

AIRPROX REPORT No 2023110

Date: 07 Jun 2023 Time: 1338Z Position: 5302N 00040W Location: 5NM W Cranwell

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Hawk	Prefect
Operator	HQ Air (Ops)	HQ Air (Trg)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Traffic
Provider	Waddington	Cranwell
Altitude/FL	FL023	FL020
Transponder	A, C, S	A, C, S
Reported		
Colours	NR	White, Blue
Lighting	NR	Strobes, NAV
Conditions	VMC	VMC
Visibility	NR	>10km
Altitude/FL	2500ft	2500ft
Altimeter	QFE (1016hPa)	RPS
Heading	060°	270°
Speed	230kt	NR
ACAS/TAS	SkyEcho	TAS
Alert	None	None
Separation at CPA		
Reported	150ft V	200ft V/1NM H
Recorded	300ft V/0.3NM H	



THE WADDINGTON APPROACH CONTROLLER reports that the Hawk had just departed the visual circuit to join the RTC for a PAR [approach]. As per SOPs for RW02RH inbound, the WAD Supervisor provided Traffic Information to Cranwell Approach on the Hawk, highlighting it as an extended pattern. Prior to turning base leg, the controller noticed a 2611 Squawk (Mode S indicating [Prefect C/S]) climbing out from Cranwell to the west, that became co-level with their own traffic. At this point, the traffic was approximately 10NM away from the Hawk. They immediately requested Traffic Information from Cranwell Approach, who recognised the confliction and instructed their Cranwell Departures controller to turn the Prefect traffic left. With both tracks now 6-7NM apart, they called the Prefect traffic to the Hawk pilot, and a short time later they issued a turn onto an early final heading of 060° which they believed would have kept the Hawk clear from this confliction and provided enough separation to safely continue with the PAR. With the landline to Cranwell Approach still open, they could simultaneously hear a conversation between Cranwell Approach and another Cranwell controller and could ascertain that they were attempting to turn the Prefect left and away from the Hawk.

Whilst the Hawk was still on their turn to 060°, the Prefect then unexpectedly began to turn right towards the Hawk, to which the controller immediately called the avoiding action "turn left 060°" to increase their rate of turn and get ahead of the Prefect, which was now on a north-westerly heading. At this point, the two aircraft were approximately 3NM from one another, with 100ft separation. They also re-called the Prefect to the Hawk pilot. The two aircraft continued to converge and the Prefect continued to turn right. They issued further avoiding action of a left turn to 270° and a climb to height 3000ft (QFE) to attempt to add further separation. The Hawk pilot immediately reported visual with the traffic prior to this further avoiding turn being completed and confirmed they would maintain 060°. They overheard from the Cranwell Radar bank that the [pilot of the] conflicting Prefect was visual with the Hawk. At this point, the two aircraft were 0.5NM and 100ft apart. The Hawk [pilot] was then handed to Waddington Talkdown and completed their PAR [approach].

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

THE WADDINGTON SUPERVISOR reports as per the Approach controller's narrative, they informed Cranwell via the Cranwell Radar line that the Hawk was conducting an extended pattern PAR when the Hawk was overhead Swinderby tracking south; this allows Waddington to conduct GCA approaches into RW02RH with height separation from departing Cranwell traffic westbound (restricted to not above 1500ft). As Waddington Approach turned the Hawk onto base-leg they heard the controller call Cranwell to request Traffic Information on an aircraft squawking 2611 which was tracking west out of Cranwell. They heard the Cranwell controller tell Waddington Approach that the Cranwell aircraft (the Prefect) would be turning left (south) and they were content with the Hawk being vectored from 110° onto 060° turning north and continuing with their PAR. As the 2 aircraft became closer, Waddington Approach was still being told that Cranwell was trying to turn the Prefect to the south. As the 2 tracks continued converging, the Waddington Approach provided avoiding action to the Hawk. Despite the information that had been provided, the Prefect turned right, meaning that the 2 aircraft ended up in conflict and a last minute 180° avoiding action turn to the left was issued to the Hawk [pilot] to avoid the Prefect. As this large avoiding action turn was issued the Hawk pilot reported visual and continued their PAR without further incident. They [the Supervisor] relieved the Approach controller with a different ATCO as they categorised the event as an Airprox, they instructed the controller to make some notes on the event while it was fresh in their head for when they raised the DASOR. After the Hawk landed they called Ops to speak to the pilot, who later called back after their debrief. The Supervisor explained what had happened and informed them that they would be raising a DASOR.

THE HAWK PILOT reports at 2500ft on base-leg for a radar to PAR approach at Waddington, ATC gave a traffic call (traffic heading towards 100ft lower) with 2 turn left avoiding actions. An update on the traffic was given as 'now 1.5NM on a collision course, 100ft below'. The non-handling pilot in the rear seat visually acquired the traffic at about 1NM, took control and took avoiding action, turning right and climbing to cloudbase. A Prefect passed down the left-hand side, slightly low, wagging its wings. Once conflict had passed, they reset to 060° at 2500ft and continued the approach. They opined that the avoiding action had set up a perfect collision course, which would have been 50ft below, if they hadn't visually acquired and taken their own avoiding action.

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

THE PREFECT PILOT reports that after departing from the end of the downwind leg at Cranwell, they continued the climb to 2000-2500ft. Once clear of the circuit and abeam the landing threshold, they called clear and transferred to Cranwell Departures. The Cranwell Departures controller provided a Traffic Service and asked for their intentions, to which they replied maintaining 2500ft, with a right turn at Newark for a Navex. Traffic Information was then passed and they became visual with the Hawk. They were cleared for a Cranwell departure, remaining south of the centreline until advised. No climb-out restriction was passed, and no further amendment to the clearance was acknowledged or heard. No immediate threat was felt because they became visual with a Hawk higher than them, approaching from the left, on what looked like a stable trajectory towards Waddington. Initially they wagged their wings, assuming the Hawk was VFR as well. Although ATC called a left turn, they were already committed to a right turn and with the Hawk in sight, and felt comfortable with that decision. They could not remember if the Hawk had already banked right before or after they turned right (which would have been a factor in their own decision making). No threat was felt and the sortie was continued as planned.

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

THE CRANWELL DEPARTURES CONTROLLER reports that they were working 5 aircraft, with a mix of Traffic Service and Basic Service across Stud 3 and VHF, with Coningsby WAM, Cranwell STAR-NG and Coningsby STAR-NG selected IAW SOPs. Approach informed them of a Waddington extended feed inbound to RW02, west of Swinderby by 6NM, and that they had put on a climb-out restriction (COR) of 1500ft Cranwell QFE against it. They had noticed a prenoted track had already departed Cranwell, on a westerly heading (from the end of downwind leg), prior to Approach passing the restriction to Cranwell Tower. The Waddington track was at the time northwest of Beckingham range by 3NM. Prior to the Prefect pilot checking in on Stud 3, they noticed that it had already passed through

1500ft (the COR height). The Prefect pilot then stated that they were passing 2300ft on their initial call. At the time they were communicating with two civil zone aircraft on VHF and were switching between frequencies. The Approach controller was asked by Waddington for Traffic Information, and Approach requested that they [Departures] ask the Prefect pilot their intentions. They asked the Prefect pilot their intentions, then proceeded to call the Waddington traffic being vectored for Waddington but mistakenly called them using the callsign of the civil track that they had just been speaking to as “[C/S], Traffic west 4 miles, manoeuvring east indicating similar altitude”. The Prefect pilot informed them that they were transiting towards Humberside, requesting a right-hand turn. The Approach controller then asked them to suggest a left turn, which they did. The Prefect pilot then clarified that they were transiting to the right (and began to turn right), so they recalled the traffic “[Prefect C/S], previous reported traffic west 1 and a half miles tracking east indicating similar altitude”, which they called “visual” on. The Prefect pilot called asking for clarity on the situation when several miles clear to which they said it was an aircraft being vectored for recovery into Waddington and that Cranwell ATC was liaising to understand fully what happened.

The controller assessed the risk of collision as ‘High’.

THE CRANWELL SUPERVISOR reports that they were not in the radar room at the time and did not witness the occurrence. They were back in the room when the Prefect pilot asked for clarification on the intentions of the Hawk. They later spoke with the Prefect pilot on the phone who confirmed they were visual with the Hawk after traffic was called.

Factual Background

The weather at Cranwell was recorded as follows:

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METAR EGDY 061320Z 04011KT 9999 BKN030 16/08 Q1022 NOSIG RMK BLU BLU=
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Analysis and Investigation

Military ATM

The Hawk [pilot] was conducting an instrument recovery to Waddington RW02RH as part of a refresher sortie, in receipt of a Traffic Service from the Waddington Approach controller. The Prefect [pilot] was conducting an end of downwind leg departure from Cranwell RW08RH as part of a refresher sortie in receipt of a Traffic Service from the Cranwell Departures controller.

Utilising occurrence reports and information from the local investigation, outlined below are the key events that preceded the Airprox. Where available they are supported by screenshots to indicate the positions of the relevant aircraft at each stage. The screenshots are taken from a combination of replays using both Unit and NATS radars. As NATS radars are not available to the controllers they may not be entirely representative of the picture available, however the Unit radars provide the exact radar view seen by the controllers.

The Waddington Approach controller was providing an air traffic service to the Hawk [pilot] only, with the Waddington Supervisor established in position alongside. As per local orders the following surveillance sensors were selected: WAM, Cranwell STAR-NG and Coningsby STAR-NG.

In addition to the Prefect, the Cranwell Departures controller was providing an air traffic service to two other Cranwell based aircraft both in receipt of a Traffic Service, and two Lower Airspace Radar Task transits, both in receipt of a Basic Service. Although the Cranwell Supervisor was not in the room during the period preceding the Airprox, the Cranwell Approach controller was established in position alongside with a single aircraft on frequency. As per local orders the following surveillance sensors were selected: WAM, Cranwell STAR-NG and Coningsby STAR-NG.

Sequence of Events

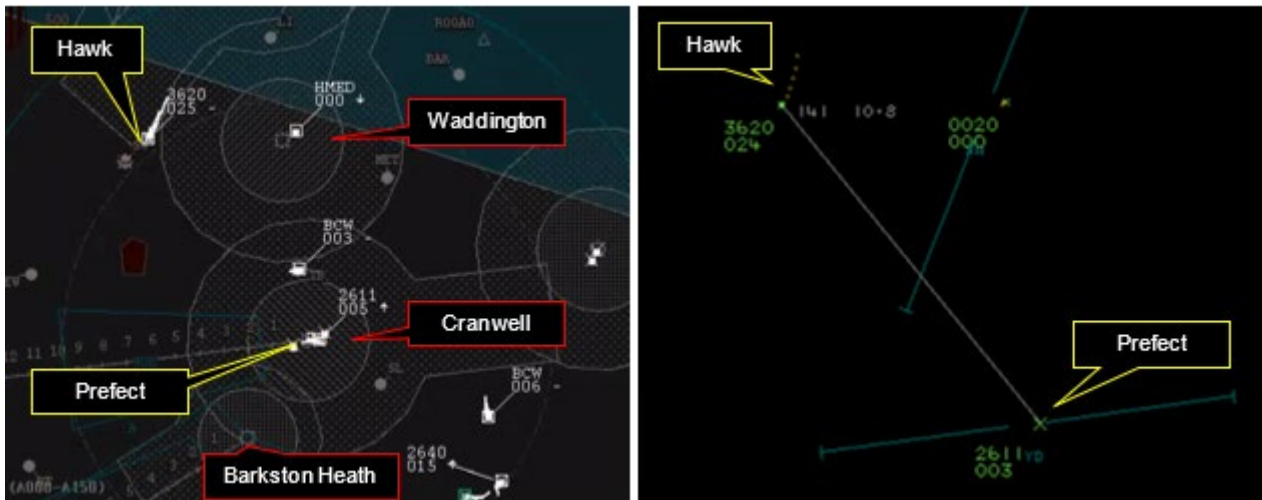


Figure 1 (1334:48) - Waddington Supervisor informed Cranwell Approach of instrument recovery to Waddington 02RH. Separation: 10.8NM

At 1334:48, on behalf of the Waddington Approach controller, the Waddington Supervisor informed the Cranwell Approach controller of the Hawk conducting an extended instrument pattern recovery to Waddington RW02RH.

At 1335:41, the Cranwell Approach controller, as per local procedures, informed the Cranwell Tower controller of the Waddington 02RH extended pattern. This instigated a climb-out restriction of 1500ft Cranwell QFE for all westbound departures from Cranwell, to vertically separate them from the Waddington Radar Training Circuit at 2500ft Waddington QFE. The Cranwell Tower controller informed the Cranwell Approach controller that the Prefect conducting an end of downwind leg departure to the west had already left their frequency.

The Cranwell Approach controller subsequently informed the Cranwell Departures controller of the Waddington 02RH extended pattern and the fact that the Prefect had already departed prior to the application of the 1500ft climb-out restriction. Both the Cranwell Approach and Cranwell Departures controllers were expecting the Prefect to continue its climb through the climb-out restriction height, to the warned-out departure altitude of 5000ft RPS. Due to the initial lateral separation, this climb profile was expected to provide sufficient vertical separation between the Prefect and Hawk.

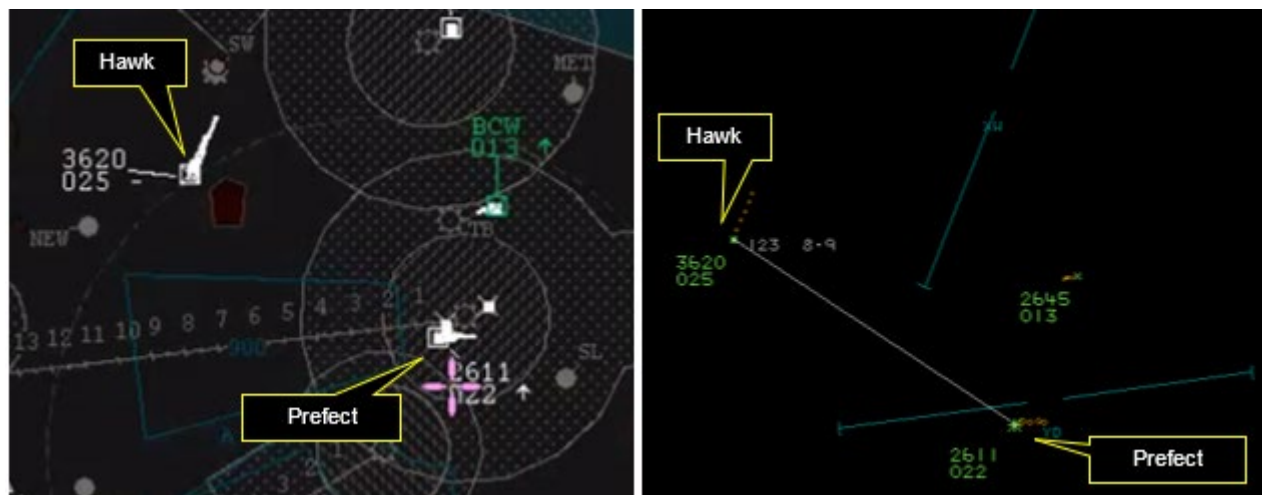


Figure 2 (1335:55) - Prefect contacted the Cranwell Departures controller. Separation: 8.9NM

At 1335:55, the Prefect pilot contacted the Cranwell Departures controller, requesting a Traffic Service in the climb and passing 2300ft Cranwell QFE. The Cranwell Departures controller subsequently identified the Prefect and provided a Traffic Service. The Cranwell Departures

controller then interacted with [the pilots of] both Lower Airspace Radar transit aircraft, the first required a transponder check before passing intentions and the second a route confirmation.



Figure 3 (1336:31) - Waddington Approach controller turned the Hawk inbound.
Separation: 7.4NM

At 1336:31, the Waddington Approach controller turned the Hawk onto a base leg heading of 110°. Immediately afterwards, they called the Cranwell Radar bank and requested Traffic Information on the Prefect. The Cranwell Approach controller answered the landline call as per local orders, and was surprised that the Prefect had not continued the climb as expected, but had instead levelled off. The Cranwell Approach controller incorrectly described the Prefect as levelling off at 2000ft, when in fact the Prefect had levelled off at 2500ft RPS.

With the landline remaining open between the Cranwell Approach and Waddington Approach controllers, the Cranwell Approach controller attempted to ascertain the intentions of the Prefect pilot from the Cranwell Departures controller. The Waddington Approach controller responded to the Cranwell Approach controller’s question, mistakenly believing they were requesting the Hawk pilot’s intentions.



Figure 4 (1336:57) - Traffic information provided to the Hawk [pilot] on the Prefect.
Separation: 6.3NM

At 1336:57, the Waddington Approach controller provided Traffic Information to the Hawk pilot on the Prefect *“there’s traffic east 5 miles tracking westbound indicating 100ft below, I’ll give you a further turn to get you inbound on the tube”*.

Prompted by the Cranwell Approach controller and on completion of interacting with [the pilots of] both the Lower Airspace Radar transit aircraft, the Cranwell Departures controller requested the

intentions of the Prefect [pilot] at 1336:57. This was immediately followed at 1337:00 by Traffic Information being provided to the Prefect pilot on the Hawk, however, it was incorrectly passed to one of the Lower Airspace Radar transit aircraft callsigns and hence not acknowledged by the Prefect pilot.

At 1337:05 the Prefect pilot responded to the initial intentions request with the fact they were looking for a right-hand turn and handover to Humberside. With the Cranwell Approach controller attempting to resolve the conflict through instructing the Cranwell Departures controller to turn the Prefect left, the Cranwell Departures controller responded to the Prefect pilot's intentions with "*request a left-hand turn*". The intention of this was not understood by the Prefect pilot who reiterated a right turn was requested and continued tracking northwest.



Figure 5 (1337:11) - Short Term Conflict Alert received by both controllers.
Separation: 4.5NM

At 1337:11, both the Waddington Approach and Cranwell Departures controllers received Short Term Conflict Alerts between the Hawk and Prefect.



Figure 6 (1337:14) - Traffic information provided to the Prefect on the Hawk.
Separation: 4.2NM

At 1337:14, the Cranwell Departures controller provided Traffic Information to the Prefect [pilot] on the Hawk, incorrectly believing they had already passed Traffic Information, "*previous reported traffic west 1 and half miles tracking east northeast indicating similar altitude*". The Prefect pilot responded with "*traffic in sight*".

At 1337:15, having been informed by the Cranwell Approach controller of their intention to turn the Prefect left, the Waddington Approach controller turned the Hawk onto an inbound heading of 060°.



Figure 7 (1337:22) - Avoiding action turn issued to the Hawk [pilot].
Separation: 3.3NM

At 1337:22, with the Prefect pilot visual with the Hawk and continuing a northwest track, the Waddington Approach controller issued an avoiding action turn with Traffic Information on the Prefect. *“Avoiding action turn left immediately heading 060 degrees, that traffic was erm in your left 11 o’clock, 3 miles, opposite direction indicating 100ft below”*. This initial avoiding action was increased further at 1337:39, to also include a climb *“avoiding action turn left immediately heading 270 degrees, that previously reported traffic now north-east half a mile tracking north westbound indicating 100ft below and climb to alt height 3000ft”*. On receipt of the second avoiding action turn the Hawk pilot reported visual with the Prefect and re-established on the instrument pattern final heading of 060°.

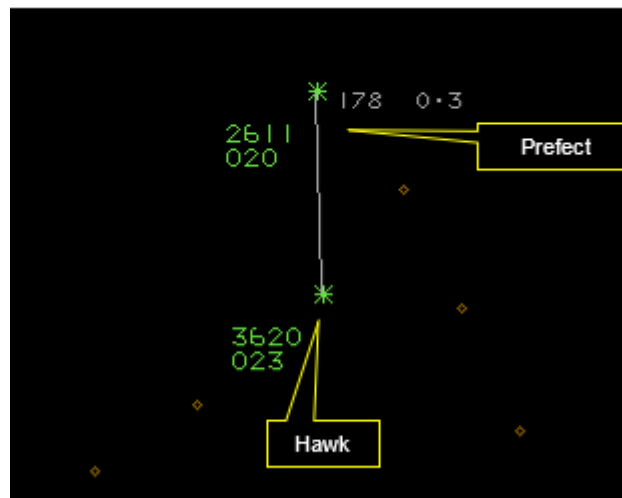


Figure 8 (1338:02) - CPA.

CPA was measured at 0.3NM and 300ft.

Local BM Investigation

The local investigation conducted by RAF Coningsby identified the cause of the Airprox as a lack of action by both the Cranwell Departures controller and Waddington Approach controller to resolve the developing loss of safe separation. Several BM related causal/aggravating factors were identified that were believed to have contributed to the Airprox:

- a. The Prefect pilot did not depart as expected due to weather conditions. Whilst the warned-out departure profile was an end of downwind leg departure climbing to 5000ft RPS, the Prefect pilot actually levelled off at 2500ft RPS due to the cloud layer.

- b. Both the Cranwell Departures and Cranwell Approach controllers were anticipating the Prefect to climb to 5000ft, which would have provided sufficient vertical separation from the Hawk. When the Prefect pilot levelled off unexpectedly and without notification, both controllers were unaware and subsequently surprised.
- c. The request for Traffic Information on the Prefect by the Waddington Approach controller was answered by the Cranwell Approach controller. As they were not providing the service to the Prefect pilot, they were required to ask the Cranwell Departures controller for Traffic Information which delayed the process and introduced an element of confusion.
- d. The Waddington Approach controller turned the Hawk inbound onto a base-leg heading without providing Traffic Information to the Hawk pilot on the Prefect, or ascertaining the intentions of the Prefect pilot from the Cranwell Radar bank.
- e. The initial avoiding action turn for the Hawk provided by the Waddington Approach controller reduced the likelihood of the Hawk pilot visually acquiring the Prefect as they were then belly up to the Prefect.
- f. The Cranwell Departures controller was initially pre-occupied by lower priority Lower Airspace Radar transit aircraft and did not recognise the Prefect levelling off, or assimilate the developing loss of safe separation. When the loss of safe separation was identified the Cranwell Departures controller did not provide Traffic Information, through an error in callsign use, and then subsequently did not provide suitable deconfliction advice.

Due to the adjacent and interlinked nature of the Waddington, Cranwell and Coningsby aerodromes such interactions between traffic patterns are regular occurrences. Therefore, this scenario is being utilised as a case study to develop controllers' understanding of both the integrated nature and requirement to provide timely deconfliction advice.

2 Gp BM Analysis

The Waddington Approach controller was operating throughout the period preceding the Airprox in the belief that Cranwell Departures would maintain clear of the Waddington 02RH instrument pattern. This assumption was based upon the agreement between Cranwell and Waddington outlined in local orders (Fig 9) and explained the base-leg turn being made without providing prior Traffic Information to the Hawk pilot on the Prefect. Correctly, the Waddington Approach controller then requested Traffic Information from the Cranwell Radar bank on the Prefect. Whilst Traffic Information was provided, the delay in action to resolve the developing loss of safe separation could be based upon the overarching assumption that the Prefect would remain clear, which was reinforced by the Cranwell Approach controller's intention to turn the Prefect left and away. At the point at which the Waddington Approach controller issued the first avoiding action, the options available to ensure separation were significantly reduced. Overall, whilst the initial actions from the Waddington Approach controller were understandable due to the local agreement, they were slow to provide positive control in the form of deconfliction advice to resolve the developing loss of safe separation.

- 4. WAD Rwy 02RH GCA TS – Actions by CWL**
- a. **VFR Departures.** All VFR departures to the West (including end of downwind leg traffic departing Rwy 08RH) from CWL will be restricted to not above 1500ft CWL QFE until west of or tracking away from the WAD GCA traffic, or until there is no risk of conflict. The COR should remain in place even when the CWL AC is visual with the WAD GCA traffic. Where possible, CWL will verify Mode C ASAP.
 - b. **IFR Departures Rwy 26.** IFR departures will be restricted to 1000ft CWL QFE until west of or tracking away from the WAD GCA traffic, or until there is no risk of conflict.

Figure 9 - Lincs TATCC Order 5.6 – WAD v CWL Local Agreements

The Cranwell Departures controller was aware of both the Hawk conducting the Waddington 02RH instrument approach, and that the Prefect had departed without the climb-out restriction of 1500ft being imposed. Supported by the Cranwell Approach controller, the Cranwell Departures controller expected the Prefect's warned-out departure profile of a climb to 5000ft to resolve the issue and provide sufficient vertical separation from the Hawk. However, when the Prefect levelled off at 2500ft RPS the Cranwell Departures controller did not observe this, potentially due to being pre-occupied with the provision of the Lower Airspace Radar Task. The request for Traffic Information on the Prefect by the Waddington Approach controller highlighted the developing loss of safe separation to both the Cranwell Departures and Cranwell Approach controllers, however, because of them both being surprised by the vertical position of the Prefect, they were slow to assimilate the information. This resulted in firstly Traffic Information being incorrectly provided by the Cranwell Departures controller and then a lack of positive control to provide deconfliction advice to resolve the developing loss of safe separation. Overall, the Cranwell Departures controller did not correctly re-assess the changing scenario when the Prefect levelled off, which ultimately resulted in both late Traffic Information and a lack of deconfliction advice.

UKAB Secretariat

The Hawk and Prefect 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 If the incident geometry is considered as converging then the Hawk pilot was required to give way to the Prefect.³

Comments

HQ Air Command

This incident was subject to a Local Investigation. Principally, this event occurred due to delayed and ineffective communications. Whilst deconfliction advice was issued to both pilots, they were both visual with the other, concurrent with this direction, and the actual threat of collision was thus low. The Prefect crew, through a misunderstanding of the intent from ATC, continued with their planned right turn when visual with the Hawk rather than following the left turn as directed. This was largely due to having no awareness of the unfolding incident, as an intended traffic warning was issued to the wrong callsign. Lack of clear direction from the Cranwell controller and a lack of information or warning provided via electronic means within the cockpits added to the confusion. It is worthwhile noting that had the Prefect climbed to the expected departure level of 5000ft, this incident would not have occurred but this occurrence is an excellent reminder that there are times

¹ MAA RA 2307 paragraphs 1 and 2.

² MAA RA 2307 paragraph 13.

³ MAA RA 2307 paragraph 12.

when the plan cannot be followed. In this case, the requested 5000ft level was undesirable due to cloud, and there could have been several proactive measures employed to prevent conflict had the Prefect pilot's intentions been better assimilated by ATC. The investigation identified several lessons on controller responsibility, task fixation, and making assumptions which will be progressed and publicised by the TATCC.

Summary

An Airprox was reported when a Hawk and a Prefect flew into proximity 5NM west of Cranwell at 1338Z on Wednesday 7th June 2023. Both pilots were operating under VFR in VMC, the Hawk pilot in receipt of a Traffic Service from Waddington Approach and the Prefect pilot in receipt of a Traffic Service from Cranwell Departures.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs, reports from the air traffic controllers involved and reports from the appropriate 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 looked at the actions of the air traffic controllers involved. Members were told by military advisors that this scenario between Waddington and Cranwell was an everyday occurrence and should have followed a tried and tested format to keep both aircraft out of the way of each other. However, on this occasion a combination of assumption and misunderstanding had meant that the incident had occurred. Members briefly discussed whether the procedures between the two units were inadequate, but were assured that, provided that standard procedures were followed, this scenario should not occur and therefore the procedures themselves were satisfactory.

The Waddington controller had informed Cranwell, as they were required to do, that they had been vectoring the Hawk for an approach to RW02. Some members wondered whether this call had been a little late, thus not giving the Cranwell controllers enough time to pass the information on to the Prefect pilot, but were assured that the call had been conducted as normal. Once that call had been made, the Waddington controller had been under the expectation that Cranwell ATC would adhere to the LOA and either remain below their radar pattern, or remain south of the Cranwell centreline to deconflict. Nevertheless, some members thought that the Waddington controller could have operated with more caution and not turned the Hawk inbound until they were sure that the Prefect had been deconflicted. Some discussion followed, but in the end members were persuaded that the Waddington controller would have compounded the situation had they continued on a southerly heading and, because they had been reassured by Cranwell Approach that the Prefect was going to turn left, had been led to believe that the situation would be resolved by Cranwell. Nevertheless, members thought that the Traffic Information passed to the Hawk pilot could have been provided earlier, allowing the Hawk pilot full situational awareness before the incident developed further (**CF1**), and that once it became apparent that the Cranwell controllers were not acting as expected, the Waddington controller, now concerned by the situation (**CF4**) and having already received an STCA (**CF6**) should have issued earlier avoiding action to the Hawk pilot (**CF3**). Members noted that it had been the Waddington controller that had reported the Airprox, indicating how concerned they had been about the incident.

For their part, the Cranwell controllers were told about the Hawk inbound to Waddington and this should have led to the Prefect being deconflicted with the Hawk. The Approach controller had issued a COR with the Tower controller that would normally have ensured that all departing traffic would have been below the Waddington radar pattern. However, the Prefect pilot had already left the Tower frequency and, by the time they had called Cranwell Departures, they had been above the COR. The Departures controller had known this would be the case, however, the Prefect pilot had been expected to climb to 5000ft and so at this stage the Cranwell controllers had not been concerned. The Departures controller had then become embroiled with other traffic to the south of the airfield and so had not noticed that the Prefect pilot had levelled off (**CF5**) and, when they had first passed Traffic Information to the Prefect pilot, they had unfortunately used the wrong callsign (**CF1**, **CF2**). The communication from the

Waddington controller had highlighted to Cranwell Approach that the Prefect had not climbed and now both controllers had realised that it needed to be turned away. However, the Departures controller, who had not appreciated that the Prefect pilot had not received the earlier Traffic information, did not then give clear instructions, or indeed avoiding action, to the Prefect pilot (CF3) and so the Prefect pilot had turned on track to the right, further compounding the situation. Members thought that this had been a missed opportunity, and that had the Departures controller issued clear instructions at this point, the Prefect pilot would have understood the unfolding situation. The Cranwell controller had also received an STCA (CF6) but because the Prefect pilot had called visual with the Hawk, they had been less concerned by the situation.

The Board briefly discussed the supervision of the controllers, noting that the Cranwell Supervisor had been out of the room at the time, but also noted that the Approach controller had taken on a pseudo-supervisory role in passing messages between the Waddington controller and the Departures controller and the addition of the Supervisor probably would not have made much difference. The Board therefore agreed not to attribute a lack of supervision as a contributory factor.

When looking at the actions of the Prefect pilot, members noted that the simple lack of communication of their intention to level off at 2500ft, instead of continuing their climb, had been a significant factor in the misunderstanding surrounding the controller's subsequent actions (CF7). The Prefect pilot had received late Traffic Information on the Hawk because the controller had used the incorrect callsign (CF8). Furthermore, the TAS on the Prefect should have detected the transponder on the Hawk, but an alert had not been reported by the pilot; the Board was not sure whether that had been because the pilot simply had not remembered receiving an alert, or the TAS had not alerted (CF10). In the event, the Prefect pilot had become visual with the Hawk and had not been concerned by the situation, but members wondered whether, having been given the Traffic Information that the Hawk had been at a similar level, the Prefect pilot could have altered their height to increase the separation and avoid startling the other pilot (CF11).

The Hawk pilot had been positioned by the Waddington controller for an approach as normal, and had had no awareness of the approaching Prefect until they had been given avoiding action and Traffic Information that the Prefect had been 3NM away and only 100ft below (CF8). Although the Hawk pilot had been equipped with carry-on EC equipment, this equipment could not detect the Prefect which had not been fitted with equipment capable of transmitting an ADS-B signal (CF9). Members discussed this apparent dichotomy, but were told that the EC equipment on the Hawk was primarily aimed at providing information on GA aircraft at low-levels and that the mitigation to avoid conflict with other military aircraft was to receive a Traffic Service. The Board agreed that, once the avoiding action had been updated by the Approach controller, the Hawk pilot had become visual with the Prefect, but had been concerned by its proximity (CF12).

When determining the risk of the Airprox, members considered the reports from both pilots and those of the controllers, together with the radar replay screenshots. They thought that a lack of positive controlling and general communication between controllers and pilots had been instrumental in the Airprox, but that ultimately both pilots had become visual with the other aircraft and that the separation had been such that, although safety had been degraded, there had been no risk of collision. Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023110			
CF	Factor	Description	ECCAIRS Amplification	UKAB Amplification
	Ground Elements			
	• Situational Awareness and Action			
1	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
2	Human Factors	• Callsign Confusion	An event involving callsign confusion	

3	Human Factors	• Conflict Resolution-Inadequate	An event involving the inadequate provision of conflict resolution	
4	Human Factors	• Expectation/Assumption	Events involving an individual or a crew/ team acting on the basis of expectation or assumptions of a situation that is different from the reality	Concerned by the proximity of the aircraft
5	Human Factors	• Task Monitoring	Events involving an individual or a crew/ team not appropriately monitoring their performance of a task	Controller engaged in other tasks
• Electronic Warning System Operation and Compliance				
6	Technical	• STCA Warning	An event involving the triggering of a Short Term Conflict Alert (STCA) Warning	
Flight Elements				
• Tactical Planning and Execution				
7	Human Factors	• Accuracy of Communication	Events involving flight crew using inaccurate communication - wrong or incomplete information provided	Ineffective communication of intentions
• Situational Awareness of the Conflicting Aircraft and Action				
8	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance				
9	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
10	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
• See and Avoid				
11	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
12	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: C.

Safety Barrier Assessment⁴

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

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **partially effective** because the Cranwell Departures controller had been involved with other tasks and, due to a callsign confusion, had passed late Traffic Information to the Prefect pilot. The Waddington controller had expected the Cranwell controller to turn the Prefect left and consequently had provided late avoiding action to the Hawk pilot.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Prefect pilot had not communicated their intention to level off at 2500ft to the Cranwell controller.

⁴ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because both pilots were given late Traffic Information on the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC on the Hawk could not detect the Prefect and although the TAS on the Prefect would have been expected to alert, none had been reported.

Airprox Barrier Assessment: 2023110		Outside Controlled Airspace						
Barrier		Provision	Application	Effectiveness Barrier Weighting				
				0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Manning & Equipment	✓	✓					
	Situational Awareness of the Conflication & Action	✓	!					
	Electronic Warning System Operation and Compliance	✓	✓					
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✓					
	Tactical Planning and Execution	✓	!					
	Situational Awareness of the Conflicting Aircraft & Action	!	✓					
	Electronic Warning System Operation and Compliance	!	✗					
	See & Avoid	✓	✓					
Key:		Full	Partial	None	Not Present/Not Assessable	Not Used		
Provision	✓	!	✗	●				
Application	✓	!	✗	●	○			
Effectiveness								