

2 Emergency Procedures

SPL syllabus: Exercise 2 Emergency Procedures			
(i)	Use of safety equipment (parachute)	(iii)	Bail-out procedure drills
(ii)	Reaction to system failures and errors	(iv)	Parachute landing fall drills

INTRODUCTION

The concise version of this chapter could simply be:

'FIRST FLY THE GLIDER'

Don't over-react:

- FLY the glider
- assess what has happened
- make a plan.

Technical failures in gliders are fortunately rare, and often a consequence of poor or faulty preparation: failure of a thorough DI, rigging checks or pre-flight checks. Nonetheless, considering what to do if a canopy flies open, a mid-air collision occurs, instruments fail or a major control fails forms a useful discussion. In an emergency, our brains get overloaded, hence we have emergency drills to fall back on.

Launch failures are the most common emergency and are covered in the relevant chapters on launching (Chapter 11).

(i) use of a parachute

The overwhelming majority of collisions in gliding occur between gliders, so the reasons for always wearing a parachute are obvious. Emergency parachutes are not subject to regulation, but there is a BGA Operational Regulation that requires glider occupants to carry emergency parachutes when flying in cloud.

Mental preparation and visualisation of the emergency response such as going through the bail out drill, has been shown make a big difference to a successful outcome. When one military pilot who had to bail out was asked at what point he finally decided to 'bang out', he replied, 'twenty years ago'. Encourage trainees to think about or practice how they would bail out.

When explaining the use of a parachute, the analogy with the safety briefing on an airliner might help put it into context. The use of a parachute is extremely unlikely, but it might just save the trainee's or passenger's life.

Care of the parachute

There is no point in having emergency equipment that you cannot rely on. Parachutes are very susceptible to damp conditions. When not in use, store the parachute in a bag, in a well-ventilated area away from direct exposure to sunlight, oils, and/or acid, and preferably heated cabinets. Leaving them in the glider overnight is undesirable. Do not leave them outside or put them down on damp ground. The 'chute may also get damp in the cockpit on warm "sweaty" days and should be put somewhere safe to air.

Emergency parachutes in gliders are lifesaving equipment and should be serviced in line with manufacturers requirements

and referred for service whenever exposed to an event that introduces doubt as to the integrity of the emergency parachute. This may include exposure to moisture and concerns about harness or fastener integrity.

Warn the trainee to avoid accidentally pulling the D-handle as they put it on – it helps to put the left arm in first. The handle should be in the holder, and the Velcro should be in good condition. Attach the legs straps first in case of accidental deployment in windy conditions. If the chest strap is connected without the leg straps, the strap can rise up and potentially drag the person across the airfield with the strap around the neck. Adjust it so that it is a comfortable fit.

Very few gliders/parachutes in the UK utilise a static line system but as an instructor you should understand and explain how they work. The principal risk is accidental deployment if getting out without disconnecting the static line.

(iii) The bail-out procedure

Encourage your pupils always to get out of the glider with their parachute on, so that in the event of a bail out they do not undo their parachute straps as well, in a panic.

The trainee needs to be shown how to jettison the canopy in an emergency, but equally, how to avoid jettisoning it on the ground when they get out. If the canopy jettison is wire locked, it should be with a single twist in the wire. It is well to check that no-one has put a cable tie or other extraneous fixing that will prevent the canopy jettisoning if needed. Ensure you advise your trainee that in the event of the need to bail out, you will precisely state 'Bail out Bail out' or something similar that makes the order unambiguous. The drill for pulling the ripcord is to 'Look, find, pull' – although it sounds obvious, in reality, people may forget to look first.

The sequence for an emergency bail-out is:

1. jettison the canopy
2. undo the straps
3. get out of the cockpit and, when clear, deploy the parachute.

If the straps are undone first, there is a danger of falling against the locked canopy and being unable to open it.

(iv) landing guidance

Even emergency parachutes may have steering toggles but, if not, you can still steer to a degree by pulling on either riser above the shoulder. Ideally steer into wind, especially when landing.

Emergency parachutes have a rapid deploy system, but the landing may be hard. The advice should be to keep the feet and knees together with the knees bent, and NOT to try to avoid falling over on landing. If they can remember to turn their feet at an angle to the direction they are travelling and, as they reach the ground, should allow themselves to roll to the ground from feet, along the legs, around their back and onto the other side whilst keeping their elbows in; this will help to avoid injury.

If there is any wind the canopy will remain inflated and try to drag the individual across the ground. The only effective way to collapse the canopy is to grab the lower set of parachute lines and pull them towards you. This will pull the lower part of the canopy towards you and spill the air out of it. Keep pulling in the canopy until you can lay on it to prevent it from reinflating. Once the canopy is under control the harness can be released – do not forget the chest strap before the leg straps!

(ii) Other system failures & responses**Instrument failures**

ASI failures – these are not uncommon. They may be due to a kinked tube or blocked static or pitot tube – usually caused by water or insects. The ASI may under read or read zero. Remember to fly the glider by attitude, be aware of symptoms of the stall, too fast on the approach is better than too slow but allow plenty of room ahead. Continue any launch to a sensible height to give time to assess the situation and then land as soon as safe to do so and resolve the problem.

GPS failures

Religiously following the GPS without maintaining an awareness of location will create an issue if the GPS fails. See chapter 17b for 'uncertain of position' procedures.

Control surface failures and Mid-air collisions

Remember: FLY the glider, assess what has happened, make a plan.

If the glider is 'falling out of the sky' a bail-out will clearly be the only option. Otherwise pause and try to analyse what is happening. There have been circumstances when a failed trimmer has been mistaken for loss of elevator control.

A rudder failure may cause the rudder to be locked over to one side. Airbrakes jammed open, or worse still a single airbrake jammed open will require an emergency landing in the middle of the biggest landing space available. Think if a mayday call is possible/helpful. Do not forget that a call on 121.5MHz will get a response.

Personal Locator Beacon

Personal locator beacons (PLB) are relatively low cost distress radio beacons that help to detect the location of the PLB while in distress. Personal locator beacons now feature GPS using the dedicated 406MHz frequency. Operated by the pilot in an emergency, a PLB transmits the precise GPS location to the global network of search and rescue satellites. Owners of PLBs are reminded of the need to register and maintain the PLB.

Sailplane Air Operations requires the carriage of a PLB or ELT (emergency locator transmitter) when flying over water or over land areas where search and rescue would be especially difficult, such as remote mountainous areas.

Open canopy on launch

Unlike airbrakes, an open or opening canopy is immediately apparent and highly alarming. If an alarmed glider pilot becomes distracted from their first priority to fly the glider, then a tug upset may follow if on aerotow, or a stall off a winch launch.

In the event of a canopy opening or partially opening **on aerotow:**

- If not at a safe height, continue to maintain position behind the tug, even with the canopy open.
- When, or if at a safe height, release immediately, slow down and if possible, sort the canopy out.

On a winch launch:

- Continue the launch. Do NOT release immediately otherwise you will be giving yourself a second, unnecessary emergency.
- Lower the nose to the normal attitude, fly the glider and, if possible, sort the canopy out.
- Prioritise flying the glider and land.

REMEMBER – the further you are away from the ground, the more time you have to deal with the problem!