

Blue Skies, Soft Landings

Tandem Skydiving with Disabled Passengers

by Jay Stokes and Bill Purdin

Tandem skydiving has changed the skydiving world. It's rocked the world for hundreds of thousands of individuals who have done it with qualified and experienced tandem instructors. It has also put skydiving within the easy, weekend reach of almost anyone who wants the thrill of freefall and the freedom of canopy flight. Almost.

For people with serious physical and mental disabilities this has not been necessarily so. But, there's a new day dawning with an innovative special tandem harness for passengers with disabilities. The use of this new equipment will require some extra training for the instructor and the passenger, and not all tandem instructors will be able to use it, but the door to a safer special needs tandem skydive is opening with the advent of this gear.

The average "new" tandem instructor is usually well-trained for the job for average people who show up at the drop zone. But when approached by an individual with a physical or mental disability the response has been — too often and understandably — tentative at best. The standard equipment



is designed for passengers who can achieve a somewhat appropriate exit position, who can control their bodies somewhat in freefall, and who can manage to lift their legs at landing. Taking a person out of an aircraft who can do none of these things presents a challenge, to say the least, to almost any tandem instructor, regardless of experience. The standard tandem harness, in these cases, is not appropriate and potentially can create an unsafe situation. The new “Special Tandem” harness solves the problem.

This new harness, when properly adjusted, will easily and safely contain a passenger/student. Working with Strong Enterprises and United Parachute Technologies, we have developed, through many iterations, a harness assembly that radically reduces the possibility of a passenger with disabilities falling out of the harness. The fitting of the harness is highly customizable, and the additional straps and webbing can be used to ensure the security of the individual. With the assistance of a French designer, a pair of “freely” pants were designed to give the passenger a comfortable, and skydiving-stylishly fit jumpsuit. The passenger will be safe and their legs and feet will be easily raised to a seated position for a safe landing. (See photos)

Attaching and securing the legs of the passenger is easy and recommended. This is achieved with the special webbing and Velcro strap assembly (right). This is important to prevent the passenger’s legs from “flying up” on opening and perhaps getting caught in the lines or, in the case of “brisk” or hard opening, the passenger’s legs could break or dislocate. This new harness/pants assembly, properly fitted, prevents these occurrences.

Some important considerations.

Medical issues. Anyone who has spent any time around a drop zone knows that people with disabilities present themselves for skydiving on a regular basis. Their courage and sense of adventure is well known and inspiring. Blindness, hearing impairment, amputees, mentally challenged, muscular sclerosis, muscular dystrophy, cerebral palsy, and spinal cord injuries ... nothing seems to stop them. Except our lack of readiness. This pants/harness assembly is intended to address paraplegic and quadriplegic individuals who are normally wheelchair





dependent. These individuals will require special care for harness adjustment and/or the use of additional restraint devices. *It is strongly recommended that you obtain a medical release statement from a physician prior to jumping.*

Tandem Instructor Experience and Limitations. The USPA has established no minimum standards for tandem instructors to jump with special needs tandem passengers. Common sense should dictate who is the most capable instructor to conduct a special needs jump and when such a jump can and should be made. Perhaps a big “sky god” ego is the worst disability of all but in no way should this effect the safety of special needs passengers. Here is a list of recommendations on this issue:

- Instructor should have at least 200 tandem skydives as the instructor
- Instructor should be at least as tall as the passenger, or at least within a few inches.
- Instructor should be physically capable of partially lifting the person they are jumping with
- Instructor should be physically capable of landing safely without the assistance of the person they are jumping with
- Instructor should have special training from another experienced TI on the methods of conducting a special needs tandem skydive



Passenger Training.

Additional training, beyond the basic briefing, must be accomplished. Ensuring that the individual is confident that the equipment is well constructed and safe, along with the particulars of sitting in the door and rolling out, hand placement (if possible) for exit, and landing procedure is paramount. These individuals are well aware of the



difficulties of moving around in our world and in such a high stress situation like a skydive you can be very sure that they are looking for full disclosure of all information needed to thoroughly understand what is going to happen and what to expect. If anything special needs passengers are more mentally and physically “in the skydive” than other skydivers. So take your time and communicate fully with the passenger on all aspects for their tandem experience.

Equipment. A standard tandem harness, properly adjusted, will easily and safely contain a passenger. Strong Enterprises and United Parachute Technologies have both developed an additional modification to the seat of the standard harness to decrease the possibility of anyone falling out of a harness. The fitting of the harness is standard and should be snug but not uncomfortable. Additionally, we have developed, with the assistance of French designer, a pair of pants designed to ensure that the passenger is comfortably safe and that their feet and legs will be raised in a seated position for landing.

Aircraft considerations. Type of aircraft. It is strongly recommended that a large-door aircraft be used. It is difficult enough to get any regular passenger out of a small-door (C-182, C-206P) without a lot of additional physical effort. Special needs passengers can be far, far more challenging to move around in a small space. Otters, Caravans, Porters, Pac-750s and C-206U models are all ideal aircraft for special needs skydiving. They have large doors, are easy to move into a seated position for exit, and they allow for assistance to get the passenger’s legs outside for ease of exit. It is NOT recommend that special needs tandem skydives be conducted out of a tail gate type of aircraft. The additional weight of the passenger and overall control by the instructor could be limited. Aircraft procedures. Once aboard the aircraft it is recommended that instructor and passenger attach (in case of emergency bailout). Other considerations are:

- The instructor must be physically capable of lifting the person they are jumping with to get them to the door.
- Assistants (if used) should be physically capable of assisting and potentially lifting the individual attached to the instructor.



- Physical hand placement for the passenger for exit. If the individual is a quadriplegic, you may need to affix their hands to the harness for safety.

Freefall and Droguefall Procedures. The tandem instructor should achieve stability and set the drogue within three to five seconds. The instructor must be physically capable of controlling the tandem pair throughout freefall and droguefall. The instructor should fully brief any accompanying videographers or other skydivers on all aspects.

Attaching or securing the legs of the passenger to the tandem instructor's legs is recommended. This can be done with webbing, Velcro, or a strap assembly (see photos). This can be important because a passenger's legs could fly up at opening and get caught in the lines or, if it's a hard opening, the

passenger's legs could be injured severely.

Canopy flight and landing.

- The instructor must be physically capable of flying the main or reserve canopy without assistance from the passenger.
- The RSL (reserve static line) should be released at 1,000 feet AGL in case the tandem pair cannot landing near the ground assistants and the canopy cannot be collapsed.
- Ground assistants should be physically capable of assisting and potentially catching the person attached to the instructor.
- Physical hand placement of the passenger for canopy flight and landing is essential. If the person is a paraplegic they may be able to assist with the flight of the canopy, *but not the landing.*
- For landing, have them lift their legs (if possible) and hold their harness for safety.

Training for ground assistants (at least two) for loading the aircraft, exiting, and for landing. The assistants should be strong and capable of lifting the individual into the aircraft. Using a two-person technique to accomplish this task is best. They should also be trained and capable for lifting and assisting in the movement of the passenger in the plane for positioning prior to exit. On landing, the fully-briefed assistants should move into position to "catch" the tandem pair,

especially the passenger's legs.

Many special needs tandem skydives have been safely made in the past. That experience is key to this new procedure and equipment. It is a privilege to work with these courageous special needs skydivers and most instructors will experience the thrill of these wonderful jumps almost as fully as do their passengers. However, experience has taught us also how stressful these jumps can be. Please take the time to become educated and trained on how to properly and safely conduct a special needs tandem skydive. Be sure to use the proper and appropriate equipment. An excellent guide was published in 1995, "Tandem Skydiving with Wheelchair Dependent Persons: A Practical Guide for Skydiving Instructors," by Paul Murphy. It is available from the United Parachute Technologies Internet site. For a deeper and more complete discussion of this topic go also to: CertificationUnlimited.com/SpecialNeedsTandem.html.

Jay Stokes holds all military and civilian skydiving-related ratings including all examiner ratings. He has over 16,500 skydives including 5,000-plus tandems, 6,000 plus AFF jumps, and is a four-time world record holder. He is also Vice President of the USPA Board of Directors. **Bill Purdin** is an S&TA, AFF/IAD/Tandem Instructor and a frequent contributor to *Parachutist*.