Australian Parachute Federation

Certificate Class B Training Guide

VERSION 01-2026

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.

Formation Skydiving, relative work and canopy handling are not an exact science and techniques may change. Information in this guide may not be applicable to all types of manoeuvres, freefall operations or canopy descents

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.

Front cover photo by Cameron Puttee

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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.

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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AMENDMENTS

VERSION	AMENDMENT DETAILS
01-2026	• Replace 'Sporting Licence' with 'Annual Recency Certificate' and remove all reference to 'licence'.
2025	• Minor administrative and grammatical changes • Updates to the Brel Jumps & Skill Levels, including the addition of a coached canopy jump and horizontal movement jump

This document is offered as a free download to APF members.

Alternatively, contact the APF Office for a paper copy at a cost of $5.00

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PART 1: PROGRESSING FROM A TO B

1.1 Freefall and canopy piloting skills and general knowledge

By now you should have covered much of the theory and be building the basic practical skills necessary to gain your Certificate Class A. In addition to the Class A Training Guide, you should also have been reviewing (or beginning to review) the Canopy Pilot Guide.

This Class B Training Guide is to assist your progress towards achieving your Class B certification. It should be read in conjunction with your ongoing review of the Canopy Pilot Guide. There is a lot to learn and it can be divided simply into three topic areas:

1. Freefall skills and knowledge – flatfly relative work;
2. Canopy piloting skills and knowledge – flying your parachute to perform various essential manoeuvres; and
3. General knowledge – about your drop zone and people, safety, the sport and the various pathways available.

1.2 Checklist of Achievements to Qualify for Class B

By the end of your novice training and qualifying jumps, your logbook should contain all the necessary detail to allow your Chief Instructor to certify your application. This can be done online. However, making a note of these items as you progress through the training will ensure you do not miss anything.

Regulatory Schedule 52 and the TOM list the requirements for each Class. For Certificate Class B, you will need to have achieved these elements:

- Hold a Certificate Class A, or be qualified and recently signed-off for a Class A;
- Made 50 stable freefall descents (not including any static-line descents)
- Accumulated 10 minutes of freefall (as per your log entries);
- Made at least 10 landings, witnessed and verified, within the landing accuracy defined in RS 52, 4.1 (i.e. either 25 m to a target centre, or in a 30x20m runway).
- Completed the Cert B Training Table.
- Able to determine the correct exit point (part of spotting);
- Certified by the Chief Instructor as:
    - safe to pack main canopy for own use (or use by another Annual Recency Certificate holder), see 1.9 below for details;
    - safe and competent to participate in flatfly RW descents of up to 10 skydivers.

It is also highly recommended that you complete:

- the Canopy Training Descent with an approved Coach (detailed in the TOM); and
- the Class B written assessment and be retrained on any knowledge gap (see Appendix A of this Guide).

Note that some DZs have additional jumps including tracking exercises with a coach/instructor to help candidates with their tracking skills, particularly as they get into larger formations and potentially once they have received their Cert B for up to 10 ways.

1.3 Advancing through the Training Tables

In addition to the Operational Regulations, the instructors and coaches in each Training Organisation adhere to industry standards outlined in their Training Operations Manual (or "TOM"). The TOM contains Training Tables that specify the aims and minimum requirements for each formal stage of a parachutist's progress.

Following your student progression under an AFF or SFF Training Table and the Class A Canopy Handling Training Table, your novice training is covered by the Class B Training Table. This Guide supplements this Table.

Consider what your instructor or coach needs to decide for you to progress through each stage of the Training Table. They will probably have to answer several questions on your performance on each jump:

- What were the objectives of the jump and did you fulfil them?
- Did you use skills learned on previous jumps or during your initial training?
- Did you learn a new skill and demonstrate it?
- Do you have an accurate and realistic recall of the dive?
- How did you rate your own performance on the jump? Do you feel you fulfilled the aims of the jump and are you confident about advancing?
- Does the coach feel that you are ready to perform the next skill level?
- Did you initiate break-off, turn and track competently?

Control is what your instructors and coaches are looking for here,
"Did you, the novice, demonstrate control during the freefall and canopy flight?"

For the RW and canopy exercises, the coaches will be ensuring the exercises are performed correctly by observing them from the air or from the ground after landing, or by a suitably qualified third party on the ground. If the coach is conducting a relative canopy flight descent with you, they will position themselves so that you may appreciate the effect of the exercises with a canopy flying relative to you in the sky.

1.4 Building your experience and situational awareness

Skydivers with decades in this sport and thousands of jumps report continually learning new skills and gaining more experience. As you log more jumps and spend time on the DZ immersed in parachuting activity, you will expand your breadth and depth of experience and knowledge. In freefall and under canopy, your situational awareness will improve.

> *Definition:* ***Situational awareness*** *is the perception of environmental elements and events with respect to time or space, the comprehension of their meaning, and the projection of their status after some variable has changed, such as time, or some other variable, such as a predetermined event.*
>
> *Source: Wikipedia*

Situational awareness is a critical factor in safety. By staying current in the sport, you improve and maintain good reaction times and this supports better decisions. Taking long breaks between visits to the DZ can mean having to take a step back to refresh or retrain. By jumping regularly, you are able to take a step forward on each jump by building on existing skills and knowledge with improved situational awareness.

1.5 Canopy Handling

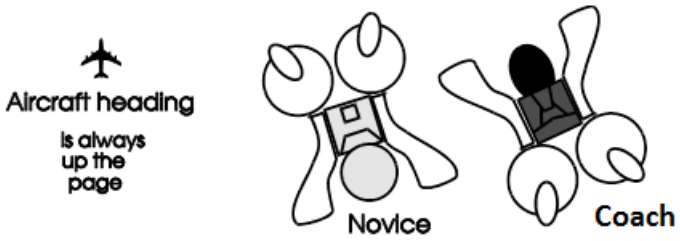
To qualify for your Certificate Class A, you will have achieved the most basic of canopy piloting requirements on each jump and completed additional in-flight exercises such as: slow flight, stall and recovery, and landing approaches using full glide and braked short.

You must continue to consolidate these skills on every jump, and cover the canopy handling skills listed in the Class B Training Table and the Canopy Training Descent with an Approved Coach (detailed in the Training Operations Manual). Your instructors/coaches will teach you to practise one skill on each and every canopy flight in order to progress these skills. They may be performed on a student canopy, though should be continued to be practiced once you have made the transition to your own gear.

1.6 Dive Planning

Comprehensive dive plans are located towards the back of this Guide.

In the Skill level diagrams which follow throughout this guide, Aircraft heading is always up the page unless otherwise specified; novice and coach are shown in outline, with the coach having the dark rig and helmet.



1.7 Jumpmaster/Coach

Class B training jumps are to be performed under the direct supervision of at least an Instructor acting as the DZSO, and either:

- a student, with the jumpmaster being at least a qualified Instructor; or
- a novice, with the RW Coach (approved by a Chief Instructor).

It is recommended that deployment altitude for your training jumps be at least 4,500 feet AGL. This means sacrificing a small amount of freefall time for more canopy flight time. **It is essential to remember that this sport is not just about freefall**. It is far more important to learn how to fly your canopy with greater proficiency, than to freefall for a few more seconds. The aircraft pilot and other parachutists on the load are to be informed of opening altitude.

The chances of an off drop zone landing are increased if you are not vigilant. The drop zone or alternate safe landing area should be within an easy glide at all times.

You are encouraged to continue to perform "T. A. P. S" checks on all jumps (in flight: traffic, altitude pattern and situation on the ground (wind strength and direction, and clear landing area with no obstacles)) during the descent every thousand feet or so.

1.8 Equipment

You are probably at the stage of wanting to own your own rig. **You must tell the DZSO and your instructor/coach if you borrow a rig for any reason**. Being relatively new to the sport, you may not think it important enough to tell anyone, but it is critical that you do.

If you are transitioning from dropzone gear to your own, you will need to be fully conversant with any new drills and have completed all the required conversion jumps. Even if you buy a new jumpsuit which is different from the earlier practice suit(s), you should do a couple of jumps doing manoeuvres to get a feel for it.

Be sure to review the Canopy Pilot Guide, particularly on Canopy Downsizing. Also review the Certificate Class A Training Guide; Parts 2 through 6, which contain useful detailed information on equipment and pay special attention to the Appendix E "Assessing Canopy and Container Compatibility".

1.9 Packing Skills

In order to be assessed as competent to pack a main canopy for own use (or use by another certificate holder), the Certificate Class B candidate must show competency in the following:

- Replace main closing loop, ensure correct knot and length when installing new loop
- Disassemble and reassemble 3 rings
  - Identify why this is done (manipulate webbing to remove memory)
  - Identify incorrectly routed 3 rings

- Remove and clean cutaway cable
- Attach a deployment bag (complete with bridle and pilot chute)
- Attach the main parachute, already on risers, to the container
- Complete a 4-line check
- Complete an assessment pack job and jump the assessment pack
- Discuss / demonstrate an understanding of canopy and container compatibility. Where to access manufacturer guidelines. And why canopy to container compatibility is important.
- Demonstrate understanding of the correct way to attach RSL. Discuss when you may choose to not attach the RSL and where to locate an RSL when choosing not to use it.

The following can be used as a checklist during the candidate's assessment pack:

- Pre-pack checks
  - reserve in date
  - AAD in date and switched on
  - three rings correctly routed
  - condition of BOC
  - bridle attachment, bridle, bag and pilot chute
  - S-links
  - steering line attachment
  - toggle keepers
  - condition of slider and grommets
  - condition of slider stops
- Pre-pack set up
  - slider unstowed
  - check lines / lower brake lines for wear/ remove twists
  - brakes set, excess line stowed
  - pilot chute cocked
  - ensure risers are even
- While packing
  - Pack IAW manufacturer's guidelines
- Final checks
  - handles secured
  - covers closed
  - risers not exposed
  - bridle not exposed

1.10 Freefall Signals

When communication is required in freefall, hand signals from your coach are very effective (if you did AFF, you will be familiar with some of these). For example, if your freefall body position requires correction, it is necessary for adjustments to the posture to be made. Changing to the correct body position whilst in freefall is a very effective way to learn and will provide the best results.

Below is a list of suggested signals – each drop zone may have their own. More than half of the signals have been learnt before and the additional signals are obvious and easy to interpret in freefall. It may appear that there are too many signals however you only need to introduce them as required.

Instructor / Coach Signal	Trainee response
Height awareness	
Looking or tapping the altimeter	Check height
Fist	Reach grip throw – deploy parachute
Movement	
Pointing down	Fast fall / hips down/tighten core muscle group
Instructor goes above	Slow fall to match level / decrease fall rate
Circle with finger	Demonstrate a 360°
Point sideways	Move sideways
Index finger towards yourself	Fly in front / face off
Mind / head space	
Tap mouth	Breathe in through your mouth
Tongue poke / big smile	Smile and reduce tension on muscles
Clapping hands	2 or 3 times fast; More aggression / greater input
Head position	
Pointing at eyes	Maintain eye contact / eyes on the target
Tapping chin up	Eyes level with horizon / head up
Flat vertical hand at nose	Point nose/face to target
Wiggle head	Head to move freely/reduce tension in neck
Legs	
Straight peace sign	Extend legs / more shin on airflow
Bent peace sign	Bend legs / bend at knee
Pointing finger at chest	Push chest forward which tightens legs
Pointing index finger up	Lift hamstrings / point toes / lift balls of feet
Pinching thumb and index finger	Bring knees closer
Thumb and little finger out	Spread knees apart
Fist in hand	Use knee more / knee in hand
Arms	
Wiggle fingers	Place hands in field of vision
Wiggle elbows	Ensure you can see over arms
Hold hands flat together	Respond with the same action

1.11 Being aware of other jumpers in freefall

The Class B Training Table allows novices to acquire skills in jumping with others in a controlled manner and environment. At this early stage, it is important to be aware of exactly where other jumpers are throughout a skydive. This awareness is a skill that needs to be developed and will improve over time.

All effort should be made to avoid ending up either directly above or below other jumpers at any point in the skydive. This is a very dangerous situation. Ending up in someone's burble may result in jumpers colliding, which may cause injury, disorientation or dislodge handles. A premature deployment (of either a main or reserve parachute) underneath another jumper can have serious or even fatal consequences.

Positioned below or above someone else can be equally dangerous during tracking or deployment. Be aware of people above or below you (low people have right of way), track until your opening altitude and change direction if required. Make sure you look around (above, below, left, right, behind and in front) and wave off before you deploy.

1.12 Height Awareness and Tracking

The Class B Training Table sets height awareness and tracking as specific objectives at each Skill Level. These are vitally important on every jump, so it is wise to take every dirt dive right through to break-off, track and deployment. Initially, you may be expected to initiate break-off at 5500ft, but should know that the coach will wave off at 4500ft if necessary. You are expected to initiate break-off, turn opposite to the centre of the formation, track effectively and in a straight line, wave off / looking left and right, and pull.

> ***Note**: It is important that you turn opposite the centre of the formation and your coach will explain why this won't always be 180° and why it is also important to avoid tracking up or down the jump run.*

As break-off skills are vitally important, if you fail to perform them satisfactorily you should probably not be advanced to a new skill level; but should repeat more familiar manoeuvres which will allow more attention to be given to height awareness and track-off/opening skills.

The amount of time you have available for tracking and separation compared to your later training table stages will be reinforced. You are encouraged to develop an inbuilt sense of the time allowed to track so there is no real need to read an altimeter after break-off altitude. This inbuilt sense of time/altitude allows you to concentrate on checking that your surrounding airspace is clear and deploying. There are regular reports of novices getting carried away:

(a) with RW manoeuvres when they should be breaking-off; and

(b) with their track and deploying low.

This may be the first time that you have had anyone opening at the same height as you. Your briefings should include the possible need to be steering your canopy immediately on opening and that this can be accomplished using rear risers. Canopy collisions with fatal consequences have occurred because jumpers have failed to check for others upon opening and not steered to avoid.

As a novice, you have very few jumps and are constantly at risk of losing height awareness. The wearing of an audible warning device may prevent the scenario of both novice and coach losing height awareness, which has happened before with fatal consequences.

1.13 Debriefing

The best debriefing aids are video and your own recall of the jump. Your coach may need to jog your memory occasionally, but it is surprising how much you will remember. You will benefit far more from this sort of recall than from listening to an account of what your coach saw.

Freefall video is an excellent aid. You are encouraged to use it if footage is available. Although it may appear expensive, it will accelerate your learning and probably save you money in the long run. Your briefing will include you and the camera flyer ensuring you are both aware of each other at break-off and under canopy.

1.14 Assessment

Remember that the Class B Training Table progresses in skill levels, not jumps. The idea is to achieve competence at each skill level; it doesn't matter whether that takes one jump or several. Similarly, it is okay to complete more than one level on a single jump provided you are not being rushed and everything is done to an acceptable standard. Note however, that there is a stipulated minimum freefall time of 10 minutes to be accumulated for completion of the table.

Generally, coaches will not be doing you any favours by "helping" you in freefall. For example, should you do a side-shot and stop half a metre short and the coach moves forward half a metre to take the grips, you probably won't realise that you stopped short and are unlikely to learn from your deficiency. It is better that the coach sits still and you have another attempt so that you get it right. The objective is not to clock-up a heap of points, but for you to learn the basics of good clean relative work.

Of course, if you are struggling to close a great distance at some point during a dive, it will not hurt for your coach to help you out by decreasing that distance. In doing so, it may mean you will have the opportunity to complete a manoeuvre and thus learn more. Your coach will use common sense when determining whether or not to "help" and will include this honestly in the debrief.

1.15 Log book

For each jump, the log book should contain comments on your strengths and weaknesses that the next coach can draw on.

The description should cover type of exit, control of exit, freefall skills, body position, eye contact, account of the jump, psyche, height awareness, track, canopy flight skills, conditions and landing skills including accuracy. You are encouraged to always complete your logbook before leaving the debriefing.

1.16 A Cautionary Note: Accident Prevention

Do Not Rush Your Learning Progression

..."you have the rest of your life to get it right"

Based on a Seminar by John Le Blanc from Performance Designs

"Learn from the mistakes and advice of others as you won't live long enough to make them all yourself."

Far too often when an accident has occurred, we use hindsight to examine the steps that led to the consequence. You could analyse the physical actions of the individual, e.g. a sharp front riser manoeuvre in one direction followed by an immediate hard toggle action in the opposite direction led to the individual developing line twists at a low altitude causing the individual to lose control of the wing and impact heavily. Or you might examine the state of mind of the individual leading up to the accident. If you did, then you might be able to classify them into five types of people:

Anti-authority: These people tend not to listen to their peers that have recognisable authority, and defy all common sense suggested to them. Such people are not necessarily "stupid"; they just don't like to be told that their actions may be dangerous. These people tend to be very stubborn and need to be reminded regularly to take a long hard look at their actions and decisions.

Impulsive people have a tendency to get charged up by spur of the moment thoughts. They don't take the time to consider the possibilities, nor consider the consequences of their choice of actions. 'I can swoop past that cameraman that I spotted moments ago'. 'I just saw someone swoop downwind past the hangar; I'll give it a go too."

Invulnerable people are otherwise known as being "bullet proof" (or think they are). For reasons unknown, some people believe that they are impervious to harm, when in reality they are usually the most susceptible. They can be too caught up in where they want to go, rather than where they are actually going. They tend to be interested in getting to their destination quickly, rather than enjoying the journey along the way.

Macho people tend to speak for themselves and boast of their abilities. An individual's ego inflates beyond their actual skill level. Testosterone/Oestrogen levels may be so high that their belief that 'I can do this' obscures the reality of their limitations; which can lead to dangerous choices. Macho people tend to jump parachutes that are beyond their skill level and jump in conditions beyond their ability.

Resignation leads to devastation. After committing themselves to any particular style of landing, they begin to travel on the recovery arc towards their final destination. Suddenly the image of what they believe is happening rapidly becomes disbelief. They may become resigned; give up and do nothing. It goes without saying that if you want to have an accident then the simplest thing to do is nothing.

Of course there are safer alternatives to these problematic behavioural choices. Listen to the instructors and experienced pilots at your DZ. Always have a flight plan and an alternate place to land. Consider that an accident could happen to you, and learn as much about the events that have led to accidents at your DZ and others.

Never, ever give up flying, until the very end.

If your mates try to tell you to pull your head in, then please listen to them, because they wouldn't be saying it to you if there were nothing to say. Mates always try to look after their mates.

The best advice to everyone about their choice of canopy is just like a good marriage…. "Love the one that you are with". We encourage everyone to spend at the very least, a year on the type and size of canopy that you have. At least by that stage you will have had the opportunity to experience a whole range of conditions and seasons. After which you'll hopefully decide to spend some more time exploring its dynamics.

Some skydivers say that they are conservative pilots and consider themselves as safe because all they do is the same style of approach regardless of conditions or circumstances. Such pilots are referred to as 'one trick ponies'. An informed pilot learns to understand and then realise that there is often more than one method to achieve the same outcome. For example, you might only know how to do a straight in approach. By adapting and learning you can develop a double front riser approach or even a deep-braked approach all performed in a straight in manner. Both styles of approaches obviously require knowledge, instruction and the development of skill. Yet many pilots choose not to seek the knowledge needed to perform new tricks.

Don't be a 'One Trick Pilot'.

Brian Germain's book, "The Parachute and its Pilot" is a valuable source of useful information. It's easy to read and has many practical insights to becoming a better canopy pilot. His book is available from *www.bigairsportz.com*

1.17 More considerations as you advance

As you work towards achieving the requirements for a Class B (as listed in 1.2 above), there will be many questions. In addition to these training guides (don't forget the Canopy Pilot Guide), please ask your instructors and coaches.

Consider the following points and ensure you are across these topics:

- Circuits and traffic - rule of right, low canopy has right of way;
- Landing directions relevant to other traffic;
- Crosswind or downwind landings as opposed to a low turn to land into wind;
- the process to get into freeflying - how to progress safely;
- the process to downsizing and who to seek advice from;
- Off DZ landings - Hazards, look away steer away;
- Cloud jumping approval and the risks that this entails; and
- Display jumping.

PART 2: NOTES FOR THE NOVICE CANOPY PILOT

2.1 Building on Your Prior Knowledge

As a novice pilot, you should be familiar with an in-flight check such as Traffic/Altitude/Position/Situation on the ground ("TAPS") and a landing checklist such as Legs/Arms/Chin/Eyes/Smile and Breathe ("LACES") – refer to the Class A Training Guide for a refresh. Just as an aircraft pilot has a downwind check for their landing, so should a canopy pilot. LACES is a useful reminder to setup early for landing.

You are encouraged to continue to practise the canopy handling exercises:

- until you are proficient and confident; and
- to develop skills that may be required in emergency situations.

The drills are designed to show you how your canopy behaves and to build confidence in techniques. Choose one exercise per skydive and repeat the exercise. By doing so, your skill acquisition should be greater as the repetition will lead to greater understanding and a better 'feel' for what the canopy is doing as a result of your actions.

Exercises and Landing Approaches

At this stage of your skydiving career, it is important to practice these exercises at altitude. Continue to fly a normal landing circuit pattern (downwind, crosswind and a final approach). Ensure that you get a proper briefing from your coach regarding the current conditions and the best approach path into the landing area.

Never attempt any of these exercises close to the ground before you have mastered the basic techniques.

Consult your coach/instructor before taking these skills through the landing pattern and flare phase of your canopy flight.

2.2 Collision Avoidance

Scenario - you are on final, about 200 feet off the ground. You have planned your pattern well, and are going to land close to the target, into the 3kt wind. Suddenly you see someone swooping down in front of you. They have started a crosswind hook, and by your best judgement, they will hit you in a few seconds. What do you do?

The wrong answer is to pull down a toggle to avoid him. This will turn your parachute, but will also cause it to lose airspeed, because a turn is also in part a flare. It will also start to dive, since the lift that once held you up is now turning you instead. If you release the toggle, the parachute is now in a dive that it *cannot* immediately recover from because it doesn't have normal airspeed yet. This mistake kills a few people each year worldwide and causes countless broken ankles and legs.

A slightly better (but still not great) answer is to not turn or turn very gently with toggles. You may still miss them; the big sky-little parachute theory has saved a lot of people in this sport. It's better than a toggle turn, but it's not ideal.

The ideal way to avoid that oblivious jumper is to flat turn away from him - or, if you're too low for that, flare turn away. Below are some tips on doing those two things.

A flat turn is basically a turn you can make losing very little altitude, which is exactly what you want in an emergency like this. They are not hard to do, but absolutely must be practiced before you need them for real. There are two ways to do them - braked turns and true flat turns.

2.3 Braked turns

The good news about braked turns is that they are easy to do. To do a braked turn, go to about half brakes (or whatever brake setting gives you minimum descent rate, just before a stall). Then let one toggle up a little bit. This will allow the canopy to turn while descending very slowly. To stop the turn, bring that toggle back down to the same position. Now you are back at the minimum descent rate. Try this a few times above 2,000 feet to get a feel for how it works. Practice turning exactly 90° and then stopping on heading.

If you ever need to do this in a panic situation, immediately flare to that position. This will slow down the canopy and give you more time to think about it. Then let one toggle up a bit until you have turned just far enough to avoid the hazard, then go back to the flare position. IF, and only if, you have enough altitude, then you can let the toggles back up and flare normally. However, in most cases you are going to have to land with your brakes halfway down (i.e. in an accuracy approach) so prepare to do a very good PLR. You should NOT try to flare any more, since you have already brought the canopy to a near-stall.

The braked turn is also a great way to dodge people shortly after opening once you have the toggles removed, since going to half brakes slows you down so much. Remember that if you are going to have a collision during canopy deployment you are better off to use a rear riser turn with the brakes still set, as you may not have time to release your toggles.

2.4 Flat turns

A true flat turn is a bit different, because it relies on the extra lift your canopy can generate. Your canopy has a limited amount of that extra lift available, and that comes from your available speed. To make the flattest possible turn you have to use that speed to get as much lift as possible - changing your direction requires lift just as keeping you in the air does. To start a flat turn, pull down one toggle then immediately follow through with the other one. If you go to half brakes before you start the turn, you lose some of that speed (and available lift) and thus you can't make as flat a turn.

2.5 Flare turns

This skill must be practiced at altitude to make you appreciate the feel of the manoeuvre. Remember to never practice any of these manoeuvres close to the ground until you have mastered the technique. Mastering a technique may take dozens or even hundreds of jumps.

Flat turns and Brake turns can help you if the guy cuts you off at 200 feet, but what if he appears heading straight at you after you have started to flare? In that case, you have to flare turn. To do this, flare the same as you always do, but flare slightly more with one hand than the other. This starts a turn. Before you touch down you must stop the turn by continuing to flare and by bringing the other hand down farther. The objective is to start the turn with one hand, then keep flaring, and use the other hand to get the canopy back over your head before your feet touch the ground.

This is a useful trick for dodging people who are about to hit you, or spectators who end up standing in front of you - or even dodging that broken bottle you didn't see until the last second. Learning flare turns is also an excellent way to improve your landings. Many jumpers "stick out their hand to break their fall" during the flare, which of course turns them hard in that direction. Learning to turn yourself cures you of this, because you learn to automatically compensate for that tendency.

2.6 Stalls

A Stall is caused by the angle of attack of the wing reaching a point where the laminar (smooth) flow of air separates and becomes turbulent. As this angle is reached the airspeed of the wing slows to a point where it can no longer sustain lift In the case of a parachute the wing may collapse as air is no longer being rammed into it maintaining inflation.

The Incipient Stall

If you were flying in an aircraft and were reaching a point where you were getting close to stalling the aircraft, the stall warning (a loud alarm) would begin to sound. This serves as a warning to the pilot that the airspeed is reducing and the angle of attack is too high. As this occurs the pilot would notice that the flight controls are very “mushy” and not very responsive. It is important at this stage to try to maintain level flight otherwise the wing will begin to roll and then yaw (i.e. turn) and lose even more altitude. Unfortunately; whilst flying a parachute we do not have an alarm system to warn us of the approaching stall. As parachute pilots we have to learn what the handling characteristics of your particular canopy are like. So when you are practicing your stalls try to pause before the stall occurs and take note of the handling characteristics.

This will serve as your alarm bell!

Normally a student canopy is set up so that it is not likely to stall even after holding the toggles down at full arms reach. This may vary depending upon the age and type of canopy and also upon your suspended weight and the reach of your arms. Ideally, on your own canopy, the brake lines should still have a slight bow in them (i.e. There is a little slackness in the line, so that the brake line has a small amount of travel before you are affecting the movement of the tail). In nil wind conditions you should be able to fly the canopy to a complete stop by completing the flare. However, if your brake lines are too long then you may not be able to wash off all of your speed before touchdown, which may lead to an awkward landing. Keeping your gear in good order is paramount to a safe flight.

Brake lines wear out quicker than the canopy suspension lines due to the fact that you are moving them through the slider grommet and the guide rings on your risers every time you move the toggle. They also are heated and shrink a little each time your slider moves down the lines during deployment. Hence you will either have to get your brake lines extended or replaced every hundred jumps or so. If your brake lines are considerably shorter than normal, then you may experience a stall before your arms reach the full flare position. So be very wary of the signs of a stall (the Incipient Stall; mushy handling, slow airspeed and change of pitch) and ensure that you don't just automatically and mechanically pull your toggles down if your canopy is out of trim. The remainder of the lines should be replaced every 500 jumps or so. Ask your local rigger or instructor to check the trim of your canopy for you. Plan ahead for a line change over; it may take some time to get the lines from the manufacturer and to get your rigger to install them.

2.7 Hook turn and Max recovery

Classically speaking a 'hook turn' is a sharp toggle turn that pendulum swings the pilot out close to a horizontal angle, so that as they swing back under that canopy, they generate extra airspeed needed for a swoop-landing.

However if the pilots' technique and judgment is not spot on then quite often, serious injury or death can result. The idea behind practicing this technique is not for the novice to practice the technique of the 'hook turn', but rather to focus on the forced recovery of a mistake. The exercise must be practised at height for safety and judgement. DO NOT attempt to practise this once you have commenced your landing circuit. After a sharp toggle input on one side, the best and only thing that a pilot can do to recover is to quickly and smoothly pull the opposite toggle down to match the same depth as the initial toggle pulled.

Be careful not to stall the canopy on the recovery but if you do, use the "slowly, smoothly and symmetrically" technique to recover back to full flight.

Turning onto your final approach should not exceed 90°. Performing a 180° turn onto final approach is a dangerous practice and requires mastery of skills that are well beyond your skill level at the moment.

2.8 Rear Riser Turns

You should have been taught during your first jump course that if a toggle(s) become inoperable for any number of reasons, then if you are above your hard deck level of 2,000ft then you should opt for commencing your emergency procedures and use your reserve canopy to land. If however you are below your hard deck level, then you should use your rear risers to fly and land at a safe landing area. This exercise is designed to encourage you to become accustomed to how a canopy flies and feels when you use your risers to do just that.

Riser turns as opposed to toggle turns will require more effort on your behalf as each riser is connected to four or five lines (depending upon whether you have a seven or nine cell) which then cascade to eight to ten lines (C & D lines). So you are pulling on more fabric and hence it will take more effort to use your risers. Rear riser turns tend to be flatter than a toggle turn and the range through which you can pull the riser is much less varied than what you can do with a toggle.

In order for a canopy to fly straight and symmetrically, the manufacturer sets the length of all of the lines. The A lines (those that are attached to the nose of the canopy) are shorter than those of the D lines (The lines that are attached closest to the tail, that are not brake lines.). This is what sets the trim angle of the canopy. So when you start pulling down on the rear risers and effectively making the D lines closer to the length of the A lines then you will be getting very close to stalling the canopy.

Uses of rear riser turns

Canopy Collision Avoidance

If you were unfortunate enough to be flying head on with someone else during your deployment sequence, the best way to deal with the situation is to quickly reach up and grip the rear riser as high as you can and sharply turn yourself to the right (see the Give Way rules). If you tried to get your toggles off and then turn, it may be too late already. If, however you are in a converging situation and you are the pilot on the left then you should turn sharply using the rear riser to the left and conversely the pilot on the right should still turn right.

Salvaging a Spot

If you are heading *into wind*, then apply a small amount of rear riser. This will flatten the canopies glide while still maintaining the speed and will help to penetrate further into the wind.

The novice pilot should practice this technique to increase their awareness….

- Of how much riser or toggle is *too much*.
- That tucking up your legs may improve glide by reducing drag.

If you are trying to salvage a spot, *always* pick and plan to fly to a safe alternate landing area early if you doubt whether you will make it to the Drop Zone.

The Novice Pilot should know where they are going to land by the time they are at 2000ft AGL.

2.9 Front riser turns

Front riser turns are aggressive in nature and serve to increase the air speed of the wing whilst sacrificing height. This exercise will be more difficult if your risers are not fitted with front riser handles. The larger the canopy the more difficult this exercise may be. So if you are still using a larger student canopy at this stage then you should perhaps wait until you get your own canopy. Please consult your coach as to the suitability of your canopy.

In order for front riser turns to be efficient, the canopy needs to be in good trim. You should have sufficient slackness in your brake lines, so that when you pull down on your riser, you are not pulling down the tail too much at the same time. If you can imagine driving your car with your foot on the accelerator and the brake at the same time then this is effectively what you would be doing. This may cause the canopy to buck or porpoise, a very inefficient way of flying and basically a waste of time and effort. Ensure that your gear is in good trim and you will have an easier time performing this manoeuvre.

As always, try to recall how much input you put in each time and try to reproduce that effort each time that you repeat the exercise. Pay attention to the increase in speed and the time taken to recover back to the regular ‘trim speed’ of the canopy.

When you perform front riser turns start by applying approximate shoulder height brakes, then smoothly allow the canopy to return to full flight and then grip the front risers appropriately. Your coach will demonstrate to you the best way to do this. This step will take some practice and you should continue to do so until you can do it without the need to look and locate the front riser handles.

Once you have mastered this technique, keep your elbows in front of you, as if you were doing a chin up. In effect, this is what you should be doing, lifting yourself up to the canopy and not trying to pull the canopy down. You can use your abdominal strength to lift your knees closer to your chest, which will help you to get more of a dive. You should learn how to dive the canopy in a straight line before trying to turn the canopy.

Once you have learned how to dive your canopy in a straight line you can then offload one arm and cause asymmetry in the risers which will cause a turn. Or instead of pulling on both risers initially, you can pull on one instead which will also cause a turn. The skill of the pilot is to learn how to control the rate of dive and change of heading by doing so. It will take many flights to do this. At the moment your task is to experience the exercise. To become a master of this skill will take many hundreds of flights.

PART 3: THE NEUTRAL BODY POSITION

3.1 The Traditional Neutral Freefall Position

The neutral body position is the base position that allows us to hold a constant position in the sky. It is a comfortable, balanced position, which is achieved by having muscle groups in the mid-range of their movement. Try avoiding stretching or contracting muscle groups excessively. This allows full range of movement of the body, therefore a full range of movement in freefall.

A symmetrical position on the air stream is necessary to remain 'neutral' in freefall. Asymmetry causes movement: lateral asymmetry induces a rotation; asymmetry of the front-back pressure causes forward movement or backsliding. Once a position is taken, the flow of air around the body will help maintain it without significant effort.

Summary

General	Body is to be neutral, comfortable and balanced
Hands	In front within your field of vision lower than the eyes
Elbows	Slightly forward and slightly lower of shoulder
Head	Moving freely on the shoulders
Eyes	Level with the horizon & maintained throughout turns
Hips	Slight arch – not tense – be comfortable
Knees	Shoulder width apart or a little less & higher than your hips
Lower leg	Extended approximately 20° (shin in the air flow)
Feet	Balls of feet and toes pointing up

Notes on the Neutral Body Position

Arms	The arms must be symmetrical. The hands flat, in the field of vision and loose. The elbows are about 10° forward and 10° lower than the shoulders which give increased leverage and control compared with the traditional "90° relaxed arch" (the relaxed arch tends to cramp the neck, stretches the chest muscles, and restricts the head from being held up). The standard relaxed arch often has the arms in line with the eyes, obscuring the skydiver's vision when looking left and right. This in turn can lead to looking under the arm which de-arches the body.
Eyes	The eyes should be kept level with the horizon. As with riding a motorcycle, keeping them level when turning keeps the picture received by the brain one which is easy to decipher.
Legs	The legs must also be symmetrical. Pushing the shins slightly on the air helps 'feel' its pressure. The legs have to be slightly apart in order to obtain lateral stability. However, legs should not be too wide, as having legs too far apart prevents the essential movement of a stable position: arching. The toes should be pointed towards the sky. This lifts the knees and induces muscle tone throughout the whole leg. The position of the legs cannot be visually checked so the use of video in the early stages of jumping is highly recommended.
Upper body	The head must be up. As with the "hard arch" this intensifies the arching and opens the chest.

3.2 Advanced Neutral Belly Position (also known as the 'Mantis' position)

After you've completed your B-Rel training and particularly if you progress into more advanced formation skydiving, you may wish to further develop your neutral body position by using the Mantis position. See your Coaches when the time is right.

The movements covered in the next Part [4] are based on the traditional neutral freefall position.

PART 4: FREEFALL BODY POSITIONS FOR MOVEMENT

4.1 Introduction

The “neutral body position” can be used as a foundation for the positions that are used for movement in freefall. The body can be divided into parts to help understand the changes required to perform the various movements during body flight.

Use of Creepers

Time doing ground training costs nothing.

The best way for anybody to practice these manoeuvres is on creepers in a realistic body attitude and using the true movements. This is a cheap and effective way to reinforce the mental images and actions necessary to perform the turns in freefall.

4.2 Turning

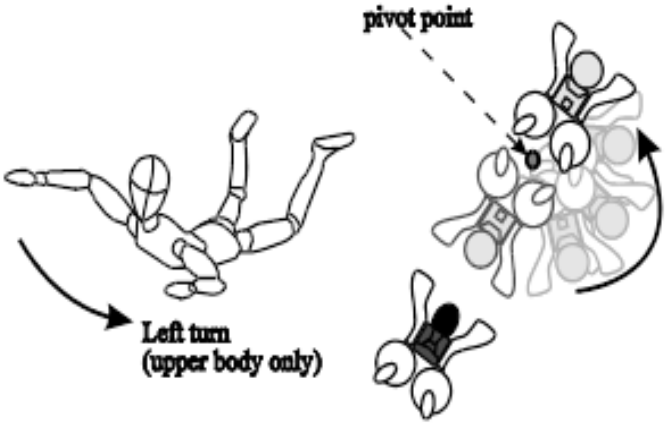
There are many different techniques for turning however the basic premise is essentially the same for each one: establish a lateral dissymmetry. We have all experienced doing turns well without thinking at all – this occurs if we feel calm and confident going into the skydive and keeping eye contact throughout – just ask the naturals - so don’t over think your turns in freefall!

Upper Body Turns (arm or chest turn)

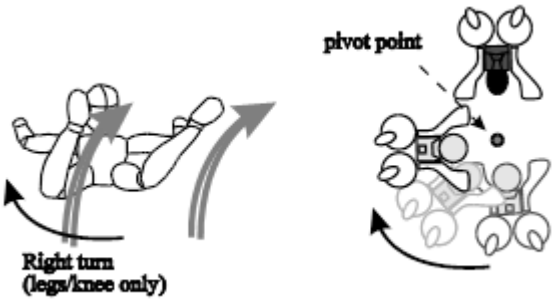
Starting from the neutral position the simplest method is to slightly push down the upper part of the arm. The air pressure will make the body turn like a propeller. The turn is stopped by applying an opposite turn force. Pushing the arm slightly forward at the same time prevents twisting.

Lower body turn (leg turn)

A lower body turn is created by lowering a knee and positioning the leg at an angle to the airflow. With the shin in the air flow a greater surface area is created in comparison to the arm turn. This allows the turn to be completed at the same pace, with less movement and more control. To stop the turn the opposing leg is lowered until rotation stops.



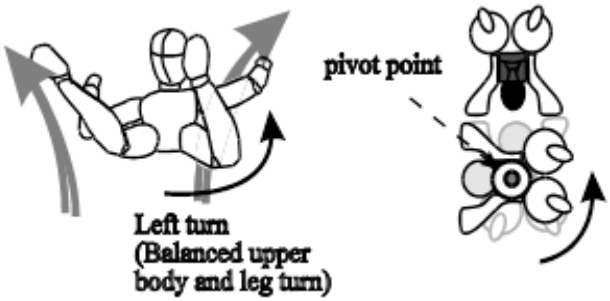
Various descriptions are used for a leg/knee turn - “turn the knee out” “point or follow your knee” and these are useful to enable the novice to visualise the resultant action without having to think “now the legs turn me the other way so if I want a left turn I turn out my right knee”. Easier to think “point my knee this way - that’s where my knee is going”.



Various results can be obtained depending on whether the knee is dropped below the body line or not, whether the other leg is extended at the same time or whether the arms are moved forward or back and it should be emphasised to novices that this can also affect rate of descent and forward or backward movement.

The "Balanced Turn"

A turn on the spot comes from a combination of the upper body turn and leg turn. With practice this can produce the desired "turn in your own column of air".



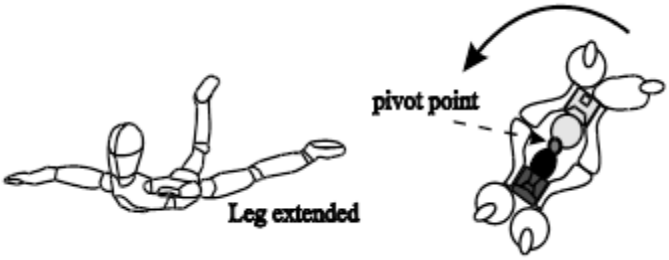
Eye Contact throughout the Turn

It is important that visual reference through the centre of the formation is maintained hence it is desired to have free movement of the head in all directions without the torso being influenced. This enables the eyes to remain on the target without affecting the body's flight. This is particularly important for turns in relative work, as it is necessary to keep the eyes looking toward the centre to assist in maintaining proximity and relative height. This is often taught in AFF with great success.

Do not turn your head to initiate a turn!

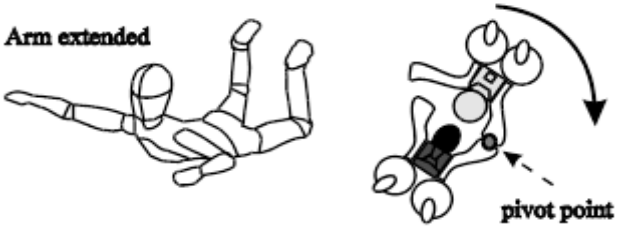
Other Turns

Other turns can be initiated by extending an arm or leg. Often the choice of turning method depends on the jumper's position in the formation, what grips are held and where the ideal pivot point is.



For example: A two-way formation can be held on heading or turned by extending a leg.

This is the same principle as reaching for a grip causing backsliding. Any limb extended will produce a force away from it. Extending a leg into the turn of a turning formation will stop that turn and, if held, will produce an opposite turn.



An upper body turn is not very effective here since the distance to the pivot point is shorter; the leg turning force has far more leverage. The same principle applies when turning about a single grip by extending an arm. If you reach for something - you go away from it.

Common Problems

Twisting

This occurs when the spine bends to the left or right, causing the torso to twist and making the legs unbalanced. This is often caused when one elbow is placed behind the shoulder towards the back of the body during a turn.

Useful signals

Wiggle fingers *Wiggle fingers and place hands in field of vision*

Wiggle elbows *Ensure you can see over arms.*

4.3 Using Legs for Movement

We now generate practically all of our movement in freefall with the legs. The main reason being that legs are more effective due to the fact that they control a greater amount of air which can obviously create more movement. For example, an AFF instructor is constantly using hands to give signals in freefall, holding onto grips for exits and even catching people that may require assistance to become stable. For reasons such as these the majority of body flight is done with our legs. When performing relative work, whether it be flat or free flying, the same principles apply – we are checking height, picking up grips and keying formations etc.

Forward Movement

Forward movement is used to describe movement on the horizontal plane.

From the “neutral position” the legs are extended, placing more of the shin into the airflow. The pressure on the legs creates the forward movement. The arms remain in the “neutral position” and the chest is pushed forward to assist movement.

When performing relative work and a small amount of forward movement is required, the arms are to remain in the “neutral position”. Pulling them back creates forward movement; however it also lowers the centre of gravity, dipping the upper half of the body. This induces a fall rate change and reduces the ability to see. In addition, as the arms move forward to pick up grips, the body moves up and back, an undesirable position to be in. Remember that you do not pull your arms back to move forward within a formation.

To increase the speed of forward movement, point the chest in the direction of travel. This tightens the leg muscles and makes them significantly more effective – you will notice a difference.

Common Problems

DO NOT pull arms back for forward movement

Pulling arms back will lower the front part of the body and cause the head to drop, reducing the ability to see and pick up grips when required. Using arms to generate movement doing relative work is effective but has long term problems.

IMPORTANT NOTE – DO NOT pull your arms back when flying within a formation

Useful signals

Wiggle fingers	*Wiggle fingers and observe they are in field of vision and lower than the eyes*
Hold hands flat together	*Respond with the same action (as if holding a clapped position)*
Pointing finger at chest	*Push chest forward which tightens legs (this significantly helps forward movement)*

4.4 Slow Fall

This reduces the standard fall rate and is achieved by increasing the surface area of the body.

To cover a short distance up within a formation

Decrease arch slightly

To cover a large distance up to a formation

This is achieved by moving to the side of the formation and turning side on to it. Point feet and toes as much as possible into a flat star position i.e. A completely flatten torso. Place head to side and push down – this helps with de-arching. The aim is to be as flat as possible. Hold this position until you are above the formation.

4.5 Fast Fall

This increases the standard fall rate and is achieved by reducing the surface area of the body.

To cover a short distance within a formation

Increase arch slightly.

To cover a large distance down to a formation

The aim is to spill as much air as possible. Bend the torso and legs as much as required. Arms should be pushed right down with hands close together to get them under the chest – this also allows you to bend more and gets them out of the airflow. The head should be loose and able to look in all directions.

4.6 Tracking

Every new skydiver is continually striving to improve their tracking skills. The importance and ability to gain separation from other jumpers cannot be overstressed. As a novice, you should practice tracking on solo jumps as necessary. (Be aware of line of flight and conflict issues).

Prior to your first Class B training jump, you should demonstrate to your coach your procedure for entering the track, the tracking position and flare out. This can be achieved using any number of methods – a rotating table or lying on the floor work well.

To 'track' in freefall, the air pressure in front of the body has to be reduced.

This is done by placing the arms beside the body. The legs must be stretched to increase the air pressure on the rear.

De-arch, still looking at the horizon, and glide on the bubble of air that is created. The shoulders have to be hollowed forming the shape of a wing, making the track even more efficient.

Tracking Posture

Point toes and fingers	Straighten legs – lock out ankles, knees & hips This is a rigid and stiff position.
Bend at the waist	Bend your stomach over to “cup” the air
Roll shoulders forward	This creates a ‘trap’ for the air

Below is the breakdown of the track position. Each of these tasks should be completed in order that they are presented.

- Turn Face away from the centre of the formation.
- Look For a heading (on the horizon or the ground).
- Stop Totally prior to tracking – be balanced in the neutral position.
- Point Legs first then sweep arms back and lock in position.
- Bend In the waist to create an aerofoil shape (often more than you think).
- Roll Shoulders to cup the air – think of trapping the air.
- “S” track with the chest and arms to keep heading or turning to avoid other jumpers.

If you are having trouble with your track, go through the points above and see which of them you need to develop!

Your coach should reinforce that once the track has begun, you should maintain height awareness and heading control. In addition, you should be taught to look back, between the feet, at the coach and develop the ability to look around in all directions.

4.7 Diving to a Formation

This is a body position used for flying down to a formation. An example of this is the stage 6 jump where you exit unlinked and fly down to the coach; which in larger formations is referred to as the base.

A dive is where you sweep your arms back, straighten legs and bend in the hips. It is a flatter position than a track and creates horizontal and vertical movement. The more we pull our arms back and bend – the steeper and faster the dive; so be aware we have to stop earlier in a steep dive. Body position can be adjusted throughout the dive. Staying above the base is essential – the main cause for going low is rushing – so take your time.

The aim is to:

- Stop above the base on a 45° angle about 3 to 4 meters away;
(you need to stop diving before this to wash off momentum).
- Match the fall rate, fly on level about half a body length away.
- Dock move forward into position.

4.8 Fall Rate

Fall rate refers to the speed at which a body descends in freefall. This term is usually applied as a speed relative to other skydivers. It is governed by the following three factors, all should be considered before a jump.

The table below can be used as a guide to fall rate.

Fall rate	Body weight	Body shape Fast	Clothing
Fast	100kg	Solid	Tight
Medium	75kg	Average	Regular
Slow	50 kg	Tall/thin	Loose

4.9 How to Adjust Your Fall Rate

Step one

The first step is to achieve a comfortable position.

The neutral body position is desired. It will allow a maximum range of movement and comfort - it can be adjusted slightly but not excessively. If the position is bent or flattened significantly, it reduces the ability to move freely around the sky.

Step two

Select the correct equipment.

A baggy suit will slow down the fall rate and a tight suit will increase the fall rate.

Fall rate can be increased by wearing a weight belt. The best skydivers in the world use lead to adjust fall rate when required.

As a guide, 1kg of lead is equivalent to approximately 4 to 5kg of body weight. For example, if a 60kg person was to jump with someone who weighs 80kg they would wear 4 to 5kg of lead, provided they were the same build. If the 80kg person was tall and thin, and the 60kg person was of average build, they may not have to wear weight at all. All of the other fall rate considerations should be taken into account when selecting the amount of lead to wear.

Extra weight increases canopy wing loading. This is usually an additional advantage considering that the light people who are wearing lead are almost always under loading their canopy.

Notes

- Be on level: While doing relative work the first priority should be maintaining the same horizontal level as the other jumpers.
- How: This is achieved by increasing the body's arch to fall faster, and decreasing arch to fall slower (review 4.4 and 4.5 for more detail) .
- Eyes: To maintain horizontal level it is important to look across the formation and not at the grips.
- Docking: A formation can withstand a slightly hard dock that is on level. It will disturb the formation if entered from above or below.

PART 5: 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.

During your student jumps, you should have developed an awareness of 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.

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.

This section will explain the theory of spotting to you. You will need to demonstrate an understanding of spotting to gain your Certificate Class B and further demonstrate your skill for a Class D. If your DZ uses GPS, spend time with an instructor in the aircraft to learn the basics.

The basics of spotting are relatively simple; you should have learnt them on your early training jumps.

Spotting is easy. All you need to know is:

1. Where you are,
2. Wind direction
3. Where you want to get out in relation to the target and
4. How to direct the pilot to get you there!

Know where you are; know where you want to get out; and know how to direct the pilot to get you there.

And the hardest part of these is knowing where you are - that is, looking straight down! However, this does get easier with practice.

Teamwork: The pilot and you

A good jump pilot is a blessing to skydivers - he/she is aware of the spotter's job and makes it easier for you. Buy the pilot a beer after jumping, without them we would be ground bound like mere mortals.

Your pilot requires:

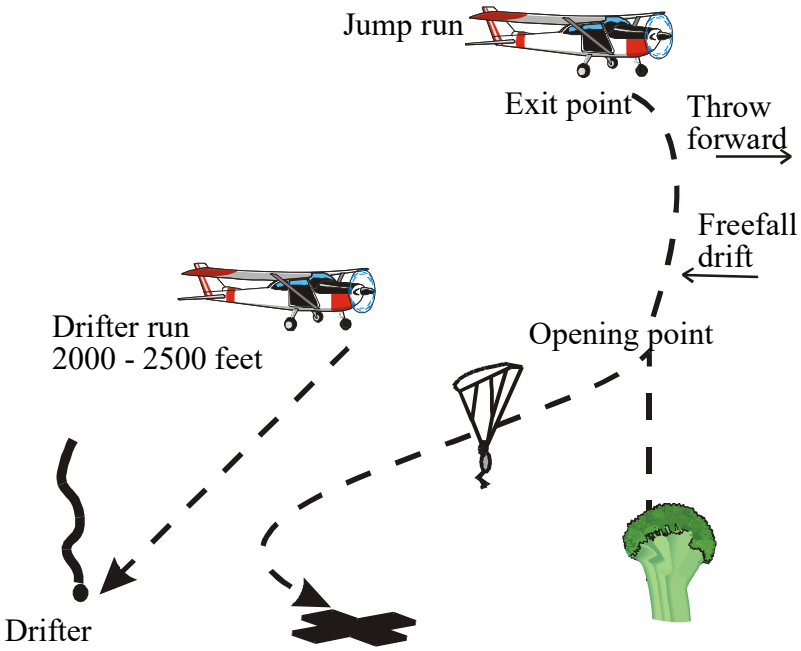
- Direction of run in - (North to South or over the packing shed to the pit or wherever) and the approximate exit point.
- Exit heights and number of passes for each - e.g. 1 Drifter run at 2500', 2 runs at 4,000', 1 run at 10,000'. Inform pilot if opening high or doing CRW.
- Precise corrections on run in:

- By voice – “Left 20°” etc
- By signal - thumb signals - clear and precise
- By buttons - Left, right or both (power off).
- “Power Off”, “Brakes On” (where necessary)

If a pilot is not listening to you it is often because they are busy on the radio. With the airways situation at many DZs nowadays, pilots must pay a lot of attention to their radio procedures (calls and responses).

Tips

- Do not hassle them!
- Be sure you have the pilot’s attention when giving signals and if you need an airways clearance from the pilot, be sure you have it before climbing out.
- If you find fault with a pilot's run-in or response to your signals, discuss with him. A good debrief will obtain results.
- Don't be abusive - no one benefits



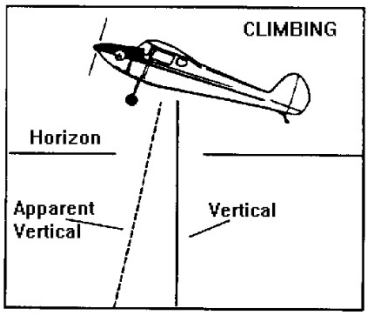
Your responsibilities

You have to know your job as spotter for this team to function well. The spotter should:

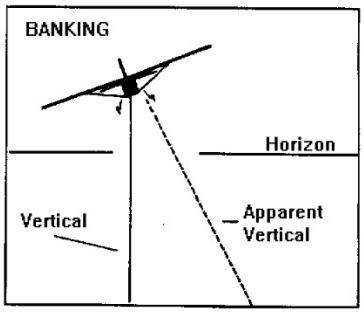
- Note any previous run-ins whilst on the ground.
- Check wind direction and movement of clouds across the sky.
- Brief the pilot (as per the previous section).
- Pilot should give wind strength and direction at various heights on the way to altitude to help determine the exit point. Calculate exit point and alter direction of run-in with pilot where necessary.
- Observe aircraft speed across ground on each leg of the climb to exit height - this alerts you to the existence of high upper winds or the fact that they can be blowing from a different direction from the ground wind (the aircraft will appear to be crabbing sideways).

On jump run

- Participate in pin checks.
- Watch for wings level/climb angle.
- Note aircraft speed across ground. (How many seconds to cover a set distance or whether the aircraft is crabbing sideways).
- Observe movement of cloud shadows, smoke, dust or wind on water (during the climb also).



- Take into consideration the time it takes to climb out and numbers of groups exiting on any pass, so all have the best chance of getting home.
- Check for aircraft below and as far outward as you can see.
- Check ground-to-air panels (cross) if these are used at your DZ.



Commonly used configurations are:

OK to jump	Experienced jumpers only *L = no Learners*	Orbit *T = Turn the aircraft*	Do not exit *I = Idiots only*

- Power off (and hope you got it right).

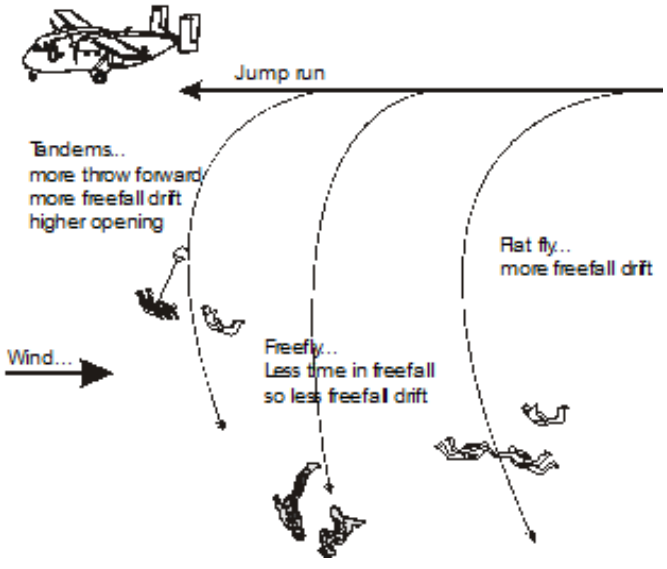
  Even if you are not spotting on this load, have a look and decide if you would have done it the same way. Remember, you cannot always rely on having someone else (or the pilot) spot for you. And if you want to be invited on display jumps it will help if you are able to spot.
- Jump.

  Note: if the landing accuracy is more important than the skydive (e.g. a display or instructional jump), check the spot in freefall; you can always open a bit higher.

Variations on the theme

Discuss the following points with your instructors:

- Cross wind or downwind spotting.
- Flat turns vs. banked turns by the aircraft
- Climbing upwind of the target on partly cloudy days to anticipate gaps in the clouds.
- Use of GPS to estimate upper wind drift
- Potential problems with other air traffic.
- Large loads and high upper winds – the necessity for gaps between groups exiting (this depends on ground speed and distance covered, not time between exits).
- Flat/Free flyers – exit order
  Fast falling freeflyers usually exit after slower falling flat flyers. This is because (with a jump run into wind) flat flyers will

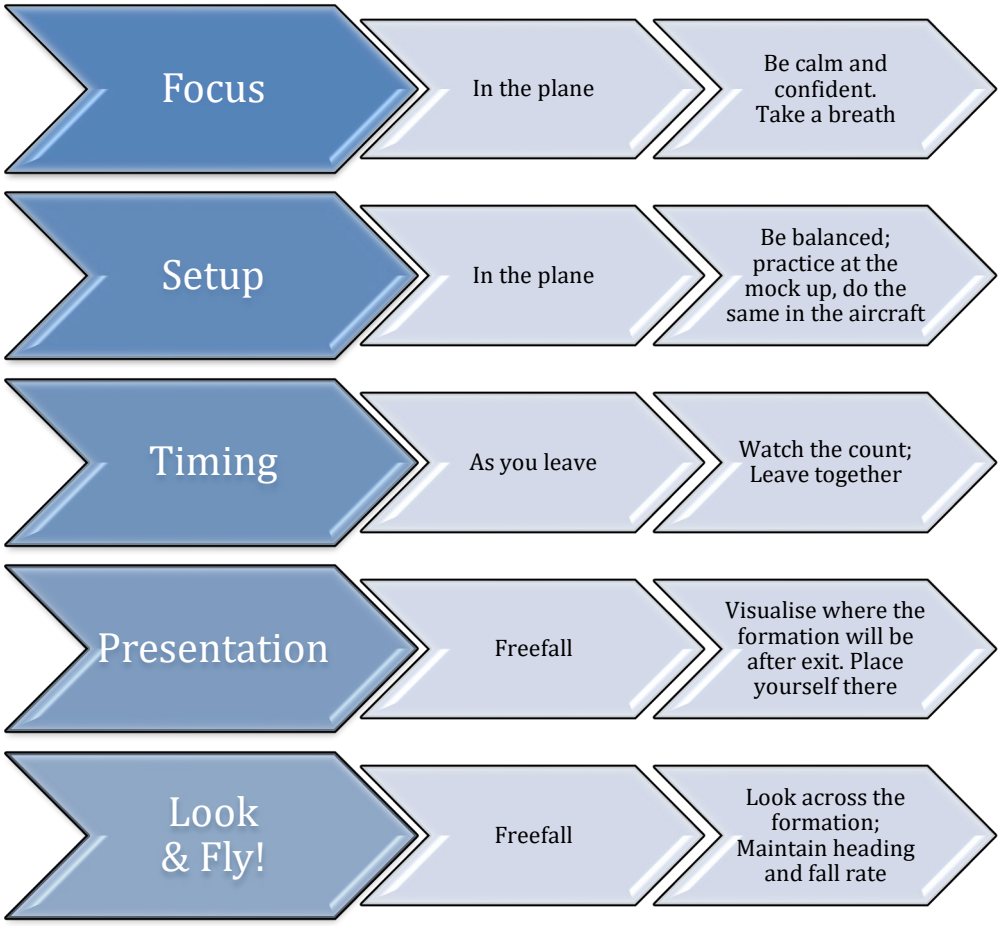


  fall for a longer period and consequently be pushed further back along the wind line.
- If the free flyers got out first, the flat flyers will end up closer to, or even over the faster fallers. Do not rely on vertical separation to fix this situation – anyone can open a bit higher or lower than planned.

Look Before You Leap!

PART 6: A MENTAL PREPARATION FOR EXIT

Focus; Setup; Timing; Presentation; Look and Fly!



PART 7: CONSIDERATIONS FROM THE APF RULES AND REGULATIONS

7.1 Understanding the regulations that apply during this phase of your training

APF regulations (i.e. the Operational Regulations and Regulatory Schedules) contain all the rules. APF training organisations also use a Training Operations Manual. These rules and documents take priority over this guide. However, this section aims to make things a little simpler for you to follow.

For reference, see:

RS 52:	*APF Parachutist Certificate Class requirements*
Part 4 and 5	*Certificate Class A (Novice)*
	Certificate Class B
0R Part 9:	*Requirements for specific types of descents*
	9.1 – Freefall Relative Work (RW)
OR Part 11:	*11. 4 – Student, Novice Descents and Flatfly RW Training*

If you don't actually 'hold' a Class A certification, then you are still a student and are subject to stricter rules about who you can jump with and what types of jumps you can participate in.

Training Descents

All descents by people who don't yet have their Certificate Class B (sometimes still referred to as a 'B licence') are deemed to be "Training Descents" (OR 11.1.3). This means that you must be under the supervision of a Chief Instructor and the 'direct supervision' of an Instructor with a DZSO endorsement for any jump that you make, whether it is performing the exercises on the Class B Training Table or just having a fun solo jump.

The difference between Students and Novices

A Student Parachutist is one who doesn't yet hold their Certificate Class A (sometimes referred to as an 'A licence'), while a Novice skydiver holds their Class A but not yet their Class B (provisional skydiver). So it's a bit like 'L' and 'P' plates when you're learning to drive. The L-plater is yet to pass the test to drive alone. The P-plater has proved their proficiency, but still doesn't have complete freedom. Just like the safety rules for our roads, the APF expects skydivers who haven't yet passed the test to be under a higher level of supervision. That's why Student Parachutists have to have an instructor with them for each RW jump, as opposed to a coach.

Some training drop zones encourage their jumpers to proceed right through the Class B training jumps before applying for their Class A and B at the same time. Or, you may have just completed your Class A training and your Chief Instructor may be happy for you to move straight into Class B training jumps before your shiny new qualification is in your hands!

THERE ARE NO SHORTCUTS

See the matrix over the page for more information on the number and type of jumpers you can jump with.

7.2 Minimum Requirements: Training and Non-Training flatfly RW Descents

The following matrix (taken from the TOM) summarises the type of flatfly RW jumps permitted and the levels of qualification and experience for parachutists involved:

Row	Parachutist Qualification or Experience	Type of flatfly relative work permitted	Number and type of jumpers participating in flatfly relative work
1	Student (not yet completed the student Training Table).	Student training jumps defined in the organisation's TOM.	See applicable AFF and SFF Training Tables. Must be an instructor.
2	Student who has completed all stages of the AFF or SFF Training Table but not yet holds a Certificate Class A.	Novice training jumps defined in the organisation's TOM up to and including stage 6 of Class B Training Table.	At least one other participant must hold an instructor rating (OR 11.4.4 (b)) plus the restrictions described below in rows 3, 4 and 5.
3	Certificate Class A not yet completed Stages 1 to 4 of Class B Training Table.	Novice training jumps defined in the organisation's TOM.	Instructor or approved Cert. B Coach as per Class B Training Table (CBTT).
4	Certificate Class A after completed Stages 1 to 4 of Class B Training Table.	Novice training jumps defined in the organisation's TOM.	Instructor or approved Cert. B Coach as per Class B Training Table (CBTT).
		Non-training jumps under the direct supervision of an Instructor with an SFF or AFF and DZSO endorsements.	With one other parachutist providing exits are also flatfly in orientation.
5	Certificate Class A after completed Stage 5 of Class B Training Table.	Novice training jumps defined in the organisation's TOM.	Instructor or approved Cert. B Coach as per Class B Training Table (CBTT).
		Non-training jumps under the direct supervision of an Instructor with an SFF or AFF and DZSO endorsements.	No more than three other parachutists providing the DZSO has given the approvals required under OR 11.4.4 (a).
6	Certificate Class A after completed Stage 6 of Class B Training Table.	Non-training jumps under the direct supervision of an Instructor with an SFF or AFF and DZSO endorsements.	No more than three other parachutists providing the DZSO has given the approvals required under OR 11.4.4 (a).
7	Certificate Class B (or eligible for B) without a Star Crest.	Non-training / fun jumps.	Up to 10-ways.
8	Certificate Class B and a Star Crest.	Non-training / fun jumps.	10+ ways.

***Note**: Except for SFF training descents, the jumps listed in the matrix may involve an outside camera person as an additional parachutist where the requirements of OR 9.7.1 and 9.7.2 are met.*

PART 8: THE EMERGENCY PROCEDURES JUMP

8.1 Aim

If you haven't been asked to complete this jump after finishing your AFF training, then before commencing your Class B is a great opportunity to do it.

The aim is to practice the first steps of your emergency procedures.

8.2 Technique

If you practice just the initial phase in a controlled environment then it will make the real thing, should it ever happen to you much easier and hopefully a more relaxed task.

When you practice your emergency procedures on the ground ensure that:

- You visualize each step of your emergency procedure before attempting it physically
- Practice physically by completing each step of your emergency procedure
- Ensure you practice this procedure in real time… i.e. Do not just rush through the sequence.
- Grip the handles in the appropriate manner.
- Then make a fist on top of each handle to simulate a grip on the handle, so that
- After you have simulated pulling each handle, you still have a fist.
- Which will mean that
    - You have pulled the handles completely out.
    - You have kept your handles.

8.3 Key Words

Discard

There are some variations in the key words that are taught to novices. The first key word and action should be to **discard** the toggles from your hands. Whether you have something (pilot-chute, toggles or risers) in your hands or nothing at all, if you keep your reserve procedure the same for all situations it will be easier to recall and implement.

Arch

You should include the key word **Arch** in your procedures between pulling the cutaway handle and pulling the reserve handle. The reason that you should arch, is simple. If you did cutaway from a malfunctioning canopy, the moment you pull the cutaway you will be going back into freefall. The most stable position for this scenario is an arch. By arching you should also have your head back and be looking up. When you look up you are ensuring that you have disconnected from the main canopy before deploying the reserve.

Talk to your coach and/or the DZSO about using the correct technique in an emergency/cutaway situation.

8.4 Manoeuvres to Practice Under Canopy

Do your In-flight Check (TAPS)

As always, check for any canopy traffic in the airspace, and that you have sufficient altitude. Check your position to know if you are able to make it back by completing a wind check and the accuracy trick, and assess the situation on the ground – what is the wind strength and direction at the landing area and is it clear with no obstacles?

Perform your Practice Emergency Drill.

From the full flight configuration (Hands all the way up, and grasping your toggles), **discard** the toggles, **look** at your Cutaway and Reserve handles and **locate** the handles by placing an open palm on the handles. You can then make a fist over the top of the handles (**without gripping them**) and continue to perform your Emergency Drill.

Ensure you get a thorough briefing from your instructor before completing these

Tips

Your lift webs (the upright section of harness to which your emergency handles are attached to) will not necessarily sit flush against your body when you are suspended underneath a canopy. They might be situated off your body by a small amount. If you are turning whilst doing this exercise then the handles may be asymmetric compared to your body (one might be situated higher than the other). The idea behind this exercise is to help you to be confident and capable at your emergency procedures, should you ever need to use them.

COACHED CANOPY TRAINING JUMP

The following 6 skill levels have canopy handling manoeuvres that can be done at the end of each skill level, separately in a series of solo Hop n Pop jumps, or together in one or more coached canopy jumps with an instructor or canopy coach. The coached canopy jump is the preferred method for learning canopy skills for the novice to get direct feedback from the coach. This jump or series of jumps can be done at any time during the Brel progression. *The sequence below is also available in the TOM, Appendix I*

Objective: to check the novice's competence and skill level in the following canopy inputs:

- Flaring
- Rear riser input for maximum glide
- Stall and stall recovery
- Body Position – leaning forwards, tucking up, getting big
- Harness turns
- Rear riser turns
- Braked turns
- Flare turns
- Hook turn recovery

Minimum exit altitude 7000 feet, minimum break-off altitude 2000 feet. Use of Bluetooth headsets are recommended as the best form of communication during these training descents.

A thorough briefing including emergency wrap and entanglement scenarios should be done prior to the jump.

The following skills can be done in any order and in more than one jump if exit altitude does not allow enough time to complete all exercises in one jump.

1. Novice performs a poised exit with a 5-second delay, opens parachute and steers parachute up line of aircraft flight.
2. The trainer exits second and flies to a position next to the novice, approximately two canopy lengths away and establishes communication. The trainer will keep the same horizontal distance from the novice during the following exercises.
3. The trainer pulls down both toggles to go up and backwards in relation to the novice. The novice then pulls down both toggles to end up in the same position next to the trainer.
4. The trainer pulls down both rear risers to go up and forwards in relation to the novice. The novice then pulls down both rear risers to end up in the same position next to the trainer.
5. The trainer demonstrates a stall and stall recovery. The novice performs a stall and stall recovery.
6. The trainer leans forward in the harness and tucks-up body into a small position to move forwards in position to the novice. The novice then leans forward and tucks-up body into a small position to end up in the same position as the trainer.
7. The trainer assumes a wide body position with arms and legs spread out to slow up relative to the novice. The novice assumes a wide body position to end up in the same position as the trainer.
8. The trainer makes a harness turn between 45 and 90 degrees away from the novice the novice the follows the trainer using a harness turn in the same direction.
9. The novice makes a harness turn between 45 and 90 degrees away from the trainer. The trainer then follows the novice using a harness turn in the same direction.
10. Repeat steps 8 and 9 with rear riser turns, braked turns and flare turns.
11. The trainer completes a hook turn and maximum recovery (a hard 180˚ turn and immediately applies the other brake to flare the canopy). The novice completes a hook turn and maximum recovery to end up behind the trainer.
12. The trainer flies in front of the novice to demonstrate the effects of the burble and where it is in relation to another parachute.
13. Landing using a normal circuit pattern.

SKILL LEVEL 1

Freefall	Canopy
Fall rate Forward movement Awareness of tension	Rear riser turns

SL1.1 Objectives

To check novice's competence and skill level in:

- Spotting
- Height awareness
- General freefall awareness
- Approaching a formation
- Flying relative with a formation
- Tension awareness between grips
- Rear Riser Turns
- Navigating to a safe landing area

Instruction prior to the dive should include:

- The current winds aloft, likely exit area, wind line, holding area and circuit pattern.
- Economics of ensuring the plane is at the right spot at the right height.
- The importance of a relative base.
- The theory of:
  - Commencing approach
  - Coasting
  - Flaring and docking
  - The use of arms and legs to control fast and slow fall and glide angles.
- Reinforcing of the importance of tracking
- Rear Riser turns
- Reinforcing the In Flight Check. (TAPS)
- Joining the landing pattern
- Flaring and landing safely

SL1.2 Fundamentals

Spotting

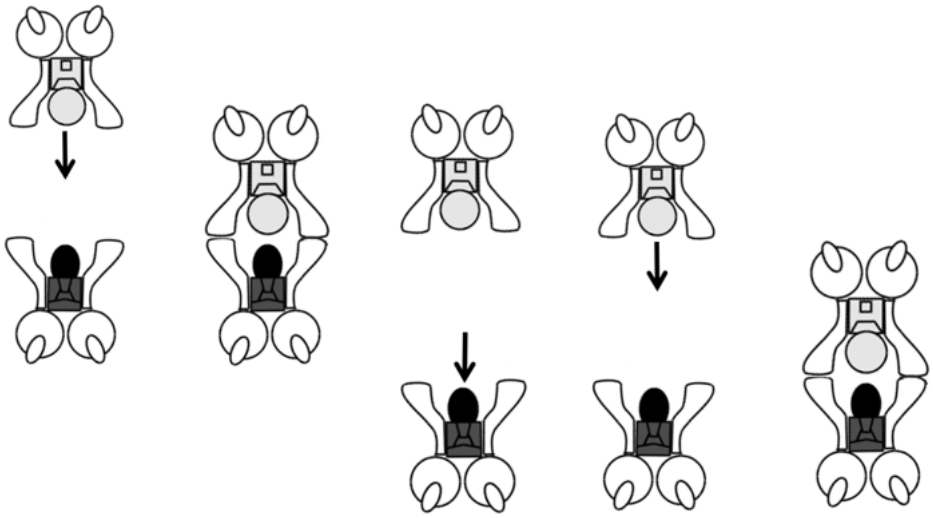
As far as possible, on this jump, and on all the others, the novice should be responsible for spotting the aircraft. A thorough briefing on spotting is necessary. Generally, this should be a separate lesson, not a minor appendage to the Skill-Level 1 briefing.

Break off

This jump and all the others should also be regarded as an exercise in height awareness, break-off, tracking and opening procedures. Tracking skills are often rudimentary on graduation from the novice training programs and should be practised conscientiously and debriefed on every jump. The novice should develop the ability to turn an accurate 180°, track at an appropriately shallow angle and in a straight line, and to be aware of the location of the coach.

SL1.3 The Dive

1. Novice exits diving, unlinked.
   (Ensure two linked and two unlinked exits are achieved in both dive and float exits prior to Skill Level 6)
2. Novice approaches coach.
3. Novice demonstrates flying level, in their slot and then takes a forward pin on the coach.
4. Coach backslides and changes level for novice to repeat.
5. Novice matches the coach's position and pins.



6. Repeat as height allows.
7. Novice to initiate break-off, turn and track

Reinforce - short track (less than 5 seconds usually), height awareness.

Creeper practice is useful to ensure they are looking through to centre & to explain and demonstrate to the novice how to feel for grip tension.

SL1.4 Canopy Handling

1. Fly to a safe landing area.
2. Rear Riser turns
3. Join the landing pattern.
4. Flare your canopy and land safely.

SL1.5 New Skill: Canopy Handling Manoeuvres

Canopy Collision Avoidance:

Immediately after deployment, check your airspace around you and with the brakes still set, turn the canopy to the right sharply using the rear riser. Try to do so without taking your eyes off your flight path. Once you have turned at least 90°, check your airspace to the left and repeat the exercise to the left

In a head on situation	Right is right
Converging Situation	Canopy on the right-hand side turns RIGHT Canopy on the left hand side turns LEFT

Release the Toggles from their set position and begin to fly on full flight with the brakes un-stowed. The novice pulls down on both back risers and lifts the knees up, thus maximizing lift and reducing drag. Be careful not to stall the canopy. This technique is useful if you are downwind of your target and you are trying to penetrate further into the wind. By pulling down on the risers you will be able to flatten your glide ratio whilst maintaining speed necessary to penetrate further into the prevailing wind. Frequent practice will improve the use of this technique. Your instructor will demonstrate to you how much you should be pulling down and how much is too much. Flying a canopy on rear risers is tiring; leave sufficient energy for a full flare.

Continue to fly till 2 000ft on rear risers and remember to keep the toggles in your hands, that way when you have finished with the rear risers the toggles are ready to use immediately.

Note

This technique should not be used for landing at this stage unless you absolutely have to, if the toggles are in-operable and you are below your hard deck level. The novice may not slow the canopy down sufficiently and may rapidly induce a stall if risers are pulled down too far. Landing on rear risers is possible, though it is certainly a lot harder than using the toggles and requires a greater understanding of the dynamics of the canopy.

TAPS Check

Check first for:	Traffic Altitude
Are you flying a safe return	Position
	Situation on the ground

SL1.6 Common Problems

Loss of height awareness

See Notes for Coaches, 1.2 in this Guide. Height awareness is a specific objective in Skill Level 1. However, they are vitally important on every jump, so it is wise to take every dirt dive right through to break-off, track and deployment. Initially, the novice should be expected to initiate break-off at 5500 ft. The novice is expected to initiate break-off appropriately, turn opposite to the centre of the formation, track effectively and in a straight line, wave off / looking left and right, and pull.

Generally, Novices can also rely too much on their audible altimeter so ensure they are checking their height regularly.

Useful signal - The AFF "look at altimeter" signal works well.

Tensing up (stiffness)

Telling a novice to "relax" in freefall is fine, but skydiving for them is still scary and difficult, and they have the additional pressure of having to perform in front of the coach. The novice should be assured that skydiving is fun rather than work, and the dirt-dive should be thorough so that the novice is completely confident of both sequence and skills required for the dive.

Useful signal - A smile just before exit and in freefall can change their state of mind

Relaxing involves both mental and physical relaxation. Both skills may be improved by practice and rarely improve rapidly without practice. The novice will benefit by the practice of these skills.

Rushing

Rushing and tension go hand in hand. At this stage of their skydiving careers, novices have lots of adrenaline, which causes them to rush. Dirt-dives should emphasise the need to do things slowly, so that the novice has time to feel what's happening and to appreciate causes and effects. The important thing is not how much the novice does, but rather how well it is done.

Not using legs for forward movement

Many novices are more aware of their arms than of their legs and tend to forget about using their legs for forward movement. The AFF "straighten legs" signal is useful as a reminder. Having them push their chest forward tightens their leg muscles and improves forward movement significantly.

Useful signals - Straight peace sign — Extend legs / more shin on airflow
Pointing finger at chest — Push chest forward which tightens legs

Reaching

The novice should understand the need to fly into position before taking grips. Generally, the novice will be able to work out for themselves what will happen to them if they stretch their arms forward to achieve a grip but may not appreciate that they are actually doing it.

Useful signal - Wiggle fingers — Place hands in field of vision

Explain about leg awareness and using the legs to fly into a formation.

Useful signals - Straight peace sign — Extend legs / more shin on airflow
Pointing finger at chest — Push chest forward which tightens legs

Warn the novice about losing relative height in a turn if eye contact is lost.
Useful signal - Pointing at eyes — Maintain eye contact / eyes on

SKILL LEVEL 2

Freefall	Canopy
Side Docks	Stall and Stall Recovery

SL2.1 Objective

To teach the novice to fly to a side dock within a formation.

SL2.2 The Dive:

- Novice exits base or dives – linked or unlinked
  (ensure 2 linked and 2 unlinked exits are achieved in both dive and float exits by Skill Level 6)
- Coach demonstrates side-body shot and backs away.
- Novice completes side-body shot.
- Novice repeats to alternate sides while height allows.
- Novice to initiate break-off, turn and track.

Notes for freefall

Remind the novice that the body is longer than it is wide so a turn on the spot will leave their grips short of the target – hence initiation of translation and then rotation is required.

Creeper practice is helpful for practising side body shots. Get them to place their knee into your hand on the ground while looking you in the eye. This works well in freefall too.

SL2.3 Common Problems

Novice does not make up the side movement necessary to complete the point and/or they just give the arm. Emphasise that the knee is the priority grip – if eye contact is maintained and the leg is presented correctly the arm grip will be in place.

Useful signal - Fist in hand *Knee in hand*

Novice is not turning their head enough to keep the coach in their field of vision. The head should be turning facing the coach throughout any turn. If this is not happening, signal to the novice to turn their head which will give better visuals.

Useful signal - Flat vertical hand at nose *Point nose/face to target*

SL2.4 Canopy Handling Manoeuvres

To practice stall and stall recovery try the following: (all above 2000 feet of course)

The novice induces a stall by applying the brakes smoothly and as deeply as possible. If the canopy does not stall immediately, try holding the toggles at the full flare position for 3 – 5 seconds. At the stage where a sensation of falling backwards occurs, the brake toggles are raised, Slowly, Smoothly and symmetrically until the canopy starts to fly again.

You might like to try to stall your canopy using the rear risers as well, particularly if you are unable to stall using your toggles. In order to do this, keep your toggles in your hands, reach up as high as you can on your rear risers and slowly but gradually begin to pull your risers down. Try to note how much heavier the risers are to pull down and how far you are able to do so. Remember to feel the incipient stall before the actual stall. Recover the stall by using the Recovery Technique.

Recovery Technique – Slow, Smooth and Symmetrical

To recover from a stall whilst flying at altitude simply raise the toggles or risers and - Slowly, Smoothly & Symmetrically – back up to a point where the airspeed is sufficient to cause re-inflation and lift. Normally you would allow the toggles or risers to go all the way back to the full flight position. The trick is to try to dampen the surge of the canopy.

The canopy descent should include attempting to stall the canopy using toggles, as well as attempting to stall the canopy using rear risers from the full flight position. If sufficient time and altitude is available, turn the parachute at least 180° and attempt to stall again using the rear risers. Take note of the difference in feel of the risers, the effort required and the time that the canopy took to stall.

SKILL LEVEL 3

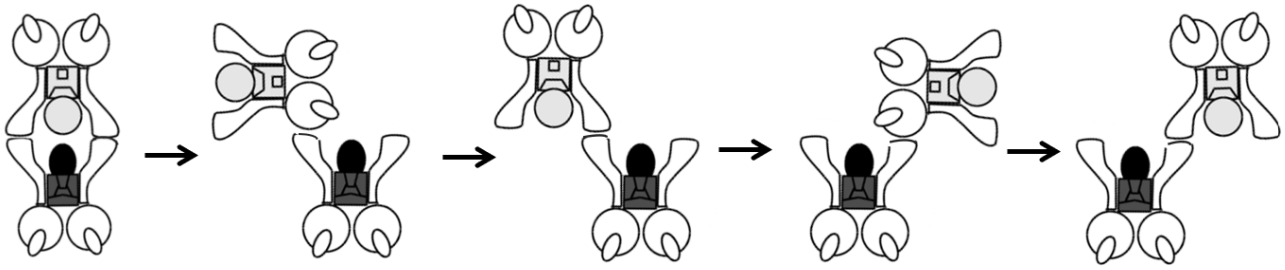
Freefall	Canopy
Side shot monopoles and stairstep docks	Brake turns Flare turns

SL3.1 Objectives:

- Unlinked exit novice diving
- Transition from side shot monopole to stairstep position
- An extension of previous skill levels.
- Braked Turns in different brake settings.

SL3.2 The Dive:

1. Novice dives –unlinked.
   (ensure 2 linked and 2 unlinked exits are achieved in both dive and float exits by stage 6)
2. Novice dives to face off and turns to side shot monopole position.
3. Coach releases, novice faces off and takes a stairstep grip.
4. Novice repeats to alternate sides as height allows.
5. Novice to initiate break-off, turn and track.



Notes for freefall

The manoeuvre requires forward transition and then rotation, maintaining eye contact.

The novice should turn back to take up stairstep grip then repeat turning the other direction.

Creepers are a useful training aid. Have the novice maintain eye contact and guide their legs into your hand then turn back and take a grip without reaching.

Useful signals - *Fist in hand* *Knees in hand*

Pointing at eyes *Maintain eye contact*

SL3.3 Canopy Handling Manoeuvres:

From full flight, the novice brings the toggles to about one-quarter brakes and performs a 90° turn by letting up one brake to the full flight position. As you approach the heading that you planned bring the toggle back down to the quarter brake position.

This turn will cause your airspeed to increase, so take note of the change in airspeed and the turn rate.

You can also pull one toggle down to the half brake position in order to turn to your desired heading.

This turn will cause your airspeed to decrease as you are applying more drag to the back of the canopy and creating more lift and hence it decreases your descent rate.

You may try the same technique at a deeper brake setting. Always try to raise or lower by a quarter brake.

Executing a Flare Turn:

Uses: This technique is useful in changing direction during the landing flare to avoid a collision with another jumper or an obstacle, for example, close to the ground.

1. Start the flare going straight, with both hands coming down the same amount.

2. At some point bring one toggle a little lower than the other. Resist the urge to stick that hand out to "protect yourself."

3. Once you turn even a little, continue the flare by bringing the other toggle lower. This will straighten you out.

5. End with your feet touching down with the toggles both pulled down the same amount. Don't give up when your feet touch - keep flying the canopy until you've stopped and all your weight is on your feet.

Flare turns can be practiced above 2000 feet, and should be done at that altitude until the jumper is comfortable getting the canopy back over their head. Unfortunately there are no ground references above 2000 feet, and the difference between a good flare turn and a bad one can be two feet. At some point you have to try it during the flare, five feet above the ground. The key to not getting hurt is to start slowly - ten degrees is more than enough turn to start with.

Note: Be prepared to do a landing roll (feet and knees together!). The technique also demonstrates how a canopy flies in a deeper brake configuration.

SKILL LEVEL 4

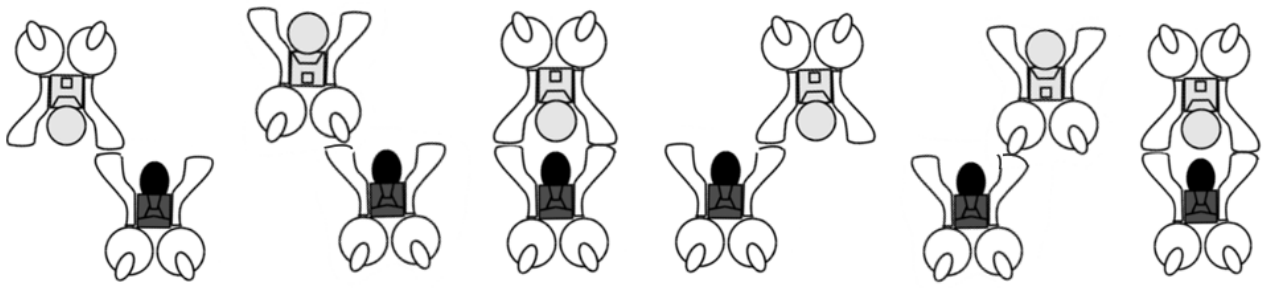
Freefall	Canopy
Sequential manoeuvrings	Harness Turns

SL4.1 Objectives:

1. To introduce the novice to sequential manoeuvring.
2. To demonstrate the flow of the dive to the novice.
3. To practice handling your canopy by using weight shift Manoeuvres.

SL4.2 The Dive:

1. Novice exits base or dives in a linked offset.
2. Novice flies to outfacing stairstep.
3. Novice flies to stairstep on other side.
4. Novice flies to outfacing stairstep
5. Novice repeats as height allows.
6. Novice to initiate break-off, turn and track.



Notes on freefall

Reinforce to the novice that centre reference is important throughout turns – it helps maintain proximity and levels.

Useful signal -	*Pointing at eyes*	*Maintain eye contact / eyes on the target*
Useful signals -	*Wiggle fingers* *Wiggle elbows*	*Wiggle fingers and place hands in field of vision* *Ensure you can see over arms*

Creepers are recommended. If creepers are not available, walk through the jump until it has a good flow.

SL4.3 Canopy Handling Manoeuvres

Normally weight shift is used in combination with a toggle or riser input. It allows you to move as one with the canopy rather than causing the parachute to turn and then allowing your body to catch up. It is important to practice weight shift turns in isolation, to establish what affect it has on your canopy. The higher your canopy is loaded the greater the effect will be. The point of your skydive where you will notice the influence most is during the landing flare, particular if you reach out with one leg. This is simply because your weight shift has a greater influence the deeper that your brakes are pulled down.

During these exercises your aim is to determine how much influence your body weight shift can have on the heading and dive of your canopy. Once you become more proficient at doing so, you can start to add this technique to others such as front riser turns to enhance the effectiveness of your input.

New Skill: Weight Shift

Once your canopy is open, leave the toggles set and fly safely away from the line of flight using rear risers. You should attempt a few turns with the toggles still set as this will demonstrate to you what it is like to weight shift while you are in the opening configuration of your canopy. Then release the brakes and attempt some more turns with the toggles in the full flight position. Take note of which method was easier to achieve the aim of changing heading and increasing dive. In order to turn using your harness, you can use the following techniques.

Technique 1:

1. Look in the direction that you wish to turn.
2. Lean your upper torso towards and slightly forwards of where you want to turn.
3. Lift the opposite leg. To affect the turn you need to get the articulation point on the side that you are turning to, LOWER than the other side. To do so you need to lift your upper leg and hence your hips on the opposite side to the turn.

Technique 2:

Place both feet together and extend them forwards toward one of the corners of the leading edge of the canopy. You can control the rate of the turn by moving them closer toward the centre of the canopy. After the turn is initiated, you may bring your legs to a position where they are more underneath rather than in front of your body. This particular type of weight shift will work better when the canopy is smaller and highly loaded than the average novice-intermediate canopy, though it will still work.

It will take some time to get used to these techniques and may be frustrating if you are still on a student canopy. Remember that it is important to practice the techniques so that when transitions are made to other equipment, you have a greater understanding of the proper techniques that will provide the desirable outcome.

HORIZONTAL MOVEMENT JUMP

OPTIONAL SKILL: HORIZONTAL MOVEMENT - This jump is recommended for novices who cannot yet demonstrate a good track, and is essential before continuing on to later stages, where more people are introduced to the jump and the skill of tracking is required to gain adequate separation from all jumpers in the skydive.

Freefall
Navigation
Forward movement

Objectives

To check novice's competence and skill level in:

- Spotting
- Height awareness
- Understanding Jump Run (including visualising 90-degree offsets)
- Understanding Load composition and exit orders (e.g., slow-fallers before fast-fallers)
- Tracking body position and heading control (shallow, straight-line tracking)
- Turning on the spot
- Navigating to a safe deployment area

Instruction prior to the dive should include:

Reinforcement of the importance of tracking
The current winds aloft, likely exit area, wind line
The theory of:
Jump runs
Load composition and exit orders
Navigation and horizontal separation
Prevailing winds in relation to deployment
TAPS checks (Traffic, Altitude, Position, Situation)
Visual diagram or compass-based drill on interpreting "90 degrees off jump run"
Demonstration of standard coach hand signals used for direction and track initiation

Fundamentals Spotting

On this jump and all others, the novice should be responsible for spotting the aircraft. A thorough spotting lesson should be conducted separately.

Navigation:

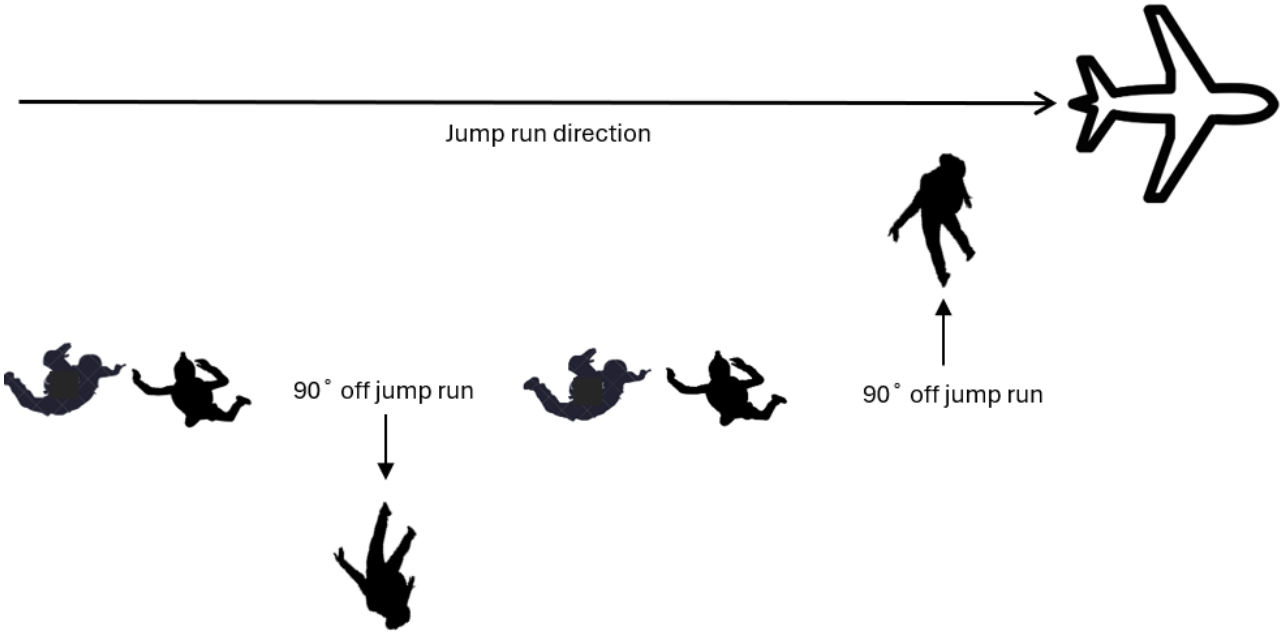
The novice will identify direction of movement as briefed, and the coach must confirm direction before movement.
Include tracking angle guidance: arms swept back (not tight), slight arch, shallow angle, slight leg extension.
Visual references and ground-based simulations of wind drift are encouraged.
Minimum tracking cut-off altitude to be briefed (e.g., 5,500 ft AGL or as per DZ SOPs).

Debrief after each jump should address:

- Heading control and track straightness
- Position consistency across all three tracks
- Transitions to neutral
- Height awareness
- Coach proximity
- Any tumbling or instability

The Dive

1. Novice exits base or dives – linked or unlinked.
2. Coach positions themselves in view of novice.
3. Novice to point in direction of movement and await coach confirmation (90˚off jump run, visual aid should be used pre-jump).
4. Novice commences 5-second track in confirmed direction and returns to neutral body position.
5. Novice observes coach signals to start 2nd 5-second track, with novice confirming direction again (same direction).
6. Novice to commence 2nd 5-second track in confirmed direction and return to neutral.
7. Novice observes coach signals to start 3rd 5-second track, with novice confirming direction again (returning to 2nd track origin).
8. Novice to commence 3rd 5-second track in confirmed direction and return to neutral body position. (insert tracking sequence illustration here)
9. Novice to remain height aware and not commence further movements if height does not allow (minimum altitude cut-off applies).
10. Novice to initiate break-off: turn and track away with separation awareness.



Reinforce:

Short track length (<5 seconds if required)
Height awareness at all stages
Use of creeper practice for body control and heading visualization

Optional Enhancements:

- Helmet-cam debrief when available
- End-of-brief scenario: What to do if another jumper appears in your track path
- Refer to DZ-specific SOPs for tracking cut-offs and deployment altitudes

NOTES FOR SAFETY: Jump run awareness overview

Situational awareness on jump run is essential to safe and successful skydives. Understanding the aircraft's flight path, your place in the load, and how to fly your body and canopy with awareness of others minimizes risks such as mid-air collisions, canopy collisions, off-landings, and canopy traffic conflicts.

1. Know the jump run direction

Confirm the direction the aircraft will fly on jump run before boarding. This is generally given in degrees. For example a jump run to the east will be 090o. This helps you visualize the skydive, track safely in the right direction, and understand where your opening point will be in relation to the DZ and the jump run. Ask the DZSO, the loadmaster, or check the wind board if your DZ has one.

2. Know the spot

Understand where the first group is planned to exit. This "spot" is chosen based on winds at altitude and under canopy. It ensures everyone has a good chance of making it back. If you're exiting later, factor in how far down the jump run your group will be from that point.

3. Know your exit position

Know where your group is in the exit order and how far back along the jump run you'll be. This affects your tracking direction, deployment location, and return plan. Adjust your awareness accordingly.

4. Know the load composition

Be aware of the other groups on the load — particularly who exits immediately before and after you. Consider:

- Flat flyers, angle/tracking groups, solos, students, tandems, wingsuiters.
- Horizontal movement groups (e.g., angle jumps) require more separation.
- Wingsuiters may track long and deploy late — don't assume they're clear just because you didn't see an opening.
- Big ways also require more separation

5. Know where and at what altitude you'll open

Estimate your opening point based on your exit slot and your jump plan. If you are exiting later in the jump run plan to open higher to ensure you have altitude to make it safely back to the DZ. Also plan for separation at the end of your freefall. If you jumping in a larger group, this breakoff might eat up 1000-2000ft.

6. Fly 90 degrees off jump run after deployment

Immediately after opening, fly 90 degrees off jump run to move clear of other jumpers who exited before or after you. Maintain visual awareness of nearby canopies before turning toward the DZ. Don't assume you're alone — others may still be opening, especially wingsuiters.

7. Watch for canopy traffic on return to DZ

As you start making your way back, maintain visual awareness of other canopy traffic. Those below you have the right of way. Plan to reach your holding area with sufficient vertical separation to avoid congestion. Fly your canopy predictably and maintain awareness.

8. Situational Awareness Is Key

Staying alert to aircraft heading, load makeup, nearby jumpers, and canopy traffic is what keeps us all safe. Good skydivers aren't just skilled in freefall or canopy — they're aware, informed, and proactive every step of the way.

🎉 Congratulations! You're Halfway There! 🎉

You've officially completed **Level 4** of your B-Rel training – well done!

You can now safely approach and leave a formation relative to another jumper – a huge milestone in your skydiving journey. It's time to consolidate your freshly acquired skills and start jumping with your mates!

Make sure your DZSO approves both your jump plan and your fellow jumper.

Jumping with Your Mates vs. Jumping with Coaches

Flying with friends is fun, but it's also a different kind of challenge. Unlike coached jumps, your friends might not give you briefings, debriefs, or structured plans – that's your job now. Make sure you are:

- Setting clear jump plans and roles
- Debriefing each other honestly
- Keeping safety at the centre of every skydive
- Make TAPS a habit — from deployment to landing.

This is where your personal responsibility really kicks in. Own your learning and keep pushing yourself.

And don't forget – the jump isn't over when you deploy! **Keep your awareness under canopy and in your holding area**. Know where your mates are, stick to your pattern, and avoid cutting others off. Good canopy flight is just as critical to group jumping as freefall.

👕 Dress for Success

You've probably heard it before: Dress appropriately for your fall rate and group. Don't slow down the formation or rocket away unintentionally. Ask yourself:

Is my suit helping me stay with the group?
Do I need a slicker jumpsuit or a more baggy jumpsuit to match others?

Discuss with your peers and coaches how your jumpsuit affects your flying skills – a small adjustment can make a significant difference.

✈️ Build Awareness: Fly Smart, Fly Safe

You're now entering the world of real group flying. It's time to sharpen your **awareness** of others in the sky:

- **Burble awareness** – Don't fly directly below or above another jumper. Use the **L**evel-**S**lot-**D**ock approach to approach the formation in a controlled manner.
- **Vertical separation** – Learn to recognise and manage these situations, particularly around break-off and deployment. You can't break away safely from the other person if you don't know where they are.

Practice these in fun jumps with clear intentions. You'll improve faster and stay safer.

✨ Make It Fun: Book a 1-on-1 Canopy Coaching Jump

Book a high-pull canopy coaching jump with an experienced instructor. You'll get loads of altitude to play with, individualised feedback, and the chance to explore advanced exercises safely — all in a single skydive.

Already familiar with flat turns, rear riser turns, and flare turns? This is your chance to take those skills to the next level.

Canopy coaching isn't just for beginners — it's the gateway to real confidence and control. Ask your DZSO or canopy coach about doing a jump or even enrolling in a canopy course. You won't regret it.

📘 Bonus Resources

The Boost Jump Handbook
Want more ideas to build your skills and confidence?
👉 Click here to access the Boost Jump Handbook
This handbook is full of jump ideas and tips to help you progress with purpose, especially as you start flying with your peers.

The APF Canopy Guide + Video Series
Ready to sharpen your canopy skills and fly safer, smarter patterns?
👉 Download the APF Canopy Guide
👉 Watch the Basic Canopy Techniques Video Series
These resources set from the Australian Parachute Federation are perfect for understanding canopy flight, landing approaches, and building solid habits under canopy. Whether you prefer reading or watching, these tools will support your progression.

SKILL LEVEL 5

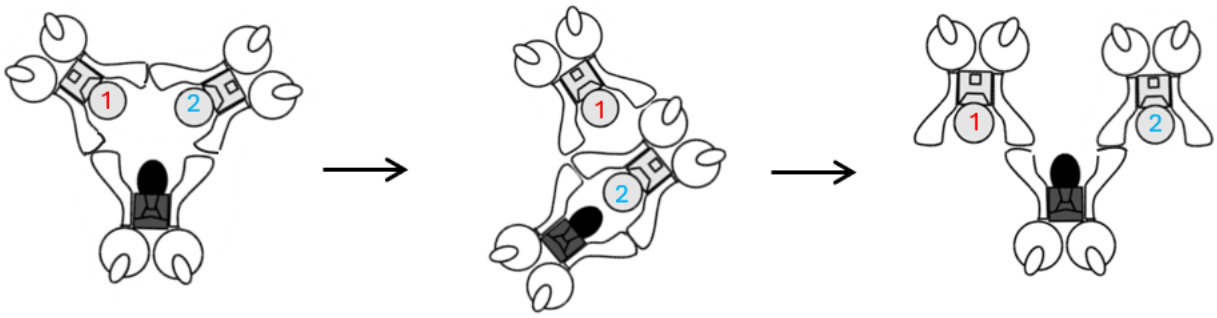
Freefall	Canopy
Height maintenance while flying to different points in a 3 way. (Two novices and 1 coach is permissible.)	Elective (Repeat weakest skills)

SL5.1 Objective:

To teach the novice to fly to different points of a formation while maintaining relative height.

SL5.2 The Dive:

1. Novices exit unlinked.
2. Novices fly to the coach docking in a prearranged order in a star formation.
3. All grips are dropped Novice 2 flies to pin the coach then Novice 1 side docks Novice 2.
4. Release grips, coach faces back on heading and Novices fly to open accordion with Coach in the middle.
5. Repeat as height allows.
6. Novices to initiate break-off, turn and track. Coach observes until deployment.



Notes on freefall

The coach can formulate a different 3 point dive plan. Ensure all points are inward facing so the novice keeps eye contact with the coach.

Brief novices to stay close while flying around by maintaining eye contact.

The novices should be warned not to pull the coach off heading but to fly to their slot before taking grips. Taking the further grip first avoids the trap of swinging off the nearest grip or pulling themselves into position – flying to or presenting the furthest grip should be a rule that is reinforced.

This dive requires careful flying to avoid losing height during the transitions. Ensure the novice “leads with the hips” as they are flying between points.

Note: Remember you only need to achieve the first point for a successful Stage 5 skydive. Avoid rushing. The coach will be looking for height awareness at break off and adequate tracking and separation.

SKILL LEVEL 6

Freefall	Canopy
This skill level consists of three 4-ways	Dealing with traffic, gaining vertical separation to minimise congestion in the circuit and landing area

SL6.1 Objectives:

1. To teach the novice how to organise a dive.
2. To familiarise the novice with flying relative with a group.
3. To be used as a starting point to larger formations.
4. Dealing with traffic.

SL6.2 The Dives:

1. Novice to design and organise a minimum of three descents involving three other people
2. The novice designs each dive and organises it with guidance from the coach.
3. One of the participants must be an instructor or have been approved as an RW Coach by a Chief Instructor.
4. At least one of these descents to be a successful three point 4-way with complete breaks between formations
5. At least one of these descents must have an unlinked exit and be free built.
6. Two of these descents must have the novice entering the formation third or fourth.
7. Organisation of the debriefing is the novice's responsibility – but remember the novice is not a coach and it is not their job to critique others.
8. Gaining vertical separation to minimise congestion in the circuit and landing area.

Notes on freefall

Centre reference. The novice must be introduced to the idea that everyone on the dive is referencing and working through the centre. This is equally important vertically as well as horizontally. The old concept that "low person is base" almost doubles the distance that some jumpers have to travel and generally wastes airtime.

The novice should appreciate by now the importance of eye-contact and make it clear why coloured goggles are not favoured by serious relative workers.

The novice must be reminded to be aware of all other jumpers at break-off. Explain to them how they can look between their legs and all around while tracking and should be prepared to look at the airspace above them before they deploy. They need to be developing their awareness of the other people around them throughout the whole skydive including track off.

Also remind the novice of the need to be prepared to steer immediately with back risers on opening and to maintain their awareness of other canopies.

Notes on canopy flight

Now that you are jumping with more people, your TAPS check is even more important and should remain your priority for every skydive from opening to landing.

As your parachute is opening you should be starting to gain awareness of other people in your group (Traffic), your Altitude, your Position with reference to the landing area and jump run, and the Situation on the ground (wind strength and direction, clear landing area with no obstacles). Try steering with your harness to keep away from others as you collapse your slider. Check up and down jump run for other canopies before flying to your holding area.

By 2000 feet you should have all canopies sighted and know where you fit into the pattern. If you are floatier, stay towards the top of the pack by using brakes. Conversely, if you are tending to sink out on others, stay lower down in the pack using turns to gain separation (whilst always checking for traffic).

Be courteous to your fellow jumpers – remember the bottom canopy has right of way. Let's say you're at 1000 feet and someone below you has a floatier canopy, would you:

a) spiral below them, or

b) float in brakes and let them land first?

The safer option is b): float in brakes and land after them. Choosing a) 'spiral below them' could result in the following bad consequences: it is unpredictable for other traffic to follow, the increased rate of descent will put you at a lower altitude in your circuit and therefore affect your accuracy, and it is hard to keep an eye on traffic whilst spiralling which can increase the chance of a canopy collision.

Always remain aware under canopy and remember your priorities on every skydive: TAPS!

APF highly recommends you complete a separate Canopy Training Descent with an approved Coach (see page 45 of this document, or the TOM, Appendix I for details).

APPENDIX A: CERTIFICATE CLASS B SAMPLE ASSESSMENT

Candidate's Name: . . . . . Date: . . . . . .

Research the following questions and talk over your answers with your Coach or Instructor.

Your Instructors can request a copy of the Answer sheet from the APF Office (for their eyes only!)

Rules and Regulations

1. What are the qualifications for a Class B skydiver (Certificate 'B')?
   a) Have at least 50 stable freefalls
   b) Have completed the Certificate B Training Descent Table (B-rels) to the satisfaction of a Chief Instructor
   c) Have made 10 witnessed verified landings 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

2. To gain a Class D skydiver certification (Certificate 'D'), you will need to demonstrate the ability to guide the aircraft to the exit point:
   a) True
   b) False

3. What is the minimum qualification to do night jumps?
   a) Class A with CI approval
   b) Class B with CI approval
   c) Class C
   d) Class D

4. To do relative work at night, you must successfully complete night training jumps. These jumps are:
   a) 2 jumps – hop & pop and solo freefall (10 secs)
   b) 2 jumps – hop & pop and longer freefall (30 secs)
   c) 3 jumps – hop & pop, short solo freefall and longer freefall
   d) 1 jump - hop & pop

5. What is the minimum certification required to do wingsuit jumps?
   a) Class A
   b) Class B
   c) Class C
   d) Class D

6. The minimum height at which participants must separate from each other on a relative descent is:
   a) 1000 feet above the planned deployment height
   b) 1500 feet above the planned deployment height
   c) 2500 feet AMSL unless otherwise approved by the DZSO
   d) 3500 feet AMSL unless otherwise approved by the DZSO

7. Oxygen must be used on descents above what height?
   a) 10,000 feet
   b) 12,000 feet
   c) 14,000 feet
   d) 15,000 feet

8. What are the requirements to participate in relative work descents without an instructor/coach?

i) with one other person:
   a) B-rel stages 1 - 4 complete
   b) Hold a Certificate Class A
   c) Have DZSO approval
   d) All of the above

ii) with three other people:
   a) B-rel stages 1 - 5 complete
   b) Hold a Certificate Class A
   c) Have DZSO approval
   d) All of the above

iii) with four other people:
   a) Hold a Certificate Class B
   b) B-rel stage 5 complete and DZSO approval
   c) All B-rel stages complete
   d) Have CI approval

iv) with up to ten other people:
   a) Hold a Certificate Class B and CI Approval
   b) Hold a Certificate Class B and DZSO Approval
   c) All B-rel stages complete
   d) Have DZSO approval

9. To participate in relative descents involving more than 10 persons you will require:
   a) Certificate Class B with CI approval
   b) Certificate Class C with CI approval
   c) DZSO Authority
   d) Australian Star Crest

10. What are the qualifications for obtaining a Star Crest?
   a) Hold (or be eligible for) a Certificate Class B
   b) Have entered the formation fifth or later in at least three separate, successful flatfly RW descents involving eight to ten people
   c) Have CI approval to jump with more than 10 people
   d) All of the above

Equipment:

11. What could be the result of having a throwaway pilot-chute which is too porous?
   a) Hard pull from BOC
   b) Speed up the opening
   c) Pilot-chute in tow
   d) Premature deployment

12. What could be the danger of having a loose, insecure BOC pouch on a freefly jump?
   a) Premature deployment
   b) Hard pull from BOC
   c) Speed up the opening
   d) Pilot-chute in tow

13. What could be the result of having an uncocked kill-line on your pilot-chute?
    a) Pilot-chute in tow
    b) Premature deployment
    c) Hard pull on BOC
    d) Speed up the opening

14. What do you expect to be the most commonly replaced items on a parachute assembly?
    a) Handles, lines, pilot-chute
    b) Lines, D-bag, toggles
    c) Pilot-chute, harness, bridle
    d) Rubber bands, closing loop, lower brake lines

15. Why do we pack ram air canopies with the brakes set?
    a) To slow down the opening
    b) To assist inflation and slow down forward speed after opening
    c) So the toggles are easy to find
    d) To speed up the opening

16. What special/extra equipment would you need if you were going to do:

i) Night jump?
    a) Torch
    b) Audible altimeter
    c) Illuminated altimeter
    d) All of the above

ii) Freefly jump?
    a) Helmet
    b) Audible altimeter
    c) Digital altimeter
    d) All of the above

17. Name 3 common avoidable causes of damage to parachuting gear:
    a) Chewing gum, smoking, beer
    b) Grease, sweat, blood
    c) Sunlight, dragging gear, salt water
    d) Poor packing technique, body position on opening, rapid toggle movement

18. When choosing a freefly friendly rig, what are the key elements to look for?
    a) Protected bridle, secure BOC pouch, secure riser and pin covers, no velcro
    b) No velcro, tight leg straps, pud handle
    c) Streamlined container, chest rings, secure BOC pouch, freefly bungee
    d) Pud handle, freefly bungee

19. Describe monthly 3-ring maintenance:
    a) Spin rings in both directions
    b) Disconnect risers, check for wear then reconnect
    c) Disconnect risers and flex webbing at rings, clean cutaway cables before reconnecting
    d) Pull cutaway handle and clean cables then reconnect

Spotting:

20. How does your DZ calculate the correct exit point?
    a) The DZSO checks area forecast before first load of the day
    b) The pilot checks the winds on the way to height using GPS
    c) Drop wind drift indicator on first load
    d) The GCA checks opening point from first load

21. In relation to the landing area, where do we want to exit the plane?
    a) It doesn't matter
    b) Downwind
    c) Directly overhead
    d) Upwind

22. There is a strong wind on the ground. Compared to a no-wind day, would you make the spot:
    a) Further downwind
    b) Further upwind
    c) The same - it doesn't matter
    d) Directly overhead

23. The groundspeed of the aircraft on jump-run affects the time we need to leave between exits in order to achieve the ideal distance between groups.

    i) If the groundspeed is slower than normal, do we need to leave more or less time between exits?
    a) More time between exits
    b) Less time between exits
    c) It doesn't change

    ii) If groups don't leave enough time between exits, what will the likely result be?
    a) A long spot (opening too far away)
    b) A short spot (opening too close)
    c) Groups being too close together increasing possibility of collisions
    d) Groups being too far apart increasing possibility of collisions

Freefall:

24. You are tracking off at 4500ft after a relative work descent and you see another jumper deploying directly beneath you. What do you do?
    a) Keep tracking and veer away to avoid collision
    b) Deploy main parachute
    c) Emergency procedures
    d) Get small to avoid entanglement with parachute

25. What must you do immediately after opening on a relative descent?
    a) Practice flare and locate landing area
    b) Check to make sure your airspace is clear, hands on rear risers to avoid collision
    c) Take off booties, collapse slider, then grab toggles to steer parachute
    d) Count all parachutes to make sure everyone opened

26. You are in a 4way formation and you suddenly notice you are at 1500ft. What would you do?
    a) Track away and deploy main parachute
    b) Track away and deploy reserve parachute
    c) Deploy main parachute immediately
    d) Emergency procedures

27. On a 4-way relative jump you have gone below the other 3 people at 5500ft. You are directly beneath them and you have no chance of getting back up to their level. What should you do?
    a) Keep trying to get back up to the formation
    b) Track away and deploy at planned opening height
    c) Deploy main parachute
    d) Track away for 1000ft and deploy

28. You are diving after a freefall formation that disappears into a cloud. What will you do?
    a) Keep diving at the formation
    b) Stop diving at the formation and remain in neutral body position until clear of cloud
    c) Stop diving at the formation and track away
    d) Open main parachute

29. What is the danger of “corking” on a freefly jump?
    a) High speed freefall collision
    b) Low speed freefall collision
    c) High speed canopy collision
    d) Low speed canopy collision

30. Freeflyers get the same amount of freefall time as flatflyers:
    a) True
    b) False

Canopy Control and Landings:

31. On any skydive, immediately after your parachute has opened where should you fly and why?
    a) Straight back to the landing area for the best chance to make it back
    b) Straight to your holding area for the best chance to make it back
    c) Across the line of flight of jump run to avoid collision with other groups
    d) Up or down the line of flight of jump run to avoid collision with other groups

32. 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) If you are confident to land using rear risers then fly circuit, otherwise emergency procedures
    b) Two practice flares then emergency procedures
    c) Emergency procedures
    d) Try to clear until 2000 ft hard deck then emergency procedures

33. On opening you find one of your toggles is jammed (won't release from half brake setting). The canopy has opened normally otherwise. What would you do?
    a) Try to clear twice. If it doesn’t clear and you are confident to land configuration then fly circuit, otherwise emergency procedures
    b) Two practice flares then emergency procedures
    c) Emergency procedures
    d) Try to clear until 2000 ft hard deck then emergency procedures

34. 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

35. What changes do you expect to experience in the flight characteristics of your canopy using the following inputs:

i) Brakes?
   a) Increase lift, decrease forward speed
   b) Decrease lift, increase forward speed
   c) Nothing changes

ii) Rear risers?
   a) Increase rate of descent, no change in forward speed
   b) Decrease forward speed
   c) Increase lift, increase forward speed

iii) Front risers?
   a) Nothing changes
   b) Increase rate of descent, increase forward speed
   c) Increase lift, decrease forward speed

iv) Pulling down on one toggle to initiate a turn?
   a) Increase rate of descent, decrease forward speed
   b) No change in rate of descent, increase forward speed
   c) Decrease rate of descent

v) Leaning left in your harness?
   a) Steep left turn
   b) Shallow left turn
   c) Nothing changes

36. How would you get back from a long spot in the following conditions:

i) If you were too far upwind of the target?
   a) Use brakes to stay up longer and use wind to get back
   b) Use rear risers to flatten canopy and increase forward drive
   c) Use front risers to increase forward drive
   d) Try both a) and b) to see which works best

ii) If you were too far downwind of the target?
   a) Use brakes to stay up longer and use wind to get back
   b) Use rear risers to flatten canopy and increase forward drive
   c) Use front risers to increase forward drive
   d) Try both b) and c) to see which works best

iii) When flying back to the dz from a long spot, what do you need to be mindful of?
   a) Altitude
   b) Wind
   c) Alternate landing areas and hazards
   d) All of the above

37. What is the difference between a square and elliptical canopy of the same size?
   a) Elliptical canopy is tapered and less responsive
   b) Elliptical canopy is tapered and more responsive
   c) Elliptical canopy is not tapered and less responsive
   d) Elliptical canopy is not tapered and more responsive

38. When considering changing from a square canopy to an elliptical canopy should you:
   a) Jump a smaller size canopy
   b) Jump a bigger size canopy
   c) Jump a similar size canopy
   d) It doesn’t matter

Candidate's signature: . . . .

Assessed by: . . . .   *Satisfactory*   *Not yet satisfactory*
(Circle one)

Retraining given in: . . . .

. . . .

. . . .
Candidate's signature   Instructor's