UNINSURED UNITED PARACHUTE TECHNOLOGIES LLC.

Reserve CYPRES Closing Loop

THIS TASK COVERS:

- ☐ Fabricating
- ☐ Setting Loop Length

INITIAL SETUP:

Tools

Scissors
18" (45.7cm) Ruler
Closing Plate
T-Handle Bodkin
Finger-trapping fid or wire
Ultra fine point Sharpie® Permanent Marker

Materials/Parts

CYPRES Disc
CYPRES Loop
Thread, Nylon

Equipment Condition--??

Lay out on packing table or other suitable area.

Personnel Required

Parachute Rigger

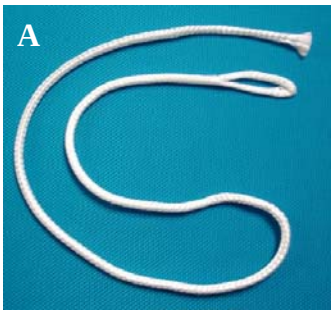
NOTE

The terms "locking loops" and "closing loops" are synonymous, and are used interchangeably. Fabric locking loops have become the preferred method of closing most modern parachute containers. Dating from the mid 1970s, the most common material was Type-III suspension line. It was soon recognized that other materials such as nylon were superior for this use. Today Spectra® is widely used for reserve locking loops while nylon has remained preferred for main loops due to its durability. The following technique will demonstrate the assembly of the CYPRES loop.

ASSEMBLY

(RESERVE LOOP)

1. Pictured on right side is a CYPRES loop, [Figure A] and a CYPRES disc. [Figure B]



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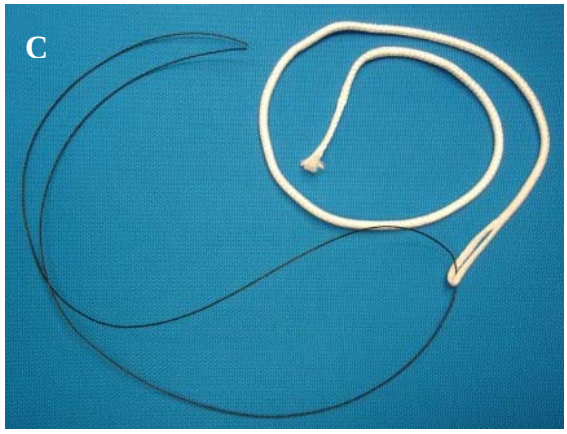
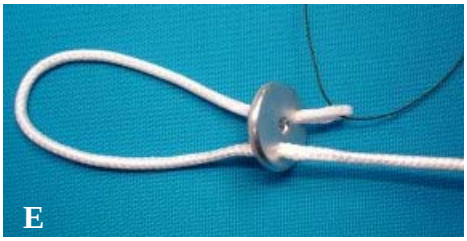
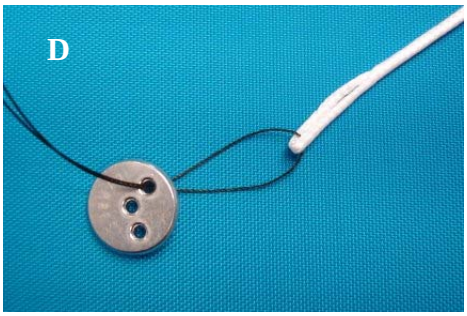
NOTE: The instructions described in routing, and setting the CYPRES loop are taken from the "CYPRES Riggers Guide" published by Airtec GmbH in 1995. This just goes into more specific detail.



2. Cut a piece of nylon thread approximately 20" (50 cm) long. Feed one end through the CYPERS open loop. This piece of thread will be used to thread the loop though CYPRES Disc holes. [Figure C]

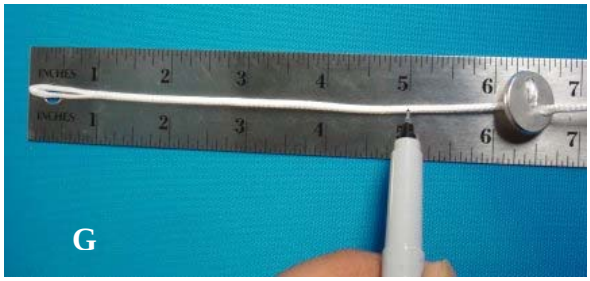
3. These series of pictures demonstrates the proper routing of the CYPRES Loop, through the CYPRES Disc. [Figures D-F]





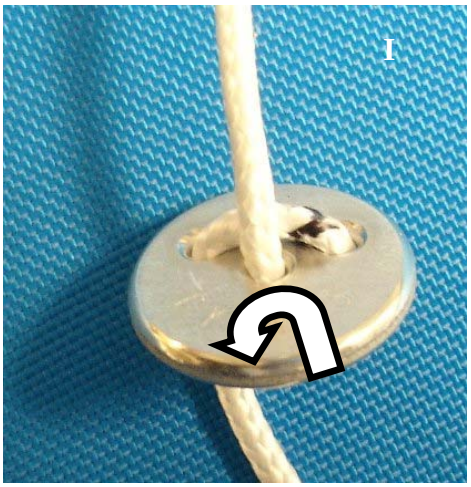
4. Cinch down loop around the disc, and stretch out about 6" (15.25cm) [Figure G]

5. Grab your 18" (45.7cm) ruler, place assembled CYPERS Loop over, and mark where necessary. [Figure G-H]
NOTE; The 5" (12.7cm) mark represents an arbitrary length, as the loop length will vary depending on environment, canopy/container combination. Reference chart for loop length at end of instructions.



6. Pull mark around to the top of disc, between the side hole opposite the tail, and the center vertical line. [Figure I]

7. Make a double overhand knot, and cinch down using the open tip of the t-bodkin. [Figure J]



8. Make a single overhand knot, and bring it up next to the double overhand knot. [Figure K]

9. Make another single overhand knot, and bring it next to first single overhand knot. This is very similar to what is known as a surgeons, or riggers knot. [Figure L]

NOTE

A knee plate is widely recognized as part of a set of positive leverage devices for closing the reserve container. Other designs, shapes, and sizes of knee plates have emerged over the years. Pictured below is what is known as a Y-plate. It serves the same purpose of the knee plate, but it offers more freedom of movement. Regardless of which design is used, it ultimately serves the same purpose.

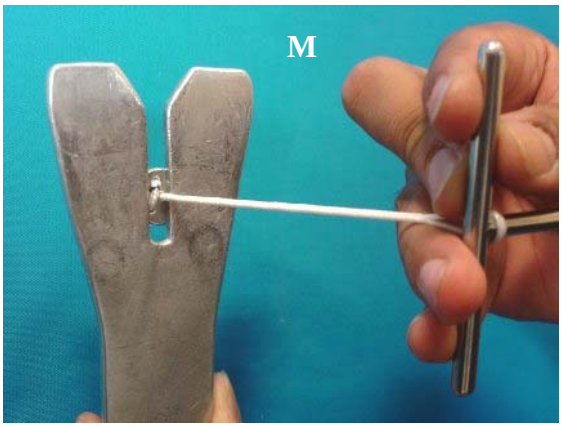
CAUTION

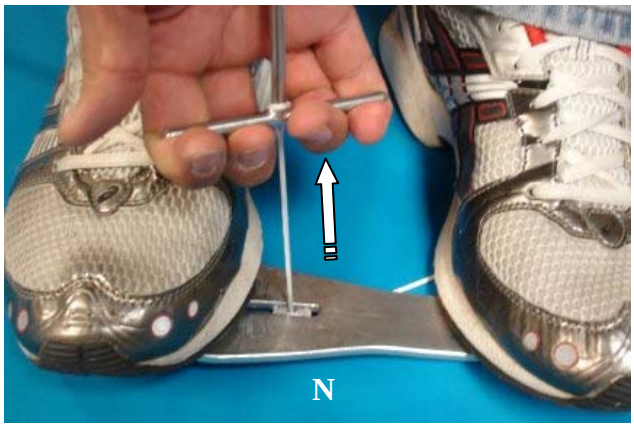
The middle gap shown below is .25" (.063cm) wide. This distance works well for its original design, and also works well for making CYPRES loops. The disc must be lined up using the routed loop over the top of the disc lined up parallel with the side edges of the Y-bar, but not coming in contact. It is also very IMPORTANT to keep your tools clean, and clear of any burrs that might damage any component of the container system!

PRE-STRETCHING;

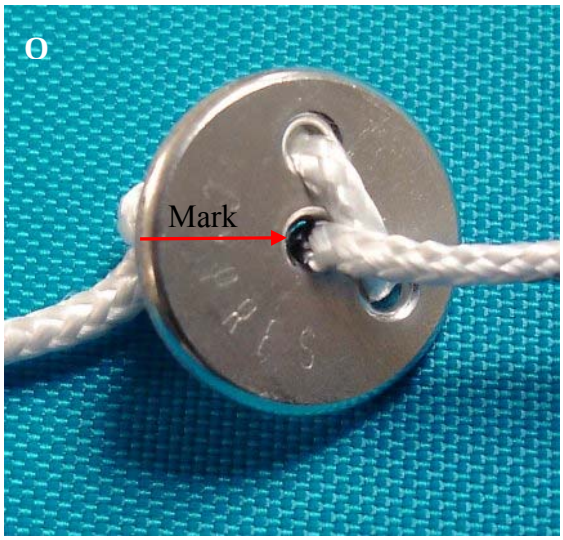
1. Pass a T-bodkin end through the CYPRES loop. Position the disc in the Y-bar per description mentioned above. [Figure M]

2. Anchor Y-bar under feet. IMPORTANT; Y-bar is never resting on the floor. DO NOT STAND ON IT as this will damage loop from friction. Rest weight on heels. Here I am always pulling up and stretching loop taught. Pulling with enough force, pre-made surgeons' knots will cinch down, and loops will stretch taught. This should be done until loop will not slide/slip any further. [Figure N]





3. The action described in step 11 will pre-stretch, and slide mark up to the top edge of disc. [Figure O]



ADJUSTMENT;

1. If mark slips past top surface of disc, [Figure P] adjust length with tail s-folds [Figure Q]

2. Complete CYPRES loop with length adjustment below disc. [Figure R] This method allows adjustments up to .4" (10cm)

LOOP LENGTH

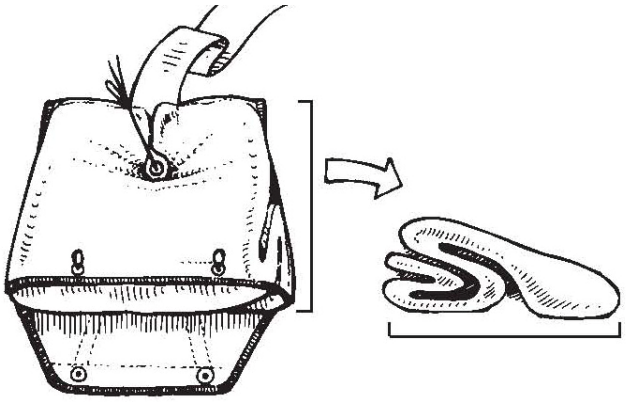
NOTE

Before we get into loop lengths, let's assume bulk management, has been properly distributed. A proper bulk distribution is one in which most of the bulk is contained near the bottom of the reserve container, and not the **MIDDLE**, or the **TOP**! [Fig 1]
This is the stage where you can determine the correct loop length by using a reference from the reserve container.
Make sure the inside bottom corners of the reserve container are filled with the lower s-folds of the bagged reserve canopy. This little tip can make up to ½" (1.27cm) difference on the loop length depending on container/canopy combination.

The techniques described below have been proven over hundreds of pack-jobs, and work very well in any environmental condition. They have also been taught at various rigger courses including PIA seminars. The rigger is basically setting the loop length based on his/her own individual pack-job. The staged loop is not used, as it does not affect loop length.

The canopy and container combination used below is a V306 with a PD106R and no AAD. An AAD mainly affects loop length on the Micron line of containers. The smaller the container the more it is affected.
TIP: An original first generation CYPRES takes up roughly 10sqft of canopy pack volume.

Fig 1



Step 1

Close reserve flap #1. Holding down flap with foot, draw pull-up cord towards you with arm using about 20lbs pull force in the direction towards yoke. [Step 1, and Fig 1a]

Fig 1a

This example demonstrates a loop that is **TOO LONG.** It was set at 5 ¼" (13.3cm)

Fig 2

NOTE:
When a loop is too long, the first clue one runs into is shown in fig 2 series pics.
Aside from not struggling, and being an easy pack-job to close, The pilot chute will be really loose, and rock back and forth as shown in [Fig 2a - 2b]

Fig 2a

Fig 2b

Fig 3

Once the pack-job is completed, another clue will reveal itself. The perimeter of the reserve pilot chute cap will clearly show its outline on the side flaps. NOTE: There are 2 common scenarios associated with this:

Fig 3a

1) Anything the outline comes in contact with will leave a dirt mark, and if left without cleaning, it will become permanent!

Fig 3b

2) After 5 pulls tests, one can see the average PEAK force is 7.5lbs. This is on a fresh pack-job, and it is common knowledge it relaxes over time. Keep in mind the minimum pull force is 5lbf applied in the direction given the lowest pull force.

Fig 4

This example demonstrates a loop that is **TOO SHORT.** It was set at 4" (10.1 cm)

Fig 4a

If one cannot pull the Cypres loop past the edge of the binding tape using method described in Step 1, **it will not work,** and a new loop must be made! Refer to first chapter. One should not need to use positive leverage device at this point otherwise 2 scenarios will occur:

1) You will either damage, or break the loop, and.

2) You will also bend, damage the reserve anchor plate.

Fig 5

Fig 5a

The ideal length for your Cypres loop is as follows:
Bring the apex of the Cypres loop 3/8" (.95 cm) to ½" (1.27cm) past the edge of the binding tape on reserve flap #1 [Fig 5 -5a]
This loop length was set at 4 ½" (11.43cm)

Fig 6

When you have a proper or correct loop length, the reserve pilot chute will sit firmly when temp pinned, and not rock back and forth. You may have very little rocking back and forth. This is normal.


Fig 7


Fig 7a

Once the pack-job is complete, one can see how the side flaps have a convex surface profile. The outline of the reserve pilot chute cap on the side flaps is non-existent. [Fig 7 -7a]

Fig 8

After 5 pulls tests, one can see the average PEAK force is 15.1lbf applied in the direction given the lowest pull force. This is on a fresh pack-job, and it is common knowledge it relaxes over time.


Fig 9

Recap on actual loop length.

This loop was made and set at **4" (10.16cm)** It is **TOO SHORT!** A new longer loop **must** be made! [Fig 9]

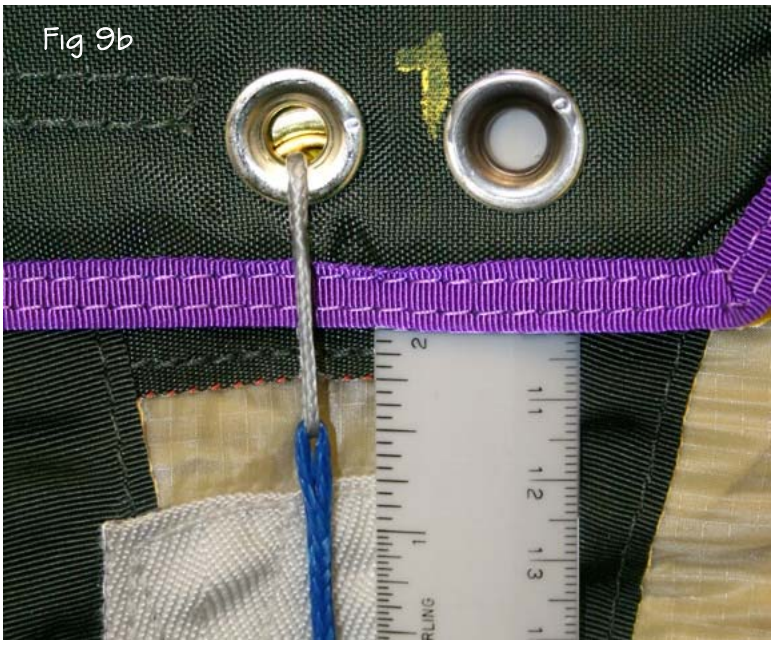


Fig 9b

This loop was made and set at **4 ½" (11.43cm)** With adequate bulk distribution, proper canopy/container combination, and regardless of what environmental, conditions, if you can bring the apex of the CYPRES loop ½" (1.27cm) past the edge of the binding tape on reserve flap #1, (following step #1) it will be the ideal length to work with! [Fig 9b]

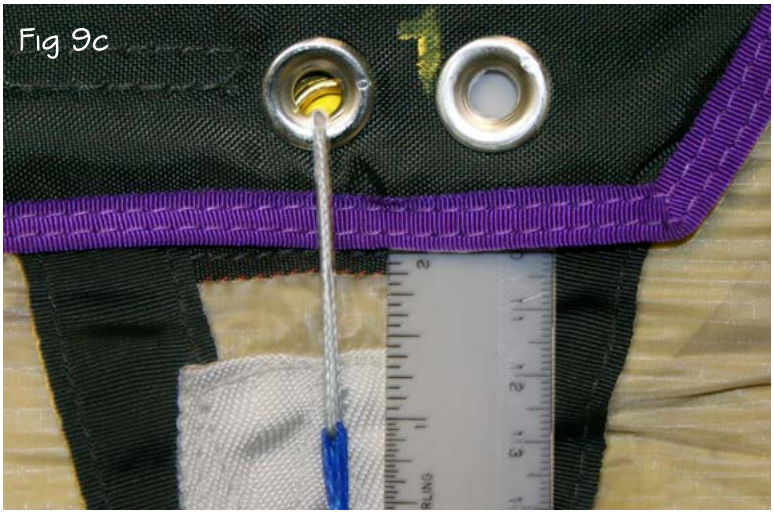


Fig 9c

This loop was made and set at **5 ¼" (13.33cm)** As mentioned before this loop is **TOO LONG.** You can adjust its length by following steps described in the adjustment section above. If it is still too long once adjusted, make a new loop. [Fig 9c]

VECTOR 3 RESERVE LOOP LENGTH

Container Size	Reserve Canopy	Cypres Y/N	Loop Length
V303-304	PD 106R	Y	4 5/8" (11.75cm)
V303-304	PD 106R	N	4 3/8" (11.1cm)
V306	PD 113R	Y	4 ¾" (12cm)
V306	PD 113R	N	4 ½" (11.43cm)
V308	PD 126R	Y/N	4 ¼" (10.8cm)
V310	PD 143R	Y/N	4 3/8" (11.1cm)

These numbers where all collected before the introduction of the Optimum Reserve by Performance Designs. It is well understood the Optimum Reserve CONFORTARBLY packs 1 (One) size smaller than the same size predecessor PD reserve!

The V314 and V304 containers models house the same size canopies, the main difference is the reserve container is 2" (5cm) longer. The same is true for the V306 and V316, models and V308 and V319 models. The rigger has more room to (Sculpt) shift material around. Shorter s-folds, and longer ears allow for a shorter loop.

V314	PD 106R	Y	4" (10.16cm)
V314	PD 106R	N	3 ¾" (9.5cm)
V316	PD 113R	Y/N	4" (10.16cm)
V319	PD 126R	Y/N	4 ¼" (10.8cm)

V348	PD 160R	Y/N	4 ¼" (10.8cm)
V350	PD 176R	Y/N	4 ½" (11.43cm)
V355	PD 193R	Y/N	4 ½" (11.43cm)
V357	PD 218R	Y/N	4 ¾" (12cm)
∑Sigma	VR360	Y	4 7/8" (12.4cm)

Disclaimer

These numbers where all collected in a controlled, air conditioned environment. Always practice and use good judgment when setting loop lengths, and packing reserves in different environmental conditions.

The models above are some of the most common Vector 3. Use this chart as a guide for ones not listed.