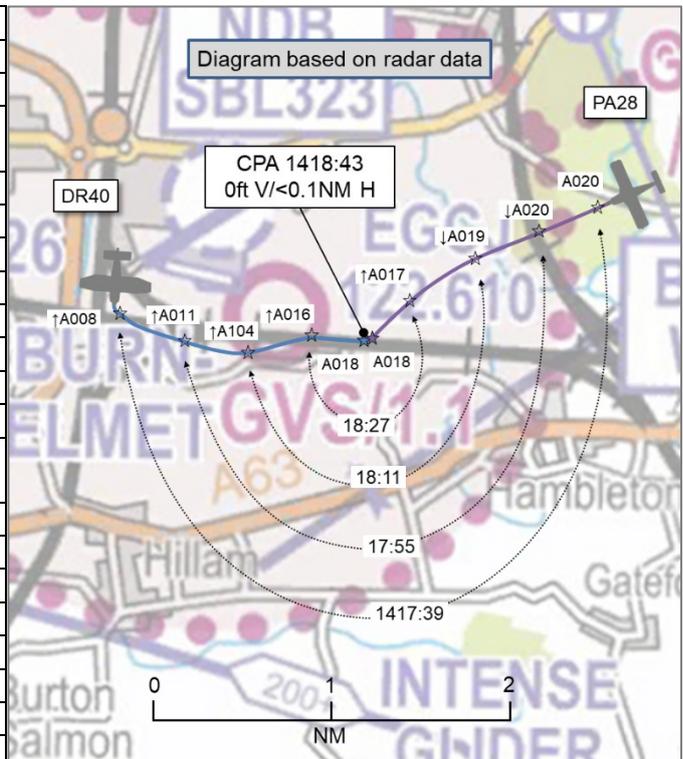


AIRPROX REPORT No 2022063

Date: 30 Apr 2022 Time: 1419Z Position: 5347N 00111W Location: Sherburn-in-Elmet ATZ

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DR40	PA28
Operator	Civ FW	Civ FW
Airspace	Sherburn-in-Elmet ATZ	Sherburn-in-Elmet ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Sherburn Radio	Sherburn Radio
Altitude/FL	1800ft	1800ft
Transponder	A, C, S	A, C, S
Reported		
Colours	White, Green	White, Blue/Yellow
Lighting	Strobes	Nav, Strobe, Landing
Conditions	VMC	VMC
Visibility	>10km	5-10km
Altitude/FL	1300ft	2000ft
Altimeter	QNH (1028hPa)	QNH (NK hPa)
Heading	090°	210°
Speed	100kt	103kt
ACAS/TAS	SkyEcho	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	30m V/30m H	0ft V/4NM H
Recorded	0ft V/<0.1NM H	



THE DR40 PILOT reports that they had departed Sherburn-in-Elmet at 1417, turned left [and were in a] cruise climb. At approximately 1100ft they saw an aircraft (a TB10) crossing their path right-to-left some 300ft above, at a distance of approximately 0.5NM. Their passenger (a qualified PPL holder) monitored the progress of the other aircraft while they continued the climb. [Their passenger] then suddenly said loudly 'AIRCRAFT'. They saw a conflicting aircraft in their 11 o'clock and pushed the nose of their aircraft down immediately. The aircraft (a white PA28) flashed by their left wing on a reciprocal heading at an estimated 30m vertical and horizontal separation. The time between first sight of the conflicting aircraft and passing their aircraft was in the order of 2sec. Visibility was relatively good with slight haze. Their aircraft is equipped with an ADS-B-out transponder and [other EC equipment] connected to a SkyDemon display device. Their passenger had [additional EC equipment] connected to a SkyDemon display device. Neither device gave any indication of conflicting traffic, leading them to believe that the PA28 was not equipped with any conspicuity device. At the time of the incident the runway in use at Sherburn-in-Elmet was RW24 with a left-hand circuit. The arrival procedure calls for an overhead join at 2000ft QFE. The conflicting PA28 was on the live side of the circuit well below the height for an overhead join. They had not heard any communication with Sherburn Radio from an aircraft arriving from the east. Conclusion: they were perhaps distracted by the TB10 crossing from right-to-left and thus saw the conflicting traffic very late.

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

THE PA28 PILOT reports that they were approaching [destination airfield] from the east via Selby. They called Sherburn Radio and were told the runway in use was RW24 with a left-hand circuit. Either just before, or after their call, they heard another aircraft call Sherburn Radio approaching from the south. On the Sherburn Aero Club website the arrival point for aircraft from the south and east is [to route] from the south for a standard overhead join at 2000ft just to the right of the RW28. They therefore

realised they could both arrive at the same point at the same time. Approximately 4NM east of Sherburn-in-Elmet they spotted the other aircraft 3NM to the south of the field. They immediately turned southwest believing that when they reached south of the airfield the other aircraft would have joined overhead. Admittedly they never saw the other aircraft again in their field of vision until they were approaching the deadside for RW24, nor did their passenger, an ex-PPL holder. If the Airprox occurred to the east of the field, albeit south, is it possible the DR40 [sic] flew to the east of the field and joined the Sherburn-in-Elmet ATZ on the deadside of RW24. If this is the case then they suggest that if the DR40 [sic] had continued from the south to join abeam the RW28 the Airprox may not have occurred.

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

SHERBURN AIRFIELD OPERATIONS report that the Air to Ground radio operator was unaware of the Airprox incident and it was deemed to have been a normal operating day.

Factual Background

The weather at Leeds Bradford was recorded as follows:

METAR EGNM 301420Z 22011KT 180V250 CAVOK 15/02 Q1026

Analysis and Investigation

UKAB Secretariat

An analysis of the NATS radar replay was undertaken and both of the aircraft involved in the Airprox had been detected and identified using SSR Mode-S, along with the TB10 mentioned in the DR40 pilot's report. In the radar screenshots below, the Mode-C of the aircraft is displayed as a flight level, therefore, due to the conditions on the day, 400ft should be added to obtain aircraft altitude.

At 1417:15, the PA28 was 3.5NM to the southeast of the airfield at an altitude of 2000ft. There was an aircraft approximately 4NM to the southwest of the PA28, also at 2000ft, which was identified as the TB10, (Figure 1).

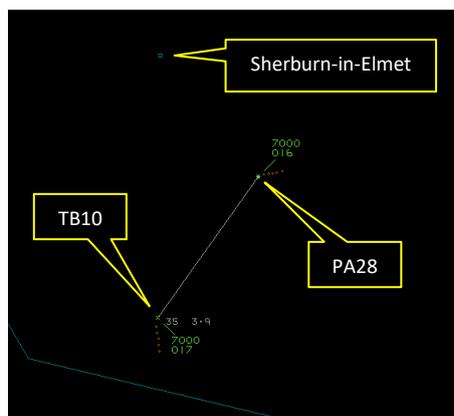


Figure 1 – 1417:15.

The DR40 was first detected by the NATS radars at 1417:22 in the climb. At 1418:11, the TB10 was to the southeast of the DR40, 300ft above it, (Figure 2). At this time, the PA28 pilot was in a slow descent. The TB10 crossed in front of the DR40 at 1418:19.

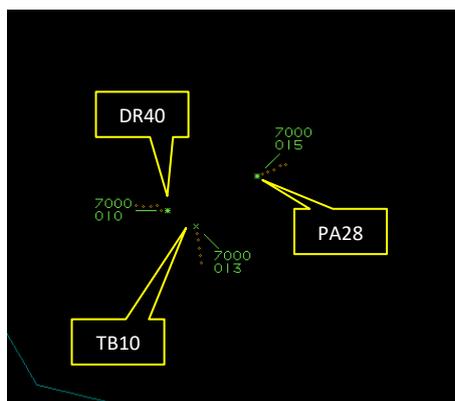


Figure 2 – 1418:11.

At 1418:31 the PA28 pilot was flying level at an altitude of 1800ft whilst the DR40 pilot continued their climb. CPA occurred at 1418:42 with a measured separation of less than 0.1NM horizontally and 0ft vertically (Figure 3).

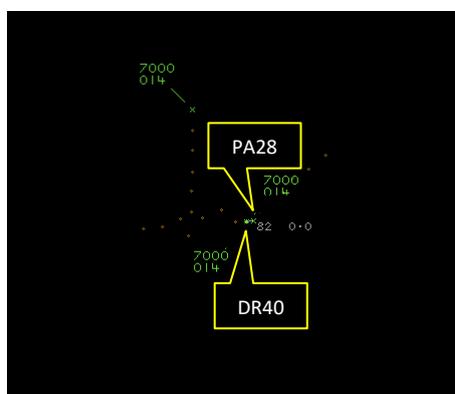


Figure 3 – CPA.

The UK AIP¹, Part 3, AD2, EGCJ: Sherburn-in Elmet states that pilots of fixed wing aircraft departing from Sherburn-in-Elmet are instructed to depart at 1000 FT QFE whilst within the ATZ remaining clear of the 'dead side' at all times; arriving fixed wing aircraft are to join overhead at 2000 FT QFE and descend in accordance with the 'Standard Overhead Join' procedure.

The DR40 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.² If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right.³ If the incident geometry is considered as converging then the PA28 pilot was required to give way to the DR40.⁴ 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.⁵

Summary

An Airprox was reported when a DR40 and a PA28 flew into proximity in Sherburn-in-Elmet ATZ at 1419Z on Saturday 30th April 2022. Both pilots were operating under VFR in VMC, and in receipt of an AGCS from Sherburn Radio.

¹ [eAIS Package United Kingdom \(nats.co.uk\)](https://www.nats.co.uk)

² (UK) SERA.3205 Proximity.

³ (UK) SERA.3210 Right-of-way (c)(1) Approaching head-on.

⁴ (UK) SERA.3210 Right-of-way (c)(2) Converging.

⁵ (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings 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 DR40 pilot and a GA pilot member stated that the cruise climb departure that had been flown had not been in accordance with the published procedure in the UK AIP, which requires pilots to not climb above 1000ft QFE within the ATZ (**CF1, CF2**). Members had been encouraged that the DR40 pilot had carried additional EC equipment, however, this had been incompatible with the equipment on the PA28 and had been unable to detect it (**CF4**). Although the PA28 pilot reported calling Sherburn Radio, this call had not been heard by the DR40 pilot and, as such, coupled with the incompatible EC equipment, members agreed that the DR40 pilot had had no prior awareness of the presence of the PA28 (**CF3**). Members discussed whether the presence of the TB10 had impacted the pilot's normal lookout and agreed that its presence may have contributed to the DR40 pilot only becoming visual with the PA28 at a point when it had been too late for avoiding action to materially increase separation (**CF5**). The Board also wished to highlight that pilots should always report an Airprox event as soon as possible on the radio to the agency with which they are communicating, or the next agency they speak to.

Next, the Board considered the actions of the PA28 pilot and agreed that they had not completed the airfield join at 2000ft QFE or descended in accordance with the standard overhead join procedure as published in the UK AIP (**CF1, CF2**). Members discussed whether the pilot that the PA28 pilot had reported hearing on the Sherburn Radio frequency had been the pilot of the DR40, and also if the aircraft with which they had become visual had been the DR40, and agreed that it was highly likely that the PA28 pilot had heard the pilot of, and become visual with, the other aircraft joining from the south. Therefore, members agreed that the PA28 pilot had not had any prior awareness of the presence of the DR40 (**CF3**), and had not become visual with it at any point (**CF5**).

Finally, in assessing the risk of collision, the Board discussed that, although the DR40 pilot had had EC equipment on board, it had been unable to detect the PA28, and neither pilot had had any awareness of the presence of the other aircraft. Lookout had been the remaining barrier against collision and, although the DR40 pilot had become visual with the PA28, it had not been in time for avoiding action to be effective and that providence had played a major part in preventing a collision. Members agreed that, in this case, safety had not been assured and that there had been a serious risk of collision (**CF6**). Accordingly, the Board assigned a Risk Category A to this Airprox.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2022063				
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
• Situational Awareness of the Conflicting Aircraft and Action				
3	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				
4	Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine	Incompatible CWS equipment

			aircraft position and is primarily independent of ground installations	
• See and Avoid				
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
• Outcome Events				
6	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 Assessment⁶

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 both pilots were operating with an Air Ground Communications Service and, as such, the Air Ground Operator can only pass information to pilots.

Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the Sherburn-in-Elmet departure and arrivals procedures detailed in the UK AIP had not been followed by either pilot.

Tactical Planning and Execution was assessed as **ineffective** because the execution of the departure and arrivals procedures flown by both pilots had not been in accordance with published procedures.

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.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the EC equipment carried by the DR40 pilot had been unable to detect the presence of the PA28.

See and Avoid were assessed as **ineffective** because PA28 pilot had not become visual with the DR40 and the DR40 pilot had only become visual with the PA28 at a point when it had been too late to materially increase the separation.

⁶ The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Airprox Barrier Assessment: 2022063		Outside Controlled Airspace					
Barrier	Provision	Application	Effectiveness				
			Barrier Weighting				
			0%	5%	10%	15%	20%
Ground Element	Regulations, Processes, Procedures and Compliance	✓	✓				
	Manning & Equipment	✓	✓				
	Situational Awareness of the Confliction & Action	✗	○				
	Electronic Warning System Operation and Compliance	●	●				
Flight Element	Regulations, Processes, Procedures and Compliance	✓	✗				
	Tactical Planning and Execution	✓	✗				
	Situational Awareness of the Conflicting Aircraft & Action	✗	✓				
	Electronic Warning System Operation and Compliance	✗	✓				
	See & Avoid	✗	✗				
Key:			Full	Partial	None	Not Present/Not Assessable	Not Used
Provision	✓	●	✗	●			
Application	✓	●	✗	●			○
Effectiveness							