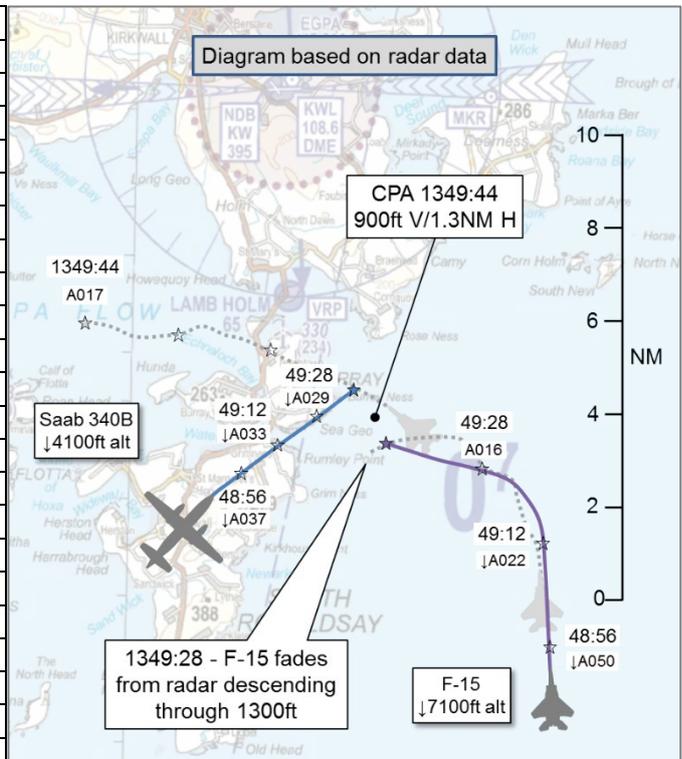


**AIRPROX REPORT No 2020030**

Date: 06 Mar 2020 Time: 1350Z Position: 5851N 00250W Location: Isle of South Ronaldsay

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Saab 340B	F-15
Operator	CAT	Foreign Mil
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	IFR	VFR
Service	Procedural	None
Provider	Kirkwall	
Altitude/FL	2500ft	1600ft
Transponder	A, C, S	A, C
Reported		
Colours	White/Black	NR
Lighting	NR	NR
Conditions	VMC	NR
Visibility	50Km	NR
Altitude/FL	3000ft	NR
Altimeter	NR	NR
Heading	NR	NR </td
Speed	NR	NR
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	NR	NR
Recorded	900ft V/1.3NM H	



**THE SAAB 340B PILOT** reports that they were on a visual approach to Kirkwall airport in good VMC with about 50km visibility. Passing 3000ft, the First Officer reported seeing an aircraft having passed from right-to-left below. It was very quickly apparent that it was a jet, at high nose up and slow for a jet. They then received a TCAS 'Traffic', so the crew was looking to identify where else they could be coming from. Two aircraft were spotted on TCAS and were then seen and identified very close to their aircraft. There was no Air Traffic Control involvement and afterwards on the ground they confirmed that, after they had reported the traffic, ATC could not find the jets on their 'flight radar'.<sup>1</sup> It all happened so suddenly and it was a bit unnerving to see a fast-jet, high nose up and, they opined, obviously manoeuvring to avoid them as well. It was also over quickly and so they continued their approach to Kirkwall visually, a bit shaken but not having had an RA. They were quite glad to get on the ground.

The pilot did not make an assessment of the risk of collision.

**THE F-15 PILOT** reports that, as they recalled, the flight was made aware of the Saab by ATC. One of the F-15s had radar contact on the traffic and the formation was manoeuvring to avoid the other aircraft. None of the formation members recalled being particularly close to another aircraft.

The pilot did not make an assessment of the risk of collision.

**THE KIRKWALL CONTROLLER** reports that the military aircraft were not on the Kirkwall frequency and that they had no information on them. The Saab 340B pilot reported visual with military traffic, the controller acknowledged the report and informed the Saab pilot that they were not aware of any military traffic in the area. The Saab pilot did not report a TCAS TA or RA, therefore there was no regulatory requirement for Kirkwall Air Traffic to take reporting action because there had been no infringement.

<sup>1</sup> UKAB note: Kirkwall ATC is not equipped with a radar.

The controller did not make an assessment of the severity of the incident.

## Factual Background

The weather at Kirkwall Airport was recorded as follows:

METAR EGPA 061350Z 21013KT 9999 FEW015 06/03 Q1002=

## Analysis and Investigation

### UKAB Secretariat

The NATS radar replay was reviewed from 1345 and showed a 4-aircraft formation of F-15s on a northerly heading descending into low-level approximately 7NM to the east of the Isle of South Ronaldsay. The aircraft then turned onto a westerly heading at around 1348 and continued their descent. During this time, radar track on one of the aircraft was lost.

At 1348:56, the lead F-15 passed through the 12 o'clock of the Saab 340 at a range of 2.9NM and with a vertical separation of 1700ft (Figure 1). At 1349:20 the Saab 340 pilot announced on the Kirkwall frequency that 2 aircraft had just passed them and that they had them both in sight – this was the lead pair of aircraft (the second aircraft was not painting on radar); the trail pair of aircraft was still to the east of the Saab 340 at this time (Figure 2).

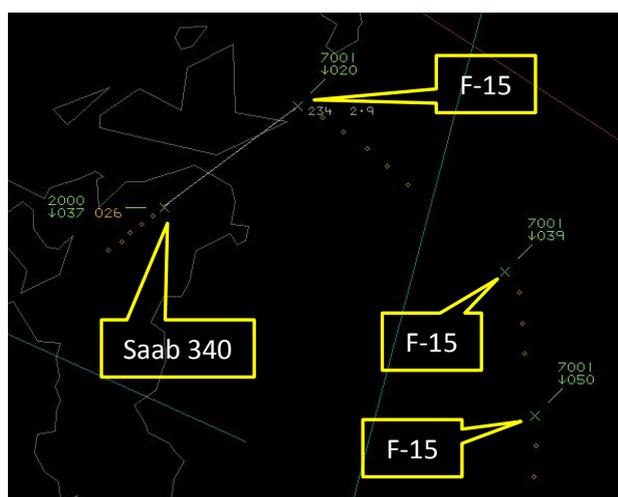


Figure 1 – 1348:56

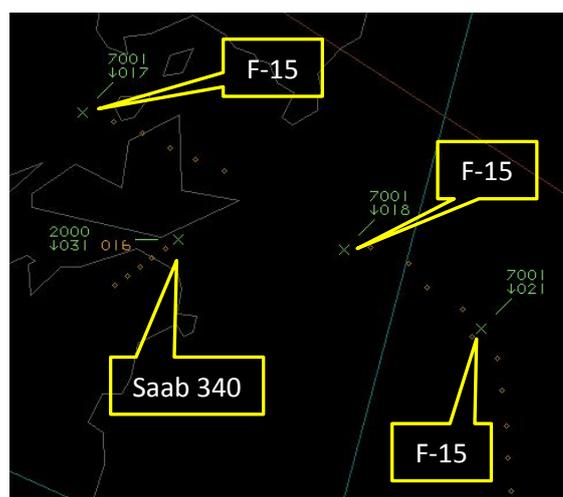


Figure 2 – 1349:20

The lead pair of F-15s continued in a north-westerly direction while the trail pair could be seen turning behind the Saab 340. The F-15 operating authority confirmed that this turn was a deliberate manoeuvre to route behind the Saab following aircraft radar contact being achieved. At 1349:28, the lead aircraft of the trail pair faded from radar, but the aircraft was judged to no longer be a factor to the Saab 340; CPA occurred between the final aircraft in the formation and the Saab 340 at 1349:44 and is measured at 1.3NM and 900ft (Figure 3).



Figure 3 – 1349:44 (CPA)

The Saab 340B and F-15 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.<sup>2</sup> If the incident geometry is considered as converging then the Saab 340B pilot was required to give way to the F-15.<sup>3</sup>

## Comments

### USAFE

This report has been brought to the attention of the Commanding Officer of the 48th Fighter Wing and they are keen that any lessons identified are shared with all their aviators. Whilst in-depth communication with the F-15 crews has been hampered by their deployment overseas since the Airprox, the Wing's Flight Safety Office has spoken with them and confirms the following: The lead elements of the 4-ship trail were made aware of the Saab 340 by ATC (understood to have been Swanwick(Mil)) and they assessed there to be no risk of collision; as such, they continued on their planned route. The latter elements (2 x F-15) gained a solid radar contact on the Saab and elected to manoeuvre in order to ensure a safe distance from it, this they did by turning to route safely behind the Saab. At no time did any of the F-15 crews consider themselves to be in an unsafe proximity to the Saab; however, as always, they are keen to cooperate with the UKAB in order to ensure that lessons can be learned and applied.

## Summary

An Airprox was reported when a Saab 340B and an F-15 flew into proximity near the Isle of South Ronaldsay at 1350Z on Friday 6<sup>th</sup> March 2020. The Saab 340B pilot was operating under IFR in VMC and was in receipt of a Procedural Service from Kirkwall. The F-15 pilot was operating under VFR in VMC and was not in receipt of an ATS.

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

Information available consisted of reports from the pilots of both aircraft, radar photographs/video recordings, reports 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.

<sup>2</sup> SERA.3205 Proximity.

<sup>3</sup> SERA.3210 Right-of-way (c)(2) Converging.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board first considered the actions of the Saab pilot and Kirkwall controller and heard from a civil airline pilot member that it is rare to encounter other aircraft in the area in which the Airprox occurred. Furthermore, the Kirkwall controller had had no information regarding the presence of the F-15s (CF1) and so could not pass Traffic Information to the Saab crew. Members felt that this had probably led to a degree of surprise on the part of the Saab crew and that, once they had seen the contact on their TCAS and received an aural warning (CF4), they had sighted the F-15s and become concerned by their proximity (CF5).

Turning to the actions of the F-15 pilot, the Board was informed by the Military Low Flying advisor that there is a specific entry in the UK Military Low Flying Handbook (UKMLFH) requiring pilots to contact Kirkwall when intending to overfly the Orkney Islands.<sup>4</sup> A discussion then followed as to whether or not the pilots had been unaware of that requirement or if they had simply forgotten to call Kirkwall during a busy phase of flight as they had been descending into low level. The Board was reminded that a very similar Airprox occurred in the same area in April 2019 [Airprox 2019085], again between a formation of F-15s flying in the Military Low Flying System and a Saab inbound to Kirkwall, and that on that occasion the Kirkwall controller had also not received any information regarding the presence of the fast jets. Ultimately, members agreed that, on the balance of probabilities, the F-15 pilots had not been aware of the requirement within the UKMLFH (CF3) and that they had therefore not complied with this requirement (CF2).

In considering the risk of this encounter, the Board noted that the Saab pilot had been quite concerned by the presence of the fast jets but that the lead pair had been passed Traffic Information on the Saab and had considered it to not have been a factor, and that the trail pair had gained radar contact on the Saab and had adjusted their routing to pass behind it. With a CPA of 1.3NM horizontal and 900ft vertical separation, members considered that normal safety standards and parameters for flight in Class G airspace had pertained and assigned a Risk Category E to this event.

## **PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK**

### Contributory Factors:

	2020030		
CF	Factor	Description	Amplification
	<b>Ground Elements</b>		
	<b>• Situational Awareness and Action</b>		
1	Contextual	• Situational Awareness and Sensory Events	The controller had only generic, late or no Situational Awareness
	<b>Flight Elements</b>		
	<b>• Regulations, Processes, Procedures and Compliance</b>		
2	Human Factors	• Flight Operations Documentation and Publications	Regulations and/or procedures not complied with
	<b>• Tactical Planning and Execution</b>		
3	Human Factors	• Flight Planning and Preparation	
	<b>• Electronic Warning System Operation and Compliance</b>		
4	Contextual	• ACAS/TCAS TA	
	<b>• See and Avoid</b>		
5	Human Factors	• Perception of Visual Information	Pilot was concerned by the proximity of the other aircraft

<sup>4</sup> UKMLFH, Section 2, LFA 14 Paragraph 9.

Degree of Risk: E

Safety Barrier Assessment<sup>5</sup>

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 **ineffective** because the Kirkwall controller had no awareness of the presence of the F-15s and therefore could not alert the Saab 340B pilot to the same.

**Flight Elements:**

**Regulations, Processes, Procedures and Compliance** were assessed as **partially effective** because the F-15 formation did not call Kirkwall, as required by the UK Military Low Flying Handbook , when operating in the or around the Orkney Islands.

**Tactical Planning and Execution** was assessed as **partially effective** because the F-15 pilots were unaware of the requirement in the UK Military Low Flying Handbook to call Kirkwall when flying in the vicinity of the Orkney Islands.

Airprox Barrier Assessment: 2020030		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 Confliction & 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	✓	✓					
<b>Key:</b>								
	Full	Partial	None	Not Present/Not Assessable	Not Used			
Provision	✓	!	✗	○				
Application	✓	!	✗	○	○			
Effectiveness								

<sup>5</sup> The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).