

## **AIRPROX REPORT No 2013048**

**Date/Time:** 4 Jun 2013 2310Z (Night)

**Position:** 5111N 00244W  
(11.5nm NNW Yeovilton)

**Airspace:** NRR 2 (Class: G)

**Reporting Ac** **Reported Ac**

**Type:** Lynx(1) Lynx(2)

**Operator:** RN RN

**Alt/FL:** 200ft agl 200ft agl

**Weather:** VMC CLOC VMC CLOC

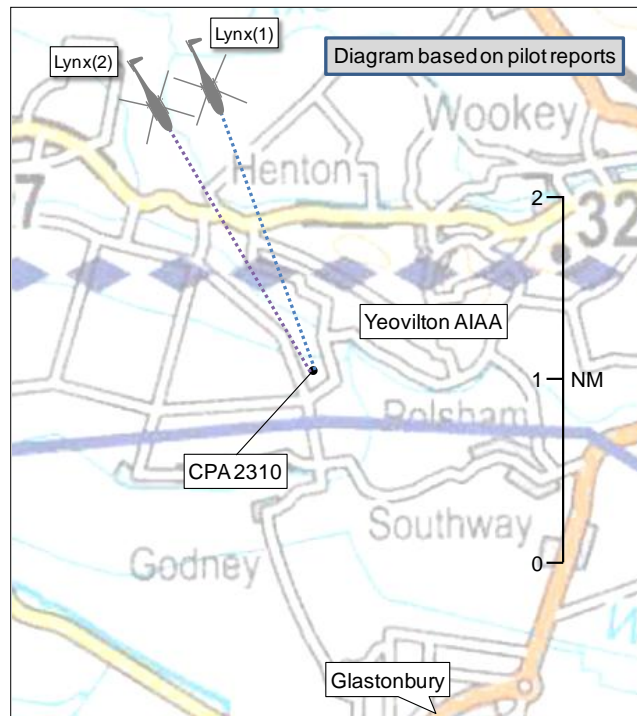
**Visibility:** 10km 25km

**Reported Separation:**

20ft V/50ft H NK

**Recorded Separation:**

NK



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

**THE LYNX(1) PILOT** reports conducting a night, low-level NVG navigation exercise at 200ft agl. The grey camouflaged ac had steady bright navigation lights and flashing red anti-collision beacon selected on, as was the SSR transponder with Modes A, C and S. The ac was not fitted with ACAS. The crew were operating under VFR, in VMC, with a BS from Yeovilton APP. The handling pilot was seated in the RH seat, with an instructor occupying the LH seat. Whilst heading about 150°, at 80kt, and prior to crossing a 200ft power line, the instructor observed another Lynx ac, subsequently identified as an ac from the same squadron, vertically displaced above by 20ft and offset to the R, approximately 50ft away on a marginally converging heading. The other ac appeared to be at a slightly faster speed. On sighting, the instructor intervened by taking control of the ac and rapidly altered course to the L, maintaining level flight. The RH seat pilot then reaffirmed his intention to cross the pylon and the instructor initiated a climb to clear it. The instructor contacted the other Lynx pilot on a squadron discrete frequency and ascertained that he had not seen the Lynx to his LH side.

The instructor highlighted that his field of view was restricted due to the use of NVG, and that the ac were on converging headings, approaching from either side of a ridge line; he stated that during the squadron's night-flying brief the Lynx sorties had planned to deconflict by time through a known point of route crossing. During ac start-up Lynx(1) was delayed by 15min due to an ac unserviceability. Once airborne, about 5min prior to the incident, the Lynx(2) pilot had visually identified Lynx(1) before their routes separated, and had estimated that a time deconfliction still existed.

He assessed the risk of collision as 'High'.

**THE LYNX(2) PILOT** reports flying the latter stages of a NVG sortie. The grey camouflaged ac had navigation and anti-collision lights selected on, as was the SSR transponder with Modes A and C. The ac was not fitted with ACAS. The crew were operating under VFR, in VMC, with a BS from Yeovilton APP. He had completed 1hr of NVG exercises at RNAS Merryfield and was near the end of a 20min low level NVG navigation exercise to the N of RNAS Yeovilton, heading about 160° at 90kt, when he was contacted by a fellow squadron pilot, in Lynx(1), on the squadron discreet frequency. He was told that they had flown within 50ft of each other on a slowly converging heading whilst lining up to cross a 200ft electricity pylon approximately 3nm N of Glastonbury. After further lookout, neither Lynx(2) crew member was able to acquire the other ac but they ascertained that the Lynx(1) pilot was visual with them and that he was astern, remaining clear.

He stated that, as the authoriser of both sorties, he was aware of the route Lynx(1) would be flying, and had discussed planned deconfliction at the night flying brief with the Lynx(1) pilot, who was due to launch 15min before him. Lynx(1) experienced a technical problem during start-up, resulting in a request for a delay to T/O time over the squadron discreet frequency, which he granted, noting that Lynx(1) would now be in the same vicinity as him by the end of the sortie, and that he needed to 'keep a sharp lookout for them'. He became visual with Lynx(1) about 10min before the incident, passing him to the N of their route, which was a longer route than his. He noted again that Lynx(1) would not be far behind him as their tracks merged, and again spoke [in cockpit] about keeping a 'close lookout for them'. He did not see them for the remainder of the sortie.

**THE YEOVILTON APP CONTROLLER** reports that Lynx(1) departed Merryfield to the N to conduct a low level navigation sortie under a BS. Lynx(2) departed Merryfield approximately 20min later on a low-level navigation sortie, also under a BS. Shortly after departing Merryfield each ac disappeared from radar coverage and reappeared on an intermittent basis. On completion of their sorties, both ac returned to Yeovilton for visual recoveries. Neither pilot reported an incident on frequency at any time during the sortie. At the reported time of the incident, an ATS was being provided on 2 separate frequencies. He noted that there is no Supervisor present during night flying.

**THE RN INVESTIGATION** summary reports that this was a very serious incident that could potentially have ended with fatalities. The overriding contributory factor was deemed to be the complexity of low-level NVG operations and the associated restricted field of view. More could be done to mitigate risk of collision in this environment and ensure operation to Tolerable and ALARP principles. The following points were worthy of note:

**Deconfliction:** The implementation of CADS at Yeovilton has already gone some way to addressing the issue of deconfliction in time and space although, in this specific case, it would have made no difference to the outcome of the incident. Both ac Commanders believed that they had deconflicted sufficiently in the planning stages, and one had seen the other within 10 minutes of the incident; no CADS information could have provided this real-time update.

Although an associated Occurrence Review Group (ORG) agreed in spirit with the majority of the RN investigation recommendations, it was felt that, even had they been implemented, some would not have reduced the likelihood of this incident occurring. For example, even if Merryfield had been open 24 hours, had the landing lamp been on, had a brighter anti-collision light been fitted (notwithstanding additional anti-collision lights) nothing changes the fact that both Aircraft Commanders remained content with their deconfliction arrangements despite the subsequent delay in Lynx(1)'s departure. In a dynamic and ever-changing environment, deconfliction in the planning stages, whilst essential (and improved through use of CADS), will never be 100% effective when impacted by external factors, and will never replace the necessity for a thorough lookout. Better and more regular use of low-level common frequency is one method of improving situational awareness and assisting in directing lookout towards potential areas of confliction.

**Equipment Improvements:** The ORG agreed that the most effective way to improve lookout in the low-level NVG environment is to make system improvements. Wider field of view NVGs would naturally contribute to improved aircrew peripheral vision. Whilst this requires an equipment upgrade, such systems are available today and arguably would have enabled the crews, in this case, to have seen each other at a much earlier stage.

Collision Avoidance or Traffic Warning Systems are widely used on both civilian and military ac types, and are considered an effective tool in directing aircrew lookout to sources of potential danger. Whilst they may have limitations in the low level environment, it is likely that this Airprox would not have occurred had such a system been installed in the Lynx Mk8.

**RN Command** commented that this incident served as a salutary reminder of the need to retain an effective de-confliction plan and maintain a good lookout for other ac, especially at night and whilst using NVD. Both crews' lookout scans narrowed as they focussed on crossing the wires at approximately the same point. One of the QHIs sighted the other ac, albeit extremely late and only

just in enough time to manoeuvre away and avoid collision, the crew of which at no time saw how close they had come. Whilst ATC have reported that they were providing ATS on 2 separate frequencies, both of the Lynx were in receipt of a BS on the same frequency from the same controller. At no point was an Airprox declared on this frequency and reporting action only commenced the next day. Whilst the ac were painting intermittently on radar, they were not both being tracked at the same time and the controller had no indication of their relative proximity.

Collision was avoided by a very late sighting by one of the aircrew and his quick reactions to take control from the PF. There were no barriers left after this. In this instance it is probable that an ACAS would have aided their situational awareness and assisted their lookout.

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

Information available included reports from the pilots of both ac, 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 members were initially briefed by the RN Ops Member on the background and detail surrounding the incident. It was apparent that both crews were aware of potential confliction before T/O, and had incorporated a deconfliction plan into their sorties based on time separation. It was also apparent that the delayed T/O of Lynx(1) had negated this plan and the Board therefore firstly considered the sortie planning aspects.

Both aircraft were being operated from the same squadron facilities, with the crews able to communicate a mutual deconfliction plan to each other for their respective sorties. Based on achieving set T/O times, this deconfliction plan crucially did not appear to incorporate any other contingent mitigation such as ATS, timed waypoint or RT coordination in the event of a subsequent deviation from plan. The Board recognised that the crews were conducting operational training using devices which only gave restricted peripheral vision. Notwithstanding the fact that anti-collision and navigation lights had been left on and should therefore be highly visible to night-vision devices or the naked eye if within line-of-sight, the Board considered that relying on such visual methods alone in areas of hilly or ridge terrain was not sufficiently effective to address multiple contingencies. In this case the Board felt that the crews placed a degree of over-reliance on deconfliction being achieved by separate T/O times and visual lookout, whereas the actual hazard of the common pylon crossing point was not explicitly deconflicted. The only remaining barrier of 'see and avoid' was compromised by the limited field of view of NVG, the crews' necessary prioritisation of lookout towards the pylons for their imminent crossing, and the fact that they had approached each other from opposite sides of a ridge line and therefore could not have achieved an early visual sighting.

The Board agreed that the cause of the Airprox was a late sighting, and non-sighting, by the Lynx pilots; lack of an effective deconfliction plan was a contributory factor. Members also opined that in this case the safety margins were reduced so far below normal that the situation had only just stopped short of actual collision. The Board agreed that the safety barriers pertinent to this Airprox were 'aircrew rules and procedures', 'visual sighting', 'aircrew action' and 'SA gained from RT'. It was concluded that the barriers were minimally effective, so the Airprox was allocated a score of 20 on the Event Risk Classification Matrix.

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

Cause: A late sighting and non-sighting by the Lynx pilots.

Contributory Factor(s): Ineffective deconfliction plan.

Degree of Risk: A.

ERC Score: 20.