



1972 NE 3rd St., PMB #187, Bend, OR 97701 541 382-6361 541 382-6359 fax
Email: support@crmojo.com Home Page: www.crmojo.com

Ace and Black Jack Upper Control System Upgrade Dec. 2004

Background:

The Ace and Black Jack canopies utilize a 5-line upper control system encompassing 2.5 cells of control on each side of the canopy. This system provides excellent turn and flare response. However, in limited circumstances, we believe this configuration has also contributed to reduced deployment heading consistency when deploying the canopy with a slider.

Application:

All Ace and Black Jack models manufactured prior to December 2004

Priority:

As required. In 4 years of production to date, verifiable accounts of chronic deployment heading issues number less than 1% of canopies manufactured. Therefore this upgrade is not considered mandatory. It is recommended only for those who are, or who suspect they are, experiencing problems with slider-up deployment heading consistency.

Tools Required:

- Hemostat or small spring clamp
- Seam ripper
- 6.0" ruler
- 42-stitch bartack or zig-zag sewing machine capable of sewing 69 nylon thread
- Finger trapping fid or insertion tool

Procedure:

<<Overview>> This procedure will yield 5 upper control lines per side, all equal length, attached to a total of 2 cells per side. It can be safely performed by any rigger or parachute repair technician.

<<STEP 1>>

Install the provided tail tabs onto the trailing edge seam in the number 5 position.

-The 5th position is the 5th chord-wise seam counting from the outside.

- Align the tab left-to-right with the intersection of the 5th lower surface chord-wise seam and the tail seam.
Position the tab so there is a 1.0" (2.54cm) loop protruding beyond the tail seam. We recommend using a hemostat or other clamp to ensure the tab is properly positioned and aligned prior to sewing.
- Attach the tab by sewing a .625" (16mm) by .125" (3mm) bartack or zig-zag pattern along the tab's width. This stitch pattern should be positioned as close as possible to the most rearward stitch line of the trailing edge seam. The goal is to have the stitching no closer than .125" (3mm) from the loaded stitch line of the tail seam.
- Repeat this process for the opposite side of the canopy.

<<STEP 2>>

Reposition upper control lines.

- Unpick the bartacks closest to the canopy on the most outboard (#1) and most inboard (#5) upper control lines. Do this for both sides of the canopy.
- Untie the #1 line and retie it in place but adjust it to match the length of the adjacent (#2) line. The new length is shorter than the original. The excess line can simply be reinserted into the line.
- Untie the #5 line and retie it to the new tail tab in position #5. Visually match its finished length to equal that of the adjacent (#4) line. The new length is shorter than the original. The excess line can simply be reinserted into the line.
- Verify that all five lines are of equal length and free of twists or braids.
- Repeat this procedure for the other side of the canopy.
- Using a bartack or zig zag machine, resew the #1 and #5 lines on both sides of the canopy with a low density stitch pattern approximately 1.0 (2.54cm) long.

Note: There is no need to remove the old tail tabs from the #6 position. They will do no harm and removing them can potentially damage the canopy.

What to Expect:

With the control system modified as described, you can expect increased slider-up deployment heading consistency and slightly softer openings. There is no need to modify your pack job, reefing choices or deployment brake settings. However as always for best heading performance, we recommend the use of the fine mesh slider and indirect slider control only.

In-flight performance is virtually identical, toggle initiated turns and flare response are hard to distinguish from the original configuration. You will find rear riser heading corrections are slightly less sensitive to input and easier to control.

If you have any questions or concerns please feel free to contact us.