



Deutscher Fallschirmsportverband e.V.  
Deutscher Aero Club e.V.



# INSTRUCTOR HAND BOOK SPORT PARACHUTING

## AHB PART ONE

(version 9)

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## Preface

The aim of the Instructor Hand Book (Ausbildungshandbuch – “AHB”) issued by Associations authorised by 31c of the LuftVG (Deutscher Fallschirmsportverband e.V. – “DFV” and Deutscher Aero Club e.V. – “DAeC”, together referred to as the “Authorised Associations”) is to be an up to date working document for all parachutists involved in training student parachutists. It is also anticipated that the publication of requirements by the Authorised Associations will result in consistent training standards.

The DFV and the Luftsportgeräte-Büro (LSG-B) of the DAeC consider this AHB Part I as part of the Approval to Instruct and a foundation for professional initial qualification and continuous development of parachute instructors.

This book version is an extensive collection of up-to-date knowledge about instructor training as well as the legislation, regulations and guidelines on which it is based. It is also a flexible instructional method which makes sport parachuting accessible to new entrants into the sport. The AHB recognises the modern student, who would like to achieve results in a short period of time and does not always have the aim of becoming a licensed sport parachutist or even regular participant in the sport.

In general, the AHB Part I enables all Instructors to conduct instructional courses which are learning goal focused. It tends towards a high safety standard and provides information for the preparation for the licence examination and beyond. At the same time, the AHB also allows the TEs freedom to conduct their courses in their own style and only prescribes definitive actions for the safety related elements.

Ultimately, the diligence and care of the instructors and Parachute Training Organisations will dictate the quality skydiver instruction in Germany. The current AHB is intended to contribute to the technical elements of quality assurance.

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Jürgen Mühling

### Notes:

Since 2001 the AHB uses predominantly male pronouns. This is solely for ease of reading. It is intended to address all genders equally.

The authors of the AHB are grateful for the suggestions received in relation to form and content of this volume.

Every instructor is encouraged to contribute to this handbook so that it can continue to meet its objective: A working document for practical application, based on practical experience.

Should any changes to this instructors’ handbook be necessary, the relevant page will be revised and reissued.



Deutscher Fallschirmsportverband e.V.  
Deutscher Aero Club e.V.



**The current valid version is located in the Download area of the websites of the Authorised Associations.**



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# Chapter 1

# Administration



## 1. Administration

### 1.1 Delivery receipt by the Chief Instructor

The Chief Instructor must keep an archive copy of the AHB in which the instructors sign to acknowledge receipt and understanding of the content of the AHB as well as AHB Part II, the AFF-AHB Parts I and II and the THB Parts I and II as relevant.

Family Name	First name	Date	Signature





## 1.2 Approval to Instruct

A copy of the Approval to Instruct should be attached here

## 1.3 Dropzone rules

The current rules of the dropzone should be attached here

- House / site Rules
- Airfield Use Rules (Flugplatz Benutzungsordnung – FBO) with:
  - ⇒ Airfield traffic regulations
  - ⇒ Safety regulations
  - ⇒ Emergency Plan

**Note:** The FBO implements all the requirements set by the local state aviation authorities which permit sport parachuting to take place at the airfield in question.

## 1.4 Fire Brigade and Ambulance Plan

The current Fire Brigade and Ambulance Plan to be attached here

- Fire Protection Regulation with
  - ⇒ Fire Prevention
  - ⇒ Escape routes
  - ⇒ Fire alert
  - ⇒ Sounding the alarm
  - ⇒ Extinguishing plan
- Ambulance Plan (see FBO) with
  - ⇒ Emergency call
  - ⇒ Nearest Emergency Services
  - ⇒ Search & rescue control centre

## 1.5 Air Traffic Control (Deutsche Flugsicherungsgesellschaft – DFS) regulations

The air traffic control regulations issued by DFS should be attached here

- Operating Rules of the DFS for the conduct of sport parachuting
- Requirements for air traffic control clearance



## 1.6 Miscellaneous

Attach any other local regulations or agreement relevant to instruction here

- Airfield operator approval for sport parachuting and instruction in sport parachuting
- Special approvals from the Authorised Associations
  - o Off-landing permissions
  - o Permitted exceptions to the AHB

## 1.7 Insurance documents

**Mandatory:** The following insurances must be held by the PTO to conduct parachute instruction within Germany:

- Third-party liability insurance as owner of sport parachute equipment
  - o Minimum of EUR 1.5 million cover for bodily injury and property damage

**Voluntary:** The following additional voluntary insurances can be held:

- Individual third-party liability insurances for instructors
  - o Minimum of EUR € 1.5 million cover for bodily injury and property damage
- Non-individual aviation accident insurance for student harness-container systems (Passenger seat insurance or “Hanging insurance”):
  - o Sum insured in the event of death: EUR 2,500 and
  - o Sum insured in the event of disability: EUR 5,000
- Individual third-party liability insurance for packing of main and reserve canopies,
  - o Minimum of EUR € 1.5 million cover for bodily injury and property damage

### **Optional: Third-party liability insurance for Parachute Training Organisations**

Parachute training organisations also have the option to take out holder third-party insurance for the harness-container systems used in the instruction, a third-party liability insurance for instructors in the PTO and liability insurance for the packers used in the PTO. Individual adaptations and extensions are possible.



### **Note regarding insurances:**

#### **Owner/equipment third-party liability**

Paragraphs 33 onwards of the Aviation Act determine that the keeper of an aircraft is liable up to the sum set out in para 37 of the Aviation Act if people or goods which are not being transported by said aircraft are damaged. A liability arises from that for keepers of student parachute systems for which third-party liability insurance must be taken out. Although the legally required sum insured is EUR 1 million, the sum insured on policies is usually EUR 1.5 million to permit some flexibility. The relevant insurance documentation for a parachute system must be available for inspection at the dropzone it is being used at. Every Instructor has the right to see this documentation.

#### **Accident insurance**

The association offers all members with an instructional rating the ability to take out seat-accident-insurance ("hanging" insurance) for student parachute systems. This insurance only covers the events of disability or death.

A valid seat-accident-insurance can be evidenced by a copy of the insurance certificate and the appropriate payment remittance confirmation.

If the student has taken out personal accident insurance, this insurance policy must be evidenced.

#### **Voluntary insurances**

##### 1. For all jumpers

Accident insurance - death, disability and per diem allowances (choice of sum insured).

##### 2. For tandem parachute systems

Seat-accident-insurance for the passenger and Tandem pilot - death and disability (choice of sum insured).

##### 3. For Skydiving Instructors

Instructor Liability Insurance for claims of damages to a third party resulting from wrongful conduct by an instructor e.g. students.

##### 4. For packing

Third Party Liability Insurance for claims of damages to a third party resulting from wrongful conduct by a packer e.g. skydivers.

#### **Air carrier liability insurance ("passenger liability").**

The legal requirements regarding type and extent of required insurances and voluntary insurances are governed in the Tandem Hand Book – THB.



## 1.8 Emergency Telephone numbers

Action	Who?	When?	Phone No	Called by?
1. Telephone	Stadtwerke or Elektrizitätswerk (Electricity provider)	If someone has flown into/landed on power lines.		Ground staff
2. Telephone	Feuerwehr/ Fire Brigade	If the aircraft crashes.	112	Ground staff
3. Telephone	Notarzt/ Emergency doctor	If someone is badly injured.	112	Ground staff
4. Telephone	Rettungshelikopter SAR-Leitstelle/ Med-evac helicopter, Search & rescue control centre	If back injuries are suspected.	112 (0251) 135757 VHF Frequency 123,1 MHz	Ground staff
5. Telephone	Rettungswagen / Krankenwagen / Ambulance	If Med-evac/air ambulance is not available.	112	Ground staff
6. Telephone	Polizei/ Police	If the aircraft crashes or the doctor declares a person dead.	110	Ground staff
7. Telephone	Verband und Bundesstelle für Flugunfalluntersuchungen (BFU) air accident investigation office	If someone was fatally injured.	(05 31) Tel 3548 0 Fax 3548 246	Ground staff
8. Telephone	Contracted air carrier	If someone is badly injured.		You or your delegate
9. Telephone	Tandemverantwortlicher	If someone is badly injured.		You or your delegate
10. send FAX	Insurance provider(s)	If the doctor declares a person dead.		Ground staff/ See example
11. Report incident *	DFV / DAeC	If there are injuries or serious damage to property.		You or your delegate as per form
12. Report incident *	Insurance provider(s)	If there are injuries or serious damage to property.		You or your delegate as per form



## Chapter 2

# Organisation of the Parachute Training Organisation



## 2. Organisation of the Parachute Training Organisation

### 2.1 The Parachute Training Organisation

#### 2.1.1 Approved Parachute Training Organisation

The board of a club (German legal entity eingetragener Verein – e.V.) is responsible for the club's Parachute Training Organisation (“PTO”) (non-commercial instruction). They are responsible for compliance with the conditions of the Approval to Instruct and the legal and insurance related requirements. The same responsibilities lie with the CEO or owner of a commercial PTO.

#### 2.1.2 Instruction of Sport Parachutists

The PTO is responsible for instructing sport parachutists in accordance with the Approval to Instruct issued by the Authorised Associations and the information in the most current version of the Instructor Hand Book.

The person who has been granted the Approval to Instruct is responsible for ensuring that only those aircraft are used for sport parachuting which are licensed to do so and have the necessary additional equipment fitted.

Furthermore, the person who has been granted the Approval to Instruct has a duty of care to ensure that only suitable pilots are used. They must ensure that the pilot understands the technique of dropping parachutists including emergency situations such as a hang-up or the activation of an AAD in an aircraft sufficiently .

#### 2.1.3 Management of the PTO

The board can delegate the responsibilities of the PTO to a suitable Chief Instructor (“CI”). The volunteer and paid instructors report into the Chief Instructor.

To be a Chief Instructor, an individual must hold an instructor rating and have at least three years practical instructing experience. In pertinent circumstances the Authorised Association can allow individual exceptions. Changing the Chief Instructor requires permission from the relevant Authorised Association. Their responsibilities are detailed in the working instructions for Chief Instructors.

PTOs which use the AFF instructional method also need a person responsible for the AFF instruction. The person responsible for AFF instruction must be a rated AFF Instructor and have at least three years practical experience as an instructor and one year’s experience as an AFF Instructor.

#### 2.1.4 The instructors

The selection and utilisation of instructors at the PTO is the responsibility of the person holding the Approval to Instruct or more precisely, their Chief Instructor. The instructors assigned by the Chief Instructor in turn are responsible for the instruction and the direct supervision of the student.

Only those instructors can be used, who meet the legal requirements of the Federal Republic of Germany. A “Rating to Instruct Sport Parachutists” must be present and valid.

Furthermore, for the instruction of Sport Parachutists under the AFF Method, a valid “Rating to Instruct Sport Parachutists with AFF qualification” must be present.

The responsibilities are detailed in the working instructions for Instructors.



### 2.1.5 Use of dropzones

Instruction of Sport Parachutists may only take place at designated dropzones, which must meet the following requirements:

- Approved as landing sites for parachutists
- Approval of the airfield operator for instructional descents has been granted
- Size and freedom from obstacles are as follows: Instruction with RAM-air main canopies:
  - ⇒ In landing direction 100m before and after the marked landing point
  - ⇒ Instruction with RAM-air reserve canopies:                      In landing direction 100m before and after the marked landing point
  - ⇒ Instruction with round main canopies:                              200m radius around the marked landing point
  - ⇒ Instruction with round reserve canopies:                              100m radius around the marked landing point

Obstacle definition (for the purposes of this requirement the following are classed as obstacles):

- Electricity and telephone cables
- Antennas
- Towers and wind turbines
- Buildings
- Water, streams with a depth of more than 30cm
- Ditches with a depth of more than 0.5m
- Traffic routes of any kind (streets, train tracks, waterways, taxi-ways)
- Vehicles and car parks
- Rows of trees and avenues
- Groups of trees larger than 3,000sqm.
- Significant ground unevenness (mounds, dips)

**Note:** *If there is water in which drowning is possible in sufficient proximity that in the event of unfortunate circumstances (taking into consideration the equipment being used for main and reserve canopies and exit or steering errors) landing is possible in this water, the holder of the Approval to Instruct must provide suitable safety measures (e.g. keeping a boat and staff on standby during training operations or requiring floatation devices to be worn etc.) so that the presence of the water does not add to the danger to students.*



#### 2.1.6 Fitness certificate

Every student is required to present a fitness certificate (from a GP, sports or flight doctor). The fitness certificate can have up to 3 years validity. Although there is no prescribed format, the Authorised Associations provide a template in the download areas of their websites. At the start of instruction the fitness certification must not be older than 1 year.

#### 2.1.7 Information on and agreement to liability cover

The Parachute Training Organisation must provide the student with information on the type and cover of liability insurance taken out by the PTO. Providing this information should be part of the application to join the club or the contract for Instruction and receipt of the information must be confirmed by the student's signature.

The student must understand the general risks involved in sport parachuting and what options for insurance cover are available.

It is recommended that the PTO asks each student or club member to sign a copy of their liability agreement (see template). This can also be part of the application to join or Contract for Instruction.

#### 2.1.8 Instruction at dropzones outside Germany

In principle, the association has no objections if part of the instruction to gain a German parachutists licence takes place abroad. However, this part must remain in accordance with the German regulations.

Amongst others, this means that for training abroad

- An Approval to Instruct in accordance with para. 28 of the Aviation Personnel Regulation (Verordnung über Luftfahrtpersonal – LuftPersV) must be in place and instruction must only be within its parameters.
- The rules and obligations of the local airfield operation regulation must be met as well as the individual contractual agreements (e.g. the use of floatation devices).
- A rated instructor is named, who must be present at the site of instruction.
- The agreement/approval of the local foreign aviation authority or more precisely the relevant Competent Authority is in place permitting/allowing sports parachuting instruction.
- Approval of the airfield owner is in place.
- When using foreign instructors, they must hold German instructional permissions. The term-limited recognition of foreign permissions is governed elsewhere.
- When using foreign equipment, the local airworthiness requirements are recognised by the DFV or DAeC (e.g. TSO C23/c-f).
- When using foreign equipment, the German regulations and manufacturer instructions (e.g. Safety or technical notices), the measures the Authorised Associations per § 25 LuftBO and specialised provisions must be considered. For example:





- ⇒ Holder liability insurance is in place for all Student and Tandem harness-container systems
  - Where appropriate serial numbers lodged with the insurers
- ⇒ Javelin containers only with hard housing
- ⇒ AFF instruction only with an electronic AAD
- ⇒ AFF instruction with throw-out system needs the relevant Main Override Device
- ⇒ (Note the special provisions in the AFF AHB)
- ⇒ No instructor-assisted-deployment in conventional/static line instruction
- ⇒ no descents with material banned in Germany
- ⇒ etc.

### 2.1.9 List of all Approved Parachute Training Organisations

## 2.2 Equipment requirements

All equipment used in student instruction (harness-container systems, main canopies, reserve canopies, AAD) must have a valid inspection certified in accordance with the LuftGerPV and must be maintained by suitably qualified and approved personnel (reserve repacks, maintenance of AADs etc).

Both RAM-air and round canopies can be used for student training (both main and reserve canopies). For AFF instruction, further information is provided in the AFF AHB.

The canopies in use must be suitable as student canopies in terms of their size and maximum weight limitation. Reasonable wing loadings should be applied throughout the training.

### **Furthermore, the following points are obligatory for instruction:**

- Standard location of handles when using dual container systems
- Use of a functioning and operational AAD for the reserve canopy (exception requiring approval: AAD for main canopy)
- Use of a removable reserve static line (RSL) on dual container systems (exception in accordance with safety regulations point -Other- are possible at the discretion of the Chief Instructor).
- Deployment of student main canopies only with a static line
- Manual opening of student mains in conventional instruction using a spring-loaded pilot chute and ripcord (at least until the student has qualification in other opening systems). During AFF instruction throw-out pilot chutes can be used (see AFF AHB - technical requirements)
- Use of hard helmets by students
- Use of an altimeter by each student
- Use of suitable jump clothing
- Use of suitable footwear without any lacing hooks (if lacing hooks cannot be avoided, they must be sufficiently taped over)
- Use of untinted goggles
- Observation of regulations (e.g. floatation devices, signalling equipment, oxygen etc.)



- The maximum suspension weights indicated by the manufacturers of the parachuting equipment must not be exceeded (e.g. Harness-container usually 115kg total suspended weight)

**The following are considered sensible when instructing students:**

- Use of radios by students (at the discretion of the instructor) to support the canopy flight to reduce the risk of steering issues; alternatively flag signals or a megaphone could be used
- Thin, close fitting gloves as appropriate to the weather (cold or wet clammy weather)
- RAM air reserve canopy
- Possibly an audible altimeter for students in addition to the visual altimeter

**Addition for AFF instruction:**

- Only approved electronic AADs may be used to activate the reserve canopy (e.g. CYPRES)
- The possibility to open the main canopy from the left hand instructor, a Main-Override-Device – MOD is required

**2.2.1 Safety regulations during instruction**

**2.2.1.1 General**

- All legal regulations and requirements which apply to jump operations must be acknowledged and applied. Airfield and organisational safety operation procedures must be followed during student instruction.
- The equipment used during student instruction must be permanently maintained to the required technical standard by a Fallschirmtechniker (Rigger) or Fallschirmwart (Basic rigger/advanced packer).
- The training aids used in the instruction of students must be maintained to such a technical standard that excludes the risk of injury to or death of the student.
- The airfield usage regulations (FBO) set out the obligatory separation distances for ground and jump instruction at the relevant airfield.
- Overall the instruction must be conducted in accordance with the governing regulations. Every measure relating to student safety arising from the regulation must be applied (e.g. behaviour when airside, approaching aircraft, no smoking areas around aircraft and fuel points, crossing the runways and taxiways, induction of accompanying person etc.).
- The Association sets the following ratios for student instruction:
  - Theory: maximum of 20 students per lesson/course
  - Practical: minimum of 1 instructor

**2.2.1.2 Students and qualified parachutists**

- Student skydivers must provide a medical fitness certificate. Pilots, which includes parachute pilots, both students and license holders, are forbidden under para. 4a of LuftVG to fly or operate an aircraft under the influence of alcohol or other psychoactive substances. The prohibition shall apply to medicines only to the extent that, because of their narcotic, mind-altering or stimulant effects, they are likely to impair or preclude the fitness for duty of pilots,



unless it can be shown by a medical certificate from an aero-medical expert or an aero-medical centre that such an effect is not to be feared.

- The fitness certificate or endorsement on the license in relation to glasses/contact lenses or diabetes must be considered.
- Consent from legal guardians must be obtained for minors before the start of the instruction.
- Maintaining a logbook is obligatory. To improve credibility of the entries, it is strongly recommended for logbook entries to be signed by the PTO Chief Instructor or more precisely, their delegate.
- Parachutists with fewer than 12 jumps in the last 12 month must be supervised by an instructor.
- Students, who have not jumped for over a certain time period fall under then refresher conditions in the current status tables.
- Instruction of a student should be aborted if they are clearly unable to deal with the pressures of the sport.

#### 2.2.1.3 Equipment

- For the dispatch of static-line students a suitable airworthy strong point must be present to which the static-line can be attached.
- The parachute harness/container system may only be used within the performance and operational limits set by the manufacturer. The weight of the fully kitted out student must not exceed the maximum suspended weight of the harness/container, the main or the reserve canopy (the lowest value applies) as relevant for student use. Variations in air pressure, temperature and altitude in relation to the international standard atmosphere must be taken into account to, if necessary, adjust the manufacturer's limits to the place of operation.
- Canopies may only be used which have been approved for student use by the manufacturers. Care must be taken to ensure a suitable total length of the steering lines.
- The fit of the harness container system must suit the body size of the student. This is particularly the case with small light people in relation to large harness container systems. In extreme cases students need to be turned down or a suitable alternative harness container system found.
- Every student harness container system must be fitted with an AAD to release the reserve canopy (exceptions can be applied for). Electronic AADs are considered particularly appropriate.
- Student instruction starting after 1 January 2002 is only permitted using RAM-Air main canopies. Student instruction on round canopies is only permitted on an exception basis.
- All necessary additional equipment provided must be in impeccable functioning condition.
- Note that students and jumpers may only use equipment (harness container systems, opening devices, canopies, AAD) which they have been briefed on.
- The first three static line descents made by students must use the direct-bag-method.
- Students and jumpers who want to jump a smaller canopy than before, should be briefed on the aerodynamics and the expected flight characteristics. The rate of downsizing or planform



change from the familiar model is at the instructor's discretion. Maximum suspended weight limits issued by manufacturers and the AHB must not be exceeded.

#### 2.2.1.4 Procedures

- After completion of the first jump course students should not receive further theoretical instruction (e.g. Theory on licenses) until they have completed their first descent. Any further instruction which would support the first few jumps is however highly recommended.
- Decision altitude for emergency procedures lies at 500m/GND (1,500 ft AGL). The decision to activate the reserve lies solely with the student. Therefore there are no radio commands in relation to cutting away and deploying the reserve canopy.
- Every student should receive a jump assignment before getting onto the jump aircraft.
- The student should be informed of the colour of their main canopy.
- The student should receive a wind briefing suited to their experience and skill level before getting onto the jump aircraft. Possible radio support from the ground is only assistance and should not be considered "remote control".
- The highest permissible wind speed on the ground is 8m/s for all student descents. First and second jumps and check-out jumps after long lay-offs may only be conducted in wind speeds below 6m/s. The measurement of the average ground wind speeds is measured over a period of 10 minutes. The value must lie under the highest permissible ground wind speed. If the highest permissible ground wind speed was exceeded, the measurement cycle needs to be restarted. Measurement must take place at a suitable location with suitable equipment. The measurement device must be able to determine and display the average wind speed over the required time period, including gusts.
- Wind speeds up to 1500m/GND (4,500 ft AGL) must permit safe return to the landing area (taking into consideration possible steering errors).
- Every student must have a visual gear check by an instructor before getting onto the jump aircraft.
- Students may only jump with an operational AAD which is switched on.
- If using radios, their function and communication should be tested before departure. All possible commands and their meaning should be known to the student.
- Students may jump with audible altimeters. These should be set to provide a "late warning" to alert the student rather than being used as an alternative to the visual altimeter.
- For start and ascent up to 300m/GND (1,000 ft AGL) a student must wear a helmet.
- Radio contact must be possible to the jump aircraft during parachuting operations. The frequency generally used for parachutist dropping is 126.730.
- Students may only be dispatched by instructors. This rule remains applicable until the student has reached the skill level matching that of a passed level VII jump in the AFF programme.
- Minimum exit altitude of students is 1000m/GND (3,000 ft AGL). For mixed loads, the minimum exit altitude increases to 1500m/GND (4,500ft AGL).
- The attachments for static line students may not be unhooked between run-ins.
- Minimum exit altitude for freefall students is 1200m/GND (3,600 ft AGL).



- Cloud level may not be below 1300m/GND (4,000 ft AGL) when students are jumping.
- Lowest deployment altitude for student main canopies is at 1000 m/GMD (3,000 ft AGL).
- All student descents must be observed throughout the whole canopy flight.
- Minimum exit altitude for AFF students is 3000m/GND (9,000 ft AGL).
- If a parachutists spends more than 30 minutes above 3600m/MSL (11,000 ft MSL) they must use supplemental oxygen. The use of supplemental oxygen is generally advised for all parachutists when climbing above 4000m/GND (12,000 ft AGL).
- Between the last dummy pull (at least 3 times in succession) and the first freefall descent a full briefing in accordance with the AHB must be conducted.
- The last dummy pull and the first freefall must be within 36 hours of each other. If the last dummy pull is more than 36 ago, it must be repeated.
- If a student does not have a controlled freefall position after a few attempts, they should be moved back onto the static line or to AFF training or training in a vertical wind tunnel.
- Following a student in freefall is only be permitted if the requirements are met and approval has been given by the Chief Instructor. Accompanying students in freefall is only permitted for parachutists without an instructional rating if they do not interfere with the student either in practice, through briefing or guidance and the descent is supervised by an instructor.
- Students may only be accompanied in freefall by other parachutists if they have reached a skill level equivalent to a passed AFF level VII descent.
- Only instructors may radio students.
- The student landing area must be equipped with a clearly visible windsock to indicate wind direction or alternatively a landing direction indicator.
- Students who needed to activate their reserve canopy should aim to land at the designated student landing area. This is to be included in the instruction.
- If a student lands outside the designated landing area, their collection must be organised immediately. This is particularly so. if it is unclear whether the student is injured or not.
- If round canopies are used in student training, all students must be trained on the parachute landing fall ("PLF") and briefed on landing on or around obstacles. This is of particular importance during the briefing on Behaviour in Special Circumstances ("BiSC") and the practical PLF training or in hanging harnesses.

#### 2.2.1.5 *Miscellaneous*

- Advanced students can use their own, or other harness container systems if they have been approved by the Chief Instructor and have been briefed on them. Under no circumstances may systems be approved that do not have an electronic AAD and functioning RSL.
- Students under instruction on RAM-Air canopies may not conduct introduction jumps on round canopies. Licensed parachutists should be appropriately briefed and instructed. In particular, attention should be given to adequate Parachute Landing Fall training.
- Conversion from round to RAM-Air canopy: The conversion may not take place concurrent to the first three freefall descents, conversion to throw-out/pull-out pilot chute or reduction in exit altitude.



- A freefall student may only be briefed on changes in deployment (e.g. from/to throw-out or pull-out) once they have achieved the skill level equivalent to a passed AFF level VII descent.
- The briefing on a new deployment system must be conducted in accordance with AHB part I and at least two descents to consolidate the learning. Once a student has been converted to a new deployment method they should remain on the new method. Moving back and forth between deployment methods should be avoided. In exceptional circumstances it can be permitted, but great care should be taken.
- Instruction of a student skydiver must be conscientious and with care. In the event of obvious safety concerns or poor reliability the instruction should be halted or even ceased. Exclusion of instruction should be reported to the Authorised Associations.
- Students may not chew chewing gum or sweets or wear sunglasses on their descents. The provisions necessary for wearing dentures, contact lenses, jewellery and glasses should be briefed.
- AFF students should know the colour of the main canopy of at least one of their instructors.
- Students and jumpers jumping for the first time at a new dropzone should receive a dropzone briefing. In turn, dropzones are required to conduct such briefings for first-timers.
- Student descents are not permitted during air shows.
- Students are not permitted to conduct night descents.

#### *2.2.1.6 License test*

- There is no minimum number of jumps required to take the theory examination.
- To reach the practical requirements for a static-line licence, at least 6 static-line descents must have been conducted.
- To reach the practical requirements for a freefall licence, at least 23 freefall descents must have been conducted.

#### *2.2.1.7 Overall*

- The relevant instructor is responsible for supervision of their student(s). This responsibility cannot be shared.
- All Parachute Training Organisations are encouraged to hold practical safety seminars



## 2.3 Check-list for the holder of the approval to instruct

### 2.3.1 Parachute Training Organisation check-list

- Valid airfield registration 0
- Valid registration of jump aircraft 0
- Jump zone active (from -- to --) 0
- Valid instruction approval 0
- Necessary insurances in force 0
- Current instruction handbooks available 0
- Exception permissions present (if relevant):
  - ⇒ Off-airfield landing permission for student parachutists 0
  - ⇒ Other airfield relevant exceptions granted 0
  - ⇒ Approval for round canopy instruction 0
- Well visible windsock installed 0
- Landing area meets all requirements 0
- If necessary, landing direction indicator present (landing T/arrow) 0
- Marking of landing area (e.g. Landing cross) 0
- Student documentation current and complete 0
- Student documentation and administration correct 0
- Documentation and administration for exams correct 0
- Communication between manifest and aircraft assured 0
- Presence of:
  - ⇒ Anemometer 0
  - ⇒ Megaphone (optional to radios) 0
  - ⇒ Emergency telephone 0
  - ⇒ Emergency/evacuation plan 0
  - ⇒ Emergency telephone contact list 0
  - ⇒ First aid case 0
- Maintenance of:
  - ⇒ Inspection record for student equipment 0
  - ⇒ Instructor rota 0
  - ⇒ Summary of student skydivers' fitness certificates 0
- Classroom:
  - ⇒ Board with necessary accessories present 0
  - ⇒ Media equipment present 0
  - ⇒ Sufficient table and chairs available 0
- Training aids:
  - ⇒ Aircraft mock-up with landing mat 0
  - ⇒ Vertical hanging harness with trap door effect 0
  - ⇒ Horizontal freefall trainer:
    - Creepers or turntable 0
    - And/or (optional) horizontal hanging harness 0
  - ⇒ Standing harness 0



⇒ Training aids meet safety standards 0

### 2.3.2 Regulations check-list

- Check compliance with LuftVG 0
- Check compliance with airfield rules 0
- Check compliance with Approval to Instruct 0
- Check compliance with requirements issued by DFS on jump zone 0
- Check compliance with all requirements of AHB 0
- Ensure compliance with all safety notices 0
- All active instructors have signed to confirm their understanding of the AHB 0

### 2.3.3 Instruction plan check-list

- Confirm compliance with the Instruction Handbook:
  - ⇒ Instructors briefed on first jump courses 0
  - ⇒ Planned procedures comply with AHB 0
  - ⇒ Content up to date 0
  
- If needed, update paperwork for instruction:
  - ⇒ Contract for Instruction checked 0
  - ⇒ Information on insurance checked 0
  
- Check status of forms used in instruction:
  - ⇒ Fitness template 0
  - ⇒ Declaration before the first descent 0
  - ⇒ Examination papers 0
  - ⇒ Applications to join Association 0
  - ⇒ Applications for insurance 0

### 2.3.4 Instructional materials check-list

- Equipment appropriately maintained:
  - ⇒ Inspection certificates for student main canopies in date 0
  - ⇒ Inspection certificates for student reserve canopies in date 0
  - ⇒ Inspection certificates for student harness/containers in date 0
  - ⇒ Inspection certificates for AADs in date 0
  - ⇒ If appropriate AAD battery in date 0
  - ⇒ Reserve packing in time limit 0
  - ⇒ Ripcords ok 0
  - ⇒ Packing sacks / POD ok 0
  - ⇒ Spare pilot chutes OK 0
  - ⇒ Spare handles present 0
  - ⇒ Spare packing bungees available 0
  - ⇒ Spare closing loops available 0





- Instruction equipment:
  - ⇒ Sufficient jumpsuits available 0
  - ⇒ Sufficient helmets which fit available 0
  - ⇒ Sufficient altimeters available 0
  - ⇒ Radios available (optional) 0
  - ⇒ File detailing canopies and their colours 0
  - ⇒ Aerial photograph of dropzone available 0
  - ⇒ (If relevant) tools for hand signals available (flags etc.) 0
  
- Training aids:
  - ⇒ Appropriate training videos available 0
  - ⇒ Malfunction pictures for training available 0
  - ⇒ Wooden doll available 0
  - ⇒ Time simulator/visual altimeter available 0
  - ⇒ Mirror for freefall exercises available 0
  - ⇒ Training harness with emergency handles available 0

#### 2.3.5 Instructing staff check-list

- Chief instructors and instructors:
  - ⇒ Personally evaluated for competence 0
  - ⇒ License present 0
  - ⇒ Instructor rating registered and valid 0
  - ⇒ Instructor liability insurance present 0
  - ⇒ Copy documents are filed 0
  - ⇒ CI / Instructors briefed on PTO 0
  - ⇒ CI / Instructors briefed on airfield conditions 0
  - ⇒ CI / Instructors briefed on relevant student documentation 0
  - ⇒ CI / Instructors briefed on manifest 0
  - ⇒ CI / Instructors checked-in to PTO 0
  
- Riggers/basic riggers:
  - ⇒ Inspection and packing rating valid 0
  - ⇒ Riggers' liability insurance for inspection present 0
  - ⇒ Basic riggers' liability insurance for packing present 0
  
- Assisting staff:
  - ⇒ Personally assessed 0
  - ⇒ Hold necessary qualifications 0
  - ⇒ Briefed on conditions 0
  
- Tandem pilots being used in instruction:



- |   |   |
|---|---|
| ⇒ Personally assessed   | 0 |
| ⇒ License present   | 0 |
| ⇒ Passenger transport approval registered and valid                                     | 0 |
| ⇒ Necessary insurances in force   | 0 |
| ⇒ Briefed on tandem harness/container system to be used                                 | 0 |
| ⇒ 90-day-Rule compliant   | 0 |
| ⇒ Copy documents are filed  | 0 |
| ⇒ Briefed on procedures   | 0 |
| - Instructors to be used for AFF  |   |
| ⇒ The organisation of AFF instruction is the responsibility of the AFF Chief Instructor | 0 |

## 2.4 Development of a student

The legal minimum requirements in conjunction with the guidelines of the Association provide the following conditions for training student parachutists:

- The student parachutist must be at least 14 years old<sup>1</sup> (until the age of 18 agreement from the legal guardian(s) must be given).
- The student must be allocated a harness/container system which is suitable for their body size and weight.
- Student skydivers must present a medical fitness certificate issued within the last 12 months by a GP, sports doctor, or flight doctor.
- Ground school must take at least 1.5 days (see First Jump Course plan).
- Holder liability insurance with cover of at least €1.5m must be in place for all student harness/container systems used in instruction.
- Holder liability insurance with cover of at least €1.5m must be in place for all tandem harness/container systems and Tandem pilots involved in instruction.
- Air carrier liability insurance for Tandem pilots for all tandem harness/container systems used.
- The student and tandem harness/container systems must all have been type tested and individually tested and have currently valid airworthiness certificates.
- The student and tandem reserve canopies must have been packed by a licensed packer within the last 365 days.

Further recommendations:

- Instructor liability insurance held by all instructors involved in instructing.
- Seat-insurance relating to student parachutes in force for all student harness/container systems in use.
- Passenger liability and accident insurance for the jump aircraft.

<sup>1</sup>**Note:** A license can only be issued on reaching the age of 16!  
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To evidence the status of each student's training the PTO should maintain a student file. The student files must be retained for two years after completion of the training and be presented to the Authorised Associations on request. After these two years the file must be destroyed.

The cover of each file could, for example, be the course registration document completed by the course leader. The cover then also serves as a check list and evidence of the documents present for all instructors. The cover should include the following points:

- Family Name, First name of student
- Start of course per Contract for Instruction
- Date of birth / ID check
- Medical fitness certificate is present
- Contract for Instruction / membership is present
- Main jump log book is present
- Guardian's consent in the case of minors (if relevant)
- Insurance briefing has been conducted and signed for
- Log book was handed to the student

Before the first descent the execution of the following points should also be confirmed on the cover sheet:

- First jump course conducted and completed in accordance with the regulations of the Association and the Parachute Training Organisation
- Safety test: Theory passed
- Safety test: Practical passed

Under "Other" any notes about the student should be made. For example, whether the student needs to wear glasses/contact lenses. Finally, place, date and signature of the course leader.

The PTO must at all times be able access the student documentation for all their student skydivers:

- Contract for Instruction and/or club membership
- Fitness certificate
- Main jump log book
- Theory safety test
- Individual statement before the first descent
- Log book (could also be maintained by the student)

In the Contract for Instruction and/or club membership the following points should be noted:

- Address of the student (place of residence)
- Date of birth (minimum age!)
- Extent of the instruction (what it covers)
- Refresh periods (in accordance with status tables)
- Insurance briefing (statutory health insurance, liability insurance, accident insurance)
- Liability agreement



- Participation conditions (prices, duration of contract, excess in the event of damage to equipment, exclusion)

The Contract for Instruction should be signed by the skydiving student or their legal guardian and countersigned by the PTO. Alternatively the consent form from the legal guardian of a minor can be kept once it has been checked for completeness and accuracy by the Chief Instructor.

Once the student has been inducted into the PTO by means of registration and the instruction contract, their main jump log book is allocated (which can take the form of a training record card or file). The main jump log book should reflect the current training level of the student at all times. In the front of the main jump log book the following should be included:

Personal data of the student:	Address, date of birth, telephone number, email address, emergency contact details, height and weight
Course data:	Start of training, expiry date of medical fitness certificate, type of training (conventional/AFF)
Liability agreement:	(Wet ink signature or that of legal guardian)
Theory training:	Induction, parachute equipment, aerodynamics, steering a canopy, body position, behaviour in special circumstances part 1, safety test
Practical training:	Parachute Landing Fall (PLF), behaviour in special circumstances part 2, exit practice, jump briefing, safety test
Refreshers:	(See status tables)
Continuing training:	Freefall brief, turns, back/front loops, AFF briefing, reduced altitude descents 1 - 2 - 3, briefing on second deployment method (exception: AFF students starting with throw-out), clearance to use own equipment
Jump documentation:	Continuous

The student's logbook should be maintained parallel to the main jump log book from the first descent. Going forward it can take on the role of the main jump log book. It belongs to the training documentation and must be presented on request. It remains property of the PTO but can be managed and completed by the student.

Once the joining formalities have been concluded, the first jump course starts in accordance with the instruction plan of the AHB.



#### 2.4.1 Structure of Instruction

Research on stress shows that people can be quickly overwhelmed while learning something new. As a result, the first jump course should be limited to the information the student actually needs to conduct their first descent. They should be able to differentiate between important and unimportant matters and should be well conditioned with regard to behaviour in special circumstances in particular.

Once a student has completed their first jump training and passed the theory and practical tests, they can start with the practical jump training.

- Conventional student: static-line jump
- AFF Student: AFF briefing and then AFF Tandem or Level I with AFF Instructors (for details see AFF-AHB, as AHB Part 1 does not focus on AFF instruction)

As instruction progresses, a conventional student must make at least 6 static line descents. The following conditions need to be met:

- At least 3 exits to become familiar with falling and body position (direct bag)
- At least 3 exits with correct dummy pull in preparation for freefall descents
- Development of canopy steering and landing skills
- Development of static-line main canopy packing skills

Once a student has performed all required dummy pulls, they can be briefed on free fall descents. Ensure that since the last correct dummy pull no more than 36 hours have passed. If the last dummy pull was more than 36 hours ago, another dummy pull descent must be conducted. The free fall brief must be conducted in accordance with the AHB. The following conditions need to be met: At least 3 exits to become familiar with falling and body position (direct bag)

- Briefing on the freefall deployment system
- Wide ranging briefing on freefall malfunctions
- Additional deployment and opening malfunctions
- Practice of emergency procedures while horizontal

As instruction progresses, a conventional student following the AHB jump training must make at least 23 freefall descents. The following conditions<sup>2</sup> need to be met:

- At least 3 descents from 1,200 - 1500m/GND (3,500 - 4,500 ft/AGL) with 5 to 10 seconds freefall time
- At least 3 descents from 1,500 - 2000m/GND (4,500 - 6,000 ft/AGL) with up to 20 seconds freefall time
- At least 17 descents from 1,200 - 4,000/GND (3,500 - 12,000 ft/AGL) with appropriate freefall time and learning controlled movement around all three axes of which at least 5 descents have a freefall time of 30s or more

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<sup>2</sup>**Note:** The requirements are based on the minimum requirements set by the FAI (Federation Aeronautique Internationale, the World Air Sports Federation).



- Development of skill in accurate landing of a RAM-Air canopy, at least 10 landings must be within a 50m radius of a pre-declared point
- Successful completion of a canopy course in accordance with chapter 7
- Development of skill in packing freefall main canopies up to a packing test
- Briefing on a second deployment method (pull-out / throw-out)
- A total of 5 minutes freefall time
- At least 5 descents in 2-way formation skydiving or freeflying as specified by the Chief Instructor and under the direct supervision of an instructor

During their training, further instructional topics should be introduced to the student. They should slowly move to smaller canopies to be ready to move from student canopies on gaining their licence. To do so, they must be briefed on flight behaviour and aerodynamics of smaller canopies.

Furthermore, students must be taught safe turning procedures and sensible navigation under a RAM-Air canopy. The canopy training should encourage the student to recognise they are a pilot who is responsible for competent navigation of their aircraft in air traffic all the way to the ground without endangering themselves or others.

As the instruction progresses, students will be introduced to air law, free-fall, meteorology, equipment, behaviour in Special Circumstances, aerodynamics, and human performance. It is considered of value that the student should have performed several descents beforehand. The theory test readiness and knowledge level can be determined by the Chief Instructor.

The Chief Instructor confirms the readiness to students with the completion of the proficiency card and invites an Evaluator (Prüfungsrat) to conduct the theory and/or practical exams. The student must be registered for the test by name at the office of the Authorised Association by email. First the theory exam should be conducted, then the practical evaluation descents. A passed theory exam remains valid for three years.

To start the practical exam for the unrestricted licence, the skydiving student must evidence 23 freefall descents in the last 18 months, of which at least 12 must have taken place in the last 12 months.

To start the practical exam for a static-line licence, the student must evidence at least 6 static line descents in the last 12 months.

After completion of the exams, the Chief Instructor sends the full documentation relating to the student to the licensing department of the Association. The documentation (as per the LuftPersV and the Authorised Associations) consists of:

- Proficiency card and application from the student for examination and issue of a licence to be signed by the student and the Chief Instructor
- Examination card 10, signed by the Evaluator (Prüfungsrat)
- Answer sheet, signed by the Evaluator
- Legible copy of the Personalausweis (ID card), confirmed by the Evaluator



- one current passport picture (to be affixed to the licence)
- Evidence of first-aid course attendance (could be German issued drivers' licence)
- Examination and Licence fee either in cash or with remittance advice/transfer confirmation
- Valid medical fitness certificate

One receipt of the documentation, the licence is issued for the student. They now need to adhere to the time periods and descent numbers relating to the use of a parachute.

The licence is issued with indefinite validity, however, only remains valid if the licence holder is sufficiently current (at least 12 descents in the last 12 months, to be evidenced by a logbook).

During their training, a skydiving student may join DFV e.V. or DAeC e.V. at any time. As a DFV member, they can acquire liability and accident insurance for sport parachutists via the association.

A student already in possession of their own skydiving equipment before completion of their training or to familiarise themselves wish to use different equipment may do so if:

- The system is type-checked and individually checked
- The system is maintained to the necessary maintenance and packing time lines
- The system fits their body
- The canopy size is suitable for their experience level
- The system includes an electronic AAD
- The system includes an RSL (the Chief Instructor may make individual exceptions)
- The student holds liability insurance of at least €1.5m
- The student has been briefed on the system
- The student has familiarised themselves with the system in detail

When a student encounters a new experience, e.g. a new jump aircraft or new way of packing their main canopy, they must be extensively briefed on this change.

Generally all briefings in new topics should take place individually. Each skill should be consolidated before introducing a new task. This avoids overloading students which could lead to concentration problems.

The instructional jumps may only be conducted by suitable staff with approval from and under the supervision of the Chief Instructor.

To accompany a student in freefall (formation skydiving or freeflying with or without active video) the following requirements must be met:

- a) Formation Skydiving.
  - At least 300 formation skydiving descents overall
  - Of which 50 descents in the last 12 months
  - Proficiency card for formation skydiving
  - In addition for videographers: Proficiency card for active taking of pictures and filming:
  - Express permission to accompany a student in freefall by the relevant instructor and Chief Instructor



b) Freeflying

- At least 300 freefly descents in groups overall
- Of which 50 descents in the last 12 months
- Proficiency card freeflying
- In addition for videographers: Proficiency card for active taking of pictures and filming:
- Express permission to accompany a student in freefall by the relevant instructor and Chief Instructor

The association recommends that some supervision by the dropzone continues after a student obtains their licence.

If the PTO moves location because of a training camp or their structure, all legal requirements must continue to be observed. This relates in particular to the experience level of the affected students and the freedom from obstacles of the intended landing area. In addition, all students must be adequately briefed on the change in circumstances (e.g. aircraft, exit altitude, different landing pattern, etc.).

If a student moves from one PTO to another during their training, this should not be a problem for any PTO. The relevant Chief Instructors should share information to enable the student to continue from the level they have already reached. The training content of the previous PTO and the confirmed descents of the student noted in their logbook should be recognised. The status table should provide the extent of refreshers and check jumps required. Equally, it is at the discretion of the new Chief Instructor to confirm the student's skills and knowledge and suitably integrate them at the new PTO and location.

The original of the medical fitness certificate should be handed to the new PTO. In needed, a copy of the main jump log book can be passed to the new PTO. This is to ensure that on moving to a new PTO a student does not imply they have skills or knowledge they do not have. If this was found to be the case, the student should be declined. Responsibility for clarification lies with the respective Chief Instructors.

If a student moves to a German PTO from a foreign one, all safety related ground school instruction should be repeated when necessary, to ensure they are familiar with the necessary German safety procedures. In particular the lessons on behaviour in special circumstances should be conducted by the new PTO. The nature of the re-train can be tailored to the existing experience of the student. An existing conditioned set of emergency procedures should not be altered if it can be applied with the equipment to be used.

This also applies to students who have previously been trained by PTOs outside the jurisdiction of the DFV / DAeC. The PTO must have sight of a valid medical fitness certificate (not less than 12 months old) before any descents take place.





If a student moves from a round canopy training (e.g. Military or eastern Europe) to RAM-Air canopy training, they must be fully trained on the new equipment being used.

Parachutists in possession of a foreign licence recognised as of equal or higher standard by the Association can have it converted. The procedure is known to all evaluators (Prüfungsrat). The list of the current evaluators can be obtained from the office of the Association. Foreign licenses can be generally recognised by the Authorised Associations or individually recognised in accordance with NfL 1-415-15. There could be insurance issues for parachutists with foreign licences, such as insufficient sums insured or no cover provided outside their country of residence.

All licences which meet the requirements of an FAI A-licence as detailed in the FAI Sporting Code Section 5 are generally recognised. FAI Certificates of Proficiency can be acquired on top of the license and are the measure of the difference proficiency levels. This is different to the FAI Sporting Licence, which are not parachuting licences and do not replace these. FAI Sporting Licences merely permit taking part at international competitions and record attempts. For all non-recognised foreign licences the following applies: The individual must complete a full German student training programme. In case of doubt, the Chief Instructor should contact the Association's offices.

If a student misses the continuation of their training or does not remain within the acceptable tolerances of the educational goals of their training, at the discretion of the Chief Instructor, they can be suspended in perpetuity from training (e.g. the perpetual student). When safety matters become apparent due to physical or mental blockages with the student, they should be suitably released from their training. Any exclusion from training by a PTO should be notified to the Authorised Associations.

The further course of training, readiness for licence and qualifications the PTO, its Chief Instructor and their delegates must remain up to date.



## 2.5 Conduct of safety seminars

Since the existence of the Instructor's Handbook, all instructors have been encouraged to conduct continued safety training. The aim is to increase the information on offer to licensed parachutists. Furthermore the loss of attention to safety in parachuting can be avoided.

The events should focus on the promotion of safety in the sport, attendance at which is voluntary for parachutists. The organisation of the events is the responsibility of the holder of Approval to Instruct. They are responsible for finding suitable speakers and planning of the event in the overall calendar of events of the dropzone.

### **Canopy Seminars and Aerodynamic training**

- Behaviour of a RAM-Air canopy
- Differences between main and reserve canopies from an aerodynamic perspective
- Landing and flaring
- Explain useful steering tactics
- Wind influence
- Different wing loadings and their implications
- Factors to consider when selecting a canopy
- Safety matters (limits - own and equipment)
- Behaviour in special circumstances (PLF etc.)

Sensible timing is at the start or in the middle of the jumping season

### **Accuracy and correct exit point**

- Sensible airspace management
- Sensible landing arrangement
- Suitable behaviour in the air
- Wind implications / wind checks
- Accuracy landing techniques
- Landing tips and tricks
- Safety matters (canopy collisions, obstacles etc.)

Sensible timing is close to the start or in the middle of the jumping season

### **Emergency seminar:**

- General matters on first response to an accident
- Special behaviours in the event of a serious injury
- Emergency sequence in the case of an emergency (phone numbers etc.)
- Accident management

It is sensible to run this event once per season and invite a doctor or emergency professional who is a parachutist to lead it.



## Chapter 3

# Instructions for Chief Instructors and Instructors



### 3. Instructions for Chief Instructors and Instructors

#### 3.1 Instructions for Chief Instructors

##### 3.1.1 General

The Chief Instructor (“CI”) is responsible for the organisation of the PTO. They are responsible for both the jump operations and the duty of care and supervision for the whole instructional period and uncurrent licensed parachutists. They must ensure that the instructional guidelines are followed from organisation, staffing, and equipment and executed by the allocated instructors. This includes:

- Instruction within the framework of the Approval to Instruct and the AHB
- Instruction within the framework of the safety requirements and airfield regulations
- Ensuring all training facilities of the PTO are suitable
- Regularly confirming that updates and changes are implemented
- Ensuring airworthiness of all student harness/container systems
- Holding third-party liability insurance for all student harness/container systems
- Possibly holding accident insurance for student harness/container systems

The CI should conduct an instructor briefing at least once a year to meet this obligations and continuously oversee the agreed procedures in operation. Furthermore, the CI must review the whole training organisation at least once a year and if necessary, bring it up to date. They are also responsible for maintaining all student documentation. The CI is responsible for ensuring that all training aids and tools, particularly for practical instruction permit relevant and suitable training procedures which correlate with actual jump operations. These training aids include:

- Practice harness(es) with handles (e.g. Hanging harnesses with trapdoor effect)
- Aircraft mock-up (with suitable soft landing area)
- Videos / photos of malfunctions and nuisance factors
- Aerial photo of the airfield
- Creepers
- Horizontal trainer (optional)
- If possible wooden moveable doll
- If possible altimeter “watch”
- Possibly models (aircraft, windsock, landing T, RAM-Air canopy)

Depending on the organisation of the Parachute Training Organisation some tasks can be delegated, however, must remain under the control of the Chief Instructor.

If the Chief Instructor is absent, they must nominate a delegate who is responsible for running the jump operations for students. This delegate must be present during student jump operations and must hold the same competencies as the Chief Instructor.



### 3.1.2 Control over Instructors

The CI may only use instructors holding a valid and current relevant ratings (e.g. AFF qualification) in their PTO.

After relevant notification to the Authorised Associations, it is possible to use foreign qualified instructors for up to 6 months.

### 3.1.3 Notification of student skydivers to the Authorised Associations

One of the Authorised Associations must be notified of the intention for practical and theoretical exams to be conducted. Notification is not necessary at the outset of training under para 17 LuftPersV, if the student is of the minimum required age.

### 3.1.4 Collection of all necessary student documentation

A prerequisite for training student parachutists within the framework of the Approval to Instruct issued by the Authorised Associations is the presentation of all necessary documentation relating to the student (para 16 LuftPersV). All key data should be evident from the main jump log book and countersigned.

For minors the agreement from the legal guardian is required.

It is recommended for a liability agreement to be signed by all parties.

### 3.1.5 Exam notification

The CI must notify the Authorised Association of the name(s) of the student skydiver(s) to be examined by email. The notification includes the date, the location and the selected Evaluator.

At the exam, the Evaluator must be presented with all necessary documentation from the student skydiver:

- Proficiency card theory and practical with the application by the student to take the exam and be issued with a licence (see form)
- Legible copy of a valid ID (e.g. Personalausweis), which is confirmed as a valid copy by the Evaluator
- As per the Authorised Associations: Confirmation of participation in a First Aid course (or alternatively German Driver's licence, for which attending a First Aid course is a prerequisite)
- As per the Authorised Associations: a current passport photo (for the licence document)
- Cash or bank transfer confirmation for the amount of the examination and licence fee

The Evaluator, together with the Chief Instructor, ensures that all necessary documentation including the examination documentation is submitted to the office of the Authorised Association. The office of the Authorised Association checks the documentation and if the exam has been passed issues the licence.



Failed examinations remain with the Chief Instructor until any repeat exams. The Evaluator determines the necessary refresh or retraining requirements and sets the new examination date. Failed theory exams may be retaken up to a maximum of three times. Practical exams can be retaken as often as desired.

### 3.1.6 Preparation of annual training report

By 28 February of each year the CI must prepare a short report on the PTO covering the past year and submit it to the Authorised Association. The relevant form provided by the Association should be used.

### 3.1.7 Collaboration with rigging staff

The CI must work closely with their rigging team (Fallschirmtechniker / Fallschirmwart) to ensure that all the student harness/container systems meet the technical equipment requirements.

The CI must manage their operation to ensure that all parachute equipment (main and reserve canopies, AAD and harness/container systems) is maintained in accordance with the LuftGerPV and has valid airworthiness certificates and is suitably maintained by approved personnel (reserve repack cycle and AAD inspection cycles ensured). If in doubt, damaged equipment must be removed from use and handed to a rigger for inspection. Evaluation of materials in use

### 3.1.8 CI approval of equipment used in student instruction

The CI must approve a particular harness/container system for student use. Both harness fit and the canopy size are of particular relevance here.

Both RAM-air and round canopies can be used for student training (both main and reserve canopies). The canopies in use must be suitable as student canopies in terms of their size and maximum weight limitation.

All harness/container systems for student use must be equipped with a functional AAD for the reserve canopy and a reserve Static Line (RSL).

For AFF descents the harness/container must be equipped with an electronic AAD.

Student skydivers must wear hard helmets for all instructional descents

For students under RAM-air canopies, it is considered sensible to use radio communication with the student. This should reduce the risk of steering errors. The use of radios is at the discretion of the CI and requires suitably trained instructional staff.

For conventional students, only spring-loaded pilot-chutes activated by a ripcord harness/container systems may be used. Once they have reached a suitable level of experience, other deployment mechanisms (throw-out or pull-out) are permitted (see training plan).

Within AFF instruction, the use of throw-out systems is permitted from the outset, taking into account its particularities (see AFF Handbook, Equipment requirements)



All additional equipment used during instruction (e.g. helmet, goggles, jumpsuit, altimeter, shoes, radio, gloves, audible altimeter) must be in proper and functional condition. It must meet operational requirements without restriction.

#### 3.1.9 Maintenance of Training Records

The CI is responsible for ensuring records are kept of the detailed training descents in the main jump log book in such a way that they are transparent and can be understood. They decide for their Parachute Training Organisation what evidence is kept to demonstrate the decision to allow a parachutist to conduct their first descent.

Furthermore they keep an eye on the continued suitability of a student in accordance with the status tables and whether they may need further instruction.

They must ensure that records are kept at the PTO for at least 2 years and are available to be checked.

#### 3.1.10 Oversight of insurance requirements.

The CI is responsible for ensuring all insurance requirements are met.



### 3.1.11 Communication

The CI is responsible for ensure that the content of the permission to instruct and the instructional handbook including all changes and additions is communicated to staff and that they sign to confirm their have received this communication. In conjunction with the holder of the permission to instruct they decide on the emergency procedure to be taught in their PTO.

Either:

**Option 1:** (After altitude check)

- Cut-away pad:
  - ⇒ Look right, locate cutaway pad
  - ⇒ Grab hold (right holds right, left supports)
  - ⇒ Peel pad up from below
  - ⇒ Punch pad out and clear cables (possibly discard pad)
- Reserve handle:
  - ⇒ Look left, locate reserve handle
  - ⇒ Grab handle, thumb through to form a fist (left hold left, right supports)
  - ⇒ Peel handle
  - ⇒ Pull handle out completely and clear cables.

or:

**Option 2:** (After altitude check)

- Cut-away pad:
  - ⇒ Look right, locate cutaway pad
  - ⇒ Hold tight (right holds right)
- Reserve handle:
  - ⇒ Look left, locate reserve handle
  - ⇒ Grab handle, thumb through to form a fist (left hold left)
- Cut-away pad and Reserve handle
  - ⇒ Peel pad up from below
  - ⇒ Punch pad out and clear cables (possibly discard pad)
  - ⇒ Pull handle out completely and clear cables.
  - ⇒ If appropriate, clear any cables

**Note:** Neither of these options is better than the other, both achieve the same goal. It remains at the absolute discretion of each PTO to decide which of these two variants to teach their students. The importance lies in the consistent execution of the precisely defined emergency procedure. If a student arrives from a different PTO which uses the other option, this conditioned behaviour should be maintained and under no circumstances should the other option be introduced.

### 3.1.12 Procedures relating to minors

The minimum age at which student skydivers can start their training according to the LuftPersV is 14 years.





A licence can however, only be issued once the student has turned 16. This condition provides that parachutists under the age of 16 who have passed their exams may not conduct any further descents before they are in receipt of their license.

It is therefore strongly advised to consider the start of training of a student parachutist so that the time between passing their exams and obtaining their license is as short as possible. The end of their training should be relatively close to the 16th birthday or for example at the end of the season before turning 16 (e.g. Birthday is in December) so that once the licence is issued the criteria for jump currency can be maintained.

Before the beginning of the training the legal guardian must have signed the Contract for Instruction or club membership agreement. The age of the student must be clearly apparent from these documents. The Chief Instructor decides whether to accept the student and whether the available parachuting equipment is suitable for the size and weight of the young person. A medical fitness certificate (from a GP, sports doctor or flight doctor less than 1 year old) must be obtained.

### 3.1.13 Student moves PTO

All approved Parachute Training Organisations holding a valid Approval to Instruct, train student parachutists in accordance with the association wide instructor's manual. This means that all students should be able to move between these approved PTOs without any problem if they so wish.

The log book acts as evidence of training and performance of the student. The status tables provide guidance on whether refreshers or retrains and check-out jumps are required. On moving, the student presents their paperwork and checks in with the new PTO. The Chief Instructors of the two Parachute Training Organisations should have a verbal conversation to share information and clarify any questions.

**Note:** This rule is meant to simplify such cases. The Chief Instructors should be open to sharing training documentation. Amongst others this includes:

- Fitness certificate
- Copy of the training record card or the main jump log book
- Possibly proficiency card
- Possibly evidence of passing exams
- Possibly passport pictures

If a student is suspended from their training on safety grounds and then registers with a new PTO, the new PTO should be informed of the suspension.

This student should be observed with added attention. The smallest indication that the safety concerns have not been resolved, may require the training to again be ceased.



#### 3.1.14 Keeping check lists for accidents current

The CI must check the emergency check list at least once a year and update all telephone numbers (see chapter Administration).

It is sensible to perform a test call to all telephone numbers listed to ensure that the number still reaches the expected party.

In the event of an accident a wrong telephone number can cost valuable minutes which could have saved a life.

How to deal with a clearly fatal accident is described in the chapter “Dealing with emergencies”.

#### 3.1.15 Delegation of tasks

All administrative tasks listed above can be performed by other senior members of staff in the PTO. Oversight and responsibility for their performance remains with the CI.

#### 3.1.16 Miscellaneous

Chief Instructors should act objectively and technically correct and lead the Parachute Training Organisation neutrally and unbiased.

The Chief Instructor fulfils a role with important responsibilities. They should:

- Continuously stay abreast of parachuting matters
- Follow safety bulletins and implement them accordingly
- Read relevant industry news
- Take part in the annual information and safety conference of their parachute association
- Remain in contact with other Parachute Training Organisations and their CIs
- If in doubt seek guidance from their Association

The CI should also get a sense of morale in the PTO and if necessary, make changes. They should respect wishes for specific instructors from students and in extreme cases require a change in instructor. The CI should always be open to suggestions for improvement of the instruction of their instructors or students.

The Chief Instructor also checks the training progress of students occasionally.

If it is stagnating or there are safety concerns during the conduct of jump assignments on training descents under instruction, the CI must suspend the student from practical training. After a suitable retraining in ground school or moving back a level, the practical jump training can resume.



If there are serious safety or reliability concerns the student should be released from the instruction contract. In accordance with para 19 LuftPersV, the Authorised Associations should be notified of such a decision.

The CI is also responsible for recruiting new instructors in the form of instructor candidates and providing them the opportunity to assist while in the candidate phase.

### 3.1.17 Supervision of uncurrent licence holders

Parachutists who have not performed 12 jumps in the last 12 months may not take advantage of the rights of their licence and its associated proficiencies independently. They fall under the supervision duty of an instructor, who always acts within the bounds of a Parachute Training Organisation. The uncurrent licensed parachutist is however not a student skydiver. Therefore the content of the AHB is not binding, except for the minimum requirements of the status table, rather it can act as a reference for instructors. The responsibility of the PTO and the supervision duty of the instructor ends automatically when the 12 descents in the last 12 months have been completed. The licensed parachutist is entitled to take advantage of all the rights of the license independently without any further action within the limits of air law and those expressed by the Authorised Associations in AHB Parts I & II, AFF-AHB Parts I & II and the THB Parts I & II.

The CI has the overall responsibility for uncurrent licensed parachutists.

They determine the supervision level relevant to the experience, total jump number, average jumps per year, disciplines, experience of different canopies, proficiencies and ratings gained, the length of the break and other matters they deem relevant. Depending on the situation, the extent of supervision can vary, from re-training, refresher training, to a repeat of an instructional level, to the requirement to complete a first jump course. The practical supervision can take any form also used for student training. The following are examples of actions which can be taken: Requiring a certain canopy type, canopy selection, equipment check, packing check, gear check, issuing a jump assignment with wind and landing briefing, hanging harness training, execution of practical safety tests, determining exit order, descent and canopy ride observation, descent and canopy right evaluation, descent and canopy ride documentation etc. The jump assignments must be appropriate to the level of experience and must exclude overloading the parachutists.

No descents with student skydivers or tandem guests are permitted, whether as an instructor or tandem pilot or accompanying videographer or any other accompaniment of other parachutists.

The responsibility for the conduct of AFF check-out jumps with one or more AFF instructors lies with the AFF Chief Instructor.

The use of own equipment, as approved by the CI, is possible because the supervision of an uncurrent parachutist is always by an instructor within the confines of a PTO and therefore the relationship between student skydiver, instructor and PTO is clearly defined. This also applies to the validity of insurance.



An uncurrent licensed parachutist may jump with their own equipment, if the Chief Instructor agrees. They require their own liability insurance. The private harness/container system of the uncurrent parachutist cannot be included in the insurance of the PTO, in the same way that the parachutist's insurance does not apply to the PTO's student equipment. If the uncurrent parachutist is using a harness/container system which belongs to the PTO, the PTO's insurance applies.

The CI and the instructor have to meet their duties of care and therefore take all precautions so that the licensed parachutist does not risk harm to themselves or others.

## 3.2 Working procedures for Instructors

### 3.2.1 General

The Instructor is responsible for the proper instruction of student skydivers in theory and practice, as well as supervision of uncurrent licensed parachutists. They have a duty of care and jump supervision. They must ensure that during the training are met:

- legal requirements
- provisions of the approval to instruct
- provisions of the Instructor's Handbook
- the local rules set by the dropzone operator for jumping at their dropzone
- special rules of the Parachute Training Organisation
- Standard Operating Procedures for the dropzone and airfield
- Air Traffic Control (Deutschen Flugsicherung GmbH, "DFS") regulations

They must also ensure that all safety regulations arising from the above are implemented. In general, each Instructor should carry out a self-check before engaging with skydiving students:

- Possession and validity of all ratings and qualifications as an Instructor
- Instructors liability insurance in place, possibly also accident insurance
- Current health, fitness and motivation are good
- Knowledge and experience is sufficient for local requirements
- Personal equipment meets all requirements

### 3.2.2 Conditions necessary for instructing students

The instructor must check whether the minimum organisational requirements to conduct student training are met at the relevant PTO. In particular whether the following are present:

- Windsock or landing T (visible from the student landing area)
- Megaphone (if radios are not being used)
- Ground signals (landing cross) if no gravel pit is present for orientation
- Aerial photograph for briefing



- Strong point to attach static lines in the aircraft
- Facility for cutting away a hung-up static line student
- Ground to air communication to enable an orderly exit following a clear drop signal
- Emergency check-list with telephone numbers
- First aid case



The Instructor must check:

- Whether all the necessary paperwork for the student skydivers is present. Countersignature of a responsible person in the main jump log book is confirmation. Before issuing a jump assignment, they must also inform themselves of the current training status and what briefings the student skydiver has received (logbook check).
- That there is sufficient insurance coverage for the student skydiver (countersignature of the insurance in the Main jump log book or Club Insurance policy is sufficient).

There are four possible student/instructor constellations in the first jump course:

1. Only conventional students (static line) are in the first jump course being led by a static line instructor:  
This is the classic situation of parachute training and does not require any further commentary.
2. Conventional students (static line) and AFF Students (or only AFF students) are in the first jump course being led by a static line instructor:  
In this situation the conventional instructor should be familiar with the most important basics of AFF briefings. They should adapt their instruction on equipment, exit, pulls and Behaviour in Special Circumstances (BiSC) in relation to the climb to altitude and malfunctions to the AFF Students. This should be learned and taught in close cooperation with the relevant AFF Chief Instructor.
3. Conventional students (static line) and AFF Students are in the first jump course being led by an AFF instructor:  
The AFF Instructor should base the instruction on the common topics between Static Line and AFF instructor. They should only include AFF specific topics if it is absolutely necessary for the AFF Students. All the really AFF specific topics should be left to the AFF briefing.
4. Only AFF Students are in the first jump course being led by an AFF instructor:  
The AFF instructor can choose the extent to which they combine the First Jump Course with the AFF briefing. The sequence of topics laid out in the AHB should not be altered.

### 3.2.3 Equipment allocation

The Instructor is responsible for allocating equipment to the students. They should ensure that the equipment is suitable for their body size and weight as well the student's skill level.

### 3.2.4 Checking the Student Equipment

Adherence to repack cycles should be checked. It is sensible to check for an intact lead seal from the reserve packer.



Any concerns (defects noted) should be notified to the CI. Such equipment should be withdrawn from use by students and sent to a rigging loft.

### 3.2.5 Packing checks

The instructor is responsible for ensuring that the student main canopies are packed in accordance with valid packing instructions after each use.

Packing must take place under their supervision. Organisational processes should ensure that only suitably packed equipment, checked by the relevant instructor, is available for jumping (e.g. packing cards).

On changing the deployment method of a piece of equipment (from static line to freefall or vice versa), the adherence to rigging instructions must be ensured. This is also the case for different packing methods for static lines with or without pilot chutes, ripcords with spring loaded pilot chutes or hand deployed pilot chutes.

### 3.2.6 Gear check

Before a student embarks onto a jump plane, their instructor must have checked their entire donned equipment (End-check):

Review the overall impression and then conduct a hands-on systematic check from top to bottom and front to back.

- Overall impression
  - ⇒ Everything needed for the descent is present (harness/container, altimeter, helmet, shoes, jumpsuit, goggles, radio, possibly gloves)
  - ⇒ Visual check of harness size, harness fit, correct deployment method
  
- Hands-on (i.e. touch equipment if necessary):
  - ⇒ Helmet, goggles, jumpsuit (possibly gloves) all fit well
  - ⇒ Visual inspection of cut-away pad
  - ⇒ Chest strap properly routed and adjusted
  - ⇒ Altimeter present, properly worn, zeroed
  - ⇒ If radio present, properly attached, function tested
  - ⇒ Visual check of cut-away pad and reserve handle
  - ⇒ Harness adjustment set and symmetrical
  - ⇒ leg straps untwisted and suitably tight
  - ⇒ Main and reserve containers properly closed
  - ⇒ AAD switched on
  - ⇒ Handle check or static line check (visual and touch)

**Note:** Student skydivers should be introduced to the aspects of gear checks during their training. They should learn to perform self-checks which will be expected of them once they have their license. The



*instructor should encourage the student's self sufficiency. The responsibility for executing the end-check of student skydivers remains with their instructor.*

### 3.2.7 Briefing the student on their jump assignment

The instructor briefs the student on their jump assignment in time for their descent. The jump assignment brief depends on the skill level of the student. The jump assignment brief should be adequate and achievable. It should be goal oriented and assessable for the student.

The guidelines for instruction of Sport Parachutists by the Authorised Associations and additional requirements of the Parachute Training Organisation must be strictly adhered to. Content of a jump assignment brief:

- Exit altitude
- Exit spot
- Exit order
- Body position on exit
- Body position in freefall
- Plan during freefall
- Freefall time / pull altitude
- Flight plan under canopy
- Intended landing point.

### 3.2.8 Meteorological conditions

The instructor must determine whether the meteorological conditions are suitable for student parachuting before embarking on the plane.

Cloud base must be at least 1300m/GND (4,000 ft AGL).

Ground wind speed for students on their first or second jump must not exceed 6m/s. For all other student descents, the ground wind speed of 8m/s is permitted as long as other conditions allow. The measurement of the average ground wind speeds is measured over a period of 10 minutes. The value must lie under the highest permissible ground wind speed. If the highest permissible ground wind speed was exceeded, the measurement cycle needs to be restarted. Measurement must take place at a suitable location with suitable equipment. The measurement device must be able to determine and display the average wind speed over the required time period, including gusts.

At the beginning of the day and after longer breaks between student operations, precise wind speed and direction must be determined using suitable aids. Under no circumstances may students be despatched without confirmation of the wind conditions.

The instructor must be in a position to forbid student descents from the ground using suitable aids (radio, visual signals) if the permitted wind speed is exceeded.





Cloud cover for descents from above 1,300 m/GNF (4,000 ft AGL) may not exceed 4/8th. There must be no precipitation within the jump zone at the time of exit.

Prevailing winds at altitude can be obtained from the German weather service (e.g. Flugwetterberatung or GAFOR). They must permit the student to reach the intended landing area safely.

### 3.2.9 Despatching students

Beginners are best despatched by experienced instructors. Every instructor must be in a position to remain calm and behave confidently in dynamically developing situations. Despatch of first jump students should ideally be done by the instructor they know. The actual despatch should be smooth and identical to that performed during the training to provide the student with confidence in the action. The despatching instructor also needs to be able to observe and support the body position of the student during the exit to be able to give constructive feedback after the jump.

The dispatcher must have the necessary knowledge on loading the aircraft type and how to observe students.

For static-line jumps, the dispatcher must ensure that the static-line is attached to the strong point, is clear and cannot get caught anywhere. The local dropzone and aircraft operating procedures must govern the use of static-lines, exit order and exit method. If in doubt, contact the Chief Instructor.

Check-list "Despatch":

- Static-line FREE and FIXED
- Radios (if used) ON
- AAD switched ON
- The climb to altitude should be used for visual inspection of
  - ⇒ RSL - clasp
  - ⇒ Chest strap and leg strap fasteners
  - ⇒ Helmet fastened, goggle fit
  - ⇒ Seating of Cut-away pad and reserve handle
  - ⇒ Altimeter setting

While the student is making their way to the door, the attachment of the static line should be tested by a firm tug. The student should be assisted when performing a seated exit (e.g. DO-27 or Caravan), to help them face correctly using, for example, the lateral strap.

If there are multiple run-ins, the hooks of the static lines which have already been despatched may not be unhooked to avoid the risk of confusion with those of students still to exit the aircraft. They may be pulled into the aircraft body.



Avoid other jumpers getting caught or tangled in the static lines. During their training, students should be taught about exits, with the intention that they can ultimately despatch themselves. The dispatcher being used for early self-despatching should be someone who can observe and immediately correct severe errors by the student.

#### 3.2.10 Loading the aircraft

The instructor determines the seating and exit order for each despatch. They observe and control the students while they approach and climb into the aircraft. At some dropzones a load master is additionally responsible for the correct loading of aircraft. It goes without saying, that the instructor supports the load master and they agree how to proceed.

While the aircraft is still moving, all parachutists must remain in the designated area. Approaching the aircraft may only start once it has reached a complete stop.

The threat to life from rotating propeller blades cannot be over emphasised.

Instructors despatching static-line students must confirm the presence of a sharp knife in the air plane in case of emergencies. Carrying a hook-knife on their own harness can ensure this is the case.

The instructor is responsible for ensuring that static-lines are firmly affixed to the aircraft.

They have a duty of care for the students during the climb to altitude and must ensure that an early opening of the container is precluded.

#### 3.2.11 Observing the student

The instructor responsible for a student must be present during their student descents. They must either observe them with suitable telemeters or despatch them themselves. If the instructor is the dispatcher, they should always identify another instructor on ground to be responsible for observing the canopy flight and talking the student down.

The instructor should observe the exit and the freefall work (if appropriate, depending on jump assignment) from the aircraft if they have despatched the student. Use of a video camera can be helpful in this.

Students requiring longer observation time in freefall can be accompanied by a suitably qualified parachutist (instructor, videographer, experienced parachutists) at the discretion of the Chief Instructor. The relevant regulations about accompanying others in freefall must be adhered to.

Overall, the other parachutist is only responsible for observation and is never responsible for deploying on behalf of the student. The student should be briefed accordingly so that the presence of another parachutist does not distract them from their planned manoeuvres (e.g. loss of altitude



awareness). It is permitted for the instructor to give hand signals to “check altitude” or “pull”, the latter also by waving off. Parachutists without instructional rating may not intervene in the instruction either practically or by giving guidance or signals.

### 3.2.12 Evaluation of a jump

The instructor should provide the student feedback on their descent directly after landing. It is important for the instructor to determine the cause of possible mistakes and help the student with correcting them.

The critique should align with the jump assignment and cover the phases “exit”, “freefall work”, “canopy handling” and “landing”. The brief for the subsequent descent should be based on the main feedback points. It should be aligned to skill and can include repeats. The feedback should take this form:

- First the student describes the descent
- Then the instructor describes aspects in a positive way:
  - ⇒ What was good
  - ⇒ What could be improved
  
- Patiently explain improvements
- Emphasise good points, praise the student
- Criticism should be constructive but honest
- Severe safety matters (e.g. Endangering of others) must be clearly criticised
- Suggest solutions
- Consider progression steps
- Practice of goal oriented learning after the feedback

### 3.2.13 Cessation of instruction

The instructor must cease all instruction if a danger to the students or other factors which could endanger them arise.

Examples:

- Poor weather conditions, poor visibility
- Cloud base under 1300m/GND (4,000 ft AGL)
- Average ground wind speeds over 8 m/s
- Storms, gusts or turbulence
- Student tiredness
- Safety violations by the student
- Student is overstretched (e.g. mentally) etc.



### 3.2.14 Maintenance of the training record/main jump log book

The observations by the instructor should be recorded with the usual abbreviations and comments immediately after the descent in the main jump log book and possibly the student's own logbook. The instructor assigned by the Chief Instructor is also responsible for the proper maintenance of the training records and the main jump log book.

#### **Content of the record**

- Current jump number, location, aircraft, canopy type, exit altitude, freefall time, jump assignment, signature of the supervising instructor.
- Execution (freefall time, landing distance, evaluation). The usual abbreviations should be used for the evaluation.
- Jump evaluation: The instructor should use this to provide useful additional comments in relation to exit, freefall, canopy flight and landing. It should be clear to subsequent instructors where to place emphasis for this student.

To simplify the documentation, a PTO must only evidence the actual training descents. This means:

- Static line descents
- Static line descents with dummy rip cord
- Freefall descents up to 10s controlled freefall
- AFF descents
- Lower altitude descents
- Check-dives after refreshers or re-trains

All further descents are logged in the student's log book and countersigned by the supervising instructor:

- All further freefall descents
- Briefings on movement on all axes
- Briefings on other deployment systems
- Briefings on different canopy sizes
- Briefings on different packing methods
- Qualifications for different disciplines

#### **Format of the training record / main jump log book**

The main jump log book should either be a bound notebook or a stapled collection of pages. When using loose leaf folders, each page must be consecutively numbered and dated on the day of the descent.

#### **Responsibility**

The instructor can delegate the keeping of the main jump log book. They remain responsible for the content of the entry.



### 3.2.15 Keeping of jump log books

The instructor's observations should be documented with the usual abbreviations and comments into the student's log book on the day of the descent and signed by the instructor.

#### Usual abbreviations for jump assignments and evaluations

co	= climb-out: Positioning in the door and taking up the exit position
Exit	= exit and exit position
X	= X-position
F	= Frog (box) position
s	= stable
u	= unstable
Xs	= stable X-position
Fs	= stable box (frog) position
HMK	= altimeter check/circle of awareness (from German "Höhenmesserkontrolle")
A	= jump assignment for static line descent (from Automatic deployment)
AFF	= jump assignment for AFF descent
FF	= jump assignment for freefall descent
SG	= jump assignment for dummy ripcord pull (from German "Scheingriff")
SG/pos	= Dummy ripcord pulled successfully
SG/neg	= Dummy ripcord not pulled or pulled too late
Fu	= unstable frog (box) position
Xu 5sec	= X position 5 seconds uncontrolled
Sr	= backloop (from German "Salto rückwärts")
Sv	= frontloop (from German "Salto vorwärts")
L	= left hand turn
R	= right hand turn
90°R	= 90° turn right
180°L	= 180° turn left
ROr	= barrel roll right
ROI	= barrel roll left
FL 5sec	= 5 second delta track
DV	= dive
TR	= Tracking
+	= positive execution
-	= negative execution
i.O / OK	= comment: in order, good, okay
AFF L II	= AFF level II
goto L III	= level passed, level III next
HZ	= hand signal
HK	= Arch



BL	= legs out more
BK 30°	= legs shorter by about 30°
... arch	= arch (weak, middling, ok, too much, more)
RJ	= re-jump indicated level
wo	= wave off
Pull bei ...	= pulled main canopy at altitude of ...
R-45	= right hand turn under turned by 45°
L+90	= left hand turn over turned by 90°
Frei Solo	= Student has been cleared for free solo status

### 3.2.16 The Instructor's Handbook

It is the instructor's responsibility to ensure that while instructing, a copy of the instructor's handbook is to hand.

Furthermore, an instructor must ensure they regularly familiarise themselves with the updates to ensure they have the newest information. Developments and innovations should be followed and integrated into their instructional practice.

### 3.2.17 Continuous professional development

Instructors are required to regularly attend professional development activities conducted by or approved by the Authorised Associations. They will receive confirmation of attendance.

### 3.2.18 Miscellaneous

The instructors and their staff are role models and should always be personable and prepared to take on responsibility. This requires knowledge and competence. Ongoing reviews of plans and self-criticism should lead to open improvements in the training.

The suitability and image of an instructor is not only based on their skydiving skills or their theoretical and practical knowledge of matters relating to the sport. Rather, they are based on their commitment and presence.

Student skydivers come from many different backgrounds, including existing knowledge and a variety of physical and mental capabilities. They place all their trust to be properly trained in their instructor.



### 3.3 Organisation of a day's training (example):

- PTO management:** + compliance with all laws and regulations + AHB  
+ work instructions + lists + checks + completeness  
+ state, function of the materials +
- Registration of all students:** + main jump log book / student log book present  
+ medical fitness + all other documents complete + status table  
(Refreshers / retrains) +
- Wind measurement:** + DWD/upper winds + ground winds + wind drift indicator  
+ wind speed + wind direction + current turbulence
- Meteorological Conditions check:** + cloud situation in general + cloud base  
+ general visibility + ground visibility + flight visibility + cloud thickness
- Allocation of gear:** + deployment system + conversions SL to BOC/BOC to SL  
+ canopy (colour) file + harness number + allocation  
by canopy size + single or shared use  
+ size adjustment of harnesses
- Jump assignment:** + exit altitude + exit spot + exit order  
+ body position on exit + body position during  
freefall + plan during freefall + freefall time  
+ pull high + flight plan under canopy + intended  
landing direction and landing point. +
- Briefing:** + explain dive flow + demonstrate jump routine  
+ highlight and reinforce learning goals  
+ practice individual movement sequences  
+ copy dive flow standing/lying  
+ condition movements +
- Flight planning / Aerial photograph:** + wind analysis + line of flight + exit point  
+ opening point + wind sector + 400m line  
+ downwind, base and final legs + landing direction  
+ orientation by ground markers + ground and air communication  
+ landing indicators
- Radio briefing:** + radio commands + priorities of radio commands  
+ check radio + alternatives (e.g. hand signals) +



- Manifesting/** + only with instructor's knowledge
- aircraft allocation:** + only manifest with packed equipment  
+ in accordance with briefing +
- Gear check:** + visual check of all equipment at the CHECKPOINT +
- Despatch:** + mixed loads + video support + instructor or dispatcher  
+ pilot briefing
- Jump supervision:** + observation of decent, canopy flight and landing with telemeters,  
binoculars or video +
- Jump critique / + let student speak first + positive approach
- Jump evaluation:** + what was good + what could be improved  
+ be patient when explaining + highlight positives + praise  
+ criticism should be constructive but honest  
+ make improvement suggestions + provide help for solutions  
+ consider progression steps  
+ practice of goal oriented learning after the feedback  
+ debrief free fall, canopy flight and landing +
- Maintaining main jump log book: + training record card: record, add,  
update, keep neat and correct
- Countersignature in logbook:** + current jump number, date, location, exit altitude, jump assignment,  
aircraft, freefall time, canopy type + evaluation of performance  
+ comments + landing distance +
- Packing/packing checks/  
further training:** + packing video + picture gallery + packing sheet + packing cards  
+ packing test + throw-out / pull-out briefing  
+ PRO packing + briefing for own gear  
+ aide memoir solo status +
- Advanced training:** + relevant qualifications + possibly downsizing of main canopy  
+ coaching and 1:1 training + different flight positions  
+ different freefall manoeuvres
- Oversight and controls:** + responsibility for students + influence on:  
beginners, canopy handling, loading order, boarding  
+ open eyes and ears
- Completeness/  
close-out:** + student systems + altimeters + helmets + goggles + jumpsuits  
+ cleanliness and order + packing area + gear store





+ maintenance and repairs +

**Retrains / Refreshers:**

+ status table + safety tests + retrains

+ check-out jump +



### 3.4 Suggestions to the Instructor's Handbook (AHB Part I)

Deutscher Fallschirmsportverband e.V. or Luftsportgeräte-Büro of the DAeC e.V.  
Comotorstr. 5 Herrmann-Blenk-Str. 28  
66802 Überherrn 38108 Braunschweig

I have the following suggestions for improvement or additions to  
the AHB:

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Name and Parachute Training Organisation



# Chapter 4

## Training Guidelines



## 4. Training Guidelines

### 4.1 Training

#### 4.1.1 Elements of the training

Training to obtain the “permission for air sports equipment operator for sports parachutes” must be conducted in accordance with LuftPersV para 42. It consists of theory training and practical training.

#### 4.1.2 Theory training

Knowledge as per Annex 1 must be imparted in theoretical training.

#### 4.1.3 Practical training

The skills to be imparted in the practical training are detailed in Annex 2.

The objective of the practical training is to master freefall and the safe operation of a sport parachute.

### 4.2 Examination

#### 4.2.1 Components of the Exam

The exam to obtain the permission for air sports equipment operator for sports parachutists consists of a theory exam and a practical exam.

#### 4.2.2 Theory exam

The candidate needs to demonstrate in the theory exam that they have learned the topics in Annex 1:

- Air legislation, air traffic and air traffic control regulations
- Freefall theory
- Meteorology
- Equipment
- Behaviour in Special Circumstances
- Aerodynamics
- Human performance

to the relevant level and standard. Furthermore, they need to demonstrate knowledge of the equipment predominantly used during their training.



The necessary knowledge level of the topics is identified by the relevant letters in the general guidance on LuftPersV Leaflet 1 (Part 1, no 3.3), a special publication of DFS GmbH

- G = knowledge of the terminology and basics; knowledge of inter-relationships
- E = in depth knowledge; ability to apply the theoretical basics and processes in practice
- Z = detailed knowledge; ability to solve problems in time-limited situations
- P = practical proficiency

The written exam consists of a set of examination questions to be answered within 2.5 hours. The exam result must be confirmed by an Evaluator on Exam Certificate 10 in connection with the passed practical exam as a total result.

#### 4.2.3 Practical Exam

The building blocks developed during training should be applied and tested in the evaluation descents. The positively evaluated descents must be logged by an Evaluator on Exam Certificate 10 and confirmed as a total result in connection with the passed theory exam.

The practical exam consists of two freefall descents for which the landing must be within a predeclared circle with a 100m diameter. At least one descent must be from 2,500m/GN (7,500 ft AGL) or above with a freefall time of a least 30 seconds and a movement task around at least 2 axes at the discretion of the Evaluator. The second descent must be from 1,200m/GND (3,600 ft AGL) with a stable controlled canopy opening by at least 1,000m/GND (3,000 ft AGL).

For applicants who have only conducted static line descents in accordance with para 44 (5) LuftPersV, the exam consists of two descents from 1,000m/GND (3,000 ft AGL) with a static line parachute for which both landings need to be in a predeclared circle with 100m diameter. The permission will then be limited to static line parachuting in accordance with para 44 (2) of LuftPersV.



## 4.3 Annex 1 Theory

### 4.3.1 Air legislation, air traffic and air traffic control regulations

- 1. Legislation (G)**
  - 1.1 Air Traffic Law, Air Traffic Regulations as well as other legislation and regulations relevant to operating a sport parachute;
  
- 2. National and international aviation organisation (G)**
  - 2.1 Traffic ministry, German air traffic control (Deutsche Flugsicherung GmbH), Federal Aviation Office, German weather service, aviation offices of the federal states, ICAO: Duties and responsibilities;
  
- 3. Publications of aviation offices (E)**
  - 3.1 Office of News for Airmen (Nachrichten für Luftfahrer), Aeronautical Information Publication (Luftfahrthandbuch) I and II, Aeronautical News I and II, NOTAM, VFR-Bulletin, aeronautical charts, DAeC, DFV.
  
- 4. Airfields (G)**
  - 4.1 Types of airfields, required-use airfields, off-landings and displays, emergency landings, safety landings;
  
- 5. Aircraft (and equipment requiring type inspection) (G)**
  - 5.1 Types and Inspections, manufacturer instructions (safety and technical bulletins), measures the Authorised Associations under para 25 LuftBO, use of foreign equipment;
  
- 6. Air Crew (E)**
  - 6.1 Training, issue, expansion, extension, renewal and withdrawal of permissions and approvals for sport parachutists;
  
- 7. Participation in air traffic (E)**
  - 7.1 Duties of participants in air traffic, general rules, visual flight rules, air space structure, air traffic regulations;
  
- 8. Liabilities of air sports equipment operators of sport parachutes and duty of insurance for the air sports equipment owner (G)**
  
- 9. Criminal offences and misdemeanours (G)**



#### 4.3.2 Freefall

- 1. Gravity and acceleration** (E)
  - 1.1 Gravity, centre of gravity, acceleration and air friction;
  
- 2. Relationship between falling and air friction** (E)
  - 2.1 Stable, unstable and indifferent flight positions, as well as controlled and uncontrolled falling; effect of mass, shape, size, surface area and air density on the fall rate of the parachutists and their flight position; reference to the human body and its ability to move;
  
- 3. Freefall theory** (E)
  - 3.1 Body axes, movement through the axes, terminology; exit and relative wind, freefall drift, further flight manoeuvres; reference to exit altitudes and freefall time, units of measurement used in aviation;
  
- 4. Parachuting disciplines** (G)
  - 4.1 Possible descent types and disciplines; special equipment for special disciplines; qualifications to develop own skills;
  
- 5. Safety notices** (E)
  - 5.1 Accident prevention, especially in freefall topics; awareness training around relative ability and skill; definite danger areas;



#### 4.3.3 Meteorology

##### **1. Basics**

**(G)**

- 1.1 Physics of the atmosphere, composition;
- 1.2 Air pressure, air temperature, humidity, air density; Air pressure: measurement methods, measurement units, reduction at altitude, inversion; Humidity: dew point, evaporation, condensation; Air density: dependency on air temperature and altitude.
- 1.3 ICAO standard atmospheres, values, altitude measurement errors;

##### **2. Weather elements**

**(E)**

- 2.1 Wind: Formation, winds at different altitudes (ground and upper winds), changing direction and speed with increasing altitude, measurement methods, units, estimating direction and speed, Föhn, windward/leeward, local weather systems, mountain/valley winds, land and sea wind, flows around high and low pressure systems;
- 2.2. Clouds: Formation, cloud types, categorisation by altitude, storms, clouds associated with specific weather conditions and precipitation, cloud base;
- 2.3. Visibility: Definition of visibility distance, atmospheric influence on visibility, formation and dispersal of fog;

##### **3. Thermal and mechanical turbulence**

**(E)**

- 3.1 Thermals: Formation, strength, thermal effect of clouds, thermal gusts;
- 3.2 Turbulence: Formation, wind conditions, windward or leeward of obstacles, gusts;

##### **4. Meteorological information and documentation, aviation weather service: Aviation weather stations, weather advisories**

**(G)**





#### 4.3.4 Equipment

- 1. Airworthiness, equipment handbook, technical operating handbook (E)**
  
- 2. Parachute theory (E)**
  - 2.1 Main canopies, reserve canopies, emergency canopies;
  - 2.2 Use, deployment methods;
  - 2.3 Parachute construction, components; canopies: Round canopies, RAM-Air canopies; deployment controls: pilot chute with bridle, deployment bag, POD, slider; harness: harness types, single/dual systems, packing covers; opening devices Static line, rip cord, throw-out, pull-out;
  - 2.4 Control of a parachute: Pilot chute, main canopies, suspension lines, steering lines, bridle retractions, slider, harness, deployment bag, opening device;
  - 2.5 Packing instructions: Documentation, packs, recovery after landing;
  
- 3. Equipment (E)**
  - 3.1 Jump equipment: Helmet, shoes, goggles, gloves, ankle supports, jumpsuit;
  - 3.2 Altimeter: Types, setting, variation, methodology, checking, care, storage;
  - 3.3 Note for qualifications: Physical prerequisites;
  
- 4. Parachute technology (E)**
  - 4.1 Technical operating instructions: Use, kitting up, operation, de-kitting; care and maintenance, packing and control instructions; cleaning, drying, storage; repair; packing and inspection dates; operating documentation; despatch inspection, general inspection; technical data; data sheet, usage time;
  - 4.2 Automatic Activation Device: Installation, use, altitude adjustment, maintenance, special features of different models and safety regulations from manufacturers;
  - 4.3 Packing equipment and aids



#### 4.3.5 Behaviour in Special Circumstances

- 1. General** (G)
  - 1.1 See topic: Human performance;
  
- 2. Flight operations** (Z)
  - 2.1 Issues before and during exit;
  - 2.2 Emergency exits and emergency landings;
  
- 3. Freefall** (Z)
  - 3.1 Issues during freefall;
  - 3.2 Instability, chipping;
  - 3.3 Issues during deployment;
  
- 4. Parachute** (Z)
  - 4.1 Total malfunctions, malfunctions, nuisance factors;
  - 4.2 Issues under canopy;
  - 4.3 Opening the reserve canopy;
  
- 5. Landing** (Z)
  - 5.1 Landing errors;
  - 5.2 Dragging on the ground;
  - 5.3 Water landings;
  - 5.4 Tree landings;
  - 5.5 Landing in or close to high voltage power lines;
  - 5.6 Landing in mountains or valleys;
  - 5.7 Landing on roads;
  - 5.8 Landing on roofs;
  - 5.9 Obstacle landings in general;
  - 5.10 Off-landings in general;
  
- 6. Weather** (Z)
  - 6.1 Critical wind conditions (turbulence);
  - 6.2 Sudden weather changes;
  
- 7. Accidents** (Z)
  - 7.1 Actions after an accident;



#### 4.3.6. Aerodynamics

- 1. General Aerodynamics (G)**
  - 1.1 Gravity, air friction, dynamic pressure, profile, lift, flight performance, types of resistance, inclination angles, fast and slow flight profiles;
  
- 2. Flight mechanics (G)**
  - 2.1 Forces on a RAM-Air canopy, full flight, turns, spirals, airflow over the wing, transition point, boundary layer, line stretch, wing loading, carrying capacity, burble;
  
- 3. Flight behaviour (G)**
  - 3.1 Glide, steering, braking, stall, pendulum effect, flare, ground effect, dynamic stall, risers, drifting, relative movement across the ground, unforgivable errors;
  
- 4. Navigation (G)**
  - 4.1 Wind, exit spot, flight plan, general rules to evaluate conditions, finding the best flight direction, evasion possibilities, accurate landings in general;
  
- 5. Steering (E)**
  - 5.1 Sensible steering, flying cross-wind, flying upwind, actual movement across the ground, orientation and positioning in relation to preferred landing point, s-curve, determination of the actual landing point while under canopy, landing approach, opportunities to influence the final approach;
  
- 6. Landing (E)**
  - 6.1 Landing behaviour of different canopies, landing in general



#### 4.3.7 Human performance

- 1. Health, fitness and constitution** (E)
  - 1.1 Subjective feeling, fitness, circulatory matters, vision;
  - 1.2 Effect of medication, alcohol, stimulants, drugs;
  - 1.3 Allergies, health limitations, injuries;
  - 1.4 Medical facts, head cold, flu and sinus inflammations, barometric traumas, hypoxia, diving and skydiving;
  
- 2. Influence on stress on personal performance** (E)
  - 2.1 How stress arises, influence on actions while under stress, preventative training for correct actions in high stress situations;
  
- 3. Psychological aspects** (G)
  - 3.1 Attitude to the sport, self-confidence, courage, adventure, positive and negative coolness;
  - 3.2 Challenge, overload, correct self-evaluation;
  - 3.3 Group dynamics;
  - 3.4 Pressure to perform;
  - 3.5 Special situations, e.g. Demo jumps;
  
- 4. Limitation in movement** (E)
  - 4.1 Appropriate clothing, additional equipment;
  - 4.2 Special equipment and its peculiarities;
  - 4.3 Short term movement limitations e.g. Splints, plasters, post-operative situation;
  - 4.4 Jewellery, piercing(s);
  - 4.5 Items taken on the descent;
  
- 5. Sport physiology** (G)
  - 5.1 Personal resilience, edges of physical and psychological resilience, concentration;
  - 5.2 Nutrition, physical energy availability, signs of deficiencies, metabolism;
  - 5.3 Musculature, influence on movement;
  - 5.4 Effect on the skeleton and the supporting structure;
  - 5.5 Flexibility of the body, physical preparation for parachute descents;
  
- 6. Individual skills** (G)
  - 6.1 Personal experience, existing knowledge and ability, continuing education in the sport, individual risk appetite, motivation and feeling on the day;



#### 4.3.8 Annex to the course

There are no time requirements for the theory instruction of Sport Parachutists. The Chief Instructor should determine the exam readiness of individuals students.

It remains sensible to prepare the student for the exam using planned lessons on the different topics. There is however, no longer a requirement for students to attend lessons. They can prepare for the exam by self-study if they wish to.



## 4.4 Annex 2 Practical

### 4.4.1 Exercises for static line descents

- 1. Packing of static line parachutes in accordance with the equipment handbook (P)**
  - 1.1 Briefing in the use of the parachute equipment
  
- 2. Ground training (P)**
  - 2.1 Steering and landing
  - 2.2 Behaviour in Special Circumstances
  - 2.3 Body position on exit
  - 2.4 Physical exercises to prepare for exit and landing
  - 2.5 Parachute landing fall (PLF)
  - 2.6 How to behave before and during the run-in
  - 2.7 Ground to aircraft signals
  - 2.8 Signals inside the aircraft
  - 2.9 Exit practice from stationary aircraft or mock-up
  - 2.10 Hanging harness practice
  
- 3. Training descents (P)**
  - 3.1 Jump assignment
  - 3.2 Landing pattern - aerial photograph, line of flight, air sectors
  - 3.3 Determination of the run-in, exit spot, opening point, steering and landing
  - 3.4 At least 6 descents from 1,000m/GND (3,000 ft AGL), jumps 1 - 3 with a direct bag deployment
  - 3.5 Preparation for first freefall through simulation of manual deployment (at least 3 descents in a row with a positive dummy pull)



#### 4.4.2 Exercises for freefall descents

- 1. Packing of freefall parachutes in accordance with the equipment handbook (P)**
  - 1.1 Briefing in the use of the parachute equipment
  
- 2. Body position in freefall / how to stabilise (P)**
  
- 3. Dive exercises in accordance with training plan (P)**
  - 3.1 At least 3 descents in stable position, deployed by the student from 1,200 - 1,500m/GND (3,500 - 4,500 ft AGL) and 5 to 10 seconds freefall time with controlled deployment
  - 3.2 At least 3 descents in stable position, deployed by the student from 1,500 - 2,000m/GND (4,500 - 6,000 ft AGL) and up to 20 seconds freefall time with controlled deployment using altimeter
  - 3.3 Additional freefall descents (at least 17) from at least 1,200m/GND (3,500 ft AGL) of which at least 5 have a freefall time of at least 30 seconds so that stable movement in all body positions and around all axes is demonstrated, theory briefing and two familiarisation descents with other deployment methods (throw-out or pull-out), at least 10 predeclared landings in a circle with a diameter of 100m and at least 5 minutes freefall time
  - 3.4 At least 5 familiarisation descents in 2-way formation skydiving or free flying



4.4.3 Exercises for descents in AFF training, i.e. in accordance with the AFF AHB

**1. Packing of freefall parachutes in accordance with the equipment handbook (P)**

1.1 Briefing in the use of the parachute equipment

**2. Ground training (P)**

2.1 Steering and landing

2.2 Behaviour in Special Circumstances

2.3 Body position in freefall

2.4 Physical exercises to prepare for exit and landing

2.5 Parachute landing fall (PLF)

2.6 How to behave before and during the run-in

2.7 Ground to aircraft signals

2.8 Signals inside the aircraft

2.9 Exit practice from stationary aircraft or mock-up

2.10 Hanging harness practice

2.11 Dive flow on the horizontal trainer

**3. Training descents (from at least 3,000m/GND, 9,000 ft AGL) (P)**

3.1 Jump assignment

3.2 Landing pattern - aerial photograph, line of flight, air sectors

3.3 Determination of the run-in, exit spot, opening point, steering and landing

3.4 (Optional) tandem descent to familiarise with freefall sensation and canopy control

3.5 At least 3 descents with 2 instructors and completion of the learning goals of the training levels I - III of the AFF AHB

3.6 At least 4 descents with 1 instructor and completion of the learning goals of the training levels IV - VII of the AFF AHB

3.7 Additional freefall descents (up to freefall descent 23) of which at least 3 should be from a low exit altitude (1,200 - 2,000m/GND, 3,500 - 6000 ft AGL) so that stable movement in all body positions and around all axes is demonstrated, theory briefing and two familiarisation descents with other deployment methods (throw-out or pull-out), at least 10 predeclared landings in a circle with a diameter of 100m and at least 5 minutes freefall time

3.8 At least 5 familiarisation descents in 2-way formation skydiving or free flying.





# Chapter 5

## First Jump Course



## 5. First Jump Course

### 5.1 Introduction

The basic training for a first time parachutists usually takes 1.5 days. The student is initially familiarised with the necessary parachuting equipment leading on to learning about the ideal conduct of a parachute descent to introduce them to the topic.

Following this, the “Behaviour in Special Circumstances” lesson is held including first physical pull exercises with the cut-away pad and reserve handle. After this, the student is trained in vertical hanging harnesses with trapdoor effect, including under stressful situations.

The subsequent content plan takes into consideration the current knowledge of training and stress research and is binding for all Parachute Training Organisations. It includes reasonable and suitable timings. Between the behaviour in special circumstances lesson and the first jump, at least one night must pass to allow the knowledge to settle.

The training can always be extended if deemed appropriate or necessary by the course director. Pure training of more than 8 - 10 hours per day should not be exceeded. The training should be broken up with short breaks to allow students to absorb the information.

The association considers four possible implementations approaches (A - D):

#### Training model A

- Day 1: from 9am to 7pm ⇒ Complete theory with basic exercises
- Day 2: from 9am to 4pm ⇒ all practical exercises and conditioning of skills; the student can conduct their first jump if performance is satisfactory

#### Training model B

- Day 1: from 3pm to 8pm ⇒ DZ brief, equipment and basic knowledge
- Day 2: from 9am to 7pm ⇒ practical exercises, behaviour in special circumstances theory and practice, hanging harness training, conditioning of skills
- Day 3: from 9am ⇒ practical safety test, if student performs sufficiently, first jump brief and first descent

#### Training model C

- Days 1 to 5: Evening classes ⇒ complete first jump course with basic exercises; students are advised this is not the ideal training timing which will be compensated by more intensive lessons
- ⇒ All practical exercises and conditioning of skills;
- Jump day: from 9 am ⇒ complete refresh of the important training content, hanging harness test, jump brief and if student performance is sufficient, first jump

#### Training model D

Further, individually tailored approaches suited to the situation of the PTO



## Training plan (Note: the indicated minutes are for guidance only)

### Topic overview

- Greeting
- Introduction to the training
- Organisation
- DZ Orientation or Brief
- Basic briefing on parachute equipment
- Opening sequence of the main canopy
- Parachute technology and basic aerodynamics
- Sequence of a parachute descent
- Exercises on handling the equipment
- Body position on exit, in freefall and on landing
- Theory lesson: Behaviour in special circumstances (BiSC)
- Handle exercises for BiSC
- Parachute landing fall (PLF)
- Question/answer game: Behaviour in Special Circumstances
- Training in hanging harnesses: General behaviour
- Training in hanging harnesses: Conditioning of behaviour in special circumstances
- Safety test theory and hanging harness test practical
- Exit practice from a mock-up and first jump brief
- Mental preparation: Visualisation of the first jump
- Weather check and possible first jump

**1.5 days (+)**

- Other topics:
- physical and stretching exercises
  - repeat of BiSC
  - packing classes
  - practice jumps
  - overall programme



## 5.2 Greeting

- Introduction of the instructor and the Parachute Training Organisation
- Short overview of the organisation of sport parachuting in Germany
- If relevant, introduction of other instructors, staff, pilot(s), introduction by the students with their motivation

**15 min**

## 5.3 Introduction

- Presentation of the programme of the first jump course
- Explain learning objectives and if appropriate touch on teaching methods

**10 min**

## 5.4 Organisation

- Possibly recording all participants on a course list
- Check medical fitness certificates
- Complete coversheet of student file / ID check to confirm minimum age
- Check in (Contract for Instruction, joining the club)
- Provision of insurance information (third-party liability, accident) by the instructor
- Prepare student's training record card, possibly including passport photo
- If necessary, approval from parents/guardians
- Provision of logbook (explaining it is a legal document)
- Possibly hand out training handbook
- Ensure financial matters are resolved
- If necessary, ensure accommodation matters are resolved
- Answer questions

**25 min**

## 5.5 DZ Orientation or Brief

- General information on the airfield (boundary, area, buildings, facilities)
- Flight operations locations (taxi ways, run way; behaviour)
- Hangar, aircraft, air traffic control, refuelling point, parachutists area, spectator/parachutists area, no smoking zones
- Induction into jump aircraft (seating order, seat belts, exit procedures, exit)
- Landing area, wind sock, landing T, target (with areal picture)
- Induction to area, obstacles, danger areas (with areal picture)
- Training and packing areas
- Training facilities and materials
- Student equipment, kit store

**25 min**



## 5.6 Basic equipment brief

### 5.6.1 Harness/container system, parts (teaching discussion)

- General harness information, main lift webs, leg and chest straps, laterals and belly band
- Container, Main and reserve canopies
- Static line with aircraft attachment and closing pin (soft pin),
- or AFF rig with rip cord or throw-out
- Cut-away system, principles of the emergency procedures
- Cut-away pad, reserve handle
- Reserve-Static-Line (RSL)
- Automatic Activation Device

**15 min**

### 5.6.2 Additional equipment for student (demonstration)

- Clothing (close fitting, not covering handles)
- Hard helmet for head protection
- altimeter
- (Optional) radio receiver possibly with earpiece
- Clear goggles (protection from dust, mosquitoes etc.)
- Suitable shoes (possible ankle protection, no hooks)

**10 min**

### 5.6.3 Donning jump equipment (demonstration)

- Only properly fitting harness with the correct canopy size or system number (reference radio)
- Watch handles while donning equipment
- Possibly donning additional equipment (e.g. Chest mounted altimeter, radio pocket)
- Check strap closure: correctly threaded without twists, tightened appropriately
- Leg strap closure: correctly threaded without twists, sufficiently tight
- Proper routing of all straps, excess well tucked away
- cut-away pad and reserve handle visible
- All handles can be reached and grasped well
- Make students aware of the requirement for an instructor to carry out
- a visual check at the checkpoint before each jump

**10 min**



## 5.7 Opening sequence of the main canopy

### 5.7.1 Opening sequence of the main canopy (demonstration)

- Open a main canopy by pulling on the pilot chute/bridle  
Relevant explanation of what takes place during the opening sequence
- Show full opening and unfolding and the interrelationships
- Show the appropriate opening sequence relevant to the training method (AFF/static line)!

**10 min**

## 5.8 Parachute technology and basic aerodynamics

### 5.8.1 Components of the main canopy (practical demonstration lesson)

- Possibly include pilot chute, bridle, deployment bag/parachute opening device (“POD”)
- Canopy (top skin, bottom skin, ribs)
- Nose and tail of canopy
- Cells
- Cross ports
- Stabilisers
- Suspension lines, cascades, A-B-C-D lines, connector links
- Steering lines with steering toggles
- Half-brakes setting and stows
- Slider
- Main life web with 3 ring system

**25 min**

### 5.8.2 Basic aerodynamics (taught lesson with videos)

- Air foil, advantages: steerable and can be slowed down
- How it works (physics of the air stream)
- How lift is created (carrying capacity)
- Technical data: canopy size, forward motion, fall rate, wake/burble
- Full flight (with, against and cross wind)
- Braking manoeuvres (half brakes, full brakes, flaring to land)
- Turns (direct, indirect; Note: altitude loss)
- Over braking - stall, stall point, dynamic stall
- Pendulum effect on sudden steering inputs (including its dangers)

**30 min**



### 5.8.3 RAM-Air reserve canopy or round reserve canopy (taught lesson with videos)

Either:

- Same principle as the main canopy; note: 7 cells
- Same canopy checks as for RAM-Air main canopy
- Possibly slightly different flight characteristics versus main canopy
- Possibly higher wing loading (different stall point, risk of stall on landing)
- Free bag: Intentionally separates on opening!
- Higher landing speed likely = PLF compulsory

**20 min**

Or:

- Explain how it works, possibly with an example canopy
- Technical data: Size, fall rate
- Pilot chute, bridle, diaper
- Gores, panels, suspension lines, connector links
- Top vent, pendulum effect
- Canopy checks, restricted steering
- Steering lines, steering slits, missing gores, mesh slits
- Drift, influencing direction, landing direction
- Landing behaviour, landing position, PLF compulsory

**20 min**

(when doing training model C, day 1 ends here)

## 5.9 Sequence of a parachute descent

### 5.9.1 Exit and falling (teaching discussion)

- Basics on falling: Gravity, acceleration, forces in the air
- Centre of gravity theory: indifferent, stable, unstable
- Neutral box position: controlled falling, symmetry, asymmetry
- Forces in the air: slanted positions and their effects
- Basics on exits: forward throw from the aircraft, forces in the air, relative wind
- Demonstrated connection between body position and deployment: why belly to earth is necessary at deployment and controlled falling and altitude awareness are the highest learning goals.

**30 min**



- 5.9.2 Determining the exit position, discussion of the flight plan (taught lesson with aerial photograph)
- Traditional determination: Wind drift indicator, natural drift in freefall and under canopy
  - Jump run into wind, exit point and opening point
  - Wind direction, wind axis, line of flight, windsock or landing T (possibly model)
  - Calculated example: Fall rate after canopy opening, flight pattern with, cross and against the wind from the side, relative movement and speeds over the ground, theoretical limits with the canopy
  - Example of a flight plan with landing pattern from above using the aerial photograph
- 30 min**
- 5.9.3 Static line descent demonstration (teaching discussion with videos)
- Demonstration of all important learning levels in the static line training with the use of videos and commentary.
- 10 min**
- 5.9.4 AFF- descent demonstration (teaching discussion with videos)
- (Only if relevant) Demonstration of all important learning levels in the AFF training with the use of videos and commentary.
- 10 min**
- 5.9.5 Exit commands and exit (Explain, Demonstrate, Imitate, Practice – “EDIP” while standing)  
Possible example for a static line exit:
- Command: “In the door” (student moves to the door with eye contact to their instructor)
  - Command: “Exit” (student positions themselves in the door)
  - Confirmation: “Check in” (Student indicates readiness to jump)
  - Command: “Okay” (instructor indicates clearance to jump)
  - Exit count: “Propeller - up - down - out” (loud by the student with release from the aircraft by the student on “out”)
- 10 min**





#### 5.9.6 Static line descent demonstration (teaching discussion with videos)

- Exit and dynamic adoption of the neutral body position (if AFF students are present, simulate the pull manoeuvre without taking account of time between exit and pull)
- Check count: 1000-2000-3000 ...
- Canopy check: Is it square? Is it slowing me down? All cells open? Slider all the way down?
- Turns? Uncontrolled flying? Stall?
- Everything normal: Release the toggles from half-brakes and check altitude
- Check airspace (aircraft, orientation, navigation)
- Canopy control check (flying, steering and flare test, altitude check)
- Flight phase (navigation, orientation, approaching the target, altitude checks)
- Landing pattern (Down wind, cross wind, into wind)
- Landing approach and landing (according to wind sock or landing direction indicator),
- Flare: Eyes - shoulders - hips

**5 min**

(when doing training model B, day 1 ends here)

#### 5.10 Exercises on handling a RAM-Air canopy

##### 5.10.1 Control measures (EDIP while standing)

- "Propeller - up - down - out" (AFF Students additionally simulate pulling action)
- 1000-2000-3000 check thousand
- Canopy check from left to right = if everything normal...
- Reach into steering toggles
- Release half brakes (pull steering lines all the way through to check their free running)
- Altitude check
- Steering lines up again for full flight
- Airspace control: ahead, right, left, below
- Canopy Control Check: turn 90° to the right – turn 90° to the left – full flare
- From full flight = canopy should be fully controllable; if so ...
- Altitude check
- Orientation to the airfield (approach and landing in accordance with flight plan, altitude checks)
- Regulate ear pressure (if necessary)

**30 min**



#### 5.10.2 Flight phase to 400m GND (1,200 ft AGL) (teaching discussion with aerial photograph)

- General briefing on the wind conditions and flight planning using the aerial photograph: daily and always after changes in wind conditions
- Line of flight /45° rule<sup>3</sup> / Wind sector (distinctive ground references)
- “Play” area (airspace to execute control checks, move toward the PLA, orientation, observation of wind speed, constant airspace checks, slotting into the stack with other canopies, positioning for the best landing pattern, all in conjunction with regular altitude checks)

**10 min**

#### 5.10.3 Landing phase from 400m/GND (1,200ft AGL) (teaching discussion)

- “400 m line” (1,200ft line) cross it as per the flight plan, continue with constant airspace checks until landing
- “300 m line (900ft line) steer towards it (S-turns, figures of 8)
- “Down wind leg”: from about 300m/GND (900 ft AGL) to one side of the landing area
- “Cross wind leg”: from about 200m/GND (600 ft AGL) cross wind at right angles to landing area
- “Into wind leg”: from about 100m/GND (300ft AGL) flight into wind towards landing area and maintain flight direction
- Under 100 m/GND (300ft AGL) rely on visual judgement
- Fly towards free area
- At about 20 m/GND (60ft AGL) legs together, prepare for landing
- At about 5 -3 m/GND (15 - 10 ft AGL) flare and prepare to PLF

**10 min**

#### 5.10.4 Important altitudes above ground level (Teaching discussion)

- At all times: Eyes open during the canopy flight, regular altitude checks
- If above 100 m/GM (300ft ALG) with wind: at max do a 180° turn into wind
- Under 100 m/GM (300ft ALG): no more 360° turns
- Under 50 m/GM (150ft ALG): no turns above 90°
- Under 20 m/GM (60ft ALG): maintain flight direction, legs together
- Avoid obstacles, turn away from them early
- Stick to your landing priorities

**5 min**

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<sup>3</sup>The student should aim to always be at an about 45° angle to the parachute landing area (“PLA”) while on the line of flight. This provides them with orientation until about 400m (1,200ft) when they start their approach.



#### 5.10.5 Landing priorities and other important basic rules (Teaching discussion)

- Priority 1: Canopy parallel to the ground
- Priority 2: Land away from obstacles
- Priority 3: At least half brakes
- Priority 4: Landing Into the wind

Always valid:

- Avoid landing in lees
- Avoid landing on runways if possible
- Only cross runways at lower altitudes after traffic check
- Avoid take-off and landing approaches at the airfield under canopy
- Comply with local rules regarding the runway, e.g. crossing height

**5 min**

#### 5.10.6 After landing (Teaching discussion)

- Stand up (if not already standing) and give observer hand signal
- Gather up lines (loops or daisy-chain) and canopy
- Take care of any dangling items
- Watch for other canopies while walking back
- If relevant, talk to your instructor
- Drop equipment in the packing area
- Pack as soon as possible or prepare equipment for storage
- Protect equipment from sun and moisture

**5 min**

(when doing training model C, day 2 ends here)



## 5.11 Behaviour in Special Circumstances

### 5.11.1 General

Up to this point, the students will have already heard a lot of information about skydiving in the ideal situation. That knowledge is the basis for further training during which the student will need to start making more and more decisions independently. From the introduction to the harness/container system, they are aware that there are main and reserve canopies and a cut-away system. It is likely that they will have already worked out that problems may arise during the descent.

This chapter is designed to introduce students to behaviour in special circumstances slowly and logically, demonstrating possible dangers and how to deal with them if they arise. The order, starting with manifest call, walk to the aircraft, loading the aircraft, climb to altitude, exit, freefall, opening, flight and landing phase provides a sequence which students can follow easily.

### 5.11.2 Humans in sport parachuting (teaching discussion)

- Introduction to the topic, sport parachuting as a dangerous sport
- Behaviour in special circumstances (“BiSC”) lesson should give confidence and help identify problems
- How to develop strategies to deal with these to minimise poor judgements and human factors as a cause of accidents
- Question individual responsibility (general health, medications, alcohol, drugs, physical limitations, cardio-vascular matters, lack of oxygen, tiredness, stress limits)
- Over confidence in one’s own abilities and ignoring the danger of situations as a primary problem in sport skydiving
- Accident statistics: Which are the groups most at risk in sport parachuting?
- Awareness of parachuting in the sense that: “Do you know what you are doing?”

**5 min**



#### 5.11.3 Preparation phase (teaching discussion)

- Container/harness system and additional equipment should all be present, fit well and function
- System number and main canopy colour is known
- AAD switched on and checked
- Jump assignment received and wind briefing has taken place
- Correct donning of the harness/container
- Additional equipment with you
- Self-check “handle check”: visible and/or can be touched
- Meet at “checkpoint” for visual gear check by an instructor
- Going airside: Behaviour according to dropzone briefing
- Approach and loading of aircraft (e.g. only from behind)

**10 min**

#### 5.11.4 Taxi and take-off to 300 m/GND (100 ft AGL) (teaching discussion)

- Put helmet on, seating order, buckle up
- Protect handles/static line will be checked for SL students<sup>4</sup>
- Aborted take-off: “Brace position”
- Emergency landing: up to 300m/GB (1,000 ft AGL) remain seated (in brace position)
- Emergency landing with damaged aircraft: unhook static lines, if necessary sever with a knife/leave the danger area
- Provide relevant assistance (saving ones self always takes priority)
- Generally: the aircraft pilot has the highest power of command

**5 min**

#### 5.11.5 Emergency exit 300m/GND to 800m/GND (1,000ft to 2,500ft AGL) (Instruction)

- Generally does not occur above the airfield/retain intended exit order, prepare for off-landing on an obstacle free area
- SL attached: exit as quickly as possible and check canopy, depending on altitude, prepare for landing, in the event of a malfunction relevant emergency procedure
- (If two-out: see Two-Out point below)
- Without SL attached: Altitude check, up to 2,500ft, reserve handle, ideally grasp while still in the aircraft, exit as quickly as possible, deploy reserve 1 second after leaving the aircraft, canopy check, depending on altitude, prepare for landing
- Altitude check, above 2,500ft: orderly, prompt exit, deploy main canopy (for SL in any case, for freefallers as relevant to planned deployment altitude)

**5 min**

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<sup>4</sup>Note: The timing of attaching the static line to the aircraft will be determined by the Chief Instructor of the PTO in their own PTO rules. The emergency exit procedure must be adapted accordingly. This is incredibly important if students move from one PTO to another.



#### 5.11.6 Climb to altitude (Instruction)

- Unintended open canopy in general: inform all parachutists in the aircraft
- Affected parachutist lands with the aircraft
- If door closed during climb:
  - ⇒ Main canopy open: hold on to everything, release RSL, cut away main canopy, aircraft lands
  - ⇒ Reserve canopy open: hold on to everything, aircraft lands
- With open door during run-in:
  - ⇒ Main canopy open: hold on to everything, close door, release RSL, cut away main canopy, aircraft lands
  - ⇒ Reserve canopy open: hold on to everything, close door, aircraft lands
- Canopy which is unintentionally open gets into air stream:
  - ⇒ Main or reserve canopy = immediately (!) exit and check canopy

**5 min**

#### 5.11.7 Landing with the aircraft (instruction)

- Buckle up, helmet on for landing
- Do not leave the aircraft towards the propeller on landing
- Possibly wait until all engines have stopped
- Return to parking place: behave in accordance with the airfield rules

**2 min**

#### 5.11.8 AFF-training (teaching discussion)

- Special instruction regarding altitudes and measures are in the AFF AHB

**1 min**

#### 5.11.9 Static line exit (Instruction)

- Normal: everything runs as expected and trained
- Hang-up in general: Stay calm, do not activate any handles, signal to dispatcher: “both hands on helmet”, dispatcher cuts away static line, emergency procedure as relevant for altitude
- Hang-up special situation: Parachutists who are unconscious cannot be cut away = aircraft lands with the parachutist

**2 min**



#### 5.11.10 Freefall phase (teaching discussion)

For first-time static line students, this should be part of their later briefing on freefall. The correct body position will however, be part of the static line ground school and mock-up exit practice, even for SL students. For AFF students reference should be made to the specific AFF briefing where they will learn all relevant matters for freefall during their Level I lesson. It should be pointed out to students that in the event of cutting away from their main canopy, they will return to freefall: “Hard arch” during and after cutting away and pulling the reserve is generally the best solution. Furthermore an issue with the static line could mean a static line student is freefall, hence: “Hard arch”, altitude check, cut-away and deploy reserve is the solution here.

**5 min**

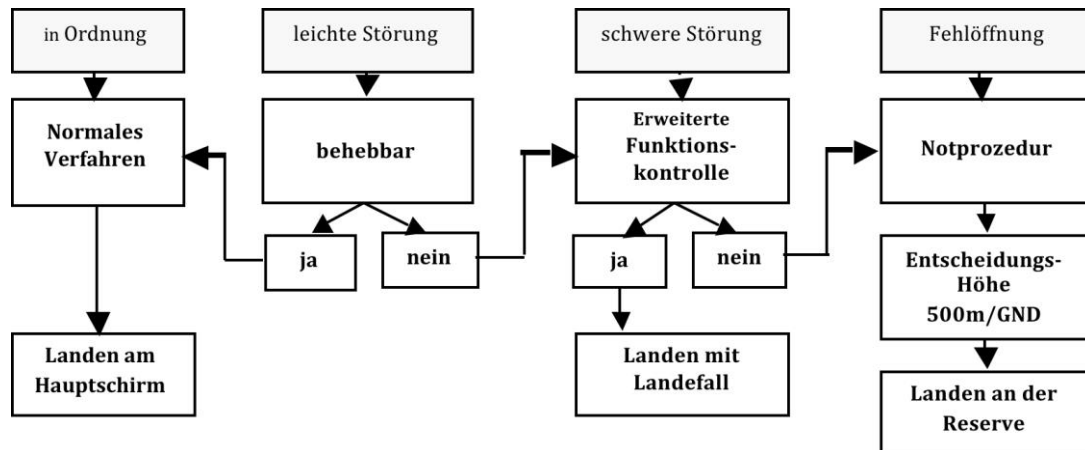


### 5.11.11 Opening phase (teaching discussion)

There are 4 categories of opening issues:

- Canopy okay
- Canopy slightly impaired
- Canopy severely impaired
- Canopy malfunction (extreme impairment)

The following flow chart shows what measures to take for each issue category:



Principle of enhanced canopy control check with slight or severe impairment:

- Altitude check
- Release brakes
- Turn 360° to the right, turn 360° to the left
- Full flare from full drive
- Evaluation of the steerability and landability
  - Decision positive = Yes ⇒ Land with PLF
  - Decision negative = No ⇒ refer to decision altitude and emergency procedure

**Decision altitude: 500m/GND (1,500 ft ALGL)<sup>5</sup>**

**Emergency procedure:**

- Altitude check: Above 500m/GND (1,500 ft AGL) ⇒ cut away and deploy reserve<sup>6</sup>
- Altitude check: under 500m/GND ⇒ Deploy reserve either with cut-away or by itself

Malfunctions in freefall with AFF students:

- Will be covered in the relevant AFF briefing

**10 min**

<sup>5</sup>500M/GND (1,500ft AGL) should be understood to be the lowest time for a decision to be made. A student with a clear malfunctioning main canopy must not wait until this altitude to perform their emergency procedures. On the other hand it should serve as a fixed height/time by which to make a decision (decision altitude) when there is high stress or doubt on how to proceed.

<sup>6</sup>**Caution:** Learning research has shown that as an instructor the emergency procedure should not be demonstrated straight on (i.e. Mirror image). A first jump student may memorise the movements for the emergency procedure the wrong way around!





### 5.11.12 Slight impairments (Instruction with pictures/videos)

Definition: Canopy is open and flying!

**Basic first action after recognition: Altitude check = “Do I have time?!” Do not think about the possible source of the issue, rather the solution! During the measures being taken keep an eye on altitude!**

- Right and/or left end-cell closure: Altitude check ...
  - ⇒ Release brakes
  - ⇒ Pump brakes to inflate cells (slow full flare and full release, possibly multiple times)
  - ⇒ Cells don't inflate ⇒ enhanced canopy control check
  
- Slight line twists: Altitude check ...
  - ⇒ Keep toggles in place
  - ⇒ Support unwinding of twist (spread risers, swing legs)
  
- Canopy turns slowly on opening: Altitude check ...
  - One brake has released
    - ⇒ Release other brake
    - ⇒ Possibly enhanced canopy control check
  - Broken steering line:
    - ⇒ Release other brake
    - ⇒ Enhanced canopy control check with rear risers ⇒ if positive ⇒ additional strength needed to steer with rear risers ⇒ therefore favour steering with the intact steering line ⇒ landing with even rear riser flare ⇒ definitive PLF
  - Steering line knotted
    - ⇒ Balance out any turns with opposite riser or steering line
    - ⇒ Enhanced canopy control check
  
- Slight damage to the canopy fabric: Altitude check ...
  - ⇒ Enhanced canopy control check
  
- Slider remains half way up: Altitude check ...
  - ⇒ Release brakes
  - ⇒ Pump slider down
  - ⇒ If slider does not come down on pumping ⇒ enhanced canopy control check

**20 min**



### 5.11.13 Severe impairments (Instruction with pictures/videos)

Definition: Canopy is open but its flight is limited. Fall rate is possibly faster!

**General first action after recognition: Altitude check = “Do I have time?!” Do not think about the possible source of the issue, rather the solution! During the measures being taken keep an eye on altitude!**

- Severe line twists: Altitude check ...
  - ⇒ Keep toggles in place
  - ⇒ Support unwinding of twist (spread risers, swing legs)
  - ⇒ No success ⇒ decision altitude ⇒ emergency procedure
  
- Multiple closed cells: Altitude check ...
  - ⇒ Release brakes
  - ⇒ Attempt to inflate with pumps, maximum 2x
  - ⇒ Possibly enhanced canopy control check
  - ⇒ No success ⇒ decision altitude ⇒ emergency procedure
  
- Broken suspension line(s): Altitude check ...
  - ⇒ Release brakes
  - ⇒ Bring canopy to a stable straight flight (max 50% counter turn)
  - ⇒ Possibly enhanced canopy control check ⇒ if positive ⇒ careful counter steering and braking with offset steering lines ⇒ PLF
  - ⇒ No success ⇒ decision altitude ⇒ emergency procedure
  
- Slider stuck in upper third, also one-sided with turn: Altitude check ...
  - ⇒ Release brakes
  - ⇒ Attempt to inflate with pumps, maximum 2x
  - ⇒ Possibly enhanced canopy control check
  - ⇒ No success ⇒ decision altitude ⇒ emergency procedure
  
- Knot(s) in suspension line(s): Altitude check ...
  - ⇒ Hit risers
  - ⇒ Possibly release brakes
  - ⇒ Possibly enhanced canopy control check
  - ⇒ No success ⇒ decision altitude ⇒ emergency procedure



- Lines knotted with slider: Altitude check ...
  - ⇒ Hit risers
  - ⇒ Release brakes
  - ⇒ Attempt to inflate with pumps, maximum 2x
  - ⇒ Possibly enhanced canopy control check
  - ⇒ No success ⇒ decision altitude ⇒ emergency procedure

**25 min**

### **Either**

- square reserve is open as well as main canopy = two out: Altitude check ...
  - Biplane situation (canopies are behind each other)
    - ⇒ Keep toggles stowed
    - ⇒ Steer carefully with the rear risers of the main canopy
    - ⇒ Do not cut-away ⇒ land the situation
    - ⇒ Land without flare in PLF
  - Side-by-side situation
    - ⇒ If reserve is completely open and clearly separated from main canopy ⇒ release RSL ⇒ cut-away main canopy
    - ⇒ If reserve not fully open ⇒ attempt to recover it and clamp between legs
    - ⇒ If main canopy not open, but separated from the fully open reserve canopy ⇒ release RSL ⇒ cut-away main canopy
    - ⇒ If main and reserve canopies intertwined ⇒ retain main canopy ⇒ steer with the rear risers of most open canopy ⇒ PLF
    - ⇒ If main has not been cut-away ⇒ land without flare in PLF
  - Down-plane situation (canopies flying left and right of parachutist vertical to the ground)
    - ⇒ Not landable ⇒ release RSL ⇒ cut-away main canopy

**10 min**



Or

- Round reserve is open as well as main canopy = two out: Altitude check ...
  - ⇒ Round may be braking the square canopy ⇒ PLF
  - ⇒ If main and reserve canopies are clearly separated ⇒ release RSL ⇒
  - ⇒ Cut-away main ⇒ land round reserve with PLF
  - ⇒ If main canopy and round reserve are intertwined with each other ⇒ retain main canopy ⇒
  - ⇒ Parachute Landing fall (PLF)
  - ⇒ If reserve not fully open ⇒ attempt to recover it and clamp between legs
  - ⇒ If main canopy not open but clearly separate from the fully open
  - ⇒ Reserve ⇒ release RSL ⇒ cut-away main canopy ⇒ land in PLF

**10 min**

**Note:** *Students must know exactly when their AAD will fire. They must not induce it to fire at the critical altitude by steep spiralling which reaches the firing descent speed of the AAD. In a two-out situation it is recommended to reduce the decision altitude to 250m/GND (750ft AGL).*



#### 5.11.14 Malfunctions (Instruction with pictures/videos)

Definition: The container and/or the canopy or not or only partially open. Fall rate is only marginally reduced from freefall speed!

**General first action after recognition: Altitude check = “Do I have time?!” Do not think about the possible source of the issue, rather the solution! During the measures being taken keep an eye on altitude!**

- No opening after exit or pull = Total malfunction: Altitude check ...
  - ⇒ No time ⇒ emergency procedure
  - ⇒ If time is available, possibly attempt to hit container 1 - 2 times with elbows
  - ⇒ No success ⇒ emergency procedure
  
- Deployment sleeve or bag remains closed = bag-lock:
  - ⇒ Static line jumps with direct bag: see “Hang-up in general”
  - ⇒ otherwise: Emergency procedures
  
- Streamer: Altitude check ...
  - ⇒ No time ⇒ emergency procedure
  - ⇒ If time, possibly release brakes ⇒ pump maximum of 1 - 2 times
  - ⇒ No success ⇒ emergency procedure
  
- Steering or suspension line over canopy = line-over: Altitude check ...
  - ⇒ No time ⇒ emergency procedure
  - ⇒ If time, possibly release brakes ⇒ pump maximum of 1 - 2 times
  - ⇒ No success ⇒ emergency procedure
  
- Torn canopy:
  - ⇒ Emergency procedures
  
- Out of control turns:
  - ⇒ Emergency procedures
  
- 3-ring system remains fixed on one side after cutting away:
  - ⇒ Pull cut-away pad again and clear cable
  - ⇒ No success ⇒ hit hanging 3-ring system
  - ⇒ If appropriate finish emergency procedure



- Leg(s) caught in suspension lines (Flamingo): Altitude check ...
  - ⇒ Attempt to release legs
  - ⇒ Steering and flaring partially possible ⇒ situation could be landable
  - ⇒ If unable to release and comparable to a malfunction ⇒ emergency procedure
- Torn riser:
  - ⇒ Emergency procedures

**25 min**

#### 5.11.15 Canopy flight (Instruction)

- Collision course directly on opening
  - ⇒ Immediately steer away using risers and avoid
- Traffic rules/rights of way
  - ⇒ Avoid collisions at all costs
  - ⇒ Right before left (but do not insist and increase the danger)
  - ⇒ Generally avoid to the right (45-90° turn to the right usually fully adequate)
  - ⇒ Overtake on the right (e.g. When approaching a braking canopy from behind)
  - ⇒ Lower canopy has right of way (e.g. whoever is lowest on final landing approach)
  - ⇒ The least manoeuvrable has right of way (e.g. Balloon before round canopy, before square canopy, before glider, before motorised aircraft)
  - ⇒ Landing direction as per windsock or landing T or arrow toward open ground
- Burbles
  - ⇒ Do not fly directly behind other canopies, rather choose a parallel approach
  - ⇒ Do not cut up other parachutists and create risk with your own burble
- Flight through turbulent air (e.g. Thermals, burbles etc.)
  - ⇒ Keep canopy on full drive where possible, it is at its most stable then and reacts best to inputs when fully inflated
  - ⇒ Do not make abrupt steering movements creating pendulum effects
  - ⇒ If canopy slightly wobbly, half flare and slowly let it re-inflate
  - ⇒ Steer with care and attempt to leave area of turbulence
  - ⇒ If the canopy drops close to the ground, anticipate hard landing ⇒ PLF



- Collision with another parachutists
  - ⇒ Avoid at all costs
  - ⇒ If it collision with another canopy cannot be avoided: make whole body
  - ⇒ to a large "X" shape, turn head to one side, avoid entanglements
  - ⇒ If hitting with a parachutist: Protect body, avoid entanglements
  - ⇒ After a collision without entanglement evaluate carrying capacity of the canopy ⇒ decision altitude ⇒ possibly emergency procedures
  - ⇒ Collision with entanglement: Establish contact by calling ⇒ in general, the lower parachutist cuts away and deploys reserve (>500m/GND - 1,500ft AGL) ⇒ the upper parachutist evaluates the carrying capacity of their canopy ⇒ if this is negative ⇒ decision altitude ⇒ emergency procedure
  - ⇒ An entanglement from which you cannot cut away:
  - ⇒ As long canopies can carry the weight ⇒ land with PLF
  - ⇒ If canopies cannot carry the weight ⇒ deploy reserve canopies in addition
  - ⇒ Canopy collision occurs close to the ground (<250m/GND 650ft AGL) ⇒ consider deploying reserve canopies in addition

**15 min**

#### 5.11.16 Landing phase (Instruction)

- Misjudgements on landing (to be avoided if possible)
  - Flare point
    - ⇒ Too early in 5 - 10 m/GND (15 - 30 ft AGL) ⇒ hold the flare ⇒ PLF
    - ⇒ Too early in 10 - 20 m/GND (30 - 60 ft AGL) ⇒ slight release of brakes, no more than half brakes ⇒ at 5 - 3 m/GND (15 to 10 ft AGL) fully flare ⇒ PLF
    - ⇒ Above 20 m/GND (60 ft AGL) ⇒ depending on canopy, return to full flight ⇒ land normally
  - Landing with the wind
    - ⇒ Under 20 m/GND (60 ft AGL) keep flying in the direction towards an obstacle free area (landing in a turn is more dangerous than landing with the wind)
    - ⇒ In 10 - 5 m/GND (30 to 15 ft AGL) go to half brakes ⇒ in 5 - 3 m/GND (15 to 10 ft AGL) full flare ⇒ slide in or PLF depending on the situation
  - Cross wind landing
    - ⇒ Between 50 - 20 m/GND (150 to 50 ft AGL) gently try to turn into wind
    - ⇒ In 5 - 3 m/GN (15 to 10 ft AGL) flare fully ⇒ PLF or run it out
  - Landing in lee behind tall obstacles
    - ⇒ The air moves downward here increasing sink rate and is turbulent
    - ⇒ In 10 - 5 m/GND (30 to 15 ft AGL) go to half brakes ⇒ in 5 - 3 m/GND (15 to 10 ft AGL) full flare ⇒ PLF



- Landing in suddenly higher or generally high wind speeds
  - ⇒ Slow flaring like in a normal landing
  - ⇒ After landing, immediately turn towards your canopy ⇒ walk/run after it pulling a single steering line to collapse it
  - ⇒ If needed, run to the other side the of the canopy
  - ⇒ If being dragged (release RSL if appropriate) ⇒ cut-away main canopy or if being dragged by a reserve canopy pull on one steering line or riser
  
- Landing off
  - ⇒ Usually no wind or landing direction indicator
  - ⇒ Evaluate wind direction from canopy drift to establish best landing direction
  - ⇒ Fly towards an obstacle free area
  - ⇒ expect a hard landing ⇒ prepare for PLF (actual surface of the ground is unknown)
  - ⇒ Land in a straight line and flare from 5 - 3 m/GND (15 to 10 ft AGL)
  - ⇒ Do not land on or directly next to roads (but aim to be close to one)
  - ⇒ After landing, walk to nearest road or built up area
  - ⇒ Keep an eye out for vehicles coming to pick you up
  
- Direct landing
  - After landing
    - ⇒ Stand up and possibly give observer hand signal
    - ⇒ Continue to keep an eye out for other landing canopies
    - ⇒ Observe others to learn from them
    - ⇒ Note traffic on the airfield
    - ⇒ If needed and FBO permits it: Only cross runways in controlled manner
  
- Behaviour in case of injury on landing
  - ⇒ Stay lying down
  - ⇒ Possibly release RSL ⇒ cut-away main canopy
  - ⇒ As an observer ⇒ carry out first aid
  - ⇒ General visual signal ⇒ helper holds up canopy

**20 min**

(when doing training model C, day 3 ends here)





- Landing on/by obstacles  
(If possible avoid; they are easiest to avoid by not fixating on the obstacle as you tend to go where you look).
  - Tree landing / landing in woodlands
    - ⇒ If unavoidable ⇒ aim to land into wind
    - ⇒ Tree tops are your “Landing area”
    - ⇒ Legs together before contact
    - ⇒ At 3 m (10 ft) above tree tops ⇒ half brakes and protect eyes with the insides of fists holding toggles ⇒ press elbows together in front of your chest
    - ⇒ Await the landing and protect your body
    - ⇒ If the canopy is caught on a tree ⇒ stay hanging ⇒ hold on if possible ⇒ wait for help and under no circumstances attempt to climb down
    - ⇒ If the canopy subsequently drops between the tree tops ⇒ anticipate a hard landing ⇒ PLF
    - ⇒ If you fly towards a single tree, the edge of a woodland or a row of trees, the same behaviour applies
  - Water landings
    - ⇒ If unavoidable ⇒ aim to land towards the water edge
    - ⇒ Release RSL
    - ⇒ Possibly loosen harness, unhook one side of a chest mounted reserve if present
    - ⇒ expect a hard landing ⇒ prepare for PLF (water depth is unknown)
    - ⇒ Half brakes, take a deep breath and PLF on touching the water (Caution: over water, at night and over snow altitude is difficult to judge)
    - ⇒ After hitting the water: Release steering lines and cut-away main canopy (only once the feet or body are in the water!)
    - ⇒ If relevant: to not come to the surface under the canopy
    - ⇒ Water landings under reserve canopies (e.g. after an emergency exit) ⇒ climb out of the harness (does not matter how, just calmly)
    - ⇒ Recommendation: Swim on your back, slow movements; if you can stand, wait for help
    - ⇒ Do not try to recover the equipment ⇒ swim to the edge of the water
    - ⇒ If motor boats are being use ⇒ take care of location of engine propellers
  - Landing on a flat roof
    - ⇒ If unavoidable ⇒ aim for the centre of the roof ⇒ possibly release RSL
    - ⇒ On flat roofs ⇒ land normally ⇒ take care not to be dragged off the roof by the inflated canopy ⇒ possibly cut-away main canopy ⇒ possibly hold on to something ⇒ wait for competent assistance and do not climb down



- Landing on gabled roof
    - ⇒ If unavoidable ⇒ remain calm
    - ⇒ Normal flare
    - ⇒ Hold on to anything ⇒ possibly stay hanging from main canopy and wait for help
    - ⇒ If you fall from the roof ⇒ anticipate hard landing ⇒ PLF
- 15 min**
- Landing on/towards power lines
    - ⇒ Avoid if possible
    - ⇒ Power lines are recognisable by the poles in regular intervals
    - ⇒ If absolutely unavoidable ⇒ fly parallel to the power lines
    - ⇒ When contact anticipated ⇒ throw away any handles held in hands
    - ⇒ Legs together, elbows in front of the chest, hands in front of the face (do NOT release the steering toggles)
    - ⇒ If suspended ⇒ avoid grounding ⇒ await competent assistance
    - ⇒ If canopy subsequently drops anticipate a hard landing ⇒ prepare for PLF
    - ⇒ If the canopy remain in contact with the power lines and the parachutist has contact with the ground ⇒ high voltage can result in power surges ⇒ immediately cut-away main canopy ⇒ if under reserve climb out if harness ⇒ do not await help
    - ⇒ If power only suspected (lines are broken and touch the ground) ⇒ slowly shuffle away (legs together, alternate moving forward half a foot at a time without lifting body fully) ⇒ move as far as possible from the accident location ⇒ do not await help
    - ⇒ aim for at least 20 m (60ft) distance
  - Landing towards obstacles (all sorts, fences, wind turbines etc.)
    - ⇒ If unavoidable ⇒ anticipate hard landing
    - ⇒ Brake immediately before the collision ⇒ possibly catch the impact by stretching legs towards obstacle
    - ⇒ Depending on situation improvise ⇒ PLF
  - Landing on taxi or runways
    - Landing on runways
      - ⇒ Not forbidden, but to be avoided
      - ⇒ If unavoidable ⇒ land normally ⇒ leave runway immediately to one side (best to the side to which the canopy moves easily without resistance)
      - ⇒
      - ⇒ Do not fly through the take-off and landing approach areas of runways or aim to land on these



- Landing on roads or rail tracks
  - ⇒ Avoid if possible ⇒ Caution: Roads and rail tracks often occur in conjunction with power lines
  - ⇒ No car or train driver considers the possibility of encountering a landing parachutists
    - ⇒ the danger of being run over or dragged is very high.
  - ⇒
  - ⇒ If absolutely unavoidable ⇒ observe traffic ⇒ land normally
  - ⇒ Leave road or track immediately with the canopy
  - ⇒ Do not try to retrieve equipment ⇒ immediately release RSL and cut-away main canopy

**10 min**

## 5.12 Handle exercises on training harness

**Caution: Findings from research into learning and stress must be incorporated here!**

1. Students should never learn or practice emergency procedures unsupervised.
2. The movements for the emergency procedure to be learned have to be demonstrated slowly and absolutely correctly the first few times.
3. It is strongly recommended to practice the movements for the emergency procedure only after instruction and by using practice harnesses with “real” handles.
4. The desired coordinated movement may only be conditioned at speed after it has been performed completely without error.

### 5.12.1 Standing/practice harness (practical 1:1 lesson)

- Pulling with the correct movements
- Pulling of all handles in the correct sequence

**10 to 30 mins**

### 5.12.2 Hanging harness with trap door effect (practical 1:1 lesson)

- Pulling with the correct movements
- Pulling of all handles in the correct sequence

**10 to 30 mins**



### 5.12.3 AFF specific training

- With AFF Students, the pulling of the main canopy should be considered in all chronological handle practices.

On completion of the handle exercises the first training section is completed. In the subsequent practical ground training, the student increasingly learns how to apply the theory. Time wise the student has received the following instruction so far:

Dropzone brief	25 min
Equipment	45 min
Parachute technology	60 min
Sequence of a parachute descent	1h 35 min
Handling a parachute	1h 05 min
Behaviour in special circumstances	3h 10 min
Handle practice approx.	20 min
Total approx.	8h 20 mins (excluding any admin)

(In a full-time course using training model A, day 1 ends here)

## 5.13 Parachute Landing fall (PLF)

### 5.13.1 Physical preparation (Practical)

- General warm up (approx. 10 min)
- General gymnastic exercises and exercises for the neutral position (approx. 10 min)
- Stretching the relevant body parts used in the PLF (approx. 10 min)

**30 min**

### 5.13.2 PLF practice (EDIP)

The student should wear a helmet and possibly a jumpsuit for safety.

- Instructor demonstrates PLF
- Imitate: from kneeling in both directions
- Imitate: from standing in both directions
- Imitate: from higher position (instructor demonstrates all movement directions: forward, Right, left, backwards, forward right, forward left, backward right, backward left, students imitate)
- Speedy performance of PLF in all directions from a higher position
- (At least 10 per student, higher position not to be more than 60 - 80 cm/GND, 2 - 3 ft AGL)

**30 min**



## 5.14 Issue of Equipment

### 5.14.1 Issue of kit

- Students receive all equipment
- Canopy size to be selected and canopy colour shared
- Instructor checks the deployment system and the fit of the harness
- Additional equipment checked for fit and function

### 5.14.2 Trying on

- Student dons all equipment
- Instructor performs gear check as at the checkpoint and vocalises the sequence
- Principle of the student radio is explained (if being used)
- Students should find all their handles on the “real” equipment

**30 min**

(when doing training model C, day 4 ends here)

## 5.15 Behaviour in special circumstances (Practical)

### 5.15.1 Question/answer game (teaching discussion and EDIP)

- Instructor poses questions on BiSC ⇒ students respond and demonstrate the related movements.
- Instructor corrects and if necessary, demonstrates correct behaviour again
- Questioning techniques should be used: targeted questions, address the whole group,
- follow-up questions, indicate uncertainty, hand over questions, challenge answers;
- Every student should have performed about ten positive emergency procedures in practice harnesses to condition the movement

**60 min**

### 5.15.2 Hanging harness training on hanging harness with trap-door effect (practical training)

- Student performs the movements of all opening categories to demonstrate handling, steering and landing of the canopy.
- Behaviour checks with realistic examples from exit to landing
- The students should pull the handles properly as soon as the situation requires it
- Students should have demonstrated at least five positive emergency procedures on the hanging harnesses

**Extensive practice of all emergency procedures with all available tools!**

**60 - 90 min**



#### 5.15.3 Safety test theory (written test)

- Students provide their personal confirmation before their first jump
- Students write the written test
- Instructor marks the written tests and evaluates the results
- Test is discussed with the students

**Approx. 45 mins**

(In the full time training in accordance with training model B, day 2 ends here; in the part-time training model C, day 5 ends here)

#### 5.15.4 Safety test practical (with hanging harness test)

- Students demonstrate brace position for emergency landings
- Students demonstrate PLF of their own choice
- Students are tested in the hanging harness without assistance at discretion of instructor
- Student should demonstrate the emergency procedure at least 2x correctly regardless of the situation

**5 - 10 min each**

### 5.16 Exit practice

#### 5.16.1 Exit from a mock-up (practical training)

Exit practice can run in parallel with the hanging harness test:

- Exit practice without equipment while standing
- Exit practice without equipment onto the landing mat
- Exit practice with full equipment while standing

In parallel, students should receive further instruction on their (freefall) body position. This includes:

- Presentation to the relative wind
- Body position, symmetry, centre of gravity, stability
- Exit movement
- Body tension
- Conscious jumping



### 5.16.2 Behaviour in the aircraft (role play)

- Run through of the exit
- Simulation of situations (e.g. also emergency exit or emergency landing)
- Mental preparation: “Visualisation” of the first jump in its ideal sequence

**60 min**

After the exit training, the practical ground school for the static line student is complete. In terms of time, they have received the following instruction before their first jump:

Theory		8h 20 min
PLF		60 min
Equipment		30 min
Hanging harness	approx.	1h 30 min
Jump training		60 min
Total approx.		12h 20 min (excluding any safety tests)

## 5.17 Jump briefing

### 5.17.1 Radio briefing (teaching discussion)

- Hardware brief radio: switching on/off
- Donning radio with equipment (can you hear?)
- Switching on: who/when, check under open canopy
- Equalise pressure on ears under canopy (explain why)
- Radio is only to assist: Student is an independent pilot responsible for their own actions = radio is not “remote control”
- Discussion of specific instructions (e.g. Instructions are always repeated twice)
- Behaviour in the event of radio failure or landing out of sight of instructor
- Priority of radio commands
- There is no command for emergency procedure
- On two-way radios: Explain talk button for emergencies after landing
- Also mention the hand signals for down wind, cross wind, into wind parts
- (Possibly supported by flags or batons)
- Additional assistance tools as appropriate (e.g. megaphone)

### 5.17.2 Jump assignment (instruction)

- The course director confirms the completeness of the first jump paperwork (amongst others, fitness certificate, all signatures, confirmation of training in accordance with AHB)
- On clearance by the course director the student will be given a jump assignment suited to their first jump course



### 5.18 Further instruction

- AFF Students now get their AFF Instruction from an AFF Instructor
- Re-train or refresh students now get their further practical training (e.g. briefing for their check-out jump)

### 5.19 Preparation to jump

- The appropriate instructors check the weather conditions for a first jump
- A flight plan discussion then takes place using the current wind and the aerial photograph
- Manifest: Wait for the call

### 5.20 Continuing training

- Packing training (demonstration, timing as per CI/Instructor)
- Packing lesson (building on above, EDIP)
- Practical jump training

### 5.21 Progression from SL student to freefaller

#### 5.21.1 Static line descents 1 - 3 (with the direct bag method)

Turning as intended Front loops and back loops

- Exit and body position (neutral position)
- Watching the aircraft
- General and specific awareness
- Body control

The learning goal has been achieved when the exit and position in the relative wind is good enough.

Learning aids:

- Observations from dispatcher/videos
- Mock-up
- Appropriate ground exercises
- Counting: 1000 - 2000 - 3000 -...

If the learning goal is not achieved, additional or repeat descents are made.





### 5.21.2 Static line descents 4 - 6 (with direct back or PCA with spring loaded pilot chute)

**Note:** Student converting from direct bag to PCA with spring loaded pilot chute have to have a separate briefing before their next jump (see chapter 6 , Point 5.1)!

Additional learning goals:

- If performance is good, possibly dummy pulls
- Coordinated or accurate dummy pulls with appropriate counter movement at the same time
- Return to neutral body position and tension after dummy pull

The learning goal is achieved when at least three successive positive dummy pulls in have made returning back to a neutral position.

Additional learning aids:

- E.g. counting:            1000 =        exit position  
                                      2000 =        reaching with the counter movement  
                                      3000 =        pulling and returning to the neutral position  
                                      Check thousand =        canopy check over the shoulder
- Condition this through lots of practice (practice, practice, practice...)

Emphasise: Do not look for handle to avoid de-arching!

If the learning goal is not achieved, additional or repeat descents are made.

### 5.21.3 Preconditions for the first free fall descent

- Three successive positive dummy pull descents
- At least six static line descents in total
- Last dummy pull no longer than 36 hrs ago
- Free fall brief in accordance with AHB



## 5.22 Suggestions for sequences for the practical jump training (dive flows)

### 5.22.1 Dive flows for jumps 1 - 3

#### Jump description:

The student should exit the aircraft swiftly and controlled. They should take up a stable free fall position with an emphasis on the “arched” position (head back, hips forward) with neutral, symmetrical arm and leg position. After the canopy opens, canopy check and orientation in the air, the student conducts a controlled canopy flight. They should implement the plan made in advance of the descent correctly and swiftly and react to any possible radio commands.

#### Briefing:

- These descents are intended to familiarise the student with the topics aircraft, exit and falling, relative wind and flying under an open canopy.
- Before donning their equipment, the student is asked questions relating to Behaviour in Special Circumstances for static line descents. The student has to be able to answer these to the satisfaction of the instructor. The instructor reminds the student of the decision altitude in special situations (500m-GND, 1,500 ft AGL).
- The student must be able to show their flight plan under canopy under the current wind conditions on the aerial photograph.

#### Criteria for the evaluation of the descent:

- The student must be alert and react to the situation accordingly. The instructor’s commands must be followed.
- The movements in the aircraft and at exit must be as previously instructed: Controlled and in an appropriately timed order.
- Arch must be supported by:
  - Head back
  - Hips forward
  - Arms and legs in a neutral position (at least until opening jolt)
- The overall position must be neutral.
- Eyes open and watching the aircraft until the canopy opens
- The student counts out loud on exiting the aircraft.
- Canopy control must be as per the briefing (possibly improved by radio commands). The student must demonstrate controlled handling of their canopy, they must hold their direction in the final approach (no drifting or turning) and with no turns close to the ground. Flare should be correctly timed at the correct altitude.
- The canopy should be gathered up correctly and brought to the packing area (without dragging).



### Evaluation of a jump:

- The student is evaluated by the above mentioned criteria. The observers on the ground are asked to contribute to the evaluation of the canopy work.
- The evaluation is recorded on the training record card and student's log book by those making the evaluation.

#### 5.22.2 Dive flows for jumps 4 - 6

##### Jump description:

Exit and falling as described for the induction descents 1 - 3 above. Radio (if used) is only used to immediately correct big errors or praise good canopy handling. Student is responsible for their orientation on canopy opening. They execute the flight and landing pattern safely, as taught. Special tasks for canopy handling are listed in Chapter 7 Canopy Handling.

If the descent is a dummy pull in preparation for free fall descents, the student must pull the dummy handle in a timely and coordinated manner. The arch must not be lost, the learned freefall position must be maintained/retaken on pulling the dummy handle.

##### Briefing:

- The importance of a good free fall position for a smooth transition to free fall descents is reinforced with the student.
- Before the descent, the task is explained to the student in detail, and its movements practised extensively on the ground.
- The student explains their planned canopy flight before each descent.
- Before donning their equipment, the student needs to answer some question on behaviour in special circumstances to the satisfaction of the instructor. The student is reminded of the avoidance rules under canopy. Behaviour to avoid canopy collisions in the air must be mastered by the student.
- The importance and need for an accurate landing pattern is made clear to the student.

##### On descents with a dummy pull:

- This is targeted preparation for freefall descents. It requires a stable freefall position when pulling the main canopy.
- The correct steps to pull the dummy-pull are practised in the hanging harnesses and in a horizontal position (e.g. horizontal trainer or mock-up).
- The student should not attempt to only reach for the dummy-pull once the canopy has already been opened by the SL, but execute the movements during its opening. A correct and stable freefall position must be taken up to pull the dummy-pull.
- Maintaining the arch and neutral position are particularly important on pulling the dummy-pull to remain stable in freefall.
- The dummy-pull is stowed in the jumpsuit after a successful opening and canopy check, but can be discarded in the event of a malfunction.
- **Caution:** The dummy-pull must never be routed with the closing cable of the static line through the closing loop of the main container!



#### Criteria for the evaluation of the descent:

- As described at point 21.1.
- With dummy-pull: Student must maintain a stable freefall position with correct arm and leg position before and after pulling.
- With dummy-pull: The movement of arms and hands must be coordinated. The reach for the handle must be precise and conducted in the taught timing.
- The canopy flight must be conducted in a safe manner, as instructed and in consideration of other parachutists in the air.
- 
- The landing should be within the pre-declared distance of the target, but should not appear to suffer from “target fixation at all costs”.
- The instructor may require a re-jump if multiple criteria for the descent are not met.

#### Evaluation of a jump:

- The student is evaluated on their exit and free fall position by the dispatcher. The dispatcher completes the training record card.
- The ground observer evaluates the student’s performance under canopy, steering and distance from target. The ground observer also completes the training record card.
- The entries into the training record card are then copied by the student into their logbook. The instructor signs the entries in the student logbook.
- In the event of incorrect freefall position or steering techniques, these are discussed after the descent and re-trained by the instructor with the use of suitable learning aids for practice and improvement.



### 5.22.3 Dive flows for jumps 7+

- A minimum of six static line jumps is required. Before this, no static line student may conduct a free fall descent!
- It remains an association regulation that the student must perform three positive dummy pulls in sequence before being progressed to free fall.
- In the ideal case, the seventh descent can be a student's first free fall descent.
- If the student does not meet the required standard in the minimum number of descents, the instructor can continue to extend the number of static line descents as they deem necessary.
- There is no limit to the number of static line jumps which can be conducted. It is at the discretion of the instructor to evaluate the student's progression.
- The execution of descents must follow the rules in 21.1 or 21.2 with any individual modifications by the supervising instructor.



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# Chapter 6

## Free fall instruction



## 6. Free fall instruction

### 6.1 Briefing for free fall descents

After a student has completed their first jump course and all necessary static line descents, they can progress to free fall. For this to take place, a formal free fall brief must be conducted between the last dummy pull descent and the first free fall decent. Of course, the student has so far not been introduced into freefall malfunctions and must have a lesson on the situations which could arise. In addition, the student's existing emergency exit knowledge should be checked. This could change fundamentally as the student no longer has a static line and must therefore deploy their reserve themselves.

The topics to be covered in the free fall brief are:

- Equipment brief on spring loaded pilot chute
- Jump assignment
- Behaviour in special circumstances: Freefall
- Horizontal free fall training
- Practical ground training of the jump assignment

#### 6.1.1 Equipment briefing (teaching discussion)

- Functioning of the rip cord and spring loaded pilot chute, packing brief

#### Changes for static line students:

- Emergency exit between 300 - 800m/GND (1,000 and 2,500 ft AGL): Altitude check...
  - ⇒ Grab reserve handle in the aircraft
  - ⇒ Pull reserve handle one second after leaving the aircraft
- Emergency exit above 800m/GND (2,500 ft AGL): Altitude check...
  - ⇒ Deploy main canopy at appropriate altitude

#### 6.1.2 Jump assignment (instruction)

The jump assignment for the first free fall should be practically the same as the jump assignment for the last dummy pull descent. Suggestion: "stable exit, max. 3 seconds free fall and pull controlled; safe canopy flight and clean landing".





### 6.1.3 Behaviour in special circumstances (teaching discussion)

Additional malfunctions during free fall. Definition: Opening is not yet induced or prevented in some way. Fall rate has not slowed down much or at all!

- Deployment handle cannot be found: Altitude check ...
  - ⇒ Feel along the harness or edge of container (max. 1 attempt)
  - ⇒ Possibly try to see the handle
  - ⇒ If unsuccessful, emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)
  
- Grip on handle lost part way: Altitude check ...
  - ⇒ Reach back and try to find rip cord
  - ⇒ Slide to handle and complete the pull
  - ⇒ If unsuccessful, emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)
  
- Handle is stuck = hard pull: Altitude check ...
  - ⇒ Attempt again with all your strength
  - ⇒ Possibly leverage against the container with elbow (watch altitude!)
  - ⇒ Possibly attempt to pull with both hands (watch altitude!)
  - ⇒ If unsuccessful, emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)
  
- Pilot chute in parachutist's burble: Altitude check ...
  - ⇒ Shake your body without de-arching
  - ⇒ Count again: 1000 - 2000 - 3000 -...
  - ⇒ If unsuccessful, emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)
  
- Pilot chute caught on parachutist = horse shoe malfunction: Altitude check ...
  - ⇒ Possibly one attempt at releasing caught pilot chute or bridle
  - ⇒ If unsuccessful, emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)
  
- Pilot chute in tow or torn away: Altitude check ...
  - ⇒ One heavy shake of the body
  - ⇒ Hit the side of the container with elbows to release deployment bag
  - ⇒ If unsuccessful, emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)
  
- Bag-lock malfunction: Altitude check ...
  - ⇒ Emergency procedure (decision altitude 500m/GND, 1,500 ft AGL)

**Remember:** In all total free fall malfunctions, the RSL has not effect.



### Additional incidents:

- Loss of altitude awareness
  - ⇒ Pull immediately
- Reserve handle slipped out of pocket: Altitude check ...
  - ⇒ Possibly attempt to place handle back into the pocket & remain aware of altitude and priorities
  - ⇒ In the event of having to apply emergency procedures, slide hand along cable to find handle
- Pilot chute could get caught in the main canopy Altitude check ...
  - ⇒ Release brakes
  - ⇒ enhanced canopy control check & if ok, careful flight under the main canopy
  - ⇒ Land in PLF

Teaching guidance: Only ever initiate ONE attempt at resolution.

If unsuccessful go to emergency procedures

#### 6.1.4 Priorities in free fall training (teaching discussion)

- Pull
- Pull at the right altitude
- Pull at the right altitude in a stable position
- Pull at the right altitude in a stable position after jump assignment followed by safe canopy flight and landing as planned.

This means: Pulling is more important than altitude than position than jump assignment. All safety matters in free fall instruction can be deduced from this. Furthermore, the student always has the option to end free fall at any time if they feel uncomfortable in any way.

Additionally for further free fall instruction:

#### 5 second rule

**If a student becomes uncontrolled in freefall, they have 5 seconds to return to a neutral position by implementing counter manoeuvres. If this is not possible within 5 seconds, the main canopy should be deployed (5 seconds are approximately equivalent to 250m altitude).**



#### 6.1.5 Behaviour in uncontrolled free fall (teaching discussion)

- Flat spin
  - ⇒ Beginner: Pull immediately and expect line twists
  - ⇒ Intermediates: possibly take 5 second to remedy the situation, otherwise pull
  - ⇒ Advanced: possibly enter a delta track (max 5 seconds), then as above
  
- Instability
  - ⇒ Beginner: Pull immediately
  - ⇒ Intermediates: possibly take 5 second to remedy the situation, otherwise pull
  
- On your back
  - ⇒ Beginner: Pull immediately
  - ⇒ Intermediates: half barrel roll to your belly (after barrel role technique has been taught), max 5 seconds, otherwise pull.

**Note:** Behaviour in uncontrolled free fall in AFF training is described in the AFF AHB.

#### 6.1.6 Behaviour if injured in free fall (teaching discussion)

- ⇒ Pull immediately
- ⇒ If hand is injured: pull reserve handle with other hand  
(In any case if under 500 m/GND, 1,500 ft AGL if still in free fall)

#### 6.1.7 Horizontal freefall training

To provide the student with a realistic idea of the freefall situation they will encounter, use a horizontal trainer for realistic instruction.

- Flat spin Beginner: pull immediately expect line twists
- Emergency training (examples from the BiSC Freefall)
- Emergency procedure training in belly position without and with time simulation

The emergency situations on the free fall trainer can be simulated quite energetically. Fast turns, strong see-sawing/chipping or shaking will test the priorities and intended reactions by the student despite the distractions. At a minimum three positive emergency procedures should be trained as a basic requirement before a first free fall descent.



### 6.1.8 Practical ground training of the jump assignment

All exercises need to be adapted to the relevant jump aircraft. The additional free fall time should be included in the training. This remains the case until the student can read their altimeter in free fall and develops their own altitude awareness.

In any case the student should be told their opening altitude as well as their free fall time.

The instructor is responsible for selecting the appropriate training technique for position, body awareness and movements in free fall.

### 6.1.9 Individual responsibility

The student must be schooled that it is increasingly their own responsibility put on their gear correctly. They should be taught the “rule of 3” (3 correct harness closures, 3 handles, 3 rings, possibly with RLS, 3 things like helmet, goggles, altimeter).

## 6.2 Free fall progression

### 6.2.1 First free fall descent

Turning as intended Front loops and back loops

- First free fall
- Build confidence in themselves and the equipment

The learning goal is achieved if the student pulls after 3 seconds at the latest. Ideally, they are stable when pulling. Free fall time should only be extended after a positive evaluation.

Learning aids:

- Counting and watching the aircraft

Special features:

- Reminder of the similarity of the sequence to the dummy pull dive flow

### 6.2.2 Free fall descents up to 10 seconds

Turning as intended Front loops and back loops

- Body position suitable for free fall
- Maintaining free fall time/opening altitude
- Increasingly recognise and read altimeter

Learning goals have been achieved:

- Falling for at least 10 seconds without chipping or turning
- Controlled canopy deployment using altimeter

### 6.2.3 Free fall descents up to 30 seconds

Turning as intended Front loops and back loops

- Getting used to terminal velocity
- Body position and symmetry and axis control (neutral position/ stabilising/ adjustment movements/ turns and counter turns)



- Altitude awareness

Learning goals have been achieved:

- Recognition of turns and chipping
- Returning to a neutral position and stopping the movement
- Inducing counter movements
- Controlled canopy deployment using altimeter

Special features:

- Before these descents the student needs to be briefed on the relevant movements

#### 6.2.4 Free fall from full altitude (up to 4,000m/GND, 12,000 ft AGL)

Learning goals:

- Exits (floater, dive, unstable, fun)
- Stable controlled fall, belly to earth
- Turns as desired
- Front and back loops
- Forward movement, delta and full track
- Barrel roles left and right
- Wave off and controlled canopy deployment using altimeter, if needed control of flight positions (floating, diving, back-flying, head-up, sitfly etc.)
- With advanced skills the student should start with introduction jumps into formation skydiving or freefly (see proficiency card and proficiencies)



## 6.3 Suggestions for sequences for the practical jump training (dive flows)

### 6.3.1 Dive flows for free fall descents (level) 1 - 3

#### Jump description:

After exit the student remains in free fall for a maximum of 3 second from at least 1,200m/GND (3,500 ft AGL) as indicated by the instructor and counts the time. Descents with a planned free fall time between 5 and 8 seconds must be from at least 1,300m/GND (4,000 ft AGL) and descents with up to 10 seconds free fall time from at least 1,500m/GND (4,500 ft AGL). The rip cord is pulled at the relevant time in a coordinated manner without losing the arch or the learned free fall position. After opening their canopy the student steers their canopy in accordance with the flight plan to the landing area.

#### Briefing:

- Calm the student (e.g. "...this is the same dive flow as the dummy pull descent, just that the fall will not be slowed by the opening canopy while you are pulling..."). The student may feel more comfortable if they are told that experienced parachutists have about 10 seconds free fall time from this altitude.
- The student should never delay their deployment to adjust their body position. They must deploy their main canopy within 1 - 3 seconds, regardless of their body position. Time awareness is the priority!
- The student must count out loud during their training standing up and when horizontal and practise their free fall body position. Thereby they train the deployment of the main canopy in the original timing up to and including possibly starting their emergency procedures in simulated malfunctions in the training.
- The student is sufficiently prepared for behaviour in special circumstances with a free fall trainer. They must master all necessary reactions for the descent free of error and without time delay before the descent.

#### Criteria for the evaluation of the descent:

- The timing of the descent is exactly as briefed.
- The student should aim to watch the aircraft on exiting.
- The body position should be symmetrical and the pull movement smooth.
- The student must maintain their neutral position after pulling.

#### Evaluation of a jump:

- Evaluate the student by the criteria and ask for input from ground observers for the canopy handling.
- The student enters the descent evaluation into their logbook, depending on the recommendation with relevant progression. The instructor signs the entries in the student logbook.
- The first free fall descents must also be recorded in the main jump log book of the PTO.



### 6.3.2 Dive flows for free fall descents (level) 4 - 6

#### Jump description:

After exiting from up to 2,000m/GND (6,000 ft AGL) the student performs a free fall dive flow as determined by their instructor. They check their altimeter at intervals without losing their arch or changing their free fall body position.

They deploy their main canopy at 1,200 - 1,000 m/GND (3,500 to 3,000 ft AGL). After opening their canopy the student steers their canopy in accordance with the flight plan to the landing area.

#### Briefing:

- The student is briefed on how to read the altimeter and possible problems related to it (extended time flying on one's back, how to behave if it malfunctions).
- The student must learn to constantly check their altitude. Remind them that instability results in a faster fall rate and therefore reduced free fall time.
- The student should not fixate exclusively on the altimeter, short visual checks are sufficient. The "arch" position should not be lost.
- Before gearing up, sample questions should be asked to confirm knowledge on behaviour in special circumstances in general and in free fall as well as general behaviour in free fall.

#### Criteria for the evaluation of the descent:

The above mentioned criteria remain relevant, these are in addition:

- The student should watch the aircraft on exit.
- The student must deploy their main canopy at the time or altitude set by the instructor at the jump assignment but at the latest at 1,200 - 1,000m/GND (3,500 - 3,000 ft AGL) from a stable position.
- Altitude checks should be short and coordinated and must not lead to instability.

#### Evaluation:

- Evaluate the student by the criteria and ask for input from ground observers for the canopy handling.
- The student enters the descent evaluation into their logbook, depending on the recommendation with relevant progression. The instructor signs the entries in the student logbook.
- The free fall descents with delays up to 10 seconds must also be recorded in the main jump log book of the PTO.



### 6.3.3 Dive flows for free fall descents up to the practical licence evaluation

#### Jump description:

After a controlled exit the student goes to the learned neutral “box” position. During tasks in free fall (e.g. movement around the three axes) the student must demonstrate altitude awareness. The main canopy is deployed by 1,000 m/GND (3,000 ft AGL). After opening their canopy the student steers their canopy in accordance with the flight plan to the landing point.

#### **Students cleared for descents above 2,000 m/GND (6,000 ft AGL):**

- Level 7:** Controlled turns around the vertical axis, before pulling: Wave off
- Level 8:** Dive exit, back loop, front loop, before pulling: Wave off
- Level 9:** Unstable exit, forward movement, tracking, change of body position: Dive, back fly, barrel rolls, before pulling: Wave off
- Level 10:** Briefings on other deployment systems (throw-out/pull-out), before pulling: Wave off
- Level 11:** Introduction to free fall qualifications: Formation Skydiving or Free Flying, before pulling: Wave off
- Level 12:** Introduction to further qualifications

**Note: Caution!** *Not all containers are suited to 3D movements at a high speed. No free fly or freestyle to be performed on harness/container systems which are not suited to this form of flying!*





#### 6.3.4 Table for the conventional free fall training

*(Note: all altitudes are above ground level (GND), the number of descents per level at the discretion of the instructor)*

<u>Level</u>	<u>Exit altitude</u>	<u>Dive flow (suggestion)</u>
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<b>1</b>	1,200m	up to 3s stable free fall
<b>2</b>	1,500m	up to 10s stable free fall
<b>3</b>	1,500m	stable free fall pull at 1,200 - 1000m per altimeter

From now on the student must demonstrate constant altitude awareness by regular checking of their altimeter (every 4 - 6 seconds).

<b>4</b>	2,000m	stable free fall pull at 1,200 - 1000m
<b>5</b>	2,000m	Dive exit, pull at 1,200 - 1000m
<b>6</b>	2,000m	Dive exit, 90° turns left and right, wave-off and pull at 1,200 - 1,000m
<b>7</b>	2,500 to 4000m	exit of choice, 360° turns left and right, wave-off and pull at 1,200 - 1,000m
<b>8</b>	2,500 to 4000m	exit of choice, back loop/front loop, turns as time permits, wave-off and pull at 1,200 - 1,000m
<b>9</b>	2,500 - 4,000m	unstable exit, forward movement, half barrel roll to back flying, half barrel roll to belly position, delta track for max 5 seconds (possibly repeat), wave off and pull at 1,200 - 1,000m
<b>10</b>	2,500 - 4,000m	Floater exit, no free fall dive flow, deployment system changes to throw-out or pull-out, wave off and pull at 1,500 to 1,200m
<b>11</b>	Full altitude	Practise jumps with appropriate jump assignments, of which at least 5 are practice or introductory descents for qualification in Formation Skydiving or Free flying;
<b>12</b>	Full altitude	Possibly introductions to further qualifications;



### Briefing:

- The neutral position as well as techniques to induce movements around the vertical axis (turns), lateral axis (front/back loops), and longitudinal axis (barrel rolls) are explained. If possible, use a wooden doll or pictures to demonstrate the movements.
- Afterwards the movements are physically demonstrated and practised to the extent possible. The same applies to other requirements which are necessary to pass the practical exam.
- The instructors must emphasise how important it is to check altitude at regular intervals. Uncontrolled falling increases the fall rate and reduces the remaining free fall time available.
- The student must be able to answer questions on behaviour in special circumstances to the instructor's satisfaction at any time.
- After canopy opening the student performs their canopy handling skills as they consider appropriate which are supervised by the instructor.

### Criteria for descent evaluation:

The above mentioned criteria remain relevant, these are in addition:

- The first altimeter check must take place shortly after arriving in the neutral position and after that at regular intervals until opening altitude at 1,200m - 1,000m/GND (3,500 - 3,000 ft AGL).
- Altitude checks and the reach and pull must be coordinated and not lead to instability.

### Evaluation:

- Evaluate the student by the criteria and ask for input from instructor on the ground for the canopy handling.
- The student enters the descent evaluation into their logbook, depending on the recommendation with relevant progression. The instructor signs the entries in the student logbook.
- The student must be kept at each progression level until the instructor is satisfied they have performed all tasks sufficiently.
- All important details of free fall descents must also be recorded in the main jump log book of the PTO.
- The main goal is for the student to gain the skills to pass the practical examination.



### 6.3.5 Dive flows for low altitude descents for free fall students following the AFF method

#### Jump description

In accordance with the guidelines for the instruction and examination of air sports equipment operators, an AFF Student must have completed three low altitude descents for familiarisation. These low altitude descents may only be conducted on completion of the third solo descent of the student, but within the subsequent five.

#### First descent from 2,000m/GND (6,000 ft AGL)

- Stable exit of choice
- Controlled freefall, possibly with tasks
- Altitude awareness
- Wave and pull between 1,300-1,100m/GND (3,500- 3,000 ft AGL)

#### Second descent from 1,500m/GND (4,500 ft AGL)

- Stable exit of choice
- Controlled freefall
- Altitude awareness
- Wave and pull between 1200-1000m/GND (3,500- 3,000 ft AGL)

#### Third descent from 1,200m/GND (3,500 ft AGL)

- Stable exit of choice
- Controlled freefall
- Wave and pull after 5s or at the latest by 1,000m/GND (3,000 ft AGL)

If a student has problems with “low” altitudes, they are to be appropriately trained and prepared with extensive practice.

On a bad exit the dispatching instructor decides on whether the descent needs to be repeated.



## 6.4 Briefings on other deployment systems

### 6.4.1 Throw-Out Introduction (minimum briefing)

Requirement: Student has reached a level equivalent to that of a passed level VII jump in the AFF - programme. The introduction consists of throw-out theory and at least 2 descents.

a) Technical features:

- How it works, new position of handle, usually bottom of container ("BOC"), pilot chute can be harder to pull
- Curved pin, inserted 3/4 from below in accordance with the manufacturers' recommendations, far shorter closure ⇒ resulting in the container opening more easily ⇒ risk of accidental opening greater
- Important criteria: State of the loop, loop length and packing pressure, spandex pocket tight
- Handle, hackey or similar, usually no longer visible
- Pulling the handle alone does not open the container
- If Velcro on the bridle ⇒ discuss closing sequence

b) Packing:

- Closing the container and routing of bridle
- Laying out and folding of pilot chute
- Comment on possible pilot chute blockage and hard pull if packed badly
- Note: address collapsible pilot chute and their peculiarities

c) Operation:

- Handle may be in a different place to before
- Handle must be released
- Handle should only be pulled when stable (acknowledging free fall priorities)

d) Use:

- Explain how to pull
  - ⇒ New handle position, without looking
  - ⇒ Pulling action in a large semi-circle, extract pilot chute completely
  - ⇒ Turn hand outward and upward (palm up)
  - ⇒ Throw pilot chute outward in the movement
- General points
  - ⇒ Do not pull in any old direction
  - ⇒ The throw-out handle is usually attached to the apex keeping the pilot chute collapsed, so it will not inflate and be pulled out of your hand
- Before each jump ⇒ touch your handles and closing flaps, possibly ask for a pin check from a responsible fellow jumper



e) Emergencies:

- ⇒ Cannot locate handle, how and where to go looking along container
- ⇒ Handle lost part way during pull (part of the pilot chute remains in the pocket)
- ⇒ Handle cannot be moved
- ⇒ Finger caught in handle
- ⇒ Handle released too early, pilot chute in burble
- ⇒ Pilot chute or bridles are wrapped around parachutists: hand - arm - leg - harness/container
- ⇒ Flat spin
- ⇒ Instability
- ⇒ Total malfunction
- ⇒ Pilot chute in tow
- ⇒ Pin dislodges early by accident
- ⇒ Handle held on too long after pulling

f) Donning:

- Handle touches, develop a good feeling for the new situation

g) Other:

- Summary of the advantages of the system
  - ⇒ Simple packing
  - ⇒ Burble is consciously avoided
  - ⇒ No rip cord left in your hand
  - ⇒ Handle not located close to cut-away pad
- Jump assignment for introductory descents
  - ⇒ Stable exit of choice
  - ⇒ Touch handles
  - ⇒ No further tasks
  - ⇒ Student should deploy higher than normal (say 1,500 m/GND, 4,500 ft AGL)
- Explain- Demonstrate, Imitate and Practice to condition
  - ⇒ Suitable training on the ground
  - ⇒ Situational training on BiSC for throw-out

h) Special features:

- Timing of the introduction is down to the allocated instructor
- Introductory descents may not also be low altitude familiarisation descents
- No other new briefings on the introductory descents
- Avoid moving between deployment systems
- Confirm throw-out introduction in the log book after the first two descents



**Notes:**

Pilot chutes that are collapsed by a kill line must be “cocked” during packing. It is recommended to perform a “throw test” during packing to confirm the status. The status of an already packed pilot chute can usually be confirmed by a control colour marking on the kill line in a window of the bridle. Pilot chutes that collapse with the aid of a bungee are not permitted for students.

**Note:** *The term throw-out is the technical term for a deployment system where the pilot chute is extracted from a pocket and thrown out. In the past, the term “hand deploy” was used. This is not technically correct, but acceptable in practice. The term throw-out is used here because it is the technically correct term.*

**Note:** *Pilot chute position at “rear of leg strap” (ROL): The routing of the bridle is of particular importance here. The leg strap must never be twisted while putting on the equipment or the bridle will not come lose in freefall: Velcro must not be worn out.*

**Note:** *If a licensed parachutist acquires a bungee collapsing pilot chute they must be fully informed of its features. For example, some bungees only open once they reach a certain velocity, e.g. only 5 seconds after exit. This means that this deployment system may not fully function if deployed within less than 5 seconds of exit ⇒ Caution!! Note for emergency exits above 800m/GND (2,500 ft AGL): This deployment system may result in a pilot chute in tow immediately on exit. The parachutist must remain calm in such a situation and continue to fall stable in case the pilot chute inflates and deploys the main canopy. If there is no time for this or the parachutist’s burble prevents the pilot chute from inflating, they must immediately cut-away and deploy their reserve canopy (decision altitude by 500 m/GND, 1,500 ft AGL).*

**Note:** *In rare cases, deployment systems (rip cords, throw-out, pull-out) can be mounted on the left hand side. These harness/container systems may only be used by parachutists specifically briefed on this.*



#### 6.4.2 Pull-out Introduction (minimum briefing)

In principle, the pull-out introduction follows the same pattern as the throw-out introduction. Only the relevant features are adjusted.

a) Technical features:

- How it works
- Straight pin
- Handle ⇒ pad at the bottom of the container
- Pull the handle ⇒ the container is open

b) as above

c) as above

d) Use:

- General points
  - ⇒ as above
  - ⇒ System 1: The pull-out handle is attached to the base of the collapsed pilot chute, so it will inflate and be pulled out of your hand
  - ⇒ System 2: The handle is attached to the apex of the collapsed pilot chute so will not inflate and be pulled out of your hand ⇒ place the pull-out (like the throw-out)

e) Emergencies contd.

- ⇒ Handle is lost before container is open (“floating pad”)

f) Donning:

- Handle always BOC

g) as above

h) as above



## 6.5 Special situations

### 6.5.1 Briefing for transition from Direct Bag to Pilot Chute Assist (PCA) with spring loaded pilot chute

**Note:** Students moving from direct bag to PCA with a spring loaded pilot chute must receive this special briefing.

For the student's technical understanding:

Direct Bag ⇒ forced deployment of the main canopy where the deployment bag or sleeve is directly connected to the static line. During the deployment, the deployment bag separates from the main canopy and induces its unfolding.

Pilot Chute Assist ⇒ forced deployment assisted by the pilot chute where the static line opens the container and the built in spring loaded pilot chute lifts the deployment bag or sleeve rather than the static line. The opening is the same as with any other system.

For students moving to a PCA system after their first three direct bag descents the following differences arise:

- ⇒ Opening distance is longer
- ⇒ Total malfunctions could arise from the container not opening
- ⇒ Pilot chute can be caught in the parachutists burble
- ⇒ Pilot chute in tow malfunction can arise
- ⇒ Pilot chute caught on parachutist (horse shoe malfunction)
- ⇒ Bag-lock malfunction can arise
- ⇒ Pilot chute could tear off
- ⇒ Pilot chute could get caught in the main canopy

These points need to be covered in the briefing on behaviour in special circumstances in the same way they are for first free fall descents.

In addition, the differences in packing for this type of static line deployment need to be briefed.

**Caution:** The dummy pull must never be routed together with the closing cable of the static line through the closing loop of the main container!

The use of a temporary connection by way of Velcro or a tape designed to break between the static line and the pilot chute is recommended. This should guarantee that the pilot chute is extracted when the container opens and clears the parachutist's burble, straightening the bridle. The static line and the pilot chute separate at the predetermined break point, the latter then further stretches the bridle.

Only airworthy materials may be used for this temporary connection:





- ⇒ Velcro: maximum attachment strength of approx. 10kg (usually 2.5 x 10cm strip)
- ⇒ Tape: maximum simple breaking load 36kg

#### 6.5.2 Conversion from round to RAM Air canopy

**Note:** Since 1 January 2002, the use of round canopies for student training requires special approval. Conversions of this type are usually for military parachutists or students who were previously trained on round canopies.

If the round canopy descents were more than 6 months ago, the student or licensed parachutist must go through a full First Jump Course for RAM-Air canopies.

Conversion training plan:

- Explanation of all technical differences:
  - ⇒ Dual container system (no chest mounted reserve)
  - ⇒ Donning
  - ⇒ Main canopy handle possibly at a different location
  - ⇒ Cut-away pad possibly at a different location
  - ⇒ Reserve canopy handle possibly at a different location
  - ⇒ Different emergency procedures

**Note:** *The conversion student should use the same deployment system on their first RAM-Air canopy descents as they used for the last round canopy descent (e.g. rip cord with spring loaded pilot chute). Static line parachutists from the Bundeswehr need to conduct the descents required for any first freefall.*

- Briefing on RAM-Air canopy:
  - ⇒ How it works
  - ⇒ Construction, components
  - ⇒ Aerodynamics of the surface
  - ⇒ Steering and flight planning
  - ⇒ Packing in accordance with the manual or instruction
  - ⇒ Complete BiSC lessons
  - ⇒ Question/answer game
  - ⇒ Complete Hanging harness training
  - ⇒ Theory safety test
  - ⇒ Practical safety test

**Note:** PLF training only needs to be refreshed if the last PLF training was more than 12 months ago.

- Special features:
  - ⇒ The conversion must not be at the same time as the first three free fall descents
  - ⇒ The conversion must not be at the same time as a conversion to throw-out or pull-out deployment.



⇒ The conversion must not be at the same time as the low altitude descents.

**Note:** *Vice-versa, students under instruction on RAM-Air canopies may not conduct introduction jumps on round canopies. Licensed parachutists should be appropriately briefed or instructed (as above but the other way around). In particular, attention should be given to adequate Parachute Landing Fall training.*

## 6.6 License test

To be permitted to enter the exam, the following criteria must be fulfilled:

### Theory Exam:

- The question bank for the theory test has been revised by the student.

### Practical Exam:

- Free fall students must have passed the theory exam and completed at least 23 descents in the last 18 months of which at least 12 descents must have been in the last 12 months. In total they also need to:
  - Have a total of 5 minutes freefall time
  - Demonstrate controlled movement around all three axes
  - Be able to dispatch themselves
  - Pack independently
  - Have been briefed on a second deployment method (exception: AFF with throw-out)
  - Made 10 pre-declared landings in a circle with a radius of 50m
  - Made 5 familiarisation descents in 2-way formation skydiving or freeflying
  - AFF - Students: Conducted three low altitude descents.
- Static line students must have performed at least 6 static line descents and pass the theory test. Furthermore, they must demonstrate that they are able to leave the aircraft in a stable and controlled manner (being despatched) and pack their parachute themselves.
- Their skills should enable them to land their canopy within a radius of 50m of the pre-declared point.

### Pass criteria for the exams:

#### Theory Exam:

- To pass the exam, a mark of 75 per cent is required
- Achieving less than 75 percent counts as a "fail"

**Note:** Pass mark for the overall test is 75 percent in each part, no more than 18 months apart. Failed parts may be attempted no more than three times. The pass gained in the theory examination is valid for 36 months, during which an approval or permission can be applied for.



Practical Exam:

- The jump assignments for the two examination descents are given by the evaluator (usually from full altitude, but at least 2,500m/GND, 7,500 ft AGL, with at least 30s free fall time and movement tasks over 2 axes as well as a descent from 1,200m/GND, 3,500 ft AGL, to simulate an emergency exit and can be used to evaluate accuracy landing).
- The evaluation of capabilities rests with the Evaluator (Prüfungsrat).
- As determined by the evaluator (Prüfungsrat), examination jumps can be evaluated by jumping with the student or by subsequent review of video footage.
- The landings must be within 50m of a pre-declared point.

**Note:** The timing for any repeats of the practical Exam is at the discretion of the evaluator. There are not limits to the number of repetitions. However, after two fails, an appropriate re-fresher training should be conducted.



## 6.7 Status Tables

### 6.7.1 Status table conventional

Level reached / break	Student: S/L	Student: First freefall to 10s delay	Student: freefall > 10s delay but less than 10 jumps
longer than 4 weeks	Review training and static-line jump	Review training and static line jump with dummy-pull	Review training and "hop 'n' pop" with max 3s free fall
longer than 3 months	Refresh with safety test and static line jump	Refresh with safety test and static line jump with dummy-pull	Refresh with safety test and "Hop 'n' pop" with max 3s free fall
longer than 6 months	Re-train	Re-train and static-line jump with dummy-pull	Re-train and static-line jump with dummy-pull
longer than 1 year	New course	New course and static-line jump	New course and static-line jump

Level reached / break	Student: Freefall > 10 descents to their license	Licensed parachutist to 100 jumps	Licensed parachutist	
			To 200 descents	From 200 descents
Less than 3 months	no further requirements			
longer than 3 months	Refresh and Solo descent	Max 2-way Formation	no further requirements	
longer than 6 months	Retrain and check-out descent	Solo descent	Max 2-way Formations	no further requirements
			Solo descent	
longer than 1 year	New course and appropriate Check-out descents	Solo descent or jump assignment determined by instructor	jump assignment Determined by instructor	

#### Terminology:

Review	⇒	Questioning and testing existing knowledge
Refresh	⇒	Targeted training of key topics including safety tests
Re train	⇒	Complete re training, extent depending on student
New course	⇒	Complete new ground school over 1.5 days



### 6.7.2 Status table AFF Training

Time / Level	AFF Students Over 30 days Not jumped	AFF Students Over 90 days Not jumped	AFF Students Over 180 days Not jumped	AFF Students Over 1 year Not jumped
Level I	Review training ⇒ Level II with handle touches	Refresh ⇒ Level II with handle touches	Re train, re-jump I	New course
Level II	Review training ⇒ Level III with handle touches	Refresh ⇒ Level III with handle touches	Re train, re-jump II with handle touches	New course
Level III	Review training, re-jump III with handle touches	Refresh, re-jump III with handle touches	Re-train, re-jump III with handle touches	New course, re-jump II with handle touches
Level IV	Review training, re-jump IV with handle touches	Refresh, re-jump III with handle touches, then re-jump IV	Re train, re-jump III with handle touches, then re-jump IV	New course, re-jump III with handle touches, then re-jump IV
Level V	Review training, re-jump V with handle touches	Refresh, re-jump III with handle touches, then re-jump V	Re train, re-jump III with handle touches, then re-jump V	New course, re-jump III with handle touches, then re-jump V
Level VI	Review training, re-jump VI with handle touches	Refresh, re-jump V with handle touches, then re-jump VI	Re-train, re-jump III with handle touches, then re-jump V, then re-jump VI	New course, re-jump III with handle touches, then re-jump V, then re-jump VI
Level VII	Review training, re-jump VII with handle touches	Refresh, re-jump V with handle touches, then re-jump VII	Re-train, re-jump III with handle touches, then re-jump V, then re-jump VII	New course, re-jump III with handle touches, then re-jump V, then re-jump VII
Level VIII Solo status	Solo descent with handle touches, From full altitude and pull at 1,500m/GND	Refresh, Solo descent with hand touches from full altitude and pull at 1,500m/GND	Re train, check-out jump with AFF Instructor with handle touches	New course, re-jump III with handle touches, then re-jump V, then re-jump VII

#### **Terminology:**

Review	⇒	Questioning and testing existing knowledge
Refresh	⇒	Targeted training of key topics including safety tests
Re train	⇒	Complete re training, extent depending on student
New course	⇒	Complete new ground school over 1.5 days



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# Chapter 7

## Canopy Handling Training



## 7. Canopy Handling Training

### 7.1 Canopy Handling training from Student to Licensed Parachutist

**The general learning goals are defined as follows:**

1. Operating the canopy with the steering toggles
2. Operating the canopy with the risers
3. Flying to the edge of the aerodynamics of the canopy / gaining experience of the boundaries
4. Flight and landing approach planning, strategies, steering tactics
5. Landings: Landing priorities / techniques / parachute landing fall (PLF)

#### **Landing priorities:**

1. straight flight, canopy parallel to the ground
2. away from obstacles
3. at least half brakes
4. Into wind

#### **Basics while a student**

1. All flight exercises at the boundaries of the canopy must be performed and completed above 500 m/GND (1,500 ft AGL)!
2. At 200 m/GND (600 ft AGL) at the latest, the “fun” part of the flight should be replaced by the “seriousness” of landing!
3. Exercises should only be conducted if the exit point, the air traffic and the meteorological conditions allow it!
4. Downsizing of the canopy during the time as a student should be enabled.

**The implementation of the learning goals should orient themselves along these lines:**

#### 7.1.1 Descents 1 - 3

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

Main goal is the safe and injury free landing by the student. Subordinate goals are the comfortable handling of a RAM-Air canopy under instruction, possibly radio support.

The flight plan is discussed during the jump briefing and checked by a ground observer. The debrief should focus on areas of improvement to the flare and landing technique.





### 7.1.2 Descents 4 - 6

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

After their canopy check, the student should attempt to find the stall point of the canopy by going into deep brakes. They should be prepared for the canopy to flutter and to use their steering toggles gently. Regardless, adherence to the flight plan always takes priority.

The student should fly part of their flight plan in half brakes. This is so that they learn how to handle the canopy in slow flight. They should also use the direct and indirect (cross-over) steering manoeuvres. The aim is that the student learns how to perform flat turns. A competent ground observer should check the manoeuvres performed.

The exercises are:

- Flat turn in half brakes
- Flat turn in full brakes

Landing in accordance with the landing instruction and the requirements of the PTO. The experiences of the canopy handling exercises should be discussed at the debrief. In particular focus on areas of improvement in steering and landing techniques.

### 7.1.3 Descents 7 - 8

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

After opening, the student should practice how to avoid a canopy which is flying directly at them. To do so, they should turn 90° immediately after opening. The turn is performed with stowed toggles using the rear risers. A one-sided canopy stall should be avoided.

The student should then perform the canopy check and follow their flight plan as independently as possible. They should learn how to land the canopy in slow flight. Their aim is that the student recognises the different flare possibilities. Keeping to the flight plan however, takes priority over completing the exercises.

The exercises are:

- Flare from full drive
- Flare from 25% brakes
- Flare from half brakes

Landing in accordance with the landing instruction and the requirements of the PTO. Initial discussion should take place around accurate landing in the vicinity of a set target.



The experiences of the landing exercises should be discussed at the debrief. In particular, focus on areas of improvement in steering and landing technique including accuracy landing.

#### 7.1.4 Descents 9 - 10

Jump assignments: according to the student's abilities.

##### **Canopy handling tasks:**

After opening, the student should again practice how to avoid a canopy which is flying directly at them. This time they should aim to make the 90° turn with their toggles. A one-sided canopy stall should be avoided.

The student should then perform the canopy check and follow their flight plan without outside help, if possible.

The student should learn more about steering with rear risers. They should learn how to make turns and flare with the relevant risers. The exercises should remain within the strength limits of the student.

The aim is that the student learns the option and extent of input required to steer and/or land with rear risers for possible emergency situations. The stall point should never be crossed. An actual landing with rear risers is not a part of the training. This should only be done in an actual emergency. Keeping to the flight plan however, takes priority over completing the exercises.

The exercises are:

- Turns right and left with the relevant riser
- Flare from full drive with the rear risers
- Landing with steering toggles

Landing in accordance with the landing instruction and the requirements of the PTO. The experiences of the rear riser exercises should be discussed at the debrief. In particular, focus on areas of improvement in steering and landing technique including accuracy landing.



### 7.1.5 Descents 11 - 12

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

The student should be guided towards coming up with their own flight planning. They should be able to state the key parameters of their flight plan under supervision of an instructor. This is done by describing their intended flight plan using the aerial photograph.

On opening, the student should perform their canopy check and follow the flight plan they planned.

The exercises should now include figures of 8 and S-curves to demonstrate accurate positioning and navigation. Their aim is that the student recognises how to reach certain altitudes and positions.

Keeping to the flight plan however, takes priority over completing the exercises.

The exercises are:

- Flying figures of 8 and observing the drift and altitude loss
- Flying S-turns into wind and observing the drift and altitude loss

Landing in accordance with the landing instruction and the requirements of the PTO. Targeted landing exercises can now be built in too.

The exercises are:

- Fly S-turn until 50 - 30m/GND (150 to 100 ft AGL) then full flight to flare

The experiences of the steering exercises should be discussed at the debrief. In particular, focus on areas of improvement in steering and landing technique including accuracy landing.

### 7.1.6 Descents 13 - 14

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

The student should be guided towards coming up with their own flight planning. They should be able to tell their instructor an adequate flight plan. This is done by describing their intended flight plan using the aerial photograph. They incorporate the natural aids such as sun position, line of flight and the 45° rule.

On opening, the student should perform their canopy check and follow the flight plan they planned.

The exercises should now include figures of 8 and S-curves from half brakes to firm up their accurate positioning and navigation skills. Their aim is that the student recognises variations of how altitudes and positions can be reached. Keeping to the flight plan however, takes priority over completing the exercises.



The exercises are:

- Flying figures of 8 in half brakes and observing the drift and altitude loss
- Flying S-turns in half brakes into wind and observing the drift and altitude loss

Landing in accordance with the landing instruction and the requirements of the PTO. Targeted landing exercises can now be built in too.

The exercises are:

- Fly straight in on brakes until 50 - 30m/GND (150 to 100 ft AGL) then full flight to flare
- Fly S-turns in brakes until 50 - 30m/GND (150 to 100 ft AGL) then full flight to flare
- Accurate landing in a circle with a 50m radius around a pre-declared target

The experiences of the steering exercises should be discussed at the debrief. The existing strengths the student shows in terms of accuracy and general landing style should be built upon.

#### 7.1.7 Descents 15 - 16

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

The student should be come up with their own flight planning. They should demonstrate this on the aerial photograph while the instructor asks relevant questions to check knowledge.

On opening the student should release only one brake. They should consciously experience the asymmetry of a canopy. On recognising the automatic turn, the student should attempt to counter it by using the appropriate rear riser. A stall should not be induced at any time. If in doubt, release the other brake toggle.

The aim is for the student to experience a toggle fire or broken steering line so as to recognise the issue. They should also learn how to react to this situation from this exercise. The exercise should only be conducted in consultation with the Chief Instructor.

The student should then perform the canopy check and follow their flight plan. They should not receive any further canopy tasks. They should only use their existing steering skills and land as accurately as possible. Keeping to the flight plan however, takes priority.

The exercises are:

- Anticipatory flying
- Practical implementation of their own flight plan
- Demonstration of the ability to improvise
- Situational evaluation of canopy drift by checking the canopy movement

The landing should be as planned.



Exercises for landing are:

- Putting learned movements into practice
- Accurate landing in a circle with a 50m radius around a pre-declared target

The experiences of the asymmetrical flight exercise should be discussed at the debrief. The existing strengths the student shows in terms of accuracy and general landing style should be built upon.

#### 7.1.8 Descents 17 - 18

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

The student should be come up with their own flight planning. They should demonstrate this on the aerial photograph while the instructor asks relevant questions to check knowledge. On opening, the student should perform their canopy check and follow the flight plan they had planned without assistance.

The canopy exercises should be intentional and abrupt full depression of each toggle from left to right and vice versa. They should never lose control contact with the canopy. This would be the case when the suspension lines become slack and the student no longer has control over them. This situation is explicitly NOT the objective of this exercise. The aim rather is to demonstrate the pendulum effect and its consequences to the student. In particular the danger of such movements close to the ground. This introduces them slowly to the physical flying boundaries of canopy. The aim is to prevent significant errors during the landing pattern at a later stage through lack of understanding of the basics of canopy flight.

They should again use their existing steering skills and land as accurately as possible. Keeping to the flight plan however, takes priority.

The exercises are:

- Anticipatory flying
- Practical implementation of the flight plan
- Demonstration of the ability to improvise
- Situational evaluation of canopy drift by checking the canopy movement

The landing should be as planned.

Exercises for landing are:

- Putting learned movements into practice
- Accurate landing in a circle with a 50m radius around a pre-declared target

The experiences of the asymmetrical flight exercise should be discussed at the debrief. The existing strengths the student shows in terms of accuracy and general landing style should be built upon.



### 7.1.9 Descents 19 - 20

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

The student should pass an interim test on flight planning. They should demonstrate the plan at the aerial photograph. An instructor only intervenes in the event of safety critical errors. On opening, the student should perform their canopy check and follow the flight plan they had planned without assistance.

The canopy exercises should be intentional and abrupt full depression of both toggles and sudden release back to full flight. They should never lose control contact with the canopy. This would be the case when the suspension lines become slack and the student no longer has control over them. This situation is explicitly NOT the objective of this exercise. The aim rather is to demonstrate the pendulum effect and its consequences to the student. Once again, to show the danger of such movements close to the ground. They should again be slowly introduced to the physical flying boundaries of canopy. The aim is to prevent significant errors during the landing pattern at a later stage through lack of understanding of the basics of canopy flight. Then they should independently show that they can hit the target reasonably.

The exercises are:

- Anticipatory flying
- Practical implementation of the flight plan
- Demonstration of the ability to improvise
- Situational evaluation of canopy drift by checking the canopy movement
- Accurate landing in a circle with a 50m radius around a pre-declared target

The experiences of the pendulum exercises should be discussed at the debrief. The existing strengths the student shows in terms of accuracy and general landing style should be further built upon. If the flight planning and accuracy landing were questionable, they must be repeated.

### 7.1.10 Descents 21+

Jump assignments: according to the student's abilities.

#### **Canopy handling tasks:**

If the student has passed the interim test on flight planning and accuracy landing, there are only occasional random checks that they have prepared a flight plan for their upcoming descent. At any time, the student can be asked questions about behaviour in special circumstances. On opening, the student should perform their canopy check and follow their flight plan. From now on the instructor can decide which exercises to give the student. Available exercises are:

- Alternative gliding with tail wind by flying on brakes
- Steering with harness turns if canopy allows
- General avoidance manoeuvres if being cut-off



- General avoidance manoeuvres for obstacles in the landing area
- Possible effects of using front risers
- Meteorological impacts on the descent

The flight and landing skills of the student continue to be observed and evaluated and if appropriate fed back to them. The value of further canopy courses should be explained to them. If they are looking to buy their own equipment, competent influence should be made on canopy selection.

#### 7.1.11 Closing remarks

Every Chief Instructor and instructor is empowered to lengthen or shorten the canopy handling training for their student. Depending on the ability of the student, there is no need to rigidly stick to the suggested jump numbers. What is important is that the learning goals are reached in time for the practical examination. The current progression should be logged in the student's log book or a training record sheet.



## 7.2 Table for Canopy Handling training from Student to Licensed parachutist

### General learning goals:

1. Operating the canopy with the steering toggles
2. Operating the canopy with the risers
3. Flying to the edge of the aerodynamics of the canopy / gaining experience of the boundaries
4. Flight and landing approach planning, strategies, steering tactics
5. Landings: Landing priorities / techniques / parachute landing fall (PLF)

### Order of landing priorities:

1. straight flight, canopy parallel to the ground
2. away from obstacles
3. At least half brakes
4. Into wind

### Basics for the whole training:

1. Exercises at the flight boundaries always above 500 m/GN (1,500 ft AGL)
2. Move from the “fun” of flying to the “seriousness” of landing by 200 m/GND (600 ft AGL)
3. Only perform the exercises if the exit point, air traffic and meteorological conditions permit
4. If possible, enable some downsizing of the canopy during the training

Jump numbers	CONTENT/assignment	GOAL of the task	Min jump numbers	Comments
1- 3	Discussion of the flight plan by landing briefing and precise execution as instructed	Main goal: safe, injury-free landing. Secondary goal: simple handling of a RAM-Air canopy under instruction	b) ft = m / 3	Observation of the descents and individual debrief needed
4- 6	<ul style="list-style-type: none"> <li>• Flat turn in half brakes</li> <li>• Flat turn in full brakes</li> <li>• (With the steering toggles!)</li> </ul>	Gentle approach to stall point of the canopy, handling of a canopy in slow flight, performance of flat turns	b) ft = m / 3	Go into improvements of steering and landing techniques during debrief
7- 8	<ul style="list-style-type: none"> <li>• Avoidance turns with rear risers directly on opening</li> <li>• Flare from full drive</li> <li>• Flare from 25% drive</li> <li>• Flare from half brakes</li> </ul>	Maintenance of planned flight plan, recognition of different flaring techniques	2	
9- 10	<ul style="list-style-type: none"> <li>• Avoidance turns with toggles</li> <li>• Turns R/L with risers</li> <li>• Braking from full flight with rear risers</li> <li>• Landing/flaring with steering lines</li> </ul>	Learning steering and turns of the canopy with the rear risers	2	





11- 12	<ul style="list-style-type: none"> <li>Flying figures of 8 while observing drift and altitude loss</li> <li>Flying S-turns in half brakes into wind and observing the drift and altitude loss</li> </ul>	Recognition of ways to reduce altitude and confirm position	2	Explanation of possible improvements to steering and landing techniques
13- 14	<ul style="list-style-type: none"> <li>Own development of a flight plan</li> <li>Braked flying figures of 8 while observing drift and altitude loss</li> <li>Braked flying S-turns in half brakes into wind and observing the drift and altitude loss</li> <li>From now: accuracy landing within a 50m radius of a predeclared point</li> </ul>	Recognition of different ways of handling canopies to lose altitude and reach the correct position	2	Improve the existing steering and landing techniques through debrief
15- 16	<ul style="list-style-type: none"> <li>One-sided release of stowed brake toggle; compensating with opposite riser</li> <li>Implementation of the self-prepared flight plan</li> </ul>	Recognition of the effects of a brake fire or torn steering line	2	
17- 18	<ul style="list-style-type: none"> <li>Develop own flight plan in accordance with the met. conditions</li> <li>Execution of abrupt turning from left to right and opposite using steering lines</li> </ul>	Demonstration of the impacts and consequences of side-way pendulum movements under canopy	2	Reinforce dangers of performing this exercise close to the ground
19- 20	<ul style="list-style-type: none"> <li>Interim test of flight planning and accuracy landing skills</li> <li>Execution of abrupt braking and release to full drive and vice versa using steering toggles</li> </ul>	Demonstration of the impacts and consequences of forward/backwards pendulum movements under canopy	2	Reinforce dangers of performing this exercise close to the ground
21+	<ul style="list-style-type: none"> <li>Individual assignment at the discretion of the instructor to deepen and improve the skills and abilities of canopy handling and accuracy landing</li> </ul>	Possible exercises: <ul style="list-style-type: none"> <li>Changing the glide with tail wind through braking</li> <li>Avoidance manoeuvres in case of being cut-off</li> <li>Avoidance manoeuvres for obstacles in the landing area</li> <li>Implications of using front risers</li> </ul>	5	Further observation and qualified debriefing necessary



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# Chapter 8

## Qualifications



## 8. Qualifications

### 8.1 Introduction

**General context:** Qualifications are not licenses. Their aim is not to permit or forbid the performance of a discipline by a parachutist. Rather, the purpose of these qualifications is to document what a parachutist is able to do.

It is therefore considered normal in this chapter, that inexperienced parachutists seek to be briefed on these topics by experts. A novice can only be familiar with this material and hence qualified in the discipline after such an introduction.

Qualifications aim to make the sport safe in the long term and disseminate knowledge about its different aspects.

The qualifications should be seen as the stepping stones in the gap between the novice and expert and are the responsibility of the Chief Instructor. They should delegate the briefings to competent experienced briefers who document the qualification in the logbook.

In practice this means that every parachutist wanting to start any of the above mentioned topics should be competently briefed on it.

The existing or achieved qualification can be documented on a training record sheet or directly into the log book as follows:

Date	Qualification for	Briefed by	Licence No. (Of the briefer)	Name and signature Chief Instructor

**Note:** *The logbook is an official document. Maintaining a logbook is a requirement, although counter signatures are not necessary.*

*To improve credibility of the entries, it is strongly recommended for logbook entries to be signed by the PTO Chief Instructor or their delegate. Qualifications should be separately confirmed.*

*General data in the log book are: Current jump number, date, place, aircraft, canopy type, exit altitude, free fall time, type of descent and possibly result.*



**Qualification training record sheet for:**

Surname:	Licence number:
Address:	

Date	Qualification for	Briefed by	Licence No. of the briefer	Name and signature Chief Instructor

Use: The qualification training record sheet must be available for presentation to a drop zone operator!



### 8.1.1 Formation Skydiving (FS clearance)

#### **Prerequisites: Person**

- ⇒ Controlled movement around all three axes in free fall / free solo status
- ⇒ Stable belly to earth position possible at all times
- ⇒ Stable dive and floater exits
- ⇒ Constant altitude awareness during free fall
- ⇒ Delta and full track exercises complete satisfactorily

#### **Prerequisites: Equipment**

- ⇒ jumpsuit suitable for formation skydiving (possibly with grippers), appropriate to body weight, possibly lead
- ⇒ For the duration of the introduction: Harness/container system with AAD
- ⇒ Type of AAD is not prescribed
- ⇒ Well fitting BOC pocket for throw-out
- ⇒ ROL deployment systems must have well closing Velcro
- ⇒ RAM-Air main canopy
- ⇒ Suitable head protection
- ⇒ altimeter
- ⇒ Audible altimeter recommended

#### **Content of basic practical induction:**

- ⇒ Introduction by an experienced FS parachutist in 1:1 descents
- ⇒ Introduction to
  - + Neutral box position
  - + Fall rates and how to change them
  - + Movements up/down, forward/backward, side sliding
  - + Relative wind
  - + FS terminology (sector, axis, level, slot, break-off etc.)
- ⇒ Controlled flying
  - + Staged approach
  - + Keeping on level
  - + Leg / arm work
  - + Presenting and taking grips
  - + Grip variations
  - + Swing of the body
  - + Axes and references
  - + Altitude awareness in the formation
- ⇒ Matching fall rate
  - + Situational improvisation (fall rates, level etc.)
  - + Dynamics of a formation (turning, floating, slipping etc.)
  - + Fall rate changes during manoeuvres (turns, tracking etc.)



⇒ Break off

- + Flat tracking
- + Safety altitudes
- + Canopy stack

⇒ Safety regulations

- + Do not combine an FS introduction with a deployment method conversion to say throw-out or pull-out or change of harness/container system
- + Conduct as many 1:1 descents are deemed necessary to ensure safe formation skydiving
- + Sharpen altitude awareness during Formation Skydiving descents

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ Then 10 2-way FS descents or 2:1 instructor descents
- ⇒ Then 10 3-way FS descents or 3:1 instructor descents
- ⇒ Then 50 descents from 2-way to 10-way FS



### 8.1.2 Freefly (Artistic Events, AE)

#### **Prerequisites: Person**

- ⇒ Always able to stabilise by turning belly to earth
- ⇒ Constant altitude awareness during free fall
- ⇒ Delta and full track exercises complete satisfactorily
- ⇒ Basic flexibility, movement and fitness levels

#### **Prerequisites: Equipment**

- ⇒ Suitable, well-fitting harness container system with BOC and AAD; the harness should be freefly friendly, i.e. ensure that parts are well covered and cannot loosen during extreme pressures. This relates in particular to the pilot chute, riser and pin covers; leg straps must not come loose or slide towards the knees in freefall.
- ⇒ Suitable head protection
- ⇒ altimeter
- ⇒ Audible altimeter
- ⇒ Minimum exit height during training is 3,000m/GND (9,000ft AGL)
- ⇒ Zip cover on jumpsuit if adopting head-down position (jumpsuit must not open and cover handles) or other suitable clothing

#### **Content of basic practical induction:**

- ⇒ Briefing by an experienced free flyer
- ⇒ Safety matters and shortened free fall time
  - + Free fall drift / exit order
  - + Additional speed requires care to be taken
  - + Possible sliding in freefall due to angled body position
  - + Sudden speed changes (danger) when changing body position (e.g. from head down or stand up to belly) - corking
  - + Emergency roll = behaviour in special circumstances
  - + Slowing down and break off techniques for deployment
  - + Safety altitudes
- ⇒ Sufficient further education
  - + Sufficient 1:1 descents with instructor (ideally with video) to minimise potential dangers to self and others
  - + Attempts at head down only under supervision
  - + Controlled levels and stabilisation in the upright position
  - + Altitude awareness in head down and overview
  - + Transition from full speed to track

#### **Confirmation by briefer and CI in log book or training record sheet**

#### **Additional development after the qualification has been granted:**

- ⇒ Combination of different free fly components





- + Relative descents with others (note safety guidance)
  - + Transition to stand-up / sit fly
  - + Tracking dives (the first 5 under supervision)
  - + Freely positions
- ⇒ Safety guidance
- + Relative descents: Conduct as many 1:1 descents are deemed necessary
  - + Then 10 2-way VFS descents or 2:1 instructor descents
  - + Then 10 3-way VFS descents or 3:1 instructor descents
  - + Then 50 descents from 2-way to 10-way VFS



### 8.1.3 Freestyle (AE)

#### **Prerequisites: Person**

- ⇒ Always able to stabilise by turning belly to earth
- ⇒ Constant altitude awareness during free fall
- ⇒ Basic flexibility, movement and fitness levels

#### **Prerequisites: Equipment**

- ⇒ Suitable, well-fitting harness container system with BOC and AAD; the harness should be freely friendly, i.e. ensure that parts are well covered and cannot loosen during extreme pressures. This relates in particular to the pilot chute, riser and pin covers; leg straps must not come lose or slide towards the knees in freefall.
- ⇒ Suitable head protection
- ⇒ altimeter
- ⇒ Audible altimeter
- ⇒ Minimum exit height during training is 3,000m/GND (9,000ft AGL)

#### **Content of basic practical induction:**

- ⇒ Briefing by an experienced free stycler
- ⇒ Safety matters and shortened free fall time
  - + Free fall drift / exit order
  - + Additional speed requires care to be taken
  - + Possible sliding in freefall due to angled body position
  - + Sudden speed changes when changing body position (e.g. from stand up to belly) - corking
  - + Slowing down and break off techniques for deployment
  - + Safety altitudes
- ⇒ Sufficient further education
  - + Freestyle attempts only under supervision
  - + Controlled sit flying
  - + Controlled stand-up with 360° turns left and right
  - + Loops and barrel rolls can always be stabilised into belly to earth position
  - + Presence of videographer (collision risk)
  - + Transition into track (break-off)

#### **Confirmation by briefer and CI in log book or training record sheet**



**Additional development after the qualification has been granted:**

- ⇒ Combination of different free style components
  - + Relative descents with others (note safety guidance)
  - + Transition to head down
  - + Freestyle positions
  - + Teamwork with videographer
- ⇒ Safety guidance on sit flying / synchronised free style
  - + Relative descents: Conduct as many 1:1 descents are deemed necessary
  - + Then 10 2-way VFS descents or 2:1 instructor descents
  - + Then 10 3-way VFS descents or 3:1 instructor descents



#### 8.1.4 Jumping with still or video camera

##### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ At least 100 descents, of which 50 descents in the last 12 months

##### **8.1.4 A Passive recording:**

Definition: Passive recording refers to the parachutist focussing on their normal dive flows and flying skills. The camera solely records what it sees.

##### **Prerequisites: Equipment**

- ⇒ Camera helmet or mount (also if multi-positional) must have a cut-away system
- ⇒ Low weight (to minimise the effect on the neck)
- ⇒ The camera helmet must be seated such that the opening shock has minimal impact and the parachutists vision is not impaired.
- ⇒ Audible altimeter is required (optical altimeter optional)
- ⇒ Camera and any visor attachment must avoid snag points with risers and lines
- ⇒ Camera set-up must be checked by the briefer

##### **Content of basic practical induction:**

- ⇒ Briefing by an experienced videographer
- ⇒ General usage of all helmet closures and cut-away system
- ⇒ Introduction of camera activities into the jump routine, including every day issues such as low battery levels, memory card forgotten, camera mis-positioned etc.
- ⇒ Distractions and increased performance expectation. Camera equipment requires additional attention in relation to the remaining parachuting equipment, both in preparation on the ground, donning the equipment, climb to altitude, exit preparation, exit itself, in freefall during opening, canopy flight and landing.  
The operation of the camera equipment must not lead to a de-prioritising of safety matters in all aspects of the dive flow and descent!
- ⇒ Cutting the camera away could be necessary in different phases of the descent and could result in additional stress because of the additional step. This is why cutting away needs to be practised during the ground briefing in different scenarios as an additional step. Handle touches should be integrated into the usual jump routine.
- ⇒ Particular dangers:
  - a) Camera entanglement with items (see incident reports at the DFV Symposium)
  - b) Entanglement with lines during opening
  - c) Object fixation for footage, in particular under canopy

##### **Confirmation by briefer and CI in log book or training record sheet**

##### **8.1.4. B Active taking of pictures and filming:**



Definition: Active filming refers to the parachutist focussing on filming and their known, routine motions and flying skills are automated. Active filming and taking of pictures requires significantly more awareness and experience. The following points should be noted.

**Additional requirements:**

- ⇒ Successful introduction to passive filming
- ⇒ Ability to actively follow the selected object (with permission)
- ⇒ If using special clothing such as camera jumpsuit or jacket with wings: only with BOC deployment method

**Content of basic practical induction:**

- ⇒ Briefing by an experienced videographer authorised by the drop zone operator
- ⇒ Discuss peculiarities depending on discipline to be filmed (e.g. AE, FS, WS, TD, AFF etc.)
- ⇒ Agree relevant details with other parties (e.g. Safety matters/timing/exit/dive flow/fall rate/break-off/opening altitudes/pull/canopy flight plan)
- ⇒ When using camera wings, controlled flying including handle touches of the main handle, cut-away pad and reserve handle in freefall and under canopy should be sufficiently practised as part of the introduction.
- ⇒ Qualification should confirm the ability to properly follow and frame their subject
- ⇒ Possibly check-out dives with a practice subject
  - + Before accompanying students, AFF-level or tandem descents, a suitable number of check-out descents must be conducted in which the agreed content/briefing and free fall manoeuvres and fall rate changes can be incorporated. Evidence of consistent flying skills to fly with the intended subject must be provided.

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ Wider reaching safety briefings for all disciplines
  - + Video/stills footage showing relevant skills
- ⇒ Videoing tandems: Prerequisites, briefing and special features as per THB
- ⇒ Videoing solo students: Prerequisites, briefing and special features as per AHB
- ⇒ Videoing AFF: Prerequisites, briefing and special features as per AFF- AHB



### 8.1.5 Tracking (flat tracking with or without two-part or all-in-one track-suit)

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ Qualification in Formation Skydiving (FS clearance)
- ⇒ At least 50 descents, of which 30 descents in the last 12 months
- ⇒ Good orientation awareness in freefall

#### **Prerequisites: Equipment**

- ⇒ Harness with BOC and AAD
- ⇒ Suitably positioned altimeter
- ⇒ Suitable head protection including audible altimeter and visor or goggles
- ⇒ Suitable footwear

#### **Content of basic practical induction:**

- ⇒ Induction only by a qualified briefer/navigator
- ⇒ Additional responsibility and awareness because of horizontal movement in freefall
  - + Theory and briefing of a tracking dive with navigational aspects
  - + Theory and practical matters on donning equipment (especially tracking suit)
  - + Manifesting and agreement with air boss/dropzone control on jump run
  - + Briefing of pilot and other groups
  - + Exit order (without tracking suit as angle flyers, with tracking suit as trackers) / agree exit separation
  - + Exit details (controlled in relation to aircraft, if relevant clearance of tail)
  - + Flight and navigation (alternate left or right from jump run, observe the “red zone”, distances, speeds, sun position, timing, deployment point)
  - + Accurate execution with altitude awareness / sideways distance to the “red zone” at least 500m (1,500 ft) at pull time
  - + Possible body positions, aerodynamics and controlled approach to a target (pull sector)
  - + Handle touches and pull manoeuvre, pull by 1,200m/GND (3,500 ft AGL) on first flights
  - + Separation and braking techniques before deployment / flight direction under canopy in relation to jump run / faster separation because of higher speeds (take care!)
  - + Exit point movement / different landing models / risks of off-landings / mobile phone as additional equipment



⇒ Safety guidance

- + No tracking jumps in or through clouds
- + Clear establishment of “no-fly-zones” with relevant control / no fly-bys with other canopies
- + Set break-off altitude appropriately higher for larger groups
- + Sudden changes in speed and direction risk collision danger
- + Continuous reminder of behaviour in special circumstances (recovery) and behaviour directly on deployment and under canopy (standard and emergency)
- + Sufficient 1:1 descents with coach (ideally with video) to minimise potential dangers to self and others

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

⇒ Improvement of flight skills

- + Development of physical and mental flying skills
- + Development of tracking techniques with and without tracking suit
- + Development of knowledge and abilities regarding formation and flock dives



### 8.1.6 Wingsuit Flying (WS)

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ 200 parachute descents or at least 50 tracking dives (see BKF table: Tracking and Wingsuit categorisation with prerequisites)
- ⇒ Qualification in Formation Skydiving
- ⇒ Good tracking skills
- ⇒ Good orientation awareness in freefall

#### **Prerequisites: Equipment**

- ⇒ Suitable beginning/starter wingsuit
- ⇒ Harness with BOC and AAD
- ⇒ Suitable main canopy without radical opening or flight characteristics
- ⇒ Suitably positioned altimeter
- ⇒ Suitable footwear
- ⇒ Suitable headgear including audible altimeter
- ⇒ Hook knife if water landings cannot be ruled out
- ⇒ Minimum exit altitude of 2,500 m/GND (7,500 ft AGL) during introductory descents

#### **Content of basic practical induction**

- ⇒ Induction only by a qualified wingsuit briefer/navigator
- ⇒ Topics: Suitable equipment for descents and wing suit flying
- ⇒ Functional connection between harness and wing suit, flight planning at the aerial photograph
- ⇒ Donning of complete equipment (order, safety checks)
- ⇒ Particularities in relation to exit order (see also BKF image: Track and Wingsuit Exit Order)
- ⇒ Agreement with air boss/dropzone control and pilot
- ⇒ Behaviour in the aircraft (seating, seat belts, jump preparation etc.)
- ⇒ Exit (controlled exit, particularities relating to specific aircraft type)
- ⇒ Flight plan (in particular observation of jump run, achievable distances, speeds, sun position, landmarks)
- ⇒ Aerodynamic features (glide, stall, handle touches - of all handles)
- ⇒ Wingsuit flying in general: limited movement, altitude checks, optimising flying style, movement around all axes
- ⇒ Pull with the wingsuit (wave-off, pull height, body position)
- ⇒ Behaviour during and after opening (standard and emergency)
- ⇒ How to fly and land the canopy wearing the wing suit (in particular increased wind resistance from the suit)
- ⇒ Emergency situations (Exit, recovery in freefall, loss of control, malfunctions, water landings)
- ⇒ The complete dive flow of a wing suit descent should be practised or simulated in advance during tracking jumps (ideally with a tracking suit)





### **Safety guidance**

- ⇒ Follow the manufacturer's manual
- ⇒ Follow the safety manual issued by BKF
- ⇒ For the first 5 descents, deployment altitude must be at least 1,500m/GND (4,500 ft AGL), thereafter 1,000 m/GND (3,000 AGL)
- ⇒ Do not arrange wingsuit flying groups on the climb to altitude!
- ⇒ No wingsuit flights through clouds!
- ⇒ No fly-bys of other canopies!
- ⇒ For expert wingsuits, a bridle of at least 2.5m length is recommended

### **Confirmation by briefer and CI in log book or training record sheet**

#### **Additional development after the qualification has been granted:**

- ⇒ WS FS only with sufficient practice and appropriate experience
- ⇒ Upsizing to an expert wingsuit only after appropriate basic experience and following a briefing form a wingsuit coach or suitably experienced wingsuit flyer



### 8.1.7 Angle flying (atmonauti)

#### **Prerequisites: Person**

- ⇒ At least 100 jump and FS and FF qualifications
- ⇒ Check-out jump from briefer:
  - + Ability to backfly and control flight direction
  - + Ability to carve in both directions
  - + Basics of angle flying and subsequent break off

#### **Prerequisites: Equipment**

- ⇒ As for FS and FF qualifications
- ⇒ Additionally full face helmet or very tightly affixed goggles with an open helmet

#### **Content of basic practical induction:**

- ⇒ Induction only by a qualified briefer/navigator
  - + Theory and briefing on angle flying and navigational skills
  - + Manifesting / briefing of pilot and other groups
  - + Exit order / exit separation
  - + Planning of direction (e.g. 90° left or right to jump run) of an angle flight and its accurate execution / the need for ground visibility
  - + Altitude awareness and safety altitudes in angle flying
  - + Possible body positions, angels and sections for belly and/or back flying
  - + Controlled target approach
  - + Faster separation because of higher speeds (Take care!)
  - + Separation and braking techniques before deployment / flight direction under canopy in relation to jump run
  - + Exit point movement / different landing models / risks of off-landings / mobile phone as additional equipment
- ⇒ Safety guidance
  - + No angle flying in or through clouds
  - + Clear determination of “no-fly” and “red” zones and appropriate enforcement
  - + Break off by 1,500m/GND (4,500 ft AGL) for larger groups (>8) break off appropriately higher
  - + Directional changes or carving only with relevant visibility and safety for other jumps; flight direction at the end must be the same as at the beginning
  - + Sudden changes in speed and direction risk collision danger
  - + Behaviour in special circumstances (recovery) lesson



⇒ Further training

- + Sufficient 1:1 descents with coach (ideally with video) to minimise potential dangers to self and others

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

⇒ Improvement of flight skills

- + Safe three dimensional angle free fall and back flying through intensive training; conscious use of the air space
- + Learning different formation shapes, no-contact / contact in line / transitions
- + Atmonauti FS (see also Atmonauti documentation) under supervision of an atmonauti or freefly coach
- + Speed tracks only once all prerequisites are met; because of its high vertical and horizontal speeds greater awareness is necessary for all participants



### 8.1.8 Accuracy landing (AL) and/or accurate landing for Display jumps

#### **Prerequisites: Person**

- ⇒ Licensed parachutist

#### **Prerequisites: Equipment**

- ⇒ RAM-Air canopy with a wing loading of less than 1.5lbs/ft<sup>2</sup>
- ⇒ Minimum exit altitude of 1000 m/GND (3,000 ft AGL) during introductory descents

#### **Content of basic practical induction:**

- ⇒ Induction only by an experienced parachutist familiar with accuracy landing techniques and display landings
- ⇒ Expand on the knowledge of the aerodynamics of a RAM-Air canopy
  - + Aerodynamics in general / flight mechanics / flight behaviours
- ⇒ Spotting and exit theory
  - + Correct exit point / wind drift indicator
  - + Wind criteria: Line of flight / wind speed / wind sector
  - + Drift: with, cross and into wind
  - + Air speed over ground / sink rate and correction opportunities under an open canopy
- ⇒ Theory of accuracy landing
  - + Division of airspace
  - + Wind check under canopy
  - + The canopy stack
  - + Approaching the target and positioning the landing approach
  - + Planning the landing approach
  - + Division of the landing pattern: down wind, cross wind, into wind
  - + Holding manoeuvres in cross wind, use of drift
  - + Canopy incline - brake position - wind speed
  - + Accuracy trick: "The point that doesn't move" to determine landing point
  - + Techniques to influence the landing point
  - + Wind influences: thermal / mechanical
- ⇒ Practice flights under their own canopy (number at discretion of coach)
  - + Different braking methods and impact on the glide
  - + Stall point and stall, as well as the flight characteristics of a RAM-Air canopy in deep brakes
  - + Direct and indirect steering
  - + Steep turns / flat turns (direct / indirect)
  - + Riser turns: front risers and rear risers
  - + Landing on rear risers (without using steering toggles)
  - + Landing with front risers (hold down front risers to increase flight speed until not more than 8 - 10m/GND, 25 - 30 ft AGL / then release and flare)



- + Accuracy landing (influencing the glide angle / indirect steering when approaching the target / landing in radius of 5m of predeclared point)
- ⇒ Safety guidance
  - + Minimum deployment altitude 800 m/GND (2,500 ft AGL) during introductory descents

### **Confirmation by briefer and CI in log book or training record sheet**

#### **Additional development after the qualification has been granted:**

- ⇒ Qualification to jump with flags or smoke
- ⇒ Compete in Accuracy Landing competitions
- ⇒ Jumping with different canopy profiles
  - + E.g. 3 descents with a 9-cell high speed canopy with less than 1.5 lbs/ft<sup>2</sup> wing loading
  - + E.g. 3 descents with a 7-cell lower speed canopy with less than 1.0 lbs/ft<sup>2</sup> wing loading



### 8.1.9 Jumping with wing loading above 1.5 lbs/ft<sup>2</sup> (CP)

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ Minimum descent number: At least 300 total descents and at least 150 of which in the last 12 months

#### **Prerequisites: Equipment**

- ⇒ High performance canopy, deemed suitable for this level of wing loading by its manufacturer
- ⇒ The intended wing loading should be within the operating and tolerance limits given by the manufacturer (Manufacturer's Manual wing loading)

#### **Content of basic practical induction:**

- ⇒ Briefing by an experienced jumper with more than 500 descents with a wing loading of more than 1.5 lbs/ft<sup>2</sup>
- ⇒ Expand on the knowledge of the aerodynamics of a RAM-Air canopy
  - + Aerodynamics in general / flight mechanics / flight behaviours
- ⇒ Briefing on packing a high performance canopy and the opening characteristics to expect
- ⇒ Briefing on what flight characteristics to expect
  - + Flight speeds over ground / air speed / sink rates / trajectory speeds / time and altitude factors
  - + Steering inputs and what behaviour to expect from the canopy in question
  - + Opening malfunctions of a high performance canopy (aggressive opening / rotations / time and altitude factors while dealing with a malfunction / what to do with broken steering line)
  - + Landing speeds and flare behaviours
- ⇒ Briefing on detailed characteristics
  - + Basics on Zero-P fabrics
  - + Basics on square / elliptical / semi-elliptical / delta canopies
  - + Modifications on high performance canopies (collapsible slide / collapsible pilot chute / detachable slider / triple risers / microlines / airlocks)
  - + Exchange of experience of individual canopy types and their behaviours is explicitly desired



- ⇒ Introduction to extreme flight manoeuvres
  - + Stall of high performance canopy with steering lines
  - + Stall of high performance canopy with rear risers
  - + Flying canopy in deep brakes and indirect turning
  - + Riser turns (above 300m/GND, 1,000 ft AGL)
  - + Landings assisted by risers (front riser landing: Parallel and symmetrical holding down of front risers to increase flight speed until not more than 8 - 10m/GND, 25 - 30 ft AGL / then release and flare)
  - + Landing with intentionally higher landing speed (landing from 90° turn / hook or swoop turns / swoop)
- ⇒ Safety guidance
  - + Determine behaviour of others currently sharing the airspace
  - + No rear riser landings
  - + Slow approach to swoop turns after 50 descents with the relevant canopy taking a lot of care and the right technique
  - + Sliding in may be better than a PLF

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ Always possible (do not endanger or injure self or others)



### 8.1.10 Night Jumps

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ Minimum descent number: 100 (depending on additional requirements)
- ⇒ Accuracy landing qualification
- ⇒ Very good skills at landing parachutes

#### **Prerequisites: Equipment**

- ⇒ Harness/container system with AAD
- ⇒ RAM-Air main canopy and RAM-Air reserve canopy
- ⇒ The parachutist must be familiar with the equipment they are using
- ⇒ Clear goggles / clear visor
- ⇒ Illumination for altimeter
- ⇒ Suitable illumination of the parachutist
- ⇒ Signalling tools (e.g. whistle)
- ⇒ Torch, suitably mounted and appropriate for parachuting

#### **Content of basic practical induction:**

- ⇒ Briefing by an experienced night jumper
- ⇒ Night Jump Briefing:
  - + Meteorological conditions
  - + Conditions and function of personal equipment
  - + Embarking an aircraft at night
  - + Behaviour during the climb to altitude / for emergency exits / normal exits / on opening / during canopy flight / for landing
  - + Thoughts on exit order and canopy stack
  - + Lights plan, orientation and navigation at night under canopy, airspace checks (safety aspects)
  - + Behaviour after landing in general and in the event of an off-landing
  - + Behaviour in emergencies
- ⇒ Safety guidance
  - + First night jumps must be solos
  - + Cloud base at least 1,500m/GND (4,500 ft AGL)
  - + Ground briefing, in particular obstacles and how to behave if landing on/near it
  - + CYPRES remains on for a maximum of 14 hrs; the night jump could exceed this operating duration = therefore switch CYPRES off and on again for night jumps
  - + Acclimatisation of vision to darkness for takes around 15 mins = spend sufficient time in darkness before descent;
  - + Line of sight to the canopy is as normal, malfunctions will be apparent
  - + Windsock or landing T will be lit (e.g. by a car) = land with the lights
  - + First time night jumpers must have jumped and landed at the planned site during the same day





- + No low turns under canopy at night
- + No steep spirals, flight long straight lines, max 90° turns, remain airspace aware
- + Always be prepared for a hard landing once close to the ground (PLF)

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ Safety recommendation: “Night jump Briefing” by the DFV (can be obtained from the office);  
with kind support from Frank Carreras and “Mahle” Mühling
- ⇒ Night jumps with FS, FF Skysurf, CF or Freestyle require relevant discipline qualification



### 8.1.11 Canopy Formation (CF)

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ Be proficient in flying RAM Air canopies
- ⇒ Stable exits
- ⇒ Demonstration of various manoeuvres (with a CF canopy) is sensible
  - + Stall
  - + 5 abrupt directional changes in full flight, with constant altitude checks

#### **Prerequisites: Equipment**

- ⇒ Suitable harness/container system without RSL, no FXC AAD
- ⇒ Suitable main canopy without microlines (e.g. 7 cell, special CF canopy)
- ⇒ Suitable head protection
- ⇒ altimeter
- ⇒ Hook knife (preferably large)
- ⇒ Suitable clothing (well fitting, no grippers)
- ⇒ Suitable shoes (well fitting, no sandals)

#### **Content of basic practical induction:**

- ⇒ Briefing by an experienced CF jumper
  - + Exit with/against wind, inside/outside free fall area
  - + Working with a fixed line of flight and maintaining it
- ⇒ Introductory descent: see prerequisites personal (canopy handling)
  - + Controlled exit with immediate deployment
- ⇒ CF terminology (level, slot etc)
- ⇒ Approaching
  - + Standard docking
  - + Top docking (optional)
- ⇒ Docking techniques:
  - + Canopy/line docks (stack, plane, stair step)
  - + Controlled approach before docking
- ⇒ Dynamics of a formation
- ⇒ Steering of a formation (turns, braking etc.)
  - + Changing a formation Break off:
- ⇒ Separation of a formation (stack, plane, stairstep)
- ⇒ Possible entanglements and other problems and how to deal with them in 2-way or 3-way formations.
  - +
- ⇒ Safety altitude and stopping work during introductory descents = 1,000 m/GND (3,000 ft AGL)



⇒ Safety guidance

- + It is generally considered sensible to stop any CF at 800 m/GND (2,500 ft AGL).
- + Canopy formations and CF jumpers must not fly under free fallers.

⇒ Basic introduction should be 10 descents under supervision

Note: A suggested course in CF can be requested from the office.

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ After the 10 basic discipline introductory descents: Rotations
- ⇒ After a further 10 descents in the discipline: Formations



### 8.1.12 Sky surfing

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ No minimum jump number as dependent on freefall skills (see below)

#### **Prerequisites: Equipment**

- ⇒ Suitable harness with BOC and AAD, no RSL /LOR
- ⇒ Suitable canopy sizes without radical malfunction behaviour
- ⇒ Suitable head protection
- ⇒ Wrist mounted visual altimeter
- ⇒ Audible altimeter
- ⇒ Suitable clothing (tight lower half, baggy sleeves)
- ⇒ Suitable shoes (thin soles preferred)
- ⇒ Minimum exit height during training is 3,000m/GND (9,000ft AGL)
- ⇒ Beginners must not wear webbed gloves

#### **Prerequisites: Free fall skills**

- ⇒ Controlled sit-fly exit and free fall (exit onto back)
- ⇒ Be able to stabilise into a sit-fly position from any other position
- ⇒ Back fly with controlled turns
- ⇒ Controlled stand-up with 360° turns left and right
- ⇒ Back layout from stand and back into stand
- ⇒ Handle touches BOC from stand (although for actual deployment always return to belly to earth)

#### **Prerequisites: Surf board**

- ⇒ Beginner board from 80cm to 1m, but max 60% of jumper's height, width max 25cm, thickness max 14mm
- ⇒ No sharp edges, max 2kg wooden board up to a maximum of 120cm length
- ⇒ Binding that can be cut away with a 2 or 3 ring system
- ⇒ Binding individually fitted, must ensure 100% release of the board on cutting away (e.g. Binding opens to the rear, away from the foot loop)
- ⇒ Cutaway pad for the board must be reachable with either hand, connection to the cutaway cable by minilink, a pilotchute system which released on cutting away the board is recommended.

#### **Content of basic practical induction:**

- ⇒ Briefing by an experienced sky surfer
- ⇒ Behaviour in the aircraft with board and fellow parachutists
- ⇒ Exit theory for different doors (left, right, tailgate)
- ⇒ Behaviour in special circumstances specific to sky surf: first remove the board then emergency procedures
- ⇒ Surf board control in free fall: Stabilisation and recovery following free fall problems
- ⇒ Deployment height 1,400m/GND (4,200 ft AGL) for the first 15 descents with the board



- ⇒ Landing with the surf board: Flaring and landing or cutting away
- ⇒ Special topics:
  - + New clothes = familiarisation jumps
  - + Packing of risers in the main container
  - + Video
  - + Other accompanying parachutists

The dive flows to be used should follow this handbook in conjunction with Easy Skydive (1998 Easy Skydive Production).

### **Confirmation by briefer and CI in log book or training record sheet**

#### **Additional development after the qualification has been granted:**

- ⇒ Intermediate board (120cm to 140 cm) depending on skill
- ⇒ Safety training and guidance for larger boards
- ⇒ FAI rules (board sizes and weights, formations)



### 8.1.13 Display descents with flags and/or smoke

#### **Prerequisites: Person**

- ⇒ Licensed parachutist
- ⇒ Accuracy landing qualification

#### **Prerequisites: Equipment**

- ⇒ Minimum exit altitude of 1000 m/GND (3,000 ft AGL) during introductory descents
- ⇒ Mounting of flag and/or smoke cannisters does not affect the operation or functioning any of the parachuting equipment
- ⇒ Hook knife

#### **Content of basic practical induction:**

- ⇒ Induction only by an experienced parachutist familiar with flying with flags and smoke
- ⇒ Descents with flags
  - + Attachment of the flag to the parachutist and stowage for free fall (flag bag, cut-away options)
  - + Handles for opening and flying flags under canopy (possibly hanging harness training)
  - + Flight behaviours of the canopy to be expected once flag is open, especially flying slowly
  - + Movement of the flag during the canopy flight
  - + New total measurements with open flag
  - + Counter balancing the flag with weights (e.g. bag filled with sand)
  - + Landing with the flag
  - + At least one descents with a medium sized flag (approx. 1.5m<sup>2</sup>)
- ⇒ Safety guidance
  - + No flag jumps without gear check
  - + With flag = AAD required
- ⇒ Descents with smoke
  - + Attachment (only on leg or on a lanyard)
  - + How to activate (behaviour in the aircraft / safety behaviour / initiation of the burning reaction)
  - + Impairments from the smoke or cannister
  - + Points requiring additional awareness (moving into exit position / leg position on deployment / landing with the cannister)
  - + Behaviour in special circumstances (early ignition in aircraft / entanglement of cannister with opening canopy / possibly visual restrictions)
  - + At least 1 descent with a dummy cannister (practice handling)



⇒ Safety guidance

- + Do not breathe in the smoke / only ignite in open air
- + Mount the cannister so that the heat of the ignition does not transfer to the parachutist
- + Cannister attachment must not be able to come loose in free fall
- + Attach cannister so that entanglement or blocking of pilot chute and bridle is impossible
- + Do not attach cannister to flammable or materials which could melt or smoulder
- + The burning time should not significantly exceed the duration of the descent

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ Do not endanger or injure self or others



#### 8.1.14 Speed Skydiving (SP)

##### **Prerequisites: Person**

- ⇒ Licenses parachutist with FS and FF qualifications
- ⇒ Minimum 200 jumps
- ⇒ Check-out jump from briefer:
  - + Basic angle flying or good tracking skills
  - + Good orientation awareness in freefall

##### **Prerequisites: Equipment**

- ⇒ As a starting point, the same requirements as for free fly. In addition:
- ⇒ The BOC pocket must be tight and the bridle must be stowed so that it cannot catch air in any circumstances. Depending on the BOC, sufficient lea for the handle should be available. All loops must be in good condition. The pack pressure (pressure on closing loop) should be sufficiently high to ensure that only the pull from the bridle or handle will open the container. Magnetic riser covers - even with additional magnets! - may not be suitable.
- ⇒ Full face helmet with audible altimeter, preferably high volume; it is strongly advised to use two audible altimeters
- ⇒ Wrist mounted visual altimeter (chest mounted are not suitable)
- ⇒ Optional: Devices to measure speed, (e.g. ProTrack 2 or FlySight)
- ⇒ Tight jumpsuit/other clothing with secured zip fasteners and without booties
- ⇒ Gloves are recommended

##### **Content of basic practical induction:**

Induction only by a qualified coach authorised by the Association.

- ⇒ Theory of Speed Skydiving
- ⇒ Manifesting / briefing of pilot and other groups
- ⇒ Exit order (depends on the experience/skills of the parachutist, jump-run, exit point and jump plans of other groups and their size)
- ⇒ Max. 6 Speed skydivers per run-in, all exiting solo
- ⇒ Planning of direction (e.g. 90° left or right to jump run) by each Speed descent and its accurate execution / the need for ground visibility
- ⇒ Altitude awareness and safety altitudes when Speed Skydiving
- ⇒ Particularities for high descents
- ⇒ Separation and braking techniques before deployment / flight direction under canopy in relation to jump run





**Safety guidance:**

- ⇒ Very short free fall time
- ⇒ Extreme additional speed requires additional care
- ⇒ Minimum exit altitude is 3,000m/GND (9,000 ft AGL)
- ⇒ Drift possible in freefall depending on body position, increased collision risk
- ⇒ Sudden speed changes (danger) when changing body position (e.g. From head down / very steep racking to belly) - corking
- ⇒ Slowing down and break off techniques for deployment
- ⇒ Safety altitudes, break off altitudes, minimum 1,700 m/GND (5,000 ft AGL)
- ⇒ No speed skydiving at night
- ⇒ No speed skydiving formation descents
- ⇒ Sudden changes in speed and direction risk collision danger
- ⇒ Behaviour in special circumstances (recovery) lesson
- ⇒ Behaviour on loss of control (e.g. at high altitudes)

**Sufficient further education:**

- ⇒ Adoption of an increasingly perfected streamlined body position
- ⇒ Transition from full speed to track, normal speed to canopy deployment

**Confirmation by briefer and CI in log book or training record sheet**

**Additional development after the qualification has been granted:**

- ⇒ Improvement of personal skills
- ⇒ Do not endanger or injure self or others



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# Chapter 9

## Glossary

### Acronyms and terms used in the English version



## 9. Glossary

### 9.1 Acronyms and terms used in the English version

<b>1:1</b>	One to one teaching, one instructor works with one student
<b>1:2</b>	One to two, one instructor works with two students, etc.
<b>3-Ring circus</b>	The 3 ring mechanism for a single handed cut-away of a main canopy
<b>airlock</b>	Mechanism by which the cells of some canopies “lock” once fully inflated, making the canopy more rigid.
<b>AAD</b>	Automatic Activation Device
<b>Accuracy Landing</b>	Classic competition discipline and technique for landing accurately
<b>AFF</b>	Accelerated Free Fall instruction method
<b>AGL</b>	Above ground level
<b>TAS</b>	True airspeed
<b>Baglock</b>	Malfunction where the deployment bag does not open; most likely continued free fall
<b>BOC</b>	Bottom of container, term used to describe the location of stowed pilot chute (as opposed to Leg-strap)
<b>CYPRES</b>	Cybernetic Parachute Release System; German brand of electronic AAD
<b>FAA</b>	Federal Aviation Administration; US government department responsible for aviation matters
<b>F.A.S.T. Harness</b>	full articulated suspended technology; harness container with rings at all connection points (hip, chest)
<b>Float exit</b>	Exit position where the parachutist climbs outside the aircraft and waits there until the group with which they are jumping is ready
<b>Freebag</b>	Deployment bag for reserve canopies, which is not attached to the canopy so “flies free” after the reserve canopy has been deployed
<b>Free Fly</b>	Freefall in an upright body position (head up, head down). Also competition discipline with three competitors, two performers one videographer
<b>Free Style</b>	Freefall in range of positions, often dance like. Also competition discipline with two competitors, one performer one videographer
<b>GAFOR</b>	General Aviation FORecast, weather forecasting service
<b>GND</b>	Ground, used in conjunction with m to denote altitude above ground
<b>IAD</b>	Instructor Assisted Deployment, where the instructor holds the student’s pilot chute so that when the student exits the airplane the bridle is stretched. This form of student deployment is not permitted in Germany
<b>Line over</b>	Malfunction where a line is over the main canopy. German terminology includes “Brötchen” which translates a bread roll because it can look like a common shape of bread roll



<b>MLW</b>	Main Lift Web, the harness section running along the torso
<b>MOD</b>	Main Override Device which allows secondary AFF instructor (on left side of student) to deploy the student's main canopy
<b>MSL</b>	Main Sea Level, used to designate the ground height at a dropzone
<b>NOTAM</b>	NOtice to AirMen, a safety notice issued by aviation authorities
<b>PC</b>	Pilot chute
<b>PIA</b>	Parachute Industry Association, association of equipment manufacturers;
<b>PIA Symposium</b>	PIA's trade fair
<b>PLF</b>	Parachute landing fall
<b>POD</b>	Parachute Opening Device, more commonly called deployment bag
<b>ROL</b>	Rear on leg strap, designation of location of throw-out pilot chute pocket (as opposed to BOC)
<b>RSL</b>	Reserve-Static-Line: a connection between a main riser and the reserve handle cable which pulls the reserve pin when the main riser is released following a main cut-away.
<b>SAR</b>	Search And Rescue; German national air emergency service; Frequency 123.1; Tel.: 0251-135757.
<b>SOS</b>	Single Operation System; where the cut-away and reserve deployment is activated by a single handle
<b>TSO</b>	Technical Standard Order; US designation of safety standards



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# Chapter 10

## Dealing with emergencies



## 10. Dealing with emergencies

### 10.1 Accidents and incidents

#### 10.1.1 General

##### **MOST IMPORTANT BASICS:**

- **REMAIN CALM**
- **ACT DELIBERATLY**
- **INITIATE EMERGENCY ACTION**

#### 10.1.2 Initiating emergency actions ones self

When an accident occurs, the duty to assist prevails. Therefore anyone experiencing an accident as a witness is invited to perform First Aid. This includes calling the emergency services, which is the most minimal form of First Aid.

Despite this, frequently many witness just passively watch or run around excitedly. Few people feel responsible. Everyone believes the doctor or ambulance has been called by the air boss/dropzone control or Tower, or someone else. This often leads to unnecessary delays.

Whenever possible, and in the interest of the injured, always make the important phone calls yourself! In such situations, minutes can make a significant difference to the injured. The nearest Emergency Services can be reached on 112.

#### 10.1.3 Secure the accident location

An instructor should always be able to instruct a competent person to secure the site of the accident and keep onlookers away. This way they have the time to make the important phone calls.

A blanket in cold weather or a sun shade in nice weather in addition to classic First Aid will benefit the injured.

For more serious incidents, including deaths, it is sensible to erect a visual barrier to reduce curious onlookers. Competent individuals should be instructed to keep bystanders away from the site of the accident.

Arriving press should be told to await the press conference which will be held by the Owner or Operator at a later point in time.

At such a press conference any known causes of the accident should be described in a neutral and technical manner. This is to reduce the risk of speculation by the press. The privacy of the injured must at all times be preserved. Facts should only be given if they are absolute and incontrovertible. Results from the investigation by the Public Prosecutor should under no circumstances be speculatively anticipated.

Where possible, witnesses to the accident should be found. If there is a video recording of what took place, this should be secured by a competent person. It may contribute to solving the cause of the accident and could therefore be evidence. It should be provided to the Public Prosecutor and their expert witness. If possible avoid the owner of the recording sharing it with the media and it being publicly broadcast.





#### 10.1.4 Telephone list for actions in case of accidents

An example list is in the chapter on Administration.

## 10.2 Severe Accident

### 10.2.1 Notification

According to Art 7 para 7 LuftVO, every accident must be reported to the Association on the standard form.

Accidents, for the purpose of this regulation, are defined as any form of injury, broken bone(s) or damage to person or property over EUR 500.00.

For accidents with serious injuries or property damage, a preliminary claim should also be made to the insurers.

The notification should be by standard form: "Sofortmitteilung über einen Unfall" (Immediate Notification of an Accident) by fax or scanned and sent by email.

### 10.2.2 Accident resulting in death

Jump operations should be stopped for the day by the operator. The following could be the local sequence of events:

- ⇒ Paramedics arrive and, if possible, start re-animation procedures
- ⇒ Emergency doctor arrives and supports the paramedics, if unable to re-animate determines the death
- ⇒ Police is informed, if not already
- ⇒ Police arrive, secure the accident site and identify witnesses
- ⇒ Criminal Investigation Department police are notified
- ⇒ Public Prosecutor is notified
- ⇒ CID arrives and takes over securing of evidence and taking witness statements
- ⇒ CID takes on the responsibility to inform next of kin
- ⇒ Public Prosecutor arrives and starts with the determination of the cause of the accident and any blame; may engage an expert witness
- ⇒ Undertaker arrives and removes the deceased
- ⇒ From then on the process is managed by the Public Prosecutor's Office and the Coroner

The next of kin should under no circumstances be notified of the death of their family member(s) by parachutists. This should be carried out by specially trained police officers.

It is possible, however, that family members are present. A calm and empathetic person should be asked to take care of them.

In general: The more public the accident, the greater the likelihood of stress being felt by spectators and witnesses. Crying people suffering from shock are not rare. There may be further need for First Aid or emergency services support.



### 10.2.3 Insurance companies

In the event of property damage, the 3rd party liability insurer must be notified. In the event of serious physical injury or injury followed by death, the provider of any “hanging” insurance (accident insurance for parachutists) must also be notified.

Accidents which result in death must be notified to the insurer within 24 hours.

## 10.3 Accidents during student training at a Parachute Training Organisation

### 10.3.1 Notification to various places

The following must be notified of accidents at a Parachute Training Organisation during student training:

1. DFV/DAeC ---> as Authorised Association
2. 3rd party liability insurer ---> in the event of property or personal damage
3. Accident insurer ---> in the event of accidents with student systems with accident cover

### 10.3.2 Forms

The accident forms are available on the websites of the Authorised Associations. The form can be submitted by fax or scanned and sent by email.



# Chapter 11

## Forms



## 11. Forms

### 11.1 List of Forms

All forms are downloadable (in German) from the Download page of the website of the authorised associations.

**Note:** Some of the documents are examples only.

<b>Form description</b>
Medical fitness form (Example)
Student check-in form (Example)
Contract for Instruction (Example)
Main jump log book (student card) (Example)
Safety test (Example)
Individual statement before the first descent
Packing card (Example)
Hand signals (Example)
Aide memoire solo status
Training record sheet (Example)
License documentation
Proficiency card with application for license exam
Exam certificate 10
Answer sheet from the theory exam
Documents for the conversion of a foreign license
Rental agreements for student equipment (Example)
Parachutist check-in form (Example)
DFV e.V. Membership application form
Liability Insurance application
Annual instruction report
Questionnaire for compilation of annual statistics
Application form for third-party liability insurance
Application form for event manager liability insurance
Application for a demo landing/display
Notification of a change to a display/demo landing permission
Text for a liability agreement (Example)
Application for license extension/ re-issue



## Chapter 12

Legislation The Aviation Act, Air Traffic Regulations as well as other legislation and regulations relevant to operating a sport parachute.



## 12. Legislation The Aviation Act, Air Traffic Regulations as well as other legislation and regulations relevant to operating a sport parachute.

### 12.1 Translator's note: The German handbook contains tables citing individual articles of each of the pieces of legislation.

There are no official translations for the German legal texts. This translation of the AHB provides the names of the pieces of legislation and what they cover.

### 12.2 Luftverkehrsgesetz (LUFTVG) - Aviation Act

The Aviation Act contains basic regulations and empowers the Federal Ministry for Digital and Transport to issue further regulations.

### 12.3 Air Traffic Licensing Regulations (LuftVZO)

This regulates the registration of aircraft and the general conditions relating to being an airman.

### 12.4 Air Traffic Regulations (LuftVO)

The Air Traffic Regulations contain the rules to abide by when taking part in air traffic (duties, general rules, Visual Flight Rules).

### 12.5 Ordinance on Aviation Personnel (LuftPersV)

This ordinance defines the technical prerequisites for acquiring different licenses and approvals.

### 12.6 Ordinance on testing of aeronautical equipment (LuftGerPV)

This determines what tests are required to determine and maintain airworthiness of equipment

### 12.7 Operating regulations for aircraft (LuftBO).

The operating regulations contain important regulations for the holder or pilot of an aircraft (maintenance, equipment, operating hours)

### 12.8 Ordinance on Costs for Aviation Administration (LuftKostV)

This provides the pricing for all relevant administrative acts.

### 12.9 Aeronautical News1 and 2 (NfL)

These notices contain binding announcement of regulations as well as important information for aviation. NfL 1 contains information on aircraft operations, NfL 2 contains information on aeronautical equipment, personnel and other matters. Published by DFS, the German Air Traffic Control authority.

Since 1 March 2021, NfLs are no longer categorised into 1 and 2 but have sequential numbers in the format XXXX-YY. XXX stands for the NfL number and YY for the year it was published.



# Chapter 13

## Library



## 13. Library

### 13.1 Notices

### 13.2 Websites

The DFV's website is [www.dfv.aero](http://www.dfv.aero)

The DAeC's LSG's website is [www.daec.de/sportarten/fallschirmsport](http://www.daec.de/sportarten/fallschirmsport)

They contain lots of current information and have a large download area for many aspects of sport parachuting.

### 13.3 Safety Notices

On 15 December 1996 Jupp Thomas published a review of the collection of all safety notices in the name of the DFV.

Safety notices published after 15 December 1996 can be obtained for any rigging loft or the offices of the Authorised Associations (from the ParaOrg database).

In addition, the archive of safety notices can be viewed on the above mentioned websites of the Authorised Associations.

Furthermore, copies of relevant publication on safety matters can be ordered from the publisher of Freifall Xpress magazine.

### 13.4 Paperback book

Alexander Huber, Ingrid Krauss, Austrian Aero-Club © 1997 BLUE SKY - Edition, publisher Peter Schäfer, 34246 Vellmar ISBN 3-929792-02-8

Reference is made to the training hand book: **Fallschirmsport**

This is to make student skydivers aware of this book, only published in German.

### 13.5 Poor conduct in extreme situations

Prof D. Dietrich Ungerer, 28259 Bremen © 1997 BLUE SKY - Edition, publisher Peter Schäfer, 34246 Vellmar ISBN 3-929792-04-4. The stress researcher Prof Dr Dietrich Unger published:

#### **Fehlverhalten in Extremsituationen beim Fallschirmspringen**

This is to make instructors aware of this reference book, only published in German.





### 13.6 Instructor Hand Book Part II (Instructors)

Reference is made to

Instructor Hand Book Part II (Instructors) published by the Authorised Associations

### 13.7 AFF Instructor Hand Book AFF AHB Part I and Part II

Reference is made to

**AFF-AHB Teil I (AFF-Ausbildung) und Teil II (AFF-Lehrerausbildung)** issued by the Authorised Associations

### 13.8 Tandem Hand Book (THB)

Reference is made to

Tandem Hand Book parts I and II: **Handbuch zum Tandemspringen (Teil I und Teil II)** published by the Authorised Associations

### 13.9 Miscellaneous

- List of all Approved Parachute Training Organisations
- Question bank
- Wing loading table
- Set-up of a canopy course
- Translations
- Staff lists and role descriptions (e.g. Riggers, site assessors, evaluators, etc.)
- Etc. (E.g. For all members and subscribers to the magazine: Freifall-Xpress)