

SU-bulletin #01 2017 Tandem

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Presiseringer vedrørende tandemhopping i regi av NLF

Etter vurderinger av økt antall hendelser i Norge og utlandet, samt justeringer i reglement for tandemhopping i utlandet og produsenters manualer, har SU gjort noen endringer i håndboka. Disse endringene trådte i kraft fra 3. april 2017.

Endringene fremkommer av revidert Håndbok. De fleste endringene er i del 100.

- Oppfriskningshopp nr en av to etter opphold i mer enn 6 måneder kan nå også gjøres med annen tandeminstruktør i stedet for solohopp. Dette for å unngå lav wingload som tidligere har ført til reserver eller nær reserver.
- Exit skal gjennomføres stabilt med magen mot relativ vind. Ingen ustabile avsprang tillates. Dette for å minske risiko for sidespinn, å slå hodet i staget, eller forsinket/urent drogue-kast.
- Drogue-kast skal gjennomføres mellom 3-5 sekunder etter avsprang, men som før ikke senere enn 10 sekunder. Man skal fly kroppen før man kaster drogue, derfor etter 3 sekunder.
- Presisering om gjennomføring av full håndtakskontroll før og etter avsprang (ikke endret regler, bare presisering i håndboka).
- Lagt til regler for minimum antall hopp for å hoppe sammen med tandem (200 hopp), men skal godkjennes av TI. Ingen kontakt under 6500 fot.
- Trekk skal gjennomføres slik at bærende hovedskjerm oppnås innen 4000fot.
- Ved landing er det maksimum tillatt å gjøre 90 graders sving som skal være avsluttet i 100 fot. For å redusere skadeomfang ved feilbedømming av siste sving. Mindre hastighet = mindre skader. Selv erfarne instruktører gjøre feil.
- Ved tandem demo skal tandeminstruktør selv godkjenne landingsfelt.

Det er også gjort noen endringer på tandemregistreringsskjemaet (fødselsdato for elev, og signatur for opplæringsprogram).

Alle disse endringene og presiseringene er gjort for å ivareta sikkerheten til tandemeleven og instruktøren. Vurder også kvalifikasjonene til kandidater til tandeminstruktørkurs nøye. Hvis de ikke flyr bra på magen alene, vil de ikke fly noe bedre på magen med en ekstra person foran seg! De skal ikke lære å fly kroppen sin på kurs, det må de kunne på forhånd!

En siste presisering! INGEN klubber har stående godkjenning til å hoppe med funksjonshemmede elever. I alle slike tilfeller skal det søkes om godkjenning til SU, som det står forklart i håndboka.

VEDLEGG: The 16 Commandments of Tandem Skydiving - Explained.pdf

Etter fullmakt

Yngve Bøe Haugom
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Distribusjon

Hovedinstruktører
Klubber
Fallskjermstyret/NLF

The 16 Commandments of Tandem Skydiving Explained

- Tom Noonan

A Collective Voice – Standardizing Tandem Procedures

The “16 Commandments of Tandem Skydiving” presentation was created to address the ever growing need for standardization across different tandem manufacturer systems and the skydiving federations that use these tandem systems. The objective of this project was to create a set of “best practice” standard operating procedures for dropzone owners, tandem parachute system owners and the tandem skydiving instructors using these systems. The scope of the 16 Commandments is to provide a unified collaboration of agreed upon operating parameters between USPA and the tandem manufacturers as a collective body. The tandem system manufacturers that were associated with this process were the United Parachute Technologies (manufacturers of the Sigma and Vector tandem systems), Strong Enterprises (manufacturer of the Dual Hawk tandem system) and Parachute Labs (manufacturer of the Racer Tandem system). Subsequent to the initial creation of the Commandment project, Plexus tandems (manufacturers of the Plexus tandem system) have also joined this working group.

Background

Prior to the introduction of the original set of 19 Tandem Commandments presented to the PIA symposium audience in 2011 in Reno, NV, the United States Parachute Association and the three primary U.S. based tandem manufacturers (referenced above) all had previously published system specific Standard Operating Procedures (SOPs) for their tandem systems. The United States Parachute Association (USPA) had also formed it’s own set of SOPs that mirrored certain aspects of each of the three manufacturer based SOPs. At times these regulations and procedures agreed with each other and at other times they appeared to be polar opposite of each other. Thus, the “tandem commandment working group” set out to create a unified standard for tandem operational procedures that would eliminate any contradictory information and procedures that existed and help to ensure a better understanding and correction of any industry wide tandem operational shortcomings that have been reported over the years. It is important to also acknowledge that the commandments exist not just to bring clarity through unification, but also to reign in the apparent industry wide disregard for certain basic “best practice” safety protocols. Prior to the creation of these commandments, the best practice procedures were simply a recommendation. Today and moving forward, these safety protocols are expected to be implemented as part of each manufacturers operating manuals, and thus fall under the FAA and USPA for compliance and, in if needed disciplinary action.

**Each of the 16 Tandem Commandments has a “raison d’etre” or “reason to be”:
An explanation of which is as follows:**

1) NO JUMPERS UNDER THE AGE OF LEGAL MAJORITY

The intent of this commandment was to simply acknowledge that case law currently exists that parents and guardians do not have the legal right to sign away the rights of a minor not to sue. Thus, a contract executed with a minor is non considered legally binding in a US court of law and is effectively prevented from being able to serve it's purpose.

An additional consideration in this commandment is that in this age of digital media and global communication, the dire consequences of an under age of legal majority tandem passenger being involved in a fatal tandem incident. This worst case tandem incident scenario would result in an industry wide negative perception of the sport. The effect of which would ripple throughout an industry that relies on positive media exposure to ensure continued growth and support from governing aeronautical bodies like the FAA. There already exists evidence in other high risk activities such as general aviation and extreme sports that when these sorts of incidents occur, the entire industry becomes subject to investigation and possible restrictions on operating parameters. Tandem skydiving is a dangerous endeavor and fatal incidents can and do occur.

2) WAIVERS - A MUST

Case law already exists to illustrate that properly executed waivers can hold up in court and protect all parties involved from litigation in the event of a lawsuit brought against anyone involved in a tandem skydiving accident. The costs of even a single frivolous lawsuit can easily be in excess of \$10,000.00 to achieve an early round summary dismissal. If a case ends up being tried in court, legal fees, settlements and judgments can range easily sky rocket into the hundreds of thousands of dollars range. The Release of Liability legal contract, otherwise known as "the waiver" is the only proven resource that the skydiving industry has to combat against frivolous lawsuits. The stronger your waiver is, the less likely a plaintiff's attorney will consider filing suit against a dropzone, as like any investment in time and resources, lawyers look for weak waivers and loop holes. Ensuring that your dropzone waiver is based on current state law and thorough, a good waiver can protect against the majority of frivolous claims. To operate in such a high risk environment as tandem skydiving, simply does not make sense. Periodic review of the dropzone waiver should be done to ensure it's validity and that it covers everyone involved in the operation. (INSERT A PHOTO OF UPT WAIVER)

3) TANDEM PASSENGER HARNESS MUST BE IN JUMPABLE CONFIGURATION PRIOR TO BOARDING AIRCRAFT

Aircraft emergencies will never be eliminated, thus it is reasonable to expect that skydiving related aircraft emergencies will continue to be a reasonable risk to our industry. As a result, every tandem passenger must be fully harnessed prior to boarding the aircraft to ensure the ability to exit an aircraft quickly and efficiently in the event of an emergency. Failure to do so, to properly fit a “jump ready” passenger harness will result in one of two outcomes in an aircraft emergency. 1) Delays in exit for the tandem pair and anyone behind them in exit order as last minute adjustments are made, or 2) the tandem passenger will be forced to exit the aircraft with a passenger harness that was not properly fitted for freefall. The results of either outcome could be catastrophic in nature. In order to ensure that tandem student harnesses are properly fitted and in jump ready configuration prior to boarding aircraft, tandem instructors must routinely review manufacturer procedures for passenger harness fitting. (INSERT PHOTO OF PROPERLY FITTED HARNESS)

4) MINIMUM EXIT ALTITUDE 7,500FT AGL

Incident report data validates that a considerable number of tandem incidents begin with low altitude exits. The reasons for this could be far and wide, but a generally agreed upon factor is the change to the standard operating procedure of the tandem master that begins as the catalyst for such incidents. For example, most tandem masters develop a set procedure from take off to exit altitude that is dependent upon altitude based procedures. For example, on a normal climb to 13,500ft AGL, at 5000ft AGL, a verbal rehearsal of the skydive is conducted with the passenger. At 7000ft AGL a full system check is done. At 9000ft AGL, the hook up sequence is begun in a rhythmic methodical manner. Put simply, exits from considerably lower altitudes break the tandem master’s rhythm. Once that rhythm is broken, the comfort level of the tandem master decreases, with a concurrent, measurable, and visibly noticeable increase in their stress level. When stress levels increased, and with a reduced time frame to conduct in-aircraft set procedures, mistakes in those procedures inevitably occur. The end result, by the time the tandem instructor reaches the door on jump run, his comfort levels have been reduced, his stress levels have been increased, and some of his procedures and checks have possibly been missed. Thus as the tandem master exits the aircraft, rather than operating and performing in an AUTOMOUS nature on a subconscious skill level, the tandem master reverts back to CONSCIOUS efforts which inevitably create instability and the incident chain begins. (Show photo of tandem with drogue around the ankle)

5) DROGUE MUST BE DEPLOYED WITHIN 3-5 SECONDS

This commandment is a simple one that recognizes that with the success of wind tunnel training that today’s skydivers are developing skydiving skills at an extraordinary rate, and unfortunately applying some of those skills, ie head down

tandems, to their tandem skydiving. Beyond just flying tandems head down, tandem instructors have also been known to purposely take every exit to tandem terminal before setting the drogue, out of boredom one would presume, which drastically decreases the life expectancy of the deployment system components and drastically increases the possibility of the deployment system malfunctioning. (INSERT A PHOTO OF DROGUE DEPLOYMENT)

6) HANDLES CHECKS IN THE ORDER THAT YOU WILL USE THEM PRIOR TO EXIT AND AFTER DROGUE DEPLOYMENT ON EVERY JUMP

The statistics clearly show that developing an autonomous response via developing muscle memory will better ensure that in an increased stress environment of a malfunction that the tandem instructor is more likely to activate the handles in the proper order, thereby increasing the probability of a positive outcome from the malfunction. It also ensures that none of the operating handles were dislodged during exit or the period of drogueless freefall. Given the large number of tandem incidents caused by out of sequence emergency procedures, this process ensures that the tandem master will have the best chance for achieving a positive outcome of an emergency procedure. It has also been stated that developing a consistent methodology of incorporating handles checks on every jump shows a level of professionalism that may provide liability protection in a court of law if the instructor is ever accused of not following manufacturer operating procedures. With video proof, handles checks are an excellent asset in defense of the tandem instructor. (INSERT PICTURE OF TANDEM INSTRUCTOR PERFORMING A HANDLES CHECK)

7) RW MUST CEASE BY 6500ft AGL

A simple commandment. In order for a tandem master to safely clear his airspace before deployment, anyone performing RW with a tandem pair must vacate that airspace by 6500ft AGL. (INSERT A PHOTO OF TANDEM RW)

8) DEPLOY MAIN PARACHUTE/PULL DROGUE RELEASE WITH ENOUGH ALTITUDE TO ENSURE AN OPEN MAIN PARACHUTE BY 4000ft AGL

Based on considerable feedback from the field since 2011, the original request of "deploy by 5500ft AGL" simply did not make sense, in that it did not assure the intended result, which was an open main by 4000ft AGL. The reason for this is simple. With so many tandem main parachutes out there in size, shape and age of use, no two tandem parachutes seemed to open with the same altitude loss. Hence a more manageable commandment was enacted. Regardless of how long it takes for a main to open, it needs to be fully inflated by 4000ft AGL. This allows the tandem masters to deploy at altitudes appropriate to the equipment they are using and still meet the procedural need of the commandment, which is to give tandem masters enough time to deal with minor malfunctions before reaching their hard deck, thus lowering the overall number of "low pull" tandem main malfunctions and cutaways. Cutaways that occurred because the tandem master pulled so low, he didn't have

time to fix the minor malfunction, like a tension knot for example, before reaching the cutaway hard deck. (INSERT A PHOTO OF DEPLOYMENT)

9) MAINTAIN ADEQUATE SEPARATION UNDER CANOPY – 100FT OR GREATER

An unfortunate consequence of canopy piloting evolution is that an alarming number of tandem masters took to performing tandem canopy relative work. Whether it was simply flying in close formation or actually conducting canopy docks, this practice was seen as an ultra high risk activity and effectively banned by all tandem manufacturers and USPA. Thus the 100ft separation is designed to put an end to tandem CReW. (INSERT A PHOTO FROM THE GROUND OF 2 tandems in flight)

10) NO HOOK TURNS (NO TURNS OVER 90 DEGREES)

There has become an alarming number of tandem incidents, both fatal and gravely injurious, as a result of aggressive high performance tandem canopy landings gone wrong. Whether the tandem master performed a high speed “toggle whip” and or induced a turn over 90 degrees, these turns when done too low, result in catastrophic results. The behavior stems from the attempt to take high performance sport canopy flight and apply the same principles to tandem canopy flight. This is a behavior that must be regulated to a stop, and that is the intent of this commandment.

There is a clearly defined reason for this restriction of turns 90 degrees or less, in that, no matter how proficient or current the tandem canopy pilot is on any given tandem skydive, the fallibility of human nature is that everyone is capable of making mistakes, that everyone is prone to an error in judgment. Errors in judgment often occur under fully functioning parachutes, both sport and tandem. These errors are rarely made by low skill level skydivers, rather they tend to be made by higher level skydivers that find themselves in unfamiliar territory, behind the performance curve of their parachute.

Given that there are tandem instructors that make turns under 90 degrees to final and if this commandment is ignored, there will also continue to be tandem instructors that insist on making turns over 90 degrees to final. If both categories of tandem instructors continue to make these turns, 90 degrees and under as well as over 90 degrees, both groups will continue to make errors in judgment, occasionally making low turns, resulting in impacts with the ground while still in a turn. The critical item in this commandment is that based on years of historical data, it is evident that when mistakes (low turns) occur at 90 degrees or less, the result is not fatal to either instructor or passenger. In most every catastrophic injury to passenger and/or instructor, and in every fatal tandem incident resulting from low turns under fully functioning tandem parachutes, the turn initiated by the tandem instructor was over 90 degrees. It's really that simple. Mistakes made with turns under 90 degrees, result in, at worst, a trip to emergency room for a foot or lower

leg cast. Turns gone wrong over 90 degrees result in femoral breaks, shattered hips and fatal impacts with the ground. Based on the incident statistics, if turns over 90 degrees were removed from tandem parachute landings, there would never be another fatal tandem canopy landing incident.

11) STABILIZED ON FINAL BY 100FT AGL

As almost an addendum to the prior commandment, this commandment is a direct response to the low turn “hook turn” where the tandem master attempts to time a low turn to get the canopy to plane out just as it reaches the ground, and thus “turf surf” the tandem canopy with a speed induced turn. This maneuver is one of the leading causes of tandem passenger injuries around the world. By implementing a “wing level” commandment, low turn maneuvers can be put to a regulated stop.

12) REPORT ANY CUTAWAY

It is only through the thorough reporting of cutaways and malfunctions during the tandem exemption period that the manufacturers learned of the materials and design areas that needed improvements. These improvements have led to today’s modern designs that have a malfunction rate at a fraction of the level of what they were 25 years ago as a result. It is unfortunate that in today’s litigation based society that many end users are reluctant to provide such information today, for fear of that information being used against them in a law suit. Failure to file incident reports and cutaways today only serves to slow if not stop the manufacturing progress of continuing to improve components and procedures for tomorrow.

13) VIDEOGRAPHER MINIMUM EXPERIENCE

A clearly defined methodology that is intended to ensure that anyone flying in close proximity to a tandem pair has developed the necessary basic skills of swooping down to the tandem pair, stopping at a safe distance and clearing the airspace prior to deployment. The intent of “camera work” experience is belly flying with traditional camera equipment, not simply skydiving with a GoPro camera on freefly jumps or solos. It is the approach, level flying and tracking skills of an experienced aerial videographer that this commandment speaks of. (Show picture of tandem with outside view)

14) 100 TANDEM JUMPS BEFORE USING HAND CAM

With the proliferation of HandCam use in modern tandem skydiving operations, it was important to put into place a basic framework to ensure that any tandem instructor putting a HandCam on while making tandem skydives developed at least a minimum level of both comfort and operational awareness of the tandem system he was using before adding the additional complication of HandCam use. It is

important to emphasize that the HandCam compliments the tandem skydive, it does not super cede the operational needs of the tandem system. (ie, Handles checks must not be sacrificed due to use of HandCam). (Show outside photo of tandem using handcam and also show cover of UPT's hand cam treatise)

15) ADHERE TO MANUFACTURERS MAINTENANCE AND PACKING INSTRUCTIONS

Put simply, dropzones that adhere to manufacturer maintenance requirements and packing instructions enjoy a vastly reduced malfunction rate. Malfunctions increase risk and increase cost. Both risk and cost can be reduced by implementing manufacturer maintenance schedules and manufacturer packing methods. (Show a picture of the Sigma and Vector manual covers)

16) THERE MUST BE A MINIMUM PASSENGER BRIEFING ACCORDING TO FAR 105.45

It has become clearly evident in recent years that several dropzones are unaware of their obligations to operate under FAR 15.45. Failure to comply with 105.45 jeopardizes the pilot's commercial pilot certificate. Failure to comply with 105.45 can also be used as a basis to break a dropzone's waiver, as it is a federal document and can carry considerable weight in a court of law. It is the responsibility of all commercial parties involved in making a tandem skydive to be fully knowledgeable of the impact that failing to follow FAR 105.45 can have on a dropzone operation. Thus it is every commercial party involved in a tandem skydiving operation to be thoroughly knowledgeable about it's content and their compliance with that content. (Show a picture of 105.45