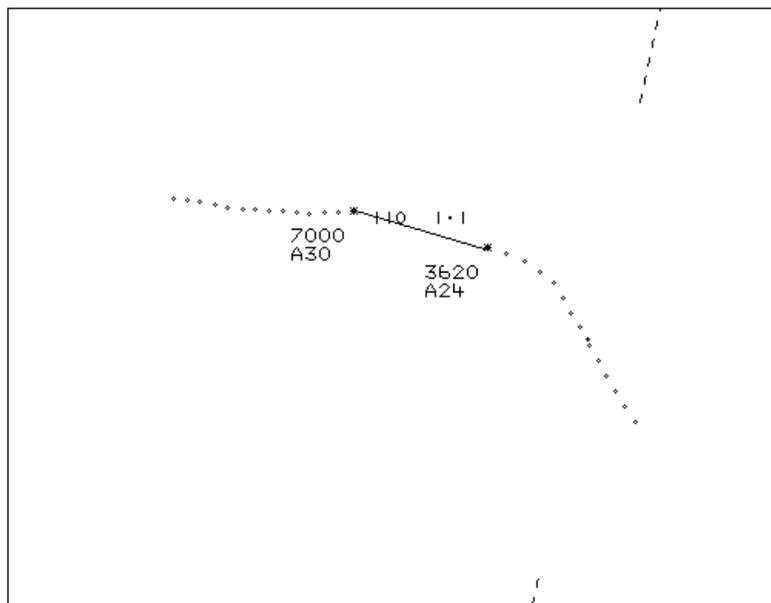


Figure 5: At 1614:40 with the Merlin looking for traffic.

At 1614:48, MATZ penetration approval was passed to the PA28 pilot and at 1615:03, the Benson QNH was passed to the PA28. The CPA (Figure 6) was recorded between 1614:55 and 1614:59 as 0.2nm horizontal separation; the Mode C disappeared from the PA28 but was believed to be at 3000ft, providing approximately 500ft height separation.

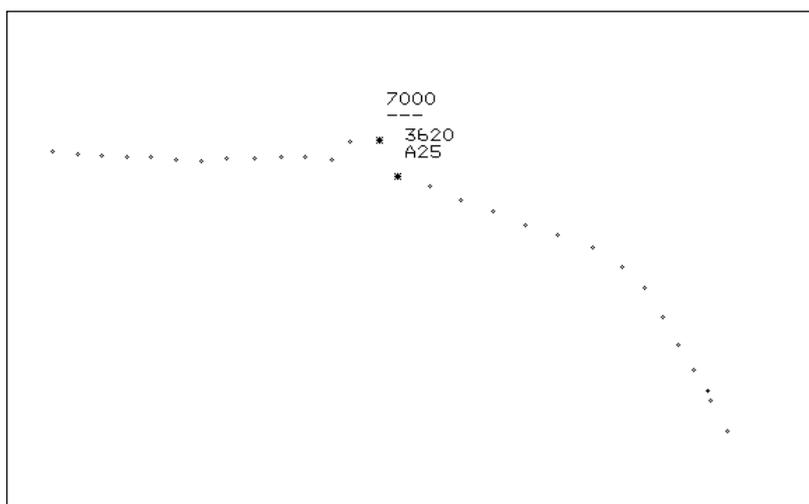


Figure 6: CPA at 1614:56.

At 1615:44, the Merlin pilot queried if Benson were in touch with the other aircraft and Approach confirmed that the PA28 had free-called 1nm to the west of the Merlin and had not reported visual with the Merlin on frequency.

Analysis

The Benson control team were providing a service to both aircraft at the time of the Airprox. The controller passed Traffic Information to the Merlin, as per the conditions of a Traffic Service. No information was passed to the PA28 pilot, under a Basic Service. The controller had passed information to the Merlin and had re-assessed the confliction, as the only two aircraft on frequency were in the same area on a closing geometry. The controller had approved the Merlin operating block between 2000 and 4000 feet, approximately 25 seconds prior to CPA, against the PA28 at 3000ft. The Merlin pilot confirmed that he was looking for traffic at 1614:40, 15 seconds prior to the CPA; no update was provided by the control team. Traffic updates under a Traffic Service should be passed if a definite hazard exists; the control team had monitored the separation throughout and were reassured with height separation and the fact that the Merlin pilot was still looking for the PA28 as geometries were closing.

The PA28 pilot did not see the Merlin. The pilot was on a first student solo land-away, under a Basic Service, and was responsible for collision avoidance through 'see and avoid'. The PA28 was not fitted with ACAS. The inexperienced pilot may have been concentrating on positioning for the Benson MATZ penetration, squawk change and RT delivery. There were various demands on the solo student, which would have competed for attentional resources and potentially narrowed the lookout, contributing to the non-sighting of the Merlin.

The Merlin crew were on an IRT⁶ and had compensated for the right-hand seat pilot wearing an IF visor by having the crewman maintain lookout from the right. The examining pilot in the left-hand seat was responsible for lookout to the left, as well as monitoring the handling pilot. The PA28 was called in the 10 o'clock position at 5nm and was eventually spotted at 0.5nm. The crew were aware of their collision avoidance responsibilities under a Traffic Service and informed ATC that they were scanning for traffic prior to the CPA. At 1614:22, approximately 30 seconds prior to the CPA, the crew were informing Approach that their SID was complete and were receiving instructions to manoeuvre in a block of airspace, as they were looking for traffic. There were workload factors in the cockpit also competing with the crew lookout; however, the crew remained level, kept searching for the PA28, and the pilot's report of a conflictor, coming out of the sun, on a constant bearing helps explain the context behind the late sighting. The late sighting and avoiding action by the Merlin crew, and the probable lack of a reaction from the PA28, led to the Merlin crew filing an Airprox.

⁶ Instrument Rating Test

The barriers to an Airprox of this type would be radar-derived information from ATC, ACAS and 'see and avoid'. Neither aircraft had ACAS and this barrier was totally absent. The Merlin chose a Traffic Service to assist with collision avoidance, and this provided the crew with information on the PA28 that eventually resulted in an avoiding action turn to the left. The PA28 pilot did not see the Merlin; pilot workload may have narrowed the lookout and the green Merlin may have presented a poor contrast with the ground, as it was 500ft below. The PA28 may have presented a poor visual aspect to the Merlin crew, especially as it was above and may not have been conspicuous against the background of the sky. The lookout would have been hampered by the position of the sun and the PA28 was on a constant bearing, making it more difficult to detect from a visual scan.

UKAB Secretariat

The aircraft were converging, and the Merlin was on the right of the PA28, so the PA28 pilot was required to give way⁷; however, the student pilot in the PA28 did not see the Merlin and, even though 500ft separation was maintained throughout, the Merlin captain elected to turn away to ensure safe separation was maintained.

The PA28's Mode C was not recorded at the CPA, consequently the recorded vertical separation is not known; however, the aircraft displayed A30 just before the CPA, when the Merlin displayed A25, so it is likely that there was approximately 500ft separation at the CPA.

Comments

JHC

ATC provided suitable information to the Merlin crew to build sufficient situational awareness. The PA28 was spotted late, despite the crew's look-out being directed correctly, because of the into sun visibility; the Merlin carried out the correct action to prevent the situation developing further. The Merlin Fleet is due to be fitted with a TAS which will provide an additional effective barrier in the future.

Summary

An Airprox was reported between a Merlin and a PA28 in the vicinity of RAF Benson; the Merlin was under a Traffic Service with Benson Approach, and received Traffic Information, the PA28, being flown by a solo student, was under a Basic Service with Benson Zone and did not receive Traffic Information. The Merlin crew saw the PA28 0.5nm away and elected to turn away to ensure safe separation was maintained.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included 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 noted that the Benson Approach controller had passed Traffic Information to the Merlin as required under a Traffic Service, but some members wondered why the Traffic Information had not been updated, even though the Merlin pilot had not reported visual contact with the PA28 and had stated "*looking for previously reported traffic*" when he had been cleared to manoeuvre between 2000ft and 4000ft. However, members were informed that the controller had remained alert to the potential confliction throughout, and was aware that Traffic Information could be updated, but had elected not to update it because there was separation of 500ft or more always evident from the SSR Mode C data. Nevertheless, the Board wondered whether it was sensible for the controller to have

⁷ Rules of the Air 2007, Rule 9, Converging

cleared the Merlin to manoeuvre in a height block that included traffic which the Merlin crew did not yet have sight of; the Merlin crew could quite easily have inadvertently eroded the 500ft height separation as a result. That being said, the Board also noted that the Merlin pilot was well aware of the presence of the PA28 somewhere ahead and was also at liberty to request updated Traffic Information at any time if the crew had felt it necessary.

Turning to the actions of the PA28 pilot, the Board discussed the student pilot's request for a Basic Service and opined that a Traffic Service would likely have ensured that the pilot received Traffic Information on the Merlin, and may have enabled visual separation. Notwithstanding, members also sympathised that the workload on a student pilot on a first land-away was considerable, and that more inputs from ATC may actually have been counter-productive rather than helpful. As things stood, the Board agreed that the student pilot had done well to contact Benson early to request a MATZ crossing, which was best practice and good airmanship as opposed to a mandatory requirement.

Members noted that, having received Traffic Information on the PA28, the Merlin pilot turned towards it despite not having it in sight at that point; the Board agreed that this was a contributory factor. However, in the end, the Merlin pilot saw the PA28 at 0.5nm range and with 500ft or more separation, and had been able to take effective actions in plenty of time. The Board therefore decided that the cause of the Airprox was that the Merlin pilot had been concerned by the proximity of the PA28, and had probably wanted to openly report the occurrence to highlight the lessons identified, and the potential advantages of TCAS, for the benefit of all airspace users. In assessing the Degree of Risk, some members observed that the PA28 pilot had not seen the Merlin at all; however, it was also noted that the Merlin pilot had perceived the risk as low, and been able to act early enough that the separation was never less than 0.2nm and about 500ft. Members agreed that this was normal for aircraft of this performance level in Class G airspace, and agreed that the Degree of Risk was Category E.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	The Merlin pilot was concerned by the proximity of the PA28.
<u>Contributory Factor(s):</u>	The Merlin crew turned towards traffic on which they had received Traffic Information but with which they were not visual.
<u>Degree of Risk:</u>	E.
<u>ERC Score</u> ⁸ :	4.

⁸ 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.