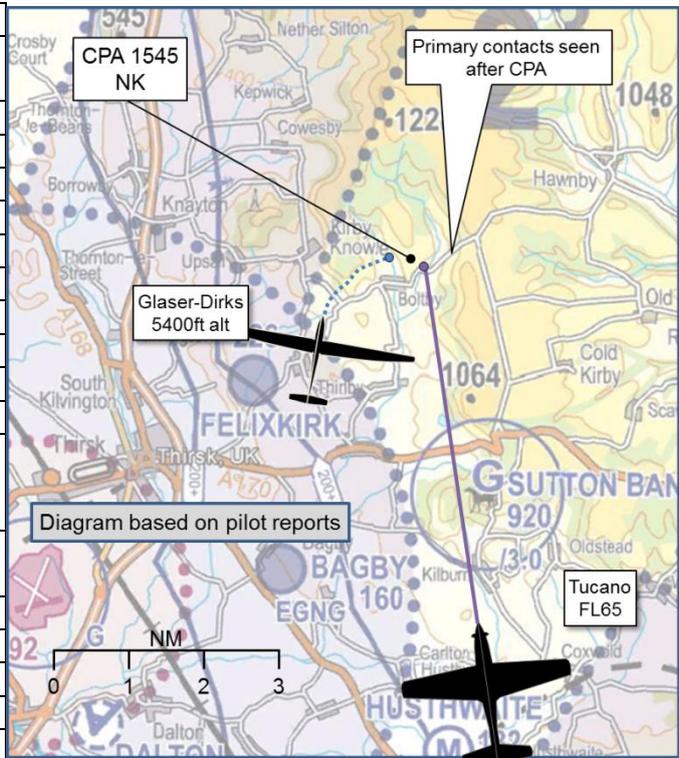


**AIRPROX REPORT No 2015013**

Date: 20 Feb 2015 Time: 1545Z Position: 5414N 0121W Location: 2nm north of Thirsk

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

Recorded	Aircraft 1	Aircraft 2
Aircraft	Glaser-Dirks DG303	Tucano
Operator	Civ Club	HQ Air (Trg)
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	None	Traffic
Altitude/FL	5400ft	FL65
ACAS/TAS	FLARM	TCAS I
Alert	Nil	Nil
Transponder	Not fitted	A, C, S
<b>Reported</b>		
Colour	Blue/white with dayglo orange marks on fin	Black. Yellow wing flashes.
Lighting	NK	HISL, nav lights, landing lights.
Conditions	VMC	VMC
Visibility	50km	999km
Altitude/FL	5400ft	FL65
Altimeter	QNH (1001hPa)	QNH (1013hPa)
Speed	60kts	240kts
<b>Separation</b>		
Reported	300ft V 50m H	300ft V Nil H
Recorded	NK	



**THE GLIDER PILOT** reports manoeuvring to the north of Thirsk in gentle turns. He heard the engine noise from the Tucano and then saw the aircraft in his 4 to 5 o'clock position. He took no avoiding action as the Tucano passed over him by 300ft.

He assessed the risk of collision as 'Medium'.

**THE TUCANO PILOT** reports transiting to Durham Tees Valley Airport at FL65 for a practice diversion. He was in receipt of a reduced Traffic Service from Linton Departures due to poor radar performance. The rear-cockpit instructor spotted the glider at a range of 300m approximately 300ft below. No avoiding action was taken.

He assessed the risk of collision as 'Low'.

**THE LINTON DEPARTURES CONTROLLER** reports giving the Tucano a reduced Traffic Service at FL60. During a handover conversation to Durham Tees Radar, the Tucano reported passing the glider 300ft below. He informed the pilot that nothing was seen on radar.

He perceived the severity of the incident as 'Low'.

## Factual Background

The weather at Linton on Ouse was reported as:

EGXU 201550Z 27004KT 9999 SCT030 SCT200 06/M00 Q1001 BLU NOSIG

## Analysis and Investigation

### Military ATM

A portion of the transcript between Linton Departures, Durham ATC and the Tucano pilot is below:

To	From	Speech Transcription	Time
Tucano	Deps	[Tucano c/s], reduced traffic information from all around due to limited surveillance performance	1544:35
Tucano	Deps	[Tucano c/s], traffic right, one-o'clock, 9 miles crossing right left ahead, fast moving, 1300ft above descending, inbound Leeming	1546:41
Deps	Tucano	Looking, [Tucano c/s]	1546:50
Durham Radar	Deps	Linton Departures, handover Traffic Service inbound for ILS Lima...Linton 44	1547:35
Deps	Durham Radar	Pass your message	1547:41
Durham Radar	Deps	Topcliffe East	1547:42
Durham Radar	Deps	Topcliffe North East 2 miles, tracking North squawking 4504	1547:50
Deps	Durham Radar	4504 identified	1547:54
Durham Radar	Deps	What squawk would you like?	1547:59
Deps	Durham Radar	Put him on a squawk of 7067 and turn him right on to a heading of 025 degrees and contact Durham 118.850	1548:00
Deps	Tucano	Departures, [Tucano c/s] we've just gone over the top of a glider with 300ft separation	1548:01
Durham Radar	Deps	025 was that?	1548:10
Deps	Durham Radar	That's affirm	1548:11
Tucano	Deps	[Tucano c/s], that traffic not sighted due to limited surveillance performance	1548:15
Deps	Tucano	Copied, just an info call, [Tucano c/s],	1548:21
Tucano	Deps	[Tucano c/s], under instruction from Durham Tees turn right heading 025	1548:23
Deps	Tucano	Right 025, [Tucano c/s]	1548:29

The combined radars of Linton, Durham and a selection used by the Radar Analysis Cell were not able to detect the glider. The Linton controller had applied a Traffic Service to the Tucano and had called Traffic Information on non-Airprox traffic. With only one aircraft on frequency, Linton Deps had a low workload and, during the handover to Durham, neither controller could detect a

conflicting return. Linton had limited the radar service due to 'limited surveillance performance' 90 seconds after agreeing a Traffic Service. The unit commented that the radar picture was unworkable due to weather break-through, and that a filter had been applied to provide a more manageable picture; the radar filter may have filtered out the glider primary return, but no other radar appears to have detected the glider.

The glider pilot had the Tucano approaching from the rear, and this would have restricted his lookout. Prior to the estimated CPA, the glider pilot had been conducting a continuous series of gentle turns to maintain the 'weak mountain wave'. The constant manoeuvring would have aided a 360 lookout but would not have provided dedicated scan time to any one piece of sky. The black Tucano, with small target characteristics, was travelling at 0.38 Mach. The Tucano crew were on a basic training flight in VMC, and were on a steady heading in the moments preceding the Airprox. The pilot reported that the glider was a 'difficult spot' against the backdrop of the white clouds.

The barriers to an Airprox of this incident would be radar-derived Traffic Information, ACAS and 'see-and-avoid'. Traffic Information was not available from Linton because the glider did not paint on radar. The Linton controller had to filter the radar display to produce a workable picture, but this may increase the possibility that a non-transponding aircraft, with the target characteristics of a glider, may not be detected. TCAS was fitted to the Tucano but the glider was not transponding; FLARM was fitted to the glider but not to the Tucano. There was a late spot by both crews, demonstrating the limitations of visual scan given the met conditions and aircraft geometry. Any measures to make the glider more conspicuous e.g. radar reflectors, paint scheme, TCAS, an ATC service or a transponder would assist in strengthening the barriers to MAC; as would fitting FLARM to Tucanos.

### **UKAB Secretariat**

Both pilots had equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision.<sup>1</sup> When converging, power-driven heavier-than-air aircraft shall give way to sailplanes.<sup>2</sup>

## **Comments**

### **HQ Air Command**

This incident highlights the fact that even if both aircraft have an ACAS/TAS fitted, unless the systems are compatible, they will not see each other. Together with the limited radar performance at the time, both aircraft were reliant on the final barrier of 'see and avoid'. The geometry would suggest the Tucano as more likely to see the glider first; however, the visual conspicuity of the glider led to a late spot by the Tucano pilot. The fact the glider pilot heard the Tucano before he saw it also indicates a late spot by the glider pilot.

The ASIMs report states that the Tucano pilot spoke with the glider pilot later that evening and the glider pilot had stated that he was not talking to ATC because he was above the [Linton] MATZ and clear of cloud. Although not a mandatory requirement, a courtesy call to Linton ATC could have added to the situational awareness of all concerned, and could have created an additional barrier to prevent this incident.

### **BGA**

The Vale of York is a particularly busy area, and it is sometimes not well understood that gliders will operate up to FL195 or higher when conditions and regulations permit. In this case good lookout by both crews was effective.

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<sup>1</sup> SERA 3205 (Proximity)

<sup>2</sup> SERA 3210 (Right of way)

## Summary

An Airprox was reported when a Glaser-Dirks DG303 glider and a Tucano flew into proximity on Friday 20<sup>th</sup> February at 1545. The glider was operating under VFR in VMC with no ATC service. The Tucano was operating IFR in VMC and was in receipt of a reduced Traffic Service from Linton.

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

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings and reports from the air traffic controllers involved.

The Board first considered the actions of the Glaser-Dirks pilot who was first alerted to the proximity of the Tucano by hearing the noise of its engine. A glider member commented that the glider pilot was probably working hard to maintain lift, and this would have focused his attention ahead probably to the detriment of his ability to see the relatively small and fast-moving Tucano as it approached from behind his wing-line. He commented that it would have been practically silent in the cockpit at FL65, and hence this was why his first indication had probably been the noise of the Tucano's engine. By the time the glider pilot acquired the Tucano visually, there was probably little he could do to influence events and hence why he took no avoiding action as he saw the aircraft pass above him. The Board noted that the glider pilot had elected not to call ATC because he was well above and to the east of the Topcliffe MATZ. Some members questioned the wisdom of this, but it was pointed out that the north of Thirsk is a very busy gliding area, and if every glider were to call ATC then this would soon swamp the frequency and serve as a distraction in itself to ATC. Furthermore, the glider member opined that glider pilots were often reluctant to call ATC because they very often required the passage of a lot of extraneous information when all that the glider pilot was trying to do was give them situational awareness about his activities and then listen out.

Turning to the Tucano crew, the Board noted that the rear-seat instructor had seen the glider at relatively close range and also took no avoiding action because the glider was below him. They noted that the Tucano pilot did, however, waggle his wings to indicate to the glider pilot that he was aware of the proximity of the glider. The Board also noted that the Tucano pilot was in receipt of a reduced Traffic service from Linton due to poor radar performance caused by weather clutter. Although they recognised that this would have limited the detection of the glider anyway, it was pointed out that the use of radar reflectors in gliders to enhance their conspicuity had been discussed on many previous occasions by the Board, with little enthusiasm from the gliding community. Not wishing to make a further formal safety recommendation to this effect, the glider member did undertake to see whether there was any mileage in re-addressing this issue.

The Board then discussed the ACAS systems involved, in particular TAS and FLARM. They noted that neither aircraft had any alert from the other because the two systems they employed were not compatible. They recognised that, had it been fitted, P-FLARM might have alerted the glider pilot to the proximity of the Tucano due to the ability of some models to use SSR Mode C; however, the Tucano pilot would still not have been aware of the glider due to the fact that P-FLARM was not fitted to the Tucano. In this respect, a military member stated that the RAF were considering installing P-FLARM in the Tucano fleet, but that this had yet to reach fruition.

In the end, the Board considered that this incident came down to a simple conflict of flight-paths in Class G airspace that had been caused by a late sighting by both pilots; notwithstanding, they assessed the degree of risk as Category C – there had been no risk of collision.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A late sighting by both pilots.

Degree of Risk: C.