SERVICE BULLETIN

Date: 5/23/2005

Service Bulletin #: PDSBLTN-002, RWSBLTN-230505

Subject: Inspection of Tandem VTC-III reserves (VR-360) A Line Attachments and Steering Lines.

Status: MANDATORY

IDENTIFICATION:

Relative Workshop Tandem 360 reserve part number VTCIII, manufactured by Performance Designs Inc.,

Group-A: Built on or after July 1, 2003 in serial number range VR360-004801 to VR360-005353.

Group-B: Built prior to the date range specified above, in serial number VR-360-000001 to VR-360-004800

BACKGROUND:

I. A-Line Attachment Tab

During a routine final inspection of a VR-360 reserve, a discrepancy was discovered in the positioning of the leading edge A-line tab bartack. The resulting investigation indicated it is likely other VR-360 reserves within **Group A** may have passed through our system without detection of this shift in positioning, and may have been placed in service. The resulting misalignment may affect the structural integrity of the A line attachments.

Therefore inspection of VR-360 canopies in the date range specified above as "**Group A**" is mandatory at or before the next repack, or 120 days whichever comes first.

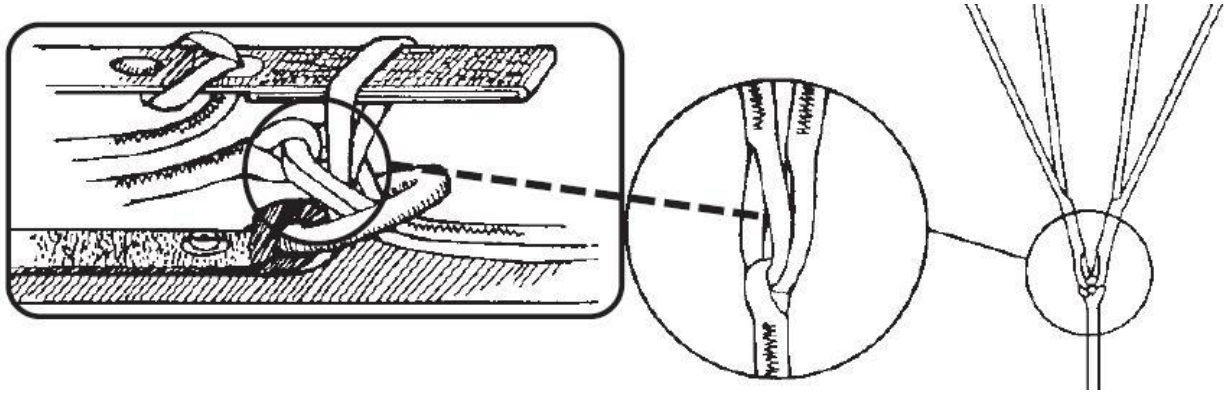
As an additional precaution, all VR-360s in "**Group B**" must be inspected during the next repack. Canopies from either group passing this inspection may be returned to service.

Note: Part of the investigation of this A-line tab alignment shift involved field inspections and various strength testing on these line tabs. The inspections helped identify a date range and the strength testing helped identify the degree of strength loss. The strength testing included live jumps to tandem terminal no drogue openings on a canopy with purposely misaligned A-line tabs to a degree far exceeding the worse case scenario found during inspections. The strength tests also included heavy drops at 600 lbs and 207 MPH which exceeds normal use. The canopy finally broke after this repeated abuse at the one line tab that was misaligned to catch only 10% of the bottom skin leading edge tape, however it did appear to be landable.

To date, there have been no reported failures or damage to any of the VR-360's from this misalignment. The testing done indicates that affected canopies should be structurally adequate to withstand the loads from normal use. However, canopies with misaligned tabs are not as strong as ones with proper alignment. The uninsured Relative Workshop Inc. wants to rework all affected canopies as soon as possible, while minimizing the impact on users.

II. Steering Line LST Loop

Some VR-360's were manufactured with the lower control line loop to be as large as the upper control line loop at the cascade. While there is no impact to the structural integrity, or performance of the canopy, this situation opens the possibility for the riser brake-setting loop to be misrouted through the lower control line instead of the correct location in the upper control line as shown below. Improperly set brakes can result in brake line failure during opening and unusually high opening forces.



Correct Brake Setting

SERVICE BULLETIN:

A-Line Attachment Tab

1. Inspect all ten of the A-line attachments per the attached Inspection Procedures, Section 1, A-line Attachment Inspection Procedure.
2. If any of the 10 A-line tab bartacks do not comply with the proper alignment the parachute must be brought into compliance by an approved service facility. Adjusting the line tab requires a specialized heavy-duty bartacker not commonly found in the field.

Steering Line LST Loop

1. Inspect the LST attachment loop per the attached Inspection Procedures Section 2, LST Loop Inspection.
2. If either steering line does not comply with the proper configuration of the loop, the parachute must be brought into compliance by a certificated rigger following the provided instructions prior to placing back in service.

Record of Compliance

Group A (serial number range 004801 to 005353**)**

1. Notify The Uninsured Relative Workshop Inc. by Fax 386 734 7537, or email rosi@relativeworkshop.com with the following information:
    a. Serial Number
    b. Date of manufacture
    c. A line tab inspection results
    d. Steering line inspection results
    e. Name, address, phone number, email of rigger doing the inspection
    f. Date of inspection
    g. Corrective action taken, if any

2. If the canopy complies with both the A-line tab inspection and the steering line inspection, or after the canopy has been brought into compliance, Record "SBLTN-002 complied with" on the packing data card and WARNING label/TSO placard (in the space to the right of FAA TSO approval).
3. The canopy may then be placed in service.

Group B (serial number range 000001 to 004800**)**

Notify The Uninsured Relative Workshop Inc. of any nonconforming canopies within this group with the same information listed above for group A.

COMPLIANCE DATE:

Parachutes in **GROUP A**: At or before the next repack, or 120 days from this notice, whichever comes first.

Parachutes in **GROUP B**: At the next repack.

AUTHORITY:

The Uninsured Relative Workshop
1645 Lexington Ave
Deland, Florida 32724
Telephone 386-736-7589

ADJUSTMENT PROCESSING

Canopies needing the A-line tabs adjusted should be sent to either of the following locations:

Performance Designs, Inc.
1300 E. International Speedway Blvd.
Deland Florida 32724
Phone 386 738 2224
Ask for Robin or Donna

Fallschirmdepot Ostermunchner Gmbh
Tolzer Strabe 14
D-83677 Greiling
Phone 08041 / 70319

Customers in Europe should contact Fallschirmdepot. All other customers should contact Performance Designs. In an effort to best service all customers, both facilities will be scheduling this work. Please contact the appropriate facility for shipping arrangements and scheduling before shipping the canopy.

- If processed within the required compliance dates, adjustments of the A-line tabs performed at either of the two locations listed above will be at no cost to the owner, and a pro-rated reimbursement for repacks will be available for those canopies requiring inspection and repack prior to the next scheduled repack.

Inspection Procedures

1 A-line Attachment Inspection Procedure

1.1 Rib Leading Edge Tape Inspection Criteria

1.1.1 Requirement

The A-line attachment bar-tack must be sewn through at least 50% of the width of the loaded-rib leading edge tape.

1.1.2 Evaluation

a) Using a ruler, find the centerline of the rib-leading edge tape. This may be lightly marked with pencil if necessary.

b) Using the ruler, extend the centerline of the leading edge tape to the vicinity of the bar-tack.

c) Observe the location of the bar-tack with respect to the tape centerline.

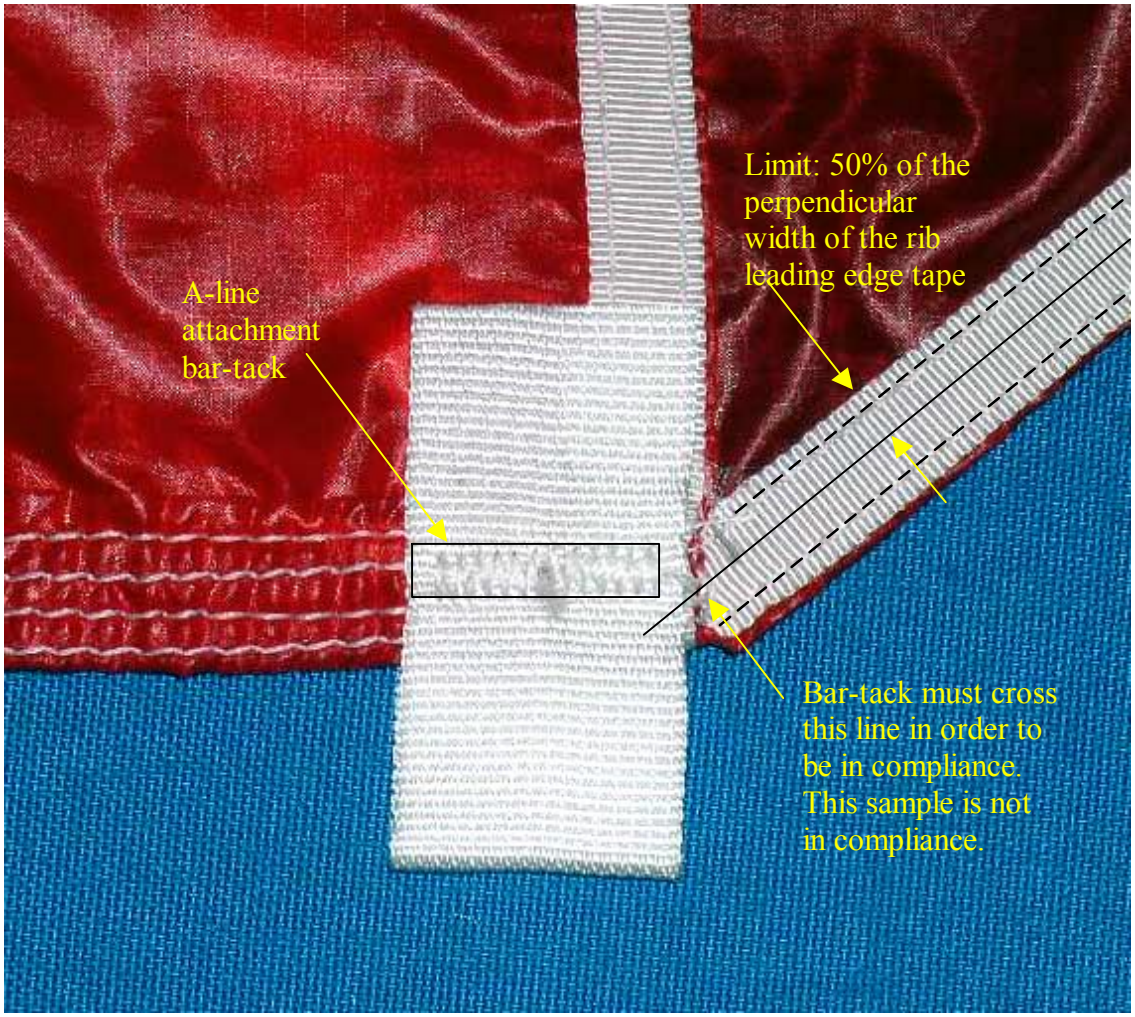


Figure 1 Rib leading Edge Tape Inspection

1.2 Bottom Skin Leading Edge Tape Inspection Criteria

1.2.1 Requirement

The A-line attachment bar-tack stitching must extend forward of the forward stitch line on all the bottom skin leading edge tapes. Inspect both sides of tab.

1.2.2 Evaluation

a) Locate the forward stitch row of the bottom-skin leading edge tape.

b) Using a straight edge, extend the forward stitch line of the leading edge tape to the vicinity of the bar-tack.

c) Observe the location of the bar-tack with respect to the tape stitch row. The bar-tack may or may not overlap the edge of the line-tab, but it must cross the stitch-row and be going through the tab at this point.

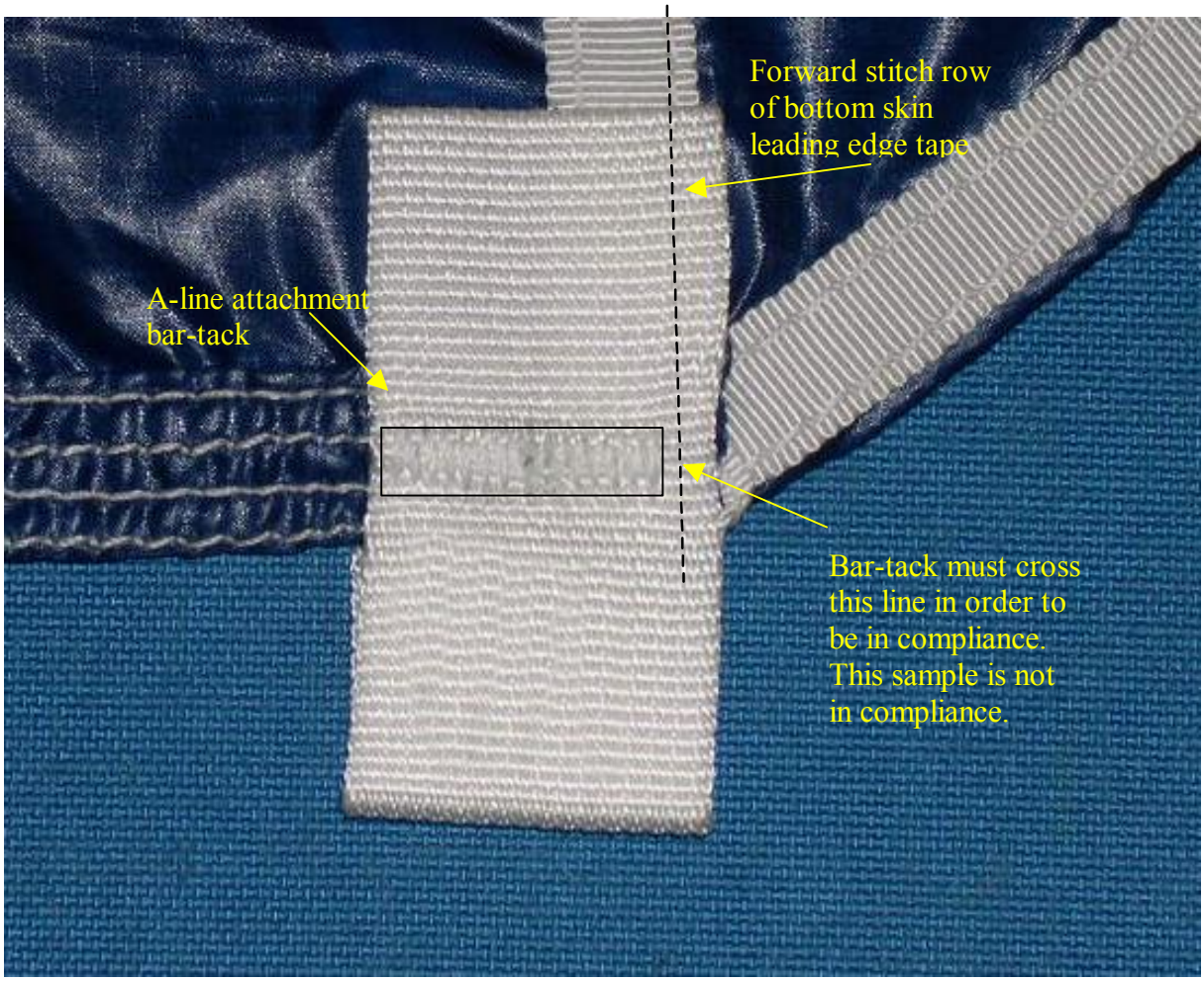


Figure 2- Bottom Skin LE Tape Inspection

1.3 Examples of Good Alignment

Figure 3 Acceptable Line Attachment Bar Tack

Figure 4 Acceptable Line Attachment Bar Tack

2 LST Loop Inspection Procedure

2.1 LST Loop inspection Criteria

2.1.1 Requirement

Check each of the LST's (lower steering lines, the line that passes through the toggles) where it loops around the UST (upper steering line). This loop must be small enough that the brake setting loop on the risers cannot be pulled through.

2.1.2 Evaluation

Using Figures 7 and 8, evaluate the LST loops.

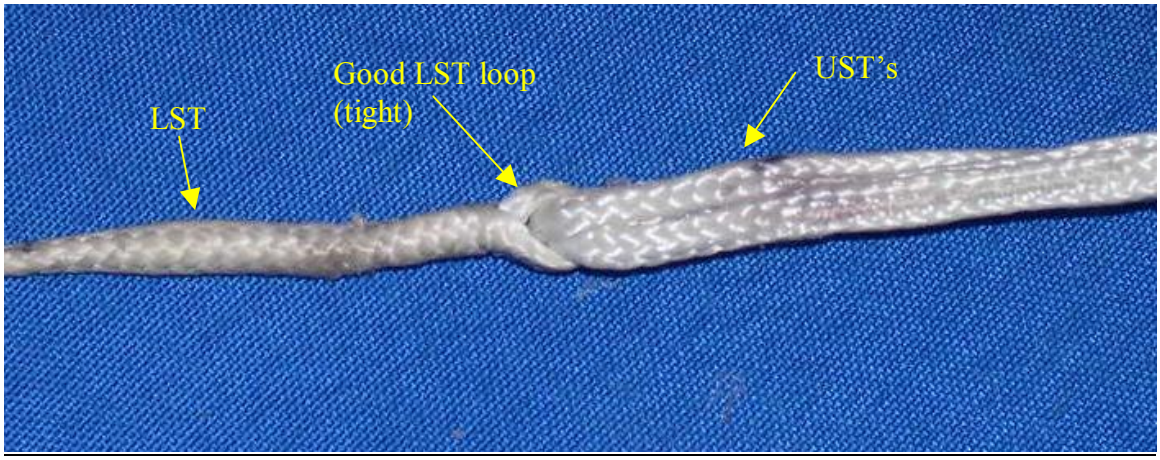


Figure 5 Good LST Loop

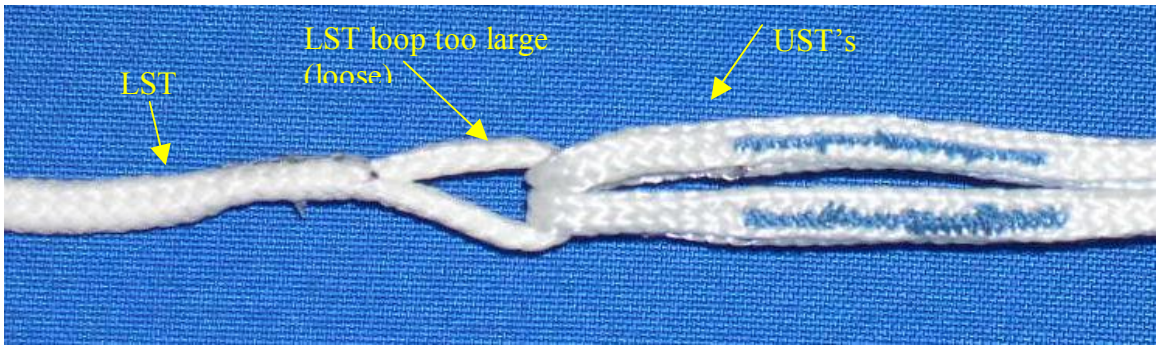


Figure 6 - LST Loop too large

3 LST Loop Corrective Action

The LST loop may be reduced to an acceptable level by adding a bar-tack or zigzag stitch to reduce the open legs of the loop. The following includes directions for reducing the existing LST loop.

3.1 Requirement:

The work must be performed by a certificated rigger. The stitching must be Nylon E-thread. Stitching may be done with a single throw zigzag, double throw zig-zag, or a bartacker with between 28 and 42 stitch conventional or center start pattern. Stitch pattern should be between ½" and 5/8" long, and 1/8" wide. For zigzag stitching, the preferred pattern is to start at or near the existing bartack, sew toward the UST, and then reverse back to the starting point. Zigzag stitching shall be 12 to 16 stitches per inch for single throw, and 8 to 12 stitches per inch for double throw.

3.2 Loop Adjustment

The stitch shall be installed to the legs of the LST loop between the existing bar-tack and the loop around the UST lines as shown in Figure 9. The UST's may be left in place while this work is done, given sufficient care to avoid stitching thru the UST material.

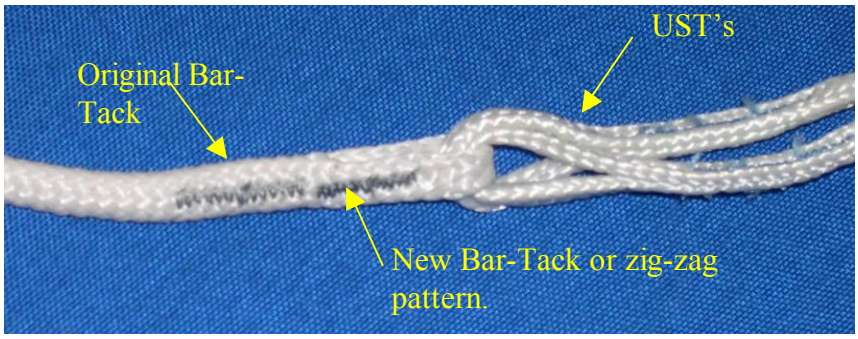


Figure 7 Top View, LST Loop Adjustment

The stitching shall not overlap the existing bar-tack or penetrate the UST material passing through the loop. See Figure 10. A small amount of open area within the loop is permissible after the repair.

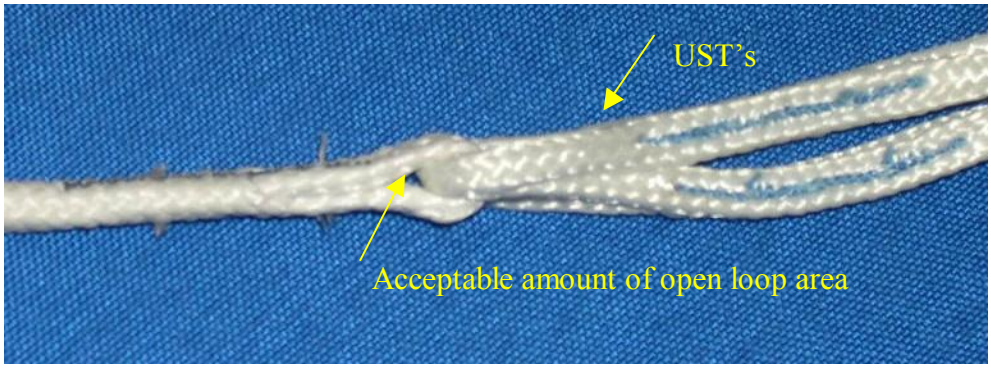


Figure 8 Side View, LST Loop Repair.