THE PERILS OF DISTRACTION

Introducing a new series from the BGA safety team, with a focus on avoiding rigging accidents

■ Clubs can obtain printed copies of Safety Briefings from the BGA Office.

THESE AVOIDABLE TRAGEDIES HAPPENED TO EXPERIENCED, CONSCIENTIOUS PILOTS, WHO WERE ASTONISHED TO HAVE GOT THINGS WRONG

IT WAS a beautiful summer morning, and the safety committee chairman was rigging his glider a few trailers away from my own. We've little chance to chat at the safety meetings, so I'd wandered over for some light-hearted banter now that the week's serious business was behind us. There had been a long discussion of glider rigging accidents, and distraction seemed to be at the root of a number of cases of unconnected elevators and other controls. It was crucial, we'd concluded, to make it unacceptable to interrupt safety-critical actions such as pre-flight checks, loose article inspections and rigging. And I had immediately gone and broken that cardinal rule!

In the 45 years for which we have detailed records, 100 gliders have been launched with a control connection loose or wrong: 43 gliders have been damaged, 11 of them being written off; and five pilots have lost their lives; 36 per cent of the accidents involved an elevator; ailerons account for 38 per cent; airbrakes 16 per cent; flaps 7 per cent; and there's been the odd trim and rudder. And it's not just controls that are left disconnected: forgotten main pins and loose tailplanes have caused 36 accidents and the loss of six further pilots and five gliders.

Interruption

All of these tragedies should have been completely avoidable. Most happened to experienced, conscientious pilots, who were astonished to have got things wrong. And when we re-read the reports of these past accidents, it was clear that interruption and distraction were major factors.

Lots of pilots were, of course, aware of this and had devised strategies to mitigate it. Some steadfastly restarted checks from the beginning if an interruption occurred. One made a point of pausing and then doing a separate final check in peace after the rigging was complete. One syndicate had a 'rigging hat' to indicate that the wearer should not be disturbed. And a rigorous daily inspection afterwards, with proper positive control checks, has a good chance of picking up residual errors.

The problem is that, unlike most modern consumer devices, gliders aren't idiot-proof. Quite the opposite. Unless you actively do something, the wings, tailplane and controls remain disconnected.

Wing pins

Several pilots have forgotten to fit the wing pins to their gliders. Surprisingly, all got away with it, and the accident reports can be rather comical. A Kestrel flew for 10 minutes with the mainpin still on the ground: the wing detached only during landing. Another pilot soared for 40 minutes before spotting a gap at the wing root, but landed safely before the wing collapsed. A Cirrus pilot had towed his glider to the launch point before noticing the mainpin where he was about to sit. Another pilot only realised on aerotow that the main safety pins were hanging on his camera mount. Pilots forget drag pins too.

Tailplanes also have their problems. Two Jantar pilots separately discovered problems aloft and landed to find that the tailplane retaining pins had come loose and detached on the landing run. Some other pilots have survived because their gliders had split tailplanes, so at least one half was secure.

Forgetting to connect the elevator, an aileron or an airbrake is far more common – and often ends badly. Errant airbrakes can upset launches and circuits: the pilots survive, but their gliders might not. Loose ailerons can lead to flutter, as well as lack of lateral control, and the resulting spin can be fatal. Partial or full loss of elevator control has also killed three pilots and seriously injured seven.

Many popular gliders use l'Hotellier control connections, which can seem secure when they're not: the controls can still appear to operate if the ball and cup are only loosely aligned, and a disconnected pushrod can lift the elevator against gravity in a convincing

fashion. A tenth of the UK fleet of ASW 19/20, Pegase and PIK 20B/D gliders have launched with an unconnected elevator, leading to two fatalities and three serious injuries.

Locking pins – used in case of failure or accidental release of the l'Hotellier joint – can be in place whether the control is connected or not. The sliding Wedekind sleeve secures the release tab, but doesn't prevent partial engagement; and the Uerlings sleeve and similar devices on LS gliders prevent partial connection, but don't guarantee that the controls are connected at all.

Control connections

Control connections can be hard to see, especially if your arm is blocking the access hole, or bright sunshine is making the glider's innards even more gloomy. Torches, mirrors and phone cameras can help.

The Standard Cirrus has an unusual elevator connection and, again, the pushrod can lift the elevator when disconnected. The aileron connections in the Libelle, Kestrel and others use pip-pins through clevis joints: these have been forgotten, the pins fitted through the wrong parts, and left and right controls interchanged. Even self-connecting controls can be fallible if the glider has been modified to ease assembly [1]. The range of control movement may be an indication.

Wing rigging errors can be lethal. The mainpins of older SZD gliders like the Bocian, and Schempp-Hirth's SHK and Austria, have complicated mechanisms that are unusual, difficult to see, crucial for aircraft integrity, and liable to fail if wrongly fitted [2]. RF5 locking mechanisms, too, can be difficult to judge. It's vital to follow the flight manual and get expert advice if there's any doubt.

The BGA has a Safety Briefing *Is Your Glider Fit for Flight?* [3], which says that ***rigging should be directed by a person experienced on the type, in accordance with the flight manual, without interruption or distraction.***

So, why did I forget and interrupt the chairman while he was rigging his glider?

It was a gorgeous day. I'd finished work for the week, wasn't on duty, and was going to fly for pure pleasure. I was amongst my mates, outdoors in the countryside. Every prompt was to do with joy, fun, freedom and anticipated happiness. There was little to put me into a rigorous/professional/methodical frame of mind. What I needed was not just a rigging hat, but a rigging head to put beneath it.

Tim Freegarde and the BGA safety team

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■ For more information about rigging, check your aircraft flight manual and ask a BGA inspector. The Safety Briefing [3] and BGA Instructor Manual [4] also give good advice.

[1] AAIB investigation GCKLR (2018) *https://tinyurl.com/flyright1901*

[2] AAIB investigation G-DBZZ (2014) *https://tinyurl.com/flyright1902*

[3] BGA Safety Briefing Is *Your Glider Fit for Flight? https://tinyurl.com/flyright1903*

[4] BGA Instructor Manual, section 31 *https://tinyurl.com/flyright1904*