EXTRAORDINARY ACTIVITIES

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1 NIGHT JUMPS

Night jumps, properly planned, can be a unique and enjoyable experience in sport parachuting. Any jump that falls within the period 1 hour after sunset or 1 hour before sunrise is considered a night jump.

1.1 GENERAL

• The CI shall appoint an Instructor to ensure that the activities are conducted in accordance with the regulations and doctrine.

• A manifest officer shall be appointed to control the jumping operations and to check that the documentation and licences are in order.

• All participants must strictly adhere to all PANAM MOPs pertaining to night jumping.

• Night jumps are defined as:
- Individual participation
- Night formation skydiving

1.2 REQUIREMENTS

Pre-requisites for participation:

• Individual Night Jumps
- Holder of a **B** Licence or higher.

• Night Formation Skydiving
- Have made a minimum of two previous night jumps, one 10 second delay and one of which must be at least 30 second duration.
- Category III formation skydiver; an experienced and accomplished day Formation Skydiver.

• Wind

Maximum recommended surface wind for night jumping is 10 knots. Excessive ground drift can make night landings hazardous.

• Training

No parachutist, regardless of experience, may participate in night jumping prior to receiving an endorsement in that category, as described in this manual.

CAUTION: No parachutist must attempt to participate in night jumping until he is thoroughly competent in the equivalent level of normal, day jumping.

• Practice

All parachutists, regardless of past experience, should receive refresher training on procedures within a few days of actual participation in night jumping.

• All parachutists engaged in first night jumps shall carry out a delay of 10 seconds from 4500 ft AGL, counting and observing their altimeter, followed by a stable delay in excess of 30 seconds on the following night jump.

• Parachutists engaging in their first night formation shall do a 2-way with a competent formation skydiver appointed by the CI, prior to doing any formation with other jumpers.

1.3 EQUIPMENT

• Instruments

All instruments must be illuminated in a manner that:
- They are clearly visible to the parachutist.
- The light is not mounted in a manner that will interfere with emergency procedures.
- Prevents glare (light reflection) from the glass face.

NOTE: Always check lighting systems on the ground in a dark area prior to jumping to ensure glare isn't present.

CAUTION: Flashlights must be held with wrist attachments or mounted in such a way that they do not snag the suspension lines of either the main or reserve canopies.

• Personal Lighting

All participants in night jumps require:
- A reliable flashlight.
- An illuminated altimeter.

Flashlights should be used for:
- Pre-jump safety check (if a lighted area isn't available)
- Canopy check if desired (silhouette check is reliable)

It is recommended that all parachutists engaging in FS should wear additional illumination.

• Clothing

Individual Night Jumps
- Normal accessories

Night Formation Skydiving
- Light coloured overalls should be worn to aid visibility and perception

• Parachute Equipment

On all night jumps, use equipment with which you are completely familiar. NEVER use strange (unfamiliar) or new equipment while parachuting in night jumping.

1.4 GROUND EQUIPMENT

• The landing area must adequately illuminated.

• A method of indicating wind direction must be provided; illuminated ground signals or illuminated windsock.

• At least two torches must be provided at the manifest area in order to locate parachutists who have out-landed.

• Additional ground-to-air communication should be available to control the jumping.

• All DZ obstacles, hazards etc., should be illuminated with a steady red light(s) if visibility is restricted (very dark night).

1.5 EMERGENCY PROCEDURES

The emergency procedures are identical to day jumping.

NOTE: The ground, although not as visible, is just as hard and unforgiving at night as it is in daylight.

1.6 SAFETY CHECK

The pre-jump check must include the additional points listed below:

• Lighting

Check that all lights are:
- Operational and adequate
- Properly mounted (no glare or obstruction)

• Equipment

If a well lit area is not available, flashlights must be used for the normal safety checks.

• Clothing

No restrictive (visually or physically) clothing must be worn by parachutists.

1.7 JUMPING PROCEDURES

• The Instructor on duty shall ensure that all parachutists, pilots and manifest officers are adequately briefed.

• A particularly intense safety check should be carried out as previously described, immediately prior to boarding the aircraft.

• If possible, a parachutist with past experience in night jumping, should be utilised as loadmaster on each load.

• Exercise extreme caution around running aircraft at night. It is recommended that the propeller be stopped prior to loading and/ or unloading at night.

1.8 CLIMB OUT

During the climb to jump altitude:

• Request the pilot to remain over land.
• Exercise additional caution in guarding ripcords etc.

1.9 LIGHTS

Do not activate free fall and/or instrument lights during flights; they will interfere with the pilot's night vision

NOTE: Instrument lights can be turned on briefly to check altimeter accuracy during ascent, providing care is taken to shade the light by using your hand to prevent the glare.

Prior to exit, check with the ground control if the jump is to proceed.

1.10 EXIT

Follow the predetermined exit order. Turn on and check the operation of ALL lights a few seconds prior to exit.

1.11 SPACING

Time interval between exits recommended for safety:

- Individual passes. Allow two minutes between passes.
- Where possible, passes should be kept to a minimum.
- CF stacks. Allow three seconds between parachutists.
- FS/AE. Normal exit procedures, as per daylight.

1.12 FREEFALL

Follow the predetermined delay, opening altitude etc., precisely EXCEPT in the event of an emergency.

1.13 INSTRUMENT FAILURE

If a parachutist is unable to read his instruments due to lighting or mechanical failure, he should PULL IMMEDIATELY.

CAUTION: NEVER continue free falling on night jumps if the altitude is unknown. Visual reference to altitude is not reliable at night due to lack of normal ground reference.

1.14 DISORIENTATION

If a parachutist experiences loss of orientation in regard to altitude and/or body position he should PULL IMMEDIATELY.

1.15 ALTITUDE

The minimum recommended deployment altitude for night jumps is 3500ft, but not higher than 4000ft.

1.16 HIGH OPENING

If for any reason, a parachutist deploys early, above 4000 ft, and there are other parachutists still in the aircraft intending to jump, CLEAR the general opening area as quickly as possible by running or crabbing.

1.17 LANDING

Restricted vision at night reduces normal depth perception. Exercise caution on all landings.

NOTE: Lack of normal ground reference points can reduce spotting accuracy at night. Select the exit point carefully. The normal tendency in night spotting is to exit early, or short.

After landing, all parachutists must report at once to the manifest officer.

The manifest officer is responsible for ensuring all parachutists are located. He must also ensure that any injured parachutists receive immediate attention.

1.18 NIGHT FORMATION SKYDIVING

Introduction

If possible, an experienced night formation skydiver should introduce all newcomers to night FS. Twoman manoeuvres only should be attempted until a parachutist becomes proficient in the art of FS.

Performance

Never attempt any sequence or function at night prior to a successful performance of the same sequence in daylight.

Caution

Minimum guidelines for safe night FS:

• Pre-plan all night FS jumps thoroughly.
• Never use bright or glaring lights during sequences.
• Lack of perception in free fall at night caused by poor visibility and reduced vision due to hypoxia can result in high (dangerous) closing speeds.
• Break off higher than normal to allow adequate time for separation before deployment.
• Maintain a sharp visual lookout for other canopies during descent.
• If a lighting failure occurs under a canopy, verbally warn other parachutist of the situation.

Group Formation Skydiving

All participants in group FS at night must be experienced and competent at day FS.

Mass Formations

If more than four parachutist are participating in night FS, all participants should be extremely competent in and have considerable experience in day and night group FS, and day mass FS. All participants must exercise EXTREME CAUTION throughout the entire jump.

2 WATER JUMPS

Water jumps, properly planned, can be a unique and enjoyable experience in parachuting. Water, normally recognised as a friendly and enjoyable element, can be a serious hazard to the unprepared parachutist.

2.1 GENERAL

• Safety Regulations - all participants must strictly adhere to all PANAM MOPs pertaining to water jumping.

• The DZ SO/CI shall appoint an Instructor to ensure that the activities are conducted in accordance with the regulations and doctrine.

• A manifest officer shall be appointed to control the jumping operations and to check that documentation and licences are in order.

• Types of water jumps
  – Unintentional: accidental water landings.
  – Premeditated: planned practice or exhibition water jumps.

• Wind

The maximum allowable surface wind for water jumps is 20 mph. The maximum recommended by the NSTO is 10 mph. Water landings in higher winds can result in:
  – Heavy impact: resulting in momentary confusion, loss of wind etc. that could prove fatal.
  – High Speed Dragging. If the parachutist is unable to clear his equipment because of the canopy can drag the parachutist out of reach of the pick up boat.
  – Reserve Landing. If used, clearing the equipment would be very difficult since there is generally no quick release system on a reserve canopy.

NOTE: Drowning can result from being dragged through water, even with adequate flotation gear being worn by the parachutist.

Intentional Water Jump Requirements

Holder of a **B** Licence or Higher.

NOTE: It is recommenced that all parachutists participating in demonstration water jumps have previous water jump experience.

• Training

No parachutist, regardless of experience, may participate in water jumping prior to completion of thorough ground training as required for a water jump endorsement.

All parachutists participating in water jumping should be competent swimmers. It is recommended that weak swimmers practice clearing the equipment in a swimming pool prior to actual participation.

• Water Depth

Intentional water landings should be made in a minimum water depth of 8 -10 ft to avoid possible injury on landing.

• Para Scuba

CAUTION: Parachuting after scuba diving can be hazardous. It is recommended to wait at least 24 hours between a dive exceeding 30 ft in depth and jumping over 5000 ft. (Consult dive tables)

Procedures for Unintentional Water Landings

The unintentional Water Jumping procedures received in first jump training should be reviewed and practised by all parachutists periodically.

• Action includes:

- The parachute should be landing either facing into the wind or cross wind.
- The chest strap should be released prior to landing.
- Inflate flotation gear if worn.
- Immediately after water entry swim forward and out the harness.
- Swim away from and remain clear of the equipment.

CAUTION: Do not attempt to loosen leg straps while in the air.

CAUTION: In strong wind conditions the main canopy should be released once contact is made with the water.

CAUTION: It is imperative to release chest strap if gas inflated flotation system is used.

CAUTION: If landing in a rapid current, release the canopy IMMEDIATELY after water entry. The canopy can be pulled under by a strong current within seconds and drown a person, with or without flotation gear being worn.

Procedures for Intentional Water Landings

The procedure is identical to those above, except that it is commenced immediately after the canopy check has been completed, to allow maximum time to prepare for the landing.

NEVER enter the water without flotation gear being inflated.

NEVER intentionally make a water jump into a fast current.

NEVER attempt to entirely clear the harness above water, depth perception is very poor and you may be:

• Still 50 ft above the water.
• Only ten feet above 6 inches of water.

2.2 EQUIPMENT FOR INTENTIONAL WATER JUMPS

• Clothing

Minimum clothing is required. It is recommended that footwear be worn.

• Instruments

Normally, short delays are done on water jumps, since water will damage instruments (altimeter, AAD). For a longer delay, PANAM MOPs apply.

• Flotation Equipment

The flotation gear must be adequate to support a fully equipped parachutist (water logged) with his head above water. Recommendations are:

- Personal Flotation Equipment:
- Never use 'rescue packs' 'Aqua Aids' etc. on an intentional water jump.
- Wet Suits (full suit or just jacket) are adequate and ideal for use in cold water conditions.
- CO2 and oral inflation are adequate.
- Flotation jackets etc. are acceptable if they give adequate support.
- Testing.

Prior to making an Intentional water jump, always check the following:

- CO_2 cartridge intact.
- CO_2 activation mechanism operational.
- Oral inflation system (valves) operational.
- No leaks or tears in the flotation gear.

Suspension Test:

- If there are any doubts about flotation capabilities of a set or type of flotation gear, always test it in a swimming pool, PRIOR to actual use.

CAUTION: NEVER, unless time prohibits, inflate by CO_2 with the chest strap fastened. Pressure created is often sufficient to:

- Make later release of the chest strap very difficult.
- Cause injury to the parachutist.
- Restrict movement and/or breathing.

Unintentional Water Landing

If no flotation gear is worn, the helmet (if solid shell) and the coveralls can be utilised for support.

NEVER rely on the reserve for support. They only float an average of twenty seconds depending on the type.

2.3 GROUND EQUIPMENT

• At least one boat per jumper on each pass must be provided with an additional boat in reserve.

• Motorboats must be utilised, with a speed capability exceeding maximum allowable wind speed.

• All boats must be capable of carrying at least 3 persons and a set of wet parachute equipment without danger of it capsizing at any time.

• A good swimmer must be in each boat in addition to the boat helmsman.

• Crew members must be wearing flotation gear and each boat should have an extra set available in the boat in case a parachutist experiences flotation gear failure.

• At the landing place, a person fully trained in artificial resuscitation must be available.

• A method of ground to air communication must be provided at the jump site.

2.4 PREPARATION

• Equipment prior to jumping.
• Remove the reserve packing card.

CAUTION: Smoke bomb brackets can easily become entangled in suspension lines. Only the ejectable types should be used on water jumps.

• Safety Check

The pre-jump safety check must cover these additional points.
- Flotation gear properly worn.
- CO2 inflation system readily worn.
- Oral inflation system readily accessible.

2.5 OPERATIONS

• Boat(s) must have the motors running and be in the immediate target area prior to the parachutists exiting.

• All parachutists must be practised in water landing drills on the equipment they will use on the jump.

• All parachutists exiting on a pass must be either, in a boat, or landed, depending on boat capacity, before the next pass is made. Boats, which have unloaded, must be on station before the next pass.

• A ground control officer shall be appointed to be present at the landing area. He shall be responsible for ground to air communication and ensure that any parachutist requiring assistance receives it immediately.

• The ground control officer shall have a copy of the manifest in order to properly co-ordinate and advise boat helmsmen which parachutists to pick up.

• Wind Drift Indicator - ensure that a contrasting colour is used. It may sink on landing, so observe it closely.

• Spotting. Lack of ground reference points makes spotting slightly more difficult than normal. With special attention to this fact, no problems on exit.

• Delay. Lack of clothing (air resistance) may cause slight stability problems on exit.

• Opening Altitude. Use a deployment altitude of 3 500 ft minimum to allow adequate time for landing preparation.

3 HIGH ALTITUDE DOCTRINE

3.1 INTRODUCTION

Sport parachute jumping from altitudes higher than 15,000 ft above sea level presents the participants with a new spectrum of physiological problems.

The problems of supplying adequate oxygen to and maintaining sufficient pressure on the body to assure consciousness and control require the use of additional equipment and procedures not required for parachuting from lower altitudes.

There is an additional element of risk due to the changes in the atmospheric environment above 15,000 ft. This cessation of the atmosphere's life-supporting characteristics, make high altitude skydiving more potentially hazardous than at lower altitudes.

With proper training, adequate equipment, and well planned procedures, high altitude parachuting can be conducted within acceptable limits of safety. Without such precautions, however, such attempted operations may result in disaster.

It is in the interest of promoting safety in high altitude parachuting operations through knowledge of the associated equipment, environment, and physiology that this section is presented.

3.2 ALTITUDE CLASSIFICATIONS

• Intermediate Altitude:
From FL150 up to FL200 or if time spent above 10000 ft AMSL is to exceed half an hour.

• High Altitude:
Above FL200 up to FL400

• Extreme Altitude:
Above FL400.

3.3 EXPERIENCE RECOMMENDED

• High Altitude Jumps:
- Holders of D Licence.
- All participants should have completed a Physiological Flight Training Course within the preceding twelve (12) months.
- All parachutists should have made at least one jump from 15,000 ft or below using a functioning bailout oxygen system.
- All jumps must be co-ordinated in advance with the appropriate local authority and NCAA.

• Extreme Altitude Jumps:
- Holders of D parachuting Licence.
- All participants should have completed a Physiological Flight Training Course within the preceding twelve (12) months.
- All parachutists should have made at least two (2) jumps from below 35,000 ft using the same functioning bailout oxygen and pressure system.

All jumps must be co-ordinated in advance with the appropriate local authority and NCAA.

REFER TO NATIONAL SAFETY AND TRAINING OFFICER FOR **ALL** HIGH or EXTREME ALTITUDE JUMPS.