CHIRP GA FEEDBACK

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CONTENTS

Editorial	Page 1
Comment on GA FEEDBACK Issue 72 - Possible Infringement	Page 1
Airspace Incursion	Page 2
Complete Engine Failure on Approach	Page 3
Engine Failure	Page 4
Inadvertent Infringement of Airspace	Page 5
No Reply from LARS	Page 5
Seat Webbing Hook found on Elevator Cable	Page 6
Confirmation Bias during Instructional Flight	Page 6
Transit of Display Practice NOTAM	Page 7
Confusion with Mode C Accuracy	Page 8

EDITORIAL

Several recent reports to CHIRP have highlighted failures to distinguish between Aerodrome Air Traffic Control (ATC) services, Flight Information Services (FIS) and Air Ground Communication Services (AGCS). Essentially:

- An ATCO can provide information, instructions and clearances to aircraft on the ground and in the air; pilots must normally comply.
- Aerodrome FISOs (AFISOs) can issue instructions to aircraft on the ground (UK only) up until aircraft pass a runway holding point but may only offer information and advice to aircraft in the air; pilots must comply with an AFISO's instructions on the ground provided it is safe to do so, e.g. taxi instructions. AFISOs may issue advice and shall issue information to airborne aircraft in their area of responsibility useful for the safe and efficient conduct of flights. They may also ask for position reports that are consistent with the aerodrome's published traffic procedures.
- AGCS (A/G) operators provide traffic and weather information to pilots operating on and in the vicinity of the aerodrome. Such traffic information is based primarily on reports made by other pilots. Information provided by an AGCS radio station operator may be used to assist a pilot in making a decision; however, the safe conduct of the flight always remains the pilot's responsibility.

Unfortunately, in practice the boundaries between the services often becomes blurred. This can be due to well–intentioned FISOs or A/G operators seeking or being prompted into providing higher levels of service than their licences permit and/or due to pilots inappropriately asking for permission/clearance when they should simply be transmitting their intentions. Pilots must be aware of the distinctions between the services to know the extent of their own responsibilities. It is worth remembering that FISOs are required to maintain a continuous watch by visual observation on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area. FISO call signs normally include the word 'Information'. A/G operators are not required to have visual contact with the aerodrome activity – the service can be provided from an office or crew room. A/G operators' call signs include the word 'Radio'.

Amongst other things there is a great deal of useful information about the services provided by ATCOs, FISOs and A/G operators in the Aerodrome section of the CAA's Skyway Code (CAP1535). We recommend this excellent publication to all pilots, not least because we are delighted that many of the issues raised in CHIRP reports have been addressed in it.

Ian Dugmore – Chief Executive

Back to Top

COMMENT ON GA FEEDBACK ISSUE 72 – POSSIBLE INFRINGEMENT

Report Text: The reporter states, "ATC asked [me] to change to Mode A!!! Because of my relative low hours I had no idea how to change from Mode C to Mode A. I therefore switched off my transponder and immediately descended to 2000 ft."

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The main problem here lies in the fact that ATC ask the reporter to select Mode A or Mode C yet the majority of the Transponder sets I have used only have an ON selection and a ALT selection. I can understand the PPL's confusion in not knowing how to select the required mode if it is not labelled on the Transponder control panel.

As Instructors I think we have a clear duty to make sure our students know what Mode A and C are but even more important is that ATC use the same terminology as the Transponder panel uses. Surely if a pilot reports he does not know how to make the selection, ATC could have advised him on what to do. As it was, the situation was made potentially worse by the Transponder being switched OFF.

***CHIRP* Comment:** Terminology matters. From CAP413 Chapter 5.8 Table 2 the correct RT terminology is:

"Squawk Altitude" - means select the altitude reporting feature.

"Stop squawk Altitude" - means deselect altitude reporting.

"Stop squawk Altitude, wrong indication" - means stop altitude report, incorrect level readout.

The report referred to in this comment will be also published in Air Transport FEEDBACK where it will be seen by the maximum possible number of instructors and ATCOs.

Back to Top

AIRSPACE INCURSION

Report Text: I took off from Wycombe Air Park in good VMC with a well-planned route (track drawn on chart) Sky Demon route active on iPad on knee and Garmin 430 available. I was flying with a good friend who was on my right who was excited to fly in a light aircraft. My initial track was planned from overhead Wycombe Air Park to Bovingdon as I did not know which runway would be in use when planning the flight.

After take-off from runway 24 I turned right and flew towards Stokenchurch Mast (good visual reference point) then right again having cleared the ATZ and informed Wycombe that I was leaving the frequency and changing to London Information on 124.6. At this point cockpit workload increased beyond my cognitive capacity for several reasons.

1. I was not on my intended track because I had planned the track from the centre of the ATZ, not from a convenient point outside of the ATZ. Referring to Sky Demon I flew East to intercept my track South of Bovingdon.
2. I wanted to enter the flight plan route into the Garmin 430 in order to gain experience on this type of avionics which I had recently completed a course in.
3. I wanted to talk to London Information to get a Basic Service for my entire route instead of talking to Farnborough North and then being handed off to Southend via Stapleford and Rochester then Lydd, Farnborough East and eventually Shoreham.

I intercepted my track SW of Bovingdon and flew NE. London Information was very busy and I could not find a gap to talk to them. When eventually I contacted them they asked me to pass my message, which was "[Call sign] is an [aircraft type] from Wycombe to Shoreham via the Thames Estuary over Bovingdon at 2200' on QNH () request Basic Service.

Their response was unexpected. [Call sign], contact Farnborough North on 132.8. Frustrated, I changed to Farnborough North and heard them calling me. "[Call sign], you are in Luton controlled airspace, turn left heading 270" which I did immediately. After commencing the turn I looked down at Sky Demon and saw that if I continued my turn past 270 towards 180 I would leave the controlled airspace by the quickest and shortest route, which I did. Having left controlled airspace I turned left and joined my track east towards Brookmans Park.

Thereafter the flight continued as planned and uneventful, but it was very difficult to not be affected by this incident and continue the flight as normal.

A few weeks later I was contacted by email asking for a report explaining the incident as it had been reported.

Lessons learned: Aviate, Navigate, Communicate. Don't let communication problems distract from navigation.

Plan your route to make it easy to fly. The initial track should be planned from a point that you would naturally be at whichever runway you take off from.

If you find yourself off track think about your best options for regaining track. In this case instead of intercepting my intended track, I could have flown direct to Bovingdon from where I was which would have put me on a track east which was my intended track anyway.

Be aware of different services and their availability. London Information is providing a service designed to accommodate flights over a wide geographical area whereas Farnborough accommodate a more localised and

specific area. If you're in that area use them. Consider whether you need a Basic Service. Perhaps I would have been better squawking conspicuity [the listening squawk] and monitoring Luton.

There are no shortcuts in aviation. If you are planning a route through several different service areas then expect to have to speak to several people and keep repeating your message. You can't always expect ATC to pass your details to the next service for your convenience. They are very, very busy.

New pilots should be made aware of the importance of visiting websites like flyontrack which details airspace incursions and their causes and be given the opportunity to visit busy air traffic control centres to increase their understanding of what it's like to be a controller.

Finally, all my training took place in [the US] where I trained for an EASA PPL in US airspace. Even though I was taught the EASA syllabus and passed an EASA exam and did a currency check in the UK, I was still too inexperienced with this type of airspace to attempt to fly around Heathrow without first doing it with a more experienced pilot.

***CHIRP* Comment:** We are grateful for this excellent report and pleased to endorse the lessons identified with a few additional observations. There is great merit in being able to programme navigation equipment in flight, to facilitate a diversion for example. However, a complex route in constrained airspace should be programmed before flight. The route from Wycombe to Bovingdon caused the aircraft to approach the Luton CTR with a greater opportunity for an infringement than a route more parallel to the Controlled Airspace (CAS) boundary, e.g. Wycombe to Brookmans Park. As a general rule, reducing the angle of approach towards CAS is not just desirable from the pilot's perspective; any aircraft approaching CAS boundaries at high angles may distract controllers and cause them concern.

Although a Basic Service with London Information offered a chance of minimising frequency changes, a better option when flying so close to CAS would have been to squawk the Luton frequency monitoring code and listen out on the appropriate frequency. Having entered CAS the pilot should have complied precisely with ATC instructions rather than use his initiative to expedite his exit; in CAS you are under control. Finally, we agree there should be greater recognition of the differences between flying in UK and US airspace, which could be reflected in check/familiarisation flights in the UK. Some sort of routine but advisory US/UK PPL transition might be helpful.

Back to Top

COMPLETE ENGINE FAILURE ON APPROACH

Report Text: The flight was planned as a general handling exercise to improve pilot handling skills after a few weeks without flying SEP (Single Engine Powered) aircraft. The other person in the aircraft was a qualified pilot (not on SEP) who was observing.

After 1 hour of general handling, the aircraft returned to [ ] airport and a PFL (practice forced landing) from the overhead was requested from the aerodrome Flight Information Services Officer (AFISO). This was approved, and the aircraft was positioned overhead the airport at 2000' QFE. Carb heat was applied and the throttle closed to simulate an engine failure. A left turn to a left downwind for the active runway 25 was initiated. Twice during the descent, the engine was warmed by briefly increasing rpm to around 1500 then closed again. A tight downwind circuit was performed, and when it became apparent that the aircraft was low on the profile, an early left base was commenced.

Shortly afterwards, it was decided that the glide approach could not be continued as the aircraft was too low to reach the runway, so the decision was made to revert to a normal powered landing and power was smoothly increased. The engine briefly responded with an increase in power, and then all power was lost. The propeller continued to windmill. Airspeed was low at this stage (around 50 KIAS/flap 10) and so a slight pitch down input was applied. The aircraft continued to the RW threshold which has a wooden fence around 1m high at its edge. In the pilot's opinion it was unlikely that the aircraft would clear this fence. A 'Mayday' call was transmitted, but probably as a result of numerous other transmissions at the same time from other aircraft, this was not heard by the AFISO. As the aircraft approached the fence, the aircraft was pitched upwards slightly and managed to just clear the fence. This left the aircraft at about 5' agl with low airspeed. Full rearward pressure on the controls was applied and the aircraft touched down in a very nose high attitude but not unduly firmly. The propeller stopped turning at this stage. The aircraft came to a stop very soon after, still before the displaced threshold of the runway. The ignition was turned and the engine started immediately and the aircraft taxied back to the ramp.

Lessons Learned: I am at a loss to explain how this happened. This particular aircraft is susceptible to carburettor icing and so I was very diligent in the use of carb heat and in warming the engine in the descent. My initial instinct when the engine failed was to pitch up to 'gain altitude', but by resisting this and instead lowering the nose, to get closer to the best glide speed (around 60 kts at flap 10), I believe I may have just improved performance enough

to clear the fence. When teaching forced landings in the future I shall certainly be stressing the importance of this to student pilots.

***CHIRP* Comment:** This report provides a welcome opportunity for readers to discuss issues associated with engine failure at low altitude. First though - well done to the reporter - a good save!

On the face of it, this was a classic 'carb ice' scenario. It is important to warm the body of the carburettor well in advance of commencing a descent because there is little warming effect from 'carb heat' with the throttle at idle. During a lengthy closed throttle descent, short bursts of power may do little to heat the inlet manifold where the ice forms - even with carb heat applied.

The best glide ratio is always achieved with flaps up and the reporter has correctly highlighted the dangers of trying to stretch a glide. If circumstances permit it is good technique to aim to land 1/3 of the way down the chosen landing area; flap can then be used to bring the touchdown point closer to the threshold once the aircraft is guaranteed to make it to the landing site. For practice approaches it is good to err on the side of making early decisions about going around lest, as in this case, the engine does not respond for some reason. It is worth remembering that the drag associated with a wind-milling propeller is far greater than with the engine ticking over at idle.

Readers will have noted from the editorial in this edition that an AFISO should not be requested for permission or clearance to carry out a PFL; AFISOs are not permitted to approve such requests. If a pilot judges that a PFL is compatible with the environmental conditions and traffic levels and patterns, he should advise the AFISO of his intentions.

There is always a balance when deciding whether to make a MAYDAY call or concentrate on a safe landing and this will be dependent on circumstances at the time of the event. The AFISO did not appear to hear the call but would have been in a position to alert the emergency services had he done so. Other pilots hearing the Mayday call would be alerted to the reporter's plight.

There are other engine failure modes that could fit the reported events, as shown in the report below. Therefore it is important that any engine that suffers a significant loss of power, no matter the duration, should be checked by a qualified engineer before the next flight.

Back to Top

ENGINE FAILURE

Report Text: Following maintenance work on the aircraft's engine, a test flight was carried out. Take-off, climb and approach were normal but there was some evidence of slight rough running at low power settings. Carburettor heat was applied but to no effect. Returning to the circuit, at approximately 600ft turning onto base leg, when the throttle was partially closed, the engine began to run extremely roughly and did not respond to power changes. A glide approach was commenced and a direct track to the runway threshold established. The engine continued to run roughly at idle throughout the approach but engine parameters appeared normal.

During the approach, the canopy misted up and I wiped it clear and opened the cockpit vents fully in an attempt to demist the windscreen. Shortly after this, hot air was felt to be coming from the foot wells and a possible fire was suspected. However after a few seconds the hot air reduced in temperature to normal. Landing gear was lowered at 200ft and the landing was completed close to the threshold. The engine continued to idle after touchdown and by now was relatively smooth and the engine responded normally to taxi power. No attempt was made to increase engine power above that needed to taxi.

Following shutdown and investigation it was found, after removal, that the titanium exhaust silencer 'rattled' when shaken and obviously had some loose object inside. The body of the silencer had 'ballooned' and expanded.

The silencer was returned to the manufacturer who cut it open for inspection. Part of the internal baffle was found to have detached and it is assumed that this had effectively blocked the exhaust pipe at some point in the descent, over pressuring the silencer and causing the engine failure. It is also possible that the over pressure had caused hot gases to leak past the spring loaded individual

cylinder head exhaust attachments and thus caused the hot air entering the cockpit as the throttle was advanced on the approach.

The exhaust silencer has now been replaced by a stainless steel version which hopefully will not be as susceptible to engine vibration as the more brittle titanium one.

***CHIRP* Comment:** An alarming incident at a critical stage of flight. Once again, the successful landing was enabled by the immediate decision to take the shortest line to the airfield and to concentrate on flying the aircraft. Well done!

Back to Top

INADVERTENT INFRINGEMENT OF AIRSPACE

Report Text: En route to Retford Gamston at night, I was cruising at 3,000ft, in receipt of a Traffic Service from East Midlands and passing north of their airspace. My intention was to pass south of Doncaster CAS before turning left to make an approach to Retford Gamston when I was at a position southwest of Cottam Power Station. I did not want to descend early because there are a number of very tall wind turbines in this area. On passing Hardwick Hall, I left East Midlands ATC and began my descent to 1,000ft and called Doncaster on my second radio; Box 1 was tuned to Gamston's frequency.

Doncaster did not answer, so I called them again several times whilst checking the radio. After a short time (about 1 to 2 minutes) I noticed that whilst I had momentarily been distracted with the radio I had drifted north of my track by just about one mile and this meant that for a short while I had passed through the very bottom corner of Doncaster's airspace in the descent. I immediately decided to stop trying to resolve the issue with my Box 2 radio and I called Doncaster on Box 1. When Doncaster replied I informed the controller that it was my belief that I had crossed their airspace in the descent at the very south eastern corner of their CTA. Doncaster confirmed that I had indeed momentarily infringed their CTA though I was by that time outside it. The controller asked me to phone him after I had landed, which I did. He thanked me for telephoning and asked me if I would complete an infringement survey which would be used to better understand the causes of airspace infringements. I agreed to do this.

Lessons Learned:

1. It was a quiet night with few aircraft talking on the airwaves. It was also fully dark and the scenery with the lights of the roads and towns was very calm. This led to a feeling of calm and no feeling of urgency when Doncaster did not respond to my call. I simply kept calling them for a short while before checking out the radio. I didn't realise that I was drifting slightly north. So first lesson is to be constantly vigilant of position even when all is calm and peaceful.

2. My plan for this evening was the same as on previous occasions; it has never caused a problem before because I was always already talking to Doncaster ATC. This may have led to a feeling of complacency with this approach direction. So second lesson is to establish communication with Doncaster earlier than I tried to do this time, even if I intend to pass under the CTA.

3. When resolving an issue (such as the non-response on the radio) it is easy to be distracted and when close to airspace the priority should be situational awareness rather than troubleshooting.

4. I feel that I did the correct thing by immediately calling Doncaster on the other box when I realised what had happened, even though I was already outside their airspace, because this allowed me to inform the controller of my intentions from that point. Phoning the controller afterwards to discuss the events leading up to the incident allowed me to discuss it with an outside party and to gain insight from the ATC perspective.

***CHIRP* Comment:** Board members agreed with the reporter's lessons learned. Under-arousal was probably a factor on a calm clear night when there was little chatter on the RT and visual perception of distance was so difficult. It is also so easy, as we have seen before in CHIRP reports, to be distracted by trying to resolve a radio problem; distractions can have serious implications at the best of times but particularly when flying so close to CAS. The reporter is commended for his willingness to contact Doncaster ATC after the fact and for his cooperation in completing an infringement questionnaire. These are aimed at learning lessons rather than punishing pilots and no occurrence can be made worse by an honest report with an apology included.

Back to Top

NO REPLY FROM LARS

Report Text: We had been working [AAA ATCU] who asked me to report [passing an easily identifiable ground feature], which I read back. Shortly afterwards and before passing the [feature] I was told to call [BBB ATCU] en route and was given the frequency. I acknowledged, changed frequency and called [BBB] 'Approach' with the

squawk code we were wearing. No reply. Shortly after another station spoke to [BBB] who responded. I called again as before but again no reply. There were other transmissions. I called a third time without success.

I then called again, "[BBB] 'Radar', [Call sign and ac type] squawking [ ], Basic Service". This time I received a request to pass my message which I did and proceeded without further event until leaving the frequency for the next agency.

Lessons Learned: Memorise all the correct call signs (!)

I was surprised by this event as I had been led to believe that [AAA] had earlier advised they would see me through to [BBB] who were presumably expecting me. Whilst I am not the best at correct call signs I generally am but occasionally get it wrong but my experience is that the service responds with their correct title which I use along with 'apologies' to start my reply. This seems to be a better even safer way. I suggest controllers be advised that if they hear an incorrect call sign they respond with their correct title and proceed.

***CHIRP* Comment:** A review of the ATCU tapes confirmed that the reporter's first call to BBB was, "[BBB] Approach, [call sign], squawking [ ]." Unfortunately the controller had just started a telephone call so missed the reporter's RT call. Approximately 20 sec later the controller said, "Station calling [BBB], say again". This call was answered by a different aircraft, which misled the controller to believe they were speaking to the reporter's aircraft. One minute after his first transmission, the reporter tried again saying, "[BBB], good afternoon, [call sign], squawking [ ], Basic Service". The controller was dealing with 2 helicopters, one leaving and one joining the zone, so missed this call completely. Two minutes later the reporter tried again using, "[BBB] Radar, [call sign], squawking [ ] for Basic Service". The controller responded to this call immediately. The transmissions that were not answered by the ATCO were nothing to do with the ATCU call sign the pilot used; it was just the workload of the position at the time.

Although every effort should be made to use the correct ATCU call sign, failure to do so will not cause the call to be ignored. As in this case, the absence of a reply is more likely because the ATCO is busy. While it may not be evident to pilots from the RT, there is frequently a great deal of operational activity in towers and ops rooms that occupies controllers. In addition to telephone calls for coordination and liaison etc., in some circumstances controllers can be working more than one frequency – a process known as bandboxing. Depending upon the equipment used, the controller's transmissions may be heard on both frequencies, irrespective of which frequency the intended recipient is working. This is less likely at military airfields where controllers routinely bandbox using UHF frequencies for military aircraft while using VHF to communicate with civilian traffic.

Back to Top

Seat Webbing Hook found on Elevator Cable

Report Text: The webbing straps supporting the seat cushion had snapped whilst taxiing back from the fuel pumps at the beginning of the day. A foam cushion was placed under the seat as a temporary measure to give support to the pilot so that he was at the correct height to operate the tug's controls without difficulty. It was assumed (wrongly) that the webbing had been sewn in therefore there wouldn't be any loose objects under the seat that could cause a problem. I took over the tug and did a couple of tows then decided to remove the turtle deck [*on this aircraft, a detachable panel to facilitate servicing and inspection of components housed in the rear section of the fuselage, (editor)*] and found one of the "S" hooks that had been holding the webbing to the frame of the seat had become detached. It was hanging from the lower elevator cable and resting against the pulley. The "S" hook was removed from the cable and a thorough inspection carried out to make sure there were no other foreign objects inside the fuselage. The seat assembly was taken out and a permanent repair made to the seat.

Lessons Learned: If any type of maintenance is done inside the cockpit, no matter how seemingly trivial, the turtle deck must be removed to check for loose articles inside the fuselage before the aircraft is flown. The turtle deck must be removed and the inside of the fuselage inspected as part of the DI.

***CHIRP* Comment:** The reporter has correctly identified the important lesson from this incident. One can never assume there won't be unintended consequences from apparently benign issues. It is vital to be suspicious and avoid becoming complacent about loose articles in aircraft cockpits; almost anything from pens to rags to loose change falling out of someone's pocket can find its way into the controls and control runs and cause a problem.

Back to Top

Confirmation Bias during Instructional Flight

Report Text: IMC instructional flight was being flown at Hawarden. The first part of detail was a series of radar vectored ILS approaches followed by a landing and lunch break. These were flown without incident. Weather conditions were perfect, beautiful sunny day with moderate wind from SW. The student was not operating under goggles as it was more of a needle following exercise. All the approaches were carried out on RWY 04 at Hawarden.

After lunch the intention was to enter the hold and practice until competent. T/O was carried out on RWY 22 and the hold entered with intention of carrying out procedural ILS to RWY 22. We entered at altitude 2500 ft. and 3 holds carried out to a nice standard. I reported to ATC that we were ready for the procedure next time over the beacon. We were held in the hold for a further two beacon passages as the controller informed us they would have to coordinate with Liverpool ATC for our procedure, this being due to the direction of the outbound track taking us into their airspace. Whilst this was being done we confirmed our brief and the student was happy as to his track and descent profile from the beacon. ATC then cleared us for the ILS DME procedure runway 04. This was read back as cleared for ILS procedure runway 22 as far as I can remember.

On starting the outbound track [for ILS RW 22] and subsequent descent from the HAW [NDB], ATC asked whether we were carrying out the procedure for RWY 04. This caused a bit of confusion and I decided to break off the procedure, leave the pattern and return to [our base]. I apologised to ATC as instructor it was my responsibility to ensure continued safety of the flight.

Lessons Learned: This was my first experience of Confirmation Bias and quite embarrassing.

However using the old adage "Every day is a school day", I learned a valuable lesson as did the student.

Even as we continued to [base] we could not comprehend how we did not pick up on the change. We had briefed and rebriefed the approach and had been held whilst airspace permission was sought; this in my opinion was the part that sealed the bias, for RWY 04 no clearance from Liverpool would be required.

No blame to be attributed to ATC from myself. I have the experience and knowledge to not fall into this trap but it did happen and I thought worthy of a mention.

***CHIRP* Comment:** Certainly worthy of mention! We are indebted to the reporter from this open and honest report. We are also grateful to the Hawarden Air Traffic Manager for listening to the RT tapes and confirming that the reporter had been cleared for the procedure to RW 04 and the student had correctly read back the clearance. We are all vulnerable to this classic example of a Human Factors error: correct read back but incorrect perception and action. The reporter was mentally prepared for an approach to RW 22 and the delay in the clearance reinforced his perception that the clearance would be for 22. The clearance for RW 04 and the student's read back were not sufficient to break his expectation of RW 22. Kudos to the reporter for taking the responsibility for his actions and sharing this experience.

Back to Top

TRANSIT OF DISPLAY PRACTICE NOTAM

Report Text: During a display practice of the 2017 Typhoon Display Team, within an area NOTAM'd with a 5 nm radius and up to 8100ft AGL, Radar observed a track squawking 7000 without Mode C tracking towards the Coningsby overhead from the north on a southbound heading. Having been alerted, the Tower staff tried to gain visual contact with the 'stranger' whilst informing the display pilot of the intruder. Visual contact of a PA28 type aircraft was gained and estimated to be about 4000-5000ft high. The display pilot made some corrections to his sequence so that he might also identify the aircraft, which he did and concurred with the estimated height.

Once the unknown aircraft had left the overhead the display continued whilst efforts were unsuccessfully made to trace the 'stranger'. Later on the Display Pilot indicated that the presence of the unknown traffic, had it not been called, would have compromised flight safety due to the dynamic nature and high energy manoeuvres involved in the display sequence.

Lessons Learned - Whilst operating in Class G airspace there is no need to for aircraft to be in receipt of an air traffic service. However, in notified Areas of Intense Aeronautical Activity (AIAAs) and in the proximity of airfields operating high performance aircraft there is a need to ensure the safe flight for all airspace users. An information call to one of the three LARS units in this area may have given all enough Situational Awareness to ensure that any possible confliction might be resolved early.

On any given day, including at weekends, Typhoon aircraft depart from Coningsby. Their performance is such that the rate of climb and speed can often be much higher than could normally be expected, especially when in an air policing role. While avoiding the ATZ by flying high is one way of avoiding confliction, not speaking to anyone and without a verified Mode C nullifies that course of action; it also adds an unknown factor to the aircraft's intention. On this occasion, flying within a NOTAM'd area wasn't ideal.

***CHIRP* Comment:** Flying displays, where the time window is constrained, are usually protected by a RA(T) whereas practices, which benefit from some flexibility, are routinely 'protected' by advisory NOTAMs. Flight through such NOTAM'd airspace is permissible but to do so without calling on the RT is imprudent. Flights close to Coningsby can encounter Typhoons conducting high-energy manoeuvres at all altitudes and the area is busy with all manner

of other military aircraft during the week and at weekends. Pilots flying through the Lincolnshire AIAA (surface to FL130) at any time would be well advised to call Waddington or Coningsby for a LARS.

Back to Top

CONFUSION WITH MODE C ACCURACY

Report Text: Multiple instructors and proficient pilots from [the airfield where I am based] have been discussing recently that they are continually being told by [AAA] that their Mode C verification is 200 feet out. This is happening to multiple people on multiple different aircraft. Many report that when they use [a different ATCU] for an independent check they are told their Mode C is spot on to their verification read out.

An interesting story as an example…

I recently ferried an aircraft to my home airfield, including transiting through [a London] CTR and overhead, for which I am grateful. At no stage was there any mention that I had strayed above according to my Mode C readouts. However, during the subsequent flight below the London TMA, I was flying at 2300 - 2400ft when I received an urgent and sharp call to descend immediately as I was inside CAS (base 2500ft). Of course this came as a shock and so I instantly started to descend, but confirmed to the controller that I was at 2350ft and so had never infringed. A helpful conversation then ensued where we did a couple of verifications that according to [AAA] indicated that my Mode C was 200ft out, hence within limits.

Lessons Learned - I am well aware that the Mode C [Altitude] allowable limits are +/- 200ft, and so I could well be flying at 2400 but indicating 2600 and so indicating inside CAS. I am sure this has long been known about and not considered to be an issue. I am certainly not going to fly at 2200 just to avoid this happening, since that extra 200ft can be helpful if the worst happens in such restricted airspace and limited forced landing areas.

***CHIRP* Comment:** The transponder-downlinked aircraft altitude (Mode C) is considered to be verified if it is within 200ft of the altitude passed by the pilot to ATC. This report prompted [AAA] to examine the ground elements of the Mode C system. An in-depth investigation on the integrity of the radar data has confirmed that the radar provided consistent altitude returns for the aircraft in question, for the duration of the flight visible to it.

The reporter's perception that he had been issued unnecessary instructions by the controller has also been examined using the RT and radar recordings and an AV recording provided by the pilot. The pilot first called [AAA] at 12.11 stating the aircraft was at 2200ft; the Mode C readout was 2400ft and therefore 'verified'. At 1214 the Mode C increased through 2500ft to 2600ft. Shortly thereafter the controller received visual and audio warnings and the aircraft call sign turned red as the Area Proximity Warning (APW) was activated. The controller transmitted, "call-sign, not above 2400ft, descend immediately, you are indicating inside CAS". The only questionable element of the transmission was the instruction to descend immediately. If there had been traffic above the reporter's aircraft the instruction would have been fully justified. As it was, the instruction to descend was not strictly necessary but it was a minor part in an otherwise correct transmission. It is worth remembering that when the APW infringement alert is triggered, all the controllers at the Unit who are controlling the surrounding airspace and airports see the potentially distracting alarm and every effort should be made to remove the cause ASAP.

It is gratifying to see once again that ATCUs investigate CHIRP reports about the performance of equipment and controllers to ensure that a responsive, accurate and professional service is being provided. This report highlights the importance of all pilots and controllers being considerate to each other's needs. Even if it were practical to fly accurately just below CAS while maintaining a good lookout, it would not be sensible. Any technical system has tolerances and these should be allowed for when selecting routes and altitudes. Given the 200ft tolerance on transponder Altitude/Mode C, applying an appropriate margin from CAS, where it is practical to do so, will help avoid false alarms for controllers.

Back to Top

Contact Us

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