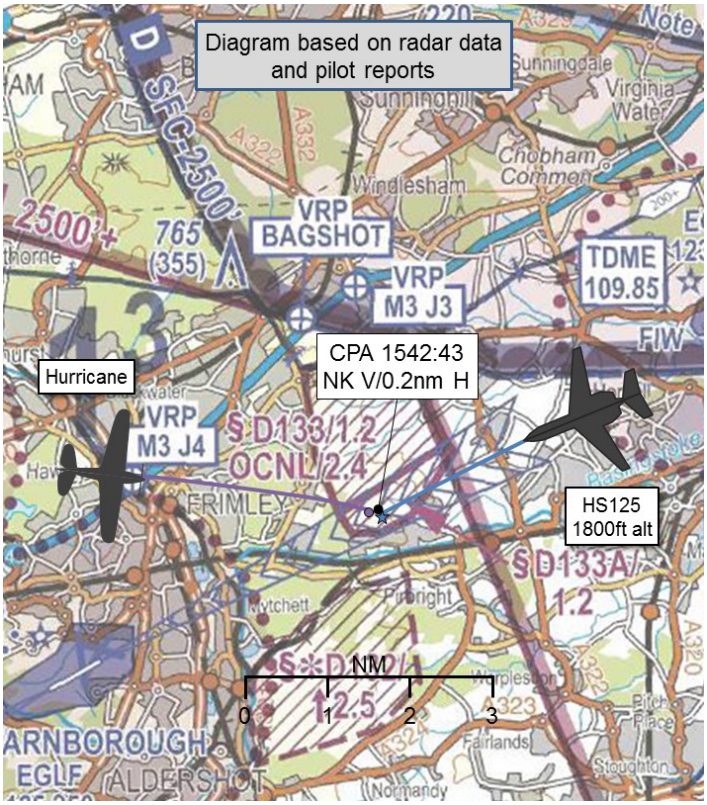
AIRPROX REPORT No 2016155

Date: 30 Jul 2016 Time: 1542Z Position: 5119N 00040W Location: 4nm E Blackbushe airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	HS125	Hurricane
Operator	Civ Comm	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Deconfliction	Basic
Provider	Farnborough APP	Farnborough LARS
Altitude/FL	1800ft	NK
Transponder	A,C,S	NK
Reported		
Colours	NK	Green/brown camouflage
Lighting	NK	NK
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2000ft	1500-2000ft
Altimeter	QNH (1013hPa)	NK
Heading	NK	270°
Speed	NK	180kt
ACAS/TAS	TCAS I	Not fitted
Alert	None	N/A
Separation		
Reported	100ft V/NK H	100ft V/500 yards H
Recorded	NK V/0.2nm H	



THE HS125 PILOT reports that he was in receipt of a Deconfliction Service from Farnborough Radar. Whilst being vectored to the ILS RW24 at 2000ft, the First Officer observed a light aircraft (green camouflage, possibly a Hurricane) in the 2 o'clock position, 50-100ft below and converging. There was no indication of an intruding aircraft on TCAS. Farnborough informed them about a primary contact and the HS125 crew informed Farnborough about the observed 'intruding' traffic.

THE HAWKER HURRICANE PILOT reports that he departed from Blackbushe and, approximately 4nm east of the airport, he encountered a 'Hawker Jet'. He turned left to clear. He was visual with the aircraft at a range of 1nm and continued to be visual at all times. After landing at destination he telephoned Farnborough ATC to advise his details.

He assessed the risk of collision as 'Medium'.

THE FARNBOROUGH APPROACH RADAR CONTROLLER reports that he was vectoring the HS125 pilot onto the ILS for RW24. There was very busy traffic in and around Blackbushe. He had transferred the pilot to Tower when a fast-moving primary contact from Blackbushe appeared heading straight towards the inbound HS125. He attempted to contact the HS125 pilot and then called the Tower on the priority line. By the time he had called the traffic to the Tower, the radar blips had merged and were past each other.

THE FARNBOROUGH LARS WEST CONTROLLER reports that he was working in a very busy traffic scenario. He was called at 1541 by the Hurricane pilot departing from, he thought, Fairoaks. He issued a 0432 squawk and passed the Farnborough QNH and offered a Basic Service. The pilot

mentioned Woking heading west which he challenged as he expected the aircraft to be tracking east to its destination. He looked around the Woking area but could not see the aircraft. He continued working numerous other aircraft when a colleague pointed out a primary contact which had departed from Blackbushe and had narrowly avoided a Farnborough inbound. He had still not seen the Hurricane at this stage. The Hurricane pilot called at Ockham (OCK) and he observed a 0432 squawk at OCK. He challenged the pilot regarding departing Fairoaks and he replied 'I don't know why I would say that as I departed Blackbushe'. The pilot was then transferred to Biggin Hill at 1548.

THE FARNBOROUGH AERODROME CONTROLLER reports that when the pilot of the HS125 called him on final approach, a C406 was in the process of backtracking to vacate RW24. He instructed the HS125 pilot to continue approach and, shortly afterwards, he noticed that the C406 pilot had missed the exit at which he had instructed him to vacate. He instructed the C406 pilot to expedite and vacate at the next exit. At this point the HS125 was at approximately 4nm. Whilst monitoring the progress of these aircraft he received a call from the Radar controller informing him that he had just become aware of a primary contact close to the HS125. He looked at the ATM and observed that a primary contact appeared to be eastbound but, due to garbling, he could not ascertain its position relative to the HS125. He then used binoculars and observed a fast moving dark coloured aircraft at a similar altitude to the HS125. Although it had passed the HS125, it was still very close and appeared to be eastbound. He informed the HS125 pilot that an aircraft had passed him and asked if he had seen it. The pilot said that he had. After vacating the runway the HS125 pilot said that he had not received a TCAS alert and he informed the pilot that the other aircraft was not showing a squawk. He noticed that, after the encounter, the other aircraft started to display a 0432 squawk. He provided the pilot of the HS125 with a telephone number for ATC to discuss the incident. The pilot spoke to the Watch Manager and said that only one of the crew saw the aircraft (later identified as a Hurricane) as it passed them with 100ft vertical separation.

Factual Background

The weather at Farnborough was recorded as follows:

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EGLF 301520Z 32004KT 260V360 9999 SCT041 20/11 Q1014=
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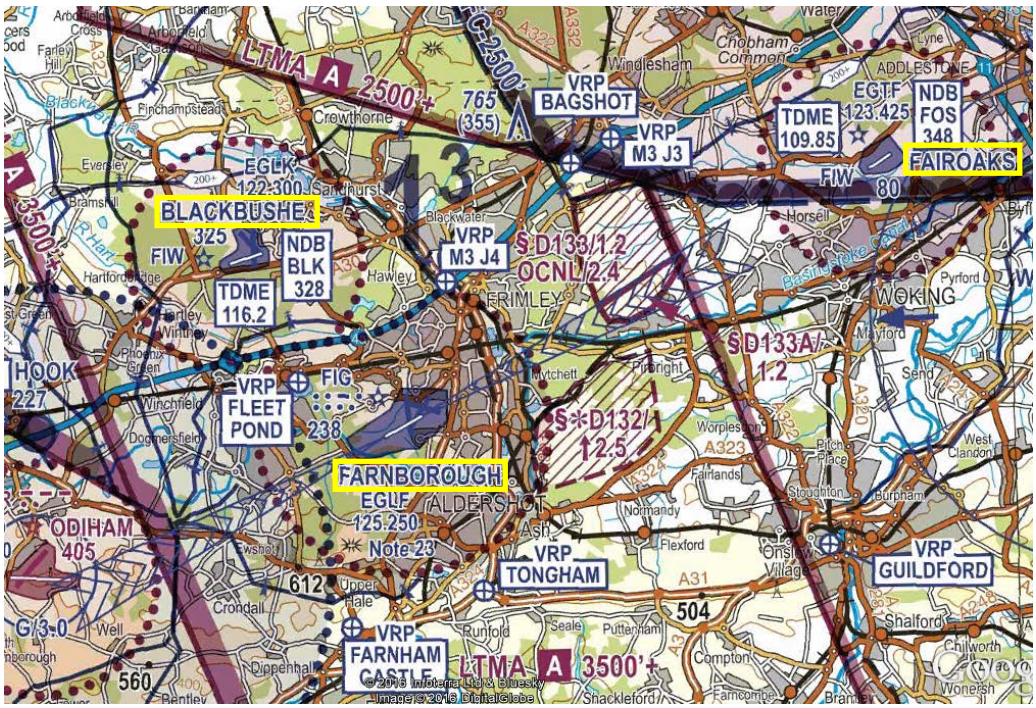
The relative locations of Blackbushe, Fairoaks and Farnborough are as shown on the chart below.



Analysis and Investigation

CAA ATSI

The HS125 was the second of two aircraft being vectored by the Farnborough Approach controller for an ILS approach to RW24 and its pilot had been advised twice that he was under a reduced Deconfliction Service. On the first occasion this was stated as being due to radar suppression but this was not acknowledged by the pilot. On the second occasion, at 1539:05, the pilot was advised that the reduction was now due to the proximity of Fairoaks and that there may be late warning of traffic, which on this occasion was acknowledged by the pilot (Figure 1).

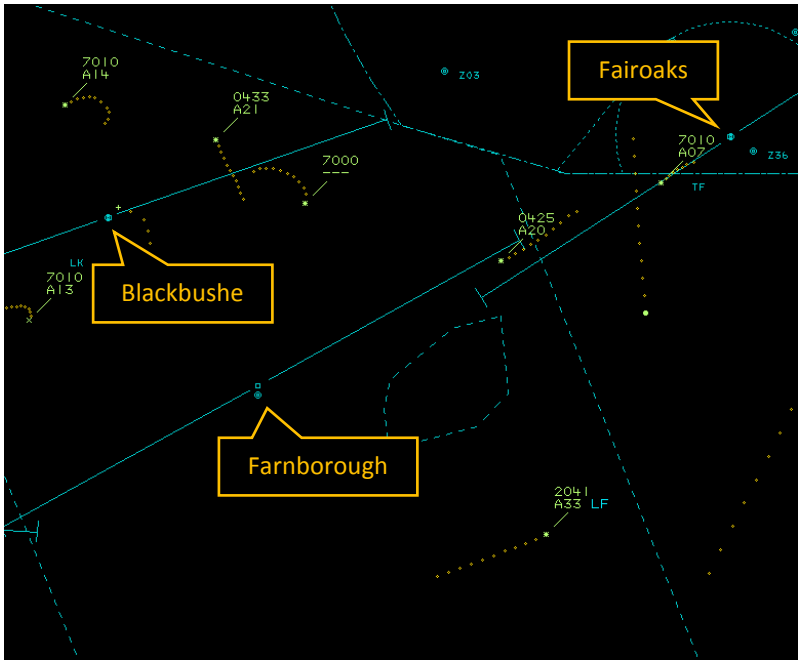


Figure 1 – 1539:05 HS125 squawk 2041.

At 1540:15 the HS125 pilot was advised that there were multiple contacts in the Fairoaks circuit but that they were at least 1000ft below the HS125. At 1541:00 specific Traffic Information was passed by the Approach Radar controller to the HS125 pilot on a helicopter which had departed Fairoaks. The helicopter pilot was speaking to the Farnborough LARS West controller and had been coordinated to pass 1000ft below and then behind the HS125 once it was established on the ILS (Figure 2).

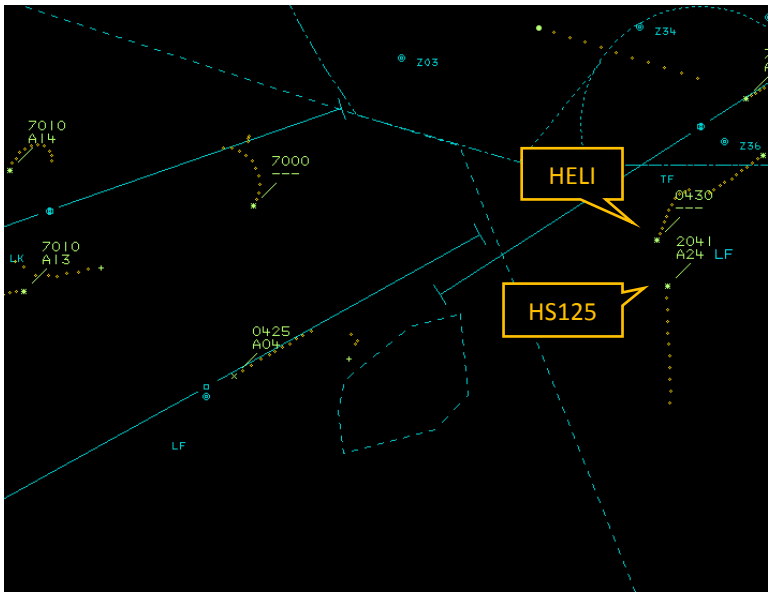


Figure 2 – 1541:00.

At 1541:25 the Hurricane pilot contacted the Farnborough LARS West controller, advising (incorrectly) that he was airborne from Fairoaks, (the aircraft had in fact departed from Blackbushe), heading west for Woking and then Ockham for Biggin Hill. The direction of flight was queried by the controller, and the pilot apologised and confirmed he had meant east. This was acknowledged by the controller who allocated transponder code 0432, instructed the pilot to climb not above 2000ft and a Basic Service was then agreed (Figure 3).

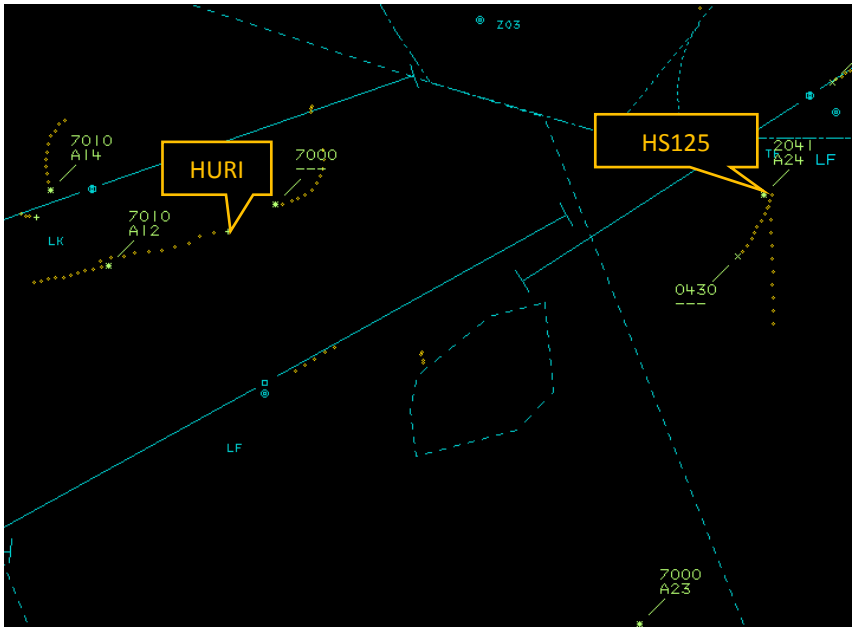


Figure 3 – 1541:25.

At 1541:55 the HS125 pilot was given updated Traffic Information on the helicopter and, at 1542:10, was transferred to Farnborough Tower (Figure 4).

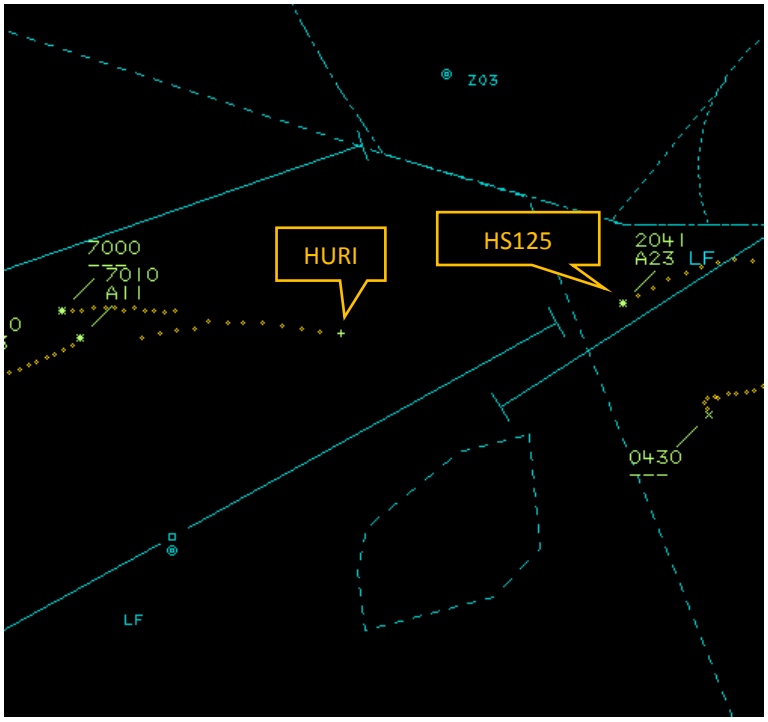


Figure 4 – 1542:10.

At 1542:20 the Farnborough Radar controller tried to contact the HS125 pilot but he was already in the process of calling the Aerodrome controller. The Radar controller then initiated a telephone call to the Aerodrome controller coincident with the CPA which took place at 1542:43 (Figure 5).

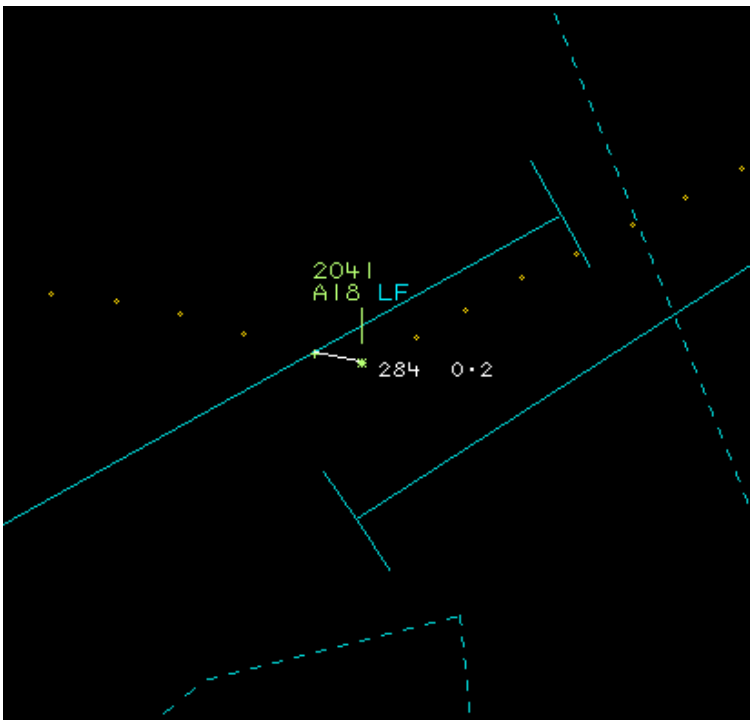


Figure 5 – 1542:43.

Subsequently, the LARS West controller questioned the pilot of the Hurricane about their originally-stated point of departure. He confirmed that he had meant Blackbushe.

In the report from the LARS West controller, he confirmed that after the initial call by the Hurricane pilot they looked, but could not see the aircraft on the radar. On both the area and Farnborough radar recordings, although the primary radar contact for the Hurricane is visible, the transponder code did not appear until after the Hurricane had flown through the Farnborough final approach. After the initial call by the Hurricane pilot when the ATC service was agreed, the LARS West controller's traffic loading increased, and positive identification was inhibited by both the incorrect information having been passed by the pilot of the Hurricane, and by the delayed appearance of its transponder code. When he was questioned by the LARS West controller, the Hurricane pilot confirmed that he had been visual with the HS125.

Farnborough airport is located in Class G airspace. Under a Deconfliction Service "*a controller shall provide traffic information, accompanied with a heading and/or level aimed at achieving a planned deconfliction minima against all observed aircraft".*[1] The Approach Radar controller did not see the primary contact of the Hurricane and therefore did not recognise the potential confliction until after the HS125 pilot had been transferred to the Aerodrome controller. Although the Approach Radar controller initiated a telephone call on the priority line to the Aerodrome controller, by the time the information had been passed the CPA had already taken place.

UKAB Secretariat

The HS125 and Hurricane pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[2]. If the incident geometry is considered as converging then the HS125 pilot was required to give way to the Hurricane[3].

[1] CAP774 UK Flight Information Services
[2] SERA.3205 Proximity.
[3] SERA.3210 Right-of-way (c)(2) Converging.

Summary

An Airprox was reported when an HS125 and a Hurricane flew into proximity at 1542 on Saturday 30th July 2016. The HS125 pilot was operating under IFR in VMC, and had been in receipt of a Deconfliction Service from Farnborough Approach Radar before being transferred to Aerodrome Control prior to the CPA. The Hurricane pilot was in receipt of a Basic Service from Farnborough LARS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controllers concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board first looked at the ATC factors and noted that the HS125 had been vectored to the ILS RW24 at Farnborough by the Approach Radar controller under a Deconfliction Service reduced in the vicinity of Fairoaks; this restriction was due to the possibility of a late warning of traffic from the airfield. ATC members commented that, once clear of Fairoaks, by implication, the service returned to a full Deconfliction Service and so the controller should have been aiming at achieving a lateral distance of 5nm from any aircraft that are only showing a primary return. Just over 30 seconds before the CPA, the HS125 pilot was transferred to Farnborough Tower and it was apparent to the Board that if the controller had observed the primary return from the Hurricane in the Blackbushe area at that time, he had not considered that it would subsequently conflict with the HS125. In this respect, although the radar photograph at Figure 4 clearly shows the primary return tracking towards the HS125, the timing of the transfer to Tower occurred between Figures 3 and 4 when the track could have been interpreted to have been in the Blackbushe circuit. Controller members considered that this was a difficult call to make regarding whether or not the controller should have noted the track and applied avoiding action as opposed to transferring the HS125 to Tower under the perception that the unknown track was simply Blackbushe traffic. The Board noted though that, after transferring the HS125 pilot to Tower, the Approach Radar controller had only then noticed the potential confliction with the Hurricane. Although, as discussed, there were mitigating reasons why, the Board considered that this evinced that it was a matter of fact that the Approach Radar controller had not assimilated the impending conflict in a timely manner and that this was a contributory factor. Controller members commented that, commendably, he had then tried to contact the HS125 pilot in the hope that he might still be on frequency (unsuccessfully because he had already changed frequency) but, unfortunately, despite using the Priority line to the Aerodrome controller, CPA took place before he was able to pass the information. The Aerodrome controller did then observe the Hurricane which had passed in close proximity to the HS125 but too late to warn its pilot. Meanwhile, the LARS controller had not observed the aircraft on his radar display because of the incorrect details passed by the Hurricane pilot and the lack of a squawk, both of which were considered to be contributory factors. It was only after a colleague pointed out a primary contact, which had been close to a Farnborough inbound, and he then saw the Hurricane's squawk after the pilot reported at Ockham, that he realised that the Hurricane had been the aircraft in close proximity to the HS125. If he had been aware of the confliction rather than looking in the wrong area for a squawk that had not yet been displayed, he would undoubtedly have advised the Approach Radar controller.

For his part, the Board noted that the Hurricane pilot had departed from Blackbushe and, in accordance with the advisory information stated in the local procedures, made his first call on the Farnborough LARS frequency. Inexplicably, he then mistakenly reported being airborne from Fairoaks heading west for Woking when in fact, he was heading east towards the final approach to RW24 at Farnborough enroute to Ockham. Unfortunate in itself, the outcome of this was that although the LARS controller agreed to provide the pilot with a Basic Service and issued an SSR squawk, he was now looking in entirely the wrong part of his screen to identify the Hurricane. Furthermore, members noted that the allocated squawk did not appear until after CPA with the HS125. GA members wondered why, and surmised that either the pilot had not select it immediately on notification, or the aircraft's equipment needed time to 'warm up'. Either way, given that he was planning to route away from the airfield, the Board agreed that it would have been prudent for the

pilot to have selected a 7000 squawk on departure from Blackbushe even before contacting ATC. This would have activated and 'warmed up' his transponder earlier, alerted the controllers to his presence, and provided the HS125 pilot with an additional TCAS barrier for collision avoidance. The Board then queried the pre-flight planning of the Hurricane pilot and wondered why he had not coordinated his departure, ideally before take-off, with Blackbushe ATC given that he was planning to cross the Farnborough approach path at 1500-2000ft. Although there are no published procedures or statutory requirement for this, it was known that Blackbushe and Farnborough regularly coordinated with each other, and good airmanship would have dictated that he use this means to at least inform Farnborough of his intentions. The Board considered that this lack of notification prior to the Hurricane pilot's departure was also a contributory factor to the incident.

The Board then considered the cause and risk of the Airprox and concluded that this incident represented a classic 'Swiss-cheese' scenario where many of the barriers which would have helped to resolve the confliction were either not available or were breached by a series of human errors and circumstances. ATC were not able to provide any assistance because of the late realisation that the Blackbushe primary return (the Hurricane) was about to head towards the Farnborough approach lane; the late squawk by the Hurricane; and the fact that the Hurricane pilot had mistakenly passed the wrong departure airfield and track. The HS125's TCAS was ineffective because the Hurricane was not squawking before CPA, and situational awareness for all was degraded because the Hurricane pilot did not pre-notify his departure as part of his pre-flight planning. The last remaining barrier, see-and-avoid, was effective though given that It was up to the pilots to observe the other aircraft and take appropriate action, which the Hurricane pilot did. The Board therefore considered that the cause of the Airprox was best described as a conflict in Class G airspace resolved by the Hurricane pilot. Members noted that although the horizontal separation was recorded as 0.2nm at CPA, the Hurricane pilot had been visual with the HS125 from a range of 1nm and had taken timely and effective action to prevent the risk of a collision. The Board agreed therefore that the Airprox should be assessed as risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A confliction in Class G airspace resolved by the Hurricane pilot.

Contributory Factors:

1. The Hurricane pilot reported his initial position incorrectly.
2. Lack of notification prior to the Hurricane pilot's departure.
3. A lack of timely SSR output from the Hurricane.
4. The Approach Radar controller did not assimilate the impending conflict in a timely manner.

Degree of Risk: C.