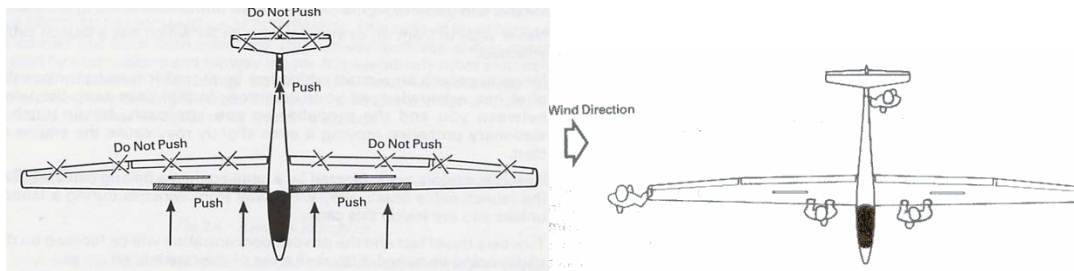


006 GROUND TOWING and HANDLING

Aim: To learn how to manoeuvre a glider on the ground.

The elegance and grace of gliders in the air belies their cumbersome bulk when it comes to manoeuvring them on the ground. While built to withstand relatively high loads imposed in flight, they are less able to take loads imposed on their structure through poor ground handling. Therefore, it is important that all involved with handling a glider on the ground understand how to accomplish the task safely avoiding damage to themselves and the glider.

Ground handling. Where is it safe to lift, push on or pull from to manoeuvre a glider? The designer has made certain parts of the glider stronger than others and certain materials are stronger than others. Some are fitted with lifting handles on the fuselage or allow lifting near the tailplane attachment point. Many have a tail dolly that can be fitted to provide a castering tailwheel for ease of handling. Other ground handling aids include tow out gear, comprising of arms fitted to tail dollies and wing dolly wheels to support the wing well clear of the ground. Combinations of these allow some gliders to be safely handled by just one person. The diagrams illustrate the parts of the glider where it is safe to exert force to shift the glider.



In general, note that the leading edge, near the fuselage is a good place to push from. Avoid pushing or pulling on the wing tips as the large leverage created over the wingspan will apply considerable force to the wing attachment fittings in / on the fuselage. Check you have clean hands as the surface is easily marked and discoloured. If individuals are struggling to shift a glider on the ground, particularly when the ground is soft, get help or a tow vehicle to assist rather than straining.

Towing gliders. Gliders can easily be towed by a suitable vehicle, using a towrope attached at the glider's towhook. Some considerations include:



- The rope length must be at least 70% of the glider's wingspan. E.g. for a 15m glider, use a rope length of 11m. This ensures that the glider can follow an arc behind the tow vehicle without hitting it if a wing is dropped while towing.
- Old aero tow ropes are suitable for the task as they are strong enough to ensure they do not break and slingshot back into the glider.
- When hooking up the rope to the glider, open the canopy rather than put a hand through the clear vision panel.
- Take care over rough ground to ensure the control surfaces do not slap against their stops. If necessary lock the controls in the cockpit, seat straps are good for this.

- Lock the airbrakes closed so they do not bang against the stops when opening or closing.
- Brief the wing walker of the intended tow route and how to call for a halt to towing.
- At least one trained wing walker is required to hold the wing and walk as the glider is towed. This person steers the glider behind the tow vehicle. The 2nd person walks beside the cockpit, his task is to prevent the glider overrunning the rope, and pull the release if necessary. Do not attempt to reach through the clear vision panel to pull the release, always open the cockpit first.
- The tow speed should be such that the pace required by the wing walker is comfortable. Watch the wing walkers legs, if he is running, you are going far too fast.
- The wing walker can steer the glider by walking faster or slower than the pace of the car.
- The tow vehicle should avoid rough terrain and be mindful of where the wing walker will be walking out at the wing tip as opposed to directly behind the vehicle.
- The driver should turn hazard lights on and wind a window down so they can hear the wing walker if required. Avoid having a radio playing while driving and adjust a mirror so the tracking of the glider can be monitored.
- The flexible wings of gliders mean they flex / bounce when going over any bumps. A firm grip is required so as to not lose hold of the wing tip.
- Do not put fingers through any holes in wing tips or you risk injury when the wing flexes.
- Towing down a slope will see the glider tend to over-run the vehicle. Take particular care and drive at a steady pace if the glider starts to overrun. The wing holder should steer the glider nose towards the rear of the vehicle initially, impact here will cause less damage.
- In windy conditions, extra wing walkers can help control the tracking of the glider. A person in the cockpit can add weight to the glider to reduce any risk of it flying by itself!

Using tow out gear

Tow out gear makes it possible to move gliders single handed. It can also speed up retrieves

- If on your own take the glider to the vehicle hitch, not the other way around.
- The maximum tow speed is a fast walking pace 8mph, if approaching rough ground, slow down.
- Do not make any sudden manoeuvres, and remember your vehicle is at least 15m wide!!!—make allowances.
- If unhitching on sloping ground ensure the glider is unable to roll into the vehicle.



Need to Know: The push and lift / no push or lift areas on a glider.

- How to walk a wing during a tow.
- How to tow a glider.

Further Reading: Glider Flight Manual. The manufacturer provides info on where and how to ground handle the glider. The Glider Pilot's Manual. Ken Stewart. Pages 14 & 15. Advice on ground handling gliders.