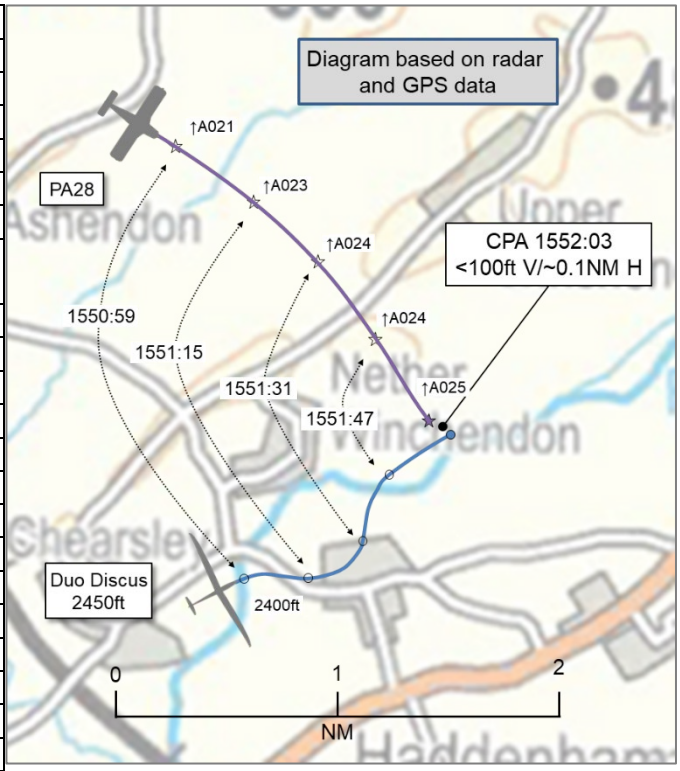
AIRPROX REPORT No 2022101

Date: 10 Jun 2022 Time: 1552Z Position: 5148N 00055W Location: 3NM SSE Westcott

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Duo Discus	PA28
Operator	Civ Gld	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Listening Out	Basic
Provider	Gransden Lodge	Farnborough LARS North
Altitude/FL	2450ft	2500ft
Transponder	Not fitted	A, C, S
Reported		
Colours	White	White, Red
Lighting	None	Strobe, Landing
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2300ft	2000ft
Altimeter	QFE (NK hPa)	QNH (NK hPa)
Heading	080°	NK
Speed	48kt	95kt
ACAS/TAS	FLARM	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	0ft V/5m H	Not Seen
Recorded	<100ft V/~0.1NM H	



THE DUO DISCUS PILOT reports that they were in straight and level flight with their [sustainer] engine deployed, climbing slowly, heading 080°. A powered aircraft appeared directly ahead crossing left-to-right. They immediately pushed the stick forward to dive underneath the other aircraft to avoid a collision. They were concerned that the engine would be hit.

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

THE PA28 PILOT reports that they were on a routine, local flight, to maintain currency, taking-off from and landing at [the same airfield]. The visibility was good and they have flown this route regularly. Apart from the gusting wind conditions, workload was minimal. They made visual contact with several other aircraft and maintained a listening brief on the [Farnborough] LARS frequency. However, the other aircraft involved in this Airprox was not seen. They made a routine return to [the airfield] and landed at approximately 1605.

THE FARNBOROUGH LARS NORTH CONTROLLER reports that they have no recollection of the event.

Factual Background

The weather at Benson was recorded as follows:

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METAR EGUB 101550Z AUTO 21015KT 9999 FEW047/// 21/10 Q1017
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Analysis and Investigation

Farnborough ATSU Investigation

Farnborough ATSU completed a safety investigation, the output of which is summarised below:

At time 1540, [the PA28 pilot] was provided a Basic Service by Farnborough LARS North, they were given London QNH of 1018hPa and a squawk of 5021. [The allocated] squawk appeared on the radar in the vicinity of Aylesbury. In a similar area, multiple other aircraft were operating at different altitude, speed and trajectory.

At 1550:41, [the PA28's radar return] merged with an opposite direction track of which the primary return had already passed [the PA28] right-to-left, the Mode C of this aircraft indicated 2900ft and [the PA28's] Mode C indicated 2200ft.

At 1551:50, a further intermittent primary contact could be seen in the vicinity of [the PA28], this contact shared no transponder height or type information and so altitude separation cannot be investigated.

No further aircraft were observed within the vicinity of [the PA28] at the time of the report.

Two aircraft came in the vicinity of [the PA28], one aircraft which passed 700ft above, and another aircraft, with no transponder (intermittent primary only return).

Figures 1 and 2 below are screenshots showing the PA28 merge with the primary return.

Figure 1 – 1551:50. Primary contact merged with [the PA28].

Figure 2 – 1552:00. [PA28] clear of contact.

It is believed that the aircraft that [the PA28] had an Airprox with was the intermittent primary contact.

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and the PA28 was detected and identified using Mode S information. A primary-only contact was observed in the vicinity of the PA28 which may have been the Duo Discus but this could not be verified. However, the Duo Discus pilot was able to supply the UKAB Secretariat with a GPS data file detailing their flight. The radar and GPS data have been combined to construct the diagram and determine the CPA which has been recorded as an approximation due to the use of differing information sources.

The Duo Discus and PA28 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 is considered as converging then the PA28 pilot was required to give way to the Duo Discus.[2] Self-Sustaining Motor Gliders and Self Launching Motor Gliders with retractable propeller/engine are powered Sailplanes.[3]

Comments

AOPA

If an ATC unit can offer a Traffic Service this should be utilised to assist in avoiding MAC, and if the pilot's requested service is declined then a FCS1522 form should be completed on landing. AOPA recommends all pilots make use of the CAA grant to fit appropriate EC and transponders, funding is available until March 2023, however, there is no common protocol for EC and so it should be remembered that not all EC is compatible. It is also recommended that pilots communicate with ATC enhancing everyone's situational awareness and giving pilots the ability to report an Airprox on the frequency in use. When flying straight and level it would be prudent to weave, changing the aircraft profile and if the other aircraft is obscured by a strut it may enable the pilot to see other aircraft. Also, fly with all lights on, which may assist other airspace users in sighting the aircraft.

BGA

Radio use in gliders is normally via a cockpit loudspeaker and gooseneck microphone. If an internal-combustion sustainer engine is fitted and running, cockpit noise precludes radio use without a

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3210 Right-of-way (c)(2) Converging.
[3] CAP804 part 1. Section 1 Part C, Appendix 2.

headset. Because sustainer engines are only used for an average of a few minutes per multi-hour flight, most pilots do not carry a headset, and instead sign-off from, or suspend, any ATS while the engine is running (as here).

The PA28 pilot is to be commended for flying with landing lights switched on, increasing its visual conspicuity to traffic ahead of it.

The Duo Discus pilot is to be commended for taking rapid, decisive action to avert a collision on sighting the PA28.

Summary

An Airprox was reported when a Duo Discus and a PA28 flew into proximity 3NM south-southeast Westcott at 1552Z on Friday 10th June 2022. Both pilots were operating under VFR in VMC, the PA28 pilot in receipt of a Basic Service from Farnborough LARS North and the Duo Discus pilot not in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS data files, 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 considered the actions of the Duo Discus pilot and a gliding pilot member commented that, when using a sustainer engine, it can be extremely noisy which can make communication very difficult, both between those on board and with ATC. As such, if a glider pilot is receipt of an ATS, glider pilots will usually discontinue the service during the operation of a sustainer engine. Members then discussed the EC equipment carried by the Duo Discus pilot and determined that this had been incompatible with, and therefore unable to detect, the transponder carried on the PA28 (**CF3**). Members noted that the Duo Discus pilot had made a number of turns in the moments leading up to the Airprox and agreed that the right-hand turn made immediately prior to CPA, and the subsequent lifting of the left wing, had probably obscured the PA28 from the pilot's view (**CF6**). Because the Duo Discus pilot had not received an EC alert, and there had been no other information available to them regarding the presence of the PA28, the Board agreed that they had not had any awareness of the PA28 prior to sighting it (**CF2**) and that the pilot had only become visual with the PA28 at a late stage, by which time the effectiveness of the avoiding action had been much reduced (**CF4**).

Next, the Board considered the actions of the PA28 pilot and members noted that, although they had been in receipt of an air traffic service, this had been a non-surveillance-based service which, because the pilot had not had any additional EC equipment, resulted in the pilot having no mechanism to build situational awareness of the Duo Discus' presence (**CF2**). The Board noted that the PA28 pilot had not become visual with the Duo Discus at any point (**CF5**) and a GA pilot member stated that the Duo Discus would have been on a constant relative bearing to the PA28, making it more difficult to see and that immediately prior to the Airprox it would have likely been obscured by the engine cowling (**CF6**). The Board wished to highlight to pilots that additional funding has been made available for electronic conspicuity devices through the CAA's Electronic Conspicuity Rebate Scheme, which has been extended until 31st March 2023.[4]

Finally, in assessing the risk of collision, the Board noted that neither pilot had had any prior situational awareness regarding the presence of the other. The PA28 pilot had not become visual with the Duo Discus and, although the Duo Discus pilot had become visual with the PA28, it had not been early enough to have enabled them to have taken any avoiding action to materially increase separation. Therefore, the Board concluded that providence had played a major part in events, that the separation

[4] https://www.caa.co.uk/general-aviation/aircraft-ownership-and-maintenance/electronic-conspicuity-devices/

that had existed had been fortuitous and the bare minimum, and that there had been a serious risk of collision (**CF7**). As such, the Board assigned a Risk Category A to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2022101			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• ANS Flight Information Provision	Provision of ANS flight information	The ATCO/FISO was not required to monitor the flight under a Basic Service
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
2	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			
3	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			
4	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
5	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
6	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
7	Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: A

Safety Barrier Assessment[5]

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 **not used** because, when providing a Basic Service, the controller is not required to monitor the flight.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither pilot had had any prior awareness of the presence of the other aircraft.

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

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment that had been carried by the Duo Discus pilot had been incompatible with, and therefore unable to detect, the transponder on the PA28.

See and Avoid were assessed as **ineffective** because the PA28 pilot had not become visual with the Duo Discus and, although the Duo Discus pilot had become visual with the PA28, it had been too late for them to take effective avoiding action.