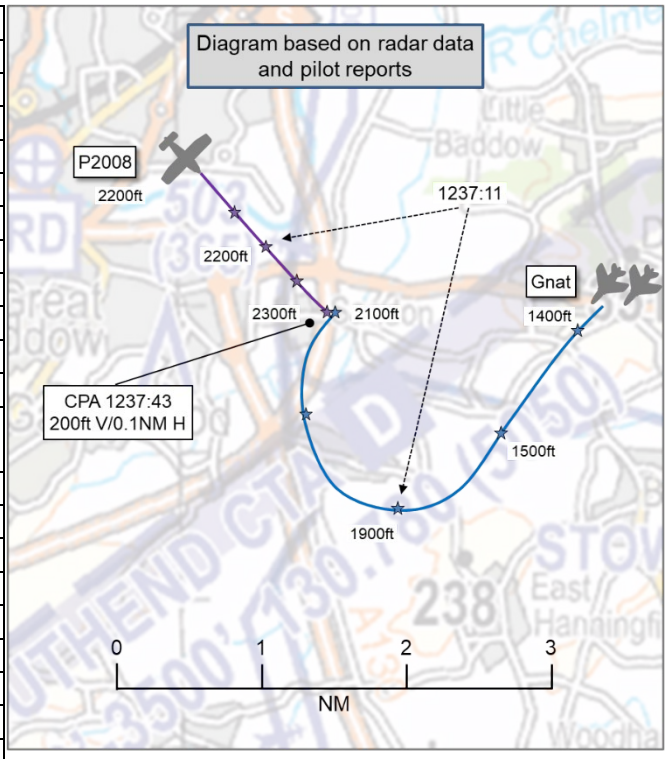
AIRPROX REPORT No 2024012

Date: 27 Jan 2024 Time: 1238Z Position: 5143N 00031E Location: 2NM southeast of Chelmsford

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Gnat T1	P2008
Operator	Civ FW	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	VFR	VFR
Service	Establishing	Basic
Provider	Southend	Southend
Altitude/FL	2100ft	2300ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Yellow[1]	White
Lighting	Navigation, strobes, landing	Navigation, strobes
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	2000ft	2300ft
Altimeter	QNH (1033hPa)	QNH
Heading	230°[2]	140°
Speed	240kt	90kt
ACAS/TAS	SkyEcho	Not fitted
Alert	None	N/A
Separation at CPA		
Reported	100ft V/~500ft H	400ft V/1NM H
Recorded	200ft V/0.1NM H	



THE GNAT PILOT reports that the two Gnats had taken off from [departure airfield] on a routine formation training sortie. As usual after take-off, the aircraft established a track towards Bradwell Bay, which is the preferred operating area due to its low traffic density in otherwise congested airspace. The transit is flown below 250kts until a Traffic Service can be obtained from Southend. On first contact, it had been obvious that the frequency was busy with high traffic volume. A Traffic Service was requested and a squawk was obtained. Before the service 'contract' could be confirmed, the lead aircraft encountered a minor technical issue which would necessitate recovery to [departure airfield]. ATC was informed and the formation was positioned westbound for recovery. After the initial turn, however, the technical issue was resolved and the formation then made a right turn to track back towards Bradwell Bay. This is when the perceived Airprox occurred when the other aircraft had been spotted by the front seat pilot of the lead aircraft. The formation was rolled out and ATC requested to provide a Traffic Service which, after identing, was provided. The rest of the sortie was carried out normally. The Gnat pilot believes this perceived Airprox was the result of distraction caused by the technical fault, the complexities of leading a fast jet formation and a busy radio frequency. Both Gnats are equipped with [an EC device] but in a receive only capacity due to having a pressurised cockpit. They did not believe any party was at fault but it serves as a reminder for all of the particular challenges involved in operating in that congested portion of airspace. It also highlights the importance of conducting effective lookout even when the workload is high, especially in a high traffic area such as the corridor between Southend and Stansted. It would have been prudent to report the Airprox at the time to the controller or a phone call after the debrief to capture information as soon as possible after the incident.

The pilot assessed the risk of collision as 'Medium'.

[1] Pair – reporting aircraft Yellow, No2 Red.
[2] In a RH turn to 050°.

THE P2008 INSTRUCTOR PILOT reports operating under the capacity of a flight instructor, conducting an introductory flying lesson. They had departed from […] and their planned routeing upon leaving [departure airfield] ATZ had been Chelmsford, Southend overhead, Southend Pier, London Gateway Port, Grays, Brentwood, followed by an overhead re-join back into [destination airfield]. Halfway on the leg between [departure airfield] and Chelmsford they had obtained a Basic Service from Southend Radar. Upon reaching Chelmsford they had requested a zone transit from Southend Radar. Their requested routeing had been Southend overhead, Southend pier, London Gateway port and they had been given the squawk 5055. The frequency had been busier than usual and, as a result, the controller didn't give the clearance to cross Southend controlled airspace straight away. The controller asked the P2008 pilot to standby. Overhead Chelmsford the P2008 pilot had heard the two Gnat aircraft flying in formation on frequency but had been unaware of their position and believed they had been within Southend's controlled airspace and, as a result, believed they had not been a conflict at that time. The reported Airprox occurred on the leg between Chelmsford and Southend overhead. During that leg the P2008 pilot had been teaching their student how to maintain straight and level flight and had been maintaining altitude 2300ft. Prior to this incident they had asked the controller if they had been cleared to enter Southend controlled airspace and had been told to remain clear at that time. Their plan had been to continue towards Southend overhead, and orbit roughly 2NM south of Danbury if they had not received their zone transit clearance. During that leg the student had control, and the P2008 pilot had been maintaining a good lookout because, as previously mentioned, this airspace had been busier than usual. During this time, the P2008 pilot became visual with two Gnat aircraft flying in formation. They had been travelling in a south-westerly direction. From the P2008 pilot's perspective they flew across their windscreen from left-to-right. They were at a much lower altitude and would estimate roughly 1000ft below. At this time, the P2008 pilot didn't take any corrective action due to their distance in front of them, their lower altitude and considerably faster speed. At this stage they didn't pose any collision risk. They believed the Gnat pilots had not been visual with them at this stage. The P2008 pilot lost sight of the two Gnat T1 aircraft shortly after they crossed the windscreen. This had been because they had been looking out for other traffic which they could hear on frequency. The P2008 Instructor pilot wished to stress the uncontrolled airspace they had been operating in was extremely busy. Roughly 2NM southeast of Chelmsford, the two Gnat aircraft suddenly appeared again, this had been roughly 30sec after being previously seen. They had been climbing heading in a north-easterly direction. From the P2008 pilot's perspective they crossed the windscreen from right-to-left. This is where the Airprox had occurred. The two Gnat aircraft were at a similar altitude and as soon as they saw the traffic the P2008 pilot took control from the student. The P2008 pilot then commenced a right turn in response as corrective action, however due to the Gnat aircraft's considerably faster speed, the collision risk had already passed before they could effectively respond. The two Gnats flying in formation did get close, however the P2008 Instructor pilot believed the risk of collision had been low. After this incident the P2008 pilot had continued towards Southend overhead. As previously mentioned, they did have to orbit 2NM south of Danbury until they had obtained zone transit clearance and continued with their planned routeing. This account is to the best of their memory, as at the date of writing this report it was 12 days after this incident and was 1 of 4 flights carried out that day.

The pilot assessed the risk of collision as 'Low'.

THE SOUTHEND CONTROLLER reports that this Airprox report had been submitted following a pilot reporting an Airprox. The incident had taken place whilst the aircraft had been under no ATC service from Southend and following a potential fuel leak problem with one of the aircraft. The Airprox had been reported the following day following a phone call discussion with the pilot involved with Southend ATC.

The controller perceived the severity of the incident as 'Medium'.

Factual Background

The weather at Southend was recorded as follows:

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METAR EGMC 271220Z 19008KT 9999 FEW042 08/04 Q1033=
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Analysis and Investigation

SOUTHEND UNIT COMPETENCE SCHEME (UCS) MANAGER

Synopsis

On the morning of 28th January 2024, Southend ATC received a telephone call from a pilot at […]. They had wished to pre-note two formation flights (2x Gnats operating from […] which they had planned for later that day. […] In addition, the following abbreviated transcript of the latter part of the conversation explains the circumstances around the Airprox that occurred the previous day (27th January) which had been filed by one of the Gnat pilots.

After the initial pre-note details (relating to the flight on the 28/1) had been passed, the pilot said the following:

"…is there any chance of having a discrete frequency allocated, one that's a little less busy than 130.780MHz?" The ATCO answered to the effect that the 2 approach frequencies are usually combined but to split them off just for their operation would not be practicable, and that both frequencies require to be monitored at all times. The pilot understood, and had replied: "we'll minimise the chat so we won't be a nuisance to your other traffic, and if possible please, a Traffic Service outside on the transits." Then, "second point if you have a second...we were flying yesterday and during the sortie an aircraft went about 300ft over the top of us. It was nothing to do with you guys, we were outside CAS to the west of Hanningfield....so we have decided that it's probably appropriate to file an Airprox with that. That was at 1237 so we are filing an Airprox just because we feel it necessary, but it's nothing to do with you guys." ATCO - "were you on our frequency at the time?" Pilot - "Yes, we were on your frequency, we'd just asked for a Traffic Service but we then had a minor technical issue with the aeroplane so we turned around so we never actually completed the contract....we solved the snag so we turned back right-hand and it was in that right-hand turn that we had that fairly close call so it's really just to highlight the density of the traffic in the area and how distractions can be to the detriment of good lookout. So we just thought we'd file it for awareness." ATCO - "Thank you for telling us....".

As the pilot made clear on the telephone, no intention to file an Airprox was stated on the frequency at the time of the occurrence, and none had been seen/reported by the relevant ATCOs or other pilot(s) involved. Therefore no reporting, trace or investigation process had been initiated by Southend ATC until this phone call was received the following day. The UCS Manager immediately commenced an initial investigation to ensure that licencing action was not required. They took the details described above and reviewed and impounded recordings, before interviewing the relevant ATCOs. There were deemed to be no immediate licencing actions required. The formal investigation was commenced on 2nd February 2024.

Investigation

Back-up (Stansted) radar feed had been in use due to Selex unserviceability. Radar positions combined, frequencies cross-coupled. ATCO 1 (OJTI) in position with ATCO 2 (trainee). In position from 1050-1240, i.e. 1hr 50min of training, during which for some 40min the positions had been split between DIR and RAD due to traffic levels/complexity. Traffic levels at the time of the occurrence were moderate. All staff fully ATC rostering system compliant. Timeline/transcript filtered for relevant calls and aircraft.

[Non-involved references removed].

1230.00 RAD had 9 discrete SSR codes in use, i.e. aircraft identified and receiving a service. There were no conspicuity codes in use, i.e. aircraft not identified but receiving a service. There were no ORCAM codes in use. There had been 1 aircraft displaying the Frequency Monitoring Code (5050), i.e. listening out but not receiving a service. The mix of traffic at the time of the occurrence had been mostly LARS Basic Services, local VFR, and inbound VFRs. Red Gnat formation had pre-noted

Southend ATC with their details, to operate in the Bradwell Bay area inside CAS. The ATSA had prepared a FPS.

1231:18 First contacts appeared to the southeast of Southend which were later identified as the subject aircraft (Red Gnat Formation). They were indicating 800ft and tracking southeast towards Hanningfield.

1232:50 P2008 first call requesting Basic Service. VFR 2300ft overhead Chelmsford, Q1035 requesting Basic Service. RAD provided squawk 4575 (conspicuity), Q1033, Basic Service. This was read back. The P2008 pilot selected an incorrect squawk of 4574, which was not corrected.

1233:26 Red Gnat - "Southend radar good afternoon, Red Gnat". RAD - "Red Gnat Southend Radar pass your message".

1233:37 Red Gnat - "Red Gnat, two Gnats from […] looking to operate in the Bradwell Bay area SFC to 5400ft with a Traffic Service".

1233:53 RAD - "Red Gnat squawk 5063, QNH 1033 report your level now".

1233:59 Red Gnat - "5063 2100ft 1033 Red Gnat". At this point the Gnats were passing EVNAS tracking east, indicating 2100/2200ft. There were no immediately conflicting aircraft.

1234:05 RADAR - "Red Gnat are you VFR?" No reply received.

1234.13 Red Gnat squawk 5063 appeared. They were on northern edge of Hanningfield reservoir tracking east indicating 2100ft/2200ft.

1234:29 P2008 pilot requested zone transit. RAD asked their requested routeing. They requested from Chelmsford to Southend overhead, Southend Pier, Gateway Port. Red Gnat turned to northeast, presumably to reman clear of controlled airspace.

1234:48 P2008 pilot instructed to squawk 5055. This was read back.

1234:57 Red Gnat 2 - "Red Gnat 1 Red Gnat 2".

1234:57 Red Gnat 1 - "Go ahead".

1234:58 Red Gnat 2 - "Red Gnat 1 you have fuel leaking from the top of your spine". P2008 squawk 5055 appeared at Chelmsford, indicating 2400ft. They (Red Gnat formation) had then been 2NM northwest of Stow Maries indicating 1900ft/2000ft tracking northeast.

1235:08 Red Gnat 1 - "Red Gnat 1 that's err copied, what's the quantity like?"

1235:15 Red Gnat 2 - "Say again?"

1235:17 Red Gnat 1 - "What sort of level of leakage is it?"

1235:22 Red Gnat 2 - "?? A medium leakage".

1235:26. Red Gnat 1 - "Yeah we're turning home you come with us, ah coming left this time".

1235:35 Red Gnat 1 - "Ah Southend Red Gnat we have a minor err technical problem we're returning to […] err currently in a left turn."

1235.46 "Red Gnat roger". The Gnats had been 2NM west of Northey Island commencing left turn, indicating 2100ft/2100ft.

1236:44 Red Gnat 1 - "Red Gnat 2 from 1 can you widen out a bit please we're going to ?? up and down a bit to burn some fuel". Gnats had then been 4NM northeast of Hanningfield tracking southwest indicating 1500ft/1600ft. They had had 3 contacts within 5NM. P2008 had been in their 2 o'clock range 3NM tracking towards Southend, crossing right-to-left indicating 2300ft. Another aircraft leaving CAS had been in their 11 o'clock range 5NM crossing left-to-right indicating 2200ft.

1236:52 Red Gnat 2 - "Red Gnat 1 your fuel leak has stopped".

1236:58 Red Gnat 1 - "err roger, in that case we'll turn back to the east, it will be a right turn".

1237:13 Red Gnat commenced right turn towards the P2008. They were 2.5NM southeast of them turning opposite direction. They were indicating 1900ft/1800ft, P2008 had been indicating 2300ft.

1237:30 Red Gnat - "Southend Radar Red Gnat".

1237:36 "Red Gnat pass your message".

1237:37 Red Gnat - "Just confirm we have a Traffic Service please?" The P2008 had been in their 12 o'clock indicating 300ft above lead aircraft. Gnats were 2.5NM north of Hanningfield.

1237:42 RAD - "Red Gnat squawk ident." At this point the range had been approximately 1NM. Gnats indicated 300ft below.

CPA occurred at 1237:43

1237.50 Ident appeared as contacts merged 3NM north of Hanningfield. Gnats indicated 2100ft/2100ft, P2008 indicated 2400ft.

1237:54 Red Gnat - "Squawk ident, Red Gnat". Contacts have now passed.

1237:55 RAD - "Red Gnat roger, identified Traffic Service with reduced Traffic Information due to controller workload, possible late warning of traffic." At this point the nearest relevant contact had been 5NM north of them, manoeuvring squawk FMC indicating 1900ft. However, the Gnats had been turning away to the east.

1238:02 Red Gnat - "Traffic Service Red Gnat and confirm we're cleared to enter Bradwell Bay area?"

1238:07 RAD - "Negative, remain outside controlled airspace, standby for clearance."

Summary

The investigation is based on the assumption that the above correctly references the incident which the pilot reported. The two Gnats came on frequency at 1233:26 requesting a Traffic Service and entry into CAS. They had been in the vicinity of Hanningfield and were provided with a squawk and QNH but not immediately identified or given a service. Shortly thereafter, at 1234.57 they began to chat on the RAD frequency about a leaking fuel problem. The lead indicated their intention to return to […] and they commenced a turn back towards Hanningfield. As they had approached Hanningfield, there had been traffic to the southwest of them which they may have seen, leaving Southend CAS. After another short discussion, they had decided that the fuel leak had stopped and they were turning right back eastbound. This turn had then placed them into confliction with another aircraft working Southend Radar - the P2008 - which had been tracking VFR towards Southend at 2300ft under a Basic Service. At 1237:37 the Gnat pilot asked if they were in receipt of a Traffic Service, which at this time they were not. Radar asked them to squawk ident, even though they had been turning reciprocal to the P2008 with a range of approximately 1.5NM closing rapidly. By the time that identification was achieved and a service provided, the aircraft had passed. The Gnats passed 300ft (indicated) directly below the P2008. Traffic Information had not been passed either way. The flight then continued north and northeast of Southend with another unknown contact

coming within a range where Traffic Information should have been passed. At 1240:06 the Gnats had been at Abberton and cleared to enter CAS as requested. The flight continued without further incident.

The investigation can be broken down into parts. Some of the following directly relates to this incident, and some are more general comments about the elements involved, which will be useful for context:

The Radar and radar operation - Southend's Mode S Selex system had been undergoing extended maintenance for some time, due to an ongoing technical issue. The back-up (Stansted) feed is dual channel SSR but comes with additional limitations and changes to the radar operation. Primarily, this involves increased separation requirements, cancellation of standing agreements, more extensive use of discrete squawk codes and primary/secondary methods of identification, changes/limits on the provision of services which can be provided, changes to the Southend RMA, lack of downlinked information etc. Experienced RAD ATCOs notice a significant increase in workload during Stansted feed operations. Whilst trainee ATCOs benefit from experiencing the Stansted feed operation during training (as opposed to learning the theory of it), it does provide them with a challenge and additional workload. Of particular note is the inability to immediately identify aircraft based on displayed flight ID, but the requirement to use discrete squawk codes and wait to see the code change. NB. Coincidentally, a senior team meeting took place on 24th January 2024 where one of the topics discussed was the suitability of the Stansted radar feed. In particular "whether there are other options, including overlaying other feed(s) and/or reviewing the reason for 5NM separation. Also, if it is a planned outage of Selex, consider if, with increase in separation, reduction in situational awareness and further co-ordination requirement, Southend still considers carrying on as normal (i.e. same training criteria) is acceptable". This included LARS provision and instrument training aircraft. The two radar positions are often combined, with the frequencies being cross-coupled. Depending on the workload anticipated, both in terms of LARS traffic and aircraft utilising Southend Airport and/or crossing/entering CAS, tactical decisions are made as to whether the operation can be safely combined or should be split. Additionally, the requirements and abilities of any particular trainee will affect the decision. On this occasion, the positions had been split earlier during the session due to the level and complexity of traffic, but had then been coupled together again as traffic permitted. This had been deemed appropriate by ATCO 1 due to the level of experience of ATCO 2, and their stage of development in terms of their training plan. A suitably rested ATCO was available had circumstances required it.

The RAD ATCO and OJTI's actions – NB. At all times the OJTI (ATCO 1) remains wholly responsible for the standard of service provision.

As stated above, ATCO 2 was at an advanced stage of training and was moderately busy immediately preceding and during the incident. This was deemed to be appropriate for their abilities and stage of training. ATCO 1 did not feel the level of traffic or its complexity justified splitting radar positions. It was evidenced that, around the time of the incident there had been some uncharacteristic pauses in replying to aircraft. Additionally, there had been mistakes creeping in such as not having noticed the incorrect squawk displayed by the P2008 at Chelmsford, and the FPS for the P2008 not being annotated as identified/validated and verified. The investigator noted that the following factors may have contributed to this:

1. The additional workload and unusual nature of using the Stansted feed. Further explanation below.

2. Possible fatigue coming at the end of this relatively long training session - both ATCOs having been in situ for 1hr 50min.

3. A handover was being conducted during the period of the incident between ATCOs 1 and 2, and oncoming trainee/OJTI combination. ATCO 2 was attempting to commence handover whilst the Gnat pilots began to chat to each other about a possible fuel leak issue. The handover was therefore interrupted because:

4. ATCO 1 needed to speak to ATCO 2, who was distracted by their chatter on the frequency, and confused as to what they were saying to each other.

ATCO 2 had been alarmed at the prospect of what sounded like a possible developing emergency/ request to divert, and subsequently had been confused as to why they were continuing normally to […]. ATCO 2 did not attempt to speak to the formation pilots, who were obviously trying to manage an issue whilst flying fast jets in close formation. This is good technique. ATCO 2 had passed instructions to other aircraft whilst continuing with the handover. However, the Gnats had still not been under a service, and the handover was being delayed. ATCO 1 was also attempting to handover to the oncoming OJTI, with particular reference to the fuel leak issue. At the point where the Gnat pilot had asked whether a service was being provided, asking them to squawk ident was imprudent. An experienced ATCO would have taken this as a prompt to scan for traffic and pass the confliction immediately, irrespective of service. In debrief, ATCO 1 had also acknowledged that the developing problem was not observed, possibly because of point 4 (above). ATCO 1 acknowledged that a duty of care should have led to Traffic Information being passed irrespective of service provision. ATCO 1 also acknowledged that the P2008, under a Basic Service, should have received Traffic Information where a possibility of confliction such as this exists.

After the service was agreed, further relevant Traffic Information was not passed. Again, this may have been due to the process of the handover taking place, the Gnat operation and fast jets from […] in general. At the time of the incident the pilots had seemed unsure whether a service had been agreed. At time 1236:44 their internal chat discussed widening out to enable manoeuvres up and down to burn fuel. This is not in line with the Traffic Service agreement, suggesting that they were aware a Traffic Service had not been agreed. Recordings suggest that they had possibly seen another aircraft which prompted them to ask ATC for clarification. The phone call to ATC the next day indicated that, at the time of calling, they were aware the incident had occurred before a Traffic Service had been agreed. They emphasised that they wished to highlight the dangers of operating in a densely congested area, and also being distracted by a technical issue. The Gnat pilots on this occasion, and historically, fly very tight and accurate formation, conduct themselves in a professional way, and have very good standards of RT technique. It is apparent that they must be well versed in fast jet operations, probably ex-RAF. However, for various reasons, their operation from […] has historically created problems for Southend ATC. It has long been noted that the faster types, Gnats, Jet Provosts, L29 etc which operate from […] can rapidly increase workload for the RAD ATCO. Operating in the area to the east of North Weald in Class G, an area which can become especially busy at times. The quality of radio transmissions has often been an issue with some aircraft. Usually requesting a Traffic Service, they often manoeuvre in blocks and ranges from Southend which place them in and out of full radar cover, even when Selex Mode S radar is in use. This makes the provision of Traffic Service particularly problematic as they are often flying high-G/high speed manoeuvres placing them in/out of radar cover within seconds.

No RAD ATCO, especially given the high workload that a Southend RAD ATCO often experiences, can effectively monitor these flights and change service provision as MATS 1 demands. This usually leads to a rather inadequate 'reduced Traffic Service due to range/level etc, and a Basic Service below XXX feet'. Additionally, the changes of level are often so rapid that warnings of 'own terrain safety' need to be changed or passed at such short notice that it becomes impracticable. The relative high performance of these aircraft versus most of the LARS traffic means that the scan has to be much more proactive, and Traffic Information becomes relevant much sooner, and must be passed that much quicker. The overall effect is that the jets instantly become 'higher priority' and increase ATCO workload exponentially, often leading to a request to de-couple frequencies and split the position with all the attendant workload and risk. The operation that aircraft such as the Gnats often request, to be in the Bradwell Bay area up to base of the LTMA is usually accommodated without issue. However, it has been noted that the CAS D speed limit probably isn't being adhered to. Whatever agreement these jets have with CAA will not cover operations at high speed inside CAS D - something which Southend ATC is not empowered to approve. Additionally, there has long been a concern that whilst these pilots operate in a very professional way, and there is no evidence of them infringing the LTMA at the Bradwell Bay area, there must be an inherent risk of inadvertent infringements and/or nuisance TCAS events when the jets manoeuvre up to 5400ft VFR flying loops

etc. However, the counter argument for them would be that being inside CAS affords them much better protection. Again, service provision usually with the phrase 'Radar control inside CAS, Traffic Service outside' is regularly used to cover service provision which is wholly inadequate, and leaves the ATCO vulnerable should an incident occur.

Finally, the chat on RAD frequency, although necessary and professional, should be done on a discrete frequency. It is not known whether this is feasible - i.e. whether these aircraft have more than one radio set. The request on the phone the next morning, to be able to use one of Southend's frequencies for chat, is not feasible but leads us to conclude that the pilots are aware that it can be an issue. They require quiet for their operation, and Southend is not in a position to split RAD positions for their operation. Lastly, for the first and last portions of their flight, fast jets are operating close to North Weald/Stapleford - a very dense area for aerial activity. All of this is done with no service, or a limited service from North Weald Radio. At the time of leaving the Southend frequency passing Hanningfield westbound, there were at least 6 relevant contacts between the Gnats and North Weald - possibly more since aircraft operating low-level in this area are hidden from Southend Radar's view.

Summary

The Gnat pilots were flying the type of sortie that experienced Southend RAD ATCOs are used to handling, despite the aforementioned difficulties that these flights present. It is the investigator's opinion that an experienced ATCO would have identified them with minimal delay and provided the service requested, with commensurate Traffic Information. Additionally, an experienced ATCO would probably have recognised the issue in this case to have been excess fuel venting off, and would not let pilot chatter become a distraction. For a combination of reasons, as above, ATCO 2 had been slow to do this. However, ATCO 2 had been aware that the pilots should be left to resolve their issue without interruption. The aircraft turned towards and conflicted with the P2008 which had been operating VFR under a Basic Service. The Gnats appeared to fly directly under the P2008, indicating 300ft below. The FPS did not show the P2008 as having been verified; however, the veracity can be vouched for by reviewing recordings. At the time, none of the pilots involved made comments via RT. It is not known whether the P2008 pilot saw the Gnats, or at what point the Gnat pilots saw the P2008. Ultimately, the Gnat pilots were not receiving a service and were responsible for their own lookout. The Gnat pilots had been on frequency for 90sec before the internal chat began, and 2min before they advised ATC of their intention to RTB. The P2008 pilot had been under a Basic Service where Traffic Information is only required to be provided where a definite risk of collision exists. All aircraft had been operating VFR in Class G. The event had passed unobserved by ATCO 1 and ATCO 2. The level of traffic and complexity had been, at and around the time of the alleged incident, suitable for ATCO 2 at their stage of training. The decision to maintain combined radar ops had been sound.

Conclusion. An Airprox occurred in Class G airspace between 2 x Gnats in close formation, and a P2008.

Causal Factors. Pilot lookout on part of all pilots concerned.

Secondary Factors. Relatively slow response from ATC in providing the service requested caused by Gnats and lack of Traffic Information passed to the P2008 pilot, caused by:

A - Trainee ATCO and teaching in progress with off-air discussion taking place.

B - Confliction not seen by either trainee or OJTI who failed to adequately monitor/correct/interject. Duty of care therefore not discharged.

C - Chatter on frequency distracting trainee concerned about possible diversion etc.

D - Possible fatigue at end of training session.

E - Handover in progress, with commensurate off-air discussion.

F - Relative performance differential between Gnats and other participating aircraft.

G - Stansted Radar feed in use at Southend.

Recommendations.

1 - ATCO 1 to be debriefed on issues raised. Predominantly delay in providing Traffic Service, and the lack of recognition that Traffic Information should have been passed. Duty of care applies at all times irrespective of service provision.

2 - ATCO 2 to be debriefed by way of an addendum to training notes for the session.

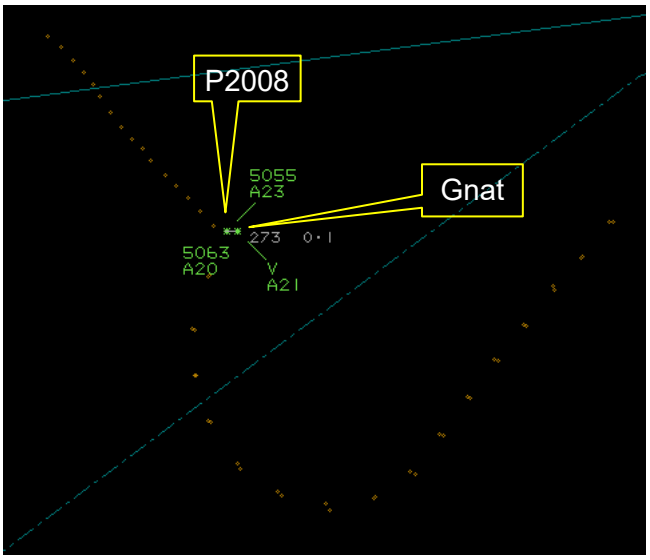
3 - Review of suitability of back-up radar provision already ongoing at senior level.

4 - Southend Safety Manager to review the operation with regards to service provision for fast jets requesting radar services whilst flying VFR in Class G/D airspace.

CAA ATSI

CAA ATSI has reviewed all of the available reports and the radar and RT recordings for this event and can confirm that the Southend investigation report is an open and accurate account of the event. Their unit investigator has produced a comprehensive set of contributory factors. ATSI has nothing further to add.

UKAB Secretariat



CPA 1237:43 200ft V/0.1NM H

The Gnat and P2008 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[3] If the incident geometry is considered as converging then the P2008 pilot was required to give way to the Gnats.[4]

Summary

An Airprox was reported when a Gnat and a P2008 flew into proximity 2NM southeast of Chelmsford at 1238Z on Saturday 27th January 2024. Both pilots were operating under VFR in VMC, the Gnat pilot not in receipt of an Air Traffic Service and the P2008 pilot in receipt of a Basic Service from Southend.

[3] (UK) SERA.3205 Proximity.
[4] (UK) SERA.3210 Right-of-way (c)(2) Converging.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, a report from the air traffic controller involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The Board firstly wished to thank all involved for comprehensive reporting on this event, noting how it had enabled a thorough understanding of the various perceptions and contributions, but wished to stress the importance of reporting an Airprox at the time, on RT where possible, to enable the timely capture of as much relevant detail as possible.

Members then discussed the actions of the Gnat pilots, recognising the nature of the formation flight and the added complication of having to manage a potential in-flight emergency. They noted the Gnat pilot's interrupted process in achieving an Air Traffic Service and that this had only been fully achieved beyond the moment of CPA. Members reviewed the reporting of the Gnat pilot's request for a discrete frequency, accepting the logic for its denial by the controlling agency, and opined that although such a discrete frequency would have allowed for uninterrupted conversation between formation members on the emergency issue, it would have denied the Southend controller the limited situational awareness they had gained. The Board noted that, although the Gnat pilots had carried electronic conspicuity equipment, it had been in a limited mode due to the aircraft performance and they had not received any emissions from the P2008 (**CF8**) which had, in conjunction with an incomplete Air Traffic Service contract, denied the Gnat pilots any situational awareness of the proximity of the P2008 (**CF7**). Board members did wonder whether a clear statement on RT, such as a 'PAN' call at the point of having identified the emergency, might have led to more focussed attention on surrounding traffic for the Southend controller even though the Traffic Service contract had not been agreed at that time.

In reviewing the actions of the P2008 pilot, members noted positively the use of an Air Traffic Service whilst conducting a flying lesson, recognising the limitations of a Basic Service which, in this case, had not led to the passage of any Traffic Information and, tied to the lack of electronic conspicuity information, contributed to a lack of situational awareness of the presence of the Gnats (**CF7**) and led members to wonder if a Traffic Service might have been more suited to this busy environment in the early stages of flight training. Members noted the high occupation levels of the RT frequency (**CF5**) and the detrimental effect it had had on the planned instructional profile for the P2008 pilot and the reduced opportunity for the passing of Traffic Information by the controller under a Basic Service.

The Board then moved on to consider the role of the Southend controller in this event. Members recognised the situation under which the unit had been working, with a sub-optimal back-up radar feed in use (including a lack of Mode S), radar positions combined, frequencies cross-coupled and the primary controller acting as an OJTI with a student, albeit an advanced student, in their workload (**CF1**). They also recognised that the OJTI and student had been at the console for almost 2hrs leading to a planned change of staffing at a difficult time that members believed to have been a contributing factor in this event (**CF4**). The Board noted the reluctance in this case to open a second radar position, as it had become increasingly obvious that the reduced system of radar provision and the commensurate additional tasks required (such as the inability to immediately identify aircraft based on flight ID) had ultimately led to limited situational awareness for the controller (**CF6**), the conflict not having been detected (**CF3**) and no Traffic Information having been passed to the P2008 pilot (**CF2**).

When determining the risk, members considered the reports from both pilots together with the report from the controllers involved and radar photographs/video recordings. They acknowledged that the P2008 pilot had attained visual contact as the Gnat formation had passed left-to-right 30sec prior to CPA but had then lost visual, regaining it only at very close range as they had passed right-to-left and the P2008 pilot had initiated a turn to increase separation albeit as the formation had already passed through their 12 o'clock. Members agreed that safety margins had been much reduced below the norm through the effective non-sighting by both pilots (**CF9**) at the point of CPA. As such, the Board assigned a Risk Category B to this Airprox (**CF10**).

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2024012			
Factor	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
Ground Elements			
• Manning and Equipment			
Human Factors	• Recurrent/OJT Instruction or Training	Events involving on the job training of individuals/personnel	
• Situational Awareness and Action			
Human Factors	• ANS Traffic Information Provision	Provision of ANS traffic information	TI not provided, inaccurate, inadequate, or late
Human Factors	• Conflict Detection - Not Detected	An event involving Air Navigation Services conflict not being detected.	
Human Factors	• Task Monitoring	Events involving an individual or a crew/ team not appropriately monitoring their performance of a task	Controller engaged in other tasks
Contextual	• Frequency Congestion	An event involving frequency congestion that reduces the effectiveness of communications	
Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late, no or inaccurate Situational Awareness
Flight Elements			
• Situational Awareness of the Conflicting Aircraft and Action			
Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late, inaccurate or only generic, Situational Awareness
• Electronic Warning System Operation and Compliance			
Technical	• ACAS/TCAS System Failure	An event involving the system which provides information to determine aircraft position and is primarily independent of ground installations	Incompatible CWS equipment
• See and Avoid			
Human Factors	• Monitoring of Other Aircraft	Events involving flight crew not fully monitoring another aircraft	Non-sighting or effectively a non-sighting by one or both pilots
• Outcome Events			
Contextual	• Near Airborne Collision with Aircraft	An event involving a near collision by an aircraft with an aircraft, balloon, dirigible or other piloted air vehicles	

Degree of Risk: B.

Safety Barrier Assessment[5]

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

Ground Elements:

Manning and Equipment were assessed as **partially effective** because the Southend controller had been supervising a student controller at the time of the Airprox.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the Southend controller had been handing over during the event and did not identify the conflict and passed late Traffic Information to the P2008 pilot.

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

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **ineffective** because neither the P2008 nor the Gnat pilots had situational awareness of the other aircraft.

Electronic Warning System Operation and Compliance were assessed as **ineffective** because the equipment carried by the Gnat pilots could not detect any emissions from the P2008.

See and Avoid were assessed as **ineffective** because both the P2008 and the Gnat pilots had sighted the other aircraft at or around CPA.