

TANDEM NEWS



A PUBLICATION BY STRONG ENTERPRISES
FOR TANDEM INFORMATION

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1999 PIA Symposium Specials!

Now is the time to order your new DUAL HAWK TANDEM SYSTEM.

We're rolling back the prices just for the Symposium! Order anytime between December 1st thru the end of the PIA Symposium (January 14th) and save \$2,000.00 off the regular price of \$10,247.00!

Purchase a **SET 400** ANYTIME BETWEEN December 1st thru the end of the Symposium (January 14th) and save 10% off the regular price of \$2,800.00! That's only \$2,520.00!

Have a trade-in Tandem Canopy?

Bring it and knock the price down 10% below the trade-in price of \$2,240.00. That's the lowest price ever for a **SET 400!**

Have a trade in Harness/Container?

Bring it along and get a complete new system for only \$1680.00.
(Price includes instructor and passenger harness, all handles and loops).

Strong Enterprises will have complete Dual Hawk Tandem systems and components available for you to pick up at the PIA Symposium in San Diego, Jan 10th thru the 14th.

Pick it up at the PIA Symposium and save shipping!

Check out the NEW - SET-360. Our newest tandem canopy.

Strong Enterprises will have our entire sales staff at the show to assist you, and answer your questions on tandem gear, student equipment and skydiving gear.

Sessions:

Be sure to attend **Bill Morrissey's** presentation at the **Symposium on Tandem Exits**, see unusual exits from different types of aircraft, see what can happen, good and bad.

Listen to **Chuck McHugh's** session on the **love and care of the SET-400**. Get special packing techniques and handling strategies. How to best take care of your Dual Hawk for long and trouble free service. Maintenance tips. Get introduced to Strong Enterprises' new SET 360 tandem canopy.

Check out **Bob Gilmour's** tour through a **Para-Cushion repack**. An excellent way for your drop zone to service the aviation industry by selling and servicing emergency parachutes. It's an excellent money producer for riggers and drop zones. (We are the leading manufacturer of emergency parachute systems, find out how you can make money with our Para-Cushion line)!

Special: On January 7th there will be a **GPS Cargo Express** drop at Air Adventures in San Diego. Come watch a cargo drop, land closer to the target than you.

Drop Zone Owners:

See us at the show for exciting specials on Quasar Trainers, and let us show you our stuff

The Quasar Trainer and the Quasar II Staff rigs!

FAIL-SAFE SYSTEM

According to Aviation Week & Space Technology magazine (2/23/98), Boeing builds their jets with controls that protect the pilot from himself. Boeing and the FAA recognize that during an emergency the pilot may ask the plane to do something that will make the situation worse, or fatal. The computer is now smart enough to ignore the pilot when necessary. Strong Enterprises reacted in the same manner as Boeing when addressing inappropriate actions of Tandem Instructors during an emergency. We had one tandem fatality involving a prematurely opened main container followed by the Tandem Instructor's failure to release the drogue before cutting away and activating the reserve. That action resulted in an out-of-sequence deployment which caused the reserve to entangle with the drogue and main which were still attached to the drogue riser.

We immediately focused our attention on the prevention of this type of occurrence by reconfiguring the Dual Hawk Tandem System cutaway system to release the drogue if the Instructor has not already done so. Since we installed the change, we can trace three saves to this cutaway/drogue release. Yes, there are six people alive today because we designed this simple tool that would protect the Instructor from his/her own error. These Instructors fell victim to failure to release the drogue before cutting away. Fortunately, the breakaway/drogue release activated the Instructors' main ripcord for them. Unfortunately, this information had to be found out accidentally. The Tandem Instructors were either embarrassed or thought that they would be reprimanded for this human error. Not the case! Others need this information in order to develop confidence in this fail-safe system. You may save a life with your story, or lose one with your silence.

"STEP-IN" AND SIZE "SMALL"

Step-in and small size passenger harnesses are options. Requests by Dual Hawk owners has prompted Strong Enterprises to offer the step-in passenger harness as an option. In addition to the step-in feature we will include a more comfortable foam padding. We have been using one for the past several months at several DZs and the Instructors who have ridden in it like it. An attractive by-product will be that the passenger will not be able to unthread his/her leg straps in the airplane, as has happened before. The small passenger harness may fit your needs if you find that you run out of adjustments with small people.

DESIGN IMPROVEMENTS

Strong Enterprises has made four design changes to the Dual Hawk Tandem System directly aimed at preventing premature opening of the main container, and protecting you from the associated dangers.

1. 7" flex closing pin.
2. Spandura tuck flap on the main container.
3. 1800 lb. flat woven Spectra closing loops.
4. The breakaway/drogue release.

Yet, even after nine tandem fatalities of this type, on systems from different manufacturers, it still happens. What could be going wrong?

We have evaluated newly manufactured drogues, as well as drogues that had curved pins but had been modified in the field to the flex pin. We took packed rigs and hand tacked the cover flap in the open position for viewing during drogue-fall. We took videos and 35mm shots of the fully seated pins. We are happy to report that one out of six pins moved about one inch (out of a possible seven), while the other five remained fully seated. The things that we can

attribute open containers to would be: For some reason the dimension on the drogue bridle between the large ring and the closing pin is incorrect (too short). This should be apparent with a test on the ground.

2. The Kevlar® bridle above the ring is not clear of the pin bridle during the packing process. This could pull the closing pin during drogue deployment. To satisfy yourself that all is well back there at your closing pin you can do the same test. Make sure to do your handtacking while the container is open, so as not to sew your main D-bag to the closing flap.

Additional care during exit is advisable so as not to snag your exposed closing pin bridle.

LENGTHY SET-400 OPENINGS

There is a danger in the video/relative work person trying to open level with the tandem in order to shoot air to air video. Once, when you saw the drogue release and the tandem pair pulled feet to earth, you could count on their canopy being open within three seconds. Not with the SET-400. Normal openings take six-eight seconds. We have had several near misses and one incident where the tandem struck the videoperson, breaking lines and damaging the end cell on the tandem main. Better to see the tandem canopy canopy fully opened before deploying your main. They can spiral down to you. You always have the option to open high and spiral down to the tandem.

CHECK GEAR

Check for airworthiness recertification tags on tandem gear eight years old. The explanation of Strong Enterprises Bulletin 22 states that unless Dual Hawks are in compliance with Bulletin 22, they are not airworthy and may not be jumped. The moment that a Tandem Instructor enters into an airplane with

the intention of making a tandem jump on a tandem system, or parts thereof, that is not in compliance with Bulletin 22, his/her tandem certification is void. Remember, the Tandem Instructor is responsible for the control and supervision of the Dual Hawk System being used. Refer to FAA Exemption 6474C.

UNUSUAL INCIDENTS

1. HANGING-IN-THERE!:

The Tandem Instructor was seat belted near enough to the door to allow him to swing into place and exit without opening the seat belt. He only got far enough to find himself suspended outside the plane. Neither he nor the pilot could release the seat belt because the buckle was jammed against the fuselage, and there was no knife on-board to cut the seat belt. The pilot provided the solution by applying negative G's while he and the Instructor pulled the passenger back into the plane. Whew! Sounds exhausting!

This Tandem Instructor suggests:

- Keep a large hook knife in the plane.
- Brief the pilot on possible problems and what to do for each.
- Move the seat belts to anchors away from the door.

2. DROGUE-IN-TOW:

This drogue got two half hitches in it, so pulling the ripcord did not open the container. The TI reached around and pulled the closing pin. The main opened fine.

PULLING THE RING

Pulling the ring on that cutaway/main static line.

At least two reports state that the Instructors were pulling their drogue release ripcord when, along with the orange PVC handle, they inadvertently grabbed the safety lanyard and ring that is attached to the cutaway handle.

Without any trouble at all they were able to pull both the drogue release and

the cutaway. Take your time, know what it is in your hand before you pull it. That lanyard and ring are there to save your life, not to give you an unnecessary reserve ride.

DEJA VU

Passenger shoulder snaps being left undone. Is it the power of suggestion? One of our Examiners in Europe reported that he observed a Tandem Instructor about to jump with one passenger shoulder snap unhooked. Another concerned Tandem Instructor sent us a video of himself about to exit without either passenger shoulder snaps hooked. As he rocked back on "SET," he moved away from the passenger, which alerted him to the situation. He quickly snapped the passenger in place and continued on with jump. The passenger never knew, and you would never know, if the Instructor did not care enough to let us know in order for you to become aware of your own vulnerability. This highly experienced Instructor caught himself in a grievous error. He attributed this error to being exhausted, then changing his pre-jump procedures in the airplane. This is a good example of the kind of things that happen to Tandem Instructors who let their guard down for a moment by not following their procedures religiously. Yeah, we're preaching again!

FOUND DURING BULLETIN 22 AIR-WORTHINESS RECERTIFICATIONS

Some items that we have found during our re-airworthiness inspection.

The reserves:

1. Service bulletins that were not complied with, such as no-cost reinforcements that had not been installed.
2. Lines that needed replacement.
3. Patches needed.

The main:

1. Lines out of trim or in need of

replacement.

2. Broken stitches on structural ribs.
3. Porosity tests failed.
4. Damaged line attachment points on the canopy.
5. Damaged grommets on the slider.
6. Damaged slider stops.
7. Patches needed.

The harness/container:

1. Type VIII risers. (Type VII became mandatory in Nov. '94 see Bulletin # 19).
2. Damaged main lift webs and horizontals.
3. Homemade ripcords.
4. Bent reserve pins.
5. Long overdue minor maintenance, such as: worn velcro, broken hand tacking, no stiffener in CYPRES pocket.
6. CYPRES batteries 4 years old. (You are required to have a functional AAD! Change your batteries using AIRTEC'S schedule).
7. Cutaway handles with yellow coated cables. (Stainless cable and the Breakaway/Drogue release became mandatory in Nov. '94! See Bulletin # 19).

These are the kinds of problems that led us to mandate a service life on the Dual Hawk Tandem.

LEARN FROM CHRISTIAN

We must be able to learn something from Christian Shoemig in Key West. He owns two Dual Hawks, the packing is done by the same person using the same procedure each time. He made just over 2000 tandem jumps before he had a malfunction, and over 600 since then without a malfunction. He makes his jumps from a Cessna. This contrasts with one DZ operator who tells stories of having so many malfunctions that one of his Instructors had over 25. This operator is not able to think in terms of the malfunctions being the result of his packing and maintenance program (or lack thereof). He blames the equipment! There is ample proof that well maintained and properly packed Dual Hawk Tandem Systems are

getting over 1000 jumps between malfunctions. Tandem Instructors don't need the unnecessary exposure. Make the equipment owner improve his/her program or refuse to jump!

THE EQUIPMENT

1. **The new SET-360!** We are having fun during the evaluation process. We had many requests for a smaller main, and it looks like we may have it.
2. Dual Hawk main closing loops should be 1800 lb. flat weave Spectra. Do not suffer the horror of a broken closing loop, it has proven fatal. Use proper materials.

JUMP STORIES

1. Neither the student nor the Tandem Instructor could find the main ripcords, so at 2600 ft., the TI activated the cutaway/drogue release. This released the drogue and the main, clearing everything from above them. The RSL activated the reserve into clear air. The CYPRES had fired but the closing loops were already released. Knowing that he had to use his reserve, this TI thought his way to a safer reserve deployment and removed the drogue from above him.
2. The control lines were made up of two turning toggles and two flare toggles. Someone had replaced the turning toggles incorrectly and they came off when the brakes were released. The TI opted to land it with just the flare toggles. There was a 6 mph wind and the landing was no problem.
3. Another guy packs a drogue in tow! The same guy missed seeing it by not inspecting it before picking it up to put it on. Not too hard to imagine. He had recently gotten his certification. It just should not happen! If you see the video of a reserve pilot chute entangling with a drogue bridle, it will get your attention and may help you see the finality of this situation.

NEW LINES

VECTRAN® This is the latest in the industry's efforts to provide you with line that will not shrink or stretch to any large degree, and will provide you with a reasonable life expectancy.

NEW DACRON LINE. After previous disappointing experiences with Dacron, Strong went to a 600 lb. flat Dacron for lines on the Master main canopies. This flat line has proven to be very durable.

TANDEM EXEMPTION 6474C

(A) The FAA states that the control and supervision of the use of tandem system is the responsibility of the Tandem Instructor as well as that of Strong Enterprises.

The "use" includes being properly maintained and packed. You're responsible!

(B) "Experimental" has been lifted from Strong's Exemption. You no longer need to inform the passenger that he is an experimental test parachute jumper.

(A) 18 YEARS OLD IS STILL THE REQUIRED AGE FOR TANDEM PASSENGERS.

NEW STRONG ENTERPRISES WAIVER

If you need another copy you can get it off the web page.

If you want to modify it for your business, send a modified copy to Strong Enterprises for approval before using it.

ABUSE IN USE

Abuse in use of the Dual Hawk Tandem. This Master Rigger decides that he knows more about the design and use of the system than the manufacturer. He cut the flap off the anti-line-slump D-bag. This flap is designed to cradle the weight of the stowed lines during bag snatch following drogue release. Line dump is the problem folks! This guy went right back to problems we eliminated ten years ago. Maybe he could not figure out what the ALS flap is for. This is just one example of why Strong Enterprises insists that the system be used as it is designed to be used.

PRESSURE KNOTS

What to do if you have pressure knots in your SET-400 lines. Do not release the brakes without first trying to clear the problem by pulling or snapping the risers. Releasing the brakes first may only send you on a wild ride from which you may have to cutaway. Try the risers first!

You can reduce incidents of pressure knots by neat line stows, no longer than D-bag width, and by double-wrapping loose stow bands in order to avoid slack in the lines during deployment.

PSYCHOLOGY

One sport psychologist says: "It requires 4000 repetitions in order to have a new skill become instinctive". We are not sure about the number, but the point is, if you want your tandem emergency procedures to become instinctive - you should practice them on every jump, forever - then maybe! Reverting to solo jumping emergency procedures during a tandem emergency has resulted in 9 tandem fatal accidents. That's why major DZs require the TI to perform a "handles" check after drogue deployment.

USPA LAUGHTER

They say that you can't count your passenger jump as a jump, but you can log the drogue-fall time as freefall. If the tandem student meets all the TLOs on the three tandem jumps of the USPA IAF Program, the jumps (if we can call them jumps) cannot be counted towards the student's "A" license as freefalls, but the freefall time counts. True! I promise!

We are all aware that we don't count static line jumps as freefalls, but if the tandem droguefall qualifies as freefall (as it should) then getting out of that airplane at 13,500 ft. ought to qualify as a jump.

There are about 400,000 tandem jumps made every year that will not count towards licenses and ratings for a reason that continues to elude us. Shouldn't USPA be trying to encourage the students, not deprive them of their accomplishments? Write, don't talk, to your Regional Director, requesting that the rules be changed to allow both the freefall time and the jump number to count towards ratings and awards. The BOD voted this in, but they will change it if you demand it.

TIPS FROM THE FIELD

Tell the "Tandee"! That was the message from two reports on rec.skydiving about the "Tandee" (Cute!) freaking out when the TI said he had a problem and was going to cutaway. Apparently they both thought that the Instructor was going to cut them away in order to save himself. Gee! And we thought that we knew what was on their minds. Another reason for thorough training of the student.

UNPROTECTED EARS

Lend me your ear takes on a new connotation when you lose one to a tandem riser slap. It does not grow back. Two of our Instructors needed quite a few stitches in their ear in order to repair damage caused by a riser slap on unprotected ears. Strong does teach the TI to wear protective head gear. Avoid that customized look!

USING STRONG ENTERPRISES' WEB PAGE

Find information at www.strongparachutes.com

1. Scroll down & click on "Tandem Direct".
2. On "**Tandem Direct**" you will find:
 - Previous issues of Tandem News for some timeless articles.
 - Tandem Canopies.
 - Dual Hawk System Information.
 - Tandem Instructor Information.
3. On "**Tandem Instructor Information**" you will find:
 - TICC prerequisites.
 - Currency requirements.
 - Forms page for FAA Exemption, Strong Waiver, Incident Report Form.
 - Videographer prerequisites.
 - TICC Schedule.

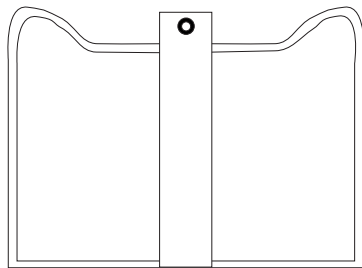
If after viewing the web site you wish to send us an e-mail, the address for the Tandem Dept. is:

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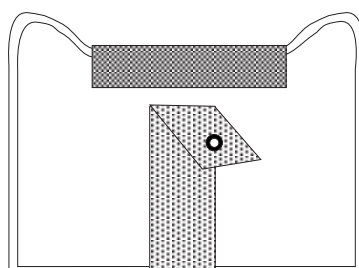
Include your e-mail and Web page addresses for our files.

Fix It!

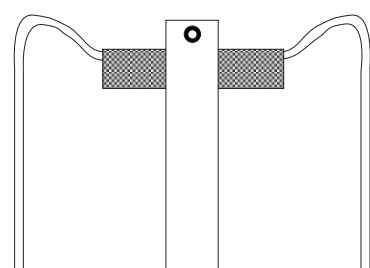
If the binding at the slot on the Spandura flap where the Kevlar® is supposed to exit is worn or torn, here is a fix. Take a piece of 3" wide Type IV webbing long enough (about 4 3/4 in.) to fit between the tuck flaps on the Spandura flap. Rip out the stitches on the Type XII (with the grommet) and peel it back far enough to insert the Type IV. Fold the Type IV lengthwise and wrap it around the edge of the Spandura, covering the damaged area. Sew it on 3 sides only, not along the folded edge. Restitch the Type XII. Use E-thread throughout.



Take out stitches.



Fold and sew along three sides only.
Not the folded side!!!



Restitch the TXII in place.

TANDEM ALTITUDE RECORD

Date: July 12, 1998.
Place: Ronbjerg (northern part of Denmark)
Altitude: 32025 feet.
Freefall time: 2.37 min.
Tandem Instructor: Svend-Peter Lund.
Passenger: Jimmy Stovring.
Cameraman: Morten Berger.
Security jumper: Ulla Berger.
Temp. at exit altitude: -58C/-72F
Aircraft: Martin Moeller's TURBO-LET-410
Parachute: Strong Dual Hawk Tandem System
Ulla and Morton Berger have reported that they were the safety officer and videographer on this record setting tandem jump. Congratulations to all!

RIGGING TIPS

Check the screws in the L-links on your drogue riser and reserve risers. They can work themselves loose.

AVOIDING PROBLEMS

If you opened one of the containers packed at Strong Enterprises and viewed the routing of the Kevlar® drogue bridle, you may draw the conclusion that because the four closing flaps are closed over most of this lower bridle, the flaps put enough pressure on the kevlar® so as to prevent the closing pin from being pulled.

Tandem Instructors Meeting at the PIA Symposium

PIA '99 Visit our booth (#67-72)

Ask those questions that you have, get updated information, find out about the new SET-360. We invite you to join us in a Tandem Instructor's meeting on Monday, January 11 at seven PM.
See you in San Diego!

Although we have thousands of jumps with this routing, we recently took a packed, new Dual Hawk with a #2 container and released the drogue 3-ring. We then pulled the ring, with a gage attached, until the flex pin cleared the closing loop. It required 19 pounds of force to pull the pin free. We are sure that you can duplicate this test for your own information.

As far as stowing the slack in the kevlar® bridle, the main concern is to secure as much of the bridle as possible. Loose items cause problems!

1. We chose to stow the portion of the bridle between the D-bag and the closing (flex) pin between the D-bag and the four closing flaps. If you prefer, you may want to stow this portion under the right closing flap only.

2. Any slack in the Type-IV closing pin bridle should be secured under the right closing flap. This slack could easily get caught on the under-side of a Cessna door, and pull the closing pin.

3. The slack bridle between the drogue riser and the closing pin should be divided between the space between the main and reserve containers and under the right closing flap. This is secured in order to prevent it from interfering with the deployment of the reserve pilot chute.

It is important for your well being that everything is neatly tucked away.

DUAL HAWK PARTS SIZING

Let's take a moment to make sure that you have a clear understanding of the sizing of the Dual Hawk

harness/container, and the main deployment bag (ALS D-bag). The main containers are sized 1, 2, or 3. They are marked on the white label sewn to the inside of the main container. Older containers only came in two sizes and were identified by the word Master or T-520, or the numbers 1 or 2, stamped inside the main container.

We have discontinued making the #1 container because of complaints of it being too small.

Master and SET-400 mains fit into the #2 containers. SET-400 and T-520 fit into the #3 container. Because a main could be fitted into different size containers you must order the D-bag for the size of the container, not for a specific main. D-bags are marked with a number 1, 2, or 3, stamped on the pocket (for spare rubber bands). If you cannot find the size marking, then furnish both the part number and the serial number of the container. These can be found on the white label located inside the reserve cover flap.

The standard Instructor harness size is Medium. They do come in Large or Small.

The standard passenger harness is Medium, but can be ordered as a Small. As an option to the standard of B-12 snaps on the leg straps, it may be ordered as a Step-in.

VIOLATING ANY RULES?

You are wide open to litigation if you are!

NO: Night, CReW, Water, or Head-down drogueless tandem jumps.

No: Low pulls, or tandem jumps in high winds. Sounds an awful lot like common sense!

MILESTONES

Bill Culver - 1000 Tandem Jumps
Perris Valley SS reports ZERO injuries in 6000 tandem jumps last year.

QUALIFYING THE PASSENGER

Some DZs actually turn passengers away for::

- Not being able to pass a physical endurance test.
- Not being of sound health, etc.

One world famous DZ requires that the passenger run a set course within a certain time frame.

Some DZs set various weight limits for passengers:

1. Maximum limit. Period! These weight limitations vary from 200 lb. to 220 lb. to 230 lbs.
2. A graduated price scale consisting of a base price that is good up to a certain weight (e.g. 200 pounds), and then more for each additional 10-pound increment. The extra money (beyond the base price) is passed on to the Instructor as an incentive. That's a nice idea!

SEXUAL BATTERY

Don't forget the guy that was convicted of committing sexual battery on a female during the canopy descent and fined \$90,000. Although we are not receiving complaints from passengers, we are advised by other TIs to watch particular Instructors because they are a little touchy-feely. The passenger deserves better, and the TI has so much to lose. It is not that difficult to be a disciplined professional.

RESTRICTIONS

Tandem Instructor Certifications issued by Strong Enterprises only apply to operations under Strong Enterprises' Tandem Exemption, and may not be used under any other Exemption or with any other Tandem Systems. These certifications are restricted for use with Strong Enterprises Tandem Systems, using Strong Enterprises approved components.

SUSPENDED

Suspended indefinitely: Steve Clark, formerly on the staff at Perris Valley, CA.

PRECAUTION WITH RESERVE PINS

Pull the slack in the reserve cables up into the pin area. This will: (A) keep the cable from binding in the hole through the ripcord handle during normal movements. This binding can cause cable creep, and slowly extract the pins from the closing loops. (B) you will now be able to turn the pins horizontally, thereby avoiding the possibility of pushing both pins out when sitting down in the aircraft.

CHANGING FASTENERS

In our search for something more durable than the Minax fittings that Strong Enterprises has been using to hold the ripcord to the passenger and Instructor harnesses, we have settled on the plastic squeeze buckle.

We think that the one inch size is easy to grasp, even with gloves, and is strong enough to do the job. If you would like to change to this type of buckle you may order a kit (with all parts attached to webbing, plus instructions for easy installation) from Strong Enterprises.

TANDEM FATALITY

On September 19th there was a tandem fatality in Ciara, Egypt.

The Tandem pair were performing a Phase II tandem certification jump.

Findings:

- 1)Both Instructor and passenger had been through a TICC.
- 2)They were performing a Phase II tandem jump.

- 3)The drogue had been deployed and tangled around the passengers right leg.
- 4)Both Instructor and passenger's drogue release handle had been pulled.
- 5)The drogue bridle had released from the drogue riser.
- 6)The Instructor's cut-away release handle had been pulled.
- 7)Examiner Safety Handles for the experienced passenger were not installed on this jump, (therefore the passenger could not activate the reserve parachute).
- 8)The reserve ripcord was still in it's pocket.
- 9)The Cypres AAD was severely damaged and not operable.
- 10)Reserve container was closed with pins still in place.
- 11)Main container was closed with flex pin still in place.**Most probable scenario:**

The tandem pair exited the helicopter last and did not achieve a proper drogue deployment attitude before deploying the drogue. It became entangled with the right leg of the passenger. At some point, the drogue release handles and cut-away handle were pulled. There was no evidence to show that the reserve ripcord was pulled. The Cypres AAD was known to be non functional before the jump. Examiner Safety Handles were not used on that jump. It is not known how the drogue was packed.

QUIZ ANSWERS

A. 3000 ft. AGL.

B. No! If the batteries were not changed in accordance with Airtec policy, then they could have enough life in them to present the "O" in the window, but not enough energy to fire the cutters. Change the batteries when Airtec says they should be changed!

C. YES! It is mandated by both Strong Enterprises and Airtec.

CYPRES QUIZ

- A. What altitude must you go above in order for the CYPRES to arm itself?
- B. If the window shows 0, can we assume that the CYPRES will fire?
- C. Is the four-year recertification mandatory?

Answer on page 7

GEAR FOR SALE:

Randy Shin: '93 DH w/ 102 jumps on Master main, 0- reserve rides.
POC

David Clarkson: 937 492 3100 days, clarkson@bright.net

Tad Whitten: 217 623 5313; New T-520 w/logo for sale.

**Merry Christmas and a Happy New Year
to You
from all of us at
Strong Enterprises**



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Address Correction Requested

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