



Responsibilities and costs

(The following applies primarily to high performance, self-launching sailplanes, not the more airplane-like touring motorgliders such as Grob 109, Taifun, Phoenix, etc., that have much different characteristics)

The motor that gives the motorglider its opportunities also exacts additional responsibilities. The towpilot is no longer responsible for the safe operation of the launch vehicle: you, the motorglider pilot, is now responsible.

These extras include the:

- maintenance of the engine and its systems
- preflight of the engine and extension mechanism
- fuel and oil
- ground operation (starting and taxiing)
- entire launch operation
- converting back to a glider

Maintenance: Like most airplanes, there is more maintenance involved with the motor than the rest of the aircraft; further, the vibration, heat, fuel and oil tend to increase the maintenance of the glider itself. Because your safety during the launch depends even more on your motor than it did on the towplane's motor, it is wise to tend to its needs carefully.

Preflight: It takes me at least three times as long to preflight my ASH26E motor glider as it did to preflight my ASW20; 4 times if I have to add fuel or oil. The "glider part" of the preflight is about the same as an unpowered glider.

Fuel and oil: You must use the proper types of each fluid, ensure there is enough to safely launch, and test for water.

Ground operation: To begin the flight, you must start the motor. Even though the propeller is shielded from people to a great extent by the wings and fuselage, you must still assure yourself no one is nearby and that your propeller wake will not tip another glider, slam a canopy shut, or kick up dust. Once started, you should move away from the crowd to reduce the aggravation of the noise and wind.

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Pushing a glider out to the launch is easy because you are moving slowly and can see all around you; often, you have help and another pair of eyes. None of this is true for the self-launching glider. Additionally, the glider is much wider than a towplane, both in wingspan and track. Because you taxi with the wingtip on the ground the "track" is about 25 feet for a 15M ship, 30 feet for my 18M glider. You must stay close to the edge of a taxiway to keep the wing tip on the pavement.

Another complication is the possibility of the glider switching wingtips due to a gust of wind or propeller blast from an airplane. If it does this on a typical 40' wide taxiway, it means your wing tip is now in the dirt (or weeds or lights or...) and may stop suddenly, swerving the glider off the taxiway.

All these things make careful planning necessary when you make your choice of runway, taxiway, and the route to them. Rarely can you just jump in and go! In addition to the wide track of the glider, it's steering isn't even as precise as an airplane's. For example, turning towards the down tip means you are on the outside of a big circle, so you must not cut the corner, unless you enjoy colliding with lights! Turning towards the up wing is easier, as the tailwheel castor is in your favor. Because there is no differential braking like airplanes, you are totally dependent on the tailwheel. Particularly in the wind, you must remember, "Authority is limited".

Launch operation: Once you have safely arrived at the runway, you must do your normal glider checks (except for hooking up the towrope), PLUS the power checks (fuel, temperature, ignition, electrical). Finally ready to enter the runway? Better check it for traffic and announce your departure, both things the towpilot normally does.

Some things are easier: the steerable tail wheel makes a wing down launch, even in a cross-wind, easier than a calm wind takeoff with a towed glider; also, no towplane wake to mess things up. It's a help during the landing and rollout, too.

During the first 500' of the climb, you have a higher risk than a glider pilot being towed, though still not as much as a towpilot normally assumes (think about that...buy your towpilot a beer next chance you get!). The main reason for this increased risk is the much higher sink rate of the motor glider with its propeller extended. For a PIK-20E, the glide ratio becomes 15:1 (from 40:1), for my ASH26E, about 20:1 (from 50:1). If there is a power failure, this does make landing ahead a little easier, but means a turn back to the runway must be started at a higher altitude than a towed glider.

As the "towpilot" it is your job to steer the aircraft and avoid flying into other aircraft, sky diver drop zones, noise avoidance areas, and so on. You can't just follow the towplane as you used to!

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motorgliders, the audio is difficult to hear with headset on and the engine noise, the vibration seems to hinder the feel of a thermal, and you don't have the lift and sink cues the motion of the towplane provides. Also, the nose up attitude in climb seems to reduce the horizon cues.

Converting to a glider: Once established in a thermal, it's time to re-configure as a glider. The engine must be cooled at reduced power, stopped, prop centered, and finally retracted. Then the headset can be removed and stowed, audio volume reduced, fuel shut off and engine master switch turned off, and (optional) a sigh of relief breathed. It's a very busy couple of minutes best spent well away from other gliders, so don't join a motorglider in its thermal until the "hummer" has disappeared into the fuselage!

Restarting the engine in flight has its special concerns, too. Safe flying means you cannot assume the engine will start and let you climb away. Besides a failure to start, it might not retract after use, leaving you with half your normal glider ratio. It is not just the mechanical problems that must be considered, but also the possibility of pilot error; furthermore, the sink, terrain, density altitude and other factors may be more than even a properly running engine can overcome. You must be prepared to landout, as tempting as it is to believe your engine will once more hoist you into the sky.

This means the usual drill: selecting a field, entering downwind, completing all checks and lowering the gear. Only then should you attempt to extract and start the motor. If it runs, fine, otherwise you must continue the landing to your selected field.

A glider pilot who is also a current power pilot won't be so intimidated by all this, but other glider pilots should reflect on it carefully before they decide a motorglider is an unmitigated delight.