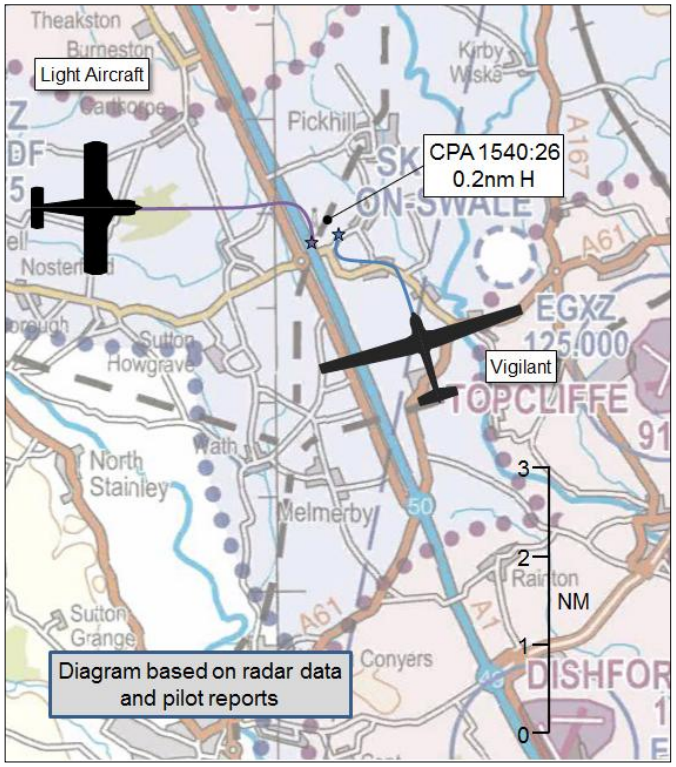
AIRPROX REPORT No 2016228

Date: 29 Oct 2016 Time: 1540Z Position: 5413N 00129W Location: 3nm W Topcliffe

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Vigilant	NK
Operator	HQ Air (Trg)	
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	
Service	AGCS	
Provider	Topcliffe	
Altitude/FL	NK	FL19
Transponder	A	A,C
Reported		
Colours	White	White, Blue
Lighting	HISLs, Nav, Landing	
Conditions	VMC	
Visibility	20km	
Altitude/FL	2000ft	
Altimeter	QFE (1031hPa)	
Heading	330°	
Speed	NK	
ACAS/TAS	Not fitted	Unknown
Alert	None	
Separation		
Reported	0ft V/100m H	NK
Recorded	0.2nm	



THE VIGILANT PILOT reports that he was undertaking a training sortie with a student. The student performed a manoeuvre and both the instructor and the student checked the blind side for traffic and saw that they were on a converging course with a light-aircraft in the 12-1 o'clock position at the same height. They saw the underside of the other aircraft first, and the student performed the standard clearing manoeuvre, turning the aircraft to the right. A few moments later the other pilot must have seen them because he also performed a clearing turn to the right. They continued their turn to point back at the airfield and then noticed that the light-aircraft had changed his turn direction and had began to turn left towards them, positioning his aircraft in their 6 o'clock and heading straight towards their tail, which meant seeing him was difficult. They carried out several gentle 's' turns in order to attempt to see the aircraft more clearly; he appeared to be travelling much faster and was now manoeuvring fairly aggressively behind them. At this point the instructor was the only one who could see the aircraft due to his position in the left-hand seat of the cockpit. The other aircraft remained close on their tail and copied their manoeuvres for a while, before positioning on the opposite side of them, turning left and departing to the north. The incident was witnessed by another instructor in the circuit, who commented to his student that it looked like the light-aircraft was 'tail chasing' the Vigilant. The Vigilant pilot noted that they were operating to the west of the airfield close to the A1 which, although they weren't using it as a line feature, was being kept to their left-hand-side.

He assessed the risk of collision as 'Medium'.

THE LIGHT AIRCRAFT PILOT could not be traced.

Factual Background

The weather at RAF Leeming was recorded as follows:

```
METAR EGXE 291450Z AUTO 21007KT 9999 OVC021/// 15/12 Q1032=
METAR EGXE 291550Z AUTO 20006KT 9999 OVC022/// 15/12 Q1031=
```

Analysis and Investigation

UKAB Secretariat

The Vigilant 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[1]. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right[2].

Figures1-4 are a series of screen shots taken from the NATS area radars. Figure 1 is taken at 1540:28, just after both aircraft have taken avoiding action. The untraced aircraft is squawking 7000, the glider 4576, although it has garbled on the radar screen to 0000 in this instance. Figure 2 and 3 are taken at 1540:40 and 1541:23 respectively and show how the untraced aircraft turns behind the glider to follow his track for several minutes until at 1542:19, Figure 4, it can be seen departing to the north-west.

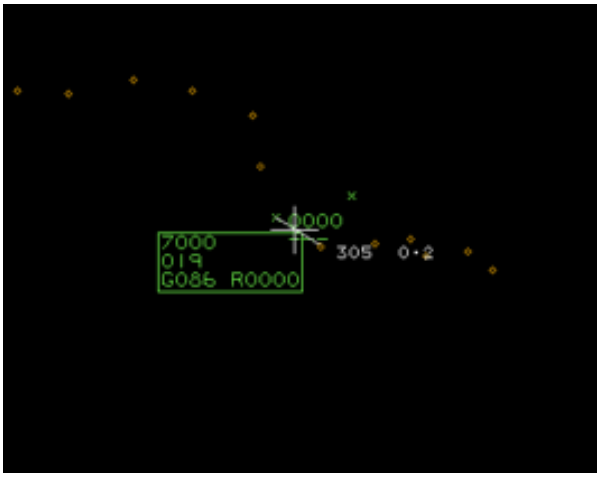


Figure 1: 1540:28

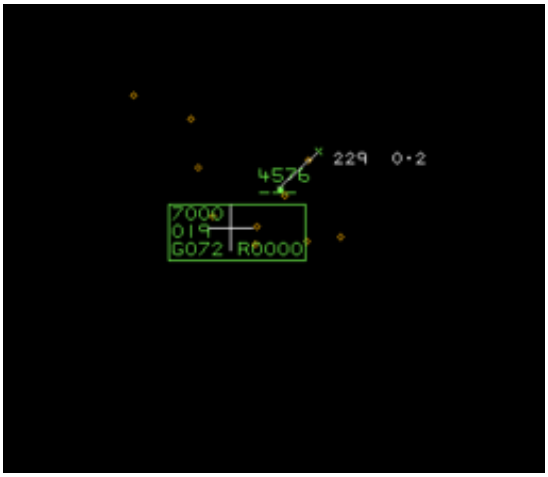


Figure 2: 1540:40

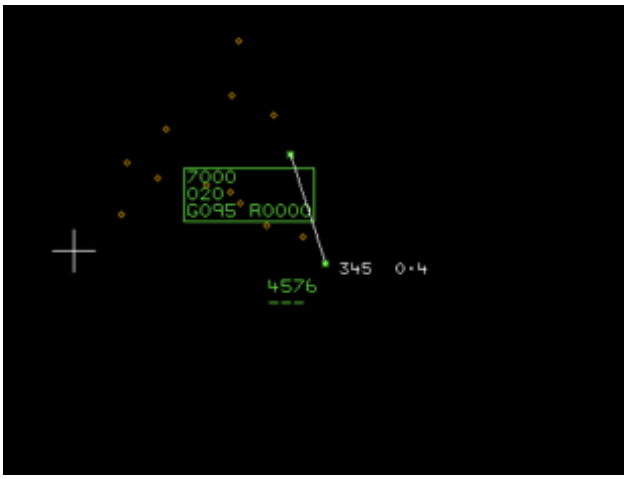


Figure 3:1541:23

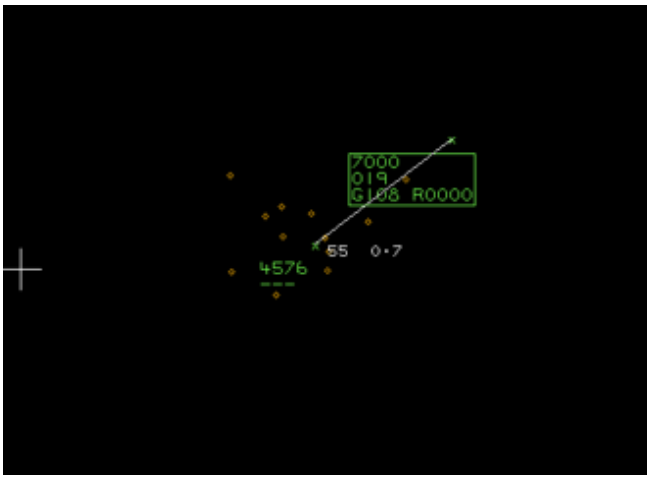


Figure 4: 1542:19

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(1) Approaching head-on.

Comments

HQ Air Command

This incident has similarities to previous Airprox 2016180, albeit in a different part of the country. It is a shame that the pilot of the other aircraft could not be traced so that we could understand their intentions. The radar screenshots support the Vigilant pilot's version of events in that the unknown aircraft was following the Vigilant and possibly trying to 'tail-chase' with it; which, if this was the case, could be regarded as reckless behaviour. Following a local investigation, the Vigilant pilot confirmed that the original encounter was at a CPA of approx 300m and then as low as 100m during the subsequent 'tail-chase'. Regardless of the unknown aircraft's actions, safe separation was compromised, albeit that the pilots were in visual contact with each other.

Summary

An Airprox was reported when a Vigilant and a light aircraft flew into proximity at 1540 on Saturday 29th October 2016. The Vigilant pilot was operating under VFR in VMC, and not in receipt of an ATS. The light aircraft pilot could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the Vigilant pilot and radar photographs/video recordings.

The Board first discussed which part of the encounter should be regarded as the Airprox. They quickly decided that it had to be the initial encounter when both aircraft were head to head and both took avoiding action. The Board thought that what went on after the Airprox was very unwise on the part of the untraced aircraft pilot, and agreed that it was unfortunate that the light aircraft pilot could not be traced; without his report it was difficult to understand why he went on to follow the Vigilant so closely. Although not germane to the Airprox itself, the light-aircraft pilot's subsequent manoeuvres appeared to display very poor airmanship indeed; members strongly warned others pilots against mimicking such actions, especially because without pre-briefing such activities it was not possible to predict how the other pilot would react.

Turning to the actual Airprox, the Board noted that the Vigilant pilot was concentrating on instructing his student, and some members wondered if they both might have been task-focused to the detriment of look-out. It appeared from the radar recordings that the other aircraft was there to be seen, and on a closing heading for about a mile before the Vigilant pilot saw the other aircraft. However, once he did see it, the Board noted that he took swift avoiding action to resolve the confliction. Although noting that the Vigilant was not equipped with FLARM, the Board thought that it would be unlikely that a light-aircraft would be FLARM equipped anyway. They were informed by the military members that there was a programme in place to fit the Vigilant fleet with P-FLARM over the coming months.

The Board noted that the incident took place in the Topcliffe/Leeming combined MATZ, but was at the weekend, during which time there would be no ATC. Whilst the light-aircraft pilot was entitled to fly through the MATZ, the Board thought that to do so without calling Topcliffe air-to-ground demonstrated a lack of awareness of Topcliffe's activities.

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

- **Flight Crew Situational Awareness** was assessed as **ineffective** because neither pilots had any means of gaining situational awareness about the other.

- **Onboard Warning/Collision Avoidance Equipment** was also assessed as **ineffective** because the Vigilant was not fitted with a CWS.

- **See and Avoid** was considered to have been **partially effective** because both pilots took avoiding action, albeit late.

The Board then discussed the cause of the Airprox and quickly agreed that it had been a late sighting by the Vigilant pilot and a possible late sighting by the unknown light aircraft pilot. In assessing the risk, the Board agreed that it appeared from the report and the radar recordings that both pilots had taken timely and effective controlled avoiding action; although safety had been degraded, they assessed the risk as Category C, no risk of collision.

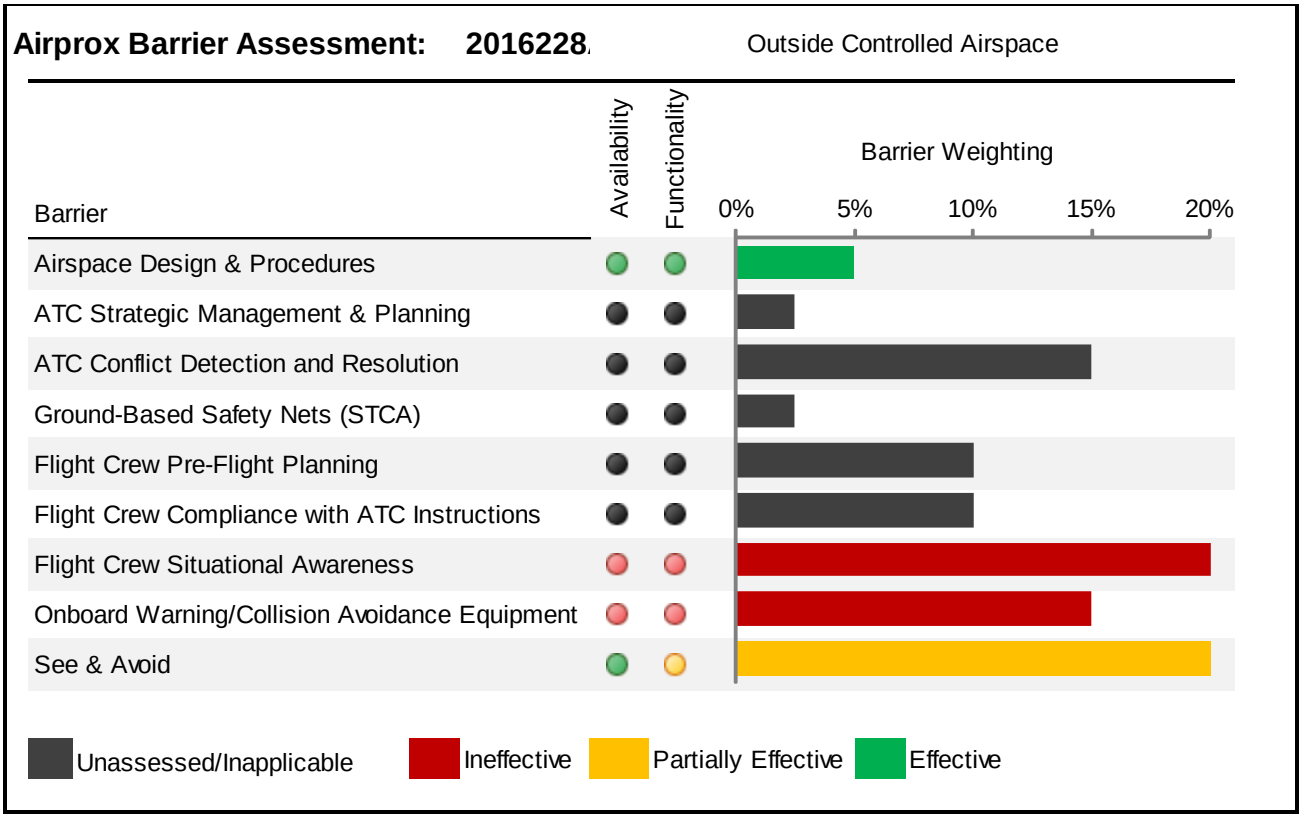
PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A late sighting by the Vigilant pilot and a possible late sighting by the unknown light-aircraft pilot.

Degree of Risk: C.

Barrier Assessment[3]:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).[4] The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Absent). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



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

[4] Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.