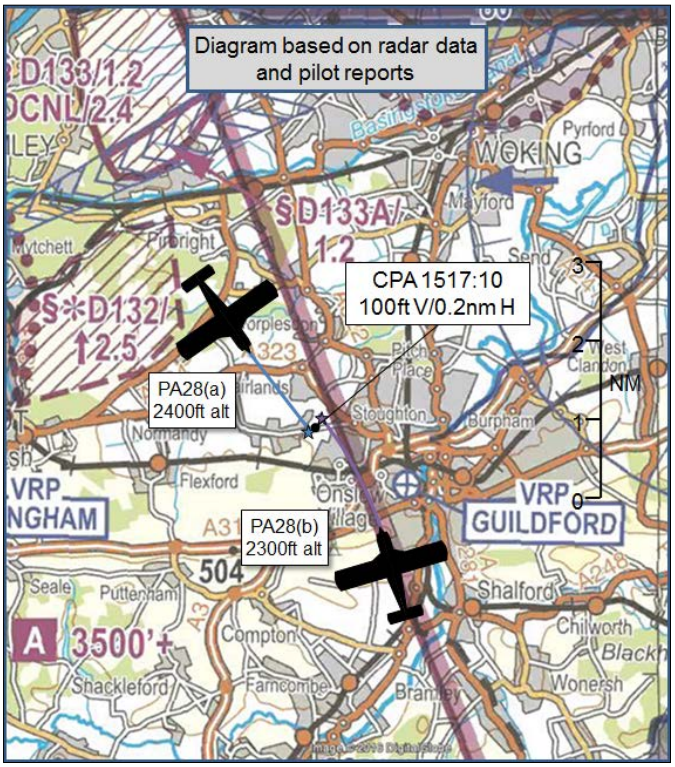
AIRPROX REPORT No 2016201

Date: 11 Sep 2016 Time: 1517Z Position: 5115N 00036W Location: 0.5nm W Guildford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA28	PA28
Operator	Civ Pte	Civ Trg
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Basic
Provider	Farnborough	Farnborough
Altitude/FL	2400ft	2300ft
Transponder	On/C, S	On/C
Reported		
Colours	White, Blue, Red	White, Blue
Lighting	Strobe, Beacon, Landing	Strobe
Conditions	VMC	VMC
Visibility	>10km	10km
Altitude/FL	2300ft	2250ft
Altimeter	QNH (1016hPa)	NK
Heading	140°	325°
Speed	95kt	100kt
ACAS/TAS	TAS	Not fitted
Alert	None	N/A
Separation		
Reported	0ft V/100m H	NK
Recorded	100ft V/0.2nm H	



THE PA28(A) PILOT reports that he was in receipt of a [reduced] Traffic Service from Farnborough West but no Traffic information on the other aircraft was passed. As it was coming straight towards him its profile in his field of vision was small; it did not appear to move and he did not pick up on it during his scan. He did not observe the aircraft until it passed to his left, which was disconcerting as he was about to turn left. A moment sooner and there would have been a collision. By the time he saw the other aircraft, avoiding action was not required and was not possible. A standard turn to the right would have been appropriate, if seen earlier. He opined that despite Farnborough's provision of a Traffic Service, he felt that the West ATCO was overloaded with proper resource not given to this position. There were multiple aircraft on frequency in the area at the time and he opined that the ATCO's priority was not to provide a Traffic Service, but to manage aircraft mostly in receipt of Basic Service in order to provide deconfliction for IFR aircraft, not on the same frequency. The weather conditions at the time of the incident were CAVOK, but in this busy piece of airspace on a sunny Sunday afternoon a Traffic Service is a useful, perhaps even essential, tool for GA aircraft. He was using a PilotAware unit connected to his iPad with Skydemon but he other aircraft did not show on this equipment and no warning was received.

He assessed the risk of collision as 'High'.

THE PA28(B) PILOT reports that he did not see the other aircraft.

THE FARNBOROUGH WEST CONTROLLER reports that he does not remember any details about this incident and the pilot did not report an Airprox on frequency at the time.

Factual Background

The weather at Odiham was recorded as follows:

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METAR EGVO 111450Z 18010KT 9999 FEW040 19/08 Q1016 BLU
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Analysis and Investigation

CAA ATSI

An Airprox was reported by the pilot of a Piper Aircraft PA28 Cherokee Warrior II (PA28(A)) when the aircraft came into proximity with a Piper Aircraft PA28-181 Archer II (PA28(B)) approximately 6nm southeast of Farnborough Airport. PA28(A) was operating VFR and was in receipt of a reduced Traffic Service from Farnborough LARS West on frequency 125.250MHz. PA28A(B) was also operating VFR in receipt of a Basic Service from Farnborough LARS West also on frequency 125.250MHz.

ATSI had access to reports from the pilots of both aircraft, area radar recording and the Farnborough LARS West frequency. A unit report was later received from the ANSP at Farnborough but because the occurrence was not reported to them at the time, the controller could not recollect the event. Screenshots produced in the report are provided using the Swanwick MRT radar.

At 1459:20 PA28(A) pilot contacted Farnborough LARS West and a Basic Service was agreed. The controller already had the details of the flight as the aircraft had previously been working LARS North. The aircraft was instructed to select SSR code 0433 and was 20nm north of Farnborough heading in a southerly direction.

At 1505:25 a controller handover began and the outgoing controller requested all stations to listen out. The next transmission was at 1507:09.

At 1512:18:

> The pilot of the PA28(A) was asked: "*Are you visual with traffic on your left-hand side on the ILS to Farnborough?"*
> The pilot replied: *"Traffic not sighted"*
> The Controller then passed the following: *"It's a Gulfstream, eleven o'clock three miles. Could you think you could route behind that aircraft please er, when you get it in sight, if you route south eastbound now you'll be well behind?"*
> The pilot then replied "*Traffic in sight, request a Traffic Service*"

At 1512:42, PA28 (A) was identified by the controller and a Traffic Service was agreed; however, the controller advised that this would be reduced due to controller workload. Traffic Information was provided again on the Gulfstream. The pilot accepted the Traffic Service and agreed to route to the east.

At 1513:18 the pilot of the PA28(B) called Farnborough LARS West. The controller dealt with other priority transmissions first and then at 1513:46 the controller returned to the PA28(B).

At 1513:50 the PA28(B) reported 2nm north of Dunsfold and requested a Basic Service. The Controller agreed the Basic Service and issued the PA28(B) a transponder code of 0435.

At 1514:55 (Figure 1) the pilot of the PA28(A) reported south of the final approach track for RWY24 and advised that they intended to change SSR code and frequency.

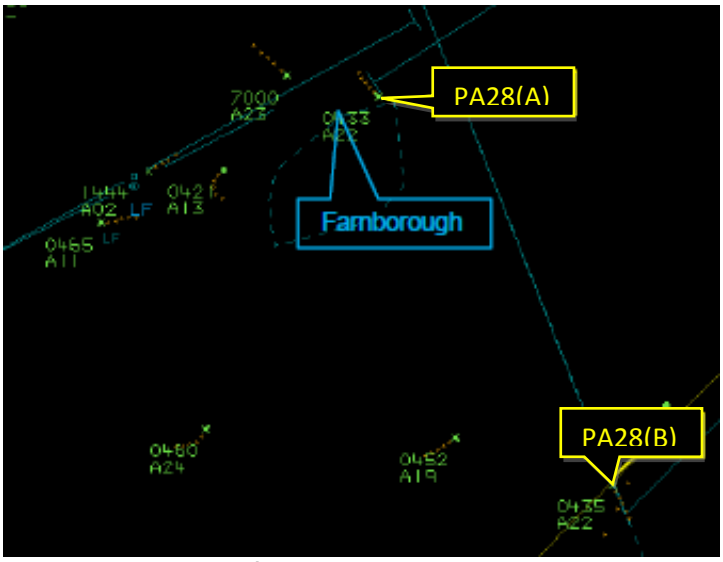


Figure 1 – 1514:55

At 1515:02:

The controller stated: "*Roger, could you just er stay with me for about another five miles if you're routing east-bound please, got more inbound, just so that you're known traffic"*
The pilot responded:
"I'll stay with you but I'm not doing any more changes"

CPA occurred between 1517:04 and 1517:10 (Figure 2) with the minimum measureable distance indicating 0.2nm and 100ft. Neither aircraft mentioned the Airprox or reported sighting the other traffic on the frequency.

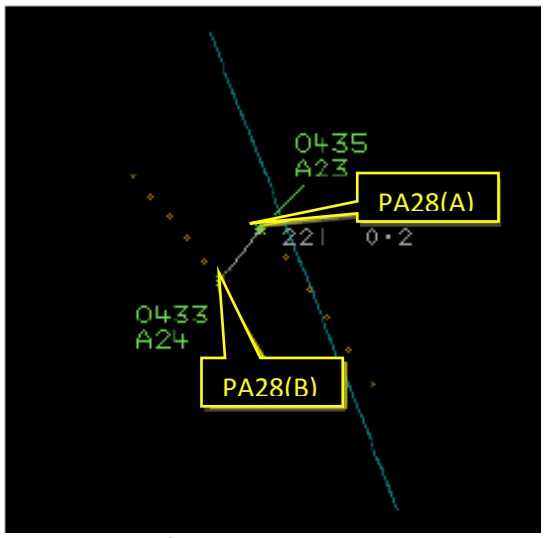


Figure 2 - 1517:10

In the PA28(A) pilot report there was comment on the way the Farnborough LARS West controller delivered UK FIS. It should be noted that the frequency was busy from the moment the PA28(A) first arrived on frequency some 20nm north of Farnborough. The provision of a Basic Service was appropriate at the time with the radar showing 7 contacts between the PA28(A) and Farnborough. If the controller had endeavoured to provide a Traffic Service, he would have had to comply with the following guidance from CAP774 Ch3 3.5:

'*Traffic is normally considered to be relevant when, in the judgement of the controller, the conflicting aircraft's observed flight profile indicates that it will pass within 3 NM and, where level information is available, 3,000ft of the aircraft in receipt of the Traffic Service, Controllers shall aim to pass information*

on relevant traffic before the conflicting aircraft is within 5 NM, in order to give the pilot sufficient time to meet his collision avoidance responsibilities and to allow for an update in traffic information if considered necessary'

The request to the pilot to look out for traffic inbound to Farnborough was made with the intention of ensuring a degree of segregation with the traffic on final approach, under a service from the separate Approach controller. The provision of UK FIS in the Farnborough LARS West area is slightly different to that in the North and East Sectors. The handling of aircraft specifically in and around the Farnborough Airport vicinity is a co-ordinated team effort between the Approach radar controller and the LARS West controller. In order for the Approach controller to discharge their duties in the provision, primarily, of a Deconfliction Service, the LARS controller, where possible, uses opportunities to enter into agreements with other local traffic in order that safe utilisation of the airspace can take place. This highlighting of the traffic was consistent with the process of entering into an agreement with the pilot. The pilot initially did not see the traffic but when sighted requested a Traffic Service.

Once the PA28(A) had passed behind the Gulfstream the pilot requested to leave the frequency. As the aircraft was still within the Farnborough radar circuit pattern (albeit Class G airspace) the request to remain on frequency as a known aircraft was understandable and the pilot agreed to this.

The report by the pilot of the P28A(A) comments that instructions were being provided to other pilots under a Basic Service. During the period that the PA28(A) was on frequency, there were 5 occasions when 'agreements' were entered into with other pilots to amend their levels and routings. Such agreements are common place at Farnborough and on every occasion pilots agreed to what were 'requests' by the controller. The controller did issue some instructions but these were applicable to aircraft entering the Farnborough ATZ where aircraft are subject to complying with instructions. The provision of a Basic Service specifically states that such a practice is acceptable for tactical use of the airspace and to accommodate other airspace users. CAP774 Ch1 1.7 states*:*

Agreements can be established between a controller (not a FISO due to limits of the licence) and a pilot on a short-term tactical basis, such that the operation of an aircraft is laterally or vertically restricted beyond the core terms of the Basic Service or Traffic Service. This is for the purposes of co-ordination and to facilitate the safe use of airspace, particularly those airspace users with more stringent deconfliction requirements.

The Farnborough LARS West area is used by many aircraft with conflicting interests. The complications and demands placed on this area are further heightened by the presence of a busy airfield (Farnborough) which is also located within this Class G environment. The provision of UK FIS here requires the vigilance, understanding and co-operation of both the service provider and airspace users to ensure safety. The controller's workload appears to have prevented timely Traffic Information being passed between the two PA28 aircraft involved in the Airprox. Although the RTF loading was not as busy at this point as it had been, other controller tasks such as co-ordinating with the Approach controller are not recorded. Although the opportunity to pass Traffic Information to the PA28(A) about the PA28(B) was missed, the Farnborough LARS West controller had a high workload, and had agreed to provide only a reduced Traffic Service. This circumstance is referred to in CAP774 - '*high controller workload and RTF loading may reduce the ability of the controller to pass traffic information, and the timeliness of such information'*.

UKAB Secretariat

The PA28(A) and PA28(B) 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]. If the incident geometry is considered as head-on or nearly so then both pilots were required to turn to the right[2].

[1] SERA.3205 Proximity.
[2] SERA.3210 Right-of-way (c)(1) Approaching head-on.

In this situation a reduced the Traffic Service was within the following guidance from CAP774 Ch1 1.10:

> *There may be circumstances that prevent controllers/FISOs from passing timely traffic information and/or deconfliction advice, e.g. high workload, areas of high traffic density, unknown aircraft conducting high energy manoeuvres, or when traffic is not displayed to the controller or is obscured by surveillance clutter. Controllers/FISOs shall inform the pilot of reductions in traffic information along with the reason and the probable duration; however, it may not always be possible to provide these warnings in a timely fashion.*
>
> > *In high workload situations, which may not always be apparent from RTF loading, controllers/FISOs may not always be able to provide timely traffic information and/or deconfliction advice. High workload situations may not necessarily be linked to high traffic density.*

Summary

An Airprox was reported when a PA28(A) and a PA28(B) flew into proximity at 1517 on Sunday 11th September 2016. Both pilots were operating under VFR in VMC, the PA28(A) pilot in receipt of a reduced Traffic Service from Farnborough and the PA28(B) pilot in receipt of a Basic Service also from Farnborough.

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 and reports from the appropriate ATC and operating authorities.

The Board began by discussing the level of service available from Farnborough. Some members opined that the number of ATCOs available during high traffic situations often resulted in a reduced level of service being provided to contributing aircraft and that this resulted in pilots being discouraged from requesting a Traffic Service in the first place. The NATS advisor highlighted that the ATCO had provided a Traffic Service in this case, albeit reduced, but he opined that very often the pilots' understanding of what this actually means regarding ATCO and pilot responsibilities was perhaps not fully understood by some pilots[3]. The Board agreed that the use of the term 'reduced' could be confusing in that it offered nothing other than a statement that a full service was not available; the level that the service was reduced to was not made clear. Some members wondered whether a greater level of education should be established to enable pilots to fully understand the implications of the reduced service[4], whilst others thought that controllers should be more proactive in stating what the reduced level of service was. Ultimately, all members agreed that, regardless of the type of service an aircraft is receiving, robust lookout in Class G airspace was still paramount for preventing collisions.

The NATS advisor went on to explain that Farnborough provide FIS to generate an enhanced known traffic environment with participating aircraft, which in turn ensures a greater level of situational awareness for both ATCOs and participating pilots operating in the Farnborough LARS areas. Fundamentally, LARS existed to assist pilots in preventing unintentional infringements of controlled airspace. A Board member highlighted again that the service provided by Farnborough is often reduced due to the controllers workload; he said that the complexity and traffic density of the airspace around the area had been raised as a result of previous Airprox events and he had reviewed the causes. He commented that there were 11 Airprox reports across all the three Farnborough LARS areas (North, East and West) going back to 2010, and the recurring theme was either a late or non-sighting of the other aircraft[5]. Two of the reports had included the aircraft receiving insufficient traffic information[6]. He went on to remind members that in Airprox 2013159 the Board had recommended

[3] https://publicapps.caa.co.uk/docs/33/CAP1434UKFlightInformationServicesIF.pdf
[4] CAP744, Chapter 1, 1.10 Reduced traffic information/deconfliction advice
[5] 2010025, 2011122, 2011157, 2014030, 2014070, 2015167, 2015,169, 2015180, 2016014
[6] 2012150 & 2013159

that 'as part of the LARS review, the CAA consider further subdividing the Farnborough LARS airspace', the CAA had agreed to include this in the review and the recommendation had been closed; however, he was unclear as to what, if any, changes had resulted.

Post meeting note. The UKAB Secretariat confirmed that the Farnborough LARS airspace is currently comprised of three areas; Farnborough West, North and East. The Farnborough LARS boundary changed near the Southend CTR on 3rd March 2016 to enable a better division of traffic as shown in Figure 3.

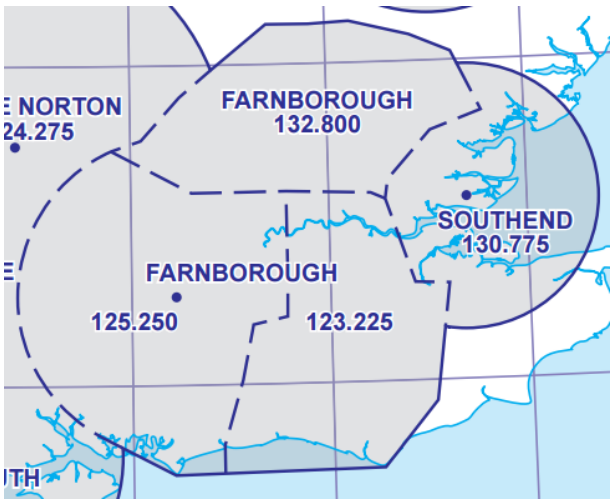


Figure 3: Farnborough LARS 02/02/2017

The Board then looked at the actions of the PA28 pilots. Members quickly agreed that the PA28(A) pilot only saw the PA28(B) as the aircraft passed, and that he did not have enough time to carry out any avoiding action. They also agreed that the PA28(B) pilot had not seen the PA28(A) at any time. Members commented that the lookout of both pilots would have been compromised by the head-on aspect of both aircraft but, regardless of the level of ATC service provided, this incident served as a timely reminder that a robust lookout is paramount and remains the primary means of collision avoidance.

The Board then looked at the safety barriers that were relevant to this Airprox and decided that the following were the key factors:

- **ATC Strategic Management and Planning** was considered **Partially Effective** because the level of service available at Farnborough West to participating aircraft was reduced due to the workload of the Farnborough West controller, in this instance this resulted in the Traffic Information not being passed to the pilot of PA28(A).

- **ATC Conflict Detection and Resolution** was considered **ineffective** because the Farnborough West controllers high workload resulted in him not recognising the confliction in time to pass the relevant traffic information to the PA28(A) pilot; notwithstanding the PA28(A) was under a reduced Traffic Service which may result in less accurate, late or absent traffic information; in these circumstances pilots should note the warning and conduct their flight accordingly.

- **Flight Crew Situational Awareness** was considered **partially effective** because although the PA28(A) pilot was in receipt of a reduced Traffic Service, he was only given generic traffic information. Whilst this is normal practice in instances of high controller workload it limits the information available to a pilot due to a reduction in timely traffic information as a result of a controller prioritising other services.

- **Onboard Warning/Collision Avoidance Equipment** was assessed as being partially available because only one aircraft had the system fitted; however it was assessed as being **ineffective** because, even though the PA28(B) was transponding, PA28(A)'s TAS did not alert the PA28(A) pilot to the presence of the other aircraft.

- **See and Avoid** was considered **ineffective** because the PA28(B) pilot did not see PA28(A) at all, and the PA28(A) pilot only saw PA28(B) as it passed by, effectively a non-sighting.

The Board then considered the cause and risk of the incident and members quickly agreed that the cause was a non-sighting by the PA28(B) pilot and effectively a non-sighting by the PA28(A) pilot. However, the Board also agreed that a contributory factor was the Farnborough West controller's

workload that had precluded the provision of an unrestricted Traffic Service. Turning to the risk, members agreed that a serious risk of collision had existed and that luck had played a major part; accordingly, the Board assessed the risk as Category A.

The Board commented that PA28(A) pilot had not reported the Airprox on frequency and reminded all pilots of the benefits of doing so in order to ensure that associated records were preserved and that other aircraft who might be involved might note down their positions for future investigation.

PART C: ASSESSMENT OF CAUSE AND RISK

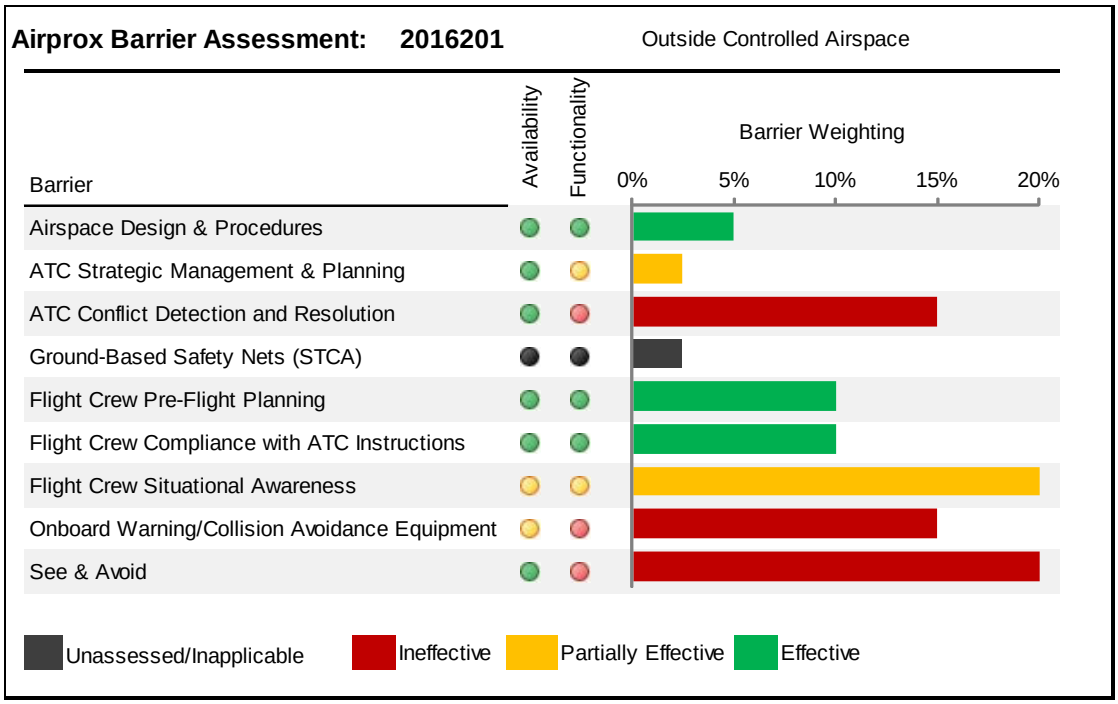
Cause: A non-sighting by the PA28(B) pilot and effectively a non-sighting by the PA28(A) pilot.

Contributory Factor(s): The controller's workload precluded the provision of an unrestricted Traffic Service.

Degree of Risk: A.

Barrier Assessment[7]:

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).[8] 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.



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

[8] 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.