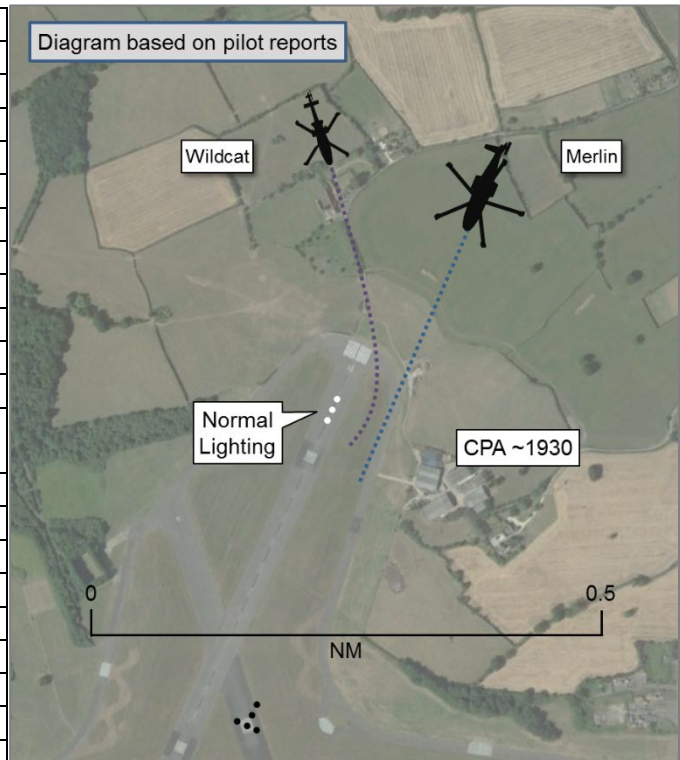


AIRPROX REPORT No 2018010

Date: 22 Jan 2018 Time: 1930Z Position: 5058N 00256W Location: Merryfield airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Merlin	Wildcat
Operator	RN	RN
Airspace	Merryfield ATZ	Merryfield ATZ
Class	G	G
Rules	VFR	VFR
Service	Aerodrome	Aerodrome
Provider	Merryfield	Merryfield
Altitude/FL	NK	NK
Transponder	A,C,S	A,C,S
Reported		
Colours	Green	NK
Lighting	Nav, upper red HISL	NK
Conditions	VMC	VMC
Visibility	20km	NK
Altitude/FL	200ft	200ft
Altimeter	QFE (1014hPa)	QFE
Heading	210°	NK
Speed	40kt	60kt
ACAS/TAS	TAS ¹	Unknown
Alert	None	Unknown
Separation		
Reported	Nil V/50m H	75ft V/100m H
Recorded	NK	



THE MERLIN PILOT reports that he was instructing Night Vision Device (NVD) circuits at RNAS Merryfield. They were the only aircraft operating in area left, with 3 Wildcats operating in area right. During the latter stages of an NVD approach to the 'Black T' [unlit] landing aid in area left at Merryfield, he looked across the cockpit to the right and saw a Wildcat pass down their right-hand side at an estimated range of 3 rotorspans [rotor diameter 18.6m] and turn away to the right. The first sighting was at 50m. Simultaneously, he heard a pilot call "going around" on the Merryfield Tower frequency. No one onboard his aircraft saw the Wildcat until it had cleared away back into area right. After a brief discussion on the radio with the other Aircraft Commander, he reported that he intended to file an Airprox. He believed that the Wildcat crew had them in sight throughout but, due to the perceived close proximity and that they were unable to take any avoiding action, he submitted a DASOR. He added that the student pilot (right-hand seat) was focused forwards at the landing aid. He had no visibility of the approaching aircraft from the left-hand seat. The Qualified Aircrewman Instructor and second student aircrewman were 'heads in' preparing the cabin for load-lifting. TAS was turned off due to circuit traffic in the other area setting off the warning.

He assessed the risk of collision as 'Low'.

THE WILDCAT PILOT reports that during a night conventional approach to Duty RW21 from the right-hand circuit at Merryfield the pilot under instruction encroached the 25m runway sterile area and continued into the left-hand circuit whilst trying to identify the unlit duty runway. This was coincidental with a Merlin conducting an approach to a NATO 'T' in the left-hand circuit at the same height and slightly slower speed. The QHI in the left seat was visual with the Merlin throughout and took control when it became apparent that the handling pilot had misidentified the adjacent taxiway to the east of

¹ Deselected.

the duty runway as the runway itself and due to this was converging on the Merlin which would have been unsighted to him. The QHI then recovered the aircraft to the right-hand circuit and made a radio call to inform the Merlin crew of the incursion. It is estimated that the 2 aircraft were 100m laterally displaced and 75ft in height (Wildcat higher) at the closest point. This incident was exacerbated by the following factors: 1. The handling pilot flew a non-standard curved approach which contributed to his misidentifying the duty runway. 2. In contravention to the Merryfield Defence Airfield Manual Annex Q Ch7 Para 6.5 the duty runway was not lit with 3 white Tactical Approach Lighting System (TALS)² to indicate the runway centreline. 3. The Wildcat white landing lamp is ineffective above approximately 200ft due to the narrow beam width and low intensity.

He perceived the severity of the incident as 'Medium'.

THE MERRYFIELD AERODROME CONTROLLER reports that there was night flying at RNAS Merryfield on RW21. Three aircraft were in the visual circuit; 2 Wildcats on right-hand circuits (Conventional) and 1 Merlin NVD load-lifting in a left-hand circuit. The Wildcat pilot requested to use RW21 for a conventional approach. He was advised (as promulgated at night flying brief) that there were no centreline runway lights (this was due to the lack of sufficient tactical light bases that were available). The Merlin pilot called finals for Black T first and a clearance was given. The Wildcat pilot then called finals for RW21. Due to the close vicinity of the Black T and RW21 it is not best practice to give simultaneous clearances. Therefore, a continue was given. Traffic Information was passed to the Wildcat pilot that the Merlin was ahead for the Black T, to which he responded 'visual'. Throughout the evening it was difficult to make out the anti-collision lighting of the Merlin and its head-on aspect on this occasion made it virtually impossible to distinguish where it was in relation to the Wildcat. The Wildcat was visible to him throughout. The Wildcat pilot flew through the RW21 centreline and the Merlin pilot reported an Airprox on the frequency.

He perceived the severity of the incident as 'Low'.

THE MERRYFIELD DATCO reports that they were expecting a relatively high volume of aircraft to use Merryfield for night flying. It had been decided in the night flying brief that all Wildcat aircraft would complete right-hand circuits to two T's established on the most western end of RW09, and between spots B and C, respectively. A Merlin aircraft conducting load-lifting training serials was to conduct left-hand circuits to a T positioned on spot A. The duty runway was RW21 and, at the time of the incident, conditions were good VMC, colour code blue, QFE 1014hPa with southwesterly winds of approximately 10kt. The TAL lights used for the three T's were serviceable; however, due to a lack of bases, the three TALs that would routinely denote the start of the duty runway for night flying were absent. At 1928, the Merlin was in the left-hand circuit to the 'black' T on spot A, and the Wildcat was in the right-hand circuit to RW21. The Merlin pilot reported 'final, gear down' and was given 'black left, cleared to land' by the Aerodrome controller. Shortly after this clearance was given, the Wildcat pilot called 'final, runway 21'. At this point, the Aerodrome controller issued a 'continue' to the Wildcat pilot, while they both tried to sight their position in the air. After this, the Wildcat pilot called, saying they were 'going around'. The pilot also issued an apology on R/T, saying that he believed that he had gone through the centreline of the other aircraft that was on final (the Merlin) to the black T (left-hand circuit). At this point, as the Wildcat pilot executed his 'go around', it became apparent that the aircraft both himself and the Aerodrome controller were visible with and believed to be the Merlin, was in fact the Wildcat. Due to the lower frequency sound of the rotor head, they could both hear the Merlin and could not see the distinctive Wildcat anti-collision lights. It was only when the Wildcat drew level with them that it became apparent that their previous position had been obscuring the Merlin from their sight. After the Wildcat pilot issued the apology, the pilot of the Merlin said on frequency that they believed it was probably an Airprox. The Wildcat pilot replied by saying that they were visual (with the Merlin) throughout, and that they would be happy to not file an Airprox if the Merlin pilot was. The Merlin pilot then replied that they would call the other pilot to discuss it, and that was the end of the exchange regarding the matter. Both aircraft continued to operate at Merryfield without further incident. He was stood behind the Aerodrome controller throughout the incident and heard all R/T exchanges through the loudspeaker.

² TALS is a field deployable, man portable, solid state, battery powered lighting system.

Factual Background

The weather at Yeovilton was recorded as follows:

METAR EGDY 221850Z 23004KT 9999 FEW015 SCT035 08/05 Q1019 BLU NOSIG

Analysis and Investigation

UKAB Secretariat

The Merlin and Wildcat pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard³. An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation⁴ When making an approach to land an aircraft in flight shall give way to aircraft landing or in the final stages of an approach to land. When two or more heavier-than-air aircraft are approaching an aerodrome or an operating site for the purpose of landing, aircraft at the higher level [the Wildcat] shall give way to aircraft at the lower level but the latter shall not take advantage of this rule to cut in front of another which is in the final stages of an approach to land, or to overtake that aircraft.⁵ The Wildcat pilot did take action to avoid the Merlin.

Occurrence Investigation



Figure 1 Night flying map RW21

³ SERA.3205 Proximity.

⁴ SERA.3225 Operation on and in the Vicinity of an Aerodrome.

⁵ SERA.3210 Right of Way.

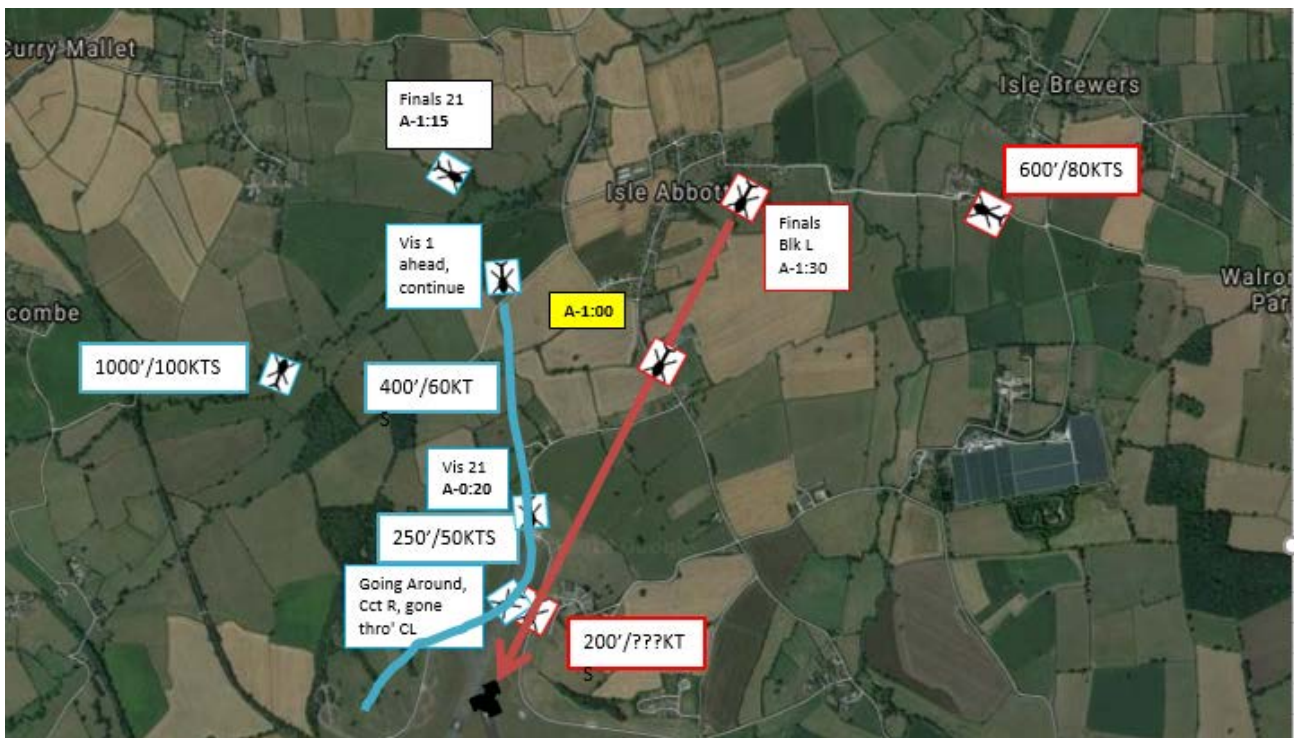


Figure 2 Schematic from pilot reports [red-Merlin; blue Wildcat].

Comments

The **Wildcat Maritime Force (WMF) Commander** commented that as Senior Operator he understood that the non-standard runway lighting had been briefed and authorised at the station night briefing due to shortages of base plates for the lights and the fact that without them they can be knocked over (precedent set by a Wildcat). The Squadron DOs had been briefed that, instead, 2 lights would be placed on either side of the runway and 'pushed' into the ground to ensure they could not be blown over. If this was not briefed to the Squadrons then this needs to be recognised as a communication failing within WMF.

Summary

An Airprox was reported when a Merlin and a Wildcat flew into proximity in the Merryfield visual circuit at 1930hrs on Monday 22nd January 2018. Both pilots were operating under VFR in VMC at night and in receipt of an Aerodrome Control Service from Merryfield.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controllers concerned, RTF recordings and reports from the appropriate ATC and operating authorities.

The Board noted that both helicopters were operating under VFR at night, within the Merryfield ATZ, in receipt of an Aerodrome Control Service. The HQ Navy Ops member confirmed that the Merlin pilot was carrying out left-hand NVD circuits for load-lifting training to a NATO Black 'T' to the east of the duty RW21, whilst the Wildcat pilot was carrying out conventional right-hand training circuits to RW21. The Navy member did not consider that there was an issue with the pilots operating with differing lighting requirements in respect of simultaneous conventional and NVD operations.

The Navy member then commented that, prior to night operations at Merryfield, there had been a night-flying briefing at Yeovilton to which each squadron involved had sent a representative, who were then responsible for briefing their respective aircrews. During the briefing, it was mentioned that the Wildcats would be operating to two 'T's established on the western end of RW09. However, once on task, the Wildcat pilots had requested and been approved to use RW21. The Navy member considered that,

although it meant that aircraft approaching the runway and the Black T were in close proximity, it was appropriate for the controller to have agreed to this request. During the night operation briefing, mention had been made about the lighting that would be available and that the normal 3 TAL lights would be replaced by 2 lights placed on either side of the runway and pushed into the ground to ensure that would not be blown over.

The Board then discussed the actions of the Wildcat pilot. Several members wondered if the Wildcat pilot had been fully aware of the lighting situation for RWY21 and queried whether it would have been more appropriate if the flying crews themselves had attended the briefing rather than a squadron representative; given that the representative would have to pass on important information (such as the lighting state) to the flying crews third-hand, there was scope for some elements to be missed. Members noted that the Wildcat instructor had commented that if the runway had been lit with the 3 white TALS, as stated in the Defence Airfield Manual (DAM), the situation would probably not have arisen, and this lack of lighting was considered to be a contributory factor to the Airprox. Notwithstanding, members noted that the controller had informed the Wildcat pilot that there were no runway lights when he had requested his first approach to RW21, and this had been acknowledged, so members were content that he had assimilated the information. The Board was informed that the Wildcat student was an experienced pilot on other helicopter types and was in the process of transferring to the Wildcat. Some members wondered whether there had been any form of 'cockpit gradient' or assumption by the instructor that the 'experienced' student would deal with the unfolding situation, but the Navy member commented that he did not believe that that was the case. Ultimately, it was clear to the Board that, whilst he was piloting the Wildcat for an approach to the runway, the student had misidentified the taxiway (which was situated to the east of the runway) as the runway itself, and this was also considered to be a contributory factor to the Airprox. The Navy member commented that the instructor had been aware that they were not lining up with the runway but was allowing the situation to develop for training purposes as a teaching point. Being aware of the position of the Merlin because he had visual contact throughout, when he considered it necessary he had recovered the helicopter to the right-hand circuit and advised the Merlin crew of the incursion into their airspace.

For his part, the Merlin pilot did not see the Wildcat until it passed close on his right-hand side. The Board could understand why the cockpit crew had not seen the Wildcat because the student, in the right-hand seat, was focused forwards at the landing aid and presumably had a restricted field of view whilst looking through his NVD, and the instructor, in the left-hand seat, was not able to see the Wildcat from his position until it passed by. Some members wondered whether the rest of the crew should have been assisting in lookout rather than both the rear crewmen focusing on cabin preparation for the lifting exercise. Military members with helicopter experience considered that it would have been more appropriate for them to have been acting as extra pairs of eyes as the helicopter approached the lifting area. The Board acknowledged that they would need to prepare for the exercise ahead, but opined that this could perhaps have been carried out when they had landed or been hovering at the T. Finally, the Board noted that the Merlin was equipped with TAS, but that the pilot reported that it had been deselected due to the circuit traffic in the other area of the airfield setting off warnings. Noting that other operators now mandated that TAS be kept on in the visual circuit as an aid to situational awareness, some members wondered what the Merlin official policy was in this respect.

Turning to the ATC aspects, the Navy member advised the Board that two Yeovilton based controllers were on duty at Merryfield and that Merryfield was not equipped with an Aerodrome Traffic Monitor (ATM). As a result, apart from gaining visual contact, there was no way for the controllers to establish the position of aircraft in the visual circuit other than by the pilots' R/T transmissions. Both controllers reported that they had visually misidentified the Wildcat as the Merlin, and that it had been only after the Wildcat had drawn level with them that it had become apparent that the Wildcat had obscured the Merlin. The Board considered that if the Visual Control Room had been equipped with an ATM, or if the controllers had been issued with NVD, this would have allowed the controllers to establish the relative positions of the aircraft. It was therefore considered a contributory factor that the lack of suitable equipment meant that the Merryfield controllers were not able to act as an effective safety barrier. Accordingly, the Board resolved to make a recommendation to Navy HQ that the Merryfield controllers should be equipped to detect the position of traffic in the visual circuit at night.

The Board then discussed the cause and risk of the incident. Although the Board could understand why the instructor had, for training reasons, allowed his student to continue his flight having misidentified the runway, they considered that, in the circumstances, and bearing in mind that this had occurred at night, action should have been taken earlier to ensure that the Wildcat remained further away from the Merlin. As a result, it was quickly decided that the Airprox had occurred because the Wildcat instructor had allowed the student to fly into conflict with the Merlin. Turning to the risk, the Merlin pilot was obviously surprised by the sudden close proximity of the Wildcat passing him in the region of 50m away. However, although the Wildcat instructor had allowed his student to fly closer to the Merlin than ideal, the Board considered that because he had been visual with the Merlin throughout, there had been no risk of a collision; accordingly, they assessed the incident as risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Wildcat instructor allowed the student pilot to fly into conflict with the Merlin.

Contributory factors:

1. The student pilot misidentified the taxiway as the runway.
2. The runway was not lit in accordance with the Merryfield DAM.
3. Without suitable equipment the Merryfield controllers were not able to act as an effective barrier.

Degree of Risk: C.

Recommendation: Merryfield controllers are equipped to detect the position of traffic in the visual circuit at night.

Safety Barrier Assessment⁶

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

ANSP:

Manning and Equipment were assessed as **partially effective** because there were not sufficient lighting base-plates available to allow full lighting of the runway touchdown area.

Situational Awareness and Action were assessed as **ineffective** because the controller did not correctly visually identify the helicopters.

Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **partially effective** because the Wildcat pilot encroached on the incorrect landing area.

Tactical Planning was assessed as **partially effective** because it was possible that the Wildcat pilot was not aware of the available lighting during the night-flying briefing.

Warning System Operation and Compliance were assessed as **ineffective** because the Merlin pilot had deselected his TAS due to circuit traffic setting off warnings. The Wildcat pilot did not report receiving any warning.

⁶ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

