

## General Aviation *FEEDBACK*



*Edition 84 - May 2020*

### Editorial

As I sit here composing this in my first week in the role, it's difficult to think beyond the parallel universe of coronavirus restrictions and all the attendant concerns and impact that that brings. Many in the aviation world will be facing huge uncertainty, job losses, furlough, lockdown or potentially worse. All of this reflects the very human impacts and fragility that we are all experiencing as a result, and aviation is not immune. It might therefore seem that taking time to consider the sometimes esoteric aspects of aviation might be something of a distraction but, without diminishing the really pressing and immediate day-to-day challenges that many face, we need to think beyond the present and to the eventual return to something like normality once we have come through the other end. Many will have fallen out of currency, systems and companies will have been strained to the limit, and the return to flying will be accompanied by the temptation to cut corners or press on when otherwise we would not. Aircraft will have been in storage/hangared and require extra care and maintenance to return them to full flying standards, people will be rusty in all areas, and some will be emotionally and physically drained from the extra care, financial and societal worries. The need to be honest with ourselves, look out for others, and anticipate the many hurdles and road blocks that will inevitably arise will be more important than ever. I have often applied what I call my '3C's to Human

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Factors (HF) issues during my aviation career: Caution, Consideration and Courtesy for others will be our watchwords as we return to full-scale aviation operations.

On a lighter note, it is of course a great privilege to take on this role, and I have big boots to fill as we say goodbye (again!) to Ian Dugmore who, having previously retired, returned last year to cover the Chief Executive gap that occurred at short notice. Ian has done a fantastic job over the years and I hope that I can continue his sterling work as I bring my own perspective to CHIRP. As for me, my background is as a military fast-jet pilot (mostly Harrier and Tornado, neither of which are now in service sadly, which perhaps gives a clue to my age!). I've done a bit of gliding in the past (and hope to return to this now that I may have a bit more time), and spent just over 6½ years as Director UK Airprox Board where I made many good friends and productive contacts in the UK aviation safety community, regulators and associated stakeholders. I look forward to continuing and building on these relationships as we try to make a difference to the many key issues that are raised on your behalf and reported in FEEDBACK for the education of all.

Which brings me to my last point. CHIRP's overall mission is to improve the safety of the travelling public and that of individuals employed within or associated with aviation and maritime operations. Within that broader remit, the aviation programme's purpose is to take your safety-related aviation reports and, where appropriate, raise awareness of and champion the resolution of issues that might not otherwise be submitted through the UK's Aircraft Accident Investigation Branch (AAIB), Civil Aviation Authority (CAA) Mandatory Occurrence Reporting (MOR) system, or Commercial/Club Safety Management Systems (SMS) and safety processes. So please do keep reporting! The Advisory Board members bring a wealth of experience and knowledge to the debate when discussing your reports but can only look at those issues that are brought to their attention by you, so please don't be shy about getting in contact if you can't make progress through the normal safety channels.

Stay safe!

Steve Forward, Director Aviation

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## Comments on Previous FEEDBACKs

### Comment No 1 – Transponder accuracy

**Comment:** The Editorial in GA FEEDBACK Edition 83 [regarding the GASCo 'Take 2' initiative] suggests avoiding CAS by 2nm and 200ft. At a recent presentation that I gave, a very experienced pilot and instructor asked me if infringement investigations took any account of transponder accuracy/tolerance, which he suggested was +/- 300ft. I was not qualified to answer the question but, as an engineer, and having had an infringement issue that turned out to be a faulty transponder and thus a non-event, I was interested to know the answer and to respond to him.

**CHIRP Response:** The author raises a good point about transponder accuracy/tolerance with regard to infringements, and CHIRP contacted the CAA for the definitive answer. The ATC allowance for level occupancy is +/-200ft; if you are talking to ATC and they see that your transponder varies by more than this compared to the height that they've asked you to fly then they'll ask you to confirm your altitude and pressure setting. If your settings and altitude are correct, then they'll likely ask you to turn off your transponder and have it checked for accuracy when back on the ground. You won't be considered to have infringed airspace in these circumstances. The actual specification for transponder tolerance is +/-125ft and so that's why its recommended that you give a 200ft buffer on controlled airspace to allow for this and any other potential altimeter and pressure sensing errors. For those who want to read a bit more about tips for avoiding airspace infringements, there's useful information from the CAA at: <https://airspacesafety.com/infringement/>.

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# Reports

## Report No.1 – Alternator failure

**Report Text:** I submit this report with some trepidation as I'm sure many experienced pilots will find fault with my actions and view that I should have taken different steps. I regularly fly to Corsica in the summer in a Piper Saratoga. On this occasion, I was leaving Calvi early in the morning to return to the UK. The start-up and pre-flight checks had all gone well - with one temporary exception. During the engine run-up, the yellow low-voltage light illuminated, with the ammeter showing the battery discharging. However, a quick on-off of the alternator switch resumed charging, the warning light was extinguished, and the battery was re-charging. Engine checks complete, clear take-off from the Tower, and we were off across the Med routeing via, XC, Merlu, and then St Tropez before continuing up to MTL (Montréal). Initially, radio contact went from Calvi Tower, to Bastia, and then on to Nice LARS. Everything was going smoothly until roughly halfway across the Med when, you guessed it, the low-voltage light illuminated and a quick check showed the battery starting to discharge. The initial reaction, interestingly, was not to believe it. However, a quick on-off of the alternator extinguished the light for about 5 seconds before it decided that it wasn't going to go away - and I now had a problem. I did try the on-off switch a couple of times before deciding that I did have an alternator failure and that repeated switching was going to achieve nothing or, worse, might cause further electrical issues. It's reassuring at this point to see that indeed the engine does keep running, and that I now have to deal with this emergency. At this point, I elected to speak with Nice and announce a Mayday with electrical failure. Although La Mole, Cannes and Hyeres were all nearer, I quickly decided Marseilles was my destination; the logic being that it was a good big airfield with commercial flights to get home if required, and that Nice might be too busy for me to divert to.

Nice asked me to repeat the Mayday, and then asked me to squawk 7700 – which I had forgotten to do. I then commenced to switch off all electricals with the exception of the radio, transponder, autopilot (to allow me more time to think ) and a GPS 430. I also elected to keep the wheels up, since I now wanted to get to my destination quickly (more of that later). Nice spoke with Marseilles and cleared me direct – although I was still 30 minutes away.

The next 20 minutes were then spent reassuring my wife – who incidentally was brilliant throughout (and is also a qualified PPL) that all was ok. However, her comment 20 minutes in that the oil pressure was dropping, gave me a momentary panic until I realised that, of course, all electrical instruments were powering down. With approximately 15 miles to go, the battery was failing and, with radio contact about to cease, I called Marseilles who reassured me I had clearance in to land. No problem, I had a handheld transceiver - which incidentally unless you can connect to your headset is of no use, since as soon as you take your headset off to speak with it, the cabin noise inhibits any useful communication - lesson for the future - buy the connectors, which I've now done.

So, no radio, with 10 miles to go, during pre-landing checks I go to put the wheels down – however, with no electrical power the wheels won't go down. Should I have dropped the wheels when I still had electrical power - yes! Therefore, the emergency release was activated, and the wheels drop - I look for 3 greens to show they are locked – I think I see them but of course there is no battery! It is therefore a very tentative approach at lowest speed possible, with my hand ready to hit the master switch in case on touchdown the wheels are indeed not locked and we decide to go sliding. The landing was uneventful (the wheels were locked), and we taxi off to the GA Apron. I returned the following week with an engineer, and a friendly pilot flew down a new alternator and various spares. The alternator had indeed given up (it's highly likely it was the original) and the fan belt was shredded – which came first, belt shredding or alternator failing? After 5 hours of hard work on the tarmac at Marseilles the alternator was replaced, and, after removing the propeller, a new fan belt attached.

Notes and thoughts with hindsight. Should I ever have departed Calvi? Should I have diverted to the nearest airfield? Should I have switched off the autopilot to preserve the battery? Should I have also switched off the GPS 430 – and stay with map and compass? And should it have been wheels down or not?

**CHIRP Comment:** We're grateful to the reporter for his frank and open report that shares his experiences and uncertainty over whether his actions were correct. He's certainly identified a number of areas where he might have done things differently, all of which give ample food for thought for us all. Of particular note though was the initial response to the alternator not coming online after engine start. Although recycling the on/off switch in such circumstances might bring it to life, pilots should be cautious about doing so because this could both mask any imminent or latent failure modes and, if conducted without first carrying out load-shedding by turning off equipment, recycling could put excessive strain on the alternator system or cause electrical load spikes through delicate electronics. Rather than just automatically recycling the alternator, the Pilot Operating Handbook (POH) drills for such failures should be followed in the first instance and, even if the POH does suggest a recycle, pilots should be very wary of continuing the flight without first investigating potential problems (ideally with engineering assistance), especially if there is a long sea-track involved. As ever, guard against 'press-on-itis' or external pressures, and don't rush into continuing the flight just to meet ATC or self-imposed deadlines. Finally, once airborne, decisions made during an emergency are necessarily made under the pressure of difficult circumstances and limited mental capacity for problem solving. There is, however, one correct decision that can be made in the event of just about any and every serious emergency; divert to the nearest suitable airfield!

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## Report No.2 - Zone Infringement

**Report Text:** At the time of the incident I was experiencing an aircraft PA communications problem with my passengers, one of whom was feeling unwell. I was aware that the controlled airspace in my area was 2,500ft but, whilst planning the flight and looking at the chart, I misidentified the position of the Holmes Chapel VRP as being Holmes Chapel itself, and in fact I was looking at Sandbach on the chart when I did so.

When putting in the route into the nav box and SkyDemon I failed to notice this error. In flight, the sun was directly on the nav box and SkyDemon screens, which made it very difficult to see the screens. Therefore, I was unaware of my infringement until I was informed by London Info of this fact. I have in the past always used the listening squawk facility when flying close to controlled airspace, but on this occasion I didn't.

For me personally, my observations and learning points are to firstly be more diligent on the planning stages of my flights, and take full advantage of all services which are provided like the listening squawks. I can only apologise for any inconvenience at the time and will take onboard my oversights.

**CHIRP Comment:** We wholeheartedly agree with the reporter's comments about diligence in the planning process and the use of listening squawks. Careful map reading and interpretation of the symbols on the chart is always important, and especially so when flying near controlled airspace with a number of similar features and towns nearby as shown in the snip of the chart in that area – it can be very easy to mis-plot or mis-identify such towns and so, choosing unique features on the ground as turning points is key. Also, distraction with the unwell passenger and the PA problem may have played a part; the aviator's mantra Aviate-Navigate-Communicate is always relevant.



With regard to electronic navigation aids, SkyDemon has an audio alarm function that warns of the proximity of controlled airspace, but the volume must be turned to maximum if it is to be audible in a noisy cockpit; linking SkyDemon to headphones via Bluetooth or a direct connection is the best solution. Paper charts do not suffer the same problem in direct sunlight as tablet screens, but there are covers available for screens that provide a matt finish and improve readability in sunlight.

Finally, the use of a VRP close to the boundary of controlled airspace as a waypoint was probably not a good choice for many reasons. Although not necessarily the case in this instance, VRPs are commonly mis-understood to be Visual **Reporting** Points with an implication that they are overflowed; in fact, the correct terminology is Visual **Reference** Point, which suggests a more flexible use of these features. More specifically, [CAA Policy for the Establishment of Visual Reference Points](#) states:

### 3. Use of VRPs

3.1 ATC references relating to VRPs are advisory; however, pilots are requested to comply with instructions associated with a particular routing if it is safe for them to do so in order to assist in traffic integration, for example to remain clear of other traffic making instrument approaches or departures.

3.2 Pilots should as far as practicable avoid direct overflight of a VRP.

3.3 Controllers should avoid directing VFR traffic to fly overhead a VRP unless the position of other traffic making an instrument approach or departure specifically demands it.

In addition, 'The Skyway Code' includes the following:

*Traffic tends to congregate around prominent visual landmarks, VRPs or navigation beacons creating a collision hazard. Planning to fly around them can reduce the risk, although watch out for nearby airspace.*

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## Report No.3 - Get-home-itis nearly strikes.

**Report Text:** Here's my tale of how get-home-itis and stress can pile up to ruin a day. I took a passenger from [home airfield] to [Airport]. It's a flight which is about 30 minutes in duration in a C172. I had the club's plane booked from 1400 - 1600. The plan was: take off at 1415, on the ground at [Airport] by 1445, quick coffee, back in the air by 1515, on the ground at [home airfield] by 1540 (the wind was northerly so the flight back would have been quicker). The departure from [home airfield] was slightly delayed because I took my time with the pre-flight check, and the passenger was very curious, asking me to explain my actions to him in great detail. But the flight itself was uneventful, and we landed at about 1455. We walked out through security, hoping to get a quick burger and fly back. But by the time the officer at the security desk arranged for the payment of the landing fee, all we had time for was to go outside, get some fresh air and walk straight back in.

We were groundside (as opposed to airside) for maybe five to seven minutes, tops. This is when the trouble began. I knew I had to be on the ground at [home airfield] by 1600. Two reasons: the plane was booked by somebody else from 1600 to 1800 for some night training; and sunset was at 1625. I'm not night-rated so, by law, the latest I could fly was 1655 - but I thought that would be unwise. As we walked up to the security desk, the officer asked for my licence and photo ID. I'd left my licence on the plane, so it took a while to work through that issue, but it was quickly resolved. He then asked for my passenger's photo ID. This requirement for a photo ID to go through the airport gate as a passenger is not in the flight guides for that particular airport, and I had certainly never encountered this before in all my flying. "The only thing I have on me is my driving licence", my passenger said. "Oh, that's more than enough", answered the security man, then looked at the document - and his expression suddenly became very stern. "Do you know, Sir, that it's out of date? I'm afraid I can't let you through", he said.

My options at this stage were: to either leave the passenger where we were, expecting him to make his own way back to our field where his car was parked (two trains and a bus ride), or to beg and nag. I chose the latter option. The begging and nagging - and the resulting frantic calls from security to management and back to security - took quite a long time. I even had to call the Tower and ask them for help, but there wasn't much they could do. "I'm only following procedures, Sir", was all the officer was prepared to say. I called the club to warn them I was running late and to apologize to the pilot who had the next booking. Stress was beginning to pile up. By the time the issue was resolved ("You can go, but we'll have to escort you to the plane and watch you leave"), it was 1555. As I said, the sunset was 1625, so I was, by now, cutting it a bit fine. I rushed through pre-take off checks ("nothing's fallen off, we've got enough fuel and oil, all surfaces move"), rushed through the departure (rolling take-off, steep turn on course immediately after noise abatement), rushed through everything imaginable, and flew the poor C172 at 120 knots all the way. I was so stressed and goal-oriented that I actually had a brain-freeze when I needed to adjust course to whatever heading I needed, - for

a few moments I just sat there and tried to figure out whether I should be turning left or right! In hindsight, I broke a number of rules which I vouched never to break: no get-home-it is; always pre-flight the aeroplane properly; and do not fly if stressed.

By the time we got back it was still OK in terms of light, and I was still very, very legal, with at least 20 minutes to spare. But ATC at my field threw me another curveball and asked for an approach which would be "as tight as you can, please". Which was fine, but looking back at the video my passenger shot, I can see I was lower than I should have been in an ideal world, and landed somewhat to the left of the centreline. I would probably rate that approach as a 7 out of 10. This is not normally my style, - more signs of stress and task saturation?

Lessons learned: get pax to carry a valid photo ID at all times, stop and think, learn to breathe out and disconnect from the stress before taking off.

**CHIRP Comment:** This report contains many good flight safety lessons and provides a timely reminder about how external influences can mount up to cause serious distractions and unwanted pressure to complete tasks to the detriment of safety. Most pilots set personal rules and boundaries to avoid operating beyond their personal comfort zones – and there are many temptations for pilots to break their own rules on occasion. This was a good example of how situations can build up to pressurise pilots beyond the point of prudence, and how difficult it can be to call a halt to things as you are 'nibbled to death by ducks'. It's easy to say in hindsight but, at some point when beset by seemingly conflicting priorities, pressures and obstacles, pilots need to have the moral courage to stand back and look at the bigger picture to assess whether what they are trying to achieve and their continued course of action is really sensible.

Turning to the specific issue of ID requirements at [Airport], there is nothing in the AIP or VFR Flight Guides to indicate that GA pilots and their passengers will require photographic ID to move from the terminal to flight line; however, the Airport Conditions of Use do state:

- 2.15.1 *At the Airport, where a single, shared departures lounge (Common Departure Lounge) for domestic and international passengers is in use, we will operate a validation system for persons travelling on flights departing to destinations in the United Kingdom. This is to mitigate any potential risk of persons entering the United Kingdom illegally.*
- 2.15.2 *The Operator or their appointed handling agent must use best efforts to inform\* their domestic passengers that they will be required to enrol and validate their identity using such approved methods as are prescribed by us and notified to airlines in order to proceed beyond the ticket presentation point and subsequently to board their flight. Passengers who refuse to enrol and validate their identity will be refused entry beyond the ticket presentation point and will be unable to board their flight from the applicable terminal.*
- 2.15.3 *As a minimum, the Operator must state these Conditions on their website, and/or notify passengers at ticket points of sale within your control.*

There is also nothing in the airport regulations to indicate what constitutes establishing a valid means of identity. More widely, HMG does publish [guidance](#) on what constitutes a valid ID, and these include: current signed passports; UK or EEA photocard driving licences; or a full old-style driving licence. The bottom-line is that GA pilots should ensure that they and their passengers always fly with a valid driving licence or similar photographic ID just in case proof of identity is required.

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## Report No.4 - Use of Recording Devices

**Report Text:** A student pilot conducted a series of solo consolidation circuits under the supervision of an instructor who was observing from the airfield tower. The circuits appeared to have been executed successfully and the landings were all observed to be to a high standard. Subsequently it emerged that the student had used a handheld device to video part of the take-off run and most of the initial climb-out as a 'selfie'. Whilst there was no incident as a result, it was pointed out to the student that they had not kept their hand on the throttle during climb-out and were potentially distracted by operating the device and 'playing to the camera'. The student accepted this and apologised; one of the driving factors was that they stated it was becoming the norm to capture such highlights on video. There was no explicit guidance given not to use handheld devices in critical phases of flight and, as a result of the incident, the school has updated their introductory briefing to

give guidance to solo students on the use of handheld mobile devices. This has been raised through CHIRP in the belief that there is potentially a trend towards increased use of mobile devices for recording flights, and that a broader warning about such use would be in order.

**CHIRP Comment:** The use of any recording device that could be a distraction should be avoided but there is a need to distinguish between using hand-held devices versus securely-fixed carry-on equipment that can't be dropped and doesn't interfere with the pilot's ability to look out, constitute a hazard by interfering with the controls, or cause injury in the event of an accident. When appropriately installed and securely attached, fixed cameras can provide a useful means of reviewing a flight, but pilots should avoid providing a running commentary because this can sap mental capacity and distract from the conduct of the flight.

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## Report No.5 - Pre- and post-flight checks.

**Report Text:** Most tailwheel and tailskid assemblies are attached by one bolt that goes through the tail of the aircraft. It's a really important pre- and post-flight item to check because, if it gets loose, there is the potential that it could collapse on landing; or, if you are landing on tarmac, it could ground-loop the aircraft due to the twist that is applied to the spring pack by the weight of the airframe putting the mount at an angle due to having free play. Not something you want to have happen.

Last weekend, while we were putting one of the Cubs to bed at night, we saw the tailwheel sitting at a very strange angle. We put the tail up on a trestle stand, and it quickly became apparent there was about 1/4" of air between the top of the tail-wheel spring and the bottom of the fuselage! Right now, it's nice and muddy, and we have a grass strip, but that could have ended really badly for the pilot who skipped that check before flying. Do your checks guys! All of them!

**CHIRP Comment:** The reporter makes some good points and they should be commended for their alertness as they hangared the aircraft. Notwithstanding the obvious flight safety impact if the tailwheel problem had been missed during the next pre-flight inspection, a thorough post-flight inspection will also hopefully avoid the disappointment of finding a problem pre-flight when looking forward to going flying. During all such inspections, wiggling the tailwheel (and exercising control surfaces etc) might reveal loose or missing nuts or other problems; as the reporter rightly comments, checks are there for a purpose, do them!

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## Contact us

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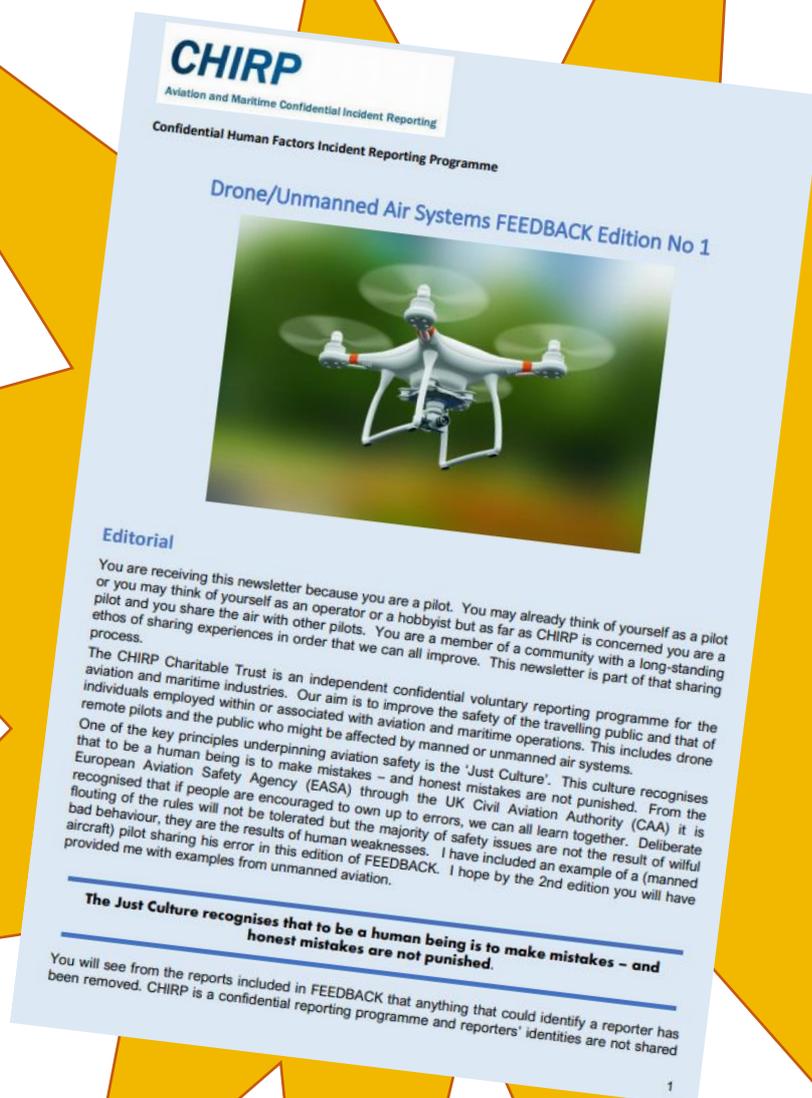
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# CHIRP News!

The first edition of Drone and UAS FEEDBACK is now available to download from the CHIRP website [www.chirp.co.uk](http://www.chirp.co.uk) and our app!



In the first Edition of Drone/UAS FEEDBACK we explain the role of CHIRP as an independent confidential reporting system - the aim is to promote safety and improved performance by learning from others' experience.

We've included reports discussing:

- \* An accident with a single rotor drone resulting from a failure not evident to the pilot.
- \* A lapse in procedures requiring an improved checklist and/or a technical interlock.
- \* An example of distraction leading to an airspace infringement
- \* The hazards of press-on-itis