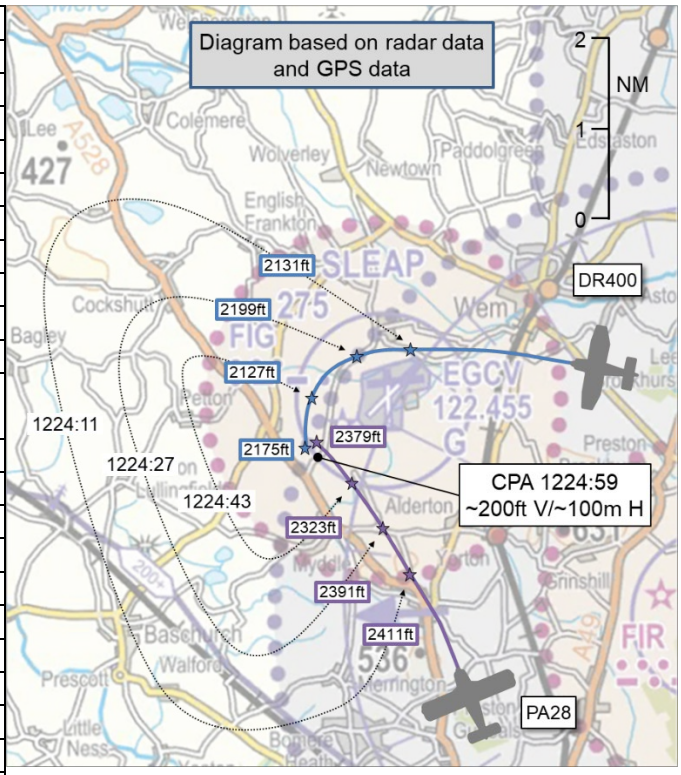
AIRPROX REPORT No 2023025

Date: 26 Feb 2023 Time: 1225Z Position: 5250N 00248W Location: Sleap ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DR400	PA28
Operator	Civ FW	Civ FW
Airspace	Sleap ATZ	London FIR
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Sleap Radio	Sleap Radio
Altitude/FL	2175ft	2379ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Red, white	White, orange, grey
Lighting	"*Yes*"	Strobes, landing
Conditions	VMC	VMC
Visibility	>10km	5-10km
Altitude/FL	2000ft	NK
Altimeter	QFE (NK hPa)	NK
Heading	135°	NK
Speed	120kt	NK
ACAS/TAS	PilotAware	SkyEcho
Alert	None	None
Separation at CPA		
Reported	50ft V/0NM H	NK V/NK H
Recorded	~200ft V/~100m H	



THE DR400 PILOT reports that [they were on a] GA flight to Sleap. The Sleap joining procedure was read on the morning of the departure and differences in the weekend procedure were noted. Sleap was approached from the east at 2000ft QFE, and they did a 180° orbit in the circuit direction overhead to identify the runway, merge with other traffic and place themselves for a deadside descent. When completing the turn, and just prior to commencing the deadside descent, [a passenger] alerted them to another aircraft. When [the DR400 pilot] first spotted it, they assessed it to be at the same level, on a directly converging course and closing very, very fast. They pushed the stick fully forward and in less than a second from spotting it, the aircraft passed just overhead. Thankfully they avoided a collision but some of their passengers suffered minor head injuries from hitting the roof of the aircraft and all were very shaken. They do not recall hearing any other traffic on the radio identifying themselves to be in a position that would conflict with their own. They continued the descent and made an uneventful landing.

They have reviewed Flightradar24 data and identified the point of conflict over the field to the southwest of RW05. They have discussed the incident with an instructor, including showing them the Flightradar24 data. They observed that their lookout may have been compromised, looking down into the circuit, which had led to the late spot of the other aircraft at the same altitude. Further, they discussed that their orbit could have been tighter over the airfield, though reflected that spacing out from other circuit traffic may mean it is not always possible to fly a textbook join. They also reflected that they should always expect the unexpected, and not assume that other traffic will conform to the published joining procedure.

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

THE PA28 PILOT reports that as they arrived overhead and called their position, they were informed by the ground radio that there was a Robin descending deadside. It did not show up on the ADS-B, so as a precaution they made an orbit overhead before commencing the deadside descent. After the

descent, they followed a Robin that was late downwind and it landed and vacated RW05 well before the [PA28 pilot] landed.

THE SLEAP AIR GROUND RADIO OPERATOR reports that they were the Air/Ground operator on the day in question. The runway in use was 05RH [they recalled], [the DR400 pilot] was joining from the west [they recalled] at roughly 2000ft and joined overhead. [The PA28 pilot] was joining from the south, also for an overhead join. There was an aircraft already descending deadside as well as two aircraft in the circuit. It was a busy day, and the tower was manned. Both aircraft joined the overhead at similar times and descended deadside. [The DR400 pilot] called crosswind and stated 'I just came close to another aeroplane then'. [The Air/Ground Radio Operator] saw no other aircraft near [the DR400] differing from a normal overhead join. Both aircraft joined the circuit normally and made normal landings.

Factual Background

The weather at Shawbury was recorded as follows:

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EGOS 261220Z AUTO 06011G21KT 9999 // FEW033/// BKN045/// 07/M01 Q1030
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The entry in the AIP for Sleap provides the following procedures:

Arrival Procedures

a. PPR is required by phone or online (shropshireaeroclub.com/fly-in).

b. When RAF Shawbury is operating, contact Shawbury Zone (133.150 MHz) before contacting Sleap. Once within visual with the airfield, or Shawbury Zone advises, contact Sleap Radio for airfield data and traffic information. Aircraft inbound to Sleap will normally be requested by Shawbury Zone to fly not below 2400 FT QNH to keep above busy helicopter traffic.

c. It is advised to join from the south via the Montford Bridge (Disused AD) VRP, or from the north via the Ellesmere Lake VRP.

d. Join the circuits from the overhead where possible, remaining inside the ATZ.

Circuits

a. Circuit height is 1000 FT QFE for fixed-wing powered aircraft.

b. Circuit height is 800 FT QFE for gyrocopters and flown inside of fixed-wing circuit.

c. Civil helicopters should fly at 600 FT QFE within Sleap's ATZ, or join the fixed-wing circuit.

d. Monday to Friday, all circuits flown by fixed-wing powered aircraft shall be EAST of the airfield meaning left hand on Runways 18 and 23 and right hand on Runways 36 and 05.

e. On Saturdays, Sundays and Bank Holidays, the direction flown by fixed-wing powered and gyrocopter aircraft shall be left hand circuit.

f. On Saturdays, Sundays and Bank Holidays, gliders shall fly right hand circuit.

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken. Both aircraft could be positively identified from Mode S data and were observed on radar with vertical information displayed as flight levels. The atmospheric pressure at Shawbury had been recorded as 1020hPa and the altitudes were calculated by applying an appropriate conversion factor. Both pilots kindly supplied GPS data of their respective flights. This data was combined to construct the diagram above and to determine the separation at CPA.

The DR400 pilot had arrived from the east and had turned left when approximately 0.5NM north of the airfield. The airfield remained to their left, and they were no more than 1NM away from the centre of it, as they conducted a continuous left-turn to then descend on the deadside. The pilot of the

PA28 had arrived from the south and they had turned left when approximately 0.9NM southwest of the centre of the airfield which is where the CPA occurred (see Figure 1). They had then conducted a continuous left-turn between 1NM and 2NM to the southwest of the airfield to then descend on the deadside. When both aircraft were on the deadside, the DR400 pilot was approximately 1.5NM ahead of the PA28.

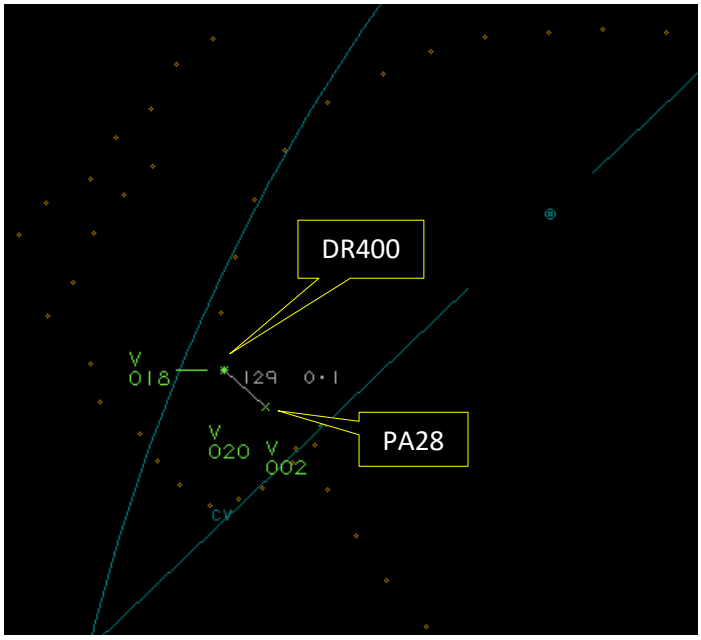
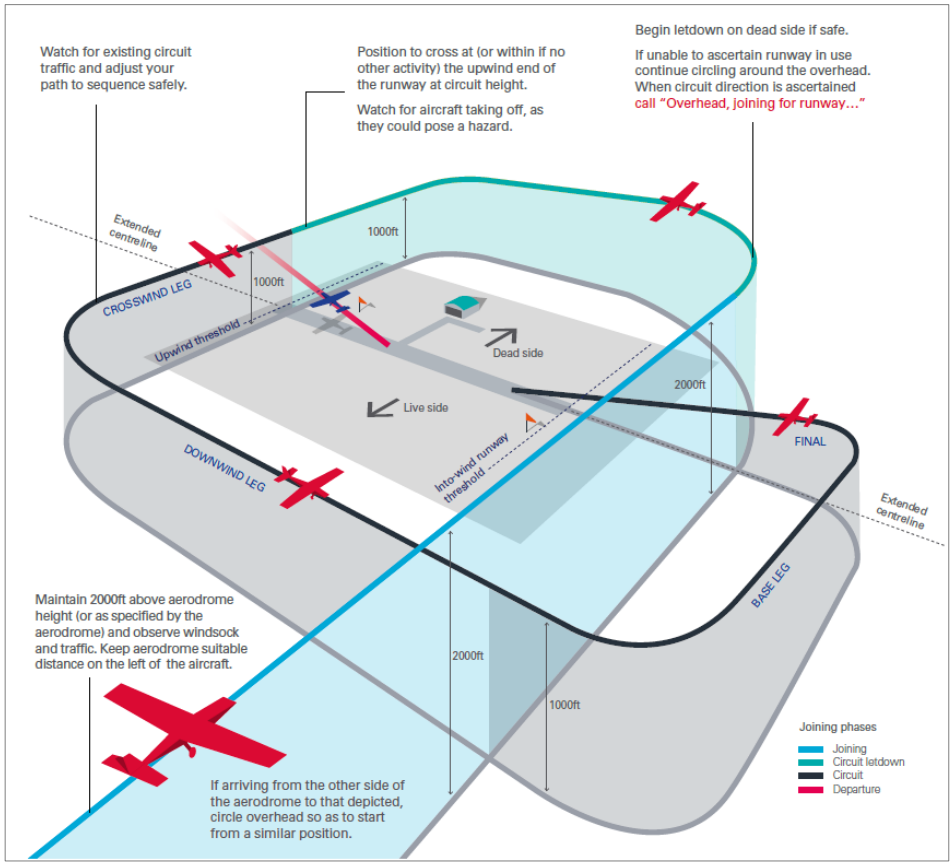


Figure 1 – CPA at 1224:59

CAP1535 The Skyway Code provides the following diagram for guidance on the standard overhead join:



The DR400 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] 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 DR400 and a PA28 flew into proximity in the Sleap ATZ at 1225Z on Sunday 26th February 2023. Both pilots were operating under VFR in VMC, both in receipt of an AGCS from Sleap Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, GPS track data for both aircraft and a report from the Air/Ground Radio operator involved. 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 pilot of the DR400. Members were heartened that an appropriate pre-flight briefing had alerted the pilot to the differences in circuit direction at Sleap on weekend days. Members noted that the pilot of the DR400 had approached the airfield a little to the north of the immediate overhead but had been aware of the circuit direction and had kept the airfield to their left during their turn to the deadside.

Noting that the DR400 pilot did not recall that they had heard any other traffic on the radio that had identified themselves to have been in a position that would have conflicted with their own, members wondered whether the call by the PA28 pilot had not been heard, had not been assimilated or the pilot of the DR400 had been momentarily distracted with a high cockpit-workload (**CF4**). Members agreed that the missed call, howsoever caused, had meant that the pilot of the DR400 had not had any situational awareness of the presence of the PA28 (**CF5**). In consideration of the EC equipment fitted to the DR400, members wondered why an alert to the proximity of the PA28 had not been received when such an alert would have been expected (**CF6**). Members noted that it had been one of their passengers that had alerted them to the PA28 and it was agreed that to have not visually acquired it until that moment had constituted a late sighting (**CF7**). However, the pilot of the DR400 had assessed that the situation had presented an immediate danger and members commended their quick reaction to have increased separation between the aircraft at the last minute.

Turning their attention to the actions of the pilot of the PA28, members noted from the GPS data that they had approached south-abeam the airfield and had remained just above the Sleap ATZ. It was further noted that their track had been broadly north-westwards and had taken them to the southwest of the ATZ with the runway-in-use to their right. Some members wondered whether the pilot of the PA28 had anticipated a right-hand circuit pattern and had not been aware that the circuit direction that day had been left-hand as per the entry for Sleap in the AIP. It was agreed that the pilot of the PA28 had not conducted their approach to the airfield in accordance with the airfield joining procedures (**CF1**). It was noted the pilot of the PA28 had called on the Sleap frequency and had stated that their position had been in the overhead, and that they had received a response from the Sleap Air/Ground Radio operator informing them of a 'Robin descending deadside'. Members noted that the pilot of the PA28 recalled that the traffic had not appeared on their ADS-B equipment and, surmising that the pilot of the PA28 may have only scanned the area to the deadside, members were keen to emphasise that a thorough and effective visual scan to acquire all traffic in the area is of paramount importance when joining the visual circuit. Some members suggested that the pilot of the PA28 had determined from the Traffic Information that they had received that the DR400 had not been a potential conflict. However, there had been two concepts that had reinforced the notion that the information they had received may not have been accurate. Firstly, that they had not visually acquired the DR400 on the deadside and, secondly, that it had not appeared on their ADS-B equipment. Members presumed that it had been this

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

uncertainty that had prompted the pilot of the PA28 to have conducted an orbit to generate some separation before they descended to the deadside.

Members felt that the position report by the pilot of the PA28 that they had been in the overhead when they had actually been 1NM to the southwest of the airfield, and the Traffic Information that the Robin had been descending on the deadside when the DR400 had actually been on the live-side (albeit above circuit height) yet to cross to the deadside, had both presented an inaccurate picture of the actual traffic situation, however inadvertently that may have been. Again, members stressed that it is for pilots to ensure adequate separation is maintained when integrating into a visual circuit and that an effective visual scan is a fundamental barrier to the avoidance of a mid-air collision. In conclusion, members were in agreement that the pilot of the PA28 had not correctly joined the circuit (**CF2**). It was further agreed that they had had inaccurate situational awareness of the traffic situation when they had elected to perform an orbit and had not correctly conformed with, nor had avoided, the existing pattern of traffic (**CF3**, **CF5**). The CPA had occurred as the pilot of the PA28 had started to turn for the orbit and members noted that they had not sighted the DR400 during that encounter (**CF8**). The DR400 had, however, been visually acquired later in the approach.

In determination of risk, members agreed that safety had been much reduced below the norm through the PA28 pilot's incorrect execution of a join to the circuit and their non-sighting of the DR400. There had been a risk of collision and it had been the last-minute actions of the DR400 pilot that had meant the separation had not been less (**CF9**). As such, the Board assigned Risk Category B to this event.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2023025			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Flight Elements			
	• Regulations, Processes, Procedures and Compliance			
1	Human Factors	• Use of policy/Procedures	Events involving the use of the relevant policy or procedures by flight crew	Regulations and/or procedures not complied with
	• Tactical Planning and Execution			
2	Human Factors	• Action Performed Incorrectly	Events involving flight crew performing the selected action incorrectly	Incorrect or ineffective execution
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	Human Factors	• Monitoring of Communications	Events involving flight crew that did not appropriately monitor communications	
5	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			
6	Human Factors	• Response to Warning System	An event involving the incorrect response of flight crew following the operation of an aircraft warning system	CWS misinterpreted, not optimally actioned or CWS alert expected but none reported
	• See and Avoid			
7	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
8	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
	• 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:

Ground Elements:

Situational Awareness of the Confliction and Action were assessed as **not used** because the Sleap Air/Ground Radio Operator had not been required to have monitored the flight.

Flight Elements:

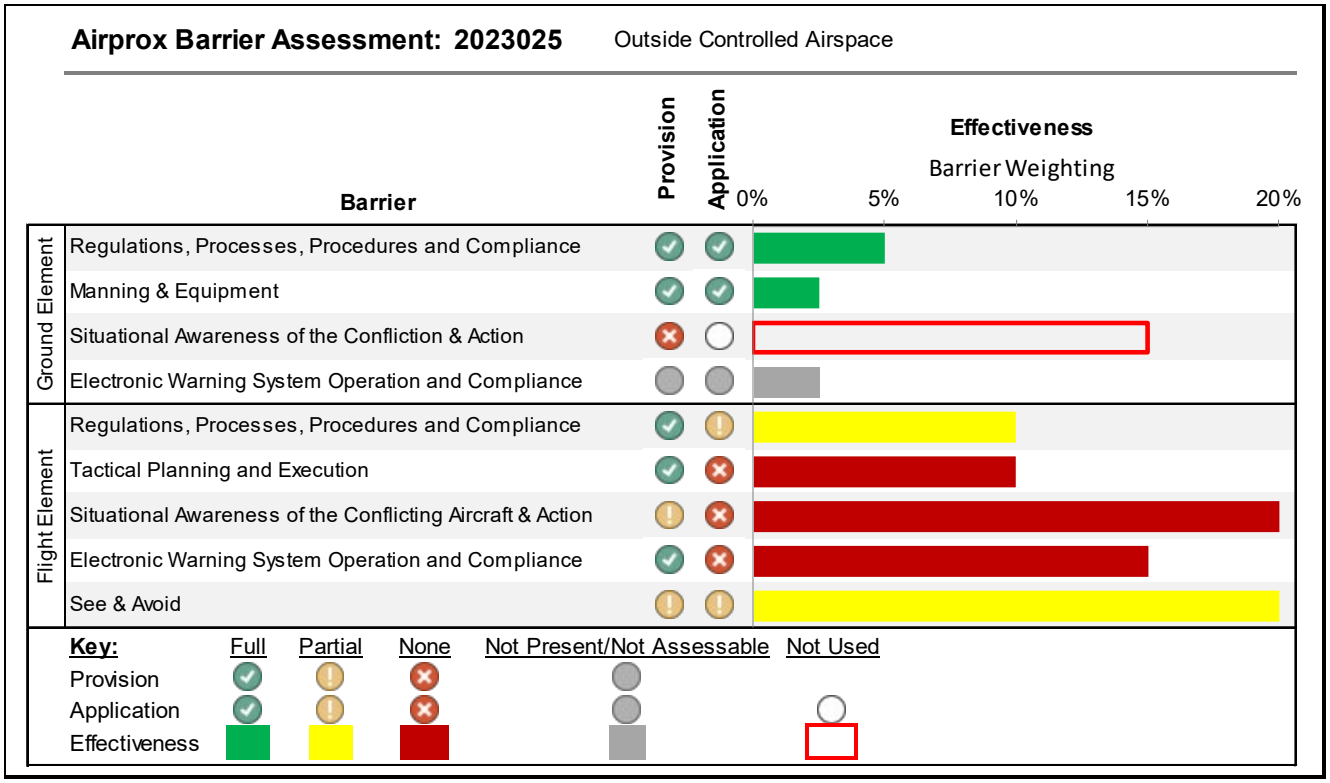
Regulations, Processes, Procedures and Compliance were assessed as **partially effective** because the pilot of the PA28 had not correctly followed the procedure for an overhead join at Sleap.

Tactical Planning and Execution was assessed as **ineffective** because the pilot of the PA28 had not correctly integrated with other traffic joining in the circuit.

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because the pilot of the PA28 had incorrect situational awareness of the position of the DR400.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment fitted to the DR400 would have been expected to have detected the presence of the PA28 but no alert was received.

See and Avoid were assessed as **partially effective** because the pilot of the PA28 had not visually acquired the DR400 until after CPA.



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