

WHAT'S CHANGED?

The BGA Safety Team outlines some of the many changes that have affected the way in which we operate and fly

ACCORDING to the principle of primacy, it's hard to change from the way we first learned. For many pilots and instructors, that could be decades ago – in some cases, a good fraction of the 93 years since the BGA began, and even of the time that's elapsed since the Wright Brothers.

Many aspects of gliding, its environment, society and technology can change in the course of one's flying lifetime, and the assumptions behind our original training and established practices might no longer be appropriate. Older pilots may be surprised by how much is different; younger pilots will be astonished by how things once were.

Club environment

An obvious change is (1) the age profile. The average pilot is now well into middle age, and many pilots do not start gliding until retirement, or at least their first divorce. Amongst other factors, (2) far fewer people meet gliding through the armed services and Air Cadets. Partly in response to this, Junior Gliding (3) is now a specific focus and, thanks to EASA, (4) pilots can fly solo at 14.

The work-life-gliding balance (5) has changed. Many people are reluctant to hang around the airfield during the day, and where knowledge used to be passed on in the bar (open as soon as the hangar doors closed), it now (6) relies upon the internet. Trainees expect (7) efficiency and a level of

MODERN LIFE PRESENTS FEWER OPPORTUNITIES TO DEVELOP PRACTICAL SKILLS

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



professionalism that many link to feeling safe. Wealthier but time-poor pilots (8) increasingly favour a more commercial club operation, new members (9) expect a service, and there is less expectation to help out with club maintenance and DIY. Indeed, modern life (10) presents fewer opportunities in general to develop hands-on practical skills.

Club ground-rent (11) has risen hugely, forcing most clubs to be more commercial. There are (12) many more First Flights – often by people who will not make a second.

Instructing and risk acceptance

Our instructing philosophy has changed. Where the emphasis was once upon giving trainees maximum hands-on time to learn from their mistakes, instructors now (13) take control promptly if safety is compromised and to demonstrate correct handling when learning value is lost. Well-structured pre-flight briefings (14) now occur before the student and instructor are in the glider, unable to face each other and under pressure to launch. 'Good airmanship' has been expanded into structured Threat & Error Management (TEM) (15), which all pilots are taught to undertake before and during flight. Simulators (16) allow efficient training of a range of aspects, work in evenings, and can be an enticement when the weather is bad.

There is (17) less acceptance of risk, and (18) for First Flights in particular safety is expected to be the absolute priority. The practice of (19) trainees signing away the club's liability is considered ineffective. Retrieve tales (20) have diminished as trailers are expected to be roadworthy and drivers sober, though (21) satnavs can send us on some interesting routes.

Aircraft

Glider designs have changed. Performance (22) has greatly improved, (23) new gliders are eye-wateringly expensive, and (24) high-performance two-seaters are popular with many senior cross-country pilots. (25) Self-launching or self-sustaining options have become popular, and electric motors (26) are beginning to replace internal combustion engines. Some gliders have ballistic recovery parachutes (27). Modern designs (28) are more similar in layout, construction and operation, and many have self-connecting controls (29), so older mechanisms can be a surprise. There have been advances in (30) crashworthiness, and (31) we now fit energy-absorbing foam. Modifications (32) are only permitted if authorised by the manufacturer. However, while we (33) increasingly expect everyday products to be foolproof, gliders still give no warnings if they are incorrectly rigged, controls not connected, the canopy is unlatched, or the cable is attached to the wrong launch hook.

Tugs have also evolved. Engine power (34) has increased, but (35) so has the glider weight. New engine designs (36) offer great performance but need fussier maintenance. Lightweight airframes (37) can be more affordable but less robust and resilient. Tail-dragger experience (38) is less common.

Instrumentation

The traditional glider instrument panel contained an ASI, altimeter and a good vario; radios were rare and confined to gliding frequencies, and final glides were estimated using John Williamson's circular plastic slide-rule. Flights were recorded using a clockwork barograph. In contrast, most cross-country gliders now bulge with electronic instruments. Battery capacity (39) has risen, but so has (40) consumption.

FLARM (41) has proved astonishingly effective in preventing glider-glider mid-air collisions. Moving maps (42) use GPS (43) to show our position relative to geography and airspace. Glide computers (44), linked to all kinds of sensors, include thermal assistants and wind estimators, identify nearby airfields

and link to (45) thousand-channel 8.33kHz radios that are now commonplace. Task declaration and flight logging (46) use GPS-based electronics, often integrated into the glide computer together with FLARM and navigation functions.

Launch and circuit flying

Winch launching was substantially revised with the BGA's 2004 Safe Winch Launch Initiative, following new analysis of the hazards involved. Controlling the rate of rotation into the climb (47), ensuring adequate speed before manoeuvring after a launch failure (48), and then landing ahead if safe to do so (49) reduced the rate of serious winch launch accidents by a factor of five.

Tug upsets prompted a change of focus on aerotow. Whereas glider pilots were previously advised to look out for other aircraft, the focus is now (50) entirely upon maintaining position behind the tug, with renewed emphasis upon minimising and ignoring distractions until at a safe height. Position-keeping now uses the 'gunsight' method (51).

To suit a wider range of scenarios, downwind checks (52) became pre-circuit checks and, after analysis of what pilots were actually doing and why, (53) the diagonal leg was introduced into the standard circuit.

Ground operations

Launch equipment has improved markedly. More powerful winches (54) and Dyneema (55) give higher launches and reliability, so that (56) cable breaks are much less common. Drogues, strops and weak link fittings (57) have evolved. Many winches (58) permit the power to be set for the glider type, and some (59) allow the glider speed to be monitored from the cab. The safety-critical roles (60) of wingtip holders and launch controllers are recognised in more serious training, and modern signalling equipment (61) has replaced slow Aldis lights and bats.

Positive control checks (62) help to identify rigging errors, and a 'sterile' rigging environment (63) makes them less likely. Tow-out gear is more common (64), avoiding the need for a wingtip holder and making expensive collisions with stationary objects much easier. Gliders are staked out under protective covers (65) in almost all weathers.

Cross-country

Cross-country speeds and distances (66) have risen impressively, and routes can

be very imaginative, but adventure has become more professional. More accurate and detailed weather forecasts (67) allow ever more spectacular flights but mean that few people turn up at the club if rain is forecast. Spreading airspace restrictions (68) require careful navigation, and (69) infringements are unacceptable. Glider pilots hence make increased use of radio (70), and many gliders carry a transponder (71).

Improved glider performance, better weather forecasting and turbos make field landings (72) less common, while cellphones (73) and GPS mean that, should they occur, pilots can whistle up a retrieve without finding a phone box to call in directions of dubious accuracy. Often, thanks to the (74) Open Glider Network, the ground crew will already know the glider's location.

Safety

Partly through these developments, plus a lot of work at all levels of our sport, gliding has become safer. Changes in technology, training, procedure and culture have helped to reduce the rates of serious injury from winch launch, stall/spin, collision and field landing accidents. We like to think that a just culture (75), alongside thorough accident reporting and analysis, have helped.

The accidents that have occurred would in many cases have been avoided if current guidance had been followed. There are a lot of reasons why that didn't happen, but lack of awareness and reluctance to adapt are common features. It's therefore important for everyone's safety that we follow current advice and procedures. Trainees need to receive a consistent, up-to-date message, unclouded by old ideas; and our own flying needs to set good examples.

Amid the many developments described here, it's natural that some of the changes to airborne, ground and instruction techniques and procedures will have passed us by. Just as the Highway Code has changed since many of us took our driving tests, aviation law, the plethora of guidance collected in the BGA's Managing Flying Risk [1] and Instructor Manual [2], and many airfield operations manuals could have changed since we last read them. Please spend some time refreshing your memory and making sure you're up-to-date.

Meanwhile, our current guidance, techniques and regulations always have scope for improvement, and you can contribute or suggest improvements at both club and national levels.

Tim Freearge and the BGA Safety Team

■ The latest advice on good practice for all aspects of gliding can be found in the BGA's Managing Flying Risk [1], while its Instructor Handbook [2] outlines current instruction methods and syllabus. The Gliding Student Pilot Manual [3] presents much of this information for the trainee pilot.

[1] BGA Managing Flying Risk <https://tinyurl.com/flyright2305>

[2] BGA Instructor Manual <https://tinyurl.com/flyright2306>

[3] D & R Corporaal, Gliding: the BGA Student Pilot Manual, BGA (2022) <https://tinyurl.com/flyright2307>

PREVIOUS 'FLY RIGHT' ARTICLES

- *The perils of distraction* (Apr/May 19)
- *Keeping safe in thermals* (June/July 19)
- *Why it is good to think ahead* (Aug/Sep 19)
- *The effects of wind gradient* (Oct/Nov 19)
- *A fun but safe introduction* (Dec 19/Jan 20)
- *Stop the drop* (Feb/Mar 20)
- *Avoiding upset* (Apr/May 20)
- *Backroom boys* (June/July 20)
- *Cockpit muddle* (Aug/Sep 20)
- *Safe rotation* (Oct/Nov 20)
- *Cockpit remedies* (Dec 20/Jan 21)
- *Covid currency* (Feb/Mar 21)
- *Eroded margins* (April/May 21)
- *A good lookout* (June/July 21)
- *Trouble with turbos* (Aug/Sept 21)
- *'Hopefully' is not an option* (Oct/Nov 21)
- *Act when the launch fails* (Dec 21/Jan 22)
- *Time to solve a knotty problem* (Feb/Mar 22)
- *RTFM: Read the flight manual* (Apr/May 22)
- *Startling events* (June/July 22)
- *Collision risks* (Aug/Sept 22)
- *Winter hazards* (Oct/Nov 22)
- *Swiss Cheese* (Dec 22/Jan 23)
- *An expensive mistake* (Feb/March 23)