

Instructional Tandem-Handycam DVD Tool

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The Instructor A thesis topic
is approved
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Skydive and practise/perform Handycam-Jumping and/or Tandem-Handycam-Skydiving is at your own risk.

Foreword

I have been a full time APF instructor for over 10 years now. I began skydiving in 1986. I travel the world regularly with my profession as an APF Tandem/AFF-Instructor and Video photographer. I have worked at many different drop zone locations in Australia and Overseas.

In the year 2006 I was invited by a professional drop zone in Berlin/Germany (GoJump-Berlin) to run a Handycam seminar for their experienced tandem instructors. The seminar was backed up by the German Parachute Federation (DFV-Deutscher Fallschirmspringer Verband e.V.), which gave "GoJump-Berlin" the permission to run a Handycam test season.

At the end of the term, the federation had their annual safety meeting, where all the information and experience from GoJump-Berlin's first Handycam season was collected and presented to the members of the safety committee.

The outcome was, that Tandem-Handycam (THC) was given the "Thumps up" and is now included in their Operational Regulations(Ops), similar to our own APF Ops.

It might sound strange for some of our current Tandem-Handycam-Jumpers here in Australia, that THC is a big issue in some other countries.

The fact is, after I targeted 78 skydiving countries and 17 Skydiving Federations/Associations with an additional THC survey to find out who IS and who IS NOT allowing THC in their countries/ areas, some, mainly smaller skydiving nations still don't know that THC exists, therefore they don't have an opinion or valuable information about it.

Other federations/associations like the "British Parachute Association" (BPA) and the non professional part of the French "Federation Francaise de Parachutisme" have two separate sections inside their federation, one which controls the sport side of parachuting and the other one which deals with the professional (instructor) side of it. Both organisations believe THC is a dangerous and problematic procedure and have banned it completely. Their ban is based on the personal opinions of the majority of their governing members and not on incidents or accidents they experienced with THC.

Most skydiving federations don't have an official opinion in regards of THC. Basically, they keep their eyes and ears closed and let their instructors just do what they like to do in regards of Tandem Handycam, and hope for the best.

Most people see us here in Australia as the pioneers of Tandem-Handycam-Skydiving.

Why? Because we have many years of commercial experience with this “New” method and we have been doing it safely so far.

In all skydiving disciplines, if it is Tandem-Skydiving, Camera-Flying, Free-Flying, CRW, etc. a risk factor is always present.

With the right training and professional instructions we have been limiting those risk factors to a minimum.

Now THC is becoming popular in many parts of our skydiving world. Whether we personally like it or not, it will be taking a notable position in our industry.

Introduction

With my thesis I would like to combine our collective experiences in Handycam and Tandem-Handycam-Skydiving into an

“APF Instructional Tandem-Handycam-Skydiving DVD-Tool”.

This tool should help all CI’s, DZSO’s to prepare and train all their new Handycam-Jumpers (in most cases Tandem-Handycam-Jumpers) and maybe to give even some pointers to our existing THC-Jumpers to keep Tandem-Handycam-Skydiving as safe as possible and incident free.

My thesis and the DVD tool might seem to be more positive towards handycam in some sections. This is because the final product is an instructional tool and shows confidence about the handycam process and a positive attitude towards it. It is really intended to help Instructors, who are looking forward to learn this new filming technique or who want to teach and instruct new Handycam Flyers.

The thesis reflects my own personal view towards Handycam combined with other inputs from other handycam jumpers AND NON-Handycam jumpers, BUT IT IS **NOT** intended to convince anyone to do or not to do THC-Sydiving.

Its purpose is purely educational, to explore the pros and cons of Tandem-Handycam-Skydiving. It covers a large spectrum of Handycam-Jumping, its history, where it started and why. The technical issues such as the right equipment, different glove styles, passenger briefing, flying techniques, parachute flying with THC, emergency procedures, the right landing techniques, malfunctions, filming techniques, editing and of course the risks involved.

It will show also how THC can be an additional advertising tool, how you might even boost-up your outside video jumps with an additional product like THC, if a drop zone decides to go that way.

On the following pages you will find a comprehensive summary of Handycam-Jumping, which has not been available until now, *but really should have been in place a long time ago*. A written hard copy, which shows all the different sections covered on the DVD-Tool. It includes all the material I have researched and put together for the final product,

“The APF Instructional Tandem-Handycam-Skydiving DVD-Tool”.

The professional DVD-Tool will be in a presentation format, with written text, video and photo examples.

It is important that this information will be updated regularly. As more is discovered about Tandem-Handycam-Skydiving, opinions and methods are likely to change.

Important:

I have made every effort to present an objective view of the Pros AND Cons of THC in this thesis, however the overall impression is one of positivity.

**This thesis and the final “Tandem Handycam DVD Tool”
is intended to help Jumpers/Instructors:**

- a) Who are looking forward to learn this new filming technique and/or**
- b) Who want to teach/instruct new Handycam Flyers in their process to gain the new skill.**

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1. Before We Start

Here just a few important pointers before we start:

Handycam-Skydiving has created some debates in the past, right now and it will in the future! Some people like it and some don't.

We should respect everybody's opinion!

● Don't just think Handycam-Skydiving is easy, nothing to worry about, it is just another jump. **IT IS NOT!!!**

● And please don't be totally negative against it, before you have done some intensive research for yourself.

● First it is up to **YOU**, if you want to participate in a Handycam-Seminar and later if you want to do Handycam-Skydives or not!

● At the end,

Your Skydiving Federation
Your CI
Your DZ Operator
and most importantly **YOURSELF**
will make the decision, if you want to give
Tandem-Handycam-Skydiving the **"Thumps-up"**!

● **Always Remember!**

A Tandem jump is **NOT** just another jump!

A Handycam jump is **NOT** just another Tandem jump!

You are doing **2 Jobs** at the same time!

Your Tandem job is #1 and your camera job is an extra bonus!!

2. Survey

2.1. Survey Introduction

Having my own 9 years of THC experience with more than 6000 Tandems and over 1000 Tandem-Handycam-Jumps, plus the input and knowledge from many highly experienced Tandem-Handycam-Jumpers in Australia and around the globe. I felt the need for more input from additional members of our skydiving community to make this Tandem-Handycam DVD-Tool more complete.

I have sent out several different surveys to all 68 Australian drop zones and their members; also to drop zones in 78 different countries, plus to all 17 National Parachute Federations, listed on the official FAI (Federation Aeronautique Internationale) side.

**My surveys have targeted
Handycam-Jumpers/Handycam Drop Zones
AND
Non-Handycam-Jumpers/Non-Handycam Drop Zones.**

IMPORTANT! Please keep in mind that the result of my surveys shown in this thesis, especially the %-values are based only on a relatively small portion of our skydiving community.

Statistics are only statistics and can be turned around easily into any direction you like, unless you would be able to get the honest, rational opinion of every person involved in the skydiving industry. But unfortunately it is not possible to reach out to all fellow skydivers and get them interested in filling out the survey forms.

Especially I found it hard to get the Non-Handycam jumpers interested in my survey, and to give me some productive input from their point of view. It was really important for me to cover both sides of the THC topic.

Unfortunately in many cases I only got their emotional opinion about THC, which are not based on any facts, only speculations and rumours.

But on the other hand I believe this is natural too. People don't like to write productive things about something they personally don't really like and don't really want to support.

Fortunately I got more valuable Negative/Cons point of views from handycam instructors than I got from non-handycam instructors, which helped me to point out the right risks and hazards, which are also based on real experiences and not only on speculations.

My survey work took place over a period of 18 months, and after several different survey attempts I got some great results, which are now part of this thesis and which will give all of us an indication of current trends and where we are heading in regards to THC.

Also keep in mind that the whole thesis is mainly not dependent on the survey result at all. The survey is only a small part of it and again, only intended to be an indicator.

The survey results don't show and cover 100% of the numbers and opinions of our WHOLE skydiving community. The survey results in this thesis show and cover the 100% accurate numbers and opinions of all survey participants for this thesis only!

All productive input counted, all opinions were respected and became part of the THC-DVD-Tool.

☀ You will find the Survey-Forms in Appendix 1

2.2. Survey Results

The final survey gives additional valuable information from 156 participants from 87 drop zones (42 Australian DZs) and jumpers, from 37 different countries (*Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Czech Republic, Denmark, Fiji, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Mexico, Mozambique, Namibia, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Russia, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States of America, Zambia*).

Most of the participants often represented not only themselves, but a whole jump group or DZ.

- ◆ **121 HC Jumpers**
- ◆ **34 Operators**
- ◆ **26 Chief Instructors**
- ◆ **39 Drop Zone Safety Officers**
- ◆ **129 Tandem Masters**
- ◆ **61 Video Flyers**

The 156 participants made over 578 000 skydives together, an average of **around 3700 jumps per person.**

Out of the 156 participants we had 121 Handycam-Jumpers(HCJ), who made around 91 979 Handycam-Jumps, an average of **around 760 HC-Skydives each** and 35 Non-Handycam-Jumpers.

Compared to the whole skydiving community the number of survey participants is relatively small, but by analysing the numbers, the level of experience and their roll in the skydiving industry, the input and the result of the survey is quite important and relevant to what is happening out there in the field right now. And also as a trend indicator for our skydiving community.

Further more I approached 17 National Skydiving Federations/Associations:

Argentina: Federacion Argentina de Paracaidismo

Australia: Australian Parachute Federation Inc.

Canada: Canadian Sport Parachuting Association

Denmark: Dansk Faldskaerm Union

France: Federation Francaise de Parachutisme

Germany: Deutscher Fallschirmsportverband.e.V.

Italy: Federazion Italiana di Paracadutismo Sportivo

Korea: Korea Parachute Association

Netherland: KNVvL Afdeling Parachutespringen

New Zealand: New Zealand Parachute Federation Inc.

Norway: Norges Luftsportsforbund - Fallskjerseksjonen NLF/NAK

Portugal: Federacao Portuguesa de Paraguedismo

Spain: Real Federacion Aeronautico Espanola - Paracaidismo

Sweden: Svenska Fallskaermsfoerbundet

UK: British Parachute Association

Ukraine: Ukrainian Parachuting Sport Federation

USA: United States Parachute Association

to find out if they allow or prohibit their members to perform THC.

The survey revealed that the majority don't have any official opinion about THC, no official regulations or requirements towards THC are listed in their operational regulations so far. Most just let their instructors or operators decide if they are able and willing to go ahead with THC. The reason for this is that THC has not made a huge enough impact in those regions. It runs silently along and officials hope for the best.

The British Parachute Federation and the French Non-Professional Section of the Federation Francaise de Parachutisme seem to be the only ones, who don't approve of THC inside their organisations area at the moment.

Their reasons are as follows:

➡ *Something as large as a Handy Cam is too large an obstruction on the back of a tandem instructors hand, for an uncomplicated cutaway there is no problem, but when you consider how wrong things can go, it is an unacceptable hindrance.*

➡ *The obstruction on the back of the hand is too large and could impede the instructors job if there were a problem.*

➡ *Avoid the temptation to put anything other than your altimeter on your hands. Tandem can go wrong, fast and you need both hands, unhindered to perform your emergency drills.*

➡ *I am not just sounding off I have had a series of problems with tandems and a simple 'line-over' for example is not an issue but when things start to get exciting I do not want a lump on the back of my, or any of my instructors hands.*

by D.M BPA

Other Federations like the APF and the New Zealand Parachute Federation for example, where THC is already a major part of their Tandem skydiving industry have requirements and regulations in place for their members to continue doing it in a relatively safe and professional matter.

✿ ***The straight listed survey results (numbers) you will find in Appendix 2***

✿ ***The survey results summary of all text answers and point of views you will find in Appendix 3***

Diagrams resulting out of the survey are marked as:

Diagram* ...

3. DVD-Tool Sections

3.1. History of Handycam-Jumping

When did it all start and why? This question is not so easy to answer, because many jumpers like to claim the seat in the hall of fame for being the inventor of this new film technique in the sport of skydiving, but during my research I always hear one name in the Australian Skydiving scene again and again:

Mark Edwards.

Here is his story: *"...I'll give you the info on when Handycam started. I first got the idea after watching some base-jumping footage that Carly Thomas took while holding onto his PC7. The angle was great so after a while I came up with the idea of putting an aluminium plate inside a motocross glove and bolting my PC1 to it. The initial idea was to get some good base footage but at the time I was DZSO for an operation on the sunshine coast and decided to trial it on a Tandem. It all went well and when I showed the passenger he wanted to buy the footage straight away. Sold it for \$30. Next jump the same thing happened. I then bolted on my stills camera and took some shots the same way but the lens wasn't really wide enough. My CI found out and told me I couldn't do Handycam*

anymore. I then did several BASE jumps with the glove as well. The footage was put on an online magazine by "skyzine.com" and also shown around and talked about by the local jumpers. The first Handycam-Jumps were done in late 1998, and then in April 1999 I went to the USA for several years and kept doing Handycam (BASE, Tandems, AFF and RW) over in California and in Hawaii. My boss over there, Bill Dause, loved the Handycam and used to tell my passengers to request it. Several of the jumpers over there built gloves like mine and spread the word. Aussie Peter Wylie was working with me and took a glove to Norway and shot some great footage too. I also used it for snowboarding while working in the Canadian ski resort of Whistler during winter. When I returned to Australia to work for Paul's Parachuting in Cairns I was very surprised to find the Handycam had taken off, and wished I'd thought to patent it. Now I'm not jumping for a living anymore, but I still do Tandem-Handycam in Canberra for the local operators. There is a number of cameramen out there who are not to happy with my idea, but I think the invention has been very important in maintaining the viability of many Tandem operators (especially small Cessna utilisation), and has also dramatically improved the earning potential of the Tandem Masters. I've also used the Handycam on AFF (overseas when no camera person was available) to use as a training tool and found it very useful and not at all difficult to operate with.

Now the operators are into Handycam. Last year I had a big NSW Operator thank me for the Handycam idea, which was a surprise. I said to him that I didn't think it would be important for larger operations but he said the opposite was true due to the higher overheads of the larger aircraft etc. I never quite saw the true potential of the idea from a financial point of view, just really liked the unique footage and especially the Tandem passengers first reactions under canopy. Now I think it's actually the better more rounded product for the customer, especially with the wide angle lenses we now use. That's about it,

Mark Edwards

Handycam-Jumping has its roots in experimental base jumping. It took off commercially in Australia in the year 2000. Over the years more and more operators, not only in Australia but also world wide, included THC as an additional video product.

From the financial point of view this new product can be beneficial not only for the operators, but for the TM 's and the customer as well.

Exciting new video angles and never seen before passenger footage under the canopy led to an extreme growth in THC sales over last 8 years.

3.2. Statistics

Again, ***Statistics are only statistics!*** Of Course, they can change in an instant, but they give us valuable information and show trends which help us to react in time before it is too late.

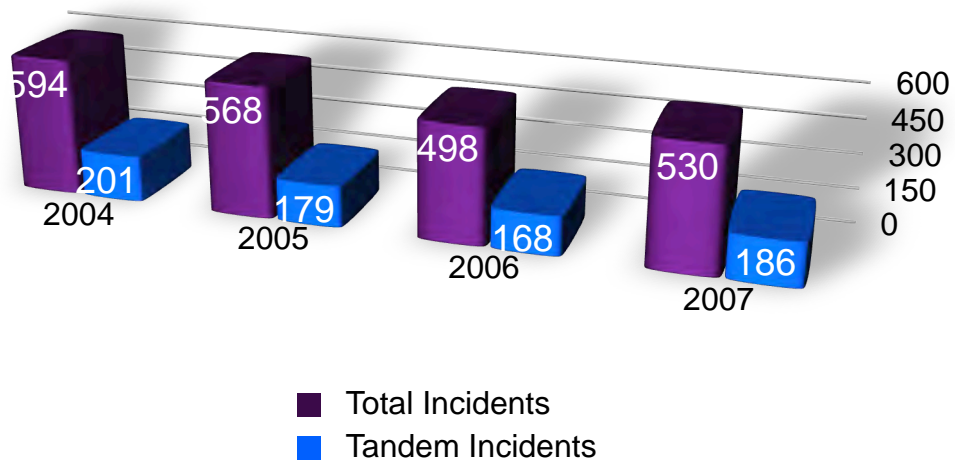
**Make sure our positive Australian Handycam statistic stays positive!
Be a responsible Tandem-Handycam-Jumper!**

3.2.1. Incidents

Kim Hardwick, APF Technical Officer, who is in charge of collecting all APF incident reports and has seen thousands of them, can not recall any serious Handycam incidents, which caused injuries or any serious/ life threatening scenarios being reported in Australia.

If we just look closer to the APF incident statistics over the last few years, we see a 31.5% - 35% part of Tandem incidents of the total annual incidents number. Malfunctions tend to be the most prevalently reported incident type. For the year 2007 we had 227 malfunctions, 93% resulting in a cutaways and 46% being attributed in part or whole to packing errors.

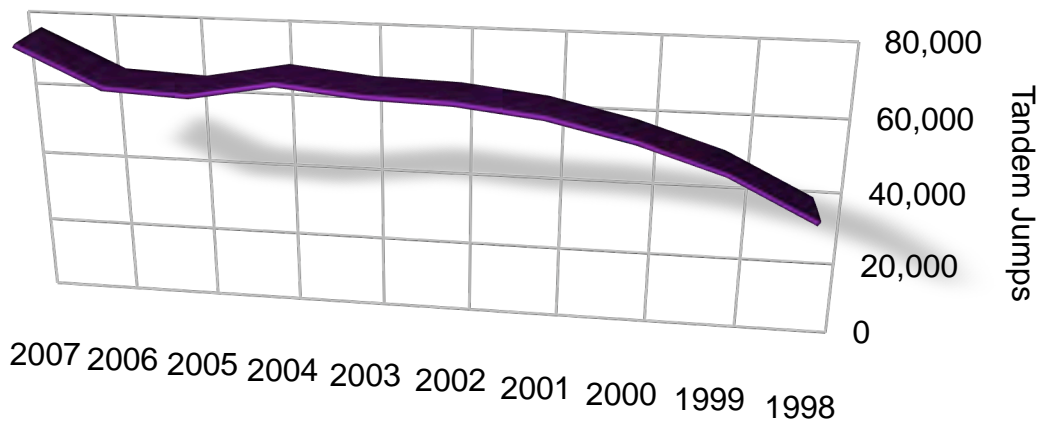
Diagram 1: APF Incident Statistic: Total/Tandem



The APF annual report 2007 indicates also that we start almost doubling the amount of Tandem jumps with 79,581 for the year 2007 compared to 44,000 Tandem jumps in the year 1998 (increase of 80.81%),

— Tandems in Australia

Diagram 2: Tandems in Australia

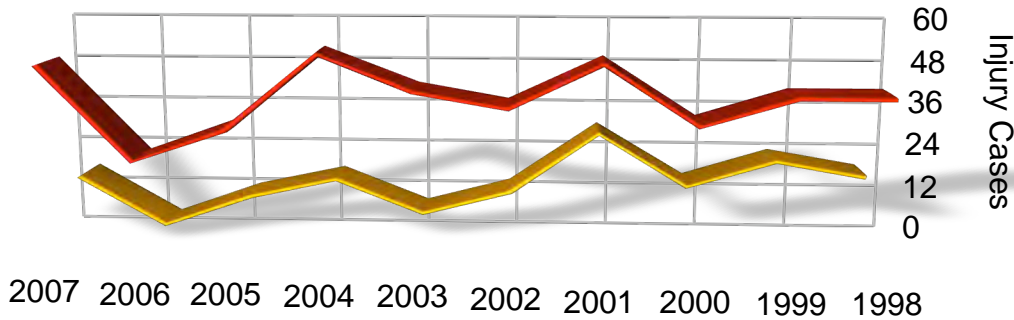


but the amount of Tandem injuries stays relatively even over the last 10 years (~45 per year). Right now this comes to 1 Tandem injury per ~1501 Tandems and 1 serious Tandem injury in every ~4188 Tandems.

☀ **see APF Annual Report 2007 and Appendix 4: "Injuries and Malfunctions"**

— Total Tandem Injuries — Serious Tandem Injuries

Diagram 3: Tandem Injuries



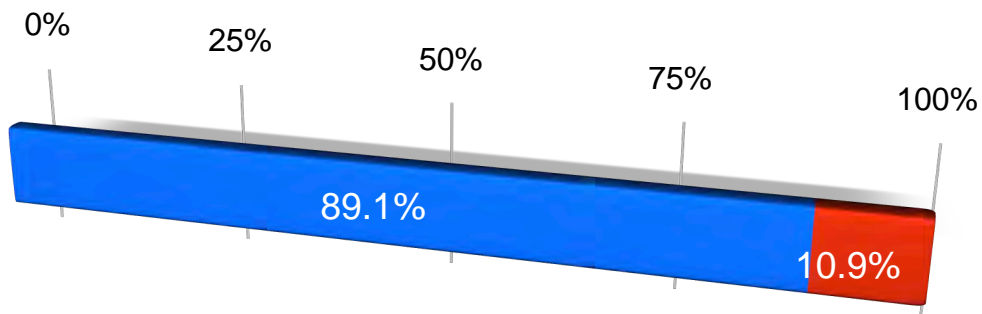
The reason for having this large increase in Tandem jumps and at the same time a relatively consistent low rate of Tandem injuries could be that safety has always been of paramount importance in our sport. Permanent efforts to make the sport safer, the equipment is becoming more and more user friendly; instructions have become more effective; safety awareness is more prevalent. APF direction and control via safety officers and instructors ensures that all parachutists in Australia work within the system and meet standards set by our most experienced members.

Basic statistics are submitted by all member organisations on incidents that occur. These statistics are combined with overall member statistics then collated by the APF to assist in determining early signs of trends that may affect safety.

3.2.2. How safe is Tandem-Handycam?

■ Safe ■ Not Safe

Diagram* 4: Is THC safe?



Statistic wise:

◆89.1% of the survey participants believe Tandem-Handycam-Skydiving is safe.

◆Analysing the APF annual reports over the last 10 years since the introduction of THC in Australia no serious THC incident was recorded. Also the Annual Tandem Injury Statistic doesn't show noticeable changes or trends to indicate THC could be the reason for normal or additional Tandem injuries.

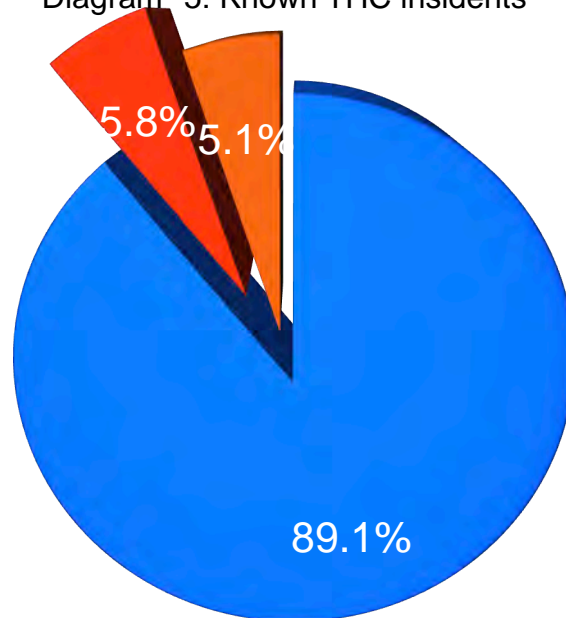
Despite all the APF reports and the statistics of our experienced THC Tandem instructors, if THC IS NOT done with extreme caution it can lead to certain dangers and incidents as the surveys revealed. The incidents mentioned in the survey and in the following sections of the thesis are partly minor in nature, but also some very serious and potentially very serious incidents.

Fortunately they didn't lead to injuries or serious life threatening scenarios, but they show that potential risk can be present while doing THC.

Great awareness of all the risks of Tandem Skydiving and THC is important at all times. And correctly performed procedures are essential to avoid getting caught out.

- No Incidents
- Yes Insidents to me
- Yes Incidents to other

Diagram* 5: Known THC insidents



To the survey question:

*Did you have or have you seen any kind of incidents/problems with THC?
Please be specific about what happened.*

The following category-list shows those mentioned incidents (world wide) or other **potentially** risk factors of THC:

◆ **HC Entanglement:**

- HC caught between wheel and strut of Cessna on exit.
- Student Life jacket waist band entanglement with HC, cleared.
- HC caught on the reserve handle pad during opening, because the Instructor had his HC arm very close onto his body (Left Hand Side) resulting in dual canopy scenario.
- Camera glove hooked up on exit for a split of a second, hooked on the door hinge point of a C-208, glove slipped off. Normal Tandem Skydive afterwards, luckily minor bruising for the Tandem Instructor and HC fall back into aircraft.

◆ **Distraction:**

- In the EARLY days of my Handycam career, I landed off once due to stuffing around with my camera under canopy, rather than focussing on the job.
- Distracted on landing.
- Loss of height awareness, camera fixation leading to bad exits.
- Forgotten flair-toggles.
- Loss of altitude awareness - Alti on right hand/ "out of room".
- Because of HC the jumper forgot other equipment (helmet, alt, etc.).

◆ **Checks:**

- Loose secondary handle causing premature main opening (**Did not** check 2nd drogue release handle before exit/ it was loose).

◆ **Stability:**

- Unstable deployment of drogue due to left arm forward position.
- Unstable exits due to TM concentrating on getting the camera shot instead of concentrating on good exit presentation

◆ **Deployment:**

- Hard pulls on Vector left drogue release (HC side).
- HC smashed against harness D-ring during radical deployment, pressure knot spiral malfunction, luckily not against the passengers face – but this can happen – resulting in damaged camera zoom lens.

- ◆ **Skill:**
 - Poor quality, THC down to lack of skills/practice. This of course can happen with outside video as well.
- ◆ **Camera function:**
 - Knocking camera buttons therefore bad or no footage.
- ◆ **Passenger:**
 - Passenger grabbed my hand, screamed at his ear “let go” & he did.
- ◆ **Irresponsible:**
 - I have seen a camera hand held with no glove.

There has also been a Tandem double fatality in Guam, August 2004, in which the tandem instructor was wearing an HC.

Some of the first speculations on several internet forums, like on www.dropzone.com blamed the HC for that incident, but closer investigation by the manufacture of the tandem rig (Relative Workshop/ Uninsured United Parachute Technologies, LLC) and additional investigation revealed that the HC was not the reason for that incident.

A design change in the tandem rig followed the incident to prevent similar future problems with the RSL locking pin on those particular rigs.

As we can see incidents like, **HC entanglement** and **distraction/ lost of height awareness** are serious cases.

The more obvious dangers like passengers interference; grabbing Tandem instructor’s HC-hand, distraction under canopy and landing are part of the daily routine of THC-Jumpers.

All these risks, minor or serious, obvious or hidden should be pointed out to all new THC-Jumpers as well as putting it back into the awareness of all current experienced THC-Jumpers.

Diagram* 6 indicates that PAX interference, especially instructors hand being grabbed by the passenger has the highest rate of occurrence.

Diagram* 7 shows that the Tandem-Handycam product has already taken a big part at many drop zones, especially in Australia.

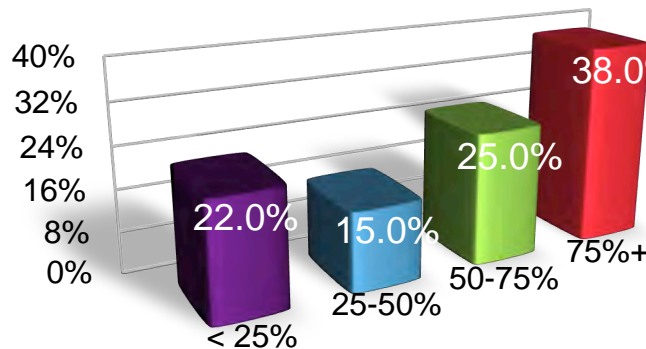
70.1% of all survey participant Drop Zones offer THC these days. 40.2% also have outside video (TOV) and 29.9% even have the “Deluxe” video package in their product list, where THC and TOV are put together for the ultimate video experience.

A closer look even reveals, that if Handycam is offered to the Tandem passengers this new product is chosen by more than 50 % of the Tandem-PAX’s (by 54.7% of the survey DZ’s).

38% of the Handycam DZs even claim a 75% or higher rate of Handycam sales on all Tandem jumps (Diagram* 8).



Diagram* 8: If Handycam is offered, what is the % of all Tandem jumps?

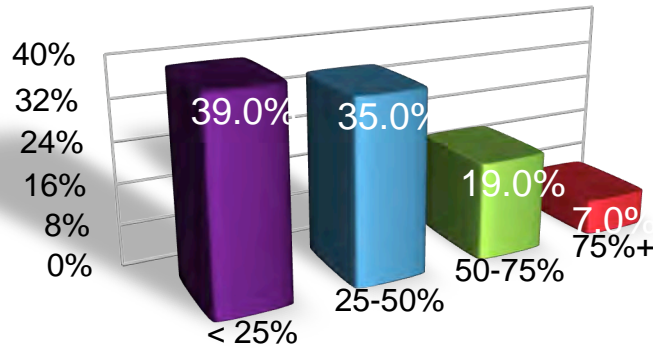


Interesting to see is that on the other side 74% of all surveyed Tandem Outside Video DZs sell only 50% or less (39% of these DZs sell less than 25%) Outside Videos with all their Tandem jumps (Diagram* 9).

63% of THC DZs claim to sell THC Videos to more than 50% of their tandem customers and 38% claim even a higher rate of 75% and more tandem passengers take a THC video home.

■ < 25%
 ■ 25-50%
 ■ 50-75%
 ■ 75%+

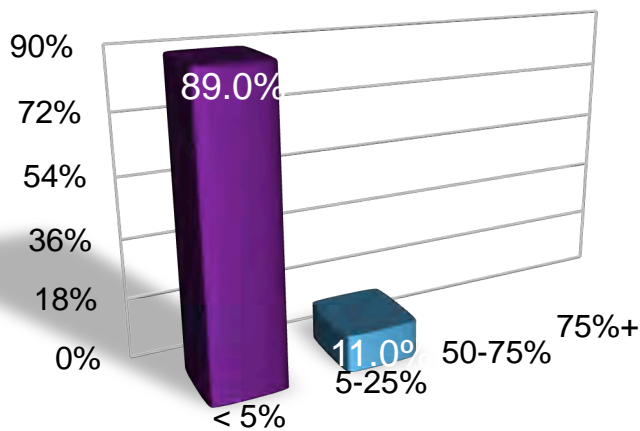
Diagram* 9: If Outside Video is offered, what is the % of all Tandem jumps?



The Deluxe package, a combination of TOV and THC edited together on a DVD is the “Cream” of all Tandem video products, but as shown in diagram*10 a more isolated product so far. The higher cost, time consuming production and maybe less effort in promoting this product shown by many drop zones are the main reasons for the low impact yet.

■ < 5%
 ■ 5-25%
 ■ 50-75%
 ■ 75%+

Diagram* 10: If Deluxe Package is offered, what is the % of all Tandem jumps?



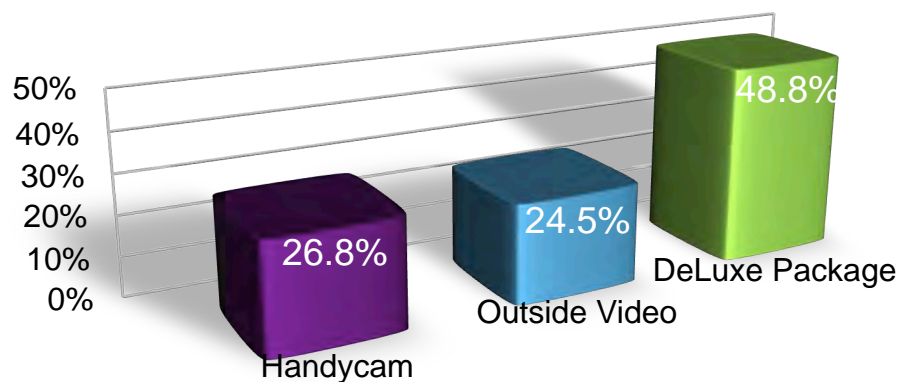
Interesting on the other hand is that on the survey question:

“Which video product would your customers prefer?”

The majority agreed, even if they don't offer the “Deluxe” package, that most customers would prefer the “Deluxe” version.

■ Handycam ■ Outside Video ■ DeLuxe Package

Diagram* 11: Which product would our customers prefer?



The combination of both video methods:

- ◆The great outside video prospective of seeing the Tandem pair leaving the aircraft. The changing angles of TOV freefall footage.
- ◆Plus the close-up THC facial filming in freefall.
- ◆The amazing THC canopy shots including the instant passengers reaction and interview straight after canopy opening.
- ◆Filming them flying the canopy “on their own”
- ◆At the end the joined landing footage of TOV and THC makes the “Deluxe” package a real prime skydiving experience product.

Even if survey percentages are slightly unbalanced, as mentioned before, unless we can ask every single DZ world wide, the percentage numbers might change here and there. The main point is that they show and confirm the increasing trend towards THC.

3.3. Pros & Cons of Tandem-Handycam

The question is now, why is THC or the combination with it, so popular is? And what are the Pros and Cons of THC?

First of all we have to divide the enormous list of Pros and Cons between the main interest groups who are involved: **Operators, Tandem Instructors** and **Customers**.

Further more categories, like

- ***Safety/Danger**
- ***Camera/Filming/Audio**
- ***Promotion**
- ***TOV vs THC**
- ***Future Instructors/ Future of the Sport & Industry**

are also of importance to analyse the up and downs of THC.

The following listing shows common but also essential statements about THC. It is the summary of the survey result and indicates the productive opinions of all participants.

☀ **Appendix 3 shows a complete list of all survey answers for THC Pros & Cons**

3.3.1. Pros & Cons for the Operators

Pros:

- ◆ Obviously better profitability for Operation.
- ◆ One slot less in A/C therefore lower cost to DZ operator.
- ◆ Its more cost effective for all concerned.
- ◆ Economics of two Tandems at a time with video in a Cessna 182 (smaller operations).
- ◆ Cheaper to administer.
- ◆ Allows operators to retain instructors in the industry that otherwise could not afford to do Tandems for a living.
- ◆ Good for small operators with limited aircraft space and resource.
- ◆ Less staff required.
- ◆ Allows greater re-investment in business.

- ◆ More productivity can fit more students (e.g.. AFF students too, who otherwise have to stay on the ground much longer) on a load.
- ◆ Get to height faster.
- ◆ More customers per load, better efficiency in filling up loads.
- ◆ With the THC option the DZ sells more videos and doesn't lose too much space on the aircraft.
- ◆ Raises more revenue for small operators.
- ◆ A new product, more variety/options for the customer, different price range.
- ◆ Another marketing tool.
- ◆ Legal proof/ e.g.. landing practise under canopy.

Cons:

- ◆ More training is involved.
- ◆ More qualified/ skilled instructors needed.
- ◆ Conflict with Outside Camera Flyers.
- ◆ Cutting out the generation of Camera Flyers/ New TI Generation.

3.3.2. Pros & Cons for the Tandem Instructor

Pros:

- ◆ More demanding and challenging work = more fun at work.
- ◆ Better pay for TM's means better retention of instructors.
- ◆ Allows the full-timers to get a decent wage.
- ◆ TM's can make a liveable wage, so staff will stay available.
- ◆ THC hence keeping the experience level high in Australia.
- ◆ No danger of cameraman and TM collision on opening/drogue throw / etc.
- ◆ More full time instructors and therefore experience instructors working on our drop zones.
- ◆ Risk management (practice legs-up under canopy).
- ◆ Stronger position for multi skilled TM's.
- ◆ Chance for doing extra income, "Spec"-THC jumps.
- ◆ Malfunction can be better analysed.

Cons:

- ◆ Less freedom of left hand.
- ◆ Have to present an arm, which PAX can sometimes grab.
- ◆ Uncomfortable body position.
- ◆ More work for TM, takes away enjoyment of Tandem jumping.
- ◆ More responsibility and skills required.
- ◆ Additional briefing required.
- ◆ Risk of damaging camera/ lens.
- ◆ HC can take the focus off your Tandem job, e.g.. the canopy-flying-job.
- ◆ More stress because of extra dubbing and HC sales.
- ◆ More job - more stress - less time.
- ◆ Increased risk factor.
- ◆ More stressful than a Tandem without THC, more equipment has to be dealt with and the exit is more difficult to handle.
- ◆ Pressure is put on low jump number TM's to co-operate with operations and to deliver a good HC.

3.3.3. Pros & Cons for Customer

Pros:

- ◆ Less expensive video option for people on a low budget.
- ◆ Gives students an option to decide after if they want to purchase DVD, as it isn't much of a problem for a TM to do a "spec-video".
- ◆ Cheaper video therefore more passengers can afford it.
- ◆ The HC is a more intimate, more personalised video.
- ◆ Gives the customer video footage under canopy.
- ◆ Shows the customer the full skydive.
- ◆ Better customer relation for the whole jump.
- ◆ Recognition is higher. Customers like to see faces, especially when it is their own.
- ◆ Immediate reaction and people love to see themselves at that point.
- ◆ More interaction with TM, especially under canopy.
- ◆ THC also provides audio of student under canopy.

Cons:

- ◆ Maybe more time/attention to camera, less to customer.
- ◆ Can be too close in the face of the customers.
- ◆ Still-photography quality.
- ◆ Camera close to passengers face.

3.3.4. Additional Positive Pointers

- * **Camera/ Filming/ Audio:**
 - ◆ Provides best reaction shots of student.
 - ◆ Great for Deluxe package.
 - ◆ You don't miss landings [e.g.. off DZ] Where Tandem lands, HC lands.
 - ◆ You don't miss exits [TOV can].
 - ◆ Facial and verbal expressions straight after freefall and during canopy ride.

- * **Promotion:**
 - ◆ Cheaper video, therefore more passengers will purchase it. Which means more DVD's end up in the homes of the general public, results in greater promotion of Sport and DZ.
 - ◆ Good advertisement for the sport, nice and representative product.

- * **Other important comments:**
 - ◆ Small Drop Zones are able to offer a more professional package to the Tandem Instructors and make it more affordable for the local markets, thereby ensuring a good method of advertising for the DZ. Without THC the smaller DZ could not efficiently and cost effectively offer video.

3.3.5. Additional Negative Pointers

- * **Safety/ Danger:**
 - ◆ Increased work load for TM.
 - ◆ Higher possibility to forget 2nd flare toggles.
 - ◆ Less able to control exit and get stable.
 - ◆ Possible distraction.
 - ◆ Divides TM's attention.
 - ◆ At the beginning the new TM can be distracted under canopy easily.

- * **Camera/ Filming:**
 - ◆ TI has to fly for the perfect shot sometimes, not for the safe Tandem jump.
 - ◆ Back Ground/ Whole Picture.

- ◆ Outside video and stills is in my opinion a better product. The production of good quality stills from the video and the camera angle is not as good with THC.
 - ◆ It can be too much in your face.
 - ◆ HC landings don't show much. A good landing video can be useful in court. I film all Tandem landings from the ground for this reason.
 - ◆ Reduced view.
 - ◆ Facial distortion.
 - ◆ No full body shots in context.
 - ◆ The PAX miss the 3rd person perspective.
 - ◆ Photos are lower quality due to camera type.
 - ◆ There are too many TM's who approach THC as just putting a camera on, resulting in bad footage = bad promotion.
 - ◆ If a students body position isn't close to perfect, it can affect the footage quality.
- * **Future Instructors/ Future of the Sport/ Industry:**
- ◆ Takes away one avenue for low experience skydivers to become TM's.
 - ◆ By taking away OV opportunities HC breaks the established employment progression.
 - ◆ It does reduce the slot time for outside camera and the training/ experience for newer jumpers.
 - ◆ THC Instructors will become more popular than TOV therefore less need for outside videographers. People will gain TI-Rating sooner (with less experience). These less experienced TI's will do THC too soon.
 - ◆ Less jumps for outside video flyers.

A strong point against THC is in the question:

“Does THC takes the outside video jobs away and so the opportunity for low experience skydivers to become instructors?”

As we can see in diagram* 12, the majority of the survey participants (70.51%) agreed that THC takes the TOV job away. This is probably true in most cases but other DZ's experienced an increase in TOV sales since they introduced THC.

Why?

Just because of a simple sales trick:

Previously there was the question to the Tandem customer:

“ Do you want video or not?”.

Since the beginning of THC the question changed to:

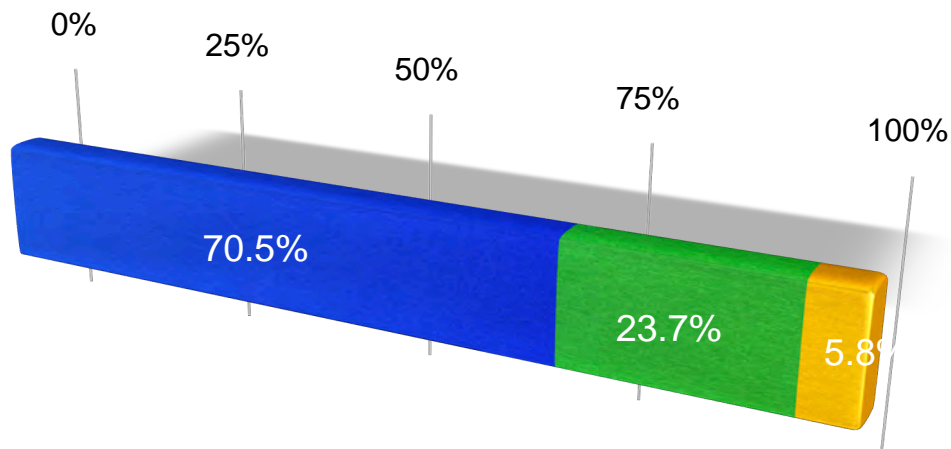
**“ What kind of video would you like?
Tandem Handycam, Outside Video or the DeLux Package?”**

The option **“No Video”** was still there of course, but as simple as it sounds not offered.

At the same time at the booking desk where the customers were asked this question, they had a great edited video display as extra support. Which showed clearly the difference between the two video methods and motivated the customer to purchase a video product.

■ Yes ■ No ■ Not Sure

Diagram* 12: Does THC takes TOV job away?



Outside Video flyers do miss out on some camera work at some THC DZ's, but this could be rectified for example by getting additional ratings, which will be a plus to gain more qualified and multi-skilled instructors. More instructors to help progress our students through.

Plus approaching our customers in a different way regarding video sales at the manifest desk will help to get more THC videos as well as TOV videos sold.

One comment in the survey in this regards:

*“It is hard to say, **YES and NO**, if THC is taking the TOV jobs away.
THC is just a new direction. Keep up or be left behind!”*

This might sound a bit radical, but the message behind it, we will find in all parts of our life. New things are coming and in many cases we have to adapted to it.

If we have a closer look inside the “License and Ratings” statistics of the APF Annual Report 2007 we don’t see any significant trend changes in issued licences, ratings and endorsements since 2001. Especially the Instructor “D”, AFF and Tandem endorsements which are not lower in 2007 than they were in 2001. It seems that those numbers have been relatively steady, even with the introduction of THC over the last few years.

☀ In Appendix 5: Licences and Ratings, APF Annual Report 2007

3.3.6. Summary of Pros & Cons

Now we have seen a enormous amount of opinions and important pointers which have to be considered by everyone who wants to get involved in THC jumping.

THC has several positive arguments for all groups involved, which shows why the popularity of it is increasing since the whole new concept was born.

DZ Operators

For the operators the greater efficiency in filling up their loads, especially for smaller drop zones with less staff and smaller aircrafts; being able to offer a new, less expensive video product to their customers, which leads in putting out more DVD’s into homes and so increasing promotion/advertising for their DZ’s and our sport; and being able to offer their staff a more attractive salary package, which helps to keep the more experienced instructors in the sport, are definitely the main reasons why they decide to go the THC-Way.

On the other side, more additional training for their staff is involved; dealing with outside video flyers conflicts and the slowing-down of the progression of future instructors are the issues the operators have to deal with.

Tandem Instructors

A pay rise for the Tandem Instructors has been overdue for years (and not only for the TI’s). Inflation rates rise every year significantly, but our professional skydivers salary did not increase in relation to this for many years. THC has made it happen, at least for some of the TI, to be able to make a liveable income and be available as a full-time instructor for our industry. THC “Spec-Jumps” gives an additional chance for extra income.

All this new extra income has its price, more responsibility and skills are required. Another dimension, especially for less experienced TM's is added. Greater workload, possible distraction and additional stress. Extra caution is required by the THC-Instructor. And all the THC safety issues have to be understood!

THC gives our multi skilled instructors a stronger position in the system. It can be a tool which helps as a legal proof of landing practise under canopy. It *MIGHT* help analyse some types of Tandem malfunctions better and it *MIGHT* deliver informative video footage of incidents. It also decreases the danger of collision with outside video flyers and possible entanglement with the outside video flyers on drogue throw.

Tandem Passengers

Our tandem customers have a greater variety of video options. Now there is a video product for the budget jumper and also the full product, the "Deluxe" package if the price doesn't really matter.

THC gives the passenger his/her instant facial and verbal reaction after free-fall. Those first words after opening and landing are magic.

More footage for the customer, the free-fall, normally between 30 and 60 seconds is only one part of the whole skydiving experience. 4-5 minutes is the canopy ride which can also be filmed with THC now. The interaction between the TM and the PAX is very bonding. The complete ride is now available on DVD.

THC-Still-Shots compared to the high pixel TOV still cameras these days are definitely not the same quality and shouldn't be offered to the customer as identical products. The different level of still quality has to be explained to the customers. For example, THC still shots, which will be taken from the video footage of the camera, in most cases are a lower quality/resolution. Good for emails/ internet and small printouts. Some customers do choose this less expensive method. That's all what they want. Others however prefer the high quality still photos with maximum resolution for top quality prints only.

Also technology is changing all the time. Right now, stills with more than 4-mega-pixel HC video cameras are in use for THC and the photo quality is getting much better.

Some believe TOV gives a better picture, especially on exit, free-fall and the landing shots.

Other say THC is the "complete" product, with its advantage definitely under the canopy.

Most of us agree that the "Deluxe" package is the superior product, but maybe too expensive or too complicated to produce at many DZ's.

But fact is that THC is an acceptable product as an additional film method, if done safely and to a high standard by a responsible skilled TM.

Certainly there are "handy-scams" going on out there but we can also find this with any other product. However there are some really good "handy-cam" operators in the field that put out great productions.

Good THC instructions and preparations have to be established to rise the standard and quality of the final video product.

We all have to be very honest to ourselves, THC is not for everyone!
Same like TOV, AFF, CRW, RW, Free-Flying or Swooping.

Some of us are great Tandem Instructors,
but have no real experience or desire with filming.

Be careful not to add TOO MUCH - TOO QUICKLY to your workload!

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

Are you the **right** instructor for THC?

3.4. Requirements

World-wide, Handycam or Tandem-Handycam-Skydiving is still a relatively new film technique and is not subject to any guidelines, laws and regulations. There are countries that ban it totally as mentioned before, some let it happen in the background and others like us here in Australia which have set up some important requirements, which help to keep THC relatively safe.

Too many restrictions and laws wouldn't help either, but some set of guidelines or advice should be given to all new and existing THC jumpers, like we do in all other skydiving disciplines and procedures.

The following sections display the older and the current requirements set by the APF and their members. Furthermore some piece of advice everyone should consider before starting with THC training.

3.4.1. APF Requirements in the past

In the early years of THC in Australia the APF started with the following requirements in regards of THC:

*APF Training Operation Manuel **before** the 15th of December 2006*

Section 7.0 Additional Operation Procedures

7.4 Handycam Requirements

7.4.1. Prior to using Handycam on a Tandem jump with a Tandem Student the Tandem instructor shall have:

- *Minimum experience of 500 tandem jumps.*
- *Recommendation by CI with logbook endorsement.*
- *CI approval of camera & mount.*
- *Undergo a course of instruction by the DZSO.*
- *One jump with a licensed jumper before taking a tandem student.*
- *An audible altimeter is mandatory for all tandem Handycam jumps.*

3.4.2. APF Requirements today

After several years of experience with THC the requirements for it have changed to the following:

*APF Training Operation Manuel **from** the 15th of December 2006*

Section 7.0 Additional Operation Procedures

7.4 Handycam Requirements

7.4.1. Prior to using Handycam on a Tandem jump with a Tandem Student the Tandem instructor shall have:

- *Minimum experience of **100** tandem jumps.*
- *Recommendation by CI with logbook endorsement.*
- *CI approval of camera & mount.*
- *Undergo a course of instruction by the DZSO.*
- *One jump with a licensed jumper before taking a tandem student.*

- ***Audible altimeter is mandatory for Tandem Instructors with less than 50 Handycam tandem jumps.***
- ***Audible altimeter is mandatory for Tandem Instructors using a visual altimeter located other than on the camera hand.***

3.4.3. Common Sense

Do you still remember?

***With 100 Jumps on your belt,
how much skydiving experience did you have?***

***With 100 Tandem Jumps,
how much Tandem experience did you have?***

Everybody is different. Some of us did the 9 AFF stages in 9 jumps, others needed a few more. Some Skydivers get their Tandem rating with a total of 500 jumps, but many CI's like to see about 1000 jumps before someone gets approved for the Tandem rating.

The same with THC, some are ready for it with only 100 Tandem jumps on their belt. Other will need more and even for some Tandem Instructors THC might not be really the right thing for them.

Good judgement from yourself, our CI's and DZSO's is required here!

A few additional points of advice before starting with THC:

- ◆ Be comfortable with your normal Tandem Instructor job,
in any "tricky" situation.
- ◆ Be a current, competent and experienced Tandem Instructor.
- ◆ Good outside video/camera skills is a great advantage.
- ◆ Undergo a course/seminar of instruction by an professional THC-Jumper.
- ◆ Do one or more solo jumps (Sport Rig) with glove & camera.
- ◆ New camera, new glove, new aircraft, new rig, etc. always familiarise yourself with the new equipment first.

Here is a list of additional pointers from experienced Tandem Instructors. Areas they think are the more risky/more difficult parts of THC compared to normal Tandem skydiving.

Everyone, if experienced or a THC beginner should take these points of advice very seriously and into consideration for all future THC jumps:

- * **Comfort:**
 - ◆ Less freedom of left hand.

- * **Preparation:**
 - ◆ You need to have a consistent sequence when preparing in the aircraft to avoid making mistakes.

- * **Priority:**
 - ◆ Make sure to focus on the Tandem first and the camera second.
 - ◆ Extra job to think about, needs to be forgotten if any other problem arises. Tandem job has priority ALWAYS!

- * **Distraction:**
 - ◆ Distraction from main task.
 - ◆ Dividing attention.
 - ◆ Distraction from focus prior to exit and during canopy flight.
 - ◆ Stick to you procedures and checks.
 - ◆ Gearing up in the aircraft a TM can get focused on HC and possibly miss connecting up or double-checking everything as per normal. Generally this can be a potentially hazardous time if the camera plays up.
 - ◆ Height awareness.
 - ◆ Having to remain situation aware during the whole skydive to everything you are doing and still maintain the "camera shot", even if the student is in a bad body position or your canopy opening is less than perfect.
 - ◆ Circular of awareness.
 - ◆ Multi tasking.

- * **Exit/Flying Technique:**
 - ◆ Flying both for the shot and for an exit can be difficult to do. Ignored the HC on exit when first start doing THC. With experience you will find it easy to do both.
 - ◆ Stable Exit position more tricky.
 - ◆ Exit. Rigorous procedure, each and every time.
 - ◆ For small TM it's hard enough to fly an exit without thinking about the shot.
 - ◆ The way to and out of the door with heavy or non co-operative passengers.

- ◆ The exit (getting a good shot of the student). But once you got used to fly the exit with only one hand and the left hand down it's no problem.
 - ◆ Exit, especially for beginners as they are too busy trying to get a correct camera angle with a new body position. Same on deployment, concentrating on camera not the canopy.
 - ◆ Drogue deployment, safety checks.
 - ◆ Exit for sure is the dangerous part, anything can happen and HC can load the TM even more.
 - ◆ Trying to keep a heading and the best camera angle.
- * **Procedures/ Emergency Procedures:**
- ◆ Stick to your procedures and checks and don't deviate or get distracted from them.
 - ◆ The camera is there and if any problems, forget the camera.
 - ◆ Have your routine.
- * **Passenger:**
- ◆ Students grabbing hand on exit and opening.
 - ◆ Potential for student to grab and hold camera.
 - ◆ The likelihood of the passenger being hit in the face with the camera as a result of a hard opening if the camera is held in close.
 - ◆ Staying focused on your student's welfare.
 - ◆ Achieving good results when passenger has head down or looking away.
- * **Canopy:**
- ◆ Canopy opening, you're trying to get student's interview instead of dealing with mild opening problems.
 - ◆ Taking footage and maintaining proper position over DZ.
 - ◆ Canopy collisions.
 - ◆ Opening with passenger trapping left arm.
 - ◆ Extra caution on deployment.

Every jump, THC or NOT has a potential for problems. If you are not committed to an extra task, chances are high that you will have problems.

Having a routine is extremely important and stick with it is imperative!

So, let say your procedures are disrupted before exit, that means you have to go back to the start. Don't forget important steps or cut corners. You always have the right to refuse the HC, if you see any problems (e.g. change of weather conditions, difficult PAX, etc.) .

Ask yourself, when would you take HC up for a jump?
In any conditions or only when everything seems to be perfect?

As we can see in diagram* 14 that 45% of the surveyed HC jumpers **would not** take HC up for a jump with “Problem Customers”.

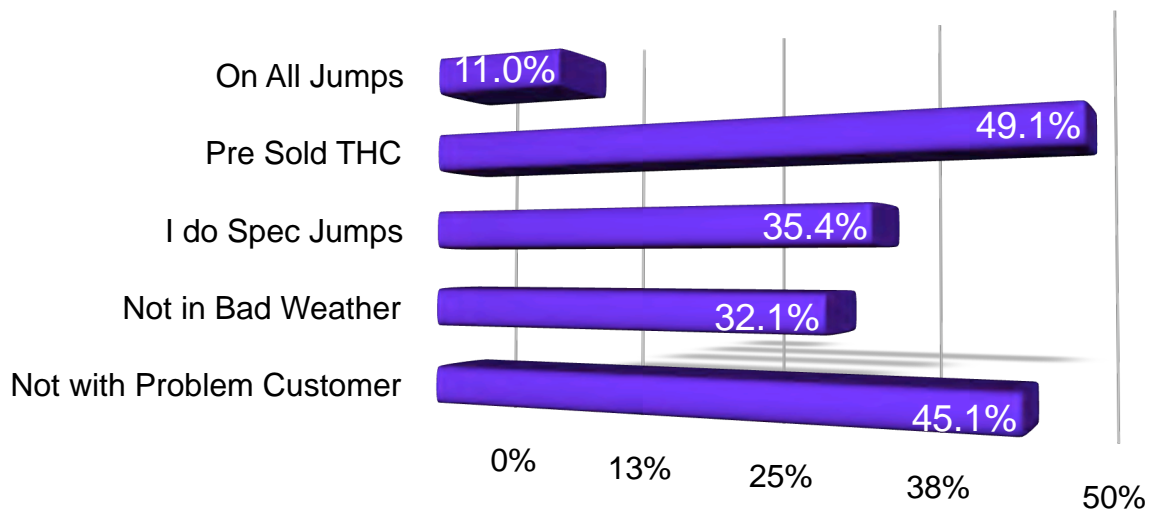
A “Problem Customer” could be:

- ◆ someone extremely light or heavy
- ◆ someone with disabilities or health problems (but still ok for a jump)
- ◆ someone very nervous/afraid
- ◆ someone with communication problems (language, etc.)

32% of the survey HC jumpers **would not** take HC up for a jump in bad weather conditions, like on the maximum wind limits for Tandem jumping or extreme humidity, etc.



Diagram* 14: When do you take HC up for a jump?



Other TI take HC up for “Spec” video jumps when the video is not pre-sold, for extra income or to give the passenger the chance to make a decision after the jump if they want a video or not.

And some of us take the HC up on all jumps.

What would you do? Ask yourself where are your limits and stick with it!

The most obvious interference by passengers in regards of THC jumping is the possibility that the student can grab the Tandem Instructors HC-hand or camera.

It has happened before and will happen in the future. Some of us have had this experience and not only while doing a THC, other never had this happen in hundreds and even thousands of THC jumps.

Here some comments:

Yes, happened to me, grabbed camera hand to his chest. - Have had a few arm grabbing, but this was not Handcam specific. - More of an annoyance than an issue - Grabbed camera hand because they can see it, but no big problem - Grabbed arm only when moving arms around a lot. - Also turned camera off once by hitting switch - Grabbed my hand after opening - With or without a camera some passengers will try to grab your arms - Big guy grabbed my arm and didn't want to let go. Shouldn't have offered him THC in the first go, to nervous and to strong of a big boy....

**Why does it happen to some and doesn't happen to others?
The luck of the draw?**

For sure some of us had this experience even **without** THC on a normal Tandem jump. Those scenarios do happen and the chances are higher when we present our arms/hands right in front of our passengers eyes.

To avoid this kind of interference by your PAX first of all

include it in your briefing!

Make your passenger aware where your hands/camera will be and that they should not grab your hands under any circumstances.

Also explain why this could be dangerous! Normally this kind of information will be taken serious by the Tandem students and will prevent this from happening.

Before exit give another reminder and the chances of your passenger grabbing your hands are much slimmer.

In the case of having an extremely nervous customer, who will in fact, in the end forget almost everything you told him/her and the "Grab" will happen anyway, here are your options:

*** In Freefall:**

First of all, DO NOT panic! Be height-aware!

- ◆ In most cases just pulling your hand free will be sufficient.
- ◆ Pushing arm forward and pulling backwards or twisting will work.
- ◆ Remove their hand with your free right hand.
- ◆ Pull camera arm up.
- ◆ Yell in ear “LET GO!” .
- ◆ Break grip by rotating and twisting HC-arm inwards.
- ◆ Lift the camera hand very high up.
- ◆ Roll wrist to remove hand.

* **Under Canopy:**

- ◆ During parachute deployment or under canopy you have the same options like in freefall, but in most cases just asking the passenger to “**let go**” will be enough, because of the reduced surrounding noise.
- ◆ Easily solved by telling student to “**release my arm**”

3.6. Equipment

The correct, functional and approved equipment is as important for a successful THC jump and the final video product as the person who is using it.

Section 7 - Safety Requirements of the APF Operational Regulations

(15th of December 2006)

5.1. General Requirements

5.1.1. The word “approved” used in this section shall mean approval by the ASO or Chief Instructor unless otherwise stated.

Section 7.0 - “Additional Operation Procedures” of the APF TOM

(15th of December 2006)

7.4 Handycam Requirements

7.4.1. Prior to using Handycam on a Tandem jump with a Tandem Student the Tandem instructor shall have:

.....

- *CI approval of camera and mount*

....

- *Audible altimeter is mandatory for Tandem Instructors with less than 50 Handycam tandem jumps.*
- *Audible altimeter is mandatory for Tandem Instructors using a visual altimeter located other than on the camera hand.*

3.6.1. Gloves

What kind of Handycam-Glove is the right one for you?

The HC gloves differ in style, material and by the design of the different manufacturer. Most available on the market will do their job. Question is what you prefer, which is the most functional for your camera type and most comfortable for your flying style.

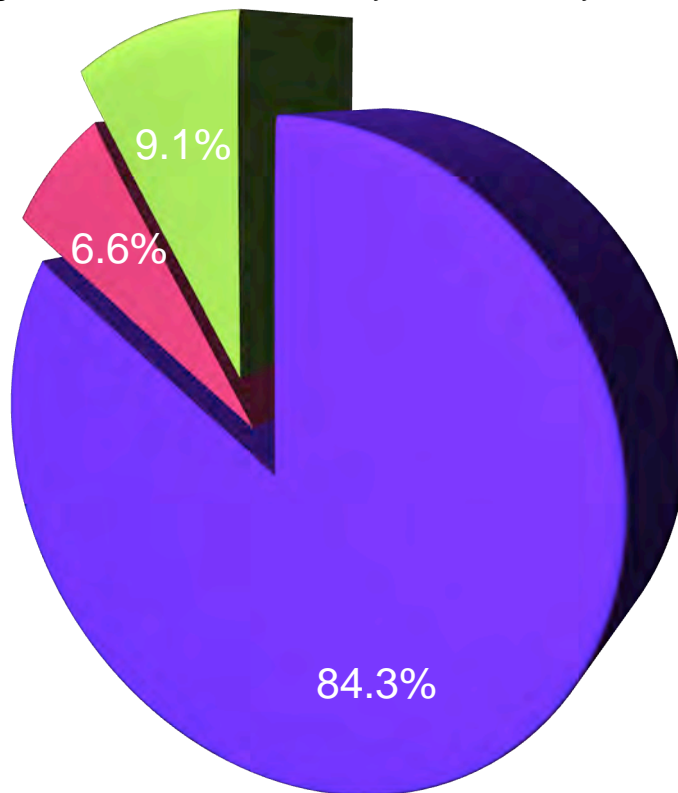
Basically there are two different HC-Glove styles:

I. **“Stand-up” or “Up-right” style**

II. The **“Flat” style**

● Stand-up Style ● Flat Style ● Any

Diagram* 15: Preferable Handycam Glove Style



I. The most common used **“Stand-up” or “Up-right” style**, where slim profiled camcorders are in a “Stand-up” / “Up-right” position mounted to the glove.

This style of glove gives most HC jumpers the desired in the frame “Up-right” footage and is comfortable during freefall. More than 84% of the survey participant HC jumpers prefer this comfortable style.

The Cons with the this particular style are, that the higher standing camera can hook up much easier on corners (eg. exit of the aircraft), with lines of the canopy, with handles of the rig and the risk hitting your passenger accidentally (eg. hard-sudden canopy openings) is much higher than on flat style camera gloves. Under canopy or especially for great landing shots the higher standing camera position on the glove (compared to the “Flat” style) needs a bit of experience and skill to keep the shot in frame. The THC beginner will feel that in particular.



II. **The “Flat” style** is where the camcorder is laying on its side on top of the glove. This is the more traditional HC glove design, used when the first HC pioneers started to make up their own HC gloves in the early days. Some jumpers still like it, especially for canopy flying, while holding the toggles of the canopy, the hand aligned with the arm will point upwards and puts the camera automatically in an Up-right position. Other HC jumpers find this style quite uncomfortable. Pros are definitely a much smaller package on top of your hand, less risk to get hooked up on something or hitting the passenger. More easy for THC beginners, but also more difficult for getting nice, stand-up, in the centre frame shots.



An ideal glove-camera constellation for THC would be a flat small camera, like the brand new Sony HDR-CX100 or CX105 (see photo below), which will be

available on the market from mid of march 2009. Those cameras are from the hight, in an upright position, like an old style stand-up camera (eg. Sony DSC PC9) more like a laying flat on its side camcorder (less hight). THC glove manufacturers are already designing gloves for this very skydiving and THC suitable camera in the moment.

Pros: Small, light, comfortable filming angle and far less risk to get hooked up. Great for THC pros and beginners! So, something new to look forward too. This is just the beginning of smaller lighter and especially THC user friendly camera generation. THC gloves will be available soon (march/april 2009 by www.ngeee.de and others too).



Most HC glove manufacturers offer great functional products. They all have their different little features.

Here are some manufactures and their gloves/glove-styles with their particular features:

WAY COOL (www.waycool.com.au):

Solid great gloves with zipper in flat or stand-up style. Thick neoprene material. Strong build for long lasting THC jumps.





THC gloves are also available for newer High Definition Cameras



Even with a build in Cam Eye HCR remote thumb switch for easier turn on/off of the camera and camera status control light.



COOKIE COMPOSITES (www.cookiecomposites.com):

The Vert Glove, available in 3 different sizes. 5mm thick neoprene construction on the glove for a comfortable and secure fit and 3mm thick neoprene camera housing for camera protection.



The Vert Glove comes without zipper, because the manufacturer believes it guarantees more security.

Velcro and a clip on the neoprene camera housing gives easy and secure access.

Also the new Hypeye D Pro Camcorder Indicator and Control System for newer Sony camera models is now available. Super bright LED indication system keeps you informed what status your camera is in, even if you are facing the sun. With the Hypeye D pro Expansion Kit Upgrade you can even capture still pictures onto your camera by using an external shutter release switch.



DEEPSEED SKYDIVE
(www.deepseed.com):



THC gloves made strong. With zipper and long arm section, which helps to cover jump suit if needed. Available for most Sony camcorders.

SKY SOLUTIONS (www.ngeee.de) or www.canopy-rigging.com

Sky Solution/ Ngeee making very simple but extremely functional THC gloves for quick in and out procedures. They produce THC gloves for all sort of cameras. The material they use is mainly strong industrial nylon materials for long lasting. Very stable, comfortable and easy to use gloves.



A possible feature is mentioned before the integrated Altimeter and/or CamEye/Hypeye option in the glove, as we can see here on a WayCool glove (also available through other manufacturers, just ask):



Everything is together and with the CamEye/Hypeye option the camera and recording function can be turned on/off with one finger tip only. The control light of the CamEye/Hypeye also indicates if the camera is recording yes/no or if the tape/battery is full or almost at the end. A luxury feature, but can be very handy!



It is all up to the HC-Jumper, what he/she prefers.

Important is a secure fitting!

- a) Secure fitting for the camera in the glove. Make sure you get the right glove, which fits the model of your camera.
- b) Secure fitting for your hand size. Too tight will be very uncomfortable after a while and too loose will make the glove and camera move around. The footage will be very shaky.

All manufacturers have good instructions on how to measure your hands for the perfect fit. Here some examples:

COOKIE Composites/ Downward Trend/ NGEEE/ Deepseed:

To find your HC-Glove size please measure around your hand as shown in this illustration:



Please note! If you jump with gloves please measure with your glove on.

Glove Size:
20-21cm: XSmall
21-22cm: Small
22-23cm: Medium
23-24cm: Large
24-25cm: XLarge

WAY COOL:

Their gloves are available in two hand sizes:

- Medium (up to 240mm or 9.125")
- Large (240 mm/9.125" or more)

This is measured with a cloth tape around your clenched knuckles.

For large hand sizes like 265mm/10.4375" or larger they can make you a custom extra large glove.

Apart from the normal "Stand-up" camcorder and the normal styles gloves, most HC glove manufacturers also do custom made orders for special style cameras, the new High Definition (HD) camcorders, etc.

In the future different, smaller, lighter cameras will come on the market and the design of the gloves will change accordingly. Here's an example from the German manufacturer **X-Shut and NGEEE:**



A bit more of a high-tech glove with a quick release system for a quick On & Off camera connection with the glove (also available with a camera cutaway function).

Whatever you choose for your HC glove, make sure it is functional, comfortable and gets the approval from your CI!

**Also remember:
A new glove needs new familiarisation.**

**“Dirt Dive” your new gear
before you take it up for “Spin”!**

3.6.2. Cameras

Since Sony brought out their first small DV mini camcorder, like the Sony DCR-PC7 and PC10 at the end of the 1990's skydive-filming took a major step forward.



Those little video cameras got smaller and lighter over the years. The quality of the mini camcorders these days is amazing. In the last 2-3 years we have seen small 3CCD cameras like the Sony DCR-1000 with amazing film colour quality.

In 2007 the new Panasonic SDR-S150 put the 3CCD quality including the HD SD-card technology on the market. This means no DV tapes and no big mechanics inside the cameras anymore.

Right now all the big brands are coming out with their small HD-High Definition or Blue-Ray cameras.

The future looks bright for all technology “junkies” and will turn our THC filming into a more high quality product.

There are several different cameras available in the market suitable for Handcam/ THC.

The most popular brands have been Sony, Canon and Panasonic. For skydiving and especially for THC it is important to get the best quality in the smallest and most robust format available.

The Sony DCR-PC9 was probably over the last years one of the best cameras available for skydiving. Extremely robust and great quality at 200km/h+ over thousands of jumps.



Still a great camera to buy, if you can find one!
Takes DV mini tapes.

TIP: Best quality DV mini tapes for Sony cameras are the “Sony Excellent” DV tapes.

Another great Sony camera is the DCR-PC1000 with 3CCD technology.

3CCD means in simple words, that this camera has three separate colour sensors for each primary colour (Red/Green/Blue). This delivers sharp and bright colour footage of a high quality.



A great example for a good inexpensive THC camera of the newer generation is the Panasonic SDR-S150 with HSD media cards and 3CCD.

This camera is extremely light and ideal for THC.



The downside is that the camera doesn't have many features, like picture or digital effects, but the film quality is amazing for such a small camera.

Editing software for PC comes with the camera. The new iMovie Mac software in OSX 10.5 can also handle the Panasonic format of the camera (Older versions of OSX don't!).



The Handy-Camcorder manufacturers are moving away from cameras with tapes as a recording media. In the near future flash card camcorders will be dominate on the consumer Handy-Camcorder market.

Downside of working with “Tape Camera Systems” compare to the “Flash Card Camera Systems” for us in the skydiving industry are:

- Slow capture time with Tape Camera System. 10 minutes of recorded video footage takes 10 minutes to capture into the computer or on a DVD recorder for editing the final product. With the Flash Camera System the 10 minutes footage takes just a few seconds to import.
- Going back and forward in your recorded video footage on the tape takes time, because the tape has to be re-winded or forwarded all the time. With the Flash Cards you can go to any point of your recording in a split of a second. No re-winding or forwarding.
- Tape cameras have to be connected physically with the recorder or computer. With a Flash Card Camera System, just take out the Flash Card (media) and slide it into a card reader to import the footage into a computer. The camera can be used straight away for a new jump. No downtime!

- With the tape you will have a quite slow access to your media. With flash card it is a very fast data transfer and super fast access to the media and footage you have recorded.
- Good high quality Flash cards can be recorded over and over again without loss of recording quality. A tape loses quality after the first over recording. Ideally tapes should be used only once.

Flash Card Camera Systems are the future for our skydiving footage. If THC or TOV, those cameras guarantee fast download/ capturing and will speed up our video editing workflow enormously.

Analogue Systems with the traditional tape cameras are good and have been working for us for a long time, but it just takes more time to get the final product.



Are all new camcorders suitable for THC or TOV?

Some cameras are not suitable for THC or video skydiving. The build-in/spinning hard-drive-cameras can not handle the extreme wind pressure/ pressure changes during freefall. The same with DVD Cameras, they slip during recording in freefall. Those camera types cause lots of problems while recording in freefall.

High Definition (HD) or Standard Definition (SD) Cameras?

Most of the newer Camcorders, which are coming on the market these days are HD Camcorder and recording, as the name says in High Definition. The quality of the recording is extremely sharp and clear. The downside is, the recorded footage includes a much higher rate of information on the flash cards and the capturing time will increase compared to the Standard Definition mode.

The Standard Definition mode quality, is the quality we have been using for all these years with our tape camcorders and is still a good quality for our customer's product, which can get captured into the computer system much faster as HD.

The good news is, the New HD camcorders can do both definitions, HD and SD. You just have to switch the right mode on before you record.

The High Definition Video could be an additional product for the tandem customer, who wants to spend the extra money and has the extra time to wait before he/she gets the final skydive video product.

For the majority of our customers and our DZs the Standard Definition will be the right format to film in, for fast editing and quick delivery of skydive video products.

The list of camcorders and suitable camcorders for THC skydiving is huge.



To list all of them here would be too much and very confusing. Instead here is a list of Skydiving “friendly” camcorders, which the survey participants, my colleges and myself have been using over all these years and still using for skydive videography today. Cameras we had/have good experiences with:

1.Older Tape System (miniDV tapes) models and great THC camcorders, which have been used since the early years of THC and some are still in use today. Great robust quality!

Sony PC1/3/7/10 30mm thread. Good THC friendly cameras!



PC3

PC1

PC7/10

Sony PC5/8/9 30mm thread. Great THC friendly cameras!



PC5 PC9

PC8
(no memory stick compare to the PC9)

2.2nd Generation Sony Handycams, Tape System (miniDV tapes), good THC camcorders. Not as robust has the first generation, but still “ok “quality for skydive freefall

Sony PC101/103/104/105 30mm thread. Good THC friendly cameras!



PC101

PC103

PC105

Sony PC 100/115/120 30mm thread. Those 3 models are “ok” for THC, but built heavier and on harder canopy openings their particular image stabiliser can put the picture out of focus for a split of a second! Usable, but not ideal for THC!



PC110



PC115



PC120

3.3rd Generation Sony Handycams, Tape System (miniDV tapes). These Sony handycams didn't have the robust quality like the early models anymore. Cheaper production/cheaper price for the end user, but a less quality product and more upcoming errors were the result, especially in skydiving areas with high air humidity. Ok THC friendly cameras!

Sony PC106/107/108/109 25mm thread.



PC107



PC106 (no memory stick)



PC109



PC108 (no memory stick)

4.4th Generation of Sony Handycams, still Tape System (miniDV tapes), but now the quality is back! Great robust skydiving camcorders with lots of special effects and much enhanced image quality through the 3CMOS sensor in the PC1000 and a great optical CCD sensor in the PC330/350. To-of-the-line full feature camcorders produces excellent video and decent digital still images. Great THC friendly cameras!

Sony PC330/350 30mm thread. Great THC friendly cameras!
Camcorders sensor resolution 3.3 mega pixel, electronic super steady shot stabiliser.



PC 330



PC 350

Sony PC1000 30mm thread. The Sony Handycam DCR-PC1000 MiniDV camera offers excellent image quality for its class and brings CMOS technology to the world of camcorders. Great camera, but also, on harder openings the super steady shot image stabiliser system can put the picture out of focus for a split of a second! Great THC friendly cameras!



The PC 1000 with a 3CMOS sensor for excellent sharp colour definition. Lots of special effects, image storage JPEG 1920x1440

Canon came out with a camcorder used by some skydivers, which fits in the same generation category of the Sony PC1000 and the PC350. The Canon HV10 Mini DV Tape camera. 37mm lens thread. Good THC friendly cameras! Excellent video quality, compact, broad feature set, but some very awkward ergonomics, poorly located microphone, no HDMI output or accessory shoe; short battery life.

The bottom line: An excellent HD video camcorder with some annoying quirks.



High Definition 1920x1080p camera
CMOS sensor for great picture quality, 3.1 mega-pixel imaging, with a super range optical image stabiliser.

5.Sony HC Generation Handycams, still Tape System (miniDV tapes) camcorder, very affordable, light weight, “ok” camcorders for TOV but not a great deal for THC because of its bigger more square shape size. “Ok” to good Picture image quality.

Sony HC17/21/22/30/32/40/42 25mm thread. Usable, but not ideal for THC!



HC40

HC42

HC17

Sony HC24/26/28/35/36/44/46 25mm thread. Usable, but not ideal for THC!



HC36

HC24

HC46

Sony HC96/94/90 30mm thread. The better quality Sony models of the HC line. Usable, but not ideal for THC because of it's size!



HC94

HC96

HC90

6.Flash Card Camcorder Generation. Those cameras don't have miniDV tapes as a media anymore, they run on Flash cards which makes data transfer on to a computer much faster and easier. Also no mechanics inside this camcorders, which can jam up and cause problems. All electronics these days. Here some examples:

Sony TG1, TG3 no lens thread! Great super small and light camera with HD recording and skydiver friendly. But unfortunately not ideal for THC because of not able to easily attach a wide angle lens, thread is missing. Wide angle lenses are crucial for THC! Some inventive THC jumpers use "clip on" wide angle lenses by Raynox (not ideal) - explained more in detail in the Wide Angle Lens Section.



TG3

TG1

Panasonic SDR-S 150, Excellent THC friendly cameras! 3CCD sensor for great video quality. Super small, super light, very simple to use. This camera has been in action at many busier THC-DZs. Down-side: the camera is needed for transferring the data! Running the flash card through a card reader won't work. 37mm lens thread.



Canon HF100 Flash Card camera. 37mm lens thread. Good THC friendly camera!



High Definition video recording resolution 1920x1080, CMOS sensor for great picture quality, Optical Image Stabiliser, Imaging 3.3 mega-pixel, it has a mechanical stabilisation which can cause problems on harder canopy openings!

Sony CX7, CX12, CX11 37mm lens thread HD.

Flash Card media with great video and picture image quality. Some skydivers still mention little problems in freefall with those type camcorders, for example: problems with optical image stabilisers, not steady enough. Usable, but not ideal for THC because of its dimensions and the little hick-ups!



CX7



CX11



CX12

Sanyo VPC HD1010/2000. Just coming out in the moment (March 2009). Some Skydivers claim good performance and good quality with Sanyo newer generation camcorders. The specifications of these cameras sound very promising. Super light, very small, digital formats: H.264/ MPEG4, 4 mega pixel image resolution, CMOS for sharp, colour clear recording and even 300 pictures per second high speed recording. 40.5mm lens thread! Sounds like a good THC friendly cameras, but has to be tested first!



HD1010

HD2000

Sony HDR CX100/105. 30mm lens thread! Digital video format: AVCHD/ MPEG-2, 4 mega pixel still image resolution. The camera should be operated ideally with the new Hypeye D Pro Camcorder Indicator and Control System, because the turn on/off button on the camera is only accessible by opening the screen and also there is no recording light indicator at the front of the camcorder. With the Hypeye D Pro Control System the minor problems are solved. Excellent THC friendly cameras!





As you can see the list is huge and the shown cameras above are only a small portion of smaller Camcorders/Handycams which are available on the market right now.

The models listed above are “**Skydiver Friendly**” cameras, which means they function in freefall and have been used by many skydivers all over the world. All cameras have their own features and differ in functions like effects, picture quality, media format, prices of course and more. All have their pros and cons.

The best way to find the right camcorder for you and your THC job is to ask THC experience instructors, look around and listen what everyone has to say. Forums like www.dropzone.com are also very helpful.

Try cameras and gloves out before you buy, if you have the opportunity.

Opinions about all these cameras are different, here is just a summary of **my 4 favourite cameras for THC and WHY they are on top of my list:**

1. **Sony DCR PC9** (PC8 without memory stick = no digital picture function), Mini DV tape camera

One of the best, most robust cameras Sony has ever built. Perfect for skydiving and it is a very solid camera, which doesn't malfunction on small hits or bangs with the camera. Great size and dimension for THC. Great digital effects. If you know how to use them, they can add an interesting touch to your footage while you are filming. PC 9 has also a memory stick which lets you take digital photos from your video footage.



2. **Sony DCR PC1000**, Mini DV tape camera

Same like the PC9, very robust, but with a 3CMOS colour chip for vivid, sharp excellent colour definition. It also has wide screen 16:9 option and memory stick function to take pictures, image storage JPEG 1920x1440. Downside is the motorised driven zoom adjuster, which can make the footage to get out of focus on hard openings, for a split of a second, in extreme cases. But after a few jumps the jumper get used to it and holds his/her hand more in a shock absorbing way on deployments.



3. **Panasonic SDR-S150** Flash Card camera

Very light, very small size, very simple, perfect for THC.

3CCD colour definition chip for brilliant video quality. Flash Card media for quick and easy data transfer. Inexpensive, have been in the skydiving field for almost 2 years now without a problem! Digital Video format MPEG2. Image storage up to JPEG 2048x1512. Great little camera with a great price value ratio.



4. The NEW **Sony HDR CX100/105** Flash Card camera.

This is the top shelf camera in the moment. Super small, great quality, 1920 x1080 i HD.

Recording format AVCHD for fast data transfer. It can record up to 3 hours HD footage on a 8GB internal flash memory.

CMOS sensor for brilliant picture quality with high sensitivity and low noise.

The new BIONZ high-speed image processor for enhanced image quality and responsive performance.

A Steady-Shot image stabiliser which finally works for skydiving. This is where the other newer Sony cameras like the CX7 have been not as perfect as this camera.

4 mega-pixel still photo recording and more.



Basically this is the camera we have been waiting for a long time. It does not have any picture/digital effects, but with a flash card camera you will do all these effects on the computer anyway, if needed. The camera has been tested in the skydiving scene already and the results are amazing.

Small, Light and Top Quality with fast flash card data transfer!

Important for THC:

**Make sure they are small and compact,
easy to use
and produce very good footage quality for your end product,
the THC-DVD.**

And of course get the approval of your CI for it!

Also make sure you purchase a camcorder with the right analogue video/television format, NTSC or PAL. Most cameras are available in NTSC or PAL. For example most countries in Europe, Australia, New Zealand, are using PAL and the Sony cameras having often the letter E behind the model number. E for Europe PAL System. (e.g. Sony DCR-PC1000 or Sony DCR-PC1000E). USA, Canada, Mexico, Japan and others are using the NTSC.

(If you are interested to learn more about the analogue formats, here is an informative internet link: <http://en.wikipedia.org/wiki/NTSC>)

3.6.3. Lenses

A good wide angle lens is extremely important for a professional finish of your THC video. It is even more important than it is for outside video, because we are very close with the camera in front of the object, the Tandem pair.

We can't just fly in and out to get the object into the frame. A steady hand with the right distance makes this possible. With a wide angle lens, you can more easily include foreground subjects and emphasise the distance to the background. A wide angle lens has a shorter focal distance than a normal lens. From any given spot an image is made with a wide angle lens, it includes more field of view than with a normal lens. The wider the lens angle the easier it is to keep it all in frame.

A 0.5x, 0.45x, 0.3x, 0.29x, 0.25 or 0.2x wide angle lenses are useful for taking pictures where space is limited.

If you are wearing a Tandem Handycam glove, a 0.3x to 0.2x will allow you a very full image.

The lenses differ in angle size, quality, compatibility with the camcorder and of course in price.

Here are the most common used wide angle lenses by THC jumpers:

Example1: Cookie Composites wide angle lenses (Australian Company) are rated one of the the best for THC. They offer 3 different lens angles:

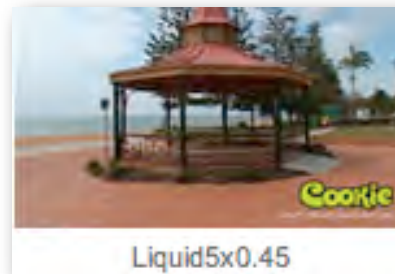


- ◆ Liquid2 = 0.25x
- ◆ Liquid3 = 0.29x
- ◆ Liquid5 = 0.45x



Photos taken with the Sony DCR-PC1000 & the different Cookie lenses.

Liquid 5:



Liquid 3:



Liquid 2:



Those lenses are especially great, where the subject is <1m from the camera.
Quality features like:

◆ **Liquid2 = 0.25x**

- *3 anti-reflective coatings applied to cover the entire visible light spectrum.
- *Vignette free on latest model Sony DV cameras.
- *Sharper images throughout the entire field of view. No hazy out of focus edges.
- *No need for a step ring, all popular thread sizes available: 25, 30, 37mm.



Note: The lens has been tested on the Sony PC101,104,107,108,109, 350 and PC1000 with absolutely no vignetting in 4:3 or 16:9 modes. Slight cropping occurs on the PC9 camera.

◆ **Liquid3 = 0.29x**

- *No vignetting with or without filter option.
- *Minimal barrel distortion.
- *Available thread sizes: 25mm, 30mm, 37mm.



◆ **Liquid5 = 0.45x**

- *No vignetting with or without filter option.
- *Minimal barrel distortion.
- *Available thread sizes: 25mm, 30mm, 37mm.



There is also a Lens Filter Kit available for the Liquid5 and Liquid3. It protects the lens and also gives better quality images. The new Liquid Lens Filter Kit includes a standard 46mm UV filter and an adaptor ring to suit the Liquid range of lenses.

(The Lens Filter Kit is NOT for the Liquid2 lens)



The Cookie Lenses have been in use for THC and TOV for many years and very good reports of the quality and sharpness throughout the skydive community has been reported. Try for yourself, there will be a skydiver near by you with one of those lenses.

Example2: WayCool Industries wide angle lenses (100% made in Australia) are very popular lenses throughout the skydiving community. WayCool has 3 different size lenses on the market:



- The Blue Eye 0.45 Lens
- The Red Eye 0.3 Lens
- The Black Eye 0.25 Lens



◆The Black Eye 0.25 Lens



- * Designed for THC use, for really close to your subject shots, which arms length away. Everything from the camera to infinity will be in focus because the lens has a very wide depth of field which is inherent to really wide angle lenses.
- * The Black Eye is suitable for any situation where there is a space restriction including these types of skydiving video; AFF jumpmaster linked to student, Tandem Hand-Cam, linked freefly, linked RW, very close RW tutoring.
- * The only 0.25 Wide angle available with a protective filter.
- * 3 AR (anti reflective) coatings on each side of the protective filter glass to absorb unwanted reflected light.
- * Standard UV coatings are designed for use with emulsion films which are sensitive to UV light, modern CCD image sensors are virtually insensitive to UV light.
- * Way Cool UV filters are designed to have a minimal size increase on their lenses when fitted. Black Eye increased to 48.7 mm.
- * One piece design - no two piece with much more size increase.

Important! There are two versions of this lens the Black Eye and the Black Eye X.

★The Black Eye X is slightly thicker lens and has a wider angle of view than the standard model. This has been tested on the Sony PC 101, 105 and 1000.

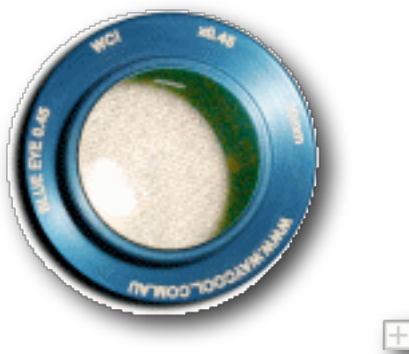
★The X is also compatible on the Sony HC20, 30 and 40 with no vignetting (with a step ring). The X version will vignette on some other models.

◆The Red Eye 0.3 Lens



- * One piece glass wide angle lens in a high grade, low profile aluminium body.
- * Fit straight onto Sony and most other Cameras, no step rings required.
- * No frame cropping and very little distortion.
- * NO BLACK CORNERS for most camcorders
- * The dimensions of the Red 0.3 lens are: outer diameter 42.5mm, thickness 7.8mm
- * The stress on your camcorder lens is dramatically reduced, because of the light and small design of the lens.
- * Less danger of snagging risers or lines - SAFER

◆The Blue Eye 0.45 Lens



- * Small and light design for dramatically reduced stress on camcorder lens.
- * General purpose wide angle conversion lens.
- * Very little distortion.
- * Where your optimal distance to subject for this lens is approximately 2m or more. Not ideal for THC.
- * The Blue Eye Lens is identical in dimensions as the RED 0.3 but has x 0.45 magnification.

- * Less danger of snagging risers or lines - SAFER
- * 3 AR (anti reflective) coatings on each side of the protective filter glass to absorb unwanted reflected light.

◆Protective Filters



- *Way Cool Protective filters are specially made for their wide angle lenses only!
- *When they are mounted on the lenses there is minimal increase in physical size and weight.
- *No screw on bits to loose, just a simple slide on protection.
- *The filters use specially sourced quality Japanese optical glass, which is not fixed by conventional retaining screws or cir-clips which can impede the field of view or increase the physical size and/or lead to vignetting.
- *The glass is specially coated with 3 AR layers on each side for optimal anti reflective and optical performance.
- *Protective Filter identification for re-ordering:

NOTE: You cannot use the Black Eye filters on the Red or Blue Eye lenses! The Red and Blue lenses take the same filter.

Example3: Royal-Lenses wide angle lenses (US Company). Top quality lenses Great for THC. Absolutely NO Vignette (Black Corners). There are also 3 different lenses angle available.

Whether you prefer to use the Diamond 0.3x™, the Stealth 0.5x Ver.2™ or the Platinum 0.2x™ depends on how far away you think you might usually want to be from your subject. **For THC the Diamond 0.3x™ is great, but ideal is the the Platinum 0.2x™.**



No Wide Angle



Stealth 0.5x



Diamond 0.3x



Platinum 0.2x



◆The Ultra High Quality, Low Profile Stealth 0.5x version 2

- * New Flat front surface.
- * New Stronger Glass.
- * Low Profile (8mm in length, 44mm in diameter).

- * 67-degrees Field of View (Field of view may vary according to your camcorder's specifications).
- * Single Element Resilient Glass Construction (The Strongest Glass Of Any Lens In Its Class).
- * Durable Anodized Casing.
- * No Barrel Distortion.
- * Absolutely NO Vignette ('black corners') if no step-up ring is been used.
- * FIVE direct fit Thread Sizes: 25mm, 30mm, 37mm, 40.5mm and 43mm.
- * Adaptable Thread Sizes: 27mm, 28mm, 30.5mm, 34mm, 37.5mm.
- * Lens Cap/Case included.



◆Low Profile 0.3x Wide Angle Lens

- * High Quality.
- * 110-degrees Field of View (Field of view may vary according to your camcorder's specifications).
- * Low Profile (8mm in length, 44mm in diameter).
- * Single Element, Resilient Glass Construction (The Strongest Glass Of Any Lens In Its class) .
- * Durable Anodized Aluminum Casing.
- * Minimal Barrel Distortion.
- * Absolutely NO Vignette if no step-up ring has been used.
- * SIX standard Thread Sizes: 25mm, 27mm, 30mm, 30.5mm, 37mm and 40.5mm.
- * Adaptable Thread Sizes: 28mm, 34mm, 37.5mm, 43mm
- * Lens Cap/Case included.



◆ **Ultra High Quality, Ultra WIDE! Low Profile 0.2x Fish-Eye Lens**

- * 180-degree field of view (Field of view may vary according to your camcorder's specifications).
- * Super Low Profile (12mm in length, 44mm in diameter).
- * Dual Element, Resilient Glass Construction.
- * Durable Anodized Aluminum Casing.
- * Low Distortion Fish-Eye Lens.
- * Absolutely NO Vignette ('black corners') if no step-up ring has been used. For Platinum 0.2x, no vignette in 4:3 mode.
- * Three standard Thread Sizes: 25mm, 30mm and 37mm.
- * Adaptable Thread Sizes: 27mm, 28mm, 30.5mm, 34mm, 37.5mm, 40.5mm, 43mm.
- * Lens Cap/Case included.

Here a list of the most common used camcorders and their thread sizes:

Thread Size	Compatible Camcorder Models (25mm, 30mm, 37mm)
25mm:	<p><i>Sony</i> DCR-DVD - 91, 101, 105, 201, 205, 301, 305, 605, 705 DCR-HC - 19, 20, 21, 22, 26, 28, 30, 32, 36, 39, 40, 42, 46 DCR-PC - 106, 107, 108, 109</p> <p><i>Samsung</i> SC-D - 6550 Duocam VP-D - 451, 453, 455i, 461, 463, 905</p>
30mm:	<p><i>Sony</i> DCR-DVD - 92, 103, 108, 200, 203, 308, 403, 405, 505, 602, 610, 653, 710, 805, 810, 905, 910 DCR-HC - 3, 15, 38, 48, 52, 62, 65, 90, 96 DCR-IP - 5, 7, 45, 55, 220 DCR-PC - 1, 3, 5, 8, 9, 101, 104, 105, 350, 1000 DCR-SR - 32, 40, 45, 65, 85, 220, 220D DCR-TRV - 8, 11, 18, 22, 25, 27, 33, 38 HDR-HC - 3 HDR-SR - 1, 10, 10D, 42, 62, 82, 100 HDR-UX - 1, 10, 20</p> <p><i>Samsung</i> SC-D - 105, 107, 303, 353, 6040 SC-DC - 173U, 575 SC-HMX - 10 SC-MX - 10, 10P VP-D - 101, 103i, 353, 650i, 6550i</p> <p><i>Sharp</i> VL-Z - 1U, 3U, 5U, 7U, 500H</p>

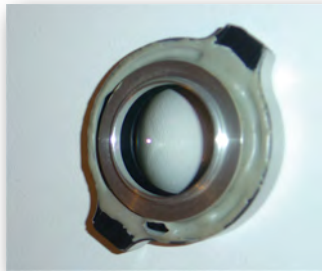
37mm:	<p>Sony DCR-PC - 7, 10, 100, 110, 115, 120, 330 DCR-SR - 200, 300C DCR-TRV - 70 HDR-CX - 7 HDR-HC - 1, 5, 7, 9 HDR-SR - 5, 7, 8, 11, 12 HDR-UX - 5, 7 HVR-A - 1e</p> <p>Canon DC - 40, 50 MVX - 150i OPTURA - 10, 20 VIXIA - HF10, HF100, HR10, HV10</p> <p>Hitachi DZ-GX - 3300A DZ-MV - 230A, 270A, 380A, 550A, 550E, 580A, 580E</p> <p>JVC GR-D - 22U, 31EK, 50, 51E, 70, 70EK, 200 GR-DVL - 160EG, 517, 820U, 9200, 9800 GRX - 5, 5U, 5US GZ-MG - 505</p> <p>Panasonic HDC-HS - 9 HDC-SD - 5BNDL, 9 HDC-SX - 5 NV-DS - 27B, 38 NV-GS - 18EF-S, 75EG, 150, 200, 300B NV-VZ - 17B, 18 PV-DV - 901, 951 PV-GS - 65, 70, 80, 83, 85, 150, 180, 200, 300, 320 PV-VM - 202 SDR-H - 18, 20, 200 SDR-S - 100, 150 VDR-D - 50, 210, 220, 230, 250, 300, 310 VDR-M - 50, 70, 70E, 95</p> <p>Samsung SC-D - 23, 27, 33, 67, 80, 86, 180 SC-DC - 164 VP-D - 80, 340</p>
Thread Size	Other Popular Thread Sizes/Camcorder Models (27mm, 28mm, 30.5mm, 34mm, 40.5mm, 43mm)

27mm:	<p>Canon DC - 10, 20, 22 ELURA - 100 MV - 3i MVX - 450, 460 S - 1</p> <p>JVC GR-D - 201US, 230, 244, 250, 270, 270US, 290, 295, 295U, 350, 370, 395, 396, 396US, 750, 770, 796, 850 GR-DA - 30US GR-DVM - 55, 75 GR-DVX - 9, 400EG, 707 GR-DX - 27, 28, 28E, 37E, 77, 77E, 78, 97 GZ-D - 200US GZ-MG - 20</p> <p>Panasonic NV-DS - 60, 65 NV-GS - 10, 11B, 15, 22, 30, 33, 55, 120 PV-DV - 103 PV-GS - 2, 9, 12, 14, 16, 19, 31, 33, 55</p> <p>Samsung SC-DC - 165, 363, 365, 372 VP-D - 361, 362, 363, 364W</p> <p>Sharp VL-NZ - 100U, 250U</p>
28mm:	<p>Canon ELURA - 40MC, 50 MV - 5iMC, 6i ZR - 100, 200, 300, 400</p>

30.5mm:	<p>Canon ELURA - 65 MV - 400i, 600, 630i, 650i, 700, 700i, 730i MVX - 101 OPTURA - 300, 400, 500 ZR - 25MC, 40, 45MC, 50MC, 60, 65MC, 70MC, 80, 85, 90</p> <p>Hitachi DZ-GX - 3100A DZ-MV - 350A, 780A, 780E</p> <p>JVC AG-EZ - 20 GR-AXM - 17U, 18 GR-D - 23, 23E, 27, 34E, 53E, 54E, 72, 73, 73AG, 73E, 650 GR-DF - 450, 470, 570 GR-DX - 25, 95E, 106E, 300E, 300US GR-SXM - 38 GZ-D - 93 GZ-DX - 75, 95 GZ-MC - 100 GZ-MG - 21, 67, 70, 77, 100, 130, 155, 200, 255, 330H GZ-MS - 100</p> <p>Panasonic NV-GS - 17, 21EG-S, 25, 27 PV-DC - 252 PV-GS - 25, 29, 32, 36, 39, 59 VDR-D - 100, 200 VDR-M - 75</p>
34mm:	<p>Canon DM-MVX - 2i ELURA - 70, 80, 90 MVX - 4i, 20L, 25L, 45i, 200, 200i, 250L, 350i OPTURA - 30, 40, 60, 200MC, 600</p> <p>Hitachi DZ-BX - 35A DZ-GX - 20A, 20E, 3200A, 5020A, 5080A DZ-HS - 300A, 500A DZ-MV - 730A, 750</p> <p>Panasonic VDR-M - 53, 55</p>
40.5mm:	<p>Sanyo HD - 1000, 1010</p>

43mm:	<p><i>Canon</i> <u>VIXIA</u> - HV20, HV30</p> <p><i>Hitachi</i> <u>DZ-BD</u> - 7HA, 70A</p> <p><i>Panasonic</i> <u>AG-DVC</u> - 7, 20 <u>AG-HSC</u> - 1UP <u>HDC-DX</u> - 1 <u>HDC-SD</u> - 1 <u>NV-GS</u> - 500 <u>PV-DV</u> - 950</p>
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Example 4: Raynox Clip on Lenses. In the early days THC-Jumpers used cheaper wide angle lens options like a step-up ring with the right thread for the camera epoxy-glued on a Raynox 0.3x lens.



This is definitely a less expensive solution and works fine, but qualitatively there is no comparison to any of the above listed high quality wide angle lenses.

Make sure before you order a lens that you check the right thread size of your camera, that it fits properly (**best performance is without any adapter/step-up or step-down rings!**)

Another important fact to take in consideration: Some camcorders will vignette when used in photo mode. These camcorders use the entire CCD sensor when on photo mode and reserve some space around the edges of the CCD when on video mode. This is a buffer reserved for the digital steady shot function which automatically digitally re-samples the images frame by frame using the edges of the CCD to compensate for and effectively reduce camera shake. This is the reason for the wider view and the higher pixel rate quoted for photo mode. Note also that viewing DV video on a PC shows frame areas outside of the screen safe area for television viewing resulting in a wider picture.

Again, a huge list of good quality lenses. Try them out, ask your THC colleges around you. All those lenses mentioned above have been on the market for a while, some jumpers prefer this model some prefer the other. With camera lenses in general, photo camera lenses or video camera lenses, in many cases the price reflects the quality of the lens.

3.6.4. Altimeters

Section 5.1 - General Requirements of the APF Operational Regulations (15th of December 2006)

5.1.8. An approved and functioning visual altimeter set to indicate height above the DZ shall be worn on all descents. The altimeter shall be securely mounted so that the wearer can observe it without difficulty throughout the descent.

Section 7.0 - "Additional Operation Procedures" of the APF TOM (15th of December 2006)

7.4 Handycam Requirements

7.4.1. Prior to using Handycam on a Tandem jump with a Tandem Student the Tandem instructor shall have:

....

- Audible altimeter is mandatory for Tandem Instructors with less than 50 Handycam tandem jumps.*
- Audible altimeter is mandatory for Tandem Instructors using a visual altimeter located other than on the camera hand.*

During a THC descent it is even more imperative that we wear a very good visual altimeter because of the multiple tasks we have.

Height awareness throughout the whole dive is still rule number one!

Preferable is a good visual altimeter on the HC-Hand, as seen on the following photos. The camera hand has to be in front of our face for most of the time during the descent anyway for good footage and makes it easy to read the altimeter as at the same time.



If a THC jumper does not wear his/her altimeter on the hand where the camera is, like in the following examples, an audible altimeter is mandatory for APF members in Australia. Also for a Tandem Instructor with less than 50 THC jumps (APF Handycam requirement).



If it comes to the question Audible Altimeter for all THC jumps *YES or NO*, you will find different opinions again. The APF requires clearly an Audible Altimeter for Beginner THC Instructors and those, who do not wear their visual altimeter on the THC-hand.

In the early years of THC the APF required on ALL THC JUMPS an audible altimeter device. After the 15th of December 2006 this requirement didn't exist anymore, because the majority of the Rule-Making APF-Members voted against it and said it is not necessary for experienced THC jumpers. This might be true in most cases, but wearing an additional audible altimeter on all your THC doesn't hurt either. Any help in keeping your height awareness throughout the dive will be an advantage. Especially in the rare case of a distraction. An audible device will add extra safety. Think about it and judge for yourself!

The market offers a great variety of **visual**, audible and combinations out of both **altimeters**.

Here are some of the most common devices:

◆**Analogue:**

*Altimaster II + III (Galaxy):



*FT 50 Altimeter



◆Digital:

*L&B (Larsen & Brusgaard) VISO:



*Suunto Wristop Computer with Altimeter Functions



Suunto X-Lander



Suunto Vector

◆Analogue Display with Digital Accuracy

*The Altitrack by L&B



◆Pure Audible Altimeters:

*SOLO by L&B



*OPTIMA by L&B



*PRO TRACK and PRO DYTTTER (older models) by L&B



*NeoXs by Parasport



◆Visual and Audible Altimeter in one device:

*Altimaster Neptune (Audible function as well):



*Skytronic GFX (Audible function as well)



Larsen & Bursgaard offer for their Audible OPTIMA Altimeter also a visual device, the OPTIMA LCD. A visual altimeter indicator which can be attached to your skydiving goggles. Extra cables, maybe an extra safety device for your THC jumps or an extra distraction?!



Again a variety of great visual and audible altimeter products. The choice is yours. Additional help in determining the right opening height during your THC skydive is always something we should aim for! Don't just think about the perfect, 99% of the Tandem jumps, think also about the small amount of problem/malfunction/ distraction/ "crazy" passenger jumps, which can make the difference!

3.6.5. Clothing

Most of us learned during our TM-Course to wear a more baggy jump-suit for Tandem-Jumps, especially in the beginning, when we started with Tandem Skydiving. Those suits will help with stability and flying control.

Too much drag on your arms during a THC jump can create unsteady footage. The camera hand can shake a lot, which will result in poor video quality.

The best way to avoid this, is to have the right jump-suit style with less drag on your arms and a bit more on your legs for better flying control.

THC flying is done mainly with your legs. This technique is something most of us TM's develop after doing many Tandem jumps. Make sure you are ready for it before you start taking the HC up.

If you need lots of baggy cloth for extra drag to keep your Tandem jumps in control and stable, ***then you are not really ready for THC!***

**Some Tandem Instructors jump even in T-shirts & shorts
without much drag at all.**

**Be careful,
don't compromise for the THC.**

Choose the right jump suit for your personal skill level.

Your Tandem job is #1 and your THC footage is an extra bonus!

3.6.6. Rigs & Canopies

Most of the TM's are not in the situation that they can afford their own Tandem rig or choose at the DZ the container and canopy of their choice.

"We take what we get"

But the reality is that some rigs and some canopies are more suitable for THC than others.

Of course it is possible to do THC jumps with all available Tandem containers and almost all Tandem canopies on the market, but some are just more comfortable and safer for the THC job than others.

Container System:

Here are for example the three most available container/rig systems on our DZ's:

◆Strong



*The Strong container/rig gives the Tandem pair a nice comfortable horizontal flying position in freefall, which makes filming THC easier. The main reason for this is the centred attachment point of the drogue system to the container.

*The Strong also gives the option to have both drogue release handles attached to the right side of the container. The side where the THC-Jumper will have his/her free hand. That means he/she can check and operate both drogue release handles easily during freefall.

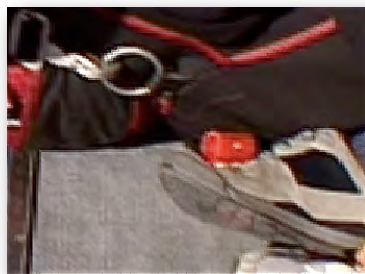
◆**Vector(NEXT/Paratech)**



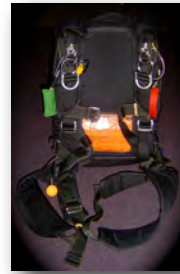
*The Vector container/rig is an older, but reliable Tandem system. It gives the Tandem pair a quite steep flying angle in freefall, caused by the drogue attachment point on the container right at the bottom end. This is not ideal for THC.

*Also the drogue release handle on the left hand side (HC side) can easily be dislodged by moving around in the aircraft.

**Important to double/ triple check the drogue release
in the door, just before exit!**



◆Sigma



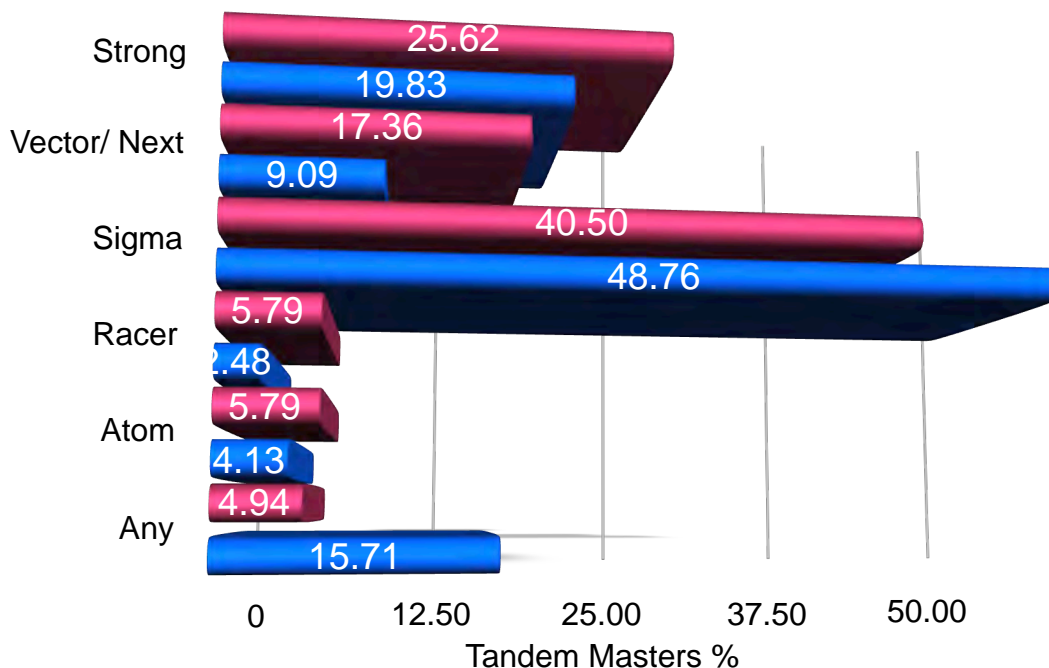
*The Sigma/ Micro Sigma container/rig system is the most advanced and safest system on the market, not only for THC. The unique drogue attachment disc, placed more towards the centre of the container gives a very safe drogue deployment and release sequence and a comfortable flying position for the Tandem pair.

*The unique connection of both drogue release handles/golf balls with each other provides security for the TM. One drogue release handle on each side. Double/triple checking of the left hand side drogue release in the door, just before exit is still recommended!

*The relatively new developed “Skyhook” system available in all Sigma rigs, for a quick and clean release of the reserve parachute after a cutaway can be a huge advantage for THC jumping.

■ used ■ preferred

Diagram* 16: What containers are used and preferred for THC?

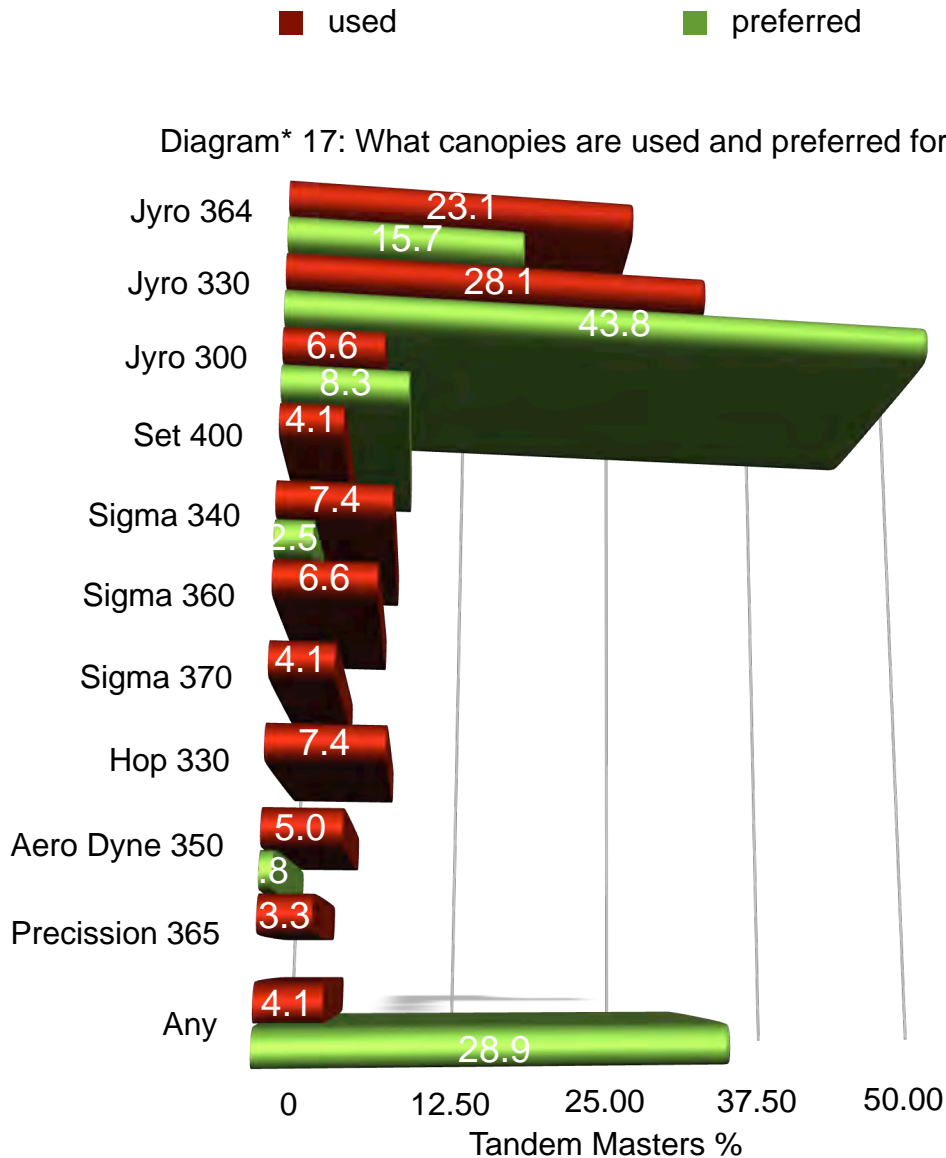


As we can see in diagram* 16 the Sigma is the most used and preferred container system between the survey participants. But as mentioned before, **“We take what we get”**. THC is possible with all Tandem container systems available on the market and we like what we are used to too.

If you change the system one day and you do your endorsement for the new system, make sure you analyse the new system also in regards of THC, if you will do THC with it. Go through your procedures and you might have to change some of your routine with the new system!

Canopies:

With canopies it is very similar to the container system, we have to use what is available at the DZ’s we are working on. Fortunately the trend of smaller Tandem canopies over the last few years helps THC-Jumpers too.

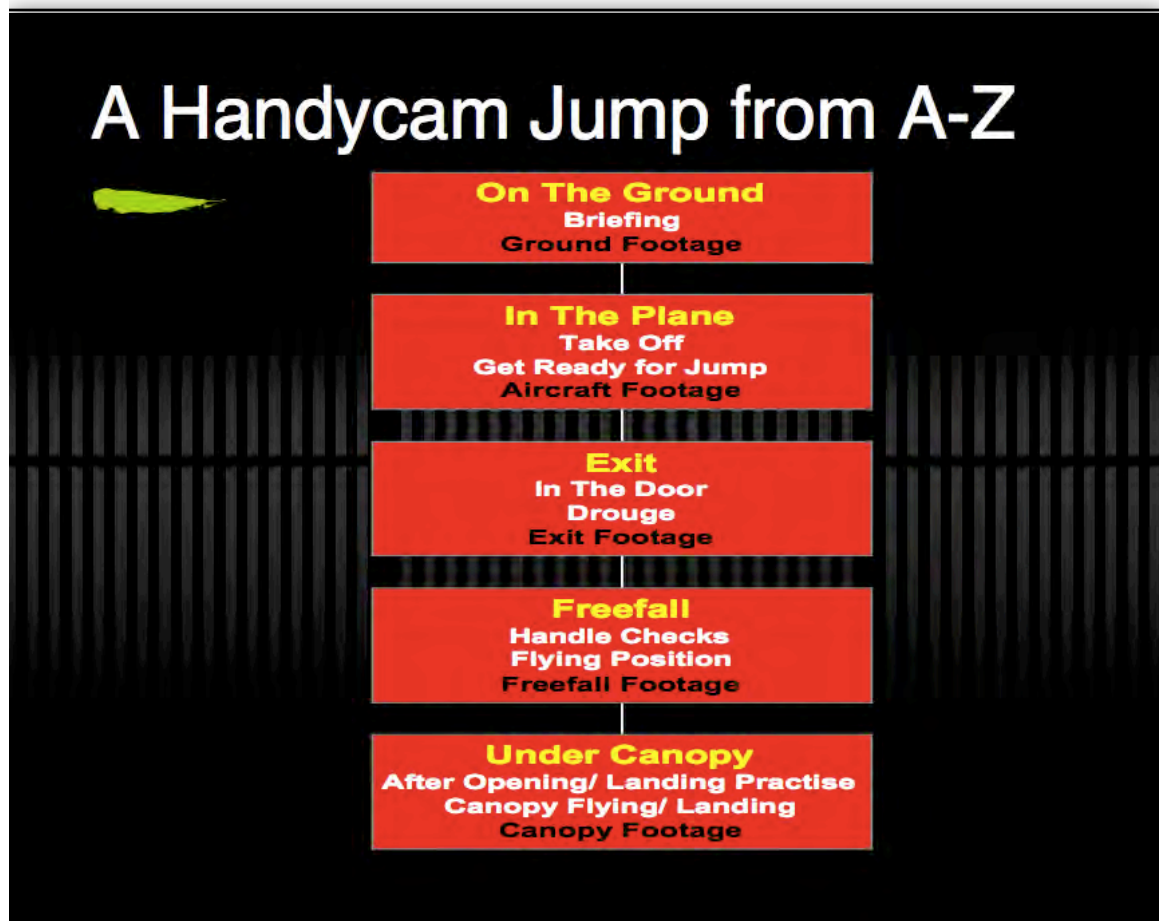


Light toggle pressure, responsive flying design of the canopy and softer openings are not only an advantage for THC jumpers. It seems that the canopy sizes between 330 and 364 square feet are the most frequently used and most preferred Tandem canopy sizes these days.

Flying your canopy with a long straight left HC-arm; getting great, steady, all in the frame footage under a canopy with a size 400 square feet or more is almost impossible and quite a torture for your HC-arm and body.

Tip: A collapsed slider is a great advantage for more steady footage under canopy as well.

3.7. Tandem Handycam Jumping from A-Z



This section will demonstrate a safe routine

***(Important! This is only one example of a safe routine.
Of course there are plenty of other various possibilities)***

and the most important aspects in regards of the THC jump from the beginning, when we meet and brief our Tandem passenger; what we have to look for in the aircraft; how to exit and fly with THC; the opening and canopy ride all the way to the landing and the final interview.

The THC-DVD-Tool will underline all section of this THC routine with film footage examples.

THC-Jumping compared to normal Tandem jumping involves some different procedures during the whole process.

Diagram* 18 shows a few of these procedures and how many of the surveyed THC jumpers do it differently:

For example:

◆ Almost half of them do a different briefing with their passengers, even if it is just letting them know where the camera will be and what consequences it can have if the PAX grabs the camera/hand.

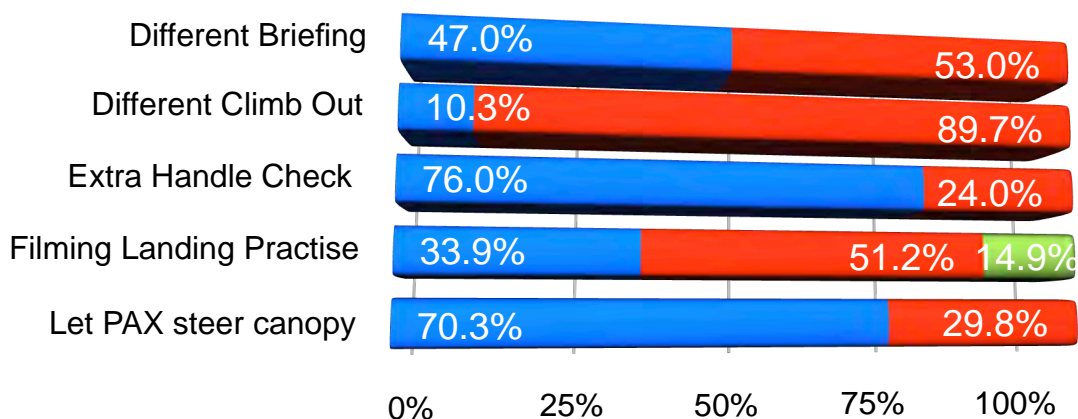
◆ An additional handle check will be done by the majority of THC jumper.

◆ Filming the landing practice under canopy, a great opportunity which is not used by most of the participants.

◆ Great to see that 70.3% of them let their Tandem students steer the canopy with or without THC and more than 90% of them film the whole action, which is great for the final video product.

■ Yes ■ No ■ Sometimes

Diagram* 18: Different Procedures?



3.7.1. On the Ground

*If you see the word “**Film**” in the colour red with a particular procedure step, that means this should be filmed and included for a professional outcome of the Passengers Tandem Video!*

1. Preparation:

Make sure you prepare your camera, glove & skydiving equipment.

- ✓Camera is functional.
- ✓Lens is clean.
- ✓Battery is full.
- ✓Tape has enough space for filming.
- ✓HC Glove, Goggles, Altimeter, Jump-suit, etc.



Tip: Carry or have a set of a spare battery, tape, cleaning tape in the aircraft!

- ✓Check Rig
- ✓**Film**: DZ Logo & Passengers Name



2. Gear up Passenger:

- ✓Introduce yourself to your passenger (**Film**)
- ✓Jump-suit/ jump-pants, goggles for PAX
- ✓Gear up PAX with Tandem harness



3.Passenger Briefing:

✓Brief your passenger with all details like you would do for a normal Tandem jump **PLUS the extras for THC.(Film)**
(Sometimes it is better to repeat certain steps of the briefing again for the video)



The “Extras” for the THC passenger briefing should include at least the following points:

I. Tell them that you take a camera with you and how it works.

II.Show them the location/position of the camera and where it will be in freefall.

III.Explain what happens if they grab your HC-arm/camera.

IV.The PAX should acknowledge the camera a few times in freefall to make their video look good.

V.Big wide angle lens, will be close.

Preferably have the glove with camera on your hand for the whole briefing!



***Emphasise the
“Do Not Grab My Arms”***

Hands Away & Smile



4.Walk to the Aircraft:

- ✓Gear up yourself with all gear checks.
- ✓Walk together with PAX to the aircraft/
Small-talk: “Are you ready for the
jump....” (Film)



5.Second Exit Briefing at the Aircraft:

- ✓If possible do a 2nd exit briefing at the aircraft and again emphasise things **To Do** and **Not To Do**.



3.7.2. In the Aircraft

6. Secure Passenger:

✓Single-point restrains, harness connection, etc.



7. Filming in the Aircraft:

✓Filming: Aircraft Take Off, Passenger, Inside the Aircraft, Scenery, etc.(Film)



8. Last Preparations before Exit:

✓Camera in glove & check if camera is functional when it is **in the glove!!!** Sometimes buttons can be pushed while putting the camera inside. Make sure the camera is turned off during the process.



✓Connect & tighten-up your passenger/harness with you.

✓Double check everything!

✓Last refresher briefing with PAX.
HC on your hand already!

✓Emphasise “**Camera Here/ Smile/ Do Not Grab**”





✓**Remember:** If you have the feeling it is **not** a good idea to continue with the THC at this stage because of: Problem passenger, panic, weather conditions, etc. **stop the camera job now!**

Your Tandem job is #1 and your THC footage is an extra bonus!

3.7.3. Exit

9. Move to the Door/ Exit:

✓ From now on the camera is switched on and try to film as steady and in the frame as possible.

✓ Move to the door with your PAX. If possible keep the camera hand high up, facing the Tandem pair for steady footage.



✓ **Another handle check, visually and/or by touching of ALL handles is a MUST DO!**

Especially the left hand side drogue release is a MUST DO!

Tip: *By facing the camera up during a left hand side drogue release handle check, the footage doesn't have to get cut out later on. This can still look good. Move your arm slowly - looks much better.*



Drogue releases are coming off/out sometimes by moving around to the door!



Here foot of other TM pulls drogue release out.



Here sliding down a seat can pull the handle out.

10.Exit the Aircraft:

✓ Passengers hands should be crossed or holding on to the harness.

✓ Now you have a few options:

*For a nice exit shot have a long straight HC-arm. Camera facing towards the Tandem pair.

*If you are not comfortable with this leave your HC-hand on the door frame to launch yourself off better. As soon as you are out straighten your arm for a nice frame shot.

*If climbing out on the strut in a C182, try to keep your HC arm steady on the strut for shake free and in the frame footage.



✓ *Ready/Set/Arch...* Present your body and right long arm into the relative wind for a quick stable body position and deploy your drogue. Just like a normal Tandem exit without THC, except:

* Your HC-Hand is really straight and extended for great footage here.



* Clean exit and clean footage of leaving the aircraft.



Get stable first!

If you have problems with your passenger because of bad body position etc.

FORGET the camera!

*Put as much effort in throwing your drogue right out into the clean air for a straight and positive drogue deployment.

***Check your drogue!**



3.7.4. Freefall

11. Check your Handles:

✓ Again here we have a few options:

*Physical/touch check like on a normal Tandem jump of all handles. If you like to touch the handles on your left hand side/ HC-hand side, do it in a slow nice motion. This can still look good on video.

(Remember: if the video editing is done on the computers later on, all the bits and pieces can be cut out. It just takes more time).

*or do a physical/touch check of your handles on the right hand side and a visual check for the handles on your left hand side/ HC-hand side.

**Handle checks in freefall are important!
Don't leave them out!**

Most THC jumpers, like those surveyed do the following:
Check all handles just before you exit, especially the drogue release handle on your left hand side!

After the drogue is out check all three handles on your right hand side



and take a good look at your reserve handle on your left hand side.



RSL/ Skyhook are a great advantage to have, especially when you do THC!

12.Flying:

✓Some might fly Tandems with their upper body, but with THC flying with your legs is more efficient. It is a technique which has to be learned first.

✓More legs for turns and better control.

✓Most Tandem Instructors fly with their legs outside and the passengers legs inside which works and is ok for most TM.

Tip: Another alternative leg-position: TM's legs inside and PAX's legs outside. Try this, it is a more advanced position and takes a few goes to master, but leg-steering in this position is much more effective.



✓Right arm is more up and behind to allow stable flight & left HC-arm is mostly in a more down position with the camera facing up for a nice shot.

✓If HC-arm is extended as far as possible sometimes this has to be compensated with the opposite leg.

✓Fly your HC-arm above their arms or below, but be ready:

Danger!

**Be ready they can grab your HC-hand/camera any time!
If this happens don't panic!**

Tell them to let go. Loud if necessary!

And/or

Twist your arm around and up. This should work.



Important!

Keep smiling!

**We all know, this can be hard sometimes,
but your PAX didn't do it on purpose!**

Be professional! ;-)

13.Filming in Freefall:

✓To make your THC video more interesting try different angles, move your HC-hand slowly around. Shoot from the side, above for ground shots, below for nice face shots.



✓Keeping the camera aimed at the student and you. An out of frame shot of the passenger or the TM for too long or too often doesn't look very professional!



✓Be aware of the position of the sun in the sky. Too much sun behind you makes the faces dark. This is the same when it is really cloudy, too many shots from below will make the faces dark because the background is too bright.

✓Try to keep the faces into the sun as much as possible.



**All these different camera angles
and the success of it
depends of course
how the passenger behaves, PAX size, etc.**

**If there are any problems
forget the camera
and fly your Tandem like normal!**

(More about THC film technique in section: 3.9. Film Techniques)

14. Don't forget!:

✓Height awareness is still Rule#1! Don't get distracted!

✓Avoid hand-shakes in freefall. The chances are high they don't want to let go. Extra trouble for nothing really.



15. Drogue Release:

✓Some of us do a second shoulder tap to the passenger before they open the parachute and others don't:

- *Some say there is no need for the PAX to put their arms in if they are in a good body position.
- *A shoulder tap might change the body position to the worse or they get confused or they don't do it anyway.
- *Advantage with having the PAX arms crossed is they are less likely grab the TM's HC-hand/arm on opening.

*The chances that the PAX grabs something as soon as they feel the parachute is about to open is very high. In most cases they grab the harness during the deployment.



Think about it!

✓ Keep your HC-arm extended before and during the deployment. A hard opening can swing you, the PAX and the camera around.
Make sure the passenger doesn't get hit by the camera!

Be ready!
Anything can happen in the those few seconds!

3.7.5. Opening

✓ Hold the camera low and film the passenger, yourself and the opening if possible. **This can be a great shot for the video!**



16. Check Canopy:

✓ Keep your eyes up and watch the deployment so you can react quicker if you have to.



Here a normal THC opening sequence
(Thanks to the outside video flyer!)



1



2



3



4



5



6

- ✓ Problem opening with minor or serious problems:
 - * **Forget the camera** and deal with it!
 - * **If necessary emergency procedures!**



(More about emergency procedures in section: **3.8. Malfunction**)

17. Interview your Passenger:

- ✓ After a good opening without problems and canopy check:
 - * Interview your passenger, film his/her instant reaction. **(Film)**
It's priceless!
 - * Also check your location in relation to other jumpers and the landing area. **Don't get distracted!**



3.7.6. Under Canopy

18. Practise Landing Position:

After you checked your canopy, flight-plan back to the DZ is done, interviewed the PAX...

- ✓ Practise the landing position with your passenger and film it! **(Film)**
 - * Having footage of a good landing practise under canopy is great for the passengers video and can be useful in the case of something really goes wrong on landing and the PAX gets hurt, etc.



Make sure you do a good practise and tell your PAX when you will let him/her know to lift their knees and feet up on finals!

**Something like this
is NOT good!**



19. Let Passenger fly the Canopy:

ONLY if you feel comfortable with it, let the passenger fly the canopy under your instruction. It doesn't have to be for a long time, just a few turns will do it. **(Film)**

*This is a great feeling for the PAX and might motivate him/her to continue a bit more in the sport.

*It is great video footage for the PAX and impressive for a promotion video!

Tip: Let the passenger do a left turn first while you filming the face of him/her. Normally they do it very slow.

After that you say "Now lets do a right turn and we pull a bit more so the turn is faster". At the same time keep filming and help with your right hand the faster turn (pull toggle down). A full spin with the PAX smiling into the camera is excellent footage!



20. Scenery Filming:

✓ Film also the scenery, some land marks, ocean, mountains, etc. and include the passenger in it with a nice wave & big smile to the camera.

(Film)

✓ Do a slow 360 degree turn and film the view. (Film)



Tip: Don't film the whole canopy ride unless you can edit it later. It will be too long and boring for a action packed video.

*(More about THC film technique in section: **3.9. Film Techniques**)*

Observe Flight All The Time! Don't Get Distracted!....

3.7.7. Landing

21. On Finals:

✓ Turn on the camera **early enough!** Best time is just after you took the secondary brake toggles (around 1000 ft would be perfect).

*The easiest and cleanest way for the footage is to have all your toggles in your hands, pull them down that you can turn-on the camera with your right hand (A CamEye switch is easier here). Face the camera during turn-on to you and give a big smile. After that move your HC-arm far out to the left and film the Tandem pair.



*A good THC landing shot needs at least **3 things**:

A long extended arm, good strength in it and **experience** with this flying technique.



Be careful don't over do it. Flaring the canopy with a straight arm for a good shot can pull a muscle easily if you are not used to this.



✓Bum landing or stand-up landing is your choice. Go always for the safest option if you have any doubt.

(Film)

✓Give your passengers early instructions for the landing position.

(Film)



22. Final Interview:

✓ Straight after touch down stay close to your PAX and film both of you during the final interview. (Film)



JOB DONE! WELL DONE!
Basically 22 steps to the final job.



Things to be aware of:

✓ With heavier passengers to keep them in frame during the flare can make the flare difficult. If it comes to it, forget the footage and just land normally.

✓ Avoid late pick up of secondary toggles or to forget secondary toggles at all.

Don't get distracted!

3.8. Malfunction

VERY IMPORTANT!

With this Malfunction Section I am not intend to promote filming malfunctions **AT ALL!**

It just shows what the footage, **IF CAPTURED**, can do to help analyse the cause of the malfunction problem.

Most cases mentioned here are about malfunction footage captured coincidentally with THC while the Tandem Instructor was dealing with his/her malfunction.

*prevent the Skyhook from slipping off or breaking prematurely.
If I didn't have Handycam - I would be none the wiser because everything worked OK, but looking at the footage revealed something that could have caused a problem or more. S.Baker*

Here two examples of valuable THC malfunction/cutaway footage:

In both cases one line got wrapped around the stabiliser which makes the canopy spin. The manufacturer changed the design of the canopies slightly so that this type of malfunction doesn't happen anymore. Also good to see, the clean reserve canopy opening.



1



1



2



2



3



3



**Happy Tandem Master!
Well Done!**

4

Important:

✓ **Treat malfunctions like a normal Tandem jump, forget about the camera!**

✓ In between all your THC jumps you will have normal Tandems without THC. Make sure you **practise pulling the left hand side drogue release as well.**

✓ Before **every jump** go through your emergency procedures in your head.

✓ **Don't change your procedures for THC!** Mental rehearsal is important in our job!

✓ If you get some cutaway footage, that would be an extra bonus. Just don't think about it during your malfunction. **Treat the problem first!**

...and again, with this Malfunction Section I am not intending to promote filming malfunctions AT ALL!

3.9. Side-Spin with THC

The Tandem Side Spin Phenomenon with THC has not been officially researched and tested including several THC Side Spin test jumps yet, like the normal Tandem Side Spin (without THC) Phenomenon, which has been well documented by Bill Morrissey, of Strong Enterprises:

In a Tandem Side Spin situation, the tandem pair which are spinning while on their side, unable to recover, the Instructor should assume the same body position as the student. This action will most likely result in the tandem pair going back to earth. From the back to earth position it will be possible to stabilise to a face to earth attitude, at which point the drogue can be deployed. If the side spin

is allowed to continue, and not abated quickly, the high "G" forces will cause the Tandem Instructor and student to "black out".

The side spin usually occurs when the students legs drop down in front of him, and the tandem instructor instinctively arches as hard as he can. If the pair roll over onto their side, opposing control surfaces (the arms and legs of the Instructor and student), act like a free spinning propeller in a high wind. The spin naturally increases in speed and thus G forces.

Proper adjustment of the student's harness is one of the important factors in avoidance of the side spin. The student's hips must be securely locked to the Instructor's hips. The hip junction of the student harness must not be allowed to ride up above the hip bone. It should be secured below the hip bone. Additionally, thorough training, with emphasis on proper leg, head, and body position of the student is paramount.

I personally have experienced one tandem side spin myself in 6000+ Tandems, without THC and I can confirm, if things go wrong it happens quick, especially in a side spin scenario. The Instructor has to keep his/her head and react quickly as described above by Bill Morrissey.

With a Tandem Handycam the procedures are the same as the example video of a THC Side-Spin (This video will be included on the THC DVD Tool):

<http://www.youtube.com/watch?v=ieE1bQQ8tEE>

According to the report of the jumper the THC didn't make any difference in the building-up or the outcome of this particular Tandem Side Spin scenario.

But of course, extra weight on your hand from the camera has to be taken into consideration. Not as an initial cause for a side spin, but in controlling side and start spinning.

The extra weight and the effects of centrifugal forces during a fast spinning side spin can make it more difficult to bring your arms in for proper proceeding with your emergency procedures. More weight on your hand/arm because of a THC-camera might add to extra difficulties.

Keep this mind, dealing quickly if you feel a side spin build-up; forget about the camera; bring in your hands close; assume the same body position as your passenger.

Tandem Side Spin scenarios are serious with THC or without, best way to avoid them is to be prepared. Proper adjustment of the student's harness, proper leg, head and body position of the student and yourself are extremely important!

3.10. THC Filming/ Editing

3.10.1. Script & Tips

To present a professional video product after the jump to the customer, your Tandem passenger, the following points are to be considered in regards of Tandem-Handycam filming and editing:

1. Ask yourself, “***what does your PAX really want?***”
2. Work out an **interesting script** for your THC video.

Here is a Script example, try to film the following:

- (1) Company logo.
- (2) Manifest/ Load board with PAX and TM names.
- (3) Introduction PAX and TM, Interview: *Why they are here and what they are going to do?* etc.
- (4) Briefing on the ground.
- (5) Walk to the aircraft.
- (6) Take off and reaction of PAX.
- (7) Scenery on the way up to height.
- (8) Last interview before exit.
- (9) Exit.
- (10) Freefall:
 - *Change camera angles. Film from the top, bottom and side.
 - *Maybe point out land marks (Lighthouse, Ocean, Mountains, etc.).
 - *Maybe make a funny face (but keep in mind it is not only about you, the TM).
 - *Keep both of you in the frame. Don't cut the Tandem pair off too much!
 - *Consider the light situation: Too much sun or clouds in the background. Keep the faces in the sun most of the time.
- (11) Canopy opening
 - *Nice shot from the bottom with PAX, TM and Canopy opening.
- (12) First reaction of the PAX after opening. Interview: *How was it?*

(13)360 degree scenic footage by holding the camera towards the Tandem pair and fly the canopy 360 degree around.

(14)Landing practise.

(15)PAX flies the canopy. First slow left turn, than faster right turn/spin with TM's help.

(16)On finals keep a long extended HC-arm and film the landing.

(17)Final interview and finish it with a spinning camera towards the sky or you spin yourself with the camera or a nice passengers Good-Bye-Wave.

Work out your routine and stick with it as much as possible. This will make your THC filming job easier every time you jump.

3. During filming keep in mind your editing job, which you have to do after the jump:

*You can leave the camera on/recording for most of the time and do a lot of editing/cutting out later if you have a computer. Very time consuming and only good for producing a couple of THC videos per day.

*Better is to do the right selections of film footage while you are filming. **Don't record scenes for too long** (before and after the freefall).

*Try to use **transition/effect features in your camera** while filming **before exit** (e.g. Overlap, Cross-dissolve, Fade-in, Fade-out, etc.).

*Under canopy you can not use the cameras features, but you can **create nice transitions by creative filming**. For example:

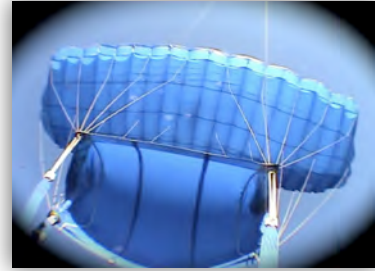
-After you filmed the PAX steering the canopy move the camera facing you, show big "Thumps up" for a good steering job and continue moving the camera to your sunglasses and stop recording. Next time you start



recording, start with the camera close to your sunglasses again and move to the object you want to film next. Now you have made your own transition.



-Same can be done by finishing a scene filming the canopy and next time when you start filming the next scene start with the canopy shot again.



-Or move the camera to the top of your left hand side shoulder. The lens has to touch your shoulder and next time start at your shoulder and move to the next object you want to film. Now you have created a Fade-in and Fade-out. Very simple. Be creative!

-Even finishing a shot as a nice scenic object (e.g. ocean, mountain) and start the next shot at a complete different object can look nice. Just make sure you don't move the camera to quick.



4. Good steady filming is important!

5. Consider the ethical point of view while you are filming too. Make sure your passenger has the right clothing on for a Tandem jump and you choose the appropriate camera angles (e.g. Boob shots, etc.).

6. Sometimes after a bad PAX body position or a HC-hand grab or a hard opening it is hard for some of us to keep smiling. Take a deep breath and think about a nice jump you did. :-)

Be professional!

3.10.2. Editing Equipment

Most DZ's use a normal **TV - MP3/CD player - DVD Burner System** to transfer THC footage with music onto a DVD disc.

A music mixer will blend in and out the original sound of the jump, like interviews, freefall-sound, etc. with the chosen music for the Tandem video.

This is a straight forward editing system which can produce a Tandem DVD in about 10-20 minutes.

Disadvantage, it doesn't give much room for cutting scenes out or special editing effects like video software on a computer.

The **Computer System** editing has been more time consuming in the past, because of the slow proceeding speed of older computer systems, but in most cases it will deliver a more professional product.

The computer hardware and software these days is getting better for faster and simpler editing.

Apple/Mac computers with their software iMovie or FinalCut Express/Pro for example can be seen at more and more DZ's who like to offer their customers the best video product possible.

The disadvantage with iMovie is that it takes at least 20-30 minutes to produce a 8-10 minute video (uploading/editing/burning) **if the editor is quick**. FinalCut Express/Pro is a much quicker and more efficient mac editing software, if placed in the right computer.

Recently there has been a new editing system came available with some extra Plug-Ins, which are especially helpful for our skydiving industry/Tandem Video Production.

Software:

Sony Vegas Movie Studio 9 or Pro

Sony DVD Architect Pro 5

Plus the workflow enhancement tool Ultimate S Pro 4.0 by VASST

A fast and multitasking editing system package. This system is especially important if capturing, editing, rendering and burning of multiple videos **at the same time** are crucial for your DZ. A very simple and efficient editing solution made for PC (with a MAC the software "Boot Camp" or better "Parallel" will make the Sony Vegas editing package run on newer apple intel processor computers as well). To find more about this system go to www.vasst.com

VASST even offers a great tutorial DVD “*Tandem Videos Made Easy*” which helps any camera flyer, Tandem handycam jumper, video editor or drop zone operator to accelerate their video production flow and the way how to shoot your Tandem skydive videos.

- Shut for the cut! -

Only record what you like to see later on the movie, it will save a huge amount of time while you editing!

Some bigger DZ's work around these time consuming editing procedures by adding extra editing staff or by a good organised step-by-step production line.

3.10.3. The Final Video Product Format

If the final video product will be delivered to the passenger on a DVD, VHS, Web page (e.g. Real Xtreme, U-Tube), etc. it doesn't matter, the basic format of a nice presentable video product should include a **minimum of 3 sections**:

1. Before the Freefall:

- ◆ On the ground - 1st music song
- ◆ Take off/in the aircraft: - 2nd music song

2. Exit/Freefall: - 3rd music song

3. Canopy Ride/Landing/ Final Interview: - 4th music song

Additional sections can be added for a more rounded and valuable video product:

◎ Short **Intro film** with special sound effects and company logo at the beginning of the DVD and at the end of the DVD **the Credits** of the people involved.

◎ After the landing interview fade out and fade in into a **Highlight Slow-Motion Section**: Freefall, Opening, PAX steering canopy, Landing, final hand-shake, etc. - 5th music song

3.10.4. The “Deluxe” Package

We have seen in diagram*11 that most of our customers who like to purchase a video, would prefer the “Deluxe” video package. The combination out of THC and TOV footage.

Of course it will be more expensive, more staff is involved and more time is needed to produce the “Deluxe” video package. But the final product is priceless for everyone who would like the ultimate video package of his/her Tandem jump.

Again, with a **Computer Editing System** both footage can be easily combined together. In freefall the camera view can change every few seconds to see the different angles during freefall (from the TOV and THC). Also the landing can be seen from the 3rd person outside view angle and how the passengers experienced the landing from their prospective.

If the editing is done by the more traditional **TV - MP3/CD player - DVD Burner System** the following procedure would be **one efficient way** to do it:

- ◆The TOV flyer films everything like he would do on an outside video: On the ground/ Interview/ in the plane/ freefall.
- ◆The THC flyer films only from the exit/ freefall/ under canopy/ down to the landing and final interview.

This way during the editing you have to transfer and edit the TOV footage first until he/she opens the canopy and afterwards add the THC footage from the exit all the way to the final interview after landing.

If desired the landing footage filmed by the TOV flyer can be added at the end as well. This takes more time but looks better again.

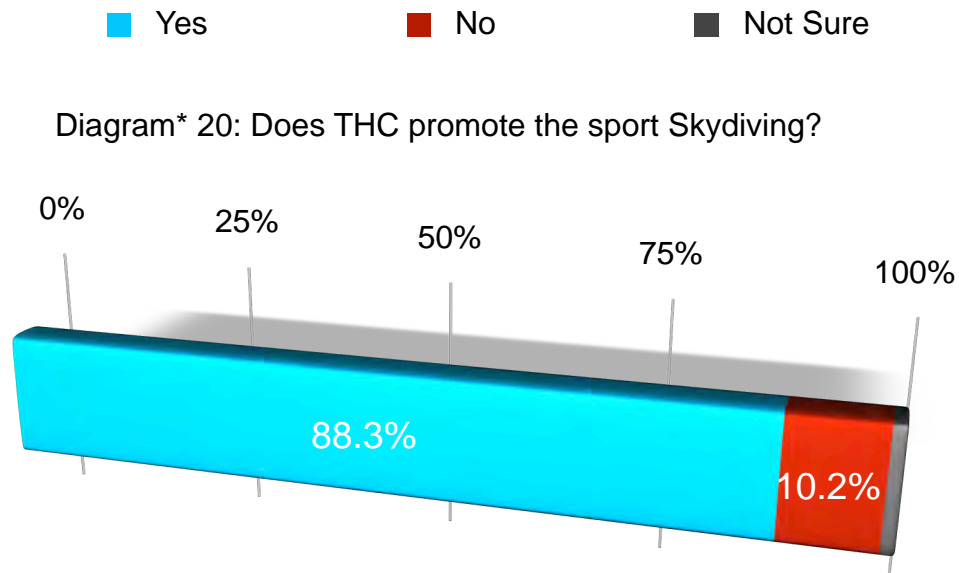
Both, TOV and THC flyer should co-operate which each other and work out what they are going to film before the jump. Working out signals and brake off height and procedures.

Tip: The THC jumper can also film the TOV flyer with the passenger together for a nice touch, if they line up in a good angle during the freefall.

3.11. Marketing with THC

Marketing with Tandem-Handycam as an additional advertising tool.

Diagram*20 shows that the majority of the survey participants believe THC does promote our Skydiving sport.



Of course the THC final product has to be good and presentable. The same rules apply for the final TOV product. The advantage with THC is:

- *It is the more inexpensive video product and might reach even the budget Tandem passengers, where TOV maybe doesn't.
- *It shows also the interaction between passenger and Tandem Instructor under canopy. A very interesting and also long part of the whole skydive.
- *It can be offered at smaller DZ's with smaller aircraft and less staff.
- *and so on... the list is long.

If we use THC as an **additional** video product and present it that way to our customers, we will get more videos out into the homes, which will definitely promote our sport more.

Don't fall into the trap and just offer THC. It might work for some of the DZ's, but they cut themselves short.

Having more video product options puts the customer psychologically under more pressure to make a decision which video product they should get and not anymore *"Do you want video or **not**?"*.

Statistically the customer tends to buy a video product more frequently if you give him/her many choices instead of just YES and NO. As the example shows (already explained on page 27) where THC even boosted TOV sales at some DZ's.

How many times did we have the situation where we asked the passenger: *"Do you want a video of your Tandem jump?"* and they said *"No Thank You! It will be all "up there", I will keep it in my mind"* and later on after they landed, they said:

"I wish i would have taken the video!"

Why does this happen?

- 1.They didn't know what to expect.
- 2.Bad presentation of the video products at the DZ before the jump.

What to do?

- 1.Better video product presentation at the manifest/ booking desk. A great big TV/Computer screen can be expensive, but the return on it with more sold video products and Tandems will cover the extra expense relatively quick. An excellent edited video example, which shows the difference and/or the combination of all video products offered at your DZ shown on a big screen will help to boost your video sell (THC **and** TOV as well if done right!)
- 2.If that doesn't work there is still the **"Spec-Video"** option. Experiences show more than 50% of "Spec-Videos" get sold after the jump.

Important here, don't be to pushy!

Some customers really don't want a video.
They come for their own personal experience.

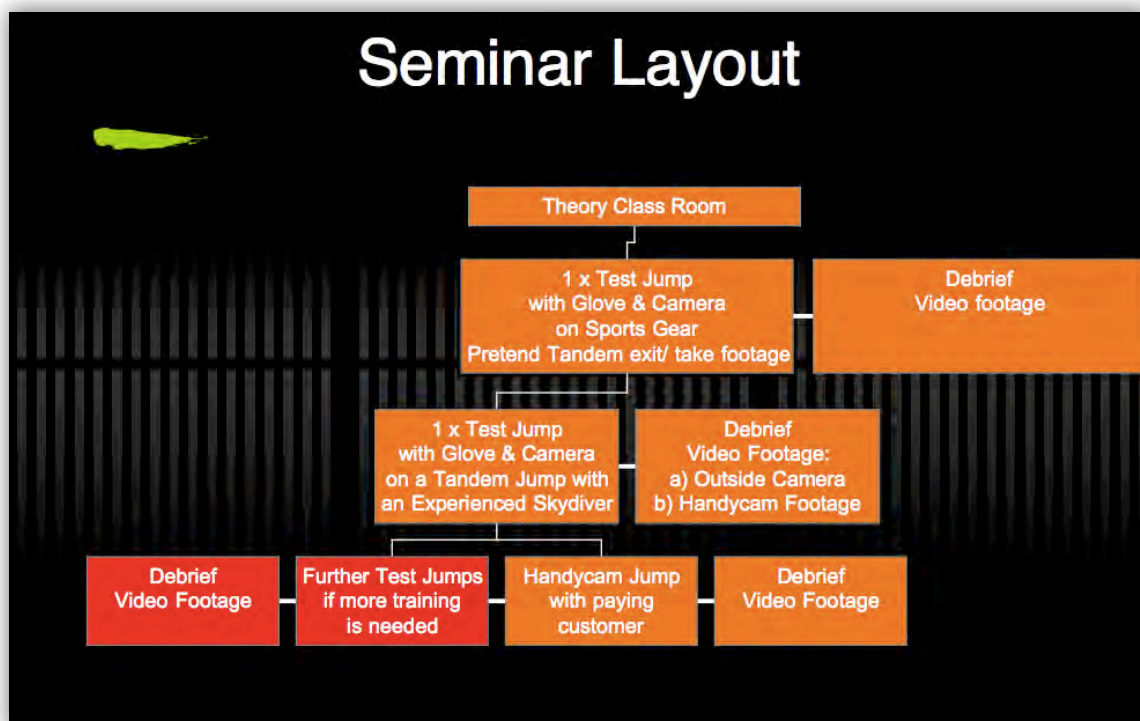
And this has to be respected!

4. THC Seminars

I personally have some great experiences with running THC seminars. If the presenter is well prepared and has a nice productive structure throughout the seminar the information given will be extremely welcomed by the seminar participants.

The seminar conductor should preferably be an experienced THC jumper and Instructor B (DZSO).

Here a possible THC Seminar Layout:



Starting with **THC-Theory** (Class Room). The “THC-DVD-Tool” should be used for this particular section of the seminar. It is filled with all the important information from this HC-Thesis, PLUS a variety of video examples on all important sections. It also shows examples of complete THC videos and the “Deluxe” package product.

Step-by-step follow the “THC-DVD-Tool”. Use the information shown on the DVD and the information given in this HC-Thesis. Also add your own personal experiences of course.

The **Practical Part** of the seminar includes:

1. One **test jump with glove and camera on the sport rig**. The jumper should get used of having something on their arm. They should pretend to have a Tandem customer, try to film different angles and keep it all in frame.

After the jump the students will be debriefed altogether by watching their captured video footage of the jumps.

2. **Second test jump with glove, camera and Tandem passenger (passenger has to be an experienced jumper)**. Best is if the seminar participants can change between each other, so that everyone has been the TM and passenger as well. Ideally there would be an outside video flyer per jump. This footage is very valuable for the debrief afterwards (All together).

3. If the jump **wasn't to the satisfaction** of the seminar conductor the jumps has to be repeated with an experienced skydiver as passenger and debriefed again.

If the last jump **was successful** the Tandem Instructor can start doing THC jumps with a real Tandem passengers. Preferably the next jump should be debriefed by the seminar conductor as well.

5. Conclusion/Summary

Conclusion

At last a few comments of some survey participants to the survey question #40:

Any topics you would like to see covered in the “Handycam DVD Tool”, apart from the obvious subjects mentioned already in the questionnaire?

One person wrote: *“NO - it is all too easy, any experienced TM could do it (THC) with good results”.*

He is probably right in some cases, many of the experienced TM will do THC without any problems and with good results.

But we are not all experienced TM's and there will be a lot of new TM's and THC jumpers coming in the future.

And on the other side, experienced TM doesn't necessary mean THC skilled TM.

I personally know a few very experienced TM's with hundreds and even thousand of Tandem jumps who haven't done THC jumps yet.

For some of them the whole film subject, if it is TOV or THC is too much. They are not interested at all in filming and the video technique, which comes with it. Others have personal reasons for not doing THC, but they are all very experienced TM's.

Another person answered to survey question #40:

“No - well covered. The MAIN TOOL WE HAVE IS TRAINING AND INFORMATION I commend you on your efforts. As you know a well informed trainee or like myself with less than a 1000 THC will benefit from it. I think this is overdue and will be well received.”

Without doubt this person is right as well. Training and information always have been important in our Skydiving sport. **Why not for THC jumps?** We have collated a lot of experiences with this new film technique over the last few years. Why not put it altogether and everyone from zero experience with THC or very experienced can benefit from it?

Even in the “APF Code of Ethics” we will find:

8. *“Continue to acquire professional skills and knowledge, thereby improving our personal competence and knowledge of the sport.”*

9. *“Encourage and assist other to develop good attitudes, skill and knowledge relating to the sport.”*

Summary

- ★ **Be a current, competent and professional Tandem Instructor before starting with THC.**
- ★ **THC is more work and it needs extra attention plus 100% focus on safety precautions.**
- ★ **Get approval from your CI, also for your gear.**
- ★ **Good preparation and make sure to receive professional input before you start.**
- ★ **Dirt Dive your new gear.**
- ★ **Wear appropriate clothing for safety, extra control and your personal skill level.**
- ★ **Brief your Tandem passenger with glove “ON”.**
- ★ **Stop camera job immediately if problems arise!**
- ★ **Danger: “HANDS” Be ready for it!**
- ★ **Observe canopy flight, don’t get distracted!**

Always Remember!
Your are doing 2 jobs at the same time!
Your Tandem Job is #1
and your Camera Job is an Extra Bonus!

Play Safe - Stay Safe!

Stephan Kleinlein

6. Glossary

TM	= Tandem Master
TOV	= Tandem Outside Video
OV	= Outside Video
HC	= Handycam
THC	= Tandem Handycam
PAX	= Tandem Passenger
DZ	= Drop Zone
TI	= Tandem Instructor
THCS	= Tandem Handycam Skydiving
HCJ	= Handycam-Jumper
APF	= Australian Parachute Federation
Ops	= Operational Regulations
HD	= High Definition

7. Acknowledgment

My thesis is the result of observation and experience made, publications read and discussions explored throughout my skydiving career.

Special thanks are given to all my skydiving colleges at Skydive Byron Bay, Jump The Beach in Mission Beach, Skydive Cairns, GoJump Berlin and Skydive XDream Switzerland where I could practise, exercise and gain most of my 8 years Tandem-Handycam-Experiences.

I wish to thank, in no particular order and for various degrees of input and encouragement, the following people who have contributed to this collection of knowledge:

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(Simply Skydive), Greg Hill, Peter Knight, Chris (Commandos Skydivers), Rob (Rainbow Beach, QLD), Mark Brody, Sherrly Neil, Guy, Steve Hill, Luke Oliver, Jojo (Fehbelin, Germany), Adam Davis, Dave (Byron Bay, NSW), Janine (Aerial Skydives, VIC), Terry Riddle, Michael Forrest, Mike Swain, Sue Clifton, Robert Iolini and all of you who filled out my survey.

I would also like to thank Cookie Composite, WayCool Industries, Skydive Solutions (Negee), Deepseed and Royal Lens for their great contribution in developing awesome Skydive products and especially Tandem Handycam products, which make our sport and our job more fun and safer!

My biggest thanks to **Mike Vetter** of GoJump Berlin, who encouraged me to put all my Handycam knowledge and experience together for the first Tandem-Handycam-Seminar

8. Bibliography

Publications utilised in the preparation of this thesis and not specifically cited include:

APF Operation Regulations 15 December 2006
APF Parachute Instructor Manual
APF Training Operation Manual 15 December 2006
APF Annual Report 2007
APF Code of Ethics
Bill Morrissey of Strong Enterprises, Tandem Side Spin Phenomenon

9. Appendixes

Appendix 1: Main Survey-Form, which has been sent out to Handycam Jumpers/Drop Zones AND Non Handycam Jumpers/Drop Zones

Appendix 1 Form A:

Handycam(HC) - Survey

Dear CIs, DZSOs, Operators, Instructors and Skydivers

My name is Stephan Kleinlein, I have been a full time APF instructor for 10 years. I began skydiving 22 years ago. I travel the world regularly and have worked at many different drop zone locations in Australia and Overseas.

Last year I was invited by a very professional drop zone in Berlin/Germany (Go Jump/Berlin/Gransee) to run a handycam seminar for their experienced tandem masters. This seminar was backed by the German Parachute Federation (DFV-Deutscher Fallschirmspringer Verband e.V.), which gave “GoJump-Berlin” the permission to run a handycam test season. At the end of the term the federation had their annual safety meeting, where all the information and experience from GoJump’s first handycam season was collated and presented to the members of the safety committee.

The positive outcome was, that handycam was given the “thumbs up” and is now included in their operation regulations, similar to our own APF Ops.

It might sound strange for some of you, being an experience HC jumper already that handycam jumping is such a big deal in some countries. The fact is, that some skydiving federations see Tandem Handycam Jumping as a very dangerous/ problematic procedure and some ban it totally.

I sense most see us here in Australia/New Zealand, as the pioneers of Tandem Handycam Jumping.

Why? Because we have more that 8 years of commercial experience with it and we have been doing it safely so far.

In all skydiving disciplines, if it is tandem jumping, camera flying, free-flying, CRW, etc. a risk factor is always present. With the right training and professional instructions we have been limiting those risk factors to a minimum.

Tandem Handycam Jumping is becoming popular not only in Australia, but also in many places around the world. Whether we personally like it or not, it will be taking a notable position in our skydiving industry.

Now I would like to combine our collective experiences in handycam into an “APF Handycam Jumping DVD Tool”. This tool should help all CIs, DZSOs to prepare and train all their new handycam jumpers (in most cases Tandem Handycam Jumpers) and maybe to give even some pointers to some existing THC jumpers for those particular skydive jumps (if it is required). Keep it as safe as possible and incident free.

This DVD tool is **NOT** intended to convince anyone. Its purpose is educational, to explore the pro and cons of handycam jumping. It will cover the history of handycam jumping, where it started and why, and technical issues such as the right equipment, different glove styles, passenger

briefing, flying techniques, parachute flying with THC, emergency procedures, the right landing techniques, malfunctions, film techniques, dangers, and more.

It will also show how tandem handycam jumps can be an additional advertising tool, how you might even boost up your outside video jumps with an additional product like THC if a DZ decides to go that way.

This DVD tool will be part of my APF Instructor A thesis.

I would very much appreciate it if you and your instructors would take a few minutes and give me your input, your experience, whether good or bad in regards to handycam jumping by filling out this survey and **please send it back to me as soon as you can.**

As simple as it might be for you or even if you are not a real fan of handycam jumps. All input counts and all opinions will be respected.

Thank you very much for your time!

Please send the survey filled out back to me via email:

oceanbluesky@mac.com

THANK YOU!!!!!!!

Blue skies
Stephan Kleinlein

Handycam (HC) Jumping/ Tandem Handycam Jumping (THC) Questionnaire

At which drop zone do you jump (optional):
This question's purpose is only to add questionnaires from the same DZ together for a more correct statistic
 Australia NZ Other _____
DZ Name: _____ (optional)

1. What is your position at your DZ:
 Operator/Owner
 CI
 DZSO
 Tandem Instructor
 Other Instructor
 Video Flyer
Other _____

2. When did you first hear about THC Jumping?
 In the last year
 2-3 years ago
 4-5 years ago
 6-10 years ago
 Over 10 years ago

3. How long do you think THC Jumping has been practised in Australia/NZ, or...?
Since _____ in Australia Since _____ in New Zealand
Since _____ in _____

4. Does your DZ offer THC Videos to their tandem passengers?
 Yes If Yes, what is the percentage of THC of all tandem jumps?
 Less than 5%
 5-25%
 25-50%
 50-75%
 more than 75%
 No

5. Does your DZ offer Tandem Outside Video (TOV)?
 Yes If yes, what is the percentage of TOV of all tandem jumps?
 Less than 5%
 5-25%
 25-50%
 50-75%
 more than 75%
 No

6. Does your DZ offer TOV & THC combined together (eg. Deluxe Video Package)?

Yes If yes, what is the percentage of it of all tandem jumps?

- Less than 5%
- 5-25%
- 25-50%
- 50-75%
- more than 75%

No

7. Do you think THC is a good idea to promote our sport?

Yes

No

8. Do you think THC is a safe procedure?

Yes

No

9. Do you believe THC is taking the Outside Video Job away?

Yes

No

10. Please list any negative points in your opinion regarding THC:

11. Please list any positive points in your opinion regarding THC:

12. Did you have or have you seen any kind of incidents/problems with THC?
 No
 Yes Happened to me I have seen

Please be specific, what happened:

13. How many jumps in total do you have now?

14. Have you personally done Handycam Jumps?
 Yes What kind? (eg, Tandem, Base, Fun):
For how long?: Month: Years:
How many HC jumps in total?:
 No

*If you haven NOT done any THC jumps
please go to question 38 now*

15. If you do THC, how many jumps did you have when you started?:
Tandem jumps:
Total jump number:

16. Do you believe your CI/ DZSO/ Experience Handycam Jumper prepared you or others
Instructors the right way for your first HC jump?
 Yes
 No

17. Did anyone give you professional input before you did your first THC?
 Yes
 No, I started on my own and just tried it out

18. If you do THC, what Glove style do you prefer?

- Stand-Up
- Lay on side
- Both
- Other

19. If you do THC, when do you take your HC glove up?

- On all jumps
- Only on pre-sold THC jumps
- I do Spec-jumps when a video is not pre-sold
- I don't take it up in bad weather conditions
- I don't take it up with potential "problem/ heavy/ extra light/ difficult passengers"

20. What tandem rig do you use when doing THC most times?

- Strong
- Vector
- Sigma
- Racer
- Other

21. What tandem rig do you prefer for THC?

- Strong
- Vector
- Sigma
- Racer
- Other

22. What canopies do you fly when you do THC (Type and size) most times?

Type:

Size:

23. What canopies do you believe would be the best for THC (Type and size)?

Type:

Size:

24. What do you think is the most dangerous/difficult part of THC compare to normal tandem jumps?

25. Do you do a different passenger briefing for your THC?

No

Yes What s different?

26. Do you do a different climb-out for your THC?

No

Yes What is different?

27. What do you do in regards to handle-checks in freefall?

- Extra additional check just before I jump out (already in the door)
- No handle checks, because I can not move hand with the camera
- I move Camera hand for handle checks
- I look to the side, where I can not physically do a check and do a visually check
- No handle checks are necessary, because I checked everything before I jump out
- I do [redacted]

28. Any special flying technic for your THC? [redacted]

29. Did a passenger ever interfere in freefall while you were performing a THC?

- Never
- Yes What happened? [redacted]

30. Did a tandem passenger ever grab your handycam hand?

- Never
- Yes What did you do? [redacted]

31. Did you ever have problems with a canopy opening while doing THC?

- No
- Yes What happened? [redacted]

32. Did you ever have a malfunction while doing THC?
 No
 Yes How many in how many THC jumps?
Was the HC the reason for it? Yes
 No

33. Did you keep filming the malfunction?
 No
 Yes Was the video footage helpful to analyse the reason for the malfunction? Yes
 No

34. Do you film your passenger practising the landing position under canopy (risk management)?
 Yes
 No

35. Do you let your passenger steer the canopy:
 Yes If Yes, do you film your passenger while he/she is doing it? Yes No
 No

36. Have you ever been distracted from your canopy-flying job while you have been filming your passenger under canopy?
 No
 Yes Did you have to land Off-DZ? Yes
 No

37. Have you ever had a problem landing your canopy while doing THC?
 No
 Yes What happened?

38. What do you think is more popular at your DZ for the customer & what is the percentage:
 THC %
 Outside Video %
 Both together "DeLuxe Package" %

39. What do you think passengers would prefer?

THC
 Outside Video
 Both together "DeLuxe Package"

40. Any topics you would like to see covered in the "Handycam DVD Tool", apart from the obvious subjects mentioned already in this questionnaire?

Please send this form back to me:

Via email: Please fill the form out
Save it on your computer & attach the saved form to an email back to me
My email address: oceanbluesky@mac.com

Via fax: - (02)6684 6323 Attn. to Stephan!!!

Via post: - Stephan Kleinlein
PO Box 1252
Byron Bay NSW 2481

***Thank you very much for your time filling out this questionnaire.
Your input is very important to keep our sport fun & safe!***

***Blue skies
Stephan***

Appendix 1: Additional Survey Form, targeting EVEN MORE Non-Handycam Jumpers/ Non-Handycam Drop Zones

Appendix 1 Form B:

Dear Skydive Drop Zones

Dear Fellow Skydivers

Dear Non-Handycam Jumpers

You might have seen and filled out my Handycam survey at the beginning of this year already. In the moment I am at the final stages of completing my Instructor A Thesis for the Australian Parachute Federation (APF).

It is almost complete and it just needs some final important input from your side to make it an invaluable training/information tool.

This time I am targeting more the NON-Handycam jumpers and NON-Handycam Drop Zones for their valuable input.

In my first survey this year I targeted ALL Skydivers and ALL Drop Zones, if they do handycam or not, but unfortunately most of the NON-Handycam drop zones didn't answer.

Here just a quick reminder what it is all about:

My name is Stephan Kleinlein, I have been a full time Australian Parachute Federation (APF) Instructor for over 10 years. I began skydiving 22 years ago. I have been travelling the world regularly and have worked at many different drop zone locations in Australia and Overseas.

In the moment I am working on the final stages of my instructor A thesis with the topic: Instructional Tandem-Handycam DVD Tool.

With this DVD tool I would like to combine the collective experiences in handycam from as many sources I can get valuable input from.

This tool is **NOT** intended to convince anyone TO DO or NOT TO DO tandem handycam. Its purpose is educational, to explore the pro and cons of handycam jumping. It will cover many different sections from the history of handycam jumping, where it started and why, and technical issues such as the right equipment, different glove styles, passenger briefing, flying techniques, parachute flying with THC, emergency procedures, the right landing techniques, malfunctions, film techniques, dangers, and more.

Tandem Handycam Jumping is becoming popular not only in Australia, but also in many places around the world. Whether we personally like it or not, it will be taking a notable position in our skydiving industry.

Now here is your chance to have your input, to show everyone your experience WITH or WITHOUT Tandem Handycam and take part of this informative instructional tool.

The tool will help and inform CIs, DZSOs, Instructors to prepare and train all their new handycam jumpers (in most cases Tandem Handycam Jumpers) and maybe to give even some pointers to some existing THC jumpers for those particular skydive jumps. **Keep it as safe as possible and**

incident free.

In all skydiving disciplines, if it is tandem jumping, camera flying, free-flying, CRW, etc. a risk factor is always present. With the right training and professional instructions we have been limiting those risk factors to a minimum.

I would really appreciate if you could give me ONE MORE a little bit of your time and inform me about your situation in your area, country, federation, organisation, drop zone in regards of Tandem Handycam Jumping. It is only a few questions (see below), promise.

As simple as it might be for you or even if you are not a real fan of Handycam Jumps or if you don't allow or support the idea of Tandem Handycam Jumps in your region, ALL INPUT COUNTS, ALL OPINIONS WILL BE RESPECTED and are REALLY important to get a complete view of the whole topic.

Below, you will find a few questions. Short or more detailed comments, everything is welcome, whatever suites you best.

Please keep in mind your input will help our whole global skydiving community!

Please email me your Tandem Handycam Point of View back as soon as you can. I really appreciate your time and help!

Yours sincerely
Stephan Kleinlein
Stephan Kleinlein

1. What is your position (CI, DZSO, Tandem Master, Camera Flyer, Operator, etc.)?
2. How many jumps do you have and how many years are you in the sport?
3. Do you do and/or allow Tandem Handycam (THC)Jumping ?
4. If Not, please follow to the next questions and explain why. Why not?
5. Do you think THC is a good way (and/or additional way) to promote our sport?
6. Do you think THC is taking the outside video job away?
7. Do you think THC is done safely in your country?
8. Any THC incidents you are known of?
9. Any safety issues in regards of THC?
10. What do you think would be the dangerous/difficult part with THC?
11. Is there anything GOOD you could see in THC? If YES please explain.
12. Would you appreciate something like a THC DVD tool for your drop zone/ federation/ organisation?

13. IF there would be a good training tool/aid/procedure for THC would you be interested in doing THC yourself or for your instructors at your place?
14. What would you like to see covered in a THC DVD Tool?
15. Any further important comments in regards of THC from your point of view?

Thank you very much for your input and your time. I really appreciate your help!

Blue Skies
Stephan

Appendix 1: Additional Survey-Form, targeting the Overseas Skydiving Federations/ Associations/ Drop Zones and their members

Appendix 1 Form C:

Dear Skydiving Federations
Dear Fellow Skydivers

My name is Stephan Kleinlein, I have been a full time Australian Parachute Federation (APF) Instructor for over 10 years. I began skydiving 22 years ago. I have been travelling the world regularly and have worked at many different drop zone locations in Australia and Overseas.

In the moment I am working on the final stages of my instructor A thesis with the topic: Instructional Tandem-Handycam DVD Tool.

With this DVD tool I would like to combine the collective experiences in handycam from as many sources I can get productive input from.

This tool is **NOT** intended to convince anyone TO DO or NOT TO DO tandem handycam. Its purpose is educational, to explore the pro and cons of handycam jumping. It will cover many different sections from the history of handycam jumping, where it started and why, and technical issues such as the right equipment, different glove styles, passenger briefing, flying techniques, parachute flying with THC, emergency procedures, the right landing techniques, malfunctions, film techniques, dangers, and more.

Tandem Handycam Jumping is becoming popular not only in Australia, but also in many places around the world. Whether we personally like it or not, it will be taking a notable position in our skydiving industry.

Now here is your chance to have your input, to show everyone your experience with Tandem Handycam and take part of this informative instructional tool.

The tool will help and inform CIs, DZSOs, Instructors to prepare and train all their new handycam jumpers (in most cases Tandem Handycam Jumpers) and maybe to give even some pointers to some existing THC jumpers for those particular skydive jumps. Keep it as safe as possible and incident free.

In all skydiving disciplines, if it is tandem jumping, camera flying, free-flying, CRW, etc. a risk factor is always present. With the right training and professional instructions we have been limiting those risk factors to a minimum.

I would really appreciate if you could give me a little bit of your time and inform me about your situation in your area, country, federation, organisation in regards of Tandem Handycam Jumping.

As simple as it might be for you or even if you are not a real fan of Handycam Jumps or if you don't allow or support the idea of Tandem Handycam Jumps in your region, ALL INPUT COUNTS, ALL OPINIONS WILL BE RESPECTED and are REALLY important to get a complete view of the whole topic.

Below, you will find a few questions, which help to email me your input. Short or more detailed comments, everything is welcome, whatever suites you best.

Please keep in mind your input will help our whole global skydiving community!

Please email me your Tandem Handycam Point of View back as soon as you can. I really appreciate your time and help!

Yours sincerely

Stephan Kleinlein

Stephan Kleinlein

1. Do you allow Tandem Handycam (THC) Jumping ? If Not, please explain why not.
2. How many Drop Zones (%) do offer THC in your region/ country?
3. Any THC incidents?
4. Any safety issues in regards of THC?
5. Do you have some instructional tool/aid for your instructors, which would help them to get into THC?
6. Any important comments in regards of THC from your point of view?
7. What would you like to see covered in a THC DVD Tool?
8. Would you appreciate something like a THC DVD tool for your federation/ organisation?
9. Do you have any regulations, recommendations or guidelines for THC for your Instructors? And if, could you please let me know what they are?

Appendix 2: Survey-Results: Straight Listed Numbers

1. The 78 Countries have approached with the survey

Argentina, Australia, Austria,
Belgium, Bolivia, Bosnia, Brazil, Bulgaria,
Canada, Chile, China, Columbia, Costa Rica, Croatia, Cuba, Cyprus, Czech
Republic,
Denmark, Dominican Republic,
Estonia,
Fiji, Finland, France,
Germany, Greece, Guatemala,
Hungary,
Iceland, India, Indonesia, Iran, Ireland, Israel, Italy,
Latvia, Lithuania, Luxembourg,
Japan, Jordan,
Kenya,
Malaysia, Mexico, Moldavia, Morocco, Mozambique,
Namibia, Netherlands, New Caledonia, New Zealand, Norway,
Panama, Paraguay, Peru, Philippines, Poland, Portugal,
Romania, Russia,
Saudi Arabia, Serbia, Slovak Republic, Slovenia, South Africa, Spain,
Sweden, Switzerland
Tanzania, Thailand, Turkey,
Ukraine, United Arab Emirates, United Kingdom, United States of America,
Uruguay,
Venezuela,
Zambia, Zimbabwe,

2. 17 National Skydiving Federations/ Associations have been approached:

Argentina: Federation Argentina de Paracaidismo
Australia: Australian Parachute Federation Inc.
Canada: Canadian Sport Parachuting Association
Denmark: Dansk Faldskaerm Union
France: federation Francaise de Parachutisme
Germany: Deutscher Fallschirmsportverband.e.V.
Italy: Federazion Italiana di Paracadutismo Sportivo
Korea: Korea Parachute Association
Netherland: KNVvL Afdeling Parachutespringen
New Zealand: New Zealand Parachute Federation Inc.
Norway: Norges Luftsportsforbund - Fallskjerseksjonen NLF/NAK
Portugal: Federacao Portuguesa de Paraguedismo
Spain: Real Federacion Aeronautico Espanola - Paracaidismo

Sweden: Svenska Fallskaermsfoerbundet

UK: British Parachute Association

Ukraine: Ukrainian Parachuting Sport Federation

USA: United States Parachute Association

3. 156 participants out of 37 countries (Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Czech Republic, Denmark, Fiji, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Japan, Mexico, Mozambique, Nambia, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Russia, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States of America, Zambia) presenting often not only one person more likely a whole jump group/ DZ/ federation)
4. 121 HC jumpers / 35 Non HC jumpers
5. 87 different DZs - 26 No HC/ 61 do HC
6. 1995-1998 first time HC appeared OZ/NZ . In Europe/USA much later beginning of 2000 QUE 3
7. 61 DZs (70.11%) from 87DZs are offering HC QUE 4
 - 22% 25% or less HC of all Tandem Jumps
 - 15% 25%-50% HC of all Tandem Jumps
 - 25% have 50% -75% HC of all Tandem Jumps
 - 38% even over 75% HC of all Tandem Jumps
8. 35 DZs (40.23%) from 87 DZs are offering TOV and 52 (59.77%)Don't. QUE 5
 - 39% 25% or less TOV of all Tandem Jumps
 - 35% 25%-50% TOV of all Tandem Jumps
 - 19% have 50% -75% TOV of all Tandem Jumps
 - 7% over 75% TOV of all Tandem Jumps
9. 26 DZs (29.89%) from 87DZs offering DeLux Package 61DZs (70.11%) Don't QUE 6
 - 89% less than 5% DeLux of all Tandem Jumps
 - 11% 5%-25% DeLux of all Tandem Jumps
10. What is most popular for your customer at your DZ? QUE 38
 - 69.25% HC
 - 29.5% TOV
 - 1.25% DeLux
11. What would Customer prefer? QUE 39

- 26.75% HC
- 24.50% TOV
- 48.75% DeLux

12. 88.34% said THC is Pro Skydiving Sport.

10.23% said NO.

1.43% said not sure. QUE 7

13. 139 person (89.10%) said THC is safe

17 person said NO (10.9%) QUE 8

14. 70.51% 110 person said THC takes TOV job away

23.72% 37 person said NO + 5.77% 9 person said NOT SURE (total: 29.49%)

QUE 9

15. Have you heard/ experience THC incident:

- 139 person said NO 89.10%
- 9 person YES to me 5.77%
- 8 person YES to Other 5.13% (total YES 10.9%) QUE 12

16. 76 (62.81%) 121 had good HC Training before,

45 (37.19%) DIDN'T QUE 16

17. 53 (43.80%) THC Jumper started/experimented on their own.

68 (56.20%) got professional input from experience jumpers QUE 17

18. 102 (84.30%) prefer stand-up glove.

8 (6.61%) lay on side style.

11 (9.09%) doesn't matter. QUE 18

19. When do you take HC up? QUE 19

- On all jumps 6 jumper 11.00% of all HC jumpers
- Only on Pre-Sold HC 26 jumper 49.09% of all HC jumpers
- I do Specs 22 jumper 35.36% of all HC jumpers
- No at Bad Weather 7 jumper 32.12% of all HC jumpers
- No at "Problem Jumps" 10 jumper 45.12% of all HC jumpers

20. What Rig do you USE for HC jumps: QUE 20

- Strong 31/25.62%
- Vector/Next 21/17.36%
- Sigma 49/40.50%
- Racer 7/5.79%
- Atom 7/5.79%

- Other 6/4.94%

21. What Rig do you PREFER for HC jumps: QUE 21

- Strong 24/19.83% 2nd Place
- Vector/Next 11/9.09%
- Sigma 59/48.76% 1st Place
- Racer 3/2.48%
- Atom 5/4.13%
- ANY 19/15.71%

22. What Canopy do you USE for THC: QUE 22

- Jyro 364 28/23.14%
- Jyro 330 34/28.10%
- Jyro 300 8/6.61%
- Set 400 5/4.13%
- Sigma 340 9/7.44%
- Sigma 360 8/6.61%
- Sigma 370 5/4.13%
- Hop 330 9/7.44%
- Aero Dyne 350 6/4.96%
- Precision 365 4/3.31%
- All 5/4.13%

23. What Canopy do you PREFER for THC: QUE 23

- Jyro 364 19/15.70% 2nd Place
- Jyro 330 53/43.80% 1st Place
- Jyro 300 10/8.26%
- Set 400 0
- Sigma 340 3/2.48%
- Sigma 360 0
- Sigma 370 0
- Hop 330 0
- Aero Dyne 350 1/0.83%
- Precision 365 0
- ANY 21/28.93% 28.93% of the HC jumper don't care!

24. Different Briefing for HC: QUE 25

- 47.01% YES
- 52.99% NO

25. Different Climb Out for HC: QUE 26

- 10.26% YES
- 89.74% NO

26. QUE 27

- Extra handle check in the door 45
- No Extra Check 29
 - 23.97% NO Extra Checks
- Move Camera for check 19
- Visually Check 28
 - 76.03% Yes Extra Check
 - 38.84% / 47 jumper do MORE than one extra check!

27. PAX interfered: QUE 29

- 35 jumper YES (28.93%)
- 86 jumper NO (71.07%)

28. PAX grabbed hand: QUE 30

- 42 jumper YES (34.71%)
- 79 jumper NO (65.29%)

29. Problems with Canopy Opening: QUE 31

- 18 jumper YES (14.88%)
- 103 jumper NO (85.12%)

30. Malfunction during HC: QUE 32/ 33

- 74 jumper (61.16%) NO
- 47 jumper (38.84%) YES
 - NO HC was the reason for the Malfunction
 - All Malfunction procedures were proceeded without problems
 - 36 jumper kept filming Mal (76.60% of the malfunctions)
 - in 31 of the 36 cases the video footage helped to find case of malfunction! (86%)

31. Filming landing practise with tandem student under canopy: QUE 34

- 41 jumper YES (33.88%)
- 62 jumper NO (51.24%)
- 18 jumper Sometimes (14.88%)

32. Let PAX steer canopy: QUE 35

- 36 jumper NO (29.75%)
- 85 jumper YES (70.25%)
 - 77 jumper keep filming (90.59% of the jumper who kept filming)

33. Distracted under canopy with HC: QUE 36

- 87 jumper NO (71.90%)
- 34 jumper YES (28.10%)
 - 6 jumper OFF-DZ Landing (17.65% of the 34 jumpers who got distracted by HC)

34. Bad landing because of HC: QUE 37

- 3 jumper YES (2.48%)
- 118 jumper NO (97.52%)

Appendix 3: Survey-Results: Summary of all text answers & point of views for question: 9, 10, 11,12, 24-31, 37,40

9. Do you believe THC is taking the Outside Video Job away?

- **Hard to say, yes but no, just a new direction. Keep up or be left behind!**

10. Please list any *NEGATIVE* points in your opinion regarding THC:

a) Comfort for TM:

- **Less freedom of left hand**
- Less enjoyable jump
- Body position sucks
- Uncomfortable with winter gloves
- **More work for TM, takes away enjoyment of tandem jumping for TM**

b) Other possibilities /TM:

- Busy day forgetting your glove
- **(German: *Kann Flare-toggles vergessen*) possibility to forget 2nd flare toggles**
- **(German: *Mehr Stress wegen extra Dubbing und Verkauf*) More stress because of extra dubbing and HC sales**
- **More job - more stress - less time**
- Requires more skills
- Editing for the instructor

c) Distraction:

- Takes some concentration away from jump
- **Possible distraction for low experience TM**

- **Divides TM attention**

d) Control:

- **Less able to control exit and get stable**

e) For Customer:

- More time to camera, less to customer
- In the customers face
- **I concern not all experienced TM are qualified for HC but some will learn it on the hard way (on the passenger)**

f) Safety/ Danger:

- **Have to present an arm, which they sometimes grab (NOT with TOV)**
- **Increased work load**
- **THC has safety issues that have to be understood by the instructor**
- If students body position isn't close to perfect it can affect the footage quality and add workload to the TM
- Another dimension especially for those not so experienced
- **Increase danger**
- Increase risk factor
- *(German: zu Beginn ist der Springer leicht ablenkbar am offenen Schirm)* **At the beginning the new TM can be distracted under canopy easy**
- *(German: schlechtere Landeeinteilung bei mehreren HC-Piloten in der Luft)* Bad possible landing paten with many HC pilots in the air flying
- **THC is more stressful than a Tandem without, more equipment has to be dealt with and the exit is more difficult to handle**

g) Camera/ Filming:

- Have to fly for the shot
- Back Ground/ Whole Picture
- Footage is nowhere near as good as outside camera. I find that too much of the actual skydive is lost just to the face on the passenger.
- Outside video and stills is in my opinion a better product. The production of good quality stills from the video and the angles is

not as good with THC. Interesting that many operators still use outside stills for promotional purposes

- The video footage is not as good as an outside point of view. It can be too much in your face
- Handy cam landings don't show much. A good landing video can be useful in court. I film all Tandem landings from the ground for this reason
- **Reduced view (not as good overall picture of experience as outside video)**
- THC on its own lacks the perspective you can get from outside camera; cannot capture a good exit shot; cannot capture a good opening shot; doesn't work well if the TM has short arms - you just get a face shot; THC always looks crap on landing
- No outside view of skydive
- The THC is boring after the first 5 seconds as all you see is the passengers face
- There is no feeling that the passenger is doing a skydive (unlike outside camera)
- In my personal opinion THC is not as good a quality product as outside cam
- Some aspects of the jump, like exits, are missed
- Not getting landing footage but can be rectified by organising someone on the ground
- **Exit and freefall footage does not show the actual skydive pair as it will as outside cam**
- Freefall footage not as good
- Outside footage better
- Visually not as good as outside camera
- **Facial distortion**
- You don't get the full picture with THC
- **Quality of the Handy cam. I have seen some spectacular footage and I have seen some awful footage**
- **Inexperience can lead to poor video footage**
- **No full body shots in context**
- **It does not quite give the landing shots we had before and loses so angles you can get from outside video**
- **The pax miss the 3rd person perspective and any photos are lower quality due to camera type**

- **There are too many TMs who approach THC as just putting a camera on, resulting in bad footage (not good for promoting)**

h) Future Instructor/ Future of the Sport and Industry:

- **Takes away one avenue for low experience skydivers to become TMs**
- **By taking away OV opportunities HC breaks the established employment progression**
- **It does reduce the slot time for outside camera and the training/experience for newer jumpers**
- **THC Instructors will become more popular than TOV therefore less need for outside videographers. People will gain TI rating sooner (with less experience) because outside videographers will be required less. These less experienced TI's will do THC too soon**
- The loss of outside makes it harder for new jumpers to reach an experience level needed to make a living in the industry
- The whole world is going into skydive training decline with less and less students, and less sport skydiving. Where are the future tandem masters going to come from? Flying outside camera is now virtually the only way to achieve this experience
- **Less jumps for outside video flyers**
- Harder for skydivers to get their jump numbers up by doing outside camera
- Puts Outside Camera out of a job
- Putting camera flyers out of a job
- **No new skydivers to become instructors, no experience interacting with instructors**
- Largely held responsible for stalling the progression from "D" License to TM via outside camera
- Has taken away the outside video work, lots of young skydivers would use outside video to get their jump numbers up to help move on to Instructor rolls
- Slows down the progression of other jumpers to gain jump numbers to become instructors
- Makes it more difficult for the camera-flyers to get jumps

i) DZ/ Operators:

- **I find that THC is more about the profit made by drop zones and not about the quality of footage given to customers**
 - Its prime aim is to make more money for the centre or/and tandem master
 - **Operators can get to greedy and charge too much for THC when they should keep the total price down and try to get everyone to buy the additional product simply as a marketing tool for the industry. Their overhead for THC is obviously very low**
- j) Other important comments:
- **I feel the negative points is the poor standard of hand cam flying which I have seen at certain dz's. I believe there are certainly 'hand scams' going on. However there are some really good hand cammers out there that put out a great product.**
 - **Pressure is put on low jump number tandem masters to cooperate with operations and to deliver a good HC, this can cause a tandem master to panic if the passenger de-arches for instance and a face to earth position isn't obtained for a few seconds.**
 - I still have issues in relation to the complication and nature of Tandem Skydives as opposed to tandems with out THC
 - **My main objection to the use of THC is the product itself. That is not to say that it can't be an acceptable product if done well and edited properly - it is simply the perspective of the jump - particularly the exit and freefall part of the skydive**
 - **Video people miss out on some work but can be rectified by getting other ratings, which could be a positive. More instructors to help progress our students through.**
 - **It should, in my opinion, not be performed by individuals with less than 100 tandem jumps as there is a lot to keep in perspective from a proficiency angle**
 - **Packaging of the product is important. The skill of the Tandem Master is imperative (that's if you care about what you give your Tandem Student)**
 - Whinging solo cameramen
 - Obviously you don't get under canopy shots with outside video, but again against a great exit and landing shot combined with

the perspective in freefall, outside video in my opinion is a superior product. I could make more money doing THC - I simply don't like it

- k) Some People said NO negative points in regards of THC!
 - NIL
 - No real negative aspects
 - **Right tools right TM, I can't find any problems**

11. Please list any *POSITIVE* points in your opinion regarding THC:

- a) For TM:
 - Pays well
 - *(German: Höherer Anspruch erhöht den Spass der Arbeit)* **More demanding work = more fun at work**
 - Better pay for TM's means better retention of instructors
 - More pay for TM, so TMs can actually make a living
 - More money for Tis
 - TM makes more money
 - **Pay rise for Tandem Masters that was overdue (Inflation rate rises everywhere, but TM's and other professional skydivers pay didn't rise for many, many years)**
 - Higher paid TMs
 - It's good money for the TM
 - TM gets more money
 - Money for instructors
 - Better income for TM
 - More money for TM
 - Pays HC tandem instructor more per jump than straight tandem therefore less jumps needed to make a living
 - **Allows the full timers to get a decent wage**
 - More pay for instructors
 - **TMs can make a liveable wage, so staff will stay available**
 - Better pay /jump for TMs
 - Better earnings for tandem master
 - Greater income for the TM

b) For Customer:

- **Cheaper option for people on a budget. Gives student an option to decide after if they want to purchase DVD, as it isn't much hassle for a tm to do a spec.**
- **Cheaper video therefore more passengers can effort it**
- Should be less expensive
- **The handy cam is a more intimate video**
- **Gives the customer video footage under canopy**
- More personalised DVD
- Very cost effective = Passengers get more videos
- **Shows the customer the full skydive**
- *(German: Besserer Kundenbezug während des gesamten Sprung)* Better customer relation for the whole jump
- *(German: der Wiedererkennungswert ist viel Höher. Das Gesicht wollen die Gäste sehen aber nur wenn es ihr eigenes ist)* **Recognition is higher. The customer like to see the faces especially when it is their own**
- Better from the client point of view
- **I think it is great to get the person's immediate reaction and people love to see themselves at that point**
- Optional extra for the customer to see themselves under canopy as well as free fall

c) Safety/ Danger:

- **THC hence keeping the experience level high in Australia**
- **No danger of cameraman and TM colliding on opening / drogue throw / etc.**
- **It means that because of the extra income we have more full time instructors and therefore better instructors working on our drop zones**
- **THC has been a sensation for capturing tandem mals then using footage as training tool**
- **Risk Management (practice legs-up under canopy)**
- Safer, less distraction for TM, better hight awareness
- Reduce potential danger with outside video flyer
- Possible footage of malfunctions for evaluation
- No danger of collisions on exits with video jumpers
- Malfunction recording for future training footage
- Clarification of landing-brief with student

d) Camera/ Filming/ Audio:

- **Get's best reaction shots of student**
- **Great for deluxe packs**
- **The full package. Ground. Climb to height, friends reaction prior exit, exit, Canopy footage, Those first words after opening and landing are magic. There's always a bonding TM, PAX now we can capture the whole deal. I think the percentage Likes the interaction**
- **More footage! (A skydive is not the only part of our sport there is the canopy ride too)**
- Better video -> all perspectives as you get on a TOV + perfect face shot of the student on exit + comments after opening + canopy ride
- If done right you can capture more important details of your student eg. Face on leaving the plane, closer view of face expressions in freefall, canopy opening expression and interview, also some canopy ride
- **Gets voice of student under canopy**
- Great exit shots, and canopy ride, really captures that expression on exit and on opening
- On opening, first response if not rehearsed
- **With HC, whole experience is captured**
- Capturing footage immediately after canopy opens and during canopy ride is great
- THC for face shots and canopy ride
- **You don't miss landings [eg off DZ]**
- **You don't miss exits [TOV do]**
- You get students reaction on opening and under canopy
- Get more footage under canopy
- Good footage under canopy and during opening
- Includes canopy ride and always have exit shot
- THC captures the immediate reaction on opening
- **Enables the TM to interview the student under canopy**
- Is almost always guaranteed to get the shot
- Footage under canopy
- **Good close up pics of students**
- **Facial and verbal expressions after freefall, canopy ride**
- Expression on opening, close up of face, some really cool shots on exit
- Under canopy footage

- Audio pickup of customer immediately after opening
- Great expressions on opening, canopy footage
- Under canopy footage great
- Canopy Footage is the best!!!
- *(German: Defenitiv das bessere Video (70% sind nachverkaufte Video)*
Definitive the better video (**70% are sold spec-videos**)
- HC with them all the way, great footage under canopy
- Much better emotional impressions, especially the time under canopy and right after opening
- Under canopy footage

e) DZ/ Operators:

- **Obviously better profitability for Operation**
- **One slot less in A/C therefore lower cost to DZ operator**
- More room in the plane
- **Its more cost effective for all concerned**
- **Economics of two tandems at a time with video in a Cessna (smaller operations)**
- THC when using a small Cessna plane and both tandems want video
- Less/more slots on the plane
- **Cheap to administer**
- **Allows operators to retain Instructors in the industry that otherwise could not afford to do tandems for a living**
- Aircraft loading
- **Good for small operators with limited aircraft space and resource**
- **Less staff required**
- More pay for staff and operators
- **Allows greater re-investment in business**
- Enables more profitable use of slots in planes
- More economical for operator
- Is more cost effective for operators
- Good economics for smaller aircraft/dz's
- **More productivity can fit more students (eg. AFF students too, who otherwise have to stay on the ground longer) on a load**
- Low cost
- Able to do more tandems for the club because we can do two tandems in a Cessna 182 with camera

- Get to high quicker
- **More customers per load**
- Great for small operators
- One less jumper required
- **With the THC option the DZ sells more videos and doesn't lose too much space on the aircraft**
- **Raises more revenue for small operators**
- More effective for DZ owners/operators
- Video footage un-obtainable by other methods, Cessna ops need not carry extra person
- More space in the airplane etc.
- Load saving costs

f) Promotion:

- **Cheaper video therefore more passengers will get it = more promotion of Sport/DZ**
- **More DVDs end up in the homes of the general public**
- Connect rate of videos to customers is higher = More videos in the field
- Great promotion of the sport to the public / cheaper Tandem video / including the canopy ride / better selling price of the tandem jump
- Good advertisement for the sport, nice and representative product

g) Other important comments:

- Great product
- **Complete product**
- More money
- Of course it does give visual exposure to the general public of skydiving
- Small Drop Zones are able to offer a more professional package to the Tandem jumpers and make it more affordable to local markets, thereby ensuring a good method of advertising for the DZ. Without THC the smaller DZ could not efficiently and cost effectively offer video
- **Free up slots for trainee jumpers**
- **Greater lift capacity for the fun jumpers because the A/C lifts are basically cut in half for tandems**
- It's a good product

- h) Con Outside-Video/ Pro Handy cam:
- **Tandem Outside Job will only be good for Photos and sometimes for deluxe-offer**
 - **Exit solo-camera often miss/ Freefall solo-camera sometimes miss/ Canopy ride solo-camera never gets/ Landing- solo camera often miss**
 - Countless times I have overheard customers compare the two, and handy cam comes out a clear winner
 - **Canopy ride footage can be awesome and would be lost by outside cameraman**
 - **No danger of cameraman and TM colliding on opening / drogue throw / etc.**
 - Don't have to rely on cameraman
 - THC is the more standardised product when compared to outside video
 - I still believe that outside video gives a better picture however the footage that is achieved under the parachute via the TM makes up for the lesser quality picture with HC
 - **Where tandem lands, HC lands**
 - Don't have to put up with video cameraman, (I don't want to jump today, had hard night, I am too cool for school, I can't keep with fall rate, I missed the Exit
 - More reliable than TOV

12. Did you have or have you seen any kind of incidents/problems with THC?

Please be specific, what happened:

- a) HC Entanglement:
- HC caught between wheel and strut of Cessna on exit
 - Student Life jacket waist band entanglement with HC, cleared
- b) Distraction:
- In the EARLY days of my hand cam career, I landed off once due to stuffing around with my camera under canopy, rather than focussing on the job. I also lost height awareness once.

- Distracted on Landing
 - Loss of height awareness, camera fixation leading to bad exits
 - Maybe people got distracted and went low
 - Forgotten flair-toggles
 - Loss of altitude awareness - alti on right hand/ out of room
 - (*German: Equipment wird des öfteren durch HC vergessen (helm, Höhenmesser, etc.)*) Because of HC jumper forgets other equipment (helmet, alt, etc.)
- c) Checks:
- Loose secondary handle causing premature main opening (Did not check 2nd drogue release handle before exit/ it was loose)
- d) Stability:
- Unstable deployment of drogue due to left arm forward position.
- e) Deployment:
- Hard pulls on Vector left drogue release (HC side)
- f) Skill:
- Poor quality, THC down to lack of skills/practice. This of course can happen with outside video as well
- g) Camera function:
- Knocking camera buttons therefore crap or no footage
- h) Passenger:
- Passenger grabbed my hand, screamed at his ear to let go and he did
- i) Crazy:
- I have seen a camera hand held with no glove
- j) Other:
- No safety incidents seen or experienced thus far (touch wood!)

24. What do you think is the most dangerous/difficult part of THC compare to normal tandem jumps?

- a) Comfort:
 - Less freedom of left hand

- b) Preparation:
 - You need to have a consistent sequence when preparing in the aircraft to avoid making mistakes.
 - Extra thing to think about, needs to be forgotten if any other problem arises

- c) Priority:
 - Make sure to focus on the Tandem first and the camera second. TM's are often not experienced camera flyers. Use of audible warning devices has merit

- d) Distraction:
 - Distraction from main task
 - Dividing attention
 - Distraction from focus prior to exit and during canopy flight
 - Stick to you procedures and checks and don't deviate or get distracted from them
 - Staying focused on your student's welfare. Gearings up in the aircraft a TM can get focused on HC and possibly miss connecting up or double-checking everything as per normal. Generally this can be a potentially hazardous time if the camera plays up
 - Height awareness
 - Having to remain situation ally aware during the whole skydive to everything you are doing, and still maintain the "camera shot", even if the student is in a bad body position, is flailing around, or your canopy opening is less than perfect.
 - Possible distraction from job at hand
 - Circular of awareness
 - When starting out, Height awareness
 - Distraction
 - Multi tasking
 - It is easy to be distracted with filming leading to mistakes in gear up, hook-up, jumping and especially canopy control and landing.

e) Exit/Flying Technique:

- Flying both for the shot and for an exit can be difficult to do. I ignored the HC on exit when I 1st started doing tandems. With experience I have found it easier to do both.
- The Exit
- Stable Exit position
- Exit. Rigorous procedure, each and every time. I'm a small TM, and it's hard enough to fly an exit without thinking about the shot.
- The way to and out of the door with heavy or not co-operate pax
- The Exit
- The exit (getting a good shot of the student). But once you got used to fly the exit with only one hand and the left hand down it's no problem. But you always have to be careful. If the student really wants to "f..k you...f..k the video" ;-)
- Exit, especially for beginners as they are to busy trying to get a correct camera angle with a new body position. and on deployment for same reasons, concentrating on camera not canopy etc.
- Drogue deployment, safety checks
- Exit for sure is the dangerous part, anything can happen, and HC can load the TM even more
- Trying to keep a heading and the best camera angle

f) Procedures/ Emergency Procedures:

- It is not really much more work than a normal jump and doesn't require that much focus as long as you are prepared for emergencies as you would be on any other jump.
- Stick to you procedures and checks and don't deviate or get distracted from them
- The camera is there and if any problems = the camera is forgotten
- High speed spinning malfunction or side-spin (Never had one something to think about)

g) Passenger:

- Students grabbing hand on exit and opening
- Potential for Student to grab and hold camera

- The likelihood of the passenger being hit in the face with the camera as a result of a hard opening if the camera is held in close
- h) Canopy:
- Canopy opening, your trying to get student interview instead of dealing with mild opening problems
 - taking footage and maintaining proper position over DZ
 - Canopy collisions
 - (*German: Schirmfahrt kann bei Handy cam eher zu Problemen führen*)
The canopy ride can become a problem during a HC jump
 - Opening with passenger trapping left arm
 - Deployment
- i) Other Important Points:
- Don't like taking children and HC
 - No different once you have your routine.
 - I don't really think there is one. All tandem masters know safety comes first. If shit were going down, wouldn't it be fare to say that we are more interested in dealing with the situation instead of making sure we get the shot.
 - Every jump THC or NOT has potential to be dangerous. If you are not committed for one extra task. Chances are you will have problems. I have been broken in my procedure before exit so back to the start it is. Difficult? smiling on exit as I'm scared.
 - Achieving good results when Passenger has head down or looking away
 - Not so much for the experienced TM, but for some new guys, the extra job of the THC can sometimes take away attention from the Tandem. I believe some TM's can start to do HC earlier in their career than some other TM's. It depends on competency.

25. Do you do a different passenger briefing for your THC?

- a) Video:
- To look at the camera occasionally

- I just mention where the camera is, to acknowledge the camera once or twice to make the video look good. And to arch to make the video
- I mention more camera time
- Only making sure the passenger knows where to look , and tell them not to grab the camera
- Point out where to look at the camera
- Look at the camera
- Look at camera
- Tell them about the camera and where it will be located and to smile at the hand :)
- Big wide angle lens, will be close
- Watch the birdie
- Everything else the TOV camera used to does
- Smile into, don't touch
- Tell them to look at camera not camera flyer, that's all, the rest is really the same
- Tell them where the camera will be, look and smile at some point through the jump
- Camera/ smile your paying for it
- Add in "smile for the camera"

b) Grabbing hands:

- Sometimes mention not to grab my arm, if I think they be the grabbing type, because I need to move the camera around in freefall
- only making sure the passenger knows where to look , and tell them not to grab the camera
- Just emphasise not to grab hands
- Mention that my arms will be in a different location, so do not grab them
- (*German: Hände weg und lächeln*) hands away and smile
- I may emphasise the do not grab my arms
- I explain the handling of the camera I have to perform and that the passenger must not block my arm or grab the camera

26. Do you do a different climb-out for your THC?

- Keeping the student in shot, camera out front

- I have found that a front flip, rather than a back flip works better.
- Hand in front for exit
- I may change exit of a better shot for TOV
- Normally I would hold on the door frame with my left hand but with THC I don't

27. What do you do in regards to handle-checks in freefall?

- a. Extra additional check just before I jump out (already in the door)*
- b. No handle checks, because I can not move hand with the camera*
- c. I move Camera hand for handle checks*
- d. I look to the side, where I can not physically do a check and do a visually check*
- e. No handle checks are necessary, because I checked everything before I jump out*
- f. I do:*
 - No left hand checks:
 - I just don't do left hand check as I'm comfortable with the multiple redundancies of the RSL and Cypress. Right hand side handles are checked though.
 - Full checks in the plane before exit. In freefall I check everything on my right side
 - Right hand drogue release checks in freefall
 - Only right side check
 - Exit, drogue: RHS handles, tap tap, Micro Sigma: Pull primary (left hand) drogue release on ground with flap open and check for correct operation.
 - A normal handle check on primary and secondary release as well as cutaway, except for the reserve which I only check visually.
 - Multiple checks:

- Normal checks as well as visual check- reserve handle for freefall
 - I do all handle checks.....
 - Cutaway check and visually check reserve I keep skyhook and RSL attached
 - Check all 6 handles just before I jump out. When the drogue is out I check all 3 other handles on the right side and I take a look to the reserve handle.
- Open higher
 - Pull slightly higher than normal with HC just in case
 - Other important points:
 - Situation awareness
 - Handle checks in slow motion that it looks like a special camera flow from first release over the pax-belly to his face

28. Any special flying technic for your THC?

a) Camera:

- Keeping the camera aimed at student
- Raise arm up while doing a turn for ground shot
- just move the arm around to get different shots, from the side, above , below, good shot on opening
- Reach out as far as possible with the camera
- Arm stretched out for wider angle. change angles for more interesting video
- Be aware of the position of the sun in the sky whilst filming in freefall
- Depends on passenger size if I video over their arm or under, also shoot from down below looking straight up at least once
- Compensate more with legs to get the good angles
- Yes I move the HC arm around a lot more
- Try to keep the pax face into the sun as much as possible

b) Exit:

- Fly with your knees and hips more than with your arms during the exit

- c) Turn/ Flying technic:
- use legs more for turns
 - Use legs for control
 - Left arm down, Right arm up and behind to allow stable flight
 - Fly with my legs, I teach my tandem masters this “big time” before HC as they all tend to try and fly upper body in beginning
 - Lots more legs. Fly your head to the left of theirs.
 - Steer turns with legs only
 - No, just arm placement
 - Lot of legs
 - Arm extended as far as possible usually have to compensate with opposite leg
 - Lots of legs
 - Not really, left hand as far out as possible, right hand is easily matched
 - I learnt in Saipan legs inside the passenger this is great for control. I think you lose maybe 6 inch in arm extension
- d) Canopy:
- difference on hand positions for canopy footage
 - Try to get good spiralling footage under canopy
- e) Other points:
- This depends on how well the student’s body position is....
 - Handle checks in slow motion that it looks like a special camera flow from first release over the pax-belly to his face
 - Just don’t think about it...just fly it ;-)

29. Did a passenger ever interfere in freefall while you were performing a THC?

- a) Grabbing hands/camera:
- Grabbed camera hand to his chest.
 - Have had a few arm grabbing, but this was not hand cam specific.

- Grabbing camera hand
- Grabbed camera arm. more of an annoyance than an issue
- Grab camera hand because they can see it no big problem
- Grabbed handy cam hand
- Grabbed arm only when moving arms around a lot. Doesn't happen often.
- Grab hand
- Grabbed camera hand, also turned camera off once by hitting switch
- Grabbed my hand after opening
- With or with out a camera some passengers will try to grab your arms. Good luck I reckon!!!
- Grab my camera hand

b) Normal passenger interfering:

- Sometimes passengers place their hand in front of the camera or place their arm below HC
- Just bumped the camera
- Just the usual hands over the arms from behind
- Hey normally interfere on canopy deployment

30. Did a tandem passenger ever grab your handy cam hand and what did you do?

a) In Freefall:

- Pulled it free
- Usually I just push arm forward and back to get out of it, or twist. That doesn't work I sometimes use the other arm to make them release
- Removed their hand with my right hand
- Didn't panic, checked height, waited till his grip got loose then pulled his hand free with my right
- Move their hand with my free hand
- Freed it
- Pull camera arm up yell in ear let go and or use other hand to help
- Broke their grip-removed camera from their reach.
- Just moved it away

- Pull it free
 - Pull arms up no problem at all
 - Once only, I got real serious with my briefings re this, I broke grip by rotating and twisting my arm inwards. I teach this as well
 - Peeled their fingers off with free hand
 - Waited about 30secs then asked him to let go. Funny vid
 - Pulled their hand off
 - Screamed "let go" and they did
 - Not a problem, kept filming, got there hand off with other hand or lift the camera hand up very high, they will then let go.
 - Lifted arm away
 - Just moved my hand away
 - They are briefed NOT to, easy to roll wrist to remove hand
 - Not hand but arm . Don't fight they will soon let go don't panic
- b) Under Canopy:
- while parachute deploys passenger held to arm, I just leave it there till deployment finished then peel hand of or ask passenger to let go of hand.
 - Only during the opening of the main canopy, easily solved by telling them to release my arm
 - Told them to let go. it was on canopy deployment
 - Only when canopy opens and you have your arm down to view opening. Never in freefall.

31. Did you ever have problems with a canopy opening while doing THC?

- a) Malfunctions:
- Normal emergency procedures, though less freedom with left hand
 - Treat malfunction as normal, forget about camera
 - Two mals, no problems but could see valuable footage of skyhook not working, otherwise would have not seen what happened
 - Just react the same as if didn't have handy cam in any situation
 - Line over, was not an issue, actually filmed reserve deployment consciously

- Cutaway, no problem
- b) Main Canopy:
 - Hard opening jarred shoulder
 - Only normal problem openings not caused from handy cam
 - Line twists, then you must prioritise the situation and forget about the footage and take care of the situation with the canopy
 - Twists = forget HC and get out of them
 - Not holding the risers, concentrating on filming

37. Have you ever had a problem landing your canopy while doing THC?

- With heavier people to keep them in shot during the flare can make the flare heavier. If it comes to it, I forget the footage and just land normally
- Late pick up of secondary toggles
- Forgot secondary toggles

40. Any topics you would like to see covered in the “Handy cam DVD Tool”, apart from the obvious subjects mentioned already in this questionnaire?

1. There could be stuff on good camerawork. Where are the best shots? How to get different shots for the time of day i.e. sun position. Camera and lens choices. Altimeter placement, visual as well as audible. When to put the glove on?
2. Yes, new camera flyers should remember to keep the sun behind the lens.
3. Consider what tandem passengers think
4. New tandem masters should be trained to only use the left arm in case of an emergency (main doesn't deploy with 1st release or malfunction).
-> No need to change sequence for doing THC. Point 34 is good. I will do that from now on!
5. How to promote the handy cam video
6. A script for the video - what settings to use, what to shoot and when.

7. Ethical problems filming no tits
8. We do stills with 3-mega-pixel HC video. Photos are awesome.
Maybe style of shooting suggestion (I.e., taking photos from above student when under canopy which demonstrates height and smiles)
9. A standard checklist to mentally perform
10. Basic understanding that whenever anything goes wrong, treat the tandem like a tandem and forget the camera as if it weren't there. Jump first camera second
11. Any experience with high speed spinning malfunctions
12. Getting good shots (angles), making a good product. (a lot of handcamers have not been trained in making good videos as they have not worked as a outside camera person)
13. Info for the budding Handijammer maybe includes anti-f.k-up techniques for the younger players like carry spare battery, head cleaning tape in the pilot's headset bag, you know shit like that.

❖ Other important points:

- No well covered. The MAIN TOOL WE HAVE IS TRAINING AND INFORMATION I commend you on your efforts. As you know a well-informed trainee or like myself with less than a 1000 THC I will benefit. I think this is overdue and will be well received.
- NO- it is all too easy, any experienced TM could do it with good results.
- A quick not for you, when I started HC it was just starting out so the training was limited and there were no real rules so to speak. I was fairly experienced though. we have the HC to outside ratio as I try to train and employ new TMs, so <100jumps
- No I think that covers it all. Although Question 39 is answered what passengers prefer, most of the time they don't know the difference. So I am all for handy cam.
- Recommendations for DZ owners/operators - its is a rip off to clients to sell them a THC vid and take stills off that and sell a DVD and digit stills. Digit stills requires an outside SLR digit camera.
- The handle checks in freefall are an important area I would like to see covered . I also think that the tandem master should have some freefall camera experience before doing HC especially if they have low Tandem jump numbers

Appendix 4: Injuries and Malfunctions, APF Annual Report 2007

INJURIES AND MALFUNCTIONS

Below are figures from the APF Data Base that relate to each 12 month calendar year period

STUDENT INJURIES

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Tandem Injuries	46	46	39	54	43	47	56	37	29	53
Serious of these above	21	25	18	32	16	10	19	14	6	19
Tandem jumps done	44000	55000	62000	67000	69500	70141	72377	68407	69473	79 581
Tandem jumps/injury	956	1195	1589	1240	1616	1492	1292	1849	2396	1501
Tandems/serious injury	2095	2200	3444	2093	4343	7014	3809	4886	11579	4188
Injuries 1st jump (not tandem)	30	36	27	28	17	17	12	16	6	15
1 st jumps non tandem	4200	*3500	*3100	*2150	*1686	*1341	*1339	*881	*618	*909
Student Injuries 2 jumps & more	39	45	38	44	47	35	31	49	21	33

(* this figure is becoming less reliable as a measure of 1st solo AFF or S/L as more students do their first jump by tandem. Note that than 48 % of "A" licences in 2007 were issued to members who did their first jump by tandem.)

Appendix 5: Licences and Ratings, APF Annual Report 2007

LICENCES AND RATINGS

NEW ISSUES OF RATINGS, CERTIFICATES, CRESTS AND LICENCES

Year (1 Jan – 31 Dec)	2001	2002	2003	2004	2005	2006	2007
Instructor "A"	4	1	2	3	3	5	2
Instructor "B"	11	26	16	6	15	19	17
Instructor "D"	50	57	57	48	56	38	53
Tutor	3	4	6	8	9	9	8
Static-line endorsement	11	5	3	12	3	4	2
AFF endorsement	39	45	45	23	45	23	43
Tandem endorsement	39	48	26	33	34	38	39
RW endorsement	3	9	8	10	6	15	10
Tandem Supervisor	3	5	1	1	3	6	2
Freely endorsement			6	3	6	0	2
TOTAL INSTRUCTOR RATINGS	113*	143*	113*	99*	124*	119*	125

*These figures are comparable with earlier years, even though they are not totals of the column above. The totals marked * exclude the count for Instructor "D", as each new Instructor "D" rating has an associated endorsement

Annual Report for Calendar Year 2007
