AVIATION FEEDBACK

CHIRP

An independent and confidential reporting system for the Aviation industry

GENERAL AVIATION

Edition GAFB 99
February 2024

SUBMIT A REPORT

CHIRP always protects the identity of our reporters. All personal details are deleted from our system once a report is completed.

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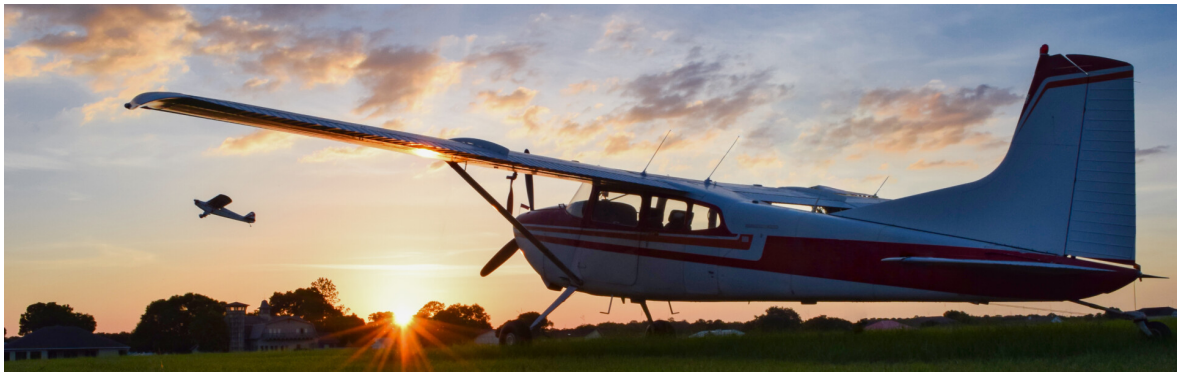
Reports can be submitted easily through our encrypted online form www.chirp.co.uk/aviation/submit-a-report



What do you do after something goes wrong?

Report to CHIRP to share lessons – knowledge is power!

Contents

Steve Forward
Director Aviation

We all know what should happen after dealing with the initial aftermath of an incident or close call, you should report it to your organisation, club, association, the CAA or AAIB as appropriate but all too often that doesn't happen in all cases. The upshot is that important lessons are then not learned, or only learned locally, meaning others continue to get in harm's way. To help address this, the CAA recently published their latest Safety Sense Leaflet 32 'Occurrence Reporting for General Aviation' (SSL32) which contains a wealth of good information and advice on what occurrences must be reported (including definitions of accident, serious injuries and serious incidents), and how (through the AAIB 24-hr hotline 01252 512299 and the ECCAIRS2 occurrence reporting portal).

However, submitting reports about incidents can be scary, and there are plenty of rational reasons to be worried about doing it. At *CHIRP*, we know all about those fears. We call them 'the four Rs': fear of **revealing** your identity; **reprisals** from those in authority; **ridicule** for speaking out; and **rejection** if your reports are ignored or suppressed. That's why, over 40 years ago, we founded our independent confidential programme and, with thousands of reports since, we've never knowingly compromised a source.

A lot has changed in those 40 years. New technologies, airspace and ways of operating have all evolved but one thing that has not changed is the need to focus on and improve safety. At *CHIRP* we work hard to ensure that pilots, cabin crew, air traffic controllers, ground handlers, drone operators and engineers can all report safety incidents and close calls easily and quickly. That being said, while *CHIRP* is a safeguard for those worried about the risk of speaking out, it's important to stress that reporting to *CHIRP* does not replace the formal channels for those serious or reportable incidents noted in SSL32. However, sometimes people also just want to publicise events that might not reach the threshold for formal reporting or which might not have been their finest hour.

Knowledge is power, and the more reports we receive the more lessons we can share. Also, if we see the same kinds of safety issues being repeated across the sector, we can raise this with regulators and highlight the need for improvements to current procedures and safety regulations. In this respect, *CHIRP* provides a vital safety net as another route to promote change when the normal channels of reporting aren't delivering results, you don't feel able to report through formal Occurrence Reporting systems, or for collecting reports with safety concerns that did not meet the threshold for normal reporting and would otherwise have gone unwritten. We rely on you to report Human Factors aviation-related safety concerns to us so that we can help both in their resolution and highlight relevant issues to others.

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."

Finally, if you haven't done so already, act quickly to get the rebate for Electronic Conspicuity (EC) equipment before the scheme closes on 31st March 2024. The scheme aims to improve airspace safety by encouraging the adoption of EC devices that enhance situational awareness for pilots. Eligible applicants still have an opportunity to claim a 50% rebate on the purchase cost of an EC device, up to a maximum of £250.

Stay safe!

Steve Forward, Director Aviation

In Memoriam - David Cockburn

It was with great sadness that *CHIRP* learned that David Cockburn, a *CHIRP* General Aviation Advisory Board member for many years, sadly passed away in January 2024. David was a great advocate, champion and mentor for many in the GA community, and an immensely valued member of *CHIRP*. He will be sadly missed and we offer his family our deepest and most sincere condolences.

Comments on previous GAFB Editions

Comment No 1: Regarding GA FEEDBACK Ed 98, I would like to comment on report GA1348 [Change of Circuit Direction to Suit Straight-in Landing Business Jet]. I can't help but feel that you let the bizjet pilot off too easily. Perhaps the reporter should have landed earlier to sort out his less-than-clear radio, but is entirely blameless in this incident. The A/G had no authority to change the runway direction and should have told the bizjet this. The bizjet calling 4 mile final is meaningless as it had not joined the circuit, or even the ATZ. Please make this point more strongly in CHIRP! The 'Straight in' approach is a dubious practice which usually engenders avoiding action by other parties and unless strictly controlled will end up causing a serious accident. The only time it can be justified is when there is an emergency, or no circuit traffic whatsoever.

CHIRP Response: We're always cautious about what we print in our FEEDBACK newsletters because we rarely have all of the facts, just one person's commentary, and so we don't judge, apportion blame or pronounce on the wisdom of others' actions for that reason. We did highlight the problems of straight-in approaches, especially in the opposite direction, but, given that it was an A/G operator, it's quite possible there was no ATZ and so the bizjet pilot was probably entitled to call for the other runway provided they integrated with the existing pattern of traffic. That was where things fell down, and the bizjet pilot seemed to assume they had priority. But we don't know that for sure, neither do we know that the A/G operator changed the runway direction (the reporter says his radio was unclear at that point and that was just what he thought was said).

Whilst we absolutely don't want to give the impression that bizjets can do what they want and assume that they have priority over others, it may be in your best interests to let them land from their straight-in approach whilst you either orbit or go-around yourself so that they can be out of the way as soon as possible. If the bizjet pilot had gone around and attempted to join the other direction circuit in the situation described in GA1348, then that might have caused more angst than just letting them land from their straight-in approach. Circumstances will dictate what might or might not be suitable at the time, especially if there are students in the circuit who should expect to get a degree of priority, and so bizjet pilots should have a Plan B for what they will do if they are joining a busy circuit where a straight-in approach in the opposite direction might cause problems. Pragmatism and a little give-and-take often eases such situations, having 'fast' bizjets trying to conduct overhead joins and integrate (likely much wider) into a visual circuit at 100+kts may be more troublesome than just accepting them doing a straight-in approach.

Whilst on the topic of A/G operators, although they are not normally allowed to give anything other than information to pilots in the circuit, and noting that the safe conduct of the flight remains the pilot's responsibility, CAA Safety Notice SN-2024/001 has recently been published clarifying that if holders of a Radio Operator's Certificate of Competence (ROCC) become aware of a hazard that poses an immediate danger to flights operating on and in the vicinity of the aerodrome (such as an immediate risk of collision), they should inform affected pilots of the hazard. Ultimately, as highlighted in the Supplementary Amendment to CAP452 'Aeronautical Radio Station Operator's Guide' Appendix E, Para 1.2:

> *"ROCC holders are reminded of the requirement to consider 'Duty of care' to aircraft whilst operating on the AGCS/OCS frequency, and the importance of passing Flight Safety messages, and additional safety information for the purpose of alerting aircraft to hazards and avoiding immediate danger."*

CHIRP FEEDBACK Survey

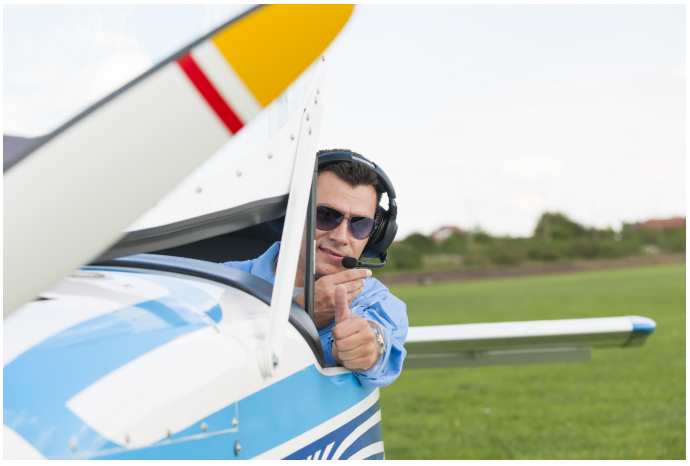
We value your opinion about our FEEDBACK newsletters and associated engagement methods, please spend a few minutes responding to 10 short questions about CHIRP Aviation FEEDBACK.

CHIRP
Confidential Human Factors Incident Reporting Programme

I Learnt About Human Factors From That

GA – Always treat propellors as live

[Taken from 'Pilot Workshops.com' https://pilotworkshop.com/tips/surprise-propeller-motion/]



One day a while ago, I jumped into my airplane for a quick local flight and was shocked when I turned on the master and the prop started turning. I shut off the master right away. Fortunately, nothing – and more importantly no one – was

inside the prop arc. This happened because the starter contactor (which can also be called the starter relay) had failed in the 'on' position. Despite the fact that the airplane keys were still in my pocket, turning on the master powered the starter and the prop immediately started turning.

Because of this, I've added a 'Prop area – CLEAR' item ***before*** 'Master – ON' to my prestart check to ensure that if this happens again the possibilities of damage or injury are minimized.

Many of us have the essential 'prop clear' on a checklist right before turning the key, just like we have a check for oil pressure or ammeter not full scale immediately after engine start. However, few pilots think twice about turning the master on when they first open the plane to check fuel levels, deploy the flaps, or do any of several other pre-flight tasks. Don't be one of those pilots. Any time you energize a system, ensure people and objects are out of harm's way.

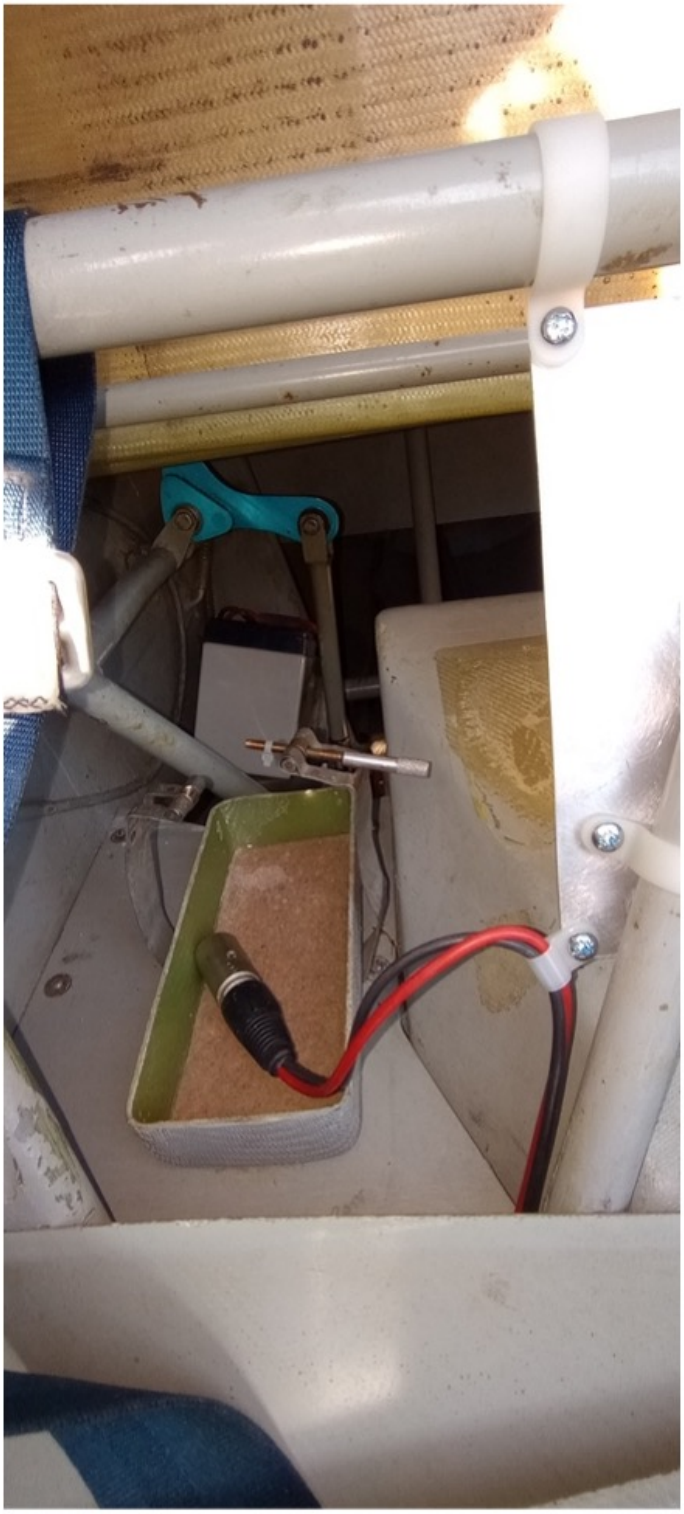
GA – All secure?

Dear fellow aviators, the following account of a compound rigging and daily inspection error might be of interest, especially to those flying Standard Cirrus gliders, although I suppose similar battery installations can be found in many other types.

My syndicate partner and I installed a new variometer and, in order to check its operability, we connected No1 battery in its starboard side slot behind the seat-back rest (our Standard Cirrus glider has slots for two batteries behind the back rest, located either side of the housing for the landing gear). After completing the installation we switched off the power supply but forgot to take out the battery, which was left in its slot until I next rigged the glider a few days later. On that day, I fitted the No2 battery and secured it with its latch and screw, not bothering about No1 battery because I knew it was already in its place.

During my first flight of the day, I noticed that the controls felt slightly heavier than I was used to. As I entered cloud at 850ft AAL, I did not retract the undercarriage and landed shortly after. My syndicate partner took the second flight and reported that when he operated the undercarriage lever in order to extend it, he could only move it half way; he then moved the lever fully back again before being able to fully extend at the second attempt. I had a second flight and was able to retract the U/C without any problem but still noticed the heavy feeling on the controls.

When we de-rigged at the end of the day, we found No1 battery had dislodged from its tray and slid backwards into the area to the right of the U/C housing where the aileron-rod junction branches off into the starboard wing. When we had installed it to check the variometer we hadn't secured its safety latch and subsequently completely forgot about it. Although it was possible to move the control rod, the battery was lying on top and was being bounced around by any control column movement. Additionally, we noticed that the U/C rod extended back into this space, and the battery would have prohibited its movement if it happened to be settled in the rod's way.



Although it appeared that the battery did not completely obstruct the movement of the aileron control rod, it might be possible that such a situation could occur, either if it settled in a position which did not happen on the day, or if a slightly differently shaped – perhaps smaller – battery was installed.

I should perhaps add that my syndicate partner and I had never included an additional check of the battery position and latches in our DIs. They were simply always put in their slots, secured and the seat's back-rest put back in place and secured with its screw. Needless to mention that the installation of a battery is not mentioned in the aircraft operating manual in a glider of this vintage.Make sure to check that batteries are installed and secured correctly as part of DI, and always secure batteries, even when 'only' using them on the ground to check something.

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 - GA1357 – Near-miss between skydivers

Initial Report

On a busy day at [Skydiving airfield], [more than 1] aircraft were operating for skydiving. The weather was clear with light winds. [Aircraft 1] had just dropped skydivers as [Aircraft 2] was approaching the drop zone to drop another load of skydivers (both from approximately [height] AGL). When the pilot of [Aircraft 2] requested to drop, the Drop Zone Controller (DZC) gave "clear drop" to [Aircraft 2] before all skydivers were clear from the previous lift (on [Aircraft 1]).

One of the skydivers dropped from the first aircraft was jumping with a wing-suit, resulting in a longer than average freefall time. They were still under canopy as the skydivers from [Aircraft 2] were in freefall. 16 skydivers exited [Aircraft 2] together in a single group and tracked away from each other at 5000ft to achieve separation before deploying their parachutes. As they tracked away, some were in freefall in close proximity to the wing-suit skydiver already under canopy.

The closest skydiver in freefall saw the wing-suit skydiver under canopy just before deploying their own parachute; they estimated the separation to be approximately 50m. The wing-suit skydiver saw others in freefall tracking towards them but had no time to take any avoiding action. Had there been a collision between a skydiver in freefall and the skydiver under canopy, it could have resulted in serious injury or fatality to both skydivers.

Lessons learned: The DZC should not have given a clear drop to [Aircraft 2] before all skydivers were clear from the previous lift. They may have been overloaded or under pressure due to the busy operation that day, or there may have been other factors. I reported my concerns to the Chief Instructor.

Airfield Operator Comment

Unfortunately, the reporter concerned did not report this incident to us, so we do not have any internal reporting open on this incident, which is unfortunate because it is then missed from our own internal safety committee meetings. [In fact, the reporter says he did discuss the incident with the Chief Instructor and so it is not clear why this was not passed on formally within the company]. As the reporter suggests, it was an exceptionally busy day here at [Skydiving airfield], right in the middle of a heat wave. A busy day like this sees an aircraft drop occur approximately every 8mins overhead our PLA. Sometimes the time between drops is a little shorter and other times a little longer as there are a huge list of variables that can alter the separation time. During these busy days, we operate with a minimum of 2 people on Drop Zone (DZ) Control at all times, one person responsible for the air-to-ground communication and a second person responsible for checking the parachutes are open safely and landing safely. These two people regularly swap roles to avoid fatigue, and other staff swap in from time to time to give breaks throughout the day. But it is a busy job, with a lot of pressure. On this particular day, the main DZC was our Chief Instructor, who is highly experienced. The other two DZCs were of equal experience, one being our Deputy Chief Instructor and the other being our Chief Pilot. When we are running at high capacity we ensure that we staff our DZ Control with as experienced a team as possible. But that being said, it appears that perhaps on this occasion the reporter was unhappy with the separation and we will thoroughly take this on board and discuss it.

One of the difficult parts of a report like this is that it is hard to actually measure or quantify the distances both laterally and vertically between the groups. In controlled airspace, aircraft are visual to the controllers via all sorts of Electronic Conspicuity equipment and a controller is able to see precise details of their speeds, altitudes and headings. Our DZCs have to look at canopies in the sky and make a visual

assessment (based on their experience) as to the heights of the canopies to ensure that the airspace is clear for the next aircraft to drop. This system is not fool-proof, and it is possible that on this occasion the separation between the groups was less than it would have been. Whilst the reporter is correct that the DZC should not have given a clear drop to [Aircraft 2] until all skydivers were clear from the previous lift, they must appreciate how difficult a task it is to be completely accurate in their assessment of the height of a canopy. It is an unfortunate reality of a large multi-aircraft operation that there will regularly be skydivers from a previous lift at a lower altitude under the canopy when the next lift is opening. The DZC would have made their best visual assessment and deemed the airspace to be suitably clear, but without having data, that assessment will always be a visual "eyeball" assessment based on experience.

As an additional measure, to assist our controllers, our aircraft are all equipped with EC systems and each pilot works to separate themselves by altitude from one another. The typical rule of thumb is that we maintain a minimum of 5000ft separation in the climb, which is approximately 6mins of flight time as a minimum. Whilst this is a little closer than the "ideal" 8mins, we find that it is the best balance of the variables in our operation. We believe that this system works well to alleviate some of the pressure on the DZC as the aircraft are already reasonably well spaced before they are requesting a clearance to drop. As part of our DZ Resource Management (our own internal CRM training), we have discussed how to share the workload and reduce the pressure on the DZC from the aircraft. One of the topics in this year's recurrent training was "How can we avoid overloading the DZC" which led to an open discussion about the 5000ft / 6mins climb separation and the pilots offering practical solutions (like entering a hold at 10,000ft to build separation when they can sense the DZC is overloaded).

CHIRP Comment

This is the first skydiving report that *CHIRP* has received so, for all those experienced skydivers, please forgive the extensive 'Skydiving 1.01' explanation included for the benefit of us non-parachutists!

If all drop-zone aircraft climbed at the same rate, all parachutists were dropped at the same height and location, fell at the same speed, opened at the same height, descended under canopy at the same speed and no one moved horizontally (apart from wind drift), then the job of a DZC would be relatively simple and there would be virtually no risk of a free-faller from one aircraft meeting an open canopy from a previous aircraft load. The reality is so different. It is also important to note that the DZC is not in fact a controller but an advisor; they cannot give a clearance to drop *per se,* although jumpmasters would not release their skydivers without the DZC having given the "clear drop" call. Avoidance of each other is a collaborative endeavour between the DZC, those in the air, and the jumpmaster in the aircraft; with the skydivers themselves bearing most responsibility for avoiding others. All that the DZC can do is offer their opinion that there appears to be clear airspace to drop within.

Most commercial parachute centres in the UK use aircraft carrying 15-20 skydivers dropping from between FL120 and FL150. Most skydivers will be dropped individually or in groups on a single pass over the DZ, with the aircraft covering a distance of well over a mile between the first jumper or group leaving the aircraft and the last jumper or group exiting. Most parachutists aim to have their parachutes fully open between 2500ft and 5500ft above DZ level. Once parachutes are open, smaller highly-loaded canopies may descend at over 2000ft/min, while larger or lightly-loaded canopies may descend as slowly as 600ft/min, or even go back up a bit on thermally days. Whilst some canopies will be on the ground within 1.5mins of opening, others may take over 6mins. As a result, canopies from just one aircraft may spread out horizontally over a few square miles of sky, at a range of heights, and with a range of canopy sizes that make it difficult for a DZC to accurately assess height, let alone determine the exact time to descend below 2000ft. Canopies up-sun of the DZC or transiently behind small clouds add to the difficulty.

Wing-suited skydivers can descend relatively slowly (they may have fall rates as low as a third of normal freefall speeds), and can glide relatively large distances away from and back into the DZ area such that they might come into potential conflict with faster falling non-wing-suiters dropping from later aircraft. This means that they are very difficult to track by the DZC, jumpmaster and other skydivers, compounded by the fact that all this is done visually whilst trying to maintain contact with potentially quite small parachute canopies that can give an illusion of being at different heights depending on the size of canopies.

Even with this complexity, an experienced DZC can usually make a realistic assessment of whether it is advisable for the next load to drop. When this is combined with pilots monitoring each other's calls and planning at least a 6min separation (and preferably 8min separation), then it is unusual to have significant conflicts. One obvious way to ensure no conflict between loads would be to allow no further dropping until all canopies are on the ground, but this would be commercially costly and very unpopular with skydivers wishing to do as much jumping as possible. Having aircraft hold in the air is not only commercially costly and unpopular but sometimes introduces other safety concerns, particularly concerns about hypoxia when the aircraft is on hold at over FL100. Skydivers are allowed

30mins above FL100 without supplementary oxygen, but only 6mins above FL120 before the drop has to be aborted. Although it is not too bad in summer, hypothermia is also a significant factor in some jump-aircraft if kept on hold during colder months of the year.

A jumpmaster in an aircraft can look down for other canopies before starting to jump and can request a "go around" if they suspect a conflict. However, from 3 miles up at FL150 it is difficult even to see a canopy, and quite impossible to decide at what height it is. In freefall, the most immediate risk of collisions comes from other skydivers jumping from the same aircraft, and it is appropriate that attention is focussed mainly on this area. In the 10-15secs before opening their parachutes, many experienced jumpers will be on the lookout for open parachutes nearby (whether from their own aircraft or from another) but many jumpers will not yet have developed the skill or situational awareness to allow them to do this.

It is easy for jumpers leaving an aircraft to assume that a "clear drop" from DZ control means there is no possibility of a conflict. Careful consideration of timing makes it clear that this is not the case. When a pilot calls "two minutes to drop" and receives the "clear drop", the "two minutes" is a rough estimate rather than a promise, and the "clear drop" simply means "no obvious conflict seen at present". After the first jumper begins to climb out of the aircraft door, it is not unusual for a further 60-70secs to elapse before the last group or individual leaves the aircraft. There is then up to 75secs of freefall time before the last canopy is deploying. Thus almost 5mins can elapse between the "clear drop" and the last canopy deploying. That is enough time for an already open canopy to travel horizontally across 1-1.5 miles of sky. The "2min" call could be reduced to "1min" or "30secs" in order to slightly reduce the large interval but this may produce chaos in other ways due to busy radio frequencies and failure to obtain a response in time.

It is interesting, and perhaps significant, that although this organisation has a safety management system and a safety committee, and had clearly already given this topic considerable thought, the verbal report of the skydiver to the Chief Instructor did not find its way into the SMS and it was the report to ***CHIRP*** that brought it to their official attention. The DZ company SMS should have logged the incident and so it's not clear why the company had no record of the incident being reported. A SMS cannot review the efficacy of its SOPs if it does not reliably gather data on near misses as well as the rarer major incidents. Is there a clearly visible supply of "near miss" or "concern" forms and pens at manifest, DZ control, packing area and reception so that it is easy for any jumper to make a report to them as soon as they walk back from their jump? On that busy day, perhaps the DZC was too occupied with other immediate concerns to get all the appropriate information (including from pilots and the wing-suiter) and feed it into the SMS. At the time of the initial verbal report it may have been possible to identify the closest free-faller and the wing-suiter and then to confirm opening heights (often logged electronically), opening locations (on POV videos) and post-opening navigation. This would have allowed for a more informative debrief and safety committee discussion. However, it would have required significant time from a senior member of the management team on what was already one of their busiest days of the year.

There is an education piece for wing-suiters to highlight that they should not fly through the DZ stack due to the risk of collision, and the DZ operator might need to think more about wing-suit procedures to allow for their increased drop time. Additionally, skydivers who usually frequent a DZ with only one aircraft may never have considered the possibility of conflict with another aircraft and may need very specific briefing when visiting a multi-plane operation. Organisations with a multi-plane operation may need to add specific information or cautions to their DZ Briefing for visiting licenced jumpers. It is very easy to assume that "everyone knows".

Jump composition can be available to DZC and to the pilot flying them (noted on the aircraft manifest) but may not be available to pilots on the following load. It is not known if the DZC was actively aware of wing-suiters being present on the affected load. Likewise, it is not known if distraction could also have played a part for the DZC on this occasion. At some DZs, the DZ control is isolated from other activities, while at others it is in the middle of the throng of jumpers preparing for the next load; this throng inevitably provides distractions (but also sometimes increases awareness of what will happen on that next load).

Communication between jump aircraft about wing-suiters/ high openers may also have been a factor. It may be possible to highlight wing-suiters on the pilot's copy of the manifest so that it becomes standard practice for the pilot to pass this information to following pilots when calling "drop complete". This would allow the following aircraft perhaps to plan a longer interval.

Finally, the "big sky principal" means that, even under non-ideal conditions, collisions or even near misses are infrequent; this can lead to complacency and, occasionally, normalisation of deviance by DZCs, management systems, pilots and ordinary jumpers alike. Jumpmasters at multi-aircraft drop zones may wish to remind their jumpers about the possibility of conflict with previous or following loads, and about the DZ's SOPs which are aimed at reducing this risk.

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.

Resources – deconfliction relies on Mk1 eyeballs and individuals' situational awareness.

Distraction – a busy jump programme means scope for the DZC being side-tracked or overwhelmed.

Communication – information flow between aircraft/jumpers/jumpmasters regarding jump compositions.

Complacency – acceptance that multi-drop ops 'are what they are' and that 'everyone knows the risks'.

Communication | Complacency | Distraction | Resources

Report No2 - GA1354 – Mixture mix-up

Initial Report

I was flying into [Airfield] with a family member for dinner, and had been told when I called for PPR that the wheels needed to be 'on the ground' for no later than 16:45 (when the airfield closed). We were tight on time for departing, and I was keen to make sure we arrived in time – and in fact we arrived over the airfield at 16:30 – plenty of time for an overhead join. I was explaining to my passenger what constituted this type of approach, then called "overhead – descending dead side", selected carb heat and reduced the throttle to idle. As we approached circuit height over the upwind end of the runway, I opened the throttle – but there was no response from the engine. Looking down I immediately saw that instead of selecting carb heat, I had moved the mixture control to fully lean. I returned it to fully rich, and the engine immediately picked up – and then operated as normal for the rest of the flight. I should add that the carb heat and mixture have different colour and shaped knobs on the end, and have a switch between them – so not that easy to mistake if you actually look! Stress – slightly, although I didn't feel it when we arrived over the airfield; Distraction – I was trying to explain what was going on – but not at a particularly busy stage of flight; Complacency – probably – I didn't look at the control I selected.

CHIRP Comment

CHIRP is grateful to the reporter for their frank and open report which provides an insight into a trap that we could all fall into so easily when chatting to passengers rather than focusing on what we're doing. Explaining what's going on to passengers is of course an important feature so that they understand and enjoy the flight, but there's a balance to be made between chatting to them whilst performing more complex tasks that are normally second-nature and to which we might not pay sufficient cognitive attention. Commercial pilots employ what is called a 'sterile cockpit' concept for take-offs, approaches and landings whereby only essential conversations are conducted. Whilst we don't necessarily think this is practical when passengers are in the GA cockpit, a mental check of 'now I must focus' and a brief to the passenger that you will be busy conducting flight critical activities so please be quiet would not go amiss. It's easy to be smart in hindsight, but we should all recognise that we are all fallible and predisposed to slip ups if we forget that we are error-prone humans – when conducting checks, the maxim 'think, look, do, check' is often useful.

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.

Distraction – chatting with passenger at a critical stage of flight.

Awareness – not checking control selection.

Complacency – assumptions during routine habitual tasks.

Awareness | Complacency | Distraction

Report No3 - GA1355 – Circuit traffic conflict

Initial Report

I was leading a formation of aircraft from [Airfield 1] to [Airfield 2] in order to participate in an event day. We had planned an 0830Z departure but, as is often the case on a summer morning, there was patchy fog and low cloud first thing in the morning, which delayed departure. This added a little time pressure for the transit itself, but our preparation and pre-flight formation briefing for the transit was conducted in a thorough and unrushed manner.

I had planned an East-West routing [in constrained airspace] and my route took us through a portion of [Airfield 3] ATZ. Transiting at 1300ft due to the remaining low cloud, I called [Airfield 3] just over 5mins from the ATZ, was passed airfield information and told to keep a good lookout because they were very busy. I called on entering the ATZ, continuing to keep a good lookout. As we neared the western edge of the ATZ I was preparing to call that we were clear, (and thinking that we were well clear of the circuit), when I spotted an aircraft ahead, passing right-to-left at the same height. I turned the formation slightly right to pass behind, only to realise that there was a further aircraft passing right-to-left behind the first one. That aircraft passed behind us. It was only at that point that I realised that rather than being clear of what I thought was a RH circuit on the runway in use, we had actually flown through the circuit pattern for a LH circuit.

Overall, this was a fall-down in my TEM (Threat and Error Management) for the flight. I had briefed the low but improving cloud base enroute as a threat which could channel transiting aircraft to similar heights, but had failed to appreciate the specific threat around [Airfield 3]. This is a route that I have used many times before, but have usually found the airfield to be quiet for an ATZ transit at that time of day, even at the height in question. I should have planned a slightly more southerly route to remain clear of the ATZ and circuit pattern – significantly more southern routings, well away from the ATZ, are often not viable due to extensive built up areas. I also did not build a clear mental picture of the likely traffic within the ATZ, and mis-appreciated both the circuit direction and that fact that the circuit for the runway in use that day runs very close to the ATZ boundary. I also should have used the comment from the A/G operator regarding current business and circuit height as a prompt to amend my plan and to remain clear.

The main two factors here were complacency, having used this route many times previously with no issue, and awareness, in that I had failed to build a correct mental picture of the threat and the circuit pattern.

CHIRP Comment

CHIRP commends the pilot for their altruistic self-critical comments which represent the finest traditions of an honest debrief that will hopefully provide food for thought for others – this report is a fine example of a frank and honest description of an event that we can all learn from. The reporter has covered the main lessons to be learnt themselves, although it's not clear whether the A/G operator had reported the circuit direction and they missed it or whether they had simply said that the circuit was busy. Either way, as the reporter comments, it would have been better to have routed further from the airfield if possible because aircraft using the airfield would have been operating under the expectation that the ATZ was theirs to use as they needed. That being said, one might hope that the A/G operator would have broadcast to those in the circuit that a formation was transiting the ATZ so that they could also make allowances in their pattern if possible to accommodate the sometimes unwieldy nature of formation routing, especially since the circuit pattern also extended close to the ATZ boundary at the airfield concerned.

We also commend the reporter for actively taking time to consider TEM before the flight. Although they're pretty hard on themselves for not fully appreciating the threat that the ATZ represented in the conditions at the time, it's clear that they had at least thought about it and had taken some steps to mitigate the risks. The strength of TEM is that it arms you with pre-planned options so that you not only avoid unnecessary risks where possible but you're also not overtaken by events when things might start to go wrong, therefore increasing your capacity to act.

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.

Pressure – additional responsibilities as a formation leader.

Awareness – circuit direction not assimilated or sought.

Communication – did not communicate/assimilate the circuit direction and potential for conflict.

Complacency – assumption that the circuit was in the other direction as previously experienced.

Awareness | Communication | Complacency | Pressure

Report No4 - GA1358 – NOTAM Understanding

Initial Report

I was planning a flight from [Airfield 1] to [Airfield 2]. As part of my planning I saw a NOTAM raised in the [Town] area, 4nm diameter, surface to 3200ft amsl, 24/7, for the flying of drones and model aircraft. It's a very congested piece of

airspace constrained laterally by [Airfield 3] MATZ and [Airfield 4] ATZ. Vertically it is adjacent to the London TMA.

I always try and follow the GASCo advice of take 2 miles laterally and 200ft vertically, so I was pretty interested in what might be out there to bump into. As a courtesy, I elected to call the number given to see if they were operating. The person's tone at the other end was demeaning, became insulting and finally threatening by demanding my details because they were going to immediately contact the CAA. As the conversation had become threatening, I advised I would not continue and terminated my call. I'm glad I was operating as a rear-seat pilot not as P1 because by this point I was thoroughly irritated and distracted.

Their understanding of NOTAM use and the rights they give is different to mine. They considered that: the NOTAM had been raised by the CAA to protect my life (if in error I apologise but I thought NOTAMs were raised by the originator); I was not permitted to fly through that airspace; there is no requirement for the drone operator to maintain lookout; the drones are not required to be kept in line of sight; they had no concept that they were also responsible for separation and avoidance action; in no uncertain terms they advised that I should hold outside their airspace and climb above before proceeding; they could fly their large heavy drones 24/7 with no consideration of other airspace users; and they had no requirement to manoeuvre away should they sight an aircraft.

I remain certain much of the above is not true. I believe the size and use of this NOTAM'ed airspace is inappropriate and have raised that direct with the CAA.

CHIRP Comment

This report highlights misunderstandings that might exist about NOTAMs versus restricted areas and TRAs. Although published by NATS on behalf of the CAA, NOTAMs are compiled by the requestor of the activity. In this particular case, the NOTAM was a navigation hazard warning with no requirement to avoid it although sensible to do so given the activity likely to be conducted within with small models/drones. For their part, those operating drones/UAS within such NOTAM'ed areas still have a duty to avoid collisions with other aircraft and so they must maintain visual contact with their drone/model at all times – all airspace users have a duty to avoid collisions and must give way to aircraft to the right of their own. Given the often small size of drones/models, there is extra importance in drone/UAS operators avoiding aircraft that they see given that their drone/model will likely be very difficult to detect by an aircraft pilot. In short, unless specific arrangements have been made to operate BVLOS[1] (which requires a TRA at present), a model/drone operator is required to maintain lookout (either themselves or by an observer if using FPV[2]) and must keep any model/drone within their line-of-sight.

[1] BVLOS – Beyond Visual Line of Sight.

[2] FPV – First-Person-View, i.e. using heads-down video or virtual reality goggles.

The NOTAM itself was poorly drafted with a number of errors in heights. The upper limit was erroneously described as the surface altitude in one part and 2500ft agl in another (implying a top height of 3200ft amsl). The intended top-height was 1500ft agl (2200ft amsl) and this was corrected in a subsequent issue of the NOTAM. Whilst we're all prone to mistakes and errors at times, it shows the importance of understanding the NOTAM compilation process and double-checking any entries to make sure they are correct. NATS have produced NOTAM Guidance Material (see also QR code), wherein Paras 3.2 and 3.3 (reproduced below) give an explanation of how to decode NOTAMs. Although many electronic navigation and planning aids do this automatically for users, those compiling NOTAMs need to understand the various entries and what they mean.

Finally, the 3Cs of Caution, Consideration and Courtesy to others should be our watchwords in aviation. There's nothing to be gained from being rude or obstructive when people query or ask for further information about a NOTAM, a confrontational tone only causes stress and distraction to others.

NATS NOTAM Guidance Material **referred to in this report**

3.2 NOTAM Format

NOTAM are required to conform to an explicit template. Using the example below, an explanation of the format follows:

- A1234/14 NOTAMN
- Q) EGTT/QMRLC/IV/NBO/A/000/999/5129N00028W005
- A) EGLL
- B) 1408231500
- C) 1409310500
- D) 1500-1600, 0430-0500
- E) RWY 09R/27L CLOSED DUE WIP

3.3 The NOTAM Construct:

A1234/13 represents the NOTAM Series, followed by a sequential 4-digit number, followed by two digits to indicate the year. (Max 9999/YY).

NOTAMN Indicates this is a new NOTAM. Other options are R for NOTAM replacing another or C for one cancelling another. Replacement NOTAM can only be used to replace a NOTAM that is already in effect.

Q) EGTT/QMRLC/IV/NBO/A/ 000/999/5129N00028W005

The Qualifying line, or Q Line, is an AIS tool used to categorise the NOTAM according to its scope. It consists of up to eight fields separated by a stroke (/) comprising FIR, Q Code, Traffic, Purpose, Scope, Vertical Limits, Co-ordinates and Radius.

EGTT is an ICAO code, identifying the (London) FIR to which the NOTAM refers. Should the activity take place in more than one FIR then the code EGXX is applied and the specific FIRS affected are inserted into field A of the NOTAM

QMRLC is a 5 letter NOTAM code identifying subject and status. In this case **MR** is a Runway, **LC** indicates a closed status. **IV**indicates that this information is significant for both IFR and VFR operations while **NBO** indicates a message for immediate attention, for inclusion in a PIB and operationally significant.

A represents the scope which in this case is an Aerodrome NOTAM as opposed to an EnRoute **E** NOTAM or Navigation Warning **W**. Combinations **AE** and **AW** can also be applied according to the subject being described.

000/999 represents the lower and upper limits expressed as a flight level. In this case it is left as a default as it is not applicable.

5129N00028W005 is the 'Centre point' using degrees and minutes followed by a radius of influence. In this case the default value of 5NM has been applied based on the aerodrome ARP. A default radius of 999 is applied for NOTAM that cannot be associated to a specific area and for those that affect the whole FIR.

Position (Where)

A) EGLL is the ICAO code of the aerodrome (Heathrow). While it is possible to insert more than one FIR into this field, it is only possible to enter one Aerodrome. This means that separate NOTAM are required if the impact is on two or more aerodromes.

Effective from (Begins)

B) 1408231500 is the Date/time group in UTC when the NOTAM becomes effective. Year, Month, Day, Time. NOTAM used to replace or cancel other NOTAM can only be issued With Immediate Effect (WIE) and cannot have a future effective (start) date.

Effective until (Finishes)

C) 1409310500 is the Date/time group in UTC when the NOTAM ceases to be effective. Temporary NOTAM shall exist no longer than 90 days.

Where an expiry date/time can only be estimated EST may be included in Field C for temporary NOTAM. Sponsors shall take action to cancel or replace the NOTAM before the EST expiry time.

Planned Schedule (Optional)

D) 1500-1630, 0430-0500 this provides the opportunity to describe a schedule of events within the effective date of the NOTAM. This is particularly useful for events that take place over a period of days or weeks. Irregular schedules that do not meet certain criteria will have to be described in the plain language part of the NOTAM

Plain Language (Free-text)

E) RWY 09R/27L CLOSED DUE WIP is the textual part of the NOTAM indicating that Runway 09/27 is closed due to work in progress.

This item describes the 'subject' and 'condition' and is probably the most important part of the message. The information should be explicit giving the reader the ability to quickly assess the impact to their operation.

Start with a 'headline' to describe the subject and event e.g. RWY...CLOSED, TWY... WIP, DANGER AREA ... ACTIVATED, FREQUENCY ... U/S. After which supplemental information may be considered to describe the impact.

Avoid information that may be considered as 'nice to have' or complementary. Use internationally recognised abbreviations (as per ICAO Doc 8400) unless their use creates misunderstanding. A list of abbreviations is available in the General (GEN) section of the AIP but note that National abbreviations (in italics) cannot be used for NOTAM.

Use of Coordinates

If there is a requirement to describe an area or polygon, the provision of coordinates Degrees/Minutes/Seconds shall be used e.g. 521049N 0012035W. When describing an area repeat the first coordinate in full to close the polygon.

Supplementary Information

The judgment needed to assess the extent of information required in a NOTAM can be problematical. Too much information can serve to overwhelm the reader, whereas not enough information will fail to provide them with an opportunity to assess the impact on the operation.

Guidance in composing the text of a NOTAM can be obtained by contacting the NOTAM Office directly to establish that the proposal clearly captures the objective.

Vertical Parameters

F) & G) describe lower and upper limits. They are not used for Aerodrome NOTAM scoped A; however, they are used for airspace notifications such as navigation warnings, airspace reservations and Danger Area activities. The sponsor should ensure that appropriate values are included in the NOTAM proposal e.g. FL090, 3000FT AMSL.

When the values in Fields F and G are expressed as a flight level (FL) or altitude (AMSL) the associated FL values will also be applied in the Q Line. It is recommended that the use of AGL is avoided in fields F & G, as it demands a calculation based upon the highest terrain elevation for the region or FIR.

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 – caused by confrontational tone of communication.

Knowledge – understanding of NOTAM relevance and meaning.

Communication – erroneous NOTAM; confrontational tone of communication.

Communication | Knowledge | Stress

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