

# EQUIPMENT

## *maintenance, packing and the gear check*

**O**ne of the best ways to keep yourself safe is to be good to your gear. Regular maintenance, clean pack jobs and pre-jump gear checks can save you a lot of trouble in the air. If you know your gear's in good shape, you can relax and enjoy the skydive!

### **maintenance**

#### **MAIN**

- pilot chute handle secure
- pilot chute fabric crisp and seams intact
- pin smooth and securely attached to bridle
- pilot chute collapsing system in good repair
- top grommet on deployment bag not warped
- stitches holding stow band loops not raveled
- pilot chute attachment point to canopy secure
- no fabric damage or broken stitching
- stitching on line attachment points and cascades secure
- no damage to lines, especially steering lines at cascades and brake locking loops
- no damage to slider material
- slider grommets not warped, bent or worn through
- no corroded or cracked metal connector links; snug; connector link protectors intact
- cloth connector links correctly assembled and not worn
- no rust on rings or other hardware on risers

#### **BRAKE SYSTEM**

- no corrosion on keeper ring
- stitching and webbing not worn
- no strains on elastic keeper loops
- toggles securely knotted
- velcro on toggles not worn

#### **HARNESS AND CONTAINER**

- no fabric damage or broken stitching
- all velcro still clings (riser covers, riser retainers, main pin cover flaps, leg strap bridle mating)
- grommets not deformed
- remove cutaway cables and wipe clean (especially with hard cable housings)
- reserve cable swage (ball on end of cable) secure
- pilot chute pouch undamaged; elastic good
- replace main closing loop (make extras while you're at it)
- reserve closing loop not worn; rigger should replace

### **packing**

- brakes stowed
- lines straight and untwisted
- lines remain in center of canopy throughout pack job (especially D and steering lines)
- slider all the way up to stops and positioned correctly
- rubber bands in good condition and the correct size
- line stows the correct length and tight
- enough line slack between bag and risers
- closing loop in good condition and the correct length
- washer present at knot of closing loop
- collapsible pilot chute cocked
- pilot chute bridle routed correctly
- slack in bridle above pin so pin extracts freely
- pilot chute folded correctly (per manufacturer's instructions)

### **the gear check**

#### **BACK TO FRONT, TOP TO BOTTOM**

#### **RESERVE**

- AAD on
- reserve pin in place
- closing loop in good condition
- seal and thread intact
- ripcord moves freely through housing
- RSL routed correctly

#### **MAIN**

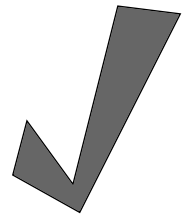
- main pin seated in closing loop
- closing loop in good condition
- pilot chute bridle routed correctly
- pilot chute securely in pocket
- pilot chute handle accessible
- pilot chute cocked (check window)
- leg straps and harness not twisted

#### **3-RING RELEASE**

- rings free of corrosion
- only one ring through another
- loop through smallest ring only
- loop in good condition
- loop goes through riser and then grommet at end of cable housing; then cable goes through the loop

#### **HARNESS AND EXTRAS**

- chest strap threaded correctly through hardware
- ripcord and cutaway handles in view, secure and easily accessible
- B-12 leg strap snaps closed all the way
- leg straps threaded correctly through hardware and cinched tightly
- all excess webbing stowed
- altimeter zeroed
- audible altimeter set



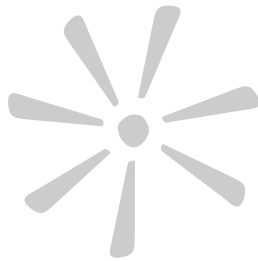
**KNOW THY GEAR!**

# AIRPLANES

*getting on, getting up and getting out*

**E**very jump begins with the ride to altitude. This ride can be a time to think about the skydive or to help the pilot scan for other aircraft. By being prepared—from the time you board until it's time to exit—you can help your pilot make the ride safe and easy.

**Watch out for the spinning propeller!**



## loading

### ARE YOU ...

- approaching the airplane from behind?
- approaching a helicopter from the front?
- geared up and checked before boarding?
- protecting all your handles as you enter the aircraft and following procedures to avoid an accidental deployment?
- boarding in opposite order of exit?
- arranging groups to account for differing amounts of freefall drift?

## takeoff

- Have your seat belt fastened.
- Look around and make sure everyone has their seat belts fastened.
- Put on and fasten your helmet.
- If you have a camera helmet, strap it on or strap it in—it can become a dangerous projectile.

## you and your pilot

### A SAFE PILOT WILL:

- conduct a thorough pre-flight inspection of the aircraft at the start of the day
- ensure enough fuel for the flight
- know the current local weather and forecast
- have a seat belt for you and ask you to use it
- ensure that the aircraft is within weight and balance limitations
- use a runway of sufficient length for the aircraft

### A SKYDIVER MAY ASK THE PILOT:

- Are you licensed, rated and current for the flight?
- Have you checked the aircraft's weight and balance?
- Is the aircraft in compliance with an approved maintenance program?
- Does the weather allow for visual flight rules?

### A SKYDIVER MAY NOT ASK THE PILOT:

- to fly through clouds or reduced visibility
- to allow a jump through or near clouds
- to perform aerobatics or abrupt maneuvers
- to place the importance of the jump over the safety of the flight
- to carry more people than weight and balance and the number of seat belts allow
- to fly the aircraft outside of its center of gravity limits

**Don't Panic!**

## in an emergency

- Don't panic.
- Listen to the pilot; follow his instructions (as relayed by the jumpmaster).
- Try not to shift or move around in the airplane—the pilot's already working hard to control it.
- If you're landing with the plane, make sure your seat belt is fastened.
- Put on your helmet.
- Once the plane has landed, get out and away from it if you're able.
- Do not turn off any of the airplane's electrical switches; this could cause a spark and ignite fuel.

*Is your seat belt fastened?*

# THE SKYDIVE

*falling, fleeing and landing*

**H**ere's what it's all about! This is the fun part. But it can only be fun if it's safe. Review the basics to stay in top form. From the time you leave the airplane until the time you land on the ground, your life is in your hands. Protect it.

→ PULL  
→ PULL *at the right altitude*  
→ PULL *stable*  
→ PULL.

## exiting

- Agree on the spot and exit order before getting on the plane. Slow fallers earlier; high openers later.
- Pick a jump run that will work for all the groups on the load. Crosswind or diagonal jump runs sometimes work best.
- Leave more separation between groups when the upper winds are stronger.
- Groups should exit in logical order (although the horizontal, over-the-ground distance between groups is more important than exit order).
- For rear-door aircraft, let the pilot know the number of people who will exit together. Too many people in the door can stall the airplane.

## breakoff

### How HIGH?

Plan breakoff according to jumper experience and the size and type of dive. Break by 1,500 feet above the highest planned deployment (not counting camera flyers) for groups of up to five; and 2,000 feet above for six or more.

### EXCEPTIONS:

Add to the breakoff altitude for a variety of circumstances, including lower experience, bigger groups, faster canopies, slower opening canopies, unfamiliar landing area, faster freefall speeds and freefall toys (skyboards, tubes, hoops, flags, smoke, etc.).

## tracking

### THE GOAL:

You want to fly as far as you can in one direction away from the formation while conserving as much altitude as possible.

- Turn and face outward from the center.
- Extend your legs and lock your knees for propulsion while conserving altitude with your upper torso (slow fall position). Keep your knees about six inches apart.
- Extend your arms out 20-60 degrees from your hips while extending your shoulders forward and down.
- Bend forward at the waist slightly while pushing your thighs and shins down.
- Track in a straight line until you are clear or must open. Look ahead, down and to the sides.
- Slow down and wave off before you open. Check above.

## deployment

- Tell other groups if you plan to pull high.
- Look for potential traffic problems while your canopy opens.
- Once you're open, check for other canopies.
- If you're on a collision course, be ready to get out of the way as soon as you're fully open. Steer away with your rear riser. If it's a head-on, turn right.

## drills for fun and safety

### DRILL #1: RISER TURNS (ABOVE 2,500 FEET)

Once you're open, leave your toggles stowed. Practice turning with your rear and front risers. Try to see if you can control the canopy simply by shifting your weight in the harness. Practice flaring with your rear risers with the toggles still stowed. Do this same series of exercises with one brake released, simulating a broken steering line.

### DRILL #2: FLARES (ABOVE 2,500 FEET)

Once again, leave your brakes stowed. Pull down on the rear risers as quickly and as far as you can until the canopy starts to

stall. Pull down on the rear risers smoothly and evenly, inches at a time. The canopy will eventually stall, but much more gently. Find the stall point by seeing how far you can pull before the canopy begins to stall.

Repeat the riser drills with both brakes unstowed. Then, repeat the drills with the steering lines.

### DRILL #3: FINDING YOUR HANDLES

If clear below you and all around, start spiraling down. Turn carefully but quickly in both directions. Now try to find both of your emergency handles. Could you get to them easily?

# EMERGENCIES

*malfunctions, collisions and other dangers*

*Sometimes, no matter how well you prepare, things go wrong. If you have a natural reaction for every mishap, you'll be a safer skydiver. But natural reactions come only with consistent practice. And you just can't practice too much.*

## partial malfunctions

### DEFINITION:

*Any malfunction accompanied by a full or partial deployment.*

### EXAMPLES

lineover, streamer, bag lock, slider up, broken lines, horse-shoe, severe line twists, big tears in the fabric, broken or disconnected riser

### PROCEDURES:

- Arch.
- Look at the riser release handle.
- Reach for the riser release handle.
- Look at the reserve ripcord handle before cutting away.
- Pull the release handle, throw it away and clear the cables while still looking at the reserve ripcord handle.
- Reach for the reserve ripcord handle with both hands.
- Pull the reserve ripcord.
- Check canopy.

## total malfunctions

### DEFINITION:

*Any malfunction in which nothing is deploying.*

### EXAMPLES:

lost or missing deployment handle, hard or impossible pull, container lock, pilot chute in tow\*

### PROCEDURES:

- Arch.
- Look at the reserve ripcord handle.
- Reach for the reserve ripcord handle with both hands.
- Pull the reserve ripcord and clear the cable.
- Check canopy.

*\* Note: Pulling the reserve in this case may result in double deployment and two canopies out. Some jumpers prefer to cut away first for this malfunction. Decide before going up.*

## two canopies out

- Find the stable (natural) configuration.
- If in a side-by-side or downplane, disconnect the RSL (if time) cut away.
- If in a biplane, steer with the dominant (larger) canopy in the front. (Leave the other canopy's brakes stowed.)
- If entangled, try to clear and control to the ground.
- Land two canopies without flaring.
- Prepare to do a PLF.

## canopy collisions

- If a canopy collision is unavoidable, try to miss the other skydiver's body.
- Spread as wide as possible to distribute the force of the collision and to avoid going between lines.
- Protect your handles.
- Have a hook knife accessible.
- Try to communicate with the other jumper right away, before you start pulling handles or cutting lines.
- Consider disconnecting your RSL before cutting away from an entanglement.

## can you cut away?

### TRY THIS TEST ON YOUR RIG

- Hang your risers from a very strong point overhead.
- While you're in the harness, have two people hold on to it, pulling down to increase the tension on the 3-ring release. (A padded mat underneath would be a good idea.)
- Cut away the risers. (Be sure to disconnect your RSL before you do this exercise.)

### DID IT WORK?

## PRACTICE . . .

## . . . PRACTICE

## practice & review

### WHEN:

- after a long layoff
- before exit
- on USPA Safety Day
- often

### WHERE:

- in a training harness
- at your rigger's house at repack time
- in your head
- in the air after deployment

# UNDER CANOPY

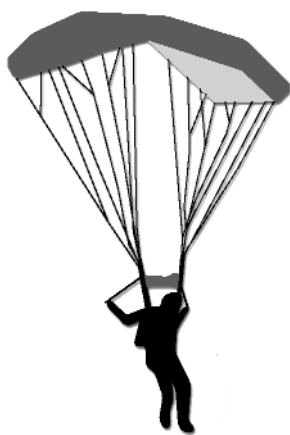
*planning, avoidance and landing*

*Just because your parachute opened doesn't mean you're safe yet. Today's faster canopy speeds, different flying styles and smaller landing areas mean you need to make a canopy descent plan and follow it.*

## plan the descent

### BEFORE YOU LEAVE THE GROUND:

- Plan a final approach that will steer you clear of obstacles, turbulence and crowds.
- Plan the best direction for a base leg that will provide you the most alternatives in case you end up too low or too high on the turn to final.
- Plan an altitude and position to begin your downwind approach.
- Know the altitude at which you will pick an alternate landing area and the good and bad areas near your DZ.



## steer clear

### BACK RISER DEFENSE

As soon as your canopy begins to inflate, use your back risers to steer clear of other jumpers in your area. Once you are headed in a safe direction, release your brakes and adjust your canopy as necessary (slider, end cells, etc.). With line twist, shout to others and keep track of altitude.

## under canopy

### UP HIGH

- Once you're open and clear of traffic, do a control check.
- Always look before you turn.
- Minimize turns in traffic.
- Yield the right of way to lower canopies.

### FINAL APPROACH

- Avoid spiraling down into earlier groups' traffic.
- Follow the landing pattern. (If in doubt, follow the first jumpers to land.)
- On no-wind days, land in the direction of the first jumper.
- When on an unfamiliar DZ or at a boogie, avoid high-speed landings.

## know your canopy?

### HOW FAR WILL YOUR CANOPY FLY:

- from 300 feet to landing in no wind?
- from 300 feet to landing against a ten-mph wind?
- from 600 feet to 300 feet perpendicular to a ten-mph wind (base leg)?
- downwind from 1,000 feet to 600 feet in a ten-mph wind?
- how about all these in a 15-mph wind?

What brake or back riser position will get you the flattest glide for returning from a bad spot?

How fast can you turn your canopy without starting a line twist?

If you were to open with a disabled brake line, would you cut away or land using back risers to flare?

### HOW MUCH ALTITUDE DO YOU LOSE:

- during a 180-degree toggle turn? 360-degree?
- from a 90-degree front riser turn? 180-degree? 360-degree?

Can you even use your front risers?

What is your best brake position for a flat, altitude-conserving toggle turn?

## landing emergencies

### KNOW HOW TO LAND IN OR ON:

- power lines
  - trees
  - water
  - buildings
- Consult a USPA Instructor for a review. Practice in a training harness and what you can under canopy.

## plan & practice

Always pick a place to land before you jump and try to land there exactly.

Use every opportunity to learn your canopy's controls and capabilities.