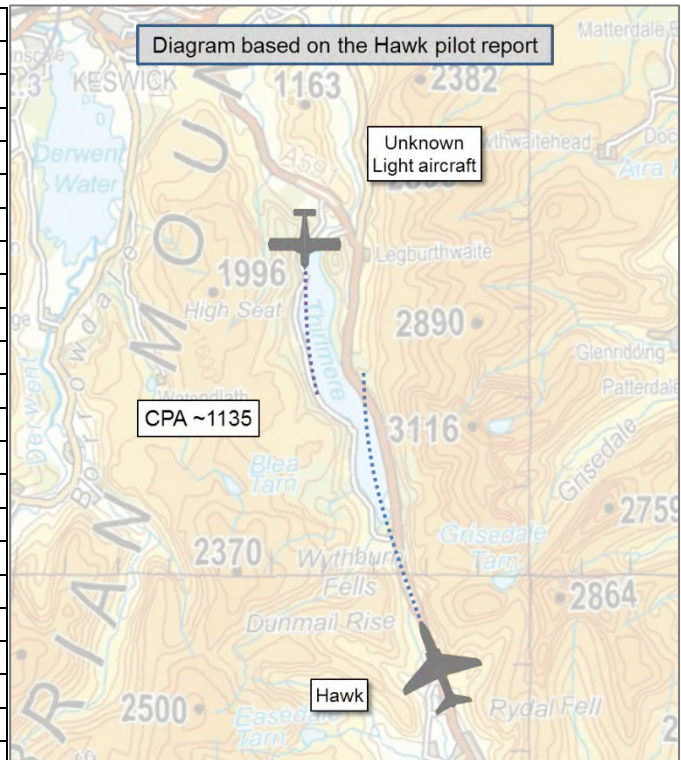


## AIRPROX REPORT No 2018142

Date: 22 Jun 2018 Time: 1135Z Position: 5132N 00303W Location: Thirlmere

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	Hawk	Unknown
Operator	HQ Air (Trg)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Unknown
Provider	Low Level Comm	NK
Altitude/FL	NK	NK
Transponder	A, C	NK
<b>Reported</b>		Not reported
Colours	Black	
Lighting	HISL, nav	
Conditions	VMC	
Visibility	35km	
Altitude/FL	500ft	
Altimeter	agl	
Heading	345°	
Speed	420kt	
ACAS/TAS	TCAS II	
Alert	TA	
<b>Separation</b>		
Reported	100ft V/0.5nm H	NK
Recorded		NK



**THE HAWK PILOT** reports conducting a low level training sortie, routing northbound along the Windermere to Keswick low-level flow system, when a Merlin helicopter pilot, to the north of his position, transmitted details of a light-aircraft routing southbound along Lake Thirlmere, 'against the [military] flow system'. The Hawk pilot saw a TCAS contact at a range of 5nm, which appeared to match the reported position of the other aircraft, and he gained visual contact at 3nm. He made a gentle right turn to remain on the right-hand side of the valley and the other aircraft passed down his left, slightly below.

He assessed the risk of collision as 'Low'.

**THE LIGHT-AIRCRAFT PILOT** could not be traced.

### **Factual Background**

The weather at Warton was recorded as follows:

METAR EGNO 221120Z 27017KT 9999 BKN045 08/06 Q1009=

### **Analysis and Investigation**

#### **UKAB Secretariat**

The Hawk and light-aircraft pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. The UK Military Low Flying Handbook states as follows:

<sup>1</sup> SERA.3205 Proximity.

## 'FLOW REGULATIONS

01.02.40. Within the UKDLFS, all military aircraft are to comply with flow regulations detailed in the Area Briefs, except for RW aircraft below 200 ft AGL unless otherwise specified. The flow system applies from surface to 2000ft AGL/AMSL unless otherwise specified in the Area Briefs.'<sup>2</sup>

## 'REGULATIONS

1. **Cumbrian Directional Flow Control System.** In order to deconflict opposing traffic in specific steep-sided valleys, a system of mandatory flow control in a northerly direction is established in the Central Valley of the Lake District, along the M6 motorway pass located to the northeast of Kendal and along the Ullswater Valley. ac are to enter the flowed valleys only at the initial co-ordinates but may exit at any point. Flowed valleys may be overflowed at a minimum of 250ft above the ridge line. Details of the 3 valleys are as follows:

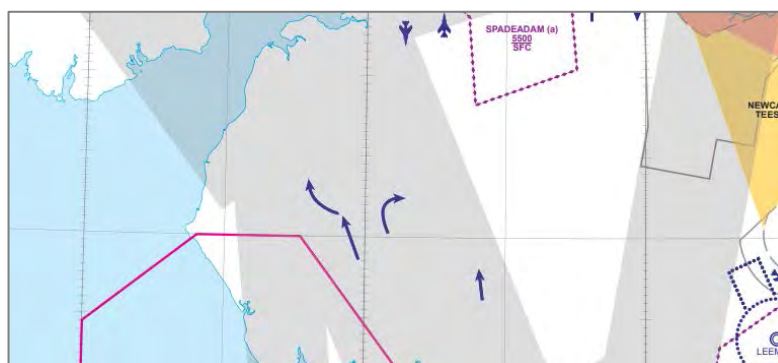
- a. **Lake District.** From Grasmere N54 27.18 W003 01.45 (NY 336069) along valley defined by Thirlmere - A591 - Bassenthwaite Lake to Ouse Bridge N54 40.65 W003 14.45 (NY 200321). Crews are to avoid Keswick.
- b. **M6.** From N54 22.34 W002 34.92 (SD 622976) north along M6 to Junction N54 26.22 W002 35.71 (NY 614048).
- c. **Ullswater.** From N54 30.52 W002 55.14 (NY 405130) north to Ullswater N54 33.75 W002 56.14 (NY 395190) along lake to N54 34.86 W002 51.53 (NY 445210).'<sup>3</sup>

The Skyway Code states:

'Military low flying takes place across most of the UK, often as low as 100 ft AGL for helicopters and 250 ft AGL for fixed wing traffic. There is an increased likelihood of encountering military aircraft in areas of intense aerial activity or aerial tactics areas, although low flying aircraft are not confined to these areas. The highest concentrations tend to be below 1000 ft AGL, so GA pilots are strongly recommended to remain above this height during enroute flight.'<sup>4</sup>

The CAA Safety Sense Leaflet 18 (Military Low Flying) states:

'Where necessary, military pilots, except those of helicopters flying below 200 ft MSD, follow established uni-directional flows when flying below 2,000 ft to reduce the risk of conflict. These flow arrangements, which apply in daylight hours only, over areas and through 'choke' points, are published on CAA chart UK AIP ENR 6-5-2-1<sup>5</sup>. 'Areas of Intense Aerial Activity, Aerial Tactical Areas and Military Low Flying System'. However, the published markings only indicate the general direction of flow, not specific tracks.'<sup>6</sup>



Extract from UK AIP ENR 6-5-1-2

The flow-arrows depicted on military low-flying charts are not depicted on CAA VFR charts and there is no requirement for civilian pilots to observe the associated military regulations.

<sup>2</sup> Section 1 (THE UK LOW FLYING SYSTEM), Part 1-1-5, dated 23 Sep 10.

<sup>3</sup> Section 2, LFA 17, Part 1-2-17-1, 1-2-17-2, dated 15 Jan 09.

<sup>4</sup> CAP 1535S: The Skyway Code, Airspace, Airspace Hazards and Restrictions, Military Low Flying System, page 72.

<sup>5</sup> Now published as AIP ENR 6-5-1-2, dated 13 Sep 2018.

<sup>6</sup> Section 2, THE UK MILITARY LOW FLYING SYSTEM, dated Jan 2008.

## Comments

### HQ Air Command

The Hawk pilot had planned the sortie in accordance with extant procedures, including submitting the route to CADS. However, as the light-aircraft pilot's route would not have been on CADS this barrier was unavailable. Similarly, there was no opportunity for either aircraft to receive a surveillance-based air traffic service (ATS) at the height and in the area they were operating, so the ATS barrier was also unavailable. This left only electronic conspicuity (EC) and crew lookout as the 2 viable barriers to MAC in this incident.

The Hawk pilot was first alerted to the presence of the light-aircraft by another military crew that spotted the aircraft transiting south against the military flow arrow and so transmitted this information on the military UHF low level frequency. This information correlated with a contact on the Hawk's TCAS and the 2 inputs permitted the Hawk pilot to become visual with the light aircraft at a range of approximately 3nm. The low-level flow arrows are only applicable to military aircraft in the Low Flying System, and are published in the UK AIP ENR 6.5.1.2 to inform all users of the presence of these flows. Whilst not obliged to adhere to the flow arrows, civil pilots are strongly encouraged to do so where possible to reduce the likelihood of meeting a fast moving military aircraft flying in the opposite direction. That said, it appears that both aircraft involved in this incident were following the 'right hand recommendation' with regard to line features (the lake) which afforded a degree of lateral separation.

This incident demonstrates the utility of EC as a barrier to MAC, not only providing an alert of traffic in the vicinity but also cueing crew lookout. The absence of any barrier at the planning stage, and the height and location of the aircraft denying any form of assistance from ATC, placed more emphasis on the remaining barriers. Finally, work continues towards the viability of a common VHF frequency for use across the UK, but the crew of the Merlin are to be commended for their consideration towards other military aircraft in the Low Flying System in announcing the presence of the light aircraft on the military UHF frequency.

### Summary

An Airprox was reported when a Hawk and an unknown light aircraft flew into proximity at about 1135 on Friday 22<sup>nd</sup> June 2018. The Hawk pilot was operating under VFR in VMC, not in receipt of a service but listening out on the UHF Low Level Common frequency.

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

Information available consisted of a report from the Hawk pilot, radar photographs/video recordings (which did not show either aircraft in the vicinity of CPA) and a comment from the appropriate operating authority.

Members quickly agreed that this incident was a result of normal interaction between civilian aircraft and military aircraft in the UK Military Low Flying System. Notwithstanding, the Board was heartened by the proactive action of the Merlin crew in passing information on the Low-Level UHF Common frequency about the presence and track of the civilian traffic. This pre-warned the Hawk pilot, who was then prepared to take action when the civilian contact appeared on their TCAS display. With a visual sighting at 3 miles and the Hawk pilot's subsequent action, the Board were satisfied that this incident represented a sighting report and that normal procedures, safety standards and parameters pertained.

The Board recalled that a recommendation had been made to the CAA as a result of Airprox 2013065 and to HQ Air Command as a result of Airprox 2014167, concerning the education of GA pilots with respect to military 'flow-arrows'. Both these recommendations had been accepted but the Board wondered to what extent the GA community was fully aware of the location and purpose of military 'flow-arrows'.

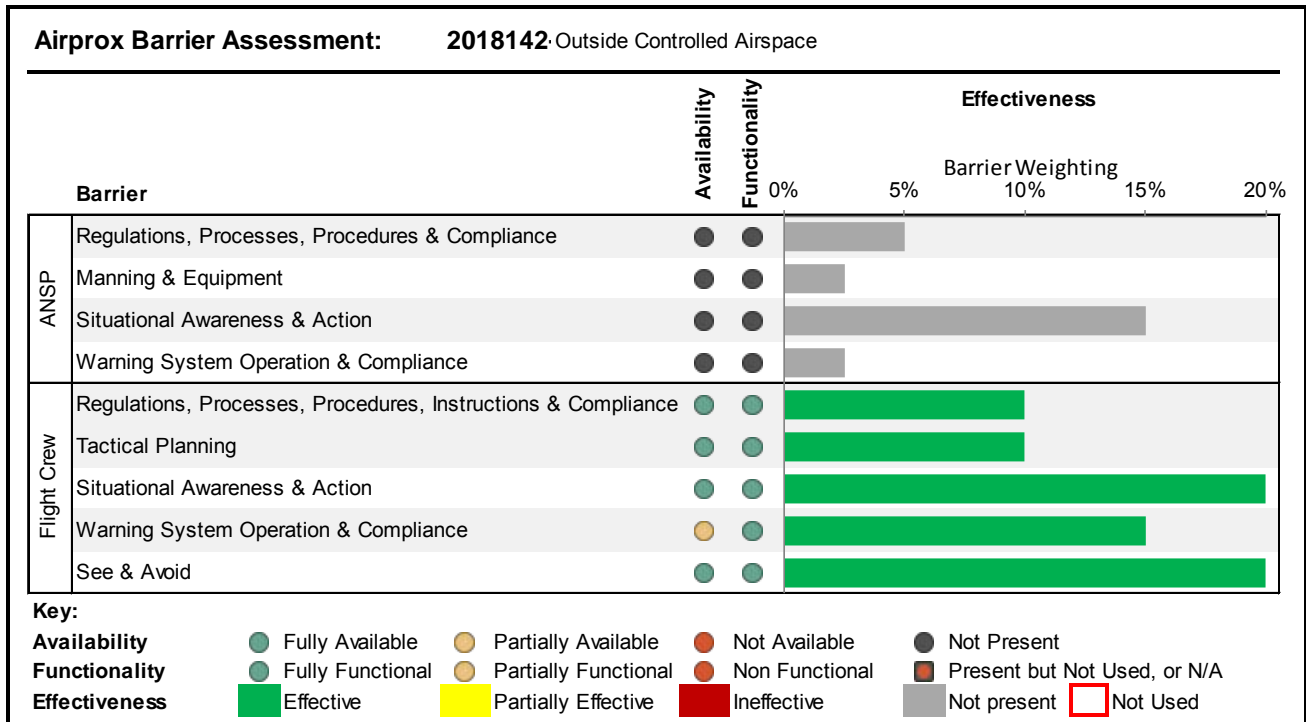
**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A sighting report.

Degree of Risk: E.

Safety Barrier Assessment<sup>7</sup>

The Board considered that all relevant safety barriers had been fully effective, albeit the availability of collision warning systems in the unknown light-aircraft could not be determined and so could not be graded as 'fully available' for that reason.



<sup>7</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).