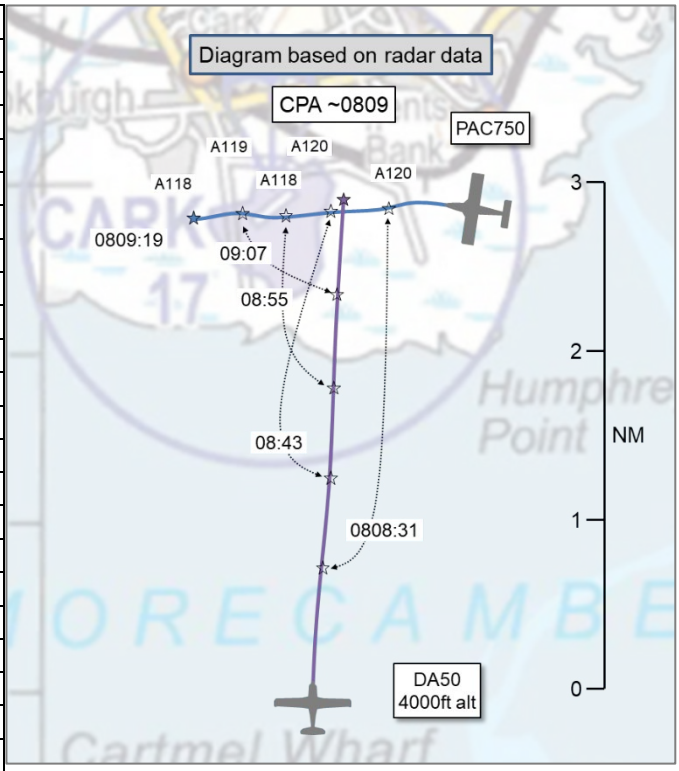
AIRPROX REPORT No 2023203

Date: 02 Sep 2023 Time: ~0809Z Position: 5410N 00257W Location: Cark parachuting site

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Parachutists	DA50
Operator	Civ Para	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	N/A	VFR
Service	N/A	Listening Out
Provider	N/A	Blackpool
Altitude/FL	NR	4000ft
Transponder	N/A	A, C, S+
Reported		
Colours	NR	Silver
Lighting	N/A	Nav, strobes
Conditions	NR	VMC
Visibility	NR	>10km
Altitude/FL	8000ft	4000ft
Altimeter	QFE (NK hPa)	QNH (NK hPa)
Heading	N/A	360°
Speed	N/A	150kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	None
Separation at CPA		
Reported	'directly below'	Not seen
Recorded	NR	



THE PARADROP AIRCRAFT PILOT reports dropping freefall parachutists from 12000ft. The 'clear to drop' was given by ground control 1min before drop. When the skydivers were in freefall an aircraft was seen approaching the Cark overhead. A tandem instructor, with their student attached to the front harness, then saw the aircraft as it flew directly under them. The tandem instructor saw the aircraft below when at 8000ft. They deployed the canopy at 6000ft and then lost sight of it whilst carrying out the canopy checks. The camera flyer continued for several seconds, unaware of the aircraft.

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

THE DA50 PILOT reports they had flown this route hundreds of times and were fully aware of Cark and Cockerham [parachuting sites]. They climbed to 4000ft for minimum safe altitude over The Lake District. When about 8 miles south of Cark the CAS warning system ECU fail light illuminated. They promptly secured the aircraft emergency checklist and found the procedure for ECU fail whilst maintaining height and heading. It took about 60-90sec to find and read the chapter ENGINE ECU FAIL. They followed the checklist and approximately 5sec after the actions [were completed] the ECU light went out. They then gave their attention back to navigation and realised that they had flown through the Cark 'zone'. They did not see another aircraft in the vicinity nor did the aircraft TAS alert. They felt the error was due to distraction from the ECU fail warning, the time to resolve the issue and the location at the time of the failure warning.

Factual Background

The weather at Blackpool was recorded as follows:

```
METAR EGNH 020820Z 12007KT 7000 NSC 17/14 Q1022=
METAR EGNH 020750Z 12007KT 7000 NSC 16/14 Q1021=
```

Analysis and Investigation

UKAB Secretariat

Cark is referenced in the UK AIP ENR 5.5 as a parachute jumping site which, on the date of the Airprox, was stated as follows:

Designation Lateral limits	Vertical Limits	Operator/User Tel No	Remarks Activity times
CARK PARACHUTE SITE, CUMBRIA A circle, 1.5 NM radius, centred at 540946N 0025737W	Upper limit: FL145 Lower limit: SFC	Phone: 015395-58672. London Control (Swanwick) 01489-612420. Scottish Control (Prestwick) 01294-655300.	Activity notified on the day to Scottish Control (Prestwick) and London Control (Swanwick). Alternative contact: 129.905 MHz. Hours: Normally during daylight hours Sat, Sun & PH and weekdays by arrangement.

The circle around parachuting sites on CAA 1:500,000 scale VFR charts depicts the 'lateral limits' of a parachute jumping site. Despite common use of the term 'Drop Zone' or 'D/Z', there is no zone or controlled or regulated airspace associated with a civilian parachute jumping site, other than airspace that may already exist in the vicinity of the site and with which its notified lateral or vertical limits overlap. The ANO 2016 Article 23 (Exceptions from application of provisions of the Order for certain classes of aircraft) states that 'any parachute including a parascending parachute' is exempt from the provisions of the ANO 2016, apart from the following articles:

PART 1 Interpretation and categorisation
- CHAPTER 1 Interpretative matter
  - 2 (Interpretation)

PART 5 Operations
- CHAPTER 3 Specialised activities
  - 91 (Dropping articles for purposes of agriculture etc. and grant of aerial application certificates)
- CHAPTER 4 Other aerial activities
  - 92 (Mooring, tethering, towing, use of cables, etc.)
  - 94 (Small unmanned aircraft)
  - 95 (Small unmanned surveillance aircraft)

PART 10 Prohibited behaviour, directives, rules, powers and penalties
- CHAPTER 1 Prohibited behaviour
  - 239 (Power to prohibit or restrict flying)
  - 241 (Endangering safety of any person or property)
- CHAPTER 4 Powers and penalties
  - 257 (CAA's power to prevent aircraft flying) (apart from 257(2)(a))
  - 265 (Offences and penalties) [in relation to the above articles]

The requirement to comply with the Rules of the Air is stated at Article 249, an article from which a parachutist is exempt, and as such a person under a parachute is not required to comply with the Rules of the Air 2015. The ANO 2016 Article 241 (Endangering safety of any person or property) specifies that 'A person must not recklessly or negligently cause or permit an aircraft to endanger any person or property'. Article 90 (Dropping of persons and grant of parachuting permissions) specifies that 'A person must not drop, be dropped or be permitted to drop from an aircraft in flight so as to endanger persons or property'.

Summary

An Airprox was reported when tandem parachutists and a DA50 came into proximity at Cark at about 0809Z on Saturday 2nd September 2023. The DA50 pilot was operating under VFR in VMC, not in receipt of a FIS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the PAC750 paradropping and DA50 pilots and radar photographs/video recordings. 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 DA50 pilot's preparation and planning and noted that they had planned a direct route and that this routeing choice had taken them into proximity with Cark parachuting site (**CF4**). Members wondered whether the DA50 pilot had been aware that Cark parachuting site had been active and how they had intended to avoid parachutists. They had not obtained a service from London Information (who could have advised on activity at Cark parachuting site) (**CF5**) and the distraction of an aircraft system failure (**CF9**) had prevented them communicating with Cark parachuting site and the possibility of seeing the parachutists or paradrop aircraft (**CF10**). The Board felt that the DA50 pilot had had only generic situational awareness of the status of the parachuting site (**CF7**) and commented that by simply planning to route around Cark parachuting site, with which the DA50 pilot had been fully aware having flown the route hundreds of times, they could have avoided this Airprox entirely (**CF6**). The Board also discussed the actions of the parachuting site personnel and noted that, although it would be a simple matter for a pilot to avoid a parachuting site, that did not mean that the parachuting site activity was entitled to any kind of priority over other aviation activity. Specifically, the 'DZ controller', 'drop pilot' and 'jumpmaster' were responsible for ensuring that parachutists could be despatched whilst maintaining compliance with Article 90 of the ANO. The British Parachute Association (BPA) Operations Manual states that a DZ Controller's responsibilities include:

> 'Maintain a close lookout for aircraft, including gliders, and to suspend skydiving as soon as any interference with the safe conduct of skydiving becomes apparent.'[1]

And that Jumpmasters:

> '… must be satisfied that aircraft movement on the ground, or in the air, within or close to the PLA/DZ[2] will not endanger descending skydivers before dispatching [sic] any part of the lift.'[3]

In the event, the 'drop pilot' had received clearance to drop from the 'DZ controller' 1min before drop, when the DA50 had been about 3NM south of Cark at 4000ft and maintaining a northerly track. The Board surmised that the parachuting site personnel had not discontinued the drop (**CF1**, **CF3**) because they had not had sufficient situational awareness of the approaching DA50 (**CF2**, **CF7**). Members acknowledged that a visual sighting of the DA50 from the ground or air would have been unlikely at that range and altitude, and therefore wondered what other mitigations might be employed by this and other parachuting sites to detect approaching aircraft. In the course of this discussion, the Board expressed its opinion that the use of a flight tracking 'app' could provide vital situational awareness in this regard.

Turning to the parachutists, the tandem jump instructor was reported to have seen the DA50 when they were at 8000ft and had understandably been concerned by its proximity, as had the 'drop pilot' (**CF11**). The tandem instructor was reported as having subsequently deployed the canopy at 6000ft, and in this regard the Board agreed by a majority that risk of collision had been averted, Risk C. Two members felt that the latent risk of collision, i.e. the risk of collision had the circumstances been slightly different, had been significant and merited a risk rating of Risk B. The Board felt that whilst the actual risk of this Airprox event was best described as Risk C, a significant risk of collision could exist and was exacerbated by the inherent nature of parachuting activities, namely that:

1. It is unlikely that an approaching aircraft can be detected by a DZ controller in time simply by looking out.
2. No EC mitigation exists between aircraft and parachutists (**CF8**).
3. The pilot of an approaching aircraft is unlikely to see descending parachutists due to the cabin design of most GA aircraft and the relative altitude of a parachutist above (**CF12**).
4. Pilots in Class G airspace are usually not in receipt of a surveillance-based FIS.

Basing an analysis of collision avoidance whilst airborne on the premise that mitigations to mid-air collision are provided by 3 factors: see-and-avoid, on-board EC (e.g. TAS, TCAS) and off-board EC (e.g. surveillance-based FIS, 'flight tracker') it is apparent that mitigations to collision between

[1] BPA Operations Manual Section 1 (Conduct And Control Of Skydiving (Sport Parachuting)) Part 4 (Ground Control Organisation) 4.3 (Dropping Zone (DZ) Control) paragraph 4.3.3 I, dated December 2019.
[2] Parachute Landing Area/Drop Zone.
[3] BPA Operations Manual Section 3 (Jumpmasters) Part 2 (Responsibility) paragraph 2.5, dated December 2019.

parachutists and GA aircraft are limited and that the most effective course of action is for pilots routeing nearby to pre-empt the likelihood of proximity by planning to route such that parachuting sites are afforded a wide berth. However, it is important to note that *all* parties share an *equal* responsibility not to endanger the other and, in the event of a GA pilot routeing into proximity, parachuting sites require a robust mitigation by detection of approaching aircraft by means significantly more effective than lookout, i.e. with on-board or off-board EC.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023203			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• ATM Regulatory Deviation	An event involving a deviation from an Air Traffic Management Regulation.	Regulations and/or procedures not fully complied with
	• Situational Awareness and Action			
2	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			
3	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
4	Human Factors	• Aircraft Navigation	An event involving navigation of the aircraft.	Flew through promulgated and active airspace, e.g. Glider Site
5	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
6	Human Factors	• Pre-flight briefing and flight preparation	An event involving incorrect, poor or insufficient pre-flight briefing	
	• Situational Awareness of the Conflicting Aircraft and Action			
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	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
	• See and Avoid			
9	Human Factors	• Distraction - Job Related	Events where flight crew are distracted for job related reasons	
10	Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
11	Human Factors	• Perception of Visual Information	~~Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement~~	Pilot was concerned by the proximity of the other aircraft
12	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other

Degree of Risk: C.

Safety Barrier Assessment[4]

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

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

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because 'clear to drop' was given by 'ground control' 1min before drop with an aircraft (the DA50) approaching on a conflicting track.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because 'ground control' either had no situational awareness on the DA50 or did not act on their situational awareness.

Flight Elements:

Tactical Planning and Execution was assessed as **ineffective** because the parachute drop was allowed to go ahead and the DA50 pilot did not plan to avoid Cark parachuting site and did not communicate with Cark 'ground control'.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the parachutists, para-drop pilot and 'ground control' likely had no situational awareness of the approaching DA50 and the DA50 pilot had only generic situational awareness of activity at Cark parachuting site.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the parachutists carried no EC devices or TAS.