



# NZPIA Crest Manual

### **IMPORTANT NOTICE**

Skydiving and parachuting are activities with inherent risks that could result in injury or death.

Safety can be enhanced with proper training, preparation, appropriate equipment, and other precautions. This manual contains some of the knowledge and practices that, in the opinion of the NZPIA, will promote the safe enjoyment of group skydiving and parachuting, but does not guarantee the safety of any party.

It is not possible to list all the potential risks in all the various forms of skydiving and parachuting; nor is it possible to apply one-size-fits-all rules or procedures to eliminate those risks.

All participants have the responsibility to assess personal risks, exercise basic safety practices, and perform whatever actions are necessary to avoid unnecessary risk to themselves and other people.

All trainee participants have the responsibility to ask whatever questions are necessary to be satisfied that they have a thorough understanding of the actions they must perform in order to participate safely.

In any conflict arising between the NZPIA Documents Manual or Standards and Procedures Manual and the NZPIA Crest Manual, the NZPIA Crest Manual will **not** take precedence.

**EACH PARTICIPANT, REGARDLESS OF EXPERIENCE, HAS FINAL RESPONSIBILITY FOR HIS / HER / THEIR OWN SAFETY.**

### **NZPIA Crest Information**

NZPIA Crests DO NOT form part of the holder's parachutist certificate issued under delegation from the Director of Civil Aviation. NZPIA Crests are recognition of advanced skydiving training and skill and are issued in accordance with the NZPIA Crest Manual.

The NZPIA crests listed indicate levels of skill or experience demonstrated at a particular time. They do not indicate currency, proficiency or competency of the parachutist on an ongoing basis.

NZPIA crests are valid for the lifetime of the holder, subject to the validity conditions described in the NZPIA Crest Manual.

By exercising the privileges of the crests listed on this card, the holder agrees to comply with the operational procedures and standards of the NZPIA and all applicable NZ Civil Aviation Rules.

Refer to the NZPIA Crest Manual for details of the privileges and limitations of NZPIA crests.

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## 1 FORMATION SKYDIVING – FLAT FLYING

Safety and success on formation descents are influenced by many factors, including the experience and skill of each person in the group; the size of the formation; the degree of difficulty of the exit and dive plan; the quality of the briefing and dirt dive; the debrief (for safety and success on the *next* descent); and equipment.

### 1.1 Safety Considerations

- (1) Before jumping in groups of any size, skydivers should ensure they've had training which emphasizes strategies to recognize and mitigate common group skydiving risks, including:
  - (a) Target / objective fixation resulting in a loss of time and/or altitude awareness;
  - (b) Dislodged handles during climb-out or in a funnel resulting in a premature deployment of the main or reserve, or the main unexpectedly departing company with the harness during deployment;
  - (c) A premature deployment or unexpected main canopy jettison directly underneath another skydiver is especially dangerous;
  - (d) The larger the group, the greater the likelihood of freefall collisions, canopy collisions and collisions between skydivers in freefall and deploying parachutists;
  - (e) The longer and more spread-out tracks of large groups after break-off increase the likelihood of encounters with other groups on the same jump run, and the collisions described above.
- (2) Training should also cover "Plan B" strategies for when skydives don't go as planned, e.g. the exit funnels or a person goes low, or a person loses sight of the formation.

### 1.2 Equipment Considerations

Recommended equipment for all persons participating in group formation skydiving includes:

- (1) A well-fitting harness and container system, with canopies of a suitable size for the container and for the planned descent (e.g. appropriate for the planned deployment height);
- (2) A hard-shell helmet for head protection, or a full-face helmet for head and face protection;
- (3) A clear visor or clear goggles, to facilitate eye contact with the other jumpers;
- (4) An altimeter and audible altimeter;
- (5) A jumpsuit which is appropriate to the jumper's fall rate and skills, and to the dive plan (e.g. with grippers and/or booties as appropriate);
- (6) An automatic activation device;
- (7) A hook knife in case of entanglement with another jumper's canopy or lines.

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### 1.3 Beginner Progression

- (1) Except dual-instructor training jumps, student skydivers are limited to one-on-one coaching jumps with a coach, jumpmaster or instructor.
- (2) Before progressing further, skydivers must advance to an 'A' endorsement and demonstrate competency with all the following:
  - (a) Exit order and exit separation principles;
  - (b) Linked and unlinked exits;
  - (c) Floating and diving exit positions;
  - (d) Forward and backward movement;
  - (e) Start/stop control;
  - (f) Fall rate control;
  - (g) Docking from a diving exit;
  - (h) Understanding of jump run / line of flight as it relates to formation skydiving safety;
  - (i) Flat tracking on heading, wave-off and stable deployment at pre-planned altitudes;
  - (j) Safe canopy flying in traffic.
- (3) The maximum permitted group size for 'A' endorsement holders is three, and all participants must hold a parachutist certificate with 'A' endorsement.
- (4) Before progressing to larger group formations, skydivers must advance to a 'B' endorsement and demonstrate consistent safe execution of all the skills listed in (2) above.
- (5) The maximum permitted formation size for 'B' endorsement holders is initially capped at six.

### 1.4 Level 1 Progression

- (1) The NZPIA recommends participation in at least twenty 4-6 way formation jumps, exiting and entering in various positions, before progressing to groups larger than six.
- (2) Before progressing, skydivers must satisfactorily complete training specific to formation skydiving in groups larger than six, and be assessed as competent to do so by an NZPIA Instructor or Advanced Formation Skydiving Coach. The training and competency assessment should cover, at a minimum, the skydiver's ability to safely –
  - (a) Exit in base, floater and diver positions;
  - (b) Approach and dock from different exit positions, demonstrating effective use of radials, quadrants and "the stadium";
  - (c) Dock fourth or later on three separate, 5 or 6 way formation skydiving jumps
  - (d) Maintain horizontal separation during break-off, tracking and deployment.

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### **1.5 Level 2 Progression**

- (1) Before progressing to groups larger than 10, skydivers should obtain additional instruction in the following –
  - (a) Dock 5<sup>th</sup> or later on three separate, successful 8, 9 or 10 way formation skydiving jumps;
  - (b) Safe execution of staged break-off and deployment heights, including canopy considerations;
  - (c) Theory of tracking in groups;
  - (d) Safe canopy flying in congested airspace.
- (2) On completion and documentation (By an NZPIA Instructor or Advanced Formation Skydiving Coach) of above progression, the jumper may apply to the NZPIA CEO or duly authorized officer of the NZPIA to have a Star Crest recognition added to their NZPIA membership card.
- (3) Anyone wishing to have recognition of a non-NZPIA equivalent of the Star Crest may apply to the NZPIA CEO or duly authorized officer of the NZPIA with evidence of suitable training and/or experience.

## 2 FREEFLYING / FREESTYLE / HYBRID SKYDIVING

The NZPIA considers any descent involving one or more skydivers deliberately holding a body position other than belly-to-earth to be freeflying.

Safety and success on freefly descents are influenced by all the same factors as formation skydiving or flat flying. Additionally, the higher speeds, greater differences in speed, and the three-dimensional nature of many freefly descents mean extra precautions are needed.

### 2.1 Safety Considerations

- (1) Before starting to freefly, skydivers should ensure they've had training which emphasizes strategies to recognize and mitigate common freeflying risks, including –
  - (a) Higher freefall speeds increase the likelihood of losing altitude awareness due to the shorter time in freefall;
  - (b) different body positions and the increased wind noise can make seeing and hearing altimeters challenging, which can also contribute to a loss of altitude awareness;
  - (c) Higher freefall speeds increase the likelihood of a premature deployment due to greater stress on the equipment, and also increase the severity of potential outcomes;
  - (d) The vertical speed differentials possible on head-up and head-down descents increase the risk of members of the group losing visual contact with each other.
  - (e) Freefall collisions at higher speeds increase the likelihood of serious injuries or worse, especially if the skydivers involved are travelling at very different speeds, e.g. if someone transitions to a slower-fall orientation (“corks”) while someone is above them, or transitions to fast-fall when someone is below them.
- (2) Training should also cover “Plan B” strategies for when skydives don't go as planned, e.g. a person corks up or goes low, or jumpers lose visual contact with each other.

### 2.2 Equipment Considerations

Recommended equipment for all persons participating in freeflying includes:

A harness and container system that is “freefly-friendly” – handles and pins secure, pin and riser covers snug; closing loops the right length and well-maintained; leg straps attached with a bungee or similar; all excess webbing (chest and leg straps) securely stowed;

- (1) Canopies of a suitable size for the container and for the planned descent;
- (2) A hard-shell helmet for head protection, or a full-face helmet for head and face protection;
- (3) A clear visor or goggles to facilitate eye contact with the other jumpers;
- (4) A visual altimeter and at least one audible altimeter;
- (8) A jumpsuit which is appropriate to the jumper's fall rate and skills;

- (9) An automatic activation device;
- (10) A hook knife in case of entanglement with another jumper's canopy or lines.

### **2.3 Beginner Progression**

- (1) Student skydivers are not permitted to carry out freefly descents, including hybrid and freestyle descents.
- (2) Before progressing to freefly training descents, skydivers must have a minimum of an 'A' endorsement and have demonstrated consistent competency with all the skills in the beginner formation skydiving (flat flying) progression listed in [Beginner Progression](#)
- (3) NZPIA recommends advancing to 'B' endorsement before commencing freefly training, however 'A' endorsement holders may engage in one-on-one training descents with an NZPIA Instructor or Advanced Freefly Coach. Solo freefly descents by 'A' certificate holders are not permitted.
- (4) The maximum permitted freefly group size for 'B' endorsement holders is initially capped at three and all participants must hold a 'B' endorsement or above.

### **2.4 Level 1 Progression – Head-Up**

- (1) NZPIA recommends skydivers continue with one-on-one training descents until they can demonstrate competency with each of the following, at a minimum. Skydivers should be able to demonstrate these skills first in a back-flying and then in a sit-flying / standing position. Additional training and skills are required before progressing to head-down (see [chapter 2.4](#) below).
  - (a) Altitude awareness / time management;
  - (b) Spatial awareness (position in the sky relative to a reference);
  - (c) Fall rate (up/down control);
  - (d) Controlled turns;
  - (e) Forward/backward movement;
  - (f) Initiate break-off at a pre-planned altitude;
  - (g) Safe transition to belly-to-earth.
- (2) Before progressing to head-up flying in groups larger than three skydivers must satisfactorily complete both Level 1 and Level 2 progression training specific to that activity, and be assessed as competent by an NZPIA Instructor or Advanced Freefly Coach. The training and competency assessment should cover, at a minimum, the skydiver's ability to safely –
  - (a) Perform unlinked exits to a head-up orientation;

- (b) Hold a head-up position within 5 meters of the base;
  - (c) Carry out controlled 360° turns, maintaining a head-up orientation;
  - (d) Start and stop forward and backward movement in a head-up orientation;
  - (e) Control fall rate (up/down movement) in a head-up orientation;
  - (f) Initiate break-off at a pre-planned altitude and transition safely to a controlled back-track, ensuring clear airspace and flight path;
  - (g) Transition to belly-to-earth, wave-off and deploy stable at pre-planned altitudes.
  - (h) Maintain horizontal separation during break-off, track and deployment.
- (3) Once the level 1 training has been completed, the skydiver may be evaluated in level 2 progression, and be assessed as competent by an NZPIA Instructor or Advanced Freefly Coach. The assessment should cover, at a minimum the following sequence on a single jump:

## 2.5 Level 2 Progression – Head-Up

- (a) Perform unlinked exit to a head-up orientation
  - (b) Dock hand-to-hand with the base in a head-up orientation;
  - (c) Perform stable and controlled front or back loop, starting and finishing in a head-up orientation;
  - (d) Dock Hand-to-hand a second time
  - (e) Initiate break-off at a pre-planned altitude and transition safely to a controlled back-track, ensuring clear airspace and flight path;
  - (f) Transition to belly-to-earth, wave-off and deploy stable at pre-planned altitudes.
- (1) On completion and documentation (By an NZPIA Instructor or Advanced Freefly Coach) of above progression, the jumper may apply to the NZPIA CEO or duly authorized officer of the NZPIA to have a Freefly Head Up Crest recognition added to their NZPIA membership card.
- (2) Anyone wishing to have recognition of a non-NZPIA equivalent of the Freefly head Up crest may apply to the NZPIA CEO or duly authorized officer of the NZPIA with evidence of suitable training and/or experience.
- (3) The NZPIA recommends anyone wishing to participate in freefly groups larger than 10, also complete the Star Crest progression as outlined in [Chapter 1.5](#).

## 2.6 Level 1 Progression – Head-Down

- (1) NZPIA requires skydivers to successfully complete the level 1 head-up progression before advancing to head-down training.
- (2) NZPIA recommends skydivers limit their head-down descents to one-on-one training descents until they can demonstrate competency with each of the following, at a minimum, in a head-down orientation –
  - (a) Altitude awareness / time management;
  - (b) Spatial awareness (position in the sky relative to a reference);
  - (c) Fall rate (up/down control);
  - (d) Controlled turns;
  - (e) Forward/backward movement;
  - (f) Initiate break-off at a pre-planned altitude;
  - (g) Safe transition to belly-to-earth.
- (3) Before progressing to head-down freeflying in groups larger than three skydivers must satisfactorily complete both level 1 and level 2 progression training specific to that activity, and be assessed as competent by an NZPIA Instructor or Advanced Freefly Coach. The training and competency assessment should cover, at a minimum, the skydiver's ability to safely –
  - (a) Perform linked exits to head-down;
  - (b) Hold a head-down position within 5 meters of the base;
  - (c) Carry out controlled 360° turns, maintaining a head-down orientation;
  - (d) Start and stop forward and backward movement in a head-down orientation;
  - (e) Control fall rate (up/down movement) in a head-down orientation;
  - (f) Initiate break-off at a pre-planned altitude and turn 180° to the centre of the formation, transitioning safely to a controlled back-track, ensuring clear airspace and flight path;
  - (g) Transition to belly-to-earth, wave-off and deploy stable at pre-planned altitudes;
  - (h) Maintain horizontal separation during break-off, track and deployment;
- (4) Once the level 1 training has been completed, the skydiver may be evaluated in level 2 progression, and be assessed as competent by an NZPIA Instructor or Advanced Freefly Coach. The assessment should cover, at a minimum the following sequence on a single jump:

## 2.7 Level 2 Progression – Head Down

- (a) Unlinked exit to head down;
  - (b) Hold head down position within 5 meters of the base;
  - (c) Hand to hand dock with the base;
  - (d) Half transition to head up orientation;
  - (e) Half transition back to head down orientation;
  - (f) Second hand to hand dock;
  - (g) Initiate break-off at a pre-planned altitude and turn 180° to the center of the formation, transitioning safely to a controlled back-track, ensuring clear airspace and flight path;
  - (h) Transition to belly-to-earth, wave-off and deploy stable at pre-planned altitudes;
  - (i) Maintain horizontal separation during break-off, track and deployment;
- (1) On completion and documentation (By an NZPIA Instructor or Advanced Freely Coach) of above progression, the jumper may apply to the NZPIA CEO or duly authorized officer of the NZPIA to have a Head Down Crest recognition added to their NZPIA membership card.
  - (2) Anyone wishing to have recognition of a non-NZPIA equivalent of the Head Up and/or Head Down crest may apply to the NZPIA CEO or duly authorized officer of the NZPIA with evidence of suitable training and/or experience.
  - (3) The NZPIA recommends anyone wishing to participate in freefly groups larger than 10, also complete the Star Crest progression as outlined in [Chapter 1.5](#)

### 3 TRACKING / ANGLE DESCENTS

Safety and success on tracking/angle descents are influenced by many of the same factors as formation skydiving and freeflying. Additionally, the greater horizontal distances covered on tracking/angle descents mean extra precautions are needed.

#### 3.1 Safety Considerations

- (1) Before participating in horizontal or angle tracking jumps, skydivers should ensure they've had training which emphasizes strategies to recognize and mitigate common risks on such descents, including –
  - (a) High speed flying increases the likelihood of a freefall collision, and the potential severity of the outcome;
  - (b) High speed horizontal flying such as tracking, back-tracking and angles increase the risk of inadvertently clashing with another group farther up or down the line of flight;
  - (c) The greater horizontal distance covered increases the likelihood of an off-PLA landing.
- (2) Training should also cover “Plan B” strategies for when skydives don't go as planned, e.g. jumpers lose visual contact with each other.

#### 3.2 Equipment Considerations

Recommended equipment for all persons participating in high speed flying disciplines includes:

- (1) A harness and container system that is “freefly-friendly” – handles and pins secure, pin and riser covers snug; closing loops the right length and well-maintained; leg straps attached with a bungee or similar; all excess webbing (chest and leg straps) securely stowed;
- (2) A hard-shell helmet for head protection, or a full-face helmet for head and face protection;
- (3) A clear visor or goggles to facilitate eye contact with the other jumpers;
- (4) A visual altimeter and at least one audible altimeter;
- (5) A jumpsuit which is appropriate to the jumper's fall rate and skills;
- (6) An automatic activation device;
- (7) A hook knife in case of entanglement with another jumper's canopy or lines.

### 3.3 Beginner Progression – Face-Down Tracking / Angles

- (1) Student skydivers are not permitted to carry out group tracking or angle descents.
- (2) NZPIA recommends skydivers have a minimum of a 'B' endorsement before commencing tracking or angle training, and have demonstrated consistent competency with all the skills in the beginner formation skydiving (flat flying) progression listed in chapter [1.3](#).  
***\*Skydivers involved in training for "A" and "B" endorsements are not limited by this recommendation.***
- (3) The maximum permitted tracking or angle group size for 'B' endorsement holders is initially capped at three, and all participants must hold a 'B' endorsement or above.
- (4) NZPIA recommends skydivers initially only take part in tracking / angle descents on their belly, and only with an NZPIA Instructor or Advanced Freely Coach or leader (ref. [3.6](#) below).

### 3.4 Level 1 Progression – Face-Down Tracking / Angles

- (1) NZPIA recommends skydivers continue with one-on-one training descents until they can demonstrate competency with each of the following, at a minimum, to an NZPIA Instructor or Advanced Freely Coach:
  - (a) Altitude awareness / time management;
  - (b) Spatial awareness (position in the sky relative to a reference);
  - (c) Sound understanding of jump run / line of flight and in-air navigation;
  - (d) Understanding of the effects of upper winds on navigation, and off-PLA landing strategies;
  - (e) Heading, speed and pitch control;
  - (f) Controlled and stable turns while tracking
  - (g) Safe approach / docking technique;
  - (h) Safe break-off technique.
- (2) Before progressing to face-down tracking in groups larger than three, skydivers must satisfactorily complete training specific to that activity, and be assessed as competent to do so by an NZPIA Instructor or Advanced Freely Coach. The training and competency assessment should cover, at a minimum, the skydiver's ability to safely –
  - (a) Perform unlinked exits with an NZPIA Instructor or Advanced Freely Coach as leader;
  - (b) Execute a safe face-down approach and fly in a slot-specific position beside the leader;
  - (c) Fly over the top of the leader in a face-down orientation, and take the slot on the opposite side;

- (d) Initiate break-off at a pre-planned altitude, and peel off safely while ensuring clear airspace and flight path.
  - (e) Maintain horizontal separation during break-off, track and deployment.
- (3) On completion and documentation (By an NZPIA Instructor or Advanced Freely Coach) of above progression, the jumper may apply to the NZPIA CEO or duly authorized officer of the NZPIA to have a Tracking/Angle Crest recognition added to their NZPIA membership card.
- (4) Anyone wishing to have recognition of a non-NZPIA equivalent of the Tracking/Angle crest may apply to the NZPIA CEO or duly authorized officer of the NZPIA with evidence of suitable training and/or experience.
- (5) NZPIA recommends skydivers satisfactorily complete the above level 1 face-down tracking progression, the level 2 formation skydiving progression in [chapter 1.5](#), and the Star Crest before progressing to face-down tracking/angles in groups larger than 10.

### **3.5 Level 2 Progression – Back Tracking/Angles**

- (1) Skydivers should only attempt tracking/angles descents flying on their back when they have first completed all requirements in the beginner and level 1 progression above.
- (2) Skydivers should only take part in 3-way tracking/angles descents flying on their back under the direct supervision of an NZPIA Instructor or Advanced freely Coach.
- (3) Skydivers should only take part in tracking/angles descents greater than a 3-way flying on their back when they have had their log book endorsed to do so by an NZPIA Instructor or Advanced Freely Coach.
- (4) NZPIA recommends skydivers satisfactorily complete the above level 2 Back Tracking/Angles progression, the level 2 Formation Skydiving progression in [Chapter 1.5](#), and the Star Crest before progressing to back tracking/angles in groups larger than 10.

### 3.6 Leader Recommendations

A tracking/angles leader is a skydiver who does not hold an NZPIA Instructor or Advanced Freely Coach rating but has had their logbook endorsed by either of those to act as leader on tracking/angle jumps. A leader may not coach the progression stages as described above. The NZPIA recommends that a leader also complete level 2 Formation Skydiving progression in [Chapter 1.5](#) and the Star Crest before leading tracking/angle groups larger than 10.

- (1) The NZPIA recommends that a skydiver should only take part in tracking or angles as the Leader when they have demonstrated the following skill level to an NZPIA Instructor or Advanced Freely Coach.
  - (a) Exit unlinked.
  - (b) Navigate off jump run and show good control of speed and pitch.
  - (c) Perform barrel roll, recover and continue on heading.
  - (d) Initiate break off with a clear signal to have the group track away at the correct altitude while maintaining a clear flight path.
  - (e) Demonstrate understanding of flight path.
  - (f) Able to explain break off techniques/importance.
  - (g) Thorough understanding of weather conditions and wind direction.
  - (h) Thorough understanding of various orientations and transitions involved in angle jumps.
  - (i) Responsible decisions for group size depending on skill.
  - (j) Able to fly for the group.

## 4 Wingsuiting

The NZPIA considers any descent involving a suit that is designed to enhance forward movement, or extended flight/freefall time to be covered by this guide. That includes Wingsuits, One Piece Tracking Suits as well as any combination of Tracking Pants and Jackets.

Safety and success on wingsuit descents are influenced by many of the same factors as tracking/angle descents, formation skydiving and freeflying. Additionally, the greater horizontal distances covered on wingsuit descents as well as the extended freefall time mean extra precautions are needed.

### 4.1 Safety Considerations

- (1) Before participating in wingsuit jumps, skydivers should ensure they've had training which emphasizes strategies to recognize and mitigate common risks on such descents, including –
  - a) High speed flying increases the potential of a freefall collision, as well as the potential severity of the outcome;
  - b) The horizontal range in a wingsuit can increase the risk of inadvertently clashing with another group farther up or down the line of flight;
  - c) The greater horizontal distance covered increases the likelihood of an off-PLA landing.
  - d) The restrictiveness of the wingsuit may make stability control and deployment more challenging
- (2) Training should also cover "Plan B" strategies for when skydives don't go as planned, e.g. jumpers lose visual contact with each other, or increased cloud cover during the climb to altitude.

### 4.2 Equipment Considerations

Recommended equipment for all persons participating in wingsuit flying includes:

- (1) A harness and container system that is suitable for wingsuiting – handles and pins secure, pin and riser covers snug; closing loops the right length and well-maintained; all excess webbing (chest and leg straps) securely stowed;
- (2) A hard-shell helmet for head protection, with well-fitting goggles for eye protection or a full-face helmet for head and face protection;
- (3) A visual altimeter that can easily be seen during flight and at least one audible altimeter appropriate for wingsuit flying;
- (4) A wingsuit which is appropriate to the jumper's skills level ; (Refer to manufacturers website for guidance)
- (5) A suitable main and reserve canopy for wingsuiting;
- (6) Consideration should be given for Wingsuit Length Bridle or wingsuit specific polit chute especially for Intermediate – Advanced size wingsuits.
- (7) An automatic activation device;

- (8) A hook knife in case of entanglement with another jumper's canopy or lines.

#### 4.3 Beginner Progression

- (1) Student skydivers are not permitted to carry out wingsuit descents.
- (2) NZPIA recommends skydivers have a minimum of 'B' endorsement and 100 jumps total before commencing training or jumps involving tracking suits or tracking pants and jackets.
- (3) NZPIA recommends skydivers have a minimum of a 'B' endorsement and have completed at least 200 jumps in the preceding 18 months (Or 500 total jumps) before commencing wingsuit training.
- (4) NZPIA requires that skydivers have demonstrated consistent competency with all the skills in the [beginner formation skydiving](#) (flat flying) progression prior to commencing tracking suit, tracking pants and jacket or wingsuit training
- (5) NZPIA requires that skydivers have a Tracking/Angles Crest prior to commencing tracking suit, tracking pants and jacket or wingsuit training.
- (6) NZPIA recommends skydivers attend a first flight course conducted by an NZPIA Instructor or Advanced Wingsuit Coach with demonstrated wingsuit emergency procedures and an introduction to wingsuit navigation prior to jumping a wingsuit.
- (7) The maximum permitted wingsuit group size for 'B' endorsement holders is initially capped at three, and all participants must hold a 'B' endorsement or above.
- (8) NZPIA recommends skydivers initially only take part in wingsuit flying in groups bigger than three with an NZPIA Instructor or Advanced Wingsuit Coach.

#### 4.4 Level 1 Progression:

- (1) NZPIA recommends skydivers continue with one-on-one training descents until they can demonstrate competency with each of the following, at a minimum, to an NZPIA Instructor or Advanced Wingsuit Coach:
  - (a) Exit the aircraft stable and demonstrate control;
  - (b) Fly a pre-determined flight path in a controlled manner on at least three descents;
  - (c) Control fall rate, by arching/de arching and use of wings while maintaining control;
  - (d) Control of horizontal movement: forwards, backwards (slowing down relative to base) and sideways;
  - (e) Recover from an unstable exit and continue on correct flight path;
  - (f) Perform a barrel roll mid-flight, recover stability if necessary and continue on correct flight path;
  - (g) Safely approach a target on at least three descents;
  - (h) Demonstrate the correct break off procedure and pre-opening wave off signal on at least three descents;
  - (i) Deploy the main parachute in a safe wing suit manner, at the correct altitude, on at least three descents;

- (j) Demonstrate the correct post opening procedures on all qualifying descents;
  - (k) Land on the planned PLA on at least three descents.
- (2) Once Level 1 has been achieved and a logbook endorsement added, the skydiver may participate in 2 way wingsuit descents with other Level 1 wingsuit skydivers, or up to 4 way descents with a wingsuit crest holders or Advanced Wingsuit Coaches participating.

#### 4.5 Level 2 Progression:

- (a) Participate in at least one two way wingsuit jump where the candidate must fly over or under the Advanced Wingsuit Coach or experienced wingsuit flyer (Holder of wingsuit crest), alternating between controlled docks and/or touches
  - (b) Participate in at least one three way wingsuit jump where the candidate flies a predetermined slot.
  - (c) Plan and execute at least one four way wingsuit jump where the candidate determines exit order, flight path and initiates break off.
  - (d) Land on the intended PLA on all progression jumps.
- (1) On completion and documentation (By an NZPIA Instructor or Advanced Wingsuit Coach) of above progression, the jumper may apply to the NZPIA CEO or duly authorized officer of the NZPIA to have a Wingsuit Crest recognition added to their NZPIA membership card.
- (2) Anyone wishing to have recognition of a non-NZPIA equivalent of the Wingsuit crest may apply to the NZPIA CEO or duly authorized officer of the NZPIA with evidence of suitable training and/or experience.
- (3) The NZPIA recommends anyone wishing to participate in Wingsuit groups larger than 10, also complete the Star Crest progression as outlined in [Chapter 1.5](#)

## 5 Canopy Piloting

The NZPIA considers every jumper to be a pilot of a canopy from opening until they have vacated the landing area. The pilot is ultimately responsible for their own safety and the safety of others, influenced by their actions. Basic canopy skills are learnt as part of the endorsement progression however 'canopy piloting' is an advanced area which requires additional skills.

### 5.1 Safety Considerations

- (1) Safety and success of canopy piloting includes all the factors of freefall disciplines. Before participating in Canopy Piloting, skydivers should ensure they've had training appropriate to the canopies they are flying and the types of manoeuvres they are planning on executing.
- (2) High performance parachutes and landings can pose significant safety risks to parachutists if not handled/executed correctly.
- (3) Canopy performance is determined by a combination of variables including size, design, planform and loading of the wing; the parachutist's attitude, training, experience, competency, and currency; and the environment.
- (4) Training should also cover "Plan B" strategies for when flights don't go as planned. These plans should include, but are not limited to:
  - (a) Off PLA landings;
  - (b) Not reaching the desired set up point at desired altitude;
  - (c) aborting planned landing due to canopy traffic;
  - (d) Aborting a planned maneuver to avoid obstacles.

### 5.2 Equipment Considerations

Recommended equipment for all persons participating in canopy piloting includes:

- (1) A harness and container system that fits well;
- (2) A suitable main and reserve canopy for your skill level;
- (3) A harness with an appropriate length chest strap;
- (4) An AAD that is appropriate to the speed of the main parachute;
- (5) A hard-shell helmet for head protection;
- (6) A visual, digital altimeter;
- (7) An audible altimeter with low speed warning alarms/canopy beeps;
- (8) Closed shoes.

### 5.3 Beginner Progression

- (1) Student skydivers are limited to one-on-one canopy coaching under the supervision of an NZPIA Instructor.
- (2) Before progressing further, skydivers must have a “B” endorsement and demonstrate competency with all of the following:
  - (a) Flat brake turns;
  - (b) Rear riser turns/collision avoidance and flares;
  - (c) Slow-flight practice;
  - (d) Stall practice (toggle and rear riser);
  - (e) Dive recovery;
  - (f) Collapsing and stowing a slider;
  - (g) Gear adjustment including chest strap & removal of booties;
  - (h) Consistently performing safe and effective landings for the conditions.
- (3) Prior to starting Level 1 progression training (Up to 90 degree final turns) a skydiver must have the approval of an NZPIA Instructor or Advanced Canopy Piloting Coach.

### 5.4 Level 1 Progression (Up to 90 degree final turns):

- (1) Before performing landings with a final turn of up to 90 degrees turn without the direct supervision of an NZPIA Instructor or Advanced Canopy Coach, skydivers must:
  - (a) Have met the beginner progression requirements;
  - (b) Use a main canopy with performance characteristics and a wing loading suitable for their experience and skill level, approved as by an NZPIA Instructor or Advanced Canopy Piloting Coach;
  - (c) Have completed 50 jumps in previous 6 months;
  - (d) Have completed 50 jumps on the size and type of canopy they intend to use;
  - (e) Have completed training specific to high performance canopy landings and been assessed as competent by an NZPIA Instructor or Advanced Canopy Piloting Coach.
  - (f) The training and competency assessment should cover, at a minimum, the skydivers:
    - I. Knowledge and understanding of their canopy characteristics and landing emergency procedures;
    - II. Correct setup, safe turn heights, approaches and landings including level canopy principals;
    - III. Proficiency in high performance landings, to create a safe and effective final approach turns of up to 90 degrees on at least 10 occasions.
- (2) Once level 1 Training has been completed, the skydiver should seek written permission from an NZPIA Instructor or Advanced Canopy Piloting Coach AND the DZSO of the operation where the high-performance landings are to be carried out prior to performing high performance landings unsupervised.

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### **5.5 Level 2 Progression (Up to 270 degree turns):**

- (1) Before performing landings with a greater than 90 degree final turns, and up to 270 degrees, without the direct supervision of an NZPIA Instructor or Advanced Canopy Piloting Coach, skydivers must:
  - (a) Have completed Level 1 Progression;
  - (b) Use a main canopy with performance characteristics and a wing loading suitable for their experience and skill level, approved as by an NZPIA Instructor or Advanced Canopy Piloting Coach;
  - (c) Have carried out 50 jumps in previous 6 months;
  - (d) Have documented evidence of at least 100 high performance landings with final turns of up to 90 degrees, including at least 50 on the size and type of canopy used for level 2 progression;
  - (e) Have completed training specific to high performance canopy landings with final turns greater than 90 degrees and been assessed as competent by an NZPIA Instructor or Advanced Canopy Piloting Coach.
  - (f) The training and competency assessment should cover, at a minimum, the skydivers:
    - i. Knowledge and understanding of their canopy characteristics and landing emergency procedures;
    - ii. Correct setup, safe turn heights, approaches and landings including level canopy principals;
    - iii. Proficiency in high performance landings, to create a safe and effective final approach turn of up to 270 degrees on at least 10 occasions.
- (2) Once level 2 Training has been completed, the skydiver should seek written permission from an NZPIA Instructor or Advanced Canopy Piloting Coach AND the DZSO of the operation where the high-performance landings are to be carried out prior to performing high performance landings unsupervised.
- (3) On completion and documentation (By an NZPIA Instructor or Advanced Canopy Piloting Coach) of above progression, the jumper may apply to the NZPIA CEO or duly authorized officer of the NZPIA to have a Canopy Piloting Crest recognition added to their NZPIA membership card.
- (4) Anyone wishing to have recognition of a non-NZPIA equivalent of the Canopy Piloting crest may apply to the NZPIA CEO or Delegation holder with evidence of suitable training and/or experience.

### **5.6 High Performance Landings with final turn greater than 270 degrees.**

- (1) Before commencing turns of greater than 270 degrees, without the direct supervision of an NZPIA Instructor or Advanced Canopy Piloting Coach, the NZPIA recommends that skydivers:
  - (a) Have completed Level 2 Progression and have an NZPIA Canopy Piloting Crest;
  - (b) Have a “D” endorsement and a minimum of 1 000 sports jumps;
  - (c) Have carried out 50 jumps in previous 6 months;
  - (d) Have documented evidence of at least 100 high performance landings with final turns of up to 270 degrees, including at least 50 on the size and type of canopy they intend to use.
  - (e) Have completed training specific to high performance canopy landings with final turns greater than 270 degrees and been assessed as competent by an NZPIA Instructor or Advanced Canopy Piloting Coach.
  - (f) The training and competency assessment should cover, at a minimum, the skydivers:
    - I. Knowledge and understanding of their canopy characteristics and landing emergency procedures;
    - II. Correct setup, safe turn heights, approaches and landings including level canopy principals;
    - III. Proficiency in high performance landings, to create safe and effective final approach turns of greater than 270 degrees on at least 10 occasions.
- (2) The skydiver should seek written permission from an NZPIA Instructor or Advanced Canopy Piloting Coach AND the DZSO of the operation where the high-performance landings are to be carried out prior to performing high performance landings with final turns of greater than 270 degrees unsupervised.

### **5.7 Currency and continued competency:**

The NZPIA recommends that a skydiver who has not performed at least 50 high performance landings in the preceding 12 months undergo an evaluation at least equivalent to Level 2 progression prior to performing turns greater than 90 degrees.