

**BRITISH PARACHUTE ASSOCIATION**  
**SPECIAL SAFETY AND TRAINING COMMITTEE MEETING**  
**BPA OFFICES, 5 WHARF WAY, GLEN PARVA, LEICESTER**  
**THURSDAY 7 OCTOBER 2004**  
**TO CONSIDER THE RECOMMENDATIONS OF THE RAPS**  
**PANEL/WORKING GROUP**

**Present:**

John Hitchen	-	Chairman STC
David Hickling	-	Chairman Working Group/BPS, Langar
Paul Applegate	-	Riggers Committee
Pete Szer	-	Headcorn
Tony Knight	-	UK Parachuting
Mark Bayada	-	RAPA
Mike Rust	-	NLPC
Kev Goode	-	PPC
Andy Montriou	-	Skydive Jersey
Paul Hollow	-	Target Skysports
Pat Walters	-	Tilstock
Phil Cavanagh	-	Black Knights
Brian McGill	-	RAFSPA
Nigel Allen	-	JSPC (N)
Trevor Dobson	-	Peterlee

**Apologies** Dane Kenny, Karen Farr, Maggie Penny, Rob Noble-Nesbitt, Carl Williams.

**In Attendance:**

Chris Allen	-	Chairman BPA
Tony Butler	-	Technical Officer
Doug Peacock		
Ian Rosenvinge		
Trudy Kemp	-	Assistant to NCSO/TO

**Observers** Stuart Meacock, Mal Richardson, John Harding, Anthony Keightley, Colin Fitzmaurice, Dave Major.

---

The Chairman of STC welcomed all those present to this Special STC Meeting to consider the recommendations of the RAPS Panel/Working Group.

The Chairman of STC stated that this Panel/Working Group commenced following the Board of Inquiry into the death of Iain Johnston on the 21 June 2001. The Panel was 'chaired' by David Hickling. A good deal of work had been carried out during the past three years. Some recommendations of the Panel had already been agreed by STC, such as the mandatory teaching of equipment/body entanglement drills to ab-initio Students.

The Chairman of STC advised those present that earlier this year the Panel had presented a number of findings/recommendations to STC, but because of the number and the implications, it was decided that it would be more appropriate to hold a Special STC meeting to consider them, than to discuss them at a normal meeting.

The Chairman of STC then introduced David Hickling, the Chairman of the Panel/Working Group, who then took the 'Chair' for the rest of the meeting.

David Hickling made his introductions and then gave some background information with regard to the work carried out by the Working Group. A draft copy of the Report from the Working Group had previously been circulated and each of the Findings/Recommendations would be dealt with separately.

## **ITEM**

### **1. STUDENT EQUIPMENT**

#### **Containers**

David Hickling stated that the Working Group had found that of the containers currently in use with Students there did not appear to be any advantage between one manufacturer and another. The containers/rigs that had been looked by the Working Group were; TSE/Zerox, Sun Path, Vector, Rigging Innovations/Talon.

David stated that the dual cut-away system that the Working Group looked at from Sun Path did have certain plus points when converting SOS (Single Operations System) trained students to more conventional systems/rigs. However, the Working Group did not feel that this was worth pursuing as a stock item for general use.

#### **Static Line Bags**

The Working Group had then looked at Static Line Bag equipment and they enlisted the help of Ian Robertson (IR) who had produced a new Static Line Bag.

In summary, the Working Group found that IR' s bag offered some improvements over the free fall style bag that was commonly found in most static line systems. A sample of the bag was presented to the Committee.

David Hickling stated that the IR bag uses tube stows at the mouth lock proved to be not only user friendly, but also helped to produce a very positive closed bag. This allowed full line stretch during the fall away before the canopy was released from the bag.

The Working Group had also felt that the use of riser lift tabs was a major improvement and had direct assists in promoting a uniform deployment of the bag and lines. The IR re-shaped bag may also reduce the spin effect sometimes seen on the free fall style bags, thereby reducing line twists.

David Hickling stated that when positioning the risers in the container, placing them on top of the bag and not down the sides was recommended whenever the riser length came below the reserve pack tray. Placing the bag with line stows to the top of the container, ie next to the reserve tray had been unanimously accepted by the Working Group.

David Hickling asked if anyone had input with regard to positioning of the risers on static line set up.

It was established that some Centres position their risers at the side or bottom of the container and that those Centres did not appear to have had any significant problems with the method that they used.

A question was raised as to whether the IR Bag had been presented to any container manufacturers. David Hickling stated that he had not contacted any manufacturers, but stated that he would consider it.

David Hickling believed the IR Bag should be presented to the BPA Riggers Committee for consideration prior to any recommendations for its general use being made.

Following further discussion, it was proposed by David Hickling and seconded by Paul Hollow that the Ian Robertson (IR) Bag be presented to the BPA Riggers Committee for consideration for general use.

**Carried Unanimously**

David Hickling advised the Committee that the Working Group had studied the use of the Centre Base Tie. Ian Robertson and others at Skydive Strathallan had carried out a great deal of work in this area and the consensus of opinion was that the benefits were small when compared with the risks and extra work involved in using a Centre Base Tie.

David stated that so far as closing the static line container goes, no great difference was found when routing the static line to the left or right in order to 'suit' left or right hand aircraft exits. The use of a 4" (100mm) teflon cable as the closing pin was he believed to be standard.

**Main Canopies**

David Hickling stated that the Working Group had studied the following:- Manta, Balance, Pathfinder, PD340 and Navigator main canopies.

Besides the point of only using canopies that the manufacturer stated were approved for students, there was nothing that made one canopy stand out as significantly better than any other.

However, the Working Group had found that the loading of the canopy during deployment was important. A 7-stone person under a 280sq ft main would have an unstable/turbulent deployment, whereas given the same aircraft speed and power setting, that same person on a student approved 220/230 canopy would experience a far more stable deployment. With a light loading, both the 280 and the 230 flew satisfactorily after full inflation, although there was the expected lack of performance on the 280. Toggle pressure was also a factor.

The Working Group had therefore considered that the use of a 'large' canopy for a light jumper was a mixed benefit and on balance, one to be avoided, as the unstable deployment may cause the inexperienced jumper more problems.

## **Reserve Canopies**

No work or tests were done by the Working Group on reserve parachutes. They just considered that mains and reserves must be compatible, ie line length and big enough to give the student a safe landing.

Student reserves must:

- i) be big and strong enough to deal with an unstable terminal opening
- ii) have a line length as near as possible to that of the main; and
- iii) be of a size similar to that of the main.

## **Reserve Pilot Chutes**

David Hickling stated that a lot more work was needed in the area. He stated that Karen Farr, Kieran Brady and Skydive Strathallan had completed some test work on different pilot chutes and he thanked them for their time and effort.

David stated that most tests of reserve pilot chutes were done by observing them in use for main parachute deployment.

Tests had shown that on free fall delays, Vector II pilot chutes performed well at terminal but not so well, near exit speeds. David stated that the Working Group believed that the weight of the Vector II pilot chute makes it less suitable for sub-terminal deployment.

Conversely, the TSE half-net pilot chute appeared much better at sub-terminal speeds.

Ian Rosenvinge advised the Committee that Bill Booth had carried out extensive research/tests on pilot chutes. He stated that although he believed that Bill Booth acknowledges that the Vector II is not the best at sub-terminal, it is the best all rounder that he could come up with.

Paul Hollow stated that his Centre changed the pilot chutes in their entire Student equipment to the mesh based pilot chutes several years ago, which he believed was a better system for his Centre.

David Hickling stated that the Working Group had been tasked with looking at RAPS static line or very early free fall. They had not been tasked with looking at an overall situation for all skydivers. He stated that he totally accepts that the Vector II pilot chute was most probably the best all round pilot chute. However, the Working Group believed that there was a definite argument for a netted Vector II type pilot chute at sub terminal.

In answer to a question from the Committee David Hickling stated that the Working Group had not looked at Reserve Bridle Line lengths.

Pat Walters advised the Committee that this was an area where he had done some research in the past. He stated that he had contacted most of the manufacturing companies world-wide and he did a study on all reserve bridle lengths and they varied from 11' 3" to 15' 4" .

## 2. STUDENT TRAINING

David Hickling advised those present that the Working Group felt that current BPA training syllabus guidelines were thought to be satisfactory, although it was considered that certain areas need to be re-visited.

### **Unusual Openings/Nuisance Factors**

The Working Group felt that more emphasis may be needed in this area. David Hickling stated that as experienced jumpers we all know that the feeling and appearance of an opening square can vary quite a lot. On balance most square canopies do open, but not always in the expected time frame of the Student's mind, therefore we must look at the Count Sequence that we use (Student canopies).

Any count that is under 4 seconds may not give certain lightly loaded canopies enough time to open. A 5 second count was thought to be the minimum to allow the canopy to deploy and "settle down".

There was some variation around the table as to the count used but generally the 5 second count was generally felt to be the accepted method. It was also felt by those present that the most important point was that the Student recognises what a malfunction is and that they carry out their drills correctly.

### **Exit Drills**

David Hickling advised the Committee that the work on this exercise was done from sitting exits and that the C206, BN2, C208B, Cherokee 6 and similar aircraft were studied. He stated that a variety of very different methods were tried.

The Working Group had found that the current BPA Stable Spread method worked well with switched-on and well co-ordinated Students. However, on balance, this type of Student is not the norm!

#### i) Forward Facing Exit (FFE)

David Hickling gave the meeting a brief description of this exit, which involved the Student in the door, sitting facing forward, inside hand on the floor, next to the inside knee. The other hand behind, on the door frame (or on the internal rear wind deflector in the C208B). Head up, and on release, a sideways movement to drop off the aircraft. At this stage, the student either brings both arms into the side of the body (almost to the 'Radical A' position) or both hands down to the crutch. The head to be up and the body arched.

David stated that this exit worked well with either arm position i.e. by the side of the body or down to crutch. At no time was there any danger of the arms coming into contact with the static line, canopy lines, or the main canopy during deployment.

#### ii) Rear Facing Exit (RFE)

This was a mirror image of the FFE, except in the C208B, where the right hand went on the front door frame (rather than the deflector), left hand on the floor.

David Hickling stated that both the FFE and RFE worked well and gave the meeting details of his observations with the FFE-

- i) was better in the slower aircraft;
- ii) had the advantage that the student arch was correct into the airflow
- iii) allowed the dispatching Instructor to better observe the Student

David stated that the Working Group had felt that RFE was perhaps better in aircraft with a higher air speed/prop blast. The bag lifted cleanly off the Students back in that situation.

There seemed little to choose between either exit position from a safety point of view. On balance the FFE would be the best one to go with. It does equip a Student with the basic exit skill that will lead to the free fall exit position.

With either FFE or RFE no less than 2 or perhaps 3 exits of that type would be required before moving to the " standard exit" before DRP training.

Doug Peacock gave the meeting details of military style exits particularly on RFE s and asked for CCI's thoughts on this. Doug believed that this type of exit should be an option for those people doing a one off jump.

Quite a lengthy of discussion took place on this item and several CCI's present provided the meeting with details on the different types of exits practiced at their particular Centre.

Following further discussion, it was proposed by David Hickling and seconded by Trevor Dobson that any Club or Centre wishing to carry out forward (FFE) or rear facing (RFE) exits for Static Line Students, must obtain STC permission first and any request must give details of the proposed training syllabus, including details of conversion to the stable spread position for continuation training.

**Carried Unanimously**

### **Entanglement Drills**

One of the recommendations by the Working Group that had already been agreed by STC was the mandatory teaching of equipment/body entanglement drills to ab-initio Students

David Hickling stated that the Working Group had found that this was an area drills differed greatly from Drop Zone to Drop Zone. All DZs had drills that they believe are the best for their own situation.

The common points in all drills were:

- Check Altimeter
- Have a plan if above a certain altitude
- Have a plan if below a certain altitude
- 

### **Two Parachutes Out Drills**

David Hickling stated that the BPA mandate is quite clear here - " Do not cut away" unless the parachutes form a ' downplane' . He also stated that the Working Group found that some very experienced Instructors had doubts regarding this rule.

Following some discussion on this item, CCI's present were happy with the current teaching concerning these drills.

### **Under Canopy**

The Working Group felt it was important to have a plan, one that the Student can understand. David gave the meeting details of what the USPA are now teaching, which CCI's may wish to consider. He stated that USPA teaching is now based on the conventional Play Area, Down Wind, Cross wind, but when into wind for landing excludes S-turns on the final approach. The reasoning behind this is that it reduces the possibility of landing in a turn and reduces the possibility of interference with other jumpers who may also be on landing approach but unseen. This may even help to develop good habits for later on.

Many CCI's present felt that there was definitely a place for 'S' turns to be taught at the right altitude.

David stated that if this system is taken up, a Flight Plan becomes more important, as will the selection of a Landing Area. There is no doubt that, at certain Drop Zones, the Student Landing Area is either not clearly defined or maybe relatively close to hazards.

What the Working Group would like to impart is that we perhaps we do need to re-evaluate our Student Landing Areas and make sure what we have a Flight Plan for that Student in the air to make sure that we have not perhaps become a little too complacent with the performance of square parachutes, especially when backed up by radios that we believe will 'never' fail.

## **3. INSTRUCTOR TRAINING**

### **General**

The Working Group believed that the standard of Instructors who deal with first time jumpers and early freefallers may not always be as high as they would expect.

David outlined the Working Group's reasoning for this and stated that often first jump courses maybe left to the less-experienced Instructors and the same can be said regarding dispatching static line students. While this does not happen at every Club, there are many Clubs where it does happen, it is a fact of current skydiving life. Therefore, the Working Group felt that something must be done to improve this situation.

Nowadays, Instructors/Jumpers quickly move on in this Sport, using their skills to earn money via AFF, Tandem, Video, WARP, all of which are more glamorous than teaching first-timers.

The majority of CCI's present believed that the less experienced instructors do a good job. It was suggested that perhaps the Instructor to Student ratio maybe inappropriate in some cases particularly on RAPS Courses.

It was felt that this suggestion had a lot of merit and was worth thinking about as it was generally felt by those present that smaller groups of Students progress better.

Following further discussion into this matter, it was the general census of opinion that RAPS Courses might have peaked at 12 and perhaps it was time to consider taking less Students on a Course.

### **Dispatching Drills**

Firstly, the Working Group had felt that an area that should be looked at was on the BPA Category System Basic Instructor Course and whether enough time was taken on the teaching of basic dispatching drills.

David Hickling stated that at the moment the normal practice is that it is left very much up to the individual Centres to teach the drills that they want at their particular Centre.

John Hitchen stated that he believed that the Examiners do take enough time on the teaching of dispatching on Instructor Courses and stated that it is drilled into candidates the correct way to dispatch. John advised those present that there had been a number of occasions when a CCI had contacted him following one of their candidates attendance on a Course stating that they were dispatching wrongly, yet they were told the correct way on the Course.

John Hitchen stated that the Examiners on the Course 'drill' it in to Course candidates that the static line must be controlled and must be held high – and yet when some Instructors dispatch, they run the static line directly from the strong point (low point) to the door with their hand before the Student has left the aircraft. John stated that candidates are told that this must not happen and he stated that he believed that it had certainly played a part in some incidents.

John Hitchen stated that he had received comments from candidates that “ My CCI has told me to dispatch like this” .

David stated that the consensus of opinion had always been that the static line must be held high whether it is sitting exits, step exit, high strong point, low strong point to avoid wherever possible contact with the Student. David stated that this definitely has not been happening at all Clubs.

It was pointed out that sometimes because of poor weather, dispatching has not taken place on a CSBI Course.

John Hitchen stated that he could not remember such an occasion, but stated that candidates definitely do the Ground Schooling whether they dispatch or not and in fact they are familiarised with the aircraft even on the CSI Course whether they dispatch or not.

Tony Butler stated that whether dispatching takes place on a Course or not, it is still expected that the candidate goes back to his/her Club and be properly trained and coached by their own CCI. Because it may be a different aircraft and it may not be relevant to the aircraft that they use on the Course.

Tony Butler also stated that himself and the NCSO would like STC to endorse that the 'standardisation' of dispatching means holding the static line high and keeping it under control whatever aircraft the Student is jumping from.

The Working Group had felt that there was a variation in dispatching techniques and that there was a real need to re-educate both Instructors and Pilots on these basic drills. The importance of aircraft airspeed (how long must it be between the 'cut' and getting the student in the door), control of the static Line, control of the student in the door, etc cannot be over-emphasised.

David Hickling stated that we, as CCIs, should be giving continuation training to all our Instructors, even those who have been doing the job for years. He stated that Pilots have to have check-out with a Type Rated Instructor/Examiner and asked the question - Do we need some form of re-assessment for Instructors.

CCIs present believed that there was some merit in this, as teaching methods change over the years and it would be beneficial for Instructors to get back into the classroom occasionally to get up to date on current teaching methods.

Tony Butler stated that we do have a system in place for annual assessment/evaluation and this is done at annual instructor rating renewal time when the CCI and Examiner signs to say that they are satisfied that the Instructor is current in all aspects of parachuting relevant to his/her status.

We do have a system in place it just needs to be a little more active, it was not just a matter of signing them up, Instructors should be personally assessed on current teaching practices.

He believed that this was the opportunity of reminding CCI/s Examiners signing up rating renewals that they should be satisfying themselves that person is current and up to date with modern teaching practices.

A suggestion was put forward that the BPA should run assessment courses/seminars for Instructors. Tony Butler said that there were a number of seminars at the BPA AGM relevant to Instructors, but not many instructors attended them.

David Hickling asked Chris Allen for his views with regard to the system that we had at present for signing up rating renewals.

Chris stated that Instructors are technically assessed on an annual basis by the CCI/Examiner signing them up. They are signing to say that they current and able to do the job. If they are not happy that the instructor is not current then they should not sign the rating. Occasionally what happens is that an Examiner may sign a rating of someone that they do not know on the basis that he/she is taking the word of the CCI. Issue may arise in the future if the Examiner does not know the person they are signing up.

Chris Allen went on to say that other areas of aviation such as flying do continuation training and that many of the flying clubs have safety evenings where representatives from for instance, the CAA, come along and give presentations on various flying aspects including up to date information on safety issues etc.

Chris felt that perhaps it would be possible for the BPA to have a similar thing where a club could run a safety evening giving lectures on whatever they wish and anybody could attend. Perhaps this could be added onto the membership renewal form that the applicant has attended one or two of these safety evenings.

This suggestion was discussed by those present and it was felt that idea of safety evenings that could be introduced on a more formal basis that could be part of the annual assessment.

Mark Bayada suggested that Instructors keep a log of any instructional work or lessons that they do. This would be an aid for Examiners in that they would then be able to see written evidence of the work they what they had done.

The Committee felt that these suggestions were a good idea and may be worth further consideration. Mark agreed to draft a form. (Draft copy attached).

#### **4. RADIO TALKDOWN**

David Hickling stated that this subject had been looked at in the past and that a set of guidelines is laid out in the Radio Operators Guide. He stated that some CCI's however, question the rule that states that we must not ever tell a Student to " cut away" .

David Hickling asked for a show of hands from those present as to how many believed the rules should be changed regarding this aspect. 8 CCI's thought the rules should stay the same and 8 CCI's believed that rules should be changed so that Clubs were given the option to be able to tell the Student to " cut away" .

Many CCI's present felt that they should have the option to make their own rules at their own individual Centre with particular reference to their level of activity.

It was felt that there was enough ' split' interest shown by those present to review this rule.

The Technical Officer agreed to draft a change to the current requirements for STC to consider. (Draft attached).

#### **5. AIRCRAFT SUITABILITY**

The use of " Step Exit" aircraft for Static Line and early freefall was questioned by the Working Group. The consensus of opinion was that the use of this type of aircraft exposes Students to a greater degree of risk than that which was present by using an aircraft allowing a " Stting Exit" .

The Working Group considered that the greater risk was generated by the actions of the Student, such as:

- i) Slow out, deep spot, off landing, no or poor radio contact
- ii) Falling forward off the step
- iii) Pushing off with the arms but leaving the feet on the step – back looping
- iv) Hanging on the strut
- v) The container opening during climb out, either main or reserve
- vi) Most people can make contact with the underside of the aircraft wing

With regard to the Instructor, with the “ Step Exit” the Instructor is faced with some of the following problems:-

- i) The Instructor has to move clear of the doorway to let the Student climb out, thereby losing some control.
- ii) Once outside the aircraft the Instructor has little or no control over the Student
- iii) The Instructor has to hold the static line up high, but even then there will be several feet of static line out in the slipstream near the Students arm. Yet again a situation which is outside the control of the Instructor.
- iv) There is a major problem if there is a student refusal

It was the general opinion of the Working Group that the use of step exit is greater degree of risk than sitting exit.

Ian Rosenvinge gave the meeting details of his experience of step exit aircraft and stated that his experience over the years did not indicate that. He stated that until statistics had been presented to CCIs indicating that step exits were more dangerous, there was no evidence on which they could base their decision on this matter,

Tony Butler stated that Rob Noble Nesbitt had asked him to pass on his comments to STC on this matter.

He stated that Rob used a step exit aircraft at his Centre and although he was not disagreeing with the Panel in terms of the potential risk that is there, but because of the way he operates his aircraft and trains his instructors, that risk is minimised.

Following further discussion on this matter, it was felt by those present that there was more potential for problems from a step exit aircraft. However, there was no evidence to support the Working Group’ s findings.

David Hickling thanked everyone for their attendance and for their input that evening. He stated that he felt that it was incumbent on all CCIs to go back and re-look at the way that they do things. He stated that because he had been working on this Panel/Working Group for a long time it had certainly made him more aware of what goes on at his Centre. He stated that he believed that it was occasionally a good thing to audit what we do. He stated that he hoped that the work carried out by the Working Group and its findings in some way helped to reduce the amount of incidents at Clubs and Centres.

John Hitchen then took Chair and thanked David Hickling and the rest of the Working Group members for the hard work that they had put in to this project.

20 October 2004

**Distribution:** C. Allen - Chairman BPA, CCI's, Council, Advanced Riggers, CAA,  
Lesley Gale (Editor – Skydive)