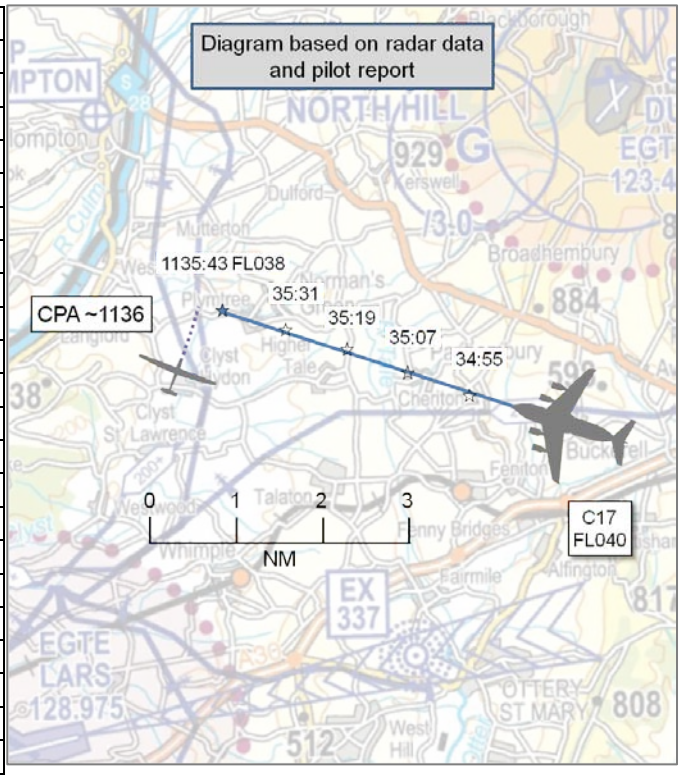
AIRPROX REPORT No 2016061

Date: 28 Apr 2016 Time: 1135Z Position: 5049N 00321W Location: Exeter (EX) NDB hold

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	C17	Glider
Operator	HQ Air (Ops)	Unknown
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	
Service	Traffic	
Provider	Exeter	
Altitude/FL	FL40	
Transponder	A, C, S	
Reported		
Colours	Grey	
Lighting	Nav, strobes	
Conditions	VMC	
Visibility	10km	
Altitude/FL	FL40	
Heading	289°	
Speed	230kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation		
Reported	NK	NK
Recorded	NK	



THE BOEING C17 PILOT reports being in the EX NDB hold at FL40 carrying out the hold portion of a procedural ILS approach for training. The Aircraft Commander was a flying instructor in the role of PM, and was sat in the left-hand seat. The PF was sat in the right-hand seat. The aircraft was at 230kt, in a clean configuration. Whilst flying the westbound leg of the hold, the PF was "Heads in" briefing the next portion of the procedure when the PM called "traffic ahead". On looking up, the PF observed a glider on the nose tracking, he recollected, right-to–left, level, about 1nm away and considered to be close enough for him to take manoeuvring action by descending approximately 400ft. The PM reported this to the controller at Exeter. The glider appeared to make no avoiding manoeuvres.

He assessed the risk of collision as 'Medium'.

THE GLIDER PILOT could not been traced.

THE EXETER RADAR CONTROLLER reports that a C17 on a training flight was in the hold at NDB 'EX' at FL40. While on the outbound leg (289°) the pilot reported the presence of a glider in the hold at FL40, tracking, he recollected, north.

Factual Background

The weather at Exeter was recorded as follows:

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METAR EGTE 281120Z 27008KT 230V300 9999 SCT040 10/01 Q1014=
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from the C17 pilot, the Exeter Radar controller, the area radar recordings, the Exeter Radar recordings and a recording of the Exeter Radar frequency. ATSI also interviewed the Exeter Radar North controller by telephone. The glider was not transponding and, therefore, could not be positively identified. The radar return likely to be the unidentified glider was not visible on the area radar recordings and so screenshots produced in this report are provided using a recording of the Exeter Radar controller's display. The screenshots have been magnified for illustrative purposes; therefore, they cannot be considered as wholly representative of what the Exeter Radar controller would have seen at the time of the Airprox. Levels indicated by the C17 are Flight Levels. All times UTC.

The C17 was operating IFR at Exeter Airport where RW26 was in use. Prior to the Airprox the C17 pilot had flown an ILS approach followed by a number of visual circuits. At the time of the Airprox the C17 pilot was westbound in the 'EX' NDB(L) hold at FL40. He was in receipt of a Traffic Service from Exeter Radar.

At 1044:59, the outgoing controller placed the C17 pilot under a limited Traffic Service due to controller workload and numerous primary radar contacts observed to the east of Exeter. The incoming Exeter Radar controller then took over the position at 1100:00, before the C17 pilot joined the 'EX' NDB(L) hold prior to flying an ILS approach. The intention of the C17's crew was to fly the ILS approach to a touch-and-go followed by some visual circuits.

At 1104:26, as the C17 pilot was flying the entry procedure to take up the hold at the 'EX' (prior to flying the ILS approach), the Exeter Radar controller advised the C17 crew of several primary radar contacts to the north-east of their position. The C17 crew were advised that the contacts were possibly gliders and that glider activity had been notified in that area up to the cloud-base. Once established on the ILS approach, the C17 pilot was transferred to Exeter Tower to complete the visual circuit element of the sortie.

At 1131:17, the C17 pilot called Exeter Radar on departure from RW26 in a right-hand turn, routeing direct to the 'EX' NDB(L), climbing to FL40.

At 1131:21, the Exeter Radar controller identified the C17 and placed the pilot under a Traffic Service. The C17 pilot then requested to join the hold followed by the NDB(L) approach procedure for RW26 (Figure 1).

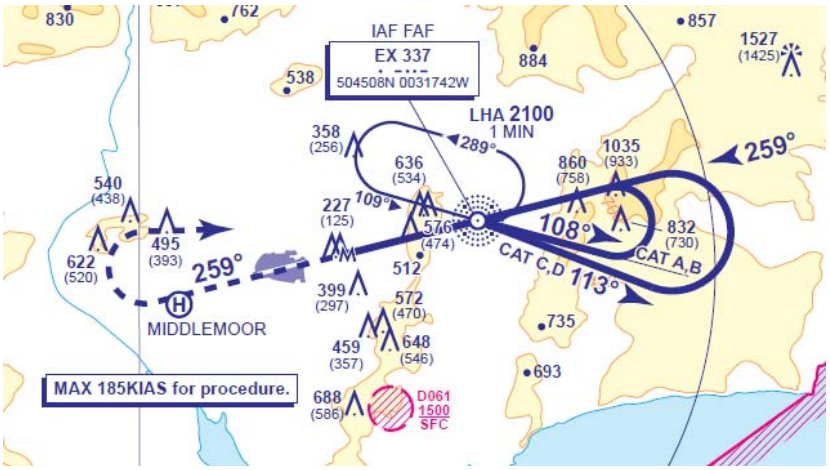

Figure 1 – Exeter NDB(L)/DME RW26 Instrument Approach Chart.[1]

[1] UK AIP AD 2-EGTE-8-11

At 1133:20, the C17 pilot reported taking up the 'EX' hold at FL40. The Exeter Radar controller then advised him that he was cleared for the NDB(L) approach procedure next time over the beacon.

At 1134:34 (Figure 2) the C17 (code 0420) had turned westbound in the 'EX' hold. Coincident to this, and unseen by the Exeter Radar controller, a faint primary radar return was approximately 5nm north-east of Exeter airport, tracking north-east. Figure 2 is a magnified image taken from the recorded surveillance data. No Traffic Information was passed to the C17 on this return.

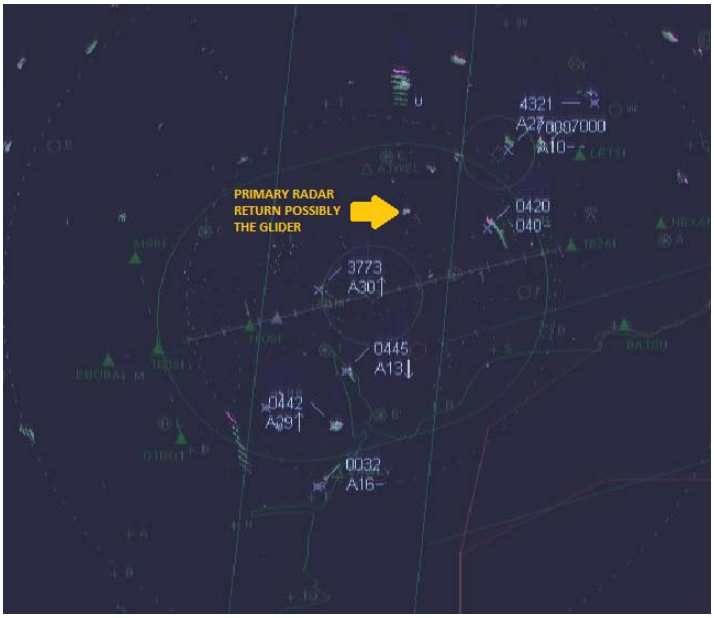

Figure 2 - Exeter Radar North display at 1134:34.

Figure 3 shows a further magnified image taken from the recorded surveillance data showing the traffic situation at 1135:28 with the C17 still tracking north-east and the primary radar return in its twelve o'clock position.

Figure 3 - Exeter Radar North display at 1135:28.

Figure 4 - Exeter Radar North display at 1135:35.

It was not possible to positively identify the glider involved in the Airprox. It was also not possible to accurately calculate the CPA due to the limitations of using the Exeter Radar recording which lacks the interactive functionality of the area radar recording. However, the recorded surveillance data suggests that the CPA is likely to have occurred circa 1135:35 (Figure 4) which shows the C17's radar return merging with the primary radar return. Once again, this screenshot has been magnified to illustrate the Airprox.

At 1135:41, the C17 pilot reported having taken avoiding action against a glider which was operating within the confines of the 'EX' NDB(L) hold at FL40 and tracking northbound. After the C17 pilot completed the visual circuits with Exeter Tower, the aircraft was transferred back to Exeter Radar and was placed under a Traffic Service. The intention of the C17 crew was to join the 'EX' NDB(L) again, for one hold, followed by the NDB(L)/DME approach procedure. During interview, the Exeter Radar controller was questioned as to why he had not continued to limit the service and whether the same radar performance issues existed. The controller confirmed that these conditions still existed but that he had omitted, in error, to repeat the warning of reduced Traffic Information.

During interview, the Exeter Radar controller stated that his radar display was somewhat degraded by clutter caused by anomalous propagation, commonly referred to as 'anoprop'. The Exeter Radar recordings were reviewed from 1030 until shortly after the Airprox. During this period there were a significant number of primary radar returns observed to the north-west, north, and north-east of Exeter Airport. It is probable that many of these returns were indeed spurious, and this may have reduced the controller's situational awareness regarding glider activity in the vicinity of Exeter Airport.

The Exeter Radar controller stated that he did not see the primary return until just before he observed it merging with the C17 and far too late to warn the C17's crew. Coincident to this, the Exeter Radar controller was working an aircraft (code 3773) under a Deconfliction Service that had departed from RW26 which required a climb to the west of airway N864. It is possible that the Exeter Radar North controller's attention could have momentarily been diverted by this traffic which was being provided with a higher level of ATC service.

The geometry observed on the recorded surveillance data differs from the C17 pilot report; in the report, he states that the C17 was flying the westbound leg of the hold. Later in the report he states that, *"…the PF observed a glider on the nose tracking right to left at level height…"* The radar return observed on the recorded surveillance data appears to be tracking from left to right in relation to the C17. As for the glider, at the time of the Airprox, the gliding site at North Hill (9nm north-east of Exeter Airport) was notified as being active up to the cloud-base. The Gliding Club have a procedure whereby they telephone the ATC unit at Exeter Airport prior to, and on completion of, glider operations. After the Airprox, Exeter ATC telephoned North Hill in order to try and identify the glider involved. The Gliding Club reported that it had no knowledge of the glider involved in the Airprox. [UKAB Note: There is no reason to suggest that the untraced glider was operating from North Hill.]

UKAB Secretariat

The C17 and glider 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]. When converging, power-driven heavier-than-air aircraft shall give way to sailplanes.[3]

Comments

HQ Air Command

This situation is one we have seen before where a glider, with a low radar cross section, which does not have additional electronic means of conspicuity, reduces the available barriers of collision to 'see and avoid'. Whilst there may be some lessons for ATC regarding the promulgation of the reduced Traffic Service, this knowledge would have merely prompted the C-17 crew to be extra vigilant in their look out. Regardless of the controller's precise terminology, the C-17 crew were aware of gliders in the vicinity, with the Pilot Monitoring conducting the lookout, he saw the glider and the crew took timely avoiding action.

[2] SERA.3205 Proximity.
[3] SERA.3210 (Right of way).

Summary

An Airprox was reported when a C17 and a glider flew into proximity at 1135 on Thursday 28th April 2016. The C17 pilot was operating under IFR in VMC in receipt of a Traffic Service from Exeter; the glider pilot could not be traced. The C17 pilot reported that he observed the glider 1nm ahead at the same height and descended.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the C17 pilot, the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

The Board noted that the C17 pilot had been in the EX NDB Hold in Class G airspace at FL40. The Board noted that he had been advised that he was in receipt of a reduced Traffic Service due to poor radar performance about an hour before the Airprox had occurred, but that the oncoming Radar controller had not subsequently confirmed that the service continued to be reduced. However, the HQ Air member was able to confirm that the pilot had been aware that there were gliders in his vicinity whilst he carried out the flight, and that he had ensured that the crew had been keeping a good look-out. The Board commended the PM for observing the glider at 1nm away because, from members' experience, they can be very difficult to see in the reported weather conditions. The Board also noted that the C17 was equipped with TCAS II, but recognised that this would not have been able to have warned the pilot about the glider.

The Board was disappointed that the glider pilot could not be traced because as a result it was not possible to determine whether he had seen the C17 or not, or what his perception of the incident was. The gliding member thought that it was probable that the glider pilot was not locally based because the local Gliding Club had not been aware that any of their gliders had been in the EX NDB's vicinity. During this part of the discussion, some members wondered whether the glider pilot would have realised that he had flown through a holding pattern anyway. Recalling that the CAA had rejected previous recommendations that a consolidated 'hold chart' be produced for UK, some members still felt that it would be beneficial if at least a graphic were to be produced that could be overlaid onto VFR in-flight navigation software.

The Board then turned its attention to the types of collision avoidance available to aircraft and glider pilots. Because the glider pilot had not been traced, it was not possible to determine whether the glider had been equipped with any form of collision avoidance (e.g. FLARM). However, even if it had been so equipped, members commented that that equipment would not have interacted with the C17's TCAS to show either pilot the presence of the other traffic. Civil Pilot members commented about the portable, less expensive, collision avoidance system being developed by NATS called the Low Power ADS-B Transceiver (LPAT). LPAT is being positioned as a portable, battery powered and affordable device that will provide the minimum functionality needed to make a GA pilot visible to other airspace users, as well as to provide warnings against other suitably equipped aircraft. The Board hoped that further development of electronic conspicuity devices in accordance with the recent CAA CAP1391[4] would allow for the various collision and traffic systems to be able to interact across the differing flying communities.

The Board then discussed the cause and risk of the Airprox. It was considered that the C17 pilot had seen the glider as early as prevailing circumstances had permitted, and had avoided it with a timely descent. It was agreed therefore that the cause was a conflict in Class G airspace that had been resolved by the C17 pilot. As for the risk, although it had not been possible to determine whether the glider pilot had observed the C17, the Board considered that there was sufficient information available from the C17 pilot's report to determine that, although safety had been degraded, timely and effective action had been taken. Therefore the Board assessed the Airprox as risk Category C.

[4] Available at http://publicapps.caa.co.uk/docs/33/CAP1391%20MAR%2016.pdf.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G resolved by the C17 pilot.

Degree of Risk: C.