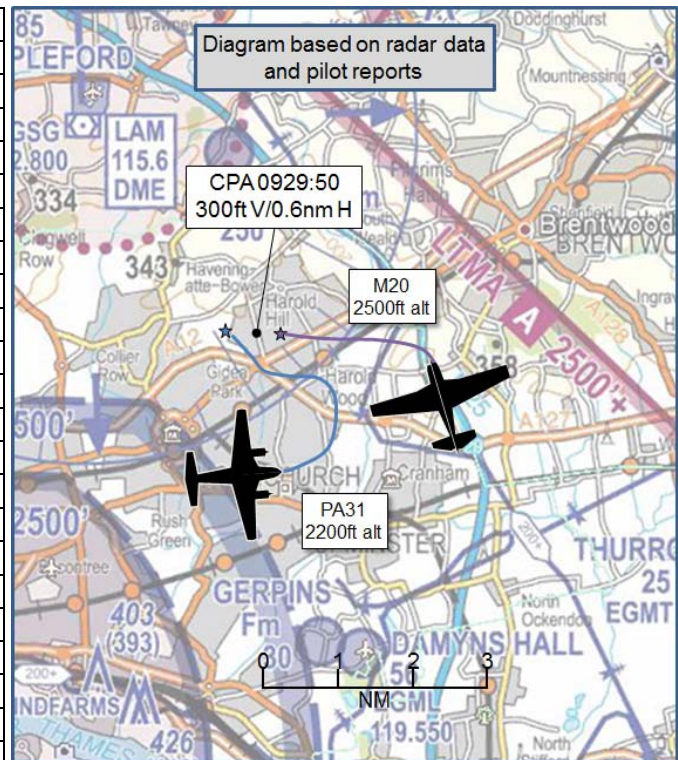


## AIRPROX REPORT No 2016066

Date: 09 Apr 2016 Time: 0929Z Position: 5136N 00013E Location: SSE LAM VOR/DME

### PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	PA31	Mooney M20
Operator	Civ Comm	Civ Trg
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	IFR
Service	Traffic	Basic
Provider	Thames Radar	Southend
Altitude/FL	2200ft	2500ft
Transponder	C	S
<b>Reported</b>		
Colours	White/Red/Blue	White
Lighting	Strobe	Strobe
Conditions	IMC	IMC
Visibility	0km	NK
Altitude/FL	2400ft	2400ft
Altimeter	QNH	NK
Heading	360°	290°
Speed	140-160kt	130kt
ACAS/TAS	TAS	Not fitted
Alert	TA	N/A
<b>Separation</b>		
Reported	50ft V/200m H	50-100ft V/0m H
Recorded	300ft V/0.6nm H	



**THE PA31 PILOT** reports that he was conducting an ILS calibration of runway 27 at LCY; he was holding prior to the next approach, just outside the zone to the north-east, under VFR but in intermittent IMC. The cloud was broken at around 1400' at the time. He had been told to expect to run in shortly, so had started to accelerate in the orbit ready for the clearance towards the centreline. ATC (radar) had called traffic which he verified on the TAS. Because he was flying an orbit, the contact on the TAS can move erratically and give confusing indications. He made the turn shallower as the contact got closer and then the TAS announced 'Traffic, 1/2 mile same altitude', closely followed by 'Traffic same position, same altitude'. On a purely reactive input he made a descending turn. As he turned, he received another two traffic TAS announcements so turned the other direction and levelled off. Having been aware that the other unsighted aircraft had come pretty close by the TAS alerts, this was confirmed later by the customer in a conversation on the ground. A radar plot provided to him confirms that the other aircraft had turned to become more of a conflict as it came closer whilst following the northern edge of the City zone. He later discovered that he knew the pilot/instructor of the other aircraft and obtained details from him and a description that confirmed it had been a close encounter worthy of an Airprox. He did not report an Airprox at the time over the radio, but did so once he landed. Contributing factors include intermittent IMC, holding on the edge of CAS, and aircraft in same piece of sky being given separate services by Southend Radar and Thames Radar.

He assessed the risk of collision as 'High'.

**THE M20 PILOT** reports that he was on an IR training flight with timed beacon slots at three airfields. He had an IFR flight plan filed for controlled airspace but this was unexpectedly cancelled by ATC without prior warning. Because of the pre-booked beacon slots, he decided to carry out the route outside controlled airspace. He gave his student simulated radar vectors around London City CTR as would be expected if they had been in the LTMA. Southend gave traffic information at about 2nm, but

he was in IMC with no way of knowing what would be the best course of action. He received a second traffic report at 1/2nm. He popped out of cloud briefly to see the PA31 pass close underneath in a slight descent. There was no action required because it had passed as soon as it was seen. He felt that a Deconfliction Service was inappropriate due to the proximity of controlled airspace.

He assessed the risk of collision as 'High'.

**THE SOUTHEND CONTROLLER** reports that at 0928 he opened Southend radar and, following a handover from Southend approach (non radar), inherited the M20 under a Basic Service. At 0929, he passed Traffic Information on a contact observed in the vicinity of LAM at a similar indicated altitude. The pilot advised he had the traffic in sight. At 0930, the pilot free-called Luton Radar.

## Factual Background

The weather at London City was recorded as follows:

```
METAR EGLC 090920Z 23008KT 190V260 9999 FEW012 BKN026 09/06 Q1002=
```

The weather at Southend was recorded as follows:

```
METAR EGMC 090920Z 18012KT 9999 -RA FEW010 BKN013 09/07 Q1002=
```

## Analysis and Investigation

### CAA ATSI

ATSI had access to reports from both aircraft, area radar recording as well as recordings of the London City and Southend frequencies. Screenshots produced in the report are provided using the area radar recordings. Levels indicated are in altitude.

The PA31 pilot was operating under VFR on a local flight from London City and was engaged in the calibration of the London City ILS in receipt of a Traffic Service from Thames Radar. The M20 pilot was operating under IFR on a cross-country training flight. The M20 pilot was in receipt of a Basic Service from Southend, initially without the aid of surveillance equipment.

At 0920:54 the M20 pilot contacted Southend Approach maintaining 2400ft. A Basic Service was agreed and the pilot was asked to squawk 4575 (this code is used by Southend as a conspicuity code).

The traffic situation at 0924:11 (Figure 1) showed the PA31 effectively downwind right for London City (code 5004) and the M20 approaching from the southeast. There was traffic inbound to London City (code 6270) on approximately an 11nm final, which the PA31 pilot had been advised that he may have to hold for.

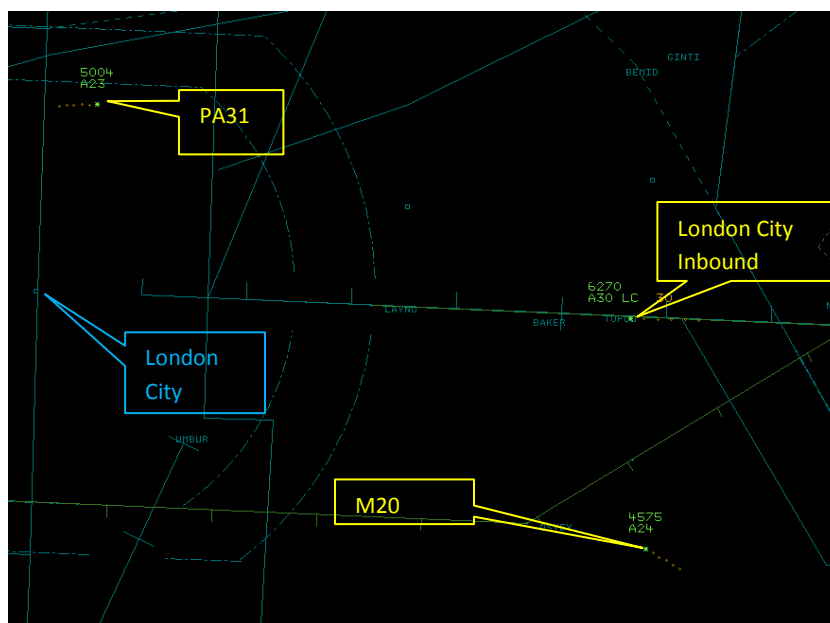


Figure 1

At 0925:45, the PA31 pilot commenced left-hand orbits as delaying action behind the aircraft inbound to London City Airport.

At 0926:50, (Figure 2), the Thames Radar controller issued Traffic Information about an unknown aircraft approaching from the Southeast.

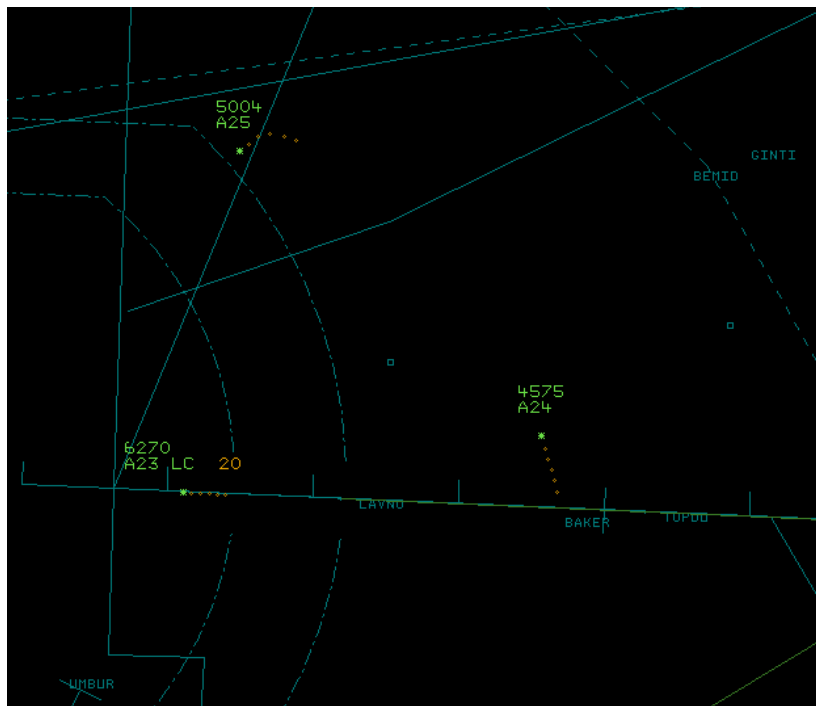


Figure 2

At 0927:53, the PA31 pilot was advised that he could continue with the profile he had requested (for calibrating the ILS at London City).

At 0929:11, (Figure 3), the Thames Radar controller updated the Traffic Information to the PA31 pilot and asked if he was visual. The PA31 pilot reported he was not visual and as he had a traffic warning from the TCAS elected to descend.

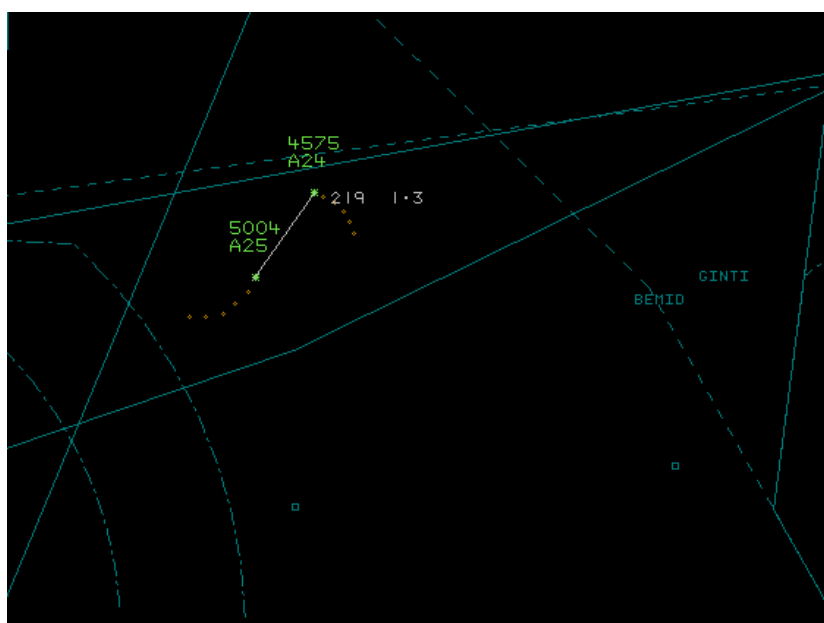


Figure 3

At 0929:30, (Figure 4), the Southend controller had opened the radar position and, although the M20 pilot was still under a Basic Service, provided Traffic Information about the aircraft orbiting to the south of their track. The M20 pilot had just made a left turn onto a westerly heading at this point and reported that he was IMC.

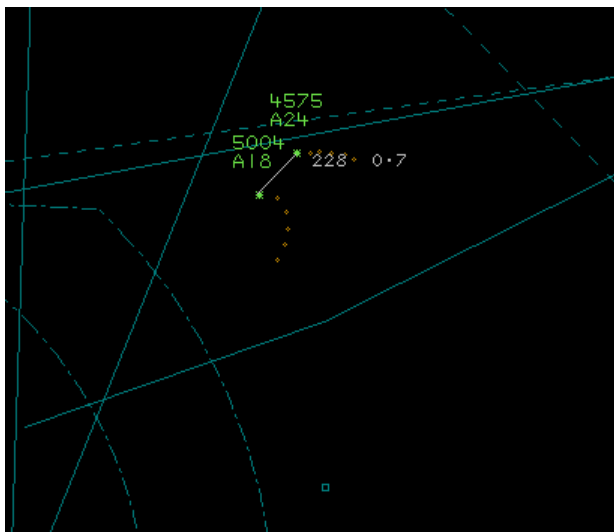


Figure 4

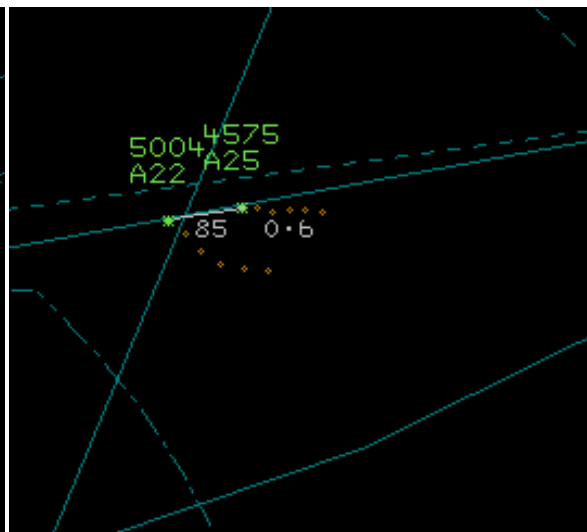


Figure 5

CPA occurred at 0929:46 (Figure 5), indicating 300ft and 0.6nm, although because of the relevant positions, speeds and routing of the two aircraft, this proximity continued for several seconds until, at 0929:50, the M20 pilot reported to Southend that he had the PA31 in sight and, at 0929:53, the PA31 pilot reported to Thames Radar that he was visual with the M20 and was climbing again.

The M20 pilot had filed an IFR flight plan inside controlled airspace but because the Flight Plan appeared to have been cancelled by Eurocontrol, he had elected to continue with the flight outside of controlled airspace.

The PA31 pilot was conducting a number of approaches to London City for the purpose of calibrating their ILS. These flights are flown VFR and involve various 'profiles' to the instrument approach to be flown. The presence of an inbound scheduled aircraft meant that following the last flown profile, it would be necessary to delay the next approach. The approaches themselves often required a greater degree of protection during the approach than those which exist during normal operations – a result of the requirement to measure the accuracy of the aid being calibrated.

The Basic Service provided by Southend Radar was initially provided to the M20 pilot without Radar due to staff sickness. When Radar was opened, the controller considered it necessary to issue Traffic Information but did not upgrade the service.

Co-ordination could have taken place between Thames Radar and Southend but because the flights were operating in Class G airspace, no 'control' could have been placed on either aircraft in relation to the type of service they were being provided with. Operating as they were in Class G airspace, the pilots of both aircraft were ultimately responsible for their own collision avoidance.

### UKAB Secretariat

The PA31 and M20 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. If the incident geometry is considered as converging then the PA31 pilot was required to give way to the M20<sup>2</sup>.

<sup>1</sup> SERA.3205 Proximity.

<sup>2</sup> SERA.3210 Right-of-way (c)(2) Converging.

The M20 pilot reported that he was in receipt of a Traffic Service from Southend; in fact, he was in receipt of a Basic Service but nonetheless received Traffic Information from the Southend Radar Controller once the radar was activated.

SERA rules for VFR flight state:

SERA.5001: VMC visibility and distance from cloud minima are contained in Table S5-1. This states that in Class G Airspace at and below 900m (3,000 ft) AMSL, or 300m (1,000 ft) above terrain, whichever is the higher, aircraft must be 5km clear of cloud and with the surface in sight.

SERA.5005: Visual Flight Rules state that, except when operating as a special VFR flight, VFR flights shall be conducted so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than those specified in Table S5-1.

## Summary

An Airprox was reported when a PA31 and a M20 flew into proximity at 0929 on Saturday 9<sup>th</sup> April 2016. The PA31 pilot was operating under VFR in IMC, and the M20 pilot was operating under IFR in IMC. The PA31 pilot was in receipt of a Traffic Service from Thames Radar and the M20 pilot was in receipt of a Basic Service from Southend.

## **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 discussed the actions of the PA31 pilot. A Board member with previous flight calibration experience highlighted the weather limitations for calibration flights and the impact these can have on this type of operation. The member pointed out that when holding for a profile run there is more flexibility regarding the area the pilot may opt to carry out any holding manoeuvres to ensure they remain VMC; whilst the actual calibration profile run is being conducted the pilot may be intermittently IMC due to the constraints of the profile run. When positioning or holding prior to the calibration run, as in this situation, if the aircraft is flying intermittently in IMC then the pilot must ensure that they have an appropriate Air Traffic Service. In this respect, the Board noted that the PA31 pilot had not informed ATC of his change in meteorological conditions from VMC to IMC, which might have influenced the actions of the Air Traffic Controller, especially when observing other aircraft in his proximity. Other members pointed out that if the aircraft was flying under VFR rules then its pilot must maintain VMC. The Board then discussed at great length the fact that the PA31 pilot was operating in IMC under VFR in Class G airspace<sup>3</sup> and whether this was a prudent course of action; they considered that this was a contributory factor in the incident which, with all these factors combined, meant that the PA31 pilot had likely become over-reliant on his TAS indications (which he acknowledged himself were especially inaccurate during turns), supplemented by ATC under the Traffic Service, in what was essentially see-and-avoid airspace.

The Board then turned to the actions of the M20 pilot. Mindful that the instructor had planned a sortie in controlled airspace and had booked training approaches at different aerodromes, the Board were nonetheless highly surprised that, on finding out that his flight plan had been withdrawn, he had then carried on outside controlled airspace in IMC without a radar service in what was acknowledged as very busy airspace. The Board were unanimous in agreeing that the M20 pilot had had an inappropriate Air Traffic Service for the meteorological conditions, and that this was a contributory factor in the incident. Although a radar controller was available at Southend the senior controller had decided not to open radar due to staff sickness and had deemed it operationally practical to open radar later to ensure full operational coverage at busier times of the day. As the M20 pilot had not

---

<sup>3</sup> SERA.5005 Visual Flight Rules

requested a radar service from Southend they opted not to open radar. Due to the M20 pilot's routing Board members believed the use of another radar agency in this situation (e.g. Farnborough LARS) would have been much more appropriate.

The Board were somewhat taken aback by the actions of both pilots in flying in IMC in Class G airspace in the manner that they had; this had effectively removed the 'see-and-avoid' barrier which was so important in these circumstances and which had therefore had a detrimental effect on the outcome of this Airprox. They opined that both pilots appeared to have become task-focused to the extent that they were ill-advised to press on under their extant meteorological conditions; without a radar service, in the case of the M20 pilot, and without informing ATC that they were IMC, in the case of the PA31 pilot.

The Board commended the Southend Radar controller for his prompt action in quickly passing Traffic Information to the M20 pilot, once he had identified the M20 on his radar, despite the fact that the M20 was under only a Basic Service. Unfortunately the M20 pilot did not act on the information he received, and the Board felt that he should have used this Traffic Information as a trigger to request an upgrade to his ATS to one more appropriate for the meteorological conditions.

The Board spent a great deal of time discussing the cause of the Airprox. Some members felt that although the M20 pilot had received Traffic Information he did not utilise this knowledge adequately. Others pointed out that the Traffic Information the M20 pilot received had stated that the other aircraft was in an orbit and therefore the M20 pilot might have assumed that it was remaining so displaced sufficiently to his south. Members all agreed that the PA31 pilot had received appropriate Traffic Information but had not reacted adequately on that information, or informed ATC about the change in his meteorological conditions, when he had decided to turn towards the M20 to commence his calibration run. Following a protracted discussion, the Board agreed that regardless of the airmanship issues surrounding their flights in IMC, the PA31 pilot, in attempting to avoid the M20 and with conflicting TAS information, had inadvertently made an avoiding action turn the wrong way and therefore the cause of the Airprox was that the PA31 pilot had turned into conflict with the M20 despite Traffic Information from Thames Radar ATC. Turning to the risk, again there was a protracted conversation regarding how much safety had been degraded. Some members felt that although safety had been degraded there had been no risk of collision because, in the end, the separation had been 0.6nm. Others felt that the fact that both aircraft had been IMC meant that safety had been much reduced below the norm and that safety had not been assured. The Chairman held a vote, and a clear majority felt that the risk was Category B; safety had been much reduced and, due to the meteorological conditions and type of services the pilots were receiving, safety had not been assured.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The PA31 pilot turned into conflict with the M20 despite Traffic Information from ATC.

Contributory Factor(s): 1. The M20 pilot had an inappropriate non-surveillance based Air Traffic Service for the weather conditions.

2. The PA31 pilot was in IMC under VFR in Class G airspace.

Degree of Risk: B.