Australian Parachute Federation Ltd

Camera Flying Guide

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STATUS: ADVISORY

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Warning

Parachuting and flying in parachuting aircraft can be dangerous.

About this Publication

This Guide is produced by the Australian Parachute Federation Ltd (APF) for the information of APF members. The information it contains is based on the British Parachuting Association publication and the opinions of the writers: it does not represent APF policy. While APF has attempted to ensure that the information in this guide is correct, it may contain information which is out of date or incorrect. If you want more information or copies of this guide for yourself or your friends, please ask the instructional or coaching staff at your DZ or contact the APF Office.

Version Control

It is important that members refer to the current version of this Guide, which is current only at the time of download. See cover page for date of publishing. This version makes minor changes for consistency with new regulations. The current version can be found on the APF website.

Credits

The APF would like to extend its gratitude to the BPA (British Parachuting Association) for allowing APF to reproduce their "Camera Flying Coaching Manual" as the basis for this APF guide.

The posters on pages 6, 14 and the back cover are by Australian videographer, Timothy Parrant. Tim had developed a camera manual which BPA used for their manual.

Cover photo: Photo by Stephan Kleinlein of Tandem Master Matthew Mcleod and camera flyer Danny Helmy at Byron Bay, NSW.

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1. INTRODUCTION

The purpose of this Camera Flying Guide is to teach skydivers on how to reduce the risks when wearing a camera and attachments. It assists in the education of safety and emergency procedures.

Note: The following information is aimed at already-competent skydivers. Serious consideration should be made before using cameras or attachments.

"Not everyone is ready to fly with cameras, even if you have performed hundreds of jumps".

As part of your learning, please review Norman Kent's 16-minute video production on the danger of wearing cameras at: https://www.youtube.com/watch?v=sn2BCmnDUUM

1.1 APF Requirements to jump with a camera

Approval

All camera descents must be made with the approval of a DZSO.

Handcam descents by Tandem Masters must be in accordance with Operational Regulations (OR) 11.2.12.

1.2 Parachutist requirements

Except for the Tandem Master handcam requirement defined under OR 11.2.12 (b) and notwithstanding OR 9.7.1, a parachutist must not carry a camera during a descent unless the parachutist:

- wears a functioning audible altimeter which must be:
- approved by the manufacturer for the purpose of skydiving;
- mounted so that it is clearly audible throughout the descent; and
- set to indicate the height above the DZ; and
- holds at least a Certificate Class D for an AFF descent; or
- holds at least a Certificate Class C.

1.3 Who can teach camera procedures?

Before mounting or flying with cameras it is important to receive a proper briefing by a suitably qualified person and this Manual may be used as reference. Camera procedures must be taught with an in-depth approach ensuring that safety is the number one priory.

An APF Chief Instructor (CI)/Instructor/DZSO or an experienced camera flyer with extensive knowledge about cameras who is familiar with the camera manual can be nominated to give briefings about camera safety.

1.4 Camera briefing objectives

- Provide information before mounting a camera or attachments.
- Develop basic knowledge and teach the skills laid down in this manual.
- Explain possible mistakes and maximise learning emergency procedures.
- Give corrective training through the means of visual aids.
- Provide a safety brief and the awareness required while flying with cameras and attachments.
- Make a logbook entry depicting that a camera briefing has been carried out.

1.5 References

Training Operations Manuel (TOM), 5.4 Camera Descents.

2. AWARENESS

Flying with cameras can be fun and a great training tool; but we can very easily get carried away with the camera and forget about everything else. It is of the utmost importance that the camera is the last priory when carrying out our gear checks.

It is recommended that you turn on the camera and record before running in, so you can mentally prepare for the jump ahead. Throughout the rest of the skydive, from free-fall to landing and back into the hangar - we must stay focused on our surroundings.

Many incidents have occurred after a low canopy deployment to capture a good picture or make that dock for the video. There have also been incidents of canopy collisions and off landings due to tunnel vision with cameras. It is important to not develop tunnel vision for the sake of footage!

Serious consideration must be made to add cameras to an already-hazardous environment. Even if you have just obtained your APF Certificate C, you still might not be ready.

First, we are skydivers and second, we are camera flyers. It is important that we stay mindful of other skydivers, the jump spot, and maintain altitude awareness.

2.1 Camera descents

APF regulations specify requirements for camera descents. Before being permitted to make a first camera descent, the trainee will undergo a course of instruction. This instruction will be given to the satisfaction of the DZSO.

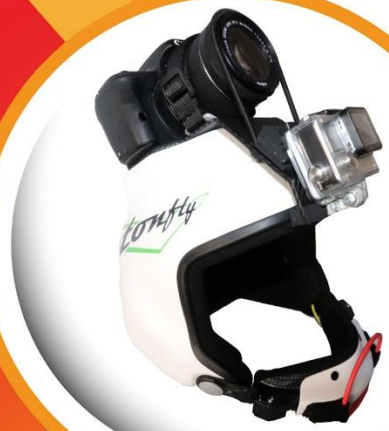
In addition to satisfying regulatory requirements for camera descents, the DZSO should ensure the prospective camera jumper understands that jumping with any type of camera adds a significant element of risk to any skydive. The risks include:

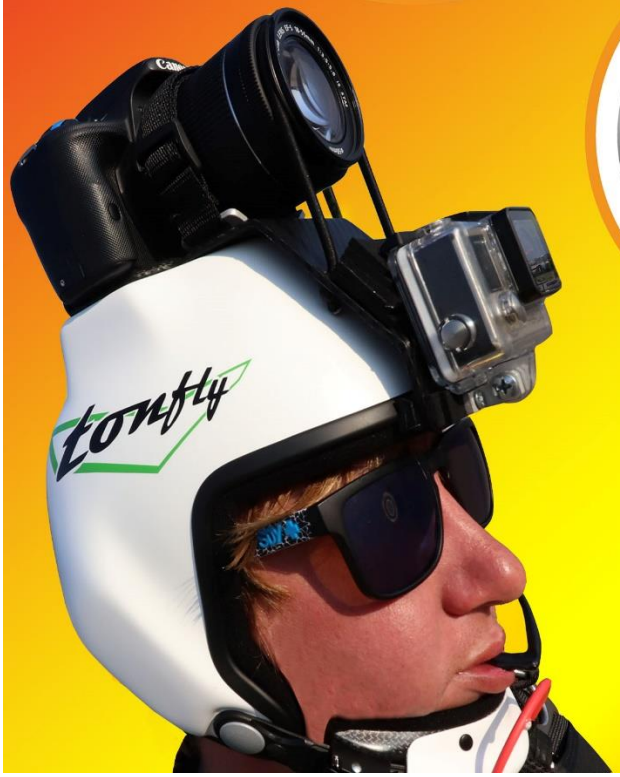
- Cameras falling off, creating a hazard to persons and property below;
- Pilot chute bridles or steering lines entangling with the camera or mount;
- Distraction from critical safety issues such as gear checks, climb-out/exit timing, freefall and canopy traffic, and time/altitude awareness.
- Skydivers considering making camera descents should be referred to an experienced current camera jumper, ideally an instructor or coach, for further advice (for example, on equipment suitability and set-up, precautions, procedures).
- Skydivers making camera descents should be reminded of their responsibility to report all incidents to facilitate learning.

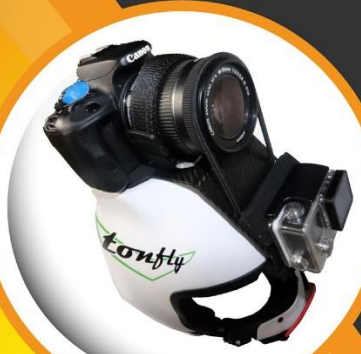
Pro Camera Helmet

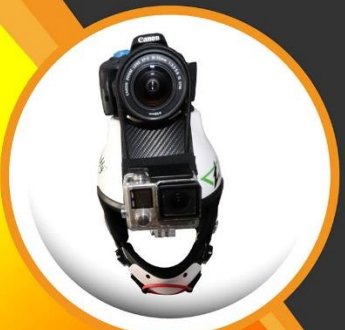
A safe camera helmet is

- Slightly squared in shape
- Nothing protruding from the side of the helmet
- Potential snagging points reduced to a minimum
- Light in weight and short in height
- Tightly fitted and secured with a chin guard
- No gap in between the inside liner and the hard shell
- Cutaway system installed and easily accessed









Tips

1. Inexpensive materials can be used to fill small gaps, materials like sticky foam and tape.

2. A bungee cord can be placed around the lens to secure it and prevent snagging.

3. Round sticker on the goggles is a great alternative to a ringsight.

3. HELMET

3.1 Helmet

Fully inspect the helmet, which is going to be used for flying with cameras. Consider the following when choosing a helmet for camera use.

3.2 Cutaway system

- Does it have a cutaway system? How does it work? Physically cut away and reassemble to truly understand the system.
- A cutaway should ideally be placed on the chin as it easy to locate and cannot be snagged by the risers on deployment.
- A cutaway must be firmly fitted to prevent accidental release.

Note: Check with your CI whether the Standard Operating Procedures (SOPs) state that all camera helmets should be fitted with a cutaway system.

3.3 Release without cutaway system

It is recommended that all helmets with cameras and mounts attached should be fitted with a cutaway system.

- If you do not have a cutaway on your helmet, ask yourself, can it be released quickly under tension without a cutaway?
- Have a friend add pull force to your helmet and attempt to release it quickly.

3.4 Correct fitting

- Does it fit correctly? Is the helmet a snug fit or does it wobble a lot?
- If the helmet is not securely fitted it can potentially cause neck/head injuries when mounted with heavy cameras.

3.5 Audible device

When flying with cameras it is essential to use an audible device. Cameras can be a distraction, so to aid height awareness an audible device is a must.

Consider when choosing a helmet how you will mount/fit your audible device comfortably.

3.6 Shape/design of the helmet

It is important to consider the helmet design. Is it egg-shaped or square?

- Egg-shaped helmet designs are more prone to risers etc. causing snagging due to their design. On the other hand, a square helmet will deflect risers etc.
- To avoid snagging of lines and bridles there should be no gap between the hard shell of the helmet and inline foam.

4. CAMERA

4.1 DSLR and other large cameras

Skydivers should do at least 100 jumps with a single, small camera before they carry a large camera or multiple cameras. Just like canopy progression, it's safer to become proficient with one step at a time.

A skydiver's first camera for free fall should be small and simple to operate. Check with your CI to establish their standard operating procedures.

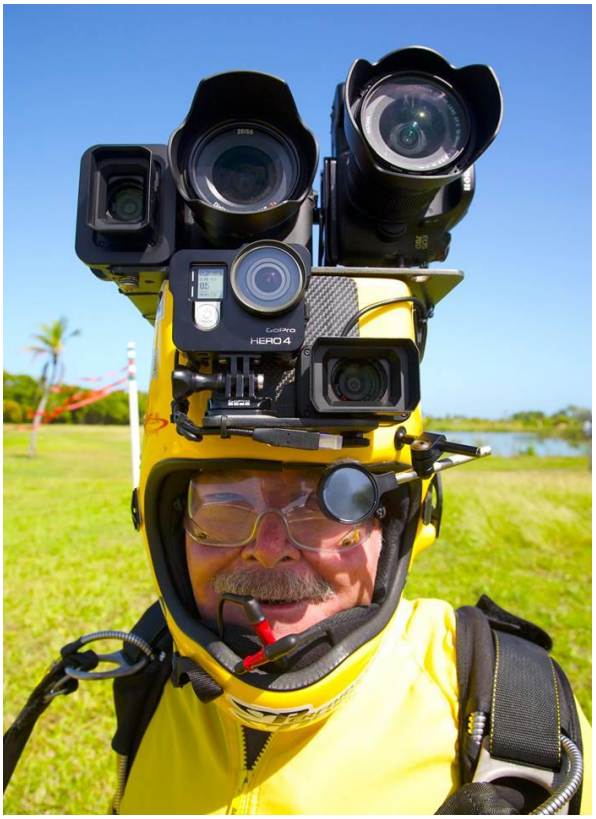


Photo of Tom Sanders, by Denise Sanders

4.2 Weight and size of the camera

Consideration should be given to the weight and size of your chosen camera.

- Heavy cameras can cause injuries on openings as well strain on the neck during use in the plane and under the canopy.

What impact will the size of the camera have?

- Wider cameras may protrude out from the helmet and cause a snagging point.
- Tall cameras may get knocked during the climbing in and out of the plane.

4.3 Simplicity

Is the camera simple to use?

- Operating cameras can be a serious distraction from our normal safety procedures. Use of a simple camera will greatly reduce the risks.

4.4 Intended use

Am I being realistic with what I plan to use the camera for?

- Is it necessary to take a large production camera for a task that a small action camera can manage?

For the everyday skydiver it is recommended to only use small action cameras.

4.5 Distraction

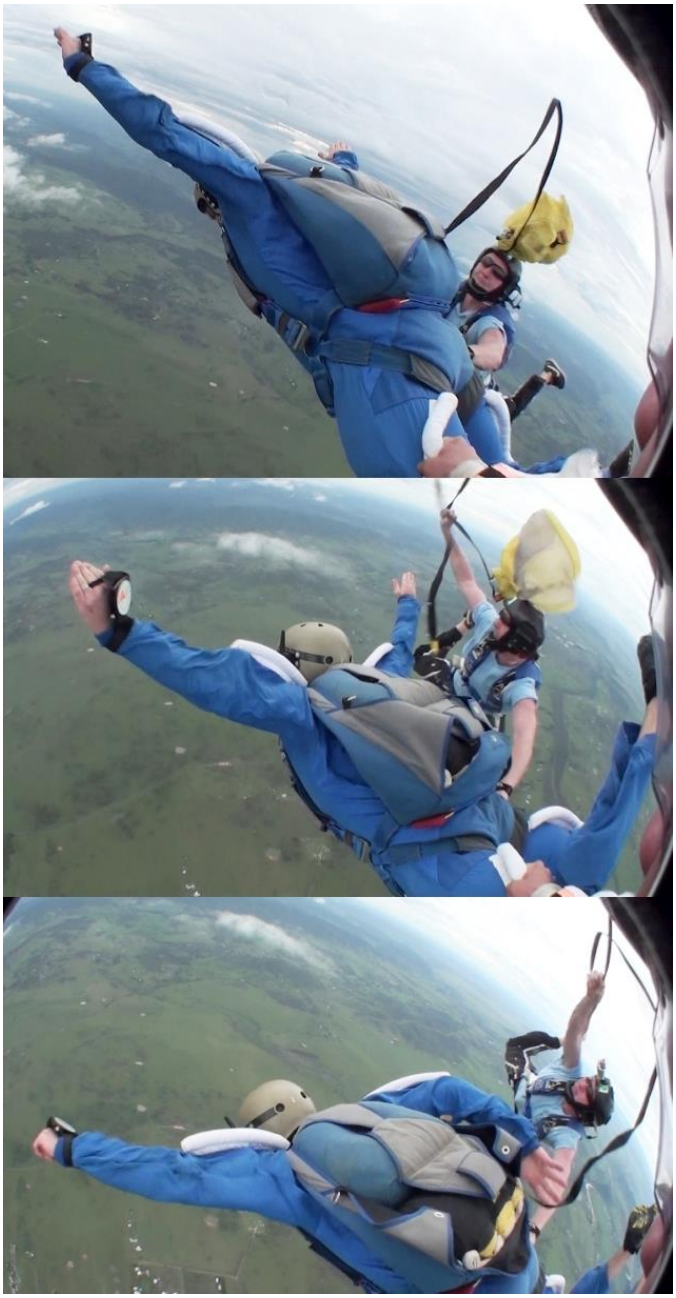
The following questions should be taken into account:

- Will the camera create any distractions?
- Is the camera positioned in such a way that the normal after opening procedures will not be affected by the camera?
- Will the camera block vision in any way?

5. MOUNTING AND ATTACHMENTS

There are several safety factors to consider when mounting a camera to your helmet, or any other part of your body, and any attachments.

Several options must be considered to find the best and safest solution.



5.1 Location

- Is this an appropriate place to mount? Is the location as snag proof as possible and is the camera angle suitable?
- Will it create difficulty or discomfort with deployment? This important when using hand mounts.
- Do I have access to all my handles with ease?
- Will it distort my visuals?

5.2 Snag hazards

Does the mount protect the camera and attachment from any snag hazards?

- Running a piece of old canopy line along the side of the helmet or brushing the pilot bridle pass will help spot any snagging issues.
- There are several snag-proof mounts on the market that should be considered.
- Materials like sticky foam etc. can be used to reduce snag hazards.

5.3 Security of the mount

Is the mount adequately secured to prevent an unexpected falling hazard to people and property below?

- The mount should not be fragile enough to fall off after opening but still be able to break under tension if it is not snag free.

5.4 Breaking under tension

Will the mount breakaway if it succumbs to tension?

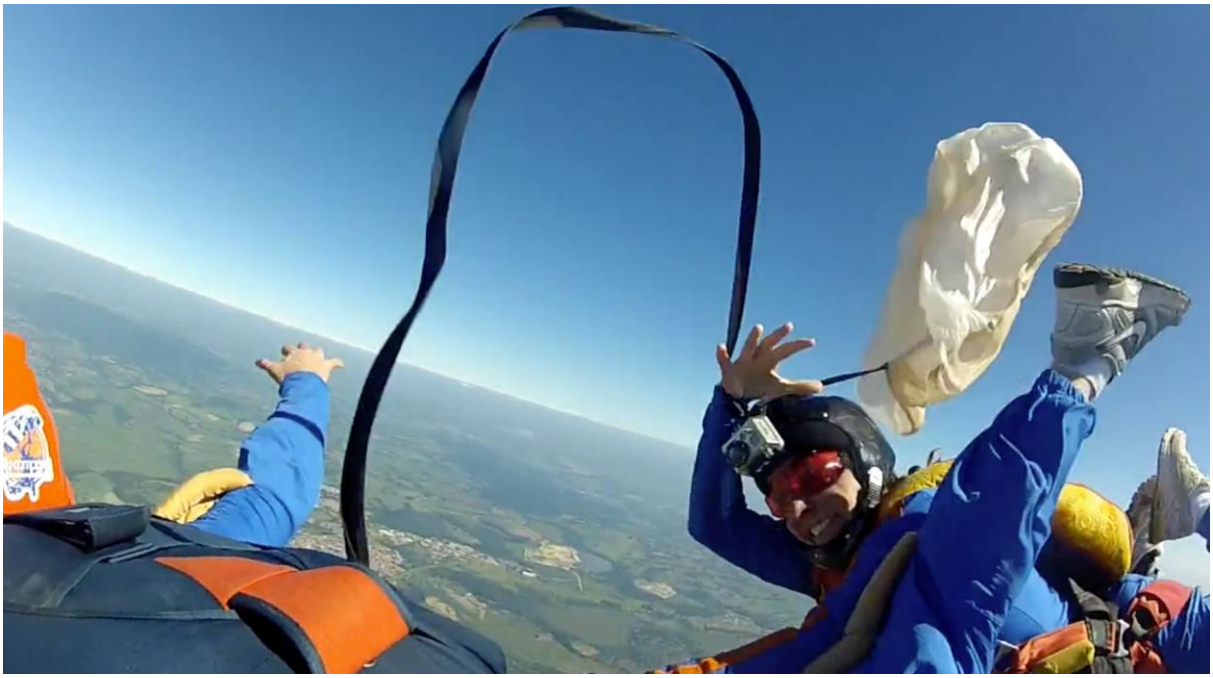
- If the mount or camera becomes entangled it is advantageous if it breaks away under force.
- Solid mounts can be hazardous if they become entangled on canopy or pilot chute extraction.

5.5 Removing the mount

Can I remove the mount if the camera is not needed for a descent? When a camera is not in use, cameras and mounts should be removed from the helmet to reduce any risk of entanglement. If the mount cannot be removed, then covering it with tape would also reduce the risk of entanglement.

5.6 Attachments

Attachments can be classed into a variety of items and some can be very hazardous to skydivers. Any attachment must be seriously thought out and have approval from your CI before jumping. Your CI may seek advice from an experienced camera flyer.



5.7 Ring sight

Ring sights should only be used by experienced camera flyers, who are fully aware of the hazards.

Hazards include:

- entanglement with un-stowed brake excess and visual impairment.
- If the ring sight is attached to the pilot chute side, then there is a potential for entanglement with the pilot chute when looking back on deployment, as well as entanglement with lines under canopy.
- A small round sticker on the goggles can be used as an alternate to a ring sight.

Note: It is advised that all attachments must have a breaking point under tension.

6. DEPLOYMENT CONSIDERATION

With the added extra weight in our head position, we are now more prone to neck injuries. It is recommended that we consider using the lightest equipment possible to reduce harm.

6.1 Camera wings

It is recommended that when jumping camera wings for the first time, a briefing is obtained from an experienced camera flyer before use. The briefing should include:

- Ensuring that the wing attachment point and the seam of the wing is not large enough to pull your pilot chute through.
- Making sure that the movement of the pull arm stays well away from the gap between the wing attachment point and the seam of the wing.
- That the wing is not large or slack enough to cover the pilot chute on deployment.
- The pull motion should be exaggerated so that the pull hand completely clears the camera wing.
- Swoop cords are worn over the gloves so that they can be removed in the event of an emergency so that the risers can be reached without releasing the wings.

Note: Practice pulls should be observed on the ground to reinforce the above points.

It would also be advantageous that the first camera wing jump be a solo jump, without camera, focusing solely on practice pulls. It should also be advised that this jump is from not less than 10,000ft and that hop and pops jumping camera wings for the first time be strongly discouraged.

When wearing camera wings, one method of collapsing the wings on deployment is to move the free arm as normal but to bring the elbow into the torso as the free arm is moved causing the wing to collapse. This would prevent one wing staying inflated and rotating you during the deployment phase.

6.2 Pilot chute and bridle

The use of an extended bridle and larger pilot chute when flying with wings will reduce pilot chute hesitation and pilot chute entanglement.

6.3 Head position during deployment

The jumper should be looking at the horizon during deployment to ensure that the head remains in line with the spine. Any position of the head that is not in line with the spine during deployment is likely to result in neck injury in the event of a hard opening.

6.4 Canopy

- Does your canopy have a tendency for hard or off-heading openings? Large docile canopies are recommended when flying with a heavy head set up.
- Don’t look up during opening, doing so will increase the chances of a line snagging on your helmet and may also result in neck injury.
- Stow your brake line excess to reduce snagging, check your pins, closing loops and pilot chutes. Premature deployment whilst you are on the camera step can be a fatal incident.

7. EMERGENCY PROCEDURES

It is important that we are confident with our normal emergency procedures before adding cameras and attachments to ourselves. With every situation there can be various factors at play. It must therefore be considered that all emergency procedures will not be the same and must be assessed by the situation that is at hand. Below are some of the situations that may occur while using cameras and attachments.

Note: Mental rehearsal and on-the-ground practical training is key. Doing so will give you a higher chance of success when the incident happens in real life.

When carrying out any emergency procedures you should always ensure that you have sufficient altitude to safely cut away.

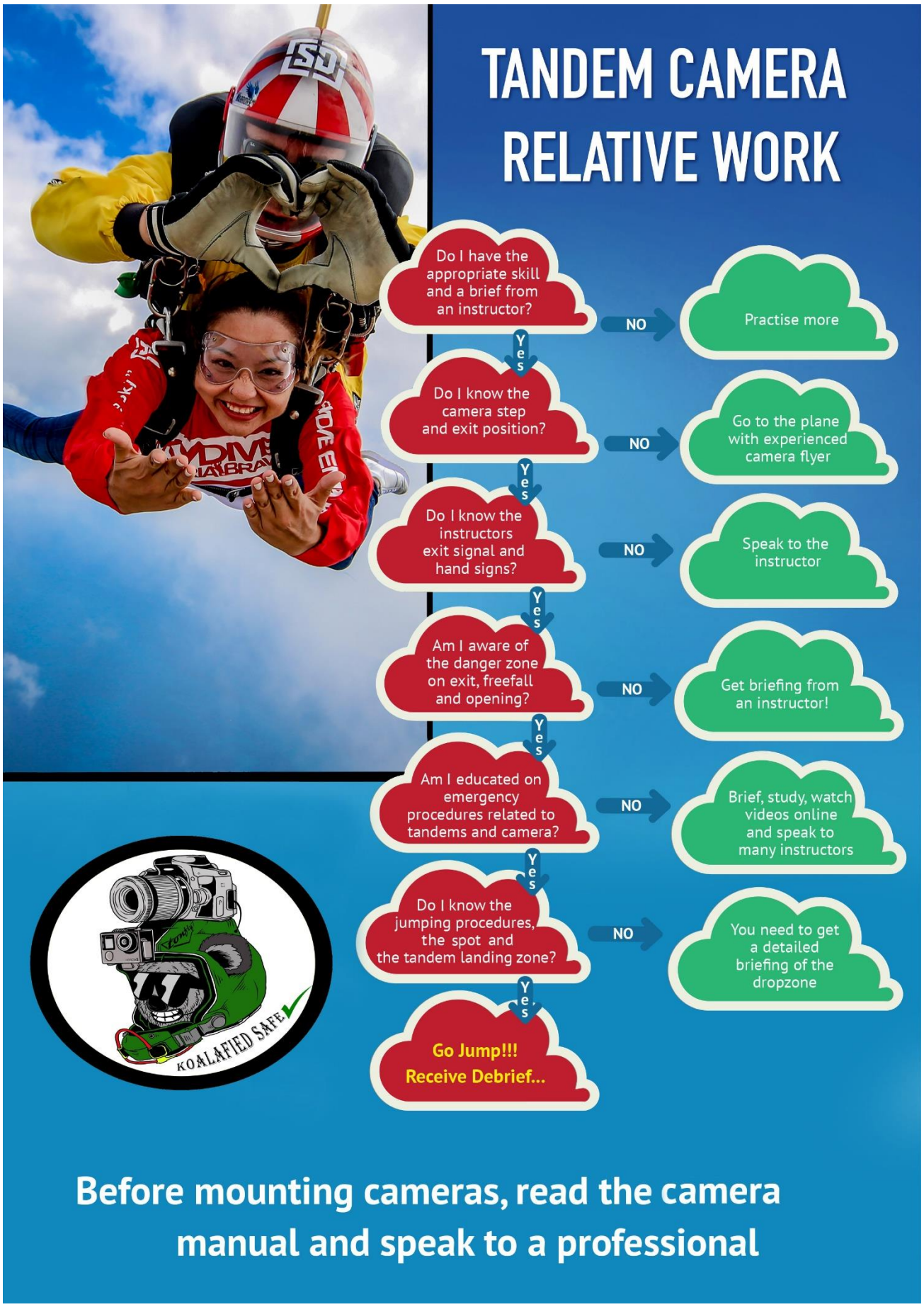
7.1 Pilot chute / bridle line entanglement with camera / helmet

Attempting to clear an entanglement could easily consume altitude very quickly if not dealt with efficiently. Below are a few scenarios:

- One attempt to clear entanglement, if unsuccessful, cut away the camera helmet, if main canopy deploys, check canopy. If main canopy malfunctions, initiate emergency procedures. If main parachute deploys correctly then ascertain if the canopy is controllable.
- If the main parachute does not deploy “pilot chute in tow”, initiate emergency procedures.

7.2 Landing into water with cameras and attachments

When unintentionally landing into water it is recommended to release the headgear. This must be done prior to landing in the water, as it can become a dangerous hazard when trying to swim out of equipment (if the head gear has snagging points).



8. TANDEM HANDCAM

A Handcam jump is a camera jump. Considerations covered in other areas of this manual (e.g. briefing objectives, awareness, camera and mount suitability, snag hazards, managing emergencies) are equally as relevant to Handcam, although specifics may be slightly different. These aspects should all be included in Handcam training.

Tandem jumps are complex and it takes many jumps before the “new” procedures become instinctive and automatic. It also requires regular practice and in-sequence handle and equipment checks before emplaning, before exit and in freefall. Handcam ads a very real risk to interfere with this. The lower the experience of the TM, the higher the risk.

Handcam also compromises the TM’s ability and freedom to use the left hand. Technique and practice is required to overcome this.

Commercial pressures result in new TM’s wanting or being expected to do Handcam as soon as it is allowed by the regulations. Keep in mind that the 100 tandems after obtaining the tandem endorsement is a **minimum** requirement. Not all TM’s will be ready for Handcam at this stage.

8.1 Regulatory requirements

APF Operational Regulations 11.2.12 state the following:

A Tandem Master must not use a handcam while carrying a student parachutist unless the CI has approved the camera and mount and the Tandem Master has:

- Completed at least 100 tandem descents since gaining the tandem endorsement;
- Completed a course of instruction approved by the CI;
- The CI’s written and signed approval documented in their logbook; and
- Made one handcam jump with a parachutist who holds a parachutist certificate before using it with a student parachutist.
- A Tandem Master must wear a functional audible altimeter for at least the first 50 handcam descents and thereafter at the discretion of the CI.

8.2 Who can teach handcam procedures?

The CI has to approve the course of instruction and finally approve the TM to use Handcam, by signing and documenting this approval. The CI can nominate another experienced TM, who is familiar with and experienced in Handcam, to give the training.

8.3 Awareness, control and distraction

Handcam adds all the pressure and complexities of being a videographer to the already complex task of being a TM. This greatly increases the risk of distraction and lack of awareness.

You should never allow your camera or Handcam procedures to distract or interfere with your tandem safety procedures and checks. If this should happen STOP and start over (e.g. during pre-exit equipment check). Only then start thinking about the camera again.

You are a TM first (second and third), and only a camera person after that. A tandem is NOT just another skydive, and a Handcam jump is NOT just another tandem.

Some important aspects to note:

- Do not sacrifice stability and control for a good shot, especially on exit.
- An outstretched arm in from of a tandem student is an invitation to grab it. Discuss with your student, include in your briefing, have a plan.
- Be aware of the risk of hitting your student in the face with the camera (inside the aircraft, on exit or opening).
- Do not compromise your freefall handle checks for good Handcam footage.
- Remain altitude aware at all stage of the skydive.
- During opening: Deal with minor deployment issues quickly; Stop or prevent line twists before it becomes a problem, don't film it! Look at your parachute and recognise a malfunction early, don't focus on the video.
- Remain aware of other parachutes and your position relative to DZ, don't get distracted.
- If you struggle with anything, find yourself uncomfortable or things start going bad, forget about the camera and do your job as TM, especially during a malfunction.
- Flare for a good safe landing, not a good video shot.
- Maintain procedures and stay within your limits.

8.4 Handcam glove, mounts and cameras

Some safety considerations to keep in mind (in addition to those previously mentioned in this manual):

- Cameras with simple, easy operation will cause less distraction.
- Commercially developed gloves and mounts specifically designed for tandem Handcam are the best to use.
- Ensure whatever you use has a low snag risk and the least possible interference with the hand and arm. Handcam should always be positioned on the left hand only.

8.5 Visual and audible altimeters

With the added distraction and increased task loading associated with Handcam, the use of an audible altimeter is recommended for all Handcam tandem jumps (not only those required by OR 11.2.12 (b)).

The visual altimeter (required by OR 7.1.5) should be positioned in such a way that it is always visible throughout the tandem jump.

8.6 Recommended training jumps

Regulations require that after a TM has been trained in Handcam use, he/she does at least one tandem Handcam jump with a certified parachutist before using it with a student.

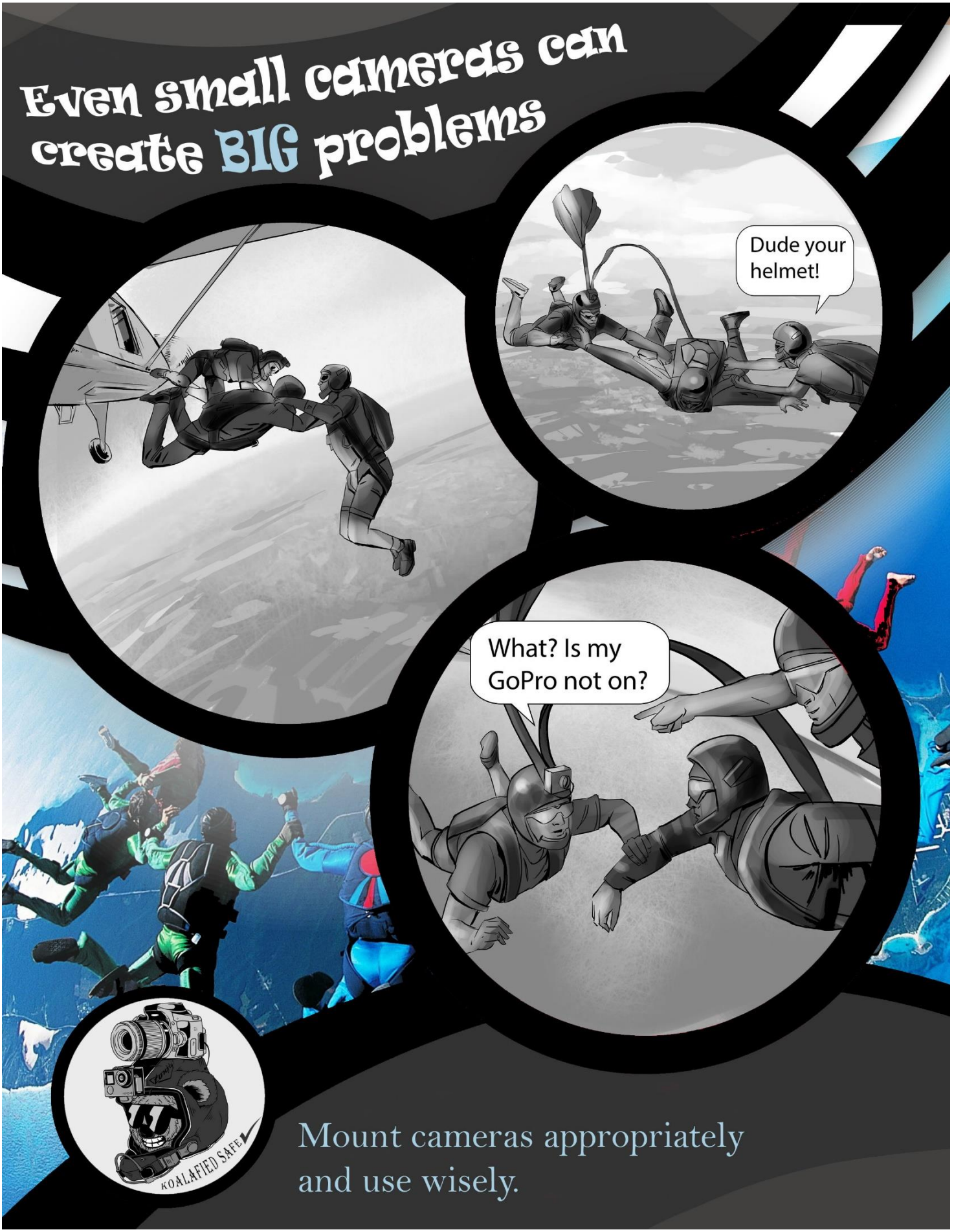
The following gradual progression is recommended:

- Jumps using the Handcam glove and camera on solo jumps with sports gear, familiarising with operation and procedures.
- Tandem Handcam jumps with a parachutist who holds a parachutist certificate.
- First few Handcam jumps with student parachutists who do not actually require camera, to assist with reducing pressure and stress.

The right Tandem Instructor
with the right attitude,
the right skill level and
the right tools
can proceed with Tandem Handcam
in a safe and professional matter.

Stephan Kleinlein, March 2009

NOTES


Even small cameras can create BIG problems
Dude your helmet!
What? Is my GoPro not on?
KOALAFIED SAFE
Mount cameras appropriately and use wisely.