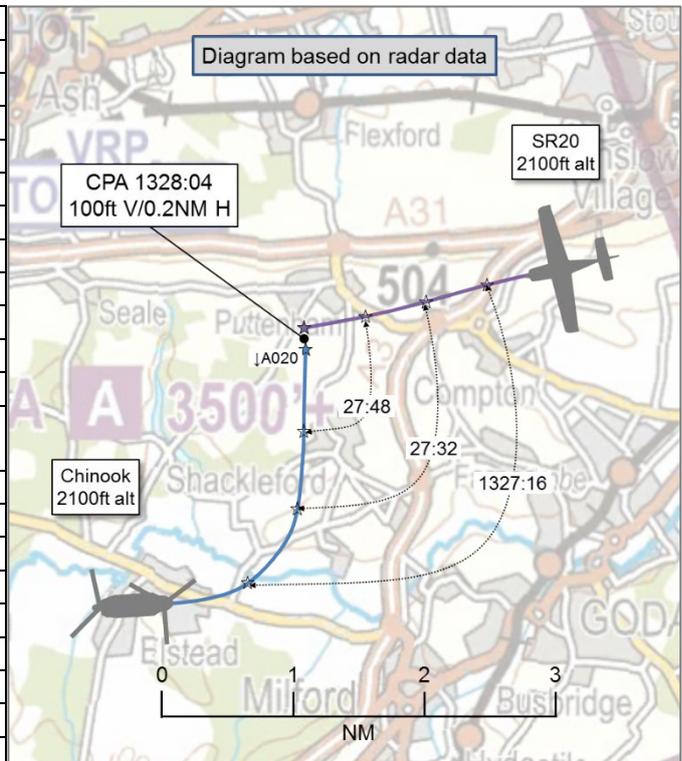


**AIRPROX REPORT No 2019328**

Date: 05 Dec 2019 Time: 1328Z Position: 5113N 00040W Location: 5NM SE of Farnborough

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Chinook	Cirrus SR20
Operator	HQ JHC	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	Traffic
Provider	Odiham	Farnborough
Altitude/FL	2000ft	2100ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Green	White
Lighting	HISLs, Nav lights	Nav, Strobe, Landing lights
Conditions	VMC	VMC
Visibility	20km	>10km
Altitude/FL	NK	2100ft
Altimeter	QFE (1003hPa)	QNH (1019hPa)
Heading	360°	260°
Speed	NK	137kt
ACAS/TAS	TAS	Unknown
Alert	TA	Unknown
Separation		
Reported	NK V/100-150m H	100ft V/750m H
Recorded	100ft V/0.2NM H	



**THE CHINOOK PILOT** reports that, when on base turn under vectors for an ILS and established on a heading of 360° at 1600ft on the Odiham QFE, the non-handling pilot reported a TAS conflict in the 3 o'clock position on the screen, which had highlighted as a level advisory. ATC then gave Traffic Information on another aircraft. With both pilots now looking out for both aircraft, the non-handling pilot spotted the TAS advisory aircraft and called it to the handling pilot; it was at a range of about 500m in the 12 o'clock. The handling pilot called visual, but the lack of manoeuvre to avoid the closing TAS advisory traffic indicated that it was the ATC-called traffic that they had seen. The non-handling pilot took control and initiated a descending right-hand turn away from the TAS advisory traffic, with the closest point of approach being 100-150m separation. The light-aircraft did not alter course or altitude. Once clear of the advisory, the aircraft captain informed ATC that vectors could be continued for the approach. On landing, an Airprox was transmitted to ATC giving the details.

The pilot assessed the risk of collision as 'Very High'.

**THE SR20 PILOT** reports that he was flying west with 3 qualified pilots on board, having agreed a Traffic Service from Farnborough Radar. They heard a similar callsign on the radio with an advisory, but it was not their callsign. They saw the Chinook to the left and below their flightpath and remained in visual contact. The Chinook took a turn to the right to pass behind and below their aircraft. No avoiding action was taken as they were visual and, according to the right-of-way rules, had right of way.

The pilot assessed the risk of collision as 'Low'.



**THE ODIHAM APPROACH CONTROLLER** reports that they were controlling one aircraft in the Radar Training Circuit and operating SSR-alone. On this particular radar circuit, the pilot had requested a practise No Compass No Gyro (NCNG) for ILS RW27. When the aircraft was on the downwind leg, the controller talked to Farnborough about a possible conflicting aircraft routing SW though the approach lane. They were told that the aircraft would be maintaining heading at 2400ft on the Farnborough QNH of 1019hPa. The aircraft was indicating slightly below that on the controller's radar, but not significantly. The Chinook was at a height of 1600ft on the Odiham QFE of 1004hPa, equivalent to 2100ft on the Farnborough QNH. The controller passed Traffic Information to the Chinook pilot when the other aircraft was approximately 8NM to the NE; the pilot was not visual. At about 10 miles from the airfield, he instructed the Chinook pilot to turn more northerly to keep a reasonably tight pattern, intending to keep the Chinook south of the conflicting aircraft. However, with the slower return rate of SSR, the aircraft was seen to overshoot the intended flight path. They re-issued Traffic Information at 2NM and the pilot replied that he was visual, so the controller left him to continue steady until past the other aircraft. The Chinook pilot reported that the traffic passed his nose at about 150m; he took avoiding action and declared an Airprox. After the incident he cancelled his NCNG and completed the ILS successfully.

The controller perceived the severity of the incident as 'Low'.

**THE ODIHAM ATCO I/C** reports that, at the time of the event, he was covering the Talkdown position. The Approach controller had a Chinook on frequency conducting NCNG on an IFR approach for the ILS to RW27. A conflicting aircraft was identified by the controller; it was squawking a Farnborough code and was indicating 100ft above the Chinook, so the controller called Farnborough for Traffic Information. The controller passed Traffic Information to the pilot and continued the approach on a downwind leg. The next time the ATCO I/C saw the Chinook, the two aircraft were approximately 3NM apart with the Chinook still on the downwind leg. The Approach controller turned the Chinook onto a northerly track; at this point the aircraft were approximately 1.5NM apart and he prompted the controller to call the traffic again to the Chinook pilot. The controller complied and the pilot of the Chinook called visual. About 30sec later, the Chinook was observed to be turning onto a westerly heading [in fact, an easterly heading] and the pilot reported that he was turning to avoid the conflicting traffic. The pilot cancelled his NCNG and asked for a heading to intercept the ILS. Once established, the pilot informed the controller that he was filing an Airprox.

**THE FARNBOROUGH APPROACH CONTROLLER** reports that they were working Approach and LARS W band-boxed. Traffic complexity was moderate, with extra workload caused by the Odiham traffic pattern being active and the subsequent coordination required. At the time of the Airprox, RT loading was high. While they were working Approach traffic inbound, they were also working other LARS traffic, including an SR20 whose pilot had requested a Traffic Service on LARS W. They asked the pilot his routing and asked if he could report if he needed to climb above 2400ft against the inbound traffic, to which the pilot agreed. As part of coordination on Farnborough outbound traffic against the Odiham pattern traffic, Traffic Information was passed to Odiham Approach on the SR20 which was about 3NM SW of OCK. At the time, the Odiham pattern being active and the presence of an aircraft to cross the climb-out lane necessitated quite a bit of coordination with Odiham and changing of departure instructions with Tower and, as a result, the controller had a short-term increase in workload and RT/landline loading. They continued vectoring traffic inbound above and around the Odiham pattern traffic and departing Farnborough traffic. When they next scanned the SR20, they were very surprised to see that Odiham had turned their Chinook traffic on to base-leg and into direct conflict with the SR20, to the point that the radar returns were only about 0.5NM apart. The controller immediately passed Traffic Information and repeated it shortly thereafter as the pilot did not initially respond, but by this point the aircraft had passed each other. They were informed the next day that the Chinook pilot had reported an Airprox.

## Factual Background

The weather at Farnborough was recorded as follows:

METAR EGLF 051320Z AUTO 22011KT 9999 NCD 08/06 Q1019=

## Analysis and Investigation

### NATS Unit Investigation

UKAB Note - radar screenshots are taken from the ATSI report to avoid duplication.

The Cirrus SR20 pilot was working LARS W with a Traffic Service, squawking 0431. The Chinook pilot was working Odiham Approach, being vectored for an instrument approach to RW27 and squawking 3650. The LARS W controller was band-boxed with Approach and the traffic loading was medium with two inbounds and an outbound from Farnborough, and 4 LARS tracks (Figure 1).

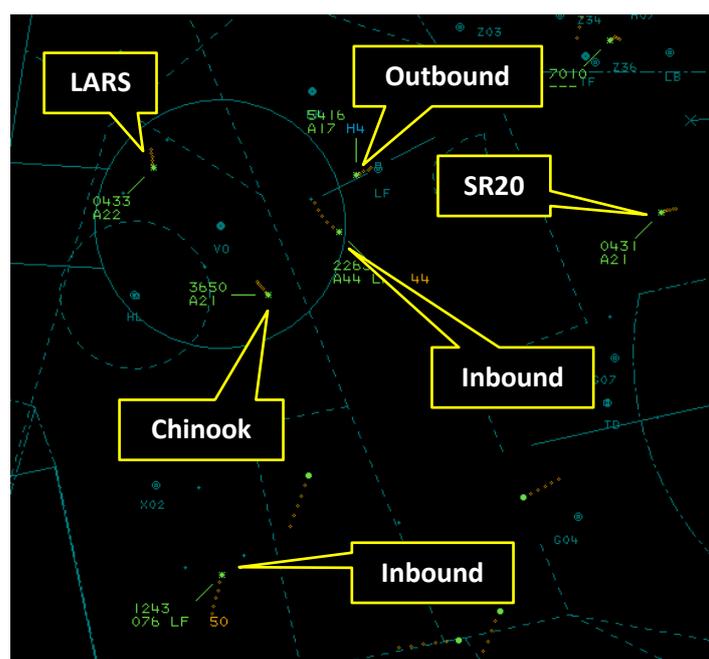


Figure 1 – 1323:41

At 1325:40, the LARS W controller telephoned Odiham Approach to co-ordinate the Chinook against a Farnborough departure and, while on the telephone, the Odiham controller requested Traffic Information on the Cirrus:

ODI APP – “Ok, no problem, can I get Traffic Information on your 0431 (the Cirrus) south-westerly?”

FARN APP – “0431, maintaining 2400ft to the south-west, to Newquay”

ODI APP – “2400ft, south-west, on that track”

FARN APP – “Affirm”

ODI APP – “Thank you”

The Cirrus continued on a south-westerly track as Odiham Approach vectored the Chinook downwind. The workload of the LARS W controller increased because they had another departure and aircraft requesting to leave the frequency (Figure 2). Traffic Information was not initially called to the Cirrus pilot on the Chinook, but was passed by the LARS W controller at 1327:56 “[Cirrus C/S], traffic to the South of you, range half-a-mile, northbound, type rotary, 2000ft”. The Cirrus pilot did not reply to this transmission (Figure 3).

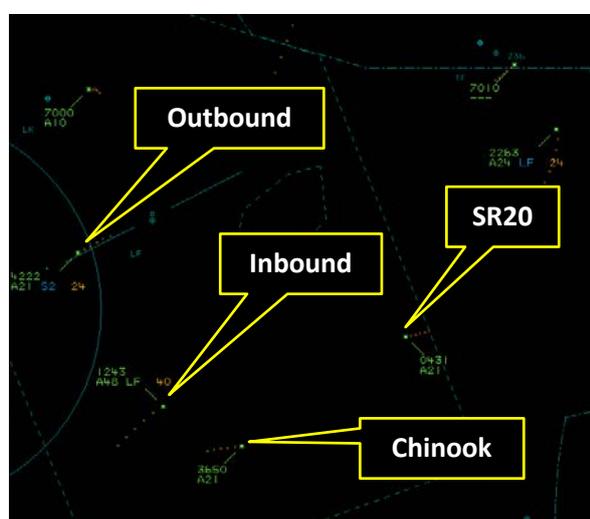


Figure 2 – 1326:44

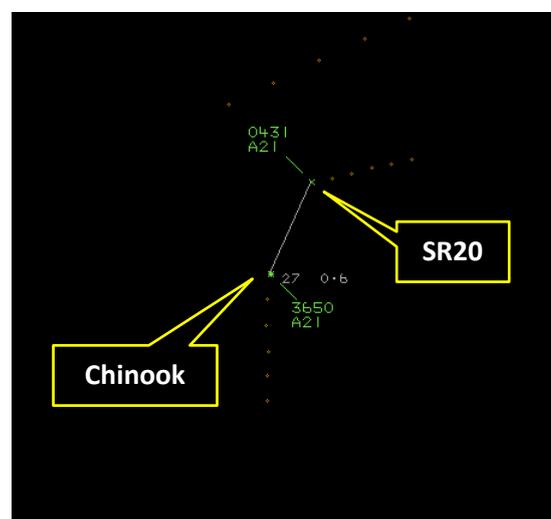


Figure 3 - 1327:57

At 1328:13, the LARS W controller again passed Traffic Information to the Cirrus pilot “[Cirrus C/S], military rotary traffic passing behind you, 2000ft, has you visual”; no reply was received from the Cirrus pilot. On the third attempt, the LARS W controller received a response from the Cirrus pilot and so re-issued Traffic Information: “Been trying to call you sir, there is military rotary traffic to the east of you now, 1 mile, eastbound, similar level, has you visual.” The Cirrus pilot responded “Err, we are visual with the traffic” at 1328:32.

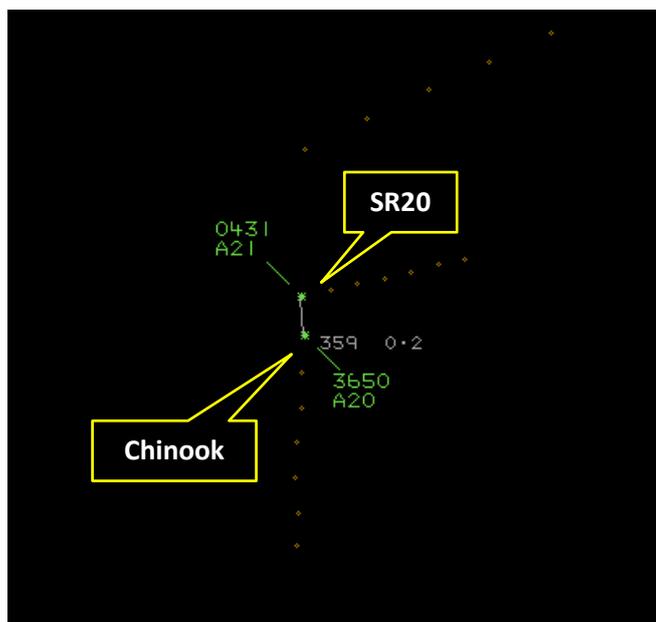


Figure 4 – 1328:04 CPA

The RT and radar recordings were reviewed, and the controller was interviewed. Although this was a retrospective Airprox, due to Farnborough being notified the day after the event, the controller was able to recall much of the event.

The Cirrus pilot was receiving a Traffic Service from Farnborough on the LARS W frequency. The track of the Cirrus took them through the radar pattern for Odiham, but not the MATZ. Procedures between Farnborough and Odiham state that Traffic Information shall be passed to Odiham on any traffic transiting their MATZ working Farnborough while the Odiham radar pattern is active that is of significance to the Odiham pattern traffic. Although the Cirrus was not transiting the MATZ, Traffic Information was passed to Odiham on the intentions and altitude of the Cirrus pilot by Farnborough Radar at 1325:40. It is not standard practice for Odiham to inform Farnborough of the service that their radar pattern traffic is under, but any traffic avoidance or deconfliction is the responsibility of Odiham. Odiham may ask Farnborough for co-ordination with any traffic they are working, such as to route a certain way, or be not above a certain altitude; that was not requested in this instance. After the LARS W controller had passed Traffic Information to Odiham, because Odiham did not request any co-ordination, the LARS W controller would have expected Odiham to vector their aircraft to avoid the Cirrus.

The track of the Cirrus routed to the north of the downwind leg that the Chinook was being vectored on, and the LARS W controller did not call Traffic Information on the Chinook to the Cirrus pilot. This was because the LARS W controller did not think that the Chinook was significant traffic to the Cirrus due to their respective tracks, and the LARS W controller's belief that Odiham would vector round behind the Cirrus. The LARS W controller was busy vectoring approach movements inbound to Farnborough and, when they next checked on the Cirrus, they noticed that Odiham had vectored the Chinook onto a base-leg that was taking it towards the Cirrus. The LARS W controller therefore issued Traffic Information to the Cirrus pilot but received no reply. It took a further 2 attempts to contact the Cirrus pilot and, when they finally replied, they said they were visual with the Chinook.

Of note, the LARS W controller stated that the Chinook crew was visual with the Cirrus. This was not heard on any RT or telephone recordings of the incident because the telephone call from Odiham was answered by another controlling position due to the LARS W controller being busy. This information was then passed to the LARS W controller, who in turn passed it to the Cirrus pilot.

The Cirrus and the Chinook were both operating outside controlled airspace in Class G. The Cirrus pilot was receiving a Traffic Service from Farnborough LARS W and, in accordance with CAP774, was responsible for their own collision avoidance.

Traffic information on the Cirrus was passed to Odiham Approach, as per the MATS Part 2 procedures. No co-ordination was requested by Odiham regarding integrating the Chinook with the Cirrus as they routed through the final approach track. Farnborough therefore expected Odiham to vector the Chinook to remain clear of the Cirrus and, consequently, the Farnborough controller judged that the Chinook would remain well south of the Cirrus and thus Traffic Information was not relevant at that point due to the respective position and tracks of the two aircraft (as per CAP774). When the Farnborough LARS W controller became aware that this was not happening, they passed Traffic Information to the Cirrus pilot on the Chinook. However, the Cirrus pilot had to be called 3 times before they responded to the controller by reporting visual with the Chinook.

## CAA ATSI

Farnborough controllers were required to provide a deconfliction minima of 5NM and 3000ft for Farnborough inbounds and outbounds against all other unknown traffic, because they were operating (at the time of this incident), in Class G airspace. Further, when sequencing aircraft to RW24 at Farnborough, there is a need for extra vigilance when aircraft are being turned onto base-leg to avoid infringing the London CTR (8.5NM final). Also, when on base-leg and final approach they must watch for 'pop-up' traffic and traffic departing Fairoaks airfield, located underneath the final approach, which may require the inbound aircraft to be broken-off the approach.

The Farnborough controller was having to deconflict the departures and arrivals against each other, the Chinook, and the SR20. Also, during the time immediately prior to CPA, the second Farnborough inbound was tracking towards controlled airspace and the controller apparently prioritised the issuing of descent to that aircraft to avoid infringing the London TMA; descent of the inbound had likely been delayed due to the need to pass over the top of the SR20 by at least a 1000ft in accordance with reduced deconfliction minima as previously coordinated with the SR20. It is possible to coordinate a clearance to enter the London TMA with London Terminal Control, but this would have had to have been initiated earlier.

Often at Farnborough, it is the complexity rather than the level of traffic which can be the main factor affecting workload. Forecast periods of medium/high traffic levels are monitored and the Farnborough LARS W/Approach positions normally split in anticipation. At other times, a support controller, if available, can be utilised. It is not known if either option had been considered.

The Farnborough controller did not pass timely Traffic Information to the SR20 pilot on the Chinook. When Traffic Information was first passed, the aircraft were already only 0.5NM apart (at 1327:57), and only the last character of the SR20's callsign was transmitted, which might explain why the pilot of the SR20 did not respond. When the controller called the traffic again at 1328:13, the SR20's callsign was correctly abbreviated but again this did not appear to have been heard by the SR20 pilot.

The SR20 pilot stated in their report that *"we heard a similar call-sign on the radio with an advisory, but not ours"*, although no other similar callsigns were heard in the RTF recording at that time. On both occasions, the Farnborough controller advised the SR20 pilot that the Chinook pilot had them visual, but it is not clear from where the controller obtained this information, as they were not speaking to the Chinook pilot (or Odiham), and this was not reflected in either the Chinook pilot's or the Odiham controller's reports.

CAP774 states:

### Traffic information

3.5 The controller shall pass traffic information on relevant traffic, and shall update the traffic information if it continues to constitute a definite hazard, or if requested by the pilot. However, high controller workload and RTF loading may reduce the ability of the controller to pass traffic information, and the timeliness of such information.

*Traffic is normally considered to be relevant when, in the judgement of the controller, the conflicting aircraft's observed flight profile indicates that it will pass within 3 NM and, where level information is*

available, 3,000 ft of the aircraft in receipt of the Traffic Service or its level-band if manoeuvring within a level block. However, controllers may also use their judgment to decide on occasions when such traffic is not relevant, e.g. passing behind or within the parameters but diverging. Controllers shall aim to pass information on relevant traffic before the conflicting aircraft is within 5 NM, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary.

The Airprox took place in Class G airspace where the pilots of both aircraft were receiving a Traffic Service and were both ultimately responsible for their own collision avoidance.

### Military ATM

The SR20 was routing at 2100ft in receipt of a Traffic Service from Farnborough LARS. The SR20 pilot reported becoming visual with the Chinook at a range of 2NM with an estimated 100ft separation and, believing that adequate separation existed, took no avoiding action. The Chinook pilot was conducting multiple instrument approaches to RAF Odiham under a reduced Traffic Service due to Odiham operating SSR only. While conducting a simulated No Compass No Gyro approach, the Chinook TAS alerted the crew to a potential conflict and Odiham Approach also passed Traffic Information. The Chinook crew reported visual with the SR20 when it was in their 12 o'clock at an estimated range of 500m and took an avoiding action turn and descent away.

Figures 5-9 show the positions of the Chinook and SR20 at relevant times in the lead-up to, and during, the Airprox. The screenshots are taken from a replay using the Pease Pottage radar, which is not utilised by RAF Odiham, therefore is not representative of the picture available to the Odiham Approach controller.

The Chinook climbed-out from Odiham having completed an instrument approach and was in receipt of a reduced Traffic Service due to Odiham operating SSR only. The Chinook pilot requested a practise NCNG approach culminating in an ILS. At the time the Chinook climbed-out, the SR20 was 27NM to the E of Odiham (Figure 5).

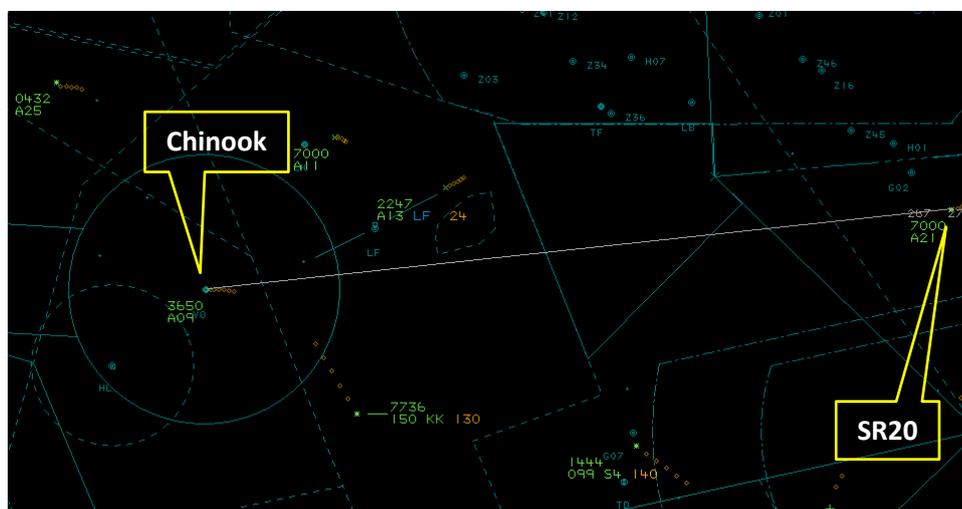


Figure 5 – Chinook climb-out

At 1325:20, Farnborough contacted Odiham to advise that an aircraft would be departing ahead of the Chinook. The Odiham Approach controller requested Traffic Information on the SR20 and was told that it was routing to the south-west at 2400ft. Separation at this point was 11NM (Figure 6). The Odiham Approach controller passed Traffic Information to the Chinook pilot for the first time at 1326:26. Separation at this point was 8NM (Figure 7).

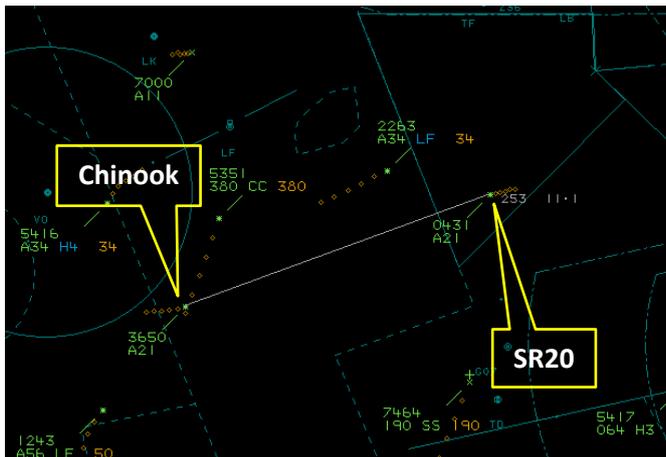


Figure 6  
TI between Odiham and Farnborough



Figure 7  
First TI to the Chinook pilot

The Odiham Approach controller passed Traffic Information for a second and final time at 1327:37. Separation had decreased to 1.5NM but, by this point, the SR20 pilot noted in their report that they were already visual with the Chinook (at 2NM) (Figure 8). The Chinook pilot reported being visual with the SR20 some 10sec after this final piece of Traffic Information. By this point separation had decreased to 1.2NM (Figure 9).

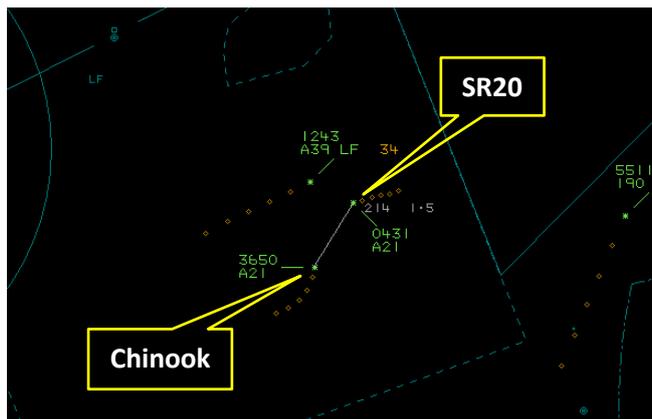


Figure 8 - 2<sup>nd</sup> TI to the Chinook pilot

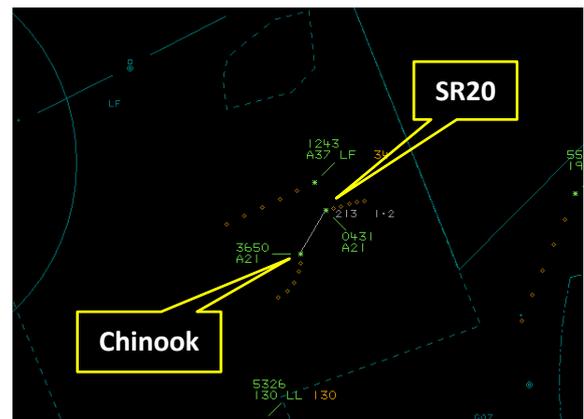


Figure 9 – Chinook pilot visual with SR20

CPA occurred approximately 15sec after the Chinook pilot reported visual and was measured at 0.2NM and 100ft.

The Odiham Approach controller stated that they intended to keep the Chinook on a reasonably tight pattern (ahead of the SR20) but ‘overshot’ a little, which placed the aircraft closer than anticipated. However, a NCNG approach is always difficult for a controller to vector and this would have been made even more so by operating SSR only with its update rate inherently slower than primary radar. Notwithstanding, Traffic Information was passed to the Chinook pilot on 2 occasions, which allowed the Chinook crew to become visual with the SR20 at 1.2NM, by which point the SR20 pilot was already visual with the Chinook.

## UKAB Secretariat

The Chinook and Cirrus SR20 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>1</sup> If the incident geometry is considered as converging then the Chinook pilot was required to give way to the Cirrus SR20.<sup>2</sup>

## Comments

### JHC

This airprox occurred in good weather conditions with both aircraft in receipt of a Traffic Service. Odiham was operating SSR-alone and the Chinook pilot had been informed on initial climb-out of 'reduced traffic information, operating SSR-alone'. On this approach, the Chinook pilot had elected to carry out a practise NCNG approach.

During the downwind leg, Traffic Information on the SR20 was obtained from Farnborough LARS but, as the Chinook was under a Traffic Service, this information was simply used to build the SA of the controller and the Chinook pilot, with no requirement for coordination. The Odiham controller called the SR20 to the Chinook pilot initially at 8NM and then shortly after, before the Chinook pilot was visual, began a turn to the north with the intention of routing behind. Whilst the controller did not intend to vector the aircraft into conflict, this Airprox serves as a warning for the caution required when controlling NCNG aircraft and, in particular, if operating SSR-alone. With turns difficult to judge even with the aid of Primary Surveillance Radar, a more conservative estimate, foregoing expedition, would have been more appropriate in this instance. Both TAS and the controller alerted the Chinook pilot to the conflicting aircraft, which eventually led to a positive sighting and effective avoiding action.

## Summary

An Airprox was reported when a Chinook and a Cirrus SR20 flew into proximity 5NM SE of Farnborough at 1328hrs on Thursday 5<sup>th</sup> December 2019. Both pilots were operating under VFR in VMC, the Chinook pilot in receipt of a Traffic Service from Odiham Approach and the Cirrus SR20 pilot in receipt of a Traffic Service from Farnborough LARS W.

## **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. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board first considered the actions of the Chinook pilot and wondered why, having received Traffic Information on the Cirrus at a range of 8NM, he had then not questioned the northerly turn issued by the Odiham controller. Members agreed that the most likely explanation was that he had not assimilated the relative position of the Cirrus and that the turn would then place the 2 aircraft into conflict (**CF6**). A lengthy discussion followed regarding the Chinook pilot's 'visual' call in response to the Odiham controller's issuance of Traffic Information at a range of 1.5NM from the Cirrus. Members wondered

<sup>1</sup> SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

<sup>2</sup> SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

why, having called visual, the Chinook pilot had then continued on track towards the Cirrus. A controller member proffered that, being concerned by the proximity of the TAS contact (**CF7, CF8**), and while searching for both the TAS contact and the traffic that the controller had called, perhaps the Chinook pilot had been visual with the Farnborough inbound track that was approximately 0.5NM beyond and 1500ft above the Cirrus at the time the Traffic Information had been passed. Members agreed that this was could indeed have been the case and, therefore, that the Chinook pilot had sighted the Cirrus late (**CF9**).

The Board then considered the actions of the Cirrus pilot and was heartened that he had agreed a Traffic Service from Farnborough LARS to aid his situational awareness. Members noted that he had become visual with the Chinook at a range of approximately 2NM and had considered that, under SERA.3210, it was for the Chinook pilot to give way to his aircraft. The Board felt that, although he had evidently not been concerned by the proximity of the Chinook (**CF10**), in maintaining course, speed and altitude he had assumed that the Chinook pilot had been visual with his aircraft, which had not been the case. Members felt that a more prudent course of action from the Cirrus pilot may have been to climb, descend or alter course to increase separation.

Turning to the actions of the controllers involved, the Board heard from an ATC advisor that the operating principles in the airspace shared by Farnborough and Odiham dictate that the Odiham controllers are expected to avoid Farnborough traffic, and that this had been a reasonable expectation on the part of the Farnborough controller once information had been exchanged with the Odiham controller on their respective tracks. However, subsequent to the Board meeting, further engagement between the UKAB Secretariat and Odiham took place regarding the understanding of controllers at Odiham *vis-à-vis* the Farnborough controller's expectations. The Letter of Agreement in force at the time of the Airprox was provided and this does not mention that Odiham controllers are expected to avoid Farnborough LARS tracks. Regarding the lack of primary radar at Odiham on this day, a military member advised that there is currently no capability to accurately simulate the radar refresh rate of SSR-alone in the synthetic environment and, therefore, the only opportunity controllers had to practise controlling an aircraft under NCNG conditions when operating SSR-alone was in the live environment. Therefore, the Board felt that the Odiham controller had misjudged the lower refresh-rate of the SSR (**CF2**) and, therefore, the timing of the base-leg turn for the Chinook and had inadvertently vectored the aircraft into conflict with the Cirrus (**CF1, CF4**). Members considered that, once the Chinook had turned towards the Cirrus, either controller could have intervened to resolve the conflict, but that the lower refresh-rate of the Odiham controller's SSR, and the Farnborough controller's expectation that the Odiham controller would avoid the Cirrus, led to a late detection of the conflict from both controllers (**CF3**). The Board also felt that, although the Farnborough controller had issued Traffic Information on the Chinook to the Cirrus pilot as soon as he had detected the conflict, it had, nonetheless, been late (**CF5**). That said, the Board noted that the Farnborough controller's expectation that the Odiham controller would have avoided the Cirrus probably led to a decreased scan of the Cirrus' track on the part of the Farnborough controller.

In considering the risk involved in this Airprox, members took into account the fact that the Chinook pilot had probably misidentified the traffic called to him by the Odiham controller when he had been turned onto the base leg and that, when he had sighted the Cirrus at closer range, he had manoeuvred his aircraft both horizontally and vertically to increase the separation. However, they also noted that the Cirrus pilot stated in his report that he had been visual with the Chinook at a range of approximately 2NM and that this had, therefore, effectively removed any collision risk. Consequently, the Board unanimously agreed that, although safety had been degraded, no risk of collision had existed; Risk Category C.

**PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK****Contributory Factors:**

	2019328		
CF	Factor	Description	Amplification
<b>Ground Elements</b>			
<b>• Regulations, Processes, Procedures and Compliance</b>			
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
<b>• Manning and Equipment</b>			
2	Organisational	• Aerodrome and ATM Equipment	Inadequate or unavailable equipment
<b>• Situational Awareness and Action</b>			
3	Human Factors	• Conflict Resolution- Inadequate	
4	Human Factors	• Inappropriate Clearance	Controller instructions contributed to the conflict
5	Human Factors	• Traffic Management Information Provision	Not provided, inaccurate, inadequate, or late
<b>Flight Elements</b>			
<b>• Situational Awareness of the Conflicting Aircraft and Action</b>			
6	Human Factors	• Understanding/Comprehension	Pilot did not assimilate conflict information
7	Human Factors	• Interpretation of Automation or Flight Deck Information	Pilot was concerned by the proximity of the other aircraft
<b>• Electronic Warning System Operation and Compliance</b>			
8	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication
<b>• See and Avoid</b>			
9	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
10	Human Factors	• Perception of Visual Information	Pilot perceived there was no conflict

**Degree of Risk:**            C

**Safety Barrier Assessment<sup>3</sup>**

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

**Ground Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the Odiham Approach controller vectored the Chinook into the path of the Cirrus SR20.

**Manning and Equipment** were assessed as **partially effective** because the Odiham controller had no Primary Surveillance Radar and was working SSR-alone.

**Situational Awareness of the Confliction and Action** were assessed as **ineffective** because the Farnborough LARS W controller expected the Odiham Approach controller to vector the Chinook behind the Cirrus SR20 but the Odiham Approach controller misjudged the turn and vectored the Chinook in front of it.

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

**Flight Elements:**

**Situational Awareness of the Conflicting Aircraft and Action** were assessed as **partially effective** because the Chinook pilot, having received Traffic Information on the Cirrus SR20, did not question the controller’s instruction to turn towards it.

**See and Avoid** were assessed as **partially effective** because the Chinook pilot did not see the Cirrus until immediate avoiding action was necessary, and the Cirrus pilot, having sighted the Chinook at a range of approximately 2NM, assessed that there was no conflict.

Airprox Barrier Assessment: 2019328		Outside Controlled Airspace						
Barrier	Provision	Application	Effectiveness					
			Barrier Weighting					
			0%	5%	10%	15%	20%	
Ground Element	Regulations, Processes, Procedures and Compliance	✓	⚠					
	Manning & Equipment	⚠	⚠					
	Situational Awareness of the Conflicting & Action	✓	✗					
	Electronic Warning System Operation and Compliance	⊖	⊖					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	✓					
	Situational Awareness of the Conflicting Aircraft & Action	✓	⚠					
	Electronic Warning System Operation and Compliance	⚠	✓					
	See & Avoid	✓	⚠					
<b>Key:</b>								
	Full	Partial	None	Not Present/Not Assessable	Not Used			
Provision	✓	⚠	✗	⊖				
Application	✓	⚠	✗	⊖	○			
Effectiveness	■	■	■	■	□			