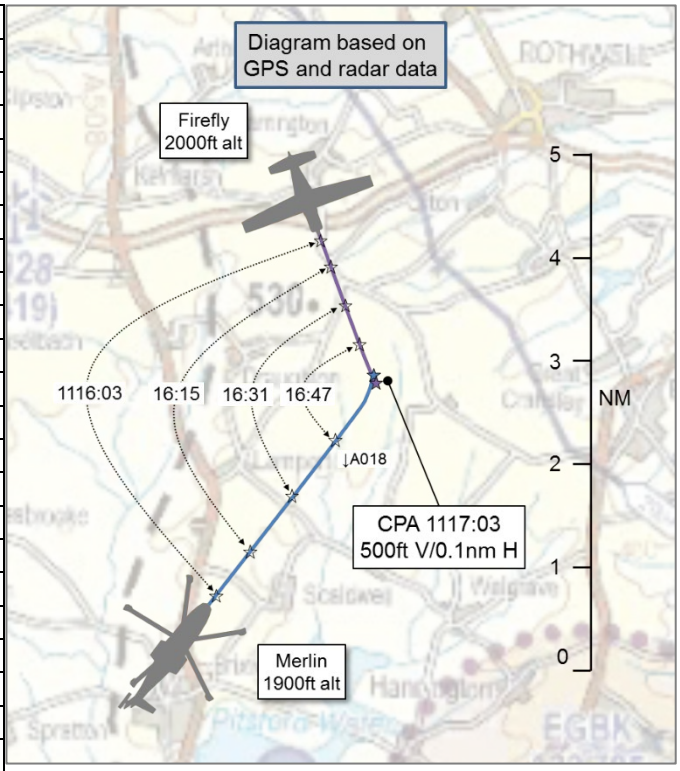
AIRPROX REPORT No 2019269

Date: 12 Sep 2019 Time: 1117Z Position: 5223N 00051W Location: 5nm W of Kettering

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Merlin	Slingsby Firefly
Operator	RN	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Basic	Basic
Provider	Wittering Zone	Sywell Information
Altitude/FL	1500ft	2006ft
Transponder	A, C, S	A, S
Reported		
Colours	Grey	
Lighting	Strobes, nav lights	
Conditions	VMC	VMC
Visibility	20km	>10km
Altitude/FL	1800ft	2000ft
Altimeter		1023hPa
Heading		151°
Speed	120kt	92kt
ACAS/TAS	TAS	Not fitted
Alert	TA	N/A
Separation		
Reported	200ft V/<100m H	Not Seen
Recorded	500ft V/0.1nm H	



THE MERLIN PILOT reports that, during a transit to RAF Leeming, the P1 in the left-hand seat spotted a civilian aircraft at the same altitude, on a constant bearing, and at a range of less than 1nm. The handling pilot took avoiding action by turning left and descending, at which point the TAS reported a confliction commensurate with the civilian aircraft. At no point did the civilian aircraft change heading or height. At the time of the Airprox the crew was under a Basic Service from Wittering Zone and Traffic Information was received from ATC as the civilian aircraft passed overhead.

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

THE SLINGSBY FIREFLY PILOT reports that he was en-route to Elstree via Sywell, Cranfield and Luton. At the position of the reported Airprox he recalls that he would have been talking to Sywell with a Basic Service. The Merlin was not on this frequency, so he was not aware of the position of it; neither did he see the aircraft. Weather conditions on the day were clear visibility with cloud and sunny intervals. The pilot provided his SkyDemon log with all the GPS details for the flight.

The pilot did not assess the risk of collision because he did not see the Merlin.

THE WITTERING ZONE CONTROLLER reports that he was the Approach controller at RAF Wittering, band-boxing three frequencies (1 x VHF and 2 x UHF) during a period of low intensity traffic. With no station-based aircraft airborne, he was providing a Service to pilots requiring a MATZ crossing at RAF Wittering. A Merlin pilot called on one of the UHF frequencies that he was working requesting a Basic Service and that his position was 15 miles south-west of Northampton at 1700ft transiting to RAF Leeming. RAF Wittering does not usually provide a LARS but, due to his low workload and awareness that the airspace in that area has no LARS coverage, he provided the Merlin pilot with a Basic Service as requested. The Chatham and Barnsley RPS settings were issued and he instructed the pilot to squawk 3750. The controller corrected the Merlin pilot's readback of the Barnsley RPS whereupon the Merlin pilot requested to operate on the Chatham RPS. Due to the limit of radar coverage and the transit

height of the Merlin, the controller did not observe the squawk or a DF trace on first call, but when the Merlin was approximately 25nm south-west of Wittering the controller noticed the 3750 squawk appear. The controller then answered the Waddington external landline and accepted a handover for an aircraft requesting a MATZ crossing under a Traffic Service. During the handover, he noticed a primary contact in the close vicinity of what he thought to be the Merlin. He asked the Waddington controller to standby and called the traffic "Merlin C/S, traffic believed to be you has traffic north, half-a-mile, tracking south, no height information." He then continued with the Waddington handover for an aircraft to operate on his VHF frequency. The Merlin pilot then transmitted "visual with the traffic" and declared an Airprox. The controller acknowledged the Airprox and noted the time on the flight strip as 1117Z. The Merlin was approximately 5 miles north-west of Northampton/Sywell airfield when the Airprox was declared. The controller then approved a western stub crossing at RAF Wittering for the Merlin and informed the pilot of activity at Saltby and Langar.

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

THE WITTERING SUPERVISOR reports that the controller workload was medium-to-low and that the unit workload was low. RAF Wittering does not have an established Supervisor position, but that he was acting as ATCO I/C and the controller that submitted the occurrence. He requested that the tapes to be impounded and arranged for a tape transcript to be completed.

THE SYWELL AERODROME MANAGER reports that the record of flight strips shows that Sywell was providing a Basic Service to the pilot of the Slingsby Firefly in the morning. The pilot initially called at 1112Z and reported an altitude 2000ft, and changed to Cranfield's frequency at 1121Z. The aircraft returned in the opposite direction in the afternoon of that day. There was no mention of an Airprox and Sywell did not speak to any Merlin helicopters. Although there is no requirement for an AFIS to record R/T, Sywell does have this equipment but it was unserviceable on the day of the Airprox.

Factual Background

The weather at Wittering was recorded as follows:

```
METAR EGXT 121050Z 23018G28KT 9999 FEW020 21/14 Q1024 RMK BLU=
METAR EGXT 121150Z 23016KT 9999 BKN027 22/15 Q1024 RMK BLU=
```

Analysis and Investigation

Military ATM

The Merlin was on a transit flight to Scotland with intermediate stopovers. Approximately 15nm south west of Northampton, the Merlin pilot established a Basic Service with Wittering Approach. Five minutes later, Wittering Approach passed Traffic Information on the Firefly at a range of ½nm. The Merlin pilot reported that this Traffic Information was concurrent with the handling pilot spotting the Firefly at a range of less than 1nm and initiating a descending left hand turn. During this manoeuvre, the Merlin TAS alerted and reported the confliction.

Figures 1-3 show the positions of the Merlin and the Firefly at relevant times in the lead-up to, and during, the Airprox. The screen shots are taken from a replay using the Debden Radar, which is not utilised by RAF Wittering, therefore is not representative of the picture available to the controller.

The Merlin pilot free-called Wittering Approach requesting a Basic Service and passed details of their transit. Although Wittering is not established as a LARS unit, controller workload and anticipated workload was low so the Service was provided. Separation between the Merlin and Firefly was 18nm.

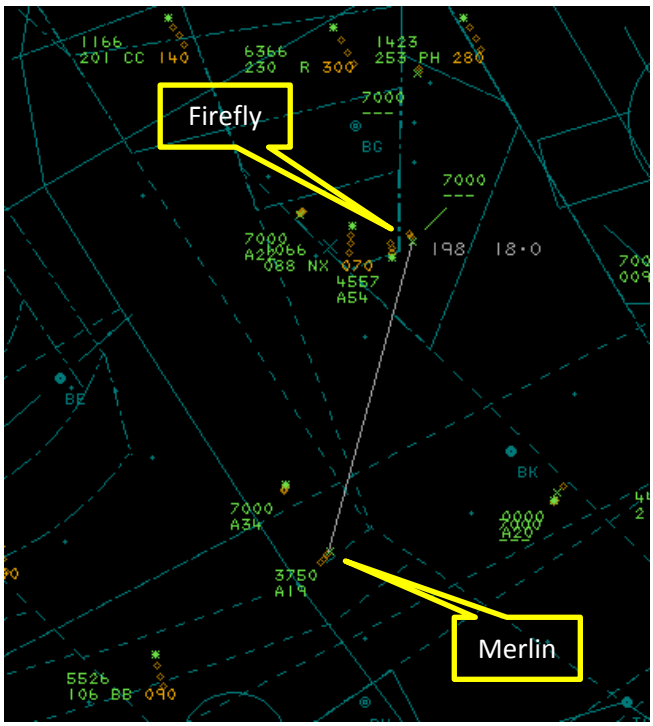


Figure 1 – 1110

The Wittering Approach Controller passed Traffic Information to the Merlin pilot at 1116:51, noting the Firefly was north, ½ nm, no height information. In response to this call, the Merlin pilot reported the Airprox.

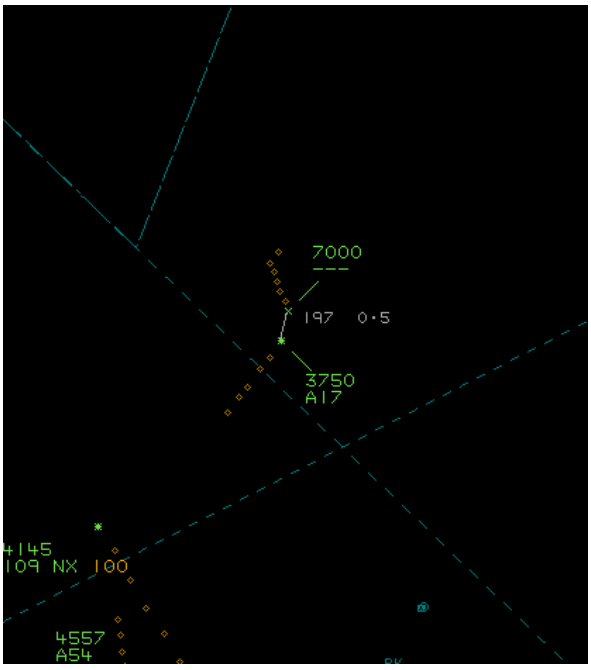


Figure 2 – 1116:51

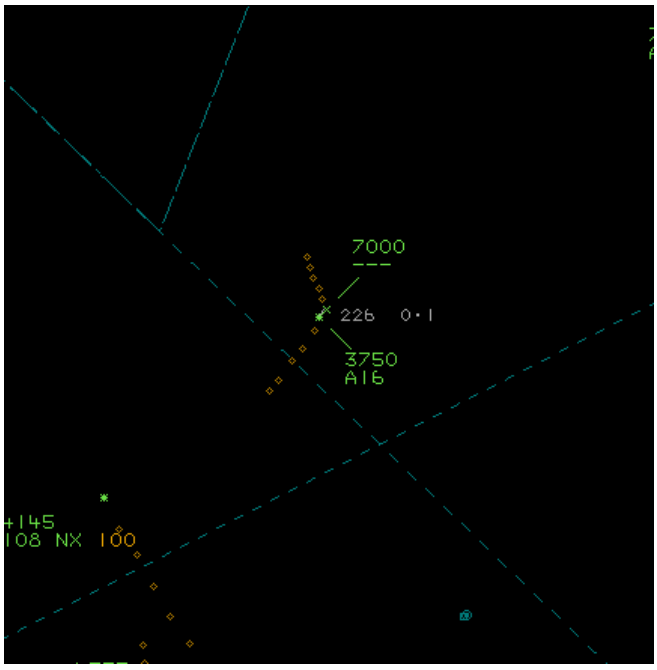


Figure 3 – CPA 1117:01

The Merlin pilot reported taking an avoiding action descent and turn to the left which can be seen on the radar replay. This turn resulted in a CPA of 0.1nm. The Wittering Approach Controller was providing a Basic Service and, under the terms of that Service, is not mandated to pass Traffic Information unless the controller believes a definite risk of collision exists. In this instance, the lack of a Mode C on the Firefly meant that it was impossible for the controller to identify if a definite risk of collision existed but, by passing Traffic Information, they discharged their duty-of-care appropriately in this incident.

UKAB Secretariat

The Merlin and Firefly pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[1] If the incident geometry is considered as converging then the Firefly pilot was required to give way to the Merlin.[2]

Comments

Navy HQ

The investigation into this Airprox was conducted by the handling pilot due to the unavailability of any other aircrew involved in this incident. This Airprox occurred during the second-half of a long transit from RNAS Culdrose to RAF Lossiemouth. A detailed recollection of events was supplied by all parties, including the crews of both aircraft, Wittering ATC and the Sywell aerodrome manager.

Even though a robust 'eyes in/eyes out' policy was adopted throughout the transit to spot conflicting traffic, this Airprox highlights two things; the importance of selecting the most suitable UK FIS for the task, which should be considered in the planning for all sections of a long transit. Although the controller executed their responsibility correctly under duty-of-care and passed TI, they were not required to identify and subsequently monitor the flight or pass TI. Secondly, the limitations of the TAS fitted to the Merlin Me2 which, although functioned correctly, did not provide an early enough alert to maintain safe separation. From a previous Airprox in August 2018, a recommendation to initiate a design review of the Merlin Me2 TAS was submitted.

Summary

An Airprox was reported when a Merlin and a Slingsby Firefly flew into proximity 5nm west of Kettering at 1117hrs on Thursday 12th September 2019. Both pilots were operating under VFR in VMC, the Merlin pilot in receipt of a Basic Service from Wittering Approach/Zone and the Slingsby Firefly pilot in receipt of a Basic Service from Sywell.

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 controller involved and reports from the appropriate ATC 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.

The Board first considered the actions of the Merlin pilot and commended him for seeking an ATS in an area of known poor LARS coverage. Although Wittering is not a LARS provider, on this occasion the controller had been able to offer a Service to the Merlin pilot due to his having a permissive workload. That being said, members wondered why, having secured a Basic Service from a unit equipped with surveillance equipment, the Merlin pilot had not requested to upgrade to a Traffic Service (**CF2**). A military controller confirmed that, if the unit had had the capacity to offer a Basic Service then it would have been likely to have been able to provide a surveillance-based Service if requested. Members noted that the Merlin is fitted with a TAS, but heard from the RN member that the display for this equipment is situated outboard and aft of the pilots' sitting positions. This sub-optimal configuration means that Merlin pilots rely on the aural cues of proximate traffic rather than scanning the TAS display screen for an earlier indication. The Board felt that the associated late TAS aural warning of the presence of the Firefly – after the Merlin pilot had sighted the aircraft and taken action to increase separation – had been contributory to the Airprox (**CF4, CF5**). Ultimately, it had been the Merlin pilot's lookout and reaction to seeing the Firefly that had resolved the conflict (**CF6**).

[1] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

Turning to the actions of the Firefly pilot, some members considered that he could also have requested a surveillance-based ATS from Wittering but GA members reasoned that Sywell would have been the logical frequency to have selected because the Firefly pilot had planned to fly through the airfield's overhead. GA members familiar with the Slingsby Firefly commented that the view from the pilot's seat is relatively unrestricted and therefore it was disappointing that the pilot did not see the Merlin, but also acknowledged that lookout is far from infallible and there could have been many reasons why the pilot remained unsighted on the helicopter (**CF7**).

The Board then briefly considered the actions of the Wittering controller and the Sywell AFISO. Members agreed that, with both pilots having been in receipt of a Basic Service from their respective providers, there had been no requirement for the Wittering controller or the Sywell AFISO to monitor either aircraft; indeed, the Sywell AFISO had had no means of detecting any potential conflict outside the Sywell ATZ (**CF1**). Therefore, neither pilot had received specific Traffic Information on the other aircraft and thus their respective SA could only have been the generic SA of operating VFR in Class G airspace (**CF3**).

Finally, in considering the collision risk, members noted that a number of barriers to MAC had been defeated in the moments prior to the Merlin pilot becoming visual with the Firefly. The Board recalled an incident in 2018 between 2 Merlin helicopters operating at night in Falmouth Bay [Airprox 2018208] where the sub-optimal configuration of the Merlin TAS had been the subject of a recommendation from the Unit Safety Investigation. The Board was briefed by the RN member that this recommendation remains open at this time and work continues to address the Merlin TAS utility. Notwithstanding, the lookout barrier had been successfully employed in this instance and, although members agreed that passing within 1nm of another aircraft with no prior warning represented a situation in which safety had been degraded, the actions of the Merlin pilot had generated sufficient vertical separation to have removed any risk of collision; Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019269		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Situational Awareness and Action		
1	Contextual	• Situational Awareness and Sensory Events	Not required to monitor the aircraft under the agreed service
	Flight Elements		
	• Tactical Planning and Execution		
2	Human Factors	• Communications by Flight Crew with ANS	Apt ATS not requested by pilot
	• Situational Awareness of the Conflicting Aircraft and Action		
3	Contextual	• Situational Awareness and Sensory Events	Generic, late, no or incorrect Situational Awareness
	• Electronic Warning System Operation and Compliance		
4	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication
5	Technical	• ACAS/TCAS System Failure	CWS did not alert as expected
	• See and Avoid		
6	Contextual	• Near Airborne Collision with Aircraft, Balloon, Dirigible or Other Piloted Air Vehicle	A conflict in the FIR
7	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: C

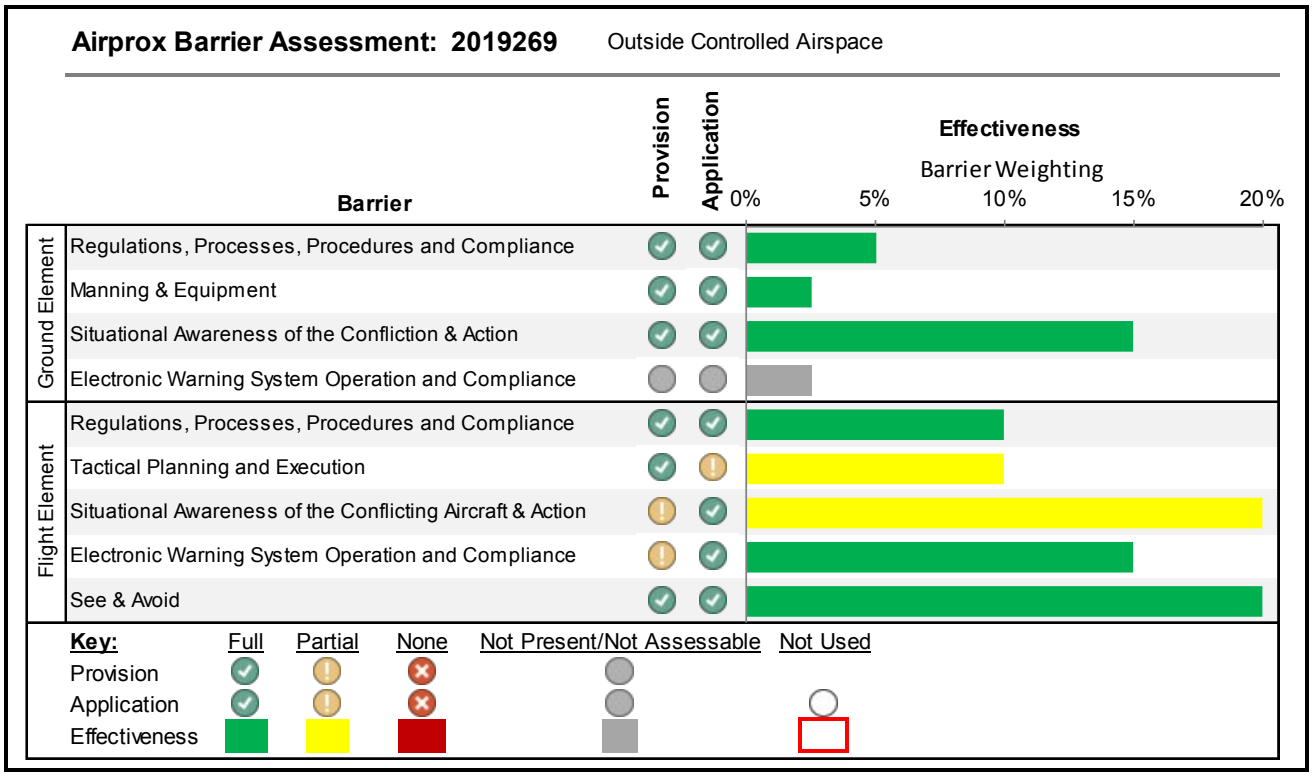
Safety Barrier Assessment[3]

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

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Merlin pilot, having agreed a Basic Service with Wittering Approach, could have requested a Traffic Service.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the Merlin pilot received Traffic Information from the Wittering Approach controller at a range of ½nm, and the TAS on the Merlin did not alert the pilot to the presence of the Firefly until he was already visual with the aircraft and taking action to increase separation.



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