AIRPROX REPORT No 2010097

Date/Time: 22 Jul 2010 2130Z NIGHT

Position: 5120N 00131W (1½nm SE of Rivar Hill GS - elev 730ft)

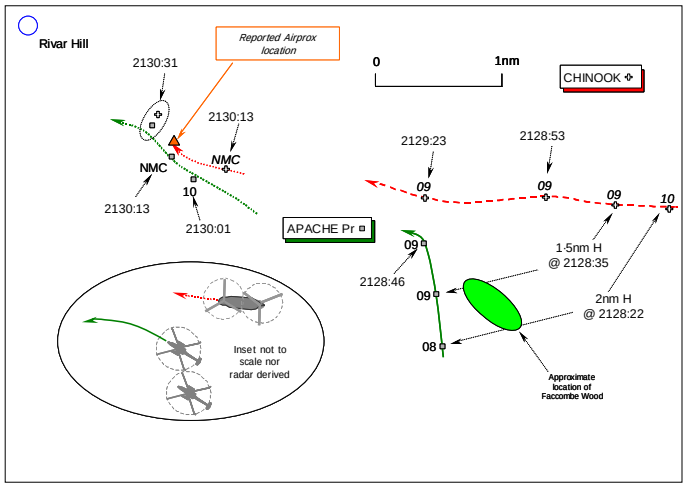
Airspace:	NLFS	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Apache AH1 pr	Chinook HC1
Operator:	HQ JHC	HQ JHC
Alt/FL:	300ft agl	250ft agl
Weather:	VMC CLOC	VMC N/R
Visibility:	15km	10km

Reported Separation:

Nil V/150m H 400m H

Recorded Separation:

Not recorded



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE APACHE AH 1 PILOT reports he was leading a pairs night low-level conversion training sortie departing from Middle Wallop and routeing N from Andover at 300ft agl, VFR and not in receipt of an ATS. A squawk of A2676 was selected [unverified Middle Wallop conspicuity] with Mode C on; TCAS is not fitted. Both ac were displaying glimmers [non-NVG compatible tactical lights not visible all round] and conventional navigation lights on steady bright; in addition his No 2 also had red HISLs on.

Monitoring LFS Common – 278·0MHz – he heard a Chinook crew making a blind call on the frequency stating that they would be routeing Newbury - Burbage [about 4½nm W of Rivar Hill] - Westbury. As the formation commander he made a blind call on LFS Common that the 2 Apaches were routeing N from Andover and thence N to Faccombe Wood, before turning W towards Rivar Hill Gliding Site (GS) [at 51° 20' 38"N 001° 32' 35"W]. From the Chinook crew's call he knew that they would be roughly in the same area at the same time so he tried to get a formal acknowledgement that they had received his RT call. No response was heard from the Chinook crew after 2 attempts, but he then gained visual contact on the Chinook and realised that it would be behind them; his No 2 remained visual with the Chinook until he also turned away routeing to the W [leaving the Chinook astern]. About 2nm out from Rivar Hill GS he then heard the Chinook crew call 'routeing Burbage following a formation of 2 ahead'. This gave the Apache formation leader the impression that the Chinook would remain behind his formation. About 1 min later heading 300°(T) at 80kt his No 2 called 'break left and climb', which he started to do. At this point he saw the Chinook on his starboard side overtaking his helicopter at the same height. To avoid the Chinook he rolled L and entered a slight climb as it passed about 150m away to starboard with a 'high' Risk of collision. The Airprox occurred at OS Grid SU 338 591 - 51° 19' 46"N 001° 30' 53" – about 1½nm SE of Rivar Hill. He established communication with the Chinook crew and voiced his displeasure over the RT. The Chinook then continued to fly across his intended flight path, which took it over Rivar Hill GS. After discussing events with his No2 he then reported an Airprox with Wallop APP.

His concern was that the Chinook came too close and then overflew his intended landing point. He was unaware that the Chinook crew intended to overtake his formation as close as they did. Having spoken to the Chinook Captain after landing he had been assured that the Chinook crew had both Apaches visual and therefore the risk of collision was relatively low, if they had maintained their

respective flight paths. However if he had manoeuvred his formation to the R the chance of a collision would have been 'very high' due to the unnecessary proximity of the Chinook. He added that if the Chinook pilots wanted to pass, then simple deconfliction could have been achieved on the RT and all the crews involved would have then been aware of what was happening.

THE CHINOOK HC1 PILOT reports that he had departed Odiham for a dual night low-level NVD transit and was flying from Bramley to Burbage within NRR1. He was not in receipt of an ATS but monitoring LFS Common; a squawk of A3646 [unverified Odiham conspicuity] was selected with Mode C on. Navigation lights and the red upper HISL were on.

Approaching Rivar Hill from the E at 250ft agl heading 275° at 140kt, he acquired a formation of 2 Apache helicopters from a distance of about 4nm. His crew positively identified both ac in the formation, even though the lead Apache was not displaying any external lights. They initially slowed their Chinook to a TAS of about 90kt to allow time to assess the actions of the Apache formation and whilst flying at reduced speed an information call was broadcast on LFS Common, stating that their Chinook was routeing to Burbage behind a formation of two ac; no response was heard initially from the formation. Once the Apache formation's track was established, because of the slow speed of the formation a decision was made to overtake the Apache formation to their R, whilst accelerating to 140kt. During the overtake, his co-pilot and No 1 crewman maintained positive visual identification on both Apache helicopters within the formation to port and both crew members considered the separation between their Chinook and the Apache formation to be sufficient to allow the Apache crews tactical freedom of manoeuvre. Shortly after passing the Apache formation an RT call was heard from the lead pilot expressing concern at their helicopter's proximity. The RT call was acknowledged and their callsign passed to the Apache formation.

The crew was surprised at the radio call from the lead Apache pilot as they believed the separation they had afforded was adequate throughout. Neither he nor any of his the crew believed they had flown closer than 400m to the Apache formation and assessed the Risk as 'low'.

UKAB Note (1): The LATCC (Mil) radar recording does not illustrate this Airprox clearly. However, the Apache formation and the Chinook are both shown on the Pease Pottage Radar at the extremity of coverage as intermittent SSR contacts only, but not always at the same time. The Chinook is shown westbound toward the Airprox location, at an indicated altitude of 900ft London QNH (1015mb) unverified Mode C and radar ground speed (RGS) of 120-125kt, as the Apache pair follow a northbound track from the vicinity of Andover at a RGS of about 120kt. At 2128:35, the Apache formation is in the Chinook's L 11 o'clock - 1·5nm at the same altitude of 900ft unverified Mode C. After passing the vicinity of Faccombe Woods, secondary contact becomes very intermittent following the Apache pair's westbound turn. With only one ac generally shown it is not possible to differentiate which ac is the lead ac. The Chinook seems to maintain a broadly westerly course maintaining an altitude of 900ft, before fading for a while with only intermittent returns evident thereafter. The Apache formation are displayed again, intermittently but now definitely tracking NW'ly, approaching the reported Airprox location maintaining an altitude of 1000ft QNH at a RGS of 70-75kt with occasional paints from the Chinook suggesting it was flying a WNW'ly course. No contacts are evident on either ac after 2130:31. The intermittent nature of the recording does not allow the geometry nor the minimum separation of this encounter to be assessed with confidence.

UKAB Note (2): A transcript of LFS Common 278·00MHz was provided by Middle Wallop ATC; all relevant transmissions received on the Middle Wallop recording are included herewith. However, it should be noted that some UHF transmissions made by ac operating at low-level might not have been received because of terrain shielding. Whilst unlikely, it was feasible that not all transmissions had been captured.

The Apache formation checked-in on frequency and broadcast at 2124:14, *"blind call L-F-A 1,* [Apache C/S] *north of Andover descending low level to operate Ink Pen Ridge"* [2nm ENE of Rivar Hill]. A further call was made at 2124:28*, "blind call* [Apache C/S] *Andover routeing north Faccombe Wood turning left..to route west towards Rivar to operate there for circuits L-F-A 1".*

The first recorded transmission from the Chinook crew was at 2126:57, when they called, "*Chinook crossing the A 34 south of Burbage* (sic)..*south of Newbury enroute Burbage".* Moments later the Apache formation advised the Chinook crew at 2127:23, *"Chinook entering L-F-A 1 south of Newbury 2 Apaches routeing north to the area of Rivar gliding site for circuits."* No reply is recorded from the Chinook crew. A further call was made by the Apache formation at 2128:05, "[Apache C/S] *the Chinook..just..to the…south of..Newbury..2 Apaches turning left* [one word unintelligible] *Rivar".* The Apache Leader then queried at 2128:24, [Apache C/S] *Chinook routing to Burbage 2 Apaches routeing to Rivar are you visual?"* No reply is recorded from the Chinook crew, however, at 2129:45 they transmitted, *"L-F-A 1 Chinook approach..*(part of word followed by short break) *approaching Burbage enroute Westbury following tw..*(part of word) *a formation of 2."*

After the Airprox had occurred at 2130:31, the Apache pilot queried, "..Chinook just north of Rivar did you have us visual", whose crew responded, "..affirm". In his next transmission the Apache pilot expressed his concern about the proximity of the Chinook during the overtaking manoeuvre and the Chinook pilot advised the Apache pilot *"..we transmitted that we were coming up behind you".*

THE MIDDLE WALLOP APPROACH RADAR CONTROLLER (APR) reports that at 2130 the Apache pilot called on RT and reported an Airprox with a Chinook close to Rivar Hill. The pilot estimated the Chinook passed within 100m of his Apache formation. Neither crew were in receipt of an ATS from Middle Wallop APP at the time of the Airprox.

SATCO MIDDLE WALLOP added that the formation of 2 Apache Helicopters was operating in the vicinity of Rivar Hill GS on a low-level pairs training sortie. Meanwhile, a Chinook was transiting through the area, crossing the A34 S of Newbury then routeing westbound towards Burbage. The Airprox took place at 2130z and all the crews involved were operating on LFS Common – 278·0MHz - and transmitting broadcasts in accordance with the LFA agreement. No ATS was being provided to any of these flights.

It should be noted that Middle Wallop is currently trialling the Centralised Aviation Data System (CADS); [a Web based low-flying route notification tool], which at the time of the Airprox was not in use by all other LFA users. The Chinook routeing was not entered onto CADS by Odiham, nor by any user at Middle Wallop due to the late notification and lack of specific route information; instead this information was provided in textual format for OC Night Flying to brief Middle Wallop crews verbally.

HQ JHC comments that this is an unfortunate event where all involved were aware of each other at the time due to the recent change to LFA1 procedures, one element of which requires blind call transmissions passing certain line features. The Chinook crew did not give warning of their intention to overtake. There was an opportunity for the Chinook crew to declare their intentions as the Apache crew were expecting the Chinook to trail them due to the Chinook transmission on LFS Common.

A causal factor identified by the Command within this report and Airprox 2010 096 was the lack of detail with the night flying information being passed from Odiham to Middle Wallop – the routeing information was vague. There have since been two LFA 1 meetings when both these Airprox were the subject of much discussion. The shortcomings in the notification system were identified and have been addressed. A Systems trial of a new planning tool - CADS - is underway on a limited number of units at Middle Wallop, Benson and Odiham to ascertain the utility of the system. This HQ emphasises that this is a deconfliction planning tool – without TCAS or an ATS, the principle of 'see and avoid' prevails over 'plan to avoid'.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, video recordings, reports from the air traffic controller involved and reports from the appropriate operating authority.

It was reported that the Apache crews were not aware of the Chinook's transit before take-off and that the night flying information passed from Odiham to Middle Wallop lacked detail. The Command's view was that the shortcomings in the notification system had been identified and addressed by the use of the CADS, which was being trialled. Moreover, as all of the crews involved were aware of each other's presence before the Airprox occurred, earlier notification would not have affected the outcome. Indeed civilian ac might well be encountered at night with no notification whatsoever, albeit that only Police helicopters would be likely to be using NVDs or operating at the heights involved in this encounter.

The HQ JHC Member briefed the Board that the lighting displayed by the respective helicopters was in accordance with SOPs for such sorties and that the Command had no concerns over that aspect. However, the demands placed on aircrew when operating and training with these highly sophisticated helicopters should not be underestimated and in this scenario the instructors were working under significant pressure. Nonetheless, it seemed to the Board that the lead Apache pilot had shown sound SA and done all he could to make the Chinook crew aware of his presence and intentions. Indeed the radar recording reflected that the Apache leader's query, "…*Chinook routing to Burbage 2 Apaches routeing to Rivar are you visual?"*, was transmitted whilst the pair was still northbound and before they turned W, when the Chinook was about 2nm away. In the other cockpit, the Chinook crew had acquired the two Apache helicopters at an earlier stage – the Chinook pilot reported he had them in sight from a range of 5nm. This had been helpfully transmitted to the Apache crews ahead as the Chinook approached from astern, but not until later, about 1min after the pair had turned L and slowed to a RGS of about 70-75kt the radar recording reflected. Whilst the Apache leader reports hearing the Chinook pilot's call being visual with the Apache formation, no RT call was evident on the transcript that the former was overtaking. After the event the Chinook pilot advised the Apache pilot *"..we transmitted that we were coming up behind you",* but the words he had actually used *"…following..a formation of 2"* clearly led the Apache leader to believe that the Chinook would follow his formation and remain clear astern. The JHC Member explained that all was in order until the Chinook pilot decided to overtake without passing a warning on the RT. In the Command's view, better airmanship dictated that the Chinook pilot should have made his intentions more plain on the RT, and it was surprising to the Members that he had not done so, which evidently took the Apache leader by surprise. Whereas the Apache pilot reported the Chinook passed 150m away, the Chinook crew reported they had not flown closer than 400m. Without better radar data it was not possible to resolve the differing perceptions of the minimum horizontal separation. With the Chinook overtaking the Apaches on their starboard side, as is required by the Rules of the Air, the Chinook PF in the right hand seat was relying on his co-pilot and crewman to judge the separation. It was suggested that the westbound Chinook crew – using NVDs – might not have realised that the Apache pair had taken up a NW'ly course toward Rivar Hill resulting in unexpectedly converging tracks with the Chinook, albeit that Rivar Hill had been mentioned on RT as their destination. The JHC pilot Member explained that relative distance/depth perception is one of the most difficult aspects of operating with NVDs, suggesting to other Members that this might have been a factor here.

It was clear to the Board that the Chinook Captain, in the overtaking ac, was responsible for the separation between himself and the overtaken Apache pair until he had passed and was well clear. The Apache crews would have been unable to see the Chinook until it started to draw almost abeam and they would not have been able to monitor the separation or affect the outcome until the No 2 saw it first and called the break. Whatever that distance, it was plain the Apache pair were surprised by the Chinook Captain's actions and felt obliged to take avoiding action. Consequently, the Board concluded that the Cause of this Airprox was that whilst overtaking, the Chinook pilot flew sufficiently close to cause the Apache formation concern. However, the Board was briefed that the Chinook is a very manoeuvrable helicopter and, visual with both Apaches, the Chinook pilot was always able to manoeuvre and give them a wider berth if needs be. The Members agreed, therefore, that there was no Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Whilst overtaking, the Chinook pilot flew sufficiently close to cause the Apache formation concern.

Degree of Risk: C.