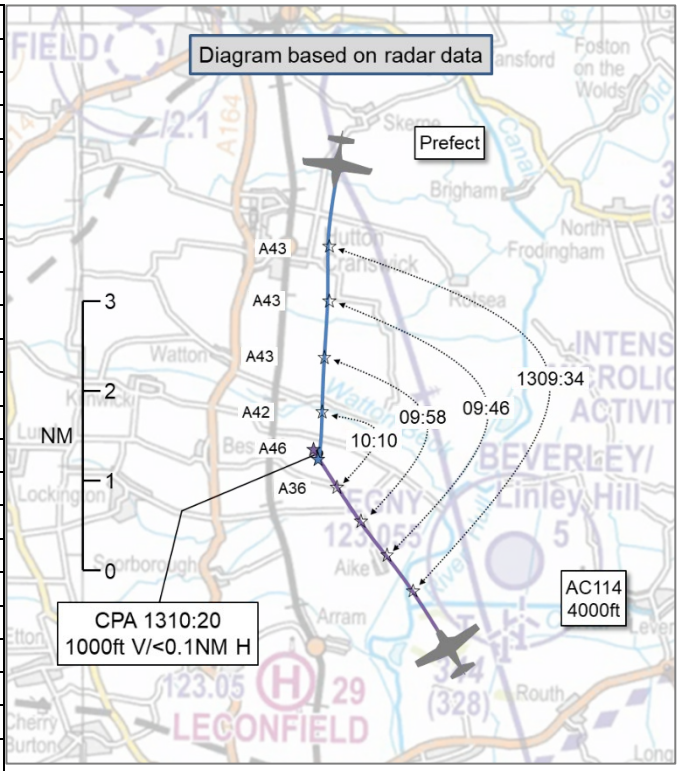
AIRPROX REPORT No 2023171

Date: 07 Aug 2023 Time: 1310Z Position: 5355N 00025W Location: 3.5NM N Beverley

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Prefect	AC114
Operator	HQ Air (Trg)	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Basic
Provider	Humberside	Humberside
Altitude/FL	4600ft	3600ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue/white	White/blue/silver
Lighting	HISL	Anti-col
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	4000ft	~4000ft
Altimeter	RPS (NK hPa)	QNH (NK hPa)
Heading	180°	~330°
Speed	180kt	150kt
ACAS/TAS	TAS	TAS
Alert	'Yellow alert'	None
Separation at CPA		
Reported	150ft V/<0.1NM H	NK V/NK H
Recorded	1000ft V/<0.1NM H	



THE PREFECT INSTRUCTOR reports they and the trainee pilot were flying a navigation exercise at 4000ft on the RPS and were in receipt of a Traffic Service from Humberside Radar. The frequency was very busy with commercial, civil and military traffic. There were also gliders in the area. The crew had been on frequency for about 15min and had received multiple traffic calls (1 x DA42 and 2 x gliders). At 1410L, when about 10NM north of Beverley, the crew noticed a TAS contact in about the 10 o'clock position, that was co-altitude and had 'become proximate'. No traffic call was given by ATC. The trainee continued to fly the aircraft whilst the instructor intensified lookout to the left to visually acquire the TAS contact. A 'TAS CAUTION' was given and the other aircraft was still unsighted; no traffic call was given by ATC as the controller was busy elsewhere. The instructor then became visual with the civilian aircraft which bloomed suddenly on the left. The instructor promptly took control, initiated an immediate climb to give separation between the two aircraft and the other aircraft passed below, disappearing under the wing at the left-hand wing root. Due to the positioning of the other aircraft, the trainee did not see it until it had passed behind. The trainee reported that the other aircraft initiated a climb once clear. Once clear of conflict, the crew considered reporting an Airprox to the ATC controller but elected not to as the frequency was so busy.

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

THE AC114 PILOT reports routing from the OTR VOR to transit Teesside controlled airspace. Altitude was about 4000ft on Humberside QNH while receiving a Basic Service from Humberside Radar. Visibility was good with towering cumulus above. When in the vicinity of Beverley they made visual contact with a small single-engine low-wing monoplane tracking right-to-left in relation to their track, below their level [they recalled]. The aircraft colour was white but they could not discern any markings. They almost immediately lost sight as the aircraft passed behind. No communication was received from Humberside Radar of a possible conflict nor any indications of any aircraft in the vicinity from the TAS installed in the aircraft.

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

THE HUMBERSIDE RADAR 1 CONTROLLER reports working in the radar APS position having just taken over from the previous ATCO a few minutes before. The handover had lasted several minutes with aircraft waiting on an instruction to standby whilst the handover was in progress. They recalled working up to 10 aircraft including [one on] a Deconfliction Service (DS) and 2 [on a] Traffic Service (TS). The para dropping site (with additional TS aircraft) was also active. The previous ATCO left the room and another radar controller came in and opened up a second radar position (though wasn't working any traffic initially). They recalled [Prefect C/S] (a light Prefect aircraft) was to the north and tracking northeast towards the coast at 4000ft. Then an inbound DS commercial aircraft from the west called and they acknowledged the [call], started to provide a service with vectors and wrote the details on the FPS accordingly. They recalled looking for a safe route to vector the DS through as there were multiple primary contacts to both the north and south of it. They were also speaking to other aircraft on frequency. They did not recall seeing the [Prefect] make a turn towards any aircraft and were not aware that there was a confliction. Neither [pilot] reported an Airprox or any sighting of the other whilst on frequency. The second radar controller had also been scanning the screen and did not notice the confliction either, or point it out to them.

THE HUMBERSIDE RADAR 2 CONTROLLER reports on a 1400L start. Prior to starting work they had a discussion with Radar 1 Controller mentioning that they were short on Tower hours due to OJTI duties in Radar and annual leave. It was decided that the Radar 1 Controller would Take Over Watch in Radar as the current APS controller required the next break, the ADI position was still within PATCH hours, and they would Take Over Watch in Tower. After briefing and making their way to the Tower, they noticed the APS controller was still on radar but in the Radar 2 position. Because they required a PATCH break, they took over the Radar 2 position instead of Tower. After setting up the console and signing on watch as Radar 2 at 1310, they offered to take traffic from the Radar 1 position but this was declined, so they remained in position to answer Frequentis calls and do any admin tasks required by Radar 1. They did not recall seeing the Airprox incident between [Prefect C/S] and [AC114 C/S] as the 2 aircraft were separated on the radar display by the time they had signed on duty and set up the Radar 2 console/Frequentis.

Factual Background

The weather at Humberside was recorded as follows:

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METAR EGNJ 071320Z 27014KT 9999 SCT044 20/09 Q1016=
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Analysis and Investigation

Humberside Occurrence Investigation

SUMMARY
[An] email [was] received on 9th August regarding an alleged Airprox 10NM north of Beverley with callsign [Prefect C/S] and an unknown aircraft at 1410 UTC. No Airprox was reported to the unit by RT or telephone that day.

A [radar] recording was made and observed at the relevant time reported and no aircraft [with Prefect C/S] was observed in that vicinity at the time. However, the [radar replay] was utilised to make a recording of events that occurred an hour before at 1310 UTC, when an aircraft with callsign of [Prefect C/S] was on frequency.

A controller handover took place between 1300-1305, and Radar 2 was opened.

The Radar 1 controller had 8 aircraft on frequency, the breakdown in services was 1 x DS, 3 x TS, 4 x BS. Workload was judged to be medium.

The Radar 1 and 2 controllers had a brief discussion regards division of traffic and the Radar 1 controller retained the traffic.

A Prefect aircraft (callsign [Prefect C/S]) was on frequency receiving a Traffic Service, routing south-to-north/north-to-south at 4000ft on the Barnsley Regional Pressure Setting (1012hPa). Callsign [AC114 C/S] was on frequency receiving a Basic Service en-route northbound at 4000ft on the Humberside QNH 1017hPa. A scheduled commercial carrier was due inbound with a GOLES estimate of 1308.

There were numerous RT transmissions on the Approach channel in the lead-up to the DS coming on frequency, with the Radar 1 controller also conducting associated admin (strip marking etc).

The [Prefect C/S] was routing to Driffield and made an acute turn south at 1309, the [inbound scheduled commercial carrier] (4252), a DS came on frequency at 1309:20.

The [Prefect C/S] and [AC114 C/S] converged. No Traffic Information was passed to either. [Prefect C/S] was seen to climb as [AC114 C/S] was seen to descend as the positive indicators merged. (Altitude difficult to see, but it appeared that the vertical distance momentarily increased from 300ft to 800ft before returning to 300ft.)

Between 1309:58 and 1310:10, the cursor from the Radar 1 screen was observed to momentarily hover over the conflicting aircraft. Between 1309:05 and 1310:40, the cursor from the Radar 2 screen was observed to momentarily hover over and in the vicinity of the conflicting aircraft.

The Radar 1 controller said in their statement 'I do not recall seeing the [Prefect] make a turn towards any aircraft and was not aware that there was a confliction'.

The Radar 2 controller said in their statement 'the 2 aircraft were separated on the radar display by the time I had signed on duty and set up the Radar 2 console'.

It appears the Radar 1 controller was task-focussed on the inbound DS traffic; whilst a scan of the radar screen was undertaken, it is believed they had looked at the [Prefect C/S] and [AC114 C/S] in isolation against the inbound DS and not each other.

DETAILS
1258 [Prefect C/S] was handed over to HUY as a Traffic Service transit at 4000ft on the Barnsley Regional Pressure Setting (1012), south-to-north, north-to-south.

1259 An aircraft callsign [AC114 C/S] was provided with a Basic Service en-route northbound at 4000ft and given the Humberside QNH 1017.

Figure 1 - 1308:51 (Prefect 4277, AC114 4270)

A controller handover took place between 1300 and 1305, and Radar 2 was opened.

[Prefect C/S] routed to Driffield and turned south at 1309, altitude 4125ft (Claxby SSR). [AC114 C/S] south of Driffield altitude 3800ft (Claxby SSR). Numerous RT transmissions ongoing, with the [scheduled commercial carrier] (4252), a DS coming on frequency at 1309:20.

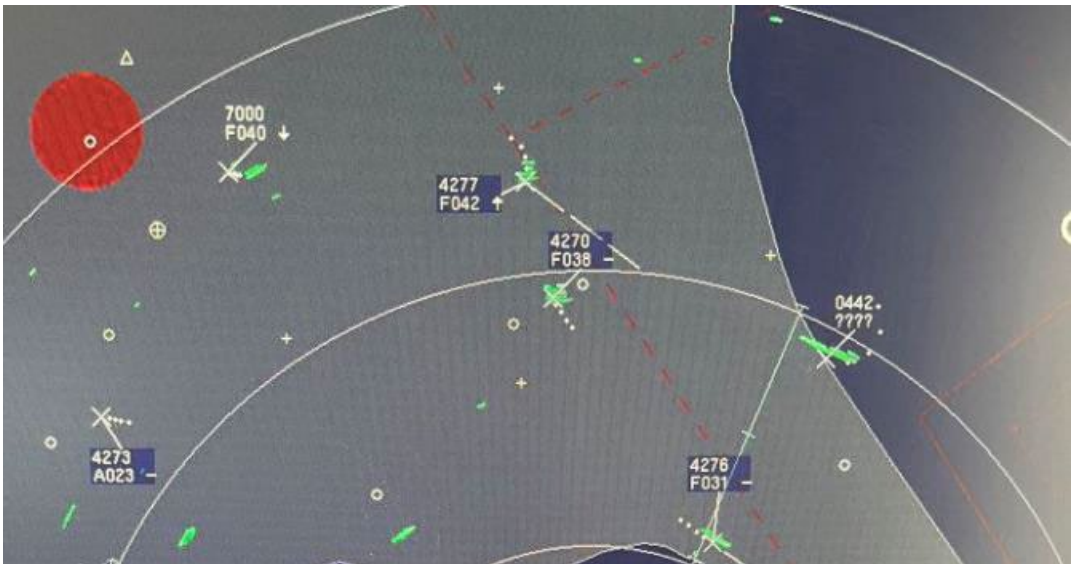


Figure 2 - 1309:40 (Prefect 4277, AC114 4270)

The Radar 1 cursor hovered momentarily over [AC114 C/S].

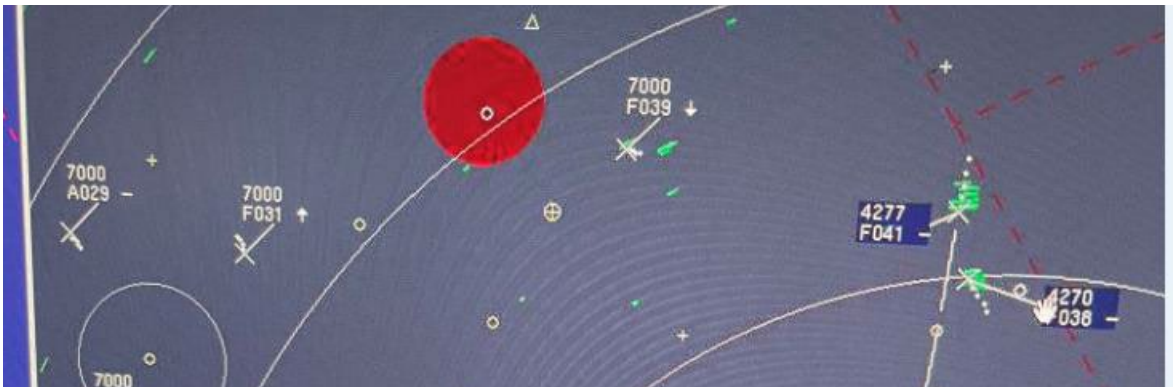


Figure 3 - 13:09:58

The Radar 1 cursor hovered momentarily over [Prefect C/S].

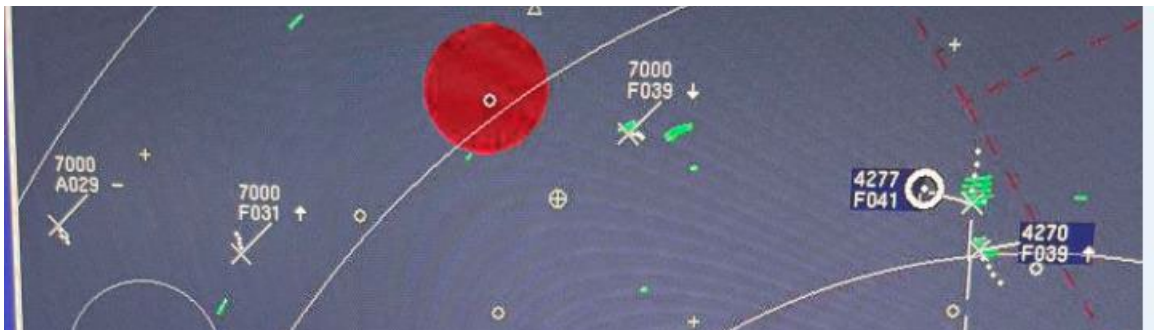


Figure 4 - 1310:10

The two aircraft converged. No Traffic Information was passed to either [pilot]. [Prefect C/S] was seen to climb as [AC114 C/S] was seen to descend as the positive indicators merged. (Altitude

difficult to see, but it appeared that the vertical distance momentarily increased from 300ft to 800ft before returning to 300ft.)

Figure 5 - 13:10:25

INVESTIGATION

Email received on 9th August regarding an alleged Airprox 10NM north of Beverley with callsign [Prefect C/S] and an unknown aircraft at 1410 UTC. No Airprox was reported to the unit by RT or telephone that day. A Veristore recording was made and observed at the relevant time reported and no aircraft [Prefect C/S] was observed in that vicinity at the time. However, the Veristore was utilised to make a recording of events that occurred an hour before at 1310 UTC, when an aircraft with callsign of [Prefect C/S] was on frequency.

A review of the RT and radar recordings was undertaken by an assessor and the ATSM.

The controllers concerned were on their days off, returning Saturday (12th August) and were asked to file the appropriate occurrence reports upon their return giving their viewpoints. On Saturday 12th August the ATSM spoke with both the Radar 1 and Radar 2 controllers; neither had any recollection of the incident owing to nothing formally being reported at the time or after landing, and only being made aware of it some days later on 12th August. A discussion with both controllers took place, along with a review of the recordings independently.

Between 1309:58 and 1310:10, the cursor from the Radar 1 screen was observed to momentarily hover over the conflicting aircraft and, between 1309:05 and 1310:40, the cursor from the Radar 2 screen was observed to momentarily hover over and in the vicinity of the conflicting aircraft. The Radar 1 controller said in their statement 'I do not recall seeing the [Prefect] make a turn towards any aircraft and was not aware that there was a confliction'. The Radar 2 controller said in their statement 'the 2 aircraft were separated on the radar display by the time I had signed on duty and set up the Radar 2 console/Frequentis'.

As part of the investigation, a review of the FPS, ATCO radar log book and break sheet was also undertaken. The Radar 1 controller had commenced duty at 0800 that day and was rostered until 1600, they had been off console since 0915 and finished duty the previous day at 1500. For this cycle they were rostered 47.5 hours. The Radar 2 controller had commenced duty at 1300 and finished duty the previous day at 2100. For this cycle they were rostered 48.5 hours.

At the time of the incident the Radar 1 controller had 8 aircraft on frequency, the breakdown in services was 1 x DS, 3 x TS, 4 x BS. The Radar 1 controller annual check had recently been completed and they were assessed as competent. The Radar 2 controller annual [check] was underway. Both are experienced controllers, with over 30 years controlling in Class G airspace experience between them.

CONCLUSION

A controller handover took place between 1300 and 1305, and Radar 2 was opened. The Radar 1 controller had 8 aircraft on frequency, the breakdown in services was 1 x DS, 3 x TS, 4 x BS. Workload was judged to be medium. The Radar 1 and 2 controllers had a brief discussion regarding division of traffic and the Radar 1 controller retained the traffic. A Prefect aircraft (callsign [Prefect

C/S]) was on frequency receiving a Traffic Service, routing south-to-north, north-to-south at 4000ft on the Barnsley Regional Pressure setting (1012). Callsign [AC114 C/S] was on frequency receiving a Basic Service en-route northbound at 4000ft on the Humberside QNH 1017. A scheduled commercial carrier was due inbound with a GOLES estimate of 1308.

There were numerous RT transmissions on the approach channel in the lead-up to the DS coming on frequency, with the Radar 1 controller also conducting associated admin (strip marking etc). The [Prefect C/S] was routing to Driffield and made an acute turn south at 1309, the [scheduled commercial carrier], a DS, came on frequency at 1309:20. The [Prefect C/S] and [AC114 C/S] converged. No Traffic Information was passed to either pilot. [Prefect C/S] was seen to climb as [AC114 C/S] was seen to descend as the positive indicators merged. (Altitude difficult to see, but it appeared that the vertical distance momentarily increased from 300ft to 800ft before returning to 300ft.) It appeared the Radar 1 controller was task-focussed on the inbound DS traffic; whilst a scan of the radar screen was undertaken, it is believed they had looked at the [Prefect C/S] and [AC114 C/S] in isolation against the inbound DS and not each other.

INCIDENT CAUSAL FACTORS

Traffic Information wasn't passed, possibly due to:

1. Radar 1 controller workload.
2. The [scheduled commercial carrier] coming on frequency at the same time the [Prefect] made an acute turn southbound.
3. Radar 1 controller being task focussed on the inbound [scheduled commercial carrier] owing to multiple primary contacts in the area and other traffic to the east of the field.
4. Reassurance of having a Radar 2 controller in situ.
5. Having only taken-over in radar a few minutes earlier and perhaps not being fully settled into the position, Radar 2 was opened between 1310-1338, although the recording intimates it was open from 1305.
6. A complex traffic situation.

ATC ACTION

[Safety] reports were filed on 13th August by Radar 1 controller and 15th August by the Radar 2 controller. A standards bulletin was issued on 11th August providing advice and guidance to controllers regarding workload, reductions in service, handovers and training flights (Figure 6).

Humberside airport

ATC STANDARDS BULLETIN 03/2023

LARS traffic levels can generally be quite busy and some days become very bitty and clunky. In order to mitigate the potential for Airprox incidents please consider the following points:

WORKLOAD

When traffic workload is increasing, pro-actively increase your scan and division of attention.

Prioritise traffic under a radar service before speaking to BS.

Maintain clarity but increase the pace of R/T delivery to hopefully signal to the customers that they need to respond quickly. If it's a slow painful student consider asking the instructor to take over the R/T.

Offload LARS traffic outside 30nm or sooner to adjacent units or London FIR whenever possible. This will reduce the volume of R/T and strips to manage.

REDUCTION IN SERVICE

Consider routinely reducing the service prior to dealing with inbound/outbound DS traffic i.e. Reduced TS due to controller workload, possible late warning of traffic.

TRAINERS

As your workload increases, consider keeping the a/c in the hold, terminate the training or ask them to GH out of the way for a period of time until you can sequence them inbound.

HANDOVERS

Please consider how information is exchanged on handover to avoid vital information being missed;

As you transfer the identity of the aircraft to the oncoming ATCO, specify the type of service. By doing this it may alter the type of service being provided i.e. An aircraft under a TS has lost its primary return and is thus downgrade to BS or when at the lateral and vertical limits of cover, the service is reduced as part of the handover process.

While the traffic levels may be acceptable for the ATCO in situ, they may not be for the oncoming ATCO, so reduce the levels if possible or open Radar 2 temporarily to reduce the workload.

Advise the incoming ATCO to give you 5 or 10 mins to sort out the traffic if there is too much to handover at that point.

Ensure the pressure setting the A/C is operating on is annotated and passed on.

Any questions regarding the above should be directed to members of the ATSSMC.

ATSSMC
11 August 2023

Figure 6 – ATC Standards Bulletin 03/2023

UKAB Secretariat

The Prefect and AC114 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

[1] UK Reg (EU) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

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 AC114 pilot was required to give way to the Prefect.[3]

Comments

HQ Air Command

Prefect crews are mandated to use a Traffic Service when available. It is unfortunate that on this occasion Humberside was experiencing a busy period and did not pass Traffic Information to either the Prefect or AC114 pilots. Situational awareness for Prefect pilots is also supported by the electronic conspicuity aids which are fitted to the Prefect fleet, namely TAS and FLARM. On this occasion the crew was alerted by TAS but, as the indication was that the other contact was climbing, they elected to await visual confirmation prior to taking avoiding action. The geometry of the encounter and colour scheme of both aircraft would have made visual acquisition more difficult and the Prefect pilot only gained visual when the AC114 'bloomed to their left', allowing positive avoiding action to be taken. Improvements in conspicuity (both visual and electronic, namely ADS-B) are actively being pursued for the Prefect fleet.

AOPA

Until reliable GA EC has been established, to improve situational awareness and mid-air collision avoidance, when flying it is prudent to obtain the best possible air traffic service.

Summary

An Airprox was reported when a Prefect and an AC114 flew into proximity at 3.5NM north of Beverley at 1310Z on Monday 7th August 2023. Both pilots were operating under VFR in VMC, the Prefect pilot in receipt of a Traffic Service and the AC114 pilot in receipt of a Basic Service, both from Humberside.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, 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 discussed the pilots' actions and were briefed by a military aircrew member that the Prefect TAS was known to suffer from the common error of bearing inaccuracy. Nevertheless, when they had received a TAS warning (**CF8**) the Prefect Instructor had intensified their lookout in the area of the warning and had seen the AC114, albeit at a late stage (**CF10**). Members felt that although bearing inaccuracy could preclude an early turn, altitude accuracy was such that it could be reasonable to climb or descend (**CF9**) (whilst maintaining track if on a navigation exercise). Additionally, the aircraft had been converging with the Prefect on the right and so the Prefect pilot had been required to maintain course and speed. Members agreed that an earlier climb or descent could have been made (**CF5**) and that the Prefect Instructor had been understandably concerned at the proximity of the AC114 (**CF6**) without having received Traffic Information and whilst having been in receipt of a Traffic Service. Conversely, the AC114 pilot had been in receipt of only a Basic Service, leaving visual acquisition and EC as the remaining barriers to mid-air collision. Their TAS had not warned or alerted when it could reasonably have been expected to do so (**CF9**), leaving the pilot with no situational awareness as to the converging Prefect (**CF7**). From the AC114 pilot's narrative, it appeared that they had seen the Prefect at a late stage (**CF10**) and that, although they recalled the Prefect as being below them, they had descended against the climbing Prefect, as shown on the radar replay. Some members wondered

[2] UK Reg (EU) SERA.3210 Right-of-way (c)(1) Approaching head-on. MAA RA 2307 paragraph 13.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.

whether the AC114 pilot was reporting the interaction with the Prefect but after further discussion agreed that this was probably an error in recall.

Turning to the ATS provision, members agreed with the Humberside Airprox Investigation in that the Radar 2 controller position could have been used to reduce the workload of the Radar 1 controller (**CF1**) and hence enhance their ability to detect the Prefect's turn onto south, subsequent convergence with the AC114 and timely communication of Traffic Information. In the event, the Board agreed that the Radar 1 controller had not had situational awareness of the converging Prefect and AC114 aircraft (**CF4**) so the confliction had not been detected (**CF3**) and Traffic Information had not been provided (**CF2**). The Board noted that Traffic Service provision also states that Traffic Information might not be given due to controller workload, but felt that in this case there had been an opportunity to do so.

Considering the risk of collision, the Board members were unanimous in their opinion that risk of collision had been averted by the actions of the Prefect and AC114 pilots, albeit at a later stage than desirable.

Finally, the Board fully endorsed the Humberside Airport Standards Bulletin 03/2023.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023171			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Manning and Equipment			
1	Organisational	• ATM Staffing and Scheduling	An event related to the planning and scheduling of ATM personnel	
	• Situational Awareness and Action			
2	Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
3	Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
4	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
	Flight Elements			
	• Tactical Planning and Execution			
5	Human Factors	• Late Decision/Plan	Events involving flight crew making a decision too late to meet the needs of the situation	
	• Situational Awareness of the Conflicting Aircraft and Action			
6	Human Factors	• Lack of Action	Events involving flight crew not taking any action at all when they should have done so	Pilot flew close enough to cause concern despite Situational Awareness
7	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			
8	Contextual	• Other warning system operation	An event involving a genuine warning from an airborne system other than TCAS.	
9	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			
10	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[4]

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

Ground Elements:

Manning and Equipment were assessed as **partially effective** because the Radar 2 position was not fully utilised.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Radar 1 controller was too busy to assimilate the confliction and pass Traffic Information.

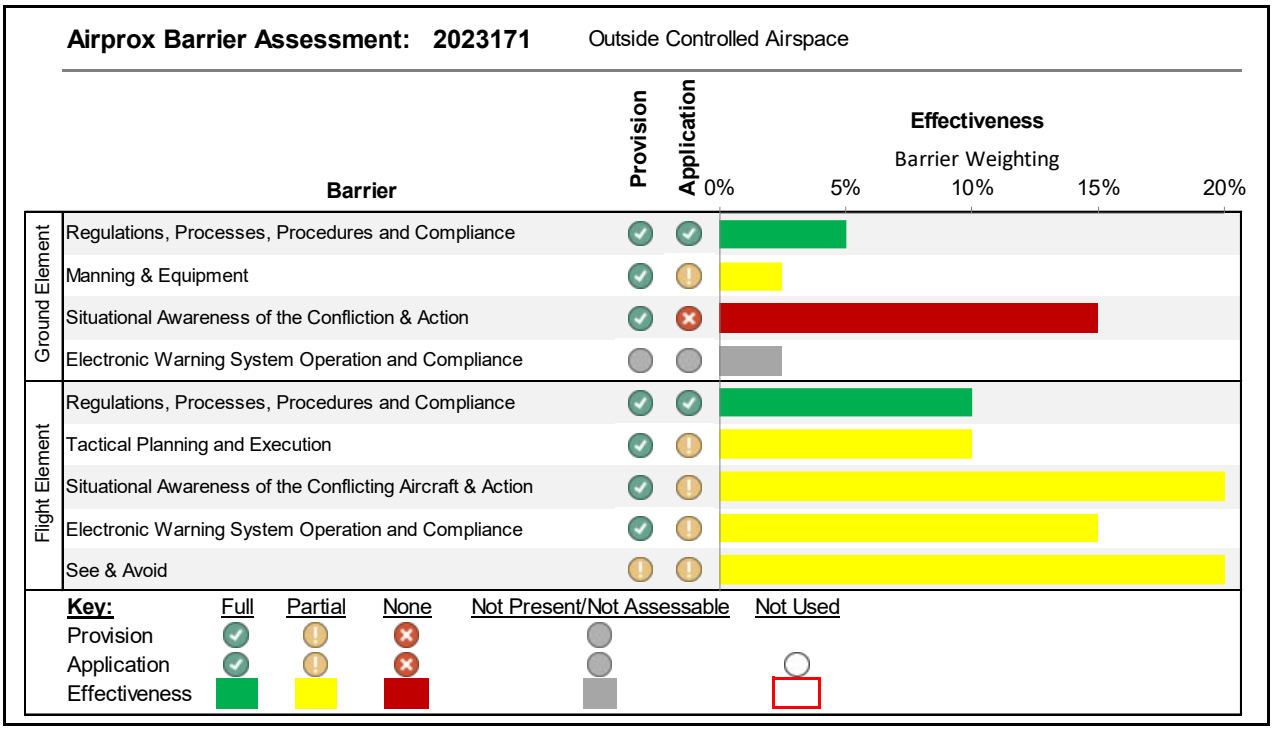
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Prefect crew did not alter their altitude in light of TAS information.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the AC114 pilot had no situational awareness of the converging Prefect.

Electronic Warning System Operation and Compliance were assessed as **partially effective** because the AC114 TAS did not alert when it could reasonably have been expected to do so.

See and Avoid were assessed as **partially effective** because the Prefect and AC114 pilots each saw the other aircraft at a late stage.



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