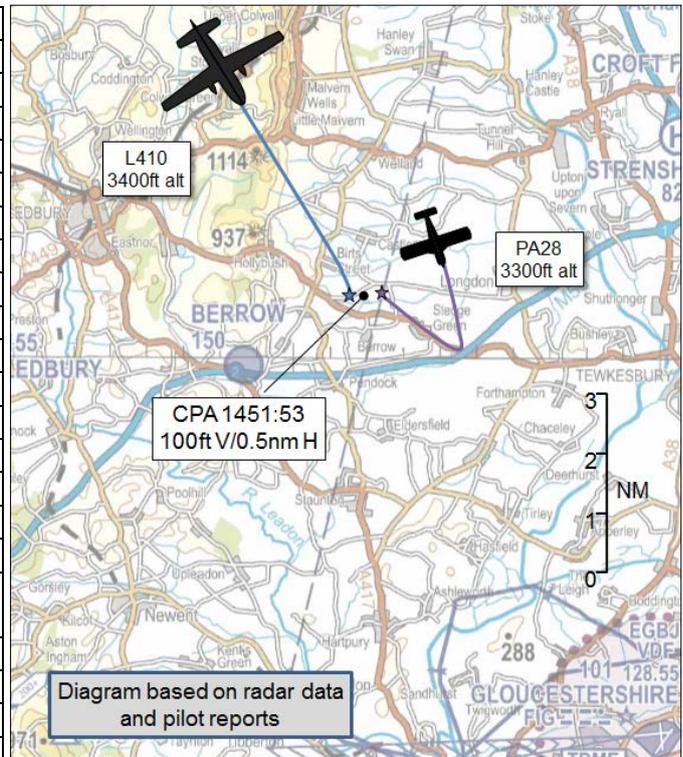


AIRPROX REPORT No 2016243

Date: 18 Nov 2016 Time: 1450Z Position: 5201N 00218W Location: 7nm N Gloucester

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Let 410	PA28
Operator	CAT	Civ Trg
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	VFR
Service	Procedural	None
Provider	Gloster	
Altitude/FL	FL034	FL033
Transponder	A, C, S	A, C
Reported		
Colours	White	White
Lighting	Nav, Taxi	'standard'
Conditions	VMC	VMC
Visibility	NR	Unknown
Altitude/FL	3000ft	
Altimeter	QNH (995hPa)	NK
Heading	360°	General handling
Speed	120kt	
ACAS/TAS	TCAS II	Unknown
Alert	RA	
Separation		
Reported	200ft V/0.5nm H	Not seen
Recorded	100ft V/0.4nm H	



THE LET 410 PILOT reports that they were 7nm north of Gloucestershire Airport, in VMC conditions, and undergoing landing preparations when they received a TCAS RA on an unknown aircraft. He believed they did not receive any Traffic Information from ATC, and they were not visual with the other aircraft. They followed the TCAS RA instruction to climb.

He assessed the risk of collision as 'Medium'.

THE PA28 PILOT reports that although he was airborne at the stated time and position of the Airprox but he had no recollection of the event. He noted that he regularly operates out of Gloucestershire Airport and it is normal to be given Traffic Information on the scheduled flight as it arrives and departs.

Factual Background

The weather at Gloucestershire Airport was recorded as follows:

METAR EGBJ 161450Z 29011KT 9999 VCSH FEW016 SCT025 12/07 Q1012=

Analysis and Investigation

CAA ATSI

The Gloucestershire radar controller was providing radar vectors to an ILS for a helicopter within the radar circuit at Gloucestershire Airport, which is located in Class G airspace. Gloucestershire ATC only has a primary radar, which is approved for providing surveillance services to aircraft

within 25nm of the Gloucestershire ATZ. At 1445:20 the L410, inbound from the north-west, called Gloster ATC, advising that they were passing FL55 for FL50. The controller acknowledged this, advising that it was a Procedural Service and requested the range of the L410. The L410 reported being at 27DME and, at 1446:00, the controller instructed the L410 to descend to 4000ft which was readback correctly.

At 1447:58, the L410 requested further descent. Again the controller requested the range of the aircraft which was then reported as 20DME. The controller then instructed the L410 to descend to 3000ft.

At 1448:32, the controller passed the surface wind at Gloucestershire Airport and asked the L410 what type of approach they would like, and to which runway. The L410 requested a visual approach to RW22. The controller then became involved with providing specific Traffic Information on conflicting traffic to a helicopter on his frequency.

At 1450:20 (Figure 1), the controller cleared the L410 for a visual approach to RW22, cautioning the pilot that there were multiple contacts observed on radar to the north of the airfield between 4 and 8 miles. The L410 pilot acknowledged the clearance for the visual approach, but not the Traffic Information.

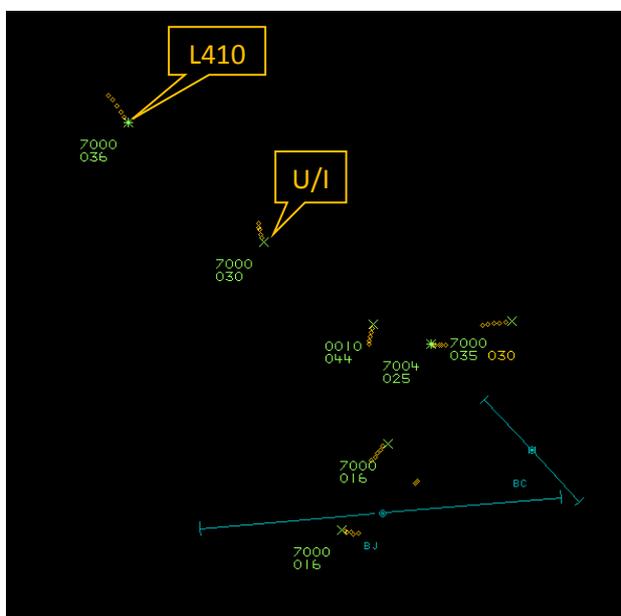


Figure 1 – 1450:20

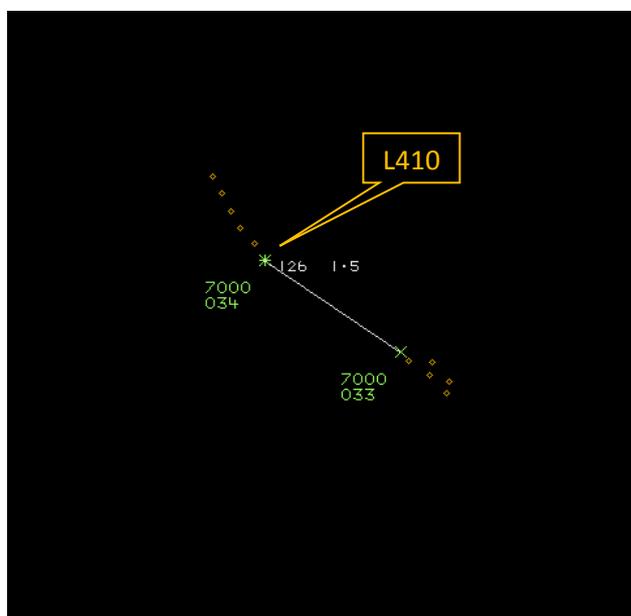


Figure 2 – 1451:37

At 1451:37, the controller reminded the L410 that they were not identified on radar, but that the controller believed they had traffic to affect them, in their 11 o'clock position range of ½ mile which was on a north-westerly track, adding that they had no height information. This was not acknowledged by the L410 (Figure 2).

CPA took place at 1451:55 with the aircraft separated by 0.4nm laterally and 100ft vertically. The L410 was observed to have commenced a turn to the right onto a southerly track (Figure 3).

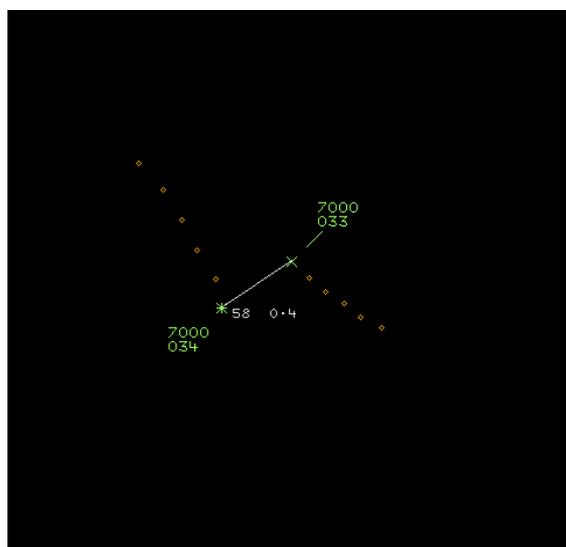


Figure 3 – 1451:55

The L410 continued its southerly track before resuming a south-easterly track again at 1452:30. The L410 pilot made no mention of the Airprox on the R/T, and was subsequently transferred to Gloucestershire Tower at 1453:12.

The L410 operates on a regular scheduled service into Gloucestershire Airport, the written report from the pilot contained few details, and in subsequent written communications with the UKAB, the pilot stated that they were not passed Traffic Information, and had not seen the other aircraft. Gloucestershire ATC did not file a report as they were not made aware of the incident at the time.

On first contact with Gloucestershire, the L410 was outside of radar cover and so was provided with a Procedural Service. The primary radar at Gloucestershire has a limited capability and the controller was using it to vector and provide Traffic Information to a helicopter. The controller's radar display has range settings for 4/8/16 & 32 miles, standard practice for providing vectors for an ILS would be for the radar display to be set to a range of 16 miles.

Under a Procedural Service,

A controller shall provide deconfliction instructions by allocating levels, radials, tracks, routes and time restrictions, or use pilot position reports, aimed at achieving a planned deconfliction minima from other aircraft to which the controller is providing a Procedural Service in Class G airspace.¹

The Gloucestershire Manual of Air Traffic Services (Part 2) states:

Occasionally, ATCOs may consider a risk of collision exists when an aircraft is being provided with a Basic or Procedural Service, whether or not radar identity has been established. When ATCOs may consider it appropriate to pass traffic information, it is essential that no doubt exists in the type of service being provided. In such circumstances, pilots are to be advised that they are 'not identified' or 'not under radar service', and that any information is 'believed to be...'. If a pilot requests avoidance advice, this should be taken as a request for a Deconfliction Service.

UKAB Secretariat

The L410 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 hazard². If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right³.

Summary

An Airprox was reported when a L410 and a PA28 flew into proximity at 1450 on Friday 18th November 2016. The L410 pilot was operating under IFR in VMC, and in receipt of a Procedural Service from Gloster. The PA28 pilot was VFR in VMC and was not in receipt of an ATS.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first looked at the actions of the L410 pilot. He was conducting a regular flight into Gloucestershire Airport and the Board thought that the pilot was probably well aware of the type of ATS he was receiving and what its limitations were. Noting that the pilot didn't recall the Traffic Information given by the controller, albeit generic at first, some members wondered whether he had become focused on in-cockpit tasks as he prepared for his approach to the detriment of look-out. Civil Airline Pilot members noted that although the L410 pilot had acted correctly in accordance with

¹ CAP774 UK Flight Information Services. Chapter 5 Para 5.6

² SERA.3205 Proximity.

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

the generated RA, they surmised that his TCAS would probably have given him a TA first; whilst manoeuvring on a TA is not advised within controlled airspace, they opined that in Class G it might be considered wise to use such information tactically. That said, they stressed that once the RA was given, the pilot acted accordingly and the other aircraft was avoided. Of note though, they also commented that the pilot didn't tell the controller at the time that he had received the RA as was required as part of the TCAS procedures. This would not only have informed the controller that he was carrying out an avoiding-action manoeuvre, but would also have prompted the controller to complete an associated report, and may have led to the PA28 pilot also being informed at the time.

Turning to the PA28 pilot, the Board noted that he was operating, as he was entitled to do, in Class G airspace without an ATS. The Board could not be sure whether the pilot had seen the L410 at the time, but if he had then he had clearly not considered it to be a problem. Certainly there was no sign of him taking any avoiding action on the radar, and some members opined that 0.4nm separation could be considered to be normal operations in Class G airspace.

Finally, the Board looked at the actions of the Gloucester App controller. The Board were well aware that Gloucester's radar was limited in its capability, and that the controller was using the radar to control a helicopter on a radar approach at the time, not the L410, who was on a Procedural Service. The Board therefore commended the controller for his timely Traffic Information, both for the generic information at range, and for his update at ½ nm. It was simply unfortunate that the L410 pilot had not assimilated this information.

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

- **ATC Conflict Detection and Resolution** had been **effective** because the controller had passed timely and accurate Traffic Information to the L410 pilot.
- **Flight Crew Situational awareness** was only **partially effective** because the L410 pilot did not appear to fully assimilate the Traffic Information passed by ATC.
- **Onboard Warning/Collision Avoidance Equipment** was assessed as being **fully effective** and had materially improved the situation through the generation of a timely TCAS RA.
- **See and Avoid** was assessed as having been **ineffective**, because neither pilot saw the other aircraft (it was assessed that the PA28 pilot probably did not see the L410, although this is not certain).

In determining the cause of the Airprox, some members wondered whether the fact that the L410 pilot had not assimilated the Traffic Information was at least contributory. Others argued that the Traffic Information was at best generic, and so there was little else for the L410 pilot to do other than keep a sharp lookout. In the end, the Board agreed that this had been a conflict in Class G airspace, resolved by the L410 pilot following his TCAS RA. Noting the separation achieved of 0.4nm, the risk was assessed as Category C, safety had been degraded but there was no risk of collision.

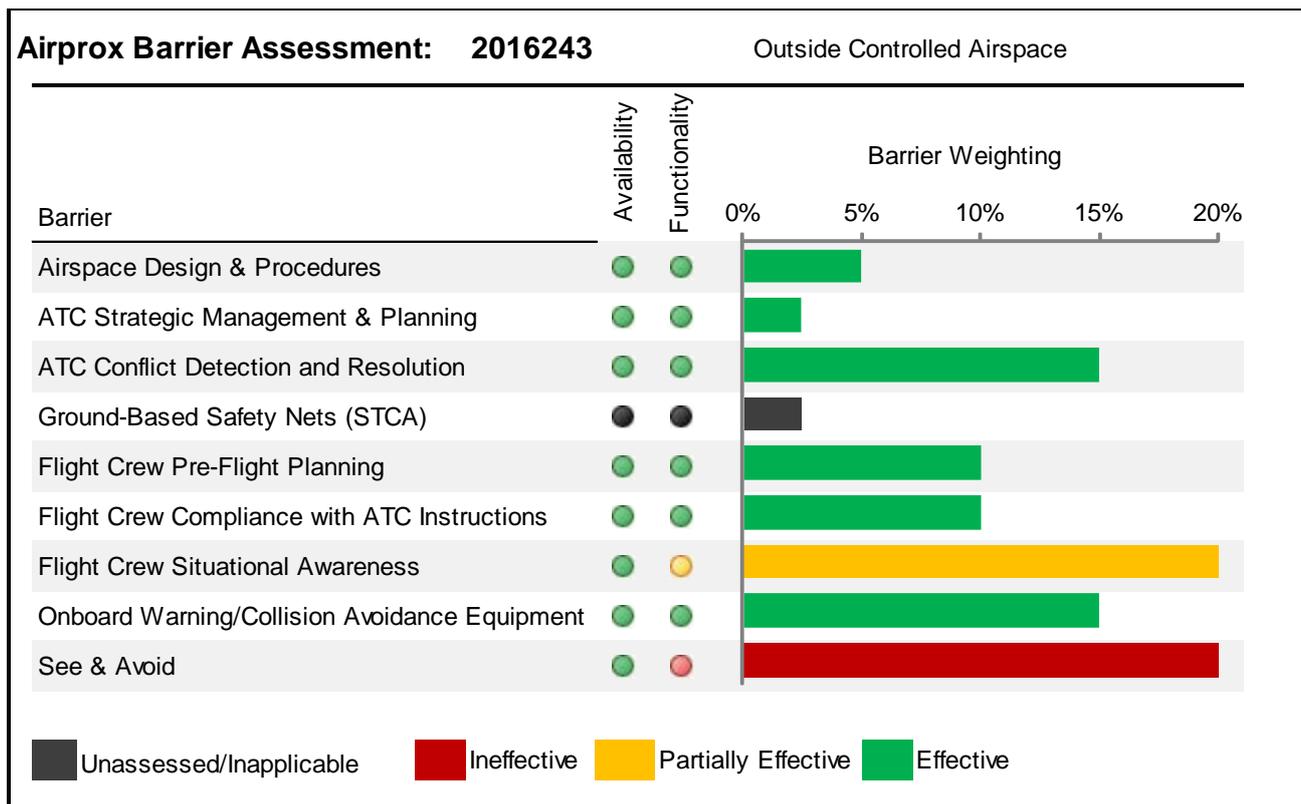
PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace resolved by the Let 410 pilot following a TCAS RA.

Degree of Risk: C.

Barrier Assessment⁴:

Modern safety management processes employ the concept of safety barriers that prevent contributory factors or human errors from developing into accidents. Based on work by EASA, CAA, MAA and UKAB, the following table depicts the barriers associated with preventing mid-air-collisions. The length of each bar represents the barrier's weighting or importance (out of a total of 100%) for the type of airspace in which the Airprox occurred (i.e. Controlled Airspace or Uncontrolled Airspace).⁵ The colour of each bar represents the Board's assessment of the effectiveness of the associated barrier in this incident (either Fully Effective, Partially Effective, Ineffective, or Unassessable/Absent). The chart thus illustrates which barriers were effective and how important they were in contributing to collision avoidance in this incident.



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

⁵ Barrier weighting is subjective and is based on the judgement of a subject matter expert panel of aviators and air traffic controllers who conducted a workshop for the UKAB and CAA on barrier weighting in each designation of airspace.