

Updates

Preventing airspace infringements in the vicinity of the Solent

This infringement update is the fourth in a series of narratives focusing on identified infringement 'hot-spots' in the UK. It has been written by members of the Solent LAIT, Southampton Airport and Southampton Air Traffic Control.

The Solent airspace comprises the Southampton Control Zone (CTR, surface to 2,000 feet amsl) and eight Solent Control Areas (CTA) as depicted in Chart 1. The CTA-2 portion of the Solent CTA extends from 2,000 feet to 5,500 feet and also above the CTR to 5,500 feet amsl. Southampton in subject to over 100 airspace infringements during a year the majority of which are in CTA-2.

This specific CTA-2 comprises an area over the New Forest and western Solent (including a segment over the north west of the Isle of Wight) under which lies a wide area of Class G airspace between the control zones of Southampton and Bournemouth. When we look at the infringements that do occur most are caused by aircraft infringing the base of that airspace.



(https://airspacesafety.com/updates/chart-1-solent-fw/)
Chart 1: Solent CTA-2 outlined in red

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An infringing aircraft that is not radar identified by Solent Radar becomes unknown traffic; a solution on standard of 3nm laterally or 3,000 feet vertically is required between that aircraft and IFR aircraft. (https://airspacesafety.com) aircraft of outbound from, Southampton Airport or operating within Southampton/Solent configuration aircraft aircraft.

Commercial aircraft can be operating 500ft above the base of controlled airspace. Both

Bournemouth and Southampton have instrument approaches that commence in CTA-2, often with commercial aircraft descending to 500 feet above the base of controlled airspace (as is standard operating procedure, see Chart 2). Any infringement of the CTA-2 here can cause a loss of separation which has serious implications for all concerned with ATC having to take mandatory avoiding action and a full investigation being carried to the incident. This will usually involve the controller being unable to continue working until a preliminary investigation is complete. It may also result in delay for commercial passengers and crew.



(https://airspacesafety.com/updates/chart-2-solent-fw/) Chart 2: Typical inbound routes using CTA-2 (Southampton routes for Runway 02 in Red – Bournemouth routes for Runway 26 in Green)

Important factors to think about when flying under the CTA-2

Set the right QNH. The base of controlled airspace is determined by the local 'Solent' QNH, not the Portland RPS. A difference of 3-4 hPa is not unusual and aircraft flying close to the base of controlled airspace can inadvertently infringe just by having the wrong (inappropriate) QNH selected.

Take 2. An initiative through the Local Airspace Infringement Teams (LAIT) is to <u>Take 2</u>. By remaining at least 200 feet below the base, or 2nm horizontally away from the edge of a block of controlled airspace then, any inadvertent deviation from level flight or planned course could be caught in sufficient time to prevent an airspace infringement. As mentioned in the introduction, it is especially important when flying 'under' the Solent CTA-2 – i.e. below 2000ft. A radar controller can usually see traffic operating beneath controlled airspace while controlling inbound traffic to Southampton (and in principle in this area, Bournemouth too) and has to expect such aircraft to remain outside the CTA-2. Any vertical deviation that results in an aircraft entering the CTA-2 (without a clearance) can immediately cause \overline{Tgp} .

loss of separation with an aircraft within. This quickly becomes a significant safety event employing action, creating a highly elevated workload with yet greater risk and resulting in all the (https://airspacesafety.com) reporting action and investigation that that entails. If you just 'pop up for a moment' it can easily be as significant as a horizontal infringement from an ATC perspective. As can be seen in Chart 2, the entire area of CTA-2 is used for approaches to Runway 02 at Southampton and Runway 26 at Bournemouth.

Use the appropriate FMC (Listening Squawk) and listen out. The airspace below the CTA-2 is Class ^{Su} G airspace (uncontrolled). There is no requirement to receive a service from either Bournemouth ATC (to the west) or Southampton ATC (the controlling authority). However, the introduction of the Frequency Monitoring Code (7011 for Southampton/Solent Radar – 120.230MHz, or 0011 for Bournemouth Radar 119.475MHz) enables ATC at those units to observe an aircraft that may be of potential conflict to their traffic inside controlled airspace and interrogate such an aircraft when appropriate. The use of this FMC has been proven to prevent infringements and reduce the severity of such occurrences and enhance the controllers' and pilots' situational awareness creating a safer and more predictable situation than would otherwise prevail. The agreed 'demarcation' line between the Solent and Bournemouth FMC is a line orientated northwest to southwest between Stoney Cross and Hurst Castle; to the west it is Bournemouth (0011/119.475MHz) and to the east is Solent Radar (7011/120.230MHz).

If appropriate – request a clearance. If for any reason a climb is required above the base of 2,000 feet in CTA-2, then a clearance must be obtained. Depending on a variety of factors, not least the runway in use and traffic situation at the time, this may well be available. By obtaining a clearance to enter controlled airspace when appropriate, ATC are able to control more effectively and ensure safety is maintained.

Visual Reference Points (VRPs)

To help orientate yourself, and also enable a position report if you are talking to an ATC unit, there are five VRPs (Chart 3 below) which lie under or close to CTA-2:

Cowes VRP is the harbour at the mouth of the River Medina on the Isle of Wight lying to the east of CTA-2 and under the Portsmouth CTA with a base of FL65. The VRP acts as a prominent geographical feature by which to be below 2,000 feet (Solent QNH) when routing westbound and to remain below 2,000 feet QNH when routing eastbound.

Calshot VRP lies on the edge of the Southampton CTR (SAM 177°/8 nm) and is the site of the Calshot Power Station with a single chimney to the west of Calshot Castle and the activities centre. Pilots intending to operate in Class G airspace using this VRP should remain south of the VRP and below 2000 feet on the Solent QNH.

Beaulieu VRP is the site of the old RAF Beaulieu aerodrome on Beaulieu Heath. It can be identified at having 3 former runways in the standard WWII triangular configuration with the apex to the north.

Hurst Castle lies to the south of CTA-2 and under CTA-8 with a base of 3,500 feet amsl (on the Solent QNH).

Stoney Cross VRP is the site of the old RAF Stoney Cross aerodrome to the north of the A31 road leading to the start of the M27. The VRP lies on the western edge of CTA-4 (base 2,500 feet Southampton QNH).



(https://airspacesafety.com/updates/chart-3-solent-fw/) Chart 3: Solent VRPs on the half-mil VFR chart

3. Preventing airspace infringements in the vicinity of Warwick \bigcirc

This infringement update is the third in a series focusing on identified infringement 'hot-spots' in the UK. It has been written by members of the Midlands LAIT: Birmingham Airport Air Traffic Limited, the Flight Information Service Officers at Coventry Airport and Wellesbourne Mountford Aerodrome.

Birmingham Control Area 2 (CTA 2) which lies to the south of the Birmingham Control Zone is a constant hot-spot for airspace infringements. Its base of 1,500 ft amsl (based on the Birmingham QNH) and extends to 4500 ft amsl to the base of the Daventry CTA (Class A). The Birmingham CTR and CTA are both Class D controlled airspace. In the period from 1 January to 11 October 2019, there were 21 infringements of CTA 2 amounting to 56% of all airspace infringements affecting Birmingham controlled airspace. The airspace is in place to facilitate descents to final approach to Runway 33 and departures from Runway 15. Significant ground features in the vicinity of the CTA are Learnington Spa and Warwick which straddle the boundary between CTA 2 and CTA 4 (base level 3,500 ft Birmingham QNH), the M40 motorway with M40 Junction 15 Warwick VRP and Coventry Airport and city to the northeast. Warwick Castle, a popular scenic turning point, lies almost 1nm north on the southern boundary of, and under CTA 2.

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CTA2 and CTA4

M40 Junction 15 Warwick VRP lies in Class G airspace approximately 13nm South southeast of Birmingham Airport and underneath Control Area 2 (CTA2). The base of Class D airspace at Warwick VRP is 1,500 feet (Birmingham QNH).

An infringing aircraft that is not radar identified by Birmingham Air Traffic Control becomes unknown traffic; a separation standard of 5nm laterally or 5,000 feet vertically is required between that aircraft and IFR aircraft inbound to, or outbound from, Birmingham Airport.

Arrivals to Runway 33 are routed through CTA 4 (3,500 feet to 4,500 feet) descending into CTA 2 (1,500 feet to 4,500 feet) prior to entering the CTR (surface to 4,500 feet) prior to landing (see chart 2). As the inbound traffic will be descending, the air traffic controllers have little option other than to either break the aircraft off the approach or issue radar vectors to maintain 5nm lateral separation or to stop an aircraft's descent 5,000 feet above the unknown traffic posing the challenge then to descend the aircraft in sufficient time to establish a stable approach.



Runway 33 Arrivals

Arrivals to Runway 15 from the south are routed via either downwind left-hand or right-hand through CTA 4 and CTA 2 into the CTR as depicted in Chart 3. As the inbound traffic will be descending, the air traffic controllers have little option other than to issue radar vectors to maintain 5nm lateral separation or, if they are still high enough, to stop an aircraft's descent 5,000 feet above the unknown traffic.

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Runway 15 Arrivals

Departures from Runway 15 at Birmingham Airport will climb out towards CTA 2 and CTA 4 (see chart 4). Again, to maintain standard separation of 5nm laterally or 5,000 feet vertically, departing aircraft may have to be issued with radar vectors; in addition, depending on the position, heading a height of the infringing aircraft, departures may need to be suspended and inbounds issued with amended missed approach instructions or delayed/suspended.



Runway 15 Departures

Non-squawking aircraft operating underneath the CTAs will be deemed to be clear of controlled airspace; should that traffic be infringing controlled airspace, the risk of a mid-air collision is heightened.

Inbound to or Outbound from Coventry Airport?

Coventry lies underneath Birmingham Control Area 2 (CTA2), and the base of this controlled airspace is 1500ft QNH (1267ft Coventry QFE). Due to the high risk of potential confusion, Coventry will issue the Coventry QNH rather than QFE to aircraft in/outbound (QFE is available on request but remember $\underline{\text{Tbe}}$ $\overline{\uparrow}$ base of controlled airspace is close).

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To join for Runway 23, route via Draycott Water VRP for left base; for Runway 05, route via Southam

<u>[https://airspacesafety.com]</u>

Nesserement joins are permitted due to the controlled airspace above, and dead side/straight in approaches are not encouraged due to integrating with circuit/joining traffic via the VRP's.

Circuit altitude is 1,200 feet QNH (Height 1000 feet QFE).

Once on the Coventry frequency pilots will be given the Coventry conspicuity squawk and reminded to remain outside AND BELOW controlled airspace, as an aid to help prevent airspace infringements.

Inbound to or outbound from Wellesbourne Mountford?

When operating to/from Wellesbourne Mountford remember that the aerodrome elevation is almost 150 feet; this equates to 5 hPa. If you are flying on the Wellesbourne QFE, remember its relationship to the Birmingham QNH; you could be flying higher than you think in relation to controlled airspace. When departing to the northwest or northeast, make a plan that includes the wider airspace picture. Consider how to avoid Snitterfield Gliding Site (winch launching up to 2,400 feet amsl) early in your plan; a recent airspace infringement saw a pilot, who was flying from Wellesbourne Mountford to Halfpenny Green, make a late plan to avoid Snitterfield to the east after climbing to 2,000 ft. This resulted in the pilot infringing CTA2; an early plan to route via Stratford-Upon-Avon and Studley would have kept the aircraft well clear of the lower CTA. To assist in this, the team at Wellesbourne Mountford have produced a much-simplified diagram. Published primarily for departures from Wellesbourne it applies equally to inbound and transit traffic. It is published on the website **C** and regularly briefed to visitors.



Avoid northerly routings even below the CTA Birmingham CTA base 1500ftored 4nm north of EGBW Gliders up to 2400ft at Snitterfield 4nm north west of EGBW Coventry ATZ base surface 8nm north east of EGBW Not to be used for flight planning. Always use an up to date chart.

Avoiding Birmingham Controlled Airspace

To prevent an airspace infringement, as part of their pre-flight planning and in-flight execution, pilots are strongly encouraged to:

Use a **Moving Map** and where able <u>Take 2</u> **Z**;

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Obtain an air traffic service. Know which ATS unit can provide a LARS. To the west and northwest, it is when you want to the south and southwest it is Brize Norton (124.274 MHz) and to the <u>https://airspacesafety.com</u>) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz) and to the south and southwest it is Brize Norton (124.274 MHz).

Use the FMC. Rather than squawking 7000, if you do not want to obtain a service from ATC, use a <u>Frequency Monitoring Code (https://airspacesafety.com/listening-squawks/)</u> by squawking 0010 and monitoring 123.980MHz. Obtain the Birmingham QNH from the ATIS frequency (136.030 MHz), by asking an adjacent ATS unit or by listening to that given to other aircraft on 123.980MHz

Avoid flying on the RPS in the vicinity of Birmingham CTAs. When flying on the RPS, as it is the forecast lowest QNH for a region, you will be higher in relation to the Birmingham QNH. If you are receiving a FIS from London Information, ask the FISO for the Birmingham QNH rather than remaining on the Barnsley RPS (or Cotswold RPS if flying from the southwest). In addition, this can be obtained on the ground prior to departure by calling Birmingham's ATIS number of 0121 767 1260; this not only gives the QNH but will also give you an idea of the runway in use, the current weather and TAF.

Make a Detailed Plan. Build in your climb and descent points when routing in the vicinity of multiple CTAs with differing base altitudes. Know what VRPs look like and what airspace lies above them or close by.

2. Preventing airspace infringements in the vicinity of the Manchester low-level route

This infringement update is the second in a series of narratives focusing on identified infringement 'hot-spots' in the UK. It has been written by members of the Northwest LAIT: NATS Manchester; ATCSL, Liverpool; Barton Aerodrome; and Ravenair, Liverpool Airport.

During a 6-month period, from April to October 2019, over 30 airspace infringements have been reported in the vicinity of the Manchester Low-Level Route (LLR). The LLR is a 4nm wide corridor of Class D airspace within which helicopters or aeroplanes may fly without individual ATC clearance subject to:

- remaining clear of cloud and in sight of the ground;
- flying at a maximum altitude of 1,300 ft on the Manchester QNH; and
- there being a minimum flight visibility of 4 KM.

Pilots using the LLR are responsible for their own separation from all other flights when operating within the LLR airspace at all times. Further details on the LLR can be found in the UK AIP entry for Manchester Airport at AD 2.22 (paragraph 7).

The infringement teams associated with this airspace have noted the risk areas:

Entering and Leaving the LLR

The majority of airspace infringements occur in three areas:

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- The northern end of the LLR near the VRPs at Leigh Flash and Haydock Racecourse due to pilots ring their descent to enter the LLR too late or due to starting the climb to a higher altitude too (https://airspacesafety.com) ABSPACE
- INITIATIVE
 The southern end of the LLR near the VRPs at Winsford Flash and Oulton Park again due to pilots starting their descent to enter the LLR too late or due to starting the climb to a higher altitude too early; and
- the eastern edge of the LLR near the VRPs of Stretton and the Thelwall Viaduct. These infringements tend to be due to aircraft starting a climb too early to reach the altitude to carry out an overhead join at Barton aerodrome or by turning the corner to Class G airspace too early using P Stretton as a turning point. In the case of the disused aerodrome at Stretton, the VRP is towards the western end of the site and outside controlled airspace; the aerodrome extends a further 0.65nm into the Manchester Class D Control Zone (CTR). As such, pilots are advised to remain to the west of the western perimeter of the aerodrome to avoid inadvertently infringing controlled airspace.

The LLR Area North of the M56 Motorway

The M56 crosses the LLR west to east at the approximate mid-point:

- To the east of the northern half of the LLR lies Class G airspace from surface to below 2,000 feet amsl. Above that lies the Manchester Control Area (CTA) to 3,500 feet amsl.
 North of Liverpool's runway 27 extended centreline, the controlled airspace is delegated to Liverpool.
 South of the runway 27 centreline the western side half is generally delegated to Liverpool and the eastern side remains with Manchester
- To the west of that same part of the LLR lies controlled airspace; the Liverpool CTR from surface to 2,500 feet amsl and then the Class D Manchester CTA to 3,500 feet with the Class A Manchester TMA extending upwards from 3,500 feet amsl.

Pilots departing Barton and routing to the west, are reminded that once they reach the eastern edge of the LLR, to continue westbound without a clearance, as far as the western edge of the LLR, **they must be at or below 1,300 feet Manchester QNH**. It is vital that pilots understand that three-dimensional structure to avoid being in conflict with Commercial Air Transport aircraft.

To deconflict Liverpool IFR inbounds to Runway 27 from the Manchester departures from Runway 23L/R the 2 units operate a "tunnel system". This means that when Runway 23L/R is in use at Manchester, Liverpool cannot just route their inbound traffic straight for final approach. Instead Liverpool need to pass to the west of the aerodrome and descend below 4000ft before turning downwind descending further to 2000ft before the western edge of the LLR. Manchester departures from Runway 23 will climb above the Liverpool traffic.



Manchester departures from Runway 23 will climb above the Liverpool traffic

Liverpool cannot vector aircraft east of the eastern edge of the LLR and, therefore, when required to sequence their inbound traffic one method available is to vector traffic towards the north east of the Liverpool CTR which sits above the northern portion of the CTR. The Liverpool traffic must be at 2000ft to safely pass beneath the Manchester departures whilst aircraft within the LLR can be at 1300 ft and just 700ft below.

Therefore, any aircraft initiating an early climb above 1300 feet before they have left the northern edge of the LLR pose a serious risk to the Liverpool traffic; in addition, there is an increased risk of experiencing wake turbulence issues. When the Liverpool radar controller observes aircraft climbing early and infringing above the northern portion of the LLR, they are unable to take avoiding action by climbing as this will result in confliction with the Manchester departures, instead the only option available is to make an avoiding action turn. With the resultant delay in flight crew initiation compounded by the rate of turns, the potential for a loss of separation event is increased.



Manchester area chart

To prevent an airspace infringement, as part of their pre-flight planning and in-flight execution, pilots are strongly encouraged to:

Use a Moving Map and where able, outside the LLR, <u>Take 2 (https://airspacesafety.com/wp-content/uploads/2018/07/TAKE2_NWLAIT.pdf)</u>

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Use the FMC. In the LLR, rather than squawking 7000, use the Frequency Monitoring Code by ing 7366 and monitoring Manchester Radar on 118.580 MHz. If aircraft are fitted with Mode 5 transpoorders the Manchester controller will be able to see your callsign on their radar display and will be able to call you if they observe anything untoward. Obtain the Manchester QNH by listening to that given to other aircraft on 118.580 MHz, from the Arrival ATIS (128.180 MHz), Departure ATIS (121.980 MHz), or the MCT VOR (113.550 MHz); on VOLMET North (128.600 MHz), or by asking an adjacent ATS unit. Aircraft should not hesitate to establish contact with Manchester Radar if they require any assistance or are unsure of their position.

Plan. As part of your plan, build in your climb and descent points when routing in the vicinity of multiple CTAs with differing base altitudes – this is especially pertinent when approaching/leaving the LLR.
 P Know what the VRPs look like and what airspace lies above them or close by. Beware when flying through the LLR as some VRPs are not easy to see, especially when trees are in full foliage.

Avoid flying on the Regional Pressure Setting (RPS) in the vicinity of Manchester and Liverpool CTAs. When flying on the RPS, as it is the forecast lowest QNH for a region, you will probably be higher in relation to the Manchester or Liverpool QNH – and therefore possibly inside controlled airspace without a clearance to do so. If you are receiving a FIS from London Flight Information Service, ask the FISO for the relevant QNH rather than remaining on the Barnsley RPS.

Obtain an air traffic service. Know which ATS unit can provide a LARS. To the south of the Manchester/Liverpool controlled airspace it is Shawbury Radar (133.150MHz) and to the north it is Warton Radar (129.530 MHz).

To transit through the Liverpool CTR, a well-trodden route is to cross CAS from Oulton Park – Runcorn Bridge to Kirby or vice versa. Liverpool ATC will aim to clear the pilot to cross controlled airspace by their requested route as much as possible. However, as traffic levels increase during certain times of the day, traffic may be asked to orbit south of the M56 motorway (northbound transits) or north of the M62 motorway (southbound transits) until the Runway 27 approach is clear and the transit traffic can safely pass behind the inbound traffic. As a consequence, during busy inbound traffic periods, transits may initially be asked to position and route through the LLR and once north / south of the final approach be given a clearance to enter controlled airspace and proceed on their requested/cleared route.

Think MAMTOR. This is a useful mnemonic created by the CFI at Ravenair, Liverpool, who is an active member of the Northwest LAIT:

- Manchester QNH Get from the ATIS
- Altitude fly not above 1,300 feet on the Manchester QNH
- **M**ap Navigation is your route planned?
- Transponder squawk 7366 if monitoring Manchester, or as directed if in receipt of a service from Liverpool
- **O**pen Eyes! keep a good lookout as lots of traffic use the corridor, in both directions, not always with a transponder or radio
- Ready to Aviate, Navigate and Communicate.

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The first in a series of infringement updates from the CAA that highlight known infringement 'hotspots'. Information has been taken from Mandatory Occurrence Report investigations that cover areas where incidents can easily occur.

The CAA has noticed a recent increase in airspace infringements in the southwestern corner of the London Control Zone (CTR) where pilots are navigating using the navigation features in the vicinity of Bagshot.

Most of the town of Bagshot is within the London CTR, which is classified as Class D airspace, and just 6nm south of the final approach track to Runway 09R at London Heathrow Airport.

Bagshot mast lies in Class G airspace to the west of Bagshot town, and to the northeast of Camberley, but is within 300 metres of the southwestern edge of the London CTR. Its position, as notified in the UK AIP is 512124.68N 0004321.29W. Pilots not in receipt of a clearance to enter the London CTR should maintain a track to the west or southwest of the mast.

Whilst it is a prominent geographical feature and is annotated on the VFR charts (as it is over 300 ft agl, and is actually 765ft AMSL) **the mast is not annotated as a VRP**.

Bagshot VRP lies on the southwestern edge of the London CTR and is to the southwest of Bagshot town. When viewed from the air it is on the northside carriage of the M3 motorway on the portion of the road where the carriageways divide around a slip of woodland to the southwest of Junction 3.



Note the potential for confusion between the Bagshot mast and the Bagshot VRP

Pilots intending to route via the Bagshot mast to Bagshot VRP, or vice versa, should note that a direct track will result in them entering the London CTR.

To prevent an airspace infringement, as part of pre-flight planning and in-flight execution, pilots are strongly encouraged to:

- Use a GPS Moving Map and <u>TAKE2 (https://airspacesafety.com/wp-content/uploads/2018/07/TAKE2_NWLAIT.pdf);</u>
- **Obtain an air traffic service** from Farnborough APP on 125.250MHz. The airspace between Farnborough and the London CTR is narrow; this will help prevent infringing the London CTR, or the Blackbushe or Farnborough ATZ.
- Use the FMC. Rather than just squawking 7000, if you do not want to obtain a service from ATC, use a <u>Frequency Monitoring Code (https://airspacesafety.com/listening-squawks/)</u> by squawking ^T⁴¹/₂⁵72^T

and monitor 125.250 MHz

n <u>Alteriols: Thinkpince stifety scions</u>. Pirbright Ranges (EG D133A and EG D133B) are normally active active and active to 2,400 feet amsl. EG D133B is occasionally active to 2,400 feet when notified by NOTAM. Ash Range (EG D032) is charted to 2,400 feet amsl but is only activated by NOTAM. For all areas, a Danger Area Activity Information Service is available from Farnborough APP on 125.250MHz when open or at other times from London Information on 124.600MHz



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