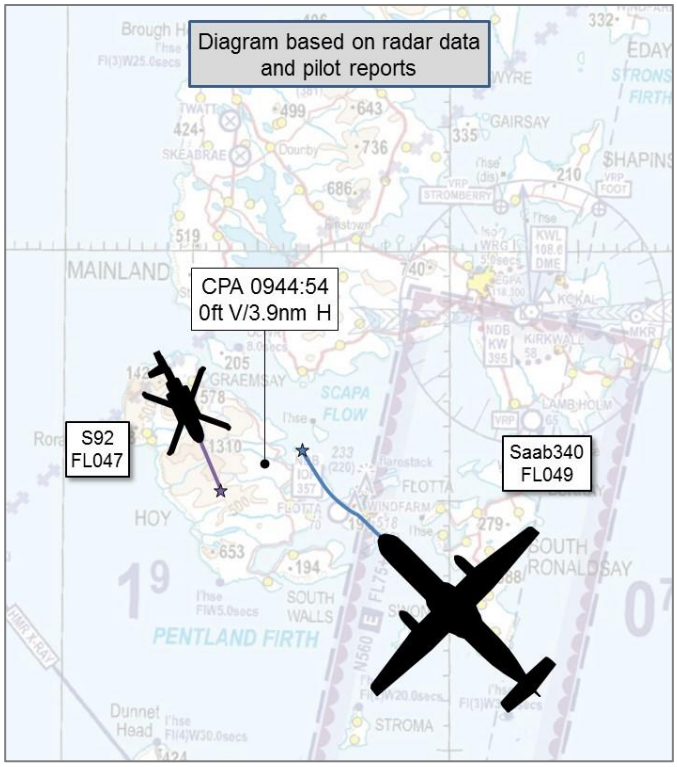
AIRPROX REPORT No 2019062

Date: 16 Apr 2019 Time: 0944Z Position: 5851N 00315W Location: 12nm SW Kirkwall

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Saab340 (SF34)	S92
Operator	CAT	Civ Helo
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	IFR	IFR
Service	Procedural	Basic
Provider	Kirkwall	Kirkwall
Altitude/FL	FL049	FL047
Transponder	A, C, S	A, C, S
Reported		
Colours	Company	White, Blue, Red
Lighting	Nav, HISL	Nav, Anti-col, HISL, Landing
Conditions	IMC[1]	VMC
Visibility	18km	Flying into sun
Altitude/FL	5000ft	5000ft
Altimeter	QNH (1024hPa)	QNH (1024hPa)
Heading	310°	Not reported
Speed	210kt	Not reported
ACAS/TAS	TCAS II	TCAS II
Alert	None	None
Separation		
Reported	0ft V/3nm H	Not seen
Recorded	0ft V/3.9nm H	



THE SAAB340 PILOT reports initially descending to FL60 under Scottish control on a track of about 024º towards the KWL VOR. He was handed to Kirkwall approach, given a Procedural Service and cleared for the arc to the ILS approach RW09, maintaining FL60 until advised due to helicopter traffic transiting west of Kirkwall at 5000ft (believed to be an S92 callsign and registration provided). He turned left onto the DME arc procedure at 13DME to take up an 11DME arc. On turning, he was cleared by ATC to descend with the procedure to 2400ft on QNH 1024hPa. The autopilot was set to descend to the cleared altitude, and descent was initiated. Shortly after this, they became aware of a TCAS contact indicating 300ft below and approximately dead-ahead at an indicated range of about 6nm. They slowed the descent and attempted to evaluate the relative movement of the contact. The contact appeared to be stationary on the TCAS display so a right-turn was initiated to ensure separation. The contact passed down their port-side at an approximate range of 3nm. Without the turn to the right taking them inside the prescribed arc it is highly likely that a TCAS TA or RA may have resulted. This incident demonstrates the safety value of TCAS II and mode S transponders in assisting situational awareness. Despite being VMC, and their best efforts at a busy stage of flight, they were unable to get visual contact with the helicopter at any time.

He assessed the risk of collision as 'None'.

THE S92 PILOT reports that the time taken to contact them has resulted in a hazy recollection of the flight, but they do not recall any incident.

THE KIRKWALL CONTROLLER reports that the S92 was routeing southbound from West Shetland Basin to Aberdeen at altitude 5000ft, on a Basic Service, the S92 requested to pass 9DME west abeam

[1] Reported IMC, at the time of the Airprox he was VMC between layers in the descent (reported 3000ft above cloud).

at time 0943. Due to pending inbound traffic he co-ordinated no closer than 15DME west. Subsequently, the inbound Saab340 was released out of FL90 descending to FL60, ETA 0948. At this time he was happy that the S92 would not be a problem. The Saab340 came on frequency and was instructed not below FL60 until advised and cleared for the RW09 arc IAP, this allowed a deemed separation against an SB20. The S92 reported west abeam at 0941 and was asked to report at 15DME WIK. The Saab340 reported turning on the arc at 0942, sooner than the Kirkwall controller expected, and was passed Traffic Information on the southbound S92. The Saab340 reported passing KWL245R, 4700ft to ensure departure separation against the SB20 and requested the position of the S92; this was given as 240R,14DME. This was closer than the Kirkwall controller had envisaged and the pilot of the Saab340 phoned him after landing saying it was also closer than he was comfortable with although in VMC.

Factual Background

The weather at Kirkwall was recorded as follows:

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METAR EGPA 160920Z 14018KT 9999 FEW013 BKN015 08/04 Q1024
METAR EGPA 160950Z 14018KT 9999 FEW013 BKN017 08/04 Q1024
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from the pilots of both aircraft and from the Kirkwall controller. The area radar and Kirkwall R/T recordings for the period were reviewed. Kirkwall ATC are not radar equipped and screenshots in this report are taken from the area radar recording. The Saab340 pilot was flying the Direct Arrival (DME Arc) approach to the ILS RW09 at Kirkwall and in receipt of an IFR Procedural Service from Kirkwall ATC at the time of the Airprox. The S92 pilot was transiting IFR from the West Shetland basin to Aberdeen, passing to the west of Kirkwall, and was in receipt of a Basic Service from Kirkwall ATC at the time of the Airprox. The controller was providing combined Aerodrome and Approach non-radar services at the time of the Airprox.

At 0924:30, the S92 pilot called the Kirkwall controller advising that they were at altitude 5000ft routeing to Aberdeen, currently on the 331 radial 36nm from Kilo Whiskey. The controller passed the QNH 1024hPa and a Basic Service was agreed. The controller asked the pilot how far west of Kirkwall they intended to pass. The pilot read back the QNH correctly and advised that they would pass 9nm to the west at time 0943:00. The controller asked the pilot if they could route no closer than 15nm west for coordination purposes, due to inbound traffic. The pilot responded, *"that's copied, route no closer than 15 miles to the west".* The controller instructed the pilot to report west abeam and the pilot responded, *"next report west abeam".*

Between 0933:20 and 0935:00, the controller dealt with an unrelated Kirkwall departure. At 0939:40, another unrelated departing aircraft was given engine start and advised that it would be a Procedural Service on departure.

At 0940:10 (Figure 1), the SF34 pilot made initial R/T contact with the Kirkwall controller advising that they were descending to FL60, had information Romeo, QNH 1024, and were currently 24nm out. A Procedural Service was agreed, and the pilot was instructed to maintain FL60 on reaching. The pilot read the level instruction back correctly and the controller reiterated not below FL60 until advised, and that this would be for a Procedural ILS for RW09. The pilot was instructed to report turning left on the arc. The pilot provided a full and accurate readback.

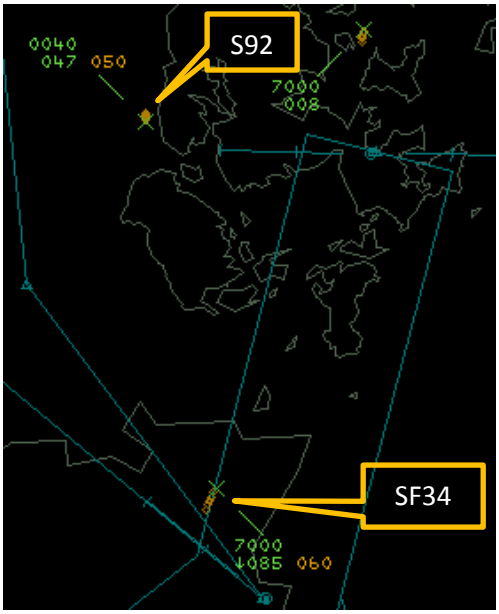


Figure 1 - 0940:10

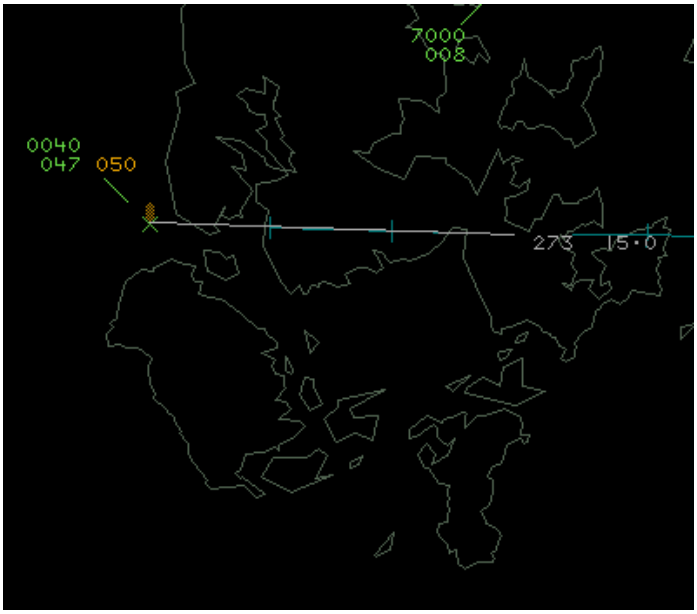


Figure 2 - 0941:00

At 0941:00, the S92 pilot reported 15nm west abeam. The controller thanked the pilot and instructed them to report 15nm to run to Wick. The pilot readback the instruction correctly (Figure 2).

At 0941:30, the Kirkwall controller called the Wick controller and prenoted the S92, advising them that it would be overflying Wick at 5000ft on a Basic Service and had just passed 15nm west of Kirkwall at minute 41. Agreement was reached that the helicopter would be transferred when clear of any Kirkwall traffic.

At 0942:20, the unrelated departing aircraft requested taxi instructions which the controller issued.

At 0942:50 (Figure 3), the Saab340 pilot reported commencing their left turn on the arc for RW09. The controller instructed the pilot to descend now, with the procedure, QNH 1024hPa, and to report localiser established. The pilot responded with a full and accurate readback.

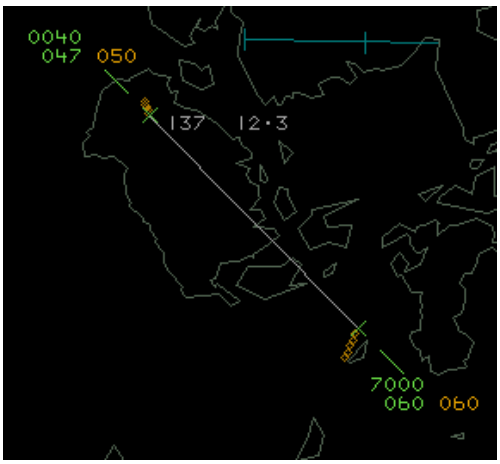


Figure 3 - 0942:50

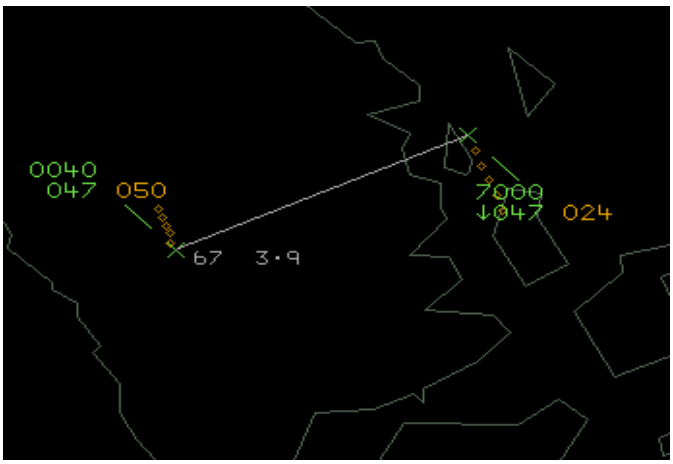


Figure 4 - 0944:50 (CPA)

At 0943:10, the controller advised the Saab340 pilot that traffic that they may see on TCAS was an S92 helicopter at altitude 5000ft on a Basic Service and that the helicopter should be west of their track routeing southbound. The Saab340 pilot responded that they believed that they had the helicopter on TCAS.

At 0944:50 (Figure 4), the controller then asked the Saab340 pilot to report their passing radial on the arc and their altitude. CPA occurred at this time, with the aircraft separated by 3.9nm laterally and zero feet vertically.

At 0945:00 (Figures 5 and 6), the Saab340 pilot responded that they were passing radial 245 at 4700ft on QNH 1024hPa and asked for an update on the position and altitude of the S92. The controller asked the S92 pilot for their position from Kirkwall and the S92 pilot responded with 240 radial at 14nm. The controller then relayed the radial and distance information to the Saab340 pilot correctly but stated that the helicopter was at 5000ft, not the stated 4700ft.

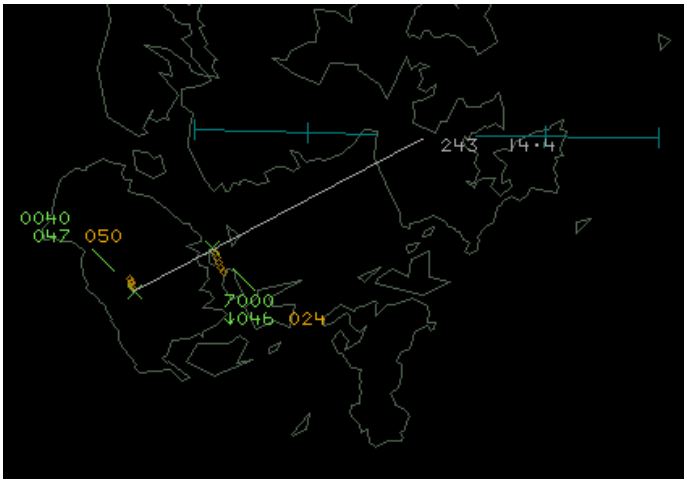


Figure 5 - 0945:00 (showing the S92 passing 14.4nm west of Kirkwall)

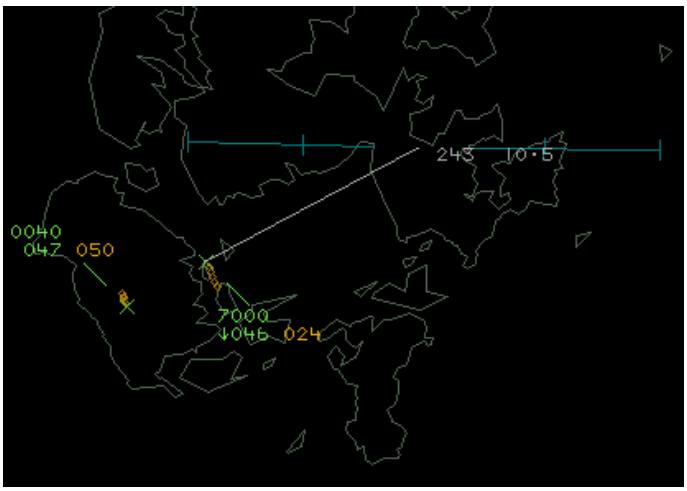


Figure 6 - 0945:00 (showing the Saab340 established on the arc at 10.5nm**)**

MATS Part 1 Section 1 Chapter 12 “Procedural Service” states:

Definition

Procedural Service is an ATS where, in addition to the provisions of Basic Service, the controller provides restrictions, instructions, and approach clearances, which if complied with, will achieve deconfliction minima against other aircraft participating in the Procedural Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic.

Flight Rules/Meteorological Conditions

Procedural Service is available to IFR flights in any meteorological conditions. It is not available to VFR flights.

Traffic Information

The controller shall provide traffic information, if it is considered that a confliction may exist, on other known traffic; however, there is no requirement for deconfliction advice to be passed, and the pilot remains responsible for collision avoidance.

The Saab340 pilot was participating in a Procedural Service and the S92 pilot was participating in a Basic Service. As such, and under CAP 493 requirements, deconfliction minima was not required to be achieved. Traffic Information was required to be passed to the Saab340 pilot on the S92. The controller discharged this responsibility when, at 0943:10, the controller advised the SF34 pilot that traffic that they may see on TCAS was an S92 helicopter at altitude 5000ft on a Basic Service and that the helicopter should be west of their track routeing southbound. The Saab340 pilot responded that they believed that they had the helicopter on TCAS.

Under a Basic Service, Traffic Information is only required to be passed where it is known by the controller that a definite hazard exists, under these circumstances a warning is required to be issued. The controller discharged this responsibility to the S92 pilot during their initial exchange with the S92 pilot when, at 0924:30, the controller asked the S92 pilot if they could route no closer than 15nm west for coordination purposes, due to inbound traffic. The pilot responded, *"that's copied, route no closer than 15 miles to the west".* CAP 493, Section 1, Chapter 12, paragraph 5F.8 states that controllers may, subject to workload, initiate agreements with pilots of aircraft under a Basic Service to restrict their flight profile to co-ordinate them with aircraft in receipt of a Procedural Service. The controller gained the agreement of the S92 pilot to pass no closer than 15nm west of Kirkwall in an attempt to provide some lateral distance between the S92 and the inbound SF34.

The Kirkwall controller discharged their responsibilities in the provision of a Procedural Service to the Saab340 pilot and a Basic Service to the S92 pilot. The SF34 and S92 pilots were operating in Class G Airspace where they were ultimately responsible for their own collision avoidance.

UKAB Secretariat

The Saab340 and S92 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[2].

The Kirkwall RW09 approach chart is shown at Figure 7.

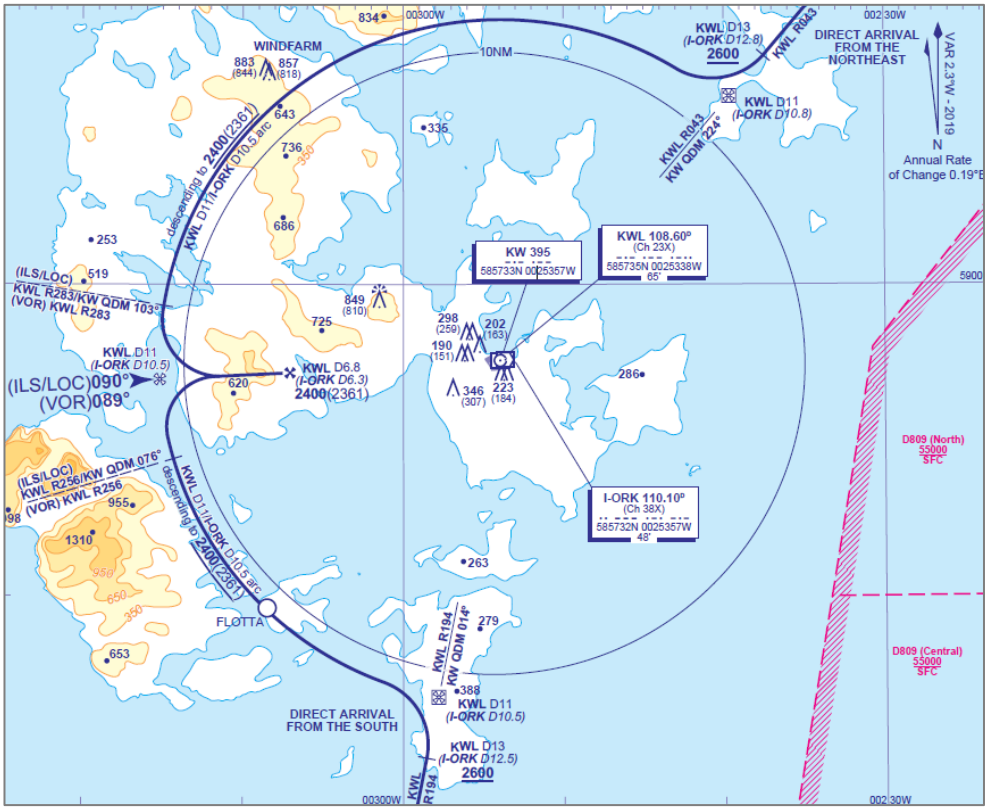


Figure 7: Kirkwall Instrument Approach Chart

[2] SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.

Summary

An Airprox was reported when a Saab340 and a S92 flew into proximity at 0944hrs near Kirkwall on Tuesday 16th April 2019. Both pilots were operating under IFR in VMC, the Saab340 pilot in receipt of a Procedural Service from Kirkwall and the S92 pilot in receipt of a Basic Service from Kirkwall.

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 began by looking at the actions of the S92 pilot. They noted that the nature of their task meant that they had probably flown this route numerous times and, as in this instance, were used to complying with requests for routing and altitude from the Kirkwall controller. Equally, some members wondered whether the repetitive nature of the task might have promoted a false sense of security regarding the risk from other traffic in the Kirkwall area; although they were laterally separated as a result of the Kirkwall controller's request that they route 15nm west of the field, some members wondered to what extent they had taken the RW09 arc procedure into account during their planning given that procedural aircraft arriving at Kirkwall in the conditions of the day would likely be in that airspace.

The Board then turned to the actions of the Saab340 pilot and members noted that although he was flying in intermittent IMC, at the time of the Airprox he was VMC between cloud layers. Having been informed by the Kirkwall controller that the S92 might possibly produce a TCAS II alert, members wondered whether the S92 appearing on this TCAS II display whilst he was between cloud layers had increased his concern, albeit there was no TA or RA generated **(CF2)**. Although he had been given this Traffic Information, members could understand his disquiet at seeing another aircraft seemingly in his 12 o'clock on TCAS as he was cleared to descend on the procedure. Although, ultimately, he was required to ensure his own collision avoidance, this was less straight forward given that he was conducting a procedure which required a degree of flying precision and task focus. His options were to abandon the procedure and go around or modify the procedure as he conducted his own collision avoidance manoeuvre; neither option being ideal but reflected the reality of flying commercial air transport aircraft flying in Class G airspace without an available surveillance-based ATS.

The Board then turned to the actions of the Kirkwall controller. Some members wondered whether the controller could have provided more proactive separation of the 2 aircraft given that both were IFR and known to the controller, although the controller did not know the S92 pilot was IFR. Others pointed out that the S92 pilot had requested only a Basic Service (there being no radar available for a surveillance-based Traffic or Deconfliction Service) and therefore, regardless of their flight conditions, it was only incumbent upon the controller to separate aircraft that were also participating in a Procedural Service[3], which the S92 was not. One member thought that the controller could have offered an alternative approach to the arc, but other members believed that this would be construed as over-controlling because it was incumbent upon the Saab340 pilot to request an alternative if they believed the S92 would constitute a risk **(CF1)**.

Controller members noted that the controller had passed Traffic Information to the Saab340 pilot on the S92 but had not reciprocated the TI by informing the S92 pilot of the Saab340. Members again discussed the limitations of a Procedural Service and the fact that only aircraft participating in the service are separated, and that TI is only available for known traffic. Although under the current regulations the Kirkwall controller discharged their formal responsibilities to both aircraft under the service that the pilots had requested, some controller members nevertheless thought that within the notion of defensive controlling, the controller could have done more in this circumstance to assist the pilots in their collision avoidance responsibilities.

[3] CAP774, Chapter 5

The Board then turned to the risk and members quickly agreed that with the separation between the S92 and the Saab340 being no closer than 3.9nm when their levels crossed, normal safety standards and parameters had pertained, risk Category E. Notwithstanding, the Board also agreed that the Saab340 pilot had been right to express his concerns through the Airprox reporting system given that the incident had highlighted important considerations regarding the operation of his commercial air transport aircraft under a Procedural Service in Class G airspace.

PART C: ASSESSMENT OF CAUSE AND RISK

Contributory Factors:

	2019062 - Barriers		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Situational Awareness and Action		
1		• Any other event	Alternative aircraft routing
	Flight Elements		
	• Situational Awareness of the Conflicting Aircraft and Action		
2	Human Factors	• Interpretation of Automation or Flight Deck Information	Pilot was concerned by the proximity of the other aircraft

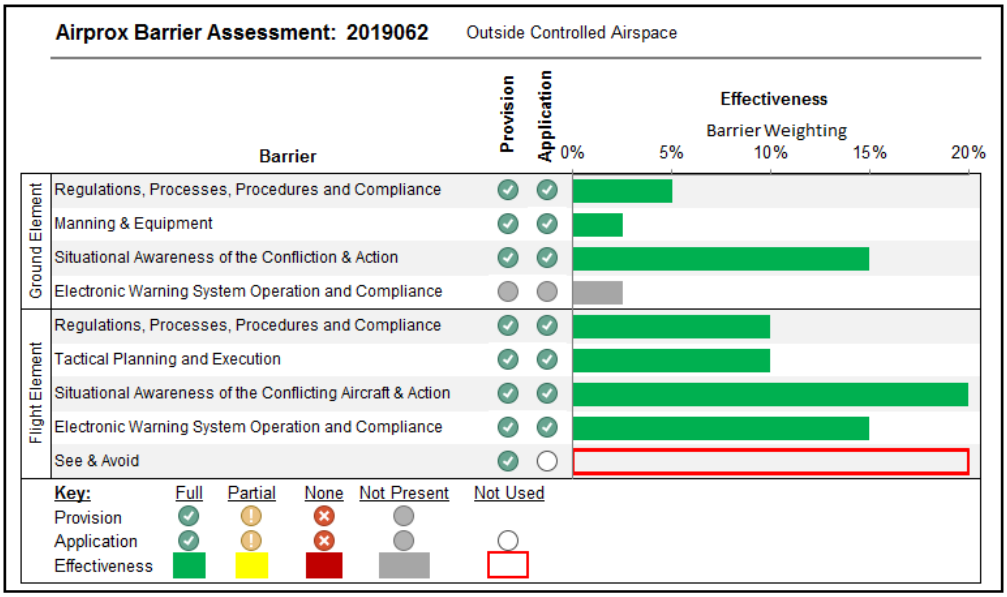
Degree of Risk: E.

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:

Flight Elements:

See and Avoid were assessed as **not used** because the aircraft were too far apart for the pilots to effectively see the other aircraft.



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