GA FEEDBACK

No: 19 **February 2004**

DOWNDRAUGHTS - A COMMENT

In GA FEEDBACK No.18 we published a report of an encounter with strong downdraughts in the lee of a range of hills. Subsequently, we received this comment:

I cannot help thinking that some gliding experience might have helped your correspondent consider an alternative decision, just after take off, which could have had a more beneficial outcome than that chosen.

Having several thousand hours of wave soaring mainly in North Wales and Scotland, I established a technique which in times of duress I never knew to fail, even when quite low. The rule is....

WHEN IN HEAVY SINK, TURN DIRECTLY DOWN WIND!

The logic of this decision is based on two factors.

1. Wind and air have a mass that cannot and does not disappear into solid ground.
2. For that reason an area of sink must be finite. Turning into and against the wind will result in a lengthy period exposed to the sink, before being able to exit that area. Low down it also takes you towards the rising ground. Alternatively turning down wind at an identical airspeed, results in a much higher ground speed away from the offending area and more importantly results in less time spent exposed to the sink.

For example 65knts minus say 25knts of wind = 40knts. Time to traverse 2n.m = 3mins. Whereas 65knts plus 25knts = 90knts. Time to traverse 2n.m = 1.4mins.

Of course care will be necessary if turning down wind near to the ground in a powered aircraft, but I maintain that the outcome will be more in your favour more often, as compared with turning into wind which seems to be the obvious and natural decision to take!

If the loss of performance is solely due to an orographic downdraught, turning downwind at a moderate bank angle is sound advice. However a safe margin above the aircraft's stalling speed must be maintained and remember the stalling speed increases in a turn.

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ENGINE GROUND RUNNING

In the last issue we highlighted the importance of Pre-flight checks in the safety-chain. Some non-normal situations, such as engine ground running provide additional traps for the unwary:

I was doing a five-minute ground run of my PA-28 (approx 1500rpm) when there was a loud bang and an out of balance propeller. "Blast!" I thought, "I've left the towing arm connected..." I immediately pulled the idle cut out and vacated the aircraft to inspect the damage. One blade was missing approximately one inch of metal and the towing arm lay some 10ft away. I never did find the prop fragment, it must have been travelling at about 280mph; luckily no-one was hit.

"How could I have been so stupid", I thought.

I should have known better as I work in flight safety and daily read reports of human factor errors. So what did I learn?

1. Always disconnect the towing arm after you have finished with it.
2. Always do a thorough walk around before any engine start - even for a 5min engine run.
3. Don't let people distract you from the job in hand.
4. When pilots shout "clear prop" don't just think that you are clear, but make sure that you are significantly far away from anything that might go catastrophically wrong with the propeller.
5. Two minutes of carelessness will have cost me a small fortune - my engineer is still estimating the cost of repair - fortunately no one else or their property was affected.
6. When flying the Tornado in the RAF I used to place a glove on the throttle to remind that I was dumping fuel. A similar approach whilst the towing arm was connected may have saved me from my cognitive failure.

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CHIRP, FREEPOST (GI3439), Building Y20E, Room G15, Cody Technology Park, Ively Road, Farnborough GU14 0BR **Free***fone*:(24 hrs) 0800 214645 Fax 01252 394290

Confidential@chirp.co.uk - visit our website at www.chirp.co.uk

MISTAKEN IDENTITY

I was arriving at a fly-in in a PA18 Super Cub. The ATIS confirmed that both the hard and grass runways were in use with opposite circuits. The grass runway was immediately next to the hard with its threshold well beyond that of the hard. On my arrival the airspace appeared to be fairly quiet so I approached and configured on an extended right base for the grass runway. I saw nothing ahead and turned onto final approach being careful not to encroach into the left-hand pattern of the hard runway. Once I was levelled on final at about 400feet, I called "PA18 AB grass". I was not expecting a reply but at about 200 feet I received the call "AB do you have the microlight (ahead?)". I replied "negative AB" and then, by way of clarification and in case a microlight was concealed below me, added "AB continuing (approach)". A few seconds passed and I was at about 100 feet and almost at the numbers. The controller said "AB break left". Because of the view from the Cub I could see little behind me on the approach to the hard runway and I was on the frequency for the grass (the hard was using a different frequency) so I believed that a turn across the hard runway could be dangerous. I replied "I can't turn left that will take me across the (other) active". The controller firmly repeated his order and I reiterated my concerns. All this time I was frantically cross-checking compass, DI, runway numbers and other traffic fearing that I had made, or was making, a serious error.

By now I had missed my approach and was starting to climb straight ahead. I was again ordered to turn left and responded "AB now climbing away along the line of the grass runway with the (other) active on my left". The controller replied "that is not the active - IT is at your 12 o'clock". This made no sense and I responded "AB climbing straight out of runway ## grass. I think you must be misidentifying my aircraft". There was a pause and the controller asked "AB confirm you are a blue and white Cessna" I replied "AB negative - a red and white PA18". I was then told to turn right and to rejoin the circuit. While downwind the controller apologised and invited me to make another approach. This I did.

I saw neither the blue and white Cessna nor a microlight throughout either approach.

I had some misgivings about submitting this report, as it appears that a genuine mistake was made; no harm was done; and I enjoyed the day. However, I am a fairly inexperienced pilot and I admit to being close to becoming convinced that I was in the wrong and therefore complying with the controller's instructions. Indeed, two years ago, probably I would have complied and turned left.

It is important to remain situationally aware of other traffic, particularly in a busy circuit. The use of different RTF frequencies in this particular case was not helpful in this respect.

In the circumstances, the pilot was correct in not complying with the ATC instructions, which were issued on the basis of a mistaken identity, and being relatively inexperienced, is to be commended for 'sticking to his guns' in the face of ATC pressure.

This report highlights the important point that the pilot is ultimately responsible for the safety of his aircraft, not ATC.

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BACKTRACKING

In previous issues of GA FEEDBACK, we have published a number of incidents in which a principal contributory cause has been a lack of knowledge about the responsibilities of pilots when operating with an Aerodrome Flight Information Service or an Air/Ground Service. In some circumstances this lack of knowledge can create a significant safety hazard.

The following reports further illustrate this point:

(1)

I was in radio contact with ### Radio holding on the North-westerly runway to depart from a fly-in.

The aircraft was swung right to left to view the runway which was clear (also verified by my PPL passenger). I announced G-AB rolling runway ##"; almost immediately the Air/Ground operator announced, "Runway blocked". By this time the tail was up and I had flying speed, I then saw a Piper Cub that was backtracking the runway from the NW end. Considering that to abort the take off was the worst option, I radio'd "I can clear to the right" which I comfortably did.

Subsequently, I learned that the other aircraft had landed on the North-westerly grass runway, taxied to the end and entered the hard runway to backtrack.

At no time did I hear communication from the other aircraft as to their intentions or from ### Radio advising them to hold.

The other aircraft could have been non-radio.

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(2)

At my home base of ### I am noticing more and more incidents of traffic at the hold "requesting backtrack" and, on being told "nothing known", proceeding to backtrack without obviously looking or listening. It's not just private pilots visiting or based. We have corporate jets and other corporate visitors who think ### is much bigger ATC-wise than an Air/Ground Service.

Increasingly pilots on final have to go-around or the traffic on the runway makes a hurried departure.

As an instructor I actually welcome the real situation go-around for the student, but worry about the possible consequences. Some of the perpetrators come from airfields with full ATC and are obviously not taught or have forgotten they are responsible for their actions and not to shift this responsibility on to someone else.

The A/G radio operator(s) at ### and other places should not give instructions or misleading statements to pilots in order to be helpful and friendly and then say nothing when they are busy taking money for landing fees, fuel, answering phones etc.

A few years ago A/G operators were sent reminders of their R/T procedures. Perhaps its time to send another one.

In the situations described in both reports, the Air/Ground operator can only provide traffic information; pilots remain responsible for maintaining safe separation from other aircraft and making standard R/T calls to identify their position and state their intention.

Do you operate into airfields served by an Aerodrome Flight Information Service or an Air/Ground Service? If you do, are you aware of the limitations of each service and the responsibilities placed on pilots when operating in these environments?

Full details can be found in CAP 413 - Radiotelephony Manual; this can be accessed at www.caa.co.uk/publications/publicationdetails.asp?id=247

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FUEL STARVATION

Reaching 1,500ft with a glider in tow the engine suffered a severe loss of power but then almost immediately recovered. I waved the glider off as a precaution and returned to the airfield which was (fortunately) close. The engine stopped completely as I taxied towards the parking area. These events had all the signs of lack of fuel.

The ### fuel gauge comprises a clear plastic tube running up the lower side-wall of the cockpit close to the pilots leg. Fuel content is easy to read when the level is high but becomes more difficult to see as the level drops to near the floor.

I had started the day with a full tank of fuel, which should have been more than adequate for the day's tugging duties. However, (how many times have we heard that!) in addition to the expected tugging at one glider site, I had transited to another site to carry out a number of tows and then returned to the first site. Further to this, I had experienced some difficulty in finding the second site and flight time had increased accordingly.

The picture is of a series of unexpected additional activities each of which increased fuel consumption beyond my original estimate. My normal regular checks of fuel state at each engine start and en route had been forgotten in the unusually high rate of activity.

My lesson: fuel-check- check- check!

Many similar incidents/accidents have resulted form pilots becoming distracted from the task of managing the fuel remaining. Always be sure that you know how much fuel is present on start-up, by a physical dip check whenever possible, and make fuel checks before and regularly during every flight, to ensure that they are remembered in a pressure situation.

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FORCED LANDING

The weather was fine and two other pilots and I decided to fly from AAA to BBB about 30 miles away. The flight was enjoyable and uneventful as we joined overhead and let down into the circuit. BBB is a busy airfield with strict circuit patterns/heights for microlights, GA and gliders. I was at 500ft QFE, number two in the circuit, turning base leg when all went quiet in the engine department. All the fields within reach had standing crops and, after quickly calling ATC telling them I was making an out landing, I switched off the electrics, checked harness and helmet and turned into wind, slowing the aircraft down to 40mph with a headwind of 10mph to give me the slowest (inevitable) crash land speed.

All was going to plan as I reminded myself that this was engine failure number four and I'd landed successfully before with no damage to self or aircraft. 10 feet above the wheat I eased the bar out slowing down to 35, intending a maximum flare as the rear wheels dropped into the crop. Sod's law then took over as the rear wheels contacted a concealed wire fence six inches below the heads of the wheat, removing one spat and most of one drag link I recall the trike doing two complete loops before coming to an abrupt halt, fortunately landing the right way up but totally destroyed. The fuel spilling out of the ruptured tank encouraged me to exit asap and I then walked to the gateway and used my mobile phone to let the airfield know I was OK. It was only then did I realise that I had no injuries except a cut on my back caused by the broken end of the monopole penetrating my flying suit and sweatshirt, plus minor bruising. The cause of the engine failure was due to a faulty fuel pump.

I am usually a cautious pilot always flying at such height to cater for circumstances like this. In future I will avoid airfields in June/July where the microlight circuit height leaves no margin for emergencies such as this.

A significant number of airfields use a 500ft circuit pattern altitude for some aircraft. In the event of an engine failure, the time available to set up a forced landing is minimal, and, as the reporter notes, at some times of year the options may be few.

Think about the problem beforehand, to avoid being caught out if the engine should fail.

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RIGHT-OF WAY

Whilst on a tri-angular cross-country flight in a LS8 18m glider, and flying on a Southwesterly heading at an altitude of 3,800', I observed a single engine piston aircraft colour white/blue, low wing monoplane flying from my right to left for some 10-15 seconds flying in a straight line across my path. The aircraft was at the same altitude as myself and failed to take any avoiding action which resulted in me banking steeply to the right (90deg) to avoid a collision. The aircraft passed close enough for me to read the Registration Number.

The aircraft proceeded on a Southwesterly heading. I estimate that the aircraft was within 200' and had I not taken the avoiding action a mid-air collision would have taken place. I had expected the aircraft to turn right at the same time I turned right, not just to fly straight on track.

This particular incident occurred in the Open FIR and whilst the low visual profile of gliders and their predominately white colour scheme render them difficult to detect particularly in bright conditions, this does not absolve pilots of powered aircraft from maintaining a good lookout at all times and giving right-of-way. Notwithstanding the Rules of the Air, once the other aircraft was seen, an early decision by the glider pilot would have been helpful.

In almost all incidents of this type reported to me, the pilot(s) elected not to file an Airprox Report. While this is understandable in some cases, it can result in a significant under-reporting of this type of incident, which can mask the potential level of the risk of a collision in some geographical locations.

Pilots involved in a near-miss incident of the type should file an Airprox report, even if the details of the other aircraft are incomplete. If this is done within the prescribed time period, the Airprox Board is able to review ATSU radar/RTF tapes as part of their investigation as to the cause. The policy of the Airprox Board is not to allocate blame in any incident investigated, but the Board does follow up with all participants. The Airprox reporting procedure is detailed in Aeronautical Information Circular 87/2002.

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WAKE VORTEX ENCOUNTER

Shortly before the incident we were informed that a Nimrod was about to overtake us on our right hand side 500ft above. I had clear visual contact with this aircraft until it was only just visible ahead of us.

We had been flying clear of cloud in smooth air when the aircraft rapidly rolled left and right, with the stall warning activated. I assume that the wake from the Nimrod had drifted downwind towards us and descended to our level. ATC were informed.

At the time of this encounter the Nimrod was only a speck in the distance.

It clearly is essential to remain alert to the possibility of a wake encounter even when the heavier aircraft appears to be long gone!

In certain conditions, wake vortices can persist up to 2½ minutes; this means in the case of a large jet, they may be encountered up to 10 miles behind the aircraft. Also, vortices move outwards and descend at a rate of between 100-200ft per nautical mile behind the aircraft until they decay, or reach the ground.

CAA GA Safety Sense Leaflet No 15B provides more information on Wake Vortex.

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CHANGING FREQUENCY

It is becoming increasingly common outside controlled airspace, that on informing ATC that one is changing frequency to another agency, to be advised "frequency change approved". The corollary is that inexperienced pilots are requesting frequency changes when the responsibility lies with the pilot not ATC, resulting in unnecessary chatter and delay on busy frequencies. Please could you point out that ATC should not do this as the responsibility lies with the aircraft captain.

The reporter is correct - ATC should not use the term "Approved" unless providing Control. However, when establishing two-way contact with an Air Traffic Services Unit, a pilot is essentially entering into a 'contract' with ATC for the provision of the relevant service. While it is not necessary to seek prior approval, a pilot should announce that he is to change frequency in order to sign off on the 'contract' with ATC, in the same way as initiating a 'contract' when requesting ATC assistance.

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AIRPROX TO REPORT?

Call UK Airprox Board on Tel No : 01895 815121/2/5