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Common themes, common problems

Six key issues that provide food for thought



Steve Forward
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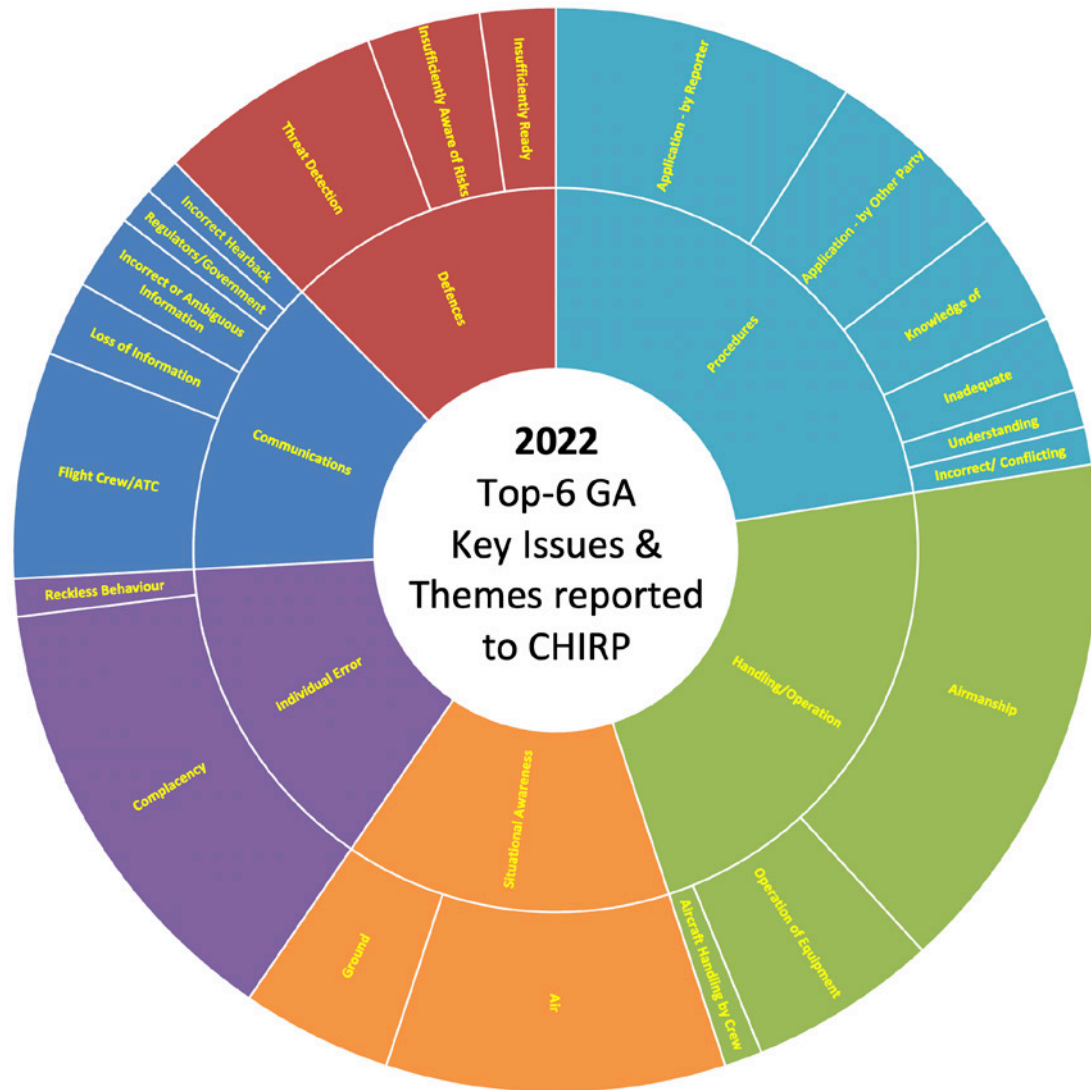
By the time this edition of FEEDBACK is published the year will be coming to an end and it'll be a good time to look back at what has happened in 2022.

Of the 550 reports that CHIRP has received in total to date (mid-November as I write this), which includes commercial aviation etc, there were 24 GA and 10 ATC reports. This probably reflects a slow start to the year's GA flying post-pandemic and represents about half the level of GA reporting that we would expect in a 'normal' non-COVID year.

In particular, GA reporting has markedly tailed off since the summer for some reason despite it being one of the best flying seasons for many years in weather terms. CHIRP doesn't have access to any statistics for flying rates with which to normalise these figures and so we can't determine whether there was simply less flying so fewer incidents, fewer Human Factors events from similar flying rates (unlikely given the impact of previous COVID-related lack of recency), or just a reticence to report for whatever reason.

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Although we need to take care in extrapolating data from the relatively small number of reports we did receive, we can still draw some valuable themes to help us think about future safety. The sunburst diagram shows the top-6 key issues reported to CHIRP; Procedures, Handling/Operation, Situational Awareness, Individual Error, Communications, and Defences. Within these 6 key issues, the most common themes provide food for thought.

Application of **Procedures** is one area where, on the face of it, we could do better. Procedures are there to prevent errors and are one of the strengths of the aviation safety culture in making sure we all do the right thing the right way. Although there will always be situations that don't quite fit, procedures provide the hand-rail for us all to use as the basis for our operations so perhaps now is a good time to dust off those operating manuals during the winter months and refresh ourselves on the way things should go.

Airmanship and Situational Awareness generally go hand-in-hand, it's very hard to exercise good Airmanship without good Situational Awareness and vice-versa. But what is 'good Airmanship'? The CAA [Safety Sense Leaflet 01](#) (about to be re-issued I understand) has plenty of good tips and advice but, for me, Airmanship is much more than just experience; it's akin to wisdom: an attribute built from careful thought, listening to others and the application of the 3Cs of Caution, Courtesy and Consideration for others.

Complacency featured quite regularly in the reports sent to us, and mostly self-identified with humility by those who reported. Ranging from a lack of thoroughness in planning or the use of checklists to an assumption that 'it'll be alright on the night', complacency is another area where we can examine our own actions and, if we ever find ourselves glossing over important details or not paying attention to threats that we might identify because it's inconvenient to change our plans, then that's the time to stop, review what's going on and make sure we really have covered the essentials of Threat and Error Management (TEM).

Complacency (equivalent to making the error of not doing something in TEM terms) also has parallels with how we deal with **'Defences'** (aka mitigating risks) where we can see that 'Insufficiently Ready', 'Insufficiently Aware of Risks' and 'Threat Detection' were all areas that could have been improved in 2022.

Finally, the perennial **'Communication'** theme was ever-present. Ambiguous passage or misunderstanding of information is why we have a lexicon of pro-words and phrases intended to ensure that misunderstandings are minimised, so we must make every effort to use the right words at the right time rather than being 'cool' on the radio with slang, lingo and banter.

But the most important thing is to use the radio to pass/receive information for the benefit of ourselves and others on the frequency or simply ask questions when we're not sure. I'm not advocating hugely verbose R/T calls, but making the right calls at the right time is vital, and if you don't understand what is being asked of you or what is going on then don't be incurious or proud, ask the question in plain language to gain that situational awareness and give a boost to that airmanship.

If nothing else, a few quiet moments thinking of those 6 themes before each flight would be a useful way of spending a few minutes, and even better, another few minutes after each flight as well to honestly review your performance and log away some personal lessons for the next flight.

Safe flying in 2023,

Steve Forward, Director Aviation

COMMENTS ON PREVIOUS FEEDBACKS

Comment No 1

Regarding FEEDBACK Edition 93, another informative edition - thank you (all), it's the one aviation production I read immediately and cover to cover. Report No 4 [GA1317 - Mag Switch found selected to 'BOTH' with key removed] is so important. Hereon I will cease my practice of checking the prop until I have uncovered our plane and checked the keyhole!

More generally, in the last few years I have been astonished at the proliferation of photos of pilots by props. Even one showing one of the presenters of the CAA's safety seminars: not only was the photo shoot unsafe - doubtless longer than a quick snap - but such photos disseminate the belief - subliminal which is worse - that props are benign. CHIRP does an essential job well.

CHIRP Response: Thank you for your kind words about our work, it's always a pleasure to know that our newsletters are being read and important lessons taken onboard.

'Always treat the propeller as live' was drummed into me from day one of my pilot training and even now I'm always hugely cautious when going near one so your comments certainly resonated with me. There are plenty of photo opportunities elsewhere around an aircraft so avoid the propeller arc at all times when it's not necessary to be near to it - without wishing to overstate the hazard, propellers can be dangerous things so why increase your personal risk for no reason?

Aircraft magnetos work such that the system is 'live' unless they are selected 'off' (i.e. grounded) and so the engine will fire if the propeller is turned and the magnetos haven't been selected to 'off'.

Comment No 2

Congratulations on producing another excellent GA FEEDBACK - some really good 'added value' stuff from the CHIRP team in Edition 93. This prompted a couple of thoughts on two of the items in particular:

Report 4 (GA1313) - Reduced power on take-off due to selection of only one magneto. I have come across this myself and is a potential problem for instructors where the magneto key barrel can sometimes be 'hidden' behind the yoke when viewed from the right-hand seat.

For some years now I have been teaching my students (and anyone else who will listen) to adopt the following when conducting the pre-flight 'mag checks'. Simple "TWO clicks LEFT - back to BOTH...then ONE click LEFT - back to BOTH". This makes it much less likely that the key will be returned accidentally to leave only 1 mag selected, with all the consequences for reduced power during the take-off run.

Report 5 (GA1318) - IMSAFE mnemonic. You probably already know that there are a number of different versions of this mnemonic. The version I have been using (not sure where it came from - USA I think) replaces 'Eating' with 'External Pressures' for the final letter E. I like it because it brings the risks of 'get-home-itis/get-there-itis' to mind as a consideration during the pre-flight planning stage in particular.

CHIRP Response: This edition of FEEDBACK has another report where only one magneto was selected for takeoff (Report No.7 - GA1332). Whilst 2 incidents doesn't make a trend, perhaps it's time for all of us to think about how we conduct that vital check before takeoff so that we don't inadvertently put ourselves in a situation where we're getting airborne with only half the ignition system working.

As for the IMSAFE mnemonic, we agree and would also like to see it expanded to cover the state of mind of the pilot about to go flying too; our suggestion is 'IAMS SAFE' because that allows for 'Eating' (i.e. nutrition) to remain, whilst the additional 'A' for 'Attitude' and 'S' for 'Stress' should prompt people to consider external pressures and how they are approaching their flight that day.

I - Illness (do I have any symptoms that might affect my ability to fly?)

A - Attitude (am I emotionally ready and fully focussed on the flight?)

M - Medication (am I taking any prescription or over-the-counter drugs that might affect my performance?)

S - Stress (am I under pressure or have any worries and anxieties?)

A - Alcohol (have I been drinking within the last 24 hours?)

F - Fatigue (am I tired or not adequately rested?)

E - Eating (am I adequately nourished?)

Comment No 3

As a private and commercial airline pilot, I want to say that I thought your article 'The problem with Threats and Errors' in GA FEEDBACK Edition 93 was very well written and interesting to read. As a 'commercial pilot', I am of course very familiar with TEM but it is so good to see this becoming increasing prevalent within GA. And the new CHIRP digital format is also great. So essentially this email is saying, keep up the good work, it is vital to keeping us all safe.

CHIRP Response: We're grateful for all forms of feedback on our work, be it plaudits or brickbats, so thank you for taking the time to contact us. TEM is an important tool in the safety toolbox but it has to be used honestly and it's outcomes acted upon – there's no point identifying threats and then doing nothing about them because 'it'll probably be alright'...

Reports

Report No.1 – GA1320 – Student EC rebate eligibility

Report Text: The CAA is to be applauded for instigating a scheme for a rebate towards the cost of an EC device. This (I understand) has recently been extended. However, the rebate is only available to existing licence holders or aircraft owners.

As Head of Training for a progressive ATO, I have been asked by several student pilots if they could be eligible for the EC rebate, since they can see the huge benefits of such devices. In fact, some have taken the "alternative route" and actually coerced an existing licence holder to make the rebate application on their behalf where the licence holder has chosen not to purchase the device (for either financial or privacy reasons)!

The current rebate eligibility criteria (in my view) is a barrier to flight safety, and the scheme should be extended to allow student pilots to participate for the following reasons (which also counter some of the foreseen arguments "against"). I offer the following observations:

1. Increasing the EC population will only help achieve the EC goal – the more aircraft that are equipped, the greater the resolution of EC.
2. By extending the scheme to student pilots who have obtained a CAA reference number the scheme has an audit trail in still only allowing one rebate per person.
3. By offering the scheme to student pilots, it allows the training organisation to integrate such devices into the students' flight training to ensure the device (along with moving map technology) is used effectively and within context. In particular to avoid the situation of "eyes in the cockpit too much", and the limitations of EC at the present time (not all aircraft will be observed).
4. In addition, best practice can also be taught, such as configuring the devices to provide aural warnings via Bluetooth which also counters any Threats and Errors associated with a perceived "down-side" of using such devices. Personally, I have incorporated all of these into

our ATO PPL syllabus so all students get trained as a matter of course in these devices at our organisation.

5. Even if a student pilot "just" uses the device to provide EC "out" it would enhance the visibility of that student aircraft including giving more situational awareness to existing EC users of a student's actions (which may or may not be in accordance with standard practices)!
6. Hindsight is a wonderful thing. Perhaps it would have been better placed to offer the scheme initially to students in any event to ensure training in the use and best practice of the device was undertaken. At present, there will be many pilots using devices falling into the trap of relying on EC in its entirety and with a consequential lack of "lookout".
7. Perhaps a better option would be to offer the rebate scheme to anyone who holds a CAA reference number, and can provide proof of training in the device for the reasons above!
8. In the current financial climate, with increasing fuel and insurance costs (to name but two), it is highly unlikely that a training organisation itself will spend the money on equipping their fleet of aircraft with EC. Hence, individual use of EC should be encouraged, and not limited in its present form.
9. Existing licence holders and aircraft owners have already had ample opportunity to partake in the scheme, so opening the scheme up to include those detailed above would not be retracting the funding for those it was initially offered to. Indeed, if the scheme has been extended due to the lack of uptake and the existing funds still being available, then this also signifies the eligibility should be widened.

For all of the reasons above, I would urge the CAA to extend the scheme as detailed above, and would encourage all training organisations to embrace (and hence include in their training programmes) new technologies that pilots will make use of once they have gained their licence – whether trained in their use or not!

CAA Comment: The CAA administers the rebate scheme for the DfT. Amendments to eligibility therefore sit under their authority. We have, in the past, raised the issue of funding students for equipment but the DfT have not taken our suggestion forward.

DfT Comment: In the short-term, we are not in a position to extend the scope of the scheme to individual students, but could look at this again next March (2023) when the current scheme ends. However, we are supportive of clubs and training organisations using the rebate scheme to purchase EC devices and recognise the safety and best practice benefits this offers to those in training, so this could be a way forward in the interim.

CHIRP Comment: The introduction of EC equipment has potential to be one of the biggest contributors to aviation safety in recent years. CHIRP agrees that it would be highly desirable for students to be included in the EC rebate scheme so that they had the guaranteed opportunity to gain familiarity with such equipment under the guidance of an instructor if the aircraft they were using was not otherwise equipped.

With this in mind, CHIRP is a bit underwhelmed by DFT's response and have written formally to DFT (info CAA) to represent this view and urge that they consider including students in any future review of the rebate scheme. In parallel, we'd urge clubs, training organisations and aircraft owners to explore the use of the EC rebate to equip their aircraft.

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 – inability of students to access the EC rebate scheme.

Awareness – use of EC to improve awareness of aircraft in their vicinity.

Report No.2 – GA1322 – Windy taxi

Report Text: The TAF for nearest airfield included wind W/ SW 25 gusting 40 and the ATIS was 250 36 G 42. Landed on RWY27 uneventfully but on taxiing past hangar just prior to shutdown, a gust caused a wing to lift and the propeller touched the ground. Engine required shock-load inspection.

Wind gusts locally may have been exceeding 60 knots. Normally fly PA-32, but have considerable experience in C172. PA-32 probably would have been OK due greater mass, lower wing and wider track. I failed to allow for this in planning but fundamentally the forecast was not reflective of the actual conditions.

Lessons learnt: weather may be worse than forecast - be cautious. Failure to psychologically account for the lighter aircraft than usual (C172) with higher wing and narrower wheel track than in PA32. Don't be complacent!

CHIRP Comment: We're grateful to the reporter for giving us this frank and open report, and for their self-critical assessment of lessons learned.

Given the gusty conditions forecast, they probably shouldn't have operated the aircraft anyway but if you are operating in gusty or windy conditions then don't just think about how to manage the take-off or landing but also think about the taxi as well. Funnelling of wind between hangars and other structures is a known issue and should be considered as part of a pilot's TEM considerations in gusty/windy conditions.

This can be a particularly significant issue for high-wing aircraft or tail-draggers, both of which can be more prone to the effects of gusty wind conditions on the ground. If you are taxiing in gusty conditions then also think about placing the control column in an appropriate position to counter any gusts.

Finally, note that forecasts of gusts are not amended until they exceed the current gust forecast by 10kts or the mean speed by 15kts (see Met Office guide '[What TAF values really mean](#)'), so gusts might be 9kts higher than in a TAF before it is changed and so this should also be considered in TEM assessments.

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 – assimilation of the risks associated with gusty wind conditions.

Knowledge – understanding the potential for gusts to be greatly in excess of the TAF (by up to 9kts).

Complacency – not preparing for the conditions that were encountered (or might be encountered).

Report No.3 – ATC829 – A/G operator

Report Text: I have worked at [Airfield] for some time. We sit very close to some busy airspace and do not have an ATZ. During my time here it has been noted that there is a particular A/G operator who likes to 'control' aircraft on the ground or in the air.

This is especially evident when emergency service aircraft call with priority call signs, whereby this individual will hold aircraft around the airfield, but also fairly regularly call aircraft to go-around or perform non-standard turns in order to try and fit in departure of the helicopter.

There have been multiple occasions where this has happened but very recently a solo student was told to go around and make an early right turn, something which myself and my colleagues feel is inappropriate and potentially hazardous.

Over the years we have spoken to the operations team and the individual to indicate our willingness to arrange our own flight path around the traffic at the time, but this always seems to fall on deaf ears as the problem persists. Only yesterday, he was strongly suggesting an aircraft depart from the intersection when the pilot had requested a full backtrack. Luckily the pilot responded that it was captain's discretion to use the full length of the runway, and not a solo student who may have taken this advice with unknown consequences.

Airfield Operator's Comment: I am aware that we have had reports that one of the A/G operators is giving instructions to pilots. As a result the team have been reminded that they should be giving information only.

CHIRP Comment: The temptation for A/G operators to want to choreograph movements at busy airfields is understandable but this must be resisted because A/G operators may not be aware of the full context of the operation or may not have the competencies to assess the situation and make associated decisions.

The main documents that outline the roles of FISOs and A/G operators are [CAP774 \(UK FIS\)](#) and [CAP452 \(Aeronautical Radio Station Operator's Guide\)](#) Chapter 4 (and its recent [supplementary amendment](#) update to requirements for Radio Operators Certificate of Competence (ROCC)). For avoidance of doubt, Section 6 of the [Skyway Code](#) states that:

Air/Ground (A/G) radio is the most basic form of radio ground station you will encounter at an aerodrome. Depending on the individual station, the operator of an air/ground radio may provide traffic and weather information to pilots operating on and in the vicinity of the aerodrome. Such traffic information is based primarily on reports made by other pilots. While information provided by the radio operator may be used to assist a pilot in making a decision, the safe conduct of the flight remains the pilot's responsibility.

The radio operator has no power to issue clearances or instruct aircraft either in the air or on the ground. In the A/G radio environment you must not request a "clearance" to do anything, nor will you receive one.

The callsign is the name of the location followed by the suffix "Radio". When operating in the A/G environment, the basic principle is that aircraft announce their position and separate themselves from other aircraft in accordance with the Rules of the Air and any published aerodrome procedures. Only carry out a manoeuvre (such as taxiing, take-off or landing) if you are satisfied it is safe to do so and will not conflict with other traffic.

Pilots need to be clear in understanding what they can expect from the service provider they are talking to at the time, be they an Air Traffic Control Officer (ATCO), AFISO or A/G Operator. CHIRP is heartened that the Airfield Operator has reminded their team of the limitations of their service but there remains confusion in some minds as to prioritisation of emergency service aircraft.

Although ATCOs have defined priorities for handling such aircraft in controlled airspace (see CAP493 Section 1 Ch 4 Para 10C), these priorities do not extend to Class G airspace and its associated requirements for giving way. Although A/G Operators can provide information about emergency services aircraft they must not pass instructions – if an incident were to occur following any such instructions, Airfield Operators should understand that they may hold liability.

CAP493 Section 1 Ch4 Table 10C.1

Flight Priority Categories

Controllers shall give priority to aircraft according to flight priority category listed below, where category A is the highest priority and Z is the lowest priority.

Table 2:

Category	Type of Flight
A	Aircraft in emergency (e.g. engine fault, fuel shortage, seriously ill passenger). Aircraft which have declared a 'Police Emergency'. Ambulance/Medical/Search and Rescue aircraft when the safety of life is involved.
B	Flights operating for Search and Rescue or other humanitarian reasons. Police flights under normal operational priority. Post-accident flight checks. Other flights, including Open Skies Flights, authorised by the CAA.
C	Royal Flights Flights carrying visiting Heads of State } which have been notified by NOTAM/Temporary Supplement
D	Flights notified by the CAA carrying Heads of Government or very senior government ministers.
E	Flight check aircraft engaged on, or in transit to, time or weather critical calibration flights. HEMS/Search and Rescue positioning flights. Other flights authorised by the CAA.
NORMAL FLIGHTS	
	<ul style="list-style-type: none"> Flights which have filed a flight plan in the normal way and conforming with normal routing procedures. Initial instrument flight tests conducted by the CAA Flight Examining Unit. (RTF callsign "EXAM")
Z	Training, non-standard and other flights.

Although it is best practice to give way to emergency services aircraft where possible (much the same as when driving and pulling onto the side of the road to allow an ambulance to pass), it is not a requirement per se and the emergency services aircraft itself must still abide by the rules of the air in respect to giving way.

Finally, it is worth noting that PPL holders are not necessarily expected to know what the prefixes to emergency service aircraft callsigns mean. For information, the table shown outlines what is stated in CAP493 at the above link so if you hear an emergency services numeric callsign that ends in 'Alpha' then be aware that this means that it is carrying out an emergency/safety-of-life flight at the time.

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 – desire to facilitate emergency services operations at the airfield.

Knowledge – understanding of the limitations of an A/G service.

Communication – inappropriate communication of instructions.

Deviation – issuing instructions counter to the permitted level of service.

Report No.4 – GA1321 – Dual-reading ASI

Report Text: As a retired but active pilot and flying instructor I still fly many different types. The gliding club at which I fly and regularly tow operates several tug aircraft, but the particular aircraft of this report is less fuel efficient and is now effectively only used as a backup on very busy days. I had flown it many times but not recently.

On a particularly good soaring day, the primary tug, which is a fully equipped modern light aircraft, was in full use. I offered to carry out a few tows in the aircraft in question to reduce the queue of waiting gliders (I had carried out the daily inspection on it earlier).

The tow appeared normal to me but on final approach the stall warning sounded at a higher speed than I expected. On the second tow the glider pilot radioed to say he required more speed. Only after releasing the glider did I realise that I had been reading the speeds marked on the prominent outside ring of the ASI markings as knots, although the knots were on the inside ring and the outside was in mph. Matters were compounded because I had recently flown and towed in an aircraft of the same type with an ASI marked in knots only.

CHIRP Comment: It doesn't matter how experienced you are, there's always a little trap to fall into, and this one is a classic Human Factors outcome from operating different aircraft with different instrument displays. It's easy to be clever in hindsight about mentally preparing

for and considering the differences in aircraft but it's easy to overlook small things like ASI markings which might not be immediately obvious.

If you regularly change aircraft during the day as an instructor then there's a risk of complacency and habituation so there may be a case for a memory-jogger in aircraft that have peculiarities compared to other aircraft in the fleet. Nevertheless, you need to know your aircraft, especially if you're jumping between different aircraft on a regular basis, so give yourself a couple of minutes to consciously familiarise yourself with the aircraft, its systems and its performance, especially at the end of the day or when under pressure - the Human Factors risks with aircraft having different displays or configurations must be consciously countered no matter how experienced you are.

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 – desire to reduce the queue of gliders.

Awareness – did not assimilate the meaning of the ASI markings.

Complacency – habitual behaviour from other aircraft.

Report No.5 – GA1324 – Incorrect pressure setting

Report Text: I was the instructor checking out an experienced pilot on a Cessna 152 at [Airfield]. We briefed the flight and we needed to do some stalls that ideally required an altitude of at least 3500ft in order to recover by approximately 3000 ft AGL. The cloud base from my previous sortie suggested that this may have to be done between breaks in the cloud or above the cloud layer.

The pilot being checked-out completed all external and internal checks and we departed the circuit and climbed out to the North West under the CTA with a base of 4500ft and 5500ft AMSL. We climbed up to around 5000ft under the base of 5500 leaving sufficient space.

The stalls and steep turns were completed and occasionally the altimeter read as high as 5200ft. I noted that GPS integrity was lost during the steep turns and awaited for it to return before descending back toward the airfield. I was using the small moving map on the installed electronic navigation system and confirming the boundaries against a current map rather than using SkyDemon as I would in my own aircraft. Alerts for approaching airspace were set to appear but no aural alert was set.

Noting our position I did briefly take control to hasten the descent as we approached the lower CTA with a limit of 4500ft. As we continued back towards the airfield, I briefed the pilot to complete a standard overhead join at 2000ft AGL. At that point I checked the pressure setting on the altimeter to discover it was still set on QFE and hence realised that we had probably been at least 400ft higher than indicated and had potentially been inside the CTA by around 100ft or so. We completed the remaining aspects of the flight without incident.

I phoned [Airport] on landing and they confirmed that they had not identified any infringement over the last hour or so in that area. They confirmed with the CTA controlling authority that they also had not identified any infringement during the same time period.

So on this occasion it would appear that my decision to try and maintain a margin of 500ft had prevented an infringement caused by a 400ft error in the altimeter indication due to the incorrect altimeter setting. I was relieved but annoyed as earlier in the same week I had watched the GASCo seminar on airspace infringements and I had previously set the altimeter to QFE to aid the previous student's knowledge of the height during a circuit. I had failed to notice the licensed pilot on my next flight had not taken off on QNH which is my preferred method of operation.

Lessons learnt:

1. All pilots are different and some will depart on a QFE. As an instructor I should have monitored the completion of the checklist better, double checked the altimeter setting and then discussed the merits of whether to depart on QFE or QNH.
2. Despite the broken nature of the cloud coverage it was higher than I thought and I lost a degree of situation awareness. Whilst I utilised the simple map on the installed GPS, I did not utilise the better display of my SkyDemon in order to check my positioning.
3. Prior to flight I did not complete a TEM briefing nor a proposed outbrief which may have helped increase awareness of the altitude and airspace risk.
4. As a new instructor, flying with a more experience pilot can lead you into a false sense of security and belief that the pilot flying will do everything correctly or as I would.

I guess on further reflection I learnt that whilst checking out an experienced pilot I should watch everything they do and treat them as a student. I watch my students doing checks but didn't double check his checks. As P1 I guess I learnt that it's my licence at stake not theirs!

CHIRP Comment: Firstly, might we commend the reporter for his frank and honest report, and for allowing for a margin of error when operating under controlled airspace. The latter probably saved the day and further reinforces the value of the 'Take 2' campaign of leaving a margin for just such eventualities.

As the reporter comments, instructors/examiners need to be very careful about making assumptions about other pilots' capabilities regardless of their experience levels and so it's important that thorough briefings are undertaken, including what altimeter setting will be used for take-off and when it will be changed, and to what, if getting airborne on QFE.

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 – did not assimilate which setting the altimeter was set to.

Communication – pre-flight briefing and in-cockpit communication between the crew.

Complacency – habitual behaviour and assumptions based on student/check pilots experience..

Report No.6 – ATC825 – Use of Guard channel for practice PANs

Report Text: As a commercial pilot I wanted to raise the issue of use of the guard VHF channel (121.50) for practice PANs, generally by GA aircraft. When flying across Europe, as a standard procedure my airline stipulates that we maintain a listening watch on the guard frequency, and rightly so. When this frequency is used by GA users for practice pans it adds to our radio traffic and we are often forced to stop listening/turn down our “box 2” in order to maintain situational awareness and comms on our primary ATC frequency.

My concern is that we therefore often forget to listen in again on the guard frequency after we think the practice PAN has finished, which means we could potentially miss genuine emergencies and attempts to contact us through loss of comms procedures. GA pilots need to be aware that every time they conduct a practice PAN they are being heard by commercial pilots and are blocking the emergency frequency for that time.

I would respectfully suggest that an alternative frequency be assigned and used for practice pans so that 121.50 can be used for genuine emergency and loss of comms situations.

CHIRP Comment: The issue of practice PANs causing problems for those who are required to listen out on Guard is not new and CHIRP has previously sought ways to introduce a training frequency for Practice PANs but this has foundered before because of lack of available frequencies. However, with the advent of 8.33kHz frequency spacing, more frequencies are now available and so there may be scope to address this again.

CHIRP have engaged with the CAA and MAA on the possibility of setting up such a frequency but there will undoubtedly be hurdles in the way, not least of which being the cost of setting up the same auto-triangulation facilities that exist with the Guard frequency. We will continue to engage on this issue and would be interested in the views of the GA community regarding setting up a VHF Practice Emergency Training Frequency (PETF).

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 – other pilots being distracted by calls on Guard.

Communication – potential loss of communication by turning down VHF Guard frequency volume.

Report No.7 – GA1332 – Take-off with one magneto

Report Text: As part of the power checks before take-off, I checked the RPM drop on both mags. The mag selector is a rotary key type switch. Whilst performing this check I accidentally rotated the key to both mags off. As I heard the engine dying I quickly turned the key to switch the mags on before the engine stopped. My main concern was that the engine requires starting by hand-turning the propellor, and I didn’t want to go through this procedure, particularly near the threshold of the runway.

On completion of the checks I lined up and began the take-off run. Immediately I noticed a roughness in the engine, which was about 200 RPM below what I expected. The runway was long and the aircraft eventually became airborne with a reduced rate of climb. I decided to continue into the circuit and return to the airfield. On the downwind leg I noticed that the mag switch was at magneto 2 only. I turned it to both and full power was restored. I continued the flight uneventfully.

I had recently converted to this aircraft. My previous type had separate magneto switches which provides a clearer visual picture of the magneto states than a rotary key switch. Furthermore there are no markings to indicate “off”, “mag 1”, “mag 2”, “both” on this aircraft.

Lessons learned: Do not ignore poor engine performance during take-off. The runway was long enough to have done a safe abort and investigate the problem before becoming airborne. If a problem or distraction occurs during checks, repeat them from the beginning.

CHIRP Comment: This is the second report we’ve had this year about pilots getting airborne with only one magneto selected and we repeat our comments below from the previous edition of FEEDBACK. As the reporter identifies themselves, aside from the issue of potential distraction during checks or ‘press-on-it-is’ to get airborne, the main concern is not to ignore reduced engine performance during the take-off because it might be something much more serious and indicative of an impending engine failure.

For those who regularly fly the same aircraft, keeping a log of rpm achieved when selecting full power on take-off is good practice because it can give early indication of any developing problems. As an aside, be cautious about selecting magnetos back on with the engine rotating if ‘off’ is inadvertently selected because it can result in engine damage due to backfiring.

CHIRP Comment from Report GA1313 in Edition 93:

Although there are of course engine-specific tolerances for achieving maximum rpm during take-off, experiencing much-reduced rpm after applying full power is a serious issue that should immediately ring alarm bells.

The reduction in power could be for any number of reasons ranging from magneto failure, FOD partially obstructing airflow, or even imminent engine failure so, if there is sufficient runway available, pilots should consider immediately aborting the take-off in such circumstances and stay on the ground.

Although there was plenty of runway available in this instance, a good rule of thumb for assessing performance is to calculate the expected take-off run

required for the pertaining conditions and then identify a stop point 1/3 along this distance such that if the aircraft has not achieved 2/3 of the required airspeed by this point, the take-off should be aborted. If a problem like this is encountered shortly after take-off then don't forget the option may also be available to land ahead on long enough runways.

And don't be shy of speaking to ATC if you are trying to resolve an issue once airborne. Not only will it help them to make preparations in case you do need to return to the airfield, but they can also help you by advising of any other aircraft or obstacles in the area that might be a potential threat whilst you are heads-in trying to sort out the problem.

It's easy to be wise after the event about the thoroughness of checks etc but we are all human and sometimes make mistakes. The key thing is to establish why the check was missed in the first place. We don't know for sure, but could there have been distractions at that moment in time which might have caused the pilot to miss a part of the checklist and not ensure that the magneto selector was at both?

If you are aware or suspect that you've been distracted, disturbed or rushed during checks, best practice is to return to the start of the appropriate section of the checklist and start again. Also, when carrying passengers, brief them about the need for a 'sterile cockpit' at important times such as pre-take-off, take-off and landing so that there are no extraneous conversations that might cause such distractions.

Finally, this report demonstrates well that both magnetos are required for maximum engine performance, the second one is not there just in case the first one fails! One of the immediate actions on experiencing low power during the take-off or climb should be to check that both magnetos are selected on.

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 – press-on-itis to get airborne after a mistake in power checks.

Distraction – not fully completing the magneto test by not selecting them to both.

Complacency – continuing the take-off with reduced power available.

Report No.8 – GA1331 - Awareness

Report Text: On this particular day I was flying for the first time to an airfield some distance away, I had spent many hours viewing google maps of the site, and rehearsing different approaches and scenarios on arrival. I had specifically waited for a good VFR day. The site was by its own admission difficult to find with the added risk of gliders very nearby, and controlled airspace to the South.

I had got my aircraft out, refuelled it, and did my checks. Whilst I was doing this the airfield was coming to life, other aircraft being pulled out and started. I had done my start checks, and asked and got airfield information, I had then taxied to the runway intersection and held. My vision throughout the taxi to my left was restricted by tall corn or wheat growing. Another aircraft was on the other side of the intersection doing its pre-flight checks. At this point I decided to cross the active runway to also carry out my pre-flight checks, the other aircraft seemed to have finished its checks and had turned to come onto the active runway, though not on it.

From memory I think I called crossing the active runway. Two thirds of the way across, the shadow of ANOTHER aircraft taking off passed over me, which I was completely unaware of. I spoke briefly to the other aircraft and offered my apologies also speaking to him by telephone later that week.

I have looked carefully at the chain of events, and tried to find the point at which this near disaster could have been averted. My mind was very much focused on the long flight, to an unknown airfield, hence an early take off. My awareness of other aircraft was not clear, I had seen another aircraft taxi past me, whilst doing my own checks and had seen the same one I believed on the other side of the active runway. At the point of crossing the intersection I assumed there was only one aircraft ahead of me, I did not hear or did not receive a transmission of taking off from the other aircraft. I did not clear to my left before crossing the runway.

There is no doubt in my mind that the fault in this near miss is all mine. In retrospect, a visual cue of another aircraft on the active runway would have stopped me crossing, but the lack of view in itself should have made me stop and CHECK. My unknown cognitive assumption being the aircraft directly to my front was the only one ahead of me. In order, the chain of events leading up to this near miss was: 1) lots of focus on the flight itself, 2) anxious to get going, 3) missed radio calls? 4) not checking the active is clear, 5) being misled by your own visual cues.

CHIRP Comment: The reporter has identified the key lessons from this event, of which it seems that task-focus was the primary reason for not assimilating all the other cues. But the main lesson is that you must always visually check that a runway is clear in both directions before entering or crossing because radio calls can easily be missed (and some aircraft operate non-radio anyway) and so you can't rely on thinking you have a good mental picture about where the other aircraft might be on the ground or in the circuit.

In this case the tall crops might have initially obscured the view but there would likely have been opportunities to check the runway as it was approached.

Dirty Dozen Human Factors

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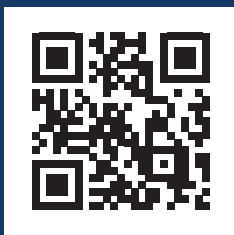
- Pressure** – self-induced pressure to complete the early take-off.
- Distraction** – task-focus on the flight’s challenges rather than the task at hand.
- Awareness** – did not assimilate that another aircraft was taking-off on the runway.
- Complacency** – did not fully ensure a clear runway before crossing.

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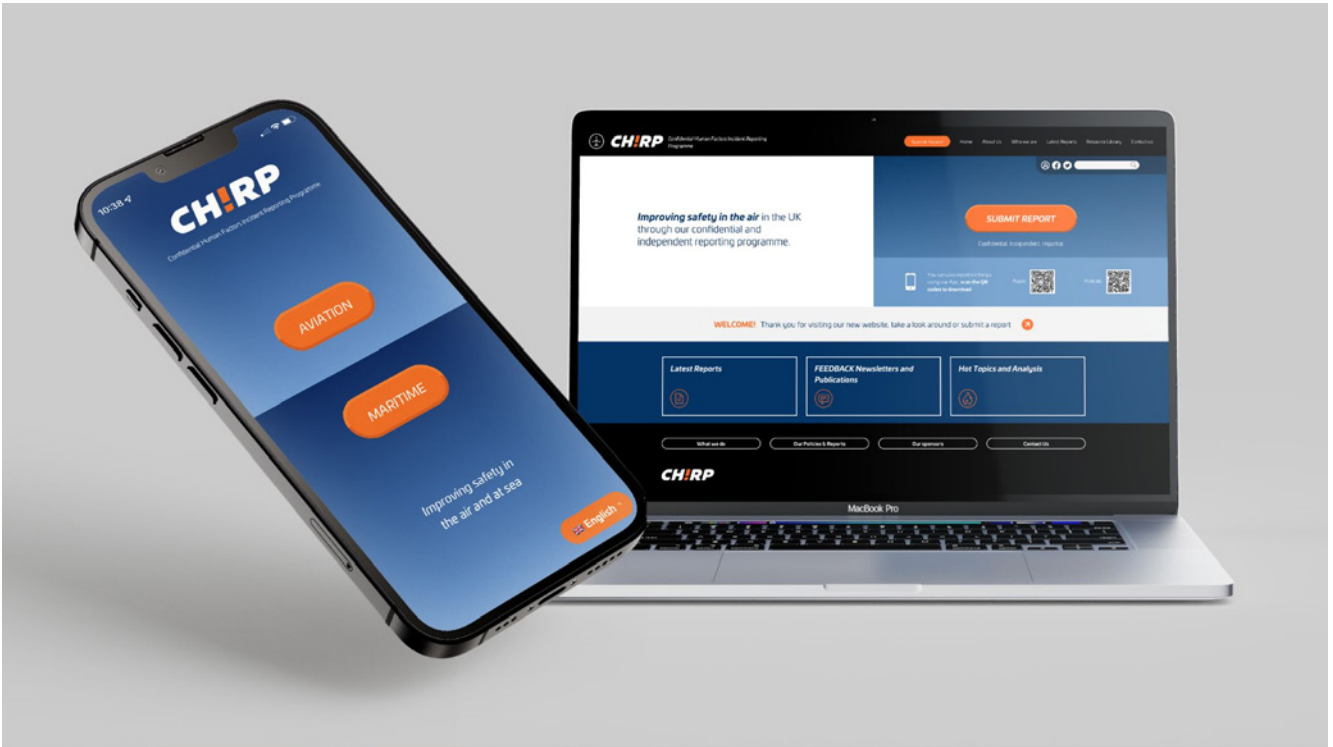
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