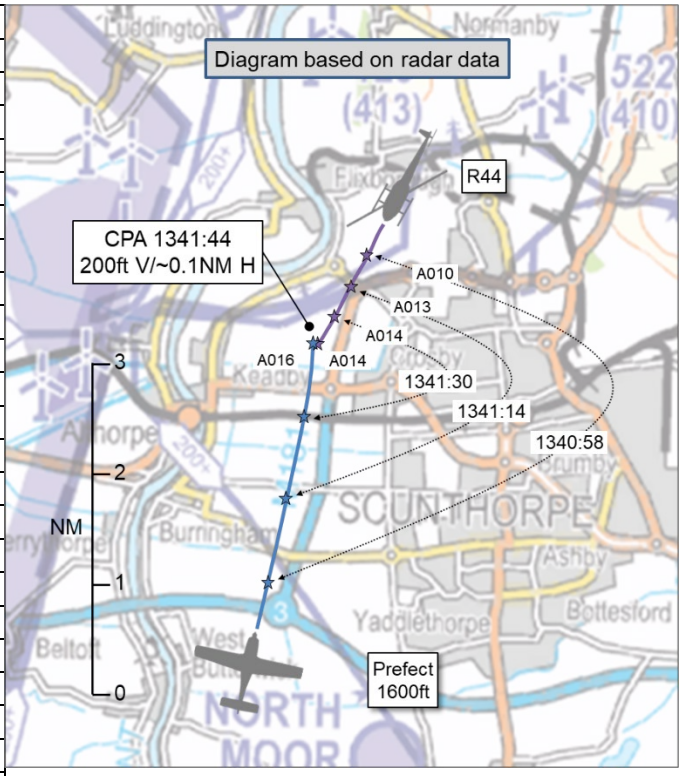
## AIRPROX REPORT No 2023079

Date: 18 May 2023 Time: 1342Z Position: 5336N 00042W Location: 2NM NW Scunthorpe

## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

| Recorded | Aircraft 1 | Aircraft 2 |
|---|---|---|
| Aircraft | Prefect | R44 |
| Operator | HQ Air (Trg) | Civ Helo |
| Airspace | London FIR | London FIR |
| Class | G | G |
| Rules | VFR | VFR |
| Service | Listening Out | Basic |
| Provider | Low Level Common | Humberside Radar |
| Altitude/FL | 1600ft | 1400ft |
| Transponder | A, C, S | A, C, S |
| **Reported** | | |
| Colours | White, blue | Black, gold |
| Lighting | HISL, nav | Strobes |
| Conditions | VMC | VMC |
| Visibility | 5-10km | >10km |
| Altitude/FL | 1000ft | 1200ft |
| Altimeter | RPS (1023hPa) | QNH (1027hPa) |
| Heading | NR | 210° |
| Speed | 180kt | 70kt |
| ACAS/TAS | TAS | Not fitted |
| Alert | Information | N/A |
| **Separation at CPA** | | |
| Reported | 300ft V/NR H | 300ft V/300m H |
| Recorded | 200ft V/~0.1NM H | |




**THE PREFECT PILOT** reports that they were assessing an EFT trainee. After entering 'low-level' north of Gainsborough, the trainee climbed to 1000ft AGL to provide a 'glide-clear' crossing of the Humber/ Trent at Trent Falls. Due to the often poor reception from Humberside Radar, and the routeing, they had elected to not call Humberside but had been using the low-level common frequency. They were not monitoring the Humberside frequency. Upon reaching 1000ft AGL, a TAS contact appeared on the nose within 3NM and 300ft above. The trainee levelled the aircraft and they both began looking for the conflicting aircraft. Trusting the vertical component of TAS more than the horizontal component, which often proves unreliable, their attention was divided between lookout and ensuring that they maintained some vertical separation. The [Prefect pilot] sighted a helicopter at the same time as the trainee, slightly to the right of their 12 o'clock and slightly above, at a range of approximately one mile. The trainee began a left turn to allow the conflicting aircraft to pass down the right side. At that point, the conflicting aircraft appeared to turn to starboard, resetting an apparent collision course. They perceived that the conflicting aircraft was descending (although this later proved not to be the case) and they took control [from the trainee], bunted, and then carried out a break-turn to the right before continuing track. After ensuring that the helicopter was continuing safely, they checked for latched g, noting that it was reading 5.0g. They confirmed the aerobatic-category-weight fuel figure with the trainee, which was 120kg. At 130kg indicated on the totaliser, and slightly less in the quantity [gauge], they were potentially 10kg inside the utility category which imposes a 4.4g limit. They retained control of the aircraft, decelerated to 120kt and returned to base, carrying out a low speed handling check en-route and a flapless landing as a precaution. The aircraft was landed safely.

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

**THE R44 PILOT** reports that at an approximate position SW of Scunthorpe, they contacted Humberside Radar and received a Basic Service and were squawking 4272. They had tracked north of Beverley, [and on their return route] were at approximately 1200ft straight-and-level, 70kts IAS and 210° from

Beverley. At approximately 1440, they were advised by Humberside that an unidentified aircraft was heading towards them 300ft below. At that time, they had not heard [the pilot of that] aircraft on frequency and it was later confirmed by Humberside that the aircraft was indeed not on frequency. They believe that they were NW of Scunthorpe at that time, and they responded to Humberside with confirmation of a visual lookout and that both pilots would maintain vigilance. Neither of [the R44 crew] could see the aircraft at that time. Within a few seconds, the other aircraft was seen heading towards them, approximately 300ft below but in a steep climb. It appeared to be a single-propellor fixed-wing aircraft of an unknown type. They had to take evasive action and turned sharply to their right (westbound) and increased height by around 100ft. The [pilot of the] other aircraft [appeared to have seen them] late and took evasive action to the east to avoid [the R44]. At this time, given the proximity and nature of the incident, [the pilot of the R44] decreased altitude to around 800ft (into a clear area below) in order to ensure their aircraft was operating correctly (after the evasive manoeuvre) and at a height, and in an area, in which they could land should that have been necessary. A few minutes later, they heard the [other pilot] identify their aircraft as a "Prefect" and reported that they had taken evasive action. The [pilot of the Prefect] requested aircraft details [of the R44] from Humberside and mentioned that they believed it had been an R44. Humberside responded that it could have been an R44 or perhaps a microlight but would check. A few minutes after that, Humberside responded that it was an R44.

The other pilot asked Humberside to make an Airprox report and Humberside then contacted [the R44 pilot] to request that they call [Humberside] upon landing.

Nearing Gainsborough, the [R44 pilot] requested an [en-route] frequency change which was acknowledged by Humberside and, again, they requested that they telephone upon landing. They made contact with Humberside and spoke with the controller at the time, who asked if they agreed that the separation height at the time of the incident had been approximately 300ft. [The R44 pilot] confirmed that, to the best of their knowledge, it had been.

[The R44 pilot opined that] there was a high level of risk and danger involved with this Airprox incident and believed a genuine danger to lives. In the interests of safety, they would be more than willing to have an open conversation with the other pilot involved.

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

**THE HUMBERSIDE RADAR CONTROLLER** reports that they had an R44 helicopter under a Basic Service on their frequency. They saw traffic likely to affect and called it to the pilot at 1.5NM and 300ft below but climbing. [The pilot of the R44] became visual with the aircraft and took a turn to the west to avoid. The conflicting aircraft was a Prefect G120 wearing a low-level 7001 squawk. From the radar screen, they could see this aircraft stopped its climb approximately 200ft below, however, it was not on the frequency. The conflicting aircraft continued routeing northbound for approximately 10NM before turning back southbound and then called on the Humberside Radar frequency to tell them that they would like to report an Airprox. The details were that the black R44 helicopter had 200-300ft separation and they took avoiding action against it.

## Factual Background

The weather at Humberside was recorded as follows:

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METAR EGNJ 181350Z 21006KT 170V250 9999 FEW032 19/10 Q1027
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## Analysis and Investigation

### Humberside Airport Unit Investigation

[Prefect callsign] reported on frequency 119.130Mhz with an initial call to report an Airprox and that they had to take avoiding action against a black R44 helicopter that had occurred 3min earlier. The controller acknowledged the Airprox and took the details. There was initially a little confusion as to which aircraft the [Prefect pilot] had had the Airprox with, but this was resolved.

The R44 helicopter pilot was on frequency and under a Basic Service from Humberside Radar. As [the pilot of the R44] was transiting southwest, approximately 13NM west of Humberside airfield, the duty Radar controller passed Traffic Information on a conflicting aircraft (the Prefect). This conflicting aircraft was not operating on the Humberside Radar frequency. It had previously been operating with Waddington Radar (squawk code 3602 F037) and, as it approached a position 4NM south of Gainsborough, started a descent. As it passed 2600ft the squawk code changed to 7001 (a low-level conspicuity squawk for fixed-wing aircraft). The [Prefect] descended to A005 by 5NM north of Gainsborough, then maintained A007 for a further 3NM, then started a slow climb when it was 4NM due-south of [the R44], reaching an indicated level of A013.

The Traffic Information contained the level and heading information of the [Prefect]: "[*R44 callsign*] *traffic south one and a half miles tracking north, indicating 300ft below and climbing slowly*". As [the pilot of the R44] was operating under a Basic Service, Traffic Information is only generally passed to the pilot if the controller sees there to be a risk of collision.

[The pilot of the R44] acknowledged the information, and reported they would alter direction if necessary. The pilot then reported visual with the [Prefect]. During a subsequent telephone conversation with the [R44] pilot, they reported that they had seen the [Prefect] and altered course to remove any confliction.

The [R44] pilot asked, at 1343, if the aircraft was still in the vicinity as they had lost sight and were concerned it may be turning back towards them. The controller replied that the aircraft was 5 miles clear to the north and, if it turned back, the [R44] pilot would be informed.

**CAA ATSI**

Having reviewed all the reports, including the investigation report from Humberside, ATSI has concluded that Traffic Information had previously been passed on the Prefect to the pilot of the R44, even though the pilot of the R44 was under a Basic Service only, sufficient to enable the pilot to acquire visual contact and take avoiding action.

**UKAB Secretariat**

An analysis of the NATS radar replay was undertaken and both aircraft could be positively identified from Mode S data. The aircraft were observed to have been at Flight Levels and an appropriate conversion factor was used to determine their altitudes.

At 1341:20, the Humberside Radar controller passed Traffic Information on the Prefect to the pilot of the R44. The R44 pilot responded to say that they would keep a lookout and "*change direction ever so slightly*". At 1341:50 (after radar CPA), they reported that they were visual with the traffic. It could not be determined if the timecode of the recorded RT matched that of the radar replay precisely.

The moment of CPA was determined to have occurred between the radar sweeps at 1341:42 and 1341:46 (see Figures 1 and 2). It was observed that pilot of the Prefect had turned sharply to the right approximately at the moment of CPA, but it could not be determined whether this turn had been initiated in the moments before or after CPA had occurred.

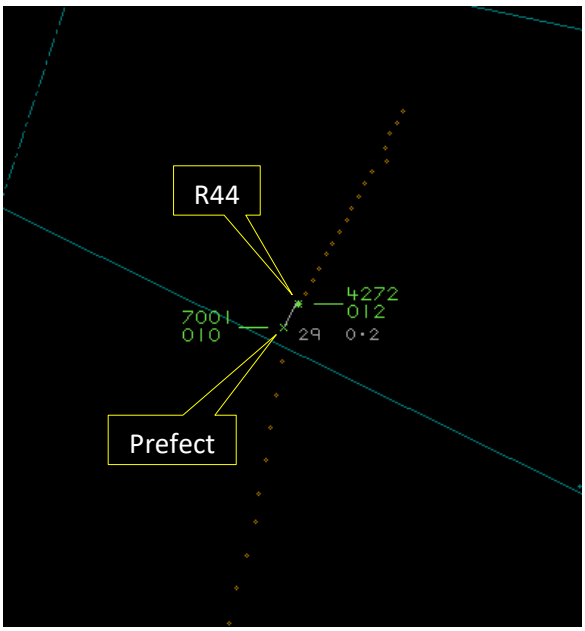


Figure 1 – 1341:42

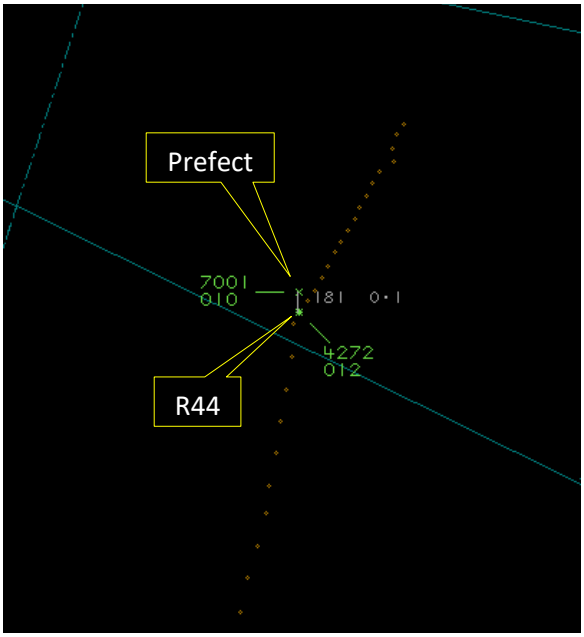


Figure 2 – 1341:46

The Prefect and R44 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]

## Comments

### HQ Air Command

The Prefect pilot was conducting low level flying training (500ft Minimum Separation Distance) along the Trent Valley where good two-way communication with Humberside is intermittent. [The] VHF Low Level Common [frequency] was chosen, in lieu of an ATS, given the difficulties experienced obtaining an ATS on previous sorties. In the run up to the Airprox, the Prefect pilot climbed to 1000ft AGL for the Humber crossing, to allow a glide option in the event of an engine failure. Post-crossing, the Prefect pilot descended back to continue the low level and, so, did not plan to speak to

[1] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[2] (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.

Humberside for the crossing. Had the Prefect pilot been receiving an ATS from Humberside, they would have had better SA on the R44. As it was, the TAS alerted and the crew elected to level-off to provide vertical separation whilst searching visually for the other aircraft. It was spotted just right of the nose at about 1NM and the pilot elected to turn to the left, away from it. When the R44 pilot spotted the Prefect, it appeared to be in a steep climb towards the R44. The R44 pilot turned right but this exacerbated the issue appearing to be in a descent towards the Prefect and, therefore, a more severe manoeuvre was required by the Prefect pilot. The Prefect Delivery Duty Holder has reiterated the guidance to crews that at least a Traffic Service is to be obtained where practical.

**Summary**

An Airprox was reported when a Prefect and an R44 flew into proximity 2NM northwest of Scunthorpe at 1342Z on Thursday 18th May 2023. Both pilots were operating under VFR in VMC, the Prefect pilot not in receipt of an ATS and the R44 pilot in receipt of a Basic Service from Humberside Radar.

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

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller 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 considered the actions of the pilot of the Prefect. A member with particular knowledge of military training operations explained that the sortie had been conducted at low-level with a 500ft MSD (Minimum Separation Distance). It was also explained that, anecdotally, pilots had previously reported difficulties in obtaining an ATS from Humberside Radar at this location. Turning to the sortie in question, members noted that the pilot of the Prefect had tuned their radio to the 'Low Level Common' frequency and had not attempted to contact Humberside Radar. Given that the pilot of the Prefect had climbed to 1600ft in preparation for crossing the Humber river, members wondered why contact with the Humberside Radar controller had not been attempted. When a member asked about the radio equipment fitted to the Prefect, it was believed that there had been two VHF radios available to the pilot. As such, members were in agreement that it would have been most prudent for the second radio to have been tuned to the Humberside Radar frequency and an attempt be made to request an ATS (**CF2**). A member with specific knowledge of military flying regulations referred to the 3FTS Flying Orders (excerpt reproduced below) and explained that, in their opinion, under the particular circumstances of the flight, there had been no known reason why a Traffic Service had not been requested. Members agreed and concluded that the pilot of the Prefect had not complied with their Orders (**CF1**).

3FTS Flying Orders include the following:

> 2307 i. Use of RT and Air Traffic Services.
>
> Aircraft Commanders should make all practicable use of RT and Air Traffic Services when operating in Class G airspace. In particular:
>
> (1) Where local Air Traffic Units are able to provide Air Traffic Services:
>
> > (a) Passengers. All sorties with Air Cadets or passengers on board should be conducted under a Traffic Service or higher.
> >
> > (b) Instructional and SCT. Except where sortie profile and/or instructional content make it impractical, sorties should be conducted under a Traffic Service or higher. An example of where it would be acceptable to dispense with the Traffic Service would be where the level of RT is high but largely irrelevant (such as is often experienced on VHF LARS frequencies covering a wide geographic (area). In such circumstances, Aircraft Commanders should satisfy themselves that their planned operating area is not, itself, in an area of high traffic density.

Notwithstanding the aforementioned, members noted that the pilot of the Prefect had received an alert from their TAS on a contact ahead of them (**CF3**).

Members pondered the narrative reports provided by each pilot, in particular, the moment that each pilot had visually acquired the other aircraft, and noted that the perception of the attitudes and flight vectors had been somewhat incongruent. Nevertheless, it was appreciated that it may have been startling to have sighted the R44 ahead of them and, with a closing speed of some 250kts, members acknowledged that the pilot of the Prefect had elected to take urgent and severe avoiding action. Consequently, members agreed that the pilot of the Prefect had sighted the R44 late (**CF4**).

Turning their attention to the actions of the pilot of the R44, members noted that they had elected to request a Basic Service from Humberside Radar. Whilst members suggested that a Traffic Service may have been a more prudent choice, it was noted the Humberside Radar controller had, very helpfully, passed Traffic Information on a contact (the Prefect) ahead of them. Members agreed that the Traffic Information had enabled the pilot of the R44 to have visually acquired the Prefect. However, given that last-minute avoiding action had been necessary, it was further agreed that the sighting had been late (**CF4**).

Members next considered the actions of the Humberside Radar controller. Members commended the controller for having passed pertinent Traffic Information to the pilot of the R44 on the contact ahead of them, even though they had not been obliged to have done so under the terms of a Basic Service. Indicating that they had nothing further to add, members concluded their discussions.

Summarising their deliberations, members agreed that both pilots had situational awareness of traffic ahead of them, but it had been the late visual acquisition of the conflicting aircraft that had reduced safety margins below the norm. Members were satisfied that the last-minute avoiding action by both pilots had increased the separation between the aircraft sufficiently that the risk of collision had been averted. As such, the Board assigned Risk Category C to this event.

## PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

| | 2023079 | | | |
|---|---|---|---|---|
| CF | **Factor** | **Description** | **ECCAIRS Amplification** | **UKAB Amplification** |
| | **Flight Elements** | | | |
| | **• Regulations, Processes, Procedures and Compliance** | | | |
| 1 | Human Factors | • Use of policy/Procedures | Events involving the use of the relevant policy or procedures by flight crew | Regulations and/or procedures not complied with |
| | **• Tactical Planning and Execution** | | | |
| 2 | Human Factors | • Communications by Flight Crew with ANS | An event related to the communications between the flight crew and the air navigation service. | Pilot did not request appropriate ATS service or communicate with appropriate provider |
| | **• Electronic Warning System Operation and Compliance** | | | |
| 3 | Contextual | • Other warning system operation | An event involving a genuine warning from an airborne system other than TCAS. | |
| | **• See and Avoid** | | | |
| 4 | Human Factors | • Identification/ Recognition | Events involving flight crew not fully identifying or recognising the reality of a situation | Late sighting by one or both pilots |

Degree of Risk: C.

Safety Barrier Assessment[3]

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

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

## Flight Elements:

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the Prefect pilot had not complied with their Flying Orders pertaining to the selection of a Traffic Service.

**Tactical Planning and Execution** was assessed as **partially effective** because the pilot of the Prefect had not requested an appropriate ATS.

**See and Avoid** were assessed as **partially effective** because both pilots had visually acquired the other aircraft late.