



# Skydivers Manual

## Accelerated Free Fall

*for basic training and reference afterwards*

### INDEX

Jump gear	page 2
Jump preparation	page 6
Progress of the first jump	page 7
Control of the opening sequence	page 8
Steering the parachute	page 9
Steering circuit	page 10
Landing	page 11
Reserve procedure	page 13
Special situations	page 15
To remember	page 18

## JUMP GEAR

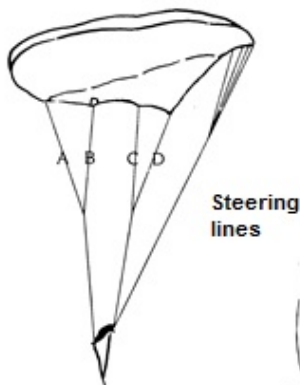
Your jump gear consists of a main parachute and a reserve parachute; both are attached to a harness. The parachutes are packed into separate containers which are part of the harness. The whole package, called a rig, is worn by the jumper. We will now elaborate on different parts and other equipment. Also, we will explain how a parachute opens (the opening sequence).

### *Main parachute*

The main parachute is a "square". It's a rectangular parachute made of nylon cloth and consists of a top and a bottom skin. With a special pattern ribs are sewn between the top and bottom to make the square an airfoil when air is blown into it. Both layers and the ribs result in cells that are open at the leading edge of the square (nose) and closed at the trailing edge (tail). The square will inflate when air is blown into it and take the shape of a wing because the air can't escape from the back. The cells on both ends of the square are called end cells. On both sides stabilization panels are connected to the end cells to prevent the square from drifting sideways.

### *Suspension lines*

From front to back suspension lines are connected between each cell and the stabilization panels. The length of the lines are important for the trim of the square and the ability for it to fly. The lines at the leading edge are called A lines, the ones at the trailing edge are called D lines and in between there are the B and C lines. Half way through the A and B lines come together in a cascade and become one line. The same happens with the C and D lines.



### *Risers*

The suspension lines form 4 groups: left front, left back, right front and right back. Every group comes together at a strong nylon strap, the riser. The groups of lines are connected to the riser using connector links.

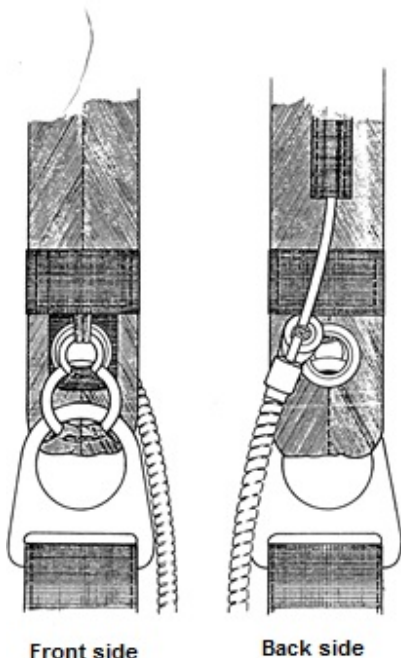
### *Steering lines*

At the trailing edge of the square the steering lines are connected through a cascade; one at the left and one at the right side. The steering lines run through metal ring on the back riser and at the end they are connected to a steering toggle. There is a steering toggle on each backside of a riser (left and right).



### *Harness*

The harness is a system of strong nylon straps. There are two shoulder straps, two leg straps, a back strap (sewn into back panel, so not visible) and a chest strap. If you pay attention when picking up the whole rig, gearing up is just like putting on a jacket. On the chest strap and the leg straps you will find adjustable shackles which will help to adjust the harness to your body size. The back panel is sewn on the straps for comfort sake.



### *Release system*

The risers are connected to the harness through a release system. The release system makes it possible to quickly detach the main parachute so it will not interfere with the deployment of the reserve parachute. The release system consists of three different sized rings that are routed through each other. The largest ring is integrated into the harness. The middle and smallest ring are part of the riser group. The smallest ring is kept in place by the cutaway cable which runs through a nylon loop. The cutaway cable from the left and the right side come together on the red cutaway handle. The cutaway handle is held in place with Velcro at the right front side of the harness.

### *Containers*

Two containers are sewn on the back of the harness. The top one is for the reserve parachute, the bottom one for the main parachute. A container has four flaps made of strong nylon fabric. It is kept close by pulling a nylon loop through the grommet (a ring) of each flap and securing it with a locking pin. The complete package of a harness and both parachutes is called a rig.

### *Opening system*

AFF: a pilot chute

The deployment handle of the main parachute is on top of the pilot chute. The pilot chute is stored in a pocket on the bottom of the main parachute container at the bottom of the rig. A bridle runs from the pilot chute to the bag. The bag is placed inside the container which is closed with a nylon loop and a locking pin which is attached to the bridle. The opening system is activated by pulling the pilot chute out of the pocket and throwing it into the air (throw-away system). The pilot chute will function like an anchor and will pull the locking pin out of the closing loop of the main container. This allows the main container to open. Then the pilot chute pulls the bag (which houses the main parachute) out of the container.



### *Bag*

As mentioned before a square parachute is carefully packed into a bag and stored inside its container. The suspension lines are stowed back and forth through rubber bands on the top side of the bag keeping the bag closed and secured. This way the parachute can only leave the bag if the lines are pulled out under tension.

### *Slider*

Without any measure the opening of a parachute is too hard to be comfortable. A slider is used to slow down the speed of the opening of the parachute. The slider is a larger piece of nylon with a grommet on every corner. The four groups of line run through the grommets. During the packing of the parachute the slider is pushed towards the top so it is placed against the fabric of the parachute. This way the slider keeps the bottom of the parachute close together. During the inflation of the parachute the slider will prevent it from inflating too fast to maintain a good level of comfort for the jumper. After initially slowing down the opening the slider will be pushed down to the top of the risers completing the full inflation of the parachute.

### *Steering lines*

Before packing a parachute the steering lines are set to a position we call "half brakes". Setting the brakes prevents the square from diving and going into full flight right after opening. We will explain more later on, but the steering lines have to be released to make use of all of their functions.

### *Reserve Parachute*

The reserve parachute is also a square. The construction and the controls are equal to the main parachute.

### *Opening a reserve parachute*

The reserve parachute will be deployed by its own pilot chute. In this case a pilot chute containing a metal spring. When the reserve container opens, this pilot chute is launched into the airflow and pulls the reserve parachute out. Once in the airflow the reserve parachute will open. Opening the reserve container is explained below.

### *Reserve rip cord*

The reserve container is opened by pulling the reserve rip cord. The reserve rip cord has a metal handle on one end. On the other end of the metal cable holds a locking pin. With this locking pin and a closing loop the reserve container is closed. The handle is placed in a pocket on the left side of the harness halfway your chest. Pulling the reserve rip cord will result in an open reserve container because the locking pin is removed from the closing loop.

Besides the reserve rip cord there are two more ways to open the reserve container. They are back-up-systems and we will go into them next.

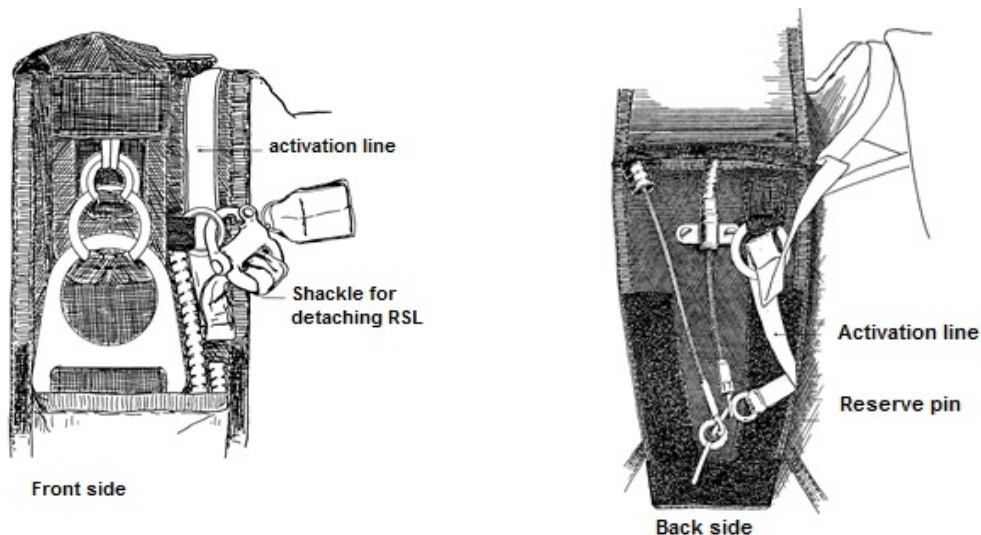
### *Automatic Activation Device*

As an extra precaution your gear has an automatic activation device (AAD). At Skydive Rotterdam we use a type called "Cypres". The device will continuously measure your speed and altitude. It will activate and open your reserve container if

your falling speed is too high below the pre-set altitude. This device is only to be used as a back-up system and must never be relied on.

### *Reserve static line*

The reserve static line (rsl) is connected between the right riser group of the main parachute and the locking pin of the reserve container. If the main parachute is released from the harness the right riser group pulls on the rsl and it pulls the locking pin out of the closing loop of the reserve container. The rsl can be disconnected which makes it lose its function. The rsl is also only to be used as a back-up system. If needed: always do the full reserve procedure yourself!



### *Altimeter*

An altimeter is a device which indicates the altitude by measuring the changes in air pressure. The scale of the altimeter is in 1,000 ft (1 ft = 0.3048 meters). Before a jump the indicator has to be adjusted to the air pressure on ground level and has to be set to "0".

### *Helmets*

Helmets are available in three sizes.

### *Goggle*

A plastic goggle to protect your eyes from the wind.

### *Overall and footwear*

An overall protects your clothes and keeps you warm(er). Firm and low sneakers are most suitable.

### *Gloves*

Gloves must be worn when the temperature at exit altitude is 0 degrees Celsius or lower.

## **JUMP PREPARATION**

You aren't allowed to make your first jump until you have completed the basic training. If the weather is jumpable for you: your jumpmaster will sign you up at the manifest. The manifest will organise a group of jumpers in a stick (airplane full of people). Make sure you bring your goggle and all mandatory documents and prepare your jump in a timely fashion. At the first call from the manifest you will receive an overall, a rig, a helmet and an altimeter. Take special care when fitting the rig and make sure you will get a wind briefing and the steering circuit explained.

### *3 times 3-check*

You will perform the first gear check yourself, we call this the 3 times 3 check.

The 3 times 3 check consists of:

- 1 Helmet, goggle and altimeter
- 2 Chest strap, left leg strap and right leg strap
- 3 Pilot chute, cutaway handle, reserve rip cord.

#### *Check 1:*

- Does your helmet fit, is the chin strap secured and tight?
- Is your goggle clean and around your neck?
- Is your altimeter set at "0" and secured around your left wrist?

#### *Check 2:*

- Is your chest strap secured?
- Are both of your legs traps untwisted, secured and is the remaining part of the straps stored in their pockets?

#### *Check 3:*

- AFF: Is the pilot chute in its pocket and is the main deployment handle in its place?
- STATIC LINE: Do I have a parachute with a static line?
  
- Is the cutaway handle on the velcro and accessible?
- Is the reserve rip cord in its pocket and accessible?

#### *Pin check*

Your personal and jump gear will be thoroughly inspected by the jumpmaster before you enter the airplane. This check is called pin check and should be performed before stepping into the plane every jump!.

#### *Wind and steering briefing*

In this briefing you will be informed what direction the wind is coming from, where the exit area is, what steering circuit you will need to follow and the direction of your landing. Try to determine the steering circuit yourself before the briefing and have a good look at the aerial photo of the dropzone.

#### *Boarding*



Walk towards the airplane together with your jumpmaster and with your helmet on. An airplane is always approached from the rear. Never walk in front of the propeller because this is very dangerous! Move in a controlled way in the airplane and sit in your place. After the engine of the airplane has started you will secure the safety strap you will find on the floor of the airplane. Next the airplane will taxi to the runway and it will take off. At 1,000 ft the safety straps must be undone and you can also take off your helmet.

Pay attention that nothing of your gear gets stuck in the airplane. In particular protect your cutaway handle and reserve rip cord. Prepare to jump in time by putting on your goggle and helmet at the 2 minute call you will receive in the plane. Before you leave the airplane, it is important to do the 3 times 3 check again! During the training your AFF jumpmaster will perform an extra pin check before you exit the airplane.

## **PROGRESS OF YOUR FIRST JUMP**

*AFF: exit procedure*

Your first jumps you will do with two AFF jumpmasters.

One jumpmaster checks for the right positioning of the airplane and if the visibility is good enough for the jump. If so, he will climb out of the airplane. The other jumpmaster is already holding on to you and will tell you to "Come to the door!". You will stand in the middle of the door, with your left leg in front, toes on the edge of the door, and your right leg behind. Hold on to the airplane to keep your balance when you walk towards the door. Place your feet in the right place and direction, squat, release your hands, point your hands towards the wing. Keep your left hand and arm lower than your right arm. In this position your right shoulder is now higher than your left one. The outside jumpmaster will take hold of you when you are moving into the exit position. You will do a check when you are in position and both jumpmasters are holding you. Shout to the outside jumpmaster: "CHECK OUT". You will get an ok if all is well. The same check is done with the inside jumpmaster, only you will shout "CHECK IN". Wait for the second ok. Next is to look at the wing tip. Thereafter you will shout: "READY" and stretch your arms a little (they will be in the wind a little) and you will keep looking at the wing tip. Next you will shout: "SET" and contract your arms a little while you are still looking at the wing tip. The last shout is "GO" and you will exit the airplane by jumping actively towards the wing tip. Push off with both legs and stretch out your body. Directly after exiting the airplane you will take the arched free fall position.

*The free fall*

After the exit (and the overwhelming experience of truly falling!!!) it is time to "go to work". Now we will describe the rest of your level one AFF jump.

Relax: Take two deep breaths (exhale first) to lower your stress level.

Next is a "Circle of Awareness" and this consists of:

- 1) Look straight ahead at a point on the horizon to check your heading
- 2) Look to your altimeter on your left wrist to check your altitude
- 3) Look to the jumpmaster on your right side

Your jumpmaster might give you one or more “signals” to improve your posture. Act on the signals in a controlled way until you get an ok through a thumbs-up. After improving your posture, you will go on to do the “dummy pull”. Briefly hold the main deployment handle with your right hand. Extend your left arm to keep stable when your right arm is moving back and vice versa. If you can’t find the main deployment handle your jumpmaster will assist you, so let him.

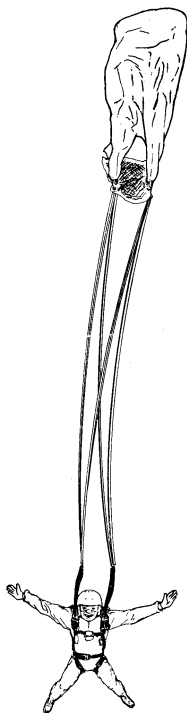
After the dummy pull you are in “free time”. Check your heading and the positioning of your arms by looking. Check the positioning of your legs only by thinking of them. Your jumpmaster might give you signals.

There are different signals (see the appendix): relax, arch, pull in legs, stretch out legs, legs wider, legs narrower, point your toes, check altimeter, pull!!!

*Check your altitude regularly - every five seconds (1,000 ft.) !*

At 6,000 ft. keep looking at your altimeter which shows you are aware of your altitude and you are prepared to open the parachute. At 5,500 ft. calmly wave off to indicate that you will open your parachute and: “arch-reach-pull”.

## **CONTROL OF THE OPENING SEQUENCE**



A parachute opens in about three seconds. To check the opening sequence, and keep a sense of time, count out loud 1000, 2000, 3000, parachute check!

After counting you need to check three things:

- DO I HAVE A PARACHUTE ?
- IS IT SQUARE ?
- IS IT FLYING STRAIGHT ?

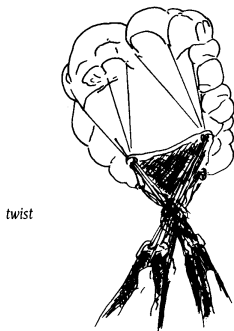
If you can positively answer these three question you can go on with the checklist. The checklist you must know at all times!

### CHECKLIST PARACHUTE CONTROL

1. twist
2. steering lines (pump them twice)
3. slider
4. end cells
5. harness
6. altitude
7. orientation (where are the others and where am I?)



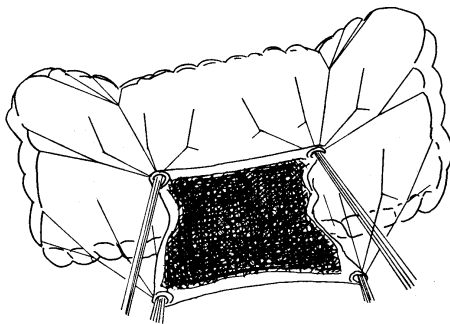
### 1. *twist*



It might happen that you or the bag made one or more rotations during the opening. The result is that just above the risers your suspension lines are twisted like twisting the chains of a swing. This is an inconvenience as you can't steer your parachute. Untwist the steering lines by pushing the risers outside, pulling them apart as much as possible and kicking your legs in a bicycle riding motion.

### 2. *steering lines*

Grab both of the steering toggles from the rear risers and pull them down releasing the half brakes. Pull them down to full brakes, keep them there for a short while and slowly release the brakes until you are back in full flight. Repeat it to go back to full brakes and back to full flight. Pumping the steering lines is done in a gentle motion and will remove minor imperfections in the square.

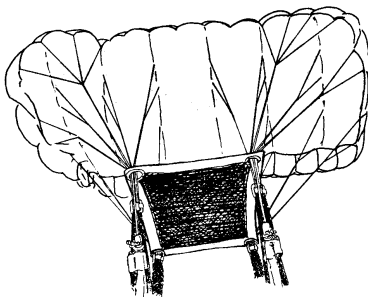


### 3. *slider*

After opening the slider should be on top of the (connector links of the) risers. If the slider got stuck on the way down, you can bring it down further by pumping the steering lines (again two times).

### 4. *end cells*

It might be that the end cells are not fully inflated. This will show on the front end of the cell. By pumping the steering lines two times you will be able to solve this inconvenience.



### 5. *harness check*

Your parachute is now ready to fly but before you do: check if the cutaway handle and reserve rip cord are still safely in place. If they not, you can carefully put them back in place.

Now it is time to check your altitude and orientation: where are the others? and where am I?

## STEERING THE PARACHUTE

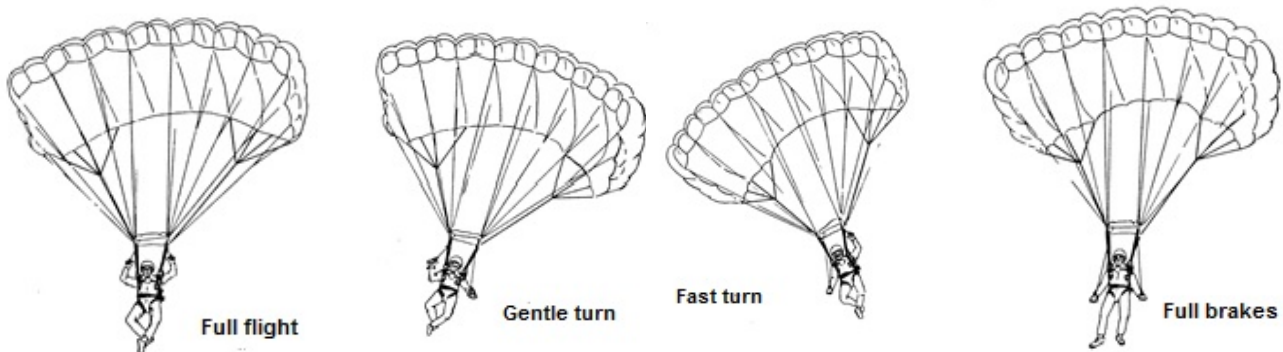
If the steering toggles are completely up with the half brakes released the parachute will develop a forward speed of about eight meters per second. If the steering lines are pulled down the parachute will brake. If you apply brakes to only one side of the parachute or more on one side than the other side, the parachute will turn in the direction of the side which has the most brakes applied

The difference in brake settings between left and right makes it possible to control the speed of the turn.:

- The bigger the difference between the steering toggles, the faster the turn is.
- The less you brake in a turn, the faster the turn is.

The position of the steering toggles is expressed in a percentage. Full flight means no braking of the parachute = null percent. Full brakes means the maximum braking of the parachute = hundred percent. All positions between null and hundred percent indicate the amount of brakes applied.

**Make it a habit to check the airspace you are turning into (beside and below you) is empty before you initiate a turn.**



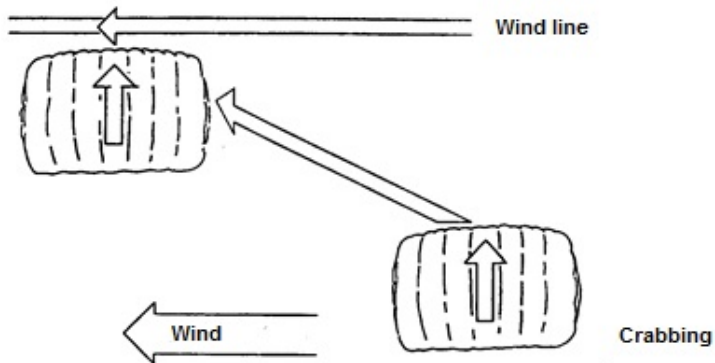
## STEERING CIRCUIT

### *Into the wind and with the wind*

The parachute has a forward speed of about eight meters per second. If you are flying with the wind in your back this wind will increase your speed in reference to the ground. If you are flying into the wind (wind is in your face) this wind will decrease your speed in reference to the ground. You will be flying backwards if you are flying into the wind and the wind has a higher speed than your parachute.

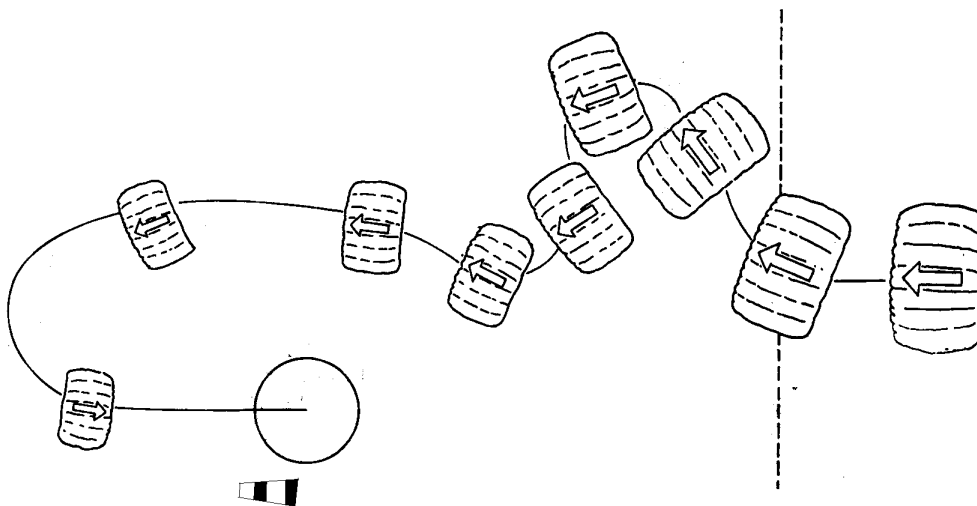
### *diagonal to the wind*

When the wind is coming from the side it will push you to the other side. In reference to the ground you are moving in a diagonal. It is like the movement of a crab.



### *steering circuit*

After the parachute check and checklist, you will be flying between your exit point and the 1,000 ft. line as indicated during the wind and steering briefing. At 1,000 ft. you will enter the steering circuit while flying with the wind in your back. From this point on you will not execute any full turn anymore. At 500 ft. you will make the first 90 degree left hand turn. At 300 ft. you will make your second 90 degree left hand turn into the wind. After this turn your parachute must be in full flight and small corrections can be made to avoid obstacles or to keep flying straight into the wind. Take your landing posture in due time.



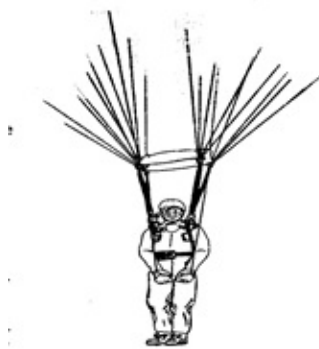
## **LANDING**

The landing should be into the wind so your forward speed in reference to the ground is at its lowest.

*flare*

You will make a velvet smooth landing if your approach to the landing is in full flight and you perform a flare at the right moment (about two to three meters above the ground). By going to full brakes the parachute will get the maximum lift, but only for a short period of time. A flare is done in two steps: flare (brake with your toggles at chest height) and finish (go to full brakes). The parachute must be kept symmetrical at all times. You can achieve this by getting your hands to your groin and keeping them there until you have landed. Keep your legs closed to cope with any imperfections in the landing area. This is the best way to avoid injuries.

**If you did your flare too early: stay in the fully braked position!** If you release the brakes your parachute will go back to its maximum speed and it also will make a dive. With a short delay, you will swing underneath your (now with an increased speed flying) parachute. If this happens just before landing the impact is very hard.



Landing posture

#### *landing roll*

The start of a well executed landing roll is the landing posture. Take your landing posture in due time by keeping your:

- Feet together in a 45 degree angle to the landing direction
- Knees together and slightly bent
- pelvis tilted backwards and de-arch your back
- shoulders in front and arms tucked in
- muscles on a good tension to be able to react without cramping up
- keep looking straight ahead at the horizon!

A landing roll is never straight ahead: either you will roll diagonal to the right or diagonal to the left. If you roll to the right your body will make contact with earth in this order:

- The first contact is with the bottom of your feet
- Right side of your feet
- Right knee
- Right buttock
- Roll on over your back to your left shoulder and also swing your legs
- Left side of the left leg

The landing roll to the left is the opposite of the above.

#### *stand up*

After landing you will immediately stand up and walk to the other side of your parachute. This prevents the wind from getting a grip on your parachute and dragging you over the landing area. It also shows that you have made a safe landing.



If you can't stand up because the parachute has already been caught by the wind and is dragging you backwards, there is a trick: let go of one of the steering lines and pull the other steering all the way in. This will deflate the parachute so you can stand up and walk to the other side.

#### *field packing*

When you are walking from your landing spot to the club busses you can't let your parachute drag over the ground. Loosen your leg straps a little (always keep them in the adapters) to walk more comfortable. Retrieve the suspension lines by walking towards the parachute and store them using a daisy chain. With the slider you can lock the daisy chain in place. Make a bundle of the parachute, the daisy chain and the pilot chute and hold it in your arms. Check if all material is free from the ground before you walk towards the club busses. At the club busses store your parachute for transportation in a crate and make sure no material is sticking out from the sides.

#### *packing*

Upon returning to the club house make sure the parachute is handed over to one of the packers as soon as possible. They will pack the parachute so it is available for the next jump(er).

#### *Landing priorities*

To prevent bad landings, we have landing priorities. These are the landing priorities from most important to least important:

- 1) **Fly Straight** (only small, smooth, corrections under 250 ft.)
- 2) **Obstacle free**
- 3) **Into the wind**

## **RESERVE PROCEDURE**

Skydiving is a relatively safe sport in general. The modern equipment is highly reliable and training and coaching of jumpers makes them well prepared.

Causes that might lead to a malfunction are an unstable opening position or mistakes made when packing the parachute. These causes will increase the chance of a malfunction.

**Malfunctions and inconveniences during or right after the opening of the parachute will be dealt with through the checklist parachute check. If the problems can't be fixed the reserve procedure should be initiated immediately.**

The training consists of:

- recognizing a malfunction or inconvenience.
- performing the reserve procedure.



The training is done under supervision of an instructor and as long as it takes you. After the basic training you need to keep training this skill to build muscle memory, so that you will be ready to react to any malfunction without needing to think too much about it.

The reserve procedure is performed if in your checklist parachute check:

- **you didn't feel an opening shock and there is no parachute out**
- **your parachute isn't square**
- **your parachute isn't flying straight and is in an unstoppable and fast turn**

Inconveniences during the opening of the parachute might make the parachute go into a turn, but this will be in a slow turn. Almost always this inconvenience can be dealt with during the checklist parachute check.

### **2,500 ft. mark**

If you reach 2,500 ft. and the inconvenience is still there or your parachute hasn't opened properly you must perform the reserve procedure.

### **If a parachute isn't flying, time is.....**

The reserve procedure consists of the next steps and is done swift and firm:

- **AM I ABOVE 1,000 FT.?** (check altitude because of 1,000 ft. mark)
- **LOOK RIGHT** (at the cutaway handle)
- **GRAB RIGHT** (with your right hand)
- **LOOK LEFT** (at the reserve rip cord)
- **GRAB LEFT** (with your left hand, thumb through)
- **ARCH** (maximum arch and your head in your neck)
- **PULL RIGHT** (the cutaway handle, peel then pull)
- **PULL LEFT** (the reserve rip cord)
- **ARCH!!!**

Don't forget to perform the checklist parachute check again when you are under your reserve parachute!

### **1,000 ft. mark**

A well-executed reserve procedure is one where you are under a reserve parachute above 2,000 ft.

**If you were late with performing a reserve procedure know that at the 1,000 ft. mark the main parachute is not to be released anymore and the only action you take is to add the reserve parachute above your head by pulling the reserve rip cord.**

A timely and well executed reserve procedure is always the better option !

*steering the reserve parachute*



Steering the reserve parachute is equal to steering a main parachute.

You might be at a lower altitude than you are used to. Therefore it is necessary to check if you can make it back to the drop zone. Look for an alternative landing area if you are not sure you can make it to the drop zone.

## **SPECIAL SITUATIONS**

While skydiving you can encounter some special situations. We differentiate them by the moment they occur which is during the flight with the airplane, during the jump or during the landing. Recognizing the special situations in a timely manner might prevent them from becoming a dangerous situation. If you are in a special situation: don't panic and act in a controlled way. Every special situation has its own procedure. Mastering the procedure is the first step to a safe solution.

### **Special circumstances during the airplane flight**

#### **Engine failure**

There are two possibilities for an engine failure: above or below 1,000 ft. Below 1,000 ft. leaving the airplane is not an option and an emergency landing will be made.

Above 1,000 ft. the reserve parachute can be a safe option, but it is not the only option and we might not leave the airplane. The jump master will tell you what to do.

#### *Engine failure below 1,000 ft.*

Prepare for an emergency landing by taking the crash position:

Place your hands behind your helmet. Bring your head and elbows to your knees as much as possible. Hold your legs with your arms. After the airplane has stopped moving, leave the airplane immediately in an orderly fashion. Stay well away from the airplane to be safe of explosion danger.

#### *Engine failure above 1,000 ft.*

If you are told by the jumpmaster to leave the airplane be prepared for the whole stick exiting the airplane, one directly after the other. Beware of the low exit altitude (under 2,000 ft. pull the reserve parachute, above you pull your main parachute) and prepare for an early landing. If the airplane has lost too much altitude the procedure for "engine failure under 1,000 ft." will be back in effect. Don't forget to re-attach your safety strap.

#### *Premature opening of a parachute in the airplane*

Abstain from careless movements from the time you are gearing up to prevent one of the parachutes to open prematurely. Be aware this can also happen to one of your fellow jumpers. Despite all precautions a premature opening of a parachute can happen. This is not a big problem if the door of the airplane is closed: indicate an open parachute to the jumpmaster and he will take the action(s) needed.

When the door is open, it becomes a different and more dangerous situation. Immediately shout to the jumpmaster "open parachute". Push the open parachute to



the side of the airplane as much as possible and ensure no more fabric can escape. The jumpmaster will close the door and the airplane will go back to land at the airport.

If a part of the parachute is out of the door there is nothing more you can do. The parachute will inflate and it will drag you out of the airplane. The only thing you can do is not to resist and follow the parachute outside as soon as possible.

## **Special situations during the jump**

### *AFF: during free fall*

You are unstable: arch and check altitude.

*Free fall priorities: 1) open the parachute 2) open at the right altitude 3) open in a stable position and at the right altitude.*

### *Caught in suspension lines*

At the opening an arm or a leg has been trapped in one or more suspension lines. If this causes a malfunction perform the reserve procedure immediately. If there is no malfunction you can pull the suspension line(s) hand over hand to free yourself. Keep checking your altitude when you are trying to get free of the suspension lines.

### *Unwanted reserve opening (dual square)*

You are under a good flying main parachute and the reserve container opens. Four situations are possible.

1: The main and reserve parachute are standing behind each other (biplane). 2: The main and reserve parachute are flying beside each other (side by side). Both of these situations are quite stable. The starting-point is to fly and land with two parachutes. Steering is done with the dominant parachute. Under no circumstance, will you be making sharp turns. Make sure you turn into the wind slowly and land on an obstacle free field. At landing take the landing posture and do a landing roll. Don't flare!

3: The main and reserve parachute are on opposite sides and pointing towards the ground (down plane). This configuration is unacceptable at any time because it is going toward the ground fast and unstoppable. Cut away the main parachute with the cutaway handle as soon as possible, even so if this starts happening under 1,000 ft.

4: The main and reserve parachute are entangled with each other (entanglement). Try to untangle them as much as possible. At landing take the landing posture and do a landing roll. Cutting away the main parachute will most likely only make the situation worse.

### *Canopy collision*

Beware of other jumpers in the air. Check the airspace you are going to before making a turn. The only safe distance is a big distance. Hold into account that a jumper at a higher altitude might descent faster than you so the danger of a collision



can happen. If you are getting close to somebody else: shout out and steer away by making the shortest turn. If your flying head on to each other: steer away to the right.

If a collision is unavoidable, spread your arms and legs to the widest position possible to prevent you to get caught in the suspension line of the other parachute. Keep steering away after you have collided. The main parachute can lose its lift during the collision, if so perform the reserve procedure (*under 1,000 ft. don't use the cutaway handle, only add the reserve parachute by pulling the reserve rip cord*).

## **Special situations during landing**

### *Turbulence at landing*

Close to, and especially behind, obstacles the wind flow is obstructed. Vertical wind movement occurs and we call this turbulence. The direction of the air flow is upwards and downwards with rapid fluctuations. They are disadvantageous to the flying characteristics of a parachute and you will feel them by the shaking of your parachute. *Fly your parachute in full flight so the turbulence has the smallest effect.* Flare at your normal altitude, which is two meters above the ground.

### *Avoidable obstacles*

As long as you have enough altitude an obstacle is best avoided by flying spacious over it with the wind in your back. It is better to walk extra than to have an injury at landing. *At lower altitudes, you can always try to avoid the obstacle by making small steering corrections and flying next to it (even if it is cross to the wind).* Don't keep looking at the obstacle, it increases to chance you will land on it eventually. Look at the space next / away from the obstacle, this is where you want to go.

### *Unavoidable obstacles*

If you can't avoid an obstacle the best landing posture and perfect flare is even more important. Slowing down by flaring makes impact less hard. The next scenarios can be distinguished:

- Buildings: grasp what comes into your reach and hold on to it. If you are dragged from the building: disconnect the reserve static line and cut away the main parachute with the cutaway handle. (If you don't disconnect the reserve static line your reserve parachute is deployed when you use the cutaway handle).
- Trees: cover your face with your arms, keep your hands in your arm pits to cover your main arteries. Keep your legs together with your feet crossed. Keep control of your steering toggles as much as you can. You might fall out of the tree so keep your landing posture until you are in the tree and not moving anymore. Keep hanging in the tree until help gets you out.
- Power lines: always steer away from them, they are life threatening.
- Water: make a normal landing into the water. Disconnect the reserve static line and cut away the main parachute with the cutaway handle after your landing. Swim away from the parachute so you will not be trapped in suspension lines.
- Barbed wire: has no significant strength. Be fearless of it and place your feet close together against it. Under no circumstance, you will make an abrupt



steering movement to avoid it (remember your landing priorities). Remember to flare!

### **TO REMEMBER**

If you are coming to jump you must bring four mandatory documents:

- your valid medical statement clearing you to jump
- your log book where you keep track of your jumps and the periodic check of the reserve procedure “harnastest”
- your jumping license “springbewijs”
- your KNVvL membership card and proof of insurance.

Included in the basic training is a written exam and your first “harnastest”, including the check of the reserve procedure. The periodic check of the reserve procedure must have been done within a maximum of three months before your next jump (regardless of the number of jumps you have made in this three-month period). The instructor will note the date and you passing the harnastest in your log book.