AVIATION FEEDBACK

CHIRP

An independent and confidential reporting system for the Aviation industry

GENERAL AVIATION

Edition GAFB 101
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Summer's coming?

Don't get caught out by changeable weather

Contents

Steve Forward
Director Aviation

Welcome to the Summer edition of GA FEEDBACK. I say 'Summer' somewhat tongue in cheek as I write this with great expectations in the hope that we see something of an improvement from the rather inclement Spring weather which has somewhat curtailed this year's flying to date. At least the poor weather has given us all a chance to ponder the vagaries of meteorological systems and the inherent uncertainty of weather forecasting. In doing so, I was recently introduced to a useful NavCanada Aviation Meteorology Reference website that provides some great background and easily digestible reference material about many aviation meteorology terms and theory. It's intended to be used as a non-operational educational resource and was created to help aviators better understand weather phenomena and their impacts on aviation. I understand that it's still a work in progress but it's well worth a look if you're still stuck on the ground in some interminable typical British summer weather. The QR code shown takes you there just by using your phone/tablet camera and selecting the highlighted weblink. It seems to look better on a tablet or computer, but it's also functional on a phone-sized screen.

This FEEDBACK edition's content covers a wide range of issues, all of which have good learning points for us all. To start with, I commend to you a couple of useful and thought provoking 'I Learned About Human Factors From That' (ILAHFFT) articles. Thank you to the 2 contributors who have offered their information and stories selflessly for the benefit of all, especially the second story which was not the contributor's finest hour but may resonate with many. Ours is not to judge, but to use the articles to think about how they might apply to us as we go about our own aviation activities. We're always on the lookout for other ILAHFFT stories to share so please do send them in to mail@chirp.co.uk for the attention of Director Aviation so that we can pass on what might be vital information or personal Human Factors perspectives that give others cause for thought. As our little advert says, for those who do send in contributions that we then publish, we promise full confidentiality to protect the innocent (and not so innocent!).

We've published 6 reports this time that I hope have interest and lessons for all. There's no particular theme to them but they offer perspectives on a wide range of issues that you may have views about. Don't be afraid to get in contact and tell us what you think. We don't profess to have all the answers or good ideas and so an important part of our work is not just to receive reports and offer our help and advice when appropriate, but to encourage others to speak up and contribute – you might have a brilliant idea or nugget of information that we've missed! In doing so though, can I remind us all that we don't apportion blame or make judgements on the material we receive and publish: all we're trying to do is improve aviation safety by learning lessons; trying to help resolve issues where we can; and by offering advice and counsel when it's appropriate. Thoughts and comments can be sent to me at mail@chirp.co.uk for the attention of Director Aviation.

Stay safe and have an enjoyable summer's flying!

Steve Forward, Director Aviation

Report to CHIRP!

Our reporting process is simple and quick using either our website portal or our App (scan the appropriate QR code shown or search for 'CHIRP Aviation' – avoiding the birdsong apps that come up!). In our reporting portal you'll be presented with a series of fields to complete, of which you fill in as much as you feel is relevant – not every field is mandatory, but the more information you can give us the better. Although you'll need to enter your email address to get access to the portal so that we can screen out bots etc, none of your details are shared outside CHIRP, and we have our own independent secure database and IT systems to ensure confidentiality. That way you can help to improve safety by sharing important lessons without worrying about possible consequences. Anything that could identify a reporter is removed from our reports before progressing or publishing them, and we liaise with the reporter in every step of the process. Each report plays its part in raising awareness of important safety issues and wider trends and provides lessons for all to learn from. Report-by-report we can make aviation safer – as our strapline says, "you report it, we help sort it."

Get 5% discount at Pooleys Flight Equipment

Pooleys have kindly agreed to support CHIRP's fund-raising activities by allocating us a discount code on their website shop. Enter the code 'Chirp' (case sensitive) at the appropriate point at the payment stage to get 5% discount and generate some commission for CHIRP. Sadly, this doesn't apply to the purchase of Bose headsets, but everything else qualifies! If you do use Pooleys for your purchases, or know other people who do, please do share the code. The more the code is circulated, the more it is used and the greater the commission generated to help CHIRP build its resources to do more.

POOLEY'S
FLIGHT EQUIPMENT

I Learnt About Human Factors From That

GA ILAHFFT – There are no hyphens in "Jeppesen"

It may be useful if I share my recent experience with the Jeppesen database upload into my AVIDYNE IFD 440. You can imagine a "Swiss Cheese" IFR approach scenario in which this could become a safety issue.

In July 2023, I took out an annual subscription with Jeppesen for their European database. The methodology was simple. Contact Jeppesen and install Jeppesen Distribution Manager on your PC. Take out a subscription, linked to your email. They give you a subscription number. However, this will be linked to your aircraft "tail number": in my case, G-XXXX.For 10 months, this worked very well and then – inexplicably – the uploads failed. I kept getting the message '*Data load not authorised for this aircraft*' after a momentary flash which said something about a tail number.

Thinking this was a problem with the database upload, I contacted Jeppesen. We tried several manoeuvres. First, we "cleared the cache". This facility was available as follows. Go to the top left corner, and click on the JDM drop down menu. Go to tech support. Go to "clear cache". **It did not work.**

The next troubleshooting manoeuvre was to reformat the memory stick to FAT32, and get a fresh data download. **It did not work.**

I contacted AVIDYNE. It turned out that the problem lay with the TAIL NUMBER. Jeppesen do not recognise hyphens, and for some inexplicable reason the Jeppesen memory stick data file had (new??) software which refused to recognise the AVIDYNE unit's "tail number" anymore. The AVIDYNE 440 had my aircraft down as G-XXXX. To Jeppesen it was GXXXX: and ne'er the twain could meet... **YOU CANNOT CHANGE THE TAIL NUMBER ON THE AVIDYNE YOURSELF: ONLY AVIDYNE TECH SUPPORT CAN DO THIS FOR YOU.**

The AVIDYNE tech support team needed the serial number of my AVIDYNE 440 unit before they could do anything, so you must have this handy. On units with newer software, 10.3.2.0 onwards, you may be able to get this serial number out of the SYS menu on the 440/540. Otherwise, it means finding the Avionics installation entry in the aircraft's log books or, at worst, pulling out the AVIDYNE UNIT and looking at its side. (I could not find it in the Maintenance dropdown menus on the 440.)

AVIDYNE sent me a '.dsf' download, which changed the tail number from G-XXXX to GXXXX in about 10 seconds. Immediately, the unit uploaded the new Jeppesen data. So, to save you time, angst, money and to keep you safe, **if you get a new AVIDYNE, make sure the "tail number" your installer puts in DOES NOT CONTAIN A HYPHEN**. This is clearly a potential problem in Europe, and indeed in most of the world other than the USA. If it does contain a hyphen, get rid of it.

Checklist

Note the following telephone numbers. Jeppesen Europe: 0049 6102 508270; Jeppesen UK: 0044 1293 842404 (links to Germany or the USA).

Have Jeppesen distribution manager installed on your PC. Note the email address and password you used. Pay for a subscription and make a note of the subscription number.

Use an 8-16GB memory stick EXCLUSIVELY, unless you are a computer wizard. Clear everything from it, and format it to FAT 32. AVIDYNE suggest you do this every time **before** you download your monthly or bi-weekly data.

Get your AVIDYNE UNIT(S) serial number(s). These are ESSENTIAL for any AVIDYNE fix. Make sure they are available in the aircraft, and on your PC.

Go to the AVIDYNE 4XX/5XX and INSERT the stick BEFORE TURNING IT ON. Update the database and remember to press "DONE" – or it will revert to the previous version.

Check the database has updated on the initial start menu.

Troubleshooting

Jeppesen fixes: Use a freshly FAT 32 formatted 8-16GB memory stick EXCLUSIVELY; If the data upload fails, "clear the cache". If unsure, call Jeppesen and wait for tech support: they are very friendly, eager to help and will give you a fresh download instantly. Early morning or late night calls work from the UK – they put you through to the USA. It is a superb service.

AVIDYNE fixes: Call 001-888-723 7592. Very friendly. They will call back. Explain the problem. They will send you an email and a useful 8-page PDF service bulletin – download the attached '.dsf' file onto your memory stick, and upload the new aircraft identity to your AVIDYNE BEFORE you try to upload the new Jeppesen data. It is also a superb service.

GA ILAHFFT – Stress, distraction and flying don't mix

It was back in 2002 and I was working for a major Telecoms provider as part of their first team selling classified advertising in their new "Purple Book" in the North England region. I was recruited as I'd had considerable success in contract labour recruitment – a game that required a very high work ethic, lots of energy, good planning, self-motivation and good closing skills. From the start it was clear that I'd walked headfirst into a real "boiler room" atmosphere. The first 3 days were 'training', which was basically learning how to compose an advert, write

basic copy, and then how to fill in the paperwork when an order was secured. All seemed professional and calm at first. Then we were herded into a call centre. Here we were told that the only way to succeed was to do an average of 70 canvass calls a day from which we were expected to generate up to 6 appointments a day and close 2 deals a day.

Fast-forward 6 months. By this time only 4 of the original start up team of 16 was still in place. The rest had quit or been fired. Firing was a public event; the team would meet in a Maccy Ds, and be shouted at by a large bully boy manager who will remain nameless but was clearly in the role to weed out the 'weaker' ones, and routinely told people in front of their peers that "this really isn't for you", aka – "You're fired". 'Weak' was defined as not being able to make enough appointments, canvass all day, complete all paperwork and reports daily and to not hit ever increasing targets.

My days usually started around 06.30 by calling plumbers and builders before they started work to try and set up an appointment, and finished at 22.00 if I was lucky, completing paperwork with a beer in hand as I drank more than I should in an effort to get to sleep. I would spend weekends canvassing, and a friend once recalled how I would sit in the car at my rugby club in my kit up to 2 minutes before kick-off still canvassing, and work become part of every single day. Holidays were a complete non-starter as we were expected to catch up on totals if we went away. My marriage suffered, and I forgot what my kids looked like – I had at this point a 1 year old, a 5 year old and an 8 year old.

One Sunday morning in June, my wife pointed out it was my daughter's 6th birthday and I should do something with her. I of course was "too busy" but it was made ***very*** clear to me that I should do something if I wanted to remain married. I asked my daughter what she wanted to do and she said "go flying with daddy". So we went to the local airfield which happened to be a regional international airport, I booked a plane out, did the walkaround, strapped in, made radio calls and started to backtrack down the main runway as instructed. As I did so, I noticed an approaching aircraft so I turned into wind and called "***ready for departure***", to which ATC replied "***ermm, are you sure***?".

This was a very odd question and one I'd never been asked before. It threw me, so I quickly checked the aircraft, flaps set, lights on, fuel pump on "***affirm ready for departure***" and off we went. Within seconds, I realised that I'd only taxied half the length of the runway, but by this point I was past a speed where it was easy to stop, on a wet runway, and maybe just 100m from the end still only at 45kts in a PA28. So I slapped on the second stage of flaps to increase lift and managed to get airborne missing the boundary fence and the buildings on the other side of the fence literally by inches. A few minutes later I received a radio call to return to the field – also unusual – but it had been raining heavily in places so I assumed they were calling the chicks home to avoid problems. Wrong. As I walked into reception back at the club, I was greeted by a red faced, fuming, spitting, rabid CFI who proceeded to shout and scream at me about how I'd nearly wiped out half of the local town and nearly killed myself and my daughter. At this point my daughter was stood holding my hand and began to cry.....as did I. We got in the car, and just as I pulled onto the main road, my daughter asked, "***Daddy, did you nearly kill me***?". The rest of the Sunday was a very subdued affair with cake and tears.

The following day, instead of going to my first appointment, I pulled the car over and simply put my head in my hands and sat still for about an hour. The guilt I felt was like nothing I had ever known. But as well as the guilt I felt utter shame. I pride myself on being a conscientious and skilled pilot and to think I made very basic errors horrified me. I rang a friend who was a vastly experienced flying instructor and talked him through the events of the previous day. As well as discussing the flight he asked me about my home life and work. He concluded: "***Mate, you're stressed. Your quick thinking to get off the ground was excellent, but your perception of things leading up to that was all wrong. The plane on finals could have gone around if you were still backtracking, and ATC wouldn't have granted taxi clearance if it wasn't safe. You're speaking at 500 mph and you're exhausted. You're a very good pilot but you can't keep flying whilst you're in this state because you will kill yourself. You need to do something***."

Two days later I resigned from my job. The Boss took my car keys immediately and drove me home, taking the laptop and phone with him. I didn't thank him for anything, nor did he offer any feedback or thanks. I walked into the house and told my wife what I'd done, and she simply said "***Good***".

A week later, I started filling shelves and manning the checkout at Marks and Spencer. At first I was humiliated and embarrassed every time one of my peers/schoolmates/rugby team/local pilots/ex-colleagues spotted me topping up the tomatoes or scanning the bar codes. But gradually that wore off. I started to take great pride in my work. I started to cycle to work and got fitter and healthier. At Christmas I provided a full Christmas dinner for 5 for less than £30 thanks to my staff discounts. I would laugh and joke with the brilliant managers M&S employ, I had a brief foray into menswear which was hilarious, I chatted to customers and friends who popped in to see me, all telling me how well I looked. I started to love going to work again, and meanwhile spent many hours with my wonderful kids and gorgeous wife. In short, I got my life back.

The 7 months at M&S were an epiphany. What did I learn?

Stress is STEALTHY. It's highly toxic and invades and pervades in equal measures. I've always been a very strong person mentally, very carefree and never had any mental health

problems so I didn't see it coming, but the signs were there. I'd allowed myself to believe that to be successful required constant work, no down time – that's for pussies right – to keep trying to be better than others, to smash targets and to be willing to sacrifice your home life for that success, after all, I was doing this for my family – right? Stress causes you to lose track of reality, of values, of humility, of decency, of common sense and above all, of self-awareness.

Stress is a KILLER. Whether directly or indirectly, it can bring down the strongest of people.

On the day I left M&S to go back into the commercial sector, I vowed to myself I would never be stressed again, and to this day I have stuck to that vow. I can now see any signs of unnecessary stress approaching and know exactly how to send it back to its pit. I've stopped trying to be rich, and I focus on doing the best job I can during the day, and being the best husband, friend and dad I can be the rest of the time. I became a part time instructor on TMGs for 7 years, gained an IR(R), learned to skydive and spent 4 wonderful years as a jump pilot at a Skydive Centre, I now have a share in an aircraft and have never had a single prang, infringement or telling-off since. My kids somehow have all grown up to be highly successful, funny and humane people.

My advice to everyone is this; There isn't a single job out there that is worth giving up your happiness, mental health, family, friends and life for. 'Lifestyle' is a false achievement. Material things are worthless if you haven't got the time or energy to enjoy them or share them. Success shouldn't be measured in salary, but in balance, peace, knowledge and expertise. If your friends are only impressed by your Facebook Maldives pictures rather than the way you love your kids, they're the wrong friends. We only get one life. This is not a rehearsal, don't f*** it up by trying to be something you're probably not capable of. The biggest strength you can show, is knowing when to walk away.

We need your ILAHFFT stories!

The value of ILAHFFT is that it provides insights from those who have been there, done it, and have lessons for all of us to learn. If you have any anecdotes or amusing 'there I was…' stories then please do share them with us so that we can pass on the messages and inform others (ideally in a light-hearted and engaging manner). Send any interesting tales to mail@chirp.co.uk and put ILAHFFT in the subject header – we promise full confidentiality to protect the innocent (and not so innocent!).

Reports

Report No1 - GA1365 – Rough running and very noisy engine

Initial Report

Flying just north of [Airfield 1], approx 3,500ft altitude (been flying about 50mins after leaving [Departure Airfield]) in an easterly direction and in communication with [LARS unit]. We were two POB and in excellent VMC. Without any warning an abrupt and excessively noisy engine sound occurred in a staccato (machine-gun-like) repetitive way. I considered a cylinder failure and immediately told [LARS unit]. After communication I confirmed an emergency and declared a PAN – [LARS Unit] said I couldn't land there, and that nearby [Airfield 1] was not advisable so with altitude still reasonable (lost some power but still had about 80% available I would say) I was vectored to [Airfield 2]. Communicated with their approach who at first asked for a downwind join for [RWY], handed to Tower who then gave me [opposite RWY] for an immediate landing which was far more relevant. Landed without injury or damage to the plane and emergency services were awaiting just off the runway which was comforting. After speaking with my engineer it was thought to be an exhaust problem and next day after removing the top cowling, sure enough the rear port-side cylinder exhaust had come apart at a bottom union. Successfully repaired and plane returned to its destination of [Airfield 2]. ATC and Ops were excellent in both efficiency and attitude in dealing with this incident.

After questions from CHIRP about whether I had thought about potential CO fumes, it never occurred to me that the problem was exhaust related. Given the severity of the noise and its frequency it suggested (to my mind) a more engine-block and mechanical problem. Very briefly the two of us on board got a 'whiff' of exhaust fumes but it went as quickly as it came. That didn't focus my thinking on CO at that point. Nor did it on an engine fire which afterwards became a very real thought. My mind was completely made up and occupied with Aviating, Communicating and getting on the ground in the quickest time. My good height allowed me to descend rapidly and controlling the plane in that process took over my capacity with none to spare. I am not sure how quickly CO would have impaired me, but from the time of my PAN I suspect I was no more than 8 or 9mins flying.

On reflection, I think that, as bizarre as it may seem, had I had some awareness of and experience in hearing 'rough running' engine sounds as part of an 'audio' training programme for troubleshooting engines and unusual noises you may encounter in mid-air then it may have given me some indication/ awareness of what was going on under the bonnet,

its seriousness, and may have given me more pause for thought. Also, given that my mind was so occupied and focused on flying, perhaps a nudge/comment from ATC to check my CO monitor in the cockpit (I have the black-dot type) would have helped and prevented the potential of secondary impact that you refer to. Any subtle prompt from ATC about troubleshooting would have filled the gap I had in that part of my thinking and problem interrogation. Before the incident, and as part of my enroute FREDACO check, I look at the dot to make sure that it hasn't changed colour with CO. It hadn't, so there was no prelude or suggestion of a slow deterioration before the final coming apart of the exhaust pipework.

Following on from the incident, I write to advise that once more I had the same occurrence with the exhaust when taking off from [Airfield 3]. I had to declare a PAN and rejoin the circuit to land. On inspection, the exhaust was exactly as it was as previously reported. I haven't filed any report other than advising you. As an aside [Aircraft Manufacturer] can replace with a new exhaust section (my engineer advises me) but they want £15,000!!! Absurd and unworkable. We are trying to locate a replacement part from America.

CHIRP Comment

The detachment of the exhaust from its mounting would have been a startling event with plenty of noise and understandable uncertainty as to what was going on. Well done to the reporter for their quick decision to request a diversion due to obvious engine-related concerns, and all turned out well in the end. A couple of thoughts occurred to us as from the luxury of our post-event arm-chairs and so we offer them as food for thought.

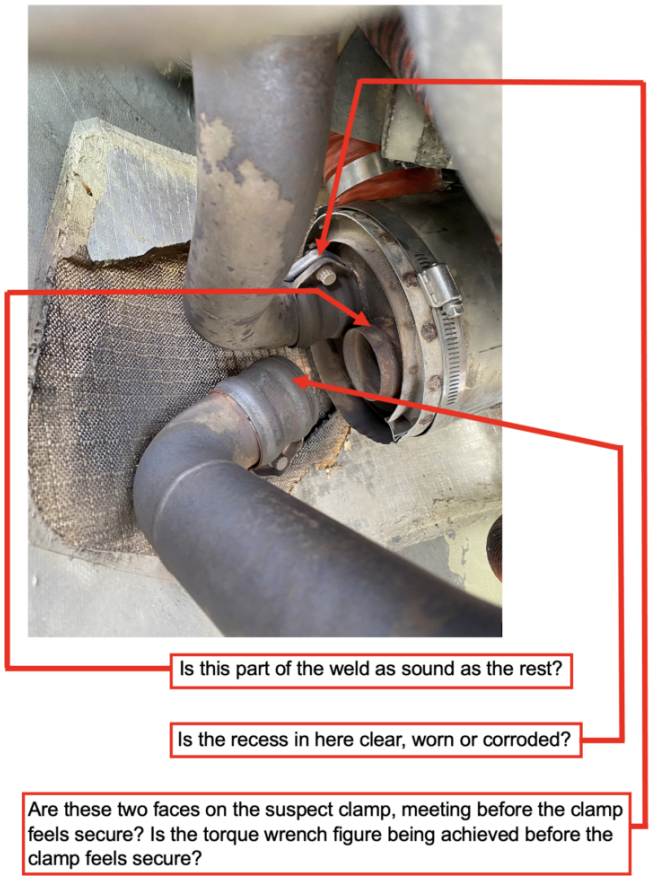
First, we note the LARS Unit's comment that the reporter couldn't land at their location. Whilst we don't have a detailed knowledge of the exact circumstances, and it may be that there were good reasons for them declining and suggesting an alternative airfield, in circumstances such as these where the engine condition is not known, pilots should think carefully about landing as expeditiously as possible rather than accept being told where to go by ATC. In this respect, it's important to consider carefully whether a PAN or MAYDAY is the most appropriate call to make. A MAYDAY confers more urgency and an imperative to land at the nearest suitable airfield, which should not be refused. Subject to an airfield having a serviceable landing surface, better to land where you need to following an emergency and then argue the case afterwards than end up with an off-airfield forced landing. Don't be afraid of using MAYDAY, you will not be admonished afterwards, but you may regret it if you opt just for PAN – a MAYDAY can be easily downgraded to a PAN if subsequent events indicate that urgency is not an issue.

Second, although all ended well at the subsequent diversion, don't forget that the engine might fail at any point in such circumstances and so make sure you maintain sufficient height to perform a glide approach to the diversion airfield in case the worst happens. The reporter themselves commented that they thought they had a cylinder failure (so a reason in itself for declaring a MAYDAY) which could have resulted in a seized engine at any point if that had been the case; fortunately it was not, but always consider the worst-case scenario.

Third, looking at the picture of the exhaust manifold, it looks as if there was some serious heat and potentially flame in the area of the dislodged clamp. The reporter could not know that at the time but there are real dangers of fire in such circumstances and so that's another reason for declaring a MAYDAY and getting on the ground as soon as possible with an engine or exhaust problem.

Finally, although the reporter didn't know that the exhaust had separated at the time, loud noises like that with an otherwise functioning engine can be indicative of exhaust problems so do consider whether there may be a risk of CO poisoning as a result. CAA Safety Notice SN-2020/003, the associated Safety Animation, and the CAP2560 Leaflet about CO detectors highlight the importance of having one in the cockpit and, although passive 'black-spot' detectors are better than nothing, they do have an expiry date and there are better options available with active electronic versions that can be easily purchased online for relatively little money and have the additional benefit of an aural warning that will hopefully help in attracting attention to the presence of CO depending on cockpit noise levels and any headset active noise reduction if fitted and activated.

The reporter sent us a photograph of the offending manifold after the second separation incident and we passed it to our Engineering Programme Manager for his thoughts. He was cautious about making too many assumptions because he could not see the item in real life and so didn't know what the pertinent factors were. However, he commented that the manifold connection stub looked quite short and so locating the exhaust properly and securely was vital because any slight movement or vibration would likely cause it to dislodge. In this respect, he wondered whether the clamp might have contaminates on its surfaces that were stopping it closing properly such that the 2 faces of the clamp were meeting before it was secure. He annotated the reporter's photograph with some thoughts for others to consider during periodic checks of exhaust clamps such as this but we stress that these are generic thoughts rather than being specific comments on the actual installation which we have not seen.



Key Issues relating to this report

Dirty Dozen Human Factors

The following 'Dirty Dozen' Human Factors elements were a key part of the CHIRP discussions about this report and are intended to provide food for thought when considering aspects that might be pertinent in similar circumstances.

- **Stress** – Sudden and alarming engine noises causing tunnelling of focus.
- **Pressure** – Heightened awareness of the need to get the aircraft on the ground as soon as possible.
- **Awareness** – Consider all aspects of an engine emergency, including potential forced landing, fire and CO leaks.
- **Communication** – Consider carefully the value of MAYDAY rather than PAN.
- **Assertiveness** – Take control of your own circumstances, don't let ATC or others dictate the outcome.

Assertiveness | Awareness | Communication | Pressure | Stress

Report No2 - ATC847 – Glider conspicuity code

Initial Report

As an ATCO operating at a busy Radar equipped Civil Aerodrome in Class G Airspace, I am well versed with the idiosyncrasies of Class G operations and the plethora of different flying machines that operate within it. Having spent time attempting to ascertain the relevant desk officer in DAP and their contact details, my apologies for choosing this route as a 100% reliable back-up.

It is pleasing to see the increased use of Transponders within the glider community, and for that they should be thanked. However, with the 7000 Conspicuity squawk the one most often selected, and the Mode S (if fitted) not really indicating the difference between a GA aircraft and a Glider, I would opine that now is the time to allocate a discrete unverified code for Gliders to select.

It is incredibly difficult to ascertain the difference between a GA powered aircraft on a 7000 code, likely to remain straight and level in flight point to point routing, and a Glider, likely to reverse course and thermal at any time. This makes managing conflicts, especially on final approach or within instrument procedures, incredibly difficult.

At our unit, the introduction of the FMC had a massive impact on conflict resolution and was the single biggest safety enhancement of the last decade. I would opine, the ability to differentiate between powered and un-powered flying machines, from an unverified squawk, would be incredibly useful to aid in managing airborne conflicts for ALL Class G Air Navigation Service Providers.

Supplementary; we know aircraft that have Mode S transponders as they are displayed on our screens with an Orange Dash next to them. I'm still surprised with the sheer volume of aircraft we see transponding 7000 but without Mode C data transmitted, when we know the aircraft is so equipped. CAA Safety Department could really help the situation by focusing education on this matter; to ensure owners and aircraft hires are fully aware of the aircraft's systems and how to operate them. When in communication with such aircraft, when challenged, 90% of the time Altitude is fitted and just not selected. I routinely see several Mode S equipped aircraft operating within the vicinity of the [Location], squawking aerobatics but with the Altitude not selected. Electronic Conspicuity is one of the many mitigations for the airborne collision risk in Class G airspace. I'd like to see the CAA take a more aggressive stance on those that actively choose not to participate; either deliberately or through lack of knowledge.

BGA Comment

Transponder devices, whether Mode S, ADS-B or other are of course an element of a future where there needs to be greater integration. Where the sky is busy with traffic that needs protection, transponders can of course be a requirement and we agree that it could be useful for a controller to understand which is a glider. We also wonder if some devices might already be linked to an aircraft type and push out data such as 'glider' that could be interpreted from the incoming transponder data into information on the controller's screen.

CHIRP Comment

The idea of a glider conspicuity code seems a reasonable one, accepting that there might be limitations in its utility at present due to the numerous gliders that do not have transponders. In the past, battery technology was such that not many gliders had transponders and, if they did, they were only selectively used in order to save power for other equipment. These days though, battery technology has greatly improved and so more glider owners are probably able to instal and use transponders if they wished to do so. We don't know what the take-up is for transponders in gliders but, as battery/power sources become more efficient and more gliders might in future have transponders fitted as a result, a discrete glider transponder code could be a useful adjunct to managing airspace if we can get over the power limitations and cost of installation on more than a few high-end gliders. Noting that the BGA are overall supportive of the idea, we have approached the CAA for their view but still await a response at the time of writing.

Regarding aircraft not using Mode C, SERA.13010 'Pressure-altitude-derived information' is clear within its Para (a) in stating: "*When the aircraft carries serviceable Mode C equipment, the pilot shall continuously operate this mode unless otherwise dictated by ATC*". If an ATCO observes an aircraft operating without Mode C when they could reasonably expect it to be so equipped (i.e. when displaying Mode S for example), then this is potentially in contravention of SERA.13010 and could be reported using the Alleged Breach of Air Navigation Law (ABANL) process already available to controllers and the public.

There is a belief by some aerobatic pilots that it is better to turn off Mode C if conducting aerobatics near airport approach paths in order to reduce TCAS interactions; however, there is little evidence as to this being a real rather than perceived concern. Aside from anecdotal comments regarding Mode C being turned off, we have asked the CAA if they have any statistics or evidence that point to interactions between aerobatic aircraft squawking Mode C and TCAS-equipped commercial aircraft on approach to airports. If there are examples of such interactions then evidence needs to be generated before any rule change can be made that might perhaps permit a dispensation for aerobatic aircraft to not squawk Mode C in some locations.

Key Issues relating to this report

Dirty Dozen Human Factors

The following 'Dirty Dozen' Human Factors elements were a key part of the CHIRP discussions about this report and are intended to provide food for thought when considering aspects that might be pertinent in similar circumstances.

- **Awareness** – Improvement of controller SA by introduction of a glider conspicuity code.
- **Complacency** – Increased risk through operating with Mode C selected off.
- **Deviation** – Aircraft operating without Mode C selected, and controllers not reporting such instances.

Awareness | Complacency | Deviation

Report No3 - GA1366 – Airspace infringement

Initial Report

This is my summary of the incident that I wrote as my personal learning experience and shared it with other members of the aircraft group. Events leading to infringement:

On pre-flight check, I saw that the step onto the wing was cracked and had to find engineers to confirm aircraft was safe to fly, this didn't leave me in a relaxed frame of mind.

Mistake 1 – Maybe should have cancelled flight at this stage, felt I was rushing as I had given a booking out time to ATC.

I had planned for departure via [Reporting Point 1] and was cleared with this route and taxied to the holding point. A [Aircraft 1] was cleared onto the runway at [RWY entrance point 1] and, at the same time, in front of me at [Runway entrance point 2], a [Aircraft 2] was also cleared onto the runway. [Aircraft 2] took off first planning to turn left, [Aircraft 1] was given take-off clearance with a right turn almost immediately [Aircraft 2] had got airborne. As the [Aircraft 2] was starting to turn left they contacted the tower saying a nose locker had opened and they needed to return to land – stated no immediate danger. I contacted Tower saying I was at [Runway entrance point 2] ready for departure, [Aircraft 2] had only just turned crosswind.

Mistake 2 – I should have been patient and not tried to "push" the controller, just left me feeling frustrated, although I know [Aircraft 2]s don't fly well with a baggage door flapping about!

[Aircraft 2] landed without incident, and I was cleared onto [RWY] and instructed to backtrack to [Runway entrance point 1] to allow a FOD inspection. Vehicle entered runway to carry out

the check. When vehicle cleared the runway, I was given an amended departure via [Reporting Point 2], controller noted my hesitation and stated if I couldn't accept [Reporting Point 2] I would be delayed. I checked my chart, noted position of [Reporting Point 2], and accepted.

Mistake 3 – I hadn't figured out how I was going to get from [Reporting Point 2] back onto course to [Airfield 1]. Should have accepted a delay and if necessary vacated runway.

Took off and routed to [Reporting Point 2] – Tower controller asked me to stay with him until I was very close to [Reporting Point 2] when finally handed to Approach. I was told I had left controlled airspace, to squawk Conspicuity, and to route to destination, controller seemed hesitant on who I should contact and eventually suggested [Airfield 2] approach.

Mistake 4 – should have been more assertive with controller and confirmed exactly what he wanted me to do, and I should have just continued flying in a straight line as I had been told at that point, I was clear of controlled airspace.

[Airfield 2] frequency was busy and as I was making my turn, I could see [Aircraft 3] was on final approach to their [RWY] so I continued my left turn to ensure I went behind it, doing this caused me to enter the [Location] restricted zone. I didn't notice this on the chart at first as I was busy looking out of the window and trying to communicate with [Airfield 2] who did give me a transponder code and Traffic Service; however, he was clear that I had entered the restricted area and they asked me to call on landing at [Airfield 1].

When I landed, I called [Airfield 2] and the controller I spoke to was very understanding and sympathetic but stated he had to make an MOR, which is correct, and I have no complaint. We discussed what had happened and he suggested the best thing I could have done was to continue straight ahead, climbing to a safe altitude, and then contact [Airfield 2] ATC to turn back and fly through their airspace, with hindsight this seems so simple and obvious. Other learning points were:

- If not feeling 100% comfortable don't fly.
- Don't accept an amendment to your plan by someone else unless sure you have considered all the consequences. Knowing where a place is, isn't sufficient.
- Be assertive enough to ask to clear the runway if "threatened" with delay.
- If unsure what to do when in uncontrolled airspace, fly in a straight line and climb to a safe altitude to "sort yourself out."

As a result of the incident, the CAA asked me to do some ground school with an instructor on: Threat and Error Management (TEM); Pre-flight planning and preparation and contingency planning; Local airspace construct and procedures; Integration of VFR Moving Maps in flight planning; and flight management and decision making associated Human Factors. I did this and it was useful.

CHIRP Comment

In terms of the incident, as the reporter states themselves, there were a number of things that they could have done to be better prepared, not least in making sure that they had a Plan B for all the relevant options for departing their airfield (and who they might have to talk to), so that they would have an understanding of where ATC might route them if their primary plan was overtaken by events. The reporter had clearly been overcome by a series of relatively minor factors that, in isolation, are part of everyday aviation but had combined to distract them as they were 'nibbled to death by ducks' and got airborne in a rush.

In response to the infringement, the reporter received a 'Just Culture' letter from the CAA recommending some further training on TEM and associated issues. All airspace infringements must be taken seriously, but the CAA's response was both proportionate and context aware, highlighting that things have come a long way in respect to how airspace infringements are now dealt with more pragmatically (in recognition that, although we must all endeavour to ensure we remain clear of airspace, mistakes do happen). Looking at the Airspace & Safety Initiative (ASI) website (as at June 2024), the statistics show that 76% of decisions so far in 2024 resulted in either no further action or an advisory letter as in this case. Of the remainder, 4% were required to do the online tutorial and test, and 15% were required to attend an Airspace Infringement Awareness Course (AIAC). The emphasis is on finding out what happened, learning lessons (both for the system and the pilot) and education rather than punishment – there's a plethora of good material on the ASI website that's well worth a visit to get some good tips on how to avoid infringing airspace.

Key Issues relating to this report

Dirty Dozen Human Factors

The following 'Dirty Dozen' Human Factors elements were a key part of the CHIRP discussions about this report and are intended to provide food for thought when considering aspects that might be pertinent in similar circumstances.

- **Stress** – numerous factors causing changes to the plan and associated stress.
- **Pressure** – self-imposed and external pressure to get airborne without a full plan.
- **Distraction** – numerous minor events combining to distract from the overall flying task.

- **Assertiveness** – over-assertive in initially pushing the controller to get airborne; under-assertive in not clearing the runway when delayed so that they could formulate a proper plan when things changed.
- **Complacency** – did not consider the implications of getting airborne without a proper plan or who to talk to during the departure.

Assertiveness | Complacency | Distraction | Pressure | Stress

Report No4 - GA1367 – Student asked to orbit on base-leg

Initial Report

The controller decided to give a right base to a twin despite two training aircraft in the standard left-hand circuit, the student on left-base in the approach configuration was instructed to orbit. He should have been told to go-around. This is exactly the scenario that led to a fatal accident at Southend G-BABB. That led to changes in the CAP 493, the wording is "***instructions shall not be issued***" no leeway.

CHIRP Comment

This report raises some serious issues with how students are treated by controllers but, unfortunately, we've had no further response from the reporter to our requests for clarification. Because the reporter did not mention the airfield or the type of control being exercised at the time (ATCO, FISO, A/G?), not knowing the full circumstances qualifies any comments that we might make, and so all we can offer are some general thoughts below that may be worthy of note, especially with students in the circuit.

Notwithstanding the overriding premise that students shouldn't really be asked to orbit in the circuit, if it was an ATCO doing so then they have a responsibility to '***achieve the safe, orderly and expeditious flow of air traffic***' and they can issue information and instructions to achieve this. It is simply not possible for us to comment on whether a go-around or an orbit was the most appropriate option because we don't know the circumstances. If it was a FISO or A/G airfield then that would be a different matter, and it would be up to the pilots to ensure safe integration, but the reporter says 'the controller' and so it should probably be assumed it was an ATCO.

CAP 493 Section 2: Ch 1 Para 19A says that '***...instructions shall not be issued to aircraft in the final stages of approaching to land...***' but this is generally assumed to apply to aircraft on Final. In the situation described, the student was on base-leg and so there may have been few other options for the controller than to ask the student to orbit. We simply do not know the circumstances of the incident, what else was going on, and what the airspace construct was.

All that being said, and notwithstanding instructions from the controller, there was a certain responsibility on the joining twin's pilot to satisfy SERA.3225(b) and '***conform with or avoid the pattern of traffic formed by other aircraft in operation***' and so they ought to have given consideration to the student. If, for whatever reason, the controller had sequenced them, cleared them to join right-base, and they were below the student, then SERA.3210(c)(4)(i) says that '***When two or more heavier-than-air aircraft are approaching an aerodrome or an operating site for the purpose of landing, aircraft at the higher level shall give way to aircraft at the lower level, but the latter shall not take advantage of this rule to cut in front of another which is in the final stages of an approach to land...***'. So it's not completely clear cut.

The reporter says that the student was 'instructed' to orbit. CAP413 Paras 2.34 and 11.5 refer to controllers having to make due allowance for the limited experience and ability of student pilots, and any pilot can refuse a request or instruction by saying 'unable' if they feel they cannot comply. Whether a student would feel confident enough to do so is a moot point though because they're likely to interpret an 'ask' as an instruction anyway. But pilots should remember that they always have the option of telling ATC that they are 'unable' if they feel that they cannot comply with an instruction.

Key Issues relating to this report

Dirty Dozen Human Factors

The following 'Dirty Dozen' Human Factors elements were a key part of the CHIRP discussions about this report and are intended to provide food for thought when considering aspects that might be pertinent in similar circumstances.

- **Stress** – student anxiety when faced with a complex situation.
- **Pressure** – likely compulsion or anxiety to satisfy ATC demands.
- **Assertiveness** – pilots' ability to decline ATC instructions if unable to comply.
- **Complacency** – twin-aircraft pilot joining right-base to a student-occupied left-hand circuit.

Assertiveness | Complacency | Pressure | Stress

Report No5 - GA1368 – Taxy and take-off with tow-bar attached

Initial Report

Aircraft removed from hangar via nose-wheel tow-bar as per normal procedure following initial walk-round during which it had been noted that the engine oil required topping up. As the oil was not immediately apparent in the hangar I phoned another group member to ascertain the location and type of oil required. Having topped it up I continued with my pre-flight prep and missed the fact that the towbar was still attached.

Taxy and take-off appeared normal (it is worth noting that I was using a new noise-cancelling headset and therefore had no point of reference for external noise levels) and the flight continued safely for around an hour including 4 circuits at base. On arrival at the hangar the tow-bar was missing and it became apparent that I had taxied out with it attached. The tow-bar was subsequently found on the runway.

The main cause of this in my opinion was distraction. I was distracted during the walk-round by the need to source the correct type of oil and to some degree the time pressure of finding it to allow sufficient time to complete the flight. With hindsight I also recall an aircraft that took off after us commenting on some FOD on the runway but as everything appeared normal I did not consider that it may have been something from my aircraft. Following the flight it was noted that some minor damage had occurred to the propeller blade tips necessitating repairs to the prop and an engine inspection.

CHIRP Comment

As the reporter comments, distraction by the oil issue during the walk-round was a key aspect but there are probably other things for us all to think about as well. Was the towbar painted a bright colour to attract attention? Do you conduct any 'last chance' checks before getting into the cockpit (such as chocks, towbar, tie-downs, earthing cables removed as appropriate)? Were there any other people who might have noticed the towbar as they taxied out? It's easy to be clever in hindsight, but just a few seconds pause to stand back and think before getting in the cockpit can be worthwhile.

Accepting that aircraft might have tow-bars left on them if they are simply being manoeuvred out of the way and not intended to be flown, there is much to be said for the practice of ensuring that tow-bars should never be left connected to aircraft and unattended once the aircraft is out of the hangar and positioned in the desired place pre-flight. Good advice is that once your hand has touched a tow-bar that will be attached to an aircraft going to fly then your hand should not leave it until the tow-bar is replaced in its storage location (ideally a shadow board) after use. AAIB accident report G-SAJK/G-CDMH reflected similar circumstances and has useful associated lessons regarding improving the visibility of GA ground equipment that would be worth reviewing, and the associated Clued-Up article from the CAA about towbar colours is also an interesting read. Another AAIB report about towbars being left connected refers to one involving C172 G-BGIY and is also relevant. The QR codes give links to the associated articles.

Lastly, remember that incidents involving things falling off aircraft are subject to mandatory occurrence reporting (MOR) requirements as stated in IR 2015/1018 and accessed using the CAA Occurrence reporting portal via ECCAIRS2. If you're involved in a similar incident then don't forget to MOR it.

Key Issues relating to this report

The following 'Dirty Dozen' Human Factors elements were a key part of the CHIRP discussions about this report and are intended to provide food for thought when considering aspects that might be pertinent in similar circumstances.

- **Stress** – delays caused by having to find and replenish aircraft oil.
- **Pressure** – self-imposed compulsion to get airborne on time.
- **Distraction** – walk-round interrupted by the need to replenish aircraft oil.
- **Awareness** – did not check that ground equipment (tow-bar) was returned to hangar after use.

Awareness | Distraction | Pressure | Stress

Report No6 - GA1369 – Pop-up TDAs

Initial Report

I fly from [Airfield], as well as other nearby airfields. A few days ago, a couple of NOTAM-ed [military] temporary danger areas appeared as well as other recently declared HIRTA areas (NOTAM-ed not charted). The areas obviously impinge on the airfield, the circuit and some of the local flying area. I was surprised on visiting our ATSU for further information (assuming that, like parachuting, the military would have co-ordinated this with them) to be told that they are given no notice of these areas, and all attempts to obtain further information

about them are rebuffed by NATS – "*we cannot tell you/ we don't know.*"

One assumes that these areas (up to FL200) have to be flown into by aircraft from elsewhere. So when selecting somewhere for local flying training, how do I know whether I am likely to be met by a four-ship of fast-jets without at least having some idea of from where and when they might arrive. Is the airfield supposed to effectively shut down for three weeks whilst these exercises take place? There are already numerous AIAAs over [Region] and many more areas away from airfields. On what basis does the military deem it acceptable to put these temporary DAs slap bang on top of an active civilian airfield? To me this generates an unacceptable level of risk of mid-air collision.

I'm not suggesting that the military should ask permission, just that they should liaise with [Airfield] ATSU before mapping out an area that encloses a busy GA airfield. The [Airfield] ATZ barely provides protection for the circuit (which is somewhat large due to noise abatement restrictions) and any GA training airfield will have a considerable amount of traffic flying locally nearby for training purposes – in fact exactly where one of these areas lies (by the way, they don't have a great record of avoiding the area on a normal day either!).

Military low flying – or rather the unwillingness to publish routes of the basis that "we might be anywhere" has been an issue since the day I started flying.

CHIRP Comment

Ultimately, Class G airspace is a sharing environment in which neither military nor civil aviators have any priority over and above the Rules of the Air. We researched the NOTAMs mentioned and they were all 'H' series navigation warnings (which you just have to be aware of but don't have to avoid) and not RA(T)s or TDAs (which you would have to avoid and would be 'J' series NOTAMs). Some useful links for understanding NOTAMs are the CAA Infringement Tutorial and UK AIP Gen 3.1 (Aeronautical Services) Table 3.6.3.4 which explains what each of the 18 NOTAM series types are (see below).

3.6.3.4

Table – UK NOTAM Series

Series	Content
A	Licensed Aerodromes: Aberdeen/Dyce, Belfast Aldergrove, Belfast/City, Cambridge, Cardiff, Edinburgh, Glasgow, Inverness, Liverpool, London Gatwick, London Heathrow, London Luton, London Stansted, Manchester International, Norwich, Prestwick, Southend and Sumburgh.
B	En-route Airspace London FIR/UIR & Scottish FIR/UIR and the Channel Islands Airspace: Regulations & Procedures, En-route Navigation Aids described in ENR 4.1 (Inc. facilities used as Approach Aids), ATS and Air/Ground Communications.
C	Licensed Aerodromes: Alderney, Biggin Hill, Birmingham, Blackpool, Bournemouth, Bristol, Coventry, East Midlands, Exeter, Farnborough, Guernsey, Humberside, Isle of Man, Jersey, Leeds Bradford, London City, Lydd, Newcastle, Newquay, Shoreham, Southampton and Teesside International.
D	Special Use Airspace within ENR 5.1 and ENR 5.2 not described in Series F, G or M.
E	Unlicensed Aerodromes within the London FIR and Scottish FIR for the notification of safety related subjects relating to facilities and services.
F	Special Use Airspace within ENR 5.1 and ENR 5.2 originated by Flag Officer Sea Training (FOST) and Royal Navy.
G	En-route Airspace Shanwick Oceanic FIR: Regulations & Procedures, ATS, Air/Ground Communications, Special Use Airspace within ENR 5.1 and ENR 5.2, and Navigation Warnings.
H	Navigation Warnings (except those catered for in Series G).
I	Licensed Aerodromes within the Scottish FIR not covered in Series A or C.
J	Temporary Danger Areas (TDA), Restricted Areas (Temporary).
K	En-route Obstacles within the UK Military Low Flying System less than 100 M (328 FT) AGL, incl LGT.
L	Licensed Aerodromes within the London FIR, not covered in Series A or C.
M	AMC Managed Special Use Airspace within ENR 5.1 and ENR 5.2 including relevant Military Exercises.
N	En-route Obstacles 100 M (328 FT) AGL and above, incl LGT.
Q	UK Sovereign Bases and Overseas Territories: Gibraltar, Mount Pleasant, and Port Stanley. British Antarctica airstrips Rothera, Halley and Sky Blu.
U	UK Military Aerodromes.
V	Notification of Security Advice to UK Air Operators by Government to provide guidance/instructions on Airspace Security Risks. Volcanic Ash related information within En-Route Airspace London FIR/UIR, Scottish FIR/UIR, Shannon FIR/UIR and Shanwick Oceanic FIR.
X	Contingency: Series applied in event of unplanned, long-term outage of normal NOTAM production system. Only time critical NOTAM shall be issued during period of outage. Distribution as per all of the above Series.

The specified locations of the 2 high-energy NOTAMs up to 20,000ft were applicable to operations at the reporter's airfield, although [NOTAM 1] gave the blanket statement that associated military aircraft "...***will avoid controlled airspace unless given permission to enter by appropriate ATSU***" which implies that they would avoid the airfield ATZ. The reporter mentioned that their ATSU had tried to contact NATS to get further information but NATS would be unlikely to have any on a specific NOTAM and so that is probably why they received the response they did. In fact, the 2 high-energy NOTAMs had the same contact number within their Section E details where more information should have been available to the ATSU (our assumption was that this number gave access to the exercise controllers who would have details of when aircraft might be using the areas and at what heights).

All that being said, one wonders how much research into airspace usage is conducted before the decision is made to plan military low-flying exercises. Why these specific locations were chosen we don't know, but we're all well aware that there could be high-energy fast-jets flying at low-level without NOTAMs at any time in most parts of the UK Class G airspace and so at least these NOTAMs were a step up from that in warning that there will be a higher concentrations in the specified areas over the associated periods. We doubt that the military will consult with [Airfield] before deciding on their exercise areas and issuing the associated warning NOTAMs, and military crews will be well-versed in understanding that [Airfield] is there and to be avoided. But there is a valid argument that local airfields and their training areas could be taken into account during military exercise planning such that likely conflicts due to concentrated military activity might be reduced. Perhaps there is also a case for GA training airfields to publish their own favoured training locations (if such exist) so that this information is available to all – military and other civil aviators alike?

Key Issues relating to this report

The following 'Dirty Dozen' Human Factors elements were a key part of the CHIRP discussions about this report and are intended to provide food for thought when considering aspects that might be pertinent in similar circumstances.

- **Knowledge** – awareness of NOTAM applicability; navigation warnings are not avoidances.
- **Communication** – use of NOTAM contact information; liaison between military and civilian airspace users.
- **Complacency** – NOTAM publication is but one part of risk-reduction and should not be assumed to confer any protection in their own right.

Communication Complacency Knowledge