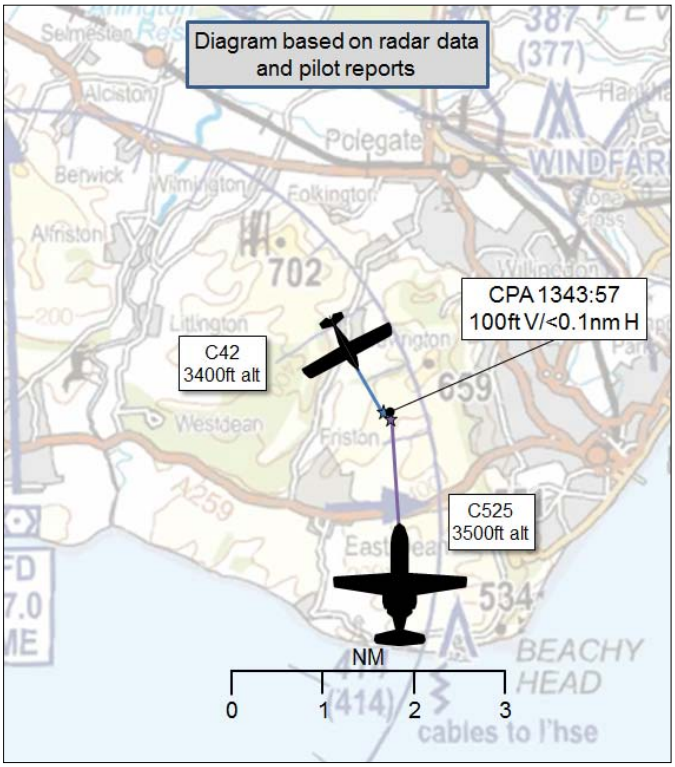
AIRPROX REPORT No 2017036

Date: 07 Mar 2017 Time: 1349Z Position: 5046N 00009E Location: 4nm W Eastbourne

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C42	C525
Operator	Civ Trg	Civ Pte
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening out	Basic
Provider	Deanland	London Information
Altitude/FL	3400ft	3500ft
Transponder	On/C	On/C, S
Reported		
Colours	White, Red	White, Black, Gold
Lighting	Strobe	Beacon, Strobe, Nav
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	3500ft	3000ft
Altimeter	QNH (1017hPa)	NK
Heading	150°	360°
Speed	55kt	240kt
ACAS/TAS	Not fitted	TCAS II
Alert	N/A	None
Separation		
Reported	0ft V/90m H	Not seen
Recorded	100ft V/<0.1nm H	



THE C42 PILOT reports that he was on a training flight for stalling and had climbed to 3700ft to be above small aircraft pottering up the coast and to get continuation of aerodynamic recovery of the stall without interruption to regain altitude. The student had been over controlling and he was showing him how a small amount of aileron was required to maintain an accurate and constant heading. He always labours the importance of lookout in regard to airmanship, saw the other aircraft, and executed a steep turn to the right. He noticed the other aircraft was heading in a northerly direction, apparently with no evasive action taken. Then, after calming his student, he tuned the radio to Farnborough LARS East and heard an aircraft changing frequency to Biggin Hill. He reported an Airprox and returned to the scene to squawk 1732 for Farnborough to identify the area before continuing the lesson at a lower altitude. Both aircraft were in VMC and he was adhering to VFR at the time; the sea breeze had taken the cloud inland 10nm with a base of about 2500ft and tops well over 3000ft.

He assessed the risk of collision as 'High'.

THE C525 PILOT reports that he had left controlled airspace routing towards Mayfield. He did not see the other aircraft and had no TCAS warning.

THE FARNBOROUGH CONTROLLER reports that she was working as the LARS East controller bandboxed with LARS North. A C525 reported on frequency for a Traffic service approximately 3nm south of MAY VOR. She provided the C525 with a Traffic Service before they left the frequency for their destination 8 minutes later. Just after the C525 left the frequency a C42 came on frequency to report an Airprox with a light jet near Eastbourne, about 10 minutes before. Based on the fact that this

was the track that the C525 had taken inbound before they called her and she observed no other fast moving tracks, she deduced that the Airprox was probably with the C525; however she could not verify this. She took all the details of the Airprox from the C42 before they left the frequency.

Factual Background

The weather at Shoreham was recorded as follows:

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METAR EGKB 071320Z 25006KT 220V280 9999 SCT030 09/03 Q1017
METAR EGKB 071350Z 25006KT 200V300 9999 SCT025 08/02 Q1018
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Analysis and Investigation

CAA ATSI

The C42 was conducting flight training VFR at 3700ft, not in receipt of an ATC service.

At 1326:30 the pilot of the C525 had requested to leave controlled airspace and route direct to Biggin Hill whilst still with Swanwick Area Control (AC). At 1332:19 the Swanwick controller transferred the C525 to London FIR, and the pilot reported on that frequency at 1332:35 whilst still inside controlled airspace, 44nm SSW of the Seaford (SFD) VOR, in the descent, passing FL182 to an indicated FL50 (Figure 1).

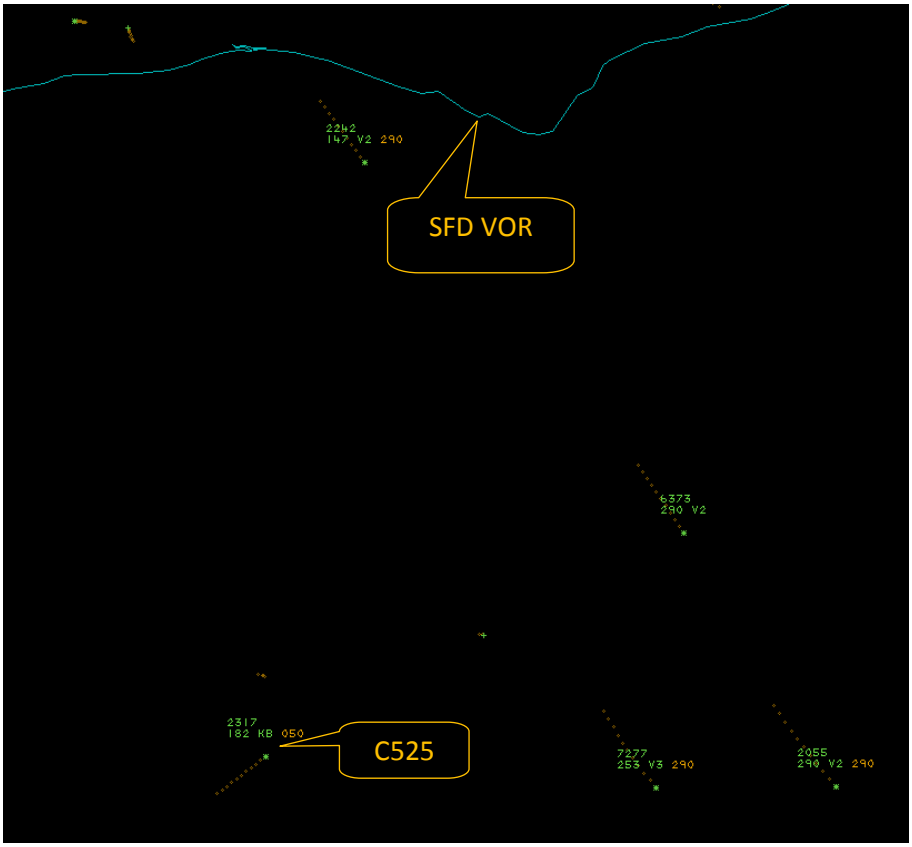


Figure 1 – 1332:35

The C525 pilot reported being on a GODLU 1F (which is the RNAV Standard Arrival (STAR) for London City - although the aircraft was inbound to Biggin Hill), but was asked to standby by the London Flight Information Service Officer (FISO) who was on the landline to another unit.

At 1333:00 the FISO requested the position and level of the C525, which was reported as being FL165 and having just passed reporting point NEVIL, (the initial fix for the STAR). The pilot of the

C525 also stated their intention to leave the STAR once they had descended out of controlled airspace, (the base of controlled airspace was FL75). The FISO confirmed that it would be a Basic Service once they left controlled airspace.

At 1334:00 the FISO asked the C525 at which point they would cross the UK coastline, and the C525 pilot confirmed that it would be in the Eastbourne area. This was acknowledged by the FISO who requested that they report crossing the coastline.

At 1337:00 the FISO again requested the level of the C525. The pilot reported passing FL75 and turning towards the Seaford area. The FISO allocated the London FIS Conspicuity code 1177, and confirmed it was a Basic Service which was acknowledged by the pilot. At 1338:25 the FISO passed the London QNH and advised that they would transfer the C525 to Farnborough Radar as they passed Eastbourne.

At 1341:12 the C525 pilot reported commencing descent to 3500ft. At the same time an intermittent contact (which was subsequently identified as the C42) can be seen on the area radar recording (Figure 2).

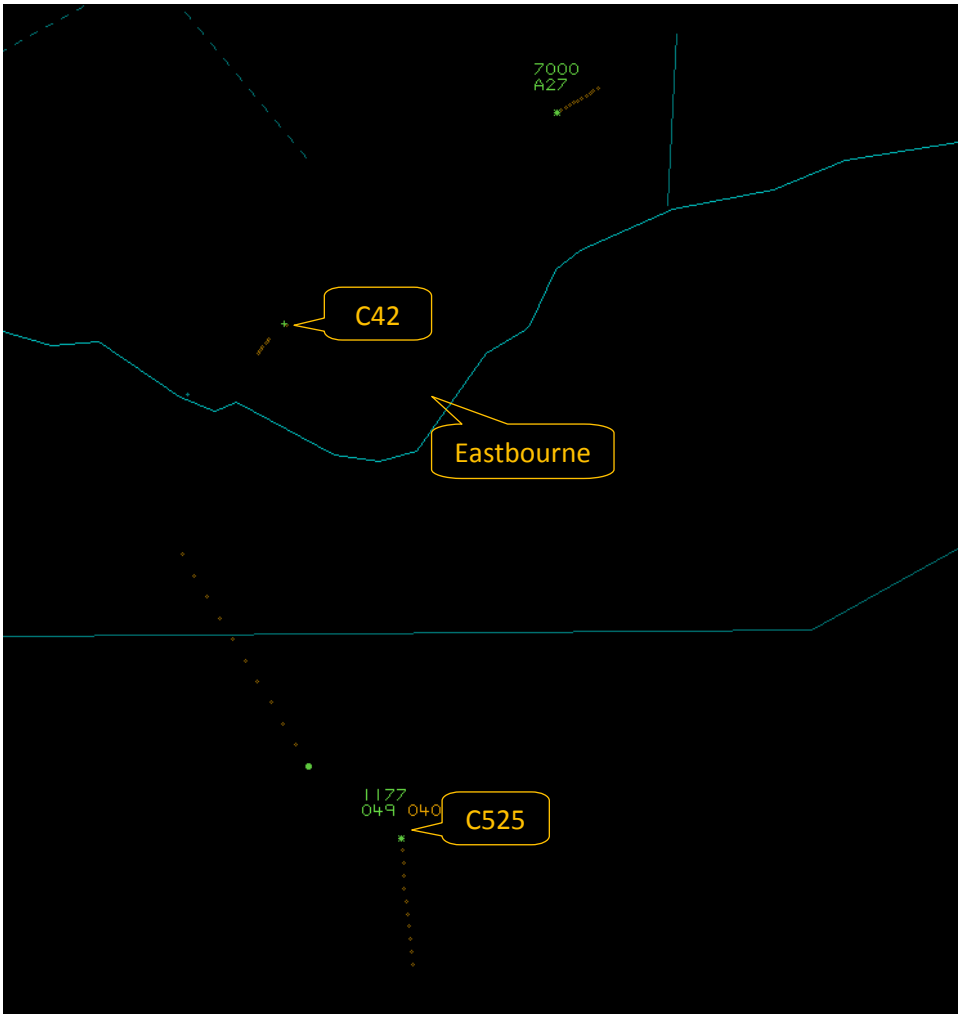


Figure 2 – 1341:12

At 1343:42 the C525 pilot reported crossing the coastline at Eastbourne in the descent to 2300ft. This was acknowledged by the FISO who instructed the C525 pilot to squawk 7000 and to freecall Farnborough Radar giving the pilot the relevant frequency (Figure 3).

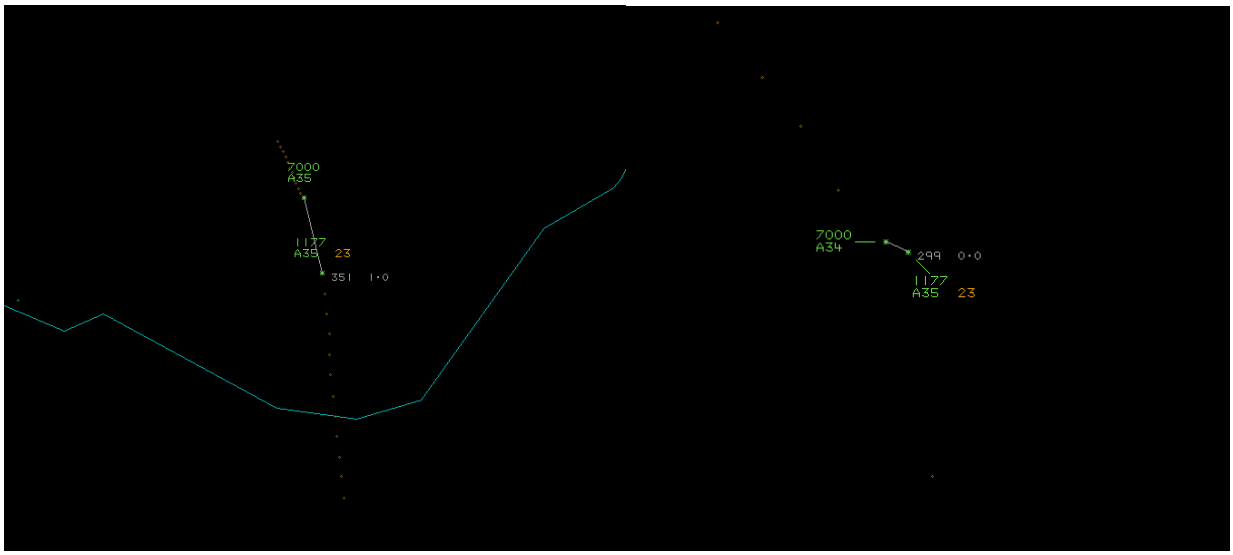


Figure 3 – 1343:42

Figure 4 – 1343:54

CPA took place at 1343:54 with the aircraft separated by less than 0.1nm laterally and less than 100ft vertically (Figure 4).

At 1345:37 the C525 called Farnborough LARS for a Traffic Service but made no mention of an Airprox. At 1349:25 the pilot of the C42 contacted Farnborough LARS to file the Airprox.

The pilot of the C42 submitted video evidence, from which the following stills were taken. Figure 5 shows the C525 visible about two seconds after the point at which the pilot of the C42 was seen to commence avoiding action. The subsequent stills are taken 1 second apart.

Figure 5

Figure 6

Figure 7

London FIR FISOs provide only a Basic Service with no access to surveillance-derived information; their Traffic information is based on aircraft position reports. CAP774, The UK Flight Information Services states:

> *A FISO shall not utilise surveillance-derived data to provide traffic information when providing a Basic Service*.
>
> *A Basic Service relies on the pilot avoiding other traffic, unaided by controllers/ FISOs.*

The pilot of the C525 reported not having seen the C42, nor receiving any TCAS alert, although TCAS II was reported fitted to the C525, and both aircraft were transponding SSR Mode A & C.

Although it was always the intention that the C525 would speak to London FIR once it had left controlled airspace, the fact that it was transferred by the Swanwick AC controller to the London FISO whilst still inside controlled airspace is non-standard; an ATC service cannot be provided by a FISO to an aircraft inside controlled airspace.

UKAB Secretariat

The C42 and C525 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right[2]. If the incident geometry is considered as converging then the C42 pilot was required to give way to the C525[3].

Summary

An Airprox was reported when a C42 and a C525 flew into proximity at 1343 on Tuesday 7th March 2017. Both pilots were operating under VFR in VMC, the C42 pilot was listening out on with Deanland and the C525 pilot in receipt of an Information from London Information.

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 began by discussing the actions of the Swanwick controller in releasing the C525 to London Information whilst still inside controlled airspace. The NATS representatives agreed that this was not normal practice and that aircraft were usually only released when closer to the boundary of controlled airspace and about to enter Class G airspace. Some members wondered whether the Swanwick controller should have offered to transfer the C525 pilot to Farnborough Radar rather than London FIS but controlling members pointed out that the decision to deviate from the planned route and operate outside controlled airspace with London FIS would have been the C525 pilot's, and this was probably something that he would regularly do to save time and fuel. Although not directly pertinent to the incident itself, the Board were informed that the Swanwick ATCO's had been re-briefed regarding their responsibilities for provision of a radar service in controlled airspace even when pilots request to deviate from their planned route and leave controlled airspace early.

The Board then turned to the actions of the C525 pilot. Members agreed that, although the pilot was perfectly entitled to leave controlled airspace early and operate in the open FIR whilst receiving only a Basic Service, bearing in mind the speed of the C525 (240kts) he would have been much better placed to have sought a radar-based Traffic service from an appropriate unit. Given that the C42 was squawking 7000 at the time, members were perplexed that the C525's TCAS did not alert the pilot to the presence of the C42. Some members wondered if the relative aspect of the 2 aircraft may have resulted in aerial blanking but this was discounted as a very unlikely scenario.

Turning to the C42 pilot, members commended him for maintaining a robust lookout whilst conducting his instructional task, which had allowed him to take appropriate avoiding action after sighting the C525 at a late stage. Some members wondered whether he too might have been better placed by asking for a Traffic Service whilst conducting his training sortie, although they recognised that there were trade-offs between the ability to conduct the instructional task in a quiet cockpit environment

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(1) Approaching head-on.
[3] SERA.3210 Right-of-way (c)(2) Converging.

rather than with distracting background ATC calls. Nevertheless, they thought that receipt of a Traffic Service in that busy airspace area would have had value in alerting him to the C525's presence.

The Board then considered the cause and risk of the incident. They agreed that the early release of the C525 from controlled airspace had not directly contributed to this Airprox but noted that, had the C525 pilot maintained in controlled airspace for longer, then he would likely have been transferred directly to a radar unit rather than through London FIS; the C525 aircraft operating authority may wish to consider the risks of early departure from controlled airspace to save fuel and time by direct track versus the loss of protection from radar coverage when operating under see-and-avoid principles in Class G airspace. Ultimately, because both pilots were operating under see-and-avoid in Class G airspace with no ATS, the Board quickly agreed that the fundamental cause of the incident had been a late sighting by the C42 pilot and a non-sighting by the C525 pilot, with a contributory factor that the C525 pilot had not been alerted to the C42's presence by his TCAS equipment. Turning to the risk, members agreed that because the C525 pilot had not seen the C42, and that the C42 pilot had only seen the C525 late and had only been able to turn to avoid it at the very last minute, there had been a serious risk of collision where providence had played a major part; accordingly, the Board assessed the risk as Category A.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A late sighting by the C42 pilot and a non-sighting by the C525 pilot.

Contributory Factor(s): The C525 TCAS did not alert.

Degree of Risk: A.

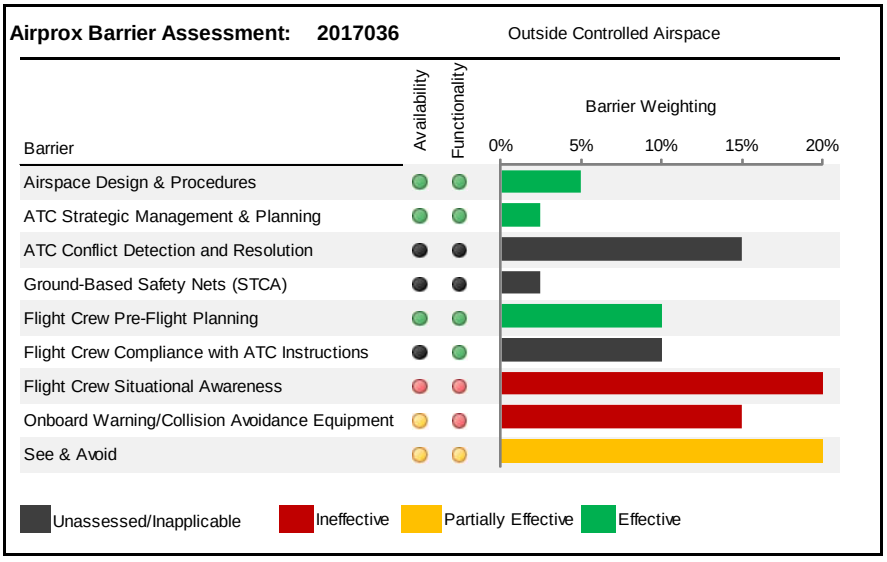
Safety Barrier Assessment[4]

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

Flight Crew Situational Awareness was assessed as **ineffective** because neither aircraft was aware of the other because they were on different frequencies, both without a radar-based ATS.

Onboard Warning/Collision Avoidance System was assessed as **ineffective** because although the C525 was fitted with TCAS II, and both aircraft were transponding, TCAS did not alert the C525 pilot of the presence of the C42.

See and Avoid was assessed as **partially effective** because the C525 pilot did not see the C42, and the C42 pilot only saw the C525 late and had to take last-minute emergency avoiding action.



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