Accident

1) Discus B, G-DJMD Aircraft Type and Registration:

2) Standard Cirrus, G-DCTB

No & Type of Engines: 1) None

2) None

Year of Manufacture: 1) 1988 (Serial no: 241)

2) 1972 (Serial no: 264G)

Date & Time (UTC): 25 May 2024 at 1400 hrs

Location: Hinton-in-the-Hedges Airfield, Northamptonshire

Type of Flight: 1) Private

2) Private

1) Crew - 1 Persons on Board: Passengers - None

2) Crew - 1 Passengers - None

Injuries: 1) Crew - 1 (Fatal) Passengers - N/A

2) Crew - 1 (Serious) Passengers - N/A

Nature of Damage: 1) Impact damage to lower forward fuselage,

tailplane and wings, and broken canopy

2) Impact damage to fuselage and tail. Broken

canopy, damage to tailplane, wing leading

edges, wing surfaces and wingtips

1) BGA Gliding Certificates, Bronze and Cross-Country endorsements and Silver Badge Commander's Licence:

2) BGA Gliding Certificates, Bronze and Cross-

Country endorsements and Silver Badge

Commander's Age: 1) 45 years

2) 29 years

Commander's Flying Experience: 1) 129 hours (43 hours on type)

Last 90 days - 5 hours Last 28 days - 5 hours

2) 104 hours (4 hours on type)

Last 90 days - 3 hours Last 28 days - 2 hours

Information Source: AAIB Field Investigation

Synopsis

Having completed their flying tasks in a local club competition, gliders G-DJMD and G-DCTB returned to Hinton-in-the-Hedges airfield, and both aircraft manoeuvred to the north-east of the airfield in preparation for an approach to land. The competition required pilots to report their position on the radio when downwind and when on final, but neither pilot was heard to do so, meaning a critical opportunity to alter the outcome was missed, and they remained unaware of each other's presence until they collided on short final. The pilot of G-DCTB suffered serious injuries. The pilot of G-DJMD was struck by G-DCTB's wingtip during the

collision and the glider then struck the ground in an inverted attitude. The pilot of G-DJMD suffered fatal injuries.

The investigation identified the following causal factor related to the collision:

 The pilots did not effectively communicate their location or intentions on the radio, and the unalerted 'see-and-avoid' principle was insufficient for either of them to be aware of the presence of the other in time to take avoiding action when joining the circuit and on final approach.

The investigation made the following findings:

- When an aeronautical radio station is licensed and approved to provide an Air Ground Communication Service, the service must be provided inside published hours of operation, unless promulgated otherwise by NOTAM or other suitable means.
- Glider pilots must hold a Flight Radiotelephony Operator Licence if they communicate with an air traffic control or flight information unit, or an Air Ground Communication Service.

Safety action was taken by:

- The Civil Aviation Authority (CAA) to remind radio licensees of their obligation to provide the service approved on their licence, and to ensure that approvals under the Air Navigation Order accurately reflected the responsibilities of licence holders.
- The British Gliding Association (BGA) to promulgate information on the avoidance of midair collisions.
- The respective gliding clubs to clarify their requirements for the use of radios by pilots.

History of the flight

The gliders were competing in an inter-club event at Hinton-in-the-Hedges Airfield. The competition involved navigating a fixed course task with designated turn points. Pilots were grouped into three categories: Novice, Intermediate, and Pundit. The pilot of G-DJMD competed in the Intermediate Class, tasked with a 156 km course, while the pilot of G-DCTB was in the Novice Class, assigned a shorter route of 118 km. The primary distinction between classes was the course length.

Forecasts had indicated that the weather on the competition day might be unsuitable for the planned activity. However, while conditions proved better than expected on the day, the organiser shortened the courses as a precaution¹. At 0900 hrs, the competition director

¹ Intermediate class shortened from 156 km to 117 km; Novice class shortened from 118 km to 81 km.

briefed all pilots on the weather forecast, task details, local airfield procedures, and safety measures. The pilots were instructed to make radio calls on the Hinton Radio² frequency, reporting their positions on downwind, base leg and when turning final. Hinton operations included freefall parachuting, powered aircraft, and gliding activities. Gliders were to launch from Runway 09 (grass), with landings permitted on Runway 06 (grass or hard) (Figure 1), or on Runway 09 (grass) if clear of launching gliders. To avoid conflict with a parachute drop aircraft, which was planned to operate throughout the day, glider pilots were directed to fly left-hand circuits to the runways. The drop aircraft flew right-hand circuits.

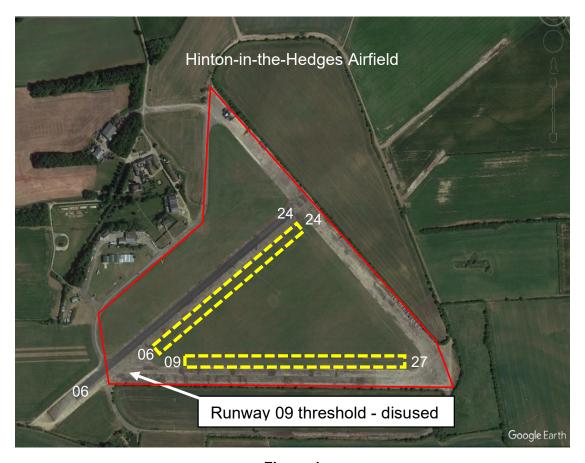


Figure 1

Hinton-in-the-Hedges runway layout and parachute landing area (bounded in red)

G-DJMD launched first at 1236 hrs, followed by G-DCTB at 1319 hrs. The task sent the gliders southwards on separate routes before eventually converging at Banbury, nine km to the north-west of Hinton. To complete the race the pilots had to cross a 3 km radius 'finish ring' centred on Hinton, at or above 1,500 ft aal. The radius encompassed likely landing circuits, while the minimum altitude ensured sufficient height for manoeuvring to position to land after finishing the task.

² The suffix 'Radio' denotes an Air Ground Communication Service (see later section on airfield communications).

At 14:39:51 hrs G-DJMD crossed the finish ring west-north-west of Hinton at an altitude of 2,300 ft (1,900 ft aal). G-DCTB crossed the ring to the west of Hinton at 14:45:05 hrs, at an altitude of 1,400 ft (1,000 ft aal) (Figure 2). G-DJMD then descended in a series of orbits near Farthinghoe, while G-DCTB continued briefly on a straight track, descending towards Hinton, before turning north-east. Both gliders then positioned on a downwind leg for a left-hand circuit (Figure 3).



Figure 2

Relative positions of G-DJMD and G-DCTB as they positioned to join downwind

At approximately the same time, the pilot of the parachute drop aircraft, having despatched his jumpers³, positioned to join the circuit on right base for Runway 06 (hard). When descending through 800 ft on final, he observed a glider on a "tight left base" for Runway 06 just below his level. He transmitted on the Hinton Radio frequency, "glider, are you going in ahead of me?", receiving the response, "I'm number one". The pilot acknowledged the radio call and initiated a turn to the left to position behind the glider. As he turned, he saw another glider, that appeared to be aligned with Runway 09, slightly behind but level with the first.

Footnote

3 All parachutists had landed and cleared the parachute landing area approximately two minutes before the gliders collided. He reported hearing an "unintelligible transmission" on the radio then continued in a wide left turn to position behind both gliders. Upon re-establishing on final, he reported seeing one glider's wing "flip", with the glider rolling inverted over the threshold of the disused Runway 09 before striking the ground.

A witness near the threshold of Runway 09 (grass) observed two gliders approaching the airfield and was able to identify them by type. G-DJMD was lined up with Runway 06 (grass) and G-DCTB was slightly lower and ahead on a shallower approach profile, apparently lined up with Runway 06 (hard). As they approached the airfield boundary, G-DCTB made a "shallow right turn" towards Runway 09 (grass), which was occupied with three gliders waiting to launch. G-DCTB's airbrakes were observed to be closed or partially closed. The manoeuvre placed G-DCTB on a conflicting path with G-DJMD.

The gliders collided at approximately 20 to 30 ft above the intersection of Runway 06 (hard) and the disused Runway 09 threshold. On collision, G-DJMD pitched up rapidly then rolled right until inverted before striking the ground in an inverted attitude. G-DCTB came to rest upright but entangled with G-DJMD.

Another witness at the north-west of the airfield, some 250 m distant, observed an approaching glider lined up with Runway 06 (grass) with its airbrakes open, and another glider lined up with Runway 09 at an offset of approximately 30°. They converged and collided approximately 30 ft above the ground. One glider pitched up, rolled inverted, then pitched down, its canopy detaching before impact with the ground⁴.

Competitors and officials provided immediate assistance, followed promptly by emergency services. The pilot of G-DJMD suffered fatal injuries, while the pilot of G-DCTB sustained serious injuries.

Accident site

Both gliders struck the ground at the western end of disused Runway 09. G-DCTB came to rest upright, facing across the runway to the right. G-DJMD came to rest inverted, with its nose close to the tail of G-DCTB, and its left wing leading edge lodged underneath the airbrake cover of G-DCTB's right wing.

A debris field of approximately 70 m preceded the gliders, beginning near the intersection of Runway 06 and disused concrete Runway 09. The debris comprised pieces of canopy transparency, instrument panel coaming, wingtip, aircraft skin, and personal effects.

Recorded information

FLARM data

Both G-DCTB and G-DJMD were equipped with FLARM installations, a traffic and collision warning system, from which track data leading up to the accident were recovered for both gliders. Figure 3 shows these tracks, at a number of points in time, as the gliders approached Hinton airfield, until the point that they collided. Between t-15s and the last

Footnote

⁴ Additional witness evidence is covered in a later section.

data point, G-DCTB had a recorded ground speed 15 kph faster than G-DJMD. Historical data for each FLARM installation was checked using historical data, and this indicated both units had a satisfactory detection range with no significant blind spots.

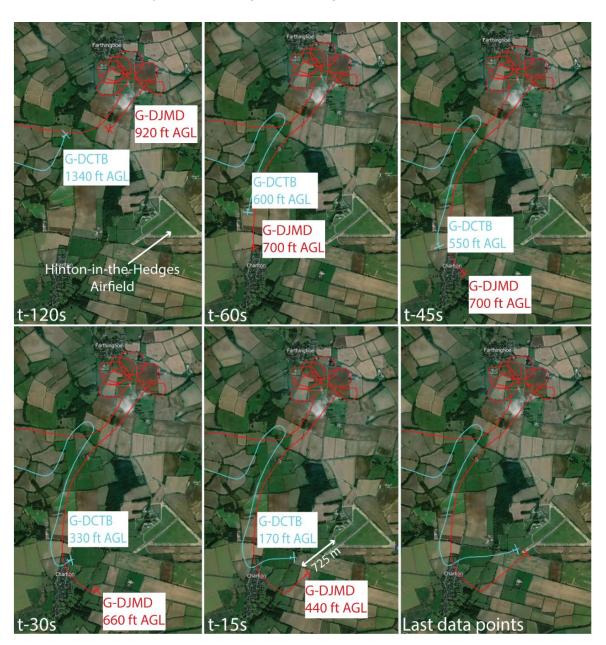


Figure 3

Relative positions of G-DJMD and G-DCTB over the last 120 seconds prior to the accident

Radio tests

Both G-DCTB and G-DJMD were equipped with VHF radios. These were recovered from the wreckage and initially powered on at the AAIB to establish the last tuned radio frequency before being sent to the manufacturer for detailed functional testing. Both radios were successfully powered-up and the last frequency tuned on both devices was found to be 119.455 MHz, the frequency for Hinton-in-the-Hedges. The radio from G-DJMD was

extensively damaged during the accident, was internally contaminated with dirt, and some of the circuitry had suffered corrosion, most likely following the accident; when tested at the manufacturer's facilities, it was unable to either receive or transmit a signal. The radio from G-DCTB was able to transmit and receive a signal and successfully passed all the manufacturer's functional tests.

The wiring from each radio head unit to its antenna was checked for electrical continuity, in addition to checking the press-to-talk switches and loudspeakers. No faults were found on either glider. The microphone from G-DCTB was also tested and found to function correctly, but it was not possible to establish whether the microphone from G-DJMD worked because it had been damaged. The testing was limited to the radios themselves and did not include their power supplies, which were not tested on site and which would have been somewhat depleted subsequently.

Other avionics

G-DJMD was also fitted with a Kanardia EMSIS, an instrument used to provide the pilot with an artificial horizon, speed and heading information. This unit was disassembled, as it records flight data including aircraft track and orientation, and several flights worth of data were successfully retrieved from its onboard non-volatile memory. However, the accident flight was not recovered. The manufacturer commented that a firmware update, to fix a known issue with correctly recording the GPS date, had not been applied and that some of the memory space reserved for recordings appeared corrupted; this may have affected the recording of the accident flight.

Aircraft information

G-DJMD: Schempp-Hirth Discus B

The Discus B is a single-seat glider constructed from carbon fibre and fibreglass. It has a 15.0 m wingspan, upturned wingtips, and a T-tail with fixed horizontal stabiliser and elevator. Flying controls are operated by a central control stick and rudder pedals. The glider is equipped with a retractable, single-wheel main landing gear, fixed tailwheel, and airbrakes. In G-DJMD the pilot was secured by a five-point harness and wore a parachute. There was an additional foam cushion located underneath the seat.

G-DJMD was manufactured in 1988, had 2,254 hours at its last inspection, and held a valid Airworthiness Review Certificate (ARC). Its paintwork was white and it displayed the competition number P23 (Figure 4).



Figure 4

G-DJMD (image used with permission)

G-DCTB: Schempp-Hirth Standard Cirrus

The Standard Cirrus is a single-seat glider constructed from fibreglass. It has a 15.0 m wingspan with straight wingtips, and a T-tail with an all-moving tailplane. Flying controls are operated by a central control stick and rudder pedals. The glider is equipped with a retractable, single-wheel main landing gear, fixed tail bumper, and airbrakes. In G-DCTB the pilot was secured by a four-point harness, wore a parachute, and was seated on a foam cushion.

G-DCTB was manufactured in 1972, had 3,128 hours at its last inspection, and held a valid ARC. It had red paintwork on the nose cone, wing tips, and the bottom and top of the rudder. G-DCTB displayed the competition number 579 (Figure 5).



Figure 5G-DCTB (image used with permission)

Aircraft examination

G-DJMD

Fuselage and Canopy

G-DJMD had come to rest inverted. The fuselage was intact and had abrasion damage from contact with the runway surface. The nose section had broken from top to bottom and had red paint transfer on its left side. There was further red paint transfer on the left side of the canopy in two places. The main gear wheel was found in the retracted position.

An upper section of composite instrument panel coaming was found approximately 45 m prior to the fuselage, and the instrument panel was found adjacent to the glider.

The canopy transparency had fractured into many pieces, which were found scattered the length of the debris field. The canopy's frame had broken in three places; at both front bend points and at the top of the rear 'hoop'. The frame pieces were found next to the fuselage.

Tail

The tail section was intact but had been abraded from contact with the runway surface when inverted. The rudder pedal controls were connected to the rudder via cables and control tubes, and there was control system continuity between the control stick and elevators. All control surfaces moved freely.

Wings

The left wing's leading edge at its mid-span position was wedged underneath the air brake cover on G-DCTB's right wing upper surface. Both wings were intact and had abrasion damage from contact with the runway surface. The right wing leading edge had a contact damage point; from which the leading edge had split along its length.

Control system continuity was established between the control stick and the ailerons. The air brake lever could be rotated and moved fore and aft, but this did not move the air brakes which were in the deployed position.

G-DCTB

Fuselage and Canopy

G-DCTB came to rest upright. The tip of the nose had impact damage and the fuselage frame behind the cockpit was distorted and cracked in a manner suggesting it was subject to a hard upward force upon landing. The main gear wheel was found in the retracted position, likely from the landing force. The sides of the cockpit area had also split from the landing force. The seat had come away from some of its mounting points but was intact.

The canopy frame was broken, and the canopy transparency had fractured. The majority of the canopy pieces were found in the immediate vicinity of the fuselage.

Tail

The glider's tail boom structure was broken. The rudder control rod was intact and connected at both ends, although bent and damaged where the tail boom was broken. Control continuity was established between the rudder pedals and the rudder.

The controls for the all-moving tailplane were intact and free to move from the control stick to the break in the tail and were connected to the tailplane past the break. The tip of the left tailplane was missing and was in the preceding debris field approximately 8.5 m from the fuselage.

Wings

The right wingtip had impact damage; a section of the underside wingtip skin had become detached and was found approximately 40 m further back in the debris field (Figure 6).



Figure 6
G-DCTB right wingtip damage, and underside wingtip skin section

The right wing's leading edge was covered with heavy black marking, that extended to both upper and lower surfaces (Figure 7).



Figure 7G-DCTB leading edge marks

Control continuity was established between the pilot's control stick and the ailerons, and the air brake lever and the air brakes. Both connecting systems of control tubes and linkages were subject to damage likely sustained on landing. The air brakes were in the retracted position.

Survivability

Both pilots wore parachutes; there is no regulation covering the use of emergency parachutes although there is a BGA Operational Regulation that requires glider occupants to carry emergency parachutes when flying in cloud and their use is considered a reasonable precaution. The proximity of the gliders to the ground when they collided would have precluded safe and effective use of a parachute in this situation.

G-DJMD was equipped with a five-point harness, and G-DCTB was equipped with a four-point harness. Both pilots were wearing these correctly and the pilots were effectively restrained in their seats. G-DJMD struck the ground inverted; despite the harness, this circumstance was not survivable.

Both gliders had a separate, locally manufactured, high-density foam seat cushion. In G-DJMD it was located underneath the seat, and in G-DCTB it was on top of the seat. It is probable that the cushion provided an additional level of impact protection to the pilot of G-DCTB, although it was not possible to quantify by how much. The BGA provides information on the benefits of using energy-absorbing cushions in gliders to help protect the spine⁵.

Meteorology

An aftercast provided by the Met Office described the prevailing conditions on the day of the accident:

'The afternoon of the 25th of May, would see generally settled conditions across much of the UK, including the area of interest. A frontal system, with associated precipitation would be affecting the East Midlands and East Anglia, with another system moving into the Southwest

The area of interest was sandwiched between those two frontal systems and looking at a variety of sites surrounding the area, the conditions could be described as settled with light southeasterly winds, visibility in excess of 10 km, with cloud bases around 4000 to 4500 ft".

Photographs provided to the AAIB by witnesses showed conditions at Hinton airfield on the afternoon of 25 May 2024 that confirmed the Met Office analysis.

Footnote

Why you should fly with an energy-absorbing safety cushion, Edition 2, March 2017, BGA https://members.gliding.co.uk/wp-content/uploads/sites/3/2015/04/Safety-Foam-ed2.pdf [accessed 5 August 2025].

Aeronautical radio stations

The CAA publishes CAP 452, 'Aeronautical Radio Station Operator's Guide'6, which is intended to provide the main reference document for aeronautical radio station operators. It presents two levels of communication service that might be appropriate for an unlicensed airfield with a dedicated frequency: an Air Ground Communication Service (AGCS) and an Operational Control Communication (OPC) Service.

AGCS

Where an AGCS is provided,

'radio station operators provide traffic and weather information to pilots operating on and in the vicinity of the aerodrome. Such traffic information is based primarily on reports made by other pilots. Information provided by an AGCS radio station operator may be used to assist a pilot in making a decision; however, the safe conduct of the flight remains the pilot's responsibility'.

When provided, an 'AGCS is to be made available to aircraft during notified hours'.

OPC

An OPC is an,

"...aeronautical radio station which is licensed and established for company operational control communications. It may be used only for communication with company aircraft, or aircraft for which the company is the operating agency".

On their website⁷, the CAA states that the category of OPC also includes all areas of recreational aviation, including:

'...associations, clubs, societies and individuals operating gliders, hang gliders, para gliders, paramotors, microlights, parachutes, balloons, gyroplanes and simple single engine aeroplanes'.

where,

'Aeronautical radio stations, comprising fixed, mobile, portable and hand-held radio equipment, are typically established and operated by these clubs, societies and individuals to provide radio communications with aircraft for the exchange of messages related to the particular recreational aviation activity'.

However, the CAA clarified that this service cannot be used for visiting general aviation, recreational aviation and other aircraft which are not operated by the company licensed to provide the OPC service.

- 6 https://www.caa.co.uk/publication/download/15805 [accessed 5 August 2025].
- Available at https://www.caa.co.uk/Commercial-industry/Airspace/Communication-navigation-and-surveillance/Aeronautical-radio-stations/ [accessed 28/05/2025].

Airfield information

Hinton-in-the-Hedges is an unlicensed airfield located approximately 4 km west of Brackley, Northamptonshire, at an elevation of 505 ft amsl (Figure 8). It is owned and operated by a private company.

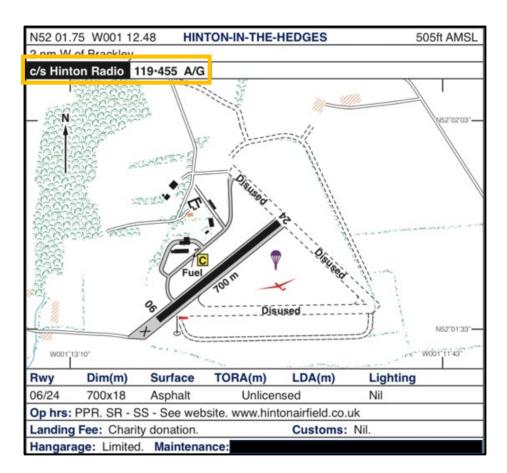


Figure 8
Hinton-in-the Hedges Airfield (© Pooleys, 2023)

Airfield operations

The airfield accommodates a gliding club, a skydiving operator, and several private aircraft owners. To ensure effective deconfliction of gliding and parachuting activities, the airfield Operations Agreement sets out a process in which the Duty Instructor of the gliding club liaises with the parachute Drop Zone Controller prior to operations. During this meeting, separate operating areas are established. Annotated maps reflecting these arrangements are signed by all relevant parties, disseminated within their respective organisations, and displayed at the airfield fuel pumps for other airfield users.

Should operational circumstances require any amendment to these arrangements, all signatories are notified and the maps are updated. The amendments must be signed by the involved parties prior to the continuation of activities.

This process was followed on the day of the accident.

Airfield communication

Hinton Airfield's Aeronautical Station Radio Licence, for an AGCS, was first issued in May 1993 by the Office of Communication (Ofcom) under the Wireless Telegraphy Act and had been renewed annually. The original allocated frequency was 119.450 MHz, with the callsign 'Hinton Radio'. In 2018, this was amended to 119.455 MHz to comply with the transition from 25 kHz to 8.33 kHz channel spacing. The use of the radio equipment and the service provided were subject to approval by the CAA under Article 205 of the Air Navigation Order⁸. The approval was non-expiring after initial issue and not subject to further oversight by the CAA.

The skydiving operator used a radio base station to communicate with their drop aircraft, while the gliding club used handheld radios to coordinate gliding activities. All radios operated on the frequency 119.455 MHz. Hinton airfield users routinely used the callsign 'Hinton Traffic' for radio calls, although the approved callsign suffix for an AGCS is 'Radio'. The entry in Pooleys Flight Guide for Hinton airfield had been annotated with the callsign 'Hinton Radio' (Figure 8) since 1993.

Radio callsigns typically comprise the airfield's geographical location followed by a suffix to identify the type of service pilots are receiving. The suffix 'Traffic' is associated with the Safetycom frequency (135.480 MHz), which is reserved for use at unattended aerodromes without an allocated frequency. Safetycom does not provide an air traffic service and is not linked to any aeronautical ground station; its main purpose is to enable pilots to communicate their intentions to other aircraft operating at or near the aerodrome⁹.

Following a fatal accident in 2002, in which a glider collided with a freefall parachutist at Hinton¹⁰, the airfield owner implemented enhanced radio procedures to improve on-airfield communications. This included mandating radios for all users and requiring position calls in the circuit. The airfield's website stated under 'terms of use':

'Hinton is an unlicensed airfield, therefore Unlicensed Rules apply.

Maintain a good listening watch on Hinton Radio 119.45 which is a traffic frequency only.

Normal "Arrival, Circuit & Departure" radio calls to be made to "Hinton Traffic". Do not expect a reply'.

Although the owner had held an AGCS licence since 1993, they mistakenly believed, or had been incorrectly advised, that providing the service was optional and that they could operate as a recreational service using the dedicated frequency for traffic radio calls. During annual licence renewals, Ofcom advised that it was a condition of the Wireless Telegraphy

- ⁸ Air Navigation Order (2016) (SI 2016/765), Chapter 5, Air traffic service equipment, Article 205. Available at: https://www.legislation.gov.uk/uksi/2016/765 [accessed 4 August 2025].
- See Civil Aviation Publication 413: Radiotelephony Manual, Edition 23, 26/11/20. Available at: https://www.caa.co.uk/publication/download/18165 [accessed 4 August 2025].
- AAIB report: Schleicher Ka-8B, FKJ, 1 June 2002 GOV.UK [accessed 4 August 2025].

Act 2006 that where the licensee of an aeronautical station was providing a service approved under the ANO, the station must be operated in accordance with that approval. Despite the licence terms, the owner prioritized retaining their established frequency, citing safety concerns over "downgrading" to a general frequency if the licence terms were amended and they reverted to Safetycom.

The AAIB found that although Ofcom had issued an Aeronautical Station Radio Licence for an AGCS at Hinton since 1993, and the CAA had approved its operation under Article 205 of the ANO, the licence holder – and other organisations using the allocated frequency - had never provided a level of service fully compliant with the ANO approval and CAP 452 standards.

Radio operators

Article 202 of the ANO¹¹ requires that radio operators transmitting on an AGCS frequency must hold an unrestricted Radio Operator's Certificate of Competence (ROCC), issued by the CAA and approved by the licence holder. Personnel transmitting on the Hinton Radio base station used by the skydiving operator to communicate with the drop aircraft, and handheld radios used by the gliding club to manage their activity, did not hold unrestricted ROCCs.

One radio operator held a Parachute Radio Operator's Certificate of Competence (Restricted) which allows transmission on only two frequencies allocated to the British Parachute Association (BPA)¹²: one for communication between the drop zone control and the drop aircraft, a second between drop zone control and parachutists. Neither of those frequencies were used at Hinton.

Pilots

It is a requirement in most circumstances when operating an aeronautical radio for pilots to hold a Flight Radiotelephony Operator Licence (FRTOL). Glider pilots and student pilots under training are, subject to certain conditions, exempt from the requirement to hold a FRTOL under Article 139 of the Air Navigation Order 2016. However, glider pilots without a FRTOL are not permitted to use the radio to communicate with an air traffic control unit, flight information unit or an AGCS. The level of service that is approved on the published frequency allocation is what determines the need for holding a FRTOL.

Neither of the pilots involved in the accident held a FRTOL.

- Air Navigation Order (2016) (SI 2016/765), Chapter 4, Certificate of competence to operate an aeronautical radio station, Article 202. Available at: https://www.legislation.gov.uk/uksi/2016/765 [accessed 5 August 2025]
- Allowed frequencies: 129.905 MHz and 130.530 MHz See Civil Aviation Publication 660: Parachuting, Fifth edition, March 2020, available at: https://www.caa.co.uk/publication/download/12329 [accessed 5 August 2025].

Radio communications on the day of the accident

Multiple witnesses, in a position to monitor radio transmissions, consistently reported deficiencies in radio communication on the day of the accident. Notably, several witnesses reported that they did not hear any radio calls from the accident pilots indicating their intentions. The pilot of G-DCTB recalled that he made a downwind radio call, but not if he made a call on base or final. This difficulty in recall was likely due to the serious injuries sustained in the accident.

Radio transmissions from some glider pilots participating in the competition were variously described as "non-standard", with "weak signals" and instances of overlapping transmissions with pilots "stepping on each other". Excessive and "unnecessary radio chatter" was observed, further contributing to communication difficulties. One witness recalled a single intelligible call, possibly from a glider, reporting its position on left base for Runway 06; subsequent transmissions were unreadable.

Despite Hinton airfield's requirement for clear radio communication, necessitated by the presence of parachutists, powered aircraft and gliders, one witness observed a lack of radio discipline among glider pilots. This was characterised by inconsistent, or absent transmissions.

Witness testimony

All witnesses observing the event from the airfield described the collision sequence in broadly similar terms. They were positioned at various locations: near the threshold of Runway 09 (grass), the disused concrete Runway 09, north-west of the airfield near the fuel pumps (Figure 8), and to the north near the parachute centre. Some viewed the event from inside vehicles.

While not all witnesses specifically identified the gliders, some referred to them by their competition numbers and others by type. The main difference in testimony was the gliders' relative positions as they approached the runways:

- G-DCTB approaching Runway 09; G-DJMD approaching Runway 06.
- G-DJMD approaching Runway 09; G-DCTB approaching Runway 06.

The pilot of G-DCTB could not recall which runway he had intended to use or was ultimately lined up with.

Organisational information

British Gliding Association (BGA) guidance on radio use

The BGA is the governing body for gliding in the UK and provides comprehensive information and guidance for glider pilots, including on radio use, under the 'Managing Flying Risk' section of its website¹³. The BGA advises that radios, when used correctly, enhance

¹³ https://members.gliding.co.uk/safety/managing-flying-risk-collision-avoidance/ [accessed May 2025].

situational awareness, especially for communicating aircraft positions in the circuit. The use of radios has been encouraged, but not mandated, and is largely delegated to gliding clubs to decide local policy.

BGA position on FRTOLs

The BGA supports the established position that glider pilots are not legally required to hold a FRTOL when communicating on allocated gliding frequencies, provided they do not communicate with Air Traffic Service Units or an AGCS. However, a FRTOL is necessary for communication with these services or when operating outside designated gliding channels.

The BGA advises that FRTOL training builds confidence and expands communication privileges, such as contacting controllers, accessing Radio Mandatory Zones, controlled airspace, and aerodrome traffic zones. This training is especially encouraged for pilots who regularly fly cross-country, with approximately 150 glider pilots completing FRTOL courses with the BGA annually in recent years.

However, for pilots who only fly locally from their airfields, the BGA does not consider a FRTOL to be necessary. It believes that training time would be more effectively used by focusing on circuit call procedures, rather than on aspects of aviation covered in the FRTOL course that are not relevant to this group of pilots.

Alignment with Part SFCL

The BGA Gliding Certificate transitioned to the requirement for all Part 21 Sailplane Pilots to operate with the CAA-issued Part SFCL (Sailplane Flight Crew Licensing) SPL (Sailplane Pilots Licence) from 30 September 2025. The training syllabus and Bronze Award exams were being updated, covering CAP 413 terminology, basic procedures, unattended aerodrome calls, and urgency calls, complementing the FRTOL course content.

Airfield frequencies for gliding clubs

In October 2022 the BGA gave a presentation to the CAA to support their call for a greater allocation of discrete radio frequencies for gliding clubs. The BGA argued that CAA policy, which requires airfield operators to deliver an AGCS to qualify for a discrete radio frequency, was inappropriate and potentially unsafe for gliding operations. The BGA highlighted that gliding clubs often experience unpredictable and dense traffic patterns, with many gliders simultaneously airborne and circuit activity that differs significantly from typical general aviation airfields. They believed that as direct pilot-to-pilot communication was essential for effective deconfliction, delivering an AGCS would be impractical and may even reduce safety at gliding clubs. Furthermore, the BGA argued that many clubs have a high volume of annual movements, justifying the need for their own discrete frequencies to prevent the overlap of radio calls with neighbouring airfields.

The BGA proposed two main solutions: allowing clubs to apply for discrete frequencies without the AGCS requirement or increasing the number of Common Glider Field Frequencies from the current two and permitting the BGA to manage them. The CAA allocated an additional 10 common frequencies, which were distributed to 30 gliding clubs and became operational in February 2024.

Aircraft visibility

See-and-avoid

The pilot of G-DCTB recalled seeing the parachute drop aircraft in the distance while conducting his pre-landing checks. However, he did not recall being aware of, or seeing, G-DJMD, even during the manoeuvre recorded at t-120 seconds prior to collision when recorded data showed his glider positioning behind, and 420 ft above, G-DJMD to establish on a downwind leg.

An ATSB report into a fatal midair collision between two sightseeing helicopters on the Gold Coast of Australia in 2023¹⁴ examined the effectiveness of unalerted see-and-avoid where pilots rely on visually acquiring other aircraft and then taking action to avoid them. The report highlights the extensive literature documenting the limitations of see-and-avoid. In particular, an ATSB research report (Hobbs, 1991¹⁵) stated that unalerted see-and-avoid is a 'Last resort separation if other methods fail to prevent a confliction, regardless of the nature of the airspace'.

The report outlines the steps involved in see-and-avoid:

- 1. The pilot looks outside the aircraft.
- 2. The pilot searches the visual field and detects objects of interest, often in peripheral vision.
- 3. The object must be directly observed and identified as an aircraft.
- 4. If identified as a collision threat, the pilot must decide on evasive action.
- 5. The pilot must then execute the necessary control movements and allow the aircraft to respond.

The report provides context for these steps:

'Not only does the whole process take valuable time, but human factors at various stages in the process can reduce the chance that a threat aircraft will be seen and successfully evaded. These human factors are not 'errors' nor are they signs of 'poor airmanship'. They are limitations of the human visual and information processing system which are present to various degrees in all pilots'

In contrast, alerted see-and-avoid augments the task of visual acquisition by directing pilots to the location of other aircraft, either through timely and accurate radio position reports or aircraft-based alerting systems such as FLARM.

Midair collision involving Eurocopter EC130 B4, VH-XH9, and Eurocopter EC130 B4, VH-XKQ, Main Beach, Gold Coast, Queensland, on 2 January 2023 | ATSB [accessed 28 May 2025].

¹⁵ Hobbs, A. (1991). Limitations of the See-and-Avoid Principle. Australian Transport Safety Bureau. (1991)

In its report on the fatal midair collision between gliders G-KADS and G-CLXG in 2023¹⁶, the AAIB noted that while systems such as FLARM can provide timely information about other similarly equipped aircraft, they remain an aid to pilot lookout. The report cautioned:

'It is possible that pilots who experience repeated alerts or alarms from aircraft systems can begin to disregard or pay less attention when they sound even if those alerts are genuine'.

The investigation could not determine whether the pilots of G-DJMD and G-DCTB received any FLARM alerts while positioning in the circuit at Hinton.

Tests and research

Paint and surface analysis

Forensic sampling and analysis of paint transfer marks was carried out on both gliders. Red paint from the bottom of G-DCTB's rudder was chemically matched to paint transfer marks on the forward, left fuselage surface of G-DJMD. Red paint from G-DCTB's right wingtip was chemically matched to paint transfer on the left rear section of G-DJMD's canopy frame.

Forensic analysis of a section of skin from the lower surface of G-DCTB's right wingtip positively identified the presence of blood from the pilot of G-DJMD, and so it was concluded that the wing came into contact with the pilot during the collision.

Canopy failure analysis

The majority of both canopies were retrieved from the accident site, and both were reconstructed. Fracture surface analysis was conducted on fragments from the left-hand rear section of G-DJMD's canopy transparency.

The analysis showed visible 'scarp' features (feather patterns) typical of brittle fracture on the edges of the fragments. This indicates the canopy failed from being distorted, rather than from an impact load. There was evidence of red paint transfer on fracture surfaces of two of the fragments (Figure 9) which were retrieved from the farthest part of the debris field.

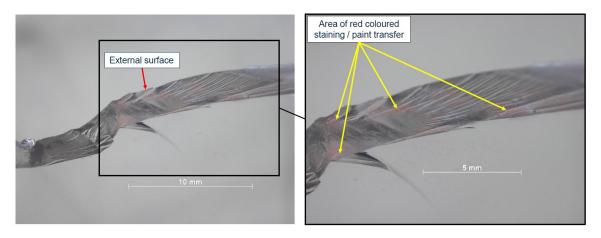


Figure 9

Red paint transfer on canopy fragment fracture face

AAIB investigation to Ventus-2CT, G-KADS / E1 Antares, G-CLXG - GOV.UK [accessed 25 May 2025].

Crack initiation was likely to have been from at or near the window aperture, running through an area of red paint deposit. The fracture direction ran aft and upwards, before returning to the front of the canopy (Figure 10). The two areas of red paint transfer indicate pressure being broadly applied to the canopy between these points before the canopy flexed and broke, and the paint was then able to transfer onto the fracture surfaces.

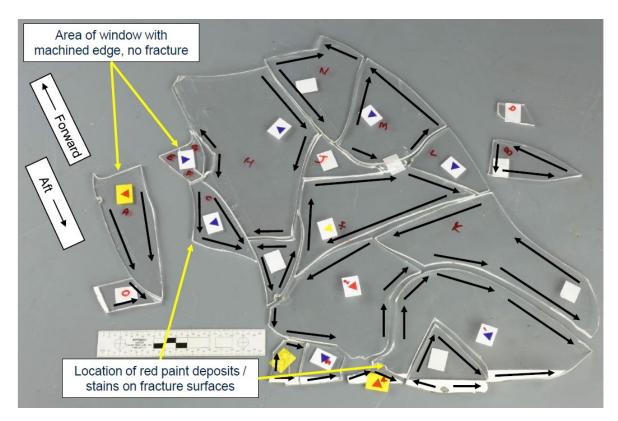


Figure 10
Canopy fragment reconstruction and fracture directions

Surface transfer testing

Surface transfer testing was performed between G-DJMD's composite coaming material and the wing surface of G-DCTB. This produced a similar marking pattern to that seen on both upper and lower wing surfaces and the leading edge of the right wing.

Pilot information

Pilot experience

Both the pilot of G-DJMD and the pilot of G-DCTB held BGA Gliding Certificates with Bronze and Cross-Country endorsements and a Silver Badge. This entitled the pilots to hold a Fédération Aéronautique Internationale (FAI) competition licence. Both pilots had previously flown in competitions and both held a BGA Basic Instructor rating.

Use of radios at home airfield

The pilots' home airfield was RAF Weston-on-the-Green, used primarily for military parachute training. The airfield is a large grass site with three landing strips. The airfield operator did not allow gliding activity when parachute operations were active.

The gliding club used a Common Glider Field Frequency but did not mandate the making of position calls in the circuit. A witness told the AAIB that it would have been "unusual" for the accidents pilots to make position calls in the circuit at Weston.

The pilot of G-DCTB had flown out of Weston since his initial flying training in 2021. The pilot of G-DJMD joined the club in 2021, already qualified with a cross-country endorsement and a Silver Badge.

Medical

Both pilots had registered CAA Pilot Medical Declarations which met the requirements of the BGA for pilots in command.

Post-mortem report

Post-mortem examination of the pilot of G-DJMD revealed no evidence of incapacitation before the accident and recorded the cause of death as 'head injury'. The pathologist commented that:

'There were no injuries identified that would not be explained by [a glider striking the ground inverted], however, the possibility that some injury was sustained as a result of the initial canopy impact cannot be entirely excluded on pathological examination alone'.

Analysis

Overview

The pilots of G-DJMD and G-DCTB were participating in a local cross-country gliding competition. After crossing the Finish Ring, located 3 km from Hinton airfield, the accident sequence began when the pilots, probably unaware of the presence of each other, flew on converging tracks during their final approach. The gliders collided above the intersection of Runways 06 and 09. The pilot of G-DCTB sustained serious injuries, while the pilot of G-DJMD was fatally injured when his glider struck the ground.

Joining the circuit

The data recovered from both FLARM devices showed the gliders converged on the airfield from different directions after completing their respective competition tasks. G-DJMD crossed the finish ring at 14:39:51 hrs at an altitude 2,300 ft (1,900 ft aal), while G-DCTB crossed later, at 14:45:05 hrs, at a lower altitude of 1,400 ft (1,000 ft aal). This initial height and timing difference established a scenario where both aircraft would be joining a left-hand circuit pattern, as directed at the competition briefing, at approximately the same time but from different positions and altitudes.

The data showed that between t-45 and t-30 seconds before the collision, both gliders appeared to be positioning for an approach to Runway 06 before G-DCTB turned left sharply. G-DCTB's track change, turning inside G-DJMD, could have been to avoid overflying the village of Charlton or a decision to track directly to the airfield due to being at a height of 330 ft aal. This manoeuvre, however, placed the two gliders on converging paths at t-15, both at low altitude and with G-DCTB's recorded ground speed 15 kph faster than G-DJMD's.

Final manoeuvre

G-DCTB was observed to make a late turn toward Runway 09¹⁷, deviating from what appeared to be an intention to land on either Runway 06 (grass) or 06 (hard). A ground observer described G-DCTB's final approach profile as "shallow", with the airbrakes either closed or only partially deployed. This may indicate the pilot perceived he lacked sufficient performance to reach Runway 06 and chose to turn towards Runway 09 to avoid landing short. Runway 09 (grass) was occupied with three gliders waiting to launch, which, once recognised, would have required a larger track change to land on the disused concrete Runway 09 instead. The pilot could not recall which runway he had intended to land on.

Post-accident examination found G-DJMD's airbrakes in the deployed position, while G-DCTB's were retracted. This finding aligns with witness observations, although these positions may have been affected by impact forces.

Some witnesses transposed the identity of the gliders in their statements to the AAIB. This was likely due to differing observation perspectives and a mental reconstruction based on the gliders' final positions on the ground, after the collision.

Engineering and collision geometry

Analysis of G-DCTB and G-DJMD's structure and flying controls did not reveal any defects or control restrictions that would have prevented either glider from being able to change their flight path prior to the collision.

The right wingtip of G-DCTB contacted G-DJMD's canopy frame and canopy transparency in mid-air, causing the transparency to flex and fracture into multiple fragments. The location of the majority of G-DJMD's canopy fragments were found at the beginning of the debris field and paint transfer marks matching that of G-DCTB's wingtip were found on G-DJMD's canopy frame and transparency.

The continued trajectory of the wingtip then made contact with the pilot of G-DJMD before the wing's leading edge struck the cockpit coaming, separating the top section of coaming from the aircraft. Heavy black markings on the leading edge, upper and lower surfaces of G-DCTB's right wing showed the coaming was in contact with the wing for some time as it separated from G-DJMD.

¹⁷ The late turn reported by witnesses but not shown in the images.

The centre of G-DJMD's left wing leading edge then struck G-DCTB's right tailplane, leaving a point impact mark on the wing's leading edge and splitting the skin along its length. The tip of the tailplane separated and was found in the latter part of the debris field closest to the accident site.

G-DJMD came to rest inverted, with its left wing underneath the top panel of G-DCTB's right air brake. G-DCTB's tail was in close proximity to G-DJMD's nose and red paint transfer on G-DJMD's nose was matched to the lower rudder of G-DCTB, indicating this contact was made during the latter accident sequence at ground level.

The main gear was found in retracted positions on both gliders. The level of damage to G-DCTB's internal fuselage structure surrounding the gear wheel shows it is likely that G-DCTB's wheel was extended but pushed back up into the fuselage when it hit the ground. It was not possible to accurately determine whether G-DJMD's wheel had been extended.

Medical aspects and survivability

Due to the low height when the gliders collided, there was a negligible margin for the pilots to have instigated avoiding or mitigating action, including use of parachutes.

Both pilots were wearing multi-point harnesses, which were effective in restraining them in their seats, and it is probable that the energy-absorbing foam cushion fitted to G-DCTB provided some additional vertical force impact protection to its pilot.

The report of the post-mortem examination of the pilot of G-DJMD revealed no evidence of incapacitation before the accident. The report stated that the pilot's injuries were consistent with the glider striking the ground inverted but noted that the possibility that the pilot was injured to some extent during the collision could not be excluded. Analysis of blood found on G-DCTB's right wingtip showed that it came into contact with the pilot during the initial collision, but nothing more could be said about the extent of any injury sustained at that point. It was clear, however, that the accident sequence was not survivable for the pilot of G-DJMD.

Lookout and visual acquisition

The collision occurred in VMC during daylight hours. The Met Office aftercast indicated generally settled conditions with good visibility. In these conditions, the primary method of collision avoidance would have been visual lookout by both pilots. Previous studies have concluded that the effectiveness of unalerted see-and-avoid is challenging given the 'limitations of the human visual and information processing system' (Hobbs, 1991).

Both pilots had completed their competition tasks and were transitioning to the landing phase, a period of high workload requiring simultaneous attention to multiple factors: airspeed and flight path management, traffic awareness, selection of landing area, circuit positioning and communication. In such dynamic situations, pilots must decide where to focus their attention and once established on final approach their focus shifts to executing the landing, which reduces the time and attention available to monitor or detect the presence of conflicting traffic.

Witness evidence and recorded data showed that the two gliders were on converging flight paths at an angle of approximately 30°. This created a challenging visual detection scenario with the added possibility that cockpit structure and pilot seat positions may have created blind spots. It could not be determined whether the pilots received FLARM alerts indicating the presence of the other glider, but no evasive manoeuvre was observed before the collision and so the investigation concluded that neither pilot visually detected the other glider in time to take effective avoiding action.

Glider radios

Both gliders were equipped with VHF radios tuned to the Hinton Radio frequency (119.455 MHz), as confirmed during post-accident examination. The radio from G-DJMD was extensively damaged during the accident, had suffered from dirt ingress and some corrosion was evident. Subsequent testing confirmed that it was no longer able to transmit or receive. However, wiring continuity tests indicated that no faults were found on either glider, therefore it is likely that the radio from G-DJMD was capable of transmitting and receiving prior to the accident assuming a good power supply to the head unit.

G-DCTB's radio passed all functional tests, indicating it was capable of both transmitting and receiving at the time of the accident assuming a good power supply to the head unit.

Pilot communications

During the competition briefing, pilots were instructed to make position reports on downwind, base leg and final approach. The pilot of the parachute drop aircraft reported receiving a response from a glider to his query regarding its landing intentions. Shortly before the collision, he heard another transmission that was "unintelligible"; he could not identify the source or interpret its content. It is possible that this was caused by two simultaneous transmissions stepping on each other.

On the day of the accident, multiple witnesses monitoring the airfield's frequency reported significant shortcomings in radio discipline. These included a lack of position reports and a general pattern of weak, overlapping, and non-standard transmissions from gliders. Excessive and unnecessary radio traffic further degraded clarity.

The operating environment at Hinton was inherently complex, with multiple runway configurations and simultaneous gliding, parachuting, and powered aircraft operations. This required clear communication in accordance with the airfield's published procedures and competition briefing. The accident pilots came from a club where visual scanning was the primary method of collision avoidance, and radios were not routinely used for circuit position calls. This operational culture likely shaped their perception of radio communication as a supplementary safety measure rather than an integral component of airfield procedures. Consequently, under the increased cognitive workload during the transition from task completion to landing, unfamiliar or non-standard radio procedures may have been assigned a lower priority.

The AAIB concluded that effective communication was not established between the two gliders in the critical moments leading up to the collision. The underlying cause, whether attributable to workload saturation, operating culture, or other human/technical factors, could not be definitively identified. However, it highlights the limitations of unalerted visual acquisition as the primary means of collision avoidance, particularly in high-workload landing phases. It also emphasises the importance of pilot training and active encouragement to use radios to alert other pilots to their position, especially in the circuit.

In recognition of the importance of making timely and accurate position calls in the circuit, the following safety action was taken to strengthen the existing guidance on radio use:

The British Gliding Association:

- Sent an email to all club Chief Flying Instructors and BGA instructors reminding them of the key attributes to avoid midair collisions during the circuit, approach and landing.
- Updated the 'Managing Flying Risk Collision Avoidance' section of their website.
- Highlighted the updated collision avoidance information in their regular e-newsletter to members.

The gliding club at Hinton Airfield produced an updated Daily Flying Briefing that reminded members that:

- Radio checks are mandatory for the first flight of the day for club and private gliders.
- Radio calls are mandatory for Downwind and Final to aid situational awareness

The gliding club at Weston-on-the-Green Airfield amended its policy on the requirement to make radio calls in the circuit. Club instructors would teach and encourage students and solo pilots to make a 'downwind' call when in the circuit. This would be reinforced during periodic check flights and promulgated in the club's weekly newsletter.

Flight Radiotelephony Operator's Licence

In most situations, pilots operating an aeronautical radio installed in an aircraft are required to hold a FRTOL. There are some exceptions to this requirement, which are outlined in Article 139 of the ANO 2016.

The BGA encourages and supports glider pilots in obtaining a FRTOL, acknowledging that the training enhances confidence and broadens communication privileges, particularly for pilots who fly cross-country. However, for pilots who only fly locally from their home airfields,

the BGA does not consider a FRTOL to be essential. For this group of pilots, it is important that they have a clear understanding of the requirements under the Wireless Telegraphy Act 2006, and the ANO 2016.

To raise awareness of the FRTOL requirements, the CAA planned to issue a Safety Notice and to update its website. These actions would remind licence holders of the following obligations:

'The Wireless Telegraphy Act 2006 and the Air Navigation Order 2016 requires the Licensee of radio transmitting and receiving equipment installed in an aircraft to hold an Aircraft Radio Licence.

The Licensee shall not permit any person to use the equipment unless they hold a Flight Radiotelephony Operator's Licence or act under the supervision of a person who holds a Flight Radiotelephony Operator's Licence issued by the UK CAA.

There are some exceptions to the requirement to hold a Flight Radiotelephony Operator's Licence. These are specified in Article 139 of the Air Navigation Order 2016.

The service that is approved on the frequency allocation is what determines the need for holding a FRTOL. This is the published frequency allocation, which unless it is notamed (or promulgated by other suitable appropriate means) as not providing the published service or outside of the published hours this remains the service which should be provided and therefore adhered to by those using the frequency'.

Hinton airfield was licensed to operate an AGCS and neither of the accident pilots held a FRTOL.

Airfield communications

Hinton airfield had been licensed to operate an AGCS since 1993, as indicated by the use of the suffix 'Radio' in its callsign on both its website and the Pooleys Flight Guide chart. The Ofcom licence was renewed annually, and the use of the radio equipment and the service provided were also subject to CAA approval under Article 205 of the Air Navigation Order on first issue. The approval was non-expiring and not subject to further oversight by the CAA.

An AGCS is required to provide traffic and weather information to pilots operating at, and in the vicinity of, the airfield to assist decision making. Where an AGCS is provided, it is expected to be available during the airfield's notified hours of operation. All radio operators transmitting on the frequency must hold an unrestricted ROCC.

The AAIB found that neither the licence holder, nor other organisations operating radios transmitting on the allocated frequency at Hinton, had historically provided an AGCS. The licence holder believed the licence granted use of a dedicated frequency with the option, rather than the obligation, of delivering an AGCS. They considered this a safer alternative

to giving up their known frequency and using Safetycom. However, the airfield's website gave contradictory guidance to visiting pilots, advising them to 'Maintain a good listening watch on <u>Hinton Radio</u> 119.45 which is a <u>traffic frequency</u> only'.

Because an AGCS was not provided, none of the personnel operating the base station or mobile radios held an unrestricted ROCC.

The CAA advised the AAIB that an OPC, the only alternative form of aeronautical radio station available, would not be approved at an airfield hosting visiting general aviation, recreational flying and aircraft not operated by the company licensed to provide the OPC.

On the day of the accident, a single frequency (119.455 MHz) was used for communication by all flying activities. However, this frequency was not utilised to coordinate their combined operations and instead operated primarily as a general recreational traffic channel. Witnesses reported significant deficiencies in radio communications, including excessive and unnecessary chatter and the use of non-standard phraseology.

Although it could not be determined with certainty that effective radio use would have prevented the collision, a critical opportunity to detect and avoid the conflict at an earlier stage was missed. The investigation concluded that if an AGCS had been provided by a qualified radio operator, all parties operating at Hinton would likely have benefitted from a shared mental model and improved situational awareness, significantly improving overall safety.

To support safe future operations at Hinton airfield, the CAA engaged in discussions with the airfield's owner and licence holder to establish a level of communication service suited to their specific needs.

The CAA planned to update the contact details of all ANO Article 205 approval holders. Once this process was complete, approval holders would be required to provide an up-to-date list of all current ROCC holders authorised to provide an AGCS at their airfield. This must be maintained and made available to the CAA upon request.

The CAA also undertook to review the conditions associated with ANO Article 205 approvals, as set out in the approval letter, to ensure they accurately reflected the responsibilities of the approval holders. Following this, the CAA intended to issue a Safety Notice and a Supplementary Amendment to CAP 452 to communicate the changes.

Conclusion

The gliders collided on short final to Hinton-in-the-Hedges Airfield because neither pilot detected the other's presence in time to take avoiding action. The accident could have been prevented through timely and clear radio communication by the pilots to alert other circuit traffic of their presence, facilitated by a qualified radio operator providing an AGCS, as licensed and approved by the CAA.

Although the airfield owner and Aeronautical Radio Station licensee had held a CAA approval

to deliver an AGCS since 1993, no such service had historically been provided, and no radio operators possessed the necessary qualifications.

Both gliders were equipped with radios tuned to the AGCS frequency; testing confirmed these radios were likely capable of transmitting and receiving.

Examination of both aircraft revealed no pre-existing defects or anomalies that might have contributed to the accident.

Safety action

The following safety action was taken:

The British Gliding Association:

- Sent an email to all club Chief Flying Instructors and BGA instructors reminding them of the key attributes to avoid midair collisions during the circuit, approach and landing.
- Updated the 'Managing Flying Risk Collision Avoidance' section of their website.
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