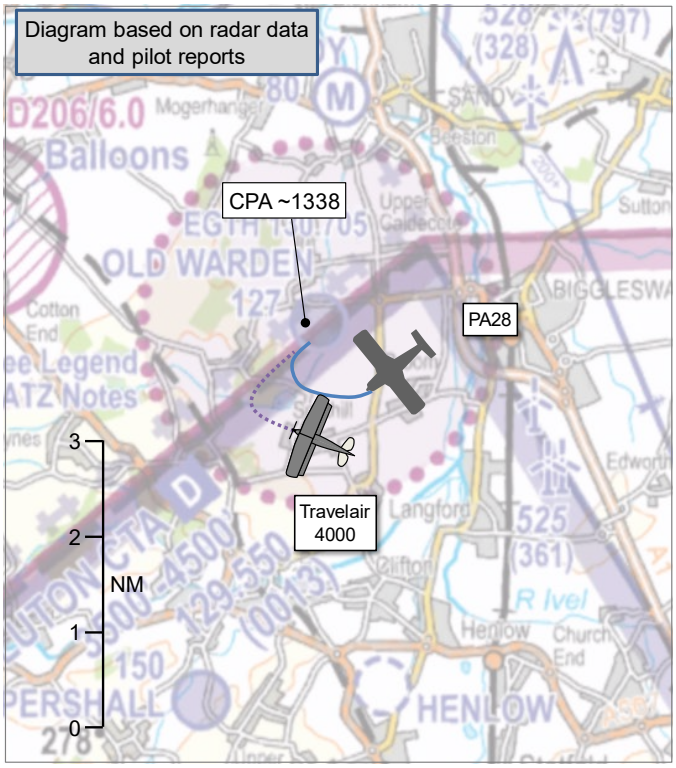
AIRPROX REPORT No 2023202

Date: 02 Sep 2023 Time: ~1338Z Position: 5205N 00019W Location: Old Warden

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	Travelair 4000
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	None	None
Altitude/FL	NK	NK
Transponder	A, C, S	Not fitted
Reported		
Colours	White	White/Red
Lighting	Nav, Anti-col, Landing	Nil
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	500ft	300ft
Altimeter	QFE	AGL
Heading	020°	020°
Speed	75kt	70kt
ACAS/TAS	PilotAware	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	200ft V/<0.1NM H	0ft V/200m H
Recorded	NK	



THE PA28 PILOT reports that they had departed Old Warden for a short local flight. On their return, they positioned for an overhead join for RW02RH at 1800ft AGL from the north. They made blind radio calls to Old Warden Traffic at 8NM, entering the zone, descending deadside, crosswind, downwind, base and final. Three other aircraft were also in the circuit on RT at the same time. After turning final, another aircraft transmitted 'Old Warden Traffic, two aircraft on short final!' The pilot saw no other aircraft in front of them, so they landed. As they were landing, they saw the shadow of another aircraft pass above them. After landing, the pilot of the other aircraft approached to ask why they had cut across them on final. They explained that they hadn't seen them or heard any RT calls from the other pilot. The other pilot said that they were non-radio and had flown a wide circuit for separation from the aircraft ahead of them. Although they [the PA28 pilot] had scanned final approach before turning, they did not see the other aircraft. They were primarily focussing on landing traffic ahead, so may not have given the lookout to long final enough attention. The pilot of the other aircraft stated that there was less than 200ft separation [they recalled] between them when they took avoiding action. Their aircraft is based at Old Warden, so they are very familiar with airfield operations.

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

THE TRAVELAIR 4000 PILOT reports that they were downwind for RW02 at Old Warden, non-radio, with a Tiger Moth ahead. They saw the PA28 joining via the deadside, apparently positioning to follow them downwind. The Tiger Moth flew a bigger than standard circuit, and thus they had to extend the downwind leg accordingly. As they turned base, the PA28 was downwind apparently following. On final their attention was focused on the Tiger Moth, which was occupying the runway. At about 300ft AGL, the PA28 appeared from behind their upper wing, cutting an estimated 200m in front. They overshot, and landed following an uneventful circuit. Following landing, they asked the PA28 pilot if they were aware of cutting them up, and how close they were. It transpired that the other pilot had been oblivious to their presence until they overshot above the PA28. Thus they had failed to see the Travelair 4000 at

any time when joining or in the circuit. The other pilot claimed they made 'all the right calls', but evidently didn't look for other traffic, as they had ample chance to see the Travelair 4000. With their own extension downwind, the PA28 pilot obviously flew a more standard pattern, ending up in front of their aircraft, descending ahead. With their attention on the Tiger Moth, the belief the PA28 pilot was following them and the upper wing (of their biplane) obscuring the PA28, they didn't see the other aircraft until late. Nevertheless, they noted that they could not see any flight path that could have been taken where the wing would have hidden the PA28 right until a collision occurred, hence their classification of risk as low. They accept that being non-radio compounded things, but the Old Warden flight guide entries specifically warn of non-radio aircraft, and radios do fail. Thus, they opined that reliance on RT alone for SA in the circuit is inadequate, lookout is essential. The incident was observed from the ground by the support crew of a glider preparing to launch, and they said the PA28 pilot simply flew a standard base to final in front of the Travelair 4000. By their own admission, the other pilot didn't at any point see the Travelair 4000 throughout any phase of the join, or subsequent circuit.

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

Factual Background

The weather at Luton was recorded as follows:

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METAR EGGW 021320Z AUTO 07008KT 030V120 9999 SCT028 22/15 Q1022=
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The following airfield information was found on the Old Warden website:

Airfield Activities:

The majority of the time the airfield operates 'unmanned' however, it is monitored and can be quite busy with the following activities regularly taking place:

- Model aircraft flying
- Vintage & Non-radio aircraft movements, practice displays, aerobatics, formation flights, test flights, etc.
- Visitor aircraft and Based aircraft movements
- Airfield maintenance

The airfield is only licensed and the radio (A/G or AFISO) manned during Event days, approx. 20 days per year. These are primarily airshows days (approx. 15 days per year between May and October) and Fly-ins.

Arrival Information:

All visiting Aircraft must have received PPR confirmation by email.

We are permitted to accept international arrivals, providing you have submitted a GAR report to UK border force via: https://www.submit-general-aviation-report.service.gov.uk/welcome/index

Radio Frequency **130.705 Mhz**. When the ATZ is activated make appropriate calls to A/G, Information as required. At all other time when 'unmanned' make **blind calls to 'Old Warden Traffic'.**

Unless approved by the Air/Ground and/or AFISO Operator (when manned), all aircraft **must** complete a **standard overhead join at 1800 feet** above aerodrome level and a full visual circuit before landing, making blind transmissions as appropriate. This is essential to allow you to assess the wind conditions, look out for **other aircraft** in the circuit, to **allow model aircraft to land** safely and so you can look carefully for aircraft carrying out **Displays practices**, airfield maintenance activity etc.

Note: Most of the Collection aircraft operate non-radio. It is a condition of the use of Shuttleworth airfield that all aircraft must give way and stay well clear of any aircraft carrying out Display practices at the airfield.

Non-radio aircraft are permitted but must be extra vigilant especially when approaching the overhead as dynamic practice displays and aerobatics may be being performed in the overhead.

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. The PA28 could be identified on radar using Mode S data. The Travelair 4000 could not be positively identified, however, despite there being two primary-only contacts in the Old Warden area, as one aircraft clearly left the circuit to the west, it seemed likely that the Travelair 4000 was the aircraft positioned to the northeast of the airfield in Figure 1.

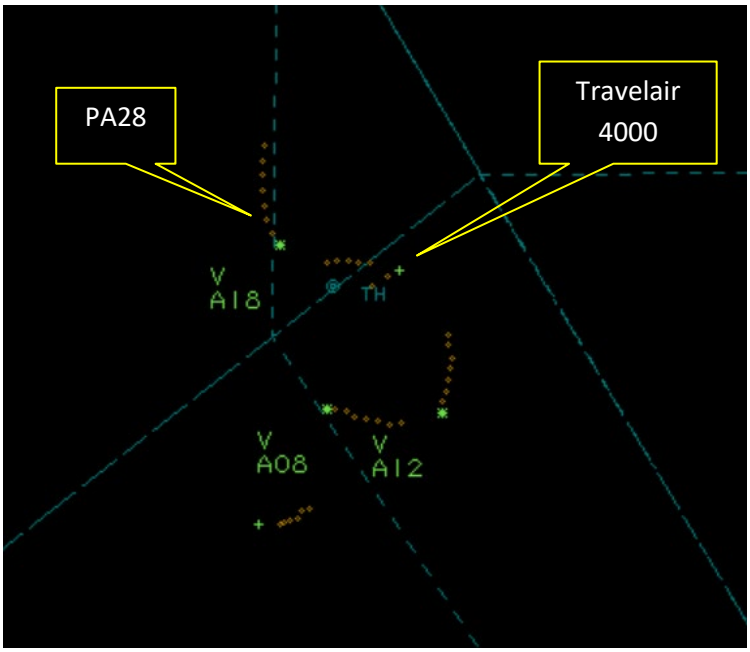


Figure 1 - 1335:04

This aircraft flew a downwind track, before disappearing from radar at 1336:36 (Figure 2). Meanwhile the PA28 could be seen positioning via an overhead join.

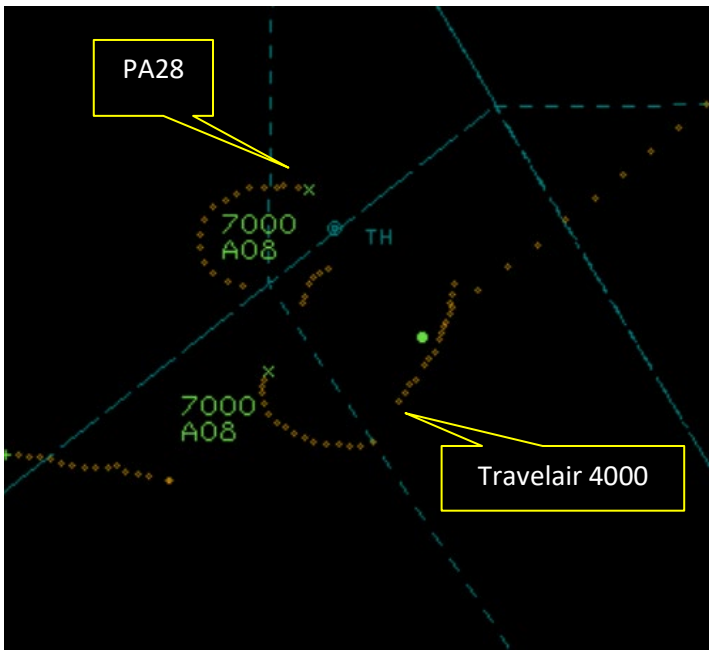


Figure 2 - 1336:39

The PA28 could be seen flying a standard circuit, downwind and turning base until it too faded from radar at 1338:38. The Airprox was therefore not visible on the radar and the exact separation could not be ascertained.

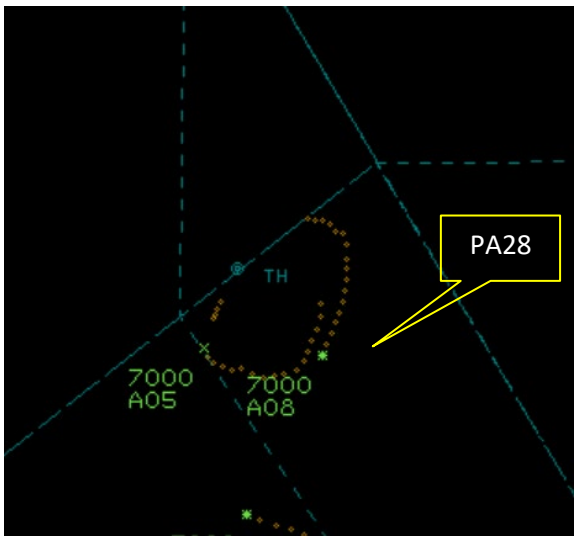


Figure 3 -1338:26

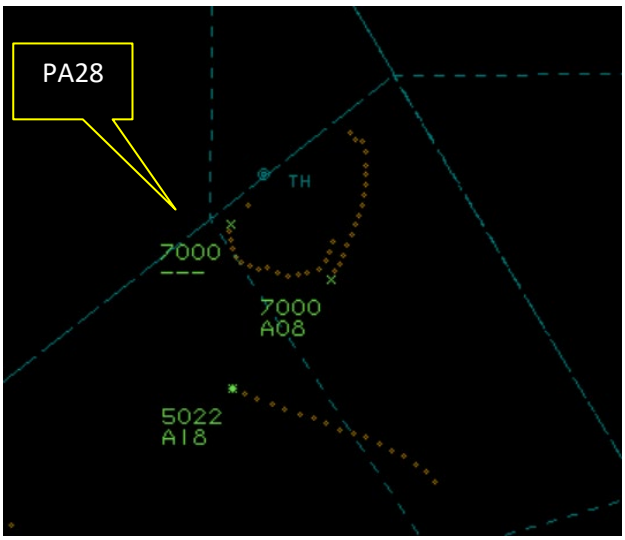


Figure 4 - 1338:38

The PA28 and Travelair 4000 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] An aircraft operated on or in the vicinity of an aerodrome shall conform with or avoid the pattern of traffic formed by other aircraft in operation.[2]

Summary

An Airprox was reported when a PA28 and a Travelair 4000 flew into proximity at Old Warden at around 1338Z on Saturday 2nd September 2023. Both pilots were operating under VFR in VMC, neither in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots and radar photographs. 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 PA28 pilot. They had confirmed that they were familiar with procedures at Old Warden, and had known to expect non-radio traffic. However, members thought that when the PA28 pilot had joined through the overhead, they perhaps should have taken more time to fully assess the circuit traffic (**CF1**). Instead, the PA28 pilot had joined the circuit without being aware that the Travelair 4000 had been ahead. Once downwind, although the PA28 pilot had made all the correct RT calls, because the Travelair 4000 had been non-radio, there had been no aural cues that it had been in the circuit and instead the PA28 pilot had focused on the Tiger Moth ahead of the Travelair 4000. The CWS fitted to the PA28 could not have detected the non-transponding Travelair 4000, which had not been carrying any other compatible form of CWS (**CF5**), and so whilst the PA28 pilot had had generic information that there may have been non-radio aircraft in the circuit, they had not received any specific situational awareness that the Travelair 4000 had been ahead (**CF4**). Although the PA28 pilot had described looking up the approach lane prior to turning onto base, because the Travelair 4000 had conducted an extended circuit, the PA28 pilot had not seen it. Members remarked that this highlighted the need for a thorough lookout, commenting that the UKAB is frequently presented with Airprox in similar circumstances. Nevertheless, despite the extended circuit, it had been for the PA28 pilot to fit in behind the Travelair 4000 ahead which, by turning in front of them, they had not achieved (**CF3**). In

[1] (UK) SERA.3205 Proximity.
[2] (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

fact, the PA28 pilot had not seen the Travelair 4000 approaching from behind (**CF8**), until it had passed over them, and the Board agreed that this non-sighting by the PA28 pilot had contributed to the Airprox (**CF7**).

When discussing the actions of the Travelair 4000 pilot, members recognised the pleasure derived from flying a vintage aircraft without a radio, but thought that in future the pilot could perhaps enhance their own situational awareness by carrying a portable transceiver, so that they could at least receive information on the circuit traffic. Other members went further, pointing out that without a transponder, radio, or CWS, the aircraft had been difficult for other pilots to gain situational awareness on, and they thought that the aircraft owners might be wise to consider fitting some form of CWS. Looking at the incident itself, members discussed the extended circuit that the pilot had needed to execute in order to fit in behind the Tiger Moth. Members noted that, without a radio to inform the rest of the circuit of their intentions, the Travelair 4000 pilot had put themselves in an unusual position in the circuit, and in a position where other pilots might not look (or be able to see). They noted that they see many Airprox each year in similar circumstances, whereby pilots fly larger circuits and other pilots, not being aware of the extended circuit, turn in ahead. They thought that in this case, without a radio on which to announce their intentions, the Travelair 4000 pilot would have been better served by remaining predictable and going around from the end of the downwind leg (**CF2**). In the event, the Travelair 4000 pilot had had only generic situational awareness that the PA28 had been in the circuit behind them and they had not expected that it would turn ahead of them on final (**CF4**). Furthermore, the PA28 had been obscured from their view by the wing of the aircraft (**CF8**), until the point at which the pilot had spotted it, albeit late (**CF6**).

In determining the risk of the Airprox, members considered both pilots' reports together with the limited radar screenshot information available to them. Members noted that, although it had been a late sighting by the Travelair 4000 pilot, the pilot had been able to take appropriate action and go around. A minority of members thought that this action had averted the risk of collision. However, others countered that the late nature of the action, together with the fact that the PA28 had been obscured to the Travelair 4000 pilot until a late stage, meant that safety had not been assured (**CF9**). In the end, the latter view prevailed; Risk Category B.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023202			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Tactical Planning and Execution			
1	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
2	Human Factors	• Insufficient Decision/Plan	Events involving flight crew not making a sufficiently detailed decision or plan to meet the needs of the situation	Inadequate plan adaption
3	Human Factors	• Monitoring of Environment	Events involving flight crew not to appropriately monitoring the environment	Did not avoid/conform with the pattern of traffic already formed
	• Situational Awareness of the Conflicting Aircraft and Action			
4	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			
5	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			
6	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

7	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
8	Contextual	• Visual Impairment	Events involving impairment due to an inability to see properly	One or both aircraft were obscured from the other
	• Outcome Events			
9	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: B.

Safety Barrier Assessment[3]

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

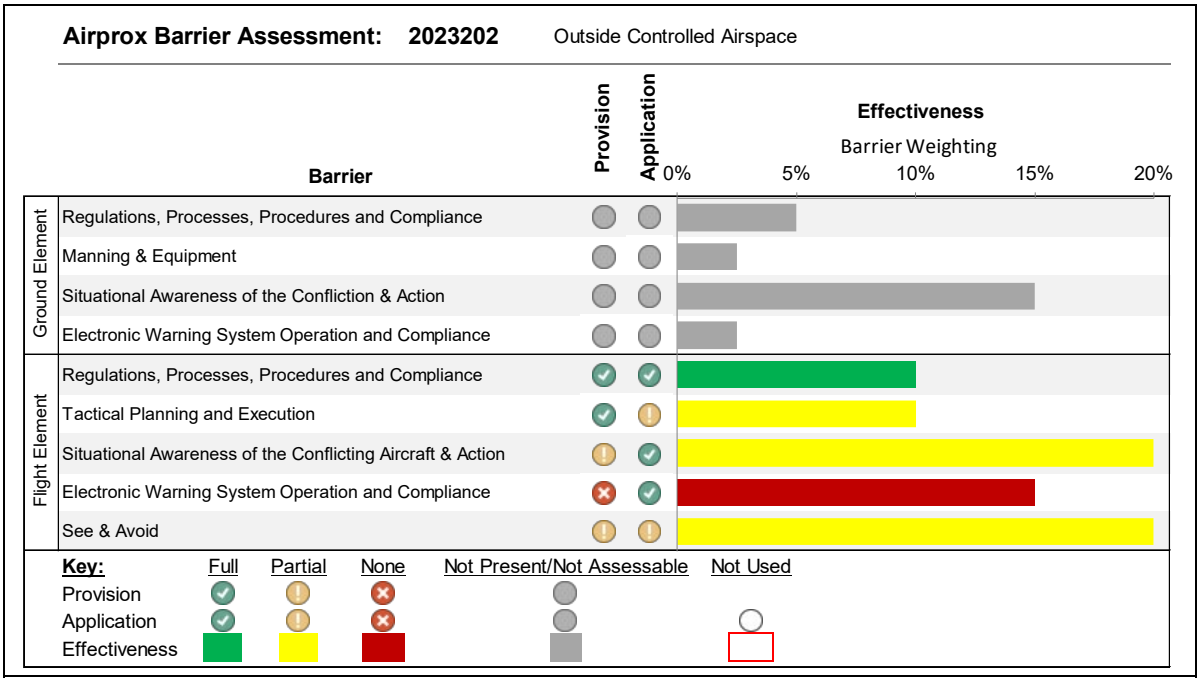
Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the PA28 pilot had not identified all of the aircraft in the circuit on joining through the overhead and subsequently did not integrate with the Travelair 4000 in the circuit.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the PA28 pilot had only generic situational awareness that non-radio aircraft could be operating in the visual circuit, but not specific information on the Travelair 4000. The Travelair 4000 pilot had no situational awareness that the PA28 pilot would turn in front of them when on final.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the CWS on the PA28 could not detect the non-transponding Travelair 4000.

See and Avoid were assessed as **partially effective** because although it was a non-sighting by the PA28 pilot, the Travelair 4000 pilot saw the PA28 and took avoiding action, albeit late.



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