



Safety Management System

Safety Bulletin

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Ground Towing Safety

This Safety Bulletin discusses glider ground towing safety risk issues arising from recent occurrences, along with preventive measures and strategies. This should be read with GPC [Unit 2](#) Ground Handling and Signals, club procedures for ground handling and glider movements; [Unit 35](#) Flight preparation, glider, trailer and pilot; club ground equipment and maintenance references; club aerodrome layout, access areas and maintenance practices; and launch point operational practices.

Glider towing damage has also been a topic of concern to the British Gliding Association (BGA) [here](#) and raised in European Gliding Union online safety meetings.

Both BGA and Gliding Australia occurrence data show increasing trends of reported ground towing accidents. Here we have seen both very minor and serious accidents, some causing major glider damage, towing vehicle damage and even personal injury. There have probably been many more unreported accidents and near misses. See our Occurrence Summaries [2023](#) and [previous years](#).

Occurrence data describes several common ways of incurring substantial damage to a glider or injury to people, using both towropes and tow out gear, including:

- wings/tails colliding with some stationary obstacle (including another aircraft) or person,
- wing walkers or wings being dragged through heavy vegetation, crops, soft ground while being towed by a vehicle, with high lateral loads
- towing vehicle operators driving off, not realising the glider is still connected to the vehicle,
- towing vehicle operators driving off not realising the glider is still tied town,
- failure of poor quality or poorly maintained tow out gear,
- abrupt or tight manoeuvres causing vehicle extremities or tow out gear to damage gliders.

Glider repairs can often entail significant glider downtime, costs and member impacts. Injuries can have high member impacts. Insurance premiums form a significant part of club and individuals gliding costs. The shared risk supported by these premiums means that everyone suffers when there is an insurance claim. So preventive measures and strategies are important in all clubs.

PREVENTIVE MEASURES AND STRATEGIES – REDUCING GROUND TOWING ACCIDENTS

Most members thoughts will immediately leap to *operational risk* controls, and *application of common sense*. Consider though, how these have occasionally failed! We need to ask *why* these have failed to prevent these occurrences, *what latent conditions* and normalised practices have contributed to errors and misjudgements.

A *whole systems* approach might help us drive down these occurrence rates. Here the whole system includes:

- the gliders being towed, weight, ballast, wingspan, ground clearance;
- towing pathways, environments where gliders are manoeuvred, obstructions and impediments;
- towing vehicles, limitations on visibility, overhang, tailgates, noise, overall condition;
- towing equipment, fitness for purpose, maintenance;
- training, awareness, vigilance of members on wingtips and operational manoeuvring areas;
- training, awareness, vigilance of towing vehicle operators;
- human factors, fatigue, haste, distraction, situational awareness, familiarity, complacency, confirmation bias, workload; and
- other environmental factors, slope, winds.

Risk Reduction Measures. So, these elements suggest multiple ways that individual members, operational crews, maintainers, aerodrome maintainers, panels and committees might collaborate to reduce these safety risks.

- For some gliders being towed, certain taxiways or tow out paths might be excluded, or require a line offset from the well-worn path used by other gliders! Wingspan is an obvious risk driver – ground clearance and weight relative to soft ground, vegetation, depressions may also drive some modified pathways.
- Consider also the importance of launch point position and glider parking locations, versus launch point equipment, car parking, other obstacles. Flight line creep, both along the runway and laterally towards runway sides, may limit clearances on taxiways and tow out paths. Lack of control of vehicle movements and parking areas can create obstacle courses of new hazards.
- This in turn affects aerodrome maintenance and mowing practices, the siting of operations vans and shelters, signage and definition of the edges of operational areas, control and upkeep of access routes.
- Soft ground, flooded areas, vegetation, crops, holes from burrowing animals, spreading shrubbery, rough areas, all require vigilance and preventive maintenance. High and repetitive mechanical stresses may cause damage to tow out gear and gliders.
- At many aerodromes, carriage and use of radios in all towing vehicles is required to aid in situational awareness and avoidance of operational conflicts, sometimes affecting choice of tow out paths.

- Some vehicles are just not suitable for safe towing of some or all gliders. Rear overhang in towbar area may introduce risk of injury or glider damage, particularly when turning, or over rough ground. Ditto opening tailgates. Vehicles that cannot maintain a safe slow towing speed without surging or overspeed may pose high risks. Vehicles with missing mirrors, dirty windows, poor visibility, noisy exhausts and engines will seriously limit the situational awareness of tow vehicle operators.
- Operating towing vehicles with closed windows, loud music and inability to hear wingtip walker crew, is a recipe for lack of situational awareness and much increased risk.
- Tow out gear seen on gliding aerodromes varies from exotic, expensive, professionally tailored equipment, to the most fiendish agricultural or flimsy cobbled-together ancient equipment with multiple repairs. It's amazing how we invest huge sums and maintenance effort in valuable gliders, then too often tow them with defective or unfit ground equipment. Dollies, towbars, wing walkers, cradles, wheels and axles, tyres, brackets and clamps, nuts and bolts, all require Daily and Annual inspection, maintenance or replacement.
- Those operating on rough surfaces are at higher risk of tow out equipment failure. Those towing out at high speeds are at exponentially higher risk of such failure and consequent damage, particularly for heavy gliders. You cannot change the laws of physics!
- A walkaround of both glider and towing vehicle prior to ground towing may avert some highly damaging scenarios. The quick walkaround might include:
 - Tie-downs off
 - Dollies and chocks fitted and safe to use
 - Towing Attachments secured correctly
 - Hazards in area tow-out path identified (t'dah!) and then if towing with a rope, with members at the glider wingtip,
 - Crew ready to go, aware of intentions.
- The tow out path may require manoeuvring past obstacles. If crew are at the wingtip, then they should be at the tip closest to obstacles. This means the ground tow may have to be paused, stopped, to allow change of wingtip crew position. Alternatively, another member may need to assist to verify wingtip clearance, prior to resuming movement. If in doubt - stop – change wingtip – verify clear – restart. If strong winds are an issue, crew may be required at both wingtips, but only one should be in charge!
- If crew are not at the wingtip, with the towing vehicle operator driving autonomously, then other members must be vigilant, communicating clearly with the driver. Slow careful activity near obstructions is essential. Anyone can call Stop and the driver must be able to hear them, hence windows open, entertainment off, with ground radio on.
- This also assumes competence, training and required supervision of members attending wingtips or steering gliders. Panels and members supervising operations must ensure safe manoeuvring and vigilance against unintended errors. Sometimes our most inexperienced and least aware members are given these tasks. Attention to ground training and launch point hygiene (lack of distraction) is therefore a whole of club issue.
- If we draw a plan view of a tow out pathway, it's self-evident how a tow out path must be adjusted. Yet from ground level, at a wingtip, there are limitations what that person can see, at a distance, with obstructions and people in the way. Ditto for the driver of a towing vehicle. Misjudgements can easily be made, particularly for large span gliders. Careful planning, taking a longer safer path clear of hazards may often be better than the shortest route navigating a tighter weaving path. The longer route may be quicker.

- Some injuries involving ground towing and handling tow out equipment have involved visitors, family and friends. Their well-intentioned actions may limit glider and car damage but cause personal injury. Our duty of care requires a strong focus on member interventions to limit visitors risk exposure.
- Common sense, encouragement and reinforcement, and a precautionary mindset help.
- We are all subject to human error, no matter how experience or well-trained. Some human factors will degrade our performance, increase susceptibility to errors. Crew rest to reduce workload and fatigue, allow rehydration, less haste and pressure, better launch point hygiene, less distraction, more collaborative teamwork may reduce these errors.
- Our susceptibility to errors is affected by confirmation bias (seeing what we want to see, rather than what is actually there), complacency (she'll be right), familiarity (done this a thousand times), and goal fixation (so much at stake, so much to do, got to get there). Hazardous attitudes can bite us in commonplace situations we have handled numerous times. When things go wrong, we may find ourselves saying "how did we miss that?". Normalised deviance from standards, short-cuts accepted in the club's or individual's practices will increase these risks.

SUMMARY

We should be able to reduce ground towing occurrences causing damage, injury, costs and downtime. Ground towing should be less complex, easier to manage and execute safely than flying operations. Yet we find a fixation on operational procedures has not been the whole solution. Glider owners, operators, Panels, Committees, members involved with all ground operations, are part of a system affecting safety outcomes.

Anyone involved in walking a wingtip, towing a glider, operating a towing vehicle, handling tow out equipment, choosing a tow out path, manoeuvring around obstacles, keeping launch points and parking areas orderly, removing distractions, keeping clear communications, supervising new members, repairing or replacing tow out equipment, daily inspecting, mowing tow out paths and taxiways, managing environmental hazards, has a role to play. Gliding Australia may review training materials and manuals.

We aim for more fun, rewarding flying, better member experiences, done safely.



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WHEN IT GOES WRONG



WHEN IT'S DONE RIGHT

