



Safety Management System

Safety Bulletin

No. 08/22

15 December 2022

Safer Summer Soaring

This Safety Bulletin discusses some risk issues arising from recent occurrences, along with recurring themes in risk exposure. References are made to previous Safety Bulletins, noting that many pilots are emerging from protracted periods of reduced activity, with poor weather and heavy rainfall limiting spring soaring for many clubs and pilots.

Note: Priority risk exposure categories for Gliding Australia include:

- Mid-Air Collision
- Stall-Spin leading to Flight into Terrain
- Loss of Control leading to Flight into Terrain
- Runway Excursions & Runway Conflicts
- Hard Landings
- Launch Accidents

MID AIR COLLISION AND NEAR COLLISION EVENTS

Recent tragic events have highlighted that even the best and most experienced pilots can be involved in a mid-air collision or near collision. Whilst glider to glider collision risks have primacy in our thinking, with much flying in shared thermals or lines of lift, gaggles and other concentrations of gliders around turnpoints and aerodromes, we also face collision risks with towplanes and other aircraft, particularly near aerodromes.

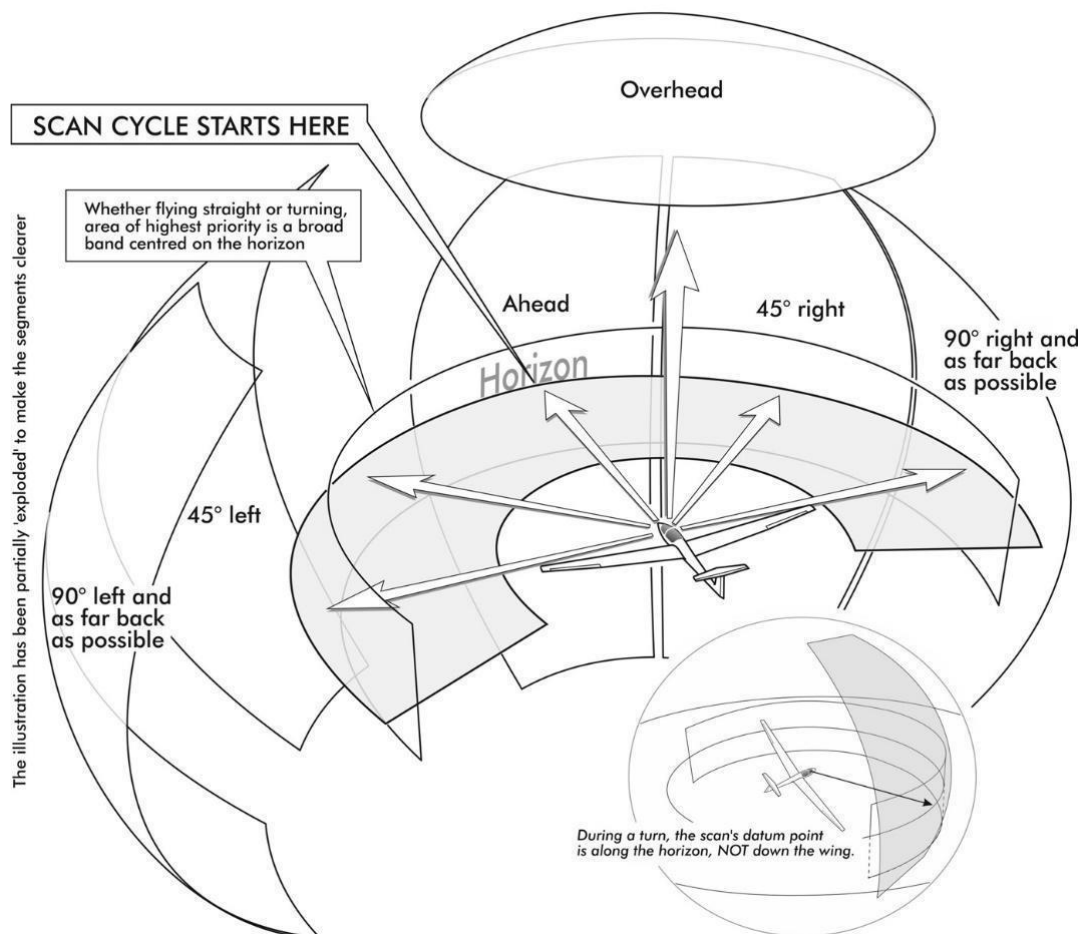
Whilst we may never know the exact causal factors leading to fatal mid-air collision accidents, near collisions do highlight potential causes and factors elevating collision risks. These include:

- any form of deliberate flight in close proximity to other gliders or aircraft e.g. gaggle flying, thermalling in company, joining crowded circuit
- flight in proximity to navigation waypoints, air routes, choke points etc
- flight in circumstances reducing situational awareness, such as:
 - flight in poor visibility, low light, haze, smoke, near cloud, rain, into sun
 - flight with incorrect radio settings, wrong frequency, volume down, high squelch, interference, chatter
 - fixation on in-cockpit devices and settings
- flight with high pilot stress, fatigue, illness, distraction, poor vigilance
- poor or degraded lookout and scanning techniques
- procedural breakdown or lack of awareness, of hazards or correct procedures for area e.g. multiple crossing circuit directions, winch launch hazards, turbulence.

Even with glider pilots maintaining high levels of situational awareness and lookout, other airspace users can present unexpected hazards, particularly when transiting over gliding aerodromes and circuit areas at low level. Unannounced aircraft transiting low through winch circuit areas are particularly hazardous. Broadcasting on VHF frequencies for both aerotow and winch launch intentions should be standard procedure, as an aid to alerted see-and-avoid. When conflicts occur, SOAR reports should be raised to better enable follow-up actions with aircraft operators.

Pilots should note that the new Gliding Australia Integrated Training Program, Units 8 and 9, emphasise new training practices regarding Lookout in turns. [Unit 8](#): “Ensure a good targeted LOOKOUT scan away from the direction of turn and then into the direction of turn. Then look ahead over the nose and apply aileron and rudder together in the appropriate direction.” [Unit 9](#): “You start this scan by firstly looking in the opposite direction to the planned turn to identify threats from behind and the side, then scanning around the horizon through straight ahead and finishing at the area behind the wing in the direction you are turning.”

“Look before you turn” now becomes “Look outside, up, ahead, into the turn.” All scanning techniques; Full scan, Cruising Scan, Targeted Scan; must be thoroughly trained early and consistently checked in flight reviews. Note that workload management, situational awareness and lookout may be degraded after layoffs, or pilots with low currency and proficiency.



Training also emphasises awareness of blind arcs, awareness of climbing flight path when decelerating in lift, human factors limitations, safe thermal joining practices, maintaining the bubble of clear space around gliders, and threat and error management. Flarm and Electronic Conspicuity devices must be used as an aid to alerted see-and-avoid, not the primary method. Judicious use of flight computers, navigation, cameras and other “in-flight distraction devices” should be a focus of early training and flight reviews, including not using them in some phases of flight. [Unit 22](#) and [Unit 39](#) refer. Finally, awareness of Rules of the Air and give-way requirements are also crucial, [Unit 23](#).

STALL-SPIN EVENTS AND LOSS OF CONTROL

Pilots still get bitten in this scenario, evident in recent reports of pilots running out of energy. Low level loss of control occurrences, some involving actual low-level stall and spin events, often lead to severe or catastrophic consequences, and therefore attract much attention in our training system.

[Unit 12](#) Slow Flying and Stalling places high emphasis on understanding the concept of angle of attack, recognition of symptoms, stall avoidance and recovery. Loss of lateral damping, leading to wing drop, is also emphasised, along with correct and prompt stall recovery.

[Unit 18](#) Spin and Spiral Dive Avoidance and Recovery terminology now better aligns with Part 61 Manual of Standards, places greater emphasis on recognition and avoidance, and emphasises the over-ruddered base or final turn spin entry scenario. Spiral dive recognition and recovery procedure is also trained.

This unit now highlights four spin phases:

- spin entry, featuring wing drop at stall, requiring prompt stall recovery
- incipient spin, beginning at autorotation, requiring prompt correct spin recovery
- fully developed spin, with correct spin recovery, and
- recovery – using pilot operating handbook or standard recovery technique.

A key issue for us is why do pilots still get into this situation, despite thorough training and checking? Stall-spin events arise from high angle of attack, erosion of energy margins, and human factors:

- high AoA:
 - too slow and too low
 - steep turns increasing AoA particularly on final turn
 - low over-ruddered turns
 - picking up dropping wing with aileron
 - gusts and low level turbulence
 - wind gradient
- erosion of energy margins:
 - late decision making to commit to landing
 - insufficient allowance for headwind and turbulence
 - insufficient allowance for glider performance limitations
 - inappropriate flap and airbrake settings
 - stretching the glide
- human factors
 - miscalculations and misjudgements
 - optimism bias and overconfidence
 - plan continuation bias (keep going despite gradual degradation)
 - ground rush illusion in proximity to ground
 - fright, flight, freeze, startle factor
 - lack of currency and proficiency in higher stress, high skill demand situations

Pilots returning to demanding flying operations, after long breaks, with reduced proficiency, may be more susceptible to these factors. Pilots trying to do too much, too soon, may be caught out. Note that proficiency is not the same as currency. Proficiency is our ability to perform to a high standard of skill and accuracy, under high workload, high simultaneous demand circumstances. This is discussed in [SB 01/21](#) Resumption of Gliding Activity After Periods of Inactivity.

HARD LANDINGS

Hard landings, mishandled landings, continue to occur frequently. Some causal factors are as described above. They also arise from attempts to land in strong crosswinds, or around or over

obstacles, avoiding trees or parked gliders or ground vehicles, or from exposure to unseen gusts or willy-willy turbulence. Summer soaring does generate conditions that pose increased risks of these events. Attention should be given to the anticipative mindsets of Threat and Error Management (TEM), as described in [Unit 25](#) of the GPC [Pilot Guide](#) and [Trainer Guide](#), plus the Training Principles and Techniques ([TPT](#)) Manual, all relevant to dealing with these risks.

[Unit 15](#) Breakoff and Circuit Joining emphasises breakoff decisions and circuit adjustments. [Unit 16](#) Circuit Joining and Execution further discusses circuit adjustments and avoidance of conditions contributing to poor heavy landings. [Unit 17](#) Stabilised Approach and Landing emphasises the importance of the stabilised approach and care with control adjustments; the discussion of common problems is valuable in reducing hard landing risks. [OSB 01/19](#) Avoiding Approach and Landing Accidents During Training also refers.

Lack of familiarity with gliders and their undercarriage locking mechanisms also appears to be a significant factor.

RUNWAY EXCURSIONS & CONFLICTS

Some multi-user aerodromes have reported aircraft operating from behind the displaced gliding threshold, causing operational conflicts. Conflict potential in the circuit and on the ground is also increased when multiple runways are being used. Other cases have had aerodrome unfamiliarity and radio setting errors as causal factors. Murphy's Law sometimes conspires to drive interference or non-reception of traffic movement calls.

Unintended runway excursions appear to be more likely with crosswind approaches, overflying obstacles, and "convenience landings" to minimise retrieve efforts. [OSB 01/09](#) Convenience Accidents also refers.

LAUNCH ACCIDENTS

Every pilot knows that during the launch, whether it is winch or aerotow or self-launching, things happen very quickly. Hence an unwanted excursion, or wing drop, or wing ballast imbalance, or in-cockpit distraction, or gusts, or over-controlling can very quickly develop into a more serious low level loss of control.

No matter what the distraction or problem, primacy demands focus on flying the glider all the way into a safe flare and landing, preferably clear of obstacles. Above all, we must avoid low level loss of control leading to terrain impact.

Similarly, both vertical and lateral tug upset conditions must be avoided, as the time taken to reach an uncontrollable attitude is very short indeed. See the BGA Launch Emergency Resources at the [Safety Videos](#) links online.

Units [13A](#), [13W](#) for Launch and Release Aerotow and Winch, and [13S](#) Self Launch are relevant, along with Units [14A](#), [14 W](#) and [14S](#) for corresponding takeoffs. [Unit 19](#) Cross-wind Takeoff and Landing is essential reading on required training and problem avoidance. Units [20A](#), [20W](#) and [20S](#) deal with launch emergencies. Here we emphasise that not only should students be trained with care and be proficient, also instructors must be proficient and have appropriate safety margins and thresholds of intervention.

Unfortunately some launch accidents have occurred. Launch ground-loop risks are higher with increased rainfalls and vegetation growth. In-cockpit distractions may well have contributed to a low-level loss of control. Flying into willy-willy turbulence during initial stages of an aerotow launch has led to at least one recent near miss.

HUMAN FACTORS, FATIGUE, DEHYDRATION, LIMITATIONS

In current circumstances where many pilots have low currency or proficiency, and are keen to get back into highly skilled and demanding soaring adventures, it is timely to reinforce the many biases and human factors that might affect our risk exposure.

Note that not all skills degrade at the same rate, and some higher skills take longer to regain after reduced activity. Currency is not the same as proficiency, so avoiding doing too much too soon is advisable whilst bringing higher skills into current practice. See [SB 01/21](#) Resumption of Gliding Activity After Periods of Inactivity.

See [SB 06/22](#) Managing Risks of Ageing Pilots. See [SB 07/22](#) Managing Risks of Long Covid in Gliding.

Dehydration and Hydration risk issues, heightened during summer soaring conditions and long flights, are discussed in [SB 01/22](#) Safety, Heat Stress, Heat Exhaustion and Dehydration and [SB 02/22](#) Safe Hydration.

GPC [Unit 24](#) Human Factors and Limitations, [Unit 25](#) Threat and Error Management and the Training Principles and Techniques ([TPT](#)) Manual should be used for precautionary guidance and training.

We wish all our gliding community many happy and safe hours in the air, and with friends and loved ones on the ground.



A.R. (Drew) McKinnie

**Gliding Australia
Safety Manager**

15 December 2022

ANNEX A: 2022 Occurrence Data Summary (As at Mid December 2022)

ANNEX A – 2022 OCCURRENCE DATA SUMMARY (AS AT MID DECEMBER 2022)

Classification	GQ	NSWGA	SAGA	VSA	WAGA	Total
Abnormal Engine Indications		1				1
Aircraft preparation		1			1	2
Aircraft Separation Issues	2			3		5
Airspace Infringement			6	2		8
Avionics/Flight instruments		1				1
Birdstrike	1	2				3
Collision	1					1
Collision with terrain	1	1		1	1	4
Control issues		1	1			2
Depart/App/Land wrong runway	1	1				2
Doors/Canopies	2					2
Engine failure or malfunction		2	1			3
Flight controls		1				1
Fumes	1					1
Ground handling		4	2		1	7
Ground strike		3	1			4
Hard landing	1	2	2	1	1	7
Incorrect configuration	2	1		1	1	5
Landing gear/Indication		3		2		5
Loading related	1					1
Loss of control	1			1	1	3
Low Circuit	1	1		1		3
Near collision	3	4			1	8
Objects falling from aircraft			1			1
Other Airframe Issues		1				1
Other Ground Ops Issues					1	1
Other Loading Issues			1			1
Other Miscellaneous		1	2			3
Other Runway Events		2	2	7		11
Pilot Induced Oscillations					1	1
Rope break/Weak link failure		1			1	2
Rope/Rings Airframe Strike	1					1
Runway excursion		3				3
Runway incursion		1	2	1	3	7
Runway undershoot					1	1
Taxiing collision/near collision		1	1		2	4
Wheels up landing	1	2			3	6
Total	20	41	22	20	19	122

ANNEX B – TOP FIVE OCCURRENCE CATEGORIES (AS AT MID-DECEMBER 2022)

Category 2	Category 3	GQ	NSWGA	SAGA	VSA	WAGA	Total
Aircraft Control	Control issues		1	1			2
	Hard landing	1	2	2	1	1	7
	Incorrect configuration	2	1		1	1	5
	Loss of control	1			1	1	3
	Pilot Induced Oscillations					1	1
	Wheels up landing	1	2			3	6
	Total	5	6	3	3	7	24
Runway Events	Depart/App/Land wrong rwy	1	1				2
	Other Runway Events		2	2	7		11
	Runway excursion		3				3
	Runway incursion		1	2	1	3	7
	Runway undershoot					1	1
	Total	1	7	4	8	4	24
Aircraft Separation	Aircraft Separation Issues	2		0	3		5
	Collision	1		0			1
	Near collision	3	4	0		1	8
	Total	6	4	0	3	1	14
Ground Operations	Ground handling	0	4	2	0	1	7
	Other Ground Ops Issues	0			0	1	1
	Taxiing collision/near collision	0	1	1	0	2	4
	Total	0	5	3	0	4	12
Airframe	Doors/Canopies	2				2	2
	Landing gear/Indication		3		2	0	5
	Objects falling from aircraft			1		0	1
	Other Airframe Issues		1			0	1
	Total	2	4	1	2	0	9