

## AIRPROX REPORT No 2012016

Date/Time: 16 Feb 2012 1825Z (Night)

Position: 5114N 00149W (2km S of Crossing Bravo [2nm WSW of Netheravon])

Airspace: SPTA D125 (Class: -)

Reporting Ac Reported Ac

Type: Merlin HC3a pr Puma

Operator: HQ JHC HQ JHC

Alt/FL: 300ft  
agl ↓300ft  
QFE (1011hPa)

Weather: VMC CLBC VMC NR

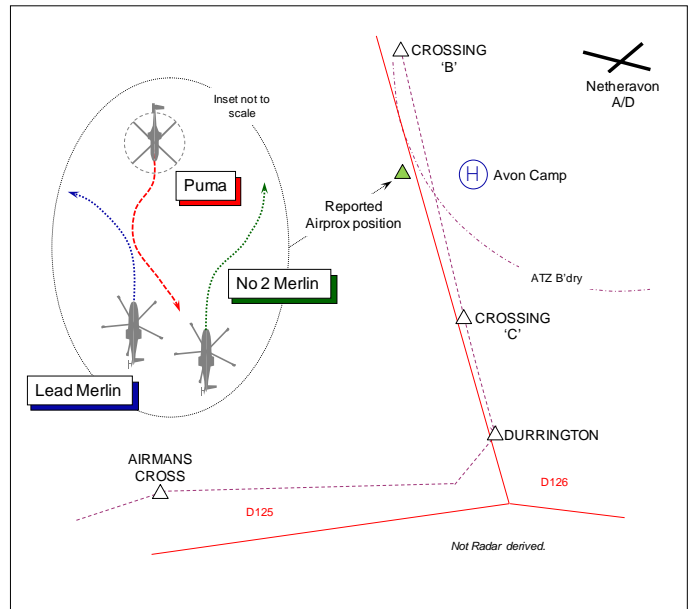
Visibility: 25km 25km

Reported Separation:

Nil V/<200m H <200m H

Recorded Separation:

Not recorded



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE MERLIN HC3a HELICOPTER PILOT** reports he was flying as the No2 of a formation of two Merlin helicopters tasked in support of Exercise PASHTUN JAGUAR, within the Salisbury Plain Training Area (SPTA). The formation was tasked to pick-up troops from Shrewton Folly and fly them to the drop-off point at Avon Camp. The formation followed the standard routeings and heights toward Avon Camp: Airman's Cross-Durrington-Crossing Charlie. They were flying under VFR, using NVGs escorted by a Lynx helicopter flying above the formation at 2000ft Portland RPS (1024hPa). A squawk of A7002 [Danger Areas General] was selected with Modes C and S on; TCAS is not fitted.

Under a PS, he thought, the formation was 'listening-out' on a UHF frequency with OVERLORD - a tactical ground station who provided updates on other aviation activity in SPTA - who informed them that a Puma was departing Netheravon A/D via Crossing Bravo and heading S. The crew were 'eyes out' as an approach was made to Avon Camp HLS from 500ft agl. Although the formation were technically flying at night [the end of civil twilight was at 1755], the prevailing red sky under a distant cloud layer, coupled with the cultural lighting from the surrounding towns and villages made it difficult to identify the Puma at distance. During the approach to the HLS the lead Merlin pilot elected to overshoot from about 200ft agl and initiated a turn to the L to set up for the HLS again. At this point, flying straight and level northbound at 80kt, the No2 Merlin crew saw the Puma for the first time about 1km away, taking avoiding action. The Puma crew were seen to break R initially to clear the lead Merlin's overshoot direction, but was then forced to break L at 300ft agl as the lead Merlin pilot turned L to set-up for a further approach. At this point he as the PF in Merlin No2, broke R and climbed to deconflict from the Puma. The Puma was then seen by Merlin No2 PIC passing 200m down the LH side of his helicopter, at the same height, flying in the opposite direction with a 'very high' Risk of collision. No Airprox report was filed on the RT.

He noted that poor light levels, the cultural lighting and the red sky were factors, together with 'poor deconfiction' provided by OVERLORD.

After landing, during the debrief between all crews involved, it emerged that the Puma crew did not see the No2 Merlin at any stage.

The Merlin has a green colour-scheme; navigation lights and a red strobe were displayed.

UKAB Note (1): In a subsequent telephone conversation with the reporting No2 Merlin Pilot, he confirmed that the geometry of the Airprox was broadly that shown in the diagram. The Merlin pair were approaching the HLS in echelon starboard at a spacing of 5-6 rotor spans [5x70ft span = 350ft min]. The lead Merlin crew did not see the Puma at all prior to the encounter and only saw it clearing to the S when setting up for the second approach. The Lynx was clear to the N and above the formation when the Airprox occurred and its presence was not a factor.

**THE PUMA HC1 HELICOPTER PILOT** reports he was conducting a night currency sortie from Netheravon A/D within SPTA using NVGs and incorporating low-level operations to a number of HLSs before returning to Netheravon. His helicopter has a green colour-scheme; navigation lights and a red strobe were displayed together with IR formation lights on bright and flashing. He was in receipt of a PS, he thought, from SALISBURY OPS [only a communication service is provided from an A/G Station] on 276.00MHz. A squawk of A7002 was selected with Modes C and S on; TCAS is not fitted.

After departure from Netheravon A/D, descending from 500ft to 300ft agl following the standard routeings S from Crossing Bravo VRP at 120kt, SALISBURY OPS reported on the RT that a formation C/S comprising 2 Merlins and 1 Lynx were operating in the Durrington VRP area. At this point the 3 crew members in the Puma were 'eyes out' looking for the reported ac. The crew found it particularly difficult to spot any ac due to the time of the day - just after dusk - and the backdrop of Durrington town that was 'backing down' the NVG, so spotting any 'strobing' ac was extremely difficult. Approaching a point 2km S of Crossing Bravo, one of the Merlin helicopters was spotted less than 1km away and the Puma PIC elected to roll R in order to move to the R of the standard route, in an attempt to follow the Right-Hand Traffic Rule. At this point the Merlin's course was unclear; however, the direction and height of the Merlin helicopter then became apparent and it was seen that the Merlin was flying a reciprocal to the Puma's southerly course at the same height prompting the PNF to call 'break right' to the PF. While breaking R, the PF was visual with the Merlin and saw that it had started to turn to port toward the Puma. The PF then elected to climb and roll L in order to avoid the Merlin, which appeared to pass below the Puma less than 200m away. The crew lost sight of the Merlin and elected to maintain a straight and level course until the crewman spotted the Merlin again in their 5 o'clock. The Puma crew only spotted one Merlin helicopter.

After a debrief on the ground with the Merlin crews, it was ascertained that the Puma crew had only been visual with the lead Merlin helicopter. The No2 Merlin, whose crew had also taken avoiding action against his Puma, was not seen.

UKAB Note (2): Sunset was at 1716UTC; the Airprox occurred within the period defined as night within the UK LFHB.

UKAB Note (3): The 1750Z Boscombe Down METAR: 29010KT 9999 BKN038 08/03 Q1027 BLU=

**THE AIR SUPPORT OPERATIONS CENTRE (ASOC) OPERATOR** provided a helpful comment.

The UK ASOC role during Exercise PASHTUN JAGUAR.

OVERLORD is the C/S of the Command and Control agency based in Afghanistan which provides tactical information and routeing. The UK ASOC does not fulfil this particular task in theatre but its personnel, who are from many branches (his own being Battlespace Management), have routine interaction with those that do and have supported exercises in this role when those with direct experience of OVERLORD are unable to attend. The UK ASOC does not offer an ATS, but merely shares traffic information in addition to that provided by SALISBURY OPS. Its primary contribution to the Exercise is to provide tactical information, such as on 'hot' airspace (live or simulated) for the integration of Joint Fire. Co-location with SALISBURY OPS is essential for building situational awareness.

UK ASOC personnel and those in SALISBURY OPS only became aware of the Airprox some 24hr after the event. The aircrews' submissions have provided a degree of retrospective insight, and he

recalls there being a time when both SALISBURY OPS and OVERLORD had separate ac on different frequencies. The Merlin flight was inbound toward Netheravon and checking their routing with OVERLORD whilst the Puma was outbound talking to SALISBURY OPS, presumably after leaving Netheravon's frequency (C/S ODIN). There was no deviation from the standard routing procedures passed to the ac; information would have been passed on any known traffic in order to widen general awareness of other activity. He has no recollection of any Airprox being mentioned at the time. As is the norm with these exercises, the flights would NOT have been placed under any 'service' by OVERLORD at any stage and were operating under VFR at all times.

UKAB Note (4): The Airprox occurred outwith recorded radar coverage.

UKAB Note (5): The UK Military Low-Flying Handbook at LFA1 2-1-1 para 8 SPTA specifies that:

- a. **'Salisbury Plain Air Ground Service.** Salisbury Plain Air Ground service [SALISBURY OPS] exists principally for the co-ordination of air-operations close to SPTA. **It does not provide any form of air traffic service** which, if required, must be sought from local air traffic control agencies....'

**HQ JHC** comments that this was a very serious event which nearly resulted in a mid-air collision. It remains an operational imperative to train at night and in this event whilst all lighting SOPs were being followed, this Airprox occurred through a combination of factors:

Both the Merlin pair and the Puma crew were passed a warning from the respective agencies (Puma by SALOPs and the Merlins by OVERLORD). This tactical service does not assume responsibility for collision avoidance and it is still the pilot's responsibility to see and avoid other traffic. This was a significant factor with the use of two separate frequencies for traffic (primary is for range deconfliction including ground units and live ordnance).

The time of day with the effectiveness of the Night Vision Goggles being reduced by the high levels of ambient light.

This Airprox occurred during a particularly intense period of aerial activity as part of a recurring exercise to prepare crews and troops for deployment to Theatre and HQ JHC recommends that for future exercises the additional deconfliction measures are implemented;

Unidirectional use of the SPTA helicopter routes during the exercise.

Aircraft conducting non-exercise training or currency flights are to depart the SPTA by the most expeditious route and not to use the areas within SPTA for that flight (for example, departing to the north directly from Netheravon).

JHC has asked OC Tactical Operations (Air Traffic Management) of 1 Air Control Centre to produce a Memorandum of Understanding on the use of a single frequency during the exercise for purpose of OVERLORD and SALOPs. Following the incident, for the remainder of the exercise, OVERLORD and SALOPs operated on the same frequency (the published SALOPs frequency) to permit direct communication between ac in potential confliction.

HQ JHC, though Tactical Operations (Air Traffic Management) of 1 Air Control Centre, are intending to deploy a mobile Watchman Radar to Netheravon for the next Exercise pending resolution on a number of operational and environmental issues. In addition it is clear that the fitting of TCAS, which is being actively pursued by this HQ, would have significantly helped to prevent this incident.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of two of the ac involved, a report from the ASOC Operator and comments from the appropriate operating authority.

The HQ AAC helicopter pilot Member opined that the Lynx, as part of the mixed formation, was not a factor in this Airprox but might have been able to prevent it. In his view, the Exercise scenario called for the Lynx to provide 'top cover' for the two Merlins as they made their approach to the HLS at Avon Camp. In view of the warning from OVERLORD that the Puma was southbound along the route from Crossing Bravo, the Lynx crew ahead of the Merlins should have spotted the approaching Puma and warned the lead Merlin pilot. The No2 Merlin pilot's report confirmed that they were aware of the Puma beforehand and were looking for it, but neither Merlin crew spotted the Puma as they made their approach to the HLS. A Member suggested it might have been wiser to have delayed the approach to the HLS until the Puma was spotted and had passed clear to the S, as the Merlin pilot had highlighted the difficulties of operating on NVG close to high levels of background 'cultural' lighting especially with the remaining red sky. The helicopter pilot Member concurred that this would have caused significant difficulty for the Merlin crews in sighting another ac in the LH forward quadrant as they flew N, which is about where the Puma was. Furthermore, the Member opined that the Puma crew, also operating on NVG, did not have quite the same difficulty, but the background lighting of Durrington – to the S of the Airprox location - would have affected the efficiency of the Puma crew's NVG. The Board discussed the issue of operating on NVG at length; the helicopter pilot Member confirmed that NVG give aircrew much better SA about the topography of the ground, but spotting ac lights against a background of cultural lighting remains a problem. However, lifting-up the NVG to revert to normal vision will allow crews to spot other ac lights. There was nothing fundamentally wrong with using NVG and other Members familiar with their use agreed it was a matter of technique.

It was explained that SPTA is a very busy exercise area but SALOPs are not able to effect deconfliction of individual flights within the area and it was clear that there was some confusion within the minds of the helicopter pilots involved about the exact role of OVERLORD and SALOPs. Whilst tactical ATC teams do set up for these pre-deployment exercises – apparently there was one operating at Netheravon – they had no input here. However, the Board noted and welcomed the measures proposed by HQ JHC for future Exercises to reduce the risks of airborne conflicts: uni-directional routes; operating on a single frequency; excluding non-exercise participants from SPTA and deploying a mobile Watchman Radar would all be beneficial.

The helicopter crews were operating quite legitimately under VFR at night with conventional lighting displayed. Both crews had been forewarned of each other's presence but they were operating in the same vicinity on different frequencies. Unfortunately, as the Airprox occurred at low-level none of the recorded radars available to the Board had captured the event. Nevertheless, the pilots involved all broadly share the same view of what had occurred. The Puma crew saw a single Merlin – the lead helicopter - whilst it was making its approach to the HLS and turned R to remain to the R of the route in an attempt to deconflict themselves from the single helicopter they had seen. The Board agreed that the Puma crew had probably seen the lead Merlin as soon as they might reasonably have been expected to do so. As the Merlin's direction of flight became clear the Puma crew hardened their turn to the R but their attempt to maintain separation was thwarted by the lead Merlin crew who, whilst unsighted on the Puma, elected to overshoot and turned to the L to set up for another approach to Avon Camp. The Board concluded that the non-sighting of the Puma by the lead Merlin crew was part of the Cause. As the lead Merlin turned L towards them, the Puma crew was forced to reverse their R turn by climbing and rolling L into an avoiding action turn to pass the lead Merlin on its starboard side, unaware that the No2 Merlin was also to the starboard of the leader. This caused the No2 Merlin crew, who had gained visual contact with the Puma as it made its initial starboard turn, to break R as the Puma passed between the Merlin pair with 200m horizontal separation, the No2 Merlin pilot reports. Members agreed that this was the second part of the Cause; while avoiding the lead Merlin, the Puma crew flew into conflict with the No2 Merlin, which they did not see.

Turning to the inherent Risk, the Puma crew's robust action had enabled them to fly clear of the lead Merlin by an estimated 200m, which Members agreed had removed the actual Risk of collision with that ac. However, they then flew into close proximity with another helicopter that they were unaware of. Fortunately, by that stage the No2 Merlin crew had gained visual contact with the Puma and were able to take effective avoiding action, also achieving 200m separation. Although this also ameliorated the Risk, the Board concluded that with two crews unsighted on another helicopter at close quarters, the safety of the ac involved had certainly been compromised in the circumstances conscientiously reported here.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause:                               1. A non-sighting of the Puma by the lead Merlin crew.  
  2. While avoiding the lead Merlin, the Puma crew flew into conflict with the No2 Merlin, which they did not see.

Degree of Risk:                B.