

# BGA SAFETY INFORMATION

## RIGGING GLIDERS

Incomplete or incorrect rigging of gliders is a significant risk; the outcome is usually a serious injury or a fatality.

This publication aims to highlight the issues and provides a 'toolbox' of suggested actions that clubs as well as pilots and owners can take to help to avoid a glider being mis-rigged or being launched following incomplete or incorrect rigging.

### Know the subject

**Responsibility.** It is the responsibility of the pilot in command to ensure before flight that the aircraft is airworthy (reference Sailplane Air Operations rules)

**Human factors.** All of us are human and therefore vulnerable to making errors or slips. As a result, we need to put in place checks and balances to ensure safety critical tasks have been completed correctly. Glider rigging is a safety critical task and many gliders by design are vulnerable to rigging errors.

**Aircraft Flight Manual.** The AFM describes how to rig a glider. It is of course important that anyone rigging a glider is fully aware of the relevant detail. If your glider has a unique and quirky method of rigging/control connection, constructing a checklist may aid the process.

**Hotellier connections.** It is well known that there is a "half-cocked" condition where the connection appears to have been made but it can become disconnected by a small shock. Ensure Hotelliers are connected and safety pinned or correctly sleeved, and then try to pull the connector apart by applying a small amount of pressure away from the joint. If you do this a connection which will fail will be identified and corrective action taken. Take time to understand how Hotelliers can be mis-connected to avoid this pitfall. Ensure club pilots understand these connections where they exist in club gliders.

**Documented guidance.** The factors associated with mis-rigging of certain gliders are well researched and practical mitigations are documented and widely published. For example:

<https://members.gliding.co.uk/library/safety-briefings/is-your-glider-fit-for-flight/>

<https://members.gliding.co.uk/library/safety-briefings/easa-sib-2019-07-sailplane-rigging/>

### Avoid errors

**Distraction – a significant human factor.** We all develop routines rigging our gliders and this is our method of avoiding missing a key step in the process. If your routine is interrupted by a conversation or by going to assist a fellow pilot, then clearly identify the point in the process you were at and when you return to rigging recommence the task a few steps further back in the process to ensure nothing is overlooked.

***Never distract or interrupt someone who is rigging a glider. Discourage distraction.***

**Time pressure.** Make sure you allow sufficient time to complete the process in a methodical unhurried manner. If you feel you are rushing, then it is better to stop and reassess what you are doing and, if necessary, delay the flight. Clubs can help here by allowing a pilot who appears to be rushing or under pressure to slip one or two places back in the launch queue to de-stress the situation.

**Recording Rigging.** Recording and signing can be a helpful focus and reminder to complete the task. Insist on use of a DI book to additionally document that the rig has been properly completed and the vital post rig positive control check has been done.

**Visual cues.** When a glider is de-rigged for storage or maintenance, brightly coloured (not white on GRP gliders) insulating tape can be placed on the fin on both sides. On gliders with “V” tails, the vertical surface below the canopy sill is an alternative. The idea is that the tape remains in place as a clear indicator until it has been positively confirmed that the aircraft has been rigged correctly and a positive control check has been completed.

**Counting.** On an ASW20 with original control connections, there are 7 controls to be connected and hence 7 safety pins to be installed. Commonly used gliders such as the Astir have 5. Count them as you go around the aircraft post rigging to make sure nothing has been forgotten. On many gliders, including the ASW20, you can see the elevator connection during a walk-round by simply lifting the elevator.

**Shadow storage.** Often parts are removed from the aircraft during de-rig and replaced when the aircraft is assembled. It is best to store these items in such a way as to be able to readily identify if a part or its accompanying safety pin has not been installed. A cut-out for the part or safety pin backed by a bright colour will often aid this process.

## Prove it is fit to fly

**Visual cues.** Consider using a visual cue which is only removed when the task has been completed and all subsequent checks have been done. For example:

- On an ASW20, for instance, there is a small access panel covering the fuselage access to the control connections. Place this panel on the seat as a reminder to check these connections. Fit the panel once the check has been completed.
- Where tape has been placed on the fin on both sides (see ‘avoid’), the tape should be obvious to the pilot during a walk around and act as a warning. The launch crew should watch out for the tape and not launch a glider if it’s still there.

**Positive control checks.** It is possible for a control to be driven upwards and then fall under gravity when this force is removed. Positive control checks are an effective opportunity to identify a rigging error before it becomes a hazard. Either get someone else to manipulate the controls whilst you check or get someone else to hold the control while you do it. The control must be held near the drive to the control surface and held in such a way that you can be assured that the control surface is driven in both directions. **NEVER miss out this vital check after rigging.**

**Independent check.** Where other people not involved with the rigging are available who are familiar with the glider type and have been suitably trained, an independent check of rigging will provide an obvious benefit.

**Walk-round check.** Before flying a glider, carry out a thorough walk round. Pay particular attention to any control which is disturbed during the de-rig and rigging of the aircraft. The security of the tailplane and elevator connection is the most critical to safety, so devote particular attention to these.

**Friendly challenge.** A suitably experienced person at the launch point who is looking for potential issues including those detailed above can ask a pilot who is pulling their glider on to the launch line, ‘has this glider had positive checks today?’ The utility of the intervention is even more valuable if it comes with an offer to do the positive control check there and then should it be required.