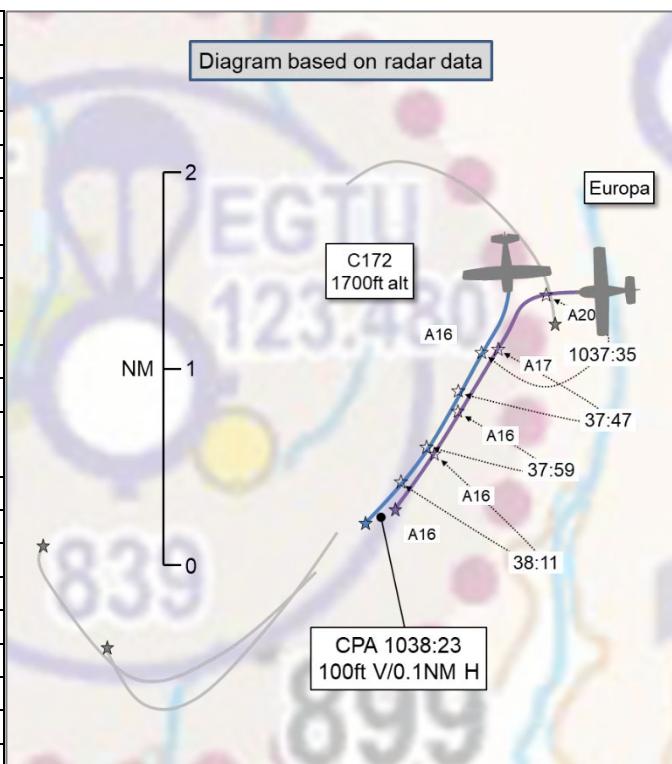


AIRPROX REPORT No 2021044

Date: 01 May 2021 Time: 1038Z Position: 5051N 00313W Location: Dunkeswell – elev 839ft

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C172	Europa
Operator	Civ FW	Civ FW
Airspace	Dunkeswell ATZ	Dunkeswell ATZ
Class	G	G
Rules	VFR	VFR
Service	AGCS	AGCS
Provider	Dunkeswell Radio	Dunkeswell Radio
Altitude/FL	1700ft	1600ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Blue, white	White
Lighting	Land, taxi, nav, beacon	NK
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	800ft	800ft
Altimeter	QFE (986hPa)	NK
Heading	220°	220°
Speed	90kt	80kt
ACAS/TAS	Not fitted	TAS
Alert	N/A	Unknown
Separation		
Reported	Not seen	200ft V/600m H
Recorded	100ft V/0.1NM (185m) H	



THE C172 PILOT reports that they were undertaking a series of visual circuits to RW04R at their home airfield, where they had been trained and with which they were very familiar. The weather conditions were well within personal limits and all lights were on during the flight that day. On the 4th circuit they made a downwind call at the start of the downwind leg and the qualified PPL passenger made a 'late downwind' call as they approached the end of the downwind leg. The additional 'late downwind' position report was made because they both were conscious of increased circuit activity and that there were students training in the circuit. The C172 pilot was aware of and visual with one aircraft on short final and one on base leg, nearing the turn to final. The pilot was also aware, from R/T messages, of one aircraft behind on the downwind leg. At the end of the downwind leg, the C172 pilot commenced a descending turn onto the base leg. At the same moment, the pilot of the aircraft behind made a call stating there was an aircraft 100ft immediately below and moving towards the C172. The C172 pilot immediately applied full power, performed a maximum performance climb on the downwind heading to ensure safe separation and called '[C/S] maximum climb on current track'. The C172 pilot then turned left to leave the circuit and both they and the passenger looked down and saw a small white low-wing aircraft below circuit height. No radio calls were heard from the other aircraft. The pilot of the aircraft behind, who made the warning call, later related that the other aircraft had 'slid in' mid-downwind, behind the C172, and was 100ft below and rapidly approaching. They agreed that joining procedure was unacceptable and in addition how, in a low wing aircraft, the other pilot was well placed to look out but appeared not to have done so.

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

THE EUROPA PILOT reports that they saw the other aircraft when 1km from the airfield and slotted in behind to follow downwind, with the C172 in sight at all times. Because the C172 was slow and climbing out to the south, the Europa pilot was catching up with it.

The pilot assessed the risk of collision as 'None'.

THE DUNKESWELL A/G OPERATOR reports that they heard the Airprox unfold via the radio. All transmissions were as expected until [the pilot of the aircraft behind downwind] made a call to the C172 stating that it had an aircraft below it in the circuit. The C172 pilot didn't respond to this and [the pilot of the aircraft behind] made a second call to the C172 pilot, stating the imposing aircraft had climbed meaning it was now only 100ft below the C172 and that the C172 pilot should climb. The C172 pilot then immediately called climbing away and leaving the circuit on the downwind leg.

Factual Background

The weather at Exeter was recorded as follows:

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METAR EGTE 011050Z 03005KT 9999 VCSH SCT025CB 11/03 Q1016=
METAR EGTE 011020Z 02004KT 9999 FEW025 10/03 Q1016=
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Analysis and Investigation

UKAB Secretariat

The C172 and Europa 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

The Dunkeswell AIP entry at EGTU AD 2.22 FLIGHT PROCEDURES states as follows:

1 CIRCUITS

- a. Circuit directions: Runway 04 - RH; Runway 22 - LH. Circuit height: 800 FT.
- b. No overhead joins due to parachuting.
- c. No straight in approaches.
- d. No orbits in the circuit or on final approach, ie extend downwind or go around

The Devon and Somerset Flight Training Ltd website³ states as follows:

Joining Instructions

Both Fixed Wing and Helicopters to join either on downwind or base leg for the runway in use. Circuit height 800ft

And

Fixed wing aircraft can continue to operate in the ATZ while parachuting is active, but must avoid the overhead and deadside.

The Skyway Code, Aerodrome Operations, page 104, states as follows:

Downwind join involves directly joining the circuit parallel to the runway in the downwind direction. It is important to observe the direction of the crosswind leg since that is where potentially conflicting circuit traffic will come from. If in doubt about cutting in front of another aircraft, slow down and/or manoeuvre to fit in behind. There may also be aircraft already on the downwind leg that are directly ahead of you and therefore difficult to see. The danger is that you join closer in to the runway and then turn base inside them or that you start to catch up without realising they are in front of you.

¹ (UK) SERA.3205 Proximity.

² (UK) SERA.3225 Operation on and in the Vicinity of an Aerodrome.

³ <https://www.dsft.co.uk/visiting-pilots>

CPA occurred at about 1038:23 and the C172 is seen to climb on radar at 1038:43. The Europa maintained a separation of about 0.2NM whilst downwind, apart from a single sweep with separation of 0.1NM which was deemed to be CPA. The low altitude of the aircraft resulted in some radar track instability.

Summary

An Airprox was reported when a C172 and a Europa flew into proximity in the visual circuit at Dunkeswell at 1038Z on Saturday 1st May 2021. Both pilots were operating under VFR in VMC, both in receipt of an AGCS from Dunkeswell Radio.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

Members first discussed the visual circuit pattern at Dunkeswell, noting that overhead joins and straight-in approaches were not permitted and that aircraft were required to join on base leg or downwind to the in-use runway. The Europa pilot had joined downwind, albeit not parallel to the runway, and had then taken up a position about 0.2NM in trail on the C172 and slightly below. Members were briefed that the C172 to Europa separation was initially 0.5NM at the start of the downwind leg and decreased to 0.2NM over the next 12sec as the C172 turned from crosswind to downwind and the Europa turned downwind. It remained at 0.2NM for the rest of the downwind leg, with the exception of one radar sweep of 0.1NM which was deemed to be CPA. The C172 pilot had no SA on the Europa (**CF3**) until another pilot, at the start of their downwind leg, made a call stating there was an aircraft 100ft immediately below and moving towards the C172. It was apparent from the radar replay that the Europa maintained position behind the C172 and was not appreciably moving towards it longitudinally but this would not have been possible to discern from the following aircraft pilot's position. Members discussed the responsibility of the Europa pilot to integrate with the pattern of traffic intending to land and agreed that their choice of positioning was not appropriate: the Europa pilot did not allow sufficient spacing from other aircraft whilst joining (**CF1**) or whilst downwind (**CF2**). Some members wondered whether the Europa pilot used this join technique in order to 'integrate' into a busy circuit and then extend downwind to obtain sufficient spacing from the aircraft ahead to land. It was agreed that a far more considerate method is to remain clear of the crosswind leg, use R/T calls and lookout to build a mental model of aircraft positions, and then integrate downwind when sufficient spacing presents itself. The concern of the pilot of the following aircraft was such that they had felt compelled to warn the C172 pilot, which the Board felt was entirely appropriate, resulting in a level of alarm (**CF4, CF6**) that resulted in the C172 pilot's unwarranted departure from the visual circuit. Board members thought that the Europa TAS should have alerted at such close range and that it either didn't or perhaps that the Europa pilot was unconcerned by its alert (**CF5**). In the event, the C172 pilot did not see the Europa until after CPA (**CF7**) due at least in part because the Europa was behind and below and would have been obscured by the C172 aircraft's structure (**CF8**). Turning to risk, members agreed that the Europa pilot was fully aware of the C172's position and their separation from it, thereby mitigating any risk of collision, but this Airprox highlighted a second order effect of poorly judged integration with traffic in the visual circuit.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2021044				
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	• 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				
3	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
4	Human Factors	• Unnecessary Action	Events involving flight crew performing an action that was not required	Pilot was concerned by the proximity of the other aircraft
• Electronic Warning System Operation and Compliance				
5	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				
6	Human Factors	• Lack of Individual Risk Perception	Events involving flight crew not fully appreciating the risk of a particular course of action	Pilot flew close enough to cause concern
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

Degree of Risk: C.

Recommendation: Nil.

Safety Barrier Assessment⁴

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 in receipt of an AGCS.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the Europa pilot did not allow sufficient longitudinal separation behind the C172 when joining downwind.

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

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the C172 was not aware of the joining Europa until informed of its proximity by another pilot downwind.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the Europa pilot either did not act on the alert or it did not alert as expected.

