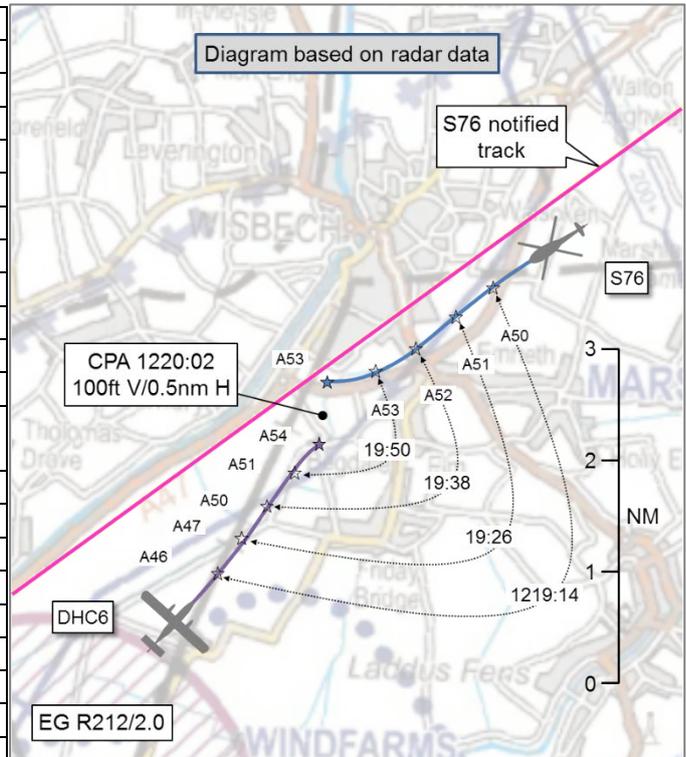


AIRPROX REPORT No 2018185

Date: 25 Jul 2018 Time: 1220Z Position: 5239N 00009E Location: 1NM south of Wisbech

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	S76	DHC6
Operator	Civ Helo	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Traffic	AGCS
Provider	Marham	Chatteris
Altitude/FL	5300ft	5400ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Maroon	Purple, silver
Lighting	Strobes, HISL, nav	Beacon
Conditions	VMC	VMC
Visibility	>10km	20km
Altitude/FL	5400ft	FL050
Altimeter	QNH (1015hPa)	SPS
Heading	236°	010°
Speed	130kt	100kt
ACAS/TAS	TCAS I	Not fitted
Alert	TA	N/A
Separation		
Reported	0ft V/0.5nm H	0ft V/0.5nm H
Recorded	100ft V/0.5nm H	



THE MARHAM ZONE CONTROLLER reports working the S76 following the routing notified in NOTAM H5313/18. The S76 was late departing but was still within the notified times. The controller noticed a para-dropper aircraft [DHC6] departing from Chatteris, tracking north as it was passing through 1000ft as indicated by Mode C. The S76 was approximately 15nm northeast of the DHC6 in the climb to 4900ft under a Traffic Service. He remarked to the supervisor that the DHC6 was airborne; she confirmed that she had noticed it and was calling Lakenheath RAPCON, the unit who would normally be controlling that aircraft, to remind them of the NOTAM provisions and advise them to keep [the DHC6] clear. He overheard part of the conversation between the Supervisor and Lakenheath and it was clear that they were not in communication with the DHC6 pilot, at which point the controller passed Traffic Information to the S76 pilot. The DHC6 was approximately 6nm southwest of the S76, tracking north and climbing through 3000ft. He passed further Traffic Information as the DHC6 approached 3nm and within 1000ft, tracking northeast directly toward the S76. The S76 pilot advised that he was climbing to 5400ft and that he would be maintaining clear of the Chatteris parading area¹. As the DHC6 maintained track towards the S76, and was within 500ft still climbing, the controller suggested a right turn to heading 270° to the S76 pilot, which he took. From the controller’s perspective the radar returns appeared to briefly merge and the Mode C indicated the aircraft were within 200ft of each other. At this point the S76 pilot advised that he was visual with the DHC6. Once both aircraft were sufficiently separated, the S76 was returned to own navigation, at which point the controller noticed the DHC6 squawking ident, suggesting that the pilot was making contact with an ATC agency.

He perceived the severity of the incident as ‘High’.

¹ The S76 pilot stated “I will be remaining north and west of March restricted area” [EG R212].

THE MARHAM SUPERVISOR reports that she had seen the para-dropping aircraft get airborne from Chatteris and take up a north-northeasterly profile but had not seen it squawk ident to indicate it was talking to Lakenheath. She called Lakenheath to ask if they were speaking to the DHC6 pilot and if they were aware of the NOTAM. Lakenheath were aware of the NOTAM and she reminded them of the separation they were 'required' to maintain against the S76 unless they received co-ordination from Marham. The DHC6 continued to head towards the S76 and she heard the Zone Controller call the traffic and subsequently give a suggested turn to avoid the DHC6. The supervisor called Lakenheath and requested that they ask the DHC6 pilot to call RAF Marham once they had landed to discuss the incident. The pilot called and she asked him if he was aware of the S76 and enquired as to why he took so long to call Lakenheath. His response was that he was aware of the S76 inbound earlier on in the day, and the reason for him delaying his call to Lakenheath was due to him being distracted by the passengers in the back of the aircraft.

THE S76 PILOT reports in the cruise heading southwest. The crew were aware of a TCAS contact in the 10 o'clock position about 500ft below and climbing at a range of about 4nm. The Marham controller provided Traffic Information and informed them that the aircraft was heading northeast, which would be crossing their track. The S76 pilot made a conscious decision to climb above the notified RLLC in order to gain vertical separation and to remain clear of a scattered cloud layer between them and the other traffic, to allow visual identification should it continue its climb. The crew considered the other aircraft to be to the left of their track but not head on and therefore understood that it would turn right in order to give way. However, it became clear that they were closing with the aircraft quite quickly and altitude separation was reducing. Nav mode was decoupled and the handling pilot engaged heading mode and started a right turn at which point a TCAS TA alerted. Marham radar then provided avoiding action with a further right turn onto heading 330°. At that point the non-handling pilot saw the other aircraft, level with them at a range of about 0.5nm, which passed behind. The pilot noted that the scattered cumulous cloud layer prevented earlier visual identification. The aircraft in question was believed to be a parachute dropping aircraft operating from Chatteris Microlight Site.

He assessed the risk of collision as 'Medium'.

THE DHC6 PILOT reports that as he passed FL050 a helicopter came into his field of view from behind the instrument panel, in the left 11 o'clock at a range of 0.5nm moving from right-to-left. He recognised it immediately and initiated a turn to the right to increase separation whilst simultaneously calling Lakenheath. He found that they had been calling him blind for several mins, attempting to warn him that he was heading towards the S76. The pilot noted that this was his 8th flight of the day, that he had been distracted by unrelated domestic concerns and that he had forgotten to establish contact with Lakenheath.

He assessed the risk of collision as 'Low'.

Factual Background

The weather at Marham was recorded as follows:

```
METAR EGYM 251250Z 01005KT CAVOK 26/13 Q1017 BLU NOSIG=
METAR EGYM 251150Z 33007KT CAVOK 26/12 Q1017 BLU NOSIG=
```

NOTAM H5313/18 regarding the S76 task consisted of the following information:

```
A HEL FLIGHT TASK NO 151 WILL TAKE PLACE ROUTING
WPT6 DEP VCY ANMER HALL 524900N 0003400E ETD 1150
WPT7 VCY CONINGTON 522800N 0001500W 1205
WPT8 VCY OLNEY 520900N 0004100W 1216
WPT9 VCY BRIZE 514300N 0011700W 1232
WPT10 VCY SWINDON 513600N 0014700W 1241
WPT11 ARR VCY RAY MILL FARM 512500N 0020600W ETA 1249
IN ACCORDANCE WITH UK AIP ENR, A LOW LEVEL CORRIDOR WILL BE ACTIVE 15
MIN PRIOR TO ETD FROM DEP LOCATION AND 15 MIN PRIOR TO EACH
```

CHECKPOINT UNTIL 30 MIN AFTER ETD OF EACH CHECKPOINT AND 30 MIN AFTER ETA AT ARR LOCATION.

MIL ACFT SHALL OPR IN ACCORDANCE WITH MILITARY AVIATION AUTHORITY REGULATORY ARTICLES.

CIV ACFT OPR NEAR THE ROUTE SHOULD MAINTAIN ADEQUATE SEPARATION FROM THE HEL.

DUE TO THE APPROACH AND DEPARTURE PROFILE OPERATORS ARE STRONGLY ADVISED TO REMAIN AT LEAST 2NM RADIUS AND 1000FT AGL CLEAR OF THE DEPARTURE AND DESTINATION LOCATIONS DURING PUBLISHED ACTIVE PERIODS. INFO ON THE PROGRESS OF THIS FLT MAY BE OBTAINED FM SWANWICK (MIL) AND THE FOLLOWING NOMINATED AERODROMES/ATS UNITS:

BRIZE NORTON

OXFORD

WITTERING

MARHAM

FOR INFO AIC Y009/2018. TIMINGS, HGT AND ROUTE ARE APRX AND MAY CHANGE DUE TO WX OR OTHER REQUIREMENTS. 2018-07-0823/AS3

LOWER: Surface

UPPER: 5,000 Feet AMSL

FROM: 25 Jul 2018 11:35 GMT (12:35 BST)

TO: 25 Jul 2018 13:20 GMT (14:20 BST)

Regulations pertaining to Royal Low Level Corridors (RLLCs) are as follows:

1) **AIC Y 009/2018²** states:

Controlled Airspace is not normally established for Royal Flights in helicopters, but a degree of protection is provided by the establishment of a Royal Low Level Corridor (RLLC).

Pilots of civil aircraft operating near the published route should keep a good lookout and maintain adequate separation from the Royal Helicopter.

2) **Military ATM regulations** pertaining to RLLC are contained in RA3237 (Royal Low Level Corridors) and RA3228 (Separation Standards). RA3237 states:

1. **Air Traffic Services (ATS)**. Prior to entering, and when operating inside, RLLCs, controllers and AS³ operators should ensure that the military AS is in receipt of an ATS (either under Visual Flight Rules (VFR) or Instrument Flight Rules (IFR)) from:

- a. The same Air Traffic Control (ATC) unit that is controlling the Royal Helicopter, or;
- b. Another ATC unit that has established radar contact with the Royal Helicopter.

2. **Separation Standards**. In addition to the requirements of RA 3237(1) para 1, standard separation **should** be applied between military AS and the Royal Helicopter in accordance with RA 3228 [Separation Standards], with the following exceptions:

- a. Light aeroplanes and helicopters operating under VFR with an Indicated Air Speed of 140 kt or less **should** be provided with sufficient traffic information to assist the military AS operator to keep well clear of the Royal Helicopter, or;
- b. Military AS operating VFR above 140 kts with the approval of the Royal Helicopter Commander.

3. Civilian pilots flying near the route must keep a good look out and maintain adequate separation from the Royal Helicopter

² Reproduced at Annex A.

³ Air System.

4. Additional guidance material can be found in the UK Aeronautical Information Publication (AIP) ENR 1.1 paragraph 4.4 Royal Flights.

- 3) MAA RA3228 does not contain separation criteria between VFR flights in Class G. The following information is contained at paragraph 3 and 11:

In Class G airspace, lateral separation between AS is ultimately the responsibility of the pilot; however, when providing a Deconfliction Service, controllers should provide information and advice aimed at achieving the lateral separation standards defined in CAP 774, UK Flight Information Services.

In Class G airspace, vertical separation between AS is ultimately the responsibility of the pilot; however, when providing a Deconfliction Service, controllers should provide information and advice aimed at achieving the separation standards defined in CAP774, UK Flight Information Services.

- 4) UK RAF ATSU's were issued with the following direction by the Deputy BM Force Commander on 4th January 2018:

..., all military ATCOs at RAF units are to refresh themselves on the pertinent regulations at the UK AIP ENR 1.1 Gen 4.4.3 and RA3237. You will note that the wording of the 2 regulations is slightly different, although the intent remains the same. The MAA will investigate this but, until there is clarity, the separation standards described in the extract from the UK AIP below are to be applied:

Royal helicopter flights will be afforded the protection of a Royal Low Level Corridor (RLLC). A RLLC is marked by a series of check-points and will be promulgated by Notification Message. These check-points, approximately 20 minutes flying time apart, will coincide with turning points. The Notification Message will indicate the ETDs/ETAs for given check-points. Within the RLLC, protected sectors applying to military aircraft only are established extending 5 nm either side of the helicopter's intended track and from ground level to 1000 ft above the maximum cruise altitude. Military flying within these sectors is strictly controlled and, such aircraft, with the exception of military light aircraft and helicopters with an IAS of 140 kt or less, are to maintain a lateral separation of at least 5 nm from the Royal Helicopter. This may be reduced to 3 nm subject to the military ATC conditions for reduced radar separation being met. Military light aircraft or helicopters, with an IAS of 140 kt or less, and civilian pilots flying near the route should keep a good look out and maintain adequate separation from the Royal aircraft.

An auditable record of ATCOs' compliance with this direction is to be retained at units.

- 5) The UK AIP⁴ states as follows:

4.4.3.1 CAS-T is not normally established for Royal Flights in helicopters.

4.4.3.2 Royal helicopter flights will be afforded the protection of a Royal Low Level Corridor (RLLC). A RLLC is marked by a series of check-points and will be promulgated by Notification Message. These check-points, approximately 20 minutes flying time apart, will coincide with turning points. The Notification Message will indicate the ETDs/ETAs for given check-points. Within the RLLC, protected sectors applying to military aircraft only are established extending 5 nm either side of the helicopter's intended track and from ground level to 1000 ft above the maximum cruise altitude. Military flying within these sectors is strictly controlled and, such aircraft, with the exception of military light aircraft and helicopters with an IAS of 140 kt or less, are to maintain a lateral separation of at least 5 nm from the Royal Helicopter. This may be reduced to 3 nm subject to the military ATC conditions for reduced radar separation being met. Military light aircraft or helicopters, with an IAS of 140 kt or less, and civilian pilots flying near the route should keep a good look out and maintain adequate separation from the Royal aircraft.

A definition of 'adequate separation', as used throughout these regulations, could not be found in terms of a range and/or altitude separation.

⁴ ENR 1.1 General Rules, 4.4.3 Royal Flights In Helicopters, ENR 1.1-28 and 1.1-29.

Analysis and Investigation

Military ATM

The S76 pilot had established a Traffic Service with Marham Zone when, about 3min prior to the incident, the Marham Zone Controller noted a para-dropping aircraft (the DHC6) climbing out of Chatteris, heading toward the S76. The Marham Supervisor contacted Lakenheath, who they expected to be working the DHC6. It became apparent during this conversation that Lakenheath were not working the DHC6 and the Marham Zone controller issued Traffic Information to the S76 pilot on 3 occasions. The final piece of Traffic Information was passed with a suggested heading to avoid the DHC6 and appears to have coincided with the S76 pilot receiving a TCAS TA.

The Lakenheath Approach Controller reported that, having noted the paradropping aircraft get airborne from Chatteris, they expected the pilot to call on frequency when passing 2000ft which was the standard procedure. When this did not happen, and aware of the growing confliction, the Lakenheath Approach Controller made numerous attempts to contact the DHC6 pilot including broadcasting on VHF Guard. Shortly afterwards, the Short-Term Conflict Alert alarmed, and the DHC6 pilot contacted Lakenheath.

Figures 1-5 show the positions of the S76 and the DHC6 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using Swanwick radars, which are not utilised by Marham Zone or Lakenheath Approach, and are not representative of the pictures available to the controllers.

At 1217:37 (Figure 1), the Marham Supervisor contacted Lakenheath to ascertain the intentions of the DHC6 pilot. Separation at this point was just over 11nm.

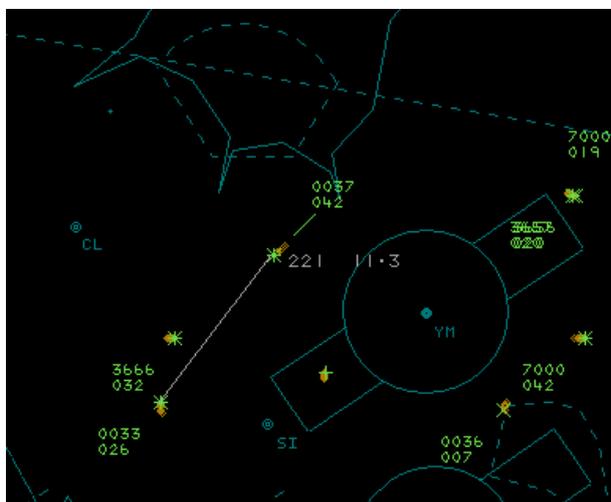


Figure 1

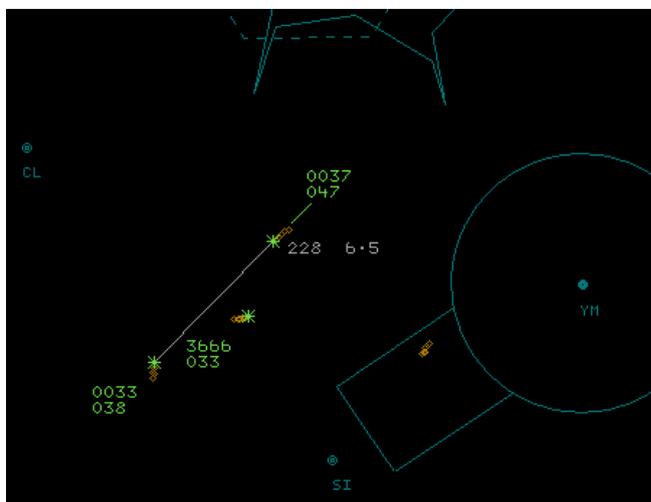


Figure 2

At 1218:33 (Figure 2), the Marham Zone Controller first passed Traffic Information to the S76 pilot. Separation was about 6.5nm laterally and 900ft vertically.

Traffic information was updated at 1219:18 (Figure 3), by which time the recorded separation had decreased to about 3.5nm and 500ft.



Figure 3

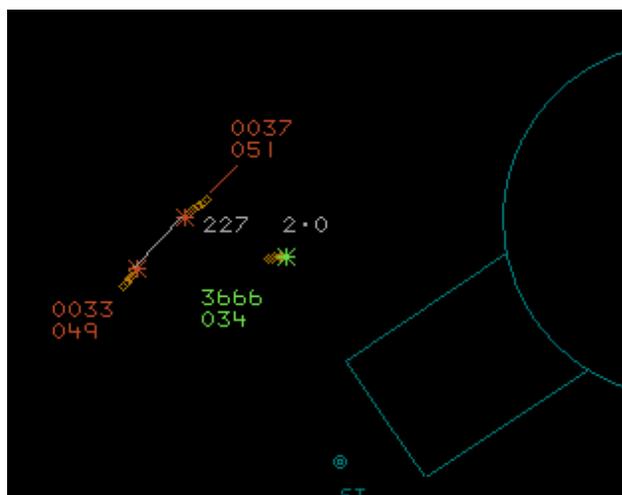


Figure 4

Traffic information was again updated some 20sec later at 1219:41 (Figure 4). This was accompanied by a suggested heading change onto 300° and appears to have coincided with the S76 pilot receiving a TCAS TA.

CPA occurred at 1220:06 (Figure 5), measured at 0.5nm lateral and 100ft vertical separation.

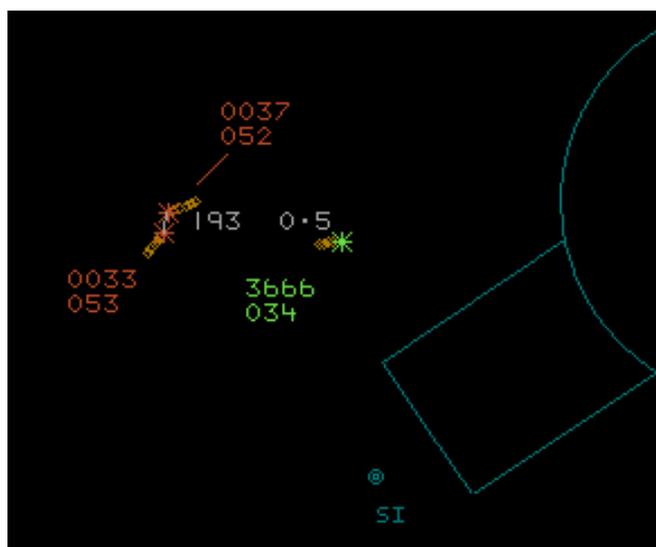


Figure 5 - CPA

Both the Marham Zone Controller and Supervisor recognised that there was a potential for conflict prior to the event and both took steps to rectify the situation. The attempt by the Marham Supervisor to resolve the situation was sound, based on the expectation that the DHC6 pilot was speaking to Lakenheath as usual. Once it became apparent that Lakenheath was not working the DHC6, the Marham Zone Controller passed timely, accurate and correctly updated Traffic Information. Whilst deconfliction advice should not normally be passed under a Traffic Service the actions of the Marham Zone Controller were appropriate under Duty of Care.

UKAB Secretariat

The S76 and DHC6 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard⁵. If the incident geometry is considered as head-on or nearly so, then both pilots were required to turn to the right⁶.

⁵ SERA.3205 Proximity.

⁶ SERA.3210 Right-of-way (c)(1) Approaching head-on.

Summary

An Airprox was reported when an S76 and a DHC6 flew into proximity at 1220hrs on Wednesday 25th July 2018. Both pilots were operating under VFR in VMC, the S76 pilot in receipt of a Traffic Service from Marham Zone and the DHC6 pilot in receipt of an AGCS from Chatteris at the time of the Airprox.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, a transcript of the relevant R/T frequency, radar photographs/video recordings, reports from the air traffic controllers involved and a report from the appropriate ATC authority.

Members first discussed the regulations concerning RLLCs. The S76 pilot was operating with a NOTAM in place to detail his route and timings. The flight departed about 21min later than planned, but still within the timing criteria for an RLLC as detailed in the NOTAM and AIC Y 009/2018. The Board noted that after the S76 had departed, the Marham controller detected the DHC6 climbing out of Chatteris airfield and became increasingly concerned as the separation between the 2 aircraft reduced. ATSU landline contact was established with Lakenheath and members were informed that the following comment was made by the Marham Supervisor to a Lakenheath controller:

'Ok if you can keep trying to call him because he's now about to burst the bubble, he's within five miles and three thousand feet unless coordinated.'

The Board surmised that the Marham ATSU was attempting to maintain the separation stipulated within the RLLC regulations for military aircraft travelling at greater than 140kt. In fact, being a civilian aircraft, no such separation was required other than 'adequate separation' as judged by the pilots involved. Members also surmised that the Marham ATSU personnel reacted in that manner because they had either not been adequately trained in the nuances of civilian aircraft operating in the vicinity of an RLLC, or routinely applied military separation criteria to the civilian DHC6, which operated frequently in that area. A Board advisor noted that although control procedures for Royal Flights used to be taught at the Central Air Traffic Control School at Shawbury, this was no longer the case and that such training and experience was now gained once the controller arrived at their unit, under OJTI. The Board considered that the decentralisation of this training could lead to a lack of standardisation in such circumstances and, as appeared to be the case with this incident, local variation. Members also observed that current regulation could be considered as placing military controllers in an invidious situation, on the one hand applying positive control to military aircraft in order to achieve a 'separation minima' whilst, on the other hand, watching as a civilian contact approached ever closer to a Royal Helicopter flight until the pilot manoeuvred to achieve 'adequate separation'; a military controller would have to apply separation minima to a military aircraft travelling at 240kt but not to an aircraft on the civilian register travelling at the same speed and in the same circumstances.

Members then observed that the regulations concerning RLLCs were contained in 3 locations, the UK civilian AIP, MAA regulatory publications, and AIC Y 009/2018, although it was noted that the AIC was essentially a restatement of the UK AIP entry with the addition of guidance material for civilian aircraft 'Operating within the RLLC'. The picture was further complicated by the differing requirements laid on military and civilian controllers, military and civilian pilots and the mix of aircraft by type and speed. The Board spent some time discussing the degree to which the regulations achieved the desired aim of providing protection for Royal Helicopter flights and agreed that, as they stood, the regulations introduced more ambiguity and complexity than clarity. Of more concern, members felt that the RLLC regulations had not given sufficient consideration to overarching Rules of the Air requirements within SERA. For example, the pilot of an aircraft observing another converging from the left is required to maintain course and speed such that the pilot of the other aircraft can give way safely, even if the other pilot (on the left) is conducting a Royal Helicopter flight. More importantly, the pilot on the left of 2 converging aircraft cannot assume that the other pilot has seen him and, in the case of Royal Helicopter Flights, will climb or descend to maintain 'adequately separation' - they must give way to the aircraft on the right. Members agreed that, for RLLCs, the AIC and UK AIP both implied that the onus on not flying into proximity with a Royal Helicopter flight rested entirely on the other pilot, whereas, under SERA,

this was not the case. However, members commented that even if Royal Helicopter flights were afforded an ORS4 exemption from giving-way under SERA, the pilot of the other aircraft would then have to be able to identify that the aircraft he was converging with was a Royal Helicopter Flight in order to give way and ensure 'adequate separation'. Overall, members felt that the complexity of the traffic-mix in Class G airspace, the timing criteria for RLLC activation and variable EC equipment of civilian aircraft was such that this could not reasonably be achieved routinely or reliably. Moreover, pilots' assessments of 'adequate separation' might not match the expectations of the Royal Helicopter pilots, and so this introduced a further element of ambiguity regarding the decision about whether avoiding action was required. Controller members also questioned how a prescribed separation between a Royal Helicopter and a military fast-jet would be achieved if both were operating under a FIS provided by a civilian controller, where military separation criteria for Royal Helicopter flights did not apply. In the absence of temporary controlled airspace for Royal Helicopter flights, members agreed that the current arrangement of RLLCs was wholly unsatisfactory and resolved to recommend that 'The CAA review current regulation concerning RLLCs'.

[Post-meeting note: NOTAM B2358/18 advises the cancellation of AIC Y 009/2018, as follows:

Q) EGXX/QAFXX/IV/NB0/E/000/999/5504N00500W999
 B) FROM: 18/11/21 09:44
 C) TO: PERM
 E) AIC Y009/2018 ROYAL HELICOPTER FLIGHTS. AIC CANCELLED

This cancellation removes the guidance material at section 3 of the AIC concerning civilian aircraft 'Operating within the RLLC' but the Board's concerns regarding UK civilian AIP and MAA regulations for RLLCs remained; therefore, the recommendation was unchanged.]

Turning to the actions of the pilots, members then discussed the events leading up to the Airprox. The S76 pilot was operating under a Traffic Service and was passed Traffic Information on the converging DHC6 at 5½nm, 2½nm and 2nm, at which point the Marham controller also suggested a heading for an avoiding-action turn to the right. It was noted that the controller's Traffic Information calls had referred to the DHC6 position using cardinals rather than clock code, which was not standard procedure, and controller members wondered whether this may have meant that the S76 pilot had not realised that the DHC6 was approaching head-on. After a short debate, the Board concluded that this may indeed have been a factor given that the S76 pilot had observed that the DHC6 was in the 10 o'clock position on his TCAS and heading northeast as they closed. In this respect, members noted that TCAS displays show relative bearing of other traffic and that this information is often subject to error due to signal multipathing around the receive antennae. Closing geometry of other traffic can only be derived from close monitoring of the display, an activity not always compatible with flying the aircraft.

Noting that the S76 pilot had continued to climb after he had been informed in the first Traffic Information call that the other aircraft was a 'para-dropping aircraft operating out of Chatteris', some members thought he could have deduced that the DHC6 was also climbing (in order to reach drop-height), and that the S76's TCAS would also have provided indications in that regard. As a result, they wondered whether it would have been better for the S76 pilot to have levelled off or even descended. However, the S76 pilot could not have known to what altitude the DHC6 pilot planned to climb, or his planned track, and with a scattered cloud layer below the S76, a climb to increase the safety buffer until the S76 pilot saw the DHC6 was considered to be a reasonable course of action. Notwithstanding, members observed that the S76 pilot had established only a relatively low rate of climb (about 300fpm), and some members opined that a higher rate of climb may have been more effective.

Finally, members discussed whether the S76 pilot had had sufficient SA to act sooner and with more dynamism. Traffic Information had stated that the other aircraft was '... southwest ... tracking northeast ...' which, although non-standard, was felt to be sufficient to have indicated that the traffic was a factor. The S76 pilot recognised this and decided to remain above the scattered cloud and climb. However, because of his low rate of climb, members felt that the S76 pilot could also reasonably have turned right at an earlier stage, perhaps after the second Traffic Information call. In the event, he continued on track until given a turn vector by the Marham controller. After some considerable discussion, the Board

agreed that although the issue was finely balanced, they felt that the S76 pilot could have acted in a more timely manner on the Traffic Information passed by Marham, and that this was contributory to the Airprox.

Turning to the DHC6 pilot, members discussed his departure from the parachuting site and observed that although he had not called Lakenheath until later than was normally the case, there was no SOP, LoA or MoU that required him to call by a certain point or altitude. Notwithstanding, the Board noted that the DHC6 pilot's late call to Lakenheath had prevented the opportunity for the barrier of ATC surveillance to be applied, and members agreed that this was also a contributory factor. In this respect, the Board was heartened to learn that the parachuting school had addressed the situation and was in the process of reviewing their SOPs to include an agreed height at which to contact Lakenheath. Members then discussed whether the DHC6 pilot had maintained 'adequate separation' from the Royal Helicopter flight but again commented that a definition of 'adequate separation' could not be found. Some members felt that the separation at CPA was such that the DHC6 pilot had not maintained adequate separation, whilst others felt that, at 0.5nm, separation had been adequate, and that the term only served to confuse the situation.

Finally, the discussion turned to the actions of the Lakenheath controller and members applauded his repeated efforts to establish contact with the DHC6 pilot. That being said, some questioned the repeated use of VHF Guard frequency in the attempt to do so, and felt that contact would have been more likely by using the local parachuting site's promulgated R/T frequency.

Turning to cause and risk, members agreed that the aircraft were approaching about head-on and that ultimately both pilots were required to turn right, which they did. However, the DHC6 pilot was not aware of the S76 until at a relatively late stage and so was unable to apply an early avoiding turn. In contrast, the S76 pilot had been in possession of sufficient SA and some members felt that by not taking action at an earlier opportunity he had essentially flown into conflict with the DHC6. However, in retrospect it was felt that the S76 pilot had taken some action and so it was unfair to characterise the incident as flying into conflict. As a result, the Board agreed that the incident was probably better described as a conflict in Class G airspace. Notwithstanding, members also unanimously agreed that the S76 pilot had received sufficient Traffic Information and had turned right and seen the DHC6 with sufficient time available that there had been no risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace.

Contributory Factors:

1. The DHC6 pilot did not change to the Lakenheath frequency at the usual height.
2. The S76 pilot did not act in a timely manner on the Traffic Information passed by Marham.

Degree of Risk: C.

Recommendation: The CAA review current regulation concerning RLLCs.

Safety Barrier Assessment⁷

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

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

ANSP:

Regulations, Processes, Procedures and Compliance were assessed as **partially functional** because the Marham controllers erroneously thought that the civilian aircraft was required to maintain a separation of 5nm from the Royal Helicopter flight.

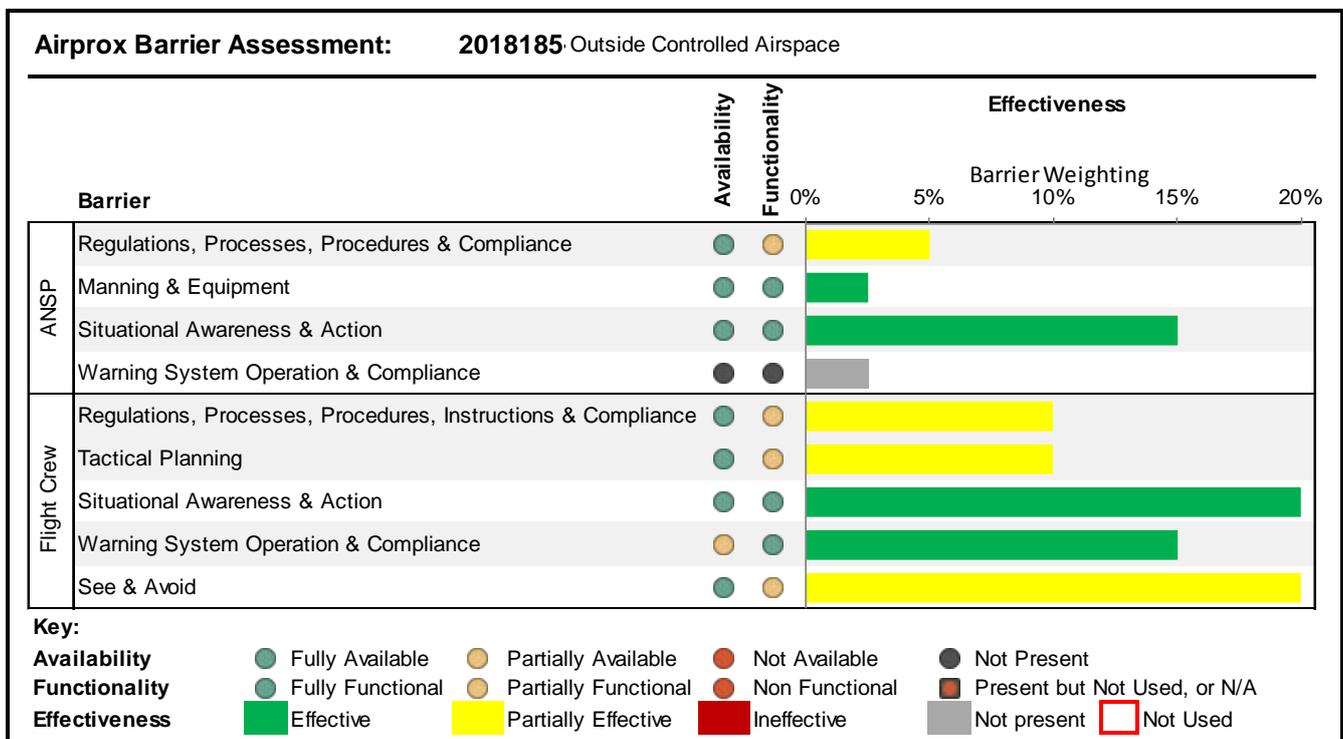
Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **partially effective** because the DHC6 pilot's R/T contact with Lakenheath was delayed beyond the point at which it would normally occur.

Tactical Planning was assessed as **partially effective** because the DHC6 pilot allowed himself to become distracted, which caused his delayed contact with Lakenheath.

Warning System Operation and Compliance were assessed as **partially available** but **effective** because only the S76 was equipped with a CWS (TCAS I) but a TA was generated.

See and Avoid were assessed as **partially effective** because neither pilot saw the other aircraft until later than desirable.



AERONAUTICAL INFORMATION CIRCULAR Y 009/2018

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Date Of Publication
 15 March 2018

Subject
 Operational



ROYAL HELICOPTER FLIGHTS

1 Introduction

- 1.1 A Royal Flight within UK airspace is defined as the movement of an aircraft specifically tasked to carry one or more members of The Royal Family afforded such status by the Director of Royal Travel, The Royal Household. Also, flights within UK airspace by foreign Sovereigns and Heads of State and, where appropriate, Prime Ministers of Commonwealth countries may also be afforded Royal Flight status.
- 1.2 Controlled Airspace is not normally established for Royal Flights in helicopters, but a degree of protection is provided by the establishment of a Royal Low Level Corridor (RLLC).

2 RLLC

- 2.1 A RLLC will be established along a planned route as follows:
- (a) **RLLC Dimensions.** A RLLC has the following dimensions:
 - (i) Circles of 5 nm radius centred on the departure and destination points.
 - (ii) 5 nm either side of intended track.
 - (iii) From surface level to 1,000 ft above maximum planned altitude.
 - (b) **Sectors.** RLLCs are divided into contiguous sectors separated by nominated checkpoints approximately 20 minutes flying time apart. Each RLLC sector provides a protected zone from 15 minutes before ETD from departure location and 15 minutes before ETA at each sector entry checkpoint until 30 minutes after ETD at each sector exit checkpoint and 30 minutes after ETA at destination location.
 - (c) **Notification.** Pre-flight information on a RLLC will be promulgated by NOTAM. Tactical updates on the progress of the flight will be available from the nominated ATS units detailed in the NOTAM. Where appropriate, pilots are advised to maintain RT contact with the relevant nominated ATS units.

3 Operating within the RLLC

- 3.1 The rules for the operation of military air systems within a RLLC are covered in Military Aviation Authority Regulatory Articles.
- 3.2 Pilots of civil aircraft operating near the published route should keep a good lookout and maintain adequate separation from the Royal Helicopter.
- 3.3 Due to the approach and departure profiles, operators are strongly advised to remain at least 2 nm radius and 1000 ft agl clear of the departure and destination locations during published active periods.
- 3.4 The latter separation at paragraph 3.3 is particularly relevant to operators of small unmanned aircraft (drones) as the crew of the Royal Helicopter is unlikely to be able to see, and manoeuvre clear of, a conflicting drone during these critical stages of flight.

4 Sponsor

- 4.1 Enquiries relating to RLLC should be directed to:
- Post: Airspace Regulation (Utilisation)
 Safety and Airspace Regulation Group
 Civil Aviation Authority
 45-59 Kingsway
 London, WC2B 6TE
 Phone: +44 (0)20-7453 8599
 Email: arops@caa.co.uk