



AUSTRALIAN PARACHUTE FEDERATION

Certificate Class A Training Guide



VERSION 01-2022

STATUS: EDUCATIONAL

Warning***Parachuting and flying in parachuting aircraft can be dangerous.***

This guide is not a do-it-yourself guide to skydiving
but should only be used while under the supervision of a qualified APF instructor.

About This Publication

This guide is produced by the Australian Parachute Federation Ltd (APF) for the information of APF members. If you want more information or copies of this guide (or others listed above) for yourself or your friends, please ask the instructional staff at your DZ or contact the APF Office.

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IMPORTANT: Version Control

It is important that members refer to the current version of the Operational Regulations and the subsidiary Regulatory Schedules. These are current at the time of printing by the APF Office.

Current versions of the Operations Regulations, Regulatory Schedules and associated forms can be found on the [APF website](#).

Significant changes made from the previous version are shown in the Amendments section. A vertical line in the outside border area aids in highlighting changed text.

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PART 1: INTRODUCTION

This Guide is to assist you as a student skydiver to achieving your Class A certification. It contains basic information to support on-DZ theory and practical training, which together provide a foundation for further skills development. It also provides other important information to support your choices as you progress.

Formal instruction exists through the student Training Tables:

- the Solo Freefall Training Table (beginning with either static-line or instructor-assisted deployments); or
- the Accelerated Freefall Training Table (AFF/TAF); or
- a combination of elements from both in an approved modified training table; then
- once you've achieved your Class A certification, the Class B Training Table.

However, the progression from student to novice and qualified jumper can be somewhat haphazard. This guide will help you to bridge the gap between student and novice status. Once away from the immediate supervision of your instructors, there are many skills and much knowledge that you need.

Read this guide carefully and put it to use. Keep up to date with modern skydiving techniques. Follow websites and forums. Read magazines and books. Talk to more experienced skydivers. Think before you leap!

With this in mind, these notes are designed to be part of the course necessary to gain your Certificate Class A from the Australian Parachute Federation. This is commonly abbreviated as 'APF'.

We stress that this is not a do-it-yourself skydiving manual but should be used in conjunction with the Certificate Class A training and requirements of your own Drop Zone.

You must read the APF Operational Regulations and Regulatory Schedules and be aware of your rights and responsibilities as a skydiver with a Sporting Licence and classified with a certification/rating. These are available on the APF web site: www.apf.com.au

One of the requirements for making a jump is that you hold a valid "Student Parachutist Licence" or "Sporting Licence", which is tied to your financial membership of the APF. Many Australian skydivers incorrectly refer to APF "certificate classes" as "licences". The United States and United Kingdom parachuting organisations issue similar A, B, C & D class 'licences', but in Australia the APF issues parachuting certificate 'classes' (A to F). Reason: the three levels of Government reserve the right to issue "licences" through their various municipalities.

Other documents produced by the APF will help your research into the situation/response section of this guide:

- the Certificate Class B Training Guide
- Canopy Pilot Guide
- Star Crest and Bigway Guide
- A Guide to Beginning Freely.

APF has a Safety Management System (SMS) which looks at incidents that have already occurred and mitigates risk to help prevent future incidents. Your Chief Instructor manages the Club's SMS and you will hear more about it as you progress.

You should check the APF website for our documents, manuals and guides and your email for newsletters.

When in doubt – ask your instructor.

PART 2: PARACHUTING EQUIPMENT

Note: This part provides a general overview for you as a new jumper and compliments what you are being taught on the drop zone. Later in Part 14 we cover borrowing gear, and Part 15 gives more detail on buying and jumping your own equipment. Be sure you speak to your CI, Packer A or Rigger before purchasing any equipment.

2.1 Clothing and Accessories

2.1.1 Helmet

You must wear a hard shell helmet until you get your Certificate Class C. After that, it is at the discretion of the DZSO. Helmets should have a secure attachment points for an audible altimeter. Full face helmets require visor maintenance and can fog up in some situations (flip-up visors will help with this).



2.1.2 Goggles



Use them - you've only got two eyes - look after them. During RW, eye contact is important, so avoid the dark ones.

2.1.3 Jumpsuit

At this stage of your skydiving progression you need a jumpsuit to suit your RW training. As you progress you may find that you require different jumpsuits for different disciplines. Discuss choice with your instructors and coaches before buying.

2.1.4 Gloves

Make sure they fit tight and you have plenty of "feel" with them. Beware woollen gloves; they can stick to Velcro, so avoid if you have Velcro on your rig.

2.1.5 Footwear

Sensible footwear, no hooks or chunky tread or heels. Think very seriously about it before you wear anything out of the ordinary such as sandals – get permission first from your DZSO. Consider hiking back if you land off drop zone? Downwind? Under reserve?

Take advice as to what will suit your requirements.

2.1.6 Hook knife

Used to cut lines or risers. Perhaps a canopy collision, a horseshoe malfunction or later in your skydiving career a CRW wrap, when it becomes necessary to clear a partially open main in order to deploy your reserve.

Don't use it for cutting pull-up cords or other miscellaneous tasks. Keep it in perfect condition for the day you need it.

2.1.7 Visual Altimeter and Audible Altimeter



Visual Alti: Chest mounted can be seen easily by others on an RW load, may misread during freely positions and may cause you to float or pop up as you look down at it.

Wrist mounted can easily be read when you are docked but can be awkward to see during forward movement or tracking.

Audible Alti: Use with – not instead of – a visual altimeter. This is required equipment for some disciplines; it's a good idea for all jumps.



2.1.8 Automatic Activation Device (AAD)

The electronic varieties are mostly “set and forget”, and usually fitted to your reserve. These are a highly recommended item for experienced skydivers; under the Operational Regulations, you’ll need one for some time yet.



Obtain a user manual and learn about yours.

Examples: CYPRES, Vigil, Astra, M2

2.2 Harness and Container Systems

2.2.1 A parachute assembly

The harness (or “container”) includes:

- Main risers (inc. steering toggles).
- Main and reserve deployment bag, pilot chute and bridle.
- Main canopy
- Reserve canopy (both of which include connecting links and slider)
- Automatic Activation Device

Care must be taken to ensure that all parts are compatible: for example, the main must not be too big to fit into the container.



- Make sure it fits your body. The 3-ring should be on the front of your shoulder, the confluence of the main lift web and leg straps should be low on the hips.
- Are the handles in the right places and easy to find?
- It should fit snugly and comfortably and should not feel loose in freefall.
- Will you want to use it for freefly? Higher freefly speeds require specific protections.

The chest strap should be low on your chest - you don't want your altimeter hitting you in the face on opening. Women: give consideration to your type of bust line (talk to other women about their rigs).

2.2.2 Types of Harness/Containers

Different styles will feel more or less comfortable to you. Containers are soft in their basic construction. These conform to your body and have a reputation of being very comfortable to wear

Examples: Talon, Vector, Wings, Racer, Dolphin, Javelin.

Many modern containers now feature “flex ring” technology for even more comfort and ease of movement, and seek to eliminate any discomfort in the aircraft.

2.2.3 Reserve deployment type

All reserves use a pilot chute for deployment. A spring-loaded pilot chute is activated by a ripcord.

Once the pin(s) have been withdrawn, the pilot chute springs into the air to initiate reserve deployment.

Standard designs include:

(a) Internal Pilot Chute

This is probably the style of gear you did your student training on. The pilot chute springs out past the top, bottom and side flaps to reach the open air. *Examples: Talon, Vector, Strong, Telesis.*

(b) External Pilot Chute ("Pop Tops")

The round shape you see in the middle of the reserve container is the top of the pilot chute. Here the pilot chute is already outside the rig. *Examples: Racer, Racer Elite, Tear Drop.*

(c) Combination

The Javelin and Dolphin systems are somewhere between both types. The pilot-chute is above the side flaps but under the top and bottom flaps (Javelin) or just the top flap (Dolphin).

2.3 Main Canopies

Take advice from the Instructors on your drop zone as to what would suit your size and level of experience. A chart which helps you select the right size main for your experience and weight is included in the Canopy Pilot Guide.

F1-11: This fabric is possibly what you did your student jumps on. It's hard wearing and easy to pack.

Zero Porosity ("Z-P"): This fabric is less permeable than F1-11, allowing for a stronger canopy at smaller sizes. Slippery, particularly when new.

Elliptical or Square: "Square" parachutes are named as such mainly because they're not round. In fact, they're usually three times wider than they are deep (an "aspect ratio" of 3:1). However, they do have square corners. Elliptical canopies have curved ends to make them more efficient and responsive.

A "Square" canopy is a good first choice.

Canopy Relative Work Canopies ("CRW canopies"): Designed for linking up with other similar canopies once open, these have specialist fittings and require specialist knowledge. They have a reputation for requiring a higher skill level to land comfortably.

2.4 Emergency Canopies

A skydiver's reserve parachute is a ram air canopy similar to the main parachute. These should not exceed the maximum suspended weight limit. Reserves must be inspected and packed by a APF Packer 'A' or Rigger and the packing card must show the date of manufacture, the make and serial number, the name and qualifications of the packer and when the next inspection and repack is due.

Tertiary Parachutes

Usually front-mounted on the belly and round in construction, these are carried for a descent where an intentional cutaway is going to be performed. Talk to your Chief Instructor.

Pilot Rigs

Flat container and harnesses, designed to be worn whilst seated. Ripcord activated, they usually contain a round reserve as a last chance for the pilot. Unsuitable for general use.

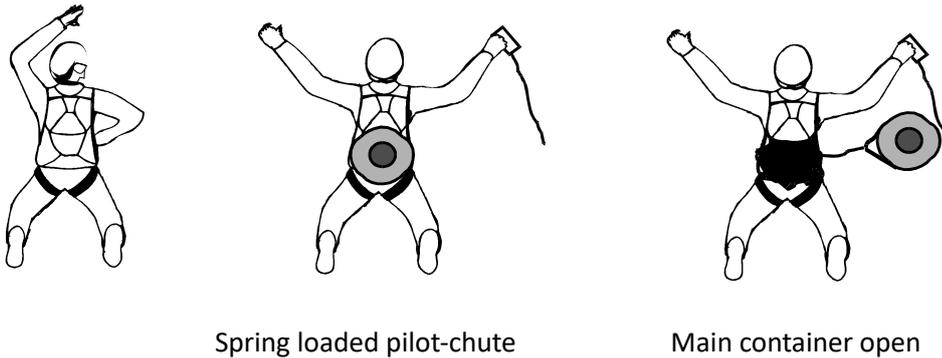
More information on canopies can be found in the section of this guide on "Jumping Your Own Rig".

2.5 Activation Methods - Main Canopy

2.5.1 General

- All parachute deployment systems function from right to left across your body.
- All parachute systems use a pilot-chute to achieve line stretch of the parachute.
- Being unstable makes it difficult for the pilot-chute to do its job.
- Being too low makes it impossible.

2.5.2 Ripcord



(a) Operation

You possibly did your student training with this system.

- You pull the ripcord.
- The pin is withdrawn from the closing loop.
- The spring loaded pilot-chute forces the flaps of the container open.
- The pilot-chute springs out into the air behind you.
- It then drags out the deployment bag.
- Canopy deployment usually follows.

(b) Advantages

Very easy and simple system to use.

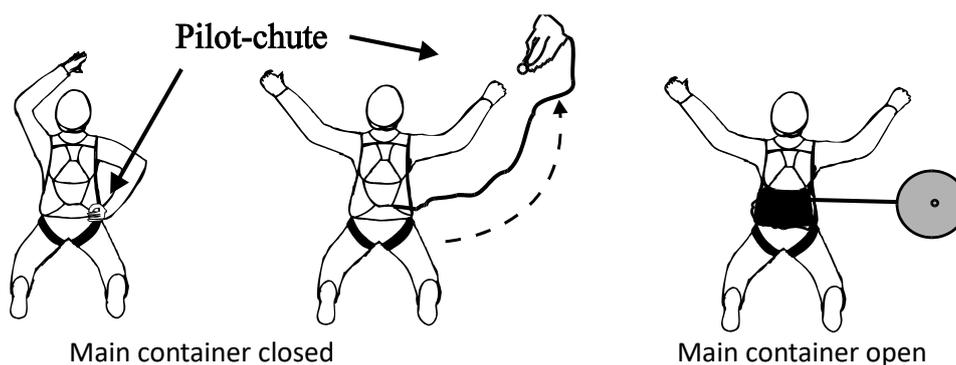
- Proven reliability
- No problems with cold weather
- Easy to see.
- You are used to it.

(c) Disadvantages

- Can limit choice of cutaway/reserve deployment methods.
- The handle can come out of its pocket, and hang from the bendex cable (floating ripcord).
- They can be lost/dropped and cost money to replace and you may not be able to replace your ripcord immediately.
- You don't have your hands free after deployment.
- The spring loaded pilot-chute is awkward and bulky to pack compared to other systems.
- The spring loaded pilot-chute is fired off into the burble of low pressure air behind you and you may experience "pilot-chute hesitations" as it tries to break into the slipstream, hesitating in your burble. (Look over your shoulder.)

Note: this is how all reserves work.

2.5.3 Throwing Pilot-chute (TAP)



(a) Operation

Located on the Bottom of the Container ("BOC")

A handle is sewn into the apex of the pilot-chute.

- When you pull it out, it streams upside down.
- When you release it (throw it) at arm's length, it inflates.
- The bridle has a curved pin sewn to it. This pin is through the closing loop, which keeps the flaps of the main container closed.
- The pin should be placed with the closing loop in the middle. Pushing the pin all the way in makes it difficult for the pilot-chute to pull it out again.
- The inflated pilot-chute pulls the pin allowing the container to open and the deployment bag to be lifted out.

Deployment then happens in the normal sequence.

Ideal set up for the throwaway system includes a freebagged reserve to overcome the problems associated with a pilot-chute in tow, or premature pack opening (horseshoe malfunction, pilot-chute still in the pocket).

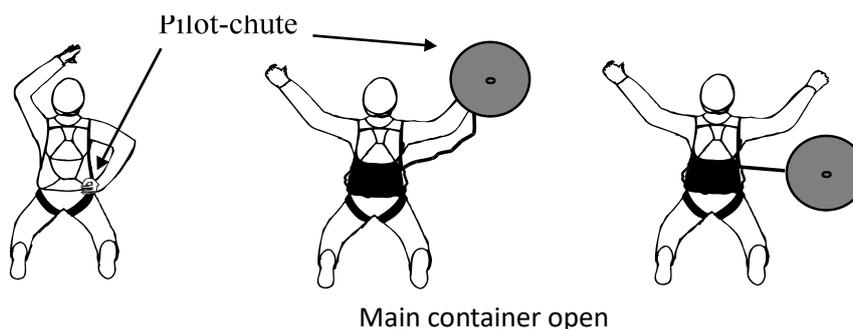
(b) Advantages

- Very easy and simple system to use.
- The pilot-chute handle may be where you can see it (legstrap).
- It is very quick, launched into the slipstream at the side, so it is not affected by your burble.
- The sight of your pilot-chute in your hand convinces others you are about to deploy (but don't use it as a wave off device because this can pop the pin).

**(c) Disadvantages**

- Long bridles (used with throwaways) are not recommended for CRW.
- The pilot-chute handle may be where you cannot see it (BOC).
- Holding onto the throwaway can pop the pin and cause out of sequence deployment. (It is a throwaway - throw it!)
- It is possible to pack a malfunction by misrouting the bridle or twisting the legstrap on legstrap TAP's.
- Poor packing of the pilot-chute can make it difficult to get out of the pocket (even Spandex).
- It is possible to have the bridle wrap around your arm while holding on to the pilot-chute - caused by poor body position.

You must ensure the pilot-chute is not so worn out that it can no longer pull the pin and extract the deployment bag (pilot-chute in tow). See the section on Reserve Deployment.

2.5.4 Pullout

(a) Operation

The handle (“Pud”) is usually secured in a pocket at the bottom right corner of the main container.

- This handle is attached to both a straight pin and to the base of the pilot-chute.
- The straight pin may be pushed all the way into the closing loop.
- As you pull on the pud, the pin withdraws and the container is opened.
- As you pull further, the pilot-chute is brought into the air stream at your side and inflates.
- It then drags out the deployment bag.
- Deployment then happens in the normal sequence.

(b) Advantages

- Very easy and simple system to use.
- It is very quick, launched into the slipstream so it is not affected by your burble.
- You pull the pin to release the flaps of the container.

(c) Disadvantages

- Because the handle is usually secured, it does not usually “pull” out - you must PEEL it off, not pull it.
- The handle can be difficult to locate, especially with the new small containers, out of sight, halfway up your back.
- If the handle detaches, it may prove very difficult to locate as it flaps around behind your back.
- The handle can be dislodged in the plane, on exit or in freefall. (Most users check its position last thing before exit).
- Dropping the handle before full arm extension can cause hesitations or bag first deployment.
- The handle may be difficult to grasp in cold weather.

PART 3: POSSIBLE DEPLOYMENT PROBLEMS

There are several, regularly reported problems with deploying your main canopy. However, if you have trained yourself thoroughly, maintain your equipment and follow your procedures each time there should be no reason to encounter these problems...

3.1 Pilot-chutes

Zero Porosity pilot-chutes: These pilot-chutes are slippery, they need a secure pocket to hold them. But if your folding is poor they can also jam in a tight pocket. Checking to see if you've got it right can be done on the ground with a couple of practice deployments.

Brian Germain has published a video showing one suitable method of packing pilot chutes here:

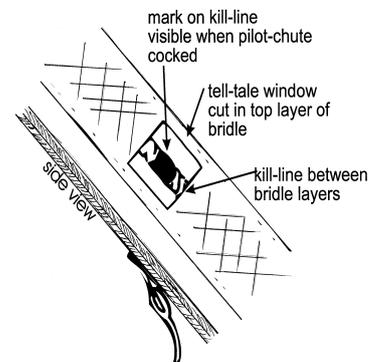
http://www.youtube.com/watch?v=axCeYIY_6io

3.2 Kill-line

A kill-line pilot chute collapses the pilot chute once the main parachute has left the bag. Without being reset ("cocked"), the pilot chute remains in its collapsed state and probably won't pull the parachute out! Forgetting to cock a collapsing pilot chute is not common but is possible, especially if you are rushed or distracted. If you do bag your canopy and find that you have forgotten to cock the line don't cock it while the canopy is in the bag – damage, and burns to your canopy will likely result.

A tell-tale window near the closing pin with a bit of colour on the kill line itself gives a clear indication of your pilot chute being correctly cocked. If your system doesn't have a tell-tale window, ask a rigger to fit one.

Modern kill-line materials may shrink from the heat of slipping through the webbing – check the tension is off the kill-line and onto the centre line when the pilot chute is fully cocked.



3.3 Bungee

A forerunner of the kill-line pilot chute; an elasticised cord allows the pilot chute to inflate from drag at high speeds, but at low speed – such as when the canopy is open – collapses the pilot chute again. Usually work fine with the factory set bungee cord, but a replacement bungee can be badly set with the wrong tension, preventing the pilot chute from inflating. Bungee pilot chute can also be a problem at slow speeds (hop and pop).

Action: Replace with Kill-line pilot chute.

3.4 Worn out pilot chute

They get a hard life and do not last forever. Ask your packer/rigger to examine your main pilot chute at each reserve repack and if your deployments seem to be taking longer, consider the state of your pilot chute.

3.5 Pilot-chute hesitation

A hesitation is usually the result of a poor pilot chute throw or instability. A poor throw is often the result of a rushed deployment ("Oh-oh, I'm low!") or a lazy throw. If you are stable and follow the same procedure on each jump you should not have a problem.

3.6 Pilot-chute in tow

Pilot chute in tow can be caused by either an uncocked pilot chute, a really worn-out pilot chute which does not produce enough drag, or a wrongly closed container where the pilot chute cannot pull the pin. If you use a packer or borrowed gear, be sure the right closing sequence is followed. Make this part of your pre-flight checks.

P/C in tow could also result from mismatched equipment – which can result in a very tight pack. (Don't just lengthen the loop, get the right container volume.)

3.7 Line twists

Twists are also a deployment problem which students are taught to kick out of and then continue with the canopy flight. On large, slower canopies this is usually not a problem.

However, as canopies have become smaller and faster, line twists have become a common reason to cutaway, simply because the twisted canopy very often develops an uncontrollable spiral dive which does not allow enough time to get untwisted.

There are several things you can do to reduce the chance of experiencing line twists on opening:

- Pack cleanly and pay attention to your brakes. One brake coming off on opening is a regular cause of line twists. Regularly (daily, if not load by load) remove any twists in your brake lines.
- Even line-stows on the bag. There are various sorts of stows available (tube stows and rubber bands) but it is important that they grip each line stow securely and evenly. Do not get lazy or messy as you stow the lines. Avoid mixing and matching.
- Deploy stable (shoulders level), this gives the bag the best chance to come off your back cleanly and with a high-performance canopy keeping your shoulders level will help prevent any induced turns during opening. Many jumpers also pay attention to their position in the harness during deployment - uneven leg straps or more weight on one side will also influence your canopy opening.
- If you get line twists and you start kicking out of them, you must maintain height awareness. This means reading your altitude every 5 seconds (kick, kick, kick, and check altitude, repeat). Have a height where, if you are not clear, it is time for the reserve if you haven't got a good canopy overhead by that altitude immediate commence emergency procedures.

3.8 Collapsing the slider

While this shouldn't be a problem at deployment (assuming you un-collapsed it at the last repack) it can cause problems if you get so engrossed in sorting out or pulling down the slider that you get away from the DZ or get too close to another jumper (who may be doing the same thing).

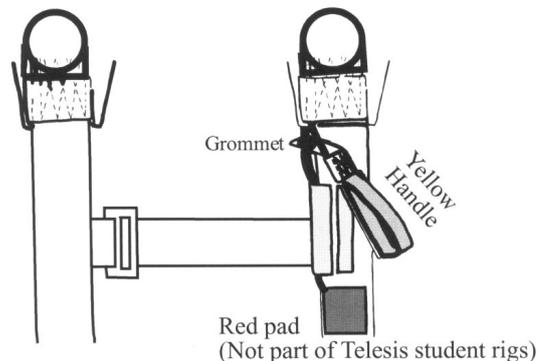
Only deal with brake release, sliders, harness adjustments or any other distractions when you are sure you have enough airspace and you can make it back to the DZ.

PART 4: ACTIVATION METHODS – RESERVE CANOPY

The majority of fatalities involve a person impacting with at least one canopy still in the container. Always be height aware and know and practise your procedures.

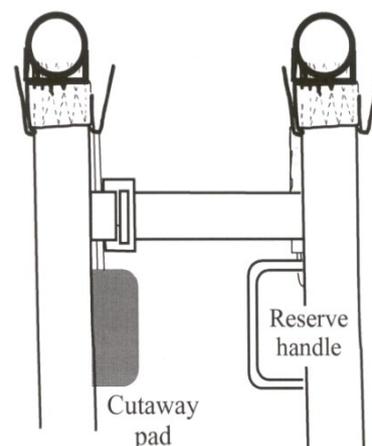
4.1 SOS – Single Operation System

- Can incorporate ripcord, throwaway or pull-out main deployment systems
- There is only one handle - "the yellow handle"
- Pulling this handle will firstly cut away the main canopy, and then release the spring loaded pilot-chute of the reserve canopy.
- As long as the pull is continuous and you clear the cables as trained, both of these steps will be achieved. The reserve will be deployed immediately following the cutaway of the main.
- Not recommended for CRW as cutaway and reserve deployment cannot be staged.



4.2 TAS – Two Action System

- Can incorporate throwaway or pull-out main deployment systems
- As the name implies, this uses two handles. The right one (the pad) will cut away the main, allowing you to freefall away from the discarded main.
- The left (with the metal handle) is the reserve ripcord. Pulling the ripcord allows the spring loaded pilot-chute to do its work.
- Failure to activate the second (reserve) handle will kill you.
- More and more new gear incorporates a lanyard (Reserve Static-Line - RSL) to overcome this. This is similar to an SOS system (see the section on AADs and RSL) in that it is not recommended for CRW or camera jumpers. The option of deciding when to deploy the reserve is considered most important by these jumpers.



4.3 DOS – Dual Operating System

This system effectively incorporates an SOS system on both lift webs allowing the cutaway/reserve action to simulate the two pull action of a TAS. A student trained on this system will not have to vary their reserve drill when updating their equipment to TAS.

4.4 Reserve handles

Most reserve handles are a trapezoidal steel construction, offering an easy grip with the thumb through. Some experience jumper choose to use a soft PUD handle similar to the cutaway handle.

This has the benefit of being more difficult for other to snag, which would result in the unplanned deployment of the reserve.

It does require emergency procedures to be methodical, and a DZSO may choose not to approve it for a novice skydiver, or one who is yet to have their procedures tested with a genuine malfunction.

4.5 AADs and RSLs

For several years now, all parachutists who hold less than a Certificate Class E have been required to have either an Automatic Activation Device (AAD) or RSL fitted to their rigs (Operational Regulation).

Also, all Certificate Class A, B and C jumpers are required to use a rig with a serviceable AAD (Operational Regulation).

The modern preference is for an electronic loop-cutter such as the CYPRES, Vigil or similar. These process height and speed information, and a sealed pyrotechnic charge with a cutter severs the reserve loop when certain criteria is met.

4.6 Reserve Static Lanyard (RSL)

The RSL is a lanyard attached to one or both risers. If you cut away your main canopy and fall away from it, then the RSL will back up your reserve pull and ensure the pins are extracted.

This does not work in a Total or Pilot-chute Hesitation situation. It is a cheaper option than an AAD and can be fitted to a rig as well as an AAD as an additional back-up.

You must never rely on either of these back-up systems. If you feel that you cannot handle any normal emergency situation unassisted, such as a malfunction or a floating handle, then you should look very closely at your training and confidence as a skydiver.

4.7 M.A.R.D.

Like the RSL, the Main Assisted Reserve Deployment (MARD) system (such as a Skyhook®) is a piece of webbing attached to one of the risers, however the other end is attached to the reserve pin and reserve bridle. When your cutaway handle is activated during a low speed malfunction, the main canopy will override the reserve pilot-chute, acting as a very big reserve pilot-chute which is already creating drag above you.

This system creates a much faster reserve deployment. If you have a high speed malfunction the reserve pilot-chute will act as normal, unhooking itself as it launches from your back leaving the MARD behind. When the MARD is used it releases the cutaway cable on the other riser, reducing the chance of one riser still being connected while your reserve is being deployed (“Horse-shoe”).

Today people are jumping smaller and smaller canopies from bigger aircraft. This has resulted in congested landing patterns and high speed landings. There has been more reports of canopy collisions, especially within the landing circuit. A MARD allows you to have a low reserve deployment in the case of a canopy collision.

If you have a low canopy collision (under 500 ft.) without a MARD and you need to deploy your reserve, the best way is to pull your reserve handle first. This will activate the reserve opening sequence without sending you back into free fall, losing as little height as possible. However, this takes careful thought as you are trained to act instinctively and to develop muscle memory. With a skyhook your emergency procedure will remain the same during a low altitude cutaway.

PART 5: DEPLOYMENT OF RESERVES

5.1 Freebag Deployment

A freebag deployed reserve is recommended for all skydiving activities.

The pilot-chute and bag are not attached to the canopy, as with your main.

It has a very long wide bridle with a deployment bag at its end.

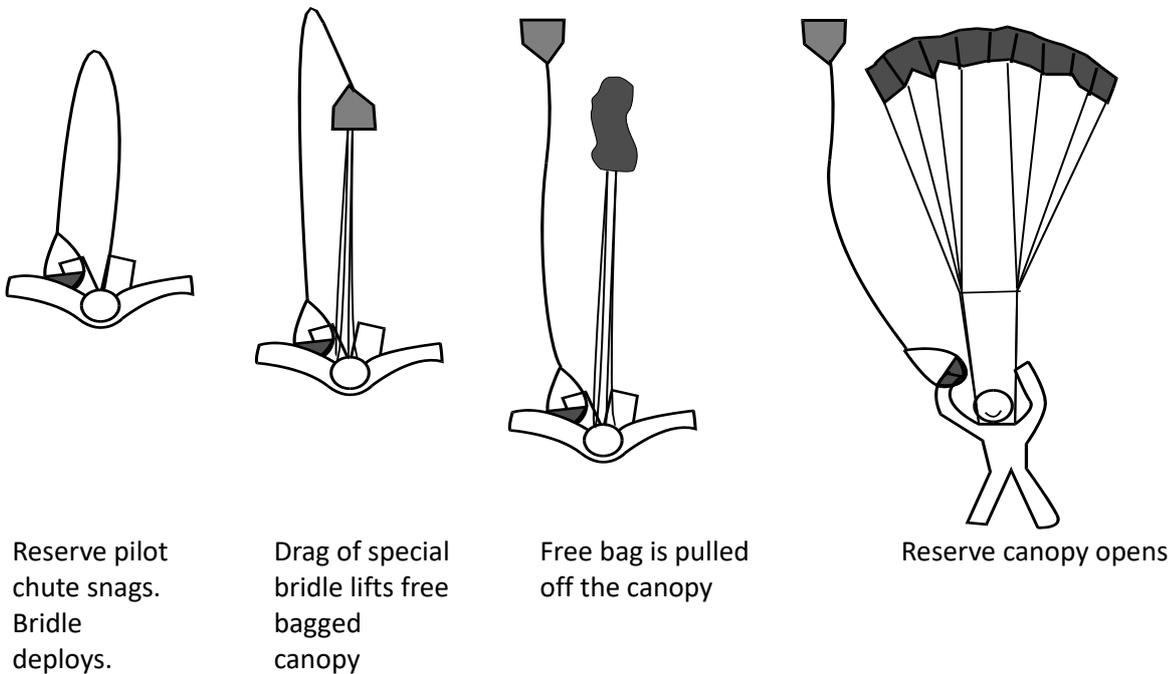
The reserve canopy is placed into the deployment bag, the lines are then stowed. There's usually bungee locking loops to hold the reserve in the bag, then lines are stowed or placed neatly in a Velcro pocket.

When activated, as the reserve deploys, the canopy and the bag separate – hence its name “free bag”. This means both your cutaway main and your freebag will need to be retrieved after your safe landing. Under no circumstance try to retrieve them or anybody else under canopy as this can and has resulted in entanglement resulting in injury or worse.

The theory is that even if the reserve pilot-chute gets tangled (resulting in a pilot-chute in tow), the effect of the wind on the long, wide bridle is enough to ensure your reserve canopy will be deployed without being fouled. Some manufacturers have also fitted assister pockets to their freebag bridles to aid in the deployment.

- Having spares readily available is sensible.
- Put your name and address on the reserve bridle, marked with a “safe” pen (talk to a packer or rigger). A reward helps.

Diagram of "Anti-Horseshoe Capability" of a freebagged reserve



PART 6: PACKING AND MAINTENANCE

6.1 Care of Equipment

- Protect your equipment, especially the canopies, from sun, oil, grease, acid.
Don't just dump it in a car boot – get a rig bag.
- Watch where you pack. Don't leave the rig in the sun and try to pack on carpet or grass.
- Don't drag the canopy or the pilot chute when walking back from the landing area.
- These will all degrade your canopy and, to a lesser extent, the harness and container. It will not perform as well, won't last as long and will depreciate faster.

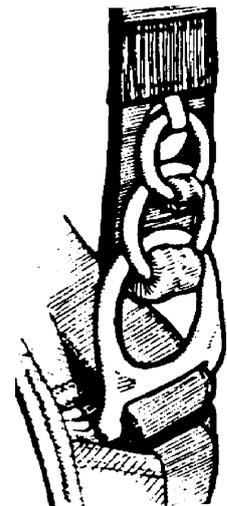
6.2 General checks for every pack

- Check the closing loop on the main container.
 - Check the nut on your Rapide links are tight (joining the suspension lines to the risers) and that the plastic link covers are secure. If you have Soft Links – check them for wear regularly.
 - Check the cutaway cables are stowed in the riser pockets.
 - Check the reserve closing loop(s) is/are not worn.
 - Check the reserve pin is properly positioned in the loop.
 - Check all Velcro on the container.
 - Check all tuck tabs
 - Check the brake toggles are securely tied on (use a bowline).
 - Check lines and brake lines in general and untwist them regularly.
 - Check deployment bag, slider grommets for burring, rubber bands.
 - Check canopy for damage (also done while you are flying under it, looking up through it).
 - Check pilot chute and the kill line or bungee if it is a collapsible.
 - RSL/AAD functional.
- Check the overall condition and safety of the complete parachute system. See Appendix E for guidance and details.

6.3 Monthly 3-ring maintenance

This can be performed with your rig packed, so there's no real excuse for this not being part of your skydiving. Fix the risers with masking tape so that they do not inadvertently twist during this process. However, most riggers recommend doing it while your rig is unpacked.

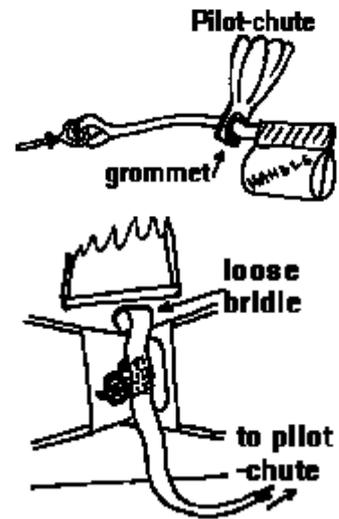
- Disconnect your RSL (if fitted).
- Withdraw the cutaway handle and disassemble the 3-rings.
- Flex the webbing of the 3-rings.
- Check the 3-ring locking loop on each riser is not worn and is flexible.
- Clean and check the cutaway cables for cracks or bends that could catch the loops. Wipe with a light oil, wipe most off with a clean rag.
- Reassemble carefully.
- Check that each part only goes through one other part.
“Big ring, middle ring, little ring, string”
- Reconnect RSL if fitted.



6.4 External Safety Checks - Equipment Check

Do not ever put your gear on before checking it over.

- Check the reserve pin.
- Check the main pin.
- Check the 3-ring.
- Pullout pilot-chute
 - Check the grommet on the pilot-chute is right by the handle. If handle is dislodged it will "float" near its normal location.
- Throwaway pilot-chute:
 - Check the routing of the bridle from the pin to the pilot chute and that there is loose bridle above the pin. Check the pilot chute is neatly packed into the pocket (secure but able to be pulled).
 - Check the "bridle window" to see that your kill-line is cocked.
- Check your reserve and cutaway handles are securely fixed to their attachment points.
- Check altimeter setting.
- Have someone else check your pins in the plane prior to exit. Top teams do pin checks, there is no shame in it – only shame and danger if you have a premature deployment!
- Before exit, make sure your deployment handle is in its correct location
- Check your mates' gear (It is a requirement that every jumper gets a 'Buddy Check' before emplaning. See Appendix F for details on a Buddy Check).



6.5 General Maintenance

Your parachute will require regular maintenance and replacing of parts.

- Lines may stretch or shrink and will eventually break. Depending on the type, they will last between 200 and 800 jumps. Your brake lines may need replacing twice as often as the rest of your lines.
- Pilot-chutes last 900 to 1000 openings, before needing replacement.
- Kill-lines shrink, check their length regularly and replace when they're too short.
- Main parachutes last for 2000 to 3000 jumps depending on how much sun damage they get.
- AADs need batteries replaced, and some will need servicing.
- Velcro needs replacing before it loses its grip.
- Reserves will need repacking every twelve months.
- Other general maintenance may include replacement of rubber bands closing loops and soft links.

Consult riggers and read manufacturers' manuals to find out the life expectancy of each of your components. Keeping good records (that is another reason to keep your logbook up-to-date) of the amount of jumps on your gear means you can replace these parts when they are due, rather than letting them fail and endangering your life.

6.6 Methods for packing your canopy

There are three basic variations:

1. Factory pack or Flat pack

- As used for the student canopies and for square reserves
- More difficult with zero porosity canopies.
- Usually open on heading.

2. Stand-up pack, PRO (Proper Ram-air Orientation) pack and its variations

- Possibly the lowest malfunction rate, as steering lines are controlled right up to the bagging process.
- These are very similar and require a very good "picture" of what you are doing. This can be daunting initially.
- By keeping the pack job under control, you improve the opportunities for on-heading openings.
- Not too much time on your knees and doesn't take up much space.
- Keeping the brake lines at the rear of the canopy and away from the nose is an important part of this kind of pack. Line-over malfunctions may result if care is not taken.

Some excellent guides can be found on the web just Google "Pack like a Pro Parachute".

3. Roll pack

- Very easy to learn starts the same as a pro pack until you put it on the ground
- Easiest system to "bag" the canopy and therefore a quicker pack especially for zero porosity canopies
- More likely to open off heading than a flat pack
- A lot of time spent on your knees
- Easy to adjust the nose setting and check the brake lines are not wrapped around the tail.

Most manufacturers provide packing instructions for their parachutes, and state that if you use any other method you are effectively a test pilot. The PRO pack is the most common.

You must incorporate certain checks into your packing routine. If everyone performed these simple checks each time the canopy is packed, most malfunctions could be avoided.

6.7 Line checks

Lay the canopy out (flaking) and check the risers are side by side and not twisted.

Check both the brake lines from the risers/toggles are on top of the risers to the tail of the canopy (This will alert you to a step-thru twist in the risers if there is one.)

As a double check, you can follow the two centre stabiliser lines from the stabiliser to the riser, or outer "A" lines going to outer front riser, left to left etc.

Setting your brakes needs some care and attention to detail. Many cutaways are due to failure of the brakes to function as planned (either releasing during opening or jamming on after deployment). Plan how you will deal with these situations before it happens to you.

6.8 Hard Openings

Several interrelated factors affect the opening characteristics of your canopy:

Packing method

- Canopy folding
- Slider position
- Bagging the canopy

The manufacturer's instructions should be followed when packing. The exact location of the slider inside the pack job greatly influences the opening, and it is critical that the slider grommets remain up against the slider stops even after bagging the canopy. A couple of inches down the lines can make a big difference.

Line stow method

If the lines are not stowed to the bag securely enough then there is a danger of 'line-dump'. This means that the line groups are yanked out of the rubber band stows as the bag decelerates off your back, leaving the lines in the pack tray and the canopy coming out of the bag before line stretch.



The jumper, travelling at terminal, finally reaches the end of the lines and already has an open canopy (canopy first deployment), the opening shock is brutal and can damage lines, canopies, risers and skydivers.

To check your lines on the ground, it should take between 6 and 12 lbs of force to un-stow the lines when pulling the bag across a smooth surface by the bridle. You can use a spring scale to check this. This is particularly important with the new, thin, slippery lines.

Line stows should also have about 2 inches (50mm) of line loop through each stow and if you are using Tube Stows, read the instructions to get the correct stow tension.

Your lines need to be stowed securely for 2 reasons:

1. To provide some resistance to the pilot-chute and thus slightly more time before the canopy comes out of the bag. This extra time with the pilot-chute behind you creating drag will slow you down. A slower fall rate when the canopy opens means you have less speed to lose, this makes the transition from freefall to canopy softer (less "G-force").
2. If one of your lines creates a half hitch around another line it will cause a "tension knot" or "bag-lock". Loose line stows can go wandering which increase the chance of these two malfunctions.

Bags without rubber bands are increasingly popular, they use an extra flap with tuck tabs, or magnets. The lines are stowed in a figure of eight behind the extra flap. As there are no stows, it makes it almost impossible to have a "bag-lock". However, you must adhere to the manufacturer's packing instructions.

Pilot chute

The pilot chute has a big effect on canopy deployment. Too much drag slows the bagged canopy down too much, increasing the 'snatch force'. This is when the pilot chute and bag is accelerated to free-fall speed at line stretch. This can also disorganise the unpacking of the bagged canopy.

If you have a non-collapsible pilot chute, fitting a kill-line system will help. It may also help improve your landings, as the canopy is now flying more efficiently.

Deployment airspeed

This largely boils down to "don't dump in a track", be stable and slow down after freeflying. Using a good flare to lose your forward speed will help your openings. Keep in mind that wearing boosters will radically increase your speed. Also, sitting up (head high) on opening helps to reduce the whiplash effect on your back and neck.

Correct wing loading

Wing loading is your exit weight in pounds divided by canopy size in square feet. It's a useful basis for comparison.

Canopy manufacturers publish their recommended suspended weights for each of their canopies. Remember that this includes the weight of your parachute, harness and reserve (your exit weight, in fact). These recommendations are the result of a many test jumps in different conditions. If you ignore these recommendations to buy a smaller canopy, then harder openings may be the least of your problems.

Here are examples:

80kg (jumper) + 15kg (rig, jumpsuit, accessories) = 95kg = 210 pounds (approx. 2.2lbs =1kg)

Divide a 230 square foot canopy into 210 gives a wing loading of 0.9

Divide a 96 square foot canopy into 210 gives a wing loading of 2.2

As you can see, the higher the wing loading number, the more aggressive the canopy piloting.

Do not suffer in silence

If you do have a problem with hard openings, talk to someone about it. Riggers, instructors or an experienced jumper with a similar canopy can all help.

A hard-opening canopy is dangerous and expensive.

Jumpers have suffered.

- broken ribs,
- internal injuries
- damaged necks
- dislocated joints
- broken lines, and
- canopy damage.

PART 7: YOUR FIRST JUMPS

7.1 First things first

You've finally got it - your very own rig - no more waiting or hiring fees. Before you take it up in the air consider the following points.

- Have I received adequate instruction and had my rig inspected/test jumped by appropriately qualified people?
- Is my reserve in date? Check the packing card.
- Am I familiar with the main deployment device (rip-cord, throwaway or pull-out) and any problems related to the type?
- Am I familiar/confident with my emergency procedures (SOS, Two Action System)?
- Am I familiar with the RSL and/or AAD?
Electronic AADs must be turned ON while still on the ground!
- Am I confident to land my main canopy?
- Am I confident to land my reserve canopy?

If you answered "yes" to all of the above then you are ready for your first jump.

7.2 Priorities of Every Skydive

1. Deploy the Parachute.
2. Deploy at a Safe Altitude.
3. Deploy Stable.

Priority 1 takes precedence over Priority 2 and Priority 3.

7.3 Priority 2 takes precedence over Priority 3. Rules of the Air

The following are guidelines for all air vehicles and are derived from CASA Regulations CAR 161 and 162. As a general rule, power gives way to gliders (and parachutes). More manoeuvrable craft (and canopies) give way to less manoeuvrable craft. Generally, it follows that, students, tandems and camera flyers (in that order) should be given right of way by solo jumpers.

Otherwise...

Converging (at a similar height)	Canopy to the right has the right of way.
Approaching head on	Each canopy pilot shall alter course to the right.
Overtaking	The canopy being overtaken has the right of way. The overtaking canopy shall pass to the right.
Landing	A lower canopy has right of way.

However, it is not acceptable (or good airmanship) to zoom in front and below of another canopy (cutting them off) close to the ground.

These are guidelines and local factors may require a different approach near the ground.

Note that all canopy pilots have the responsibility to fly considerately so as to avoid a collision.

None of these guidelines give one pilot the right to force a right of way over another pilot!

General exercises to get the feel of a new canopy:

Practice all procedures, including emergency procedures, before jumping. Keep it simple and solo - no other distractions.

- Get an instructor to run through a canopy control flight plan and to observe your approach and landing. Also observe others of similar weight on similar sized canopies.
- Exit high and do several practice pulls on the main deployment device. - Touch the cutaway and reserve handles in freefall.

- Open high - 4000 ft. - 6000 ft. (with DZSO's permission) (notify pilot and others on the load).
- Locate and touch your cutaway and then the reserve handle and RSL release.
- Find flare/stall point three times with slow recovery.
- As above, but let toggles up suddenly - it will help you program your senses as to why you should not do this close to the ground.
- Hook turns left and right. **Look before you turn** and watch the spot).
- Brake turns - No major manoeuvres under 500 ft.
- Try rear risers flare/stall - you may have to do it one day if a brake line snaps.
- Rear riser turns.
- Pull both front risers down.
- Front riser turns. Look before you turn. No such manoeuvres under 1000ft.
- Fly normal landing approach.
- Have TA available to help you judge the flare point (be prepared for a landing roll).

These are the very basic skills you need to learn the flying characteristics of your parachute and the building blocks to becoming a safe canopy pilot. Practice the skills on every jump and take advice from your Instructors - until you feel confident with your ability. Further exercises can be found in the "Certificate Class B Training Guide".

PART 8: EXITS

8.1 Exits are Key

Your exit from the aircraft is often described as the most important part of the jump – and there are many reasons for this.

It is regularly proven that a good exit (stable, planned, controlled) is followed by a good skydive. A poor exit (unstable, funnelled, hurried, poorly timed, poor communication, lots of tension) is often followed by an unsatisfactory skydive. The importance of planning and practicing the exit on the ground cannot be emphasized enough.

There is another reason why exit practice is so important and that involves safety, yours and everyone else's in the aircraft – Aircraft have been lost and jumpers killed by careless exits.

Preventing this starts on the ground: check the aircraft and doorway for anything sticking out that may catch your equipment (don't just assume it's OK because someone else checked or because you are not the first load of the day). Know where any exit steps or handles are located and the easiest way to use them.

During practice watch for any confusion especially with grips (the old joke about taking grips on cutaway/reserve handles still occurs on exits). This can be especially true if you are trying something new or different.

Remember that your parachute is designed to open and too much force applied (despite the protection of Velcro and tuck flaps) will risk a premature deployment.

Try to avoid anything touching your pack (particularly where you can't see it) once the door is open. Be as paranoid as you consider necessary about this.

8.2 No "Pack Jamming"

One method of setting a formation exit is called "head jamming", which involves the use of head pressure pushing up against the top of the door which enables you to free both your hands to take the first grips. Exit is then affected by releasing the pressure (ducking) and the formation launches.

Be very careful this does not turn into a "pack jamming" exit where it is pressure on your reserve container that is holding you in the aircraft. Pressure applied this way to most rigs will eventually dislodge the reserve pin with potentially disastrous results. (This is one of the main advantages of rigs where the reserve pin is closest to your body and well protected.)

When you are setting the formation in the door use your hands to get into position, do not approach (backing out the door) with your hands already occupied holding both grips.

Then, when you are comfortable with your position take the planned grips and start the exit. If you are involved in the exit, facing out from inside, look to see the jumpers in the door are keeping their rigs clear of the frame.

Practice the exit before every skydive. Take note of the position of your hands and feet, and of those around you.

In the heat of the moment, during exit, people may not exactly follow the plan. But if you had a plan to start with and you had practiced it then you can accurately critique the performance and do better next time.

Remember all the P's... Prior Preparation and Planning Prevents P#ss Poor Performance!

See safety poster on the back page.

PART 9: CANOPY HANDLING SKILLS

If new gear involves changing your reserve drills or main deployment method, then you should do at least three or more solo jumps before considering complicating matters with relative work and possible low openings.

Again, we emphasise this is not a do-it-yourself manual - be guided by your Instructors.

9.1 Brakes

Pulling both toggles down from full flight and stopping in a position above the flare point is called applying brakes. This reduces your canopy's forward speed.

On a student canopy, the toggle movement is about:

- 1/4 brakes - toggles to shoulder level
- 1/2 brakes - toggles to chest
- 3/4 brakes - toggles to hips
- Full brakes - toggles just above the stall point.

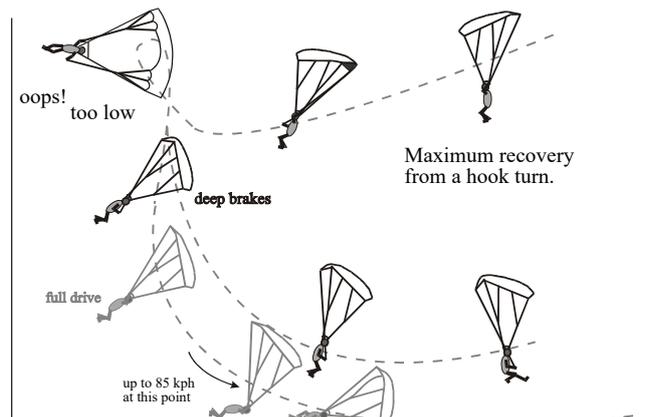
These will differ depending on canopy type and size. Usually, the smaller the canopy, the shorter the toggle control range (some canopies stall at chest level). Talk to your Instructor.

9.2 Turns and Hook Turns

Pulling a toggle down induces a turn.

A hook turn is a large and abrupt turn which causes a pendulum effect. Because the canopy turns and then you follow, you have limited control until you catch up with the canopy. Don't do this close to the ground.

At altitude (above 1000 ft), practice performing an aggressive (hook) turn and immediately move into deep brakes (i.e. do not let your hand up, bring the other one down to match it, but do not stall the canopy.)



If you ever input a radical turn close to the ground and immediately realise that you have made a bad mistake, this may be your only option to get your canopy back over your head as quickly as possible and it must be instinctive.

9.3 Braked (Flat) Turns

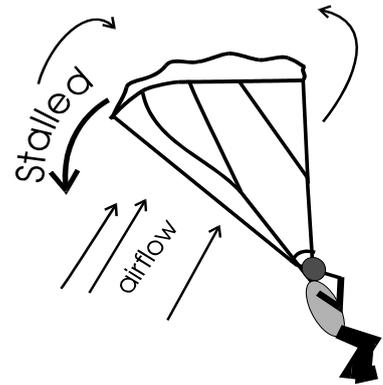
This involves starting a turn after you have applied some brake - either raising or lowering one toggle and starting to turn from a lower airspeed. Doing a turn from any of the brake positions outlined above results in a flatter, slower turn. This is useful to get turned around as far as possible into wind when you feel you are already too close to the ground for a large toggle movement turn. Again, you need to practice this so that you can initiate it quickly without stalling your canopy.

9.4 Stalls and Stall Recovery

A stall occurs when you pull the tail of your canopy down to the point where the air passing over the top cannot follow the curve of the canopy. The airflow separates from the canopy, breaks down into turbulence and much of the lift produced by your canopy disappears instantly.

The canopy begins to fall backwards, the cells deflate because they have lost the ram-air and your canopy is now a very inefficient parachute, instead of a reasonably efficient aerofoil (wing).

To recover you must raise the toggles above the stall point. The trick is to only raise them enough to allow the canopy to start moving forwards and re-inflate, but not enough to allow it to surge and dive in front of you. To achieve this requires you to raise your hands a few inches and then slightly lower them again, but not to the stall point. This is a basic stall recovery technique. It requires practice and a feel for your canopy.



9.5 Landing Hazards

Most injuries occur at landing

Injuries can occur on exit or in freefall, but the majority occur on contacting the ground. Be very careful on your approach and landing.

- The lower person has right of way – but don't die maintaining your right of way. Fly defensively.
- Land into the wind if possible.
- Beware of other canopies in the same area.
- If it looks too congested where you want to land, go somewhere safer.
- Observe a common landing pattern and direction on nil-wind days.

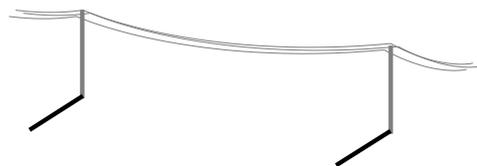
Water landings

Most dams are small and shallow. This may not be true everywhere.

- Are you wearing lead? A weight belt worn on the outside of your jumpsuit can be released more easily than one worn on the inside or than a weight vest.
- Land into wind, so your canopy will hopefully fall behind you.
- Flare for the top of the water.
- If you are jumping at a new drop zone with large amounts of water nearby ask about their water drills and have your procedure ready before you do your first jump. (floatation device maybe required)

Watch out for

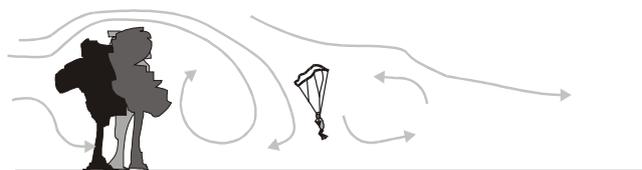
- Flare point over long grass.
- Fences.
- Rivers or dams.
- Trees.
- Power lines near roadways and buildings. Look for poles and their shadows.
- Wind direction as indicated by ripples on dams, smoke, windsocks and cloud shadows.



9.6 Turbulence

Severe turbulence can deflate any canopy in the right (or wrong) circumstances, dropping you to the ground.

- Turbulence downwind of buildings or trees (mechanical). The rule of thumb is that turbulence can be detected downwind for a distance of up to ten times the object height.
- Turbulence over or downwind of runways or roads (thermal).
- Turbulence behind aircraft (wake).
- Turbulence behind other canopies (wake).



Some manufacturers recommend full drive in turbulence to maintain the pressurisation of your canopy (which is a result of your airspeed). Check the manufacturer's guidelines.

Using brakes will reduce the speed of your canopy, possibly making it more stable when hit by air from different directions– but if you are landing in brakes plan to perform a PLR, the canopy will not flare as well.

And try not to jump in dodgy conditions or get close downwind of obstacles.

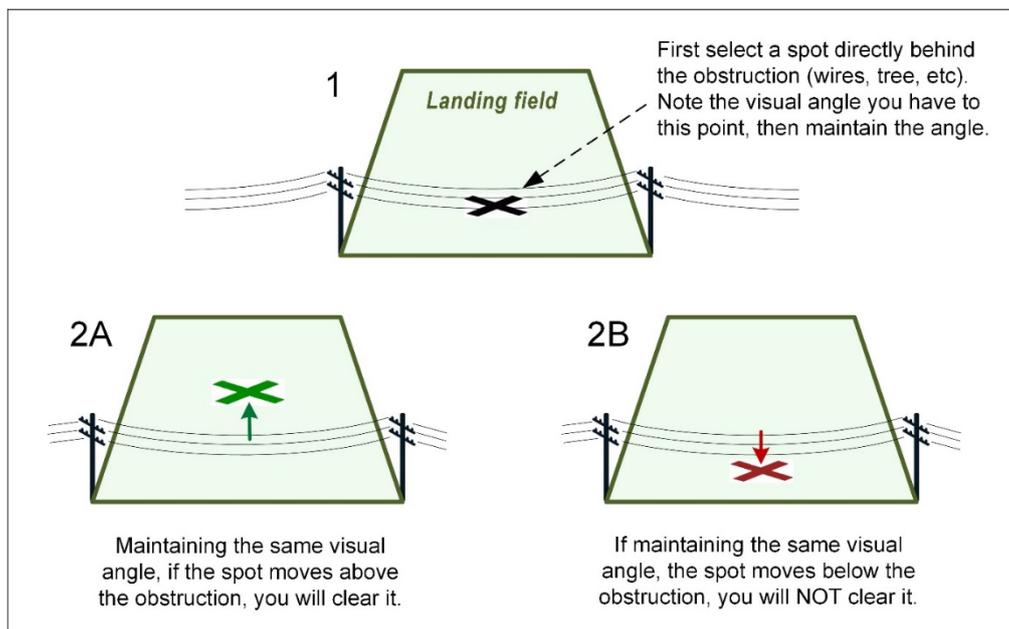
9.7 Clearing obstacles – “The Accuracy Trick”

You can tell if you have enough altitude to reach a given landing site by looking at an object (e.g. building /tree/power pole) just in front of or near to the site.

By looking at the top of the object as you fly towards it you can see whether the ground appears to be rising or sinking behind the object.

If you are going to clear it the ground will be appearing (moving up).

But if the ground is disappearing (moving down) behind the obstacle then you know immediately that you are not going to clear it and you need to start looking in front for an alternative landing area.



As an alternative to facing the landing area, if you perform this test while side on to the wind (crabbing) it will give you a clear indication of whether you can easily clear it or not just by using the wind speed. Then you can use your canopy drive to either hold or run to make sure you are well clear.

Of course, real life is often more complicated than that and you may encounter different winds at different heights but you have to start somewhere. (Usually the wind decreases as you get lower.)

Continue to use the accuracy trick as you get closer until you are sure you'll make the DZ. If you find you cannot make it back then the accuracy trick lets you make the decision to land out in plenty of time to choose an alternative.

With a parachute that needs a longer runway, try to arrive at your chosen out-landing site with enough height to allow you to overfly the field, fly the landing pattern and check for obstacles. Powerlines are particularly hard to see if you fly a straight-in approach (and it is too late if you see them at 30 ft), so the few seconds spent checking an area you may never have looked at before is well worth the few more minutes of walking.

So, with a little preparation and practice there should be no more last minute decisions that aren't really decisions - but are more like desperations.

Treat every landing as though it may be your last, then hopefully it won't be.

PART 10: CANOPY CONTROL: IN-FLIGHT TRAINING EXERCISE, AIMS AND MANOEUVRES

The following jumps may require one, two or more jumps observed by a check pilot approved by the DZSO.

10.1 Slow flight, stalls and stall recovery

Aims

To demonstrate:

- competency of canopy control in all braked configurations;
- ability to recover from a stall with a minimum of canopy surge; and
- “maximum recovery” from a hook turn.

Manoeuvres

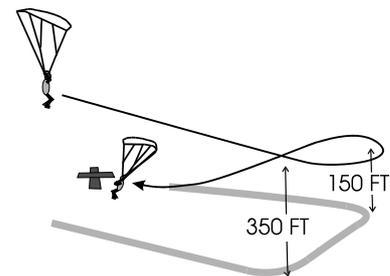
1. You need to demonstrate to a check pilot who may be flying in company, the ability to fly the canopy as slowly as possible without stalling and also to demonstrate the ability to stall and recover flying speed without allowing the canopy to surge forward or lose directional control.
2. As above, you need to demonstrate static and dynamic stalls and the ability to smoothly recover from both.
3. As above, you need to demonstrate the ability to perform a “maximum recovery” from a hook turn (at height) by bringing the other toggle down to meet the turning toggle without stalling and also to demonstrate this maximum recovery from a front riser turn.

10.2 Full glide square approach

Aims

The ability to:

- judge glide angle and your track across the ground in different wind conditions at full glide. Note: Track refers to your true direction of travel across the ground, which is not necessarily the way you are facing; and
- judge safe and precise pre-planned turning heights; and
- execute a standard full glide, square approach landing pattern without resort to major steering corrections; and
- land safely within the required distance.



Manoeuvre

To demonstrate this skill, you need to fly a precise landing pattern at full glide, turning downwind to base at 350 feet (± 50 feet), turning base to final at 150 feet (± 50 feet), and landing with only minor directional corrections within 25 metres of the target.

10.3 Braked short approach

Aims

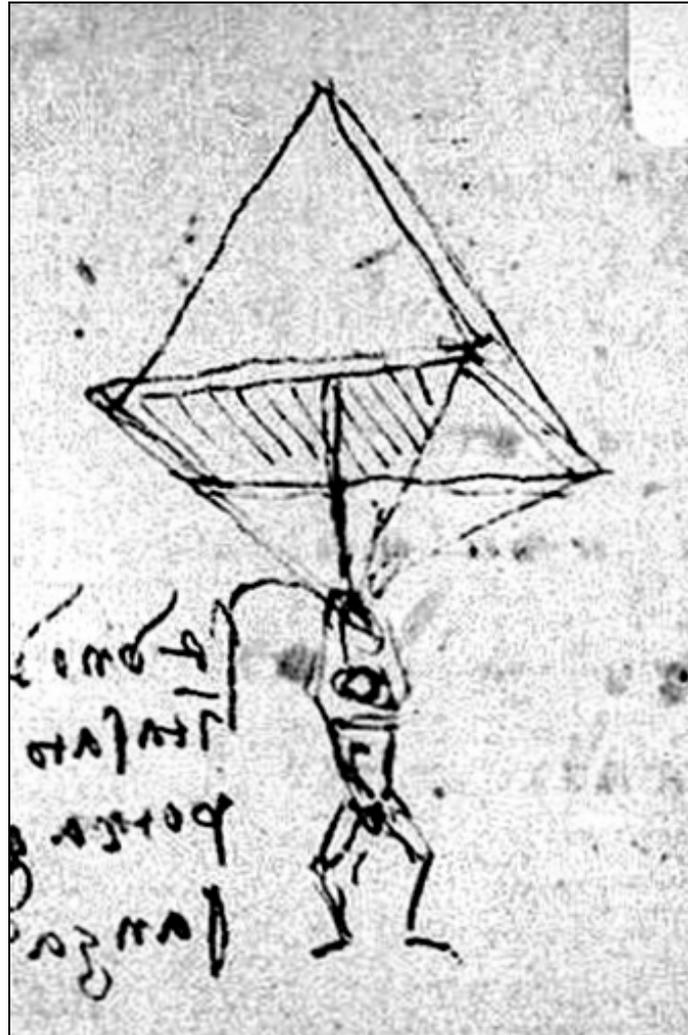
The ability to:

- judge glide angle and track in different wind conditions in a braked configuration;
- judge safe and precise pre-planned turning heights;
- execute a braked, square approach landing pattern without resort to major steering corrections; and
- land safely within the required distance.

Manoeuvre

To demonstrate this skill you need to release the brakes and then fly most of the descent with between $\frac{1}{2}$ and $\frac{3}{4}$ brake applied demonstrating braked turns and slow controlled flight until turned onto finals when you will complete a full drive/full flare landing within 25 metres of the target.

Canopy control has changed a lot since Leonardo Da Vinci first conceived of a parachute...



PART 11: BE EMERGENCY READY (EXPECT THE UNEXPECTED)

11.1 Your First Reserve Ride

Statistically, if you keep jumping long enough, you will have a reserve ride. Some people have done 5,000 jumps without a reserve ride (the average is about 1:500).

Mentally rehearse and practice your emergency procedures regularly, preferably before each jump - you will note that most experienced jumpers do.

- Parachutes are mechanical devices.
- All mechanical devices are subject to possible failure.
- If you look after your gear, it will look after you.
- Careful attention to your gear will minimise your exposure to reserve rides.

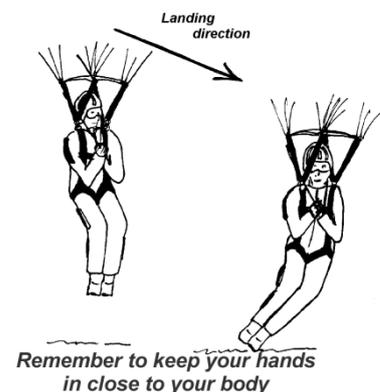
11.2 Parachute Landing Rolls - PLRs

You were taught to perform a PLR during your student training. You may not have practiced one since. However, most experienced parachutists will tell of at least one occasion when they survived a hard landing with no or little injury by using a PLR.

Either during turbulence, or a bad approach, or avoiding an obstacle, a well-timed PLR has saved or reduced many injuries.

Step-by-step to understand the drill:

- Feet and knees tightly together.
- Knees, nose and toes in line.
- Turn feet at an angle to direction of fall.
- Push hips out. (Banana shape).
- Five points of contact: feet, calf, thigh, buttocks, and rounded back, to finish on opposite shoulder.
- The importance of holding the position.



11.3 Canopy Collisions: How to avoid them and what to do if you have one

As the trend to smaller and faster canopies continues, the chances of becoming involved in off-heading openings and canopy collisions are increasing. Things happen much faster, you have less time to react to the situation and you should have some form of response ready, just as you do for a malfunction.

11.4 Prevention Is Better Than Cure: Tracking

Tracking is vital to achieve maximum horizontal separation from the rest of the jumpers on your load. Practice tracking whenever you jump (excluding solos on big loads) and always aim to do better with each track.

Jumping all over Australia I see a lot of skydivers who do not have a good track. Their tracking skills may be adequate for a four way on a Cessna DZ where their peers know them but are not good enough when they travel to boogies and jump with strangers who may have a similar standard of skill.



If you do track well, don't get lazy. Force your best track on every jump and encourage everyone else to do the same.

Load Size and experience

Important in determining when track-off will begin. Don't be afraid to suggest a higher altitude for track-off so that everyone will have enough time to achieve good separation. Overseas, track-off heights, even for experienced 4-ways are often set at 4000 feet. Make sure you are personally happy with the track-off height suggested and speak out if you want it elevated. Remember, you may have knowledge that the organiser doesn't.

Track all the way to the planned opening height.

Stay with Your Load

...until it is about time to track. If you have gone low on the formation move to one side and keep trying to regain lost altitude until about 500 feet above track-off then start your track away from the centre of the formation and keep going until your lowest personal safe legal opening height. Too often people who track high from a formation either run into the next group or get sick of tracking, stop and are caught by others on their load.

If you are heading away from the DZ, bad luck, you still need to put your best track forward.

It takes two jumpers to have a collision - but only one to avoid it

Look, Wave and Pull.

This should be self-explanatory but some don't do it, thinking their track will have cleared them from others or that the flare out of their track will be enough. If you identify your "neighbours" as you are opening you also have more chance of evasive action if your canopy heads in their direction. Waving is a good habit and can make a difference to your being seen, especially around dusk.

11.5 Under Canopy

Stay Height Aware.

An action that may be correct at 2000 ft may kill you at 200 ft. Try to recognise different heights where responses change. Heights to identify on each and every jump are 1500 ft. (lowest cutaway) and 500 ft. (reserve only, too low to cutaway).

Check for Traffic

Who will be landing at the same time you are? Smaller faster canopies above you and big slow ones beneath you are the ones to keep an eye on as well as the known "spiral through the group" people. Where are the camera-fliers? They have restricted vision in many situations so give them plenty of space

Slider and Brakes

Before you release your brakes, pulling on a rear riser will usually avoid or lessen the severity of a collision. You can also steer by weight shifting in your harness.

Make sure you are not going to run into anyone as you fix your slider and take off your brakes.

If there are a lot of others around don't worry about fixing your slider. Let it flap until you are well clear.

Land Safely

If the landing pattern is crowded, land somewhere else. Better to walk a little way than not to be able to. There is very little value in being dead right!

Dusk Loads

Also known as sunset loads, jumping late in the day as it gets dark can bring its own problems. Boogie goggles, dark canopies, rigs and jumpsuits make it hard to see or be seen, so try to identify potential problems early. You do have options such as landing further away in a clear area or sitting on brakes and being the last one down, or spiralling carefully to get down first. You could also consider a lighter colour jumpsuit or canopy next time you are purchasing.

CRW Seminars

...can be a good way of learning in a fairly safe environment about canopies and how they perform together, giving you some of the skills you may need to deal with an entanglement. Attend a seminar if the opportunity presents, you may enjoy it.

Doing CRW on small canopies after a rel load is NOT a good idea in most situations since you will often be too low, too crowded or too rushed.

Attitudes

Don't be an ostrich with a head-in-the-sand and help others to be anti-ostrich too as it takes two to tangle.

Talk about collisions and think about what you should do, then discuss it with your instructors and others to check just how appropriate it is. Initiate a forum over a wind hold or a few beers in the pub.

11.6 Entanglements

So you have done all the right things and you are still in a canopy collision. What should you do?

Have a plan...

... an emergency is not the time to get creative.

Minimise the Damage

Hitting in a turn initiated by grabbing a riser can result in a glancing blow. If you are going to hit, get big by spreading your arms and legs. This means you don't go as far through the other lines or canopy.

Check Your Height

Collisions occur at different heights and what to do varies with the height that you entangle. Above 1500 ft. work out the tangle. Try to get clear of canopy and lines and decide who should cut away first if someone has to. The first person should cut away by 1500 ft.

Above 1000 ft. The second cutaway should be done if necessary. Sometimes the second person can free themselves and their main canopy after the first person has cut away and if the main is undamaged they do not need to take further action.

Stay height aware under canopy and have "check" altitudes.

Below 500 ft. Reserve only. Get some more fabric out there and keep working on the entanglement. Don't cut away as your reserve may not have time to inflate before impact. For example, if you are at 200 ft. and someone runs into you, a cutaway would probably be fatal.

Communication is of prime importance. Talk To Each Other!! Call out the altitude and discuss what should be done. Each wrap is different so you need to make the best assessment of what is right in your situation. If one can get clear of lines they should probably go first. This is often the high person who may still have a good canopy above them that has been providing some support for you both. Try and think about what would happen if either one cut away first. Would a cut away from the bottom canopy wrap the top person or canopy making it harder for them to get free?

Through or Back?

This choice has to be made on an individual basis. If you can clearly see a way through, it may be wise to go on even though this will always result in a cutaway. If the way back is not far and easy to see, following your lines back may be an option but it is easy even for experienced CRW jumpers to go back the wrong way

RSL

Disconnect before you cutaway? Is there a chance your reserve will also entangle? Do you have a freebag? This should decrease the chance of reserve entanglement but may cause further problems for the other person. Is the time taken to release the RSL worth it?

I feel the first person to leave should disconnect if time allows but the other will probably not need to do so unless they are hoping a cutaway will free them from other lines. Simulate disconnecting your RSL under stress in a suspended harness with someone throwing you around to see how difficult it maybe to do.

11.7 Two Canopies Out – The Dual Square Report

A 1997 study conducted by the Parachute Industry Association assessed the best procedure to follow in the event of finding yourself under both main and reserve canopies.

The conclusions of the Dual Square Report, for each type of scenario, are reproduced in an updated format in the APF Canopy Pilot Guide.

Read and understand about how to deal with ‘two canopies out’ in the Canopy Pilot Guide.

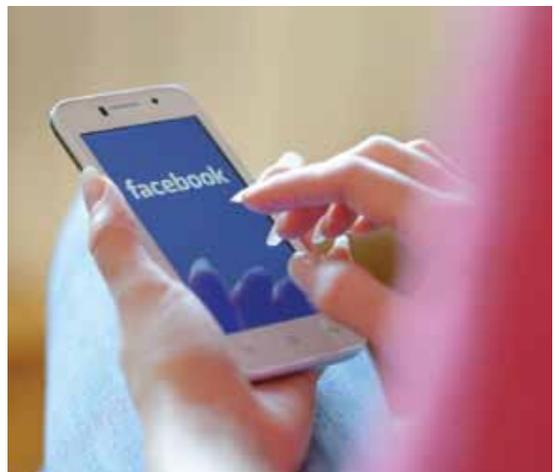
11.8 Response to a Serious Injuries or Worse

Parachuting and flying in parachuting aircraft can be dangerous. If you are involved in the sport long enough, you may be witness to a serious injury or fatality at your DZ. If this occurs, the Drop Zone Safety Officer (DZSO) or Chief Instructor (CI) will assume control and appropriate Emergency Services will be contacted.

As a jumper at the DZ, or even if you are not at the DZ and are made aware of a serious jumping incident, there are a few things you can do to ensure the best possible outcome for everyone concerned. Please consider the following:

1. First aid should be applied where appropriate, ensuring preservation of evidence and the scene.
2. The DZSO or CI will need to establish quickly what has occurred, may delegate responsibilities, and will also need to record witness accounts. If you feel you have something to offer (skills in assisting with such matters, or a witness account), make this known to those in-charge and stick to the facts.
3. Social media and electronic messaging are double-edged swords: They can spread misinformation and cause a lot of undue stress and heartache, particularly when family/friends find out through (mis)information via social media or text messages that a loved one has been injured or worse.

Further to point 3, the following is an excerpt from an article, “Surviving Death Online: How to help your mates when the \$hit hits the fan”, written by Kate Vaughan for Australian Skydiver Magazine (Issue 77, Vol.4, July/Aug/Sept 2015):



Scenario: If you...	Things you can do to help...
Believe that your friend may be involved in an accident:	<ol style="list-style-type: none"> 1. Take a breath, STOP and think: how is the best way to get hold of this person? In particular, if I choose to communicate on a public social forum, what repercussions might that have? 2. Call your friend by phone. If this fails, text them. Try to establish communications with them directly, one-to-one. If they are ok, they will answer. If they are not ok, be prepared for the fact that they won't answer. 3. Physically go to your friend's house/the drop zone/where you believe they are. When you get there, find out who is in charge. If you're up to it, volunteer to help. 4. Otherwise, wait for news from official channels. This means the police, an APF Safety & Training Officer or the APF Office. Or if you are in their inner circle, from their partner, parent, sibling, etc. <p>It's <i>really</i> hard but the main things you might need to do in this situation is to <i>wait</i> and be <i>patient</i>.</p>
Know the spouse of a person involved in an accident (meaning <i>really</i> know them, as in, you are in their inner circle of 3-5 closest friends):	Same as above: Call them and find out where they are, and ask what you can do to help. Physically get to them if you can because they will be out of their mind with worry and panic, and potentially, grief. They will need your practical/physical help, a ride to the airport maybe, cash, a toothbrush, clothes. They will neither see nor care about a message you've sent them via Facebook.
Know an accident has taken place and you want to find out information about who, what, why, where:	<ul style="list-style-type: none"> • Take a breath, STOP and think: why do I need this information? What am I going to do with it? Are there other people who should receive this information before me? • Ask yourself: if I choose to communicate on a public social forum, what implications would that have? Wait ten minutes to consider the consequences, then take your chosen action. • If you can't get any info through private channels, then you are far enough removed that you can wait for official reports to come out.
Know a fatal accident has taken place and you feel you want to share information about it with other people:	<ul style="list-style-type: none"> • Take a breath, STOP and think: are you performing a role on behalf of the APF, the drop zone or the police/emergency services? If not, you need to think carefully about who you share information with, how you share it, and what the repercussions may be, e.g. media leaks, incorrect information reaching families.
If you are at the drop zone when an accident takes place:	<ul style="list-style-type: none"> • Let your loved ones know you are ok! If you must use Facebook, just a simple, "I'm ok" on your status is a good idea. • Stay close to the Police, your CI and other instructors who will direct you to support available if you need it. Or, talk to a close friend or family member.

Please take heed of the themes above. When bad things happen, immediately posting “news”, sharing information prematurely or posing questions on Facebook or in text messages doesn't help and can be dangerous. Be aware too that the media searches these sites for information to build stories. We should avoid bad press and misinformation.

PART 12: ACCURACY: LANDING WHERE YOU PLAN TO

12.1 Accuracy in Competition and on Every Jump

Competitive accuracy takes two forms:

1. In its original form, Classic Accuracy is the ability to land on the 2 cm centre of a 32 cm electronic pad to gain a zero score. Competitors choose to fly large slow stable canopies, such as the Parafoil series (252, 272, etc) or Performance Designs' Zero series. Each centimetre from the centre of the pad to the first point of contact is measured to give a score. Landing comfort is sometimes sacrificed to achieve that aim, hence the large air-filled "tuffet" that accompanies this event!
2. Sport Accuracy is similar although competitors aim to land standing-up within a defined area with their first point of contact as close as possible to the centre of a target. Competitors are usually flying faster sport canopies, however they can be penalised or disqualified for executing radical canopy manoeuvres during the final approach.

The practical application of accuracy however, means you have the skill to land comfortably where you take your parachute (not where your parachute takes you).

Accuracy is something you can practice on every jump. This will pay off on those jumps when it is most important that you land where you want to (such as on a display or somewhere where it won't hurt).

12.2 Exit and Opening Point

Should always be upwind in relation to the target. The distance upwind is related to the Wind Drift Indicator (WDI) and any other observation noted on the ground.

The "Climb out" – the point at which skydivers begin to set up the exit – may be downwind of the target, anticipating that the plane's forward speed will put them in the right location upwind at the time the exit occurs.

TAP Check

Traffic	Fly away from flight line on opening, checking proximity to others before manoeuvring
Altitude	Check altitude regularly, look at the ground first and then cross check with altimeter.
Pattern	Know where the 2,000ft Holding Area is, where the 1000ft downwind check will start and who else is in the pattern ahead and behind them. Check wind speed and direction throughout canopy flight

LACES Checklist

The novice pilot should also be familiar with a landing checklist such as Legs/Arms/Chin/Eyes/Smile and Breathe ("LACES")

Just as an aircraft pilot has a downwind check for their landing, so should a canopy pilot. LACES is useful to remind them to set themselves up early for a landing.

Legs	Feet and knees together. Knees slightly bent, toes approx. 30° to one side. Ready for a PLR.
Arms	Return arms to the full flight position. That way they have full speed and a full flare available
Chin	By keeping the pilots chin up, it reminds them to look ahead and NOT down at the ground below

Eyes	Open and looking ahead toward the end of their runway. The moment they start looking somewhere else, their body will almost automatically start to take them that way
Smile and Breathe	Remind them to smile; relax; breathe slowly and deeply. Facial expressions are good indications of a novices' state of mind. If they are relaxed then they are probably making smarter decisions, as opposed to being tense and not breathing which may lead to less desirable consequences.

An aircraft pilot does not need to see the exact point at which they will be touching down. They scan the runway when they are on finals to see if there are any obstacles and then look towards the end of the runway to keep the aircraft on the correct heading. An aircraft pilot that has lost power will aim to land 1/3 to 1/2 way down the runway. If they under or over shoot their target then they still have room to spare.

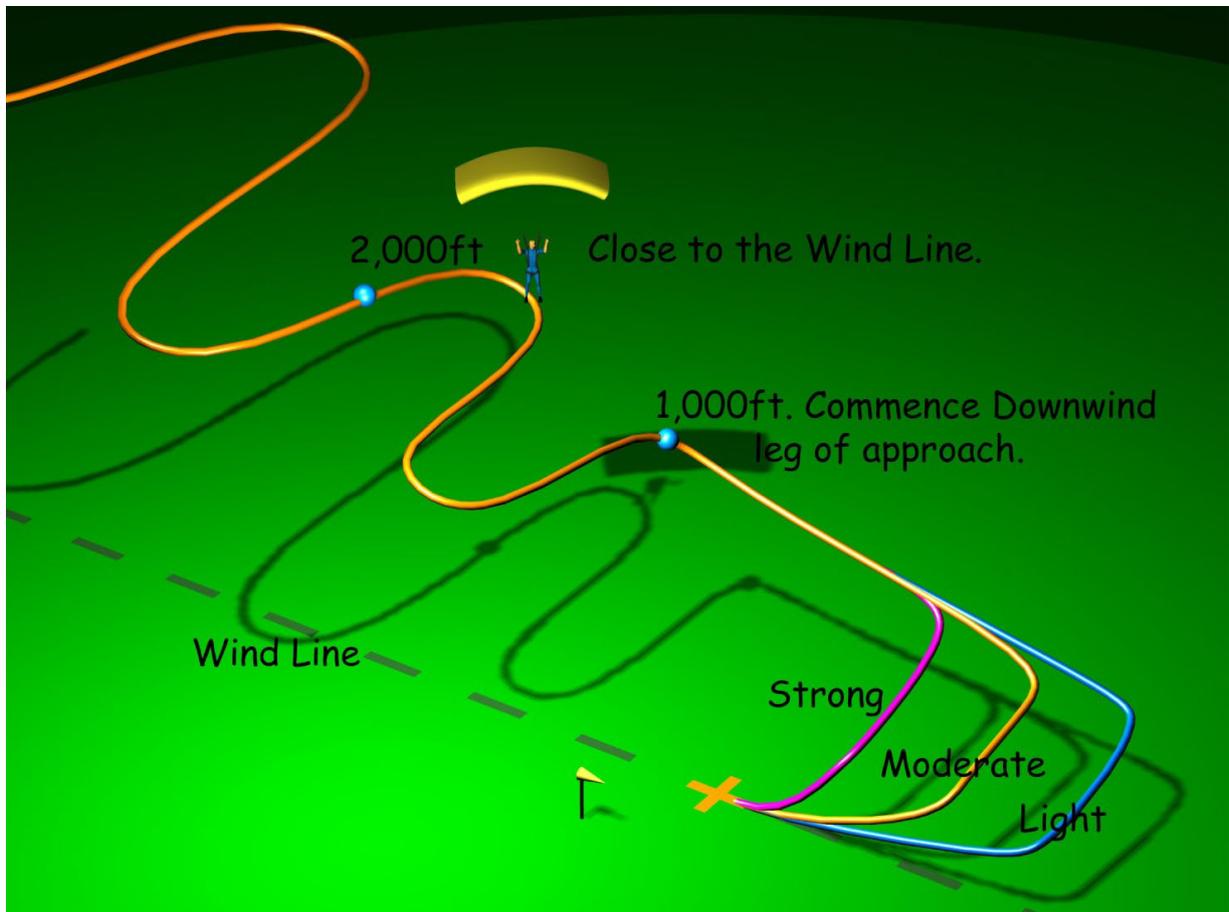
When a canopy pilot starts a downwind leg, they should **look** at their shoe laces and decide whether their ground speed is...

Fast	A lot of wind pushing you downwind	i.e. 10 -15 knots
Medium	A moderate amount of wind pushing you	5-10 knots
Slow	Light wind, so the canopy is flying at or close to its trim speed (full flight)	0-5 knots

If you are travelling fast then you should commence your base leg within 50 metres of the target arena.

If you are travelling at a medium speed you should commence base leg within 100- 150 of the target arena.

If they are travelling at trim speed (i.e. the normal speed of the parachute) or close to it then you should commence your base leg at approx 200m past the target.



These values are approximate values and should be addressed during the pre jump briefing. The turn points may be referenced to a particular landmark at your DZ.

Your initial downwind run towards the target should be made so you end up slightly left or right of the wind line facing into wind at 2000 feet, still upwind of the target.

12.3 Techniques and Strategy for Landing Setup

A safe accurate landing comes from careful planning; once you have planned your canopy flight do as much mental rehearsal as possible.

1. Target should still be visible over your shoulder
2. Observe your speed over ground
3. Bring toggles slowly down to 3/4 brakes and again note any difference in speed over ground

Wind Checks

Wind checks will give you some idea of how far to set up on final approach to the target (into wind).

Do your next downwind leg to 3 and repeat your wind check sequence - wind speeds can alter at different altitudes.

By flying your canopy sideways to the wind line and in brakes you can observe the wind speed directly by your sideways movement.

1. Repeat downwind run and wind check at 1000 feet. Select 1/2 brakes and observe your descent angle. Are you going forwards, how fast?
2. Final downwind run is made from below 1000 feet turning crosswind/base at point 5 with the options of A, B or C (how far do you run downwind of the target?) depending on what you observed of the wind strength during your wind checks.
 - A. Strong wind speed
 - B. Medium wind speed
 - C. Light wind speed
3. In light winds (C) you should end up turning on final approach into wind whilst 200 - 300 feet high and 300 - 500' downwind (the stronger the wind speed the closer to the target you need to be on final approach).

12.4 Final Approach

When on your final approach, here are some points to remember:

- Make sure your hands/toggles are all the way up on full drive because the faster you go the more lift you can create for a softer landing, speed = lift.
- Make sure your legs are together ready for a PLR, it's better to be ready and not need it than the other way around.
- Make sure your head is up looking at where you are going to land, not looking straight down.
- At this point you should only make minor corrections to your heading to keep you on the wind line.
- Don't turn the canopy to loose height or to try to make the target, this is a bad habit,
- Landing safely is more desired than an accurate landing and injury that stops you jumping.
- Remember there may be other in the landing circuit area.
- Instead land, then measure the distance to your target, say 50m past and then next time you jump with similar wind strength you will know to adjust your landing pattern by 50m.

12.5 Important – Your safety

- You are not yet experienced enough to guarantee landing in a nice soft pit.

- Do not land whilst in brakes as the flaring capability of your parachute is related to its forward speed. Flaring from a braked approach results in a harder landing since your canopy has no speed to convert into lift and stalls immediately.

If you do stall your parachute while close to the ground, this is what that stall recovery practice was for. But if you don't do it automatically it is probably too late. Knowing how to recover from a stall in the shortest time possible is one of the most basic parachute survival skills.

12.6 Important – The safety of others



Rule 1 – Land Safely, clear of others.

Rule 2 – Land Accurately, clear of obstacles.

No points for Rule 2 if you don't follow Rule 1!

12.7 A mention of spotting

Spotting is the method for determining the correct exit point and guiding the aircraft to that point.

- **For your Certificate Class B, you will have to know enough about spotting to determine the correct exit point.**
- For your Certificate Class D, you must demonstrated the ability to guide the aircraft to the exit point.

During your student jumps to get your Class A certificate, you will be developing awareness of the factors involved in spotting:

- Where you are in the relation to the DZ during the climb to height;
- Where you are on the aircraft's jump run on final approach over the DZ;
- Wind direction, not just on the ground but at jump height, and even its effect on freefall (drift); and
- Planning where you want to get out in relation to the target.

Knowing where you are in the sky is the hardest part. Add to this the ability to direct the pilot to get the aircraft to your planned exit point is the other element of spotting. Together with practice, spotting allows you to exit in a location that makes it easiest to get back safety onto the DZ, and avoiding higher-risk off-DZ landings.

With the advent of GPS and its wide-spread use by jump pilots, the art and skill of good "manual" spotting is becoming less common. The global positioning system (GPS) is used at most DZs today. It works by receiving a signal from many satellites to determine your exact position above the ground. It can calculate your speed across the ground (ground speed), direction of travel across the ground (track), distance from the target (spot) and in conjunction with your airplanes airspeed indicator you can calculate the wind speed and wind direction.

Ask your pilot to explain to you how to read it, but remember to *always* look down and check before you jump. The Certificate Class B Training Guide has more on Spotting.



Look Before You Leap!

12.8 After Landing, Evaluating your Jump

After landing and placing your gear somewhere safe, you should always have the jump evaluated by your instructor. Review any video and be open to suggestions for improvement. How you performed against the planned manoeuvres from the Training Table form the basis for your Logbook entry. As you progress, you should also seek feedback on how the jump went from other instructors and experienced jumpers on your jumps.

PART 13: YOUR LOGBOOK

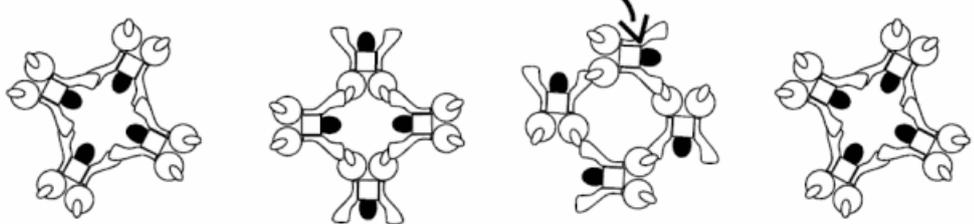
The APF requires that all jumpers keep a log of their jumps. You should always bring it to the DZ along with your APF membership card.

This log must show the type of parachute descent, the date, location of the DZ, exit height, number of seconds in freefall, distance from the target, and the type and registration of aircraft.

This entry must be signed by the holder of a Certificate Class B or higher, or the pilot of the aircraft.

This log may be inspected by any APF officer or officer of the Civil Aviation Safety Authority. If it isn't in your logbook then it didn't happen.

These log entries will be necessary to establish your experience and qualifications for further Certificate Classes, Crests or an instructor rating (i.e., jump numbers, freefall time or accuracy details), also your Chief Instructor's authorisation for you to pack a main parachute, the DZSO's authorisation for you to do larger than 2-ways, night jumps, wingsuiting or freely.

Jump No.	Date*	Place*	Aircraft*
148	5 Feb. 2001	Wellington NSW	C185 VH - RCM
Equipment <i>Talon/Viper 160</i>	Altitude* <i>10,000 feet</i>	Delay*/Total Time <i>50 / 1.11.35</i>	Wind speed <i>5 knts</i> Distance* <i>2 metres</i>
Manoeuvre* <i>4 way RW Me, Loz, Shona, and Ned</i>			
Description <i>Good exit launch, completed star, bipole, donut, star - yahoo!</i> <i>nearly blew my side shot</i>			
			
Signature: <i>Ned Kelly C2000</i>			

PART 14: BORROWED GEAR

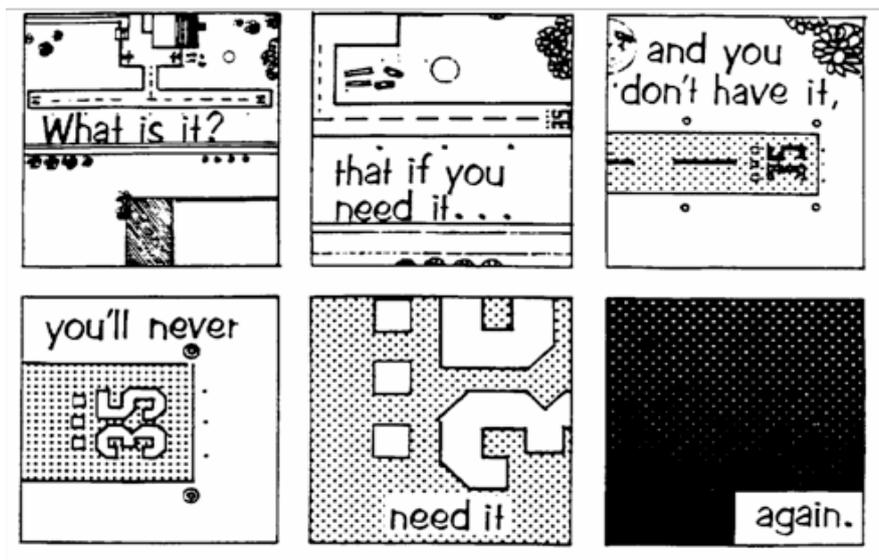
Check with the Chief Instructor or DZSO first. Be very, very careful. Try to avoid borrowing gear since under stress you may revert to your previous (and inappropriate) procedures. Many fatality reports include the words - "The deceased was wearing borrowed gear ..."

If you have to borrow gear, try to ensure that it has the same deployment and emergency systems that you are used to. Most modern equipment has standard placement of the BOC main handle, cutaway and reserve handles, although when a borrowed rig is fitted to your body, these handles may sit in slightly different locations. Make sure you know what you're going to use and have practised pulling them.

If you are jumping a rig with an idea of buying it, open high and do not include RW on the jump.

Ensure you know:

- In freefall, with no canopy out, is too late to be working out what to do next!
- The type of main canopy, size, number of cells.
- How the main is deployed – ripcord, or throwaway.
- The size and type of reserve; is an RSL fitted?
- How the reserve is deployed or steered.
- Is the packing card in date?
- Is an AAD fitted? What type? What height will it fire?
- Pilot-chute type (standard, bungy, kill-line?)



Question: After looking at the above graphic, which of the following do you think is correct?

- Altitude awareness.
- Knowing your emergency procedures.
- Time.
- Know your equipment.
- All of the above.

PART 15: BUYING AND JUMPING YOUR OWN RIG

The APF has a Parachute Inspection Certificate and Checklist – a copy available on the APF [website](#) as Form P3 and reproduced as Appendices D1 and D2 in this Guide. This is to assist you in the purchase of equipment. It is sound judgement to have a second-hand parachute system inspected by a qualified person prior to purchase.

Speak to your CI, Packer A or Rigger before purchasing any equipment

When thinking of purchasing your first rig and other equipment, you should consider the following.

15.1 Equipment Selection

What is a rig?

A rig is a collection of component parts, generally made by separate manufacturers and assembled together with skill and gusto (one hopes) for the end user to enjoy safely.

Firstly, you'll need a harness/container. This is the backpack and necessary strapping to keep you attached to said backpack. When you buy a container, it also includes risers, main deployment bag, bridle with pilot chute and the reserve freebag and pilot chute assembly. Risers are to a degree interchangeable and main pilot chutes can be swapped and replaced, but deployment bags and freebag assemblies are made specifically for particular designs and sizes of containers.

Then you'll need a main parachute. There is a dark forest of choice waiting out there for the new skydiver. Some will be suitable for you and others, well, less suitable. The main parachute is only the parachute, it's suspension lines and riser to line attachments (generally soft links - 'Slinks', or metal links).

Don't forget a reserve parachute. Can I just buy another main and throw it in there, I mean, I'll probably never use it, right? No. Reserves have to be certified for use as exactly that. There are lots of different makes, models and sizes on the market. When you buy a reserve it comes, the same as a main, with just the parachute, suspension lines and probably some attachments.

Next you'll need an automatic activation device, or an AAD. There are only a few brands approved for common use, so the AAD pool needn't be too daunting. They do however, come with lifespans and service requirements. Talk to your instructors to understand what you are buying.

Containers

There is a quite bewildering array of choice here for the contemporary jumper. Rather than attempt to discuss all the different products and permeations, we'll instead run through some of the more prominent design characteristics.

Freefly friendly

Oooh, hold my hand and explain me this. Freeflying is being in freefall in any orientation other than belly to earth. This might mean flying head first towards the large and totally forgiving planet, or perhaps feet first, maybe on your back, or perhaps cycling through them all in some kind of excited tumbling nightmare.

When we are falling in any of these non-belly to earth orientations, our freefall speed will generally increase dramatically – head down can easily reach speeds of 300km/h, and we may subject our rig to the full force of that increased speed. It is therefore vitally important that our gear be able to withstand this extra force without, for example, some of your main bridle coming exposed...slowly pulling itself out further in the relative wind and SURPRISE! deploying your main when you least expect it and would, on balance, rather prefer it didn't.

Freefly friendly means all tuck flaps – main pin, reserve pin and riser covers, are secure and stay closed in all angles of freefall. It also means they aren't held in place by Velcro which, although the great gift from the

1980s that keeps on giving, isn't a practical solution to these issues. Freely friendly also means your bridle isn't exposed at all on its path from the pin to the pilot chute.

There are other maintenance factors that if let slip will allow a container to become freely borderline. These include a worn BOC pouch (the spandex pocket for your pilot chute) and a closing loop that is too long.

RSL or Skyhook, or none?

Some rigs will offer an RSL or a MARD system.

An RSL, or Reserve Static Line, is a lanyard that attaches to your main risers via a metal ring and small shackle and then goes to your reserve ripcord. The idea is that as your main risers leave after a cutaway (or broken riser...), the lanyard will pull your reserve pin on its way past. They will not activate your reserve for you if your main is not out when you cutaway, for example in the event of a hard pull or total. They are a backup to correct emergency procedures, nothing more. They are not without their issues, but they help a lot more people than they ever hinder.

MARDs, Main Assisted Reserve Deployment, are a sort of turbo RSL. Instead of just pulling the pin on your reserve, if the main canopy is out when you cutaway, the whole parachute acts as a giant pilot chute for your reserve, pulling the freebag directly out into the airflow and, hopefully, deploying your reserve super-fast. MARD is the generic term for the system, individual manufacturers have their own product iterations of the process, Vector, Javelin, Icon and Vortex use a Skyhook, Wings have a Reserve Boost, Mirage have the TRAP system etc.

Most rigs you'll find for second hand sale will either have an RSL or be "RSL ready", which is to say they have all of the manufactured bits on the rig to accept an RSL, but lack the lanyard itself. MARDs have been around in large numbers for a while, but if your budget has you looking at gear from the early 2000's or before, you may not find too many. Some brands that offer MARDs will be able to retrofit them in their newer containers, but if you are buying something a little older, it's not feasible.

It is very important to note that your DZ may have specific policies regarding RSLs and you need to discuss this with your CI before committing to buying gear.

Emergency handles

Most of gear you'll find will be the type with a cutaway handle on the right side of the main lift web and a reserve handle on the left.

Mostly cutaway handles are pillow type. Something to consider will be the colour. A blue handle set against your totally sweet new blue freely suit might not be all that great when you have your first violent spinning line twists and can't see it immediately.

Reserve handles can be either variations of the metal D handle you are likely familiar with from your student training or a pillow similar to the cutaway pad (often called a 'freely handle'). Some DZs may have a policy on lesser experienced jumpers using the pillow type handles, so speak to your CI before you buy. (NB, you can easily buy a D type handle and have it fitted in place of a freely handle if your DZ requires it).

Age

How old is too old? Is something from 1990 still jumpable? Possibly. It will likely not be freely friendly, but might still make a perfectly good rig for your first 100 jumps. The current model of Vector has been in production since 1994 and hasn't substantially changed in that time, but one year before that and they had more Velcro than the coolest rollerblades that graced the 1980s.

Jump numbers also need to be taken into consideration. Something made in 1995, but not jumped since 1996 might be in better shape than something from 2013 that has done 1000 jumps a year in the desert. A parallel might be a car from 1994 with 65,000kms vs something only a few years old with 300,000kms. Both will have their issues.

Fit

Can you get a container re-sized for you? Yes, you can. It isn't a cheap undertaking though. If you are looking at something towards the less costly end of the spectrum having, for example, the laterals adjusted may end up costing 50% of what the container is worth. If you are at an extreme end of the Bell Curve when it comes to body shape, have a chat to a rigger about what can be done and how much that will cost before you commit to anything.

Canopy sizing

Containers are built for main and reserve canopies of particular sizes. For example, a UPT Vector V306 is built for a 110 square foot main and a 113 reserve, which would make for a very interesting first rig. A Vector V357 is built for a 190 main and a 218 reserve. When you are considering a particular container, go to the manufacturer's website to check their sizing chart to make sure it is suitable for the canopy you need and maybe the one you'll be jumping in another 200 jumps too.

Main canopies

The various shapes, sizes and design dilemmas posed by the modern protection against-falls (what the constituent 'para' and 'chute' translate to) market is genuinely bewildering. A bit like the previous sentence. Many of the details of design and the implications they have on flight and performance are covered in great detail in the APF's Canopy Pilot Guide.

It is imperative that you discuss your choices with your CI or DZSO before you buy. If you don't talk to them you may end up buying something unsuitable and not be able to jump it. A tragedy, no doubt, but you won't be the first.

Reserves

Reserves come in as many sizes as mains but not quite as many shapes. Discuss sizing with your instructors and see what they'd like you to have. Bear in mind, the first time you fly your reserve will probably be after you've had your first cutaway, your heart is pounding, you're already low and now you're landing off too. Spend the money and get something decent. That being said, there is not necessarily anything wrong with something 15-20 years old, as long as it has been properly maintained.

AADs

There are two main types you'll likely be seeing; CYPRES (CYbernetic Parachute RElease System) and Vigil. Both have their pros and cons, but are variations on a theme, rather than completely antithetical devices. Talk to your instructors.

Helmets

You probably only have one head. Protect it. Have a look at the other helmets around the DZ, try a few on, see what you like. You'll likely never need its proper protective services, but if you do, you can either lie there wishing you'd bought the better one, or just scrape the dirt off it and be glad you did.

Altis

There are quite a few variations between the analog style and digital ones. Curiously, there are even digital analog ones. Madness. Have a look at the different styles on the DZ and see what you like.

NB some DZs may have policies regarding students and novices using digital altis, so make sure you ask.

Jumpsuits

You'll need one. Your Brels and early progression will be much easier with one that you are using on all your jumps and getting comfortable with. It doesn't need to be brand new. Have a chat to your instructors again. They might be able to source something for you to use.

15.2 The Conversion Course to Your Own Gear

In almost all cases you will have to undertake a conversion course to familiarise yourself with the new procedures associated with your first rig. This is a requirement in the APF Training Operations Manual (TOM).

You should be taken through this course after your last jump on student gear. It is very important to completely reprogram yourself with regard to the automatic responses required in emergency situations. Several serious incidents and fatalities are suspected to be caused by parachutists reverting to primarily learned skills due to poor conversion training or lack of continued practice.

Conversion training takes time!

A common situation is that a parachutist gets their new set of gear freshly packed from their rigger during the week and wants to jump it on Saturday morning. This is not always convenient or practical with student training happening and the need for an instructor to give their whole attention to a jumper being converted to new gear.

An alternative is to do the conversion on Sunday evening, which allows the trainee to wear their rig and practice throughout the week and then confirm the drills on Saturday morning and jump.

Points covered in the conversion should include:

- Characteristics of the main and reserve canopies.
- Potential problems if main pilot-chute is collapsible.
- External equipment check prior to putting it on (closing loops, pins, bridle, etc).
- Main deployment:
 - Throwaway - palm upward grip, throw from arm's length immediately,
 - Pull out - peel, strong deployment to arm's length,
 - Hard pull,
 - Pilot-chute in tow/hesitation,
 - Floating handle.
 - Bridle around arm
- Reserve deployment: TAS System
 - Legs
 - Look and
 - Locate
 - Look
 - Locate Thumb through and grip reserve handle,
 - Peel cutaway pad,
 - Punch cutaway pad
 - Pull reserve ripcord handle
 - Locating floating handle,
- Danger of pulling on main 3-ring after cutaway
 - Single riser release.
 - Premature main deployment (horseshoe, throwaway still in pocket).
 - Premature reserve deployment.
 - Canopy collision on opening - RSL (release if tangled and enough time).
- Characteristics and operation of your AAD.
 - How it works
 - Turning on
 - Firing height
 - Firing speed

- Descending in plane
- When your DZ and airport are at a different elevation
- Maintenance.

Your logbook must have the conversion endorsement entered by the DZSO.

Note: At the end of the course, the candidate will need to demonstrate a high level of general awareness under canopy, flawless stall recovery technique, and accuracy commensurate with experience level. Course objectives should be tailored accordingly.

15.3 Parachute Downsizing

Before downsizing, you should have formulated your plan for progression in the sport, have attended a Canopy Pilot Course, and have completed a set of canopy piloting tasks to develop your skill set of essential manoeuvres.

The APF Canopy Pilot Guide has a detailed chapter about parachute downsizing. It includes a checklist of those skills that all canopy pilots require, and guidance on choosing your canopy. It builds on the exercises and content described in this Class A Training Guide.

Many novices seek to downsize parachute size far too early and end up in the Training Organisation's incident reports. Advice from DZSOs should include directing novices to the Parachute Downsizing Criteria contained in the Canopy Pilot Guide. It has a matrix which not only takes into account the wing loading of the parachutist but also their experience. With these two factors considered, the matrix reveals the most suitable size for the novice.

Please refer to the Canopy Pilot Guide on downsizing and talk to your DZSO or Chief Instructor.

PART 16: CERTIFICATES CLASS A TO CLASS B

16.1 Progression

You are eligible for your Certificate Class A when you have achieved the aims of your DZ's Training Operations Manual (TOM) and the APF requirements. This includes a written assessment (multiple choice Q&A) to identify any knowledge gap for additional training prior to finalising your application. See Appendix B for a sample exam. Upon issue of your Class A certification, you have progressed from Student to Novice parachutist.

In moving forward to your Certificate Class B, you will know from the Operational Regulations that after completing Stage 4 of the 'Class B Training Table' (CBTT, previously known as the "B-Rel table"), you can jump with people of similar experience to yourself. This is provided you have the DZSO's approval in your logbook and some of the constant situations, such as fall rate and a stable base, are provided by RW Coaches and Instructors.



Note that the APF Operational Regulations do not allow Certificate Class A jumpers to:

- freefly; you need to gain a Class B for that; or
- carry a camera (e.g. GoPro); you need at least a Class C for that.



To help you to progress through this period toward your Certificate Class B, you are advised to find a partner and consolidate your basic skills before attempting further Certificate Class B Skill levels. The Certificate Class B Training Guide has useful notes on common problems and points to keep in mind. Read your DZ's copy or ask the APF Office for your own copy.

Many jumpers ask what is the relevance of flat-flying work when all they want to do is freefly in different attitudes – well, firstly you have to start somewhere and the flat attitude is still your safety zone from which you can deploy your parachute. This is not optional. Your flat-flying skills are the foundation you will build on later. You must be able to get flat, stable and get a parachute out automatically, and if necessary avoid other jumpers at the same time.

It is also, currently, the only way to get a Certificate Class B.

16.2 Jumping with other people

Fall rate seems to be the most common area that needs attention at this stage of your skydiving. Your growing perception can seem to lag behind, making it necessary on some jumps to move up, then down, constantly without ever achieving an even fall rate.

Your instructors and coaches can take you through a number of exercises on the ground to enhance your learning on each skydive. Some points likely to be covered are listed below:

- Dirt Dives
 - simple in design and visual
 - use creepers with and without rigs
- Exits to suit the aircraft in use at your DZ
- Set Up Person (base)
- Grip presentation
- Keys
- Use of Video
- Sighting – old picture, new picture
- Debriefs
- Mental rehearsal (it's much cheaper and just as effective as the real thing)

Take advantage of the skill and experience available to you on the drop zone. Don't be afraid to ask for advice, it is free and experienced jumpers are more than willing to help you avoid some of the sticking points that they have already experienced.

16.3 Getting involved in “Relative Work”

The load organiser at your DZ will discuss the key points of your skydive with you but the basic nuts and bolts are listed below:

1. Keep the formation simple and with centre facing visuals and grips.
2. Arrive on time to the dirt dive and participate to the best of your ability.
3. Talk to more experienced people about the job you have - there are many ways that they can help you.
4. Make the dirt dive realistic with jumpsuits and rigs - lay the base down and look at your approach angles - dirt dive track-off as well - note the jumpsuit colours and rigs.
5. There is no such thing as too much exit practice - keep doing it until you know exactly where your hands and feet are positioned during the climb-out.
6. Have a reliable base unit - no base, no formation. Do not put only beginners in the base because everyone else wants to swoop.
7. Dive cautiously - there are a variety of diving techniques involving steeper and flatter approaches - aim slightly to one side of the formation until you have flared out of the dive. Keep looking around for other traffic.
8. Keep flying the formation once you have docked - look into the centre and keep level. If you have gone low stay away from underneath and de-arch. Stay with the formation until close to break-off then track away enthusiastically (and don't forget to wave off).
9. All effort should be made to avoid ending up directly above or below other jumpers in freefall, especially close to break off and deployment altitude. Ending up in someone's burble can cause instability and/or a collision. A premature deployment (of either a main or reserve parachute) in this situation can have serious, even fatal consequences.
10. Break off at the correct altitude - watch for people below - they have right of way - track to opening altitude, look around, wave off and pull - get straight on your rear risers to avoid canopies if necessary.
11. Larger loads mean more canopies in the landing area - look before you turn - low person has right of way, fly defensively.
12. Attend the debriefing when required - be on time - contribute positively.

16.4 Star Crest

The RW skill level syllabus is designed to qualify you for your Certificate Class B. With a Certificate Class B, until you earn your Star Crest, you are restricted to jumps no bigger than 10-way.

To gain the qualification necessary for larger loads, you will have to earn your Australian Star Crest.

The Star Crest certificate acknowledges the fact that you have docked 5th or later on three 8- to 10-way formations that have been generally completed as planned. These three separate jumps must each be witnessed by at least two Star Crest holders or APF judges.

Star Crest loads can be organised for you at your own DZ or at boogies where load organisers are designated to assist jumpers working to improve their skills. This is the training where freefall discipline is learned i.e. flying to your own position in a formation safely and skilfully.

Formation Loads: Unlike a single plane exit, formation loads require not only flying skill but communication between the pilots and jumpers in different aircraft. This communication should be worked out prior to the jump - again keep it simple. Your role at this stage will be to listen and do as you're asked.

The APF has an excellent training booklet called "Star Crest and Bigway Guide". It can be downloaded from the APF website or mailed to you upon request.

PART 17: THE AUSTRALIAN PARACHUTE FEDERATION

17.1 About the APF

The APF is a not-for-profit federation of parachutist members under a Constitution for a Company Limited by Guarantee. APF is made up of members, clubs, centres and area councils who decide, through the area councils, specialist committees, national APF Office and the Board of Directors, the way that parachuting and skydiving is going to be conducted in Australia.

For your membership fee you get insurance, representation, information and standards setting. The APF also deals with the Civil Aviation Safety Authority (CASA) under a Deed of Agreement to keep skydivers in the air.

The APF maintains a permanent office in Brisbane at Underwood. This is usually referred to as the APF Office.

The APF Office employs several full-time staff whose job is to help the members with the Certificates, Crests, instructor and packer ratings, examinations, preparation for competition, administrative matters and general information about jumping in Australia and overseas.

17.2 Club Affiliation and Area Councils

When you filled out the Club registration/parachuting contract/waiver on joining, you were affiliated to that Club. You can change this if you wish. Forms for all applications can be found on the APF website.

Each Club is entitled to send one delegate to represent them at area Council meetings.

Councils' focus is sport development and administration for the area. Each state, territory or region has a Council with Queensland divided into two, South Queensland and North Queensland, and Victoria and Tasmania combined into one. They meet regularly to discuss matters relating to their Council area, and members are welcome and encouraged to attend and become involved.

Do you know who your representatives are?

Each Council is currently entitled to nominate no more than two delegates to be members of the APF Board of Directors. At some stage this may be reduced to one nomination to allow for specialist directors to also be appointed.

Your club's delegate to your area Council and the Board member are the people who you should talk to if you want to discuss new ideas or altering APF policy.

The Board decides a lot of issues concerning parachuting in Australia (read the report of Board meetings on the website). It also decides who and where the National Championships will be hosted and organises the APF National Conference or Symposium each year.

17.3 Publications

The APF Office also publishes a great deal of information (available on the APF website) to help the membership enjoy parachuting. Some of the manuals and guides which are available to you from the APF website when you reach the appropriate point in your skydiving career are:

- APF Constitution
- APF Operational Regulations and Regulatory Schedules
- The Certificate Class B Training Guide
- Canopy Pilot Guide
- Display Jumpers Training Guide
- Freestyle Training Guide
- Instructor Guide
- DZSO Guide

- Course Trainer Guide
- Weather Guide
- Senior Instructor Guide
- Training Operations Manual (TOM)
- Solo Freefall, AFF and Tandem Endorsement Guides for Instructors
- RW, FF and WS Coaches Training Guides
- Jump Pilot Manual
- Sporting Code.

See the website for a comprehensive list.

17.4 Applications and Renewals for Certificates, Crests and Ratings

If you chose, you may also deal directly with the office with regard to renewal of certificates, crests and rating applications, or with the APF agent at your DZ. Remember to get an APF receipt for all DZ transactions.

Please read the application cards/forms carefully. APF Office staff must check that all the required criteria are met and that a suitably qualified person (usually your Chief Instructor) has approved the issue. Sometimes members can be disappointed if an out of date card is used or the wrong information is submitted. Access the online application processing or download up-to-date paper-based applications from:

<https://www.apf.com.au/apf-members/application-forms/application-forms>

Note: Members must be logged-in to the APF system through the website to be able to view the applications that are applicable for them. If you are a student and so cannot log-in, you should still be able to see what applies to you at student level.

Applications for packer, coach and instructor ratings also need the correct application to be completed with recommendation from your Chief Instructor. These should then be sent to the APF Office. They will process the application and forward a study package. When you are ready for the assessment, advise your Chief Instructor (CI). Once you've completed all assessments successfully, your updated membership card will be issued.

The APF Office also deals with Star Crest applications (successful 8 to 10-ways) and display ratings. Display jumping in Australia is largely controlled by the APF through the appointment of Display Organisers who approve the conduct of displays and the jumpers concerned. Air Services Australia (ASA) is only concerned directly with the airspace that we need to conduct the display. CASA usually only has an interest in approval of pyrotechnics being carried in aircraft and if incidents are reported.

Members are responsible to maintain the currency of their APF Sporting Licence, renewable each year by the 30th June. All other qualifications are dependent on membership.

If you cannot get your questions answered by your drop zone instructional staff, you can contact the APF Office on 07 3457 0100.

PART 18: A FINAL WORD

As you progress in your skydiving and develop interests in its various disciplines, never forget the basics.

Consider the *Before-During-After* approach to each jump: You've learnt that skydiving involves equipment and its maintenance, pre-jump preparation and checks, the aircraft ride up to height, the exit and freefall, the parachute ride and a landing, ending with repacking, debrief and celebrations.

All these aspects of jumping have critical safety elements that must always have your attention; not just for yourself, but with others you are jumping with.

As you move into Certificate Class B training, ensure you attend to all elements of each skydive, not just the "B-rel" freefall component –developing your canopy piloting skills is just as important.

Remember, the jump isn't over until after you are safely back in the packing area.

APPENDIX A: RW TERMINOLGY

It will help if you understand the following terminology:

Base	A single jumper or group who provide the initial inner part of the formation - base is responsible for making sure the set-up and build is as planned (generally on aircraft heading) and maintenance of fall rate and height awareness.
Blob	A convenient and easily launched exit formation which can be transitioned into the first formation.
Break off	The height at which relative work ceases at least 1000ft above opening height.
Cork	Slow down unexpectedly and dangerously, usually in freefly.
Divers	These people leave after the base and dive down to the formation.
Drag-out	Better described as to Launch, to fly a linked formation from the aircraft.
Glideslope	The angle of approach for a floater or diver when moving towards the formation.
Flat flying	Predominantly intentional face-to-earth freefall.
Floaters	Always exit before the base person/people and generally exit from outside the aircraft. (Front floater, centre floater [often base], rear floater - outside order from front to back.)
Freefly	Freefalling in any planned orientation – head down, sit, back, stand-up, flat, freestyle, etc. (Minimum Certificate Class B required.)
Key	The signal to transition from one formation to the next.
Pin	The first person to dock on the person designated as “base”.
Piece/s	Smaller parts of a larger formation that may have two or more people manoeuvring together.
Super Floater	A floater from the lead aircraft on formation loads who leaves on the "SET" of "READY-SET-GO". This enables chase plane jumpers to leave on time rather than late (if you are in the chase plane, always leave immediately you observe the floater(s) exit from the lead plane).
Track	Movement across the ground, can be in freefall or under canopy. (Track is a body position to achieve maximum horizontal movement in freefall.)
Zoo	Usually the result of not enough planning as in “What a zoo!”. Often develops into a Funnel as in “Who funnelled that?!” (Alternatives include: “Took it out” or “Down the mine.”) Usual answer is keep quiet and wait for someone else to speak.

APPENDIX B: CERTIFICATE CLASS A – ASSESSMENT

Having almost completed your student training and becoming a qualified skydiver, you have to take responsibility for obeying the rules. Regulations require that you pass a written assessment, covering only relevant basic regulations and theory of parachuting, before you apply for a Class A certification. Any lack of knowledge exposed by the assessment will be corrected with you before you apply.

Research the questions in this Appendix and talk over your answers with your Instructor. The answers to the first section can be found in the APF Operational Regulations (“Op Regs”) and associated Regulatory Schedules. [This assessment is Version 1, 20170404]

Some nasty situations require a “planned response” before they occur. You do not want to be still thinking about it after you are below your planned open height! Some of the answers may appear in this Guide or other APF publications, such as the Canopy Pilot Guide; or you may need to find out from your Instructors.

Rules and Regulations

1. Reserve parachutes intended for use by a Novice, must be inspected and repacked every:
 - a) 90 days
 - b) 120 days
 - c) 6 months
 - d) Year

2. What is the minimum qualification for a person to carry out parachute repairs?
 - a) Rigger
 - b) Packer B
 - c) Packer A
 - d) Chief Instructor

3. Parachuting activities must not be conducted by any individual:
 - a) while deemed by the STO to be affected by alcohol
 - b) while deemed to be impaired by drugs, alcohol or fatigue
 - c) when the DZSO suspects they may be hungover
 - d) All of the above.

4. What is the maximum wind speed (measured at 9 metres above ground level) for students?
 - a) 10 knots
 - b) 15 knots
 - c) 20 knots
 - d) 25 knots

5. What is the maximum wind speed (measured at 9 metres above ground level) for Class A and B skydivers?
 - a) 10 knots
 - b) 15 knots
 - c) 20 knots
 - d) 25 knots

6. A GCA (Ground Control Assistant) must be on the ground for all descents, and is responsible for communicating the advisability of exiting the aircraft to the parachutists and pilot. What is the requirement/s for the GCA?
 - a) Be appointed for every load
 - b) Be trained and assessed in accordance with the Training Operations Manual (TOM)
 - c) Be a member of the APF
 - d) Be at least 18 years of age
 - e) All of the above

7. An altimeter must be worn on which jumps?
 - a) On all jumps
 - b) On any jump with more than a 10-second delay
 - c) Until you have a Certificate Class A
 - d) Until you have an instructor rating

8. An approved hard hat is required to be worn at least until you have a Certificate:
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D

9. What are the requirements for a Class B skydiver (Certificate 'B')?
 - a) Have at least 50 stable freefalls
 - b) Have completed the Certificate B Training Descent Table to the satisfaction of a Chief Instructor
 - c) Have made 10 nominated descents landing within 25m of the target centre or within a 30x20m runway
 - d) Have demonstrated the ability to determine the correct exit point
 - e) Have the approval of the CI to pack a main parachute for their own use
 - f) All of the above

10. What certificate must you have to carry or wear a camera on a jump?
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D

11. What is the minimum qualification to do freefly jumps?
 - a) Class A
 - b) Class B
 - c) Class C
 - d) Class D

12. Minimum legal open height for a Class A skydiver (Certificate "A" holder) is:
 - a) 1800 feet
 - b) 2000 feet
 - c) 2200 feet
 - d) 4000 feet

Equipment:

13. When selecting a canopy to buy, a novice should:
 - a) Take into account their weight AND experience level
 - b) Seek the opinions of a number of experienced persons
 - c) Test jump a new canopy for the first time in ideal conditions
 - d) All of the above

14. You are climbing to jump altitude and notice your altimeter is not working. What would you do?
 - a) Continue with your planned jump – only if jumping with others
 - b) Don't jump – tell the pilot you are not jumping
 - c) If on a solo jump – continue with jump, but plan to open higher
 - d) Ask to borrow someone's altimeter who has more experience than you.

15. You are visiting a new DZ:
- i) What should you take with you?
 - a) License and logbook
 - b) Wallet
 - c) Carton of beer
 - d) Rubber bands
 - ii) What questions should you ask of the local DZSO?
 - a) Where is the bar?
 - b) What are the aircraft procedures including emergencies
 - c) Where are the landing areas and hazardous areas?
 - d) Both b) and c)
16. What should you thoroughly understand and check when jumping borrowed gear?
- a) That it matches your jumpsuit
 - b) That it fits, deployment device for main and reserve, AAD? RSL?, size of parachutes, reserve in date?
 - c) What colour the main and reserve parachutes are
 - d) Read all the service bulletins and rigging advisory circulars of the equipment before you borrow any gear
17. Why must you ONLY turn on an electronic AAD when on the ground?
- a) To calibrate it to ground level
 - b) To save battery power
 - c) Because it says to in the user manual
 - d) All of the above

Freefall:

18. On a solo jump, you are unstable at 2000'. What would you do?
- a) Deploy main parachute
 - b) Arch to get stable
 - c) Wait for AAD to fire
 - d) Emergency procedures
19. Would more time be available to deal with a main parachute malfunction after:
- a) a deployment at 4,000' after freefall from 14,000'
 - b) a hop and pop after exiting from 3,500'
 - c) Both a) and b) provide about the same.
20. You are on jump run and notice that cloud cover has now obscured the ground totally. What will you do?
- a) Continue with planned skydive and deploy main parachute below the cloud
 - b) Continue with planned skydive and deploy main parachute above the cloud
 - c) Don't jump. Minimum Certificate Class B to jump through cloud (at approved locations)
 - d) Wait for cloud to disappear, then jump
21. You have your Class A Novice skydiver certification (Certificate 'A') and are asked on a 16-way jump at another DZ. What will you do?
- a) If all other jumpers have minimum Certificate Class B then okay to jump
 - b) If all other jumpers have minimum Star Crest then okay to jump
 - c) If there is at least one instructor on the 16-way then okay to jump
 - d) Don't jump

22. What are the dangers of being positioned directly above another jumper?
- a) You may end up in his/her burble and go unstable
 - b) The jumper below may have a premature deployment which can injure you or worse
 - c) The jumper below may not be aware of you and deploy their parachute, which can injure you or worse
 - d) All of the above
23. If you find yourself directly below another jumper close to deployment altitude, what should you do?
- a) Try to move forward and away from the other jumper while remaining altitude aware and not going low
 - b) Wave off to indicate to the other jumper your intention to deploy
 - c) Deploy immediately
 - d) both a) and b)
24. What is the most important thing to consider whilst tracking on any jump and why?
- a) Keeping chin up to avoid diving down
 - b) Straight legs and rolled shoulders for maximum forward speed
 - c) Knowing what direction you are tracking and keeping an eye out for traffic to avoid collisions
 - d) Track as hard as you can on every jump to improve separation from others

Malfunctions:

25. How would you deal with:
- (i) A hard pull/no pilot chute handle?
 - a) Keep trying until you get it
 - b) Try a second time using elbow for leverage, if no good then emergency procedures
 - c) Emergency procedures
 - d) Wait for AAD to fire
 - (ii) Pilot chute in tow?
 - a) Reach around and pull bridle
 - b) Emergency procedures
 - c) Look over shoulder to clear
 - d) Wait for AAD to fire
 - (iii) Horseshoe malfunction?
 - a) Try to extract pilot chute from BOC, if no good then emergency procedures
 - b) Emergency procedures
 - c) Reach around and pull bridle
 - d) Wait for AAD to fire
26. Your main canopy looks like it has opened correctly, but begins to stall at the slightest toggle movement. What would you do?
- a) Two practice flares then emergency procedures
 - b) Face into clear area, don't try to flare, do a good PLR
 - c) Try to clear until 2000 ft hard deck then emergency procedures
 - d) Emergency procedures
27. On opening you find one of your steering lines has snapped. The canopy has opened normally in all other respects. What would you do?
- a) Face into clear area, don't try to flare, do a good PLR
 - b) Two practice flares then emergency procedures
 - c) Emergency procedures
 - d) Try to clear until 2000 ft hard deck then emergency procedures

28. On opening you find one of your toggles is jammed (won't release from riser). The canopy has opened normally otherwise. What would you do?
- Try to clear twice. If still won't release then emergency procedures
 - Face into clear area, don't try to flare, do a good PLR
 - Emergency procedures
 - Try to clear until 2000 ft hard deck then emergency procedures
29. What must you stay aware of whilst dealing with the problems listed above?
- Other parachutists in your airspace
 - Protecting your handles
 - Altitude and hard deck
 - If your RSL is connected
30. In the event of having two canopies out, what would your actions be for the following circumstances:
- If the canopies are in a biplane configuration (one in front of the other) and you have directional control:
 - Steer gently with toggles of rear parachute (leave front canopy's brakes stowed)
 - Steer gently with toggles of front parachute (leave rear canopy's brakes stowed)
 - Steer with rear risers of rear parachute (leaving all brakes stowed)
 - Steer with rear risers of front parachute (leaving all brakes stowed)
 - If the canopies are touching each other in a side-by-side configuration, then keep them together and:
 - Steer with toggles of main canopy
 - Steer with toggles of reserve canopy
 - Steer with rear risers of dominant canopy
 - Steer with inside risers of each canopy, e.g. left rear riser of right canopy.
 - If the canopies are separated in a side-by-side (more than an arm's-width apart)
 - Steer with toggles of main canopy
 - Steer with toggles of reserve canopy
 - Steer with rear risers of dominant canopy
 - Disconnect RSL if time/altitude permits, and cutaway main canopy
 - If the canopies are in a downplane
 - Disconnect RSL if time/altitude permits, and cutaway main canopy
 - Try steering canopies back together to side by side using toggles
 - Try steering canopies back together to side by side with rear risers
 - Disconnect RSL

Two-Action System

31. On your two-action system, you find that after cutting away your main, you cannot locate your reserve ripcord handle:
- Why should this never happen to you?
 - You should look and locate both handles before commencing emergency procedures
 - You should check your gear before you get in the plane
 - You should check your gear before you get out of the plane
 - All of the above
 - What would you do?
 - Wait for AAD to fire
 - Try once more then emergency procedures
 - Look for it and trace it from the end of the bendex housing
 - Wait for instructor to pull for you

32. On your two-action system you have cut-away a malfunctioning main canopy, but only one riser has released:
- (i) What step do you take to ensure that this does not happen?
 - a) Clear cables when cutting away
 - b) Correct emergency procedures
 - c) Get instructor to check your gear before every jump
 - d) Correct emergency procedures and monthly 3-ring maintenance
 - (ii) What would you do?
 - a) Continue emergency procedures
 - b) Make sure cutaway cable is completely extracted then hit riser with open palm to clear before deploying reserve
 - c) Disconnect RSL and pull reserve handle
 - d) Try to clear riser twice then emergency procedures
 - (iii) Why is this particularly dangerous if you have an RSL fitted?
 - a) If the riser with RSL releases it could fire the reserve resulting in main/reserve entanglement
 - b) If the non-RSL riser releases it could fire the reserve resulting in main/reserve entanglement
 - c) It won't make any difference
33. Your rig is equipped with an RSL. You have had a canopy wrap with another jumper after opening and you are going to cut away from it. What will you do first?
- a. Disconnect RSL and communicate to other jumper you are cutting away
 - b. Leave RSL connected and communicate to other jumper you are cutting away

Canopy Control and Landings:

34. At 300' you notice that several people are heading for the same landing area.
- (i) Who has right of way?
 - a) Smallest canopy
 - b) Largest canopy
 - c) Highest canopy
 - d) Lowest canopy
 - (ii) What should you do?
 - a) Spiral to land first and get out of people's way
 - b) Sit in brakes to land last and get out of people's way
 - c) Find a clear spot to land beside other parachutes not behind them
 - d) Find a clear spot to land behind other parachutes not beside them
 - (iii) What can you do to avoid this situation?
 - a) Spiral to land first and get out of people's way
 - b) Sit in brakes to land last and get out of people's way
 - c) Gain vertical separation from others whilst in the holding area, know where others are at all times
 - d) Land off the drop zone
35. You find yourself in cloud under your parachute. What should you do?
- a) Keep flying straight until you are out of the cloud
 - b) Slow right turn until you are out of the cloud
 - c) Slow left turn until you are out of the cloud
 - d) Emergency procedures

36. On days where you are jumping in strong winds, what areas should you avoid on landing at your DZ
- Downwind of buildings and trees
 - Upwind of buildings and trees
 - Next to buildings and trees
 - In front of buildings and trees
37. How could you assess wind direction if landing off the DZ away from the normal indicators (windsock, streamers)?
- Clouds
 - Other parachutes
 - Dust, smoke, water, flags
 - Trees
38. You realise you are going to land in a large body of water (ocean). What steps would you take to ensure your survival? **(most DZs could just ask second half)**
- You are wearing a floatation device:
 - Land as close to shore as you can, and scream for help
 - Disconnect RSL, put on life vest, land outside breaking waves, cutaway, swim away from equipment and inflate life vest
 - Disconnect RSL, put on life vest, inflate life vest, land outside breaking waves, cutaway, swim away from equipment
 - Disconnect RSL, put on life vest, land outside breaking waves, cutaway, inflate life vest and stay with equipment
 - You are not wearing a floatation device:
 - Land as close as you can to shore and scream for help
 - Disconnect RSL, land outside breaking waves, cutaway, swim away from equipment
 - Disconnect RSL, loosen off chest straps and leg straps, land outside breaking waves, swim out of equipment
 - Either b) or c)
 - Any of the above
39. You have been given approval to increase your wingloading by downsizing to a smaller canopy:
- What changes do you expect to experience in the performance and response of your canopy?
 - Canopy will be less responsive
 - Canopy will be more responsive and fly faster
 - Nothing will change
 - Canopy will fly slower
 - How will you be able to judge when to flare?
 - Ask an instructor
 - Ask any experienced skydiver
 - It should be the same as previous canopy
 - Practice flares up high to get timing right

40. Large toggle inputs (hook turns) close to the ground should be avoided, as they may result in:
- Serious injury or death
 - Increases rate of descent towards the ground
 - Possibility of not getting back under wing before impact with the ground
 - All of the above
41. You have just input a large toggle movement to turn on to finals and as your canopy swings you around and you face the ground you realise that you are much too low. What do you do?
- Both hands up to full drive and PLR
 - Turn the other way
 - Pull other toggle down to full flare and PLR
 - Both hands to half flare and PLR
42. You realise that you have flared too early and suddenly release the toggles all the way up prior to flaring a second time:
- What will the likely result be?
 - Canopy surges towards the ground
 - Canopy stalls
 - Canopy turns
 - Nothing changes
 - What should you do if you start your flare too high?
 - Keep flaring and hold the toggles all the way down
 - Stop at half flare and PLR
 - Let toggles back up
 - Stop at half flare and hold until correct time for full flare, PLR
43. What causes your canopy to stall; and how do you recover from a stall?
- Rapid toggle movements; full flare
 - Holding full brakes for too long; let go of toggles
 - Holding full brakes for too long; slowly and evenly let toggles back up
 - Sudden change in wind direction; hold half flare
44. What is the difference between *airspeed* and *ground speed*?
- Airspeed is velocity through the air, groundspeed is velocity across the ground affected by wind
 - Airspeed is velocity through the air, groundspeed is velocity towards the ground
 - Airspeed is velocity towards the ground, groundspeed is velocity across the ground affected by wind
 - Airspeed is velocity towards the ground, groundspeed is velocity through the air

End

APPENDIX C: CERTIFICATE CLASS A – CHECKLIST

Your logbook should contain all the necessary detail to allow your Chief Instructor to certify your application. However, making a note of these items as you progress through the table will ensure you do not miss anything.

You'll find complete conditions in the APF Operational Regulations and Regulatory Schedules (see in particular RS 52, Parts 4 and 5)

Note: Keeping a log book is a legal requirement. You should bring your log book to the DZ every visit and keep it up to date.

Certification Requirements

Checklist

I have made at least 10 stable freefalls. The 10 jump numbers from my logbook are:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

I have made at least 10 jumps landing within: either 30 metres of the target centre or a 50x30m runway . The 10 jump numbers from my logbook are:

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

I have completed the Class A Training Table (AFF, TAF, IAD or Static-Line for students) to the satisfaction of the Chief Instructor

I have achieved a satisfactory result in the written assessment and been provided with retraining on my knowledge gaps.

I have completed Class A Canopy Handling Training Table to the satisfaction of a Chief Instructor

Note: Approval of the Chief Instructor for you to pack your own main parachute is now required for Certificate Class B. This does not prevent you from beginning this packing training or achieving competence prior to Class A certification, however is no longer a regulatory requirement for Class A.

Once you've achieved all these requirements, you can complete the APF 'C1' form (on-line preferred, or paper-based) to apply for your Certificate Class A (APF website: www.apf.com.au under the Publications menu). Get your application verified and send it to the APF Office with your payment, along with a passport-style photo for your new membership card.

APPENDIX D: PARACHUTE INSPECTION CERTIFICATE AND CHECKLIST (FORM P3)**D1: Parachute Inspection Certificate**

Give this form to your Rigger of Packer A to complete when inspecting your equipment.

REPORT REQUESTED BY:

SUMMARY:

Approx. cost of rectification work to bring the equipment to serviceable condition is \$ _____

Maximum recommended suspended weight of the Main canopy is _____ kgs

Maximum recommended suspended weight of the Reserve canopy is _____ kgs

Approx. value (as-is condition) \$ _____ to \$ _____

Reserve lanyard (RSL): _____ is fitted is not fitted can be can not be to this equipment

Main-Assisted Reserve Deployment (MARD) is fitted is not fitted can be can not be to this equipment

Automatic activation device (AAD) _____ is fitted is not fitted can be can not be to this equipment

The recommended minimum experience level for this equipment is _____ jumps/licence

In its present condition, this parachute is Airworthy Not Airworthy

NOTE: Either an AAD and/or RSL will be required to be fitted to a parachute used by a person with less than an APF Certificate Class E.

OTHER COMMENTS:

CERTIFICATION:

The item(s) identified above have been examined for the purpose of providing an opinion as to their condition, value and payload capability.

Whilst the equipment has been inspected with all reasonable care, the opinion expressed does not give or imply a guarantee that the equipment is free from defects other than those identified overleaf.

INSPECTED BY:

_____ /_____/_____
 (printed name) (signature) (date)

APF Rigger / Packer Licence Number: _____

This form is produced by the Australian Parachute Federation as a service to members.

D2: Inspection Checklist – See your CI, Packer A or Rigger before purchasing any equipment

IDENTIFICATION:

Container Type: _____ Serial No: _____ Date of Manufacture: _____
 Main Canopy Type: _____ Serial No: _____ Date of Manufacture: _____
 Reserve Canopy Type: _____ Serial No: _____ Date of Manufacture: _____
 AAD Type: _____ Serial No: _____ Date of manufacture: _____
 AAD Service Due: _____ Battery Due: _____

ITEM	GOOD CONDITION	SERVICEABLE CONDITION	REQUIRES ATTENTION	COMMENTS
MAIN:				
- Canopy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Rigging lines condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Rigging line trim	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Steering lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Slider	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Bridle and attachment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Deployment bag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Pilot chute and kill line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Mandatory mods incorporated?	YES		NO	_____
-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
RESERVE:				
- Reserve ripcord pull under 10kg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Canopy fabric-strength & condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Canopy fabric-acid test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Rigging lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Slider	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Steering lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Diaper/free bag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Bridle and attachment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Pilot chute spring compression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Pilot chute fabric/stitching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Mandatory mods incorporated?	YES		NO	_____
- Freebag and grommets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
CONTAINER/HARNESS:				
- Container condition & appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Velcro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Stiffeners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Hardware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Grommets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Reserve brake installation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Harness webbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Harness stitching security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Reserve R/Cord condition, security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Main pilot chute & stowage pouch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- RSL installation & routing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- MARD installation & routing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Main risers compatibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Main riser loops, rings, grommets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Mandatory mods incorporated?	YES		NO	_____
- AAD condition & installation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
- Main and reserve closing loops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Signature of Rigger _____

APPENDIX E: ASSESSING CANOPY AND CONTAINER COMPATIBILITY



Assessing Canopy/Container Compatibility



Deciding if a main canopy and container can safely be used together can be a complex task as there are several aspects of a system that are affected by the volume of the canopy being installed. All of these need to be included when assessing compatibility.

Recently introduced rules require that a Packer A or Rigger verify that the main installed in a container is compatible and safe. DZSOs and instructors are required to inspect gear regularly and record that inspection. We should all know how to confirm that a system is safe to use.

The following information refers mostly to the deployment system and the effects of installing oversized or undersize canopies in a container designed for a certain range of canopy volume.

Manufacturers recommendations

Manufacturers recommendations should always be a consideration when matching a main or reserve with a container. Their maximum and minimum size limits have been developed with a margin of safety and all the other considerations discussed below included.

When we move outside of those limits we reduce those margins and increase the risk of premature deployments and other issues.

Adhering to recommendations has not been mandated as it has been found that there is a variation in packed volume between different models of canopies and even between different versions of the same model.

In the past compatibility information was sometimes difficult to access.

Manufacturers sizing charts are becoming more detailed in the information they provide and they are usually happy to be contacted for advise if a particular canopy is not listed in their chart.

Each jumper should make themselves aware of the canopy size range for their container and of the risks involved in moving outside of these recommendations.

Canopies larger than recommended

When installing a canopy larger than recommended **Sunpath** state the following:

Do not install a main or reserve canopy larger than the sizing chart calls for as there are serious safety issues that may arise from "overstuffing" a main or reserve container.

An oversized main will:

- Have a 'Pregnant' appearance.
- May interfere with the deployment of the reserve.
- Require a longer closing loop which may result in grommets and closing loop being exposed when the pin tuck flap is closed.
- Sometimes result in the pin tuck flap seeming to be too short and easily falling open.
- Stretch a container. This could result in subsequent downsizing, which may even fall within recommended sizing, to be dangerously loose in the container. It's important to consider a containers history when downsizing.

Downsizing

Manufacturers usually allow for about 2 safe downsize steps between tight and loose fit.

If a container has had a canopy installed which is tight or perhaps a little oversize it will have stretched to suit that canopy and this will effect the safety of future downsizes.

Important- The container is supplied with a Deployment bag that has been manufactured to suit the volume of the container. If this D-bag is replaced it should be with one of equal volume. Using a mismatched bag can be dangerous and should be avoided.

An undersized main will:

- Appear 'pinched at the waist' where the main meets the reserve
- Feel soft and spongy in the container
- Be easy to bag and require minimal effort to close the container.
- Reduce tension on the closing flaps which is necessary for sufficient friction between the closing loop and pin.
- Reduce tension on the closing flaps where the pilot chute bridle is tucked making it easier for the bridle to become exposed to the wind during a jump.
- Reduce pressure on the BOC pouch which will make it easier for the pilot chute to be withdrawn from the pouch.

The closing loop should be sized to bring the closing flap grommets within close proximity of each other and create some tension in the closing flaps. Friction between the pin and closing loop should be provided by a **combination** of tension in the closing flaps and the correct length of closing loop.

If friction on the pin can only be created by shortening the closing loop to its minimum possible length and there is no tension in the flaps then the main is too small for the container. Any stretching of the closing loop or slippage in the knot will create a dangerously loose pin.

Mirage state on their website;

The closing loop should not go slack and the pin should not move when the main container is firmly pressed, squeezed or kneeled on.

In the case of 'over the bag' closing loops, which are attached to the bottom of the main tray, an undersized canopy will require shortening of this loop to create friction on the pin.

If the main is soft in the bag the shortening results in a bowtie shaped bag which removes tension from the closing flaps at the critical part where the bridle is tucked.

Making a Tactile Assessment

There are four main criteria for a tactile assessment of compatibility. All are reliant on the others being within acceptable limits to prevent premature deployments. When inspecting our own gear, or that of others in a gear check, the following should be considered in **combination** with the manufacturers' recommendation.

Give each of the following a score out of 10 when assessing a system. If any of the four score less than 6 then the safety of the system is compromised.

BOC Security

- Is there tension throughout the pouch?
- Is the tension being supported by the rigidity of the container?
- Can the tension be reduced by laying on the rig in the plane?
- Has your downsize included a new, smaller pilot chute?

Bridle Security

- Is there sufficient tension and rigidity in the main container to keep the Bridle firmly tucked inside the flaps?
- Can this be compromised by a soft pack being compressed in the plane?



A soft pack will make it easier for a bridle to escape into the wind and cause a potential premature deployment

Flap Tension

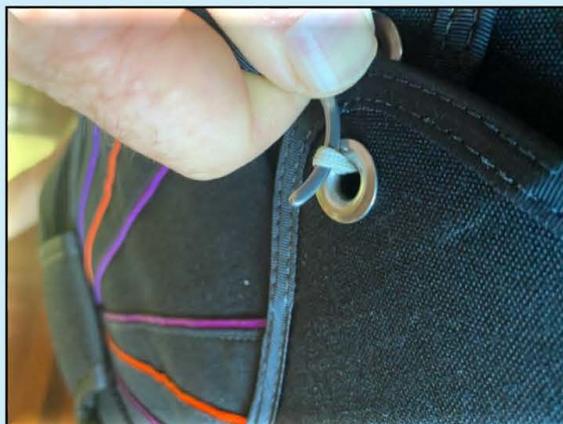
- Is there obvious tension in the closing flaps?
- Can you create slack in the closing loop or reduce tension in the closing flaps by squeezing or kneeling on the main container?
- Is the closing loop very short? This is a possible indicator of insufficient tension in the closing flaps



Being able to easily slide a hand underneath a side flap is a good indication that there is insufficient tension in the flaps.

Closing loop

- Is the closing loop the correct length? (grommets are in close proximity and good friction on the pin)
- Is pin friction being provided by a combination of flap tension and closing loop length
- Can you create slack in the closing loop by kneeling on or squeezing the container?



If slack can be created in the closing loop by squeezing the main container then the loop is too long and/or there is insufficient tension in the flaps

Purchasing a new container and Reserve when we downsize our main can cost a lot of money. Jumping equipment with a dangerously undersize main installed can, and has, cost lives.

Be safe and Blue skies

APPENDIX F: DETAILED BUDDY CHECKLIST



Australian Parachute Federation

Buddy Checklist

A detailed EXPLANATION of what to look for on a buddy check before emplaning

FRONT

- **3 Rings**– good condition, correctly routed: only one ring through another, loop through smallest ring only, loop goes through riser and then grommet at end of cable housing, then cable goes through the loop
- **RSL lanyard** – correctly connected or stowed away, secure
- **Handles**- cutaway and reserve correctly positioned, secure, Velcro ok, cables clear of obstruction
- **Chest strap** – no twists, correctly routed through hardware,
- **Leg straps** – correctly routed, evenly tightened, excess stowed, no twists
- **Adjustable main lift webs:** adjusted correctly and evenly, excess stowed



BACK

- **AAD** – on, correct mode, calibrated correctly,
- **RESERVE – Pin**- clear of obstruction, fully inserted, facing correct direction, **Closing loop**- excellent condition, correct tension, **Reserve in date** (if visible), **Tuck flap** secure, **RSL and Collins lanyard** correct routed (if fitted)
- **MAIN** – Correct flap closing sequence, **Pin**- clear of obstruction, fully inserted, facing correct direction, **Closing loop**- excellent condition, correctly routed, correct tension/length (grommet positioning) **Bridle**- correctly routed to and from pin, pilot chute cocked (colour in window),
- **Pilot chute / Drogue**- Securely in BOC, no protruding material, handle accessible, tuck flap secure (if present), BOC in good condition-tight and no damage/wear

Tandem only

Drogue release handles – secure & in place

Sigma Tandem

Main closing – Disc facing correct way, locking pin in, main pin spectra not twisted, closing loop sequence-under,under,over,under

Strong Tandem

Main closing – drogue 3 rings correctly routed (see above), correct routing of drogue release cables, drogue bridle facing correct way

RIG OVER ALL

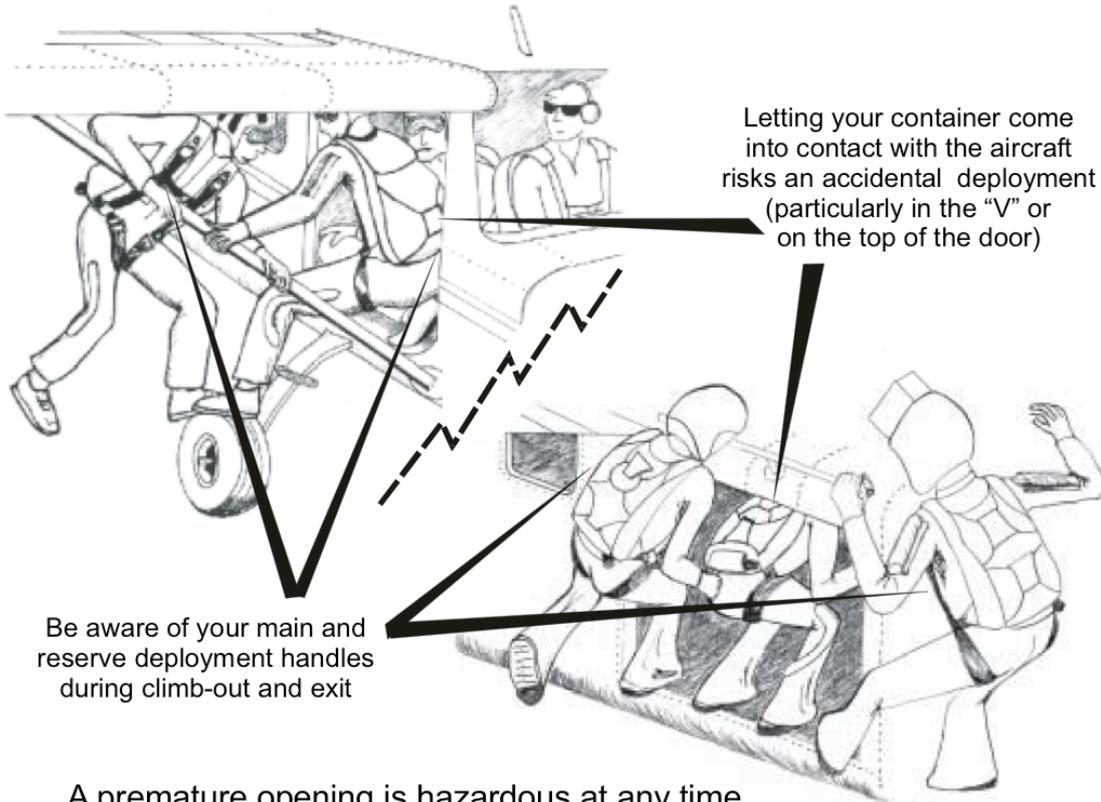
- **No loose material**- everything contained and secure, **Risers**- stowed correctly, nothing exposed, **Hook knife**- present, secure.
- **Main and Reserve fit well** - generally not too loose or tight? Gear in good condition?

OTHER

- * **Helmet**- done up, adjusted correctly, * **Altimeter**- on, correctly calibrated, working, secure,
- * **Goggles/eye protection**- clean, correctly adjusted * **Clothing appropriate**- Jumpsuit fitted adequately, done up/no loose parts. **Shoes**- enclosed, done up, secure. **Gloves**- secure, snug
- * **Camera and mount**- Certificate C or above, snag hazards, correctly mounted and secure

ATTENTION!

A PREMATURE OPENING CAN PROVE FATAL



Letting your container come into contact with the aircraft risks an accidental deployment (particularly in the "V" or on the top of the door)

Be aware of your main and reserve deployment handles during climb-out and exit

A premature opening is hazardous at any time. It can be extremely hazardous if it occurs with an open door or during exit. The result can be major aircraft damage and serious, if not fatal, injury to the jumper.

SOME OF THE CAUSES OF PREMATURE DEPLOYMENT ARE:

- | | |
|---------------------------------------|-------------------------|
| Excessive movement in the aircraft | Loose closing loops |
| Poorly planned or careless climb outs | Worn velcro |
| Badly maintained equipment | Worn pack closing loops |

**THE SAFETY OF EVERYONE ON BOARD
DEPENDS ON YOUR CARE & AWARENESS**





Where do you go next...?

The Australian Parachute Federation offers programs to support you in becoming an expert skydiver...Programs include:

- ▣ B-Rel Buddy**
- ▣ Register of Coaches**
- ▣ B-Rel and Star Crest Training Days**
- ▣ B-Rel Jump Bonus Rebate**

More information at: www.apf.com.au